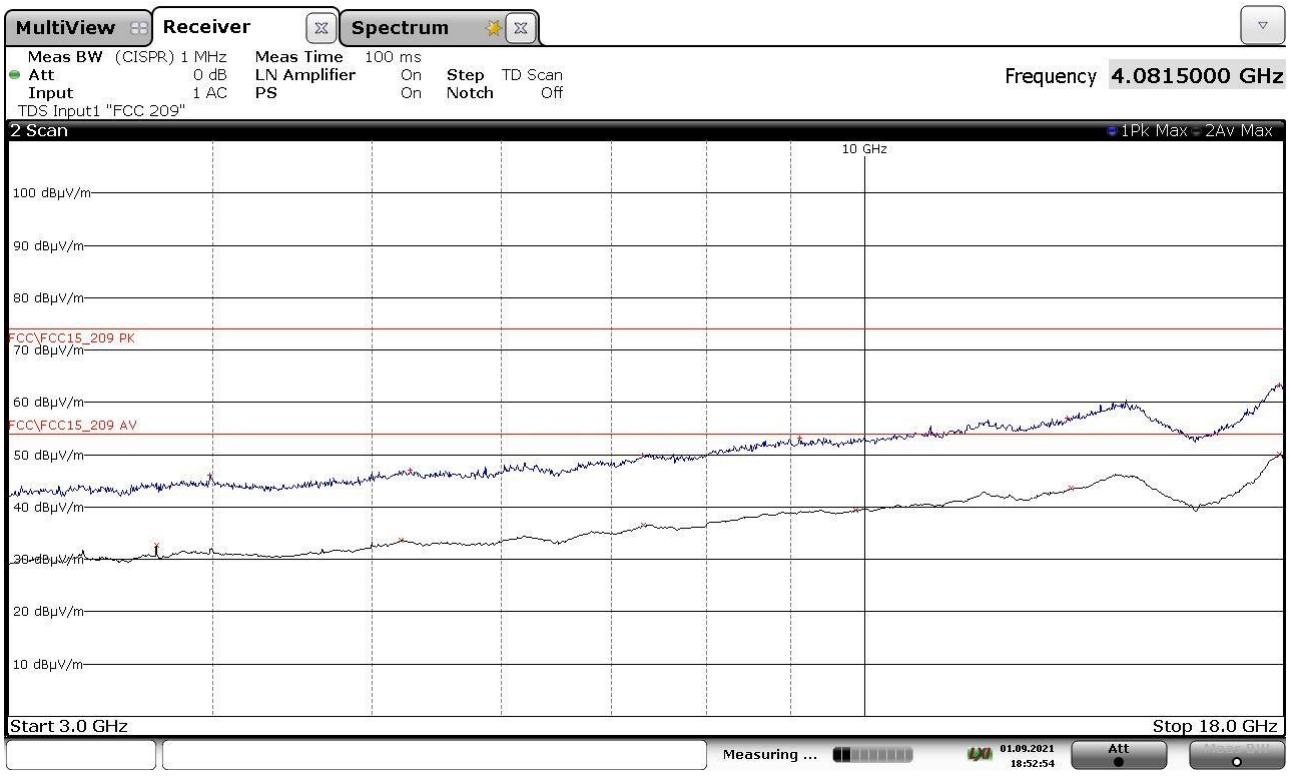
De Rosso 21184020 N horiz 3m ch11 mod N

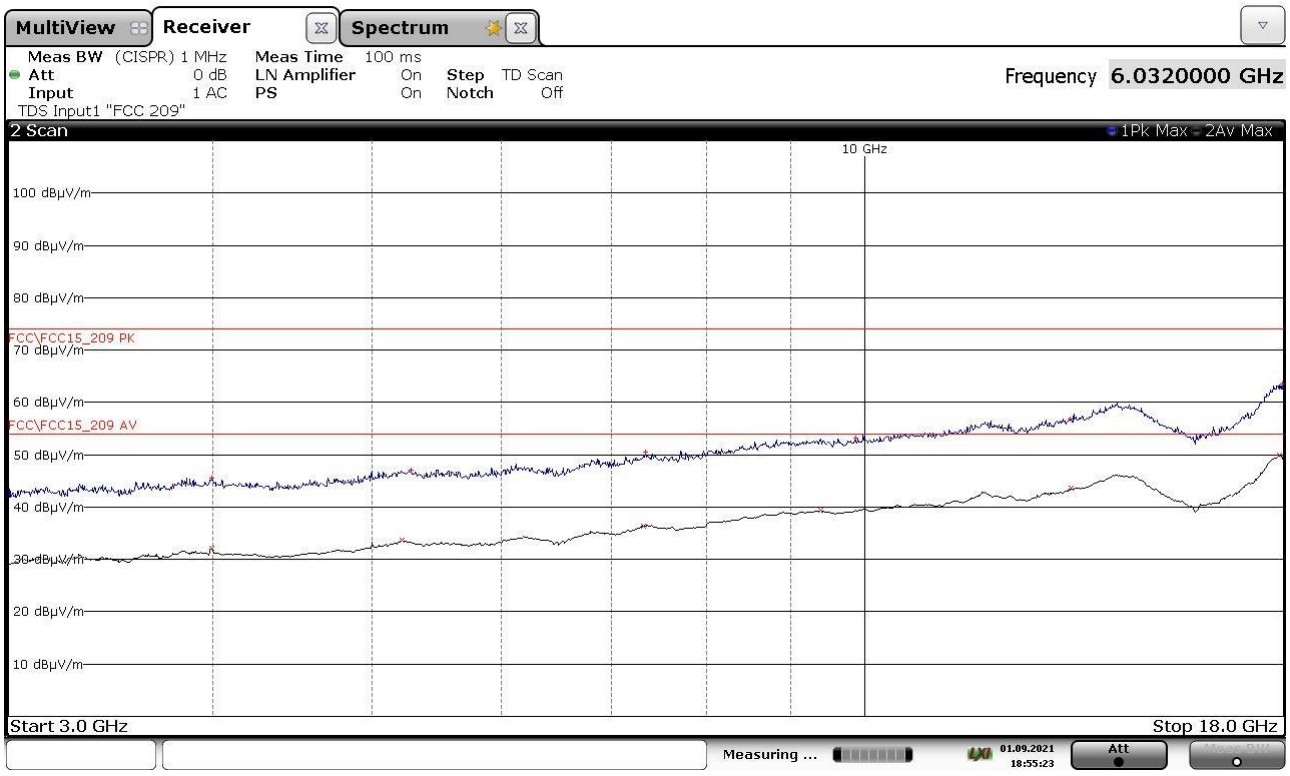


FINAL RESULT TABLE

MAX PEAK			AVERAGE		
Freq Hz	Lev dBuV/m	Margin dB	Freq Hz	Lev dBuV/m	Margin dB
3982250000	+46,13	-27,85	3693000000	+32,73	-21,25
5278000000	+47,14	-26,84	5212250000	+33,68	-20,30
7315000000	+49,88	-24,10	7322250000	+36,47	-17,51
9118000000	+53,23	-20,75	9870750000	+39,45	-14,53
13279000000	+56,97	-17,01	13350250000	+43,60	-10,38
17908250000	+63,29	-10,69	17910000000	+50,13	-3,85

21184020_2

De Rosso 21184021N vert 3m ch11 mod N

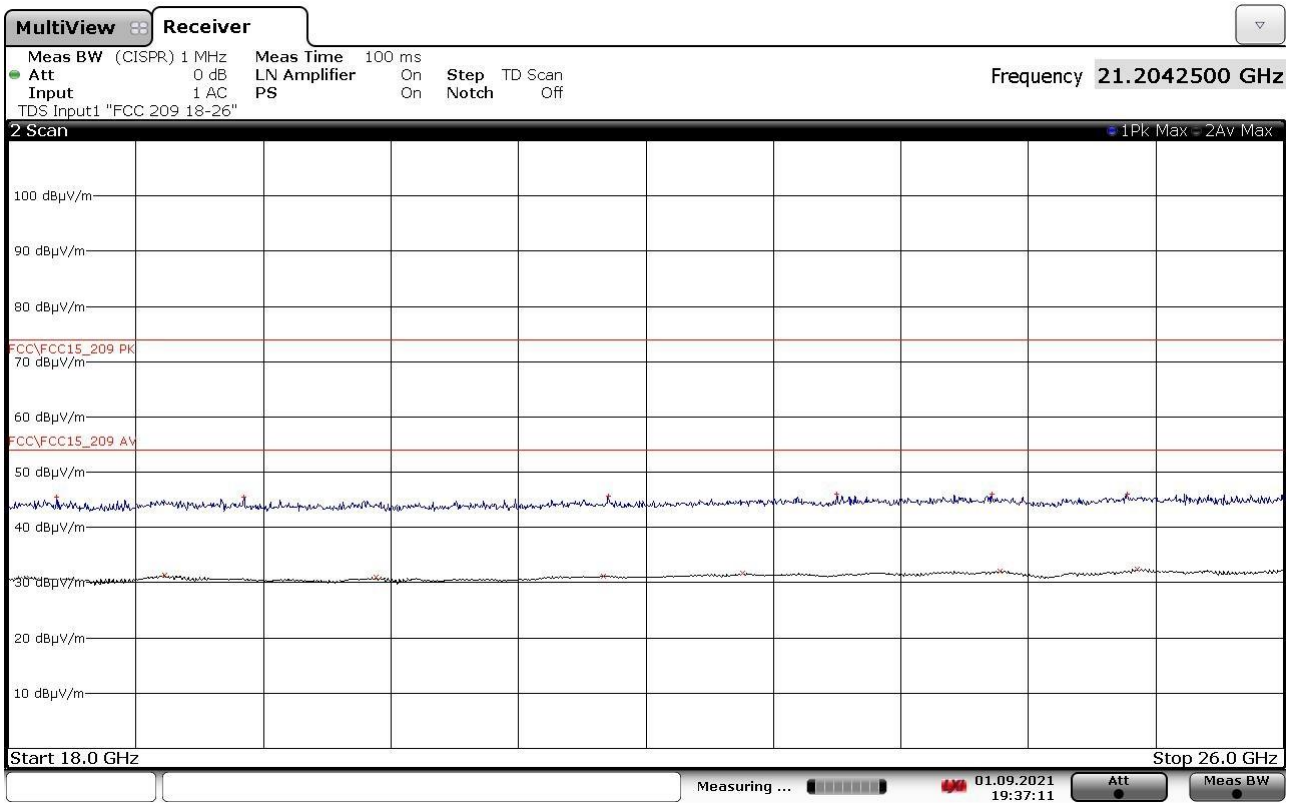


FINAL RESULT TABLE

MAX PEAK			AVERAGE		
Freq Hz	Lev dBuV/m	Margin dB	Freq Hz	Lev dBuV/m	Margin dB
3992250000	+45,49	-28,49	3992500000	+32,05	-21,93
5282250000	+47,00	-26,98	5213000000	+33,64	-20,34
7344000000	+50,45	-23,53	7324500000	+36,39	-17,59
9863250000	+53,11	-20,87	9390250000	+39,39	-14,59
13333250000	+56,89	-17,09	13350000000	+43,53	-10,45
17964500000	+63,46	-10,52	17910000000	+50,01	-3,97

