



RF TEST REPORT

Applicant TP-LINK TECHNOLOGIES CO., LTD.
FCC ID TE7C5LV1
Brand TP-LINK
Product C5L FDD-LTE Smartphone
Model TP601C
Report No. RXA1511-0187RF04R1
Issue Date December 21, 2015

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC CFR47 Part 15C (2014)**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Lingling Kang

Reviewed by: lingling Kang/Manager

Kai Xu

Approved by: Kai Xu/Director



TA Technology (Shanghai) Co., Ltd.

No.145, Jintang Rd, Tangzhen Industry Park, Pudong Shanghai, China

TEL: +86-021-50791141/2/3

FAX: +86-021-50791141/2/3-8000

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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: November16, 2015~ November 22, 2015			

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
Country: P. R. China
Contact: Xu Kai
Telephone: +86-021-50791141/2/3
Fax: +86-021-50791141/2/3-8000
Website: <http://www.ta-shanghai.com>
E-mail: xukai@ta-shanghai.com

2 General Description of Equipment under Test

Client Information

Applicant	TP-LINK TECHNOLOGIES CO., LTD.
Applicant address	Building 24 (floors 1,3,4,5) and 28 (floors1-4) Central Science and Technology Park, Shennan Rd, Nanshan, Shenzhen, China
Manufacturer	TP-LINK TECHNOLOGIES CO., LTD.
Manufacturer address	Building 24 (floors 1,3,4,5) and 28 (floors1-4) Central Science and Technology Park, Shennan Rd, Nanshan, Shenzhen, China

Accessory Equipment Details

Name	Model	Manufacturer	Capacity	S/N
Battery	NBL-45A2000	TP-LINK TECHNOLOGIES CO., LTD.	2000mAh	B1151006100980

General information

Model:	TP601C		
IMEI:	SIM 1: 868788020000031 SIM 2: 868788020001047		
HW Version:	P1		
SW Version:	H10S100D03B20151015R1003		
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	$\pi/4$ DQPSK	8DQPSK
Packet Type: (Maximum Payload)	DH5	2DH5	3DH5
Max. Conducted Power	11.704dBm		
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 (2014) Radio Frequency Devices

ANSI C63.4 (2014)

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

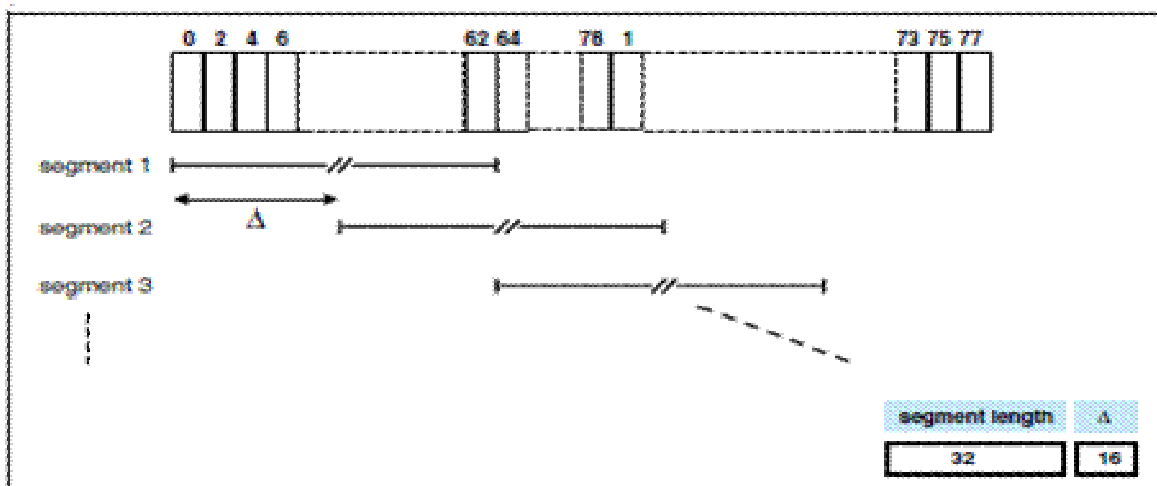
3 Information about the FHSS characteristics

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 $\pi/4$ -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

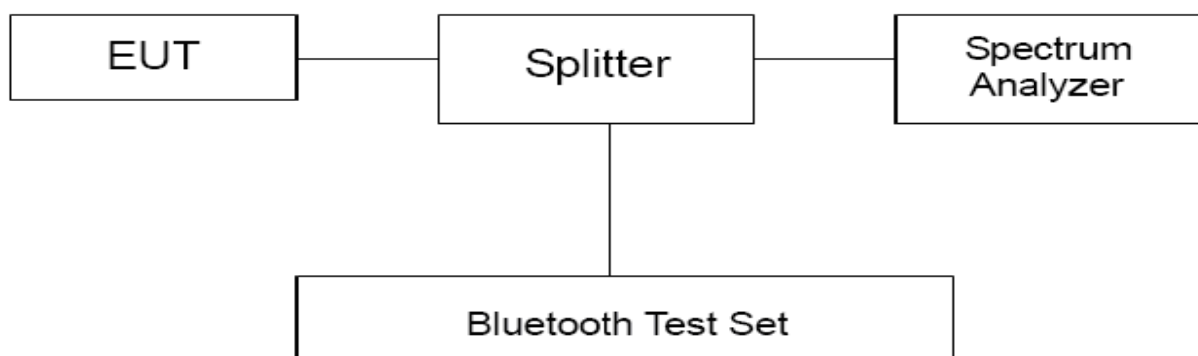
Ambient condition

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	$\leq 0.125W$ (21dBm)
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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	11.285	11.498	11.704	PASS
39	2441	11.035	11.423	11.402	PASS
78	2480	10.993	11.405	11.415	PASS

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

4.3 Occupied Bandwidth (20dB)

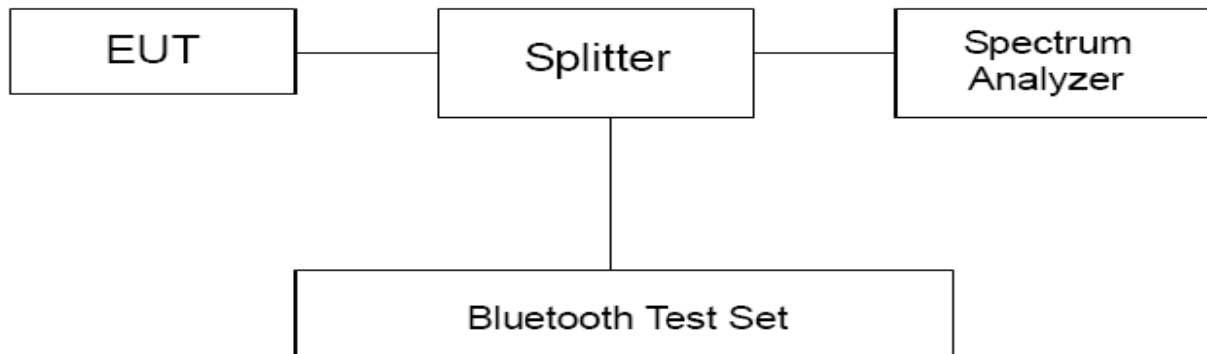
Ambient condition

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 20kHz and VBW is set to 62kHz on spectrum analyzer. -20dB occupied bandwidths are recorded.

Test Setup



Limits

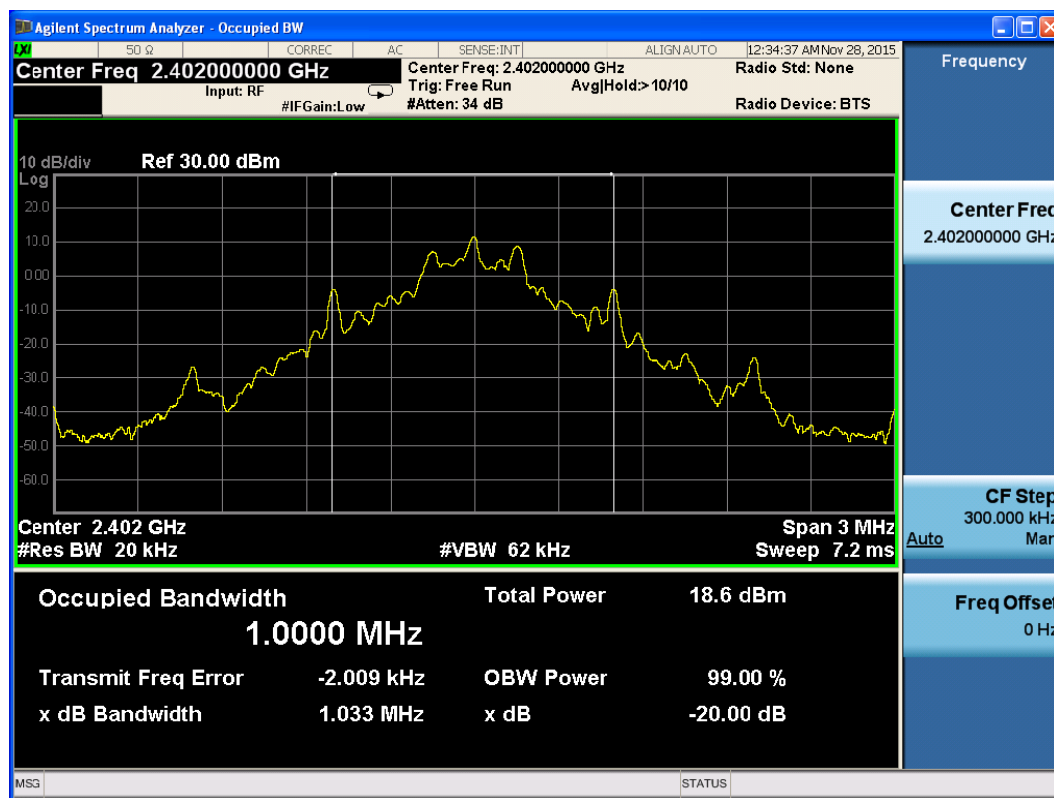
No specific occupied bandwidth requirements in part 15.247(a) (1).

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	1033
DH5	39	2441	1033
DH5	78	2480	1032
2DH5	0	2402	1089
2DH5	39	2441	1086
2DH5	78	2480	1092
3DH5	0	2402	1175
3DH5	39	2441	1180
3DH5	78	2480	1174

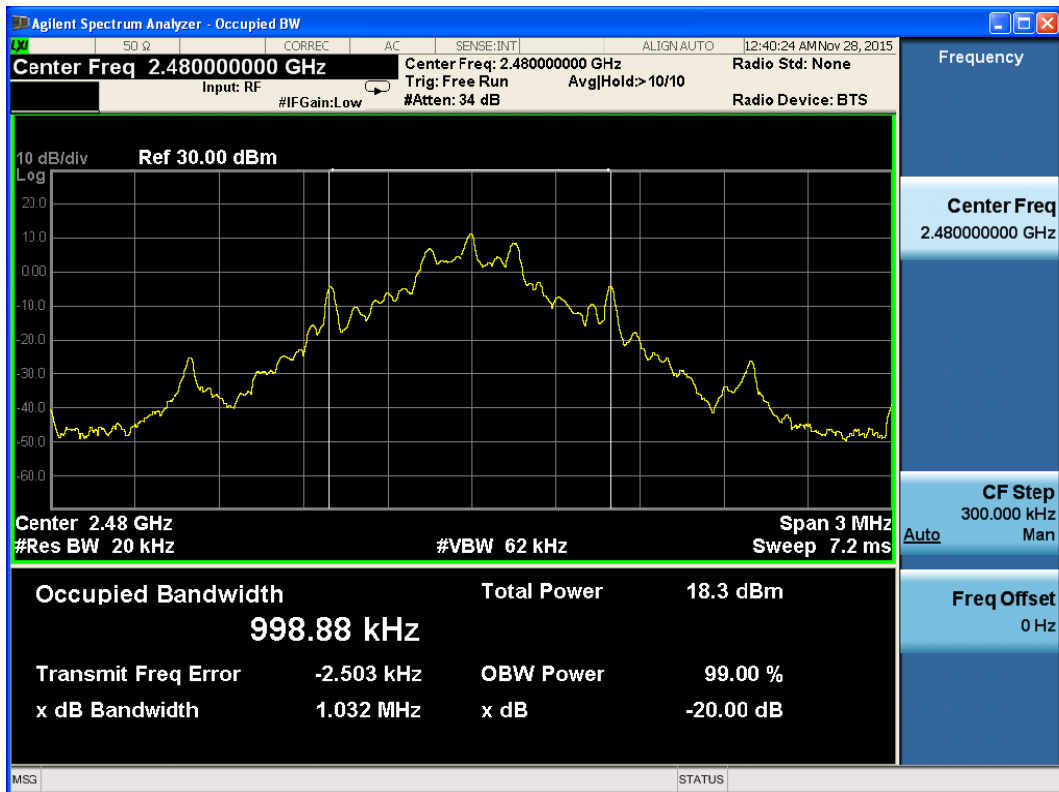


Carrier frequency (MHz): 2402
Channel No.:0



Carrier frequency (MHz): 2441

Channel No.:39



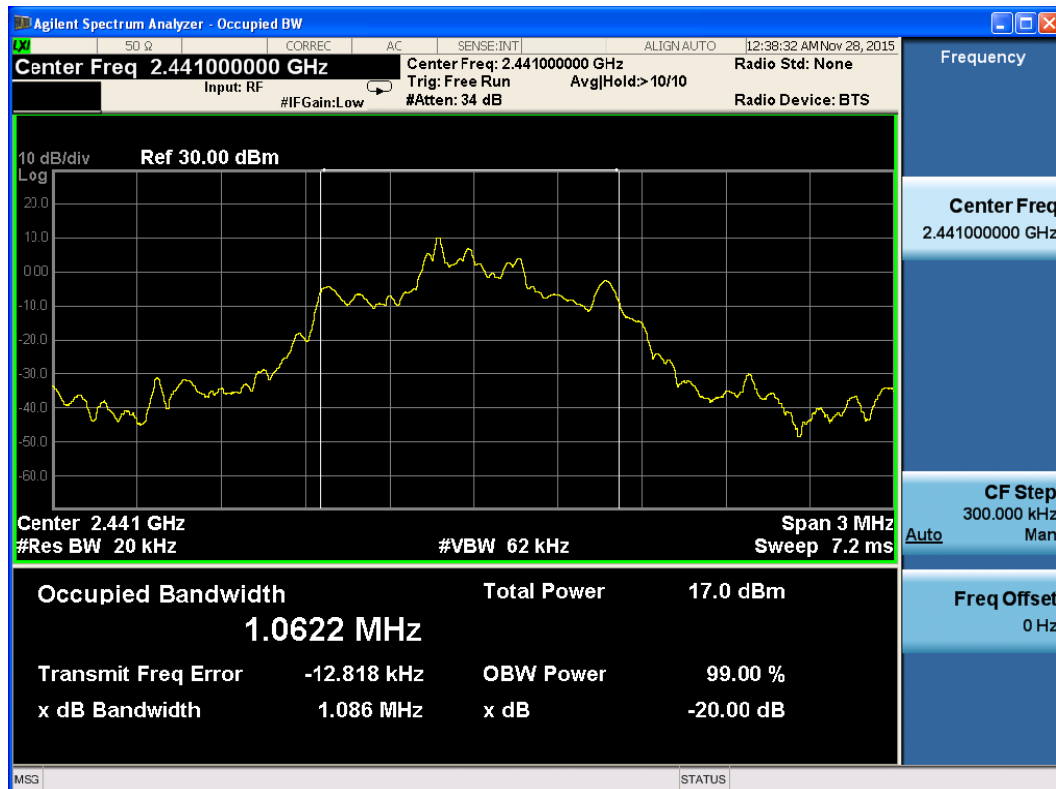
Carrier frequency (MHz): 2480

Channel No.:78



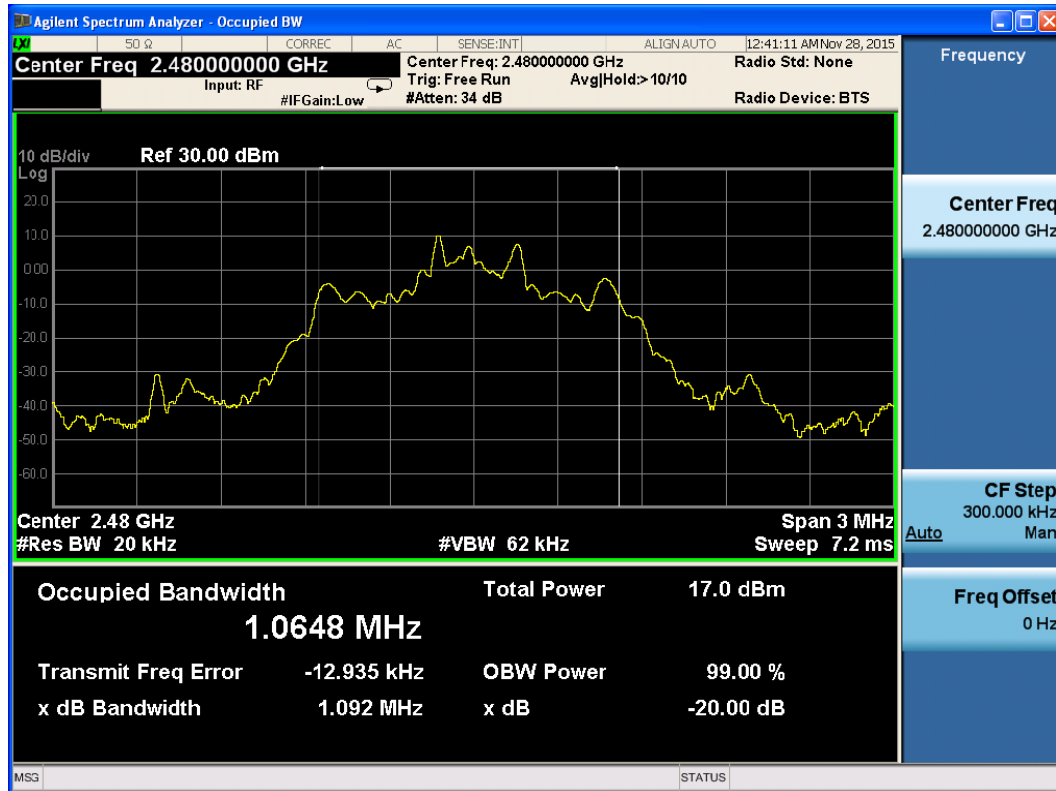
Carrier frequency (MHz): 2402

Channel No.:0



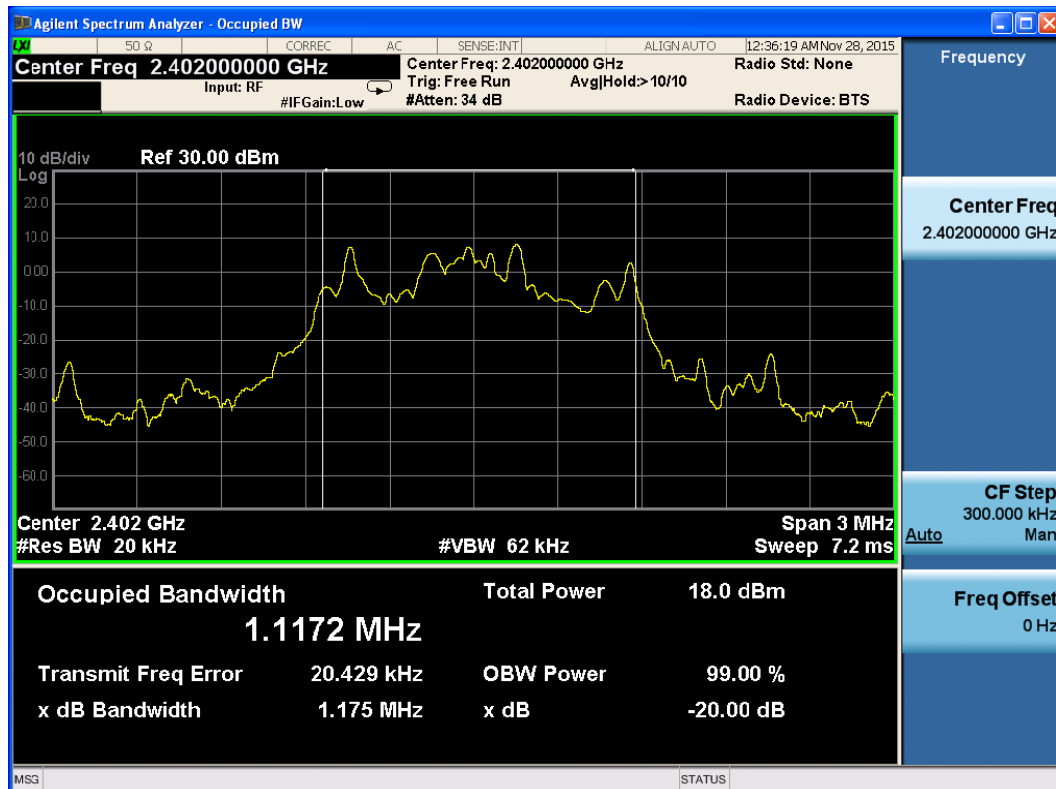
Carrier frequency (MHz): 2441

Channel No.:39



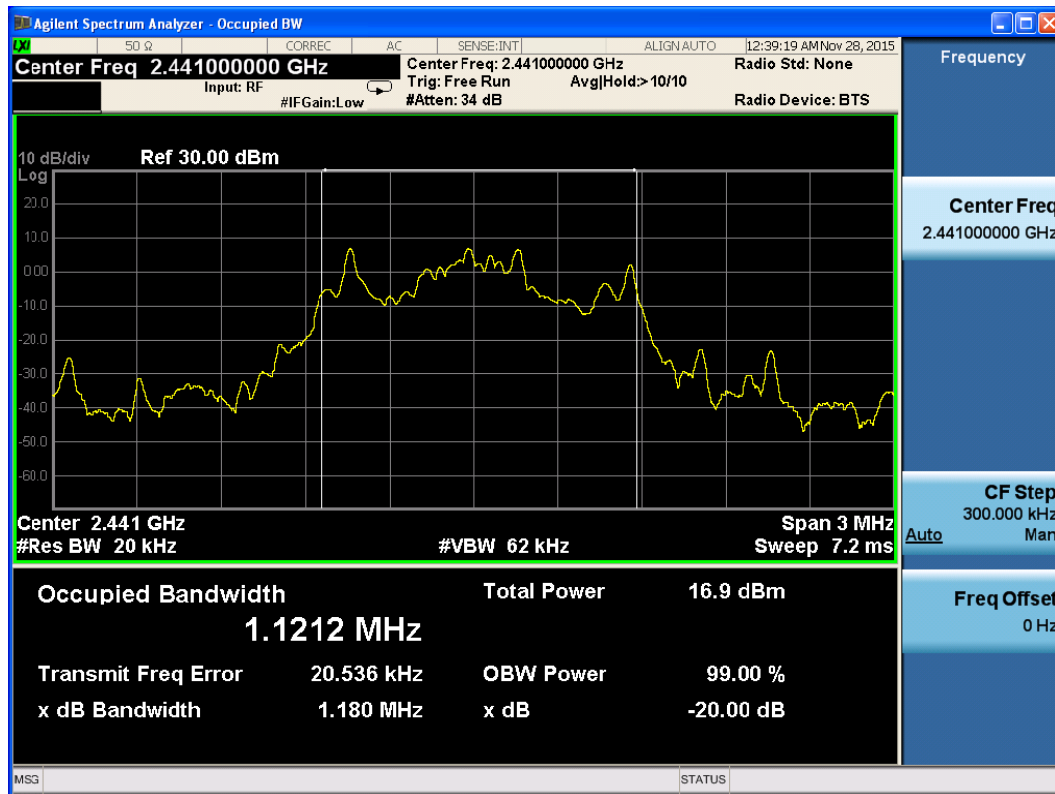
Carrier frequency (MHz): 2480

Channel No.:78



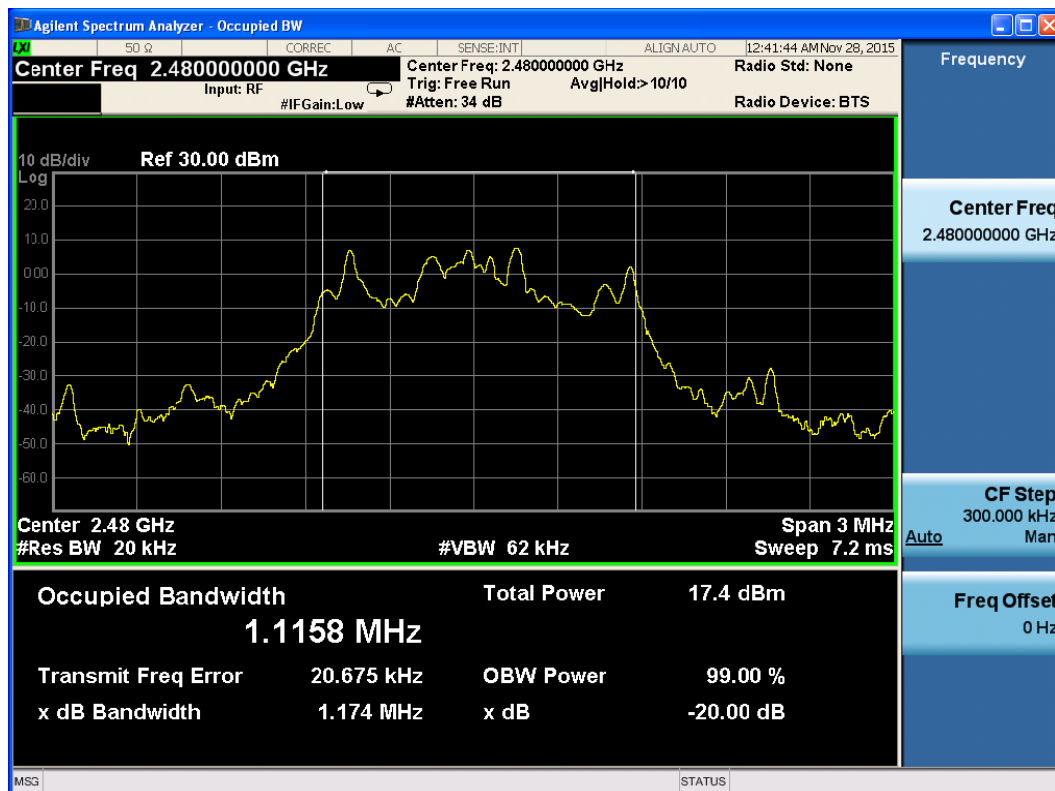
Carrier frequency (MHz): 2402

Channel No.:0



Carrier frequency (MHz): 2441

Channel No.:39



Carrier frequency (MHz): 2480

Channel No.:78

4.4 Frequency Separation

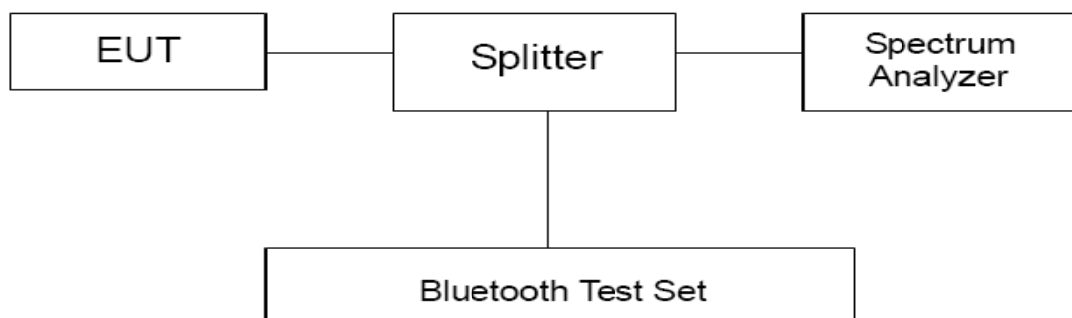
Ambient condition

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.

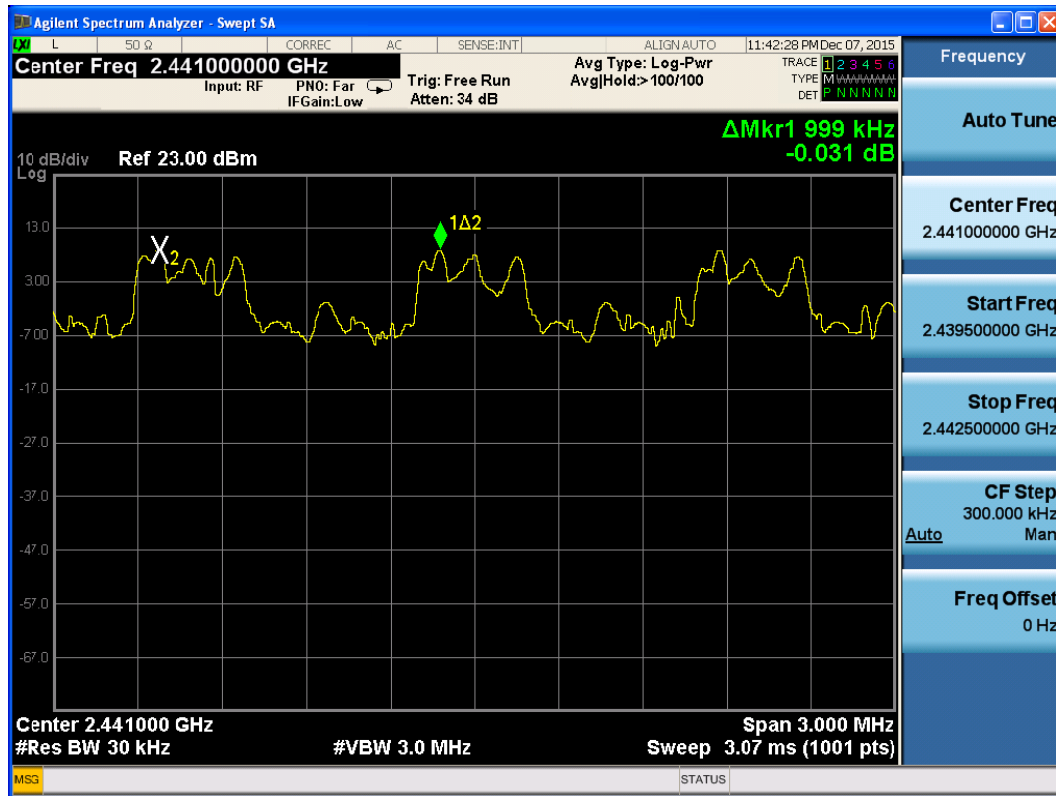
Test Results:

Packet type	Carrier frequency (MHz)	Carrier frequency separation(kHz)	20dB Bandwidth(kHz)	Limit (kHz)	Conclusion
DH5	2441	1002	1033	688.67	PASS
2DH5	2441	999	1086	724.00	PASS
3DH5	2441	1002	1180	786.67	PASS

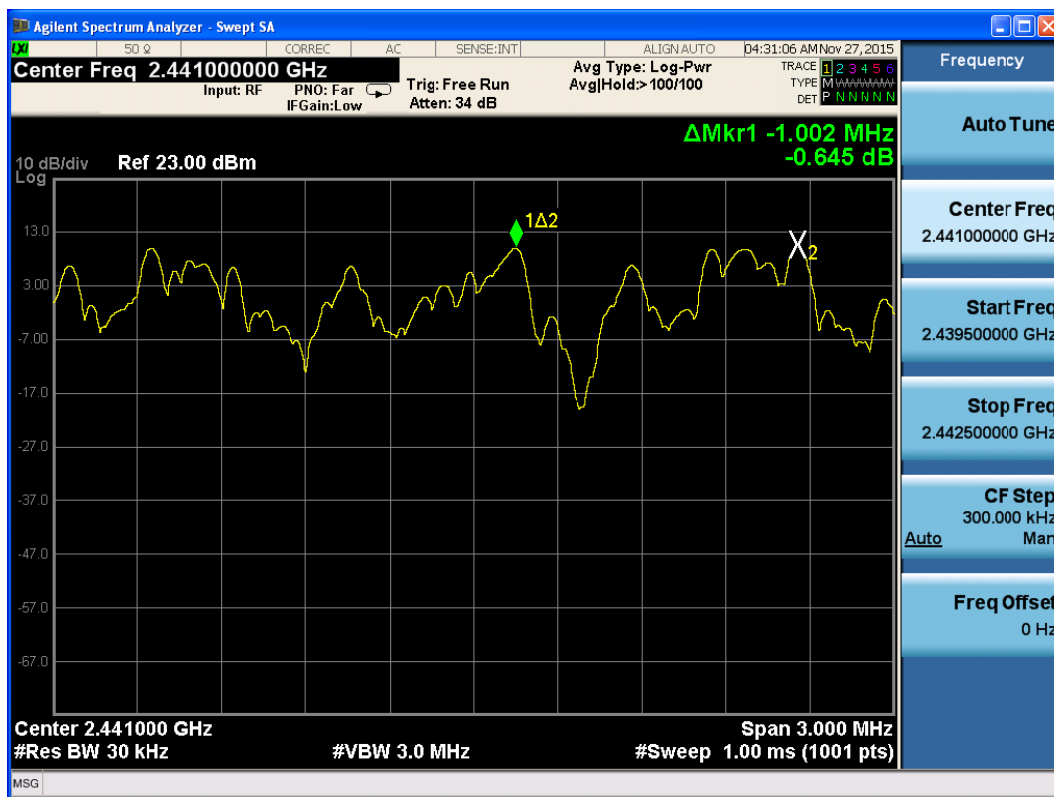
Note: The limit is two-thirds of 20 dB bandwidth.



