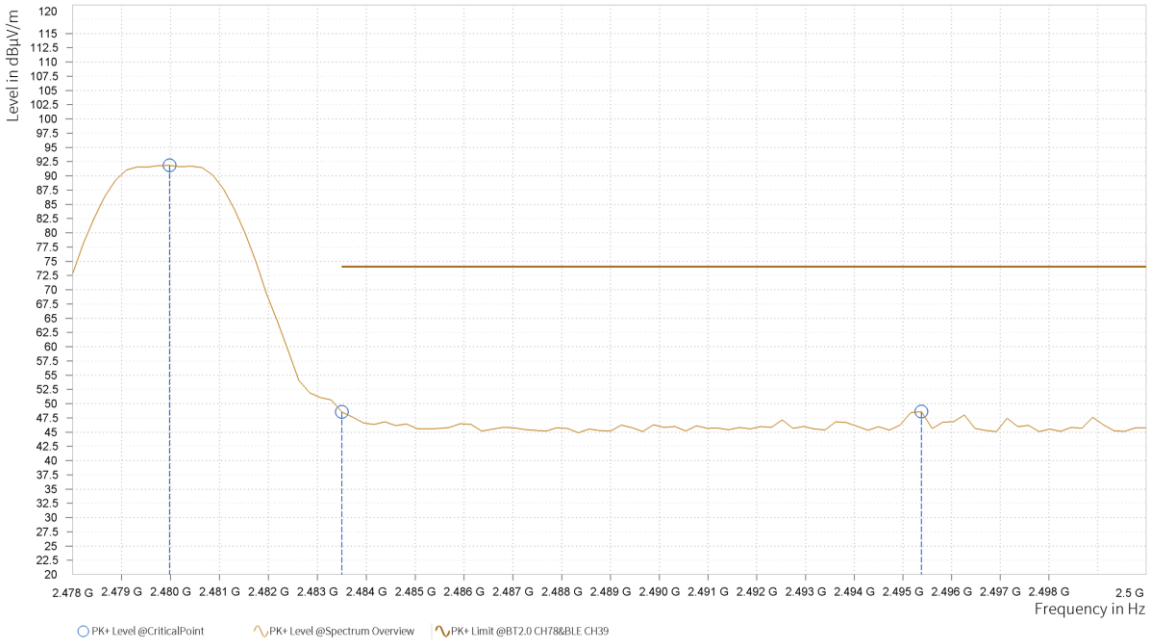
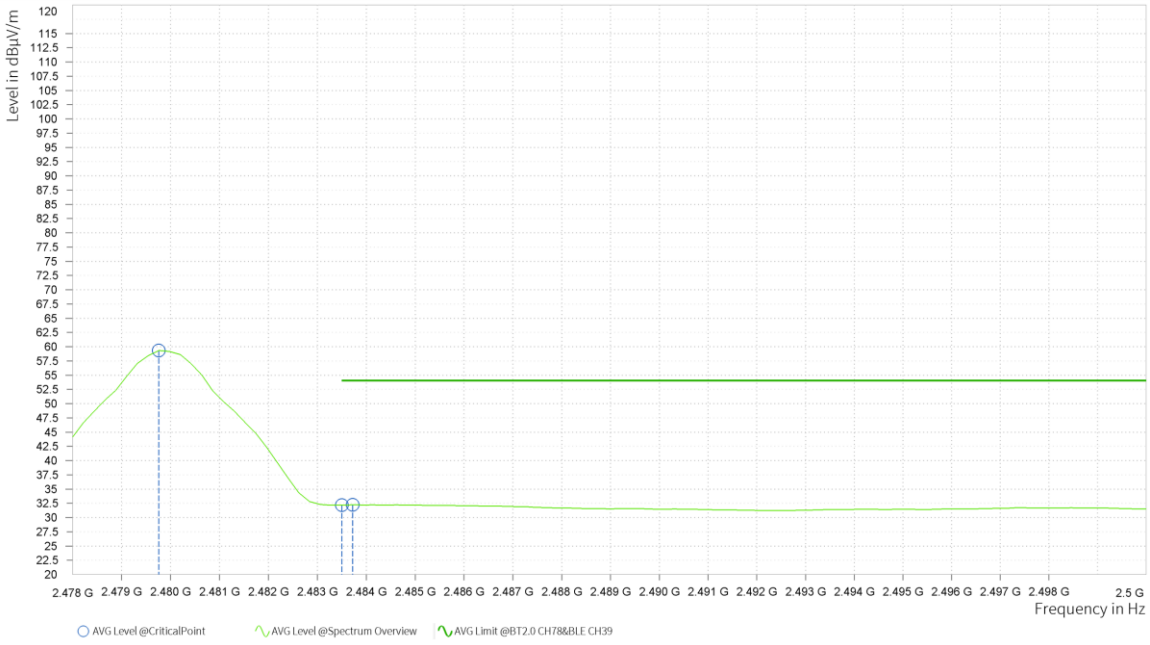
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
6	2,479.980	91.83			7.23	V	47.3	1.00
6	2,483.500	48.53	74.00	25.47	7.18	V	98.7	1.00
6	2,495.380	48.58	74.00	25.42	6.99	V	158.6	2.00



ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
6	2,479.760	59.33			7.24	V	47.4	1.00
6	2,483.500	32.17	54.00	21.83	7.18	V	150.2	1.00
6	2,483.720	32.22	54.00	21.78	7.17	V	150.2	1.00



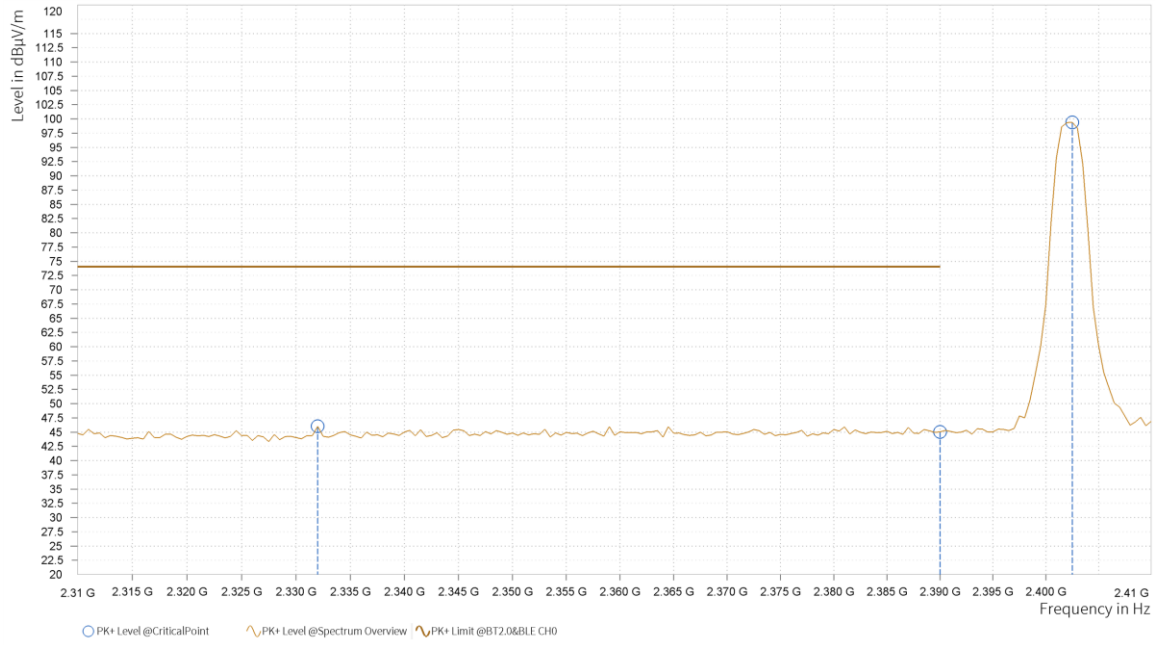
REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
2. Margin value = Limit value–Emission level.
3. 2478MHz: Fundamental frequency.

BT-LE _S2			
CHANNEL	TX Channel 0	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

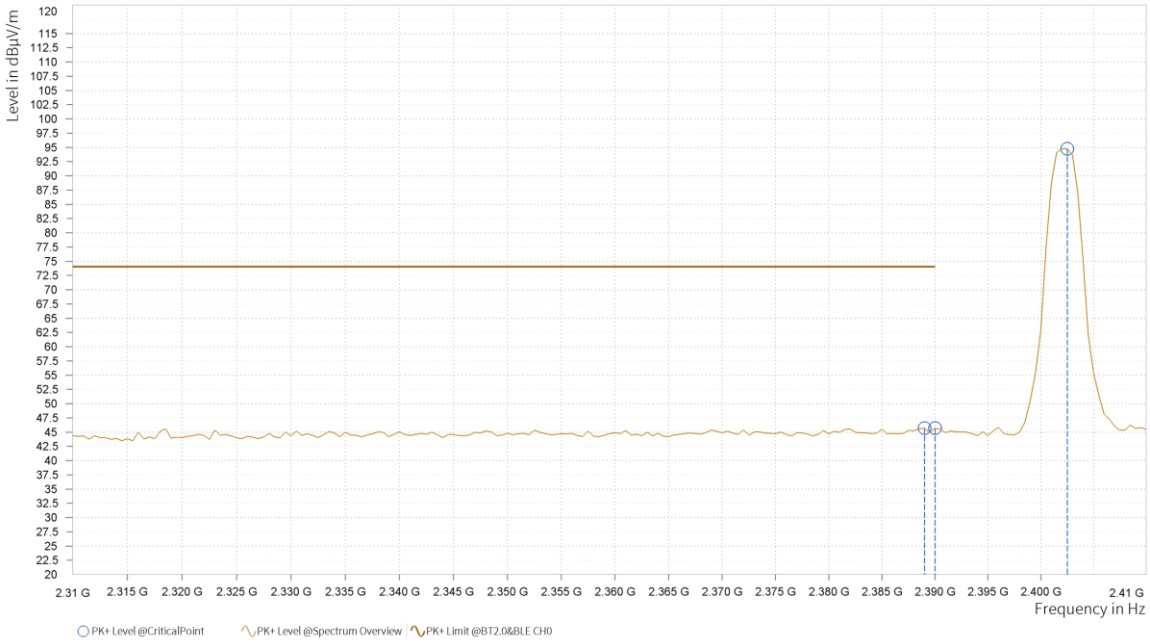
Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ Limit [dBµV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
5	2,332.000	46.02	74.00	27.98	5.81	H	1	1.00
5	2,390.000	45.04	74.00	28.96	6.39	H	45	1.00
5	2,402.500	99.41			6.60	H	5.1	1.00



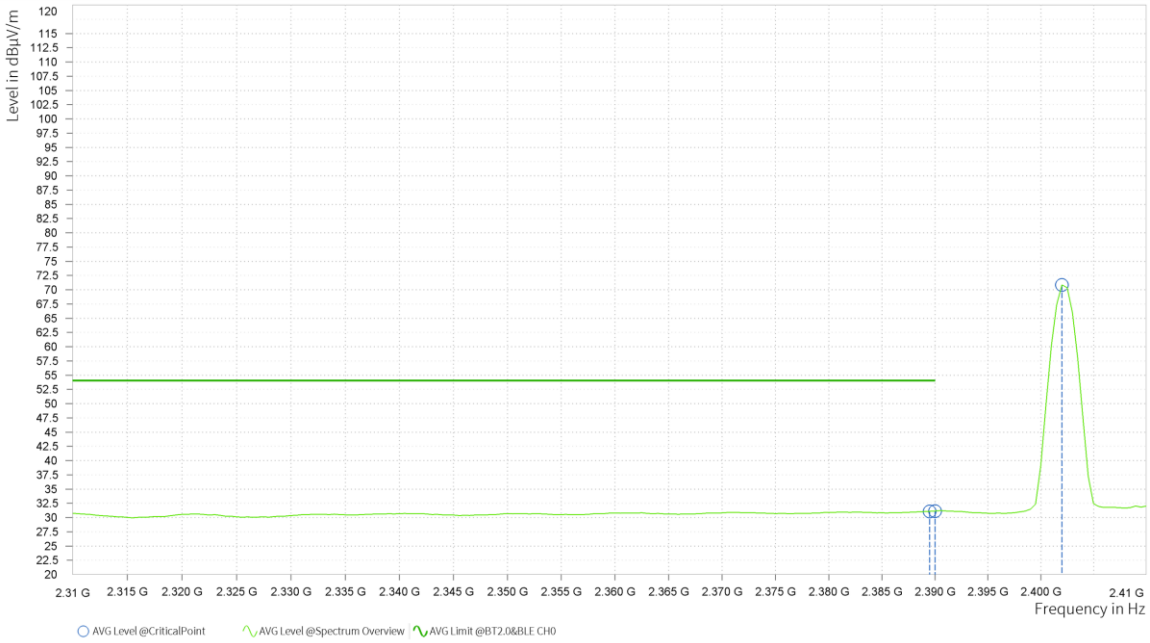
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
5	2,358.500	31.25	54.00	22.75	5.98	H	157.3	2.00
5	2,390.000	31.12	54.00	22.88	6.39	H	99.9	1.00
5	2,402.000	74.69			6.59	H	5.1	1.00