21184021_2

De Rosso 21184022N horiz 3m ch11 mod N

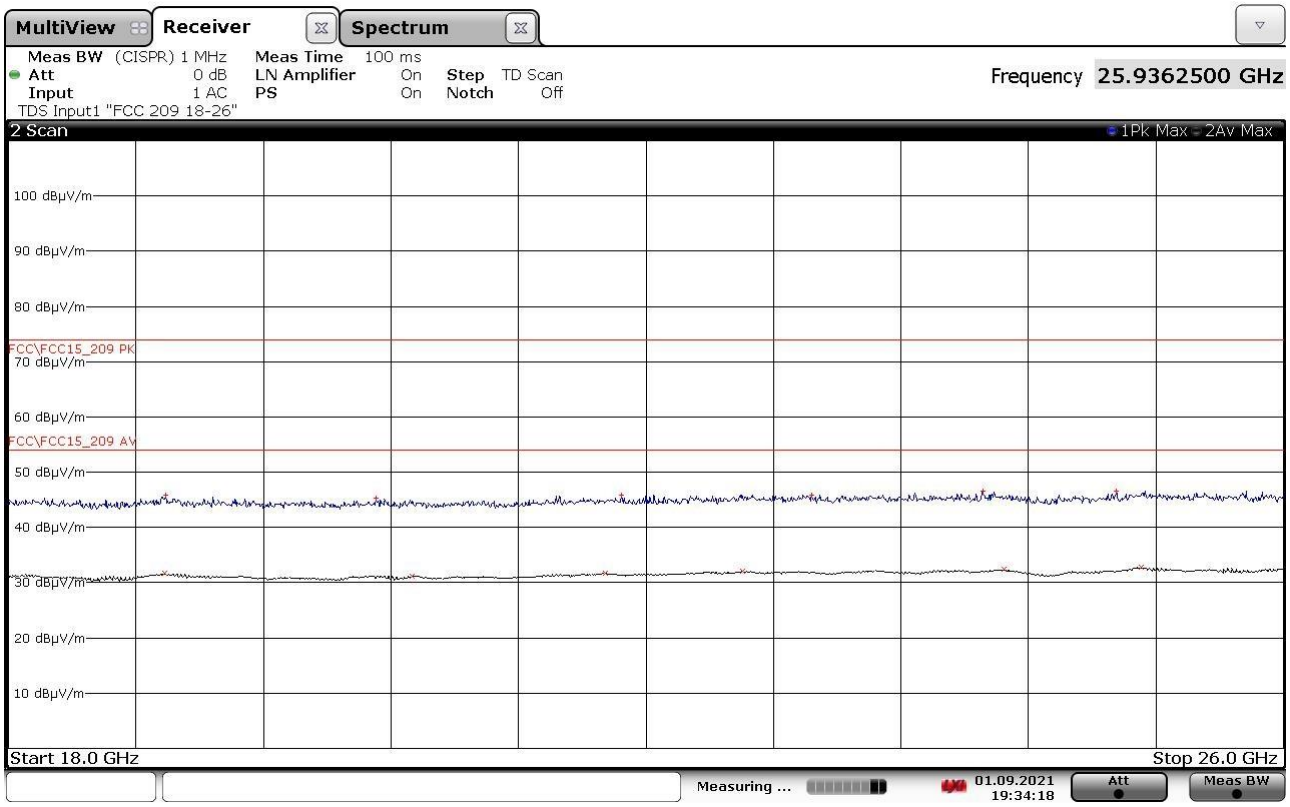


FINAL RESULT TABLE

MAX PEAK			AVERAGE		
Freq Hz	Lev dBuV/m	Margin dB	Freq Hz	Lev dBuV/m	Margin dB
18303000000	+45,42	-28,56	18978500000	+31,32	-22,66
19479250000	+45,56	-28,42	20306250000	+30,94	-23,04
21761500000	+45,74	-28,24	21735750000	+31,25	-22,73
23199250000	+45,96	-28,02	22606250000	+31,69	-22,29
24170000000	+46,11	-27,87	24221000000	+32,14	-21,84
25017750000	+46,11	-27,87	25080500000	+32,50	-21,48

21184022_2

De Rosso 21184023N vert 3m ch11 mod N



FINAL RESULT TABLE

MAX PEAK			AVERAGE		
Freq Hz	Lev dBuV/m	Margin dB	Freq Hz	Lev dBuV/m	Margin dB
18988750000	+45,84	-28,14	18981750000	+31,65	-22,33
20306250000	+45,35	-28,63	20533500000	+31,23	-22,75
21845500000	+45,88	-28,10	21748250000	+31,70	-22,28
23037750000	+45,93	-28,05	22606750000	+32,11	-21,87
24111750000	+46,62	-27,36	24248250000	+32,38	-21,60
24952500000	+46,54	-27,44	25106750000	+32,74	-21,24

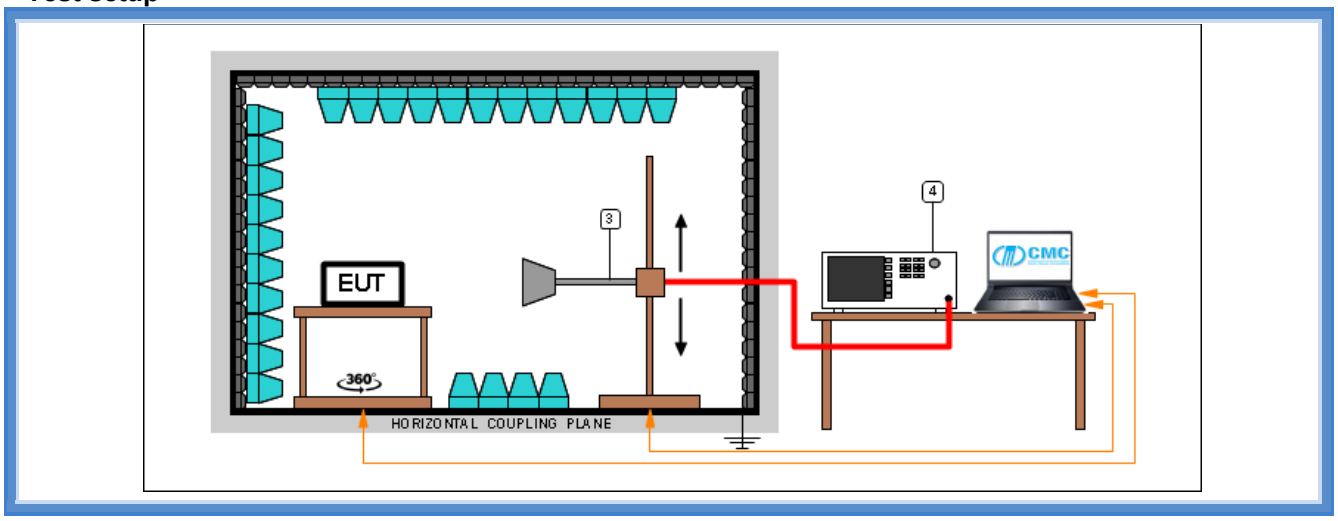
21184023_2

9.4 DTS bandwidth

Tested by ..... :	F. De Rosso
Test date ..... :	07.09.2021
Test location (stand) ..... :	Semi-anechoic chamber (CMC A070)
Reference standards ..... :	FCC Rules and Regulation; Titles 47 Part 15.247 (a) (2) ANSI C63.10 cl. 11.8 KDB 558074 D01 DTS Meas Guidance v05r02 cl. 8.2
Supplementary test set-up description ..... :	--
Supplementary information..... :	--

Acceptance limits
Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz

Test setup



Test setup PE004_04				
Nr.	*Id. Number*	*Manufacturer*	*Model*	*Description*
4	CMC S353	Rohde & Schwarz	ESW26	EMI Test Receiver 1 Hz - 26.5 GHz
3	CMC S108	Emco	3115	Waveguide antenna

Result – WiFi mode B

Frequency (MHz)	*Graphs*	*6 dB bandwidth (kHz)*	*Minimum 6 dB bandwidth allowed (kHz)*	*Results*
2412	G21184028B	9,541	500	Complies
2442	G21184035B	9,190	500	Complies
2462	G21184040B	8,492	500	Complies

Result – WiFi mode G

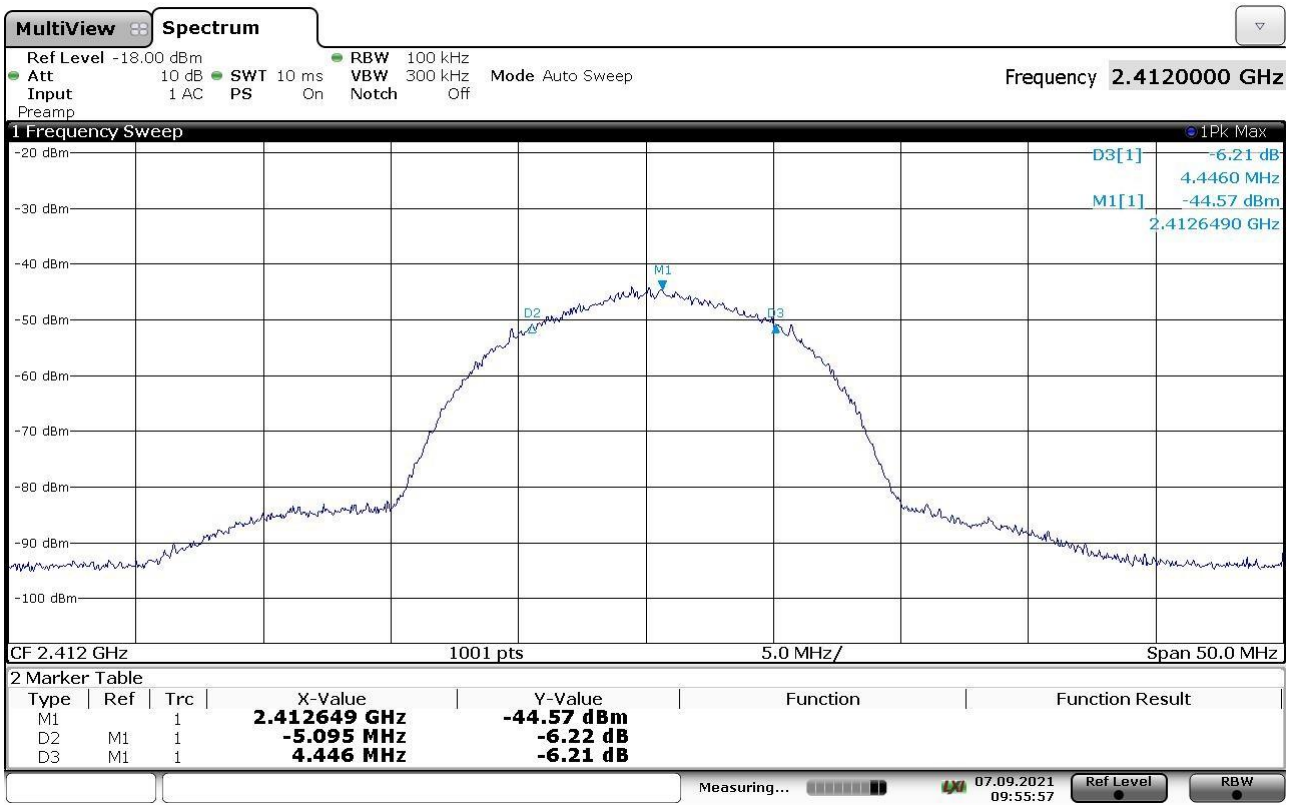
Frequency (MHz)	*Graphs*	*6 dB bandwidth (kHz)*	*Minimum 6 dB bandwidth allowed (kHz)*	*Results*
2412	G21184028G	16,334	500	Complies
2442	G21184035G	16,430	500	Complies
2462	G21184040G	16,034	500	Complies

