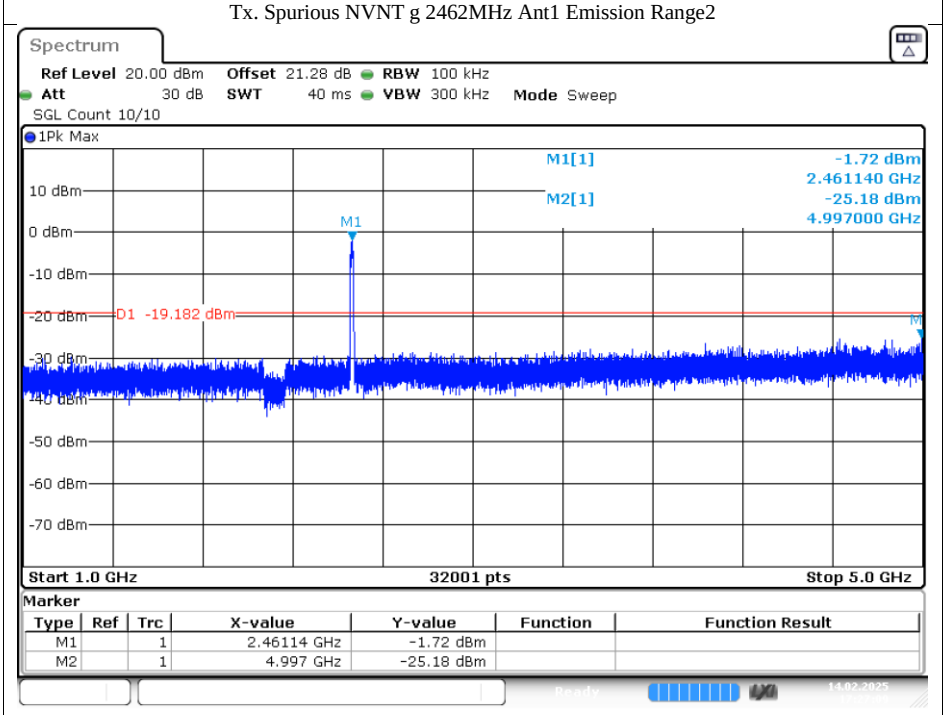
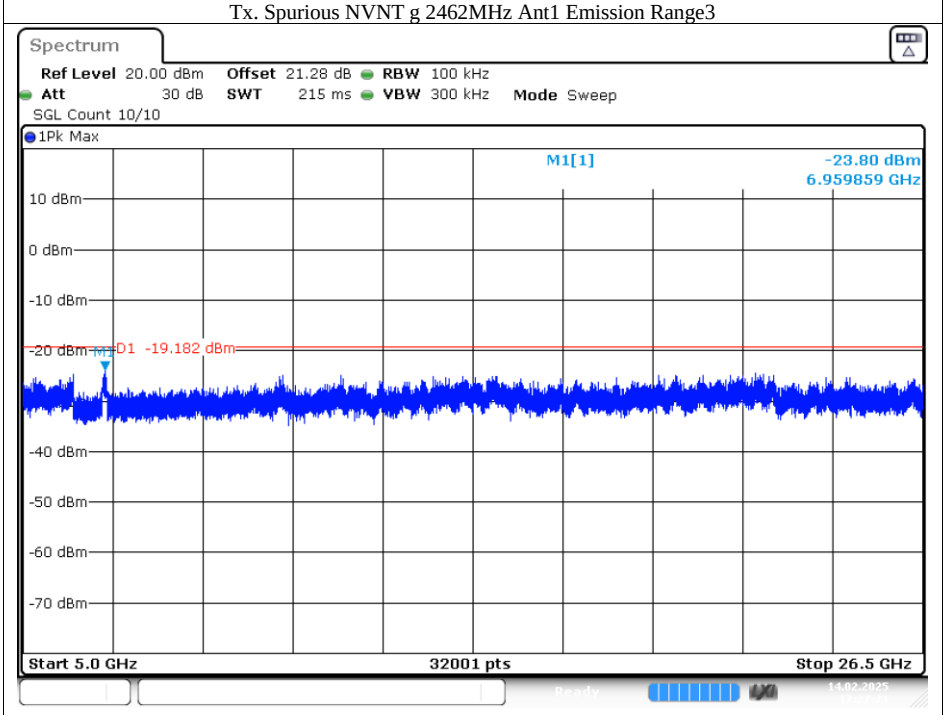
Tx. Spurious NVNT g 2462MHz Ant1 Emission Range2