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
5	2,389.000	45.70	74.00	28.30	6.37	V	144.2	1.00
5	2,390.000	45.69	74.00	28.31	6.39	V	359.1	1.00
5	2,402.500	94.77			6.60	V	94	1.00



ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
5	2,389.500	31.08	54.00	22.92	6.38	V	254.2	1.00
5	2,390.000	31.13	54.00	22.87	6.39	V	162.2	2.00
5	2,402.000	70.85			6.59	V	95.2	1.00



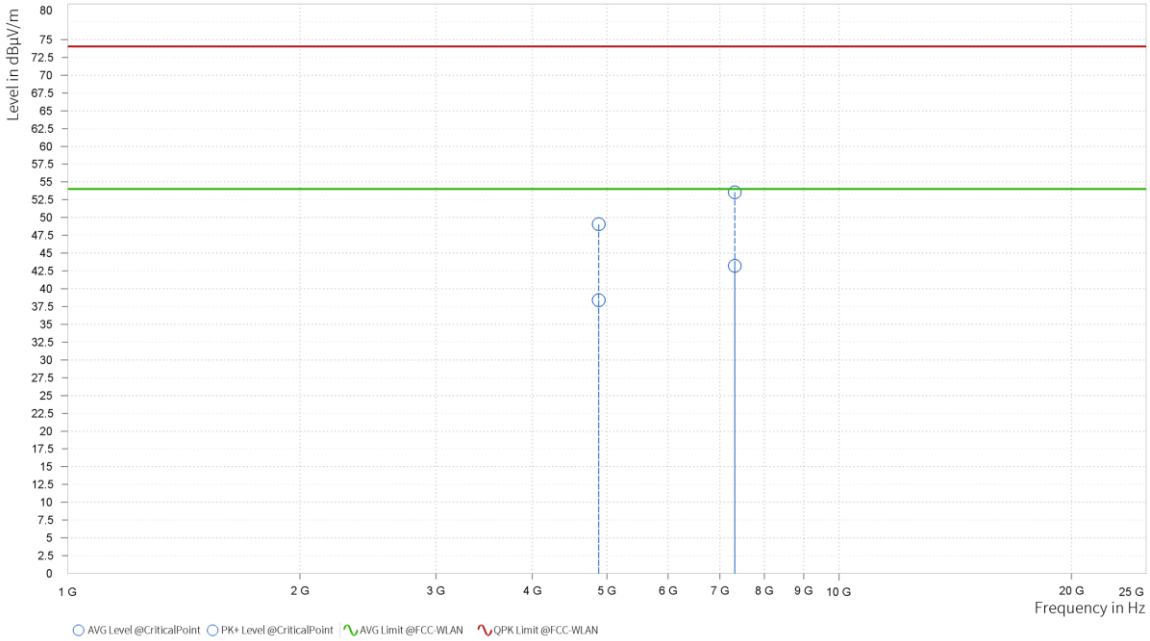
REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
2. Margin value = Limit value–Emission level.
3. 2402MHz: Fundamental frequency.

CHANNEL	TX Channel 19	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

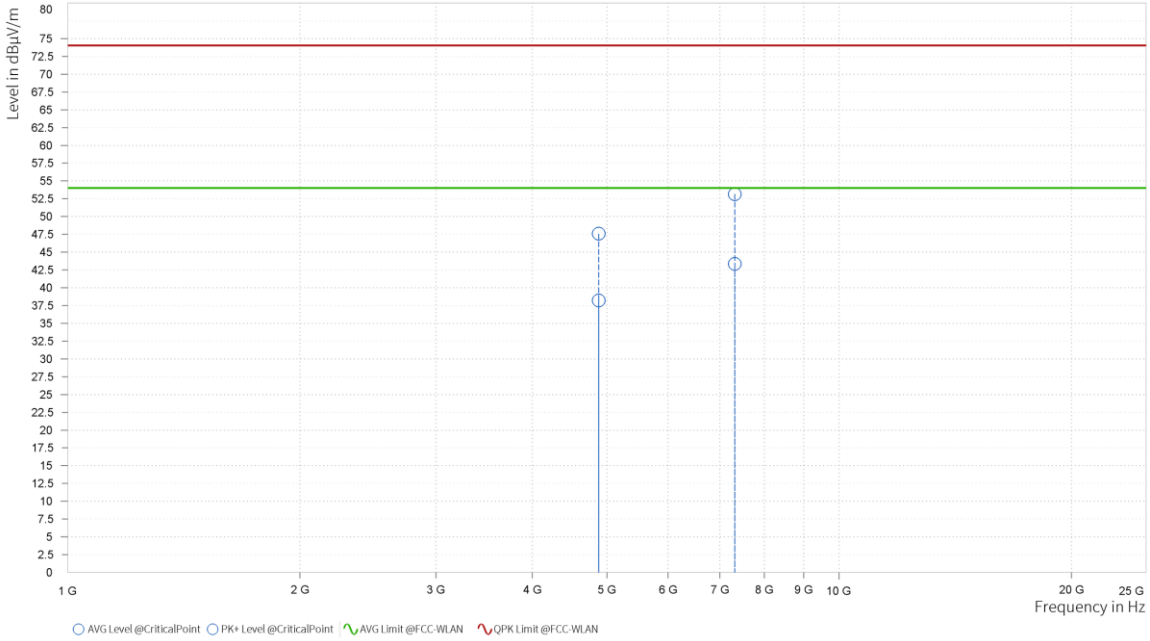
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+: QPK Limit [dBµV/m]	PK+ Margin [dB]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
3	4,880.000	49.06	74.00	24.94	38.39	54.00	15.61	13.81	H	237.5	1.00
3	7,320.000	53.56	74.00	20.44	43.22	54.00	10.78	19.47	H	105.9	2.00



ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+: QPK Limit [dBµV/m]	PK+ Margin [dB]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
3	4,880.000	47.58	74.00	26.42	38.22	54.00	15.78	13.81	V	359.1	1.00
3	7,320.000	53.14	74.00	20.86	43.36	54.00	10.64	19.47	V	1	1.00



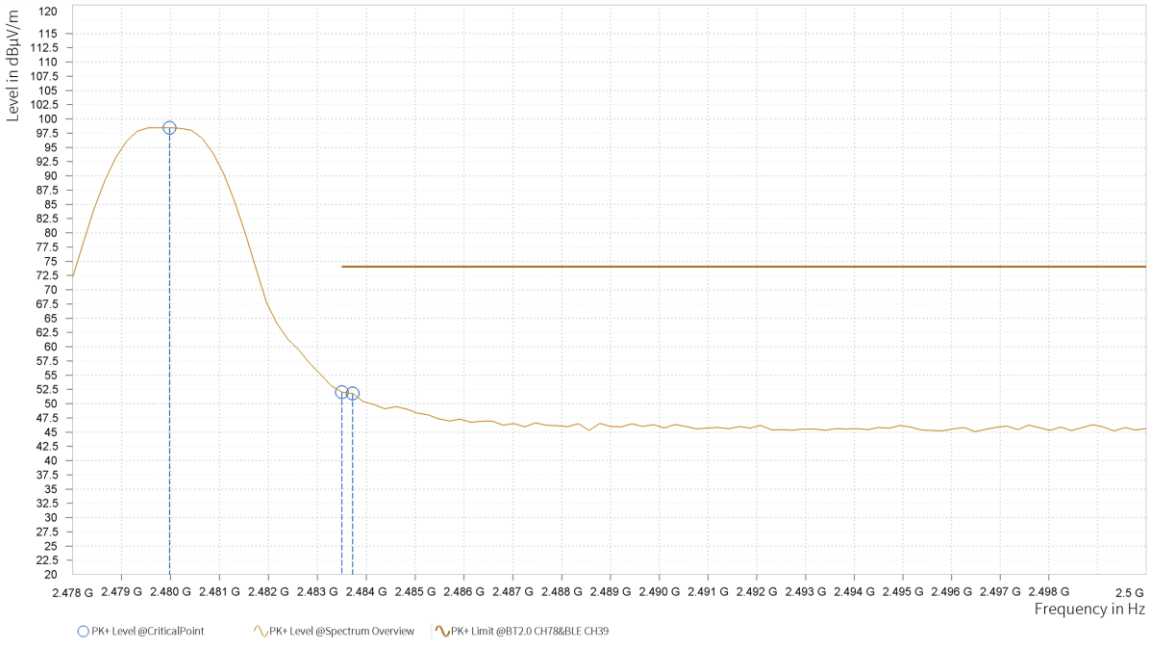
REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
2. Margin value = Limit value–Emission level.
3. 2440MHz: Fundamental frequency.

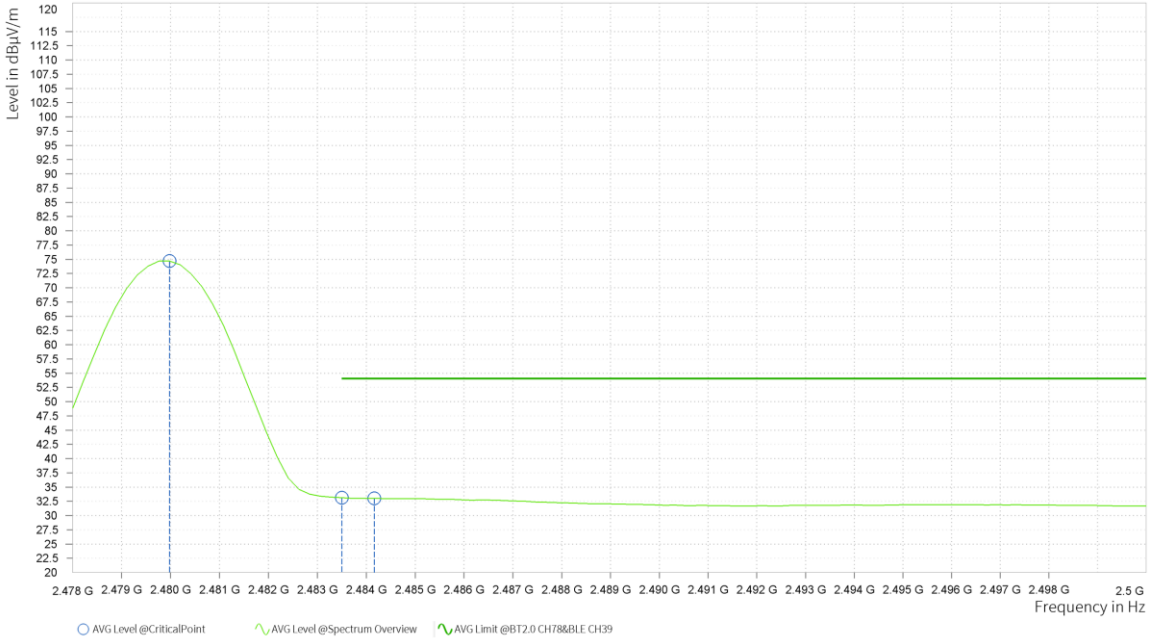
CHANNEL	TX Channel 39	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

