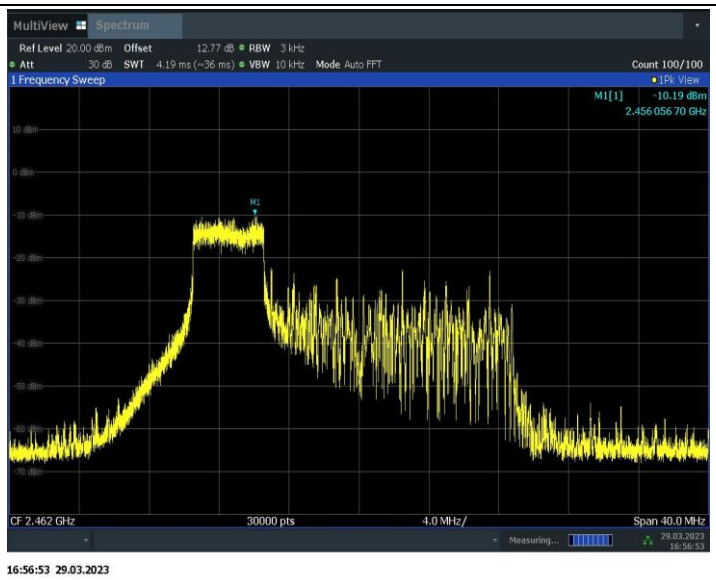
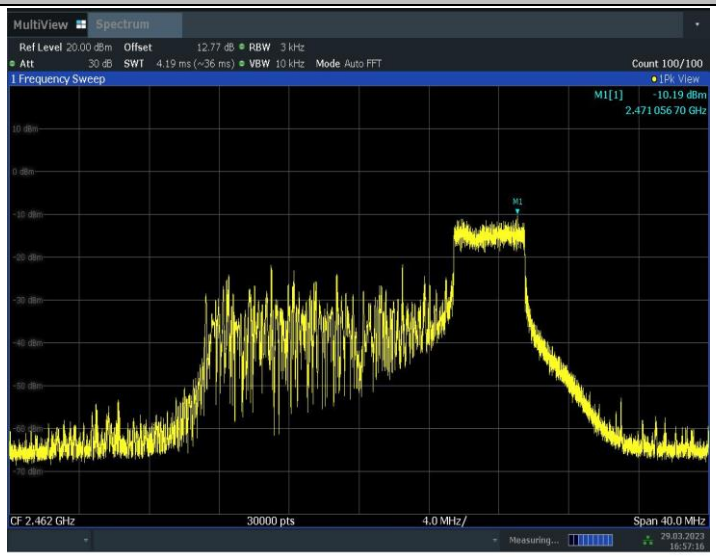


16:56:53 29.03.2023

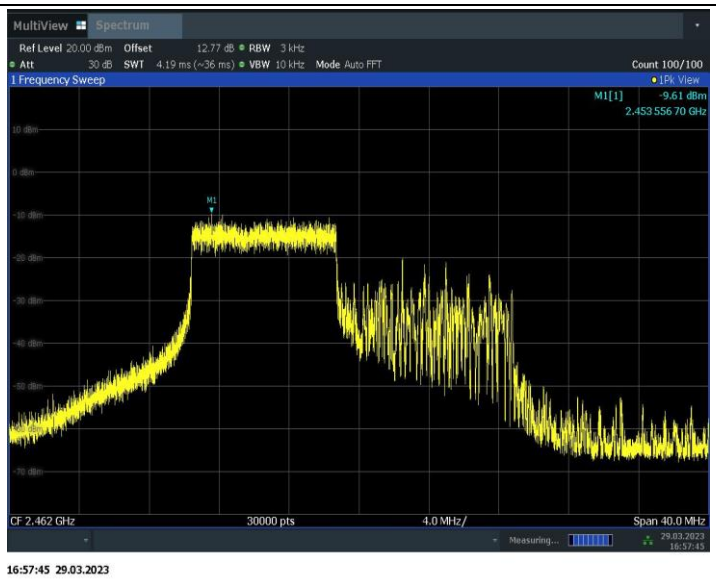
11BE20MIMO_Ant2_2462_52Tone_RU40



16:57:17 29.03.2023

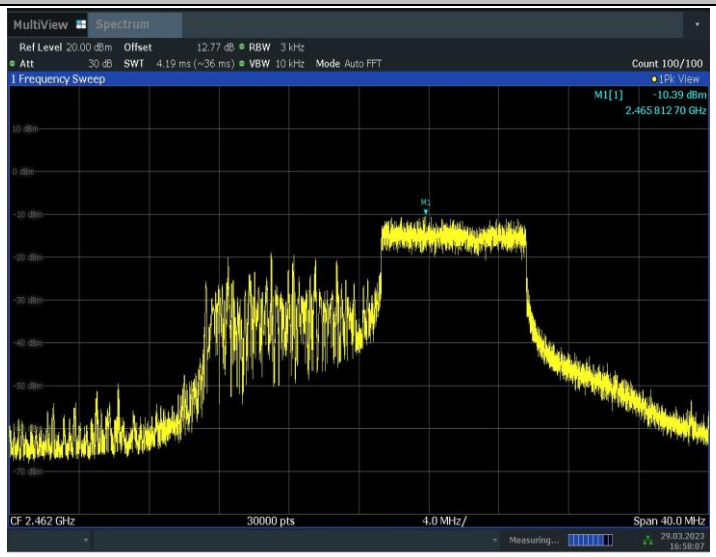
11BE20MIMO_Ant2_2462_106Tone_RU53

©Copyright. All rights reserved by CTTL.



16:57:45 29.03.2023

11BE20MIMO_Ant2_2462_106Tone_RU54



16:58:07 29.03.2023

MRU

TestMode	Antenna	Channel	Mru Index	Result [dBm/3kHz]	Limit [dBm/3kHz]	Verdict
11BE20MIMO	Ant1	2412	106 Tone,index53 + 26Tone,index4	-16.27	≤8.00	PASS
			106 Tone,index54 + 26Tone,index4	-15.95	≤8.00	PASS
			52 Tone,index38 + 26Tone,index1	-14.2	≤8.00	PASS
			52 Tone,index39 + 26Tone,index7	-14.04	≤8.00	PASS
	Ant2	2412	106 Tone,index53	-16.18	≤8.00	PASS

©Copyright. All rights reserved by CTTL.

