

10.6 Dwell Time

Test Method

1. The RF output of EUT was connected to the spectrum analyzer by RF cable. The path loss was compensated to the results for each measurement.
2. Set to the maximum power setting and enable the EUT transmit to hopping mode.
3. Span: Zero span, centered on a hopping channel.
4. RBW shall be $\leq$ channel spacing and where possible RBW should be set $\gg 1 / T$, where T is the expected dwell time per channel.
5. Sweep: As necessary to capture the entire dwell time per hopping channel; where possible use a video trigger and trigger delay so that the transmitted signal starts a little to the right of the start of the plot. The trigger level might need slight adjustment to prevent triggering when the system hops on an adjacent channel; a second plot might be needed with a longer sweep time to show two successive hops on a channel.
6. Detector function: Peak.
7. Trace: Max hold. Use the marker-delta function to determine the transmit time per hop. If this value varies with different modes of operation (data rate, modulation format, number of hopping channels, etc.), then repeat this test for each variation in transmit time.

Limit

The average time of occupancy on any frequency shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

Dwell Time

Dwell time

The maximum dwell time shall be 0,4 s.

According to the Bluetooth Core Specification, the worse result (DH5 mode) was reported to show compliance.

The Dwell Time = Burst Width * Total Hops. The detailed calculations are showed as follows:

The duration for dwell time calculation: 0.4 [s] * hopping number = 0.4 [s] * 79 [ch] = 31.6 [s*ch];

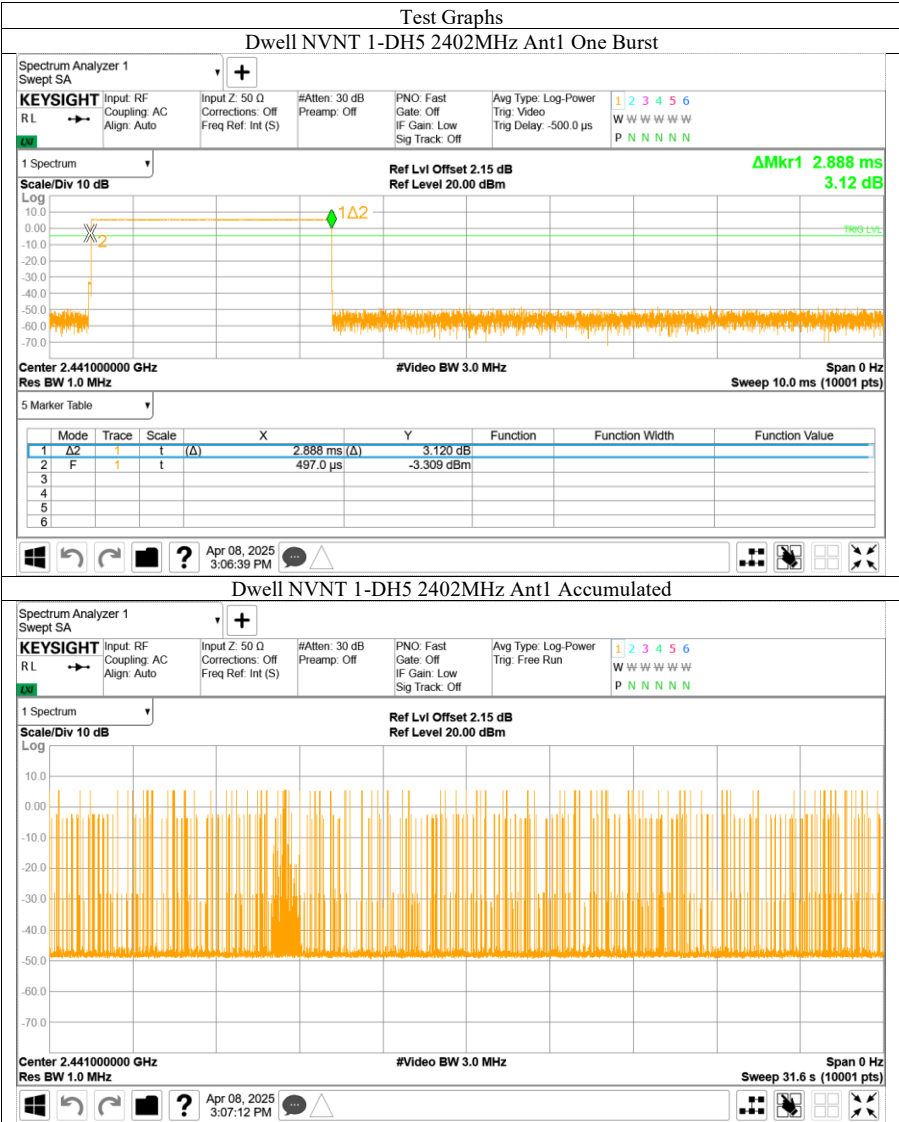
The burst width, which is directly measured, refers to the duration on one channel hop.

Test Result

Modulation	Mode	Reading (ms)	Total Hops	Test Result (ms)	Limit (ms)	Result
GFSK	DH5	2.888	101	291.688	< 400	Pass
$\pi/4$ -DQPSK	2DH5	2.889	112	323.568	< 400	Pass
8-DPSK	3DH5	2.891	100	289.1	< 400	Pass

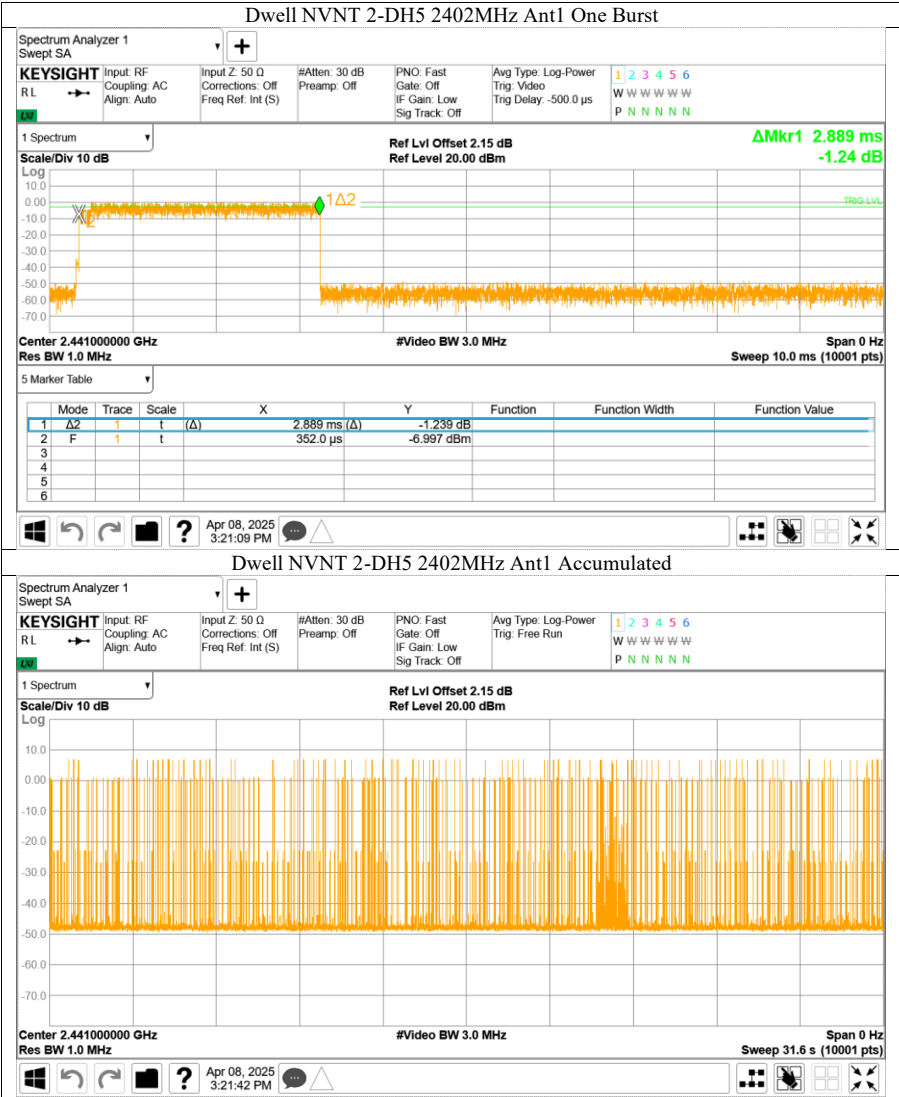


GFSK Modulation



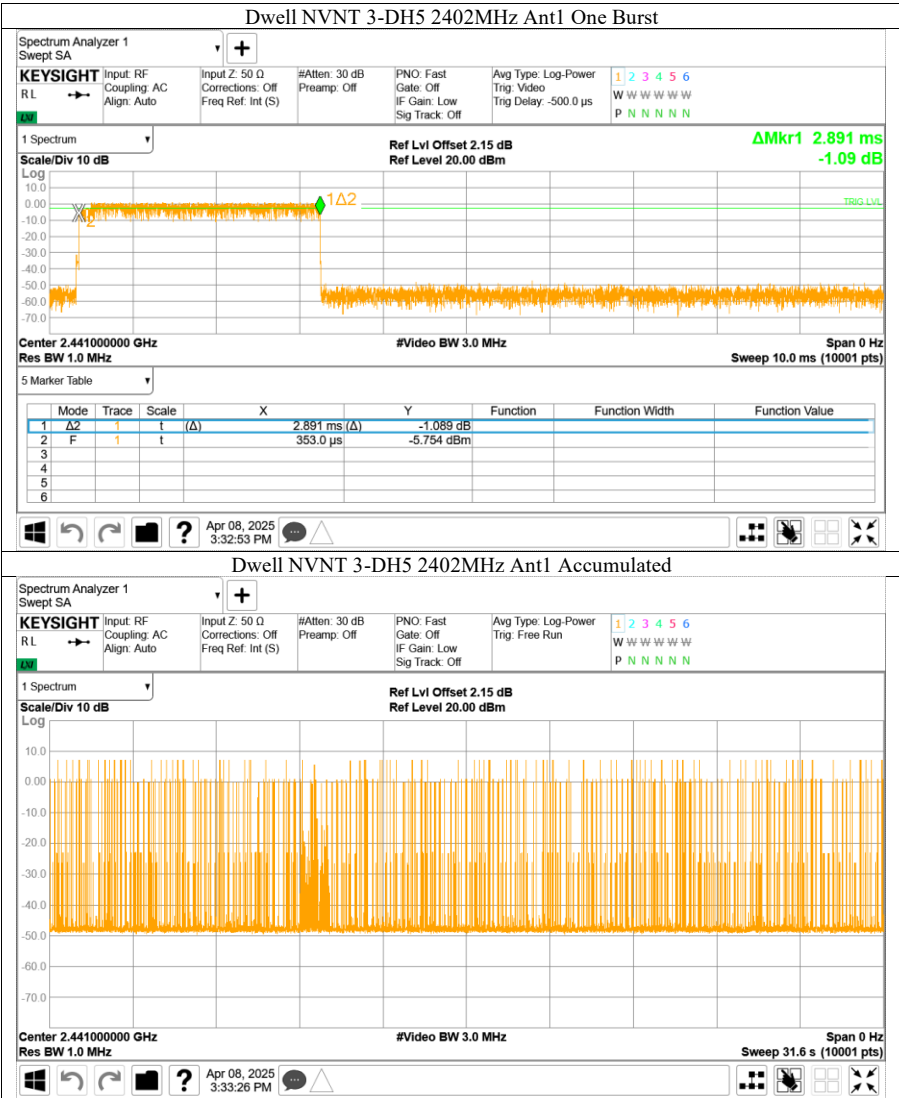


$\pi/4$ -DQPSK Modulation





8-DPSK Modulation



10.7 Spurious RF conducted emissions

Test Method

1. The RF output of EUT was connected to the spectrum analyzer by RF cable. The path loss was compensated to the results for each measurement.
2. Set to the maximum power setting and enable the EUT transmit continuously.
3. Set RBW = 100 kHz, VBW=300 kHz, Peak Detector, Sweep = auto, Span = wide enough to capture the peak level of the in-band emission and all spurious emissions, Trace = max hold. Allow the trace to stabilize. Set the marker on the peak of any spurious emission recorded. The level displayed must comply with the limit specified in this Section.
4. Measure and record the results in the test report.
5. The RF fundamental frequency should be excluded against the limit line in the operating frequency

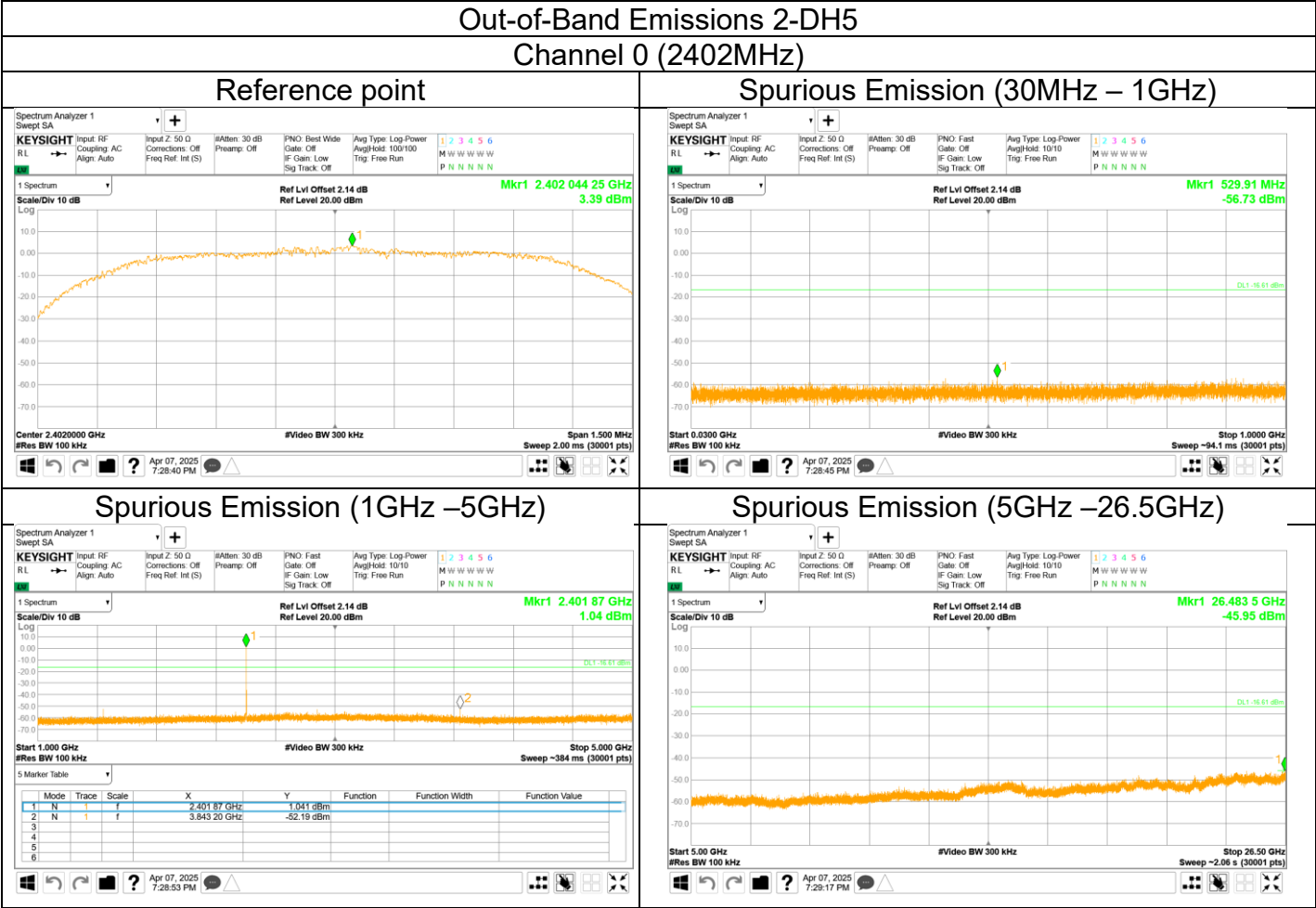
Limit

Frequency Range MHz	Limit (dBc)
30-25000	-20



Spurious RF conducted emissions

Only the worse case (which is subject to the maximum EIRP, $\pi/4$ -DQPSK mode) test result is listed in the report.

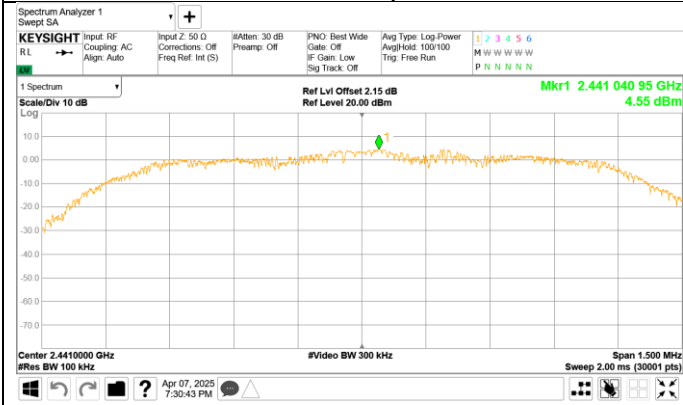


Note: The emission which exceed the limit is the fundamental.

