RF TEST REPORT

Applicant	Starry, Inc.
FCC ID	2AGZ3S00111
Product	Starry Station
Model	S00111
Report No.	RXA1602-0024RF01
Issue Date	March 25, 2016

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC CFR47 Part 15C (2015)**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Reviewed by: lingling Kang

Approved by: Kai Xu

TA Technology (Shanghai) Co., Ltd.

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Summary of Measurement Results

Number	Summary of measurements of results	Clause in FCC rules	Verdict
1	Peak Power Output -Conducted	15.247(b)(1)	PASS
2	Occupied Bandwidth (20dB)	15.247(a)(1)	PASS
3	Frequency Separation	15.247(a)(1)	PASS
4	Time of Occupancy (Dwell Time)	15.247(a)(1)(iii)	PASS
5	Band Edge Compliance	15.247(d)	PASS
6	Spurious Radiated Emissions in the restricted band	15.247(d),15.205,15.209	PASS
7	Number of Hopping Frequency	15.247(a)(1)(iii)	PASS
8	Spurious RF Conducted Emissions	15.247(d)	PASS
9	Radiates Emission	15.247(d),15.205,15.209	PASS
10	AC Power Line Conducted Emission	15.207	PASS
Date of Testing: March 1, 2016 ~ March 7, 2016			

1 Test Laboratory

1.1 Notes of the Test Report

This report shall not be reproduced in full or partial, without the written approval of TA technology (shanghai) co., Ltd.The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein .Measurement Uncertainties were not taken into account and are published for informational purposes only. This report is written to support regulatory compliance of the applicable standards stated above. This report must not be used by the client to claim product certification, approval, or endorsement by CNAS or any government agencies.

1.2 Test facility

CNAS (accreditation number: L2264)

TA Technology (Shanghai) Co., Ltd. has obtained the accreditation of China National Accreditation Service for Conformity Assessment (CNAS).

FCC (recognition number is 428261)

TA Technology (Shanghai) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

IC (recognition number is 8510A)

TA Technology (Shanghai) Co., Ltd. has been listed by industry Canada to perform electromagnetic emission measurement.

A2LA(Certificate Number: 3857.01)

TA Technology (Shanghai) Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform electromagnetic emission measurement.

1.3 Testing Location

Company:	TA Technology (Shanghai) Co., Ltd.
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2 General Description of Equipment under Test

Client Information

Applicant	Starry, Inc.
Applicant address	745 Atlantic Ave Fl 8, Boston, MA, United States
Manufacturer	Flextronics Manufacturing(Zhuhai) Co. Ltd
Manufacturer address	XinQing Science&Technology Industrial Park, Doumen County.Zhuhai

General information

Model:	S00111		
S/N:	0010000997		
HW Version:	1.9		
SW Version:	1.0		
Power Supply:	AC adapter		
Antenna Type:	Internal Antenna		
Test Mode(s):	Basic Rate	Enhanced Data Rate(EDR)	
Modulation Type:	Frequency Hopping Spread Spectrum (FHSS)		
	GFSK	π/4 DQPSK	8DQPSK
Packet Type: (Maximum Payload)	DH5	2DH5	3DH5
Max. Conducted Power	3.41dBm		
Tested Frequency Range(s):	2400 ~ 2483.5 MHz		
Note：1. The information of the EUT is declared by the manufacturer. Please refer to the specifications or user manual for details.			

2.1 Applied Standards

According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

Test standards

FCC CFR47 Part 15C (2015) Radio Frequency Devices

ANSI C63.10 (2013)
DA00-705 Filing and Frequency Measurement Guidelines For Frequency Hopping Spread Spectrum System.(2000)

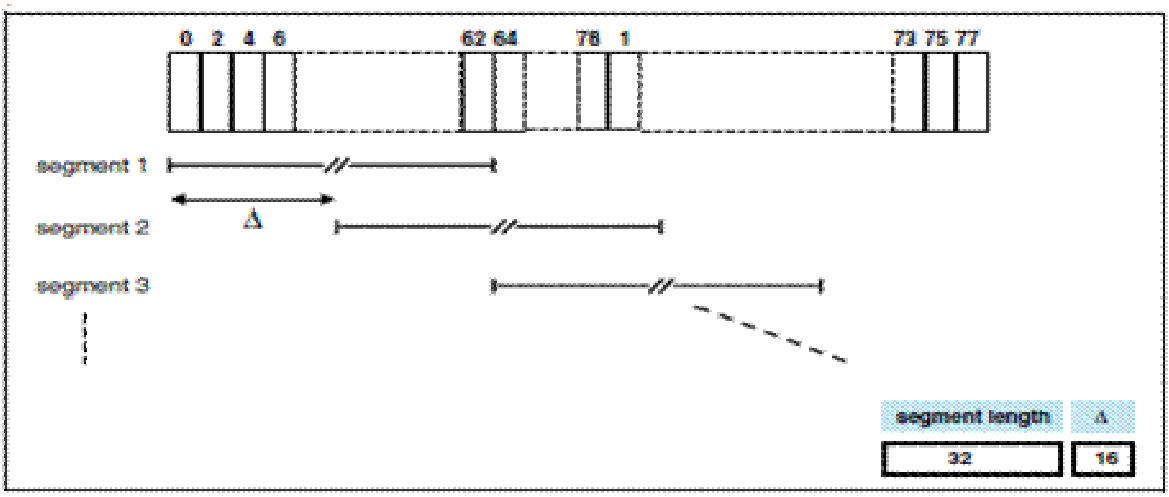
3 Information about the FHSS characteristics

3.1 Pseudorandom Frequency Hopping Sequence

Frequency Hopping Systems. A spread spectrum system in which the carrier is modulated with the coded information in a conventional manner causing a conventional spreading of the RF energy about the frequency carrier. The frequency of the carrier is not fixed but changes at fixed intervals under the direction of a coded sequence. The wide RF bandwidth needed by such a system is not required by spreading of the RF energy about the carrier but rather to accommodate the range of frequencies to which the carrier frequency can hop. The test of a frequency hopping system is that the near term distribution of hops appears random, the long term distribution appears evenly distributed over the hop set, and sequential hops are randomly distributed in both direction and magnitude of change in the hop set.

The selection scheme chooses a segment of 32 hop frequencies spanning about 64 MHz and visits these hops in a pseudo-random order. Next, a different 32-hop segment is chosen, etc. In the page, master page response, slave page response, page scan, inquiry, inquiry response and inquiry scan hopping sequences, the same 32-hop segment is used all the time (the segment is selected by the address; different devices will have different paging segments).

When the basic channel hopping sequence is selected, the output constitutes a pseudo-random sequence that slides through the 79 hops. The principle is depicted in the figure below.



Hop selection scheme in CONNECTION state.

Pseudorandom Frequency Hopping Sequence Table as below:

Channel: 08, 24, 40, 56, 40, 56, 72, 09, 01, 09, 33, 41, 33, 41, 65, 73, 53, 69, 06, 22, 04, 20, 36, 52, 38, 46, 70, 78, 68, 76, 21, 29, 10, 26, 42, 58, 44, 60, 76, 13, 03, 11, 35, 43, 37, 45, 69, 77, 55, 71, 08, 24, 08, 24, 40, 56, 40, 48, 72, 01, 72, 01, 25, 33, 12, 28, 44, 60, 42, 58, 74, 11, 05, 13, 37, 45, etc.

Each frequency used equally on the average by each transmitter.

The system receiver have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shift frequencies in synchronization with the transmitted signals.

3.2 Equal Hopping Frequency Use

All Bluetooth units participating in the Pico net are time and hop-synchronized to the channel. Each new transmission event begins on the next channel in the hopping sequence after the final channel used in the previous transmission event.

3.3 System Receiver Input Bandwidth

Each channel bandwidth is 1MHz. The system receivers have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shift frequencies in synchronization with the transmitted signals.

4 Test Information

4.1 Test Mode

The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

The radiated emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in stand-up position (Z axis) and the worst case was recorded.

Test Modes		
Band	Radiated Test Cases	Conducted Test Cases
BT	3DH5 8DQPSK (Channel 0/39/78)	DH5 GFSK(Channel 0/39/78) 2DH5 π/4-DQPSK(Channel 0/39/78) 3DH5 8DQPSK(Channel 0/39/78)

Note: The maximum RF output power levels are 3DH5 for 8DQPSK modulation, For RSE and CSE, only the maximum RF output power is chosen.

4.2 Peak Power Output –Conducted

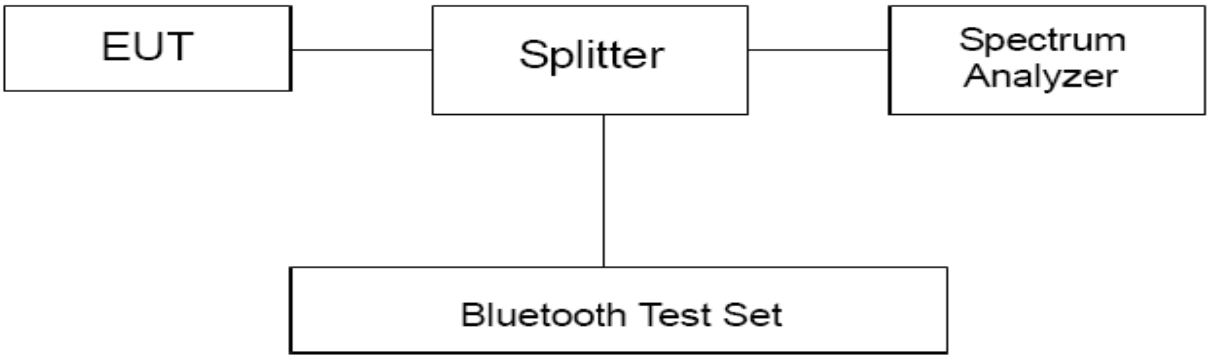
Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Methods of Measurement

During the process of the testing, The EUT was connected to the spectrum analyzer and Bluetooth test set via a power splitter with a known loss. The EUT is controlled by the Bluetooth test set to ensure max power transmission with proper modulation. The peak detector is used. RBW is set to 2 MHz; VBW is set to 6 MHz. These measurements have been tested at following channels: 0, 39, and 78.

Test Setup



Limits

Rule Part 15.247 (b) (1)specifies that " For frequency hopping systems operating in the 2400–2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725–5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400–2483.5 MHz band: 0.125 watts."

Peak Output Power	≤ 0.125W (21dBm)

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 2, U=0.44 dB.

Test Results

Channel	Frequency (MHz)	Peak Output Power (dBm)			Conclusion
		DH5	2DH5	3DH5	
0	2402	0.93	2.90	3.41	PASS
39	2441	0.78	2.91	3.38	PASS
78	2480	-0.15	2.12	2.81	PASS

Note: The measured power density (dBm) has the offset with cable loss already.

4.3 Occupied Bandwidth (20dB)

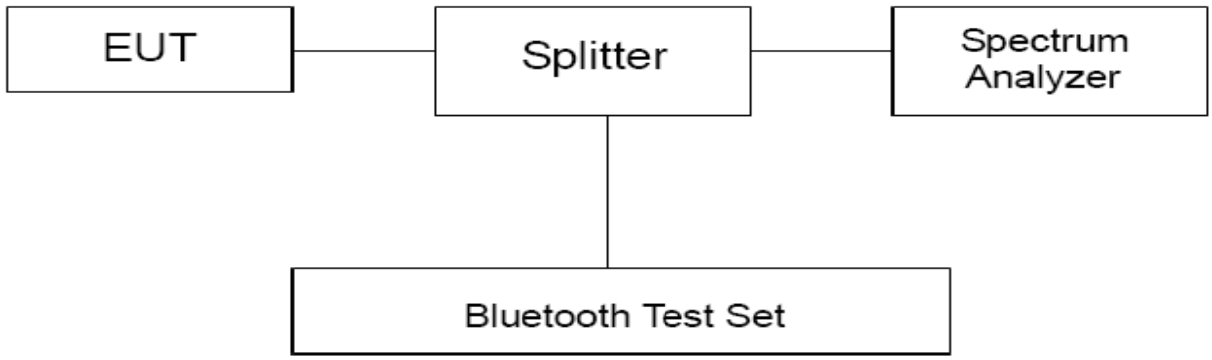
Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

The EUT was connected to the spectrum analyzer and Bluetooth test set via a power splitter with a known loss. The occupied bandwidth is measured using spectrum analyzer. RBW is set to 30kHz and VBW is set to100kHz on spectrum analyzer. -20dB occupied bandwidths are recorded.

Test Setup



Limits

No specific occupied bandwidth requirements in part 15.247(a) (1).

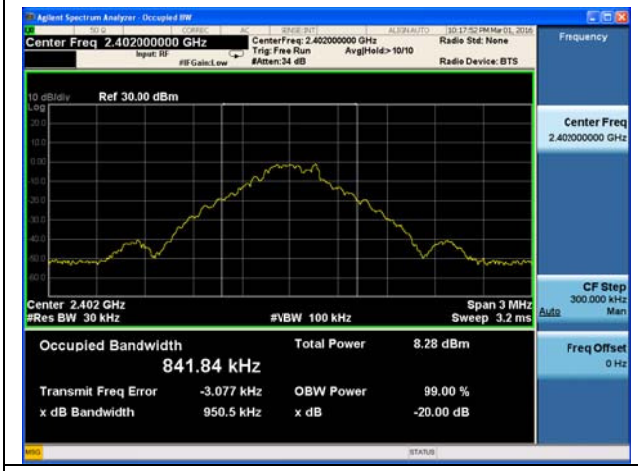
Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 2, U=936 Hz.

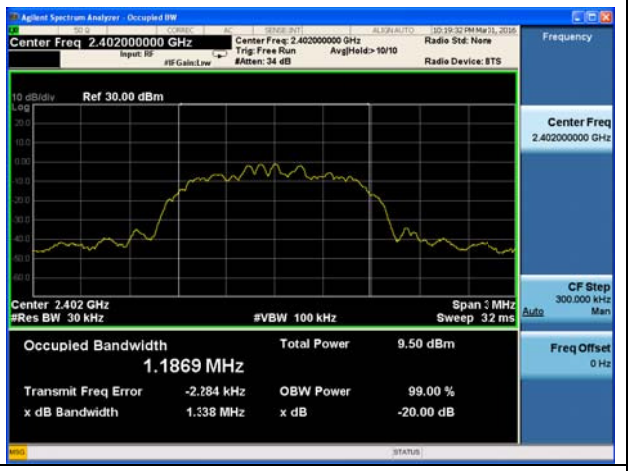
Test Results

Mode	Channel	Frequency (MHz)	20dB Bandwidth(kHz)
DH5	0	2402	950.50
DH5	39	2441	947.10
DH5	78	2480	958.20
2DH5	0	2402	1338.00
2DH5	39	2441	1338.00
2DH5	78	2480	1334.00
3DH5	0	2402	1321.00
3DH5	39	2441	1319.00
3DH5	78	2480	1310.00

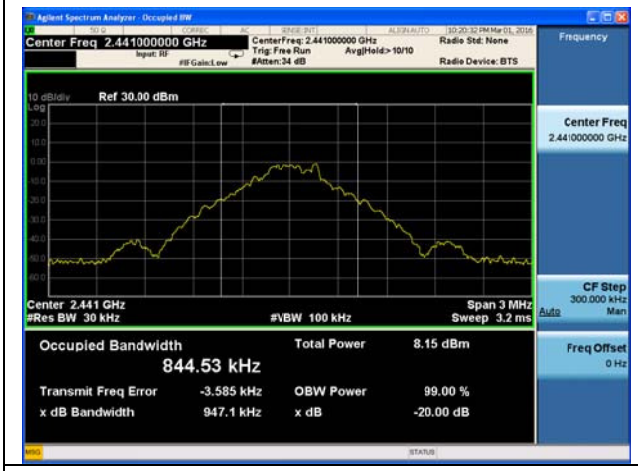
DH5 Channel No.:0



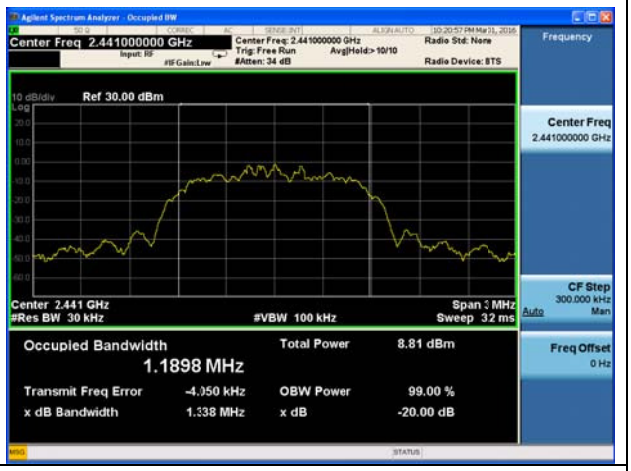
2DH5 Channel No.:0



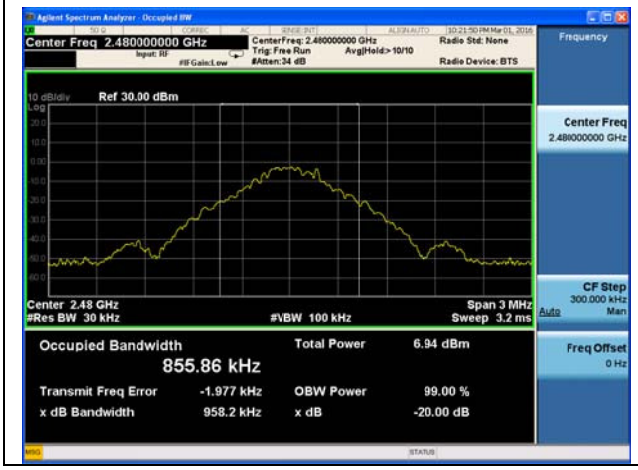
DH5 Channel No.:39



2DH5 Channel No.:39

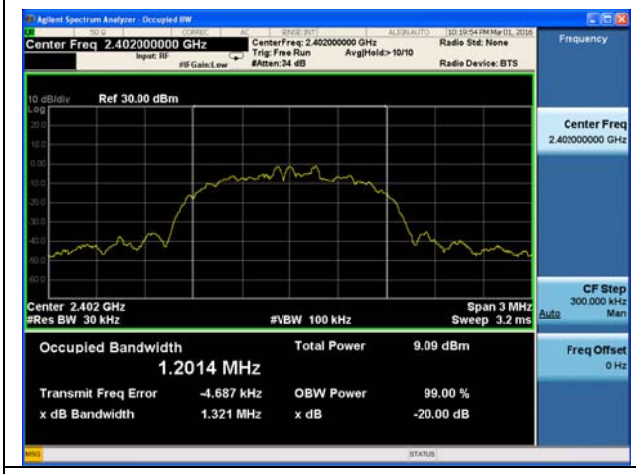


DH5 Channel No.:78



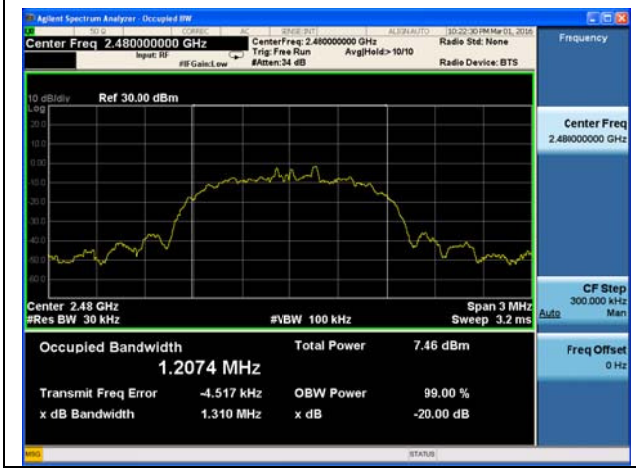
2DH5 Channel No.:78

3DH5 Channel No.:0



3DH5 Channel No.:39

3DH5 Channel No.:78



4.4 Frequency Separation

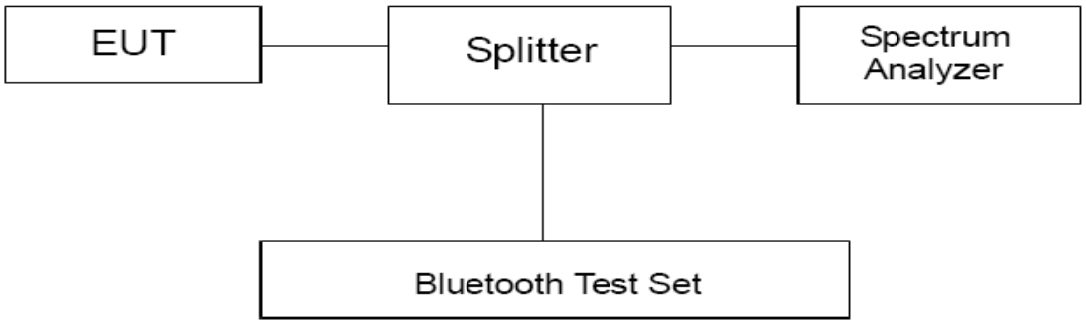
Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

The EUT was connected to the spectrum analyzer and Bluetooth test set via a power splitter with a known loss. RBW is set to 30 kHz and VBW is set to 3MHz on spectrum analyzer. Set EUT on Hopping on mode.

Test setup



Limits

Rule Part 15.247(a)(1)specifies that “Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400–2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW. ”

Note: The value of two-thirds of 20 dB bandwidth is always greater than 25 kHz.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 2, U=936 Hz.

Test Results:

Packet type	Carrier frequency (MHz)	Carrier frequency separation(kHz)	20dB Bandwidth(kHz)	Limit (kHz)	Conclusion
DH5	2441	1095	947.10	631.40	PASS
2DH5	2441	1005	1338.00	892.00	PASS
3DH5	2441	1089	1319.00	879.33	PASS
Note: The limit is two-thirds of 20 dB bandwidth.					

DH5 Carrier frequency (MHz): 2441

2DH5 Carrier frequency (MHz): 2441

3DH5 Carrier frequency (MHz): 2441

4.5 Time of Occupancy (Dwell Time)

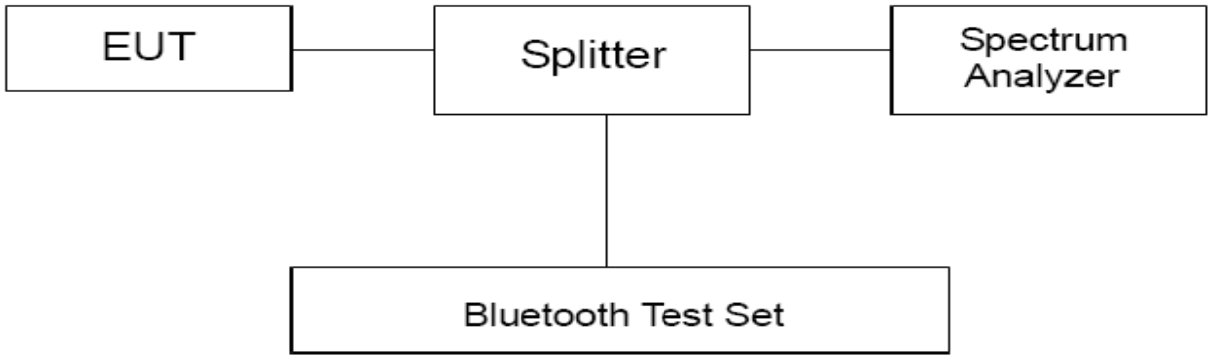
Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Methods of Measurement

The EUT was connected to the spectrum analyzer and Bluetooth test set via a power splitter with a known loss. RBW is set to 1MHz and VBW is set to 3MHz on spectrum analyzer .The time slot length is measured of three different packet types, which are available in the Bluetooth technology. Those are DH1, DH3 and DH5 packets. The dwell time is calculated by:
Dwell time = time slot length * hop rate * 0.4s with:
- hop rate=1600 * 1/s for DH1 packet =1600
- hop rate=1600/3 * 1/s for DH3 packet =533.33
- hop rate=1600/5 * 1/s for DH5 packet =320

Test Setup



Limits

Rule Part 22.913(a) specifies that " Frequency hopping systems in the 2400–2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel 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	≤ 400ms

Measurement Uncertainty

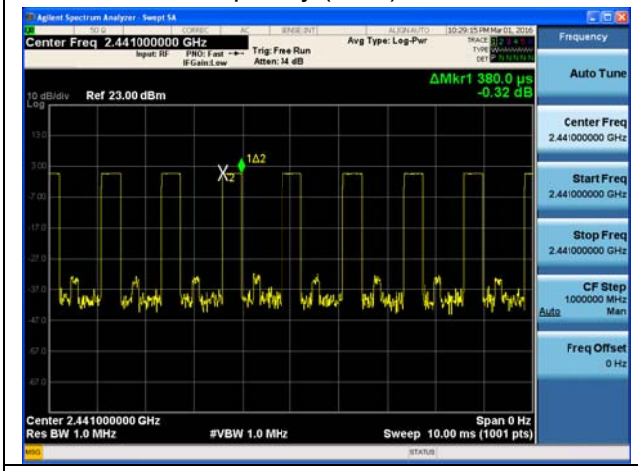
The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor *k* = 2.

Requirements	Uncertainty	
Dwell Time	DH1	*U*=0.64ms
	DH3	*U*=0.80ms
	DH5	*U*=0.70ms
	2DH1	*U*=0.64ms
	2DH3	*U*=0.80ms
	2DH5	*U*=0.70ms
	3DH1	*U*=0.64ms
	3DH3	*U*=0.80ms
	3DH5	*U*=0.70ms

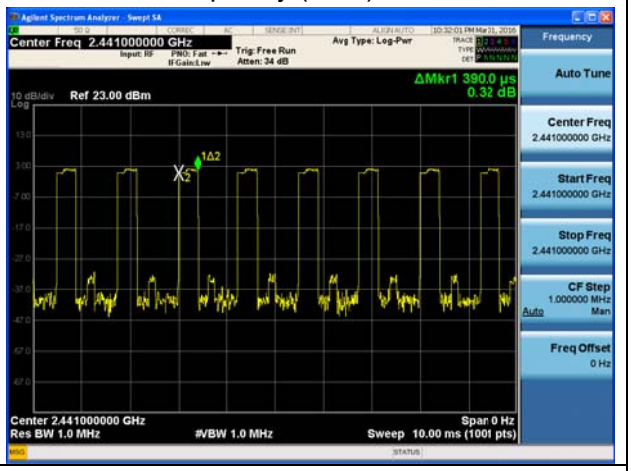
Test Results:

Channel 39					
Packet type	**hop rate (1/s)**	**Time slot length(ms)**	**Dwell time (ms)**	**Limit (ms)**	**Conclusion**
DH1	1600	0.380	243.20	400	PASS
DH3	533.33	1.640	349.86	400	PASS
DH5	320	2.890	369.92	400	PASS
2DH1	1600	0.390	249.60	400	PASS
2DH3	533.33	1.640	349.86	400	PASS
2DH5	320	2.890	369.92	400	PASS
3DH1	1600	0.390	249.60	400	PASS
3DH3	533.33	1.640	349.86	400	PASS
3DH5	320	2.880	368.64	400	PASS
Note: Dwell time = time slot length * hop rate * 0.4s					

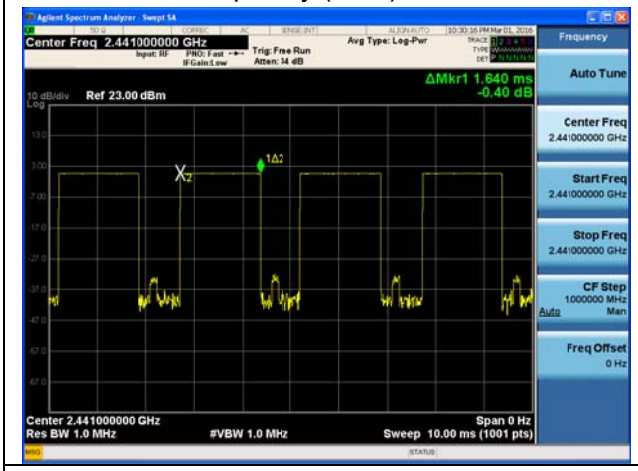
Carrier frequency (MHz): 2441, DH1



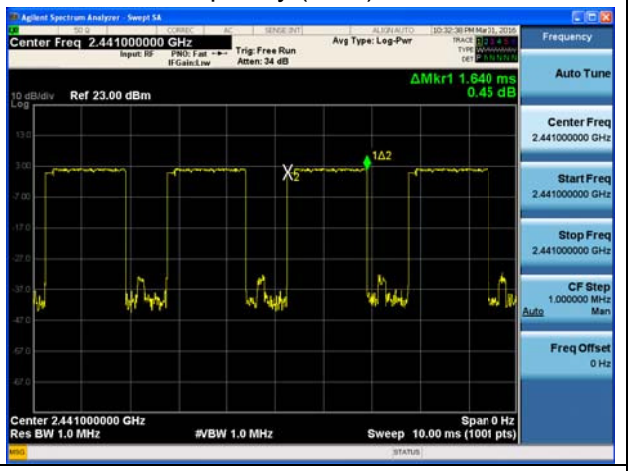
Carrier frequency (MHz): 2441, 2DH1



Carrier frequency (MHz): 2441, DH3

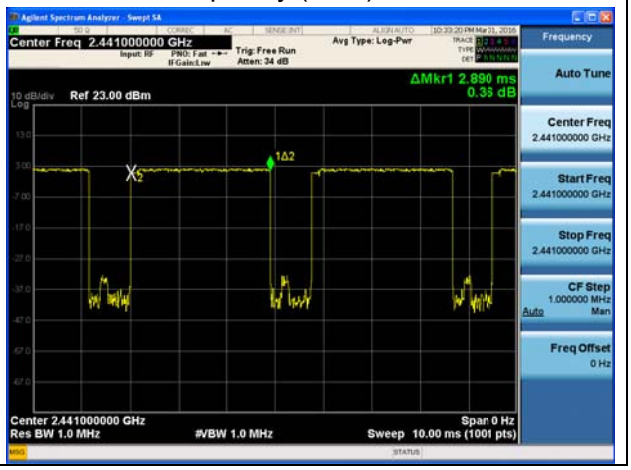


Carrier frequency (MHz): 2441, 2DH3

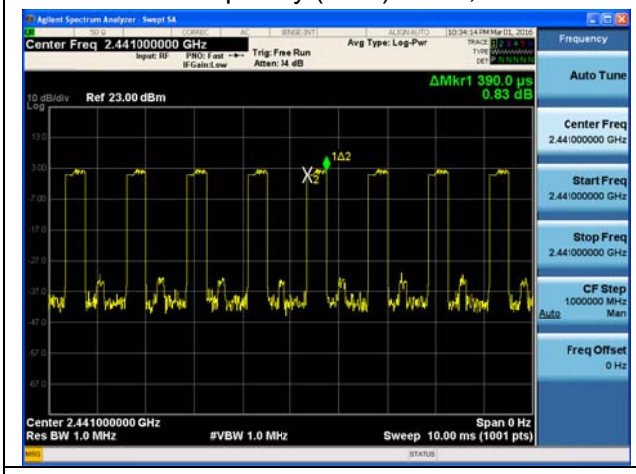


Carrier frequency (MHz): 2441, DH5

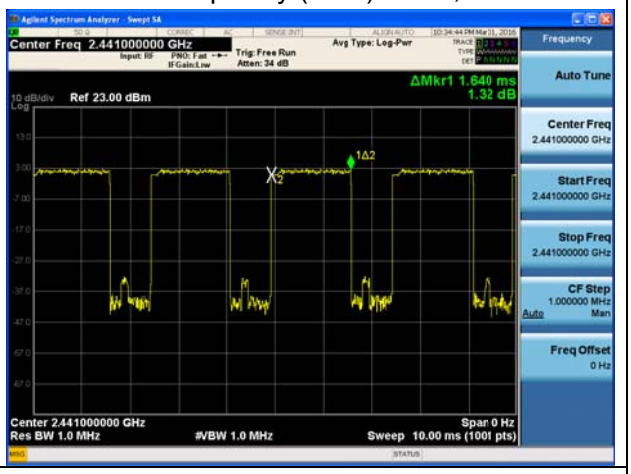
Carrier frequency (MHz): 2441, 2DH5



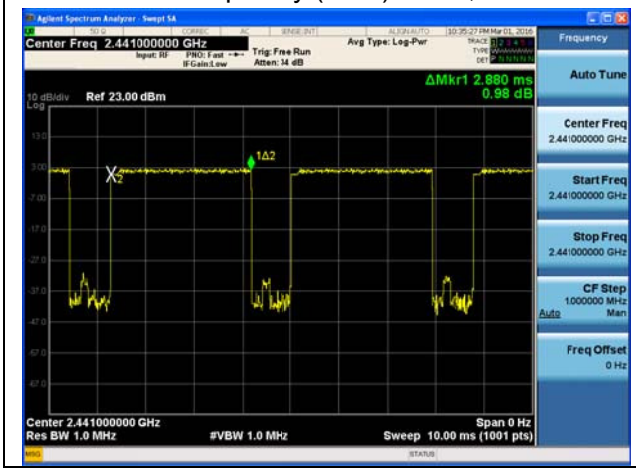
Carrier frequency (MHz): 2441, 3DH1



Carrier frequency (MHz): 2441, 3DH3



Carrier frequency (MHz): 2441, 3DH5



4.6 Band Edge Compliance

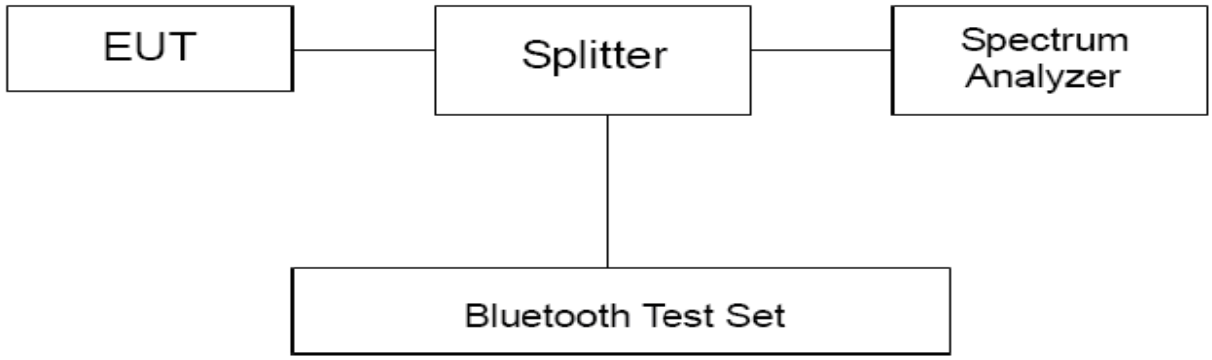
Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

The EUT was connected to the spectrum analyzer and Bluetooth test set via a power splitter with a known loss. The lowest and highest channels were measured. The peak detector is used. RBW is set to 100 kHz and VBW is set to 300 kHz on spectrum analyzer. EUT test for Hopping On mode and Hopping Off mode.

