# EazyRF V4.72 Intermodulation calculation

**User Guide** 

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# 1 - Presentation

Version 4 of EazyRF is the continuation of version 3 with all its facilities and new features.

The presentation was first improved, the views have more color to put the sections more in evidence.

The list of Variable Frequencies devices and Fixed Frequencies devices have been merged for greater flexibility.

A new Device Group list is added to EazyRF. It is thus possible to group together devices and assign frequencies simultaneously.

Here are some examples: a BTR-800 A2 group contains the BTR-800 A2-TX and the BTR-800 A2-RX, an ABC Theater group contains all the devices in this theater, and the assigned frequencies can be included for each device.

There is no limit on the number of devices in a group.

Searching for a device in the device list can now be done more easily. For example, a search can be done for a microphone type device whose starting frequency is greater than one value, or less than another, or between two values.

EazyRF can transfer data to Wisycom Manager software (Frequency Table), either by the clipboard, by saving a file (.xwdf), or directly in the "Frequency Table" window.

Finally, other tools have been added: automatic start frequency of devices, the frequencies are not necessarily assigned consecutively from one type of device to another, as far as possible; two versions of a document can now be compared.

EazyRF now uses the .NET Framework 4.5.

We find of course all the features of version 3 without having messed up the layout of commands, no need to relearn where are the functions of EazyRF, no loss of efficiency.

So we always have the same facilities: NTSC video standard, PAL and SECAM, reading files created by frequency samplers (scanner) from several manufacturers, with this data we can create interferences list or TV channels; modules Global View, Detailed View, Frequency Plan, Spectral View, On Tour.

EazyRF always requires a USB key to validate the username and its activation code. The key must remain in place during program execution. A license file can also be used but it is linked to a hardware configuration (one and only one system). More information on the eazyrf.com website.

The USB key is available in two formats, USB-A (standard) and USB-C:



To install EazyRF, download the application on the site: : <u>http://eazyrf.com/english/windows.html</u>. It is necessary to install the version adequate to your operating system Windows (32 or 64 bits), otherwise the drivers of the USB key will not work.

A new directory is created when you install version 4, which is C:\Program Files (x86)\EazyRF V4. Versions 3 and 4 can be installed on the same computer (version 3 is installed in the C:\Program Files (x86)\EazyRF V3.2 directory).

Now look at this environment.

# 1.1 Launching

At starting up the following screen appears:

EazyRF V4.56.220104								– 🗆 ×
🗋 📴 😅 🛛 🛛 Options About 🛛 Language	2							🛜 Régis Banville
New								₹
🗋 💕 🖆 🖬 🖬 🖏 🖾 🔎 🗎 📍	W Equip 🖌 📸 SECAM L 💝 DAB 🖌 🖌 Avail Fr	req   👗 Grp Sect Dev 🕒 Grp Se	ect Dev 🔃 🎯	Grp Sect Dev 5th Order	Dev 🔘 Freq 🕴 Freq	👘 🤭 Notes 🔹 Freq Chan	ges 🔹 Global 👻 Full Auto	omatic 👻
List of Devices A-Z 0-9	Group					E L L		
۹ ۵		Add   Delete		Add Fixe   Add Variable	L Delete	Evaluate Freg List   Devices   Man	al I Baseleulata I Class	
Devices Dev Group 🛡	Add   Delete   Interrelations	- Add   Delete		Add Fixe   Add variable	Delete	Freq List   Devices   Mail		
Sennheiser SR2050 IEM Aw	Mainte: New document							EazyRF V4 User Guide
TV Sennheiser SR2050 IEM Aw+	-							
Rj Sennheiser SR2050 IEM Bw	Group 1							^
× Sennheiser SR2050 IEM Cw	Section 1							•
Rj Sennheiser SR2050 IEM Dw Sennheiser SR2050 IEM GBw								
Sennheiser SR2050 IEM Gw								
Sennheiser SR2050 IEM Gw1								
× Sennheiser SR2050 IEM JA								
Sennheiser SR2050 IEM K								
Sennheiser SR2050 IEM K+ Sennheiser SR300 IEM G3 A								
Sennheiser SR300 IEM G3 B								
× Sennheiser SR300 IEM G3 C								
× Sennheiser SR300 IEM G3 D								
Rj Sennheiser SR300 IEM G3 E Sennheiser SR300 IEM G3 G								
Sennheiser SR300 IEM G3 GB								
Sennheiser SR300 IEM G3 K+								
TV Shure AD4D G53								
TV Shure AD4D G54								
TV Shure AD4D G55 TV Shure AD4D G56								
TV Shure AD4D G57								
TV Shure AD4D G57+								
Shure AD4D G62								
Shure AD4D G63 Shure AD4D H54								
× Shure AD4D JB								
Ri Shure AD4D K53								
Shure AD4D K54								
Rj Shure AD4D K55								
Rj Shure AD4D K56 Rj Shure AD4D K57								
Rj Shure AD4D K57								
Rj Shure AD4D L54								
Var Device	Group - Section - Device	Frequency fixed/var device	No	Description	Freq	Intermodulation	Avail Freq	Options (Dev)
Based on	Group & Group 1	Tolerance 2 TX	1	- contraction			cruit ray	Protected
Туре	Section M Section 1	Tolerance 3 TX	2					Priority
Nb Freq Simult	Dev Desc	Separation	3					Minimum Evaluation
Tolerance 2 TX		<ul> <li>Image</li> </ul>	4					Descending order
Tolerance 3 TX	Wished Freq :	Filter	5					Avail Freq
Separation	Туре	Start	6					Auto Start
Start		Stop	7					
Stop		Increment	8					
826 Devices X1 -	Nb Grp: 1 Nb Sect: 1 Nb Dev: 0 Nb Freq: 0	0 IM						
Global View Detailed View Fr	equencies Plan / Intermodulations / Spectrum	View / Multi-Scenes / Or	n Tour / Cla	ssification				

By default, EazyRF uses the maximum available screen space. The reduction of the image in this guide does not allow to see adequately the contents. EazyRF fits automatically with the available screen size (the minimal resolution is 1366 x 768).

According to the width of the screen, the buttons of the toolbar adapt themselves. With the minimal resolution, it takes this shape:

🗋 📸 🖆 🖌 🖳 🚛 🕒 🖧 💭 📔 🗰 🙆 🛩 🚵 NTSC 🎲 DAB 🖌 Avail Freq 🗼 Grp. Sect. Dev 🛝 Grp. Sect. Dev 🛝 🎯 Grp. Sect. Dev 🦾 Horder. Dev 🖉 Sth Order. Dev 🖉 Freq 🖉 Freq 🖉 Poets 🔹 Freq Changes 🔸 Full Auto 🔹

Or if the resolution is higher:

🗋 📴 🗃 🖌 📓 🖉 🖉 🖉 🖉 🔚 🚱 🖉 🖄 🚰 🗸 🚵 👘 Notes 👻 DAB 🗸 Avail Freq 🕌 Grp. Sect. Dev. 🖾 Grp. Sect. Dev. 🛝 🚱 Org. Sect. Dev. 🦾 Sth Order. Dev. 🕼 Freq 🖉 Freq. 🖉 🗠 Notes 🔹 Freq Changes + Global + Full Automatic +

According to the available width, the least used controls are removed (more details in Global View).

The detail zone of a device (Global View) also varies with the height of the screen. In its simplest form:

Group - Sectio	n - Device	Frequency fixed/var device	No	Description	Freq	Intermodulation	Avail Freq	Options (Dev)
Group 📩	Group 1	Tolerance 2 TX	1					Protected
Section 👌	Section 1	Tolerance 3 TX	2					Priority
Dev Desc		Separation	3					Minimum Evaluation
	*	Image	4					Descending order
Wished Freq	\$	Filter	5					Avail Freq

Or in its most detailed form:

Group - Section - De	evice	Frequency fixed/var device	No	Description	Freq	Intermodulation	Avail Freq	Options (Dev)
Group 🛛 😸 Grou	up 1	Tolerance 2 TX	1					Protected
Section 🛛 🛃 Secti	tion 1	Tolerance 3 TX	2					Priority
Dev Desc		Separation	3					Minimum Evaluation
	*	Image	4					Descending order
Wished Freq	\$	Filter	5					Avail Freq
Туре		Start	6					Auto Start
		Stop	7					
		Increment	8					

At starting up, the "Global View" is activated. The View Bar components (bottom completely) allow to change views:

	Global View	Detailed View	Frequencies Plan /	Intermodulations /	Spectrum View	Multi-Scenes	On Tour	Classification
--	-------------	---------------	--------------------	--------------------	---------------	--------------	---------	----------------

The "Global View" component is the overview of all devices in the document. The chapter 2 explains it in detail. The "Detailed View" display the frequencies of all devices, see chapter 3.

The component "Frequencies Plan" display the details of all devices continuously (like an Excel spreadsheet) and allow changes to the display (text size, color, etc..). See chapter 4.

The "Intermodulations" pane shows the frequency spectrum occupied by all devices. It consists of an overview and a detailed view. The detailed view shows the intermodulation between the frequencies. Moreover, this view allows you to edit the frequency by moving them with the mouse. This component also allows for editing of devices of the document (adding, deleting). More detail in chapter 5.

The "Spectral View" pane visualize the spectral space occupied by all devices and TV channels. More details in chapter 6.

The component "On Tour" is responsible for the preparation of a compatible frequency plan on tour, i.e. in several cities. More details in chapter 7.

Finally, the component "Classification" shows the order of evaluation of devices, details in chapter 8.

EazyRF is a software that allows you to edit multiple documents simultaneously. Control bar at the top part of the application is used to manage the creation of additional documents (new or opening):

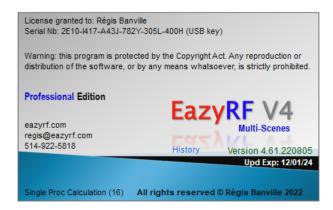


These commands always add a new tab to the documents bar.

In addition, the only system commands are found in this area: "Options", "About" and "Language".

The "Options" command will be explained in chapter 8.

The "About" command displays the Welcome window:



The "History" command displays the history of EazyRF updates:

x

EazyRF V4 update history

# EazyRF V4

J	p	d	a	te	h	is	to	ry	

Date	Version	Detail
12/04/23	4.72.231204	Modified video standard country: Australia and New Zealand
08/14/23	4.71.230814	Group interferences
07/10/23	4.70.230710	New group interrelations, group scans, section or group search, new device list
04/19/23	4.68.230419	Managing TV Channels on Groups
03/01/23	4.67.230301	Reading IAS files, search devices, Band 941-960 MHz
02/17/23	4.66.230217	Export/Import/Delete devices, Save expand/collapse document liste, Band 71 NTSC support
02/01/23	4.65.230201	Automation of license file creation
12/12/22	4.63.221212	Changes to Video Standard Nomenclature
12/05/22	4.62.221205	Frequencies spectrum manager
11/16/22	4.61.221116	Create marker list for WinRadio
09/09/22	4.61.220909	Multi-Scenes: Day Completed, Day in Solo
08/05/22	4.61.220805	Simplified TV channels (SECAM), Background color appearance, Multi-Scenes: Devices on hold, background color display
05/23/22	4.60.220523	Import/Export Devices Groups, Partial Evaluation in section in Multi-Scenes
03/28/22	4.57.220328	Sampling files edition
01/04/22	4.56.220104	Recalculation of the frequencies of a standard or multi-scenes document
12/01/21	4.55.211201	Device group V2, On Tour scanning management for each city
09/05/21	4.50.210905	Reading data files Shure AXT600 .sd3, .sdb2 and .sdb
08/22/21	4.50.210822	Device, section, group and document notes. Multi-Scenes: used frequencies.
05/31/21	4.42.210531	Compressed data files
05/27/21	4.41.210527	RF Explorer PLUS SLIM compatibility, reading .rfe V5 file
04/26/21	4.41.210426	On Tour: modifications cities list editor
03/25/21	4.40.210325	Device editor: Next/Previou, analysis according to samples. Calculation of frequencies in function of sampling data. Updat
02/15/21	4.32.210215	NTSC TV channels: reject 600 MHz band with two duplex zones
12/01/20	4.31.201201	Delete data from a Multi-Scene document
11/24/20	4.31.201124	Delete data from a document
06/02/20	4.30.200602	Scans file manager
04/02/20	4.25.200402	View detachment to a window or second screen. Auto-Interferences between Scenes
02/15/20	4.22.200215	Electronic signature of files
01/30/20	4.22.200120	Dev and Grp dev from internet sorted by default in descending order of date
12/11/19	4.22.191211	Read update files of devices and device groups via the internet
11/04/19	4.21.191104	Read RF Explorer directly
10/23/19	4.20.191023	Read sample data from Shure shw files
10/06/19	4.20.191006	Change device type on protected device, tv channels print in report
10/04/19	4.20.191004	Sennheiser - Shure - Wisycom - Lectrosonics equipments
08/13/19	4.12.190813	Multi-Scenes; editable Auto-Interferences, Device editor: complete intermodulation detail
07/29/19	4.11.190729	Allocation TV channels frequencies in France, DAB import of channels according to geolocation
07/25/19	4.10.190725	DAB. Multi-Scenes Header print
02/11/19	4.01.190211	Device editor Undo/Redo
12/18/18	4.00.181218	Extended background color
12/10/18	4.00.181210	Background color
12/05/18	4.00.181205	EazyRF V4 launch
12/00/10	4.00.101200	Lakyrn Fridenoll
		ОК

The "Language" command :

Language of use x
Select the desired language:
○ Français
<ul> <li>English</li> </ul>
You must restart EazyRF to apply the changes
Restart EazyRF Cancel

It allows you to change the language of the application. Note that you must restart EazyRF to apply the change.

#### **1.2 Devices List**

An EazyRF device is equivalent (or almost) of an existing device on the market. The only difference is when a device has a TX and RX as a BTR-800. In these cases it is necessary to define a device for the TX and another for RX because the frequency range is not the same.

There are two types of EazyRF devices: Variables Frequencies and Fixed Frequencies. In version 4 these lists are merged:

Lis	t of Devices	A-Z 0-9	
Q			Θ
D	evices	Dev Group	₹
Fix	Overline RX R	48	^
Fix	Overline RX R	50	
Fix	Overline RX R	52	
Fix	Overline RX R	57	
Fix	Overline RX R	59	
Fix	Overline TX E	ssential plan A	
	Overline TX E	-	
	Overline TX T		
	Overline TX T		
Fix			
	Overline TX T		
	Overline TX T		
	Overline TX T		
Fix			
Fix	0101111011111		
	Quantum QT-2		
_	RAD UV-1G R		
TV	RAD UV-1G T		
	RAD UV-1G T		
	Sennheiser 20		
	Sennheiser 20		
	Sennheiser 20 Sennheiser 20		
	Sennheiser 20		
	Sennheiser 20		
	Sennheiser 20		
	Sennheiser 20		
	Sennheiser 20		
	Sennheiser 20		
τν	Sennheiser 37		
	Sennheiser 37	32-E	
	Sennheiser 37	32-E	
	Sennheiser 37	32-F	¥
Va	ar Device	Sennheiser 373	^
Ba	ised on	Basic model	
Ty	rpe	Micros	
-	Freq Simult	2	
	lerance 2 TX	100	
	lerance 3 TX		
		50	
	paration	300	
St		470.000	
St	ор	560.000	×
		>	_

A device is said of variable type when the frequency can be set between a Start and a Stop value with a predetermined increment value. A fixed device is when the frequencies are predetermined (a choice of frequencies X) often adjustable from a rotary switch (identify with Fix).

EazyRF a device has a set of characteristics:

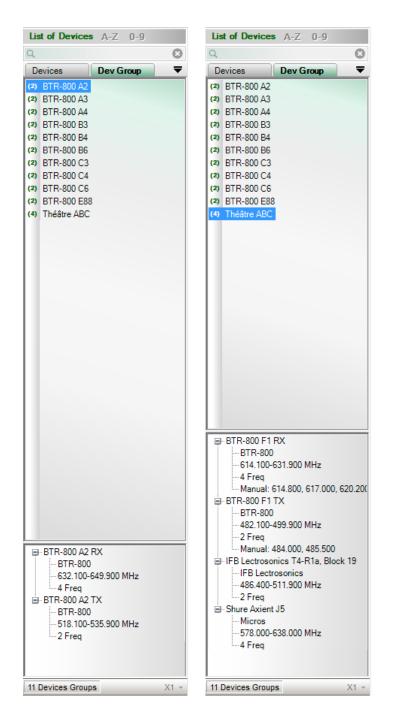
- Intermodulations Tolerance 2 TX (2<sup>nd</sup> order), 3 TX (3<sup>th</sup> order) and 5<sup>th</sup> order (2 TX to 5 TX)
- Separation between frequencies
- Type of Frequencies (Micros, BTR-800, In-Ear, etc.)
- RF Filter (width)

- Image Frequency (optional)
- Transmit power level
- If Variable : Start Stop Frequencies and Increment value
- If Fixed : Fixed Frequencies list

Chapter 9 on "Options" explains all these parameters and the method to define them.

### 1.3 Device Group

A group of devices can contain a multitude of devices with variable or fixed frequencies. here are some examples:



The number of a device in a group can be changed and its frequencies can be set manually or automatically. There is no restriction.

Chapter 9 on "Options" explains all these parameters and the method of defining them.

#### 1.4 Mode of calculation

EazyRF uses three operation modes selectable with the command:



First of all, every device can be "protected", the frequencies allocated can only be changed by the user. This option is enabled by:

Options (Dev)	
✓ Protected	
Priority	
Minimum Evaluation	
Descending order	
✓ Avail Freq	
✓ Auto Start	

In Full Automatic mode, all non-"Protected" devices are classified by Start frequency (Fixed frequency devices are classified before Variables if the frequencies are close to one another). Thereafter, depending on the operation requested (which concerned device), EazyRF retains only devices influenced by this command. Example: If a BTR-800 A2-RX is added (Start - 632.100, Stop - 649.900), devices included in this frequency range more or less the width of the "Filter" will be subject to an evaluation; a Shure UHF-as R L3 as example (Start - 638.000, Stop - 698.000).

In addition, EazyRF V4 offers automatic start, i.e. if two devices overlap in their frequency assignment areas, EazyRF will calculate a separation margin between the two devices. A small example, with version 3:

Group 1 - Section 1			Group 1 - Section 1		
#1 - BTR-800 E88 RX	4 Fr 470.100 - 471.300	470.100 - 487.900	471.300	487.900 #1 - BTR-800 E88 RX	
#1 - beyerdynamic TG 1000 A	2 Fr 471.900 - 472.650	470.100 - 788.900	472.650		

And with version 4:

Group 1 - Section 1			Group 1 - Section 1		
#1 - BTR-800 E88 RX	4 Fr 470.100 - 471.300	470.100 - 487.900	471.300	487.900 #1 - BTR-800 E88 RX	
#1 - beyerdynamic TG 1000 A	2 Fr 536.400 - 536.900	470.100 - 788.900			536.900

It can be seen that in the case of version 3, the beyerdynamic immediately follows the allocation of frequencies allocated to the BTR-800. In version 4, the first allocated frequency is 536,400 instead of 471,900. It all depends on the frequencies available in an area. This new option can be enabled globally for the document, or for each device.

Finally, EazyRF tries to find the largest possible number of frequencies by making permutations automatically. If the choice proves difficult, the "Advanced Search" window appears:

Advanced search (ar	alysis of combi	nations)			_		×
Global View	Detailed View	\					
0%	#1 - Sennh	eiser 3732-A (8 freq	- 162270	1 tests)			
1.0%	#2 - Sennh	eiser 3732-A (8 freq	- 146632	28 tests)			
1.7%	#1 - A1-12	2K Lav, Hand (1-8) (	8 freq - 7	'21801 tests)			
17.2%	#1 - A1-12	1K Lav, Hand (1-8) (	8 freq - 7	'21801 tests)			
36.8%	#1 - Sennh	eiser 3732-B (8 freq	- 162270	1 tests)			
9.6%	#1 - Sennh	eiser 3732-C (17 fre	q - 16227	701 tests)			
1.5%	#1 - A1-12	8K Lav, Hand (1-8) (	8 freq - 7	'21801 tests)			
12.4%	#2 - A1-12	8K Lav, Hand (1-8) (	8 freq - 5	17653 tests)			
73.8%	#1 - A1-10	6K Lav, Hand (1-2) (	7 freq - 7	'21801 tests)			
Searches: 9 Wist	ned Freq Nb: 80	Finded Freq:	3.4 sec	Interrupt		elf Closina	

Sometimes it is necessary to recalculate the devices several times, this window allows you to follow the progress of operations.

With the mode of calculation "Automatic Addition", only the modified or added device is calculated.

The "Manual" mode allows the user to use specific frequencies (EazyRF still suggest valid list of available frequencies).

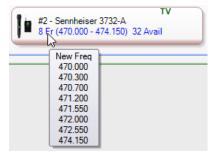
When evaluating a device, an animation indicates which device is recalculated:



In addition, the status bar displays the calculation steps:



EazyRF always calculates the number of required and available frequencies for a device. By moving the mouse cursor over the number of frequencies, the list appears:



It is the same when the cursor is over the available frequencies:

#2 - Sennheiser 3732-A 8 Fr (470.000 - 474.150) 33	Avail
	32 Avail Freq: 510.850 511.350 518.500 519.550 521.000 522.950 523.250 524.050 525.000 525.400 526.600 527.300 528.300 532.100 533.250 534.500 539.350 539.650 540.400 548.500 550.550 550.900 551.350 554.500 555.200 556.300 557.550 557.850

When evaluating frequency, if its value changes, then the frequency is displayed in blue and also the number of frequencies.

When two devices with the same basic name (e.g. BTR-800 RX A2) have the same parameters of evaluation, then the available frequencies are calculated for the first one only and only the display indicates "Avail to share" for both devices.

The list of Available Frequencies is valid only if no frequency is changed in all the devices. Therefore in calculation mode Fully Automatic, if the devices are not protected, it is possible that the revaluation brings different results according to the order of calculation (see Chapter 8 Classification).

The "Evaluate" commands can be used to request a manual recalculation:

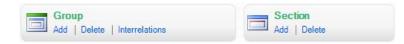


"Evaluate Freq List" allows the evaluation the frequencies between them. "Evaluate Devices" request a revaluation of the devices according to the mode of calculation by respecting the protected devices.

# 1.5 Group - Section - Device

EazyRF uses Groups and Sections to clarify the presentation of the devices of the document. So, a section can collect Micros, another BTR-800, another In-Ear, etc. A group can be used to represent a room, a company, or any other affinity.

To manage these Groups - Sections, use the commands:



The Group has an additional feature: it can be used to define a relationship in a set of groups. So, it is possible to define how the evaluation of these groups should be. To call the editor, use the Group / Interrelations command or double-click the header of a group:

Evaluation	Group 1		Group 2		Group 3		Group 4
Group 1	Complete		Complete	~	Partial: 2 TX 0 kHz no 3 TX	-	Independent spacing 0 kHz
Group 2	Complete	~	Complete Partial:	Þ	Complete		Complete
Group 3	Partial: 2 TX 0 kHz no 3 TX	~	2 TX complete 3 TX 0 kHz Partial: 2 TX complete		Complete		Partial: 2 TX complete 3 TX 0 kHz
Group 4	Independent spacing 0 kHz	~	no 3 TX Partial: 2 TX 0 kHz 3 TX 0 kHz		Partial: 2 TX complete 3 TX 0 kHz		Complete
ntial evaluation: 2 TX complete, 2 TX	0 kHz, 3 TX 0 kHz, no 2 1	TX or	Partial: 2 TX 0 kHz no 3 TX Partial: No 2 TX no 3 TX				OK Cancel

Relationships between groups can be Full, Partial, or Independent. Partial relations can be defined with all possible combinations of 2 TX and 3 TX intermodulation. There are no restrictions on the possible combinations since version 4.70 of EazyRF.

To change the relationship of a group on a horizontal line, simply click on the cell of the group name in the left box. The change is circular (Full / Partial / Independent).

To change the relationship of a group to a vertical column, simply click on the header of the group name on the top area. The change is also circular.

To define the relationship for all groups to "Complete" or "Partial", click on the "Evaluation" heading on the upper left corner.

It is preferable to define relationships when creating a new document. Thereafter, it is possible to change these relationships, but intermodulations may appear.

EazyRF lets you add devices not included in the list of devices with the command:



The "Add Fixe" command allows you to add a device with Fixed Frequency:

d Fixed Freq De	vice		
Description:			Tolerance 2 T
			100
Type:			Tolerance 3 T
Micros		~	50
Deviation:	Intermediate:		Separation:
0.056	0.090		300
Start:	Stop:	Increment:	Image Freq:
			10.70
			Filter:
			Filter:
Frequencies:	4 🗘 🗹	Manual	16.00
Frequencies:	4 🗘 🗹	Manual	
Frequencies:		Manual Intermodulation	
No Descrij			
No Descrip			
No Descrij			
No Descrij 1 2 3			16.00
No Descrij 1 2 3			

Use "Add Variable" to add a device by setting the Start and Stop frequencies:

	evice		
Description: App X			Tolerance 2 TX: 100
Туре			Tolerance 3 TX:
Micros		~	JU
Deviation: 0.056	Intermediate: 0.090		Separation: 300
Start: 650.000	Stop: 675.000	Increment: 0.025	Image Freq: 10.70
Frequencies: 8	🗘 🗌 Ma	nual	Filter: 16.00
No Descriptio	on Freq	Intermodulation	
1	650.000 43		
1 2	650.000 43 650.300 44		
1 2 3	650.000 43 650.300 44 650.700 44		
1 2 3 4	650.000 43 650.300 44 650.700 44 651.200 44		
1 2 3 4 5	650.000 43 650.300 44 650.700 44 651.200 44 651.550 44		
1 2 3 4 5 6	650.000 43 650.300 44 650.700 44 651.200 44 651.550 44 652.000 44		
1 2 3 4 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	650.000 43 650.300 44 650.700 44 651.200 44 651.550 44		

It is still possible to enter frequencies without defining Start and Stop.

### **1.6 Television Channels**

EazyRF 4.x supports standard television channels NTSC (USA-Canada), PAL and SECAM for Western Europe.

From version 4.72, EazyRF now supports certain countries that use the same video standards but with different configurations, for example Australia and New Zealand.

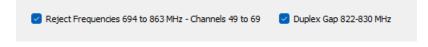
The channel list can be global (Options / Channels TV) or local (in a document). Global list contains the channels your hometown normally (to be defined by the user). The local list is used when traveling. The lists can be saved and retrieved later.

You can also import TV channels (public database) from a given location (see section 9.1).

Here is the local definition window (for SECAM video standard):

NTSC   PAL	SECAM   COUNTRY	🗹 Enable TV Ch	annels Management on Groups	
Reject TV channe	ls frequencies (in MHz)			
02	19	36 (590-598)	53 (726-734)	
03	20	37 (598-606)	54 (734-742)	
04	✓ 21 (470-478)	38 (606-614)	55 (742-750)	
05	22 (478-486)	39 (614-622)	56 (750-758)	
06	✓ 23 (486-494)	40 (622-630)	57 (758-766)	
07	✓ 24 (494-502)	41 (630-638)	58 (766-774)	
08	25 (502-510)	42 (638-646)	59 (774-782)	
09	26 (510-518)	✓ 43 (646-654)	60 (782-790)	
10	27 (518-526)	44 (654-662)	61 (790-798)	
11	28 (526-534)	45 (662-670)	62 (798-806)	
12	✓ 29 (534-542)	46 (670-678)	63 (806-814)	Groups
13	30 (542-550)	47 (678-686)	64 (814-822)	
14	✓ 31 (550-558)	48 (686-694)	65 (822-830)	Import Scar
15	32 (558-566)	49 (694-702)	66 (830-838)	Import CH
16	33 (566-574)	50 (702-710)	67 (838-846)	Clear CH
17	✓ 34 (574-582)	51 (710-718)	68 (846-854)	CH Names
18	35 (582-590)	52 (718-726)	69 (854-862)	Read CH
Deject Fr	equencies 694 to 863 MHz - Chanr	aels 49 to 69 🛛 🔽 Dun	lex Gap 822-830 MHz	
Neject i	equencies 054 to 005 minz - Chan		iex dap 022-030 Minz	Save CH
				ОК
The channels in h	lue correspond to the global chann	ele		Cancel

Since the advent of digital television and 4G and 5G cellular telephony, frequency bands have to be freed up and thus become unavailable. In every standard of television, a TV option enables the rejection of these frequencies:



See section 2.6.3 and 10.1 for further explanation of rejection areas.

# 1.7 Digital Audio Broadcasting

EazyRF 4.1 now supports DAB (Digital Audio Broadcasting). For the moment only band III is covered, mainly used in Europe (178 MHz to 223 MHz).

In North America this frequency band is used by digital TV, so this control is not accessible with the NTSC video standard.

Here is an overview:

DAB (Digital Audio Broadcastir	ng Band III)*		×
5A 174.928 MHz ✓ 5B 176.640 MHz 5C 178.352 MHz 5D 180.064 MHz	8A 195.936 MHz 8B 197.648 MHz 8C 199.360 MHz 4D 201.072 MHz	11A 216.928 MHz 11N 217.088 MHz 11B 218.640 MHz 11C 220.352 MHz	
02 100.00110112		11D 222.064 MHz	
6A 181.936 MHz 6B 183.648 MHz	9A 202.928 MHz	✓ 12A 223.936 MHz 12N 224.096 MHz	
<ul> <li>6C 185.360 MHz</li> <li>6D 187.072 MHz</li> </ul>	9C 206.352 MHz 9D 208.064 MHz	12B 225.648 MHz 12C 227.360 MHz	
		12D 229.072 MHz	Import Scan
7A 188.928 MHz 7B 190.640 MHz	10A 209.936 MHz 10N 210.096 MHz	13A 230.784 MHz 13B 232.496 MHz	Import CH
7C 192.352 MHz 7D 194.064 MHz	10B 211.648 MHz 10C 213.360 MHz	13C 234.208 MHz	Read
7.0 104.004 0012	10D 215.072 MHz	13E 237.448 MHz	Save
Reject Freq on each side:	0.300 MHz	13F 239.200 MHz	OK Cancel
41 DAB channels 5 selected cha	nnels		.:

# 1.8 Interferences

It is allowed to define zones not to be used in the frequency allocation. This is done in the "Intermodulation" pane, see Chapter 5.

# 2 - Global View

The "Global View" is the visual representation of the document on devices not detailed form of frequencies, only the desired number of available frequencies and each device is displayed with some indicators.

Options About Language									🗍 Régis
									, -
	🛛 🖌 🗸 🙀 SECAM L 🔐 DAB 🗸 Avail Fr	en 🕹 Gro Sect	Dev 🗈 Grn S	Sect Dev 199.	Gro Sect Dev 5th Orde	er Dev DErea @ Frea	🔄 🕒 Notes 🗙 Freq Char	nges 🗙 Global 🗙 Full Aut	tomatic -
		ed to ob peer	oci -a cip c		O of press per parola	a ber oneg oneg	/ Hotes Hed end		
ces A-Z 0-9	Group Add   Delete   Interrelations		Section		Device		Evaluate		
0	Add   Delete   Interrelations		Add   Delete		Add Fixe   Add Variabl	le Delete	Freq List   Devices   Mar	nual   Recalculate   Clear	
Dev Group 🔍 🔻	_								
ID G54	🕑 Title: New document								EazyRF V4 Us
D G55	Group 1								
D G56 D G57									
D G57+	Section 1								
ID G62	ТУ								
D G63	#1 - Shure AD4Q G56								
ID H54	8 Fr (478.500 - 483.000) 66 Avail								
D JB		~							
ID K53 ID K54									
D K55									
ID K56									
ID K57									
ID K58									
D L54									
ID L60									
ID X51									
ID X55									
D X56									
ID Z16									
Q G53									
Q G54 Q G55									
Q G56									
Q G57									
Q G57+									
Q G62									
Q G63									
IQ H54 IQ JB									
IQ K53									
Q K54									
IQ K55									
IQ K56									
Shure AD4Q G56	Group - Section - Device	Variable	es Freq Dev	No	Description	8 Freq	Intermodulation	66 Avail Freq	Options (Dev)
Basic model	Group 🛃 Group 1	Tolerance 2 TX		1		478.500 22		22 483.700	Protected
Micros	Section 🛃 Section 1	Tolerance 3 TX	50	2		478.900 22		22 485.150	Priority
ilt 4	Dev Desc 😻 #1	Separation	400	3		479.400 22		25 502.550	Minimum Evaluation
TX 100	Shure AD4Q G56		None	4		480.000 22		25 503.300	Descending order
TX 50	Wished Freq 8	; Filter	32.00	5		480.450 22		25 504.250	✓ Avail Freq
400	Type Micros	Start	470.150	6		481.000 22		25 505.500	Auto Start
470.150		Stop	636.000	7		481.650 22		25 507.300	
		Increment	0.025	8		483.000 22		25 508.150	
636.000		moromone	0.020						

The command bar "Group / Section / Device / Evaluate" has been seen in Chapter 1 (see section 2.12 for the command "Evaluate"):

Group Add   Delete   Interrelations	Add   Delete	Add Fixe   Add Variable   Delete	Evaluate Freq List   Devices   Manual   Recalculate   Clear
--	--------------	----------------------------------	--

This bar can be changed to display the summary of the frequency spectrum:

-					#1 - 5	Sennheiser 3732-C			#1 - Ser	nheiser 3732-C	
	15 D		19 D	21 D	26 D 🐽	🐽 🐽 🔹 29 D 🐽		35 D	TV-37		
le es	TV-14 TV-15	TV-16 TV-17 TV-18	TV-19 TV-20	TV-21 TV-22 TV-23 TV-	24 TV-25 TV-26 TV-27	TV-28 TV-29 TV			TV-37 TV-38 TV-39		
42	469.9 MHz	487.9 MHz	505.9 MHz	523.9 MHz	541.9 MHz	559.9 MHz	577.9 MHz	595.9 MHz	613.9 MHz	631.9 MHz	649.9 MHz

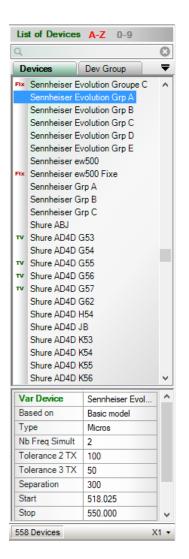
Each Group and Section can be opened or closed by its upper right button:

Title: New document	
Group 1	•
Section 1	R
#1 - Sennheiser 3732-A           8 Fr (470.000 - 474.150)           53 Avail	
Group 1	~
Section 1	R

The section "Title" is used to identify the document, it is this title that is displayed in the header prints.

#### 2.1 Devices

In chapter 1, we approached the "List of Devices". Let us look closer at this list:



The list can be sorted alphabetically or by Ascending Frequencies with buttons A-Z or 0-9:



In addition, a filter can be applied on the list at the beginning or middle name:

List of Devices A-Z 0-9				
Q le	0			
Devices Dev Group	₹			
Electro-Voice FMR-500 A	~			
Electro-Voice RE2 Pro G				
IFB Lectrosonic4-R1a, Block 19				
IFB Lectrosonic1a, Block 19 #2				
IFB Lectrosonic4-R1a, Block 20				
IFB Lectrosonic4-R1a, Block 21				

In addition, a more advanced search can be performed by starting the search with a question mark.

Some examples :

?m to search all type devices starting with m (Micros), the word micro can be written in full or some letters

?m>value to search for all microphones whose starting frequency is greater than or equal to the requested value

**?b<value** to search for all BTRs whose stop frequency is less than or equal to the value

**?in>value1<value2** to search all In-Ear whose starting frequency is greater than or equal to value1 and the stop frequency is less than or equal to value2

Finally, you can display the inactive devices in the list by inserting the @ symbol. See section 10.4 for the "Active Device" option.

By leaving the cursor on the name of a device, the number of Desired Frequencies (defined in Options/Devices) is calculated as well as the list of the Available Frequencies. The TV channels affecting the device are also showned:

τν	Sen	nheiser 3732-A	, ,
т	Ser	Niheiser 3732-B	_
т	Ser	Sennheiser 3732-A	
т	Ser	2 Basic Freq:	
т	Ser	474.900	
т	Ser	482.500	
	Ser	51 Avail Freq:	
	Ser	483.450 484.550	
	Ser	485.200 486.850	
	Ser	487.700 488.300	
	Ser	403.000 430.000	
1	Ser	491.600 499.300	
	Ser	506.500 506.800	
		507.250 507.600	
	Ser	508.150 508.550	
1	Ser	509.150 510.850	
	Ser		
	Ser	500 050 500 050	
Fix	Ser	522.950 523.250	
Fix	Ser	525.400 526.600	
Fix	Ser	527.300 528.300	
т	Ser	532.100 533.250	
т	Ser	534.500 539.350	
т	Ser	539.650 540.400	
т	Ser	548.500 548.900 549.400 550.550	
	_	550,900 551,350	
Va Va	ar D	551,900 553,100	
Ba	ised	554.500 555.200	
T	pe	556.300 557.550	
	Fre	557.850	
		TV/-15 (476-492) D. Global	
		19 (500-506) D Radio-Canada	
	olera	21 (512-518) D CBC	
Se	epara	26 (542-548) D Télé-Québec	
St	art	29 (560-566) D Canal Savoir	
St	ор	Start: 470.000	
	·	Stop: 560.000	
660	Day	1000 V1	-

The calculation of Available Frequencies is optional (Options/Startup).

By clicking a device, the detail is displayed in the lower part of the section:

Var Device	Sennheiser 3732-A
Based on	Basic model
Туре	Micros
Nb Freq Simult	2
Tolerance 2 TX	100
Tolerance 3 TX	50
Separation	300
Start	470.000
Stop	560.000
Increment	0.005
Image	10.70
Filter	16.00

The status bar of the List shows us the number of devices and a command:

300 Variables Freq Dev X1 -

The command "X1" allows to set the number of devices added simultaneously:

	Add 2 Dev
	Add 3 Dev
~	Add 4 Dev
	Add 5 Dev
	Add 6 Dev
	Add 7 Dev
	Add 8 Dev
	Define Nb of Dev

The status bar always indicates the number of devices to add:

300 Variables Freq Dev X4 -

This value can be maintained or reset to 1 after use (Options/Startup).

It is also possible to define the parameters and the number of devices with "Define Nb of Dev":

Define Devices Nb, Freq, Toler, S	ep, Image and Filter
Nb Devices:	1  🗘
Wished Freq Nb:	2
Tolerance 2 TX:	100 🗘
Tolerance 3 TX:	50 🗘
Separation:	300 🗘
Image Freq:	10.70
Filter:	16.00
Tolerance 5th:	50 🗘
5th Order Ev	
Descending order	
Reuse from now on	
ОК	Cancel

To use a predefined value for a device parameter, simply enter "0" as value. The option "Reuse from now on" allows to keep these settings for all the new additions.

To add one or more devices to a section, just drag its selection on a section (a group can contain only sections, and a section only devices):

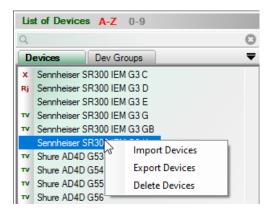
	Section 1	
	BTR-80/h-A2 RX	
Secti	ion 1	
Jeen		_
	#1 - BTR-800 A2 RX 4 Fr (632.100 - 633.300) 12 Avail	
_		

To insert a device, drag the selection on the device to insert it at this position. To add to the end, drop it into an unoccupied area of the section. It is also possible to select multiple devices with Ctrl + Device.

To move a device from one position to another, select the device, and drag to the desired position. This can be done in a section to another, from one document to another, or from one application to another (in this case the operation is a copy).

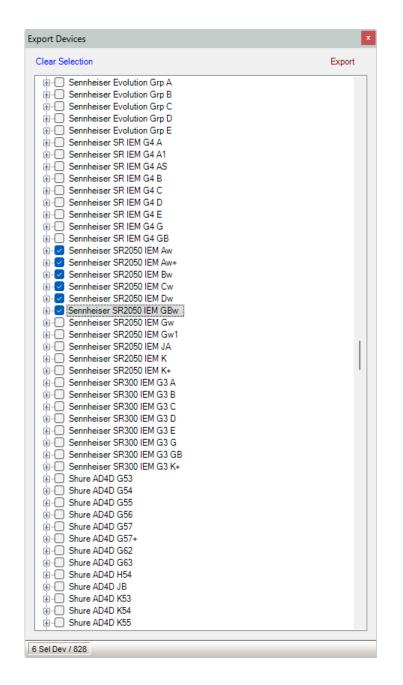
# 2.1.1 Export / Import / Delete Devices

From the list of devices on the left side of the views, it is now possible to export, import or delete devices. Simply call up a menu with the right mouse button on one of the devices in the list:



### 2.1.1.1 Export Devices

Just make the desired selection:



Then, click the "Export" command to enter the name of the new file to be saved. The original list is called "Appareils.lst4" and cannot be used as a new name.

**Reminder:** the device list file (Appareils.lst4), is the most crucial file in your EazyRF environment, make sure you have backup copies.

# 2.1.1.2 Import Devices

To import devices, simply open a device file (created by a user (export) or importing from eazyrf.com):

pen File   Update	Clear Selection	Save	Cancel
<ul> <li>Shure ADX5D G53</li> <li>Shure ADX5D G54</li> <li>Shure ADX5D G55</li> <li>Shure ADX5D G57</li> <li>Shure ADX5D G57</li> <li>Shure ADX5D G57</li> <li>Shure ADX5D G62</li> <li>Shure ADX5D G63</li> <li>Shure ADX5D K54</li> <li>Shure ADX5D K53</li> <li>Shure ADX5D K55</li> <li>Shure ADX5D K56</li> <li>Shure ADX5D K57</li> <li>Shure ADX5D K56</li> <li>Shure ADX5D K56</li> <li>Shure ADX5D K57</li> <li>Shure ADX5D K56</li> <li>Shure ADX5D K57</li> <li>Shure ADX5D K58</li> <li>Shure ADX5D K58</li> <li>Shure ADX5D K58</li> <li>Shure ADX5D K58</li> <li>Shure ADX5D X51</li> <li>Shure ADX5D X51</li> <li>Shure ADX5D X56</li> <li>Shure ADX5D X56</li> <li>Shure ADX5D X56</li> <li>Shure ADX5D X56</li> </ul>	AKG DMS700 E     AKG DMS700 E     AKG DMS700 E     AKG DMS800 E     AKG DMS800 E     AKG DMS800 E     AKG IVM4 IEM     AKG VMS4000     AKG VMS450     AKG VMS450	231 32 332 332 332 3500 570 720 790 835 650 680 720 790 835 81 82 83 83 85-A 85-C 86 87 88 91 92 93 94 95-C 96 96 97 98 98 98 98 98 98 98 98 98 98	1
resent in Open File only	Differences		in Base only

The differences between the two lists are displayed with different colors. Devices present only in the open list are in red, devices present only in the system list are in brown. A device present in both lists but with different parameters is displayed in blue. Identical devices in both lists are not displayed in the list on the left.

After making a selection of devices, just click on "Update" and "Save" everything.

# 2.1.1.3 Delete Devices

Select the devices to delete:

Clear Selection	Delete   Save
BTR-80N H4 RX	
🖶 🕘 BTR-80N H4 TX	
🗄 🕘 BTR-80N H5 RX	
i∰ · 🔲 BTR-80N H5 TX	
🖶 🕘 BTR-80N H6 RX	
i∰.·· 🔲 BTR-80N H6 TX	
🗄 📃 Comtek BST-25 216 NB	
ia Comtek BST-25 216 WB	
Electro-Voice FMR-500 A	1
Electro-Voice RE2 Pro G	
HME PRO850 Band 0 TX	1
HME PRO850 Base Station 0	
HME PRO850 Base Station 1	
HME PRO850 Base Station 2	
HME PRO850 Base Station 3	
HME PRO850 Base Station 4	
HME PRO850 Base Station 5	
HME PRO850 Base Station 6	
HME PRO850 Belt Pack 8	
HME PRO850 Belt Pack 9	
HME PRO850 Belt Pack A	
HME PRO850 Belt Pack B	
HME PRO850 Belt Pack E	
IFB Lectrosonics T4-R1a, Block 22	
IFB Lectrosonics T4-R1a, Block 23	
IFB Lectrosonics T4-R1a, Block 25	
IFB Lectrosonics T4-R1a, Block 26	
IFB Lectrosonics T4-R1a, Block 27	
IFB Lectrosonics T4-R1a, Block 28	
🗄 🔲 IFB Lectrosonics T4-R1a, Block 29	
🗄 🔲 IFB Lectrosonics T4-R1a, Block 30	
🗄 🔲 IFB Lectrosonics T4-R1a, Block 31	
IFB Lectrosonics T4-R1a, Block 32	
IFB Lectrosonics T4-R1a, Block 33	
IFB Lectrosonics T4-R1a, Block 470	
IFB Lectrosonics T4-R1a, Block 606	
🖶 🕘 IFB Lectrosonics T4-R1a, Block 944	
i∰ · 💭 In 202K	

After completing your selection, just click on "Delete" and a message asks for confirmation:

EazyRF	x
Do you really want to delete the 14 devices selected?	
Yes No	

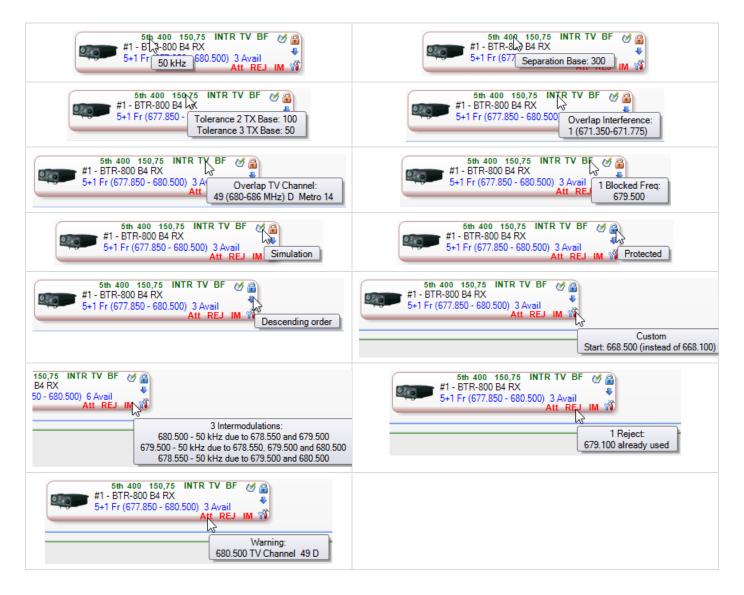
Finally, you must "Save" the changes to the EazyRF devices file.

# 2.1.2 Devices indicators

A device has several indicators:



En déplaçant le curseur de la souris au-dessus de chaque indicateur, le détail s'affiche :



A green indicator indicates a difference of data, while red indicates an anomaly of frequencies found in the stage of the evaluation of all the frequencies.

By placing the cursor over the image of the device, all the parameters of the device are displayed:



The last parameter displayed, Auto-Increment, is a parameter calculated by EazyRF to accelerate calculations. Thus, when the increment is larger, the number of frequencies tested decreases. The value of this parameter depends on several factors, the main ones being Tolerance 2 and 3 TX.

It is possible to add a device NOT INCLUDED in the list of devices (obtained from an external file). To do this, just make a click with the RIGHT mouse button and the following menu appears:



When opening a document, if a device does not exist, its name is DISPLAYED IN GREY (as in the example). In addition, if the device is of type Fixed, the number of Available Freq does not appear, because it cannot be recalculated if the device is not part of the list of devices.

Devices "Undefined" cannot be added to a list.

This option enables the exchange of data file without exchanging the devices file.

TO BE ABLE TO USE THIS OPTION, YOUR DOCUMENT MUST HAVE BEEN SAVED WITH A COPY OF EAZYRF 3.20.120326 OR MORE. Because additional information must be saved with the document.

This option works with a Fixed or Variable unit. The menu does not appear if the file does not contain the necessary information.

# 2.2 Devices Groups

# 2.2.1 Devices Groups V1

There are two types of devices groups, the first type is the one used before version 4.55. These are created in the options module, see sections 10.7, 10.8 and 10.9 for more information.

Type 1 is actually an equivalent of a multiple selection of devices in the "Devices" pane.

## 2.2.2 Devices Groups V2

With version 4.55 of EazyRF, a new type of devices group has been developed. A type that is easier to create and more complete, with all the parameters for evaluating the devices.

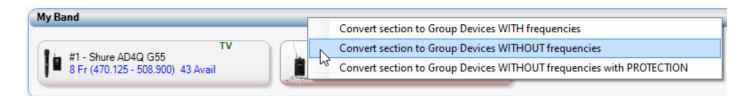
To define this new type, just transform a section of devices into a group of devices. The goal is to reuse a set of devices for a group of musicians for example.

New groups are displayed in blue:



The groups of version 1 are in black.

To create a new group from a section, just click on the section header with the right mouse button:



The menu offers the choice of creating a group with the frequencies already assigned or of creating a group without assigned frequencies, with or without protection. A group without frequencies and with protection only contains the skeleton of needs.

The name of the section is used as the name of device groups, this name is assigned to the section used during the drag and drop operation (only if the section does not contain any device):

De	evices	Dev Group	
4)	Angèle		
7)	Bigflo & Oli		
2)	BTR-800 E8	8	
3)	Christine & t	he Queens	
3)	Christine & t	he Queens SF	
3)	Christine & t	he Queens SFP	
3)	Damso		
3)	Editors		
4)	Lomepal		
3)	Macklemore		
2)	My Band		
2)	Salle Gaudre	au	
		My B	and
		#1 - Shure	AD4Q G55
		8 Fre	eq:
		535.500	
		537.000	
		540.650	
		548.800	
		27 Avail	
			53.500, 556.450
		3.850, 558.700, 5 7.750, 571.150, 5	
		).550, 582.250, 5	
		1.050, 586,500, 5	
		1.750, 592.650, 6	
		605.300, 614.7	00, 615.400
		#1 - Shure PS	M 1000 G 11
		8 Fre	eq:
		511.200	
		519.900	
		521.250	
		525.300	527.250

The group frequency calculation preview is displayed by moving the mouse pointer over the group names, as in the device list.

EazyRF automatically saves the new group in the device groups file (GrpAppareil.grp).

To edit a device group, just double click on the group name:

ame Christine & the Queens	😻 Duplicate Delete	
Devices list:	Description: 😻	Tolerance 2
#1 - Shure PSM 1000 J8-J8E (P)	#1	100
☐ #1 - Shure AD4D G56 (P)	Based on:	In-Ear Tolerance 3
/ #1 - Sennheiser EM3732-II N (P)		50
	Start: Stop: Increment:	Separation
	554.125 626.000 0.025	300
	Descending order Tolerance 5th:	Image Free
	5th Order Evaluation (if Global) 50	10.70
		Filter:
		16.00
	Fr Nbr: 12 🗘 Intercent Grand Fr Nbr: 12	
	No Description Freq Intermodulati	
	1 554.125 28	
	2 554.425 28	
	3 554.825 28	
	4 555.325 28	
	5 555.675 28	
	6 556.125 28	
	7 556.675 28	
	8 558.275 28	
	9 559.025 28	
	10 559.675 28	
	11 560.775 29 12 562.825 29	
	12 020.20C	
elete Selected device		

The editor allows you to modify all the evaluation parameters of each device, to duplicate the group, or to delete it. You can move to the next or previous group with the arrows at the bottom of the screen. An "Undo / Redo" system makes it possible to correct the changes made.

You can remove a device from a group, but you cannot add devices. To add devices, you have to go back to the document, make the changes and save the device group again. Why, because the goal of these new groups is to have custom devices, not devices with basic parameters.

The "Multi-Scenes" pane also allows you to create groups of devices from the sections:

	Create Global Scene
#1 - Shure PS	
8 Fr (478.450	1 Add Scene
#1 - Shure PS	Add Section
8 Fr (598.300	Insert Section
#2 - Shure UI	A LIP LI C
2 Fr (528.350	
#1-Sennhei	
4 Fr (529.150	Copy Device
	Copy Section Devices
	Cut Device
	Cut Section Devices
	Paste Devices
	Paste Devices and Evaluate
	Done Device
	Remove Green Room
	Remove Angèle
	Remove #1 - Shure PSM 1000 G10-G10E
	Convert to Group Devices WITH frequencies
	Convert to Group Devices WITHOUT frequencies
	Convert to Group Devices WITHOUT frequencies with PROTECTION

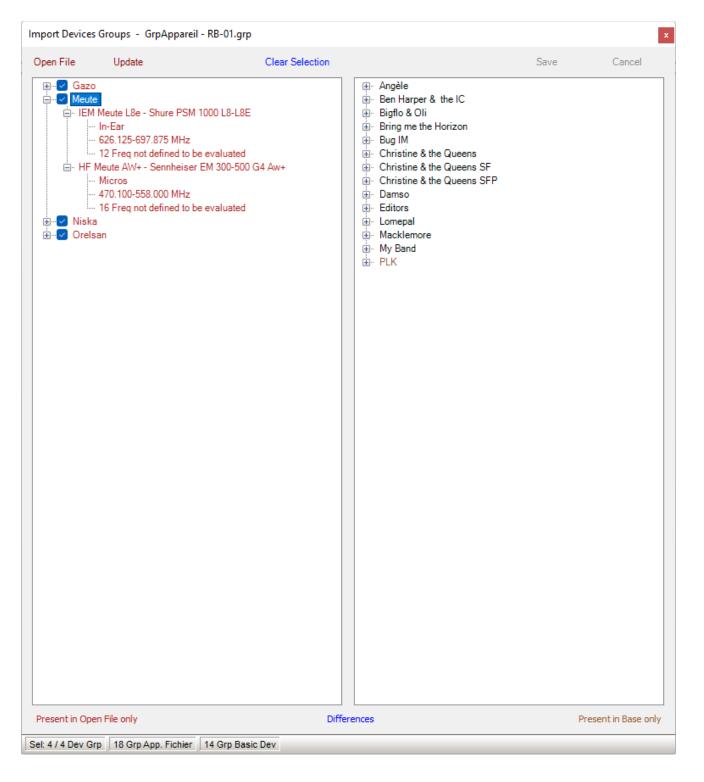
# 2.2.2.1 Import Devices Groups V2

With version 4.60 it is now possible to import or export parts of a devices groups file.

Simply right click on the list of devices groups to display the menu:



The "Import Groups" editor:



The operation is identical to that of the standard groups (V1), section 10.8.

To get started, just open a devices groups file (created with the Export command, next section).

The differences between the two lists are displayed with different colors. Devices groups present only in the open list are in red, devices groups present in the system list only are in brown. A group of devices present in both lists but

with differences in parameters is displayed in blue. The groups of identical devices in the two lists are not displayed in the left list for a little more clarity.

The contents of the settings can be examined by opening the device detail (+).

The devices groups of the opened file can be selected individually before performing the update. By default, when opening a file, the groups that are not in the basic list are selected.

Finally, you must end the operation with the Save command.

Updating can only be done from the open file to the system list, never the other way around.

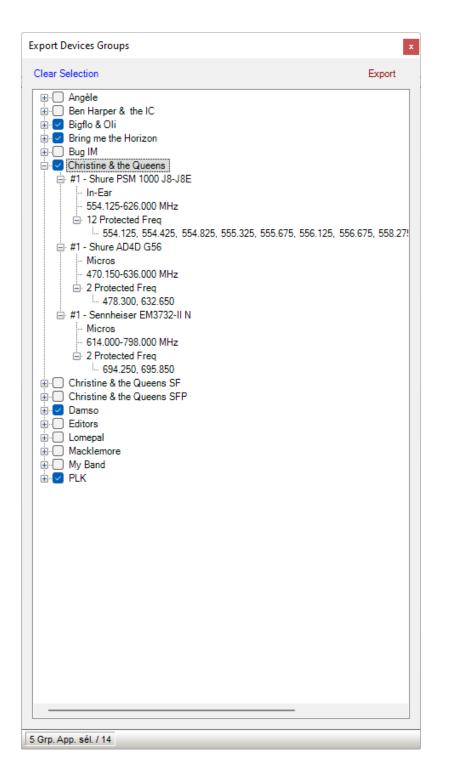
## 2.2.2.2 Export Devices Groups V2

With version 4.60 it is now possible to import or export parts of a devices groups file.

