

Determining the applicable transmit antenna gain:

A conducted power measurement will determine the maximum output power associated with a restricted band emission; however, in order to determine the associated EIRP level, the gain of the transmitting antenna (in dBi) must be added to the measured output power (in dBm).

Since the out-of-band characteristics of the EUT transmit antenna will often be unknown, the use of a conservative antenna gain value is necessary. Thus, when determining the EIRP based on the measured conducted power, the upper bound on antenna gain for a device with a single RF output shall be selected as the maximum in-band gain of the antenna across all operating bands, or 2 dBi, whichever is greater. However, for devices that operate in multiple frequency bands while using the same transmit antenna, the highest gain of the antenna within the operating band nearest in frequency to the restricted band emission being measured may be used in lieu of the overall highest gain when the emission is at a frequency that is within 20 percent of the nearest band edge frequency, but in no case shall a value less than 2 dBi be used.

See KDB 662911 for guidance on calculating the additional array gain term when determining the effective antenna gain for a EUT with multiple outputs occupying the same or overlapping frequency ranges in the same band.

Radiated spurious emission test:

An additional consideration when performing conducted measurements of restricted band emissions is that unwanted emissions radiating from the EUT cabinet, control circuits, power leads, or intermediate circuit elements will likely go undetected in a conducted measurement configuration. To address this concern, a radiated test shall be performed to ensure that emissions emanating from the EUT cabinet (rather than the antenna port) also comply with the applicable limits.

For these cabinet radiated spurious emission measurements the EUT transmit antenna may be replaced with a termination matching the nominal impedance of the antenna. Procedures for performing radiated measurements are specified in ANSI C63.10. All detected emissions shall comply with the applicable limits.

The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency. The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. Mid channels on all channel bandwidth verified. Only the worst RB size/offset presented.

The power of the EUT transmitting frequency should be ignored.

All Spurious Emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

Use the following spectrum analyzer settings:

Span = wide enough to fully capture the emission being measured

RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz

VBW \geq RBW

Sweep = auto

Detector function = peak

Trace = max hold

5.7.4 Test Result

Please refer to ANNEX A.6.

5.8 Band Edge (Restricted-band band-edge)

5.8.1 Limit

FCC §15.209&15.247(d); RSS-GEN, 8.10; RSS-247, 5.5

Radiated emission outside the frequency band attenuation below the general limits specified in FCC section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in FCC section 15.205(a), must also comply with the radiated emission limits specified in FCC section 15.209(a).

5.8.2 Test Setup

See section 4.4.3 to 4.4.5 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.8.3 Test Procedure

The measurement frequency range is from 9 kHz to the 10th harmonic of the fundamental frequency. The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. Mid channels on all channel bandwidth verified. Only the worst RB size/offset presented.

The power of the EUT transmitting frequency should be ignored.

All Spurious Emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

Use the following spectrum analyzer settings:

Span = wide enough to fully capture the emission being measured

RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz

VBW \geq RBW

Sweep = auto

Detector function = peak

Trace = max hold

For measurement below 1GHz, If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported, Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

For transmitters operating above 1 GHz repeat the measurement with an average detector.

5.8.4 Test Result

Please refer to ANNEX A.7.

5.9 Power Spectral density (PSD)

5.9.1 Limit

FCC §15.247(e); RSS-247, 5.2 (b)

The same method of determining the conducted output power shall be used to determine the power spectral density. If a peak output power is measured, then a peak power spectral density measurement is required. If an average output power is measured, then an average power spectral density measurement should be used.

The transmitter power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of Section 5.4(4), (i.e. the power spectral density shall be determined using the same method as is used to determine the conducted output power).

5.9.2 Test Setup

See section 4.4.1 (Diagram 1) for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.9.3 Test Procedure

Set analyzer center frequency to DTS channel center frequency.

Set the span to 1.5 times the DTS bandwidth.

Set the RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.

Set the VBW $\geq 3 \text{ RBW}$.

Detector = peak.

Sweep time = auto couple.

Trace mode = max hold.

Allow trace to fully stabilize.

Use the peak marker function to determine the maximum amplitude level within the RBW.

If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

5.9.4 Test Result

Please refer to ANNEX A.7.

ANNEX A TEST RESULT

A.1 Output Power, E.I.R.P, Duty Cycle

Peak Power Test Data

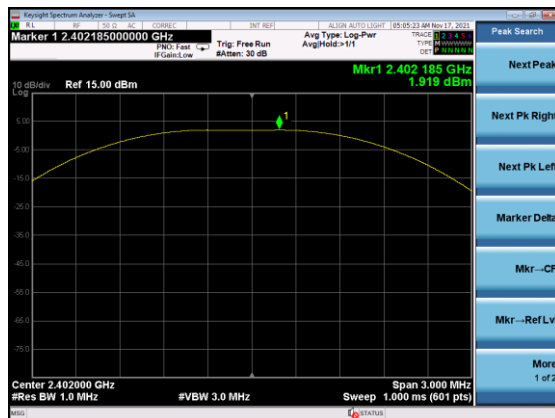
Channel	Measured Output Peak Power		Limit		Verdict
	GFSK(BLE)		dBm	mW	
	dBm	mW			
Low	1.919	1.56	30	1000	Pass
Middle	2.093	1.62			Pass
High	2.006	1.59			Pass

E.I.R.P Test Data (For ISSED)

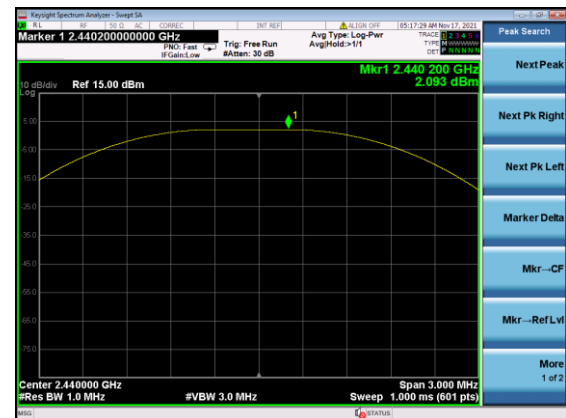
Channel	E.I.R.P		Limit		Verdict
	GFSK(BLE)		dBm	mW	
	dBm	mW			
Low	1.919	1.56	36	4000	Pass
Middle	2.093	1.62			Pass
High	2.006	1.59			Pass

Test plots

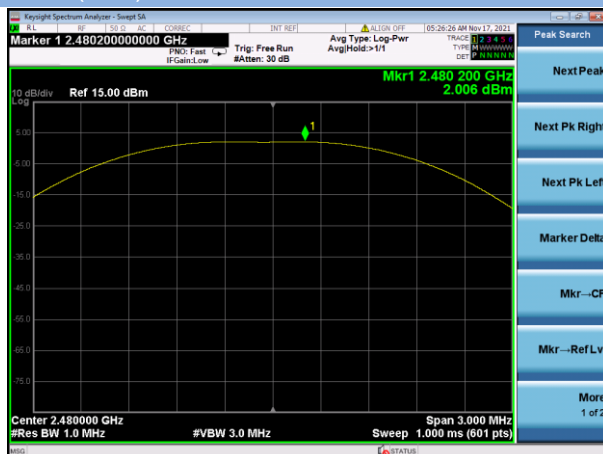
GFSK(BLE) LOW CHANNEL



GFSK(BLE) MIDDLE CHANNEL



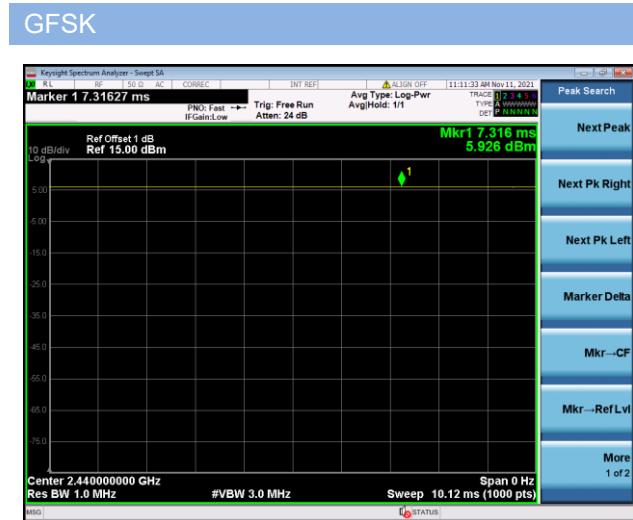
GFSK(BLE) HIGH CHANNEL



Duty Cycle Test Data

Band	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)
GFSK	10.12	10.12	100

Test plots



A.2 Occupied Bandwidth

Test Data

Test Mode	GFSK (BLE)		
Channel	6 dB Bandwidth (kHz)	99% Bandwidth (kHz)	6 dB Bandwidth Limits (kHz)
Low Channel	680	1026.6	≥500
Middle Channel	690	1027.6	≥500
High Channel	675	1039.5	≥500