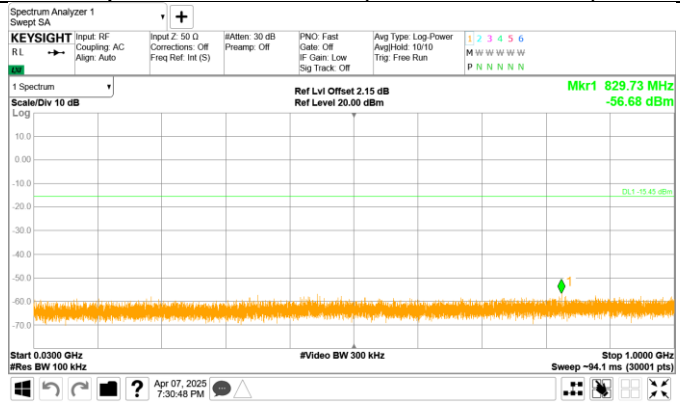


Out-of-Band Emissions 2-DH5
Channel 0 (2441MHz)

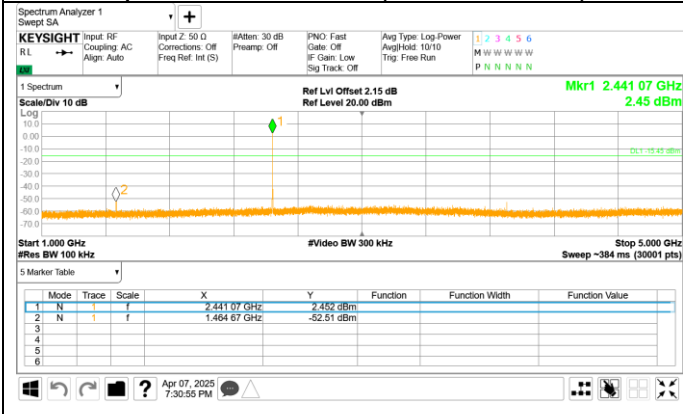
Reference point



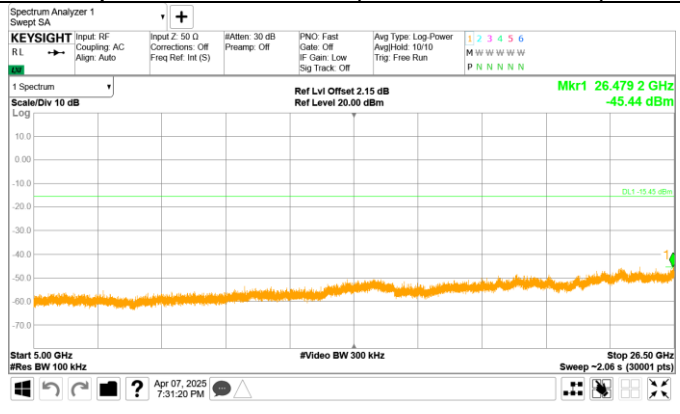
Spurious Emission (30MHz – 1GHz)



Spurious Emission (1GHz –5GHz)



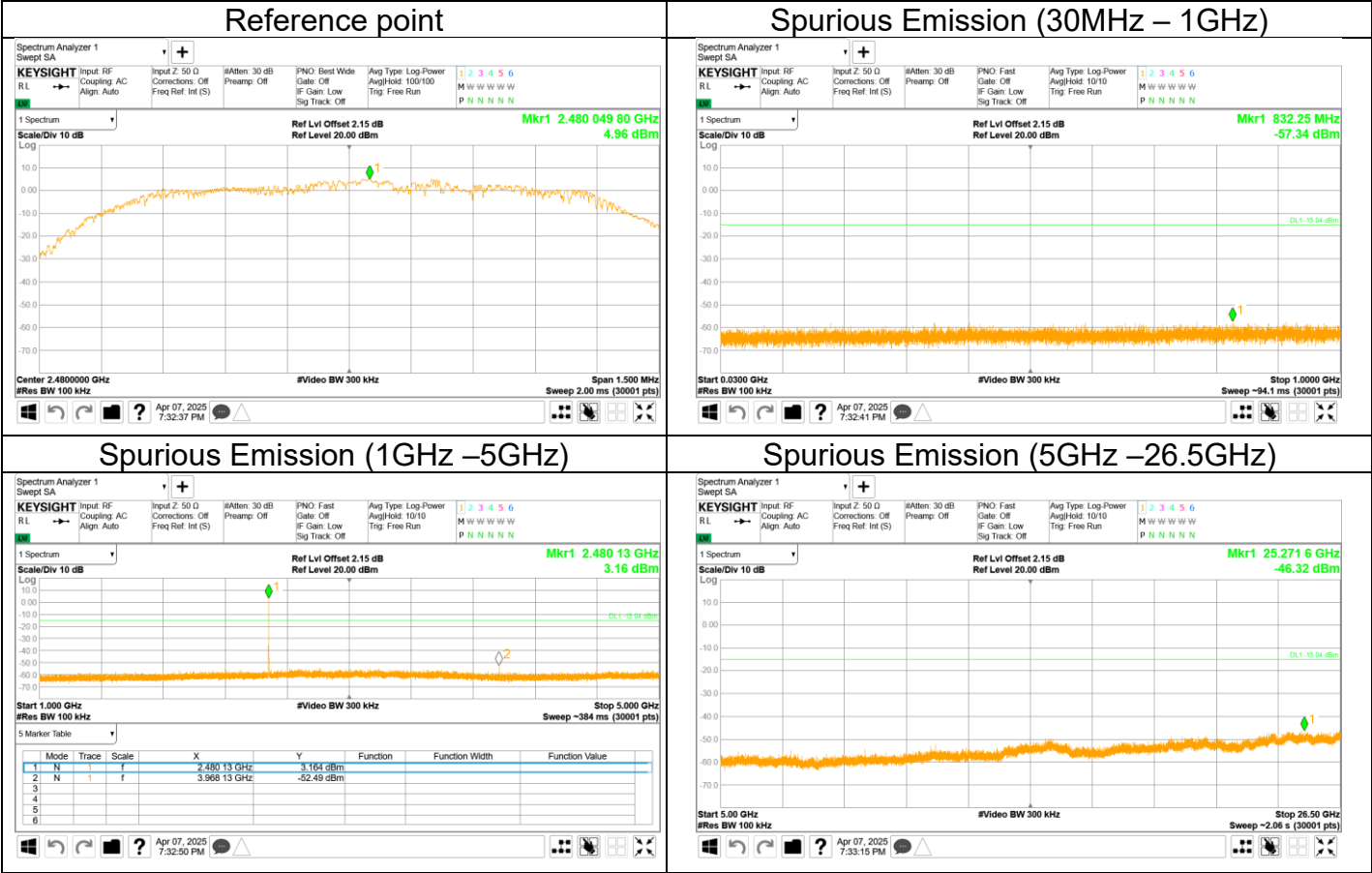
Spurious Emission (5GHz –26.5GHz)



Note: The emission which exceed the limit is the fundamental.



Out-of-Band Emissions 2-DH5
Channel 0 (2480MHz)



Note: The emission which exceed the limit is the fundamental.

10.8 Band edge testing

Test Method

1. The RF output of EUT was connected to the test receiver by RF cable. The path loss was compensated to the results for each measurement.
2. Set to the maximum power setting and enable the EUT transmit continuously. Set the EUT to the lowest frequency channel.
3. Set RBW = 100 kHz, VBW=300 kHz, Peak Detector, Trace: Max hold, Sweep time: Coupled, Span: Wide enough to capture the peak level of the emission operating on the channel closest to the band edge, as well as any modulation products that fall outside of the authorized band of operation. Allow the trace to stabilize.
4. Set the marker on the emission at the band edge, or on the highest modulation product outside of the band, if this level is greater than that at the band edge. Enable the marker-delta function, and then use the marker-to-peak function to move the marker to the peak of the in-band emission.
5. Set the EUT to the highest frequency channel and repeat step 2) to 4)
6. Enable the EUT hopping mode, repeat the test.

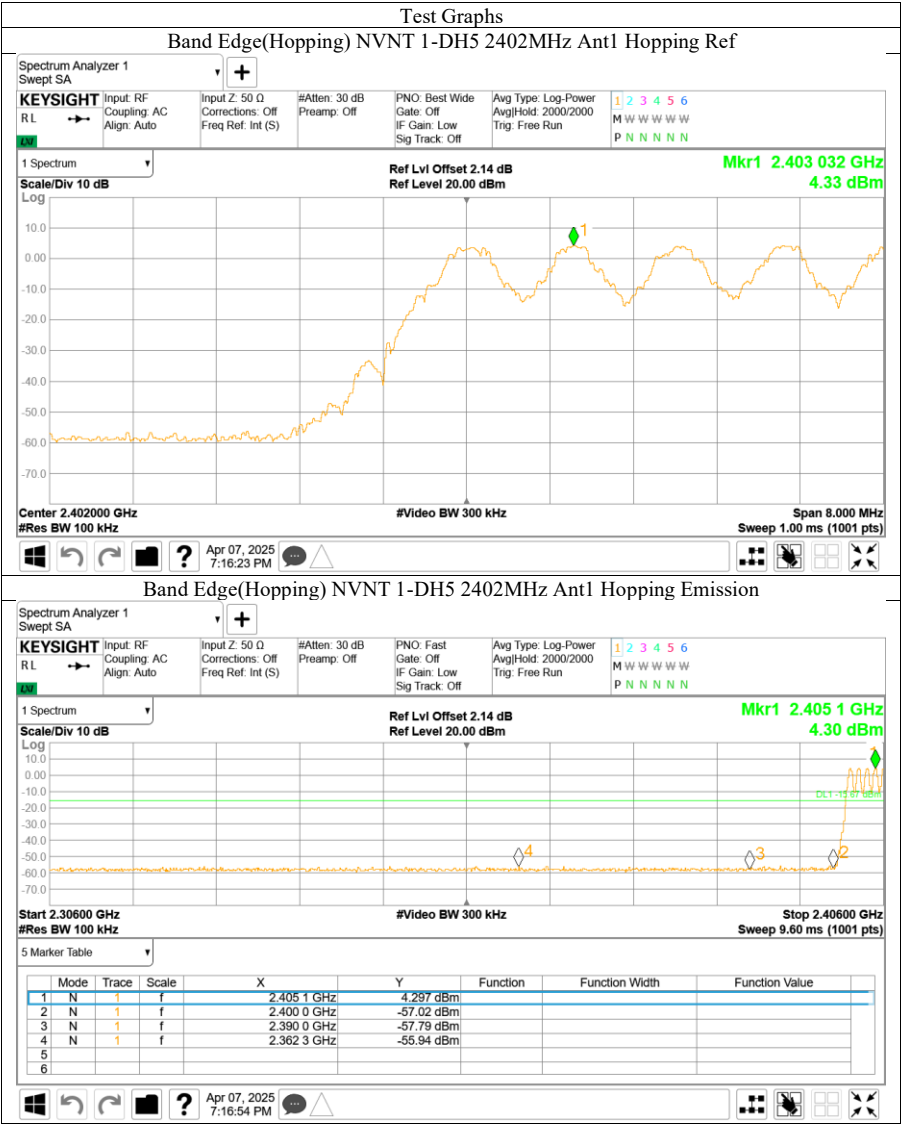
Limit:

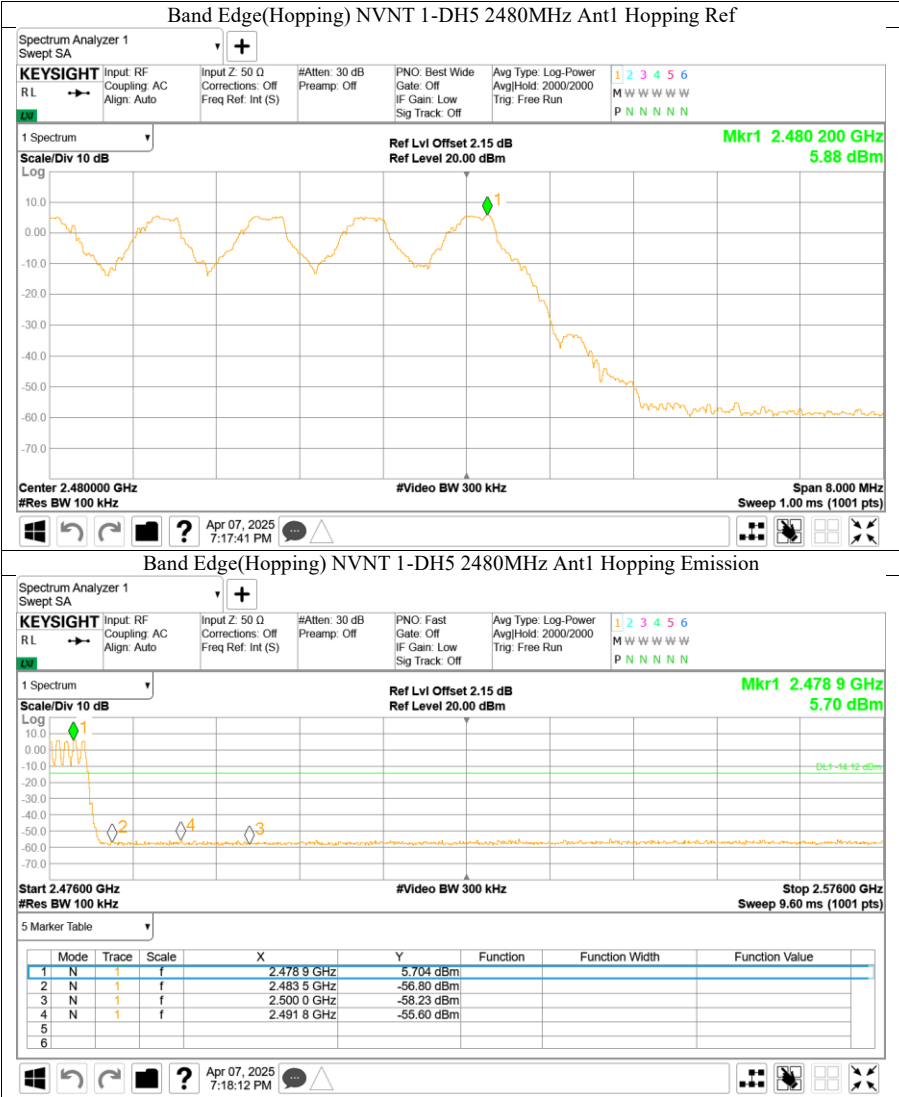
In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits.



Band edge testing

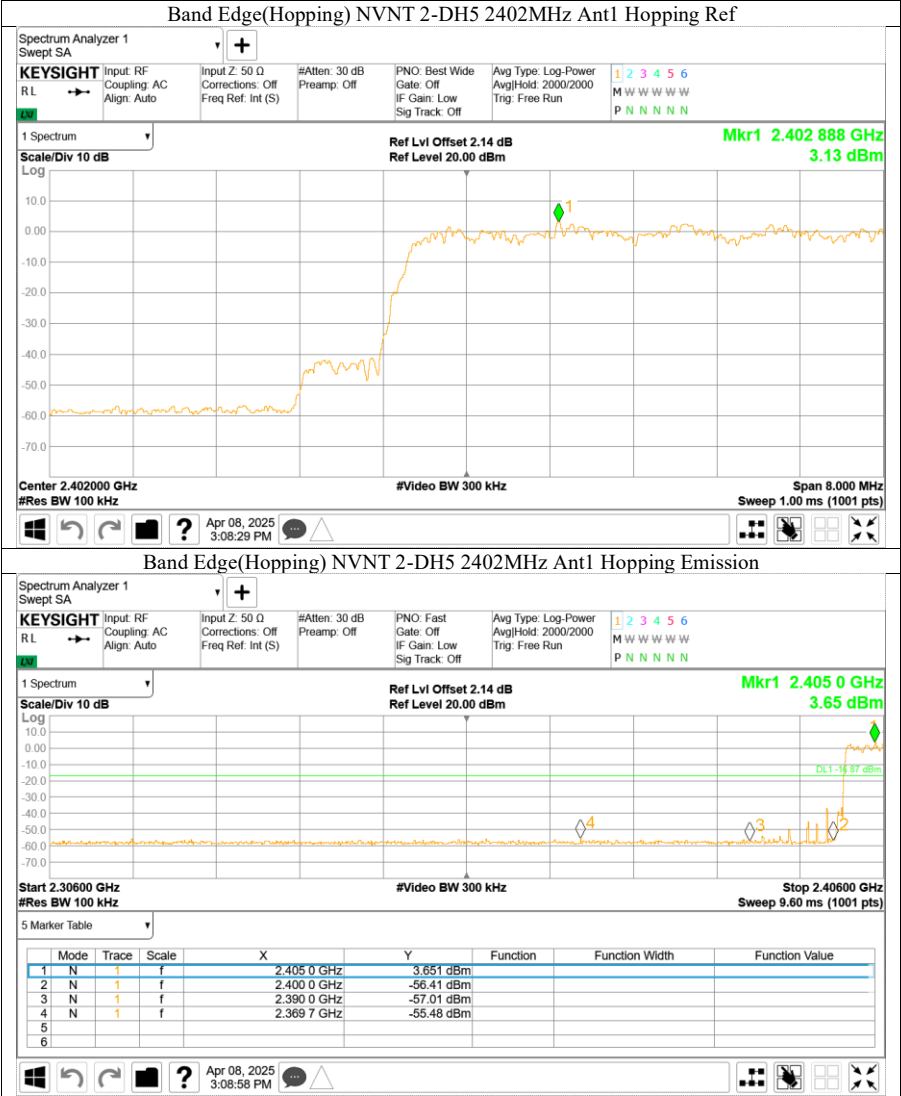
GFSK Modulation Test Result:
Hopping on mode:

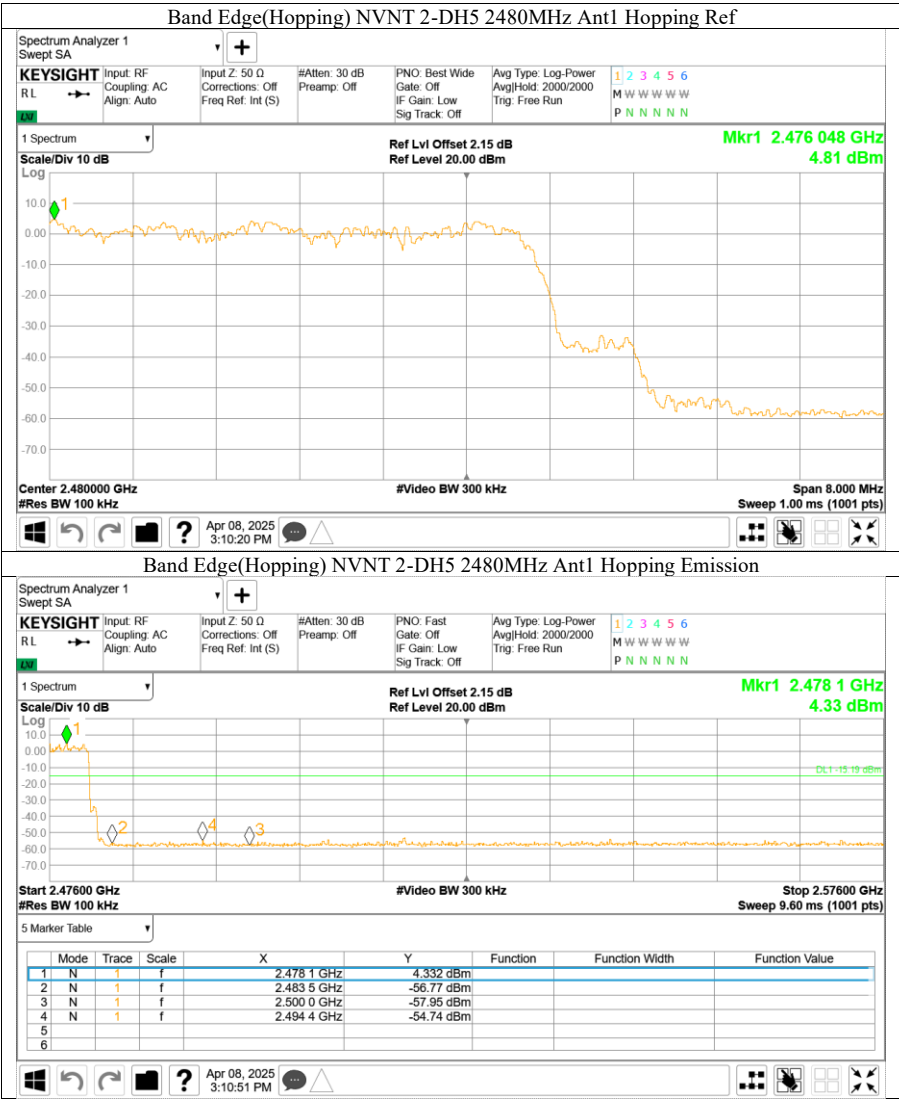






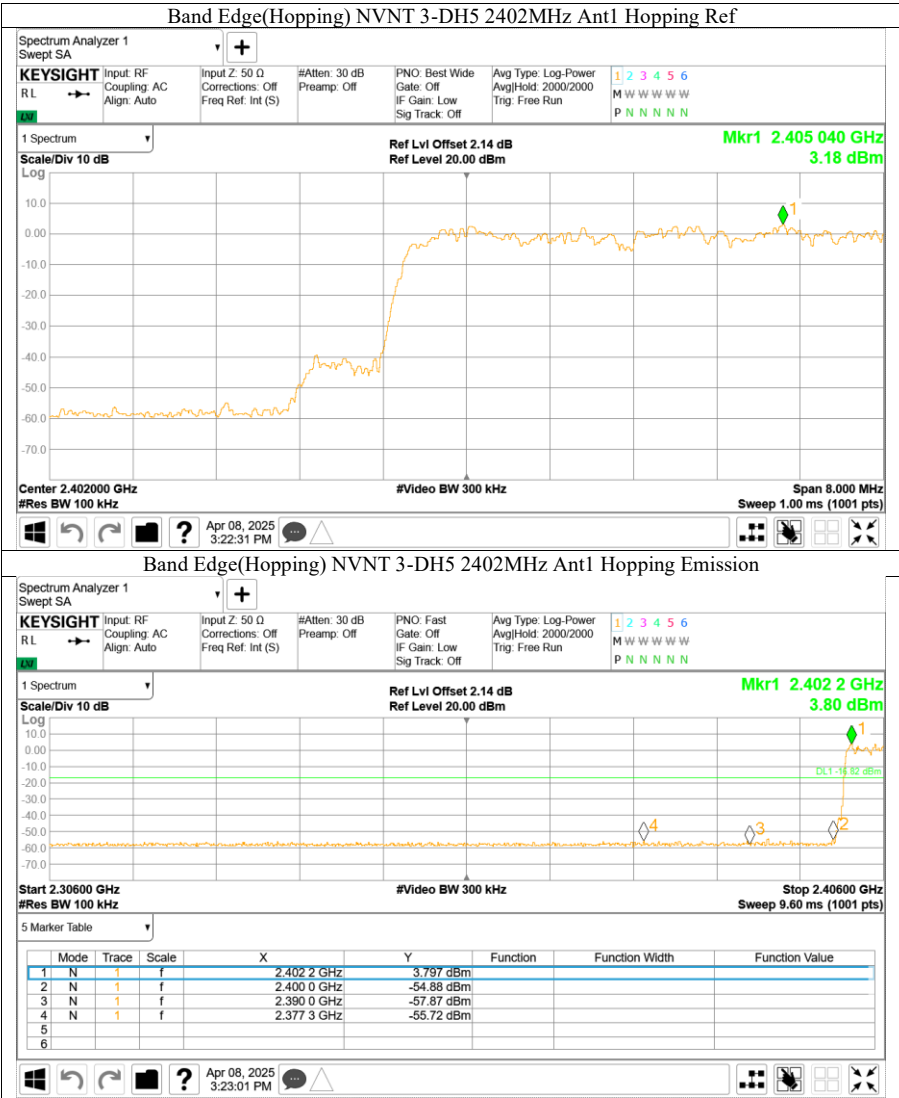
$\pi/4$ -DQPSK Modulation Test Result:
Hopping on mode:

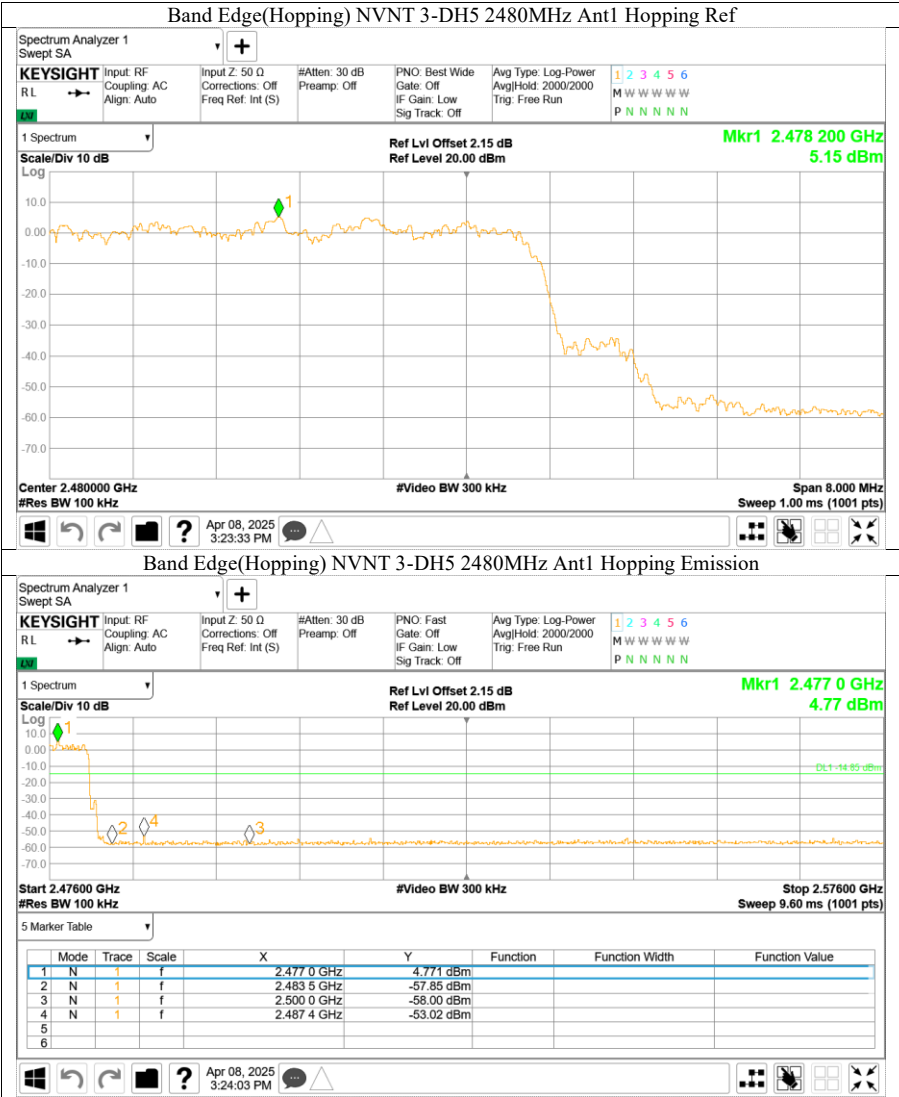






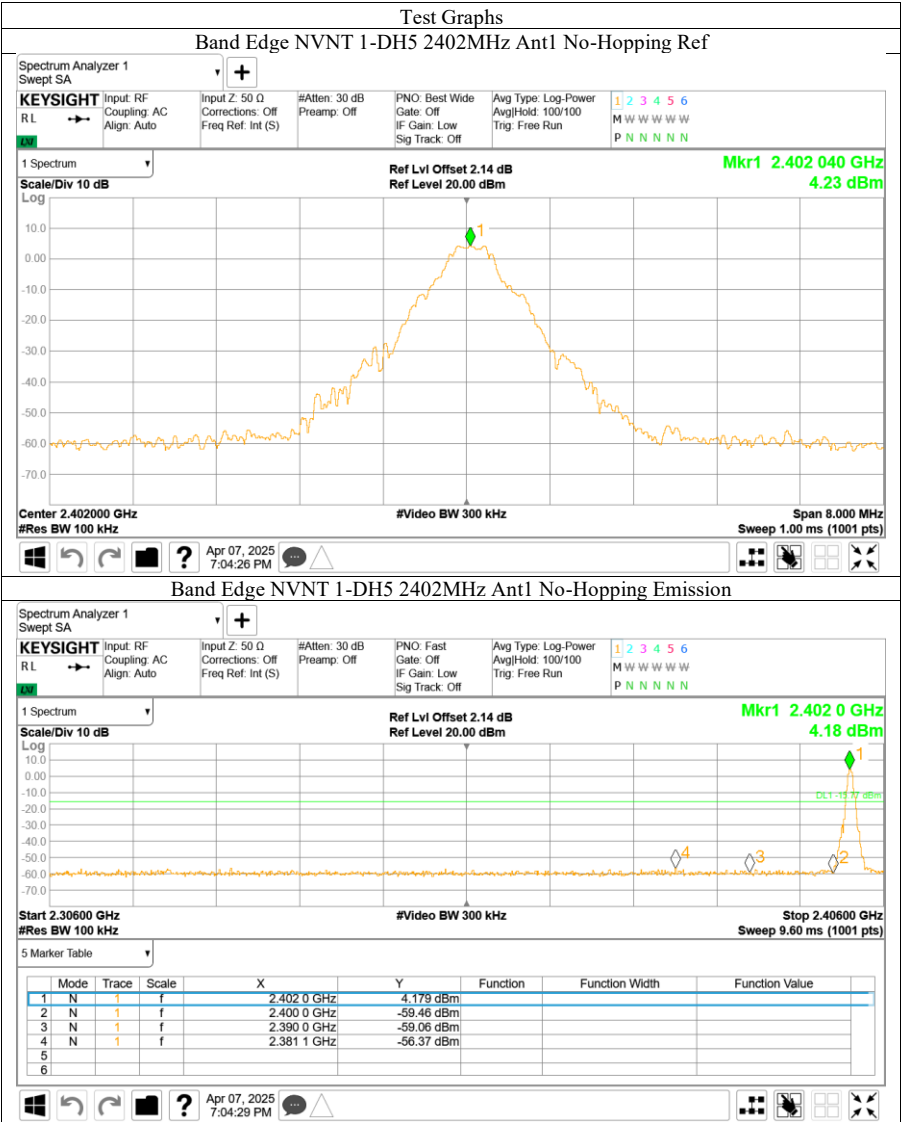
8-DPSK Modulation Test Result:
Hopping on mode:

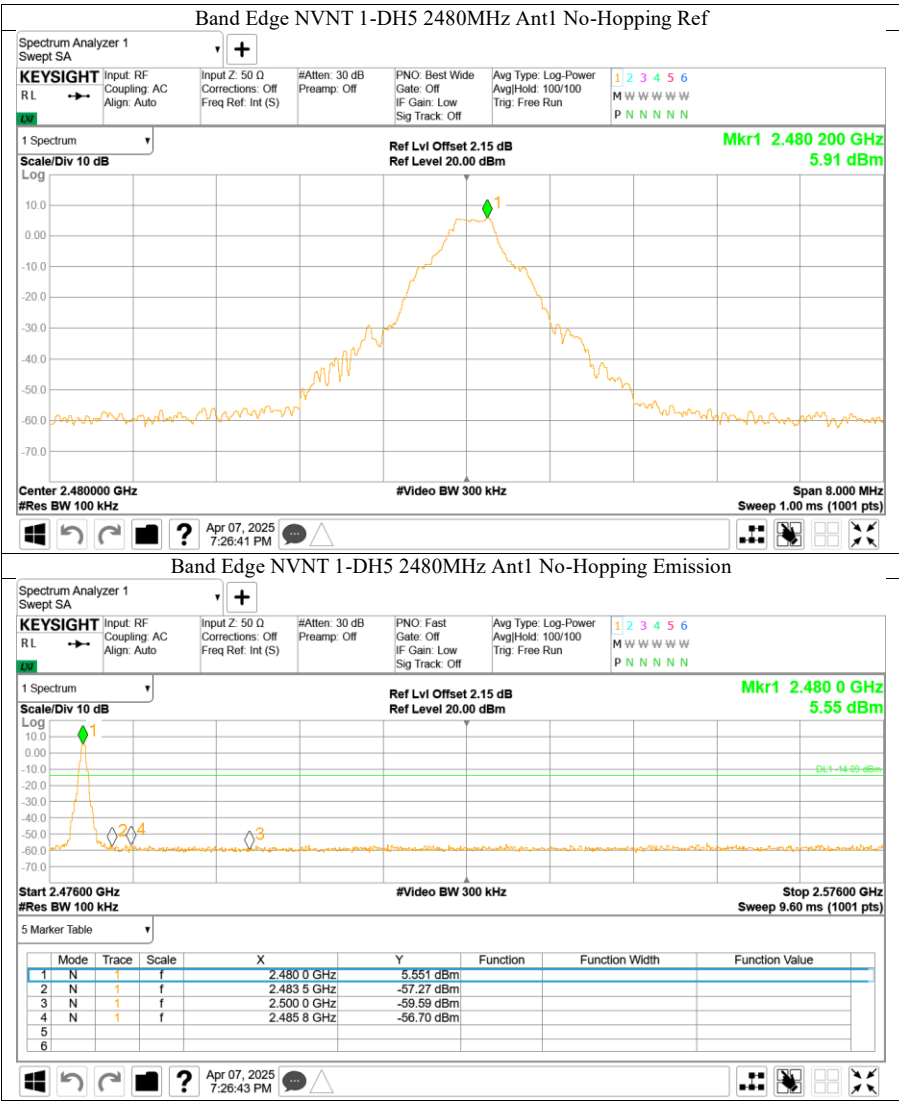






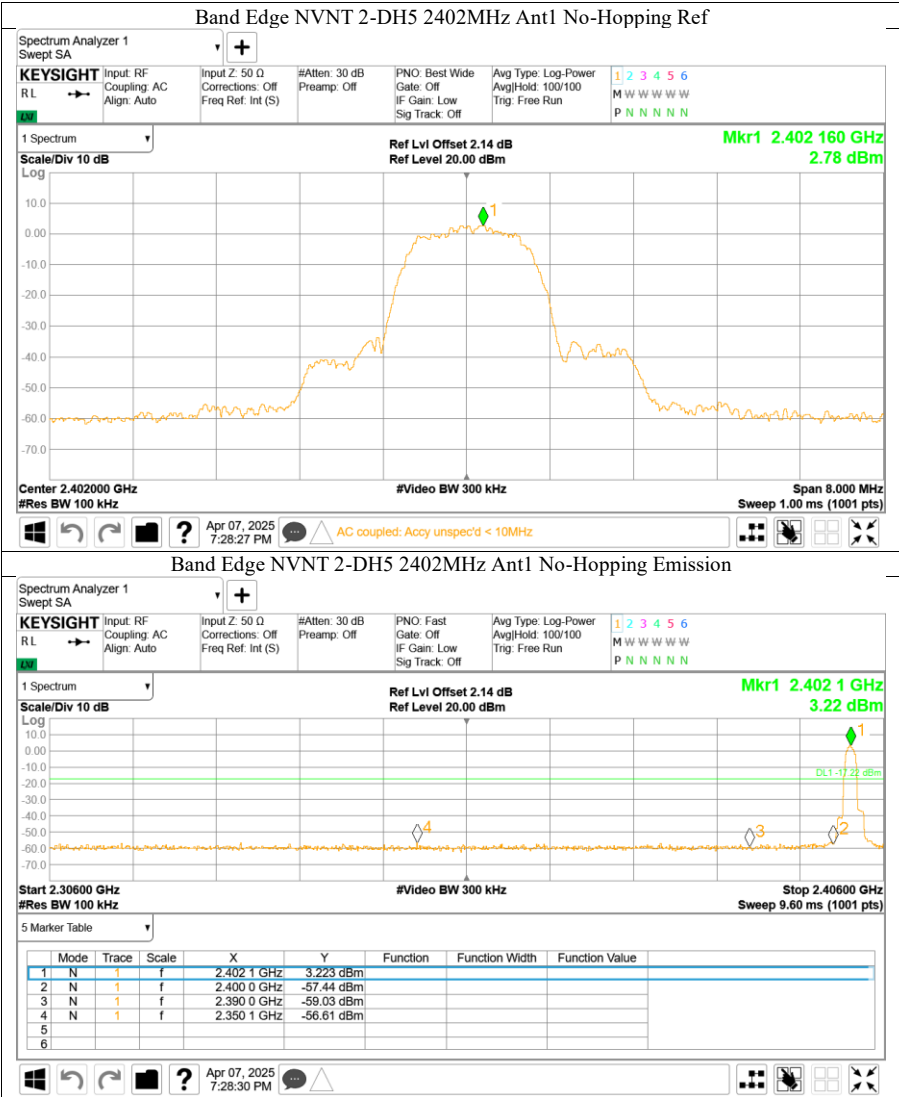
GFSK Modulation Test Result:
No Hopping off mode:

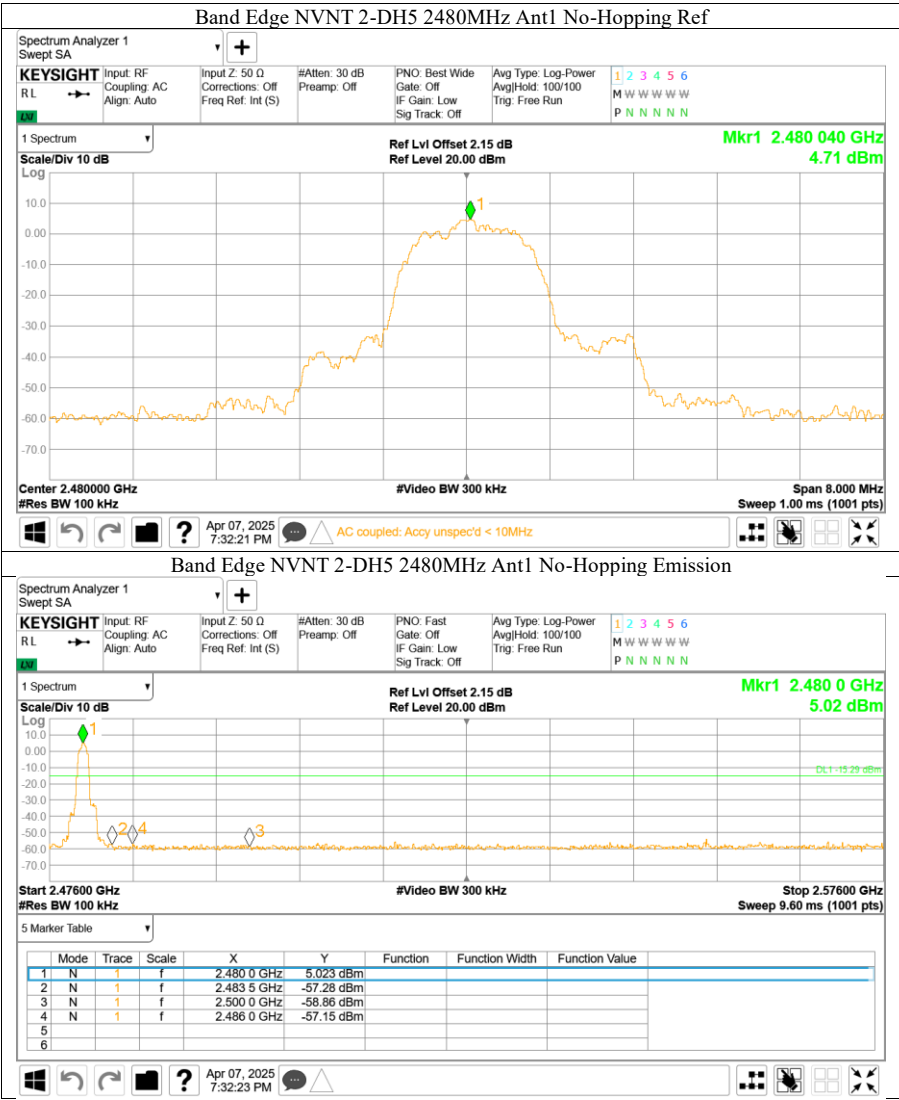






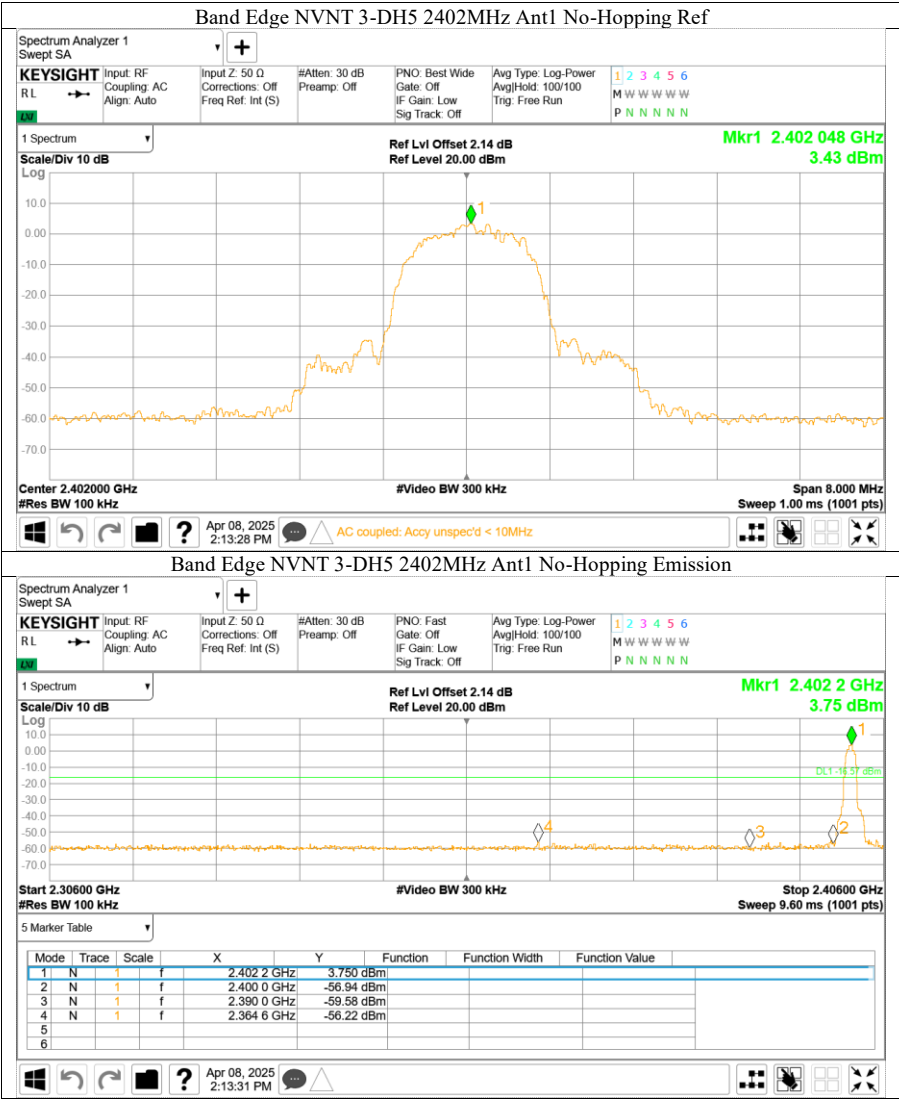
$\pi/4$ -DQPSK Modulation Test Result:
No Hopping off mode:

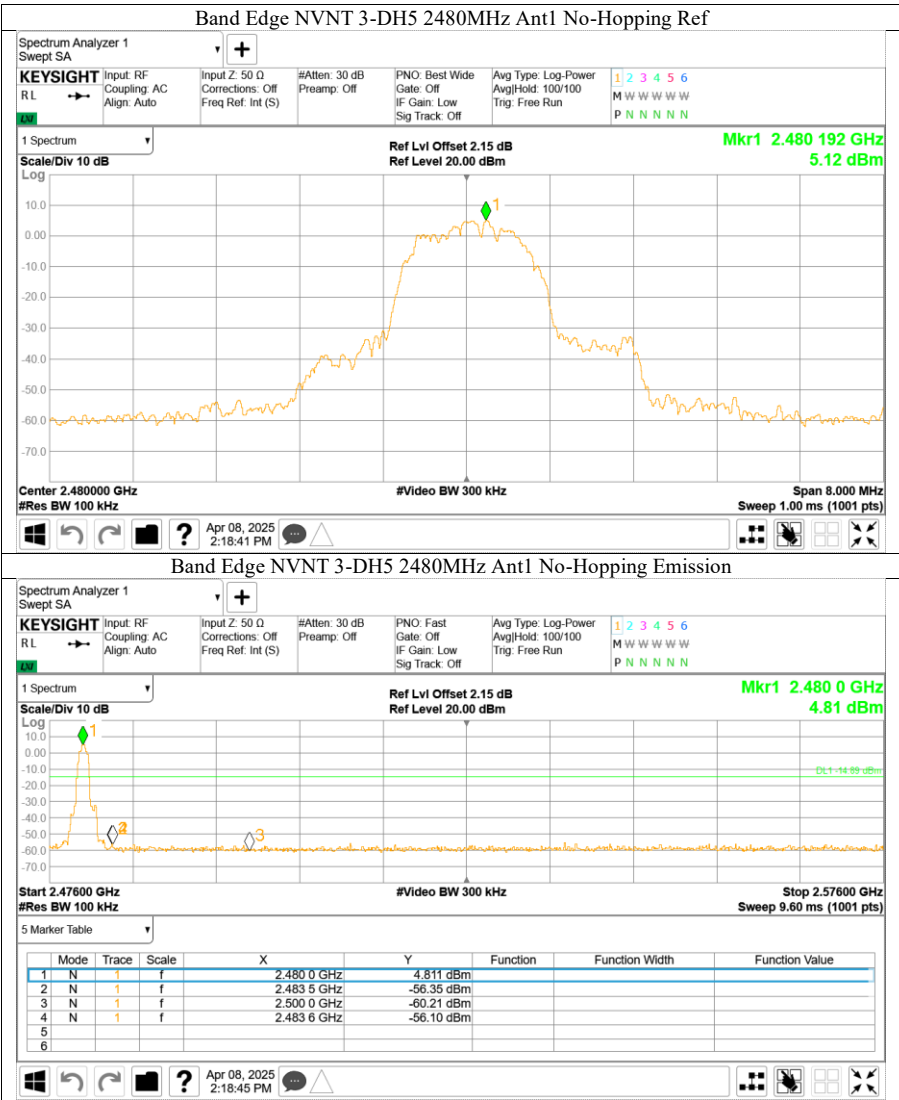






8-DPSK Modulation Test Result:
No Hopping off mode:





10.9 Spurious radiated emissions for transmitter

Test Method

1. The EUT was placed on a turn table which is 1.5m above ground plane for above 1GHz and 0.8m above ground for below 1GHz at 3 meters chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
2. Set to the maximum power setting and enable the EUT transmit continuously
3. The EUT was set 3 meters away from the interference – receiving antenna, which was mounted on the top of a variable – height antenna tower.
4. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
5. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
6. Use the following test receiver settings According to C63.10:
 - (1) Span shall wide enough to fully capture the emission being measured;
 - (2) Set RBW=100 kHz to 120KHz for $f < 1$ GHz; VBW $\geq$ RBW; Sweep = auto; Detector function = QP; Trace = max hold;
 - (3) Set RBW = 1 MHz, VBW= 3MHz for $f \geq 1$ GHz for peak measurement.For average measurement:

The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for RMS Average ((duty cycle < 98%) for Average detection (AV) at frequency above 1GHz, then the measurement results was added to a correction factor ($20\log(1/\text{duty cycle})$).

The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz (duty cycle > 98%) for Average detection (AV) at frequency above 1GHz.
7. Repeat above procedures until all frequencies measured were complete.

Spurious Radiated Emissions for Transmitter

Limit

The radio emission outside the operating frequency band 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. Radiated emissions which fall in the restricted bands, as defined in section 15.205 & RSS-GEN 8.10, must comply with the radiated emission limits specified in section 15.209 & RSS-Gen 6.13.

Frequency MHz	Field Strength $\mu\text{V/m}$	Field Strength $\text{dB}\mu\text{V/m}$	Detector	Measurement distance meters
0.009-0.490	2400/F(kHz)	48.5-13.8	AV	300
0.490-1.705	24000/F(kHz)	33.8-23.0	QP	30
1.705-30	30	29.5	QP	30
30-88	100	40	QP	3
88-216	150	43.5	QP	3
216-960	200	46	QP	3
960-1000	500	54	QP	3
Above 1000	500	54	AV	3
Above 1000	5000	74	PK	3

Note 1: Limit $3\text{m}(\text{dB}\mu\text{V/m}) = \text{Limit } 300\text{m}(\text{dB}\mu\text{V/m}) + 40\text{Log}(300\text{m}/3\text{m})$ (Below 30MHz)

Note 2: Limit $3\text{m}(\text{dB}\mu\text{V/m}) = \text{Limit } 30\text{m}(\text{dB}\mu\text{V/m}) + 40\text{Log}(30\text{m}/3\text{m})$ (Below 30MHz)

Spurious radiated emissions for transmitter

According to C63.10, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement, so AV emission value did not show in below table if the peak value complies with average limit.

The only worse case (which is subject to the maximum conducted power, $\pi/4$ -DQPSK mode) test result is listed in the report.

Test result

The worst case of Radiated Emission below 1GHz: Only the worst case listed as below.

0.009-30MHz Radiated Emission

EUT Information

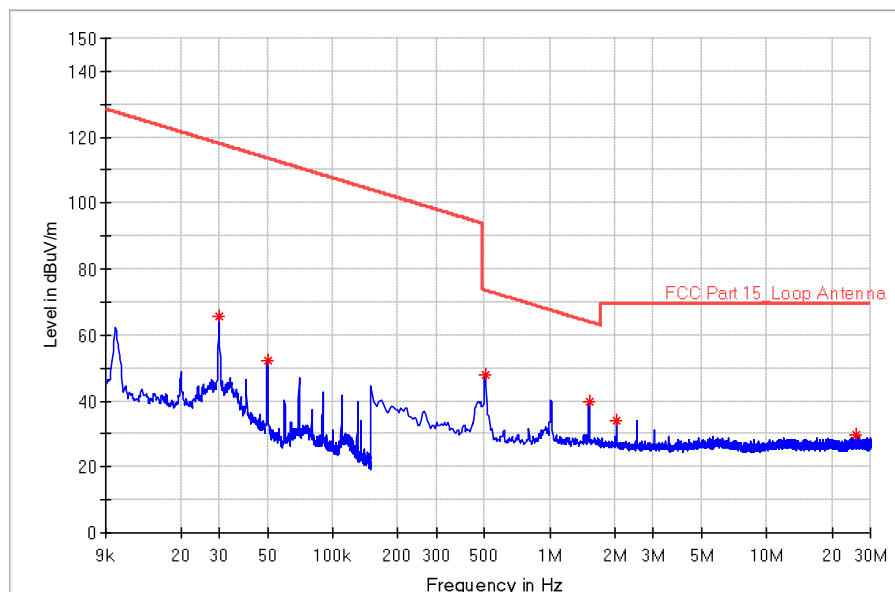
EUT Name: Intelligent Lawn Mower
 Model: S1 Ultra
 Client: Kunshan Lantuo Intelligent Robot Co., Ltd
 Op Cond: Transmit mode and Tx_2480MHz, $\pi/4$ -DQPSK (worst case)
 Operator: Doujun XU
 Test Spec: FCC Part 15.209(a)
 Sample No: SHA-952960-3

Sweep Setup: RE_VULB9168_pre_Cont_30-1000 [EMI radiated]

Hardware Setup: RE_Loop Antenna V
 Receiver: [ESR 3]
 Level Unit: dBuV/m

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamplifier
9 kHz - 150 kHz	88.125 Hz	PK+	200 Hz	0.01 s	0 dB
150 kHz - 30 MHz	4.39 kHz	PK+	9 kHz	0.01 s	0 dB

Full Spectrum



Limit and Margin

Frequency (MHz)	MaxPeak (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
0.029974	65.58	118.07	52.49	100.0	X	244.0	18.9
0.049978	52.05	113.63	61.58	100.0	X	44.0	18.9
0.505566	47.94	73.53	25.59	100.0	X	246.0	18.7
1.519588	39.71	63.97	24.26	100.0	X	243.0	18.8
2.024405	34.17	69.54	35.37	100.0	X	276.0	18.9
25.623463	29.48	69.54	40.06	100.0	X	269.0	19.5

Note 1: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)
 Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