Simply right-click on the list of device groups to display the menu:

De	evices Dev Gro	oups
(4)	Angèle	
(3)	Ben Harper & the IC	
(7)	Bigflo & Oli	
(4)	Bring me the Horizon	
(3)	Bug IM	
(3)	Christine & the Que	
(3)	Christine & the Qu	Import Groups
(3)	Christine & the Qu	Export Groups
(3)	Damso	

The "Export Groups" editor:



The list of system devices groups is displayed, just select the groups to export. Finally, the "Export" command saves the selected list under a group name. Note that the name "GrpAppareil.grp" is reserved for EazyRF.

The files thus created can be imported via the "Import Groups" utility, thus facilitating the exchange of data between partners.

# 2.3 Details

The bottom section of the Global View displays the details of the group, the section and the selected device. This section allows you to edit the parameters and frequencies:

Group - Section - Device		Variabl	es Freq Dev		No	Description	8 Freq	Intermodulation		12 Avail Freq		Options (Dev)
Group 🛃 Group 1		Tolerance 2 TX	100	^	1		470.150 14	^	16	482.500	^	Protected
Section 赵 Section 1		Tolerance 3 TX	50		2		470.550 14		16	483.200		Priority
Dev Desc 赵 #1		Separation	400		3		471.050 14		16	484.350		Minimum Evaluation
Shure AD4D G53	*	Image	None		4		471.650 14		16	485.100		Descending order
Wished Freq 8	٥	Filter	32.00	~	5		472.100 14	~	16	486.050	~	✓ Avail Freq

This section may take another form if the size of the screen allows it:

Group - Section	on - Device	Variab	les Freq Dev	No	Description	8 Freq	Intermodulation		12 Avail Fre	q	Options (Dev)
Group 👌	💅 Group 1	Tolerance 2 TX	100	1		470.150 14		16	482.500	^	Protected
Section 👌	💅 Section 1	Tolerance 3 TX	50	2		470.550 14		16	483.200		Priority
Dev Desc 👌	<b>5</b> #1	Separation	400	3		471.050 14		16	484.350		Minimum Evaluation
Shure AD4D G	53 🗸	Image	None	4		471.650 14		16	485.100		Descending order
Wished Freq	8 \$	Filter	32.00	5		472.100 14		16	486.050		✓ Avail Freq
Туре	Micros	Start	470.125	6		472.650 14		16	487.450		✓ Auto Start
		Stop	509.875	7		473.300 14		18	494.550		L
		Increment	0.025	8		474.650 14		18	496.350	¥	

The name of the Group and the Section can be edited in this zone:

Group - Section - Device				
Group	*	Group 1		
Section	*	Section 1		
Dev Desc	*	#1		
Shure AD40	D G5	3	*	
Wished Fre	p	8	۵	
Туре		Micros		

The description of the device (function) can be changed also. The desired number of frequencies can be changed with the arrows or entered directly (up to 40 frequencies per device). It is also allowed to change devices, such BTR-800 B4 RX to BTR-800 E88 RX or any other device. It is not allowed to change an "Undefined" device.

The parameters of the selected device appear in:

Variables Freq Dev					
Tolerance 2 TX	100				
Tolerance 3 TX	50				
Separation	300				
Image	10.70				
Filter	16.00				
Start	470.000				
Stop	560.000				
Increment	0.005				

The third part of details display the frequencies:

No	Description	4 Freq	Intermodulation
1	Camera 4	470.000	
2	Camera 5	470.300 14	
3		470.700 14	
4		471.200 14	

The column Description provides a description of the use of the frequency. To auto-increment the description (it takes that it ends with a digit): select the description, press the Ctrl and Alt keys simultaneously and then extend the selection keys. To copy without incrementing, press Alt only.

In the case of devices "Lectrosonics", they use a hexadecimal numbering number corresponding to the frequency channel, this value is displayed by moving the mouse cursor on the frequency:

686.60	Q 50
686.90	
687.40	Ch D2

The "Intermodulation" column is not editable, it is reserved for EazyRF to display problematic results of the evaluation of each frequency.

The frequencies can be changed manually. It is allowed to drag&drop data from an Excel spreadsheet. In Excel, the data must be in columns. Text data is copied in the Description column and numeric data in the Frequency column (this can be done in all editing windows).

Available frequencies appear here:

- 2	22 Avail Freq				
27	549.200	^			
27	549.700				
27	550.050				
27	550.500				
27	551.050				
27	552.650				
27	553.400				
28	554.050	~			

These frequencies can be dragged onto the frequency list. the device becomes "Protected" of an automatic evaluation.

Options (Dev)
✓ Protected
Priority
Minimum Evaluation
Descending order
✓ Avail Freq
✓ Auto Start

The Options section allows you to modify some evaluation parameters. The "Protected" option has already been seen. The "Priority" option allows you to place a device first and foremost in the list of evaluation. If the device is protected, it goes without saying that the assessment cannot have a priority.

The option "Minimum Evaluation" is intended for devices of type "Walkie/Talkie" which uses frequencies too close. With this option only the verification of the value of the frequency is retained in the evaluation (without evaluation of intermodulations).

The option "Descending Order" allows to estimate the frequencies of a device from the "Stop" value down to the "Start".

The "Avail Freq" enable or disable the calculation of available frequencies if the global option is on.

The "Auto Start" option enables or disables the Auto Start function. When the Auto Start calculation is enabled, the first device different from the previous one will use a Start frequency a little further than the values found on the previous device in the evaluation order. An example:

Group 1 - Section 1			Group 1 - Section 1				
#1 - BTR-800 E88 RX	4 Fr 470.100 - 471.300	470.100 - 487.900	471.300	487.900 #1 - BTR-800 E88	3 RX		
#1 - beyerdynamic TG 1000 A	2 Fr 536.400 - 536.900	470.100 - 788.900				536.900	

Instead of:

Group 1 - Section 1			Gro	oup 1 - Section 1					
#1 - BTR-800 E88 RX	4 Fr 470.100 - 471.300	470.100 - 487.900	47	71.300	487.900 #1 - BTR-8	00 E88 RX			
#1 - beyerdynamic TG 1000 A	2 Fr 471.900 - 472.650	470.100 - 788.900	4	472.650					

When entering frequency manually, it is possible that the added value influences the existing devices. Then a window will appear to indicate that this data will influence "Intermodulations" on some devices:

Device	Frequency	Prior IM	After IM	
#1 - A1-128K Lav, Hand (1-8) (Group 1, Section 1)				
	578.000	0 kHz - 578.700 & 586.600 & 587.300	0 kHz - 580.000 & 584.650 & 586.650	
	578.700	0 kHz - 578.000 & 586.600 & 587.300		
	579.200	0 kHz - 582.900 & 586.600	50 kHz - 582.900 & 586.650	
	580.000	50 kHz - 586.600 & 593.150	0 kHz - 578.000 & 584.650 & 586.650	
	580.550	50 kHz - 583.550 & 586.600		
2 - A1-128K Lav, Hand (1-8) (Group 1, Section 1)				
	582.900	0 kHz - 579.200 & 582.900 & 586.600	0 kHz - 583.550 & 586.650 & 587.300	
	583.550		0 kHz - 582.900 & 586.650 & 587.300	
	584.650		0 kHz - 578.000 & 580.000 & 586.650	
		0 kHz - 578.000 & 578.700 & 587.300	0 kHz - 578.000 & 580.000 & 584.650	

## 2.4 Evaluation parameters

Variables	Freq Dev
Tolerance 2 TX	100
Tolerance 3 TX	50
Separation	300
Image	10.70
Filter	16.00
Start	470.000
Stop	560.000
Increment	0.005

#### 2.4.1 Tolerance 2 TX

A 2 TX intermodulation is the one created by two carriers, the strongest of the intermodulations.

The 2 TX Tolerance is the value beyond which all the 2 TX intermodulations are accepted. The default value is 100 kHz on each side of the carrier.

The value 0 allows to accept all the 2 TX intermodulations, thus deactivate the 2 TX calculations.

# 2.4.2 Tolerance 3 TX

A 3 TX intermodulation is an intermodulation created by three carriers, less strong than the 2 TX, but equally important.

The 3 TX Tolerance is the value beyond which all the 3 TX intermodulations are accepted. The default value is 50 kHz on each side of the carrier.

The value 0 allows to accept all the 3 TX intermodulations, thus deactivate the 3 TX calculations.

For the intermodulations, there are no limits in theory, but only the odd are significant (except 2 TX). The more the number of TX is raised (brought up) (5 TX, 7 TX, etc.), the less the intensity is important and becomes not significant (5 TX can become annoying occasionally).

The 5 TX Tolerance default value is 50 kHz and is editable only in the devices editor (section 2.7).

#### 2.4.3 Separation

The separation is the minimal value between two frequencies, 300 kHz by default.

## 2.4.4 Image Frequency

The Image frequency is an old phenomenon of the analog world when two frequencies were separated by 10.7 MHz (default value), both receivers decode the same signal. With the digital world, this value can be null. If it remains active, it does not matter, the result of calculations will be a little bit different, but that does not really change the number of possible frequencies in a given area. Just erase the value to disable it :

Image	=	Image	None

#### 2.4.5 Filter

The value used to determine the gap between the frequencies to consider during the calculation of the intermodulations (16 MHz by default). Thus for a carrier set to 500 MHz, all the frequencies between 484 MHz and 516 MHz will be used for the calculation of intermodulations. Any device has an electronic filter in the amplification circuit of the signal received by the antenna to limit the interferences. This value can be found in service manuals, but 16 MHz constitute a good value. For In-Ear, increasing this value can help if the RF environment is very loaded.

#### 2.4.6 Start, Stop and Increment

With Variable Devices, there is a frequency range available to program the device. For example, the transmitter of a BTR-800 A2 operates between the frequencies 518.100 and 535.900 by step of 25 kHz. So the fields Start, Stop and Increment are used to define these data.

The BTR-800 has a possibility of 712 frequencies. EazyRF uses an algorithm to accelerate the calculations. A value of increment is fitted to the parameters of evaluation and is called Auto-Increment. For example, the increment value of a BTR is 25 kHz, the auto-increment is set to 50 kHz (depending of others parameters). The value can be seen with the device detail:



For Fixed devices, these parameters don't exist.

#### 2.5 Selection

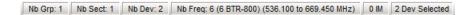
It is possible to select multiple devices simultaneously in two ways. The first method uses the CTRL + click a device button. The second method is to click on the unoccupied end of a section or group, keep the mouse button pressed and extend the selection:

Section 1	
TV	TV
#1 - BTR-800 B4 RX	#1 - BTR-800 B4 TX
4 Fr (668.100 - 669.300) 9 Avail	2 Fr (536.100 - 536.400) 14 Avail

When there is more than one device selected, the illustrated description corresponds to the button which is the clearest (in this case, the BTR-800 B4 TX):



The status line shows the number of selected devices (in addition to providing information on the document):



With a multiple selection, some parameters can be changed simultaneously: Tolerance, Separation, the Image Frequency and Filter. The value of Start, Stop or Increment will change only for the highlighted device.

It is allowed to click one of the devices selected without losing its selection (allows to bring individual modifications). To end a multiple selection, click an unselected device, or the bottom of a section or a group.

# 2.6 Toolbar

🗋 🥸 🍜 🖌 🛃 🚛 😓 🖞 🙆 🗸 📋 🎽 🗰 🥥 🖍 🚵 🖍 Nisc 🍞 DAB 🖌 Avail Freq 👗 Grp. Sect. Dev. 🕼 Grp. Sect. Dev. 🛝 🚱 Grp. Sect. Dev. 🤇 Sth Order. Dev. 🖉 Freq. 🕙 Freq. 👘 🖤 Notes 🔹 Freq Changes + Global + Full Automatic +

# 2.6.1 File management

The toolbar EazyRF is divided into some sections. At first the management of files:

🗋 💕 🚔 🚽 ...

The first item allows to create a new document (if the current document has been modified, a confirmation is required before replacing it). All documents have the ezrf3 extension and are related to EazyRF during installation (so that double-clicking the file name in Explorer launches EazyRF with the document).

The 2nd and 3rd item allow you to open a document. The second item displays the window opening a document:

Open EazyRF document			×
C:\Users\rb11\Documents\EazyRF V4		✓ ()	D 🤌 🖻 🛄 •
		~	
Name	Size	Туре	Date modified
Test Rapport 2023-05.ezrf3	49.1 KB	EZRF3 File	25/03/23 06:58
Test Channels-01.ezrf3	59.1 KB	EZRF3 File	27/03/23 07:25
AutoSave - Test GrpCh-02A.ezrf3	40.8 KB	EZRF3 File	17/04/23 10:32
Test GrpCh-02A.ezrf3	40.9 KB	EZRF3 File	17/04/23 10:35
Test Freq-Scan-07N03.ezrf3	204 KB	EZRF3 File	17/04/23 14:29
Test IAS-102C.ias	19.8 KB	IAS Freq Coordina	23/02/23 16:23
🙀 Test IAS-103B.ias	34.0 KB	IAS Freq Coordina	23/02/23 17:02
File:	~	Compare	Open
File type: EazyRF - IAS (*.ezrf3, *.ias)	~	· ]	Cancel

The selected folder is saved for later use. The window size can be changed as well as the column width or display documents method. All these settings are retained.

The File Type option opens documents created by IAS, iOS (iEazyRF Pro) or by the touch screen version of Windows (EazyRF):

File type:	EazyRF - IAS (*.ezrf3, *.ias)	$\sim$
	EazyRF (*.ezif3)	
	EazyRF - IAS (*.ezrf3, *.ias) IAS - Intermodulation Analysys System (*.ias) iEazyRF Pro - EazyRF Windows 8/10 (*.ezrf)	

The third item displays a list of recently opened documents. Just leave the cursor on the icon and the list appears:

🚔 🕁 🗔   🎭 🖾 🔎   🛗 NTSC 💝   🐰 Grp Sect App 🗈 Grp
C:\Program Files (x86)\EazyRF V3.2\Gala XYZ 10 Jan 2012 V1.ezrf3
X:\DATA\Visual Studio 08\\Test304.ezrf3
X:\DATA\Visual Studio 08\\Test303.ezrf3
X:\DATA\Visual Studio 08\\Test302.ezrf3
X:\DATA\Visual Studio 08\\Test301.ezrf3
X:\DATA\Visual Studio 08\\Test300.ezrf3
X:\DATA\Visual Studio 08\\Test SA 2012-04.ezrf3
X:\DATA\Visual Studio 08\\Test SA 2012-03.ezrf3
X:\DATA\Visual Studio 08\\Test SA 2012-02.ezrf3
X:\DATA\Visual Studio 08\\Test SA 2012-01.ezrf3
X:\DATA\Visual Studio 08\\Test298.ezrf3
X:\DATA\Visual Studio 08\\Test 100 Fréq-01.ezrf3
X:\DATA\Visual Studio 08\\Test 120 Fréq - 01C.ezrf3
X:\DATA\Visual Studio 08\\Test 120 Fréq - 01B.ezrf3
X:\DATA\Visual Studio 08\\Test 90 Fréq-01.ezrf3
X:\DATA\Visual Studio 08\\Test299.ezrf3
X:\DATA\Visual Studio 08\\Test 100 Fréq - 01.ezrf3

In the opening of a file created with the global television channels, if the current global channels and those saved with the document differ, they are converted into local channels automatically (a warning will be display).

Finally, the 4th and 5th item allow you to save a document. The 4th save on the same name and the 5<sup>th</sup> display the save window (very similar to the window of opening of a document).

The file manager makes it possible to compare two documents in order to display the differences between the two versions with the "Compare" command:

File:	Test-1011.ezrf3	~	Compare	Open
File type:	EazyRF (*.ezrf3)	~		Cancel

The selected file is compared to the already opened file, which gives for example:

Documents compare					×
Т	est-1011		Test-1012		
Group 1		Group 1			
Section 1		Section 1			
#1 - Sennheiser 3732-B	518.500 518.800 519.200 519.700 520.050 520.500 521.050 522.650	<b>#1 - Sennheiser 3732-B</b> 518.500 532.500 519.200 <b>541.300</b> 520.050 520.500 521.050 522.650			
		#1 - Sennheiser 3732-D 614.500 614.800			
			Save	e PDF C	Cancel

The result of the comparison can be saved in PDF format with the command "Save. PDF ».

# 2.6.2 Printing

The second section of the toolbar allows you to manage printing and page layout:



The second item can preview before printing. The third item shows the page layout:

Page layout	×
Printer	
Xerox WorkCentre 6015NI-00001	~
Paper	
Size: Letter (8.5 x 11 in) (8.5, 11)	~
Tray: ( Auto )	~
Orientation	
Portrait O Landscape	
Margins (inches)	Preview
Left: 0.33 Right: 0.33	Print
Top: 0.33 Bottom: 0.33	Cancel

N.B. 1 inch = 2.54 cm

Finally, the last option allows you to create and manage the presentation of a report for a client, see section 2.8.

# 2.6.3 Document TV channels

The third section of the toolbar allows you to manage television channels and evaluation parameters of the document:

VANTSC 🔐 DAB

NTSC   PAL   :	SECAM   COUNTRY	Enable TV Chan	nels Management on Groups	
Reject TV channels free	quencies (in MHz)			
02 (54-60)	✓ 19 (500-506)	36 (602-608)	53 (704-710)	
03 (60-66)	20 (506-512)	🗸 37 (608-614) RA	54 (710-716)	
04 (66-72)	✓ 21 (512-518)	38 (614-620)	55 (716-722)	
05 (76-82)	22 (518-524)	39 (620-626)	56 (722-728)	
06 (82-88)	23 (524-530)	40 (626-632)	57 (728-734)	
07 (174-180)	24 (530-536)	41 (632-638)	58 (734-740)	
08 (180-186)	25 (536-542)	42 (638-644)	59 (740-746)	
09 (186-192)	✓ 26 (542-548)	43 (644-650)	60 (746-752)	
10 (192-198)	27 (548-554)	44 (650-656)	61 (752-758)	
✓ 11 (198-204)	28 (554-560)	45 (656-662)	62 (758-764)	
✓ 12 (204-210)	✓ 29 (560-566)	46 (662-668)	63 (764-770) PS	Groups
13 (210-216)	30 (566-572)	47 (668-674)	64 (770-776) PS	Lunch Com
14 (470-476)	✓ 31 (572-578)	48 (674-680)	65 (776-782)	Import Scar
✓ 15 (476-482)	32 (578-584)	49 (680-686)	66 (782-788)	Import CH
16 (482-488)	33 (584-590)	50 (686-692)	67 (788-794)	Clear CH
✓ 17 (488-494)	34 (590-596)	51 (692-698)	68 (794-800) PS	CH Names
18 (494-500)	✓ 35 (596-602)	52 (698-704)	69 (800-806) PS	Read CH
657-663 MHz.	698 MHz (Ch 38 to 51), Dup 806 MHz (Ch 52 to 69), Reje		Edit	Save CH
				ОК

Global channels are those defined in "Options/TV Channels" and are normally set for his hometown. Local channels are assigned according to each locality. It is best to save each file under the name of the city, it will be more useful in the pane "On Tour", Chapter 7.

## 2.6.3.1 Video Standard

It is allowed to change standard TV even if it is not the same as global. To change the standard, simply click on one of the items:

NTSC	PAL	SECAM	COUNTRY
------	-----	-------	---------

Some countries use one of the three video standards, but with different configurations, see section 2.6.4.

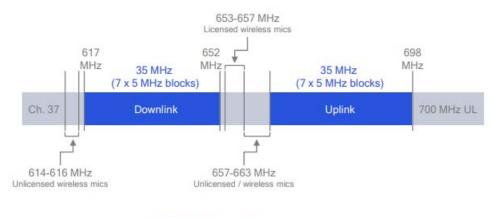
The toolbar displays the selected format:



The red color indicates that the video standard is different from the standard defined globally (otherwise it is blue). The hook indicates a local definition.

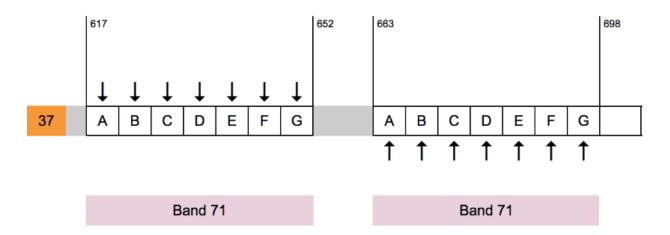
### 2.6.3.2 North America Frequency Rejection Zone

In North America, the 600 MHz frequency band has moved from the allocation of digital television channels (Ch 38 to 51) to those of 5G LTE cellular telephony. Here is the attribution:



# 600 MHz Spectrum

The "Downlink" and "Uplink" zones are called band 71 in the cellular world. These two areas are separated into 7 blocks of 5 MHz:



The FCC which manages the allocation of frequencies in the United States allows the use of the 5 MHz blocks in the 71 band (downlink and uplink are paired) when they are free in some regions.

Just click on "Edit" to call up the rejection zone editor:

on Rejection of NTSC frequencies	
Reject Frequencies 614 to 698 MHz standard	Reject Frequencies 614 to 698 MHz custom
andard	Custom
614 to 698 MHz - Channels 38 to 51	Guard band 616-617 MHz
Duplex Gap 614-616 MHz	Band 71 A - 617-622 MHz Downlink, 663-668 MHz Uplink
◯ Duplex Gap 653-663 MHz	Band 71 B - 622-627 MHz Downlink, 668-673 MHz Uplink
Duplex Gap 657-663 MHz	Band 71 C - 627-632 MHz Downlink, 673-678 MHz Uplink
◯ No Duplex Gap 650 MHz	Band 71 D - 632-637 MHz Downlink, 678-683 MHz Uplink
	Band 71 E - 637-642 MHz Downlink, 683-688 MHz Uplink
	Band 71 F - 642-647 MHz Downlink, 688-693 MHz Uplink
	Band 71 G - 647-652 MHz Downlink, 693-698 MHz Uplink
Reject Frequencies 698 to 806 MHz - Channels 52 to 69	Guard band 652-653 MHz
nd 941-960 MHz	
Reject frequencies	

The editor is separated into two parts, the left part allows you to manage the 614 to 698 MHz band. The part on the right is used to manage the allocation of frequency blocks to be used according to the authorizations granted by the FCC.

The "Reject 614 to 698 MHz Frequencies standard" or "Reject 614 to 698 MHz Frequencies custom" selector is used to define the desired use.

Note that the 698 to 806 MHz rejection zone remains active in the two management modes of the 614 to 698 MHz zone.

The "Reject frequencies" selector of the 941-960 Mhz frequency band allows you to exclude frequencies that are not permitted in this region according to the American or Canadian format.

Let's take a closer look at the custom mode:

Definition Rejection of NTSC frequencies*	×
O Reject Frequencies 614 to 698 MHz standard	Reject Frequencies 614 to 698 MHz custom
Standard	Custom
614 to 698 MHz - Channels 38 to 51	Guard band 616-617 MHz
Duplex Gap 614-616 MHz	Band 71 A - 617-622 MHz Downlink, 663-668 MHz Uplink
O Duplex Gap 653-663 MHz	Band 71 B - 622-627 MHz Downlink, 668-673 MHz Uplink
Duplex Gap 657-663 MHz	Band 71 C - 627-632 MHz Downlink, 673-678 MHz Uplink
O No Duplex Gap 650 MHz	Band 71 D - 632-637 MHz Downlink, 678-683 MHz Uplink
	Band 71 E - 637-642 MHz Downlink, 683-688 MHz Uplink
	Band 71 F - 642-647 MHz Downlink, 688-693 MHz Uplink
	Band 71 G - 647-652 MHz Downlink, 693-698 MHz Uplink
🕑 Reject Frequencies 698 to 806 MHz - Channels 52 to 69	Guard band 652-653 MHz
Band 941-960 MHz	
Reject frequencies	
USA: 952.000 to 952.850 MHz and 956.250 to 956.450 MHz	CAN: 952.000 to 953.000 MHz and 956.250 to 956.450 MHz
ОК	Cancel

The downlink and uplink blocks work together, impossible to use them individually.

# 2.6.3.3 Frequency rejection zone in Europe

Much simpler than in North America.

02 (47-54)	19	36 (590-598)	53 (726-734)
03 (54-61)	20	37 (598-606)	54 (734-742)
04 (61-68)	21 (470-478)	38 (606-614)	55 (742-750)
05 (174-181)	22 (478-486)	39 (614-622)	56 (750-758)
06 (181-188)	23 (486-494)	✓ 40 (622-630)	57 (758-766)
07 (188-195)	24 (494-502)	41 (630-638)	58 (766-774)
08 (195-202)	✓ 25 (502-510)	42 (638-646)	59 (774-782)
09 (202-209)	26 (510-518)	43 (646-654)	60 (782-790)
✓ 10 (209-216)	27 (518-526)	44 (654-662)	61 (790-798)
11 (216-223)	28 (526-534)	45 (662-670)	
12 (223-230)	29 (534-542)	46 (670-678)	
13	✓ 30 (542-550)	47 (678-686)	
14	31 (550-558)	48 (686-694)	
15	32 (558-566)	49 (694-702)	
16	33 (566-574)	50 (702-710)	
17	34 (574-582)	51 (710-718)	
18	✓ 35 (582-590)	52 (718-726)	

NTSC   PAL			
Reject TV channel	ls frequencies (in MHz)		
02	19	36 (590-598)	53 (726-734)
03	20	37 (598-606)	54 (734-742)
04	✓ 21 (470-478)	38 (606-614)	55 (742-750)
05	22 (478-486)	39 (614-622)	56 (750-758)
06	✓ 23 (486-494)	40 (622-630)	57 (758-766)
07	✓ 24 (494-502)	41 (630-638)	58 (766-774)
08	25 (502-510)	42 (638-646)	59 (774-782)
09	26 (510-518)	✓ 43 (646-654)	60 (782-790)
10	27 (518-526)	44 (654-662)	61 (790-798)
11	28 (526-534)	45 (662-670)	62 (798-806)
12	✓ 29 (534-542)	46 (670-678)	63 (806-814)
13	30 (542-550)	47 (678-686)	64 (814-822)
14	✓ 31 (550-558)	48 (686-694)	65 (822-830)
15	32 (558-566)	49 (694-702)	66 (830-838)
16	33 (566-574)	50 (702-710)	67 (838-846)
17	✓ 34 (574-582)	51 (710-718)	68 (846-854)
18	35 (582-590)	52 (718-726)	69 (854-862)
Reject Fr	equencies 694 to 863 MHz - Chan	upola 40 to 60 🛛 🔽 Duro	ex Gap 822-830 MHz
Keječť Fr	equencies 694 to 663 MHZ - Chân	וופוג אש נס סש 🕑 Dup	ех бар 822-830 МНZ

Each rejection zone has one or more exclusion zones, i.e., zones where the use of frequencies is permitted.

# 2.6.3.4 Channels name

Channel	Selection	Description	1	
10 (192-198)				
11 (198-204)	×	CFTM TVA		
12 (204-210)	×	CFCF CTV		
13 (210-216)				
14 (470-476)				
15 (476-482)	×	CKMI Global		
16 (482-488)				
17 (488-494)	×	CJNT Citytv		
18 (494-500)				
19 (500-506)	×	CBFT R-C		
20 (506-512)				
21 (512-518)	×	CBMT CBC		
22 (518-524)				
23 (524-530)				
24 (530-536)				
25 (536-542)				
26 (542-548)	×	CIVM T-Q		
27 (548-554)				
28 (554-560)				
29 (560-566)				
30 (566-572)				
31 (572-578)	~	CFHD Ici Mtl		Oł
32 (578-584)				Can

The "CH Names" window allows you to define the name of each channel:

# 2.6.3.5 Clear, Read and Save Channels

The "Clear CH" button removes all selected CH. Finally, Read and Save CH buttons allow you to save and retrieve corresponding cities. The selection is confirmed by the "OK" button.

# 2.6.3.6 Channels Import

You can also import TV channels from public databases for a specific location with the command "Import CH":

lace:	Montreal						
	Montreal, QC, Canada 50 km	a (45.509, -73.553) Y					
Channe	l Name	City	State/Province	Distance 🔺	Power		
🗹 17	CJNT Citytv	Montréal	QC (CA)	2.98 km	2.07 Kw		
🗹 19	CBFT R-C	Montréal	QC (CA)	3.01 km	448 Kw		
21	CBMT CBC	Montréal	QC (CA)	3.01 km	436 Kw		
2 35	CFJP Noovo	Montréal	QC (CA)	3.01 km	17.7 Kw		
11	CFTM TVA	Montréal	QC (CA)	3.01 km	11 Kw		
12	CFCF CTV	Montréal	QC (CA)	3.01 km	10.6 Kw		
15	CKMI Global	Montréal	QC (CA)	3.01 km	8 Kw		
2 31	CFHD Ici MtI	Montréal	QC (CA)	3.41 km	4.03 Kw		
29	CFTU C. Savoir	Montréal	QC (CA)	4.89 km	0.91 Kw		
26	CIVM T-Q	Montréal	QC (CA)	5.60 km	269 Kw		
						Import	

Just type a location data as a postal code, a zip code, a city name, a full address, or GPS data, or latitude-longitude in the format: 54.75, -123.01 (degrees minutes must be in decimal).

The regions covered for NTSC are Canada, the US and the border area with Mexico. For SECAM, coverage includes France and its border regions.

The list displayed depends on the selected distance, between 50 and 200 km. The selected channels vary depending on the combination of distance and power. This suggestion is not foolproof, only the scanner can be reliable. Some channels are allocated but not used, attention to NEWDT or HDTV channels. Only digital channels are shown.

Distances can be displayed in kilometers or miles.

The choice of the desired measurement system and the default distance can be done in Options/General/Startup (see section 9.3).

EazyRF 4.61 and more has a simplified version of the import of SECAM channels in order to better orient the choice of channels offered (the number of channels is much higher in France).

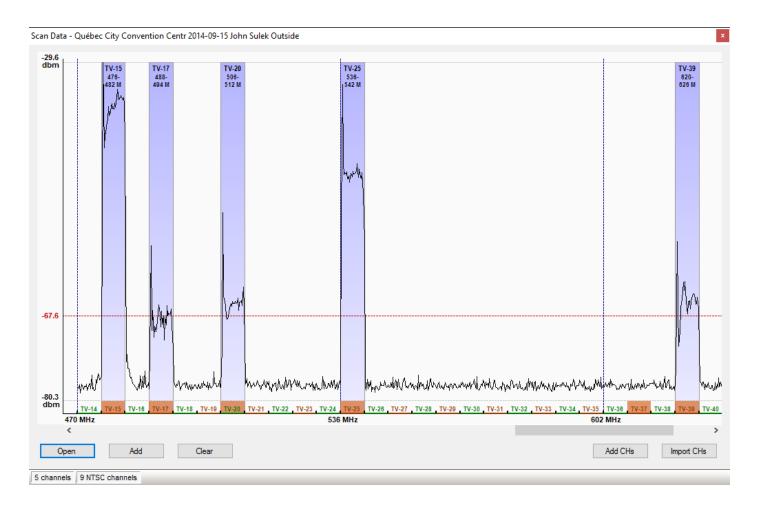
The simplified display is accessible via the "Simplified version" option:

lace:	Marseille						My position
						_	ing position
etail:	Marseille, Bouches	s-du-Rhône, France (43.295, 5.3744	8)				
istance:	50 km	🖂 🔘 Km 🔘 Miles			Simplified versi	on	
Chann	nel Name	City	State/Province	Influence	Power		
22	R2	Toulon	FR	Low	10 KW		
22	R2	Saint-Raphaël	FR	Low	63 KW		
23 🔽	R1	Marseille Grande Éto	FR	Very high	100 KW		
23	R1	Marseille Pomègues	FR	Very high	3.5 KW		
25	i R4	Toulon	FR	Low	10 KW		
25	i R4	Saint-Raphaël	FR	Low	63 KW		
26	R6	Marseille Grande Éto	FR	Very high	100 KW		
26	R6	Marseille Pomègues	FR	Very high	3.5 KW		
28	R3	Toulon	FR	Low	10 KW		
28	R3	Saint-Raphaël	FR	Low	63 KW		
29	R7	Marseille Grande Éto	FR	Very high	100 KW		
29	R7	Toulon	FR	Low	10 KW		
29	R7	Marseille Pomègues	FR	Very high	3.5 KW		
2 30	R3	Marseille Grande Éto	FR	Very high	32 KW		
30	R3	Marseille Pomèques	FR	Very high	3.5 KW		Import

A combined rating of distance and power was estimated to create a new "Influence" data, with the results: Very High, High, Medium, or Low.

# 2.6.3.7 Import scans

The "Import Scan" command read a file created from a frequency scanner format – 35s, dat, csv, rfe, spa, trc):



The red line is the detection level for a TV channel (if the cumulative width exceeds 40%). This level can be changed by dragging the text value:

A channel can be activated / deactivated with a click of the mouse. The selected channels of the document appear in orange. Detected channels are independent of the channels in the document. Selection is not automatic because sampling does not necessarily cover the entire range.

The scans files are global, so they are shared with the Intermodulations - Scans module. The data is saved with the document, so if they are no longer useful, it would be better to delete them.

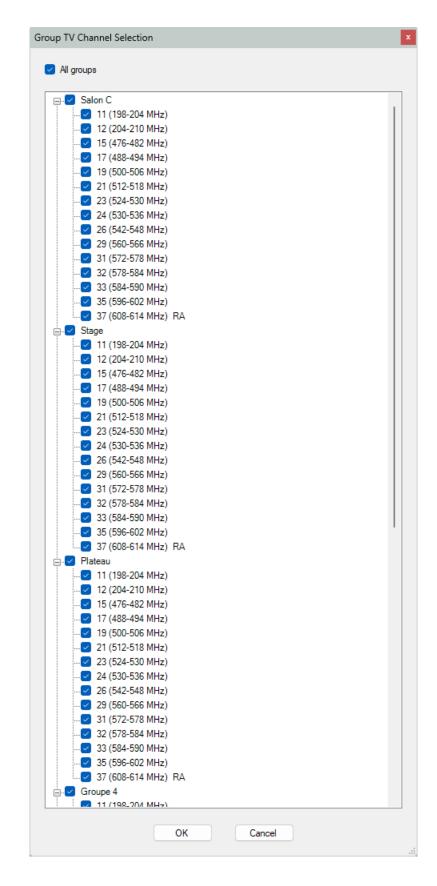
The selection can be imported to the active list (deleting old ones) or added to the list.

# 2.6.3.8 Management of TV channels on groups

Locally defined TV channels are attached to the current document. The "Enable TV Channels Management on Groups" command:

channels of the docum	ent (regardless of globa	l channels)	
NTSC   PAL	SECAM	🕑 Enable TV Chan	nels Management on Groups
Reject TV channels free	quencies (in MHz)		
02 (54-60)	✓ 19 (500-506)	36 (602-608)	53 (704-710)
03 (60-66)	20 (506-512)	🗸 37 (608-614) RA	54 (710-716)
04 (66-72)	✓ 21 (512-518)	38 (614-620)	55 (716-722)
05 (76-82)	22 (518-524)	39 (620-626)	56 (722-728)
06 (82-88)	✓ 23 (524-530)	40 (626-632)	57 (728-734)
07 (174-180)	✓ 24 (530-536)	41 (632-638)	58 (734-740)
08 (180-186)	25 (536-542)	42 (638-644)	59 (740-746)
09 (186-192)	✓ 26 (542-548)	43 (644-650)	60 (746-752)
10 (192-198)	27 (548-554)	44 (650-656)	61 (752-758)
✓ 11 (198-204)	28 (554-560)	45 (656-662)	62 (758-764)
✓ 12 (204-210)	✓ 29 (560-566)	46 (662-668)	63 (764-770) PS

Allows you to copy the list of active channels from the document to groups for independent management. The "Groups" button calls the manager:



You can activate / deactivate each TV channel on each group. Let's take a simple example, on this event, we have a simple installation in the 4th basement of a theater for interviews during the exit of the artists after the make-up.

Salon Monseau 4th basement	
Interviews	
#1 - TV IFB Lectrosonics T4-R1a, Block 23 1 Fr (590.500) 0 Avail	#1 - Shure AD4Q G56     6/8 Fr (522.050 - 569.650) 0 Avail

8 frequencies are needed for the AD4Q G54 device, but only 6 are available. If we look at the spectrum:

#1 - Shure A	D4Q G56												
	TV-15		TV-17		TV-19		TV-21		TV-28	TV-24		TV-26	
TV-14	TV-15	TV-16	TV-17	TV-18	TV-19	TV-20	TV-21	TV-22	TV-23	TV-24	TV-25	TV-26	TV-27
69.9 MHz			489.2 MHz			508.5 MHz			527.8 M	Hz		547.1	MHz
												#1 - Shure Al	4Q G56
	TV-29		TV-31	TV-32	TV-33		TV-35		TV-37			#1 - Shure Al	4Q G56
TV-28	TV-29 TV-29	TV-30		TV-32 TV-32	TV-33 TV-33	TV-34	TV-35 TV-35	TV-36	TV-37 TV-37			#1 - Shure Al	4Q G56

TV channels occupy a large place in the range. In the 4th basement, the signal from most TV channels is negligible. If all the channels of the group are freed:

🚊 🔲 Salon Monseau 4th basement
11 (198-204 MHz)
12 (204-210 MHz)
15 (476-482 MHz)
17 (488-494 MHz)
19 (500-506 MHz)
21 (512-518 MHz)
23 (524-530 MHz)
24 (530-536 MHz)
26 (542-548 MHz)
29 (560-566 MHz)
31 (572-578 MHz)
32 (578-584 MHz)
33 (584-590 MHz)
35 (596-602 MHz)
37 (608-614 MHz) RA

We easily obtain the number of desired frequencies and even more:

lon Mor	iseau 4th basement			
nterview	5			
	#1 - TV IFB Lectrosonics T4-R1a, Block 23 1 Fr (590.500) 2 Avail	2	#1 - Shure AD4Q G56 8 Fr (476.050 - 544.400) 7 Avail	τv

We could also have obtained a satisfactory result by deactivating the weakest channels only.

In the group channel manager, you can call up a menu with the right mouse button by clicking on the name of the group to select or not all the channels:

🗄 🔽 Salon Monseau	
11 (198-20-5	Select all channels
12 (204-210	Clear all channels

The groups header displays an indicator when the TV on groups channel manager is used, it is in green to indicate that there is no change compared to the channel list of the document and in red when there is:

1	Grp TV 📀
	Group TV channels
	All channels are disabled
Grp	v 🔊
	Group TV channels
	11 (198-204 MHz) CFTM TVA
	12 (204-210 MHz) CFCF CTV 14 (470-476 MHz)
	15 (476-482 MHz) CKMI Global
	17 (488-494 MHz) CJNT Citytv
	19 (500-506 MHz) CBFT R-C
	21 (512-518 MHz) CBMT CBC 25 (536-542 MHz)
	26 (542-548 MHz) CIVM T-Q
	29 (560-566 MHz) CFTU C. Savoir
	31 (572-578 MHz) CFHD lci Mtl
	35 (596-602 MHz) CFJP Neovo 37 (608-614 MHz) RA

# 2.6.4 Modified video standard country

Some countries have adapted a video standard by changing the bandwidth of a channel from 8 MHz to 7 MHz for example and by changing the allocation of channel numbers.

The management of basic EazyRF video standards does not allow this type of change. So, a new method has been added to manage this situation, a COUNTRY section has been added to the TV channel management module:

NTSC   PAL		Y U Enable TV C	hannels Management on Groups	
-	els frequencies (in MHz)			
Country: Australi	a	~		
6 (174-181)	✓ 28 (526-533)	✓ 36 (582-589)	44 (638-645)	
7 (181-188)	29 (533-540)	37 (589-596)	45 (645-652)	
8 (188-195)	30 (540-547)	✓ 38 (596-603)	46 (652-659)	
9 (195-202)	31 (547-554)	39 (603-610)	47 (659-666)	
9A (202-209	) 32 (554-561)	40 (610-617)	✓ 48 (666-673)	
10 (209-216	) 33 (561-568)	41 (617-624)	49 (673-680)	
11 (216-223	) 34 (568-575)	42 (624-631)	50 (680-687)	
12 (223-230	) 35 (575-582)	43 (631-638)	51 (687-694)	
				Groups
				Groups
				Import Sca
				Import CH
				Clear CH
				CH Name
				Read CH
🖂 Reject Fr	equencies 470 to 526 MHz - Ch	annels 20 to 27		Save CH
🖂 Reject Fr	equencies 694 to 820 MHz - Ch	annels 52 to 69		ОК
The channels in b	lue correspond to the global cha	annels.		Cancel

You can thus select the configuration of a country:

Country:	Australia		$\sim$
	Australia		
6 (17	New Zealand		
0(1/		LO (OLO 000)	

For the moment the list of countries is limited to Australia and New Zealand. Other countries will be added as needed.

Which gives for New Zealand:

NTSC   PAL   SEC	CAM COUNTRY	Enable TV Cha	annels Management on Groups	
Reject TV channels frequer	ncies (in MHz)			
Country: New Zealand		~		
4 (174-181)	25 (502-510)	34 (574-582)	43 (646-654)	
5 (181-188)	26 (510-518)	35 (582-590)	44 (654-662)	
6 (188-195)	27 (518-526)	36 (590-598)	45 (662-670)	
7 (195-202)	28 (526-534)	37 (598-606)	46 (670-678)	
8 (202-209)	29 (534-542)	38 (606-614)	47 (678-686)	
9 (209-216)	30 (542-550)	39 (614-622)	48 (686-694)	
10 (216-223)	31 (550-558)	40 (622-630)	49 (694-702)	
11 (223-230)	32 (558-566)	41 (630-638)		
	33 (566-574)	42 (638-646)		
				Groups
				Import Sca
				Import Cl
				Clear CH
				CH Name
				Read CH
	s 470 to 502 MHz - Chan			Save CH
Reject Frequencies	s 702 to 806 MHz - Chan	nels 50 to 62		ок
The channels in blue corres	pond to the global chan	nels.		Cancel

This new management of TV channels is also supported by the "On Tour" view:

	TV channel	s - PAL - Australia		Tv-6	Tv-7	Tv-8	Tv-9	Tv-9A	Tv-10	Tv-11	Tv-12	Tv-28	Tv-29	Tv-30	Tv-31	Tv-32	Tv-33	Tv-34	Tv-35	Tv-36	Tv-37	Tv-38	Tv-39	Tv-40	Tv-41	Tv-42	Tv-43	Tv-44	Tv-45	Tv-46	Tv-47	Tv-48	Tv-49	Tv-50	Tv-51
Сору	, (	Cities	х +	174	181	188	195	202	209	216	223	526	533	540	547	554	561	568	575	582	589	596	603	610	617	624	631	638	645	652	659	666	673	680	687
Com	bined	Reject Freq	3-	~				*				r-anii(	Lan	and the second	(mar na	mm	protein		~h~	urra pera				~~					h		-		ال		Lon
8	Document No sampling		M									~								~		~										~			
	Sydney-01	i	+ -	1				1				-		-	more	mm	molen									-									

# 2.6.5 Document Options



The item next to the channels called local settings for a document:

Influence:	2 TX Tol	3 TX Tol	5 TX Tol	Tolerance 5th Order: 50 kHz
1: 1-50 mw	0 kHz	0 kHz	0 kHz	Method: 2 TX and 3 TX
2: 51-150 mw	25	25	0	Skip Freq beyond: 32 MHz
3: 151-400 mw	75	50	25	Turn on 5th Order on New Device
4: > 400 mw	125	75	50	Interrelationship between idependents groups
)igital TV Chann Reject Freq or nterferences		0.5	00 MHz	Minimum spacing: 0 kHz Random evaluation Separation until: 2000 kHz KHz Keep Freq already evaluated
Reject Freq on Auto Interfere		0.3	00 MHz	Auto Start Freq
icans The frequency re ile manager.	eject level is	now with th	e sample	✓ Variable Dev

This window allows you to adjust the evaluation parameters. By modifying a parameter, the global parameters become local (by clicking "OK" of course).

Power Level settings can be changed as needed locally. Chapter 9 explains how to use these settings.

For digital TV channels and areas of interference, the area occupied is adjusted by the given offset width.

To change data of the "5th Order Intermodulation", the Option 5<sup>th</sup> Order needs to be selected (we will see it later).

Interrelationship betw	een idep	endents groups
Minimum spacing:	0	kHz

When two groups have an independent interrelation (see section 1.5), the gap between two identical frequencies can be defined with this parameter or set to 0 to use the same frequencies.

The Random Evaluation is a mode or when evaluating frequency, instead of assigning frequencies consecutively random separation is added to the value found (like IAS).

The Auto Start frequency of Variable Device can be activated / deactivated for all the document (in priority to the option on the devices). This allows frequencies that are far apart from each other to be assigned to each device if possible.

Interferences		
Reject Freq on each side:	0.300	MHz

Interferences can be added manually or from a sample file, see section 5.6. This parameter is used to determine at what distance from a carrier it is accepted or rejected.

# 2.6.6 DAB – Digital Audio Broadcasting

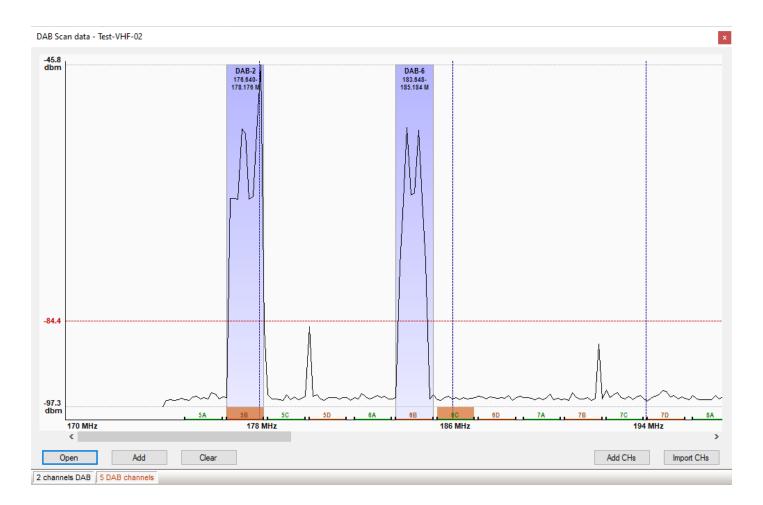


The 3rd command allows to call the editor of DBA channels (Digital Audio Broadcasting) Group III. This publisher is not accessible with the NTSC video standard because this frequency band is used by digital television in North America:

DAB (Digital Audio Broadcastir	ng Band III)*		×
5A 174.928 MHz ✓ 5B 176.640 MHz 5C 178.352 MHz 5D 180.064 MHz	8A 195.936 MHz 8B 197.648 MHz 8C 199.360 MHz ✓ 8D 201.072 MHz	11A 216.928 MHz 11N 217.088 MHz 11B 218.640 MHz 11C 220.352 MHz 11D 222.064 MHz	
6A 181.936 MHz 6B 183.648 MHz ✓ 6C 185.360 MHz 6D 187.072 MHz	9A 202.928 MHz ✓ 9B 204.640 MHz 9C 206.352 MHz 9D 208.064 MHz	<ul> <li>12A 223.936 MHz</li> <li>12N 224.096 MHz</li> <li>12B 225.648 MHz</li> <li>12C 227.360 MHz</li> <li>12D 229.072 MHz</li> </ul>	
7A 188.928 MHz 7B 190.640 MHz 7C 192.352 MHz 7D 194.064 MHz Reject Freq on each side:	10A 209.936 MHz 10N 210.096 MHz 10B 211.648 MHz 10C 213.360 MHz 10D 215.072 MHz 0.300 MHz	<ul> <li>13A 230.784 MHz</li> <li>13B 232.496 MHz</li> <li>13C 234.208 MHz</li> <li>13D 235.776 MHz</li> <li>13E 237.448 MHz</li> <li>13F 239.200 MHz</li> </ul>	Import Scan Clear CH Read Save OK Cancel
41 DAB channels 5 selected channels			

Like the TV channels editor, you can save a list for each city and use it later.

You can also select DAB channels from a scan file:



The red line is the detection level for a DAB channel (if the cumulative width exceeds 40%). This level can be changed by dragging the text value:

-6#0	
------	--

A channel can be activated / deactivated with a click of the mouse. The selected channels of the document appear in orange. Detected channels are independent of the channels in the document. Selection is not automatic because sampling does not necessarily cover the entire range.

The scans files are global, so they are shared with the Intermodulations - Scans module and TV Channels module. The data is saved with the document, so if they are no longer useful, it would be better to delete them.

You can also import DBA channels from public databases for a specific location with the command "Import CH":

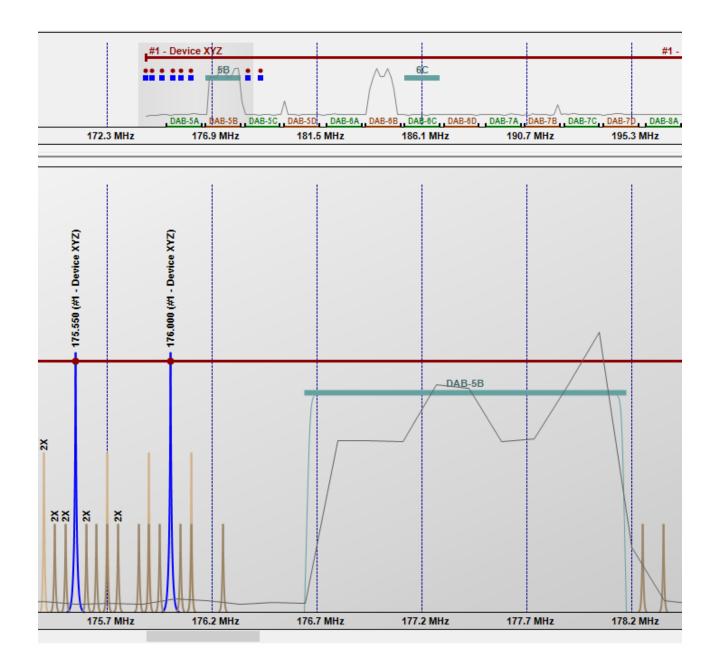
Enter either a postal code, a city name, a full address or a latitude,longitude (45.40,7.57)												
e: Nic	ce						My position					
ail: Nic	ce, Maritime Alps, France	(43.700, 7.27774)										
	-											
ance: 50	km 🗸											
Channel	Name	City	Frequency	Distance 🔺	Power	^						
🗸 11C	Beur FM	Nice	220.352 MHz	4.22 km	6 kW							
🗸 11C	Sud Radio	Nice	220.352 MHz	4.22 km	6 kW							
🗸 11C	Grimaldi FM	Nice	220.352 MHz	4.22 km	6 kW							
✓ 11C	Radio Star	Nice	220.352 MHz	4.22 km	6 kW							
✓ 11C	France Maghreb 2	Nice	220.352 MHz	4.22 km	6 kW							
🗸 11C	Emotion FM	Nice	220.352 MHz	4.22 km	6 kW							
🗸 11C	Crooner radio	Nice	220.352 MHz	4.22 km	6 kW							
🗸 11C	Cannes Radio	Nice	220.352 MHz	4.22 km	6 kW							
✓ 7B	Swigg	Nice	190.640 MHz	4.22 km	2kW							
✓ 7B	Radio Life	Nice	190.640 MHz	4.22 km	2kW							
✓ 7B	Ràdio Lenga d'Oc	Nice	190.640 MHz	4.22 km	2kW							
✓ 7B	Collector Radio	Nice	190.640 MHz	4.22 km	2kW							
✓ 7B	Générations	Nice	190.640 MHz	4.22 km	2kW							
✓ 7B	Latina FM	Nice	190.640 MHz	4.22 km	2kW							
√ 9D	Nice radio	Nice	208.064 MHz	7.62 km	12 kW	~	Import					

Just type a location data as a postal code, a city name, a full address, or GPS data, or latitude-longitude in the format: 44.75, 7.01 (degrees minutes must be in decimal).

Coverage includes France only.

The list displayed depends on the selected distance, between 50 and 200 km. The selected channels vary depending on the combination of distance and power. This suggestion is not foolproof, only the scanner can be reliable. Some channels are allocated but not used.

Finally, the DAB channels are displayed in the same way as the TV channels in the frequency detail:



#### 2.6.7 Available Frequencies

The following zone of the toolbar:

#### ✓ Avail Freq

This command enables or disable the calculation of available frequencies. With a device type Shure UHF-R L3 for example, frequencies vary from 638.000 to 698.000 in steps of 25 kHz, thus a possibility of 2400 frequencies. With several devices of this type and a lot of frequencies within this range, the calculation of available frequencies with each of the possible values with a large number of frequencies requires a high time. As the processor performance

has its limits of performance, there are not so many solutions. EazyRF becomes slow according to the power of the computer. This command allows to bypass this type of problems.

By deactivating the calculation of the available frequencies, EazyRF finds a big fluidity. In addition, the calculation of available frequencies can be enabled or disabled for each device individually.

In the window of edition or addition of manual device, an option allows you to launch the calculation of the available frequencies only for the concerned device:

Avail Freq	
Click to	calculate/desactivate Available Frequencies

In this way, the calculation is more quickly made and you keep access to the list of available frequencies.

#### 2.6.8 Clipboard

The following zone of the toolbar allows to manage the operations of the clipboard:



In the first part of the commands, you can cut a group, a section or a device. In the second part, the commands allow the copy of a group, a section or a device. Finally, the last item allows to paste the data from the previous operation. Obviously, these commands work from a document to the other one or from an EazyRF application to another one.

#### 2.6.9 Off function

The next area of the toolbar manages "Off Function":

O Grp Sect App

EazyRF allows to put a device, a section or a group to "Off", a bit like turning power off on devices. When a device is off, it is displayed as:



No	Description	Freq	Intermodulation
1		Off(632.100)	
2		Off(632.400)	
3		Off(632.850)	
4		Off(633.450)	

This operation frees the frequencies assigned to a device. The display allows you to see what these frequencies were. Note that if I add another device, these frequencies become available and may be assigned to it.

The purpose of these commands is to release devices without removing them.

#### 2.6.10 Blocked / Released Frequencies

The following section of the toolbar allows to manage frequencies individually:



Block freq (remains allocated, but does not count)

Will block a frequency, e.g. eliminate this frequency of allocation in another device. A blocked frequency corresponds to a frequency that you can identify as used but not on your frequency plan (undesirable). It is best to use this command in a device containing only those blocked (easier to see) frequencies.

The second command:

The first command:



Frees a frequency, e.g. remove the attribution of the plan. So it becomes available for another device. This is the equivalent of putting device "Off" but for a particular frequency.

These commands may not be displayed if the width of main window is not sufficient.

#### 2.6.11 Undo / Redo

The next section of the toolbar control operations "Undo" & "Redo" commands:



There is no limit on the level of undo/redo of the commands.

#### 2.6.12 Notes / Changes

Finally, the last commands of the toolbar allow you to see the frequencies changes. The first command shows the changes arisen in the last made operation:

Freq Changes - Global - Full Auto -	
– Group 1	
Section 1	
🖃 #1 - BTR-800 A2 TX	
518.500	
518.800	

The following command displays the changes since the last backup or opening of the document:

nges 🝷 Global 🝷 Full Auto 👻
Group 1
Section 1
🖃 #1 - BTR-800 A2 RX
632.100
632.400
632.850
633.450
🖃 #1 - BTR-800 A2 TX
518.500
518.800

The command affecting the modes of calculations was seen in the chapter 1.

