



Part 15C

TEST REPORT

Product Name	CDMA/LTE smartphone
Model	M931
FCC ID	QISM931
Client	Huawei Technologies Co., Ltd.

TA Technology (Shanghai) Co., Ltd.

TA Technology (Shanghai) Co., Ltd.
Test Report

Report No.: RHA1209-0083RF04R2

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GENERAL SUMMARY

Product Name	CDMA/LTE smartphone	Model	M931
FCC ID	QISM931		
Report No.	RHA1209-0083RF04R2		
Client	Huawei Technologies Co., Ltd.		
Manufacturer	Huawei Technologies Co., Ltd.		
Reference Standard(s)	<p>FCC CFR47 Part 15C (2010-12) Radio Frequency Devices 15.205 Restricted bands of operation; 15.207 Conducted limits; 15.209 Radiated emission limits; general requirements; 15.247 Operation within the bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850MHz.</p> <p>ANSI C63.4 Methods of Measurement of Radio-Noise Emission from Low-Voltage Electrical and Electronic Equipment in the Range of 9 KHz to 40GHz. (2009)</p> <p>DA00-705 Filing and Frequency Measurement Guidelines For Frequency Hopping Spread Spectrum System.(2000)</p>		
Conclusion	<p>This portable wireless equipment has been measured in all cases requested by the relevant standards. Test results in Chapter 2 of this test report are below limits specified in the relevant standards.</p> <p>General Judgment: Pass</p> <p style="text-align: right;">(Stamp) Date of issue: October 17th, 2012</p>		
Comment	The test result only responds to the measured sample.		

Approved by 初伟中
Director

Revised by 徐凯
RF Manager

Performed by 王峰
RF Engineer

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TA Technology (Shanghai) Co., Ltd. Test Report

1. General Information

1.1. Notes of the test report

TA Technology (Shanghai) Co., Ltd. guarantees the reliability of the data presented in this test report, which is the results of measurements and tests performed for the items under test on the date and under the conditions stated in this test report and is based on the knowledge and technical facilities available at TA Technology (Shanghai) Co., Ltd. at the time of execution of the test.

TA Technology (Shanghai) Co., Ltd. is liable to the client for the maintenance by its personnel of the confidentiality of all information related to the items under test and the results of the test. This report only refers to the item that has undergone the test.

This report standalone dose not constitute or imply by its own an approval of the product by the certification Bodies or competent Authorities. This report cannot be used partially or in full for publicity and/or promotional purposes without previous written approval of **TA Technology (Shanghai) Co., Ltd.** and the Accreditation Bodies, if it applies.

TA Technology (Shanghai) Co., Ltd. has obtained the accreditation of China National Accreditation Service for Conformity Assessment (CNAS), and accreditation number: L2264.

TA Technology (Shanghai) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements. The site recognition number is 428261.

TA Technology (Shanghai) Co., Ltd. has been listed by industry Canada to perform electromagnetic emission measurement. The site recognition number is 8510A.

If the electrical report is inconsistent with the printed one, it should be subject to the latter.

1.2. Testing laboratory

Company: TA Technology (Shanghai) Co., Ltd.
Address: No.145, Jintang Rd, Tangzhen Industry Park, Pudong
City: Shanghai
Post code: 201201
Country: P. R. China

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Contact: Yang Weizhong
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Website: <http://www.ta-shanghai.com>
E-mail: yangweizhong@ta-shanghai.com

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1.3. Applicant Information

Company: Huawei Technologies Co., Ltd.
Address: Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian,
Longgang District
City: Shenzhen
Postal Code: 518129
Country: P.R. China

1.4. Manufacturer Information

Company: Huawei Technologies Co., Ltd.
Address: Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian,
Longgang District
City: Shenzhen
Postal Code: 518129
Country: P.R.China

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1.5. Information of EUT

General information

Name of EUT:	CDMA/LTE smartphone		
IMEI:	99000135008222		
Hardware Version:	Ver.D		
Software Version:	M931V100R001C177B107		
Antenna Type:	Internal Antenna		
Device Operating Configurations:			
Mode	Basic Rate	Enhanced Data Rate(EDR)	
Modulation Type:	Frequency Hopping Spread Spectrum (FHSS)		
	GFSK	$\pi/4$ DQPSK	8DQPSK
Packet Type:(Maximum Payload)	DH1	2DH1	3DH1
	DH3	2DH3	3DH3
	DH5	2DH5	3DH5
Max. Conducted Power	9.53 dBm		
Power Supply:	Battery or Adapter		
Rated Power Supply Voltage:	3.8V		
Extreme Voltage:	Minimum: 3.5V Maximum: 4.2V		
Extreme Temperature:	Lowest: -10°C Highest: +55°C		
Operating Frequency Range(s)	2400 ~ 2483.5 MHz		

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Auxiliary equipment details

AE1: Battery 1

Model: HB5N1HA
Manufacturer: Huawei Technologies Co., Ltd.
S/N: UWDC320XBGN1407

AE2: Battery 2

Model: HB5N1HA
Manufacturer: Huawei Technologies Co., Ltd.
S/N: MAIC702X03600810

AE2: Adapter 1

Model: HW-050100U1W
Manufacturer: Huawei Technologies Co., Ltd.
S/N: TPAC41985003

AE3: Adapter 2

Model: HW-050100U1W
Manufacturer: Huawei Technologies Co., Ltd.
S/N: HKAB829B329

Equipment Under Test (EUT) is CDMA/LTE smartphone with internal antenna. The EUT supports Bluetooth.

The sample under test was selected by the Client.

Components list please refer to documents of the manufacturer.

1.6. Test Date

The test performed from September 19, 2012 to September 20, 2012.

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2. Test Information

2.1. Summary of test 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

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2.2. Peak Power Output –Conducted

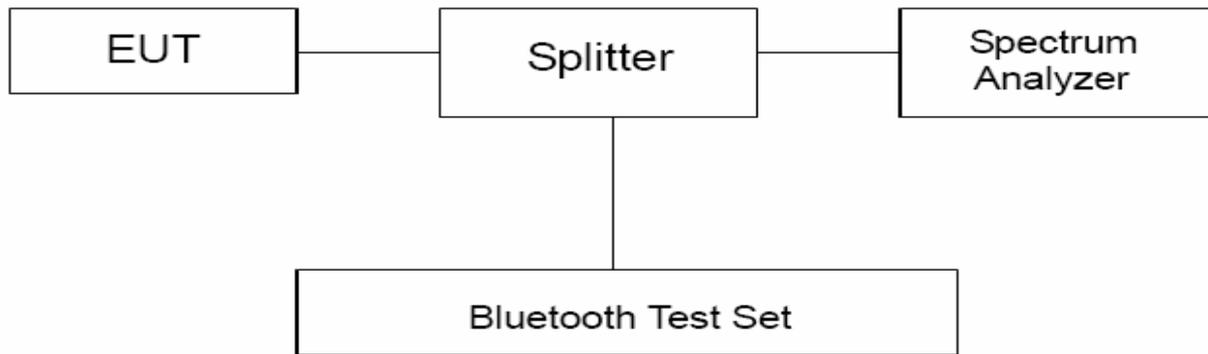
Ambient condition

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 2MHz, VBW is set to 6MHz. 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)
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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.

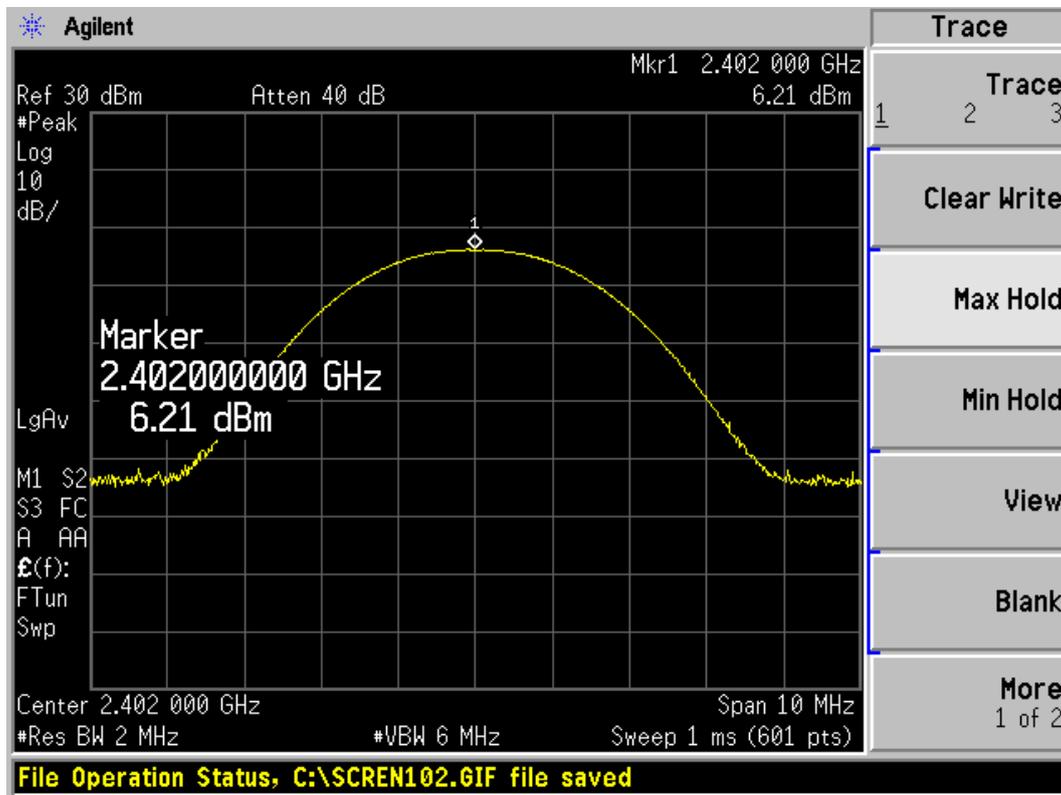
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Test Results

Channel	Frequency (MHz)	Peak Output Power (dBm)			Conclusion
		DH5	2DH5	3DH5	
0	2402	6.21	5.97	6.56	PASS
39	2441	7.66	8.37	8.34	PASS
78	2480	9.18	8.67	7.79	PASS

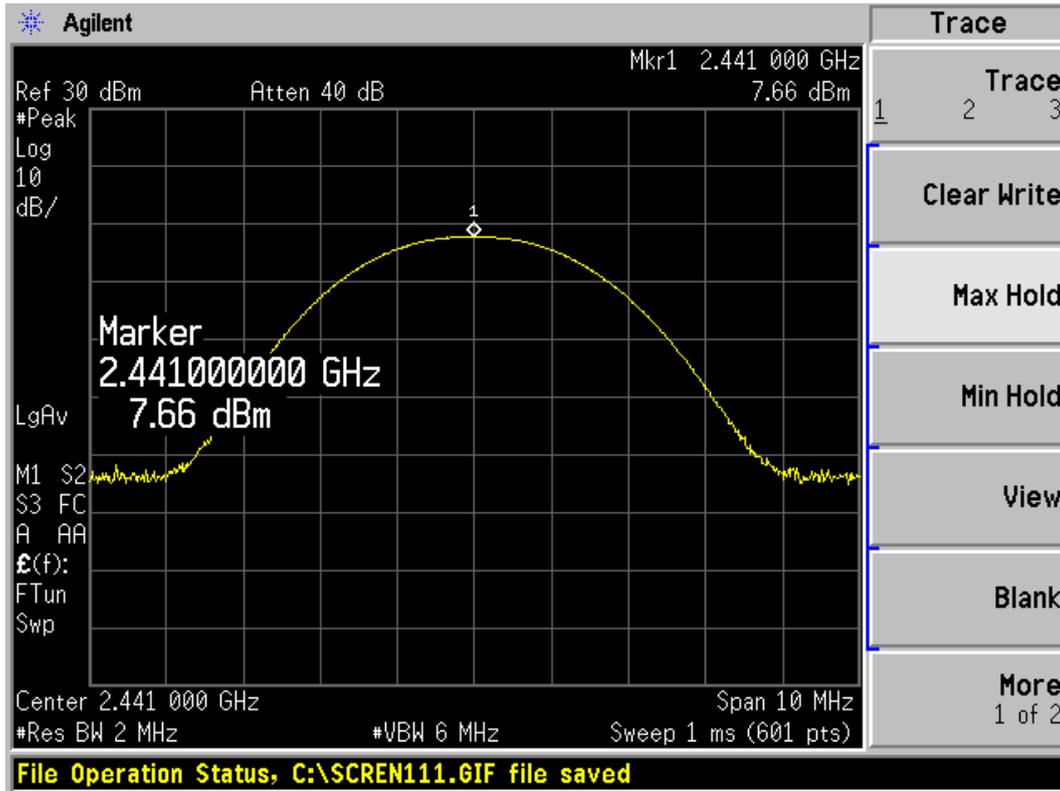


DH5 Carrier frequency (MHz): 2402
Channel No.:0

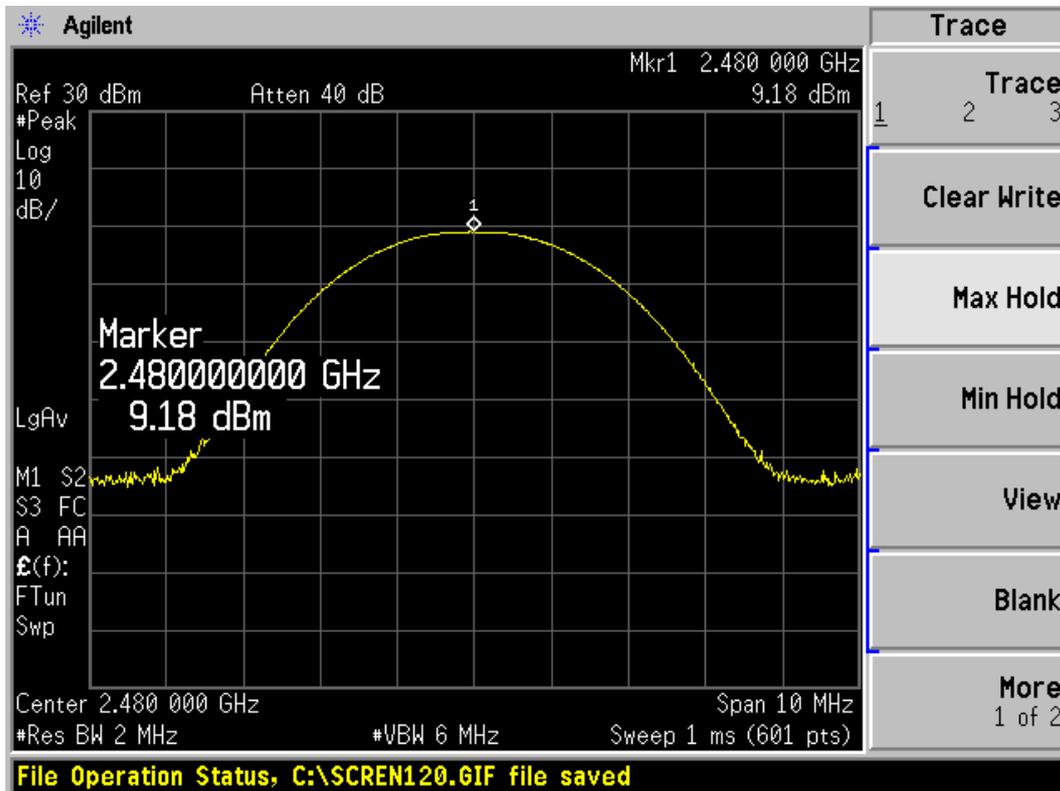
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DH5 Carrier frequency (MHz): 2441
Channel No.:39

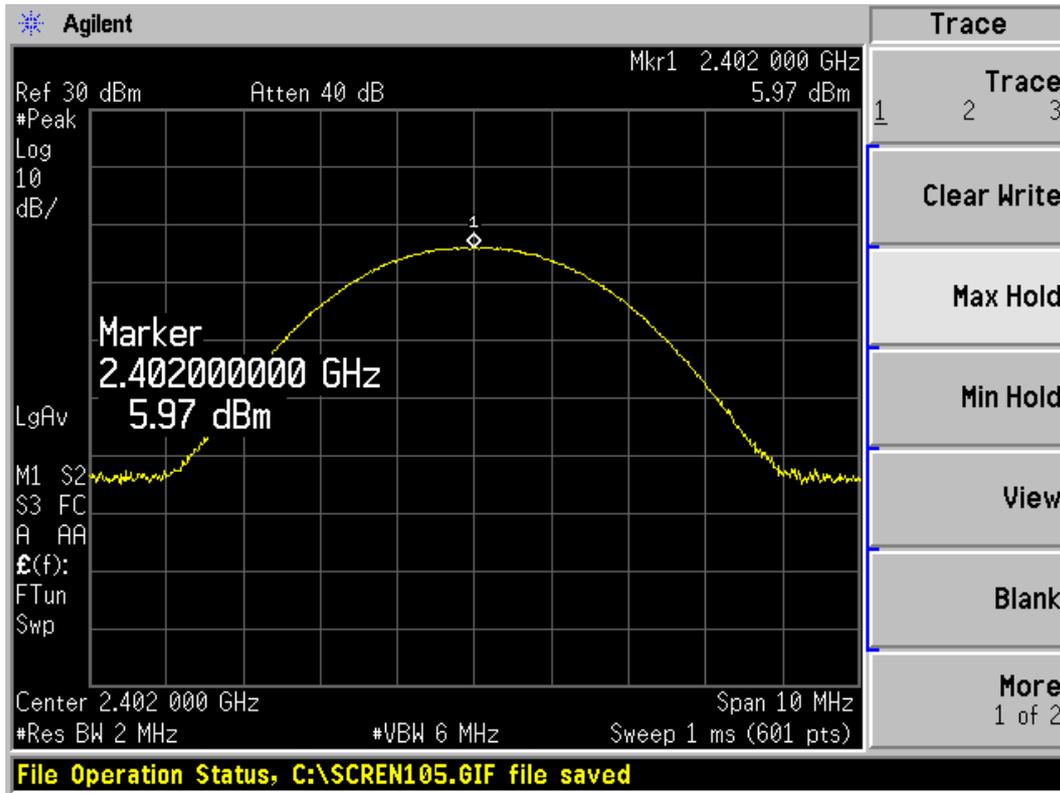


DH5 Carrier frequency (MHz): 2480
Channel No.:78

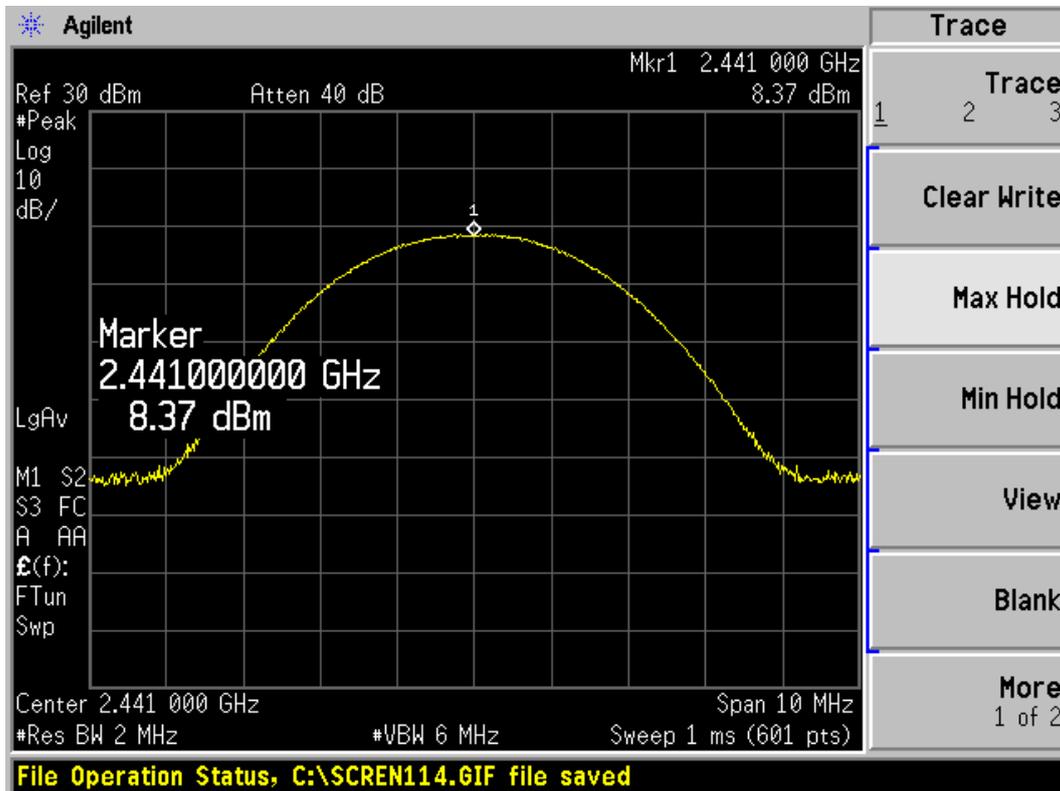
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2DH5 Carrier frequency (MHz): 2402
Channel No.:0

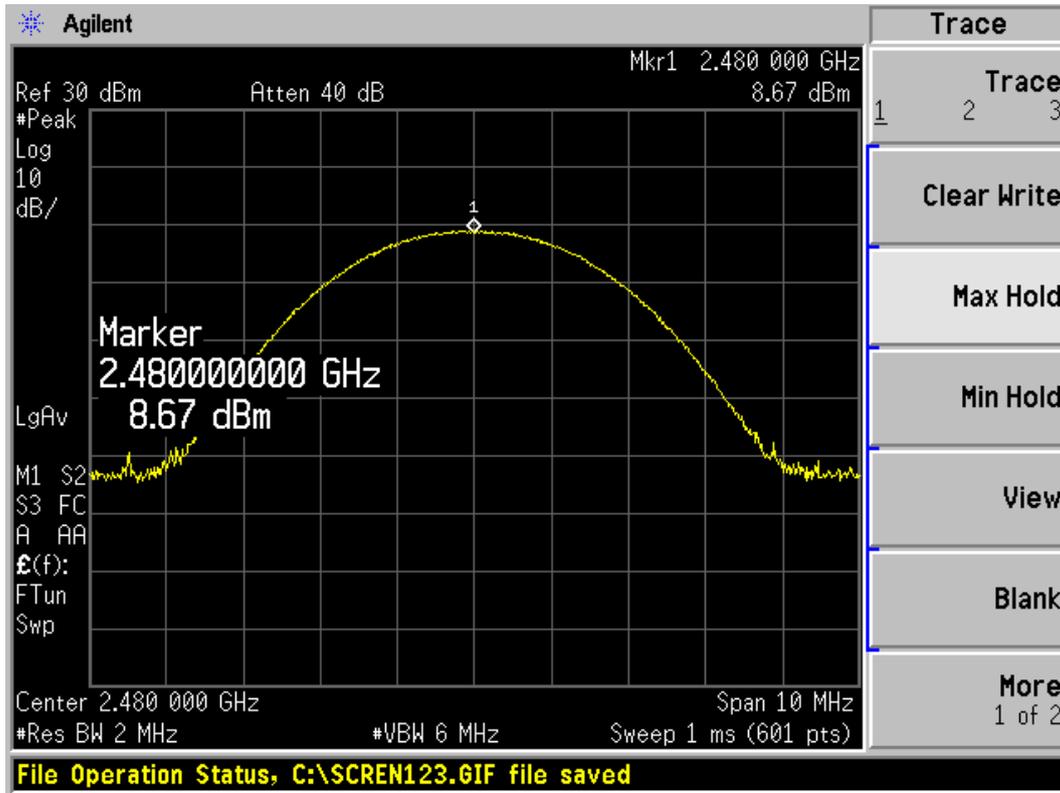


2DH5 Carrier frequency (MHz): 2441
Channel No.:39

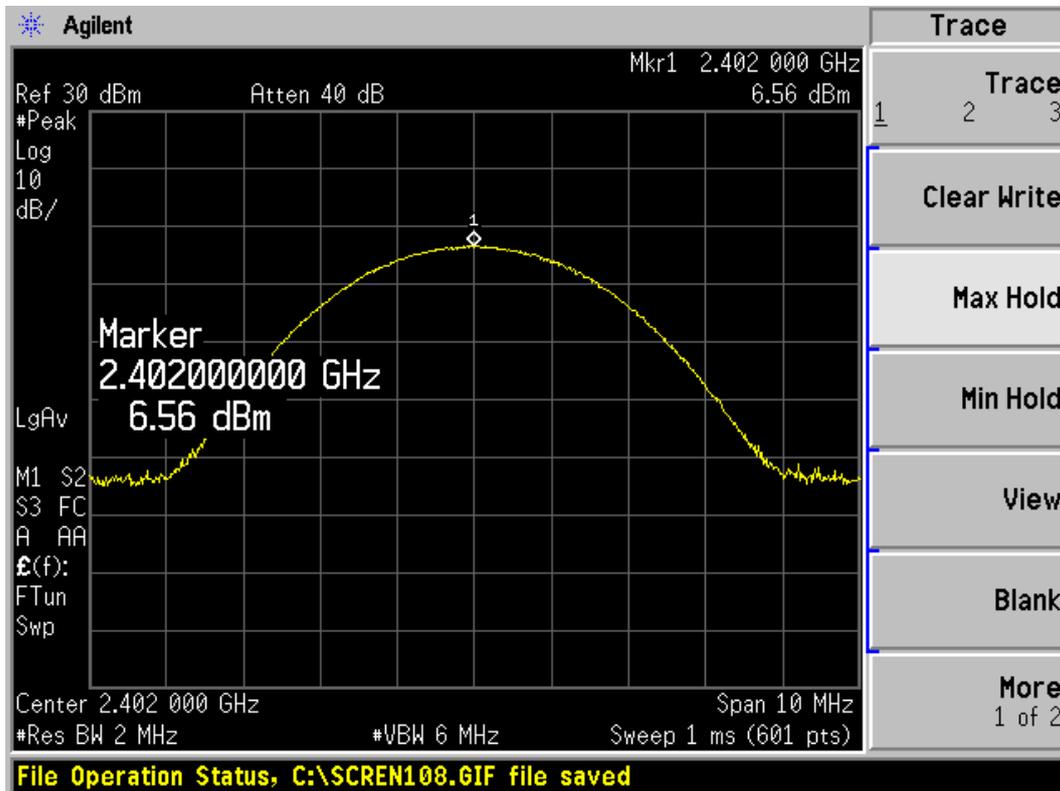
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2DH5 Carrier frequency (MHz): 2480
Channel No.:78

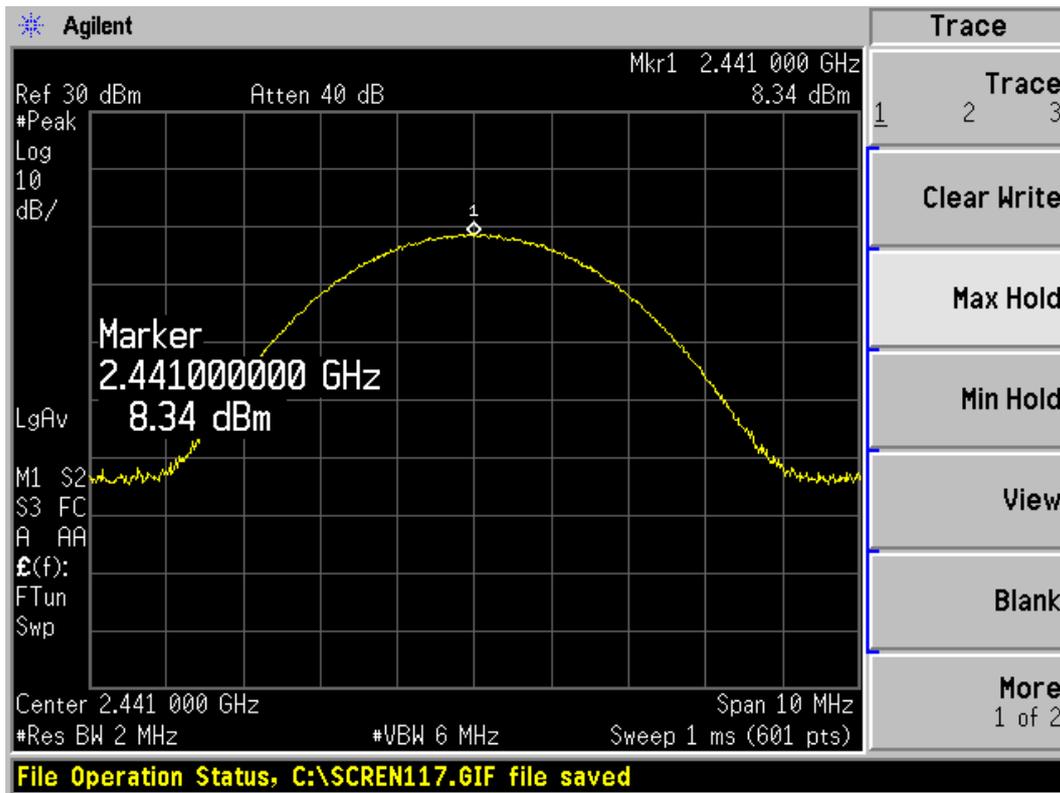


3DH5 Carrier frequency (MHz): 2402
Channel No.:0

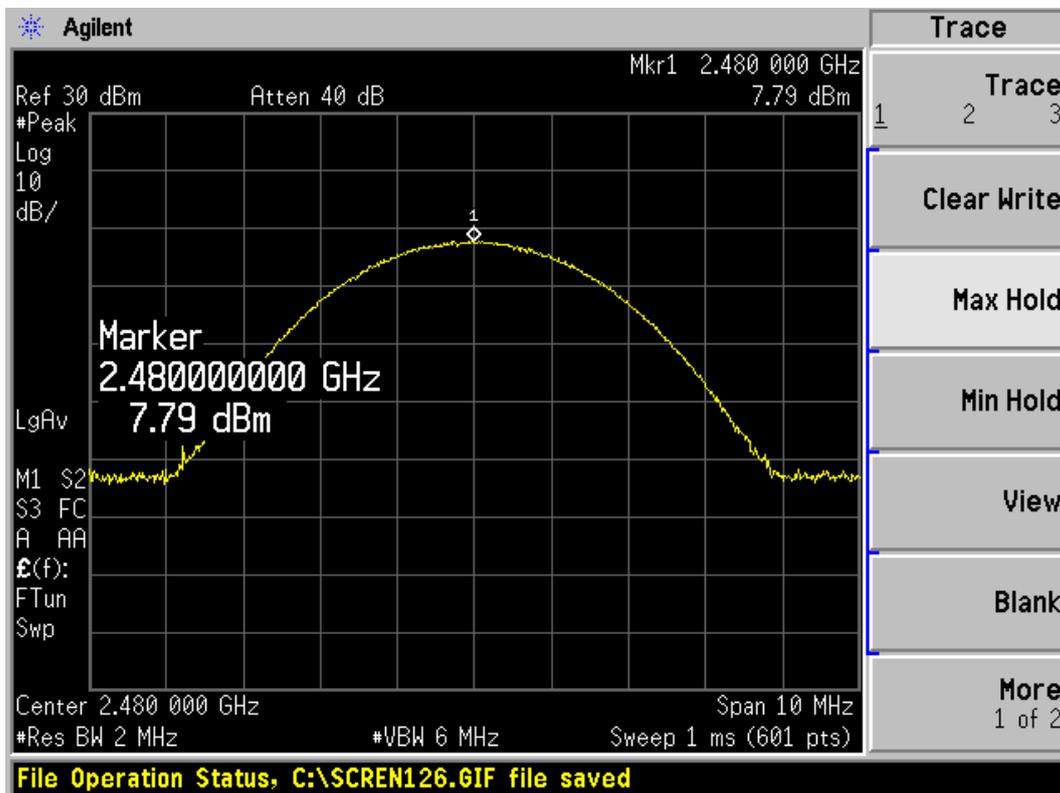
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3DH5 Carrier frequency (MHz): 2441
Channel No.:39



3DH5 Carrier frequency (MHz): 2480
Channel No.:78

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2.3. Occupied Bandwidth (20dB)

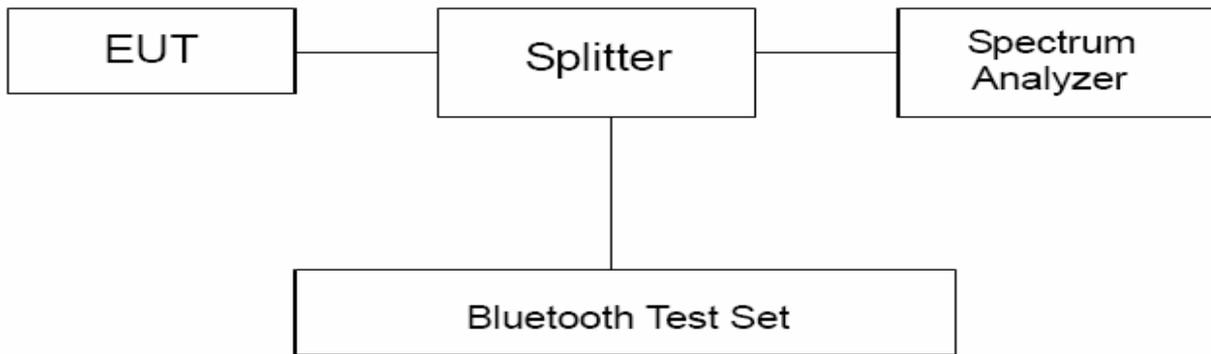
Ambient condition

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 10kHz and VBW is set to 30kHz 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.

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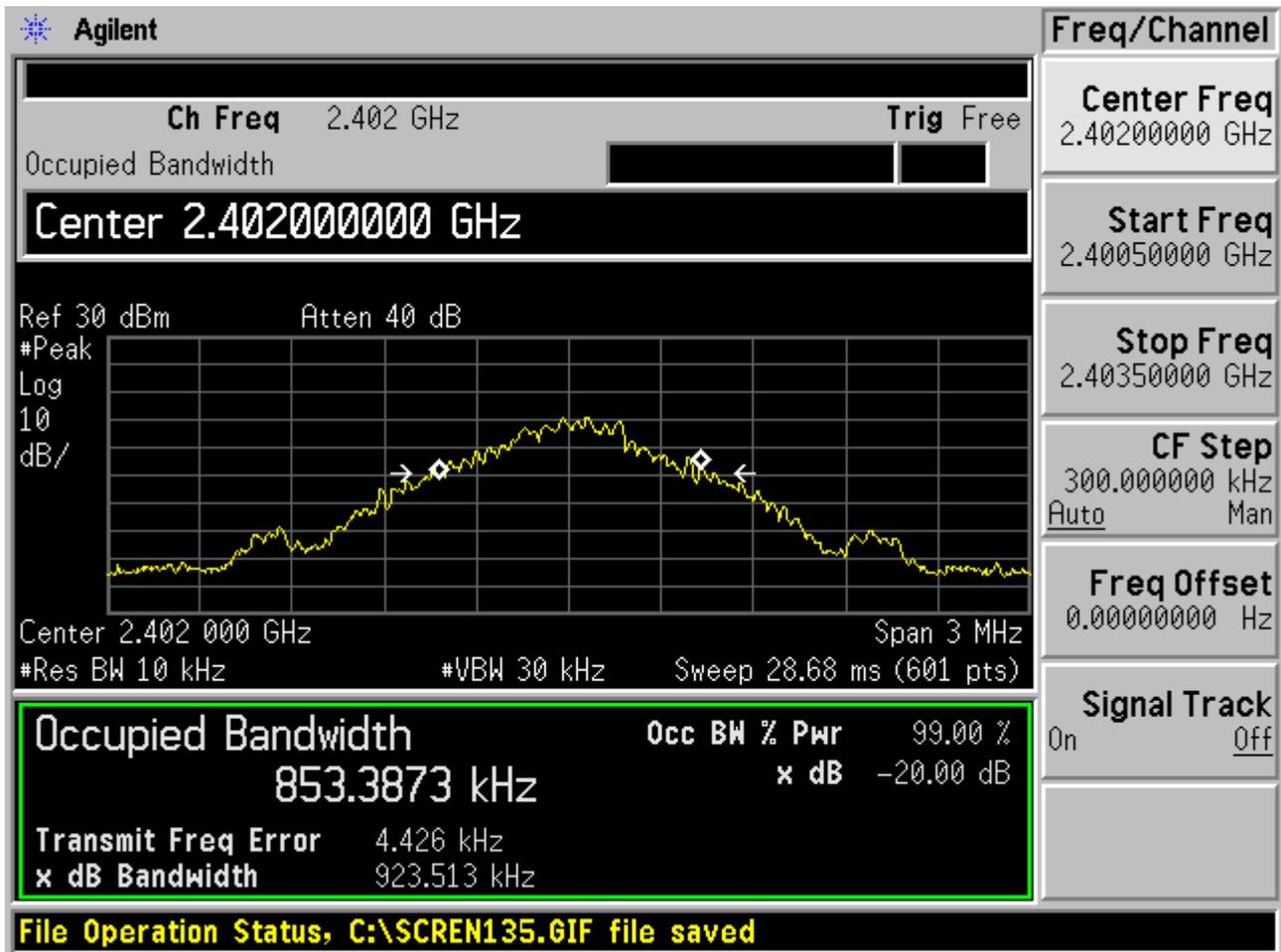
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Test Results

DH5

Channel	Frequency (MHz)	20dB Bandwidth (kHz)
0	2402	923.513
39	2441	920.439
78	2480	922.647



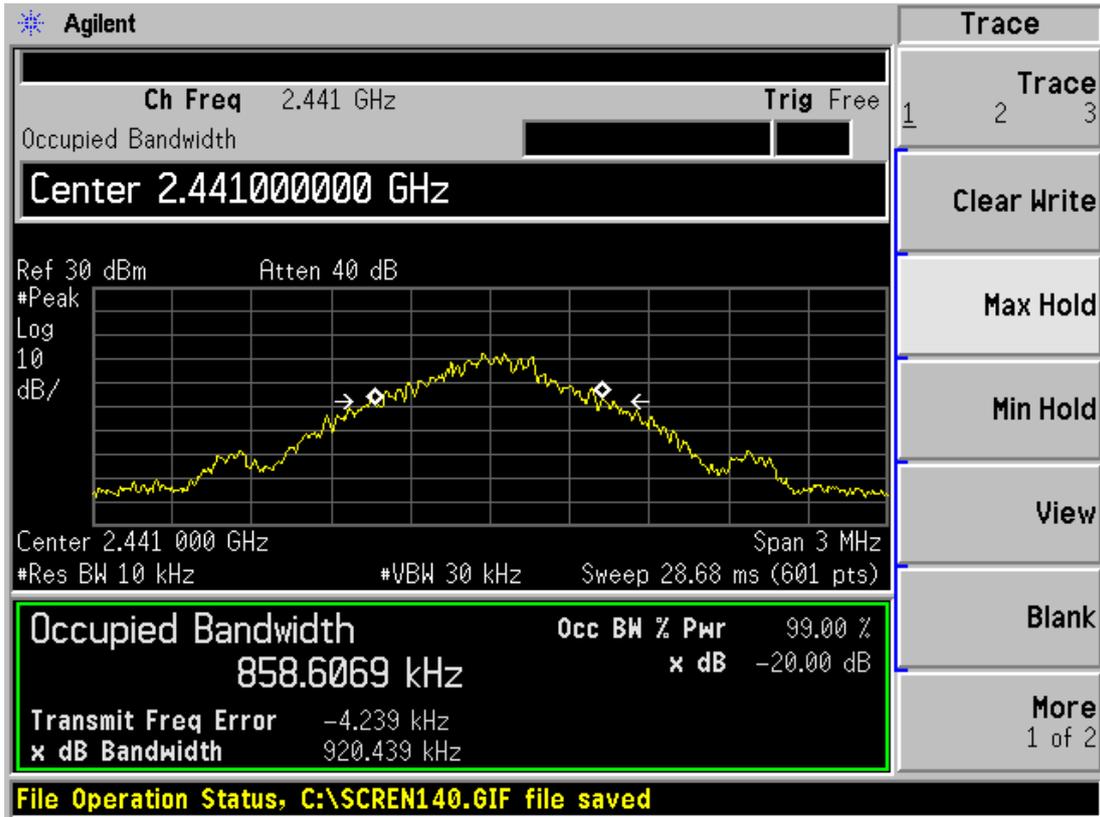
Carrier frequency (MHz): 2402

Channel No.:0

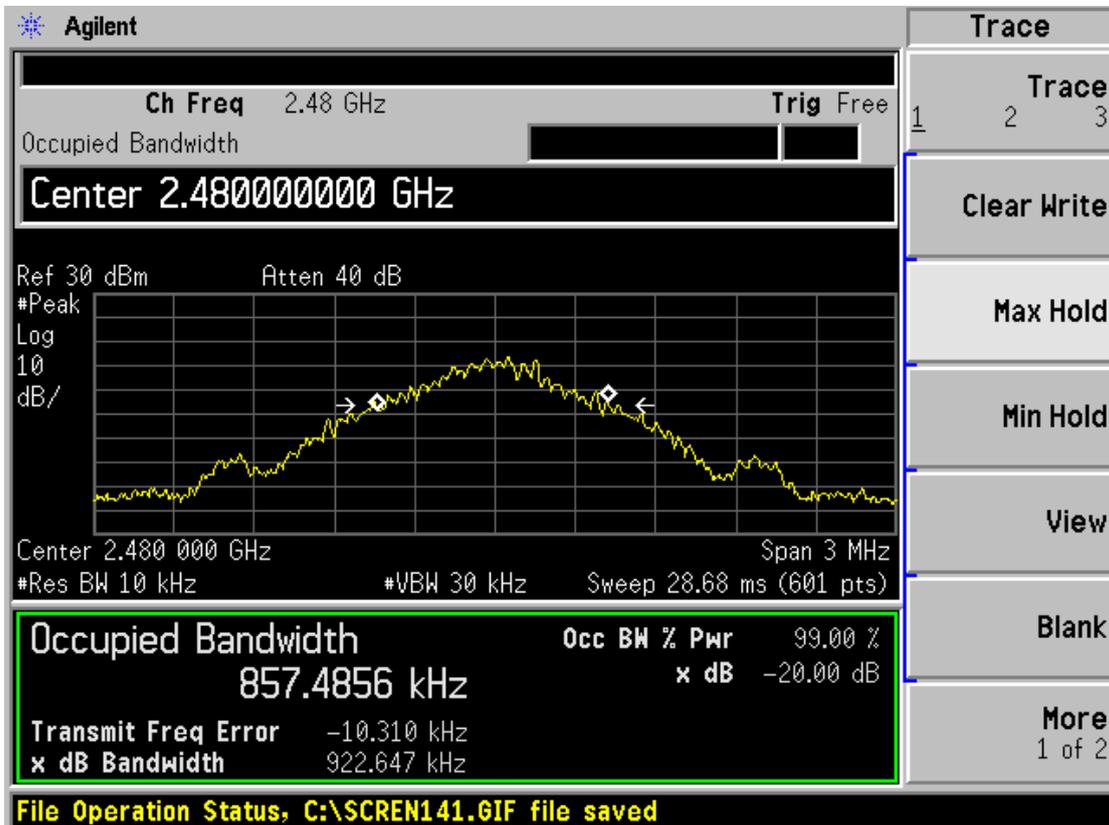
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Carrier frequency (MHz): 2441
Channel No.:39



Carrier frequency (MHz): 2480
Channel No.:78

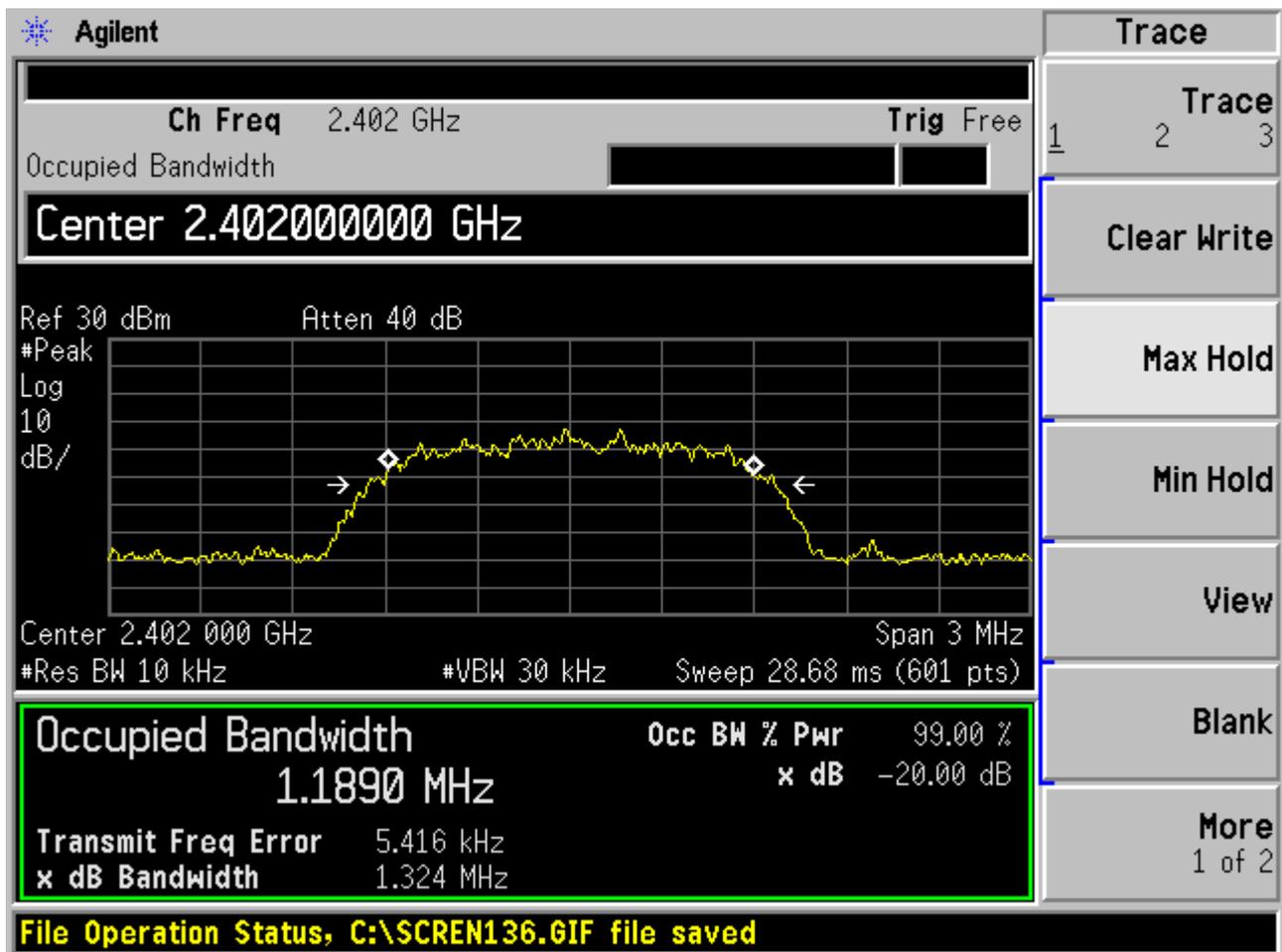
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2DH5

Channel	Frequency (MHz)	20dB Bandwidth (kHz)
0	2402	1324.000
39	2441	1325.000
78	2480	1325.000



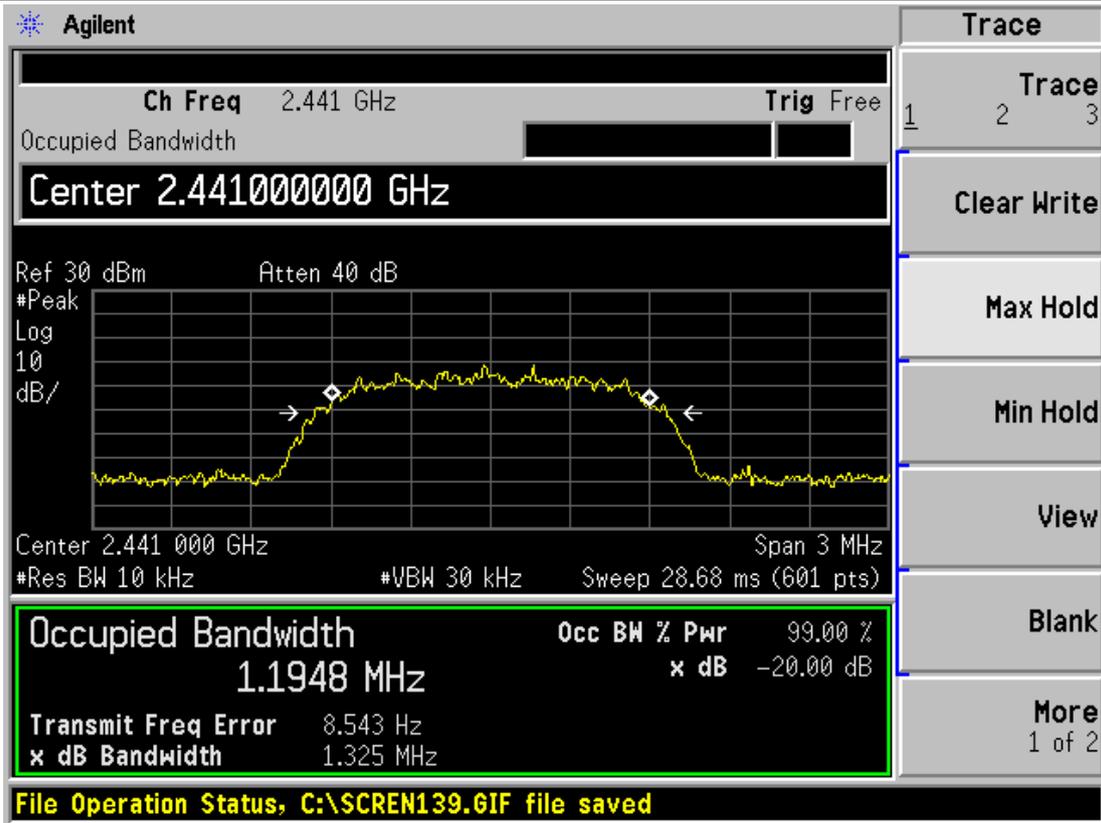
Carrier frequency (MHz): 2402

Channel No.: 0

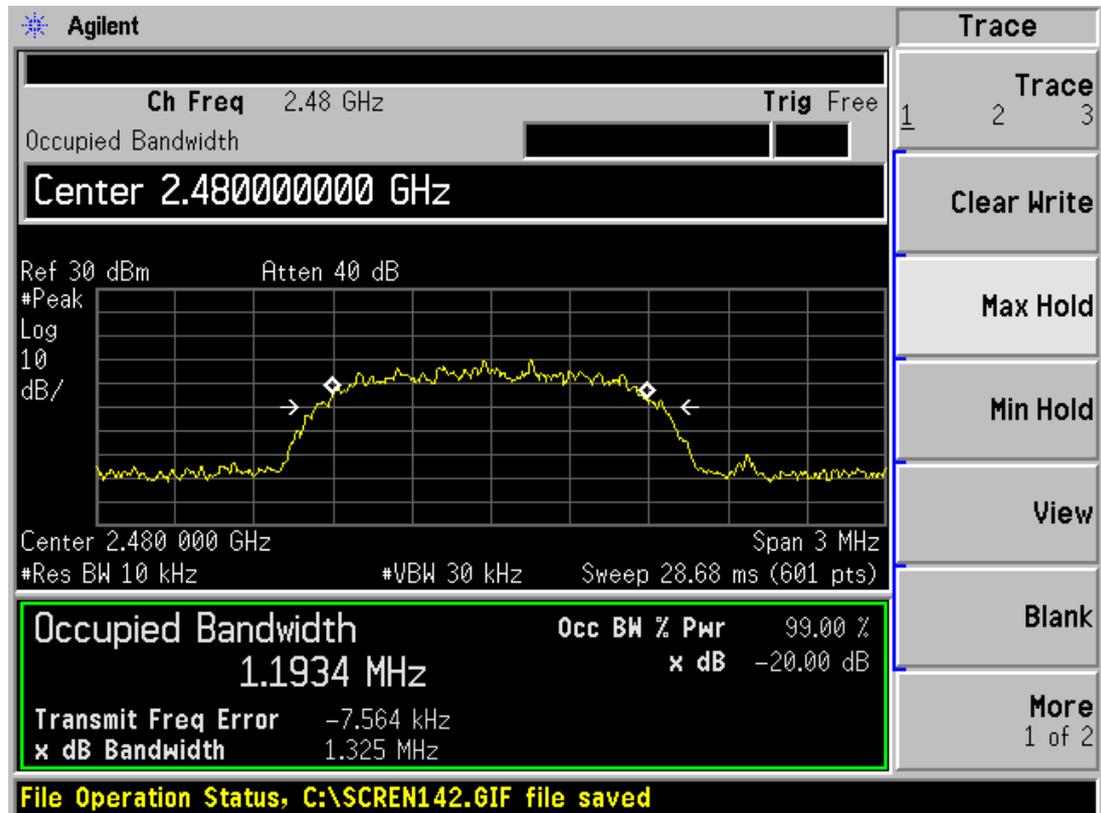
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Carrier frequency (MHz): 2441
Channel No.:39



Carrier frequency (MHz): 2480
Channel No.:78

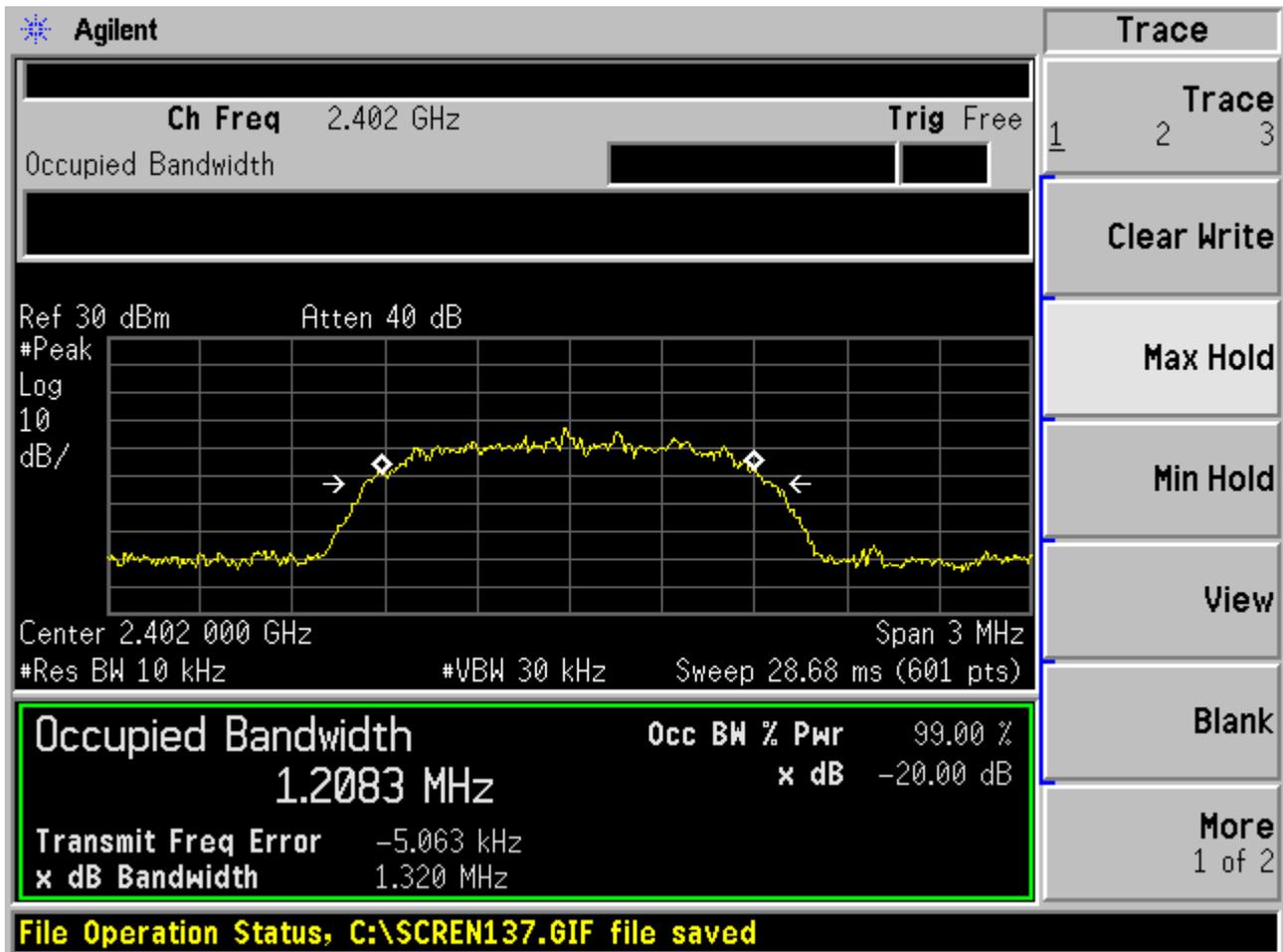
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3DH5

Channel	Frequency (MHz)	20dB Bandwidth (kHz)
0	2402	1320.000
39	2441	1320.000
78	2480	1318.000

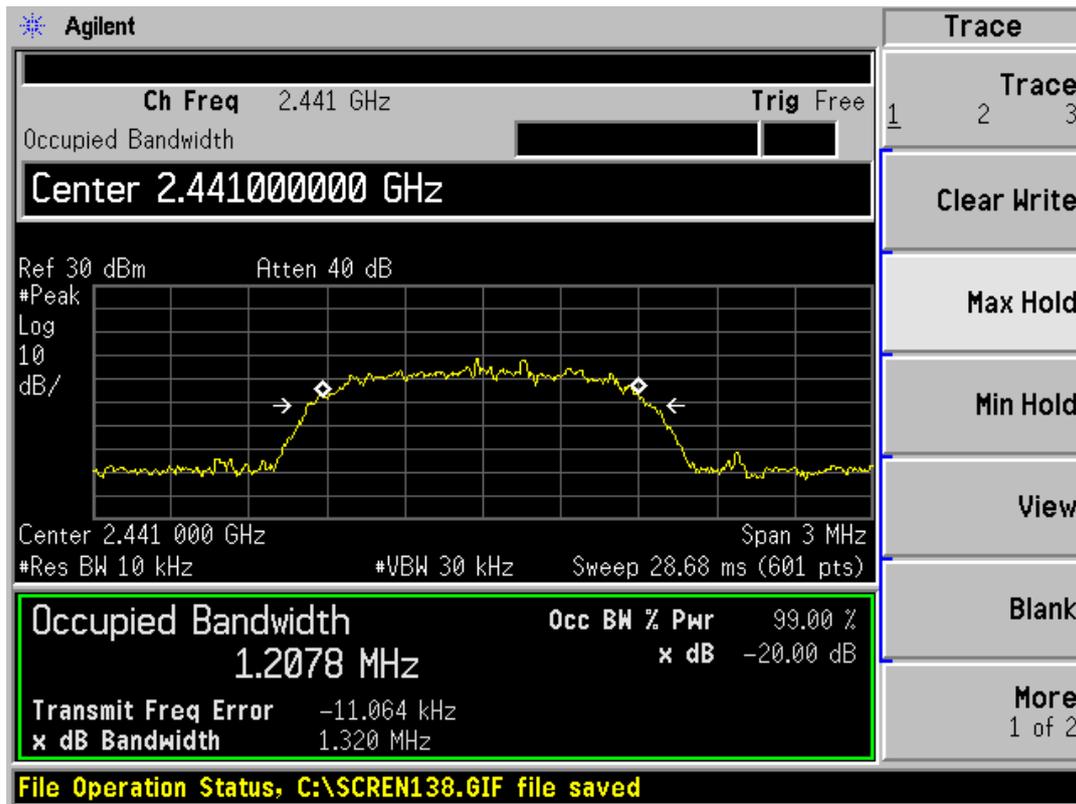


Carrier frequency (MHz): 2402
Channel No.:0

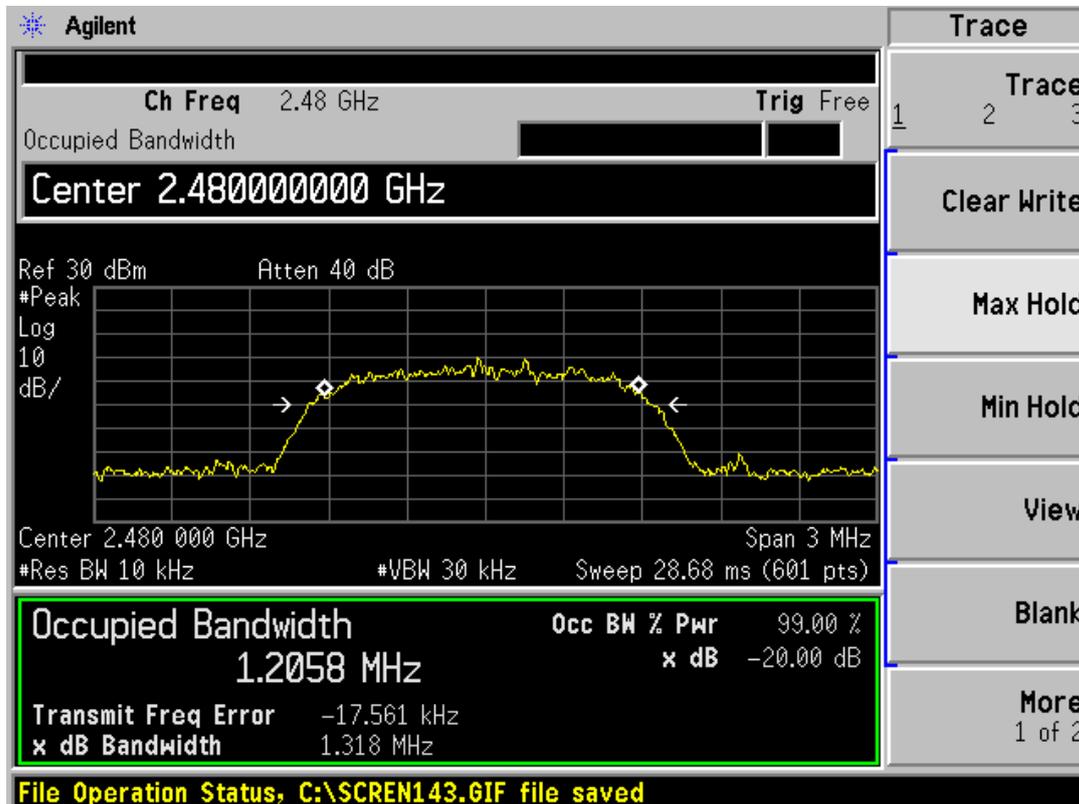
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Carrier frequency (MHz): 2441
Channel No.:39



Carrier frequency (MHz): 2480
Channel No.:78

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2.4. Frequency Separation

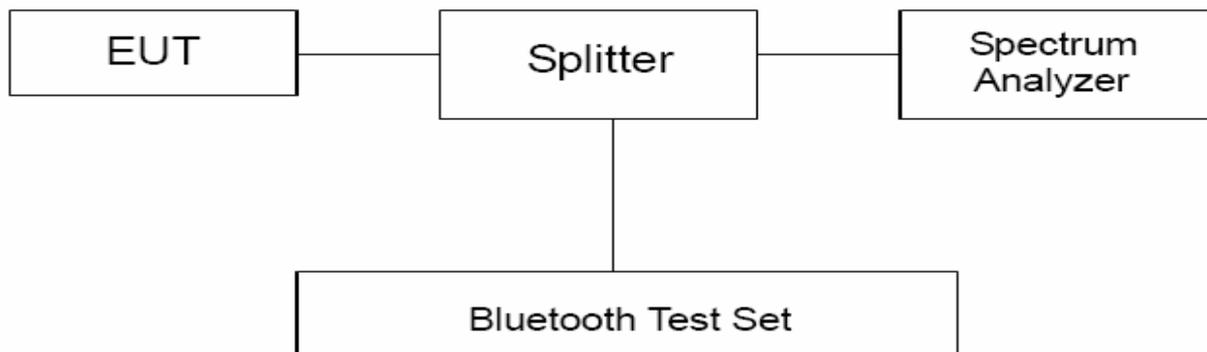
Ambient condition

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

Method of Measurement

The Equipment Under Test (EUT) was set up in a shielded room to perform the spurious emissions measurements. The EUT was connected to the spectrum analyzer and Bluetooth test set via a power splitter with a known loss. RBW is set to 300kHz 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.