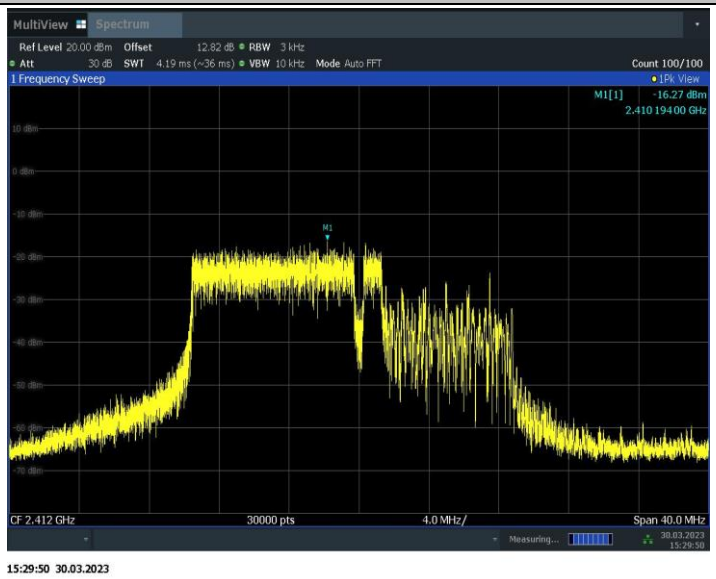
			+ 26Tone,index4			
			106 Tone,index54 + 26Tone,index4	-17.24	≤8.00	PASS
			52 Tone,index38 + 26Tone,index1	-14.67	≤8.00	PASS
			52 Tone,index39 + 26Tone,index7	-14.33	≤8.00	PASS
	total	2412	106 Tone,index53 + 26Tone,index4	-13.21	≤8.00	PASS
			106 Tone,index54 + 26Tone,index4	-13.54	≤8.00	PASS
			52 Tone,index38 + 26Tone,index1	-11.42	≤8.00	PASS
			52 Tone,index39 + 26Tone,index7	-11.17	≤8.00	PASS
	Ant1	2437	106 Tone,index53 + 26Tone,index4	-16.69	≤8.00	PASS
			106 Tone,index54 + 26Tone,index4	-17.31	≤8.00	PASS
			52 Tone,index38 + 26Tone,index1	-14.05	≤8.00	PASS
			52 Tone,index39 + 26Tone,index7	-14.82	≤8.00	PASS
	Ant2	2437	106 Tone,index53 + 26Tone,index4	-17.17	≤8.00	PASS
			106 Tone,index54 + 26Tone,index4	-18.07	≤8.00	PASS
			52 Tone,index38 + 26Tone,index1	-14.48	≤8.00	PASS
			52 Tone,index39 + 26Tone,index7	-15.6	≤8.00	PASS
	total	2437	106 Tone,index53 + 26Tone,index4	-13.91	≤8.00	PASS
			106 Tone,index54 + 26Tone,index4	-14.66	≤8.00	PASS
			52 Tone,index38 + 26Tone,index1	-11.25	≤8.00	PASS
			52 Tone,index39 + 26Tone,index7	-12.18	≤8.00	PASS
	Ant1	2462	106 Tone,index53 + 26Tone,index4	-16.53	≤8.00	PASS
			106 Tone,index54	-17.39	≤8.00	PASS

©Copyright. All rights reserved by CTTL.

			+ 26Tone,index4			
			52 Tone,index38 + 26Tone,index1	-14.08	≤8.00	PASS
			52 Tone,index39 + 26Tone,index7	-13.91	≤8.00	PASS
	Ant2	2462	106 Tone,index53 + 26Tone,index4	-17.21	≤8.00	PASS
			106 Tone,index54 + 26Tone,index4	-18.1	≤8.00	PASS
			52 Tone,index38 + 26Tone,index1	-15.13	≤8.00	PASS
			52 Tone,index39 + 26Tone,index7	-14.53	≤8.00	PASS
	total	2462	106 Tone,index53 + 26Tone,index4	-13.85	≤8.00	PASS
			106 Tone,index54 + 26Tone,index4	-14.72	≤8.00	PASS
			52 Tone,index38 + 26Tone,index1	-11.56	≤8.00	PASS
			52 Tone,index39 + 26Tone,index7	-11.20	≤8.00	PASS

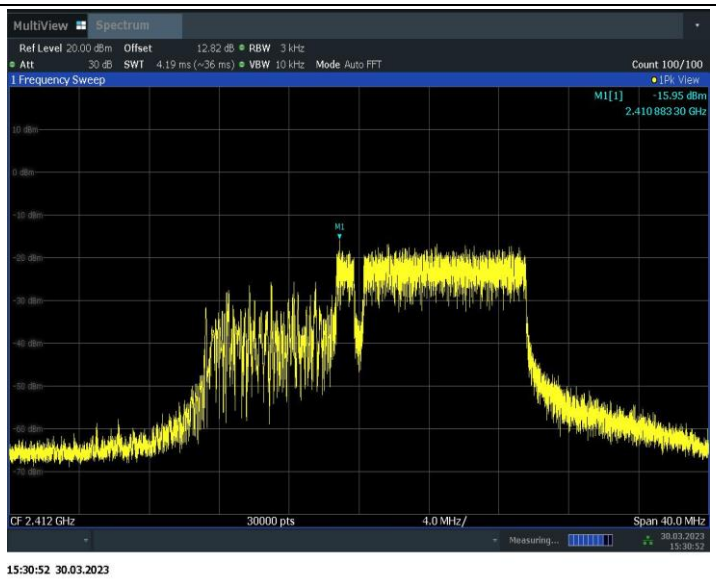
Test graphs as

11BE20MIMO_Ant1_2412_106+26_1



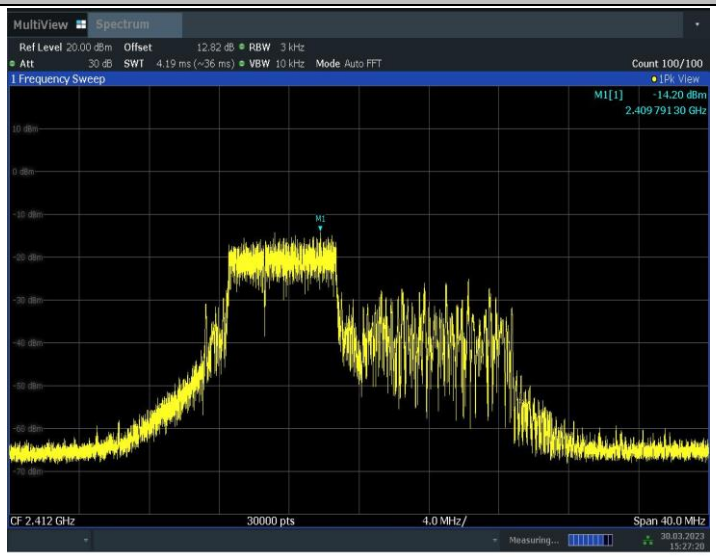
11BE20MIMO_Ant1_2412_106+26_2

©Copyright. All rights reserved by CTTL.