Test Setup



Limits

Rule Part 15.247(d) specifies that “In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is 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.”

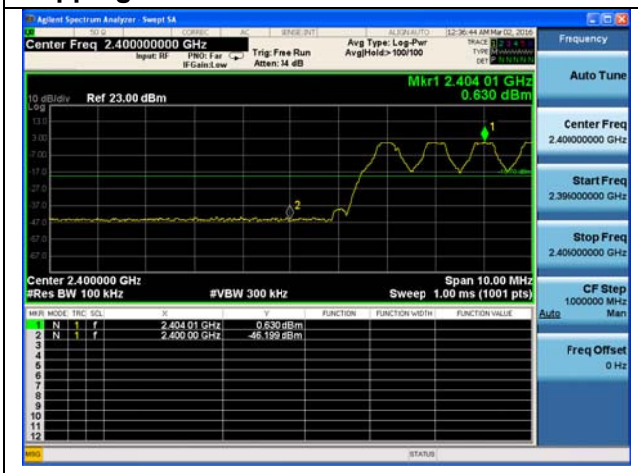
Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 1.96.

Frequency	Uncertainty
2GHz-3GHz	1.407 dB

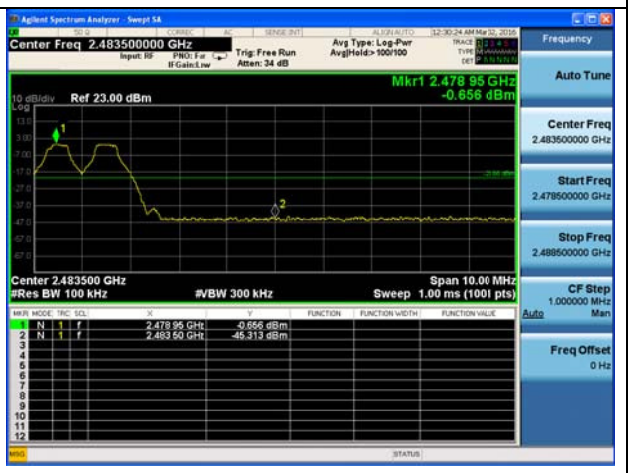
Test Results

Hopping On-DH5



Carrier frequency (MHz): 2402

Channel No.:0



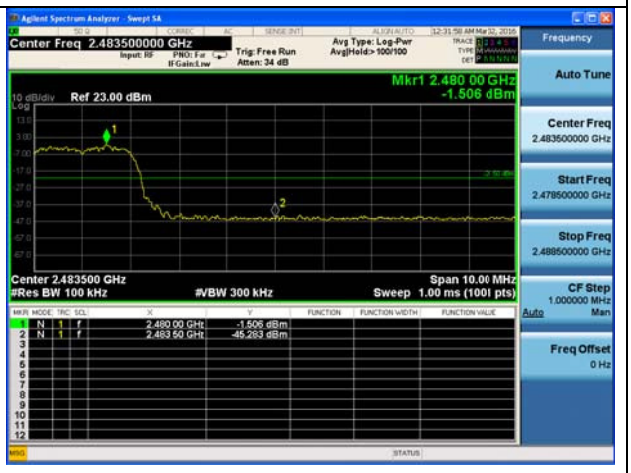
Carrier frequency (MHz): 2480

Channel No.:78

Hopping On-2DH5

Carrier frequency (MHz): 2402

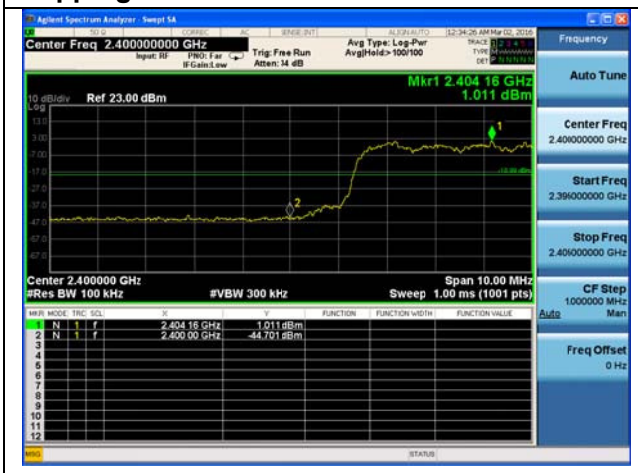
Channel No.:0



Carrier frequency (MHz): 2480

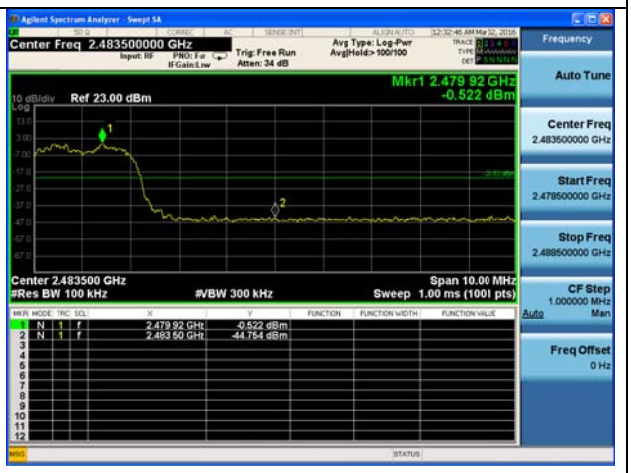
Channel No.:78

Hopping On-3DH5



Carrier frequency (MHz): 2402

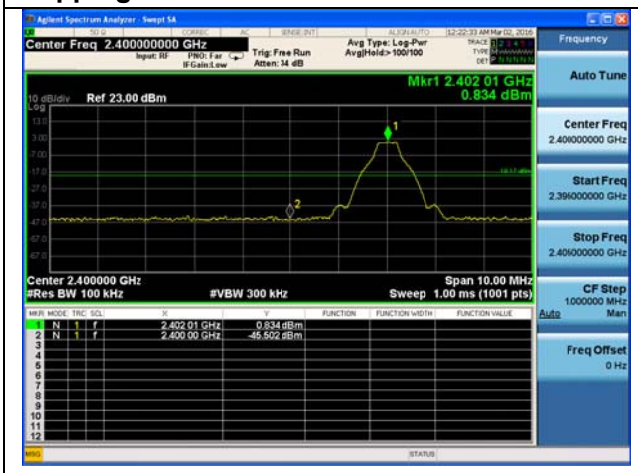
Channel No.:0



Carrier frequency (MHz): 2480

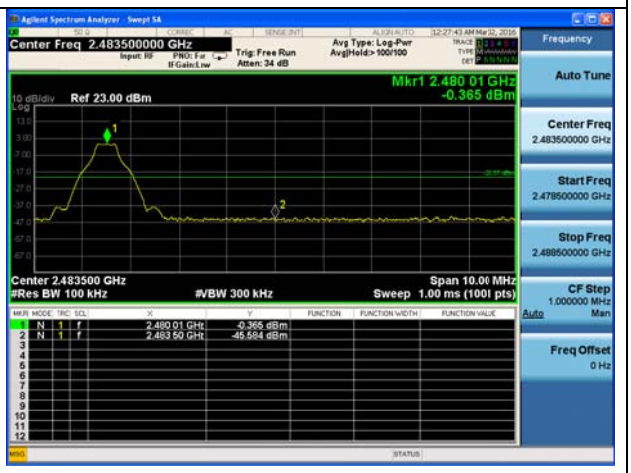
Channel No.:78

Hopping Off-DH5



Carrier frequency (MHz): 2402

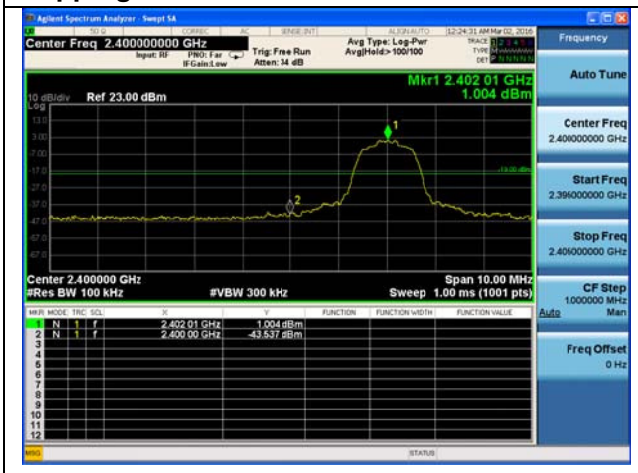
Channel No.:0



Carrier frequency (MHz): 2480

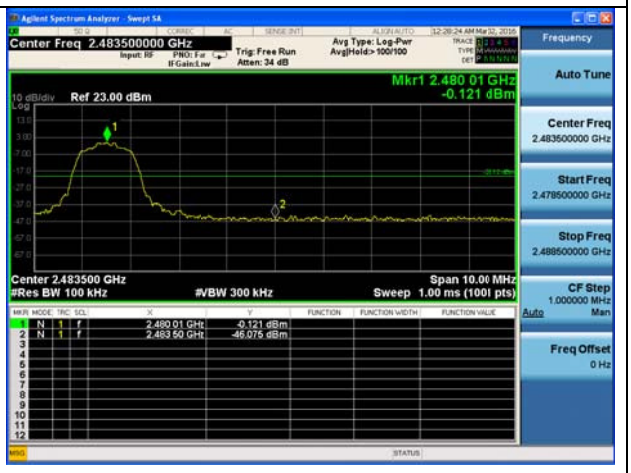
Channel No.:78

Hopping Off-2DH5



Carrier frequency (MHz): 2402

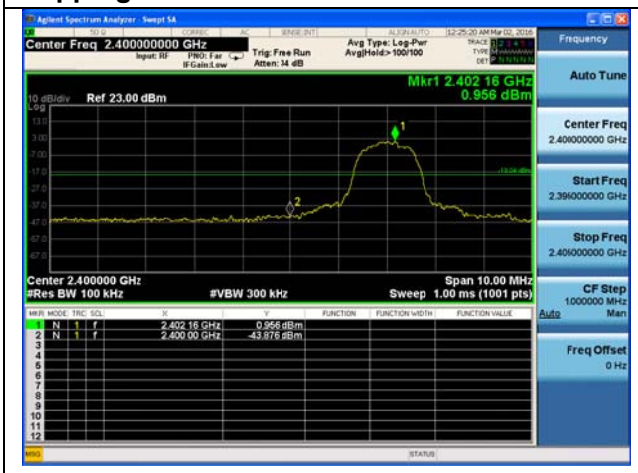
Channel No.:0



Carrier frequency (MHz): 2480

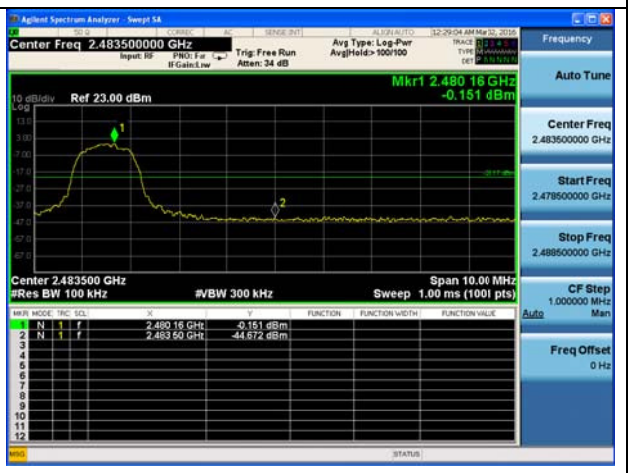
Channel No.:78

Hopping Off-3DH5



Carrier frequency (MHz): 2402

Channel No.:0



Carrier frequency (MHz): 2480

Channel No.:78

4.7 Spurious Radiated Emissions in the Restricted Band

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

The Equipment Under Test (EUT) was set up on a non-conductive table in the semi-anechoic chamber. The test was performed at the distance of 3 m between the EUT and the receiving antenna. The turntable shall be rotated from 0 to 360 degrees for detecting the maximum of radiated spurious signal level. The measurements shall be repeated with orthogonal polarization of the test antenna. The data of cable loss and antenna factor has been calibrated in full testing frequency range before the testing.

Set the spectrum analyzer in the following:

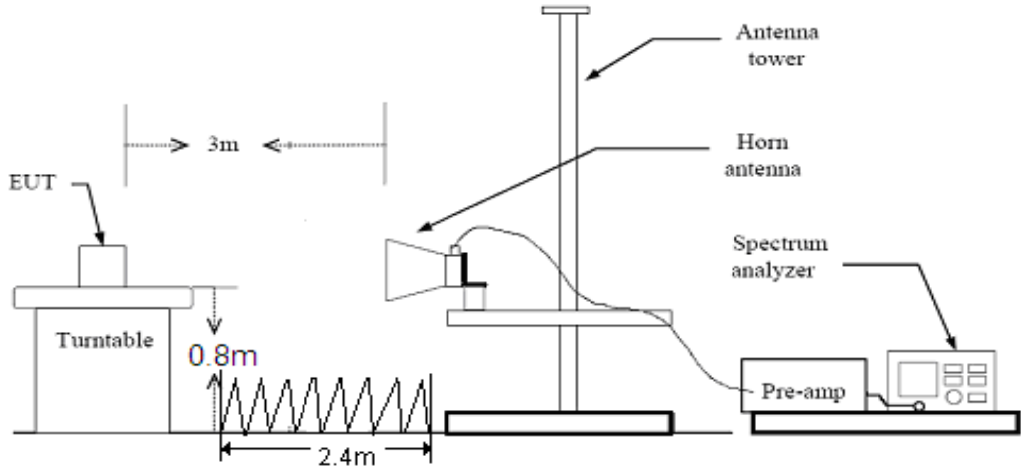
(a) PEAK: RBW=VBW=1MHz / Sweep=AUTO

(b) The dwell time per channel of the hopping signal is less than 100 ms, then the reading obtained with the 10 Hz VBW may be further adjusted by a “duty cycle correction factor”, derived from 20log(dwell time/100 ms), in an effort to demonstrate compliance with the 15.209 limit.
If the emission is pulsed, modify the unit for continuous operation; use the settings shown above, then correct the reading by subtracting the peak- average correction factor, derived form the appropriate duty cycle calculation.

This setting method can refer to **DA00-705.**

The test is in transmitting mode. The field strength of spurious emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis) and docking mode. The worst emission was found in stand-up position (Y axis) and the worst case was recorded.

Test setup



Note: Area side: 2.4mX3.6m

Limits

Spurious Radiated Emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	[2]
13.36 - 13.41			

Limit in restricted band

Frequency of emission (MHz)	Field strength(uV/m)	Field strength(dBuV/m)
0.009–0.490	2400/F(kHz)	/
0.490–1.705	24000/F(kHz)	/
1.705–30.0	30	/
30-88	100	40
88-216	150	43.5
216-960	200	46
Above960	500	54

§15.35(b)

There is also a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit.

Peak Limit=74dBuV/m

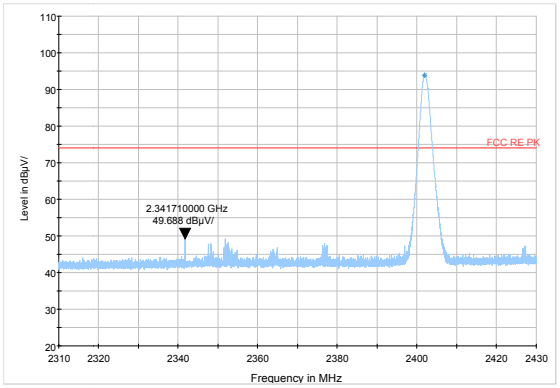
Average Limit=54dBuV/m

Measurement Uncertainty

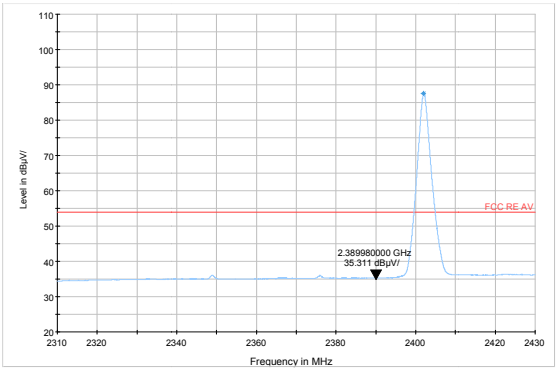
The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 1.96, U= 3.55 dB.

Test Results:

DH5- Channel 0

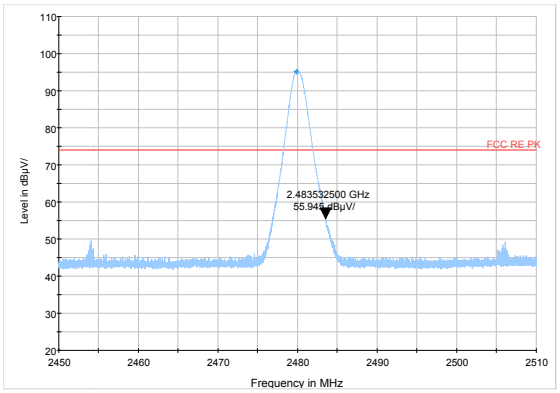


Lower band edge Peak-CH 0

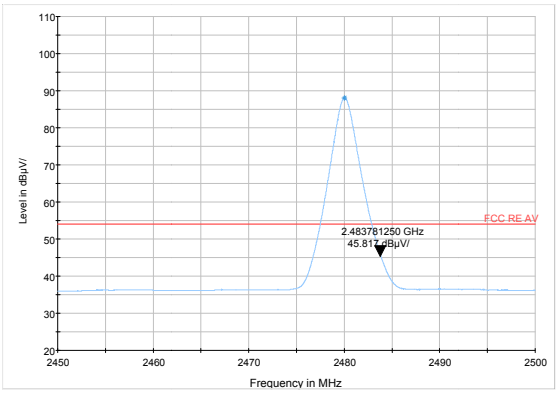


Lower band edge average-CH 0

DH5- Channel 78

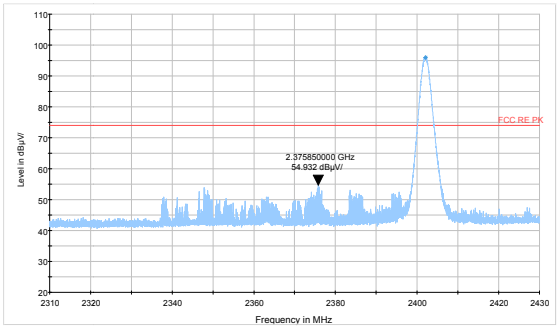


Higher band edge Peak-CH 78

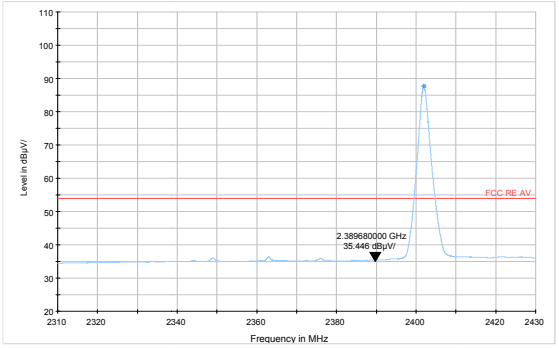


Higher band edge average-CH 78

3DH5- Channel 0

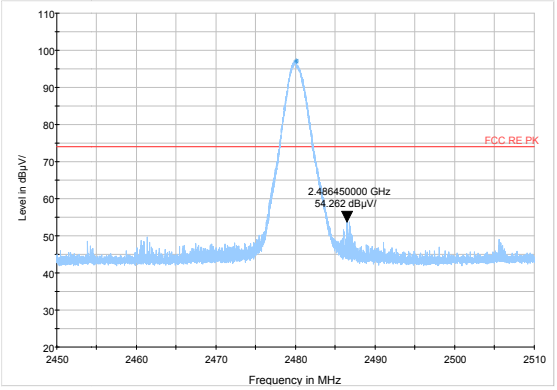


Lower band edge Peak-CH 0

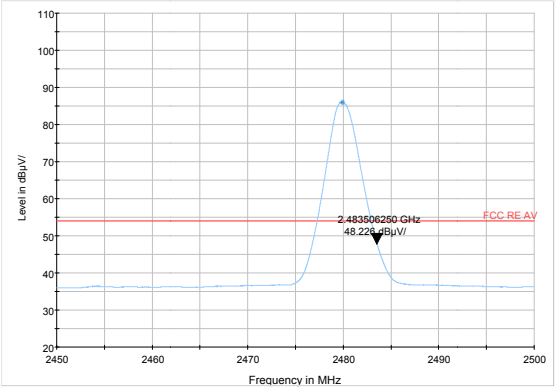


Lower band edge average-CH 0

3DH5- Channel 78



Higher band edge Peak-CH 78



Higher band edge average-CH 78

4.8 Number of hopping Frequency

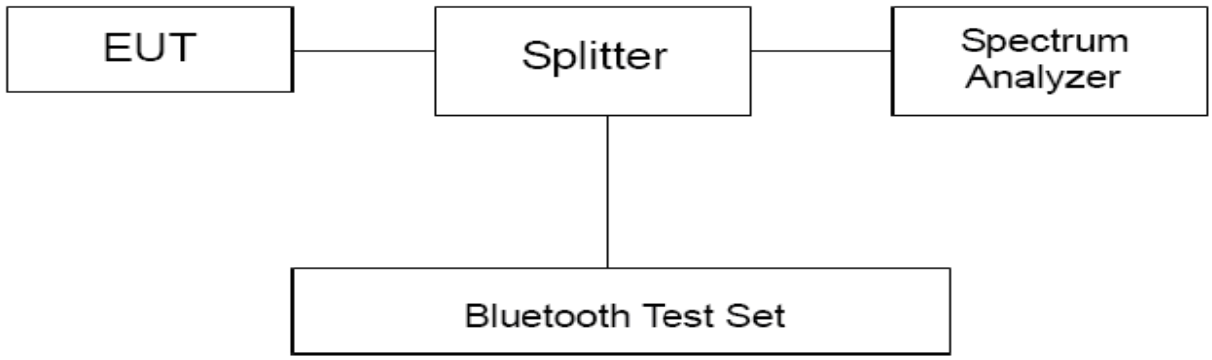
Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

The EUT was connected to the spectrum analyzer and Bluetooth test set via a power splitter with a known loss. RBW is set to 910 kHz and VBW is set to 1 MHz on spectrum analyzer. Set EUT on Hopping on mode.

Test setup



Limits

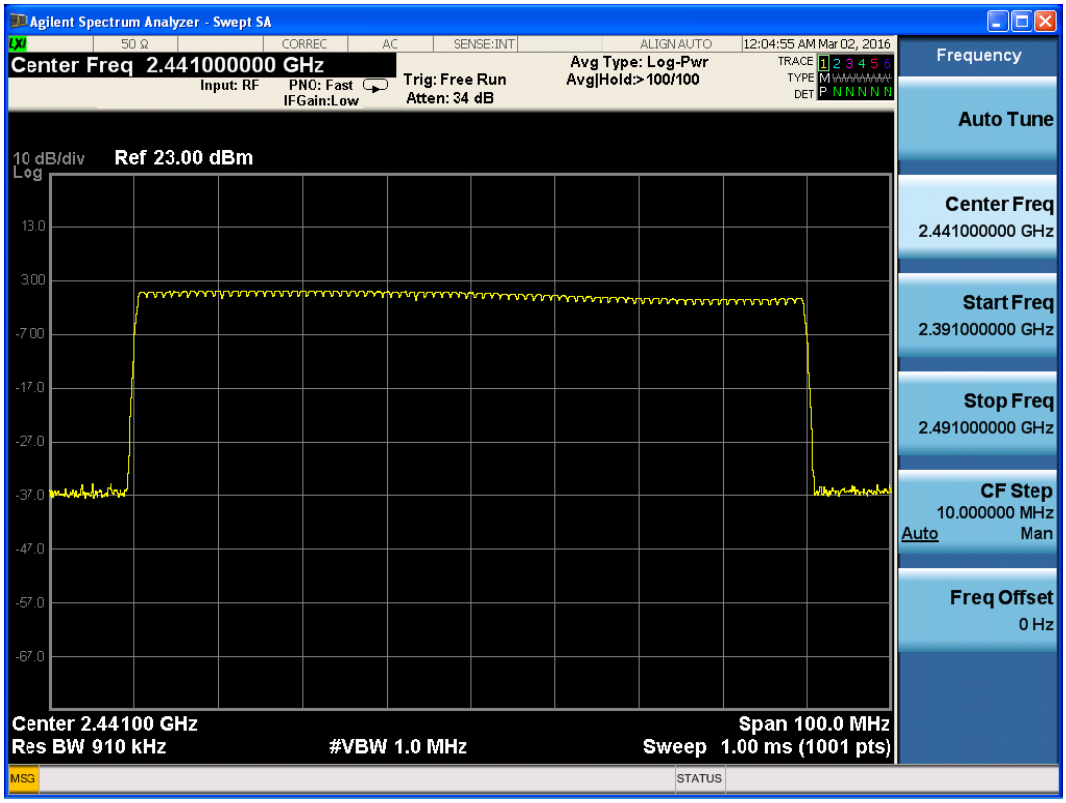
Rule Part 15.247(a) (1) (iii) specifies that" Frequency hopping systems in the 2400–2483.5 MHz band shall use at least 15 channels."

Limits	≥ 15 channels

Test Results:

DH5

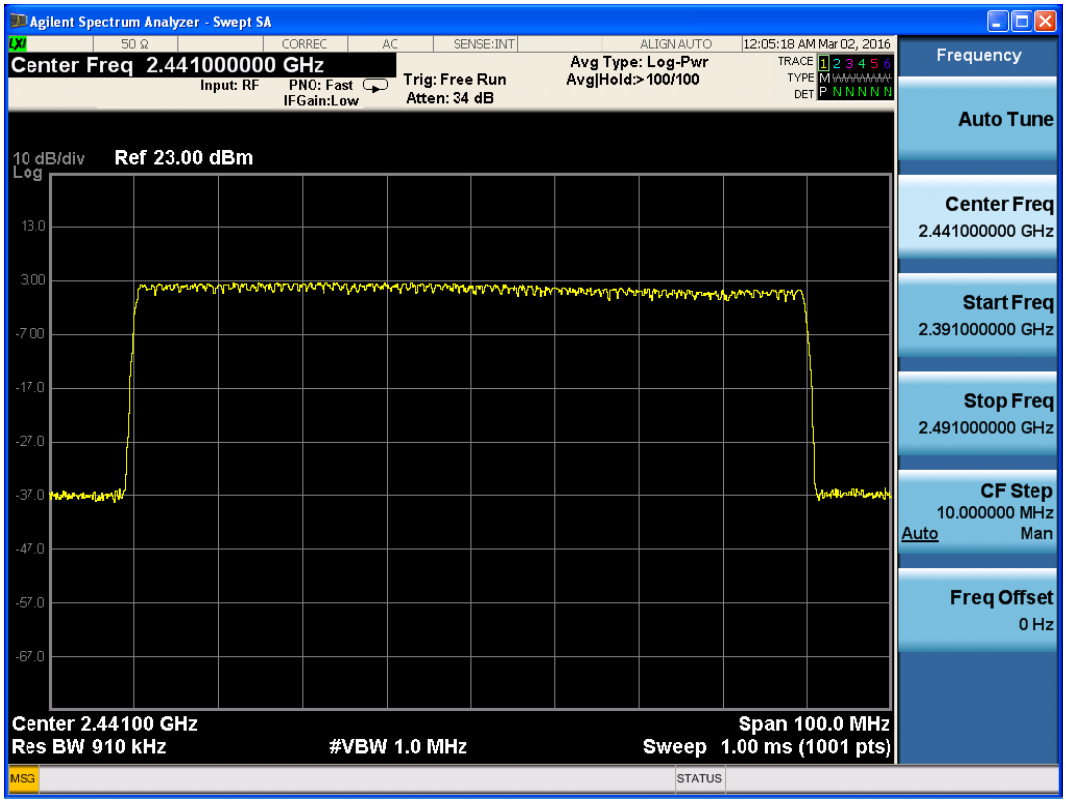
Number of hopping channels	conclusion
79	PASS



2400 MHz – 2483.5 MHz

2DH5

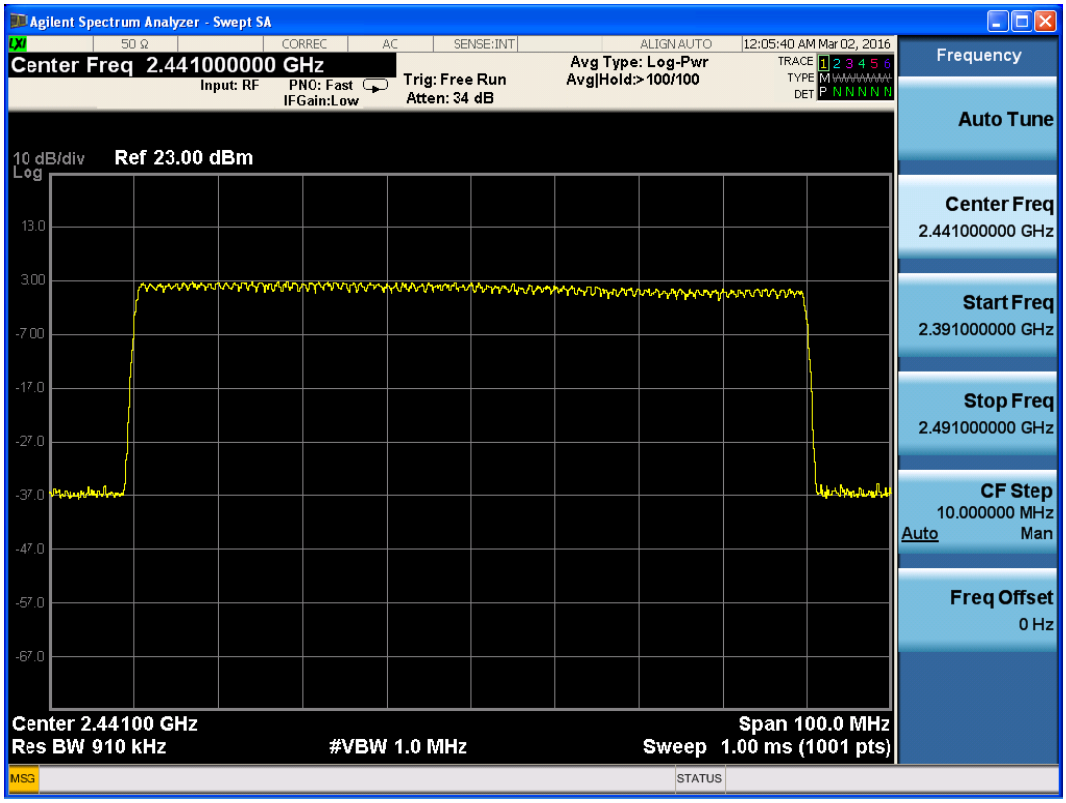
Number of hopping channels	conclusion
79	PASS



2400 MHz – 2483.5 MHz

3DH5

Number of hopping channels	conclusion
79	PASS



2400 MHz – 2483.5 MHz

4.9 Spurious RF Conducted Emissions

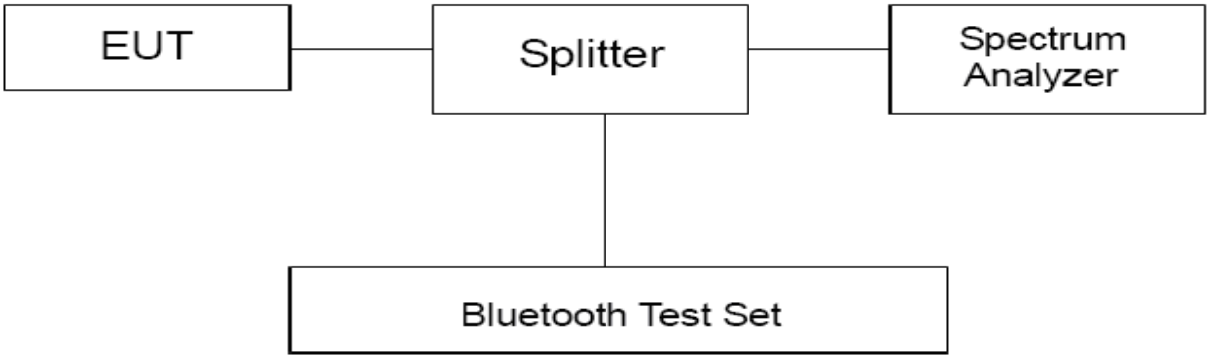
Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

The EUT was connected to the spectrum analyzer and Bluetooth test set via a power splitter with a known loss. The spectrum analyzer scans from 30MHz to the 10th harmonic of the carrier. The peak detector is used. RBW and VBW are set to 100 kHz, Sweep is set to ATUO.
The test is in transmitting mode.