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

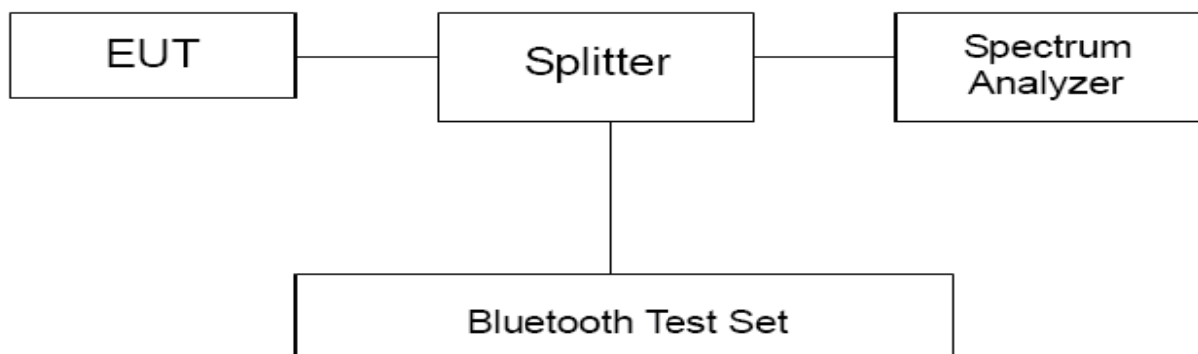
Methods of Measurement

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
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Measurement Uncertainty

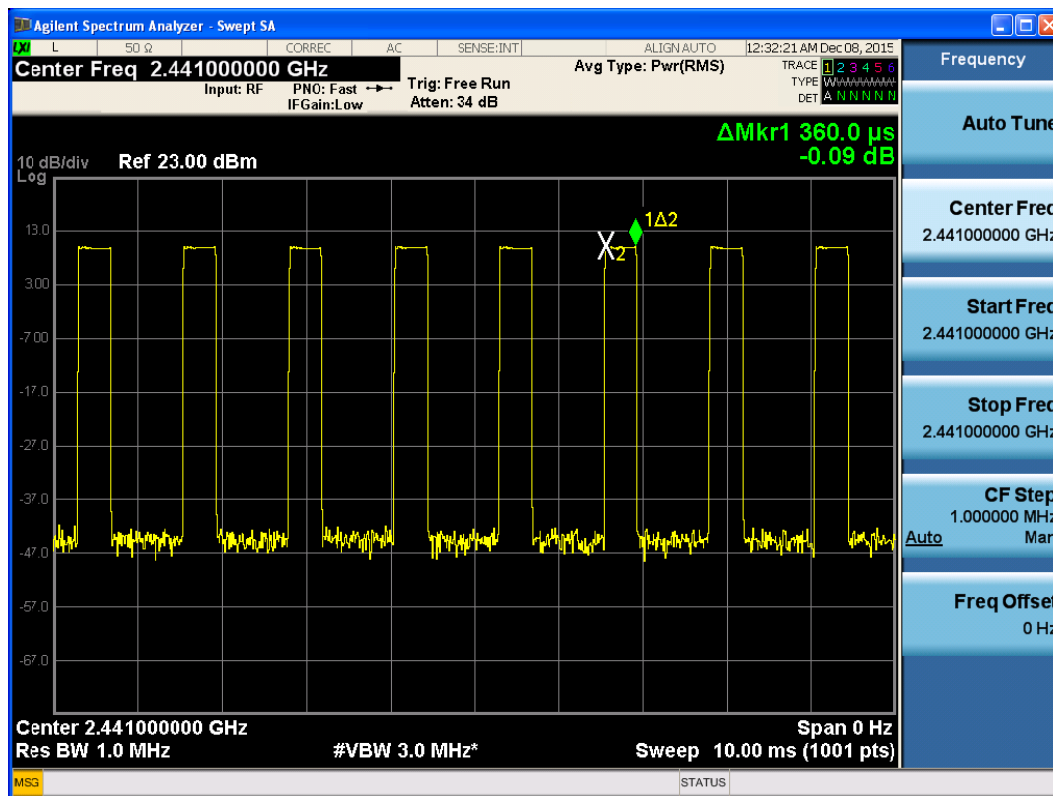
The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$.

Requirements	Uncertainty	
Dwell Time	DH1	$U=0.64\text{ms}$
	DH3	$U=0.80\text{ms}$
	DH5	$U=0.70\text{ms}$
	2DH1	$U=0.64\text{ms}$
	2DH3	$U=0.80\text{ms}$
	2DH5	$U=0.70\text{ms}$
	3DH1	$U=0.64\text{ms}$
	3DH3	$U=0.80\text{ms}$
	3DH5	$U=0.70\text{ms}$

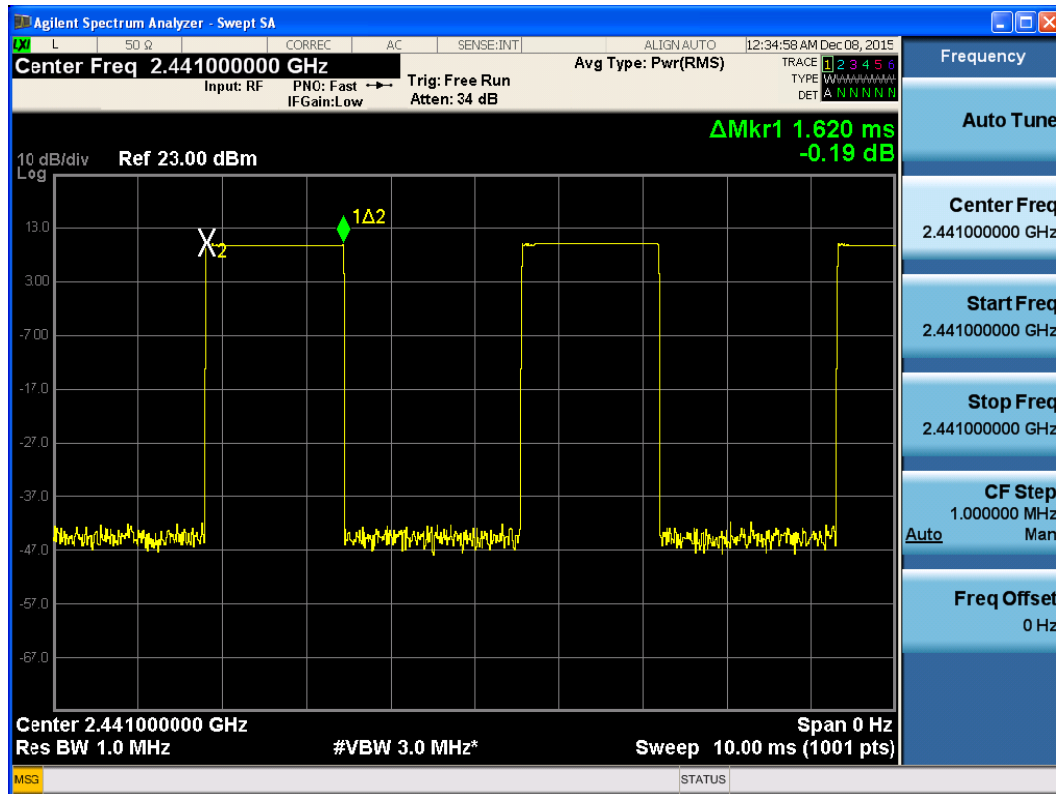
Test Results:

Channel 39					
Packet type	hop rate (1/s)	Time slot length(ms)	Dwell time (ms)	Limit (ms)	Conclusion
DH1	1600	0.36	230.40	400	PASS
DH3	533.33	1.62	345.60	400	PASS
DH5	320	2.87	367.36	400	PASS
2DH1	1600	0.36	230.40	400	PASS
2DH3	533.33	1.61	343.46	400	PASS
2DH5	320	2.86	366.08	400	PASS
3DH1	1600	0.38	243.20	400	PASS
3DH3	533.33	1.62	345.60	400	PASS
3DH5	320	2.88	368.64	400	PASS

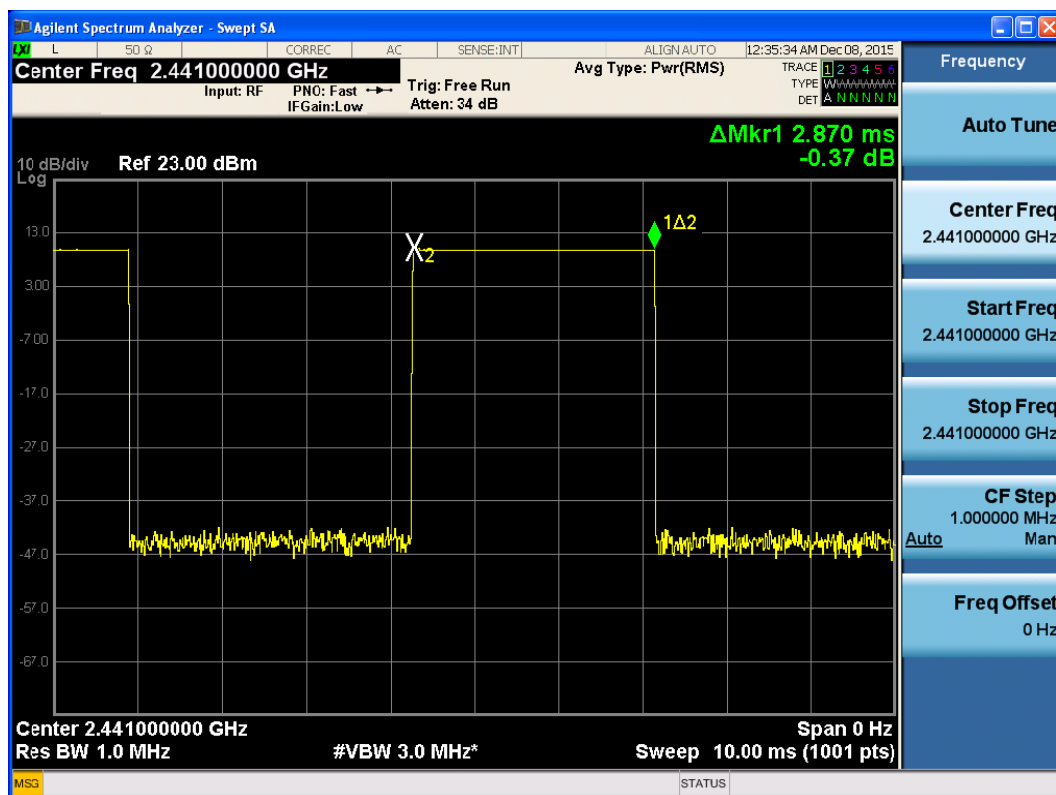
Note: Dwell time = time slot length * hop rate * 0.4s



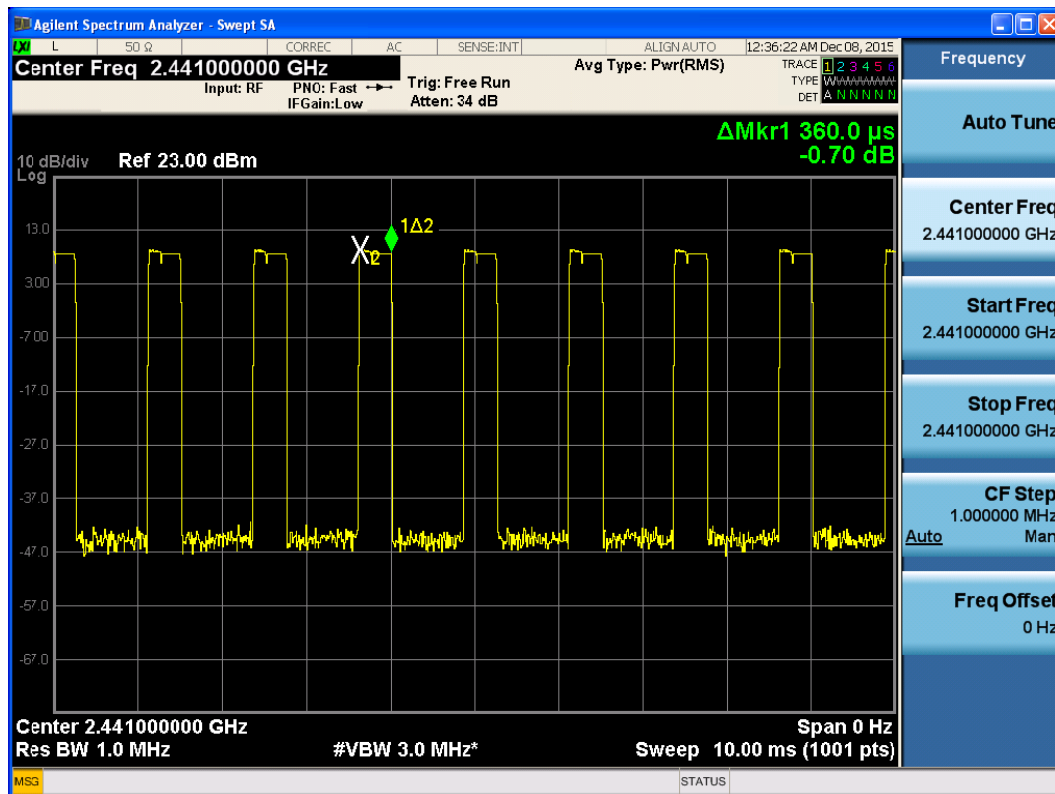
Carrier frequency (MHz): 2441, DH1



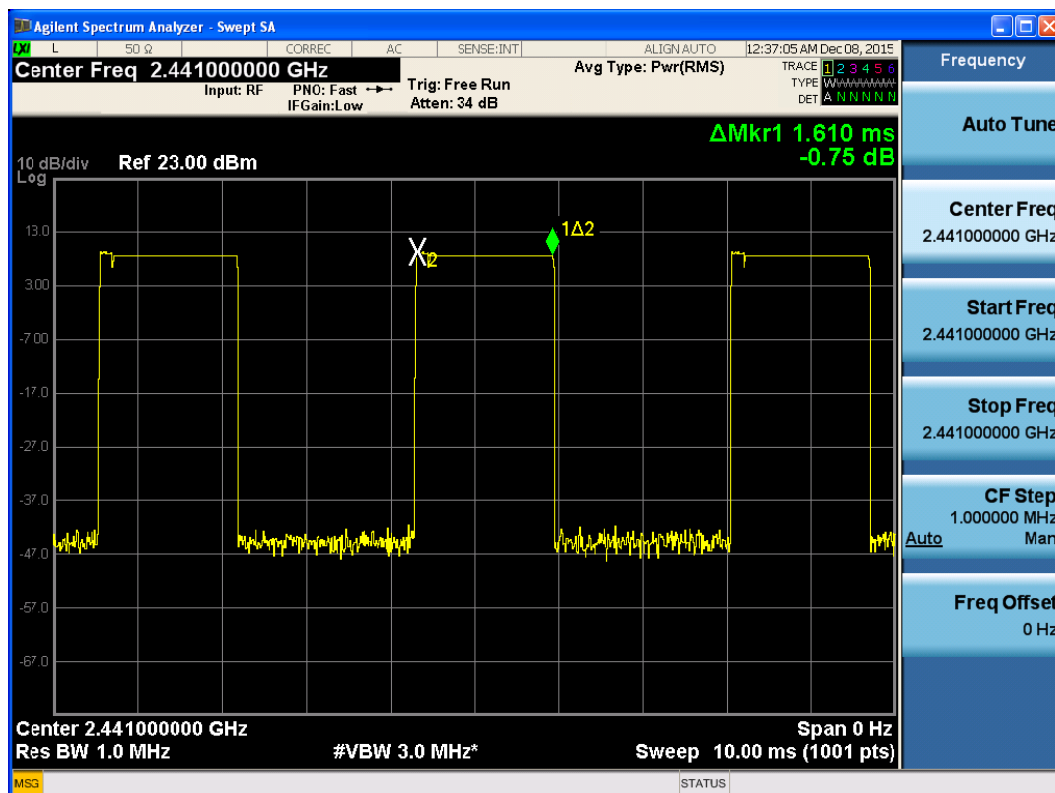
Carrier frequency (MHz): 2441, DH3



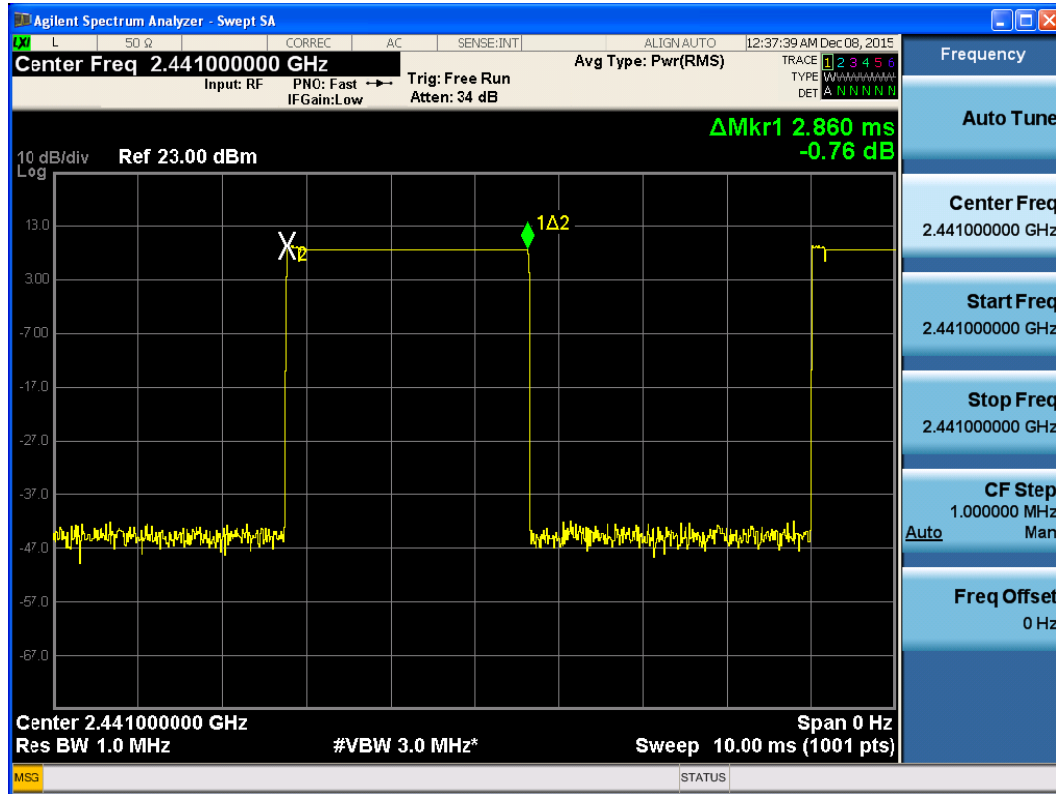
Carrier frequency (MHz): 2441, DH5



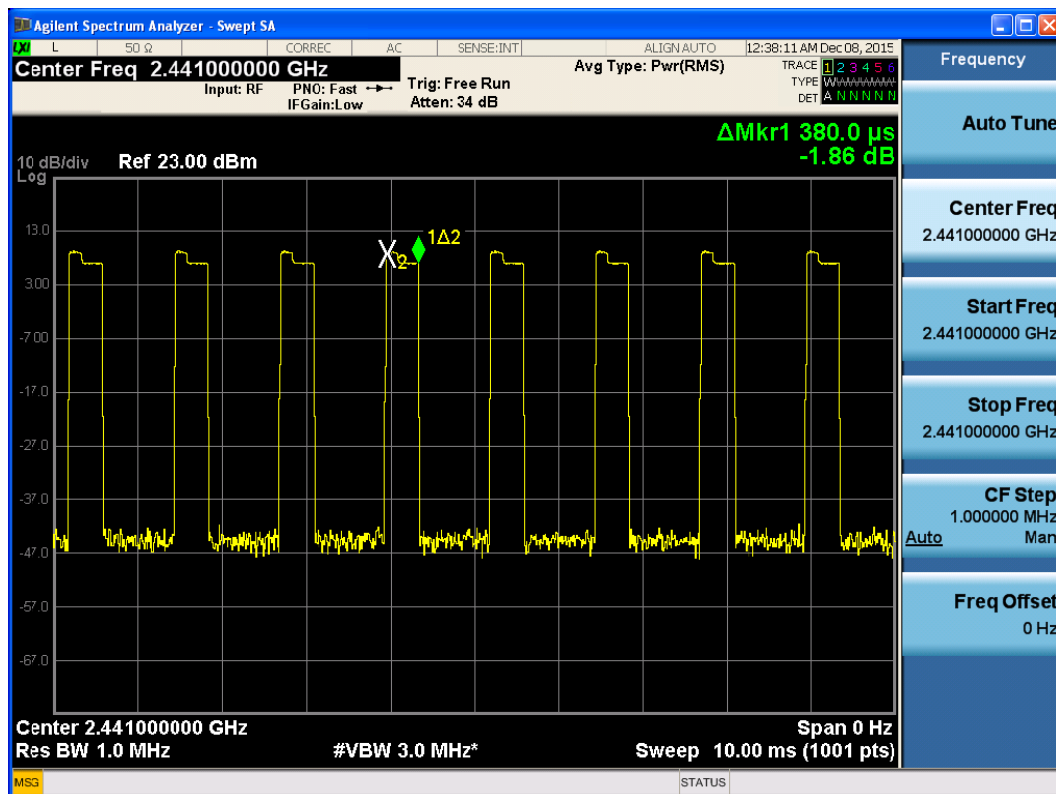
Carrier frequency (MHz): 2441, 2DH1



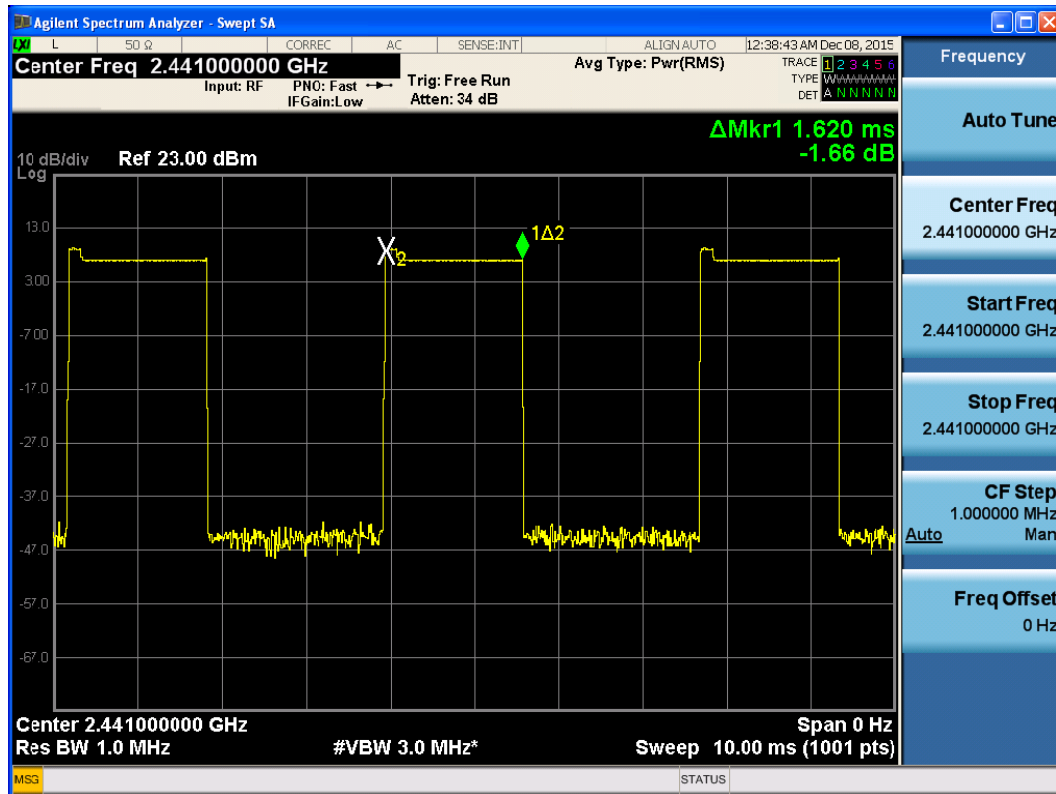
Carrier frequency (MHz): 2441, 2DH3



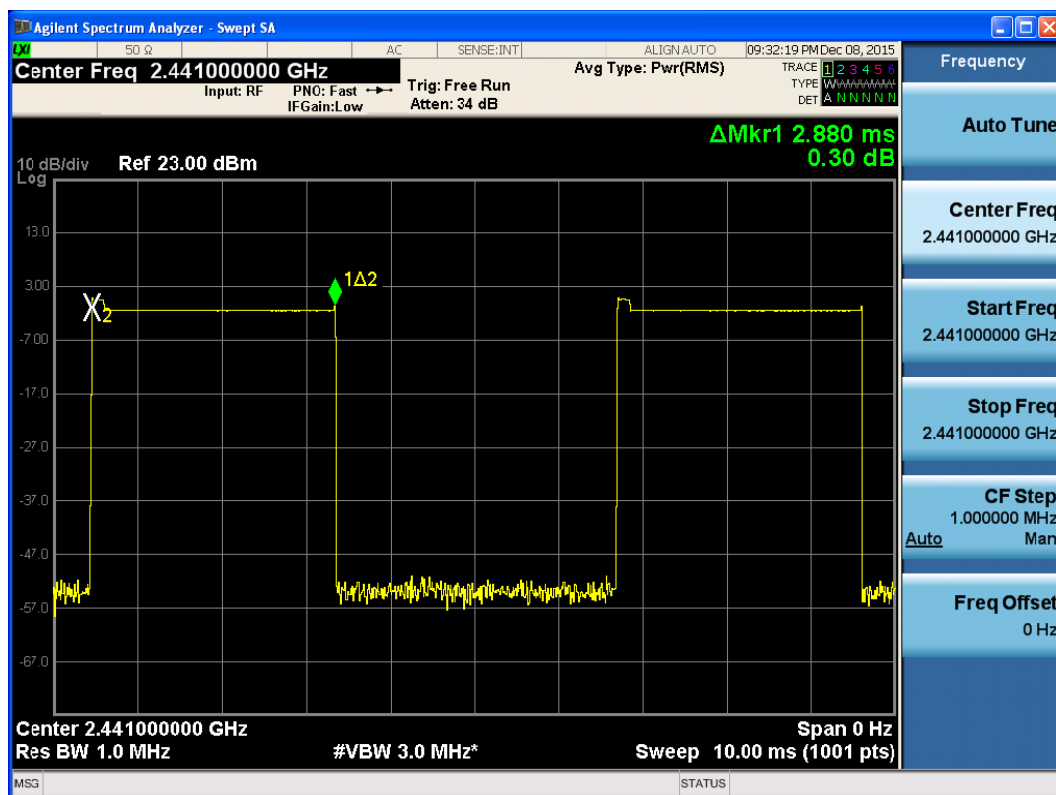
Carrier frequency (MHz): 2441, 2DH5



Carrier frequency (MHz): 2441, 3DH1



Carrier frequency (MHz): 2441, 3DH3



Carrier frequency (MHz): 2441, 3DH5

4.6 Band Edge Compliance

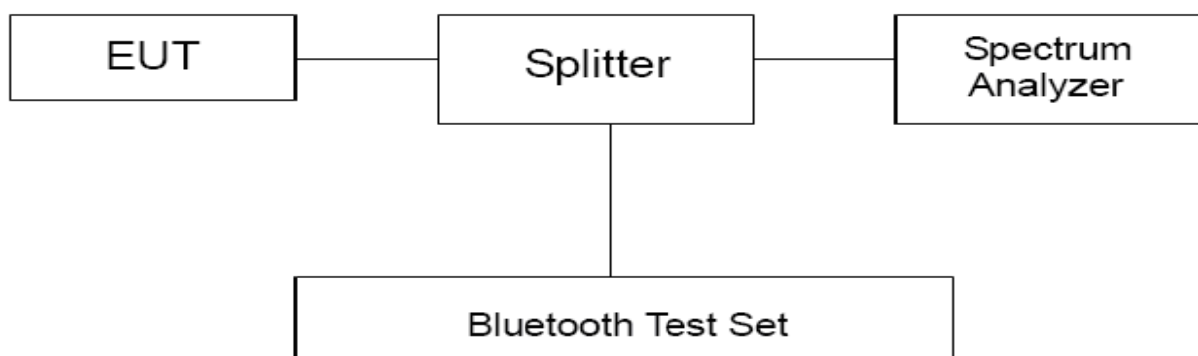
Ambient condition

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

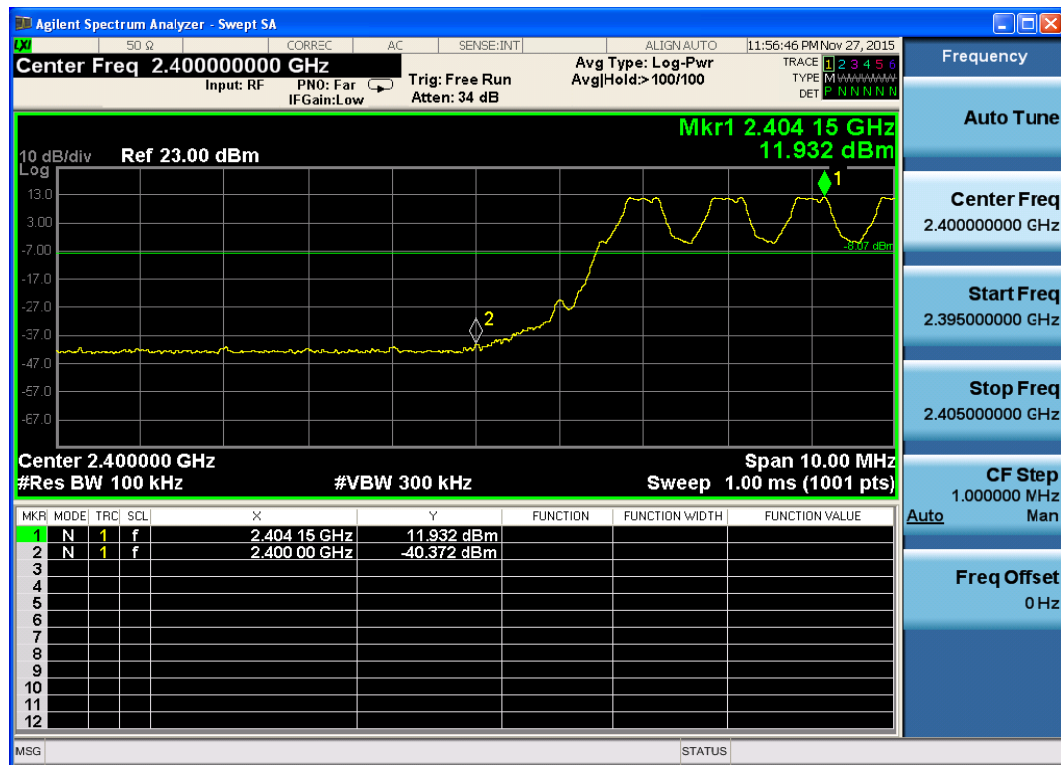
The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 1.96$.