Result – WiFi mode N

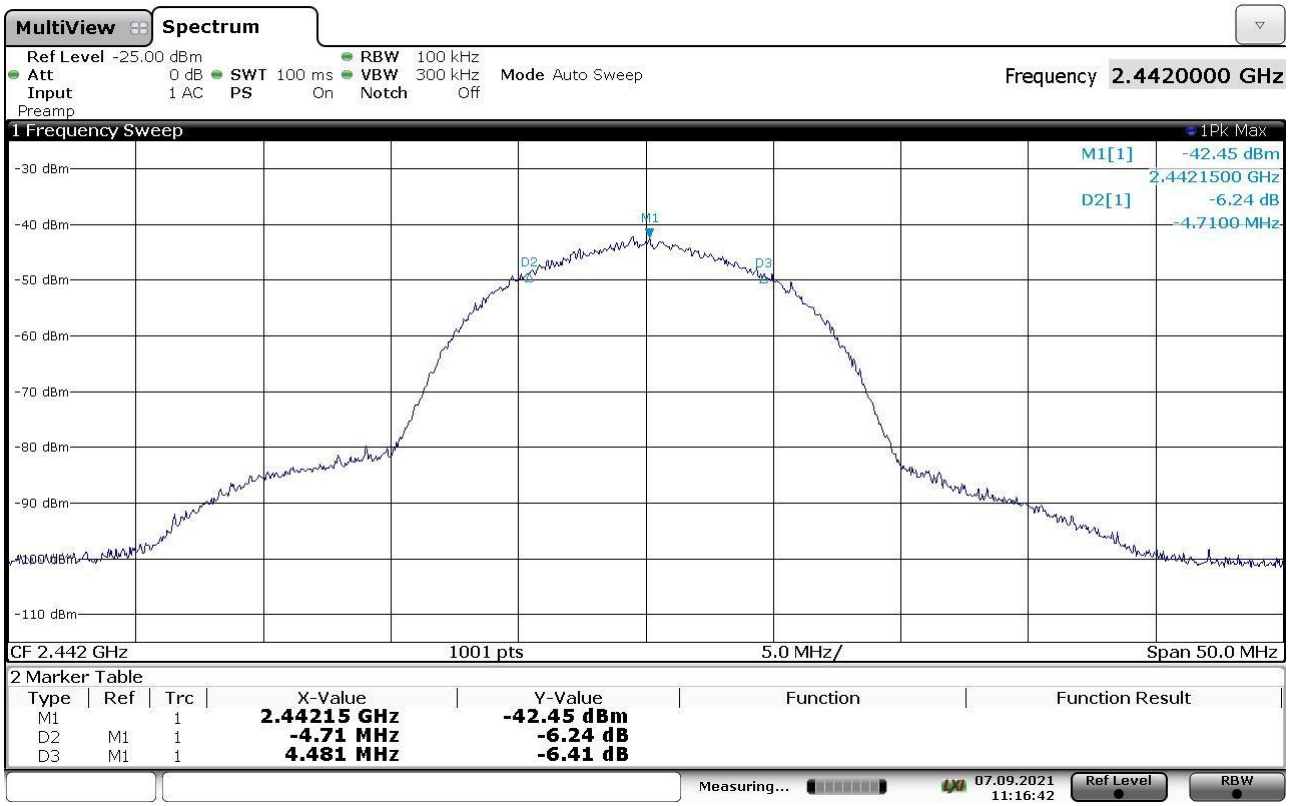
Frequency (MHz)	*Graphs*	*6 dB bandwidth (kHz)*	*Minimum 6 dB bandwidth allowed (kHz)*	*Results*
2412	G21184028N	17,533	500	Complies
2442	G21184035N	17,183	500	Complies
2462	G21184040N	16,384	500	Complies

