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检测
TESTING
CNAS L2264

RF TEST REPORT

Applicant	MobiWire SAS
FCC ID	QPN-HALONA
Product	3G SmartPhone
Brand	Mobiwire
Model	Mobiwire Halona
Report No.	RXA1608-0171RF01
Issue Date	September 5, 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.

Xianqing Li

performed by: Xianqing Li

Kai Xu

Reviewed by: Kai Xu

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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: August 9,2016~ August 31, 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.
Address:	No.145, Jintang Rd, Tangzhen Industry Park, Pudong Shanghai, China
City:	Shanghai
Post code:	201201
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E-mail:	xukai@ta-shanghai.com

2 General Description of Equipment under Test

Client Information

Applicant	MobiWire SAS
Applicant address	79 AVENUE FRANCOIS ARAGO 92017 NANTERRE CEDEX France
Manufacturer	MOBIWIRE MOBILES (NINGBO) CO.,LTD
Manufacturer address	No.999,Dacheng East Road,Fenghua City,Zhejiang

Accessory Equipment Details

Name	Model	Manufacturer	Capacity	S/N
Battery	H353F	Ningbo Veken battery Co.,LTD.	1300mAh	VK1603000255
Headset	3.5mm 4-pole plug stereo headset	Shenzhen Juwei Electronics Co.,Ltd	/	/
Charger	A31-500550	Shenzhen Aohai Technology Co.,Ltd	/	/

General information

Model:	Mobiwire Halona		
IMEI:	359805070934731		
HW Version:	V01A		
SW Version:	V01_20160513_Halona_MobiWire_MP		
Power Supply:	Battery/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	5.34dBm		
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).**

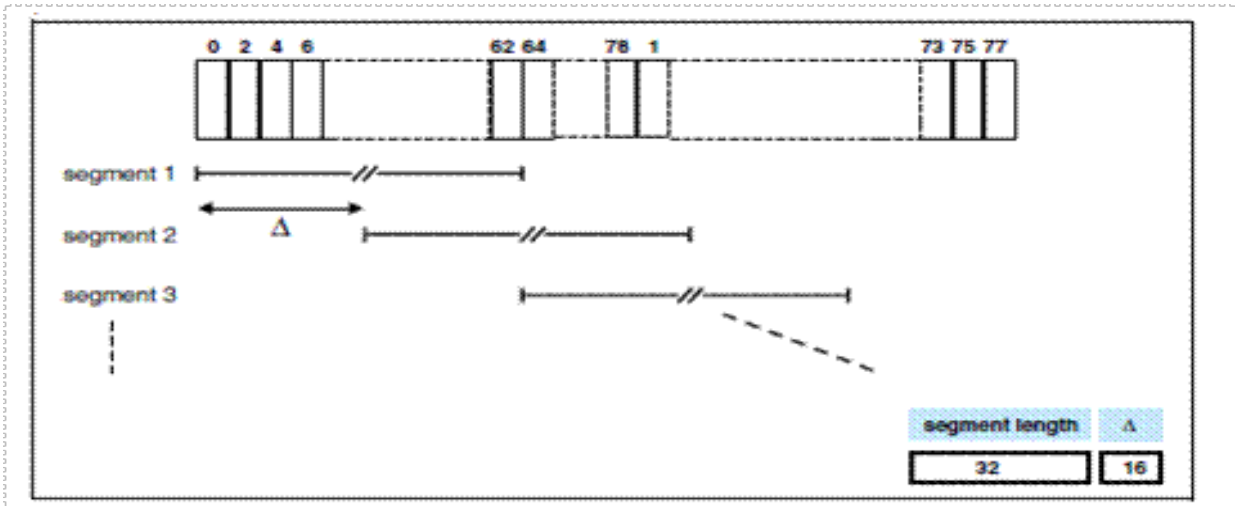
3 Information about the FHSS characteristics

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	DH5 GFSK (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 DH5 for GFSK modulation, For RSE and CSE, only the maximum RF output power is chosen.

4.2 Peak Power Output –Conducted

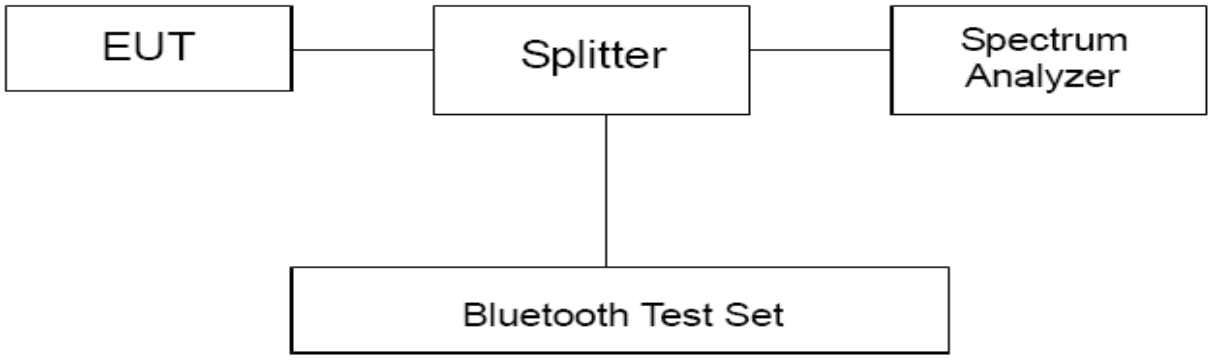
Ambient condition

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	4.98	4.86	4.88	PASS
39	2441	5.34	5.20	5.25	PASS
78	2480	5.21	5.04	5.11	PASS

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

4.3 Occupied Bandwidth (20dB)

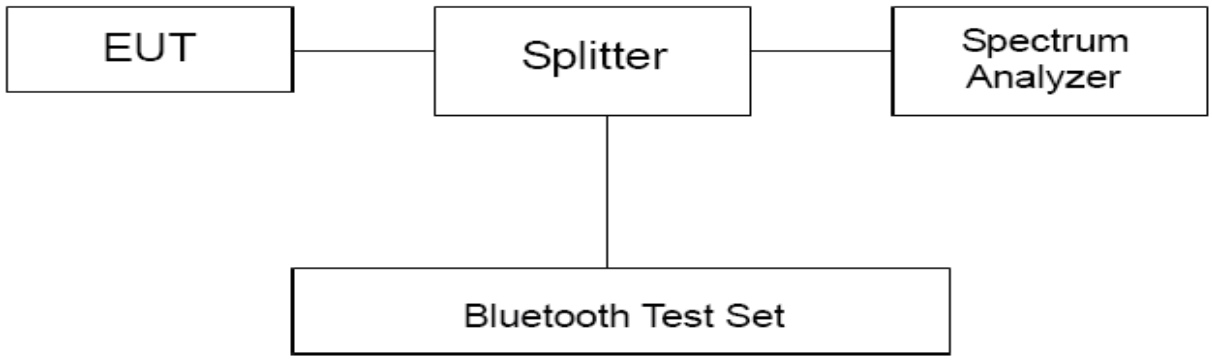
Ambient condition

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 to 100kHz on spectrum analyzer. -20dB occupied bandwidths are recorded.

Test Setup



Limits

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

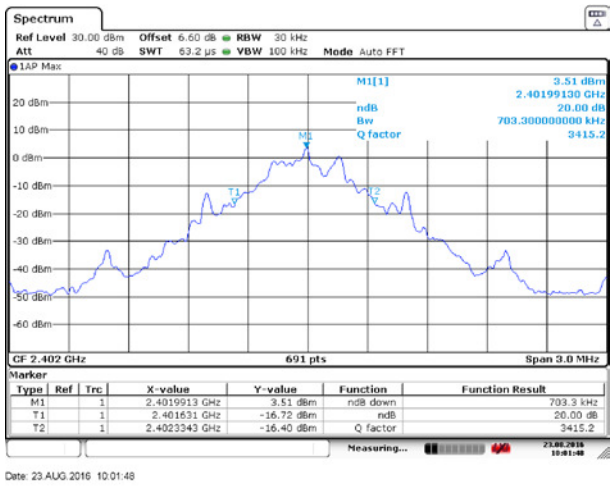
Measurement Uncertainty

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

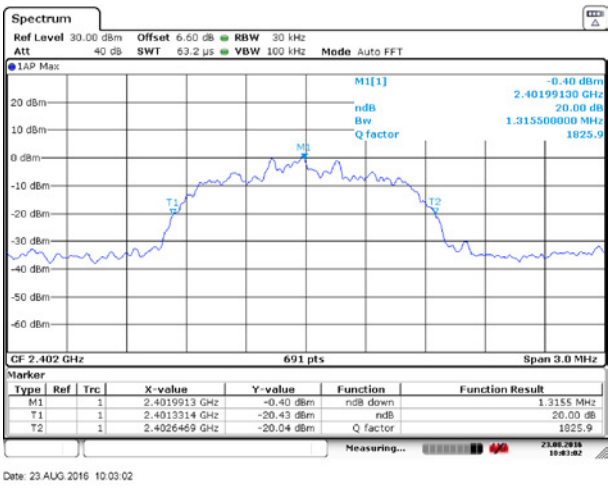
Test Results

Mode	Channel	Frequency (MHz)	20dB Bandwidth(kHz)
DH5	0	2402	703.3
DH5	39	2441	703.3
DH5	78	2480	703.3
2DH5	0	2402	1315.5
2DH5	39	2441	1289.4
2DH5	78	2480	1285.1
3DH5	0	2402	1293.8
3DH5	39	2441	1298.1
3DH5	78	2480	1293.8

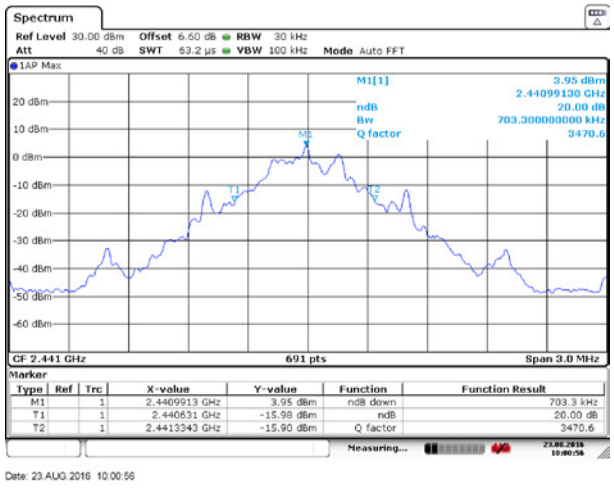
BT DH5 CH0, Carrier frequency (MHz): 2402



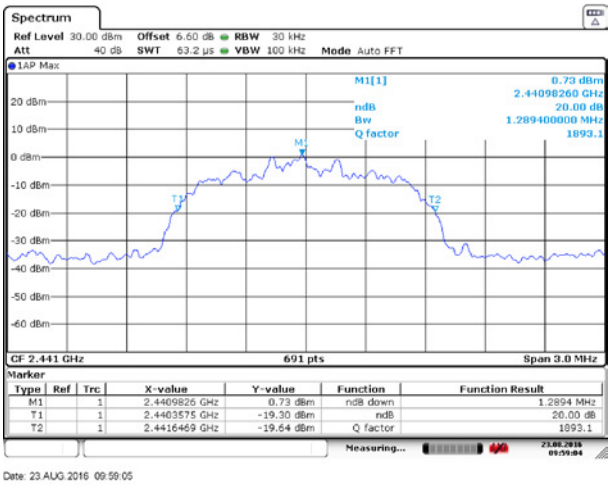
BT 2DH5 CH0, Carrier frequency (MHz): 2402



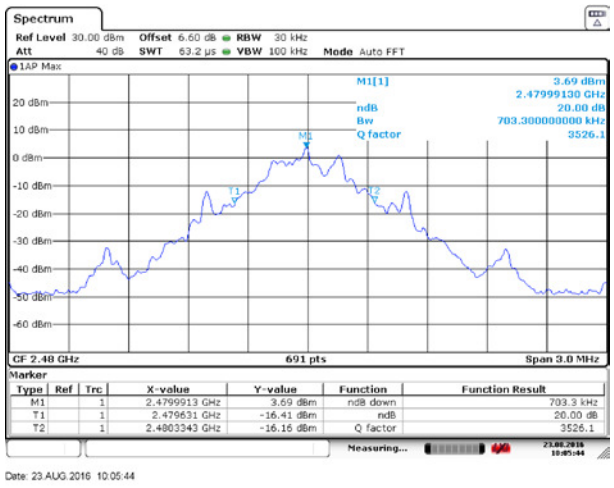
BT DH5 CH39, Carrier frequency (MHz): 2441



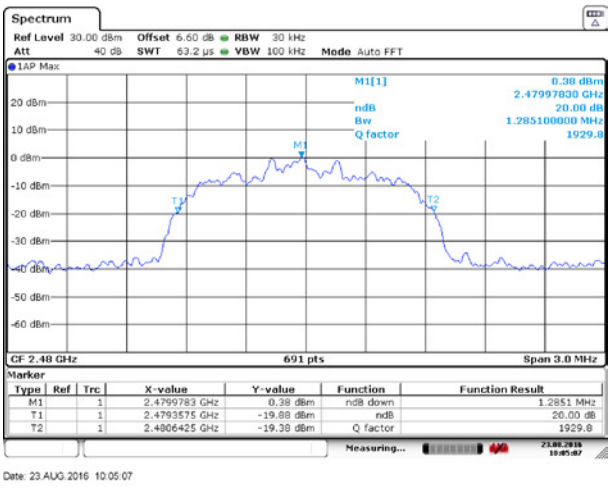
BT 2DH5 CH39, Carrier frequency (MHz): 2441



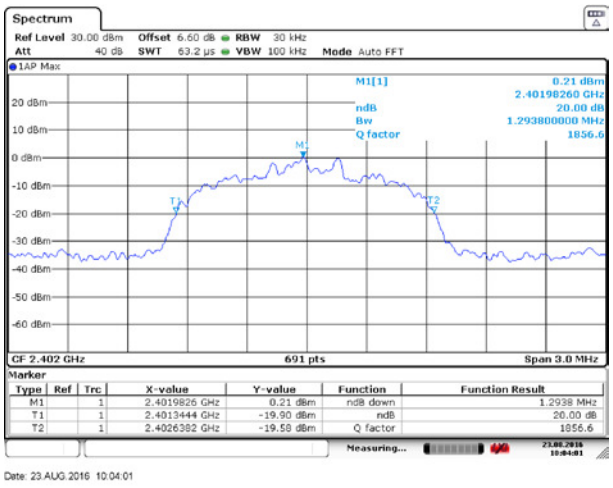
BT DH5 CH78, Carrier frequency (MHz): 2480



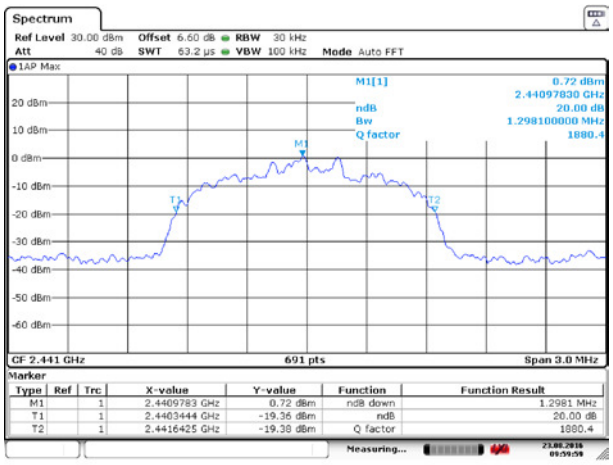
BT 2DH5 CH78, Carrier frequency (MHz): 2480



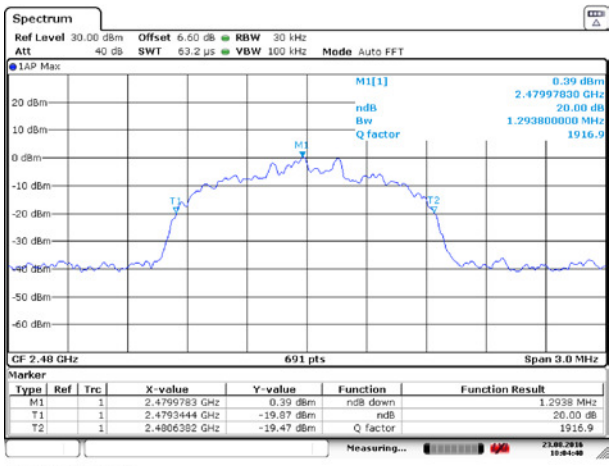
BT 3DH5 CH0, Carrier frequency (MHz): 2402



BT 3DH5 CH39, Carrier frequency (MHz): 2441



BT 3DH5 CH78, Carrier frequency (MHz): 2480



4.4 Frequency Separation

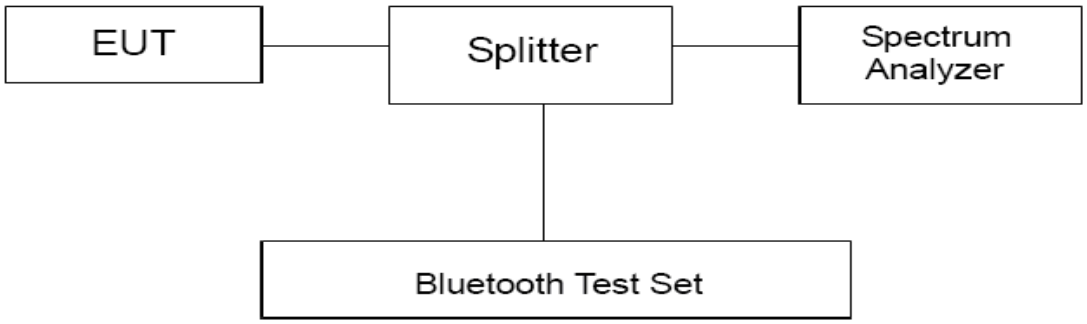
Ambient condition

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 100 kHz 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.

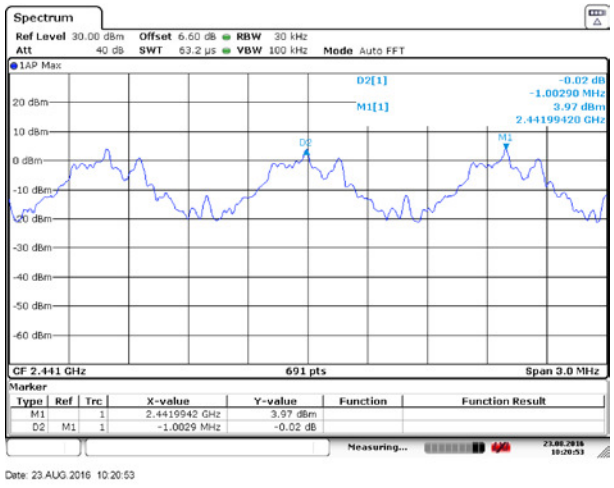
Measurement Uncertainty

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

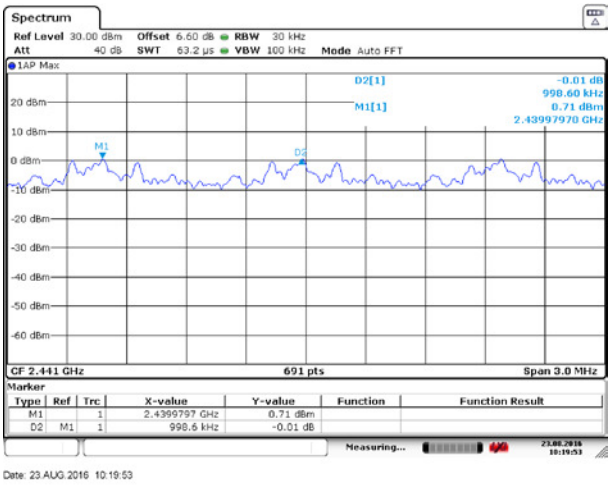
Test Results:

Packet type	Carrier frequency (MHz)	Carrier frequency separation(kHz)	20dB Bandwidth(kHz)	Limit (kHz)	Conclusion
DH5	2441	1002	703.3	468.9	PASS
2DH5	2441	999	1289.4	859.6	PASS
3DH5	2441	1002	1298.1	865.4	PASS
Note: The limit is two-thirds of 20 dB bandwidth.					