0.009-30MHz Radiated Emission

EUT Information

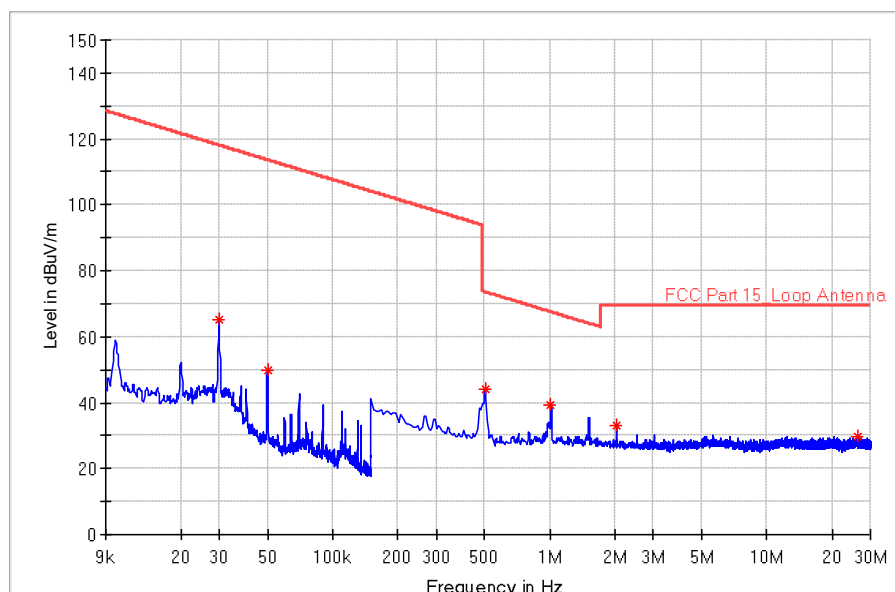
EUT Name: Intelligent Lawn Mower
 Model: S1 Ultra
 Client: Kunshan Lantuo Intelligent Robot Co., Ltd
 Op Cond: Transmit mode and 2480MHz, $\pi/4$ -DQPSK (worst case)
 Operator: Doujun XU
 Test Spec: FCC Part 15.209(a)
 Sample No: SHA-952960-3

Sweep Setup: RE_VULB9168_pre_Cont_30-1000 [EMI radiated]

Hardware Setup: RE_Loop Antenna V
 Receiver: [ESR 3]
 Level Unit: dBuV/m

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
9 kHz - 150 kHz	70.5 Hz	PK+	200 Hz	0.01 s	0 dB
150 kHz - 30 MHz	3.731 kHz	PK+	9 kHz	0.01 s	0 dB

Full Spectrum



Limit and Margin

Frequency (MHz)	MaxPeak (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
0.029974	65.27	118.07	52.80	100.0	Y	297.0	18.9
0.049978	49.91	113.63	63.72	100.0	Y	45.0	18.9
0.505566	44.02	73.53	29.51	100.0	Y	191.0	18.7
1.010383	39.31	67.51	28.20	100.0	Y	224.0	18.8
2.024405	32.86	69.54	36.68	100.0	Y	233.0	18.9
26.180956	29.94	69.54	39.60	100.0	Y	359.0	19.5

Note 1: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)
 Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

30-1000MHz Radiated Emission

EUT Information

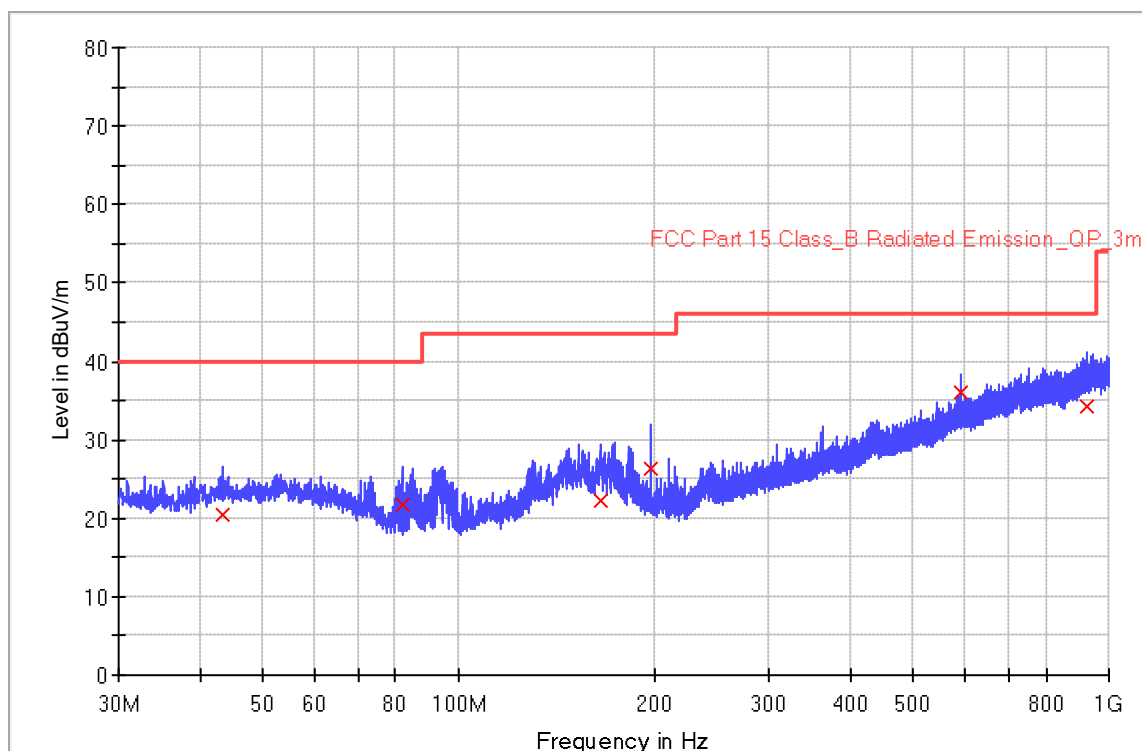
EUT Name: Intelligent Lawn Mower
Model: S1 Ultra
Client: Kunshan Lantuo Intelligent Robot Co., Ltd
Op Cond: Transmit mode and 2480MHz, $\pi/4$ -DQPSK (worst case)
Operator: Doujun XU
Test Spec: FCC Part 15.209(a)
Sample No: SHA-952960-3

Sweep Setup: RE_VULB9168_pre_Cont_30-1000 [EMI radiated]

Hardware Setup: RE_VULB9168
Receiver: [ESR 3]
Level Unit: dBuV/m

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
30 MHz - 1 GHz	48.5 kHz	PK+	120 kHz	0.2 s	20 dB

RE_VULB9168_pre_Cont_30-1000





Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dBuV/m)
43.280000	20.4	1000.0	120.000	200.0	H	159.0	20.2	19.6	40.0
81.760000	21.7	1000.0	120.000	250.0	H	226.0	15.7	18.3	40.0
164.960000	22.2	1000.0	120.000	100.0	H	315.0	20.8	21.3	43.5
198.000000	26.4	1000.0	120.000	300.0	H	248.0	18.0	17.1	43.5
593.960000	36.1	1000.0	120.000	300.0	H	197.0	29.3	9.9	46.0
926.680000	34.3	1000.0	120.000	150.0	H	199.0	34.4	11.7	46.0

Note 1: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)



30-1000MHz Radiated Emission

EUT Information

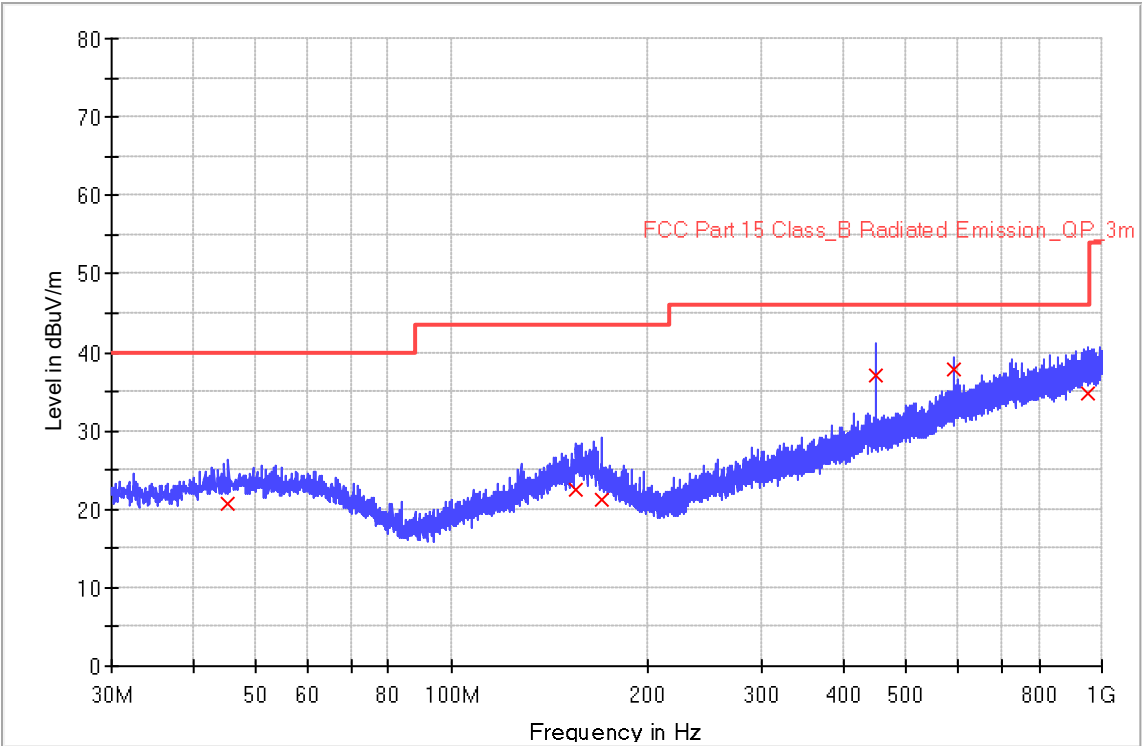
EUT Name: Intelligent Lawn Mower
Model: S1 Ultra
Client: Kunshan Lantuo Intelligent Robot Co., Ltd
Op Cond: Transmit mode and 2480MHz, $\pi/4$ -DQPSK (worst case)
Operator: Doujun XU
Test Spec: FCC Part 15.209(a)
Sample No: SHA-952960-3

Sweep Setup: RE_VULB9168_pre_Cont_30-1000 [EMI radiated]

Hardware Setup: RE_VULB9168
Receiver: [ESR 3]
Level Unit: dBuV/m

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
30 MHz - 1 GHz	48.5 kHz	PK+	120 kHz	0.2 s	20 dB

RE_VULB9168_pre_Cont_30-1000



Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dBuV/m)
45.360000	20.8	1000.0	120.000	150.0	V	218.0	20.5	19.2	40.0
155.520000	22.6	1000.0	120.000	100.0	V	183.0	21.1	20.9	43.5
170.000000	21.1	1000.0	120.000	250.0	V	327.0	20.4	22.4	43.5
450.000000	37.0	1000.0	120.000	300.0	V	306.0	26.0	9.0	46.0
594.000000	37.9	1000.0	120.000	100.0	V	205.0	29.3	8.2	46.0
950.960000	34.8	1000.0	120.000	150.0	V	149.0	34.8	11.2	46.0

Note 1: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

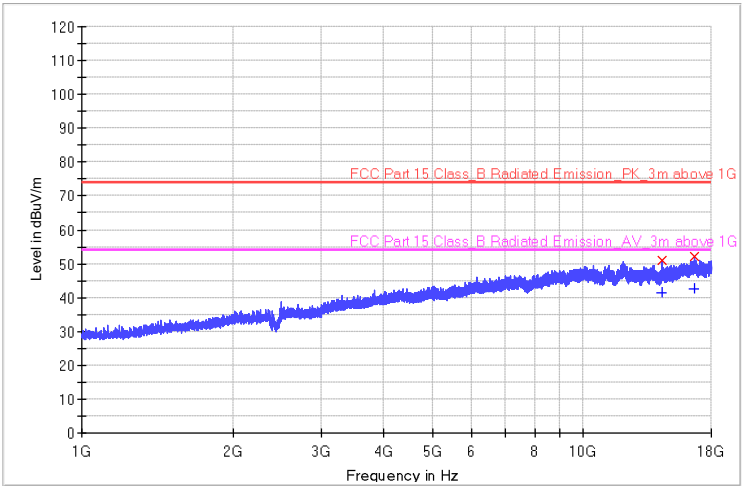
Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)



Radiated Emission 1-18GHz

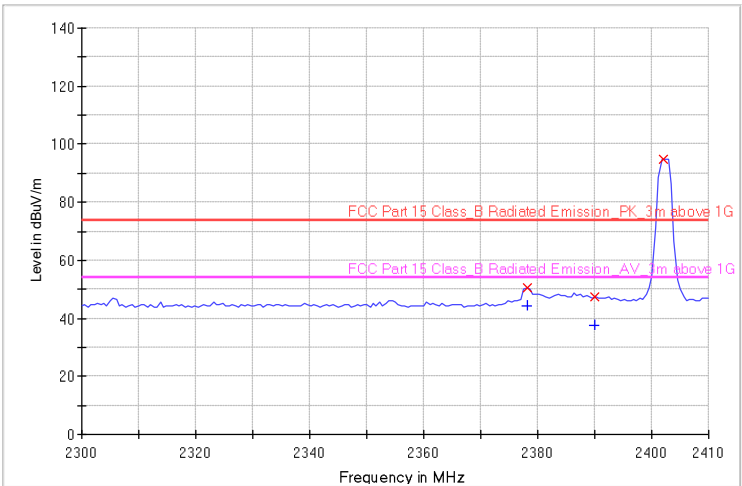
Frequency:2402MHz, GFSK
No Hopping off mode:

RE_HF907_BRF_Pre



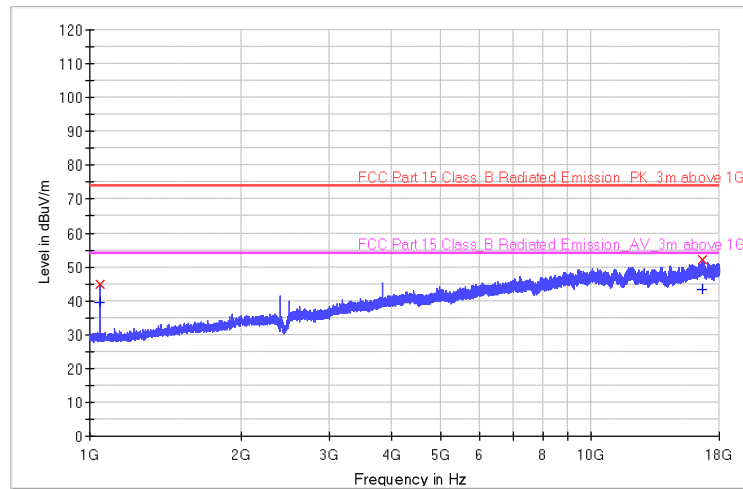
Frequency (MHz)	MaxPeak (dBuV/m)	Average (dBuV/m)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Margin - AV (dB)	Limit - AV (dBuV/m)
14398.600000	50.8	41.3	100.0	H	251.0	4.3	23.2	74.0	12.7	54.0
16688.200000	52.0	42.7	150.0	H	333.0	6.7	22.0	74.0	11.3	54.0

RE_HF907_BRF_Pre



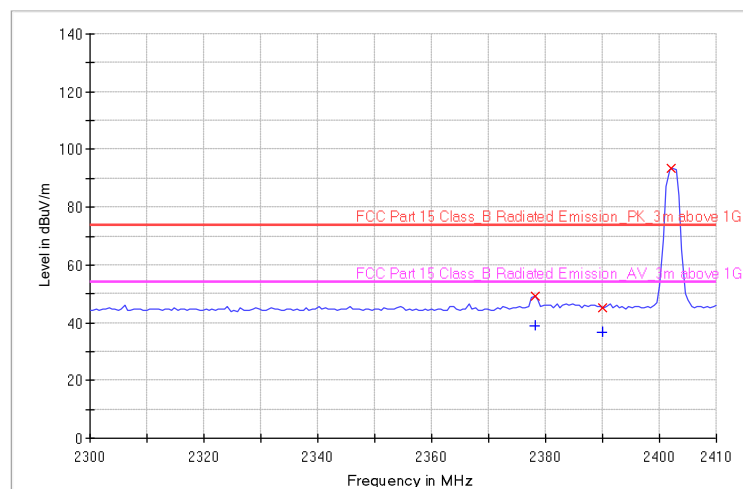
Frequency (MHz)	MaxPeak (dBuV/m)	Average (dBuV/m)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Margin - AV (dB)	Limit - AV (dBuV/m)
2378.200000	50.6	44.2	220.0	H	144.0	-2.0	23.4	74.0	9.8	54.0
2390.000000	47.3	37.6	300.0	H	216.0	-1.9	26.7	74.0	16.4	54.0
2402.000000	94.6	---	150.0	H	239.0	-1.8	-20.6	74.0	---	---

RE_HF907_BRF_Pre



Frequency (MHz)	MaxPeak (dBuV/m)	Average (dBuV/m)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Margin - AV (dB)	Limit - AV (dBuV/m)
1049.800000	45.0	39.6	250.0	V	198.0	-16.7	29.0	74.0	14.4	54.0
16689.400000	52.1	43.5	150.0	V	267.0	6.7	21.9	74.0	10.5	54.0

RE_HF907_BRF_Pre



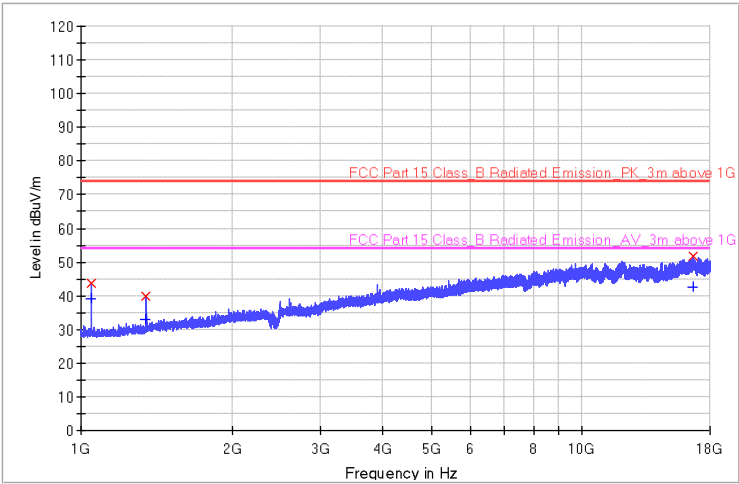
Frequency (MHz)	MaxPeak (dBuV/m)	Average (dBuV/m)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Margin - AV (dB)	Limit - AV (dBuV/m)
2378.200000	49.2	39.1	100.0	V	144.0	-2.0	24.8	74.0	15.0	54.0
2390.000000	45.2	36.5	250.0	V	256.0	-1.9	28.8	74.0	17.5	54.0
2402.000000	93.3	---	300.0	V	249.0	-1.8	-19.3	74.0	---	---