Graphs

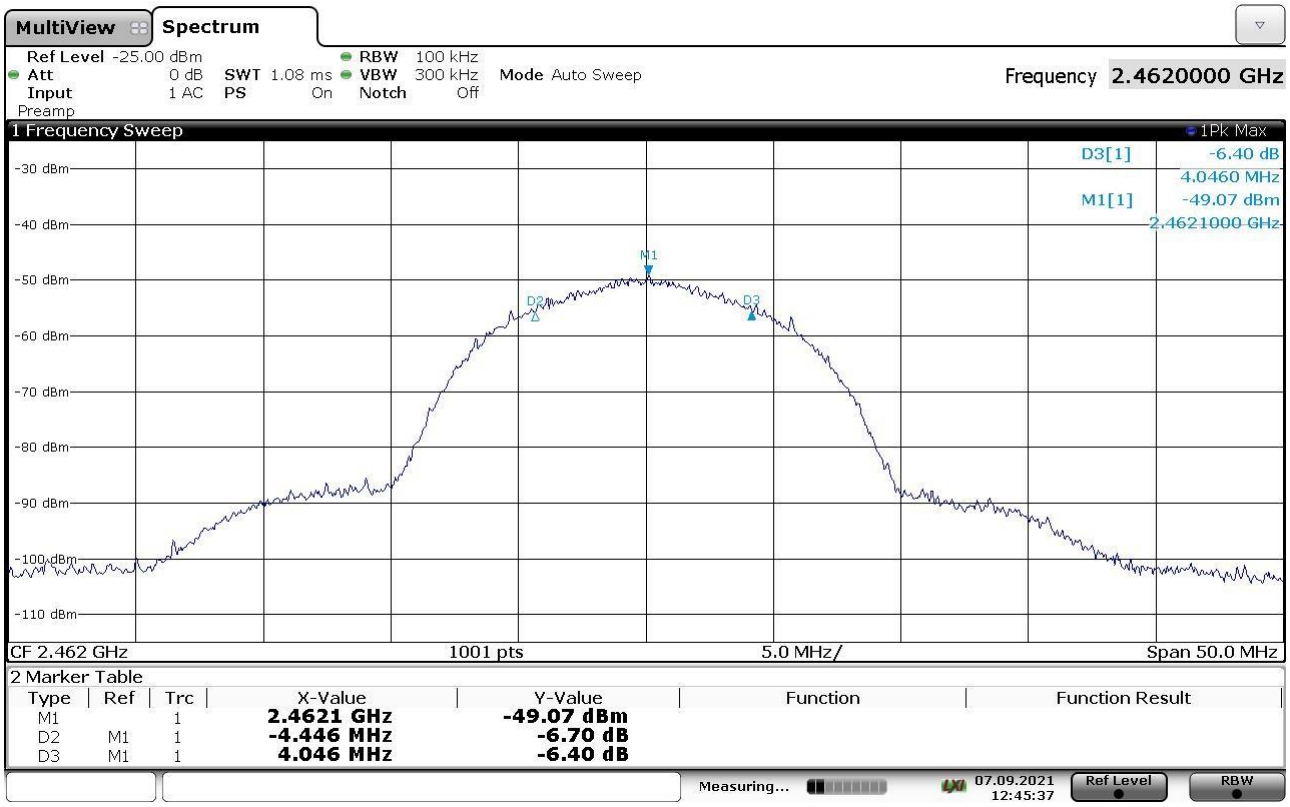
De Rosso 21184028B ch1 mod B



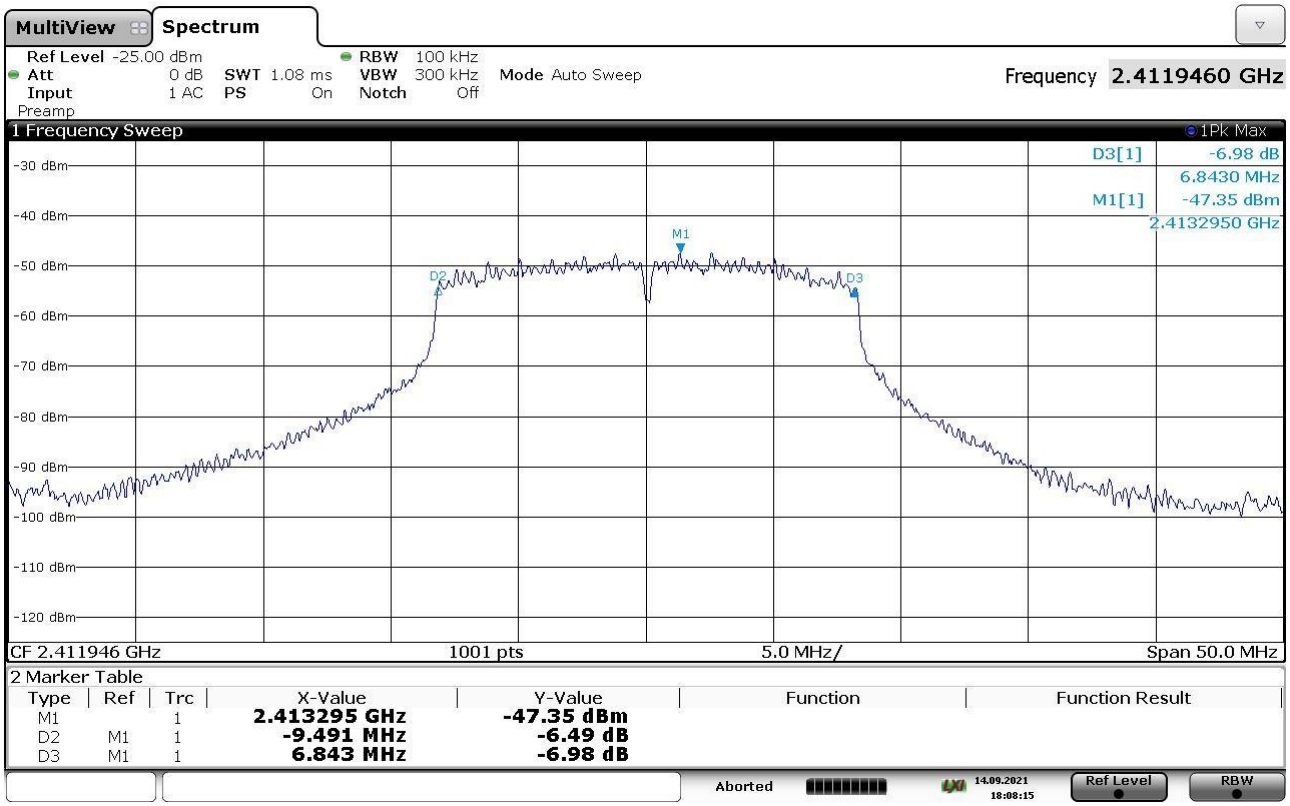
De Rosso 21184035B ch7 mod B



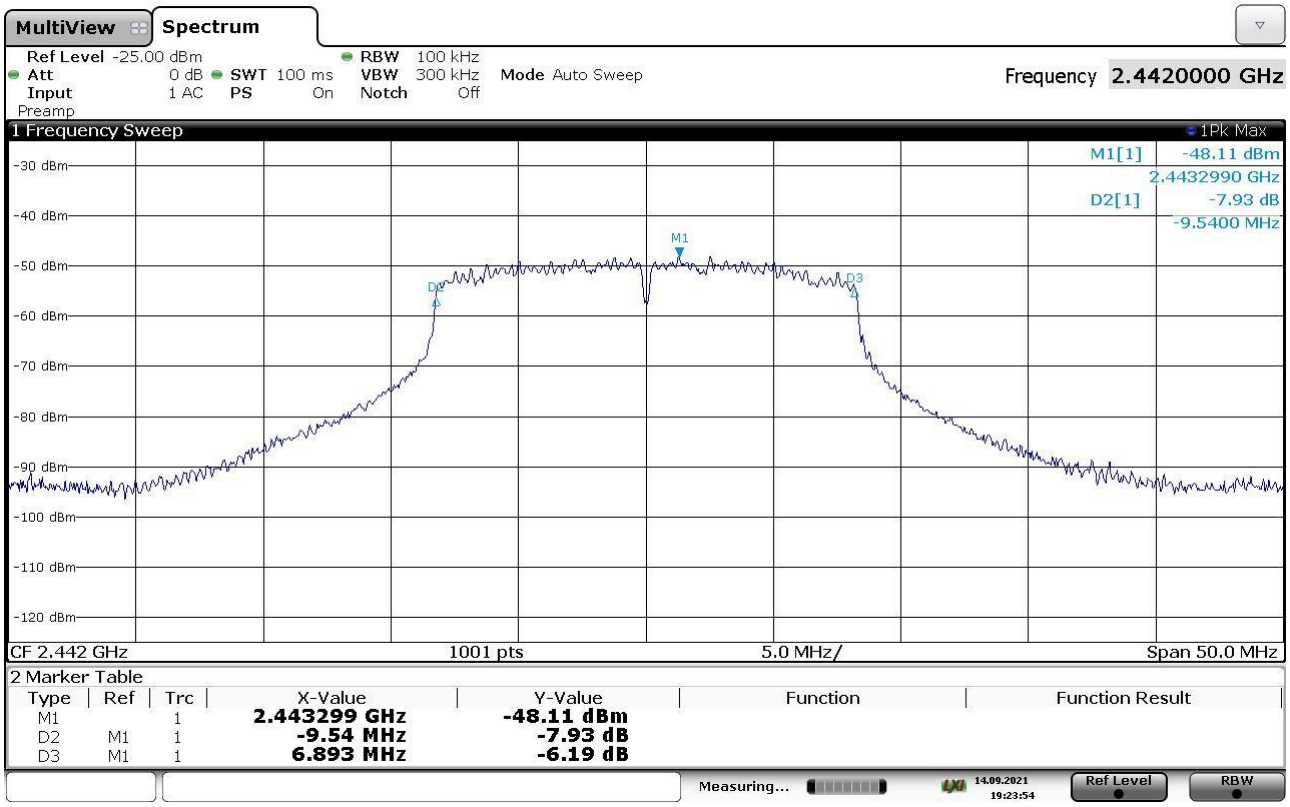
De Rosso 21184040B ch11 mod B



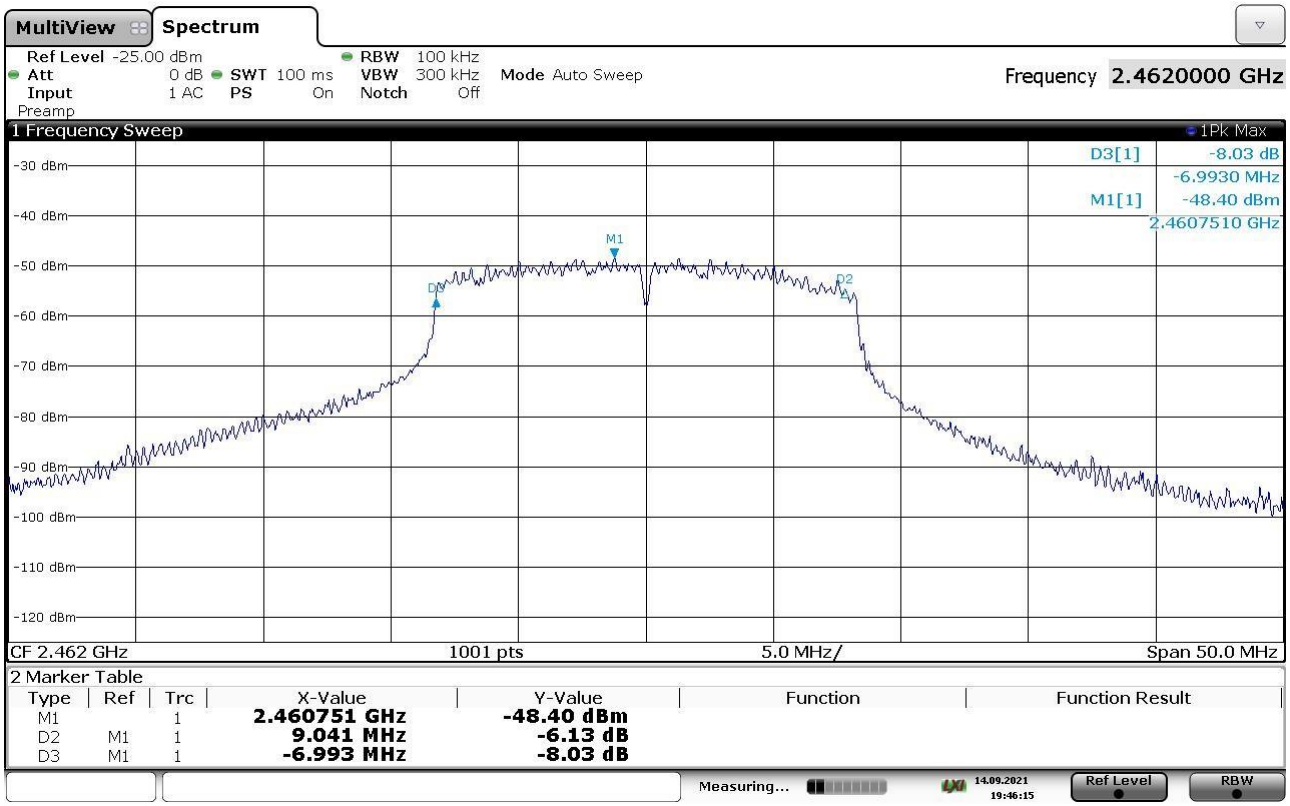
De Rosso 21184028G ch1 mod G



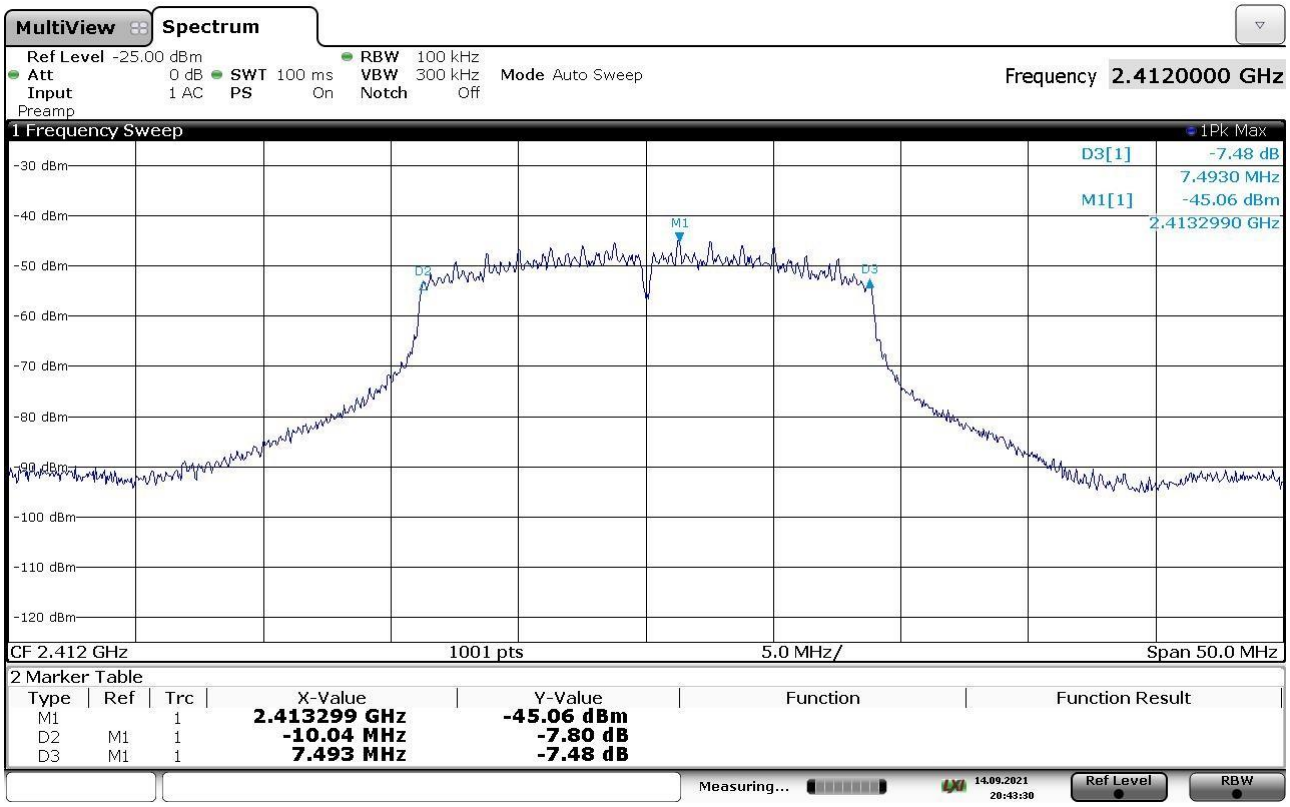
De Rosso 21184035G ch7 mod G



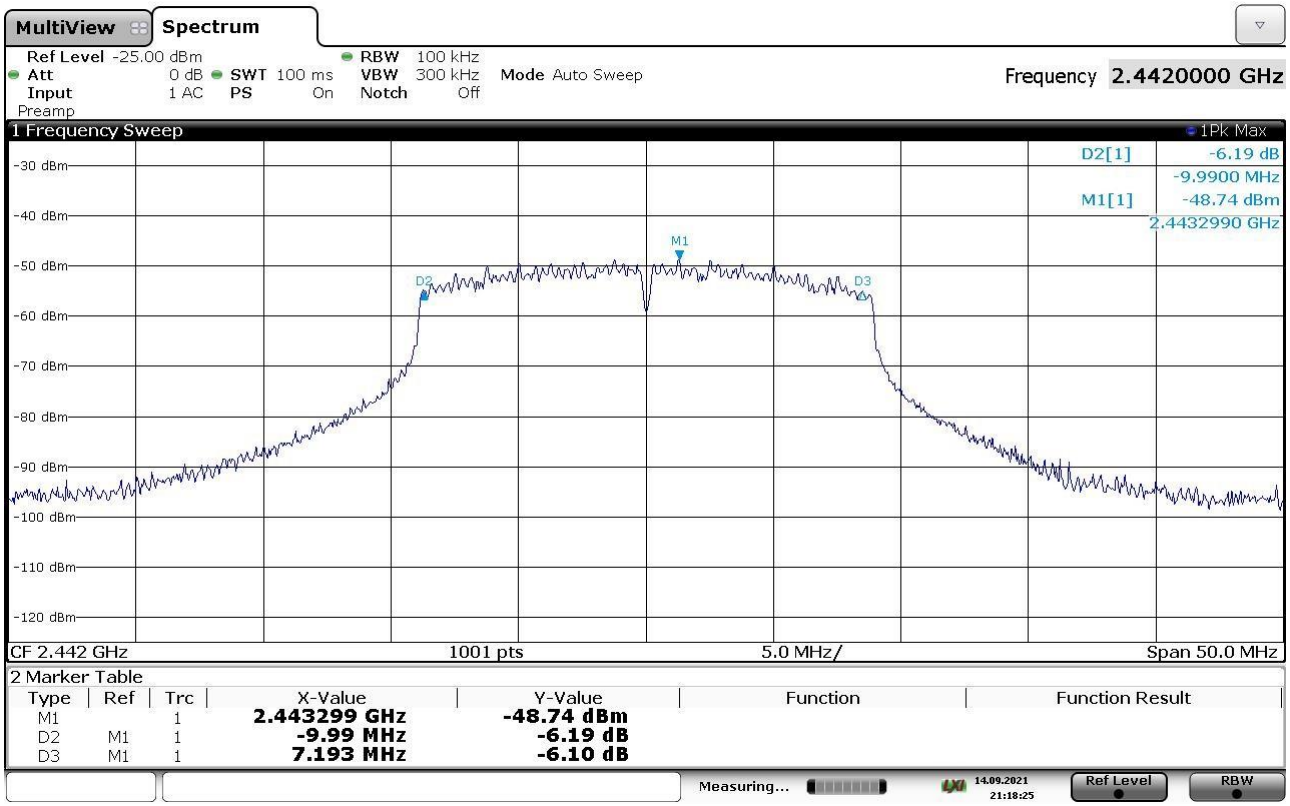
De Rosso 21184040G ch11 mod G



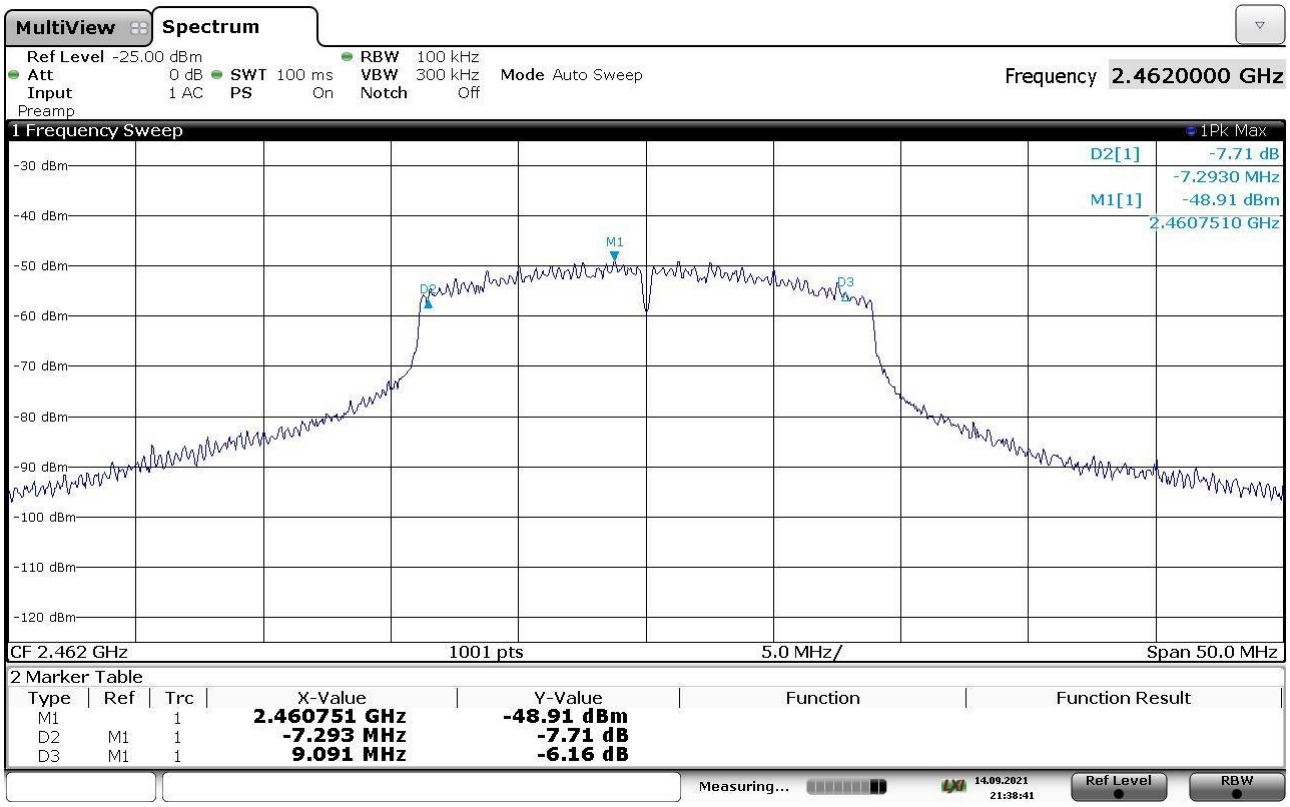
De Rosso 21184028N ch1 mod N



De Rosso 21184035N ch7 mod N



De Rosso 21184040 N ch11 mod N

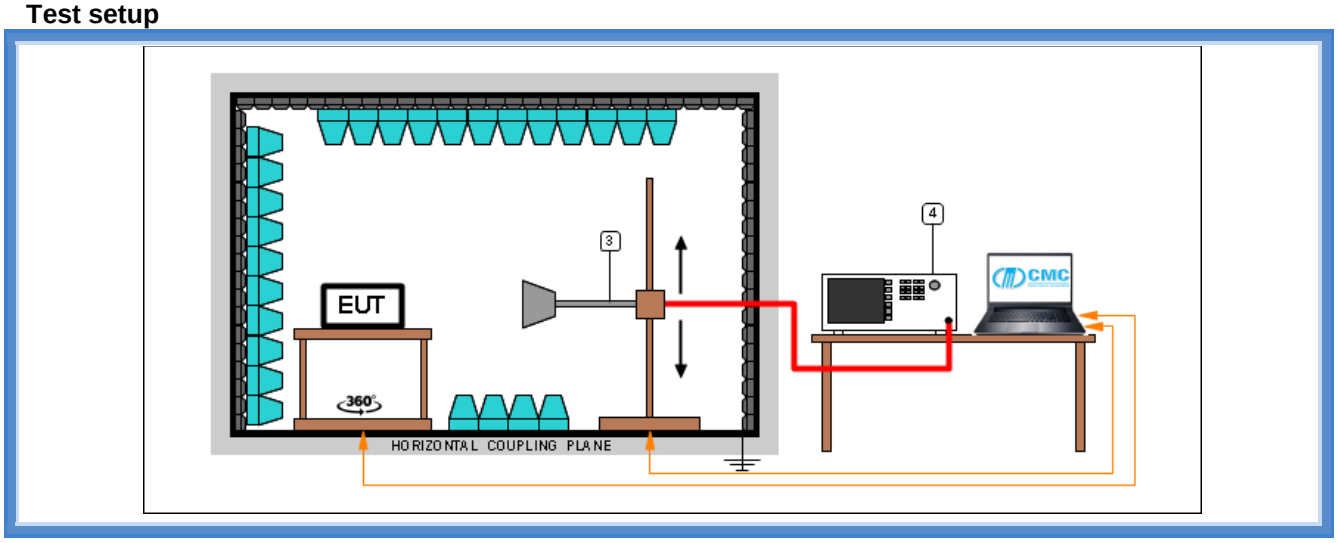


9.5 20 dB bandwidth

Tested by ..... :	F. De Rosso
Test date ..... :	07.09.2021
Test location (stand) ..... :	Semi-anechoic chamber (CMC A070)