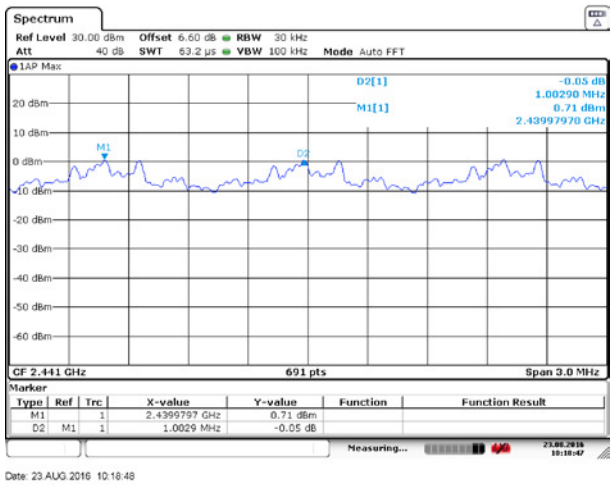
BT DH5 CH39, Carrier frequency (MHz): 2441



BT 2DH5 CH39, Carrier frequency (MHz): 2441



BT 3DH5 CH39, Carrier frequency (MHz): 2441



4.5 Time of Occupancy (Dwell Time)

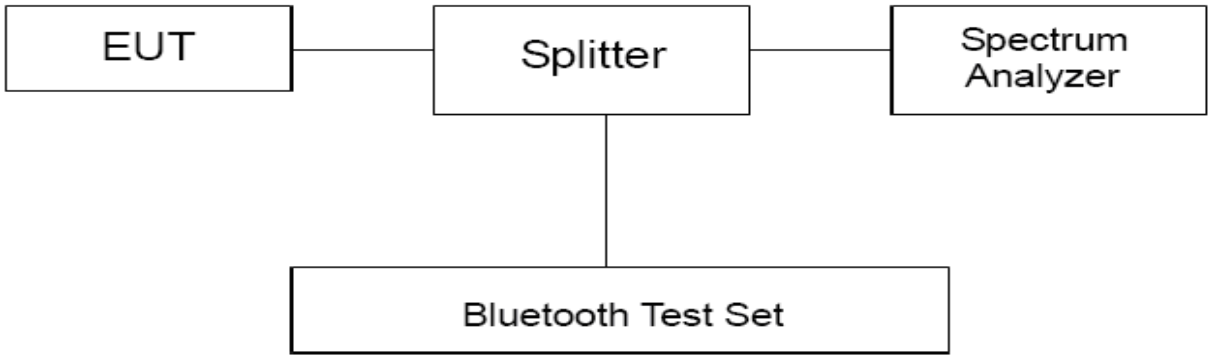
Ambient condition

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 1MHz 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

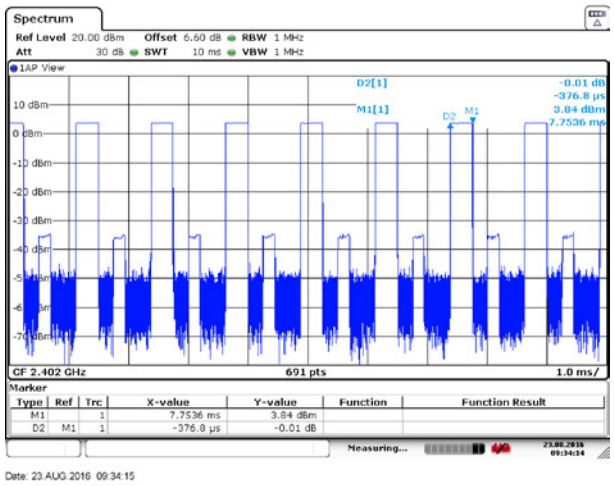
The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$.

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

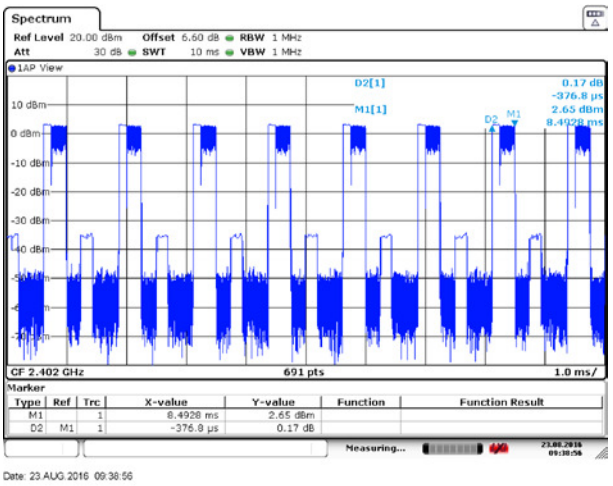
Test Results:

Channel 39					
Packet type	**hop rate (1/s)**	**Time slot length(ms)**	**Dwell time (ms)**	**Limit (ms)**	**Conclusion**
DH1	1600	0.38	243.2	400	PASS
DH3	533.33	1.62	345.6	400	PASS
DH5	320	2.88	368.6	400	PASS
2DH1	1600	0.38	243.2	400	PASS
2DH3	533.33	1.62	345.6	400	PASS
2DH5	320	2.88	368.6	400	PASS
3DH1	1600	0.38	243.2	400	PASS
3DH3	533.33	1.62	345.6	400	PASS
3DH5	320	2.88	368.6	400	PASS
Note: Dwell time = time slot length * hop rate * 0.4s					

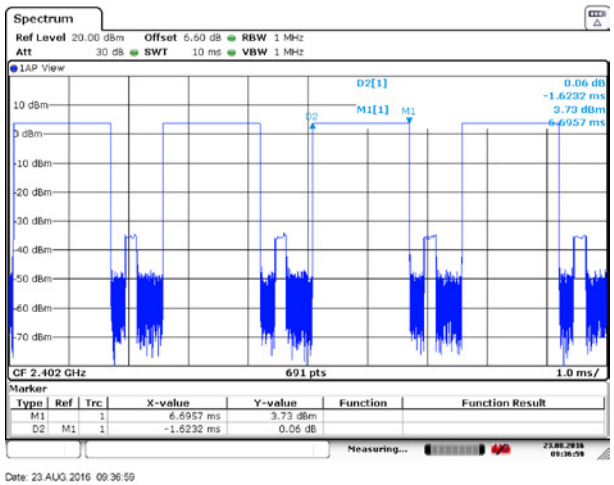
BT DH1 CH39, Carrier frequency (MHz): 2441



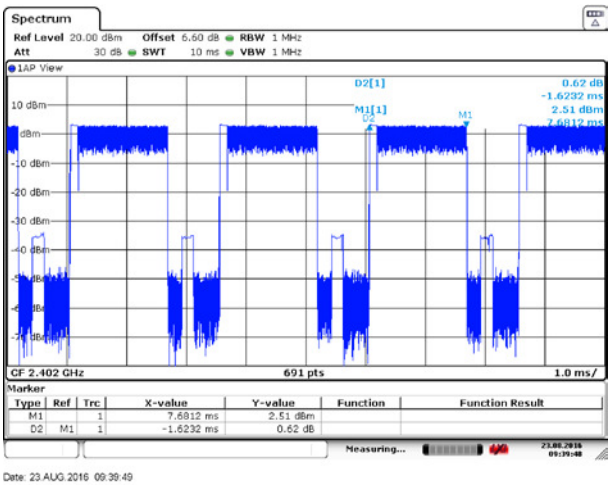
BT 2DH1 CH39, Carrier frequency (MHz): 2441



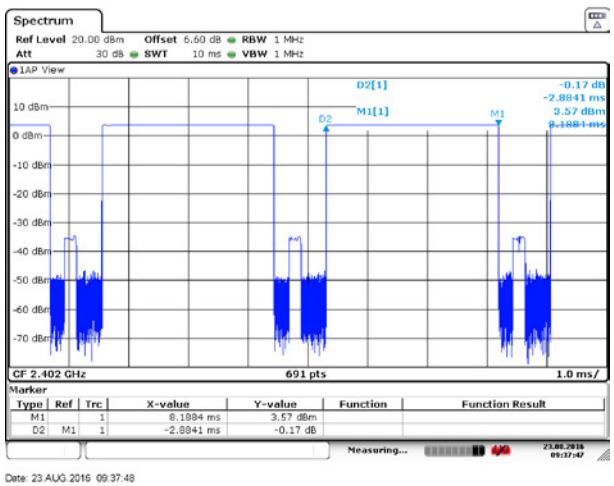
BT DH3 CH39, Carrier frequency (MHz): 2441



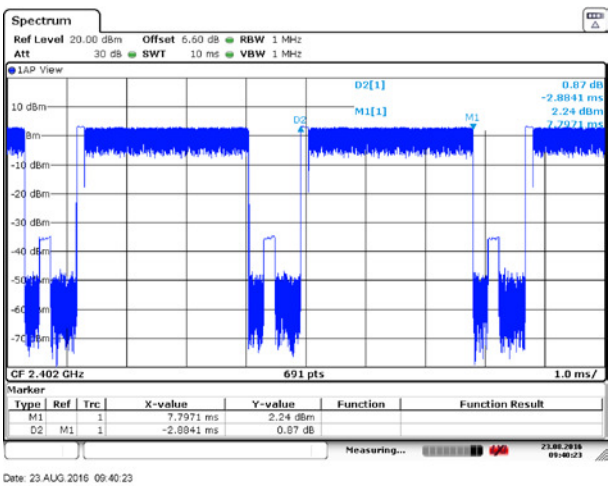
BT 2DH3 CH39, Carrier frequency (MHz): 2441



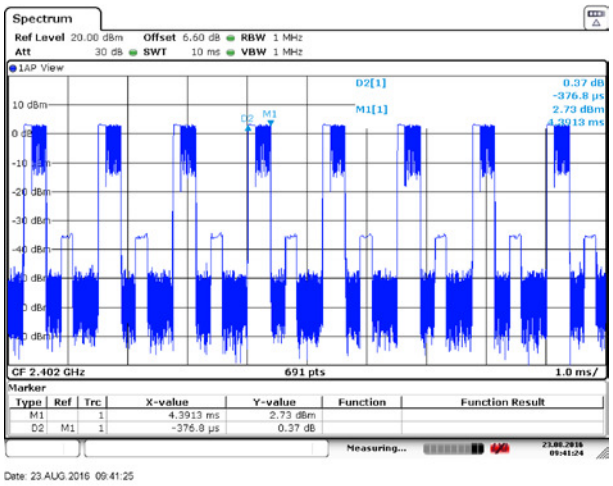
BT DH5 CH39, Carrier frequency (MHz): 2441



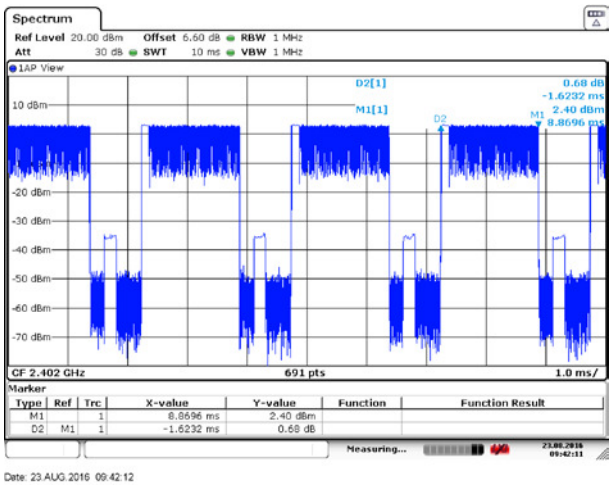
BT 2DH5 CH39, Carrier frequency (MHz): 2441



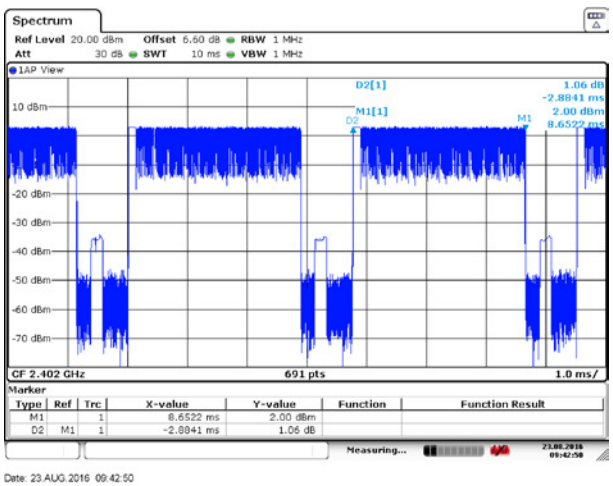
BT 3DH1 CH39, Carrier frequency (MHz): 2441



BT 3DH3 CH39, Carrier frequency (MHz): 2441



BT 3DH5 CH39, Carrier frequency (MHz): 2441



4.6 Band Edge Compliance

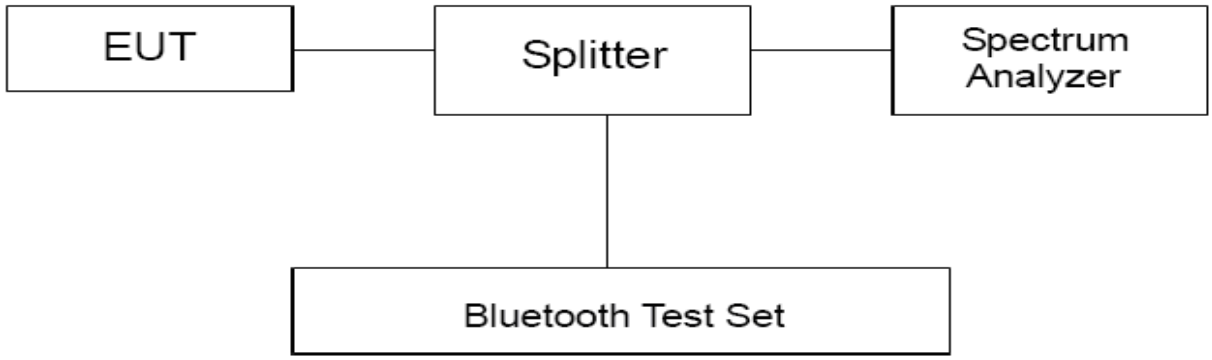
Ambient condition

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

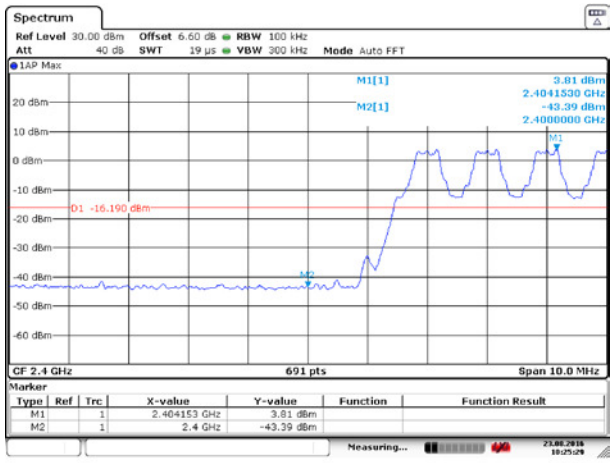
The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 1.96$.

Frequency	Uncertainty
2GHz-3GHz	1.407 dB

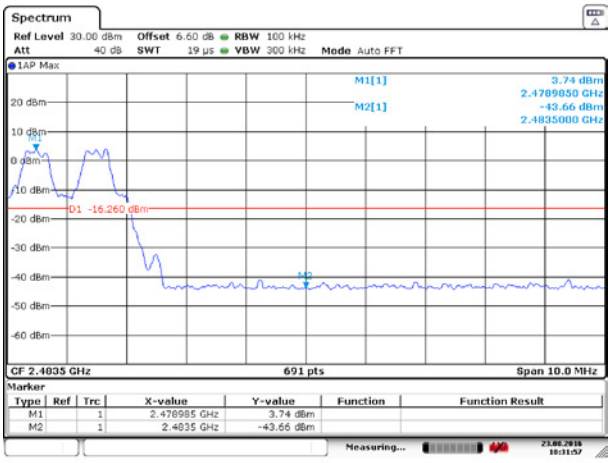
Test Results

Hopping On

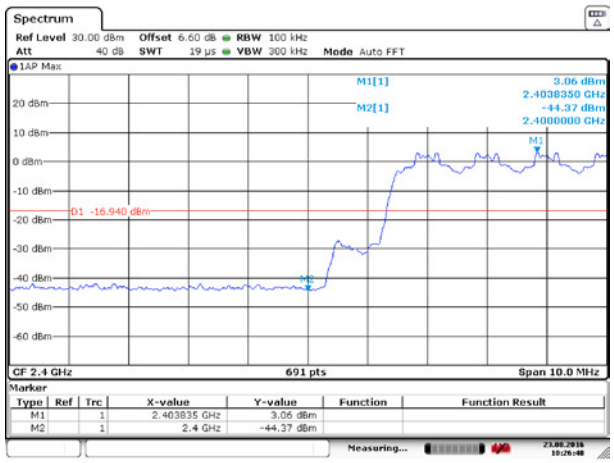
BT DH5 CH0, Carrier frequency (MHz): 2402



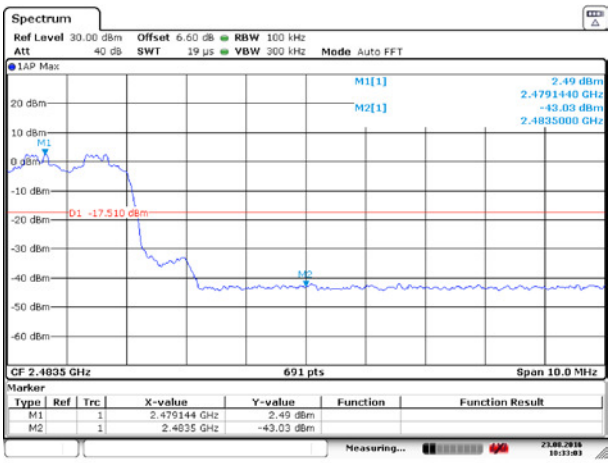
BT DH5 CH78, Carrier frequency (MHz): 2480



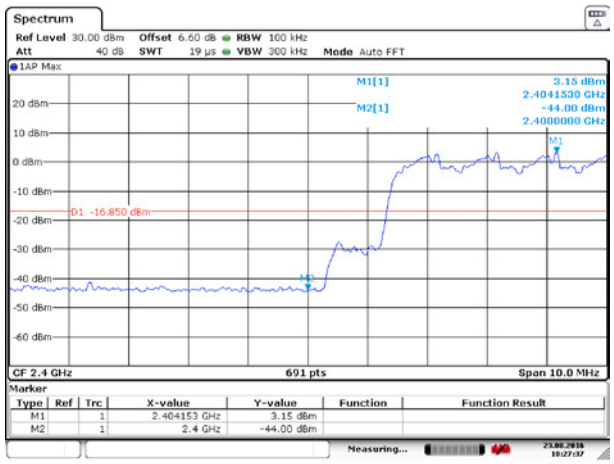
BT 2DH5 CH0, Carrier frequency (MHz): 2402



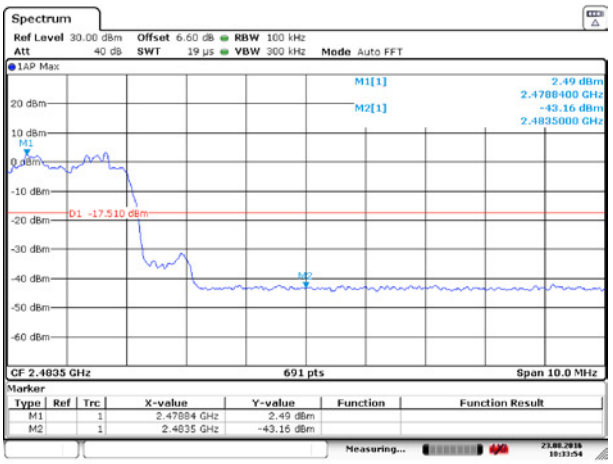
BT 2DH5 CH78, Carrier frequency (MHz): 2480