Frequency	Uncertainty
2GHz-3GHz	1.407 dB



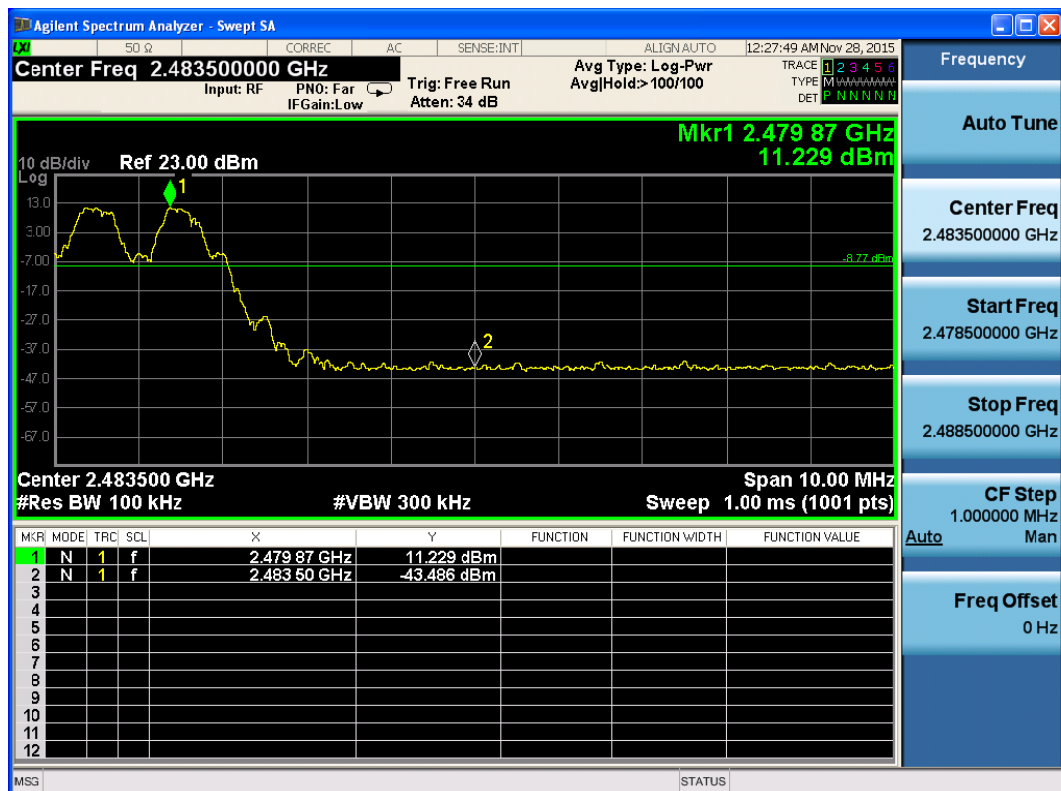
Test Results

Hopping On-DH5



Carrier frequency (MHz): 2402

Channel No.:0



Carrier frequency (MHz): 2480

Channel No.:78

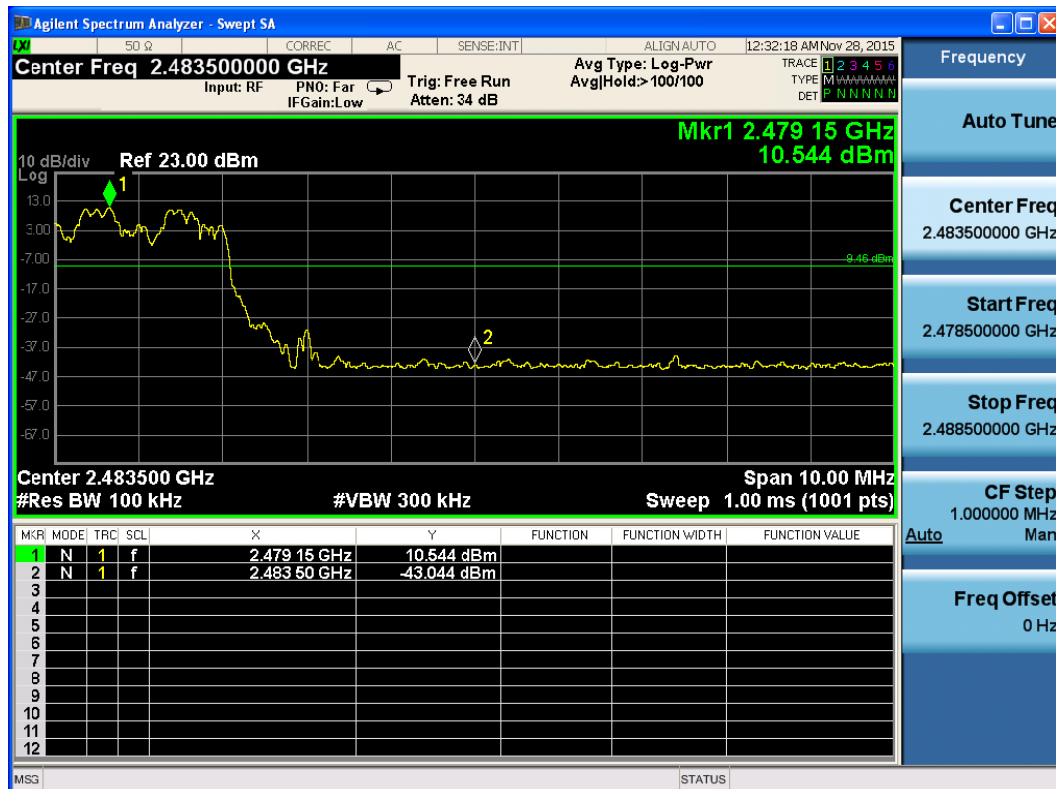


Hopping On-2DH5



Carrier frequency (MHz): 2402

Channel No.:0



Carrier frequency (MHz): 2480

Channel No.:78

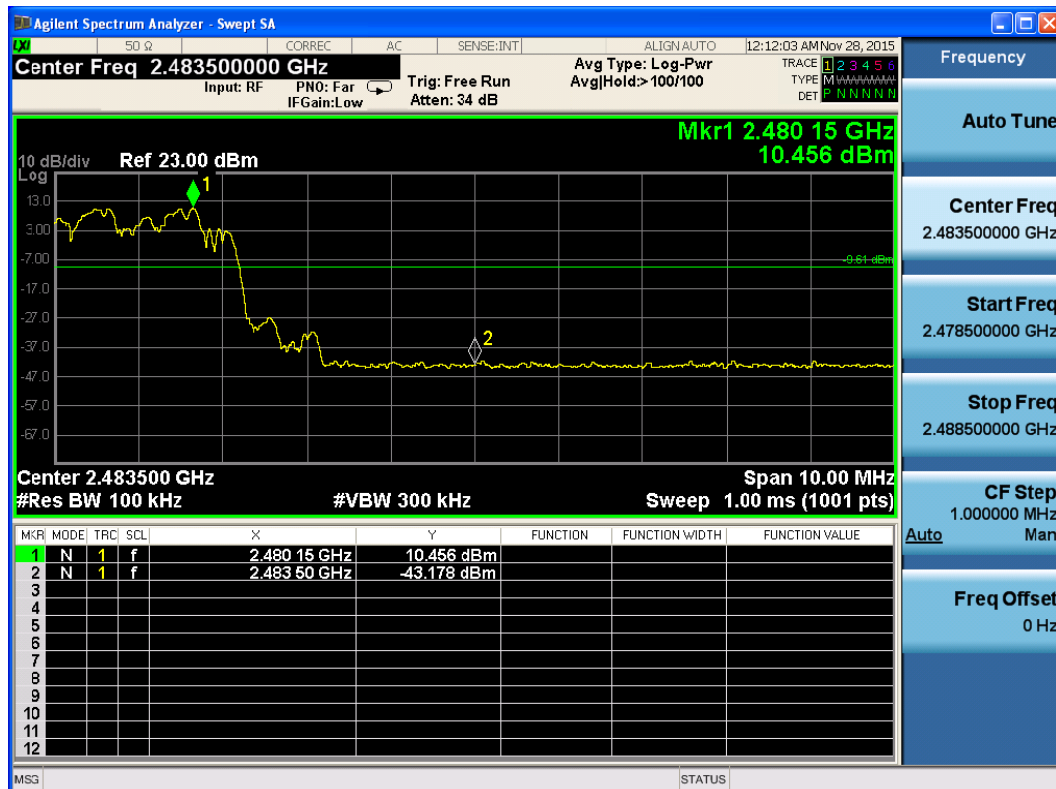


Hopping On-3DH5



Carrier frequency (MHz): 2402

Channel No.:0

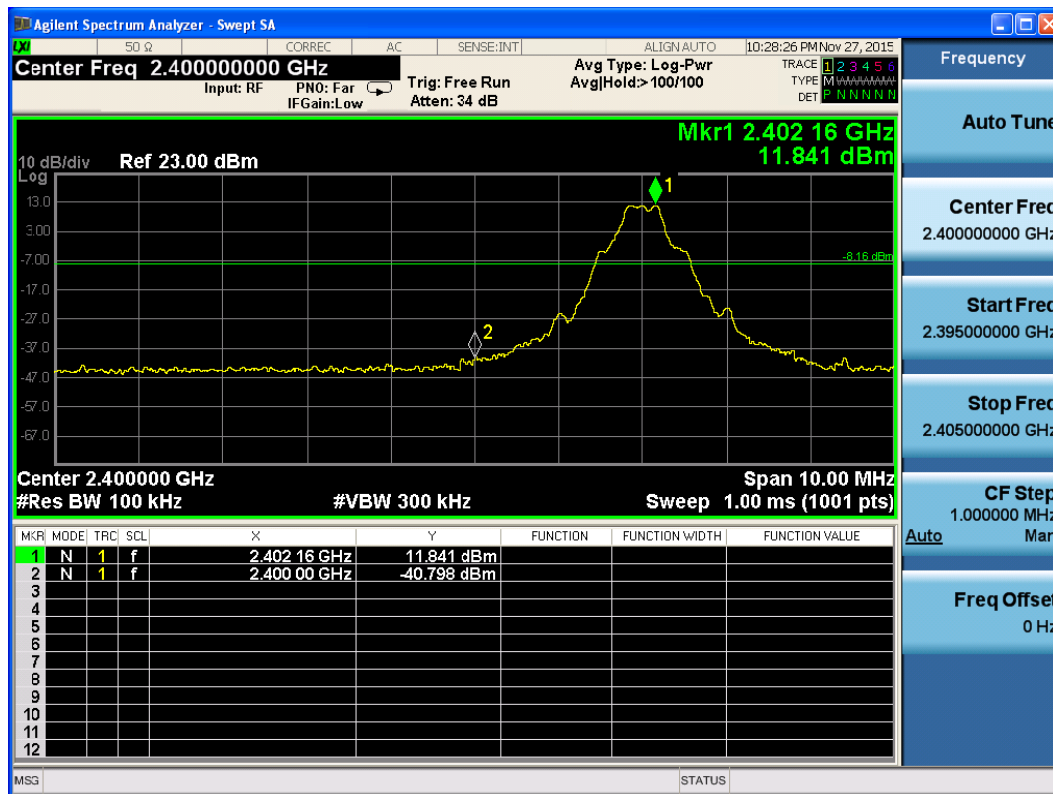


Carrier frequency (MHz): 2480

Channel No.:78

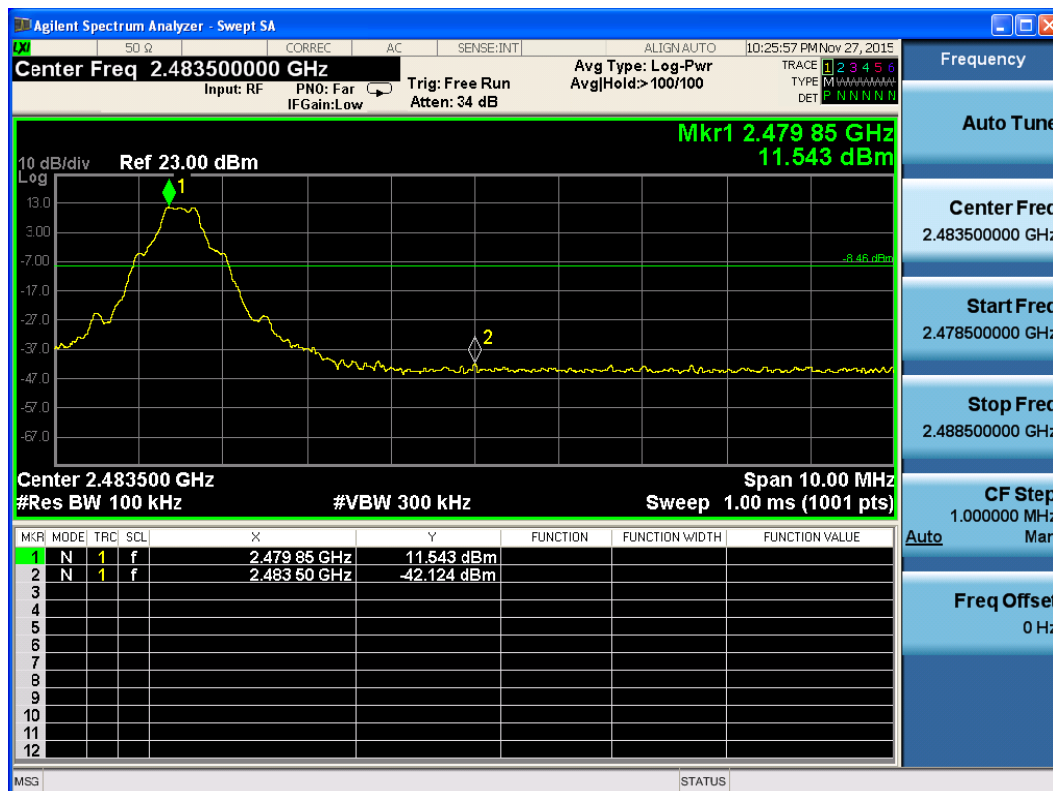


Hopping Off-DH5



Carrier frequency (MHz): 2402

Channel No.:0

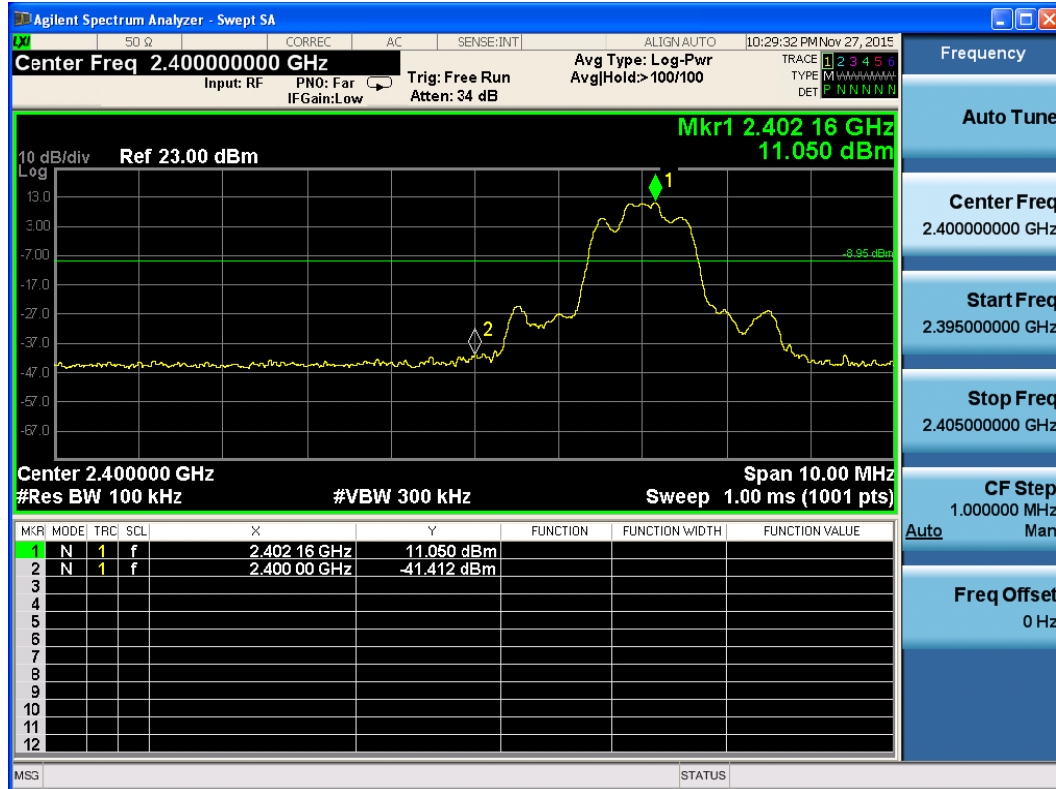


Carrier frequency (MHz): 2480

Channel No.:78

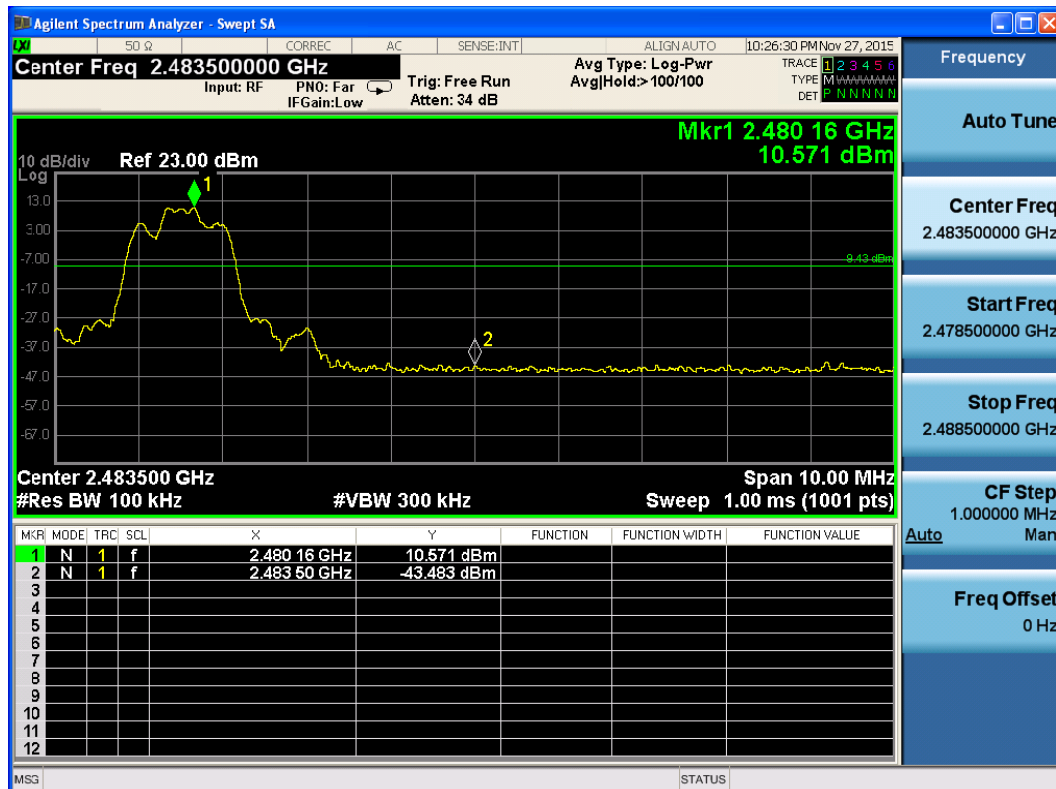


Hopping Off-2DH5



Carrier frequency (MHz): 2402

Channel No.:0

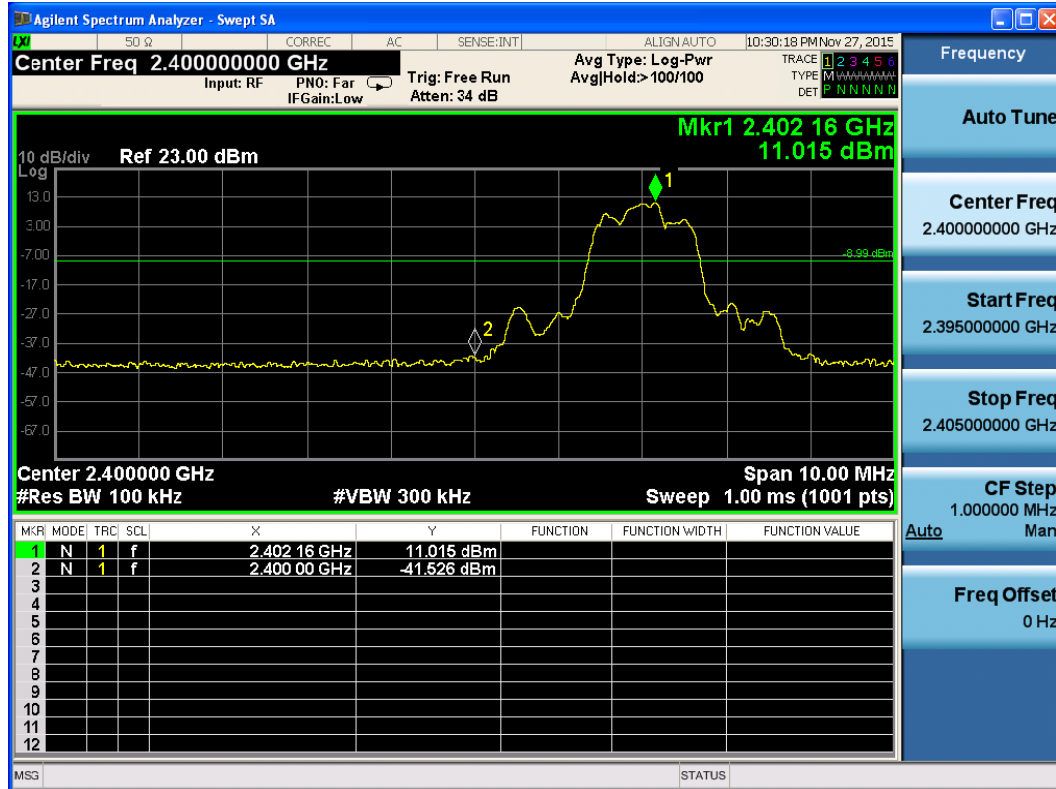


Carrier frequency (MHz): 2480

Channel No.:78

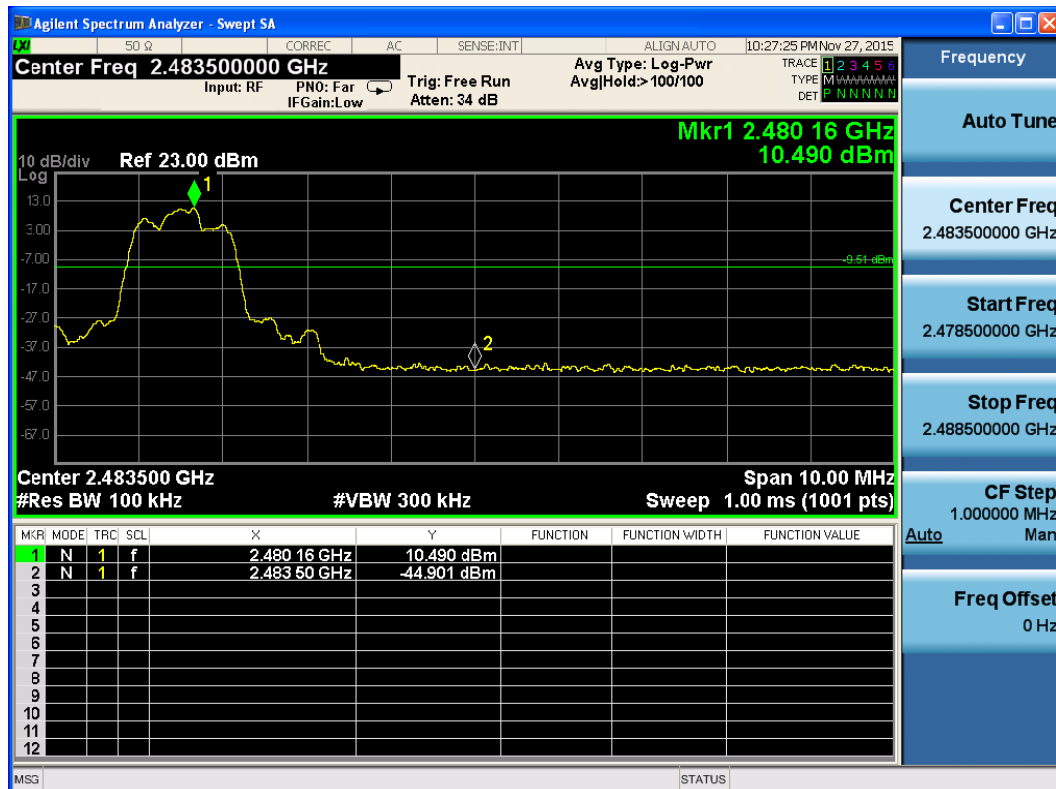


Hopping Off-3DH5



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.

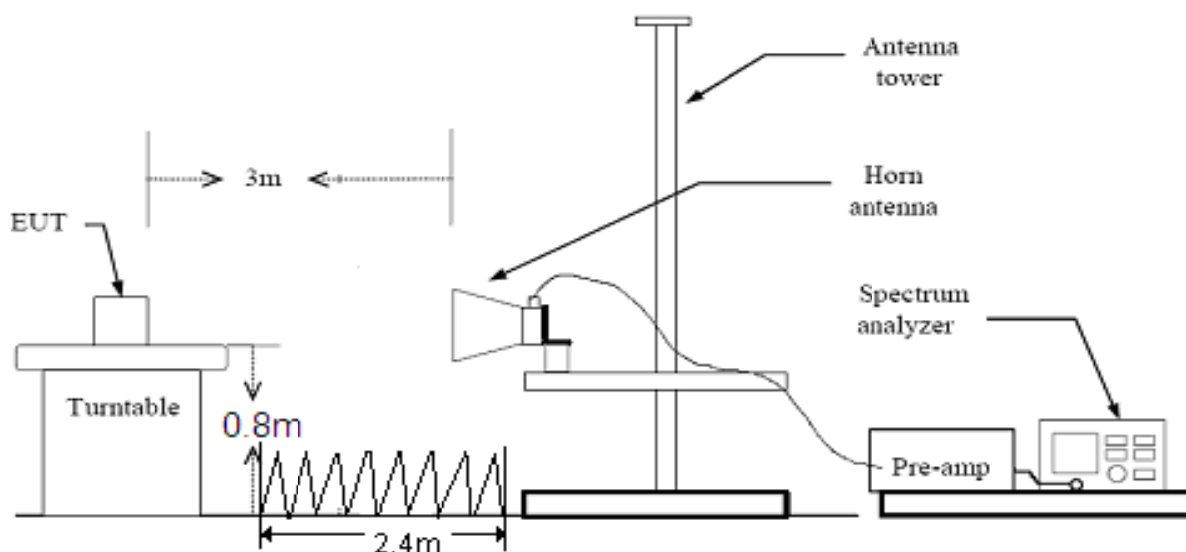
Set the spectrum analyzer in the following:

- PEAK: RBW=VBW=1MHz / Sweep=AUTO
- 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 $20\log(\text{dwell time}/100 \text{ ms})$, 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 from 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

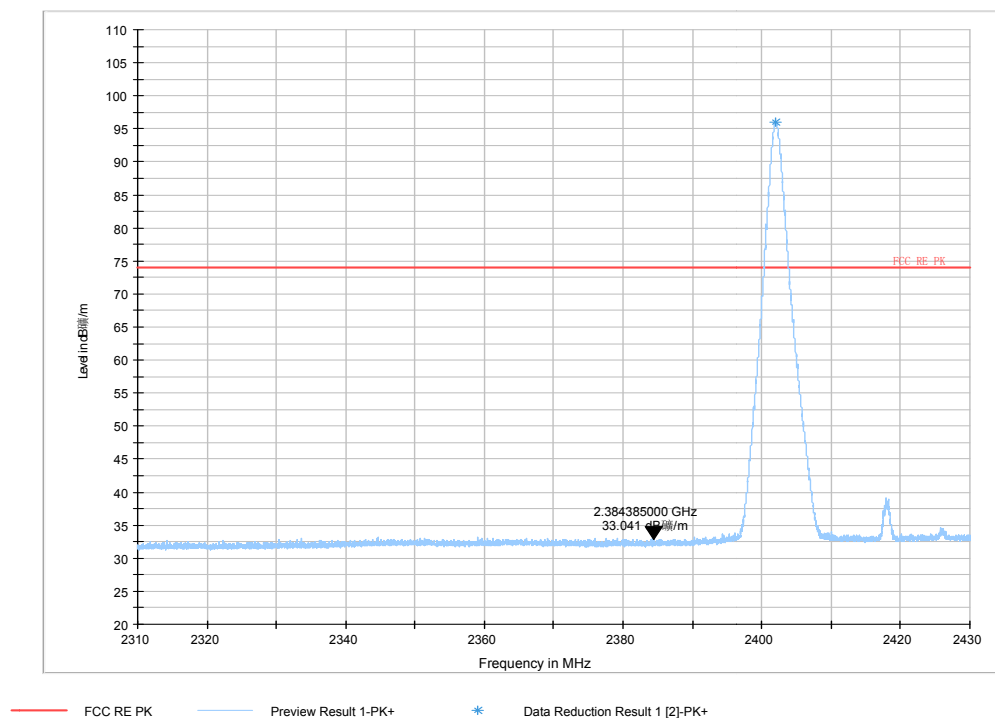
Measurement Uncertainty

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.

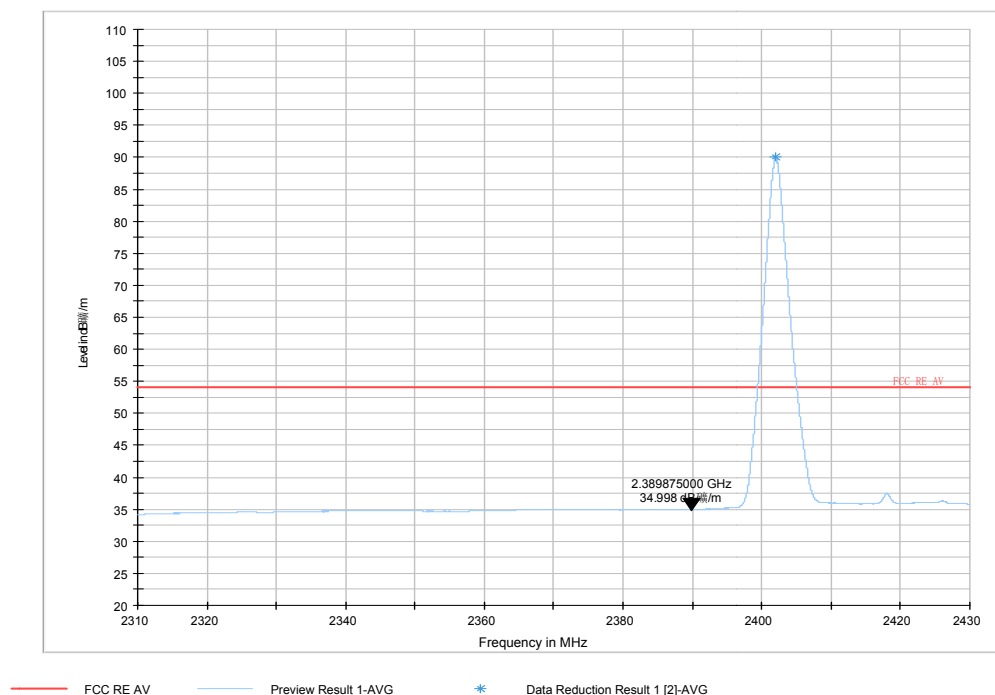
Test Results:

Themessy code(dBμV/m) including in the following plots mean dBuV/m.