15:30:52 30.03.2023

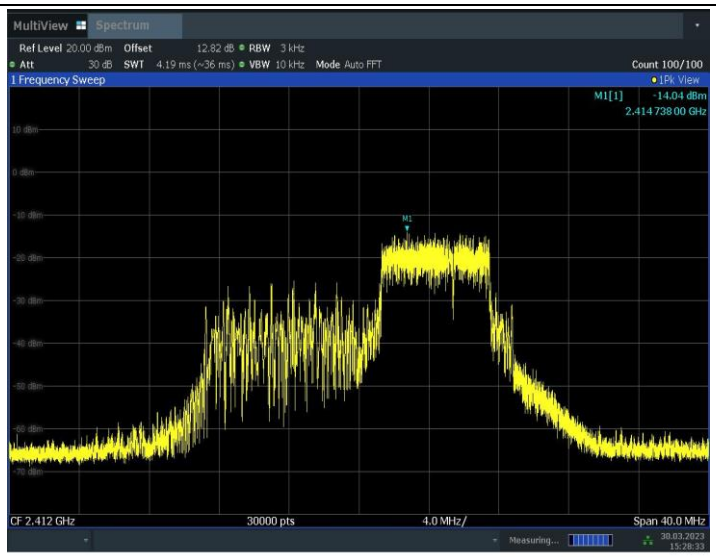
11BE20MIMO_Ant1_2412_52+26_1



15:27:20 30.03.2023

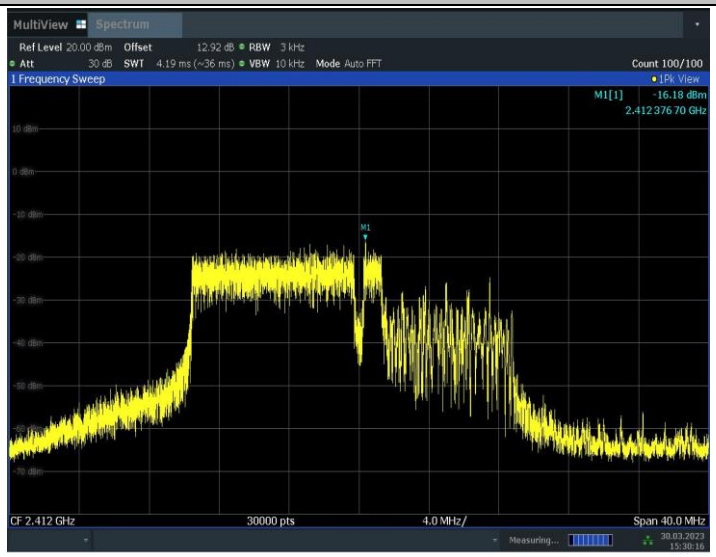
11BE20MIMO_Ant1_2412_52+26_3

©Copyright. All rights reserved by CTTL.



15:28:33 30.03.2023

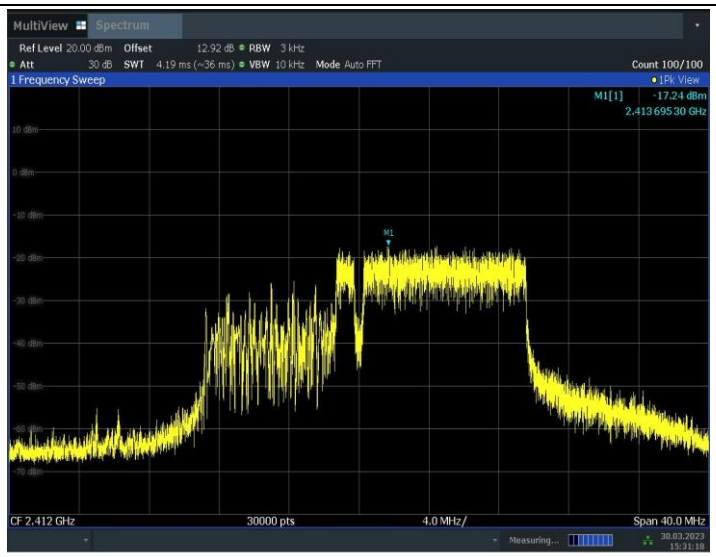
11BE20MIMO_Ant2_2412_106+26_1



15:30:17 30.03.2023

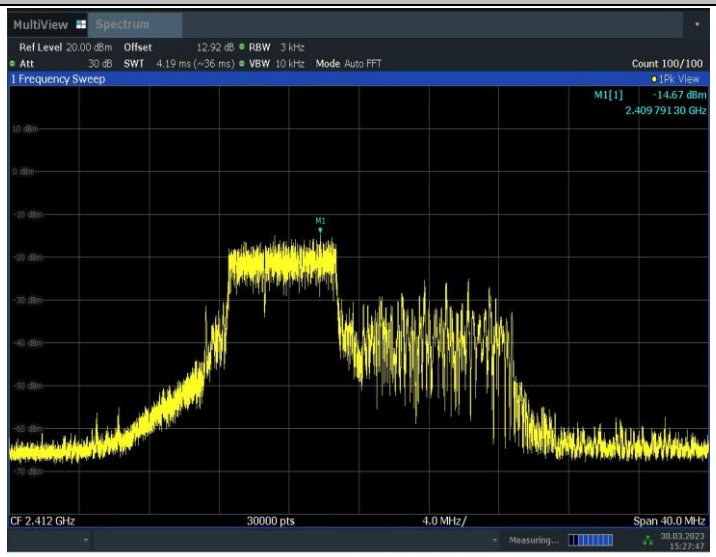
11BE20MIMO_Ant2_2412_106+26_2

©Copyright. All rights reserved by CTTL.



15:31:18 30.03.2023

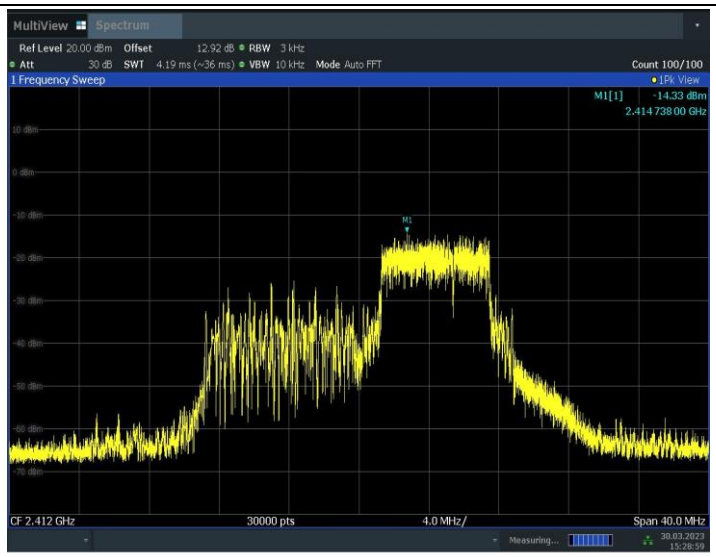
11BE20MIMO_Ant2_2412_52+26_1



15:27:47 30.03.2023

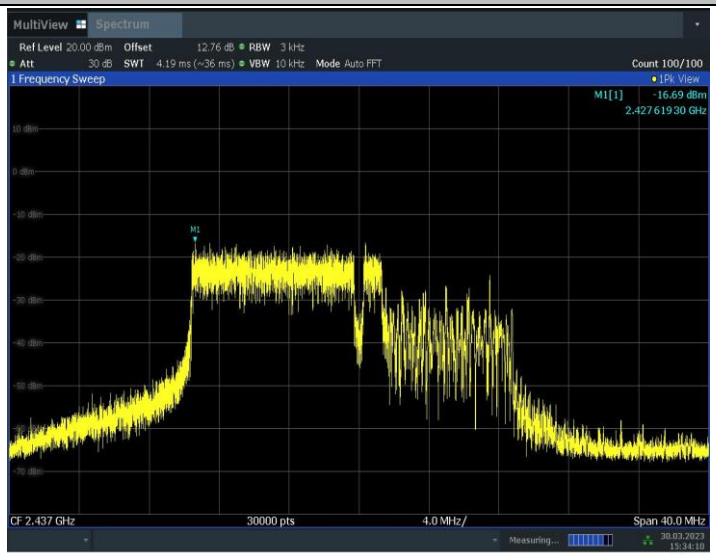
11BE20MIMO_Ant2_2412_52+26_3

©Copyright. All rights reserved by CTTL.