BT 3DH5 CH0, Carrier frequency (MHz): 2402

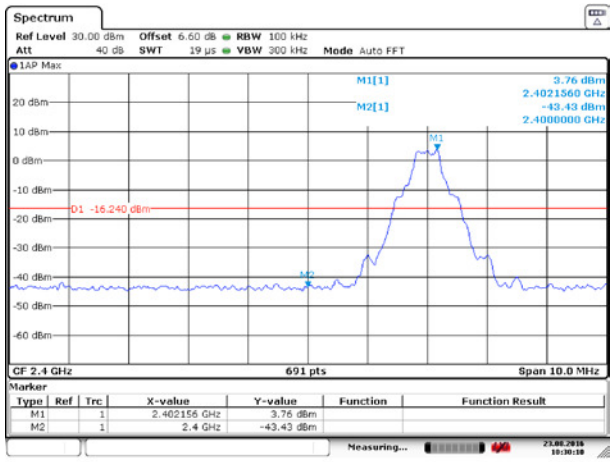


BT 3DH5 CH78, Carrier frequency (MHz): 2480

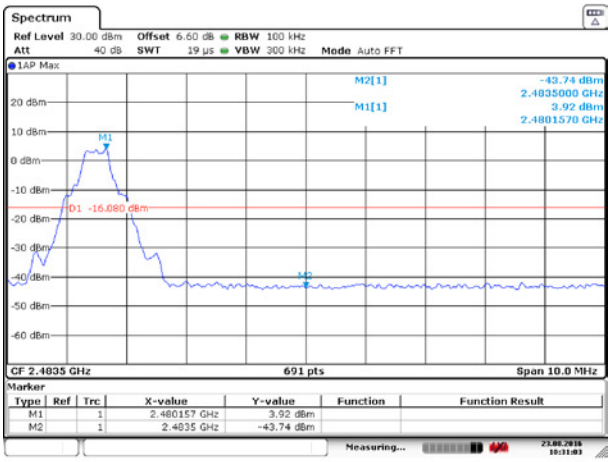


Hopping Off

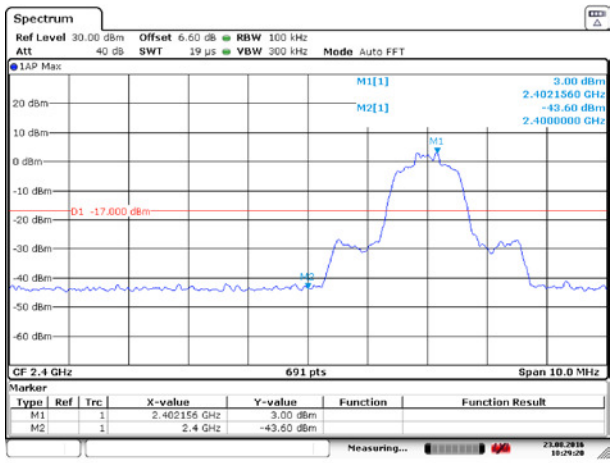
BT DH5 CH0, Carrier frequency (MHz): 2402



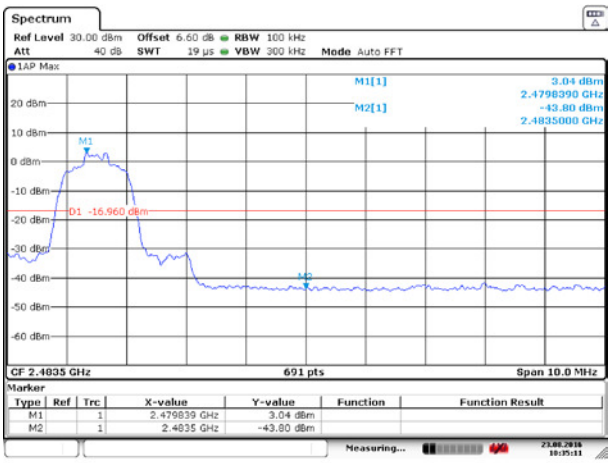
BT DH5 CH78, Carrier frequency (MHz): 2480



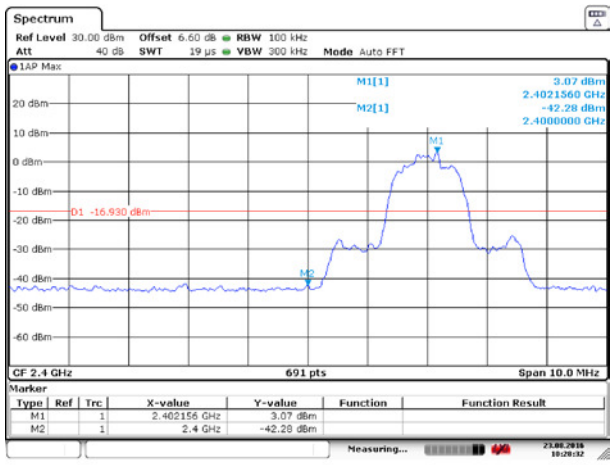
BT 2DH5 CH0, Carrier frequency (MHz): 2402



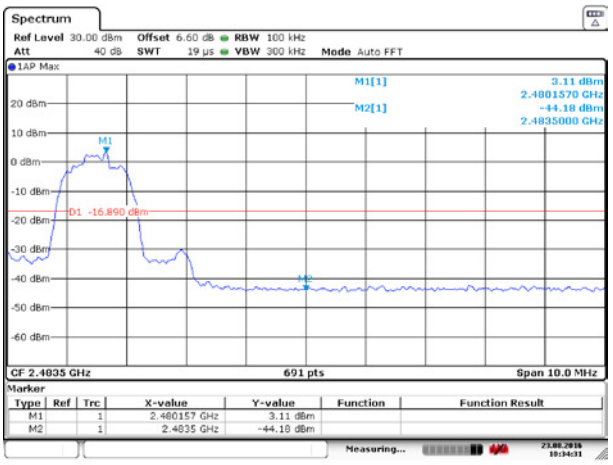
BT 2DH5 CH78, Carrier frequency (MHz): 2480



BT 3DH5 CH0, Carrier frequency (MHz): 2402



BT 3DH5 CH78, Carrier frequency (MHz): 2480



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:

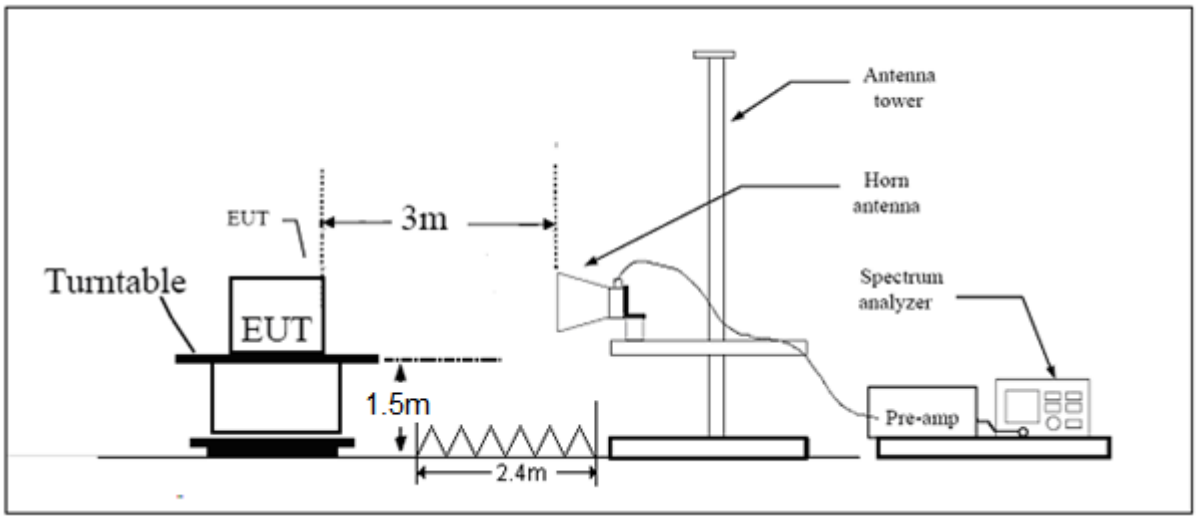
(a) PEAK: RBW=VBW=1MHz / Sweep=AUTO

(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)
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

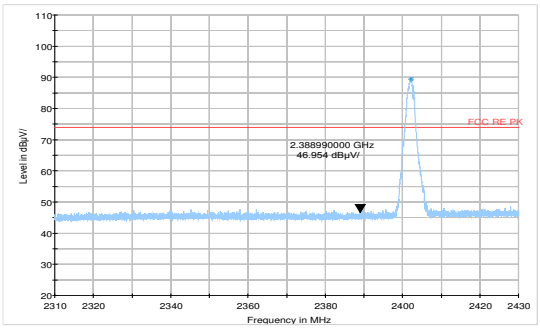
Average Limit=54dBuV/m

Measurement Uncertainty

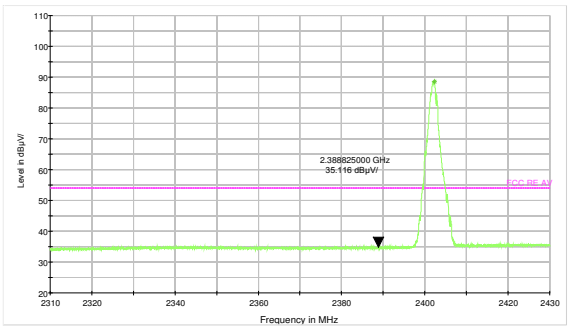
The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 1.96, U= 3.55 dB.

Test Results:

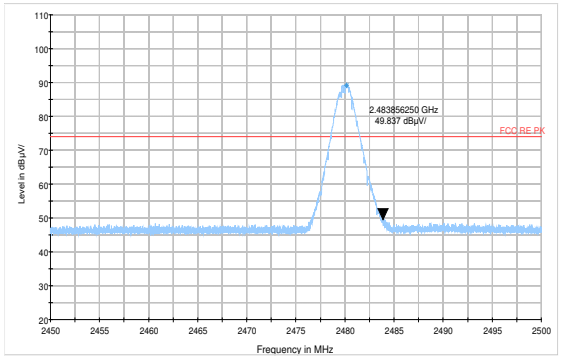
DH5-Channel 0: Peak



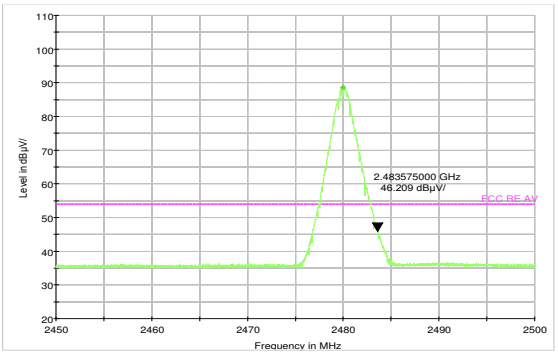
DH5-Channel 0: Average



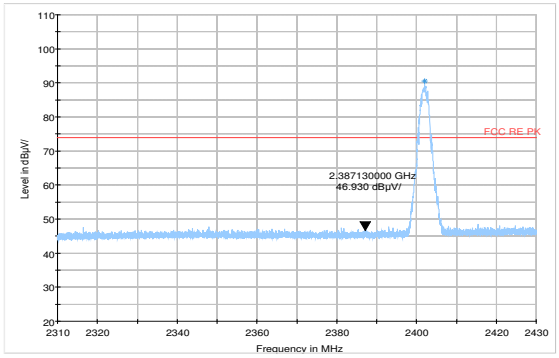
DH5-Channel 78: Peak



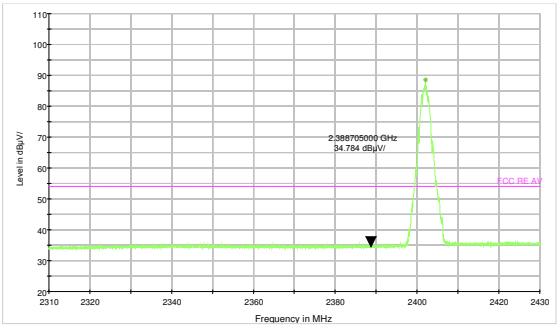
DH5-Channel 78: Average



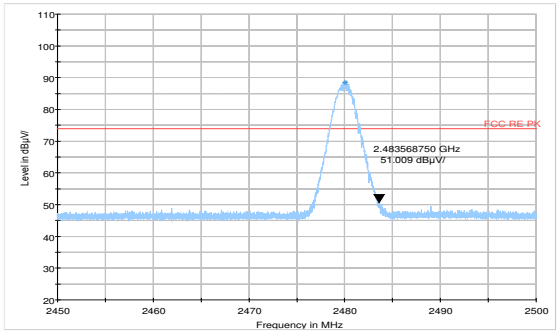
3DH5-Channel 0: Peak



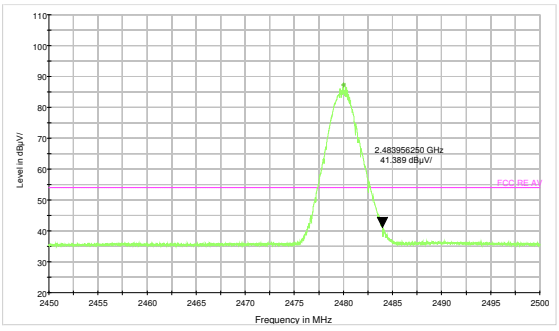
3DH5-Channel 0: Average



3DH5-Channel 78: Peak



3DH5-Channel 78: Average



4.8 Number of hopping Frequency

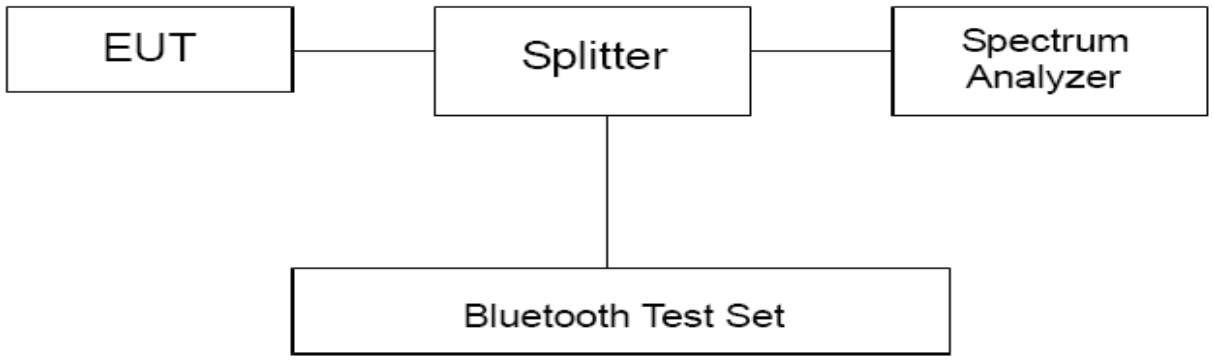
Ambient condition

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 1MHz and VBW is set to 1 MHz on spectrum analyzer. Set EUT on Hopping on mode.

Test setup



Limits

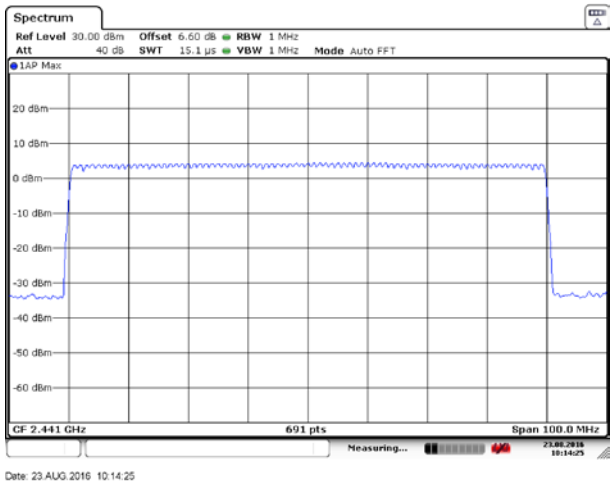
Rule Part 15.247(a) (1) (iii) specifies that" Frequency hopping systems in the 2400–2483.5 MHz band shall use at least 15 channels."

Limits	≥ 15 channels

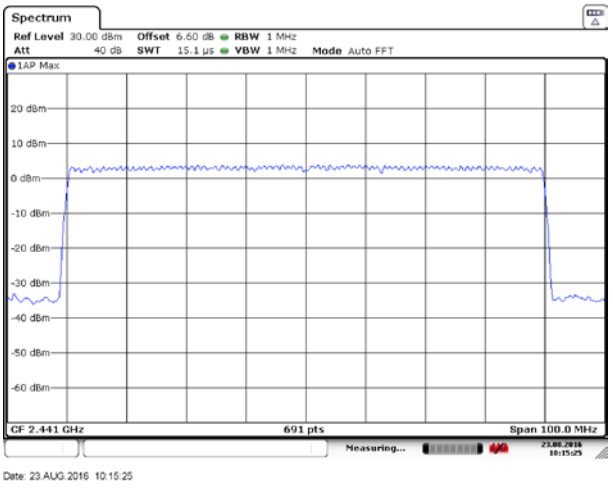
Test Results:

	Number of hopping channels	conclusion
DH5	79	PASS
2DH5	79	PASS
3DH5	79	PASS

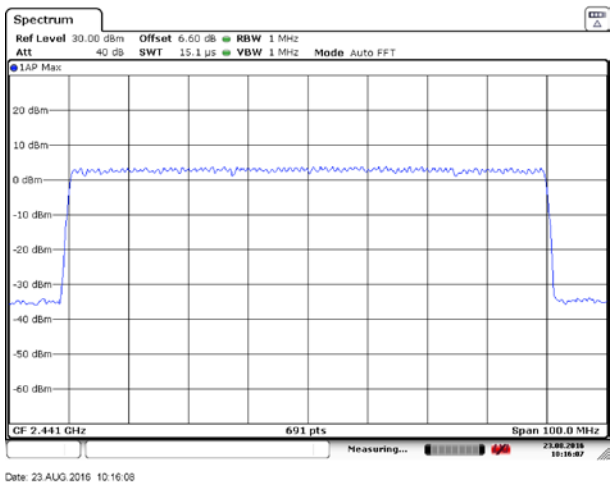
DH5 2400 MHz – 2483.5 MHz



2DH5 2400 MHz – 2483.5 MHz



3DH5 2400 MHz – 2483.5 MHz



4.9 Spurious RF Conducted Emissions

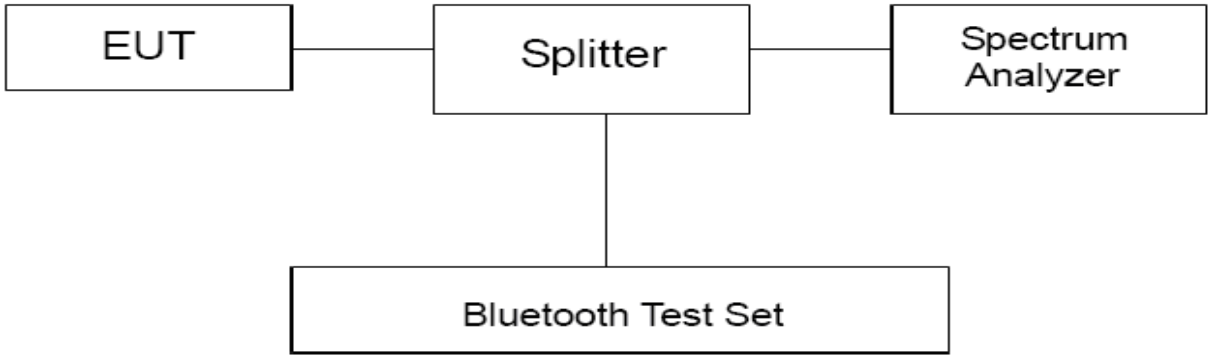
Ambient condition

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	4.747	-15.253
	2441	1.776	-18.224
	2480	1.468	-18.532
EDR (3DH5)	2402	5.827	-14.173
	2441	6.825	-13.175
	2480	1.779	-18.221

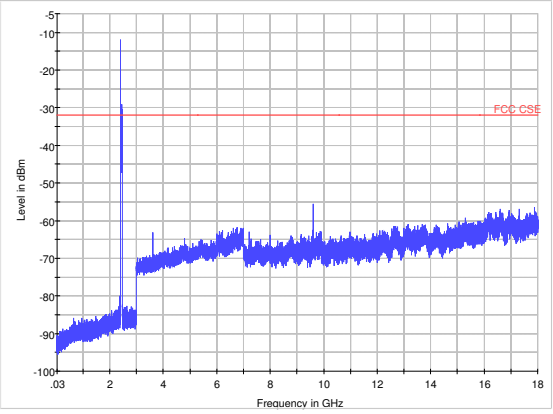
Measurement Uncertainty

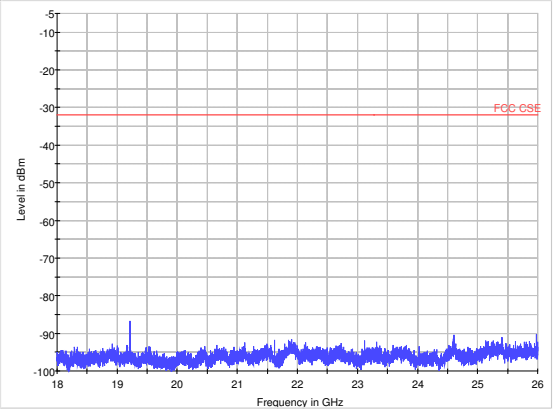
The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 1.96.