DH5- Channel 0



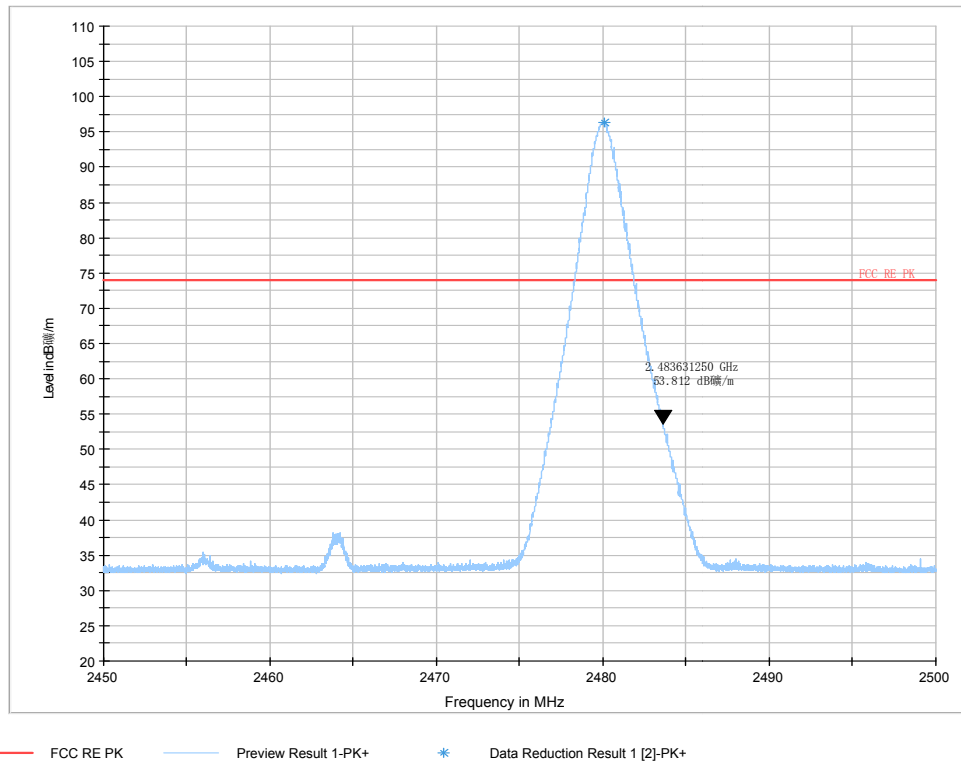
Lower band edge Peak-CH 0



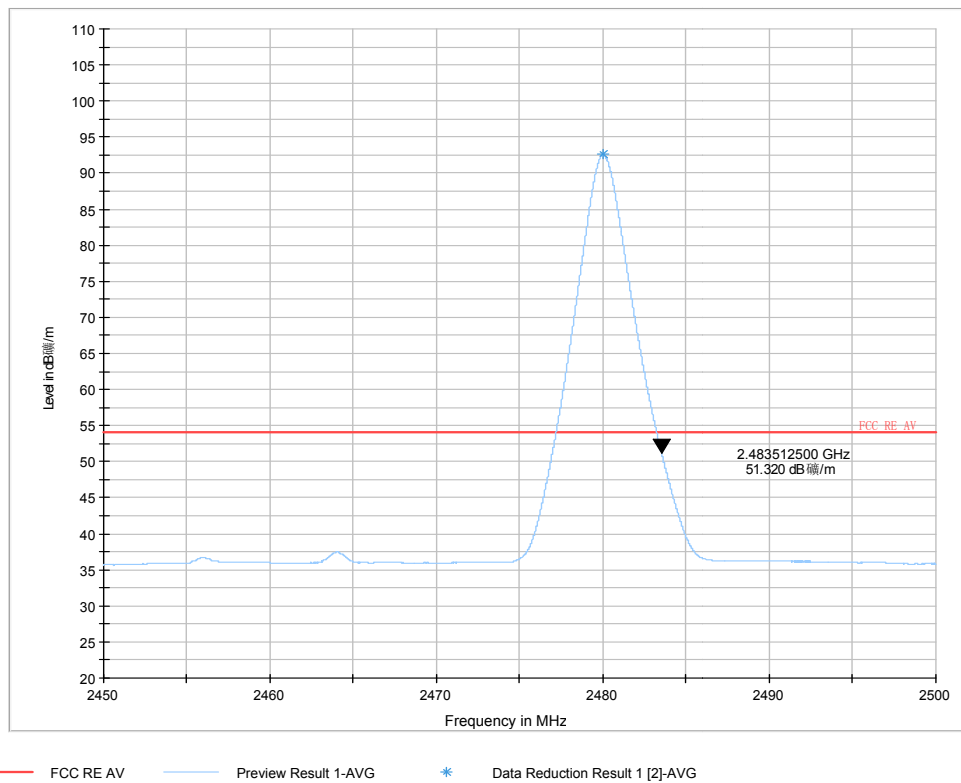
Lower band edge average-CH 0



DH5- Channel 78



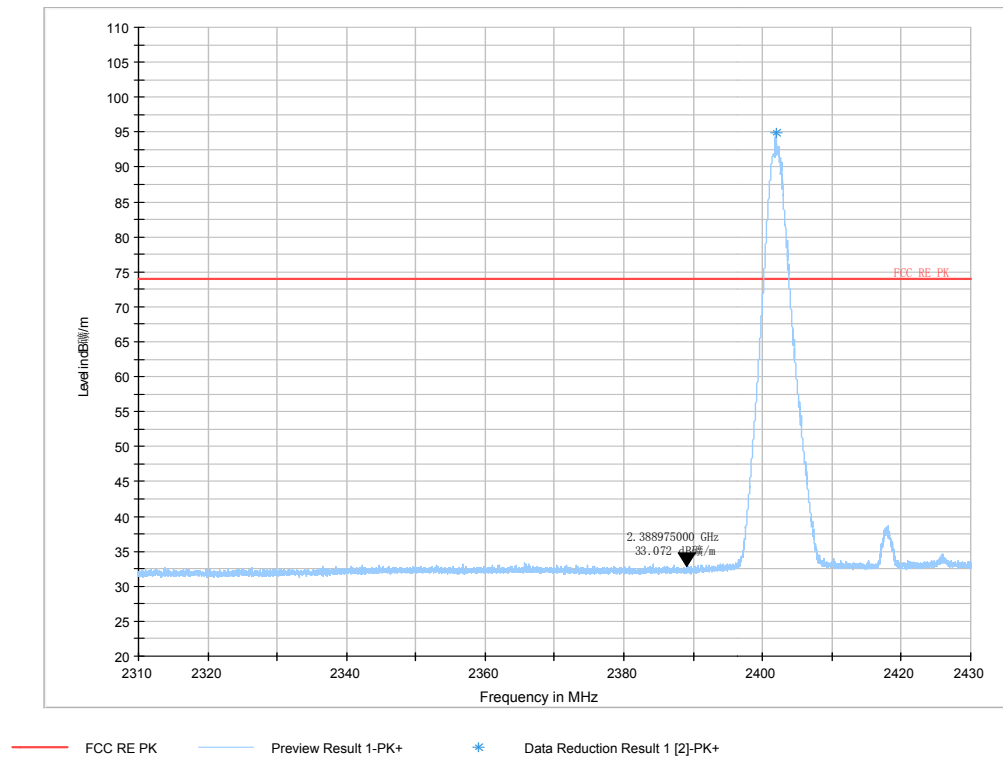
Higher band edge Peak-CH 78



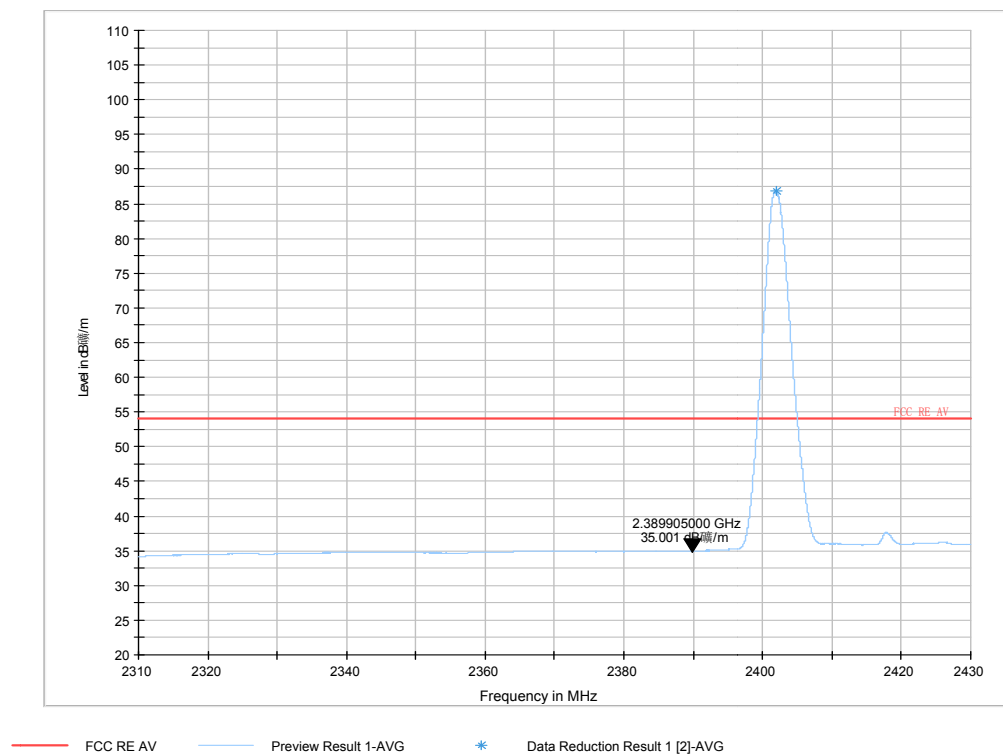
Higher band edge average-CH 78



3DH5- Channel 0

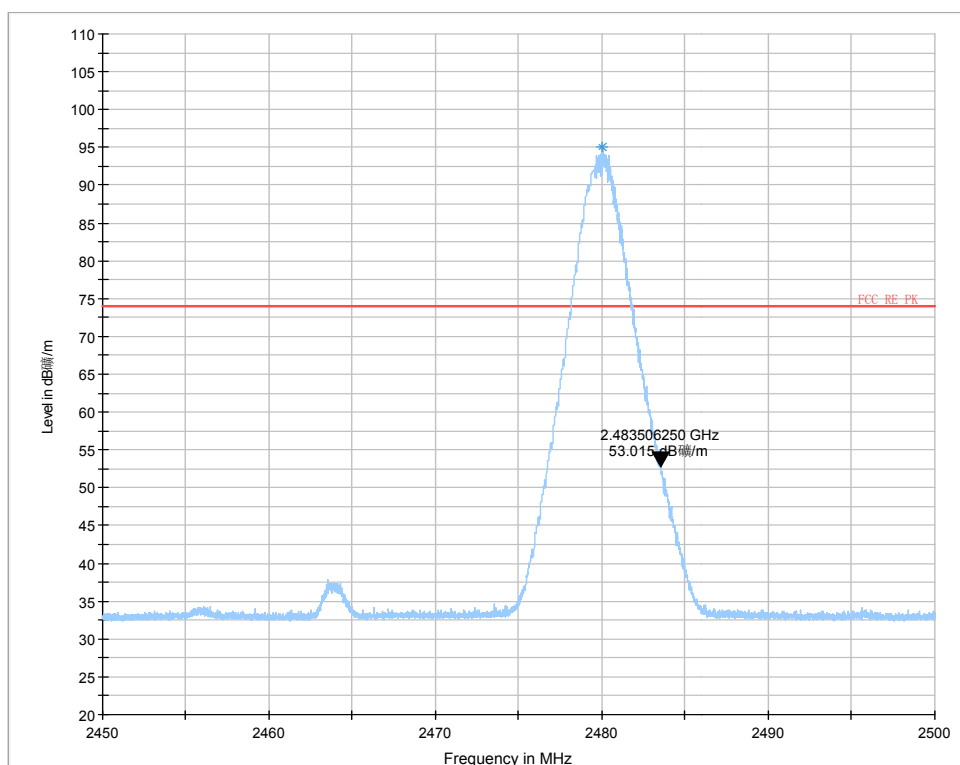


Lower band edge Peak-CH 0



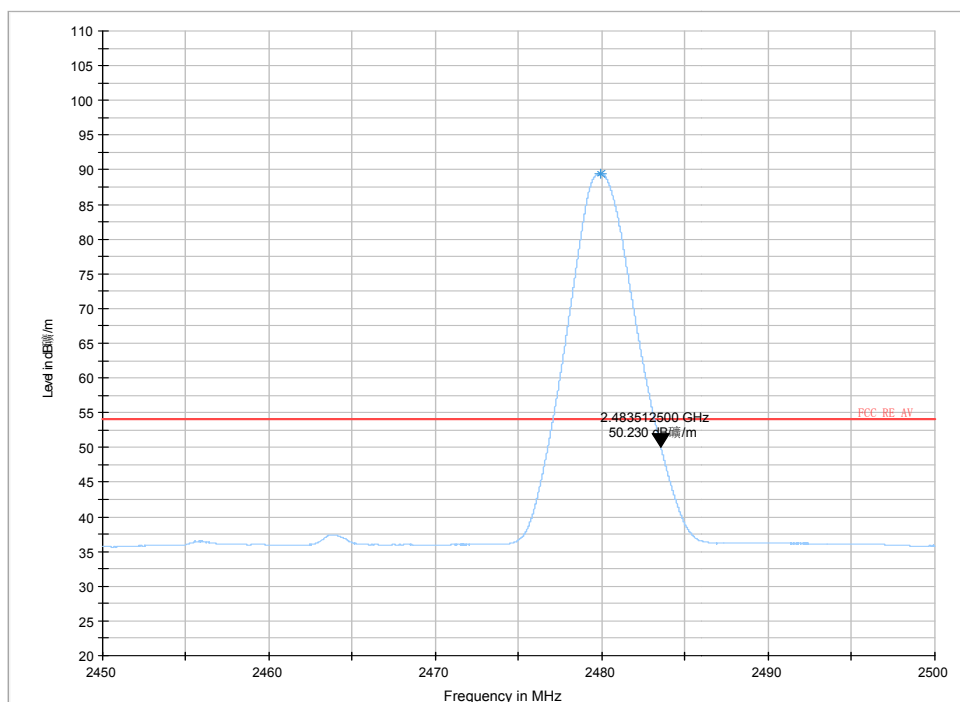
Lower band edge average-CH 0

3DH5- Channel 78



— FCC RE PK — Preview Result 1-PK+ * Data Reduction Result 1 [2]-PK+

Higher band edge Peak-CH 78



— FCC RE AV — Preview Result 1-AVG * Data Reduction Result 1 [2]-AVG

Higher band edge average-CH 78

4.8 Number of hopping Frequency

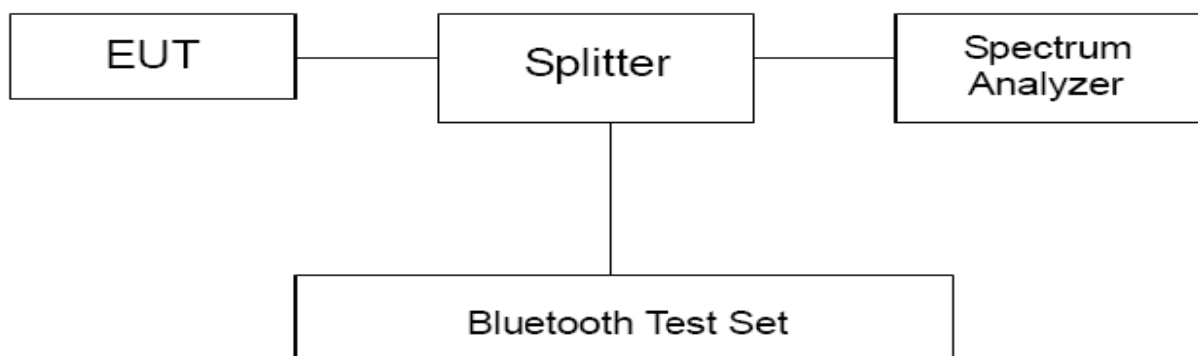
Ambient condition

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 1MHz and VBW is set to 3 MHz on spectrum analyzer. Set EUT on Hopping on mode.

Test setup



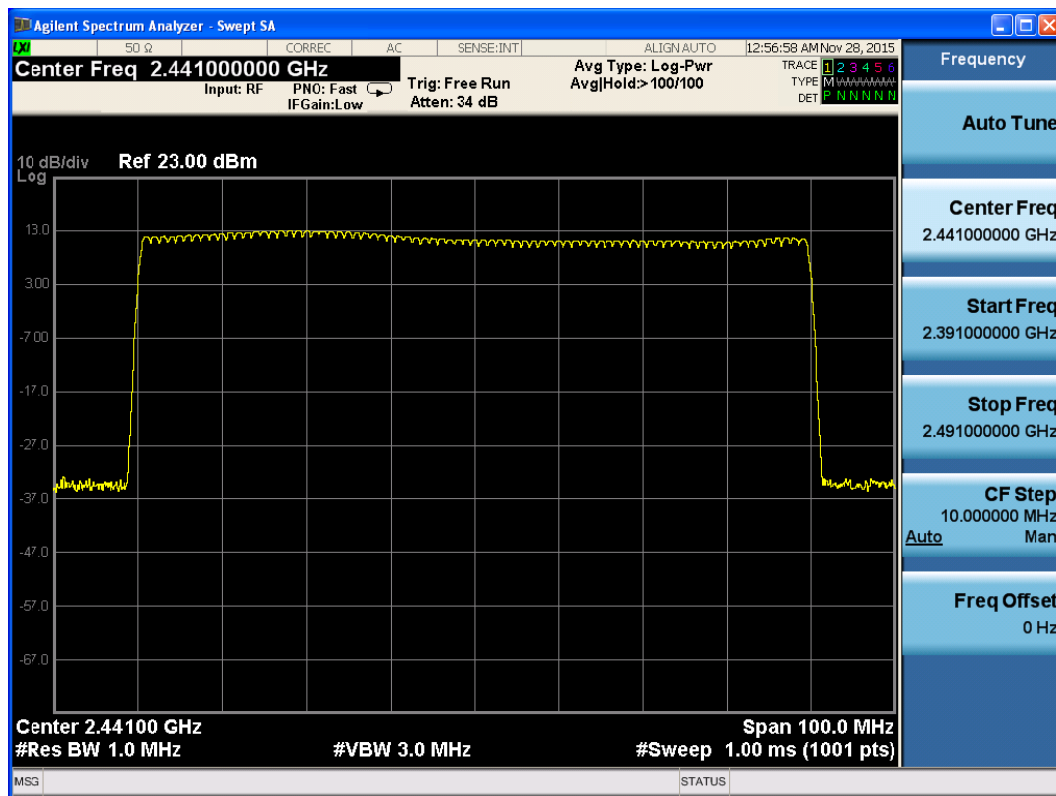
Limits

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
--------	---------------

DH5

Number of hopping channels	conclusion
79	PASS

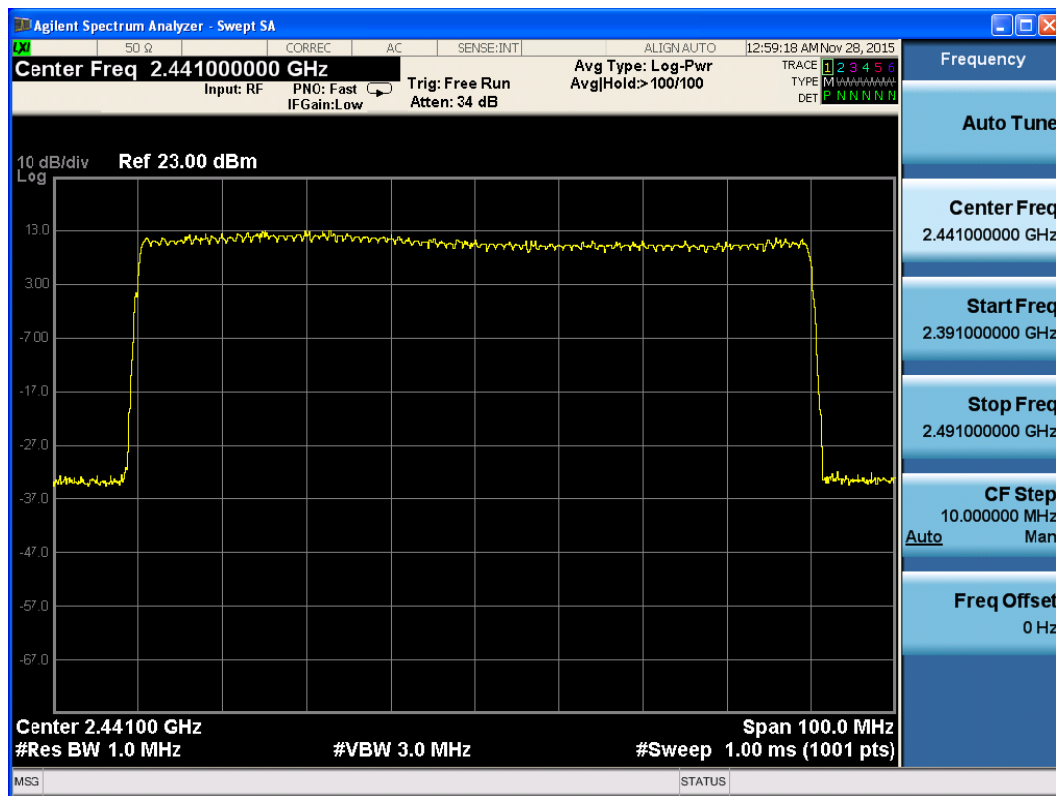


2400 MHz – 2483.5 MHz



2DH5

Number of hopping channels	conclusion
79	PASS

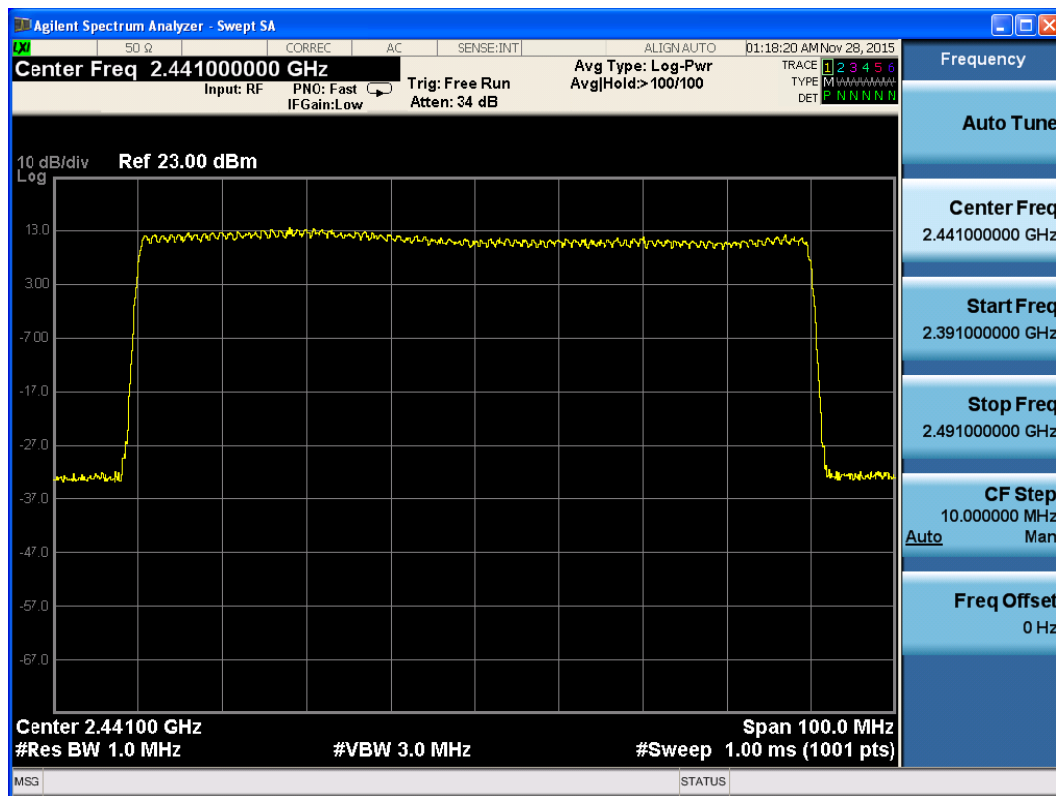


2400 MHz – 2483.5 MHz



3DH5

Number of hopping channels	conclusion
79	PASS



2400 MHz – 2483.5 MHz

4.9 Spurious RF Conducted Emissions

Ambient condition

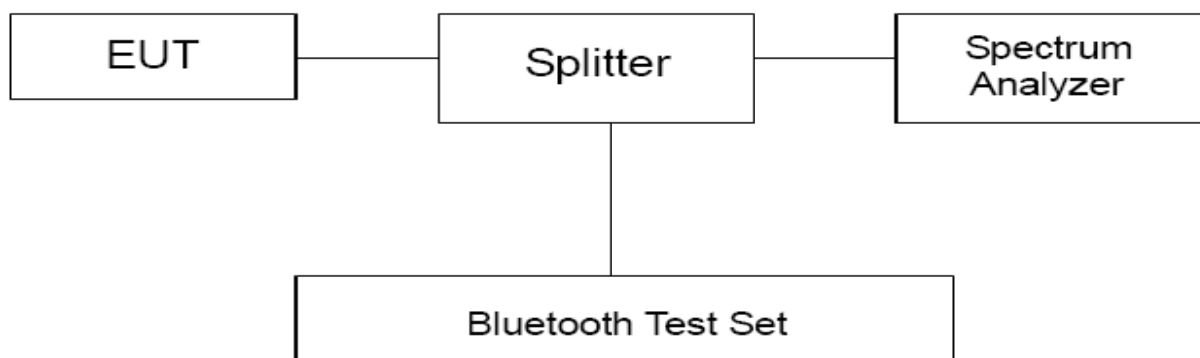
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

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

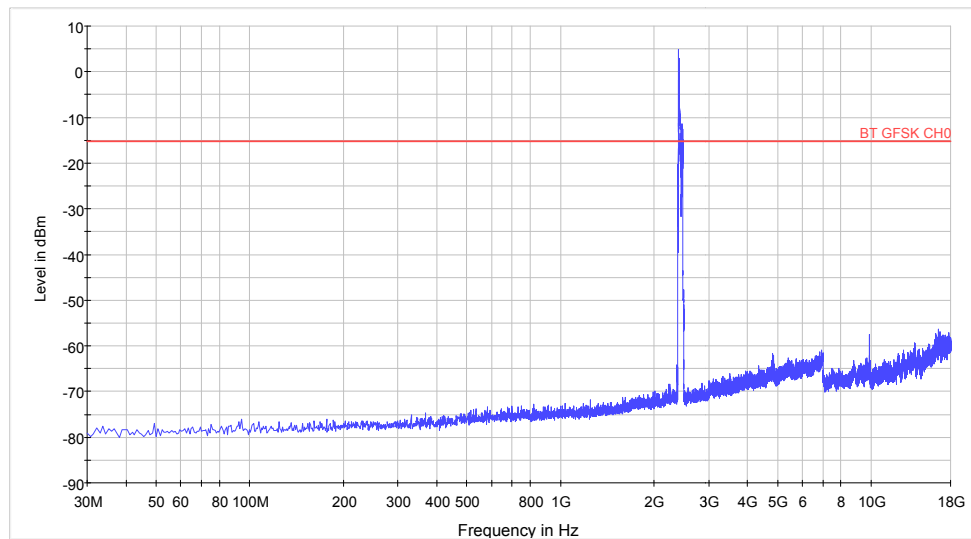
Rule Part 15.247(d) pacifies that “In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power.”

Mode	Carrier frequency (MHz)	Reference value (dBm)	Limit
DH5	2402	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

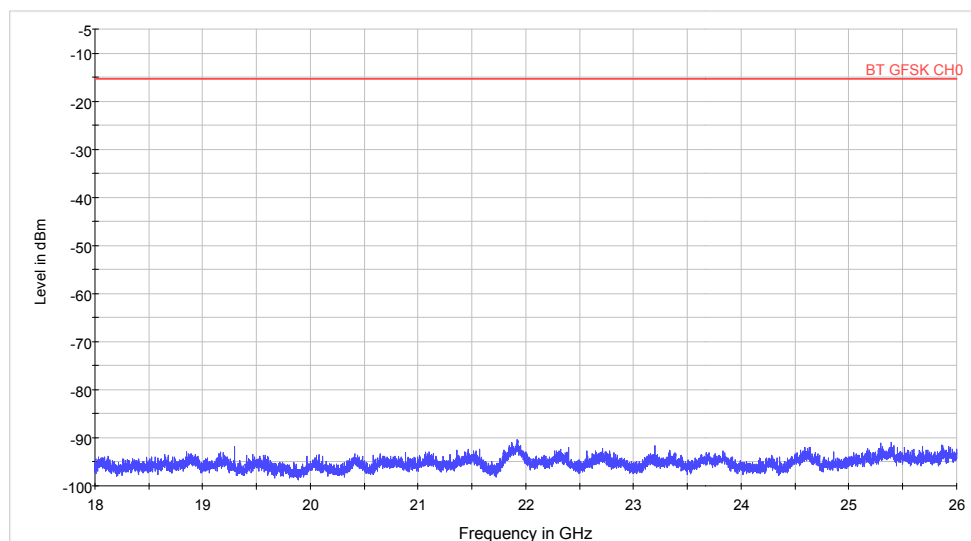
The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 1.96$.

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

**Test Results:****GFSK-CH0:**

MaxPeak-MaxHold-PK+ BT GFSK CH0

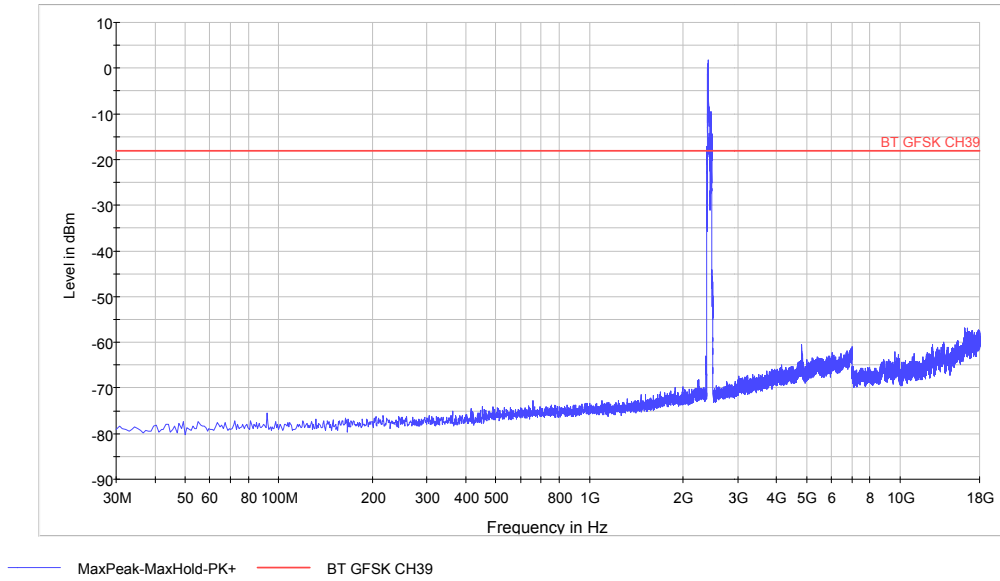
Note: The signal beyond the limit is carrier. Carrier frequency (MHz): 2402
Spurious RF conducted emissions from 30MHz to 18GHz



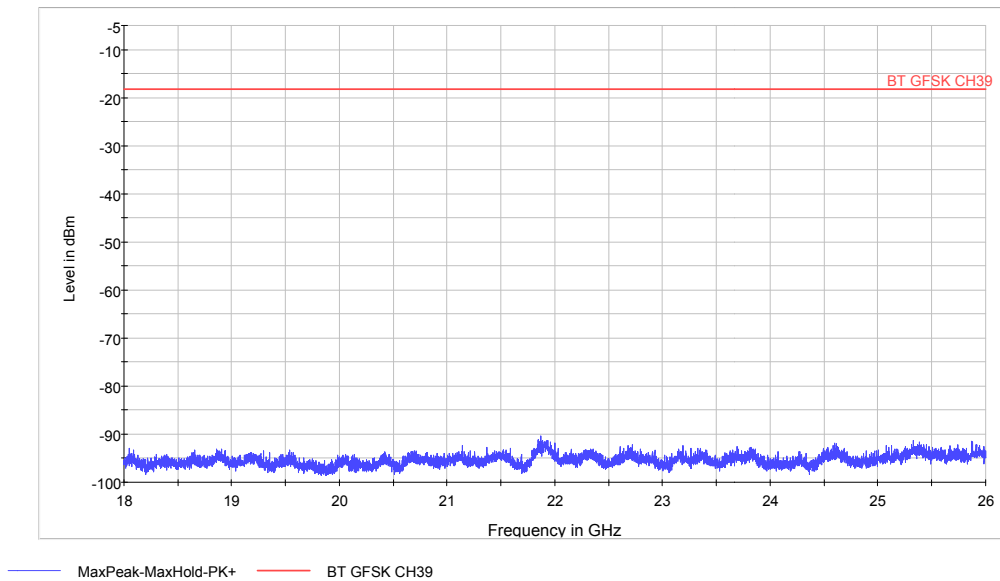
MaxPeak-MaxHold-PK+ BT GFSK CH0

Spurious RF conducted emissions from 18GHz to 26.5GHz

GFSK-CH39:

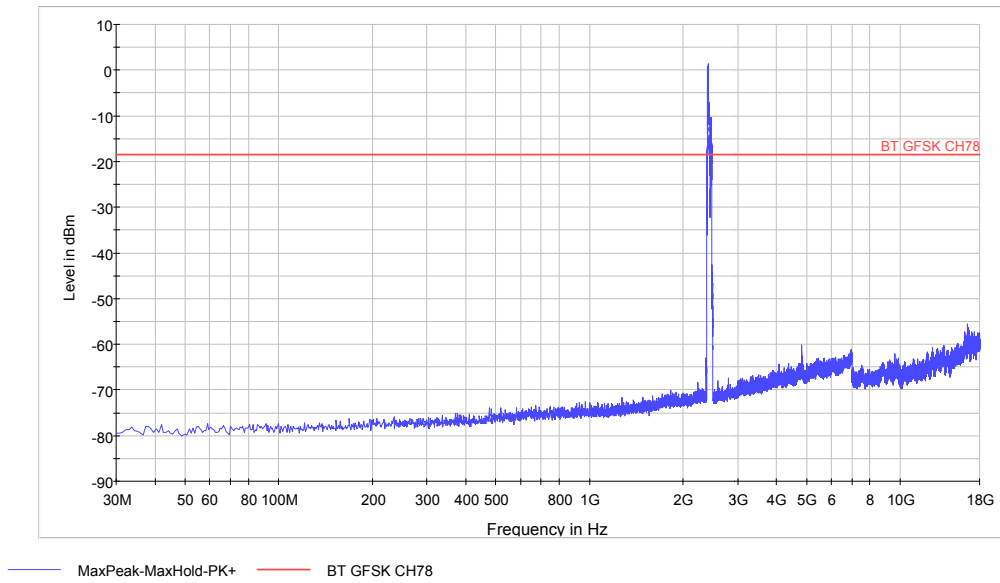


Note: The signal beyond the limit is carrier. Carrier frequency (MHz): 2441
Spurious RF conducted emissions from 30MHz to 18GHz

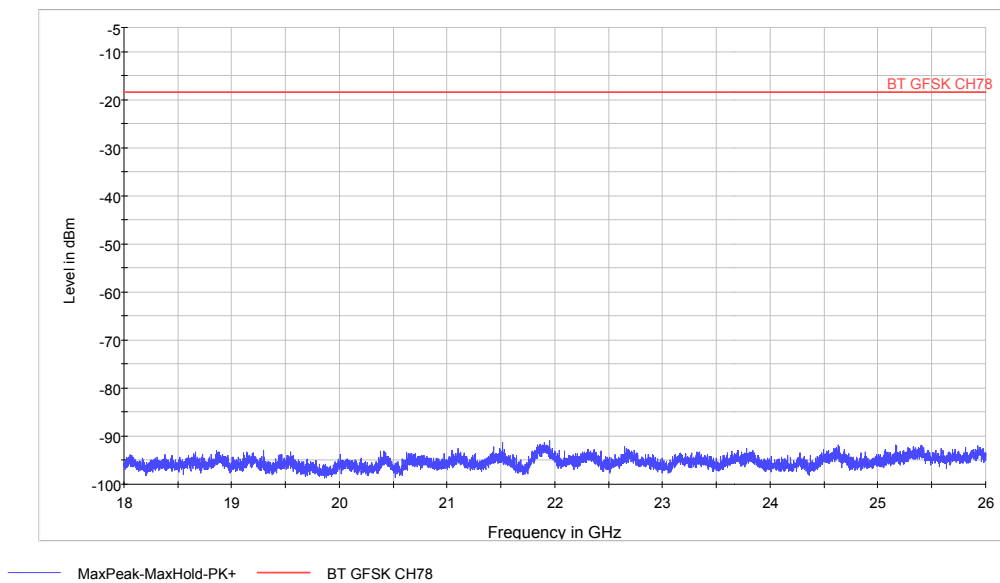


Spurious RF conducted emissions from 18GHz to 26.5GHz

GFSK-CH78:



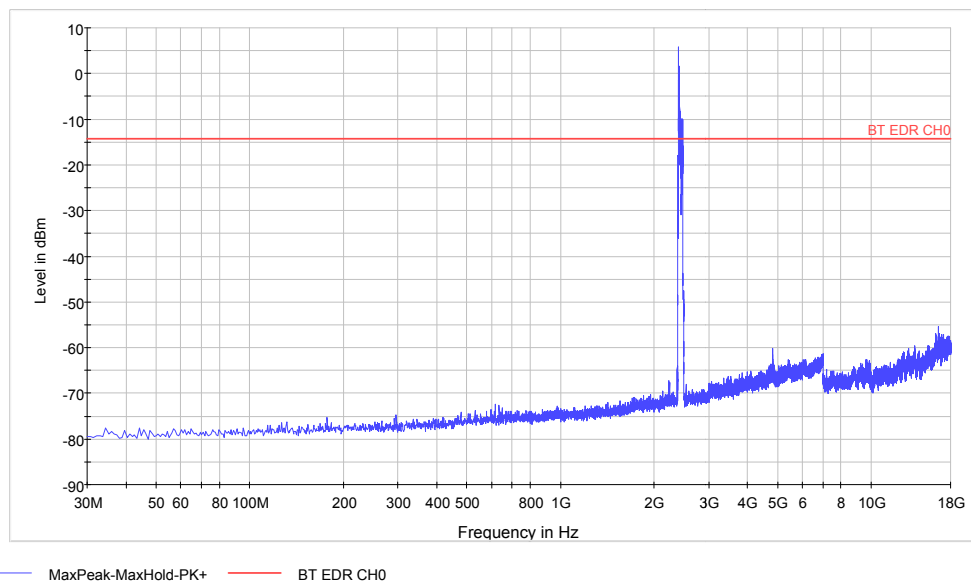
Note: The signal beyond the limit is carrier. Carrier frequency (MHz): 2480
Spurious RF conducted emissions from 30MHz to 18GHz



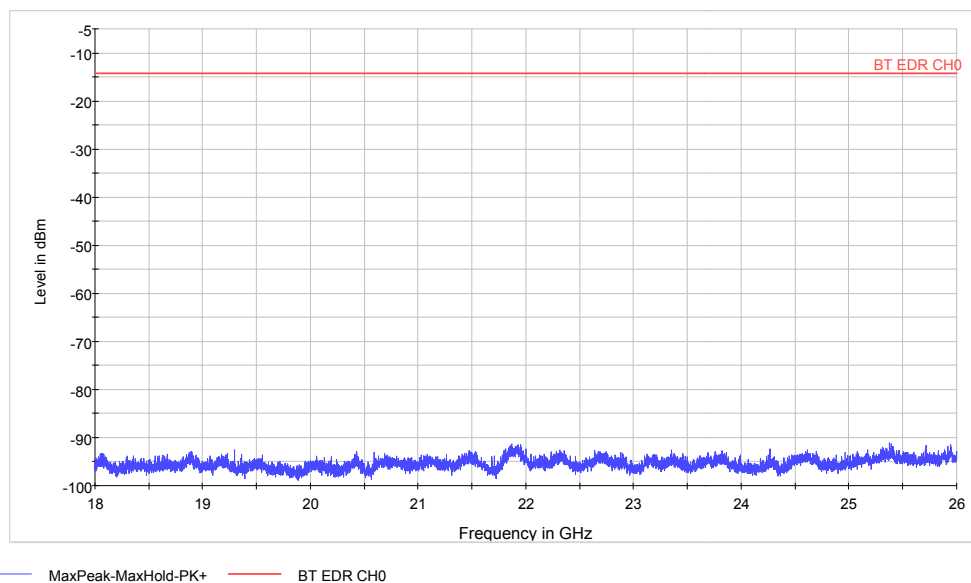
Spurious RF conducted emissions from 18GHz to 26.5GHz



EDR-CH0:



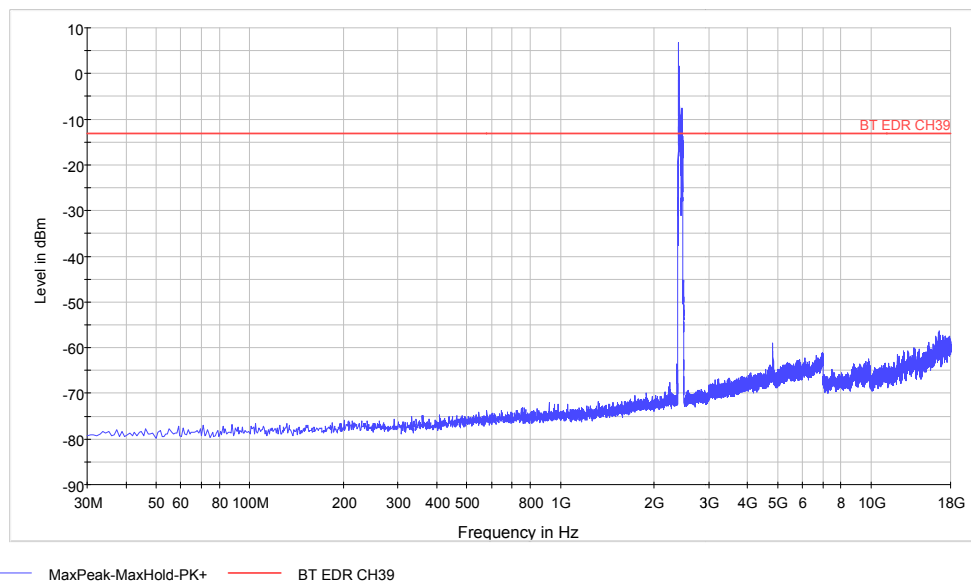
Note: The signal beyond the limit is carrier. Carrier frequency (MHz): 2402
Spurious RF conducted emissions from 30MHz to 18GHz



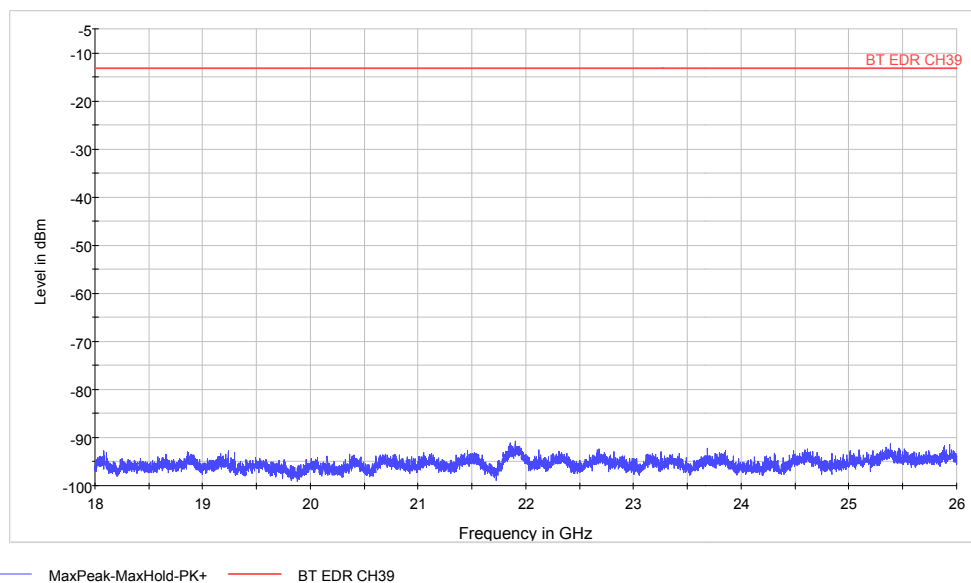
Spurious RF conducted emissions from 18GHz to 26.5GHz



EDR -CH39:



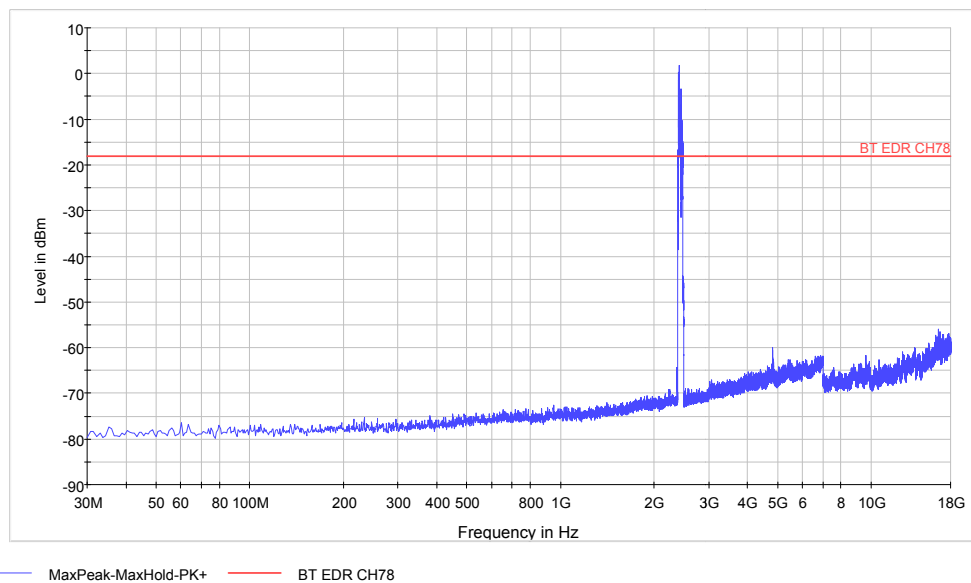
Note: The signal beyond the limit is carrier. Carrier frequency (MHz): 2441
Spurious RF conducted emissions from 30MHz to 18GHz



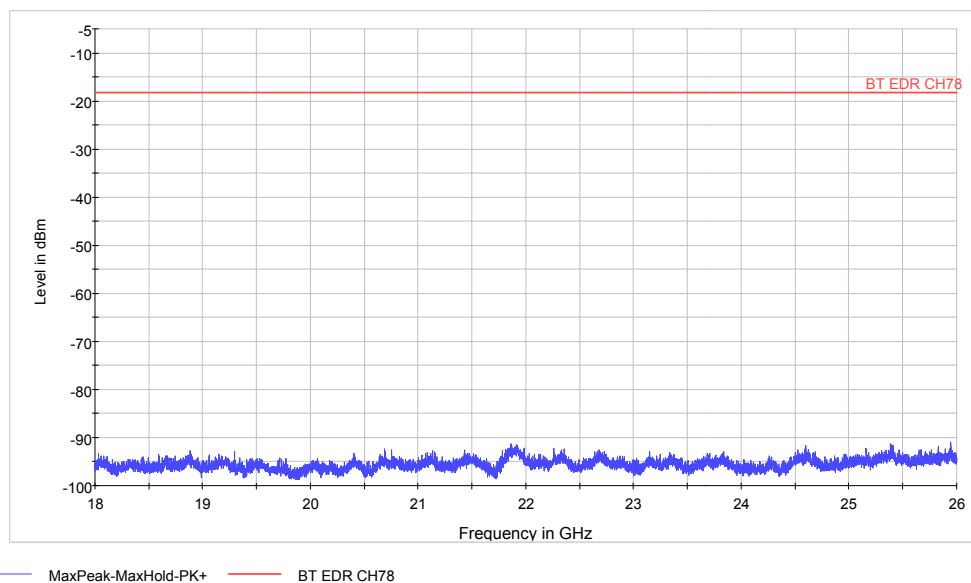
Spurious RF conducted emissions from 18GHz to 26.5GHz



EDR -CH78:



Note: The signal beyond the limit is carrier. Carrier frequency (MHz): 2480
Spurious RF conducted emissions from 30MHz to 18GHz



Spurious RF conducted emissions from 18GHz 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 C63.4-2014. 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

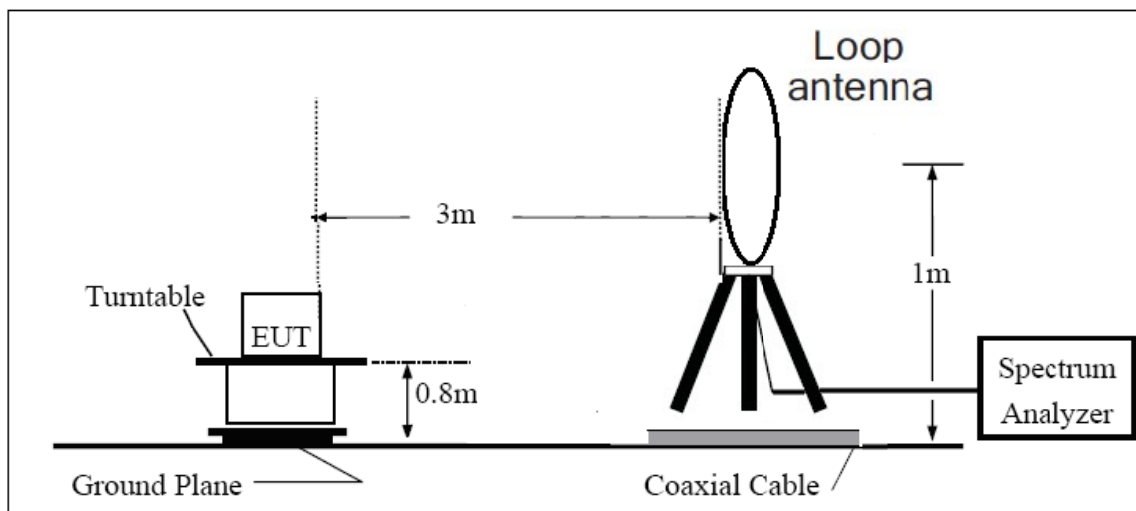
(b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO

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.

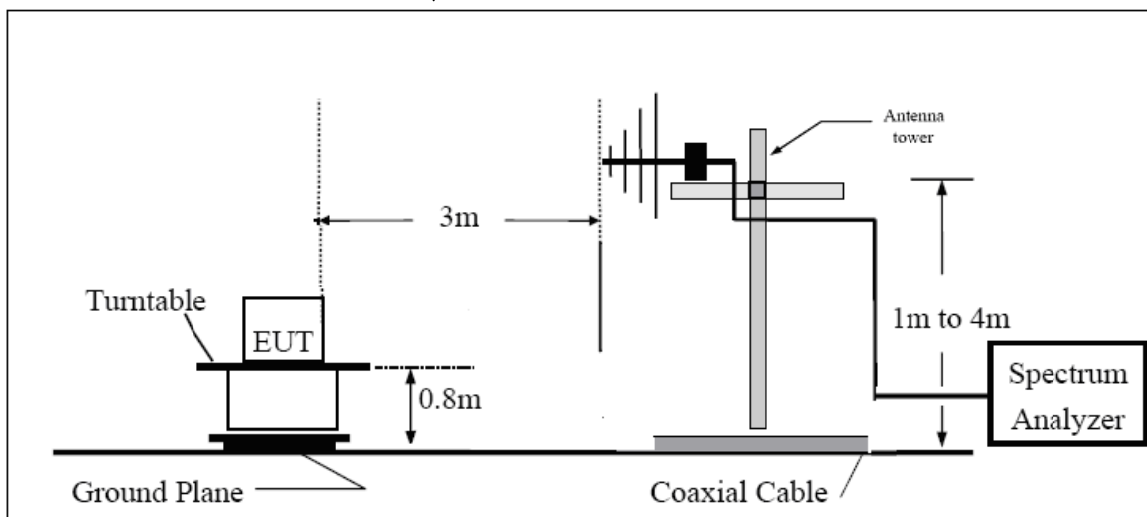
The test is in transmitting mode.

Test setup

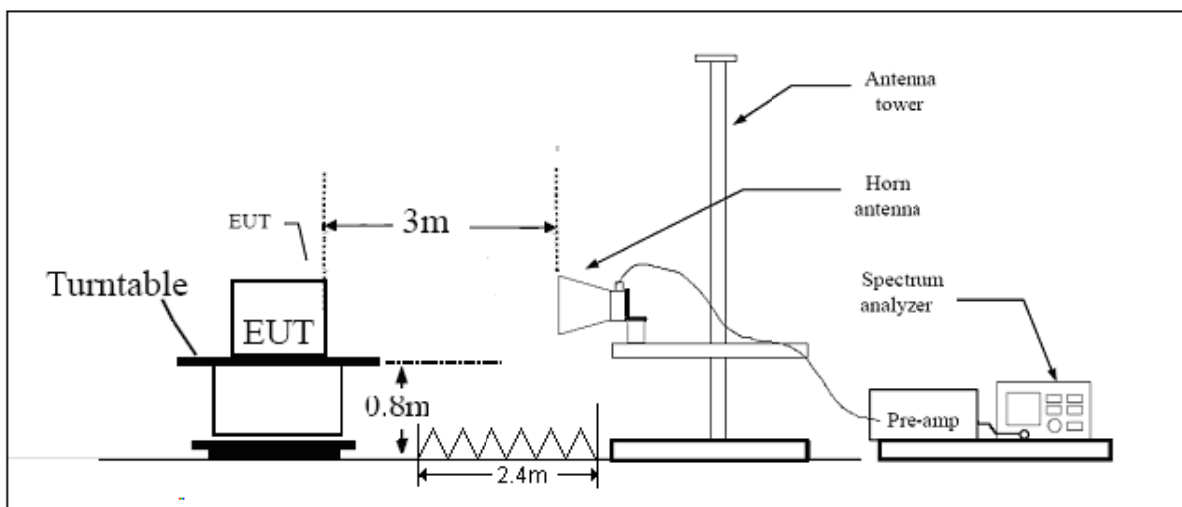
9KHz~~~ 30MHz



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.

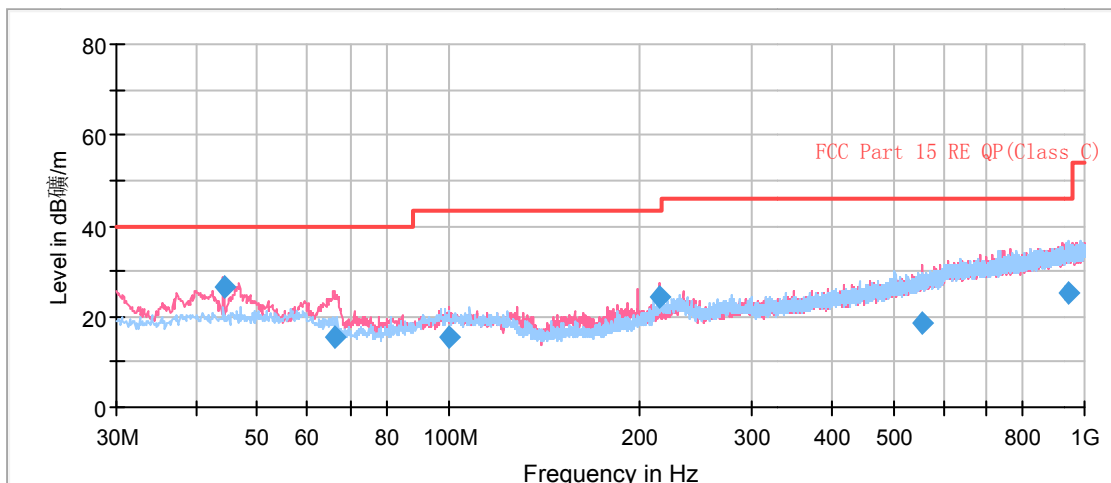
The messy code(dB μ V/m) including in the following plots mean dBuV/m.

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

RE 0.03-1GHz QP Class B

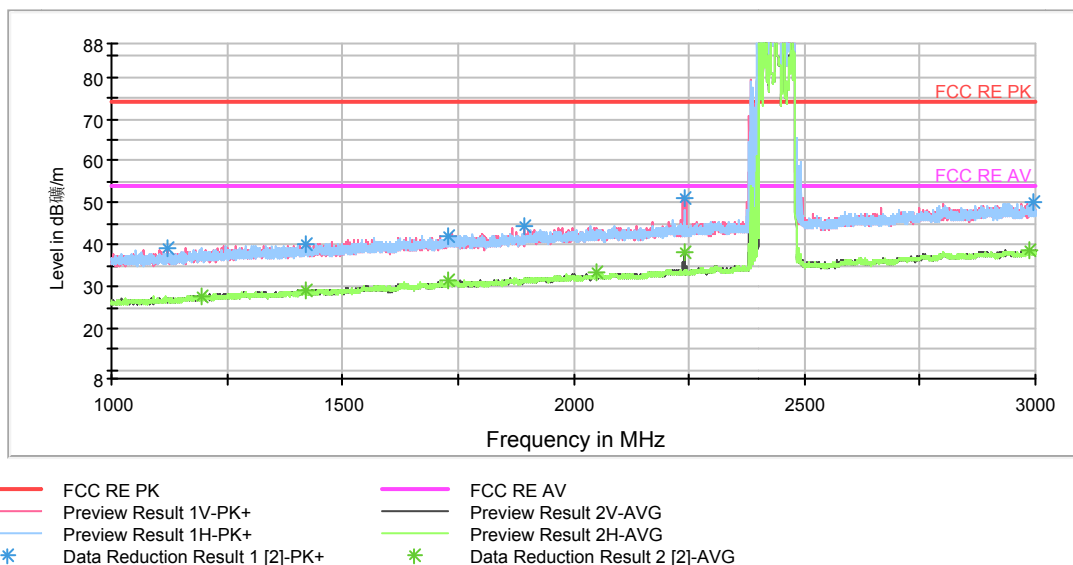


Radiates Emission from 30MHz to 1GHz

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)
44.266250	26.4	100.0	V	24.0	39.5	13.1	13.6	40.0
66.011250	15.5	100.0	V	116.0	25.6	10.1	24.5	40.0
100.161250	15.4	125.0	V	28.0	28.6	13.2	28.1	43.5
214.502500	24.5	100.0	V	54.0	37.1	12.6	19.0	43.5
553.997500	18.7	125.0	V	0.0	39.9	21.2	27.3	46.0
946.287500	25.2	100.0	H	99.0	51.2	26.0	20.8	46.0

RE Bluetooth PK+AV



Radiates Emission from 1GHz to 3GHz

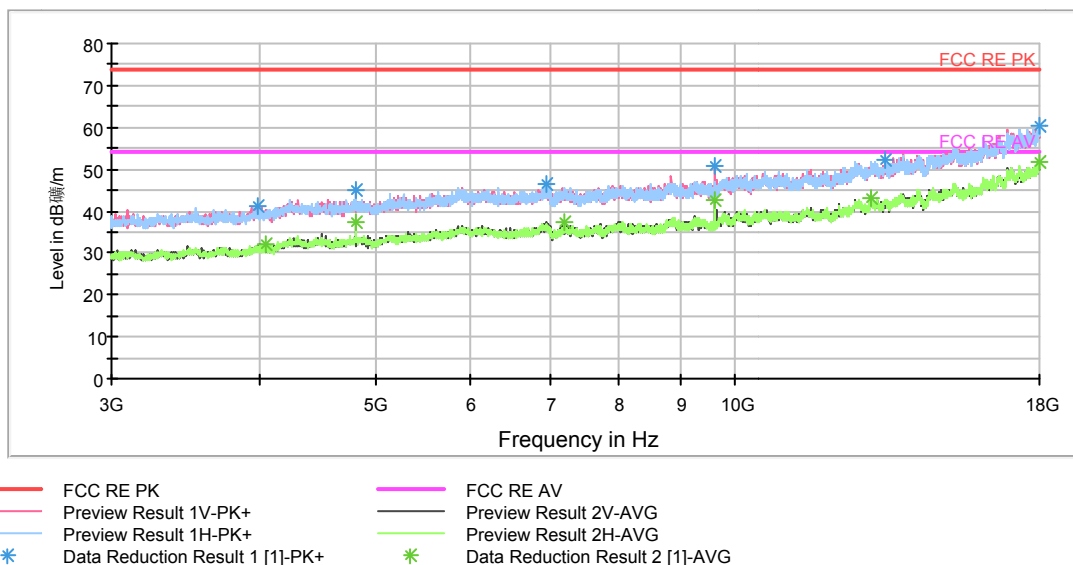
Note: The signal beyond the limit is carrier.

Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1194.750000	37.6	100.0	H	77.0	45.1	-7.5	36.4	74
1422.000000	38.2	100.0	V	272.0	44.0	-5.8	35.8	74
1729.750000	40.7	100.0	H	181.0	43.8	-3.1	33.3	74
2051.750000	42.3	100.0	V	0.0	44.1	-1.8	31.7	74
2240.750000	51.2	100.0	V	9.0	52.2	-1.0	22.8	74
2986.750000	47.5	100.0	V	142.0	51.3	3.8	26.5	74

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1194.750000	27.9	100.0	H	77.0	35.4	-7.5	26.1	54
1422.000000	29.3	100.0	V	272.0	35.1	-5.8	24.7	54
1729.750000	31.5	100.0	H	181.0	34.6	-3.1	22.5	54
2051.750000	33.2	100.0	V	0.0	35.0	-1.8	20.8	54
2240.750000	38.4	100.0	V	9.0	39.4	-1.0	15.6	54
2986.750000	38.7	100.0	V	142.0	42.5	3.8	15.3	54

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

RE 3-18GHz PK+AV



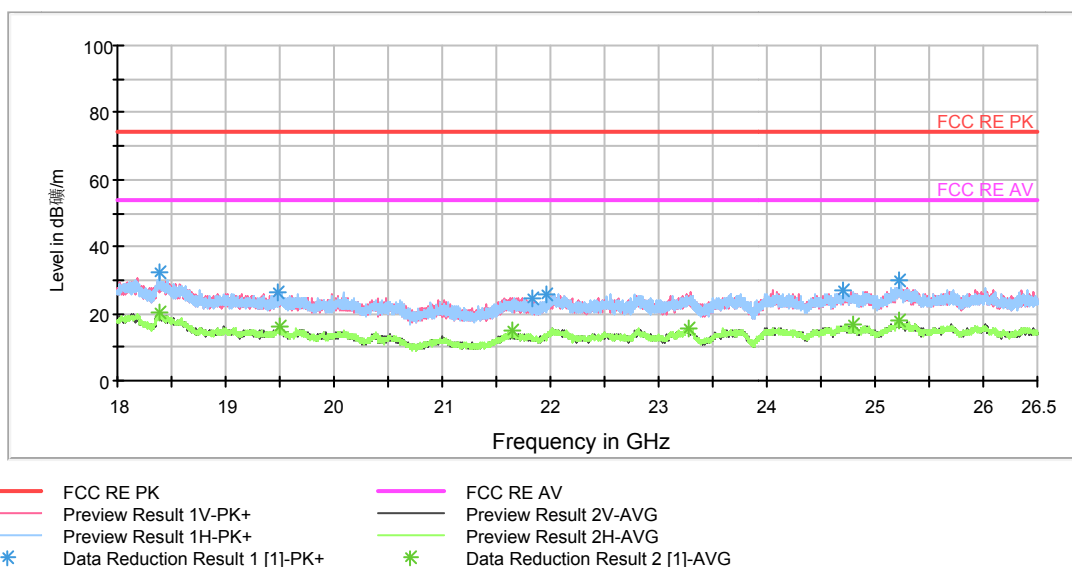
Radiates Emission from 3GHz to 18GHz

Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
4040.625000	39.5	100.0	H	0.0	40.1	0.6	34.5	74
4803.750000	44.1	100.0	H	3.0	46.8	2.7	29.9	74
7205.625000	43.9	100.0	V	340.0	52.6	8.7	30.1	74
9607.500000	51.0	100.0	V	11.0	61.0	10.0	23.0	74
13014.375000	51.1	100.0	H	25.0	67.3	16.2	22.9	74
17981.250000	59.5	100.0	H	117.0	84.7	25.2	14.5	74

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
4040.625000	32.1	100.0	H	0.0	32.7	0.6	21.9	54
4803.750000	37.4	100.0	H	3.0	40.1	2.7	16.6	54
7205.625000	37.4	100.0	V	340.0	46.1	8.7	16.6	54
9607.500000	42.8	100.0	V	11.0	52.8	10.0	11.2	54
13014.375000	43.0	100.0	H	25.0	59.2	16.2	11.0	54
17981.250000	51.6	100.0	H	117.0	76.8	25.2	2.4	54

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

RE 18-26.5GHz PK+AV



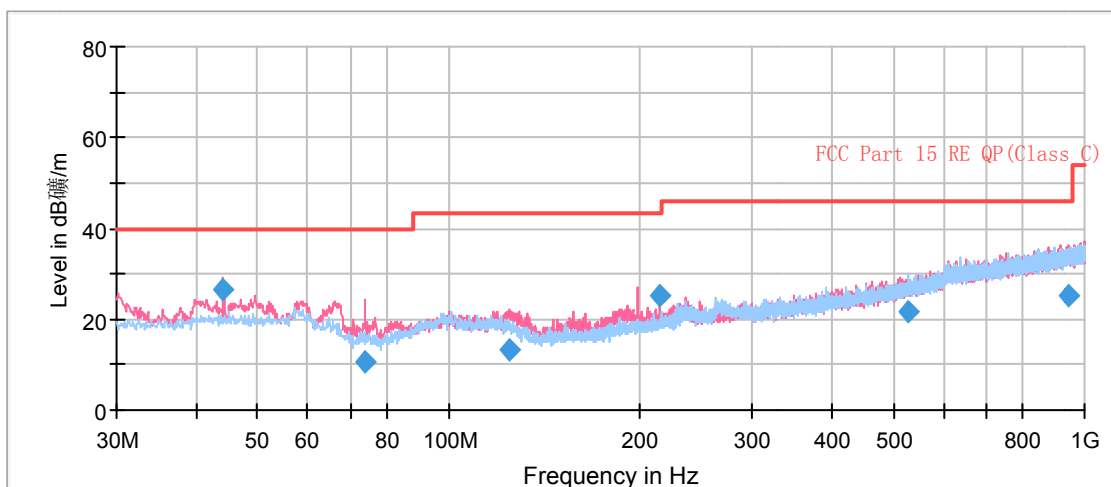
Radiates Emission from 18GHz to 26.5GHz

Frequency (MHz)	Peak (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18381.437500	30.0	H	0.0	34.8	-4.8	44.0	74
19492.812500	25.1	V	0.0	32.7	-7.6	48.9	74
21644.375000	22.5	H	0.0	31.6	-9.1	51.5	74
23277.437500	24.0	H	0.0	31.2	-7.2	50.0	74
24800.000000	25.5	H	0.0	32.1	-6.6	48.5	74
25223.937500	27.9	V	0.0	33.8	-5.9	46.1	74

Frequency (MHz)	Average (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18381.437500	20.2	H	0.0	25.0	-4.8	33.8	54
19492.812500	15.9	V	0.0	23.5	-7.6	38.1	54
21644.375000	14.7	H	0.0	23.8	-9.1	39.3	54
23277.437500	15.6	H	0.0	22.8	-7.2	38.4	54
24800.000000	16.6	H	0.0	23.2	-6.6	37.4	54
25223.937500	18.2	V	0.0	24.1	-5.9	35.8	54

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

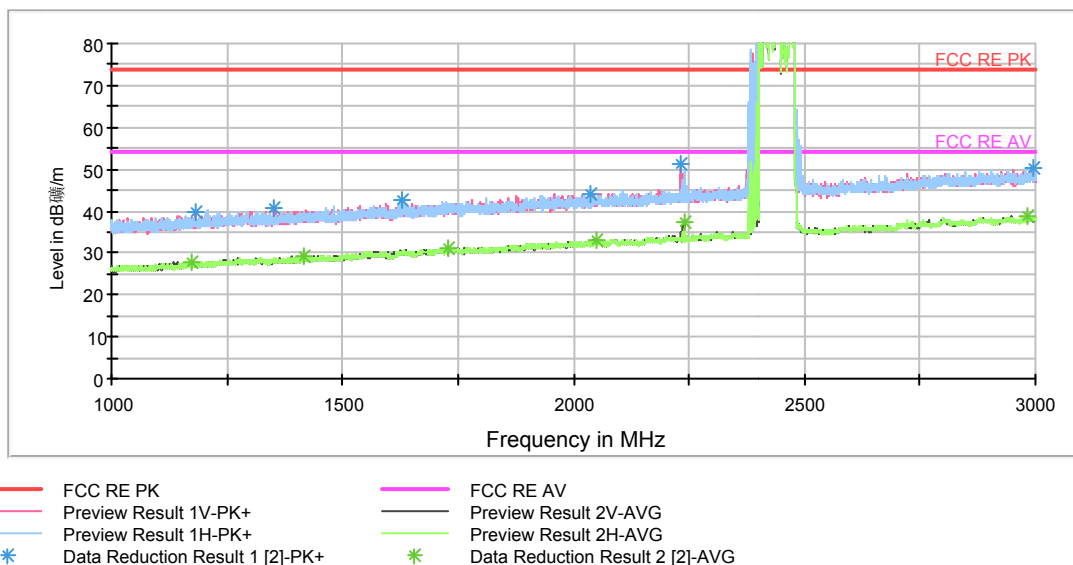
RE 0.03-1GHz QP Class B



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)
44.226250	26.5	100.0	V	271.0	39.6	13.1	13.5	40.0
73.972500	10.4	114.0	V	0.0	19.0	8.6	29.6	40.0
124.812500	13.4	125.0	V	340.0	23.4	10.0	30.1	43.5
214.502500	25.1	100.0	V	14.0	37.7	12.6	18.4	43.5
528.013750	21.8	100.0	H	324.0	42.3	20.5	24.2	46.0
943.375000	25.3	125.0	V	2.0	51.3	26.0	20.7	46.0

RE Bluetooth PK+AV



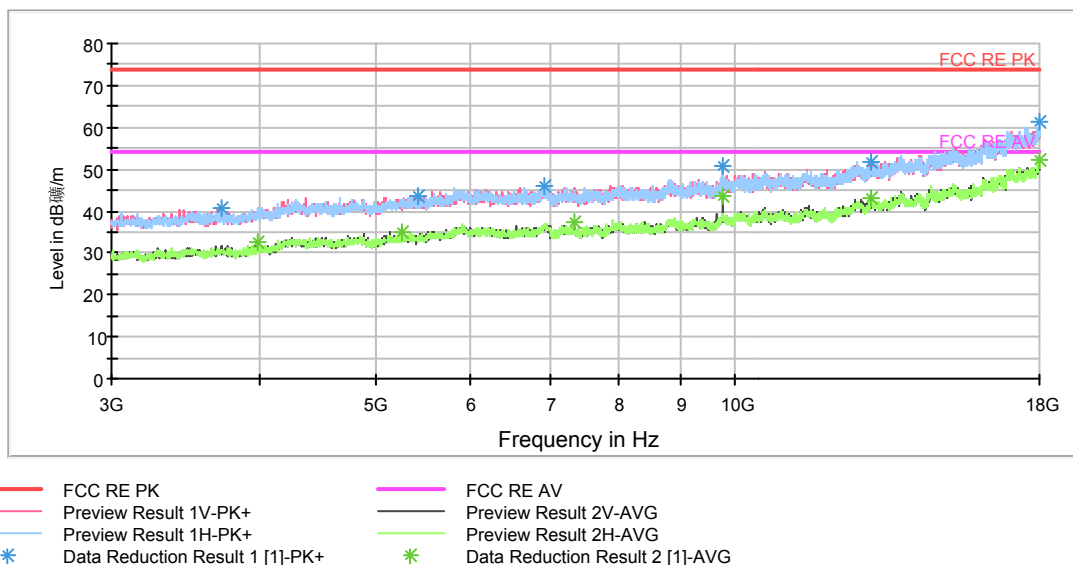
Radiates Emission from 1GHz to 3GHz

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)
1171.750000	37.3	100.0	H	53.0	44.3	-7.0	36.7	74
1418.000000	38.7	100.0	V	234.0	44.6	-5.9	35.3	74
1729.750000	40.8	100.0	H	6.0	43.9	-3.1	33.2	74
2051.250000	42.6	100.0	V	198.0	44.5	-1.9	31.4	74
2240.750000	49.4	100.0	V	0.0	50.4	-1.0	24.6	74
2983.500000	47.6	100.0	V	0.0	51.4	3.8	26.4	74

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1171.750000	28.0	100.0	H	53.0	35.0	-7.0	26.0	54
1418.000000	29.3	100.0	V	234.0	35.2	-5.9	24.7	54
1729.750000	31.3	100.0	H	6.0	34.4	-3.1	22.7	54
2051.250000	33.3	100.0	V	198.0	35.2	-1.9	20.7	54
2240.750000	37.3	100.0	V	0.0	38.3	-1.0	16.7	54
2983.500000	38.9	100.0	V	0.0	42.7	3.8	15.1	54

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

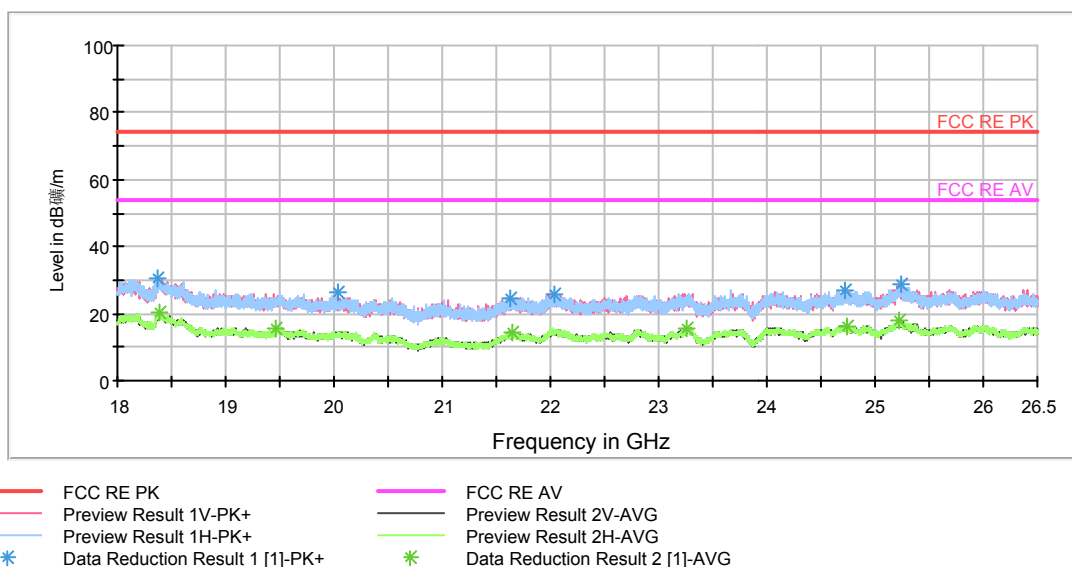
RE 3-18GHz PK+AV

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)
3982.500000	38.5	100.0	H	18.0	38.9	0.4	35.5	74
5257.500000	41.8	100.0	H	18.0	45.5	3.7	32.2	74
7321.875000	44.9	100.0	H	311.0	53.4	8.5	29.1	74
9763.125000	50.6	100.0	V	25.0	62.4	11.8	23.4	74
12999.375000	49.7	100.0	H	74.0	65.9	16.2	24.3	74
17996.250000	58.9	100.0	H	52.0	84.3	25.4	15.1	74