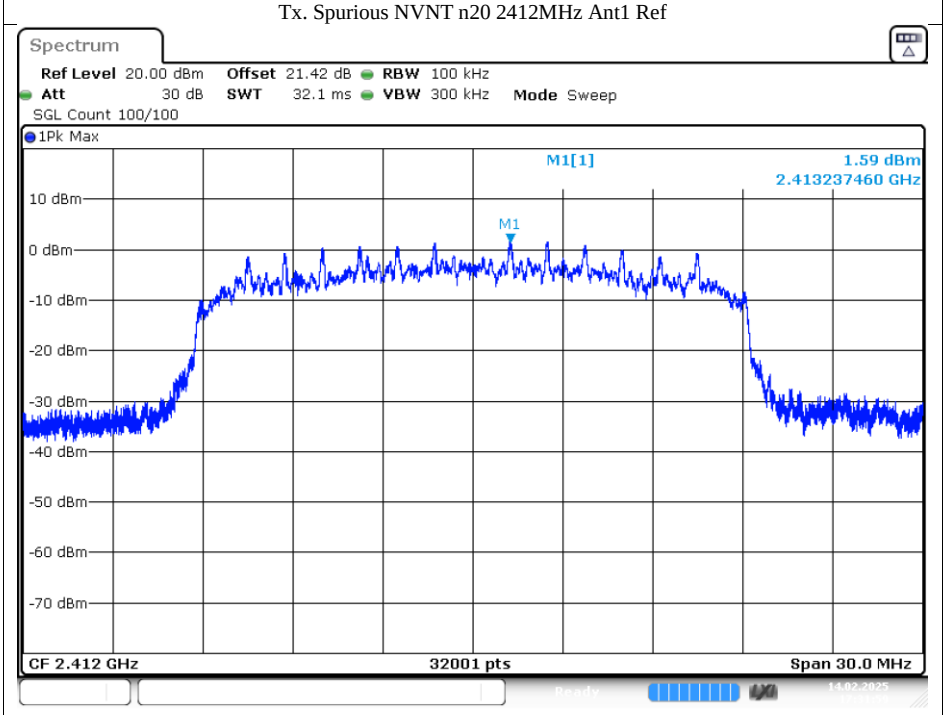
Date: 14.FEB.2025 17:27:10

Tx. Spurious NVNT g 2462MHz Ant1 Emission Range3



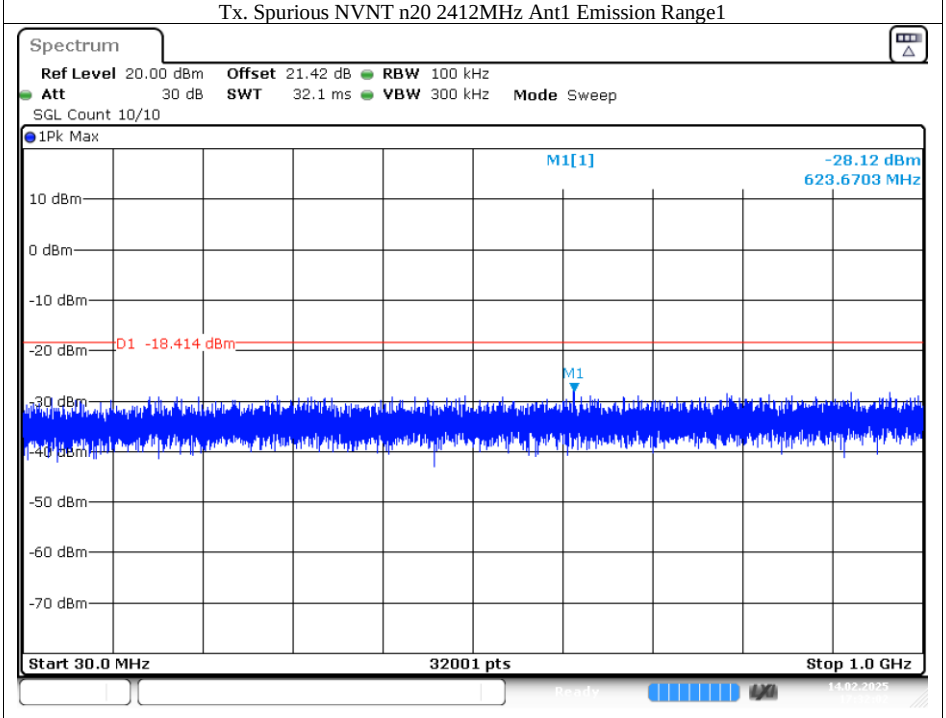
Date: 14.FEB.2025 17:27:22

Tx. Spurious NVNT n20 2412MHz Ant1 Ref



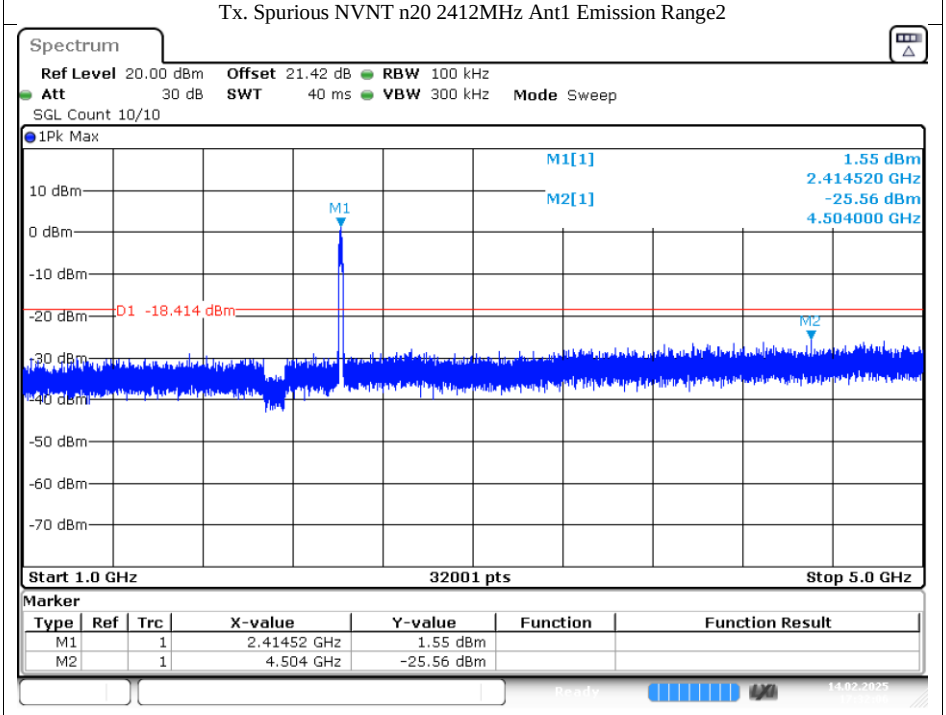
Date: 14.FEB.2025 17:32:00

Tx. Spurious NVNT n20 2412MHz Ant1 Emission Range1



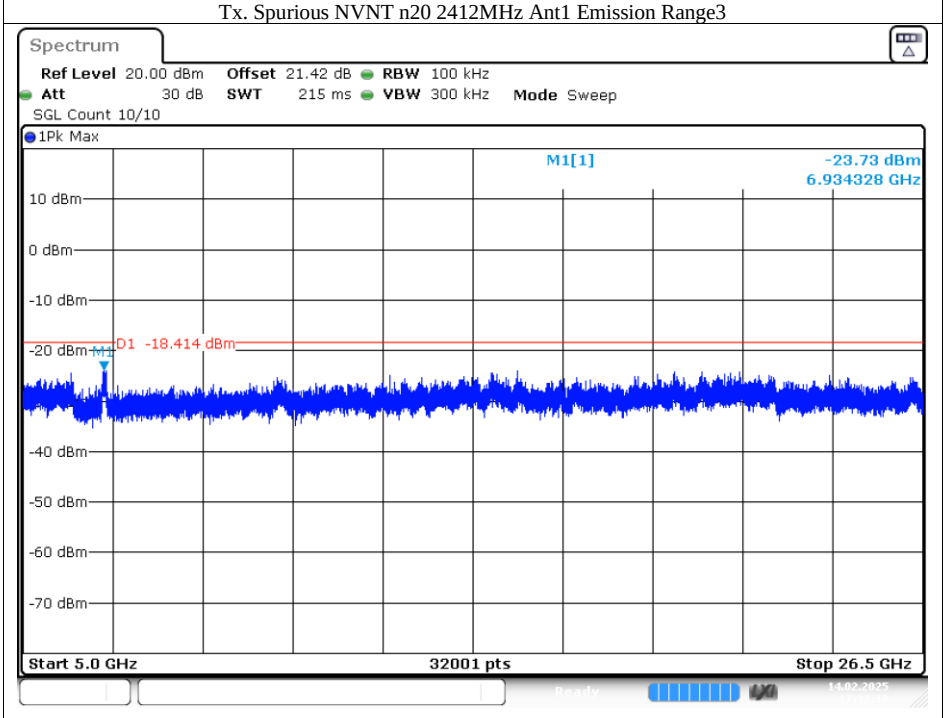
Date: 14.FEB.2025 17:32:03

Tx. Spurious NVNT n20 2412MHz Ant1 Emission Range2



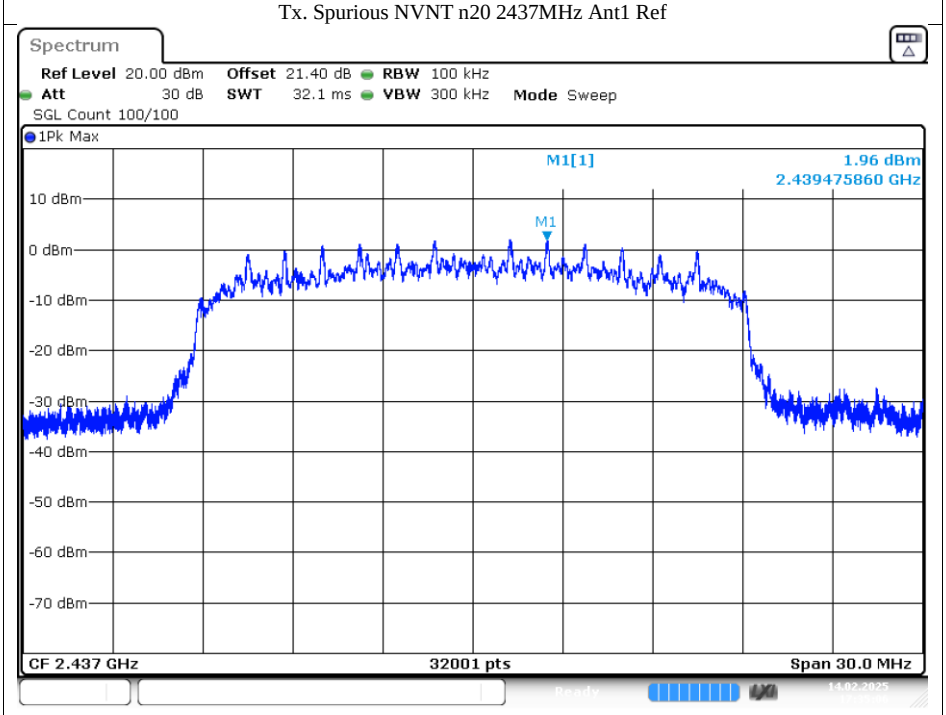
Date: 14.FEB.2025 17:32:06

Tx. Spurious NVNT n20 2412MHz Ant1 Emission Range3



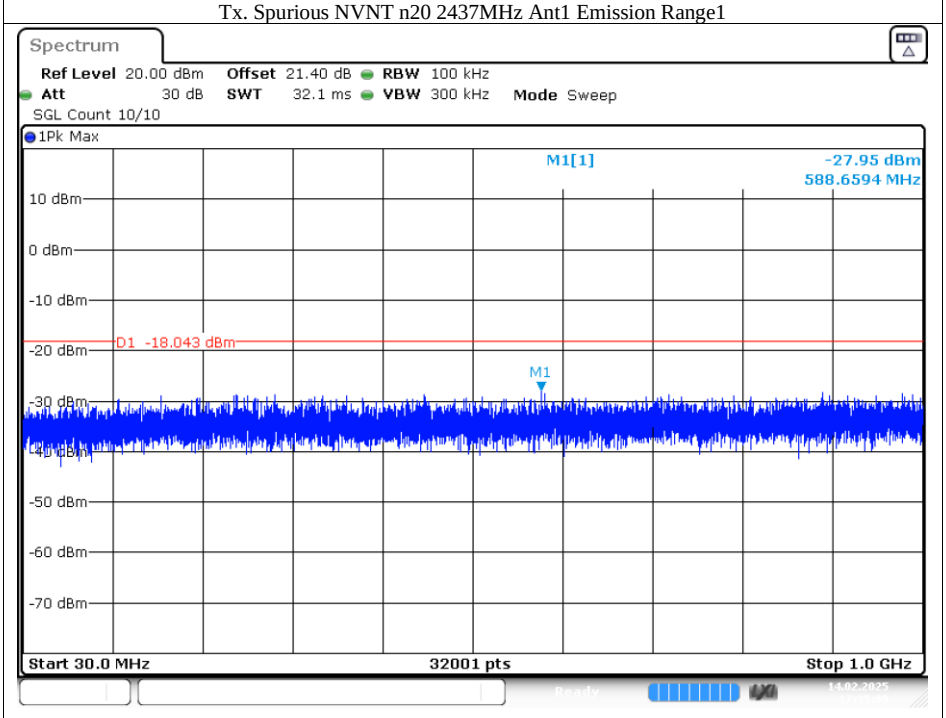
Date: 14.FEB.2025 17:32:18

Tx. Spurious NVNT n20 2437MHz Ant1 Ref



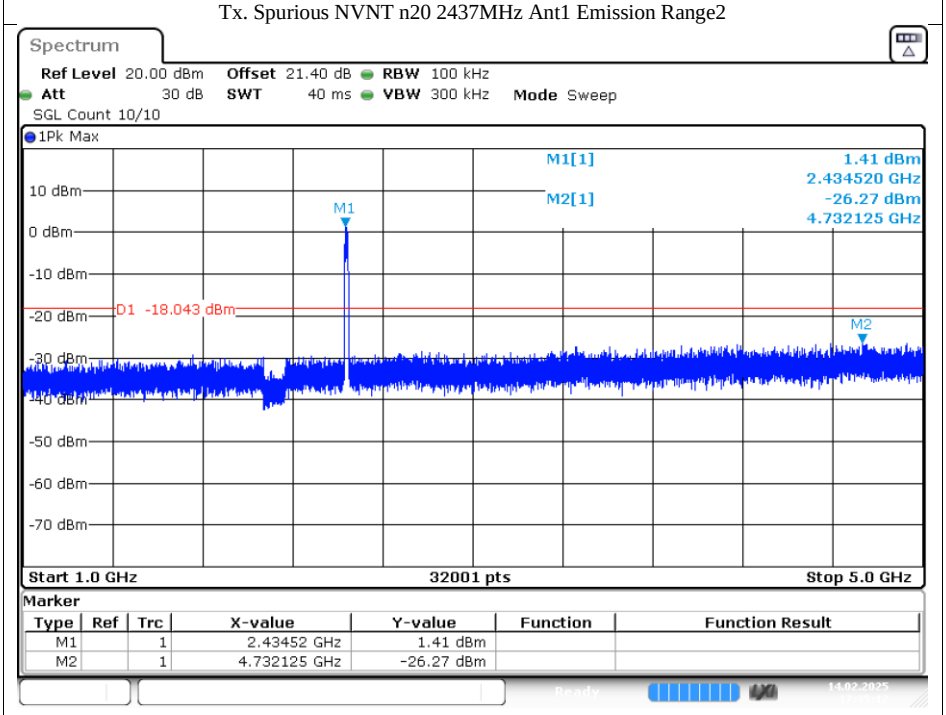
Date: 14.FEB.2025 17:35:06

Tx. Spurious NVNT n20 2437MHz Ant1 Emission Range1



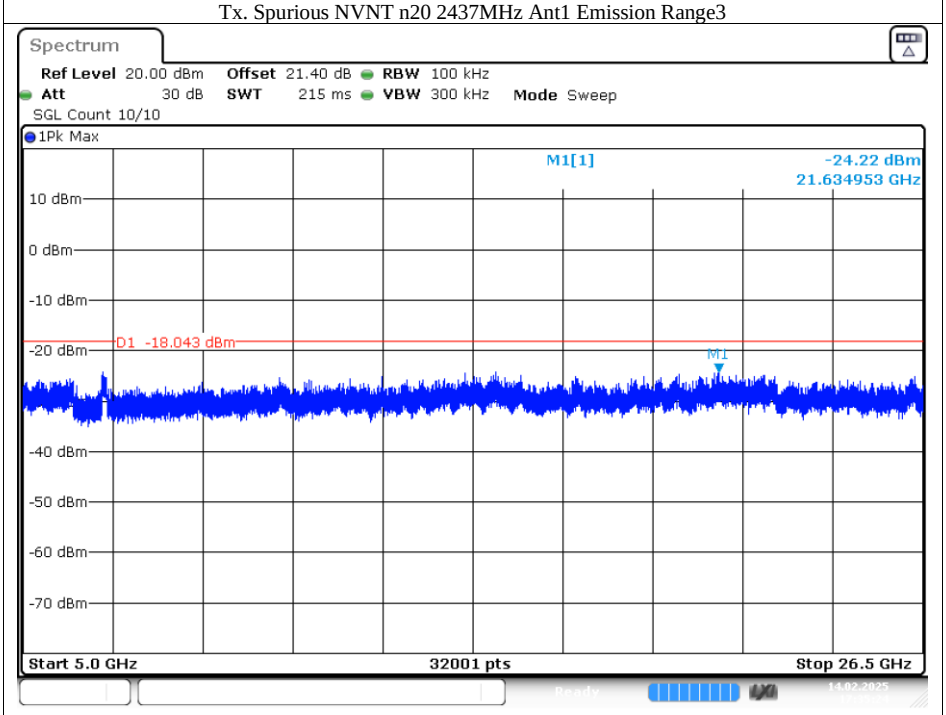
Date: 14.FEB.2025 17:35:09

Tx. Spurious NVNT n20 2437MHz Ant1 Emission Range2



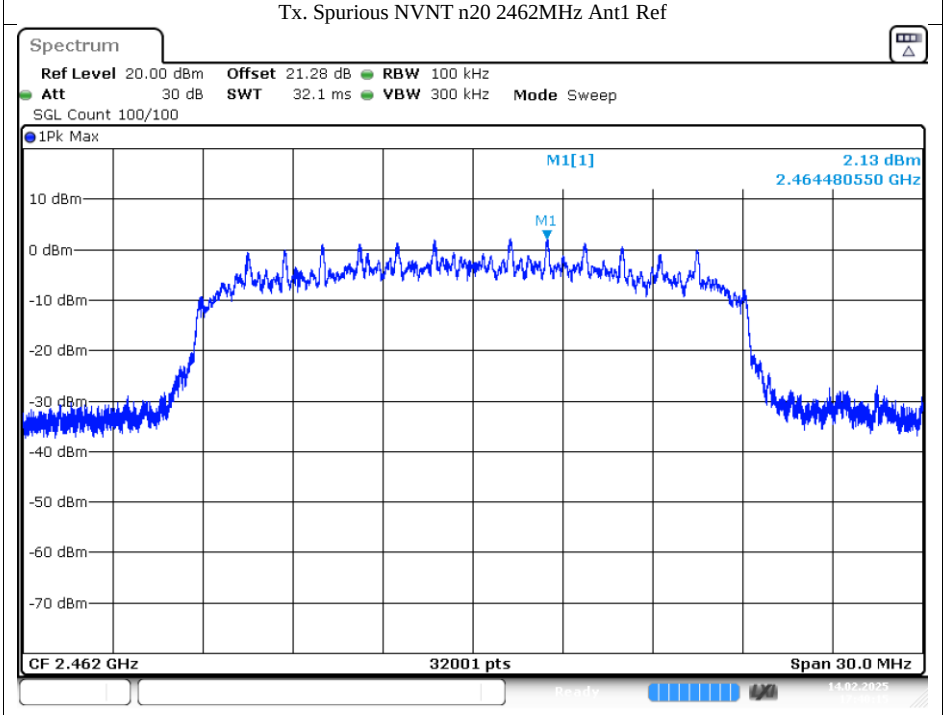
Date: 14.FEB.2025 17:35:12

Tx. Spurious NVNT n20 2437MHz Ant1 Emission Range3



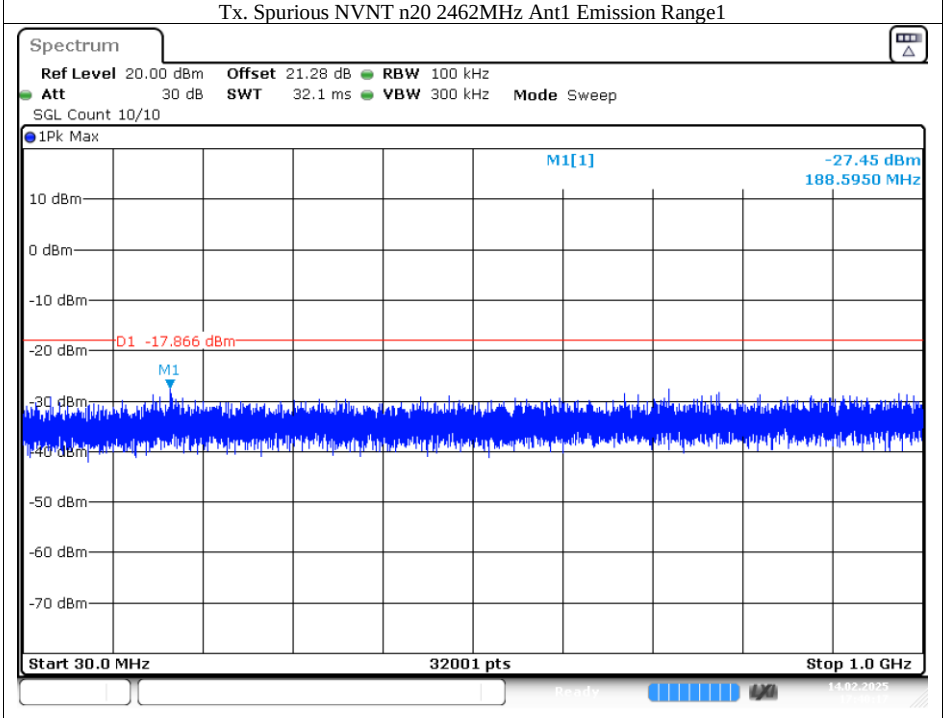
Date: 14.FEB.2025 17:35:25

Tx. Spurious NVNT n20 2462MHz Ant1 Ref



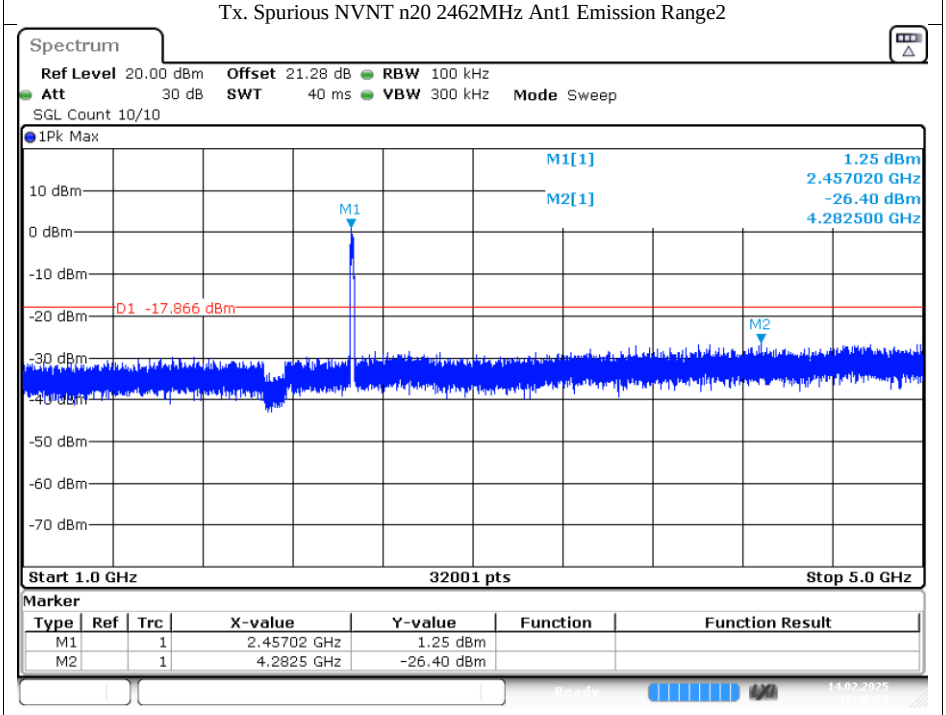
Date: 14.FEB.2025 17:40:15

Tx. Spurious NVNT n20 2462MHz Ant1 Emission Range1



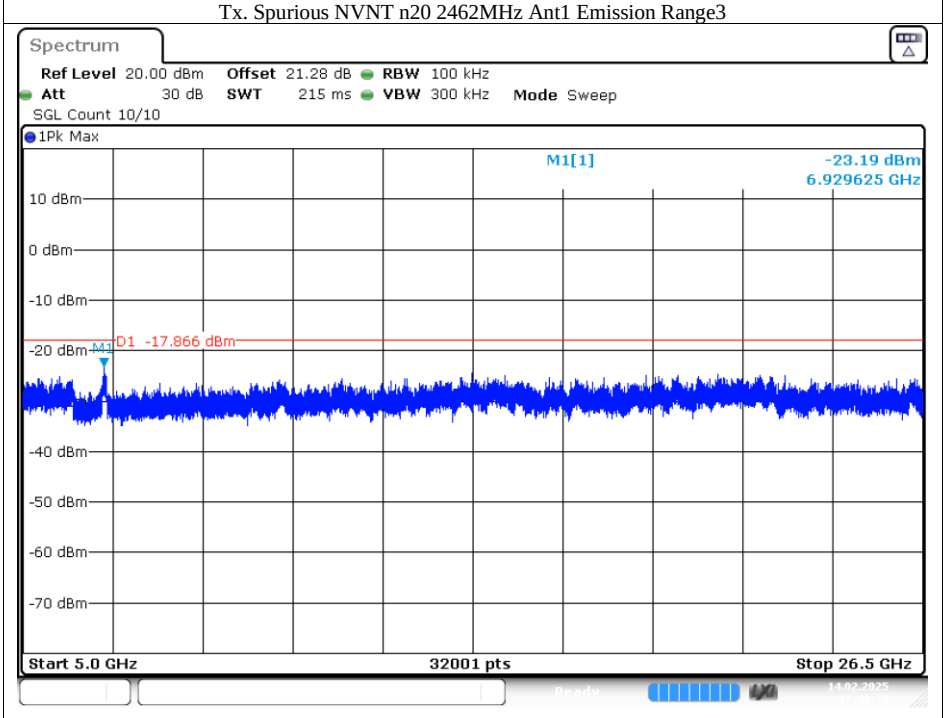
Date: 14.FEB.2025 17:40:18

Tx. Spurious NVNT n20 2462MHz Ant1 Emission Range2



Date: 14.FEB.2025 17:40:22

Tx. Spurious NVNT n20 2462MHz Ant1 Emission Range3



Date: 14.FEB.2025 17:40:34

9.6 Band edge

Test Method

1 Use the following spectrum analyzer settings:
Span = wide enough to capture the peak level of the in-band emission and all spurious
RBW = 100 kHz, VBW≥RBW, Sweep = auto, Detector function = peak, Trace = max hold.
2 Allow the trace to stabilize, use the peak and delta measurement to record the result.
3 The level displayed must comply with the limit specified in this Section.

Limit

According to §15.247(d), in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in 15.209(a) (see Section 15.205(c)).

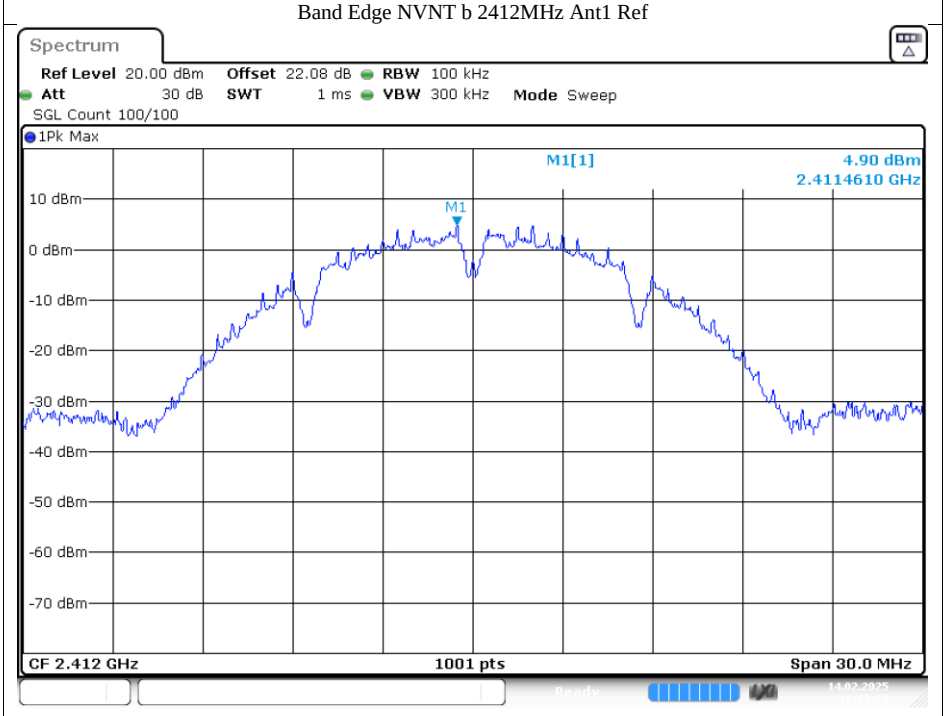
Phone: +86 510 8820 3737
Fax: +86 510 8820 3636

TÜV SÜD Certification and Testing (China) Co., Ltd.
Floor 1-4, Building B, No.37, Tuanjie Road(Middle), Xishan Economic and Technological Development Zone, Wuxi, Jiangsu. China

Test result

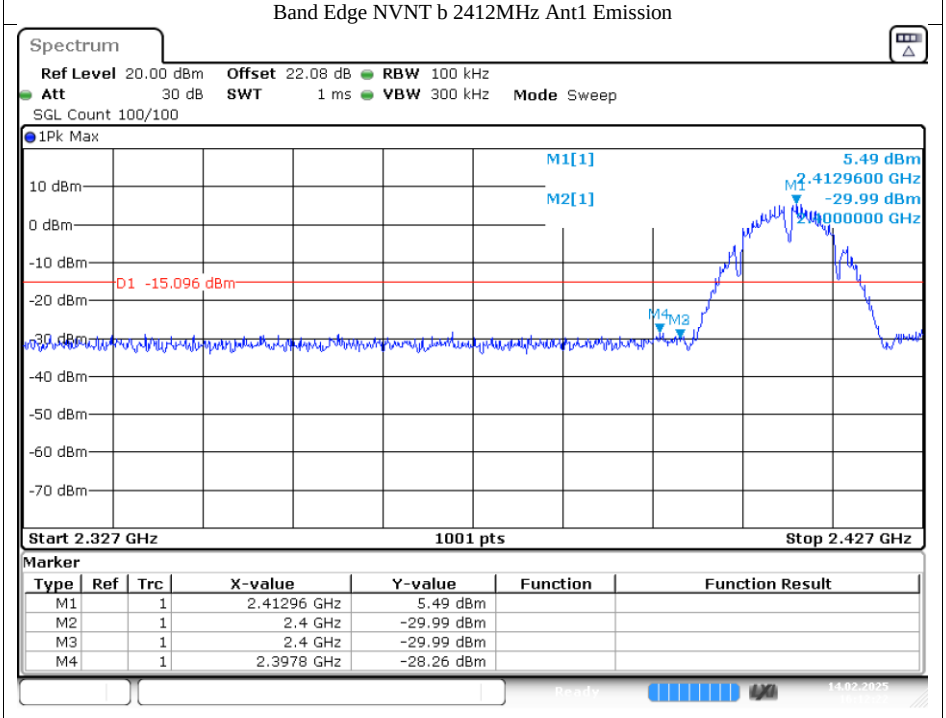
Test Graphs

Band Edge NVNT b 2412MHz Ant1 Ref



Date: 14.FEB.2025 16:12:21

Band Edge NVNT b 2412MHz Ant1 Emission



Marker

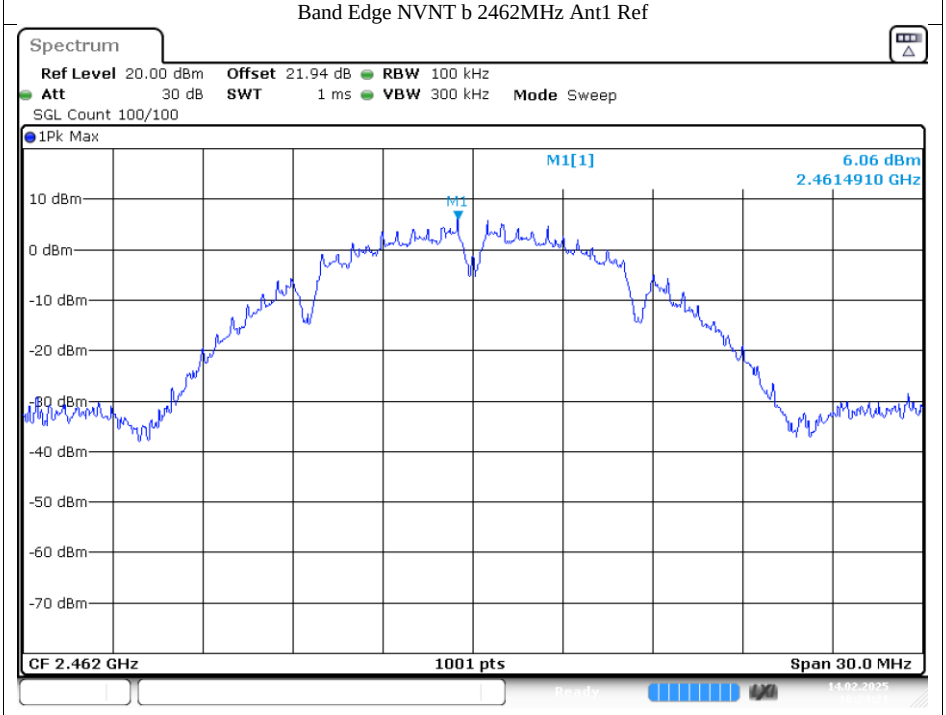
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.41296 GHz	5.49 dBm		
M2		1	2.4 GHz	-29.99 dBm		
M3		1	2.4 GHz	-29.99 dBm		
M4		1	2.3978 GHz	-28.26 dBm		