Reference standards ..... :	FCC Rules and Regulation; Titles 47 Part. 15.215 (c) ANSI C63.10 cl. 7.8.7
Supplementary test set-up description ..... :	--
Supplementary information..... :	--

Acceptance limits
Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated

Test setup



Test setup PE004_04				
Nr.	*Id. Number*	*Manufacturer*	*Model*	*Description*
4	CMC S353	Rohde & Schwarz	ESW26	EMI Test Receiver 1 Hz - 26.5 GHz
3	CMC S108	Emco	3115	Waveguide antenna

Result – WiFi mode B

Frequency (MHz)	*Graphs*	*20 dB bandwidth (MHz)*
2412	G21184029B	15,884
2442	G21184036B	16,084
2462	G21184041B	16,234

Result – WiFi mode G

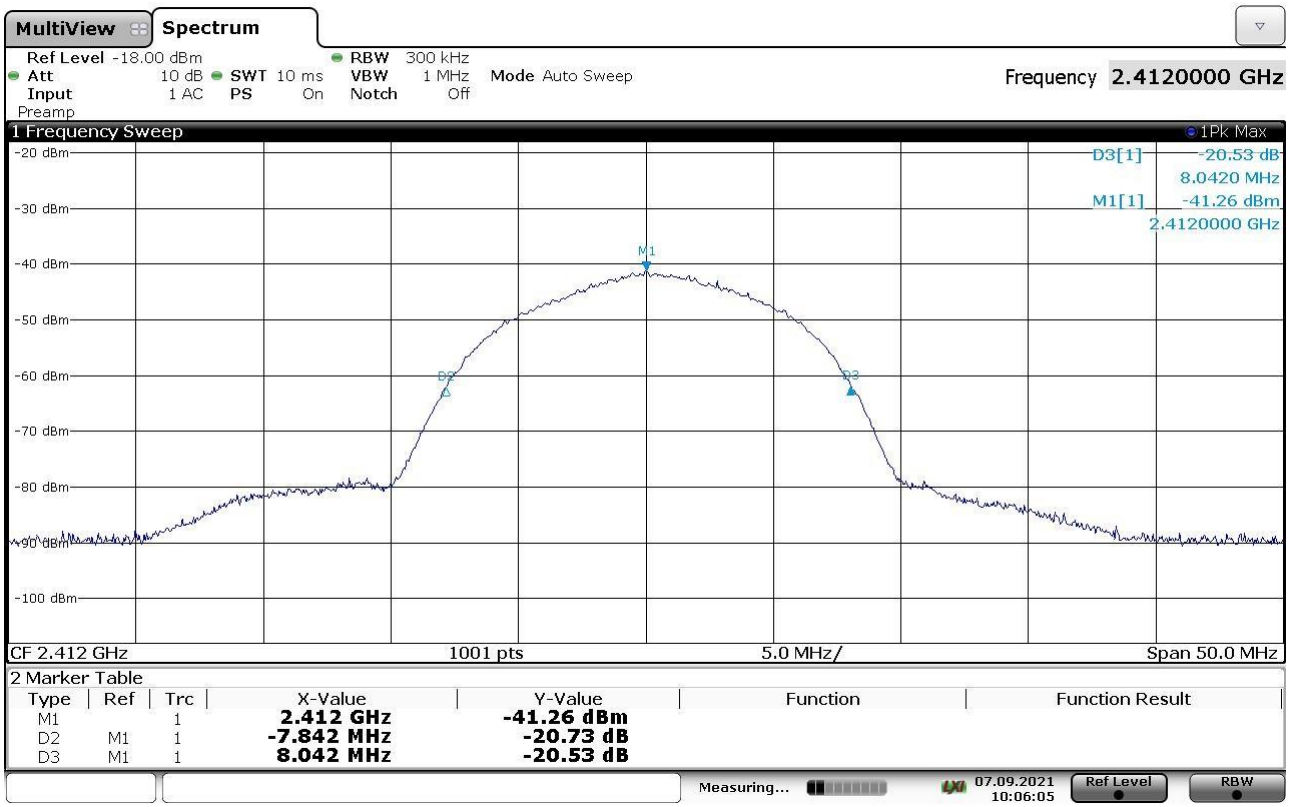
Frequency (MHz)	*Graphs*	*20 dB bandwidth (MHz)*
2412	G21184029G	18,231
2442	G21184036G	18,581
2462	G21184041G	18,782