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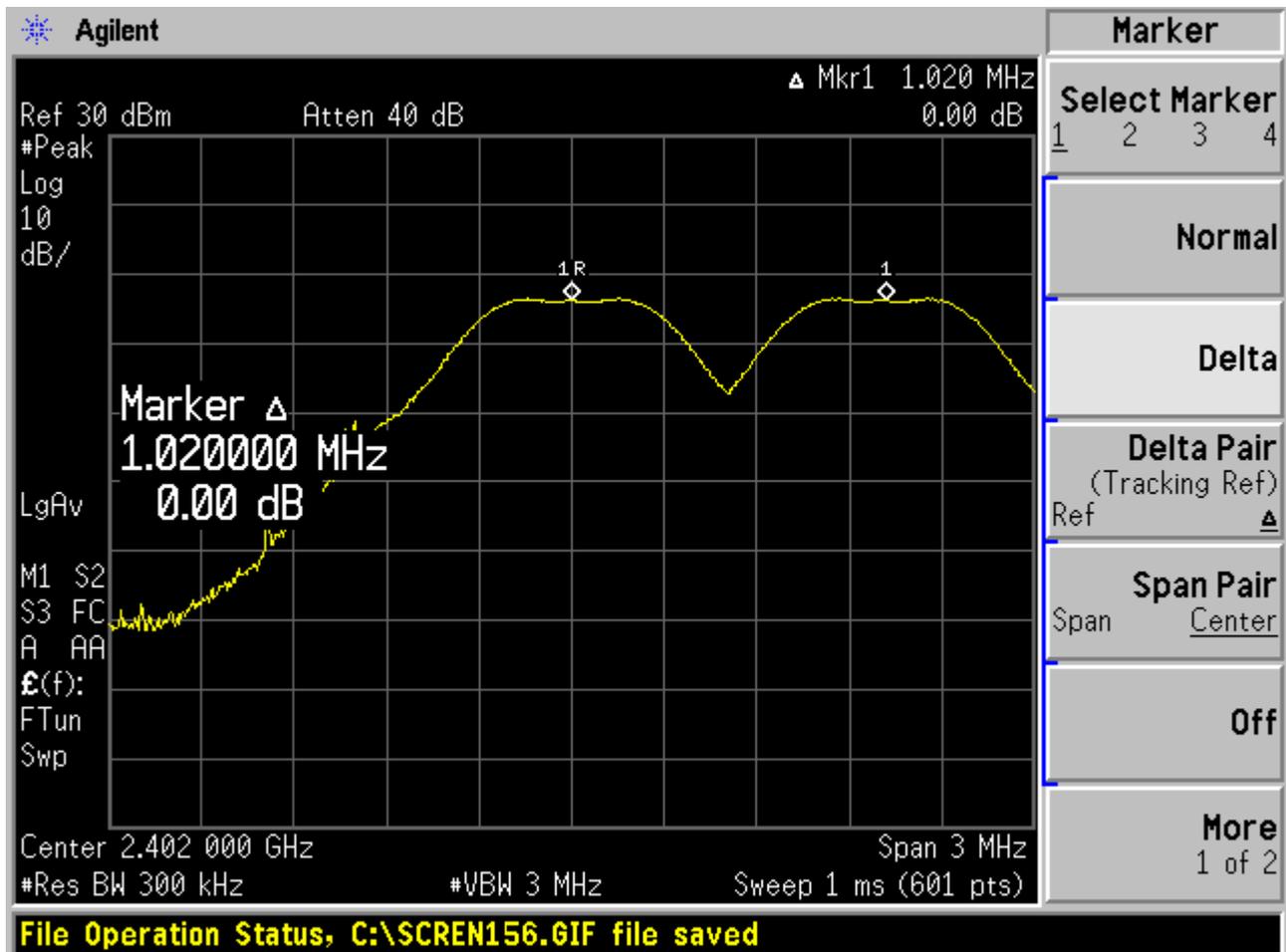
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Test Results:

DH5

Carrier frequency (MHz)	Carrier frequency separation(kHz)	20dB Bandwidth (kHz)	Limit(kHz)	Conclusion
2402	1020.000	923.513	615.675	PASS
2441	1015.000	920.439	613.626	PASS
2480	1025.000	922.647	615.098	PASS

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



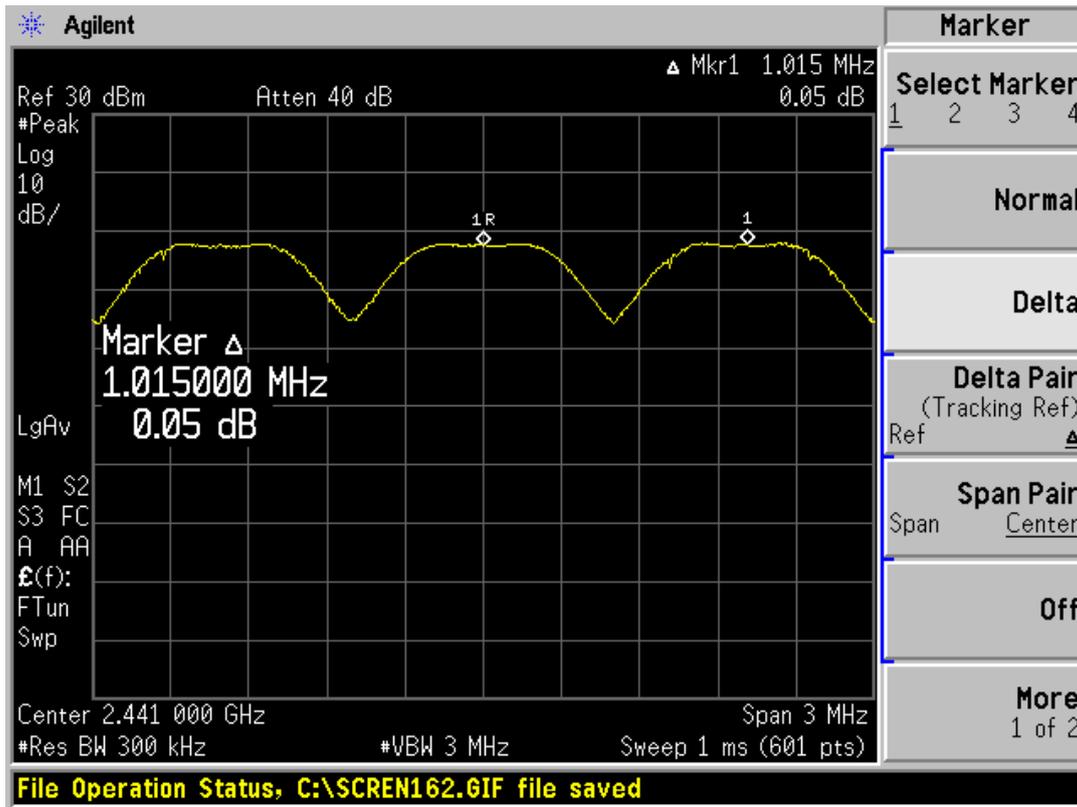
Carrier frequency (MHz): 2402

Channel No.:0

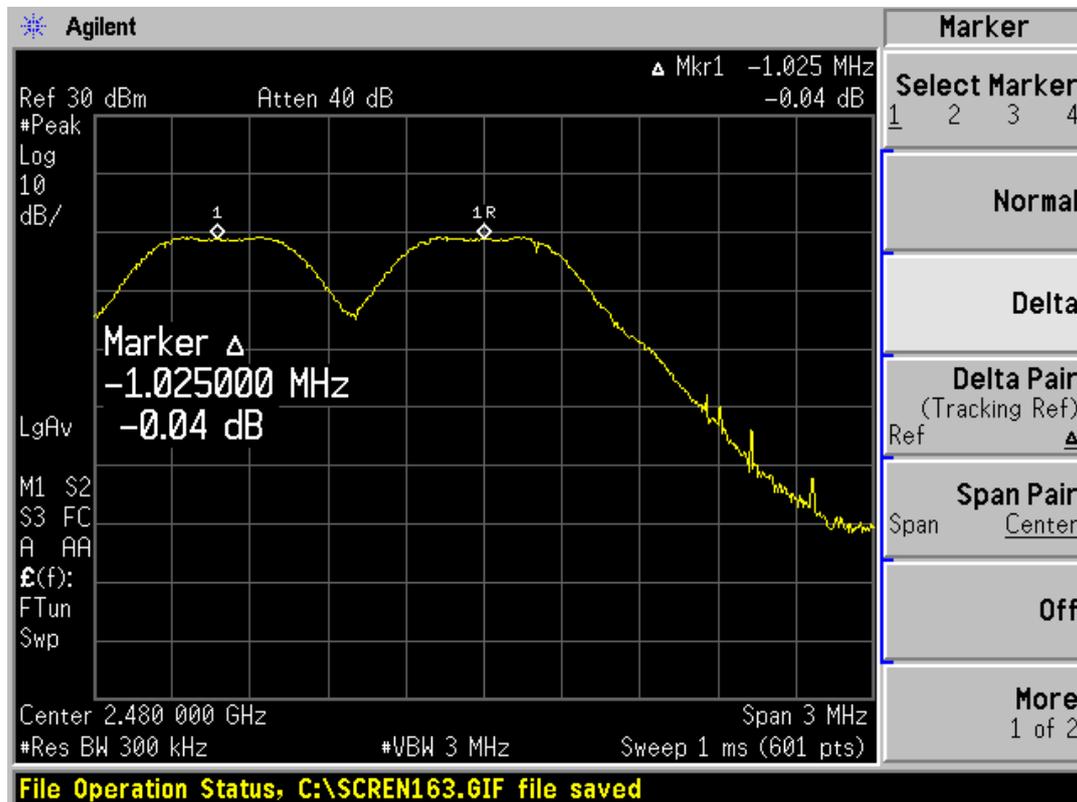
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Carrier frequency (MHz): 2441
Channel No.:39



Carrier frequency (MHz): 2480
Channel No.:78

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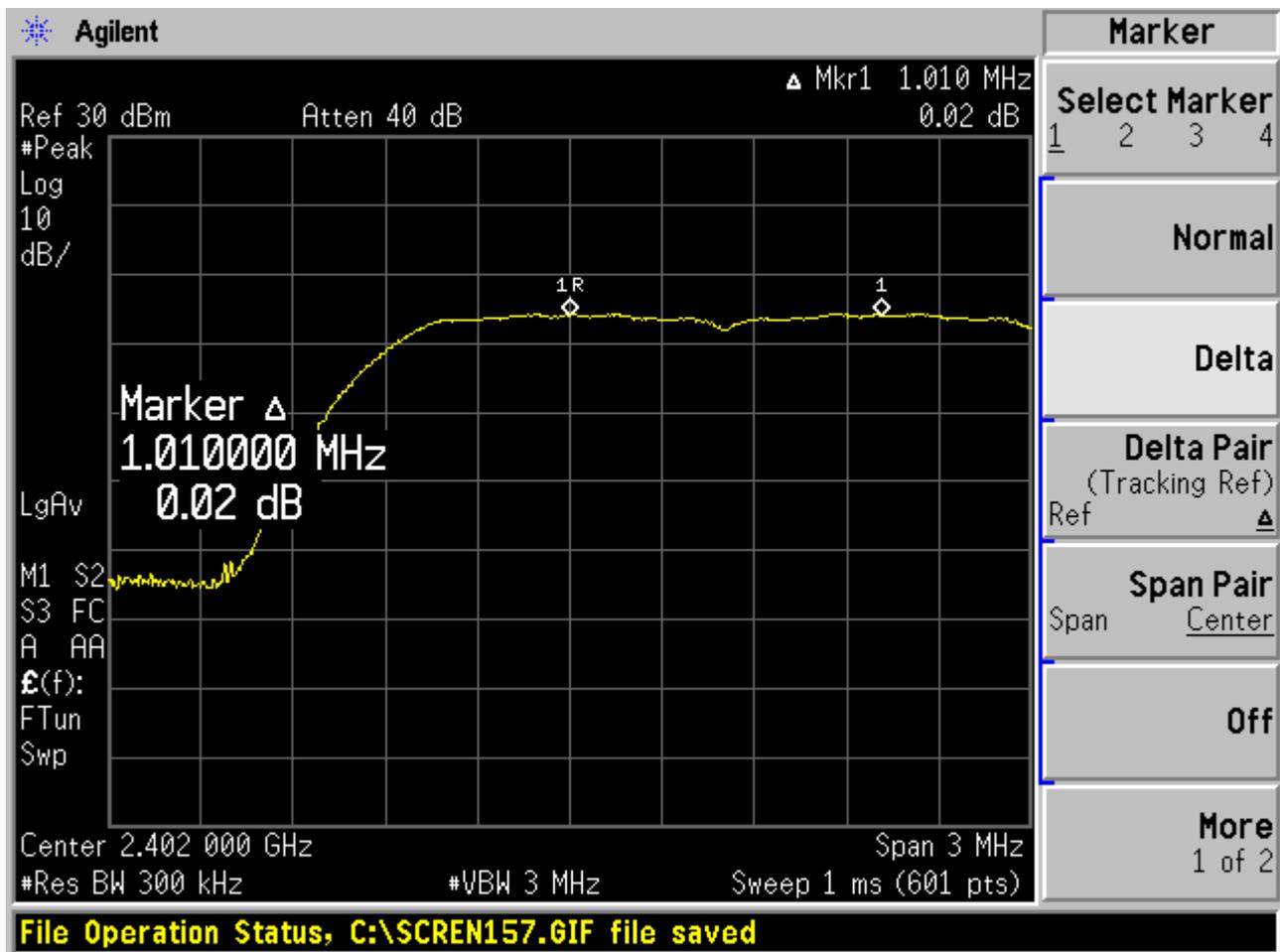
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2DH5

Carrier frequency (MHz)	Carrier frequency separation(kHz)	20dB Bandwidth (kHz)	Limit(kHz)	Conclusion
2402	1010.000	1324.000	882.667	PASS
2441	1045.000	1325.000	883.333	PASS
2480	1095.000	1325.000	883.333	PASS

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



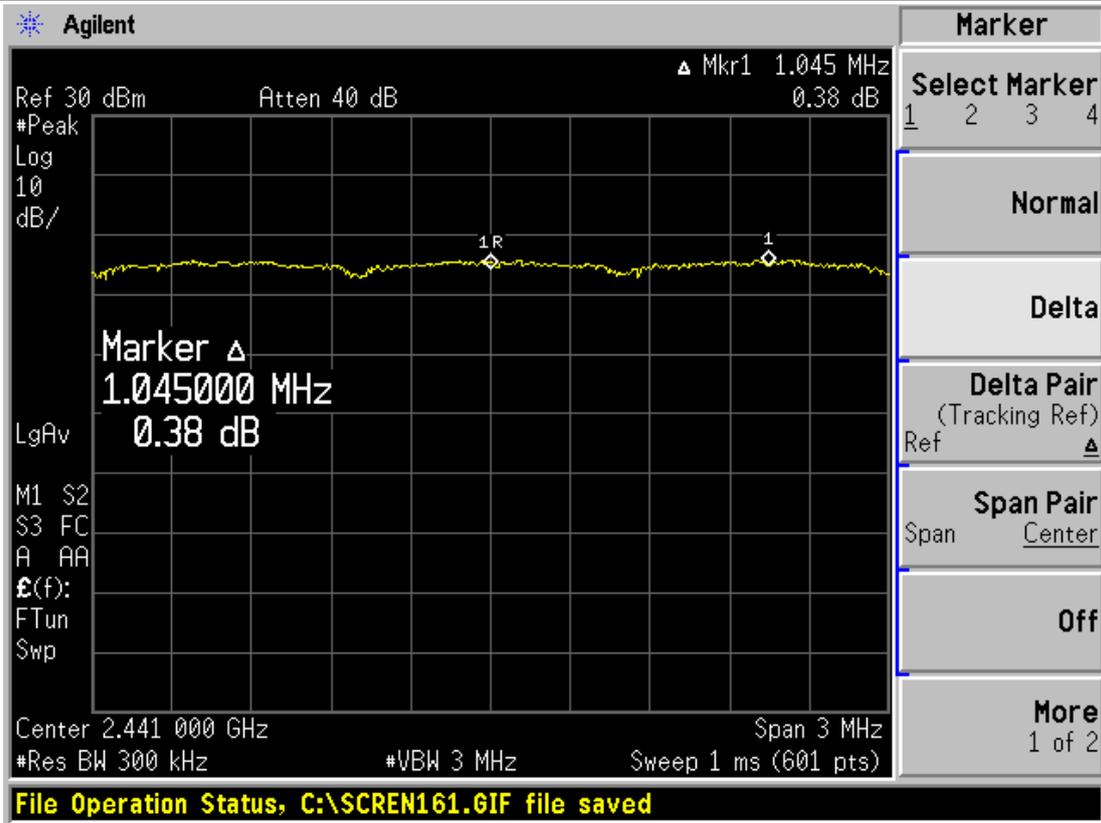
Carrier frequency (MHz): 2402

Channel No.:0

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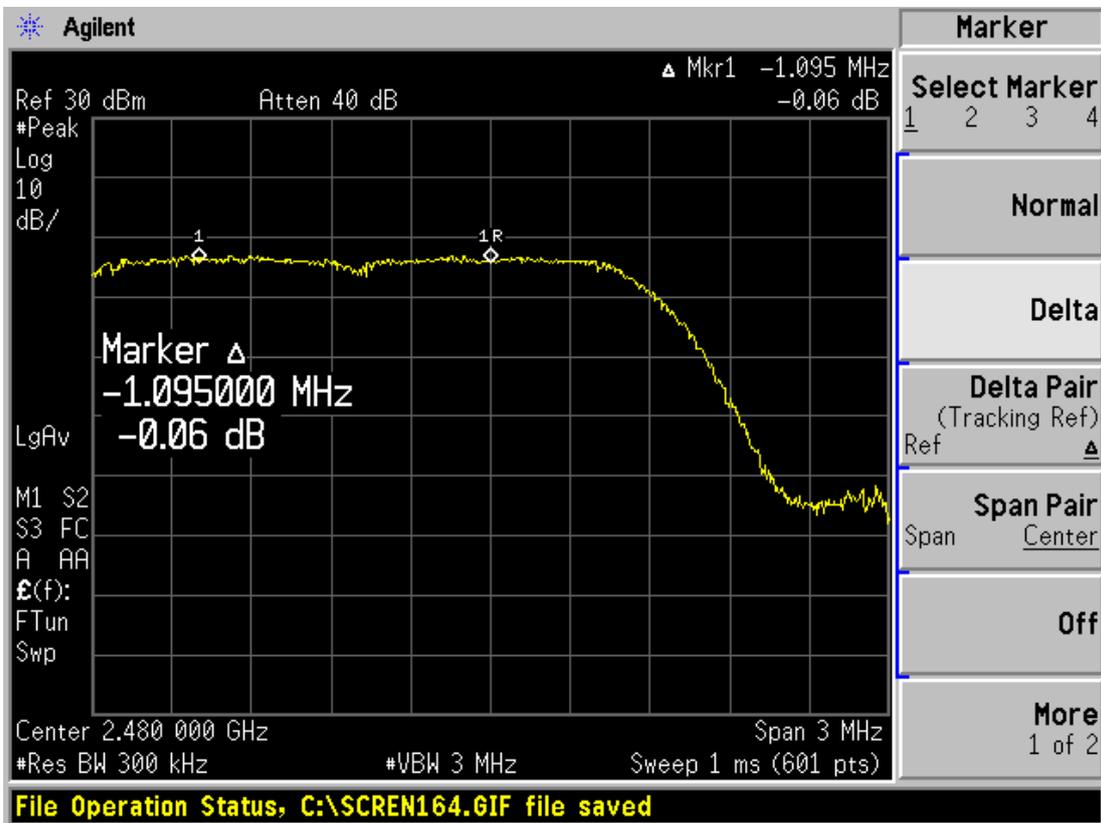
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Carrier frequency (MHz): 2441

Channel No.:39



Carrier frequency (MHz): 2480

Channel No.:78

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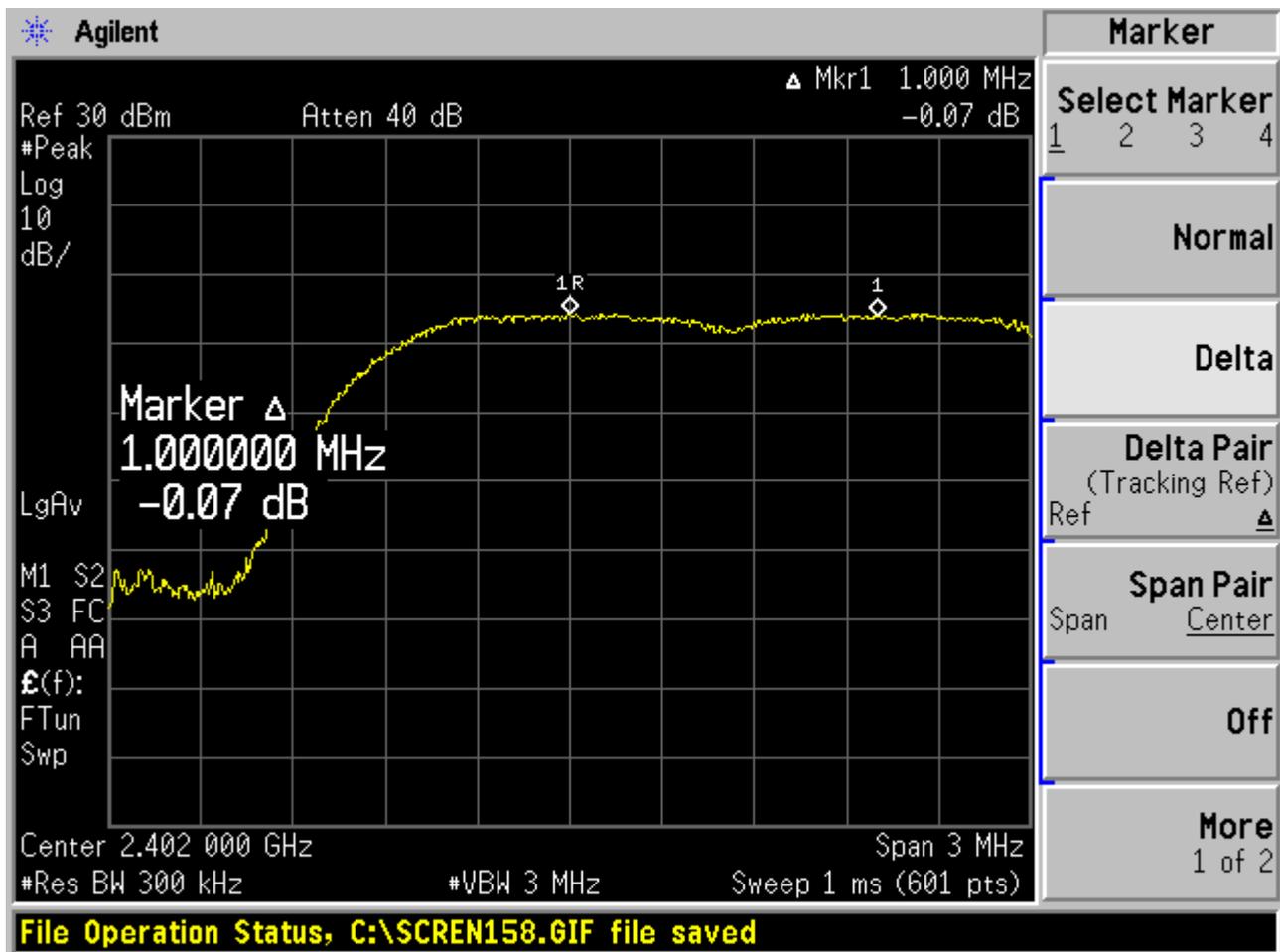
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3DH5

Carrier frequency (MHz)	Carrier frequency separation(kHz)	20dB Bandwidth (kHz)	Limit(kHz)	Conclusion
2402	1000.000	1320.000	880.000	PASS
2441	1005.000	1320.000	880.000	PASS
2480	1015.000	1318.000	878.667	PASS

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



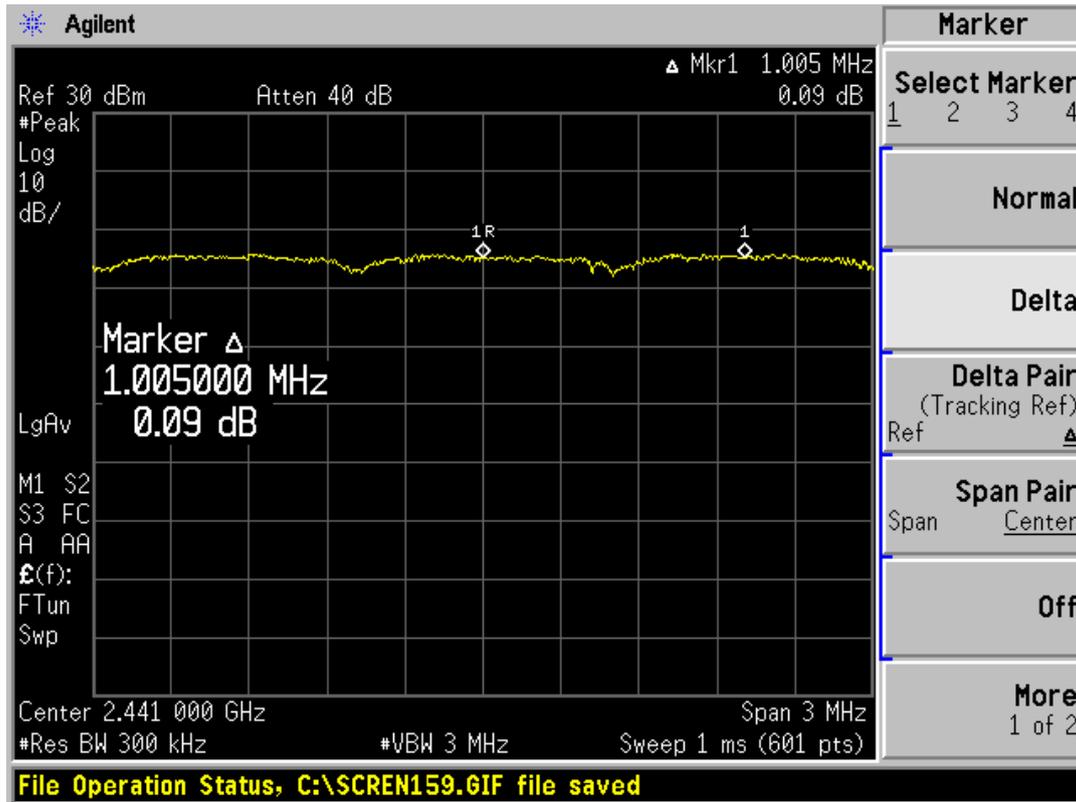
Carrier frequency (MHz): 2402

Channel No.:0

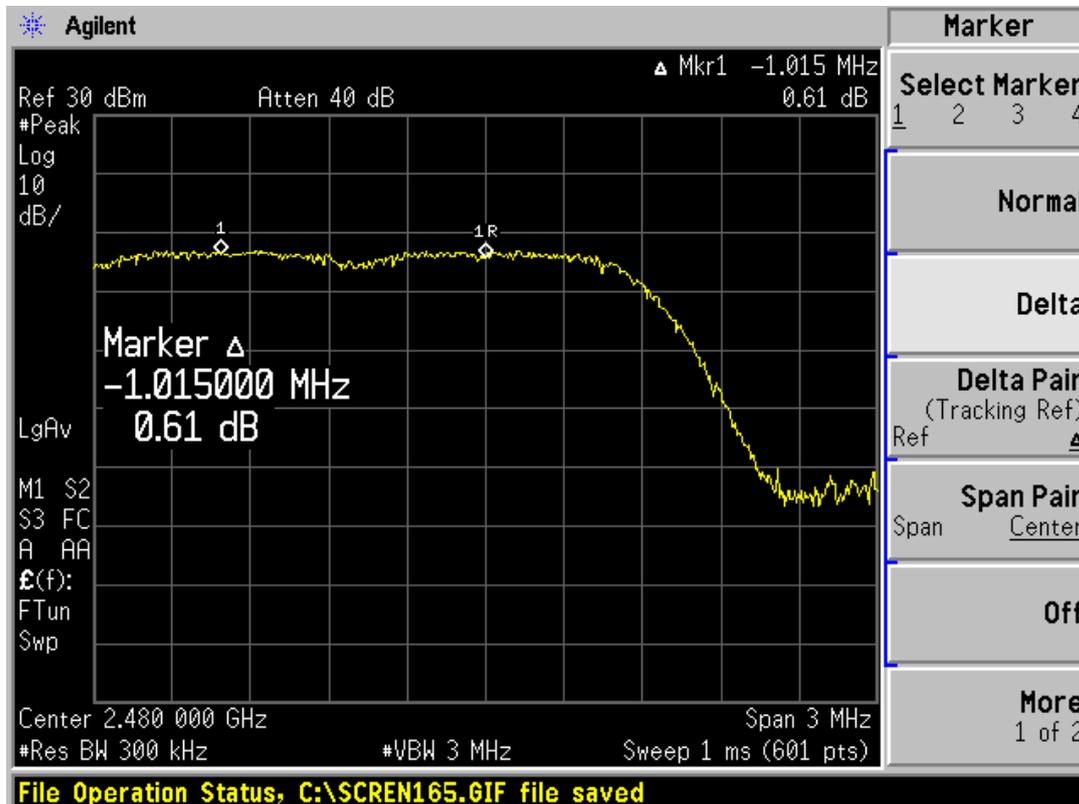
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Carrier frequency (MHz): 2441
Channel No.:39



Carrier frequency (MHz): 2480
Channel No.:78

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2.5. Time of Occupancy (Dwell Time)

Ambient condition

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

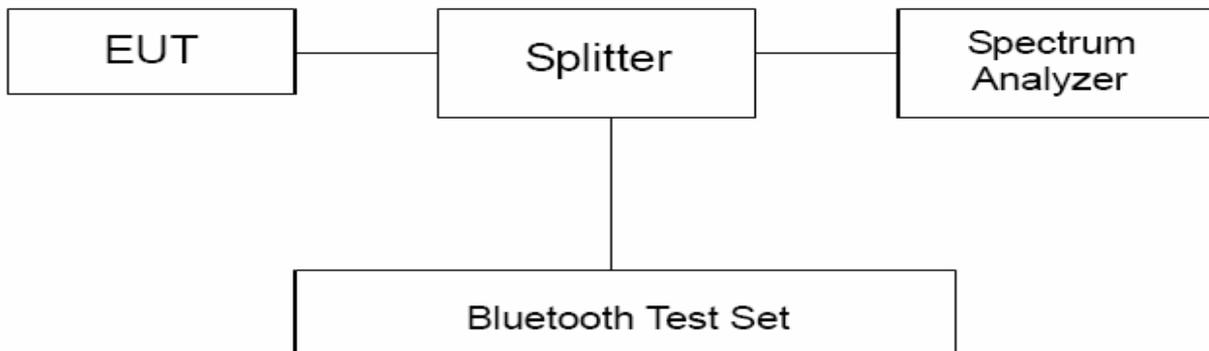
Methods of Measurement

The Equipment Under Test (EUT) was set up in a shielded room to perform the dwell time measurements. The EUT was connected to the spectrum analyzer and Bluetooth test set via a power splitter with a known loss. RBW is set to 3MHz 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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TA Technology (Shanghai) Co., Ltd.

Test Report

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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	$U = 0.70\text{ms}$

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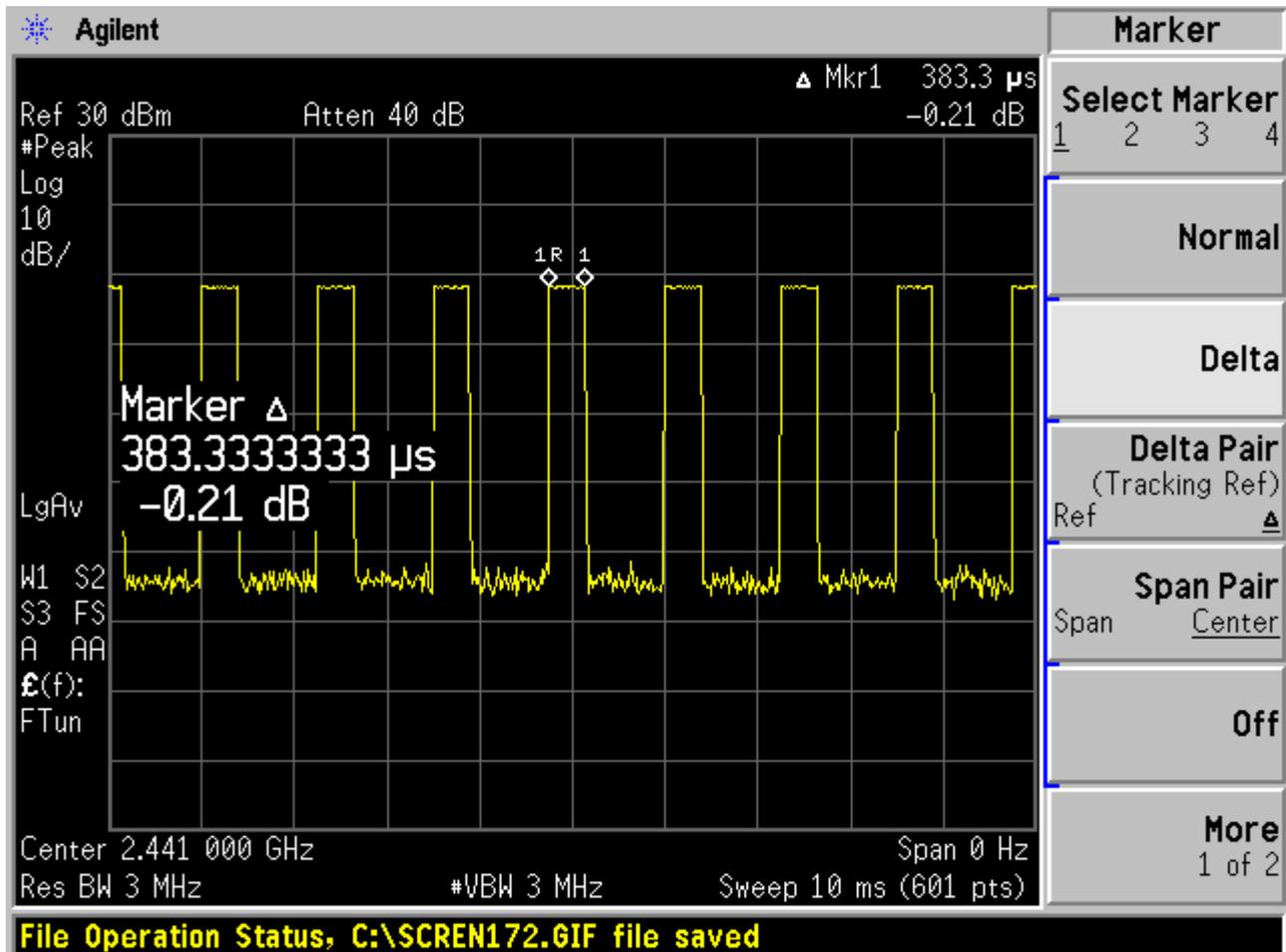
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Test Results:

CH 39

Packet type	hop rate (1/s)	Time slot length(ms)	Dwell time (ms)	Limit (ms)	Conclusion
DH1	1600.000	0.383	245.120	400	PASS
DH3	533.330	1.633	348.371	400	PASS
DH5	320.000	2.883	369.024	400	PASS
2DH1	1600.000	0.400	256.000	400	PASS
2DH3	533.330	1.633	348.371	400	PASS
2DH5	320.000	2.883	369.024	400	PASS
3DH1	1600.000	0.383	245.120	400	PASS
3DH3	533.330	1.633	348.371	400	PASS
3DH5	320.000	2.883	369.024	400	PASS

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

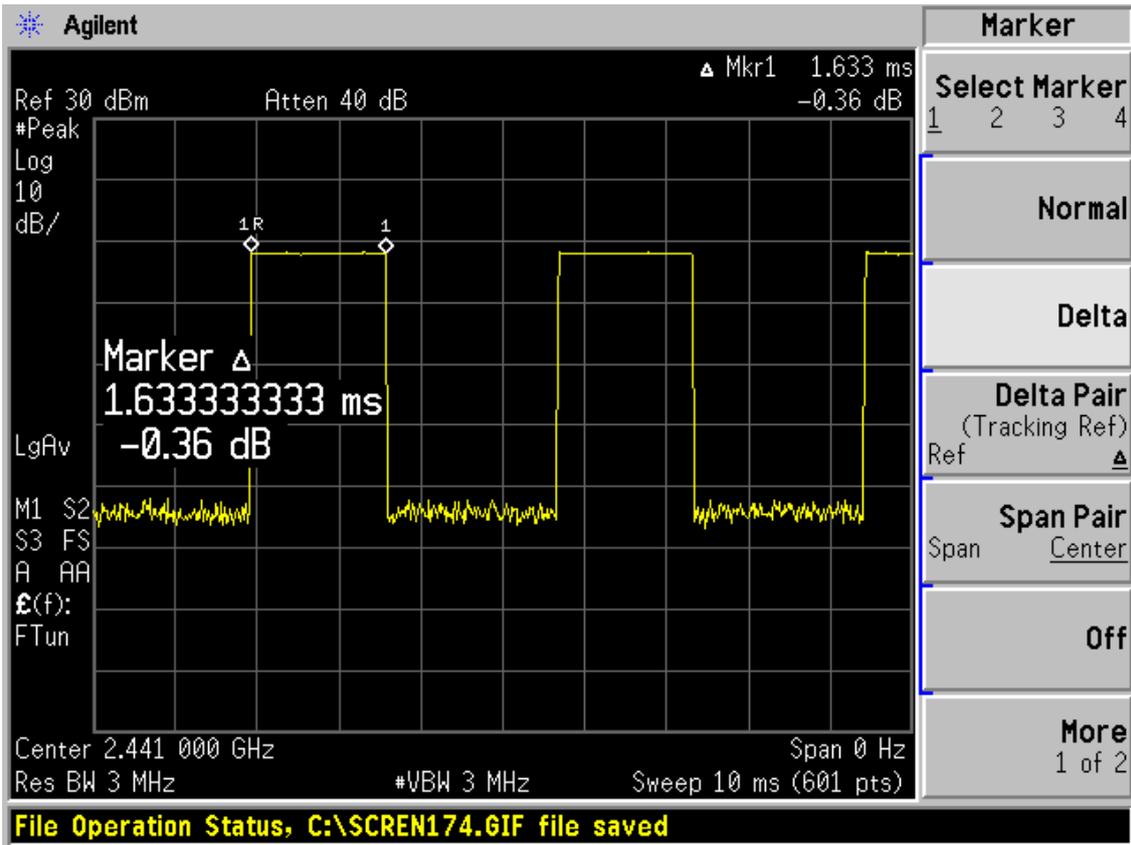


Carrier frequency (MHz): 2441,DH1

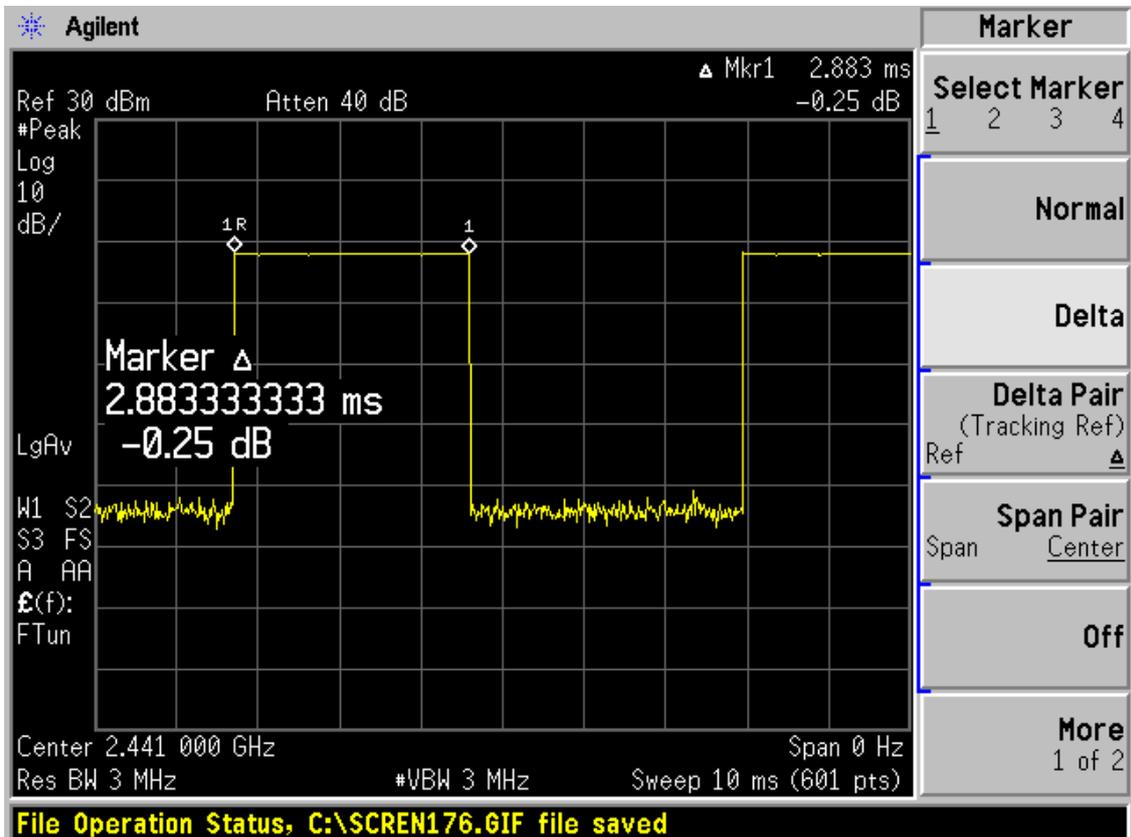
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Carrier frequency (MHz): 2441,DH3

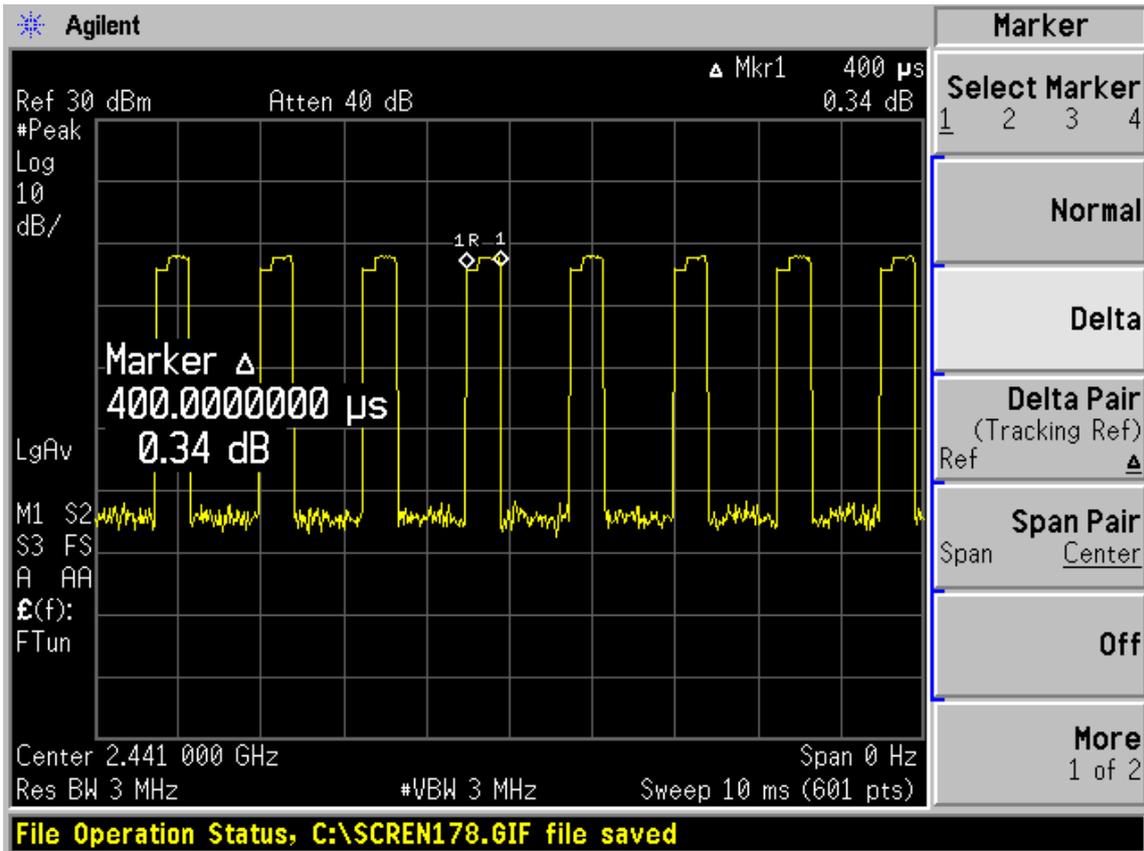


Carrier frequency (MHz): 2441,DH5

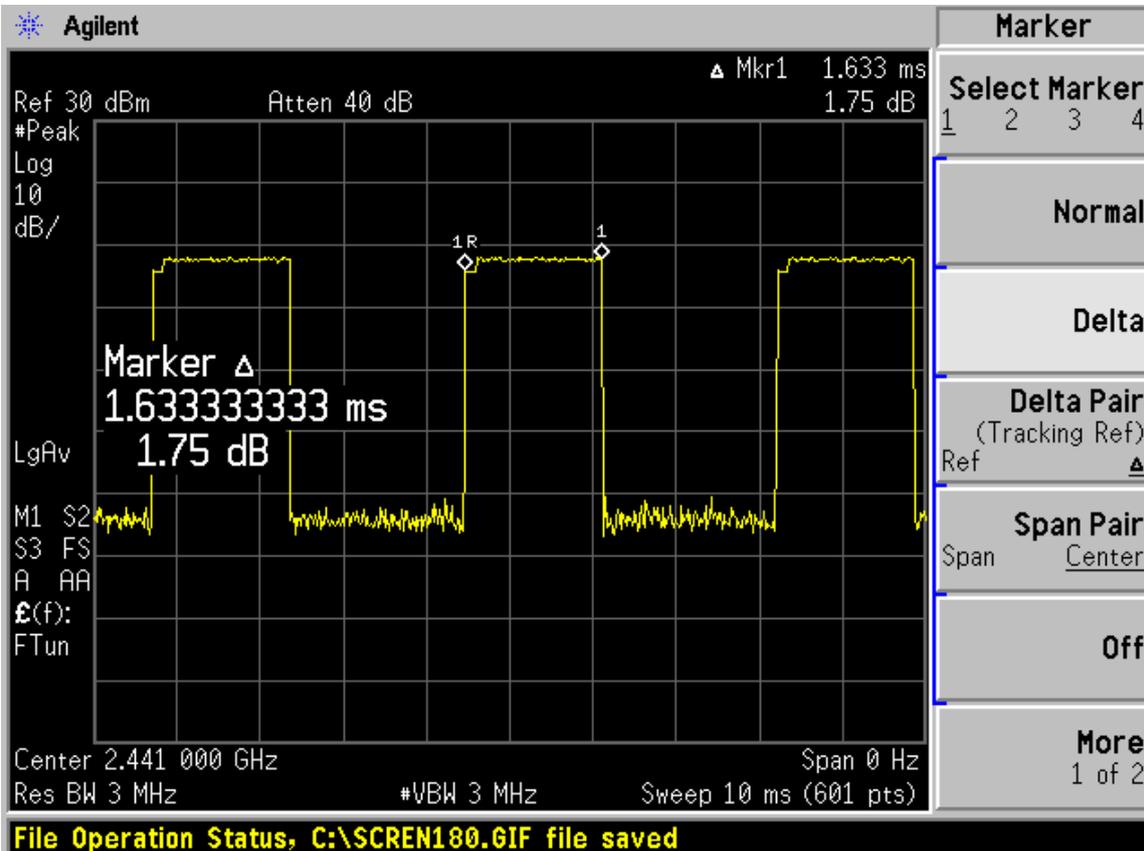
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Carrier frequency (MHz): 2441,2DH1