#### 2.7 Notes

#### 2.7.1 Notes – Global View

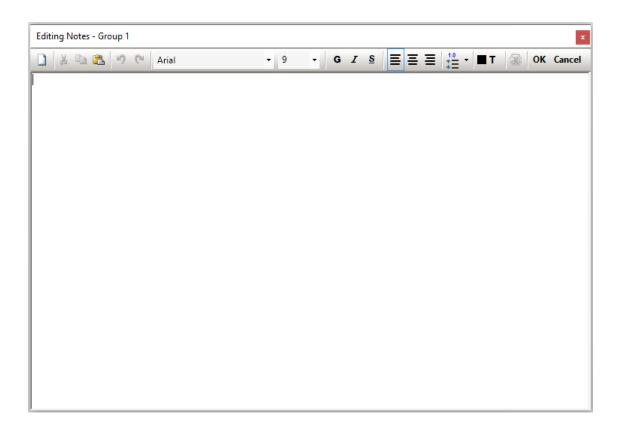
Notes can be added to the document, groups, sections and devices.

The principle of operation is simple, commands to add a note and commands to modify each device, section, group; for the document, only one button to add / modify because there is only one document to edit.

The commands for adding notes have been centralized in the detail section of the selection:

Group - Section - Device									
Group 🛃 Group 1									
Section 🛛 🛃 Section 1									
Dev Desc 🅂 #1									
beyerdynamic Add a note to the device	×								
Wished Freq 12	0								

The "Note" icon contains a "+" to indicate an addition of a note. By clicking on the add note, the editor appears:



When a note is added, the add note icon disappears and another icon appears on the group, section or device:

Group 1	Ø 🔺
Section 1	of •
TV         Ø           #1 - beyerdynamic TG 1000 A         2           Pr (470.100 - 470.600) 70 Avail         70 Avail	

By moving the mouse pointer over the note icons, the content appears:

×,		
	#1 - beyerdynamic TG 1000 A	ē
- The device mu	ust be returned to the rental company by <b>4 p.m. on Sunday</b> .	
L		

By clicking on the icon, the note editor appears instead of the text bubble:

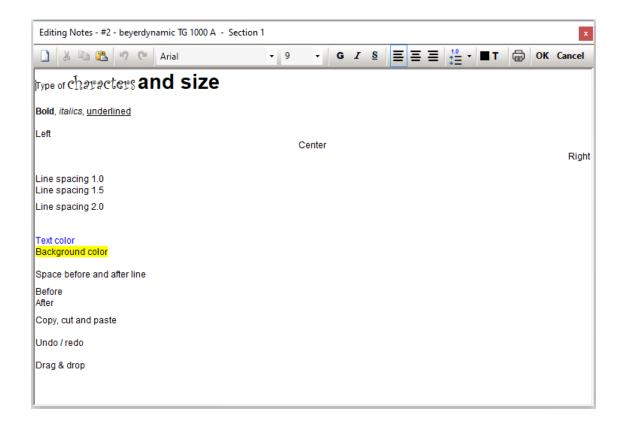
Editing Notes - #1 - beyerdynamic TG 1000 A - Section	n 1														×
🗋 🐰 🗈 😤 🤊 🝽 Arial	•	9	-	G	I	<u>s</u>	≣	Ξ	≣	1.0 1,1	-	T	÷	ок	Cancel
The device must be returned to the rental company by	4 p.n	n. on Si	unday.												

# 2.7.2 Note editor

The note editor allows you to style the text from its toolbar:

Editing Notes - New docume	nt ×
9 ° 🗳 🗗 🖌 🚺	Arial $\mathbf{v}$ 18 $\mathbf{v}$ <b>G</b> $\mathbf{I}$ <b>S</b> $\equiv$ $\equiv$ $\equiv$ $\stackrel{12}{\equiv}$ $\mathbf{v}$ $=$ <b>T</b> $\stackrel{12}{\otimes}$ OK Cancel
	Arial ^ 4.50
	Arial Black
	Arial Narrow
	Arial Rounded MT Bold
	Atlanta
	Bahnschrift
	Bahnschrift Condensed
	Bahnschrift Light
	Bahnschrift Light Condensed
	Bahnschrift Light SemiCondensed
	Bahnschrift SemiBold
	Bahnschrift SemiBold Condensed
	Bahnschrift SemiBold SemiConder
	Bahnschrift SemiCondensed
	Bahnschrift SemiLight
	Bahnschrift SemiLight Condensed
	Bahnschrift SemiLight SemiConde
	Barlow Condensed
	Baskerville Old Face
	Bauhauz 93 🗸 🗸

Here is an overview of the supported formatting:



The printer icon sets whether or not to print device notes in reports ( and or ). Only device notes are printable.

Printing of notes for devices can be enabled individually for each device and globally enabled / disabled when printing reports:

Presentation	
<ul> <li>By Groups/Sections</li> <li>By Sections</li> <li>By Devices</li> </ul>	<ul> <li>Except Sections without devices</li> <li>Except Devices without Frequencies</li> <li>Print Client Informations</li> <li>Do not print device notes</li> </ul>
	W2

To copy frequencies and descriptions of a device, make a selection in a device editor, copy with the keyboard: CTRL + C:

Editir	ng Notes - #1	- A1-128K	Lav, Hand	(1-8) - Sec	tion 1												×
	X 🖻 🖺	50	Arial		•	9	•	G	I	<u>s</u>	≣∃	≣	1.0 1 =	T	÷	ок	Cancel
Mic 1	578.500																
Mic 2	578.800																
Mic 3 Mic 4																	
Mic 5	580.050																
Mic 6 Mic 7	580.500 581.050																
Mic 8	582.650																
L																	

To drag & paste from Excel or Word, these must have been started as administrator.

You can paste pictures as well.

If you need more sophisticated text formatting, you can do it in Word and simply copy it to EazyRF.

The data is saved in compressed format (zip), therefore of reasonable size.

The size of the edit window can be adjusted and saved for use when EazyRF is restarted. To restore the default size, increase or decrease the size with the CTRL key, the size will be adjusted at the end of the operation.

The TAB key moves to the note of the next device, while Shift + TAB, moves to the previous device. To use tabulation, you must use the CTRL key simultaneously.

#### 2.7.3 Notes – Detailed View

Adding a note from the "Detailed View" pane is done in a similar way, the commands are always found in the detail section of the selection:

Group - Section - Devic	e
Group:	*
Group 1	
Section:	*
Section 1	
Dev Description:	2
#1	3
Device:	Add a note to the device
beyerdynamic TG 1000 A	*

With the result when notes are added to a device, a section, a group and to the document:

⊘ Title: New document	EazyRF V4 User Guide
Group 1	💉 👏
Section 1	1 × 1
#1 - beyerdynamic TG 1000 A 2 Fr (602.500 - 603.100) 56 Avail	TV 🧭 🔺

#### 2.7.4 Notes – Document

The operation of a note for the document is slightly different. By default, EazyRF offers content (EazyRF with the latest version number):

Title:	New document
G	New document
	EazyRF V4.50

Adding and viewing the note is done from the same command:

Title:	New document
Add a r	note to the document

### 2.7.5 Notes – Frequencies Plan

In the "Frequencies Plan" view, only the command for the document note is found:

🧭 Title:	New document		
	Description	Frequency	Comment

### 2.7.6 Notes – Multi-Scenes

### 2.8 Edition of a Device

Desc #1	ription:			Tolerance 2
Devid	ce		Micros	Tolerance 3
Shun	e AD4D G57		~	50
Start:		Stop:	Increment:	Separation
470.1	125	607.875	0.025	400
7 4	uto Start:	503.700	TV Channels:	Image Free
		505.700	15 (476-482 MHz	None
D	escending orde	r	Tolerance 5th:	Filter:
1.5	h Order Evalua	tion (if Global)	50	32.00
TX P	ower Level:		0 mw 2 TX: 0 kHz 3 TX: 0	Random
	ower Level.	└──── kHz	5 TX: 0 kHz	
r Nbi		Protected		q Clear
r Nbi	r. 8 🗘			q Clear Scans
No	r. 8 🗘	Protected		Scans 51 Avail Freq
No 1	r: 8 🗘	Protected f = 1 Col Freq 506.500 20	Manual 🗹 Avail Free	Scans 51 Avail Freq 14 470.775
<b>No</b> 1 2	r: 8 🗘	Protected = 1 Col Freq 506.500 20 506.900 20	Manual 🗹 Avail Free	Scans 51 Avail Freq
<b>No</b> 1 2 3	r: 8 🗘	Protected     Freq     506.500 20     507.450 20	Manual 🗹 Avail Free	Scans 51 Avail Freq 14 470.775 14 471.175 14 472.025 14 472.725
No 1 2 3 4	r: 8 🗘	Protected = 1 Col 506.500 20 506.900 20 507.450 20 507.900 20	Manual 🗹 Avail Free	Scans 51 Avail Freq 14 470.775 14 471.175 14 472.025 14 472.725 14 473.525
No 1 2 3 4 5	r: 8 🗘	Protected Freq 506.500 20 506.900 20 507.450 20 507.900 20 508.500 20	Manual 🗹 Avail Free	Scans 51 Avail Freq 14 470.775 14 471.175 14 472.025 14 472.725 14 473.525 14 473.525 14 474.425
No 1 2 3 4 5 6	r: 8 🗘	Protected  Freq 506.500 20 507.450 20 508.500 20 508.500 20 508.500 20 508.500 20 508.500 20 508.500 20 508.500 20 509.200 20 500.200	Manual 🗹 Avail Free	Scans 51 Avail Freq 14 470.775 14 471.175 14 472.025 14 472.725 14 473.525
No 1 2 3 4 5 6 7	r: 8 🗘	Protected     Protected     Freq     506.500 20     507.450 20     507.900 20     507.900 20     509.200 20     509.200 20	Manual 🗹 Avail Free	Scans 51 Avail Freq 14 470.775 14 471.175 14 472.025 14 472.725 14 473.525 14 473.525 14 474.425 14 475.175 16 486.050 18 499.250
No 1 2 3 4 5 6	r: 8 🗘	Protected  Freq 506.500 20 507.450 20 508.500 20 508.500 20 508.500 20 508.500 20 508.500 20 508.500 20 508.500 20 509.200 20 500.200	Manual 🗹 Avail Free	Scans 51 Avail Freq 14 470.775 14 471.175 14 472.025 14 472.725 14 473.525 14 473.525 14 474.425 14 475.175 16 486.050 18 499.250 22 518.500
No 1 2 3 4 5 6 7	r: 8 🗘	Protected     Protected     Freq     506.500 20     507.450 20     507.900 20     507.900 20     509.200 20     509.200 20	Manual 🗹 Avail Free	Scans 51 Avail Freq 14 470.775 14 471.175 14 472.725 14 472.725 14 473.525 14 473.525 14 475.175 16 486.050 18 499.250 22 518.500 22 519.000
No 1 2 3 4 5 6 7	r: 8 🗘	Protected     Protected     Freq     506.500 20     507.450 20     507.900 20     507.900 20     509.200 20     509.200 20	Manual 🗹 Avail Free	Scans 51 Avail Freq 14 470.775 14 471.175 14 472.025 14 472.725 14 473.525 14 473.525 14 474.425 14 475.175 16 486.050 18 499.250 22 518.500
No 1 2 3 4 5 6 7	r: 8 🗘	Protected     Protected     Freq     506.500 20     507.450 20     507.900 20     507.900 20     509.200 20     509.200 20	Manual 🗹 Avail Free	Scans 51 Avail Freq 14 470.775 14 471.175 14 472.025 14 472.725 14 473.525 14 475.175 14 475.175 16 486.050 18 499.250 12 519.500 22 519.000 22 519.750 22 520.850 22 522.550
No 1 2 3 4 5 6 7	r: 8 🗘	Protected     Protected     Freq     506.500 20     507.450 20     507.900 20     507.900 20     509.200 20     509.200 20	Manual 🗹 Avail Free	Scans           51 Avail Freq           14 470.775           14 471.175           14 472.025           14 472.725           14 472.725           14 472.725           14 473.525           14 474.425           14 475.175           16 486.050           18 499.250           22 519.000           22 519.000           22 519.000           22 520.850           22 520.850           22 523.450
No 1 2 3 4 5 6 7	r: 8 🗘	Protected     Protected     Freq     506.500 20     507.450 20     507.900 20     507.900 20     509.200 20     509.200 20	Manual 🗹 Avail Free	Scans 51 Avail Freq 14 470.775 14 471.175 14 472.025 14 472.725 14 473.525 14 473.525 14 475.175 16 486.050 18 499.250 18 499.250 22 519.000 22 519.750 22 519.750 22 520.850 22 522.550
No 1 2 3 4 5 6 7	r: 8 🗘	Protected     Protected     Freq     506.500 20     507.450 20     507.900 20     507.900 20     509.200 20     509.200 20	Manual 🗹 Avail Free	Scans           51 Avail Freq           14 470.775           14 471.175           14 472.025           14 472.725           14 472.725           14 472.725           14 473.525           14 474.425           14 475.175           16 486.050           18 499.250           22 519.000           22 519.000           22 519.000           22 520.850           22 520.850           22 523.450

The editing window of a device is called by making a double-click on a device in a section:

This window allows you to edit all the parameters affecting the evaluation of the device. It is also possible to use the list of available frequencies to make changes. To classify the frequencies in ascending or descending order, use the arrows at the top of the header "Freq". It is also possible to classify the frequencies by description. It is also possible to auto-increment the description frequencies using Ctrl + Alt (as seen above) and import data from Excel.

The editor has its own system of "Undo/Redo" which allows to cancel/repeat each operation. The command "Undo/Redo" of the "Global View" and "Detailed View" panes allows you to cancel/repeat the complete editing done on a device.

In addition, the editor now has a visual effect when moving available frequencies to clearly identify the destination, the background color varies:

470.300 14	470.300 14
------------	------------

This visual effect is also available in the "Global View" pane.

The format of the editor changes when there are intermodulations in order to display the details of them:

Device Edition - #2 - Shure AD4D G57			
Description:	Tolerance 2 TX:	Nb IM: 4	
#2	100	Frequency	Intermodulation
Device Micros Shure AD4D G57	Tolerance 3 TX: 50	487.000	25 kHz - 470.150 & 471.175 & 486.000 0 kHz - 471.175 & 475.175 & 483.000 25 kHz - 473.525 & 482.500 & 495.950
Start: Stop: Increment:	Separation:	495.950	25 kHz - 473.525 & 482.500 & 487.000
470.125 607.875 0.025	400	497.100	
	Luces From	499.150	
Auto Start: TV Channels:	Image Freq: None		
15 (476-482 MHz Descending order	None		
Tolerance 5th:	Filter:		
50 5th Order Evaluation (if Global)	32.00		
Fr Nbr: 4  Protected Manual Avail Freq	Clear	8 Freq	
A ▼ + Ctrl = 1 Col     A ▼     No Description Freq Intermodulation	Scans 47 Avail Freq	8 Freq Frequency	Description
No         Description         Freq         Intermodulation           1         487.000         16         25 kHz - 470.150 & 471	Scans 47 Avail Freq 20 506.650	· · · · · · · · · · · · · · · · · · ·	Description #1 - Shure SLX G4-G4E - Section 1, Group 1
No         Description         Freq         Intermodulation           1         487.000         16         25 kHz - 470.150 & 471           2         495.950         18         25 kHz - 473.525 & 482	Scans 47 Avail Freq 20 506.650 20 507.100 20 507.850	Frequency 470.150 471.175	-
No         Description         Freq         Intermodulation           1         487.000         16         25 kHz - 470.150 & 471           2         495.950         18         25 kHz - 473.525 & 482           3         497.100         18	Scans 47 Avail Freq 20 506.650 20 507.100 20 507.850 20 508.750	Frequency 470.150	#1 - Shure SLX G4-G4E - Section 1, Group 1
No         Description         Freq         Intermodulation           1         487.000         16         25 kHz - 470.150 & 471           2         495.950         18         25 kHz - 473.525 & 482	Scans 47 Avail Freq 20 506.650 20 507.100 20 507.850	Frequency 470.150 471.175 473.525 475.175	#1 - Shure SLX G4-G4E - Section 1, Group 1 #1 - Shure AD4D G57 - Section 1, Group 1 #1 - Shure AD4D G57 - Section 1, Group 1 #1 - Shure AD4D G57 - Section 1, Group 1
No         Description         Freq         Intermodulation           1         487.000         16         25 kHz - 470.150 & 471           2         495.950         18         25 kHz - 473.525 & 482           3         497.100         18	Scans 47 Avail Freq 20 506.650 20 507.100 20 507.850 20 508.750 20 509.800 22 519.100 22 519.650	Frequency 470.150 471.175 473.525 475.175 482.500	<ul> <li>#1 - Shure SLX G4-G4E - Section 1, Group 1</li> <li>#1 - Shure AD4D G57 - Section 1, Group 1</li> <li>#1 - Shure AD4D G57 - Section 1, Group 1</li> <li>#1 - Shure AD4D G57 - Section 1, Group 1</li> <li>#1 - Shure PSM 1000 G11 - Section 1, Group 1</li> </ul>
+ Ctrl = 1 Col           No         Description         Freq         Intermodulation           1         487.000 16         25 kHz - 470.150 & 471           2         495.950 18         25 kHz - 473.525 & 482           3         497.100 18	Scans 47 Avail Freq 20 506.650 20 507.100 20 507.850 20 508.750 20 509.800 22 519.100	Frequency           470.150           471.175           473.525           475.175           482.500           483.000	<ul> <li>#1 - Shure SLX G4-G4E - Section 1, Group 1</li> <li>#1 - Shure AD4D G57 - Section 1, Group 1</li> <li>#1 - Shure AD4D G57 - Section 1, Group 1</li> <li>#1 - Shure AD4D G57 - Section 1, Group 1</li> <li>#1 - Shure PSM 1000 G11 - Section 1, Group 1</li> <li>#1 - Shure PSM 1000 G11 - Section 1, Group 1</li> </ul>
+ Ctrl = 1 Col         ▼           No         Description         Freq         Intermodulation           1         487.000         16         25 kHz - 470.150 & 471           2         495.950         18         25 kHz - 473.525 & 482           3         497.100         18	Scans 47 Avail Freq 20 506.650 20 507.100 20 507.850 20 508.850 20 509.800 22 519.100 22 519.650 22 520.600 22 522.400 22 522.400	Frequency           470.150           471.175           473.525           475.175           482.500           483.000           486.000	<ul> <li>#1 - Shure SLX G4-G4E - Section 1, Group 1</li> <li>#1 - Shure AD4D G57 - Section 1, Group 1</li> <li>#1 - Shure AD4D G57 - Section 1, Group 1</li> <li>#1 - Shure AD4D G57 - Section 1, Group 1</li> <li>#1 - Shure PSM 1000 G11 - Section 1, Group 1</li> <li>#1 - Shure PSM 1000 G11 - Section 1, Group 1</li> <li>#1 - Shure AD4D G57 - Section 1, Group 1</li> </ul>
+ Ctrl = 1 Col         ▼           No         Description         Freq         Intermodulation           1         487.000         16         25 kHz - 470.150 & 471           2         495.950         18         25 kHz - 473.525 & 482           3         497.100         18	Scans 47 Avail Freq 20 506.650 20 507.100 20 507.850 20 508.750 20 508.750 22 519.100 22 519.650 22 520.600 22 521.400 22 522.000 23 524.150	Frequency           470.150           471.175           473.525           475.175           482.500           483.000	<ul> <li>#1 - Shure SLX G4-G4E - Section 1, Group 1</li> <li>#1 - Shure AD4D G57 - Section 1, Group 1</li> <li>#1 - Shure AD4D G57 - Section 1, Group 1</li> <li>#1 - Shure AD4D G57 - Section 1, Group 1</li> <li>#1 - Shure PSM 1000 G11 - Section 1, Group 1</li> <li>#1 - Shure PSM 1000 G11 - Section 1, Group 1</li> </ul>
+ Ctrl = 1 Col           No         Description         Freq         Intermodulation           1         487.000         16         25 kHz - 470.150 & 471           2         495.950         18         25 kHz - 473.525 & 482           3         497.100         18           4         499.150         18	Scans 47 Avail Freq 20 506.650 20 507.100 20 507.850 20 508.850 20 509.800 22 519.100 22 519.650 22 520.600 22 522.400 22 522.400	Frequency           470.150           471.175           473.525           475.175           482.500           483.000           486.000	<ul> <li>#1 - Shure SLX G4-G4E - Section 1, Group 1</li> <li>#1 - Shure AD4D G57 - Section 1, Group 1</li> <li>#1 - Shure AD4D G57 - Section 1, Group 1</li> <li>#1 - Shure AD4D G57 - Section 1, Group 1</li> <li>#1 - Shure PSM 1000 G11 - Section 1, Group 1</li> <li>#1 - Shure PSM 1000 G11 - Section 1, Group 1</li> <li>#1 - Shure AD4D G57 - Section 1, Group 1</li> </ul>
+ Ctrl = 1 Col         ▼           No         Description         Freq         Intermodulation           1         487.000         16         25 kHz - 470.150 & 471           2         495.950         18         25 kHz - 473.525 & 482           3         497.100         18	Scans 47 Avail Freq 20 506.650  20 507.100 20 507.850 20 509.800 22 519.100 22 519.650 22 521.400 22 522.000 23 524.150 23 524.650 23 525.750 23 528.000 24 533.100	Frequency           470.150           471.175           473.525           475.175           482.500           483.000           486.000	<ul> <li>#1 - Shure SLX G4-G4E - Section 1, Group 1</li> <li>#1 - Shure AD4D G57 - Section 1, Group 1</li> <li>#1 - Shure AD4D G57 - Section 1, Group 1</li> <li>#1 - Shure AD4D G57 - Section 1, Group 1</li> <li>#1 - Shure PSM 1000 G11 - Section 1, Group 1</li> <li>#1 - Shure PSM 1000 G11 - Section 1, Group 1</li> <li>#1 - Shure AD4D G57 - Section 1, Group 1</li> </ul>

EazyRF offers several data editing methods. The result is the same regardless of the method used. The objective is to eliminate the navigation to find commands. Normally there is always a method of edition within the reach of the user.

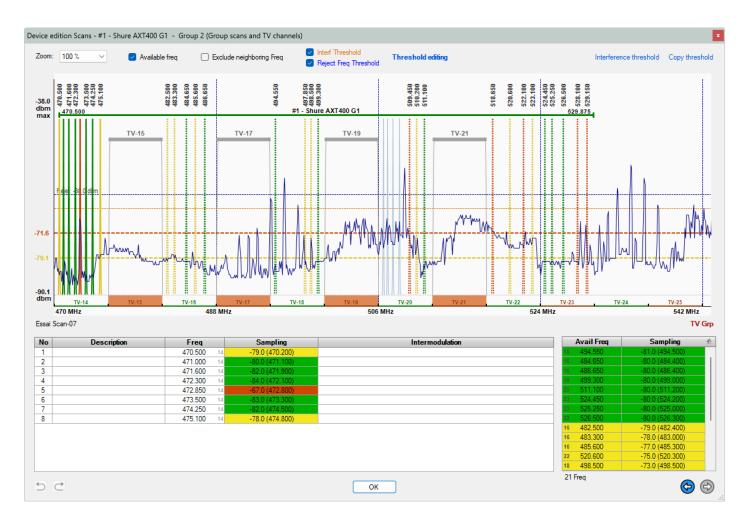
The buttons:



Allow you to move from device to device without having to close the editor and open it with another device.

#### 2.8.1 Device scans

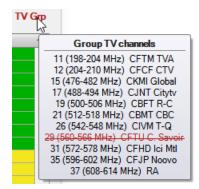
The "Scans" command of the device editor calls up the sampling analysis module according to a device, i.e. for the range of frequencies covered by the device:



The title bar displays which type of scan file is used by the group associated with the device, either that of the group or of the document (see section 5.6), the scans are displayed in gray when they come from the document or in blue if they belong to the group.

The name of the scan file is displayed at the bottom of the sampling display area on the left.

If the group manages the TV channels, the display "TV Grp" appears at the bottom right of the sampling display area:



TV channels can also be modified as in the scan module, but the difference is that in this editor, there is no need to save TV channels because the change is made immediately for real-time viewing. As this editor has Undo/Redo commands, changing TV channels uses it:

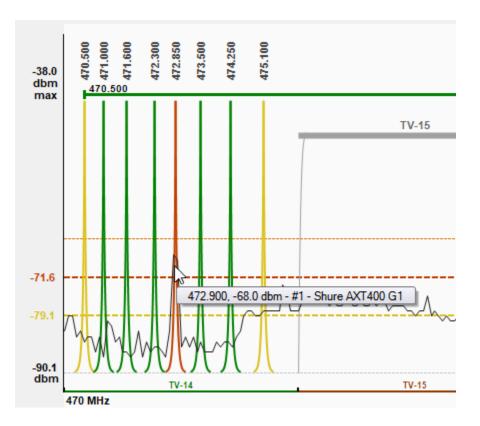


By default, EazyRF displays the full range of frequencies, the "Zoom" command displays more details:



The frequency analysis is based on the level of the samples, the value of the rejection width of the interference frequencies (0.300 MHz by default) is used for the calculation (document parameters).

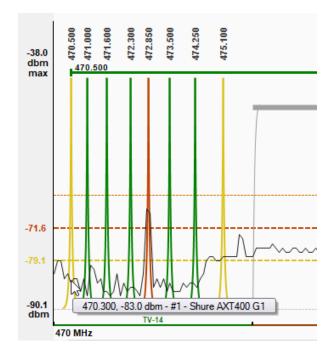
A yellow tolerance threshold is used to detect the frequencies that can be reached by sampling:



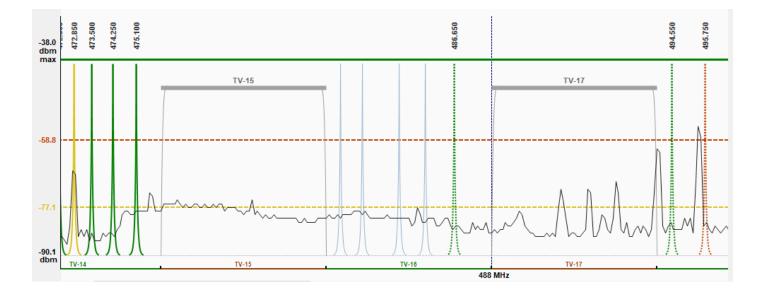
The detection threshold of the red zone is fixed here at -71.6 dbm, the frequency 472.850 is near a sampling peak at 472.900, level -68.0 dbm. The affected frequency is displayed in red to illustrate the possible problem.

The yellow zone makes it possible to detect the frequencies less reached by the samplings.

The frequencies shown in green are located in an area where sampling is less accentuated.



See section 2.7.1.2 for more details on detection thresholds.

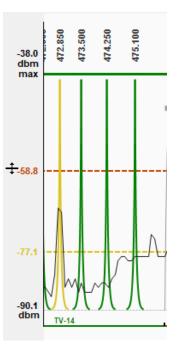


The available frequencies are also analyzed, they are displayed in dotted lines. Frequencies in light blue are frequencies assigned to other devices (without being analyzed), but within the spectrum of the displayed device.

The following controls allow you to display or not the available frequencies and those of other devices:



To move the tolerance level, all you have to do is drag the text of the level displayed in the left part:



At this point, the mouse pointer changes shape to indicate the displacement.

The rejection zone threshold can be modified, the threshold is defined for the document or for the group and not for a device:



## 2.8.1.1 Device Scans – Results analysis

EazyRF analyzes the frequencies (basic and available) and displays the result using a colored background (green, yellow and red):

No	Description	Freq		Sampling	Intermodulation
1		470.500	14	-79.0 (470.200)	
2		471.000	14	-80.0 (471.100)	
3		471.600	14	-82.0 (471.900)	
4		472.300	14	-84.0 (472.100)	
5		472.850	- 14	-67.0 (472.800)	
6		473.500	14	-83.0 (473.300)	
7		474.250	14	-82.0 (474.500)	
8		475.100	14	-78.0 (474.800)	

We see that the frequency 470.500 is in the yellow zone because of the sampling 470.200 of level -79.0 dbm. The frequency 472.850 is found in the red zone because of the sampling 472.800 of level -67.0 dbm.

The analysis of the available frequencies goes a little further:

	Avail Freq	Sampling	- etc.		Avail Freq	Sampling	e 🕆
18	494.550	-81.0 (494.500)	$\sim$	16	482.500	-79.0 (482.400)	~
16	484.650	-80.0 (484.400)		16	483.300	-78.0 (483.000)	
16	486.650	-80.0 (486.400)		16	485.600	-77.0 (485.300)	
18	499.300	-80.0 (499.000)		22	520.600	-75.0 (520.300)	
20	511.100	-80.0 (511.200)		18	498.500	-73.0 (498.500)	
23	524.450	-80.0 (524.200)		22	523.100	-73.0 (522.800)	
23	525.250	-80.0 (525.000)		18	497.850	-72.0 (497.700)	
23	526.500	-80.0 (526.300)		20	510.200	-72.0 (509.900)	
16	482.500	-79.0 (482.400)		22	522.100	-71.0 (522.300)	
16	483.300	-78.0 (483.000)		20	509.450	-70.0 (509.200)	
16	485.600	-77.0 (485.300)		22	518.650	-70.0 (518.400)	
22	520.600	-75.0 (520.300)		23	529.150	-69.0 (529.000)	
18	498.500	-73.0 (498.500)	~	23	528.100	-68.0 (528.400)	<b>~</b>

The frequencies are classified by detection zone (green, yellow and red) and moreover, they are classified according to the level of the samplings and then by frequency value. So EazyRF suggests you the best frequencies according to the sampling, the frequency 482.500 (-79.0 dbm, 482.400) is a better choice than the frequency 510.200 (-72.0 dbm, 509.900) for example.

The frequencies can be classified in ascending or descending order of samplings, or frequency values by clicking on the headers, an indicator illustrates the direction:

Sampling 🕀

In addition, the frequency order follows the "Ascending / Descending" direction of the device.

This module is not an editor of the parameters of a device, it only allows you to drag and paste the available frequencies. To do this, make a selection with the left mouse button for a non-continuous selection (use Shift for an extended selection or Ctrl for a multiple selection), or drag the right mouse button for a continuous selection. Finally, to move the selection, use the left button:

No	Description	Freq	Sampling	Intermodulation		Avail Freq	Sampling
1		470.500 14	-79.0 (470.200)		18	494.550	-81.0 (494.500)
2		471.000 14	-80.0 (471.100)		16	486.650	-80.0 (486.400)
3		471.600 14	-82.0 (471.900)		18	499.350	-80.0 (499.100)
4		472.300 14	-84.0 (472.100)		23	525.150	-80.0 (524.900)
5		472.850 14	-67.0 (472.800)	525.150, 526.050, 520.650, 521.200	23	526.050	-80.0 (525.800)
6		473.500 14	-83.0 (473.300)	<u>40</u>	22	520.650	-75.0 (520.400)
7		474.250 14	-82.0 (474.500)		22	521.200	-75.0 (520.900)
8		475.100 14	-78.0 (474.800)		22	521.850	-74.0 (521.700)
					18	498.500	-73.0 (498.500)
					22	523.450	-73.0 (523.200)
					18	497.850	-72.0 (497.700)
					22	519.350	-72.0 (519.300)
					22	518.850	-71.0 (518.600)

Any modification can be canceled and redone using the "Undo / Redo" commands.

By positioning the mouse pointer over the list of available frequencies, the lower and upper spacing of the frequency from the document frequencies is displayed:

Avail Freq Sampling
552.50 -100.4 (552.775)
52.950 JOD 4 (552 775)
7 950 1.200 of 551.300 MHz - #1 - Shu
1.700 of 554.200 MHz - #1 - Sen

The arrows at the bottom of the window allow you to move to the next or previous device:

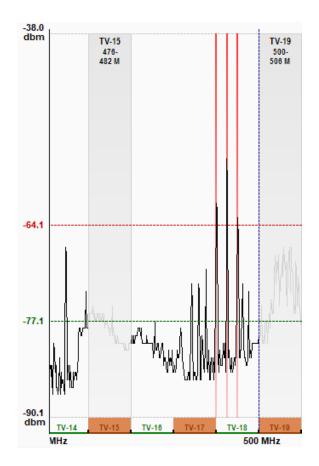


The "Sampling" option of the document parameters allows frequencies to be rejected automatically during calculations (see section 2.5.4):

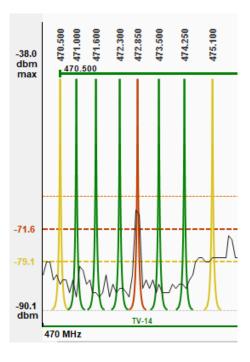
Scans		
Reject Freq if level greater than (-50 à -89):	-60	dbm

#### 2.8.1.2 Device Scans – Threshold detection

By default, EazyRF uses the interference detection threshold of the Sampling module:



In this example, the threshold is set to -64.1 dbm. EazyRF will use this value with an offset of -7.5 dbm for the red level and -15 dbm for the yellow level, i.e. -71.6 and -79.1 respectively when adding a device:

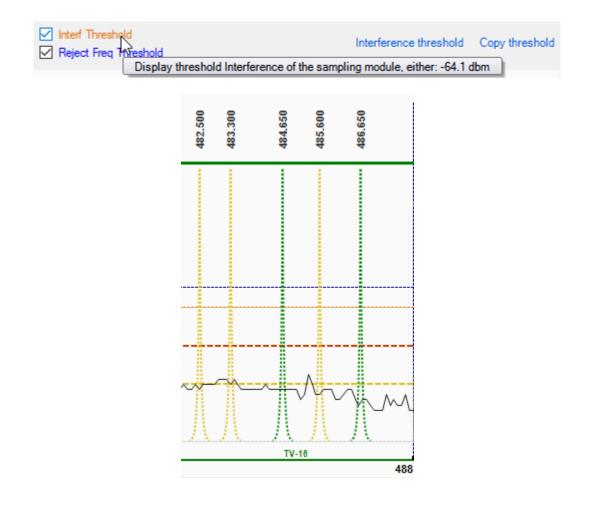


These values can be modified manually or directly with the command:

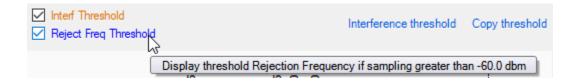
Interference threshold Copy threshold	
Apply interferences detection threshold -64.1 dbm with a gap of Click: -5 dbm on red and -10 dbm on yellow, i.e.: -69.1 and -74.1 dbm CTRL + Click: -7.5 dbm on red and -15 dbm on yellow, i.e.: -71.6 and -79.1 db ALT + Click: -10 dbm on redandt -20 dbm on yellow, i.e.: -74.1 et -84.1 dbm	m

Thus, by using the Ctrl, Alt or none keys, a different correction can be assigned from the level of interference detection.

The threshold of the interference level or that of the rejection frequencies can be displayed with these commands:



The orange threshold represents the level of interference and the blue that of the automatic frequency rejection (if activated).



See section 2.5.4 for more information on the rejection of frequencies according to sampling.

Finally, the red and yellow threshold values can be copied to all devices in the document or in a group:

Copy threshold	
Copy threshold -71.6 (red) and -79.1 (yellow) Click: on all devices in the document CTRL + Click: on all devices in the group: Grou	p 1

### 2.9 Client Report creation

This module is used to create a report for delivery to a customer. The report can be created in pdf or printed directly.

Here is an example of a report:

Logo		Address	Email Phone
	Frequenc	ies Coordination	
	Version:	Guide Test 4.71 221101-1200	
	Event:	New document	
	Client:	NW	
	City:	Montreal	
	Date:	11/11/23	
	Contact:	Roger Rog	

Main	Stage	
Mic	ros	
#1 - beyerdyna	mic TG 1000 A	
584.750	585.850	
586.850	587.400	
588.100	588.600	
589.450	590.600	
#1 - beyerdyna	mic TG 1000 B	
552.500	553.000	
553.650	554.200	

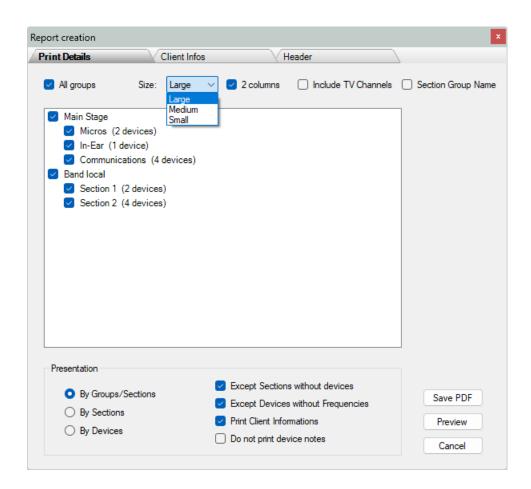
Phone: **123-456-7890** Email: **lui@me.com** 

In-Ear					
#1 - Shure PSM 1000 G11					
527.800 528.900					

To create this report, use the command:



#### 2.9.1 Print Details



The tool has three panes that allow you to define the elements to be printed, the client informations, and the customized creation of the report header.

In the "Print Details" pane, you can select each group or section separately, the "All Groups" option selects all groups and sections.

The size makes it possible to reduce the height of the lines of the document and the "2 columns" option, to place two frequencies per line. The "Section Group Name" option allows you to display the name of the group following the name of the section.

In the "Presentation" section, the "By Groups / Sections" option displays device data by section with the group name, while "By Sections" displays the section name only. The "By Devices" option displays data per device separately without the section and group name.

Sections without devices may not be displayed with "Except Sections without devices", while the option "Except Devices without Frequencies" does not display devices with no allocated frequency.

The option "Print Client Informations" allows to display the data relating to a client, data entered in the "Client Infos" pane in next section.

The "Do not print device notes" option is used not to print notes added to devices, even if they are marked as printable (see section 2.6.2).

The "Preview" button display the report before printing.

The "Save PDF" button allows to save the report in a PDF file. This file is locked and can't be edited by anyone.

#### 2.9.2 Client Informations

Report creation				x
Print Details	Client Infos	Header		
	Frequence	cies Coordinat	ion	
Version:	01/06/2017 12h00			
Client:	Beta			
Event:	Big Show			
City:	Montreal			
Date:	June 24th 2017			
Contact:	Jeff			
Phone:	123-456-7890			
Email:	jeff@event.co			
	Do not print undefined in	formation		Save PDF
				Preview
				Cancel

This pane allows you to define the data for a client and for an event. The title data (in bold) is also editable, it is global to all documents, while personal data is relative to the current document only.

The option "Do not print undefined information" is used to cancel the printing of an undefined data line (right part).

#### 2.9.3 Header

Report creation			x
Print Details	Client Infos	Header	
Left part	20	Set	
	Height 80, Width: 250 pixels	LogoEz.png	
Middle part	S	9999 rue AB te-Ville (Québec) J1K 1K0	
Right part			regis@eazyrf.com
			514-922-5818
☑ On all pages			Save PDF Preview Cancel

The document header has three parts, the left, center, and right.

In the left part, an image can be added (company logo). The "Set" button allows you to select an image. The image is copied to the EazyRF installation directory. The maximum size displayed (and not the base image) is 80 pixels for height and 250 for width (proportion retained).

The central part is used to define the address of your company.

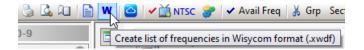
The right part is intended to display the contact data of your company.

The "On all pages" option prints this header on all pages of the document or only on the first page (the name to which the EazyRF license was granted appears on the subsequent pages at that time).

### 2.10 Creation of Wisycom frequency list

This option allows you to create frequency lists in Wisycom format, ie 450000 instead of 450.000 MHz.

The command:



#### Call the editor:

Create list of frequencies in Wisycom format			×
All groups			٦
<ul> <li>Group 1</li> <li>✓ Section 1 (2 devices)</li> <li>✓ Section 2 (2 devices)</li> <li>✓ Group 2</li> <li>✓ Section 1 (1 device)</li> </ul>			
Presentation			12 frequencies Transfer Table
By groups classified freq	Start Group:	GR00 ~	Copy text
O By Groups	Start Chanel:	СН0 🗸	
O By classified freq	otart chanor.		Save XWDF
			Cancel

Like the client reporting tool, group / section selection is allowed.

In the "Presentation" section, simply select the desired type of frequency classification, then select the destination cell for the Wisycom frequency editor.

For the following selection:

Create list of frequencie	es in Wisycom fo	ormat			×
All groups					
<ul> <li>✓ Group 1</li> <li>✓ Section 1 (3)</li> <li>☐ Section 2 (2)</li> <li>✓ Group 2</li> <li>✓ Section 1 (1)</li> </ul>	devices)				
_					24 frequencies Transfer Table
Presentation	sified freq		Start Group:	GR10 ~	Copy text
O By Groups	3		R11 nel:	CH20 ~	Save XWDF
O By classified f	CH20 6 CH21 6	22325 646	400 950		Cancel
	CH23 6	24025 24775			
	CH25 6	25625			
	CH27 6	29275 36775			
	CH29 6	37575 344625			
	CH31 6	50725			
	CH33 6	86500 87000			
	CH35 6	87600 88300			
		88850 89500			
	CH38 6	90250 91100			
	CH40 7	/15694 /16094			

The frequencies of each group are classified.

There are three ways to transfer data to the Wisycom Frequency Editor:

Transfer Table
Copy text
Save XWDF

We can transfer the frequencies directly in the editor of Wisycom if no file is open, the reason is simple, EazyRF looks for the window with the title "Frequency Table":



Second option, via the clipboard. This makes it possible to paste the frequencies if a file is open (command Ctrl + V).

Finally, the last option is the creation of a file in .xwdf format, format recognized by Wisycom.

And we get the result:

	ency Table	_		•		
				6	)	
	Name	Exp (sel. By name)	GR09	GR10	GR11	GR12
Name	4	()		-	-	-
Description			-		_	
CH14	-	NONE	70000	470000	470000	470000
CH14 CH15	_	NONE	70000	470000	470000	470000
CH16	-	NONE	70000	470000	470000	470000
CH17	-	NONE	70000	470000	470000	470000
CH18	-	NONE	70000	470000	470000	470000
CH18 CH19	-	NONE	70000	470000	470000	470000
CH19 CH20	-	NONE	70000	622325	646400	470000
CH20 CH21	-	NONE	70000	622925	646950	470000
CH22	-	NONE	70000	623375	470000	470000
CH22	-	NONE	70000	624025	470000	470000
CH23	-	NONE	70000	624775	470000	470000
CH25	-	NONE	70000	625625	470000	470000
CH25	-	NONE	70000	626775	470000	470000
CH27	-	NONE	70000	629275	470000	470000
CH28	-	NONE	70000	636775	470000	470000
CH20 CH29	-	NONE	70000	637575	470000	470000
CH29 CH30		NONE	70000	644625	470000	470000
CH30 CH31		NONE	70000	650725	470000	470000
CH31 CH32		NONE	70000	686500	470000	470000
		NONE	70000	687000	470000	470000
CH33	-	NONE	70000	687600	470000	470000
CH34	-	NONE	70000	688300	470000	470000
CH35	-	NONE	70000	688850		470000
CH36		NONE	70000	689500	470000	470000
CH37		NONE	70000	690250		470000
CH38	-				470000	
CH39	-	NONE	70000	691100	470000	470000
CH40	-	NONE	70000	715694	470000	470000
CH41	-	NONE	70000	716094	470000	470000
CH42	-	NONE	70000	470000	470000	470000
CH43	-	NONE	70000	470000	470000	470000
CH44	-	NONE	70000	470000	470000	470000

### 2.11 Sennheiser – Shure – Wisycom – Lectrosonics Equipment

The purpose of the "Equipment" module is to transfer the "Frequencies - Descriptions" values of EazyRF devices to Sennheiser, Shure, Wisycom and Lectrosonics branded equipment using the programming software for these devices; module called by the command:



To get there, EazyRF reads the manufacturers' data files: .wsm for Sennheiser, .shw for Shure, .wshow for Wisycom and .wproj for Lectrosonis. The data of these files are in xml format, so readable (text format). EazyRF replaces the values of frequencies and descriptions of the data file by that of the devices used.

A correspondence must exist between the device names of the data document and the name used by EazyRF. This module makes it possible to link the devices of a Shure file, for example, with that of EazyRF.

Everything is done automatically according to some basic rules. The name of the manufacturer, the device model and the frequency bank must appear in the name of the EazyRF devices.

New lists of devices with the correct names are available on the EazyRF download site. You can use them or adapt your lists according to your choice, more details in section 2.10.5.

The module is divided into four sections: Sennheiser, Shure, Wisycom and Lectrosonics, and work similarly:

Equipements												
Sennheiser Wireless System Manager	Shure Wireless	Workbench		Wisycom Mana	ager	Lec	trosonics Wire	less Desi	igner beyerd	ynamic TG Wireless Manager	r	
							Aut	tomatic		Create EazyRF	Clear	Reopen
								comado			oloui	neopen
		Microphones										
		Model	ID	Band	Cł	annel Name	F	req	EazyRF devices		EazyRF Freq	
		In-Ear										
		Model	ID	Band	Cł	annel Name	F	req	EazyRF devices		EazyRF Freq	
		Reassign		Сору	Synchronize	Clear Assign				Save	Open	ОК

# 2.11.1 Sennheiser Equipment

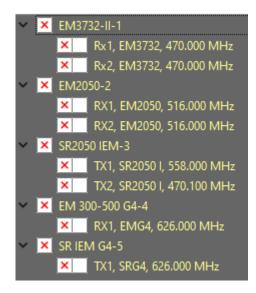
Group 1	
Section 1	
#1 - Sennheiser EM2050 Aw	
Mary	518.500
Peter	519.000
#1 - Sennheiser EM 300-500 G4 Bw	
Jason	626.000
#1 - Sennheiser EM3732-II L	
Vox 1	548.500
Vox 2	548.900
Section 2	
#1 - Sennheiser SR2050 IEM Gw	
Mary	558.000
Peter	558.450
#1 - Sennheiser SR IEM G4 B	
Jason	626.450

Let's start from a simple example with this need:

So we need three receivers and two transmitters, all Sennheiser type.

We need to create the Sennheiser configuration file, either online or offline. If the file is created offline, it will need to be paired with the devices later. It's easier to work online though.

So let's prepare the equipment in the Sennheiser - Wireless System Manager software, which gives:

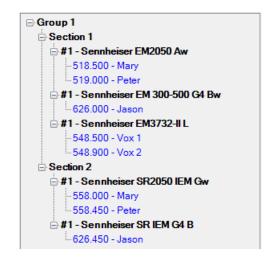


Let's leave the frequencies at the default values. The goal is to modify them with EazyRF.

Let's open the file from the EazyRF Equipment module:

nn heiser Wireless System Manager 💚 Shure Wir	less Workbench	$\sim$	Wisycom Manager		Lectrosonic	s Wireless Des	signer 🗸 beyerdynam	ic TG Wireless Manag	ger
Group 1	Sennh Guide-01.v	vsm 10/0	7/19 14:40:38			Automatic		Create EazyRF	Clear Reop
E Section 1	Microphones	(5)							
🖃 #1 - Sennheiser EM2050 Aw	-	ID	Band	Channel	Name	Freq	EazyRF devices		EazyRF Freq
518.500 - Mary 519.000 - Peter	EM2050	2	Aw (516.000 - 558.000)	Ch 1	EM2050	516.000	#1 - Sennheiser EM2050 Aw		518.500 - Mary
	EM2050	2	Aw (516.000 - 558.000)	Ch 2	EM2050	516.000			519.000 - Peter
626.000 - Jason	EM300-500G4	4	Bw (626.000 - 698.000)	Ch 1	EMG4	626.000	#1 - Sennheiser EM 300-500 (	54 Bw	626.000 - Jason
🖃 #1 - Sennheiser EM3732-II L	EM3732	1	L (470.000 - 638.000)	Ch 1	EM3732	470.000	#1 - Sennheiser EM3732-II L		548.500 - Vox 1
548.500 - Vox 1	EM3732	1	L (470.000 - 638.000)	Ch 2	EM3732	470.000	WT Schinicadi EM3732 II E		548.900 - Vox 2
	EM3732		L (470.000 - 636.000)	Cli 2	EM3732	470.000			346.500 - V0X 2
🖃 #1 - Sennheiser SR IEM G4 B									
<b>☆ #1 - Sennheiser SR IEM G4 B</b>									
	In Ear (3)								
		D	Band	Channel	Name	Freq	EazyRF devices		EazyRF Freq
		ID 3	Band Gw (558.000 - 626.000)	Channel Ch 1	Name SR2050 I	Freq 558.000	EazyRF devices #1 - Sennheiser SR2050 IEM	Gw	EazyRF Freq 558.000 - Mary
	Model							Gw	
	Model SR2050 IEM	3	Gw (558.000 - 626.000)	Ch 1	SR2050 I	558.000			558.000 - Mary
	Model SR2050 IEM SR2050 IEM	3 3	Gw (558.000 - 626.000) Gw (558.000 - 626.000)	Ch 1 Ch 2	SR2050 I SR2050 I	558.000 558.000	#1 - Sennheiser SR2050 IEM		558.000 - Mary 558.450 - Peter

Let's take a closer look at the information. The left part displays the list of Sennheiser equipment that is part of the document:



The frequencies in blue means that they are affected.

The upper right shows the "Microphones" section, the receivers:

Microphones (5)										
Model 🔺	ID	Band	Channel	Name	Freq	EazyRF devices	EazyRF Freq			
EM2050	2	Aw (516.000 - 558.000)	Ch 1	EM2050	516.000	#1 - Sennheiser EM2050 Aw	518.500 - Mary			
EM2050	2	Aw (516.000 - 558.000)	Ch 2	EM2050	516.000		519.000 - Peter			
EM300-500G4	4	Bw (626.000 - 698.000)	Ch 1	EMG4	626.000	#1 - Sennheiser EM 300-500 G4 Bw	626.000 - Jason			
EM3732	1	L (470.000 - 638.000)	Ch 1	EM3732	470.000	#1 - Sennheiser EM3732-II L	548.500 - Vox 1			
EM3732	1	L (470.000 - 638.000)	Ch 2	EM3732	470.000		548.900 - Vox 2			

The bottom right shows the list of In-Ear, the transmitters:

In Ear (3)									
Model		ID	Band	Channel	Name	Freq	EazyRF devices	EazyRF Freq	
SR2050 IEM		3	Gw (558.000 - 626.000)	Ch 1	SR2050 I	558.000	#1 - Sennheiser SR2050 IEM Gw	558.000 - Mary	
SR2050 IEM		3	Gw (558.000 - 626.000)	Ch 2	SR2050 I	558.000		558.450 - Peter	
SRG4		5	B (626.000 - 668.000)	Ch 1	SRG4	626.000	#1 - Sennheiser SR IEM G4 B	626.450 - Jason	

Everything happened automatically because there is correspondence between the device names:

Model 🔺	ID	Band	EazyRF devices
EM2050	2	Aw (516.000 - 558.000)	#1 - Sennheiser EM2050 Aw
EM2050	2	Aw (516.000 - 558.000)	
EM300-500G4	4	Bw (626.000 - 698.000)	#1 - Sennheiser EM 300-500 G4 Bw
EM3732	1	L (470.000 - 638.000)	#1 - Sennheiser EM3732-II L
EM3732	1	L (470.000 - 638.000)	
Model 🔺	ID	Band	EazyRF devices
SR2050 IEM	3	Gw (558.000 - 626.000)	#1 - Sennheiser SR2050 IEM Gw
SR2050 IEM	3	Gw (558.000 - 626.000)	
SRG4	5	B (626.000 - 668.000)	#1 - Sennheiser SR IEM G4 B

The middle section is red because the name and the frequency do not correspond to the values of the EazyRF document, when they are identical, they are displayed in black.

The frequencies and their descriptions are not automatically copied to the data in the Sennheiser file to not overwrite them systematically.

The commands at the bottom of the module allow you to do this:

The "Copy" command transfers the frequencies and their descriptions to the Sennheiser data section:

Microphones (5)										
Model 🔺	ID	Band	Channel	Name	Freq	EazyRF devices	EazyRF Freq			
EM2050	2	Aw (516.000 - 558.000)	Ch 1	Mary	518.500	#1 - Sennheiser EM2050 Aw	518.500 - Mary			
EM2050	2	Aw (516.000 - 558.000)	Ch 2	Peter	519.000		519.000 - Peter			
EM300-500G4	4	Bw (626.000 - 698.000)	Ch 1	Jason	626.000	#1 - Sennheiser EM 300-500 G4 Bw	626.000 - Jason			
EM3732	1	L (470.000 - 638.000)	Ch 1	Vox 1	548.500	#1 - Sennheiser EM3732-II L	548.500 - Vox 1			
EM3732	1	L (470.000 - 638.000)	Ch 2	Vox 2	548.900		548.900 - Vox 2			

In Ear (3)									
Model		ID	Band	Channel	Name	Freq	EazyRF devices	EazyRF Freq	
SR2050 IEM	1	3	Gw (558.000 - 626.000)	Ch 1	Mary	558.000	#1 - Sennheiser SR2050 IEM Gw	558.000 - Mary	
SR2050 IEM	1	3	Gw (558.000 - 626.000)	Ch 2	Peter	558.450		558.450 - Peter	
SRG4		5	B (626.000 - 668.000)	Ch 1	Jason	626.450	#1 - Sennheiser SR IEM G4 B	626.450 - Jason	

The assignment of devices and frequencies can be done manually if desired:

#1 - Sennheiser EM3732-II L 🗸 🗸	[
#1 - Sennheiser EM3732-II L	548.500 - Vox 1 🗸 🗸 🗸
#2 - Sennheiser EM3732-II L	548.500 - Vox 1
	548.900 - Vox 2

The mode of allocation of the matching EazyRF-Manufacturer devices is indicated in the upper part of the module:

Automatic	
Manual	

The allocation of frequencies and descriptions must absolutely be saved in the manufacturer's data file, under another name preferably, if not at the reopening of the EazyRF file, the assignment will not have followed. EazyRF does not save any data from the manufacturer file.

To clear a device from the assignment, select the last choice in the list, an empty line. To clear all assignments, use the "Clear Assignments" command.

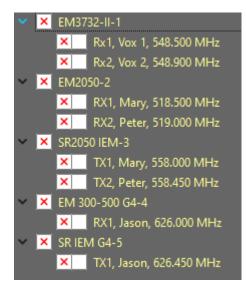
The "Reassign" command allows you to redo an assignment automatically. The assignment order of devices of the same type, EM3732 for example, follows the order of appearance in a section. If you want to assign specific frequencies to a device, move a device to a section and "Reassign".

The "Synchronize" command automatically finds the value of the Sennheiser frequency in the EazyRF list or the frequency description. You can select the option with this screen:

Synchronization method	×
Equipment file values	
O By frequency value	
O By frequency description (name)	
OK Cancel	

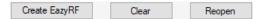
This pairing becomes necessary when the order of the Sennheiser devices is changed by "Wireless System Manager".

After doing the desired assignment, simply save the data to a Sennheiser file with the "Save" command and then open the new file in Sennheiser WSM:



What gives the expected result, the frequencies and their descriptions are assigned to the wright devices and sent to the wright equipment.

The upper right contains 3 other commands:



The "Reopen" command is used to open the data file again, if modified, for example.

"Delete" deletes all data and assignment.

Finally, "Create EazyRF "allows you to create EazyRF devices from the data file, if needed.