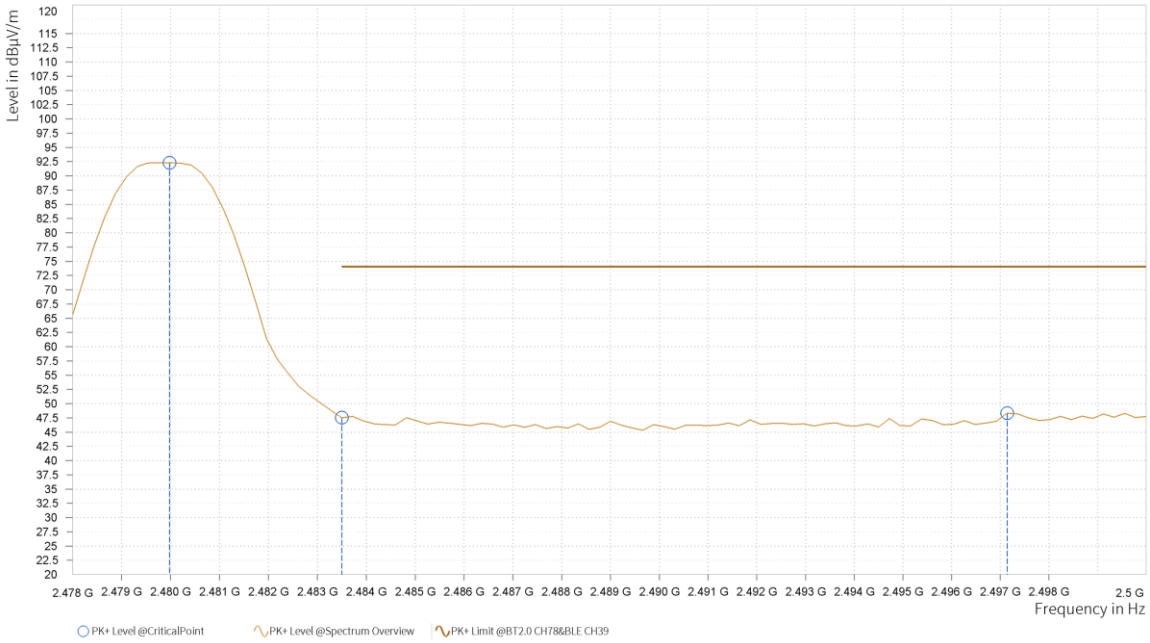
Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
6	2,479.980	98.46			7.23	H	62.9	2.00
6	2,483.500	52.02	74.00	21.98	7.18	H	214.7	2.00
6	2,483.720	51.77	74.00	22.23	7.17	H	214.7	2.00



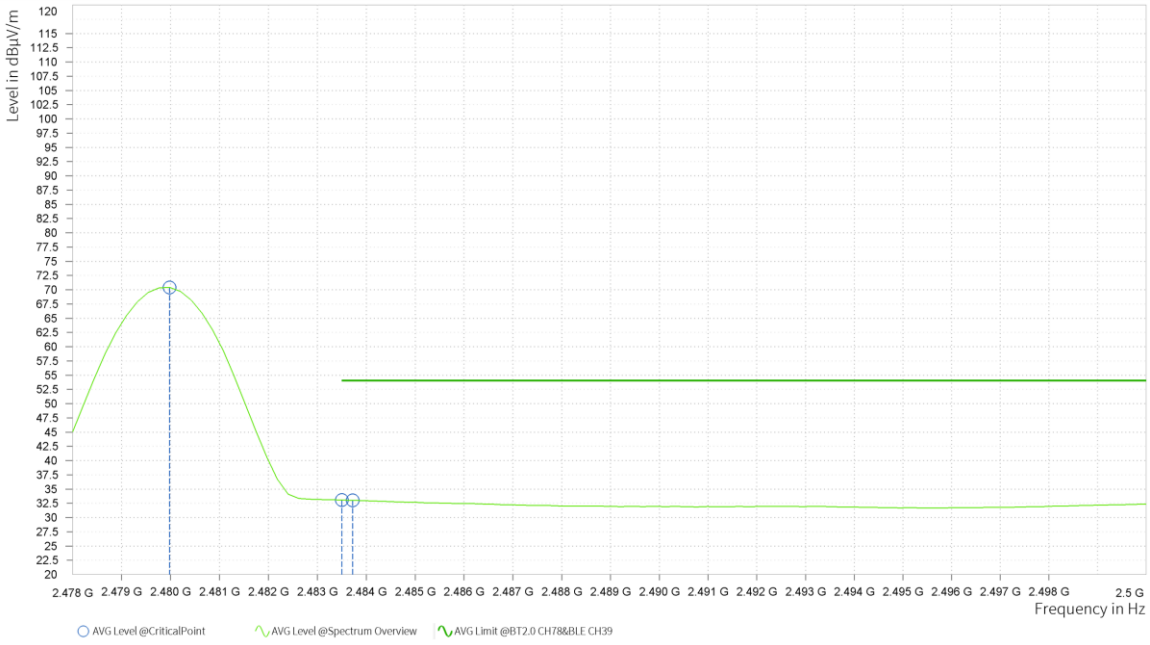
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
Rg	Frequency [MHz]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
6	2,479.980	74.68			7.23	H	208.7	2.00
6	2,483.500	33.13	54.00	20.87	7.18	H	208.7	2.00
6	2,484.160	33.04	54.00	20.96	7.17	H	155	2.00



ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ Limit [dBµV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
6	2,479.980	92.31			7.23	V	47.3	1.00
6	2,483.500	47.52	74.00	26.48	7.18	V	47.3	1.00
6	2,497.140	48.32	74.00	25.68	6.97	V	209.9	2.00



ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
6	2,479.980	70.41			7.23	V	102.4	1.00
6	2,483.500	33.06	54.00	20.94	7.18	V	111.9	2.00
6	2,483.720	33.02	54.00	20.98	7.17	V	111.9	2.00



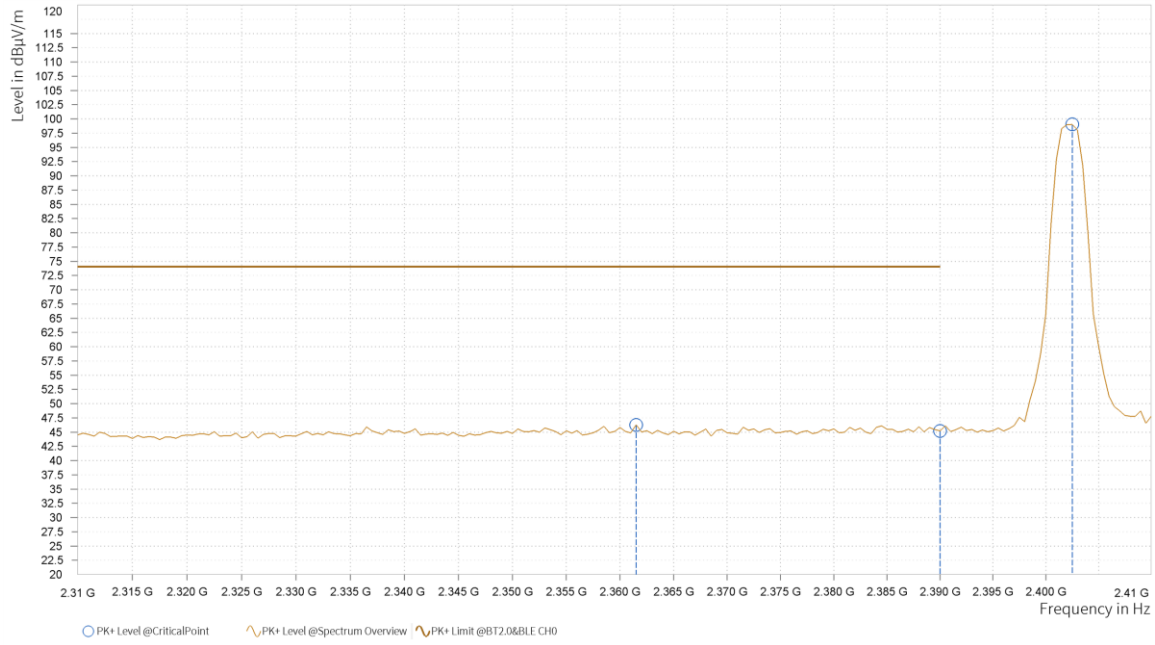
REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
2. Margin value = Limit value–Emission level.
3. 2480MHz: Fundamental frequency.

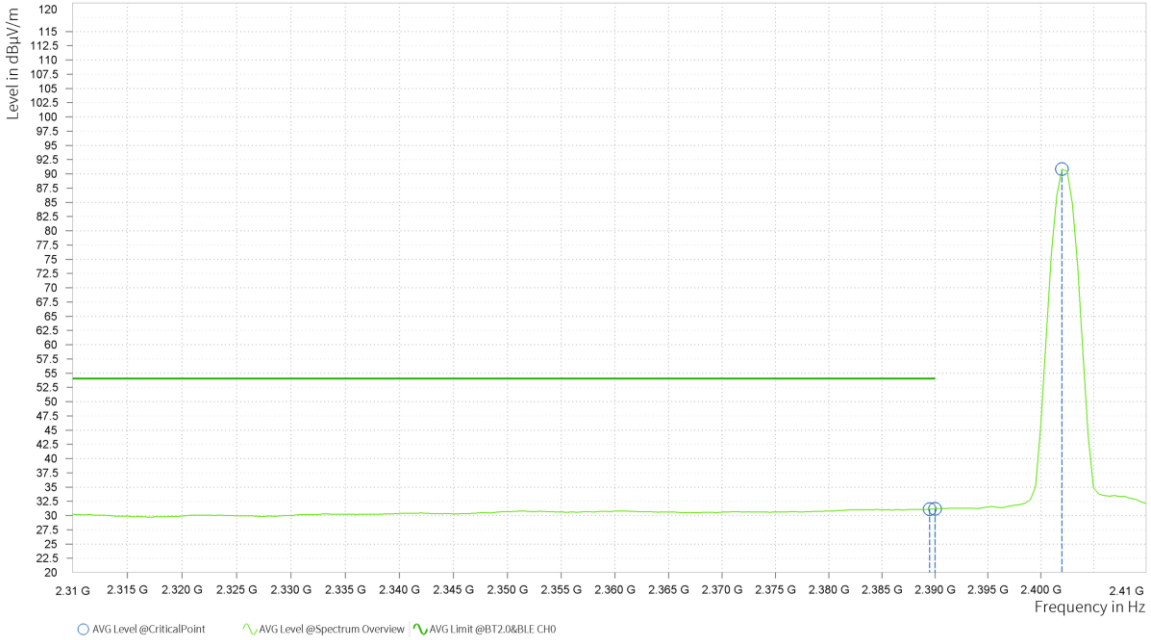
BT-LE _S8			
CHANNEL	TX Channel 0	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

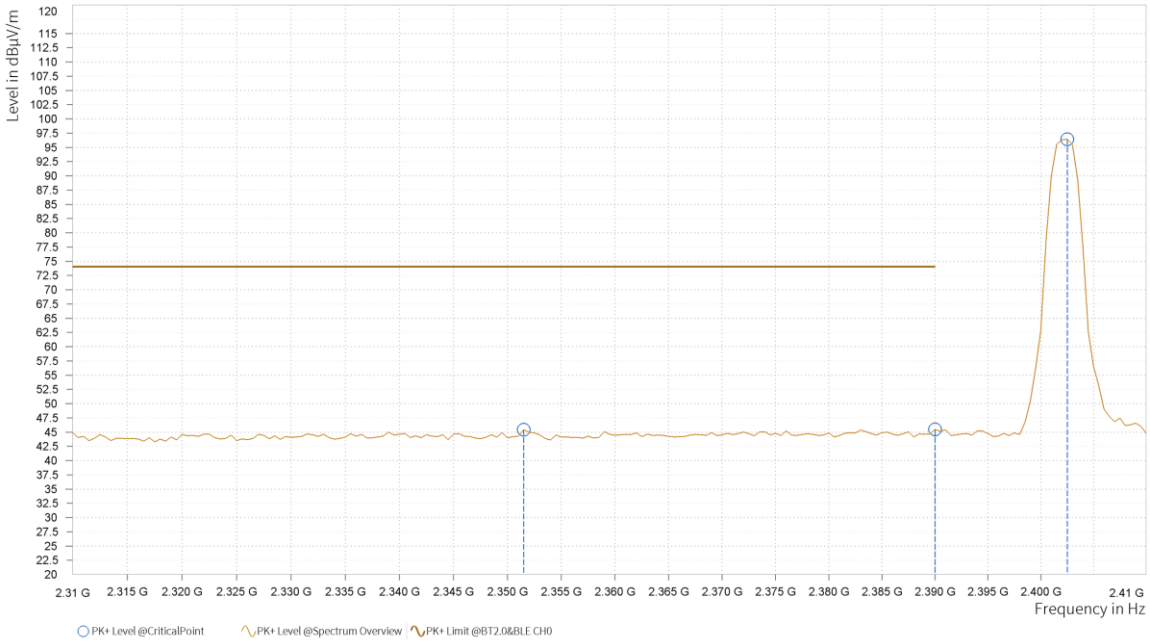
Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ Limit [dBµV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
5	2,361.500	46.28	74.00	27.72	5.99	H	95.2	1.00
5	2,390.000	45.21	74.00	28.79	6.39	H	215.8	2.00
5	2,402.500	99.03			6.60	H	143	1.00