Test setup



Limits

Rule Part 15.247(d) pacifies that “In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is 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.”

Mode	Carrier frequency (MHz)	Reference value (dBm)	Limit
DH5	2402	-3.5	-23.5
	2441	-2.9	-22.9
	2480	-8.9	-28.9
EDR (3DH5)	2402	-2.0	-22.0
	2441	-8.1	-28.1
	2480	-3.1	-23.1

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor *k* = 1.96.

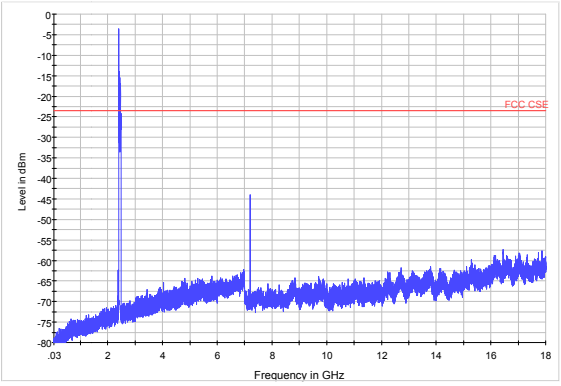
Frequency	Uncertainty
100kHz-2GHz	0.684 dB
2GHz-26GHz	1.407 dB

Test Results:

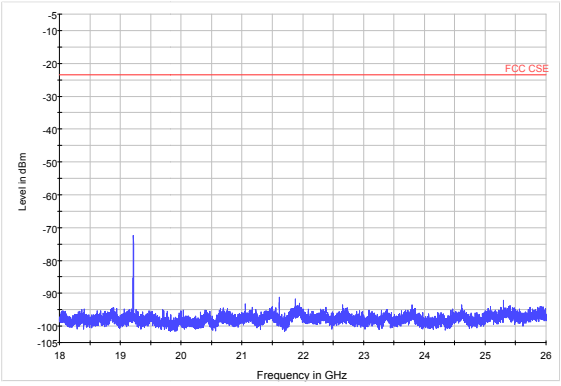
Note: The signal beyond the limit is carrier.

Test Data File Name	Frequency(MHz)	Peak (dBm)	Margin(dB)	Limt
BT EDR CH39_0.03-18GHz	7322.3	-47.12	19.03	-28.1
BT EDR CH78_0.03-18GHz	7440.0	-42.61	19.54	-23.1
BT GFSK CH39_0.03-18GHz	7323.0	-42.68	19.73	-22.9
BT GFSK CH78_0.03-18GHz	7440.0	-38.73	9.84	-28.9

GFSK-CH0：

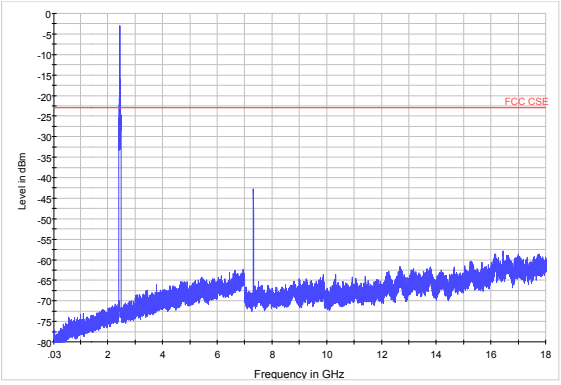


Spurious RF conducted emissions from

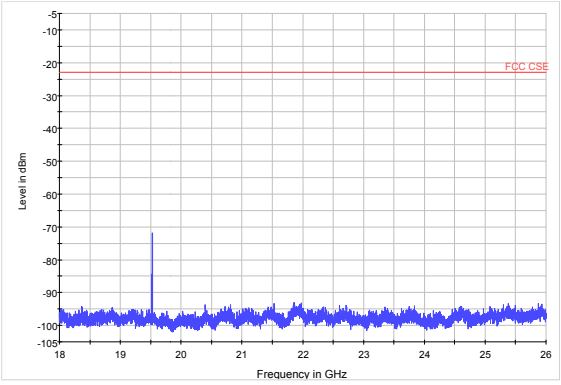


Spurious RF conducted emissions from 18GHz to 26GHz

GFSK-CH39：

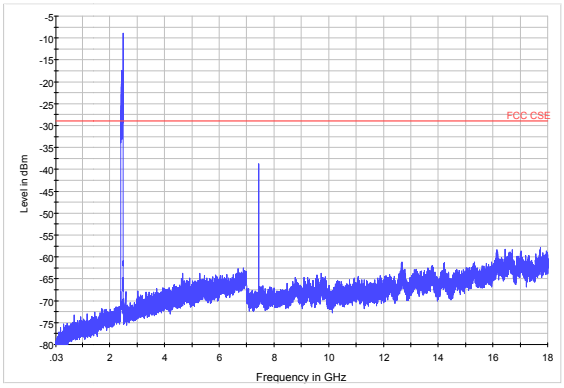


Spurious RF conducted emissions from 30MHz to 18GHz

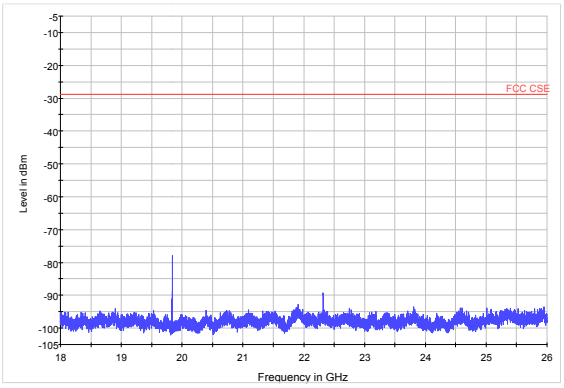


Spurious RF conducted emissions from 18GHz to 26GHz

GFSK-CH78：

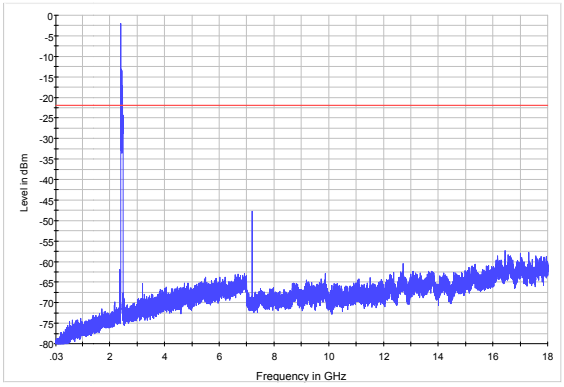


Spurious RF conducted emissions from 30MHz to 18GHz

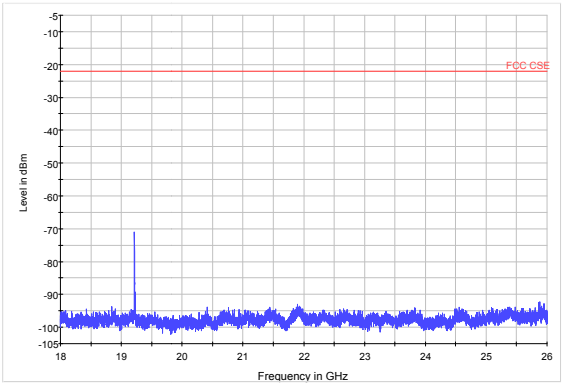


Spurious RF conducted emissions from 18GHz to 26GHz

EDR-CH0：

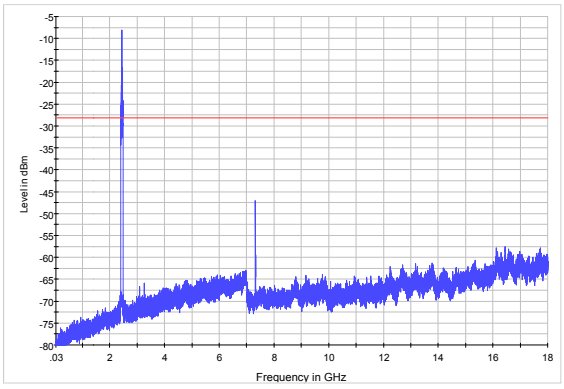


Spurious RF conducted emissions from 30MHz to 18GHz

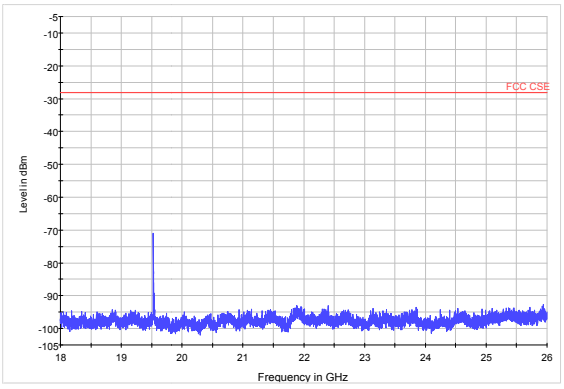


Spurious RF conducted emissions from 18GHz to 26.5GHz

EDR -CH39：

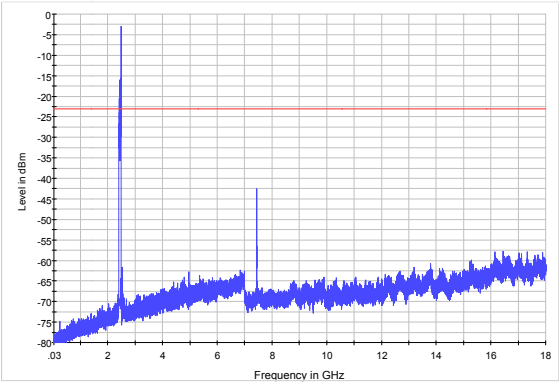


Spurious RF conducted emissions from 30MHz to 18GHz

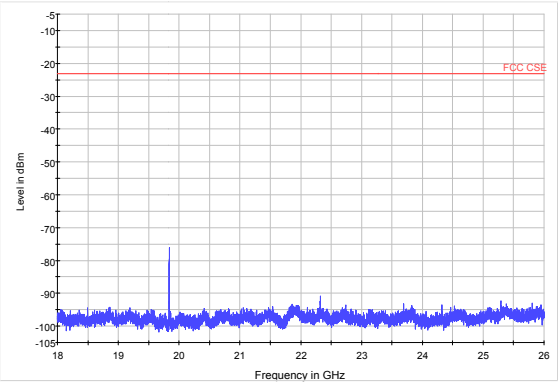


Spurious RF conducted emissions from 18GHz to 26GHz

EDR -CH78：



Spurious RF conducted emissions from 30MHz to 18GHz



Spurious RF conducted emissions from 18GHz to 26GHz

4.10 Radiates Emission

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	102.5kPa

Method of Measurement

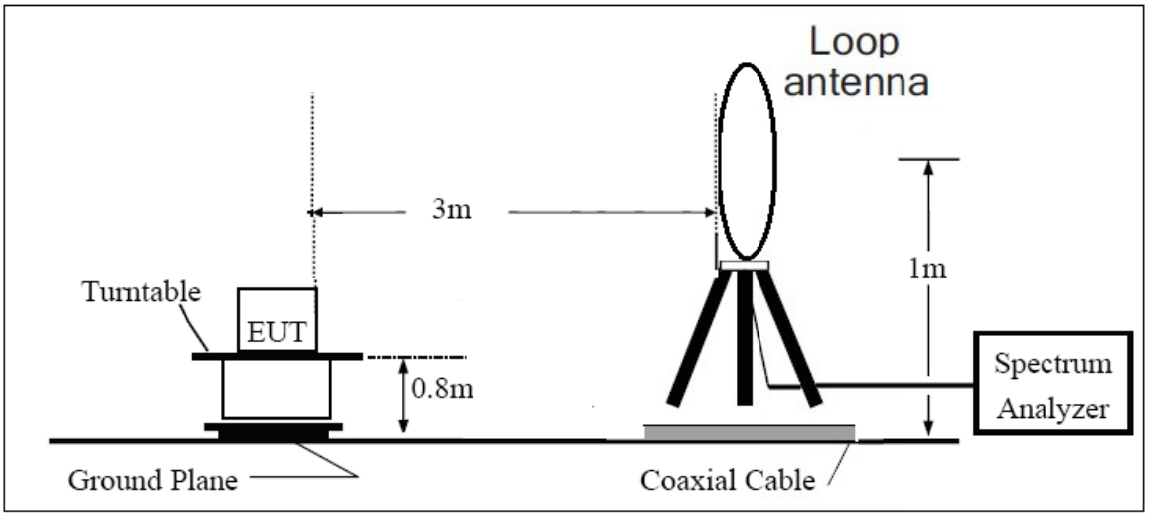
The test set-up was made in accordance to the general provisions of ANSI C63.10-2013.The Equipment Under Test (EUT) was set up on a non-conductive table in the semi-anechoic chamber. The test was performed at the distance of 3 m between the EUT and the receiving antenna. The radiated emissions measurements were made in a typical installation configuration.
Sweep the whole frequency band through the range from 9 kHz to the 10th harmonic of the carrier, and the emissions less than 20 dB below the permissible value are reported.
During the test, below 30MHz, the center of the loop shall be 1 meters; above 30MHz, the height of receive antenna shall be moved from 1 to 4 meters, and the antenna shall be performed under horizontal and vertical polarization. The turntable shall be rotated from 0 to 360 degrees for detecting the maximum of radiated spurious signal level. The measurements shall be repeated with orthogonal polarization of the test antenna. The data of cable loss and antenna factor has been calibrated in full testing frequency range before the testing.
Set the spectrum analyzer in the following:
Below 1GHz (detector: Peak and Quasi-Peak)
RBW=100kHz / VBW=300kHz / Sweep=AUTO
Above 1GHz(detector: Peak):
(a) PEAK: RBW=1MHz VBW=3MHz/ Sweep=AUTO
(b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO

The radiated emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in stand-up position (Z axis) and the worst case was recorded. Then this mode was measured in the following mode: EUT with cradle and EUT without cradle. The worst emission was found in EUT with cradle mode and the worst case was recorded.

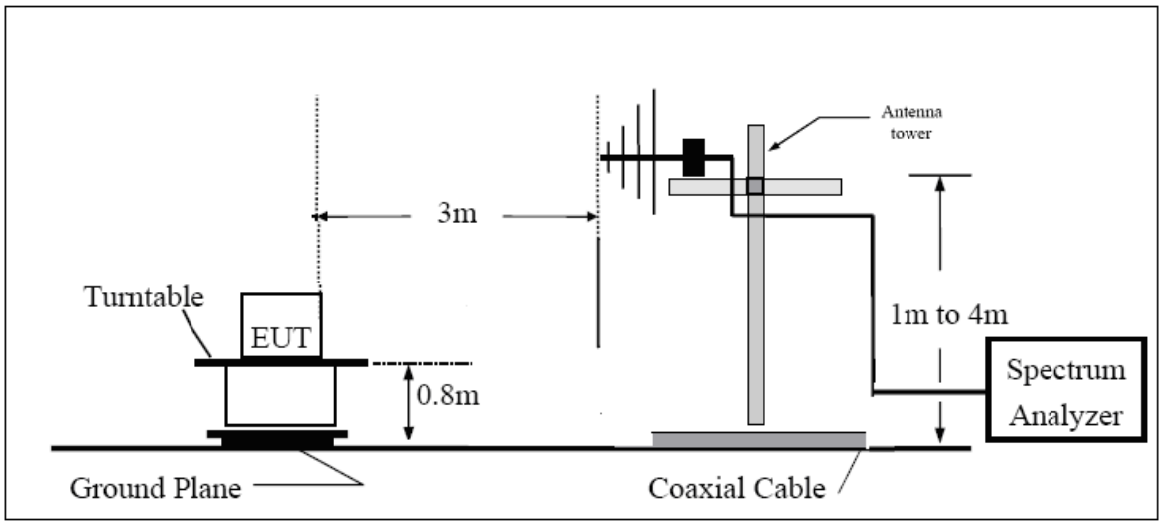
The test is in transmitting mode.

Test setup

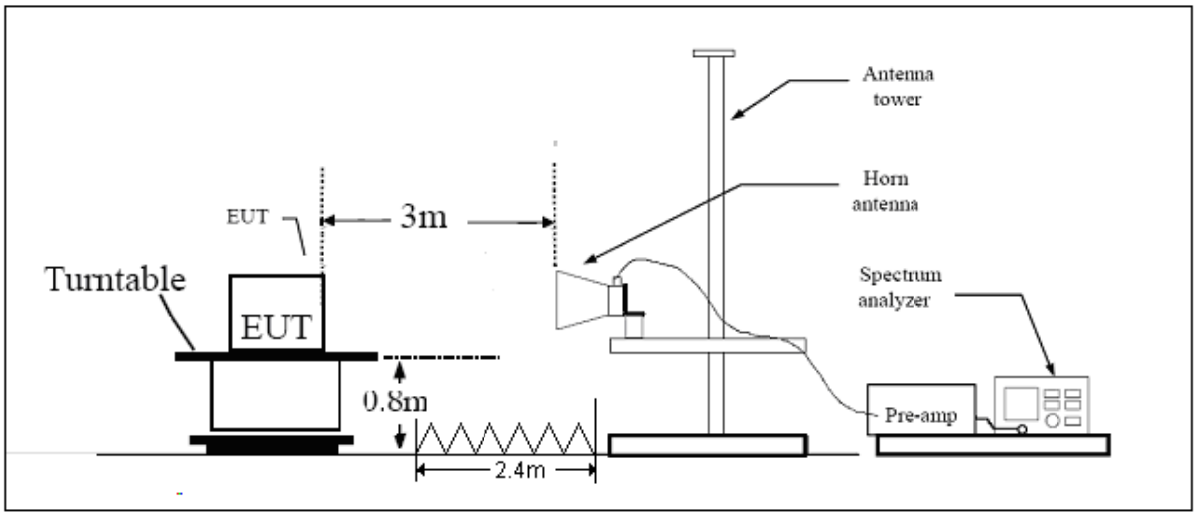
9KHz~~~ 30MHz



30MHz~~~ 1GHz



Above 1GHz



Limits

Rule Part 15.247(d) specifies that “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 § 15.205(c)).”

Limit in restricted band

Frequency of emission (MHz)	Field strength(uV/m)	Field strength(dBuV/m)
0.009–0.490	2400/F(kHz)	/
0.490–1.705	24000/F(kHz)	/
1.705–30.0	30	/
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

§15.35(b)

There is also a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 1.96.

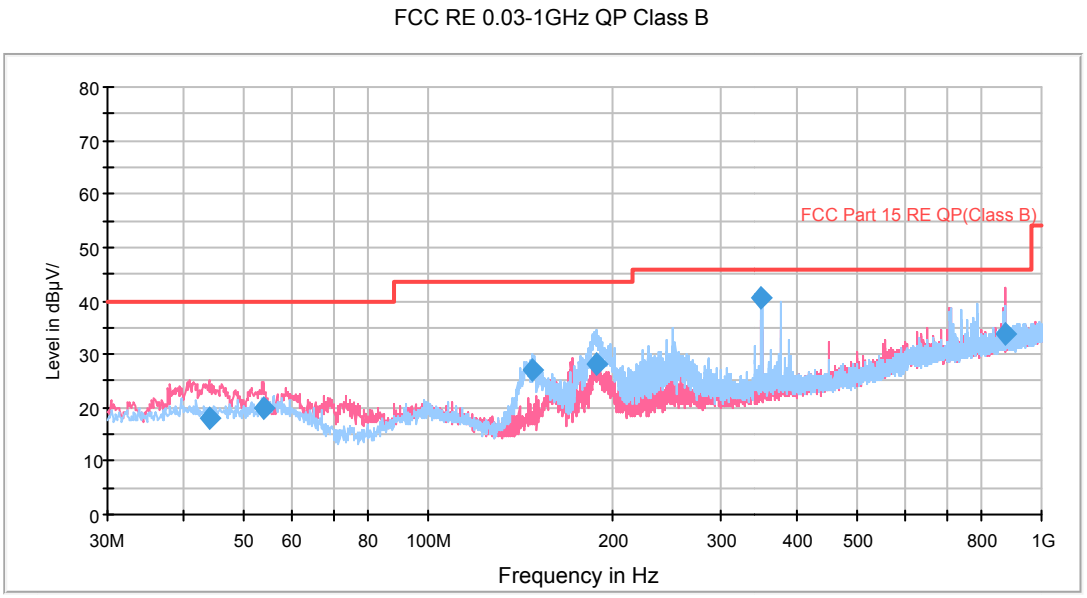
Frequency	Uncertainty
9KHz-30MHz	3.55 dB
30MHz-200MHz	4.19 dB
200MHz-1GHz	3.63 dB
Above 1GHz	3.68 dB

Test result

Sweep from 9 kHz to 30MHz, and the emissions more than 20 dB below the permissible value are not reported.

The following graphs display the maximum values of horizontal and vertical by software.

GFSK-Channel 0



Radiates Emission from 30MHz to 1GHz

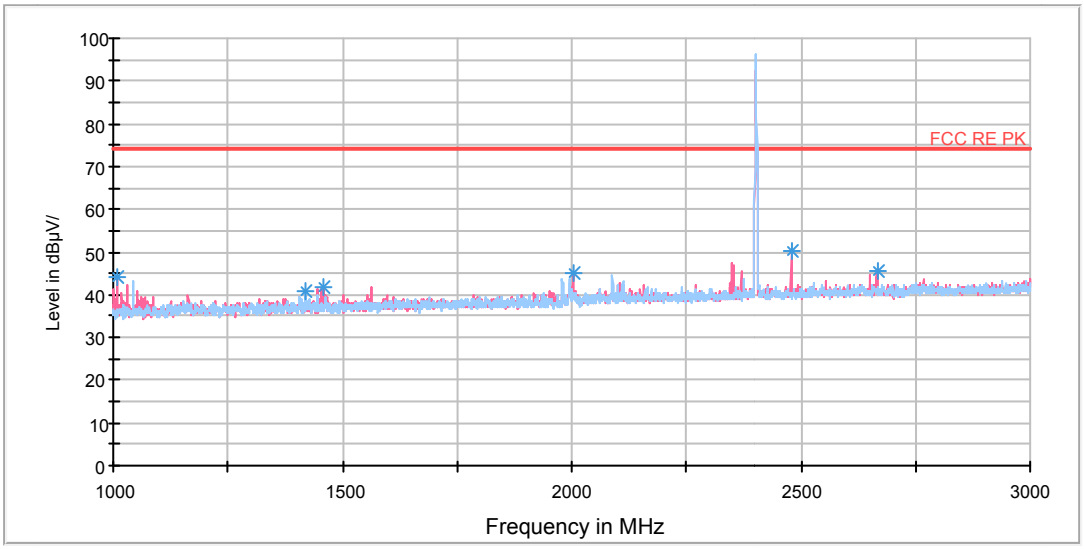
Note: This graph displays the maximum values of horizontal and vertical by software

Frequency (MHz)	Quasi-Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
44.183750	18.1	100.0	V	186.0	31.2	13.1	21.9	40.0
53.927500	19.7	100.0	V	203.0	32.5	12.8	20.3	40.0
147.818750	27.1	100.0	H	161.0	36.1	9.0	16.4	43.5
187.787500	28.2	100.0	H	14.0	39.5	11.3	15.3	43.5
349.978750	40.5	100.0	H	0.0	57.2	16.7	5.5	46.0
874.951250	33.7	100.0	V	15.0	59.0	25.3	12.3	46.0

Remark: 1. Quasi-Peak = Reading value + Correction factor

2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

3. Margin = Limit – Quasi-Peak



Radiates Emission from 1GHz to 3GHz

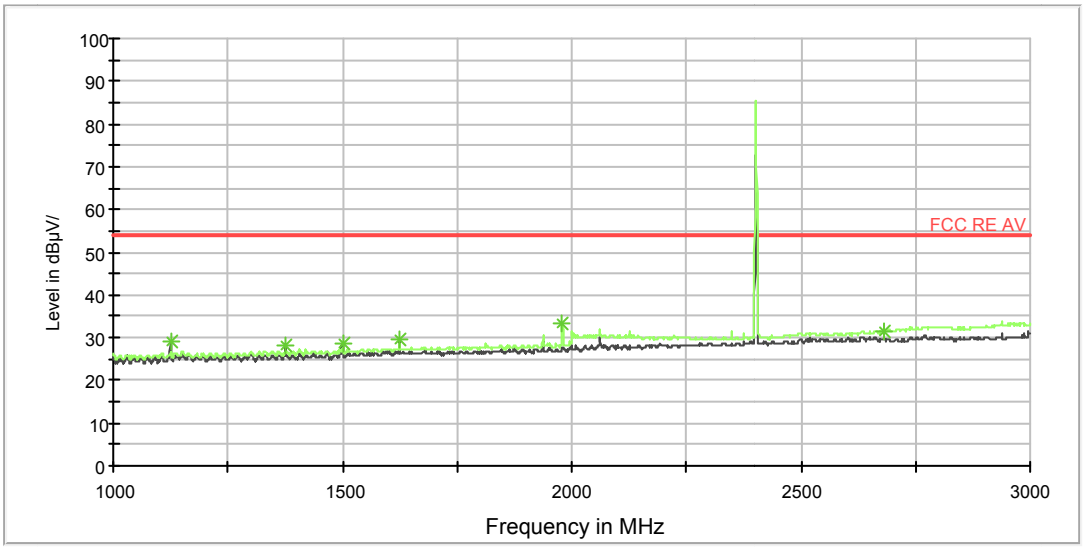
Note: The signal beyond the limit is carrier.

Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1010.000000	44.1	100.0	V	145.0	55.5	-11.4	29.9	74
1418.500000	40.6	100.0	H	6.0	50.4	-9.8	33.4	74
1458.000000	41.8	100.0	V	0.0	51.4	-9.6	32.2	74
2002.500000	45.2	100.0	V	356.0	53.0	-7.8	28.8	74
2479.000000	50.3	100.0	V	5.0	55.4	-5.1	23.7	74
2666.000000	45.6	100.0	V	359.0	50.2	-4.6	28.4	74

Remark: 1. Quasi-Peak = Reading value + Correction factor

2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

3. Margin = Limit – Quasi-Peak



Radiates Emission from 1GHz to 3GHz

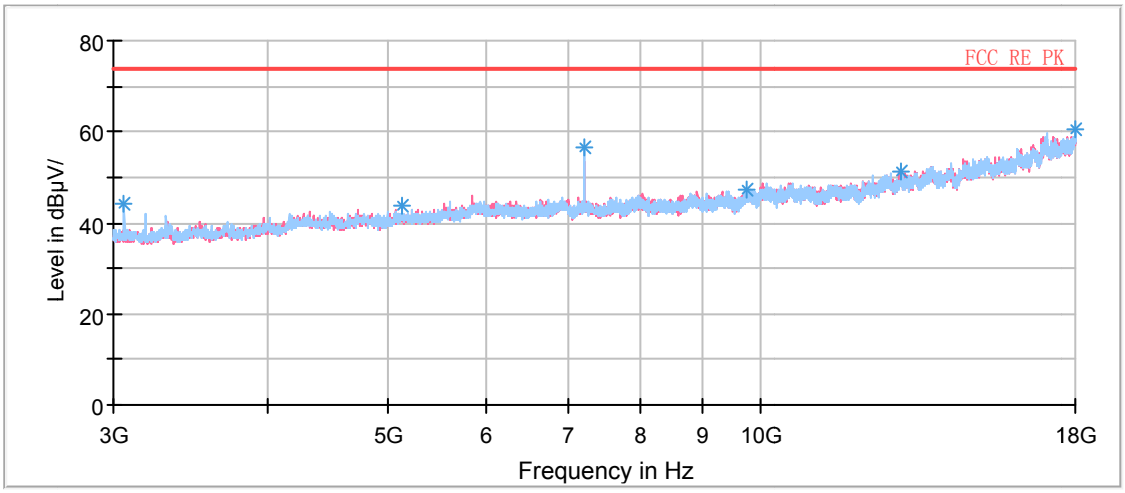
Note: The signal beyond the limit is carrier.