# 2.11.2 Shure Equipment

The procedure is identical as that used in Section 2.10.1 with the Sennheiser, in summary:

Need:

roup 2	
Section 1	
#1 - Shure AXT400 J5	
Annick	578.050 3
Lora	578.550 3
#1 - Shure ULXD4D L50	
Mark	632.000 4
Jim	632.500 4
#1 - Shure AD4Q K55	
Jojo	606.150 3
Tom	606.550 3
Brit	607.100
Judy	614.500
Section 2	
#1 - Shure PSM 1000 G11	
Jojo	482.500
Tom	483.000 1
#1 - Shure PSM 1000 J8A	
Brit	554.000 2
Judy	554.550 2

Shure configuration file (.shw):

Model	Channel Name	Device ID	Band	G & Ch	Frequency	Zone
	-			Microphone	(8)	a.
AD4D-B	Shure	[AD4D-B]	K55	G: Ch:	Find Best	Default
AD4D-B	Shure	[AD4D-B]	K55	G: Ch:	Find Best	Default
AD4D-B	Shure	[AD4D-B]	K55	G:- Ch:-	Find Best	Default
AD4D-B	Shure	[AD4D-B]	K55	G: Ch:	Find Best	Default
AXT400 A	Shure	[AXT400A]	[AXT400A] J5 G:- Ch:-		Find Best	Default
AXT400 A	Shure	[AXT400A]	J5	G: Ch:	Find Best	Default
ULXD4D	Shure	[ULXD4D]	L50	G:- Ch:-	Find Best	Default
ULXD4D	Shure	[ULXD4D]	L50	G: Ch:	Find Best	Default
				In Ear Monitor	• (4)	
PSM1000	Shure	[P10T]	J8A	G: Ch:	Find Best	Default
PSM1000	Shure	[P10T]	J8A	G: Ch:	Find Best	Default
PSM1000	Shure	[P10T]	G11	G: Ch:	Find Best	Default
PSM1000	Shure	[P10T]	G11	G:- Ch:-	Find Best	Default

Loading .shw file into Equipment module - Shure:

Microphones (8)								
Model 4	ID	Band	Channel	Name	Freq	EazyRF devices	EazyRF Freq	
AD4D-B	AD4D-B 1	K55 (606.125 - 693.875)	Ch 1	Shure		#1 - Shure AD4Q K55	606.150 - Jojo	
AD4D-B	AD4D-B 1	K55 (606.125 - 693.875)	Ch 2	Shure			606.550 - Tom	
AD4D-B	AD4D-B 2	K55 (606.125 - 693.875)	Ch 1	Shure		#1 - Shure AD4Q K55	607.100 - Brit	
AD4D-B	AD4D-B 2	K55 (606.125 - 693.875)	Ch 2	Shure			614.500 - Judy	
AXT400 A	AXT400A	J5 (578.000 - 638.000)	Ch 1	Shure		#1 - Shure AXT400 J5	578.050 - Annick	
AXT400 A	AXT400A	J5 (578.000 - 638.000)	Ch 2	Shure			578.550 - Lora	
ULXD4D	ULXD4D 1	L50 (632.000 - 696.000)	Ch 1	Shure		#1 - Shure ULXD4D L50	632.000 - Mark	
ULXD4D	ULXD4D 1	L50 (632.000 - 696.000)	Ch 2	Shure			632.500 - Jim	

11111111	1000	10000
In	Far	(1)

Model 🔺	ID	Band	Channel	Name	Freq	EazyRF devices	EazyRF Freq	
PSM1000	P10T	G11 (479.125 - 541.875)	Ch 1	Shure		#1 - Shure PSM 1000 G11	482.500 - Jojo	
PSM1000	P10T	G11 (479.125 - 541.875)	Ch 2	Shure			483.000 - Tom	
PSM1000	P10T	J8A (554.000 - 615.875)	Ch 1	Shure		#1 - Shure PSM 1000 J8A	554.000 - Brit	
PSM1000	P10T	J8A (554.000 - 615.875)	Ch 2	Shure			554.550 - Judy	

Device name correspondence:

Model 🔺	ID	Band	EazyRF devices
AD4D-B	AD4D-B 1	K55 (606.125 - 693.875)	#1 - Shure AD4Q K55
AD4D-B	AD4D-B 1	K55 (606.125 - 693.875)	
AD4D-B	AD4D-B 2	K55 (606.125 - 693.875)	#1 - Shure AD4Q K55
AD4D-B	AD4D-B 2	K55 (606.125 - 693.875)	
AXT400 A	AXT400A	J5 (578.000 - 638.000)	#1 - Shure AXT400 J5
AXT400 A	AXT400A	J5 (578.000 - 638.000)	
ULXD4D	ULXD4D 1	L50 (632.000 - 696.000)	#1 - Shure ULXD4D L50
ULXD4D	ULXD4D 1	L50 (632.000 - 696.000)	

Model 🔺	ID	Band
PSM1000	P10T	G11 (479.125 - 541.875)
PSM1000	P10T	G11 (479.125 - 541.875)
PSM1000	P10T	J8A (554.000 - 615.875)
PSM1000	P10T	J8A (554.000 - 615.875)

EazyRF devices
#1 - Shure PSM 1000 G11
#1 Share 1 Shi 1000 Gill

#1 - Shure PSM 1000 J8A

Only the number of receivers vary between the AD4D (2) and AD4Q (4) models.

Copy data:

Microphones (8)								
Model 4	ID	Band	Channel	Name	Freq	EazyRF devices	EazyRF Freq	
AD4D-B	AD4D-B 1	K55 (606.125 - 693.875)	Ch 1	Jojo	606.150	#1 - Shure AD4Q K55	606.150 - Jojo	
AD4D-B	AD4D-B 1	K55 (606.125 - 693.875)	Ch 2	Tom	606.550		606.550 - Tom	
AD4D-B	AD4D-B 2	K55 (606.125 - 693.875)	Ch 1	Brit	607.100	#1 - Shure AD4Q K55	607.100 - Brit	
AD4D-B	AD4D-B 2	K55 (606.125 - 693.875)	Ch 2	Judy	614.500		614.500 - Judy	
AXT400 A	AXT400A	J5 (578.000 - 638.000)	Ch 1	Annick	578.050	#1 - Shure AXT400 J5	578.050 - Annick	
AXT400 A	AXT400A	J5 (578.000 - 638.000)	Ch 2	Lora	578.550		578.550 - Lora	
ULXD4D	ULXD4D 1	L50 (632.000 - 696.000)	Ch 1	Mark	632.000	#1 - Shure ULXD4D L50	632.000 - Mark	
ULXD4D	ULXD4D 1	L50 (632.000 - 696.000)	Ch 2	Jim	632.500		632.500 - Jim	

In Ear (4)								
Model 🔺	ID	Band	Channel	Name	Freq	EazyRF devices	EazyRF Freq	
PSM1000	P10T	G11 (479.125 - 541.875)	Ch 1	Jojo	482.500	#1 - Shure PSM 1000 G11	482.500 - Jojo	
PSM1000	P10T	G11 (479.125 - 541.875)	Ch 2	Tom	483.000		483.000 - Tom	
PSM1000	P10T	J8A (554.000 - 615.875)	Ch 1	Brit	554.000	#1 - Shure PSM 1000 J8A	554.000 - Brit	
PSM1000	P10T	J8A (554.000 - 615.875)	Ch 2	Judy	554.550		554.550 - Judy	

Save data in Shure .shw document, the result:

Model	Channel Name	Device ID	Band	G & Ch	Frequency
				Microphone (	(8)
AD4D-B	Brit	[AD4D-B]	K55	G: Ch:	607.100 MHz
AD4D-B	Judy	[AD4D-B]	K55	G:- Ch:-	614.500 MHz
AD4D-B	Jojo	[AD4D-B]	K55	G: Ch:	606.150 MHz
AD4D-B	Tom	[AD4D-B]	K55	G: Ch:	606.550 MHz
AXT400 A	Annick	[AXT400A]	J5	G: Ch:	578.050 MHz
AXT400 A	Lora	[AXT400A]	J5	G: Ch:	578.550 MHz
ULXD4D	Mark	[ULXD4D]	L50	G: Ch:	632.000 MHz
ULXD4D	Jim	[ULXD4D]	L50	G: Ch:	632.500 MHz
				In Ear Monitor	(4)
PSM1000	Jojo	[P10T]	G11	G:- Ch:	482.500 MHz
PSM1000	Tom	[P10T]	G11	G:- Ch:-	483.000 MHz
PSM1000	Brit	[P10T]	J8A	G: Ch:	554.000 MHz
PSM1000	Judy	[P10T]	J8A G: Ch:		554.550 MHz

# 2.11.3 Wisycom Equipment

The procedure is identical as that used in Section 2.10.1 with the Sennheiser, in summary:

Need:

roup 3		
Section 1		
#1 - Wisycom MRK960		
Choir 1	549.650	
Choir 2	550.300	
Choir 3	551.350	
Choir 4	555.500	
Choir 5	566.500	
Choir 6	567.600	
Choir 7	569.500	
Choir 8	570.300	
Section 2		
#1 - Wisycom MTK952		
Choir 1	470.000	
Choir 4	470.600	

N°	Model	Name	Freq MHz	Gr Ch	Link	Туре	Serial
1	1 MRK960		470.000	CH01 GR00	192.168.10.121	RX1	V4000059
2	1 MRK960		470.000	CH02 GR00	192.168.10.121	RX2	V4000059
3	2 MRK960		470.000	CH01 GR00	192.168.10.122	RX1	V4000060
4	2 MRK960		470.000	CH02 GR00	192.168.10.122	RX2	V4000060
5	3 MRK960	3 MRK960		CH01 GR00	192.168.10.123	RX1	V4000061
6	3 MRK960		470.000	CH02 GR00	192.168.10.123	RX2	V4000061
7	4 MRK960		470.000	CH01 GR00	192.168.10.124	RX1	W0900002
8	4 MRK960		470.000	CH02 GR00	192.168.10.124	RX2	W0900002
9	5 MTK952A	5 MTK952A		Gr 00 Ch 01	192.168.10.205	Tx1	W2400003
10	5 MTK952A		525.000	Gr 00 Ch 02	192.168.10.205	Tx2	W2400003

# Loading .wshow file into devices module - Wisycom:

Microphone	ficrophones (8)							
Model	ID	Band	Channel	Name	Freq	EazyRF devices	EazyRF Freq	
MRK960	1	470.000 - 840.000	CH01 GR00		470.000	#1 - Wisycom MRK960	549.650 - Choir 1	
MRK960	1	470.000 - 840.000	CH02 GR00		470.000		550.300 - Choir 2	
MRK960	2	470.000 - 840.000	CH01 GR00		470.000	#1 - Wisycom MRK960	551.350 - Choir 3	
MRK960	2	470.000 - 840.000	CH02 GR00		470.000		555.500 - Choir 4	
MRK960	3	470.000 - 840.000	CH01 GR00		470.000	#1 - Wisycom MRK960	566.500 - Choir 5	
MRK960	3	470.000 - 840.000	CH02 GR00		470.000		567.600 - Choir 6	
MRK960	4	470.000 - 840.000	CH01 GR00		470.000	#1 - Wisycom MRK960	569.500 - Choir 7	
MRK960	4	470.000 - 840.000	CH02 GR00		470.000		570.300 - Choir 8	

#### In Ear (2)

Model	ID	Band	Channel	Name	Freq	EazyRF devices	EazyRF Freq
MTK952A	12	470.000 - 800.000	CH01 GR00		525.000	#1 - Wisycom MTK952	470.000 - Choir 1
MTK952A	12	470.000 - 800.000	CH02 GR00		525.000		470.600 - Choir 4

# The matching of the equipment names is pretty obvious.

## Copy data:

Microphone	licrophones (8)							
Model	ID	Band	Channel	Name	Freq	EazyRF devices	EazyRF Freq	
MRK960	1	470.000 - 840.000	CH01 GR00	Choir 1	549.650	#1 - Wisycom MRK960	549.650 - Choir 1	
MRK960	1	470.000 - 840.000	CH02 GR00	Choir 2	550.300		550.300 - Choir 2	
MRK960	2	470.000 - 840.000	CH01 GR00	Choir 3	551.350	#1 - Wisycom MRK960	551.350 - Choir 3	
MRK960	2	470.000 - 840.000	CH02 GR00	Choir 4	555.500		555.500 - Choir 4	
MRK960	3	470.000 - 840.000	CH01 GR00	Choir 5	566.500	#1 - Wisycom MRK960	566.500 - Choir 5	
MRK960	3	470.000 - 840.000	CH02 GR00	Choir 6	567.600		567.600 - Choir 6	
MRK960	4	470.000 - 840.000	CH01 GR00	Choir 7	569.500	#1 - Wisycom MRK960	569.500 - Choir 7	
MRK960	4	470.000 - 840.000	CH02 GR00	Choir 8	570.300		570.300 - Choir 8	

In Ear (2)									
Model	ID	Band	Channel	Name	Freq	EazyRF devices	EazyRF Freq		
MTK952A	12	470.000 - 800.000	CH01 GR00	Choir 1	470.000	#1 - Wisycom MTK952	470.000 - Choir 1		
MTK952A	12	470.000 - 800.000	CH02 GR00	Choir 4	470.600		470.600 - Choir 4		

#### Save data in Wisycom document .wshow, the result:

N°	Model	Name	Freq MHz	Gr Ch	Link	Туре	Serial
1	1 MRK960	Choir 1	549.650	CH01 GR00	192.168.10.121	RX1	V4000059
2	1 MRK960	Choir 2	550.300	CH02 GR00	192.168.10.121	RX2	V4000059
3	2 MRK960	Choir 3	551.350	CH01 GR00	192.168.10.122	RX1	V4000060
4	2 MRK960	Choir 4	555.500	CH02 GR00	192.168.10.122	RX2	V4000060
5	3 MRK960	Choir 5	566.500	CH01 GR00	192.168.10.123	RX1	V4000061
6	3 MRK960	Choir 6	567.600	CH02 GR00	192.168.10.123	RX2	V4000061
7	4 MRK960	Choir 7	569.500	CH01 GR00	192.168.10.124	RX1	W0900002
8	4 MRK960	Choir 8	570.300	CH02 GR00	192.168.10.124	RX2	W0900002
9	5 MTK952A	Choir 1	470.000	Gr 00 Ch 01	192.168.10.205	Tx1	W2400003
10	5 MTK952A	Choir 4	470.600	Gr 00 Ch 02	192.168.10.205	Tx2	W2400003

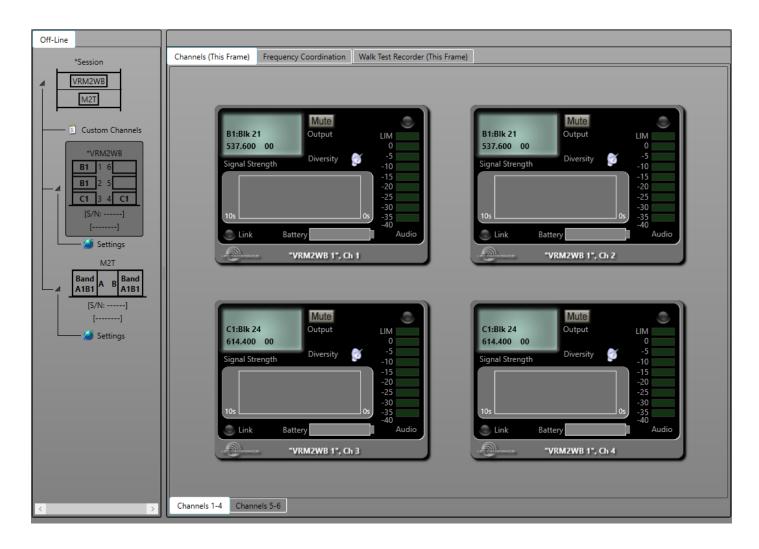
# 2.11.4 Lectrosonics Equipment

The procedure is identical as that used in Section 2.10.1 with the Sennheiser, in summary:

Need:

roup 4		
Section 1		
#1 - Lectrosonics VRM2WB B1		
Mary	540.200	25
Paul	541.050	2
#1 - Lectrosonics VRM2WB C1		
Kim	615.100	3
Jessy	615.800	3
Section 2		
#1 - Lectrosonics M2T A1B1		
Kim	506.500	2
Jessy	506,900	2

Lectrosonics configuration file (.wproj):



#### Loading .wproj file in Equipment module - Lectrosonics:

Microphones (4)									
Model	ID	Band	Ch	Name	Freq	EazyRF devices	EazyRF Freq		
VRM2WB	1	B1 (537.600 - 614.375)	1		537.600	#1 - Lectrosonics VRM2WB B1	540.200 - Mary		
VRM2WB	1	B1 (537.600 - 614.375)	2		537.600		541.050 - Paul		
VRM2WB	1	C1 (614.400 - 691.175)	3		614.400	#1 - Lectrosonics VRM2WB C1	615.100 - Kim		
VRM2WB	1	C1 (614.400 - 691.175)	4		614.400		615.800 - Jessy		

In Ear (2) Model ID Band Ch Name Freq EazyRF devices EazyRF Freq 1 A1B1 (470.100 - 614.375) 1 470.100 506.500 - Kim M2T #1 - Lectrosonics M2T A1B1 M2T 1 A1B1 (470.100 - 614.375) 2 470.100 506.900 - Jessy

The matching of the equipment names is pretty obvious.

Copy data:

Model	ID	Band	Ch	Name	Freq	EazyRF devices	EazyRF Freq
VRM2WB	1	B1 (537.600 - 614.375)	1	Mary	540.200	#1 - Lectrosonics VRM2WB B1	540.200 - Mary
VRM2WB	1	B1 (537.600 - 614.375)	2	Paul	541.050		541.050 - Paul
VRM2WB	1	C1 (614.400 - 691.175)	3	Kim	615.100	#1 - Lectrosonics VRM2WB C1	615.100 - Kim
VRM2WB	1	C1 (614.400 - 691.175)	4	Jessy	615.800		615.800 - Jessy

Model	ID	Band	Ch	Name	Freq	EazyRF devices	EazyRF Freq
M2T	1	A1B1 (470.100 - 614.375)	1	Kim	506.500	#1 - Lectrosonics M2T A1B1	506.500 - Kim
M2T	1	A1B1 (470.100 - 614.375)	2	Jessy	506.900		506.900 - Jessy

Save data in Lectrosonics .wproj document, the result:



Kim A1B1:Blk 19 506.500 C9	A1 -Clip- 20 10 -Clip- 20 10	Jessy A1B1:Blk 19 506.900 CD	B1 Clip- B2
Audio Channels	0 0	Audio Channels	0 0
A1:	-10 -10	B1:	-10 -10
A2:	-20 -20	B2:	-20 -20
	-30 -30 -40 Muta -40 Muta		-30 -30
RF ON	Wate Wate	RF ON	Mute
	M2T 2", Ch A	-M	2T 2", Ch B

### 2.11.5 List Devices and Names

The correspondence between the names of EazyRF devices and Sennheiser, Shure, Wisycom and Lectrosonics equipment is essential for the proper functioning of this module.

A list of suitable names exists on the EazyRF download site:

http://www.eazyrf.com/DownloadDevices2019.html.

For updates on the device list, see section 10.5.

For a name to be recognized, the name of the manufacturer must be present, as well as the model of the device and the frequency band, for example Shure AD4D K53, or an evening device based on this name:

TV Shure Kit 102
Model
Based on:
Shure AD4D K53 $\qquad \checkmark$

This device name is valid because it is a Shure AD4D K53 set.

Better still, you can download the new names, update the list of devices, then change only the model setting, in the device editor, from basic model to based.

You can also change the name of your device to include the necessary credentials, in which case the old name is retained, and when you open a document containing the old name, it is automatically changed to the new one., a temporary message tells you.

It is also possible to add to the description of the device the missing elements, for example if # 1 - Shure Axient J5 is not recognized, AD4D # 1 - Shure Axient J5 will be recognized as Shure AD4D J5 because all identifiers are present.

## 2.12 Background color – Group/Section/Device/Frequencies

One of the background colors of each group, section, and device can be changed in most panes. You can also change the background color of the frequencies in the global, detailed pane and in the device editor (no matter where it is called). To do this, simply double-click at the top of the group (at the bottom of the title area), at the top of a section (at the bottom of the title area), or in the top area. of a device:



To change the background color of one or more frequencies, several methods exist, either by the global view, the detailed view, the device editor and the list of the contents of the document, more details in the following sections.

The color editor:

Edit background color of: Group 1
Background color Bightness: Color:
R:       0       221         G:       0       159         B:       0       44         H:       0       25         B:       0       240         S:       0       208
Apply Default Cancel OK

The "Apply" command allows the same color to be applied to a selection of devices (the selection of devices can be done on several sections of the same group). When the device selection is multiple, the displayed color is the color of the device that was double-clicked.

The "Default" button recalls the basic color used by EazyRF.

"Cancel" restores the color(s) used when calling the editor.

The "Copy/Paste" commands allow you to copy a color and apply it elsewhere.

The purpose of this command is to emphasize certain details and not to create a multitude of colors:

ection 1	
#1 - BTR-800 A2 RX	ail #1 - BTR-800 A2 TX
4 Fr (632.100 - 633.300) 12 Av	2 Fr (518.500 - 518.800) 13 Avail

2.12.1 Frequency Background Color - Global and Detailed View

First a frequency or more must be selected before being able to call the background color editor. This can be called in two ways, either by double-clicking on a section of the frequency header (global view), or by right-clicking on the frequencies (size of the area - 30 %):

	8 Fi	eq		
	578.0	000	31	
	578.3	300	32	
	578.7	700	32	
	579.2	200	32	
	579.5	550	32	
	580.0	000	32	
	580.5	550	32	
	582.1	150	32	
8 Free	1			
578.000	) 31			
578.300	32			
578.700	) 32			
579.200	) 32			
Cha	nge Back	grour	id colo	r
580.550	) 32			
582.150	) 32			

With as result for example:

	8 Freq	
5	578.000	31
5	578.300	32
5	578.700	
5	579.200	
5	79.550	
5	580.000	
5	80.550	32
5	582.150	32

The background color of the selected frequency is displayed when launching the editor.

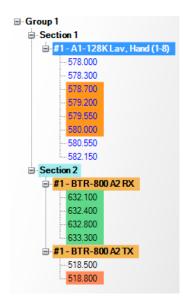
## 2.12.2 Background Color Frequencies - Device Editor

We can do the same treatment with the device editor in the global pane:

Device Edition			x
Description: #1			Tolerance 2 TX:
Device		Micros	
A1-128K Lav, Hand (1-	·8)	~	50
	op: 8.000	Increment: 0.025	Separation: 300
Auto Start:		TV Channels: 35 (596-602 MHz	Image Freq:
Descending order	n (if Global)	Tolerance 5th:	Filter:
_		50 mw	Random
Fr Nbr: 8 🗘	Protected	Manual 🗹 Avail Fre	clear
No Description	Freq	Intermodulation	33 Avail Freq
2	578.000 31 578.300 32 578.700 32		32 582.900 32 583.550 33 584.650 33 586.700
4 5		hange Background color	87.300 92.000
6	580.000 32		34 593.150 36 602.500
8	580.550 32 582.150 32		36 602.900 36 603.200 36 604.100 36 604.550 36 604.590 36 605.400 36 606.350 38 614.500
1	¢	OK Cance	

The background color editor can be called either by the right mouse button or by double-clicking on the frequency header (full area).

The background colors of the group/section/device/frequency are displayed in the device list of a document in the panes: Intermodulation, Spectrum View, On Tour and Classification:

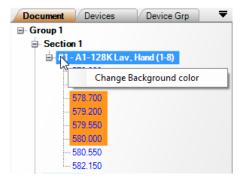


The background colors of groups, sections, and devices can be changed from this list.

In addition, the background color of the frequencies can be changed wherever the device editor can be called.

## 2.12.3 Frequency Background Color - Document List

You can also call the background color editor via the list of the contents of a document in the Intermodulations and On Tour (as well as Multi-Scenes) panes:



## 2.13 Group / Section menu

## 2.13.1 Collapse / expand

From the global and detailed views, a menu is accessible with the right mouse button on the group header:

Group 1	Collapse •	]	All groups sections and devices
Sectio	Expand		All groups, sections and devices All groups and sections
	Search device		All groups
	Search section		All sections and devices in the group
	Search group		All sections in the group
(C. K	Sort Group Sections Alphabetically		

Group 1	Collapse	
Section	Expand	All groups, sections and devices
16 1	Search device Search section	All groups and sections All groups
-	Search group	All sections and devices in the group
Section	Sort Group Sections Alphabetically	All sections in the group

It is thus possible to apply the expand / collapse function to all groups, sections or devices of the document, of a group or of a section.

The "Detailed View" is used to manage the expand/collapse of devices in a section:

Section #1-1	Convert section to Group Devices WITH frequencies Convert section to Group Devices WITHOUT frequencies
No 1	Convert section to Group Devices WITHOUT frequencies with PROTECTION
2	Expand All devices in the section
3	Collapse All devices of the section

## 2.13.2 Search Device, Section or Group

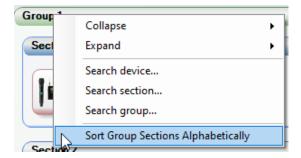
The "Search device..." function allows you to find a device by entering part of its name:

sh				
Device	Section	Group		
1 - Shure AD4D G53	Section 1	Group 1		
1 - Shure AD4Q G56	Section 2	Group 1		
1 - Shure PSM 100 J8J	Section 2	Group 1		
1 - Shure AD4D #1 - Shure AD4Q G56	Section 2	Group 1		
1 - Shure UR4E 4 Freq	Section 1	Group 2		
1 - Shure UR4E 486.500 487.300	Section 1	Group 2		

Selecting a device in the list displays the device in the document even if the group or section is in collapsed:

Group 1	
Section 1	Search Device
	Q sh
Section 2	Device
	#1 - Shure AD4D G53
TV #1 - Shure AD4Q G56	#1 - Shure AD4Q G56
#1 - Shure AD4Q G56 4 Fr (486.500 - 525.400) 41 Avail	#1 - Shure PSM 1000 J8J
·	#1 - Shure AD4D G55
	#1 - Shure UR4D G1
	#1 - Shure UR4D H4
Group 2	
Group 3	-
Group 4	

# 2.13.3 Classification of section names in alphabetical order



## 2.14 Evaluate commands

Evaluate	
Freq List   Devices   Manual   Recalculate   Clear	

## 2.14.1 Evaluate Frequencies list

This command restarts the calculation of intermodulations manually to check whether a change has not occurred.

## 2.14.2 Evaluate Devices

This allows the calculation of the frequencies of unprotected devices to be redone in automatic mode.

### 2.14.3 Manual Evaluation

This operation launches an editor allowing to perform intermodulation calculations for frequencies independent of those of the document, the goal is to display the values of the intermodulations:

equencie	es: 471.0	000	472.500	47	5.000							Calculate
IMs - 2th order			IMs - 3th	order		IMs - 5th order					Clear	
Fr-1	Fr-2	IM	Fr-1	Fr-2	Fr-3	IM	Fr-1	Fr-2	Fr-3	Fr-4	Fr-5	IM
71.000	472.500	469.500	471.000	472.500	475.000	473.500	471.000	472.500				468.000
"	"	474.000	"	"	"	476.500		"				468.000
71.000	475.000	467.000				468.500	471.000	475.000				463.000
		479.000										463.000
72.500	475.000	470.000					472.500	475.000				467.500
		477.500										467.500
							471.000	472.500	475.000			472.000
												464.500
												478.000
												466.000
												480.500
												476.000
												465.500
												471.500
												481.500

Thus, the values of the intermodulation frequencies are displayed, the aim of the exercise is theoretical.

## 2.14.4 Recalculate (frequencies)

This module allows you to recalculate all device frequencies in a document, regardless of whether they are protected or not, and the calculation mode is irrelevant.

It goes without saying that this command is not intended to find a solution when adding to an event already in operation. Its purpose is to find new frequencies, either when reusing a previous plan or during planning and the solution is not found at first glance.

Recalculating frequencies is a destructive operation, there is no undoing. The only way to do this is to reload the document, so don't forget before proceeding.

Let's take a simple theoretical example:



The Shure AD4D G54 device has just been added and no frequencies are available.

If we take a look at the frequency spectrum, we can see that the frequency band used by the device is not overused:

		#1 - Shu	re AD4D	G54						#1 - :	Shure AD	4D G54	
	TV-21		TV-23					TV-28	_			TV-32	
	TV-21	TV-22	TV-23	TV-24	TV-25	TV-26	TV-27	TV-28	TV-29	TV-30	TV-31	TV-32	TV-33
458.4 MHz				6 MHz		523.2	MHz		544.8 MHz		566.	4 MHz	

So maybe a recalculation of the devices would allow a rearrangement of frequencies. The "Recalculate" module allows you to do this:

valuation method				
Freq Range	🔘 In order	○ Random ○ Nun	nber of freq per section O Independent device a	nd freq range
All groups		Order of evaluation. Use the left margin	n to change Ascending/Descending.	11 Devices, 65/67 Fr
Groupe 1 Groupe 2		Devices Devices list (67 Fr)	Scene	Freq Range
Groupe 3		#1 - BTR-800 H3 RX (4 Fr) #1 - BTR-800 H3 TX (2 Fr)	Groupe 3 - Section 1 (6 Fr)	650.100 - 667.900 500.100 - 517.900
		#1 - Sennheiser EM9046 A4 (8 Fr)	Groupe 2 - Section 1 (20 Fr)	534.000 - 558.000
		#1 - IFB Lectrosonics T4-R1a, Bloc	ck 23 (1 Fr) Groupe 1 - Section 2 (7 Fr)	588.800 - 614.300
		#1 - Sennheiser Evolution G2 Grp		518.025 - 554.000
		#1 - Sennheiser SR300 IEM G3 B		626.000 - 668.000
		#1 - Shure ADX5D K54 (12 Fr)	Groupe 2 - Section 1 (20 Fr)	606.000 - 662.875
		#1 - Shure PSM 1000 J8J (8 Fr)	Groupe 2 - Section 2 (16 Fr)	554.250 - 625.750
		#1 - Shure AD4D G54 (0/2 Fr)	Groupe 1 - Section 1 (18 Fr)	479.125 - 564.875
		#1 - Sennheiser EM3732-II A (8 Fr) #1 - Shure AD4Q G55 (8 Fr)		470.000 - 560.000 470.125 - 636.000
		Exclude devices with number of de	sired frequencies [	Random Freq Evaluate

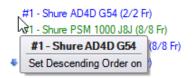
EazyRF displays by default the list of devices according to the frequency bandwidth of each device less the spaces occupied by the television channels, that is the option "Freq Range" of the "Evaluation method". So, devices with limited bandwidth will be re-evaluated first and so on. Let's do an assessment:

valuation method		
O Freq Range ○	In order O Random O Number of freq per section O Independent dev	ice and freq range
All groups	Order of evaluation. Use the left margin to change Ascending/Descending.	11 Devices, 67/67 Fre
Groupe 1	Devices Scene	Freq Range
Groupe 2	Devices list (67 Fr)	1
Groupe 3	#1 - BTR-800 H3 RX (4/4 Fr) Groupe 3 - Section 1 (6 Fr)	650,100 - 667,900
	#1 - BTR-800 H3 TX (2/2 Fr)	500.100 - 517.900
	#1 - Sennheiser EM9046 A4 (8/8 Fr) Groupe 2 - Section 1 (20 Fr)	534.000 - 558.000
	#1 - IFB Lectrosonics T4-R1a, Block 23 (1/1 Fr) Groupe 1 - Section 2 (7 Fr)	588.800 - 614.300
	#1 - Sennheiser Evolution G2 Grp A IEM (6/6 Fr)	518.025 - 554.000
	#1 - Sennheiser SR300 IEM G3 B (8/8 Fr) Groupe 2 - Section 2 (16 Fr)	626.000 - 668.000
	#1 - Shure ADX5D K54 (12/12 Fr) Groupe 2 - Section 1 (20 Fr)	606.000 - 662.875
	#1 - Shure PSM 1000 J8J (8/8 Fr) Groupe 2 - Section 2 (16 Fr)	554.250 - 625.750
	#1 - Shure AD4D G54 (2/2 Fr) Groupe 1 - Section 1 (18 Fr)	479.125 - 564.875
	#1 - Sennheiser EM3 2-II A (8/8 Fr)	470.000 - 560.000
	#1 - Shure AD4Q G55 #1 - Shure AD4D G54	470.125 - 636.000
	2 Freq.:	
	479.125	
	479.525	
	No Previous Fr.	
	3 Avail Freq:	
	495.350	
	513.200	
	547.600	
	Tolerance 2 TX: 100 Tolerance 3 TX: 50	
	Separation: 400	
	Start: 479.125	
	Stop: 564.875	
	Increment: 0.025	

We can see that all devices now have their frequencies. The color of the device name indicates the status of the changes: green = reassessment without changes, blue = reassessment with frequency changes, and red = the desired number of frequencies was not found.

Different evaluation methods exist: by "Freq Range", seen previously, "In Order", according to the order of appearance in the groups / sections, "Random", in an undefined order based on chance and finally, by "Number of freq by sections" and by "Devices of independent groups with frequency range".

The devices can be recalculated in descending order using the left margin of the device name:



All groups can be recalculated or selected as needed:

All groups
Group 1
Group 2
Group 3

Finally, in the lower part of the window there are some additional options:

<ul> <li>Exclude devices with number of desired frequencies</li> </ul>	Random Freq	Evaluate

The "Exclude devices with number of desired frequencies" option allows you to exclude devices whose frequencies have already been found from re-evaluation. It goes without saying that this option is of no use for a single device, a certain number is required for a tangible result.

The option "Random Freq" recalculates the frequencies of the devices randomly, so never the same result twice.

Each device on the list can be selected and the monitoring is done in the views thus allowing to have a better idea of a solution (descending order for example):

TV-27 TV-28 TV-29 TV-30		V-32 V-32 TV-33 566.4 MHz	 TV-35 TV-36 TV-3 MHz 601.6
n the document			
Random     Number of	freq per section		11 Devices, 65/67 Fr
Devices	Scene		Freq Range
Devices list (67 Fr)			
#1 - Sennheiser EM3732-II A (8 Fr)	Group 1 - Sec	tion 1 (18 Fr)	470.000 - 560.000
#1 - Shure AD4Q G55 (8 Fr)			470.125 - 636.000
#1 - Shure AD4D G54 (0/2 Fr)			479.125 - 564.875
#1 - Sennheiser Evolution G2 Grp A IEM	(6 Fr) Group 1 - Sec	tion 2 (7 Fr)	518.025 - 554.000

## 2.14.5 Clear (data)

This tool allows you to erase part of the data from a document:

Clear document data		x
All groups	Please note, this ope	ration is final, there is no cancellation possible.
		Clear frequencies from all devices, even protected
✓ IEM ✓ Freq SOS		Clear frequencies descriptions for all devices
		Reset the evaluation parameters of all devices to the basic values, except the number of frequencies
		Reset the number of frequencies to the base value
		Remove Off Groups, Sections and Devices
		Remove protection from all devices (Protected) Put On
		Clear all scans data
		Clear all Interferences
		Clear all TV channels (and digital radio if applicable)
	Cancel	Select all Unselect all Execute

First, you select which groups will be affected, or all groups. No device is erased, only its data.

Then you have the choice to erase either the frequencies of the devices of the selected groups, or the descriptions of the frequencies, or to put the evaluation parameters back to their basic values (except the number of frequencies), or to replace the number of frequencies to the default number, either to remove the deactivation (power off) of the groups, sections and devices, and finally, or to remove or put on the protection on the devices of the groups. These functions can be combined.

When all the groups are selected, you have the choice to erase the global data of the document, either the scans, the list of interference or the list of TV channels (and digital radio channels for France).

This function is final, no undo option exists. For this reason, if your document has not been saved beforehand, when you launch the "Execute" command, a window asks you if you want to save it:

EazyRF	x
Document New modified, do you want to save it?	
Yes No	

# 2.15 Shortcuts

There are some keyboard shortcuts to perform certain commands:

Delete or Backspace: erase one cell (or several)

- Ctrl + F: Add Fixe Device
- Ctrl + V: Add Variable Device
- Ctrl + G: Add Group
- Ctrl + S: Add Section

#### Ctrl + Z: Undo command

#### Ctrl + Y: Redo command

Ctrl + A: Enable/Disable Auto-Increment of the device

Arrow Left, Right, Up and Down: Move the selection to another device in a section

# 3 - Detailed View

The "Detailed View" is a different representation of the data of the "Global View". It allows the detailed display of devices frequencies:

) 📴 🚎 - Options About 🛛 La	anguage							<u></u>	Régis Banv
est Guide 4.50 Vue Détaillée-01 🛛								, .	
			AB Avail Fred	Grn Sact Day Da Grn Sact	Dev 🖳 🔘 Grp Sect Dev 5th Order De		· Freq Changer · Global ·	Full Automatic	
			Availing a	s ofp seer bev and ofp seer	ber a orbit see ber saroide b		r ried changes - clopar -	Tuil Automatic	
st of Devices A-Z 0-9		Group		Section	Device	Evaluate			
	0	Add   Delete   Inte	rrelations	Add   Delete	Add Fixe   Add Variable   De	lete Freq List   D	evices Manual Clear		
Devices Dev Group									
A1-101K Lav, Hand (1-2)	^ <i>(</i> %	Title: New document					EazyRF V4 User Guide	A Group - Section	n - Device
A1-101K Lav, Hand (1-2) #2E		pupe 1						Group:	
A1-102K Lav, Hand (1-2)								Groupe 1	
A1-103K Lav, Hand (1-2)		Section 1					^	Section:	
A1-104K Lav, Hand (1-2)		#1-Sennheiser 3732-C 2 Fr	(548.500 - 548.800)	38 Disp.			TV 🔹	Section 1	
1-105K Lav, Hand (1-2)		No De	scription	Frequency	Intermodulation	Comment		Dev Description:	
A1-106K Lav. Hand (1-2)		1		548.500 27				#1	
A1-107K Lav. Hand (1.2)		2		548.800 27				Device:	
A1-108K Lav, Hand (1,2)								Sennheiser 3732-C	
A1-108K Lav, Hand (1,2) #2		#1 - Sennheiser EM3732-II A	12 Fr. (470.000 - 527				TV 🔹	Wished Freq Nb:	
A1-108K Lav, Hand (1,2) #3 A1-111K Lav, Hand (1-8)		1		470.000				2	
A1-111K Lav, Hand (1-8) A1-112K Lav, Hand (1-8)		2		470.700 14				Туре	
A1-112K Lav, Hand (1-8) A1-116K Lav, Hand (1-4)		3		472,400 14				Micros	
A1-117K Lav, Hand (1-4)		4		473.550 14				Variables Fre	eq Dev
A1-118K Lav, Hand (1-8)		5		475.300 14				Tolerance 2 TX 100	
A1-119K Lav, Hand (1-8)								Tolerance 3 TX 50	
A1-120K Lav, Hand (1-8)		6		497.000 18				Separation 300	
A1-121K Lav, Hand (1-8)		7		506.600 20				Image 10.7	
A1-122K Lav. Hand (1-8)		8		507.400 20				Filter 16.0	
A1-123K Lav. Hand (1-8)		9		510.900 20				Start 548.0	
A1-125K Lav, Hand (1-2)		10		524.200 23				Stop 638.0	
A1-126K Lav, Hand (1-8)		11		524.600 23					
A1-127K Lav, Hand (1-8)		12		527.450 23				Increment 0.00	
A1-128K Lav, Hand (1-8)								Options (D	lev)
A1-128K Lav, Hand (1-8) #2		#1 - Shure AD4Q G54 8 Fr.	482.500 - 487.000) 11				TV 🔹	Protected	
A1-128K Lav, Hand (1-8) #3		1		482.500 16				Priority	
A1-201K		2		482.900 16				Minimum Evaluation	n
A1-202K		3		483,400 16				Descending order	
AKG DMS700 B1		4		484,000 16				✓ Avail Freq	
AKG IVM4 IEM 835		5		484.450 16				✓ Auto Start	
AKG WMS4000 835									
AKG WMS450 B5-A		6		485.000 16					
AKG WMS450 B6		7		485.650 16					
KG WMS4500 B4 Appareil XYZ		8		487.000 16					
ppareir xTZ	Gr	pupe 2					*		
Device	^	Section 1							
ed on							^		
e .		#1 - Sennheiser SR300 IEM (					TV 🔹		
Freg Simult		No De	scription	Frequency	Intermodulation	Comment			
erance 2 TX		1		518.500 22					
erance 3 TX		2		518.950 22					
paration	_	3		519,500 22					
rt	_	4		520.150 22					
p	_	5		520.650 22					
·	×	3		520.050 22				*	9 août 202

The zone of "Details" finds itself to the right and in vertical format instead of being in the bottom in horizontal (global view).

The toolbar is the same as in "Global View".

The indicators of the devices are not all presents because the detail of the Frequencies and the Intermodulations makes their presence unnecessary.

An additional column, "Comment", allows adding information. In the case of devices with Fixed frequencies, the channel number is displayed (CH-02 for example).

The "Intermodulation" column displays the details of intermodulation and mouse can identify the source of these frequencies:

#1-BTR-80	0 A2 RX 4 Freq (2 Avail)			🔒 🔺
No	Description	Frequency	Intermodulation	Comment
1		632.100 41		
2		632.400 41		
3		632.850 41 25 kl	Hz - 638.000 & 641.250 & 646.425	
4		633.450 41		
#1 - Shure U	HF-RL3 8 Freq (21 Avail)			TV 🔒
1		638.000 41 25 k	Hz - 632.850 & 641.250 & 646.425	
1		638.000 41 25 ki 638.350 42		
			632.850: #1 - BTR-800 A2 RX	
2		638.350 42		
2 3		638.350 42 638.850 42	632.850: #1 - BTR-800 A2 RX 641.250: #1 - Shure UHF-R L3	
2 3 4		638.350         42           638.850         42           639.500         42           640.300         42	632.850: #1 - BTR-800 A2 RX 641.250: #1 - Shure UHF-R L3	
2 3 4 5		638.350         42           638.850         42           639.500         42           640.300         42	632.850: #1 - BTR-800 A2 RX 641.250: #1 - Shure UHF-R L3 646.425: #1 - Shure UHF-R L3	

The "Comment" column shows the channel number of Lectrosonics devices:

#1-	IFB Lectrosonics T4-R1a, Block 25 4 Freq (5 Avail)	A
1	647.600 43	Ch 4C
2	649.300 43	Ch 5D
3	650.600 44	Ch 6A
4	653.400 44	Ch 86

The editor of devices is called by double-clicking on the title area of the device.

The Global view allows to have an overall view of devices whereas the Detailed view allows to see better frequencies of devices.

# 4 - Frequencies Plan

View "Frequencies Plan" shows the data but does not allow editing of frequencies. It lets you customize the presentation (color, type characters, size ...):

and the second second second second				A
🚰 🖼 • Options About Language				🛜 Régis Ba
w* 🗵				
😂 ጅ • 🛃 🚽 🚽 🎒 🔔 🔍 🛛 Arial	• 8.5	• G I § ΞΞΞ Background ■ Text ♥		
Title: New document			Border	Background Color B
Description	Frequency	Comment	Line style	Preset colors: Custom colors:
1 Group 1				
2 Section 1				
3 #1 - Sennheiser 3732-C				
4	563.300 32			
5	570.950 33			
6				
7 #1 - Sennheiser EM3732-II A			None	Brightness: Colo
8	478.500 22			
9	479.200 22			
10	550.250 31		Presets	-
11 12	550.700 31 551.250 31			
12	552,000 31			
14	552,400 31		None Default Stroke Interior	
15	552.900 01			
16	554,250 21		Border	
17	556.250 31			
18	557.050 01			
19	557.700 31			R: 0 0
20			Index	G: 0 0
21 #1 - Shure AD4Q G54				B: 0 0
22	482.025 22			
23	482.425 22			H: 00
24	482.925 22			B: 0 0
25	483.525 22			S: 0 0
26	483.975 22			
27	484.525 22		Read Apply	Read Apply
28	485.175 22 503.650 25		1 1000 1000	1000
30	503.050 25			
31 Group 2				
32 Section 1				
33 #1 - Sennheiser SR300 IEM G3 A				
34	516.000 26			
35	516.450 26			
36	517.000 26			
37	517.650 26			
38	518.150 27			
39	518.750 27			
40	519.450 27			
41	520.850 27			
rp: 2 Nb Sect: 2 Nb Dev: 5 Nb Freq: 38 (16 In-6				November 16

The Toolbar is adapted to the edition of the shape of the text, text color and background color:

🗋 🖆 🚔 🖌 🛃 🎒 🞑 🔎 Arial	8.5	🛛 🛛 🗴 📕 🧮 🧮 🔲 Background 🔳 Text 🖃 🥲 🛛 Device by Freq 🛛 Freq Ascending order 🛛	W   🎆
-----------------------	-----	---	-------

The editor allows to add borders:

#1 - Shure UHF-R J5		
	578.000 31	
	578.300 32	
	578.700 32	
	579.200 32	
	579.550 32	
	580.000 32	
	580.550 32	
	582.150 32	

The editor has the usual commands "Undo" and "Redo".

The column width can be changed.

The devices can be classified by order of frequency with the command: "Device By Freq"

	Description	Frequency	Comment
1	#1 - Sennheiser 3732-A		
2		470.000	
3		470.300 14	
4		470.700 14	
5		471.200 14	
6		471.550 14	
7		472.000 14	
8		472.550 14	
9		474.150 14	
10		474.900 14	
11		482.500 16	
12		483.100 16	
13		484.150 16	
14	#1 - BTR-800 A2 TX		
15		518.500 22	
16		518.800 22	
17	#1 - Sennheiser 3732-C		
18		548.500 27	
19		548.800 27	
20	#1 - Shure UHF-R J5		
21		578.000 31	
22		578.300 32	
23		578.700 32	
24		579.200 32	
25		579.550 32	
26		580.000 32	
27		580.550 32	
28		582.150 32	
29	#1 - BTR-800 A2 RX		
30		632.100 41	
31		632.400 41	
32		632.800 41	
33		633.300 41	

The frequencies can be classified in ascending order with the command "Freq. Ascending order"

	Description	Frequency	Comment
1		470.000	#1 - Sennheiser 3732-A - Section 1
2		470.300 14	#1 - Sennheiser 3732-A - Section 1
3		470.700 14	#1 - Sennheiser 3732-A - Section 1
4		471.200 14	#1 - Sennheiser 3732-A - Section 1
5		471.550 14	#1 - Sennheiser 3732-A - Section 1
6		472.000 14	#1 - Sennheiser 3732-A - Section 1
7		472.550 14	#1 - Sennheiser 3732-A - Section 1
8		474.150 14	#1 - Sennheiser 3732-A - Section 1
9		474.900 14	#1 - Sennheiser 3732-A - Section 1
10		482.500 16	#1 - Sennheiser 3732-A - Section 1
11		483.450 16	#1 - Sennheiser 3732-A - Section 1
12		484.550 16	#1 - Sennheiser 3732-A - Section 1
13		518.500 22	#1 - BTR-800 A2 TX - Section 1
14		518.800 22	#1 - BTR-800 A2 TX - Section 1
15		548.500 27	#1 - Sennheiser 3732-C - Section 1
16		548.800 27	#1 - Sennheiser 3732-C - Section 1
17		578.500 32	#1 - Shure UHF-R J5 - Section 1
18		578.800 32	#1 - Shure UHF-R J5 - Section 1
19		579.200 32	#1 - Shure UHF-R J5 - Section 1
20		579.700 32	#1 - Shure UHF-R J5 - Section 1
21		580.050 32	#1 - Shure UHF-R J5 - Section 1
22		580.500 32	#1 - Shure UHF-R J5 - Section 1
23		581.050 32	#1 - Shure UHF-R J5 - Section 1
24		582.650 32	#1 - Shure UHF-R J5 - Section 1
25		632.100 41	#1 - BTR-800 A2 RX - Section 1
26		632.400 41	#1 - BTR-800 A2 RX - Section 1
27		632.800 41	#1 - BTR-800 A2 RX - Section 1
28		633,300 41	#1 - BTR-800 A2 RX - Section 1

# 4.1 Transfer to Excel

EazyRF allows you to export data to an Excel spreadsheet:

Export to Excel x
Selection Workbooks:
Worksheets:
Feuil1 V
Line: 1 Column: A
ANFR transfer
ANFR type   Separation   300 kHz
Cancel Export

Simply choose the workbook, the worksheet and the destination cell.

If the frequencies are listed in ascending order, the data can be transferred to Excel in a format compatible with the ANRF's Frequencies Blockchain:

ANFR transf	er					
	type	Separation	○ 300 kHz			
Ē	Min Freq - Ma	x Freq - Ref No	- Freq - Bandwidth	- Fr Desc	Dev Name -	Section - Group

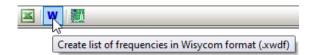
See <u>https://www.anfr.fr/l-anfr/politique-dinnovation/blockchain-des-frequences/</u> for more information.

In order for the transfer to Excel to work properly, the same language module must be installed in Windows and Excel:

6	Region		$\times$	Options Excel	
F	Formats Location Admin	nistrative		Général Formules	Définir les préférences linguistiques d'Office.
(	French (Canada)		$\sim$	Vérification	Choisir les langues d'édition
	Language preferences			Enregistrement	Ajouter des langues supplémentaires pour la modification de vos documents. Les
	Date and time format	ts		Langue	déterminent les fonctionnalités propres à une langue, notamment les dictionnair grammaticale et le tri
	Short date:	dd/MM/yy	~	Options avancées	Langue d'édition Disposition du clavier Vérification (orthog Français (Canada) <par défaut=""> Activé Asc Installé</par>
	Long date:	d MMMM yyyy	~	Personnaliser le ruban	Angleis (Canada) Activé

In addition, Excel must be started in administrator mode (shortcut settings, advanced). For a document to be visible, it must be opened directly by Excel and not by double clicking in File Explorer.

#### 4.2 Transfer to Wisycom Manager



And as in Global View, you can transfer frequencies to Wisycom Manager, see section 2.10.

#### 4.3 Create list of markers for WinRadio

💌 w 📓	
	8
	Create list of markers in Winradio format (.csv)

This function allows you to save the list of frequencies in ascending order in csv format to be used as markers in WinRadio; csv format: ID, Frequency, Name, Colour. The background color of the frequency cells is used as the color for the markers.

## 4.4 View detachment to a window (2<sup>nd</sup> screen)

The "Frequencies Plan" view can be detached from the EazyRF application towards a window on a 2nd screen or overlayed with EazyRF if a 2nd screen is not connected.

To activate this function, double-click on the name of the view:

Global View Detailed View	Frequencies Plan	Intermodulations /	Spectrum View	Multi-Scenes	On Tour	Classification

The name of the view is displayed in red to indicate that it is detached:

Global View	Detailed View	Frequencies Plan	Intermodulations	Spectrum View	Multi-Scenes	On Tour	Classification
-------------	---------------	------------------	------------------	---------------	--------------	---------	----------------

To return to standard mode, either close the window or redo a double click on the name of the pane (in red).

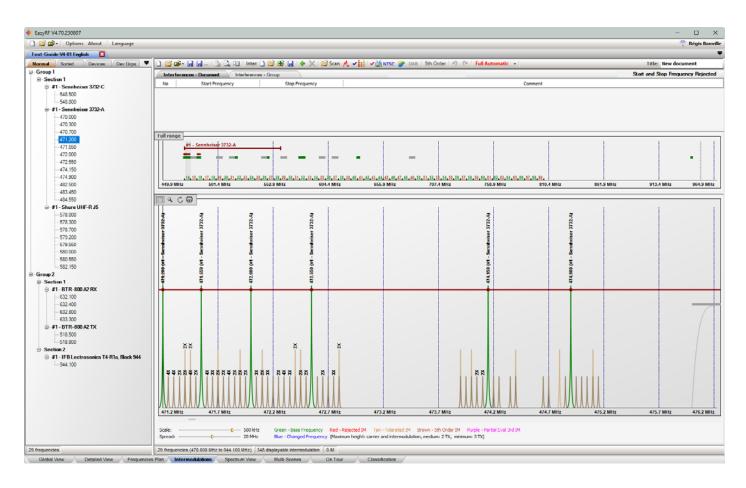
The "Intermodulations", "Spectrum View" and "On Tour" views can also be detached.

If more than one view is detached, a simple click on the name of the view will bring it to the foreground.

Obviously, the content of the detached views is synchronized with the changes made no matter where they are made.

# 5 - Intermodulations

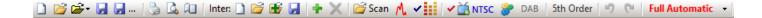
View "Intermodulation" displays the list of devices of the document with an overview of frequencies and a detailed vision of frequencies and intermodulations:



The editor of devices can be called by double-clicking the name of a device or a frequency in the device list (left part of the view).

Areas of interference can be defined with the right mouse button.

## 5.1 Toolbar



The toolbar contains items already examined in global/detailed views: file management, printing, TV channels, local options, undo/redo commands and method of calculation.

Some additional items concern interferences which we shall see in the section 5.6.

Finally, the title of the document can be found on the bar to get a little space (instead of in the document area).

#### 5.2 Devices

The left part of the window consists of four components:

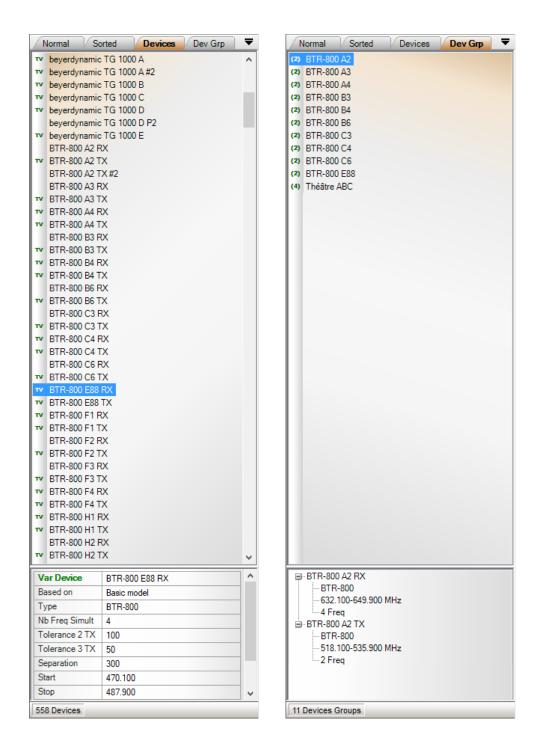


"Normal" pane displays the list of devices of the document in the order of global/detailed view. The "Sorted" section classifies devices in ascending order of frequency:

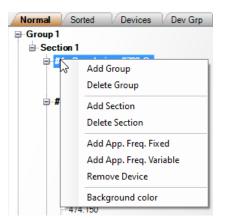
Normal	Sorted	Devices	Dev Grp
🛢 <mark>#1-Se</mark>	nnheiser 37	732-A	
470			
470	.300		
470	.700		
471.			
471.			
472			
472			
474.			
474			
482			
483			
484.			
	R-800 A2 T	x	
518		roup 2 - Section	1
518	.000	13 Avail Freq:	··
■ #1-Se		519.200	
548		519.700 520.050	
		520.500	
#1-Sh		521.050	
578		522.650 523.400	
578		523.400	
579		525.150	
		527.200 527.800	
580		527.800	
580		535.250	
- 582			
	R-800 A2 R	x	
632			
- 632			
- 632			
- 633	300		

Information follow the mouse cursor: available frequencies, changes...

Tabs "Variables" and "Fixed" display the list of devices like the "Global View". It is thus allowed to add a device to the document:



In the details pane "Normal" the following menu appears by clicking the right mouse button:



It is thus possible to manage groups, sections, and devices as in the global and detailed views so avoiding moving from a window to the other one. This operation is not possible in the component "Sorted".

## 5.3 Global Frequencies

The overall representation of the frequency spectrum occupied by the document is displayed in the right middle section:

		15 D TV-14 TV-15	-	19 D 21 D	-	26 D 29	-	35 D 2. TV-33. TV-34. TV-35. TV-	37 36 TV-38 TV-38		800 A2 RX
44	49.9 MHz	470.3 MHz	490.7 MHz	511.1 MHz	531.5 MHz	551.9 MHz	572.3 MHz	592.7 MHz	613.1 MHz	633.5 MHz	653.9 MHz

The selected device is displayed by its name and the space occupied by the Start to Stop frequencies of the device:

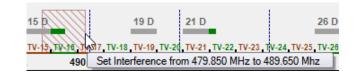
	8-800 A2 RX
9 TV-40 TV-41 TV-	42 10-43 10-44
	653.9 MHz

The zone in degraded grey represents the space occupied by the detailed section.