15:29:00 30.03.2023

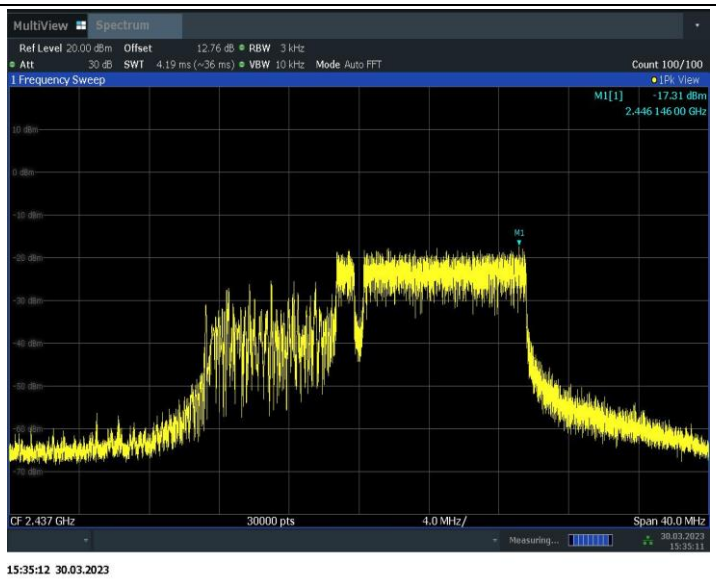
11BE20MIMO_Ant1_2437_106+26_1



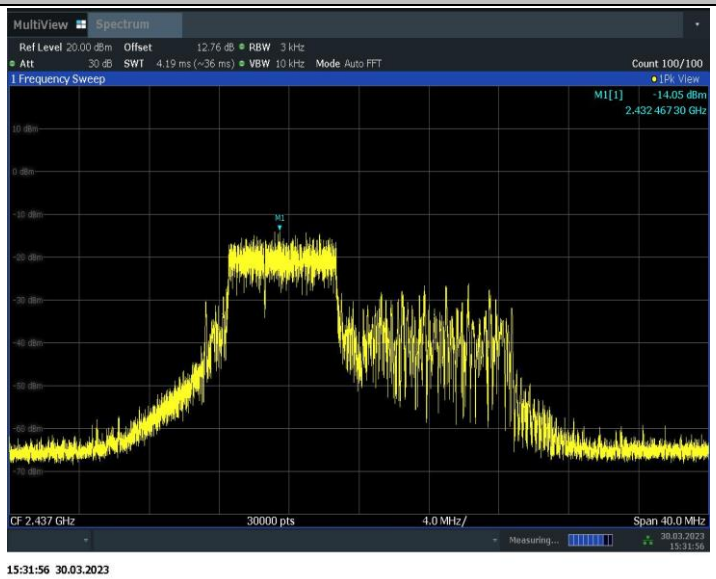
15:34:11 30.03.2023

11BE20MIMO_Ant1_2437_106+26_2

©Copyright. All rights reserved by CTTL.

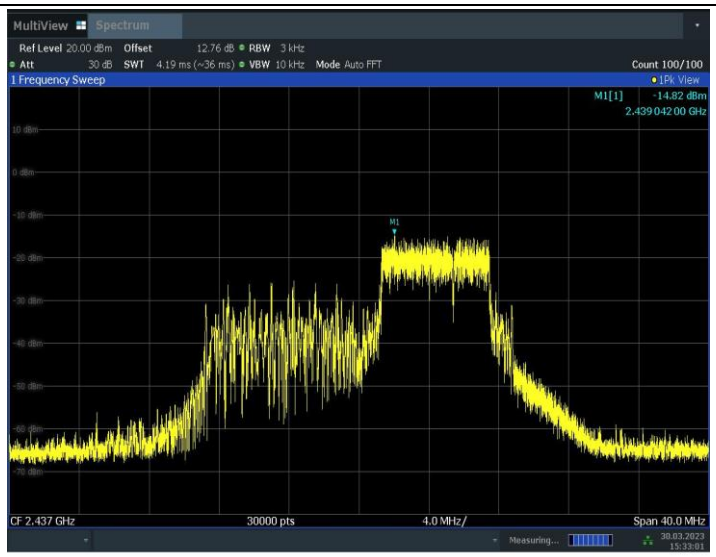


11BE20MIMO_Ant1_2437_52+26_1



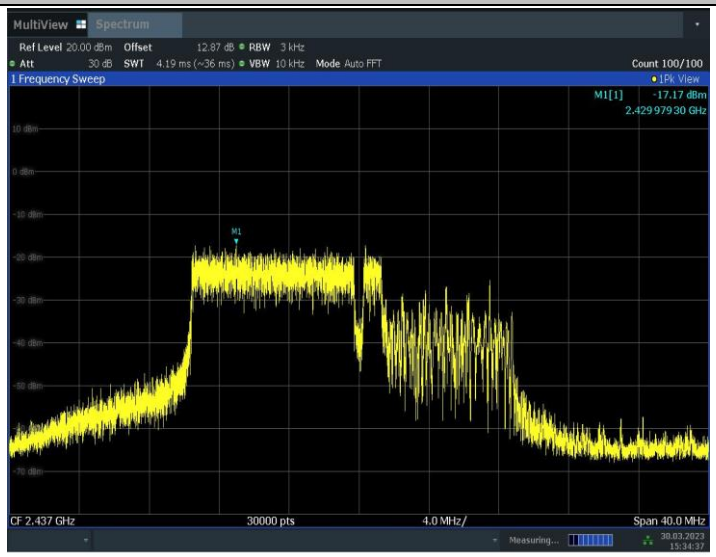
11BE20MIMO_Ant1_2437_52+26_3

©Copyright. All rights reserved by CTTL.