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1124.500000	29.1	100.0	V	0.0	40.0	-10.9	24.9	54
1374.500000	28.2	100.0	V	0.0	38.1	-9.9	25.8	54
1500.000000	28.6	100.0	V	0.0	38.1	-9.5	25.4	54
1625.000000	29.4	100.0	V	0.0	38.3	-8.9	24.6	54
1980.000000	33.2	100.0	H	0.0	41.1	-7.9	20.8	54
2680.500000	31.5	100.0	H	0.0	36.1	-4.6	22.5	54

Remark: 1. Quasi-Peak = Reading value + Correction factor

2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

3. Margin = Limit – Quasi-Peak



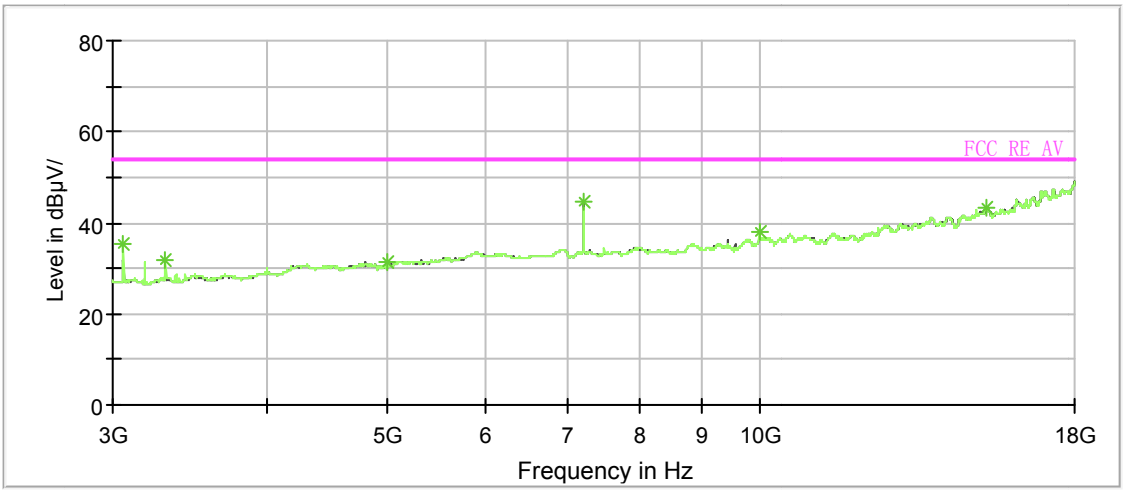
Radiates Emission from 3GHz to 18GHz

Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3061.875000	44.0	102.0	H	41.0	45.6	-1.6	30.0	74
5135.625000	43.8	102.0	V	90.0	47.4	3.6	30.2	74
7205.625000	56.5	102.0	H	16.0	65.2	8.7	17.5	74
9750.000000	47.4	102.0	H	41.0	59.1	11.7	26.6	74
13005.000000	51.1	102.0	H	0.0	67.3	16.2	22.9	74
17992.500000	60.4	102.0	H	16.0	85.7	25.3	13.6	74

Remark: 1. Quasi-Peak = Reading value + Correction factor

2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

3. Margin = Limit – Quasi-Peak



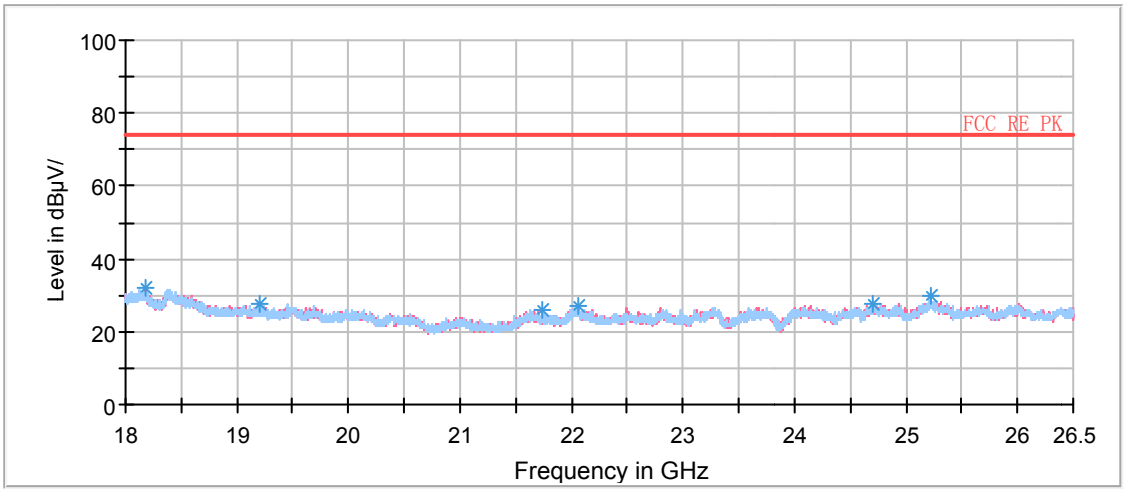
Radiates Emission from 3GHz to 18GHz

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3061.875000	35.2	102.0	H	0.0	36.8	-1.6	18.8	54
3311.250000	31.8	102.0	H	0.0	33.2	-1.4	22.2	54
4998.750000	31.6	102.0	V	90.0	34.6	3.0	22.4	54
7205.625000	44.8	102.0	V	0.0	53.5	8.7	9.2	54
9999.375000	38.0	102.0	H	90.0	51.1	13.1	16.0	54
15253.125000	43.1	102.0	V	0.0	62.8	19.7	10.9	54

Remark: 1. Quasi-Peak = Reading value + Correction factor

2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

3. Margin = Limit – Quasi-Peak



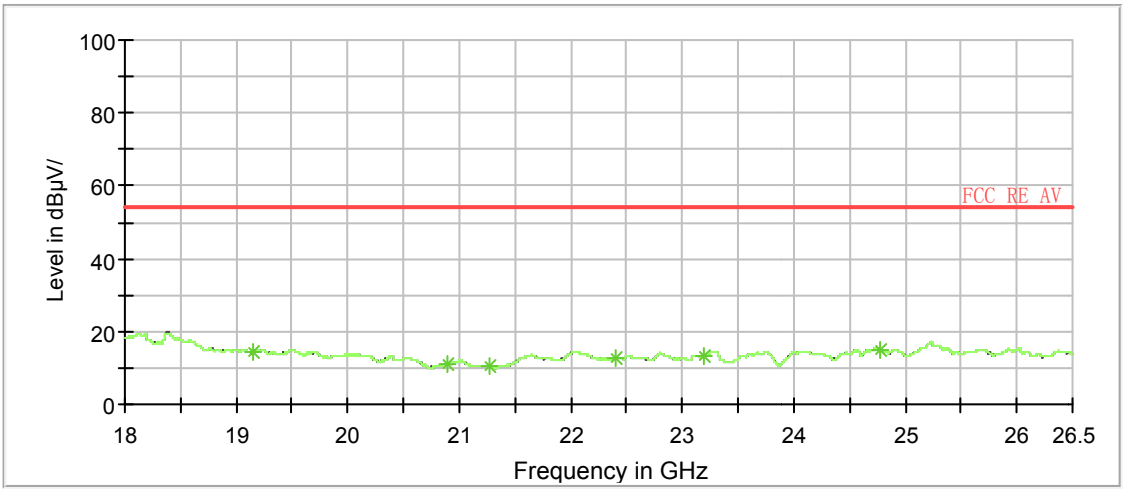
Radiates Emission from 18GHz to 26.5GHz

Frequency (MHz)	Peak (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18183.812500	31.8	V	142.0	36.7	-4.9	42.2	74
19202.750000	27.5	H	33.0	34.5	-7.0	46.5	74
21732.562500	26.0	V	0.0	35.4	-9.4	48.0	74
22060.875000	26.9	V	309.0	35.0	-8.1	47.1	74
24706.500000	27.6	V	352.0	34.3	-6.7	46.4	74
25220.750000	29.7	H	6.0	35.7	-6.0	44.3	74

Remark: 1. Quasi-Peak = Reading value + Correction factor

2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

3. Margin = Limit – Quasi-Peak



Radiates Emission from 18GHz to 26.5GHz

Frequency (MHz)	Average (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
19157.062500	14.6	V	0.0	21.6	-7.0	39.4	54
20890.000000	11.2	H	0.0	20.2	-9.0	42.8	54
21276.750000	10.4	V	0.0	20.0	-9.6	43.6	54
22406.187500	12.9	V	0.0	21.1	-8.2	41.1	54
23187.125000	13.5	V	0.0	22.0	-8.5	40.5	54
24770.250000	14.8	V	0.0	21.6	-6.8	39.2	54

Remark: 1. Quasi-Peak = Reading value + Correction factor

2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

3. Margin = Limit – Quasi-Peak

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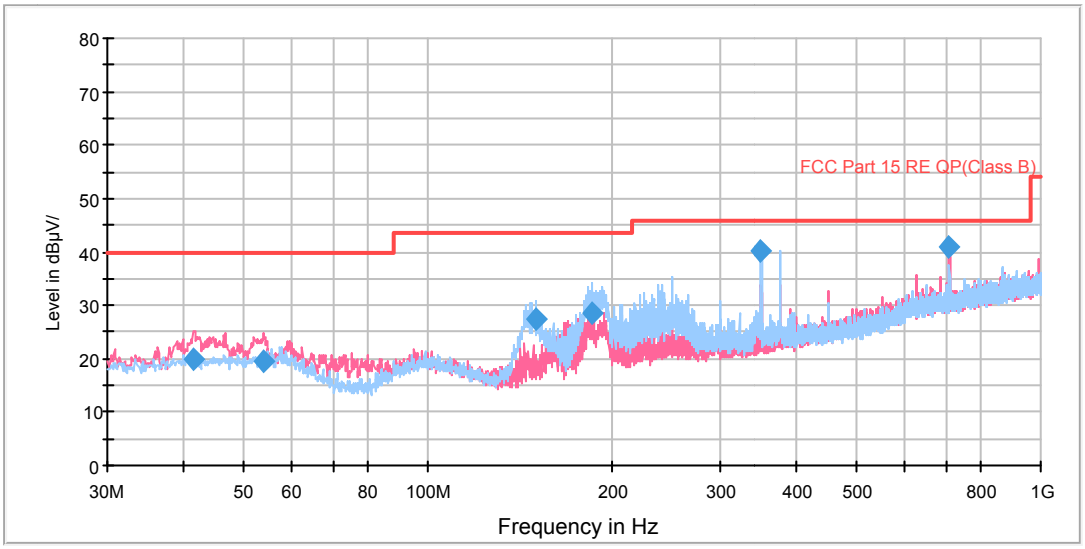


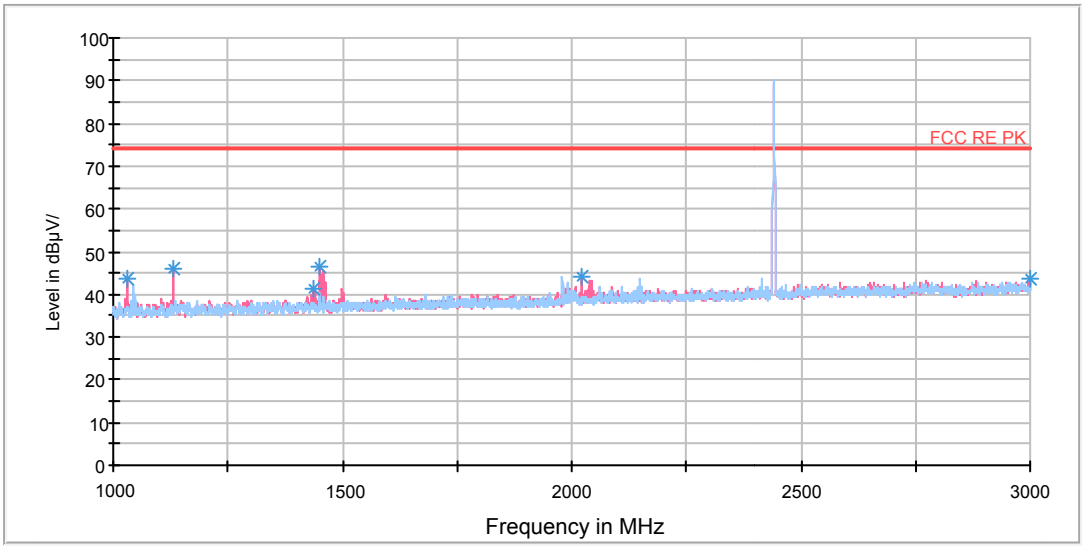
Radiates Emission from 30MHz to 1GHz

Frequency (MHz)	Quasi-Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
41.481250	19.7	100.0	V	344.0	32.9	13.2	20.3	40.0
53.806250	19.5	100.0	V	299.0	32.3	12.8	20.5	40.0
150.117500	27.3	100.0	H	0.0	36.4	9.1	16.2	43.5
185.116250	28.4	100.0	H	22.0	39.5	11.1	15.1	43.5
349.978750	40.4	100.0	H	0.0	57.1	16.7	5.6	46.0
709.930000	41.0	125.0	V	278.0	64.0	23.0	5.0	46.0

Remark: 1. Quasi-Peak = Reading value + Correction factor

2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

3. Margin = Limit – Quasi-Peak



Radiates Emission from 1GHz to 3GHz

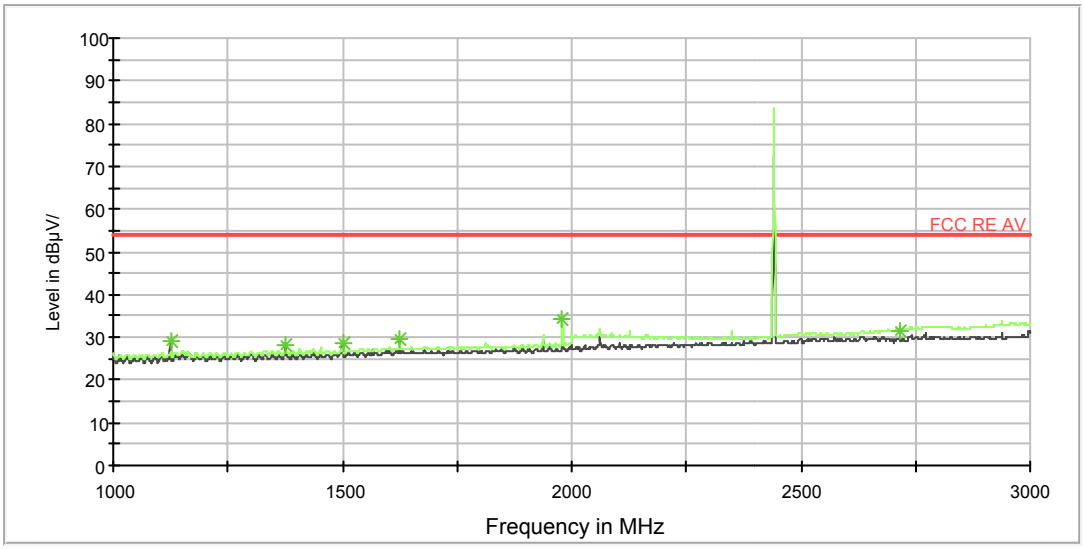
Note: The signal beyond the limit is carrier.

Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1032.000000	43.6	100.0	V	313.0	54.9	-11.3	30.4	74
1129.500000	46.0	100.0	V	256.0	56.9	-10.9	28.0	74
1438.000000	41.1	100.0	V	97.0	50.8	-9.7	32.9	74
1451.500000	46.2	100.0	V	352.0	55.9	-9.7	27.8	74
2023.000000	44.1	100.0	V	338.0	51.8	-7.7	29.9	74
2999.500000	43.8	100.0	V	218.0	47.8	-4.0	30.2	74

Remark: 1. Quasi-Peak = Reading value + Correction factor

2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

3. Margin = Limit – Quasi-Peak



Radiates Emission from 1GHz to 3GHz

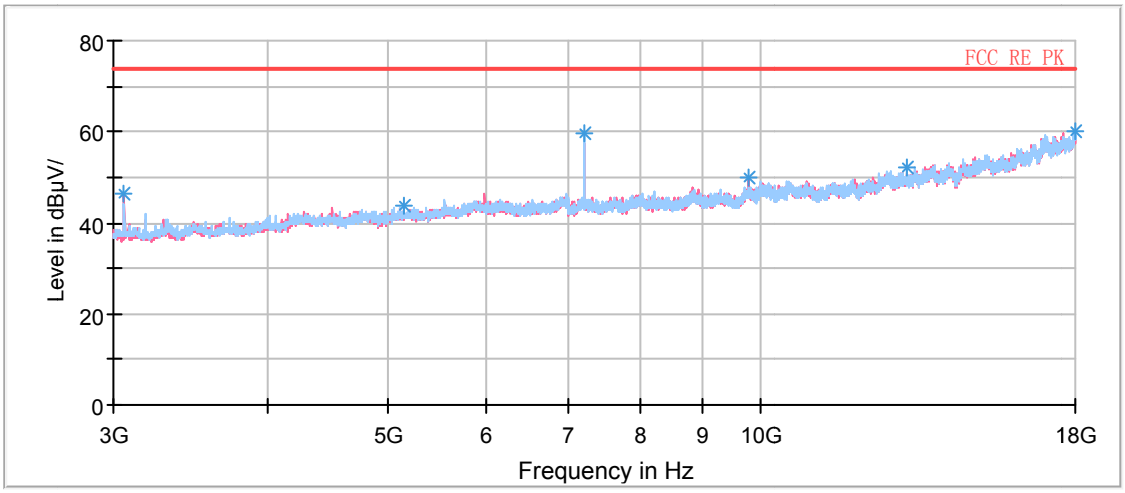
Note: The signal beyond the limit is carrier.

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1124.500000	29.2	100.0	V	0.0	40.1	-10.9	24.8	54
1374.500000	28.2	100.0	V	0.0	38.1	-9.9	25.8	54
1500.000000	28.7	100.0	V	0.0	38.2	-9.5	25.3	54
1625.000000	29.5	100.0	V	0.0	38.4	-8.9	24.5	54
1980.000000	34.3	100.0	H	0.0	42.2	-7.9	19.7	54
2716.500000	31.6	100.0	H	0.0	36.1	-4.5	22.4	54

Remark: 1. Quasi-Peak = Reading value + Correction factor

2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

3. Margin = Limit – Quasi-Peak



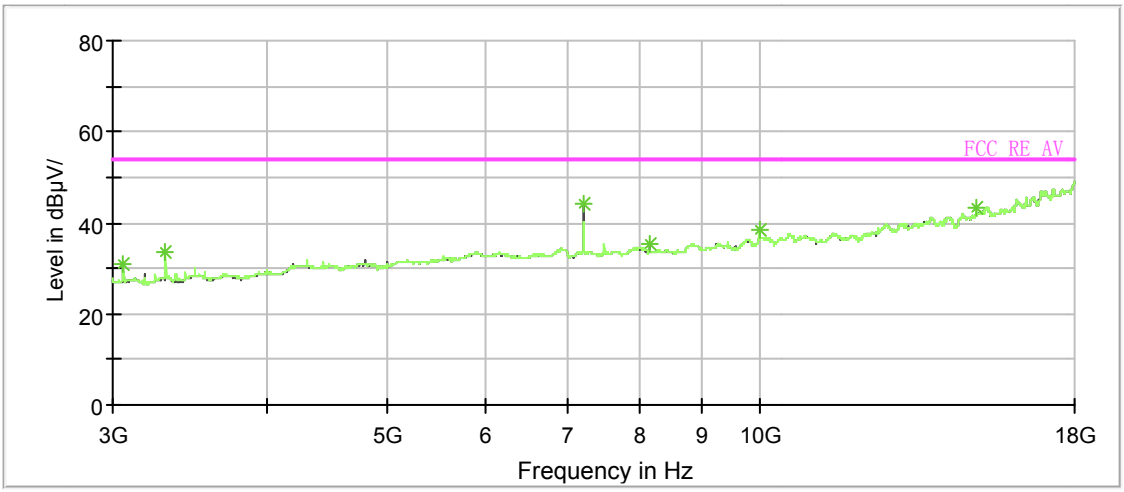
Radiates Emission from 3GHz to 18GHz

Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3061.875000	46.4	102.0	V	305.0	48.0	-1.6	27.6	74
5146.875000	43.8	102.0	H	41.0	47.4	3.6	30.2	74
7205.625000	59.5	102.0	H	311.0	68.2	8.7	14.5	74
9780.000000	49.7	102.0	V	141.0	61.7	12.0	24.3	74
13158.750000	52.3	102.0	H	82.0	67.8	15.5	21.7	74
17981.250000	60.0	102.0	H	153.0	85.2	25.2	14.0	74

Remark: 1. Quasi-Peak = Reading value + Correction factor

2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

3. Margin = Limit – Quasi-Peak



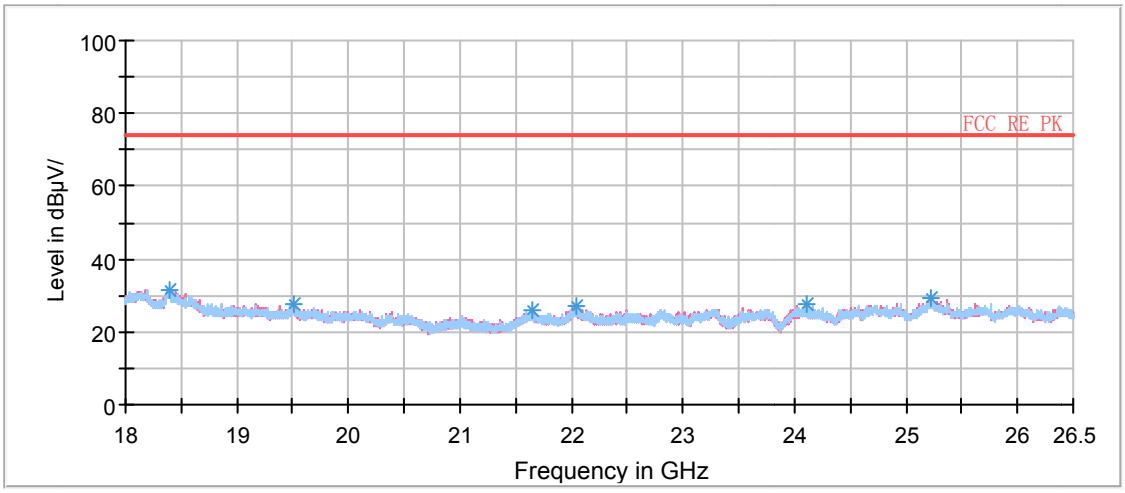
Radiates Emission from 3GHz to 18GHz

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3061.875000	30.9	102.0	H	0.0	32.5	-1.6	23.1	54
3311.250000	33.4	102.0	H	0.0	34.8	-1.4	20.6	54
7205.625000	44.3	102.0	V	90.0	53.0	8.7	9.7	54
8154.375000	35.5	102.0	V	0.0	44.6	9.1	18.5	54
9999.375000	38.4	102.0	H	90.0	51.5	13.1	15.6	54
15000.000000	43.4	102.0	H	90.0	62.9	19.5	10.6	54

Remark: 1. Quasi-Peak = Reading value + Correction factor

2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

3. Margin = Limit – Quasi-Peak



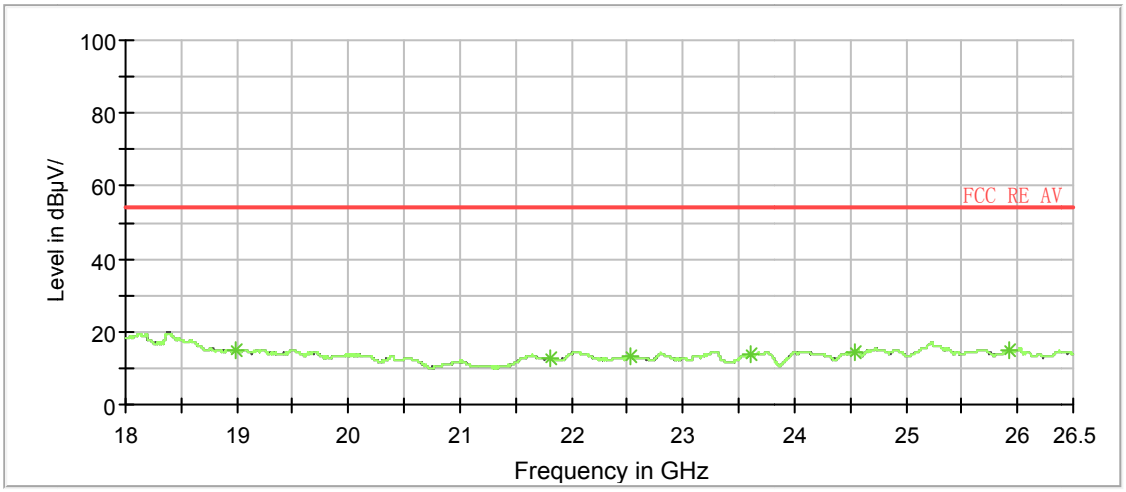
Radiates Emission from 18GHz to 26.5GHz

Frequency (MHz)	Peak (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18399.500000	31.6	V	149.0	36.5	-4.9	42.4	74
19514.062500	27.8	H	53.0	35.3	-7.5	46.2	74
21640.125000	25.7	V	281.0	34.8	-9.1	48.3	74
22042.812500	26.9	H	53.0	34.9	-8.0	47.1	74
24101.937500	27.4	V	128.0	35.2	-7.8	46.6	74
25221.812500	29.3	H	346.0	35.2	-5.9	44.7	74

Remark: 1. Quasi-Peak = Reading value + Correction factor

2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

3. Margin = Limit – Quasi-Peak



Radiates Emission from 18GHz to 26.5GHz

Frequency (MHz)	Average (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18990.250000	15.0	H	0.0	22.2	-7.2	39.0	54
21818.625000	12.7	V	0.0	21.4	-8.7	41.3	54
22535.812500	13.1	V	0.0	21.4	-8.3	40.9	54
23605.750000	13.8	V	0.0	21.8	-8.0	40.2	54
24543.937500	14.6	V	0.0	22.4	-7.8	39.4	54
25925.187500	15.2	V	0.0	21.9	-6.7	38.8	54

Remark: 1. Quasi-Peak = Reading value + Correction factor

2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

3. Margin = Limit – Quasi-Peak

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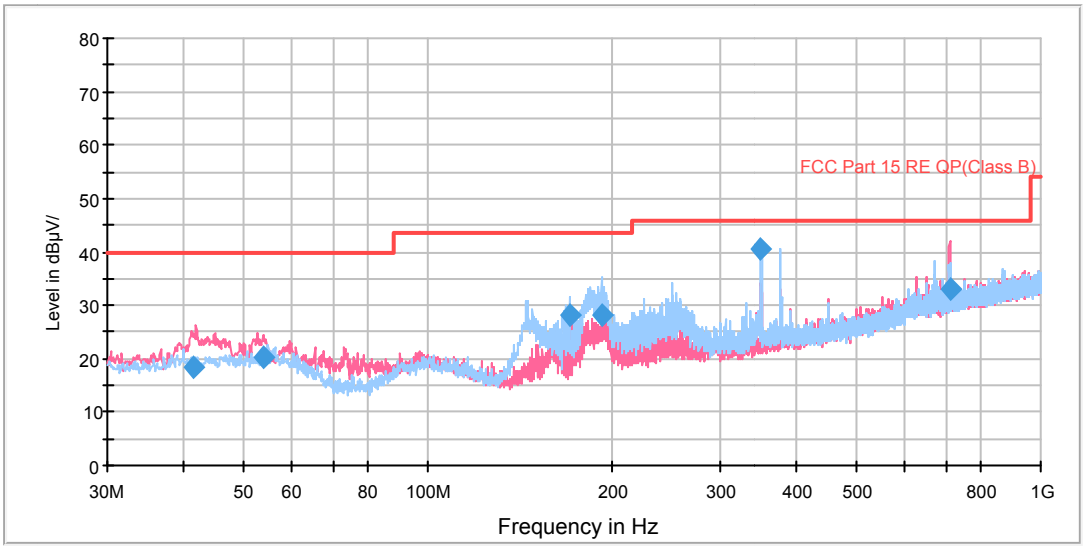


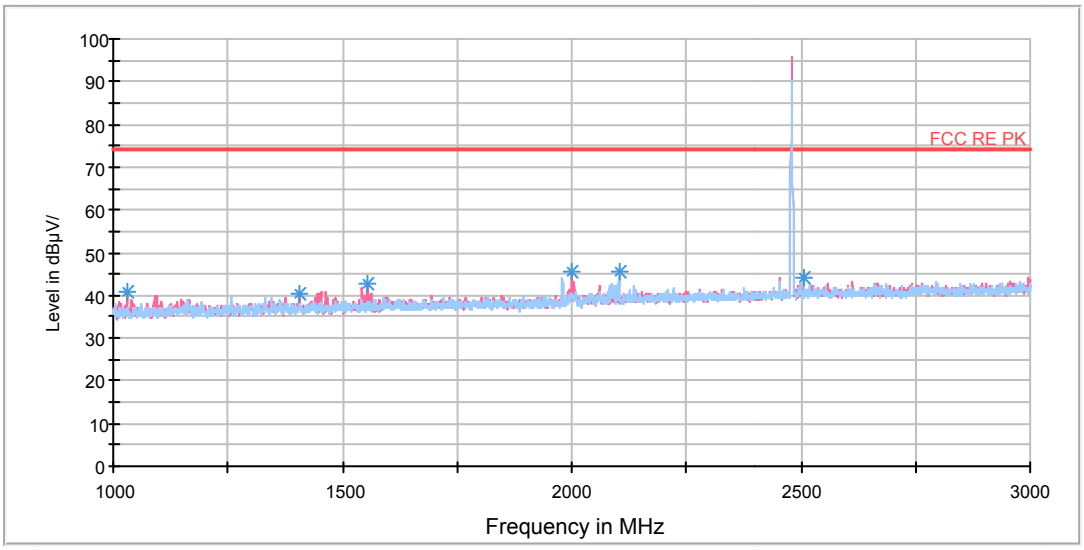
Radiates Emission from 30MHz to 1GHz

Frequency (MHz)	Quasi-Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
41.482500	18.5	100.0	V	284.0	31.7	13.2	21.5	40.0
54.007500	20.1	100.0	V	299.0	32.9	12.8	19.9	40.0
170.165000	28.0	100.0	H	0.0	37.1	9.1	15.5	43.5
191.747500	28.0	100.0	H	22.0	39.1	11.1	15.5	43.5
349.978750	40.4	100.0	H	0.0	57.1	16.7	5.6	46.0
710.091250	33.0	100.0	H	0.0	43.7	10.7	13.0	46.0

Remark: 1. Quasi-Peak = Reading value + Correction factor

2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

3. Margin = Limit – Quasi-Peak



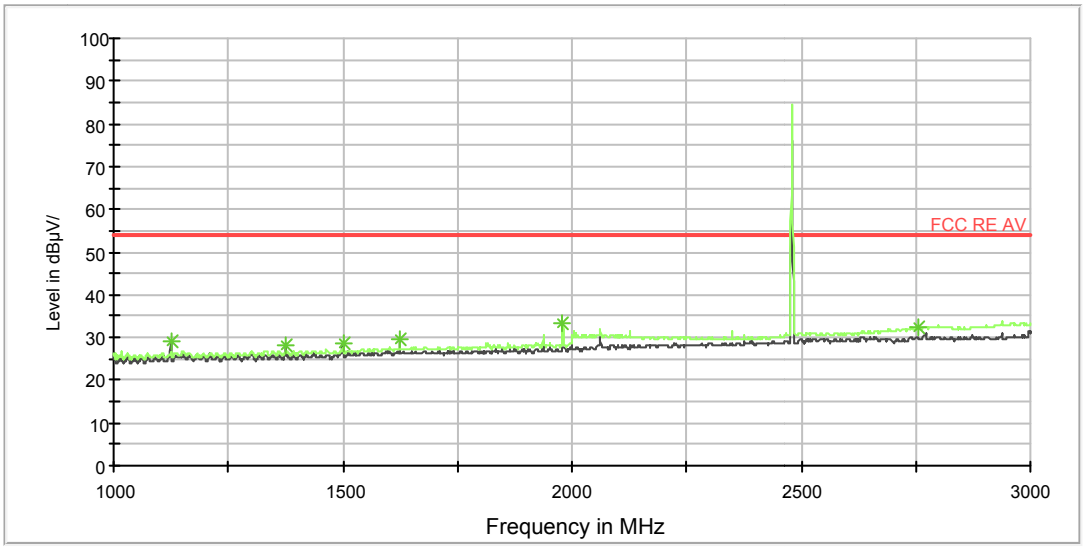
Radiates Emission from 1GHz to 3GHz

Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1029.000000	41.0	100.0	V	275.0	52.3	-11.3	33.0	74
1404.500000	40.4	100.0	V	356.0	50.2	-9.8	33.6	74
1556.500000	42.6	100.0	V	355.0	51.8	-9.2	31.4	74
2001.500000	45.8	100.0	V	344.0	53.6	-7.8	28.2	74
2103.500000	45.7	100.0	H	338.0	52.8	-7.1	28.3	74
2506.500000	44.2	100.0	V	349.0	49.2	-5.0	29.8	74