Frequency:2441MHz

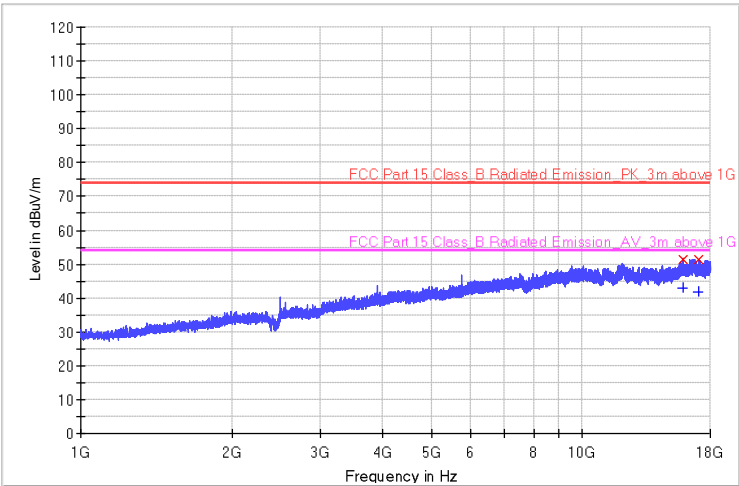
No Hopping off mode:

RE_HF907_BRF_Pre



Frequency (MHz)	MaxPeak (dBuV/m)	Average (dBuV/m)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Margin - AV (dB)	Limit - AV (dBuV/m)
1049.500000	43.9	39.3	300.0	H	193.0	-16.7	30.1	74.0	14.7	54.0
1349.500000	39.8	33.1	250.0	H	264.0	-15.8	34.2	74.0	20.9	54.0
16663.300000	51.7	42.7	150.0	H	227.0	6.6	22.3	74.0	11.3	54.0

RE_HF907_BRF_Pre

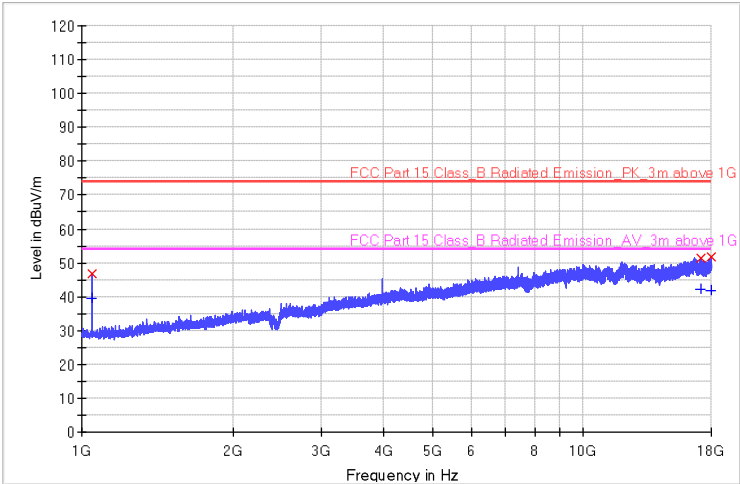


Frequency (MHz)	MaxPeak (dBuV/m)	Average (dBuV/m)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Margin - AV (dB)	Limit - AV (dBuV/m)
15911.200000	51.4	42.8	250.0	V	217.0	5.4	22.6	74.0	11.2	54.0
17110.300000	51.2	41.6	150.0	V	329.0	6.8	22.8	74.0	12.4	54.0



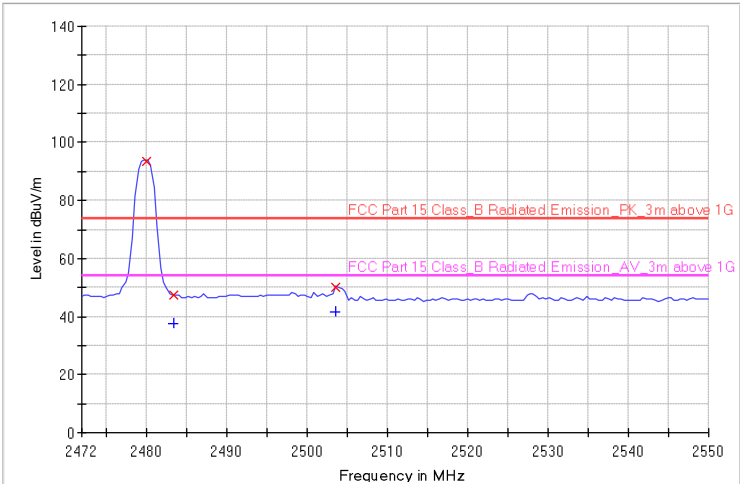
Frequency:2480MHz
No Hopping off mode:

RE_HF907_BRF_Pre



Frequency (MHz)	MaxPeak (dBuV/m)	Average (dBuV/m)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Margin - AV (dB)	Limit - AV (dBuV/m)
1049.800000	46.8	39.6	250.0	H	149.0	-16.7	27.2	74.0	14.4	54.0
17122.900000	51.4	42.3	300.0	H	311.0	6.8	22.6	74.0	11.7	54.0
17951.200000	51.9	41.8	150.0	H	258.0	7.3	22.1	74.0	12.2	54.0

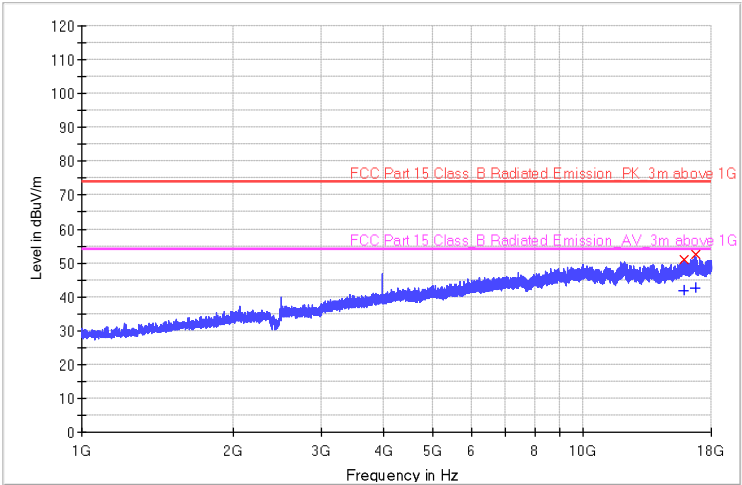
RE_HF907_BRF_Pre



Frequency (MHz)	MaxPeak (dBuV/m)	Average (dBuV/m)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Margin - AV (dB)	Limit - AV (dBuV/m)
2480.000000	93.7	---	250.0	H	128.0	-1.4	-19.7	74.0	---	---
2483.500000	47.6	37.6	150.0	H	219.0	-1.3	26.4	74.0	16.4	54.0
2503.600000	50.2	41.5	200.0	H	317.0	-1.2	23.8	74.0	12.5	54.0

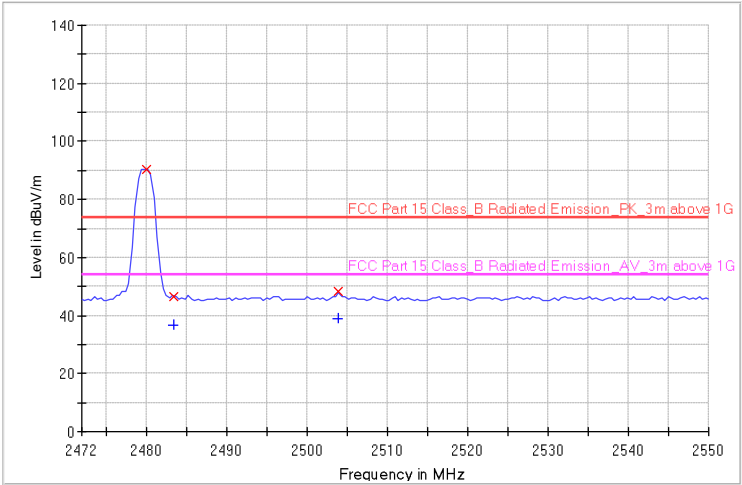


RE_HF907_BRF_Pre



Frequency (MHz)	MaxPeak (dBuV/m)	Average (dBuV/m)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Margin - AV (dB)	Limit - AV (dBuV/m)
15901.000000	51.0	41.8	100.0	V	318.0	5.4	23.0	74.0	12.2	54.0
16727.800000	52.4	42.7	300.0	V	273.0	6.7	21.6	74.0	11.3	54.0

RE_HF907_BRF_Pre

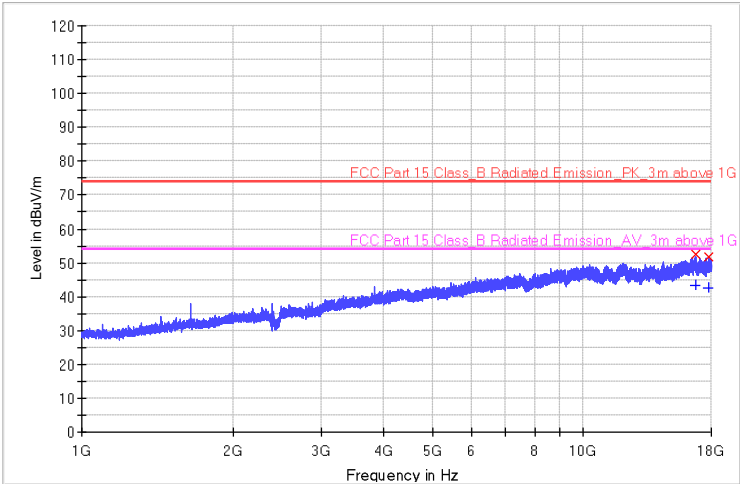


Frequency (MHz)	MaxPeak (dBuV/m)	Average (dBuV/m)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Margin - AV (dB)	Limit - AV (dBuV/m)
2480.000000	90.2	---	250.0	V	241.0	-1.4	-16.2	74.0	---	---
2483.500000	46.5	36.9	230.0	V	239.0	-1.3	27.5	74.0	17.1	54.0
2503.980000	48.1	38.7	150.0	V	158.0	-1.2	25.9	74.0	15.3	54.0



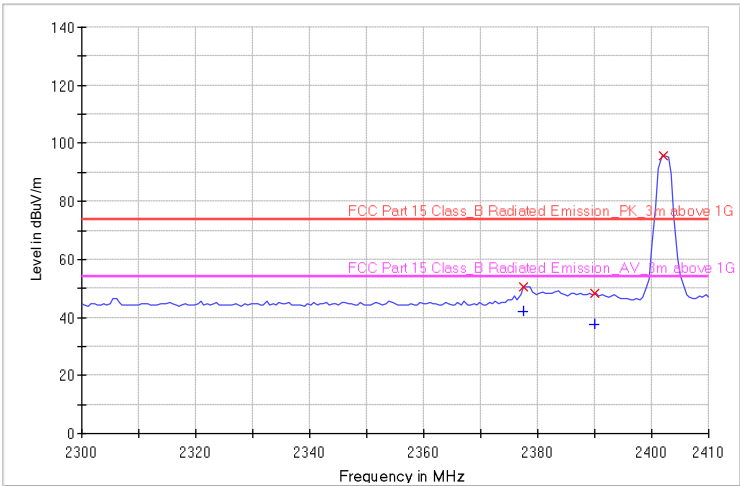
Frequency:2402MHz, $\pi/4$ -DQPSK
No Hopping off mode:

RE_HF907_BRF_Pre



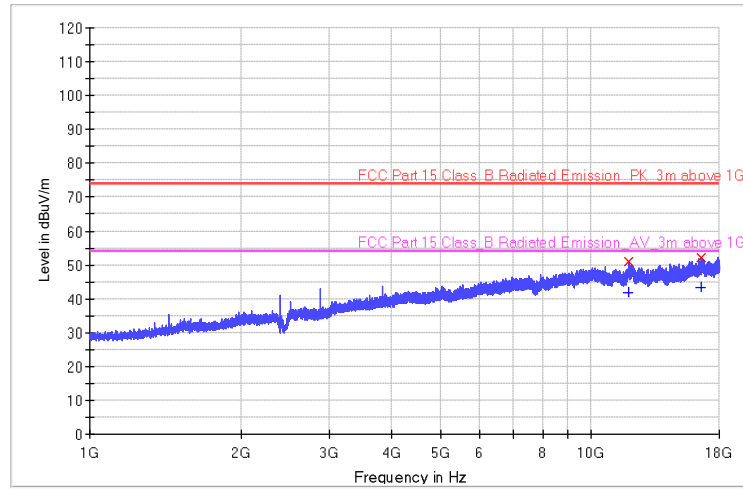
Frequency (MHz)	MaxPeak (dBuV/m)	Average (dBuV/m)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Margin - AV (dB)	Limit - AV (dBuV/m)
16756.300000	52.4	43.2	300.0	H	208.0	6.7	21.6	74.0	10.8	54.0
17790.700000	51.6	42.6	150.0	H	319.0	7.1	22.4	74.0	11.4	54.0

RE_HF907_BRF_Pre



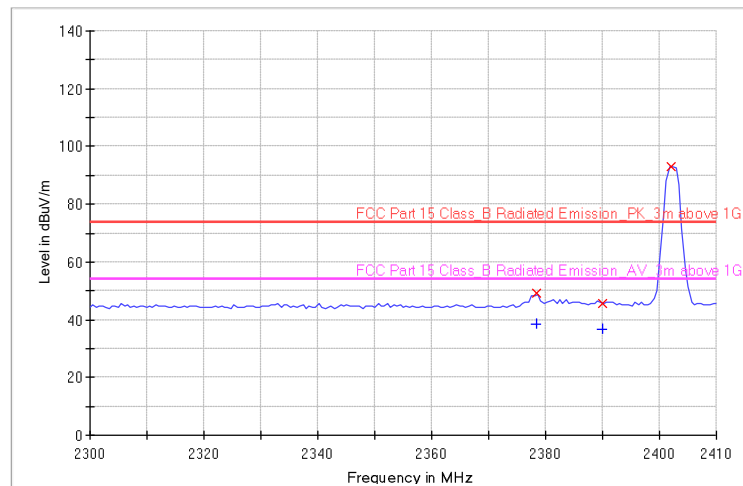
Frequency (MHz)	MaxPeak (dBuV/m)	Average (dBuV/m)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Margin - AV (dB)	Limit - AV (dBuV/m)
2377.600000	50.7	42.1	300.0	H	236.0	-2.0	23.3	74.0	11.9	54.0
2390.000000	48.2	37.8	220.0	H	241.0	-1.9	25.8	74.0	16.3	54.0
2402.000000	95.8	---	100.0	H	189.0	-1.8	-21.8	74.0	---	---

RE_HF907_BRF_Pre



Frequency (MHz)	MaxPeak (dBuV/m)	Average (dBuV/m)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Margin - AV (dB)	Limit - AV (dBuV/m)
11891.800000	51.0	41.6	250.0	V	149.0	5.1	23.0	74.0	12.4	54.0
16594.900000	52.0	43.2	150.0	V	267.0	6.5	22.0	74.0	10.8	54.0

RE_HF907_BRF_Pre



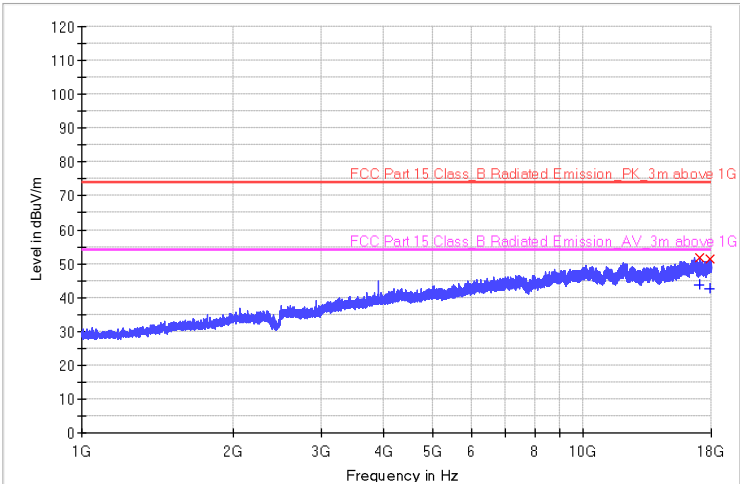
Frequency (MHz)	MaxPeak (dBuV/m)	Average (dBuV/m)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Margin - AV (dB)	Limit - AV (dBuV/m)
2378.500000	49.1	38.4	220.0	V	213.0	-2.0	25.0	74.0	15.6	54.0
2390.000000	45.7	36.9	150.0	V	246.0	-1.9	28.3	74.0	17.1	54.0
2402.000000	93.1	---	150.0	V	298.0	-1.8	-19.1	74.0	---	---