Test plots

6 dB Bandwidth

GFSK (BLE) LOW CHANNEL



GFSK (BLE) MIDDLE CHANNEL



GFSK (BLE) HIGH CHANNEL



99% Bandwidth

GFSK (BLE) LOW CHANNEL



GFSK (BLE) MIDDLE CHANNEL



GFSK (BLE) HIGH CHANNEL



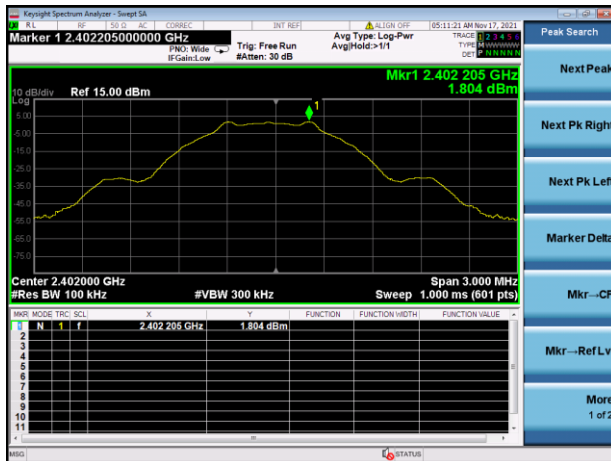
A.3 Conducted Spurious Emissions

Test Data

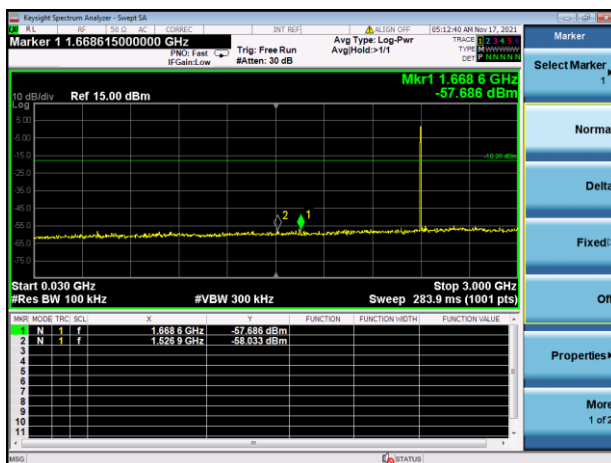
GFSK (BLE)				
Channel	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low	-30.015	-1.80	-18.20	Pass
Middle	-28.101	-1.98	-18.02	Pass
High	-27.342	-1.96	-18.04	Pass

Test Plots

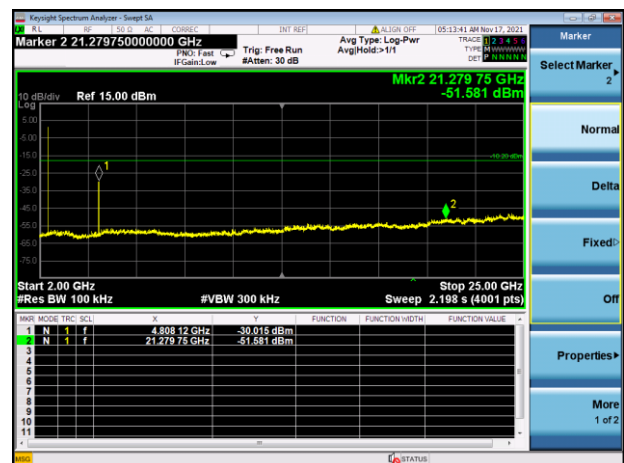
GFSK (BLE) LOW CHANNEL, CARRIER LEVEL



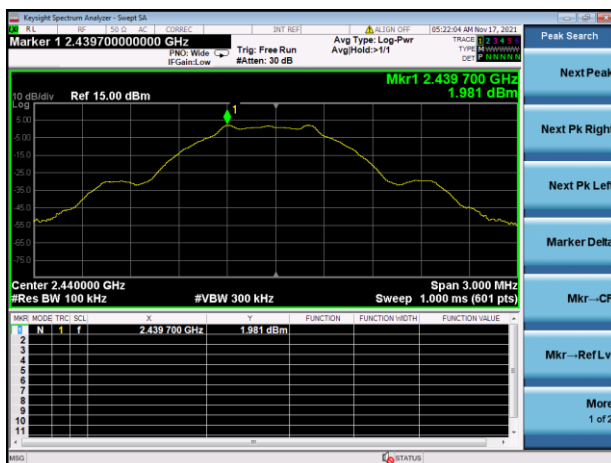
GFSK (BLE) LOW CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



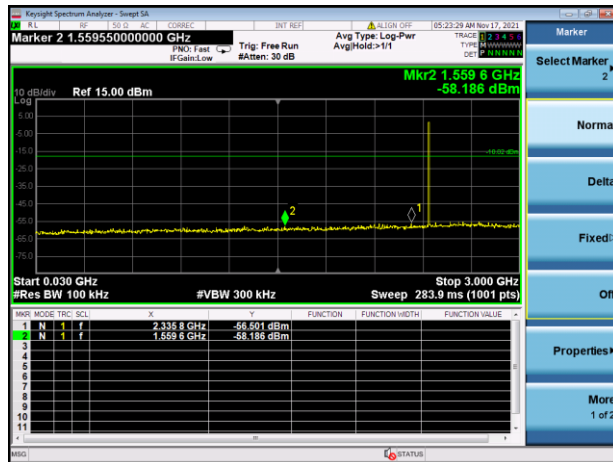
GFSK (BLE) LOW CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



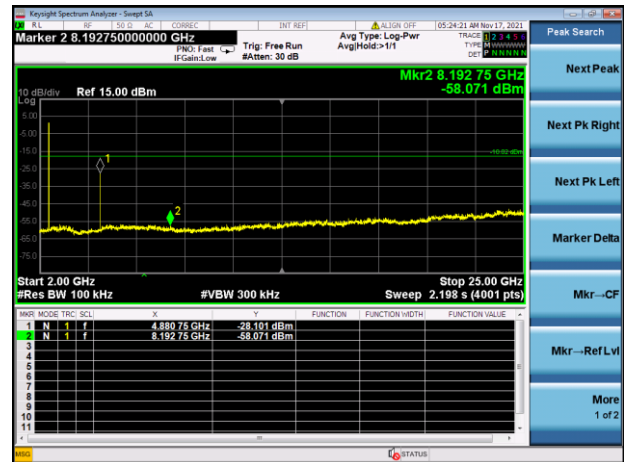
GFSK (BLE) MIDDLE CHANNEL, CARRIER LEVEL



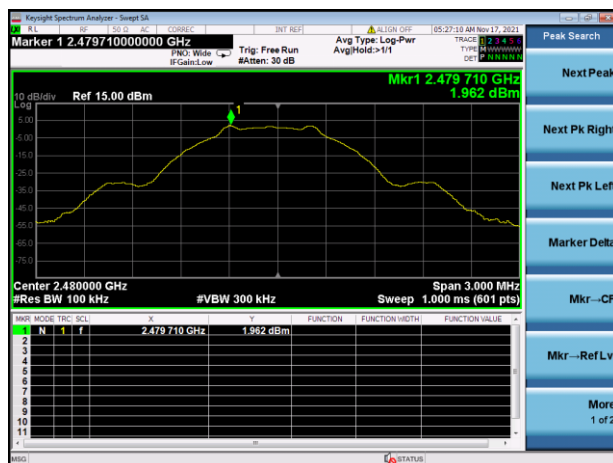
GFSK (BLE) MIDDLE CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



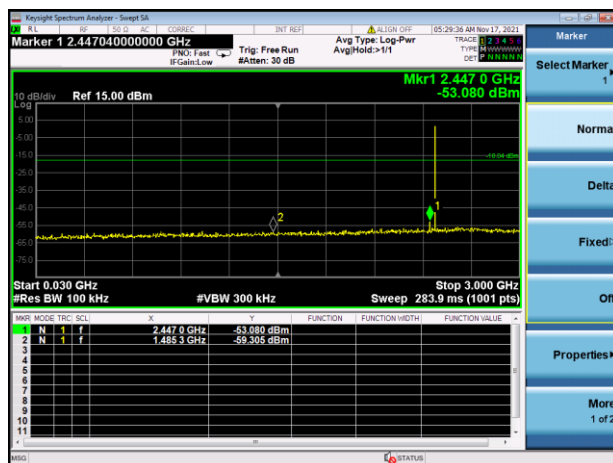
GFSK (BLE) MIDDLE CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



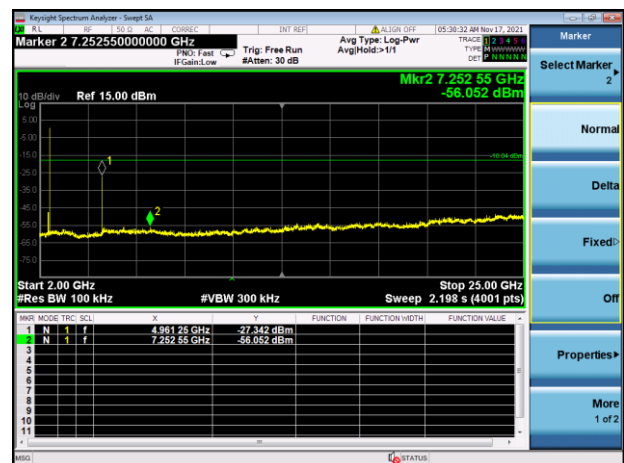
GFSK (BLE) HIGH CHANNEL, CARRIER LEVEL



GFSK (BLE) HIGH CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



GFSK (BLE) HIGH CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



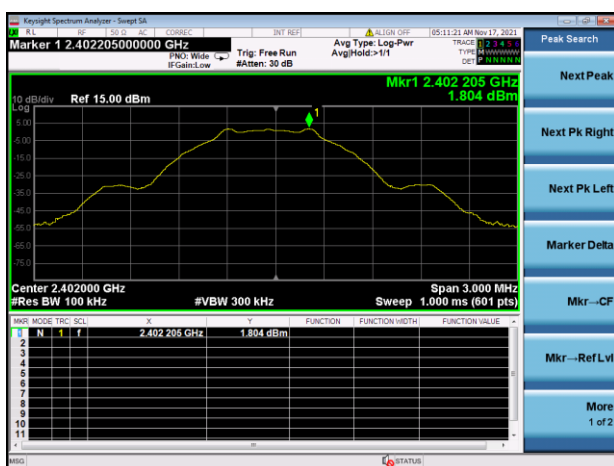
A.4 Band Edge (Authorized-band band-edge)

Note: The lowest and highest channels are tested to verify the band edge emissions. Please refer to the following the plots for emissions values.