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3982.500000	32.7	100.0	H	18.0	33.1	0.4	21.3	54
5257.500000	34.9	100.0	H	18.0	38.6	3.7	19.1	54
7321.875000	37.3	100.0	H	311.0	45.8	8.5	16.7	54
9763.125000	43.4	100.0	V	25.0	55.2	11.8	10.6	54
12999.375000	43.0	100.0	H	74.0	59.2	16.2	11.0	54
17996.250000	52.0	100.0	H	52.0	77.4	25.4	2.0	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

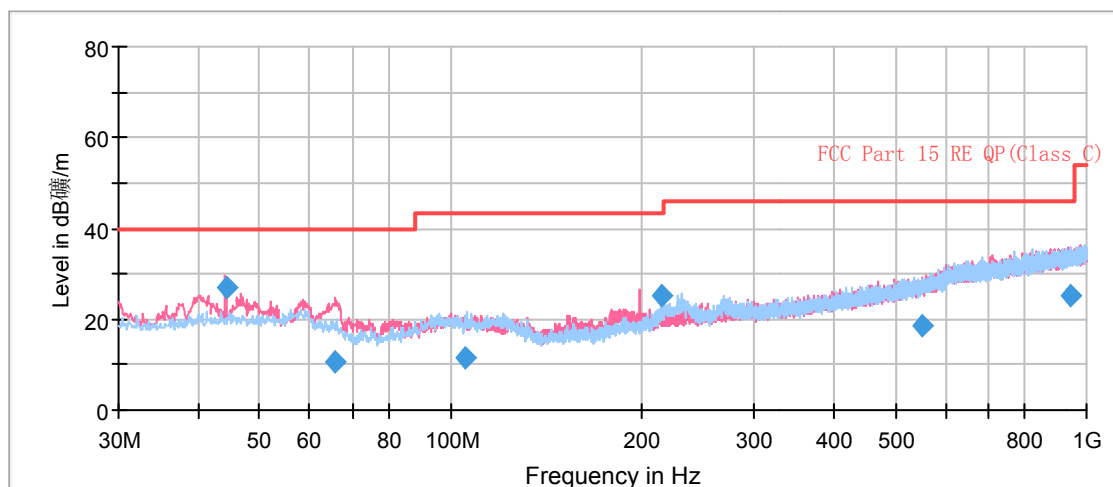
Frequency (MHz)	Peak (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18391.000000	28.0	H	0.0	32.9	-4.9	46.0	74
19471.562500	23.8	H	0.0	31.8	-8.0	50.2	74
21642.250000	24.0	H	0.0	33.1	-9.1	50.0	74
23262.562500	24.0	V	0.0	31.3	-7.3	50.0	74
24733.062500	24.9	H	0.0	31.2	-6.3	49.1	74
25226.062500	27.4	V	0.0	33.3	-5.9	46.6	74

Frequency (MHz)	Average (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18391.000000	20.1	H	0.0	25.0	-4.9	33.9	54
19471.562500	15.5	H	0.0	23.5	-8.0	38.5	54
21642.250000	14.6	H	0.0	23.7	-9.1	39.4	54
23262.562500	15.6	V	0.0	22.9	-7.3	38.4	54
24733.062500	16.3	H	0.0	22.6	-6.3	37.7	54
25226.062500	18.2	V	0.0	24.1	-5.9	35.8	54

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



RE 0.03-1GHz QP Class B



Radiates Emission from 30MHz to 1GHz

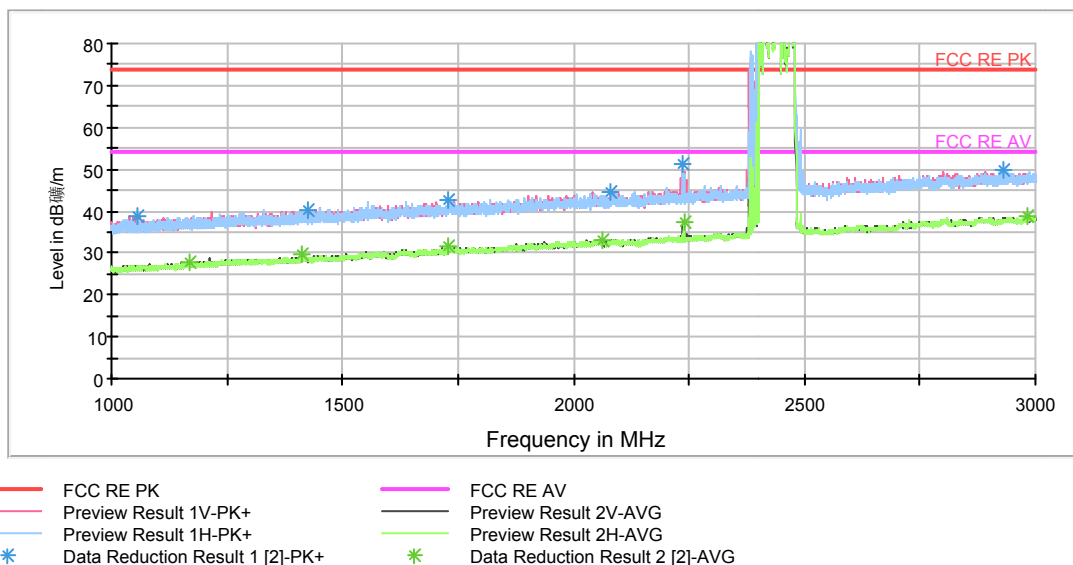
Frequency (MHz)	Quasi-Peak (dBuV/m)	Height (cm)	Polari zation	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
44.266250	26.9	100.0	V	2.0	40.0	13.1	13.1	40.0
65.490000	10.6	100.0	V	117.0	20.9	10.3	29.4	40.0
105.421250	11.6	125.0	H	8.0	24.4	12.8	31.9	43.5
214.502500	25.0	100.0	V	44.0	37.6	12.6	18.5	43.5
551.976250	18.6	114.0	V	97.0	39.7	21.1	27.4	46.0
945.281250	25.2	125.0	V	331.0	51.2	26.0	20.8	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

RE Bluetooth PK+AV



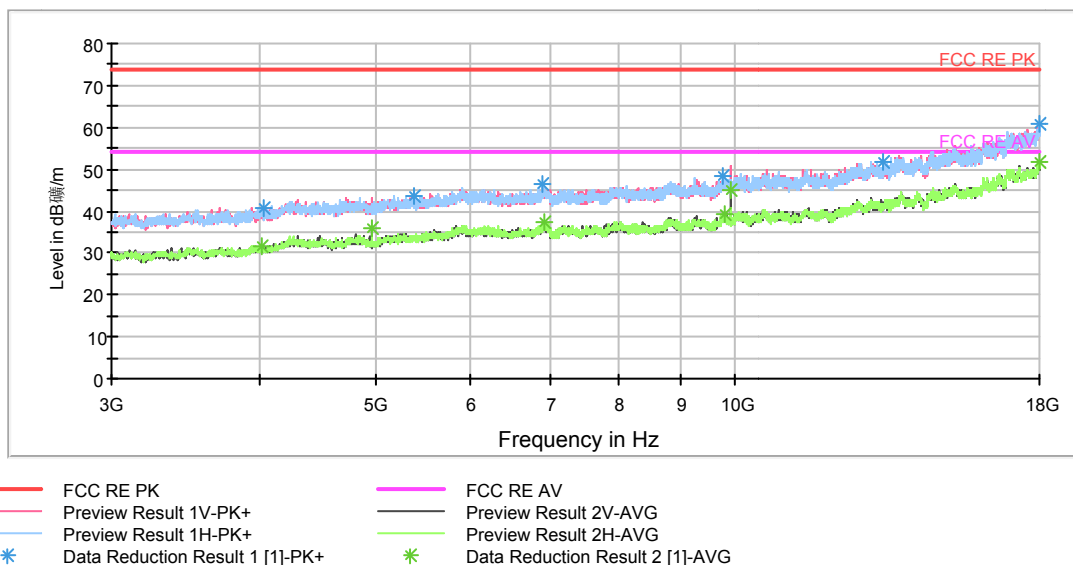
Radiates Emission from 1GHz to 3GHz

Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1169.250000	37.2	100.0	H	265.0	44.3	-7.1	36.8	74
1413.250000	38.3	100.0	V	128.0	44.5	-6.2	35.7	74
1729.250000	39.9	100.0	H	2.0	43.1	-3.2	34.1	74
2061.500000	41.7	100.0	V	174.0	43.2	-1.5	32.3	74
2238.750000	49.0	100.0	H	49.0	50.0	-1.0	25.0	74
2980.750000	47.5	100.0	H	2.0	51.3	3.8	26.5	74

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1169.250000	27.8	100.0	H	265.0	34.9	-7.1	26.2	54
1413.250000	29.5	100.0	V	128.0	35.7	-6.2	24.5	54
1729.250000	31.5	100.0	H	2.0	34.7	-3.2	22.5	54
2061.500000	33.1	100.0	V	174.0	34.6	-1.5	20.9	54
2238.750000	37.4	100.0	H	49.0	38.4	-1.0	16.6	54
2980.750000	38.9	100.0	H	2.0	42.7	3.8	15.1	54

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

RE 3-18GHz PK+AV



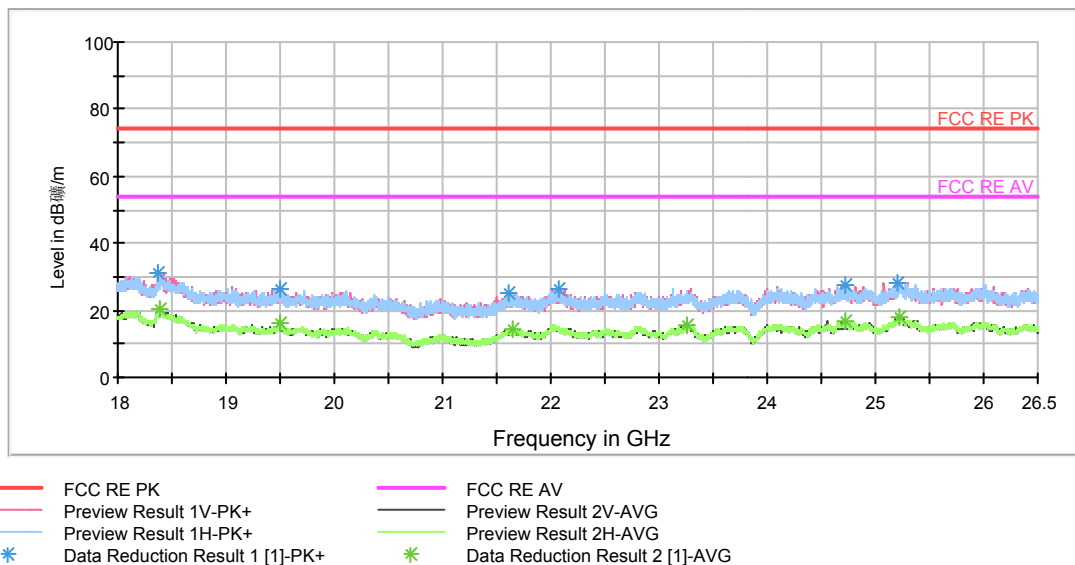
Radiates Emission from 3GHz to 18GHz

Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
4010.625000	39.9	100.0	H	207.0	40.4	0.5	34.1	74
4959.375000	43.0	100.0	V	325.0	46.0	3.0	31.0	74
6920.625000	45.3	100.0	H	139.0	52.2	6.9	28.7	74
9795.000000	46.3	100.0	H	7.0	58.5	12.2	27.7	74
9920.625000	50.8	100.0	V	25.0	62.4	11.6	23.2	74
17986.875000	58.8	100.0	V	335.0	84.0	25.2	15.2	74

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
4010.625000	31.8	100.0	H	207.0	32.3	0.5	22.2	54
4959.375000	36.1	100.0	V	325.0	39.1	3.0	17.9	54
6920.625000	37.2	100.0	H	139.0	44.1	6.9	16.8	54
9795.000000	39.5	100.0	H	7.0	51.7	12.2	14.5	54
9920.625000	45.3	100.0	V	25.0	56.9	11.6	8.7	54
17986.875000	51.8	100.0	V	335.0	77.0	25.2	2.2	54

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

RE 18-26.5GHz PK+AV



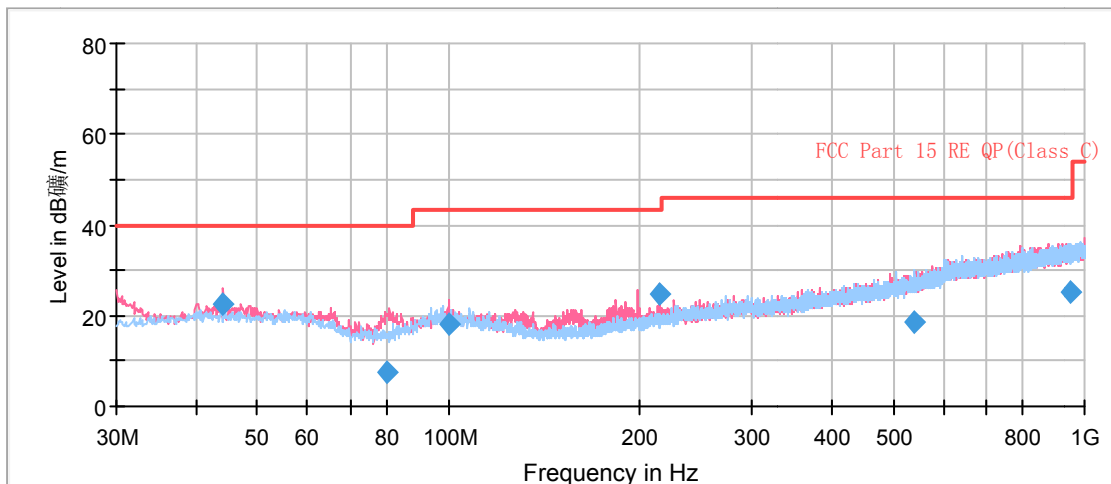
Radiates Emission from 18GHz to 26.5GHz

Frequency (MHz)	Peak (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18392.062500	29.0	V	0.0	33.9	-4.9	45.0	74
19499.187500	25.7	H	0.0	33.2	-7.5	48.3	74
21652.875000	22.6	V	0.0	31.8	-9.2	51.4	74
23267.875000	23.0	V	0.0	30.3	-7.3	51.0	74
24725.625000	26.0	V	0.0	32.2	-6.2	48.0	74
25220.750000	26.0	H	0.0	32.0	-6.0	48.0	74

Frequency (MHz)	Average (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18392.062500	20.2	V	0.0	25.1	-4.9	33.8	54
19499.187500	15.9	H	0.0	23.4	-7.5	38.1	54
21652.875000	14.4	V	0.0	23.6	-9.2	39.6	54
23267.875000	15.5	V	0.0	22.8	-7.3	38.5	54
24725.625000	16.6	V	0.0	22.8	-6.2	37.4	54
25220.750000	18.2	H	0.0	24.2	-6.0	35.8	54

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

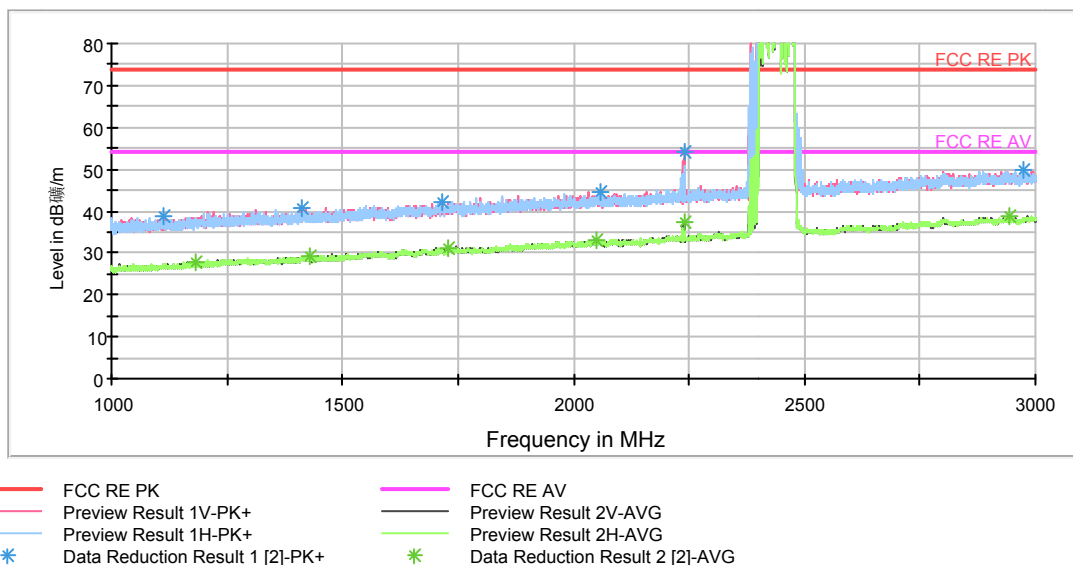
RE 0.03-1GHz QP Class B



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)
44.226250	22.3	100.0	V	332.0	35.4	13.1	17.7	40.0
80.203750	7.6	100.0	V	75.0	16.2	8.6	32.4	40.0
100.163750	18.3	113.0	V	146.0	31.5	13.2	25.2	43.5
214.501250	24.8	100.0	V	156.0	37.4	12.6	18.7	43.5
539.971250	18.5	100.0	H	17.0	39.3	20.8	27.5	46.0
948.146250	25.1	100.0	H	17.0	51.1	26.0	20.9	46.0

RE Bluetooth PK+AV



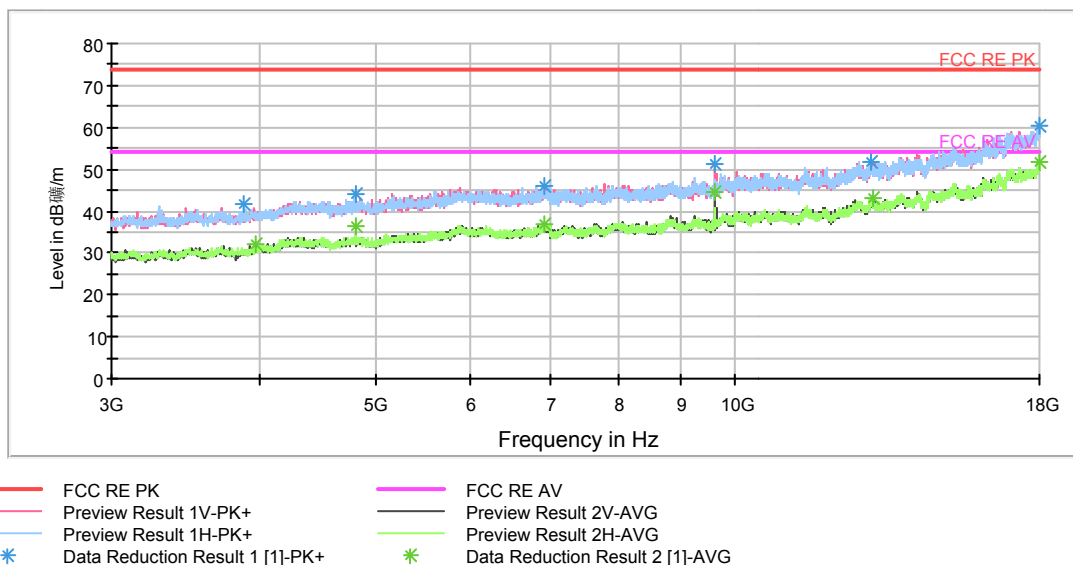
Radiates Emission from 1GHz to 3GHz

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)
1183.750000	37.7	100.0	H	19.0	44.9	-7.2	36.3	74
1427.500000	39.1	100.0	H	67.0	45.1	-6.0	34.9	74
1730.500000	40.4	100.0	H	19.0	43.4	-3.0	33.6	74
2051.500000	42.5	100.0	V	162.0	44.4	-1.9	31.5	74
2240.250000	52.4	100.0	V	23.0	53.4	-1.0	21.6	74
2945.000000	47.5	100.0	H	233.0	50.9	3.4	26.5	74

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1183.750000	27.9	100.0	H	19.0	35.1	-7.2	26.1	54
1427.500000	29.2	100.0	H	67.0	35.2	-6.0	24.8	54
1730.500000	31.2	100.0	H	19.0	34.2	-3.0	22.8	54
2051.500000	33.2	100.0	V	162.0	35.1	-1.9	20.8	54
2240.250000	37.1	100.0	V	23.0	38.1	-1.0	16.9	54
2945.000000	38.8	100.0	H	233.0	42.2	3.4	15.2	54

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

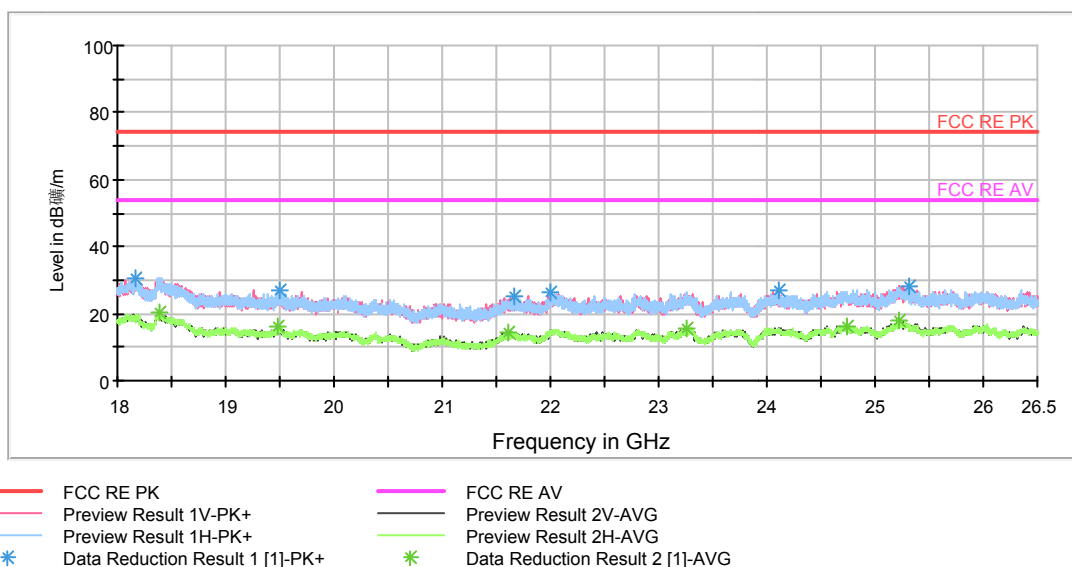
RE 3-18GHz PK+AV

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)
3971.250000	39.1	100.0	V	108.0	39.4	0.3	34.9	74
4803.750000	43.6	100.0	H	16.0	46.3	2.7	30.4	74
6909.375000	43.0	100.0	H	95.0	49.9	6.9	31.0	74
9607.500000	51.2	100.0	V	10.0	61.2	10.0	22.8	74
13059.375000	49.5	100.0	H	39.0	65.7	16.2	24.5	74
17970.000000	57.8	100.0	V	258.0	82.9	25.1	16.2	74

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3971.250000	32.2	100.0	V	108.0	32.5	0.3	21.8	54
4803.750000	36.5	100.0	H	16.0	39.2	2.7	17.5	54
6909.375000	37.1	100.0	H	95.0	44.0	6.9	16.9	54
9607.500000	44.8	100.0	V	10.0	54.8	10.0	9.2	54
13059.375000	43.0	100.0	H	39.0	59.2	16.2	11.0	54
17970.000000	51.8	100.0	V	258.0	76.9	25.1	2.2	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

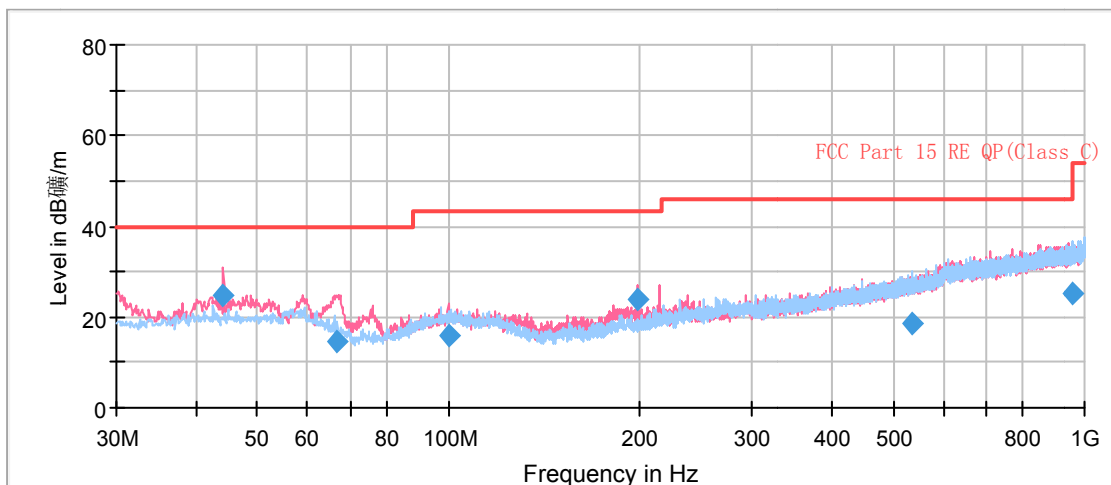
Frequency (MHz)	Peak (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18393.125000	28.8	V	0.0	33.7	-4.9	45.2	74
19486.437500	23.6	V	0.0	31.3	-7.7	50.4	74
21617.812500	22.8	H	0.0	31.8	-9.0	51.2	74
23265.750000	24.0	H	0.0	31.3	-7.3	50.0	74
24738.375000	24.3	V	0.0	30.7	-6.4	49.7	74
25214.375000	24.9	V	0.0	31.0	-6.1	49.1	74

Frequency (MHz)	Average (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18393.125000	20.4	V	0.0	25.3	-4.9	33.6	54
19486.437500	15.9	V	0.0	23.6	-7.7	38.1	54
21617.812500	14.6	H	0.0	23.6	-9.0	39.4	54
23265.750000	15.6	H	0.0	22.9	-7.3	38.4	54
24738.375000	16.4	V	0.0	22.8	-6.4	37.6	54
25214.375000	17.9	V	0.0	24.0	-6.1	36.1	54

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



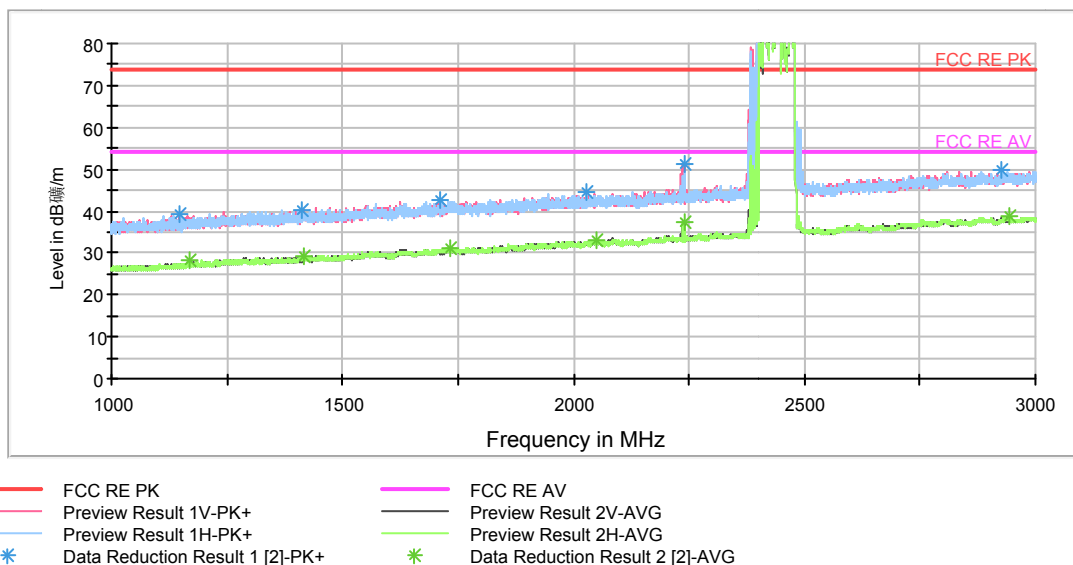
RE 0.03-1GHz QP Class B



Radiates Emission from 30MHz to 1GHz

Frequency (MHz)	Quasi-Peak (dB μ V/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dB μ V/m)	Correct Factor (dB)	Margin (dB)	Limit (dB μ V/m)
44.226250	24.7	100.0	V	307.0	37.8	13.1	15.3	40.0
66.578750	14.7	125.0	V	302.0	24.6	9.9	25.3	40.0
100.160000	15.9	100.0	V	347.0	29.1	13.2	27.6	43.5
198.011250	24.1	100.0	V	90.0	36.0	11.9	19.4	43.5
536.260000	18.7	100.0	H	27.0	39.4	20.7	27.3	46.0
955.212500	25.3	100.0	H	189.0	51.4	26.1	20.7	46.0

RE Bluetooth PK+AV



Radiates Emission from 1GHz to 3GHz

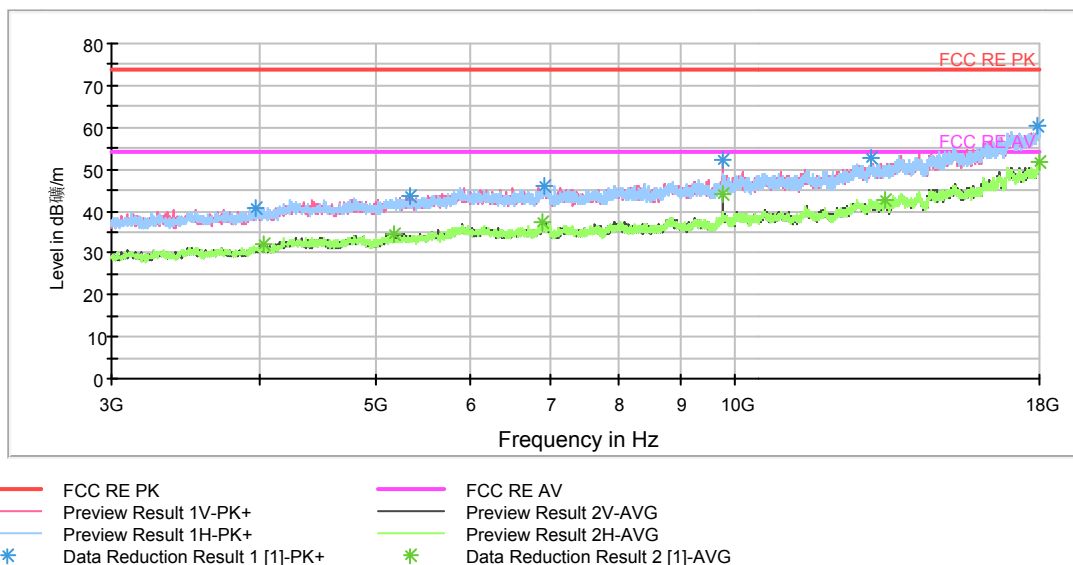
Note: The signal beyond the limit is carrier.

Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1169.250000	36.7	100.0	H	11.0	43.8	-7.1	37.3	74
1416.000000	38.7	100.0	H	132.0	44.7	-6.0	35.3	74
1731.250000	41.4	100.0	H	120.0	44.3	-2.9	32.6	74
2050.750000	42.4	100.0	V	217.0	44.3	-1.9	31.6	74
2238.750000	51.0	100.0	V	0.0	52.0	-1.0	23.0	74
2943.500000	46.9	100.0	H	168.0	50.3	3.4	27.1	74

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1169.250000	28.1	100.0	H	11.0	35.2	-7.1	25.9	54
1416.000000	29.4	100.0	H	132.0	35.4	-6.0	24.6	54
1731.250000	31.2	100.0	H	120.0	34.1	-2.9	22.8	54
2050.750000	32.9	100.0	V	217.0	34.8	-1.9	21.1	54
2238.750000	37.5	100.0	V	0.0	38.5	-1.0	16.5	54
2943.500000	38.7	100.0	H	168.0	42.1	3.4	15.3	54

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

RE 3-18GHz PK+AV



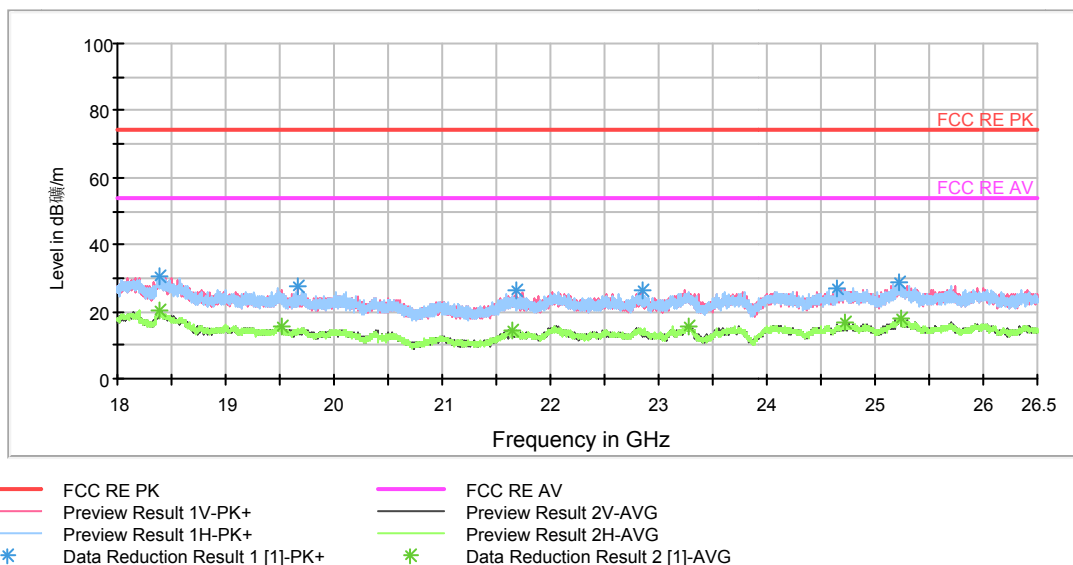
Radiates Emission from 3GHz to 18GHz

Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
4018.125000	39.3	100.0	V	88.0	39.8	0.5	34.7	74
5167.500000	40.9	100.0	H	262.0	44.5	3.6	33.1	74
6890.625000	44.0	100.0	V	359.0	50.9	6.9	30.0	74
9763.125000	52.4	100.0	V	337.0	64.2	11.8	21.6	74
13350.000000	50.1	100.0	V	110.0	65.9	15.8	23.9	74
17985.000000	58.5	100.0	H	101.0	83.7	25.2	15.5	74

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
4018.125000	32.1	100.0	V	88.0	32.6	0.5	21.9	54
5167.500000	34.5	100.0	H	262.0	38.1	3.6	19.5	54
6890.625000	37.2	100.0	V	359.0	44.1	6.9	16.8	54
9763.125000	44.3	100.0	V	337.0	56.1	11.8	9.7	54
13350.000000	42.8	100.0	V	110.0	58.6	15.8	11.2	54
17985.000000	51.7	100.0	H	101.0	76.9	25.2	2.3	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

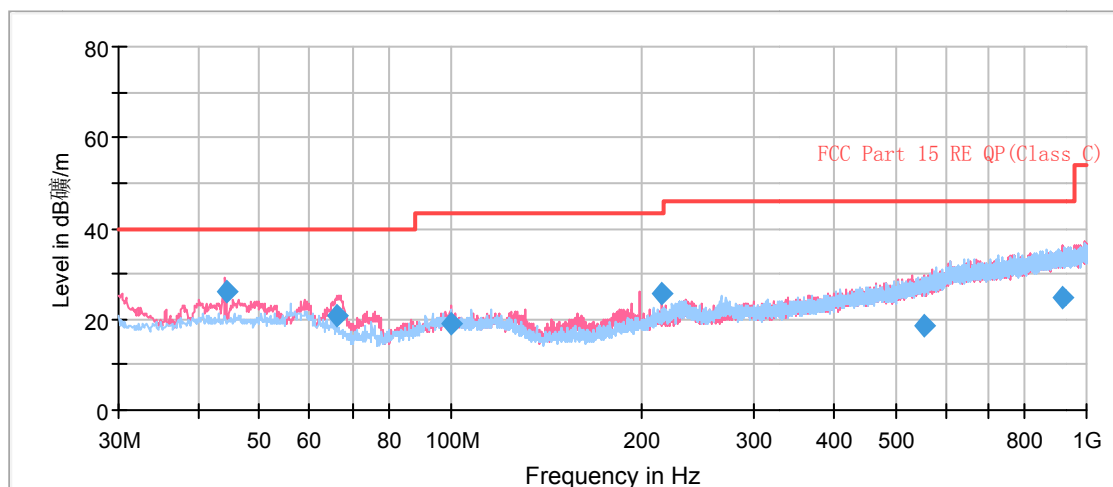
Frequency (MHz)	Peak (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18381.437500	28.6	V	0.0	33.4	-4.8	45.4	74
19517.250000	22.7	H	0.0	30.1	-7.4	51.3	74
21652.875000	22.4	H	0.0	31.6	-9.2	51.6	74
23278.500000	25.7	H	0.0	32.9	-7.2	48.3	74
24728.812500	26.0	V	0.0	32.2	-6.2	48.0	74
25232.437500	26.8	H	0.0	32.7	-5.9	47.2	74

Frequency (MHz)	Average (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18381.437500	20.5	V	0.0	25.3	-4.8	33.5	54
19517.250000	15.5	H	0.0	22.9	-7.4	38.5	54
21652.875000	14.5	H	0.0	23.7	-9.2	39.5	54
23278.500000	15.6	H	0.0	22.8	-7.2	38.4	54
24728.812500	16.7	V	0.0	22.9	-6.2	37.3	54
25232.437500	18.1	H	0.0	24.0	-5.9	35.9	54

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



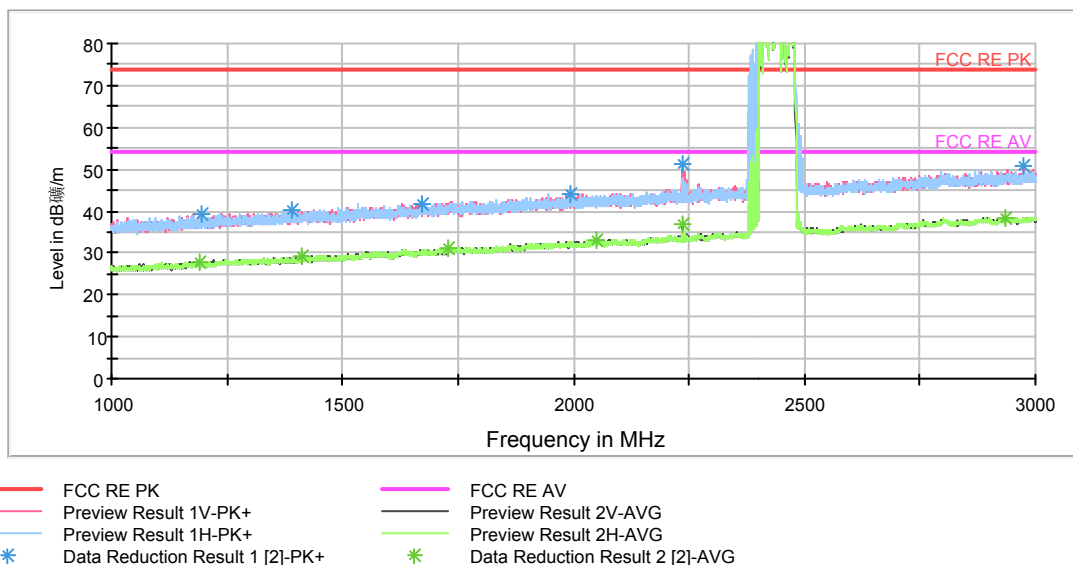
RE 0.03-1GHz QP Class B



Radiates Emission from 30MHz to 1GHz

Frequency (MHz)	Quasi-Peak (dB μ V/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dB μ V/m)	Correct Factor (dB)	Margin (dB)	Limit (dB μ V/m)
44.266250	26.2	100.0	V	66.0	39.3	13.1	13.8	40.0
66.217500	20.8	100.0	V	280.0	30.9	10.1	19.2	40.0
100.163750	19.0	114.0	V	270.0	32.2	13.2	24.5	43.5
214.501250	25.8	100.0	V	0.0	38.4	12.6	17.7	43.5
556.057500	18.8	114.0	V	17.0	40.0	21.2	27.2	46.0
914.880000	24.9	100.0	V	122.0	50.7	25.8	21.1	46.0

RE Bluetooth PK+AV



Radiates Emission from 1GHz to 3GHz

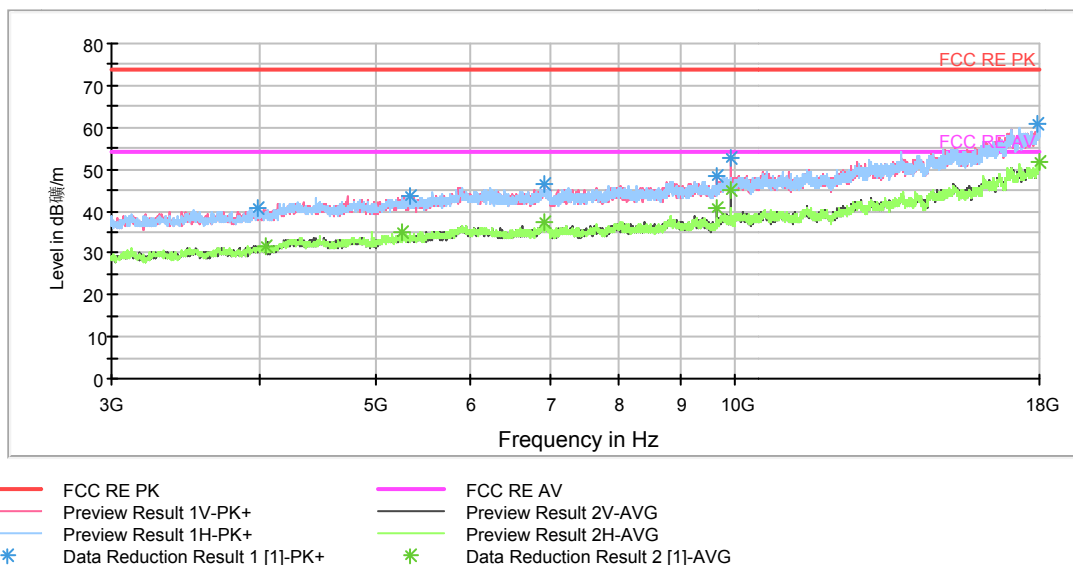
Note: The signal beyond the limit is carrier.

Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1189.000000	36.7	100.0	H	98.0	44.1	-7.4	37.3	74
1414.250000	39.5	100.0	V	280.0	45.6	-6.1	34.5	74
1730.750000	40.8	100.0	V	245.0	43.8	-3.0	33.2	74
2047.750000	42.0	100.0	H	87.0	44.0	-2.0	32.0	74
2236.250000	48.6	100.0	V	8.0	49.6	-1.0	25.4	74
2936.750000	47.8	100.0	V	137.0	51.1	3.3	26.2	74

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1189.000000	27.7	100.0	H	98.0	35.1	-7.4	26.3	54
1414.250000	29.2	100.0	V	280.0	35.3	-6.1	24.8	54
1730.750000	31.3	100.0	V	245.0	34.3	-3.0	22.7	54
2047.750000	33.0	100.0	H	87.0	35.0	-2.0	21.0	54
2236.250000	36.7	100.0	V	8.0	37.7	-1.0	17.3	54
2936.750000	38.5	100.0	V	137.0	41.8	3.3	15.5	54

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

RE 3-18GHz PK+AV



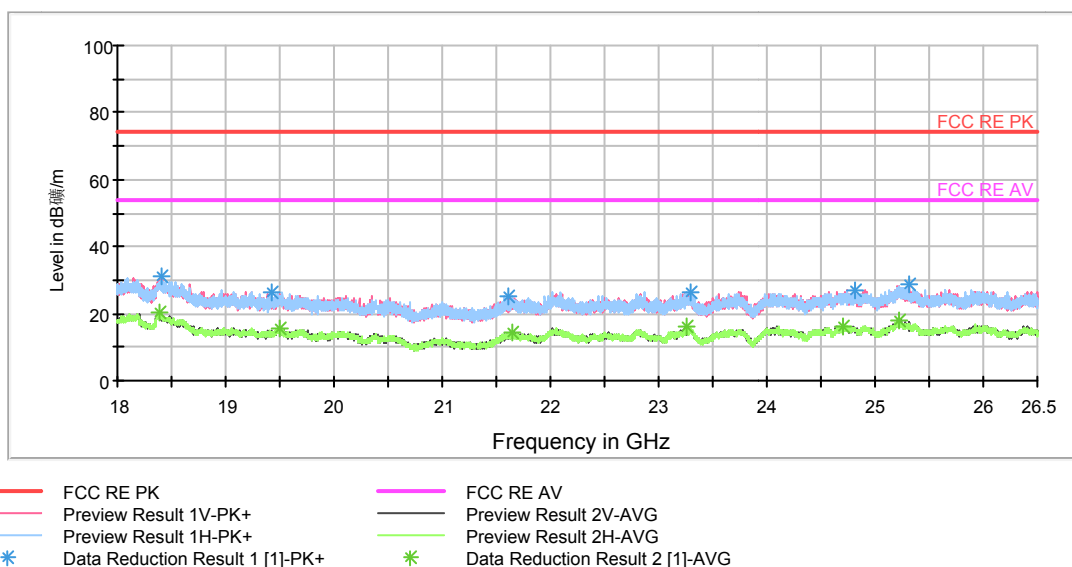
Radiates Emission from 3GHz to 18GHz

Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
4036.875000	38.1	100.0	V	358.0	38.7	0.6	35.9	74
5263.125000	42.0	100.0	H	218.0	45.7	3.7	32.0	74
6924.375000	43.6	100.0	V	303.0	50.4	6.8	30.4	74
9648.750000	48.5	100.0	V	336.0	59.0	10.5	25.5	74
9920.625000	52.5	100.0	V	11.0	64.1	11.6	21.5	74
17983.125000	59.7	100.0	H	82.0	84.9	25.2	14.3	74

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
4036.875000	31.8	100.0	V	358.0	32.4	0.6	22.2	54
5263.125000	34.9	100.0	H	218.0	38.6	3.7	19.1	54
6924.375000	37.1	100.0	V	303.0	43.9	6.8	16.9	54
9648.750000	40.9	100.0	V	336.0	51.4	10.5	13.1	54
9920.625000	45.1	100.0	V	11.0	56.7	11.6	8.9	54
17983.125000	51.8	100.0	H	82.0	77.0	25.2	2.2	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)
18388.875000	28.9	H	0.0	33.8	-4.9	45.1	74
19497.062500	23.6	V	0.0	31.1	-7.5	50.4	74
21653.937500	23.0	V	0.0	32.2	-9.2	51.0	74
23267.875000	23.8	H	0.0	31.1	-7.3	50.2	74
24702.250000	25.5	H	0.0	32.2	-6.7	48.5	74
25227.125000	27.0	V	0.0	32.9	-5.9	47.0	74

Frequency (MHz)	Average (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18388.875000	20.3	H	0.0	25.2	-4.9	33.7	54
19497.062500	15.7	V	0.0	23.2	-7.5	38.3	54
21653.937500	14.3	V	0.0	23.5	-9.2	39.7	54
23267.875000	15.9	H	0.0	23.2	-7.3	38.1	54
24702.250000	16.4	H	0.0	23.1	-6.7	37.6	54
25227.125000	18.1	V	0.0	24.0	-5.9	35.9	54

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

4.11 Conducted Emission

Ambient condition

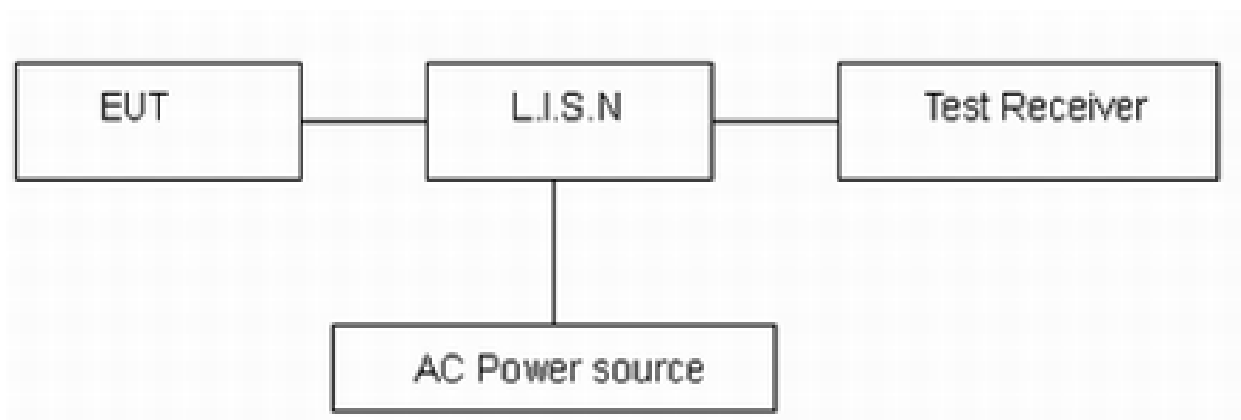
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

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 C63.4-2014. 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.		

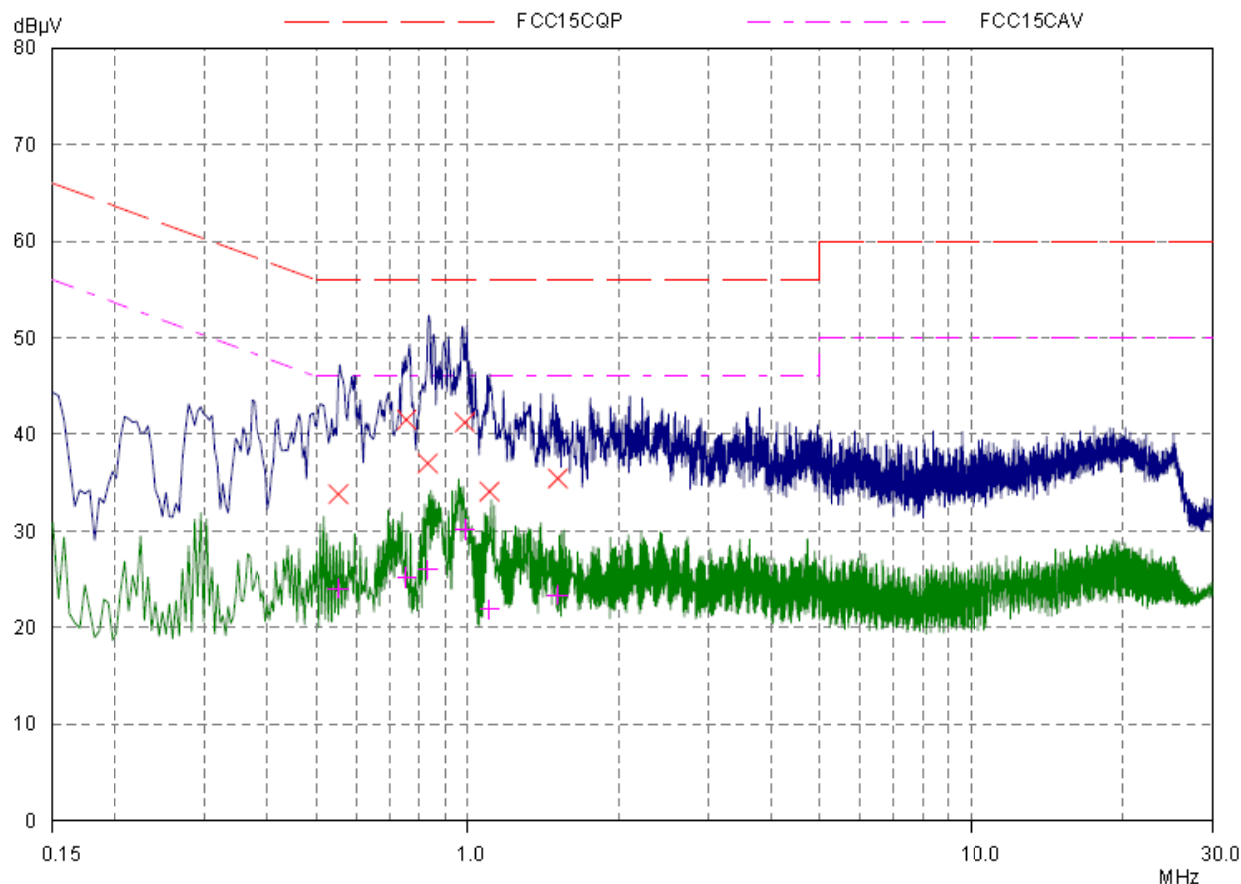
Measurement Uncertainty

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

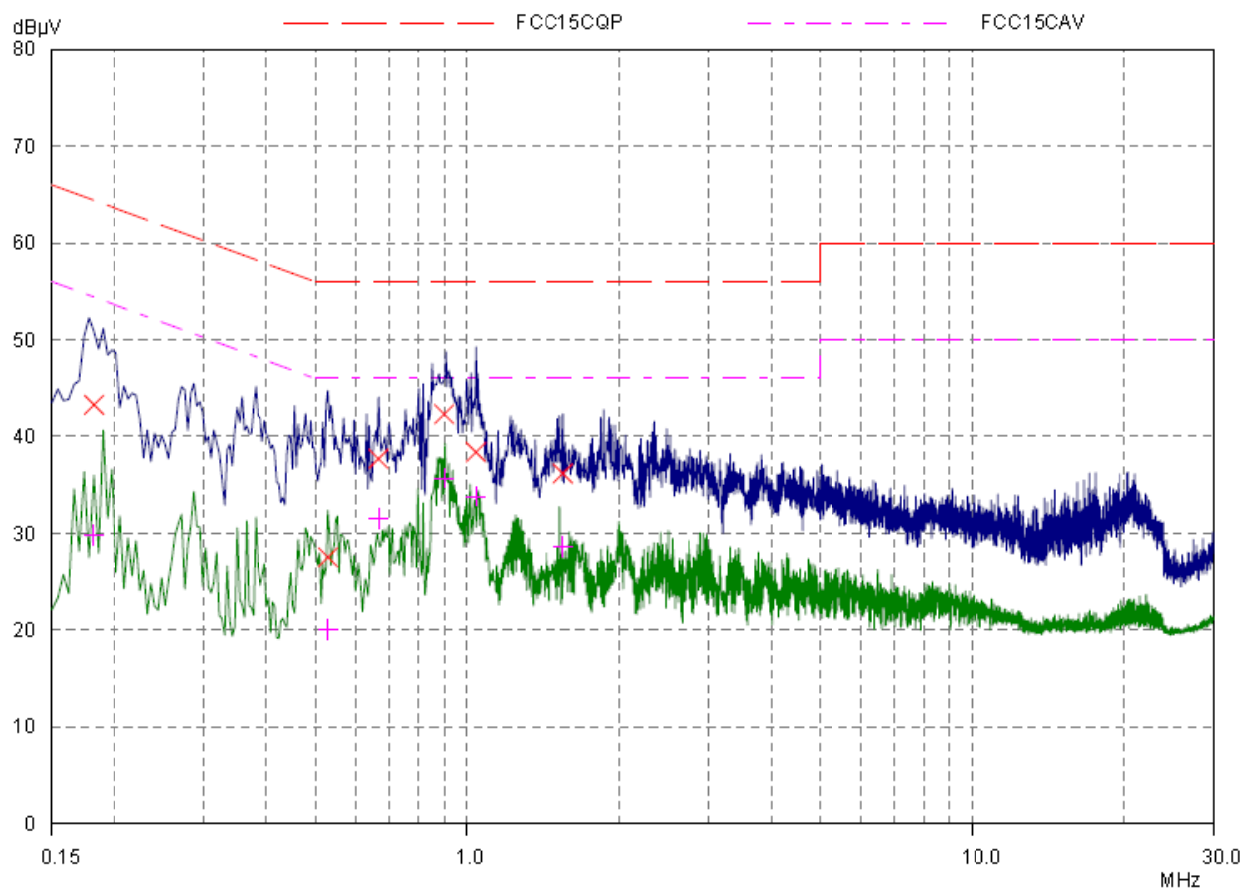


Final Measurement Results

Frequency MHz	QP Level dBμV	QP Limit dBμV	QP Delta dB	Phase -	PE -
0.55234	33.82	56.00	22.18	L1	gnd
0.75546	41.52	56.00	14.48	L1	gnd
0.83359	37.00	56.00	19.00	L1	gnd
0.98593	41.24	56.00	14.76	L1	gnd
1.10312	34.08	56.00	21.92	L1	gnd
1.50937	35.42	56.00	20.58	L1	gnd

Frequency MHz	AV Level dBμV	AV Limit dBμV	AV Delta dB	Phase -	PE -
0.55234	24.04	46.00	21.96	L1	gnd
0.75546	25.22	46.00	20.78	L1	gnd
0.83359	25.99	46.00	20.01	L1	gnd
0.98593	30.14	46.00	15.86	L1	gnd
1.10312	21.90	46.00	24.10	L1	gnd
1.50937	23.38	46.00	22.62	L1	gnd

L Line



Final Measurement Results

Frequency MHz	QP Level dBμV	QP Limit dBμV	QP Delta dB	Phase -	PE -
0.18125	43.30	64.43	21.13	N	gnd
0.5289	27.54	56.00	28.46	N	gnd
0.66562	37.70	56.00	18.30	N	gnd
0.9	42.32	56.00	13.68	N	gnd
1.04062	38.38	56.00	17.62	N	gnd
1.54843	36.18	56.00	19.82	N	gnd

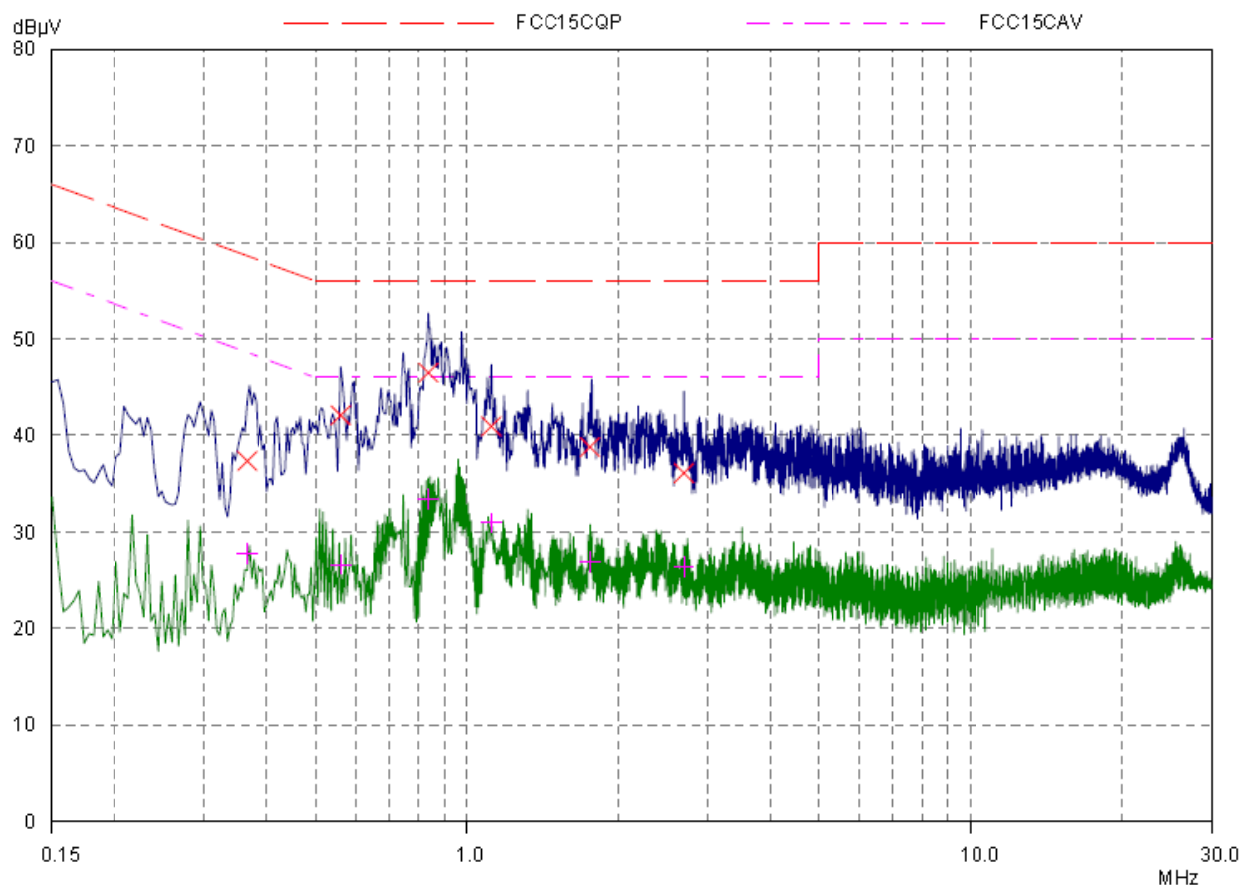
Frequency MHz	AV Level dBμV	AV Limit dBμV	AV Delta dB	Phase -	PE -
0.18125	29.80	54.43	24.63	N	gnd
0.5289	20.11	46.00	25.89	N	gnd
0.66562	31.53	46.00	14.47	N	gnd
0.9	35.69	46.00	10.31	N	gnd
1.04062	33.83	46.00	12.17	N	gnd
1.54843	28.64	46.00	17.36	N	gnd

N Line

Conducted Emission from 150 KHz to 30 MHz



Basic Rate-CH39

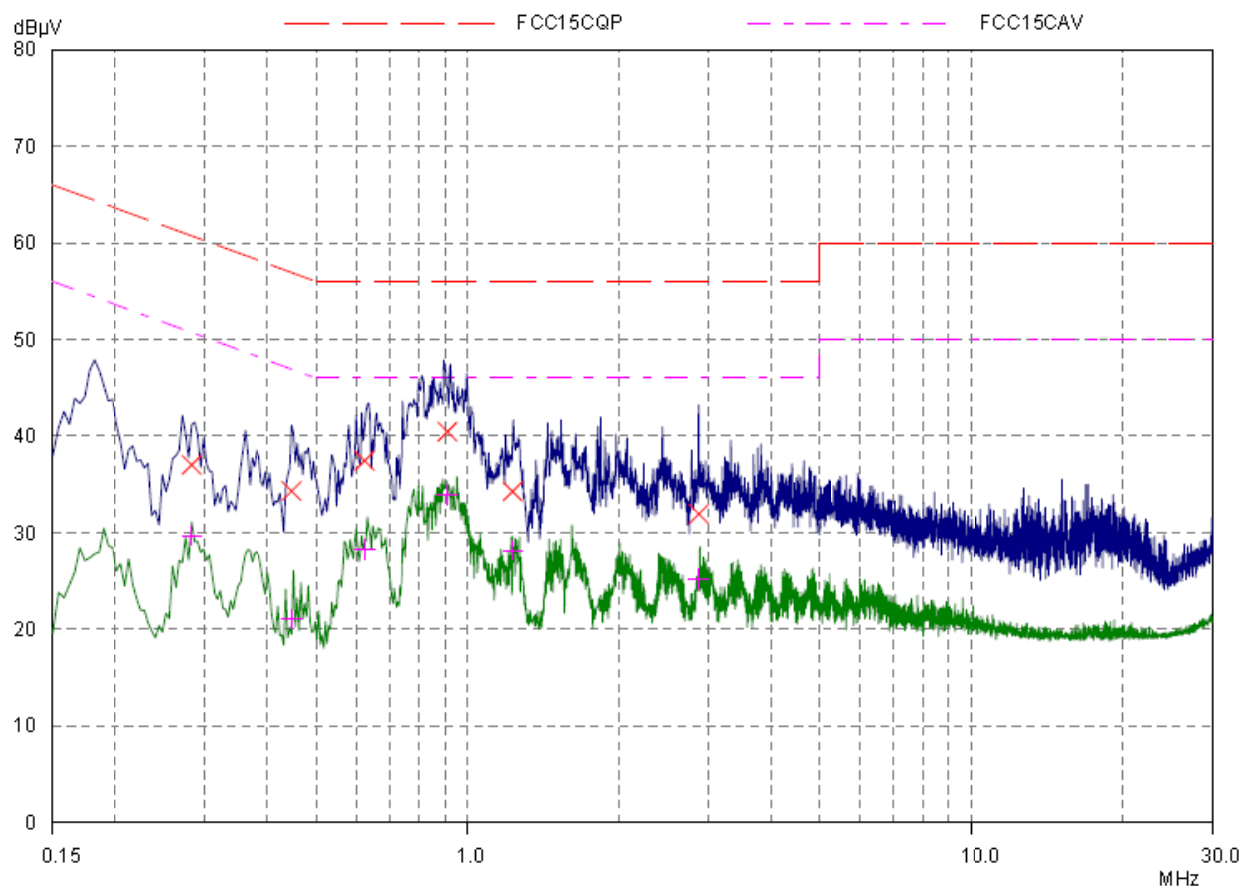


Final Measurement Results

Frequency MHz	QP Level dBμV	QP Limit dBμV	QP Delta dB	Phase -	PE -
0.36484	37.36	58.62	21.26	L1	gnd
0.56015	42.08	56.00	13.92	L1	gnd
0.8375	46.50	56.00	9.50	L1	gnd
1.11484	40.96	56.00	15.04	L1	gnd
1.75546	38.80	56.00	17.20	L1	gnd
2.69296	36.10	56.00	19.90	L1	gnd

Frequency MHz	AV Level dBμV	AV Limit dBμV	AV Delta dB	Phase -	PE -
0.36484	27.75	48.62	20.87	L1	gnd
0.56015	26.64	46.00	19.36	L1	gnd
0.8375	33.38	46.00	12.62	L1	gnd
1.11484	30.94	46.00	15.06	L1	gnd
1.75546	26.89	46.00	19.11	L1	gnd
2.69296	26.39	46.00	19.61	L1	gnd

L Line



Final Measurement Results

Frequency MHz	QP Level dBμV	QP Limit dBμV	QP Delta dB	Phase -	PE -
0.28281	37.02	60.73	23.71	N	gnd
0.44687	34.32	56.93	22.61	N	gnd
0.62265	37.44	56.00	18.56	N	gnd
0.91171	40.46	56.00	15.54	N	gnd
1.22421	34.26	56.00	21.74	N	gnd
2.87265	31.94	56.00	24.06	N	gnd

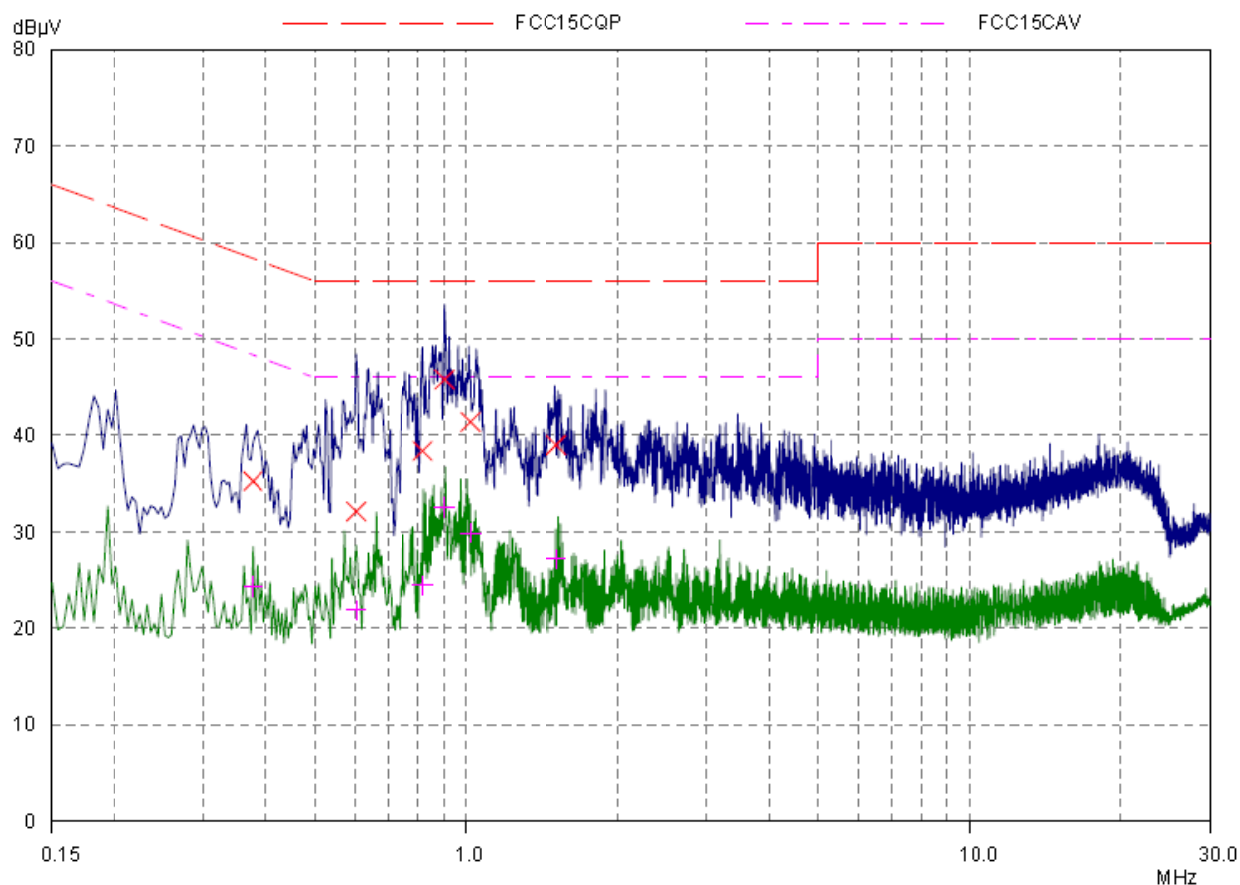
Frequency MHz	AV Level dBμV	AV Limit dBμV	AV Delta dB	Phase -	PE -
0.28281	29.71	50.73	21.02	N	gnd
0.44687	21.05	46.93	25.88	N	gnd
0.62265	28.29	46.00	17.71	N	gnd
0.91171	33.94	46.00	12.06	N	gnd
1.22421	28.18	46.00	17.82	N	gnd
2.87265	25.22	46.00	20.78	N	gnd