Date: 14.FEB.2025 16:12:23

Phone: +86 510 8820 3737
Fax: +86 510 8820 3636

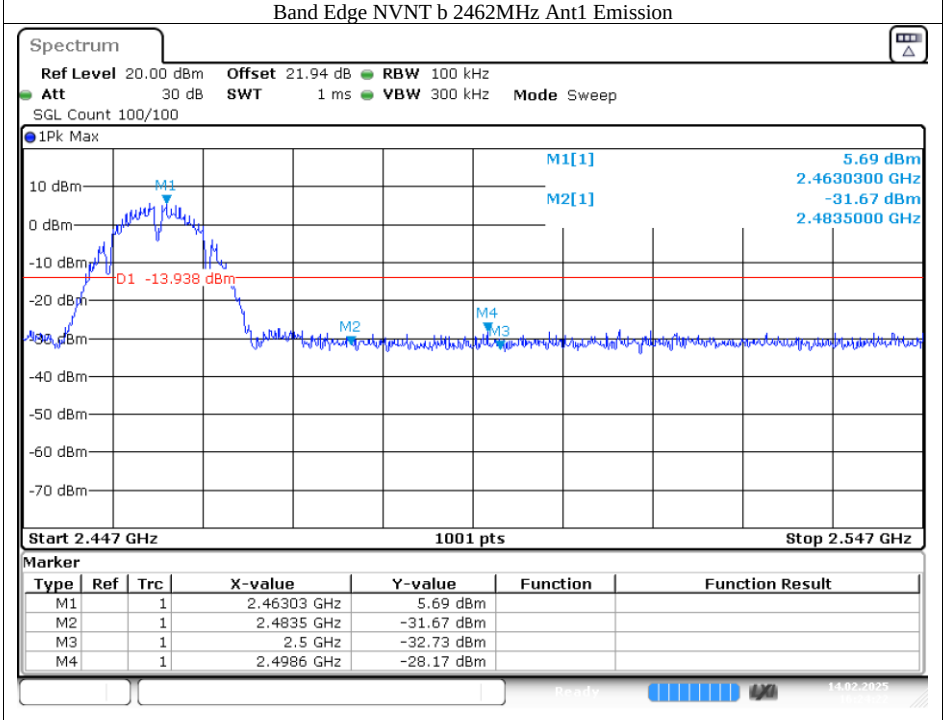
TÜV SÜD Certification and Testing (China) Co., Ltd.
Floor 1-4, Building B, No.37, Tuanjie Road(Middle), Xishan Economic and Technological Development Zone, Wuxi, Jiangsu. China

Band Edge NVNT b 2462MHz Ant1 Ref



Date: 14.FEB.2025 16:24:21

Band Edge NVNT b 2462MHz Ant1 Emission



Marker

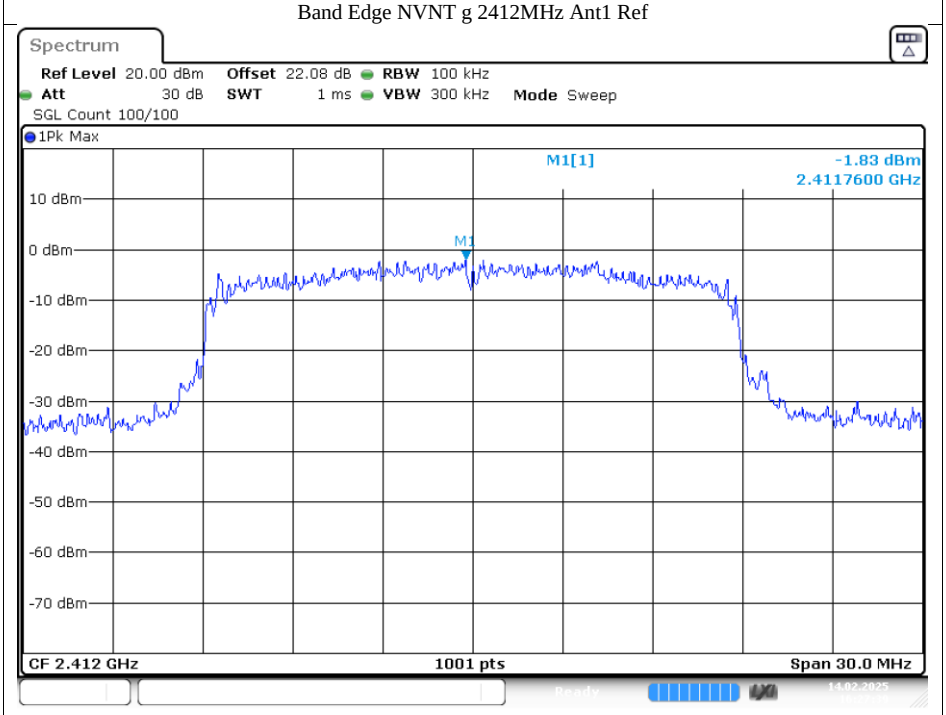
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.46303 GHz	5.69 dBm		
M2		1	2.4835 GHz	-31.67 dBm		
M3		1	2.5 GHz	-32.73 dBm		
M4		1	2.4986 GHz	-28.17 dBm		

Date: 14.FEB.2025 16:24:23

Phone: +86 510 8820 3737
Fax: +86 510 8820 3636

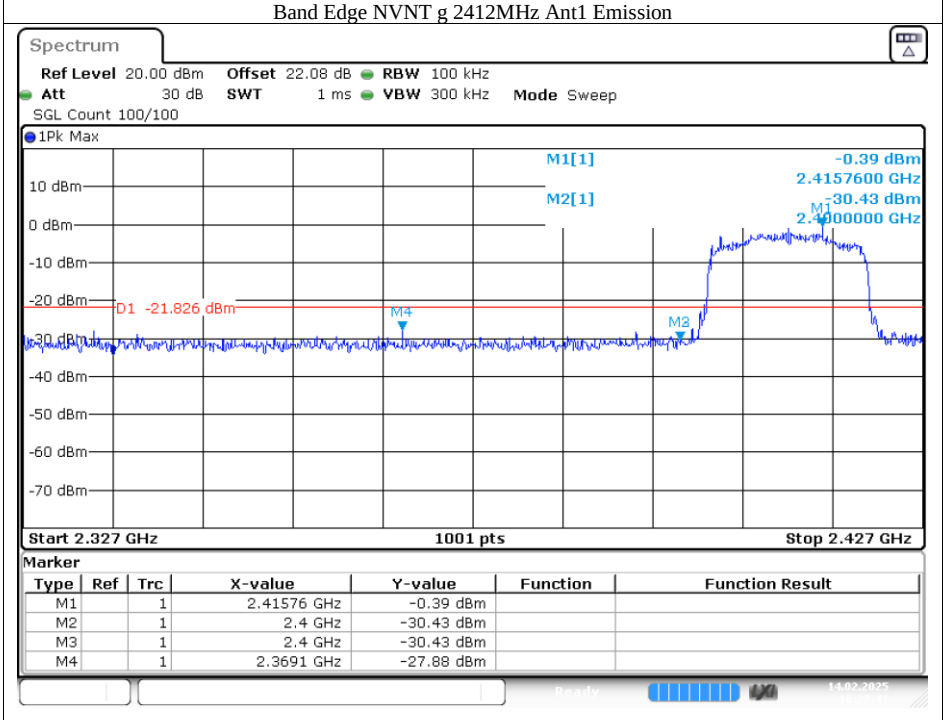
TÜV SÜD Certification and Testing (China) Co., Ltd.
Floor 1-4, Building B, No.37, Tuanjie Road(Middle), Xishan Economic and Technological Development Zone, Wuxi, Jiangsu. China

Band Edge NVNT g 2412MHz Ant1 Ref



Date: 14.FEB.2025 16:27:39

Band Edge NVNT g 2412MHz Ant1 Emission

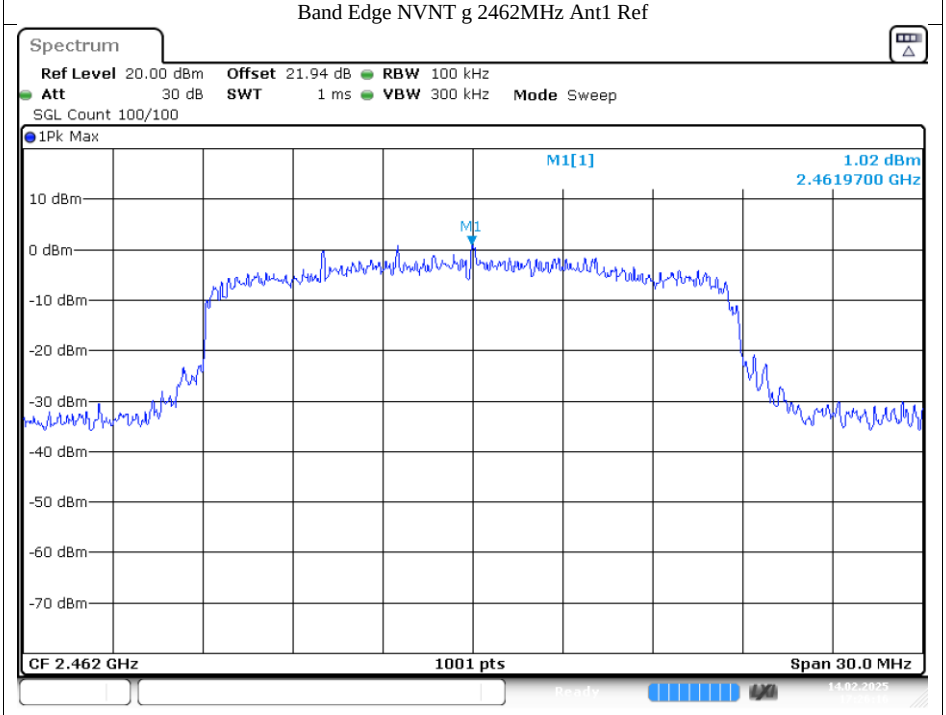


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.41576 GHz	-0.39 dBm		
M2		1	2.4 GHz	-30.43 dBm		
M3		1	2.4 GHz	-30.43 dBm		
M4		1	2.3691 GHz	-27.88 dBm		

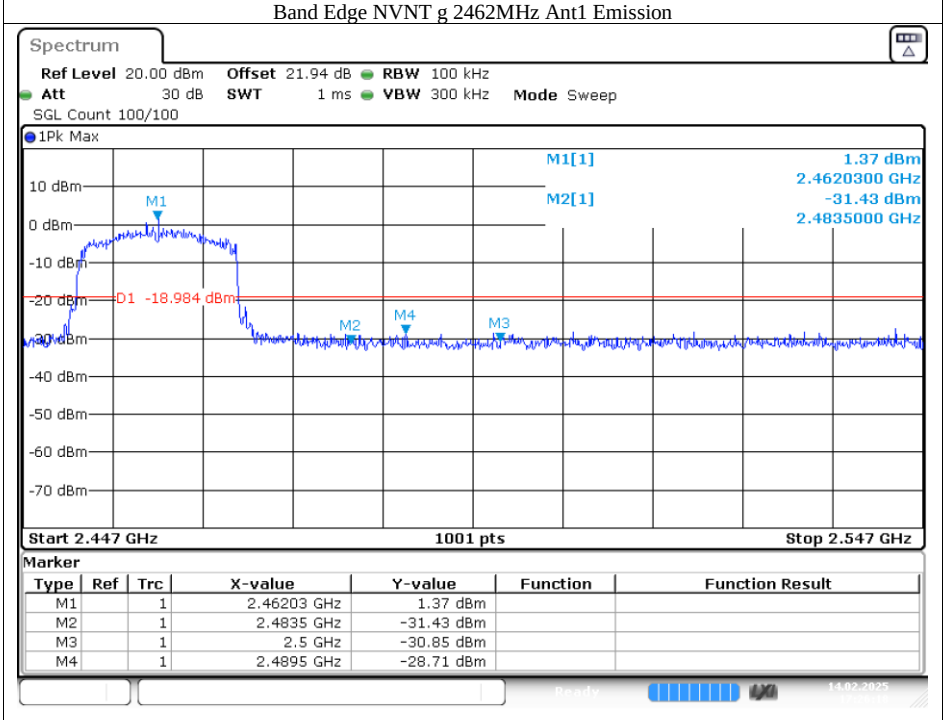
Date: 14.FEB.2025 16:27:41

Band Edge NVNT g 2462MHz Ant1 Ref



Date: 14.FEB.2025 17:26:17

Band Edge NVNT g 2462MHz Ant1 Emission



Marker

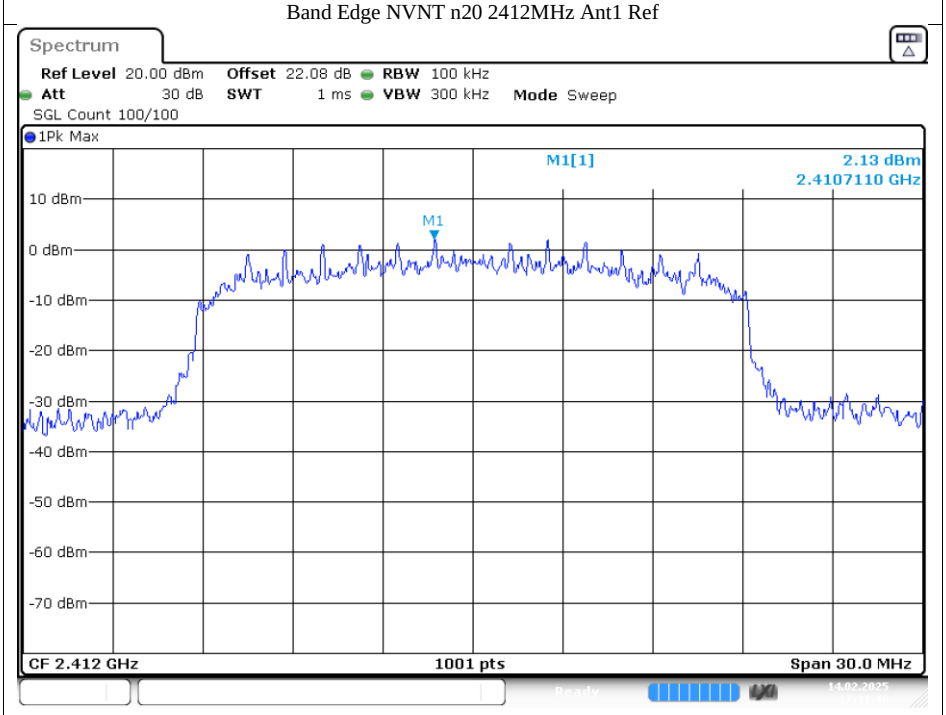
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.46203 GHz	1.37 dBm		
M2		1	2.4835 GHz	-31.43 dBm		
M3		1	2.5 GHz	-30.85 dBm		
M4		1	2.4895 GHz	-28.71 dBm		

Date: 14.FEB.2025 17:26:19

Phone: +86 510 8820 3737
Fax: +86 510 8820 3636

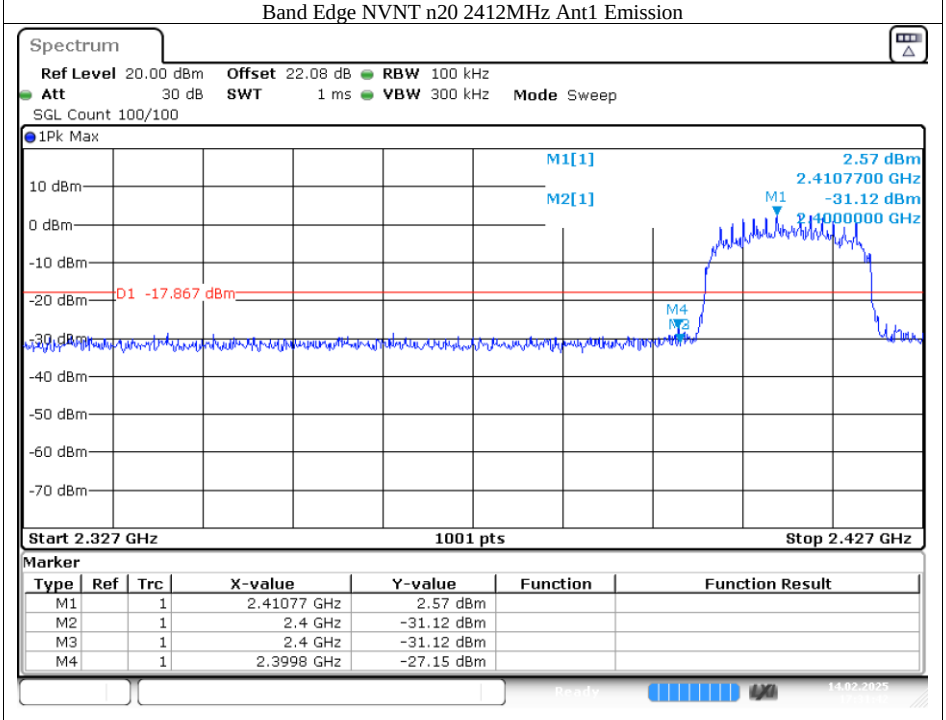
TÜV SÜD Certification and Testing (China) Co., Ltd.
Floor 1-4, Building B, No.37, Tuanjie Road(Middle), Xishan Economic and Technological Development Zone, Wuxi, Jiangsu. China

Band Edge NVNT n20 2412MHz Ant1 Ref



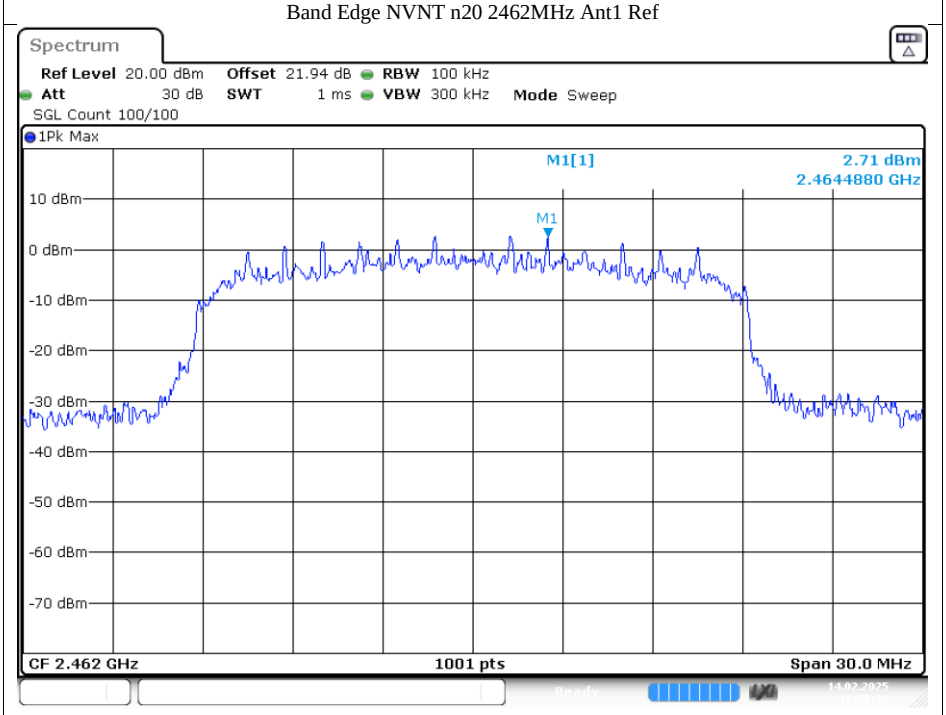
Date: 14.FEB.2025 17:31:41

Band Edge NVNT n20 2412MHz Ant1 Emission



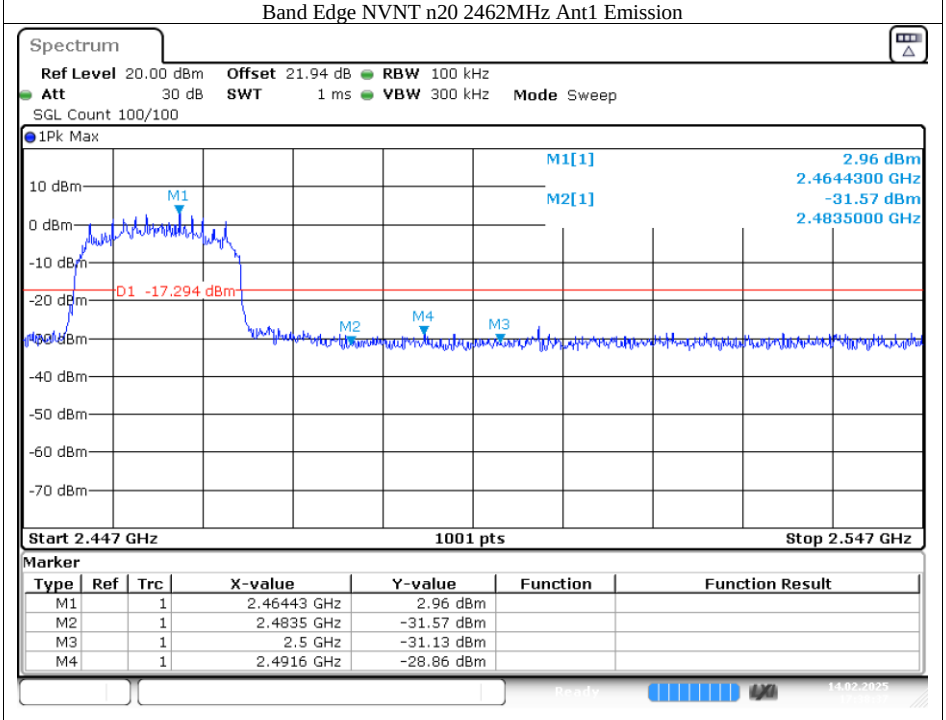
Date: 14.FEB.2025 17:31:43

Band Edge NVNT n20 2462MHz Ant1 Ref



Date: 14.FEB.2025 17:38:36

Band Edge NVNT n20 2462MHz Ant1 Emission



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.46443 GHz	2.96 dBm		
M2		1	2.4835 GHz	-31.57 dBm		
M3		1	2.5 GHz	-31.13 dBm		
M4		1	2.4916 GHz	-28.86 dBm		

Date: 14.FEB.2025 17:38:37

Phone: +86 510 8820 3737
Fax: +86 510 8820 3636

TÜV SÜD Certification and Testing (China) Co., Ltd.
Floor 1-4, Building B, No.37, Tuanjie Road(Middle), Xishan Economic and Technological Development Zone, Wuxi, Jiangsu. China

9.7 Spurious radiated emissions for transmitter

Test Method

1. The EUT was place on a turn table which is 1.5m above ground plane for above 1GHz and 0.8m above ground for below 1GHz at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference – receiving antenna, which was mounted on the top of a variable – height antenna tower.
3. 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.
4. 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.
5. Use the following spectrum analyzer settings According to C63.10:

For Below 1GHz

Use the following spectrum analyzer settings:
Span = wide enough to capture the peak level of the in-band emission and all spurious
RBW = 100 kHz to 120 kHz, VBW≥RBW for peak measurement, Sweep = auto, Detector function = peak, Trace = max hold.