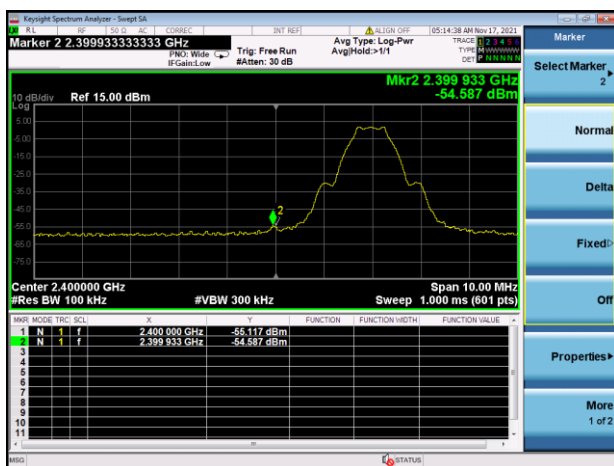
Channel	Measured Max. Band Edge Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low Channel	-56.337	-1.80	-18.20	Pass
High Channel	-59.309	-1.96	-18.04	Pass

Test Plots

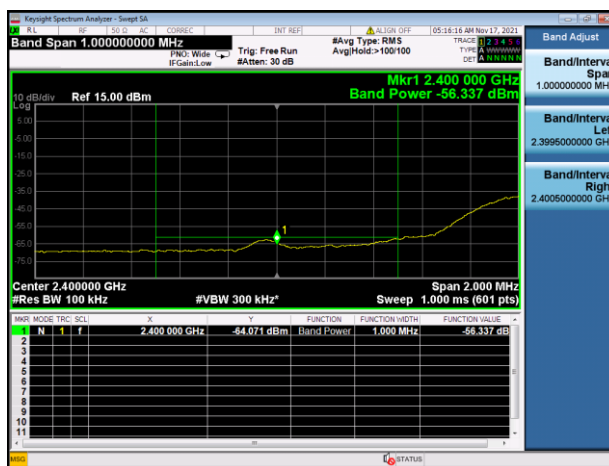
LOW CHANNEL, Carrier level



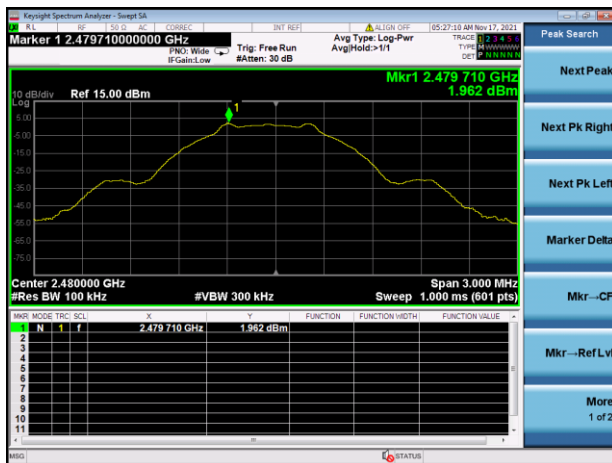
LOW CHANNEL, Reference level



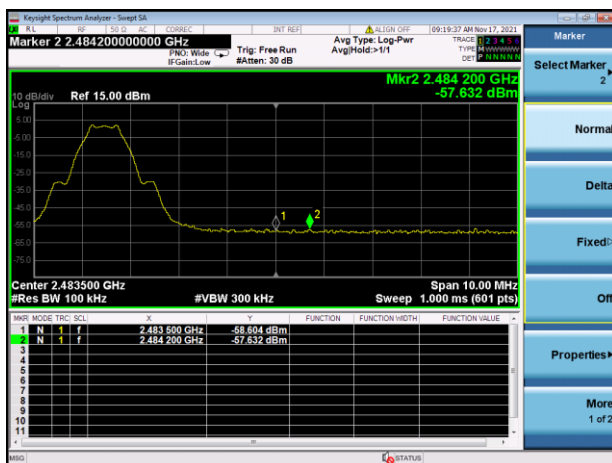
LOW CHANNEL, Band Edge



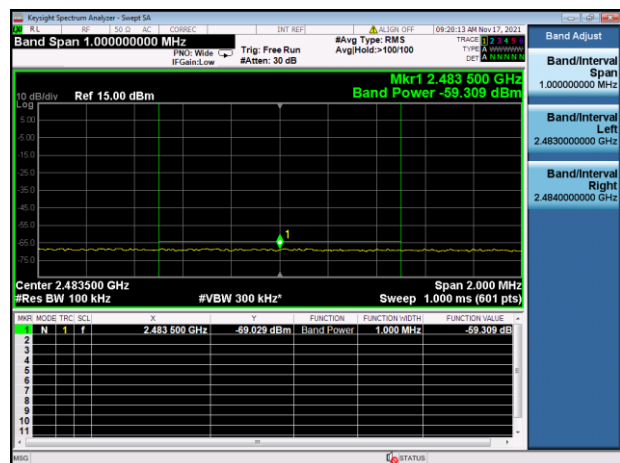
High CHANNEL, Carrier level



HIGH CHANNEL, Reference level



HIGH CHANNEL, Band Edge



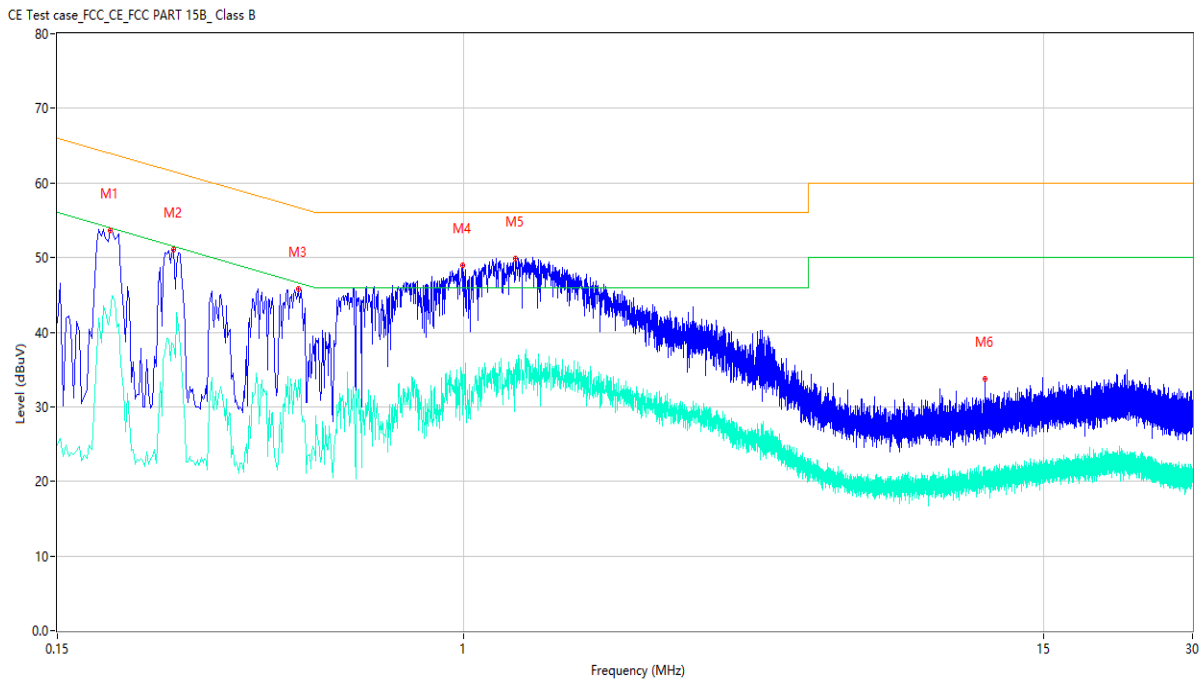
A.5 Conducted Emissions

Note¹: The EUT is working in the Normal link mode. All modes have been tested and normal link mode is worst.
 Note²: Devices subject to Part 15 must be tested for all available U.S. voltages and frequencies (such as a nominal 120 VAC, 60 Hz and 240 VAC, 50 Hz) for which the device is capable of operation. So, The configuration 120 VAC, 60 Hz and 240 VAC, 50 Hz were tested respectively, but only the worst configuration (120 VAC, 60 Hz) shown here.