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

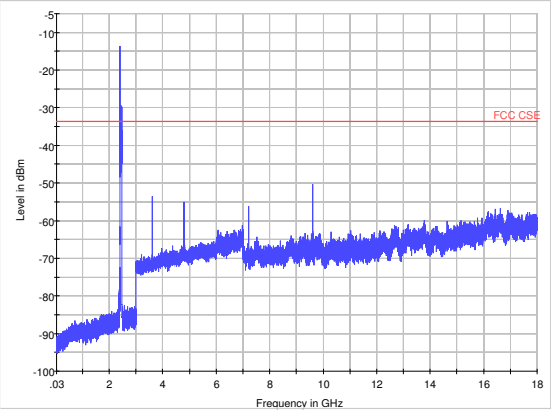
Test Results:

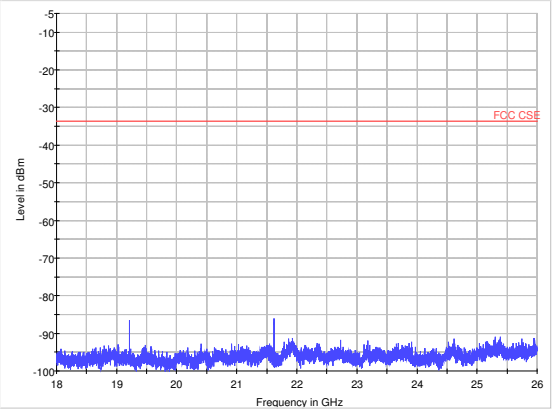
GFSK-CH0 30MHz to 26.5GHz



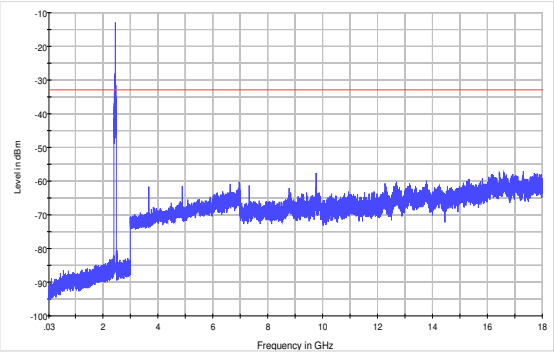


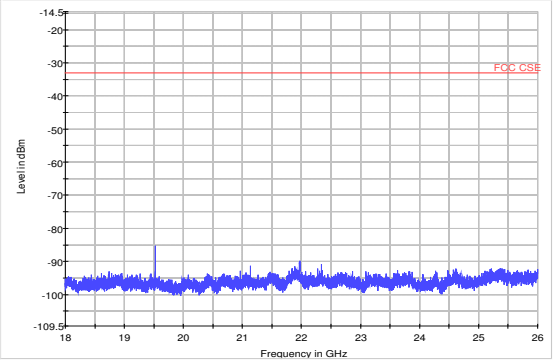
EDR-CH0 30MHz to 26.5GHz



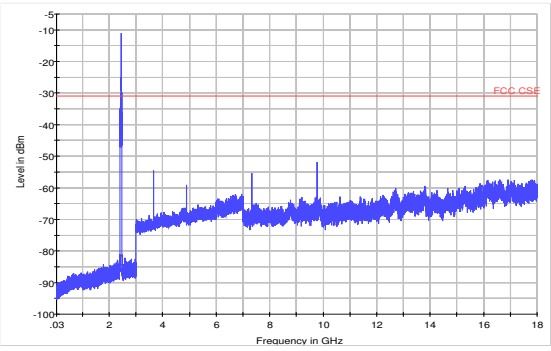


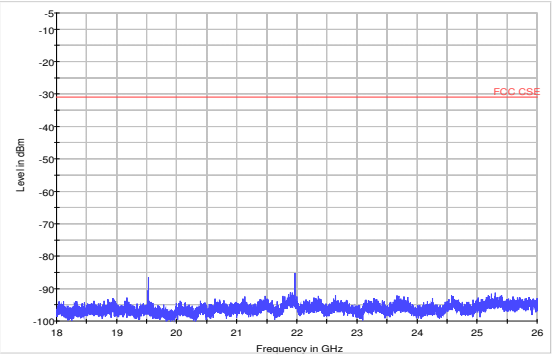
GFSK-CH39 30MHz to 26.5GHz



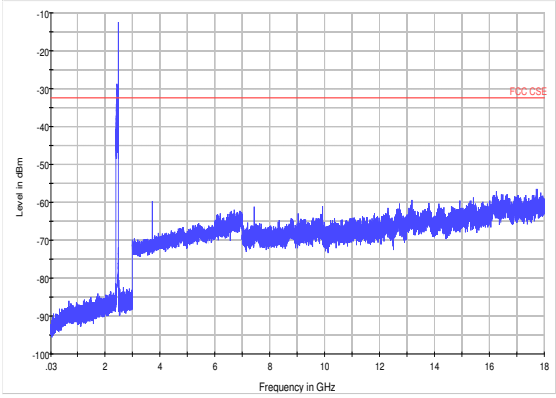


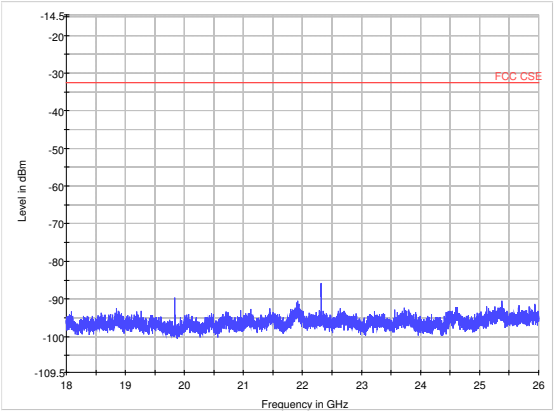
EDR-CH39 30MHz to 26.5GHz



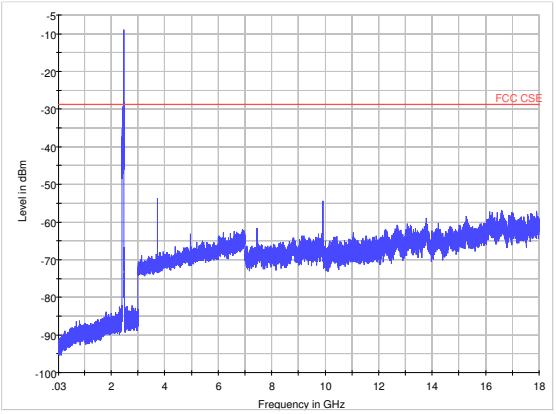


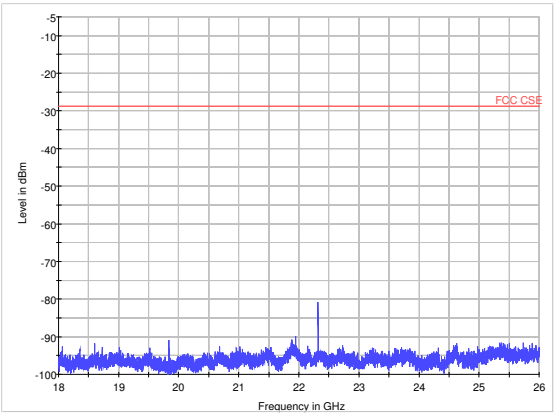
GFSK-CH78 30MHz to 26.5GHz





EDR-CH78 30MHz to 26.5GHz





4.10 Radiates Emission

Ambient condition

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

Method of Measurement

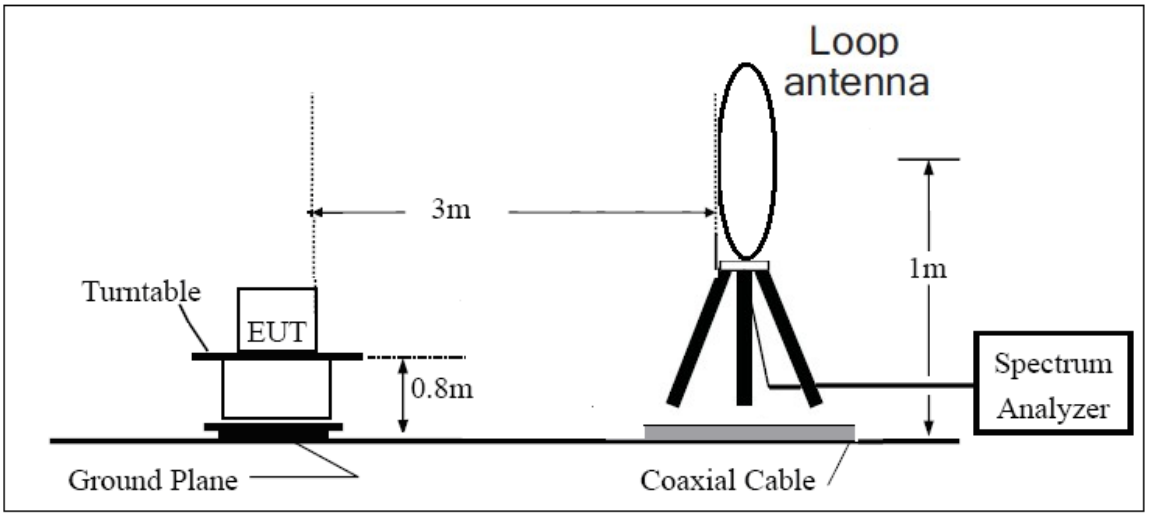
The test set-up was made in accordance to the general provisions of ANSI C63.10-2013.The Equipment Under Test (EUT) was set up on a non-conductive table in the semi-anechoic chamber. The test was performed at the distance of 3 m between the EUT and the receiving antenna. The radiated emissions measurements 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.

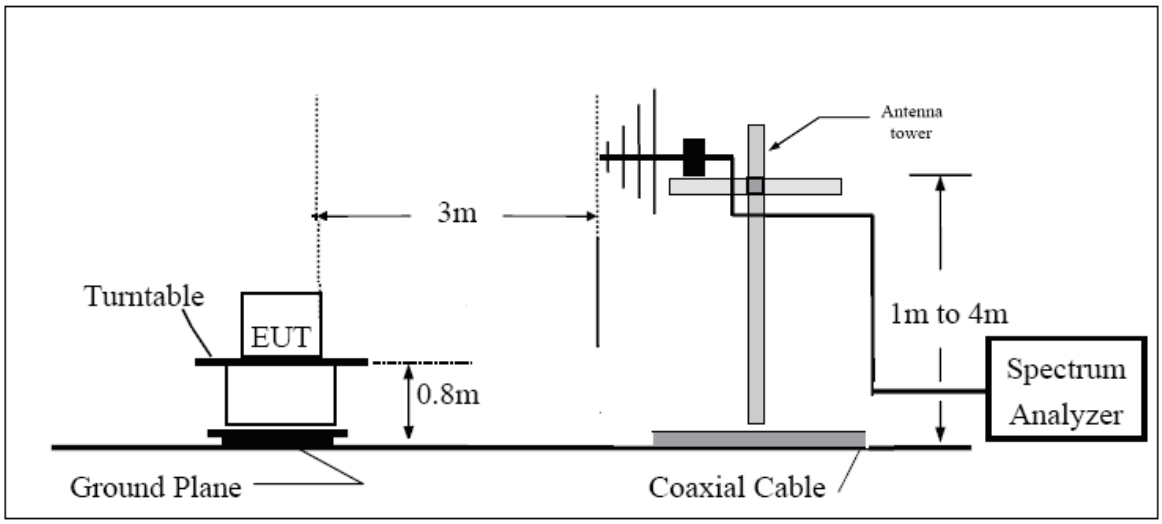
The test is in transmitting mode.

Test setup

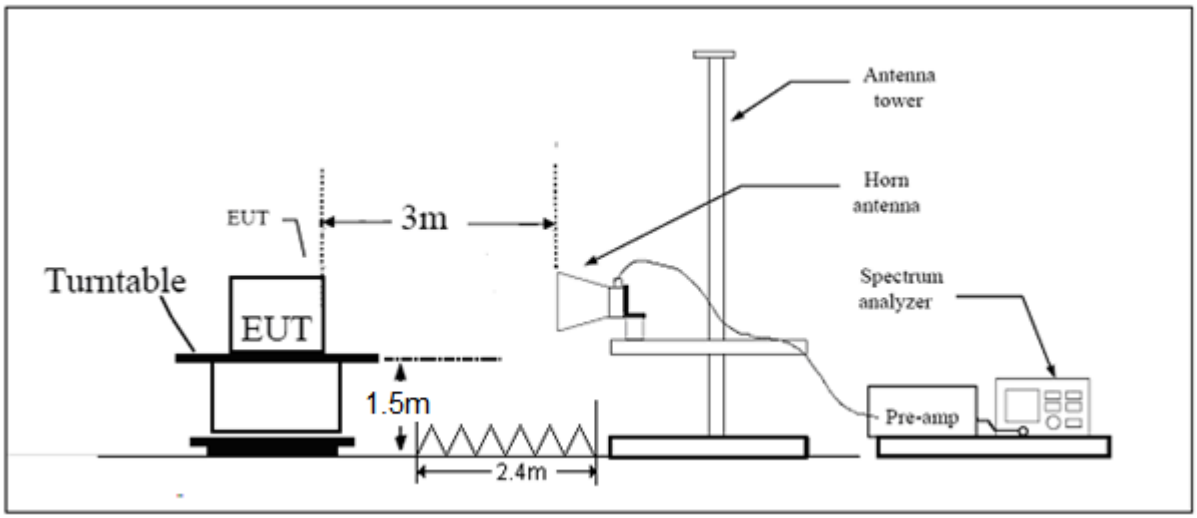
9KHz~~~ 30MHz



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
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.

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

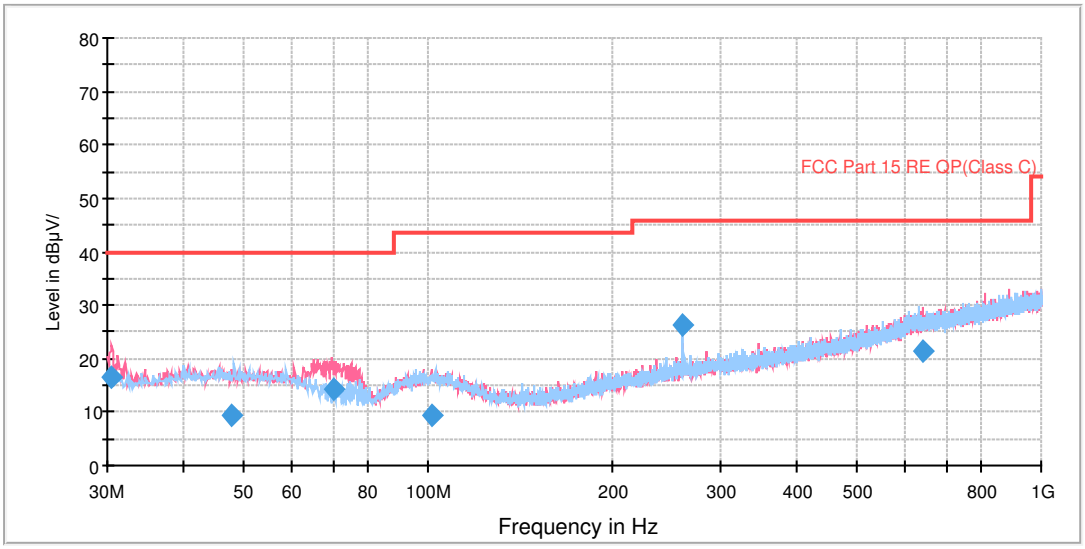
Sweep from 9 kHz to 30MHz, and the emissions more than 20 dB below the permissible value are not reported.

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

For above 1GHz, Blue trace uses the peak detection, Green trace uses the average detection.

GFSK-Channel 0

FCC RE 0.03-1GHz QP Class C

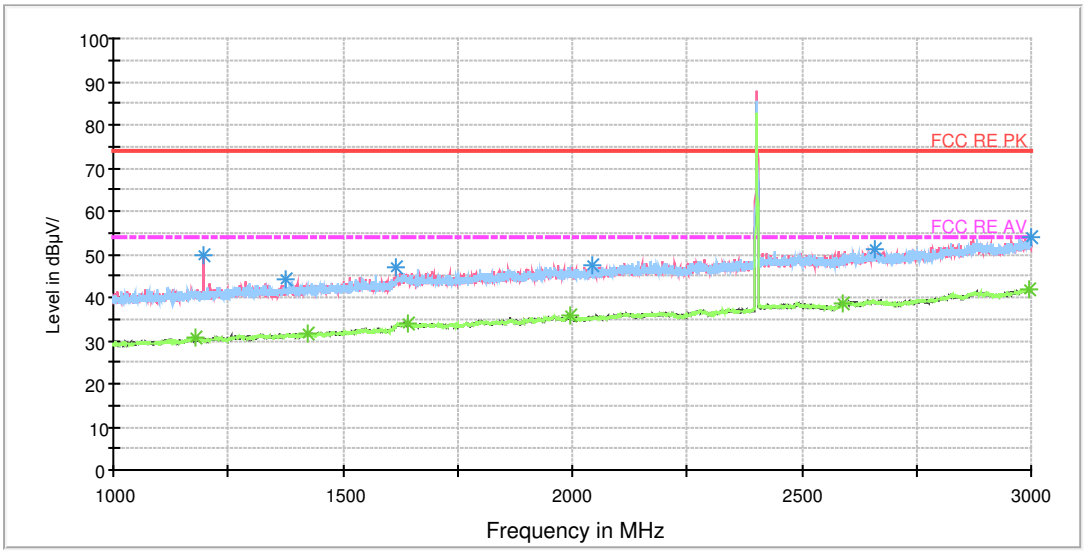


Radiates Emission from 30MHz to 1GHz

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)
30.480000	16.6	100.0	V	57.0	28.5	11.9	23.4	40.0
47.708750	9.4	200.0	H	11.0	22.4	13.0	30.6	40.0
69.970000	14.2	100.0	V	150.0	22.8	8.6	25.8	40.0
101.693750	9.4	100.0	V	274.0	22.5	13.1	34.1	43.5
260.011250	26.1	100.0	H	278.0	40.5	14.4	19.9	46.0
642.632500	21.5	100.0	V	208.0	44.0	22.5	24.5	46.0

RE 1G-3GHz PK+AV



Radiates Emission from 1GHz to 3GHz

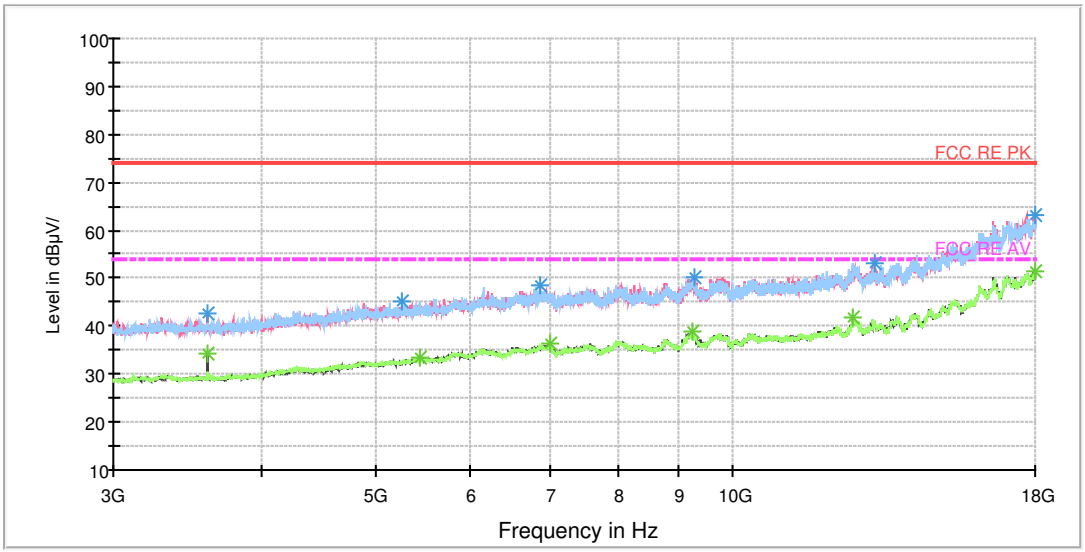
Note: The signal beyond the limit is carrier.

Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1196.750000	49.9	101.0	V	200.0	58.1	-8.2	24.1	74
1377.250000	44.1	101.0	H	106.0	51.2	-7.1	29.9	74
1615.250000	46.8	101.0	V	200.0	52.1	-5.3	27.2	74
2042.250000	47.5	101.0	H	118.0	50.7	-3.2	26.5	74
2658.750000	51.2	101.0	V	0.0	51.6	0.4	22.8	74
2998.500000	54.0	101.0	H	106.0	56.3	2.3	20.0	74

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1179.500000	30.7	101.0	H	0.0	38.7	-8.0	23.3	54
1423.500000	31.8	101.0	V	0.0	38.7	-6.9	22.2	54
1643.250000	34.1	101.0	V	89.0	38.9	-4.8	19.9	54
1993.750000	35.8	101.0	H	133.0	39.1	-3.3	18.2	54
2590.500000	38.6	101.0	V	255.0	38.6	0.0	15.4	54
2995.250000	42.1	101.0	H	52.0	44.4	2.3	11.9	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

RE 3-18GHz PK+AV



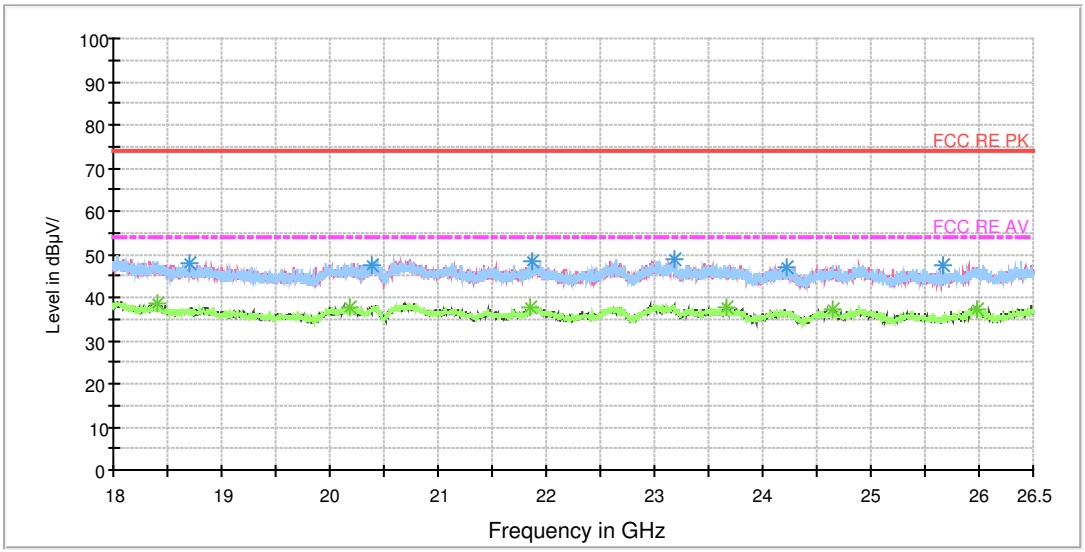
Radiates Emission from 3GHz to 18GHz

Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3601.875000	42.8	101.0	V	0.0	45.0	-2.2	31.2	74
5263.125000	45.0	101.0	H	36.0	47.2	2.2	29.0	74
6881.250000	48.3	101.0	V	219.0	54.3	6.0	25.7	74
9270.000000	50.2	101.0	V	156.0	59.6	9.4	23.8	74
13173.750000	53.3	101.0	H	0.0	67.2	13.9	20.7	74
17992.500000	63.2	101.0	V	249.0	88.5	25.3	10.8	74

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3601.875000	34.2	101.0	V	0.0	36.4	-2.2	19.8	54
5445.000000	33.3	101.0	H	36.0	36.2	2.9	20.7	54
7003.125000	36.2	101.0	V	309.0	42.7	6.5	17.8	54
9240.000000	38.8	101.0	V	172.0	48.7	9.9	15.2	54
12641.250000	41.7	101.0	H	0.0	56.2	14.5	12.3	54
17996.250000	51.5	101.0	H	0.0	76.9	25.4	2.5	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz

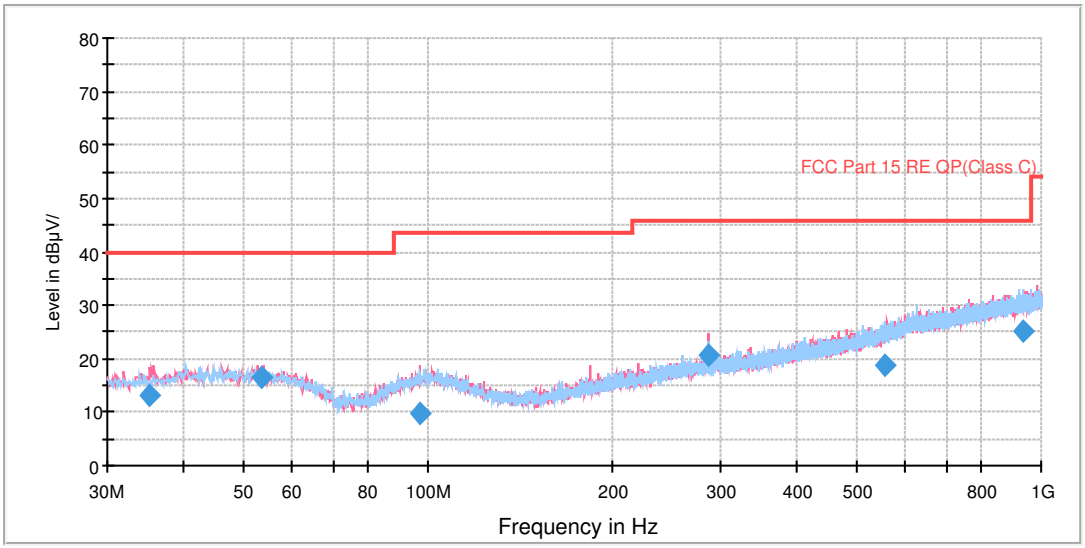
Frequency (MHz)	Peak (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
24213.500000	47.2	V	290.0	53.1	-5.9	26.8	74
25670.187500	47.3	V	178.0	52.9	-5.6	26.7	74
20388.500000	47.5	V	190.0	53.6	-6.1	26.5	74
18708.687500	47.8	H	85.0	52.2	-4.4	26.2	74
21879.187500	48.2	V	290.0	56.2	-8.0	25.8	74
23186.062500	48.6	H	121.0	54.6	-6.0	25.4	74

Frequency (MHz)	Average (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18400.562500	38.6	H	160.0	42.1	-3.5	15.4	54
20185.562500	37.6	V	0.0	43.5	-5.9	16.4	54
21853.687500	37.6	V	339.0	45.6	-8.0	16.4	54
23675.875000	37.6	V	266.0	43.5	-5.9	16.4	54
24641.687500	37.1	V	314.0	43.1	-6.0	16.9	54
25980.437500	37.2	H	85.0	42.6	-5.4	16.8	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

GFSK-Channel 39

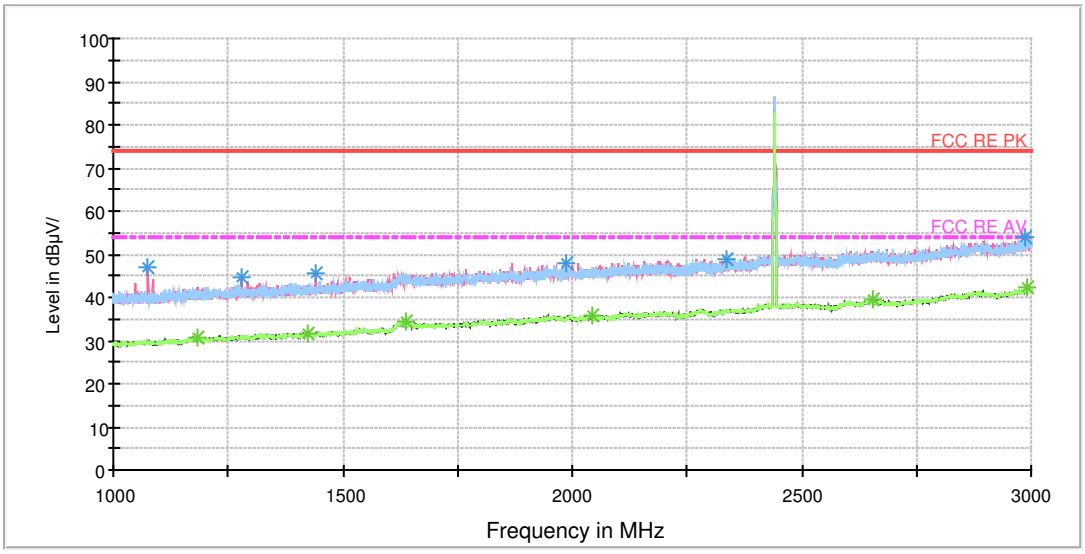
FCC RE 0.03-1GHz QP Class C



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)
35.098750	13.3	100.0	V	0.0	25.2	11.9	26.7	40.0
53.527500	16.3	100.0	V	79.0	29.1	12.8	23.7	40.0
97.328750	9.8	100.0	V	21.0	22.7	12.9	33.7	43.5
285.998750	20.7	100.0	V	300.0	35.7	15.0	25.3	46.0
556.062500	18.7	125.0	H	193.0	39.9	21.2	27.3	46.0
934.851250	25.1	125.0	V	212.0	51.0	25.9	20.9	46.0

RE 1G-3GHz PK+AV



Radiates Emission from 1GHz to 3GHz

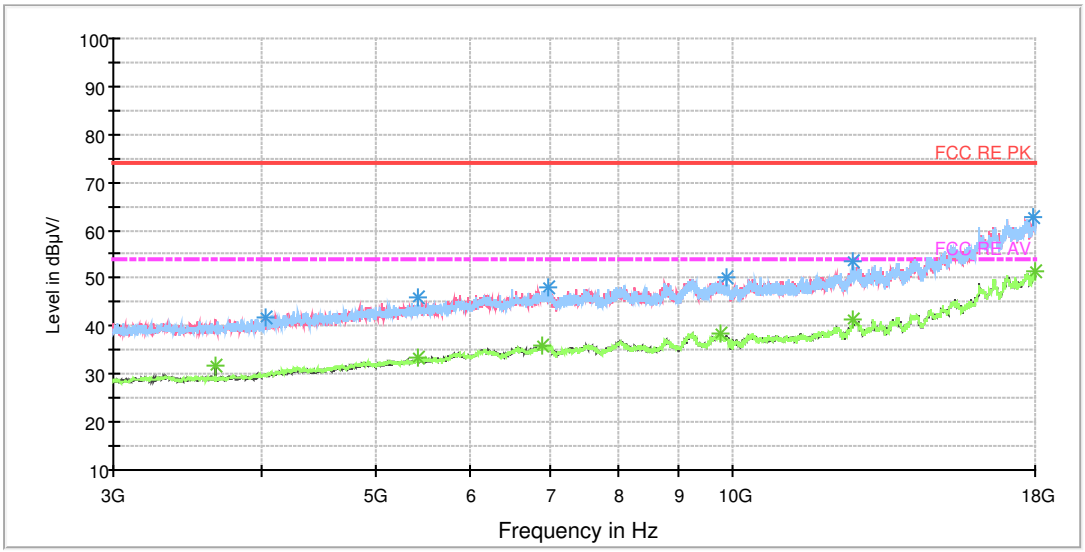
Note: The signal beyond the limit is carrier.

Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1076.250000	46.8	101.0	V	0.0	55.6	-8.8	27.2	74
1278.750000	44.5	101.0	V	347.0	52.1	-7.6	29.5	74
1442.750000	45.6	101.0	V	334.0	52.4	-6.8	28.4	74
1987.250000	48.1	101.0	V	320.0	51.7	-3.6	25.9	74
2337.000000	49.0	101.0	V	320.0	50.3	-1.3	25.0	74
2987.500000	53.9	101.0	H	39.0	56.1	2.2	20.1	74

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1181.500000	30.6	101.0	H	120.0	38.6	-8.0	23.4	54
1423.750000	31.8	101.0	V	116.0	38.7	-6.9	22.2	54
1638.000000	34.2	101.0	V	0.0	38.9	-4.7	19.8	54
2045.250000	35.7	101.0	V	0.0	38.9	-3.2	18.3	54
2654.000000	39.4	101.0	V	294.0	39.8	0.4	14.6	54
2989.250000	42.1	101.0	V	170.0	44.3	2.2	11.9	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

RE 3-18GHz PK+AV



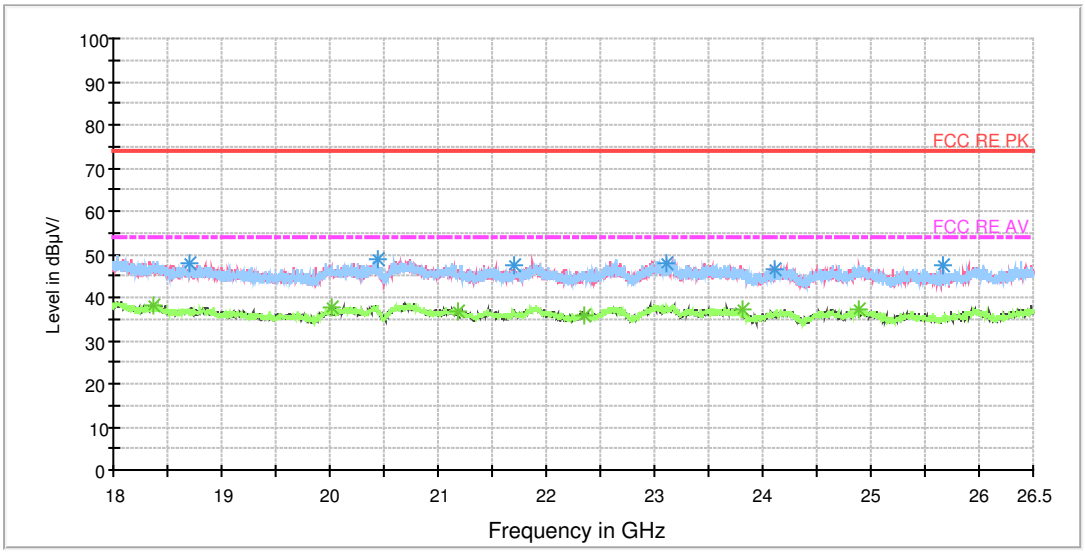
Radiates Emission from 3GHz to 18GHz

Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
4035.000000	41.7	101.0	V	294.0	42.7	-1.0	32.3	74
5426.250000	45.8	101.0	H	0.0	48.6	2.8	28.2	74
6995.625000	48.3	101.0	H	0.0	54.8	6.5	25.7	74
9886.875000	50.0	101.0	H	175.0	60.3	10.3	24.0	74
12635.625000	53.6	101.0	H	68.0	67.7	14.1	20.4	74
17911.875000	62.8	101.0	V	264.0	88.3	25.5	11.2	74

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3660.000000	31.6	101.0	V	0.0	33.5	-1.9	22.4	54
5422.500000	33.4	101.0	H	68.0	36.1	2.7	20.6	54
6894.375000	36.0	101.0	V	173.0	42.2	6.2	18.0	54
9750.000000	38.6	101.0	H	0.0	48.4	9.8	15.4	54
12639.375000	41.5	101.0	H	160.0	56.0	14.5	12.5	54
17994.375000	51.2	101.0	V	217.0	76.5	25.3	2.8	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

RE 18-26.5GHz PK+AV



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)
18708.687500	47.8	H	85.0	52.2	-4.4	26.2	74
20441.625000	48.7	H	60.0	54.8	-6.1	25.3	74
21702.812500	47.6	H	189.0	55.6	-8.0	26.4	74
23112.750000	48.1	H	0.0	54.2	-6.1	25.9	74
24115.750000	46.6	H	121.0	52.5	-5.9	27.4	74
25670.187500	47.3	V	178.0	52.9	-5.6	26.7	74

Frequency (MHz)	Average (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18378.250000	38.2	V	253.0	41.6	-3.4	15.8	54
20014.500000	37.7	H	0.0	43.4	-5.7	16.3	54
21181.125000	36.9	V	278.0	44.6	-7.7	17.1	54
22346.687500	35.7	V	290.0	42.9	-7.2	18.3	54
23806.562500	37.4	V	0.0	43.3	-5.9	16.6	54
24892.437500	37.0	V	0.0	42.9	-5.9	17	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

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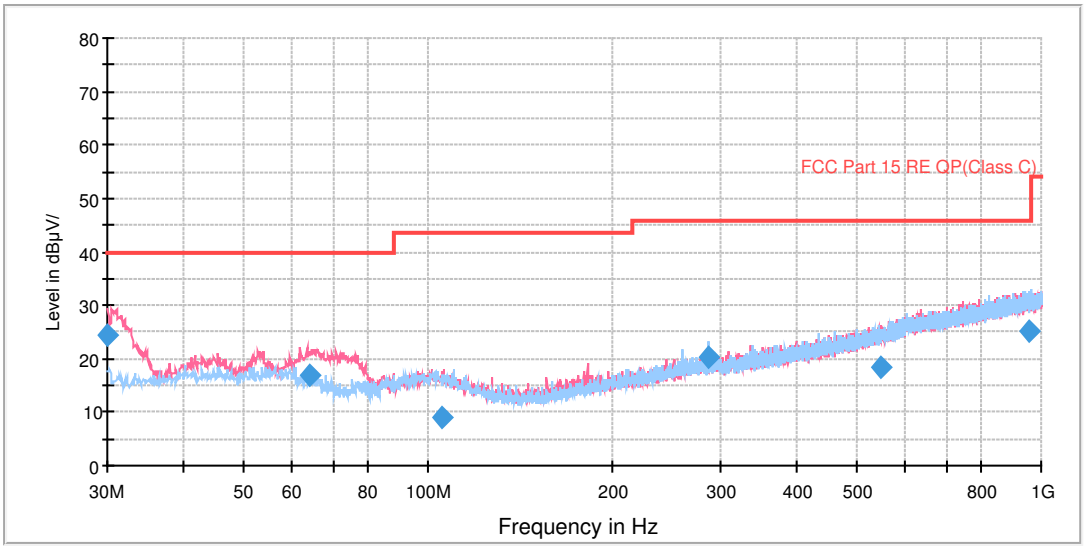
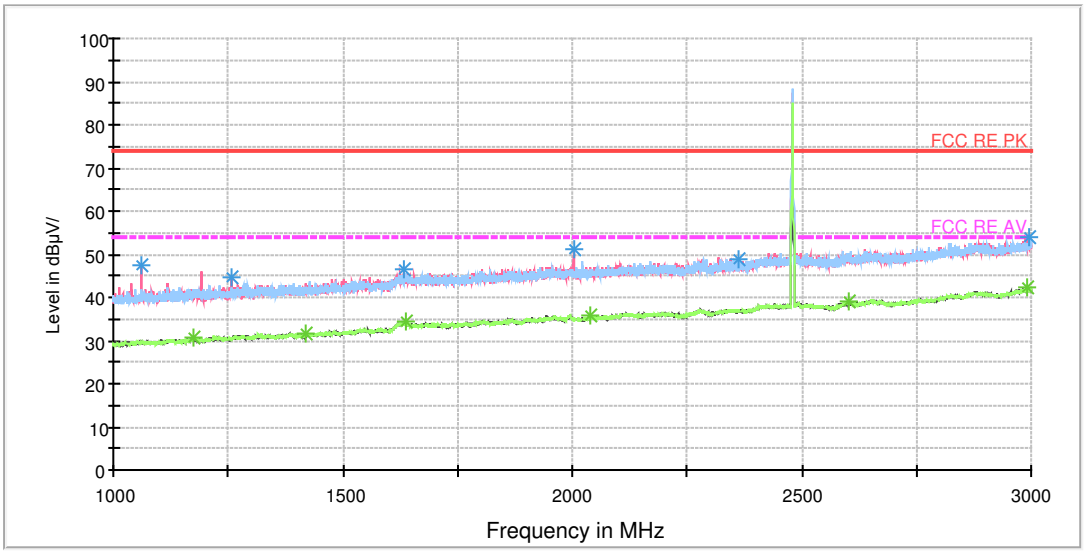
FCC RE 0.03-1GHz QP Class C



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)
30.040000	24.5	100.0	V	214.0	36.4	11.9	15.5	40.0
64.065000	16.8	112.0	V	336.0	27.7	10.9	23.2	40.0
105.463750	9.1	189.0	V	115.0	21.8	12.7	34.4	43.5
285.998750	20.4	100.0	H	292.0	35.4	15.0	25.6	46.0
546.605000	18.4	225.0	V	40.0	39.3	20.9	27.6	46.0
957.396250	25.3	200.0	H	336.0	51.5	26.2	20.7	46.0

RE 1G-3GHz PK+AV



Radiates Emission from 1GHz to 3GHz

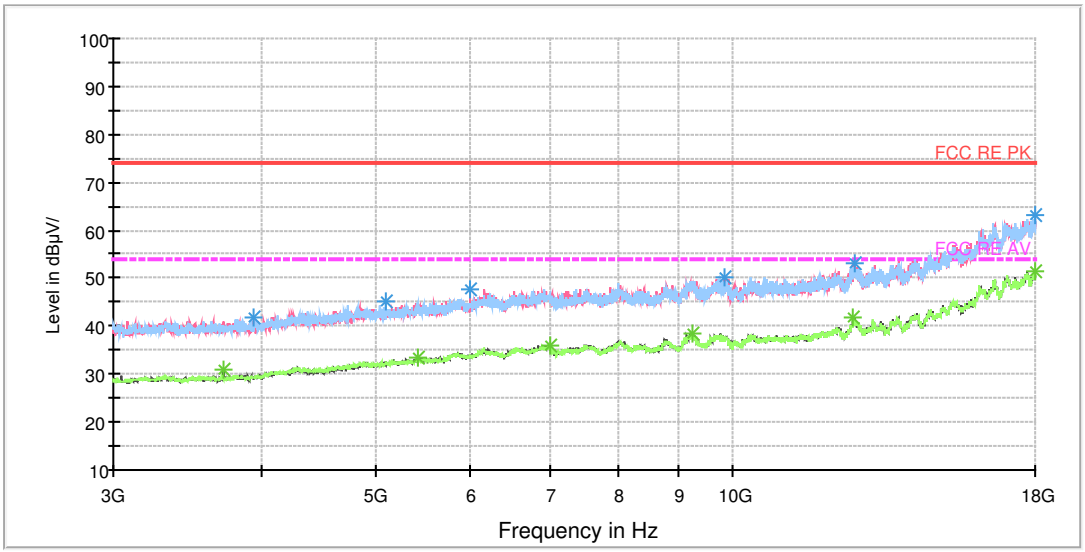
Note: The signal beyond the limit is carrier.

Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1060.750000	47.6	101.0	V	130.0	56.5	-8.9	26.4	74
1257.500000	44.8	101.0	V	353.0	52.6	-7.8	29.2	74
1634.750000	46.4	101.0	V	313.0	51.1	-4.7	27.6	74
2002.250000	51.3	101.0	V	353.0	54.8	-3.5	22.7	74
2362.000000	48.9	101.0	V	272.0	50.3	-1.4	25.1	74
2996.000000	53.9	101.0	V	229.0	56.2	2.3	20.1	74

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1174.000000	30.8	101.0	V	286.0	38.9	-8.1	23.2	54
1421.000000	31.6	101.0	H	51.0	38.5	-6.9	22.4	54
1639.500000	34.2	101.0	V	75.0	38.9	-4.7	19.8	54
2040.250000	36.0	101.0	H	23.0	39.2	-3.2	18.0	54
2600.500000	39.0	101.0	V	299.0	39.4	0.4	15.0	54
2992.750000	42.2	101.0	V	201.0	44.4	2.2	11.8	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

RE 3-18GHz PK+AV



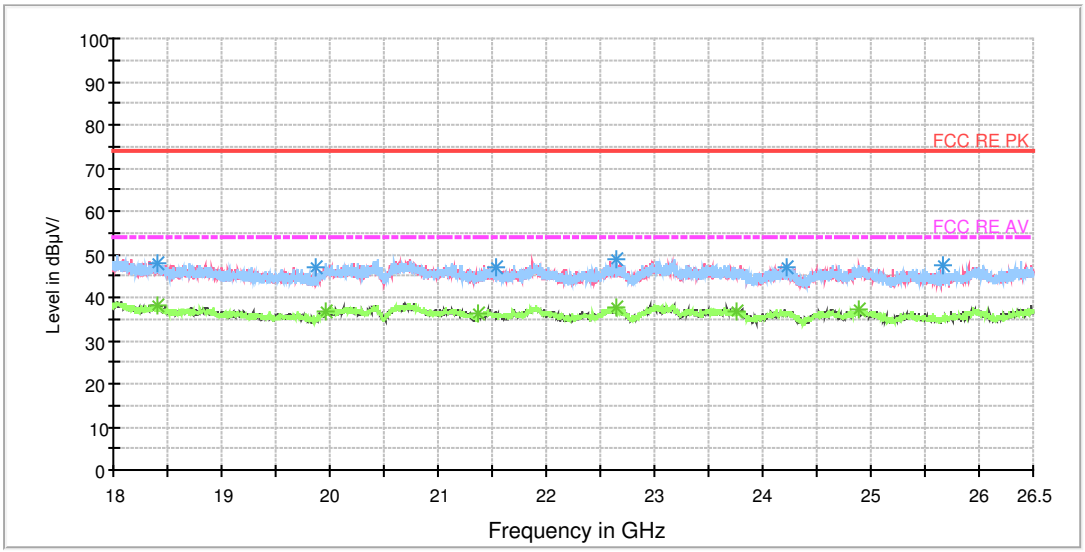
Radiates Emission from 3GHz to 18GHz

Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3946.875000	41.6	101.0	V	340.0	42.7	-1.1	32.4	74
5090.625000	45.1	101.0	H	0.0	46.8	1.7	28.9	74
6001.875000	47.9	101.0	V	326.0	52.8	4.9	26.1	74
9858.750000	50.2	101.0	V	326.0	60.6	10.4	23.8	74
12673.125000	52.9	101.0	V	326.0	67.0	14.1	21.1	74
17998.125000	63.0	101.0	H	1.0	88.4	25.4	11.0	74

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3720.000000	31.0	101.0	V	63.0	32.6	-1.6	23	54
5426.250000	33.6	101.0	V	294.0	36.4	2.8	20.4	54
7001.250000	36.0	101.0	V	355.0	42.6	6.6	18.0	54
9243.750000	38.6	101.0	H	294.0	48.4	9.8	15.4	54
12646.875000	41.9	101.0	H	345.0	56.2	14.3	12.1	54
18000.000000	51.5	101.0	V	355.0	77	25.5	2.5	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz

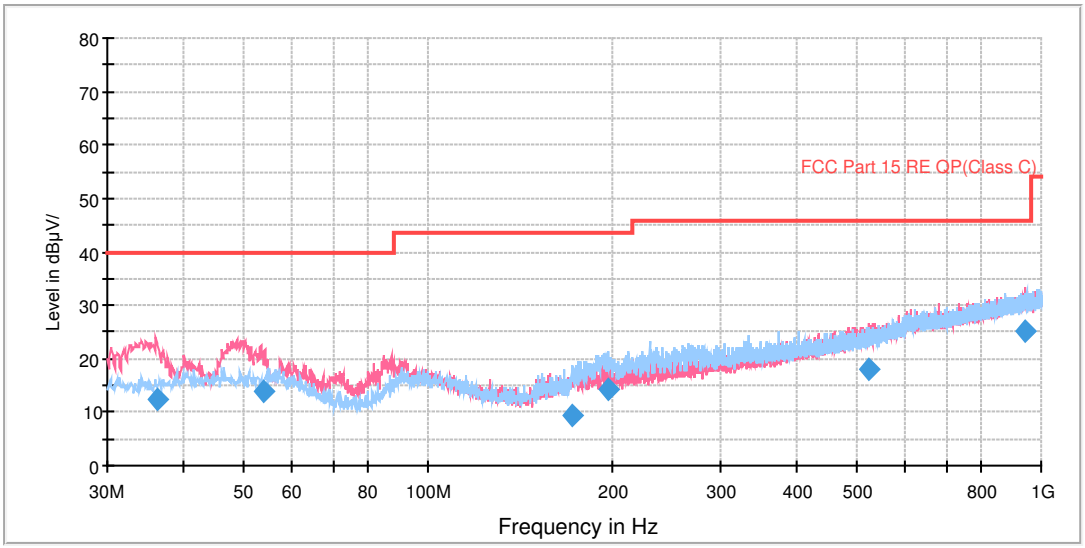
Frequency (MHz)	Peak (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18414.375000	47.7	H	10.0	51.2	-3.5	26.3	74
19873.187500	46.8	V	123.0	52.6	-5.8	27.2	74
21528.562500	46.9	V	327.0	55.0	-8.1	27.1	74
22653.750000	49.1	H	227.0	55.7	-6.6	24.9	74
24213.500000	47.2	V	290.0	53.1	-5.9	26.8	74
25670.187500	47.3	V	178.0	52.9	-5.6	26.7	74

Frequency (MHz)	Average (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18409.062500	38.0	V	216.0	41.5	-3.5	16.0	54
19957.125000	36.8	H	0.0	42.5	-5.7	17.2	54
21378.750000	36.4	V	97.0	44.3	-7.9	17.6	54
22647.375000	37.8	H	214.0	44.5	-6.7	16.2	54
23758.750000	36.9	V	97.0	42.8	-5.9	17.1	54
24892.437500	37.0	V	0.0	42.9	-5.9	17.0	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

EDR-Channel 0

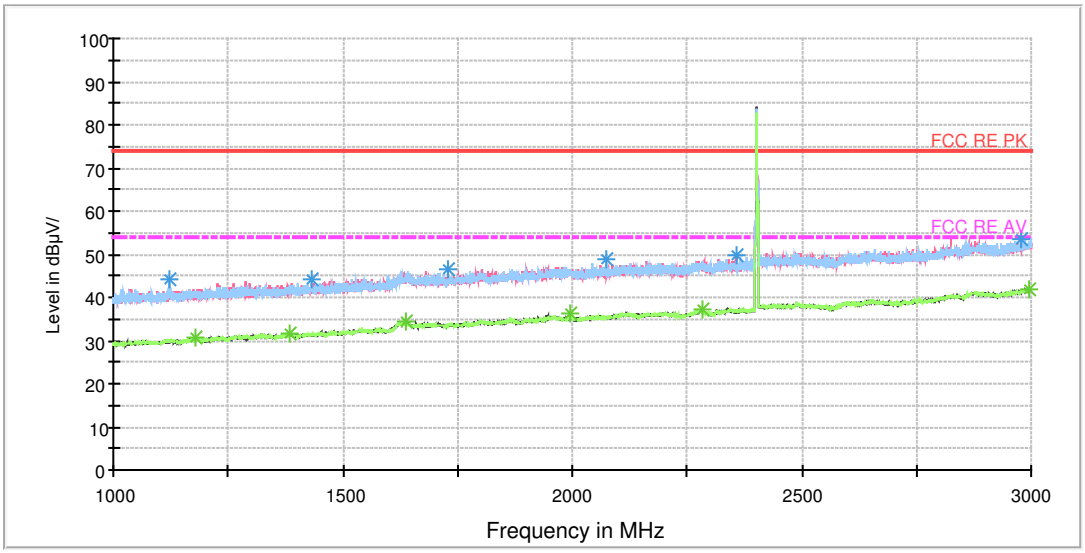
FCC RE 0.03-1GHz QP Class C



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)
36.222500	12.3	100.0	V	264.0	24.5	12.2	27.7	40.0
53.930000	13.9	100.0	V	236.0	26.7	12.8	26.1	40.0
172.341250	9.3	125.0	H	271.0	19.7	10.4	34.2	43.5
196.760000	14.2	125.0	H	257.0	26.0	11.8	29.3	43.5
523.613750	17.8	100.0	V	208.0	38.3	20.5	28.2	46.0
943.338750	25.2	100.0	V	22.0	51.2	26.0	20.8	46.0

RE 1G-3GHz PK+AV



Radiates Emission from 1GHz to 3GHz

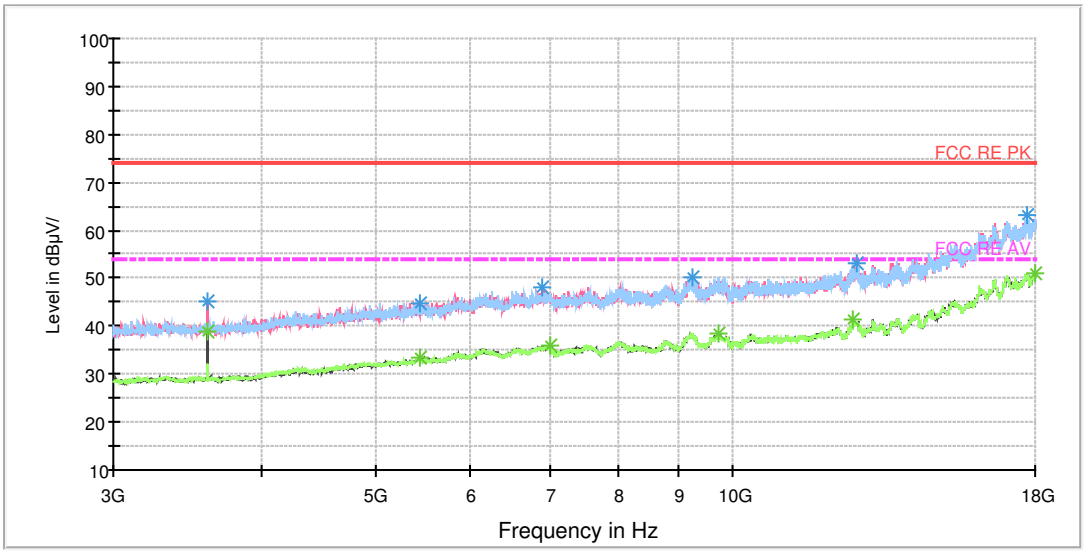
Note: The signal beyond the limit is carrier.

Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1121.250000	44.0	101.0	H	120.0	52.5	-8.5	30.0	74
1431.750000	44.0	101.0	H	39.0	50.9	-6.9	30.0	74
1727.750000	46.6	101.0	H	0.0	51.7	-5.1	27.4	74
2073.250000	48.6	101.0	H	302.0	51.7	-3.1	25.4	74
2359.750000	49.6	101.0	V	254.0	51.0	-1.4	24.4	74
2978.500000	53.6	101.0	H	11.0	55.8	2.2	20.4	74

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1178.750000	30.7	101.0	H	216.0	38.7	-8.0	23.3	54
1385.250000	31.8	101.0	H	0.0	38.8	-7.0	22.2	54
1639.500000	34.3	101.0	V	359.0	39.0	-4.7	19.7	54
1995.500000	36.1	101.0	V	294.0	39.3	-3.2	17.9	54
2282.250000	37.0	101.0	V	214.0	38.4	-1.4	17.0	54
2996.750000	42.0	101.0	H	0.0	44.3	2.3	12.0	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

RE 3-18GHz PK+AV



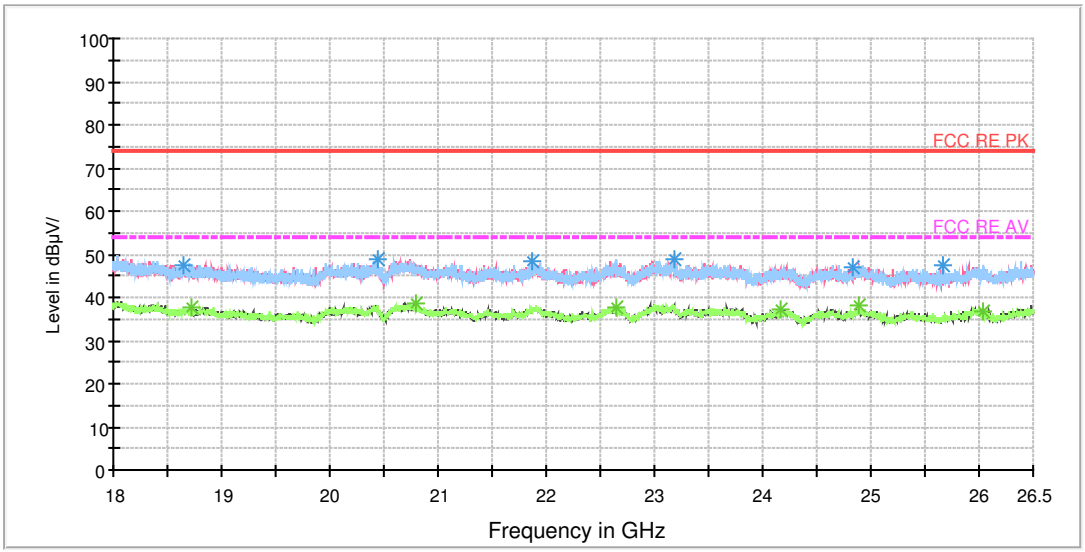
Radiates Emission from 3GHz to 18GHz

Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3601.875000	45.2	101.0	V	113.0	47.4	-2.2	28.8	74
5443.125000	44.7	101.0	H	4.0	47.6	2.9	29.3	74
6896.250000	48.1	101.0	V	144.0	54.3	6.2	25.9	74
9256.875000	50.3	101.0	H	65.0	59.8	9.5	23.7	74
12708.750000	53.2	101.0	V	28.0	67.2	14.0	20.8	74
17724.375000	63.0	101.0	H	34.0	87.5	24.5	11.0	74

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3601.875000	39.0	101.0	V	113.0	41.2	-2.2	15.0	54
5441.250000	33.3	101.0	H	0.0	36.2	2.9	20.7	54
7001.250000	35.8	101.0	V	267.0	42.4	6.6	18.2	54
9733.125000	38.5	101.0	H	186.0	48.3	9.8	15.5	54
12650.625000	41.5	101.0	H	110.0	55.6	14.1	12.5	54
17990.625000	51.1	101.0	V	144.0	76.3	25.2	2.9	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz

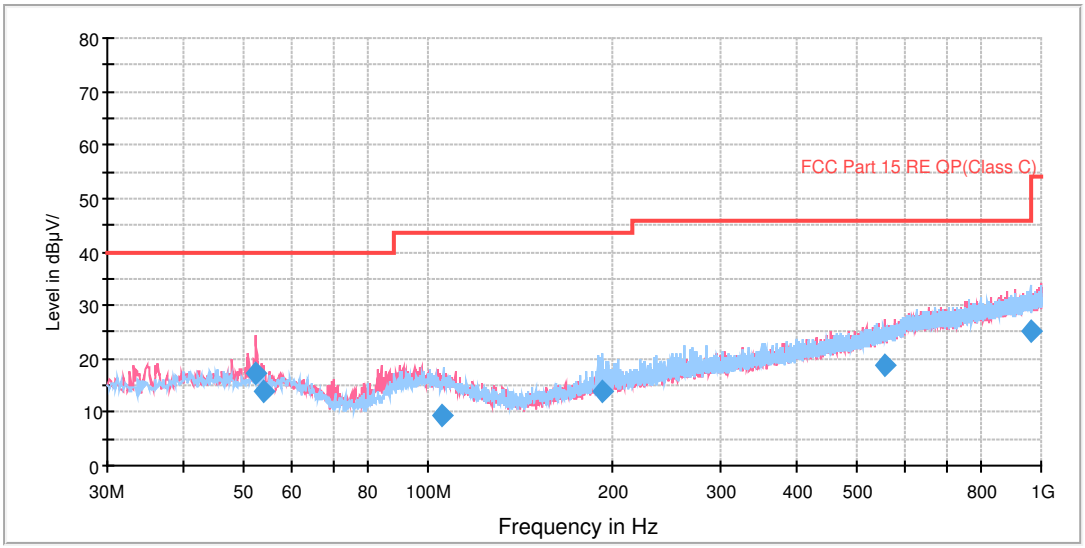
Frequency (MHz)	Peak (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18648.125000	47.6	V	240.0	51.8	-4.2	26.4	74
20441.625000	48.7	H	60.0	54.8	-6.1	25.3	74
21879.187500	48.2	V	290.0	56.2	-8.0	25.8	74
23186.062500	48.6	H	121.0	54.6	-6.0	25.4	74
24840.375000	47.0	H	0.0	52.9	-5.9	27.0	74
25670.187500	47.3	V	178.0	52.9	-5.6	26.7	74

Frequency (MHz)	Average (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18717.187500	37.8	V	339.0	42.2	-4.4	16.2	54
20801.812500	38.5	H	176.0	45.4	-6.9	15.5	54
22648.437500	37.7	V	290.0	44.3	-6.6	16.3	54
24161.437500	37.1	H	0.0	43.0	-5.9	16.9	54
24892.437500	38.0	H	35.0	43.9	-5.9	16.0	54
26043.125000	36.7	V	253.0	42.1	-5.4	17.3	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