For Peak unwanted emissions Above 1GHz:

Span = wide enough to capture the peak level of the in-band emission and all spurious
RBW = 1MHz, VBW≥RBW for peak measurement, Sweep = auto, Detector function = peak, Trace = max hold.

Procedures for average unwanted emissions measurements above 1000 MHz

a) RBW = 1MHz.
b) VBW ≥ [3 × RBW].
c) Detector = RMS (power averaging), if [span / (# of points in sweep)] ≤ RBW / 2. Satisfying this condition can require increasing the number of points in the sweep or reducing the span. If the condition is not satisfied, then the detector mode shall be set to peak.
d) Averaging type = power (i.e., rms) (As an alternative, the detector and averaging type may be set for linear voltage averaging. Some instruments require linear display mode to use linear voltage averaging. Log or dB averaging shall not be used.)
e) Sweep time = auto.
f) Perform a trace average of at least 100 traces if the transmission is continuous. If the transmission is not continuous, then the number of traces shall be increased by a factor of 1 / D, where D is the duty cycle. For example, with 50% duty cycle, at least 200 traces shall be averaged. (If a specific emission is demonstrated to be continuous—i.e., 100% duty cycle—then rather than turning ON and OFF with the transmit cycle, at least 100 traces shall be averaged.)
g) If tests are performed with the EUT transmitting at a duty cycle less than 98%, then a correction factor shall be added to the measurement results prior to comparing with the emission limit, to compute the emission level that would have been measured had the test been performed at 100% duty cycle. The correction factor is computed as follows:

1) If power averaging (rms) mode was used in the preceding step e), then the correction factor is [10 log (1 / D)], where D is the duty cycle. For example, if the transmit duty cycle was 50%, then 3 dB shall be added to the measured emission levels.
2) If linear voltage averaging mode was used in the preceding step e), then the correction factor is [20 log (1 / D)], where D is the duty cycle. For example, if the transmit duty cycle was 50%, then 6 dB shall be added to the measured emission levels.
3) If a specific emission is demonstrated to be continuous (100% duty cycle) rather than turning ON and OFF with the transmit cycle, then no duty cycle correction is required for that emission.

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 section15.205 must comply with the radiated emission limits specified in section 15.209.

Frequency MHz	Field Strength uV/m	Measured Distance Meters
0.009~0.490	2400/F (kHz)	300
0.490~1.705	24000/F (kHz)	30
1.705~30	30	30

Frequency MHz	Field Strength uV/m	Field Strength dBµV/m	Detector
30-88	100	40	QP
88-216	150	43.5	QP
216-960	200	46	QP
960-1000	500	54	QP
Above 1000	500	54	AV
Above 1000	5000	74	PK

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 test result is listed in the report.

Report Number:4842025220300A

Test result:

9k-30MHz Radiated Emission Test

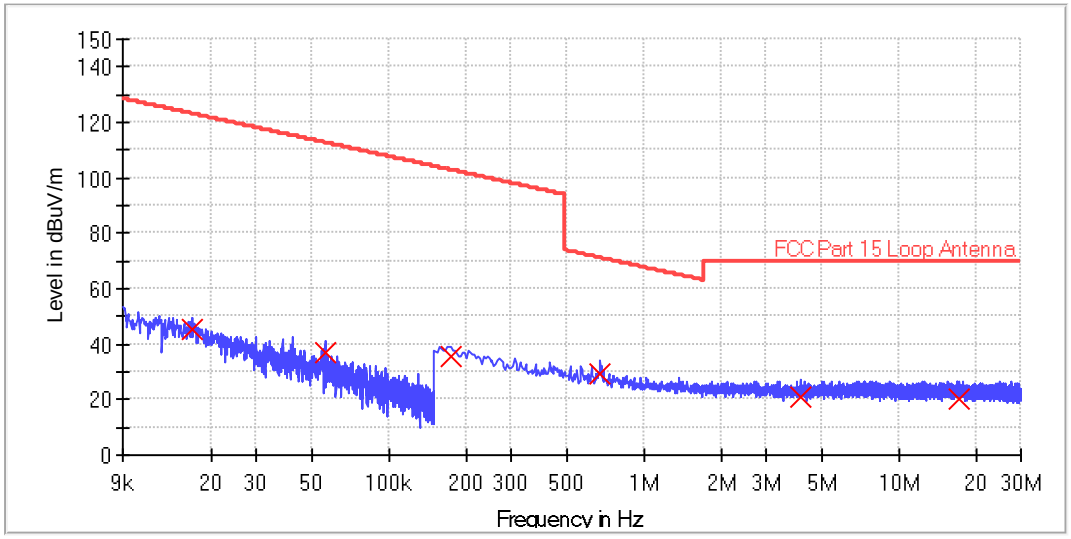
Common Information

EUT:	Wi-Fi and Bluetooth Module
Model:	T1-M
Client:	Hanzghou Tuya Information Technology Co., Ltd
Operating conditions:	Power on and TX_2412MHz at b mode
Operator name:	Zhihua Xia
Input:	3.3V DC
Sample No:	WUX-889391-2
Test standard:	FCC Part 15.209(a)
Comment:	X
Comment:	T21.2℃, H51.7%, P100.1kPa

Scan Setup: FCC_RE_9K-30M_Max_3m [EMI radiated]

Hardware Setup:	Radiated E Field 9K-30MHz_3m
Receiver:	[ESR 3]
Level Unit:	dBuV/m

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	80 Hz	PK+	200 Hz	0.01 s	20 dB
150 kHz - 30 MHz	4 kHz	PK+	9 kHz	0.001 s	20 dB



Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dBuV/m)
0.016840	45.5	1000.0	0.200	130.0	0.0	19.8	77.6	123.1
0.055880	37.2	1000.0	0.200	130.0	0.0	19.5	75.5	112.6
0.174000	35.3	1000.0	9.000	130.0	0.0	19.3	67.4	102.8
0.674000	29.3	1000.0	9.000	130.0	0.0	19.3	41.7	71.0
4.094000	20.6	1000.0	9.000	130.0	0.0	19.2	48.9	69.5
17.286000	20.3	1000.0	9.000	130.0	0.0	18.7	49.3	69.5

Phone: +86 510 8820 3737
Fax: +86 510 8820 3636

TÜV SÜD Certification and Testing (China) Co., Ltd.
Floor 1-4, Building B, No.37, Tuanjie Road(Middle), Xishan Economic and Technological Development Zone, Wuxi, Jiangsu. China

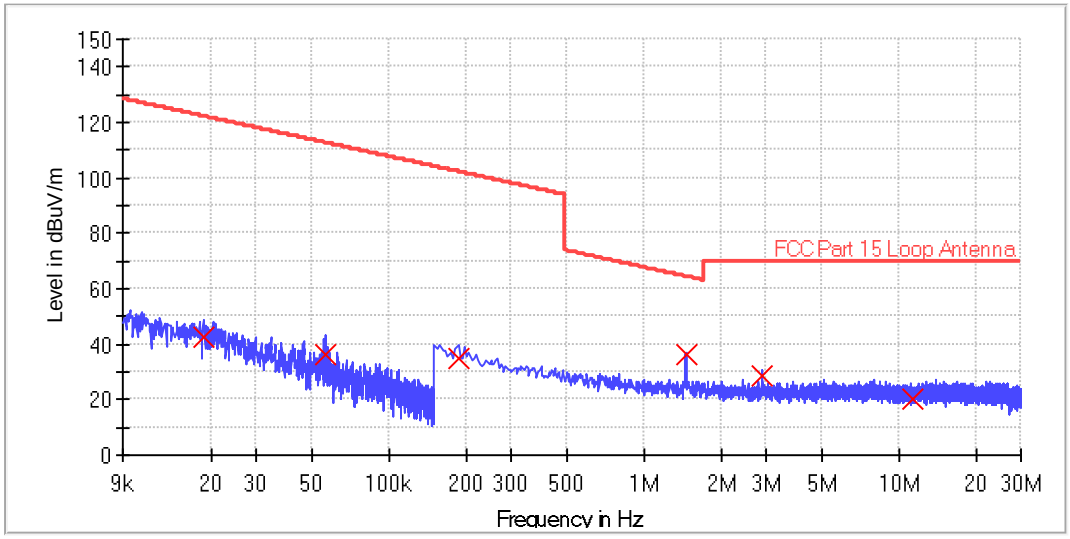
Common Information

EUT:	Wi-Fi and Bluetooth Module
Model:	T1-M
Client:	Hanzghou Tuya Information Technology Co., Ltd
Operating conditions:	Power on and TX_2412MHz at b mode
Operator name:	Zhihua Xia
Input:	3.3V DC
Sample No:	WUX-889391-2
Test standard:	FCC Part 15.209(a)
Comment:	Y
Comment:	T21.2℃, H51.7%, P100.1kPa

Scan Setup: FCC_RE_9K-30M_Max_3m [EMI radiated]

Hardware Setup:	Radiated E Field 9K-30MHz_3m
Receiver:	[ESR 3]
Level Unit:	dBuV/m

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	80 Hz	PK+	200 Hz	0.01 s	20 dB
150 kHz - 30 MHz	4 kHz	PK+	9 kHz	0.001 s	20 dB



Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dBuV/m)
0.018600	42.3	1000.0	0.200	130.0	0.0	19.7	79.9	122.2
0.056040	36.3	1000.0	0.200	130.0	0.0	19.5	76.4	112.6
0.186000	34.8	1000.0	9.000	130.0	0.0	19.3	67.4	102.2
1.458000	36.5	1000.0	9.000	130.0	0.0	19.3	27.9	64.4
2.914000	28.7	1000.0	9.000	130.0	0.0	19.3	40.8	69.5
11.350000	20.2	1000.0	9.000	130.0	0.0	18.8	49.3	69.5

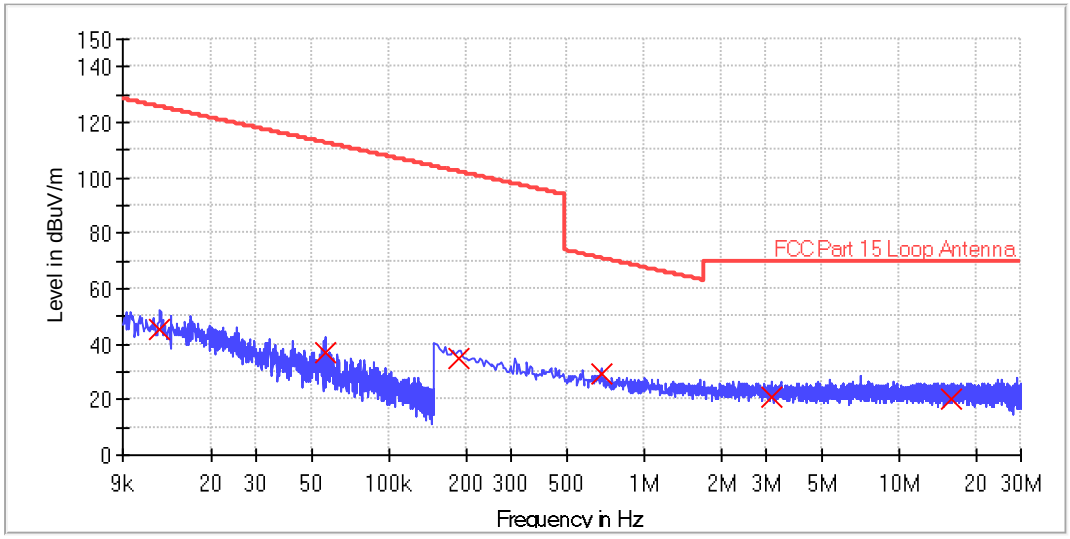
Common Information

EUT:	Wi-Fi and Bluetooth Module
Model:	T1-M
Client:	Hanzghou Tuya Information Technology Co., Ltd
Operating conditions:	Power on and TX_2412MHz at b mode
Operator name:	Zhihua Xia
Input:	3.3V DC
Sample No:	WUX-889391-2
Test standard:	FCC Part 15.209(a)
Comment:	Z
Comment:	T21.2℃, H51.7%, P100.1kPa

Scan Setup: FCC_RE_9K-30M_Max_3m [EMI radiated]

Hardware Setup:	Radiated E Field 9K-30MHz_3m
Receiver:	[ESR 3]
Level Unit:	dBuV/m

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	80 Hz	PK+	200 Hz	0.01 s	20 dB
150 kHz - 30 MHz	4 kHz	PK+	9 kHz	0.001 s	20 dB



Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dBuV/m)
0.012600	45.2	1000.0	0.200	130.0	0.0	20.0	80.4	125.6
0.056040	36.7	1000.0	0.200	130.0	0.0	19.5	75.9	112.6
0.186000	34.7	1000.0	9.000	130.0	0.0	19.3	67.5	102.2
0.678000	29.0	1000.0	9.000	130.0	0.0	19.3	41.9	71.0
3.182000	20.8	1000.0	9.000	130.0	0.0	19.2	48.7	69.5
16.146000	20.4	1000.0	9.000	130.0	0.0	18.7	49.1	69.5

30-1000MHz Radiated Emission Test

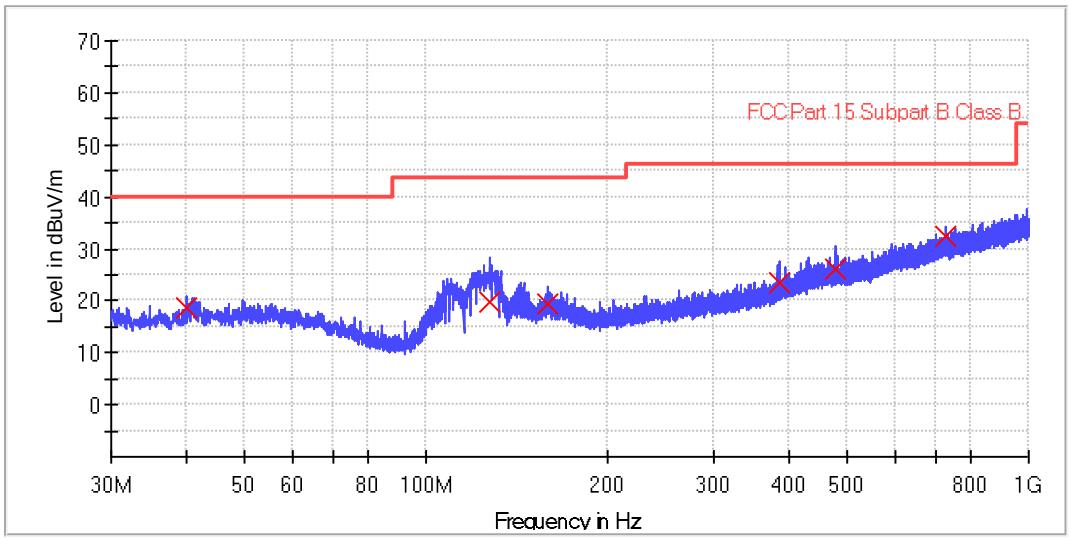
Common Information

EUT:	Wi-Fi and Bluetooth Module
Model:	T1-M
Client:	Hanzghou Tuya Information Technology Co., Ltd
Operating conditions:	Power on and TX_2412MHz at b mode
Operator name:	Zhihua Xia
Input:	3.3V DC
Sample No:	WUX-889391-2
Test standard:	FCC Part 15.209(a)
Comment:	Horizontal
Comment:	T21.2℃, H51.7%, P100.1kPa

Sweep Setup: RE_30M-1G_Sweep_3m [EMI radiated]

Hardware Setup:	Radiated E Field 30MHz-1GHz_3m
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



Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dBuV/m)
40.080000	18.8	1000.0	120.000	163.3	156.0	20.2	21.2	40.0
127.440000	19.8	1000.0	120.000	326.8	212.0	19.8	23.7	43.5
159.360000	19.4	1000.0	120.000	193.2	148.0	21.6	24.1	43.5
385.760000	23.4	1000.0	120.000	283.4	71.0	25.0	22.6	46.0
479.320000	26.3	1000.0	120.000	192.1	206.0	27.4	19.8	46.0
729.400000	32.4	1000.0	120.000	361.5	293.0	32.4	13.6	46.0

Phone: +86 510 8820 3737
Fax: +86 510 8820 3636

TÜV SÜD Certification and Testing (China) Co., Ltd.
Floor 1-4, Building B, No.37, Tuanjie Road(Middle), Xishan Economic and Technological Development Zone, Wuxi, Jiangsu. China

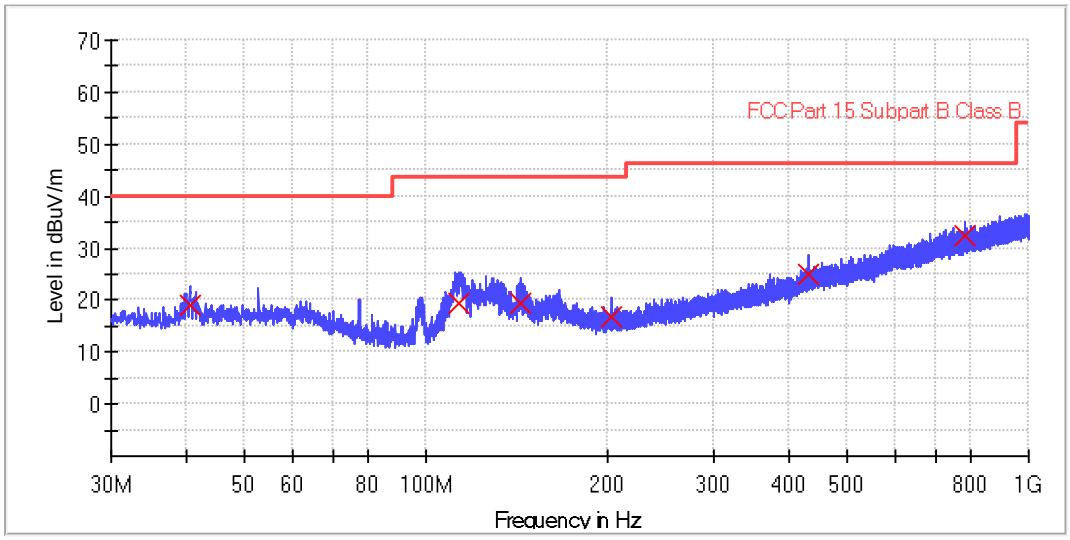
Common Information

EUT:	Wi-Fi and Bluetooth Module
Model:	T1-M
Client:	Hanzghou Tuya Information Technology Co., Ltd
Operating conditions:	Power on and TX_2412MHz at b mode
Operator name:	Zhihua Xia
Input:	3.3V DC
Sample No:	WUX-889391-2
Test standard:	FCC Part 15.209(a)
Comment:	Vertical
Comment:	T21.2℃, H51.7%, P100.1kPa