Note³: Results (dBuV) = Original reading level of Spectrum Analyzer (dBuV) + Factor (dB)

Test Data and Plots

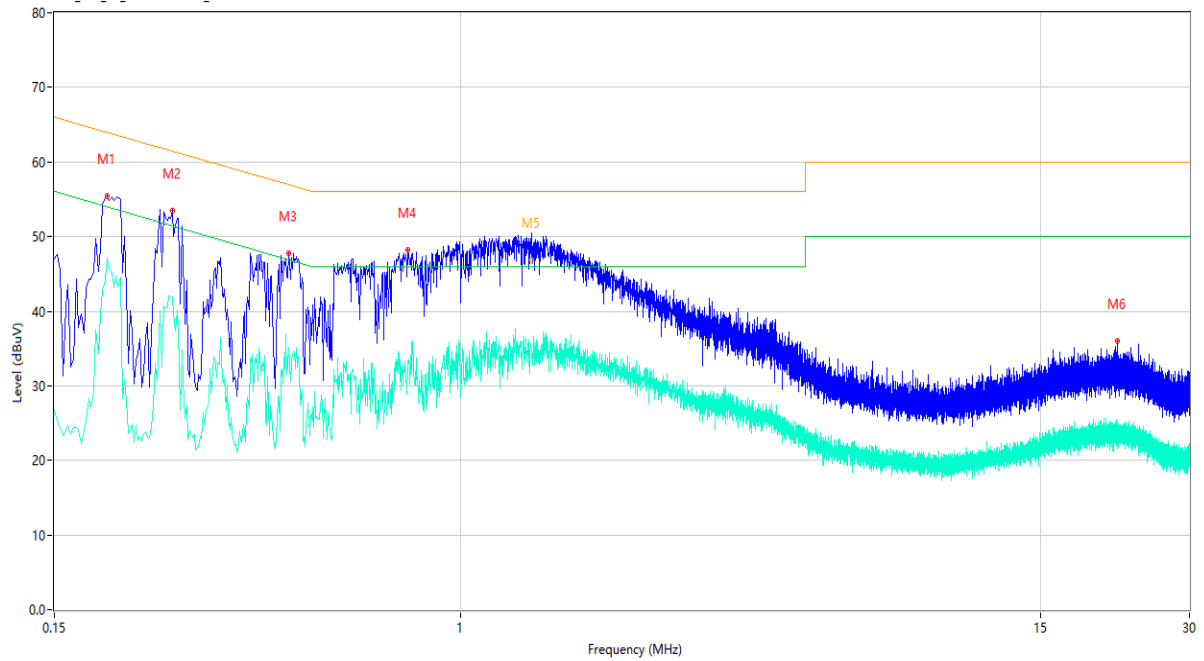
PHASE L



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Over Limit (dB)	Detector	Line	Verdict
1	0.192	53.56	10.24	63.95	-10.39	Peak	L	Pass
1**	0.192	42.45	10.24	53.95	-11.50	AV	L	Pass
2	0.258	51.03	10.36	61.50	-10.47	Peak	L	Pass
2**	0.258	38.31	10.36	51.50	-13.19	AV	L	Pass
3	0.462	45.74	10.33	56.66	-10.92	Peak	L	Pass
3**	0.462	33.63	10.33	46.66	-13.03	AV	L	Pass
4	0.994	48.93	10.26	56.00	-7.07	Peak	L	Pass
4**	0.994	34.25	10.26	46.00	-11.75	AV	L	Pass
5	1.274	49.84	10.29	56.00	-6.16	Peak	L	Pass
5**	1.274	35.19	10.29	46.00	-10.81	AV	L	Pass
6	11.378	33.69	10.19	60.00	-26.31	Peak	L	Pass
6**	11.378	20.25	10.19	50.00	-29.75	AV	L	Pass

PHASE N

CE Test case_FCC_CE_FCC PART 15B_ Class B



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Over Limit (dB)	Detector	Line	Verdict
1	0.192	55.43	10.24	63.95	-8.52	Peak	N	Pass
1**	0.192	47.19	10.24	53.95	-6.76	AV	N	Pass
2	0.260	53.45	10.36	61.43	-7.98	Peak	N	Pass
2**	0.260	41.81	10.36	51.43	-9.62	AV	N	Pass
3	0.448	47.70	10.41	56.91	-9.21	Peak	N	Pass
3**	0.448	35.11	10.41	46.91	-11.80	AV	N	Pass
4	0.782	48.28	10.16	56.00	-7.72	Peak	N	Pass
4**	0.782	33.18	10.16	46.00	-12.82	AV	N	Pass
5	1.394	50.63	10.20	56.00	-5.37	Peak	N	N/A
5*	1.394	46.86	10.20	56.00	-9.14	QP	N	Pass
5**	1.394	34.30	10.20	46.00	-11.70	AV	N	Pass
6	21.478	35.93	10.78	60.00	-24.07	Peak	N	Pass
6**	21.478	23.99	10.78	50.00	-26.01	AV	N	Pass

A.6 Radiated Spurious Emission

Note¹: The symbol of “--” in the table which means not application.

Note²: For the test data above 1 GHz, according the ANSI C63.4-2014, where limits are specified for both average and peak (or quasi-peak) detector functions, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement.

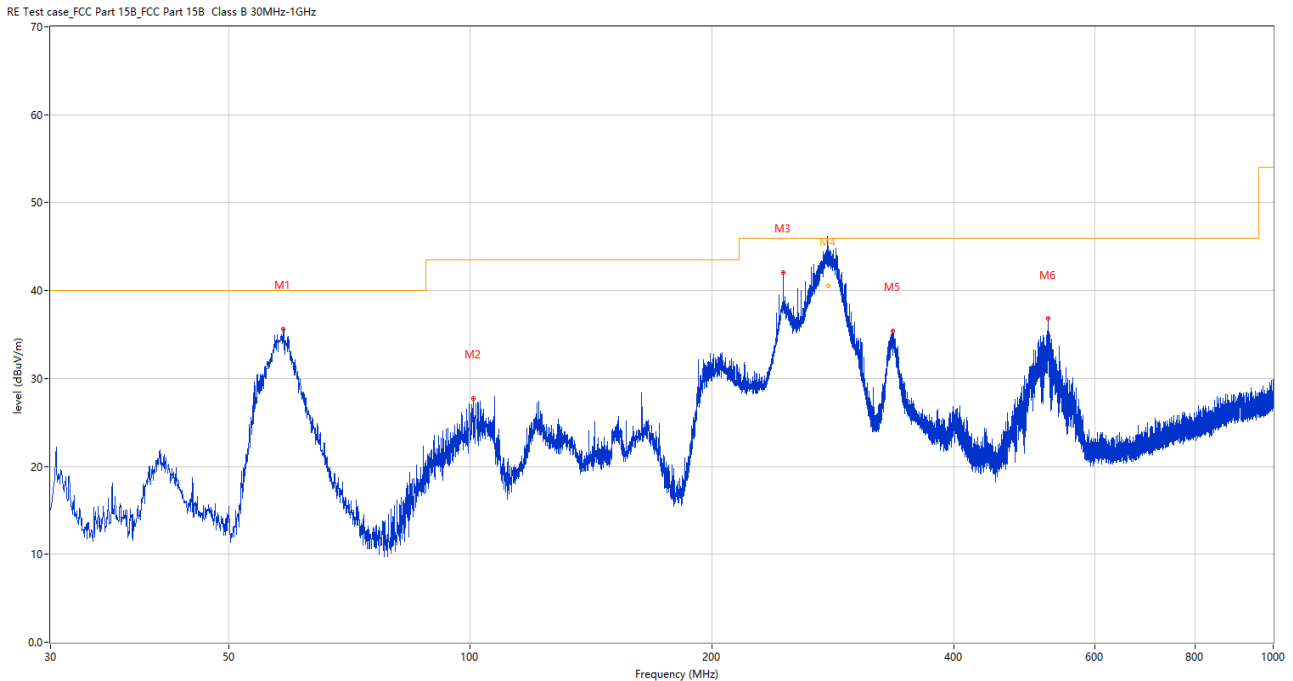
Note³: The low frequency, which started from 9 kHz to 30 MHz, was pre-scanned and the result which was 20 dB lower than the limit line per 15.31(o) was not reported.

Note⁴: The EUT is working in the Normal link mode below 1 GHz. All modes have been tested and BLE 1M-Middle channel mode is the worst.