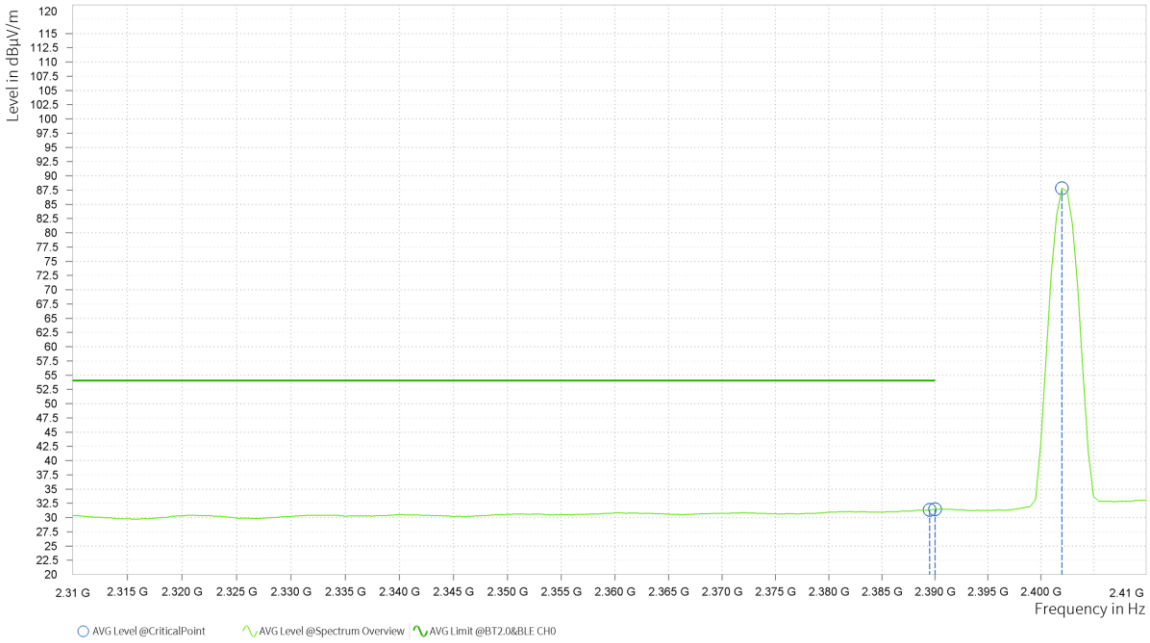
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
Rg	Frequency [MHz]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
5	2,389.500	31.12	54.00	22.88	6.38	H	192	2.00
5	2,390.000	31.18	54.00	22.82	6.39	H	192	2.00
5	2,402.000	90.84			6.59	H	5.8	1.00



ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
5	2,351.500	45.42	74.00	28.58	5.93	V	206.3	2.00
5	2,390.000	45.47	74.00	28.53	6.39	V	213.5	1.00
5	2,402.500	96.44			6.60	V	101.2	1.00



ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
5	2,389.500	31.32	54.00	22.68	6.38	V	150.2	2.00
5	2,390.000	31.48	54.00	22.52	6.39	V	150.2	2.00
5	2,402.000	87.84			6.59	V	100.1	1.00



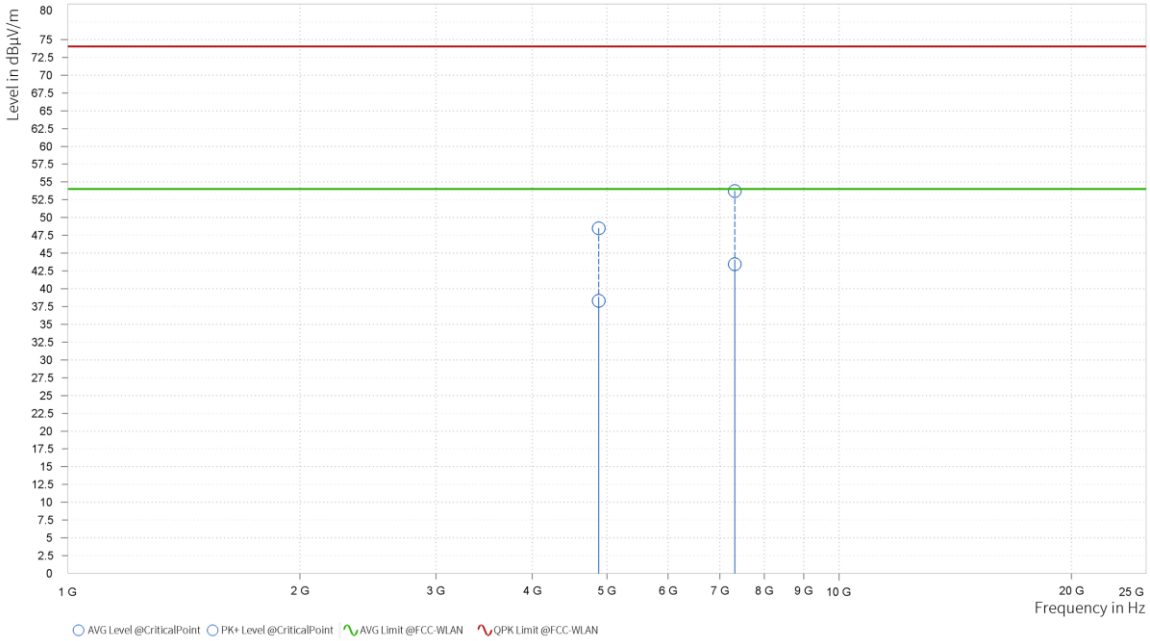
REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor.
2. Margin value = Limit value–Emission level.
3. 2402MHz: Fundamental frequency.

CHANNEL	TX Channel 19	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

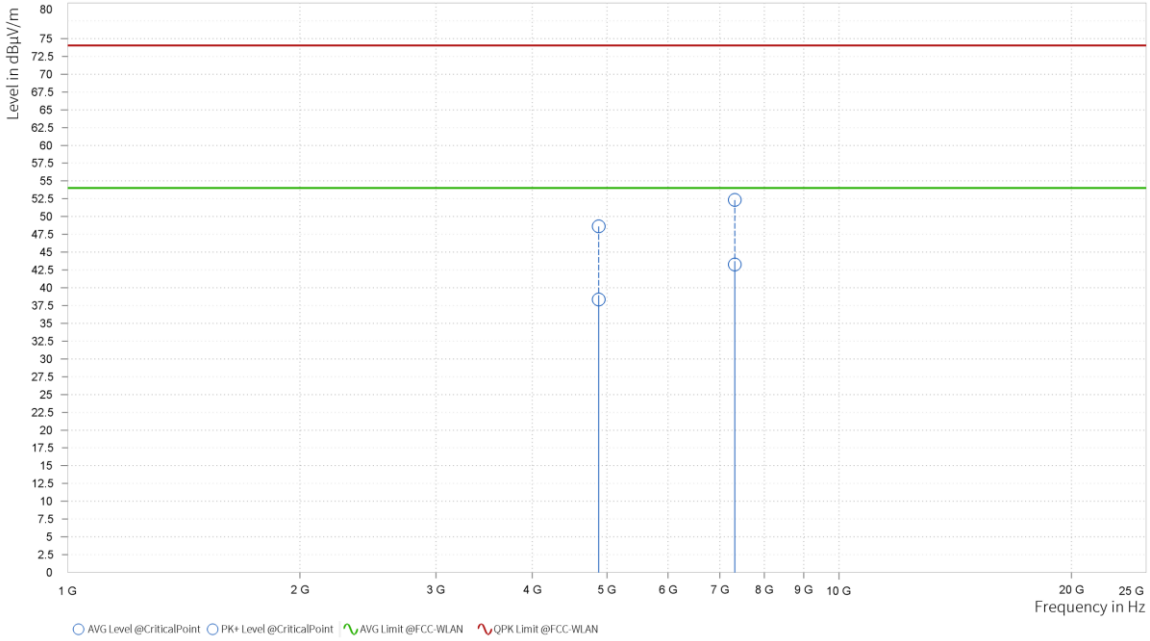
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+: QPK Limit [dBµV/m]	PK+ Margin [dB]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
3	4,880.000	48.51	74.00	25.49	38.29	54.00	15.71	13.81	H	359	2.00
3	7,320.000	53.73	74.00	20.27	43.45	54.00	10.55	19.47	H	1	1.00



ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+: QPK Limit [dBµV/m]	PK+ Margin [dB]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
3	4,880.000	48.61	74.00	25.39	38.35	54.00	15.65	13.81	V	0.9	2.00
3	7,320.000	52.33	74.00	21.67	43.26	54.00	10.74	19.47	V	235	1.00



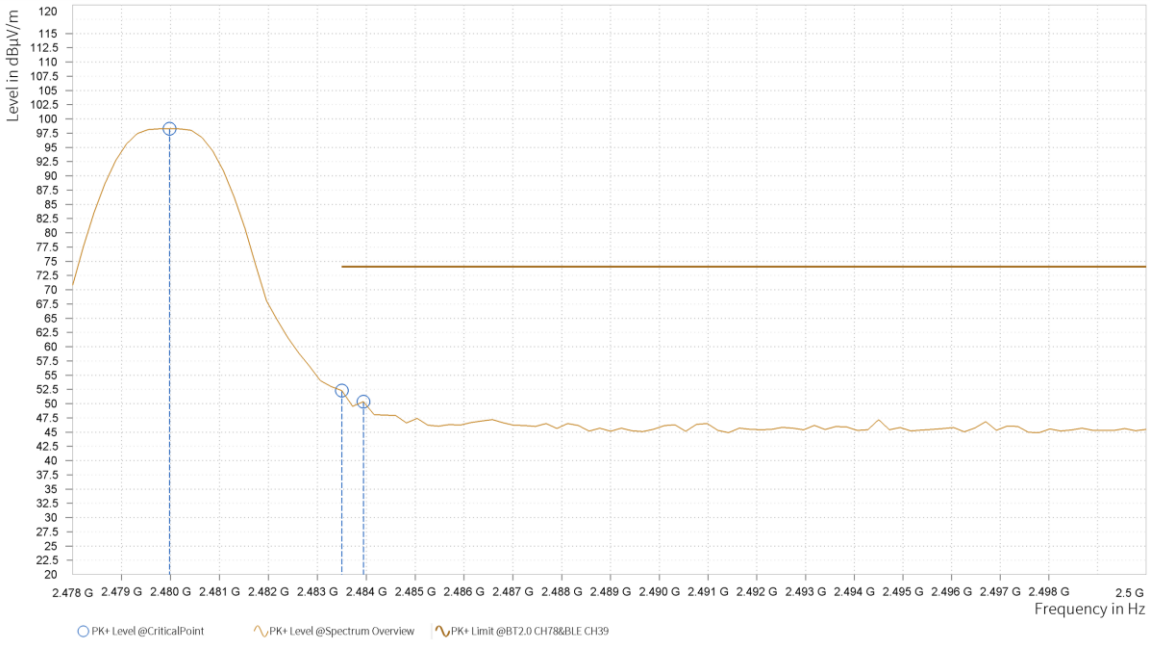
REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
2. Margin value = Limit value–Emission level.
3. 2440MHz: Fundamental frequency.