Sweep Setup: RE_30M-1G_Sweep_3m [EMI radiated]

Hardware Setup:	Radiated E Field 30MHz-1GHz_3m
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

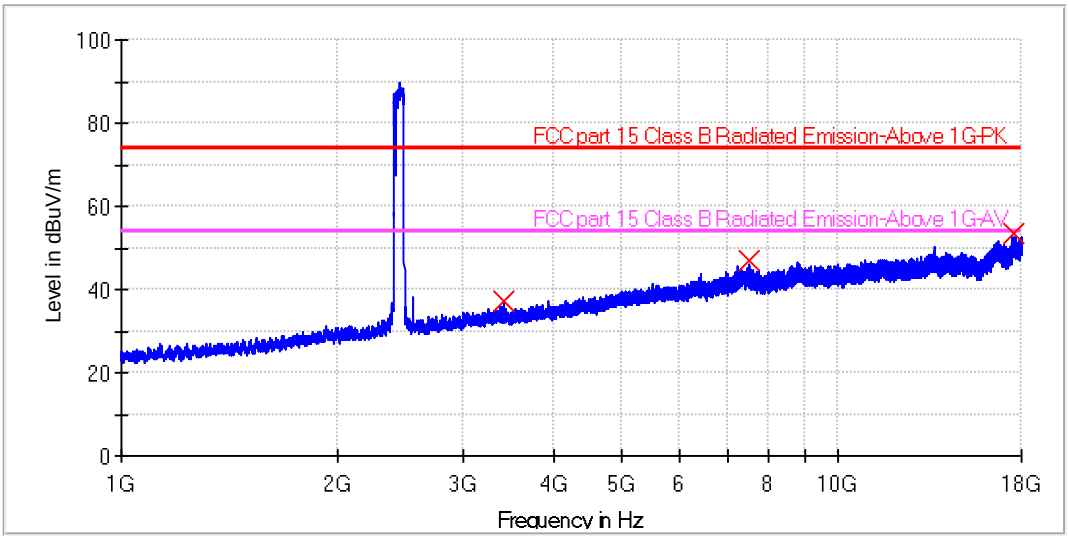


Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dBuV/m)
40.480000	19.0	1000.0	120.000	188.9	196.0	20.3	21.0	40.0
113.240000	19.3	1000.0	120.000	142.6	98.0	18.2	24.2	43.5
143.000000	19.3	1000.0	120.000	218.2	138.0	21.1	24.2	43.5
203.520000	16.6	1000.0	120.000	234.4	167.0	18.2	26.9	43.5
431.640000	24.9	1000.0	120.000	171.0	224.0	26.3	21.1	46.0
785.480000	32.4	1000.0	120.000	168.9	91.0	33.5	13.6	46.0

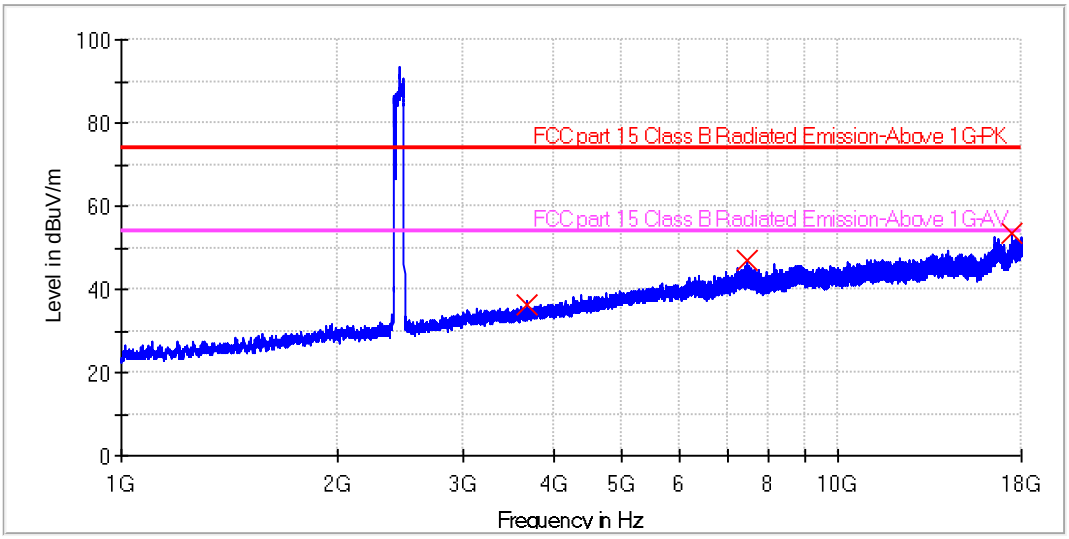
Radiated Emission 1-18 GHz

802.11B:2412MHz



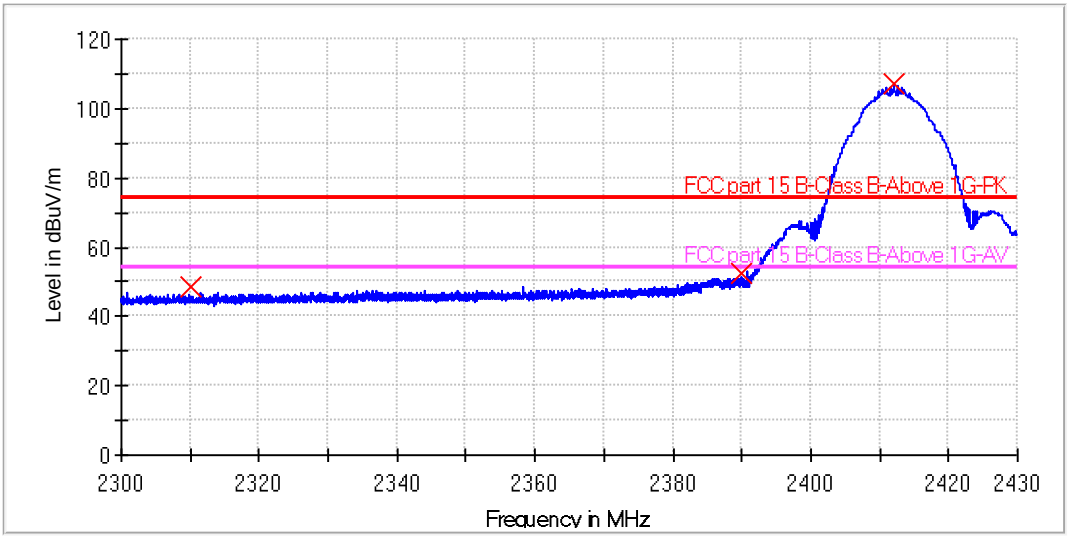
Limit and Margin

Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)
3407.000000	37.1	1000.0	151.9	H	138.0	-5.2	36.9	74.0
7485.000000	47.0	1000.0	205.4	H	89.0	9.2	27.0	74.0
17576.000000	53.6	1000.0	262.4	H	125.0	21.9	20.4	74.0



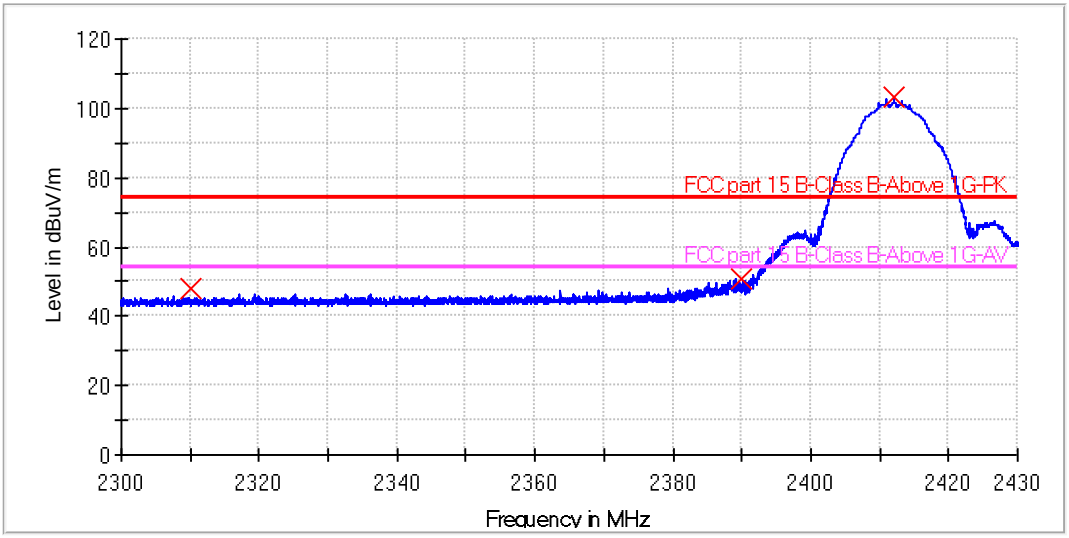
Limit and Margin

Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)
3679.000000	36.3	1000.0	198.8	V	216.0	-4.5	37.7	74.0
7477.500000	47.1	1000.0	116.4	V	114.0	9.2	26.9	74.0
17476.500000	53.7	1000.0	156.1	V	128.0	21.7	20.4	74.0



Limit and Margin

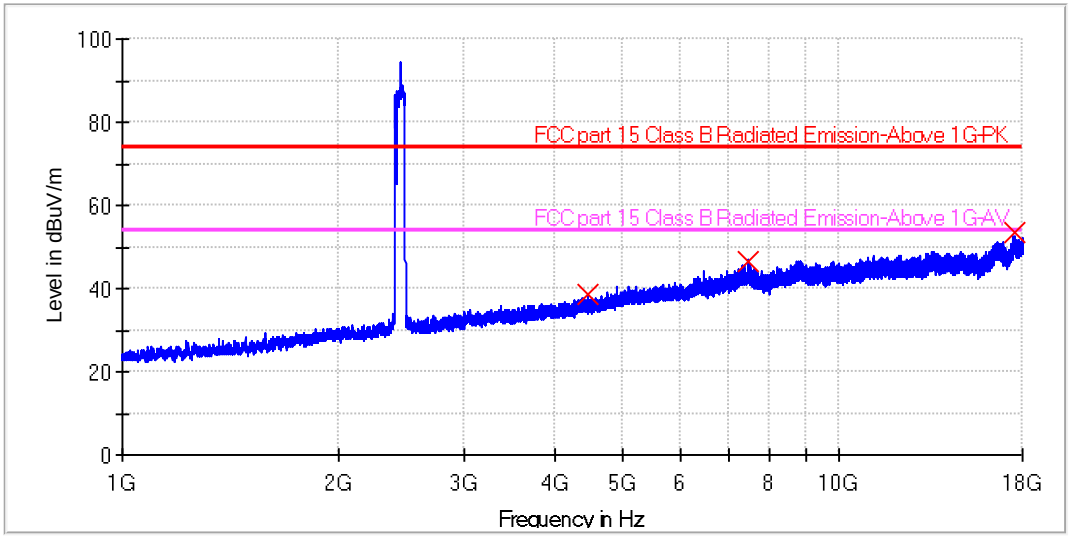
Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)
2310.000000	48.3	1000.0	170.6	H	41.0	34.1	25.7	74.0
2390.000000	52.4	1000.0	318.5	H	107.0	34.4	21.6	74.0
2412.000000	107.1	1000.0	217.9	H	146.0	34.5		



Limit and Margin

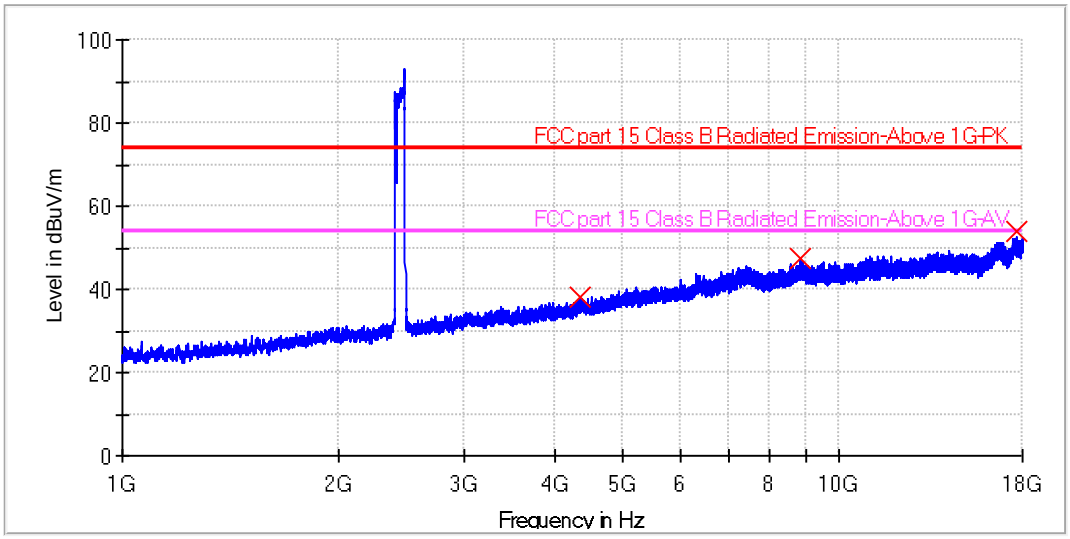
Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)
2310.000000	48.0	1000.0	370.4	V	306.0	34.1	26.0	74.0
2390.000000	50.8	1000.0	197.6	V	178.0	34.4	23.2	74.0
2412.000000	103.4	1000.0	158.7	V	74.0	34.5		

802.11B:2437MHz



Limit and Margin

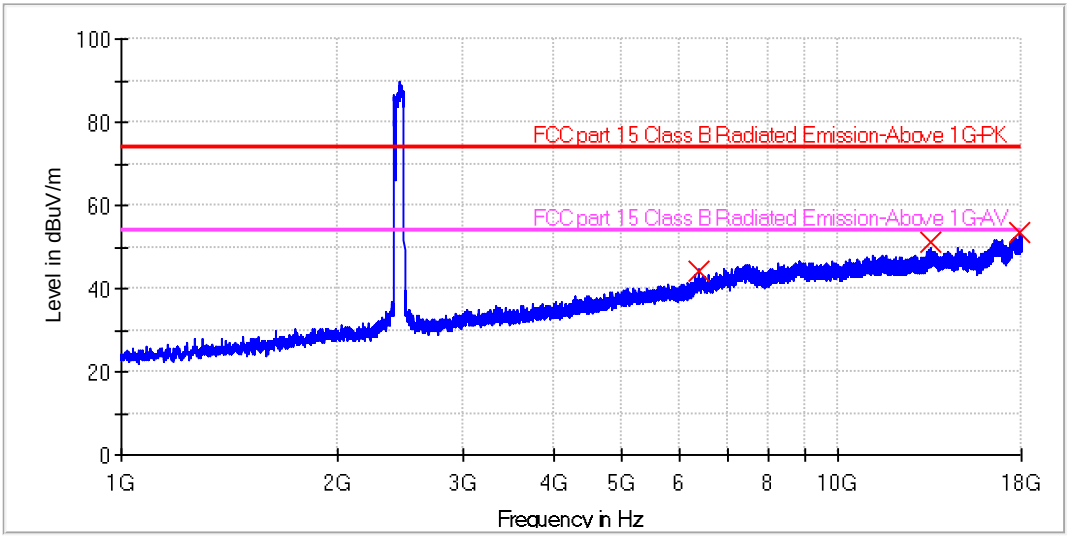
Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)
4469.500000	38.8	1000.0	317.2	H	28.0	-2.4	35.2	74.0
7470.500000	46.7	1000.0	170.7	H	104.0	9.1	27.4	74.0
17569.000000	53.7	1000.0	179.8	H	198.0	21.9	20.3	74.0



Limit and Margin

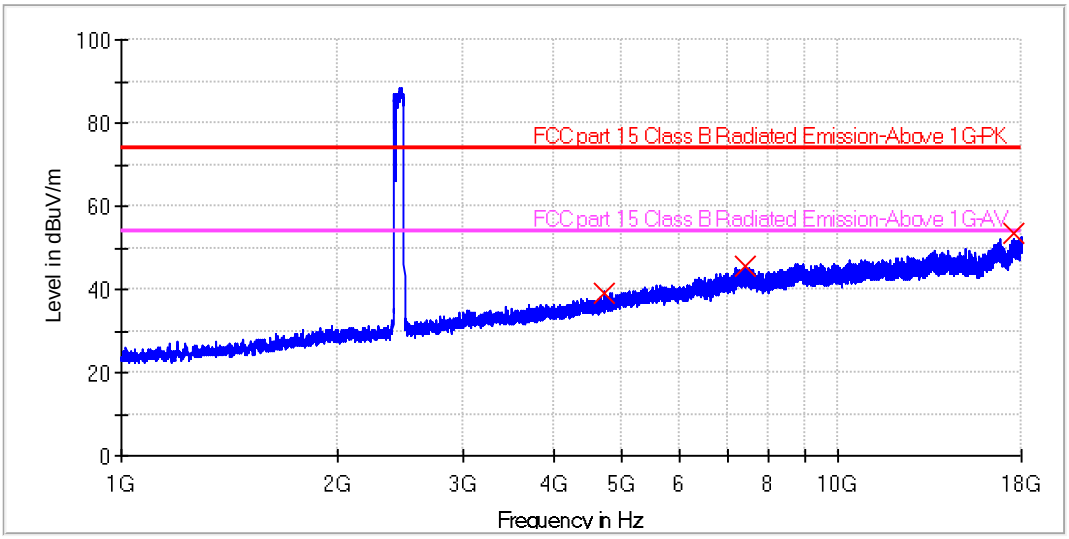
Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)
4351.000000	37.9	1000.0	178.5	V	216.0	-2.5	36.1	74.0
8799.500000	47.3	1000.0	331.2	V	114.0	11.8	26.7	74.0
17642.000000	53.7	1000.0	189.3	V	78.0	22.0	20.3	74.0

802.11B:2462MHz



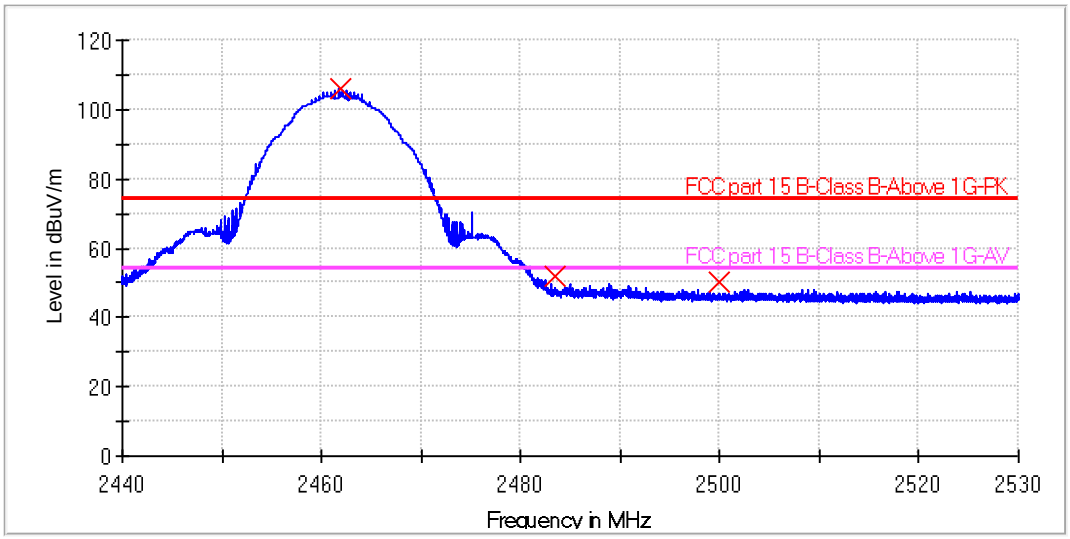
Limit and Margin

Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)
6373.500000	44.2	1000.0	230.6	H	114.0	7.0	29.8	74.0
13482.000000	51.1	1000.0	193.5	H	150.0	17.2	22.9	74.0
17866.000000	53.4	1000.0	356.0	H	247.0	22.1	20.6	74.0