Result – WiFi mode N

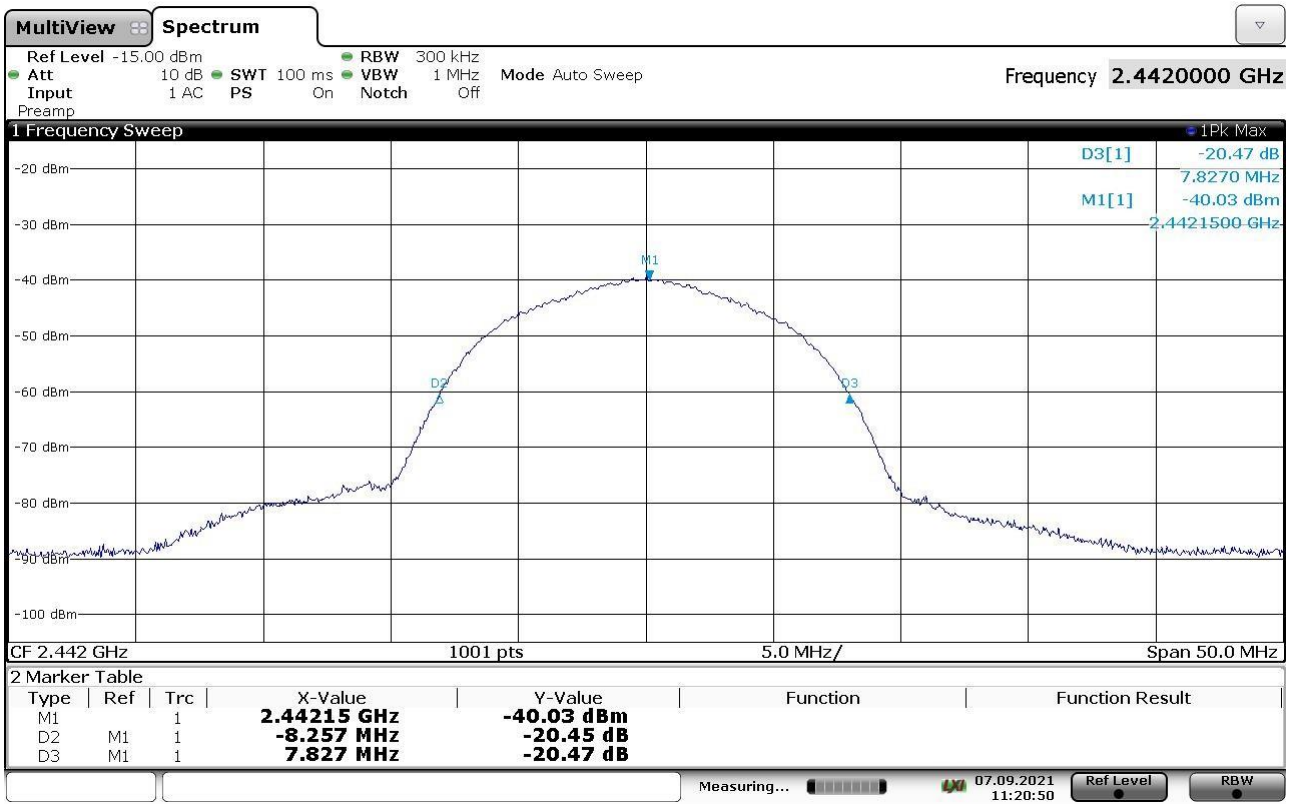
Frequency (MHz)	*Graphs*	*20 dB bandwidth (MHz)*
2412	G21184029N	18,382
2442	G21184036N	19,531
2462	G21184041N	19,730