CHANNEL	TX Channel 39	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

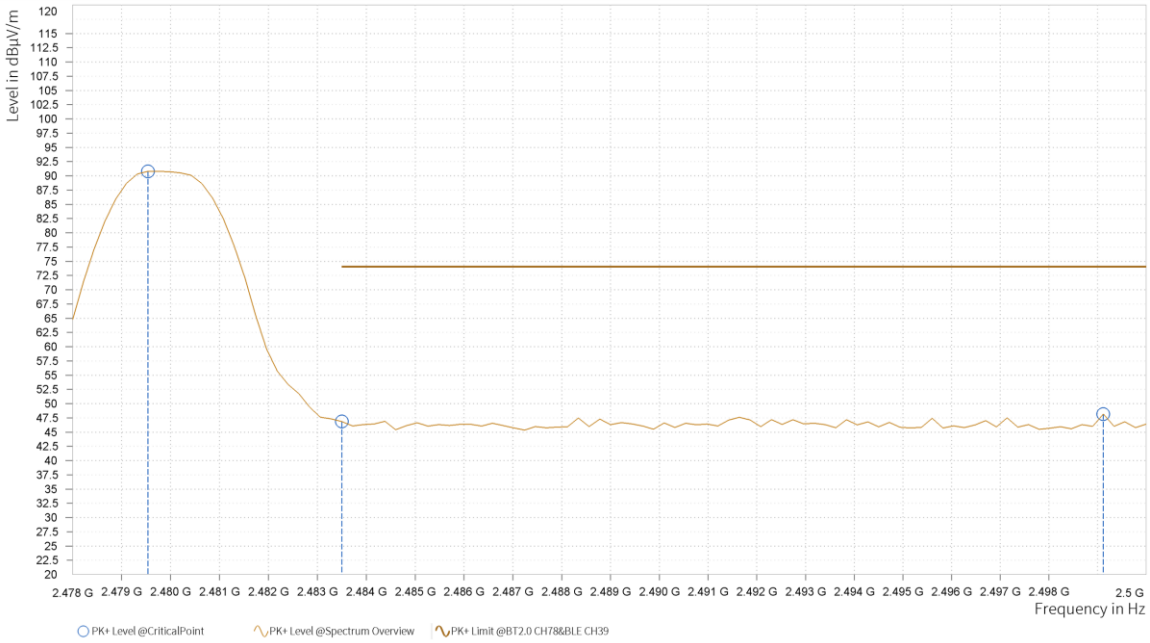
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
6	2,479.980	98.27			7.23	H	224.2	2.00
6	2,483.500	52.28	74.00	21.72	7.18	H	224.2	2.00
6	2,483.940	50.35	74.00	23.65	7.17	H	224.2	2.00

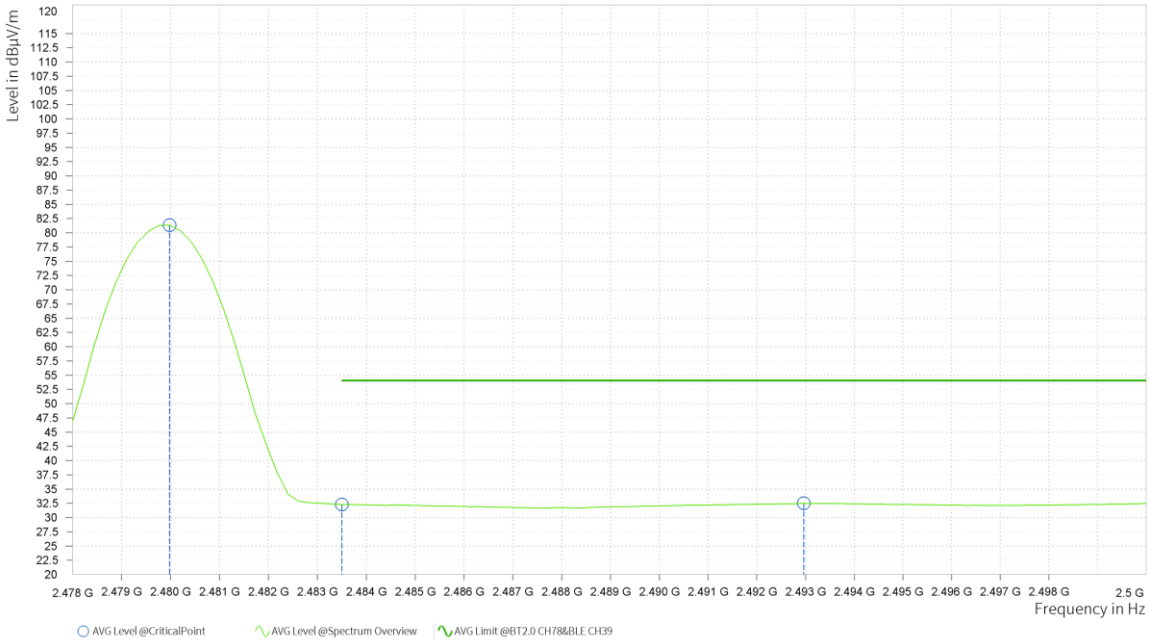


ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
Rg	Frequency [MHz]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
6	2,479.980	88.08			7.23	H	205.1	2.00
6	2,483.500	32.98	54.00	21.02	7.18	H	205.1	2.00
6	2,483.720	32.91	54.00	21.09	7.17	H	151.4	2.00

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
6	2,479.540	90.80			7.24	V	104.7	1.00
6	2,483.500	46.84	74.00	27.16	7.18	V	104.7	1.00
6	2,499.120	48.17	74.00	25.83	6.94	V	104.7	1.00



ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
6	2,479.980	81.35			7.23	V	48.6	1.00
6	2,483.500	32.28	54.00	21.72	7.18	V	156.2	1.00
6	2,492.960	32.50	54.00	21.50	7.03	V	151.3	2.00



REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
2. Margin value = Limit value–Emission level.
3. 2480MHz: Fundamental frequency.

3.3 6 dB BANDWIDTH MEASUREMENT

3.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum 6dB Bandwidth Measurement is 0.5 MHz.

3.3.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	R&S	ESW 44	101973	Feb.24,24	Feb.23,26
Open SwitCH and Control Unit	R&S	OSP-B157W8	100836	N/A	N/A
Vector Signal Generator	R&S	SMBV100B	102176	Feb.15,24	Feb.14,26
Signal Generator	R&S	SMB100A03	182185	Feb.15,24	Feb.14,26
Wideband Radio Communication	R&S	CMW500	169399	Jun.25,24	Jun.24,26
Hygrothermograph	DELI	20210528	SZ015	Sep.05,24	Sep.04,26
PC	LENOVO	E14	HRSW0024	N/A	N/A
CABLE	R&S	J12J103539-00-1	SEP-03-20-069	Apr.27,24	Apr.26,26
CABLE	R&S	J12J103539-00-1	SEP-03-20-070	Apr.27,24	Apr.26,26
Test Software	EMC32	EMC32	N/A	N/A	N/A
Temperature Chamber	votsCH	VT4002	58566078100050	May.30,24	May.29,26
Power Meter	R&S	NRX	102380	Feb.15,24	Feb.14,26
Power Meter probe	R&S	NRP6A	102942	Feb.15,24	Feb.14,26

NOTE:

1. The calibration interval of the above test instruments is 12/ 24 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.
2. The test was performed in RF Oven room.

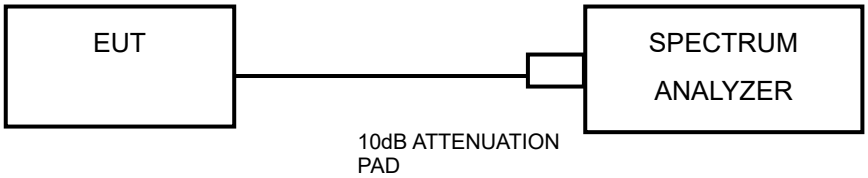
3.3.3 TEST PROCEDURE

1. Set RBW = shall be in the·range·of 1%·to·5%of the·OBW·but not less than·100 kHz.
2. Set the video bandwidth (VBW) ≥ 3 RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. 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.

3.3.4 DEVIATION FROM TEST STANDARD

No deviation.

3.3.5 TEST SETUP



3.3.6 EUT OPERATING CONDITIONS

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest CHannel frequencies individually.

3.3.7 TEST RESULTS

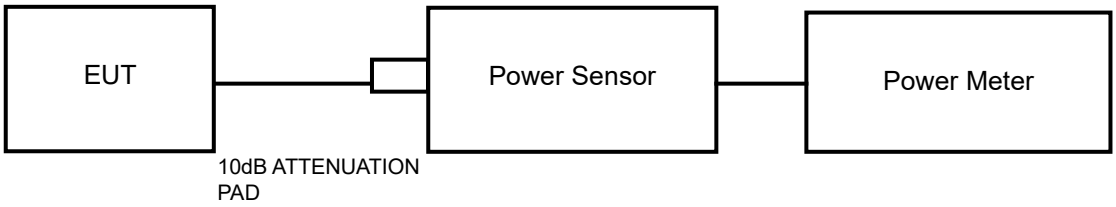
Please Refer to Appendix A and B Of this test report..

3.4 CONDUCTED OUTPUT POWER

3.4.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT

For systems using digital modulation in the 2400–2483.5 MHz band: 1 Watt (30dBm)

3.4.2 TEST SETUP



3.4.3 TEST INSTRUMENTS

Refer to section 3.3.2 to get information of above instrument.

3.4.4 TEST PROCEDURES

A peak power sensor was used on the output port of the EUT. A power meter was used to read the response of the peak power sensor. Record the power level.

3.4.5 DEVIATION FROM TEST STANDARD

No deviation.

3.4.6 EUT OPERATING CONDITIONS

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest CHannel frequencies individually.

3.4.7 TEST RESULTS

3.4.7.1 MAXIMUM PEAK OUTPUT POWER

Please Refer to Appendix A and B Of this test report..

3.4.7.2 AVERAGE OUTPUT POWER (FOR REFERENCE)

The average power sensor was used on the output port of the EUT. A power meter was used to read the response of the power sensor. Record the power level.

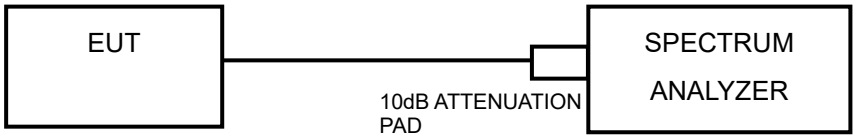
Please Refer to Appendix A and B Of this test report..

3.5 POWER SPECTRAL DENSITY MEASUREMENT

3.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm/3KHz.

3.5.2 TEST SETUP



3.5.3 TEST INSTRUMENTS

Refer to section 3.3.2 to get information of above instrument.

3.5.4 TEST PROCEDURE

1. Set the span to 1.5 times the DTS bandwidth
2. Set the RBW = 3 kHz, VBW ≥ 3 x RBW, Detector = peak.
3. Sweep time = auto couple, Trace mode = max hold, allow trace to fully stabilize.
4. Use the peak marker function to determine the maximum amplitude level.

3.5.5 DEVIATION FROM TEST STANDARD

No deviation.

3.5.6 EUT OPERATING CONDITION

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest CHannel frequencies individually.

3.5.7 TEST RESULTS

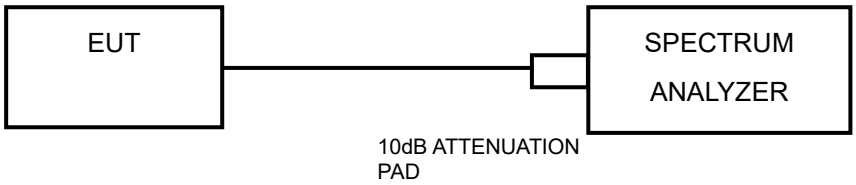
Please Refer to Appendix A and B Of this test report..

3.6 OUT OF BAND EMISSION MEASUREMENT

3.6.1 LIMITS OF OUT OF BAND EMISSION MEASUREMENT

Below –20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

3.6.2 TEST SETUP



3.6.3 TEST INSTRUMENTS

Refer to section 3.3.2 to get information of above instrument.

3.6.4 TEST PROCEDURE

MEASUREMENT PROCEDURE REF

1. Set the RBW = 100 kHz.
2. Set the VBW ≥ 300 kHz.
3. Detector = peak.
4. Sweep time = auto couple.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

MEASUREMENT PROCEDURE OOBE

1. Set RBW = 100 kHz.
2. Set VBW ≥ 300 kHz.
3. Set span to encompass the spectrum to be examined
4. Detector = peak.
5. Trace Mode = max hold.
6. Sweep = auto couple.

3.6.5 DEVIATION FROM TEST STANDARD

No deviation.

3.6.6 EUT OPERATING CONDITION

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest CHannel frequencies individually.

3.6.7 TEST RESULTS

The spectrum plots are attaCHed on the following images. D1 line indicates the highest level. D2 line indicates the 20dB offset below D1. It shows compliance to the requirement.

Please Refer to Appendix A and B Of this test report..

3.7 ANTENNA REQUIREMENTS

3.7.1 STANDARD APPLICABLE

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit and PSD limit.

4 PHOTOGRAPHS OF THE TEST CONFIGURATION

Please refer to the attaCHed file (Test Setup Photo).