Remark: 1. Quasi-Peak = Reading value + Correction factor

2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

3. Margin = Limit – Quasi-Peak



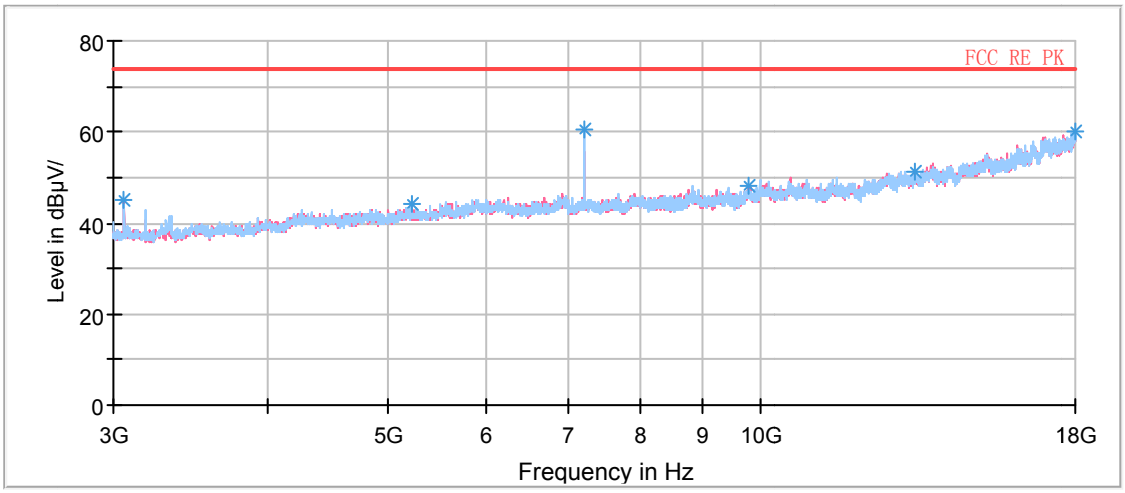
Radiates Emission from 1GHz to 3GHz

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1124.500000	29.3	100.0	V	0.0	40.2	-10.9	24.7	54
1374.500000	28.3	100.0	V	0.0	38.2	-9.9	25.7	54
1500.000000	28.7	100.0	V	0.0	38.2	-9.5	25.3	54
1625.000000	29.6	100.0	V	0.0	38.5	-8.9	24.4	54
1980.000000	33.3	100.0	H	0.0	41.2	-7.9	20.7	54
2754.500000	32.2	100.0	H	0.0	36.5	-4.3	21.8	54

Remark: 1. Quasi-Peak = Reading value + Correction factor

2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

3. Margin = Limit – Quasi-Peak



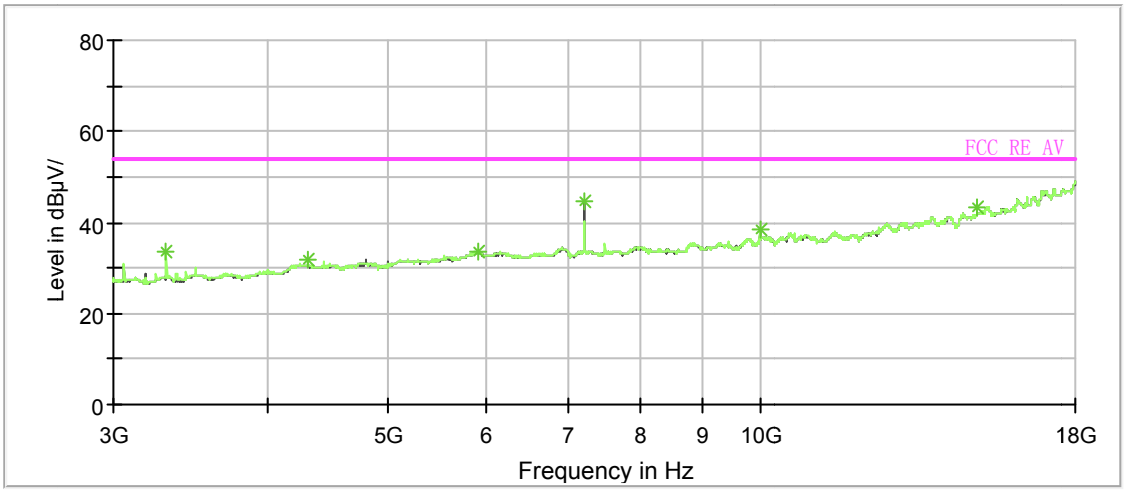
Radiates Emission from 3GHz to 18GHz

Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3061.875000	45.3	102.0	V	305.0	46.9	-1.6	28.7	74
5235.000000	44.0	102.0	V	24.0	47.7	3.7	30.0	74
7205.625000	60.4	102.0	H	310.0	69.1	8.7	13.6	74
9781.875000	48.1	102.0	V	75.0	60.2	12.1	25.9	74
13331.250000	51.5	102.0	V	37.0	67.2	15.7	22.5	74
17992.500000	60.1	102.0	V	100.0	85.4	25.3	13.9	74

Remark: 1. Quasi-Peak = Reading value + Correction factor

2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

3. Margin = Limit – Quasi-Peak



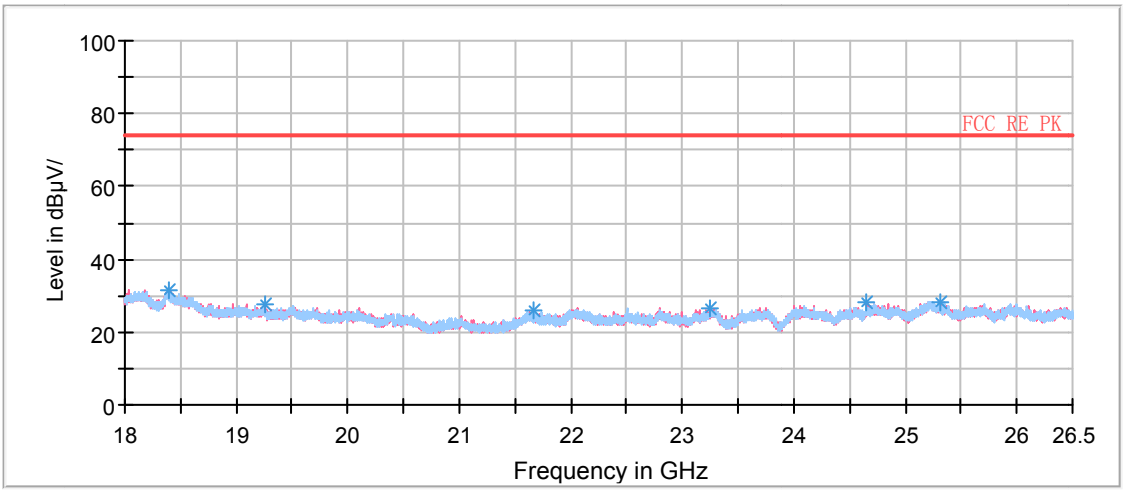
Radiates Emission from 3GHz to 18GHz

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3311.250000	33.5	102.0	H	0.0	34.9	-1.4	20.5	54
4312.500000	31.6	102.0	H	0.0	33.7	2.1	22.4	54
5910.000000	33.5	102.0	H	0.0	39.7	6.2	20.5	54
7205.625000	44.4	102.0	V	90.0	53.1	8.7	9.6	54
9999.375000	38.4	102.0	H	90.0	51.5	13.1	15.6	54
15000.000000	43.4	102.0	H	90.0	62.9	19.5	10.6	54

Remark: 1. Quasi-Peak = Reading value + Correction factor

2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

3. Margin = Limit – Quasi-Peak



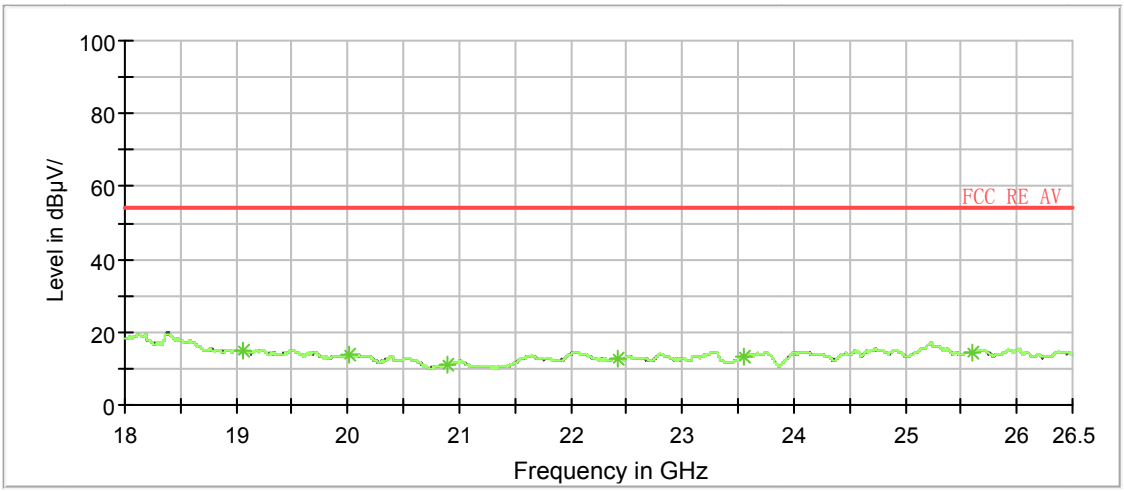
Radiates Emission from 18GHz to 26.5GHz

Frequency (MHz)	Peak (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18400.562500	31.4	V	37.0	36.3	-4.9	42.6	74
19262.250000	27.8	V	337.0	34.8	-7.0	46.2	74
21665.625000	25.7	V	86.0	35.0	-9.3	48.3	74
23254.062500	26.6	H	170.0	34.1	-7.5	47.4	74
24655.500000	28.0	V	218.0	35.0	-7.0	46.0	74
25306.812500	28.4	V	232.0	34.9	-6.5	45.6	74

Remark: 1. Quasi-Peak = Reading value + Correction factor

2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

3. Margin = Limit – Quasi-Peak



Radiates Emission from 18GHz to 26.5GHz

Frequency (MHz)	Average (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
19061.437500	15.0	V	0.0	21.6	-8.0	40.4	54
20015.562500	13.6	V	0.0	20.2	-9.0	42.8	54
20890.000000	11.2	H	0.0	21.1	-8.4	41.3	54
22414.687500	12.7	V	0.0	21.1	-7.8	40.7	54
23545.187500	13.3	V	0.0	22.5	-8.0	39.5	54
25601.125000	14.5	V	0.0	21.6	-8.0	40.4	54

Remark: 1. Quasi-Peak = Reading value + Correction factor

2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

3. Margin = Limit – Quasi-Peak

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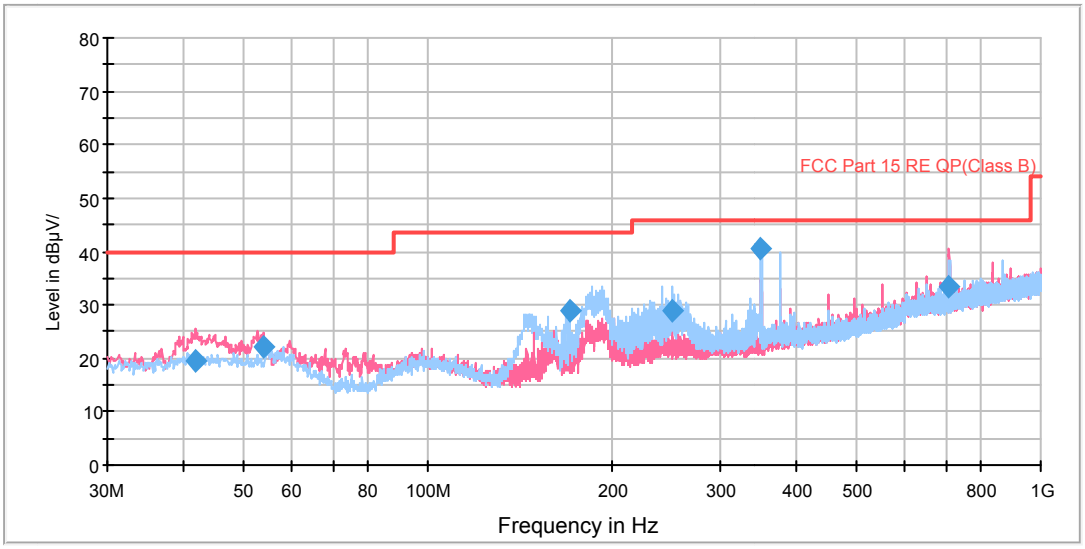


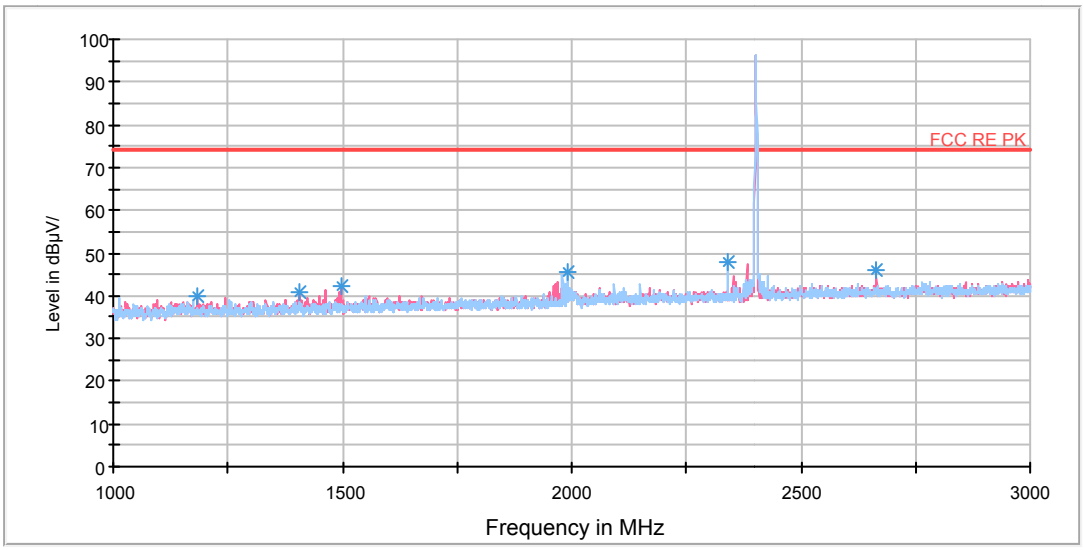
Radiates Emission from 30MHz to 1GHz

Frequency (MHz)	Quasi-Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
41.761250	19.5	100.0	V	335.0	39.2	19.7	20.5	40.0
54.007500	22.0	100.0	V	206.0	41.8	19.8	18.0	40.0
171.013750	28.9	100.0	H	154.0	44.5	15.6	14.6	43.5
249.947500	29.0	100.0	H	239.0	46.0	17.0	14.5	43.5
349.978750	40.4	100.0	H	170.0	45.4	5.0	5.6	46.0
709.970000	33.6	100.0	V	281.0	39.3	5.7	12.4	46.0

Remark: 1. Quasi-Peak = Reading value + Correction factor

2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

3. Margin = Limit – Quasi-Peak



Radiates Emission from 1GHz to 3GHz

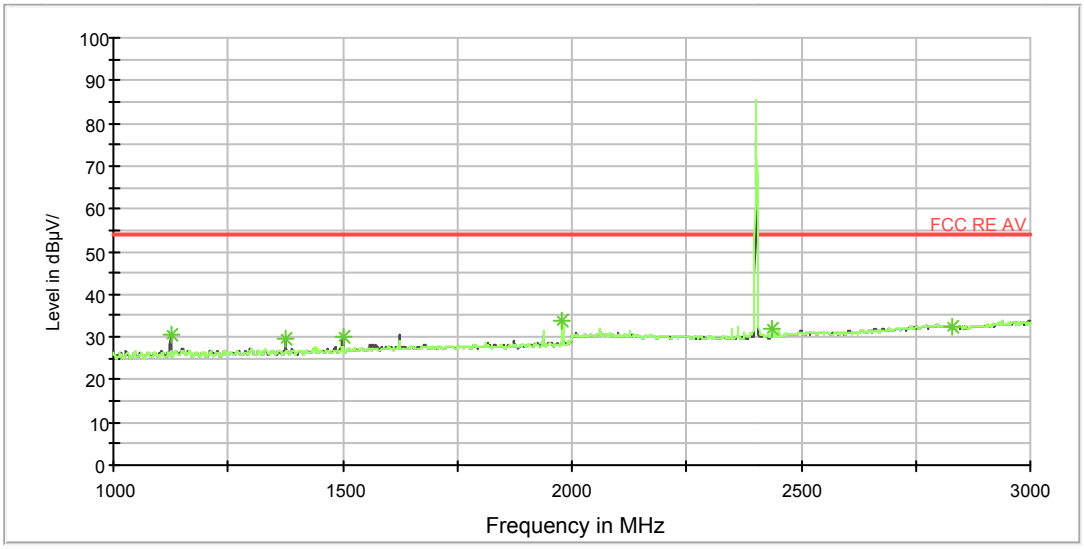
Note: The signal beyond the limit is carrier.

Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1184.000000	40.1	100.0	V	3.0	50.8	-10.7	33.9	74
1405.500000	40.9	100.0	V	182.0	50.7	-9.8	33.1	74
1496.500000	42.3	100.0	V	3.0	51.8	-9.5	31.7	74
1991.000000	45.6	100.0	H	338.0	53.5	-7.9	28.4	74
2340.500000	47.7	100.0	H	357.0	53.6	-5.9	26.3	74
2664.000000	46.0	100.0	V	289.0	50.6	-4.6	28.0	74

Remark: 1. Quasi-Peak = Reading value + Correction factor

2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

3. Margin = Limit – Quasi-Peak



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Radiates Emission from 1GHz to 3GHz

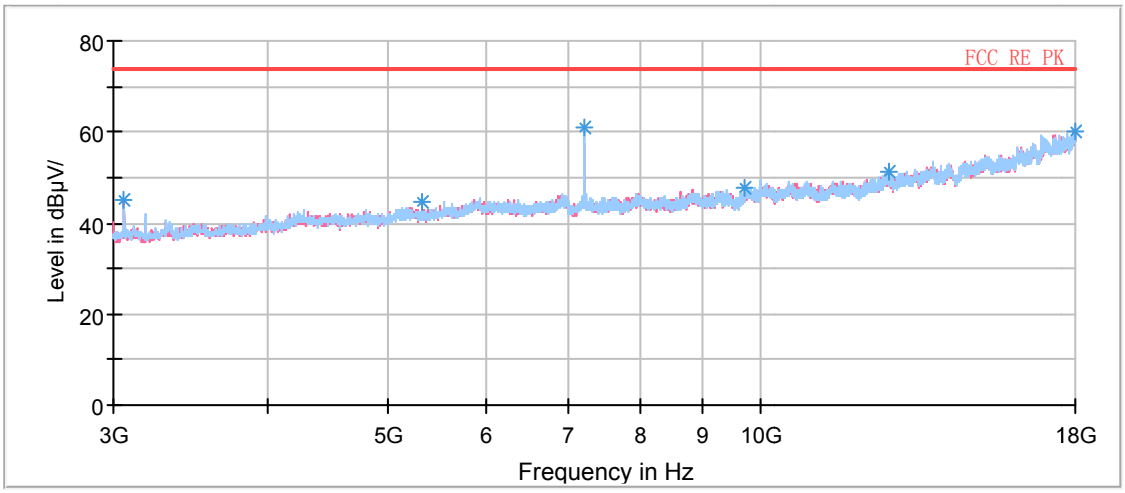
Note: The signal beyond the limit is carrier.

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1124.500000	30.5	100.0	V	0.0	41.4	-10.9	23.5	54
1374.500000	29.4	100.0	V	0.0	39.3	-9.9	24.6	54
1500.000000	30.0	100.0	V	0.0	39.5	-9.5	24.0	54
1980.000000	34.0	100.0	H	0.0	41.9	-7.9	20.0	54
2435.500000	31.8	100.0	H	0.0	37.2	-5.4	22.2	54
2829.000000	32.2	100.0	V	0.0	36.4	-4.2	21.8	54

Remark: 1. Quasi-Peak = Reading value + Correction factor

2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

3. Margin = Limit – Quasi-Peak



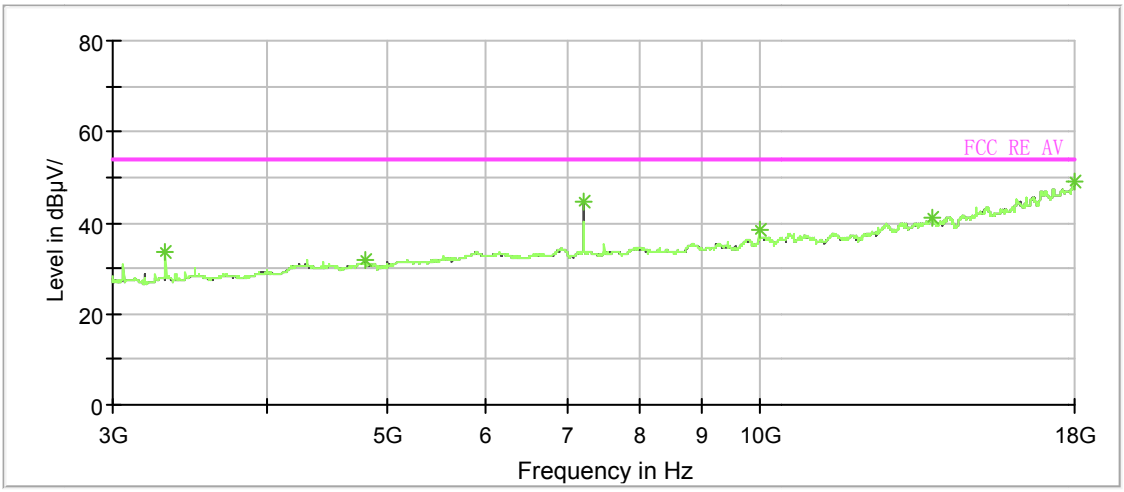
Radiates Emission from 3GHz to 18GHz

Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3061.875000	45.1	102.0	V	307.0	46.7	-1.6	28.9	74
5325.000000	44.8	102.0	H	241.0	48.6	3.8	29.2	74
7205.625000	61.2	102.0	H	289.0	69.9	8.7	12.8	74
9723.750000	47.8	102.0	H	326.0	59.1	11.3	26.2	74
12735.000000	51.5	102.0	V	136.0	66.6	15.1	22.5	74
18000.000000	60.3	102.0	V	150.0	85.7	25.4	13.7	74

Remark: 1. Quasi-Peak = Reading value + Correction factor

2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

3. Margin = Limit – Quasi-Peak



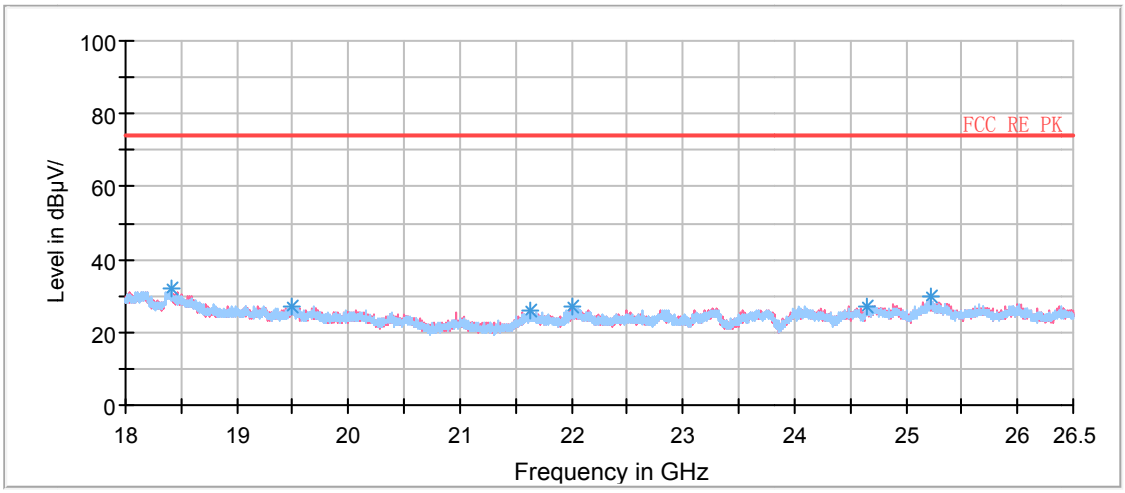
Radiates Emission from 3GHz to 18GHz

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3311.250000	33.5	102.0	H	0.0	34.9	-1.4	20.5	54
4800.000000	31.8	102.0	V	0.0	34.4	2.6	22.2	54
7205.625000	44.5	102.0	V	90.0	53.2	8.7	9.5	54
9999.375000	38.3	102.0	H	90.0	51.4	13.1	15.7	54
13788.750000	41.2	102.0	V	90.0	57.8	16.6	12.8	54
18000.000000	49.0	102.0	H	0.0	74.4	25.4	5.0	54

Remark: 1. Quasi-Peak = Reading value + Correction factor

2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

3. Margin = Limit – Quasi-Peak



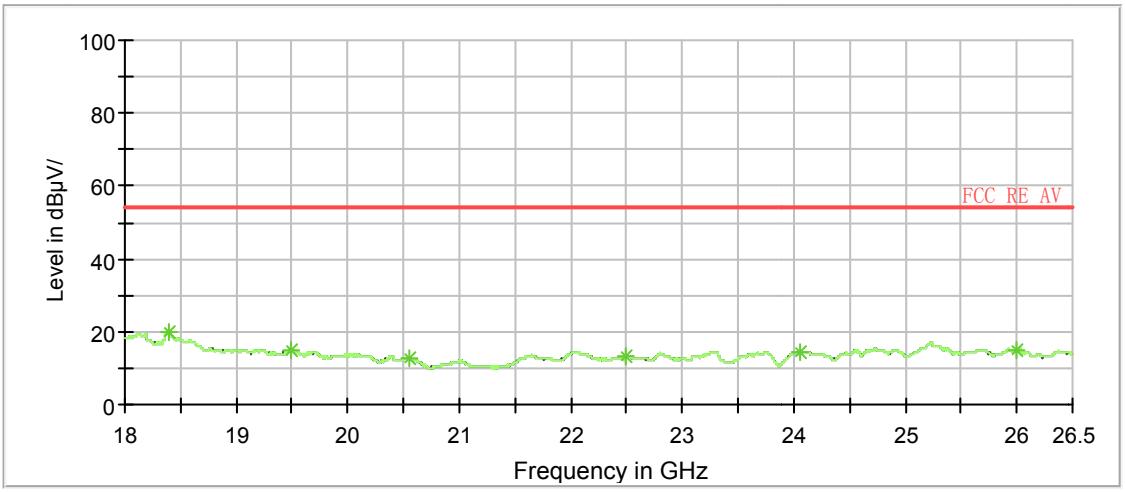
Radiates Emission from 18GHz to 26.5GHz

Frequency (MHz)	Peak (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18417.562500	31.9	H	271.0	37.0	-5.1	42.1	74
19483.250000	27.3	H	152.0	35.0	-7.7	46.7	74
21638.000000	26.2	V	143.0	35.3	-9.1	47.8	74
22012.000000	27.0	V	259.0	35.2	-8.2	47.0	74
24650.187500	27.3	V	202.0	34.3	-7.0	46.7	74
25221.812500	29.6	V	15.0	35.5	-5.9	44.4	74

Remark: 1. Quasi-Peak = Reading value + Correction factor

2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

3. Margin = Limit – Quasi-Peak



Radiates Emission from 18GHz to 26.5GHz

Frequency (MHz)	Average (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18388.875000	19.6	V	0.0	24.5	-4.9	34.4	54
19486.437500	15.0	V	0.0	22.7	-7.7	39.0	54
20556.375000	12.7	H	0.0	20.8	-8.1	41.3	54
22499.687500	13.3	V	0.0	21.4	-8.1	40.7	54
24047.750000	14.5	V	0.0	22.3	-7.8	39.5	54
26003.812500	15.2	V	0.0	22.4	-7.2	38.8	54

Remark: 1. Quasi-Peak = Reading value + Correction factor

2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

3. Margin = Limit – Quasi-Peak

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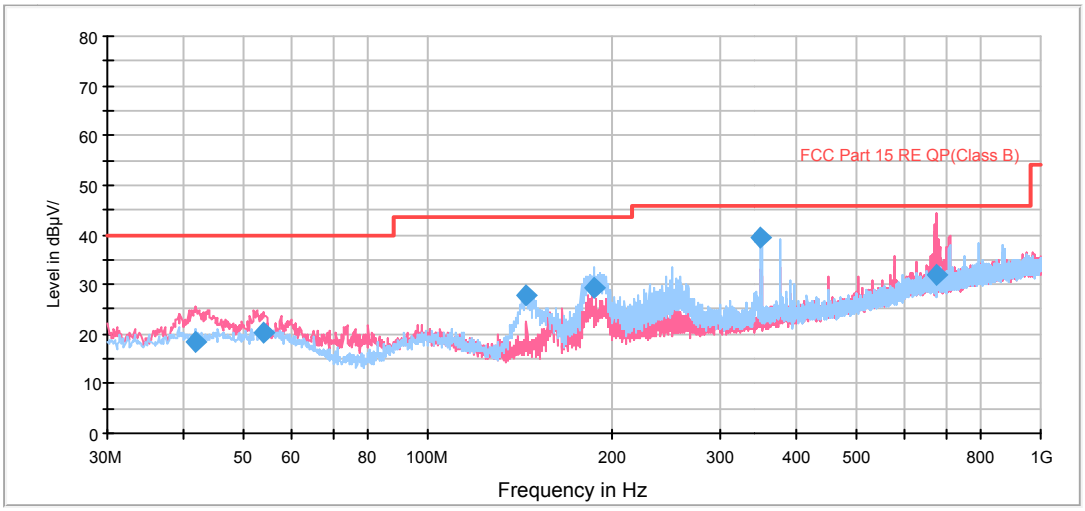


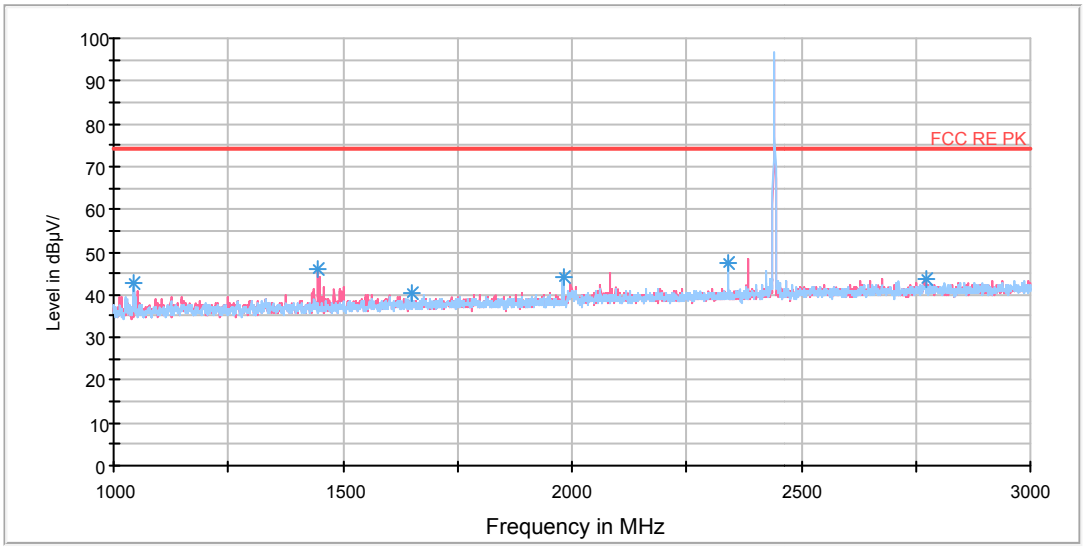
Radiates Emission from 30MHz to 1GHz

Frequency (MHz)	Quasi-Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
41.761250	18.4	100.0	V	344.0	39.0	20.6	21.6	40.0
54.007500	20.2	100.0	V	238.0	39.9	19.7	19.8	40.0
144.096250	27.9	100.0	H	199.0	44.6	16.7	15.6	43.5
186.776250	29.2	100.0	H	216.0	45.9	16.7	14.3	43.5
349.978750	39.4	100.0	H	52.0	44.7	5.3	6.6	46.0
674.201250	32.0	100.0	V	267.0	37.8	5.8	14.0	46.0

Remark: 1. Quasi-Peak = Reading value + Correction factor

2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

3. Margin = Limit – Quasi-Peak



Radiates Emission from 1GHz to 3GHz

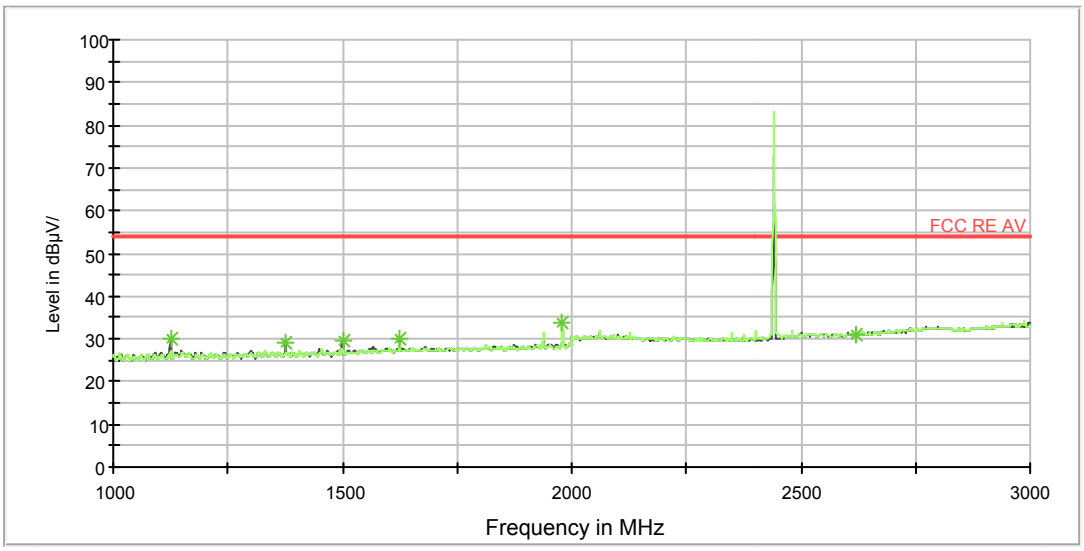
Note: The signal beyond the limit is carrier.

Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1045.500000	42.9	100.0	H	357.0	54.1	-11.2	31.1	74
1447.000000	46.2	100.0	V	181.0	55.9	-9.7	27.8	74
1648.500000	40.5	100.0	H	328.0	49.3	-8.8	33.5	74
1980.500000	44.2	100.0	H	0.0	52.1	-7.9	29.8	74
2341.000000	47.5	100.0	H	0.0	53.4	-5.9	26.5	74
2771.000000	43.7	100.0	V	355.0	48.0	-4.3	30.3	74

Remark: 1. Quasi-Peak = Reading value + Correction factor

2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

3. Margin = Limit – Quasi-Peak



Radiates Emission from 1GHz to 3GHz

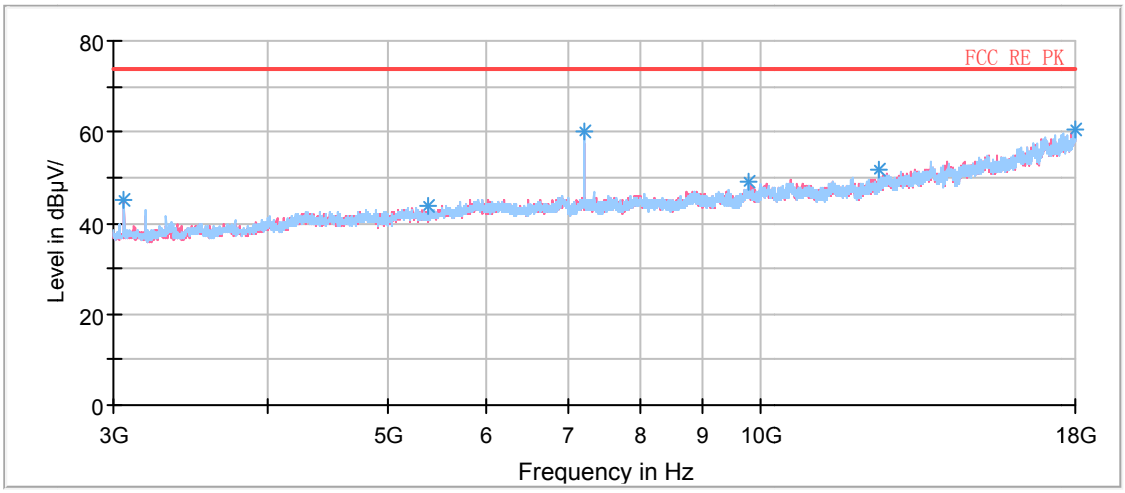
Note: The signal beyond the limit is carrier.

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1124.500000	30.0	100.0	V	0.0	40.9	-10.9	24.0	54
1374.500000	28.9	100.0	V	0.0	38.8	-9.9	25.1	54
1500.000000	29.8	100.0	V	0.0	39.3	-9.5	24.2	54
1625.000000	30.0	100.0	V	0.0	38.9	-8.9	24.0	54
1980.000000	33.7	100.0	H	0.0	41.6	-7.9	20.3	54
2618.000000	31.1	100.0	V	0.0	35.7	-4.6	22.9	54

Remark: 1. Quasi-Peak = Reading value + Correction factor

2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

3. Margin = Limit – Quasi-Peak



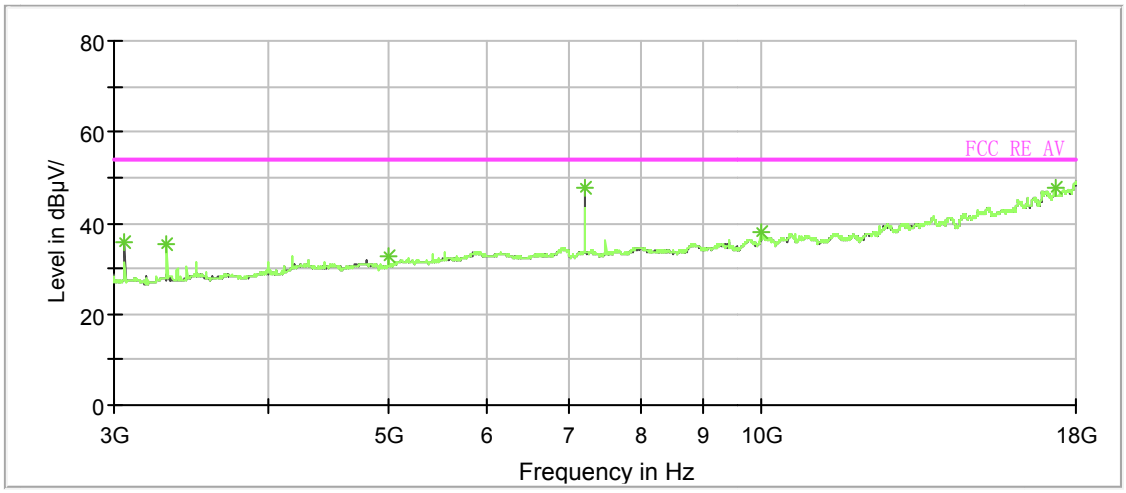
Radiates Emission from 3GHz to 18GHz

Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3061.875000	44.9	102.0	V	308.0	46.5	-1.6	29.1	74
5392.500000	43.8	102.0	V	49.0	47.5	3.7	30.2	74
7205.625000	60.1	102.0	H	308.0	68.8	8.7	13.9	74
9800.625000	48.9	102.0	V	284.0	61.2	12.3	25.1	74
12500.625000	51.5	102.0	H	333.0	66.7	15.2	22.5	74
17996.250000	60.4	102.0	V	260.0	85.8	25.4	13.6	74

Remark: 1. Quasi-Peak = Reading value + Correction factor

2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

3. Margin = Limit – Quasi-Peak



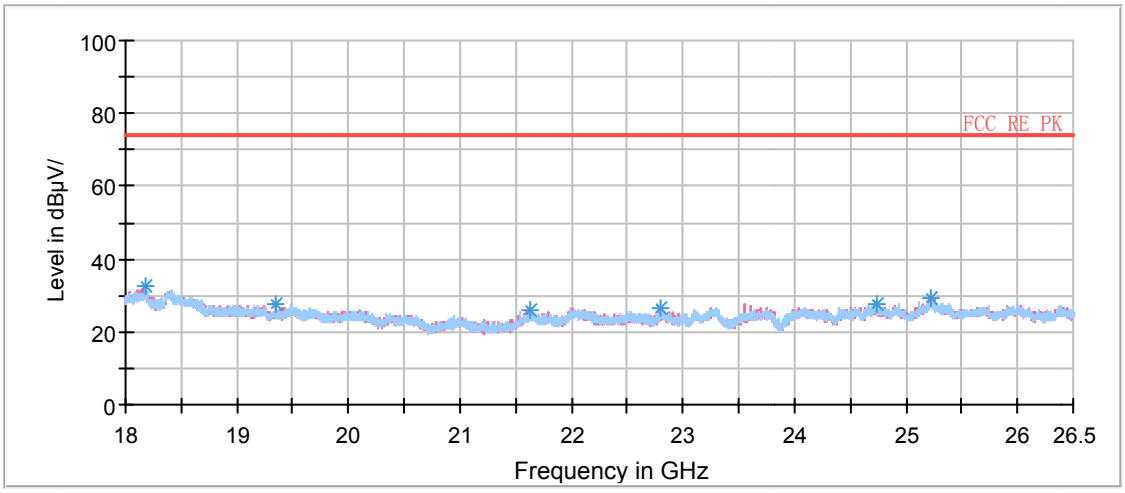
Radiates Emission from 3GHz to 18GHz

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3061.875000	35.7	102.0	V	0.0	37.3	-1.6	18.3	54
3311.250000	35.5	102.0	H	64.0	36.9	-1.4	18.5	54
4998.750000	32.7	102.0	H	64.0	35.7	3.0	21.3	54
7205.625000	47.5	102.0	V	0.0	56.2	8.7	6.5	54
9999.375000	37.8	102.0	H	64.0	50.9	13.1	16.2	54
17313.750000	47.5	102.0	H	0.0	71.2	23.7	6.5	54

Remark: 1. Quasi-Peak = Reading value + Correction factor

2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

3. Margin = Limit – Quasi-Peak



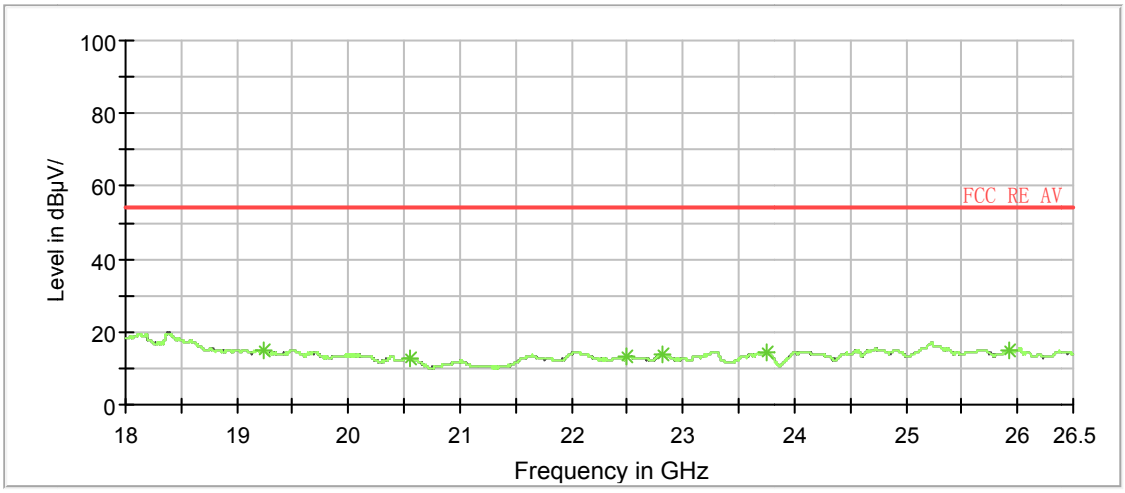
Radiates Emission from 18GHz to 26.5GHz

Frequency (MHz)	Peak (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18182.750000	32.4	H	35.0	37.3	-4.9	41.6	74
19345.125000	27.6	H	0.0	35.1	-7.5	46.4	74
21623.125000	26.0	V	45.0	35.0	-9.0	48.0	74
22796.125000	26.4	H	324.0	33.8	-7.4	47.6	74
24734.125000	27.6	H	241.0	33.9	-6.3	46.4	74
25226.062500	29.2	V	237.0	35.1	-5.9	44.8	74

Remark: 1. Quasi-Peak = Reading value + Correction factor

2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

3. Margin = Limit – Quasi-Peak



Radiates Emission from 18GHz to 26.5GHz

Frequency (MHz)	Average (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
19231.437500	14.8	V	0.0	21.6	-6.8	39.2	54
20551.062500	12.6	V	0.0	20.7	-8.1	41.4	54
22500.750000	13.3	V	0.0	21.4	-8.1	40.7	54
22822.687500	13.9	V	0.0	21.3	-7.4	40.1	54
23741.750000	14.2	V	0.0	22.1	-7.9	39.8	54
25926.250000	15.2	V	0.0	21.9	-6.7	38.8	54

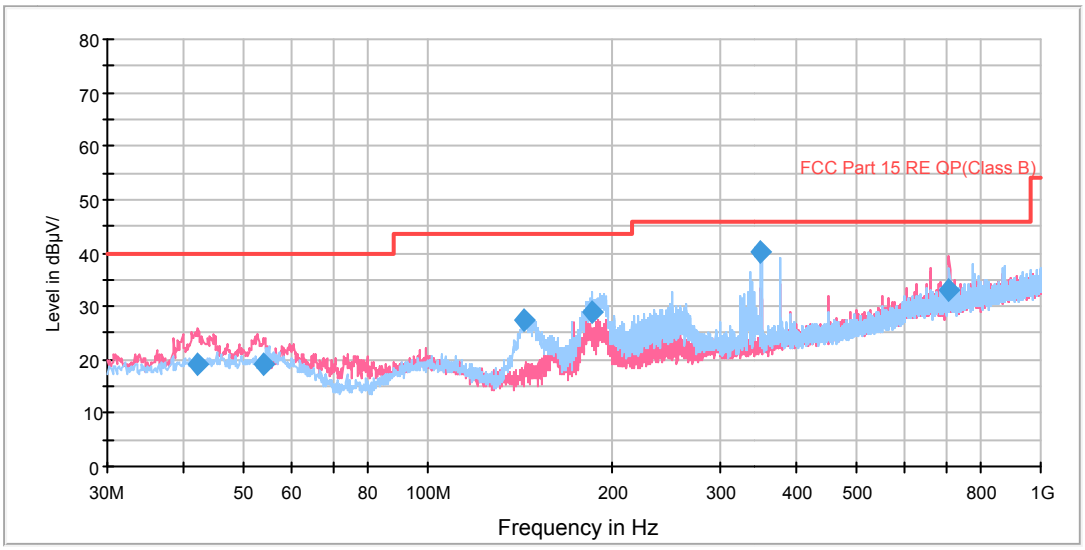
Remark: 1. Quasi-Peak = Reading value + Correction factor

2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

3. Margin = Limit – Quasi-Peak

EDR-Channel 78

FCC RE 0.03-1GHz QP Class B



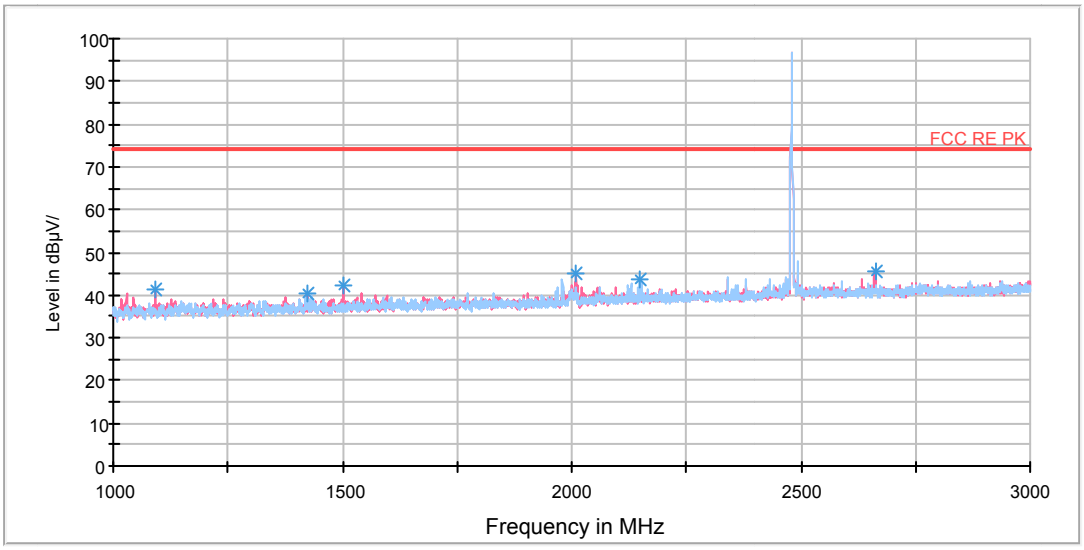
Radiates Emission from 30MHz to 1GHz

Frequency (MHz)	Quasi-Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
42.246250	19.2	100.0	V	311.0	37.3	-1.6	18.3	40.0
53.886250	19.0	100.0	V	233.0	36.9	-1.4	18.5	40.0
143.975000	27.5	100.0	H	196.0	35.7	3.0	21.3	43.5
185.321250	29.0	100.0	H	171.0	56.2	8.7	6.5	43.5
349.978750	40.3	100.0	H	75.0	50.9	13.1	16.2	46.0
709.970000	33.0	100.0	V	263.0	71.2	23.7	6.5	46.0

Remark: 1. Quasi-Peak = Reading value + Correction factor

2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

3. Margin = Limit – Quasi-Peak



Radiates Emission from 1GHz to 3GHz

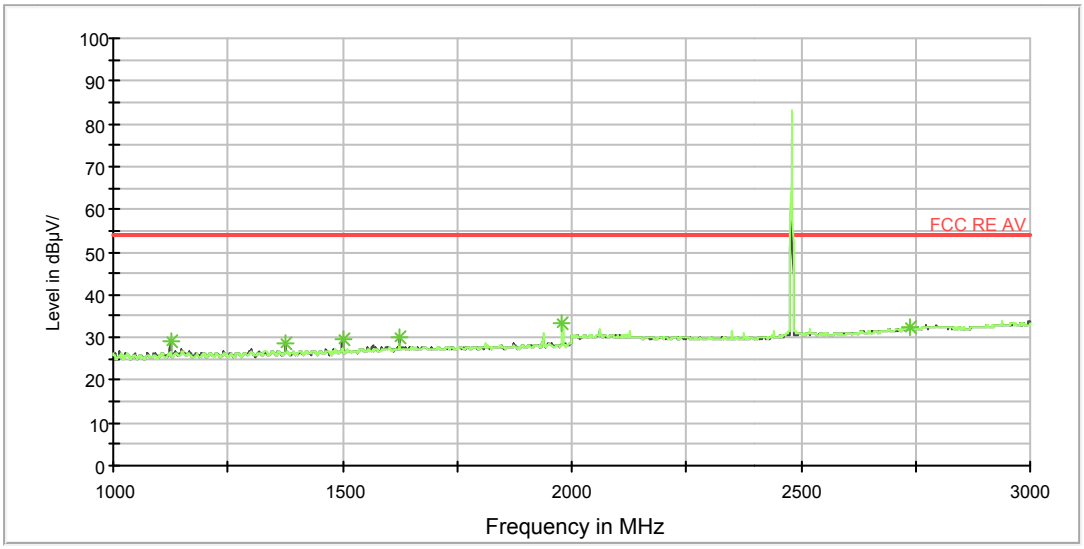
Note: The signal beyond the limit is carrier.

Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1090.500000	41.4	100.0	V	0.0	52.4	-11.0	32.6	74
1423.000000	40.5	100.0	V	12.0	50.3	-9.8	33.5	74
1500.500000	42.3	100.0	V	88.0	51.8	-9.5	31.7	74
2010.500000	45.1	100.0	V	344.0	52.8	-7.7	28.9	74
2150.000000	43.8	100.0	H	319.0	50.6	-6.8	30.2	74
2663.000000	45.7	100.0	V	284.0	50.3	-4.6	28.3	74

Remark: 1. Quasi-Peak = Reading value + Correction factor

2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

3. Margin = Limit – Quasi-Peak



Radiates Emission from 1GHz to 3GHz

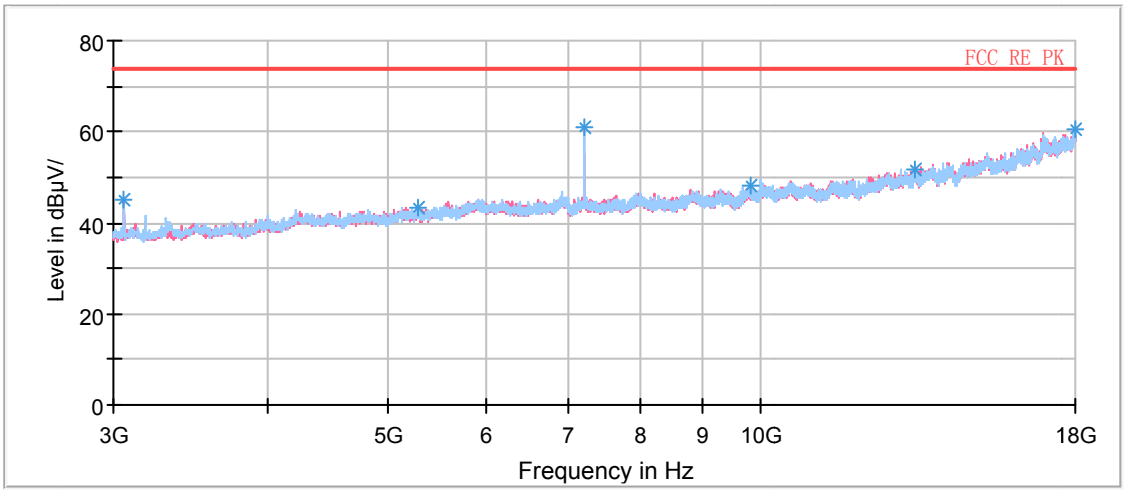
Note: The signal beyond the limit is carrier

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1124.500000	29.3	100.0	V	0.0	40.2	-10.9	24.7	54
1374.500000	28.7	100.0	V	0.0	38.6	-9.9	25.3	54
1500.000000	29.4	100.0	V	0.0	38.9	-9.5	24.6	54
1625.000000	29.9	100.0	V	0.0	38.8	-8.9	24.1	54
1980.000000	33.5	100.0	H	0.0	41.4	-7.9	20.5	54
2740.000000	32.3	100.0	V	0.0	36.7	-4.4	21.7	54

Remark: 1. Quasi-Peak = Reading value + Correction factor

2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

3. Margin = Limit – Quasi-Peak



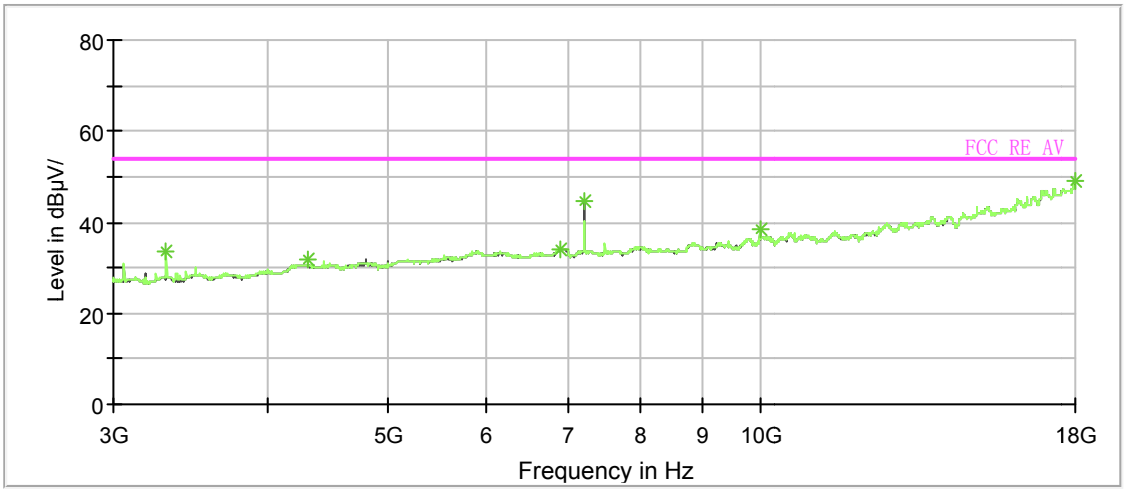
Radiates Emission from 3GHz to 18GHz

Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3061.875000	45.1	102.0	V	307.0	46.7	-1.6	28.9	74
5285.625000	43.5	102.0	V	35.0	47.3	3.8	30.5	74
7205.625000	61.2	102.0	H	285.0	69.9	8.7	12.8	74
9825.000000	48.0	102.0	H	8.0	60.0	12.0	26.0	74
13346.250000	51.8	102.0	V	171.0	67.6	15.8	22.2	74
17973.750000	60.6	102.0	V	0.0	85.7	25.1	13.4	74

Remark: 1. Quasi-Peak = Reading value + Correction factor

2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

3. Margin = Limit – Quasi-Peak



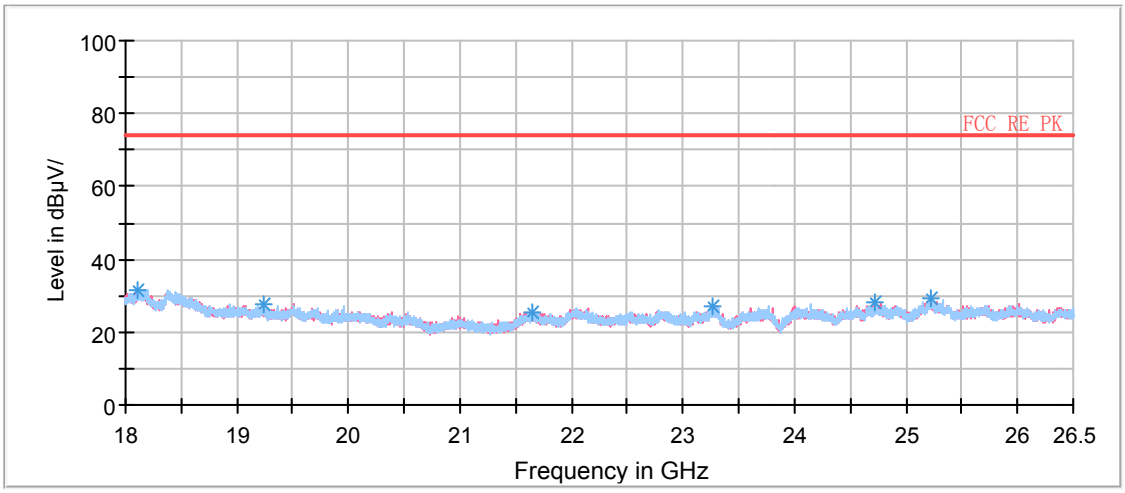
Radiates Emission from 3GHz to 18GHz

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3311.250000	33.5	102.0	H	0.0	34.9	-1.4	20.5	54
4312.500000	31.6	102.0	H	0.0	33.7	2.1	22.4	54
6896.250000	34.1	102.0	V	0.0	41.1	7.0	19.9	54
7205.625000	44.4	102.0	V	90.0	53.1	8.7	9.6	54
9999.375000	38.3	102.0	H	90.0	51.4	13.1	15.7	54
18000.000000	49.0	102.0	V	90.0	74.4	25.4	5.0	54

Remark: 1. Quasi-Peak = Reading value + Correction factor

2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

3. Margin = Limit – Quasi-Peak



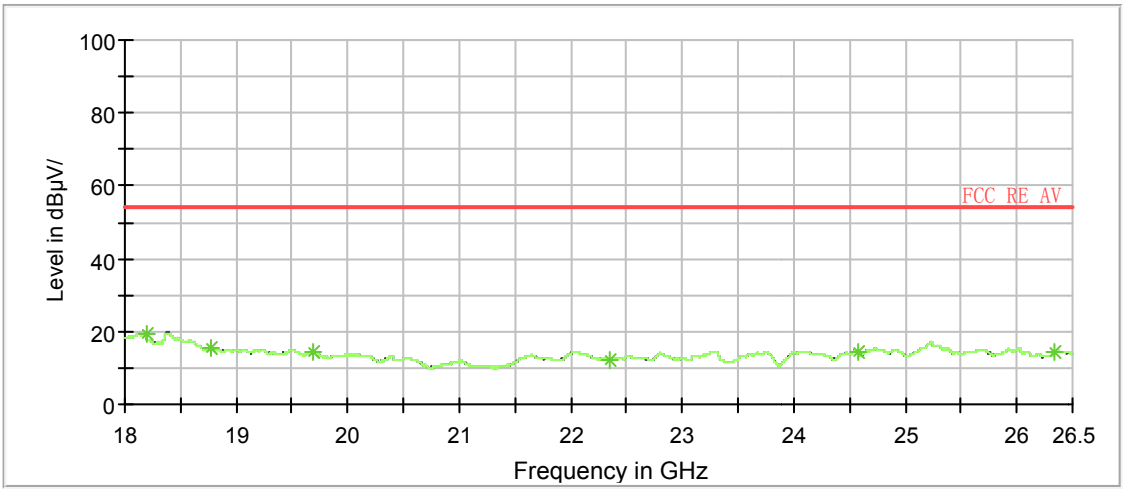
Radiates Emission from 18GHz to 26.5GHz

Frequency (MHz)	Peak (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18102.000000	31.6	V	6.0	36.9	-5.3	42.4	74
19241.000000	27.7	H	274.0	34.5	-6.8	46.3	74
21648.625000	25.4	H	33.0	34.6	-9.2	48.6	74
23274.250000	27.1	H	178.0	34.3	-7.2	46.9	74
24725.625000	28.0	V	44.0	34.2	-6.2	46.0	74
25231.375000	29.4	V	137.0	35.3	-5.9	44.6	74

Remark: 1. Quasi-Peak = Reading value + Correction factor

2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

3. Margin = Limit – Quasi-Peak



Radiates Emission from 18GHz to 26.5GHz

Frequency (MHz)	Average (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18193.375000	19.3	H	0.0	24.3	-5.0	34.7	54
18772.437500	15.4	V	0.0	22.2	-6.8	38.6	54
19697.875000	14.3	V	0.0	22.0	-7.7	39.7	54
22353.062500	12.3	V	0.0	20.5	-8.2	41.7	54
24571.562500	14.6	V	0.0	22.2	-7.6	39.4	54
26344.875000	14.1	V	0.0	21.5	-7.4	39.9	54

Remark: 1. Quasi-Peak = Reading value + Correction factor

2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

3. Margin = Limit – Quasi-Peak

4.11 Conducted Emission

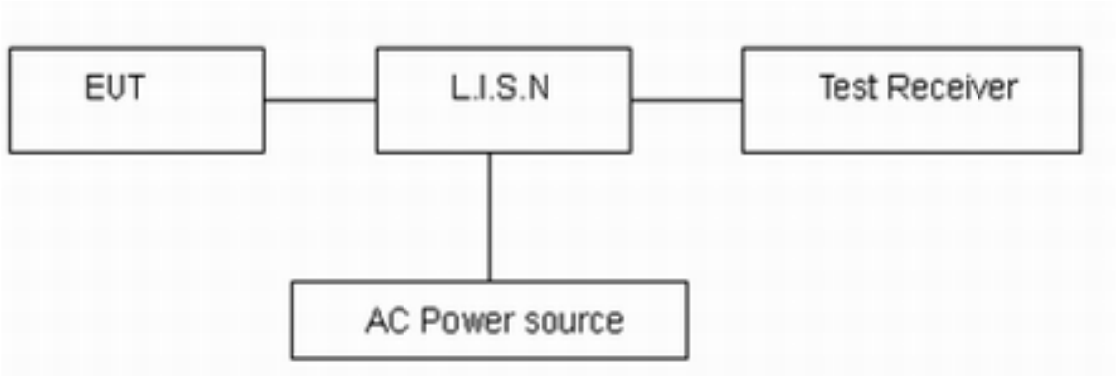
Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Methods of Measurement

The EUT is placed on a non-metallic table of 80cm height above the horizontal metal reference ground plane. During the test, the EUT was operating in its typical mode. The test method is according to ANSI C63.10-2013. Connect the AC power line of the EUT to the L.I.S.N. Use EMI receiver to detect the average and Quasi-peak value. RBW is set to 9 kHz, VBW is set to 30kHz.The measurement result should include both L line and N line.
The test is in transmitting mode.