N Line

Conducted Emission from 150 KHz to 30 MHz



Basic Rate-CH78

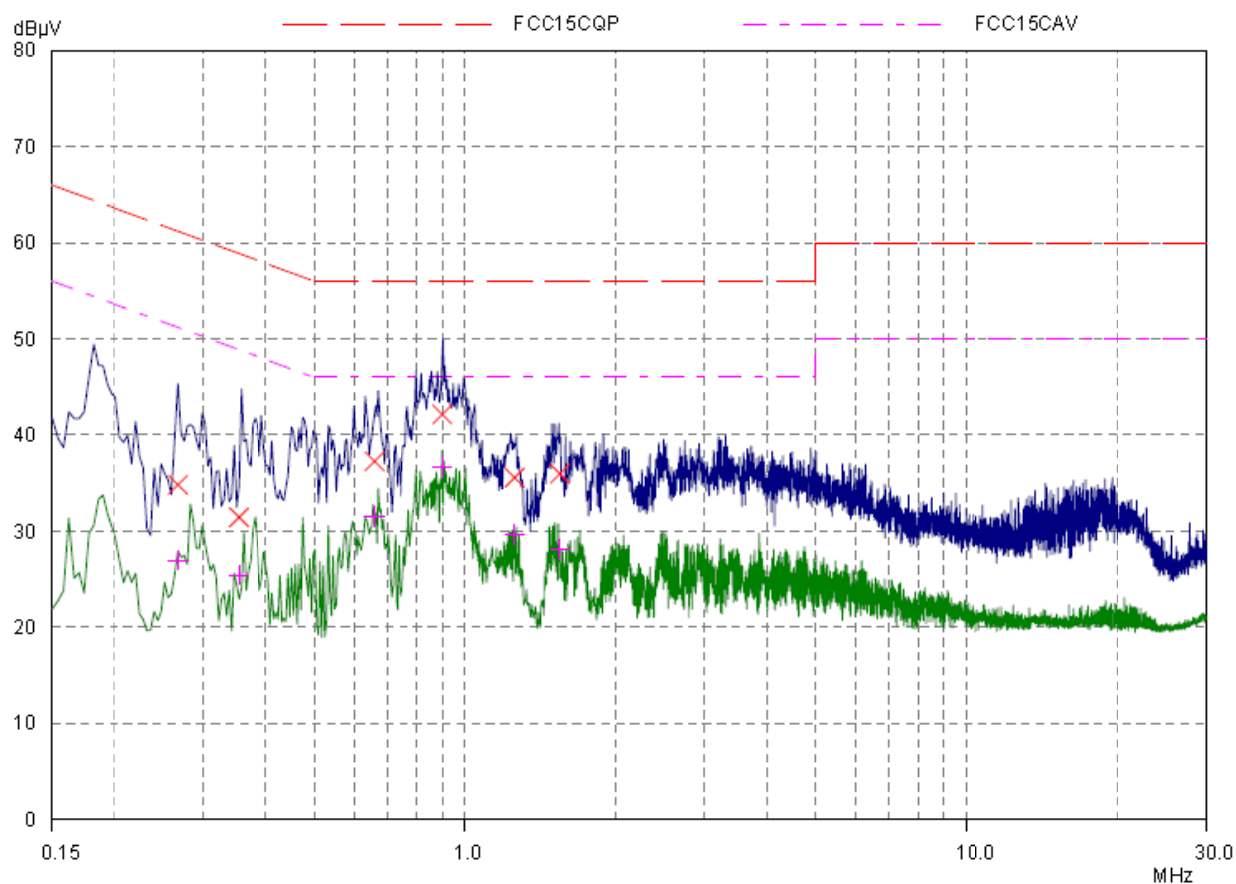


Final Measurement Results

Frequency MHz	QP Level dBμV	QP Limit dBμV	QP Delta dB	Phase -	PE -
0.37656	35.26	58.35	23.09	L1	gnd
0.60312	32.12	56.00	23.88	L1	gnd
0.81796	38.40	56.00	17.60	L1	gnd
0.9039	45.80	56.00	10.20	L1	gnd
1.01718	41.40	56.00	14.60	L1	gnd
1.50546	39.00	56.00	17.00	L1	gnd

Frequency MHz	AV Level dBμV	AV Limit dBμV	AV Delta dB	Phase -	PE -
0.37656	24.37	48.35	23.98	L1	gnd
0.60312	21.90	46.00	24.10	L1	gnd
0.81796	24.45	46.00	21.55	L1	gnd
0.9039	32.53	46.00	13.47	L1	gnd
1.01718	29.89	46.00	16.11	L1	gnd
1.50546	27.19	46.00	18.81	L1	gnd

L Line



Final Measurement Results

Frequency MHz	QP Level dBμV	QP Limit dBμV	QP Delta dB	Phase -	PE -
0.26718	34.82	61.21	26.39	N	gnd
0.35312	31.44	58.89	27.45	N	gnd
0.65781	37.24	56.00	18.76	N	gnd
0.9	42.14	56.00	13.86	N	gnd
1.25156	35.56	56.00	20.44	N	gnd
1.54843	35.96	56.00	20.04	N	gnd

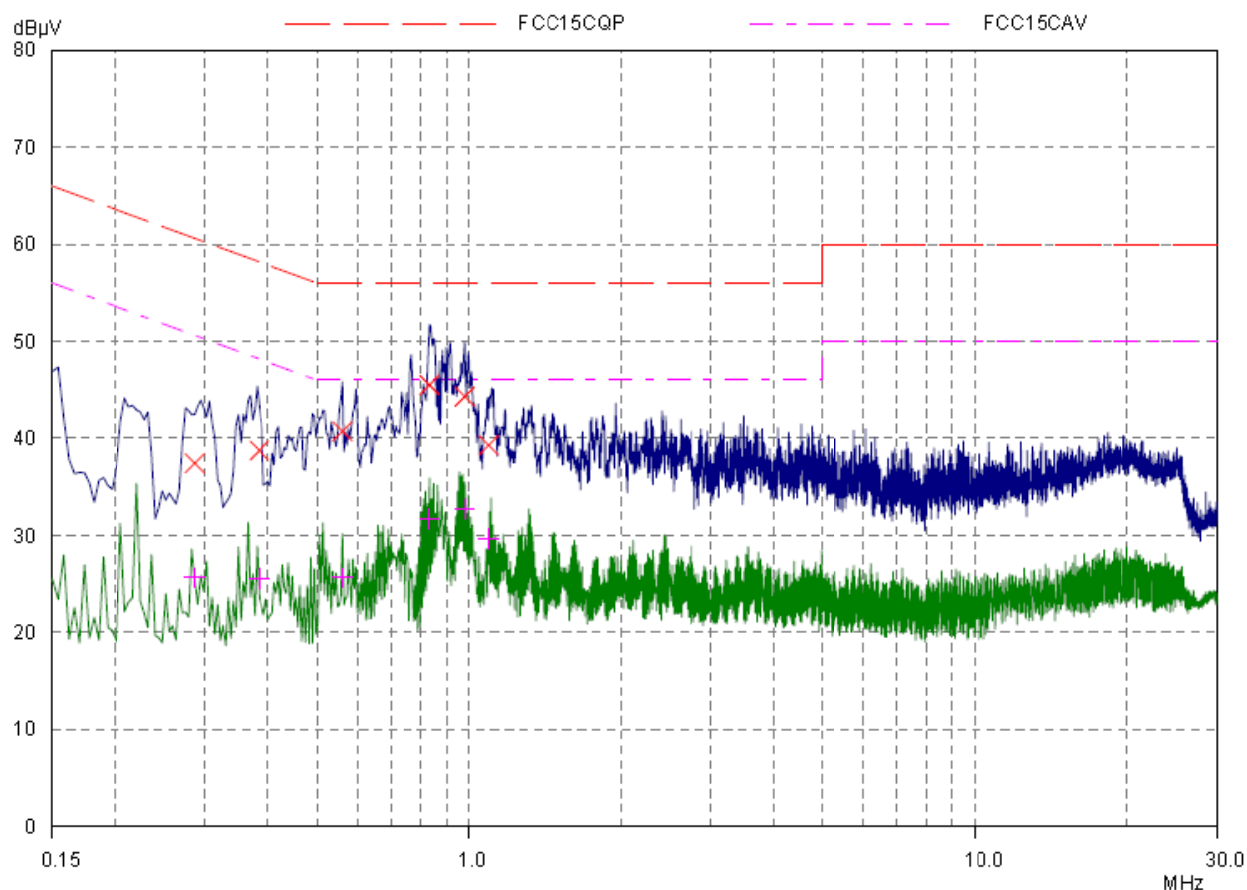
Frequency MHz	AV Level dBμV	AV Limit dBμV	AV Delta dB	Phase -	PE -
0.26718	26.95	51.21	24.26	N	gnd
0.35312	25.44	48.89	23.45	N	gnd
0.65781	31.53	46.00	14.47	N	gnd
0.9	36.65	46.00	9.35	N	gnd
1.25156	29.67	46.00	16.33	N	gnd
1.54843	28.13	46.00	17.87	N	gnd

N Line

Conducted Emission from 150 KHz to 30 MHz



EDR-CH0

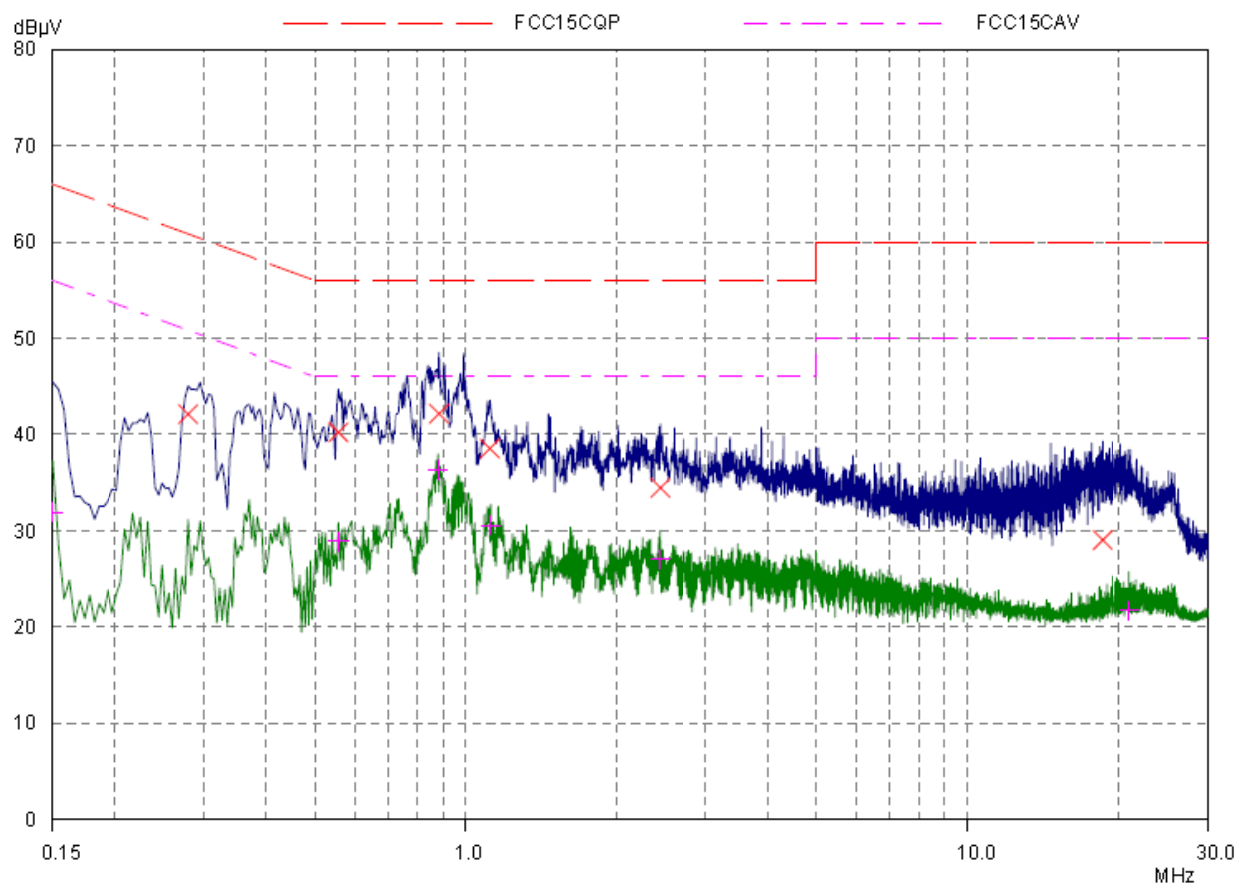


Final Measurement Results

Frequency MHz	QP Level dBμV	QP Limit dBμV	QP Delta dB	Phase -	PE -
0.28671	37.44	60.62	23.18	L1	gnd
0.38437	38.76	58.18	19.42	L1	gnd
0.56015	40.72	56.00	15.28	L1	gnd
0.83359	45.50	56.00	10.50	L1	gnd
0.97812	44.32	56.00	11.68	L1	gnd
1.0914	39.30	56.00	16.70	L1	gnd

Frequency MHz	AV Level dBμV	AV Limit dBμV	AV Delta dB	Phase -	PE -
0.28671	25.65	50.62	24.97	L1	gnd
0.38437	25.58	48.18	22.60	L1	gnd
0.56015	25.65	46.00	20.35	L1	gnd
0.83359	31.67	46.00	14.33	L1	gnd
0.97812	32.72	46.00	13.28	L1	gnd
1.0914	29.67	46.00	16.33	L1	gnd

L Line



Final Measurement Results

Frequency MHz	QP Level dBμV	QP Limit dBμV	QP Delta dB	Phase -	PE -
0.2789	42.12	60.85	18.73	L1	gnd
0.55625	40.24	56.00	15.76	L1	gnd
0.88437	42.16	56.00	13.84	L1	gnd
1.11484	38.54	56.00	17.46	L1	gnd
2.43906	34.46	56.00	21.54	L1	gnd
18.54062	29.04	60.00	30.96	L1	gnd

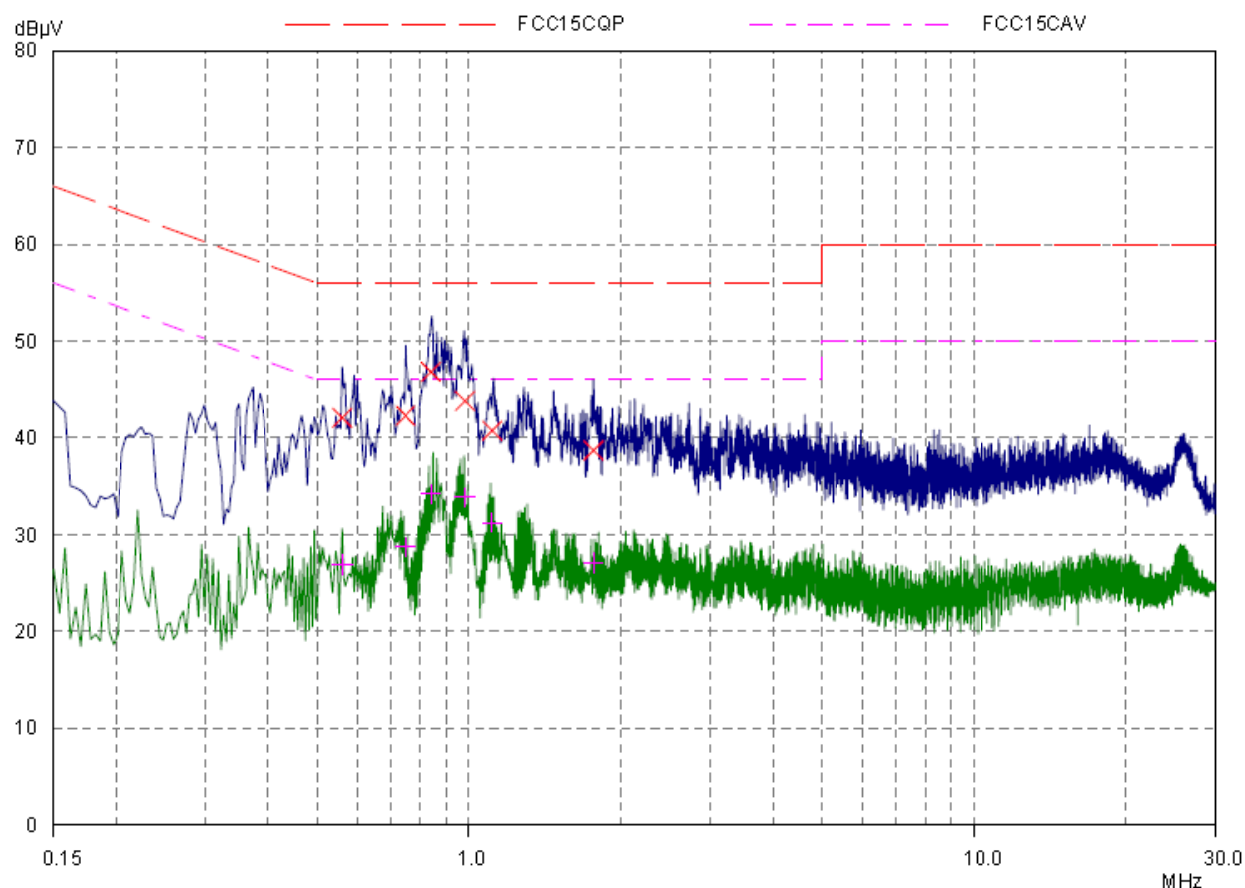
Frequency MHz	AV Level dBμV	AV Limit dBμV	AV Delta dB	Phase -	PE -
0.15	31.94	56.00	24.06	L1	gnd
0.55625	28.89	46.00	17.11	L1	gnd
0.88046	36.33	46.00	9.67	L1	gnd
1.11875	30.55	46.00	15.45	L1	gnd
2.43515	27.01	46.00	18.99	L1	gnd
20.97812	21.72	50.00	28.28	L1	gnd

N Line

Conducted Emission from 150 KHz to 30 MHz



EDR-CH39

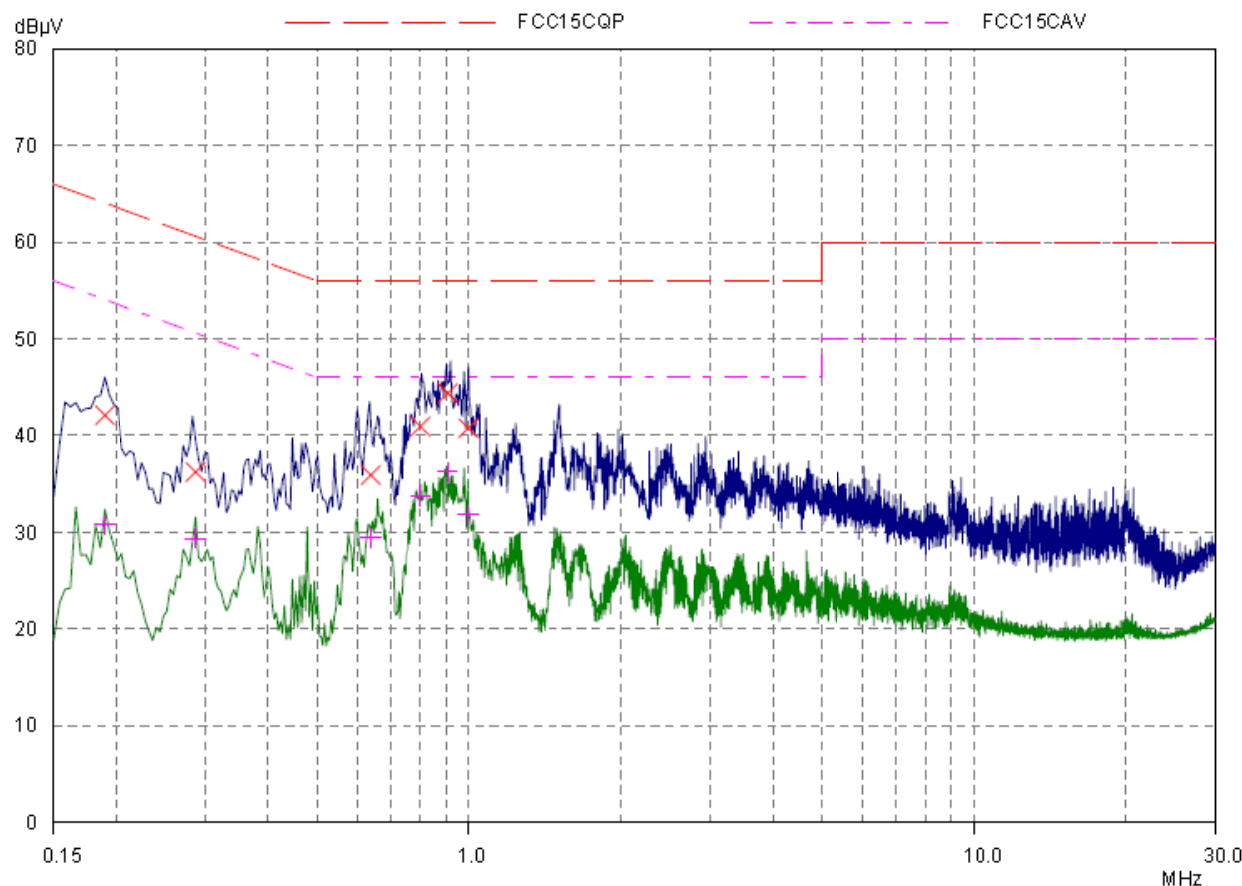


Final Measurement Results

Frequency MHz	QP Level dBμV	QP Limit dBμV	QP Delta dB	Phase -	PE -
0.56015	42.08	56.00	13.92	L1	gnd
0.74765	42.30	56.00	13.70	L1	gnd
0.8414	46.82	56.00	9.18	L1	gnd
0.98203	43.82	56.00	12.18	L1	gnd
1.11093	40.76	56.00	15.24	L1	gnd
1.76328	38.70	56.00	17.30	L1	gnd

Frequency MHz	AV Level dBμV	AV Limit dBμV	AV Delta dB	Phase -	PE -
0.56015	26.89	46.00	19.11	L1	gnd
0.74765	28.74	46.00	17.26	L1	gnd
0.8414	34.20	46.00	11.80	L1	gnd
0.98203	33.88	46.00	12.12	L1	gnd
1.11093	31.24	46.00	14.76	L1	gnd
1.76328	27.07	46.00	18.93	L1	gnd

L Line



Final Measurement Results

Frequency MHz	QP Level dBμV	QP Limit dBμV	QP Delta dB	Phase -	PE -
0.18906	42.10	64.08	21.98	N	gnd
0.28671	36.22	60.62	24.40	N	gnd
0.63828	35.92	56.00	20.08	N	gnd
0.80234	40.94	56.00	15.06	N	gnd
0.90781	44.40	56.00	11.60	N	gnd
0.99765	40.76	56.00	15.24	N	gnd

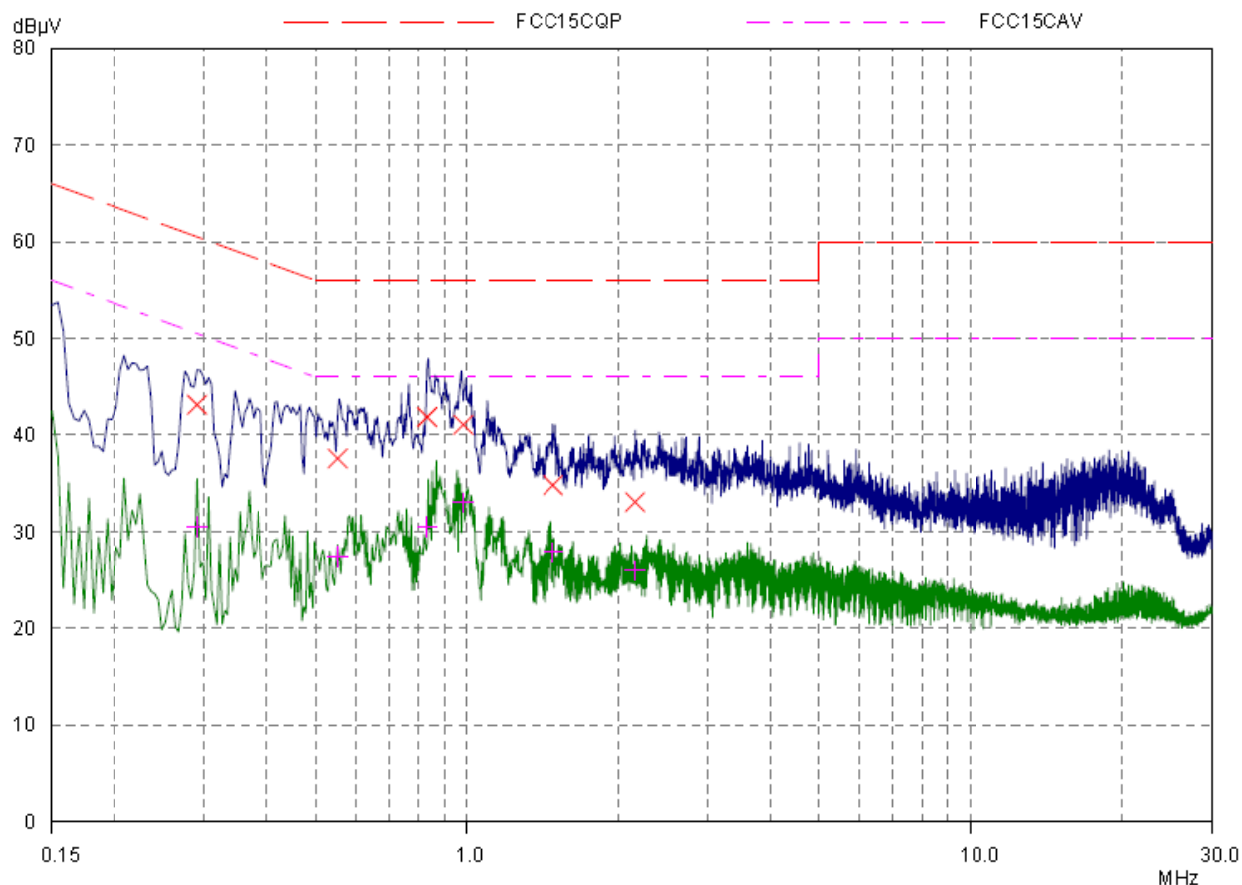
Frequency MHz	AV Level dBμV	AV Limit dBμV	AV Delta dB	Phase -	PE -
0.18906	30.78	54.08	23.30	N	gnd
0.28671	29.36	50.62	21.26	N	gnd
0.63828	29.40	46.00	16.60	N	gnd
0.80234	33.77	46.00	12.23	N	gnd
0.90781	36.24	46.00	9.76	N	gnd
0.99765	31.81	46.00	14.19	N	gnd

N Line

Conducted Emission from 150 KHz to 30 MHz



EDR-CH78

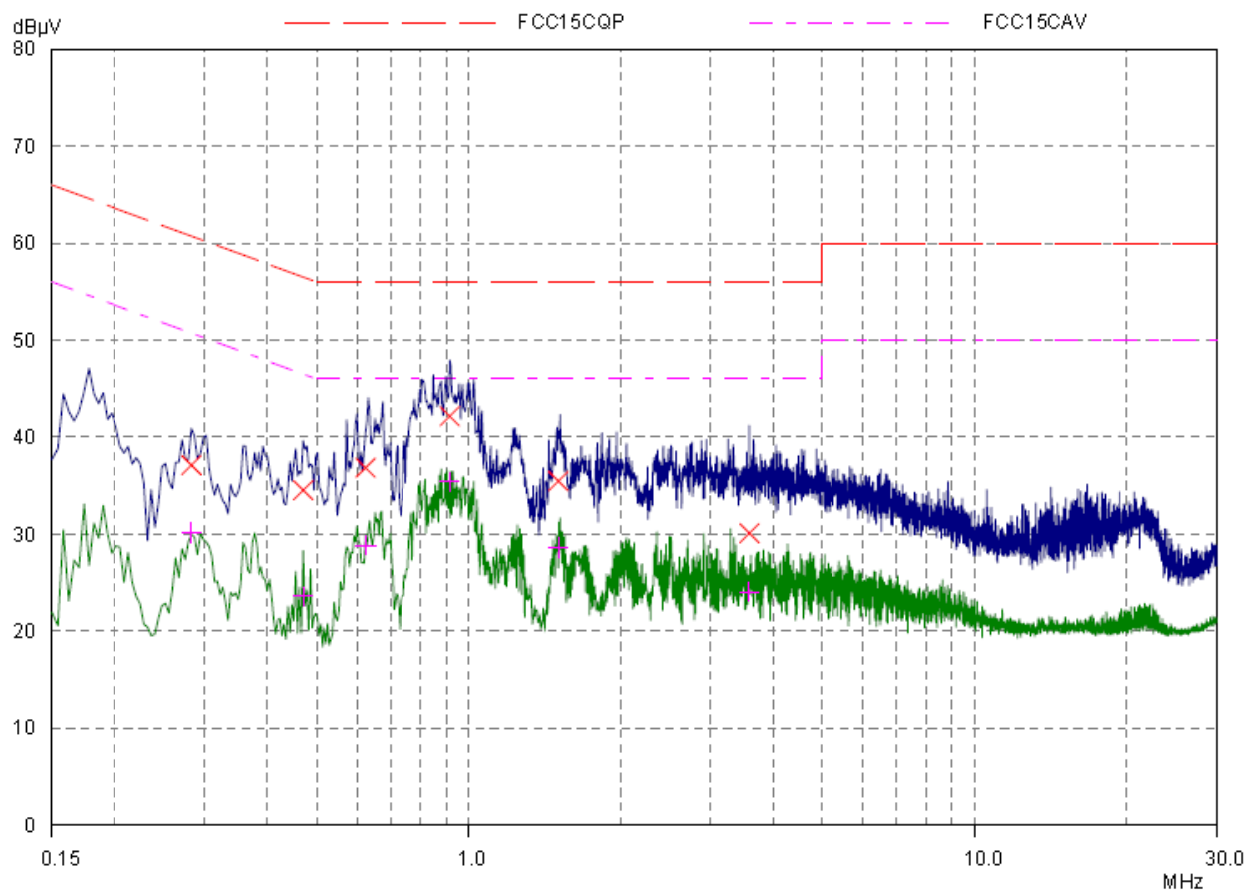


Final Measurement Results

Frequency MHz	QP Level dBμV	QP Limit dBμV	QP Delta dB	Phase -	PE -
0.29062	43.14	60.51	17.37	L1	gnd
0.55234	37.58	56.00	18.42	L1	gnd
0.83359	41.86	56.00	14.14	L1	gnd
0.98203	41.06	56.00	14.94	L1	gnd
1.47812	34.82	56.00	21.18	L1	gnd
2.1539	33.06	56.00	22.94	L1	gnd

Frequency MHz	AV Level dBμV	AV Limit dBμV	AV Delta dB	Phase -	PE -
0.29062	30.47	50.51	20.04	L1	gnd
0.55234	27.47	46.00	18.53	L1	gnd
0.83359	30.47	46.00	15.53	L1	gnd
0.98203	33.03	46.00	12.97	L1	gnd
1.47812	27.86	46.00	18.14	L1	gnd
2.1539	25.99	46.00	20.01	L1	gnd

L Line



Final Measurement Results

Frequency MHz	QP Level dBμV	QP Limit dBμV	QP Delta dB	Phase -	PE -
0.28281	37.12	60.73	23.61	N	gnd
0.47031	34.54	56.51	21.97	N	gnd
0.62265	36.84	56.00	19.16	N	gnd
0.91562	42.16	56.00	13.84	N	gnd
1.50546	35.48	56.00	20.52	N	gnd
3.58359	30.10	56.00	25.90	N	gnd

Frequency MHz	AV Level dBμV	AV Limit dBμV	AV Delta dB	Phase -	PE -
0.28281	30.14	50.73	20.59	N	gnd
0.47031	23.61	46.51	22.90	N	gnd
0.62265	28.84	46.00	17.16	N	gnd
0.91562	35.38	46.00	10.62	N	gnd
1.50546	28.64	46.00	17.36	N	gnd
3.58359	24.04	46.00	21.96	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
Loop Antenna	FMZB1519	SCHWARZBECK	1519-047	2014-02-29	2017-02-28
EMI Test Receiver	ESCS30	R&S	100138	2014-12-17	2015-12-16
LISN	ENV216	R&S	101171	2014-12-17	2015-12-16
EMI Test Receiver	ESCI	R&S	100948	2015-05-25	2016-05-24
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
Power Splitter	SHX-GF2-2-13	Hua Xiang	10120101	NA	NA
Spectrum Analyzer	FSV30	R&S	100815	2014-12-17	2015-12-16
Spectrum Analyzer	N9010A	Agilent	MY47191109	2015-05-22	2016-05-21
Standard Gain Horn	3160-09	ETS-Lindgren	00102644	2015-05-19	2018-05-18
RF Cable	SMA 15cm	Agilent	0001	2015-11-09	2016-01-08

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

ANNEX A: EUT Appearance and Test Setup

A.1 EUT Appearance



Front Side



Back Side
a: EUT



b: Battery
Picture 1 EUT

A.2 Test Setup



Below 1GHz



Above 1GHz

Picture 2 Radiated Emission Test Setup



Picture 3 Conducted Emission Test Setup