Note⁵: Results (dBuV/m) = Original reading level of Spectrum Analyzer (dBuV/m) + Factor (dB)

Test Data and Plots

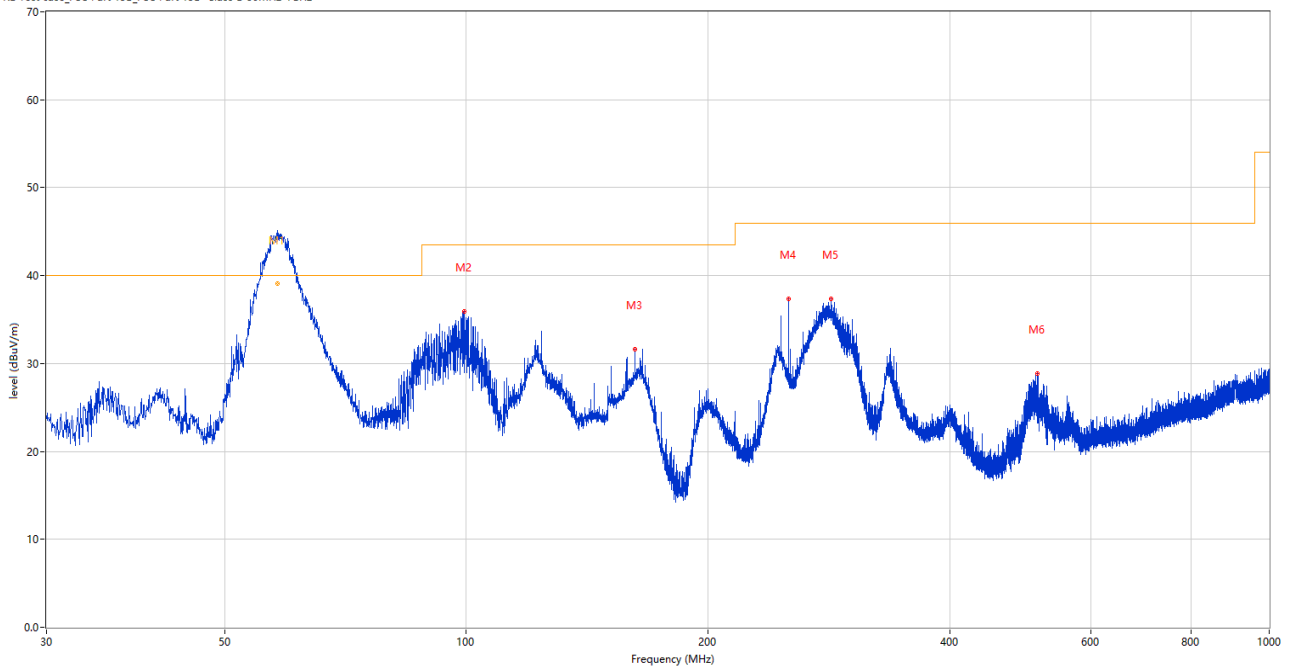
30 MHz to 1 GHz, ANT H



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	58.518	35.61	-27.39	40.0	-4.39	Peak	249.00	100	Horizontal	Pass
2	100.955	27.78	-28.02	43.5	-15.72	Peak	325.00	200	Horizontal	Pass
3	245.437	42.08	-25.40	46.0	-3.92	Peak	66.00	100	Horizontal	Pass
4	279.029	43.65	-24.63	46.0	-2.35	Peak	257.00	200	Horizontal	Pass
4*	279.029	40.53	-24.63	46.0	-5.47	QP	257.00	200	Horizontal	Pass
5	336.132	35.44	-23.05	46.0	-10.56	Peak	155.00	200	Horizontal	Pass
6	524.118	36.80	-18.88	46.0	-9.20	Peak	83.00	100	Horizontal	Pass

30 MHz to 1 GHz, ANT V

RE Test case_FCC Part 15B_FCC Part 15B Class B 30MHz-1GHz

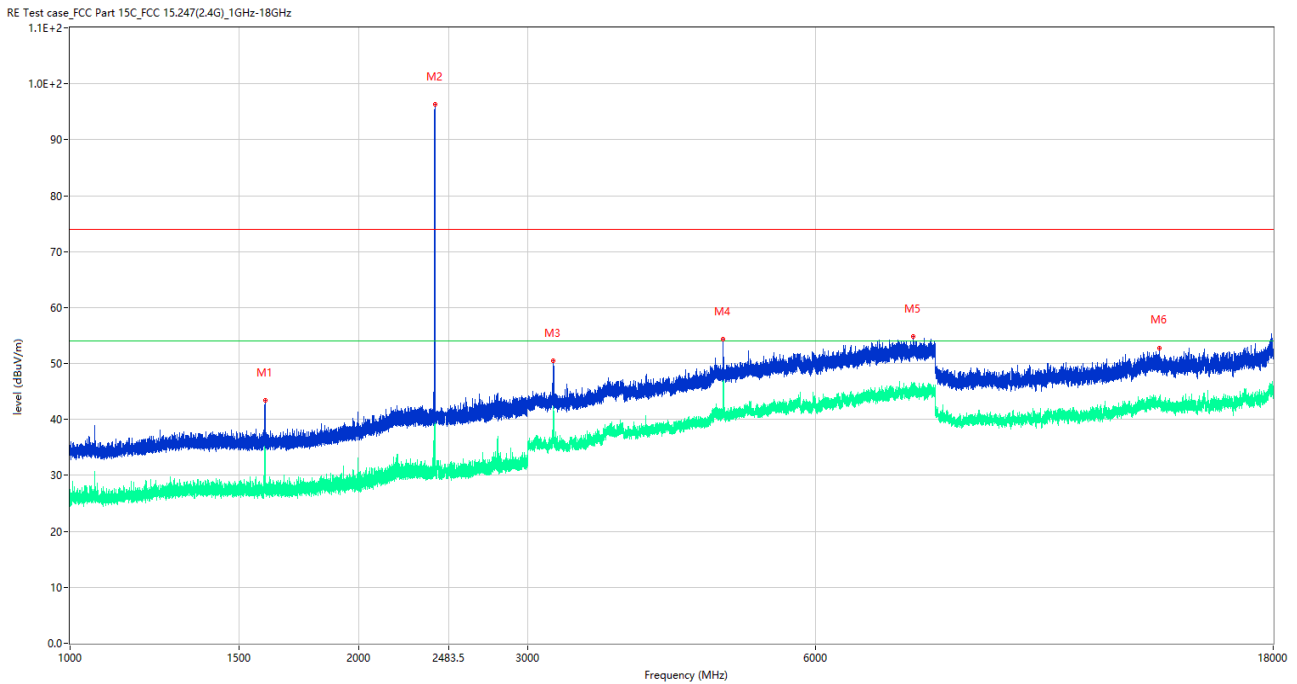


No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	58.176	44.63	-27.34	40.0	4.63	Peak	14.00	134	Vertical	N/A
1*	58.176	39.11	-27.34	40.0	-0.89	QP	14.00	134	Vertical	Pass
2	99.355	35.94	-28.16	43.5	-7.56	Peak	343.00	100	Vertical	Pass
3	162.066	31.59	-29.30	43.5	-11.91	Peak	360.00	200	Vertical	Pass
4	251.984	37.36	-25.21	46.0	-8.64	Peak	325.00	200	Vertical	Pass
5	284.528	37.34	-24.49	46.0	-8.66	Peak	360.00	200	Vertical	Pass
6	514.224	28.85	-19.04	46.0	-17.15	Peak	360.00	200	Vertical	Pass

Note 1: The marked spikes near 2400 MHz with circle should be ignored because they are Fundamental signal.

Note 2: The spurious from 18GHz-25GHz is noise only, do not show on the report.

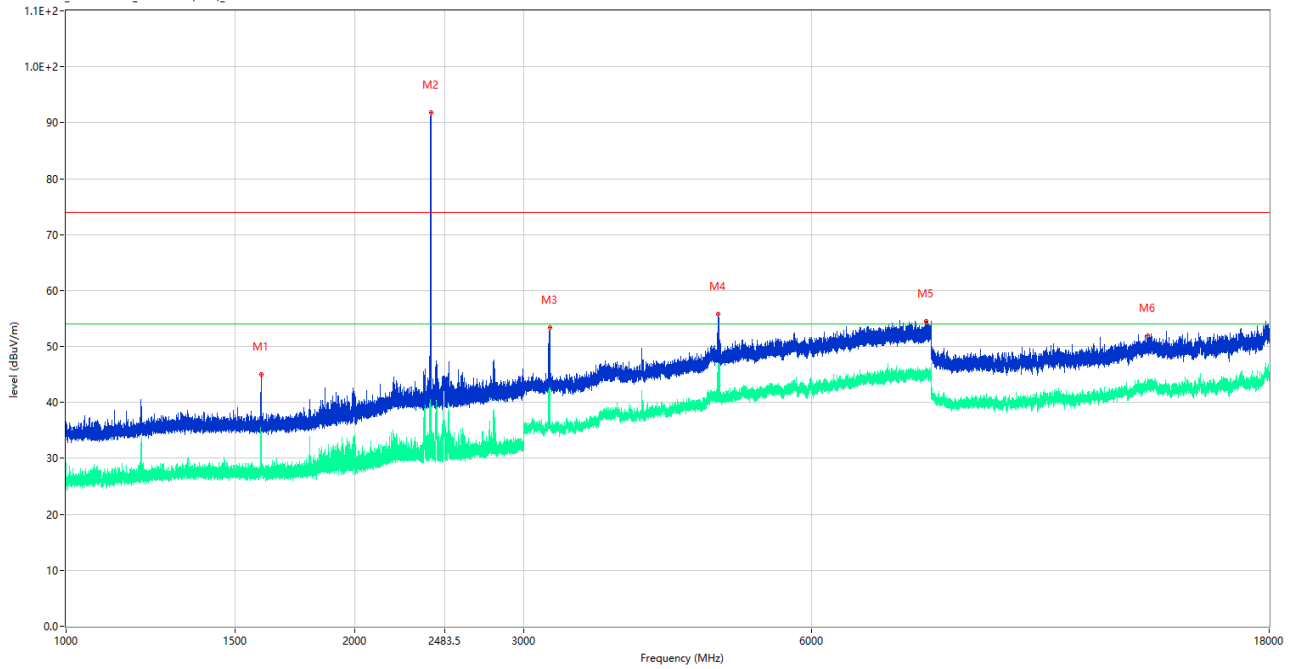
GFSK LOW CHANNEL 1 GHz to 18 GHz, ANT H



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1598.500	43.48	-17.78	74.0	-30.52	Peak	109.00	150	Horizontal	Pass
1**	1598.500	33.28	-17.78	54.0	-20.72	AV	109.00	150	Horizontal	Pass
2	2401.700	96.30	-12.88	74.0	22.30	Peak	219.00	150	Horizontal	N/A
2**	2401.700	95.45	-12.88	54.0	41.45	AV	219.00	150	Horizontal	N/A
3	3192.750	50.46	-7.92	74.0	-23.54	Peak	92.00	150	Horizontal	Pass
3**	3192.750	37.07	-7.92	54.0	-16.93	AV	92.00	150	Horizontal	Pass
4	4803.250	54.42	-1.96	74.0	-19.58	Peak	231.00	150	Horizontal	Pass
4**	4803.250	47.24	-1.96	54.0	-6.76	AV	231.00	150	Horizontal	Pass
5	7583.000	54.78	1.28	74.0	-19.22	Peak	176.00	150	Horizontal	Pass
5**	7583.000	45.51	1.28	54.0	-8.49	AV	176.00	150	Horizontal	Pass
6	13697.500	52.68	1.18	74.0	-21.32	Peak	194.00	150	Horizontal	Pass
6**	13697.500	42.86	1.18	54.0	-11.14	AV	194.00	150	Horizontal	Pass