To view a section directly in detail, click on a point or draw the area to be enlarged with the left mouse button:



A zone of interferences takes shape when dragging with the right mouse button:

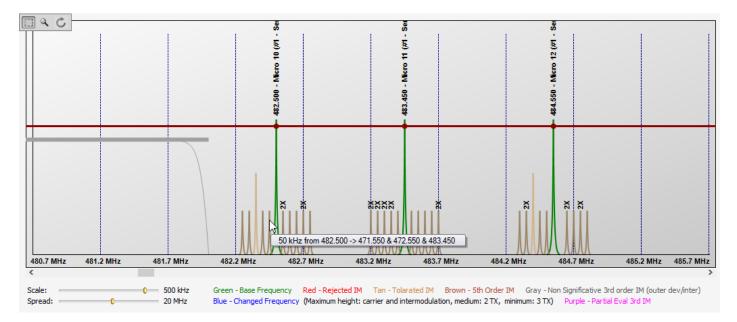


Finally, the "Full range" command allows you to enlarge the viewing area when frequencies in MHz and GHz are used:

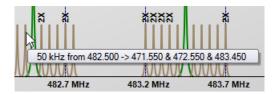
Full range	
	Full range
	50 Mhz - 230 MHz
	450 MHz - 700 MHz
	450 MHz - 1 GHz
	1 GHz - 2.5 GHz
921.5 N	Higher 2.5 GHz

## **5.4 Detailed Frequencies**

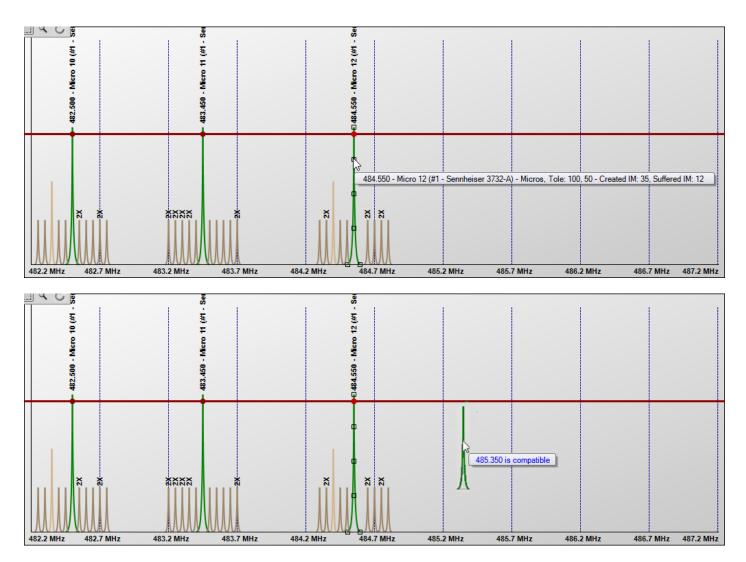
The detailed zone shows a section of the global zone with the graphic representation of the frequencies and the intermodulations:

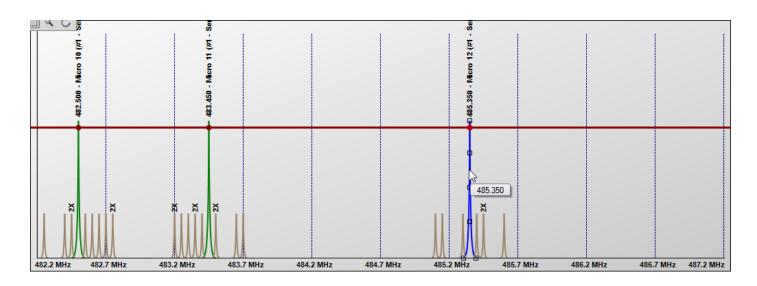


The mouse cursor shows the detail of every intermodulation:

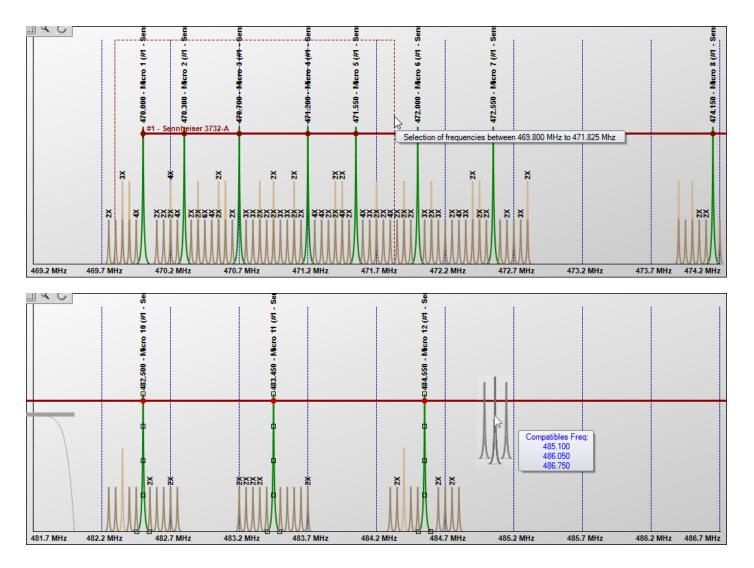


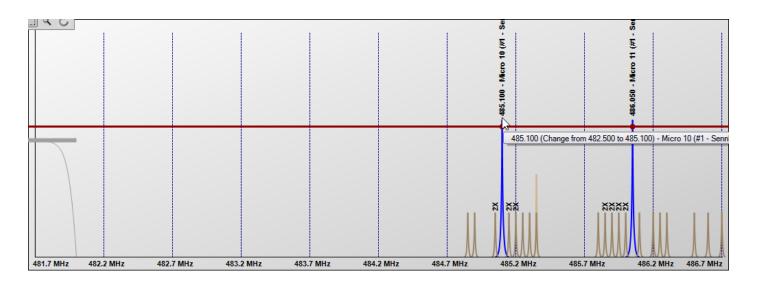
From this zone, the frequencies can be selected and moved:





A group of frequencies can be also selected and moved by dragging the mouse or by selecting the frequencies one by one by holding the touch Ctrl between every selection:





The commands:



The first two allow you to make either a selection or an enlargement in the detailed area. The third command recalculates the intermodulations and refreshes the display.

Finally the last command displays the spectrum management module 470-614 MHz for the NTSC video standard and the 470-694 MHz spectrum for the SECAM video standard. See section 5.10 for more information.

## 5.5 Scale and Spread

The bottom of the detailed zone possesses two controls:

Scale:	 	500 kHz
Spread:	 )	20 MHz

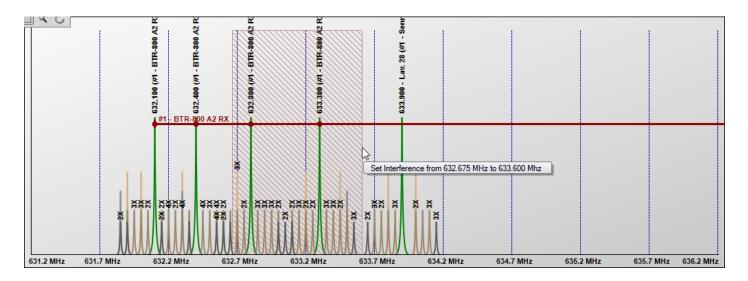
The control "Scale" allows to enlarge or to decrease the detailed vision of the frequencies. Beyond 5 MHz between two steps, there is not enough space to draw adequately the frequencies and the intermodulations. Thus only a block represents every frequency.

The control "Spread" allows to increase/decrease the area added to the overall spectrum size.

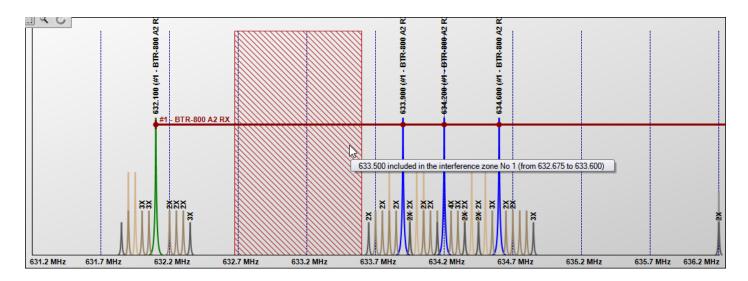
### 5.6 Interferences

An interference region is a region of the spectrum excluded when allocating frequencies. So if unwanted modulations are observed, we can define an area not to assign frequencies in it. This is an area, so there is no evaluation of intermodulation, only a rejection of frequencies.

To create an interference area, use the right mouse button and hold it down by enlarging the area:



In this case, this operation causes the recalculation of frequencies (full automatic mode):



This can be done in the overall frequency range or in the detail area.

The upper right part of the window displays detailed interference:

Inter	ferences - Document Interference	s - Group 1 interfer	ence Start and Stop Frequency Rejected
No	Start Frequency	Stop Frequency	Comment
1	632.675	633.600	

The Start and Stop frequencies can be changed directly.

To add interference manually, use in . You can enter a sequence of values (without evaluation between each data) by using the "+" key on the numeric keypad or the "+ / =" key on a standard keyboard.

To delete an area, select it from the list and use the tool:



These interferences can be saved and retrieved later from the toolbar:

Inter: 🗋 🚔 📝 🛃 | 💠 💥 🛛 🚰 Scan 🔥 🗸

The command 🖆 allows to add a file to the existing list while the open command erases the data previously.

The "Scan" command can be used to import interference from a file created by a frequency scanner:



The "Add" command does not erase the data before opening a file. The "Delete" command is used to destroy the data. The data is saved with the document, so if it is no longer needed, it should be deleted.

The command "RF Explorer" allows to read the data directly from the RF Explorer scanner. See section 5.6.2 for operation.

The "Edit" command allows modification of the sample data, see section 5.6.1 for more details.

Since version 4.70 of EazyRF, samples can be added to each group and are managed by:



If a scan file is assigned to a group, it takes priority over the document scan file, so a group without a sample file uses the document file.

The next/previous buttons allow you to travel from one group to another without leaving the editor.

The activation of the "Reject Frequencies if level" and the detection level are now accessible by this module instead of the module "Document parameters" in order to manage the document and the groups.

The frequency rejection level is adjusted separately for each group and for the document.

Enabling or disabling TV channels affects document and groups. If the Document/Group selector is assigned to groups, only the channels belonging to the group can be modified. Always save TV channel changes.

The detection threshold of frequency reject according to scan level has been removed from the "Document options":

Scans	
The frequency reject level is now with the sample file manager.	

The interference detection is done in accordance with the exclusion zone on each side of a TV channel, depending on the parameter of the document:



Two lines (red and green) can be used to adjust the interference detection threshold (red), while the green adjusts the threshold for detecting the TV channels. To move the lines, it is necessary to drag the indicator text of the level:

-6:10	
-------	--

An interference can be deselected by clicking on the red vertical line. To add one manually, click on a line of the graph.

Two selection modes exist, either the selection of interferences or TV channels. The first command at the top of the window allows you to change the mode. The sampling values included in the selected TV channels are excluded from the interference detection.

To navigate directly to an interference value, make a selection from the drop-down list at the top of the window to the right:

Interferences:	475.200 ~
	475.200
	484.480
	518.400
	524.280
	528.360
	540.680
	552.960
	565.240
	576.000
	589.800
	602.120
	604.800
	614.400
	624.960
	633.600
	638.960
	662.400
	691.200

Finally, after making the desired choice, finish with the command "Add Interference" to insert the data in the current list. You can clear the list before copying the interferences:

< Clear Interf before
Add Interferences

The interferences are added to the document or to the group according to the "Document / Group" selection:

Interfe	erences - Document Interference	ces - Group 9 interfere	nces Start and Stop Frequency Rejected
No	Start Frequency	Stop Frequency	Comment
1	500.025	500.025	
2	532.825	532.825	
3	533.075	533.075	
4	533.275	533.275	
5	533.325	533.325	

The TV channels of the document are displayed in orange:

TV-14	TV-15	TV-16	TV-17	TV-18	TV-19	TV-20	TV-21	TV-22	TV-23	TV-24	TV-25	TV-28	TV-27	TV-28	TV-29
470 MHz					MHz				530	MHz				560	MHz

TV channels can be selected or not by clicking on the channel no. After making changes to the document channels, the "Save CHs" command becomes accessible. You must save the changes before leaving the editor.

The selection of TV channels for interference detection is different from that of TV channels in the document and is not linked. It is not done automatically because sampling does not necessarily cover the whole range.

The sampling data is shared with the Channel Scan module.

The data is also saved with the document. If they are no longer useful, it would be nice to erase them.

The sampling data can be superimposed on intermodulations with the tool

Indicators on the header of the groups of the global and detailed views display the presence of TV channels, a sample file or an interference list for a group:



By positioning the mouse pointer over one of these indicators, the content is displayed:



Interf	Scan	Grp TV
6		
Gr	oup 2 - Ir	nterferences (9)
	500.025	- 500.025
		5 - 532.825
		- 533.075
	000.270	- 533.275
		5 - 533.325 ) - 550.600
		- 553 875
_		- 625.000
		- 675.000

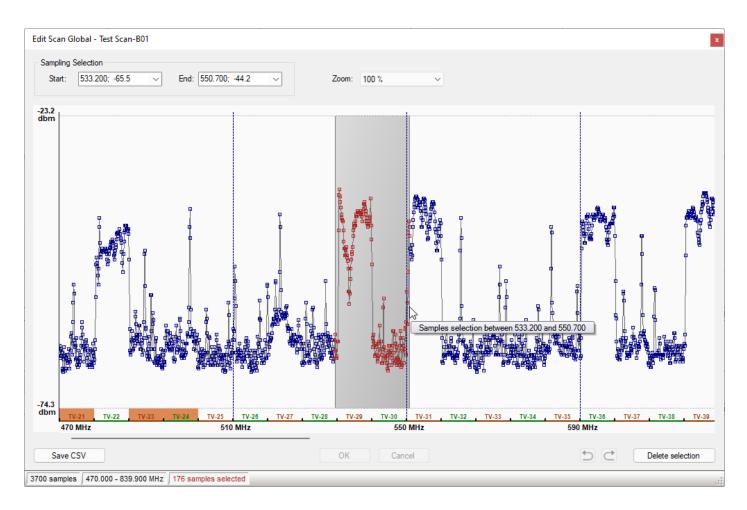
## 5.6.1 Sampling edition

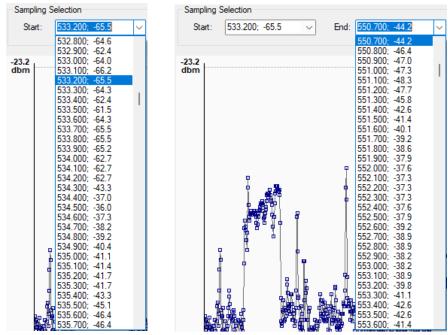
The "Edit" command calls the sampling editor:



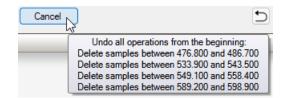
The lower information bar displays the total number of samples in the file, as well as the frequency range covered.

The editor allows you to select a region of the spectrum (or a single sample) and erase it. You can select a region by pressing the left mouse button on the starting frequency and dragging the mouse to the right to extend the selection. It goes without saying that it is not easy to a frequency precisely with the mouse (the zoom can help), but this is not important, because the drop-down lists for the start and end of the selection allow you select the desired frequencies:





The editor has its own undo/redo system, the "Undo" command allows you to undo a series of operations:

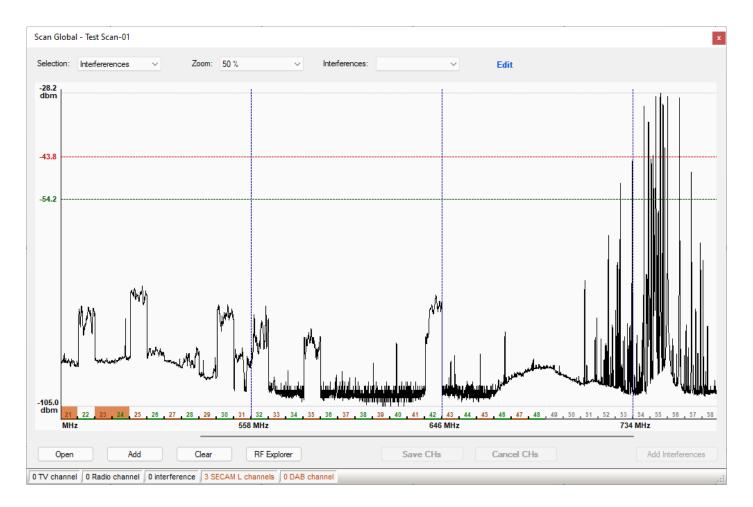


Changes can be undone until a new sample file is uploaded, regardless of changes made to the document.

The modified sample file can be saved separately, in EazyRF CSV format.

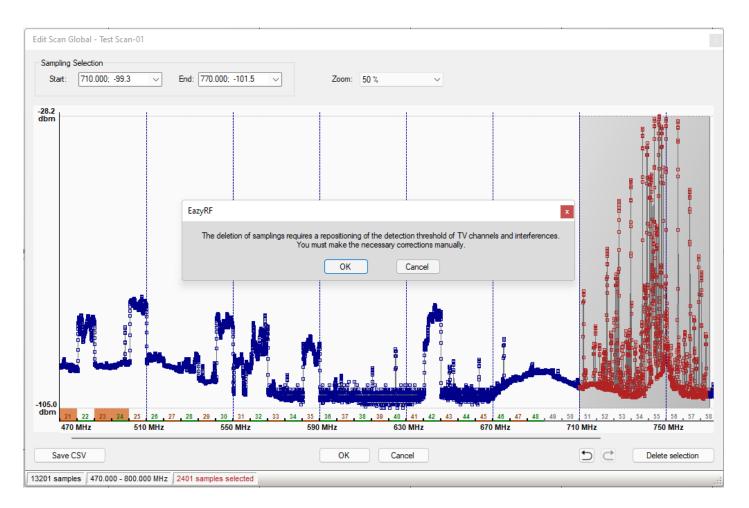
#### **Reminder:**

EazyRF reads the sample files and finds the minimum and maximum sample value (as well as the minimum and maximum frequencies). There is no magnitude scale for the sample values, EazyRF automatically adjusts to give a full-scale view of the sample values. This can sometimes give unexpected results, let's take an example:

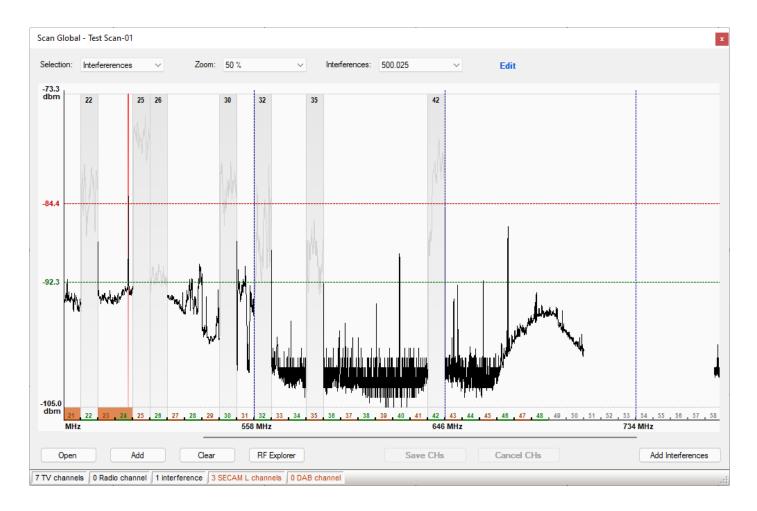


We see that there is a lot of activity in the 710 to 770 MHz range, as this part of the spectrum is no longer accessible for our needs, let's try to erase it to see the difference. Before proceeding, take note of the values for the maximum

level (-28.2 dbm), minimum level (-105.0 dbm), and interference detection (-43.8 dbm) and TV channel detection (-54.2 dbm) thresholds.



First of all, EazyRF advises us that this change will cause a repositioning of the detection thresholds of TV channels and interference. Let's look at the result to understand:



Minimum and maximum sampling values are now -105.0 and -73.3 dbm. It goes without saying that the old detection thresholds, i.e. -43.8 for interference and -54.2 for TV channels no longer make sense, they are higher than the new maximum value -73.3 dbm. In this case, EazyRF proposes values based on a percentage of the sampling extent, i.e. 40% for TV channels and 65% for interference.

This change in the scope of the sampling values is major, it goes without saying that such a modification in an already configured environment is not desirable. This is a change that must be made at the start of the configuration because all the frequency calculations of devices that depend on certain sampling levels will no longer have any meaning, or even worse, will be erroneous.

N.B. Sampling values in dbm or dbu do not really matter but should not be used together.

## 5.6.2 RF Explorer

The RF Explorer scanner can be managed by EazyRF. EazyRF can open .rfe files created by RF Explorer, as well as files exported in .csv format (single signal or cumulative).

The RF Explorer (or PLUS) do not allow managing a range of frequencies with precise sampling, only 112 samplings for a given range is allowed.

To overcome this constraint, EazyRF uses a public library to communicate with RF Explorer directly (RFExplorer-for-.NET). Thanks to the developers.

Here is this tool:

RF Explorer			x
RF Explorer COM Port     Firmware v01.28       COM3     500000       Connect     Disconnect	Standard     Stop: 60	0.000 Max Hold 0.000 Add data Send 0.90 kHz	Zoom 100 % ~
0.0 dbm			~~~~~
-120.0 dbm 17 TV-18 TV-19 TV-20 TV-21 500 MHz	TV-22 TV-23 TV-24 TV-25 TV-2 530 MHz	16 TV-27 TV-28 TV-30 TV-31 TV-32 560 MHz	TV-33 TV-34 TV-35 TV 590 MHz
Clear		Add -> Scan Copy -> Scan	Save OK
Start: 500.000 MHz Stop: 600.000 MHz Samplin	g: 900.90 kHz Scannings: 299		

At launch, EazyRF automatically connects to the first RF Explorer connected to a USB port. The communication is done by serial port at the speed of 500000 bits / sec (not modifiable).

Two types of scanning exist:

<ul> <li>Standard</li> </ul>	500.000	Max Hold	
Standard     Stop:     Automatic     Sampling	600.000 900.90 kHz	Add data	Send

Standard scanning is the classic operating mode of the RF Explorer. A start and stop frequency are set and RF Explorer determines the sampling value. RF Explorer uses 112 samplings over the defined frequency range. In fact, it is 111 steps, so for a range of 100 MHz, we obtain a sampling of 900.90 kHz.

This is not a sufficient precision. EazyRF has therefore created an automatic mode of operation to define the sampling:

<ul> <li>Automatic</li> </ul>	Sampling:	100 kHz 🗸 🗸
		50 kHz 100 kHz
		150 kHz 200 kHz
		250 kHz 500 kHz

From the "Start" and "Stop" values, EazyRF reprograms RF Explorer in frequency intervals to obtain the desired result. Therefore, for a 500 MHz to 700 MHz scan at 100 kHz sampling, RF Explorer must be reprogrammed 18 times, from 500.000 MHz to 511.100 MHz for a first reading, then from 511.200 MHz to 522.300 MHz, and so on. The result:



Start: 522.400 MHz Stop: 533.500 MHz Sampling: 100.00 kHz Scannings: 5 Cycles: 4

After having defined the sampling frequencies, it is necessary to launch the operation by the command "Send".

EazyRF is monopolized by this operation and you must terminate it with the "Interrupt" command:



#### At this moment, you get:

Explorer					
RF Explorer COM Port     Firmware v01.28       COM3     500000       Connect     Disconnect	Scanning Start: Standard Stop: Automatic Samplin	500.000 700.000 100 kHz ~	Max Hold	Send	Zoom 100 % ~
0.0 Ibm		< ->			
MAM Marker Marker	and a subject of the second	Marine and a marine and and	m Jul mark by from the	and the state of t	molecter Million
120.0 dbm TV-19 TV-20 TV-21 TV-22 MHz		инданий, марали Марини, найн марини, на 16 <u>TV-27</u> TV-28 <u>TV-28</u> 560 MHz	1 TV-30 TV-31 TV	чүн үүүү Мулун Мулун Чиг - 12 т. т. 12 т. т. 12	1V-35 TV-36 TV-37

Start: 522.400 MHz Stop: 533.500 MHz Sampling: 100.00 kHz Scannings: 120 Cycles: 22

#### The commands:



allow you to move forward or backward manually from one sweep section to another.

The "Zoom" command allows you to enlarge or reduce the display.

Finally, the commands at the bottom of the window:

"Clear" resets the data, display and samples.

"Add -> Scan" allows to add the sampling to the previous module ("Scan"), while the command "Copy -> Scan" erases the data of the "Scan" module and replaces it with those of RF Explorer.

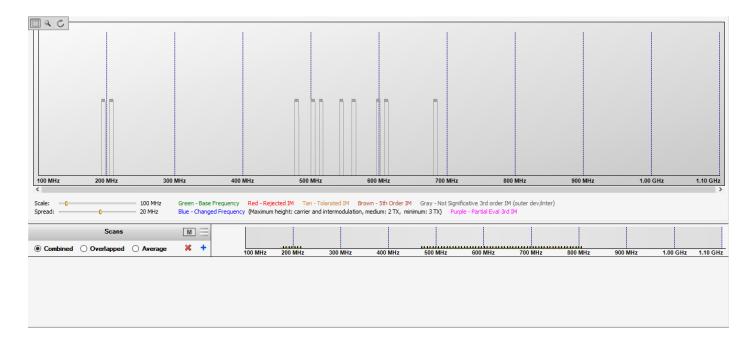
"Save" creates a data file in CSV format.

### 5.7 Scans File Manager

The command:

Inter: 🗋 嬞 🗃 🛃 嬞 Scan 🏾	🔨 🗸 🖬 🖙 🔭 🖌 🖌 🖬 NTS
and Stop rejected)	2 Disalau sa fila ana ang
Step Erecuency	Display scans file manager

Display the scans file manager section below the details of the intermodulations.



Adding scans files is done with the command '+':

	Scans		Μ	Ξ
Combined	Overlapped	O Average	×	+

The 'X' command erases the files list.

Let's take an example:

Scar	s	M	-87.0 dbm	and second start						L	ر المسلم الروري <sup>4</sup> والمتشارين من عن من	nul-knaha andinanika a shadoo	له د م م م م م م م م م م م م م م م م م م	collificant in lines as
Combined      Overlappe	ed 🔿 Average	* +	-113.0 dbm	TV-19, TV-20 500 MHz	TV-21 TV-22 TV-2 520 MHz	3 TV-24 TV-25 TV-26 TV 540 MHz	7-27 TV-28 TV-29 TV- 560 MHz	30 TV-31 TV-32 TV-33 580 MHz	TV-34 TV-35 TV-36 TV 600 MHz	620 MHz	40 TV-41 TV-42 TV-43 640 MHz	TV-44 TV-45 TV-46 T 660 MHz	V-47 TV-48 TV-49 T 680 MHz	700 MHz
✓ Test-18	M 🗮 🔳	⊕ ♥ -	-90.5 dbm -113.0 dbm	mund		Maturalisation	Merinder war-gabel di diget yana beker	and have a star and the start the st	Marin	harmappettermbertangen (väsy	fatzlenske playter Mondamporyter	4.19.6eeb.26.6e-acception.edu.co	hancessfeldered and access	and a glater to the
✓ Test-17	M =	♦ ♥ -	-87.0 dbm -110.5 dbm		mon	martun	man Monan			Lumfunn		un fam	mohapin	man

The upper part of the scans displays the combination of files, either in "Combined" mode, as above, or "Overlapped" mode:

	Scans		M	-87.0 dbm	man and	7				m	Lung		-	un and the second	manne
	Overlapped	O Average	* +	-113.0 dbm	TV-19,TV-20 500 MHz	520 MHz	3 TV-24 TV-25 TV-26 TV 540 MHz	27 TV-28 TV-29 TV 560 MHz	30 TV-31 TV-32 TV-33 580 MHz	TV-34 TV-35 TV-36 TV 600 MHz	620 MHz	40 TV-41 TV-42 TV-43 640 MHz	TV-44 TV-45 TV-46 T 660 MHz	V-47 TV-48 TV-49 T 680 MHz	700 MHz
✓ Test-18		M 📃 🔳	0 ♥ -	-90.5 dbm -113.0 dbm	mund	and we are an an array array	Matural and a superior of the	handari waxaa ya kata daga baandara ay ka	and an	Man	a, maiply the order for the operation of the	htspeaked for the second	4.19.6eeb.26.6e-acception.edu.co	h-anersalahan anang	
Test-17		M 📃 📕	<b>≬</b> ♥ <b>-</b>	-87.0 dbm -110.5 dbm		mon	munifican	······			Lumpunn		m	montan	man

#### Or, in 'Average' mode:

	Scans		M	-88.0 dbm	and address of the					الإطبالة وعداداته	tot as one of additional and	and the second state of the second science of the second state of the second science of	من را در روز از من المن من المن من المن الم	المراجع والمستعادية	14-14 at 11 at 11 at 11
	Overlapped	Average	* +	-113.0 dbm	TV-19, TV-20 500 MHz	TV-21 TV-22 TV-23 520 MHz	TV-24 TV-25 TV-26 TV- 540 MHz	27 TV-28 TV-29 TV 560 MHz	30 TV-31 TV-32 TV-33 580 MHz	TV-34 TV-35 TV-36 TV 600 MHz	620 MHz	40 TV-41 TV-42 TV-43 640 MHz	660 MHz	V-47 TV-48 TV-49 T 680 MHz	700 MHz
✓ Test-18		M =	≬ ♥ -	-90.5 dbm -113.0 dbm	mund	and man have been and	hander at many particular of the stand of the stand	briader was not all all all all all all all all all al	and an	Man	w.wasplethereductoriere/white	hispanpaphy (nA	rh 19 dinish tahu-sa sa tili 1.1 da ad	halacasayaraa	-managharanger
✓ Test-17		M	≬ ∲ -	-87.0 dbm -110.5 dbm		mon	martum	ware ware	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		Lumpunn		·····	mohapin	mannam

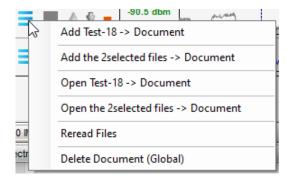
In 'Combined' mode, only the peak value is displayed, whilw in 'Average' mode, the average of the values is displayed.

Let's take a closer look at the file list:



Each item in the list can be activated or deactivated in the global section. The command '-' allows you to delete a file. The order of the files can be changed with the arrows "Up" and "Down". The color of the trace can also be changed.

The menu command allows you to manage the integration of these files into the system:

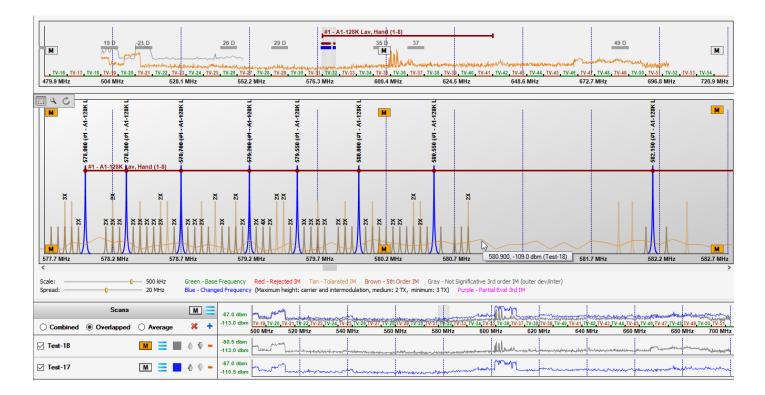


As in the standard scans manager, the "Add" command adds a file to the document, while the "Open" command erases the data before adding it. It is allowed to add all selected files simultaneously.

The "Reread Files" command allows you to read files again if changes have been made.

The "Delete" command deletes the data present in the document.

Finally, the command 'M' for 'Monitor' allows you to add one or more files overlapped on the global or detailed view:



The objective is to compare a more recent scan compared to that integrated into the document. In addition, you have access to all the functions of moving, zoom-in, etc. Flashing orange lights indicate that you are in 'Monitor' mode and that the data displayed are not all present in the document. A single click on the flashing indicator close the preview.

A double click on the 'M' button on the file list allows to select or unselect all the files.

The combined part of the scans has its own menu:

Scans			Save in CSV
Overlapped	O Average	× 1	Replace scans by combined -> Document
	M	⊕ ♥ -	Add scan combined -> Document
	M	<b>≬</b> ♥ -	Delete Document (Global)

It is thus allowed to save the combination of samplings or to integrate it into the document. The save command is not allowed in 'Overlapped' mode.

You can also preview the result with the 'Monitor' command.

Finally, the upper part of the sampling area displays the space occupied by the detailed area (as in the overview):

and the state of the	ումիսիսիսի	·1,13/11/1***11/11/11/11/11/11/11	1444	-adopente-populati	nuhruhruhruhruhruhruhruhruhruhruhruhruhru	.,
TV-39	TV-40	TV-41	TV-42	TV-43	TV-44	TV-45
MHz		6	640 MHz			660 N

A click in the band of any scan allows to move the detailed area on this region of the spectrum.

### 5.8 Print

It is possible to print the graphical representation of global and detailed frequencies area with intermodulations. The printing is done in full screen portrait or landscape mode (by default) depending on the desired paper source. The values of frequencies of start and stop are the same, but the graphical representation is adjusted to the size of paper and the application window size does not influence.

## 5.9 View detachment to a window (2<sup>nd</sup> screen)

The "Intermodulations" view can be detached from the EazyRF application towards a window on a 2nd screen or overlayed with EazyRF if a 2nd screen is not connected.

To activate this function, double-click on the name of the view:

Global View	Detailed View	Frequencies Plan	Intermodulations	Spectrum View	Multi-Scenes	On Tour	Classification

The name of the view is displayed in red to indicate that it is detached:

To return to standard mode, either close the window or redo a double click on the name of the pane (in red).

The "Frequencies Plan", "Spectrum View" and "On Tour" views can also be detached.

If more than one view is detached, a simple click on the name of the view will bring it to the foreground.

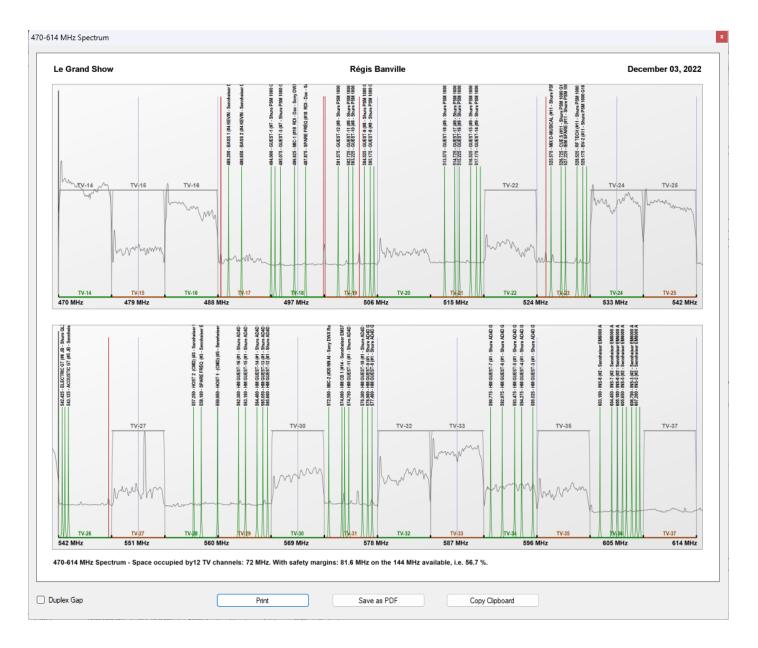
Obviously, the content of the detached views is synchronized with the changes made no matter where they are made.

## 5.10 Frequencies spectrum manager

The frequencies spectrum manager is called by the last command in the detailed intermodulation section:

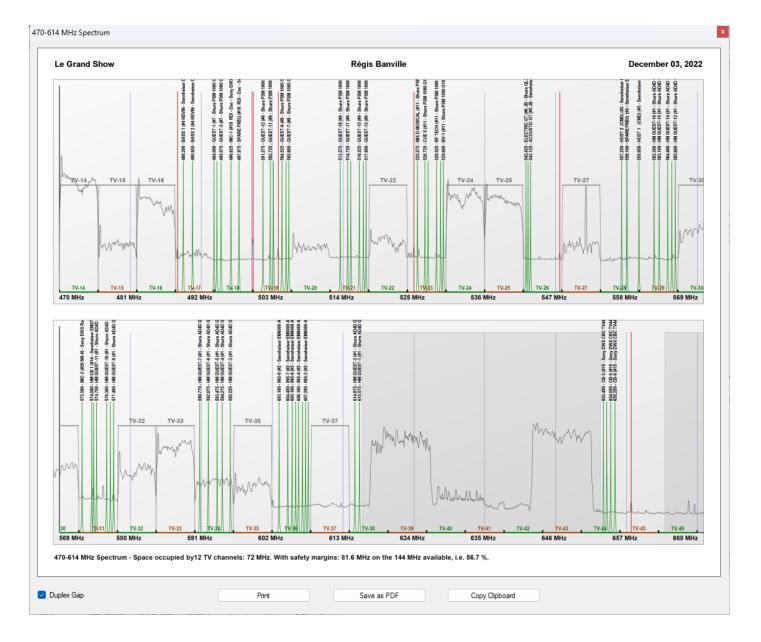


Which give:



The spectrum displayed corresponds to the frequency band reserved for commercial use between 470 and 700 MHz. The "Duplex Gap" option expands the band to the permitted region at the top.

In North America, the base area available is 470 MHz to 614 MHz with a duplex gap of 614 to 616 MHz and another of 653 to 663 MHz. EazyRF displays the 470 MHz to 668 MHz zone with the duplex gap activated.



In Europe, the base area available is 470 MHz to 694 MHz with a duplex gap of 822 to 830 MHz.



EazyRF displays the 470 MHz to 854 MHz band with the duplex gap activated.



The purpose of the module is to illustrate the entire RF space by spreading the frequency range over two sections in order to be able to print it on a single page or do the viewing without moving.

The window size adjusts to the resolution of the Windows desktop. The image shown is only a preview of the actual image. The image can be printed, saved in PDF format, or copied to the clipboard for use with other software.

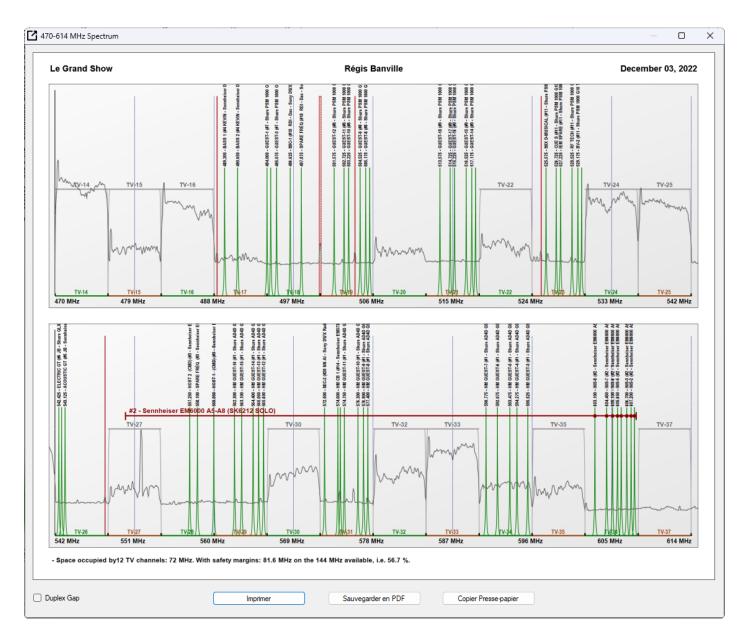
The basic size corresponds to the letter paper size used in America, which is 8.5 in by 11 in. This size only serves to illustrate a potential rendering. When printing, the size used is that of the paper of the selected printer.

The paper size used for saving in PDF format is that defined for the "Microsoft Print to PDF" device which allows high resolution (requires Windows 10 or higher).

EazyRF uses a high-resolution representation, 300 dpi, for detailed printing. The computer screen can only display lower resolution by using a reduction from 300 to 100 dpi.

## 5.10.1 Module detachment to a window (2<sup>nd</sup> screen)

By double-clicking on the title of the spectrum window, you can detach the module and display it either on a 2nd screen or in a floating window:

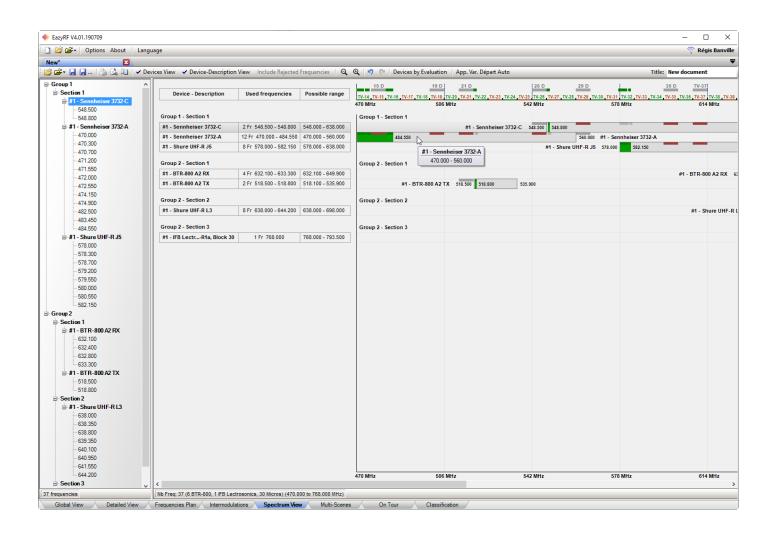


The window now displays the content of the spectrum continuously and no longer in static mode. The window is variable in size. The print is always made from the paper size, only the copy to the clipboard corresponds to the window size in high resolution.

This module does not allow any selection or modification of the document, it is only a dynamic viewing module.

# 6 - Spectrum View

The "Spectrum View" pane displays the spectral space occupied by the devices, the TV channels and the area of rejected frequencies. Here is an example:



The list of devices can be retracted as the list Device-Description to leave it up to the spectrum:

] 嬞 🚔 🔹 Options Abo	ut Language											🗍 Régis Ban
lew*	X											
🖥 🗳 - 🗟 📓 🖏 🖾	Devices View 🗸 🛛	Device-Description Vi	ew Incl	ude Rejected Frequer	cies	ପ୍ପ୍ 🤊 ୯	Devices by Evaluation	App. Var. Départ Auto			Title: Nev	/ document
Device - Description	Used frequencies	Possible range		5 D	19 D	21 D	26 D	29 D		5 D TV-37		
bevice - bescription	used nequencies	Possible range	TV-14_T 470 MHz		TV-19 T 506 M		TV-24 TV-25 TV-26 TV-27 542 MHz		TV-32 TV-33 TV-34 TV 8 MHz	1-35 TV-36 TV-37 TV-38 TV-39 614 MHz		0 MHz
					300 1		342 11112	57	0 11112	014 1112		0 11112
Group 1 - Section 1 #1 - Sennheiser 3732-C	0.5. 540 500 540 000	548.000 - 638.000	Group	1 - Section 1						_		
#1 - Sennheiser 3732-C #1 - Sennheiser 3732-A	2 Fr 548.500 - 548.800		_		_	#1 - Sennheise	r 3732-C 548.500 548.3				638.000	
#1 - Sennneiser 3/32-A #1 - Shure UHF-R J5	12 Fr 470.000 - 484.550			484.550				560.000 #1 - Se		_		
F1 - Shure Unr-K J5	8 Fr 578.000 - 582.150	576.000 - 636.000		#1 - Sennheiser 3	22 4		#1 - 51	ure UHF-R J5 578.000	582.150		638.000	
Group 2 - Section 1			Group		32-74							
#1 - BTR-800 A2 RX	4 Fr 632.100 - 633.300	632.100 - 649.900		470.000						#1 - BTR-800 A2 RX 63	2,100 633,300	649.900
#1 - BTR-800 A2 TX	2 Fr 518.500 - 518.800	518.100 - 535.900		470.300 470.700	D	<b>(</b> 518.500 518.800	535.900				-	
				471.200	ſ							
Group 2 - Section 2			Group	471.550 472.000								
#1 - Shure UHF-R L3	8 Fr 638.000 - 644.200	638.000 - 698.000		472.550						#1 - Shure UHF-R L	.3 638.000 644	200
Group 2 - Section 3				474.150 474.900								
#1 - IFB LectrR1a, Block 30	1 Fr 768.000	768.000 - 793.500	Group	482.500 483.450								

Global View / Detailed View / Frequencies Plan / Intermodulations / Spectrum View / Multi-Scenes / On Tour / Classification /

New         C           Set         Devices View         Devices Description View         Include Rejected Frequencies         Q         Q         P         Devices by Evaluation         App. Var. Départ Auto         Title         New document           190         190         210         220         220         220         220         400         4	EazyRF V4.01.190709					- 🗆 X
Image: Construction 1       Image: Construction View       Include Rejected Frequencies       Image: Construction 1       Image:	🗋 💕 🗃 🖌 Options About 🛛 Language					🛜 Régis Banville
15D       19D       21D       22D       25D       TV-37         17V.11       TV-12       TV-32	New*					₹
TV: L4:s, TV-45	📂 🖆 🚽 🛃   🗞 💪 🔲   Devices View	Device-Description View Include Rejected Freque	encies 🛛 🔍 🔍 🍠 🖓 Devices by E	valuation App. Var. Départ Auto		Title: New document
444 530         360.000 #1 - Sennheiser 3732-A           Group 2 - Section 1         #1 - Shure UHF-R J5         578.000         582.190           #1 - BTR-800 A2 TX         518.800         535.500         582.100           Group 2 - Section 2         #1 - Shure UHF-R L3         538.000         548.500           Group 2 - Section 3         518.800         535.500         588.000	TV-14 TV-15 TV-16 TV-17 TV-18 TV-19 TV-20 TV-21 TV-2 470 MHz 506 MHz	22 TV-23 TV-24 TV-25 TV-26 TV-27 TV-28 TV-29 TV-30 TV-3	1 TV-32 TV-33 TV-34 TV-35 TV-38 TV-37 TV-38		TV-47 TV-48 TV-49 TV-50 TV-51 TV-52 TV-53 TV-5	4 ,TV-55 ,TV-56 ,TV-57 ,TV-58 ,TV-59 ,TV-60 ,T 722 MHz
Group 2 - Section 1         #1 - Shure UHF-R J.5         572.000         552.150         533.000           #1 - BTR-800 A2 RX         552.100         533.000         548.000         548.000           #1 - BTR-800 A2 RX         518.800         533.500         548.000         548.000           Group 2 - Section 2         #1 - Shure UHF-R L3         638.000         644.200         658.000	#1 - Se	nnheiser 3732-C 548.500 548.800		638.000		
Group 2 - Section 1 #1 - BTR-800 A2 TX 518.500 518.800 533.500 Group 2 - Section 2 #1 - Shure UHF-R L3 638.000 664.200 658.000 Group 2 - Section 3	484.550	560.000 #1 - S	ennheiser 3732-A			
Group 2 - Section 1 #1 - BTR-800 A2 TX 518.800 535.900 Group 2 - Section 2 #1 - Shure UHF-R L3 638.000 6644.200 698.000		S Tradito Calidad	582.150	638.000		
#1 - BTR-800 A2 TX 318.500 518.800 535.500 Group 2 - Section 2 Group 2 - Section 3	Group 2 - Section 1	50 MI 12				
#1 - Shure UHF-R L3 638.000 664.200 658.000	#1 - BTR-800 A2 TX 518.500 51	18.800 535.900	#1 - BTR-800 A2 F	X 632.100 633.300 649.900		
	Group 2 - Section 2		#1 - Shure U	HF-R L3 638.000 644.200	698.000	
	Singly 2 - Section 3					#1 - IFB Lectrosonics T4-R1a, Bloc
470 MHz         506 MHz         542 MHz         578 MHz         614 MHz         650 MHz         722 MHz           <            516 BTR-800, 1 FB Lectrosonics, 30 Micros) (470.000 to 768.000 MHz)         722 MHz         722 MHz           Global View         Detailed View         Frequencies Plan & Intermodulations         Spectrum View         Multi-Scenes         On Tour         Classification	Nb Freq: 37 (6 BTR-800, 1 IFB Lectrosonics, 30 Micros)	(470.000 to 768.000 MHz)			686 MHz	722 MHz >

All video standard (NTSC, PAL and SECAM) use the frequency 470 MHz for the start of the UHF region. So the alignment point is 470 more or less usable frequencies (start and stop of a device) or TV channels with the rejected reserved area zone (optional). The display area is adjusted automatically (the TV channels below 470 MHz are ignored if no device uses these frequencies).

The display options are global e.g. they are saved as master EazyRF parameters and not with the document.

This component is not an editor, so no changes are allowed (only zoom in, zoom out). Use the Devices pane to locate a Device or Group/Section in the field of detailed view (there is no selection).

The printout includes detailed part, adjusted according to the size of the paper and a vertical scale to ensure that all devices are displayed on a single page.

## 6.1 View detachment to a window (2<sup>nd</sup> screen)

The "Spectrum View" view can be detached from the EazyRF application towards a window on a 2nd screen or overlayed with EazyRF if a 2nd screen is not connected.

To activate this function, double-click on the name of the view:

Global View / Detailed View / Frequencies Plan / Intermodul	lations Spectrum View	Multi-Scenes / On Tour	Classification							
The name of the view is displayed in red to indicate that it is detached:										
Global View Detailed View Frequencies Plan Intermodul	lations 🔨 Spectrum View 🦯 🕴	Multi-Scenes On Tour	Classification							

To return to standard mode, either close the window or redo a double click on the name of the pane (in red).

The "Frequencies Plan", "Intermodulations" and "On Tour" views can also be detached.

If more than one view is detached, a simple click on the name of the view will bring it to the foreground.

Obviously, the content of the detached views is synchronized with the changes made no matter where they are made.

# 7 - On Tour

The component "On Tour" allows to prepare a plan of frequencies compatible for several cities simultaneously. What varies from one city to another? Obviously, these are the TV channels. This component allows for the management of a plan by adding the TV channels of several cities. Each city can be enabled or disabled as needed.

The presentation is a bit like the "Spectrum View," but the emphasis has been placed on the position of the TV channels in relation to the devices in the plan. Here is an overview:



The management of cities, channels and samples of each city is done by the editor:

SECAM - TV channels			Tv-21	Tv-22	Tv-23	Tv-24	Tv-25	Tv-26	Tv-27	Tv-28	Tv-29	Tv-30	
Сору		Cities (3)	X +	470	478	486	494	502	510	518	526	534	542
Com	bined	Reject Fre	q 💽			prive							
	Document No sampling		٨t										
-	Marseille Marseille-01		i +- ≫ /t	·i1	~	ŕ	للبين	í.	rv~~~	<b>_</b> 11	~ 	, ~~~~	ř.
	<b>Lyon</b> Lyon-1102		i + - ≫ /t	<i>i</i>		rin				_			
	Paris Paris-0519.		i+- ×/t	i.	,	here	r de	, min	ul	المديسة	~~		r~~

You can add, insert, delete or move one or more cities simultaneously. In addition, these modifications are now part of the "Undo / Redo" manager. The selection can be moved.

By default, adding cities is done in non-active mode. With a new document, adding a city turns off the document's channels.

The "i" command allows you to add information about an event, date, time, address, contact, etc. (text zone) :

Marseille Marseille-01	the sender of the second
Lyon Lyon-1102	Stade Orange Vélodrome Samedi 4 Décembre 2021 19h00 Contact: Louis-Jean PK
<b>Paris</b> Paris-0519.	₹ Tél: +33 4 12 14 12 14 ★ / t z <sup>-h</sup>

The "2" command is displayed in green if information is present. Just click on the "2" to call the editor:

Marseille
Informations
Stade Orange Vélodrome Samedi 4 Décembre 2021 19h00 Contact: Louis-Jean PK Tél: +33 4 12 14 12 14
OK Annuler

Reject TV channels free	quencies (in MHz)			
02 (54-60)	✓ 19 (500-506)	36 (602-608)	53 (704-710)	
03 (60-66)	20 (506-512)	🗸 37 (608-614) RA	54 (710-716)	
04 (66-72)	✓ 21 (512-518)	38 (614-620)	55 (716-722)	
05 (76-82)	22 (518-524)	39 (620-626)	56 (722-728)	
06 (82-88)	23 (524-530)	40 (626-632)	57 (728-734)	
07 (174-180)	24 (530-536)	41 (632-638)	58 (734-740)	
08 (180-186)	25 (536-542)	42 (638-644)	59 (740-746)	
09 (186-192)	✓ 26 (542-548)	43 (644-650)	60 (746-752)	
10 (192-198)	27 (548-554)	44 (650-656)	61 (752-758)	
✓ 11 (198-204)	28 (554-560)	45 (656-662)	62 (758-764)	
✓ 12 (204-210)	✓ 29 (560-566)	46 (662-668)	63 (764-770) PS	
13 (210-216)	30 (566-572)	47 (668-674)	64 (770-776) PS	Import So
14 (470-476)	✓ 31 (572-578)	48 (674-680)	65 (776-782)	
✓ 15 (476-482)	32 (578-584)	49 (680-686)	66 (782-788)	Import C
16 (482-488)	33 (584-590)	50 (686-692)	67 (788-794)	Clear C
✓ 17 (488-494)	34 (590-596)	51 (692-698)	68 (794-800) PS	CH Nam
18 (494-500)	✓ 35 (596-602)	52 (698-704)	69 (800-806) PS	Read C
	ncies 614 to 698 MHz - Chr ncies 698 to 806 MHz - Cha	nis 38 to 51 🔽 Duplex Ga	p 614-616 MHz p 657-663 MHz 653-663 M	Save C
- Reject reque		annes 52 (0 05		ОК

It is possible to add a series of TV channels previously created and saved with the standard TV channels editor:

A command allows you to delete the list with its names. You must create and save each list by this tool. After adding a more than one city in the "On Tour", this tool is not available any more in the Global, Detailed and Intermodulations view. A message tells you to return to On Tour for editing channels.

If the channels of the document are activated document, the editor of channels works in a normal way. As against, if the channels of the document are disabled:

	Document	
0	No sampling	/ᡛ

Then the editor no longer displays the channels of the document and so allows to create new cities or edit them. The result of the editing of a city is not illustrated in the lower part. You must remove the city and re-import it. Changes are not allocated to the channels of the document because they are inactive.

As EazyRF is multi documents and multi applications (launched more than once), it is still possible to launch a new document and create new cities if desired.

It is strongly recommended to add a name (description) for each channel, this allows to identify them more clearly:

1	Tv-23 486							
	milis							
	Lyon - R7							

Each city can be changed directly (add or delete a channel). These changes do not affect the file of the city, besides the changes in external file does not have influences. Finally, the setting on or off is also permitted (much like the "Layers" in Photoshop):

SECAM - TV channels						
Сору		Cities (3)	X +			
Com	bined	Rejec	t Freq 💽			
	Document No sampling		٨t			
	Marseille Marseille-01		i+- ×/t			
	<b>Lyon</b> Lyon-1102		i+- ×/t			
-	<b>Paris</b> Paris-0519.		i+- ×/t			

A sample file can be added to each city with the commands of the 2nd line of a city:

-	Marseille Marseille-01	i + - ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~
	<b>Lyon</b> Lyon-1102	Add sampling

When adding a file, only the path to the filename is saved, not the sample data.