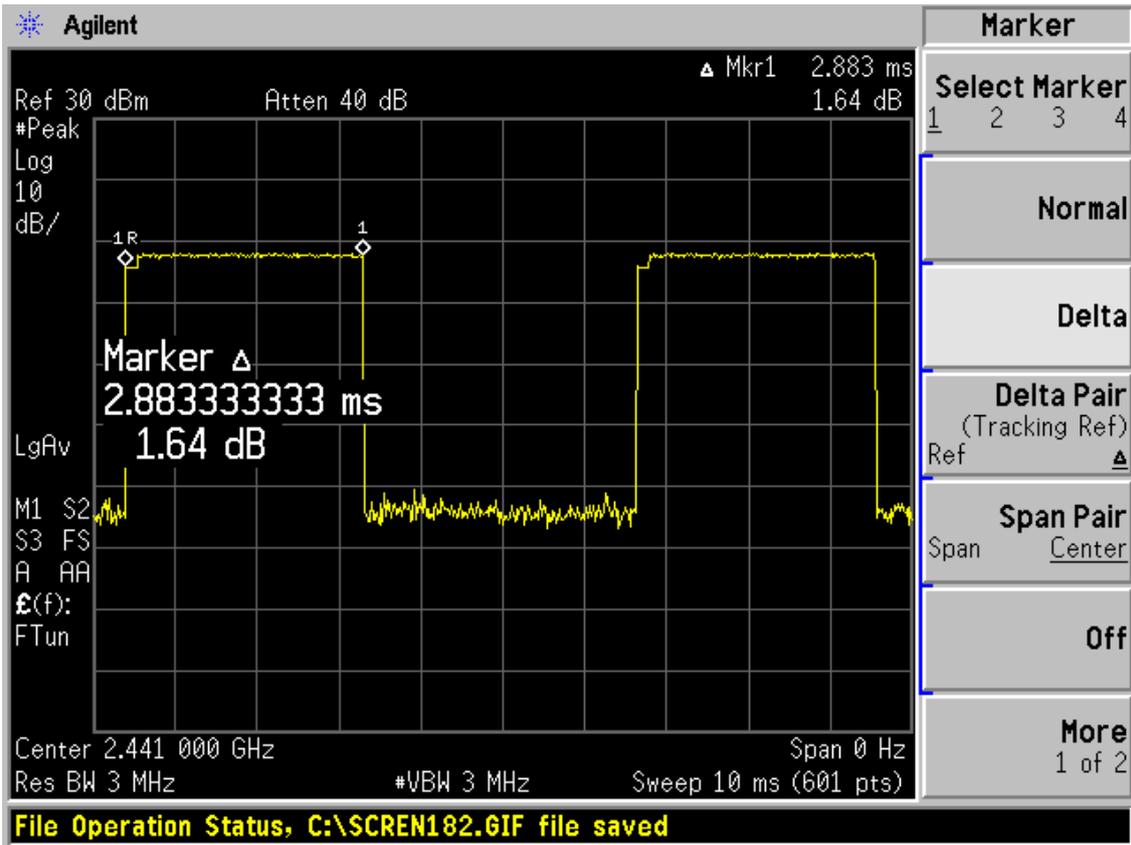


Carrier frequency (MHz): 2441,2DH3

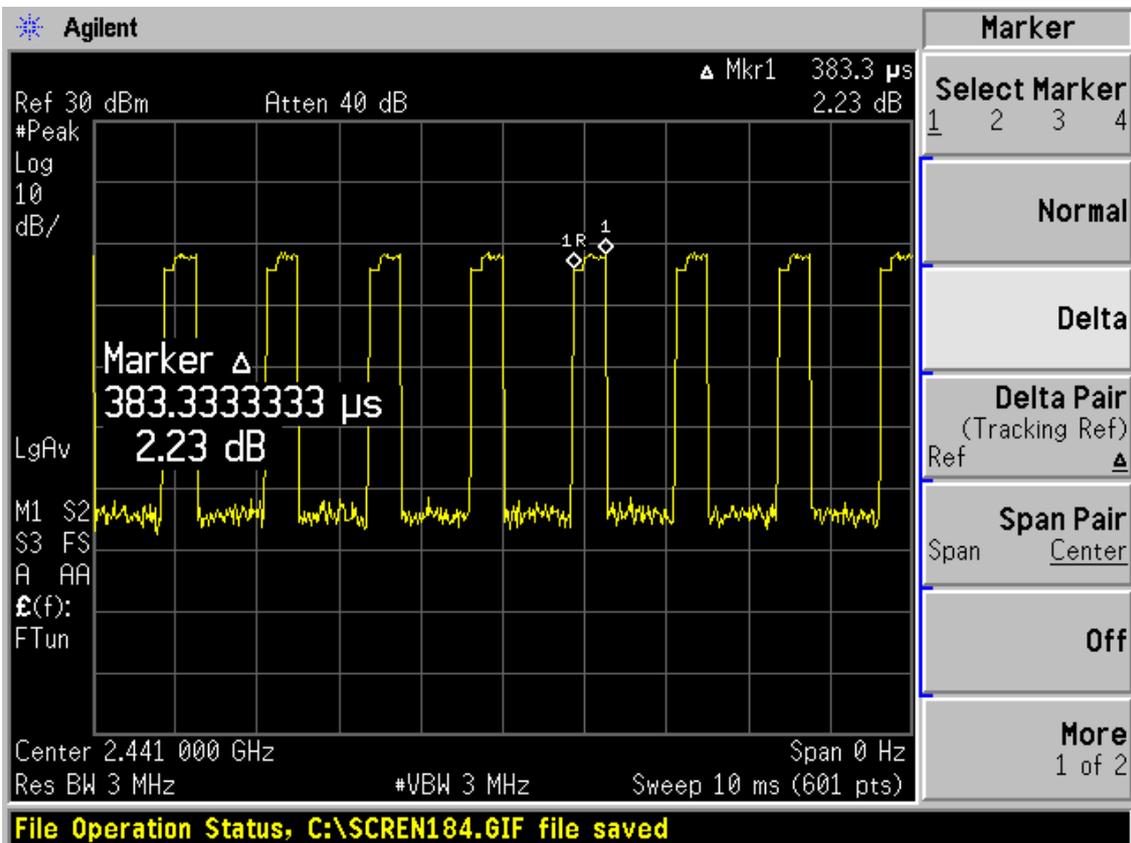
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Carrier frequency (MHz): 2441,2DH5

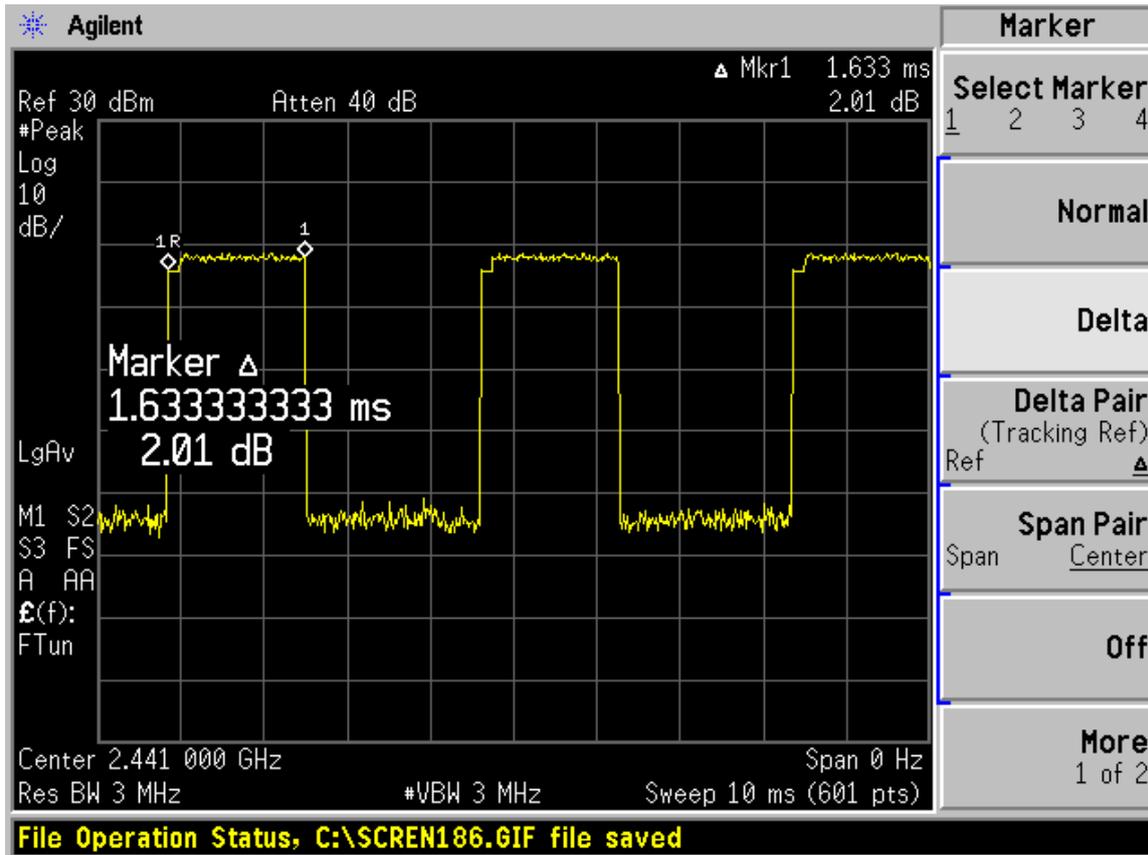


Carrier frequency (MHz): 2441,3DH1

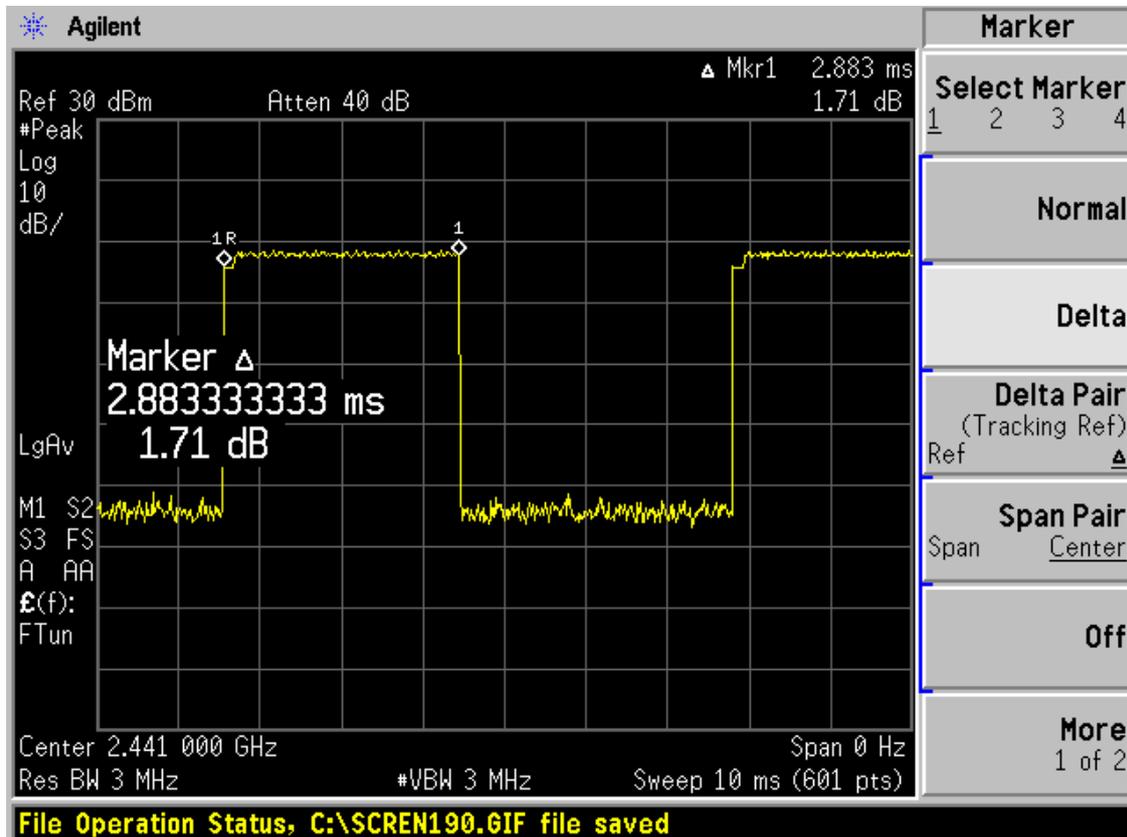
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Carrier frequency (MHz): 2441,3DH3



Carrier frequency (MHz): 2441,3DH5

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2.6. Band Edge Compliance

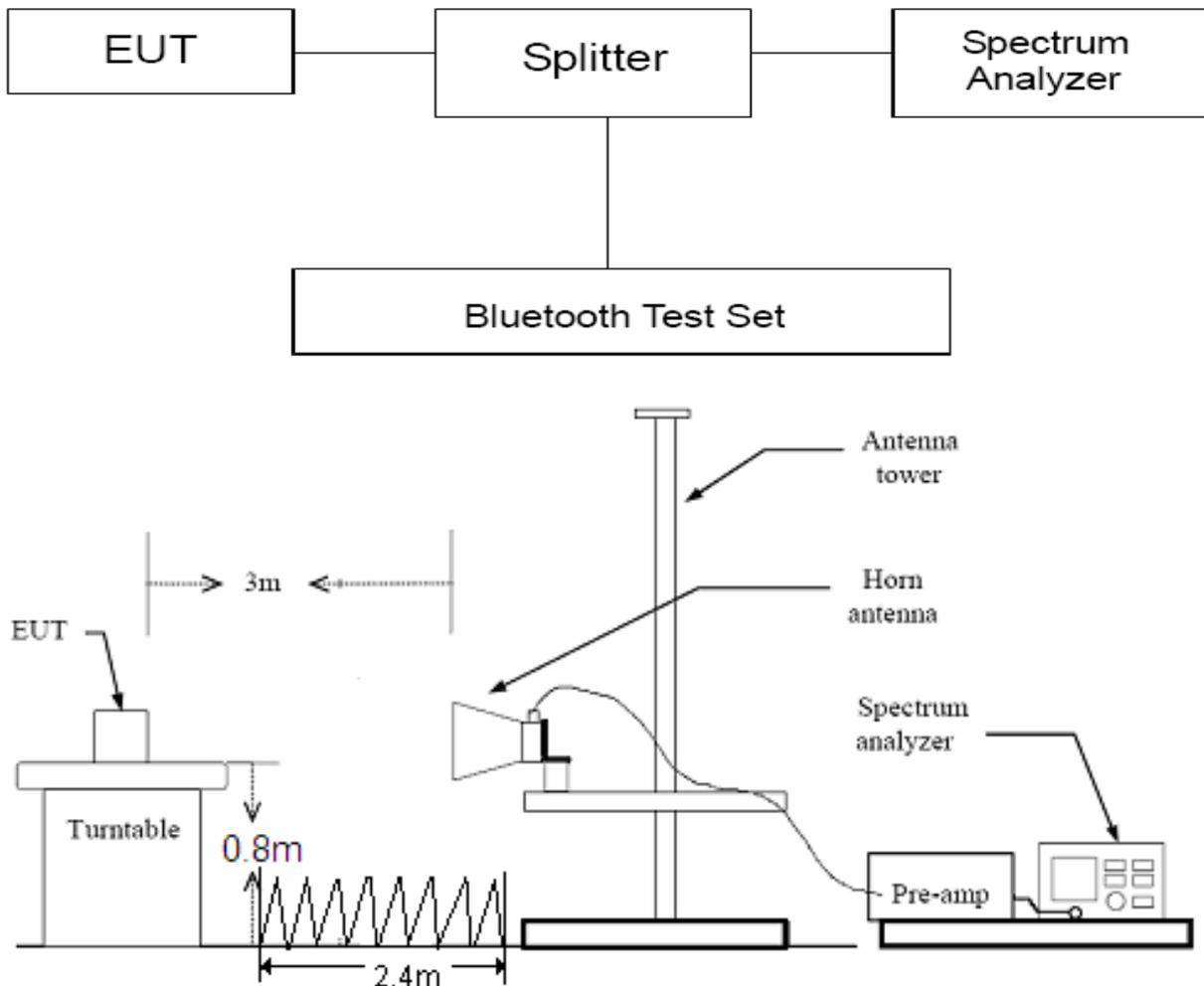
Ambient condition

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

Method of Measurement

The Equipment Under Test (EUT) was set up in a shielded room to perform the spurious emissions measurements. The EUT was connected to the spectrum analyzer and Bluetooth test set via a power splitter with a known loss. The band edge of the lowest and highest channels were measured. The peak detector is used. RBW is set to 1MHz and VBW is set to 3MHz on spectrum analyzer. Spectrum analyzer plots are included on the following pages. EUT test for Hopping On mode and Hopping Off mode.

Test Setup



Note: Area side:2.4mX3.6m

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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.”

Limit	≥ 20 dB
-------	--------------

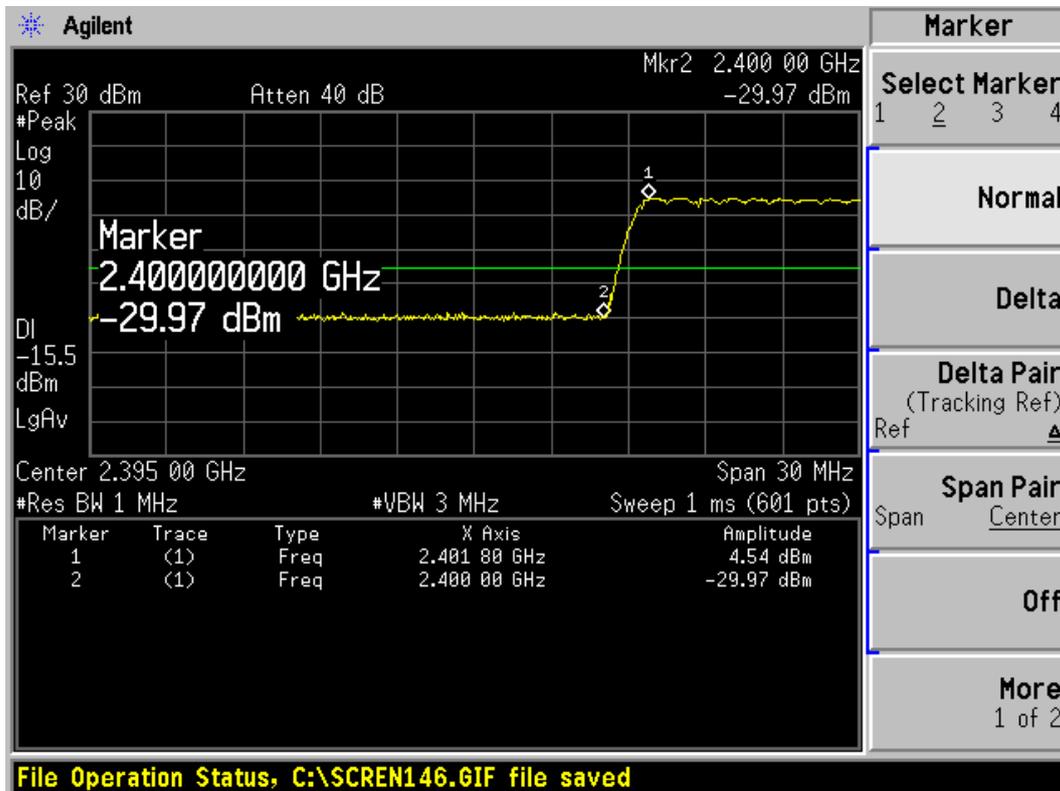
Measurement Uncertainty

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: PASS

Hopping On-DH5



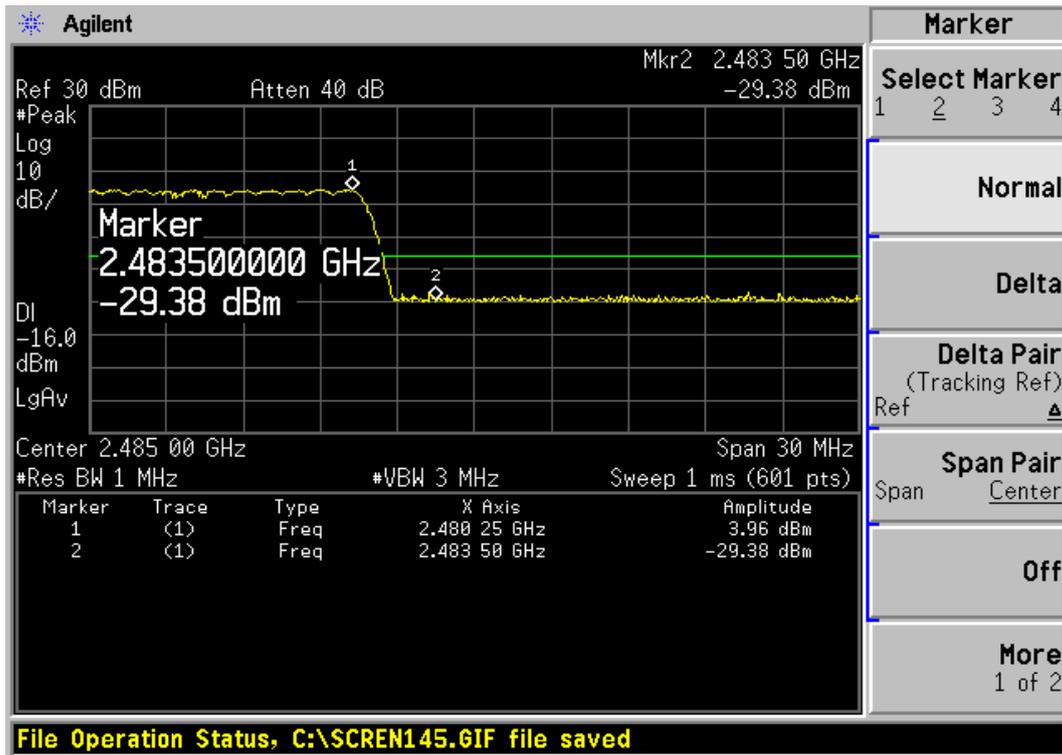
Carrier frequency (MHz): 2402

Channel No.:0

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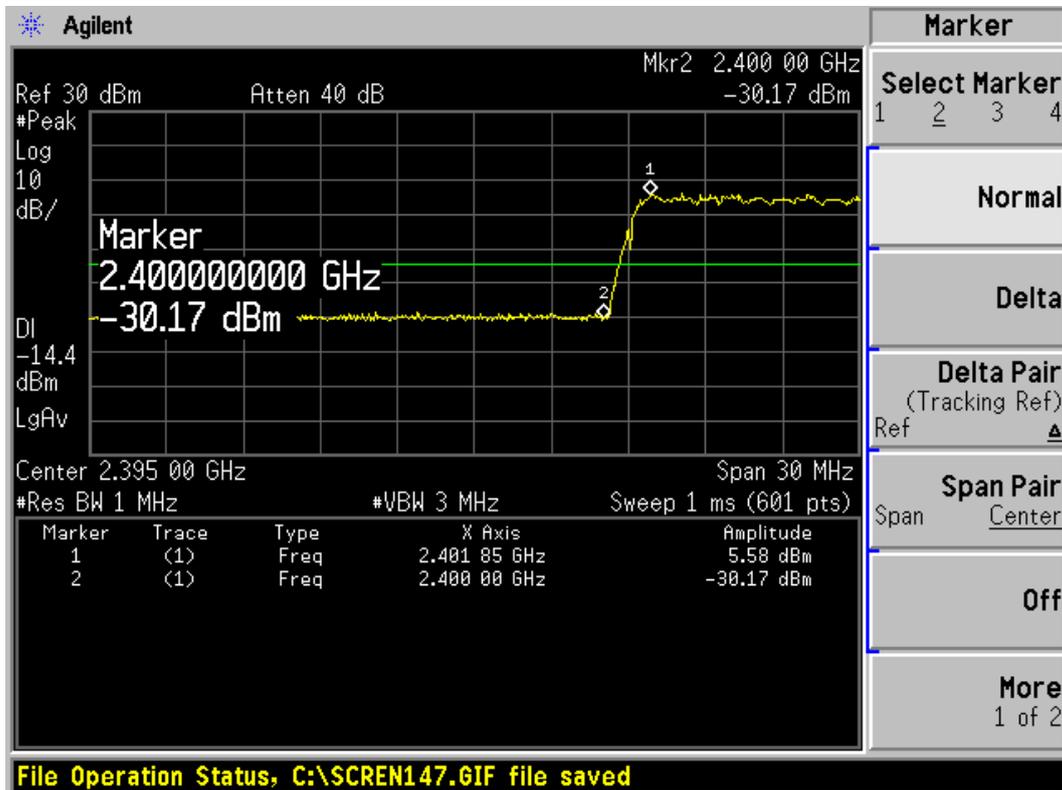
Report No.: RHA1209-0083RF04R2

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Carrier frequency (MHz): 2480
Channel No.:78

Hopping On-2DH5

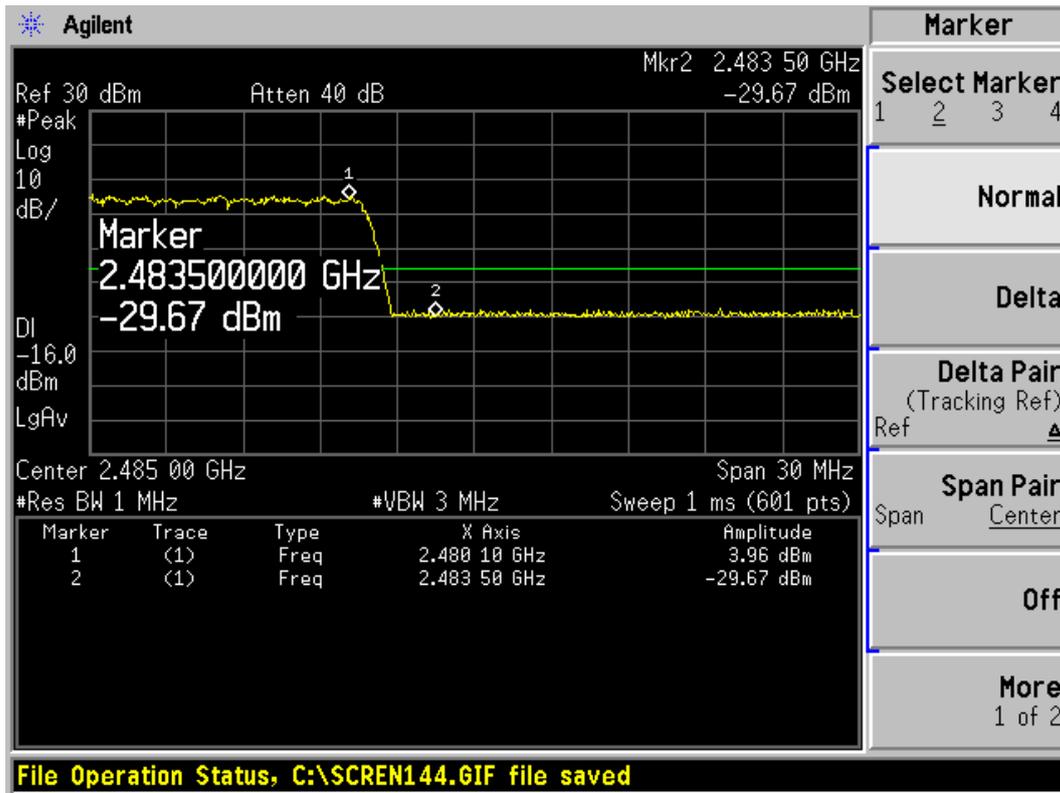


Carrier frequency (MHz): 2402
Channel No.:0

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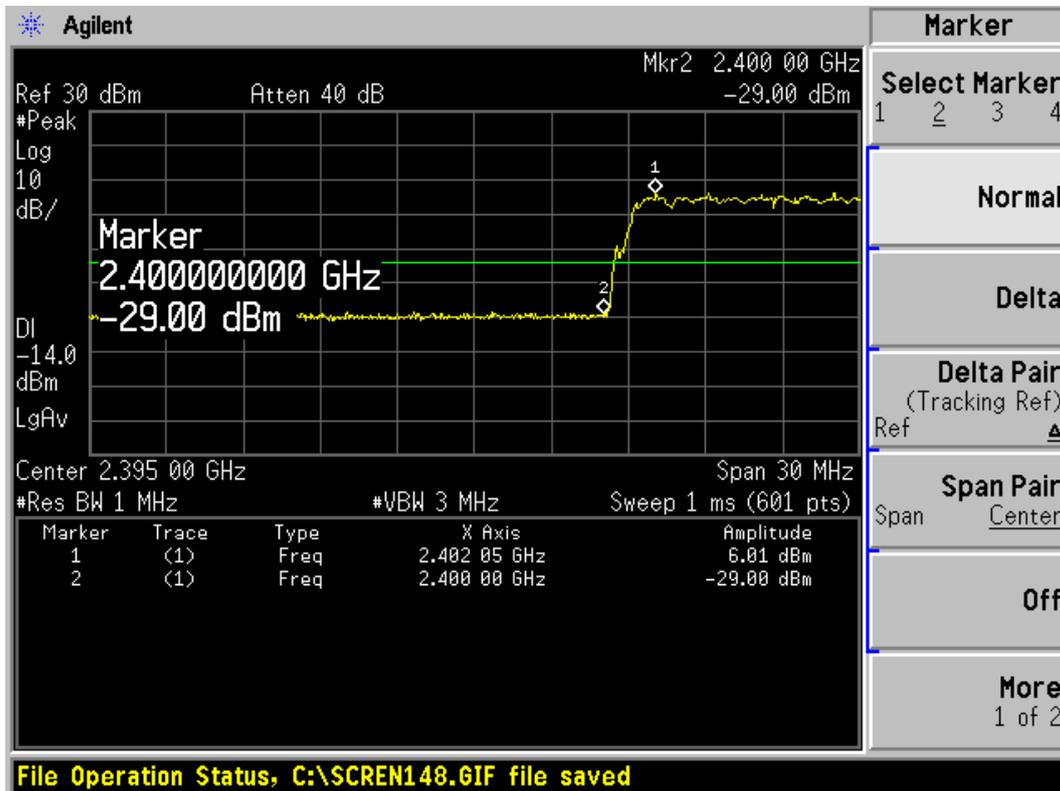
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Carrier frequency (MHz): 2480
Channel No.:78

Hopping On-3DH5

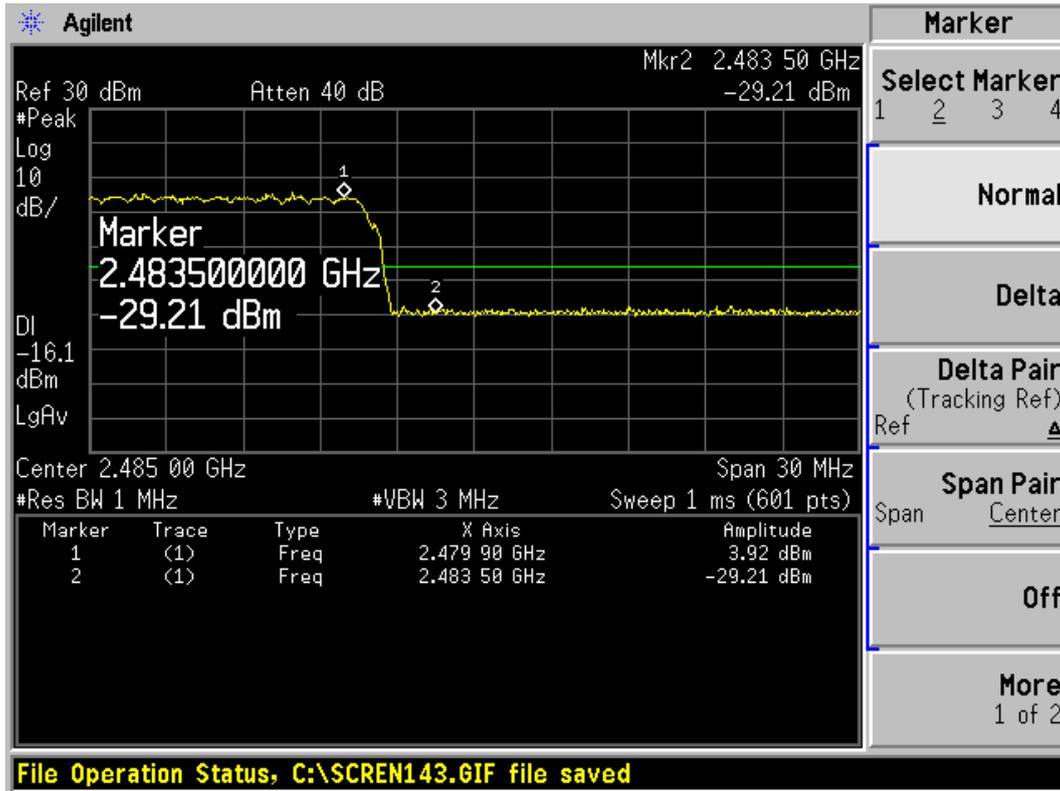


Carrier frequency (MHz): 2402
Channel No.:0

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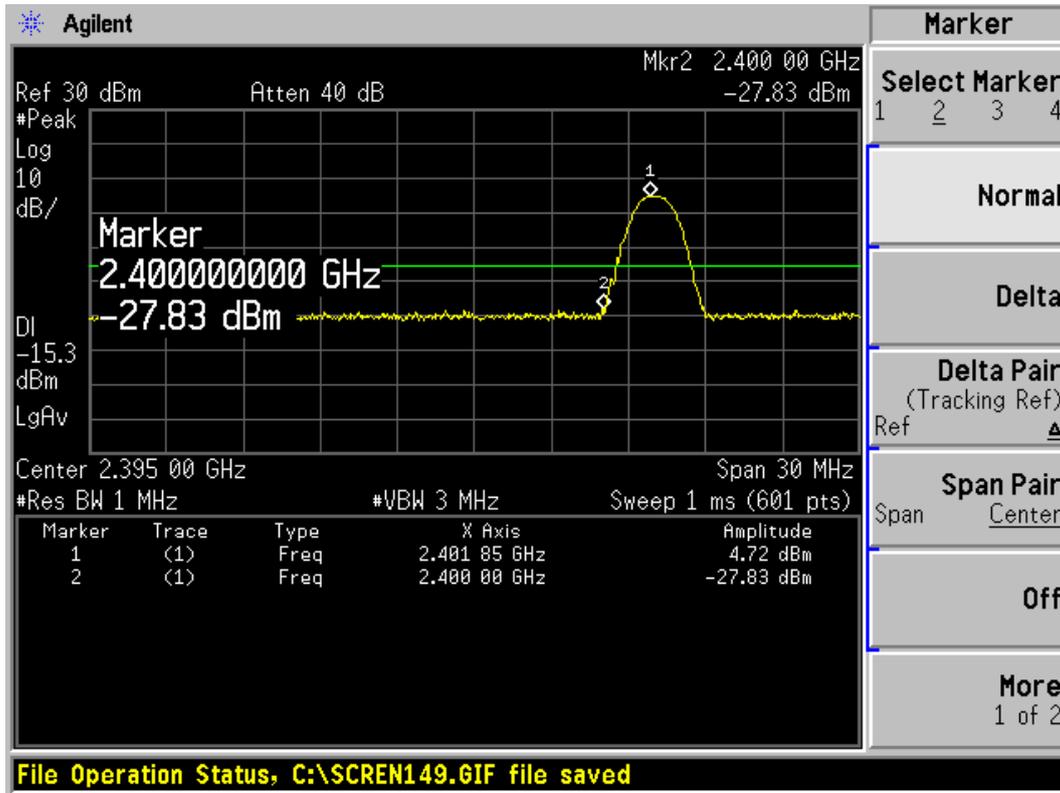
Carrier frequency (MHz): 2480
Channel No.:78

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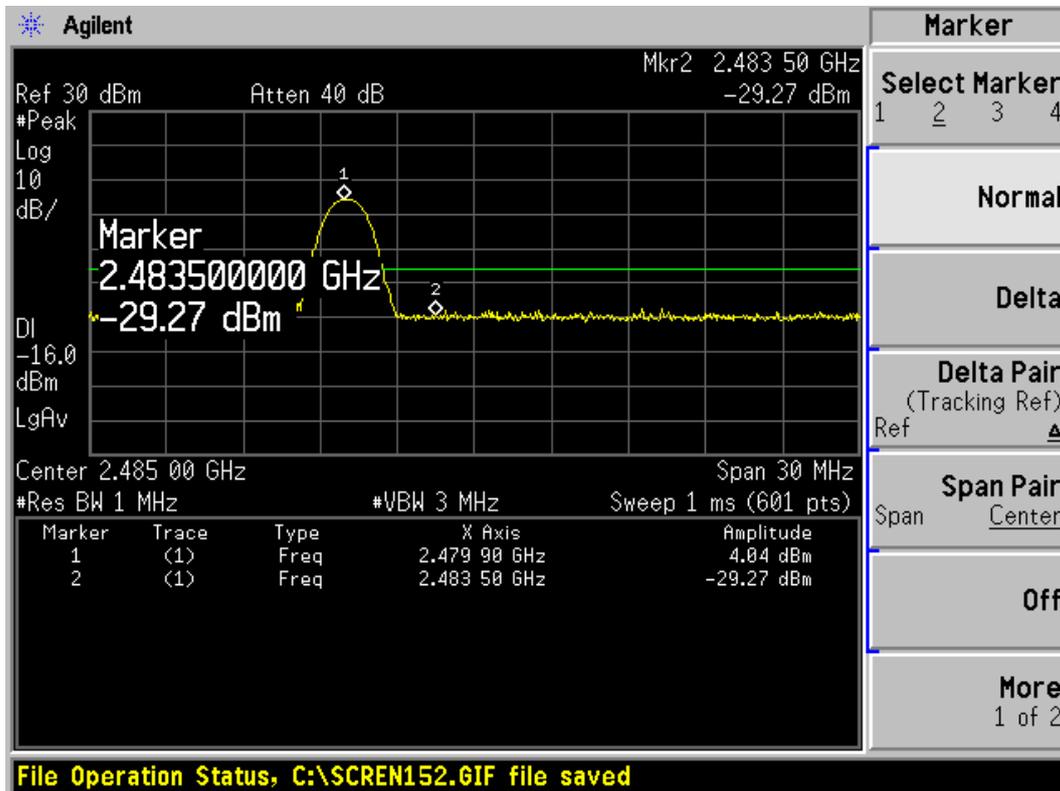
Report No.: RHA1209-0083RF04R2

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Hopping Off-DH5



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



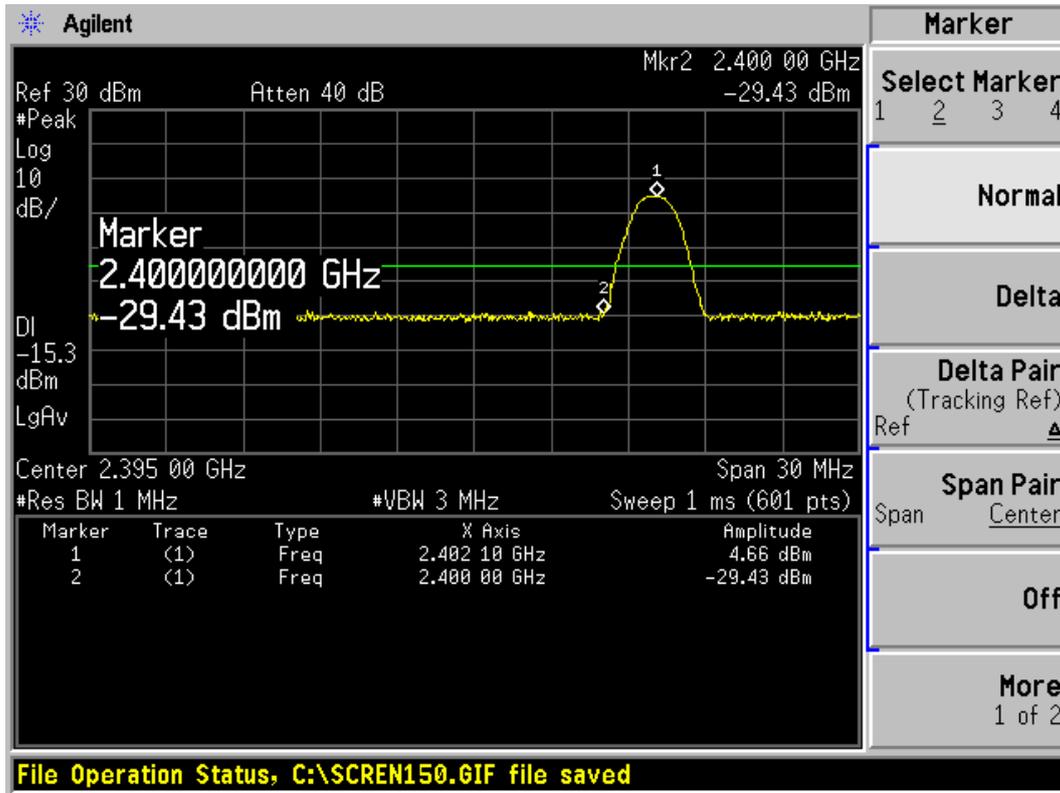
Carrier frequency (MHz): 2480
Channel No.:78

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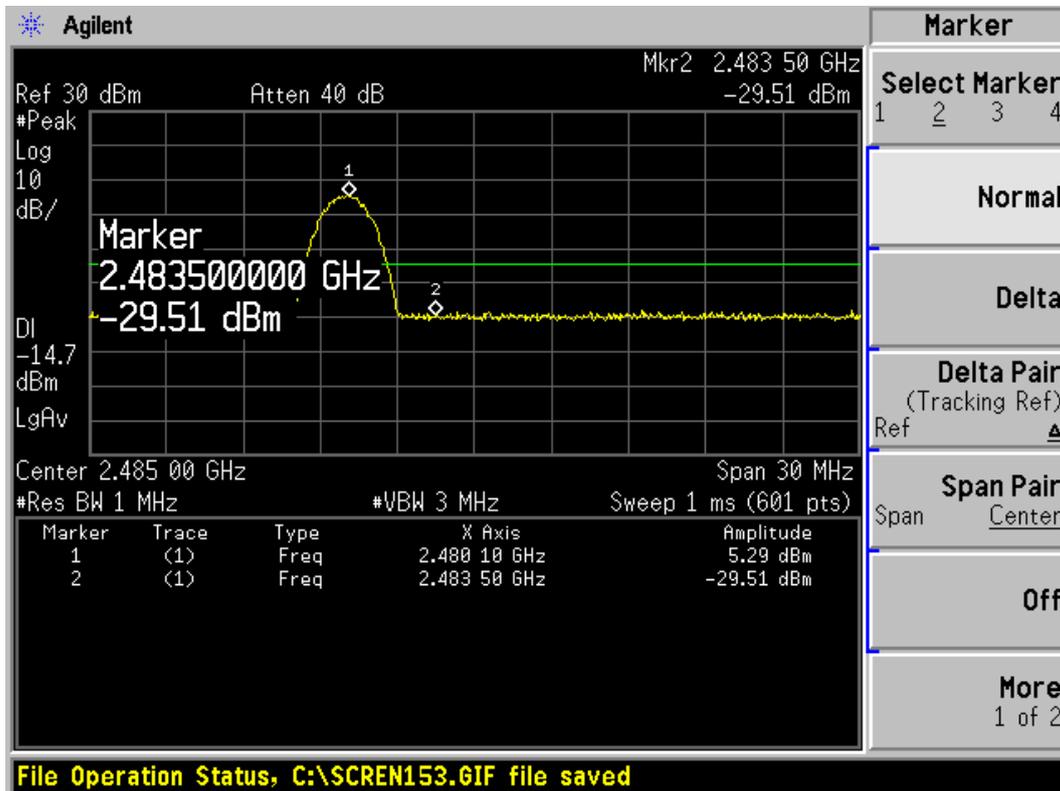
Report No.: RHA1209-0083RF04R2

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Hopping Off-2DH5



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



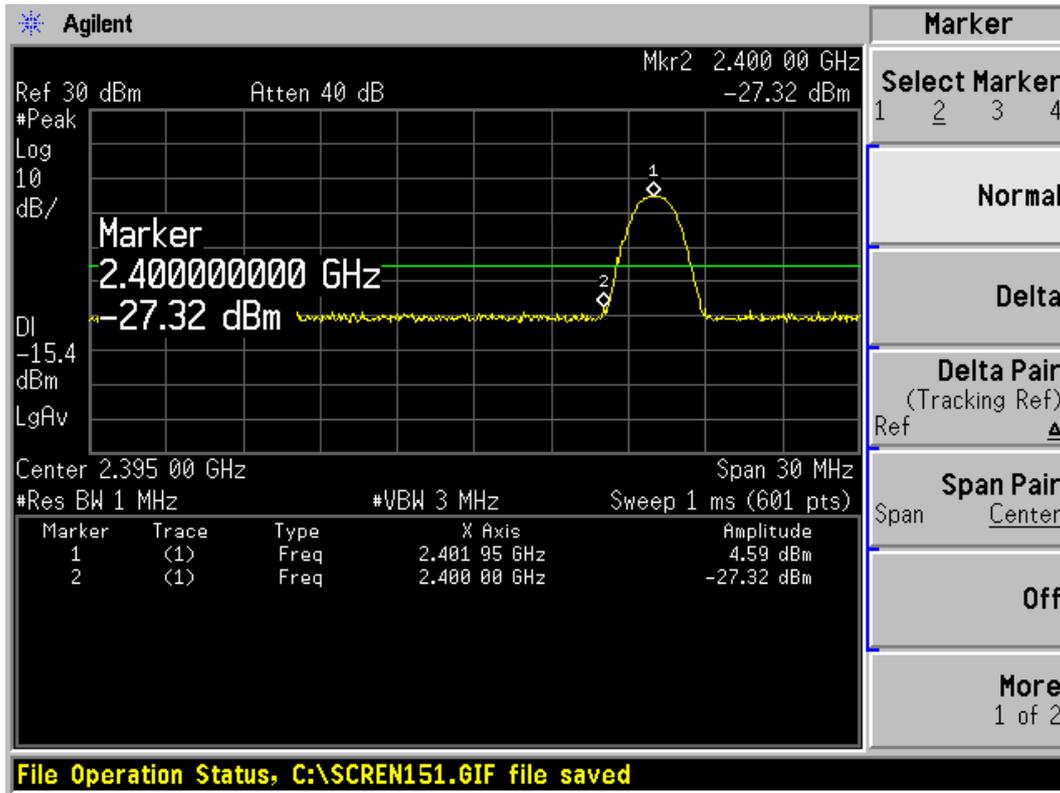
Carrier frequency (MHz): 2480
Channel No.:78

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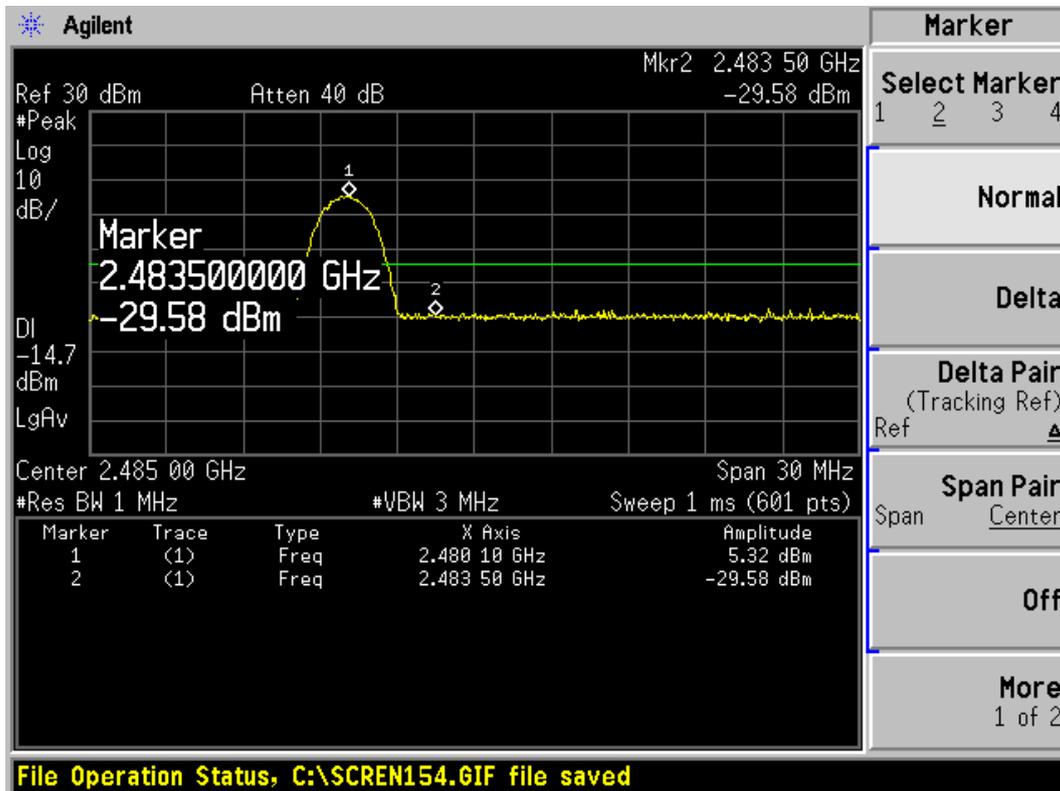
Report No.: RHA1209-0083RF04R2

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Hopping Off-3DH5



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



Carrier frequency (MHz): 2480
Channel No.:78

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Test Report

2.7. 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:

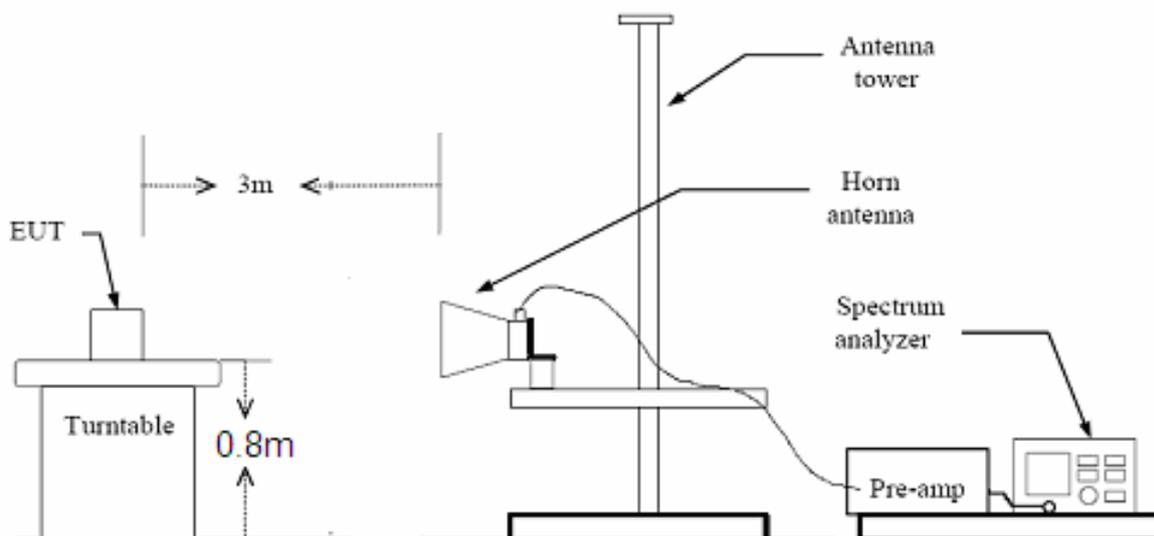
- (a) PEAK: RBW=VBW=1MHz / Sweep=AUTO
- (b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO

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

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 (Z axis) and the worst case was recorded.

The test is in transmit mode.

Test setup



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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=74 dBuV/m

Average Limit=54 dBuV/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.