GFSK LOW CHANNEL 1 GHz to 18 GHz, ANT V

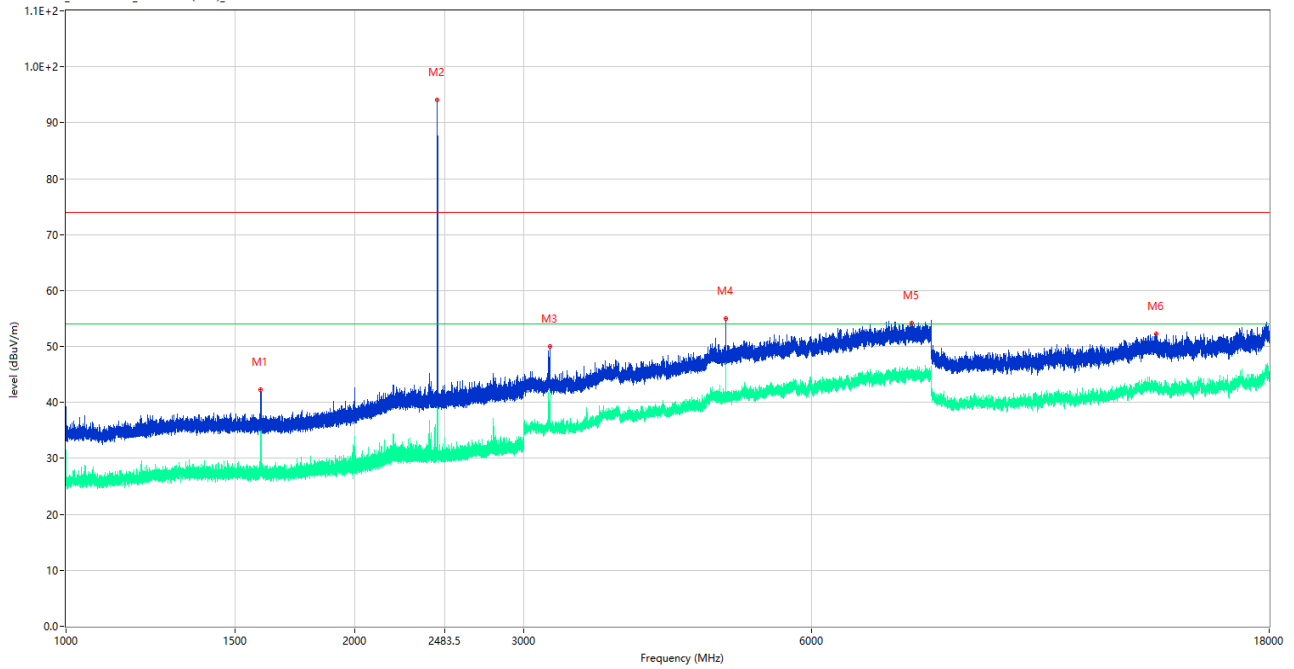
RE Test case_FCC Part 15C_FCC 15.247(2.4G)_1GHz-18GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1599.800	45.08	-17.78	74.0	-28.92	Peak	144.00	150	Vertical	Pass
1**	1599.800	33.36	-17.78	54.0	-20.64	AV	144.00	150	Vertical	Pass
2	2402.200	91.89	-12.87	74.0	17.89	Peak	84.00	150	Vertical	N/A
2**	2402.200	91.33	-12.87	54.0	37.33	AV	84.00	150	Vertical	N/A
3	3196.750	53.47	-7.98	74.0	-20.53	Peak	360.00	150	Vertical	Pass
3**	3196.750	36.06	-7.98	54.0	-17.94	AV	360.00	150	Vertical	Pass
4	4790.500	55.86	-1.97	74.0	-18.14	Peak	135.00	150	Vertical	Pass
4**	4790.500	40.99	-1.97	54.0	-13.01	AV	135.00	150	Vertical	Pass
5	7892.500	54.49	1.83	74.0	-19.51	Peak	116.00	150	Vertical	Pass
5**	7892.500	45.11	1.83	54.0	-8.89	AV	116.00	150	Vertical	Pass
6	13437.500	51.99	0.52	74.0	-22.01	Peak	90.00	150	Vertical	Pass
6**	13437.500	42.93	0.52	54.0	-11.07	AV	90.00	150	Vertical	Pass

GFSK MIDDLE CHANNEL 1 GHz to 18 GHz, ANT H

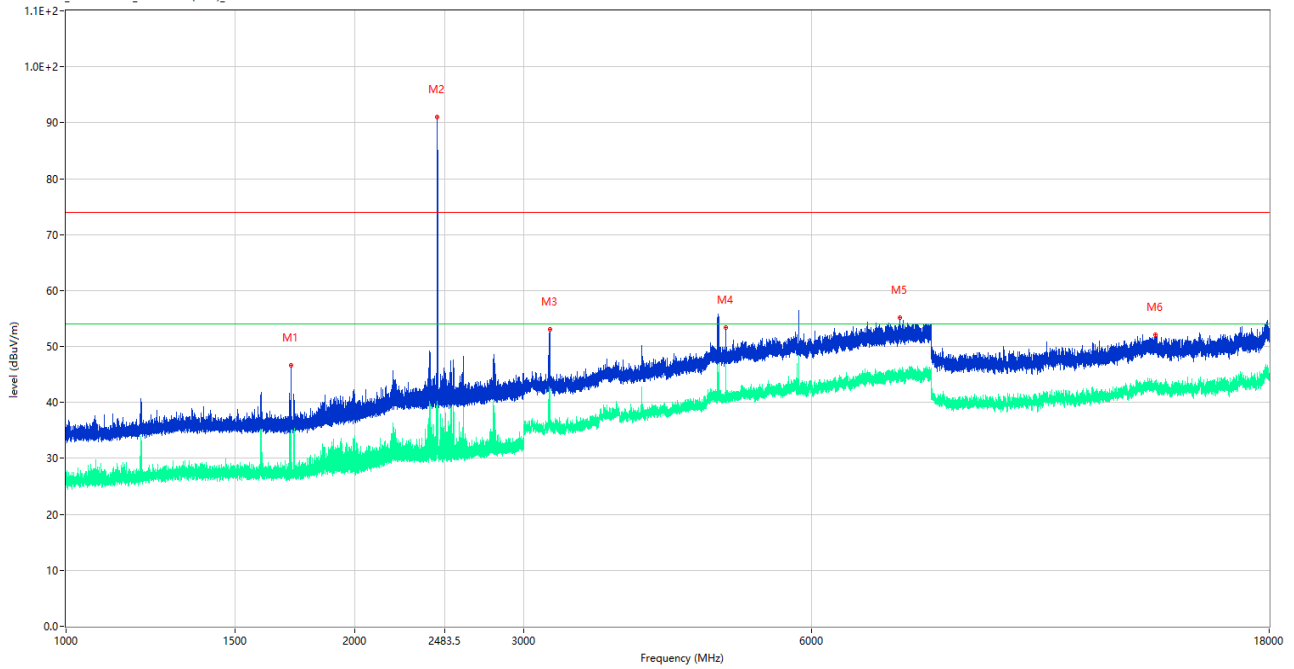
RE Test case_FCC Part 15C_FCC 15.247(2.4G)_1GHz-18GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1594.500	42.27	-17.76	74.0	-31.73	Peak	230.00	150	Horizontal	Pass
1**	1594.500	29.16	-17.76	54.0	-24.84	AV	230.00	150	Horizontal	Pass
2	2440.200	94.01	-12.87	74.0	20.01	Peak	218.00	150	Horizontal	N/A
2**	2440.200	93.18	-12.87	54.0	39.18	AV	218.00	150	Horizontal	N/A
3	3196.000	49.95	-7.97	74.0	-24.05	Peak	140.00	150	Horizontal	Pass
3**	3196.000	35.63	-7.97	54.0	-18.37	AV	140.00	150	Horizontal	Pass
4	4880.250	55.05	-2.29	74.0	-18.95	Peak	230.00	150	Horizontal	Pass
4**	4880.250	51.31	-2.29	54.0	-2.69	AV	230.00	150	Horizontal	Pass
5	7620.250	54.23	1.05	74.0	-19.77	Peak	186.00	150	Horizontal	Pass
5**	7620.250	45.07	1.05	54.0	-8.93	AV	186.00	150	Horizontal	Pass
6	13722.000	52.22	0.69	74.0	-21.78	Peak	60.00	150	Horizontal	Pass
6**	13722.000	42.68	0.69	54.0	-11.32	AV	60.00	150	Horizontal	Pass