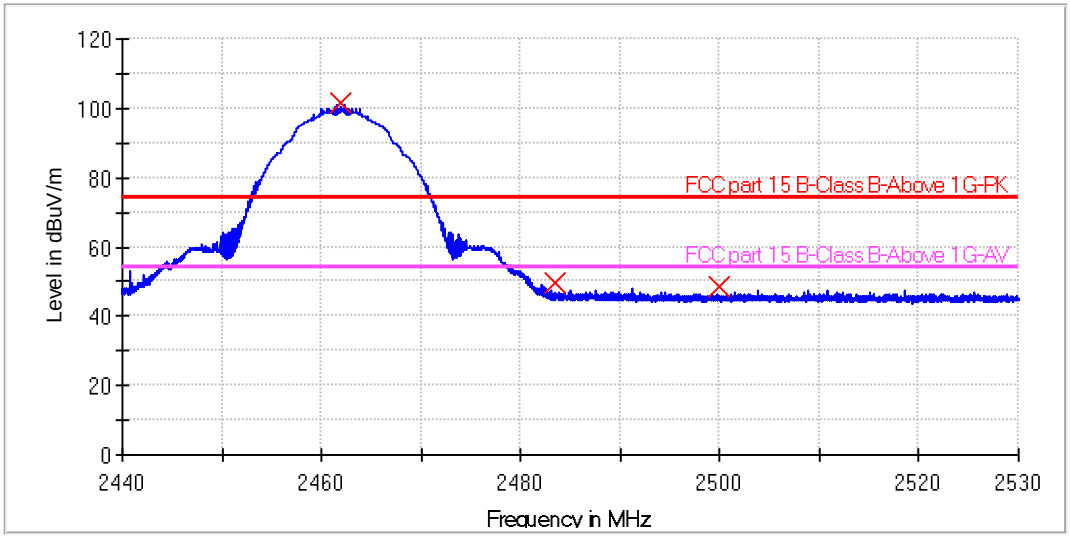
Limit and Margin

Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)
4727.500000	38.9	1000.0	111.4	V	228.0	-1.0	35.1	74.0
7406.000000	45.7	1000.0	304.9	V	183.0	8.7	28.3	74.0
17547.500000	53.5	1000.0	165.0	V	96.0	21.9	20.5	74.0



Limit and Margin

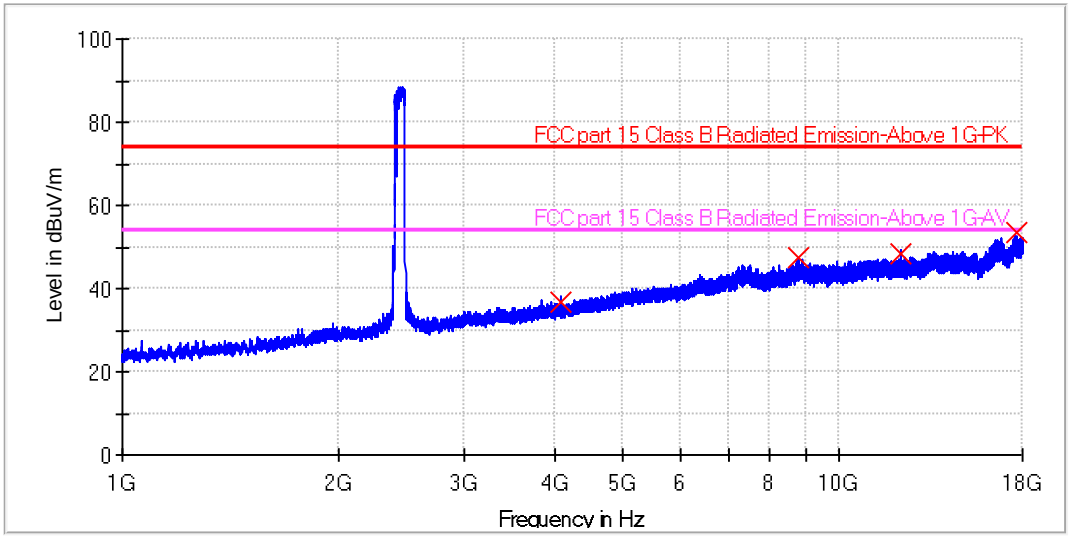
Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)
2462.000000	106.3	1000.0	263.9	H	129.0	34.8		
2483.500000	51.9	1000.0	153.3	H	62.0	34.8	22.1	74.0
2500.000000	50.2	1000.0	277.2	H	124.0	34.8	23.8	74.0



Limit and Margin

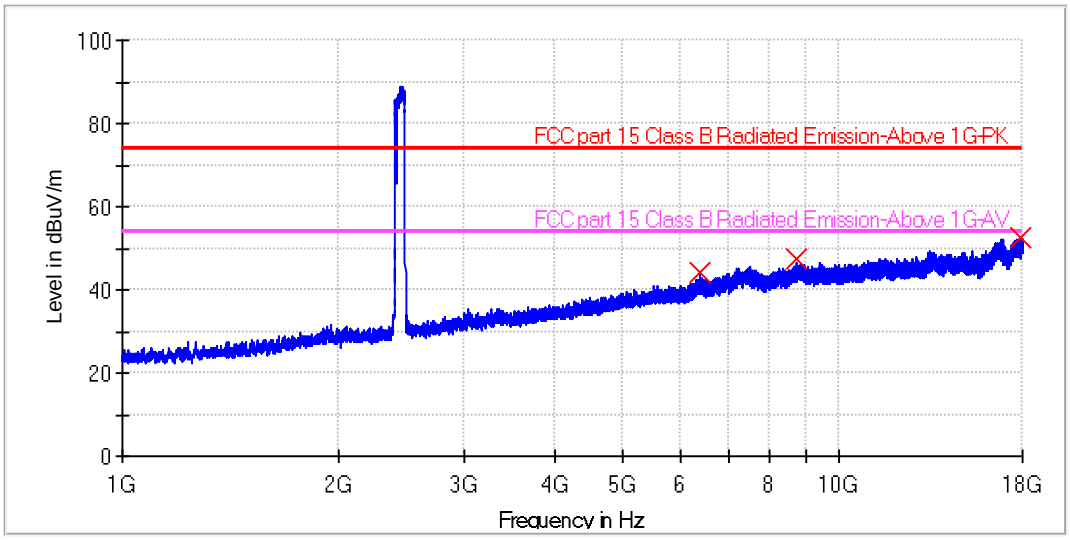
Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)
2462.000000	101.5	1000.0	148.1	V	189.0	34.8		
2483.500000	49.7	1000.0	121.5	V	145.0	34.8	24.3	74.0
2500.000000	48.8	1000.0	120.9	V	271.0	34.8	25.3	74.0

802.11G:2412MHz



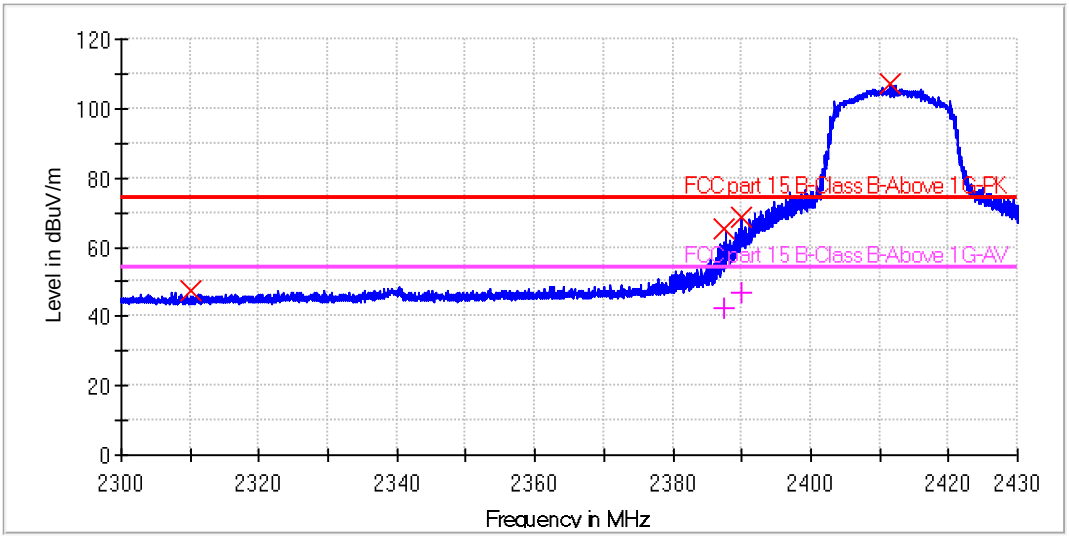
Limit and Margin

Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)
4079.500000	36.8	1000.0	112.2	H	280.0	-3.4	37.2	74.0
8743.000000	47.3	1000.0	211.0	H	132.0	11.5	26.7	74.0
12159.000000	48.6	1000.0	124.4	H	263.0	14.5	25.5	74.0
17652.000000	53.7	1000.0	363.2	H	67.0	22.0	20.3	74.0



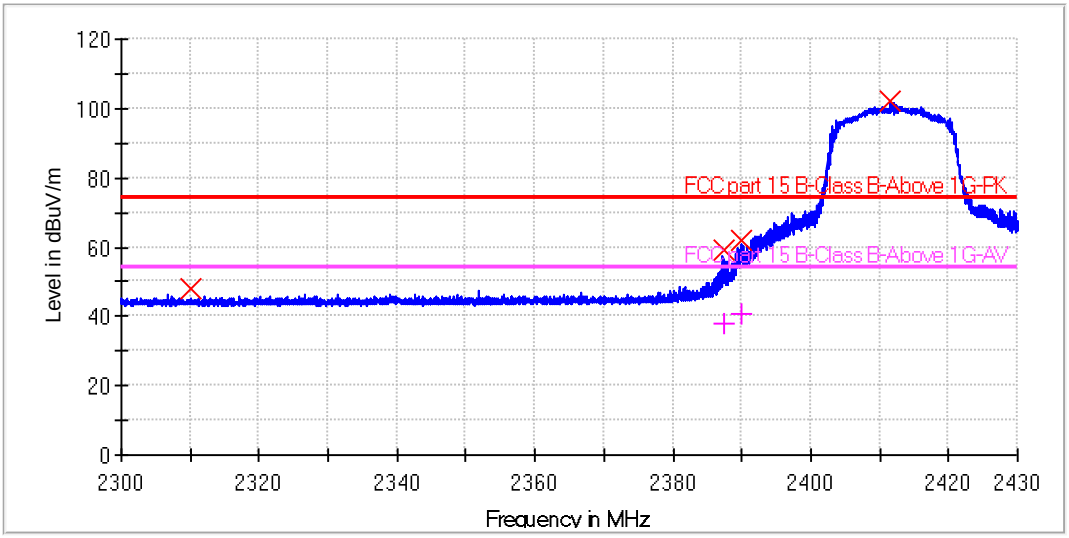
Limit and Margin

Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)
6392.500000	44.3	1000.0	121.0	V	301.0	7.0	29.7	74.0
8711.500000	47.4	1000.0	197.0	V	298.0	11.3	26.6	74.0
17901.500000	52.7	1000.0	164.4	V	113.0	22.1	21.3	74.0



Limit and Margin

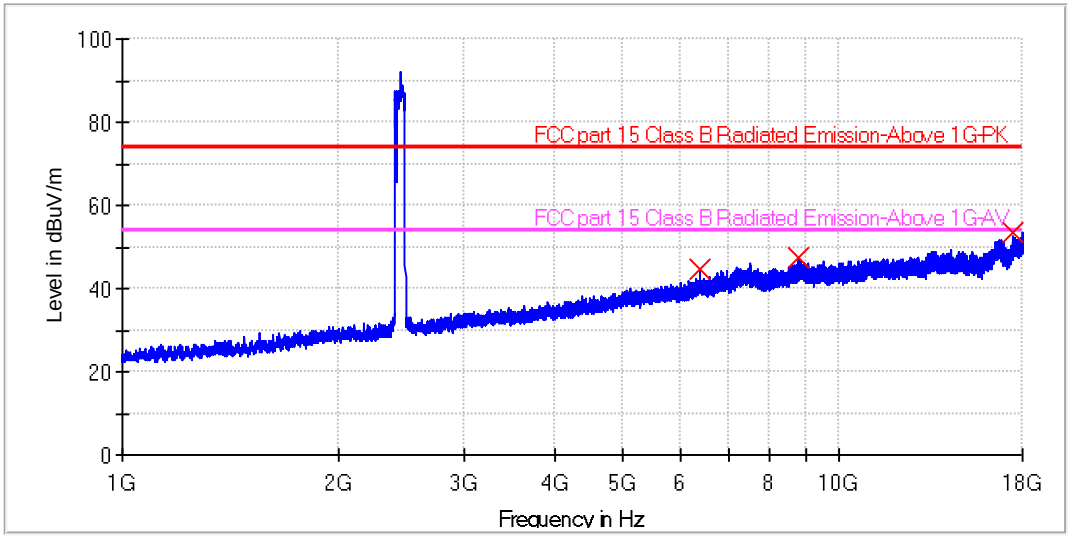
Frequency (MHz)	MaxPeak (dBuV/m)	RMS (dBuV/m)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Margin - AVG (dB)
2310.000000	47.6	---	1000.0	132.0	H	206.0	34.1	26.4	74.0	---
2387.500000	65.2	42.2	1000.0	310.6	H	278.0	34.4	8.8	74.0	11.8
2390.000000	68.9	46.8	1000.0	219.3	H	128.0	34.4	5.2	74.0	7.2
2411.500000	106.9	---	1000.0	339.2	H	102.0	34.5			---



Limit and Margin

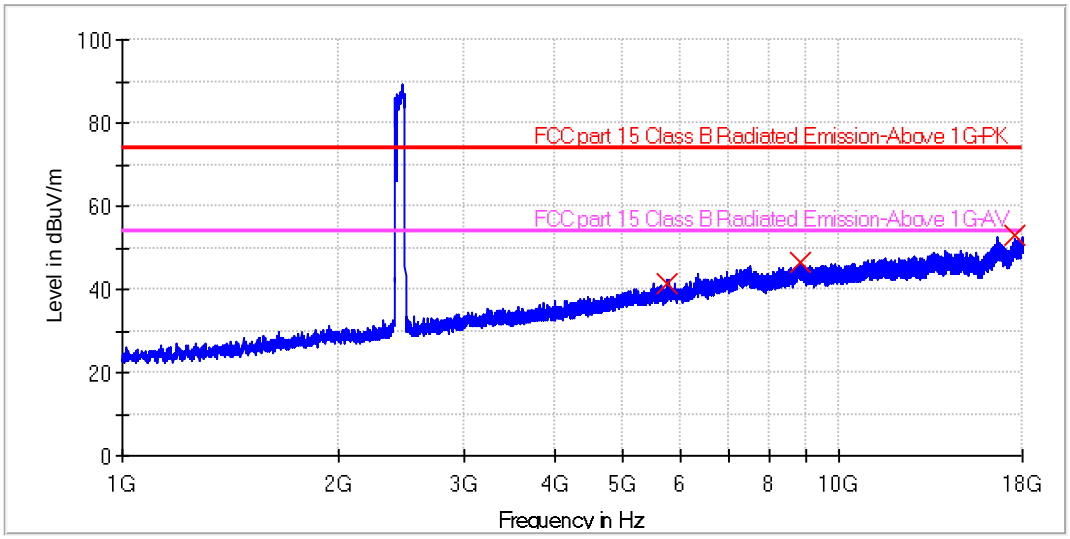
Frequency (MHz)	MaxPeak (dBuV/m)	RMS (dBuV/m)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Margin - AVG (dB)
2310.000000	47.9	---	1000.0	150.0	V	158.0	34.1	26.1	74.0	---
2387.500000	58.9	37.7	1000.0	150.0	V	114.0	34.4	15.1	74.0	16.3
2390.000000	61.9	40.8	1000.0	150.0	V	135.0	34.4	12.1	74.0	13.2
2411.500000	102.2	---	1000.0	150.0	V	101.0	34.5			---

802.11G:2437MHz



Limit and Margin

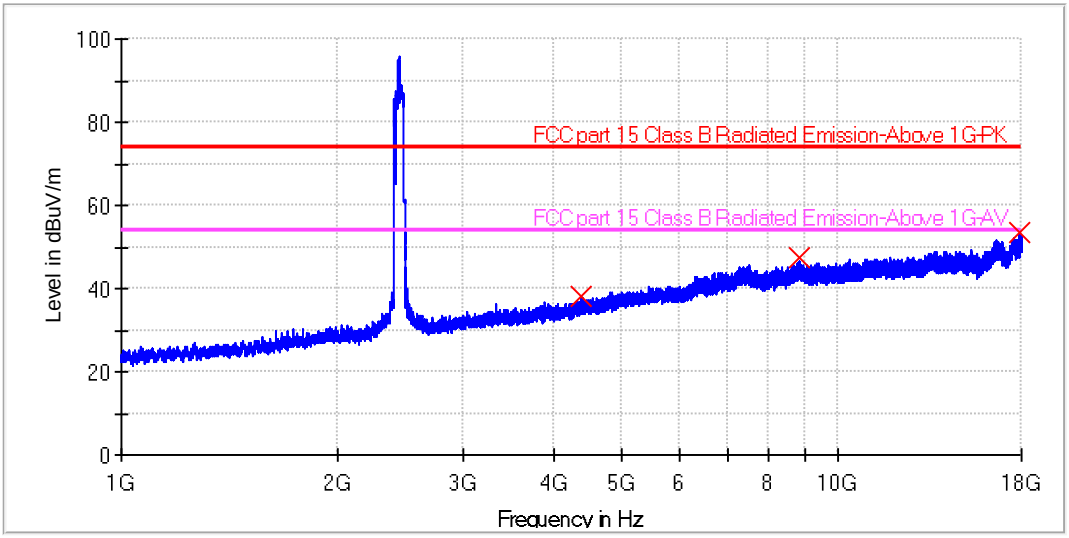
Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)
6385.000000	44.5	1000.0	150.8	H	183.0	7.0	29.5	74.0
8770.500000	47.4	1000.0	342.1	H	126.0	11.6	26.6	74.0
17499.000000	53.5	1000.0	283.2	H	106.0	21.8	20.5	74.0



Limit and Margin

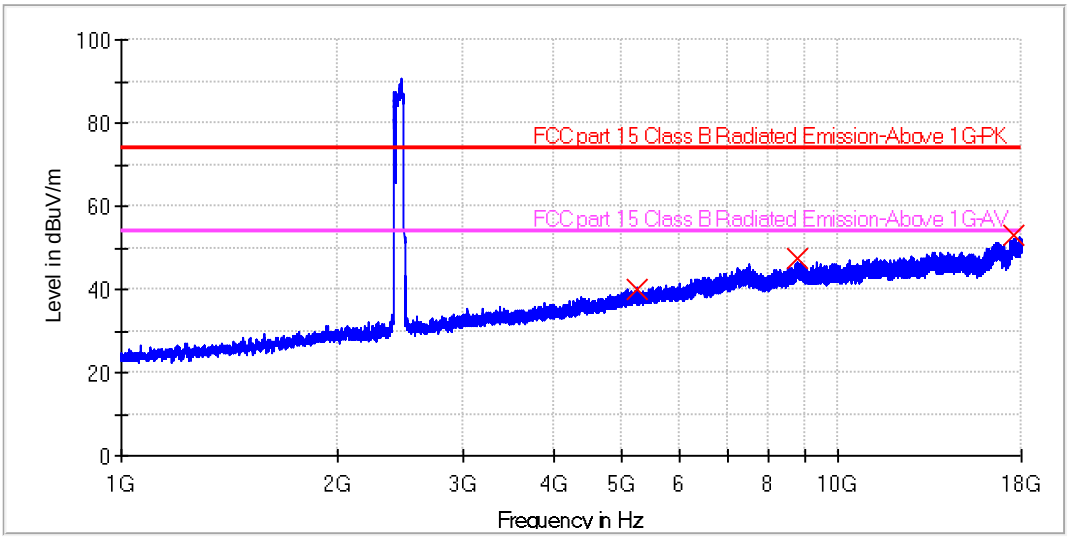
Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)
5762.500000	41.2	1000.0	386.6	V	222.0	1.9	32.8	74.0
8827.500000	46.5	1000.0	116.9	V	139.0	11.9	27.5	74.0
17608.000000	53.1	1000.0	300.8	V	128.0	22.0	20.9	74.0