Frequency:2441MHz

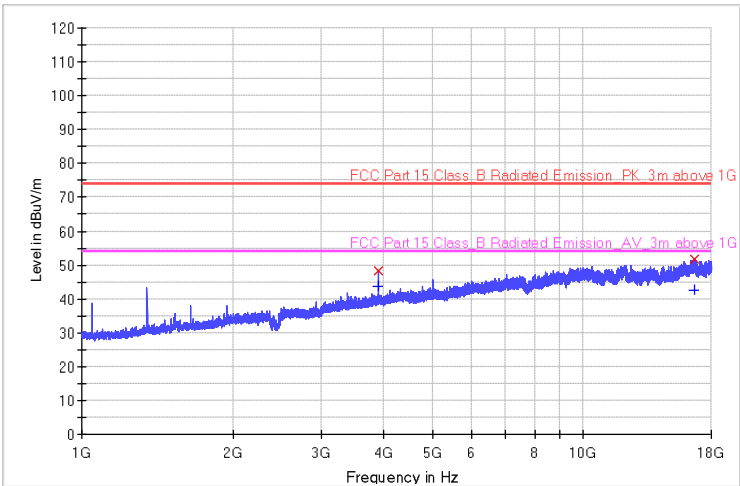
No Hopping off mode:

RE_HF907_BRF_Pre



Frequency (MHz)	MaxPeak (dBuV/m)	Average (dBuV/m)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Margin - AV (dB)	Limit - AV (dBuV/m)
17027.800000	51.8	43.8	200.0	H	317.0	6.6	22.2	74.0	10.2	54.0
17914.000000	51.5	42.5	250.0	H	320.0	7.3	22.5	74.0	11.5	54.0

RE_HF907_BRF_Pre

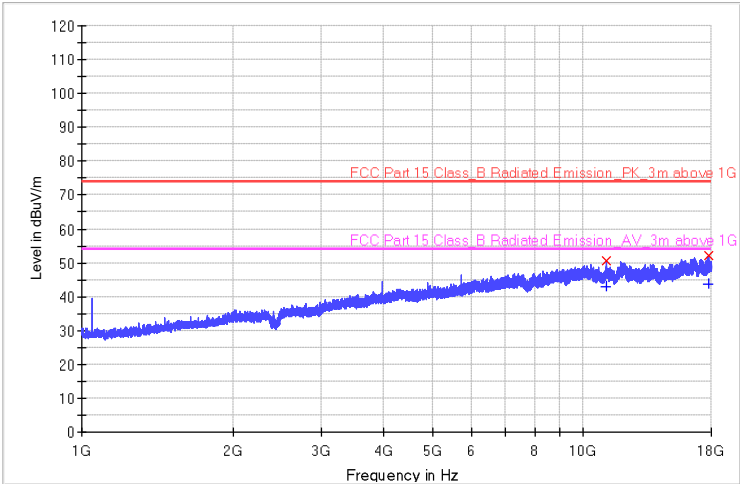


Frequency (MHz)	MaxPeak (dBuV/m)	Average (dBuV/m)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Margin - AV (dB)	Limit - AV (dBuV/m)
3905.500000	48.5	43.7	150.0	V	315.0	-4.9	25.5	74.0	10.3	54.0
16703.800000	51.6	42.6	250.0	V	212.0	6.7	22.4	74.0	11.4	54.0



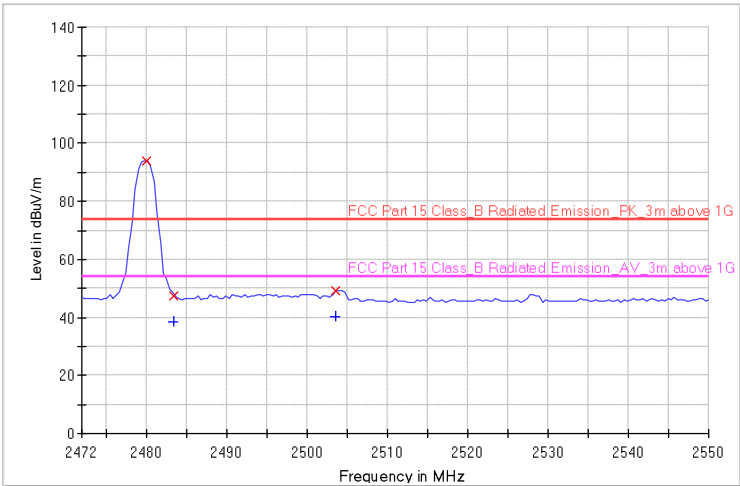
Frequency:2480MHz
No Hopping off mode:

RE_HF907_BRF_Pre



Frequency (MHz)	MaxPeak (dBuV/m)	Average (dBuV/m)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Margin - AV (dB)	Limit - AV (dBuV/m)
11147.800000	50.6	42.8	300.0	H	245.0	4.5	23.4	74.0	11.2	54.0
17799.700000	52.1	43.6	150.0	H	317.0	7.1	21.9	74.0	10.4	54.0

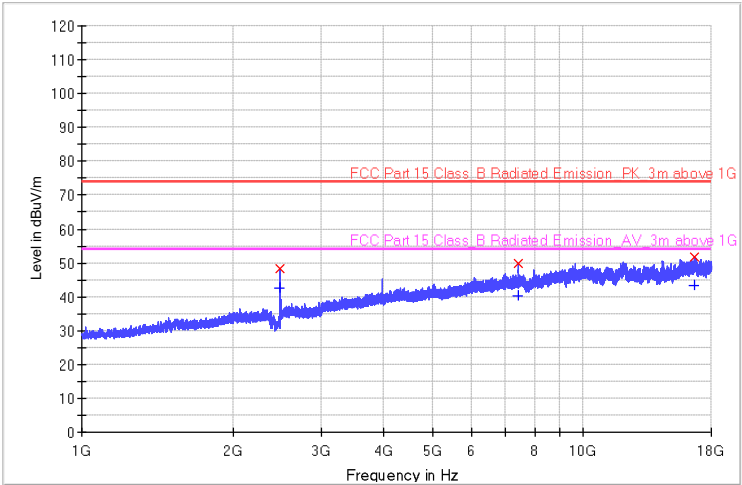
RE_HF907_BRF_Pre



Frequency (MHz)	MaxPeak (dBuV/m)	Average (dBuV/m)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Margin - AV (dB)	Limit - AV (dBuV/m)
2480.000000	93.8	---	250.0	H	136.0	-1.3	-19.8	74.0	---	---
2483.500000	47.6	38.6	100.0	H	238.0	-1.3	26.4	74.0	15.4	54.0
2503.600000	49.2	40.2	150.0	H	216.0	-1.2	24.8	74.0	13.8	54.0

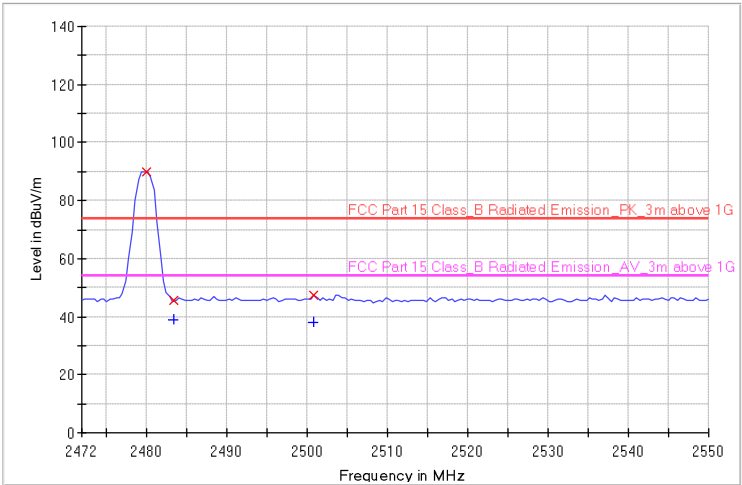


RE_HF907_BRF_Pre



Frequency (MHz)	MaxPeak (dBuV/m)	Average (dBuV/m)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Margin - AV (dB)	Limit - AV (dBuV/m)
2490.700000	48.3	42.6	250.0	V	144.0	-10.3	25.7	74.0	11.4	54.0
7439.800000	49.8	40.1	150.0	V	256.0	0.8	24.2	74.0	13.9	54.0
16688.800000	51.6	43.3	300.0	V	314.0	6.7	22.4	74.0	10.7	54.0

RE_HF907_BRF_Pre

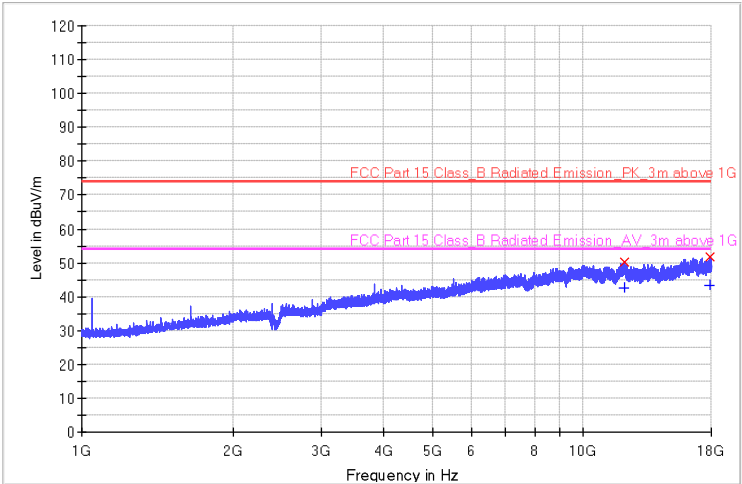


Frequency (MHz)	MaxPeak (dBuV/m)	Average (dBuV/m)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Margin - AV (dB)	Limit - AV (dBuV/m)
2480.000000	90.1	---	200.0	V	216.0	-1.4	-16.1	74.0	---	---
2483.500000	45.5	39.1	250.0	V	289.0	-1.3	28.5	74.0	14.9	54.0
2500.900000	47.3	37.9	100.0	V	317.0	-1.3	26.7	74.0	16.1	54.0



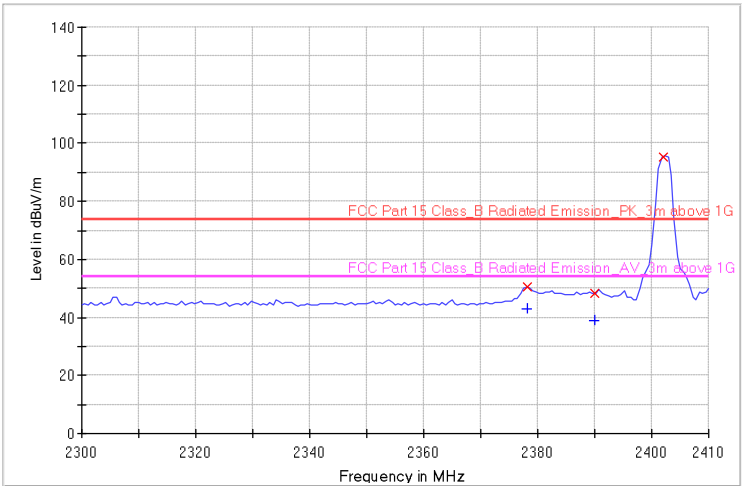
Frequency:2402MHz, 8DPSK
No Hopping off mode:

RE_HF907_BRF_Pre



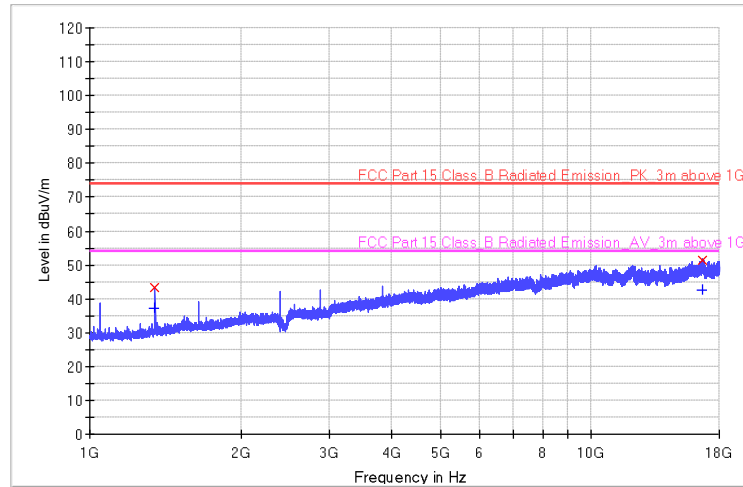
Frequency (MHz)	MaxPeak (dBuV/m)	Average (dBuV/m)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Margin - AV (dB)	Limit - AV (dBuV/m)
12061.300000	50.4	42.6	200.0	H	149.0	5.2	23.6	74.0	11.4	54.0
17901.700000	51.8	43.2	150.0	H	267.0	7.3	22.2	74.0	10.8	54.0

RE_HF907_BRF_Pre



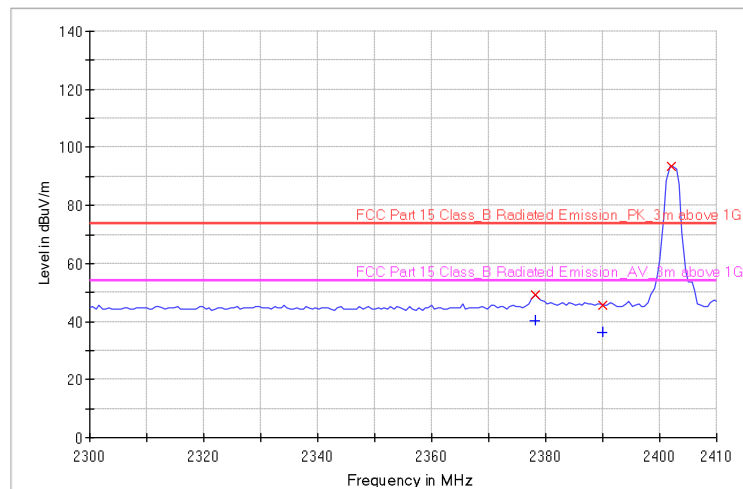
Frequency (MHz)	MaxPeak (dBuV/m)	Average (dBuV/m)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Margin - AV (dB)	Limit - AV (dBuV/m)
2378.200000	50.7	43.0	210.0	H	167.0	-2.0	23.3	74.0	11.0	54.0
2390.000000	48.1	38.7	200.0	H	289.0	-1.9	25.9	74.0	15.3	54.0
2402.000000	95.4	---	100.0	H	130.0	-1.8	-21.4	74.0	---	---

RE_HF907_BRF_Pre



Frequency (MHz)	MaxPeak (dBuV/m)	Average (dBuV/m)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Margin - AV (dB)	Limit - AV (dBuV/m)
1349.500000	43.2	37.0	150.0	V	223.0	-15.8	30.8	74.0	17.0	54.0
16701.100000	51.4	42.7	150.0	V	193.0	6.7	22.6	74.0	11.3	54.0

RE_HF907_BRF_Pre



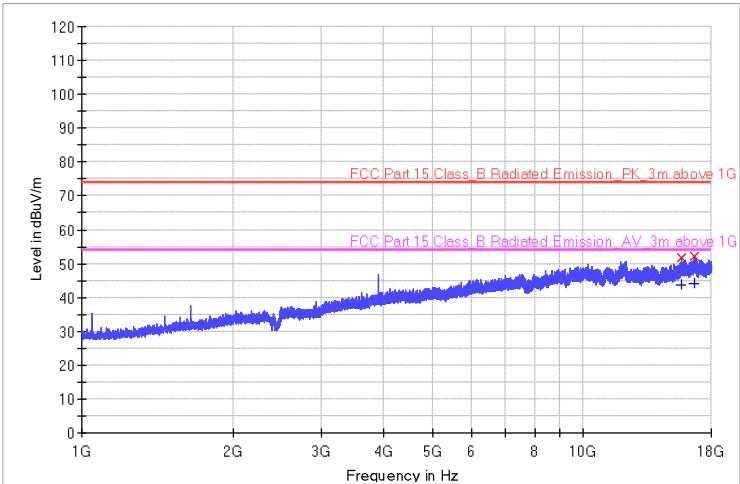
Frequency (MHz)	MaxPeak (dBuV/m)	Average (dBuV/m)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Margin - AV (dB)	Limit - AV (dBuV/m)
2378.200000	49.1	40.4	250.0	V	223.0	-2.0	24.9	74.0	13.6	54.0
2390.000000	45.6	36.4	300.0	V	219.0	-1.9	28.4	74.0	17.6	54.0
2402.000000	93.3	---	100.0	V	108.0	-1.8	-19.3	74.0	---	---



Frequency:2441MHz

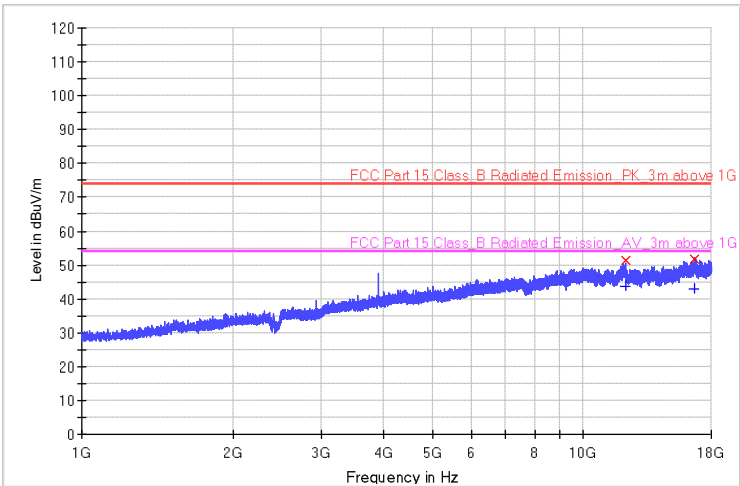
No Hopping off mode:

RE_HF907_BRF_Pre



Frequency (MHz)	MaxPeak (dBuV/m)	Average (dBuV/m)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Margin - AV (dB)	Limit - AV (dBuV/m)
15728.500000	51.6	43.6	300.0	H	239.0	5.3	22.4	74.0	10.4	54.0
16686.700000	52.1	43.9	150.0	H	247.0	6.7	21.9	74.0	10.1	54.0

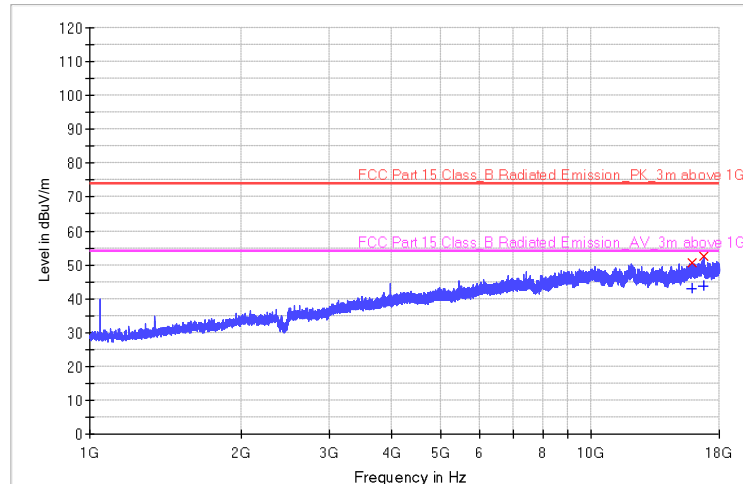
RE_HF907_BRF_Pre



Frequency (MHz)	MaxPeak (dBuV/m)	Average (dBuV/m)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Margin - AV (dB)	Limit - AV (dBuV/m)
12120.700000	51.3	43.6	200.0	V	241.0	5.3	22.7	74.0	10.4	54.0
16655.500000	51.9	42.8	300.0	V	197.0	6.6	22.1	74.0	11.2	54.0

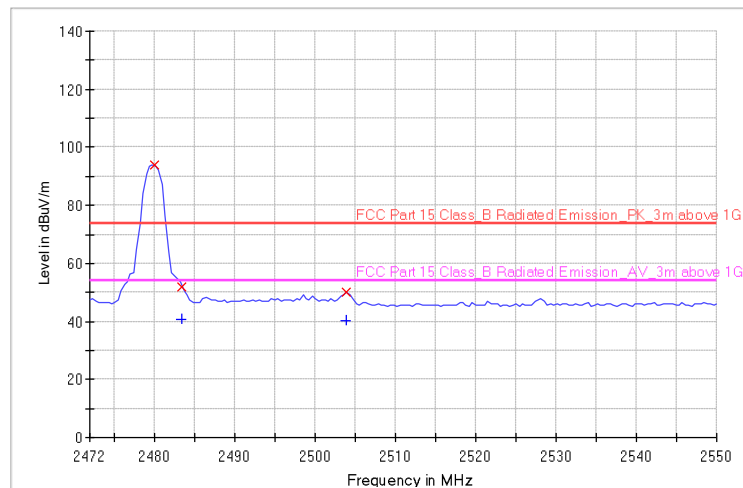
Frequency: 2480 MHz
No Hopping off mode:

RE_HF907_BRF_Pre



Frequency (MHz)	MaxPeak (dBuV/m)	Average (dBuV/m)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Margin - AV (dB)	Limit - AV (dBuV/m)
15876.100000	50.7	42.8	300.0	H	143.0	5.4	23.3	74.0	11.2	54.0
16726.600000	52.4	43.6	100.0	H	284.0	6.7	21.6	74.0	10.4	54.0

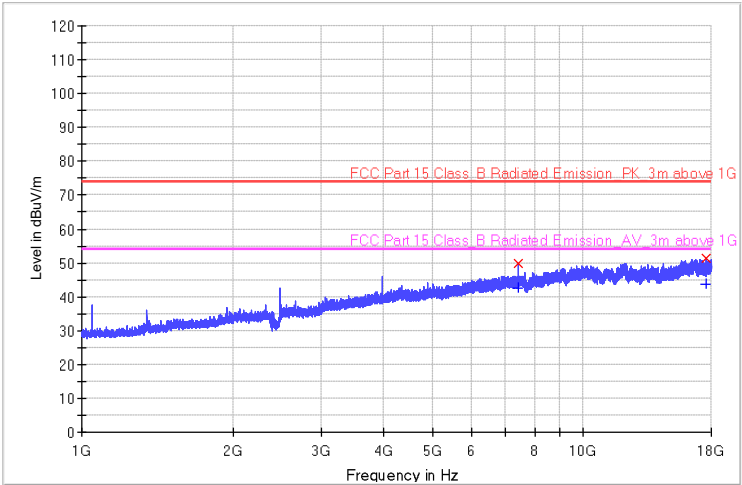
RE_HF907_BRF_Pre



Frequency (MHz)	MaxPeak (dBuV/m)	Average (dBuV/m)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Margin - AV (dB)	Limit - AV (dBuV/m)
2480.000000	93.8	---	250.0	H	216.0	-1.4	-19.8	74.0	---	---
2483.500000	51.9	40.6	150.0	H	139.0	-1.3	22.1	74.0	13.4	54.0
2503.900000	50.1	40.4	100.0	H	203.0	-1.2	23.9	74.0	13.6	54.0

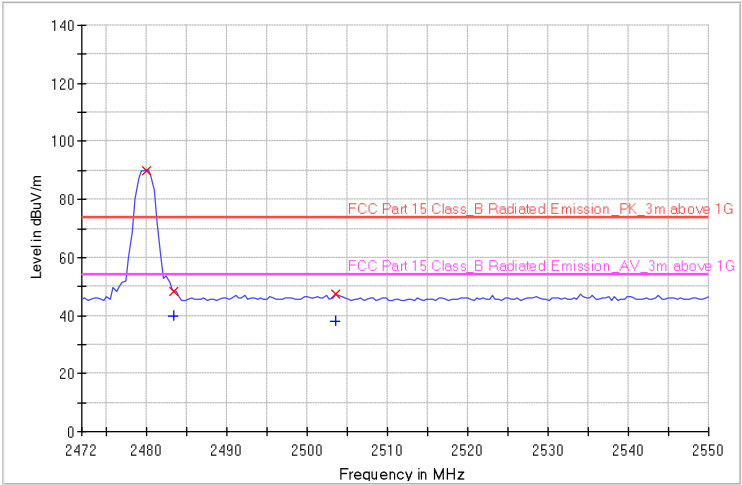


RE_HF907_BRF_Pre



Frequency (MHz)	MaxPeak (dBuV/m)	Average (dBuV/m)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Margin - AV (dB)	Limit - AV (dBuV/m)
7440.400000	49.7	42.7	300.0	V	295.0	0.8	24.3	74.0	11.3	54.0
17601.700000	51.5	43.8	250.0	V	318.0	6.8	22.5	74.0	10.2	54.0

RE_HF907_BRF_Pre



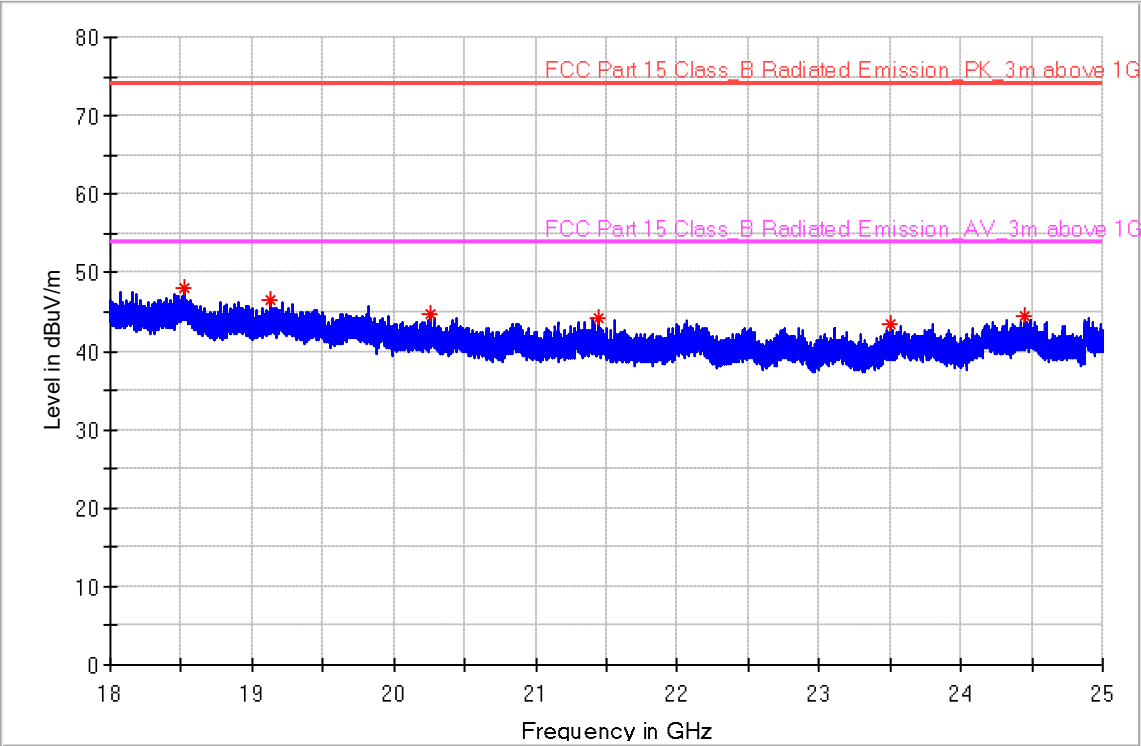
Frequency (MHz)	MaxPeak (dBuV/m)	Average (dBuV/m)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Margin - AV (dB)	Limit - AV (dBuV/m)
2480.000000	90.1	---	250.0	V	216.0	-1.4	-16.1	74.0	---	---
2483.500000	48.5	39.6	150.0	V	258.0	-1.3	25.5	74.0	14.4	54.0
2503.600000	47.3	37.8	200.0	V	137.0	-1.2	26.7	74.0	16.2	54.0



The worst case of Radiated Emission Above 18GHz

Frequency: 2480MHz, $\pi/4$ -DQPSK

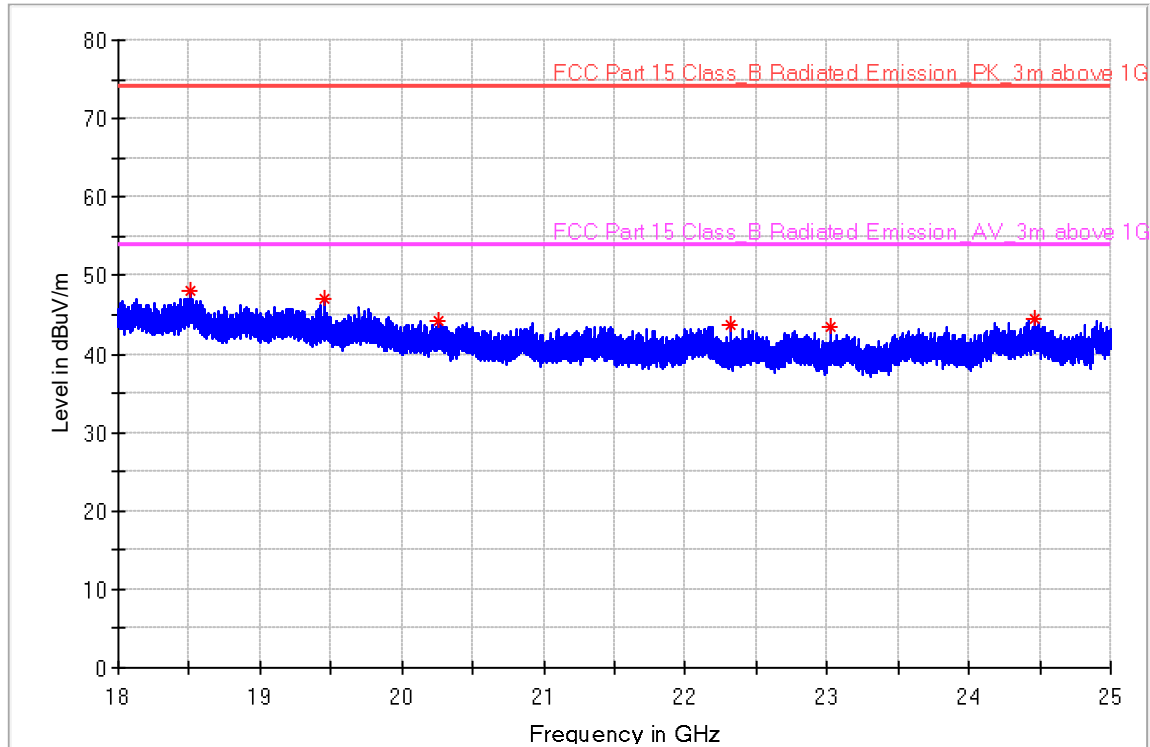
Full Spectrum



Limit and Margin

Frequency (MHz)	MaxPeak (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
18519.531250	47.95	74.00	26.05	100.0	H	42.0	8.1
19128.312500	46.47	74.00	27.53	100.0	H	250.0	8.1
20262.531250	44.66	74.00	29.34	100.0	H	128.0	8.3
21449.468750	44.26	74.00	29.74	100.0	H	264.0	8.6
23509.218750	43.36	74.00	30.64	100.0	H	198.0	8.9
24444.375000	44.55	74.00	29.45	100.0	H	143.0	9.0

Full Spectrum



Limit and Margin

Frequency (MHz)	MaxPeak (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
18510.781250	47.96	74.00	26.04	100.0	V	185.0	8.1
19457.750000	46.92	74.00	27.08	100.0	V	163.0	8.4
20251.812500	44.31	74.00	29.69	100.0	V	166.0	8.3
22316.812500	43.61	74.00	30.39	100.0	V	268.0	8.9
23025.781250	43.38	74.00	30.62	100.0	V	3.0	8.9
24459.468750	44.51	74.00	29.49	100.0	V	287.0	9.0

Remark:

- (1) Emission level= Original Receiver Reading + Correct Factor
- (2) Correct Factor = Antenna Factor + Cable Loss -Amplifier gain
- (3) Margin = limit – Corrected Reading

11 Test Equipment List

List of Test Instruments
Test Site1

	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DATE	CAL. DUE DATE
C	Signal spectrum analyzer	Agilent	N9020B	MY59050168	2025-2-19	2026-2-18
	RF automatic control unit	MWRFTest	MW100-RFCB	MW211122-28	2024-10-8	2025-10-7
	RF_Cable	UCWAVE ELECTRONIC	UCA500-NJWSM-1.5M	---	2025-8-1	2026-7-31
RE	EMI Test Receiver	Rohde & Schwarz	ESR3	101906	2024-8-1	2025-7-31
	Signal Analyzer	Rohde & Schwarz	FSV40	101091	2024-8-1	2025-7-31
	Trilog Super Broadband Test Antenna	Schwarzbeck	VULB 9168	961	2024-8-30	2025-8-29
	Double-ridged waveguide horn antenna	Rohde & Schwarz	HF907	102393	2025-4-14	2026-4-13
	Pre-amplifier	Shenzhen HzEMC	HPA-081843	HYP A23026	2025-4-14	2026-4-13
	Loop antenna	Rohde & Schwarz	HFH2-Z2	100443	2024-6-26	2025-6-25
	Double Ridged Horn Antenna	ETS-Lindgren	3116C	00222727	2023-7-7	2026-7-6
	RE_Cable_01 Coaxial Cable	JUNFLON	MWX221	1906S057	2024-8-1	2025-7-31
	RE_Cable_02 Coaxial Cable	HUBER+SUHNER	RG214	1358176	2024-8-1	2025-7-31
	RE_Cable_03 Coaxial Cable	JUNFLON	MWX221	J12J102482	2024-8-1	2025-7-31
	RE_Cable_04 Coaxial Cable	PASTERNAK	PE360	2233	2024-8-1	2025-7-31
	3m Semi-anechoic chamber	TDK	9X6X6	----	2024-5-8	2027-5-7
CE	EMI Test Receiver	Rohde & Schwarz	ESR3	101907	2025-8-1	2026-7-31
	LISN	Rohde & Schwarz	ENV216	101924	2025-8-1	2026-7-31
	CE_Cable_01 Coaxial Cable	HUBER+SUHNER	RG400	1002115055	2025-8-1	2026-7-31



Measurement Software Information			
Test Item	Software	Manufacturer	Version
C	MTS 8310	MWRFTest	3.0.0.0
RE	EMC 32	Rohde & Schwarz	V10.50.40
CE	EMC 32	Rohde & Schwarz	V9.15.03

C - Conducted RF tests

- Conducted peak output power
- 20dB bandwidth and 99% Occupied Bandwidth
- Power spectral density*
- Spurious RF conducted emissions
- Band edge



12 System Measurement Uncertainty

For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 were:

Items	Extended Uncertainty
Conducted Disturbance at Mains Terminals	150kHz to 30MHz, LISN, 3.16dB
Radiated Disturbance	9kHz to 30MHz, 3.52dB 30MHz to 1GHz, 5.03dB (Horizontal) 5.12dB (Vertical) 1GHz to 18GHz, 5.49dB 18GHz to 40GHz, 5.63dB
RF Conducted Measurement	Power related: 1.16dB Frequency related: 6.00×10^{-8}

Measurement Uncertainty Decision Rule:

Determination of conformity with the specification limits is based on the decision rule according to IEC Guide 115: 2023, clause 4.3.3.



13 Photographs of Test Set-ups

Refer to the < Test Setup photos >.



14 Photographs of EUT

Refer to the < External Photos > & < Internal Photos >.

-----End of Test Report-----