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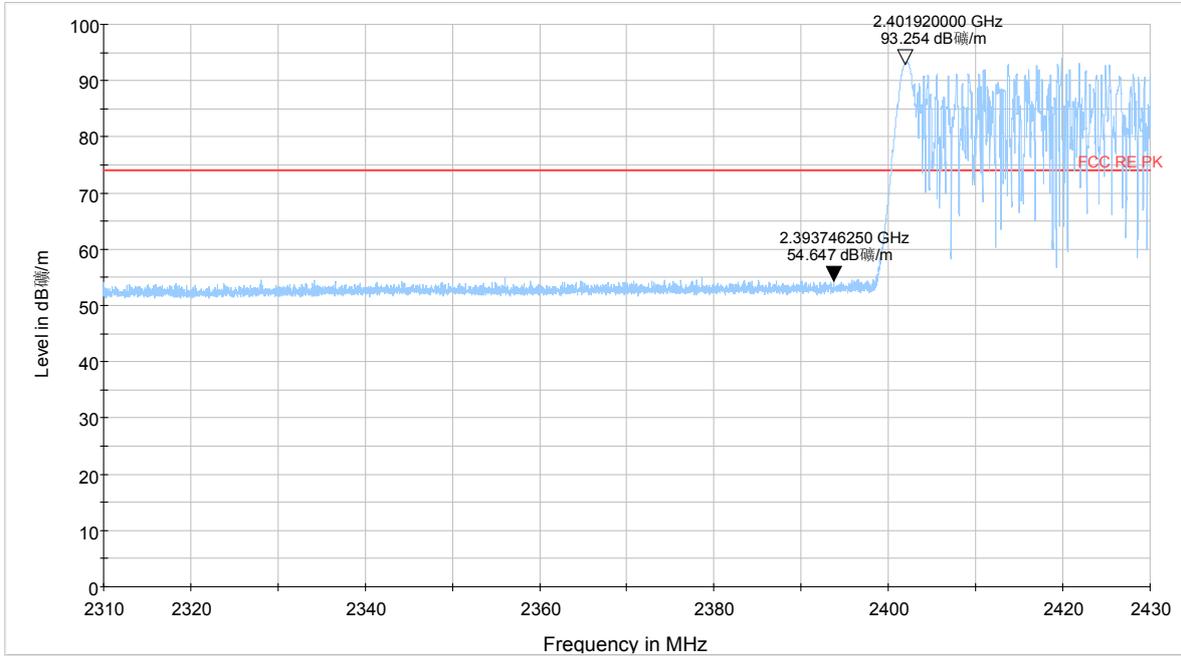
Report No.: RHA1209-0083RF04R2

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Test Results:

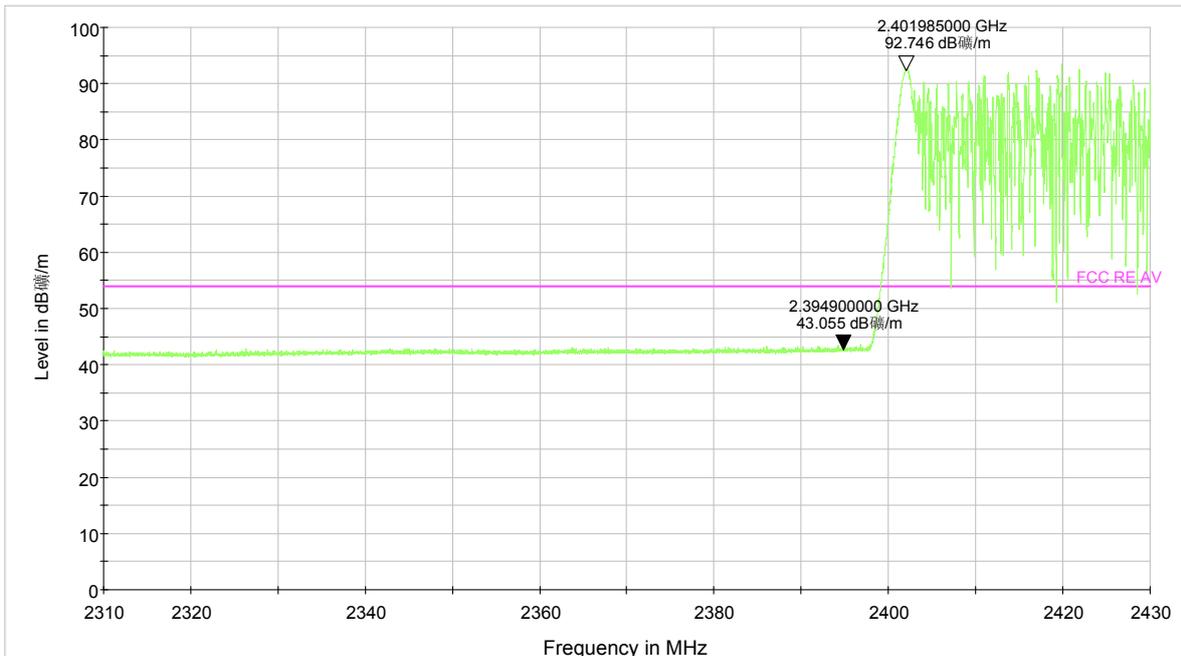
Basic Rate- Channel 0

lower band edge Peak-CH 0



Note: The signal beyond the limit is carrier

lower band edge average-CH 0



Note: The signal beyond the limit is carrier

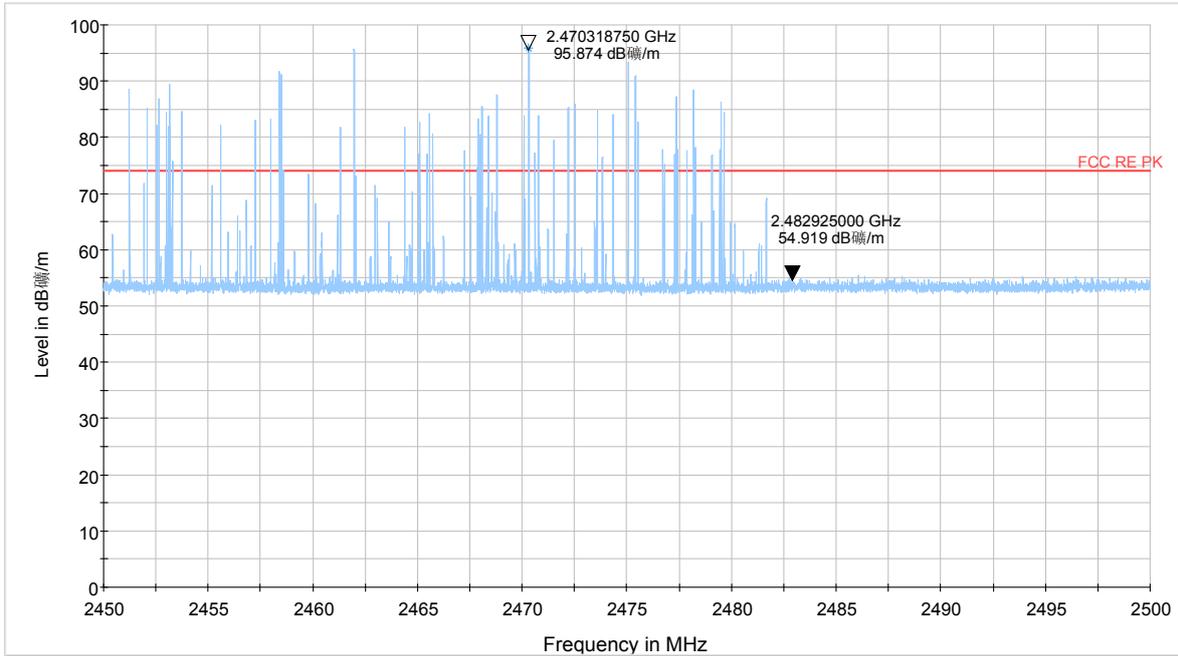
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Basic Rate- Channel 78

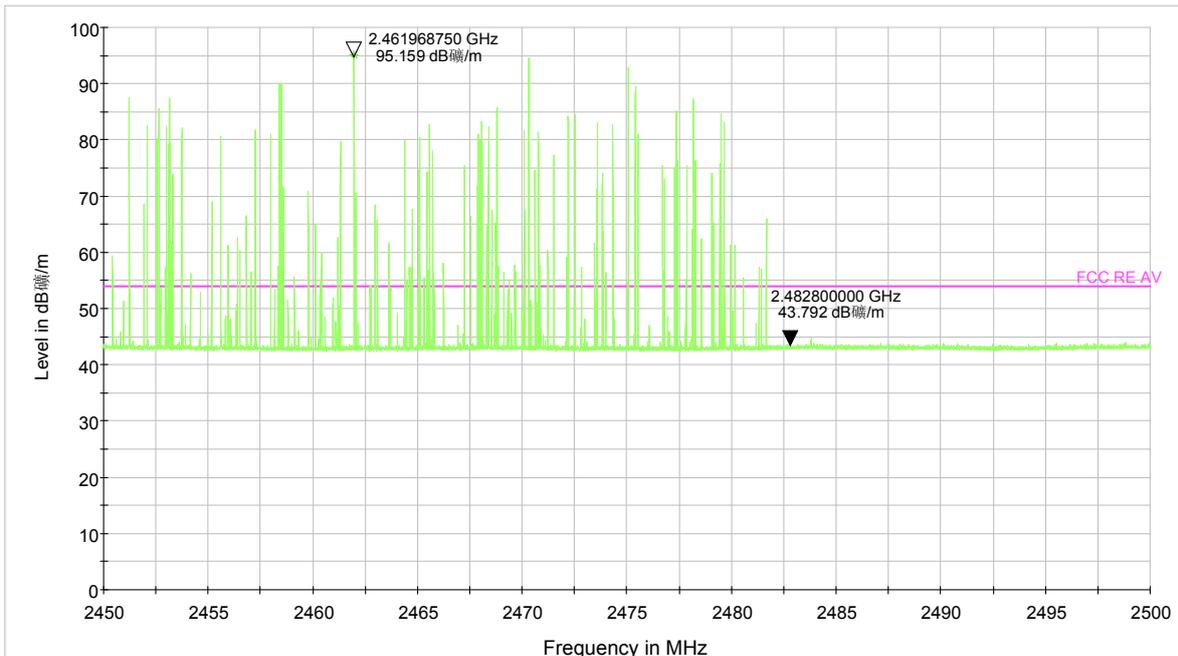
Higher band edge Peak-CH 78



— FCC RE PK.LimitLine — Preview Result 1 * Data Reduction Result 1 [2]

Note: The signal beyond the limit is carrier

Higher band edge average-CH 78



— FCC RE AV.LimitLine — Preview Result 2 * Data Reduction Result 2 [2]

Note: The signal beyond the limit is carrier

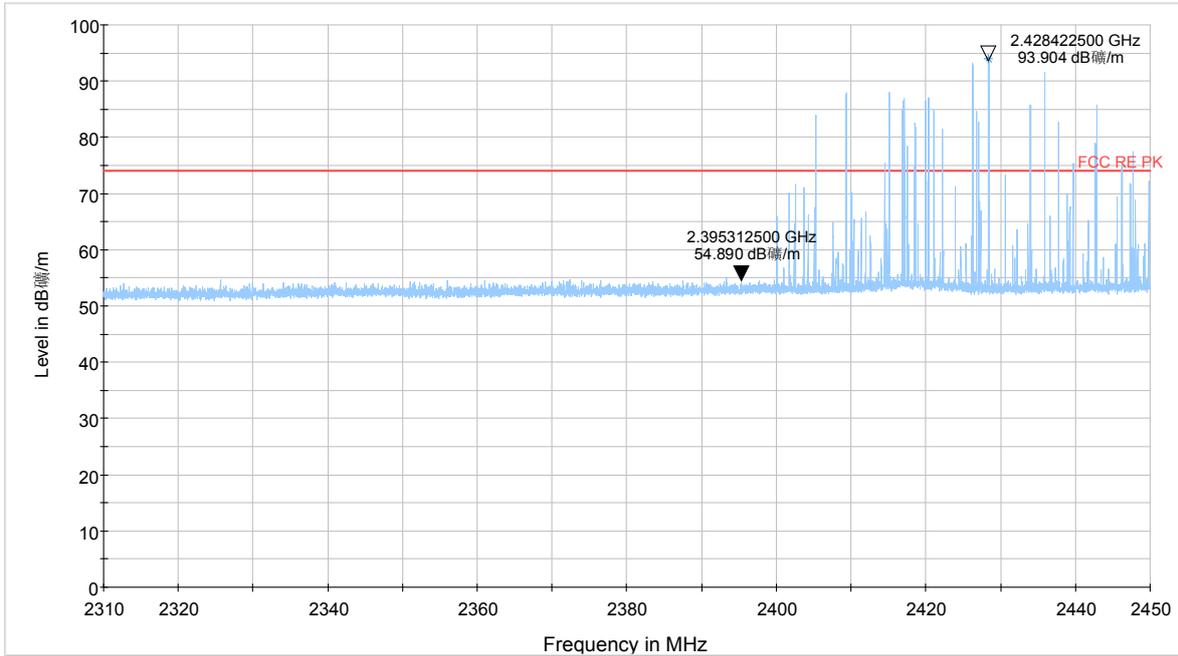
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EDR(3DH5)- Channel 0

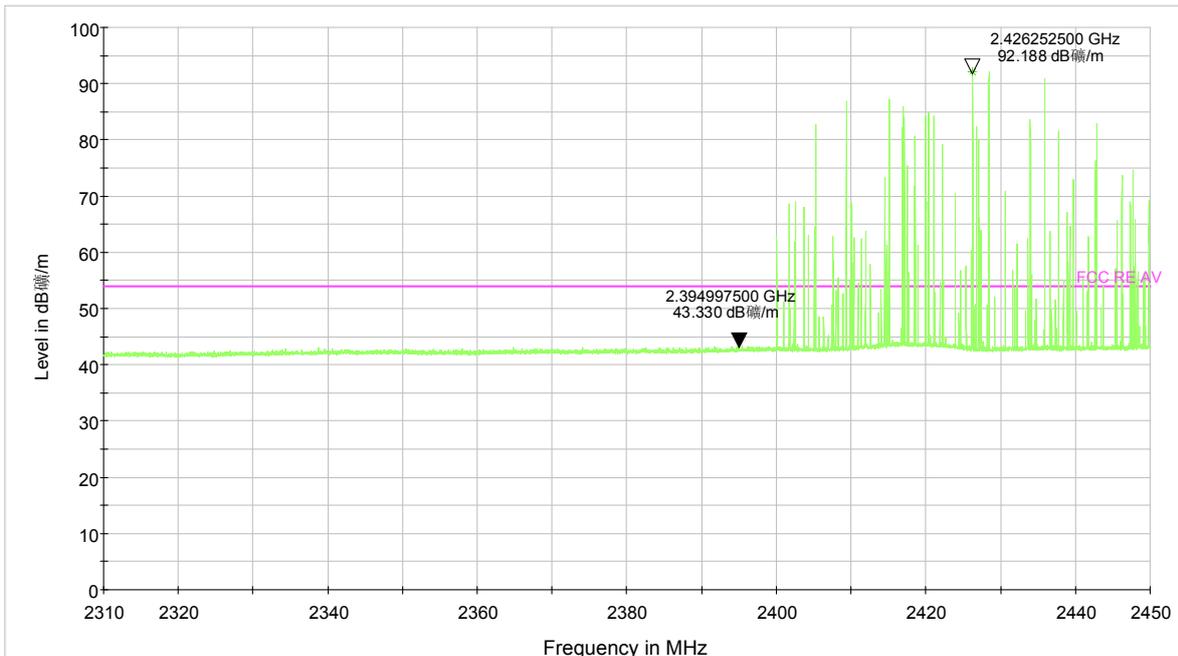
lower band edge Peak-CH 0



— FCC RE PK.LimitLine — Preview Result 1 * Data Reduction Result 1 [2]

Note: The signal beyond the limit is carrier

lower band edge average-CH 0



— FCC RE AV.LimitLine — Preview Result 2 * Data Reduction Result 2 [2]

Note: The signal beyond the limit is carrier

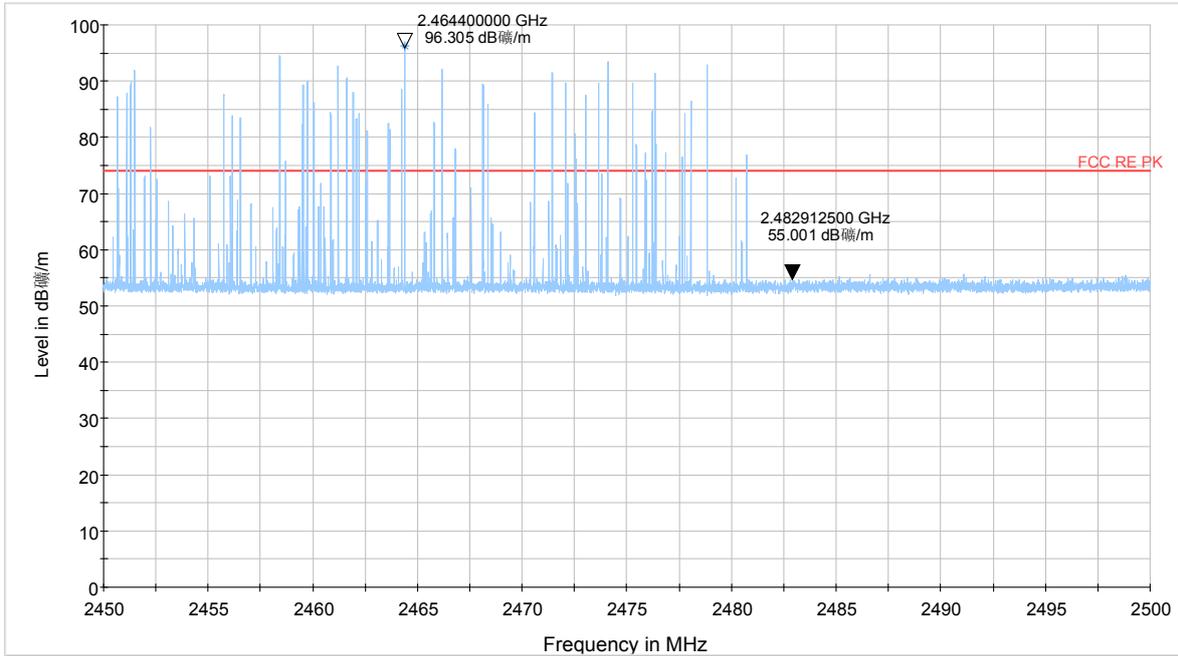
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EDR(3DH5)- Channel 78

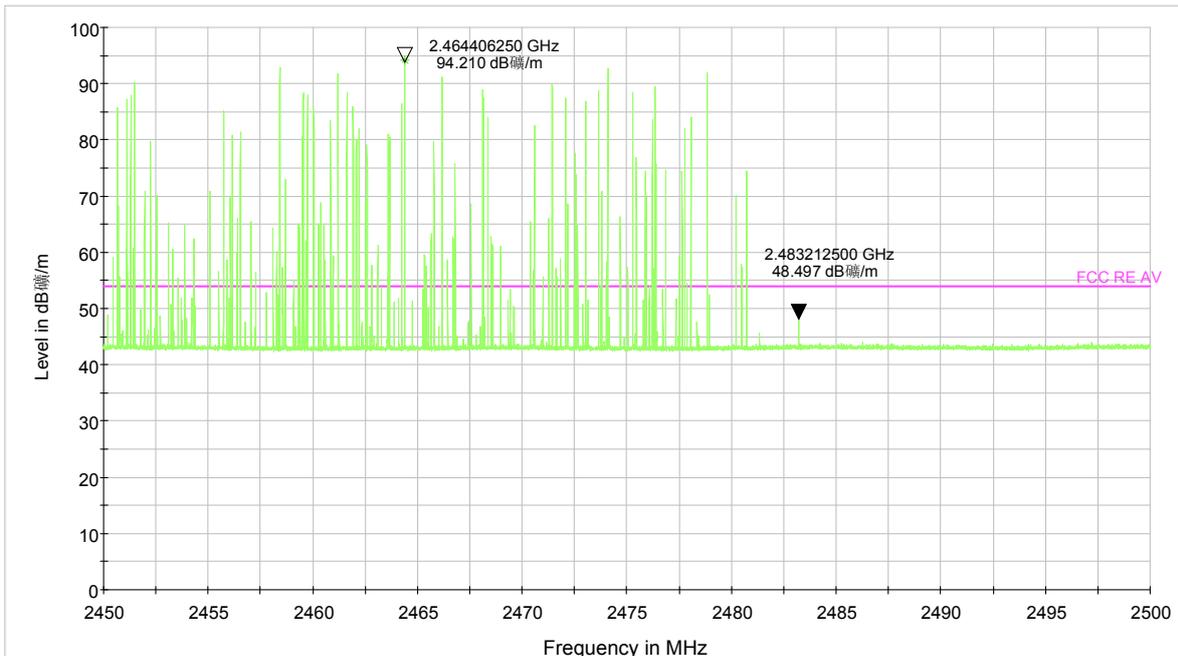
Higher band edge Peak-CH 78



— FCC RE PK.LimitLine — Preview Result 1 * Data Reduction Result 1 [2]

Note: The signal beyond the limit is carrier

Higher band edge average-CH 78



— FCC RE AV.LimitLine — Preview Result 2 * Data Reduction Result 2 [2]

Note: The signal beyond the limit is carrier

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Test Report

2.8. Number of hopping Frequency

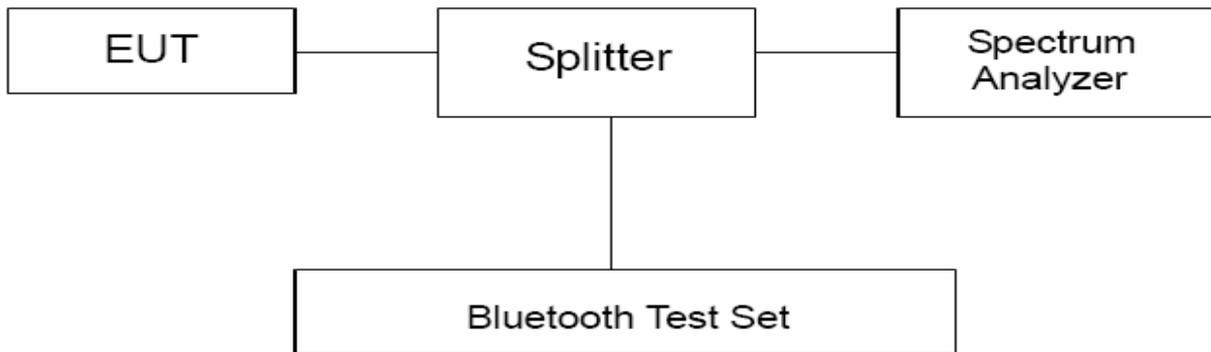
Ambient condition

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

Method of Measurement

The Equipment Under Test (EUT) was set up in a shielded room to perform the spurious emissions measurements. The EUT was connected to the spectrum analyzer and Bluetooth test set via a power splitter with a known loss. RBW is set to 300kHz and VBW is set to 300kHz 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
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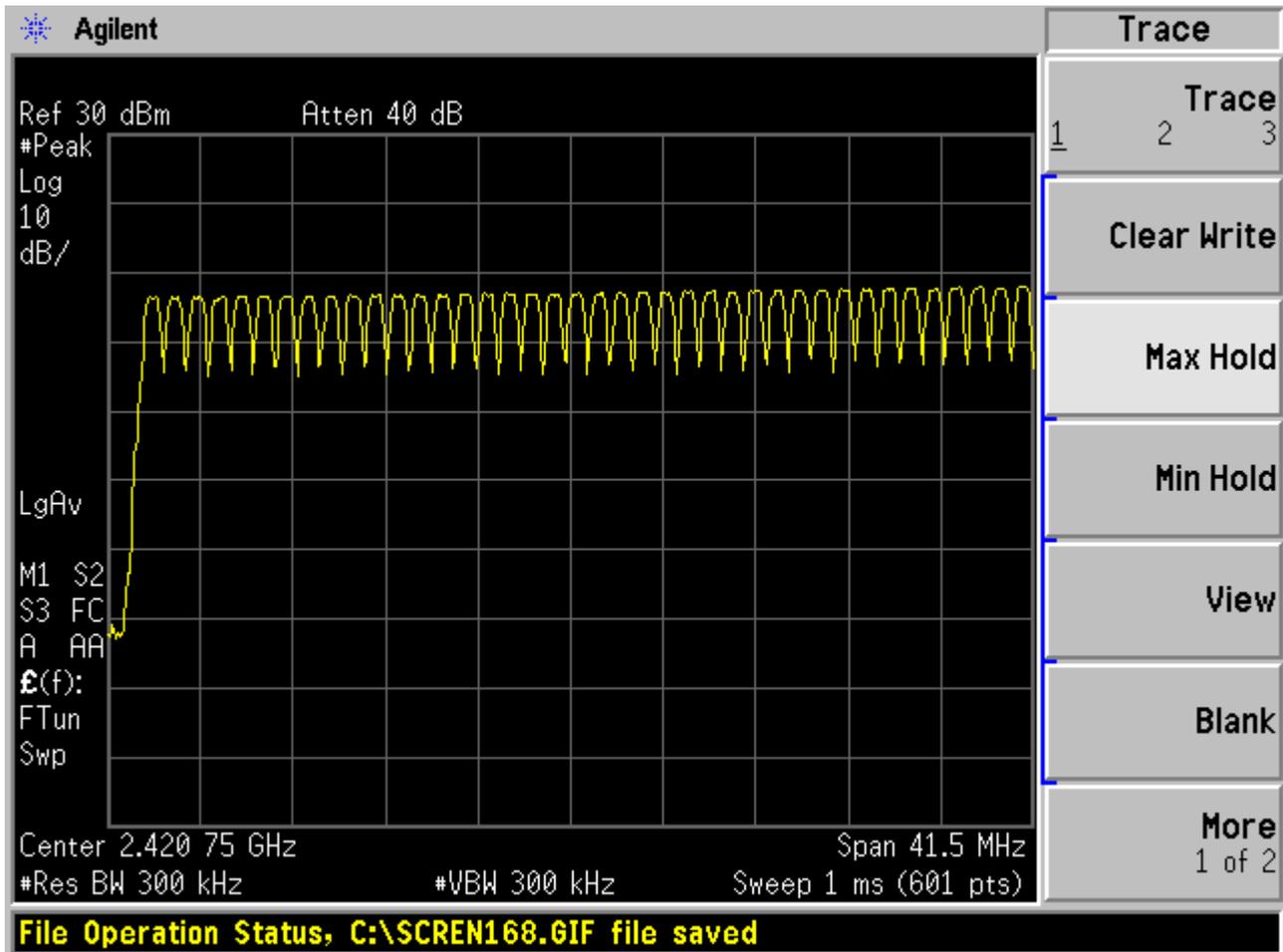
Report No.: RHA1209-0083RF04R2

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Test Results:

DH5

Number of hopping channels	conclusion
79	PASS

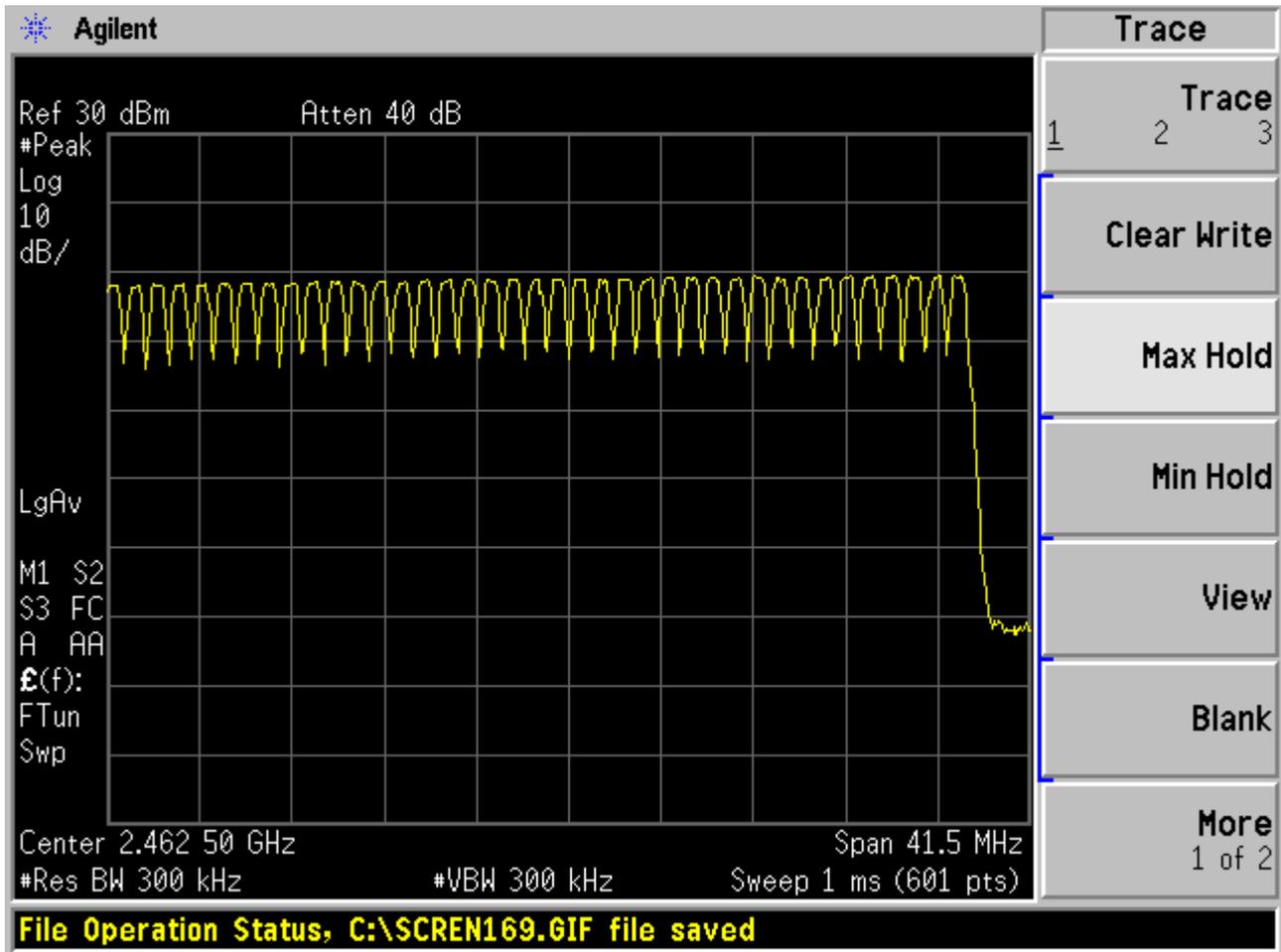


2400 MHz – 2441 MHz

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2441 MHz - 2483.5 MHz

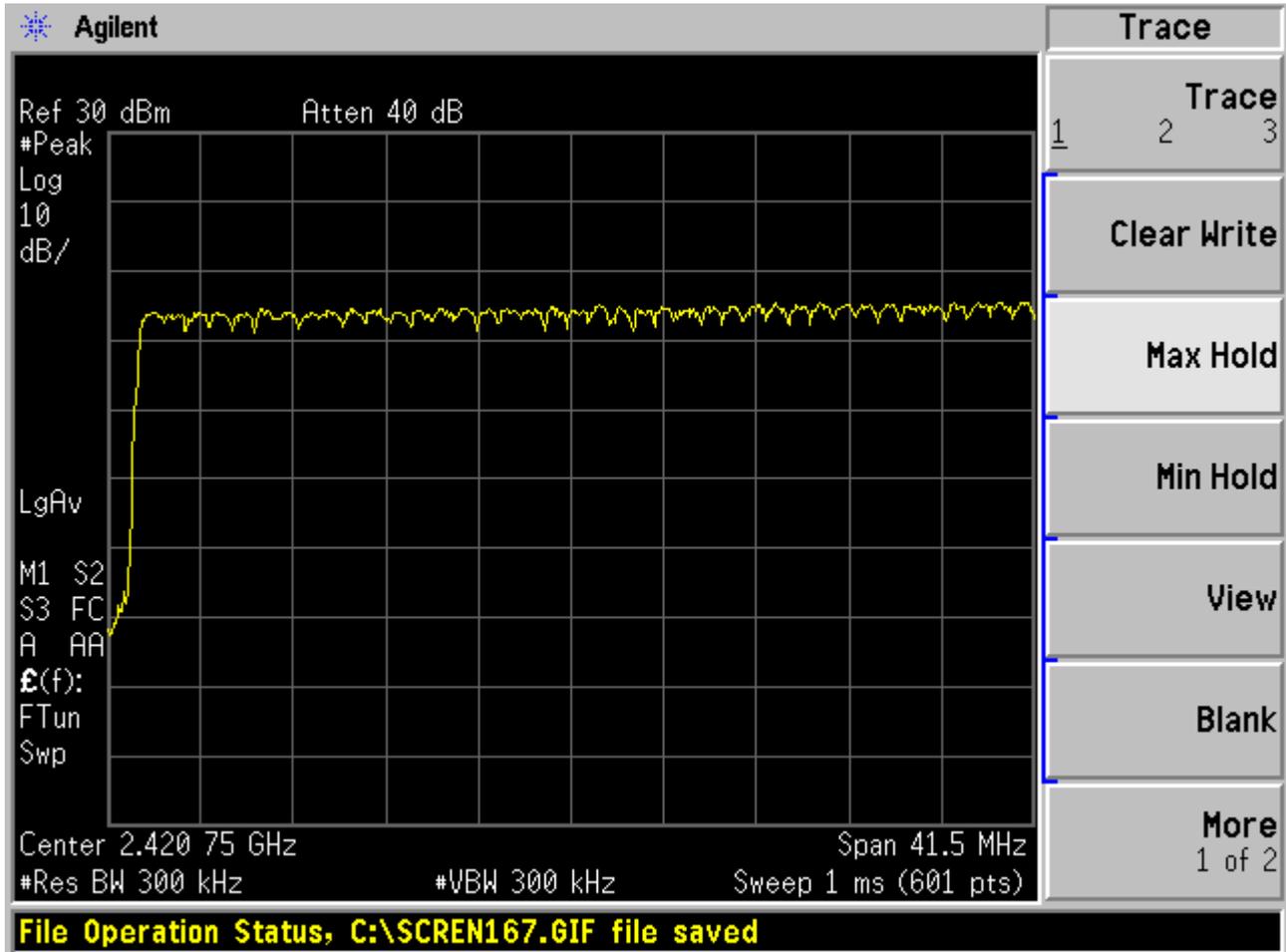
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2DH5

Number of hopping channels	conclusion
79	PASS

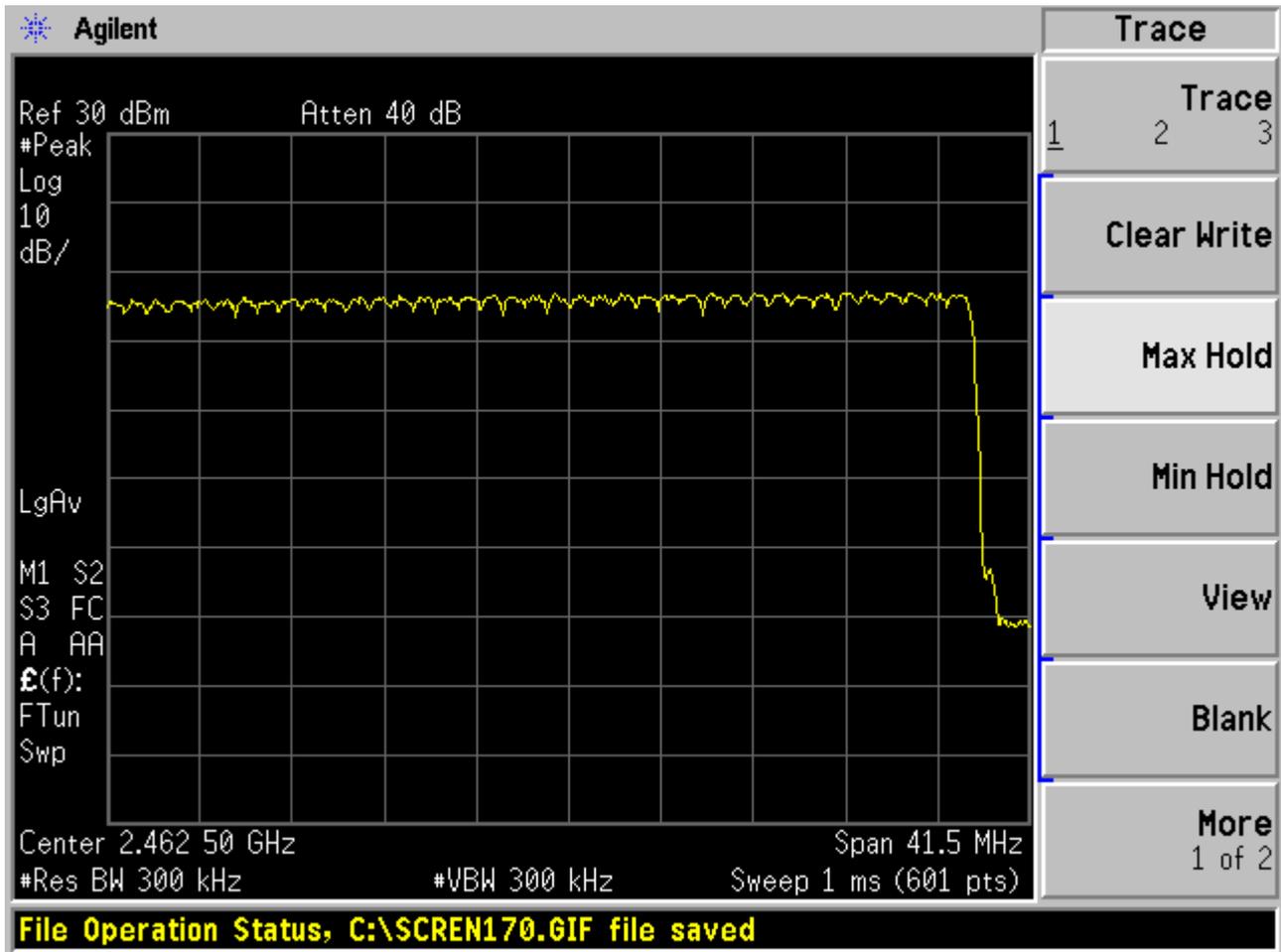


2400 MHz – 2441 MHz

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Test Report

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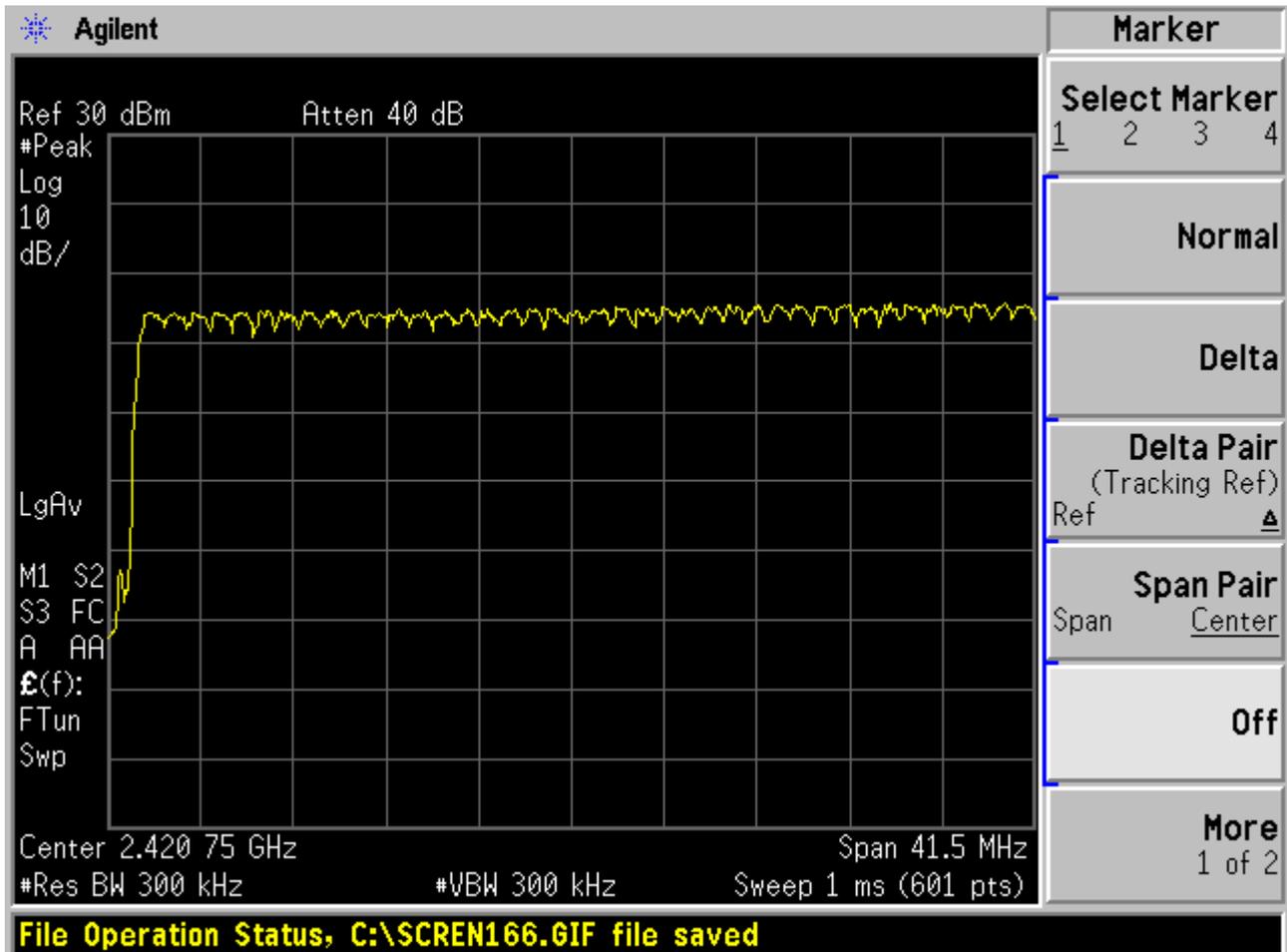


2441 MHz – 2483.5 MHz

TA Technology (Shanghai) Co., Ltd. Test Report

3DH5

Number of hopping channels	conclusion
79	PASS

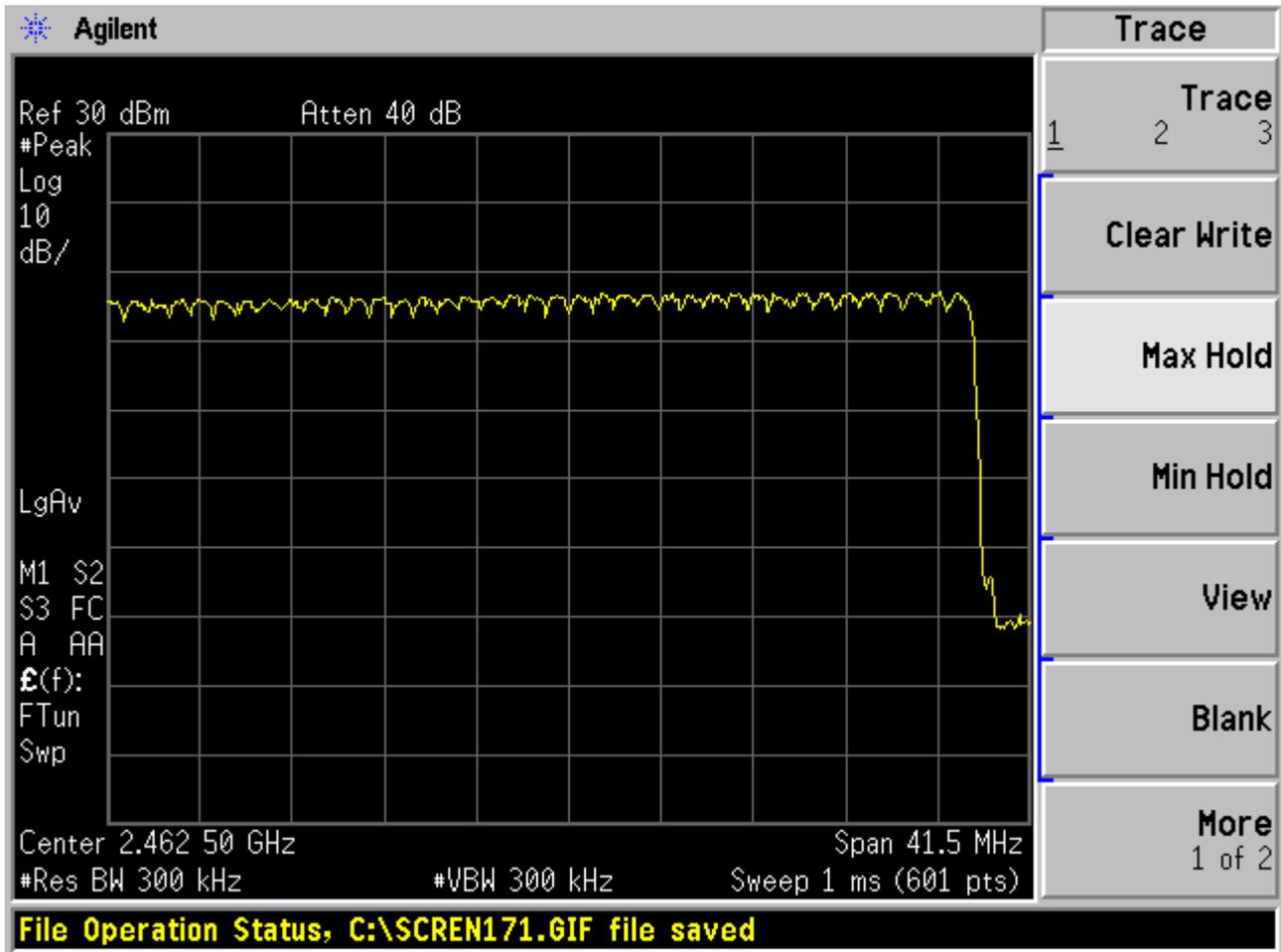


2400 MHz – 2441 MHz

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2441 MHz - 2483.5 MHz

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2.9. Spurious RF Conducted Emissions

Ambient condition

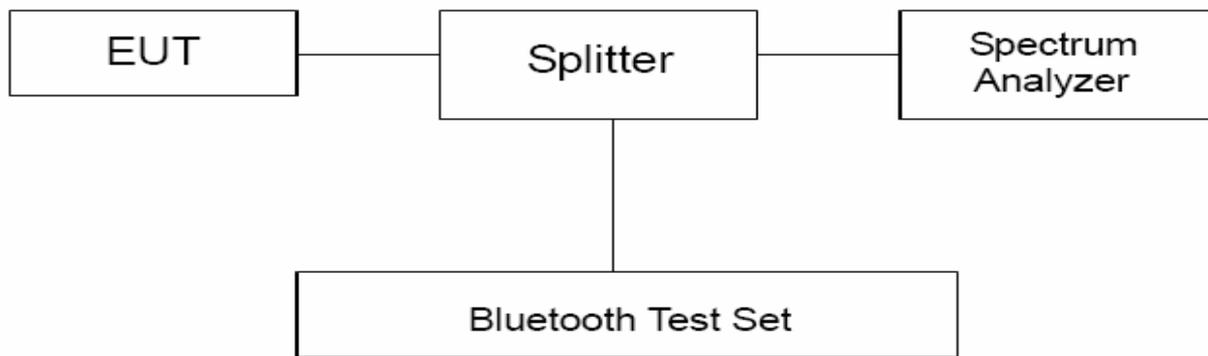
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

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 transmit 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 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
Basic Rate	2402	6.51	≤-13.49
	2441	8.11	≤-11.89
	2480	9.53	≤-10.47
EDR(3DH5)	2402	6.44	≤-13.56
	2441	7.96	≤-12.04
	2480	9.15	≤-10.85

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Measurement Uncertainty

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

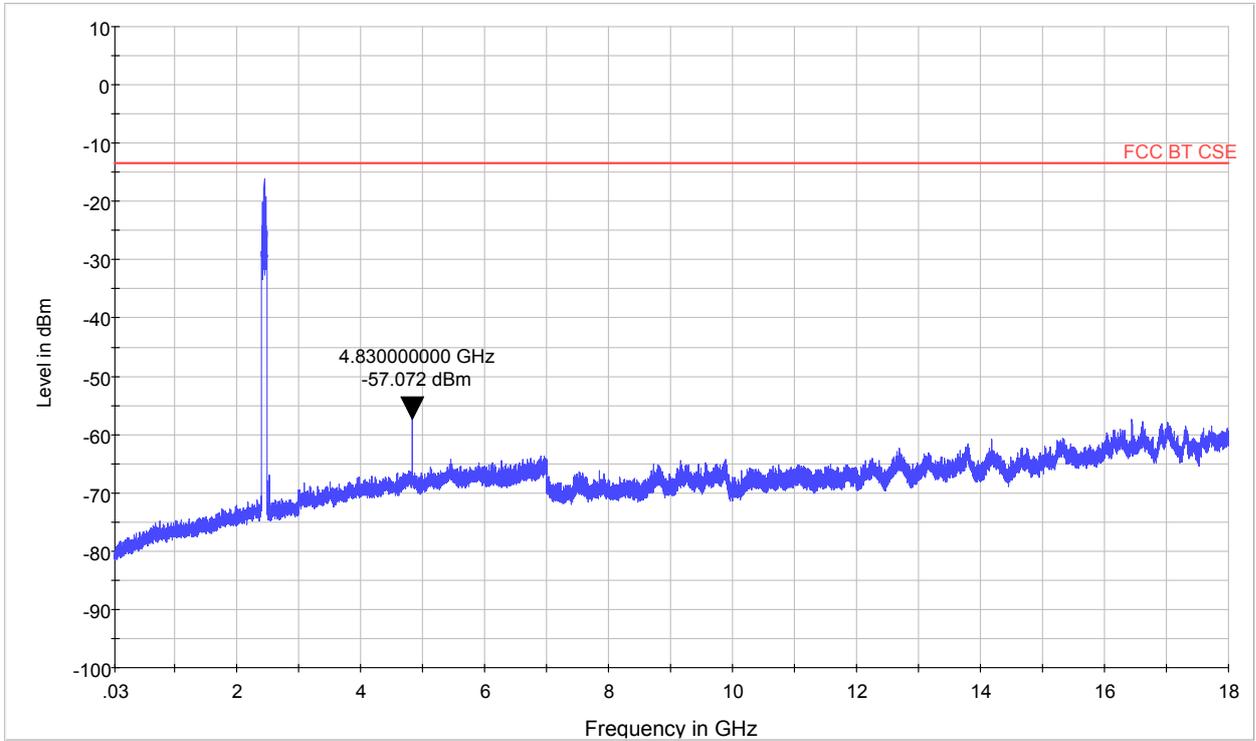
Frequency	Uncertainty
100kHz-2GHz	0.684 dB
2GHz-26GHz	1.407 dB

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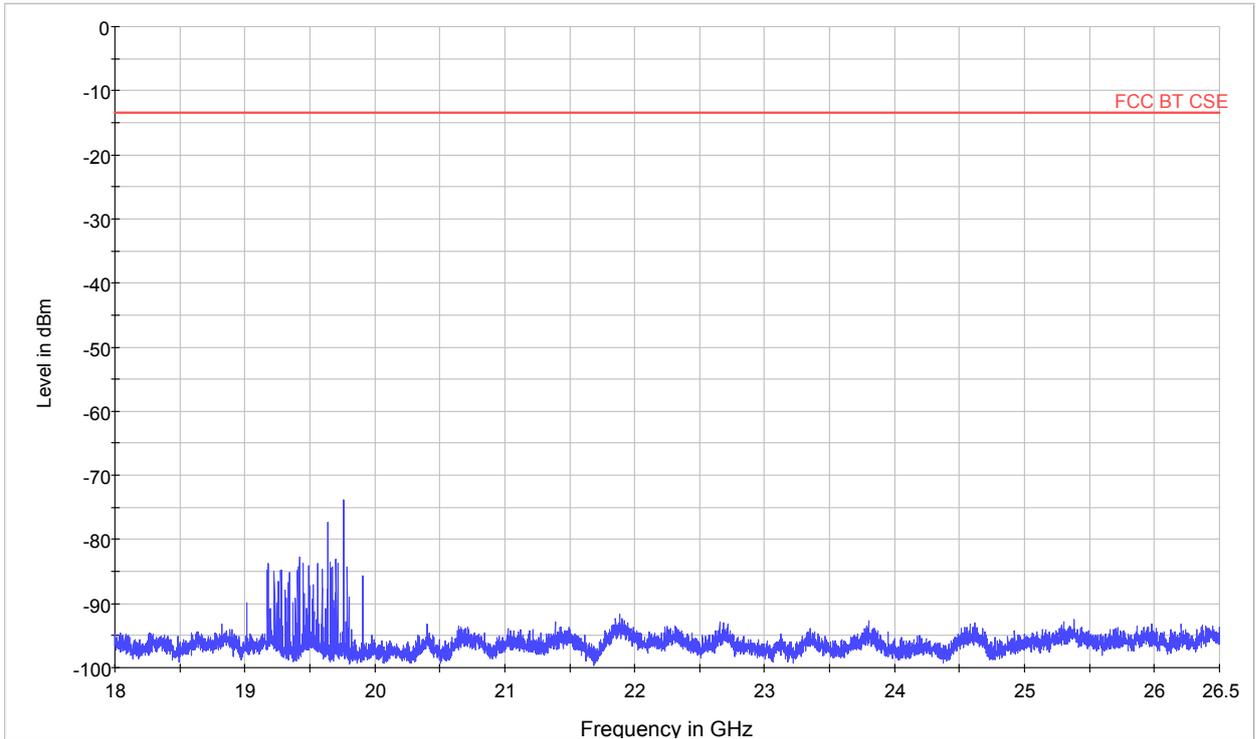
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Test Results: Basic Rate-CH0:



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

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Spurious RF conducted emissions from 18GHz to 26.5GHz

Harmonic	TX ch.0 Frequency (MHz)	Level (dBm)	Limit (dBm)
2	4830	-57.072	≤-13.49
3	7206	Nf	≤-13.49
4	9608	Nf	≤-13.49
5	12010	Nf	≤-13.49
6	14412	Nf	≤-13.49
7	16814	Nf	≤-13.49
8	19216	Nf	≤-13.49
9	21618	Nf	≤-13.49
10	24020	Nf	≤-13.49
Nf: noise floor			

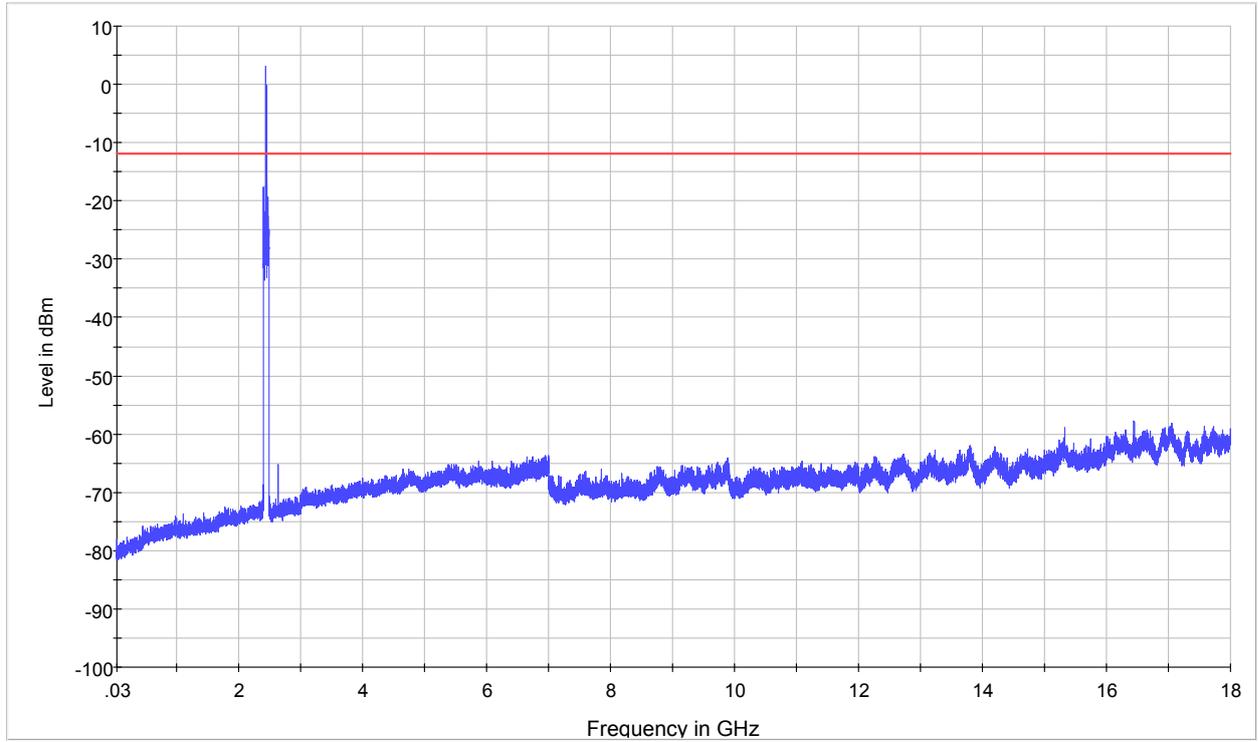
Note: The other Spurious RF conducted emissions level is no more than noise floor.

TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RHA1209-0083RF04R2

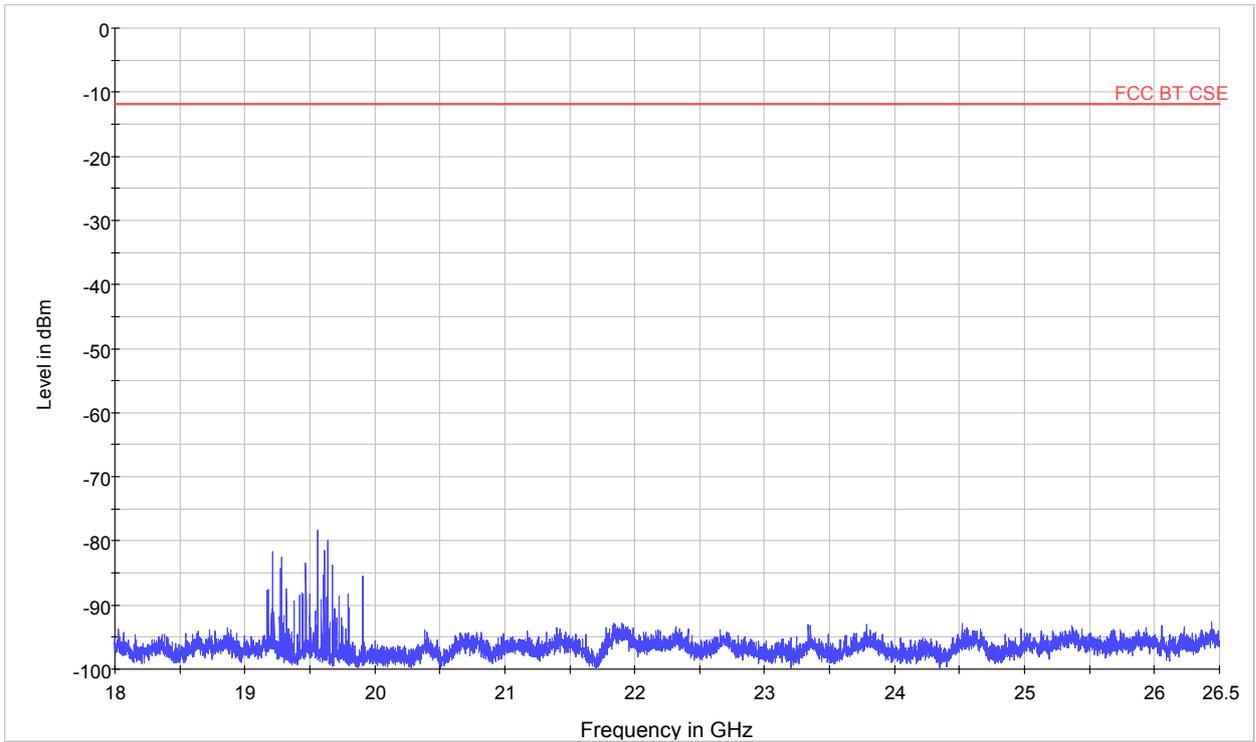
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Basic Rate-CH39:



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

TA Technology (Shanghai) Co., Ltd. Test Report



Spurious RF conducted emissions from 18GHz to 26.5GHz

Harmonic	TX ch.39 Frequency (MHz)	Level (dBm)	Limit (dBm)
2	4882	Nf	≤ -11.89
3	7323	Nf	≤ -11.89
4	9764	Nf	≤ -11.89
5	12205	Nf	≤ -11.89
6	14646	Nf	≤ -11.89
7	17087	Nf	≤ -11.89
8	19528	Nf	≤ -11.89
9	21969	Nf	≤ -11.89
10	24410	Nf	≤ -11.89
Nf: noise floor			

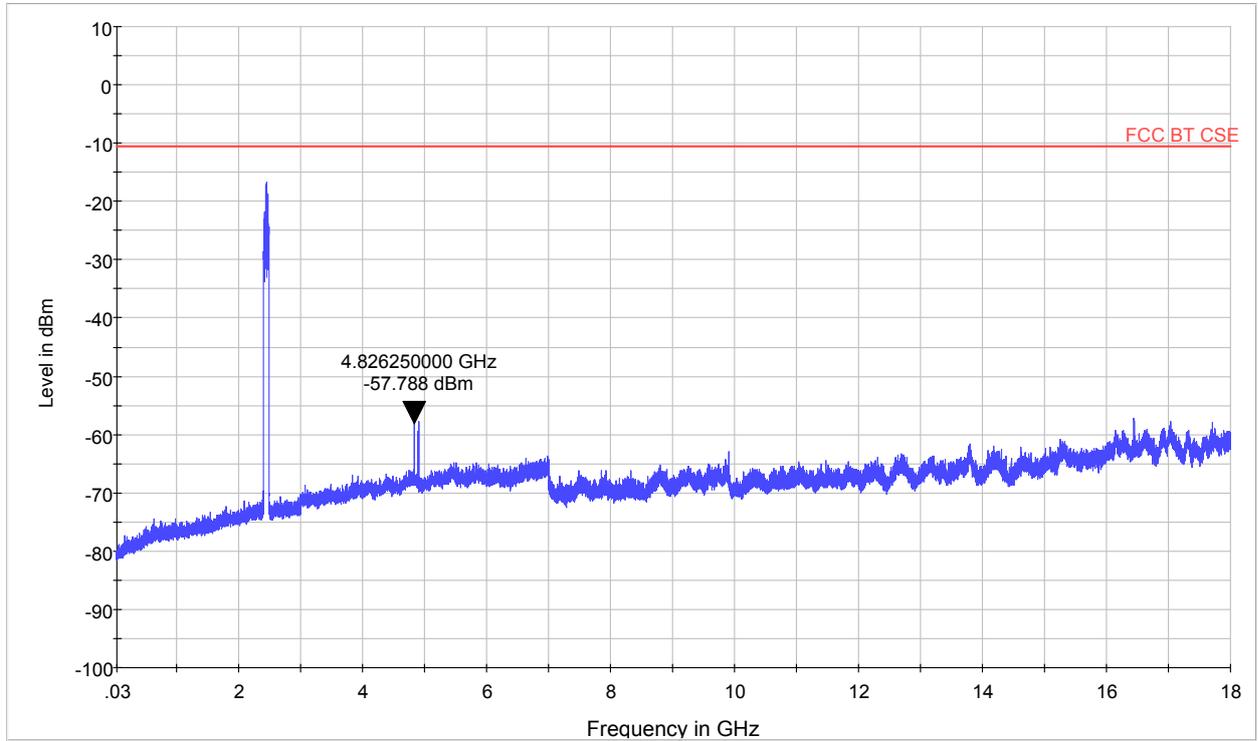
Note: The other Spurious RF conducted emissions level is no more than noise floor.

TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RHA1209-0083RF04R2

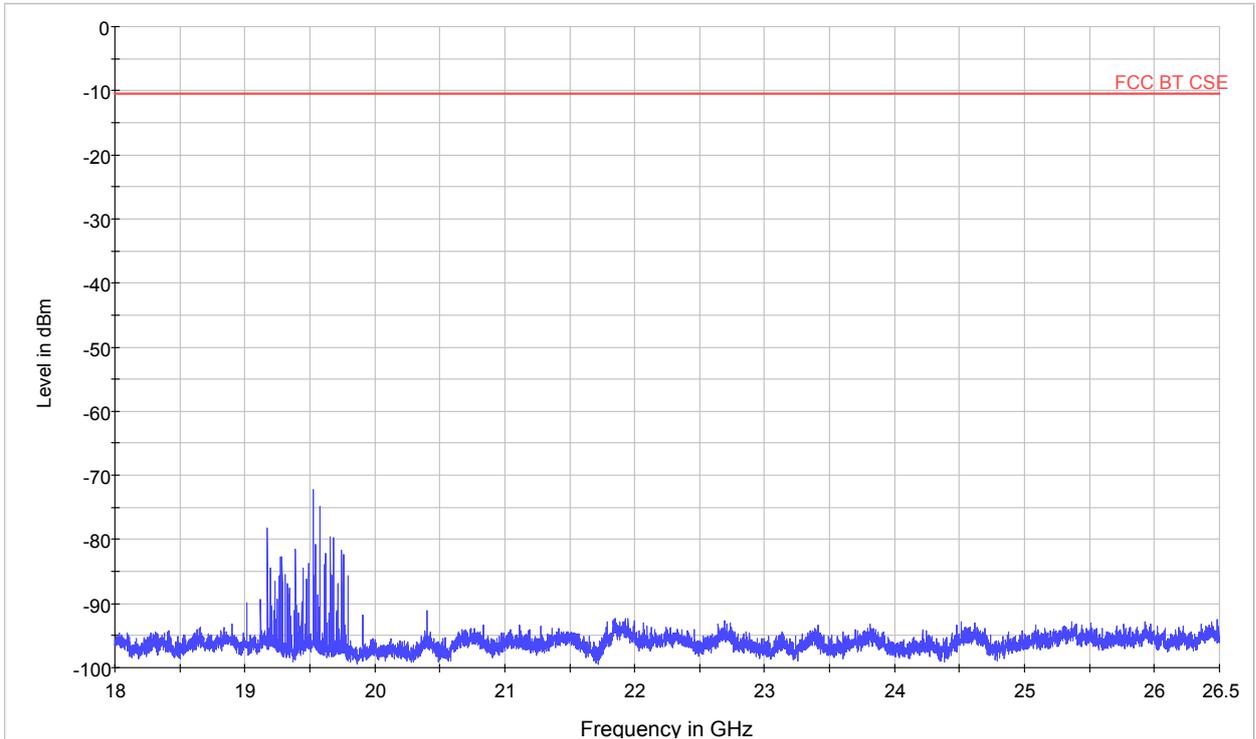
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Basic Rate-CH78:



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

TA Technology (Shanghai) Co., Ltd. Test Report



Spurious RF conducted emissions from 18GHz to 26.5GHz

Harmonic	TX ch.78 Frequency (MHz)	Level (dBm)	Limit (dBm)
2	4826.25	-57.788	≤ -10.47
3	7440	Nf	≤ -10.47
4	9920	Nf	≤ -10.47
5	12400	Nf	≤ -10.47
6	14880	Nf	≤ -10.47
7	17360	Nf	≤ -10.47
8	19840	Nf	≤ -10.47
9	22320	Nf	≤ -10.47
10	24800	Nf	≤ -10.47
Nf: noise floor			

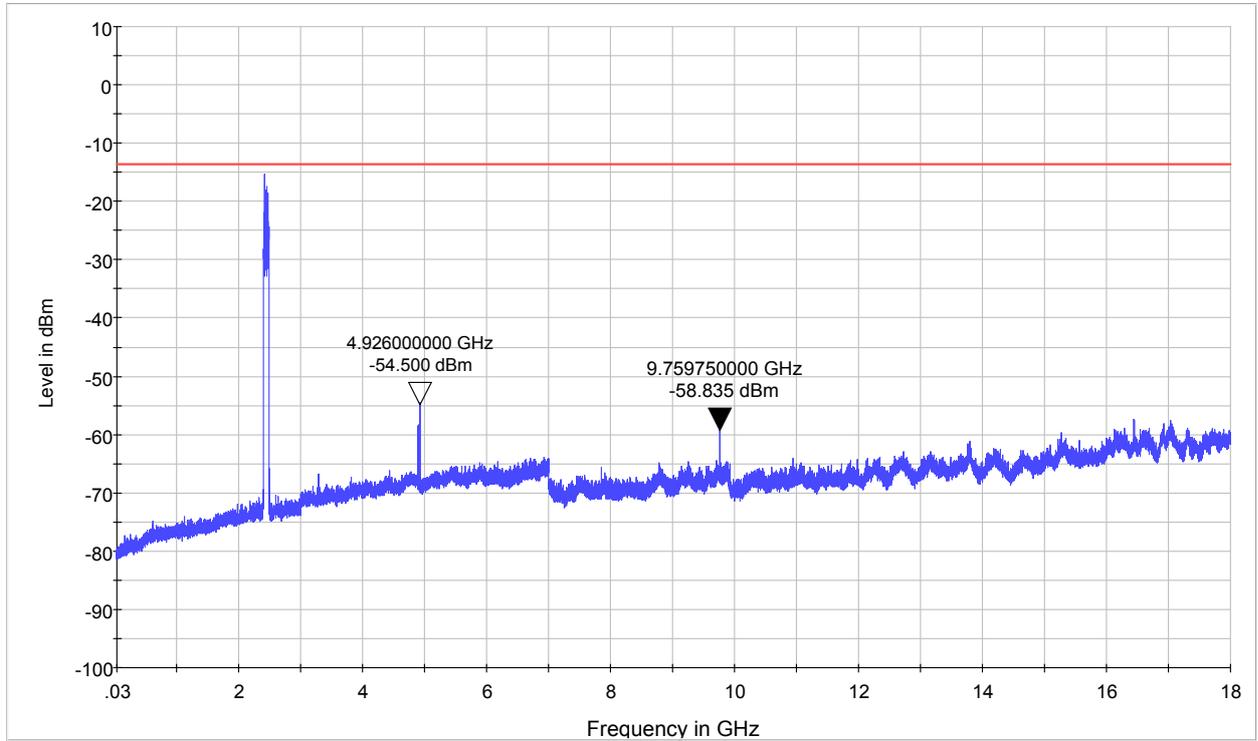
Note: The other Spurious RF conducted emissions level is no more than noise floor.

TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RHA1209-0083RF04R2

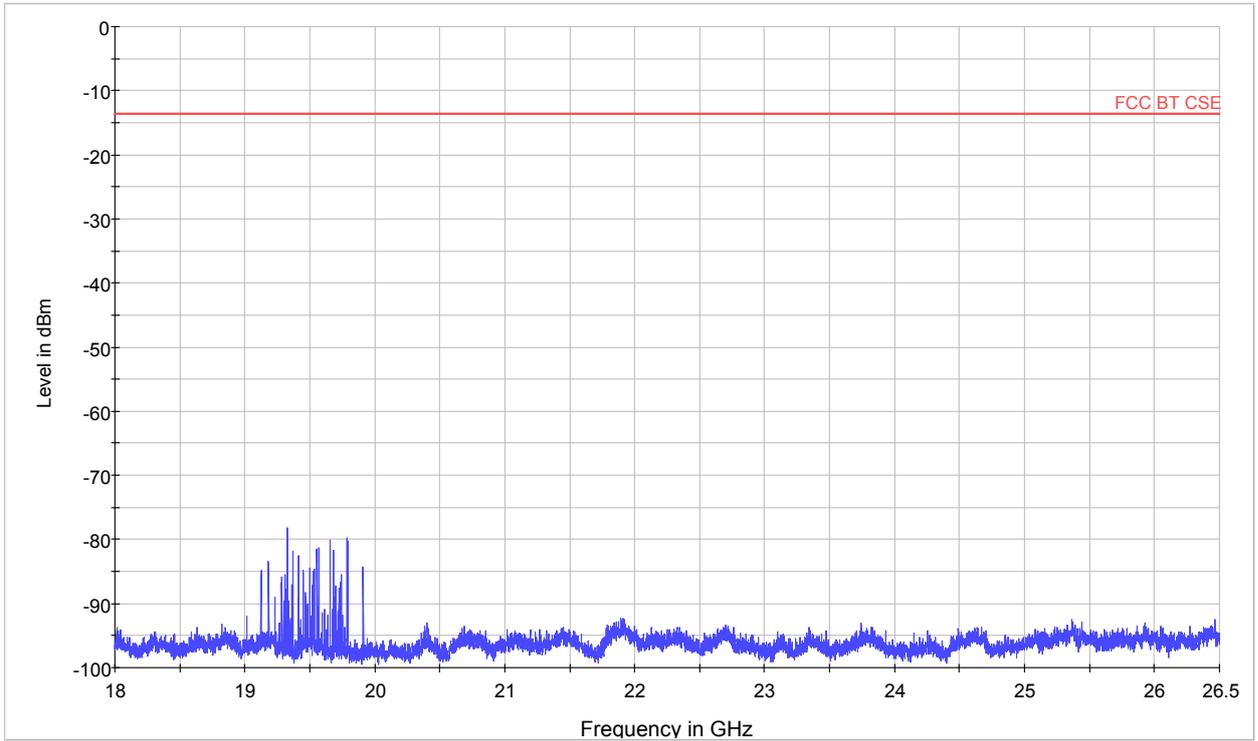
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EDR(3DH5)-CH0:



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

TA Technology (Shanghai) Co., Ltd. Test Report



Spurious RF conducted emissions from 18GHz to 26.5GHz

Harmonic	TX ch.0 Frequency (MHz)	Level (dBm)	Limit (dBm)
2	4926.00	-54.50	≤ -13.56
3	7206	Nf	≤ -13.56
4	9759.75	-58.835	≤ -13.56
5	12010	Nf	≤ -13.56
6	14412	Nf	≤ -13.56
7	16814	Nf	≤ -13.56
8	19216	Nf	≤ -13.56
9	21618	Nf	≤ -13.56
10	24020	Nf	≤ -13.56
Nf: noise floor			

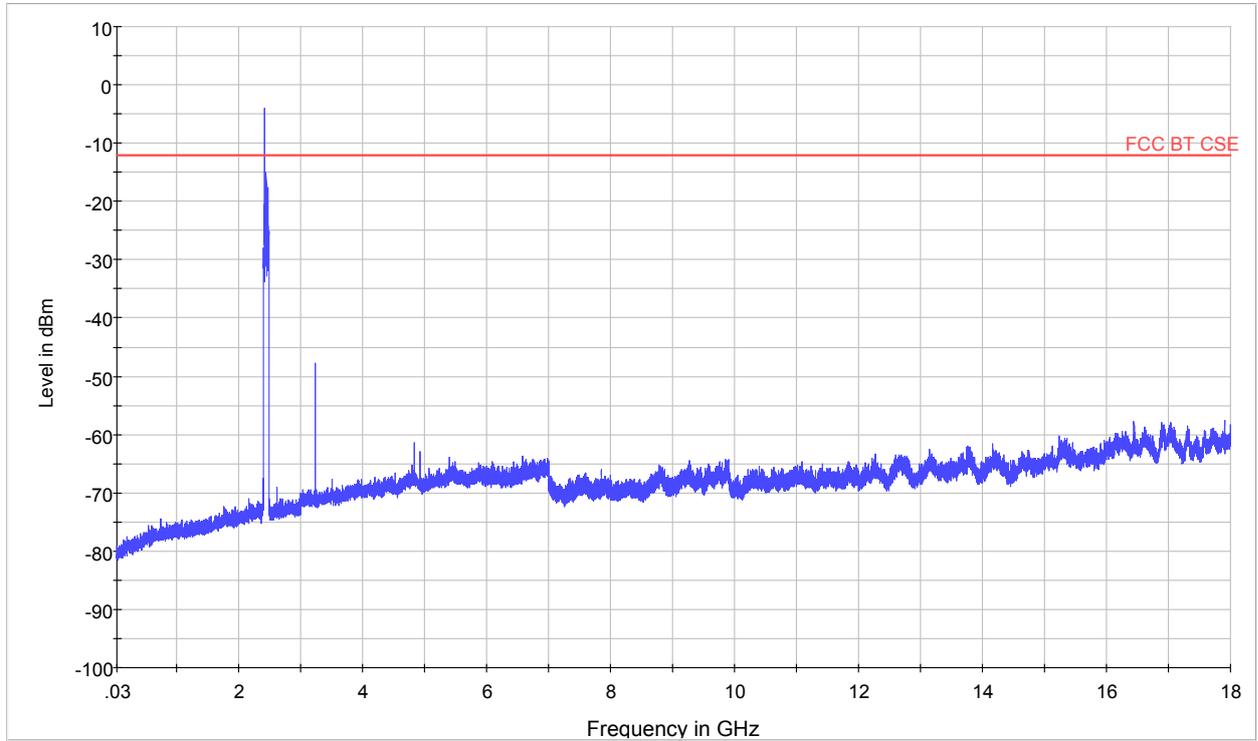
Note: The other Spurious RF conducted emissions level is no more than noise floor.

TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RHA1209-0083RF04R2

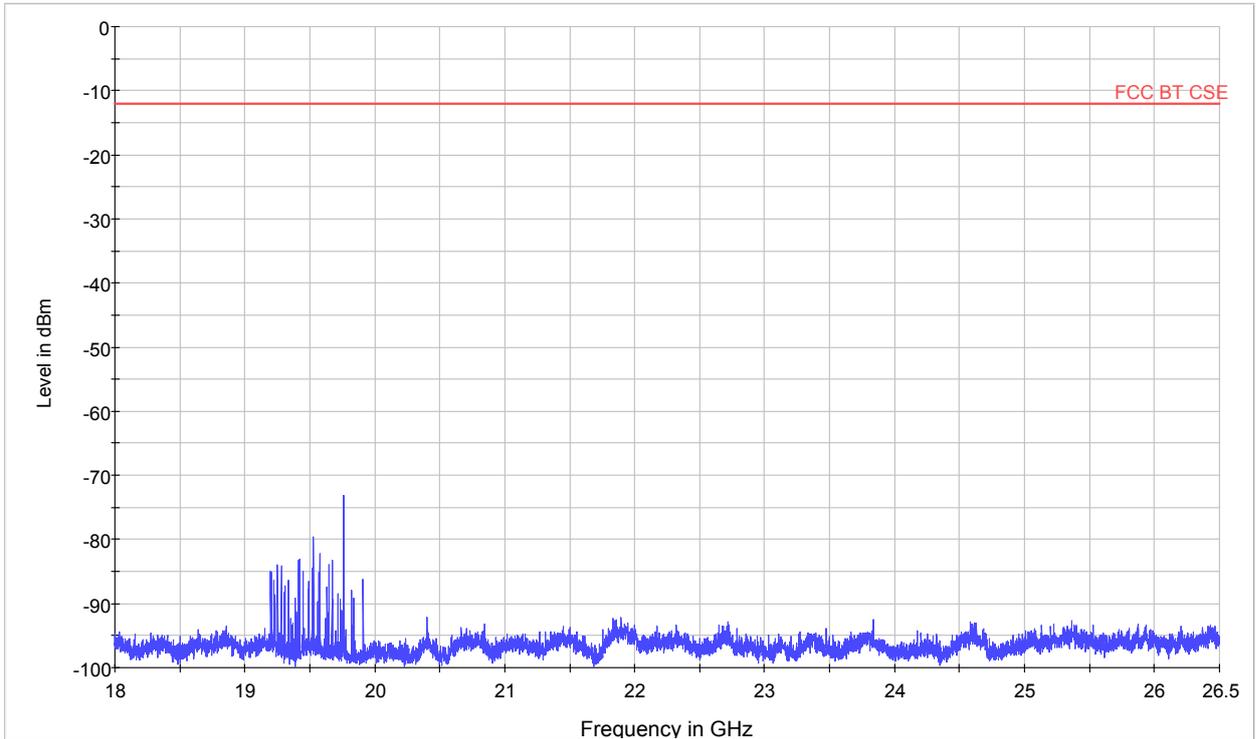
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EDR(3DH5)-CH39:



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

TA Technology (Shanghai) Co., Ltd. Test Report



Spurious RF conducted emissions from 18GHz to 26.5GHz

Harmonic	TX ch.39 Frequency (MHz)	Level (dBm)	Limit (dBm)
2	4882	Nf	≤ -12.04
3	7323	Nf	≤ -12.04
4	9764	Nf	≤ -12.04
5	12205	Nf	≤ -12.04
6	14646	Nf	≤ -12.04
7	17087	Nf	≤ -12.04
8	19528	Nf	≤ -12.04
9	21969	Nf	≤ -12.04
10	24410	Nf	≤ -12.04
Nf: noise floor			

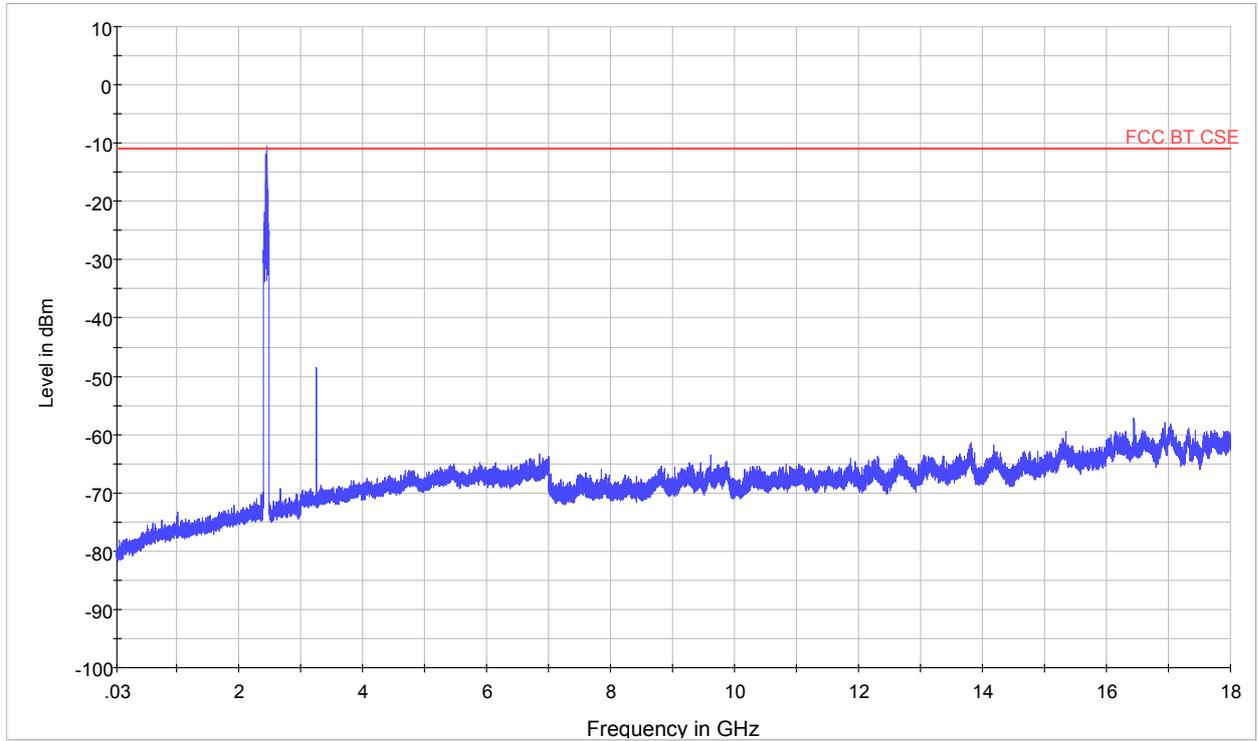
Note: The other Spurious RF conducted emissions level is no more than noise floor.

TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RHA1209-0083RF04R2

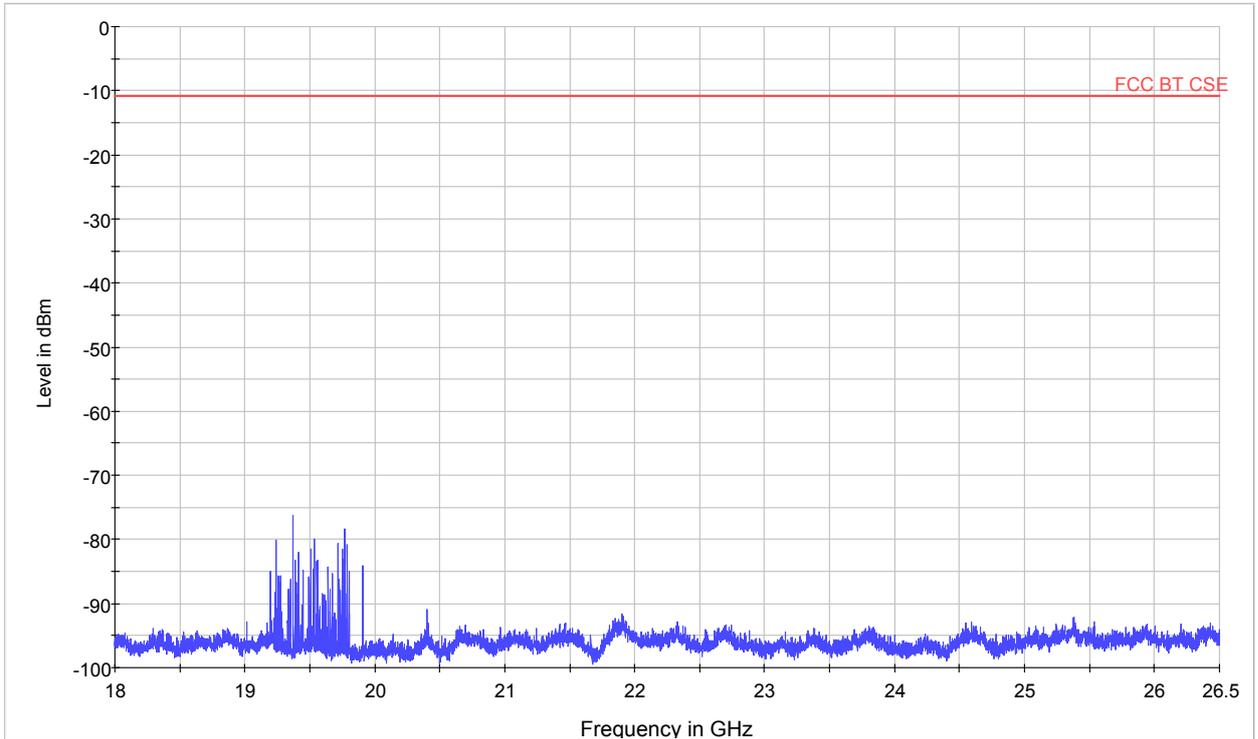
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EDR(3DH5)-CH78:



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

TA Technology (Shanghai) Co., Ltd. Test Report



Spurious RF conducted emissions from 18GHz to 26.5GHz

Harmonic	TX ch.78 Frequency (MHz)	Level (dBm)	Limit (dBm)
2	4960	Nf	≤ -10.85
3	7440	Nf	≤ -10.85
4	9920	Nf	≤ -10.85
5	12400	Nf	≤ -10.85
6	14880	Nf	≤ -10.85
7	17360	Nf	≤ -10.85
8	19840	Nf	≤ -10.85
9	22320	Nf	≤ -10.85
10	24800	Nf	≤ -10.85
Nf: noise floor			

Note: The other Spurious RF conducted emissions level is no more than noise floor.

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2.10. 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 C63.4-2009. 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 30MHz to the 10th harmonic of the carrier. 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 transmit mode.

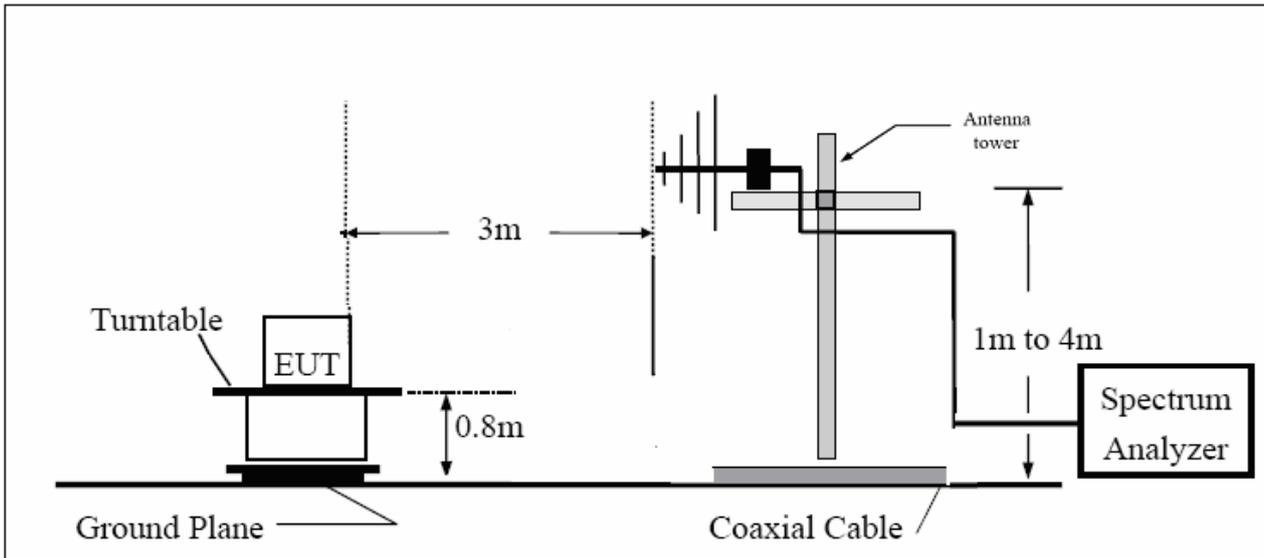
TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RHA1209-0083RF04R2

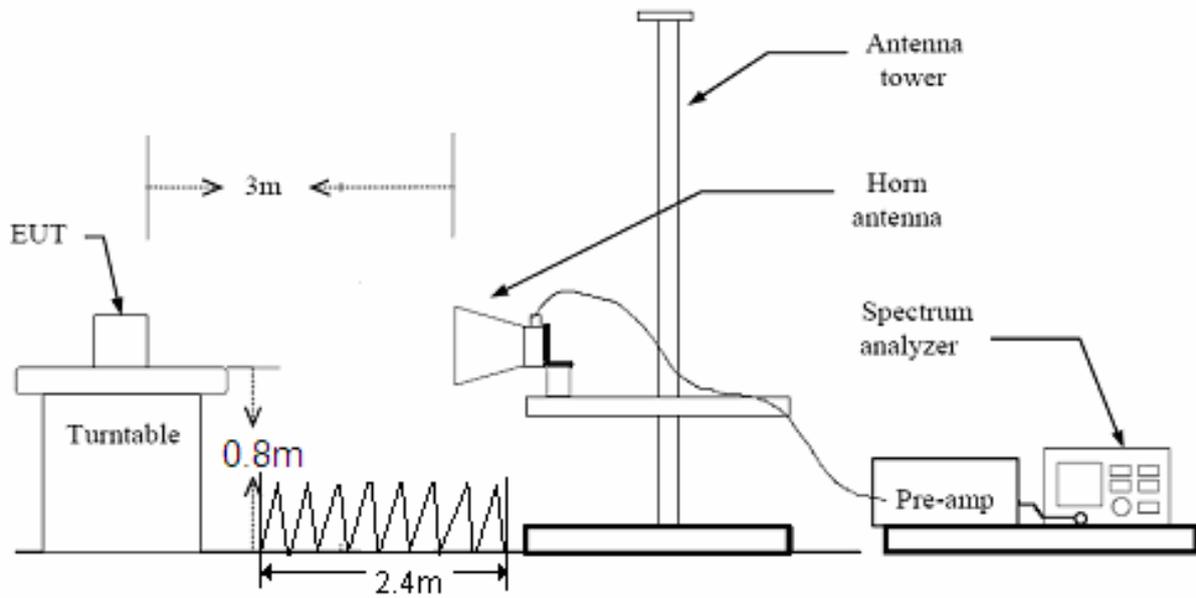
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Test setup

Below 1GHz



Above 1GHz



Note: Area side: 2.4mX3.6m

TA Technology (Shanghai) Co., Ltd.

Test Report

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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)
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
30MHz-200MHz	4.19 dB
200MHz-1GHz	3.63 dB
Above 1GHz	3.68 dB

TA Technology (Shanghai) Co., Ltd. Test Report

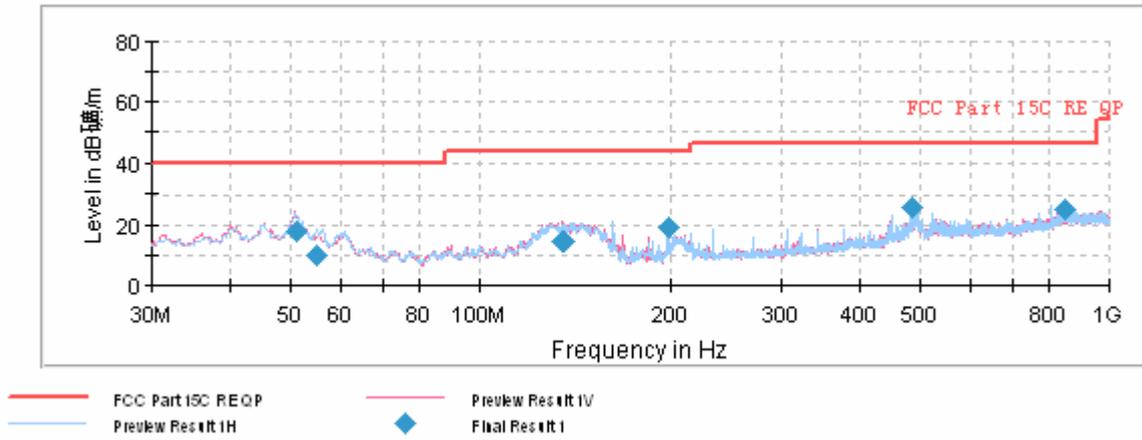
Report No.: RHA1209-0083RF04R2

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Test result

Adapter(HKAB829B329)

Basic Rate-Channel 0



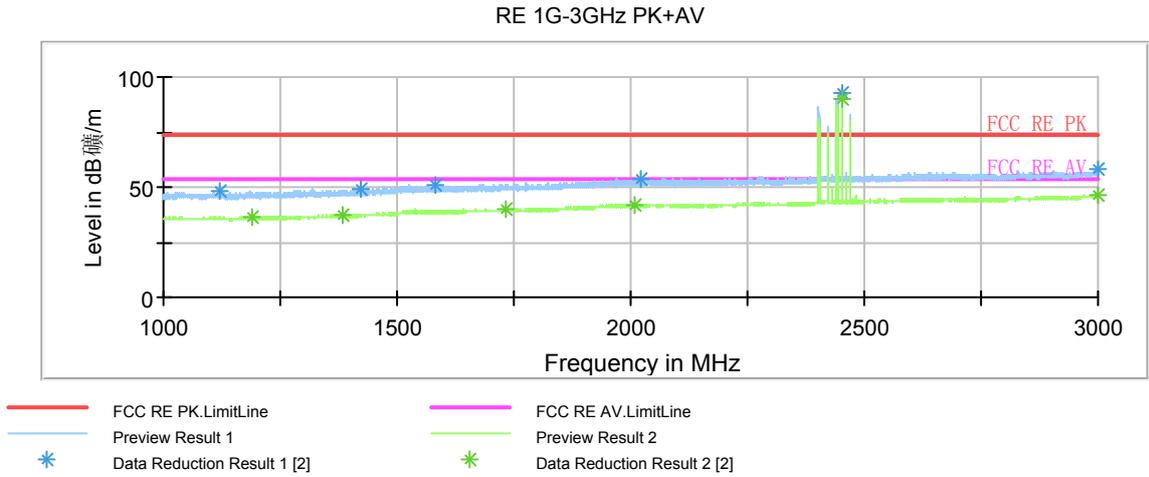
Frequency (MHz)	Quasi-Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
50.895000	18.0	100.0	V	89.0	43.5	-25.5	22.0	40.0
55.057500	9.8	175.0	H	134.0	36.0	-26.2	30.2	40.0
135.007500	14.3	100.0	V	83.0	46.6	-32.3	29.2	43.5
198.012500	19.3	100.0	H	130.0	49.5	-30.2	24.2	43.5
485.982500	25.5	121.0	H	145.0	48.4	-22.9	20.5	46.0
850.500000	24.9	197.0	V	5.0	42.2	-17.3	21.1	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

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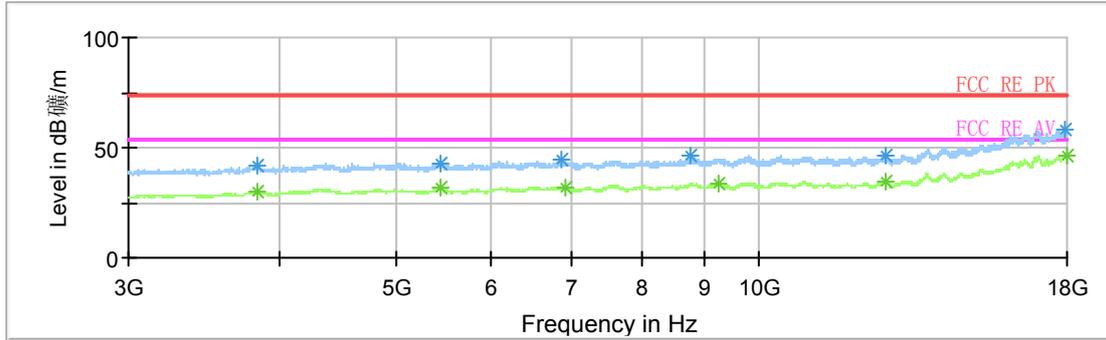
Note: The signal beyond the limit is carrier.
Radiates Emission from 1GHz to 3GHz

Frequency (MHz)	Peak (dBuV/m)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)
1190.750000	45.9	36.3	100.0	V	218.0	-2.2
1385.500000	46.9	37.6	100.0	H	110.0	-1.1
1731.250000	49.1	39.7	100.0	V	0.0	1.1
2006.750000	51.2	42.1	100.0	V	0.0	3.6
2452.250000	92.6	90.4	100.0	V	306.0	5.2
2999.250000	55.2	46.3	100.0	V	328.0	8.2

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

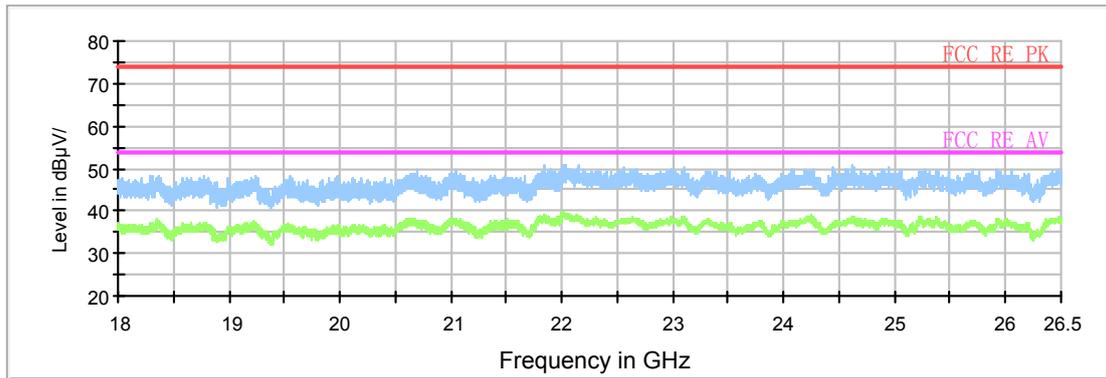
TA Technology (Shanghai) Co., Ltd. Test Report

RE 3-18GHz PK+AV



- | | |
|-----------------------------------------------------------------|------------------------------------------------------------------|
| — FCC RE PK.LimitLine | — FCC RE AV.LimitLine |
| — Preview Result 1 | — Preview Result 2 |
| * Data Reduction Result 1 [1] | * Data Reduction Result 2 [1] |

Radiates Emission from 3GHz to 18GHz

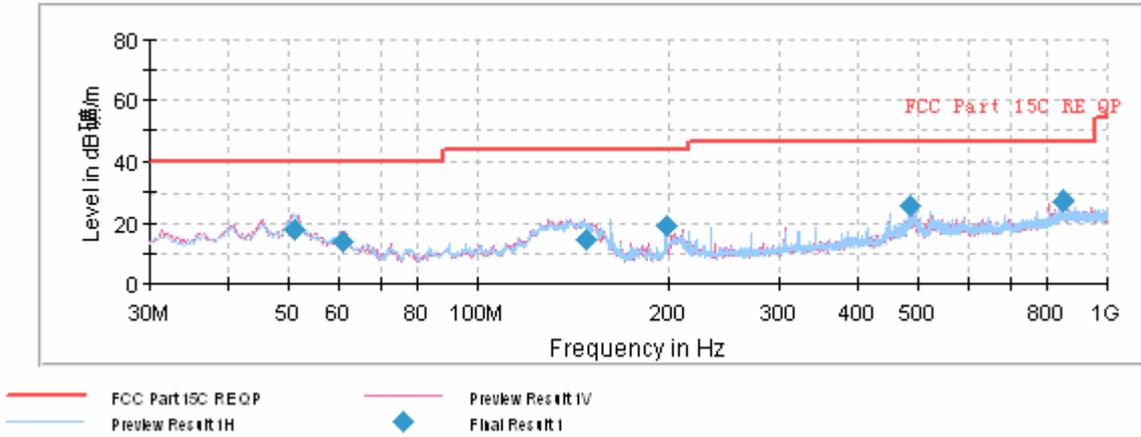


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|-----------------------------------------------------------------|------------------------------------------------------------------|
| — FCC RE PK.LimitLine | — FCC RE AV.LimitLine |
| — Preview Result 1 | — Preview Result 2 |
| * Data Reduction Result 1 [1] | * Data Reduction Result 2 [1] |

Radiates Emission from 18GHz to 26.5GHz

TA Technology (Shanghai) Co., Ltd. Test Report

Basic Rate-Channel 39



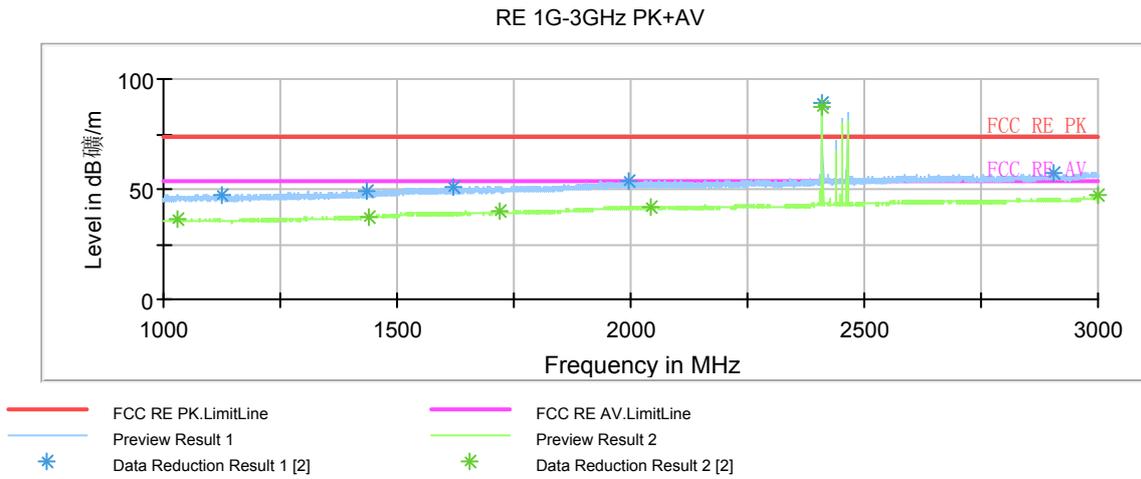
Frequency (MHz)	Quasi-Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
50.895000	17.9	100.0	V	124.0	43.4	-25.5	22.1	40.0
60.872500	13.6	100.0	V	198.0	40.9	-27.3	26.4	40.0
147.690000	14.7	100.0	V	47.0	47.3	-32.6	28.8	43.5
198.012500	19.0	100.0	H	5.0	49.2	-30.2	24.5	43.5
485.982500	25.6	125.0	V	143.0	48.5	-22.9	20.4	46.0
850.500000	27.1	120.0	V	0.0	44.4	-17.3	18.9	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

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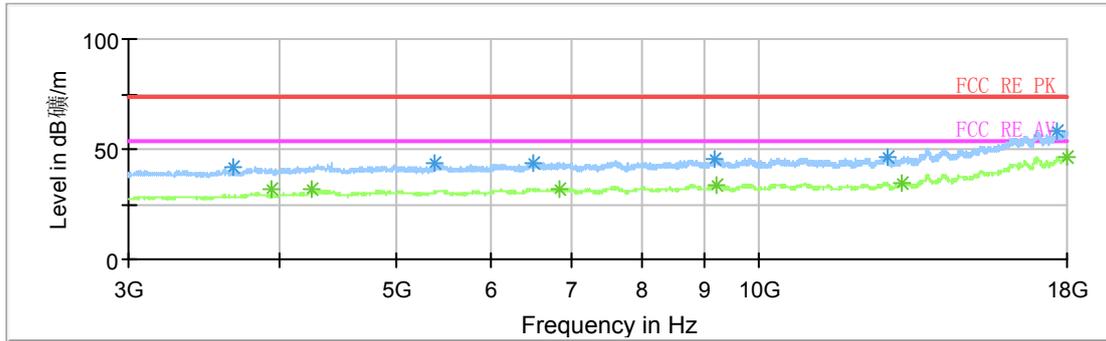
Note: The signal beyond the limit is carrier.
Radiates Emission from 1GHz to 3GHz

Frequency (MHz)	Peak (dBuV/m)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)
1028.500000	45.4	36.2	100.0	V	19.0	-2.3
1438.250000	47.2	37.7	100.0	V	91.0	-0.7
1718.000000	49.6	39.7	100.0	V	0.0	1.2
2042.000000	53.2	42.2	100.0	V	0.0	3.7
2408.750000	89.3	86.9	100.0	V	0.0	5.3
2998.250000	55.2	46.9	100.0	V	250.0	8.2

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

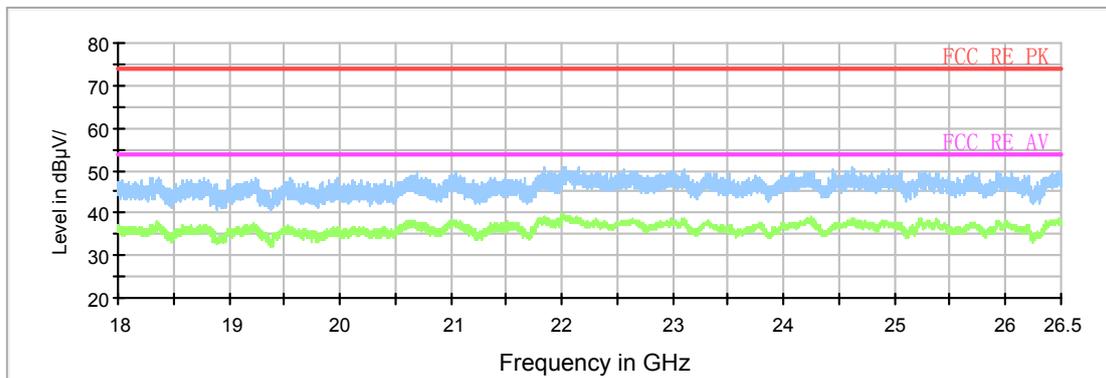
TA Technology (Shanghai) Co., Ltd. Test Report

RE 3-18GHz PK+AV



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|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> — FCC RE PK.LimitLine — Preview Result 1 * Data Reduction Result 1 [1] | <ul style="list-style-type: none"> — FCC RE AV.LimitLine — Preview Result 2 * Data Reduction Result 2 [1] |
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Radiates Emission from 3GHz to 18GHz



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|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> — FCC RE PK.LimitLine — Preview Result 1 * Data Reduction Result 1 [1] | <ul style="list-style-type: none"> — FCC RE AV.LimitLine — Preview Result 2 * Data Reduction Result 2 [1] |
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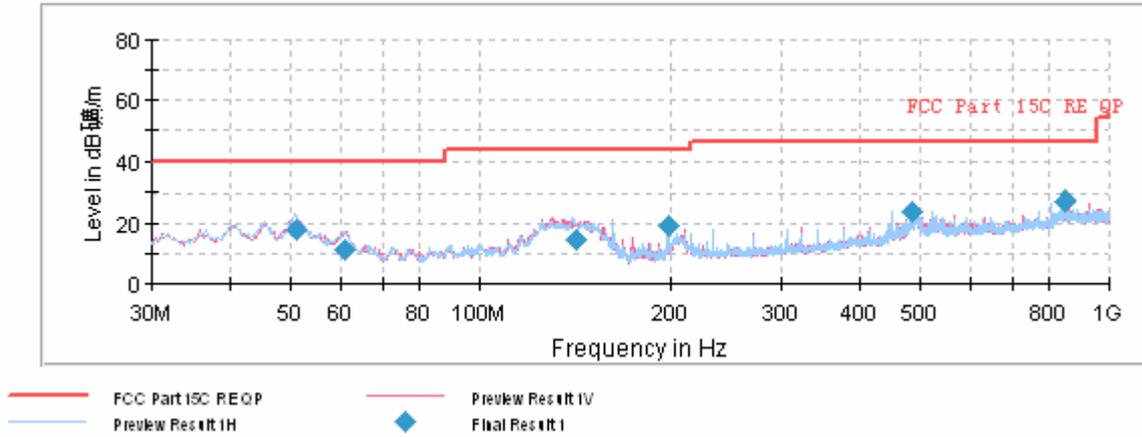
Radiates Emission from 18GHz to 26.5GHz

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Basic Rate-Channel 78



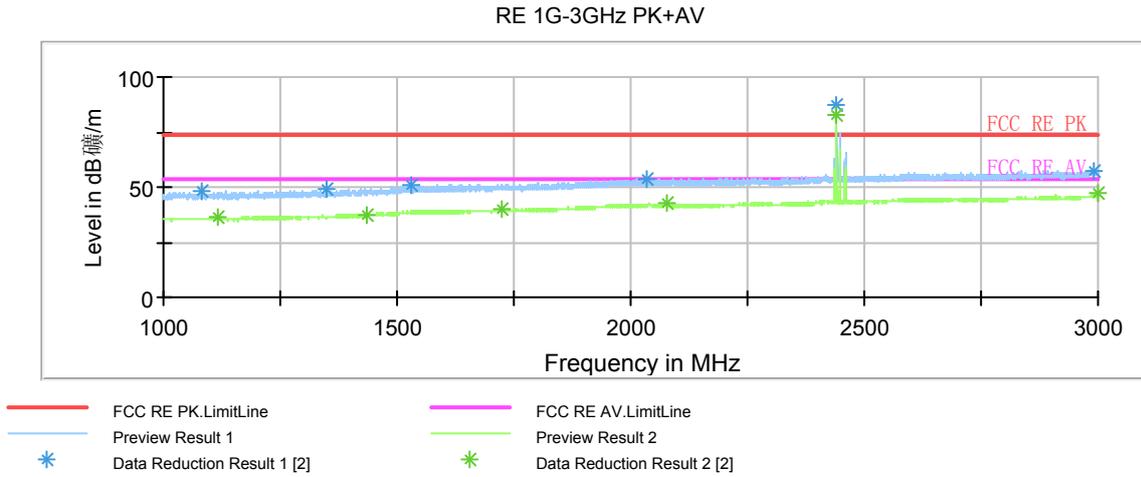
Frequency (MHz)	Quasi-Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
50.895000	18.1	100.0	V	121.0	43.6	-25.5	21.9	40.0
60.757500	11.1	100.0	H	235.0	38.4	-27.3	28.9	40.0
141.302500	14.3	100.0	H	67.0	46.9	-32.6	29.2	43.5
198.012500	19.0	100.0	V	138.0	49.2	-30.2	24.5	43.5
485.982500	24.0	100.0	V	24.0	46.9	-22.9	22.0	46.0
850.500000	27.0	120.0	V	5.0	44.3	-17.3	19.0	46.0

- Remark:**
1. Quasi-Peak = Reading value + Correction factor
 2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)
 3. Margin = Limit – Quasi-Peak

TA Technology (Shanghai) Co., Ltd. Test Report

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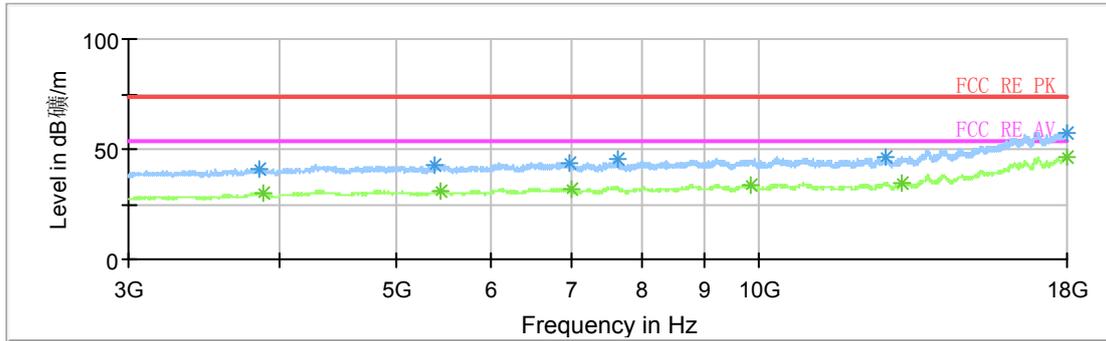
Note: The signal beyond the limit is carrier.
Radiates Emission from 1GHz to 3GHz

Frequency (MHz)	Peak (dBuV/m)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)
1118.250000	45.7	36.3	100.0	H	117.0	-2.2
1436.000000	48.2	37.6	100.0	V	296.0	-0.8
1725.000000	49.8	39.6	100.0	H	51.0	1.0
2079.000000	52.3	42.3	100.0	H	161.0	4.0
2441.250000	87.1	83.1	100.0	V	251.0	5.2
2998.250000	55.4	46.8	100.0	H	0.0	8.2

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

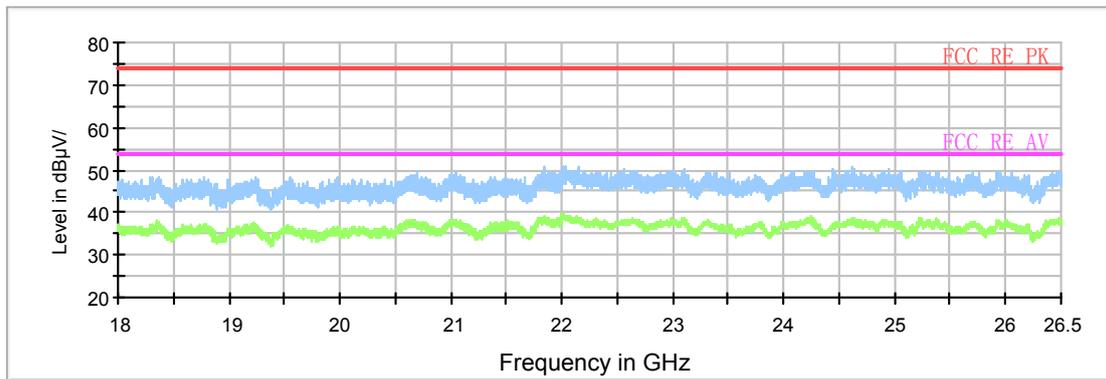
TA Technology (Shanghai) Co., Ltd. Test Report

RE 3-18GHz PK+AV



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|-----------------------------------------------------------------|------------------------------------------------------------------|
| — FCC RE PK.LimitLine | — FCC RE AV.LimitLine |
| — Preview Result 1 | — Preview Result 2 |
| * Data Reduction Result 1 [1] | * Data Reduction Result 2 [1] |

Radiates Emission from 3GHz to 18GHz

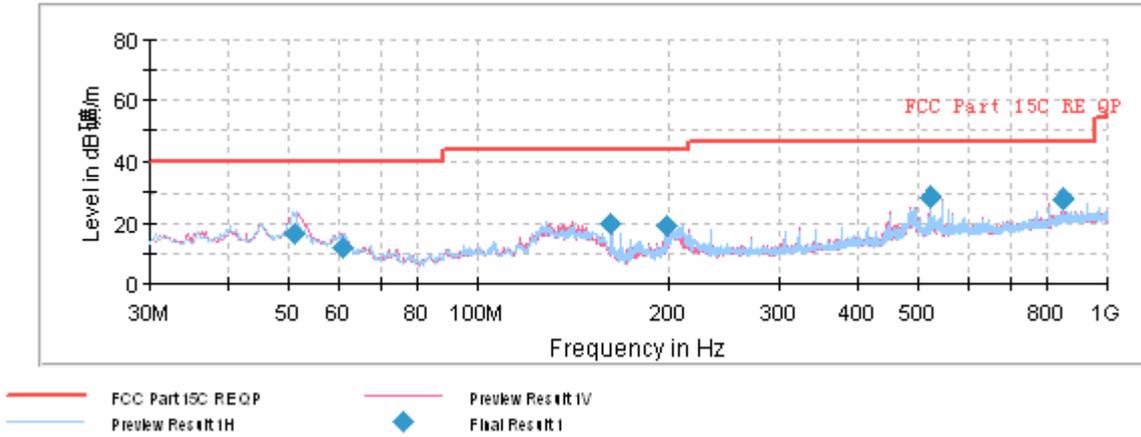


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|-----------------------------------------------------------------|------------------------------------------------------------------|
| — FCC RE PK.LimitLine | — FCC RE AV.LimitLine |
| — Preview Result 1 | — Preview Result 2 |
| * Data Reduction Result 1 [1] | * Data Reduction Result 2 [1] |

Radiates Emission from 18GHz to 26.5GHz

TA Technology (Shanghai) Co., Ltd. Test Report

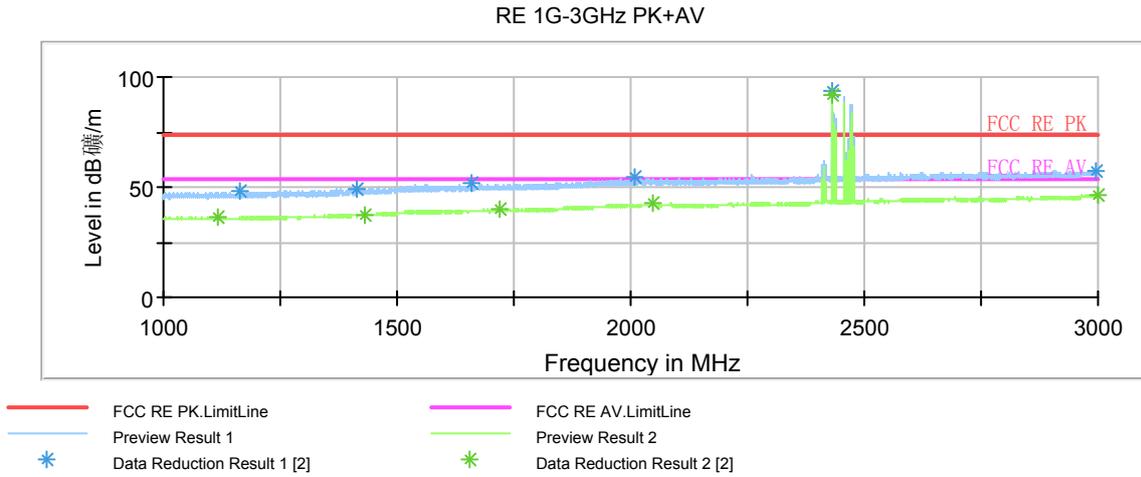
EDR(3DH5)-Channel 0



Frequency (MHz)	Quasi-Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
50.900000	16.5	100.0	H	99.0	42.0	-25.5	23.5	40.0
60.925000	11.7	100.0	V	175.0	39.1	-27.4	28.3	40.0
162.000000	19.8	100.0	H	123.0	51.7	-31.9	23.7	43.5
198.012500	19.1	100.0	V	136.0	49.3	-30.2	24.4	43.5
521.992500	28.3	125.0	H	192.0	50.1	-21.8	17.7	46.0
850.500000	27.6	120.0	V	0.0	44.9	-17.3	18.4	46.0

- Remark:**
1. Quasi-Peak = Reading value + Correction factor
 2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)
 3. Margin = Limit – Quasi-Peak

TA Technology (Shanghai) Co., Ltd. Test Report



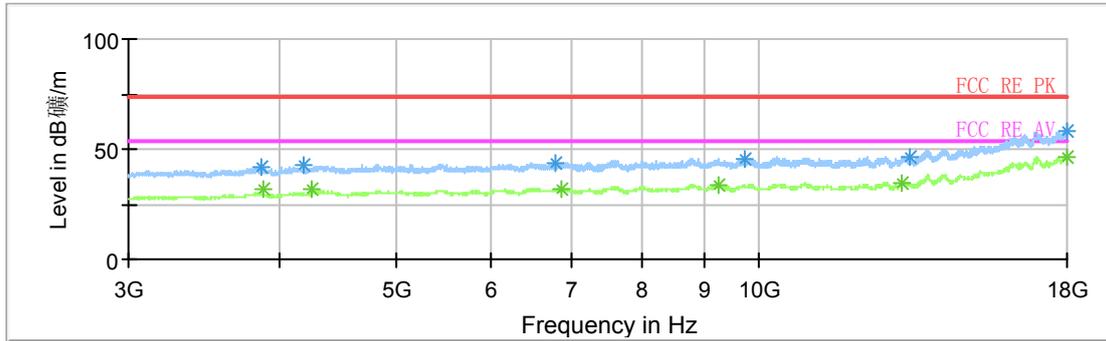
Note: The signal beyond the limit is carrier.
Radiates Emission from 1GHz to 3GHz

Frequency (MHz)	Peak (dBuV/m)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)
1118.250000	45.3	36.2	100.0	H	102.0	-2.2
1429.000000	46.2	37.6	200.0	V	124.0	-0.9
1721.500000	48.7	39.7	200.0	H	0.0	1.1
2049.250000	51.3	42.3	200.0	H	223.0	3.6
2429.750000	93.6	91.8	200.0	V	66.0	4.9
2998.750000	56.2	46.4	100.0	V	349.0	8.2