EDR-Channel 39

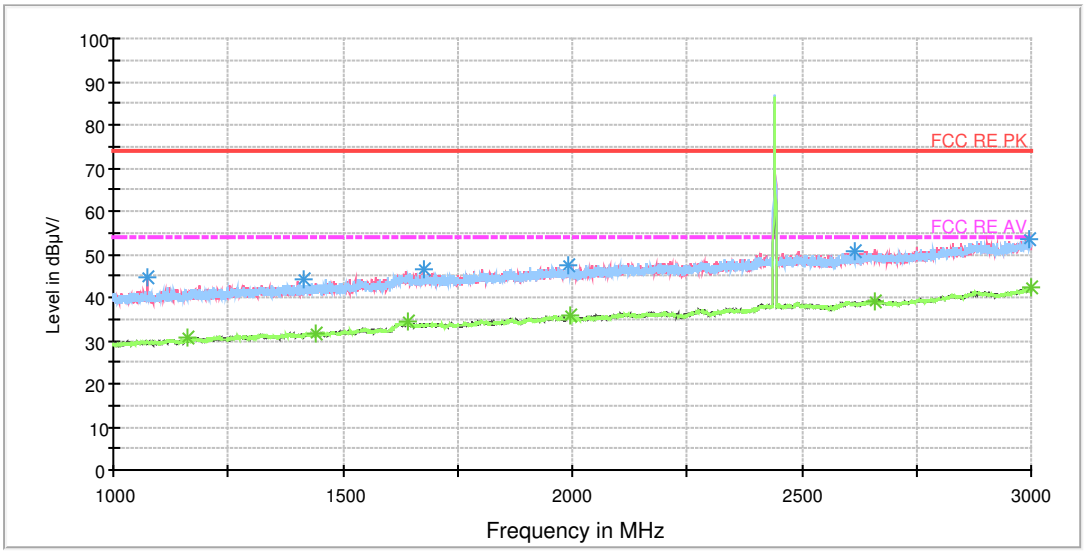
FCC RE 0.03-1GHz QP Class C



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)
52.550000	17.1	100.0	V	240.0	30.0	12.9	22.9	40.0
53.966250	13.7	100.0	V	183.0	26.5	12.8	26.3	40.0
105.462500	9.2	125.0	H	177.0	21.9	12.7	34.3	43.5
192.676250	13.8	125.0	H	50.0	25.4	11.6	29.7	43.5
554.565000	18.7	100.0	V	338.0	39.9	21.2	27.3	46.0
959.982500	25.3	100.0	H	62.0	51.4	26.1	20.7	46.0

RE 1G-3GHz PK+AV



Radiates Emission from 1GHz to 3GHz

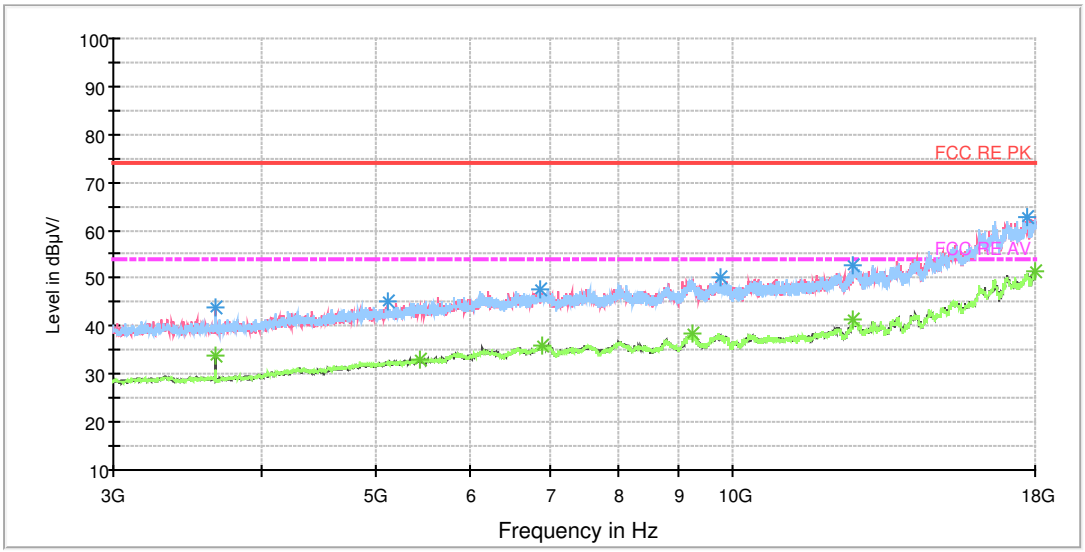
Note: The signal beyond the limit is carrier.

Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1076.000000	44.7	101.0	V	115.0	53.5	-8.8	29.3	74
1415.750000	44.4	101.0	H	0.0	51.4	-7.0	29.6	74
1676.750000	46.3	101.0	H	0.0	51.4	-5.1	27.7	74
1992.750000	47.5	101.0	H	79.0	50.8	-3.3	26.5	74
2617.750000	50.9	101.0	H	11.0	50.9	0.0	23.1	74
2994.500000	53.7	101.0	H	25.0	56.0	2.3	20.3	74

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1162.000000	30.7	101.0	V	283.0	39.0	-8.3	23.3	54
1441.000000	31.7	101.0	H	107.0	38.6	-6.9	22.3	54
1641.000000	34.3	101.0	V	0.0	39.0	-4.7	19.7	54
1993.750000	35.8	101.0	V	0.0	39.1	-3.3	18.2	54
2659.000000	39.1	101.0	V	353.0	39.5	0.4	14.9	54
2998.250000	42.2	101.0	H	202.0	44.5	2.3	11.8	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

RE 3-18GHz PK+AV



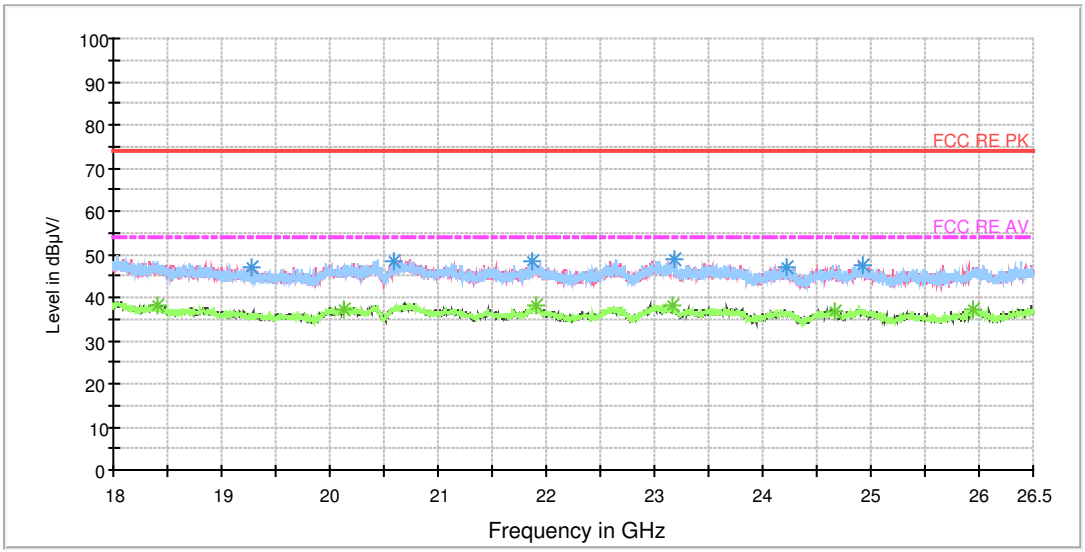
Radiates Emission from 3GHz to 18GHz

Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3660.000000	44.0	101.0	V	323.0	45.9	-1.9	30.0	74
5122.500000	45.0	101.0	H	48.0	46.8	1.8	29.0	74
6868.125000	47.7	101.0	V	293.0	53.6	5.9	26.3	74
9776.250000	50.2	101.0	H	218.0	59.9	9.7	23.8	74
12628.125000	52.9	101.0	V	293.0	66.1	13.2	21.1	74
17700.000000	62.8	101.0	H	0.0	87.5	24.7	11.2	74

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3660.000000	34.0	101.0	V	323.0	35.9	-1.9	20.0	54
5441.250000	33.2	101.0	V	171.0	36.1	2.9	20.8	54
6892.500000	36.0	101.0	V	0.0	42.2	6.2	18.0	54
9241.875000	38.6	101.0	H	79.0	48.5	9.9	15.4	54
12645.000000	41.5	101.0	H	64.0	55.9	14.4	12.5	54
18000.000000	51.3	101.0	V	141.0	76.8	25.5	2.7	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz

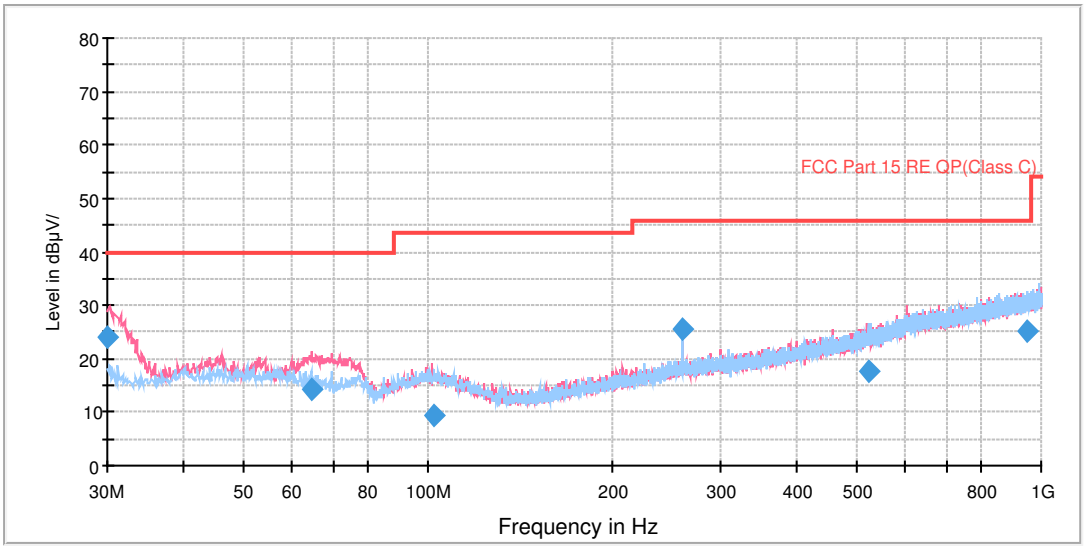
Frequency (MHz)	Peak (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
19273.937500	47.1	H	0.0	52.8	-5.7	26.9	74
20601.000000	48.5	H	10.0	54.9	-6.4	25.5	74
21879.187500	48.2	V	290.0	56.2	-8.0	25.8	74
23186.062500	48.6	H	121.0	54.6	-6.0	25.4	74
24213.500000	47.2	V	290.0	53.1	-5.9	26.8	74
24921.125000	47.4	H	97.0	53.3	-5.9	26.6	74

Frequency (MHz)	Average (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18409.062500	38.0	V	216.0	41.5	-3.5	16.0	54
20134.562500	37.4	V	351.0	43.2	-5.8	16.6	54
21906.812500	37.9	H	23.0	45.9	-8.0	16.1	54
23171.187500	38.2	V	0.0	44.3	-6.1	15.8	54
24667.187500	36.7	V	228.0	42.7	-6.0	17.3	54
25944.312500	37.4	H	279.0	42.8	-5.4	16.6	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

EDR-Channel 78

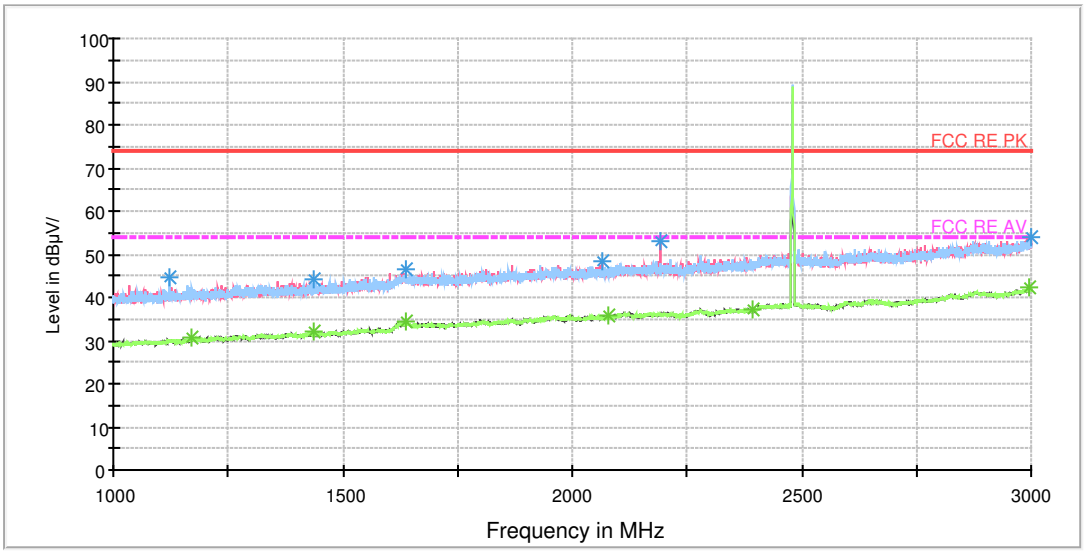
FCC RE 0.03-1GHz QP Class C



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)
30.040000	24.2	100.0	V	84.0	36.1	11.9	15.8	40.0
64.676250	14.1	100.0	V	115.0	24.8	10.7	25.9	40.0
101.976250	9.5	175.0	V	111.0	22.5	13.0	34.0	43.5
260.011250	25.5	100.0	H	291.0	39.9	14.4	20.5	46.0
521.788750	17.7	100.0	H	17.0	38.1	20.4	28.3	46.0
951.463750	25.2	100.0	H	117.0	51.2	26.0	20.8	46.0

RE 1G-3GHz PK+AV



Radiates Emission from 1GHz to 3GHz

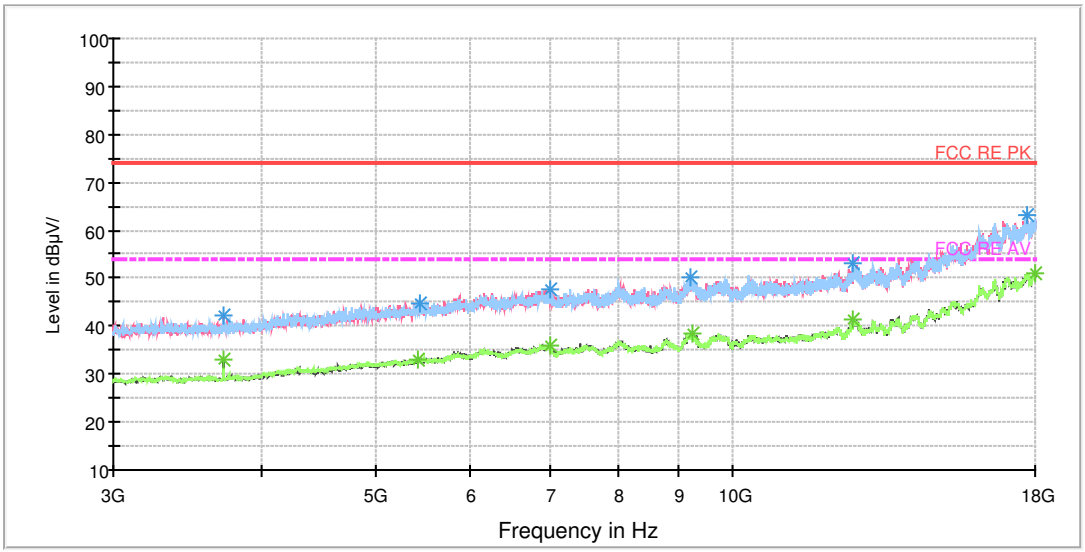
Note: The signal beyond the limit is carrier.

Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1121.250000	44.5	101.0	H	21.0	53.0	-8.5	29.5	74
1438.500000	44.2	101.0	H	0.0	51.1	-6.9	29.8	74
1637.000000	46.5	101.0	H	0.0	51.2	-4.7	27.5	74
2067.000000	48.3	101.0	V	172.0	51.4	-3.1	25.7	74
2190.250000	53.2	101.0	V	353.0	55.4	-2.2	20.8	74
2998.750000	53.9	101.0	V	0.0	56.2	2.3	20.1	74

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1170.250000	30.7	101.0	V	0.0	38.8	-8.1	23.3	54
1435.000000	32.0	101.0	V	217.0	38.9	-6.9	22.0	54
1636.250000	34.2	101.0	V	159.0	38.9	-4.7	19.8	54
2078.750000	35.8	101.0	H	21.0	38.8	-3.0	18.2	54
2391.250000	37.2	101.0	V	44.0	38.6	-1.4	16.8	54
2997.500000	42.2	101.0	H	7.0	44.5	2.3	11.8	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

RE 3-18GHz PK+AV



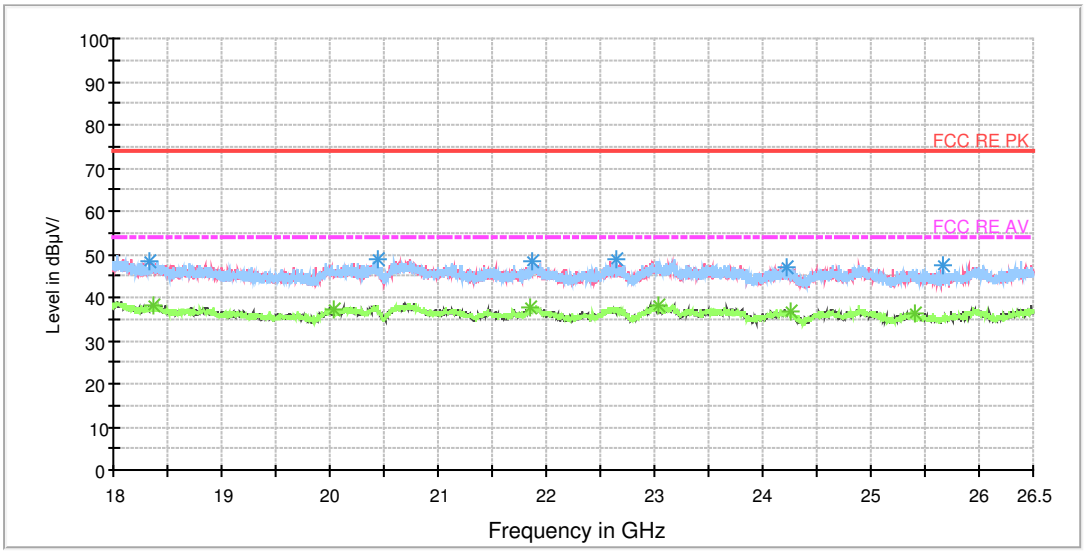
Radiates Emission from 3GHz to 18GHz

Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3718.125000	42.1	101.0	V	326.0	43.7	-1.6	31.9	74
5441.250000	44.8	101.0	H	112.0	47.7	2.9	29.2	74
7003.125000	47.9	101.0	V	0.0	54.4	6.5	26.1	74
9228.750000	50.2	101.0	V	296.0	60.1	9.9	23.8	74
12648.750000	52.9	101.0	H	251.0	67.1	14.2	21.1	74
17700.000000	63.1	101.0	H	0.0	87.8	24.7	10.9	74

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3720.000000	33.0	101.0	V	326.0	34.6	-1.6	21.0	54
5418.750000	33.2	101.0	H	0.0	35.9	2.7	20.8	54
7003.125000	35.9	101.0	V	0.0	42.4	6.5	18.1	54
9240.000000	38.6	101.0	V	326.0	48.5	9.9	15.4	54
12646.875000	41.5	101.0	H	98.0	55.8	14.3	12.5	54
17998.125000	51.2	101.0	H	283.0	76.6	25.4	2.8	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

RE 18-26.5GHz PK+AV



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)
18334.687500	48.6	V	314.0	51.8	-3.2	25.4	74
20441.625000	48.7	H	60.0	54.8	-6.1	25.3	74
21879.187500	48.2	V	290.0	56.2	-8.0	25.8	74
22653.750000	49.1	H	227.0	55.7	-6.6	24.9	74
24213.500000	47.2	V	290.0	53.1	-5.9	26.8	74
25670.187500	47.3	V	178.0	52.9	-5.6	26.7	74

Frequency (MHz)	Average (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18378.250000	38.2	V	253.0	41.6	-3.4	15.8	54
20043.187500	37.0	H	147.0	42.7	-5.7	17.0	54
21853.687500	37.6	V	339.0	45.6	-8.0	16.4	54
23042.625000	38.0	H	189.0	44.1	-6.1	16.0	54
24253.875000	36.7	H	47.0	42.6	-5.9	17.3	54
25406.687500	36.3	V	339.0	42.1	-5.8	17.7	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

4.11 Conducted Emission

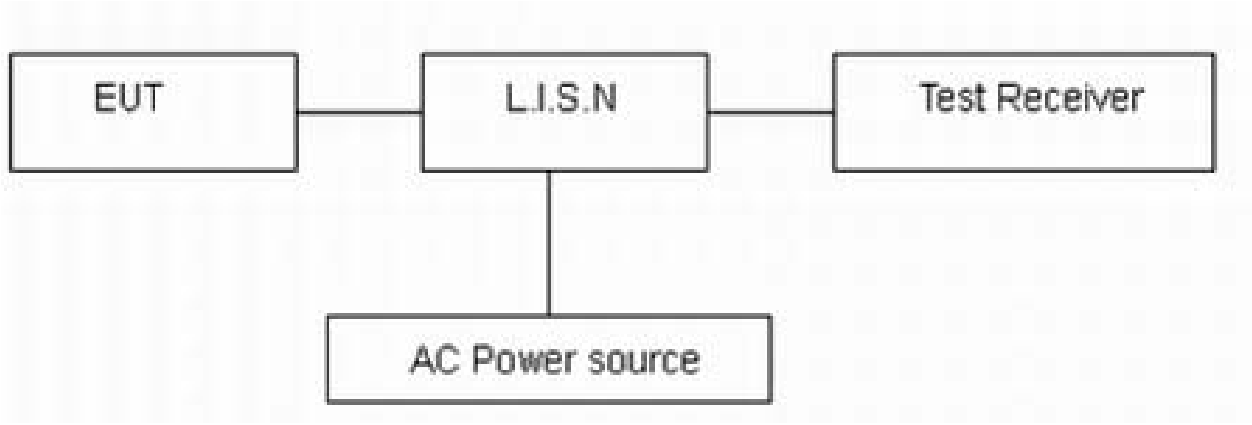
Ambient condition

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 from 220V/50Hz to 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.		