5 MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications are made to the EUT by the lab during the test.

6 APPENDIX A:WIFI

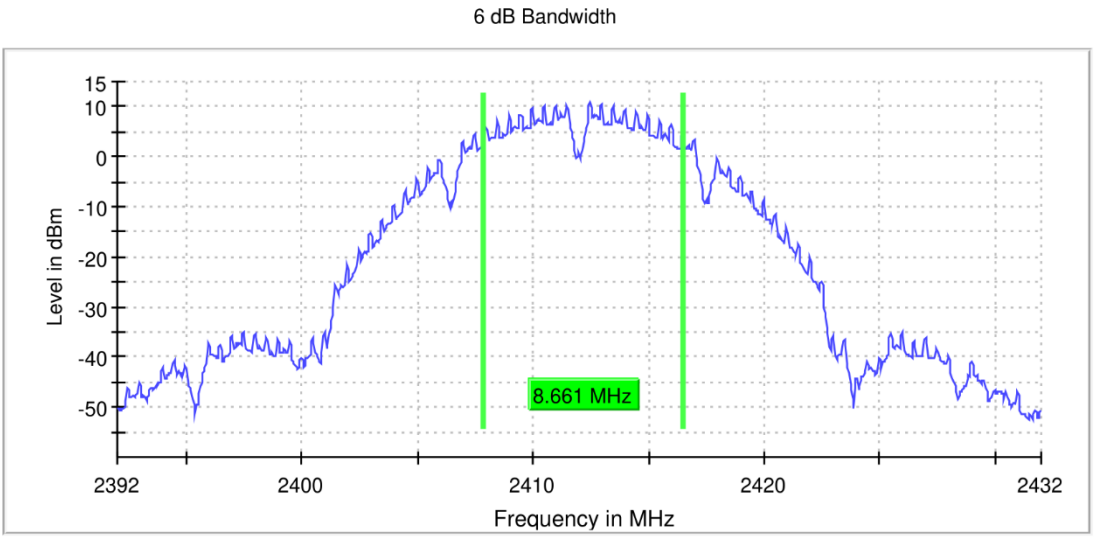
DTS BANDWIDTH

TEST RESULT

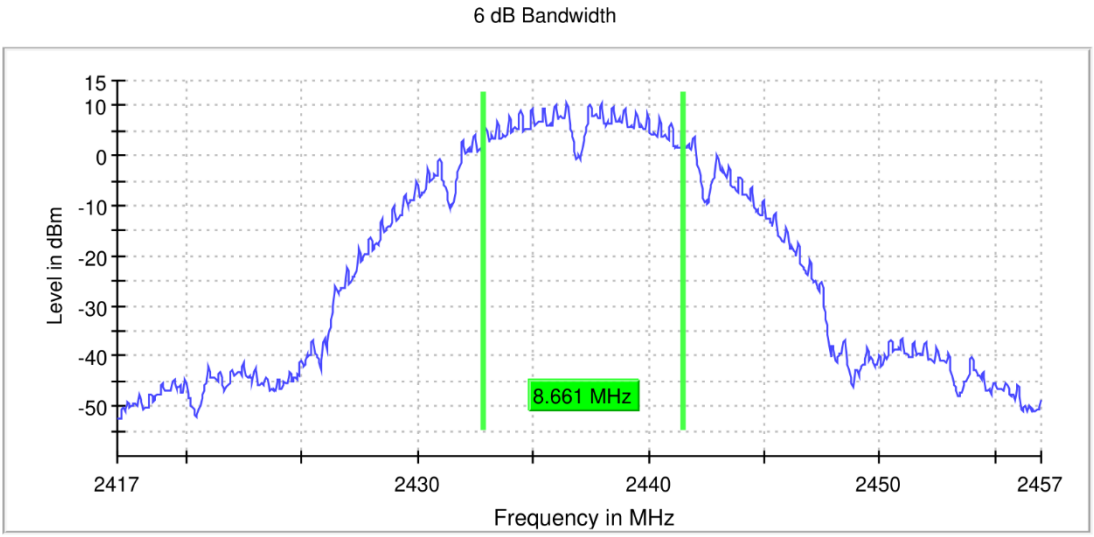
TestMode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	ANT7	2412	8.661	2407.870	2416.531	0.5	PASS
	ANT7	2437	8.661	2432.870	2441.531	0.5	PASS
	ANT7	2462	8.711	2457.369	2466.080	0.5	PASS
11G	ANT7	2412	16.020	2404.165	2420.185	0.5	PASS
	ANT7	2437	15.820	2429.365	2445.185	0.5	PASS
	ANT7	2462	15.569	2454.015	2469.584	0.5	PASS
11N20	ANT7	2412	16.070	2404.365	2420.435	0.5	PASS
	ANT7	2437	16.170	2429.365	2445.535	0.5	PASS
	ANT7	2462	15.569	2454.015	2469.584	0.5	PASS
11N40	ANT7	2422	35.822	2404.414	2440.236	0.5	PASS
	ANT7	2437	35.822	2419.414	2455.236	0.5	PASS
	ANT7	2452	35.222	2434.414	2469.636	0.5	PASS