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

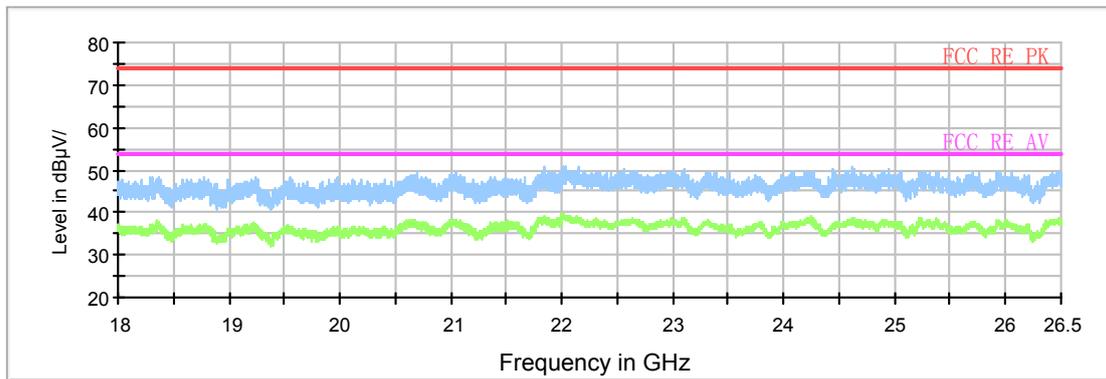
TA Technology (Shanghai) Co., Ltd. Test Report

RE 3-18GHz PK+AV



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| — FCC RE PK.LimitLine | — FCC RE AV.LimitLine |
| — Preview Result 1 | — Preview Result 2 |
| * Data Reduction Result 1 [1] | * Data Reduction Result 2 [1] |

Radiates Emission from 3GHz to 18GHz

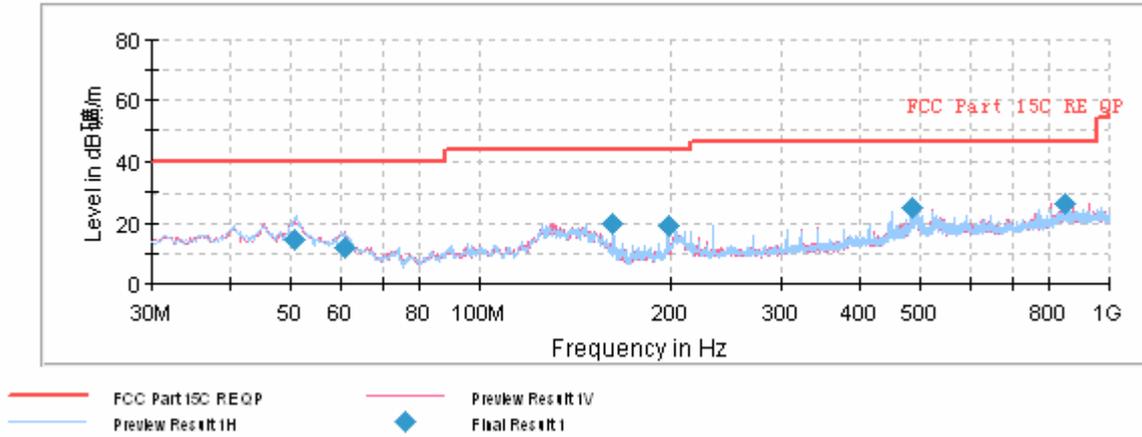


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| — FCC RE PK.LimitLine | — FCC RE AV.LimitLine |
| — Preview Result 1 | — Preview Result 2 |
| * Data Reduction Result 1 [1] | * Data Reduction Result 2 [1] |

Radiates Emission from 18GHz to 26.5GHz

TA Technology (Shanghai) Co., Ltd. Test Report

EDR(3DH5)-Channel 39



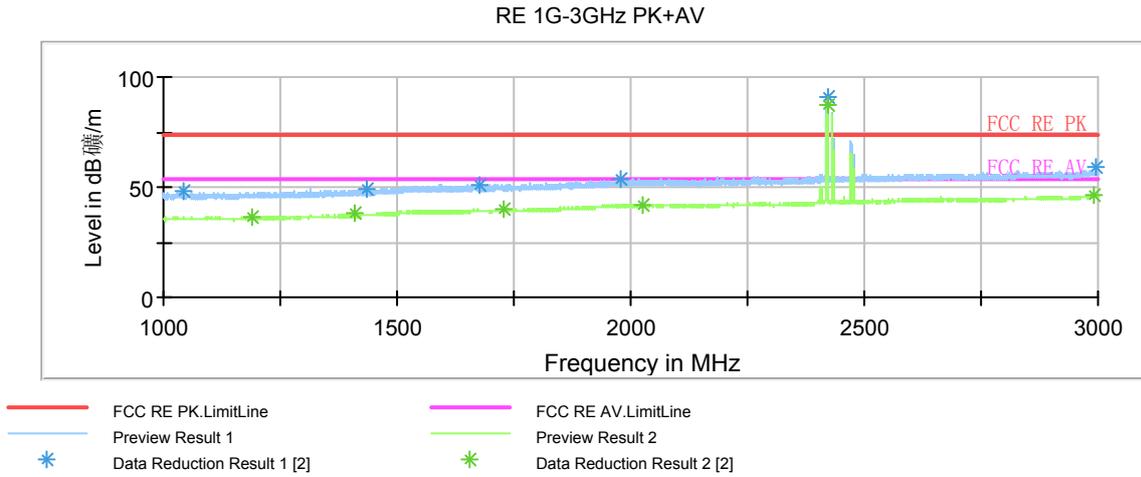
Frequency (MHz)	Quasi-Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
50.697500	14.5	100.0	H	74.0	40.0	-25.5	25.5	40.0
60.880000	12.2	100.0	V	207.0	39.5	-27.3	27.8	40.0
162.000000	19.6	100.0	V	120.0	51.5	-31.9	23.9	43.5
198.010000	19.2	100.0	H	133.0	49.4	-30.2	24.3	43.5
485.982500	25.0	125.0	V	149.0	47.9	-22.9	21.0	46.0
850.500000	26.6	125.0	V	5.0	43.9	-17.3	19.4	46.0

- Remark:**
1. Quasi-Peak = Reading value + Correction factor
 2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)
 3. Margin = Limit – Quasi-Peak

TA Technology (Shanghai) Co., Ltd. Test Report

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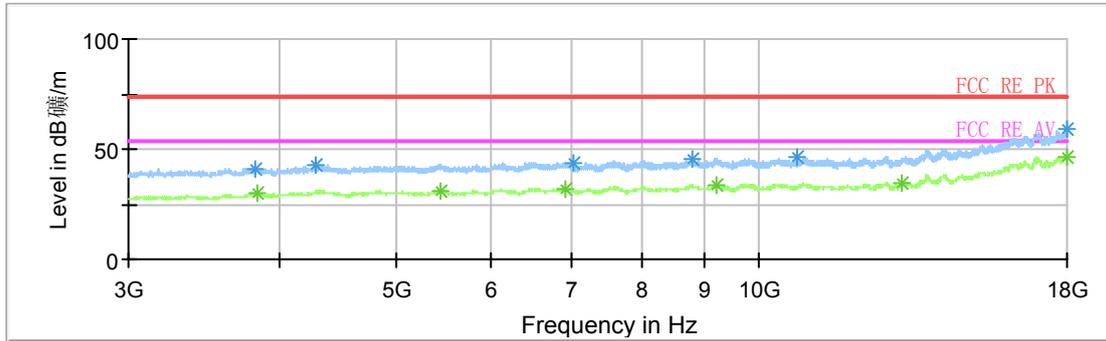
Note: The signal beyond the limit is carrier.
Radiates Emission from 1GHz to 3GHz

Frequency (MHz)	Peak (dBuV/m)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)
1189.750000	45.0	36.6	100.0	V	79.0	-2.2
1409.750000	47.5	37.7	100.0	V	0.0	-1.0
1730.500000	48.5	39.7	100.0	H	0.0	1.0
2026.750000	51.6	42.2	100.0	V	223.0	3.6
2420.500000	89.8	87.3	100.0	V	339.0	5.8
2991.500000	55.2	46.5	100.0	V	171.0	8.2

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

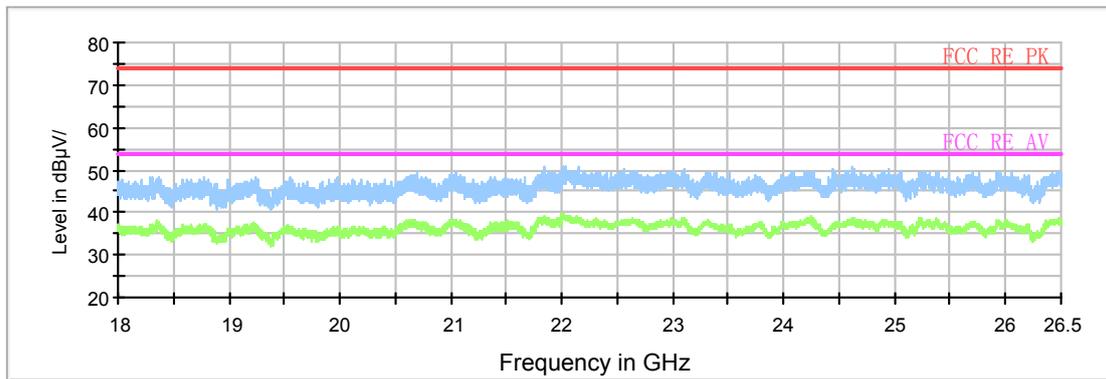
TA Technology (Shanghai) Co., Ltd. Test Report

RE 3-18GHz PK+AV



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| — FCC RE PK.LimitLine | — FCC RE AV.LimitLine |
| — Preview Result 1 | — Preview Result 2 |
| * Data Reduction Result 1 [1] | * Data Reduction Result 2 [1] |

Radiates Emission from 3GHz to 18GHz

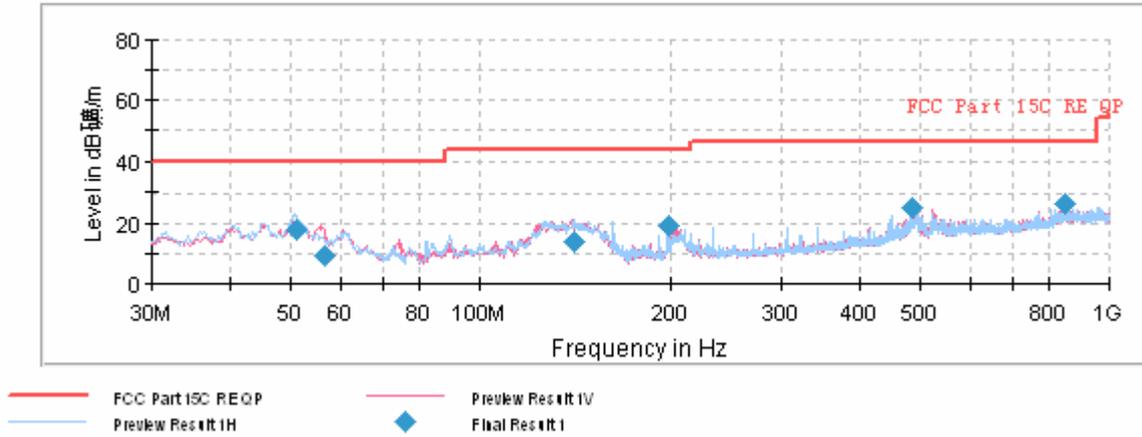


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| — FCC RE PK.LimitLine | — FCC RE AV.LimitLine |
| — Preview Result 1 | — Preview Result 2 |
| * Data Reduction Result 1 [1] | * Data Reduction Result 2 [1] |

Radiates Emission from 18GHz to 26.5GHz

TA Technology (Shanghai) Co., Ltd. Test Report

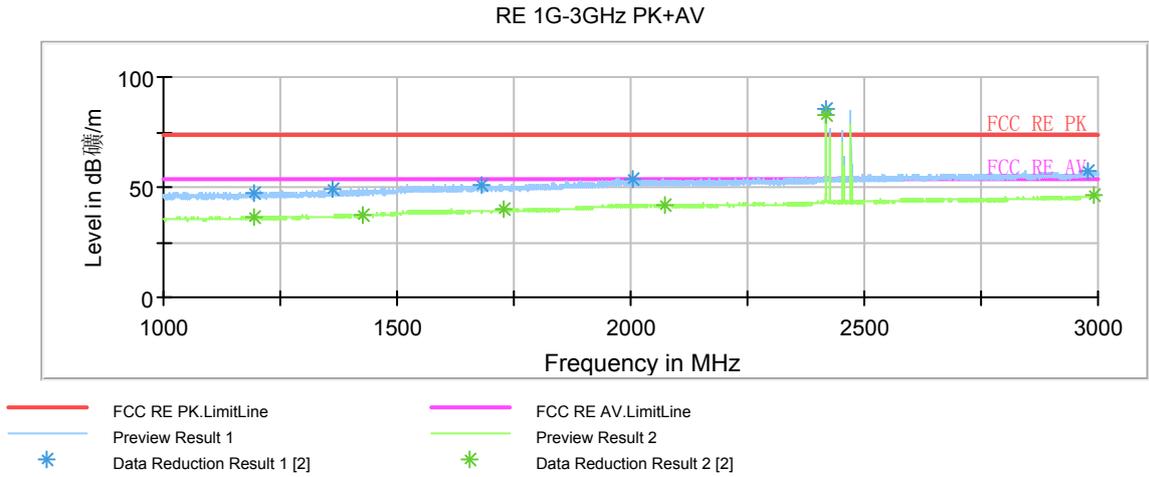
EDR(3DH5)-Channel 78



Frequency (MHz)	Quasi-Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
50.892500	17.9	100.0	H	123.0	43.4	-25.5	22.1	40.0
56.427500	9.1	175.0	V	237.0	35.5	-26.4	30.9	40.0
140.412500	13.8	100.0	V	118.0	46.4	-32.6	29.7	43.5
198.012500	19.1	100.0	H	122.0	49.3	-30.2	24.4	43.5
485.982500	25.4	121.0	V	139.0	48.3	-22.9	20.6	46.0
850.500000	26.5	125.0	V	5.0	43.8	-17.3	19.5	46.0

- Remark:**
1. Quasi-Peak = Reading value + Correction factor
 2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)
 3. Margin = Limit – Quasi-Peak

TA Technology (Shanghai) Co., Ltd. Test Report



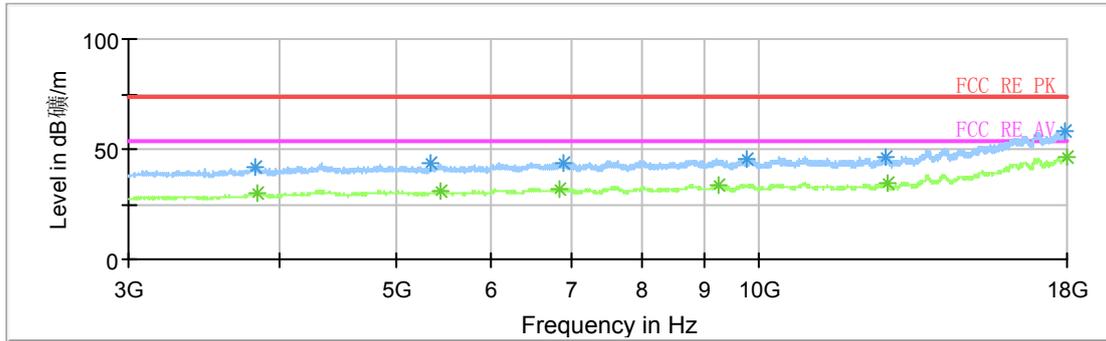
Note: The signal beyond the limit is carrier.
Radiates Emission from 1GHz to 3GHz

Frequency (MHz)	Peak (dBuV/m)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)
1193.500000	45.8	36.1	100.0	H	234.0	-2.2
1425.500000	46.7	37.6	100.0	H	264.0	-1.0
1729.250000	49.9	40.1	100.0	V	294.0	1.0
2072.250000	51.9	42.2	100.0	V	359.0	3.8
2416.500000	85.1	83.0	100.0	V	144.0	6.0
2990.500000	55.1	46.5	100.0	H	131.0	8.2

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

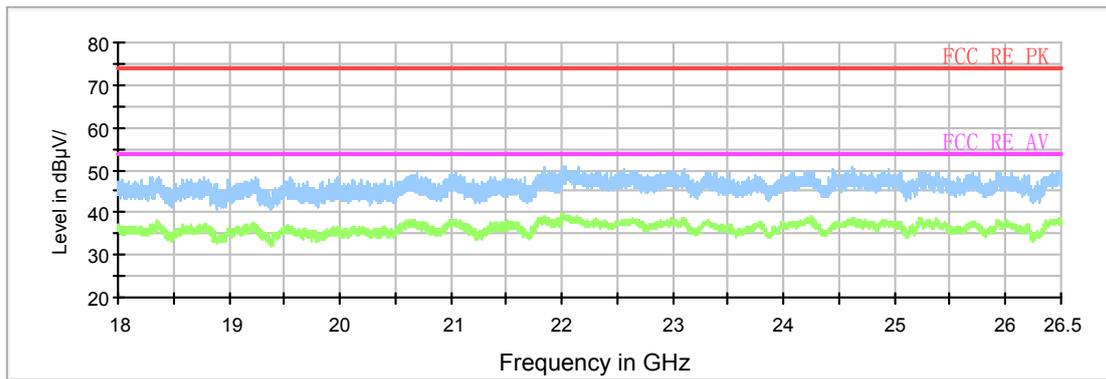
TA Technology (Shanghai) Co., Ltd. Test Report

RE 3-18GHz PK+AV



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| — FCC RE PK.LimitLine | — FCC RE AV.LimitLine |
| — Preview Result 1 | — Preview Result 2 |
| * Data Reduction Result 1 [1] | * Data Reduction Result 2 [1] |

Radiates Emission from 3GHz to 18GHz



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|-----------------------------------------------------------------|------------------------------------------------------------------|
| — FCC RE PK.LimitLine | — FCC RE AV.LimitLine |
| — Preview Result 1 | — Preview Result 2 |
| * Data Reduction Result 1 [1] | * Data Reduction Result 2 [1] |

Radiates Emission from 18GHz to 26.5GHz

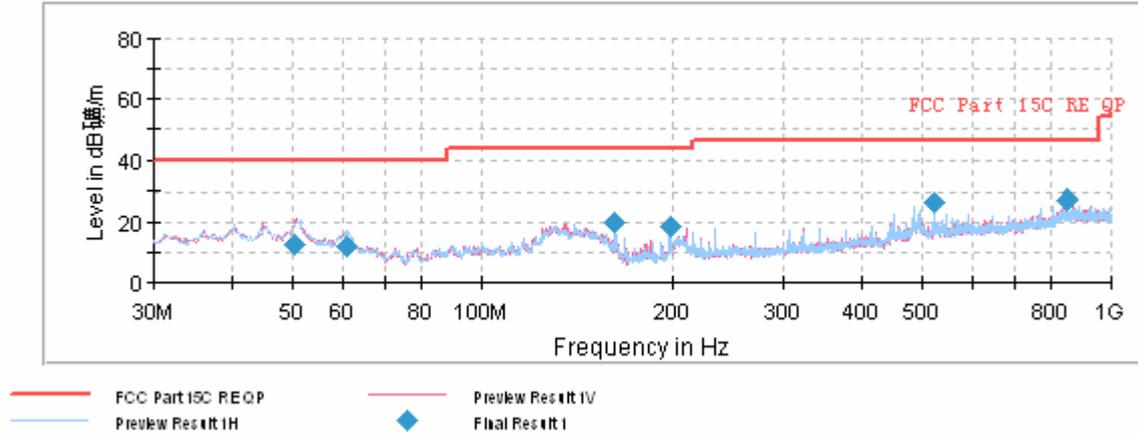
TA Technology (Shanghai) Co., Ltd. Test Report

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Adapter(TPAC41985003)

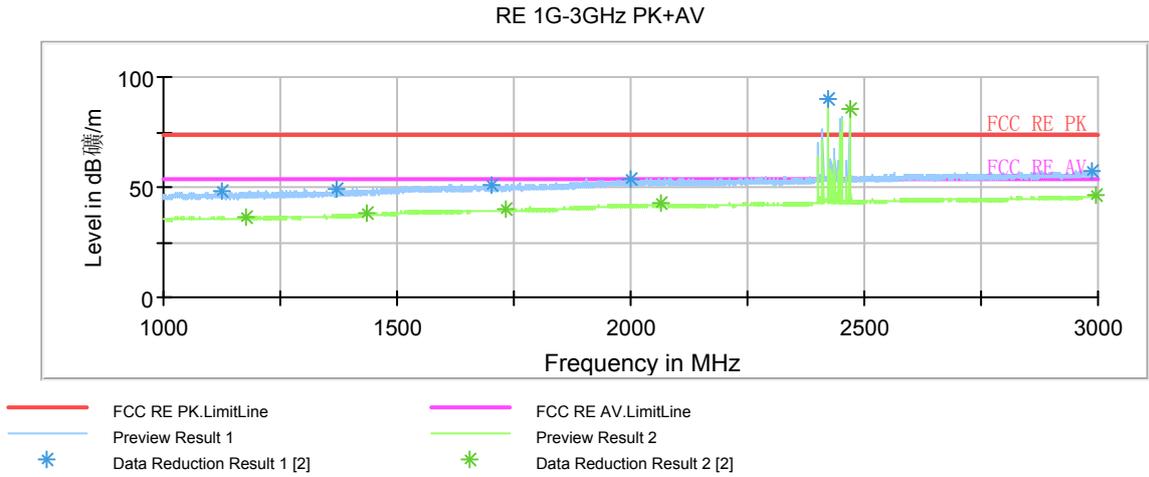
Basic Rate-Channel 0



Frequency (MHz)	Quasi-Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
50.255000	12.8	100.0	V	99.0	38.2	-25.4	27.2	40.0
60.837500	12.1	100.0	H	161.0	39.4	-27.3	28.0	40.0
162.000000	19.8	100.0	H	112.0	51.7	-31.9	23.7	43.5
198.010000	18.7	100.0	V	8.0	48.9	-30.2	24.8	43.5
521.992500	26.1	125.0	H	187.0	47.9	-21.8	19.9	46.0
850.500000	27.2	125.0	V	6.0	44.5	-17.3	18.8	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

TA Technology (Shanghai) Co., Ltd. Test Report



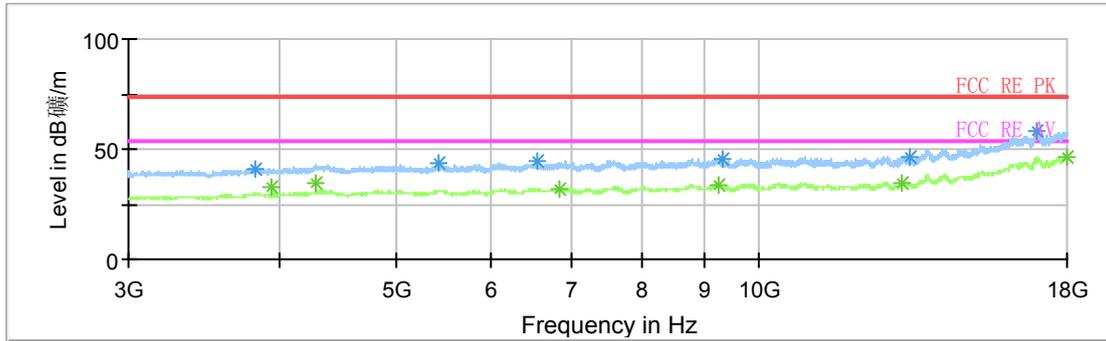
Note: The signal beyond the limit is carrier.
Radiates Emission from 1GHz to 3GHz

Frequency (MHz)	Peak (dBuV/m)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)
1178.250000	45.6	36.4	100.0	H	210.0	-2.1
1435.750000	46.8	37.9	100.0	H	65.0	-0.8
1731.750000	50.6	39.9	100.0	V	326.0	1.1
2066.000000	50.8	42.3	100.0	H	241.0	3.7
2468.250000	89.2	85.6	100.0	V	311.0	5.2
2995.250000	55.2	46.4	100.0	V	348.0	8.2

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

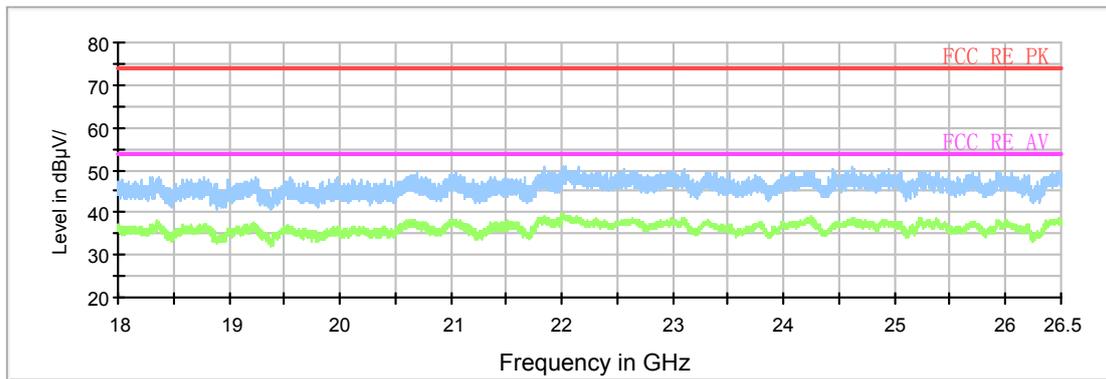
TA Technology (Shanghai) Co., Ltd. Test Report

RE 3-18GHz PK+AV



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| <ul style="list-style-type: none"> — FCC RE PK.LimitLine — Preview Result 1 * Data Reduction Result 1 [1] | <ul style="list-style-type: none"> — FCC RE AV.LimitLine — Preview Result 2 * Data Reduction Result 2 [1] |
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Radiates Emission from 3GHz to 18GHz

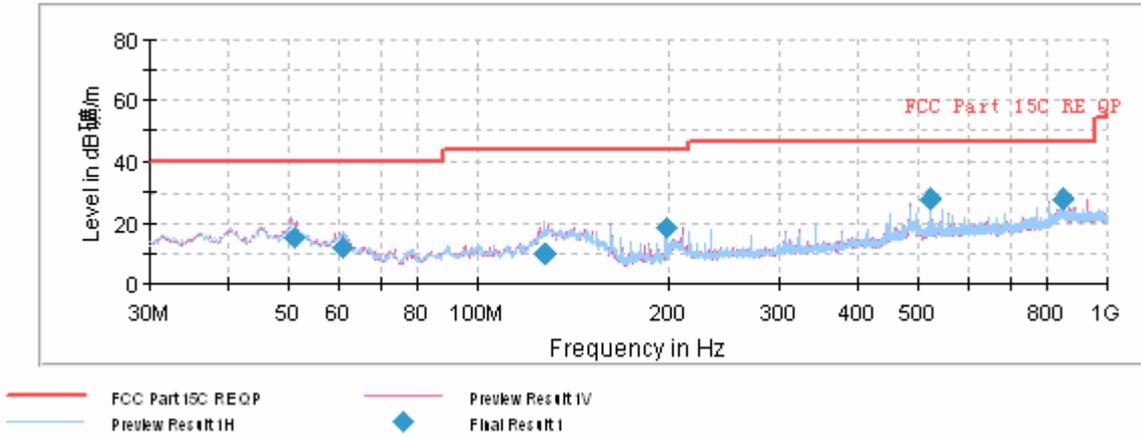


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| <ul style="list-style-type: none"> — FCC RE PK.LimitLine — Preview Result 1 * Data Reduction Result 1 [1] | <ul style="list-style-type: none"> — FCC RE AV.LimitLine — Preview Result 2 * Data Reduction Result 2 [1] |
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Radiates Emission from 18GHz to 26.5GHz

TA Technology (Shanghai) Co., Ltd. Test Report

Basic Rate-Channel 39

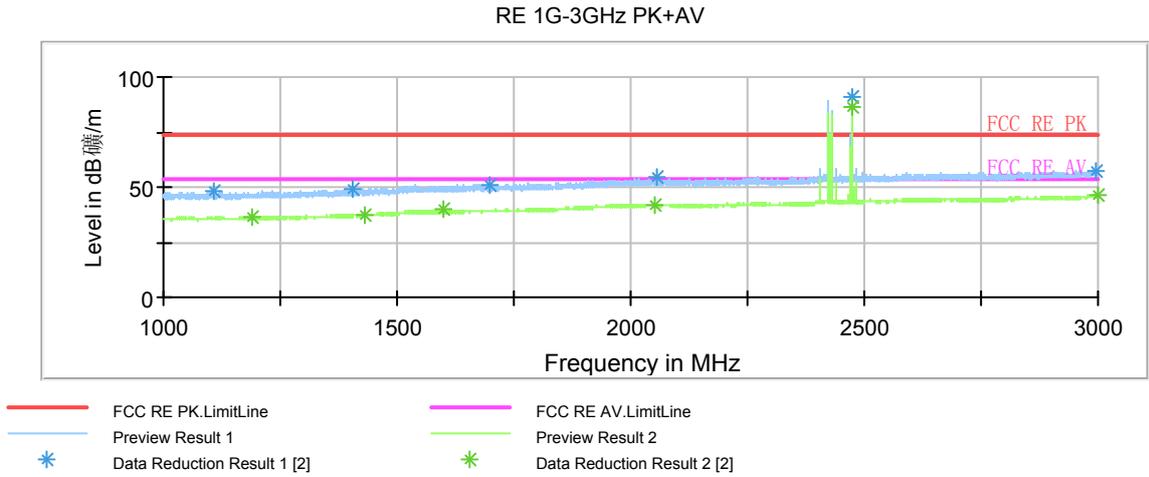


Radiates Emission from 30MHz to 1GHz

Frequency (MHz)	Quasi-Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
50.890000	15.3	100.0	V	310.0	40.8	-25.5	24.7	40.0
60.840000	11.8	100.0	H	241.0	39.1	-27.3	28.2	40.0
127.690000	9.6	100.0	H	0.0	41.3	-31.7	33.9	43.5
198.012500	18.7	100.0	V	9.0	48.9	-30.2	24.8	43.5
521.992500	27.8	121.0	H	187.0	49.6	-21.8	18.2	46.0
850.500000	28.0	121.0	H	0.0	45.3	-17.3	18.0	46.0

- Remark:**
1. Quasi-Peak = Reading value + Correction factor
 2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)
 3. Margin = Limit – Quasi-Peak

TA Technology (Shanghai) Co., Ltd. Test Report



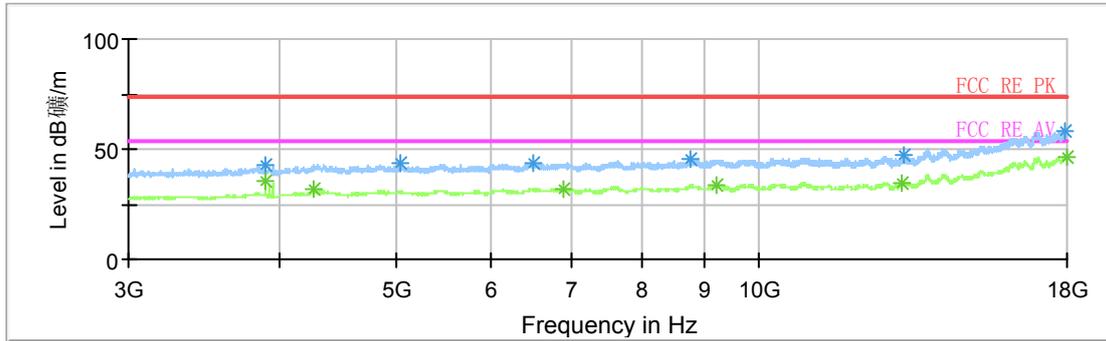
Note: The signal beyond the limit is carrier.
Radiates Emission from 1GHz to 3GHz

Frequency (MHz)	Peak (dBuV/m)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)
1190.500000	45.7	36.3	100.0	H	67.0	-2.2
1429.000000	46.8	37.7	100.0	H	102.0	-0.9
1597.750000	48.8	39.9	100.0	H	140.0	0.9
2053.750000	50.8	42.2	100.0	H	16.0	3.6
2475.250000	90.5	86.8	100.0	V	313.0	5.2
2999.750000	55.7	46.6	100.0	H	325.0	8.2

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

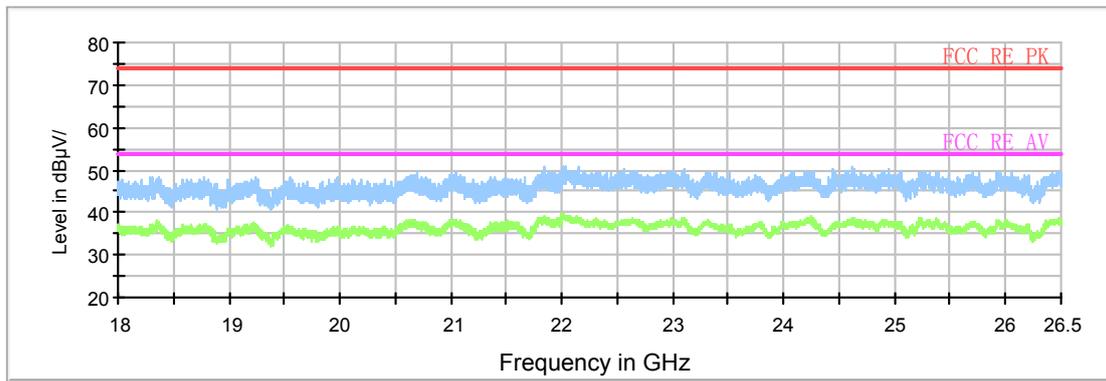
TA Technology (Shanghai) Co., Ltd. Test Report

RE 3-18GHz PK+AV



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| <ul style="list-style-type: none"> — FCC RE PK.LimitLine — Preview Result 1 * Data Reduction Result 1 [1] | <ul style="list-style-type: none"> — FCC RE AV.LimitLine — Preview Result 2 * Data Reduction Result 2 [1] |
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Radiates Emission from 3GHz to 18GHz



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| <ul style="list-style-type: none"> — FCC RE PK.LimitLine — Preview Result 1 * Data Reduction Result 1 [1] | <ul style="list-style-type: none"> — FCC RE AV.LimitLine — Preview Result 2 * Data Reduction Result 2 [1] |
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Radiates Emission from 18GHz to 26.5GHz

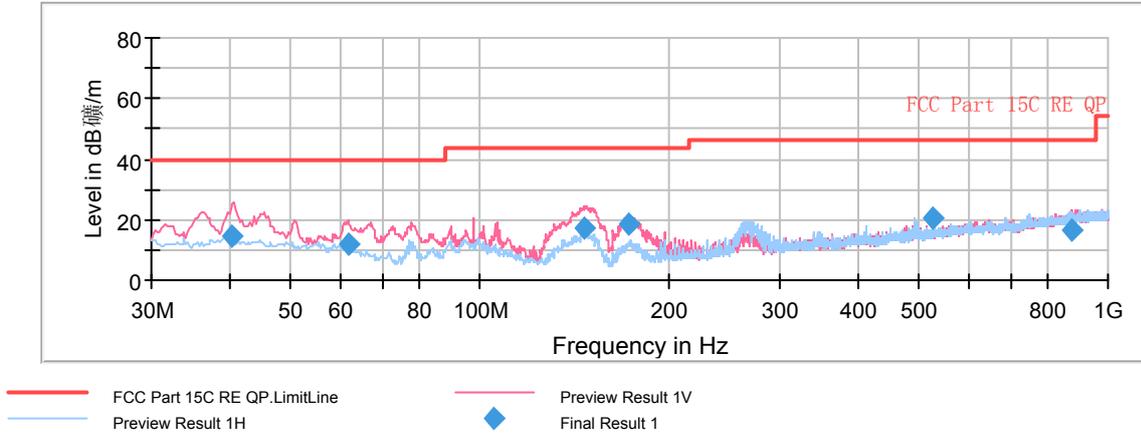
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Basic Rate-Channel 78

RE 30M-1GHz (BT&WIFI) QP

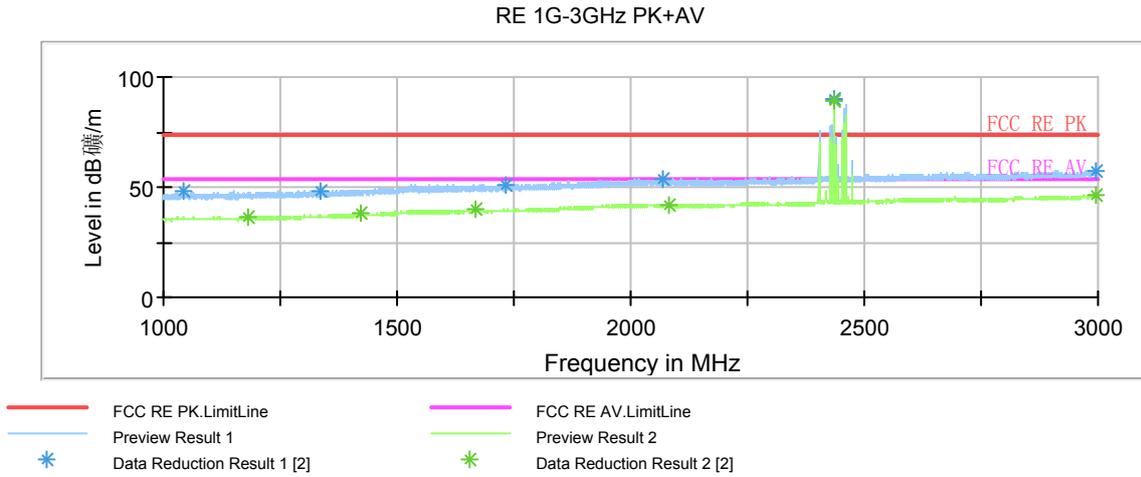


Radiates Emission from 30MHz to 1GHz

Frequency (MHz)	Quasi-Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
40.350000	14.6	120.0	V	33.0	38.5	-23.9	25.4	40.0
61.887500	11.8	100.0	V	205.0	39.6	-27.8	28.2	40.0
147.205000	17.5	100.0	V	348.0	50.1	-32.6	26.0	43.5
172.797500	18.4	125.0	V	109.0	49.8	-31.4	25.1	43.5
527.247500	20.6	100.0	V	351.0	42.4	-21.8	25.4	46.0
878.382500	16.5	100.0	V	45.0	33	-16.5	29.5	46.0

- Remark: 1. Quasi-Peak = Reading value + Correction factor**
2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)
3. Margin = Limit – Quasi-Peak

TA Technology (Shanghai) Co., Ltd. Test Report



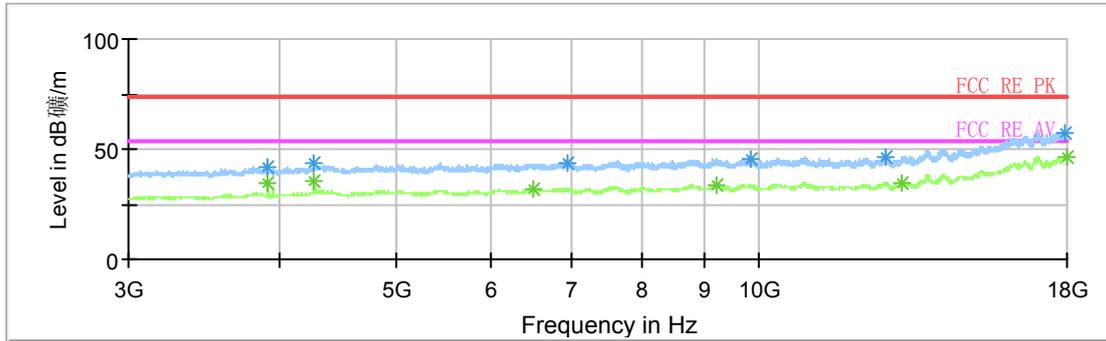
Note: The signal beyond the limit is carrier.
Radiates Emission from 1GHz to 3GHz

Frequency (MHz)	Peak (dBuV/m)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)
1181.000000	45.3	36.3	100.0	H	23.0	-2.2
1421.500000	47.4	37.7	100.0	V	61.0	-1.1
1669.500000	48.6	39.7	100.0	H	23.0	1.0
2080.000000	51.7	42.2	100.0	H	37.0	4.0
2434.000000	90.2	89.4	100.0	V	108.0	5.0
2995.250000	56.3	46.6	100.0	V	240.0	8.2

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

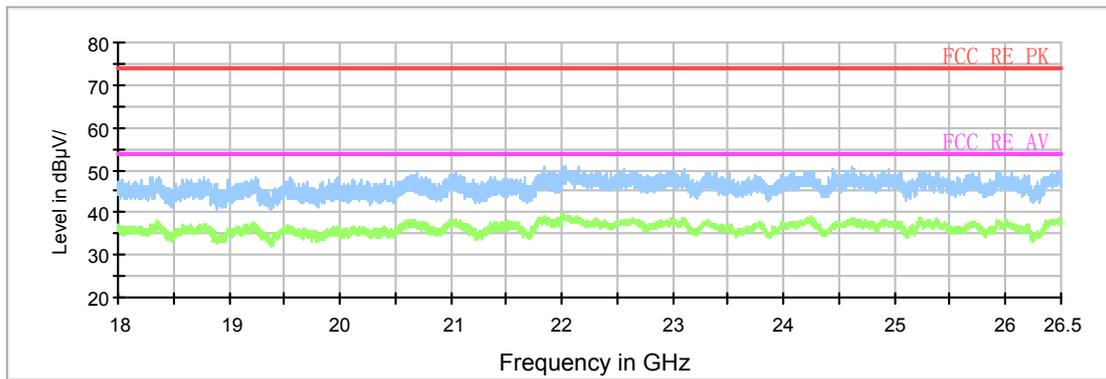
TA Technology (Shanghai) Co., Ltd. Test Report

RE 3-18GHz PK+AV



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| <ul style="list-style-type: none"> — FCC RE PK.LimitLine — Preview Result 1 * Data Reduction Result 1 [1] | <ul style="list-style-type: none"> — FCC RE AV.LimitLine — Preview Result 2 * Data Reduction Result 2 [1] |
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Radiates Emission from 3GHz to 18GHz



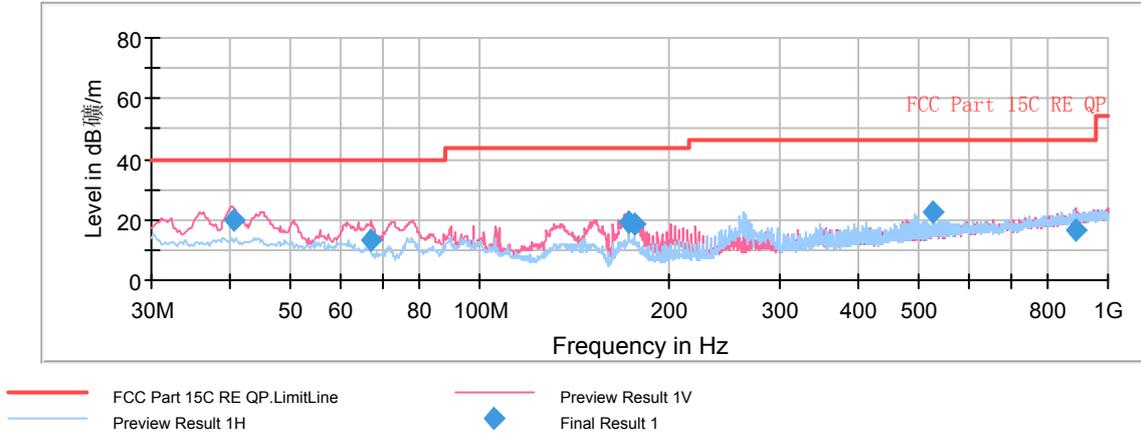
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| <ul style="list-style-type: none"> — FCC RE PK.LimitLine — Preview Result 1 * Data Reduction Result 1 [1] | <ul style="list-style-type: none"> — FCC RE AV.LimitLine — Preview Result 2 * Data Reduction Result 2 [1] |
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Radiates Emission from 18GHz to 26.5GHz

TA Technology (Shanghai) Co., Ltd. Test Report

EDR(3DH5)-Channel 0

RE 30M-1GHz (BT&WIFI) QP

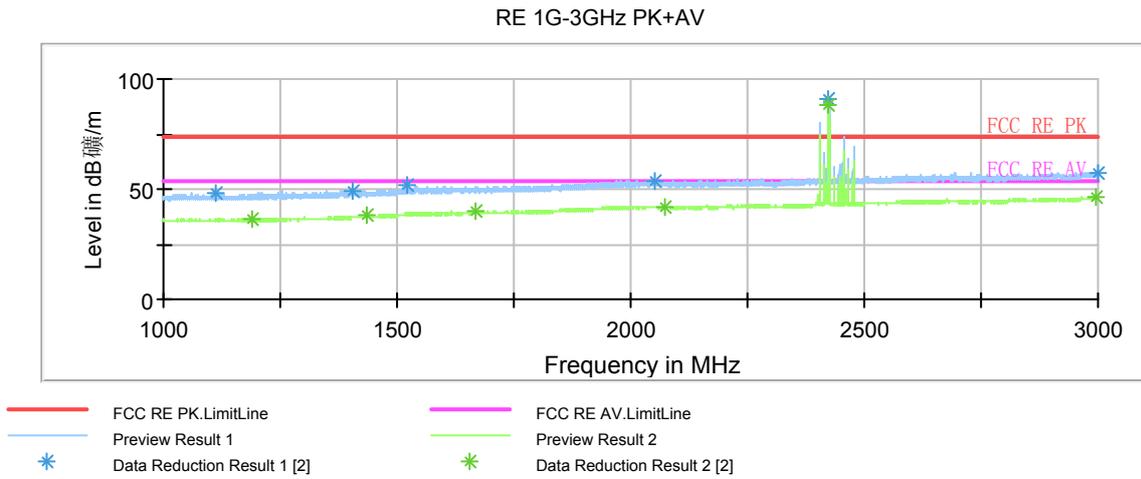


Radiates Emission from 30MHz to 1GHz

Frequency (MHz)	Quasi-Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
40.547500	19.7	120.0	V	307.0	43.6	-23.9	20.3	40.0
67.182500	13.0	100.0	V	197.0	43.3	-30.3	27.0	40.0
172.792500	19.4	100.0	V	331.0	50.8	-31.4	24.1	43.5
175.985000	18.6	100.0	V	322.0	49.8	-31.2	24.9	43.5
527.247500	22.2	100.0	V	187.0	44.0	-21.8	23.8	46.0
888.010000	16.6	121.0	V	209.0	33.0	-16.4	29.4	46.0

- Remark:**
1. Quasi-Peak = Reading value + Correction factor
 2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)
 3. Margin = Limit – Quasi-Peak

TA Technology (Shanghai) Co., Ltd. Test Report



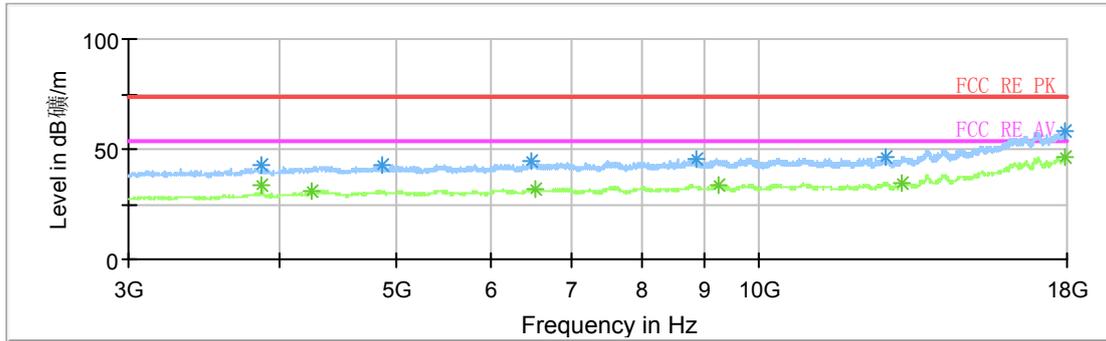
Note: The signal beyond the limit is carrier.
Radiates Emission from 1GHz to 3GHz

Frequency (MHz)	Peak (dBuV/m)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)
1188.500000	46.1	36.5	100.0	V	217.0	-2.2
1433.750000	47.3	37.8	100.0	V	348.0	-0.8
1670.000000	48.6	39.7	100.0	H	178.0	1.0
2075.250000	51.4	42.3	100.0	V	261.0	3.9
2424.500000	90.0	88.3	100.0	V	0.0	5.3
2996.750000	55.1	46.5	200.0	H	175.0	8.2

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

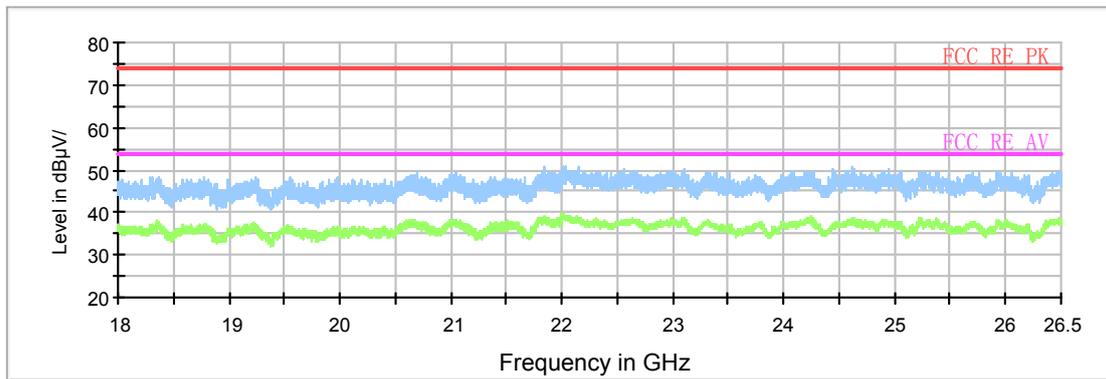
TA Technology (Shanghai) Co., Ltd. Test Report

RE 3-18GHz PK+AV



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| — FCC RE PK.LimitLine | — FCC RE AV.LimitLine |
| — Preview Result 1 | — Preview Result 2 |
| * Data Reduction Result 1 [1] | * Data Reduction Result 2 [1] |

Radiates Emission from 3GHz to 18GHz



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|-----------------------------------------------------------------|------------------------------------------------------------------|
| — FCC RE PK.LimitLine | — FCC RE AV.LimitLine |
| — Preview Result 1 | — Preview Result 2 |
| * Data Reduction Result 1 [1] | * Data Reduction Result 2 [1] |

Radiates Emission from 18GHz to 26.5GHz

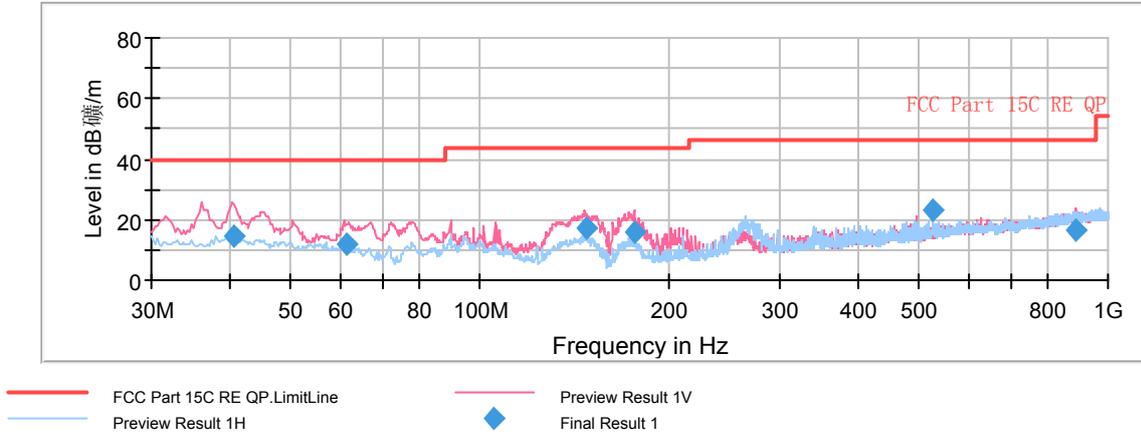
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EDR(3DH5)-Channel 39

RE 30M-1GHz (BT&WIFI) QP

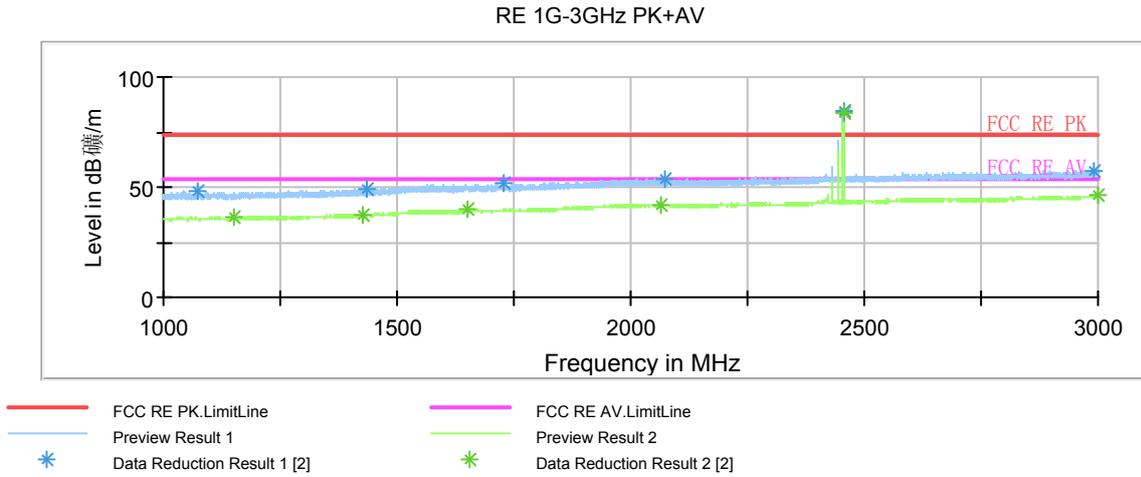


Radiates Emission from 30MHz to 1GHz

Frequency (MHz)	Quasi-Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
40.747500	14.5	120.0	V	6.0	38.5	-24.0	25.5	40.0
61.357500	12.2	100.0	V	199.0	39.8	-27.6	27.8	40.0
147.487500	17.0	100.0	V	347.0	49.6	-32.6	26.5	43.5
175.985000	15.9	100.0	V	328.0	47.1	-31.2	27.7	43.5
527.247500	22.9	100.0	V	185.0	44.7	-21.8	23.2	46.0
886.395000	16.4	225.0	V	142.0	32.8	-16.4	29.6	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

TA Technology (Shanghai) Co., Ltd. Test Report



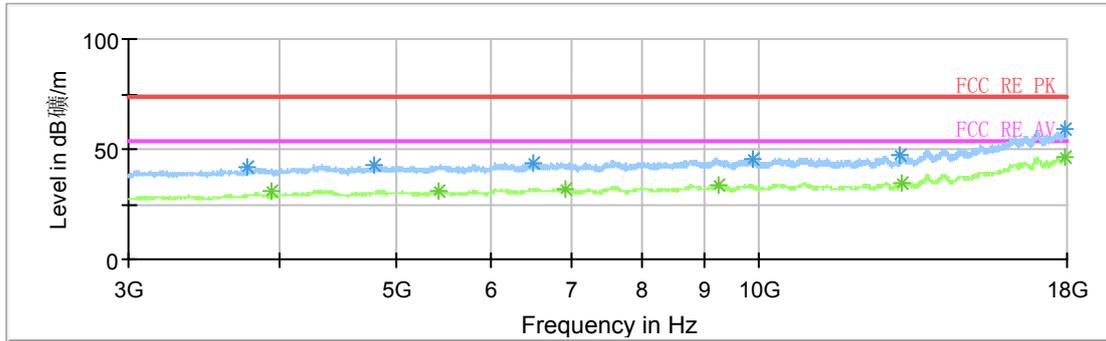
Note: The signal beyond the limit is carrier.
Radiates Emission from 1GHz to 3GHz

Frequency (MHz)	Peak (dBuV/m)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)
1151.000000	44.6	36.3	100.0	V	154.0	-2.4
1428.500000	46.6	37.6	100.0	V	287.0	-0.9
1648.750000	49.8	39.8	100.0	V	0.0	0.9
2062.750000	51.0	42.2	100.0	H	144.0	3.6
2455.000000	84.1	83.4	100.0	H	0.0	5.2
2998.250000	55.3	46.3	100.0	V	243.0	8.2

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

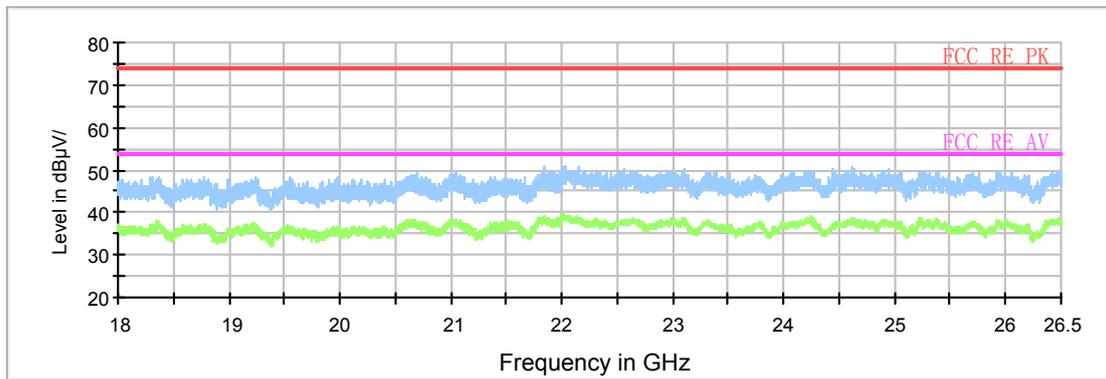
TA Technology (Shanghai) Co., Ltd. Test Report