802.11G:2462MHz



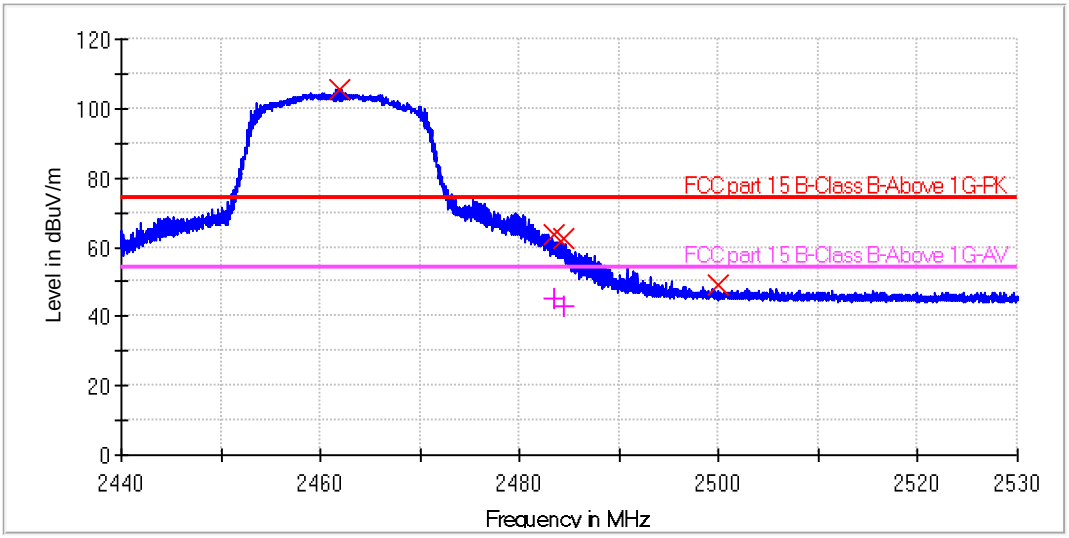
Limit and Margin

Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)
4383.500000	38.3	1000.0	147.9	H	61.0	-2.3	35.7	74.0
8802.500000	47.3	1000.0	362.0	H	116.0	11.8	26.7	74.0
17861.000000	53.5	1000.0	184.1	H	181.0	22.1	20.5	74.0



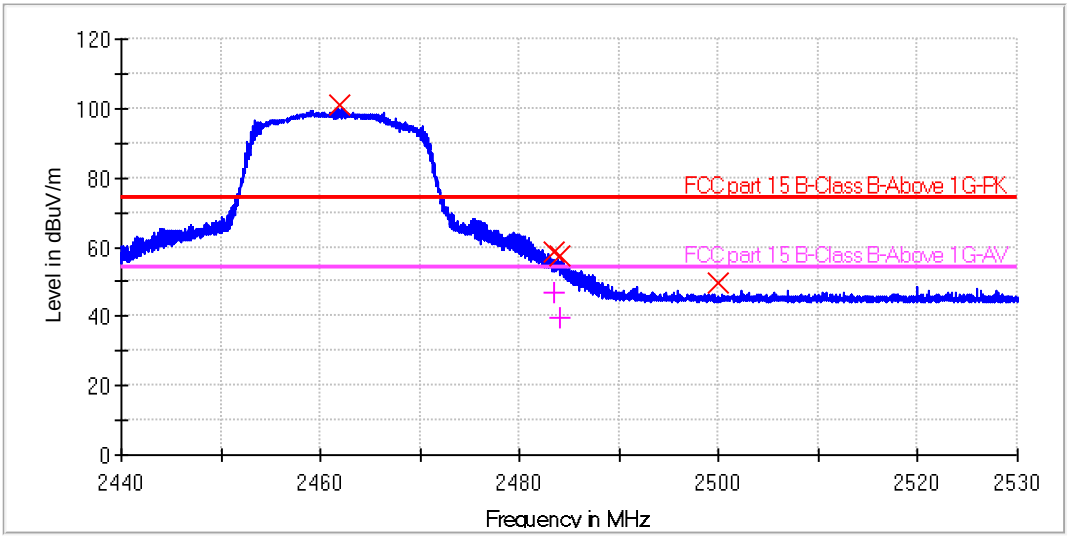
Limit and Margin

Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)
5235.000000	39.8	1000.0	266.4	V	152.0	0.6	34.2	74.0
8748.500000	47.5	1000.0	133.7	V	202.0	11.5	26.5	74.0
17577.000000	53.0	1000.0	396.9	V	196.0	21.9	21.0	74.0



Limit and Margin

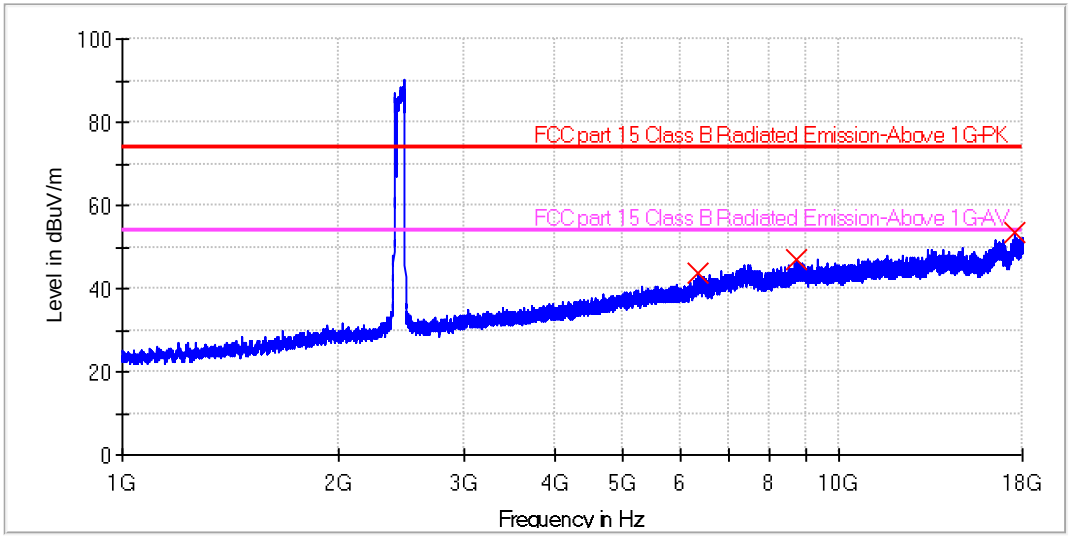
Frequency (MHz)	MaxPeak (dBuV/m)	RMS (dBuV/m)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Margin - AVG (dB)
2462.000000	105.6	---	1000.0	126.9	H	133.0	34.8			---
2483.500000	63.7	45.4	1000.0	330.2	H	119.0	34.8	10.3	74.0	8.6
2484.500000	62.3	43.2	1000.0	126.0	H	148.0	34.8	11.7	74.0	10.8
2500.000000	49.1	---	1000.0	335.1	H	214.0	34.8	24.9	74.0	---



Limit and Margin

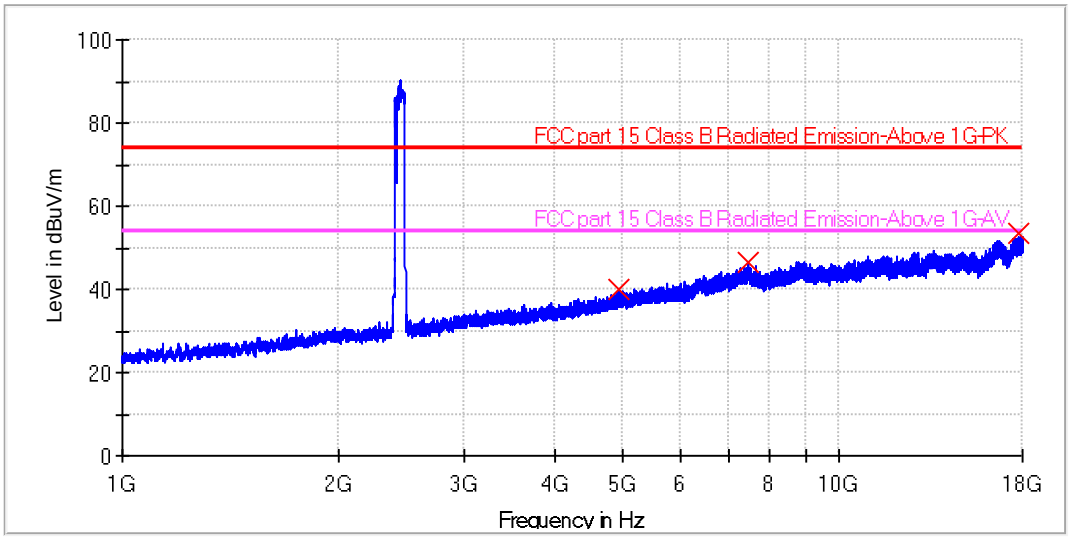
Frequency (MHz)	MaxPeak (dBuV/m)	RMS (dBuV/m)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Margin - AVG (dB)
2462.000000	101.1	---	1000.0	123.5	V	146.0	34.8			---
2483.500000	58.7	46.9	1000.0	176.4	V	153.0	34.8	15.3	74.0	7.1
2484.000000	57.4	39.6	1000.0	135.5	V	259.0	34.8	16.6	74.0	14.4
2500.000000	49.6	---	1000.0	283.3	V	314.0	34.8	24.5	74.0	---

802.11N20:2412MHz



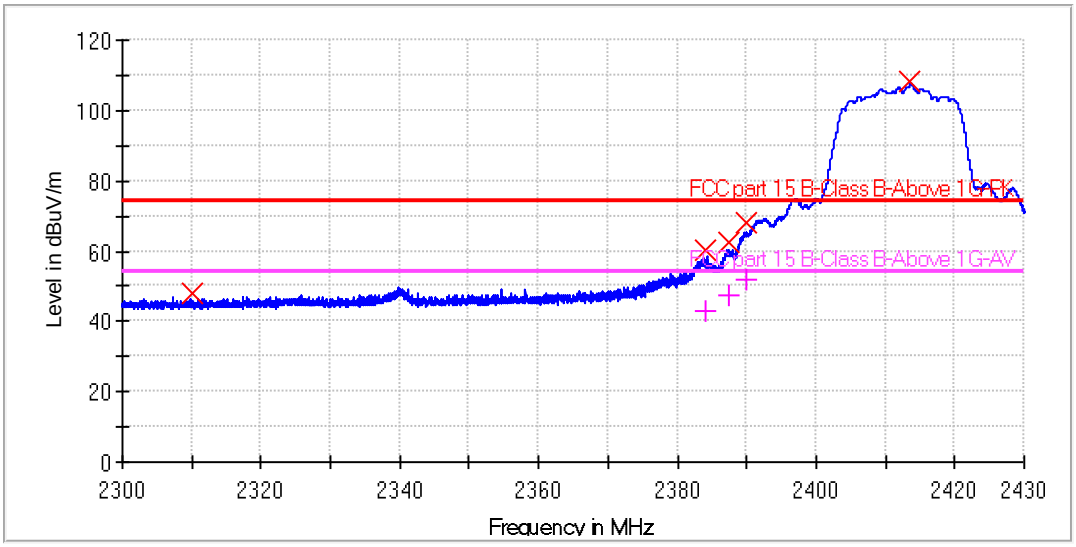
Limit and Margin

Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)
6354.000000	43.7	1000.0	187.3	H	153.0	6.9	30.3	74.0
8704.500000	46.9	1000.0	102.7	H	128.0	11.3	27.1	74.0
17597.500000	53.7	1000.0	129.9	H	98.0	22.0	20.3	74.0



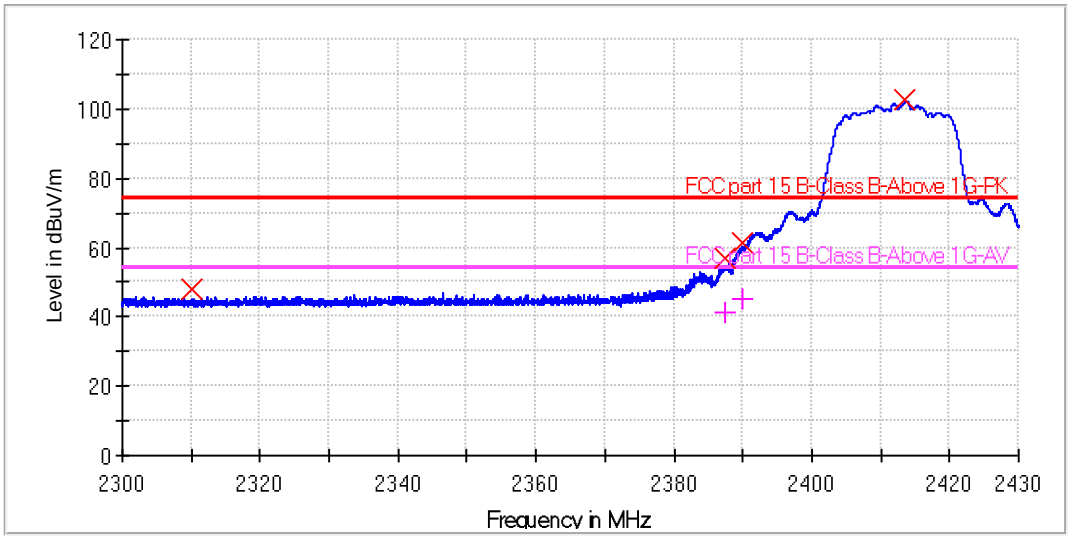
Limit and Margin

Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)
4909.500000	40.0	1000.0	371.0	V	134.0	-0.3	34.0	74.0
7451.500000	46.3	1000.0	150.4	V	116.0	9.0	27.7	74.0
17831.500000	53.7	1000.0	273.4	V	75.0	22.1	20.3	74.0



Limit and Margin

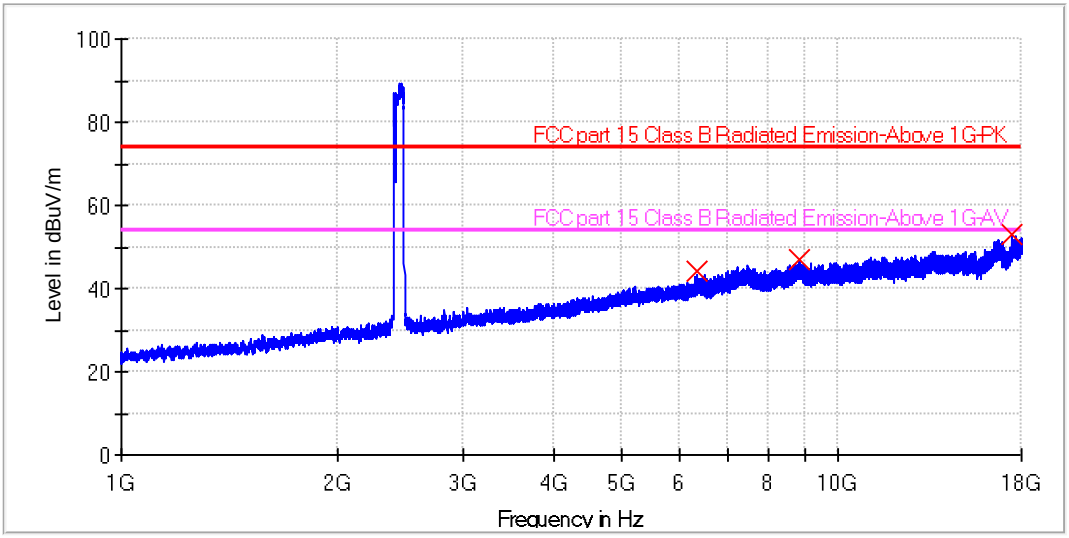
Frequency (MHz)	MaxPeak (dBuV/m)	Average (dBuV/m)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Margin - AVG (dB)
2310.000000	48.1	---	1000.0	170.1	H	131.0	34.1	25.9	74.0	---
2384.000000	60.3	43.0	1000.0	319.4	H	177.0	34.4	13.7	74.0	11.0
2387.500000	62.8	47.4	1000.0	123.3	H	149.0	34.4	11.2	74.0	6.6
2390.000000	67.9	51.8	1000.0	299.4	H	166.0	34.4	6.1	74.0	2.2
2413.500000	108.6	---	1000.0	197.6	H	142.0	34.5			---



Limit and Margin

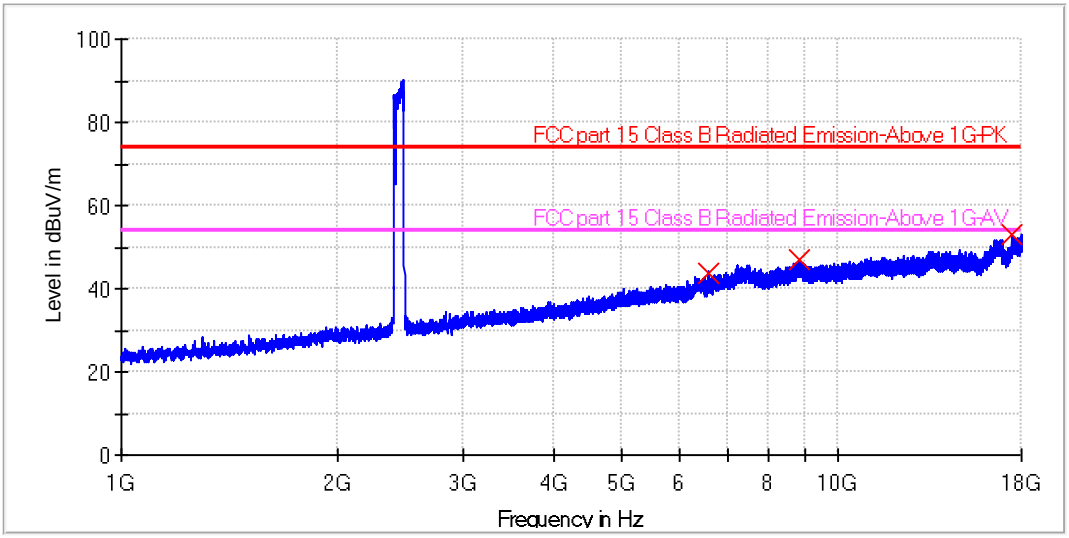
Frequency (MHz)	MaxPeak (dBuV/m)	RMS (dBuV/m)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Margin - AVG (dB)
2310.000000	47.8	---	1000.0	167.6	V	264.0	34.1	26.2	74.0	---
2387.500000	56.8	41.3	1000.0	144.5	V	201.0	34.4	17.2	74.0	12.7
2390.000000	61.2	45.1	1000.0	253.8	V	169.0	34.4	12.8	74.0	8.9
2413.500000	102.8	---	1000.0	279.8	V	120.0	34.5			---