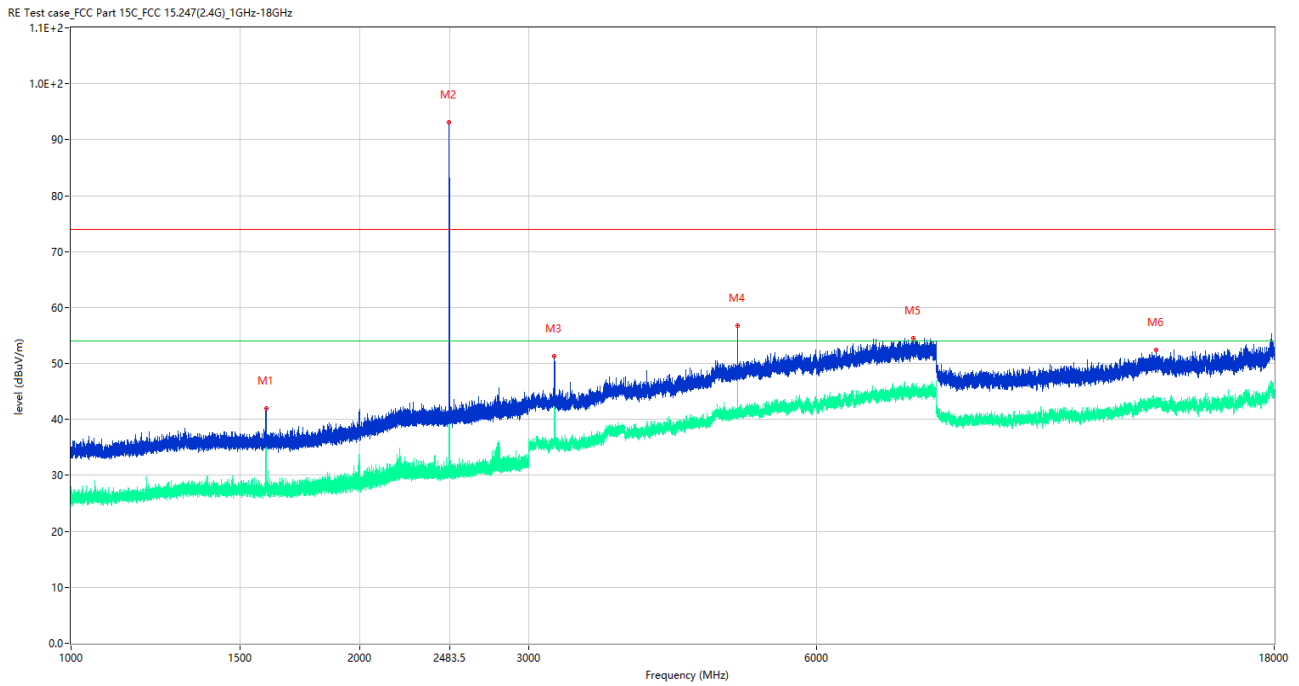
GFSK MIDDLE CHANNEL 1 GHz to 18 GHz, ANT V

RE Test case_FCC Part 15C_FCC 15.247(2.4G)_1GHz-18GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1716.100	46.67	-17.72	74.0	-27.33	Peak	319.00	150	Vertical	Pass
1**	1716.100	40.78	-17.72	54.0	-13.22	AV	319.00	150	Vertical	Pass
2	2440.200	91.06	-12.87	74.0	17.06	Peak	85.00	150	Vertical	N/A
2**	2440.200	90.54	-12.87	54.0	36.54	AV	85.00	150	Vertical	N/A
3	3196.000	53.13	-7.97	74.0	-20.87	Peak	360.00	150	Vertical	Pass
3**	3196.000	36.71	-7.97	54.0	-17.29	AV	360.00	150	Vertical	Pass
4	4880.250	53.35	-2.29	74.0	-20.65	Peak	163.00	150	Vertical	Pass
4**	4880.250	50.05	-2.29	54.0	-3.95	AV	163.00	150	Vertical	Pass
5	7412.500	55.20	2.16	74.0	-18.80	Peak	226.00	150	Vertical	Pass
5**	7412.500	45.35	2.16	54.0	-8.65	AV	226.00	150	Vertical	Pass
6	13698.000	52.05	1.18	74.0	-21.95	Peak	0.00	150	Vertical	Pass
6**	13698.000	42.99	1.18	54.0	-11.01	AV	0.00	150	Vertical	Pass

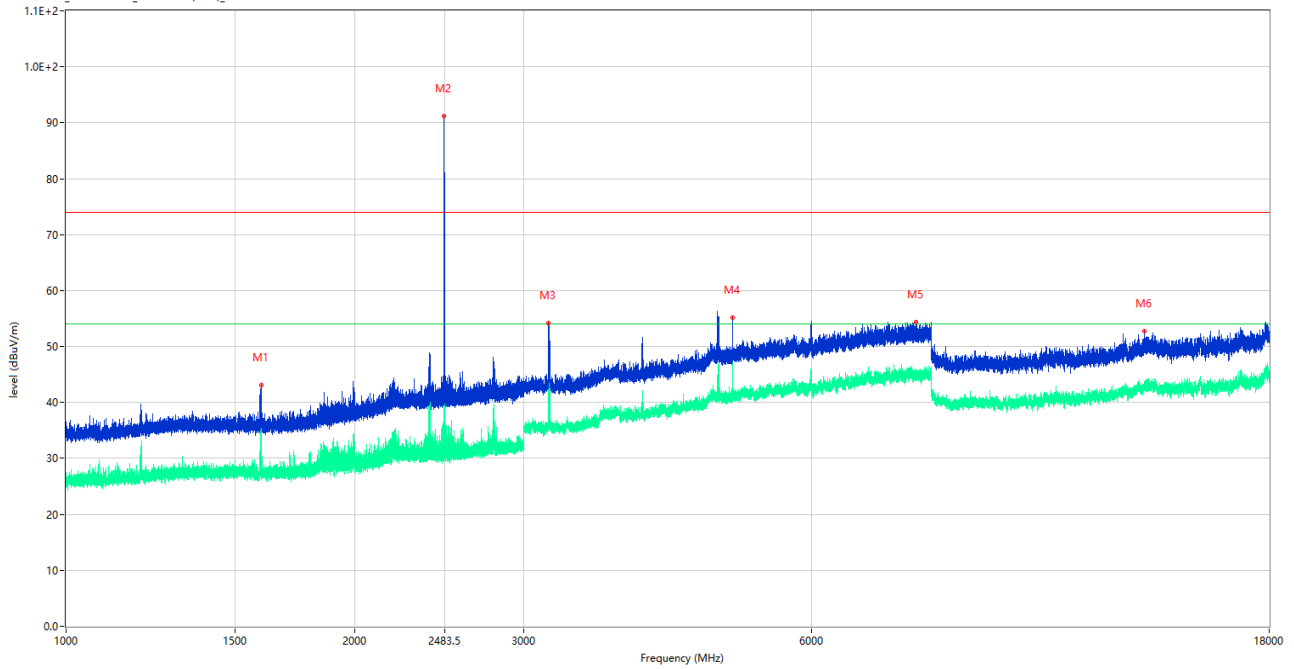
GFSK HIGH CHANNEL 1 GHz to 18 GHz, ANT H



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1599.300	42.03	-17.78	74.0	-31.97	Peak	230.00	150	Horizontal	Pass
1**	1599.300	30.14	-17.78	54.0	-23.86	AV	230.00	150	Horizontal	Pass
2	2480.200	93.12	-12.61	74.0	19.12	Peak	218.00	150	Horizontal	N/A
2**	2480.200	92.45	-12.61	54.0	38.45	AV	218.00	150	Horizontal	N/A
3	3192.000	51.33	-7.91	74.0	-22.67	Peak	97.00	150	Horizontal	Pass
3**	3192.000	40.93	-7.91	54.0	-13.07	AV	97.00	150	Horizontal	Pass
4	4960.250	56.76	-2.10	74.0	-17.24	Peak	227.00	150	Horizontal	Pass
4**	4960.250	52.86	-2.10	54.0	-1.14	AV	227.00	150	Horizontal	Pass
5	7569.250	54.59	1.00	74.0	-19.41	Peak	200.00	150	Horizontal	Pass
5**	7569.250	45.12	1.00	54.0	-8.88	AV	200.00	150	Horizontal	Pass
6	13561.000	52.35	0.40	74.0	-21.65	Peak	6.00	150	Horizontal	Pass
6**	13561.000	42.35	0.40	54.0	-11.65	AV	6.00	150	Horizontal	Pass

GFSK HIGH CHANNEL 1 GHz to 18 GHz, ANT V

RE Test case_FCC Part 15C_FCC 15.247(2.4G)_1GHz-18GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1599.500	43.08	-17.78	74.0	-30.92	Peak	332.00	150	Vertical	Pass
1**	1599.500	33.71	-17.78	54.0	-20.29	AV	332.00	150	Vertical	Pass
2	2480.200	91.15	-12.61	74.0	17.15	Peak	86.00	150	Vertical	N/A
2**	2480.200	90.63	-12.61	54.0	36.63	AV	86.00	150	Vertical	N/A
3	3188.250	54.24	-7.88	74.0	-19.76	Peak	0.00	150	Vertical	Pass
3**	3188.250	41.53	-7.88	54.0	-12.47	AV	0.00	150	Vertical	Pass
4	4959.250	55.19	-2.12	74.0	-18.81	Peak	163.00	150	Vertical	Pass
4**	4959.250	48.42	-2.12	54.0	-5.58	AV	163.00	150	Vertical	Pass
5	7697.500	54.32	1.09	74.0	-19.68	Peak	30.00	150	Vertical	Pass
5**	7697.500	44.20	1.09	54.0	-9.80	AV	30.00	150	Vertical	Pass
6	13336.500	52.72	0.68	74.0	-21.28	Peak	118.00	150	Vertical	Pass
6**	13336.500	43.73	0.68	54.0	-10.27	AV	118.00	150	Vertical	Pass

A.7 Band Edge (Restricted-band band-edge)

Note¹: The lowest and highest channels are tested to verify the band edge emissions. Please refer to the following the plots for emissions values.