15:33:02 30.03.2023

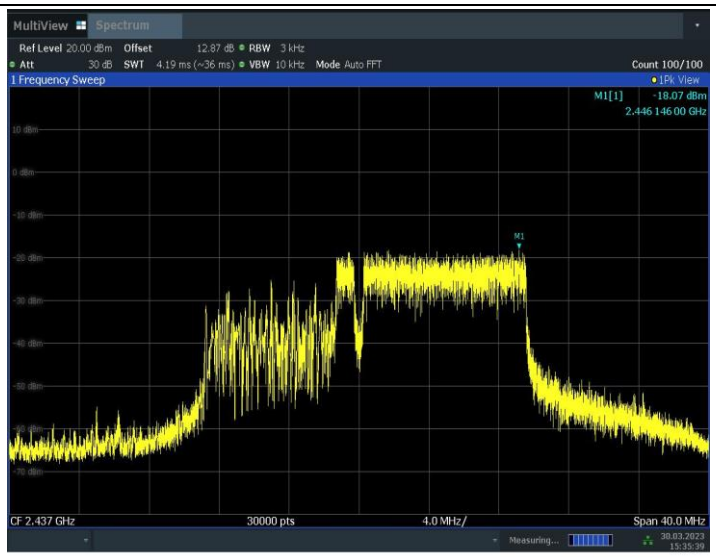
11BE20MIMO_Ant2_2437_106+26_1



15:34:38 30.03.2023

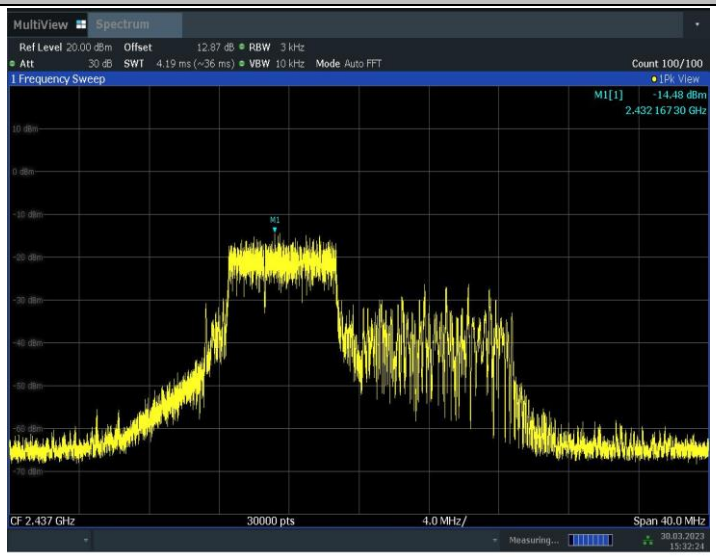
11BE20MIMO_Ant2_2437_106+26_2

©Copyright. All rights reserved by CTTL.



15:35:39 30.03.2023

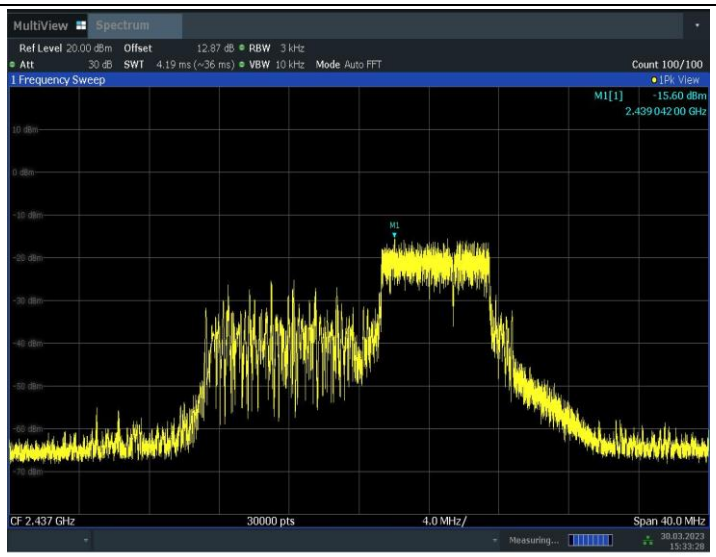
11BE20MIMO_Ant2_2437_52+26_1



15:32:24 30.03.2023

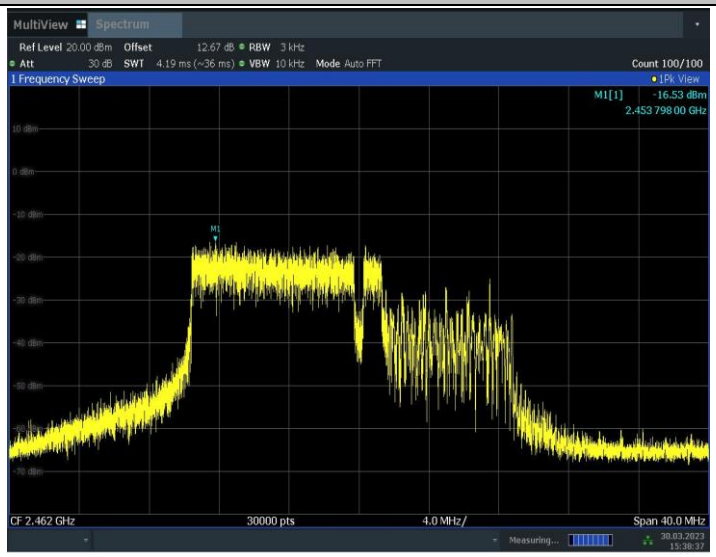
11BE20MIMO_Ant2_2437_52+26_3

©Copyright. All rights reserved by CTTL.



15:33:28 30.03.2023

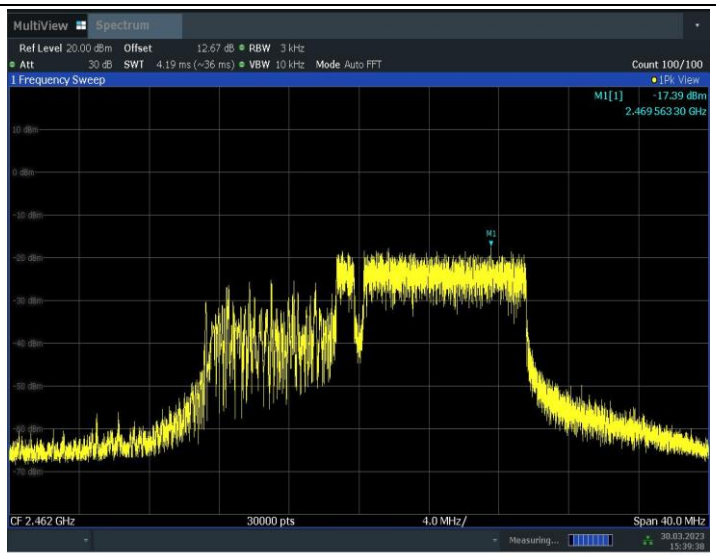
11BE20MIMO_Ant1_2462_106+26_1



15:38:37 30.03.2023

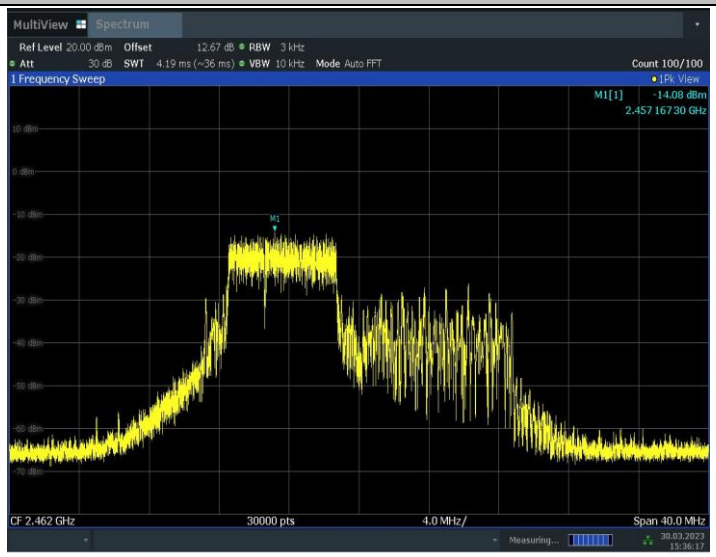
11BE20MIMO_Ant1_2462_106+26_2

©Copyright. All rights reserved by CTTL.