802.11N20:2437MHz



Limit and Margin

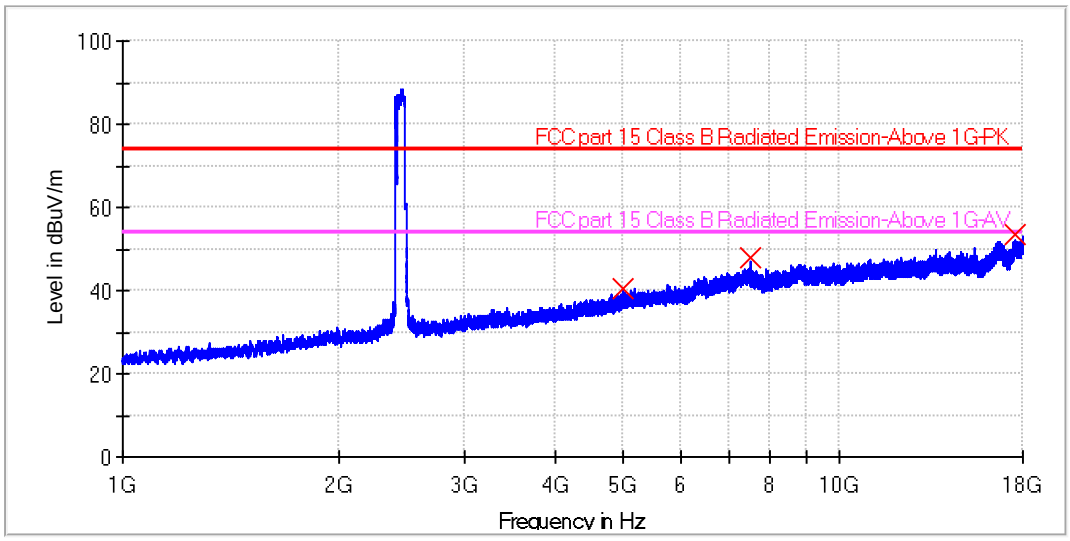
Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)
6343.500000	44.1	1000.0	178.4	H	48.0	6.9	29.9	74.0
8796.000000	47.2	1000.0	235.5	H	120.0	11.8	26.8	74.0
17480.500000	53.1	1000.0	214.4	H	254.0	21.7	20.9	74.0



Limit and Margin

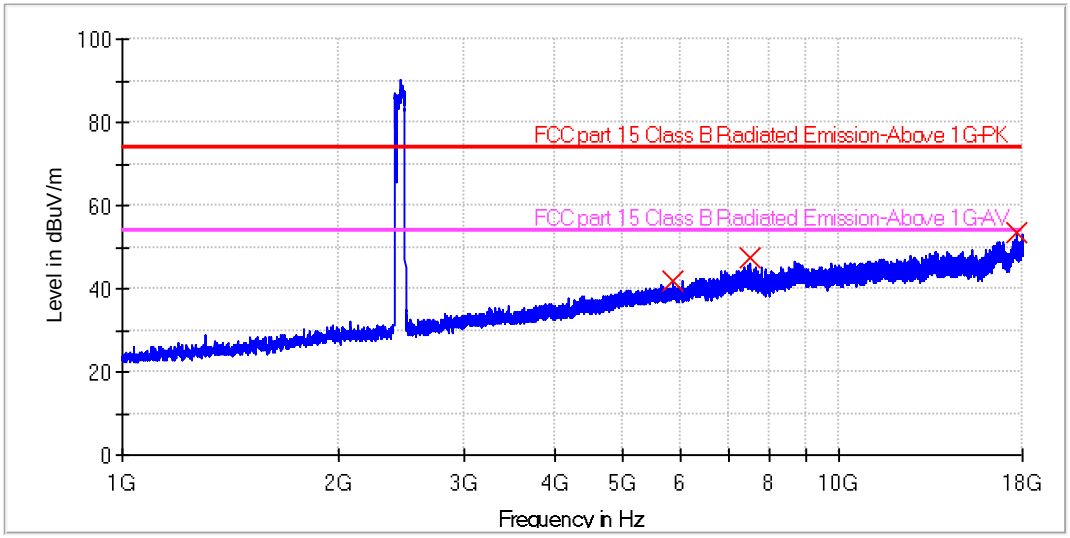
Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)
6574.500000	43.5	1000.0	287.2	V	108.0	7.0	30.5	74.0
8826.500000	47.1	1000.0	107.7	V	195.0	11.9	26.9	74.0
17493.000000	52.9	1000.0	333.6	V	67.0	21.8	21.1	74.0

802.11N20:2462MHz



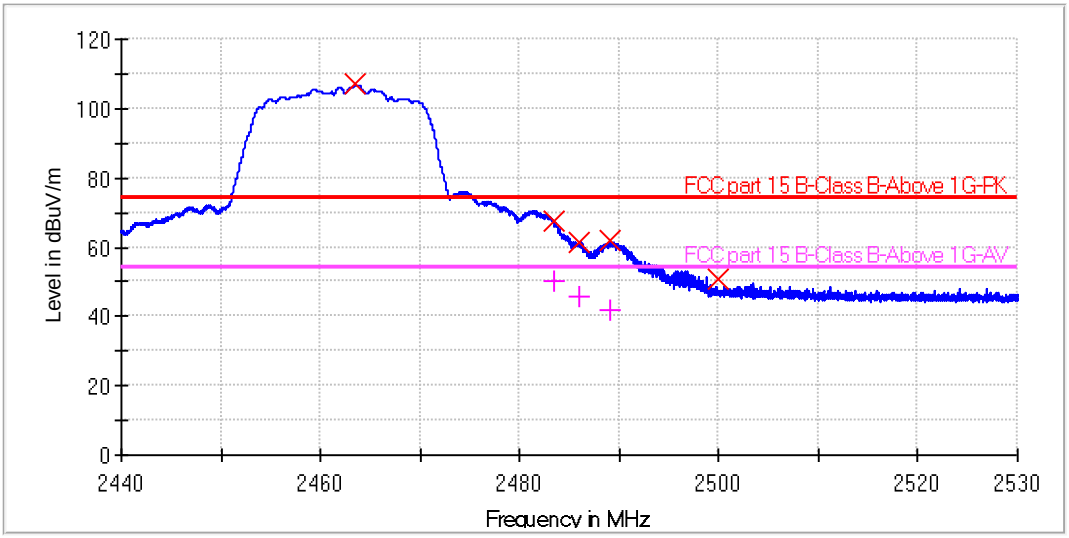
Limit and Margin

Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)
4995.500000	40.3	1000.0	185.6	H	130.0	0.1	33.7	74.0
7488.500000	48.0	1000.0	226.5	H	231.0	9.2	26.0	74.0
17589.500000	53.5	1000.0	100.1	H	179.0	21.9	20.5	74.0



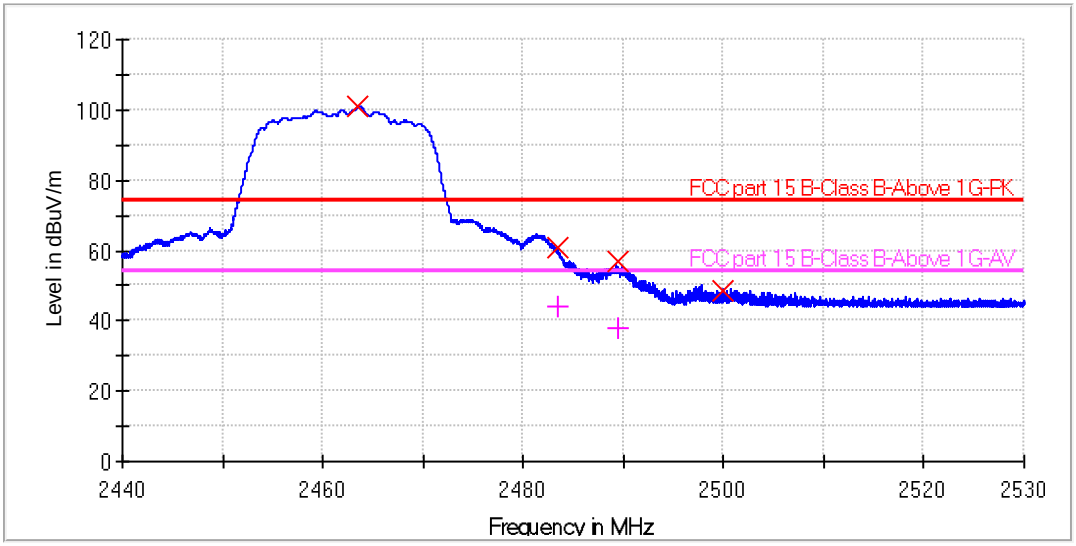
Limit and Margin

Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)
5840.000000	41.8	1000.0	398.5	V	118.0	2.3	32.2	74.0
7496.000000	47.3	1000.0	183.9	V	73.0	9.3	26.7	74.0
17621.000000	53.4	1000.0	274.3	V	218.0	22.0	20.6	74.0



Limit and Margin

Frequency (MHz)	MaxPeak (dBuV/m)	RMS (dBuV/m)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Margin - AVG (dB)
2463.500000	107.4	---	1000.0	152.8	H	118.0	34.8			---
2483.500000	67.5	50.3	1000.0	357.7	H	220.0	34.8	6.5	74.0	3.7
2486.000000	61.5	45.7	1000.0	218.2	H	178.0	34.8	12.6	74.0	8.3
2489.000000	62.1	41.7	1000.0	361.1	H	148.0	34.8	11.9	74.0	12.3
2500.000000	50.7	---	1000.0	168.3	H	56.0	34.8	23.3	74.0	---



Limit and Margin

Frequency (MHz)	MaxPeak (dBuV/m)	RMS (dBuV/m)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Margin - AVG (dB)
2463.500000	100.9	---	1000.0	228.5	V	31.0	34.8			---
2483.500000	61.1	44.0	1000.0	194.1	V	208.0	34.8	12.9	74.0	10.0
2489.500000	56.7	37.8	1000.0	244.0	V	114.0	34.8	17.3	74.0	16.2
2500.000000	48.7	---	1000.0	140.9	V	232.0	34.8	25.3	74.0	---

Worst case Radiated Emission 18-25 GHz

18-25G Radiated Emission Test

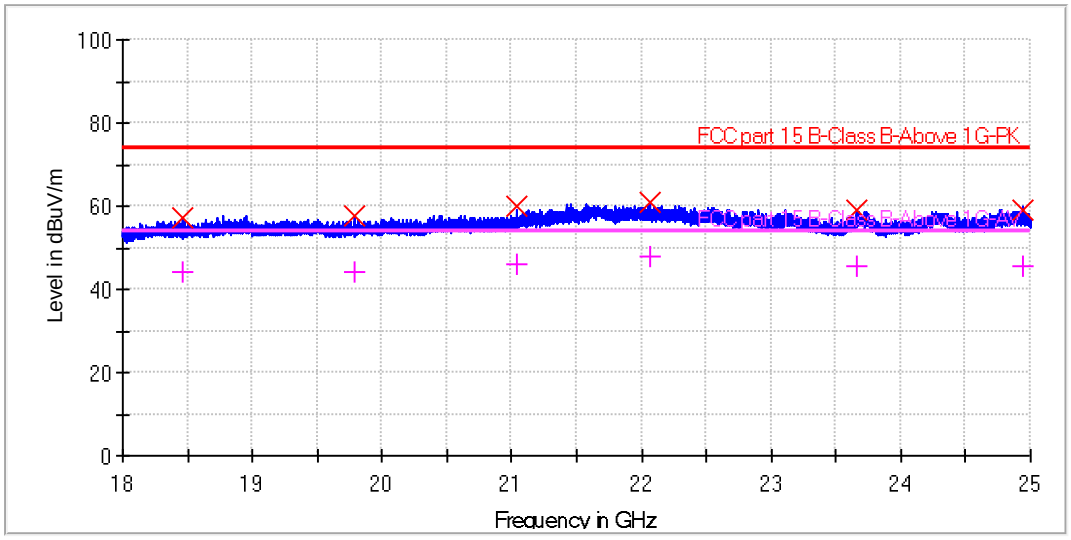
Common Information

EUT:	Wi-Fi and Bluetooth Module
Model:	T1-M
Client:	Hanzghou Tuya Information Technology Co., Ltd
Operating conditions:	Power on and TX_2412MHz at b mode
Operator name:	Zhihua Xia
Input:	3.3V DC
Sample No:	WUX-889391-2
Test standard:	FCC Part 15.209(a)
Comment:	Horizontal
Comment:	T21.2℃, H51.7%, P100.1kPa

Sweep Setup: FCC_RE_18-25G_Sweep_3m [EMI radiated]

Hardware Setup:	18-40GHz_3m
Receiver:	[FSV 40]
Level Unit:	dBuV/m

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
18 GHz - 25 GHz	500 kHz	PK+	1 MHz	1 s	0 dB



Limit and Margin

Frequency (MHz)	MaxPeak (dBuV/m)	RMS (dBuV/m)	Meas. Time (ms)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Margin - AVG (dB)
18457.000000	57.2	44.1	1000.0	155.2	250.0	14.0	16.8	74.0	9.9
19789.000000	57.5	44.2	1000.0	177.8	176.0	14.8	16.5	74.0	9.8
21040.500000	60.1	46.0	1000.0	154.5	78.0	16.0	13.9	74.0	8.0
22065.000000	61.0	47.9	1000.0	181.1	101.0	18.2	13.0	74.0	6.1
23652.500000	59.1	45.5	1000.0	102.9	84.0	15.8	14.9	74.0	8.6
24947.500000	59.1	45.6	1000.0	275.9	209.0	16.0	14.9	74.0	8.4

18-25G Radiated Emission Test

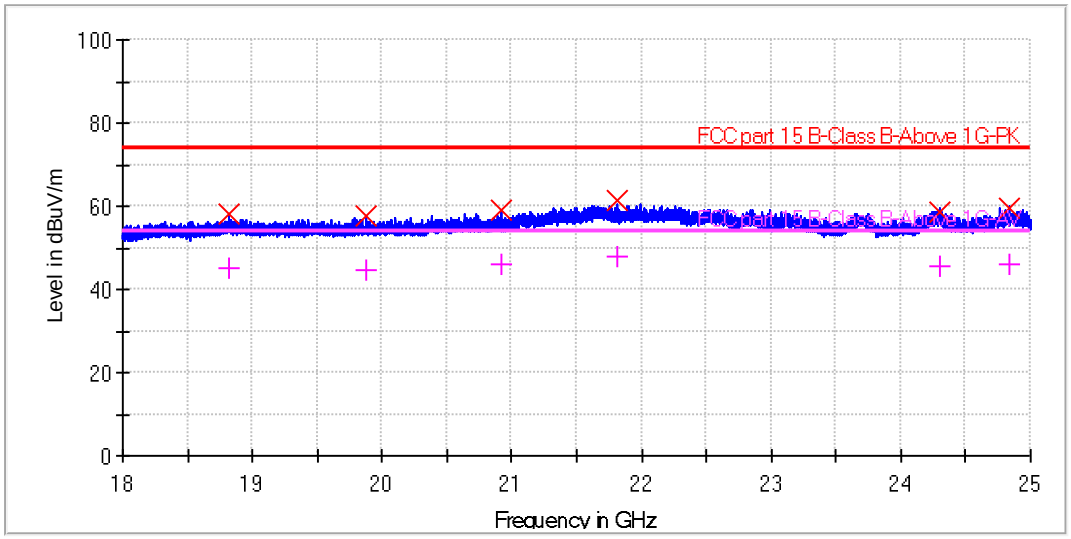
Common Information

EUT:	Wi-Fi and Bluetooth Module
Model:	T1-M
Client:	Hanzghou Tuya Information Technology Co., Ltd
Operating conditions:	Power on and TX_2412MHz at b mode
Operator name:	Zhihua Xia
Input:	3.3V DC
Sample No:	WUX-889391-2
Test standard:	FCC Part 15.209(a)
Comment:	Vertical
Comment:	T21.2℃, H51.7%, P100.1kPa

Sweep Setup: FCC_RE_18-25G_Sweep_3m [EMI radiated]

Hardware Setup:	18-40GHz_3m
Receiver:	[FSV 40]
Level Unit:	dBuV/m

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
18 GHz - 25 GHz	500 kHz	PK+	1 MHz	1 s	0 dB



Limit and Margin

Frequency (MHz)	MaxPeak (dBuV/m)	RMS (dBuV/m)	Meas. Time (ms)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Margin - AVG (dB)
18823.000000	58.3	44.9	1000.0	103.6	233.0	14.2	15.7	74.0	9.1
19870.000000	57.9	44.6	1000.0	132.7	197.0	14.9	16.2	74.0	9.4
20916.500000	58.9	46.1	1000.0	276.6	136.0	15.8	15.1	74.0	7.9
21814.500000	61.5	48.1	1000.0	363.8	161.0	17.9	12.5	74.0	5.9
24306.000000	58.8	45.6	1000.0	330.5	81.0	16.1	15.2	74.0	8.4
24835.000000	59.5	46.2	1000.0	257.0	203.0	16.1	14.5	74.0	7.8

10 Test Equipment List

List of Test Instruments
Test Site1

	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DATE	CAL. DUE DATE
C	Signal Analyzer	Rohde & Schwarz	FSV40	487/641405	2024-04-08	2025-04-07
	Power Probe	Rohde & Schwarz	NRP-Z81	487/431819	2024-11-23	2025-11-22
	RF Test System	Rohde & Schwarz	TS8997	487/391835	2024-11-23	2025-11-22
	Coaxial Cable	Rohde & Schwarz	RF03	/	2024-07-27	2025-07-26
RE	EMI Test Receiver	Rohde & Schwarz	ESR7	487/632315	2024-04-08	2025-04-07
	EMI Test Receiver	Rohde & Schwarz	ESR7	487/632316	2024-04-08	2025-04-07
	Spectrum analyzer	Rohde & Schwarz	FSV3044	487/642307	2024-04-08	2025-04-07
	Broadband Test Antenna	Schwarzbeck	VULB 9168	487/622345	2024-03-15	2025-03-14
	Horn Antenna	Rohde & Schwarz	3115PB	487/622346	2025-01-08	2026-01-08
	Pre-amplifier	Rohde & Schwarz	SCU-18D	487/402318	2024-04-08	2025-04-07
	Pre-amplifier	Rohde & Schwarz	BLMA0118-1M	487/401411	2024-04-08	2025-04-07
	Loop antenna	Rohde & Schwarz	HFH2-Z2	487/621128	2024-11-23	2025-11-22
	DOUBLE-RIDGED WAVEGUIDE HORN WITH PRE-AMPLIFIER (18 GHZ - 40 GHZ)	ETS-Lindgren	3116C-PA	487/622347	2024-08-19	2025-08-18
	3m Semi-anechoic chamber	TDK	9.2mx6.2mx6.2m	487/772307	2023-02-24	2026-02-23
	3m Fully anechoic chamber	TDK	9.2mx6.2mx6.2m	487/772304	2023-03-30	2026-03-29
	Coaxial Cable	Rohde & Schwarz	RF02	/	2024-07-27	2025-07-26
CE	EMI Test Receiver	Rohde & Schwarz	ESW8	487/631911	2024-04-08	2025-04-07
	LISN	Rohde & Schwarz	NSLK8127	487/601428	2024-09-02	2025-09-01

Measurement Software Information			
Test Item	Software	Manufacturer	Version
C	MTS 8310	MAXWELL	2.0.0.0
RE	EMC 32	Rohde & Schwarz	V10.50.40
CE	EMC 32	Rohde & Schwarz	V9.15.03

C - Conducted RF tests

- Conducted peak output power
- 6dB bandwidth and 99% Occupied Bandwidth
- Power spectral density*
- Spurious RF conducted emissions
- Band edge

11 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, 3.07dB
Radiated Disturbance	9kHz to 30MHz, 2.83dB 30MHz to 1GHz, 4.12dB (Horizontal) 4.30dB (Vertical) 1GHz to 18GHz, 5.04dB 18GHz to 40GHz, 5.42dB
RF Conducted Measurement	Power related： 1.32dB Frequency related：5.6x10-6 or 1%

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.

Phone: +86 510 8820 3737
Fax: +86 510 8820 3636

TÜV SÜD Certification and Testing (China) Co., Ltd.
Floor 1-4, Building B, No.37, Tuanjie Road(Middle), Xishan Economic and Technological Development Zone, Wuxi, Jiangsu. China

12 Photographs of Test Set-ups

Refer to the < Test Setup photos >.

13 Photographs of EUT

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

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

Phone: +86 510 8820 3737
Fax: +86 510 8820 3636

TÜV SÜD Certification and Testing (China) Co., Ltd.
Floor 1-4, Building B, No.37, Tuanjie Road(Middle), Xishan Economic and Technological Development Zone, Wuxi, Jiangsu. China