Test Setup



Note: AC Power source is used to change the voltage on 110V/60Hz.

Limits

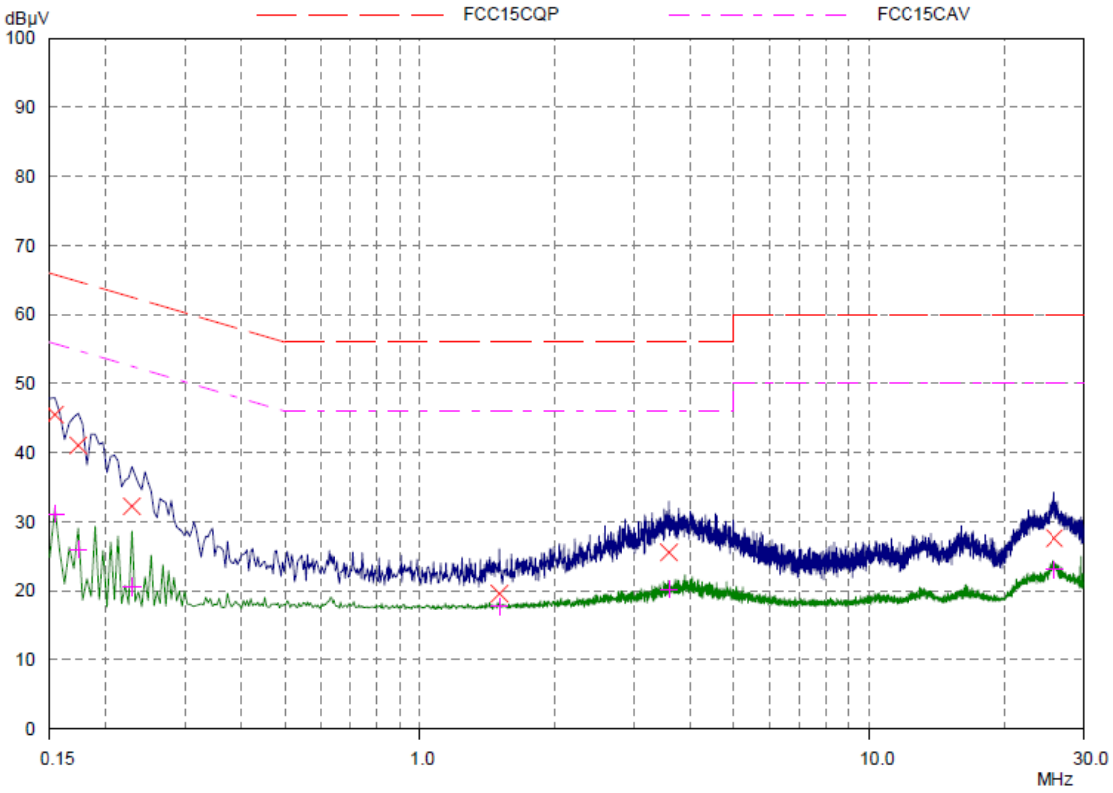
Frequency (MHz)	Conducted Limits(dBμV)	
	Quasi-peak	Average
0.15 - 0.5	66 to 56 *	56 to 46*
0.5 - 5	56	46
5 - 30	60	50
*: Decreases with the logarithm of the frequency.		

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 1.96, U=2.69 dB.

Test Results:

Following plots, Blue trace uses the peak detection, Green trace uses the average detection.
Basic Rate-CH0

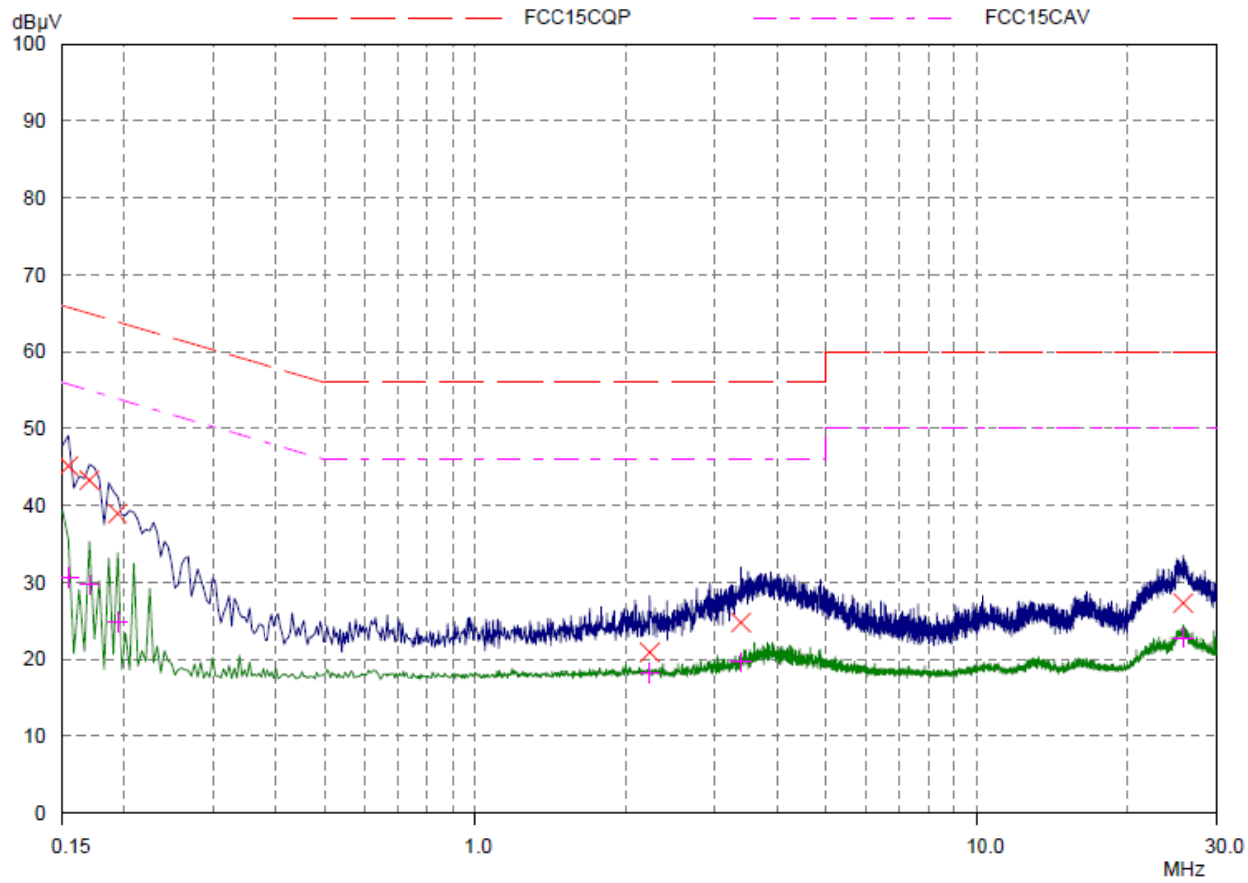


Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -	PE -
0.1539	45.52	65.79	20.27	L1	gnd
0.17343	41.06	64.79	23.73	L1	gnd
0.22812	32.25	62.52	30.27	L1	gnd
1.50546	19.61	56.00	36.39	L1	gnd
3.5875	25.59	56.00	30.41	L1	gnd
25.84531	27.61	60.00	32.39	L1	gnd

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -	PE -
0.1539	31.16	55.79	24.63	L1	gnd
0.17343	26.03	54.79	28.76	L1	gnd
0.22812	20.55	52.52	31.97	L1	gnd
1.50546	17.72	46.00	28.28	L1	gnd
3.5875	20.26	46.00	25.74	L1	gnd
25.84531	23.09	50.00	26.91	L1	gnd

L Line



Final Measurement Results

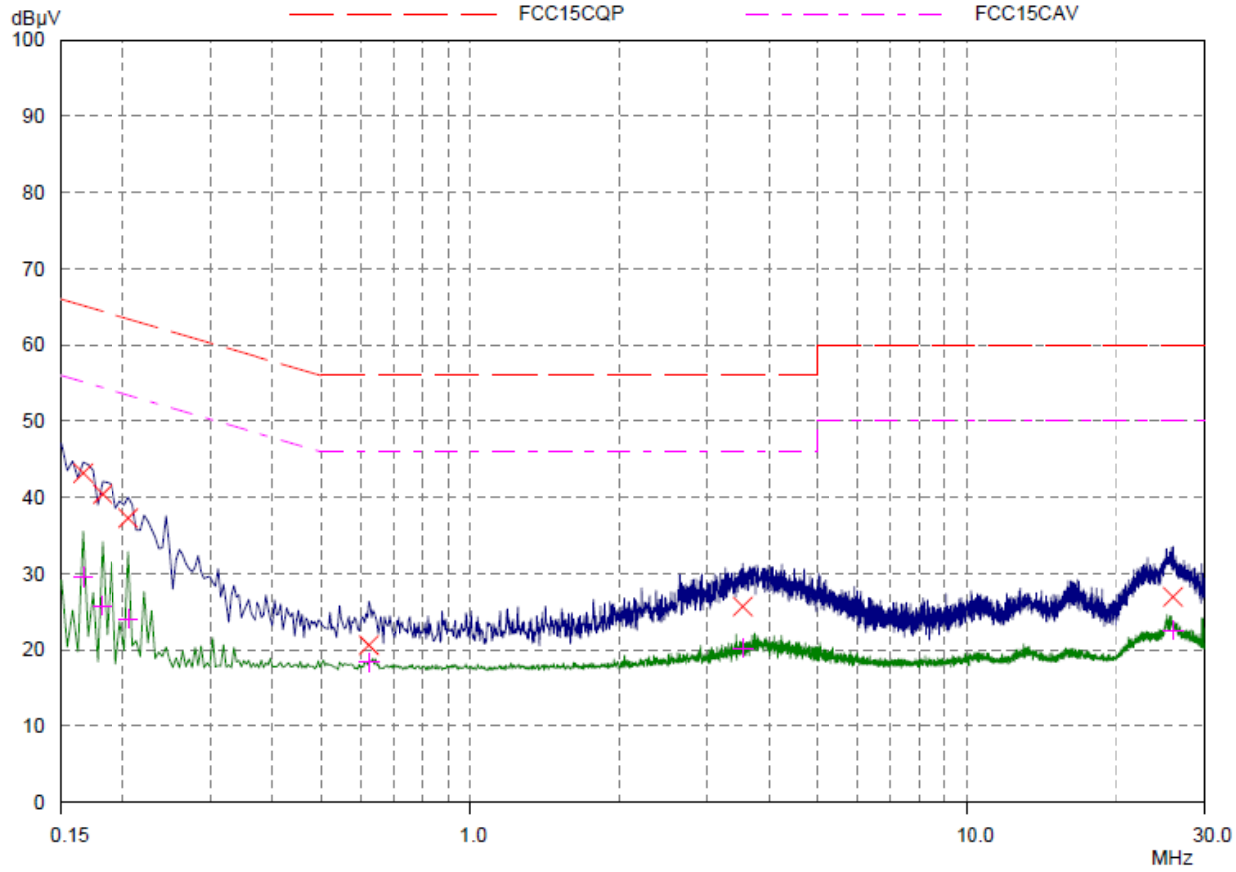
Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -	PE -
0.1539	45.14	65.79	20.65	N	gnd
0.16953	43.30	64.98	21.68	N	gnd
0.19296	38.95	63.91	24.96	N	gnd
2.22421	20.92	56.00	35.08	N	gnd
3.38828	24.80	56.00	31.20	N	gnd
25.81406	27.32	60.00	32.68	N	gnd

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -	PE -
0.1539	30.63	55.79	25.16	N	gnd
0.16953	29.70	54.98	25.28	N	gnd
0.19296	24.88	53.91	29.03	N	gnd
2.22421	18.23	46.00	27.77	N	gnd
3.38828	19.66	46.00	26.34	N	gnd
25.81406	22.81	50.00	27.19	N	gnd

N Line

Conducted Emission from 150 KHz to 30 MHz

Basic Rate-CH39

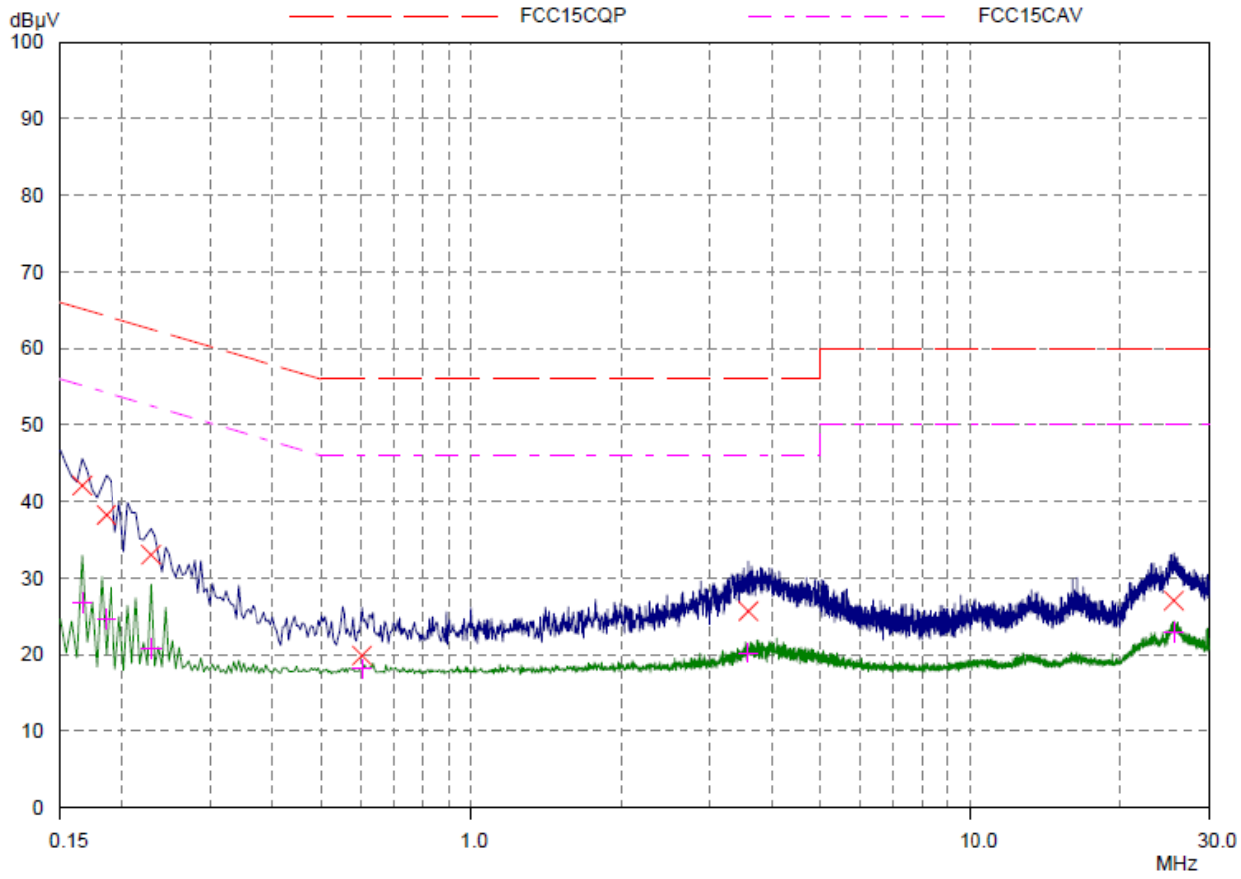


Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -	PE -
0.16562	43.21	65.18	21.97	L1	gnd
0.18125	40.44	64.43	23.99	L1	gnd
0.20468	37.28	63.42	26.14	L1	gnd
0.62265	20.63	56.00	35.37	L1	gnd
3.53671	25.71	56.00	30.29	L1	gnd
26.03671	26.97	60.00	33.03	L1	gnd

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -	PE -
0.16562	29.62	55.18	25.56	L1	gnd
0.18125	25.82	54.43	28.61	L1	gnd
0.20468	24.08	53.42	29.34	L1	gnd
0.62265	18.38	46.00	27.62	L1	gnd
3.53671	20.26	46.00	25.74	L1	gnd
26.03671	22.62	50.00	27.38	L1	gnd

L Line



Final Measurement Results

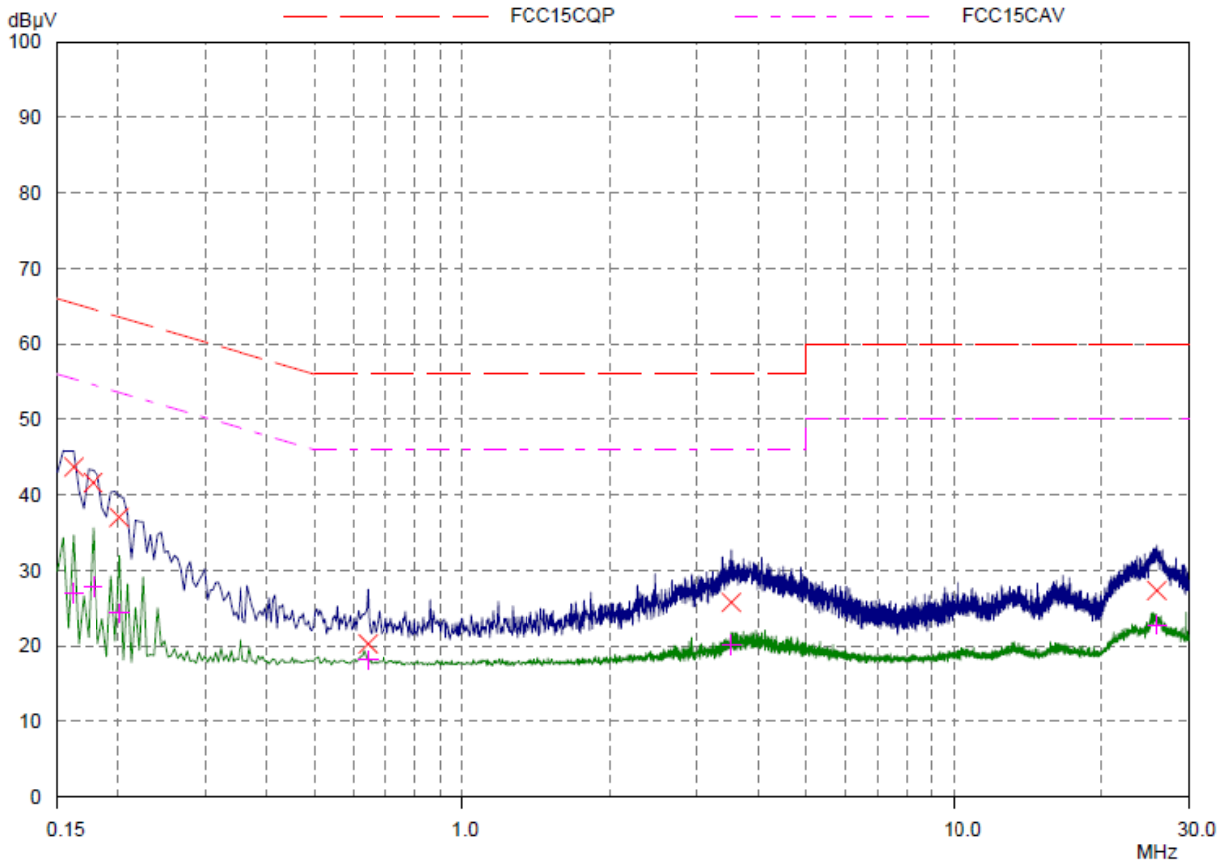
Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -	PE -
0.16562	42.09	65.18	23.09	N	gnd
0.18515	38.25	64.25	26.00	N	gnd
0.22812	33.05	62.52	29.47	N	gnd
0.60312	19.90	56.00	36.10	N	gnd
3.58359	25.69	56.00	30.31	N	gnd
25.5914	27.04	60.00	32.96	N	gnd

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -	PE -
0.16562	26.80	55.18	28.38	N	gnd
0.18515	24.65	54.25	29.60	N	gnd
0.22812	20.80	52.52	31.72	N	gnd
0.60312	18.15	46.00	27.85	N	gnd
3.58359	20.26	46.00	25.74	N	gnd
25.5914	22.96	50.00	27.04	N	gnd

N Line

Conducted Emission from 150 KHz to 30 MHz

Basic Rate-CH78

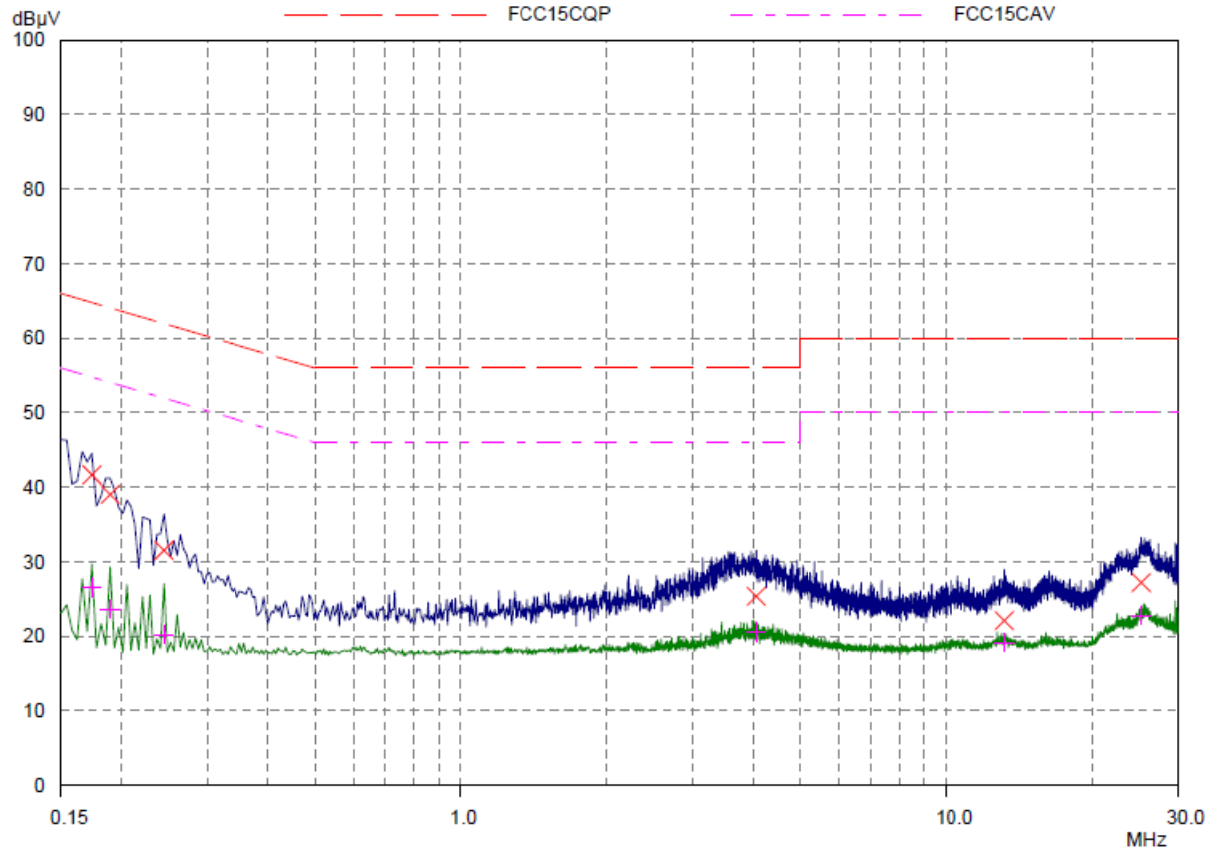


Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -	PE -
0.16171	43.73	65.38	21.65	L1	gnd
0.17734	41.64	64.61	22.97	L1	gnd
0.20078	37.06	63.58	26.52	L1	gnd
0.64218	20.27	56.00	35.73	L1	gnd
3.5289	25.79	56.00	30.21	L1	gnd
25.9	27.33	60.00	32.67	L1	gnd

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -	PE -
0.16171	27.04	55.38	28.34	L1	gnd
0.17734	27.87	54.61	26.74	L1	gnd
0.20078	24.33	53.58	29.25	L1	gnd
0.64218	18.14	46.00	27.86	L1	gnd
3.5289	20.13	46.00	25.87	L1	gnd
25.9	22.82	50.00	27.18	L1	gnd

L Line



Final Measurement Results

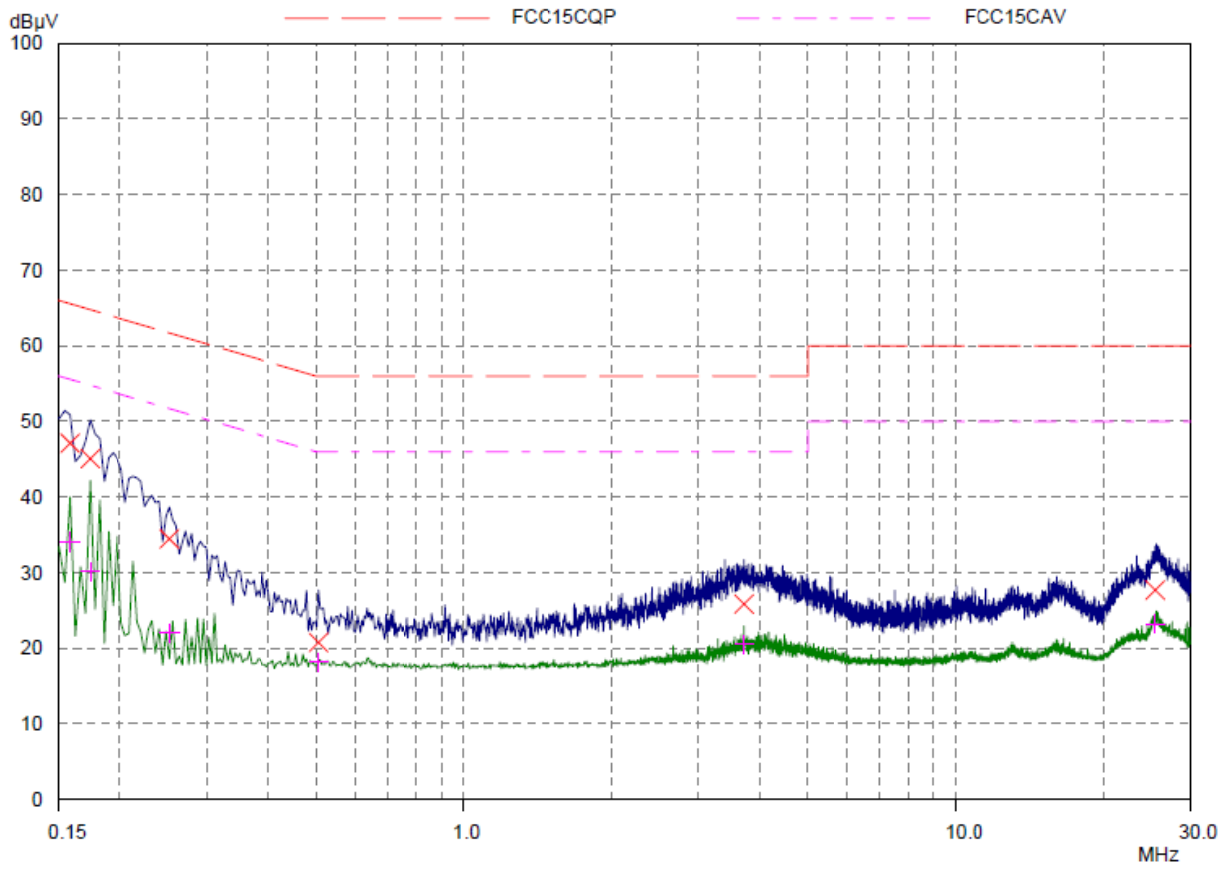
Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -	PE -
0.17343	41.68	64.79	23.11	N	gnd
0.18906	39.05	64.08	25.03	N	gnd
0.24375	31.54	61.97	30.43	N	gnd
4.05234	25.40	56.00	30.60	N	gnd
13.2125	22.11	60.00	37.89	N	gnd
25.29453	27.21	60.00	32.79	N	gnd

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -	PE -
0.17343	26.60	54.79	28.19	N	gnd
0.18906	23.67	54.08	30.41	N	gnd
0.24375	20.23	51.97	31.74	N	gnd
4.05234	20.58	46.00	25.42	N	gnd
13.2125	19.16	50.00	30.84	N	gnd
25.29453	22.82	50.00	27.18	N	gnd