Graphs

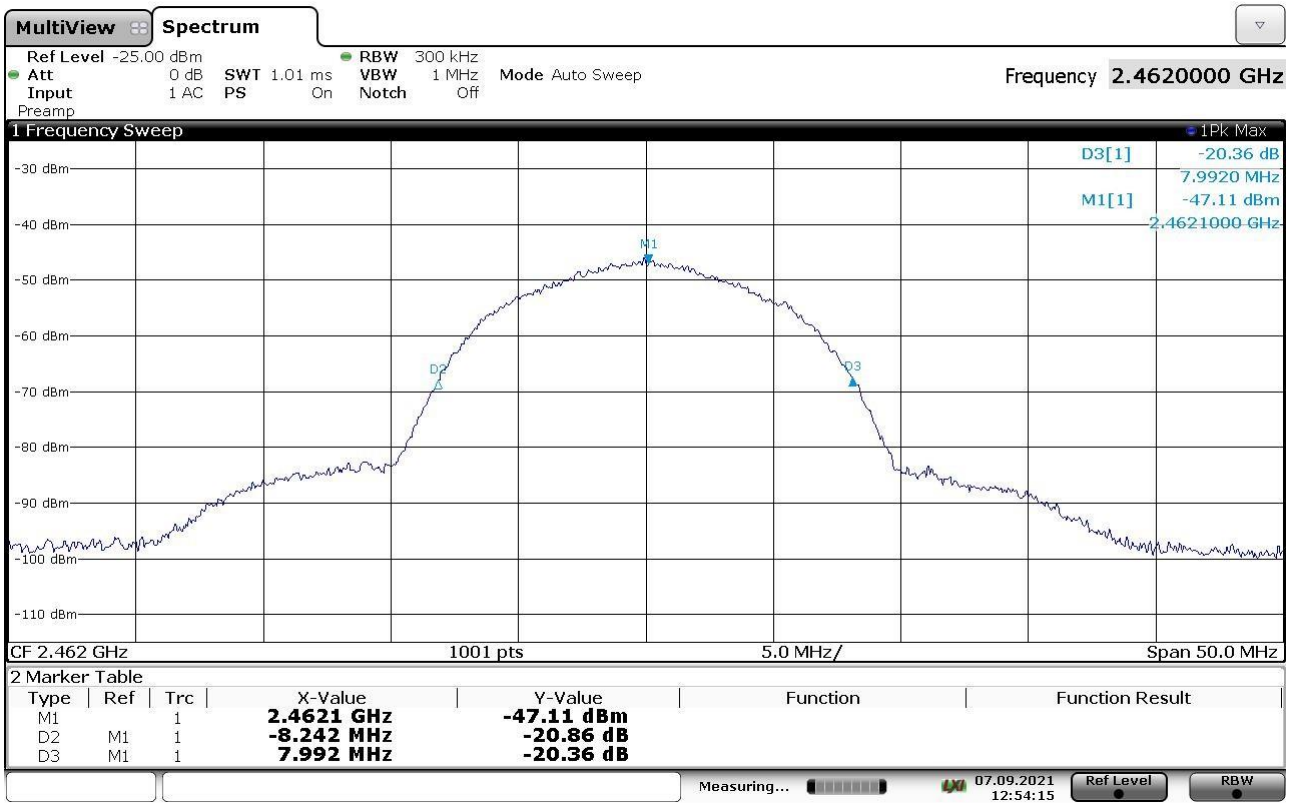
De Rosso 21184029B ch1 mod B



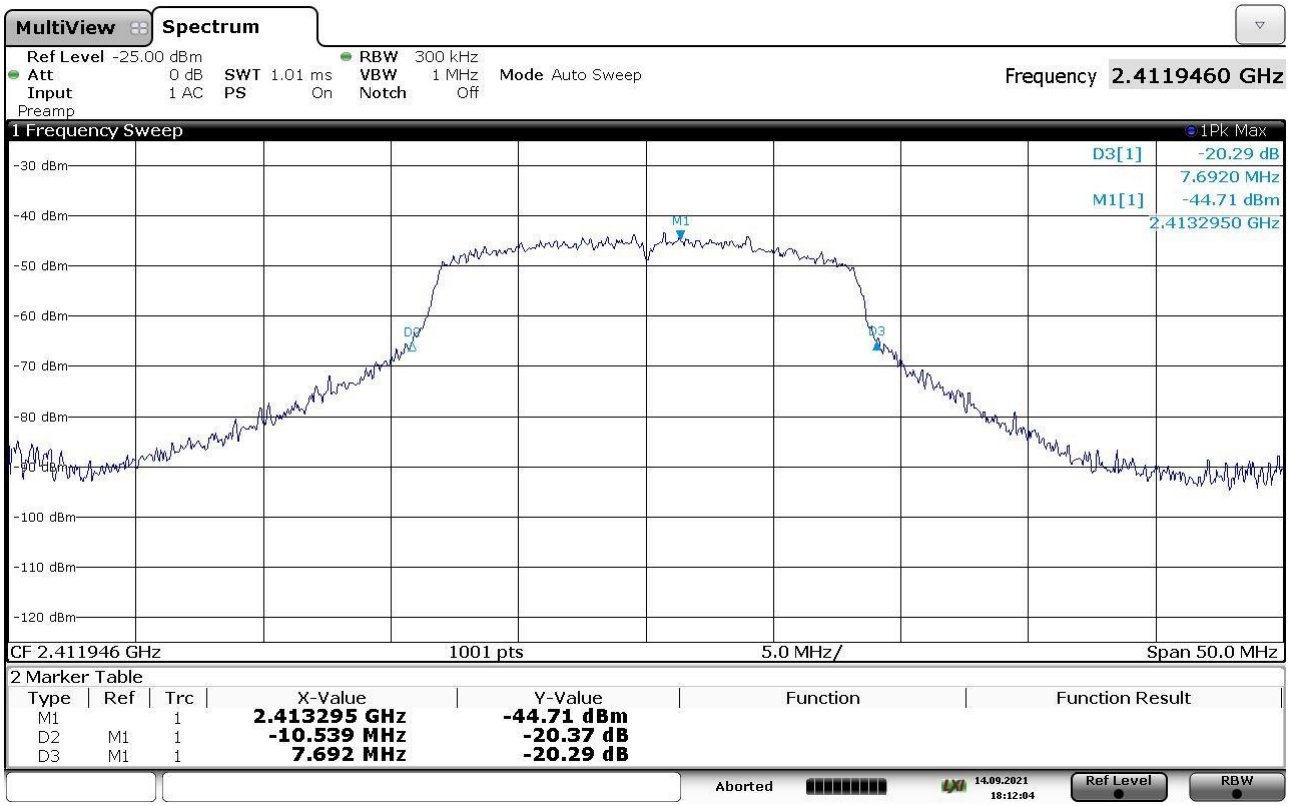
De Rosso 21184036B ch7 mod B



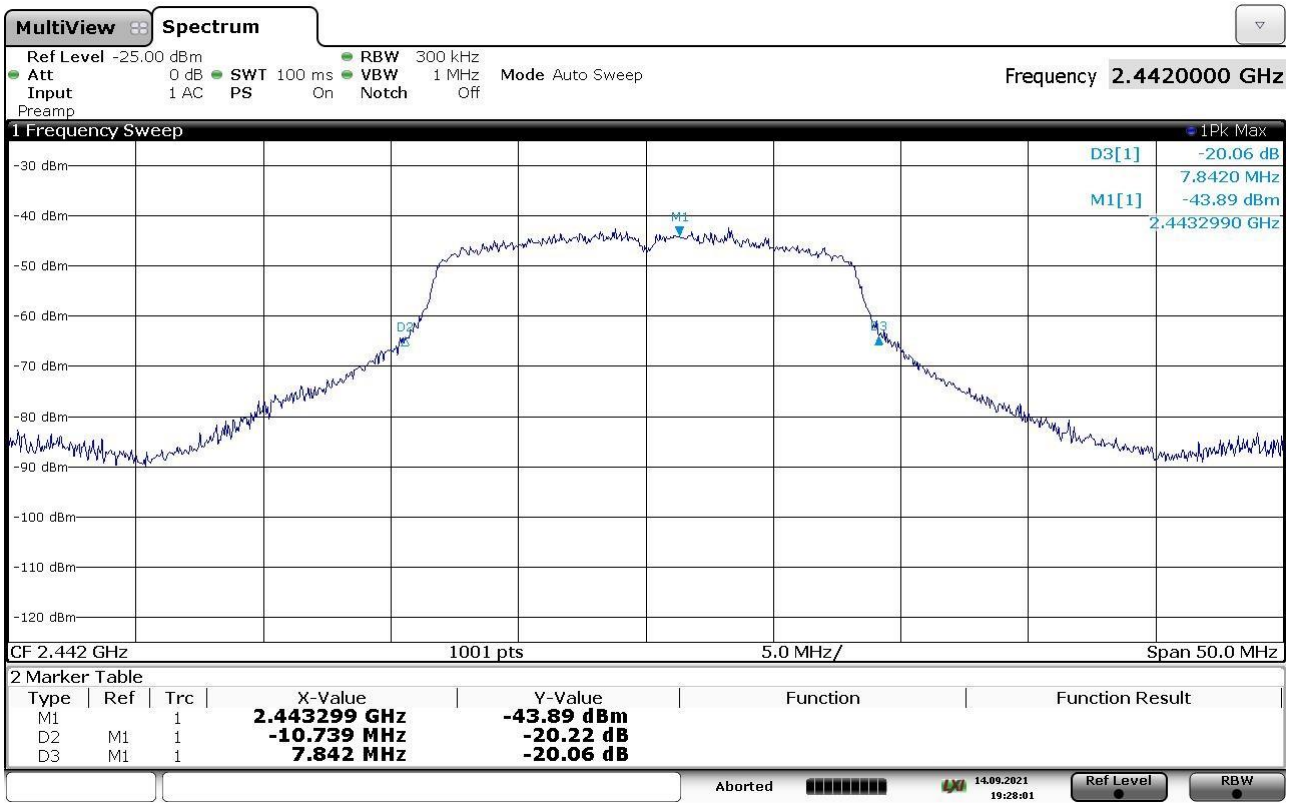
De Rosso 21184041B ch11 mod B



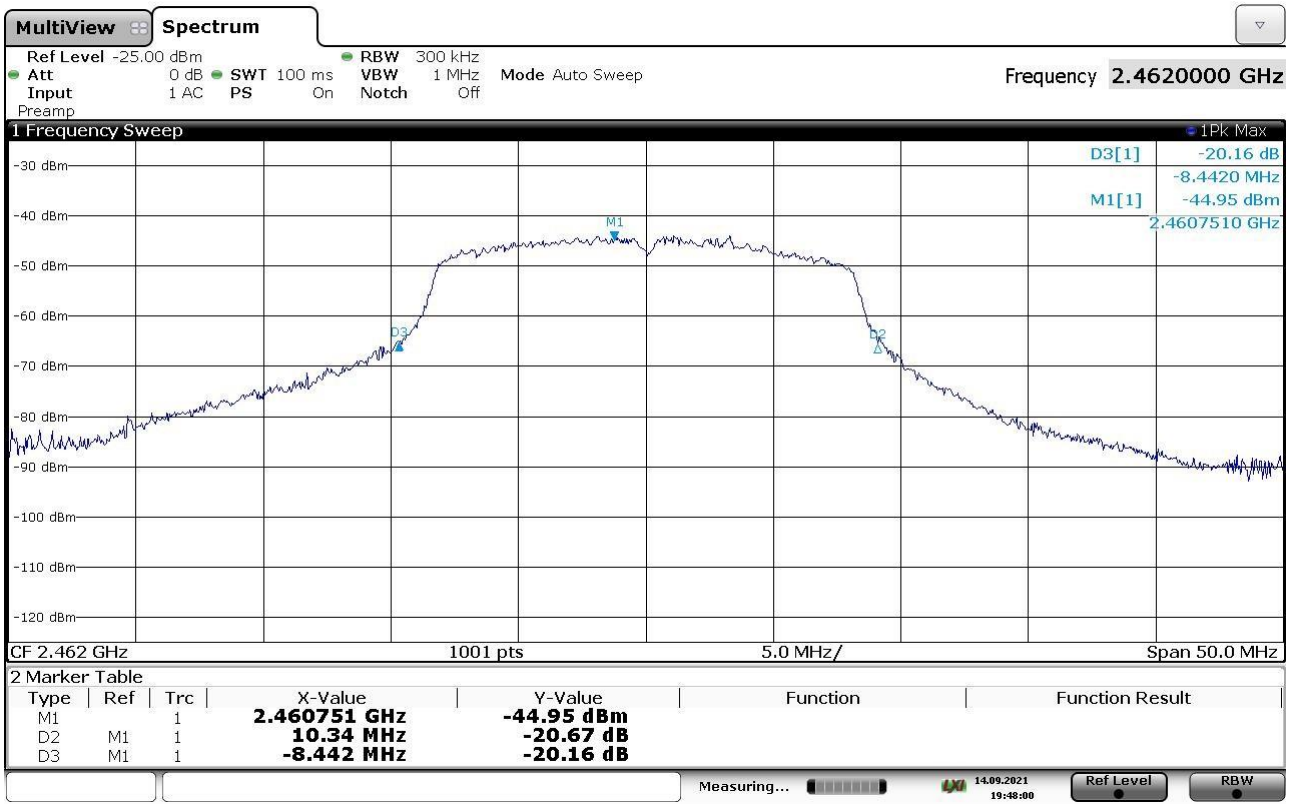
De Rosso 21184029G ch1 mod G



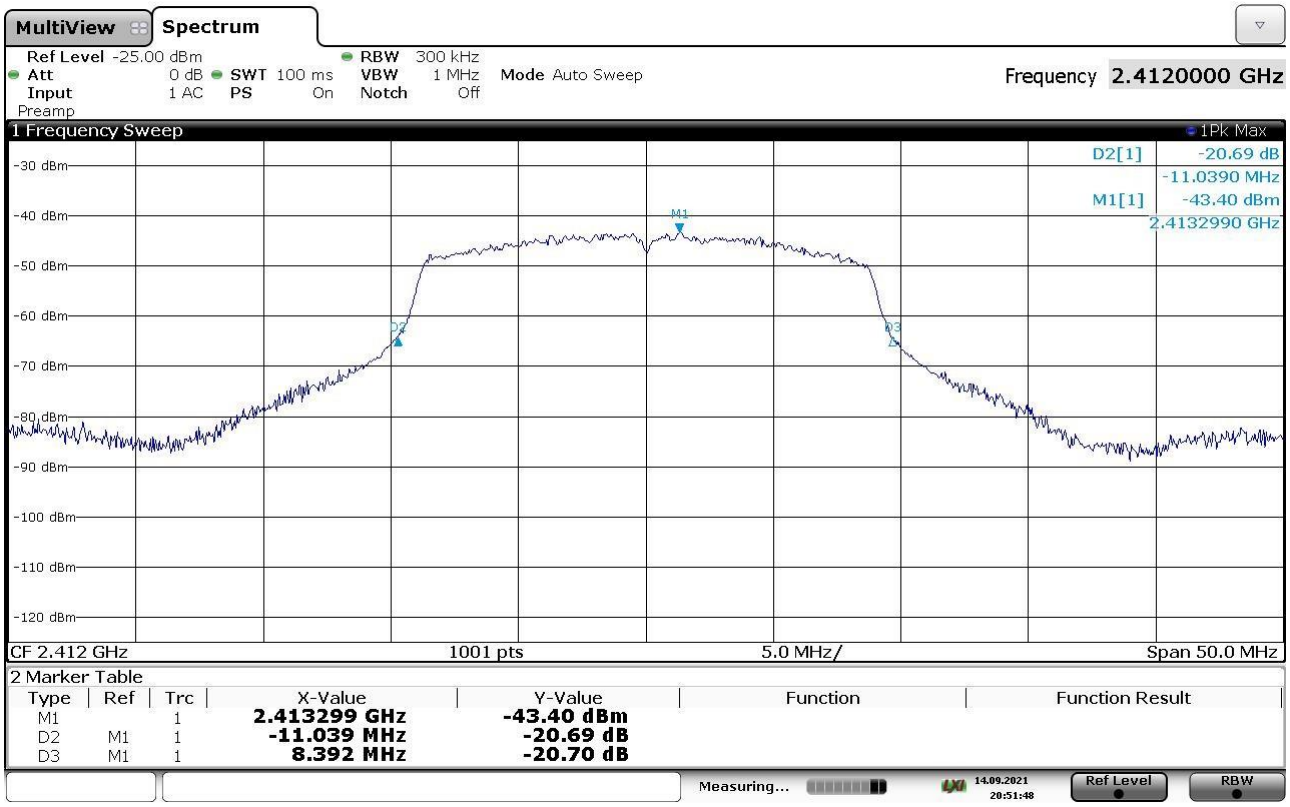
De Rosso 21184036G ch7 mod G



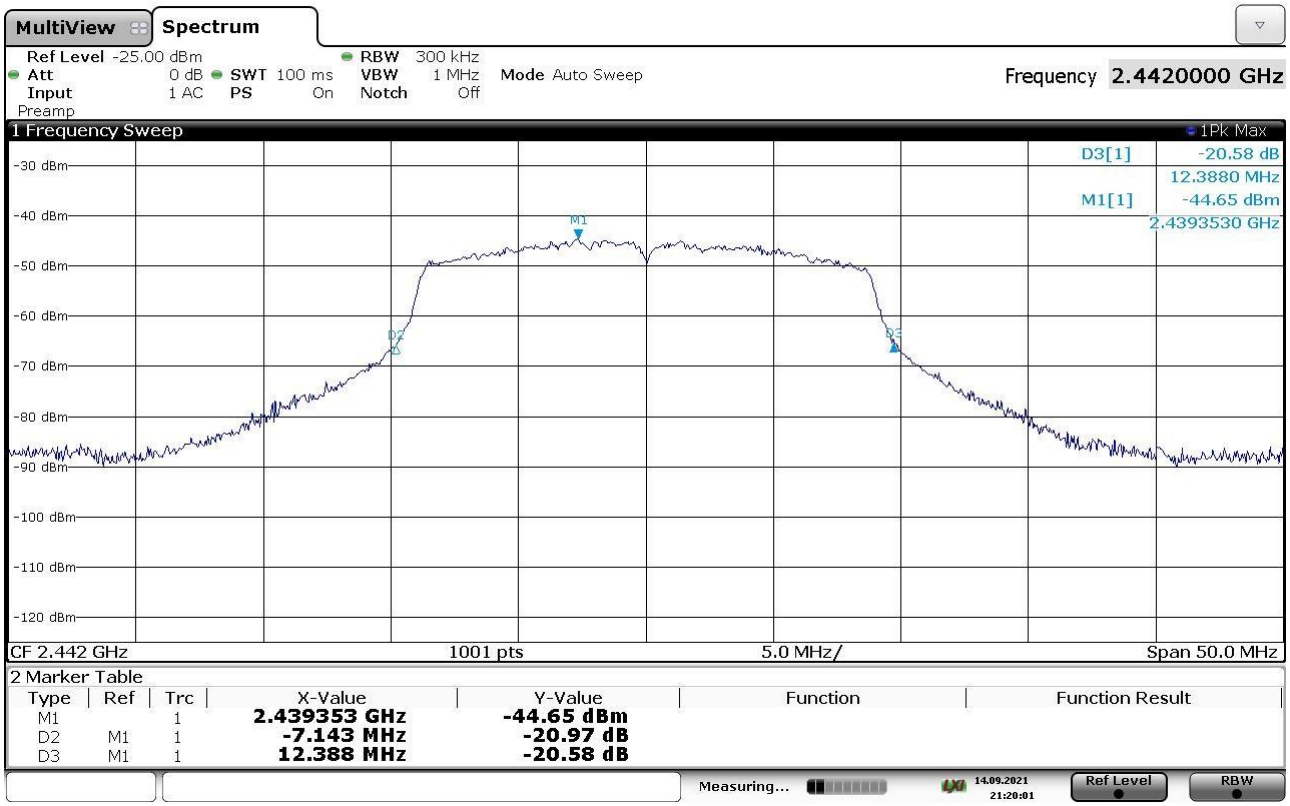
De Rosso 21184041G ch11 mod G



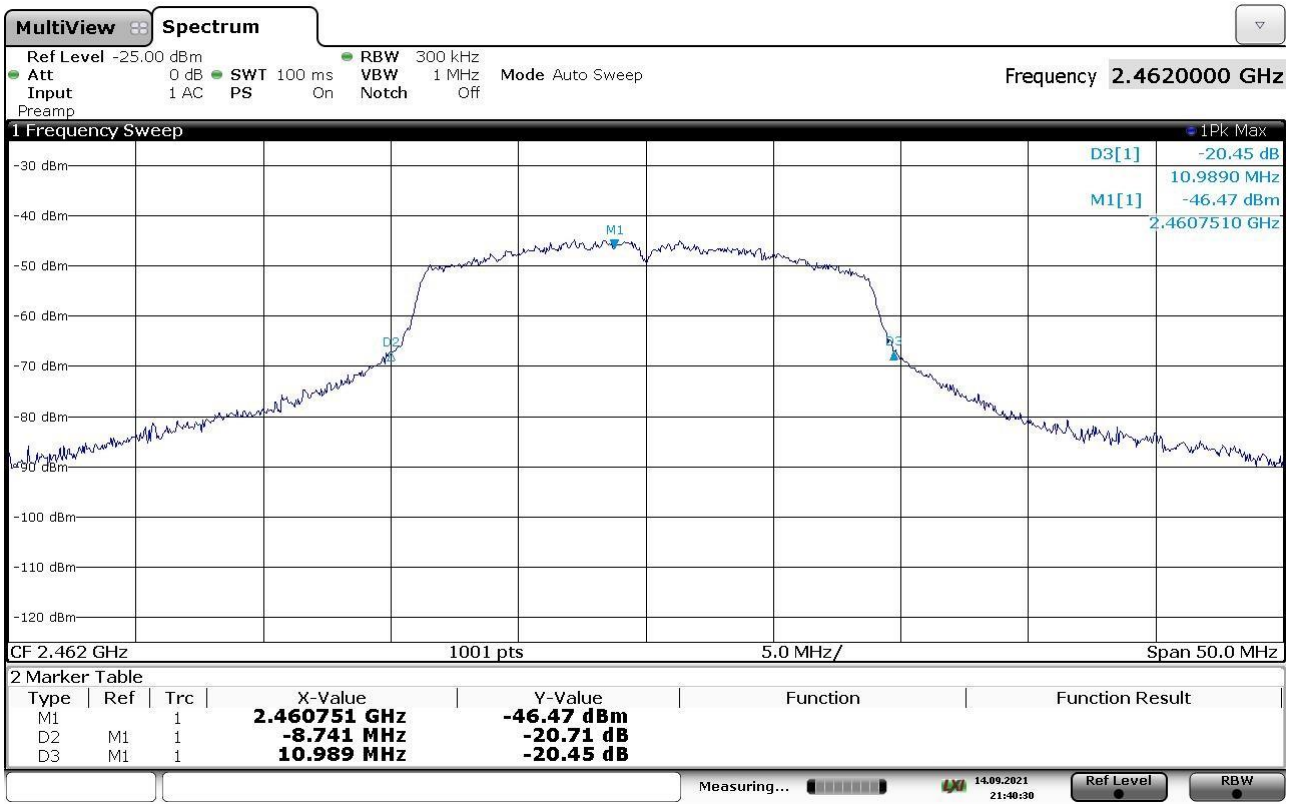
De Rosso 21184029N ch1 mod N



De Rosso 21184036N ch7 mod N



De Rosso 21184041N ch11 mod N



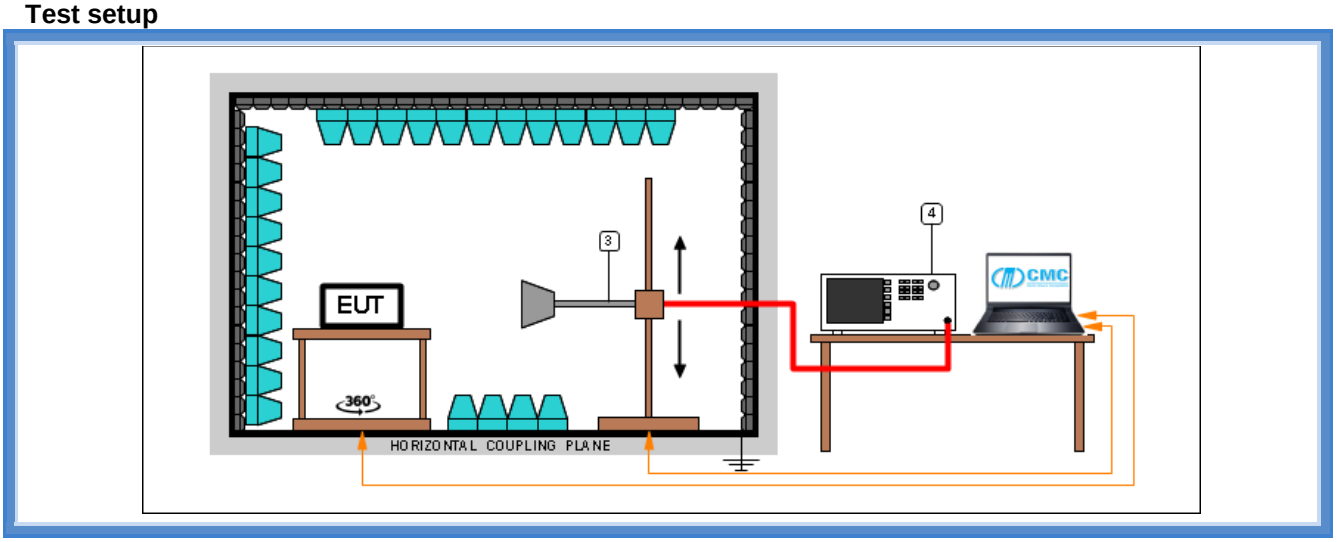
9.6 Band edge

Tested by ..... :	F. De Rosso
Test date ..... :	07.09.2021
Test location (stand) ..... :	Semi-anechoic chamber (CMC A070)
Reference standards ..... :	FCC Rules and Regulation; Titles 47 Part 15.205, 15.209, 15.247 (d) ANSI C63.10 cl. 11.11.1 and 11.12.1 KDB 558074 D01 DTS Meas Guidance v05r02 cl. 8.7
Supplementary test set-up description ..... :	--
Supplementary information..... :	--

Acceptance limits
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in § 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c)).

Operation within the band 2400 – 2483,5 MHz

Test setup



Test setup PE004_04				