RE 3-18GHz PK+AV



- | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> — FCC RE PK.LimitLine — Preview Result 1 * Data Reduction Result 1 [1] | <ul style="list-style-type: none"> — FCC RE AV.LimitLine — Preview Result 2 * Data Reduction Result 2 [1] |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Radiates Emission from 3GHz to 18GHz



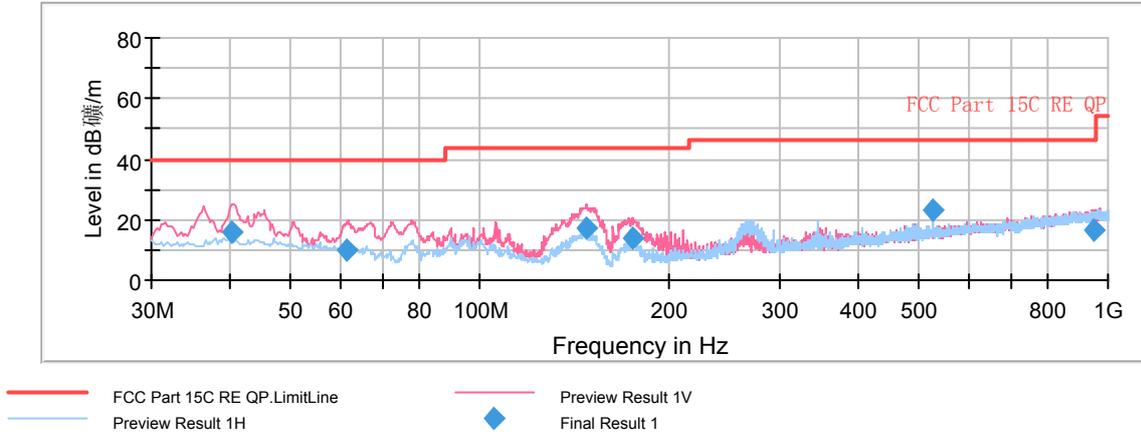
- | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> — FCC RE PK.LimitLine — Preview Result 1 * Data Reduction Result 1 [1] | <ul style="list-style-type: none"> — FCC RE AV.LimitLine — Preview Result 2 * Data Reduction Result 2 [1] |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Radiates Emission from 18GHz to 26.5GHz

TA Technology (Shanghai) Co., Ltd. Test Report

EDR(3DH5)-Channel 78

RE 30M-1GHz (BT&WIFI) QP

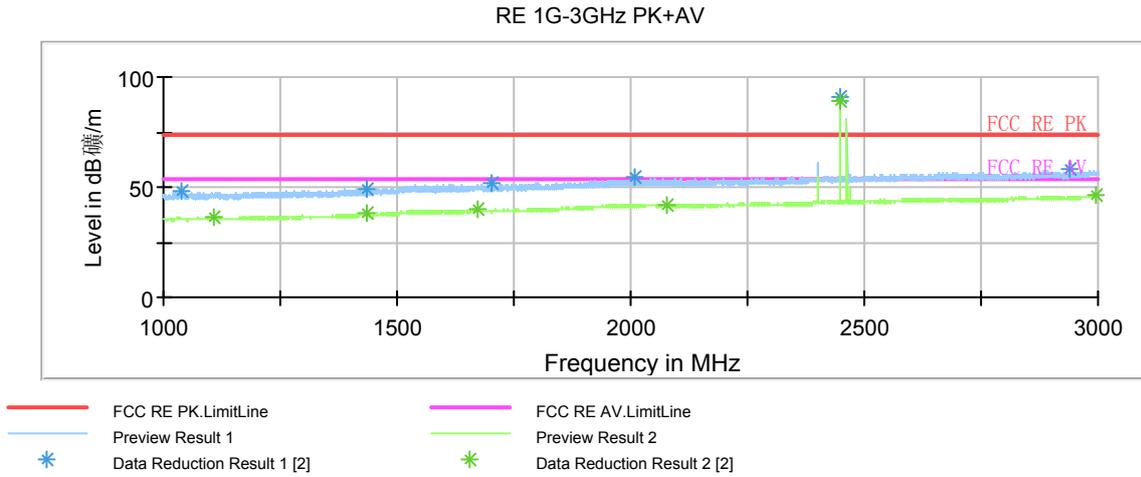


Radiates Emission from 30MHz to 1GHz

Frequency (MHz)	Quasi-Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
40.390000	16.1	120.0	V	0.0	40.0	-23.9	23.9	40.0
61.287500	9.6	100.0	V	303.0	37.1	-27.5	30.4	40.0
147.495000	17.1	100.0	V	330.0	49.7	-32.6	26.4	43.5
175.777500	14.2	100.0	V	331.0	45.4	-31.2	29.3	43.5
527.247500	23.1	100.0	V	144.0	44.9	-21.8	23.0	46.0
950.412500	16.8	100.0	V	189.0	32.7	-15.9	29.2	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

TA Technology (Shanghai) Co., Ltd. Test Report



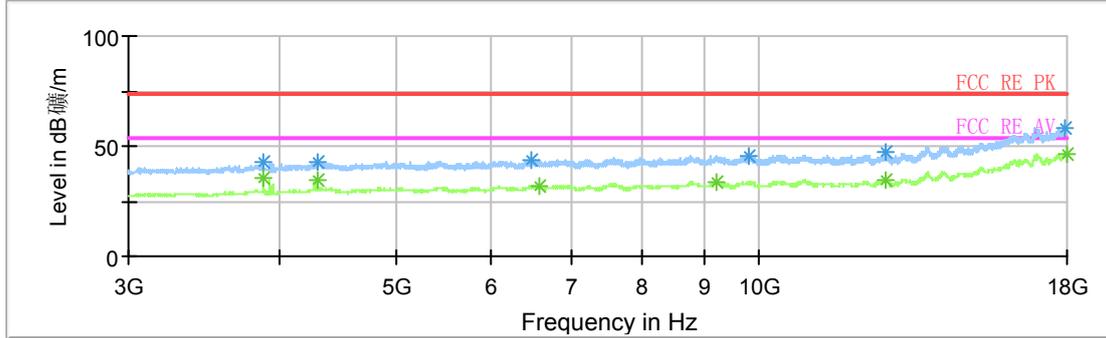
Note: The signal beyond the limit is carrier.
Radiates Emission from 1GHz to 3GHz

Frequency (MHz)	Peak (dBuV/m)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)
1105.750000	45.7	36.1	100.0	V	185.0	-2.4
1434.250000	48.5	37.8	100.0	H	146.0	-0.8
1673.000000	49.8	39.7	100.0	H	268.0	1.0
2079.250000	53.0	42.2	100.0	V	318.0	4.0
2448.750000	91.0	89.3	100.0	V	303.0	5.3
2996.000000	56.3	46.3	100.0	V	0.0	8.2

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

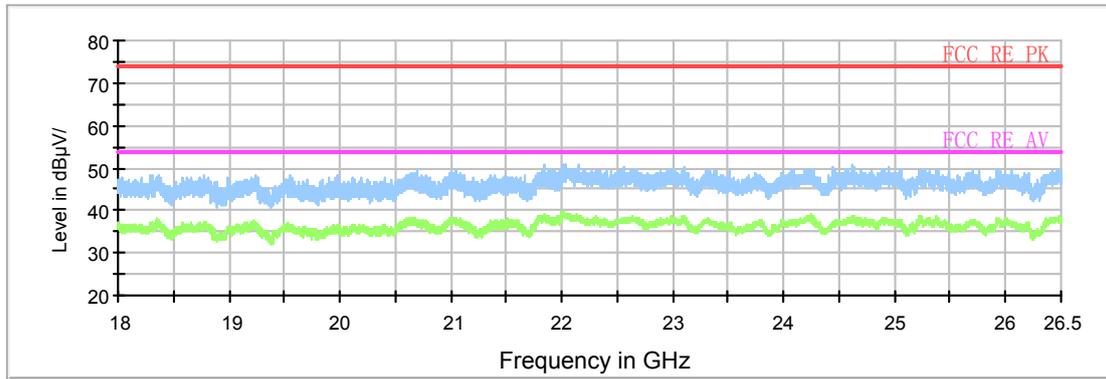
TA Technology (Shanghai) Co., Ltd. Test Report

RE 3-18GHz PK+AV



- | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> — FCC RE PK.LimitLine — Preview Result 1 * Data Reduction Result 1 [1] | <ul style="list-style-type: none"> — FCC RE AV.LimitLine — Preview Result 2 * Data Reduction Result 2 [1] |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Radiates Emission from 3GHz to 18GHz



- | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> — FCC RE PK.LimitLine — Preview Result 1 * Data Reduction Result 1 [1] | <ul style="list-style-type: none"> — FCC RE AV.LimitLine — Preview Result 2 * Data Reduction Result 2 [1] |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Radiates Emission from 18GHz to 26.5GHz

TA Technology (Shanghai) Co., Ltd.

Test Report

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2.11. Conducted Emission

Ambient condition

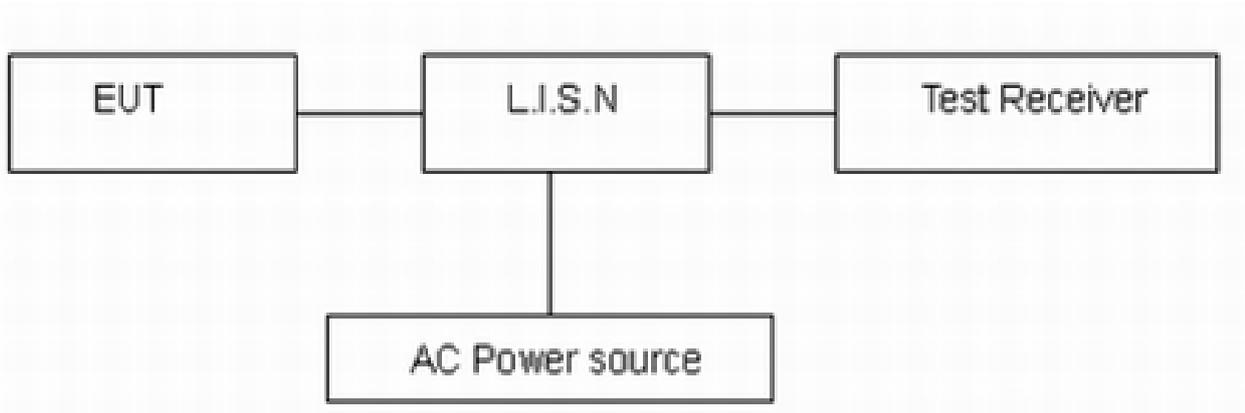
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

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 C63.4-2009. 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 9kHz,VBW is set to 30kHz.The measurement result should include both L line and N line.

The test is in transmit mode.

Test Setup



Note: AC Power source is used to change the voltage from 220V/50Hz to 110V/60Hz.

Limits

Frequency (MHz)	Conducted Limits(dB μ V)	
	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.

TA Technology (Shanghai) Co., Ltd. Test Report

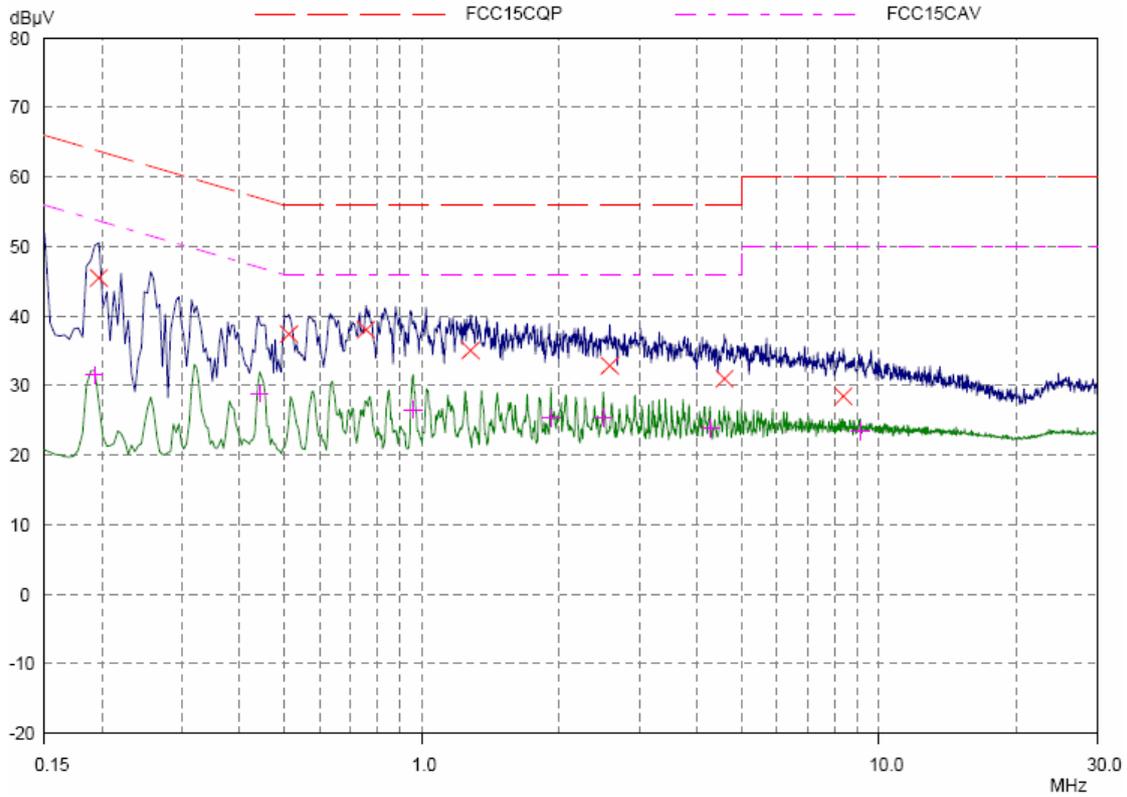
Report No.: RHA1209-0083RF04R2

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Test Results:

Adapter (HKAB829B329)

Basic Rate-CH0



L Line

Final Measurement Results

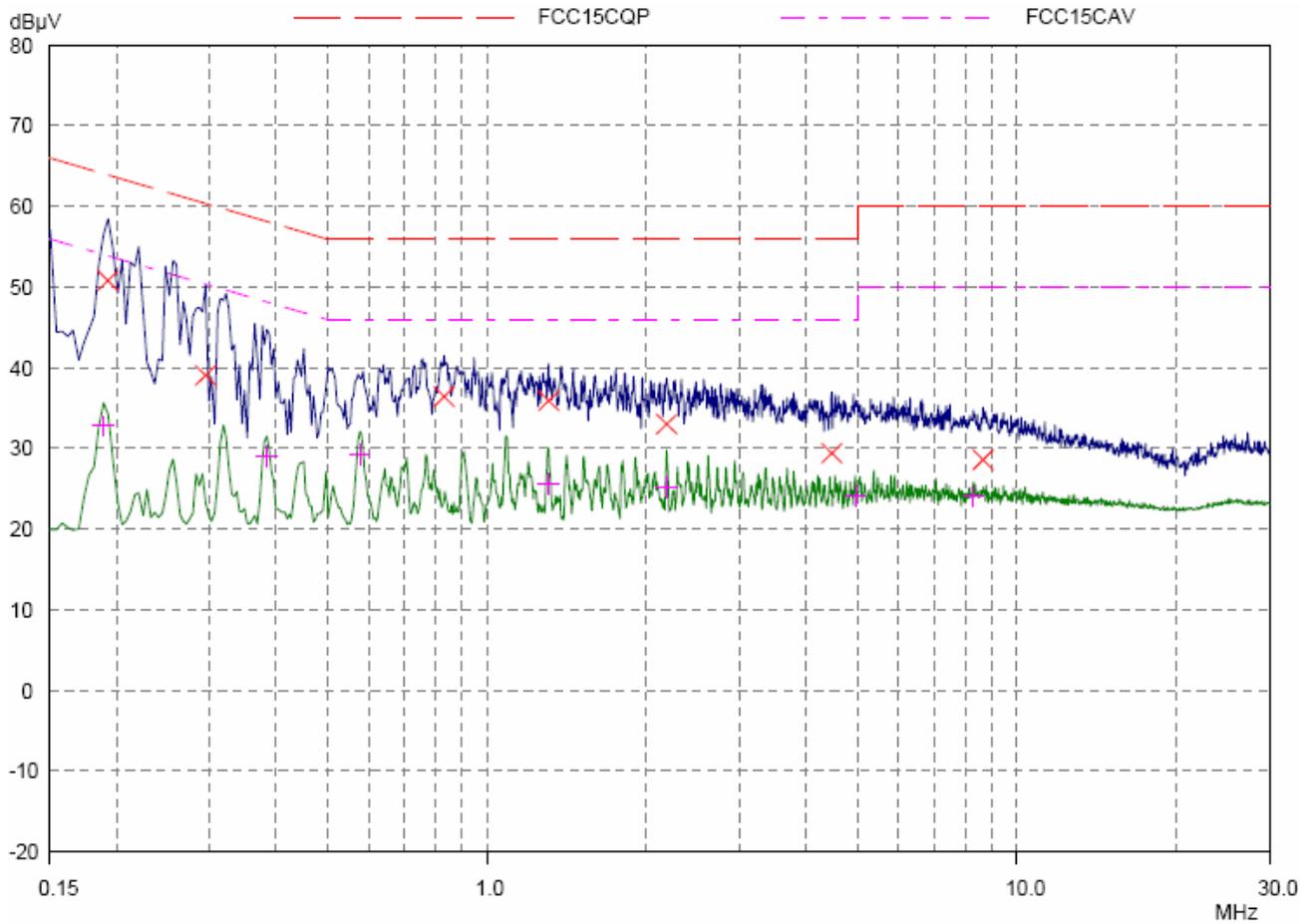
Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -
0.19687	45.51	63.74	18.23	L1
0.51327	37.44	56.00	18.56	L1
0.75546	38.06	56.00	17.94	L1
1.2789	35.05	56.00	20.95	L1
2.57968	32.90	56.00	23.10	L1
4.59531	30.98	56.00	25.02	L1
8.35312	28.47	60.00	31.53	L1

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -
0.19296	31.56	53.91	22.35	L1
0.44296	28.90	47.01	18.11	L1
0.95859	26.59	46.00	19.41	L1
1.91562	25.31	46.00	20.69	L1
2.49765	25.41	46.00	20.59	L1
4.26718	23.93	46.00	22.07	L1
9.11093	23.50	50.00	26.50	L1

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N Line

Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -
0.19296	50.80	63.91	13.11	N
0.29453	39.08	60.40	21.32	N
0.82968	36.43	56.00	19.57	N
1.30625	35.94	56.00	20.06	N
2.18515	33.03	56.00	22.97	N
4.47421	29.40	56.00	26.60	N
8.62265	28.59	60.00	31.41	N

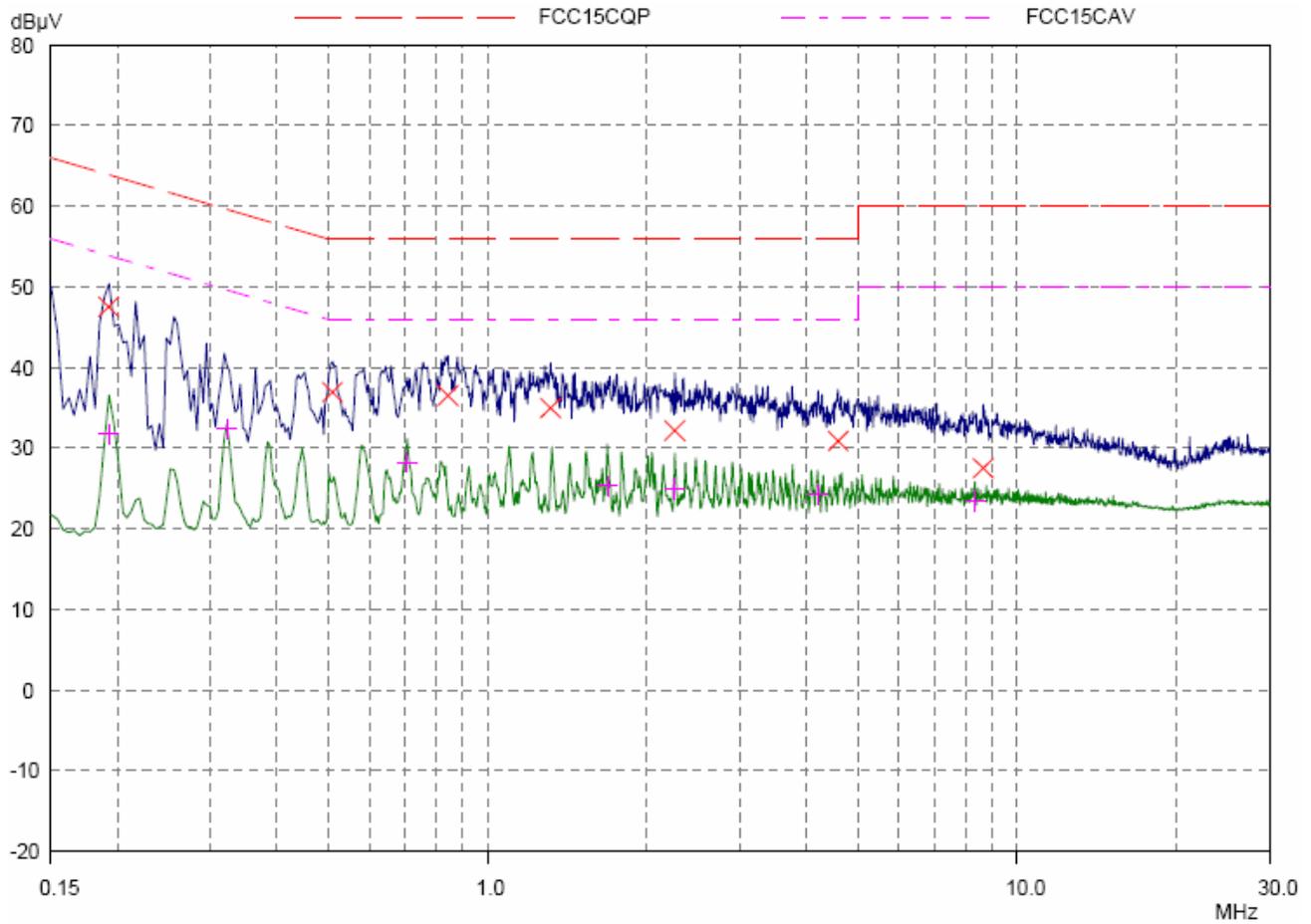
Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -
0.18906	32.81	54.08	21.27	N
0.38437	29.02	48.18	19.16	N
0.57578	29.27	46.00	16.73	N
1.30625	25.69	46.00	20.31	N
2.18515	25.18	46.00	20.82	N
4.95468	24.04	46.00	21.96	N
8.28281	24.00	50.00	26.00	N

TA Technology (Shanghai) Co., Ltd. Test Report

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Basic Rate-CH39



L Line

Final Measurement Results

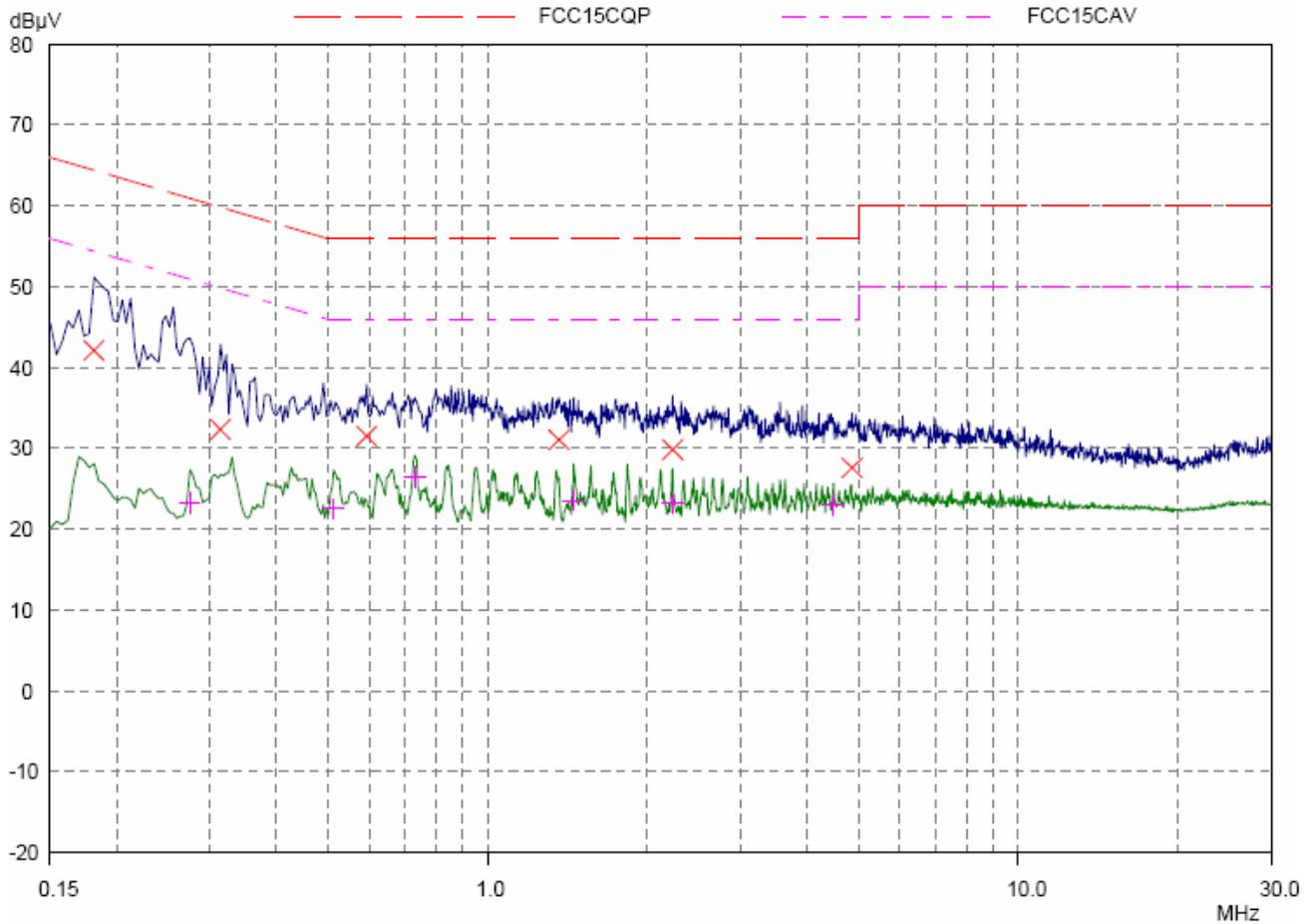
Frequency MHz	QP Level dBμV	QP Limit dBμV	QP Delta dB	Phase -
0.19296	47.52	63.91	16.39	L1
0.50937	36.92	56.00	19.08	L1
0.8414	36.52	56.00	19.48	L1
1.31406	34.96	56.00	21.04	L1
2.25937	32.19	56.00	23.81	L1
4.5914	30.92	56.00	25.08	L1
8.63046	27.51	60.00	32.49	L1

Frequency MHz	AV Level dBμV	AV Limit dBμV	AV Delta dB	Phase -
0.19296	31.71	53.91	22.20	L1
0.32187	32.37	49.66	17.29	L1
0.70468	28.26	46.00	17.74	L1
1.68515	25.35	46.00	20.65	L1
2.25937	24.98	46.00	21.02	L1
4.20468	24.27	46.00	21.73	L1
8.32578	23.49	50.00	26.51	L1

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N Line

Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -
0.18125	42.09	64.43	22.34	N
0.31406	32.36	59.86	27.50	N
0.5914	31.53	56.00	24.47	N
1.36484	31.07	56.00	24.93	N
2.23203	29.84	56.00	26.16	N
4.86875	27.62	56.00	28.38	N

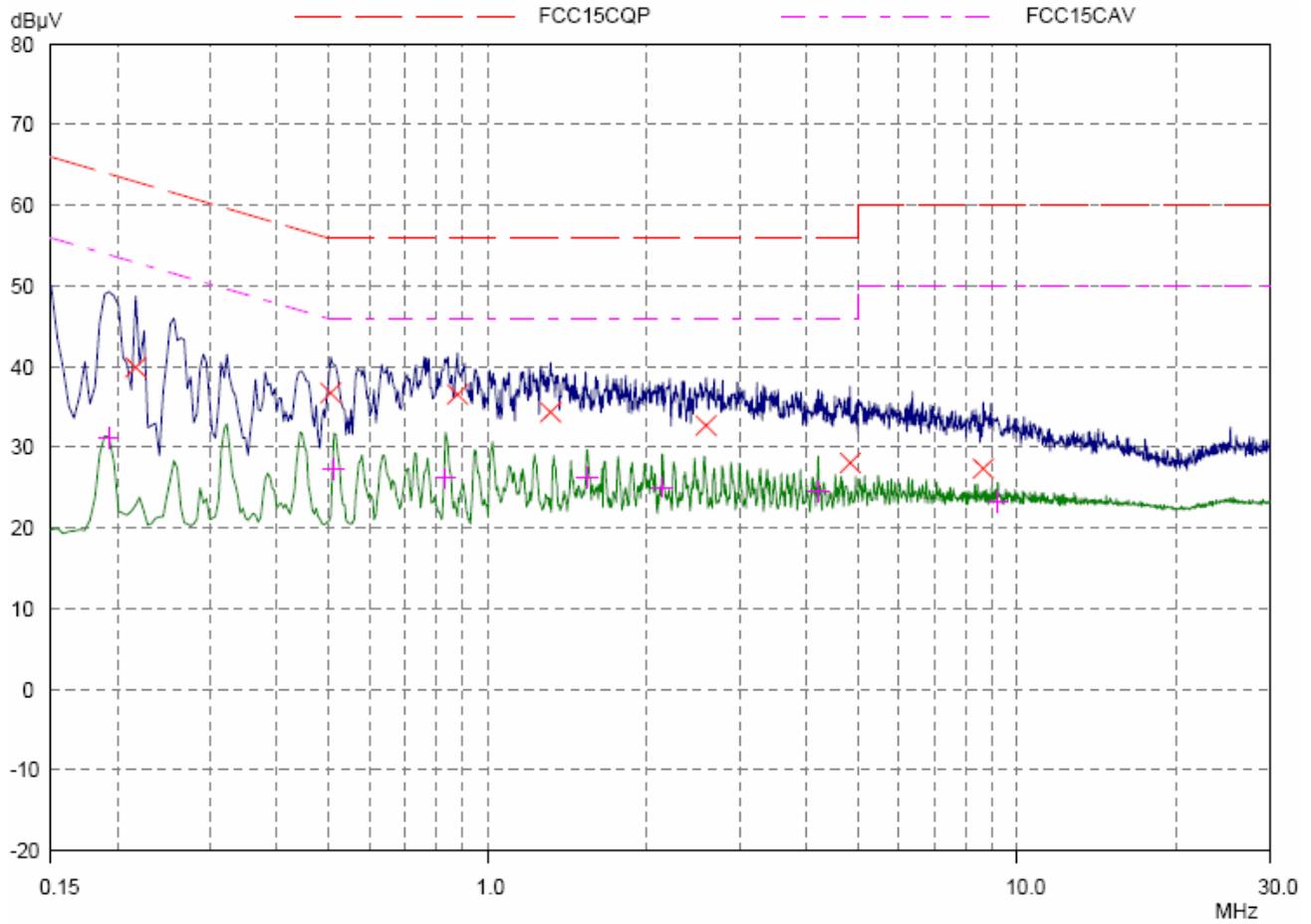
Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -
0.275	23.31	50.97	27.66	N
0.51327	22.53	46.00	23.47	N
0.72812	26.39	46.00	19.61	N
1.45468	23.55	46.00	22.45	N
2.23203	23.22	46.00	22.78	N
4.48593	23.04	46.00	22.96	N

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Basic Rate-CH78



L Line

Final Measurement Results

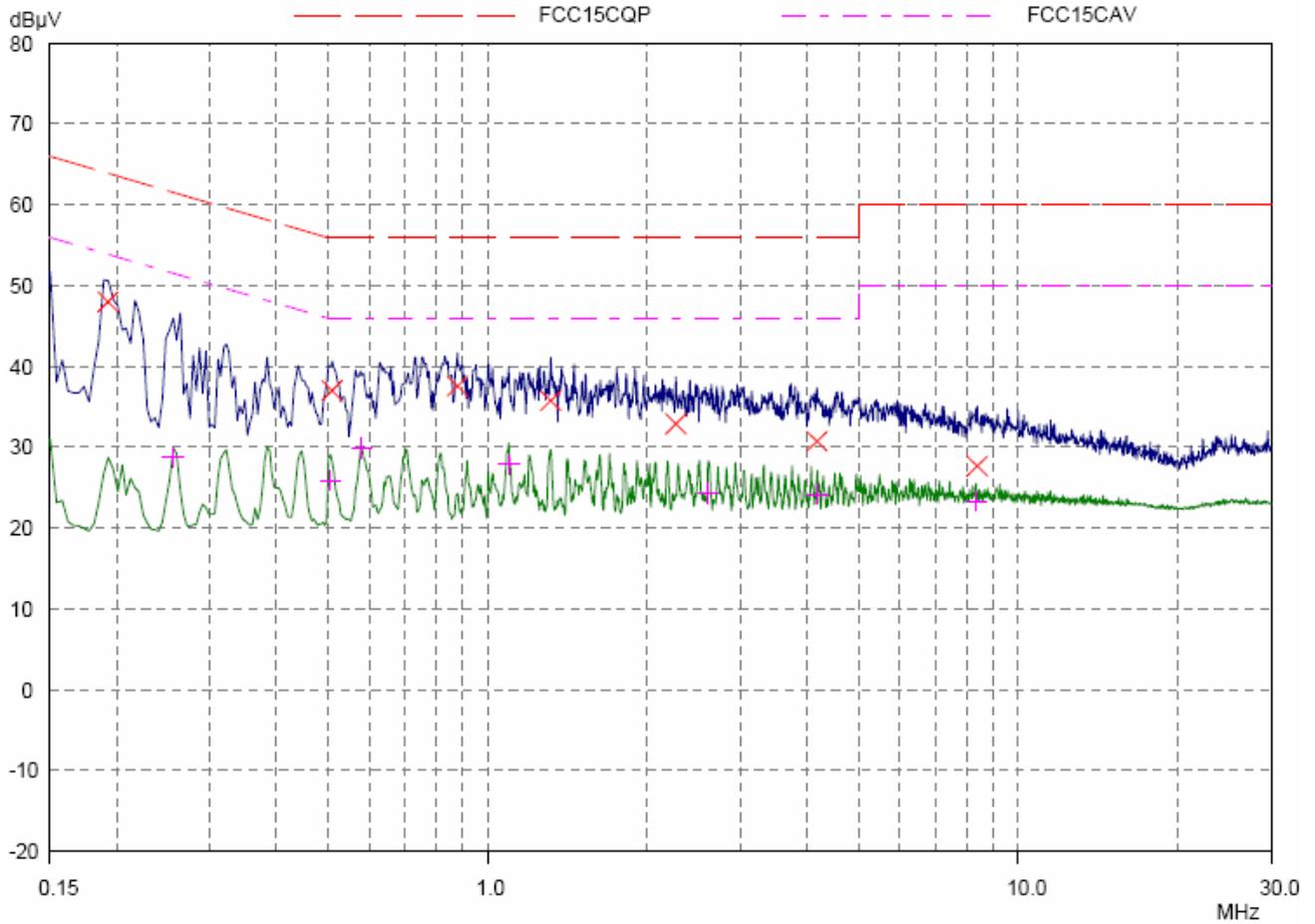
Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -
0.2164	39.91	62.96	23.05	L1
0.50546	36.75	56.00	19.25	L1
0.87656	36.57	56.00	19.43	L1
1.31406	34.36	56.00	21.64	L1
2.5875	32.72	56.00	23.28	L1
4.8375	28.08	56.00	27.92	L1
8.62265	27.39	60.00	32.61	L1

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -
0.19296	31.09	53.91	22.82	L1
0.51327	27.28	46.00	18.72	L1
0.83359	26.20	46.00	19.80	L1
1.54062	26.27	46.00	19.73	L1
2.13828	25.09	46.00	20.91	L1
4.2164	24.52	46.00	21.48	L1
9.18906	23.27	50.00	26.73	L1

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N Line

Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -
0.19296	47.98	63.91	15.93	N
0.50937	37.04	56.00	18.96	N
0.87656	37.59	56.00	18.41	N
1.31406	35.78	56.00	20.22	N
2.26718	32.91	56.00	23.09	N
4.18125	30.77	56.00	25.23	N
8.38437	27.69	60.00	32.31	N

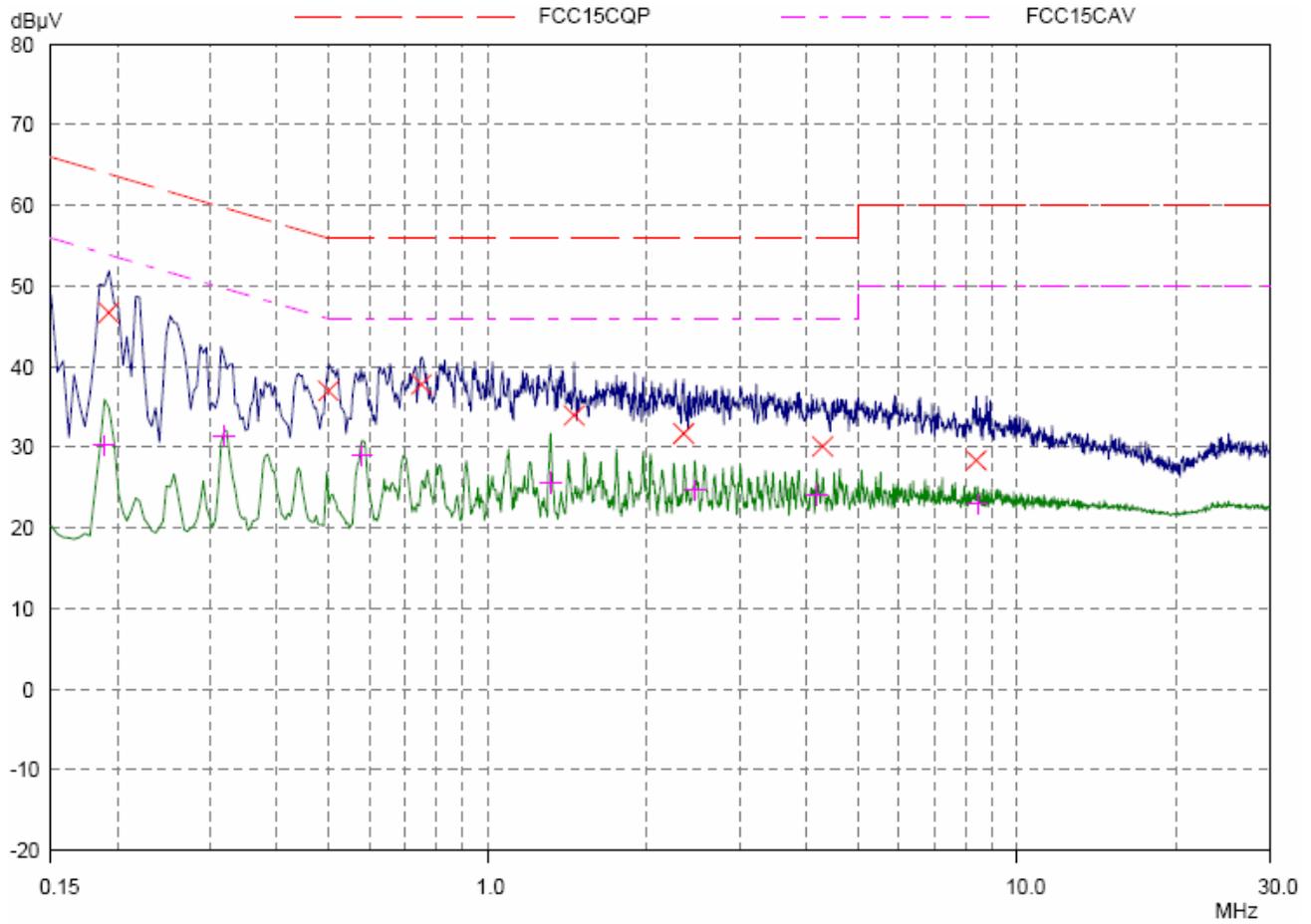
Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -
0.25546	28.73	51.58	22.85	N
0.50546	25.87	46.00	20.13	N
0.57968	29.91	46.00	16.09	N
1.09531	27.94	46.00	18.06	N
2.61093	24.30	46.00	21.70	N
4.18515	24.17	46.00	21.83	N
8.32187	23.37	50.00	26.63	N

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EDR(3DH5)-CH0



L Line

Final Measurement Results

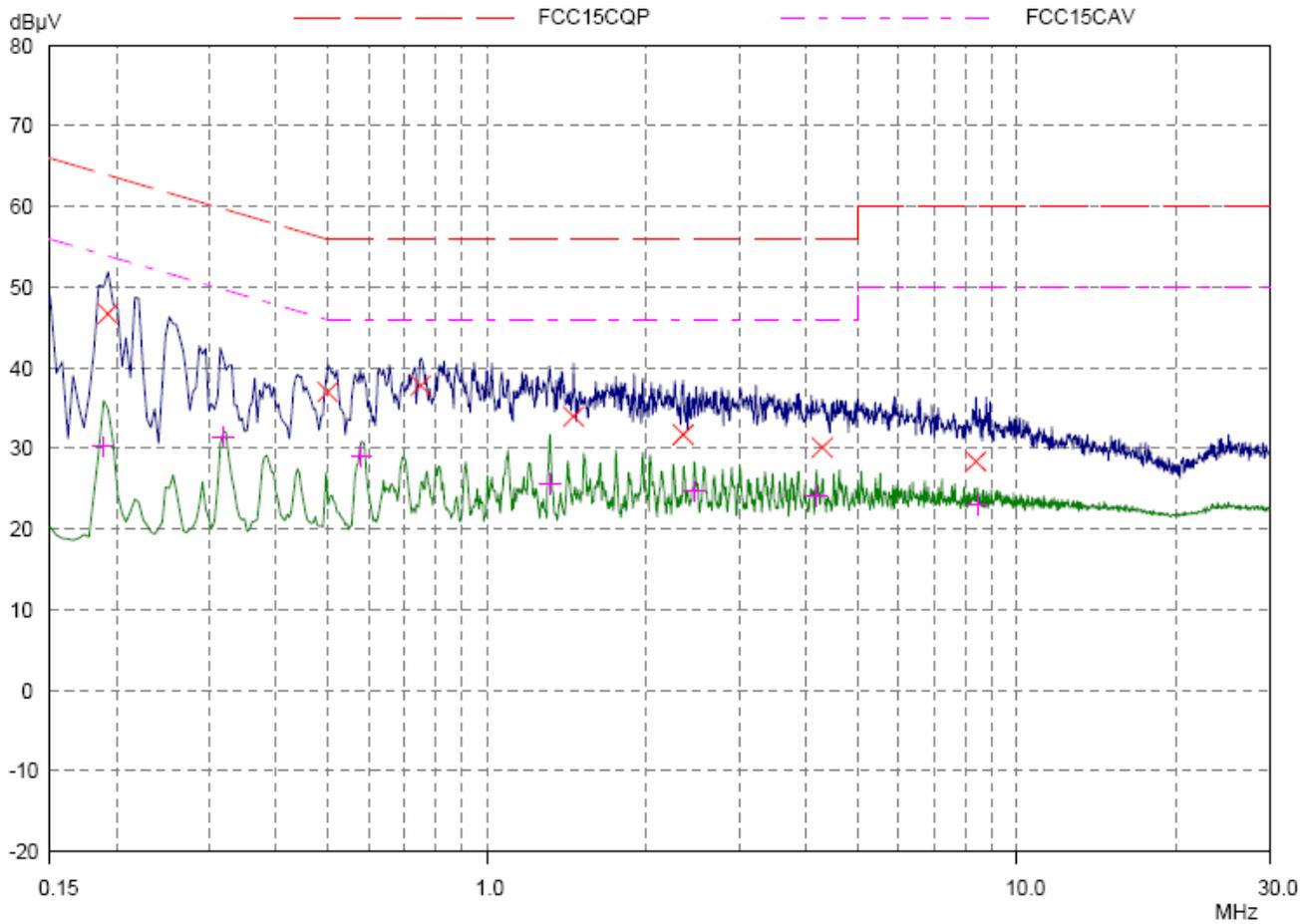
Frequency MHz	QP Level dBμV	QP Limit dBμV	QP Delta dB	Phase -
0.19296	46.72	63.91	17.19	N
0.50156	37.01	56.00	18.99	N
0.75156	37.77	56.00	18.23	N
1.45859	33.95	56.00	22.05	N
2.34531	31.74	56.00	24.26	N
4.29062	30.09	56.00	25.91	N
8.38045	28.37	60.00	31.63	N

Frequency MHz	AV Level dBμV	AV Limit dBμV	AV Delta dB	Phase -
0.18906	30.27	54.08	23.81	N
0.31796	31.47	49.76	18.29	N
0.57968	29.06	46.00	16.94	N
1.31406	25.61	46.00	20.39	N
2.4625	24.65	46.00	21.35	N
4.19296	24.07	46.00	21.93	N
8.43125	22.96	50.00	27.04	N

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N Line

Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -
0.19296	46.72	63.91	17.19	N
0.50156	37.01	56.00	18.99	N
0.75156	37.77	56.00	18.23	N
1.45859	33.95	56.00	22.05	N
2.34531	31.74	56.00	24.26	N
4.29062	30.09	56.00	25.91	N
8.38045	28.37	60.00	31.63	N

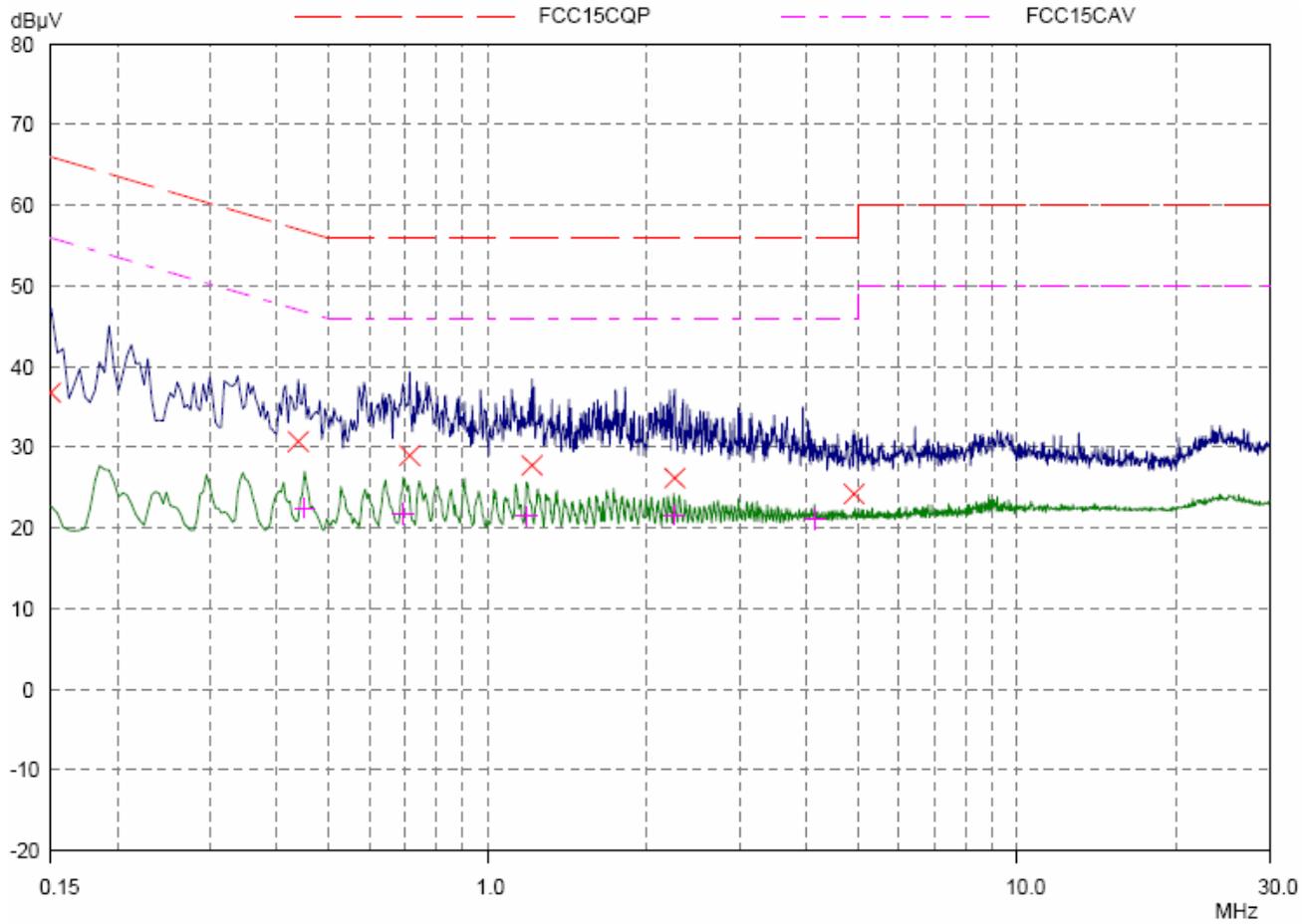
Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -
0.18906	30.27	54.08	23.81	N
0.31796	31.47	49.76	18.29	N
0.57968	29.06	46.00	16.94	N
1.31406	25.61	46.00	20.39	N
2.4625	24.65	46.00	21.35	N
4.19296	24.07	46.00	21.93	N
8.43125	22.96	50.00	27.04	N

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EDR(3DH5)-CH39



L Line

Final Measurement Results

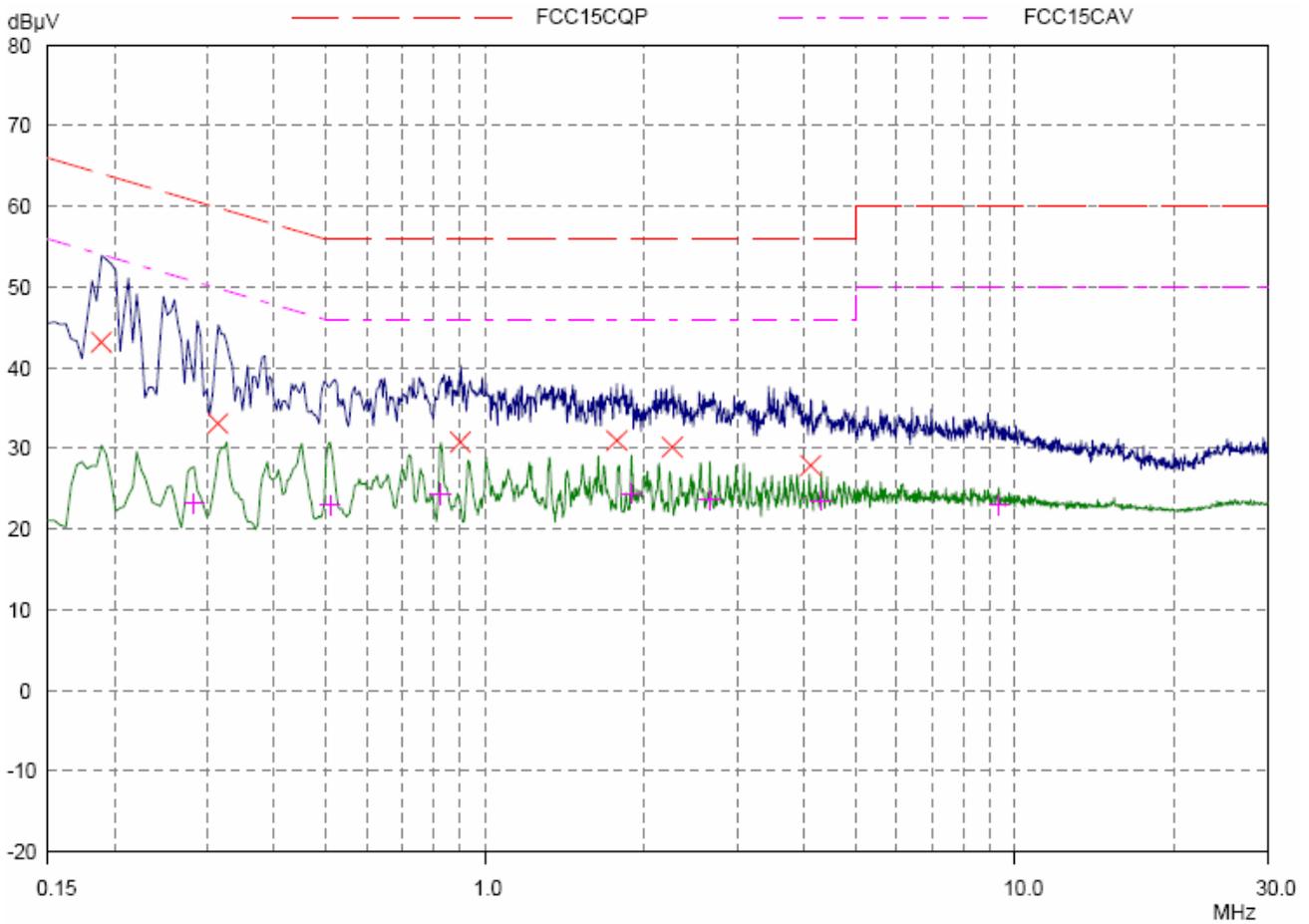
Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -
0.15	36.82	66.00	29.18	L1
0.43906	30.70	57.08	26.38	L1
0.7125	28.98	56.00	27.02	L1
1.2125	27.78	56.00	28.22	L1
2.25937	26.17	56.00	29.83	L1
4.91953	24.21	56.00	31.79	L1

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -
0.45078	22.50	46.86	24.36	L1
0.69296	21.76	46.00	24.24	L1
1.18515	21.43	46.00	24.57	L1
2.24765	21.63	46.00	24.37	L1
4.13828	21.13	46.00	24.87	L1

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N Line

Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -
0.18906	43.18	64.08	20.90	N
0.31406	33.08	59.86	26.78	N
0.9	30.79	56.00	25.21	N
1.775	30.98	56.00	25.02	N
2.25937	30.17	56.00	25.83	N
4.12265	27.90	56.00	28.10	N

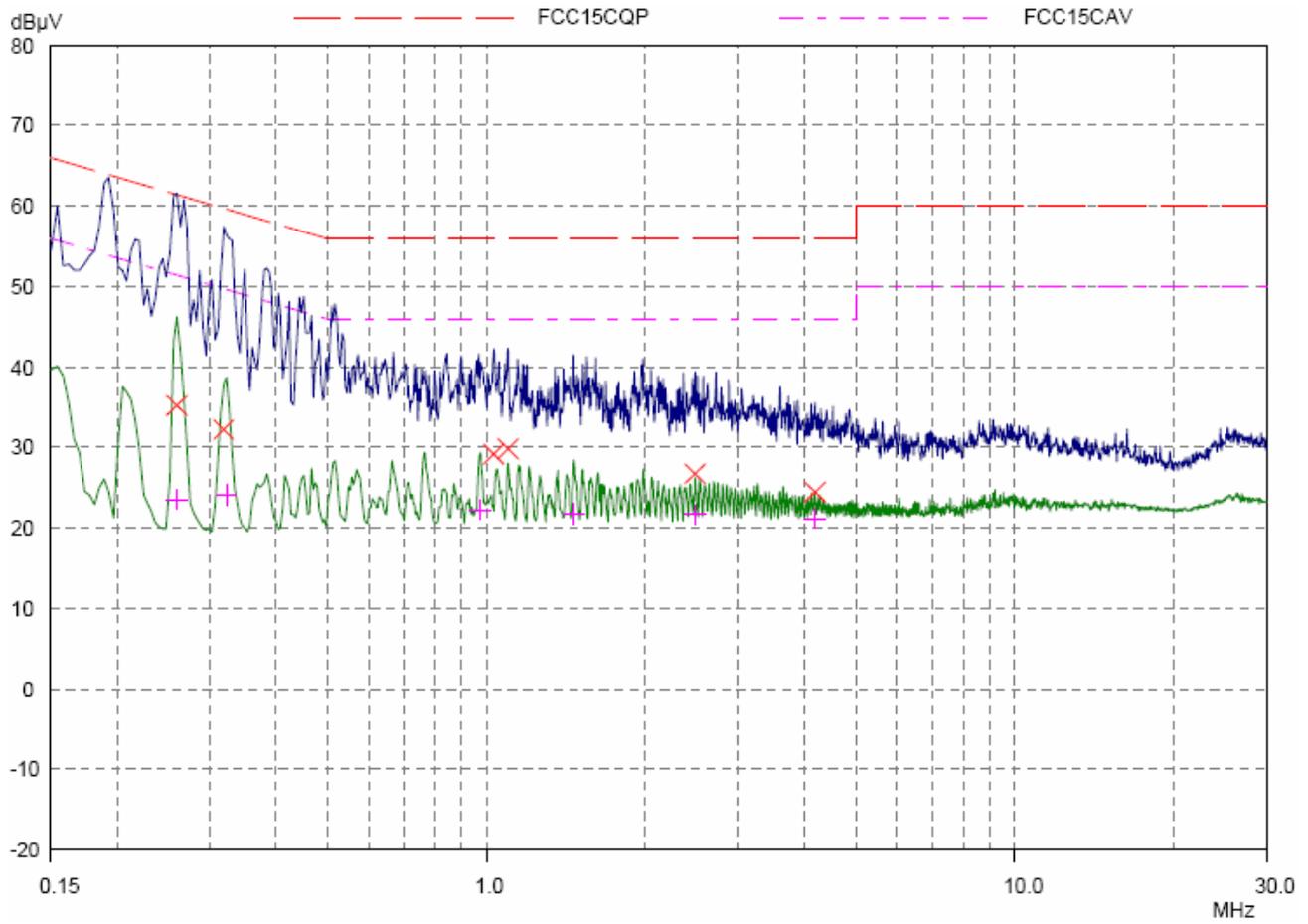
Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -
0.28281	23.22	50.73	27.51	N
0.50937	22.96	46.00	23.04	N
0.82578	24.29	46.00	21.71	N
1.89218	24.41	46.00	21.59	N
2.65781	23.61	46.00	22.39	N
4.31406	23.51	46.00	22.49	N
9.3414	22.92	50.00	27.08	N