N Line

Conducted Emission from 150 KHz to 30 MHz

EDR-CH0

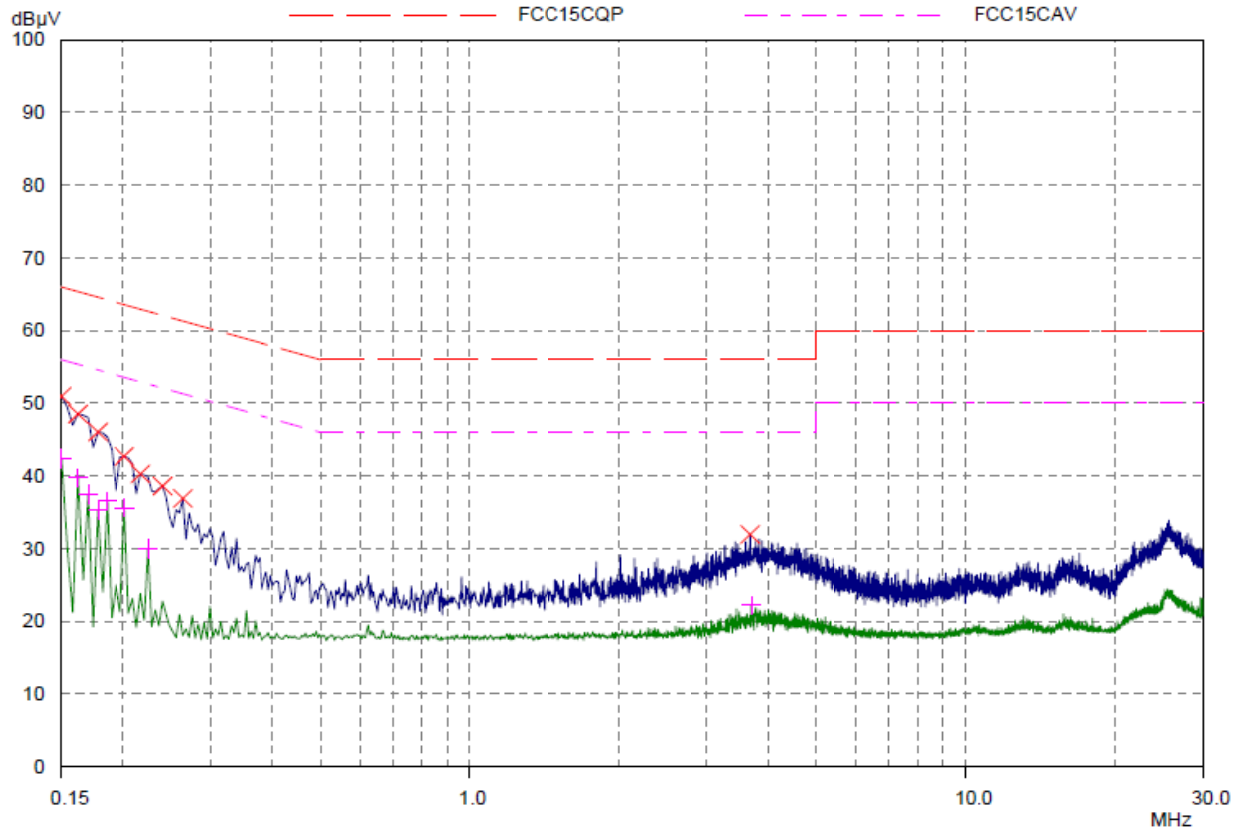


Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -	PE -
0.15781	47.12	65.58	18.46	L1	gnd
0.17343	45.08	64.79	19.71	L1	gnd
0.25156	34.48	61.71	27.23	L1	gnd
0.50546	20.78	56.00	35.22	L1	gnd
3.7164	25.85	56.00	30.15	L1	gnd
25.54453	27.69	60.00	32.31	L1	gnd

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -	PE -
0.15781	34.07	55.58	21.51	L1	gnd
0.17343	30.12	54.79	24.67	L1	gnd
0.25156	21.97	51.71	29.74	L1	gnd
0.50546	18.15	46.00	27.85	L1	gnd
3.7164	20.51	46.00	25.49	L1	gnd
25.54453	23.21	50.00	26.79	L1	gnd

L Line



Peak Search Results

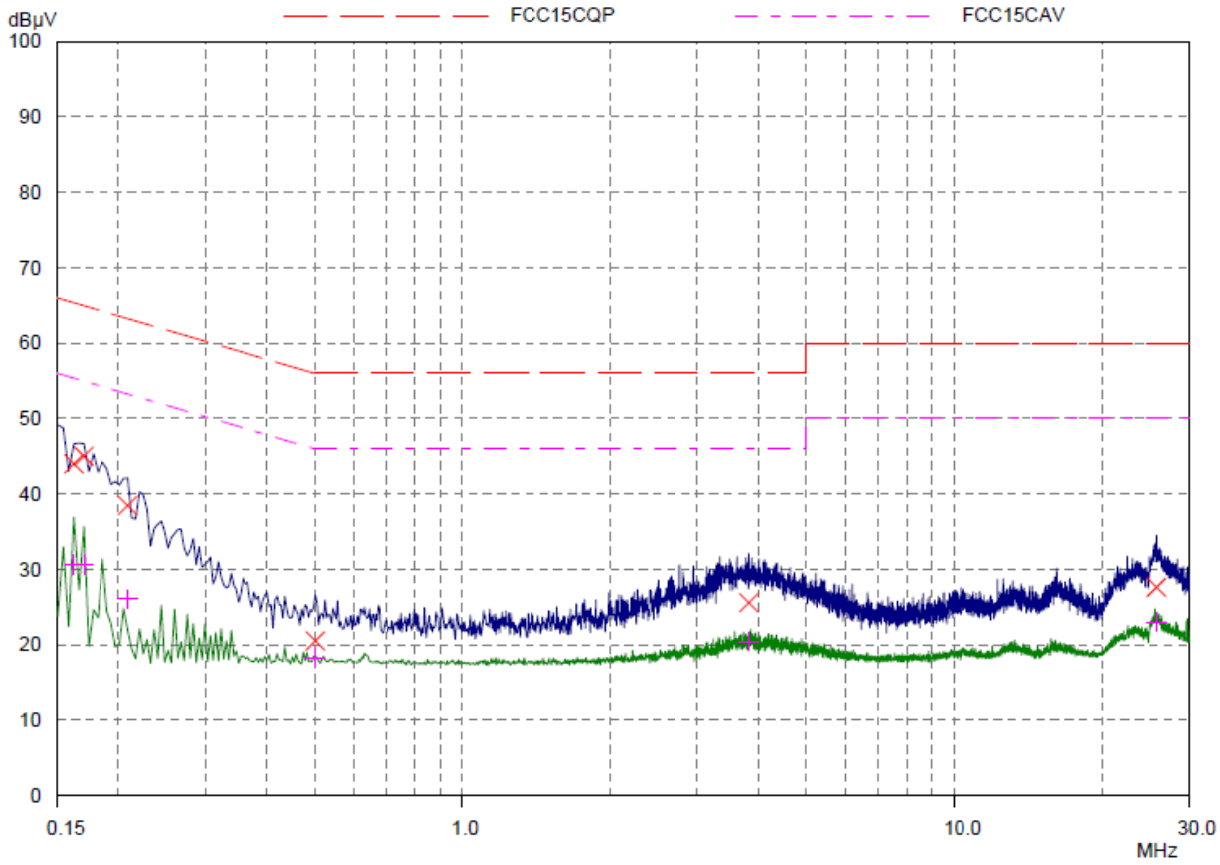
Frequency MHz	PK Level dBµV	PK Limit dBµV	PK Delta dB	Phase -	PE -
0.15	50.98	66.00	15.02	N	gnd
0.16171	48.55	65.38	16.83	N	gnd
0.17734	46.04	64.61	18.57	N	gnd
0.20078	42.72	63.58	20.86	N	gnd
0.2164	40.27	62.96	22.69	N	gnd
0.23984	38.62	62.10	23.48	N	gnd
0.26328	36.93	61.33	24.40	N	gnd
3.67734	31.97	56.00	24.03	N	gnd

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -	PE -
0.15	42.38	56.00	13.62	N	gnd
0.16171	39.75	55.38	15.63	N	gnd
0.16953	37.46	54.98	17.52	N	gnd
0.17734	35.38	54.61	19.23	N	gnd
0.18515	36.55	54.25	17.70	N	gnd
0.20078	35.64	53.58	17.94	N	gnd
0.22421	29.97	52.66	22.69	N	gnd
3.69687	22.23	46.00	23.77	N	gnd

N Line

Conducted Emission from 150 KHz to 30 MHz

EDR-CH39

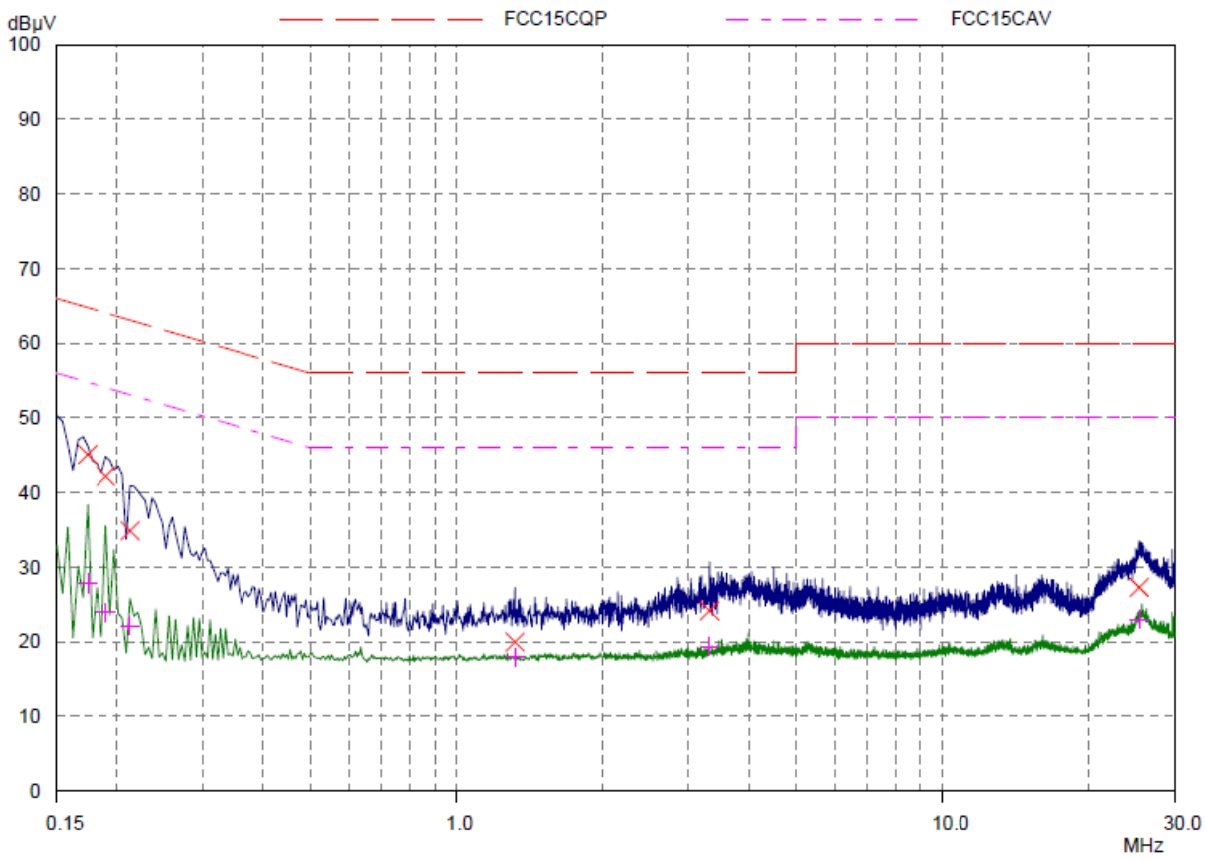


Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -	PE -
0.16171	44.01	65.38	21.37	L1	gnd
0.16953	45.02	64.98	19.96	L1	gnd
0.20859	38.48	63.26	24.78	L1	gnd
0.50156	20.52	56.00	35.48	L1	gnd
3.82578	25.59	56.00	30.41	L1	gnd
25.84531	27.65	60.00	32.35	L1	gnd

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -	PE -
0.16171	30.62	55.38	24.76	L1	gnd
0.16953	30.68	54.98	24.30	L1	gnd
0.20859	26.07	53.26	27.19	L1	gnd
0.50156	18.31	46.00	27.69	L1	gnd
3.82578	20.45	46.00	25.55	L1	gnd
25.84531	23.04	50.00	26.96	L1	gnd

L Line



Final Measurement Results

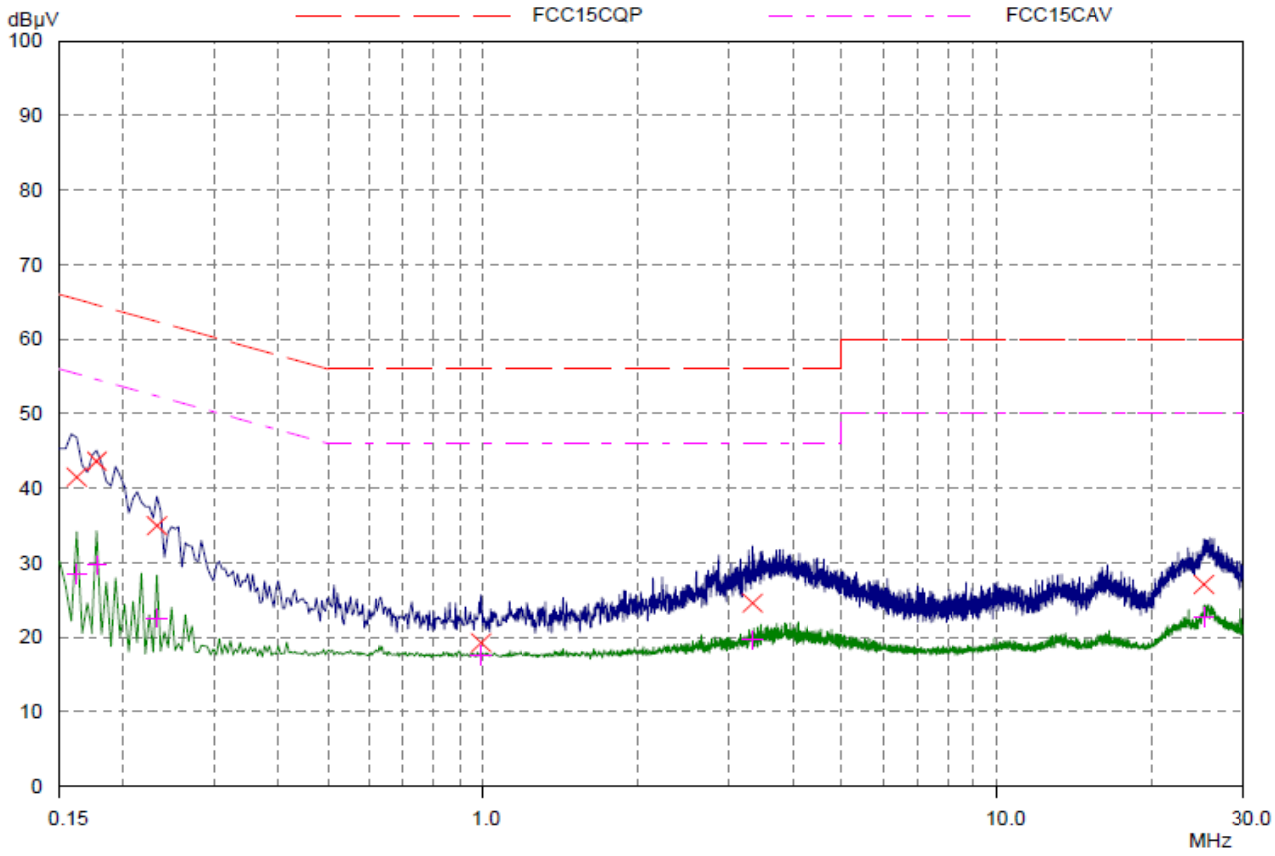
Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -	PE -
0.17343	45.10	64.79	19.69	N	gnd
0.18906	42.21	64.08	21.87	N	gnd
0.2125	34.89	63.11	28.22	N	gnd
1.31406	19.96	56.00	36.04	N	gnd
3.32187	24.16	56.00	31.84	N	gnd
25.38828	27.28	60.00	32.72	N	gnd

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -	PE -
0.17343	27.82	54.79	26.97	N	gnd
0.18906	23.93	54.08	30.15	N	gnd
0.2125	22.14	53.11	30.97	N	gnd
1.31406	17.96	46.00	28.04	N	gnd
3.32187	19.38	46.00	26.62	N	gnd
25.38828	22.99	50.00	27.01	N	gnd

N Line

Conducted Emission from 150 KHz to 30 MHz

EDR-CH78

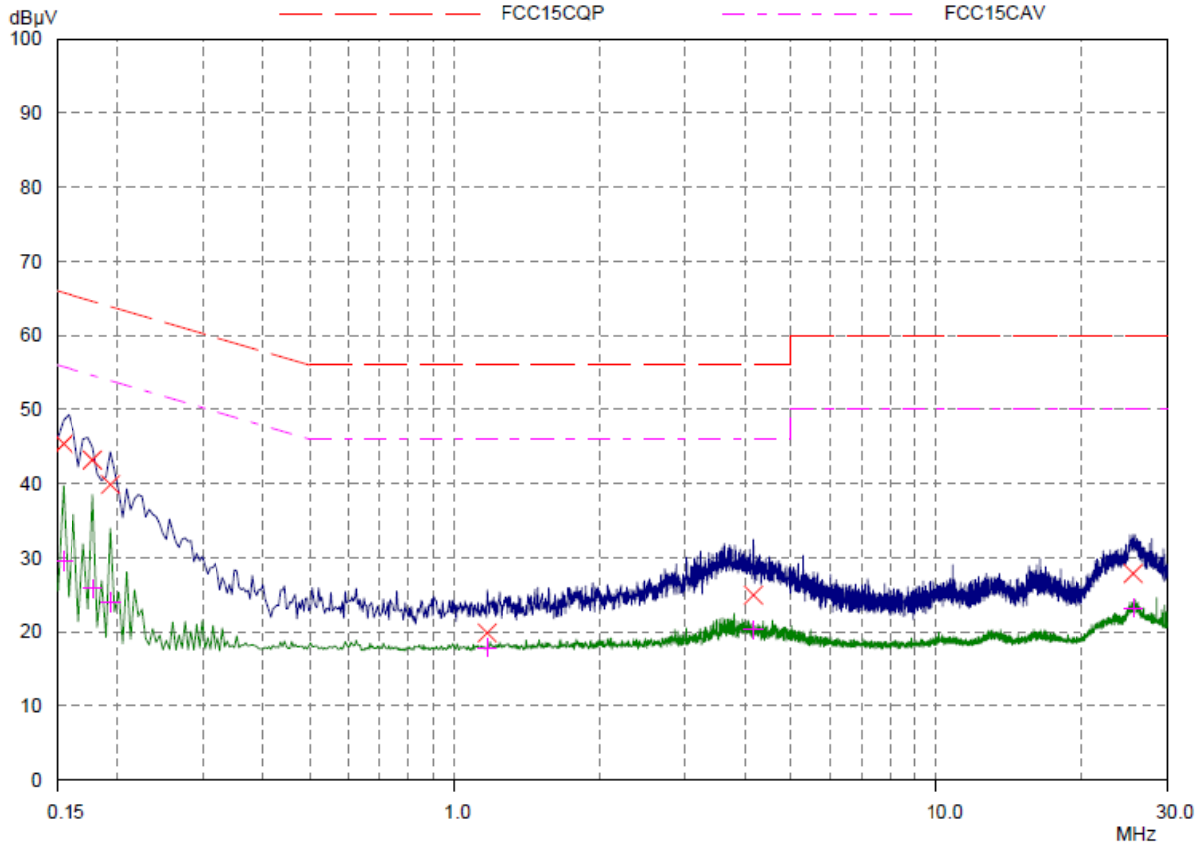


Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -	PE -
0.16171	41.51	65.38	23.87	L1	gnd
0.17734	43.64	64.61	20.97	L1	gnd
0.23203	35.00	62.38	27.38	L1	gnd
0.98984	19.28	56.00	36.72	L1	gnd
3.3375	24.60	56.00	31.40	L1	gnd
25.18906	27.11	60.00	32.89	L1	gnd

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -	PE -
0.16171	28.50	55.38	26.88	L1	gnd
0.17734	29.70	54.61	24.91	L1	gnd
0.23203	22.58	52.38	29.80	L1	gnd
0.98984	17.63	46.00	28.37	L1	gnd
3.3375	19.66	46.00	26.34	L1	gnd
25.18906	22.74	50.00	27.26	L1	gnd

L Line



Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -	PE -
0.1539	45.40	65.79	20.39	N	gnd
0.17734	43.20	64.61	21.41	N	gnd
0.19296	39.91	63.91	24.00	N	gnd
1.16562	19.86	56.00	36.14	N	gnd
4.1578	24.96	56.00	31.04	N	gnd
25.57578	27.88	60.00	32.12	N	gnd

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -	PE -
0.1539	29.59	55.79	26.20	N	gnd
0.17734	25.89	54.61	28.72	N	gnd
0.19296	24.01	53.91	29.90	N	gnd
1.16562	17.88	46.00	28.12	N	gnd
4.1578	20.33	46.00	25.67	N	gnd
25.57578	23.22	50.00	26.78	N	gnd

N Line

Conducted Emission from 150 KHz to 30 MHz

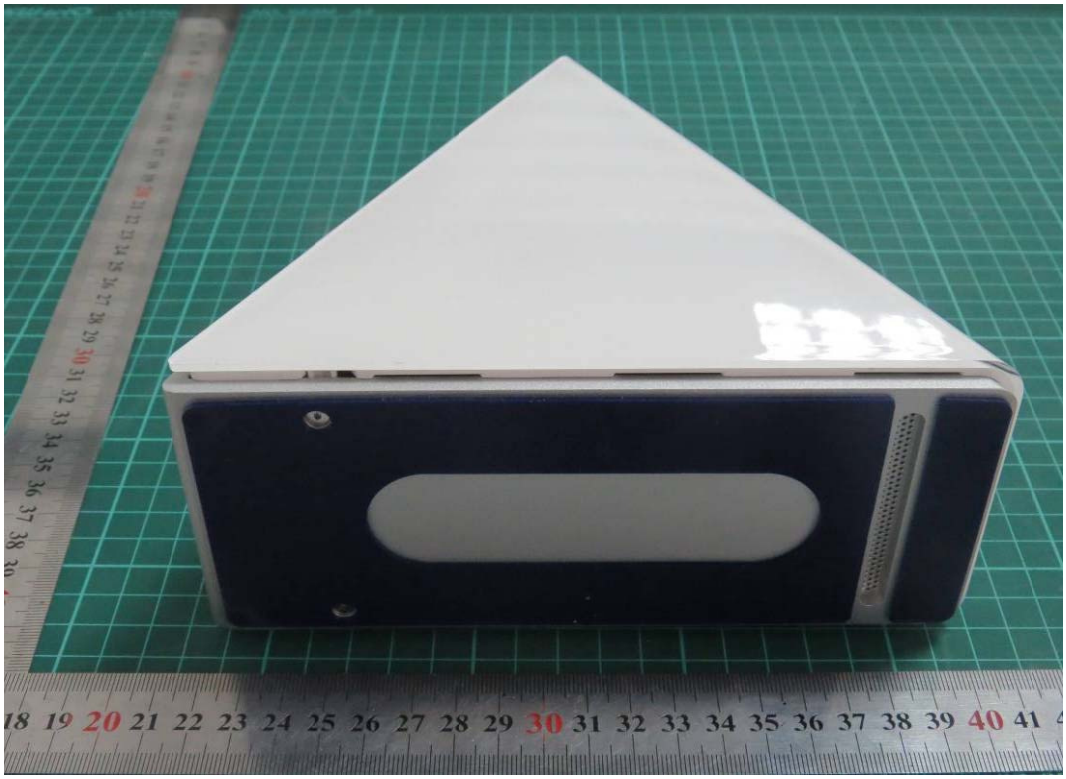
5 Main Test Instruments

Name	Type	Manufacturer	Serial Number	Calibration Date	Expiration Time
BT Base Station Simulator	CBT	R&S	100271	2015-05-25	2016-05-24
EMI Test Receiver	ESCS30	R&S	100138	2015-12-17	2016-12-16
LISN	ENV216	R&S	101171	2015-12-18	2016-12-17
EMI Test Receiver	ESCI	R&S	100948	2015-05-25	2016-05-24
Loop Antenna	FMZB1519	SCHWARZBECK	1519-047	2014-02-29	2017-02-28
TRILOG Broadband Antenna	VULB 9163	Schwarzbeck	9163-201	2013-11-25	2016-11-24
Double Ridged Waveguide Horn Antenna	HF907	R&S	100126	2015-07-01	2018-06-30
Standard Gain Horn Antenna	3160-09	ETS-Lindgren	00102644	2015-05-19	2018-05-18
Power Splitter	SHX-GF2-2-13	Hua Xiang	10120101	NA	NA
Spectrum Analyzer	FSV30	R&S	100815	2015-12-17	2016-12-16
Spectrum Analyzer	N9010A	Agilent	MY47191109	2015-05-22	2016-05-21
RF Cable	SMA 15cm	Agilent	0001	2016-01-08	2016-04-07

*******END OF REPORT *******

ANNEX A: EUT Appearance and Test Setup

A.1 EUT Appearance



Front Side

Left & Right Side

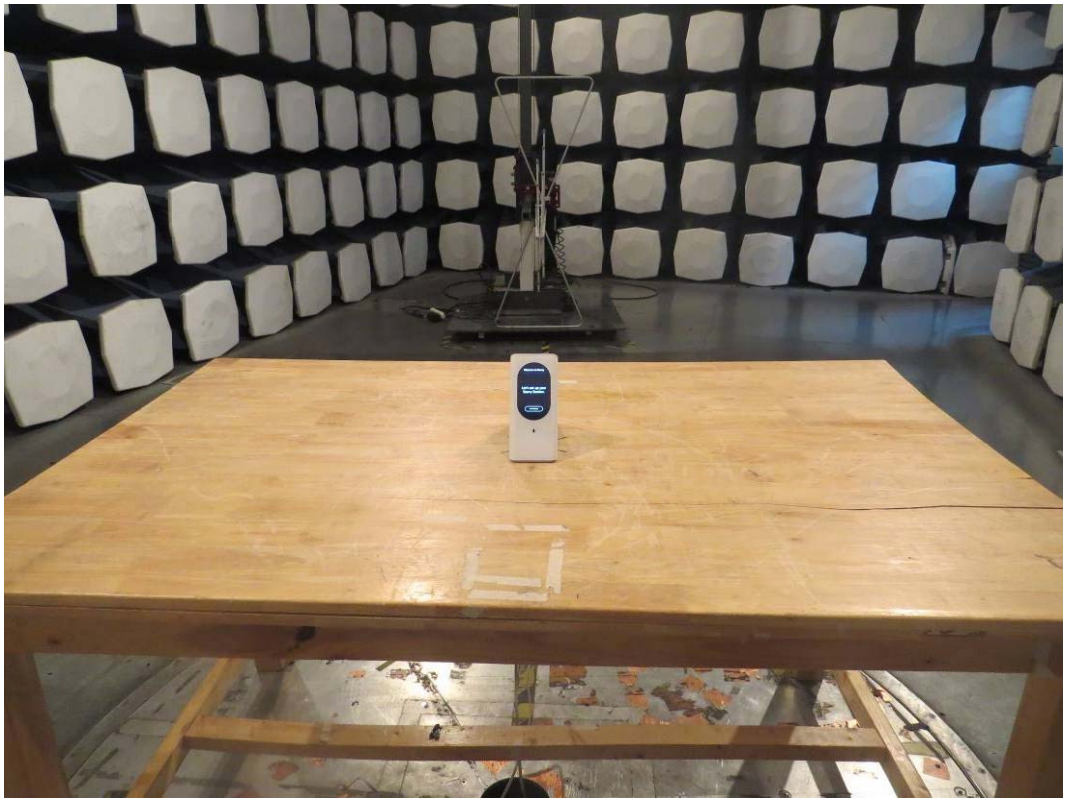
a: EUT

b: power cable

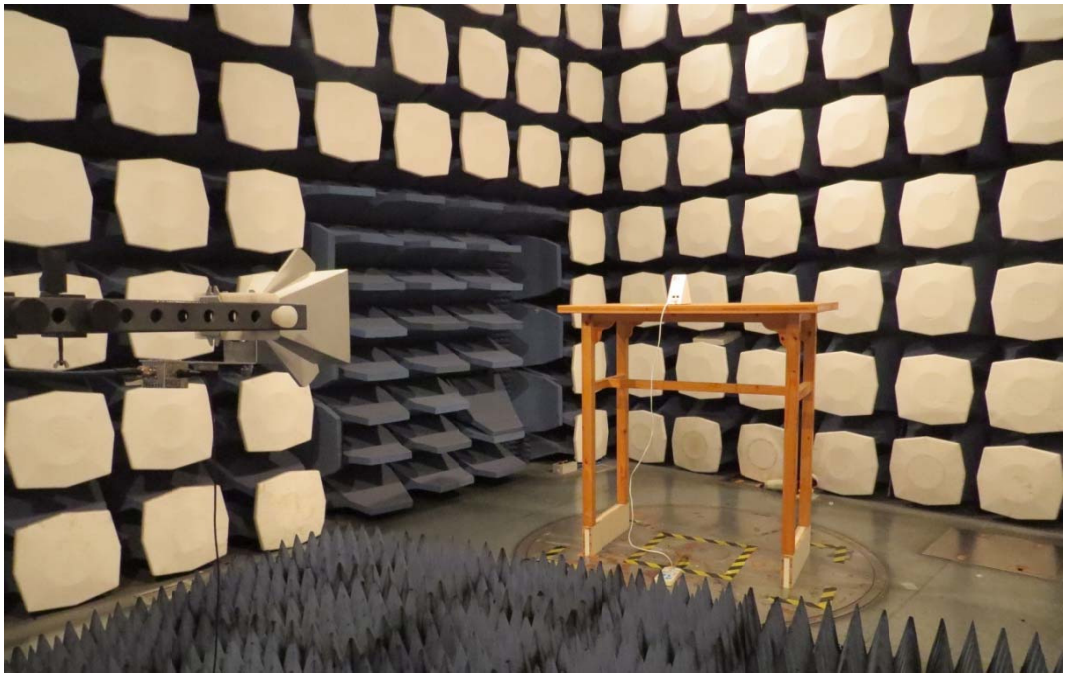
c: Lan cable

Picture 1 EUT

A.2 Test Setup

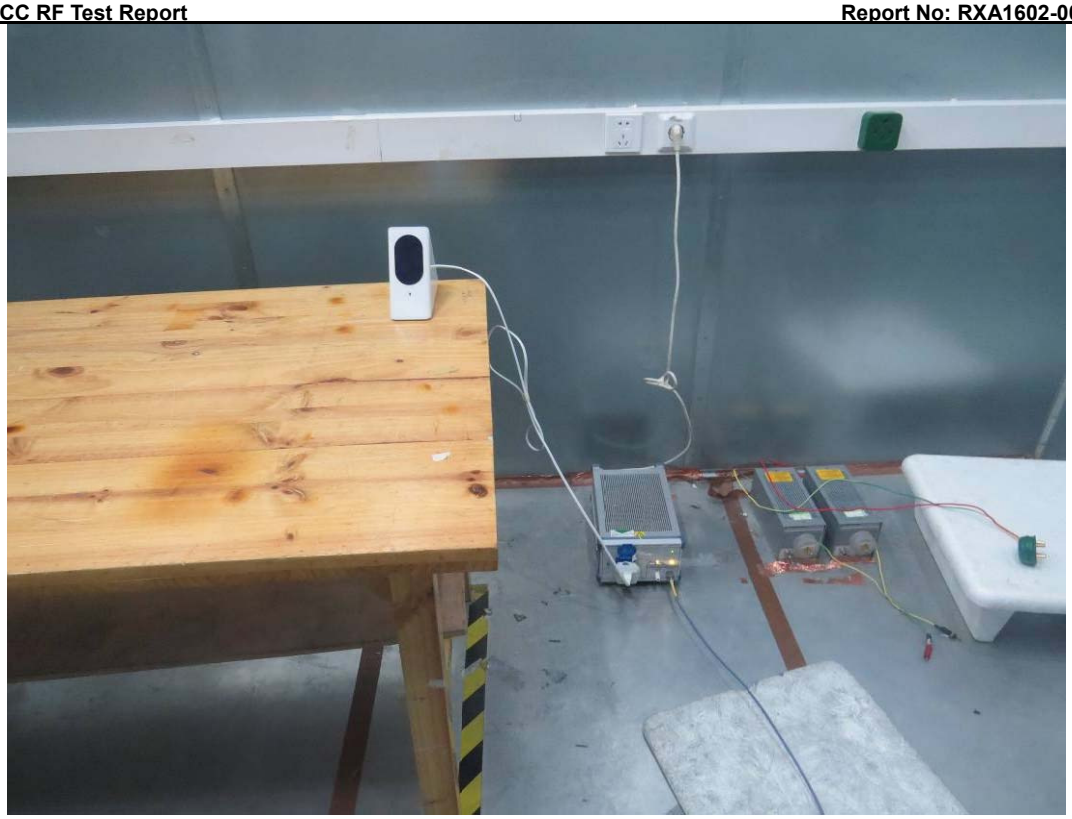


Below 1GHz



Above 1GHz

Picture 2 Radiated Emission Test Setup



Picture 3 Conducted Emission Test Setup