15:39:38 30.03.2023

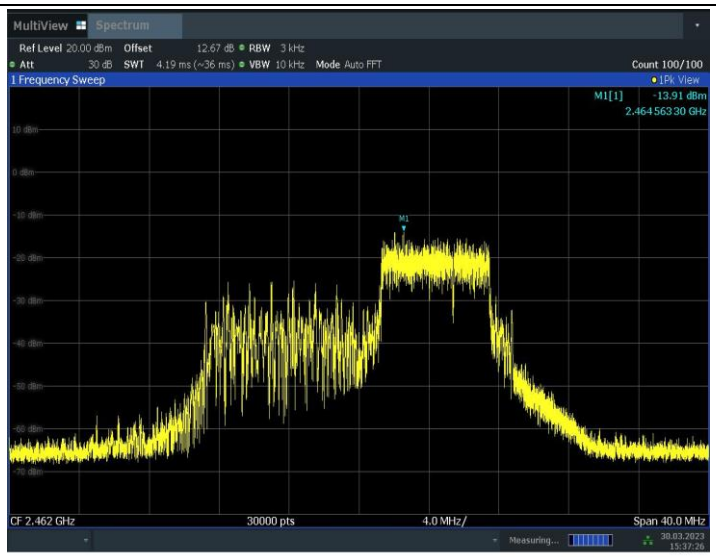
11BE20MIMO_Ant1_2462_52+26_1



15:36:17 30.03.2023

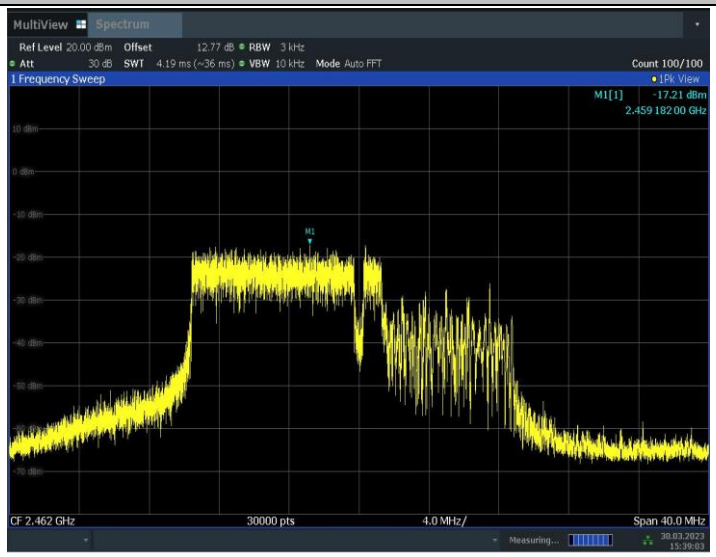
11BE20MIMO_Ant1_2462_52+26_3

©Copyright. All rights reserved by CTTL.



15:37:27 30.03.2023

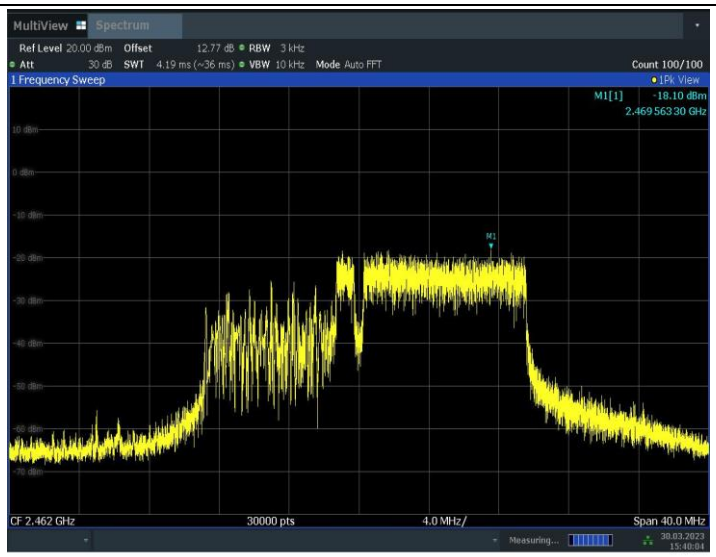
11BE20MIMO_Ant2_2462_106+26_1



15:39:04 30.03.2023

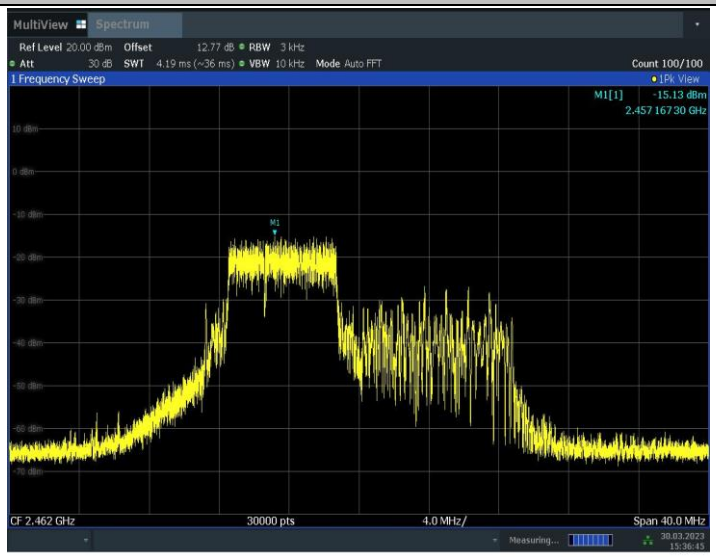
11BE20MIMO_Ant2_2462_106+26_2

©Copyright. All rights reserved by CTTL.



15:40:05 30.03.2023

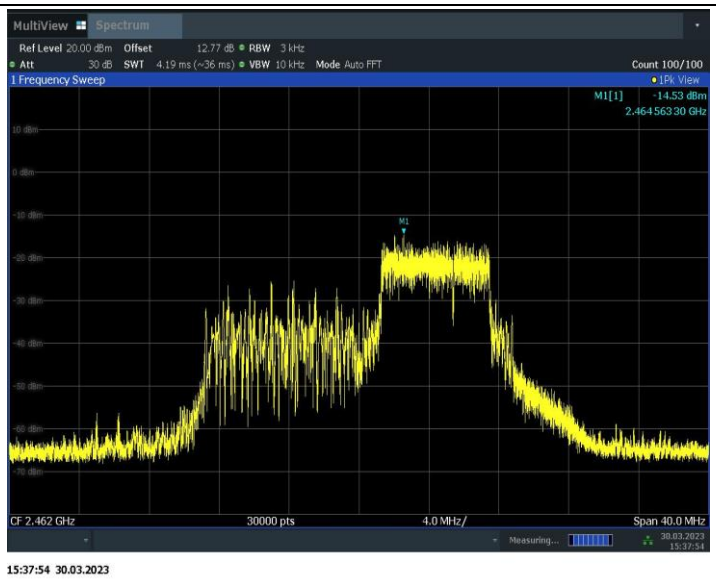
11BE20MIMO_Ant2_2462_52+26_1



15:36:45 30.03.2023

11BE20MIMO_Ant2_2462_52+26_3

©Copyright. All rights reserved by CTTL.



Conclusion: Pass

A.4. DTS 6-dB Signal Bandwidth

Method of Measurement: See ANSI C63.10-2013 section 11.8.1.

a) Set RBW = 100 kHz.

b) Set the video bandwidth (VBW) = 300 kHz.

c) Detector = Peak.

d) Trace mode = max hold.

e) Sweep = auto couple.

f) Allow the trace to stabilize.

g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

Measurement Limit:

Standard	Limit (kHz)
FCC 47 CFR Part 15.247 (a)	≥ 500

EUT ID: UT35a

Measurement Result:

Ant1 of the result table and result graph corresponds to ant5 of the EUT, ant2 of the result table and result graph corresponds to ant6 of the EUT.