Note²: The test data all are tested in the vertical and horizontal antenna which the trace is max hold. So these plots have shown the worst case.

Note³: According the ANSI C63.10-2013, where limits are specified for both average and peak (or quasi-peak) detector functions, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement.

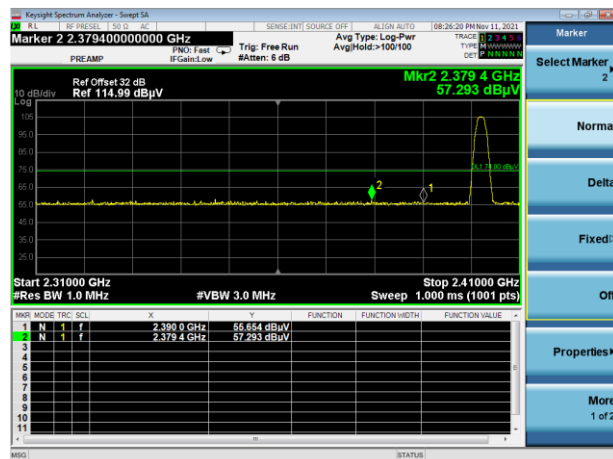
Note⁴: The Level (dBuV/m) has been corrected by factor.

Test Data

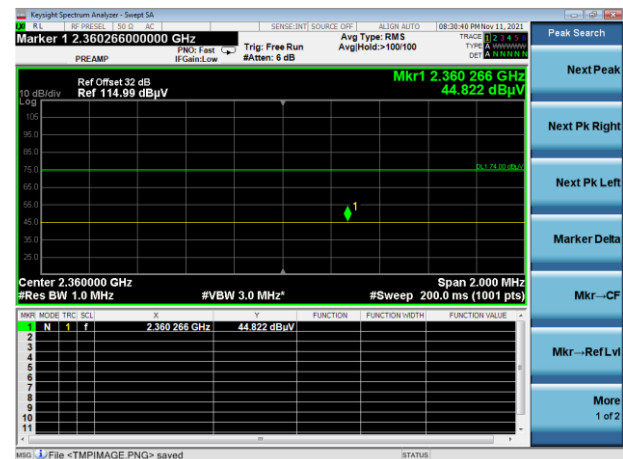
Test Mode	Test Channel	Frequency (MHz)	Level (dBuV/m)	Factor (dB)	Limit Line (dBuV/m)	Margin (dB)	Remark	Verdict
GFSK	Low	2390	57.293	32	74	-16.707	PEAK	Pass
		2390	44.822	32	54	-9.178	AVERAGE	Pass
GFSK	HIGH	2483.5	57.389	32	74	-16.611	PEAK	Pass
		2483.5	44.620	32	54	-9.380	AVERAGE	Pass

Test plots

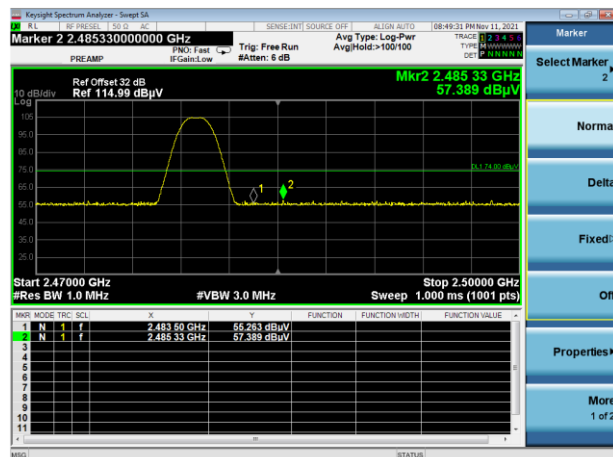
LOW CHANNEL, PEAK



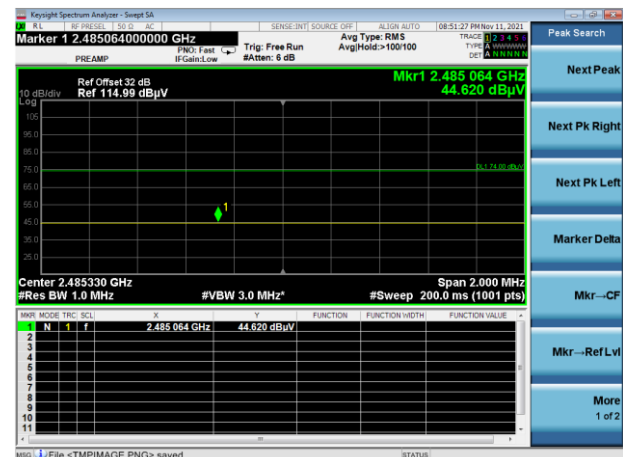
LOW CHANNEL, AV



HIGH CHANNEL, PEAK



HIGH CHANNEL, AV



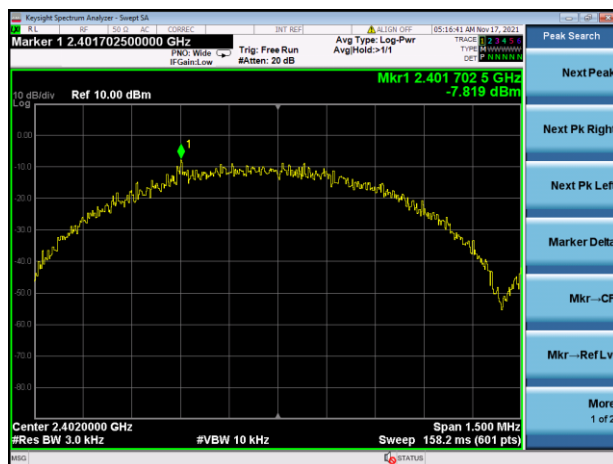
A.8 Power Spectral Density (PSD)

Test Data

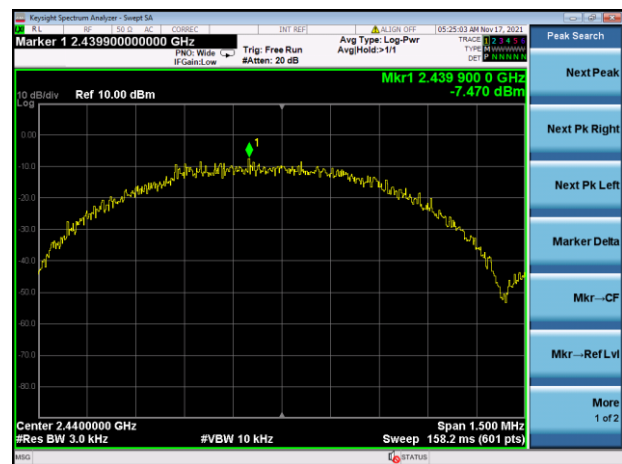
Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
Low Channel	-7.819	8	Pass
Middle Channel	-7.470	8	Pass
High Channel	-8.937	8	Pass

Test plots

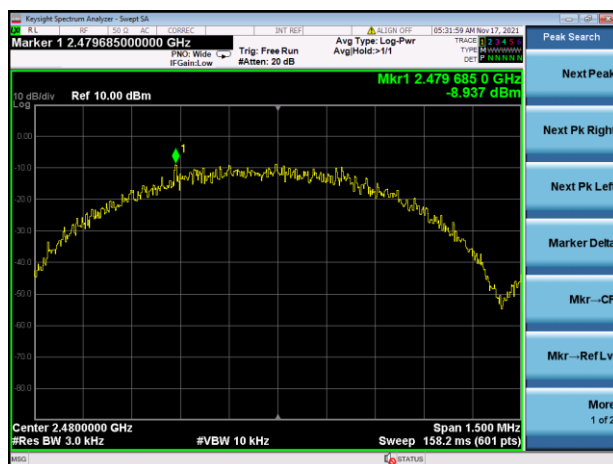
GFSK (BLE) LOW CHANNEL



GFSK (BLE) MIDDLE CHANNEL



GFSK (BLE) HIGH CHANNEL



ANNEX B TEST SETUP PHOTOS

Please refer the document “BL-EC21B0239-AR.PDF”.

ANNEX C EUT EXTERNAL PHOTOS

Please refer the document “BL-EC21B0239-AW.PDF”.

ANNEX D EUT INTERNAL PHOTOS

Please refer the document “BL-EC21B0239-AI.PDF”.

--END OF REPORT--