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EDR(3DH5)-CH78



L Line

Final Measurement Results

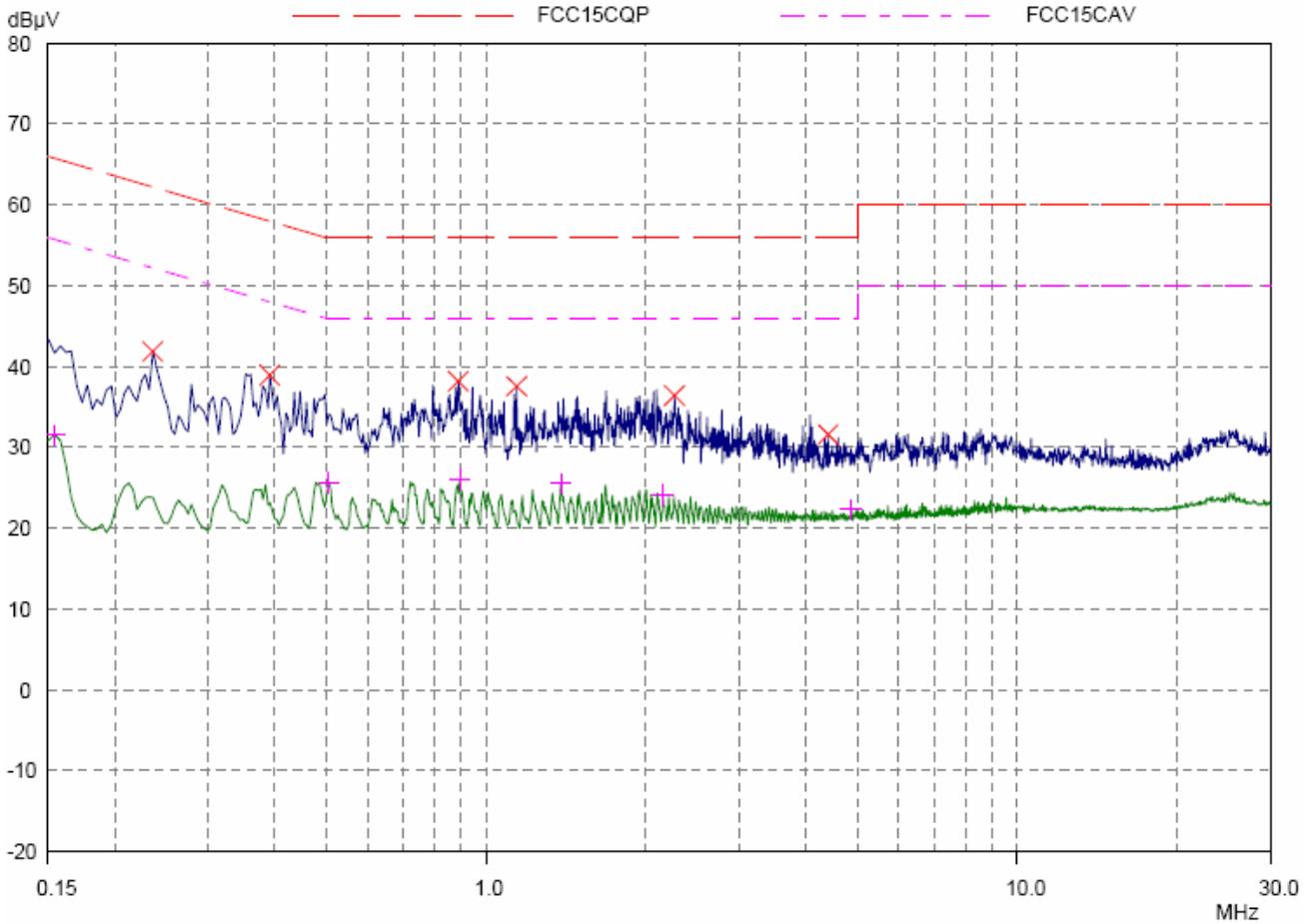
Frequency MHz	QP Level dBμV	QP Limit dBμV	QP Delta dB	Phase -
0.25937	35.21	61.45	26.24	L1
0.31796	32.26	59.76	27.50	L1
1.03281	29.20	56.00	26.80	L1
1.09921	29.84	56.00	26.16	L1
2.47812	26.74	56.00	29.26	L1
4.18515	24.47	56.00	31.53	L1

Frequency MHz	AV Level dBμV	AV Limit dBμV	AV Delta dB	Phase -
0.25937	23.59	51.45	27.86	L1
0.32187	24.08	49.66	25.58	L1
0.97421	22.26	46.00	23.74	L1
1.4664	21.75	46.00	24.25	L1
2.48203	21.67	46.00	24.33	L1
4.17342	21.21	46.00	24.79	L1

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N Line

Final Measurement Results

Frequency MHz	PK Level dBµV	PK Limit dBµV	PK Delta dB	Phase -
0.23593	41.91	62.24	20.33	N
0.39218	38.94	58.02	19.08	N
0.88828	38.21	56.00	17.79	N
1.14218	37.58	56.00	18.42	N
2.26718	36.43	56.00	19.57	N
4.4	31.61	56.00	24.39	N

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -
0.1539	31.56	55.79	24.23	N
0.50546	25.61	46.00	20.39	N
0.89218	26.07	46.00	19.93	N
1.38437	25.59	46.00	20.41	N
2.1539	24.03	46.00	21.97	N
4.87265	22.32	46.00	23.68	N

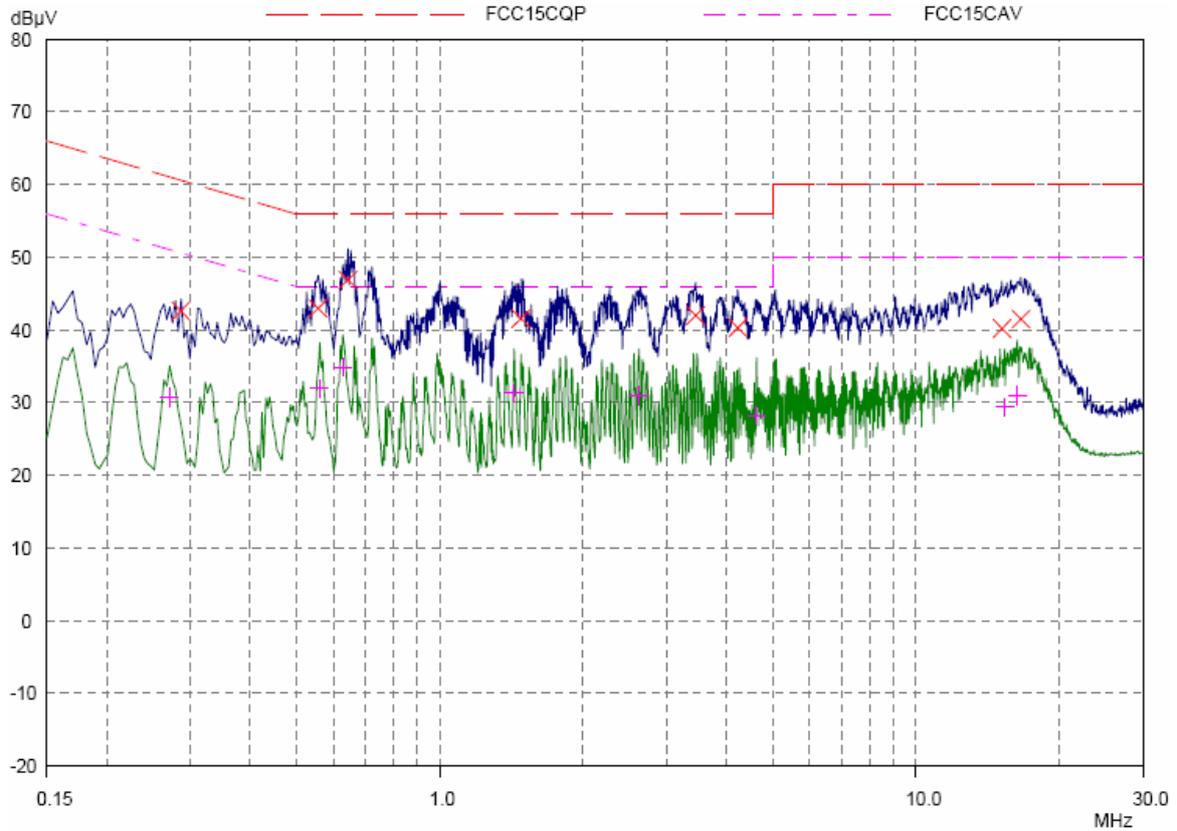
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Adapter (TPAC41985003)

Basic Rate-CH0



L Line

Final Measurement Results

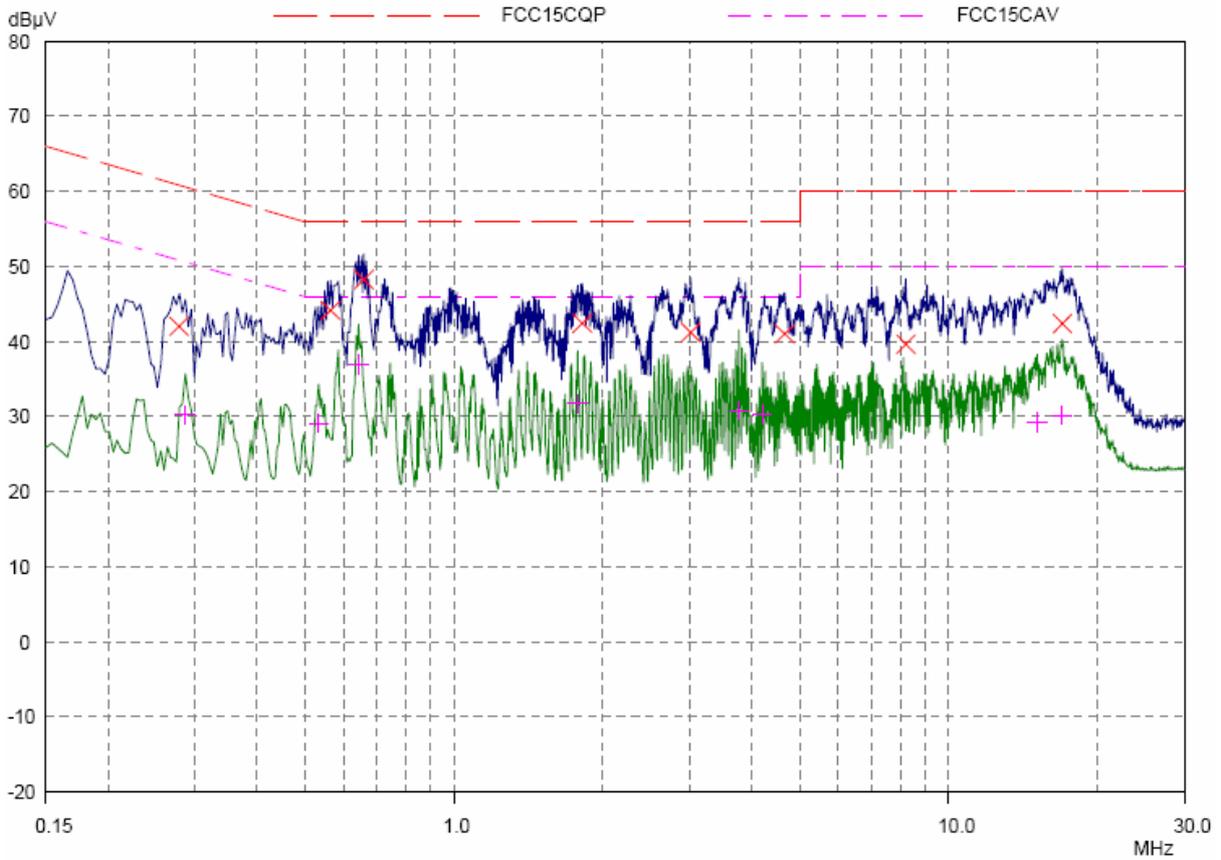
Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -
0.28671	42.63	60.62	17.99	L1
0.55625	42.99	56.00	13.01	L1
0.64218	46.92	56.00	9.08	L1
1.48203	41.55	56.00	14.45	L1
3.44687	41.99	56.00	14.01	L1
4.22421	40.32	56.00	15.68	L1
15.15781	40.19	60.00	19.81	L1
16.61093	41.51	60.00	18.49	L1

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -
0.27109	30.76	51.08	20.32	L1
0.56015	31.92	46.00	14.08	L1
0.62656	34.88	46.00	11.12	L1
1.43125	31.32	46.00	14.68	L1
2.61875	31.02	46.00	14.98	L1
4.63046	28.23	46.00	17.77	L1
15.37656	29.38	50.00	20.62	L1
16.32968	30.96	50.00	19.04	L1

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N Line

Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -
0.2789	42.06	60.85	18.79	N
0.56406	44.16	56.00	11.84	N
0.65781	48.29	56.00	7.71	N
1.81796	42.43	56.00	13.57	N
3.00937	41.23	56.00	14.77	N
4.66171	41.05	56.00	14.95	N
8.19687	39.66	60.00	20.34	N
16.97421	42.40	60.00	17.60	N

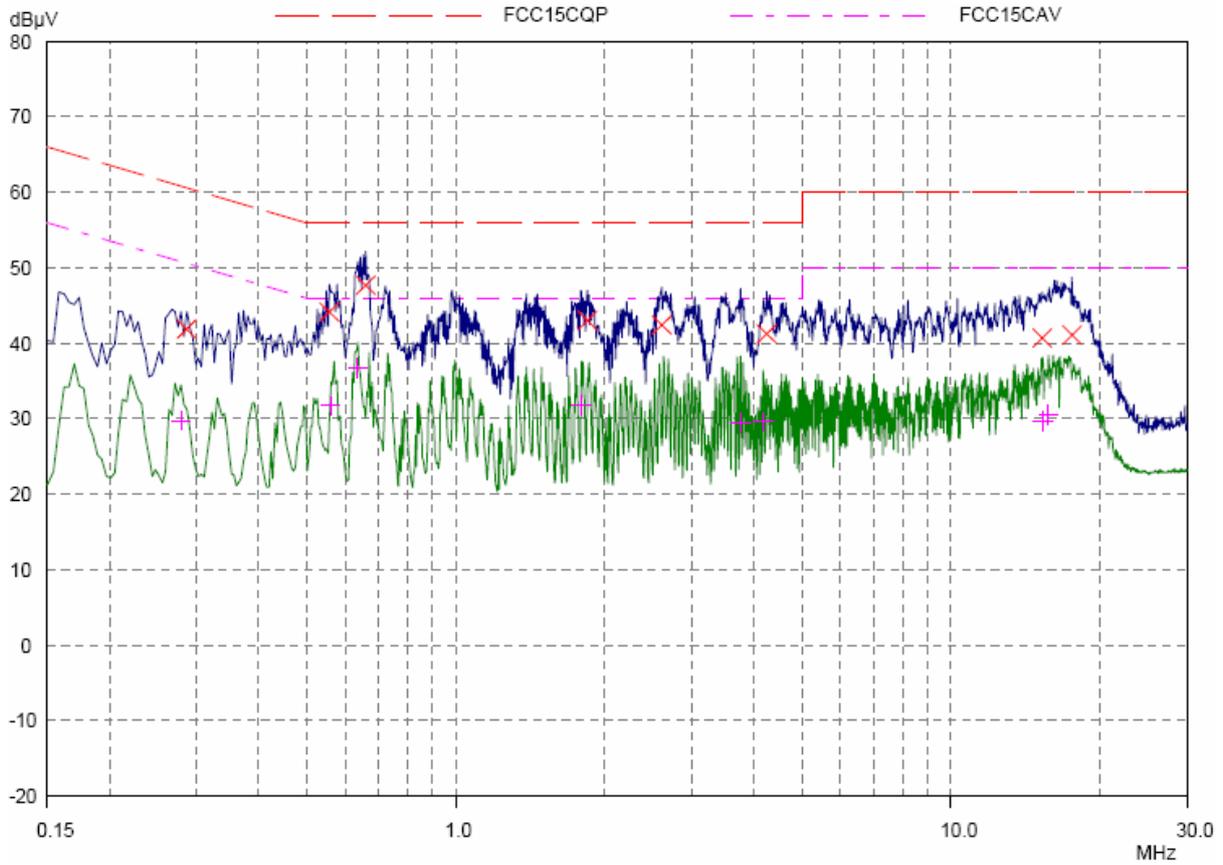
Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -
0.28671	30.21	50.62	20.41	N
0.53281	29.10	46.00	16.90	N
0.64218	36.91	46.00	9.09	N
1.7789	31.71	46.00	14.29	N
3.775	30.80	46.00	15.20	N
4.20468	30.39	46.00	15.61	N
15.09921	29.23	50.00	20.77	N
16.97421	30.19	50.00	19.81	N

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Basic Rate-CH39



L Line

Final Measurement Results

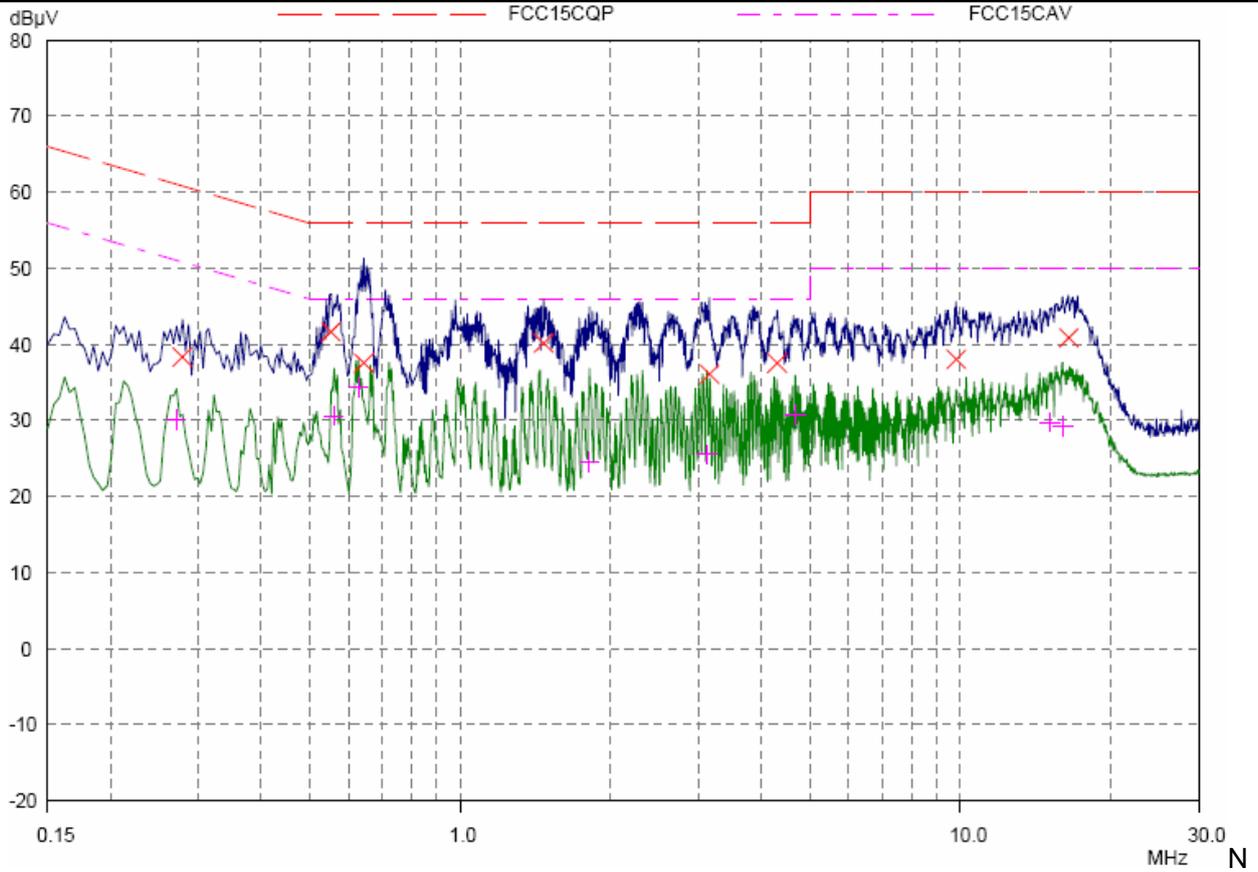
Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -
0.28671	41.89	60.62	18.73	L1
0.55625	44.19	56.00	11.81	L1
0.65781	47.67	56.00	8.33	L1
1.84531	43.02	56.00	12.98	L1
2.60703	42.43	56.00	13.57	L1
4.25156	41.26	56.00	14.74	L1
15.29843	40.73	60.00	19.27	L1
17.53281	41.12	60.00	18.88	L1

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -
0.2789	29.73	50.85	21.12	L1
0.56015	31.76	46.00	14.24	L1
0.63437	36.73	46.00	9.27	L1
1.79453	31.80	46.00	14.20	L1
3.75546	29.50	46.00	16.50	L1
4.17734	29.57	46.00	16.43	L1
15.32578	29.63	50.00	20.37	L1
15.74765	30.49	50.00	19.51	L1

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Line

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Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -
0.2789	38.38	60.85	22.47	N
0.55234	41.67	56.00	14.33	N
0.64218	37.56	56.00	18.44	N
1.47031	40.13	56.00	15.87	N
3.14609	36.06	56.00	19.94	N
4.31015	37.53	56.00	18.47	N
9.81406	38.06	60.00	21.94	N
16.4664	40.88	60.00	19.12	N

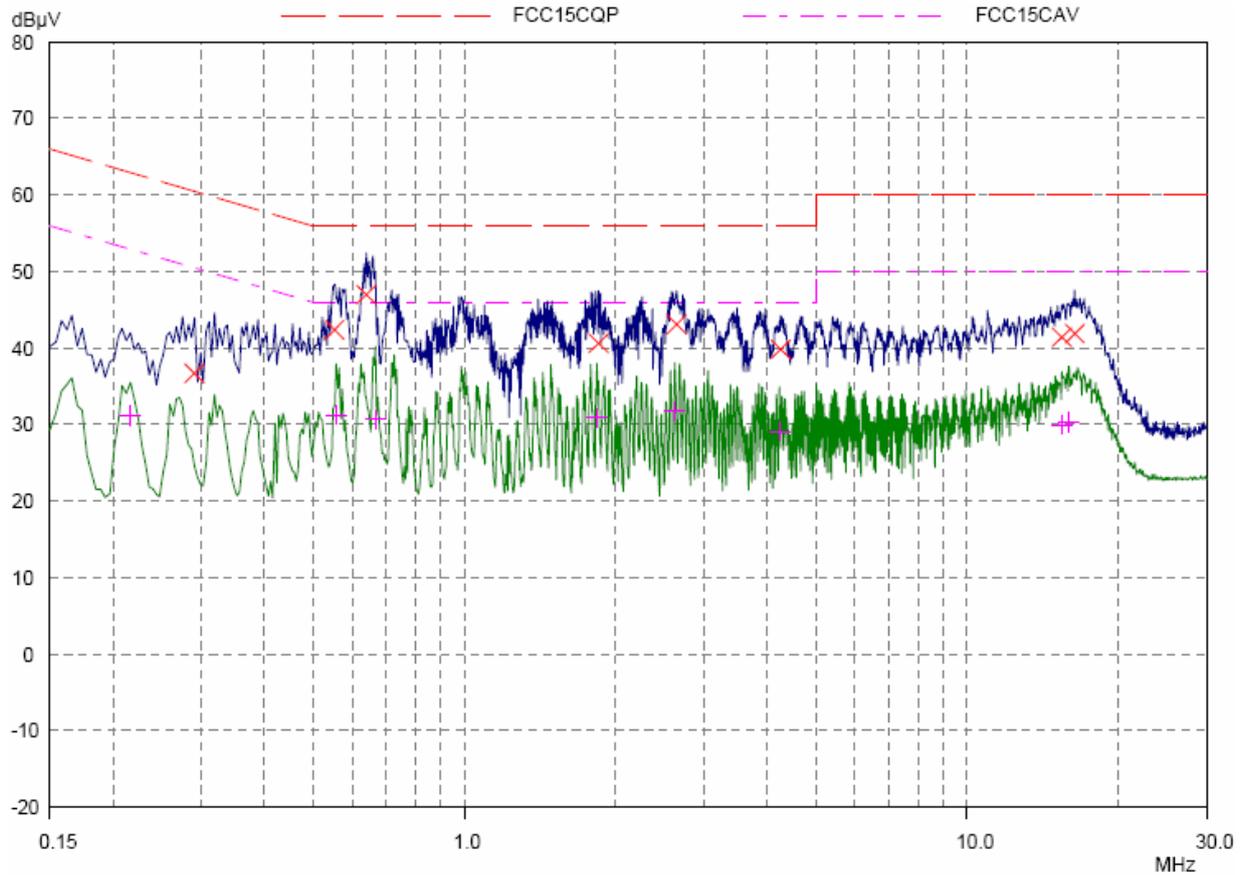
Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -
0.27109	30.15	51.08	20.93	N
0.56015	30.65	46.00	15.35	N
0.62656	34.32	46.00	11.68	N
1.81406	24.54	46.00	21.46	N
3.11484	25.59	46.00	20.41	N
4.68515	30.71	46.00	15.29	N
15.11484	29.74	50.00	20.26	N
16.03671	29.21	50.00	20.79	N

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Basic Rate-CH78



L Line

Final Measurement Results

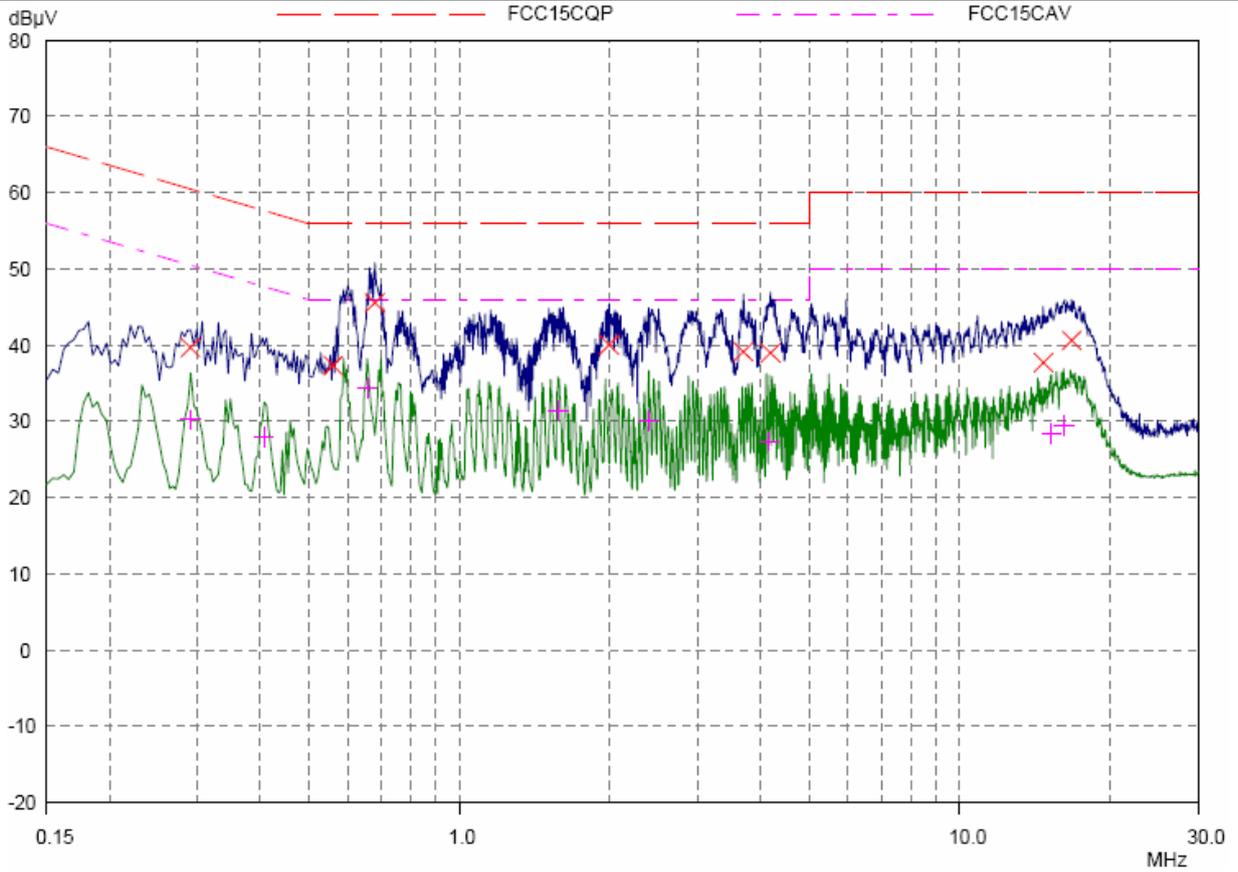
Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -
0.29062	36.73	60.51	23.78	L1
0.55234	42.41	56.00	13.59	L1
0.63828	46.96	56.00	9.04	L1
1.84921	40.66	56.00	15.34	L1
2.64609	43.11	56.00	12.89	L1
4.25546	39.82	56.00	16.18	L1
15.45859	41.42	60.00	18.58	L1
16.39609	41.86	60.00	18.14	L1

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -
0.2164	31.16	52.96	21.80	L1
0.55625	31.28	46.00	14.72	L1
0.66562	30.68	46.00	15.32	L1
1.83359	30.92	46.00	15.08	L1
2.62265	31.78	46.00	14.22	L1
4.23203	29.13	46.00	16.87	L1
15.42734	29.95	50.00	20.05	L1
15.90781	30.32	50.00	19.68	L1

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Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -
0.29062	39.71	60.51	20.80	N
0.56015	37.36	56.00	18.64	N
0.67734	45.55	56.00	10.45	N
1.99375	40.04	56.00	15.96	N
3.69687	39.15	56.00	16.85	N
4.18515	38.99	56.00	17.01	N
14.68125	37.72	60.00	22.28	N
16.72421	40.65	60.00	19.35	N

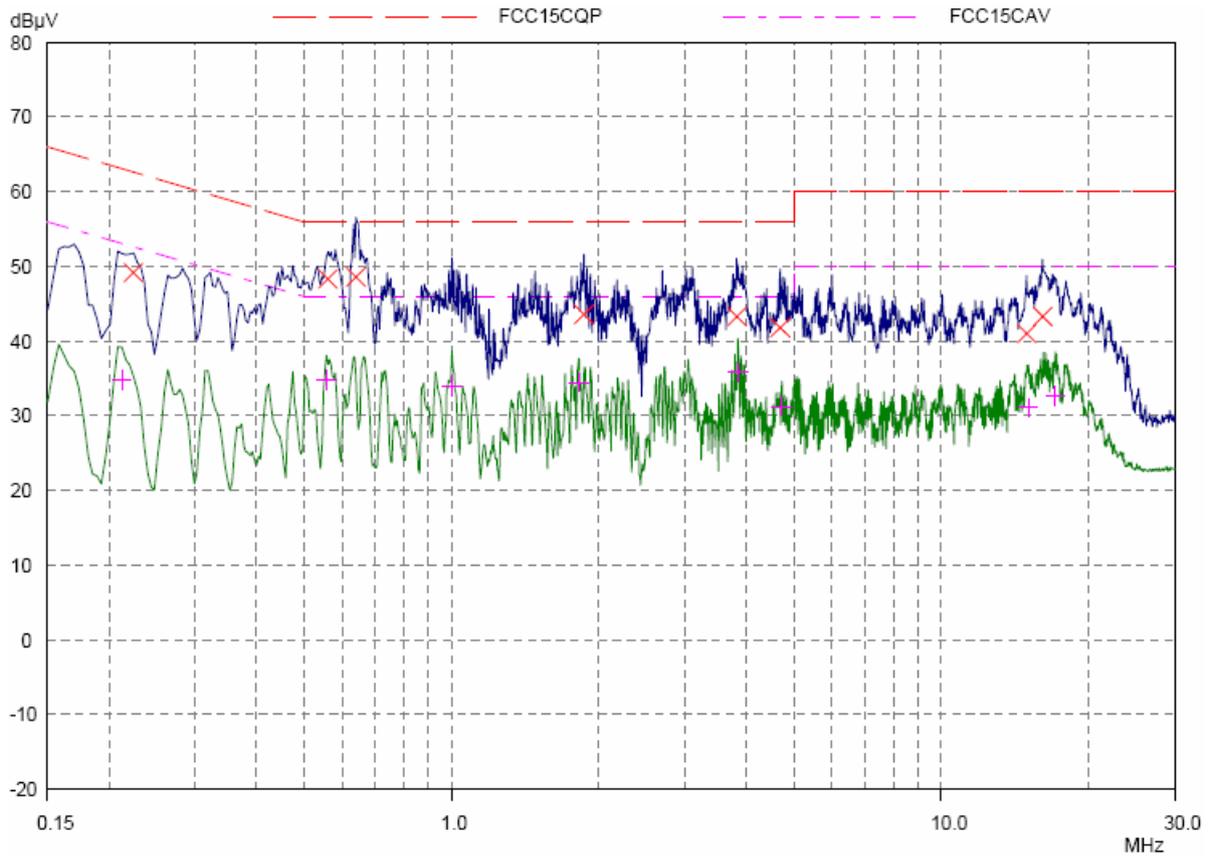
Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -
0.29062	30.21	50.51	20.30	N
0.40781	28.04	47.69	19.65	N
0.6539	34.33	46.00	11.67	N
1.57578	31.43	46.00	14.57	N
2.39609	30.14	46.00	15.86	N
4.16171	27.36	46.00	18.64	N
15.28671	28.41	50.00	21.59	N
16.13828	29.48	50.00	20.52	N

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L Line

Final Measurement Results

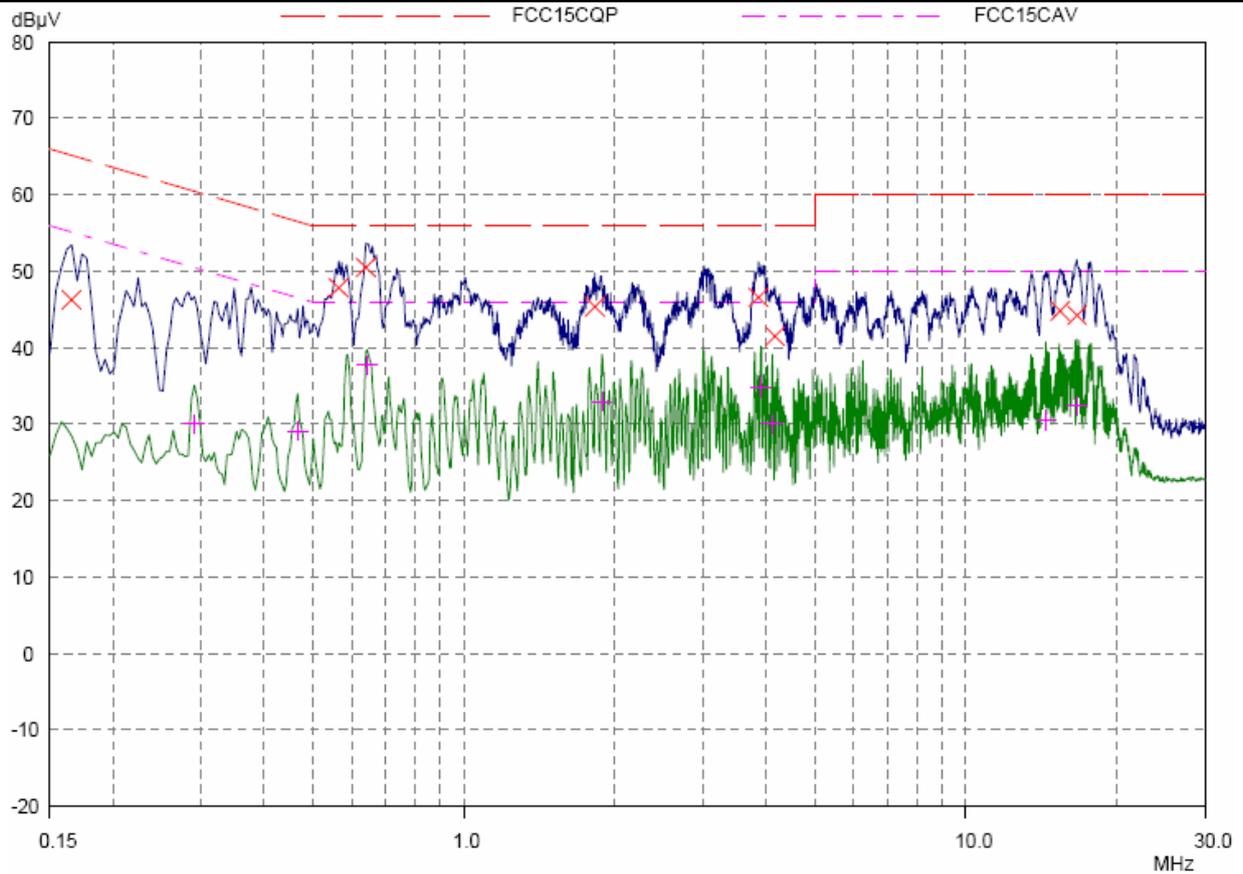
Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -
0.22421	49.18	62.66	13.48	L1
0.56015	48.34	56.00	7.66	L1
0.63828	48.60	56.00	7.40	L1
1.86484	43.58	56.00	12.42	L1
3.82187	43.29	56.00	12.71	L1
4.69296	41.81	56.00	14.19	L1
14.95468	41.02	60.00	18.98	L1
16.12265	43.27	60.00	16.73	L1

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -
0.2125	34.78	53.11	18.33	L1
0.55625	34.80	46.00	11.20	L1
1.00156	34.00	46.00	12.00	L1
1.81796	34.46	46.00	11.54	L1
3.84531	35.79	46.00	10.21	L1
4.72812	31.19	46.00	14.81	L1
15.07187	31.06	50.00	18.94	L1
17.11484	32.75	50.00	17.25	L1

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N Line

Final Measurement Results

Frequency MHz	QP Level dBμV	QP Limit dBμV	QP Delta dB	Phase -
0.16562	46.28	65.18	18.90	N
0.56406	47.82	56.00	8.18	N
0.63828	50.54	56.00	5.46	N
1.82187	45.37	56.00	10.63	N
3.86484	46.60	56.00	9.40	N
4.16953	41.51	56.00	14.49	N
15.4	44.82	60.00	15.18	N
16.66562	44.23	60.00	15.77	N

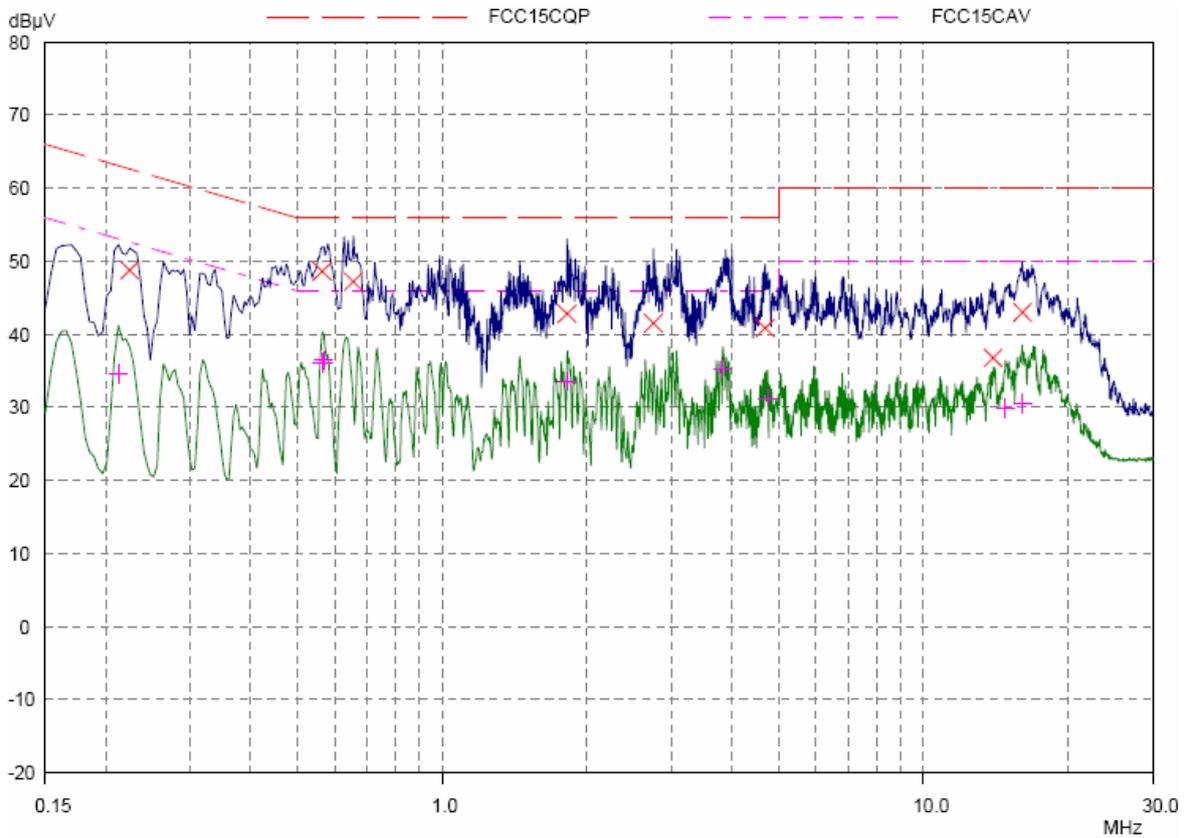
Frequency MHz	AV Level dBμV	AV Limit dBμV	AV Delta dB	Phase -
0.29062	30.07	50.51	20.44	N
0.4664	29.12	46.58	17.46	N
0.64218	37.73	46.00	8.27	N
1.88437	33.00	46.00	13.00	N
3.90781	34.86	46.00	11.14	N
4.11875	30.03	46.00	15.97	N
14.45078	30.54	50.00	19.46	N
16.63828	32.37	50.00	17.63	N

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L Line

Final Measurement Results

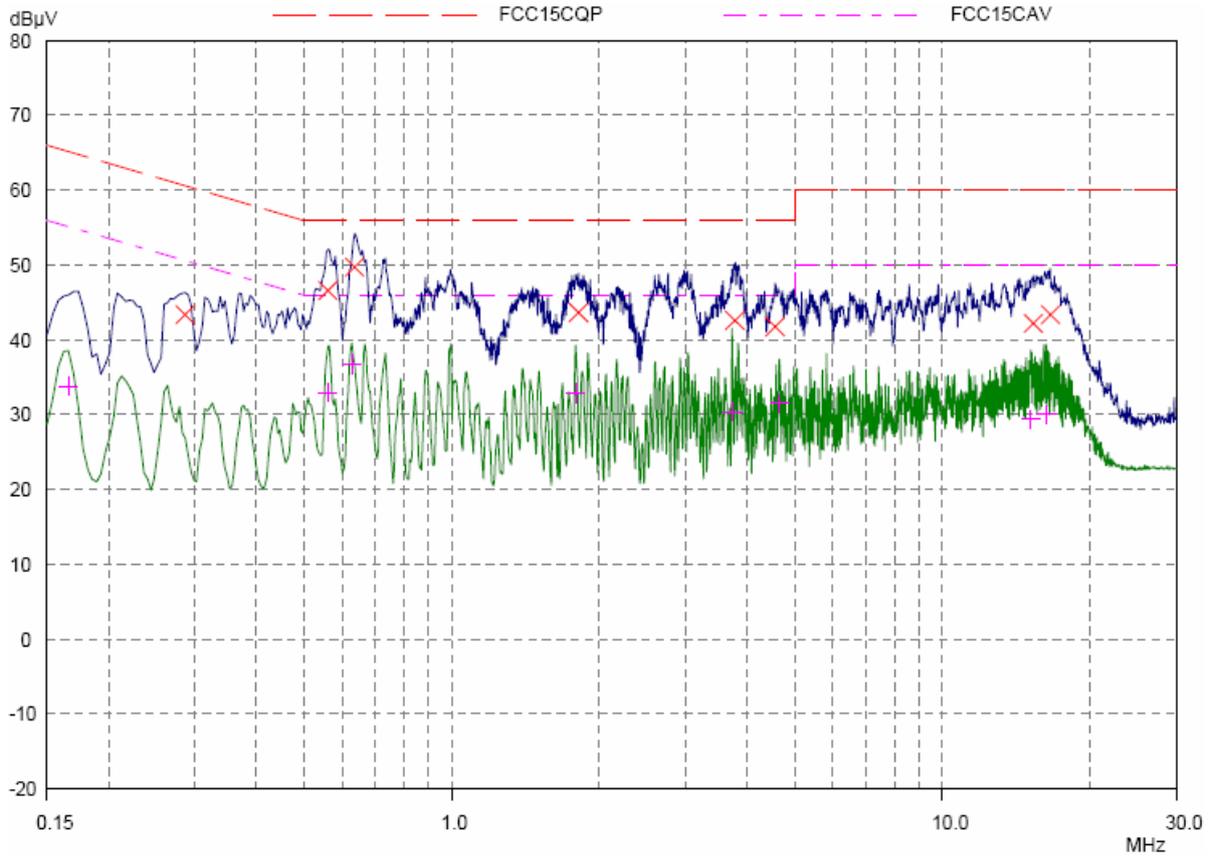
Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -
0.22421	48.76	62.66	13.90	L1
0.56406	48.62	56.00	7.38	L1
0.6539	47.19	56.00	8.81	L1
1.81796	42.81	56.00	13.19	L1
2.75156	41.53	56.00	14.47	L1
4.68906	40.87	56.00	15.13	L1
13.93125	36.76	60.00	23.24	L1
16.06015	43.02	60.00	16.98	L1

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -
0.2125	34.62	53.11	18.49	L1
0.56406	36.08	46.00	9.92	L1
0.56796	36.40	46.00	9.60	L1
1.82187	33.59	46.00	12.41	L1
3.8375	35.31	46.00	10.69	L1
4.74375	31.28	46.00	14.72	L1
14.8375	29.92	50.00	20.08	L1
16.07187	30.50	50.00	19.50	L1

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N Line

Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -
0.28671	43.39	60.62	17.23	N
0.56015	46.60	56.00	9.40	N
0.63437	49.70	56.00	6.30	N
1.81406	43.65	56.00	12.35	N
3.78281	42.58	56.00	13.42	N
4.56406	41.77	56.00	14.23	N
15.33359	42.17	60.00	17.83	N
16.5914	43.38	60.00	16.62	N

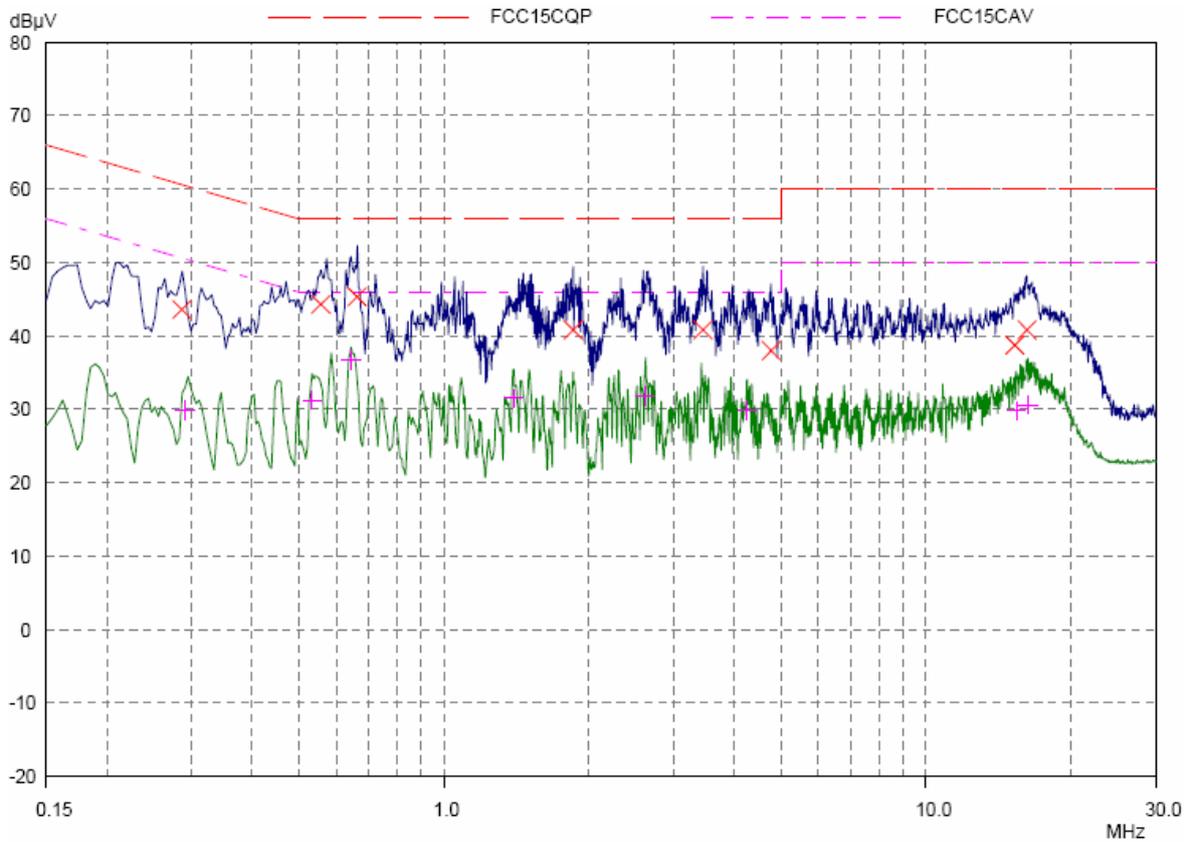
Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -
0.16562	33.88	55.18	21.30	N
0.56015	32.92	46.00	13.08	N
0.62656	36.69	46.00	9.31	N
1.78671	32.91	46.00	13.09	N
3.72812	30.41	46.00	15.59	N
4.65781	31.53	46.00	14.47	N
15.13437	29.43	50.00	20.57	N
16.30234	30.04	50.00	19.96	N

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L Line

Final Measurement Results

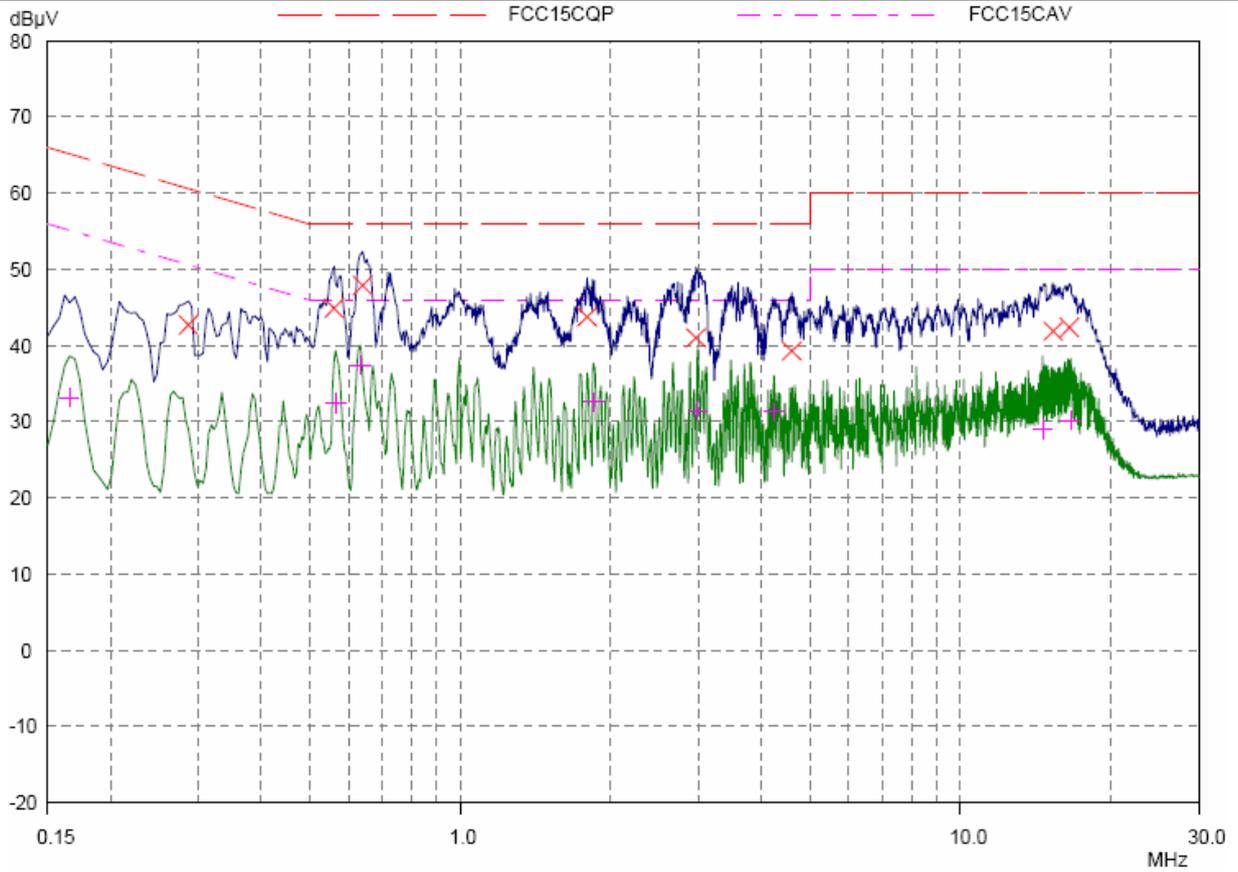
Frequency MHz	QP Level dBμV	QP Limit dBμV	QP Delta dB	Phase -
0.28671	43.63	60.62	16.99	L1
0.55625	44.31	56.00	11.69	L1
0.66171	45.33	56.00	10.67	L1
1.85703	40.82	56.00	15.18	L1
3.45468	40.83	56.00	15.17	L1
4.775	38.01	56.00	17.99	L1
15.26328	38.75	60.00	21.25	L1
16.17734	40.81	60.00	19.19	L1

Frequency MHz	AV Level dBμV	AV Limit dBμV	AV Delta dB	Phase -
0.29062	29.84	50.51	20.67	L1
0.53281	31.28	46.00	14.72	L1
0.64218	36.69	46.00	9.31	L1
1.39218	31.56	46.00	14.44	L1
2.61875	31.86	46.00	14.14	L1
4.25546	29.89	46.00	16.11	L1
15.4039	29.82	50.00	20.18	L1
16.26328	30.62	50.00	19.38	L1

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Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -
0.28671	42.71	60.62	17.91	N
0.56015	44.90	56.00	11.10	N
0.63828	47.90	56.00	8.10	N
1.79453	43.77	56.00	12.23	N
2.95859	40.99	56.00	15.01	N
4.60703	39.28	56.00	16.72	N
15.31015	41.91	60.00	18.09	N
16.50546	42.40	60.00	17.60	N

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -
0.16562	33.16	55.18	22.02	N
0.56406	32.51	46.00	13.49	N
0.63046	37.49	46.00	8.51	N
1.84921	32.57	46.00	13.43	N
2.98593	31.51	46.00	14.49	N
4.23984	31.33	46.00	14.67	N
14.61484	29.01	50.00	20.99	N
16.66562	30.18	50.00	19.82	N

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3. Main Test Instruments

No.	Name	Type	Manufacturer	Serial Number	Calibration Date	Valid Period
01	BT Base Station Simulator	CBT	R&S	100271	2012-06-30	One year
02	EMI Test Receiver	ESCS30	R&S	100138	2012-01-16	One year
03	LISN	ENV216	R&S	101171	2010-04-16	Three years
04	EMI Test Receiver	ESCI	R&S	100948	2012-06-30	One year
05	TRILOG Broadband Antenna	VULB 9163	Schwarzbeck	9163-201	2010-06-20	Three years
06	Double Ridged Waveguide Horn Antenna	HF907	R&S	100126	2012-07-02	Three years
07	PSG Analog Signal Generator	E8257D	Agilent	MY49281101	2012-06-30	One year
08	ESG Vector Signal Generator	E4438C	Agilent	MY49070900	2012-06-30	One year
09	Spectrum Analyzer	E4445A	Agilent	MY46181146	2012-06-30	One year
10	Power Splitter	SHX-GF2-2-13	Hua Xiang	10120101	NA	NA
11	MOB COMMS DC SUPPLY	66319D	Agilent	MY43004105	2012-06-30	One year
12	Power Sensor	E9304A	Agilent	MY50220022	2012-06-30	One year
13	Power Meter	E4418B	Agilent	MY50000623	2012-06-30	One year
14	Vibration table	ESS-050-120	dongling	D1007126	2010-08-23	Three years
15	Universal Radio Communication Tester	E5515C	Agilent	MY48367192	2012-06-30	One year

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