Nr.	*Id. Number*	*Manufacturer*	*Model*	*Description*
4	CMC S353	Rohde & Schwarz	ESW26	EMI Test Receiver 1 Hz - 26.5 GHz
3	CMC S108	Emco	3115	Waveguide antenna

Result – WiFi mode B

Transmission channel (MHz)	*Bandwidth*	*Graph(s)*	*Results*	
2412	1 MHz	G21184031B	--	*
2412	100 kHz	G21184032B	2403,860 MHz	Complies
2462	1 MHz	G21184043B	2475,958 MHz	Complies
2462	1 MHz	G21184044B	--	**

*: this graph shows the emissions in 2310 – 2390 MHz restricted band
**: this graph shows the emissions in 2483,5 – 2500 MHz restricted band

Result – WiFi mode G

Transmission channel (MHz)	*Bandwidth*	*Graph(s)*	*Results*	
2412	1 MHz	G21184031G	--	*
2412	100 kHz	G21184032G	2403,397 MHz	Complies
2462	1 MHz	G21184043G	2478,155 MHz	Complies
2462	1 MHz	G21184044G	--	**

*: this graph shows the emissions in 2310 – 2390 MHz restricted band
**: this graph shows the emissions in 2483,5 – 2500 MHz restricted band

Result – WiFi mode N

Transmission channel (MHz)	*Bandwidth*	*Graph(s)*	*Results*	
2412	1 MHz	G21184031N	--	*
2412	100 kHz	G21184032N	2402,610 MHz	Complies
2462	1 MHz	G21184043N	2478,055 MHz	Complies
2462	1 MHz	G21184044N	--	**

*: this graph shows the emissions in 2310 – 2390 MHz restricted band
**: this graph shows the emissions in 2483,5 – 2500 MHz restricted band