The list can also be reclassified by dragging the selection (with no effect on the devices evaluation):

SECAM - TV channels			Tv-21	Tv-22	Tv-23	Tv-24	Tv-25	Tv-26	Tv-27	Tv-28	Tv-29	Tv-30	
Сору	Cities (3)		X +	470	478	486	494	502	510	518	526	534	542
Com	bined	Reject Freq				prive						A	
<b>S</b> -	Document No sampling		rt,										
	Marseille n-	i	+ -		~	~		~	~		~	~	~
	Marseile Von aris		<b>* /</b> t	· i-1		$\sim$	الب_		renne	h. j	عادوات	~~~~	
-0	Lyon Lyon-1102	i	+ - */t	<i>i</i>		rin							
	Paris Paris-0519.	i	+ - */t	i.	,	h	r. L	m	ul	المديد	~		~~~

To delete a city, use the command "-". To delete the whole list, use the "X" command:

	SECAM - TV channels		
Сору	Cities (3)	X	+
Combined	Reject Fre	q 🖷	3

Activation of rejection of frequencies for each video standard can also be enabled or disabled. For the NTSC video standard, the rejection of the 600 MHz and 700 MHz bands matches the values in the document and then changes simultaneously when enabling or disabling the rejection of frequencies. Standard channel editing allows this to be done independently.

To build a plan intended for a tour, it's better to clear the channel list of the document and add the desired cities.

When several cities are added to the document, the placeholder may not be sufficient to have a complete view. The channel area can be enlarged up to about 80% of the window size with:

					<u>+</u>				2
T. 2	T 2	T	T F	T	* ****	T 0	T 0	T 40	
1V-Z	11-3	17-4	14-3	1 1-0	1 1-1	11-0	17-9	17-10	
Tv-2 54	60	66	76	82	174	180	186	192	
				~					ł

The position is saved with the document for subsequent use.

If the list is too long, you can use the "Copy" command:

	SECAM - TV channels		
Сору	Cities (3)	Х	+
Con Conveth			
Copy th	e list of TV channels to th	e clipboa	rd

The image of the list will be copied to the clipboard for viewing on another application.

To add devices to the document, just use the tabs "Variables" and "Fixed". The list of available frequencies is naturally displays:

TV Sennheiser 373	2-C
TV Sennheiser 372	2-D
τv Sennheiser 375	
Sennheiser 373	Sennheiser 3732-D
Sennheiser 373	2 Basic Freq:
Sennheiser 373	695.550
Sennheiser 373	700.850
Sennheiser 52	1 Avail Freq:
τv Sennheiser 52	703.500
Sennheiser 52	TV: 37 (608-614)
Sennheiser 52	39 (620-626) D
Sennheiser 52	45 (656-662) D
TV Sennheiser EM	49 (680-686) D

The creation of a document with several cities is more delicate given the higher number of TV channels. Just do a first draft in "Full Automatic" mode. EazyRF recalculate the frequencies of each device to find a solution. Although in the case of previous Sennheiser, there seems to be only 1 frequency available, should not be afraid to ask for a higher number in automatic mode, the final outcome cannot be predicted. The indication given corresponds to the current situation if no changes can be made (manual mode, adding automatic or protected devices).

For each device of the document, detailed information is available in tool tip or description of the device, the frequency list, the list of available frequencies, the details of a TV channel, the list of irregularities (intermodulation, rejection, etc.):

470.000		
#1 - Sennheiser 3732-A 1	2 Fr 470.000 - 48	4.550 9 Disp.
	13	
	Same Freq	.000
	470.000	#1 - Shure Axient I
	470.300	
	470.700	
	471.200	
	471.550	
	472.000	
	472.550	
	474.150	
	474.900	
	482.500	.100
	483.450	#1 - BTR-800 A2 T
	484.550	.100

The edition of the document in this component is not total. It is allowed to add or delete groups, sections and devices. It is not allowed to move them however (the general views do that very well).

To edit a device, simply double-click on a device (regardless of the horizontal position) and standard editor is displayed:

Device Edition			x
Description: #1			Tolerance 2 TX:
Device		Micros	Tolerance 3 TX:
Sennheiser 3732-A		~	50
Start:	Stop:	Increment:	Separation:
470.000	560.000	0.005	300
		TV Channels:	Image Freq:
Auto Start:		15 (476-482 MHz	10.70
Descending orde	r	Tolerance 5th:	Filter:
5th Order Evalua	tion (if Global)	50	16.00
TX Power Level:	1 14	50 mw	Random
Fr Nbr: 12 🗘	Protected	🗹 Manual 🗹 Avail Freq	Clear
+ Ct	rl = 1 Col		
▲ ▼	▲ ▼		0.4 15
No Description		Intermodulation	9 Avail Freq
1	470.000		16 485.200 16 486.850
2	470.300 14		18 494,550
3	470.700 14		18 495.550
4	471.200 14	k	18 496.400
5	471.550 14		18 496.700
6	472.000 14	L	18 498.100 18 498.500
7	472.550 14	ļ	18 498.500
8	474.150 14		10 400.000
9	474.900 14		
10	482.500 16		
11	483.450 16		
12	484.550 16		
5	Č	OK Cancel	

After completing a first draft with a list of possible cities (there is still a limit to the number of channels), just save the plan under different names and disable unnecessary TV channels cities. For example, if you are touring in Quebec, no need to keep the channels of Montreal and other cities. This will allow you to make local changes with greater flexibility.

The purpose of this component is to prepare a plan that will be compatible with the most possible cities. It is practically impossible to put too much TV channels (you have to keep some space for devices).

#### 7.1 View detachment to a window (2<sup>nd</sup> screen)

The "On Tour" view can be detached from the EazyRF application towards a window on a 2nd screen or overlayed with EazyRF if a 2nd screen is not connected.

To activate this function, double-click on the name of the view:

Global View / Detailed View / Frequencies Plan / Intermodulations / Spectrum View / Multi-Scenes / On Tour	Classification
The name of the view is displayed in red to indicate that it is detached:	
Global View Detailed View Frequencies Plan Intermodulations Spectrum View Multi-Scenes On Tour	Classification

To return to standard mode, either close the window or redo a double click on the name of the pane (in red).

The "Frequencies Plan", "Intermodulations" and "Spectrum View" views can also be detached.

If more than one view is detached, a simple click on the name of the view will bring it to the foreground.

Obviously, the content of the detached views is synchronized with the changes made no matter where they are made.

#### 8 - Multi-Scenes

The « Multi-Scenes » view has been developed to meet the demands of music festivals taking place on several stages over a few days or more.

More than a hundred groups follow each other in different stages. So, one can easily imagine the large number of frequencies needed, impossible to calculate with a standard document.

If we analyze the process, we realize that the groups come on stage in turn with a time of reinstallation between two performances.

Therefore, it is not necessary to calculate the intermodulations for the overall performance.

In the first place, there are only the permanent installations which return from day to day. Secondly, for each stage there are only three groups that are in function simultaneously. While one group delivers its performance, the previous one dismantles and the next one gets ready.

From these needs, a new module has been created to manage these calculation commutations: « Multi-Scenes ».

This module is not functional with the basic license, it is optional and at an additional cost.

#### 8.1 Presentation

This component is different from the others. You must first create a document in multi-scene mode. Why? Because this mode of operation is not available with conventional authoring tools. Scenes are groups as before but with independent evaluation relationships.

Moreover, an additional need requires the presence of a "flying" team that can intervene on each of the scenes.

So a new group is added. This group has a complete evaluation relationship. This format is not compatible with the standard evaluation of EazyRF.

A new calculation method deals with this case. EazyRF takes care of switching sections when calculating intermodulations.

To avoid the repetition of two frequencies between the independent groups a trick is used: an auto-interference. This is created from the value of a carrier but with a small variation on both sides, 100 kHz by default (configurable).

The partial evaluation method can even be used with some permanent sections

By creating a multi-scene document, the "Global View" and "Detailed View" panes are no longer accessible due to the unconventional structure of the document (the structure is untouchable).

Let's look at a basic multi-scenes document:

EazyRF V4.63.221209		- 🗆 X
🗋 📴 🚔 -   Options About   Language	e	😚 Régis Banville
New*		
🗋 🗋 MSc 🐸 📽 - 🛃 🛃 🐁 🖾 Au	🛛 📴 🗿 😭 Intes 🗅 🕾 🗑 🛱 Scan   🛧 🗶 🗸 🏠 NTSC 🤪 🛞 DAB   🤊 🔍 Full Automatic - ) 🔍 Saturday 12-10-22 - Day Completed Solo	🧭 Title: New document
۹ 0		Group 1 - Section 1
Devices Dev Groups 🛡	No Start Frequency Stap Frequency Comment	⊒-Group 1
<ul> <li>A1-101K Lav. Hand (1-2)</li> <li>A1-101K Lav. Hand (1-2) #2E</li> </ul>		-Section 1
ry A1-102K Lav, Hand (1-2)		Section 2
TY A1-103K Lav. Hand (1-2)		
A1-104K Lav, Hand (1-2)		
TV A1-105K Lav, Hand (1-2)		
A1-106K Lav. Hand (1-2)		
JX A1-108K Lav, Hand (1,2)	100 MHz 200 MHz 300 MHz 400 MHz 600 MHz 600 MHz 600 MHz 800 MHz 800 MHz 900 MHz 1.00 GHz 1.10 GHz	
X A1-108K Lav. Hand (1.2) #2		
A1-108K Lav, Hand (1,2) #3	Group 1	
x A1-111K Lav, Hand (1-8)	Section 1	
X A1-112K Lav. Hand (1-8) V A1-116K Lav. Hand (1-4)		
rv A1-117K Lav, Hand (1-4)	Section 2 🔹	
TV A1-118K Lav. Hand (1-8)		
A1-119K Lav, Hand (1-8)		
TV A1-120K Lav, Hand (1-8)		
<ul> <li>A1-121K Lav. Hand (1-8)</li> <li>A1-122K Lav. Hand (1-8)</li> </ul>		
1 A1-123K Lav, Hand (1-8)		
Y A1-125K Lav. Hand (1-2)		
Rj A1-125K Lav, Hand (1-8)		
Rj A1-127K Lav, Hand (1-8) A1-128K Lav, Hand (1-8)		
TV A1-128K Lav, Hand (1-8) #2	1	
1 A1-128K Lav, Hand (1-8) #3		
TV A1-201K		
TV A1-202K		
TV AKG DMS700 B1 AKG IVM4 IEM 835		
AKG WMS4000 835		
Rj AKG WMS450 85-A		
AKG WMS450 B6		
× AKG WMS4500 B4		
vv Apparel XYZ     vv Audio-Technica 1800 C		Group - Section - Device
TV beyerdynamic TG 1000 A		Group: 🛃
Var Device		Group 1
Based on		Section: 😽
Type		Section 2
Nb Freg Simult		Partial Eval
Tolerance 2 TX		Parbai Eval Done
Tolerance 3 TX		Device Note
Separation		
Start		
Stop		
827 Devices	Nb Grp: 1 Nb Sect: 2 Nb Dev: 0 Nb Freq: 0 / 0 0 M	December 10, 2022
	normanning for a large standard and the second standard	

The left part contains the list of devices (as in the global view). The central part has three zones: the interference list, the global view of the spectrum and the lower part displays the contents of the document. The section on the right gives details of the devices of the selection with the devices in common.

If we add some devices, we get this:

Group 1			
Section 1			
Section 2	ß	Section 3	6
<b>#1 - Sennheiser EM 3532</b> 2 Fr (548.500 - 548.800)			
#1 - Sennheiser Evolution G2 Grp 2 Fr (626.025 - 626.475)	BIEM		
2 Dev - 4 Fr			
1		2	

We can see the layout of sections and devices in the group. The sections line up horizontally in the group and the devices vertically in a section.

First feature, all devices added are automatically "Protected" and the protection can't be removed.

For the data to be valid all times, they must not automatically vary i.e. regardless of the method of calculation chosen, the result will be identical.

The calculation of the available frequencies is deactivated for the whole document because the values vary according the switching, thus to be redone continuously. Available frequencies only appear when editing a device or when the mouse pointer is over the name of a device on the left list.

When adding a device, the editor automatically appears in order to make the necessary modifications (number of frequencies, etc.). This function can be activated / deactivated in the Options / Startup - Global / Global Options menu:

Multi-Scenes		
Open Device Editor	r after an addition	

Now let's add some sections and devices:

Group 1					
Section 1					<u>a</u>
Section 2	Section 3	Section 4	8	Section 5	Section 6
#1 - Sennheiser EM 3532 2 Fr (548.500 - 548.800)	#1 - Shure Axient J5 2 Fr (578.000 - 578.300)	#1 - WisyCom B2 2 Fr (566.500 - 566.850)		#1 - Sennheiser 3732-B 8 Fr (518.500 - 522.650)	
<b>#1 - Sennheiser Evolution G2 Grp B IEM</b> 2 Fr (626.025 - 626.475)	<b>#1 - Shure PSM 1000 G 11</b> 2 Fr (482.500 - 482.800)	<b>#1 - Sennheiser 2000-BIEM</b> 2 Fr (627.050 - 627.750)			
2 Dev - 4 Fr	2 Dev - 4 Fr	2 Dev - 4 Fr		1 Dev - 8 Fr	
1	2	3		4	5

We can notice the selection of the section 4. As explained previously only three performances are active simultaneously on every stage. In this case, sections 3, 4 and 5 are highlighted:

Section 3	Section 4	2	Section 5	ß
#1 - Shure Axient J5 2 Fr (578.000 - 578.300)	#1 - WisyCom B2 2 Fr (566.500 - 566.850)	10	#1 - Sennheiser 3732-B 8 Fr (518.500 - 522.650)	
<b>#1 - Shure PSM 1000 G 11</b> 2 Fr (482.500 - 482.800)	<b>#1 - Sennheiser 2000-B IEM</b> 2 Fr (627.050 - 627.750)			
2 Dev - 4 Fr	2 Dev - 4 Fr		1 Dev - 8 Fr	
2007-411	2007-411		I Dev-ort	
2	3		4	

The protection icon is displayed to the right of the section header. Devices are added as usual by dragging a device from the list on the left, but only on the selected section.

The sections occupying the top of a group are the permanent sections, i.e. the sections used during the duration of the event. For example :

Group 1	
Section1 2Dev-6Fr	<b>a</b>
#1-BTR-800A2RX 4 Fr (632.100 - 633.250)	
#1-BTR-800 A2 TX 2 Fr (523.400 - 524.050)	

The devices used during the entire event must be placed in these sections.

To create sections a menu must be called from the right mouse button, to ensure the position of the desired action. Let's look at the menu:

Cr	eate Global Scene
Ad	ld Scene
Gr	oup Scene Background color
Ad	ld Section
Ins	ert Section
Se	ction On Hold
Se	ction Background color
Ad	ld Fixed device
Ad	ld Variable device
Co	py Device
Co	py Section Devices
Cu	it Device
Cu	it Section Devices
Pa	ste Devices
Pa	ste Devices and Evaluate
Do	ne Device
De	vice On Hold
De	vice Background color
Re	move Scene 1
Re	move Section 4
Re	move #1 - Shure AD4Q G53
Co	nvert to Group Devices WITH frequencies
Co	nvert to Group Devices WITHOUT frequencies
Co	nvert to Group Devices WITHOUT frequencies with PROTECTION

This menu allows you to manage groups, sections and devices.

It would be tedious to create a multi-scenes document entirely this way. A tool allows to do it of a stroke, the constructor (next section).

#### 8.2 Multi-scenes construction

Number of days:	3 Sta	arting day: Friday	2017 June	16 🗐 🔻
Number of scenes:	3	Add Common Group		
Number of Sections		To redu	ice the number of iter it mus	ms in the docum at be done manu
Scene	Permanent	Fri 06/16	Sat 06/17	Sun 06/1
1	2	8	8	6
2	2	8	8	6
3	2	6	6	4

The tool 📥 allows you to call the multi-scenes builder:

To start, you have to define the date of the beginning of the event, then the number of days, the number of scenes and the addition of a group common to all scenes.

The number of permanent sections and sections for the performance of each scene must be defined subsequently.

This tool can be used later to change the date or number of sections or scenes. The editor only increases the number of items. To delete sections or scenes, use the menu previously seen. There is no undo/redo for this editor.

After creating a multi-scene document of two days or more, a command appears on the menu bar to navigate from one day to another:



## Here is an example of a festival:

EazyRF V4.57.220508						- 🗆 X			
D 🛱 🚔 - Options About   Language						💎 Régis Banville			
						,			
Osheaga 2016-05 Corr	I 🔿 🚔 I Jatas Di 📽 🕮 🗐 📽 face I			17		★ Title: Osheaga 2016			
			222 auto interferences	1/ •		Osneaga 2016			
Q (2)	Interferences - Global Interferences		Scène Molson Caobile - Banners						
Devices Dev Group =	No Start Frequency	566.850							
A1-101K Lav, Hand (1-2)	1 470.750	1 470.750 470.950 #1 - BTR-800 E88 RX - Communications - Scène Verte Sonnet							
A1-101K Lav, Hand (1-2) #2E	2 471.050	2 471.050 471.250 #1 - Sennheiser EM3732-II L - La Famille Ouellette - Scène des Arbres Sirius XM							
TV A1-102K Lav, Hand (1-2)	3 471.400	471.600 #	- BTR-800 E88 RX - Communications - Scène Verte S	Sonnet					
<ul> <li>A1-103K Lav, Hand (1-2)</li> <li>A1-104K Lav, Hand (1-2)</li> </ul>			#1 _Shure PSM,1000 J8_J8E	#1 - Shure PSM 1000 J8-J8E					
A1-104K Lav, Hand (1-2)						567.800			
TV A1-106K Lav, Hand (1-2)	15	19 21	26 29	35 37	₩∔!!! !!!!!!	568.400			
1.2 A1-107K Lav, Hand (1,2)	TV 14 TV 15 TV 18 TV 17 TV	18, TV-19, TV-20, TV-21, TV-22, TV-23, TV-24, TV-25,	TV 28 TV 27 TV 28 TV 29 TV 14 TV 21 TV 23 TV 12 TV	14 TV-35 TV-36 TV-37 TV-38 TV-30 TV-40 TV-41 TV-41		570.800			
₽ A1-108K Lav, Hand (1,2)	450 MHz 471.9 MHz 493.8 M		z 559.5 MHz 581.4 MHz		547.1 MHz 669 MHz	agonette			
7 A1-108K Lav, Hand (1,2) #2						🔒 #1 - Sennheiser 3732-A			
A1-108K Lav, Hand (1,2) #3	GROUPECOMMUN					471.000			
× A1-111K Lav, Hand (1-8) × A1-112K Lav, Hand (1-8)	Section 1 2Dev-4Fr				0	471.350			
TV A1-116K Lav, Hand (1-6)		2 5- (470 100 470 400)			UU.	473.150			
TV A1-117K Lav, Hand (1-4)	#1 - Lectrosonics SRb, SRc Block 470								
TV A1-118K Lav, Hand (1-8)	#1 - IFB Lectrosonics T4-R1a, Block 4	70 2 Fr (472.000 - 472.400)							
TV A1-119K Lav, Hand (1-8)	Scène Molson Canadian/Virgin Mobile					482.500			
TV A1-120K Lav, Hand (1-8)	-					-483.300			
A1-121K Lav, Hand (1-8)	Communications 2 Dev - 6 Fr				<u>ن</u>	484.750			
rv A1-122K Lav, Hand (1-8)	#1-BTR-800 A2 TX 2 Fr (518.500 - 5					ed Hot Chili Peppers			
<ul> <li>A1-123K Lav, Hand (1-8)</li> <li>A1-125K Lav, Hand (1-2)</li> </ul>	#1 - BTR-800 A2 RX 4 Fr (632.100 - 6	33.300)				🔐 #2 - Sennheiser EM300 EM500 G3 B			
TV A1-125K Lav, Hand (1-2) TV A1-126K Lav, Hand (1-8)	Divers 1 Dev - 2 Fr				â	626.150			
TV A1-127K Lav, Hand (1-8)	#1 - Shure UHF-R J5 2 Fr (578.000 -	578.300)				626.900			
TV A1-128K Lav, Hand (1-8)	Banners	Dragonette	🔒 Kaleo 🔐	Elle King 🔒	Silversun	627.500			
TV A1-128K Lav, Hand (1-8) #2	#1 - Sennheiser 2000-G	#1 - Sennheiser 3732-A	#1 - Sennheiser 2000-B	#1 - Shure UHF-R H4	#2 - Sennheiser EM	629.050			
TV A1-128K Lav, Hand (1-8) #3	6 Fr (558.000 - 566.850)	4 Fr (471.000 - 474.500)	8 Fr (626.150 - 634.850)	4 Fr (523.550 - 527.200)	8 Fr (530.550 - 540.25	630.200			
TV A1-201K	#1 - Shure PSM 1000 J8-J8E	#1 - Shure PSM 1000 G10-G10E	#1 - Sennheiser Evolution G3-A IEM	#3 - Sennheiser Evolution G2 Grp B IEM	#1 - Shure PSM 1000	631.000			
TV A1-202K TV AKG DMS700 B1	6 Fr (554.125 - 570.800)	4 Fr (475.200 - 484.750)	6 Fr (519.650 - 522.650)	2 Fr (638.500 - 639.350)	8 Fr (540.650 - 554.65	#5 - Sennheiser Evolution G2 Grp B IE			
AKG IVM4 IEM 835						644.800 646.850			
AKG WMS4000 835									
Rj AKG WMS450 B5-A						648.300			
AKG WMS450 B6						040.000			
× AKG WMS4500 B4	2 Dev - 12 Fr	2 Dev - 8 Fr	2 Dev - 14 Fr	2 Dev - 6 Fr	2 Dev				
TV Appareil XYZ	13h00	13h40	14h25	15h10	15	Group - Section - Device			
TV Audio-Technica 1800 C			1	1	:	Group: 🛃			
Var Device	Scène Verte Sonnet					Scène Molson Canadian/Virgin Mobile			
Based on	Communications 2 Dev - 6 Fr				â	Section: 😽			
Type	#1-BTR-800 E88 TX 2 Fr (590.100 -	590.400)				Banners			
Nb Freq Simult	#1-BTR-800 E88 RX 4 Fr (470.850 -					13h00			
Tolerance 2 TX	Micros 1Dev-2Fr					Partial Eval			
Tolerance 3 TX					۵.	Device Note			
Separation	#1 - Sennheiser EM300 EM500 G3 B	2 Fr (626.000 - 626.300)				#1 - Shure PSM 1000 J8-J8E			
Start	Caveboy	Jeremy Loops	Goldlink G	Wolf Parade	Bloc P	#1* Shure F 3M 1000 38-38E			
Stop	#2 Completing 2000 P	#1 Church III YD4D C50 C51	#2 Chura HUE D IS	#1 MinuCom D2	#2 Churc Avient U1				
			441 5 00 W 1470 4001 045			27 mars 2021			
827 Devices		b Freq: 42 / 1000 (6 BTR-800, 2 IFB Lectrosonic	s, 14 In-Ear, 20 Micros) (470.100 to 648.300 MHz)	0 IM		27 mars 2021			

GROUPE COMMUN						
Section 1 2Dev-4Fr						<b>a</b>
#1 - Lectrosonics SRb, SRc Blo #1 - IFB Lectrosonics T4-R1a, I						
Scène Molson Canadian/Virgin Mob	ile					
Communications 2Dev-6Fr						â
#1-BTR-800 A2 TX 2 Fr (518 #1-BTR-800 A2 RX 4 Fr (632						
Divers 1Dev-2Fr						£
#1 - Shure UHF-R J5 2 Fr (578	3. <mark>000 - 5</mark> 78.30	0)				
Banners	3	Dragonette	6	Kaleo	Elle King 🔒	Silversur
<b>#1 - Sennheiser 2000-G</b> 6 Fr (558.000 - 566.850)		- Sennheiser 3732-A r (471.000 - 474.500)		<b>#1 - Sennheiser 2000-B</b> 8 Fr (626.150 - 634.850)	#1 - Shure UHF-R H4 4 Fr (523.550 - 527.200)	#2 - Sennheiser Evo 8 Fr (530.550 - 540.25
<b>#1 - Shure PSM 1000 J8-J8E</b> 6 Fr (554.125 - 570.800)		- Shure PSM 1000 G10-G10E r (475.200 - 484.750)		<b>#1 - Sennheiser Evolution G3-A IEM</b> 6 Fr (519.650 - 522.650)	<b>#3 - Sennheiser Evolution G2 Grp B IEM</b> 2 Fr (638.500 - 639.350)	#1 - Shure PSM 100 8 Fr (540.650 - 554.65
2 Dev - 12 Fr		2 Dev - 8 Fr		2 Dev - 14 Fr	2 Dev - 6 Fr	2 Dev
13h00		13h40		14h25	15h10	15

The detail of the selected section:

Scène Molson Caobile - Banners
472.400
🖻 Scène Molson Canadian/Virgin Mobile
🗎 📓 #1 - BTR-800 A2 TX
518.500
518.800
🖻 🖷 🔒 #1 - BTR-800 A2 RX
632.100
632.400
632.800
633.300
:
578.300
558.000 558.300
566.850
#1-Shure PSM 1000 J8-J8
Group - Section - Device
Group:
Scène Molson Canadian/Virgin Mobile
Section: M
Banners
13h00
Partial Eval
Done
Device Note Mote
#1 - Shure PSM 1000 J8-J8E

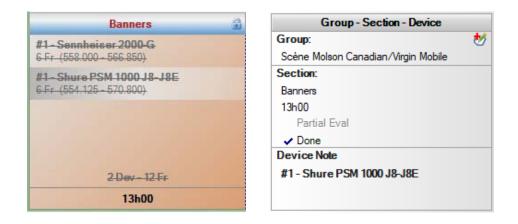
Each section contains header and footer information:



By placing the time as information at the bottom of the section, it is thus easier to follow the flow.

The section name or section footer editor allows you to enter data faster by allowing you to move to the next section with the « Tab » key.

The command « Done » frees the frequencies used when the performance is completed:



#### 8.3 Partial Evaluation

Partial evaluation exists in a conventional document (not multi-scenes) between groups of the document. The structure used for the multi-scenes does not allow to redefine the relationship between the groups because it is rigid, the common group has a complete relationship with all the scenes, and the scenes have an independent relationship with each other, the auto-interference being used to avoid frequency duplication.

Starting from version 4.60, multi-scenes support partial evaluation from permanent sections of the common group and scenes. It is activated by the "Partial Eval" option of the selection detail section:

Group - Section - Devic	e
Group:	*
COMMON GROUP	
Section:	*
Section 1	
<ul> <li>Partial Eval</li> </ul>	
Done	
Device Note	*
#1 - Shure AD4Q G53	

An example without "Partial Eval" :

COMMON GROUP	
Section 1 1Dev-8Fr	
#2 - Shure AD4Q G53 8 Fr (	475.325 - 486.175)
Scene 1	#2 - Shure AD4Q G53
Section 1 1Dev-8Fr	8 Freq.:
#1 - Shure AD4Q G53 8 Fr (	475.325 476.775
Section 2	477.525
Section 3	479.225 480.625
	483.225
	485.025 486.175

And with the option "Partial Eval" :

COMMON GROUP	
Section 1 1Dev-8Fr	
#2 - Shure AD4Q G53 8 F	r (473.675 - 477.975)
	3
Scene 1	#2 - Shure AD4Q G53
Section 1 1Dev-8Fr	8 Freq.:
#1 - Shure AD4Q G53 8 F	r (4 473.675
	474.125
Section 2	475.075
0 0	475.475
Section 3	476.125
	476.675
	477.375
	477.975

An indicator illustrates which section is in "Partial Eval" :

COMMON GROUP		
Section 1 1Dev-8Fr	PEv	8

Partial evaluation from one scene will influence all performance sections, you be the judge of usefulness. The primary function is the use for the common group.

#### 8.4 Group, Section and Devices – Background color

The menu under the mouse pointer lets you add a background color to a group, section or device:

Create Global Scene
Add Scene
Group Scene Background color
Add Section
Insert Section
Section On Hold
Section Background color
Add Fixed device
Add Variable device
Copy Device
Copy Section Devices
Cut Device
Cut Section Devices
Paste Devices
Paste Devices and Evaluate
Done Device
Device On Hold
Device Background color
Remove Group 1
Remove Section 2
Remove #1 - Shure AD4Q G53
Convert to Group Devices WITH frequencies
Convert to Group Devices WITHOUT frequencies
Convert to Group Devices WITHOUT frequencies with PROTECTION

A horizontal bar of the background color is added at the bottom of each element:

Section 1 1Dev-4Fr #1-Shure AD4Q G53 4Fr (4	78.500 - 480	.000)	
Section 2			_
Section 3	6	Section 4	(Å
	the second se	2 - Shure AD4Q G53 Fr (480.450 - 483.000)	
	1.122	<b>3 - Shure AD4Q G53</b> Fr (483.700 - 503.300)	
		2 Dev - 8 Fr	
1		2	

## 8.5 Display of intermodulations

You can display the detail of the intermodulations of all the devices by movng the mouse over the detail of the frequencies:

COMMON GROUP									_
Section 1 1Dev-4Fr (2IM)									
#1-Shure AD4Q G53 4 Fr (47	78.500 - 480.000	)		_					
Scene 1									
Section 1									
Section 2									
Section 3	6	Section 4		8	Section 5	8	Section 6	£	Section
		<b>Shure AD4Q G53</b> (480.150 - 483.500)			e AD4Q G53 .700 - 503.300)				
		[		1	#2 - Sh	nure AD4Q G53 (5	5 IM)		
		Frequency	IM			Fréquer	nce - Description		
		480.450							
		481.000	0 kHz		Shure AD4Q G53 - See Shure AD4Q G53	ction 1, COMMON	GROUP		
					Shure AD4Q G53				
		481.650	0 kHz	480.000: #1 -	Shure AD4Q G53 - Sec	ction 1, COMMON	GROUP		
1				483.500: #2 -	Shure AD4Q G53				
	2) 				Shure AD4Q G53 - Sec				
Scene 2		483.500	0 kHz		Shure AD4Q G53 - Sec	ction 1, COMMON	GROUP		
Section 1		-	0.1415		Shure AD4Q G53	-Free d. COMMON	analin		
Section 2			0 kHz		Shure AD4Q G53 - See Shure AD4Q G53	CION 1, COMMON	GROUP		
Section 3	<b>a</b>	-			- Shure AD4Q G53 - Sec	ction 5			
		-	< 400 kHz	Contraction and Profile Statistics	Shure AD4Q G53 - Sec				

The background color of the detail of the frequencies causing the intermodulations follows the background color of an element in this order: group, section and device.

#### 8.6 Devices and section On Hold

Section On Hold	
Section Background color	,
Add Fixed device	
Add Variable device	
Copy Device	
Copy Section Devices	
Cut Device	
Cut Section Devices	
Paste Devices	
Paste Devices and Evaluat	e
Done Device	
Device On Hold	
Device Background color	

You can put one or more devices or an entire section on hold from the menu called up by the right mouse button:

The "On Hold" command is similar to the "Done" command but does not act identically. An on hold device is a device whose frequencies are not calculated in the intermodulations but still calculated in the self-interferences.

The purpose of this command is to exclude frequencies that cause intermodulation due to an impossibility of finding other frequencies, the range being too busy. This technique is used to eliminate the display of intermodulations. In practice, these devices are put into operation at the last minute.

Before "On Hold":

Section 4	Section 5
<b>#2 - Shure AD4Q G53</b> 4 Fr (480.450 - 483.500)	<b>#3 - Shure AD4Q G53</b> 4 Fr (483.700 - 503.300)
<b>#1 - Shure AD4Q K54</b> 4 Fr (606.000 - 607.500)	
2 Dev - 8 Fr (5 IM)	1 Dev - 4 Fr (2 IM)
2	3

After:

Section 4		Section 5
<b>#2 - Shure AD4Q G53</b> 4 Fr (480.450 - 483.500)	0	<b>#3 - Shure AD4Q G53</b> 4 Fr (483.700 - 503.300)
<b>#1 - Shure AD4Q K54</b> 4 Fr (606.000 - 607.500)		
2 Dev - 8 Fr		1 Dev - 4 Fr
2		3

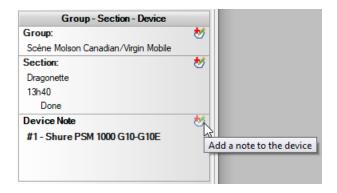
As this operation is delicate, EazyRF displays these "On Hold" devices quite clearly with a red background and the "Pause" symbol:

#2 - Shure AD4Q G53	
4 Fr (480.450 - 483.500)	0

#### 8.7 Notes

The "Multi-Scenes" module supports note taking for devices, sections, scenes and document, just like in the "Global View" module.

The editor is called up through the selection detail section:



If we add notes to devices, sections and to the group:

				8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	Section 2 Section 4 Section 5 				
Section 5	10	Section 6	£	Section					
<b>#2 - beyerdynamic TG 1000 A</b> 2 Fr (471.200 - 471.900)	ø			beyerdynamic 1 (470.100 - 470.60					
	~	#2 - beyerdynamic TG 1000 A							
1 Dev - 2 Fr	Device	provided by the group of m	nusicians.						
Test									

See the details of how notes work in section 2.6.

There is a small difference compared to the operation of the other views, the detail section of the selection displays the first lines of the note of the selected device:

Group - Section - Device		
Group:		
Scène 1		
Section:		
Section 5		
Test		
Done		
Device Note		
#2 - beyerdynamic TG 1000 A		
Device provided by the group of musicians.		

A click in the text box calls up the note editor.

The printing module allows you to print or not the notes for the whole document:

Do not print device notes
Except Sections without devices
Without Intermodulations

## 8.8 Global Spectrum

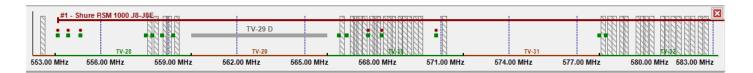
The frequency spectrum of the document is displayed in the middle part of the document:



You can magnify an area by dragging and holding the left mouse button:



Which give :



There is no limit to the number of magnifications, i.e. you can enlarge an enlargement. To end enlargements, simply close the area by clicking the close button at the top right of the enlargement

#### 8.9 Interferences

A multi-scene document has three interference sections:

Interfe	rences - Global Interferences - S	Scene Interferences - Auto	222 auto interferences
No	Start Frequency	Stop Frequency	
1	470.750	470.950	Scène Verte Sonnet
2	471.050	471.250	Scène des Arbres Sirius XM
3	471.400	471.600	Scène Verte Sonnet

The global interferences are those used in the « Intermodulations » view, see section 5.6.

A new tab has been added: "Interferences - Scene". Each stage can have its own interference list.

See Chapter 5 for interference management: manual addition, adding from a data file created with a frequency scanner.

The "Interferences - Auto" pane contains the list of interferences created automatically by EazyRF for each stage to avoid using a frequency assigned to another stage. This list is not editable.

The default value of the auto-interference width is set in the document parameters:

Evaluation parameters of the document	x
Power Level         Influence:       2 TX Tol       3 TX Tol       5 TX Tol         1:       1-50 mw       0 kHz       0 kHz       Tolerance         2:       51-150 mw       25       25       0         3:       151-400 mw       75       50       25         4:       > 400 mw       125       75       50         Digital TV Channels       Reject Freg on each side:       0.500       MHz	5th Order Intermodulation         Tolerance 5th Order:       50       kHz         Method:       2 TX and 3 TX          Skip Freq beyond:       32       MHz         Image: Turn on 5th Order on New Device          Partial evaluation (No 5th Order)       Calculation Intermodulations 2 TX         Full       0 kHz only
Interferences Reject Freq on each side: 0.300 MHz Auto Interferences limit: 0.100 MHz Auto Interferences Power Level (3 TX)	Calculation Intermodulations 3 TX (0 kHz)  Random evaluation  Separation until: 2000 kHz  Keep Freq already evaluated  Compressed backup
Scans	Compressed format. Not compatible with EazyRF V4.41 and less.

The default value is set to 100 kHz. This value is global to the document and must be modified at the beginning of the creation of an event, otherwise a lot of error messages will appear because the already calculated frequencies are locked and validated to the value of the limit of auto-interference.

Since version 4.12 of EazyRF, it is now possible to change the value of the auto-interference limit for each device from the device editor:

Device Edition - #1 - A1	-128K Lav, Har	nd (1-8)	x
Description: #1			Tolerance 2 TX:
Device A1-128K Lav, Hand (1-	8)	Micros	Tolerance 3 TX:
Start: Sto		Increment: 0.025	Separation:
Auto Start:		TV Channels: 31 (572-578 MHz	Image Freq:
			Filter:
Auto Interferences limit value):		0.150 MHz	16.00
TX Power Level:		) mw 2 TX:0 kHz 3 TX:0 5 TX:0 kHz	Random
Fr Nbr: 8 🗘 🗸	Protected	Manual 🗹 Avail Freq	Evaluate
+ Ctrl =	1 Col 🔺 🔻		Scans
No Description	Freq	Intermodulation	8 Avail Freq
1	578.500 32		33 586.750 33 587.600
2	578.800 32		33 588.200
3	579.200 32		34 590.850
4	579.700 32 584.450 33		34 592.100 34 595.400
6	585.400 33		36 606.450
7	585.750 33		36 606.750
8	586,200 33		

If the limit is increased, EazyRF will look for a space in the frequency spectrum to fill that demand, so the frequencies may change dramatically or may not be available.

A value of zero for the limit of a device means to use the default value of the document.

In addition, to simplify these boundary changes, the device list editor now allows you to set a default value for each device:

	Add Var Add Fix Duplicate Edit	Delete		T-1 0.774
General	A1-120K Lav, Hand (1-8)		Template	Tolerance 2 TX:
TV Chnls - SECAM L	A1-121K Lav, Hand (1-8)	<u>^</u>		100
Frequencies Type	A1-122K Lav, Hand (1-8)		O Source	Tolerance 3 TX:
	A1-123K Lav, Hand (1-8)		Based on:	50
Startup / Global	A1-125K Lav, Hand (1-0)		Shure UHF-R 35	<ul> <li>Separation:</li> </ul>
	A1-126K Lav, Hand (1-8)		Shure OHF-R JS	300
	A1-127K Lav, Hand (1-8)			300
Devices	A1-128K Lav, Hand (1-8)		Type:	
Devices list	A1-128K Lav, Hand (1-8) #2		Micros	
Update	A1-128K Lav, Hand (1-8) #3			
opulate	AKG DMS700 B1		Dev: 0.056, Inter: 0	.090 1-50 mw
	AKG DMS700 B2		Denne Level	
Devices Group	AKG DMS800 B1		Power Level:	1 2 TX: 0 kHz 3 TX: 0 kHz
Devices Group	AKG DMS800 B2			5 TX: 0 kHz
Devices groups	AKG IVM4 IEM 500		Simult Freq Nb	8 ≑
Update	AKG IVM4 IEM 570			
	AKG IVM4 IEM 720		Start:	Image Frequency:
	AKG IVM4 IEM 790		578.000	10.70 If undefined,
TX Power	AKG IVM4 IEM 835		Chara	none
	AKG WMS4000 650		Stop:	Filter:
Adjust Influence	AKG WMS4000 680		638.000	16.00
	AKG WMS4000 720		Increment:	Auto Interference limit:
	AKG WMS4000 760			
License	AKG WMS4000 790		0.025	0.150
License Management	AKG WMS4000 835 AKG WMS450 B1		2401 Frea	
-	AKG WMS450 B1 AKG WMS450 B2			
	AKG WM3450 B2 AKG WMS450 B3			
	AKG WMS450 B5-A			
	AKG WMS450 B5-A			
	AKG WMS450 B6			
	AKG WMS450 B7			
	AKG WMS450 B8			Save
	AKG WMS4500 B1			0010
	AKG WMS4500 B2	~	Active	Cancel

Finally, you can also make an automatic correction to the limit of auto-interference according to the power of the device with this option of the document settings:

Evaluation parameters of the document	×
Power Level       3 TX Tol       5 TX Tol         Influence:       2 TX Tol       3 TX Tol       5 TX Tol         1:       1-50 mw       0 kHz       0 kHz       Tolerance         2:       51-150 mw       25       25       0         3:       151-400 mw       75       50       25         4:       > 400 mw       125       75       50	5th Order Intermodulation         Tolerance 5th Order:       50       kHz         Method:       2 TX and 3 TX       ✓         Skip Freq beyond:       32       MHz         ✓       Turn on 5th Order on New Device         Partial evaluation (No 5th Order)       ✓         ✓       Calculation Intermodulations 2 TX
Digital TV Channels Reject Freq on each side: 0.500 MHz	Full     O kHz only     Calculation Intermodulations 3 TX (0 kHz)
Interferences Reject Freq on each side: 0.300 MHz Auto Interferences limit: 0.100 MHz	Calculation Interniodulations 3 TX (0 KHz)
Scans Reject Freq if level greater than (-50 à -89):	Compressed backup Compressed format. Not compatible with EazyRF V4.41 and less.
Default OK	Cancel

EazyRF automatically adds a value to the auto-interference limit according to the parameters set in the Tolerance 3 TX of the Power Level.

The auto-interference value set manually for a device has priority over automatic correction.

Finally, some additions have been made to the graphics of the Multi-Scenes module to better illustrate the use of parameters.

Section 3	
<b>#1 - A1-128KLav, Hand (1-8) #3</b> 8 Fr (578.500 - 583.200)	2777
1 Dev - 8 Fr	
1	

The right area at the device means that the device has its own auto-interference limit parameter.



The left side of the device shows the power level and the automatic tracking of the auto-interference limit. The indicator changes color according to the power level: yellow level 2, orange level 3 and red level 4.

#### 8.10 Auto-Interferences between Scenes Editor

The "Ai" command in the toolbar:



Calls up the auto-interference editor between scenes:

Auto-Interferences	Scène 1	Scène 2	Scène 3	Scène 4
		Document	<ul> <li>Document</li> </ul>	Document
Scène 1	None	✓ None	None	None
		Customized	Customized	✓ Customized
	Document		✓ Document	<ul> <li>Document</li> </ul>
Scène 2	✓ None	None	None	None
	Customized		Customized	Customized
	✓ Document	✓ Document		Document
Scène 3	None	None	None	✓ None
	Customized	Customized		Customized
	Document	✓ Document	Document	
Scène 4	None	None	✓ None	None
	✓ Customized 0.150	Customized	Customized	

The editor works on the principle of the "Group Relations" editor.

The Auto-Interference between scenes method is based on the value defined either in the document, either on a custom value or without any value.

The auto-interference value of a device has the highest priority, followed by the custom value, if used, and finally that of the document.

If you click on the "Scene X" headers, this affects all the self-interference of a scene simultaneously and in circular mode, namely: Document, None and Custom. If the Ctrl key is activated when clicked, this allows the first self-interference value of a scene to be copied to all subsequent scenes (practical if customized).

If we use this data:

Scène 1

Customized 0.150

None

Document None Customized Customized Document None

0 C 1		
Section 1		
Section 2	6	
#1 - beyerdynamic TG 1000 A 8 Fr (470.100 - 474.700)		
1 Dev - 8 Fr		
1		
Scène 2		
Section 1		
Section 2		
#2 - beyerdynamic TG 1000 A 8 Fr (470.100 - 474.700)		
1 Dev - 8 Fr		
1		
Scène 3		
Section 1		
Section 2	æ	
<b>#3 - beyerdynamic TG 1000 A</b> 8 Fr (470.250 - 474.850)		
8 Fr (4/0.250 - 4/4.850)		
1 Dev - 8 Fr		
1		
Scène 4		Auto-Interferen
Section 1		Scène 1
Section 2	6	Julie
#4 - beyerdynamic TG 1000 A		
#4 - beyerdynamic TG 1000 A		Scène 2
#4 - beyerdynamic TG 1000 A		Scène 2
#4 - beyerdynamic TG 1000 A		Scène 2
#4 - beyerdynamic TG 1000 A		Scène 2 Scène 3
<b>#4 - beyerdynamic TG 1000 A</b> 8 Fr (470.300 - 474.900)		

1

Interfe	rences - Global Interferences - S	Scene Interferences - Auto	16 auto interferences
No	Start Frequency	Stop Frequency	
1	470.150	470.350	Scène 3
2	470.150	470.450	Scène 4
3	470.650	470.850	Scène 3
4	470.650	470.950	Scène 4
5	471.250	471.450	Scène 3
6	471.250	471.550	Scène 4
7	471.950	472.150	Scène 3
8	471.950	472.250	Scène 4
9	472.500	472.700	Scène 3
10	472.500	472.800	Scène 4
11	473.150	473.350	Scène 3
12	473.150	473.450	Scène 4
13	473.900	474.100	Scène 3
14	473.900	474.200	Scène 4
15	474.750	474.950	Scène 3
16	474.750	475.050	Scène 4

#### The following results are obtained:

It can be noted that all the self-interference generated by scene 3 (Document) has a width of 200 kHz, 100 kHz on each side of the carrier, as defined in the document. Whereas the scene 4 (Custom) auto-interference is 300 kHz wide, twice the custom value of 150 kHz. Finally, scene 2 does not generate any self-interference (None).

You must define these auto-interferences in the first steps of creating a new document before adding devices in order to find frequencies that respect these auto-interferences.

#### 8.11 Device Edition

The device editor in the "Multi-Scenes" module takes a different form when a device has intermodulations:

Description:			Tolerance 2 TX:	Nb IM: 78		
#2			100	Frequency	Intermodulation	1
	DE Stop: S68.000	In-Ear V Increment: 0.025	Tolerance 3 TX: 50 Separation: 300	599.850	0 kHz - 601.050 & 603.950 & 605.150 50 kHz - 603.950 & 608.100 0 kHz - 598.650 & 599.850 & 601.050 0 kHz - 603.950 & 609.150 & 613.250 0 kHz - 598.650 & 603.950 & 605.150 0 kHz - 590.150 & 605.150 & 614.850	
Auto Start: Descending order Auto Interferences lim value):	iit (0 = document	TV Channels: 36 (590-598 MHz) D C15 0.000 MHz 0 mw 2 TX: 0 kHz 3 TX: 0	Image Freq: 10.70 Filter: 16.00	608.100	0 kHz - 602.350 & 605.150 & 605.300 50 kHz - 599.850 & 603.950 0 kHz - 603.950 & 613.250 & 617.400 0 kHz - 599.150 & 605.150 & 614.100 0 kHz - 601.050 & 614.400 & 621.450 0 kHz - 599.850 & 609.150 & 617.400 0 kHz - 599.850 & 615.200 & 623.450	
		z 5TX:0kHz	Random Evaluate	609.150	0 kHz - 615.200 & 617.400 & 623.450 50 kHz - 611.750 & 614.400 50 kHz - 613.250 & 617.400	
No Description	Freq	Intermodulation	0 Avail Freq	Frequency	Description	
1		0 kHz - 601.050 & 603.		590.150	#2 - WisyCom N IEM - Presse, GROUPE COMMUN	
2		0 kHz - 602.350 & 605.		598.650	#3 - Shure PSM 1000 K10E - John Butler Trio	
3 4		0 kHz - 615.200 & 617. 0 kHz - 614.400 & 614.		599.850	#2 - Shure PSM 1000 K10E	
5		0 kHz - 614.400 & 623.		601.050	#1 - Sennheiser EM6000 A5 A8 - Bigflo & Oli	
6		0 kHz - 633.050 & 634.		603.950	#1 - Sennheiser EM6000 A5 A8 - Bigflo & Oli	
7	645.650 42			605.150	#1 - Sennheiser EM6000 A5 A8 - Bigflo & Oli	
8	647.900 43			608.100	#2 - Shure PSM 1000 K10E	
				609.150	#2 - Shure PSM 1000 K10E	
				613.250	#1 - Shure Axient J5E	
				614.850	#1 - BTR-800 F1 RX - intercom	
78/654	Μ					

The detail of the intermodulations of each frequency appears in the upper right part of the editor. In the lower right, the location of each frequency that caused intermodulation appears. You can know the origin of the problem and on what scene.

In addition, when the mouse is over a frequency, the number of intermodulations created by it is displayed:

598.650         #3 - Shure PSM 1000 K10E - John Butler Trio           599.850         #2 - Shure PSM 1000 K10E           501.050         #2 - Shure PSM 1000 K10E           601.050         #1 - Semmerser EM6000 A5 A8 - Bigflo & Oli           603.950         #1 - Semheiser EM6000 A5 A8 - Bigflo & Oli           605.150         #1 - Semheiser EM6000 A5 A8 - Bigflo & Oli	Frequency	Description
599.850         #2         Shure PSM         1000 K10E           601.050         IM Created: 12         1 <td>590.150</td> <td>#2 - WisyCom N IEM - Presse, GROUPE COMMUN</td>	590.150	#2 - WisyCom N IEM - Presse, GROUPE COMMUN
Sol - S	598.650 N	#3 - Shure PSM 1000 K10E - John Butler Trio
501.050         # 1 - Sennheiser EM6000 A5 A8 - Bigflo & Oli           503.950         #1 - Sennheiser EM6000 A5 A8 - Bigflo & Oli           505.150         #1 - Sennheiser EM6000 A5 A8 - Bigflo & Oli	599.850 -	#2 Shure PSM 1000 K10E
605.150 #1 - Sennheiser EM6000 A5 A8 - Bigflo & Oli	601.050	M Created: 12 # 1 - Seminierser EM6000 A5 A8 - Bigflo & Oli
	603.950	#1 - Sennheiser EM6000 A5 A8 - Bigflo & Oli
608.100 #2 - Shure PSM 1000 K10E	605.150	#1 - Sennheiser EM6000 A5 A8 - Bigflo & Oli
	608.100	#2 - Shure PSM 1000 K10E
609.150 #2 - Shure PSM 1000 K10E	609.150	#2 - Shure PSM 1000 K10E
613.250 #1 - Shure Axient J5E	613.250	#1 - Shure Axient J5E
614.850 #1 - BTR-800 F1 RX - intercom	614.850	#1 - BTR-800 F1 RX - intercom

Finally, by double-clicking on one of the frequencies in this list (or the name of the device), the editor closes, selects the right device in the detailed part and restarts the editor with the new device. This procedure allows you to save data by switching from one device to another and taking advantage of the undo / redo functions.

#### 8.11.1 Frequencies used

The indication of frequencies already used by other Performances of the same scene is illustrated by the display "u" next to the frequencies of the device and the available frequencies:

		1 101 55	
Description:	Wolf Par	rade - 16h55	Tolerance 2 TX
#1			100
Device 😻		In-Ear	Tolerance 3 TX
Shure PSM 1000 I	L8-L8E	~	50
Start:	Stop:	Increment:	Separation:
626.125	698.000	0.025	300
		TV Channels:	Image Freq:
Auto Start:		49 (680-686 MHz	10.70
Descending or	der		Filter:
	limit (0 = document	0.000 MHz	16.00
value):			
TX Power Level:		50 mw 2 TX:0 kHz 3 TX:0 lz 5 TX:0 kHz	) Random
	KI KI	IZ DIA: UKHZ	
			Funkanta
Fr Nbr: 6		Manual 🗹 Avail Fre	q Evaluate
			q Evaluate
No Description	Protected [ Ctrl = 1 Col	Manual Avail Free	Scans 31 Avail Freq
No Description		Manual Avail Free	Scans 31 Avail Freq 41 635.150 u 🔨
No Description	✓ Protected     ( Ctrl = 1 Col	Manual Avail Free	Scans 31 Avail Freq
No Description	✓ Protected     Ctrl = 1 Col     ✓     Freq     u 626.700 40     v 627.200 40     v 527.800 40	Manual Avail Free	Scans 31 Avail Freq 41 635.150 u ^ 41 635.600 u 42 638.750 u 
No Description 1 2 3 4	✓ Protected      Ctrl = 1 Col     ✓     v 626.700 40     v 627.200 40     v 827.800 40     u	Manual Avail Free Intermodulation	Scans 31 Avail Freq 41 635.150 u ^ 41 635.600 u 42 638.750 u 42 638.750 u 42 638.750 u 42 638.750 u 42 638.750 u
No         Description           1	✓ Protected [ Ctrl = 1 Col u 626.700 40 u 627.200 40 u \$27.800 40 u \$27.800 40 u \$27.800 40 u \$27.800 40	Manual Avail Free Intermodulation Comparison	Scans 31 Avail Freq 41 635.150 u ^ 41 635.600 u 42 638.750 u 42 638.750 u 42 638.750 u 42 638.750 u 42 638.750 u
No Description 1 2 3 4	✓ Protected      Ctrl = 1 Col     ✓     v 626.700 40     v 627.200 40     v 827.800 40     u	Manual Avail Free Intermodulation Comparison	Scans 31 Avail Freq 41 635.150 u ^ 42 638.750 u 42 638.750 u 42 638.750 u 42 638.750 u 43.300 u 43.300 u 45 660.650 u
No         Description           1	✓ Protected [ Ctrl = 1 Col u 626.700 40 u 627.200 40 u \$27.800 40 u \$27.800 40 u \$27.800 40 u \$27.800 40	Manual Avail Free Intermodulation Comparison	Scans 31 Avail Freq 41 635.150 u ^ 42 638.750 u 42 638.750 u 42 638.750 u 43.300 u 43.300 u 45 660.650 u 45 661.800 u
No         Description           1	✓ Protected [ Ctrl = 1 Col u 626.700 40 u 627.200 40 u \$27.800 40 u \$27.800 40 u \$27.800 40 u \$27.800 40	Manual Avail Free Intermodulation Comparison	Scans 31 Avail Freq 41 635.150 u 42 638.750 u 42 638.750 u 42 638.750 u 42 800 u 42 800 u 43 300 u 43 660.650 u 45 660.650 u 45 663.100 u
No         Description           1	✓ Protected [ Ctrl = 1 Col u 626.700 40 u 627.200 40 u \$27.800 40 u \$27.800 40 u \$27.800 40 u \$27.800 40	Manual Avail Free Intermodulation Comparison	Scans 31 Avail Freq 41 635.150 u 42 638.750 u 42 638.750 u 42 638.750 u 42 800 u 42 800 u 42 600 0 u 43 600 650 u 45 660.650 u 45 661.800 u 46 665.150
No         Description           1	✓ Protected [ Ctrl = 1 Col u 626.700 40 u 627.200 40 u \$27.800 40 u \$27.800 40 u \$27.800 40 u \$27.800 40	Manual Avail Free Intermodulation Comparison	Scans 31 Avail Freq 41 635.150 u 42 638.750 u 42 638.750 u 42 638.750 u 42 800 u 42 800 u 43 300 u 43 660.650 u 45 660.650 u 45 663.100 u
No         Description           1	✓ Protected [ Ctrl = 1 Col u 626.700 40 u 627.200 40 u \$27.800 40 u \$27.800 40 u \$27.800 40 u \$27.800 40	Manual Avail Free Intermodulation Comparison	Scans 31 Avail Freq 41 635.150 u 41 635.600 u 42 638.750 u 42 638.750 u 42 638.750 u 42 800 u 42 600 u 45 660.650 u 45 661.800 u 46 663.100 u 46 665.150
No         Description           1	✓ Protected [ Ctrl = 1 Col u 626.700 40 u 627.200 40 u \$27.800 40 u \$27.800 40 u \$27.800 40 u \$27.800 40	Manual Avail Free Intermodulation Comparison	Scans 31 Avail Freq 41 635.150 u 41 635.600 u 42 638.750 u 42 638.750 u 42 800 u 43.300 u 45 660.650 u 45 661.800 u 45 661.800 u 46 665.150 46 665.650 47 671.700 47 672.100 48 674.050
No         Description           1	✓ Protected [ Ctrl = 1 Col u 626.700 40 u 627.200 40 u \$27.800 40 u \$27.800 40 u \$27.800 40 u \$27.800 40	Manual Avail Free Intermodulation Comparison	Scans 31 Avail Freq 41 635.150 u 42 638.750 u 42 638.750 u 42 638.750 u 42 800 u 42 800 u 43 300 u 43 660.650 u 45 661.800 u 46 665.150 46 665.150 46 665.650 47 671.700 47 672.100
No         Description           1	✓ Protected [ Ctrl = 1 Col u 626.700 40 u 627.200 40 u \$27.800 40 u \$27.800 40 u \$27.800 40 u \$27.800 40	Manual Avail Free Intermodulation Comparison	Scans 31 Avail Freq 41 635.150 u 41 635.600 u 42 638.750 u 42 638.750 u 42 800 u 43.300 u 45 660.650 u 45 661.800 u 45 661.800 u 46 665.150 46 665.650 47 671.700 47 672.100 48 674.050

31 Avail Freq	
41 635.150 u 🎤	
41 635.600 u	
42 638.750 u	
42 640.400 u	
42 642.800 u	
42 643.300 u	2 Dev - 6 Fr
45 659.300 u	451.40
45 660.650 u	15h10
45 661.800 y	
46 663.100	
46 665.150	661.800 used by:
46 665.650	
47 671.700	2 - Sennheiser 3732-D - Flume 21h50

Thus, if a transmitter remains on after its use, one can easily find out where it has been used.