Test Mode	Antenna	Frey [MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit [MHz]	Verdict
11B-MIMO	Ant1	2412	7.56	2408.44	2416.00	0.5	PASS
	Ant2	2412	7.08	2408.44	2415.52	0.5	PASS
	Ant1	2437	8.00	2433.00	2441.00	0.5	PASS

©Copyright. All rights reserved by CTTL.

	Ant2	2437	7.56	2432.96	2440.52	0.5	PASS
	Ant1	2462	7.56	2457.96	2465.52	0.5	PASS
	Ant2	2462	7.60	2458.40	2466.00	0.5	PASS
11G-MIMO	Ant1	2412	16.36	2403.80	2420.16	0.5	PASS
	Ant2	2412	16.36	2403.80	2420.16	0.5	PASS
	Ant1	2437	16.36	2428.80	2445.16	0.5	PASS
	Ant2	2437	16.36	2428.80	2445.16	0.5	PASS
	Ant1	2462	16.36	2453.80	2470.16	0.5	PASS
	Ant2	2462	16.36	2453.80	2470.16	0.5	PASS
11BE20MIMO	Ant1	2412	18.96	2402.52	2421.48	0.5	PASS
	Ant2	2412	18.88	2402.56	2421.44	0.5	PASS
	Ant1	2437	19.00	2427.48	2446.48	0.5	PASS
	Ant2	2437	19.04	2427.44	2446.48	0.5	PASS
	Ant1	2462	18.88	2452.48	2471.36	0.5	PASS
	Ant2	2462	19.00	2452.44	2471.44	0.5	PASS
11BE40MIMO	Ant1	2422	38.08	2402.96	2441.04	0.5	PASS
	Ant2	2422	37.84	2403.20	2441.04	0.5	PASS
	Ant1	2437	38.16	2417.96	2456.12	0.5	PASS
	Ant2	2437	38.16	2417.88	2456.04	0.5	PASS
	Ant1	2452	38.16	2432.80	2470.96	0.5	PASS
	Ant2	2452	38.32	2432.80	2471.12	0.5	PASS

Test graphs as below:

11B-MIMO_Ant1_2412

19:20:19 13.04.2023

11B- MIMO_Ant2_2412

©Copyright. All rights reserved by CTTL.

11B- MIMO_Ant1_2437

11B- MIMO_Ant2_2437

©Copyright. All rights reserved by CTTL.

11B- MIMO_Ant1_2462

11B- MIMO_Ant2_2462

©Copyright. All rights reserved by CTTL.

19:28:22 13.04.2023

11G- MIMO_Ant1_2412

19:30:59 13.04.2023

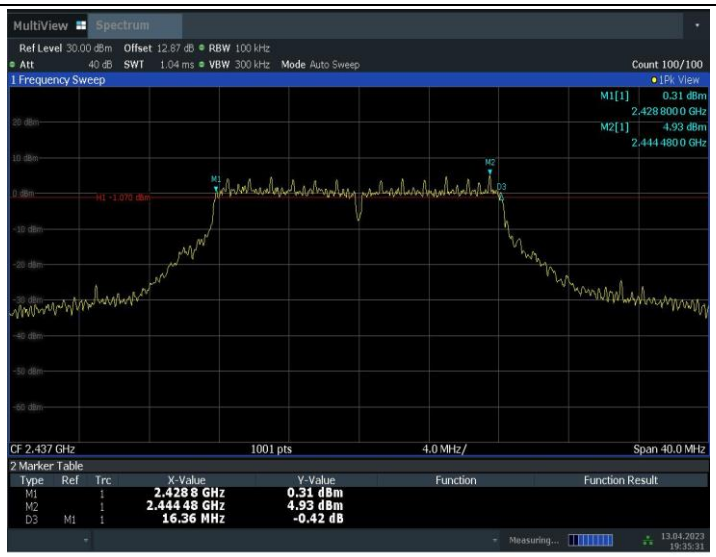
11G- MIMO_Ant2_2412

©Copyright. All rights reserved by CTTL.

11G- MIMO_Ant1_2437

11G- MIMO_Ant2_2437

©Copyright. All rights reserved by CTTL.



11G- MIMO_Ant1_2462

11G- MIMO_Ant2_2462

©Copyright. All rights reserved by CTTL.

11BE20MIMO_Ant1_2412

11BE20MIMO_Ant2_2412

©Copyright. All rights reserved by CTTL.

11BE20MIMO_Ant1_2437

11BE20MIMO_Ant2_2437

©Copyright. All rights reserved by CTTL.

11BE20MIMO_Ant1_2462

11BE20MIMO_Ant2_2462

©Copyright. All rights reserved by CTTL.

11BE40MIMO_Ant1_2422

11BE40MIMO_Ant2_2422

©Copyright. All rights reserved by CTTL.

18:59:24 14.04.2023

11BE40MIMO_Ant1_2437

19:01:21 14.04.2023

11BE40MIMO_Ant2_2437

©Copyright. All rights reserved by CTTL.

19:02:43 14.04.2023

11BE40MIMO_Ant1_2452

19:04:48 14.04.2023

11BE40MIMO_Ant2_2452

©Copyright. All rights reserved by CTTL.

Conclusion: Pass

A.5. Band Edges Compliance

Method of Measurement: See ANSI C63.10-2013-clause 6.10.4

Connect the spectrum analyzer to the EUT using an appropriate RF cable connected to the EUT output. Configure the spectrum analyzer settings as described below.

a) Set Span = 100MHz
b) Sweep Time: coupled
c) Set the RBW= 100 kHz
c) Set the VBW= 300 kHz
d) Detector: Peak
e) Trace: Max hold

Measurement Limit:

Standard	Limit (dBc)
FCC 47 CFR Part 15.247 (d)	> 20

EUT ID: UT35a

Measurement Result:

Ant1 of the result table and result graph corresponds to ant5 of the EUT, ant2 of the result table and result graph corresponds to ant6 of the EUT.

Test Mode	Antenna	Ch Name	Fre [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
11B-MIMO	Ant1	Low	2412	6.95	-35.58	≤-13.05	PASS
	Ant2	Low	2412	7.27	-33.85	≤-12.73	PASS
	Ant1	High	2462	6.93	-46.32	≤-13.07	PASS
	Ant2	High	2462	6.58	-46.55	≤-13.42	PASS

©Copyright. All rights reserved by CTTL.

11G- MIMO	Ant1	Low	2412	3.73	-26.6	≤-16.27	PASS
	Ant2	Low	2412	3.97	-28.83	≤-16.03	PASS
	Ant1	High	2462	4.16	-38.3	≤-15.84	PASS
	Ant2	High	2462	3.26	-36.18	≤-16.74	PASS
11BE20MIMO	Ant1	Low	2412	4.37	-28.47	≤-15.63	PASS
	Ant2	Low	2412	5.27	-26.33	≤-14.73	PASS
	Ant1	High	2462	4.98	-33.94	≤-15.02	PASS
	Ant2	High	2462	4.28	-32.36	≤-15.72	PASS
11BE40MIMO	Ant1	Low	2422	-0.40	-29.69	≤-20.4	PASS
	Ant2	Low	2422	-1.30	-28.16	≤-21.3	PASS
	Ant1	High	2452	-2.64	-32.36	≤-22.64	PASS
	Ant2	High	2452	-2.60	-30.11	≤-22.6	PASS

Test graphs as below:

11B-CDD_Ant1_Low_2412

11B-CDD_Ant2_Low_2412

11B-CDD_Ant1_High_2462

11B-CDD_Ant2_High_2462

©Copyright. All rights reserved by CTTL.