TEST GRAPHS

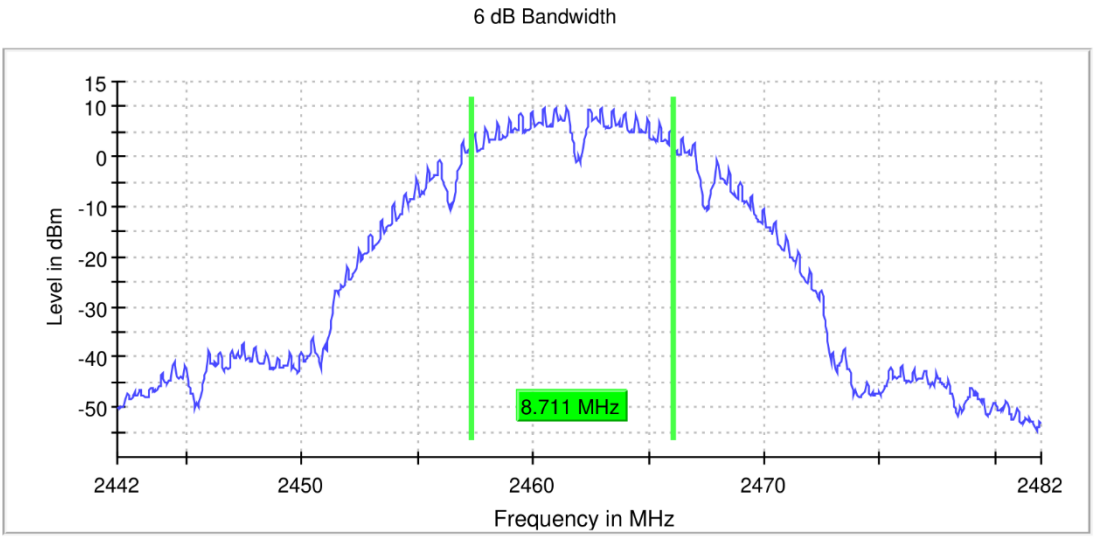
11B_ANT7_2412



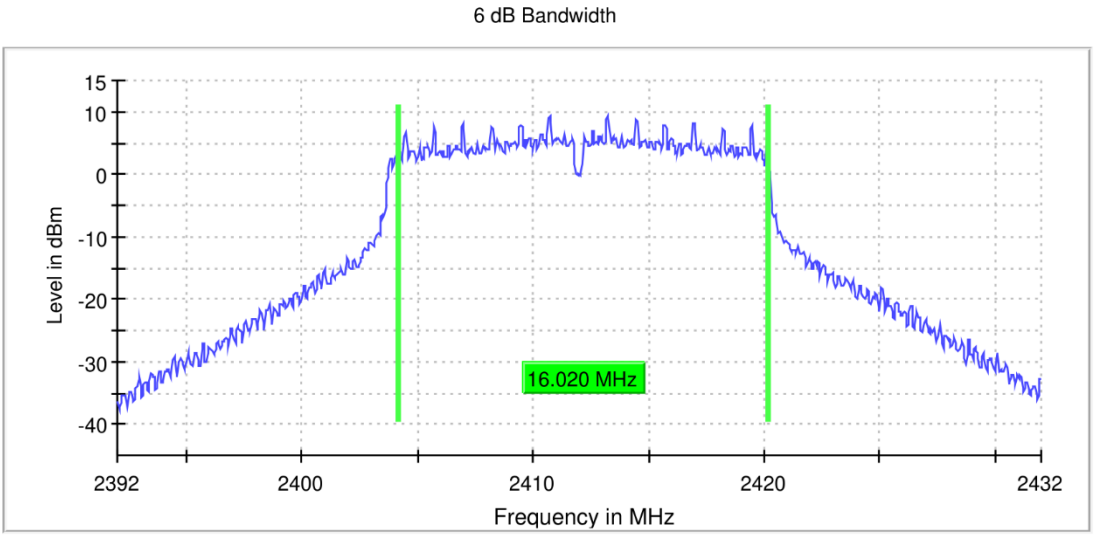
11B_ANT7_2437



11B_ANT7_2462

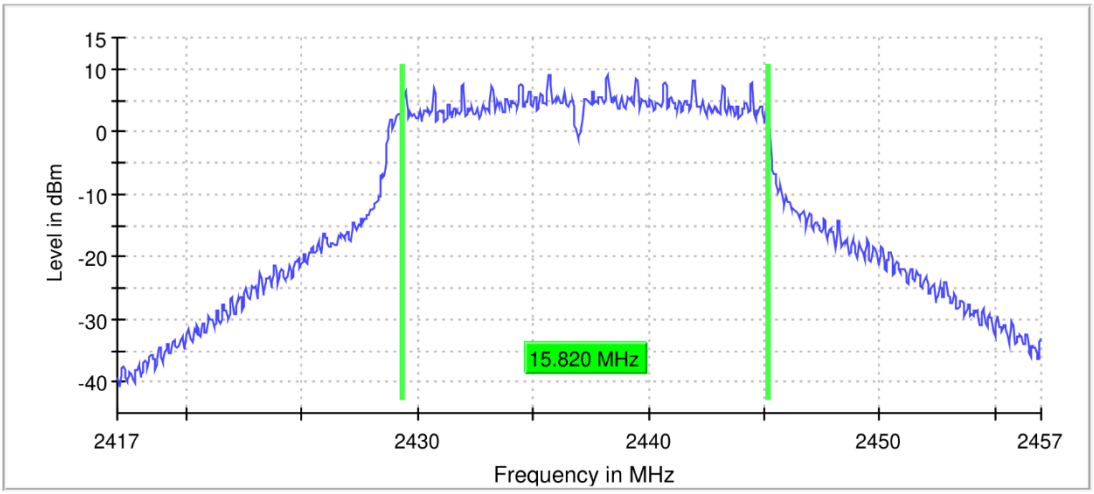


11G_ANT7_2412



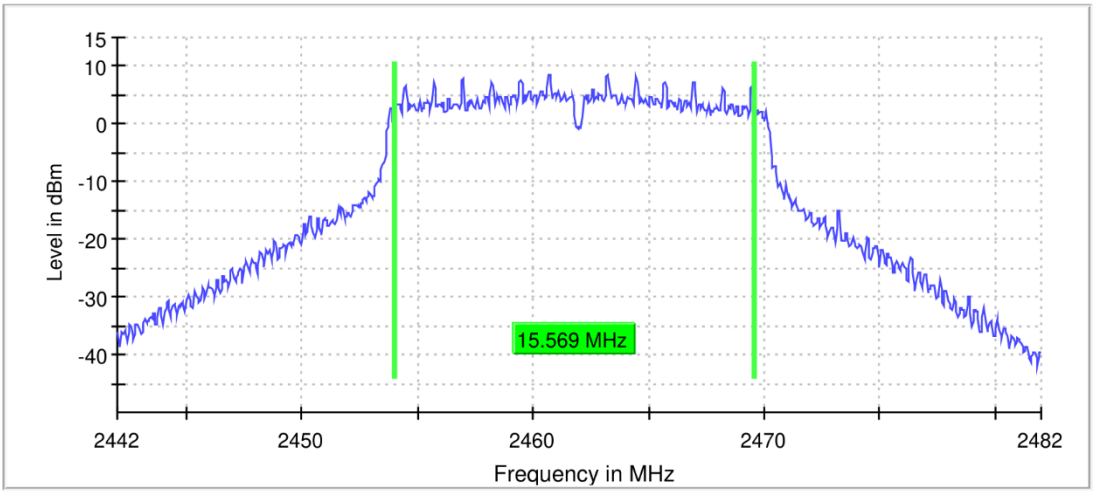
11G_ANT7_2437

6 dB Bandwidth



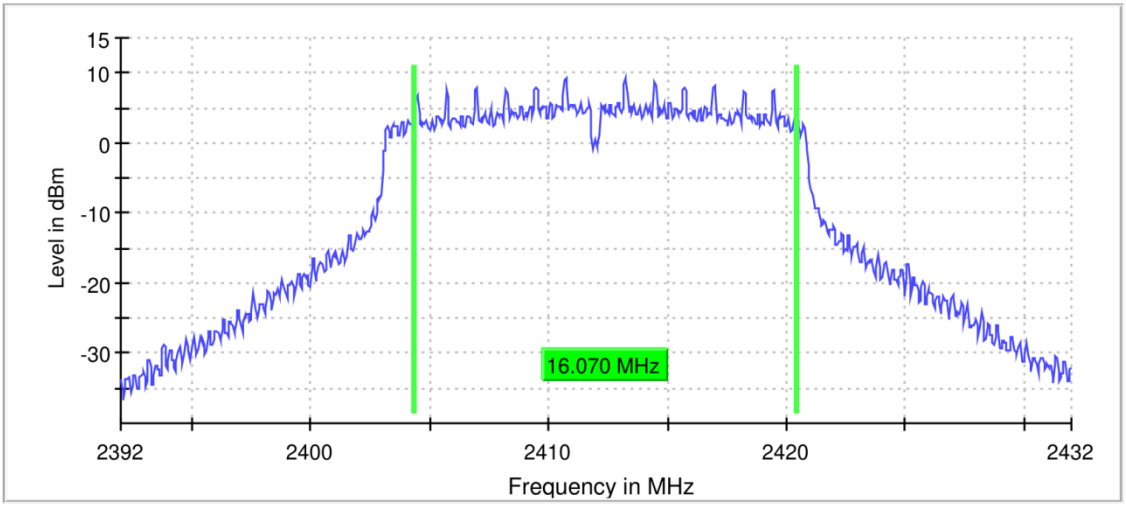
11G_ANT7_2462

6 dB Bandwidth



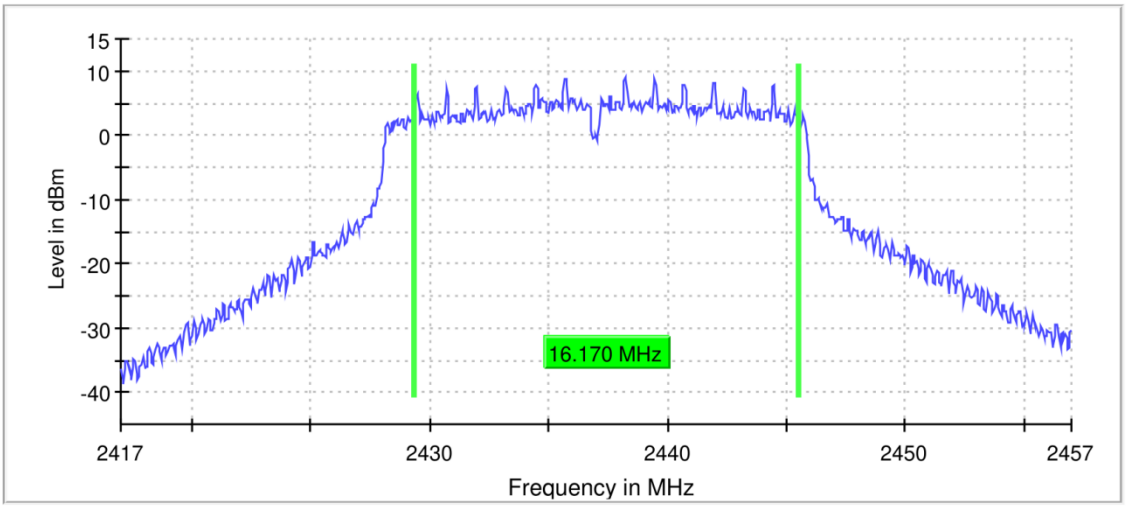
11N20_ANT7_2412

6 dB Bandwidth



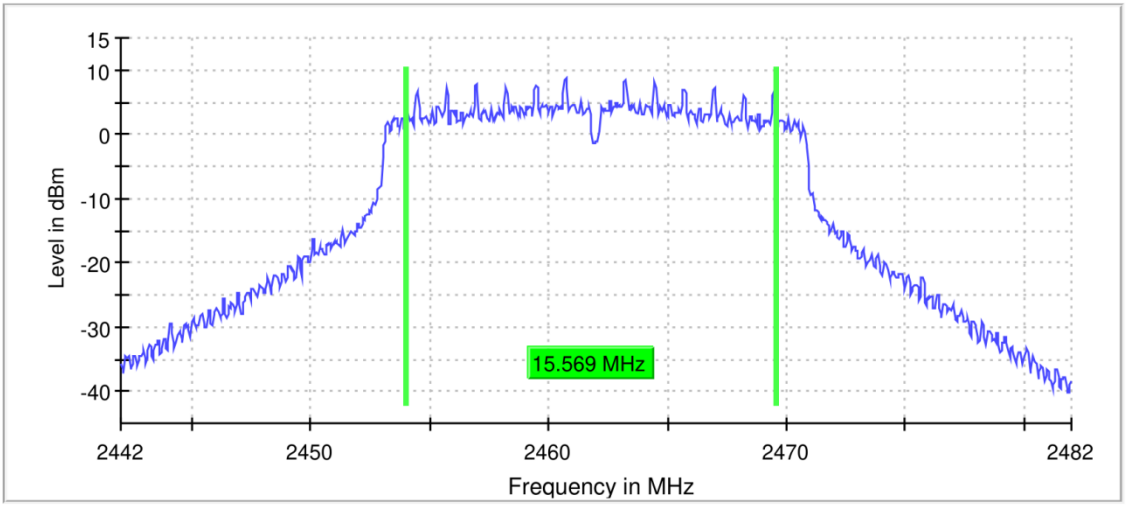
11N20_ANT7_2437

6 dB Bandwidth



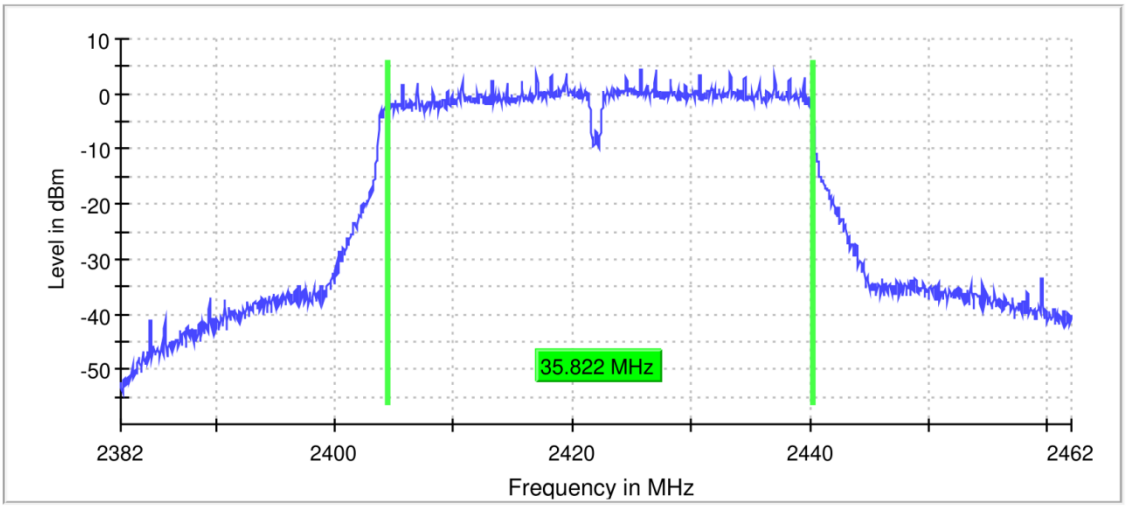
11N20_ANT7_2462

6 dB Bandwidth



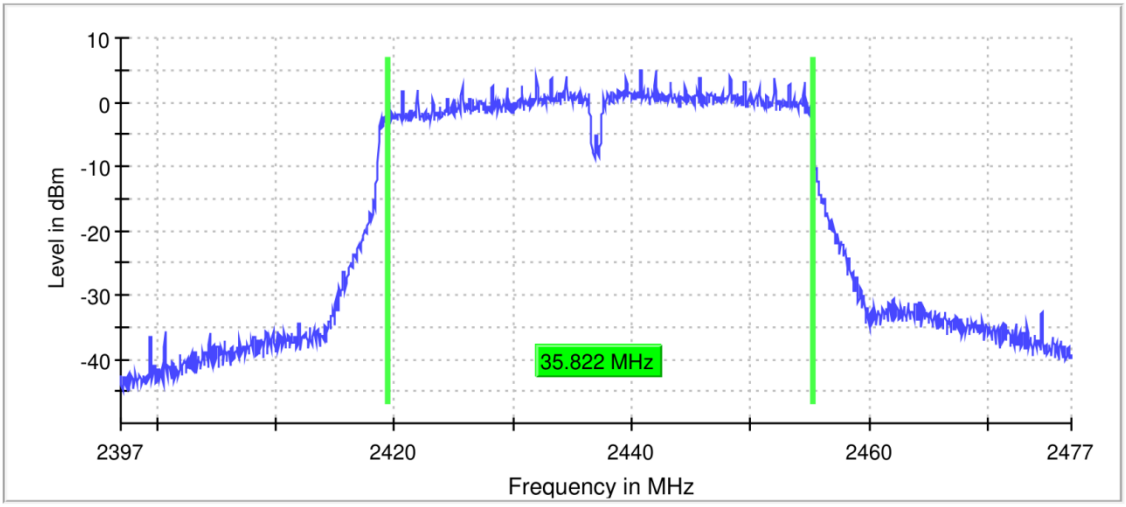
11N40_ANT7_2422

6 dB Bandwidth



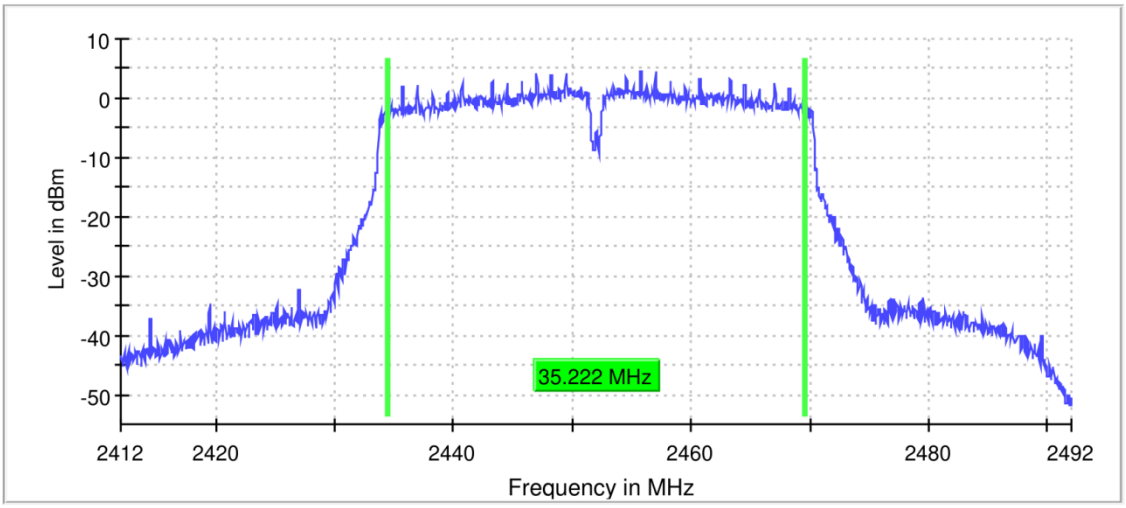
11N40_ANT7_2437

6 dB Bandwidth



11N40_ANT7_2452

6 dB Bandwidth



20M

RBW 200.000 kHz

VBW 1.000 MHz

40M

RBW 500.000 kHz

VBW 2.000 MHz

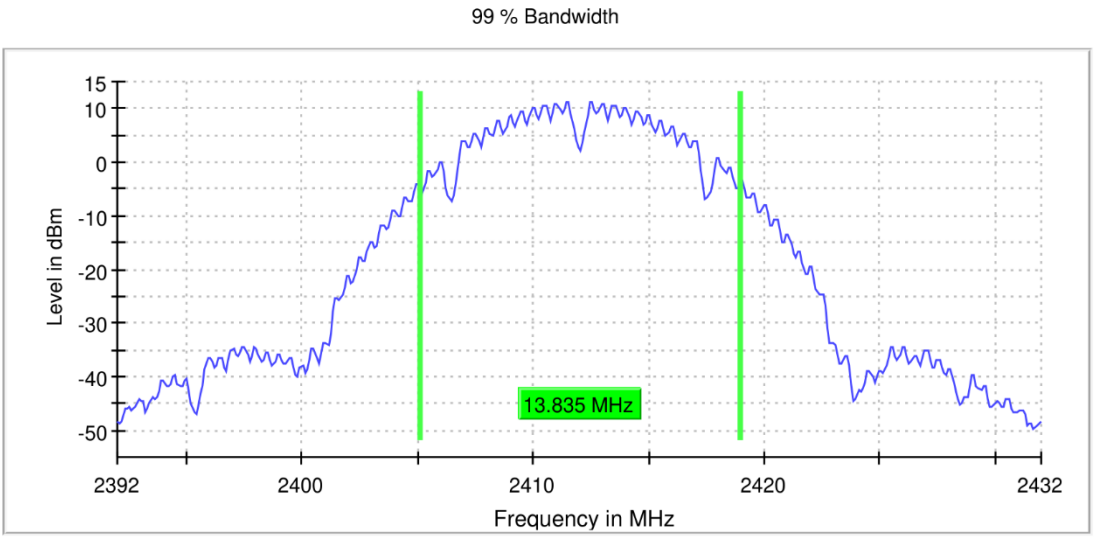
OBW BANDWIDTH

TEST RESULT

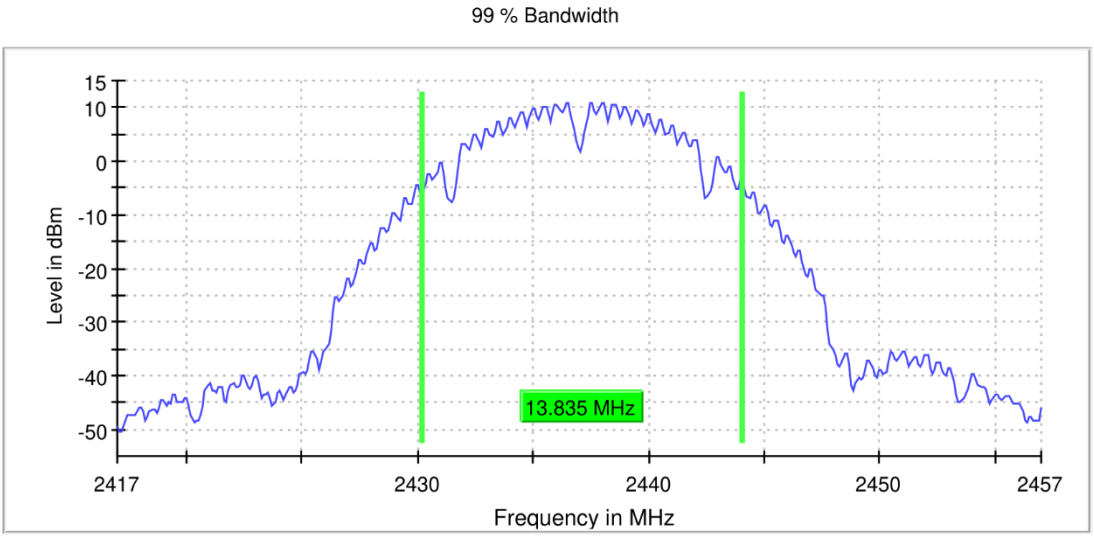