By double clicking on the "u" indicator, the editor goes directly to the indicated device. If more than one device uses this frequency, you can use the CTRL or ALT keys to navigate to the first three frequencies:

65 Fréq. Dis	p.		
14 470.100 N	~		
14 472.450	5		
16 482.500 16 483.300		470.100 utilisé par:	l
16 483.300	#	1 - beyerdynamic TG 1000 A - Section 3	I
16 486.350		: #5 - beyerdynamic TG 1000 A - Section 25	I
18 495,100			l
18 496 150	ALT	#6 - beyerdynamic TG 1000 A - Section 28	J
18 497.500		· · · · · · · · · · · · · · · · · · ·	
20 506.550			-
20 507,100			
20 508 200			1
20 510.450			
20 511,200			
22 518,650			
22 519.300	¥	Section 9	

## 8.12 Printing

Before printing, you must select which groups, sections or days needs to be printed:

Multi-Scenes Print		x
Details	Informations	
Everyday	Day:	Thursday 08-19-21
All scenes	Scene:	Scene 1 V
	Sections: All sections	Section 1         Section 2         Section 3         Section 4         Section 5         Section 6         Section 7         Section 8         Section 9         Section 10
🗌 Do not print de	evice notes	
Except Section	ns without devices	
Without Interm	odulations	
	Preview	Excel Cancel

These same options apply for a transfer to an Excel document.

With version 4.1 of EazyRF, it is now possible to create a header to print with the "Informations" pane:

Multi-Scenes Print		x
Details	Informations	
MainSquareFestival201	9.png	
	<b>MAINSQUARE</b>	
Image - Maximum: Heigi	ht 100, Width: 525 pixels Clear Set	
		1
Version:	Test-1024	
Comment:	Attention à Fermer le	
Contact:	Régis Banville 514-922-5818	
L	Preview Excel Cancel	

Areas without contents are not printed.

Result:

New document

Régis Banville

July 23, 2019

# **MAINSQUARE**

Version: Test-1024 Comment: Attention Turn Off... Contact: Régis Banville 514-922-5818

#### Friday 07-26-19

Scene 1		
Section 1		
#1 - BTR-800 A2 RX		
1	632,100	
2	632,400	
3	632,800	
4	633.300	
#1 - BTR-800 A2 TX		
1	518.500	
2	518.800	
Section 3		
#1 - beyerdynamic TG 1000 A		
1	470.100	
2	470.600	

#### 8.13 Frequencies Plan view

The « Frequencies Plan» pane allows you to view the plan by the day of the event:



The option « Dev by Freq » displays the list of frequencies used in a day in numerical order:

Frequency	Comment
470.100 14	#1 - Lectrosonics SRb, SRc Block 470 - Section 1
470.400 14	#1 - Lectrosonics SRb, SRc Block 470 - Section 1
470.850 14	#1 - BTR-800 E88 RX - Communications
471.000 14	#1 - Sennheiser 3732-A - Dragonette 13h40
471.150 14	#1 - Sennheiser EM 3732-II L - La Famille Ouellette 13h35
471.350 14	#1 - Sennheiser 3732-A - Dragonette 13h40
471.500 14	#1 - BTR-800 E88 RX - Communications
472.000 14	#1 - IFB Lectrosonics T4-R1a, Block 470 - Section 1
472.400 14	#1 - IFB Lectrosonics T4-R1a, Block 470 - Section 1
473.000 14	#1 - BTR-800 E88 RX - Communications
473.150 14	#1 - Sennheiser 3732-A - Dragonette 13h40
473.300 14	#1 - Sennheiser EM 3732-II L - La Famille Ouellette 13h35
473.700 14	#1 - BTR-800 E88 RX - Communications
474.100 14	#1 - Sennheiser EM 3732-II L - La Famille Ouellette 13h35
474.250 14	#1 - Shure ULX-D G50-G51 - Jeremy Loops 14h05
474.500 14	#1 - Sennheiser 3732-A - Dragonette 13h40
474.800 14	#1 - Sennheiser EM 3732-II L - La Famille Ouellette 13h35
475.200 14	#1 - Shure PSM 1000 G10-G10E - Dragonette 13h40
482.500 16	#1 - Shure PSM 1000 G10-G10E - Dragonette 13h40
482.500 16	#4 - Shure PSM 1000 G11 - The Lumineers 20h20
482.900 16	#1 - Shure ULX-D G50-G51 - Jeremy Loops 14h05
482.900 16	#4 - Shure PSM 1000 G11 - The Underrachievers 20h00
483.300 16	#1 - Shure PSM 1000 G10-G10E - Dragonette 13h40
483.300 16	#4 - Shure PSM 1000 G11 - The Lumineers 20h20
483.450 16	#1 - Sennheiser EM 3732-II L - La Famille Ouellette 13h35
483.600 16	#1 - Shure Axient G12 - Paul Kalkbrenner Live 19h20
483.800 16	#1 - Sennheiser EM 3732-II L - La Famille Ouellette 13h35
483.950 16	#1 - Shure ULX-D G50-G51 - Jeremy Loops 14h05
483.950 16	#4 - Shure PSM 1000 G11 - The Underrachievers 20h00
484.100 16	#1 - Shure Axient G12 - Paul Kalkbrenner Live 19h20
484.400 16	#2 - Shure PSM 1000 G11 - Safia Nolin 14h45

If a frequency is used more than once, it is displayed with a gray area. It is permissible to use the same frequency more than once on the same stage by switching. There are always only three performances or sections active simultaneously on a stage, so outside of them, a frequency becomes available again.

Double-clicking on a data takes you directly to this value in the Multi-Scenes pane.

#### 8.14 Intermodulations view

The Intermodulations module allows to display them by performance or section only:

Sce	nes: Friday 08-04-17 👻	Title	Osheaga 2016
~	Scène Molson Canadian Virgin Mobile	•	Dragonette
1	Scène Verte Sonnet	•	Kaleo
1	Scène de la Vallée	•	Elle King
	Scène des Arbres Sirius XM	•	Silversun Pickups
Scène Piknic Electronik			Passenger
_		-	Beirut
			Cypress Hill
	#1 - Shure PSM 1000 J8-J8E		Half Moon Run
1.	35 D TV-37		The Lumineers
1			Red Hot Chili Peppers

We can only show one section (the selected) because the frequencies on the other ones are not compatibles with them (outside the three), otherwise wrong intermodulations will be detected.

Just as the common group to all the scenes cannot be displayed for the same reasons.

The scanning manager (see section 5.7) supports the two data editing modes, 'Global 'mode for the whole environment and 'Scene' mode independent for each scene.

The scanning manager allows you to make changes to the two modes with the context menu:

<b>—</b>	-90.5 dbm		
3	Add Test-18 -> Scène 1		
=	Add Test-18 -> Document		
-	Add the 2 selected files -> Scène 1		
	Add the 2selected files -> Document		
1 ct	Open Test-18 -> Scène 1		
	Open Test-18 -> Document		
	Open the 2 selected files -> Scène 1		
	Open the 2selected files -> Document		
	Reread Files		
	Clear Scène 1		
	Delete Document (Global)		
	Change Scan Editor Mode to Scène 1		

The "Change Scan Editor Mode to ..." command allows you to directly display the data contained in the "Multi-Scene" module without going through this module to access global or scene data.

#### 8.15 Spectrum view

The Spectrum pane displays the data per event day :



The classification of the devices by evaluation displays the list by value of allocated frequencies:

470 400	495.600 #1 - Lectrosonics	SPb SPc Block 470			
473,700	487.900 #1 - BTR-800 E88 RX	SKB, SKE DIOCK 470			
474.500	407.300 #T- DTR-000 LOD RX	560.00			
474.500		560.00			
	483.800				
472.400		iics T4-R1a, Block 470			
	487.400	534.000 #1 - Shure ULX-D G50-G			
	484.750	542.000 #1 - Shure PSM			
482.500	482.500 483.300				
482.900	482.900 488.100				
483.600	484.100	530.000 #1 - Shure Axient G12			
484.400	489.050	542.000 #2 - Shure PSM			
	#2 - BTR-800 E88 RX				
488.350	488.850	542.000 #1 - Shure PSM			
	491.350				
	#1 - WisyCom B3 510.000	522.850			
	#1 - BTR-800 A2 TX 518.500 518	.800 535.900			
	#2 - BTR-800 A2 TX 518.650 518.950 535.900				
	#1 - Shure Axient H12 519.100 519	9.500			
#1 - Ser	nheiser Evolution G3-A 519.350 51	9.850 558.000			
#1 - Sennhe	ser Evolution G3-A IEM 519.650	522.650 558.000			
	#1 - Shure Axient H4 519.650	549.850			

#### 8.16 Changes in schedule

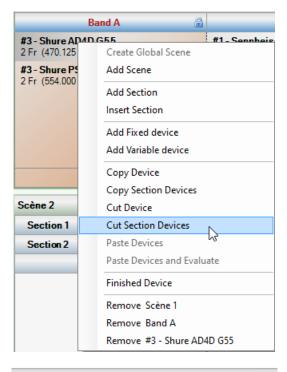
Suppose there is a change to the schedule, let's start from this situation:

Scène 1						
Section1 2Dev-6Fr						
#1-BTR-800A2RX 4 Fr (63 #1-BTR-800A2TX 2 Fr (51						
Band A2						
Band A	ß	Band B	Band C	Band D	Band E	ß
#3 - Shure AD4D G55 2 Fr (470.125 - 470.525)		#1 - Sennheiser EM3732-II A 2 Fr (472.350 - 472.900)	#2 - Shure AD4D G55 2 Fr (471.025 - 471.625)	<b>#1 - Sennheiser EM300 EM500 G3 A</b> 2 Fr (519.200 - 519.700)	#3 - Shure AD4D G55 2 Fr (470.125 - 470.525)	
<b>#3 - Shure PSM 1000 J8A</b> 2 Fr (554.000 - 554.500)		<b>#1 - Sennheiser SR2050 IEM Bw</b> 2 Fr (626.000 - 626.450)	<b>#2 - Shure PSM 1000 J8A</b> 2 Fr (555.150 - 555.950)	<b>#1 - Sennheiser Evolution G2 Grp A IEM</b> 2 Fr (520.300 - 520.750)	<b>#3 - Shure PSM 1000 J8A</b> 2 Fr (554.000 - 554.500)	
2 Dev - 4 Fr		2 Dev - 4 Fr	2 Dev - 4 Fr	2 Dev - 4 Fr	2 Dev - 4 Fr	
12h00-12h45		13h00-13h45	14h00-14h30	15h00-15h45	16h00-16h40	

We are rehearsing in the morning and surprise Band A is not there. So, we start with Band B, followed by C and Band D is installed and ready. Installation of Band E has started. We decided to include Band A in the rehearsal, what to do Band A and Band E uses same frequencies because it should not be on stage in the same period of time.

It is necessary to modify the frequencies of Band A, but impossible with the current positioning because they are isolated. The solution: move the devices from the Band A section to a permanent section, recalculate the frequencies and move the devices back to the original section.

Move the devices from Band A to the permanent section Band A2:



Band A2	
	Create Global Scene
	Add Scene
	Add Section
	Add Fixed device
	Add Variable device
	Copy Device
	Copy Section Devices
	Cut Device
	Cut Section Devices
Scène 2	Paste 2 Devices
Section 1	Paste 2 Devices and Evaluate
Section 2	Finished Device
	Remove Scène 1
	Remove Band A2
	Remove Device

By selecting the "Paste X Devices and Evaluate" command, EazyRF places the two devices in the permanent section and recalculate the frequencies:

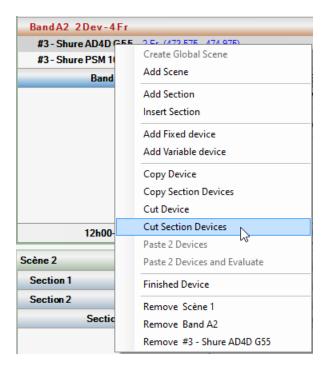
BandA2 2Dev-4Fr
#3 - Shure AD4D G55 2 Fr (473.575 - 474.975)
#3 - Shure PSM 1000 J8A 2 Fr (556.900 - 558.150)

We now have frequencies compatible with the current sequence.

We can now setup Band A and the frequencies are compatible with the whole sequence of this scene. So, there may not be enough frequencies available. If you are sure that during the show Band A will perform at the right time, you can put certain bands using the same devices but not in the same space-time.

It is preferable to keep the devices moved from Band A to the permanent section during the rehearsal in case of modifications.

When the rehearsal is finished, the devices are moved to the original position:



	Band A 🔒
	Create Global Scene
	Add Scene
	Add Section
	Insert Section
	Add Fixed device
	Add Variable device
	Copy Device
	Copy Section Devices
	Cut Device
Scène 2	Cut Section Devices
Section 1	Paste 2 Devices
Section 2	Paste 2 Devices and Evaluate
	Finished Device
	Remove Scène 1
	Remove Band A
	Remove Device

And we have compatible frequencies for the smooth running of the event:

Band A	
<b>#3 - Shure AD4D G55</b> 2 Fr (473.575 - 474.975)	
<b>#3 - Shure PSM 1000 J8A</b> 2 Fr (556.900 - 558.150)	
2 Dev - 4 Fr	
12h00-12h45	

### 8.17 Day Completed

The "Day Completed" function of the command bar:

Manual 👻 👯 Sunday 08-28-22 🝷 Day Completed Solo

Allows you to put all performance sections in finished mode thus releasing the non-permanent frequencies of all the scenes for the selected day.

It is useless to keep the frequencies of the days prior to the current date of the event. This frees up frequencies for the present day and the days to come. In addition, this considerably reduces the number of calculations to be made, and therefore faster.

### 8.18 Day in Solo

The "Solo" command from the toolbar:



Allows you to put all the days of the event in finished mode, except the day displayed.

The primary purpose of this command is to find a solution to a temporary unforeseen event for the current day.

This makes it possible to find compatible frequencies for the day in question. An example, in normal mode, this device has no frequency available:

and the party of the state of the party of the	IEM Com GS Aw - Sennheiser 2000-A IEM
	3 Freq.:
Concernent to and a training to a second	556.300
	. 556.850
	557.300
· · · · · · · · · · · · · · · · · · ·	No Avail Freq
and the first state of the second state of the second state of the	Tolerance 2 TX: 100
Laten and the second second	Tolerance 3 TX: 50
	Separation: 350
	Start: 516.000
	Stop: 558.000
and the second	Increment: 0.025

And in solo mode:

IEM Com GS Aw - Sennheiser 2000-A IEM 3	Fr (556.300 - 557.300)
and the second second second second second	IEM Com GS Aw - Sennheiser 2000-A IEM
	3 Freq.:
A STREET AND A STREET	556.300
the second second second second second	556.850
	557.300
	12 Avail Freq:
	516.000
	516.550
a state of the second	520.650
Constraint Stranger Harrison Constraint	521.250
	521.600
	523.000
Life carmines	523.450
	535.350
	536.450
	539.350
	539.700
	540.500
	Tolerance 2 TX: 100
	Tolerance 3 TX: 50
	Separation: 350
	Start: 516.000
	Stop: 558.000
	Increment: 0.025

12 frequencies are now available.

These frequencies ARE NOT COMPATIBLE with the course of the following days, it is a troubleshooting solution and not a permanent solution.

#### 8.19 Recalculate frequencies



This module makes it possible to recalculate all the frequencies of a multi-scenes document according to certain criteria, either for one or all days; for one, several or all the scenes; for permanent or performance sections only. Different evaluation methods are also available.

The primary purpose of the operation is to reuse an event under different conditions or needs. You can also recalculate the frequencies during planning if you can't find a solution.

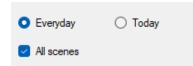
The recalculation of frequencies is a destructive operation, there is no undoing possible. The only way to do this is to reload the document, so don't forget to make a backup before proceeding.

Let's take a look at the editor:

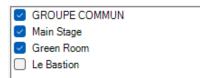
Everyday	O Today	Scene sections Permanent	Evaluation me		○ Random		
	0.000,	Performances	In order	-	Number of freq per section		
All scenes			0		<ul> <li>Number of freq per section</li> </ul>		
GROUPE CON	MMUN	Order of evaluation. Selection	= Descending order.	-		79 Devices, 3	/60/367 Fr
Main Stage		Devices	_	Scene		Freq Range	
Green Room		Permanent Sections (40 Fr					
Le Bastion		#1 - BTR-800 F1 TX (2 Fr)		Main Stage - inte	ercom (6 Fr)	482.100 - 499.	.900
20 230400		#1 - BTR-800 F1 RX (4 Fr)				614.100 - 631.	.900
		#1 - Shure SLX L4 (2 Fr)		Green Room - c	om plateau (4 Fr)	638.000 - 662	.000
		#1 - Sennheiser Evolution	G2 Grp C (2 Fr)	Main Stage - co	m plateau (4 Fr)	740.025 - 776.	.000
		#1 - Shure UHF-R H4 (4 F	r)	Green Room - ki	it commun (10 Fr)	518.000 - 578.	.000
		#3 - Shure UHF-R H4 (4 F	r)	Le Bastion - kit o	commun (4 Fr)	518.000 - 578.	.000
		#1 - Sennheiser 2000-G IE	M (2 Fr)	Green Room - ki	it commun (10 Fr)	558.000 - 626.	.000
		#1 - Sennheiser 2000-C IE	M (2 Fr)	Main Stage - co	m plateau (4 Fr)	718.000 - 790.	.000
		#2 - Sennheiser 2000-B IE	M (4 Fr)	Main Stage - kit	commun (8 Fr)	626.000 - 698	.000
		#2 - Sennheiser 2000-C IE	M (2 Fr)	Green Room - c	om plateau (4 Fr)	718.000 - 790.	.000
		#2 - Sennheiser 2000-B IE	M (4 Fr)	Green Room - ki	it commun (10 Fr)	626.000 - 698	.000
		#3 - Shure AD4D G56 (0/4	4 Fr)	Main Stage - kit	commun (8 Fr)	470.150 - 636.	.000
		#2 - WisyCom N IEM (0/1	Fr)	GROUPE COM	MUN - Presse (4 Fr)	470.000 - 654.	.000
		#1 - WisyCom N IEM (0/2	Fr)			470.000 - 663	.000
		#6 - Sennheiser EM3732-I	l N (1 Fr)			614.000 - 798	.000
		Friday 07-05-19 - Main St		D 201.45		524.000 500	000
		#2 - Shure ULXD4D H50-1		Damso - 20h45	2 In45 (8 Fr)	534.000 - 598	
		#6 - Shure PSM 1000 J8-J		<u></u>		554.125 - 626.	
		#1 - Shure PSM 1000 J8-J	· · · ·		ueens - 22h30 23h35 (16 Fr)	554.125 - 626.	
		#2 - Shure PSM 1000 L8-I	· · · · ·		7h30 18h30 (14 Fr)	626.125 - 698.	
		#1 - Shure PSM 1000 L8-L			- 19h 20h (18 Fr)	626.125 - 698.	
		#2 - Sennheiser EM6000 /	1 A A	Damso - 20h45	· · · ·	550.000 - 638	
		#2 - Shure AD4Q G56 (4 F			7h30 18h30 (14 Fr)	470.150 - 636.	
		#1 - Shure AD4Q G56 (8 F			- 19h 20h (18 Fr)	470.150 - 636.	
		#1 - Shure AD4D G56 (2 F			ueens - 22h30 23h35 (16 Fr)	470.150 - 636.	
		#1 - Sennheiser EM3732-I	1 A A A A A A A A A A A A A A A A A A A		7h30 18h30 (14 Fr)	470.000 - 638.	
		#1 - Sennheiser EM3732-I	IN (2 Fr)	Christine & the G	ueens - 22h30 23h35 (16 Fr)	614.000 - 798.	.000

It looks like the editor of the recalculation of the frequencies of the global and detailed views (see section 2.13.4), the color of the name of the devices indicates the same results: blue = new frequencies, green = same frequencies and red = number of desired frequencies not found.

The "Everyday" or "Today" option allows you to redo the calculations for one day only or for all days of the event.



All scenes can be recalculated or selected as needed:



The recalculation can be done for the permanent sections, or even for the performance sections only via the options of the "Scenes sections".

Scene sections	
Permanent	
Performances	

The "Evaluation method" determines the criteria for classifying devices for recalculation. The default method is "Freq Range", this classifies devices according to the bandwidth of the device minus the space occupied by the TV channels.

Evaluation method		
Freq Range	◯ Random	
🔘 In order	Number of freq per section	

The other methods are "Random", the order is based on chance, the "In order" method respects the order of arrangement of the devices. Finally, the method "Number of freq per Sections" will class the sections that have the most frequencies on a stage in descending order, devices within the section will be ordered by bandwidth.

Regardless of the evaluation method chosen, the recalculation will always be done in the order of the days, then in the order of the scenes. In addition, permanent sections are always evaluated first (if option selected), because these frequencies must be compatible with the entire document.

The "Exclude devices with number of desired frequencies" option allows you to exclude devices whose frequencies have already been found from re-evaluation.

(	Exclude devices with number of desired frequencies	Random Freq	Evaluate

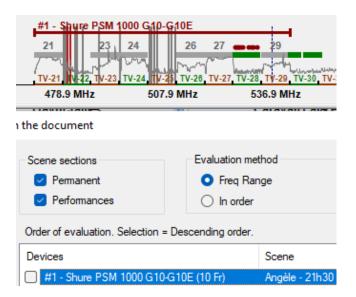
A multi-scene document has a lot of devices, so protecting frequencies in a complex area can pay off.

The option "Random Freq" recalculates the frequencies of the devices randomly, so never the same result twice.

The devices can be recalculated in descending order using the selection box:



Each device on the rating list can be selected and the multiscreen display is tracked simultaneously, regardless of the day.



It can be noticed that this region of the spectrum is occupied by several TV channels, so it will be quite complicated to find frequencies for devices that operate in this frequency range. Sooner or later you will have to choose a different device, and even redoing the calculations you won't be able to find a solution.

#### 8.20 Delete data



This command calls the document data deletion module:

Clear document dat	ta	×
<ul> <li>Everyday</li> </ul>	🔿 Today	Please note, this operation is final, there is no cancellation possible.
<ul> <li>All scenes</li> <li>COMMON G</li> <li>Scene 1</li> <li>Scene 2</li> <li>Scene 3</li> </ul>	ROUP	
		Select all Unselect all Execute

The operation of the module is very similar to that seen in section 2.12.4 of the "Global View" with some small additions relating to the multi-scene module.

You can choose to clear data for the displayed day or for all days of the event. We can exclude the permanent sections, so keep the data of the devices used every day and erase only those of the daily performances.

The descending order can be removed or put on the desired devices.

You can also delete the "Done" function on the selected sections.

# 9 - Classification

The view "Classification" displays the order of evaluation of unprotected and not off devices. If we have this document:

ection 1			
#1 - A1-128K Lav, Hand (1-8) 8 Freq (0 Avail)	#1 - Shure UHF-R J5 8 Freq (0 Avail)	#1 - Sennheiser 2000-A 8 Freq (0 Avail)	#1 - Sennheiser 3732-A 8 Freq (0 Avail)
#1 - Sennheiser 3732-B 8 Freq (0 Avail)	#1 - Shure UHF-R X1 8 Freq (2 Avail)	#1 - Sennheiser Evolution G2 Grp E 8 Freq (14 Avail)	)
ction 2			
#1 - BTR-800 A2 RX 4 Freq (0 Avail)	#1 - BTR-800 A2 TX 2 Freq (0 Avail)	#1 - BTR-800 E88 RX 4 Freq (0 Avail)	#1 - BTR-800 E88 TX 2 Freq (0 Avail)
ction 3			
#1 - TV IFB Lectrosonics T4-R1a, Block 19 8 Freq (0 Avail)	#1 - TV IFB Lectrosonics T4-R1a, Block 22 1 Freq (0 Avail)	#1 - Sennheiser Evolution G2 Grp B IEM 4 Freq (0 Avail)	#1 - Shure PSM 900 L6 8 Freq (20 Avail)
#1 - Shure PSM 1000 P8 4 Freq (52 Avail)			

#### The "Classification" will show:

🚰 🗃 🗸 Options About Language										ĩ	Régis Banvil
est 100 Fréq-01*											
Groupe 1	Classi	ification of equipment for eva	luation								
⊟-Section 1 ⊟-#1 - A1-128K Lav, Hand (1-8)	No	Device - Description	Group - Section	From	То	Descending	Туре	Fix. / Var.	Toler 2 TX	Toler 3 TX	Separati
-578.150	1	#1 - BTR-800 E88 RX	Groupe 1 - Section 2	470.100	487.900		BTR-800	Variable	150	50	300
-578.550	2	#1 - IFB Lectrosonics T4-R1	Groupe 1 - Section 3	486.400	511.900		IFB Lectroso	Variable	150	50	300
	3	#1 - BTR-800 A2 TX	Groupe 1 - Section 2	518.100	535.900		BTR-800	Variable	150	50	300
580.650	4	#1 - Sennheiser 2000-A	Groupe 1 - Section 1	516.000	558.000		Micros	Variable	150	50	350
581.300	5	#1 - Sennheiser 3732-A	Groupe 1 - Section 1	470.000	560.000		Micros	Variable	150	50	350
582.250	6	#1 - BTR-800 E88 TX	Groupe 1 - Section 2	590.100	607.900		BTR-800	Variable	150	50	300
583.350	7	#1 - Sennheiser 3732-B	Groupe 1 - Section 1	518.000	608.000		Micros	Variable	150	50	350
584.650	8	#1 - A1-128K Lav, Hand (1-8)	Groupe 1 - Section 1	578.000	638.000		Micros	Variable	100	50	300
#1 - Shure UHF-R J5	9	#1 - Shure UHF-R J5	Groupe 1 - Section 1	578.000	638.000		Micros	Variable	150	50	300
587.200	10	#1 - BTR-800 A2 RX	Groupe 1 - Section 2	632.100	649.900		BTR-800	Variable	150	50	300
	11	#1 - Sennheiser Evolution G	Groupe 1 - Section 3	626.000	662.000		In-Ear	Variable	300	300	500
	12	#1 - Shure PSM 900-L6	Groupe 1 - Section 3	656,125	691.875		In-Ear	Variable	300	300	500
593.400 602.800	13	#1 - Shure PSM1000 L8 (62	Groupe 1 - Section 3	626,100	697,900		In-Ear	Variable	300	300	500
	14	#1 - IFB Lectrosonics T4-R1		819.200	844.700		IFB Lectroso	Variable	150	50	300
603.650	15	#1 - Sennheiser Evolution G		830.025	866.000		Micros	Variable	150	50	350
605.000	16	#1 - Shure UHF-R X1	Groupe 1 - Section 1	944.000	952.000		Micros	Variable	150	50	300
#1 - Sennheiser 2000-A		#1 bracer ick1	Groupe 1 Decion 1	5111000	552,000		1.10.00	Turnable	100	55	500
519.250	Protoc	ted Devices									
519.850		1		1	1	1		1			1
521.700	No	Device - Description	Group - Section	From	То	Descending	Туре	Fix. / Var.	Toler 2 TX	Toler 3 TX	Separati
522.800											
523.750	Device	es Off									
525.150	No	Device - Description	Group - Section	From	То	Descending	Type	Fix. / Var.	Toler 2 TX	Toler 3 TX	Separatio
527.850											
#1- Sennheiser 3/32-A											
473.300											
475.350											

Let us examine the list closer:

No	Device - Description	Group - Section	From	То
1	#1 - BTR-800 E88 RX	Group 1 - Section 2	470.100	487.900
2	#1 - IFB Lectrosonics T4-R1	Group 1 - Section 3	486.400	511.900
3	#1 - BTR-800 A2 TX	Group 1 - Section 2	518.100	535.900
4	#1 - Sennheiser 2000-A	Group 1 - Section 1	516.000	558.000
5	#1 - Sennheiser 3732-A	Group 1 - Section 1	470.000	560.000
6	#1 - IFB Lectrosonics T4-R1	Group 1 - Section 3	563.200	588.700
7	#1 - BTR-800 E88 TX	Group 1 - Section 2	590.100	607.900
8	#1 - Sennheiser 3732-B	Group 1 - Section 1	518.000	608.000
9	#1 - A1-128K Lav, Hand (1-8)	Group 1 - Section 1	578.000	638.000
10	#1 - Shure UHF-R J5	Group 1 - Section 1	578.000	638.000
11	#1 - BTR-800 A2 RX	Group 1 - Section 2	632.100	649.900
12	#1 - Sennheiser Evolution G	Group 1 - Section 3	626.000	662.000
13	#1 - Shure PSM 900 L6	Group 1 - Section 3	656.000	692.000
14	#1 - Shure PSM 1000 P8	Group 1 - Section 3	710.000	790.000
15	#1 - Sennheiser Evolution G	Group 1 - Section 1	830.025	866.000
16	#1 - Shure UHF-R X1	Group 1 - Section 1	944.000	952.000

This list shows the order of evaluation of devices in full automatic mode (unprotected devices).

The devices are sorted by Start and Stop frequency, but sometimes there is inversion to allow a device with its frequency range is narrower, to be evaluated before another which its range is wider. For example, the BTR-800 A2 TX (518.100-535.900) and Sennheiser 3732-A (470.000 to 560.000). The BTR-800 is classified before 3732-A because of its narrower range of frequencies, so it will be easier to find X frequencies of BTR if these frequencies have not been assigned to another device. The 3732-A has a much greater range, it should be easier to find frequencies for this device.

Obviously this method has its limits, when there is no possible solution, there is simply no.

Both lists of protected devices and off complete the list of devices for informational purposes only.

The list of devices of the left part of the view allows to identify a device in the right lists and vice versa by selecting it.

# 10 - Options

The "Options" menu allows to set the TV Channels, the Type of frequencies, the start options and default settings of a document, the list of Variables and Fixed devices, the influence of the Power level and the management of license file.

General	NTSC   PAL	SECAM		
TV Chals - NTSC	Reject TV channels free	quencies (in MHz)		
Frequencies Type	02 (54-60)	<ul><li>19 (500-506)</li></ul>	36 (602-608)	53 (704-710)
Startup / Global	03 (60-66)	20 (506-512)	🗸 37 (608-614) RA	54 (710-716)
	04 (66-72)	✓ 21 (512-518)	38 (614-620)	55 (716-722)
Devices	05 (76-82)	22 (518-524)	39 (620-626)	56 (722-728)
Devices list	06 (82-88)	23 (524-530)	40 (626-632)	57 (728-734)
Update	07 (174-180)	24 (530-536)	41 (632-638)	58 (734-740)
	08 (180-186)	25 (536-542)	42 (638-644)	59 (740-746)
Devices Group	09 (186-192)	✓ 26 (542-548)	43 (644-650)	60 (746-752)
Devices groups	10 (192-198)	27 (548-554)	44 (650-656)	61 (752-758)
Update	✓ 11 (198-204)	28 (554-560)	45 (656-662)	62 (758-764)
	✓ 12 (204-210)	✓ 29 (560-566)	46 (662-668)	63 (764-770) PS
TX Power	13 (210-216)	30 (566-572)	47 (668-674)	64 (770-776) PS
Adjust Influence	14 (470-476)	✓ 31 (572-578)	48 (674-680)	65 (776-782)
	✓ 15 (476-482)	32 (578-584)	49 (680-686)	66 (782-788)
License	16 (482-488)	33 (584-590)	50 (686-692)	67 (788-794)
License Management	✓ 17 (488-494)	34 (590-596)	51 (692-698)	68 (794-800) PS
-	18 (494-500)	✓ 35 (596-602)	52 (698-704)	69 (800-806) PS
		ncies 614 to 698 MHz - Ch ncies 698 to 806 MHz - Ch	hls 38 to 51 🖉 Duplex Ga	p 614-616 MHz p 657-663 MHz 653-663 M
			CI	H Names Save
				port CH Cancel

To set an option, click on the items in the list on the left side.

## 10.1 TV Channels

The channels of TV defined in Options are the ones used by default during the creation of a document.

EazyRF supports three main video standards of television: NTSC, PAL and SECAM.

To change standard, select one of the options:

	NTSC   P	AL SECAM	
NTSC   PAL	SECAM		
-Reject TV channels f	requencies (in MHz)		
02 (54-60)	✓ 19 (500-506)	36 (602-608)	53 (704-710)
03 (60-66)	20 (506-512)	🗸 37 (608-614) RA	54 (710-716)
04 (66-72)	✓ 21 (512-518)	38 (614-620)	55 (716-722)
05 (76-82)	22 (518-524)	39 (620-626)	56 (722-728)
06 (82-88)	23 (524-530)	40 (626-632)	57 (728-734)
07 (174-180)	24 (530-536)	41 (632-638)	58 (734-740)
08 (180-186)	25 (536-542)	42 (638-644)	59 (740-746)
09 (186-192)	✓ 26 (542-548)	43 (644-650)	60 (746-752)
10 (192-198)	27 (548-554)	44 (650-656)	61 (752-758)
✓ 11 (198-204)	28 (554-560)	45 (656-662)	62 (758-764)
✓ 12 (204-210)	✓ 29 (560-566)	46 (662-668)	63 (764-770) PS
13 (210-216)	30 (566-572)	47 (668-674)	64 (770-776) PS
14 (470-476)	✓ 31 (572-578)	48 (674-680)	65 (776-782)
✓ 15 (476-482)	32 (578-584)	49 (680-686)	66 (782-788)
16 (482-488)	33 (584-590)	50 (686-692)	67 (788-794)
✓ 17 (488-494)	34 (590-596)	51 (692-698)	68 (794-800) PS
18 (494-500)	✓ 35 (596-602)	52 (698-704)	69 (800-806) PS
Reject Frequ	uencies 614 to 698 MHz - Chnl	s 38 to 51 💻 👘	p 614-616 MHz
	uencies 698 to 806 MHz - Char	Duplex Ga	p 657-663 MHz 653-663 M
- Reject req			
NTSC PAL	SECAM		
-Reject TV channels fi			
02 (47-54)	19	36 (590-598)	53 (726-734)
02 (47-54)	20	37 (598-606)	54 (734-742)
03 (04-01)	20	37 (000-000)	5+(/34-/42)

38 (606-614)

39 (614-622)

41 (630-638)

42 (638-646)

43 (646-654)

44 (654-662)

45 (662-670)

46 (670-678)

47 (678-686)

48 (686-694)

49 (694-702)

50 (702-710)

51 (710-718)

52 (718-726)

821-832 Duplex Gap

✓ 40 (622-630)

55 (742-750)

56 (750-758)

57 (758-766)

58 (766-774)

59 (774-782)

60 (782-790)

61 (790-798)

863-865 MHz ISM

04 (61-68)

05 (174-181)

06 (181-188)

07 (188-195)

08 (195-202)

09 (202-209)

11 (216-223)

12 (223-230)

13

14

15

16 17

18

695-703 MHz Guard band

✓ 10 (209-216)

21 (470-478)

22 (478-486)

23 (486-494)

24 (494-502)

26 (510-518)

27 (518-526)

28 (526-534)

29 (534-542)

31 (550-558)

32 (558-566)

33 (566-574)

34 (574-582)

35 (582-590)

Reject Frequencies 695 to 865 MHz - Channels 49 to 61

✓ 30 (542-550)

25 (502-510)

02	19	36 (590-598)	53 (726-734)
03	20	37 (598-606)	54 (734-742)
04	✓ 21 (470-478)	38 (606-614)	55 (742-750)
05	22 (478-486)	39 (614-622)	56 (750-758)
06	✓ 23 (486-494)	40 (622-630)	57 (758-766)
07	✓ 24 (494-502)	41 (630-638)	58 (766-774)
08	25 (502-510)	42 (638-646)	59 (774-782)
09	26 (510-518)	✓ 43 (646-654)	60 (782-790)
10	27 (518-526)	44 (654-662)	61 (790-798)
11	28 (526-534)	45 (662-670)	62 (798-806)
12	✓ 29 (534-542)	46 (670-678)	63 (806-814)
13	30 (542-550)	47 (678-686)	64 (814-822)
14	✓ 31 (550-558)	48 (686-694)	65 (822-830)
15	32 (558-566)	49 (694-702)	66 (830-838)
16	33 (566-574)	50 (702-710)	67 (838-846)
17	✓ 34 (574-582)	51 (710-718)	68 (846-854)
18	35 (582-590)	52 (718-726)	69 (854-862)

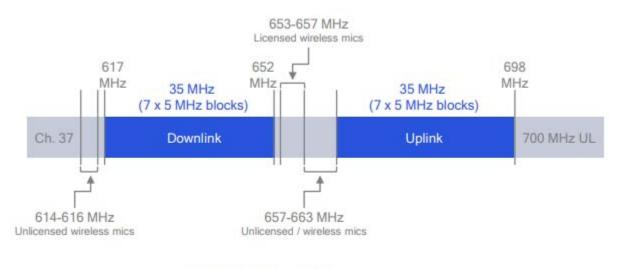
Simply select the desired channels.

#### 10.1.1 Reject zone

An additional option allows to activate or deactivate the rejection of the frequency band reserved for commercial use in certain countries since the switch to digital television and to 4G and 5G cellular telephony.

Each rejection zone has one or more exclusion zones, i.e., zones where the use of frequencies is permitted.

In North America, the 600 MHz frequency band has moved from being allocated digital television channels to 5G cellular telephony. Here is the new attribution:



600 MHz Spectrum

The frequency zones 614-616 MHz, 653-657 MHz and 657-663 MHz remain available for the use of RF audio equipment. The 653-657 MHz zone requires a user license, therefore private.

EazyRF allows you to manage the use of these areas:

Reject Frequencies 614 to 698 MHz - Chnls 38 to 51	Duplex Gap 614-616 MHz Duplex Gap 657-663 MHz	653-663 M		
Reject Frequencies 698 to 806 MHz - Channels 52 to 69				

Since the 653-657 MHz zone is not suitable for everyone, the 653-663 command alternates the size of the zone from 657-663 MHz to 653-663 MHz.

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Europe does not yet use the 600 MHz zone. EazyRF uses this attribution:

With the video standard SECAM L, there is a recoverable zone of frequencies in the zone of rejection of frequencies. The entire area extends from 694 MHz to 863 MHz. However an area of 8 MHz is recoverable from 822 MHz. This area is called "Duplex Gap." This option is available upon activation of the rejection area:

🗹 Reject Frequencies 694 to 863 MHz - Channels 49 to 69 🛛	Duplex Gap 822-830 MHz
---	------------------------

#### 10.1.2 Channels importation

You can also import TV channels from public databases for a specific location with the command:

En	ter either a postal o	ode, a zip code, a city name, a full a	address or a latitude long	ituda (15 10 -73 57)		
_	ontreal	oue, a zip coue, a city name, a run a	address of a latitude, ong	ituue (43.40,-73.37)		My position
ace. [M	ontreat					му розноп
etail: M	ontreal, QC, Canada	a (45.509, -73.553)				
. 🗖						
stance: 🧕	) km	⊻ 🖲 Km 🔿 Miles				
Channel	News	Ch.,	Chala (Daviana	Distance	Damag	1
Channel	Name CJNT Citytv	City Montréal	State/Province QC (CA)	Distance 🔺 2.98 km	Power 2.07 Kw	
⊠ 19	CBFT R-C	Montréal	QC (CA)	2.50 km	2.07 Kw 448 Kw	
21	CBMTCBC	Montréal	QC (CA)	3.01 km	446 Kw	
35	CEJP Noovo	Montréal	QC (CA)	3.01 km	17.7 Kw	
✓ 33	CFTM TVA	Montréal	QC (CA)	3.01 km	11 Kw	
12	CFCF CTV	Montréal	QC (CA)	3.01 km	10.6 Kw	
15	CKMI Global	Montréal	QC (CA)	3.01 km	8 Kw	
☑ 10 ☑ 31	CFHD Ici Mtl	Montréal	QC (CA)	3.41 km	4.03 Kw	
29	CFTU C. Savoir	Montréal	QC (CA)	4.89 km	0.91 Kw	
26	CIVM T-Q	Montréal	QC (CA)	5.60 km	269 Kw	
			40 (0.1)	0.001	20010	

Just type a location data as a postal code, a zip code, a city name, a full address, or GPS data, or latitude-longitude in the format: 54.75, -123.01 (degrees minutes must be in decimal).

If your computer has a geolocation service, the "My Location" button allows you to enter your data automatically.

The regions covered for NTSC are Canada, the US and the border area with Mexico (there is no data available for Newfoundland though). For SECAM, coverage includes France and its border regions.

The list displayed depends on the selected distance, between 50 and 200 km. The selected channels vary depending on the combination of distance and power. This suggestion is not foolproof, only the scanner can be reliable. Some channels are allocated but not used, attention to NEWDT or HDTV channels. Only digital channels are shown.

Distances can be displayed in kilometers or miles.

The choice of the desired measurement system and the default distance can be done in Options/General/Startup (see section 9.3).

Then, the command:

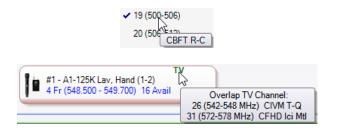


Will display the following window:

Global NTSC Channels	5			x
Channel	Selection	Description	^	
10 (192-198)				
11 (198-204)	×	CFTM TVA		
12 (204-210)	×	CFCF CTV		
13 (210-216)				
14 (470-476)				
15 (476-482)	×	CKMI Global		
16 (482-488)				
17 (488-494)	×	CJNT Citytv		
18 (494-500)				
19 (500-506)	×	CBFT R-C		
20 (506-512)				
21 (512-518)	×	CBMT CBC		
22 (518-524)				
23 (524-530)				
24 (530-536)				
25 (536-542)				
26 (542-548)	×	CIVM T-Q		
27 (548-554)				
28 (554-560)				
29 (560-566)				
30 (566-572)				01/
31 (572-578)	~	CFHD lci Mtl		OK
32 (578-584)			v	Cancel

It is thus allowed to assign a name to a channel (and enable or disable).

This information is displayed when moving the mouse pointer:



To save the system data and enable it as default values, select:

Save

The video standard used now appears in the list of options:

General
TV Chnls - SECAM
Frequencies Type
Startup / Global

Only changes to the standard that is saved are kept.

These basic channels appear in blue in the list of local channels (Chapter 2).

## 10.1.3 Video standard

Here is a list of video standards used in different countries.

Country/region	Format
Afghanistan	PAL
Algeria	PAL
Antigua	NTSC
Argentina	PAL
Australia	PAL
Austria	PAL
Bahrain	PAL
Bangladeshi	PAL
Barbados	NTSC
Belgium	PAL
Bermuda	NTSC
Brazil	PAL
Brunei	PAL
Bulgaria	SECAM
Canada	NTSC
Canary Islands	PAL
Chile	NTSC
China	PAL

Colombia	NTSC
congo	SECAM
Costa Rica	NTSC
Cuba	NTSC
Cyprus	PAL/SEC
Czechoslovakia	SECAM
Denmark	PAL
Dominican Republic	NTSC
Dubai	PAL
Ecuador	NTSC
Egypt	SECAM
Ireland	PAL
El Salvador	NTSC
Ethiopia	PAL
Finland	PAL
France	SECAM
Germany	PAL
Ghana	PAL
Gibraltar	PAL
Greece	SECAM
Guatemala	NTSC
Haiti	SECAM
Honduras	NTSC
hong kong	PAL
Hungary	SECAM
Iceland	PAL
India	PAL
Indonesia	PAL
Iran	SECAM
Iraq	SECAM
Israel	PAL
Italy	PAL
Ivory Coast	SECAM
Jamaica	NTSC

Japan	NTSC
Jordan	PAL
Kenya	PAL
Korea	NTSC
Kuwait	PAL
Lebanon	SECAM
Liberia	PAL
Libya	PAL
Luxemburg	PAL/SEC
Malaysia	PAL
Malta	PAL
MAURITIUS ISLAND	SECAM
Mexico	NTSC
monaco	SECAM/PAL
Могоссо	SECAM
Netherlands	PAL
New Zealand	PAL
Nicaragua	NTSC
Nigeria	PAL
Norway	PAL
Oman	PAL
Pakistan	PAL
Panama	NTSC
Peru	NTSC
Philippines	NTSC
Poland	SECAM
Portugal	PAL
Porto Rico	NTSC
Qatar	PAL
Saba, Sarawak	PAL
Saudi Arabia	SECAM
Sierra Leone	PAL
Singapore	PAL
South Africa	PAL

Spain	PAL
Sri Lanka	PAL
Sudan	PAL
Suriname	NTSC
Sweden	PAL
Swiss	PAL
Syria	SECAM
Taiwan	NTSC
Tanzania	PAL
Thailand	PAL
Trinidad	NTSC
Tunisia	SECAM
turkiye	PAL
United Arab Emirates	PAL
Uganda	PAL
UK	PAL
Uruguay	PAL
United States	NTSC
USSR	SECAM
Venezuela	NTSC
Yemen	PAL
Yugoslavia	PAL
Zaire	SECAM
Zambia	PAL
Zanzibar	PAL
Zimbabwe	PAL

# 10.2 Frequencies Type

The type of frequency includes three parameters:

Options - Frequencies Types E	dition	×
General TV Chnls - NTSC Frequencies Type Startup / Global	Add   Edit   Delete   Duplicate BTR-800 BTR-80N HME 800 HME PRO850 HME-800 I/C (Vega,)	Deviation: 0.040 Intermediate: 0.070 Picture
Devices Devices list Update	IFB Comtek NB IFB Comtek WB IFB Lectrosonics IFB Telex In-Ear Micros	Predefined
Devices Group Devices groups Update	Overline OW Overline UC RAD RKP-4B Walkie	Custom
TX Power Adjust Influence		
License Management		
		Save
17 Types		

The Deviation and Intermediate parameters are related to the Frequency Modulation (FM). These parameters are determined by the manufacturer.

The image can be defined from a list included or customized as needed.

It is this image that is used in the Global view devices.

EazyRF grants a minimal importance for the parameters Deviation and Intermediate settings. Only the view "Intermodulations" still mention them.

The menu:

Add | Edit | Delete | Duplicate

Allows you to manage the items of the list.

10.3 Options Startup/Global

General	At startup   Global Options			
TV Chnls - NTSC Frequencies Type <b>Startup / Global</b>	Calculation Full Automatic Adding Automatic	Data TV Chan Distance: OKm	nels Import 50 km	~
Devices	O Manual	O Miles		
Devices list Update	<ul> <li>Load last open document (at launch)</li> <li>Calculations multiprocess (in parallel) with 24 proc</li> </ul>			
Devices Group	Manually adding without window			
Devices groups Update	Sort Descending devices before Ascending			
	Replace device number to 1 after dragging a Fixed/Variable list			
TX Power Adjust Influence	<ul> <li>Disable Available Freq. on Devices List</li> <li>Disable Channels TV display on Frequencies</li> </ul>			
License License Management	Disable Device Name Rank by Numeric Value (requires restart)			
				Default
				Save
				Cancel

The following items can be set and used at start of EazyRF:

The calculation determines which mode to use at starting up and at creation of new document.

Load last open document (at launch)

Reloads the last working document at start of EazyRF.

✓ Calculations multiprocess (in parallel) with 12 proc

Enable or disable the computation across multiple cores.

Г

Manually adding without window

In calculation mode "Manual" when adding a device a window appears to enter frequencies. This option allows you to add devices directly without window with 0 frequency.



In "Full Automatic" calculation mode, the devices are evaluated in order of growth of the start frequencies. In the case of the evaluation of a device in descending order, the starting value calculations is found to be the stop frequency. This option is used to reverse the order of evaluation.

Replace device number to 1 after dragging a Fixed/Variable list

In global and detailed views the number of devices added simultaneously can be defined (X1 or Xx), this option resets the counter to 1 or retains its value (see chapter 2).

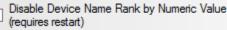
Disable Available Freq. on Devices List

Turns off the calculation of available frequencies in the global and detailed views when the mouse cursor is positioned on the name of a device. If your computer is not fast enough, this option will give more fluidity (see Chapter 2).

Disable Channels TV display on Frequencies

This option disables the display of a TV channel number for the frequency:

632.100	41
632.400	41
632.850	41
633.450	41



The name of the devices with a number are listed in order of numerical value (example: Shure PSM 900, Shure PSM 1000). This option allows to classify the devices alphabetically (1000 above 900).

The section:

Data TV Chan	nels Import	
Distance:	50 km	~
⊙ Km		
O Miles		

Sets the default settings for import of TV channels via public databases (see section 9.1).

The second part of Startup/Global determines the evaluation parameters of frequencies:

lefault values			5th Order Int	ermodulation	ı —	
Tolerance 2 TX:	100 k	Hz	Calcula	ation active (	on New Do	cument
Tolerance 3 TX:	50 k	Hz	Method:	2 TX and 3	3 TX	~
Tolerance 5th Order:	50 k	Hz	Skip Freq I	beyond:	32	MHz
Separation:	300 k	Hz	🔽 Tum o	on 5th Order	on New De	vice
Image:	10.70 M	IHz	latera la Para	1. 1. 1		
Filter:	16.00 M	IHz	- Interrelations	pacing: 0	kHz	its groups
iterferences Reject Freq on each s icans		0.300 MHz	Intermodulati Skip IM be		evaluated	kHz from carrier
Reject Freq if leve than (-50 à -89):	el greater	-60 dbm	Print S	Summary / Do	ocument De	etail
Disable Available	frequencies	3	🗌 Auto S	Start Var Dev		
						Default
						Save

All these parameters are used when creating a new document. Local Options window allows you to adapt them to his document (section 2.5.4).

The "Print Summary / Document Detail" option displays or not the document summary and device details (tolerance, separation, etc.) when printing.

"Auto Start Var Dev »enables / disables the automatic value of the start frequency of a variable frequency device. During the automatic evaluation of the devices, these are classified in order of departure (in reality it is a little more than that), with this option the evaluation is done in this way: the first device keeps its frequency of original start, the first different device will use a higher starting frequency than the last frequency of the previous device with an automatic deviation. A small example:

Group 1 - Section 1			Group 1 - Section 1
#1 - BTR-800 E88 RX	4 Fr 470.100 - 471.300	470.100 - 487.900	471.300 487.900 #1 - BTR-800 E88 RX
#1 - beyerdynamic TG 1000 A	2 Fr 536.400 - 536.900	470.100 - 788.900	536.900
Instead of:			
Group 1 - Section 1			Group 1 - Section 1
#1 - BTR-800 E88 RX	4 Fr 470.100 - 471.300	470.100 - 487.900	471.300 487.900 #1 - BTR-800 E88 RX
#1 - beyerdynamic TG 1000 A	2 Fr 471.900 - 472.650	470.100 - 788.900	472.650

This method of evaluation allows to leave a little space between the devices if possible.

Disable Available frequencies

This option allows you to deactivate the calculation of available frequencies when creating a new document (used for opening an IAS file). This option can be reactivated in the global and detailed view.

🗸 Avail Freq	👗 Grp	Sect	Dev	Grp
				uencies
Calcula	ition of A	vailab	ie Freq	juencies 👔

Finally, if you have a "Multi-Scene" license, an additional option appears when the "Options" module is called from the "Multi-Scene" view:

Multi-Scenes
Open Device Editor after an addition

This option automatically opens the device editor when each device is added.

#### 10.4 Devices

The list of "Fixed Frequencies" devices and the list of "Variable Frequencies" devices have been merged with EazyRF version 4.

A new file format has been created with the extension .lst4. The old file format (.lst) can be read by EazyRF.

To convert the old device file to the new format, EazyRF offers two solutions. The first one should be used after the installation of EazyRF. Just copy the old file into the new installation directory (from C:\Program Files (x86)\EazyRF

V3.2 to C:\Program Files (x86)\EazyRF V4). Then you have to rename the file Devices.lst4 (to your taste), otherwise this one will be open by default at the launch of EazyRF. EazyRF opens the Devices.lst file and converts it to the new format and saves it as Devices.lst4

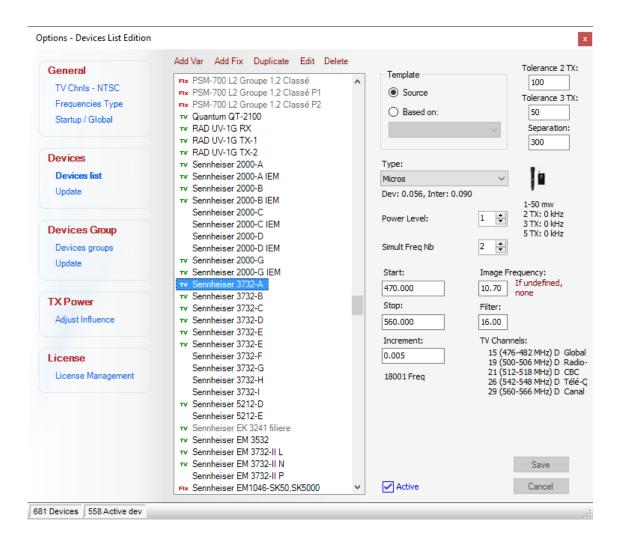
The second method is to use the device update module and open the old device lists:

File type:	Liste Appareils (* Ist 4;* Ist)	$\sim$
	Liste Appareils (*.1st4;*.1st) Liste Appareils Version 4 (*.1st4)	
	Liste Appareils Version 3 (*Jst)	

See the next section for using the device update module.