11G-CDD_Ant1_Low_2412

11G-CDD_Ant2_Low_2412

©Copyright. All rights reserved by CTTL.

11G-CDD_Ant1_High_2462

11G-CDD_Ant2_High_2462

©Copyright. All rights reserved by CTTL.

11BE20MIMO_Ant1_Low_2412

11BE20MIMO_Ant2_Low_2412

©Copyright. All rights reserved by CTTL.

18:49:19 14.04.2023

11BE20MIMO_Ant1_High_2462

18:54:28 14.04.2023

11BE20MIMO_Ant2_High_2462

©Copyright. All rights reserved by CTTL.

11BE40MIMO_Ant1_Low_2422

11BE40MIMO_Ant2_Low_2422

©Copyright. All rights reserved by CTTL.

11BE40MIMO_Ant1_High_2452

11BE40MIMO_Ant2_High_2452

©Copyright. All rights reserved by CTTL.

RU mode

Ant1 of the result table and result graph corresponds to ant5 of the EUT, ant2 of the result table and result graph corresponds to ant6 of the EUT.

Test Mode	Antenna	Ch Name	Fre [MHz]	Ru Size	Ru Index	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11BE20 MIMO	Ant1	Low	2412	26Tone	RU0	3.89	-31.44	≤-16.11	PASS
					RU8	3.98	-38.31	≤-16.02	PASS
				52Tone	RU37	3.59	-28.03	≤-16.41	PASS
					RU40	3.88	-34.65	≤-16.12	PASS
				106Tone	RU53	4.49	-26.2	≤-15.51	PASS
					RU54	4.02	-31.1	≤-15.98	PASS
	Ant2	Low	2412	26Tone	RU0	3.52	-32.9	≤-16.48	PASS
					RU8	3.86	-34.34	≤-16.14	PASS
				52Tone	RU37	3.12	-28.88	≤-16.88	PASS
					RU40	4.10	-32.31	≤-15.9	PASS
				106Tone	RU53	4.15	-27.17	≤-15.85	PASS
					RU54	4.01	-30.32	≤-15.99	PASS
	Ant1	High	2462	26Tone	RU0	4.73	-45.82	≤-15.27	PASS
					RU8	3.18	-46.36	≤-16.82	PASS
				52Tone	RU37	4.44	-45.52	≤-15.56	PASS
					RU40	4.12	-45.83	≤-15.88	PASS
				106Tone	RU53	4.65	-42.63	≤-15.35	PASS
					RU54	7.36	-41.9	≤-12.64	PASS
	Ant2	High	2462	26Tone	RU0	4.46	-46.06	≤-15.54	PASS
					RU8	3.22	-45.37	≤-16.78	PASS
				52Tone	RU37	4.04	-42.7	≤-15.96	PASS
					RU40	3.96	-40.1	≤-16.04	PASS

©Copyright. All rights reserved by CTTL.

				106Tone	RU53	3.62	-38.38	≤-16.38	PASS
					RU54	3.51	-37.58	≤-16.49	PASS

Test graphs as below:

11BE20MIMO_Ant1_Low_2412_26Tone_RU0

18:03:56 17.04.2023

11BE20MIMO_Ant1_Low_2412_26Tone_RU8

18:05:45 17.04.2023

11BE20MIMO_Ant1_Low_2412_52Tone_RU37

©Copyright. All rights reserved by CTTL.

18:08:34 17.04.2023

11BE20MIMO_Ant1_Low_2412_52Tone_RU40

18:10:32 17.04.2023

11BE20MIMO_Ant1_Low_2412_106Tone_RU53

©Copyright. All rights reserved by CTTL.

18:12:18 17.04.2023

11BE20MIMO_Ant1_Low_2412_106Tone_RU54

18:14:21 17.04.2023

11BE20MIMO_Ant2_Low_2412_26Tone_RU0

©Copyright. All rights reserved by CTTL.

18:15:43 17.04.2023

11BE20MIMO_Ant2_Low_2412_26Tone_RU8

18:17:06 17.04.2023

11BE20MIMO_Ant2_Low_2412_52Tone_RU37

©Copyright. All rights reserved by CTTL.

18:18:34 17.04.2023

11BE20MIMO_Ant2_Low_2412_52Tone_RU40

18:19:57 17.04.2023

11BE20MIMO_Ant2_Low_2412_106Tone_RU53

©Copyright. All rights reserved by CTTL.

18:21:25 17.04.2023

11BE20MIMO_Ant2_Low_2412_106Tone_RU54

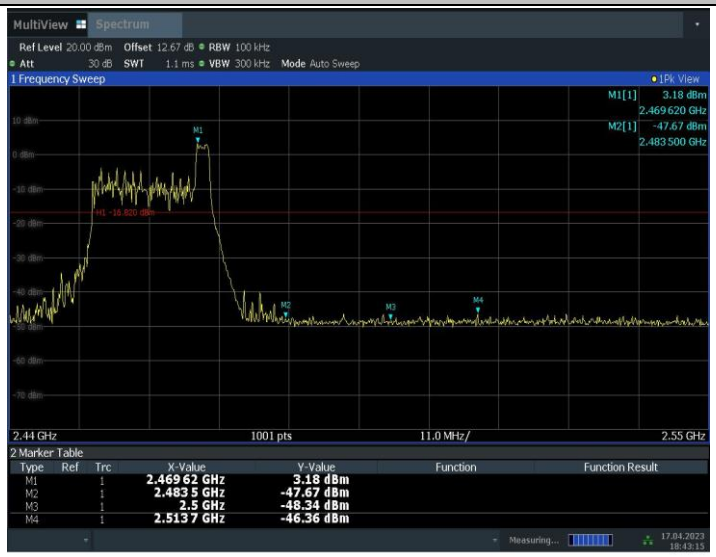
18:22:49 17.04.2023

11BE20MIMO_Ant1_High_2462_26Tone_RU0

©Copyright. All rights reserved by CTTL.

18:41:30 17.04.2023

11BE20MIMO_Ant1_High_2462_26Tone_RU8



18:43:16 17.04.2023

11BE20MIMO_Ant1_High_2462_52Tone_RU37

©Copyright. All rights reserved by CTTL.

11BE20MIMO_Ant1_High_2462_52Tone_RU40

11BE20MIMO_Ant1_High_2462_106Tone_RU53

©Copyright. All rights reserved by CTTL.

11BE20MIMO_Ant1_High_2462_106Tone_RU54

11BE20MIMO_Ant2_High_2462_26Tone_RU0

©Copyright. All rights reserved by CTTL.

18:51:17 17.04.2023

11BE20MIMO_Ant2_High_2462_26Tone_RU8

18:52:46 17.04.2023

11BE20MIMO_Ant2_High_2462_52Tone_RU37

©Copyright. All rights reserved by CTTL.