TestMode	Antenna	Frequency[MHz]	OBW BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	ANT7	2412	13.835	2405.133	2418.968	---	PASS
	ANT7	2437	13.835	2430.233	2444.068	---	PASS
	ANT7	2462	13.734	2455.033	2468.767	---	PASS
11G	ANT7	2412	16.842	2403.629	2420.471	---	PASS
	ANT7	2437	16.742	2428.729	2445.471	---	PASS
	ANT7	2462	16.742	2453.629	2470.371	---	PASS
11N20	ANT7	2412	17.945	2403.028	2420.973	---	PASS
	ANT7	2437	17.845	2428.128	2445.973	---	PASS
	ANT7	2462	17.845	2453.028	2470.873	---	PASS
11N40	ANT7	2422	36.614	2403.818	2440.432	---	PASS
	ANT7	2437	36.614	2418.818	2455.432	---	PASS
	ANT7	2452	36.364	2433.818	2470.182	---	PASS

TEST GRAPHS

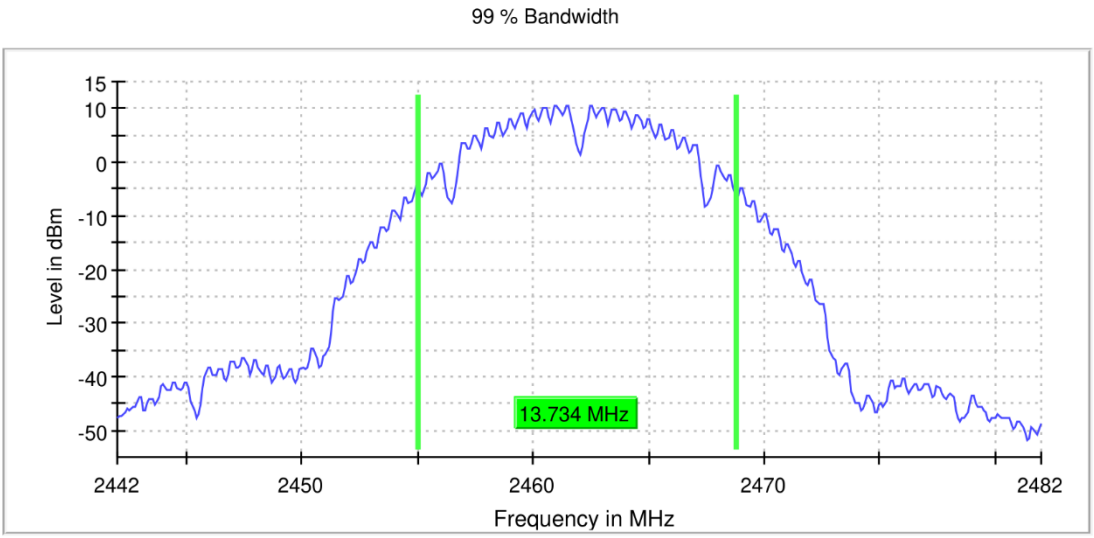
11B_ANT7_2412



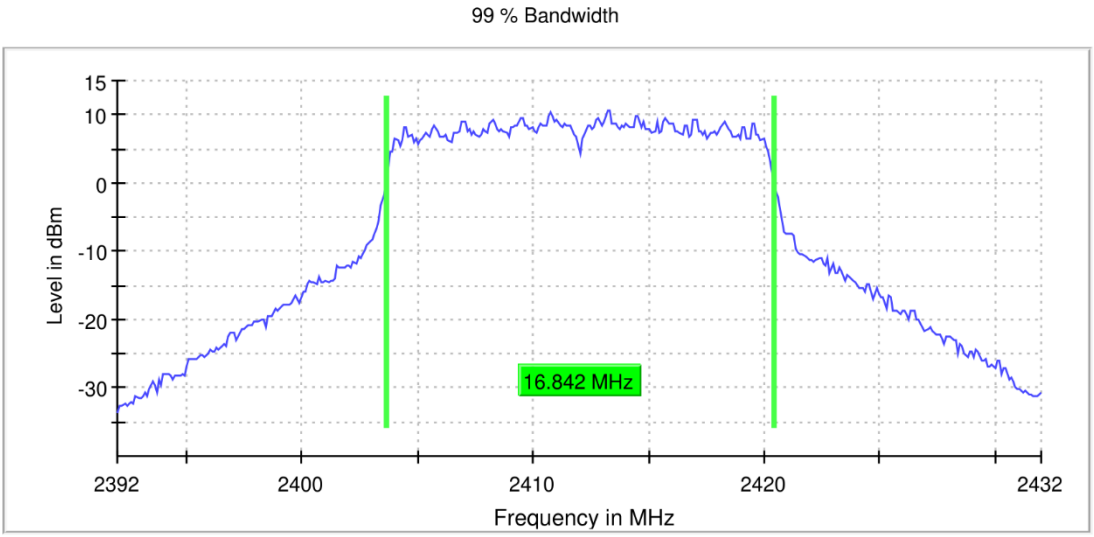
11B_ANT7_2437



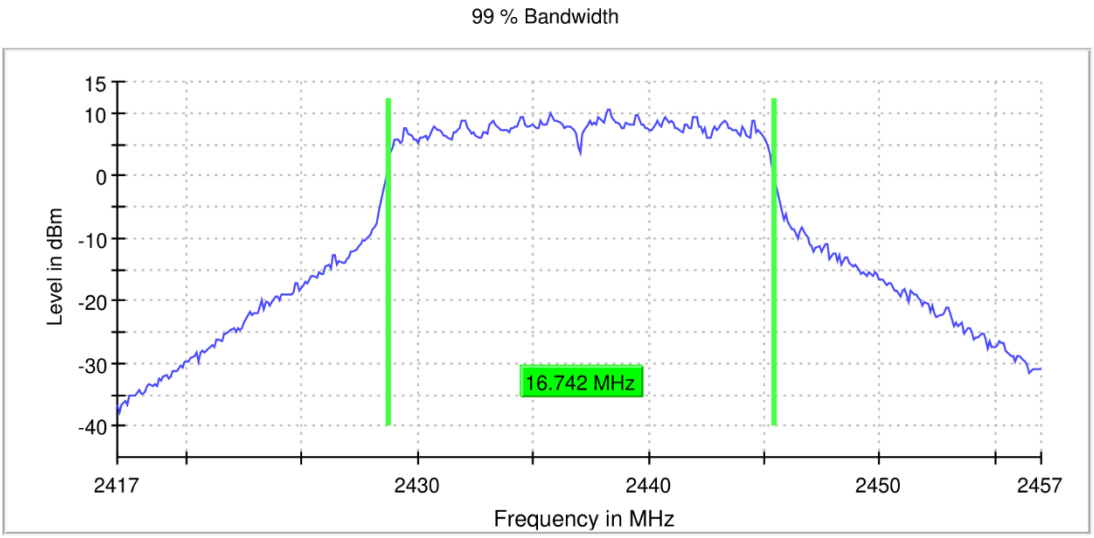
11B_ANT7_2462



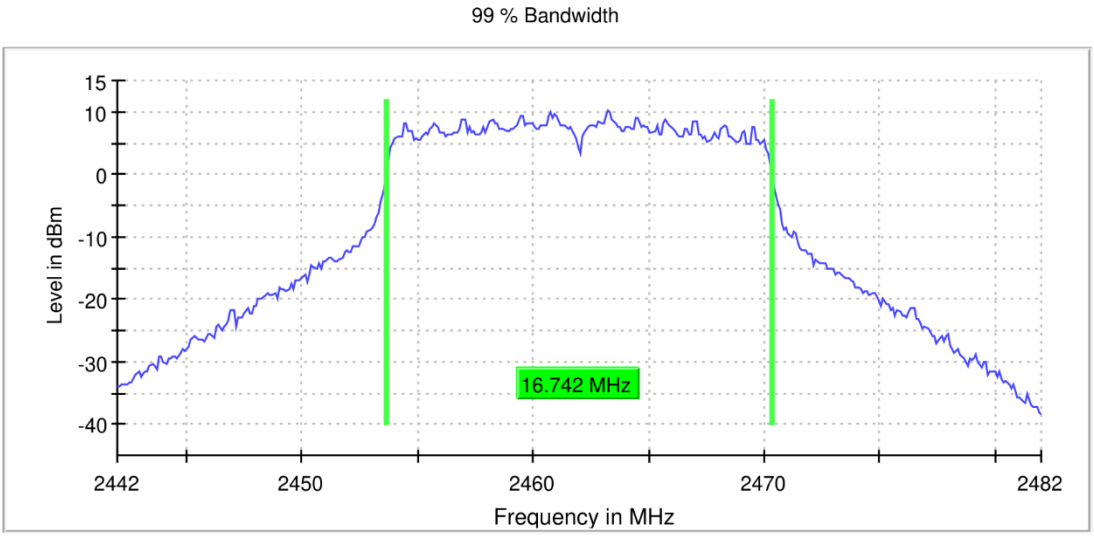
11G_ANT7_2412



11G_ANT7_2437



11G_ANT7_2462



11N20_ANT7_2412