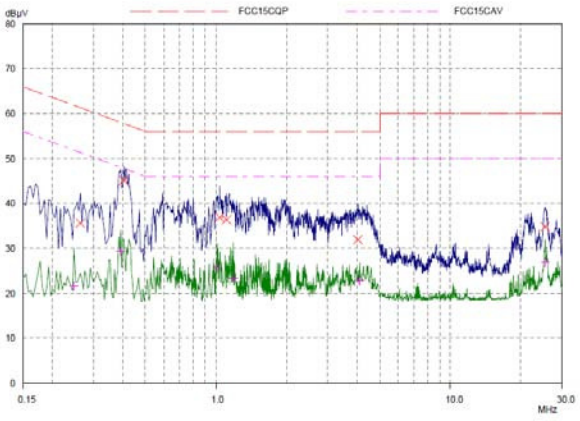
Measurement Uncertainty

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 L Line

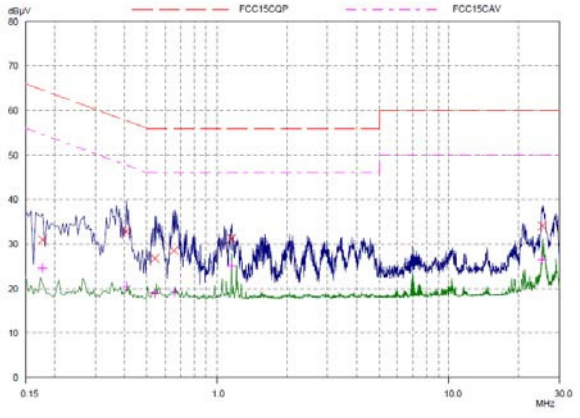


Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -	PE -
0.26328	35.55	61.33	25.78	L1	gnd
0.4039	45.10	57.77	12.67	L1	gnd
1.03671	36.84	56.00	19.16	L1	gnd
1.10703	36.32	56.00	19.68	L1	gnd
4.025	31.88	56.00	24.12	L1	gnd
25.34531	34.79	60.00	25.21	L1	gnd

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -	PE -
0.24765	21.54	51.84	30.30	L1	gnd
0.39218	29.31	48.02	18.71	L1	gnd
1.00937	25.70	46.00	20.30	L1	gnd
1.18515	23.39	46.00	22.61	L1	gnd
4.10311	22.75	46.00	23.25	L1	gnd
25.34531	26.89	50.00	23.11	L1	gnd

Basic Rate-CH0 N Line

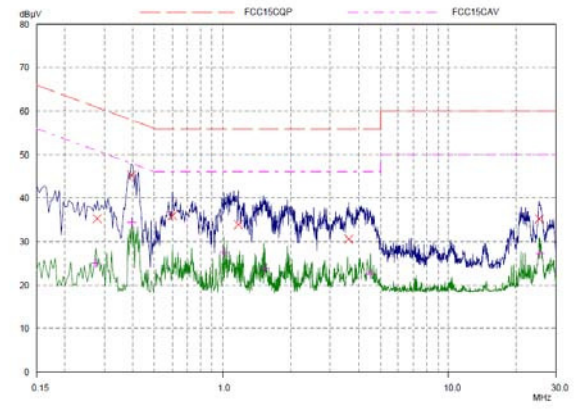


Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -	PE -
0.17734	30.96	64.61	33.65	N	gnd
0.40781	32.72	57.69	24.97	N	gnd
0.54062	26.76	56.00	29.24	N	gnd
0.6539	28.49	56.00	27.51	N	gnd
1.1539	31.22	56.00	24.78	N	gnd
25.22812	34.04	60.00	25.96	N	gnd

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -	PE -
0.17734	24.59	54.61	30.02	N	gnd
0.40781	20.44	47.69	27.25	N	gnd
0.54062	18.85	46.00	27.15	N	gnd
0.6539	19.21	46.00	26.79	N	gnd
1.1539	25.07	46.00	20.93	N	gnd
25.22812	26.38	50.00	23.62	N	gnd

Basic Rate-CH39 L Line

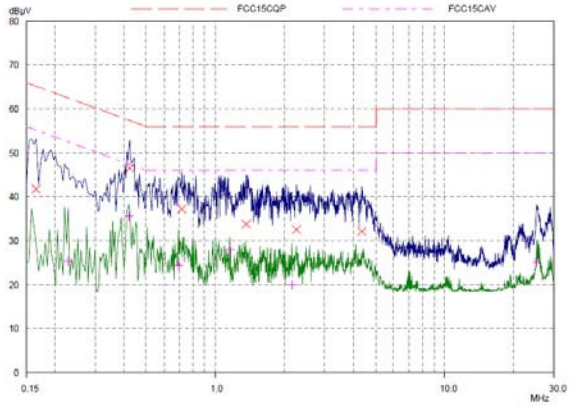


Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -	PE -
0.2789	35.27	60.85	25.58	L1	gnd
0.39609	45.20	57.93	12.73	L1	gnd
0.59921	35.92	56.00	20.08	L1	gnd
1.17343	33.86	56.00	22.14	L1	gnd
3.61875	30.53	56.00	25.47	L1	gnd
25.22812	35.22	60.00	24.78	L1	gnd

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -	PE -
0.275	25.07	50.97	25.90	L1	gnd
0.39609	34.33	47.93	13.60	L1	gnd
1.01328	27.59	46.00	18.41	L1	gnd
1.525	23.83	46.00	22.17	L1	gnd
4.51328	22.47	46.00	23.53	L1	gnd
25.4	27.17	50.00	22.83	L1	gnd

Basic Rate-CH39 N Line

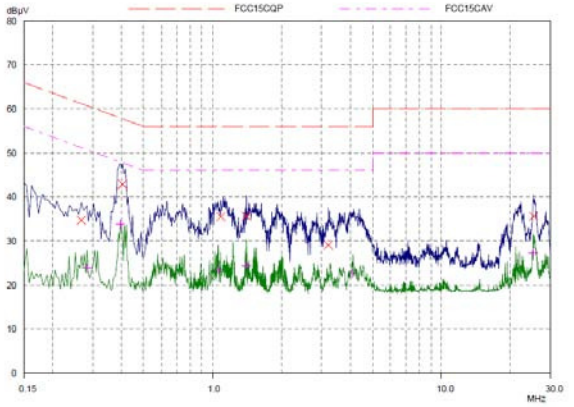


Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -	PE -
0.16562	41.75	65.18	23.43	N	gnd
0.42343	46.51	57.38	10.87	N	gnd
0.7125	37.17	56.00	18.83	N	gnd
1.36484	33.75	56.00	22.25	N	gnd
2.25937	32.50	56.00	23.50	N	gnd
4.34921	32.07	56.00	23.93	N	gnd

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -	PE -
0.22812	25.38	52.52	27.14	N	gnd
0.41953	35.63	47.46	11.83	N	gnd
0.68906	24.32	46.00	21.68	N	gnd
1.15781	27.91	46.00	18.09	N	gnd
2.1539	19.84	46.00	26.16	N	gnd
25.19687	25.06	50.00	24.94	N	gnd

Basic Rate-CH78 L Line

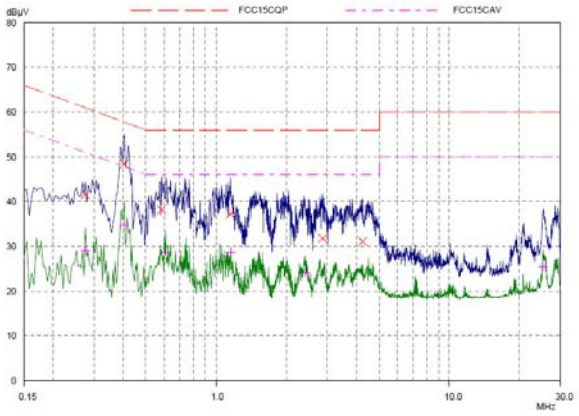


Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -	PE -
0.26718	34.67	61.21	26.54	L1	gnd
0.4039	42.86	57.77	14.91	L1	gnd
1.0875	35.48	56.00	20.52	L1	gnd
1.4039	35.65	56.00	20.35	L1	gnd
3.20468	29.04	56.00	26.96	L1	gnd
25.22812	35.58	60.00	24.42	L1	gnd

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -	PE -
0.28281	23.79	50.73	26.94	L1	gnd
0.39609	33.76	47.93	14.17	L1	gnd
1.06015	23.43	46.00	22.57	L1	gnd
1.4039	24.40	46.00	21.60	L1	gnd
4.10703	22.56	46.00	23.44	L1	gnd
25.16562	27.20	50.00	22.80	L1	gnd

Basic Rate-CH78 N Line

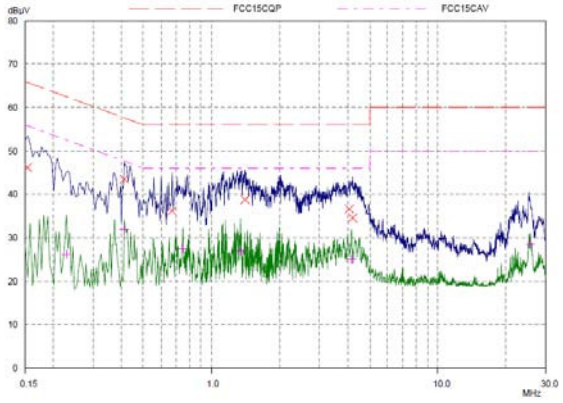


Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -	PE -
0.275	41.51	60.97	19.46	N	gnd
0.4039	48.40	57.77	9.37	N	gnd
0.58359	38.12	56.00	17.88	N	gnd
1.15	37.22	56.00	18.78	N	gnd
2.86484	31.77	56.00	24.23	N	gnd
4.24375	31.07	56.00	24.93	N	gnd

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -	PE -
0.275	29.02	50.97	21.95	N	gnd
0.4039	34.77	47.77	13.00	N	gnd
0.60703	28.69	46.00	17.31	N	gnd
1.1539	28.67	46.00	17.33	N	gnd
2.41562	24.09	46.00	21.91	N	gnd
25.22812	25.31	50.00	24.69	N	gnd

EDR-CH0 L Line

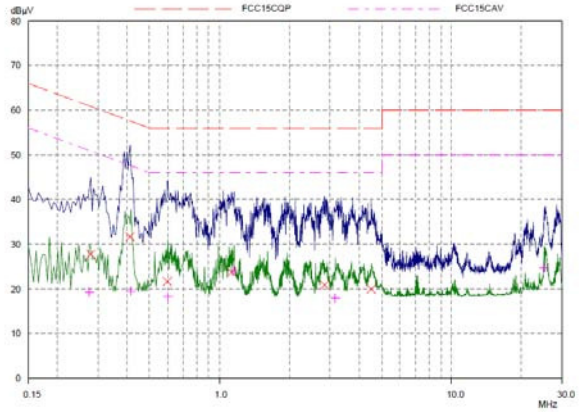


Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -	PE -
0.1539	46.18	65.79	19.61	L1	gnd
0.41171	43.43	57.61	14.18	L1	gnd
0.66953	36.15	56.00	19.85	L1	gnd
1.4039	38.71	56.00	17.29	L1	gnd
4.06796	36.60	56.00	19.40	L1	gnd
4.19687	34.50	56.00	21.50	L1	gnd

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -	PE -
0.22812	26.13	52.52	26.39	L1	gnd
0.41171	31.82	47.61	15.79	L1	gnd
0.74765	27.54	46.00	18.46	L1	gnd
1.3414	26.86	46.00	19.14	L1	gnd
4.1578	24.98	46.00	21.02	L1	gnd
25.55234	28.41	50.00	21.59	L1	gnd

EDR-CH0 N Line

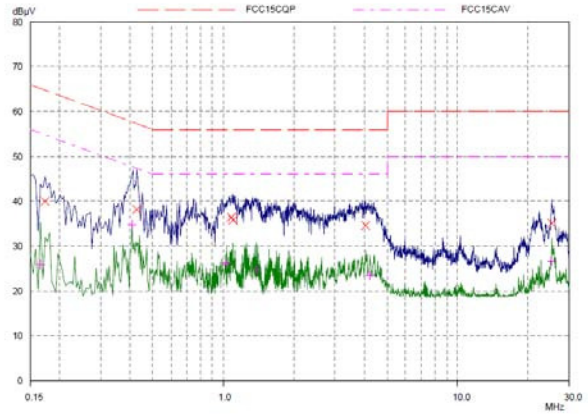


Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -	PE -
0.2789	27.73	60.85	33.12	N	gnd
0.41171	31.65	57.61	25.96	N	gnd
0.59531	21.58	56.00	34.42	N	gnd
1.12656	23.68	56.00	32.32	N	gnd
2.8375	20.85	56.00	35.15	N	gnd
4.50156	19.87	56.00	36.13	N	gnd

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -	PE -
0.275	19.27	50.97	31.70	N	gnd
0.41562	19.44	47.54	28.10	N	gnd
0.59921	18.15	46.00	27.85	N	gnd
1.1539	24.07	46.00	21.93	N	gnd
3.15781	17.92	46.00	28.08	N	gnd
25.10703	24.70	50.00	25.30	N	gnd

EDR-CH39 L Line

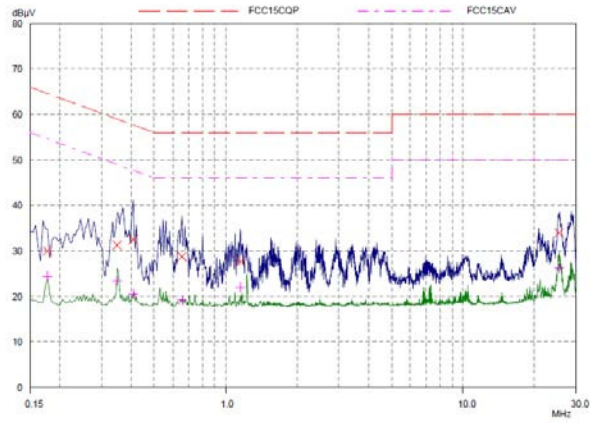


Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -	PE -
0.17343	39.96	64.79	24.83	L1	gnd
0.42734	38.15	57.30	19.15	L1	gnd
1.08359	36.42	56.00	19.58	L1	gnd
1.09921	35.80	56.00	20.20	L1	gnd
4.04453	34.60	56.00	21.40	L1	gnd
25.22812	35.12	60.00	24.88	L1	gnd

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -	PE -
0.16562	25.90	55.18	29.28	L1	gnd
0.40781	34.73	47.69	12.96	L1	gnd
1.03281	26.23	46.00	19.77	L1	gnd
1.38437	24.63	46.00	21.37	L1	gnd
4.23593	23.46	46.00	22.54	L1	gnd
25.22421	26.53	50.00	23.47	L1	gnd

EDR-CH39 N Line

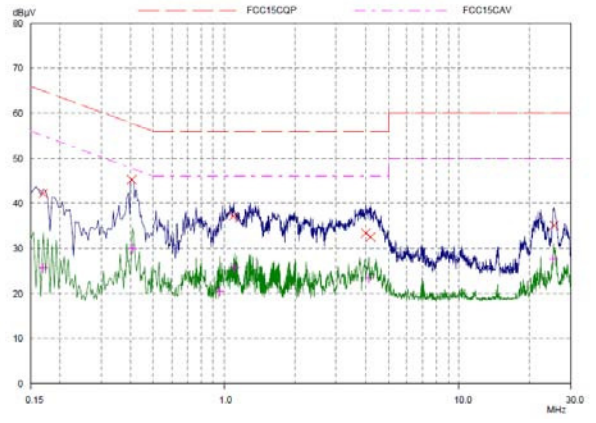


Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -	PE -
0.17734	29.96	64.61	34.65	N	gnd
0.34921	31.25	58.98	27.73	N	gnd
0.40781	32.42	57.69	25.27	N	gnd
0.6539	28.73	56.00	27.27	N	gnd
1.15	27.60	56.00	28.40	N	gnd
25.34531	33.95	60.00	26.05	N	gnd

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -	PE -
0.17734	24.43	54.61	30.18	N	gnd
0.34921	23.39	48.98	25.59	N	gnd
0.40781	20.44	47.69	27.25	N	gnd
0.6539	19.21	46.00	26.79	N	gnd
1.15	21.99	46.00	24.01	N	gnd
25.34531	26.17	50.00	23.83	N	gnd

EDR-CH78 L Line

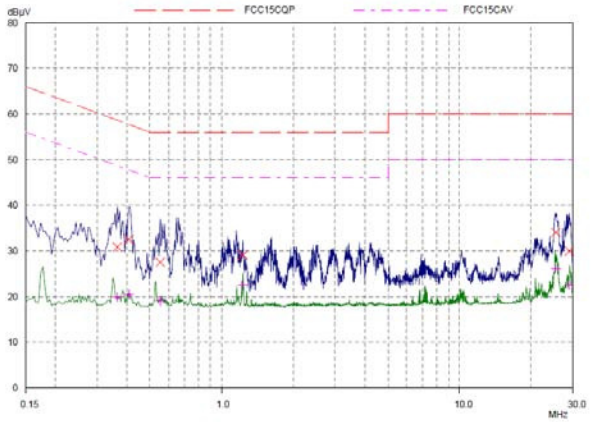


Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -	PE -
0.16953	42.18	64.98	22.80	L1	gnd
0.4039	45.26	57.77	12.51	L1	gnd
1.09531	37.16	56.00	18.84	L1	gnd
4.00155	33.40	56.00	22.60	L1	gnd
4.20468	32.48	56.00	23.52	L1	gnd
25.4039	35.10	60.00	24.90	L1	gnd

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -	PE -
0.16953	25.69	54.98	29.29	L1	gnd
0.40781	29.96	47.69	17.73	L1	gnd
0.95859	20.46	46.00	25.54	L1	gnd
1.10703	25.70	46.00	20.30	L1	gnd
4.12655	23.36	46.00	22.64	L1	gnd
25.22421	27.60	50.00	22.40	L1	gnd

EDR-CH78 N Line



Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -	PE -
0.36484	30.82	58.62	27.80	N	gnd
0.40781	32.44	57.69	25.25	N	gnd
0.55234	27.48	56.00	28.52	N	gnd
1.22812	28.98	56.00	27.02	N	gnd
25.34531	34.03	60.00	25.97	N	gnd
28.86875	29.93	60.00	30.07	N	gnd

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -	PE -
0.36484	19.86	48.62	28.76	N	gnd
0.40781	20.44	47.69	27.25	N	gnd
0.55234	19.07	46.00	26.93	N	gnd
1.22812	22.50	46.00	23.50	N	gnd
25.34531	26.10	50.00	23.90	N	gnd
28.86875	22.44	50.00	27.56	N	gnd

5 Main Test Instruments

Name	Type	Manufacturer	Serial Number	Calibration Date	Expiration Time
BT Base Station Simulator	CBT	R&S	100271	2016-05-21	2017-05-20
Loop Antenna	FMZB1519	SCHWARZBECK	1519-047	2014-02-29	2017-02-28
EMI Test Receiver	ESCS30	R&S	100138	2015-12-17	2016-12-16
Artificial main network	ENV216	R&S	101171	2013-12-18	2016-12-17
Signal Analyzer	FSV30	R&S	100815	2015-12-17	2016-12-16
EMI Test Receiver	ESCI	R&S	100948	2016-06-01	2017-05-31
TRILOG Broadband Antenna	VULB 9163	Schwarzbeck	9163-201	2014-12-06	2017-12-05
Double Ridged Waveguide Horn Antenna	HF907	R&S	100126	2014-12-06	2017-12-05
Power Splitter	SHX-GF2-2-13	Hua Xiang	10120101	NA	NA
Spectrum Analyzer	N9010A	Agilent	MY47191109	2016-05-21	2017-05-20
Standard Gain Horn	3160-09	ETS-Lindgren	00102644	2015-01-30	2018-01-29
RF Cable	SMA 15cm	Agilent	0001	2016-06-06	2017-06-05

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