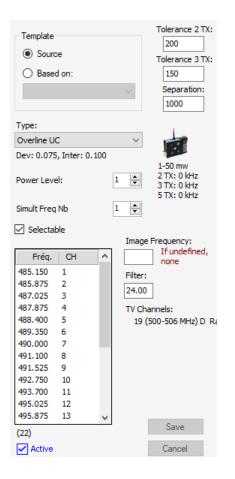
The edition of the list of devices changes according to the type of devices (variable or fixed):

	Add Var Add Fix Duplicate Edit D	)elete			Tolerance 2 TX
General	Lectrosonics SRb. SRc Block 28		Template		
TV Chnls - NTSC	Lectrosonics SRb, SRc Block 29		Source		200
Frequencies Type	Lectrosonics SRb, SRc Block 29		Source		Tolerance 3 TX
	Lectrosonics SRb, SRc Block 30		Based on:		150
Startup / Global	Lectrosonics SRb, SRc Block 31				Separation:
	Lectrosonics SRb, SRc Block 32			~	1000
	TV Lectrosonics SRb, SRc Block 470				1000
)evices	Lectrosonics SRb, SRc Block 944		Type:		
Devices list	TV Lectrosonics Venue 2 A1		Overline UC	~	
	TV Lectrosonics Venue 2 B1				
Update	TV Lectrosonics Venue 2 B2		Dev: 0.075, Inter: 0.	100	
	TV Lectrosonics Venue 2 C1				1-50 mw 2 TX: 0 kHz
	Lectrosonics Venue 2 D1		Power Level:	1 ≑	3 TX: 0 kHz
evices Group	TV Overline OW/BX				5 TX: 0 kHz
Devices groups	TV Overline OW TX		Simult Freg Nb	1 🖨	
Update	W Overline RX Essential plan A				
Opuale	Fix Overline RX Essential plan B		Selectable		
	Fix Overline RX M34			Image	Frequency:
	Fix Overline RX R41		Fréq. CH	~	If undefined, none
XPower	CVerline RX R46		485,150 1		none
Adjust Influence	V Overline RX R47spe		485.875 2	Filter:	-
	CVerline RX R48		487.025 3	24.00	
	Fix Overline RX R50		487.875 4	TV Cha	
icense	Fix Overline RX R52		488,400 5		500-506 MHz) D
	Fix Overline RX R57		489,350 6	15 (.	500-500 Min2/ D
License Management	Fix Overline RX R59		490.000 7		
	TX Overline TX Essential plan A		491,100 8		
	TX Overline TX Essential plan B		491.525 9		
	<b>T</b> X Overline TX T23		492,750 10		
	TX Overline TX T25		493,700 11		
	TX Overline TX T26		495.025 12		
	TX Overline TX T30		495.875 13	5	
	FX Overline TX T30m			-	Save
	Fix Overline TX T33		(22)		
	TX Overline TX T36	$\sim$	🖌 Active		Cancel



A fixed frequency device has only a few selectable frequencies (it is not programmable).

The editor allows to manage these devices by defining their list of frequencies and channels:



If one of these frequencies is included in one of the active television channels, a list will indicate it.

A device can be defined as the base model (the first in the chain). Another device can be created from a base model and inherited from its frequencies (used for case numbers).

The frequency type uses the predefined types previously (section 9.2).

Tolerance values are the accepted intermodulation limit values for this device. Separation is the minimum distance between two frequencies.

The power level can vary from 1 to 4, with 1 being the normal level. This level influences the rejection of intermodulations according to the transmission power (see section 9.7). The displayed match (Tolerance values) is the value of the global parameters.

The number of frequencies is the number of frequencies to be found when adding to one of the views.

The image frequency is an intermediate frequency used during demodulation with older devices. As a result, it was impossible to differentiate two carriers separated from the value used (10.7 MHz was the norm). This value is optional (if not defined, unused).

The filter of the device represents the difference of the frequencies supported during the calculations. For a value of 16 MHz, the frequencies between the carrier minus 16 MHz and the carrier plus 16 MHz will be used in the calculations. A bit like an electronic filter.

It is possible to copy a frequency list from Excel. The value of the frequency must be on the 1st column and the value of the channel on the 2nd column. You must move both columns simultaneously.

In addition, Excel must be started in administrator mode (shortcut settings, advanced).

The "Active" command is used to activate / deactivate a device.

When a device is turned off, it no longer appears in the Add Devices list. Thus, instead of removing a device from the list, it can simply be disabled and remain in the list.

The names of disabled devices are displayed in gray.

To activate / deactivate several devices continuously, make sure that the list of devices has keyboard focus (the selection border has a fine dashed border). Use the following keys on the keyboard to make changes: "Enter" toggles the value Active, "+ (keypad or + / =)" to activate the value Active and "- (keypad - / \_)" allows to disable the Active value. The next device is automatically selected and the operation is ready to be repeated.

The commands :

Add Var Add Fix Duplicate Edit Delete

Manage the items in the list.

The editing of variable frequency devices is different:

Template	Tolerance 2 TX:
	100
Source	Tolerance 3 TX:
Based on:	50
	Separation:
	300
Type:	
Micros	~
Dev: 0.056, Inter: 0.090	
	1-50 mw
Power Level:	1 2 TX: 0 kHz 3 TX: 0 kHz
	5 TX: 0 kHz
Simult Freq Nb	2 🖨
Start:	Image Frequency:
470.000	10.70 If undefined, none
Stop:	Filter:
560.000	16.00
Increment:	TV Channels:
0.005	15 (476-482 MHz) D Globa 19 (500-506 MHz) D Radio
18001 Freq	21 (512-518 MHz) D CBC 26 (542-548 MHz) D Télé- 29 (560-566 MHz) D Cana

A variable frequency device has as a Start frequency, a Stop frequency and an Increment step.

Like fixed frequency devices, a variable frequency device can be defined as a basic device or based on another (and inherited from its parameters).

The parameters Model, Type, Tolerance, Separation, Power Level, Image Frequency, Filter and Number of Frequencies have the same usage as for Fixed Frequency Devices.

The Start, Stop and Increment values are the heart of this kind of device. The list of TV channels included in this data is for information only.

The "Active" command is used to activate / deactivate a device.

When a device is turned off, it no longer appears in the Add Devices list. Thus, instead of removing a device from the list, it can simply be disabled and remain in the list.

The names of disabled devices are displayed in gray.

To activate / deactivate several devices continuously, make sure that the list of devices has keyboard focus (the selection border has a fine dashed border). Use the following keys on the keyboard to make changes: "Enter" toggles the value Active, "+ (keypad or + / =)" to activate the value Active and "- (keypad - / \_)" allows to disable the Active value. The next device is automatically selected and the operation is ready to be repeated.

The commands :

Add Var Add Fix Duplicate Edit Delete

Manage the items in the list.

#### 10.5 Devices Update

This option allows to compare two lists of devices:

	Open File   Update Clear Sele	ation Cava	Cancel
General	Open File   Opdate Clear Sele		Cancer
TV Chnls - NTSC		A Test RNT	^
Frequencies Type		A Walkie Fix	
Startup / Global			
Devices		. A1-105K Lav, Hand (1-2)	
Devices			
Devices list		A1-107K Lav, Hand (1,2) Fix	
Update		A1-108K Lav, Hand (1,2) Fix	
		. A1-112K Lav, Hand (1-8)	
Devices Group			
Devices groups			
Update			
TX Power		A1-122K Lav, Hand (1-8)	
		🖶 A1-123K Lav, Hand (1-8)	
Adjust Influence			
		⊞ A1-126K Lav, Hand (1-8)	
License			
License Management			
		B AKG DMS700 B1	
		AKG DMS800 B1	
		HIM AKG DMS800 B2	
		AKG IVM4 IEM 500	
		AKG IVM4 IEM 570	
		AKG IVM4 IEM 720	
		AKG IVM4 IEM 790	~
Additional Devices	Present in Open File only	Differences Pres	ent in Base only

The "Additional Devices" hyperlink allows you to download additional device lists.

To start, open a list of devices with the "Open File" command. After opening:

General	Open File   Update	Clear Selection	Save Cano	;el
donordi		b, SRc Block 19	HME PRO850 Belt Pack A	^
TV Chnls - NTSC	E	b, SRc Block 20	HME PRO850 Belt Pack B	
Frequencies Type	E ✓ Lectrosonics SRI	b, SRc Block 21		
Startup / Global	Ectrosonics SRI	b, SRc Block 22	HME PRO850 Belt Pack D	
	Ectrosonics SRI	b, SRc Block 23	HME PRO850 Belt Pack E	
	Ectrosonics SRI		IFB Lectrosonics T4-R1a, Block 19	
Devices	Ectrosonics SRI		IFB Lectrosonics T4-R1a, Block 19 #2	
	Lectrosonics SRI		IFB Lectrosonics T4-R1a, Block 20	
Devices list	Ectrosonics SRI		IFB Lectrosonics T4-R1a, Block 21	
Update	Ectrosonics SRI		IFB Lectrosonics T4-R1a, Block 22	
	Ectrosonics SRI		IFB Lectrosonics T4-R1a, Block 23	
	Ectrosonics SRI		IFB Lectrosonics T4-R1a, Block 24	
Devices Group	in the sector s		IFB Lectrosonics T4-R1a, Block 25	- 11
	Ectrosonics SRI		IFB Lectrosonics T4-R1a, Block 26	
Devices groups	Ectrosonics SRI		IFB Lectrosonics T4-R1a, Block 27	
Update	in the sector s		IFB Lectrosonics T4-R1a, Block 28	
	Ectrosonics SRI		IFB Lectrosonics T4-R1a, Block 29	
	Ectrosonics Ver		IFB Lectrosonics T4-R1a, Block 30	
TX Power	Ectrosonics Ver		IFB Lectrosonics T4-R1a, Block 31	
	Ectrosonics Ver		IFB Lectrosonics T4-R1a, Block 32	
Adjust Influence	Ectrosonics Ver		IFB Lectrosonics T4-R1a, Block 33	
	i dectrosonics Ver	nue 2 D1	IFB Lectrosonics T4-R1a, Block 470	
			IFB Lectrosonics T4-R1a, Block 606	
License			IFB Lectrosonics T4-R1a, Block 944	
License Management			Lectrosonics M2T/M2R	
Election Management			Lectrosonics SM 100k Block 19	
			Lectrosonics SM 100k Block 20	
			Lectrosonics SM 100k Block 21	
			E- Lectrosonics SM 100k Block 22	
			Lectrosonics SM 100k Block 23	
			Lectrosonics SM 100k Block 24	
			Lectrosonics SM 100k Block 25	
			Lectrosonics SM 100k Block 26	
			El astrosonios SM 100k Plaak 470	*
Additional Devices	Present in Open File only	Diffe	rences Present in B	ase only

The open file is in the list on the left, the right list shows the current list of the system. Device files from version 3 (.lst) or version 4 (.lst4) can be opened.

The differences between the two lists are displayed with different colors. The devices present only in the open list are in red, the devices in the system list only are in brown. A device presents in both lists but with differences in parameters is displayed in blue. The identical devices in both lists are not displayed in the list on the left for a little more clarity.

The contents of the parameters can be examined by opening the detail of the device (+).

Devices in the open file can be selected individually before updating. By default, when a file is opened, devices that are not in the basic list are selected.

Finally, it is necessary to complete the operation by the Save command.

The update can only be made from the opened file to the list of the system, not the other way.

### **10.6 Additional Devices**

Name	Date 🔻	^		
2019-2021 Devices (New names)		- 1		
Wisycom 2020.lst4	18/12/20 05:44:37			
Shure AD4D-AD4Q 2020 lst4	14/12/20 10:40:03		Shure PSM 1000 G53	
Shure Complet 2020.lst4	14/12/20 10:40:03			
Shure PSM 1000 2020.lst4	14/12/20 10:40:03			
Sennheiser EM 300-500 G4 2020.lst4	30/07/20 12:54:27		····· Type: In-Ear	
Sennheiser Complet 2020.lst4	30/07/20 12:53:38		Start: 518.000	
Shure UR5 2019.lst4	14/12/19 06:00:19		Stop: 584.000	
Wisycom 2019.lst4	10/12/19 14:54:22		shule FSM 1000 H82     in Shule PSM 1000 J8A	
Shure AXT400 2019.lst4	10/12/19 14:53:49			
Shure ULXD4D-ULXD4Q 2019.lst4	10/12/19 14:53:49			
Shure Axient 2019.lst4	10/12/19 14:53:49			
Shure UR4D 2019.lst4	10/12/19 14:53:49			
Shure UHF-R 2019.lst4	10/12/19 14:53:49			
Sennheiser EM2050 2019.lst4	10/12/19 14:51:59		Shure PSM 1000 L8A      Shure PSM 1000 L8J	
Sennheiser EM300 EM500 G3 2019.lst4	10/12/19 14:51:56			
Sennheiser EM3732-II 2019.lst4	10/12/19 14:51:54		Shure PSM 1000 L9E	
Sennheiser SR IEM G4 2019.lst4	10/12/19 14:51:50			
Sennheiser SR2050 IEM 2019.lst4	10/12/19 14:51:47			
Sennheiser SR300 IEM G3 2019.lst4	10/12/19 14:51:44			
Lectrosonics 2019.lst4	07/12/19 15:37:17			
Standard Devices		-		
Shure Axient Digital.lst	10/12/19 14:53:16		Shure PSM 1000 R26-R27	
Shure PGX.lst	10/12/19 14:53:02			
Shure SLX.lst	10/12/19 14:52:44	~		

The "Additional Devices" command calls the add-ons import module available on the EazyRF website:

The list is split into two groups, the 2019-2020 devices (EazyRF Version 4) and the standard devices (EazyRF Version 3).

The contents of a list can be viewed on the right side of the display. Devices not in your device list appear in blue and the number of new devices is shown at the bottom of the list.

To add a list to EazyRF, just make a selection and use the "Add" command. The contents of the list are displayed in the "Devices - Update" module (section 10.5) as with the "Open File" command:

General       B-Z       Shure AXT400 A24       B-A1-128K         TV Chnis - NTSC       Frequencies Type       Shure AXT400 G12       B-A1-128K         Startup / Global       B-Z       Shure AXT400 G12       B-AKG DMS700 B1         B-Z       Shure AXT400 G12       B-AKG DMS700 B1         B-Z       Shure AXT400 G12       B-AKG DMS700 B1         B-Z       Shure AXT400 G1E       B-AKG DMS800 B2         Devices       B-Z       Shure AXT400 G1C       B-AKG IVM4 IEM 570         Devices list       B-Z       Shure AXT400 H18       B-AKG IVM4 IEM 570         Devices Group       B-Z       Shure AXT400 H4       B-AKG IVM4 IEM 720         Devices Group       B-Z       Shure AXT400 H4E       B-AKG VM4 IEM 720         Devices Group       B-Z       Shure AXT400 H4E       B-AKG VM4 IEM 720         Devices groups       B-Z       Shure AXT400 J5       B-AKG VMS4000 650         Devices groups       B-Z       Shure AXT400 J5E       B-AKG VMS4000 720         Devices groups       B-Z       Shure AXT400 J5E       B-AKG VMS400 835         B-Z       Shure AXT400 J5K       B-AKG VMS400 835       B-AKG VMS450 B1         Conserver       Shure AXT400 J3E       B-AKG VMS450 B2       B-AKG VMS450 B2 <td< th=""><th></th><th>Open File   Update</th><th>Clear Selection</th><th></th><th>Save Cancel</th><th></th></td<>		Open File   Update	Clear Selection		Save Cancel	
TV Chuls - NTSC       Image: Shure AXT400 G1       Image: Article Art	eneral					
Frequencies Type       Shure AXT400 G12       B- AKG DMS700 B1         Startup / Global       Shure AXT400 G19       B- AKG DMS700 B2         Devices       Shure AXT400 G1HK       B- AKG DMS800 B1         Devices list       B- Z       Shure AXT400 G1HK       B- AKG DMS800 B2         Update       Shure AXT400 G7C       B- AKG IVM4 IEM 570         Devices list       B- Z       Shure AXT400 H12       B- AKG IVM4 IEM 720         Devices Group       Shure AXT400 H44       B- AKG VM44 IEM 730       B- AKG VM4400 680         Devices groups       Shure AXT400 J12       B- AKG VMS4000 680       B- Z         Devices groups       Shure AXT400 J55       B- AKG VMS4000 720         Devices groups       Shure AXT400 J54       B- AKG VMS4000 720         Devices groups       Shure AXT400 J54       B- AKG VMS4000 720         Devices groups       Shure AXT400 J54       B- AKG VMS4000 720         Devices groups       Shure AXT400 J54       B- AKG VMS4000 720         Devices groups       Shure AXT400 J54       B- AKG VMS4000 720         Devices groups       Shure AXT400 J54       B- AKG VMS4000 720         Devices groups       Shure AXT400 J54       B- AKG VMS400 835         Devices groups       Shure AXT400 J54       B- AKG VMS450 B5	V Chnls - NTSC					^
Startup / Global       Image: Construct of the second	requencies Type	-				
Startup / Global       B-W       Shure AXT400 G1E       B-AKG DMS800 B1         Devices       Shure AXT400 G1HK       B-AKG DMS800 B2         Devices list       B-W       Shure AXT400 G1HK       B-AKG IVM4 IEM 500         Update       B-W       Shure AXT400 H12       B-AKG IVM4 IEM 720         Devices Group       B-W       Shure AXT400 H4       B-AKG IVM4 IEM 720         Devices Group       B-W       Shure AXT400 H4       B-AKG WMS4000 650         Devices groups       B-W       Shure AXT400 J12       B-AKG WMS4000 680         B-W       Shure AXT400 J55       B-AKG WMS4000 780         Update       B-W       Shure AXT400 J55       B-AKG WMS4000 780         B-W       Shure AXT400 J54       B-AKG WMS4000 780         B-W       Shure AXT400 J54       B-AKG WMS4000 835         B-W       Shure AXT400 J54       B-AKG WMS400 835         B-W       Shure AXT400 J54       B-AKG WMS400 835         B-W       Shure AXT400 J54       B-AKG WMS400 835         B-W       Shure AXT400 J54       B-AKG WMS450 B1         B-W       Shure AXT400 L20       B-AKG WMS450 B5-A         B-W       Shure AXT400 L34       B-AKG WMS450 B5-A         B-W       Shure AXT400 L34       B-AKG WMS450 B7						
Devices       B-Z       Shure AXT400 G1HK       B-AKG DMS800 B2         Devices list       B-Z       Shure AXT400 H12       B-AKG IVM4 IEM 500         Update       B-Z       Shure AXT400 H12       B-AKG IVM4 IEM 720         Devices list       B-Z       Shure AXT400 H4       B-AKG IVM4 IEM 720         Update       B-Z       Shure AXT400 H4       B-AKG IVM4 IEM 720         Devices Group       B-Z       Shure AXT400 H4E       B-AKG IVM4 IEM 720         Devices groups       B-Z       Shure AXT400 J5       B-AKG VMS4000 650         Devices groups       B-Z       Shure AXT400 J5       B-AKG VMS4000 720         Devices groups       B-Z       Shure AXT400 J5       B-AKG VMS4000 760         B-Z       Shure AXT400 J5K       B-AKG VMS4000 750       B-Z         B-Z       Shure AXT400 J5K       B-AKG VMS400 035       B-AKG VMS400 835         B-Z       Shure AXT400 J5K       B-AKG VMS450 B1       B-Z         B-Z       Shure AXT400 J2K       B-AKG VMS450 B1       B-Z         B-Z       Shure AXT400 J3K       B-AKG VMS450 B5-C       B-Z         B-Z       Shure AXT400 L3A       B-AKG VMS450 B5-C       B-Z         B-Z       Shure AXT400 L3A       B-AKG VMS450 B7       B-Z <t< td=""><td>itartup / Global</td><td></td><td></td><td>T</td><td></td><td></td></t<>	itartup / Global			T		
Devices       B-Z       Shure AXT400 G7C       B- AKG IVM4 IEM 500         Devices list       B-Z       Shure AXT400 H12       B- AKG IVM4 IEM 570         Update       B-Z       Shure AXT400 H4       B- AKG IVM4 IEM 720         B-Z       Shure AXT400 H4       B- AKG IVM4 IEM 720         B-Z       Shure AXT400 H4       B- AKG IVM4 IEM 720         B-Z       Shure AXT400 H4E       B- AKG IVM4 IEM 720         B-Z       Shure AXT400 H4E       B- AKG IVM4 IEM 720         Devices Group       B-Z       Shure AXT400 J12       B- AKG VMS4000 650         Devices groups       B-Z       Shure AXT400 J5       B- AKG VMS4000 720         Devices groups       B-Z       Shure AXT400 J5E       B- AKG VMS4000 720         Devices groups       B-Z       Shure AXT400 J5E       B- AKG VMS4000 730         Update       B-Z       Shure AXT400 J5K       B- AKG VMS400 730         B-Z       Shure AXT400 J5K       B- AKG VMS450 B1       B- AKG VMS450 B1         B-Z       Shure AXT400 J5K       B- AKG VMS450 B5-A       B- Z         B-Z       Shure AXT400 L3A       B- AKG VMS450 B5-C       B- Z         B-Z       Shure AXT400 L3A       B- AKG VMS450 B5-C       B- Z         B-Z       Shure AXT400 L3A				T		
Devices       Shure AXT400 H12       B: AKG I/M4 IEM 570         Devices list       Shure AXT400 H18       B: AKG I/M4 IEM 570         Update       Shure AXT400 H4       B: AKG I/M4 IEM 720         Devices Group       Shure AXT400 H4E       B: AKG VM4 IEM 730         Devices groups       Shure AXT400 H4HK       B: AKG VMS4000 650         Devices groups       Shure AXT400 J55       B: AKG VMS4000 680         Update       Shure AXT400 J55       B: AKG VMS4000 720         Devices groups       Shure AXT400 J5E       B: AKG VMS4000 835         Update       Shure AXT400 J5K       B: AKG VMS4000 835         E: M Shure AXT400 J5K       B: AKG VMS4000 835       B: AKG VMS450 B1         B: Mise AXT400 J5K       B: AKG VMS450 B2       B: Mise AXT400 L3A       B: AKG VMS450 B5-C         B: Mise AXT400 L3A       B: AKG VMS450 B5-C       B: Mise AXT400 L3A       B: AKG VMS450 B5-C         B: Management       Shure AXT400 M3BX       B: AKG VMS450 B1       B: AKG VMS450 B1         B: Mise AXT400 M3BX       B: AKG VMS450 B1       B: AKG VMS450 B2       B: AKG VMS450 B2         B: Mise AXT400 L3A       B: AKG VMS450 B5-C       B: Mise AXT400 M3BX       B: AKG VMS450 B2         B: Mise AXT400 M3BX       B: AKG VMS450 B1       B: AKG VMS4500 B2       B: AKG VMS4500 B2				T		
Devices list       Shure AXT400 H18       G: AKG I/M4 IEM 720         Update       Shure AXT400 H4       G: AKG I/M4 IEM 720         Devices Group       Shure AXT400 H4E       G: AKG I/M4 IEM 835         Devices groups       Shure AXT400 J12       G: AKG WMS4000 650         Update       Shure AXT400 J5       G: AKG WMS4000 720         Devices groups       Shure AXT400 J5       G: AKG WMS4000 760         Update       Shure AXT400 J5E       G: AKG WMS4000 780         TX Power       Shure AXT400 J5HK       G: AKG WMS4000 835         Adjust Influence       Shure AXT400 L20       G: AKG WMS450 B1         Shure AXT400 L20       G: AKG WMS450 B3       G: AKG WMS450 B3         Shure AXT400 L3       G: AKG WMS450 B5-A       G: AKG WMS450 B5         Shure AXT400 L3       G: AKG WMS450 B5       G: AKG WMS450 B5         Shure AXT400 L3       G: AKG WMS450 B7       G: AKG WMS450 B7         Shure AXT400 L3       G: AKG WMS450 B7       G: AKG WMS450 B7         Shure AXT400 M324       G: AKG WMS450 B7       G: AKG WMS450 B7         Shure AXT400 M324       G: AKG WMS4500 B1       G: AKG WMS4500 B1         Shure AXT400 P8       G: AKG WMS4500 B5-A       G: AKG WMS4500 B5-A         G: Management       Shure AXT400 P8       G: AKG WMS4500 B1	vices			T		
Update       Image: Construct of the expectation	evices list					
Upuale       Image: Construction of the second						
Devices Group	Ipdate					
Devices Group				T		
Devices Group       BØ       Shure AXT400 J5       BAKG V/MS4000 720         Devices groups       BØ       Shure AXT400 J5A       BAKG V/MS4000 760         Update       BØ       Shure AXT400 J5E       BAKG V/MS4000 790         TX Power       BØ       Shure AXT400 JBX       BAKG V/MS400 835         Adjust Influence       BØ       Shure AXT400 JBX       BAKG V/MS450 B1         License       BØ       Shure AXT400 L3       BAKG V/MS450 B5-A         BØ       Shure AXT400 L3       BAKG V/MS450 B5-C         License Management       Shure AXT400 L3HK       BAKG V/MS450 B7         BØ       Shure AXT400 L3HK       BAKG V/MS450 B7         BØ       Shure AXT400 L3HK       BAKG V/MS450 B7         BØ       Shure AXT400 M8       BAKG V/MS450 B7         BØ       Shure AXT400 R16       BAKG V/MS450 B1				T		
Devices groups       BX       Shure AXT400 J5A       BAKG V/MS4000 760         Update       BX       Shure AXT400 J5E       BAKG V/MS4000 780         Image: Shure AXT400 J5HK       BAKG V/MS4000 835       BAKG V/MS4000 835         Image: Shure AXT400 J5HK       BAKG V/MS400 835       BAKG V/MS400 835         Image: Shure AXT400 J5HK       BAKG V/MS450 B1       BAKG V/MS450 B2         Image: Shure AXT400 L3       BAKG V/MS450 B3       BAKG V/MS450 B3         Image: Shure AXT400 L3       BAKG V/MS450 B5-A       BAKG V/MS450 B5-C         Image: Shure AXT400 L3       BAKG V/MS450 B6       BX         Image: Shure AXT400 L3HK       BAKG V/MS450 B7       BX         Image: Shure AXT400 L3HK       BAKG V/MS450 B7       BX         Image: Shure AXT400 M8       BAKG V/MS450 B1       BX         Image: Shure AXT400 M8       BAKG V/MS450 B1       BX         Image: Shure AXT400 P8       BAKG V/MS4500 B3       BX         Image: Shure AXT400 Q5       BAKG V/MS4500 B5-A       BX       BX	evices Group	Bure AXT400 J5				
Update       BX       Shure AXT400 J5E       BAKG V/MS4000 790         Image: Shure AXT400 J5HK       BAKG V/MS4000 835       BAKG V/MS4000 835         Image: Shure AXT400 J5HK       BAKG V/MS400 835       BAKG V/MS400 835         Image: Shure AXT400 J5HK       BAKG V/MS400 835       BAKG V/MS400 835         Image: Shure AXT400 L20       BAKG V/MS450 83       BAKG V/MS450 83         Image: Shure AXT400 L3A       BAKG V/MS450 85-C       BAKG V/MS450 86         Image: Shure AXT400 L3A       BAKG V/MS450 87       BAKG V/MS450 87         Image: Shure AXT400 L3HK       BAKG V/MS450 87       BAKG V/MS450 87         Image: Shure AXT400 L3HK       BAKG V/MS450 87       BAKG V/MS450 87         Image: Shure AXT400 L3HK       BAKG V/MS450 87       BAKG V/MS450 87         Image: Shure AXT400 R16       BAKG V/MS450 81       BAKG V/MS450 83         Image: Shure AXT400 P3       BAKG V/MS4500 83       BAKG V/MS4500 83         Image: Shure AXT400 Q5       BAKG V/MS4500 84       BAKG V/MS4500 85-A         Image: Shure AXT400 Q5       BAKG V/MS4500 85-A       BAKG V/MS4500 85-A         Image: Shure AXT400 Q5HK       BAKG V/MS4500 86       BAKG V/MS4500 86         Image: Shure AXT400 Q5HK       BAKG V/MS4500 87       BAKG V/MS4500 86	evices groups	Bure AXT400 J5A				
Image: Shure AXT400 J5HK       Image: AKG V/MS4000 835         Image: Shure AXT400 JBX       Image: AKG V/MS400 835         Image: Shure AXT400 JBX       Image: AKG V/MS400 835         Image: AKG V/MS400 835       Image: AKG V/MS400 85-A         Image: AKG V/MS400 835       Image: AKG V/MS400 87         Image: AKG V/MS400 835       Image: AKG V/MS400 87         Image: AKG V/MS400 835       Image: AKG V/MS400 83         Image: AKG V/MS400 83       Image: AKG V/MS400 83         Image: AKG V/MS400 83       Image: AKG V/MS400 83         Image: AKG V/MS400 84       Image: AKG V/MS400 84         Image: AKG V/MS400 84	ladata .			T		
TX Power       Adjust Influence       Adjust Influence       AKG WMS450 B2         Adjust Influence       Shure AXT400 L20       AKG WMS450 B3         Shure AXT400 L3A       AKG WMS450 B5-A         Shure AXT400 L3E       AKG WMS450 B6         Shure AXT400 L3E       AKG WMS450 B7         Shure AXT400 M8       AKG WMS450 B7         Shure AXT400 M8       AKG WMS450 B8         Shure AXT400 M8       AKG WMS450 B1         Shure AXT400 M3EX       AKG WMS450 B1         Shure AXT400 M3EX       AKG WMS450 B1         Shure AXT400 M3EX       AKG WMS4500 B1         Shure AXT400 P3       AKG WMS4500 B2         Shure AXT400 P3       AKG WMS4500 B3         Shure AXT400 Q5       AKG WMS4500 B5-A         Shure AXT400 Q5       AKG WMS4500 B5-C         Shure AXT400 Q5       AKG WMS4500 B5-C         Shure AXT400 Q5       AKG WMS4500 B5-C         Shure AXT400 Q5       AKG WMS4500 B6         Shure AXT400 Q5       AKG WMS4500 B6         Shure AXT400 R16       AKG WMS4500 B7	puare	Shure AXT400 J5HK				
Adjust Influence       Image: Shure AXT400 L20       Image: AKG WMS450 B3         Adjust Influence       Image: Shure AXT400 L3A       Image: AKG WMS450 B5-A         Image: Shure AXT400 L3E       Image: AKG WMS450 B6         Image: Shure AXT400 L3E       Image: AKG WMS450 B7         Image: Shure AXT400 L3E       Image: AKG WMS450 B7         Image: Shure AXT400 L3HK       Image: AKG WMS450 B7         Image: Shure AXT400 M8       Image: AKG WMS450 B7         Image: Shure AXT400 M3       Image: AKG WMS450 B7         Image: Shure AXT400 M3EX       Image: AKG WMS450 B7         Image: Shure AXT400 M3EX       Image: AKG WMS450 B2         Image: Shure AXT400 M3EX       Image: AKG WMS450 B2         Image: Shure AXT400 P3       Image: AKG WMS4500 B2         Image: Shure AXT400 P3       Image: AKG WMS4500 B3         Image: Shure AXT400 Q5       Image: AKG WMS4500 B5-A         Image: Shure AXT400 Q5       Image: AKG WMS4500 B5-C         Image: Shure AXT400 Q5       Image: AKG WMS4500 B5-C         Image: Shure AXT400 Q5       Image: AKG WMS4500 B6         Image: Shure AXT400 Q5       Image: AKG WMS4500 B6 </td <td></td> <td>Shure AXT400 JBX</td> <td></td> <td>AKG WMS450 B1</td> <td></td> <td></td>		Shure AXT400 JBX		AKG WMS450 B1		
Adjust Influence       BMS Shure AXT400 L20       BAKG WMS450 B3         Adjust Influence       BØ Shure AXT400 L33       BAKG WMS450 B5-C         BØ Shure AXT400 L3E       BAKG WMS450 B6         BØ Shure AXT400 L3E       BAKG WMS450 B7         License       BØ Shure AXT400 L3HK       BAKG WMS450 B7         BØ Shure AXT400 L3HK       BAKG WMS450 B7         BØ Shure AXT400 M3       BAKG WMS450 B7         BØ Shure AXT400 M3       BAKG WMS450 B1         BØ Shure AXT400 M3EX       BAKG WMS450 B2         BØ Shure AXT400 P8       BAKG WMS4500 B3         BØ Shure AXT400 P3       BAKG WMS4500 B4         BØ Shure AXT400 Q10A       BAKG WMS4500 B4         BØ Shure AXT400 Q5       BAKG WMS4500 B5-A         BØ Shure AXT400 Q5       BAKG WMS4500 B5-C         BØ Shure AXT400 Q5       BAKG WMS4500 B6         BØ Shure AXT400 Q5HK       BAKG WMS4500 B6         BØ Shure AXT400 R16       BAKG WMS4500 B7	(D	Shure AXT400 K4E		- AKG WMS450 B2		
License Management  Shure AXT400 L3A  Shure AXT400 L3E  Shure AXT400 L3E  Shure AXT400 L3HK  AKG WMS450 B6  AKG WMS450 B7  AKG WMS450 B1  AKG WMS450 B1  AKG WMS4500 B1  AKG WMS4500 B2  AKG WMS4500 B2  AKG WMS4500 B2  AKG WMS4500 B3  AKG WMS4500 B3  AKG WMS4500 B4  AKG WMS4500 B4  AKG WMS4500 B4  AKG WMS4500 B4  AKG WMS4500 B5-A  AKG WMS4500 B5-C  AKG W	Power	Shure AXT400 L20				
License Management  Shure AXT400 L3E  AKG WMS450 B6  AKG WMS450 B7  AKG WMS450 B1  AKG WMS450 B1  AKG WMS450 B1  AKG WMS450 B1  AKG WMS4500 B1  AKG WMS4500 B2  AKG WMS4500 B2  AKG WMS4500 B3  AKG WMS4500 B3  AKG WMS4500 B4  AKG WMS4500 B4  AKG WMS4500 B4  AKG WMS4500 B5-A  AKG WMS4500 B5-A  AKG WMS4500 B5-C  AKG WMS4500 B5-C  AKG WMS4500 B6  AKG WMS4500 B6  AKG WMS4500 B7  AKG WMS4500 B7  AKG WMS4500 B5-A  AKG WMS4500 B5-A	djust Influence	Shure AXT400 L3				
License Management  Shure AXT400 L3HK  Shure AXT400 M8  Shure AXT400 M8  AKG WMS450 B7  AKG WMS450 B1  AKG WMS4500 B1  AKG WMS4500 B1  AKG WMS4500 B2  AKG WMS4500 B2  AKG WMS4500 B2  AKG WMS4500 B3  AKG WMS4500 B4  AKG WMS4500 B5-A  AKG WMS4500 B5-A  AKG WMS4500 B5-A  AKG WMS4500 B5-C  AKG WMS4500 B6  AKG WMS4500 B6  AKG WMS4500 B7		Shure AXT400 L3A		AKG WMS450 B5-C		
License Management  Shure AXT400 M8  Shure AXT400 MA24  AKG VMS4500 B1  AKG VMS4500 B1  AKG VMS4500 B2  AKG VMS4500 B2  AKG VMS4500 B3  AKG VMS4500 B3  AKG VMS4500 B4  AKG VMS4500 B4  AKG VMS4500 B4  AKG VMS4500 B5  AKG VMS4500 B5-A  AKG VMS4500 B5-A  AKG VMS4500 B5-A  AKG VMS4500 B5-C  AKG VMS4500 B6  AKG VMS4500 B6  AKG VMS4500 B7  AKG VMS4500 B7		Shure AXT400 L3E		AKG WMS450 B6		
License Management	ense	Shure AXT400 L3HK		AKG WMS450 B7		
Image: Shure AX1400 MJ24       Image: AKI WMS4500 B1         Image: Shure AX1400 MJBX       Image: AKI WMS4500 B2         Image: Shure AX1400 P8       Image: AKI WMS4500 B3         Image: Shure AX1400 P9       Image: AKI WMS4500 B4         Image: Shure AX1400 Q10A       Image: AKI WMS4500 B5-A         Image: Shure AX1400 Q5       Image: AKI WMS4500 B5-C         Image: Shure AX1400 Q5       Image: AKI WMS4500 B6         Image: Shure AX1400 Q5       Image: AKI WMS4500 B6         Image: Shure AX1400 Q5       Image: AKI WMS4500 B6         Image: Shure AX1400 R16       Image: AKI WMS4500 B7				I AKG WMS450 B8		
Image: Shure AXT400 P8       Image: AKG WMS4500 B3         Image: Shure AXT400 P9       Image: AKG WMS4500 B4         Image: Shure AXT400 Q10A       Image: AKG WMS4500 B5-A         Image: Shure AXT400 Q5       Image: AKG WMS4500 B5-C         Image: Shure AXT400 Q5HK       Image: AKG WMS4500 B6         Image: Image: Shure AXT400 Q5HK       Image: AKG WMS4500 B6         Image: Image: Image: Shure AXT400 R16       Image: AKG WMS4500 B7	icense Management	Shure AXT400 MA24				
Image: Shure AXT400 P9         Image: AKG VMMS4500 B4           Image: Shure AXT400 Q10A         Image: AKG VMMS4500 B5-A           Image: Shure AXT400 Q5         Image: AKG VMMS4500 B5-C           Image: Shure AXT400 Q5HK         Image: AKG VMMS4500 B6           Image: Image: Shure AXT400 Q5HK         Image: AKG VMMS4500 B6           Image: Image: Image: Shure AXT400 R16         Image: AKG VMMS4500 B7		Shure AXT400 MJBX				
Shure AXT400 Q10A     AKG WMS4500 B5-A     Shure AXT400 Q5     Shure AXT400 Q5     Shure AXT400 Q5     Shure AXT400 Q5HK     Shure AXT400 Q5HK     Shure AXT400 R16     AKG WMS4500 B7		im ✓ Shure AXT400 P8		AKG WMS4500 B3		
Shure AXT400 Q5     Shure AXT400 Q5     Shure AXT400 Q5HK     Shure AXT400 Q5HK     Shure AXT400 Q5HK     Shure AXT400 R16     AKG WMS4500 B6     AKG WMS4500 B7		im ✓ Shure AXT400 P9		AKG WMS4500 B4		
Shure AXT400 Q5HK     Shure AXT400 R16     AKG WMS4500 B6     AKG WMS4500 B7		🗄 🗹 Shure AXT400 Q10A		AKG WMS4500 B5-A		
Shure AXT400 R16				AKG WMS4500 B5-C		
				AKG WMS4500 B6		
		⊡… Shure AXT400 R16				
Additional Devices Present in Open File only Differences Present in				E. ALC: MMC/EOO DO		

#### 10.7 Devices group

EazyRF version 4 now offers the ability to create device groups.

A device group can contain an unlimited number of variable or fixed frequency devices. The number of devices of each type is definable. In addition, the number of frequencies of each device is changeable and the value of each frequency can be entered manually (in an existing environment).

Let's see how to manage these groups.

	Add Edit Delete Duplicate	Save Cancel
General	Conversion Antiversion Name	Devices:
TV Chnls - NTSC	Group: Active - Name	Devices.
Frequencies Type		⊕ Audio-Technica M3 IEM E
	H BTR-800 A3 (2)	
Startup / Global	⊞  BTR-800 A4 (2)	⊕ Audio-Technica M3 IEM L
	⊞  BTR-800 B3 (2)	⊕ Audio-Technica M3 IEM M
		🗄 🔄 beyerdynamic TG 1000 A
Devices	H BTR-800 B6 (2)	
Devices list	⊞	🗄 🔄 beyerdynamic TG 1000 B
Update	⊞	
opulie	⊞	beyerdynamic TG 1000 D
Devices Group		
Devices groups		
Update		⊞      BTR-800 A2 TX #2
		⊞
TX Power		⊞      BTR-800 A4 RX
		⊞ BTR-800 A4 TX
Adjust Influence		
icense		
License Management		
-		
		田 BTR-800 C4 TX     田
		⊞ BTR-800 C6 RX
		⊞ BTR-800 F1 RX

The list on the left contains all defined device groups. The list on the right contains the list of system devices (variable and fixed devices).

To add a device to a group just select it in the list on the right:

🕀 🗹 BTR-800 A2 (2)	🗄 🗹 BTR-800 A2 RX
	🗄 🗹 BTR-800 A2 TX

Management of the list on the left is done with these commands:

Add	Edit	Delete	Duplicate
			- opine and

To change the number of devices or frequencies, double-click on the device name:

- 🗸	Théâtre ABC (4)
	BTR-800 F1 RX
	BTR-800 F1 TX
	IFB Lectrosonics T4-R1a, Block 19
	Shure Axient J5

What calls the editor:

Define Devi	ice	x
	Shure Axient J5 578.000 - 638.000 MHz	
	Devices Nbr: 1	
Dev No 1		
Desc:		
Free	quencies Nbr: 4 ◆	
<	Delete device	
	OK Cancel	

When the number of devices is greater than 1, to decrease the quantity of device, it is necessary to select one of the devices by moving with the left arrows right and to use the command "Delete Device":

Define Devicel*
Shure Axient J5 578.000 - 638.000 MHz
Devices Nbr: 2
Dev No 2
Desc:
Frequencies Nbr:         2           1         -           2         -           -         -
Delete device
OK Cancel

To set frequencies manually, simply enter the desired frequencies:

	_
vicel*	
Shure Axient J5 578.000 - 638.000 MHz	
Devices Nbr: 1	
1	
1         2         581.250         3         4         >	
Delete device OK Cancel	
	578.000 - 638.000 MHz Devices Nbr: 1

-

When frequencies are set manually, EazyRF does not calculate the frequencies of this device when the group is added.

#### 10.8 Devices group – Update

Like the device list, the device group list can be updated from a device group file. A hyperlink allows to go on the website for additional groups.

Options - Update Groups Devices	s List - BTR-800.grp			×
General TV Chnls - NTSC Frequencies Type Startup / Global Devices Devices list Update Devices Group	Open File Update □> BTR-800 F1 (2) □> BTR-800 F2 (2) □> BTR-800 F3 (2) □-> BTR-800 F4 (2) □-> BTR-800 H1 (2) □-> BTR-800 H2 (2) □-> BTR-800 H3 (2) □-> BTR-800 H4 (2)	Clear Selection	<ul> <li>BTR-800 A2 (2)</li> <li>BTR-800 A3 (2)</li> <li>BTR-800 A4 (2)</li> <li>BTR-800 B3 (2)</li> <li>BTR-800 B4 (2)</li> <li>BTR-800 B4 (2)</li> <li>BTR-800 B6 (2)</li> <li>BTR-800 C3 (2)</li> <li>BTR-800 C3 (2)</li> <li>BTR-800 C4 (2)</li> <li>BTR-800 C6 (2)</li> <li>BTR-800 E88 (2)</li> <li>Théâtre ABC (4)</li> </ul>	Save Cancel
Devices groups Update TX Power Adjust Influence				
License Management				
Additional Devices Groups	Present in Open File only	Differ	ences	Present in Base only
Sel: 8 / 8 Dev Grp   11 Grp Basic De	v			

The update works like that of the devices.

The differences between the two lists are displayed with different colors. The device groups present only in the open list are in red, the device groups in the system list only are brown. A device group in both lists but with different settings is displayed in blue. The groups of identical devices in the two lists are not displayed in the list on the left for a little more clarity.

The contents of the parameters can be examined by opening the device details (+).

Device groups in the open file can be selected individually before updating. By default, when you open a file, the groups that are not in the base list are selected.

Finally, you must complete the operation with the Save command.

The update can only be done from the open file to the list of the system, never in the other direction.

## **10.9 Additional Devices Groups**

This command allows you to import device group lists from the EazyRF website and open it in the "Devices Group - Update" module:

ame	Date 🔻	⊟ BTR-800 B3	-
Groups (examples)		⊞ BTR-800 B3 RX     ⊞ BTR-800 B3 TX	
héâtre DEF.grp	10/12/19 06:03:24		
TR-800.grp	09/12/19 07:10:59		
		■ BTR-800 B4 TX	
		BTR-800 B6	
		BTR-800 C3	
		BTR-800 C3 RX	
		□ BTR-800 C6	
		⊟ BTR-800 E88	
		i BTR-800 E88 RX	
		i BTR-800 E88 TX	
		⊨ BTR-800 F1	
		BTR-800 F1 RX	
		i⊞ BTR-800 F1 TX	
		i⊒ BTR-800 F2	
		i⊟ BTR-800 F3	
			•

This module works like "Add-On Devices", the "Add" command is the same as opening a file (section 10.8).

# 10.10 TX Power – Adjust Influence

General TV Chnls - NTSC	Define the influence of trans	mit power on Tolerance of	Frequency:	
Frequencies Type Startup / Global	Power	Influence Tolerance 2 TX	Influence Tolerance 3 TX	Influence Tolerance 5 TX
Devices	Level 1 Normal (1-50 mw)	0 kHz	0 kHz	0 kHz
Devices list Update	Level 2 Medium (51-150 mw)	25 kHz	25 kHz	0 kHz
Update	Level 3 High (151-400 mw)	75 kHz	50 kHz	25 kHz
Devices Group	Level 4 Very high (> 400 mw)	125 kHz	75 kHz	50 kHz
Update	Values used on new docume	ent only		
TX Power Adjust Influence				
License				
License Management				
				Default
				Save

This option allows to define the influence of the transmit power level:

The power level of a transmitter influences a receiver.

To understand the effects of the power, let us take a small example. If the Tolerance (2 TX, 3 TX or 5th order) of a device is set at 50 kHz, this means that all the intermodulations of 50 kHz and more on both sides of the carrier will be tolerated. If one of the frequencies causing this intermodulation at 50 kHz is due to a carrier of stronger power, its effect on the reception can thus be perceptible.

To take care of these effects, EazyRF allows to add an automatic correction to the calculations of intermodulations if one of the carriers who caused this tolerated intermodulation is of stronger power.

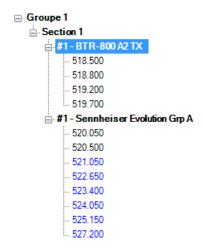
The power was separated in four categories: Normal (1-50 mW), Medium (51-100 mW), High (151-400 mW) and Very High (more than 400 mW).

For each level, simply set a different correction for Tolerance 2 TX, 3 TX and 5 TX (5th order).

The normal level has no correction. The higher the level, the greater the influence will be marked.

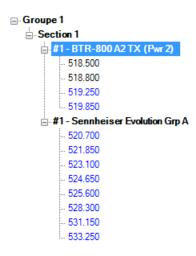
Note that this modification in one of the Tolerances has not the same effect as if made directly to a receiver, because at this time it is all the frequencies of the device that will be affected, not only those of higher power level.

Let's take a small example:

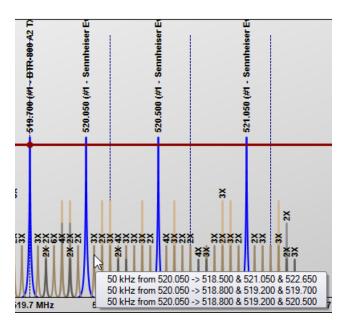


One BTR and one Evolution in the same frequency region.

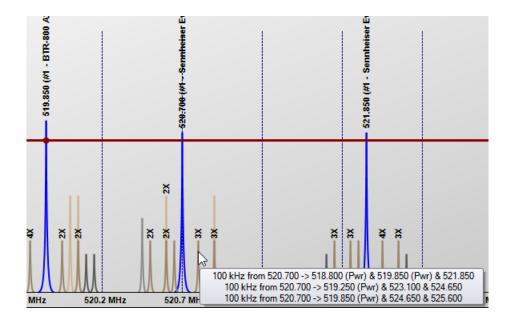
With the power of TX of BTR set to level 2, the frequencies obtained are:



For the BTR-800, the power change gives the same results as if we change the parameters of tolerance for the device. For Evolution, the result is not the same. Before the change, the carriers of the BTR adds 3rd order intermodulation at 50 kHz (default value):

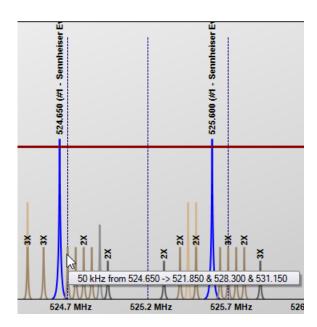


After modification of the power of the BTR we obtain:



518.500 and 518.800 two frequency of the BTR cannot create any more IM in 50 kHz on the Evolution because the automatic adjustment of its effect of TX power prevents the other devices from being perturbed by those of the BTR WITHOUT CHANGING the Tolerance of the Evolution.

If we look the intermodulations of the Evolution:



The frequencies of the Evolution (with its Tolerance to 50 kHz) influences it as intended. While the BTR has a superior influence because of its power and the effect of automatic adjustment.

We absolutely cannot recreate this effect by adjusting the tolerance of Evolution.

For each document, the parameters of TX Power can be adjusted separately by the Local Options (section 2.3).

In Global and Detailed Views, if a device has a transmit power level higher than normal, an indicator appears:



Warning: the parameters of influences of tolerance are global to a document, so if you copy a device from one document to another one, the device will take values of the document where it is pasted.

#### **10.11 License Management**

This option takes care of the management of a license file. If this menu does not appear in the Options, it is because you have an active license file.

A license file is tied to the hardware configuration (computer components). Thus, a license is valid for one and only one computer.

Using the USB remains the most flexible method, without any hardware limit.

There are two methods of creating a license file: by purchasing a new license on the website or by renewing as needed. Both methods are automated from a server that emails you a license file automatically when requesting a license file.

## 10.11.1 Purchase of a new license

After purchasing a license on the website <u>eazyrf.com</u>, you will receive an email to confirm your order. With the purchase of a license on USB key, you are entitled to a license file as well.

Remember that the license file is linked to the hardware configuration, so it is compatible with one and only one computer.

So you will receive an email confirming your purchase with the license number assigned to your name and email address, names provided during the PayPal transaction:

# EazyRF V4

#### Frequencies calculation software for RF equipment

Hi Nouveau\_client,

Your payment has been received. Thanks.

Here is your license number linked to the email address: 0000-0000-0000-0000-0000 usager@email.com

First, you need to install EazyRF from the installation file: EazyRF V4.

After installation, start EazyRF and accept to do the proposed update, otherwise you will not be able to continue.

If you have purchased more than one license or if your email address is not that one of the user, do not continue the installation and contact me regis@eazyrf.com

To enter your license number and your e-mail address, use the Options/License Management commands and click on "License request".

An email will be sent to the license file creation server. You should receive an email at the address provided with the license file attached.

You just have to copy the EazyRF.license file in the EazyRF installation directory, ie C:\Program Files (x86)\EazyRF V4. Restart EazyRF to activate your license.

If you have purchased a USB key, shipping details will be sent to you as soon as possible.

The invoice will be sent to you by email.

If you have any questions, do not hesitate to contact me regis@eazyrf.com

Best regards. Regis

PS. This email was sent by an automated system that does not read incoming messages.

Thereafter, you just need to enter the license number in EazyRF, Options / License Management:

tions - Manage License		
General TV Chnls - SECAM Frequencies Type Startup / Global	License button	azyRF can be activated via a license file. To apply, click the Request a and an email will be sent to eazyrf.com. You will receive a valid a single system configuration.
Devices Devices list	Hardware ID:	A1BE-6BA3-3187-B757-C969 (A1BE-5D40-3187-2919-2CAC)
Update	License No:	KR 60
Devices Group Devices groups Update	Your Email: Username:	regis@eazyrf.com EazyRF License Request
TX Power Adjust Influence		
License Management		

After entering the license number, the email address and username will be displayed automatically from the information obtained by PayPal. You can change the username and email address. Click on "Request License". An email will be sent to the entered address with a license file attached:



#### Frequencies calculation software for RF equipment

Hi Nouveau\_client,

You will find your license file attached for the serial number: 0000-0000-0000-0000-0000-0000

You just have to copy the EazyRF.license file in the EazyRF installation directory, ie C:\Program Files (x86)\EazyRF V4. Restart EazyRF to activate your license.

If you have any questions, do not hesitate to contact me regis@eazyrf.com

Best regards. Regis

PS. This email was sent by an automated system that does not read incoming messages.

### 10.11.2 Renewal of a license

You can now request a new license file and receive it by email a few seconds later. If you have a USB key or a license file not assigned to the computer used, the license number will be displayed automatically. Your email address will only be displayed for those who have purchased a license via the previous procedure, so during future requests only.

tions - Manage License		
General TV Chnls - SECAM Frequencies Type Startup / Global	Request Licen	azyRF can now be activated via a license file. To apply, click the se button and an email will be sent to eazyrf.com. You will receive a le for a single system configuration.
Devices Devices list Update	Your Email:	A1BE-6BA3-3187-B757-C969 (A1BE-5D40-3187-2919-2CAC) regis@eazyrf.com
Devices Group Devices groups Update	No Licence: Username:	KR. 60 EazyRF License Request
TX Power Adjust Influence		
License License Management		

After installing EazyRF on a new computer, if you don't have a USB key, you must copy your old license file into the EazyRF installation directory (C:\Program Files (x86)\EazyRF V4) to validate your license number and username. The license number can only be validated for new customers. The email address can be changed but not the username.

**Warning**: This automatic renewal procedure comes with an important restriction; you can only request a new license file on different computers at a minimum interval of 30 days in order to avoid the multiplication of active licenses simultaneously. An old license will be automatically deactivated. On the same computer used for the creation of the last license, there are no renewal restrictions.

#### 10.11.3 Reactivating a license

If your license becomes inactive due to major changes to your system or expired, the license manager displays it to you if this situation arises. Then you have to make a license reactivation request via the manager:

	rill be sent to eazyrf.com. You will receive an email containing an e, copy it to the Activation area.
lardware ID: Your Email:	A681-2F49-88FF-3E74-A6D3
	Régis Banville: 2E10-I417-A43J-782Y-305L-400H Reactivation Request

A reactivation code will be sent by email. Just copy it into the activation box and click the "Activate License" button.

Warning: if you use a virtual environment (Parallels Desktop, VMware or VirtualBox), it is easy to change the hardware configuration and thus deactivate your license (pay attention to the CPU and motherboard).

Starting always prioritizes the USB key, then the license. If neither is present, the starting is made in demonstration copy mode with 20 frequencies.

To verify the mode used, check the About window.

Starting up by key:

Licence granted to: Régis Banville Serial Nb: 2E10-I417-A43J-782Y-305L-400H (USB key)

Starting up by license (hardware ID display):

Licence granted to: Régis Banville Serial Nb: 2E10-I417-A43J-782Y-305L-400H (A681-2F49-88FF-3E74-A6D3)

# 11 - Automatic Update EazyRF

At the starting up of EazyRF, if you are connected to internet, EazyRF verify on eazyrf.com site if started version is the last on-line version. If a new version is available, a message asks you if you want to install it:

EazyRF V3 Up	date		
The upda	-	507 (from 3.55.160225) is avai like to install it?	lable.
	Yes	No	

By accepting the update, the EazyRF window closes and the application update starts:

http://www.eazyrf.com/Update	4/Update 4.XX.zip	
Downloading http://www.eazyrf	.com/Update_4/Update 4.XX.zip	
	.com/Update_4/Update 4.XX.zip	
	.com/Update_4/Update 4.XX.zip	
Downloading http://www.eazyf File progress	.com/Update_4/Update 4.XX.zip	
File progress	.com/Update_4/Update 4.XX.zip	



Afterward EazyRF restarts and the update is completed.

The updates sometimes are minor, sometimes more important. If the update is more important, an e-mail is sent to the users to indicate it.

After an uninstallation of EazyRF, followed by a reinstallation from the EazyRF\_V4\_Setup.exe file (version 4.22 of EazyRF), an option is added during the first installation of the EazyRF update. It is thus permitted to delete the following data:

EazyRF Update						
EazyRF Reinstallation						
Choose the settings to reset to default values:						
Startup, global and document options						
Position and size of adjustable windows						
Directory for opening and saving data						
✓ Delete list of the last 20 documents opened						
Reset data Keep data						

EazyRF offers you the choice of erasing some sections of the data saved during previous executions of EazyRF, i.e. the data of the options at startup (default calculation mode, default tolerance, etc.), the position and size of the windows (the windows containing sample data are all of adjustable sizes), the data directory (document and sample files, TV channels, etc.) and the list of the last 20 documents opened.

Note that the device and device group files, as well as the EazyRF global TV channel selection are never deleted during an uninstallation because this data is precious and has been carefully modified.

# Appendix 1 – Reading IAS files

EazyRF can now read IAS version 5 files. Just open a document as usual:

File:		~
File type:	EazyRF - IAS (*.ezif3, *.ias)	~
	EazyRF (*.ezf3)	
	EazyRF - IAS (*.ezrf3, *.ias) IAS - Intermodulation Analysys System (*.ias) iEazyRF Pro - EazyRF Windows 8/10 (*.ezrf)	

By default EazyRF offers both file types, \*.ezrf3 and \*.ias. The selection made is saved for future use.

The IAS data read are:

- Zones, which become groups in partial evaluation without intermodulation calculations
- Assignments, which become sections
- Frequencies, which are grouped by device
- TV channels
- Sampling data
- Band 71 frequency exclusion zones only
- The activation of the global 2 TX and 3 TX intermodulations

New parameters are displayed in the global options for an IAS document type only:

