



Part 15C

TEST REPORT

Product Name	Smart Phone
Model	HUAWEI Y560-L01, Y560-L01
FCC ID	QISY560-L01
Applicant	Huawei Technologies Co., Ltd.
Manufacturer	Huawei Technologies Co., Ltd.
Date of issue	October 14, 2015

TA Technology (Shanghai) Co., Ltd.

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

Report No.:RXA1509-0168RF01R1

Page 2of 99

GENERAL SUMMARY

Reference Standard(s)	<p>FCC CFR47 Part 15C (2014) Radio Frequency Devices</p> <p>15.205 Restricted bands of operation;</p> <p>15.207 Conducted limits;</p> <p>15.209 Radiated emission limits; general requirements;</p> <p>15.247 Operation within the bands 902-928 MHz,2400-2483.5 MHz, and 5725-5850MHz.</p> <p>ANSI C63.10 Methods of Measurement of Radio-Noise Emission from Low-Voltage Electrical and Electronic Equipment in the Range of 9 KHz to 40GHz. (2013)</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>
Comment	<p>The test result only responds to the measured sample.</p>

Approved by Kai Xu
Kai Xu
Director

Revised by Lingling Kang
Lingling Kang
RF Manager

Performed by Peng Tao
Peng Tao
RF Engineer

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Test Report

TABLE OF CONTENT

1. General Information	4
1.1. Notes of the test report.....	4
1.2. Testing laboratory	5
1.3. Applicant Information	5
1.4. Manufacturer Information.....	5
1.5. Information of EUT	6
1.6. Test Date	7
2. Information about the FHSS characteristics.....	8
2.1. Pseudorandom Frequency Hopping Sequence	8
2.2. Equal Hopping Frequency Use	9
2.3. System Receiver Input Bandwidth	9
3. Test Information	10
3.1. Test Mode	10
3.2. Summary of test results	10
3.3. Peak Power Output –Conducted.....	11
3.4. Occupied Bandwidth (20dB)	13
3.5. Frequency Separation.....	20
3.6. Time of Occupancy (Dwell Time).....	23
3.7. Band Edge Compliance	31
3.8. Spurious Radiated Emissions in the Restricted Band	38
3.9. Number of hopping Frequency.....	44
3.10. Spurious RF Conducted Emissions.....	48
3.11. Radiates Emission.....	56
3.12. Conducted Emission.....	83
4. Main Test Instruments.....	96
ANNEX A: EUT Appearance and Test Setup	97
A.1 EUT Appearance.....	97
A.2 Test Setup.....	98

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

1. General Information

1.1. Notes of the test report

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.

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. The sample under test was selected by the Client.

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of **TA Technology (Shanghai) Co., Ltd.**

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

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

Report No.:RXA1509-0168RF01R1

Page 5 of 99

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

1.3. Applicant Information

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

1.4. Manufacturer Information

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

TA Technology (Shanghai) Co., Ltd.

Test Report

Report No.:RXA1509-0168RF01R1

Page 6 of 99

1.5. Information of EUT

General information

Name of EUT:	Smart Phone		
IMEI:	867818020409840		
Hardware Version:	Ver.A		
Software Version:	Y560-L01V100R001C577B039		
Antenna Type:	Internal Antenna		
Device Operating Configurations:			
Test Mode	Basic Rate	Enhanced Data Rate(EDR)	
Modulation Type:	Frequency Hopping Spread Spectrum (FHSS)		
	GFSK	$\pi/4$ DQPSK	8DQPSK
Packet Type:(Maximum Payload)	DH5	2DH5	3DH5
Max. Conducted Power	8.8dBm		
Power Supply:	Battery or Adapter		
Operating Frequency Range(s)	2402 ~ 2480MHz		
Tested Frequency Range(s)	2400 ~ 2483.5 MHz		

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

Report No.:RXA1509-0168RF01R1

Page 7 of 99

Auxiliary equipment details

Name	Model	Manufacturer	Capacity
Battery	HB474284RBC	Huawei Technologies Co., Ltd.	2000mAh
Charger	HW-050100U2W	Huawei Technologies Co., Ltd.	/

1.6. Test Date

The test is performed from September 25, 2015 to September 29, 2015.

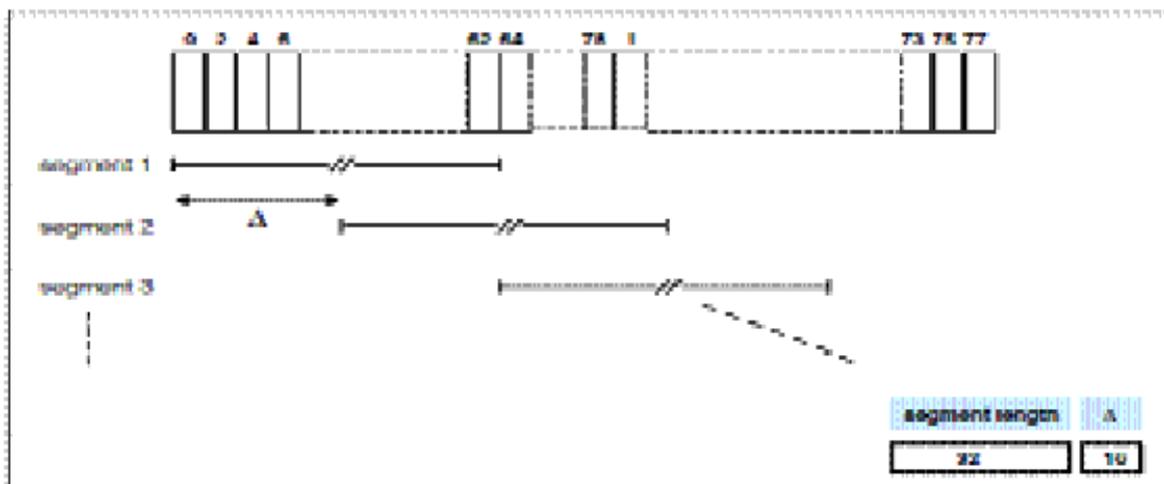
2. Information about the FHSS characteristics

2.1. Pseudorandom Frequency Hopping Sequence

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

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

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



Hop selection scheme in CONNECTION state.

Pseudorandom Frequency Hopping Sequence Table as below:

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

Each frequency used equally on the average by each transmitter.

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

TA Technology (Shanghai) Co., Ltd.

Test Report

2.2. Equal Hopping Frequency Use

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

2.3. System Receiver Input Bandwidth

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

TA Technology (Shanghai) Co., Ltd.

Test Report

Report No.:RXA1509-0168RF01R1

Page 10 of 99

3. Test Information

3.1. Test Mode

During the process of the testing, The EUT is controlled by the Base Station Simulator to ensure max power transmission and proper modulation.

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

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

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

3.2. 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	NA
10	AC Power Line Conducted Emission	15.207	NA

TA Technology (Shanghai) Co., Ltd.

Test Report

3.3. Peak Power Output –Conducted

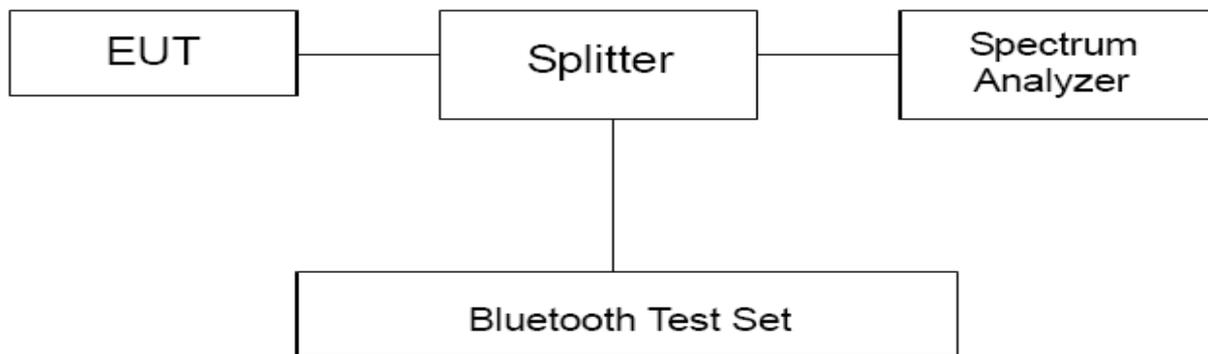
Ambient condition

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

Methods of Measurement

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

Test Setup



Limits

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

Peak Output Power	$\leq 0.125W$ (21dBm)
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Measurement Uncertainty

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

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

Report No.:RXA1509-0168RF01R1

Page 12 of 99

Test Results

Channel	Frequency (MHz)	Peak Output Power (dBm)			Conclusion
		DH5	2DH5	3DH5	
0	2402	6.6	5.1	5.3	PASS
39	2441	8.8	7.8	7.3	PASS
78	2480	7.6	5.8	5.5	PASS

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

TA Technology (Shanghai) Co., Ltd.

Test Report

3.4. Occupied Bandwidth (20dB)

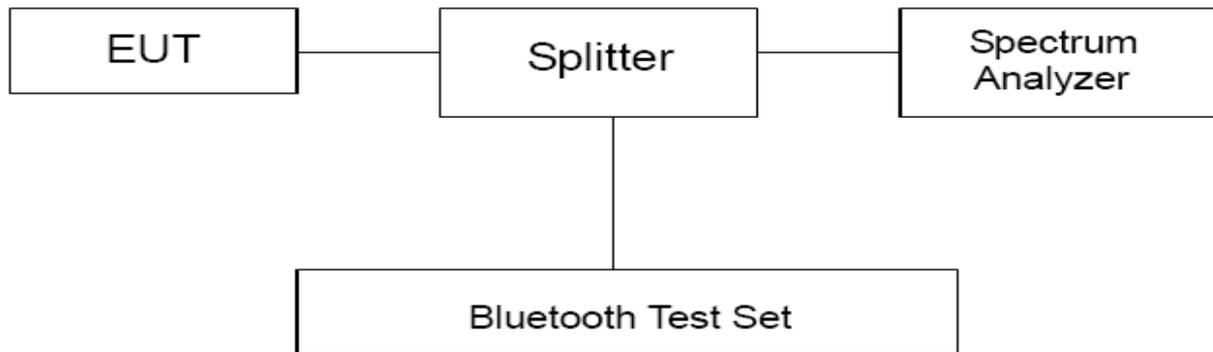
Ambient condition

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

Method of Measurement

The EUT was connected to the spectrum analyzer and Bluetooth test set via a power splitter with a known loss. The occupied bandwidth is measured using spectrum analyzer. RBW is set to 20kHz and VBW is set to 62kHz on spectrum analyzer. -20dB occupied bandwidths are recorded.

Test Setup



Limits

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

Measurement Uncertainty

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

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

Report No.:RXA1509-0168RF01R1

Page 14 of 99

Test Results

DH5

Channel	Frequency (MHz)	20dB Bandwidth (kHz)
0	2402	939.3
39	2441	936.7
78	2480	936.6



Carrier frequency (MHz): 2402

Channel No.:0

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

Report No.:RXA1509-0168RF01R1

Page 15of 99



Carrier frequency (MHz): 2441

Channel No.:39



Carrier frequency (MHz): 2480

Channel No.:78

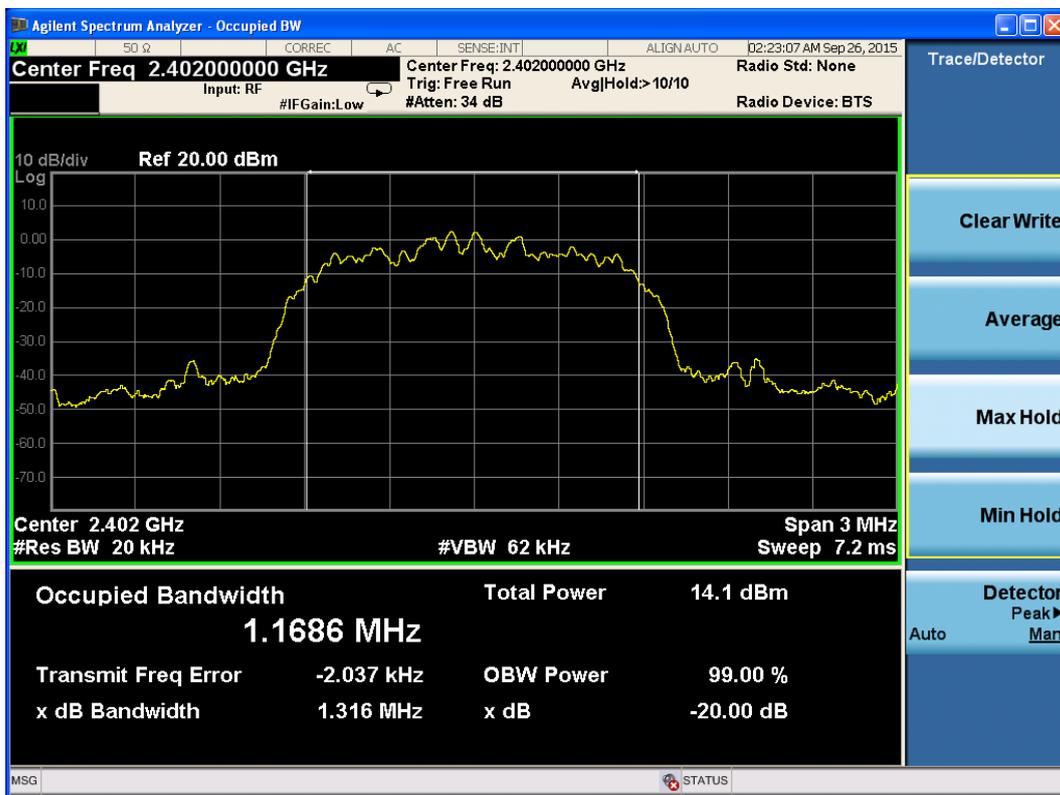
TA Technology (Shanghai) Co., Ltd. Test Report

Report No.:RXA1509-0168RF01R1

Page 16 of 99

2DH5

Channel	Frequency (MHz)	20dB Bandwidth (kHz)
0	2402	1316
39	2441	1317
78	2480	1291

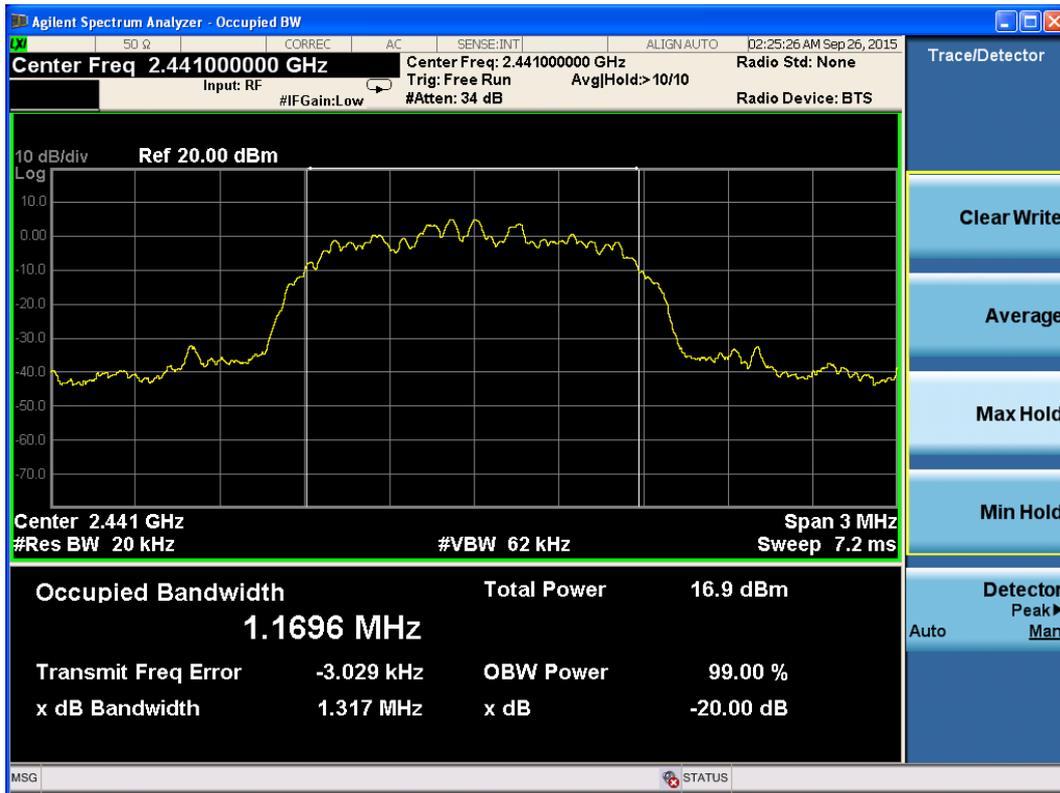


Carrier frequency (MHz): 2402
Channel No.:0

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

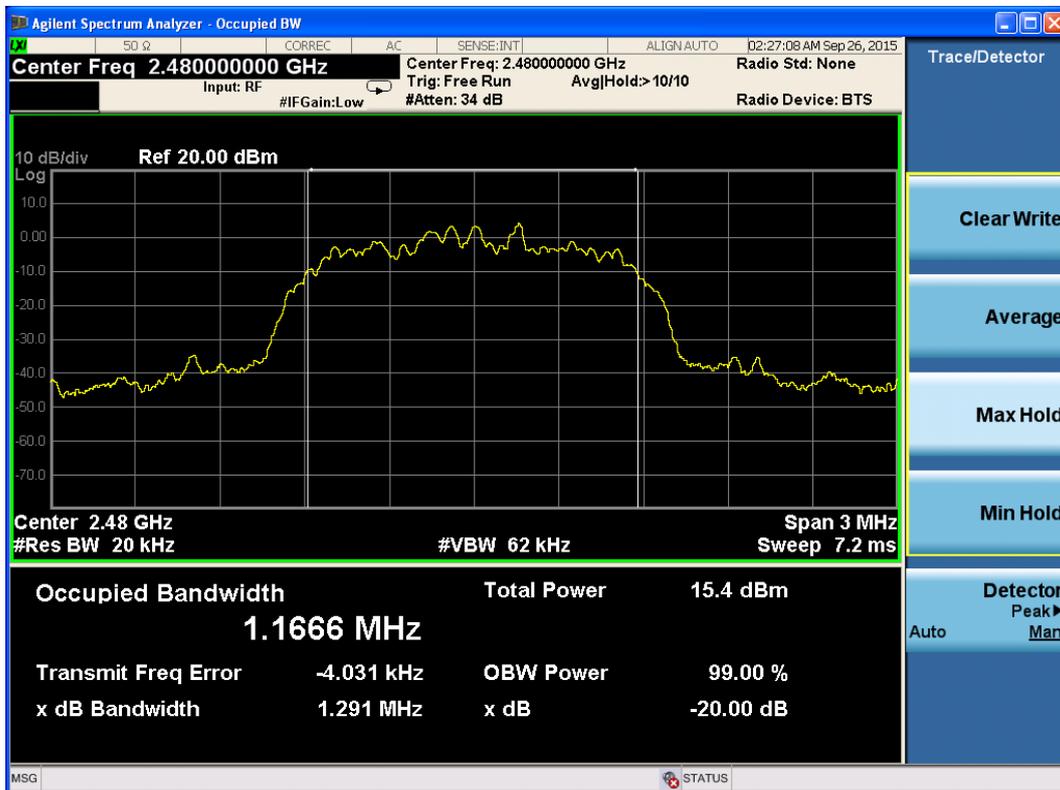
Report No.:RXA1509-0168RF01R1

Page 17 of 99



Carrier frequency (MHz): 2441

Channel No.:39



Carrier frequency (MHz): 2480

Channel No.:78

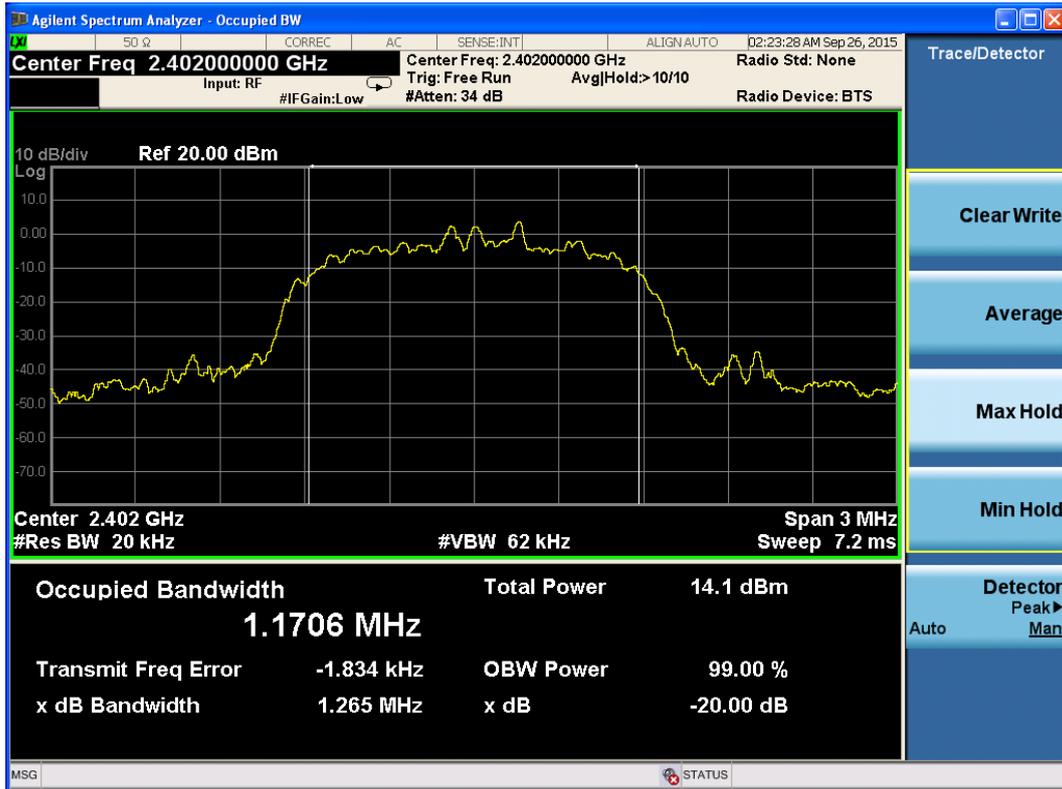
TA Technology (Shanghai) Co., Ltd. Test Report

Report No.:RXA1509-0168RF01R1

Page 18 of 99

3DH5

Channel	Frequency (MHz)	20dB Bandwidth (kHz)
0	2402	1265
39	2441	1267
78	2480	1266



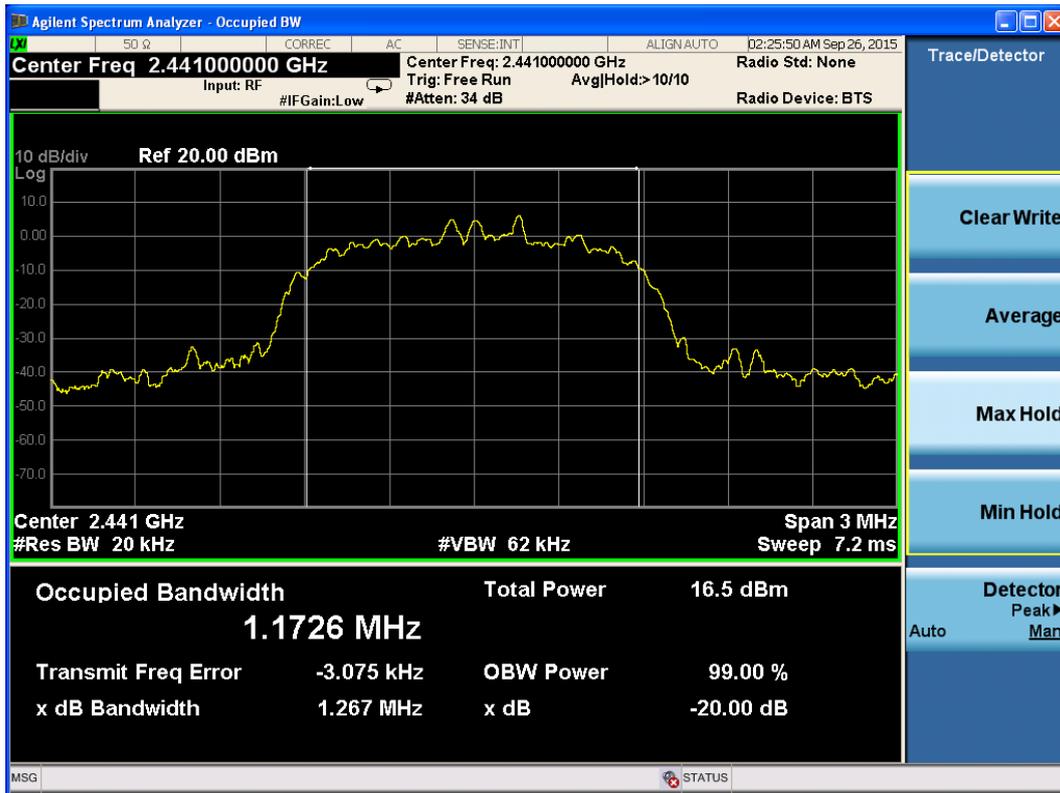
Carrier frequency (MHz): 2402

Channel No.:0

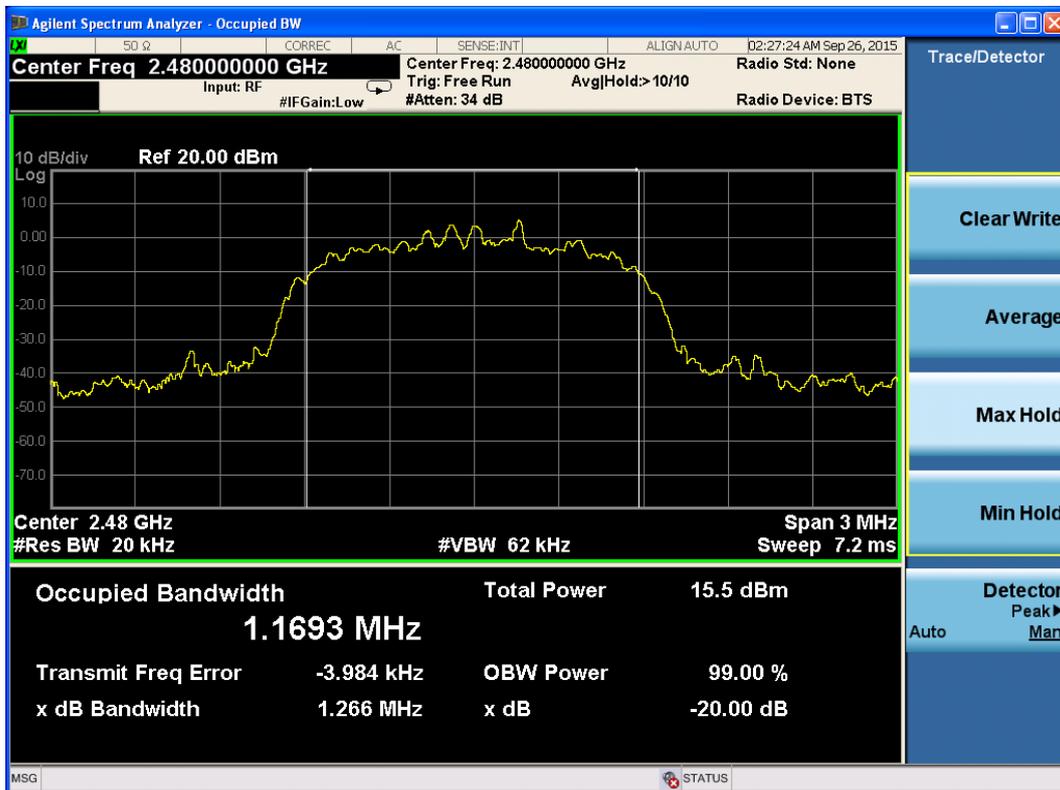
TA Technology (Shanghai) Co., Ltd. Test Report

Report No.:RXA1509-0168RF01R1

Page 19 of 99



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



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

TA Technology (Shanghai) Co., Ltd.

Test Report

3.5. Frequency Separation

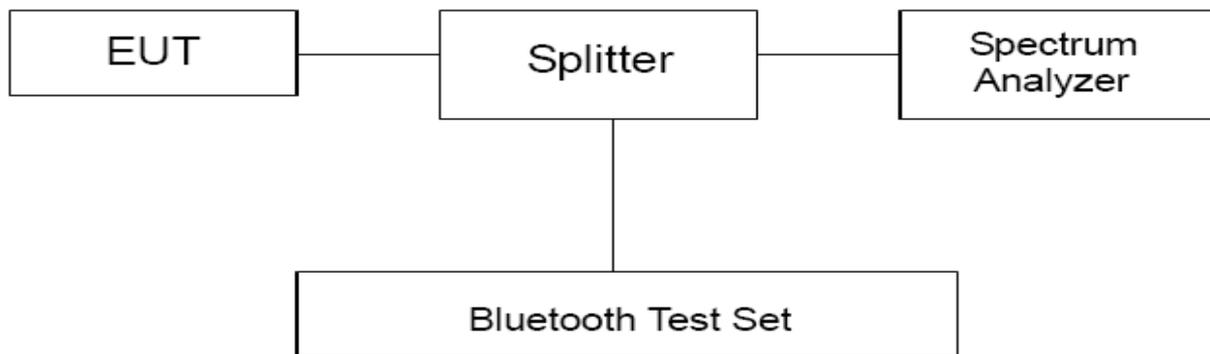
Ambient condition

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

Method of Measurement

The EUT was connected to the spectrum analyzer and Bluetooth test set via a power splitter with a known loss. RBW is set to 300 kHz and VBW is set to 3MHz on spectrum analyzer. Set EUT on Hopping on mode.

Test setup



Limits

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

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

Measurement Uncertainty

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

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

Report No.:RXA1509-0168RF01R1

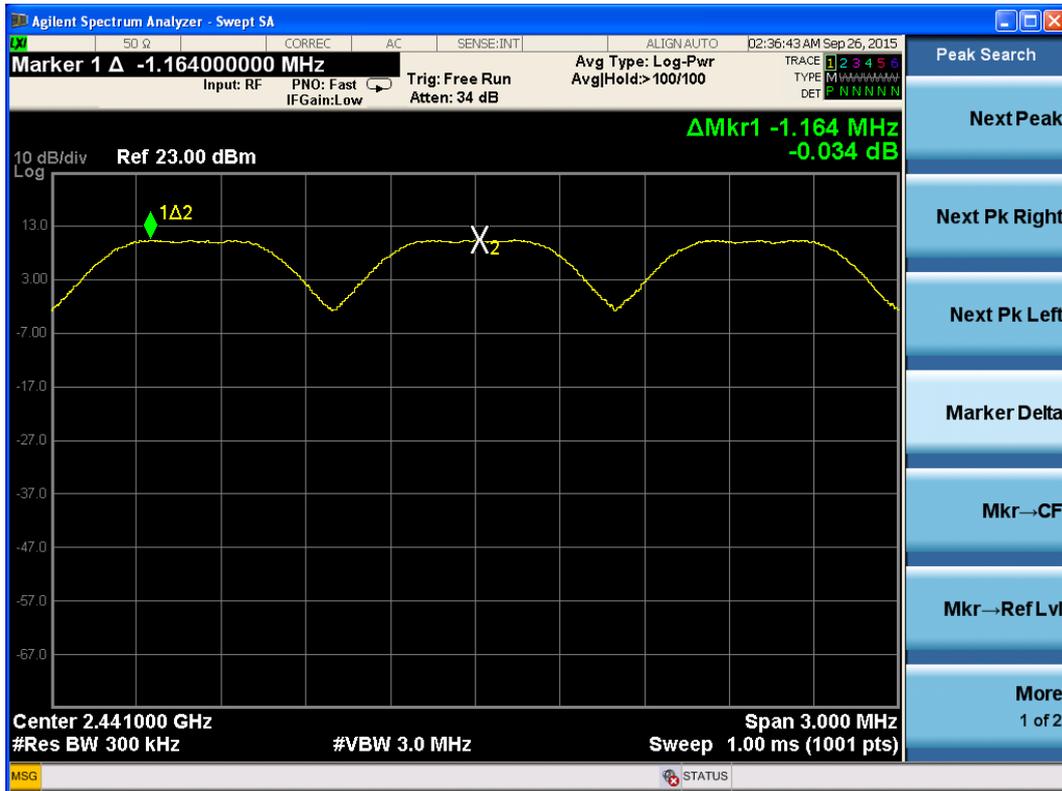
Page 21 of 99

Test Results:

CH 39

Packet type	Carrier frequency (MHz)	Carrier frequency separation(kHz)	20dB Bandwidth (kHz)	Limit(kHz)	Conclusion
DH5	2441	1164	936.7	624.47	PASS
2DH5	2441	1173	1317	878	PASS
3DH5	2441	978	1267	844	PASS

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

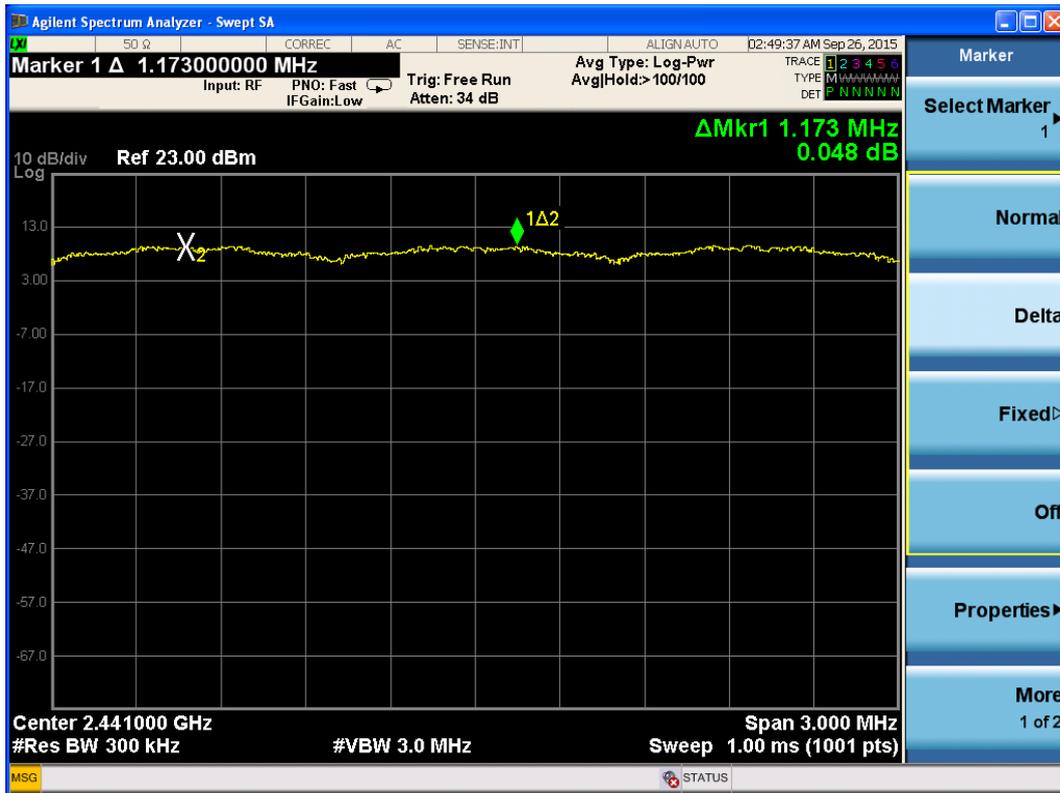


DH5 Carrier frequency (MHz): 2441

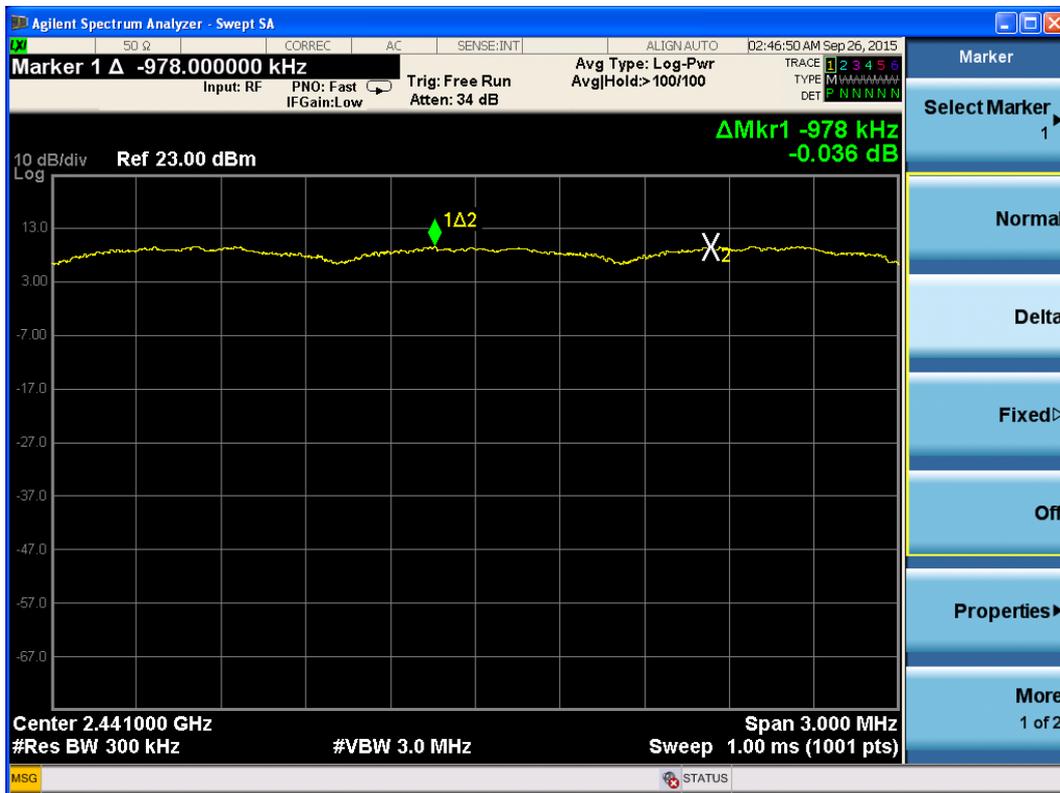
TA Technology (Shanghai) Co., Ltd. Test Report

Report No.:RXA1509-0168RF01R1

Page 22of 99



2DH5 Carrier frequency (MHz): 2441



3DH5 Carrier frequency (MHz): 2441

TA Technology (Shanghai) Co., Ltd.

Test Report

3.6. Time of Occupancy (Dwell Time)

Ambient condition

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

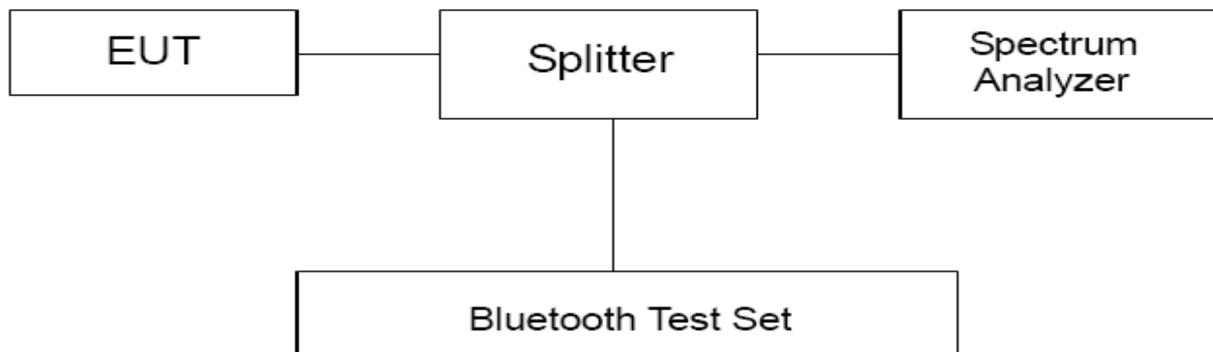
Methods of Measurement

The EUT was connected to the spectrum analyzer and Bluetooth test set via a power splitter with a known loss. RBW is set to 1MHz and VBW is set to 3MHz on spectrum analyzer .The time slot length is measured of three different packet types, which are available in the Bluetooth technology. Those are DH1, DH3 and DH5 packets. The dwell time is calculated by:

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

- hop rate=1600 * 1/s for DH1 packet =1600
- hop rate=1600/3 * 1/s for DH3 packet =533.33
- hop rate=1600/5 * 1/s for DH5 packet =320

Test Setup



Limits

Rule Part 22.913(a) specifies that " Frequency hopping systems in the 2400–2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed."

Dwell time	≤ 400ms
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TA Technology (Shanghai) Co., Ltd. Test Report

Measurement Uncertainty

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

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

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

Report No.:RXA1509-0168RF01R1

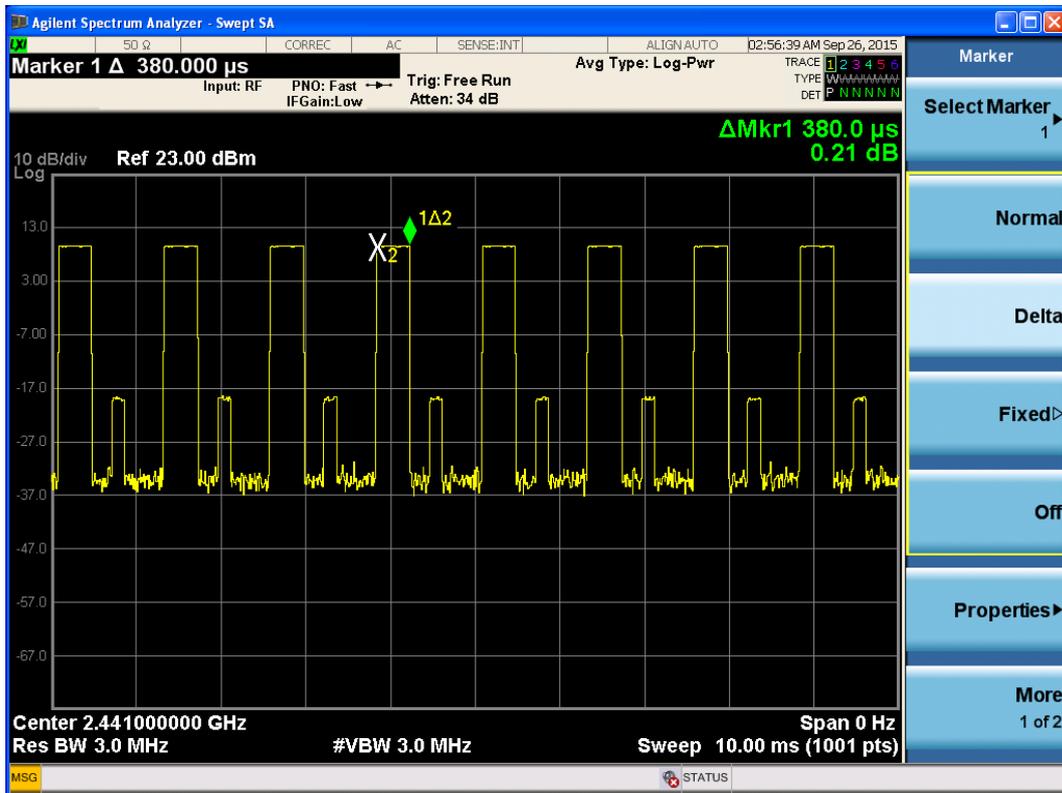
Page 25 of 99

Test Results:

CH 39

Packet type	hop rate (1/s)	Time slot length(ms)	Dwell time (ms)	Limit (ms)	Conclusion
DH1	1600	0.38	243.2	400	PASS
DH3	533.33	1.64	349.86	400	PASS
DH5	320	2.88	368.64	400	PASS

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

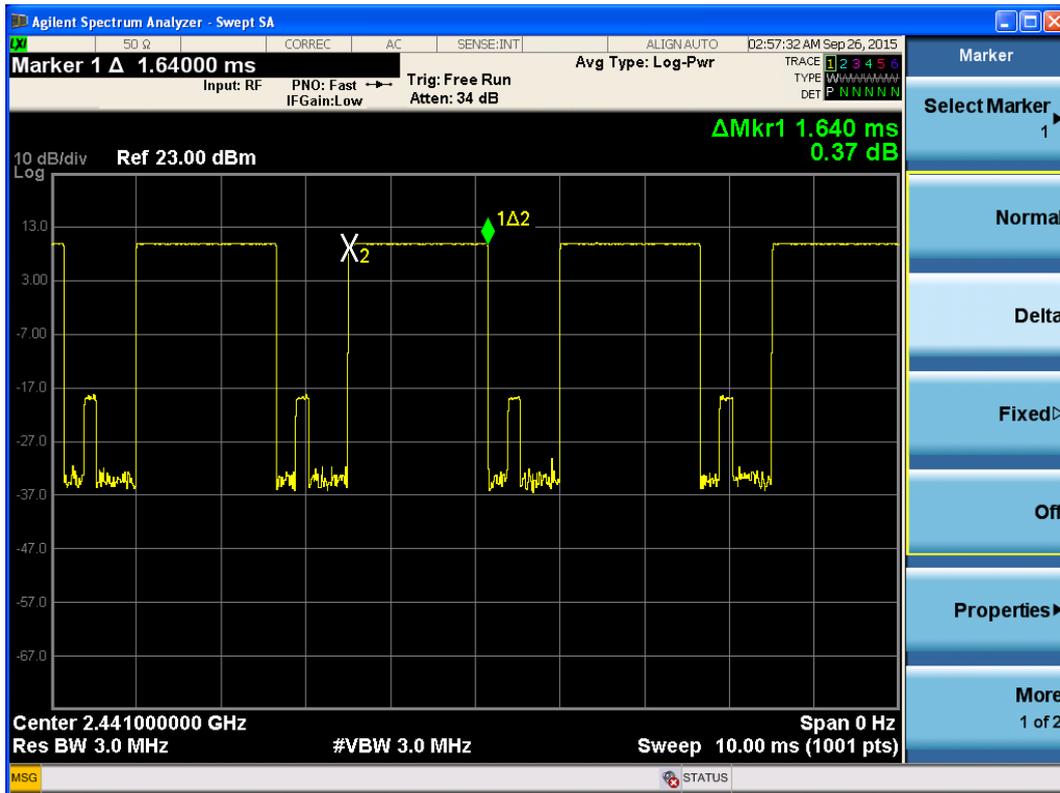


Carrier frequency (MHz): 2441, DH1

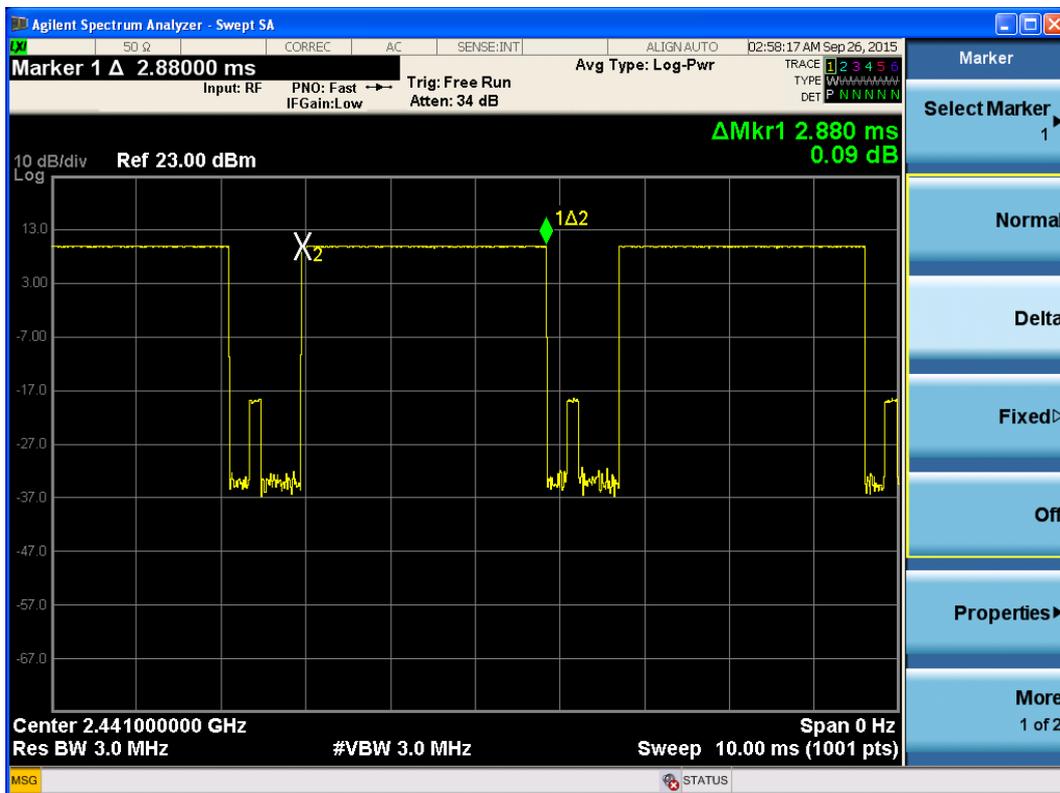
TA Technology (Shanghai) Co., Ltd. Test Report

Report No.:RXA1509-0168RF01R1

Page 26 of 99



Carrier frequency (MHz): 2441, DH3



Carrier frequency (MHz): 2441, DH5

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

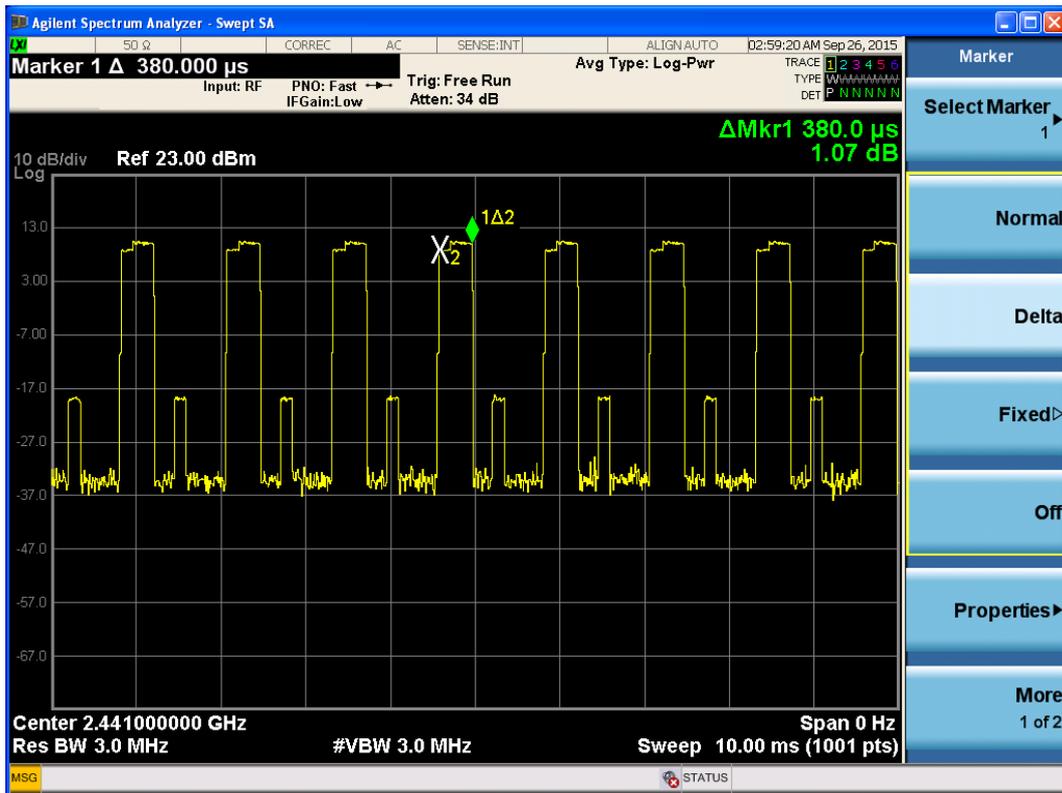
Report No.:RXA1509-0168RF01R1

Page 27 of 99

CH 39

Packet type	hop rate (1/s)	Time slot length(ms)	Dwell time (ms)	Limit (ms)	Conclusion
2DH1	1600	0.38	243.2	400	PASS
2DH3	533.33	1.64	349.86	400	PASS
2DH5	320	2.88	368.64	400	PASS

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

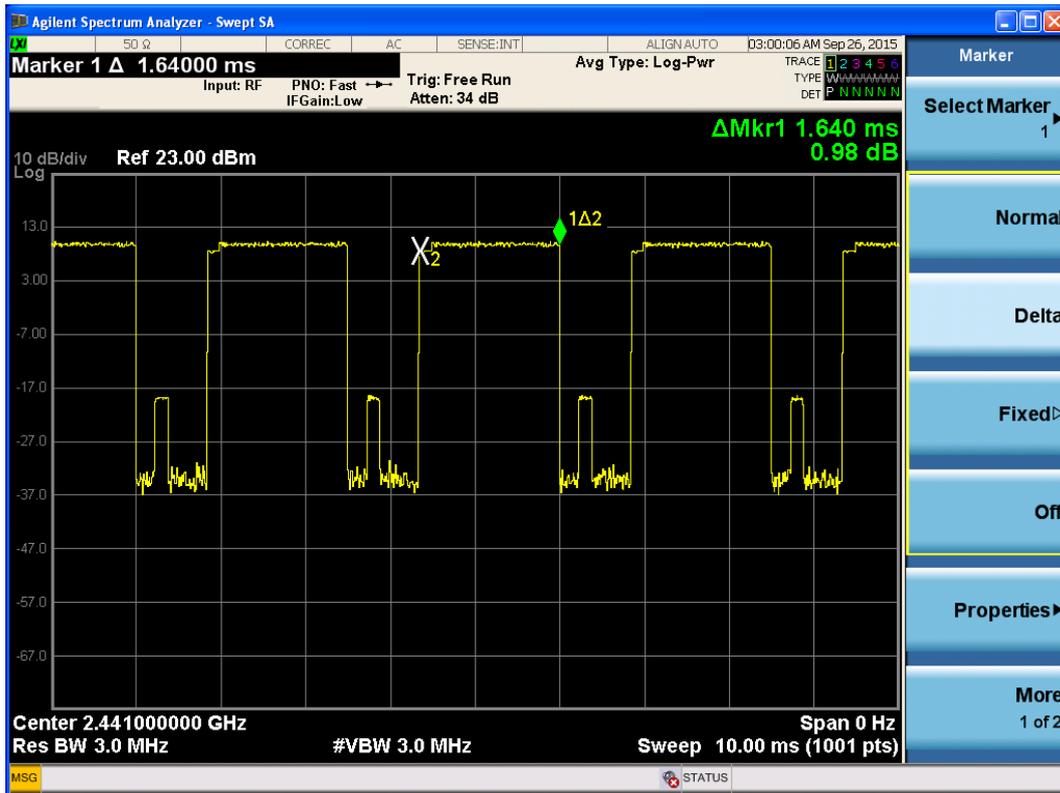


Carrier frequency (MHz): 2441, 2DH1

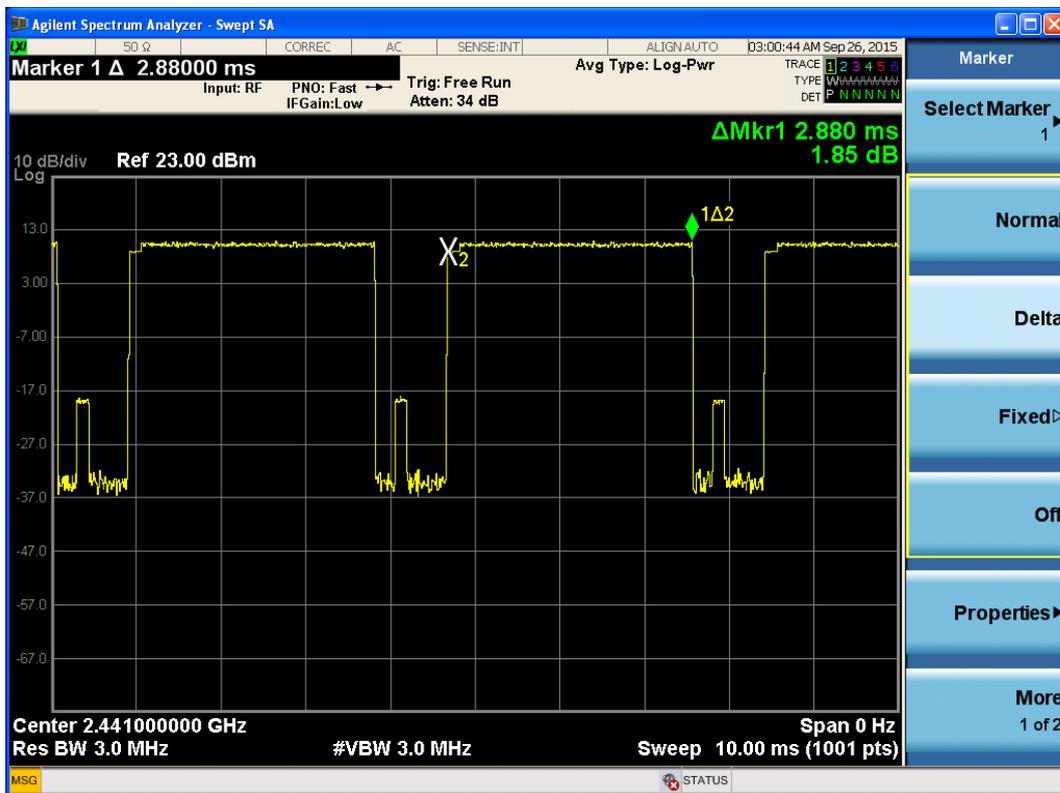
TA Technology (Shanghai) Co., Ltd. Test Report

Report No.:RXA1509-0168RF01R1

Page 28 of 99



Carrier frequency (MHz): 2441, 2DH3



Carrier frequency (MHz): 2441, 2DH5

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

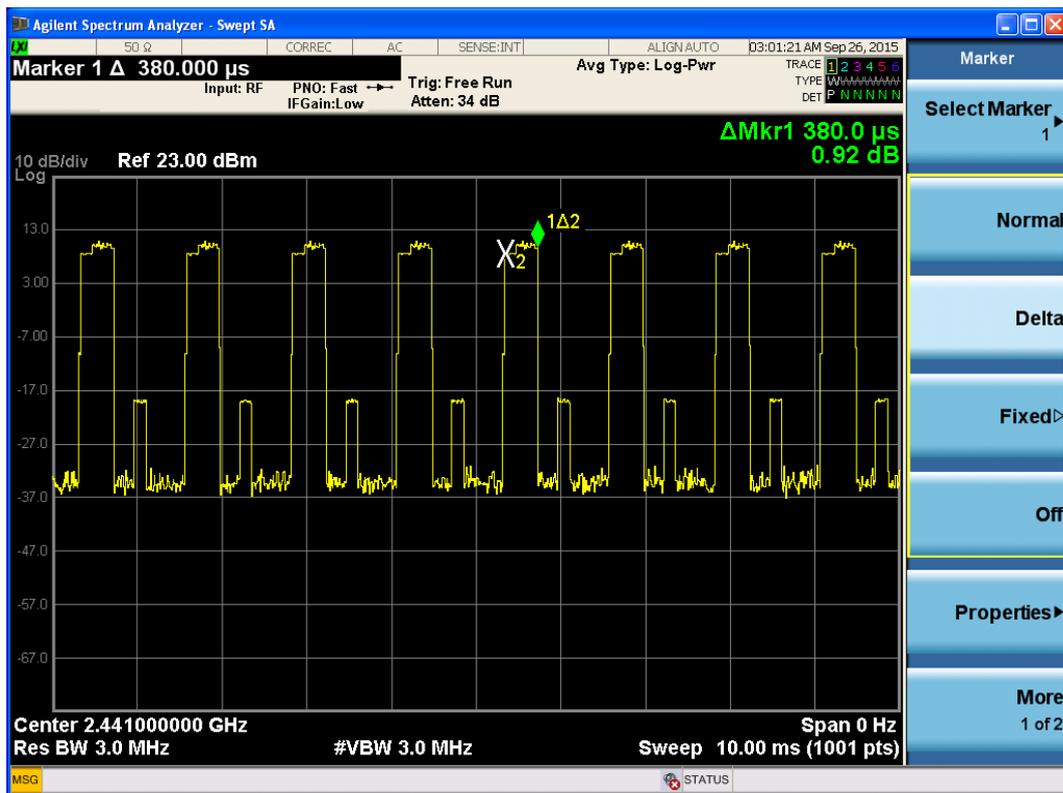
Report No.:RXA1509-0168RF01R1

Page 29 of 99

CH 39

Packet type	hop rate (1/s)	Time slot length(ms)	Dwell time (ms)	Limit (ms)	Conclusion
3DH1	1600	0.38	243.2	400	PASS
3DH3	533.33	1.64	349.86	400	PASS
3DH5	320	2.89	369.92	400	PASS

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

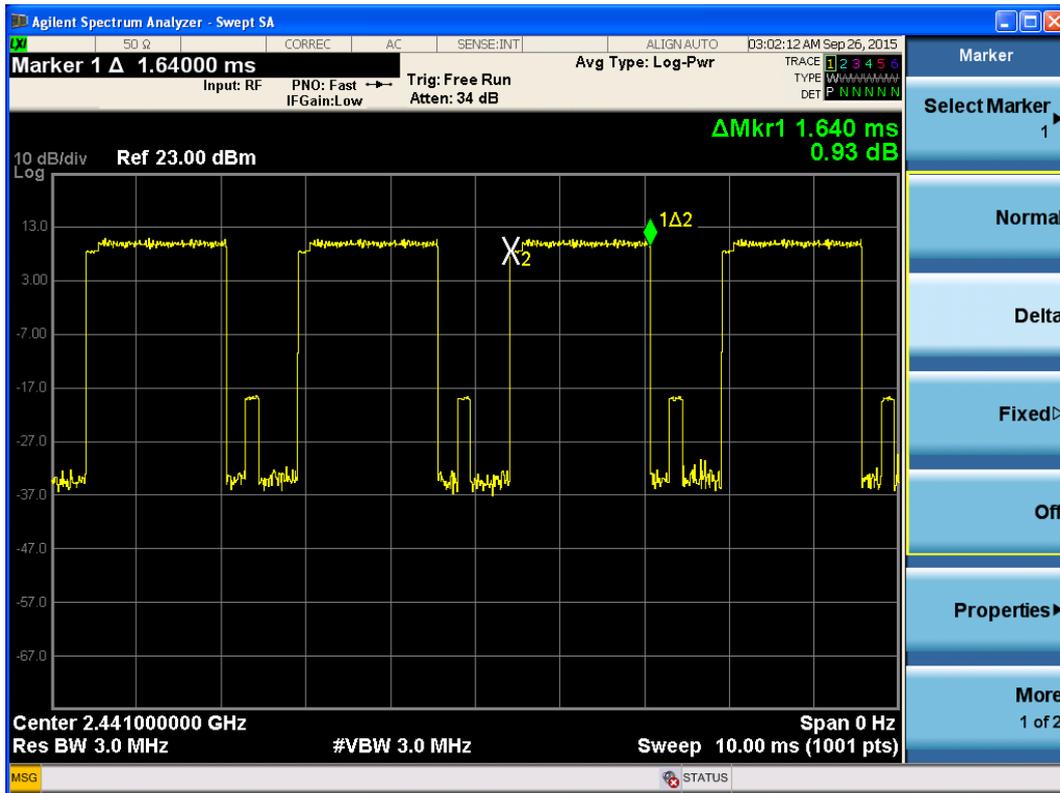


Carrier frequency (MHz): 2441, 3DH1

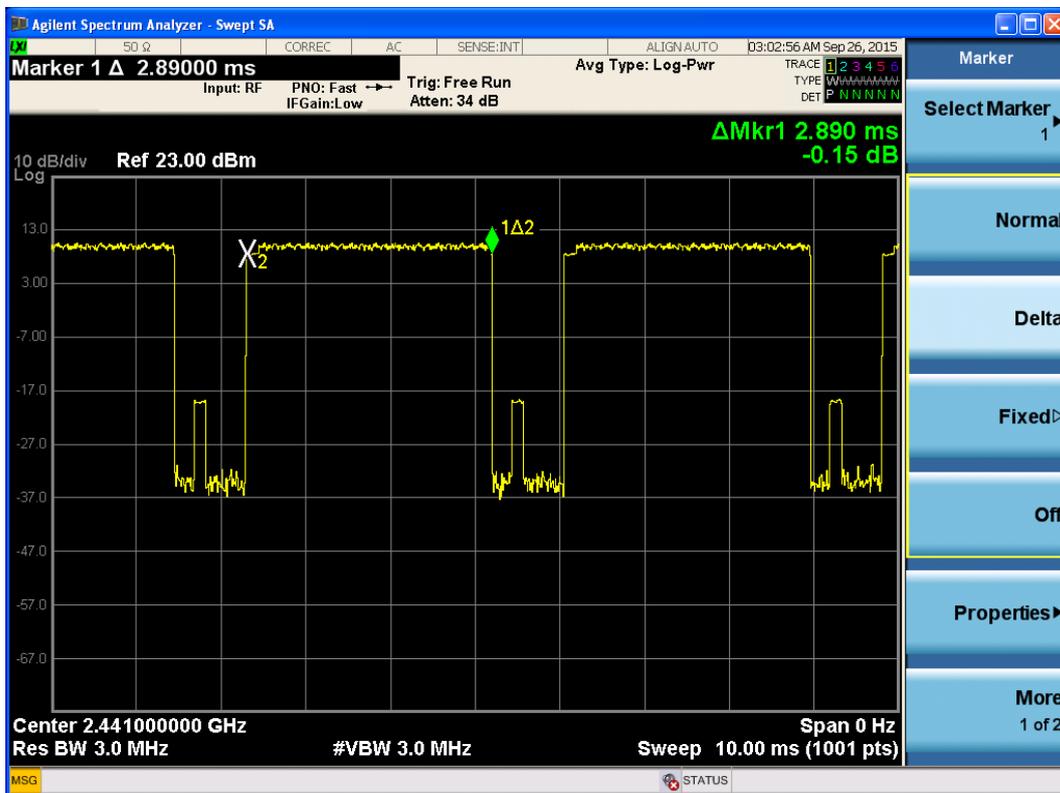
TA Technology (Shanghai) Co., Ltd. Test Report

Report No.:RXA1509-0168RF01R1

Page 30 of 99



Carrier frequency (MHz): 2441, 3DH3



Carrier frequency (MHz): 2441, 3DH5

TA Technology (Shanghai) Co., Ltd.

Test Report

Report No.:RXA1509-0168RF01R1

Page 31 of 99

3.7. Band Edge Compliance

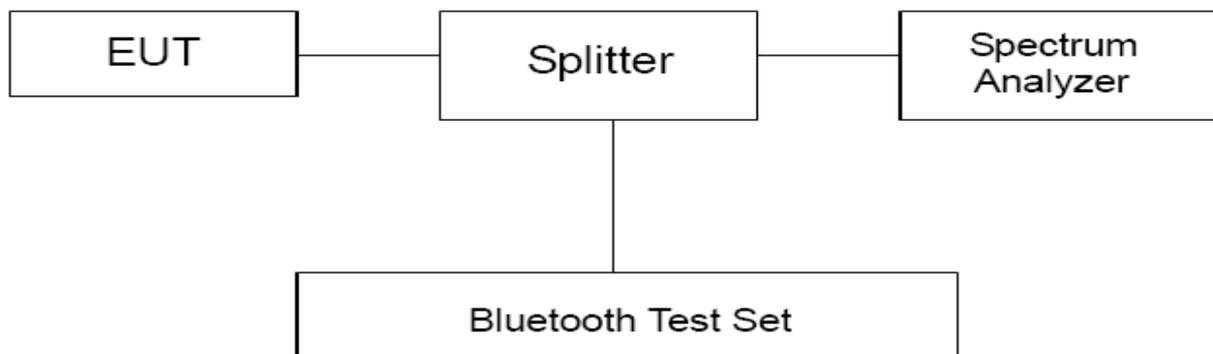
Ambient condition

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

Method of Measurement

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

Test Setup



Limits

Rule Part 15.247(d) specifies that "In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits."

Measurement Uncertainty

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

Frequency	Uncertainty
2GHz-3GHz	1.407 dB

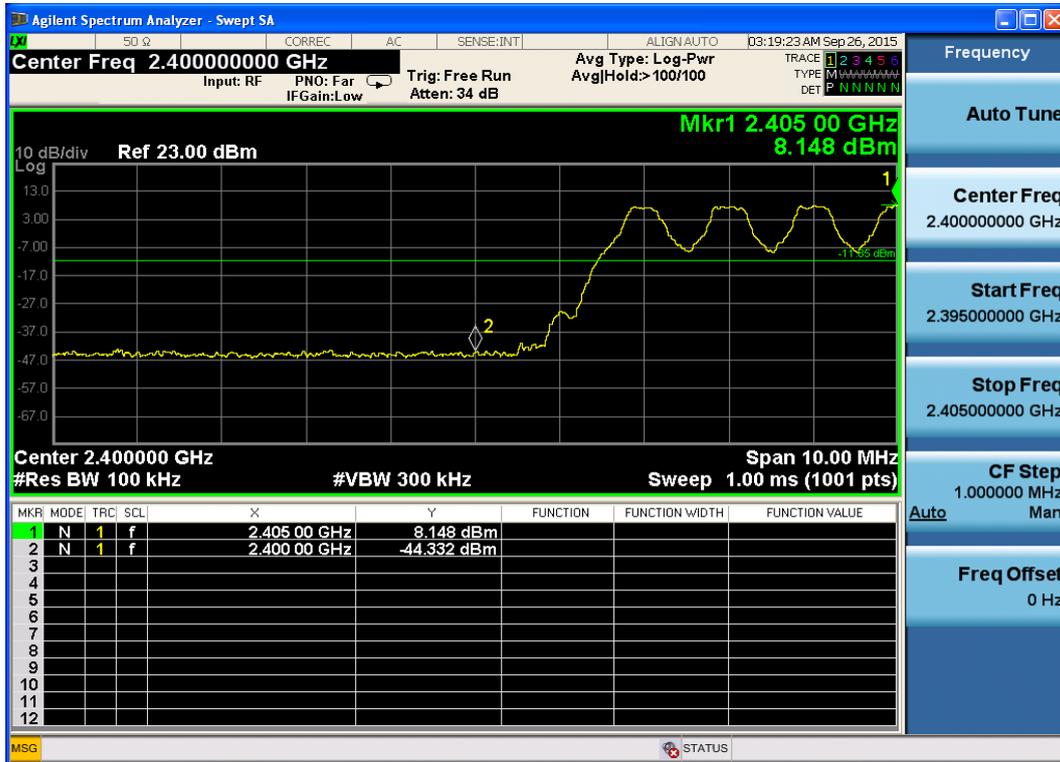
TA Technology (Shanghai) Co., Ltd. Test Report

Report No.:RXA1509-0168RF01R1

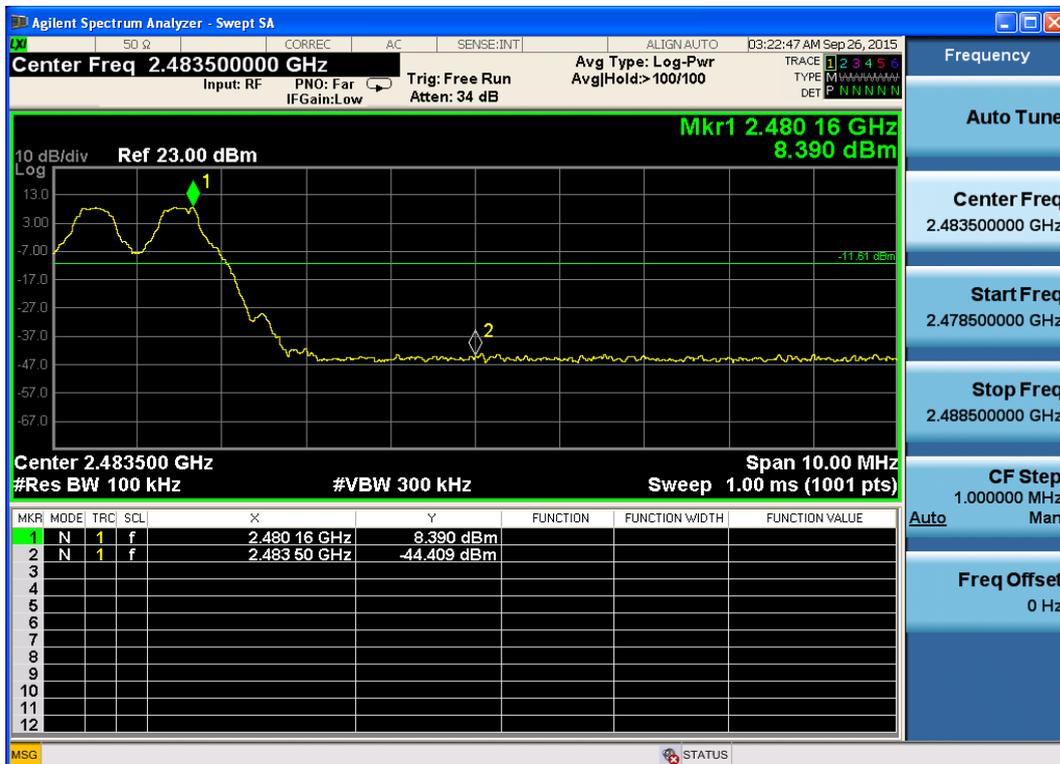
Page 32of 99

Test Results: PASS

Hopping On-DH5-



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



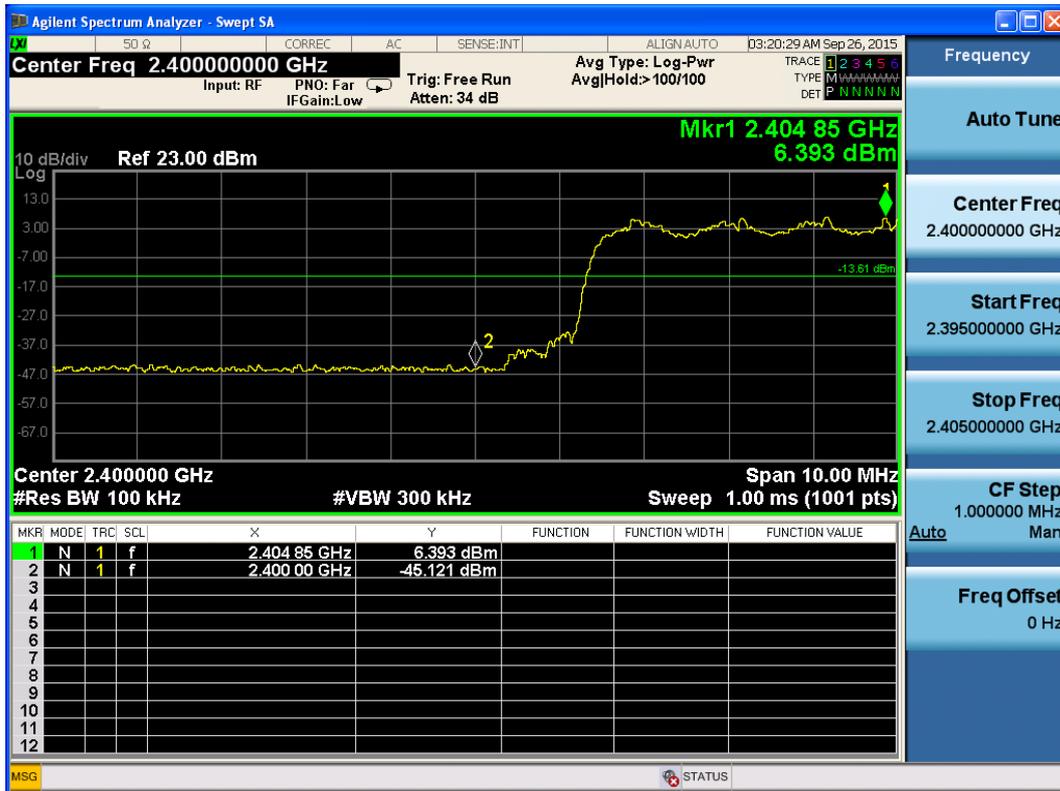
Carrier frequency (MHz): 2480
Channel No.:78

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

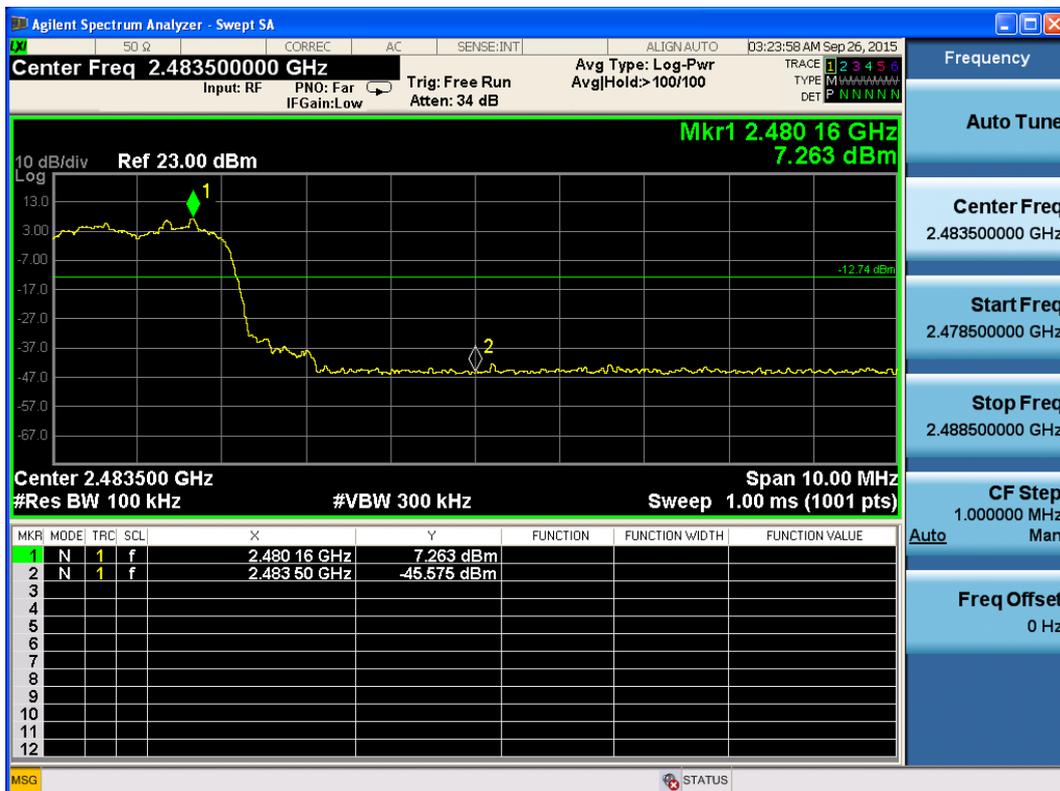
Report No.:RXA1509-0168RF01R1

Page 33of 99

Hopping On-2DH5



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



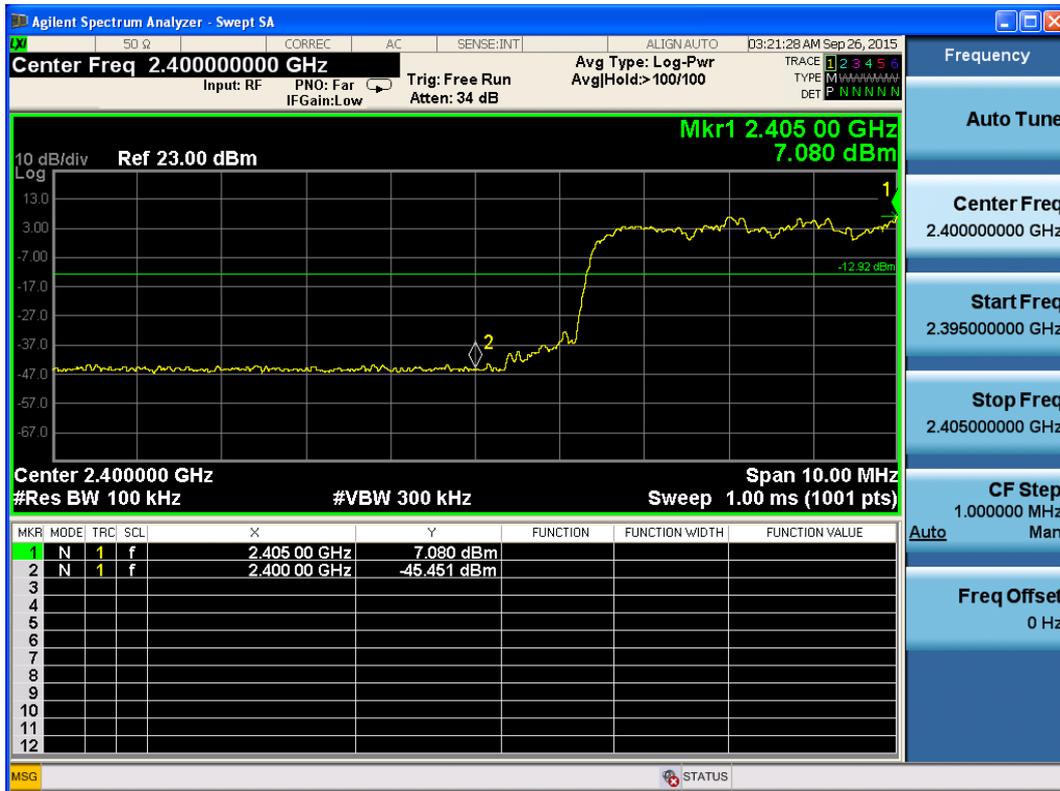
Carrier frequency (MHz): 2480
Channel No.:78

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

Report No.:RXA1509-0168RF01R1

Page 34of 99

Hopping On-3DH5



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



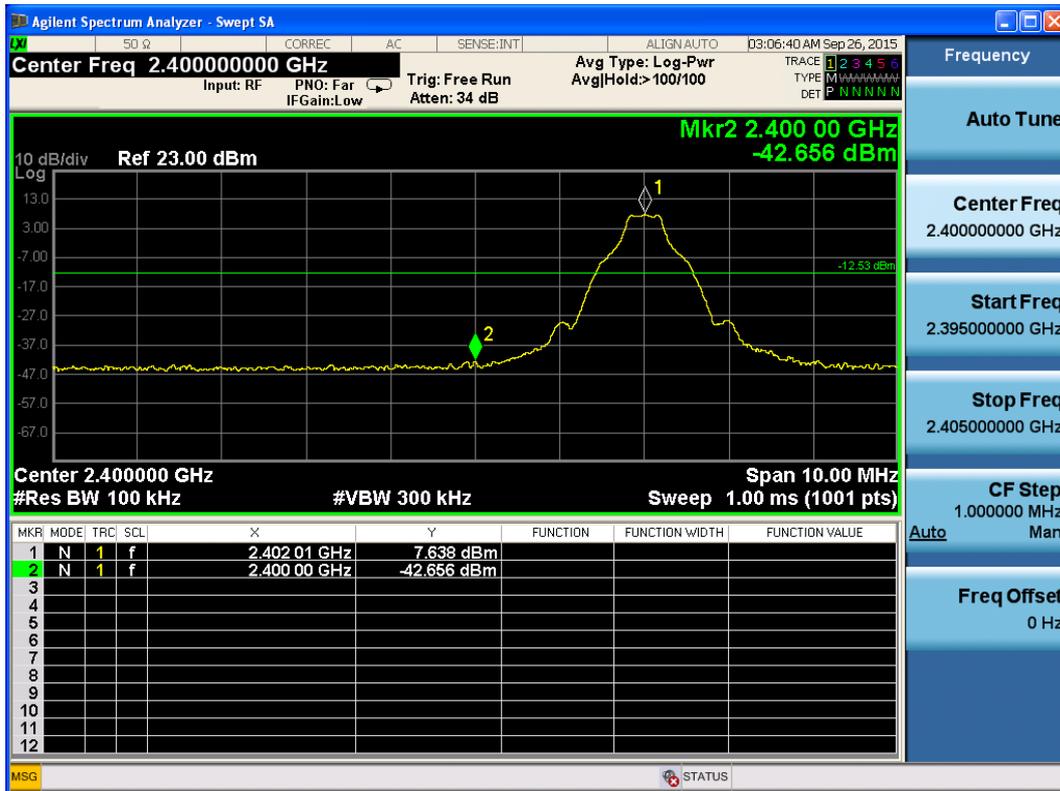
Carrier frequency (MHz): 2480
Channel No.:78

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

Report No.:RXA1509-0168RF01R1

Page 35 of 99

Hopping Off-DH5-



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



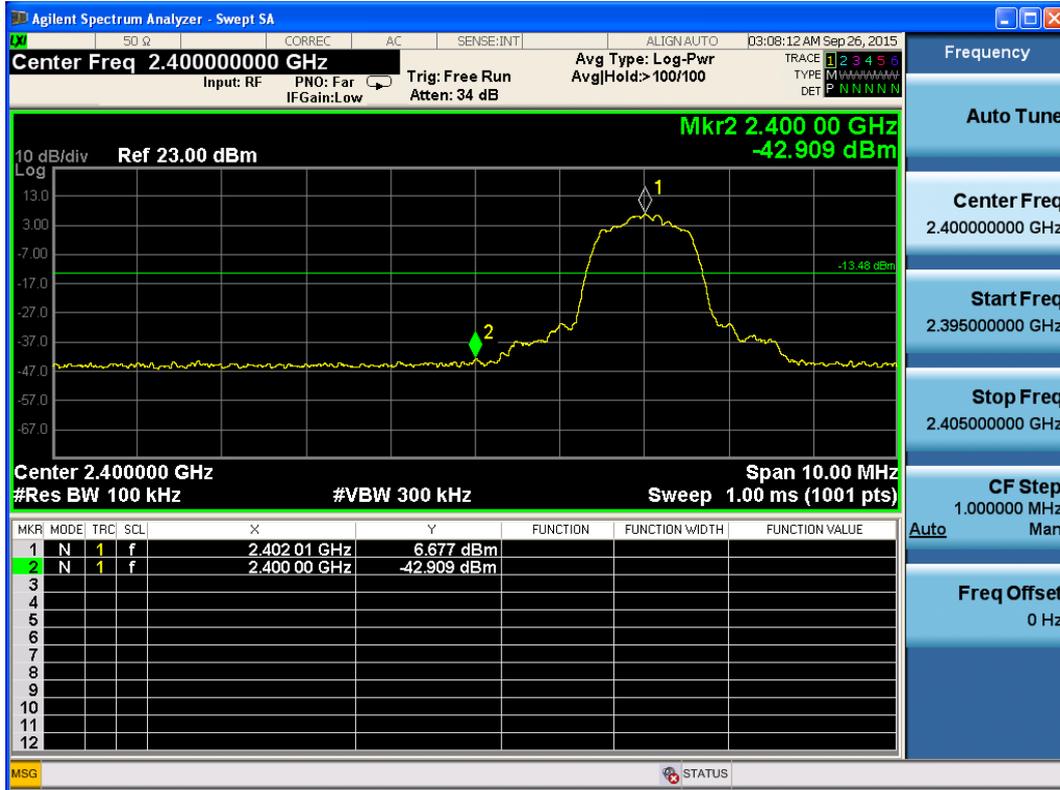
Carrier frequency (MHz): 2480
Channel No.:78

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

Report No.:RXA1509-0168RF01R1

Page 36of 99

Hopping Off-2DH5



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



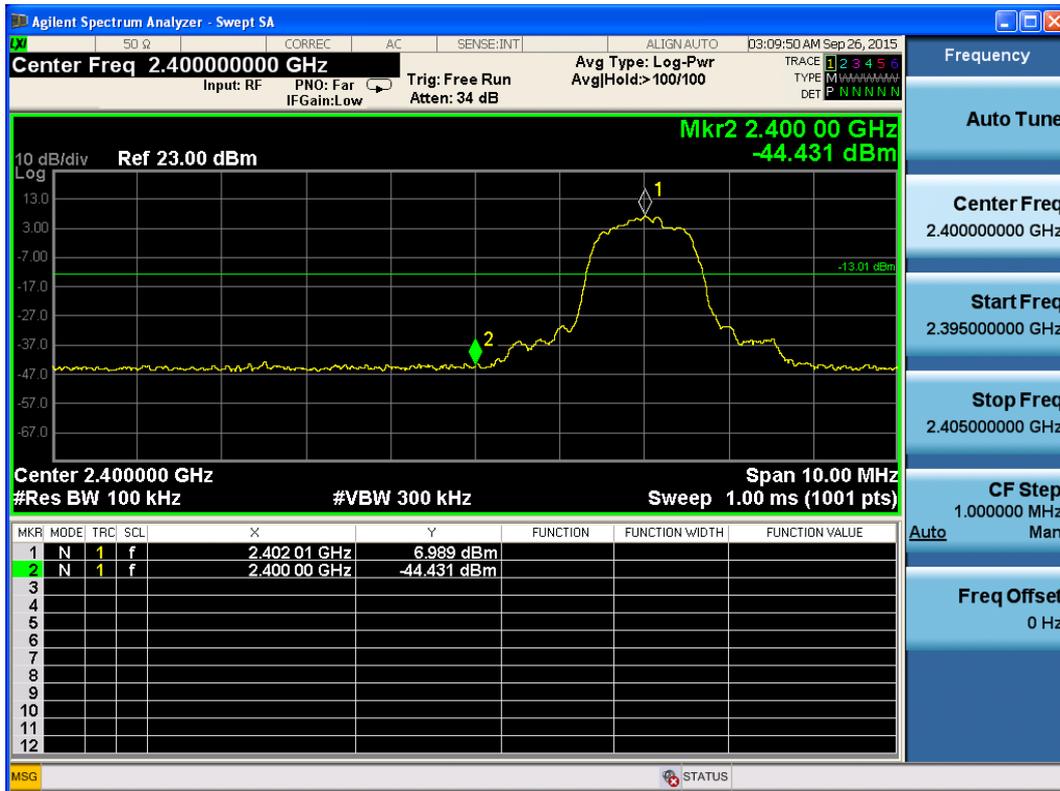
Carrier frequency (MHz): 2480
Channel No.:78

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

Report No.:RXA1509-0168RF01R1

Page 37of 99

Hopping Off-3DH5



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



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

TA Technology (Shanghai) Co., Ltd.

Test Report

3.8. Spurious Radiated Emissions in the Restricted Band

Ambient condition

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

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

Set the spectrum analyzer in the following:

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

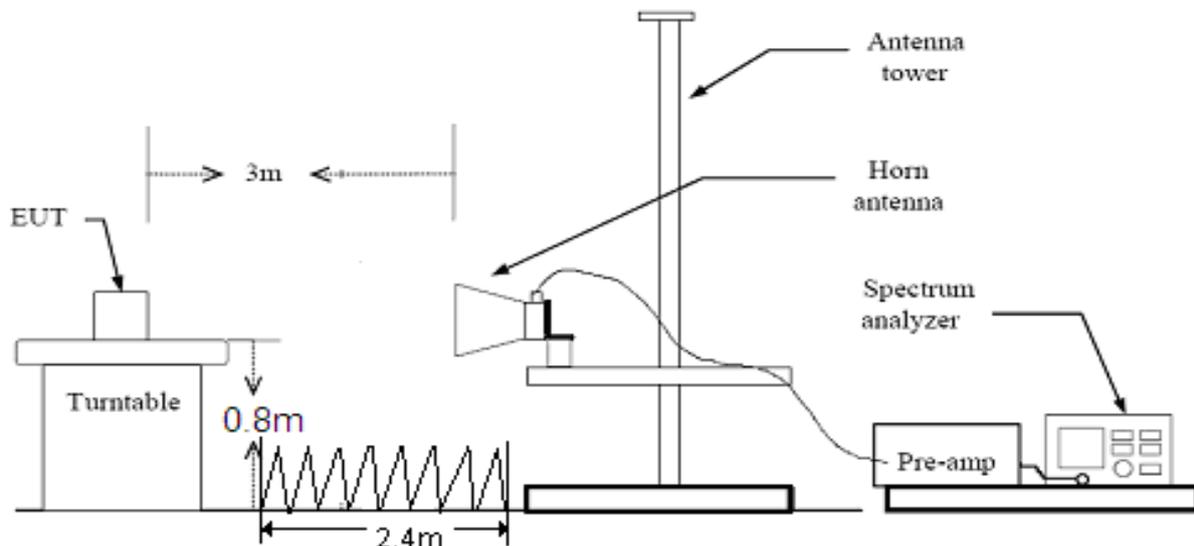
(b) The dwell time per channel of the hopping signal is less than 100 ms, then the reading obtained with the 10 Hz VBW may be further adjusted by a “duty cycle correction factor”, derived from $20\log(\text{dwell time}/100 \text{ ms})$, in an effort to demonstrate compliance with the 15.209 limit.

If the emission is pulsed, modify the unit for continuous operation; use the settings shown above, then correct the reading by subtracting the peak- average correction factor, derived from the appropriate duty cycle calculation.

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

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

Test setup



Note: Area side: 2.4mX3.6m

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

Report No.:RXA1509-0168RF01R1

Page 39 of 99

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

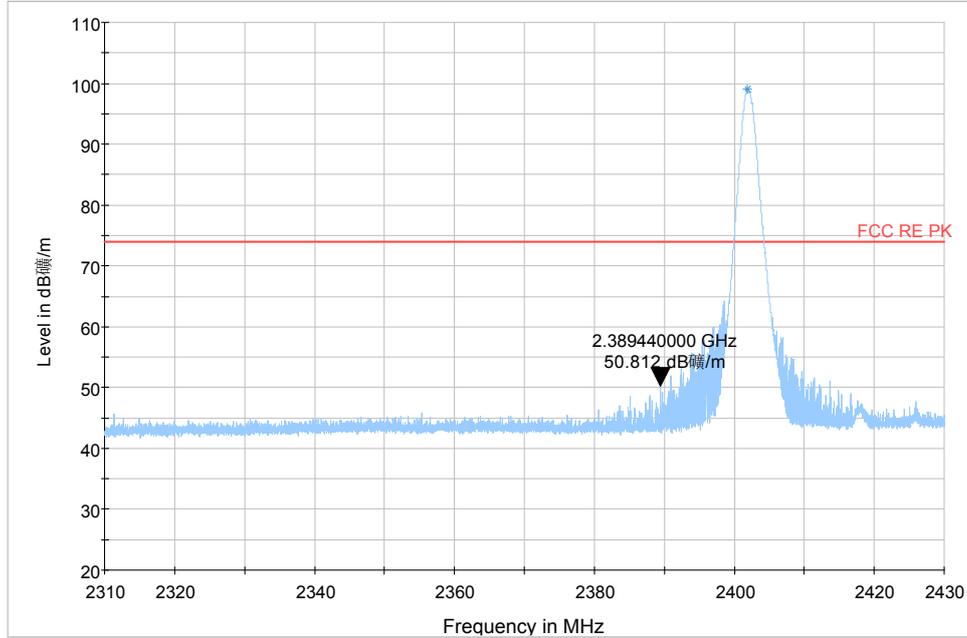
The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 1.96$, $U = 3.55$ dB.

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

Report No.:RXA1509-0168RF01R1

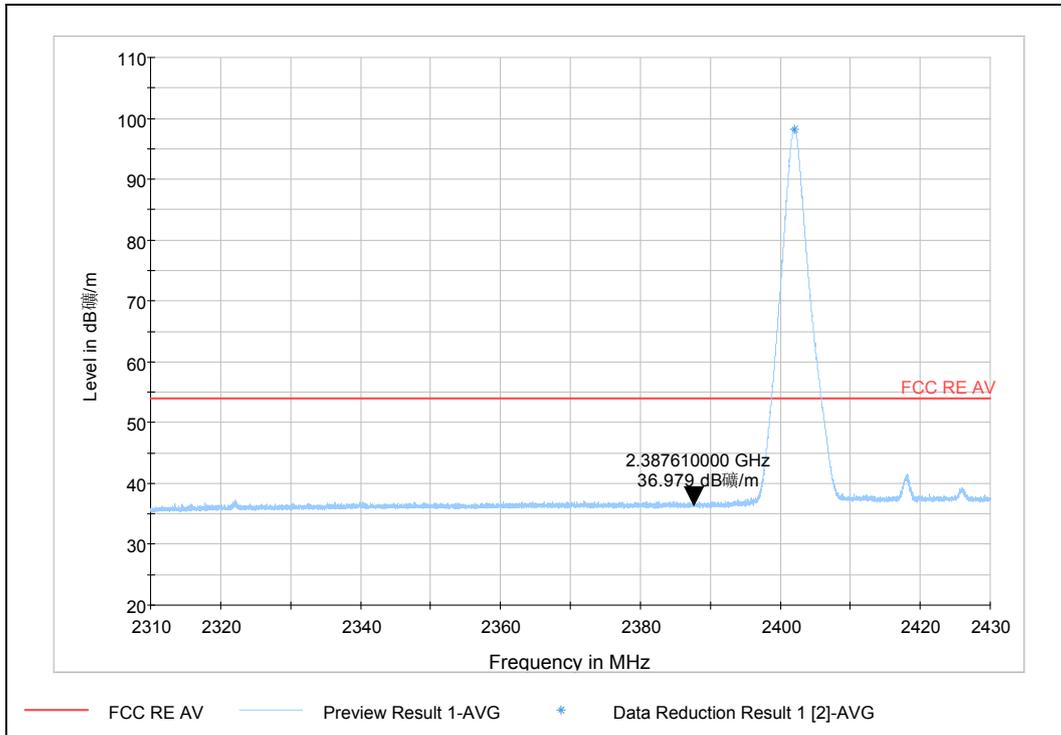
Page 40 of 99

Test Results: DH5- Channel 0



Lower band edge Peak-CH 0

Note: The signal beyond the limit is carrier, a font (Level in dB μ V/m) in the test plot =(level in dBuV/m)

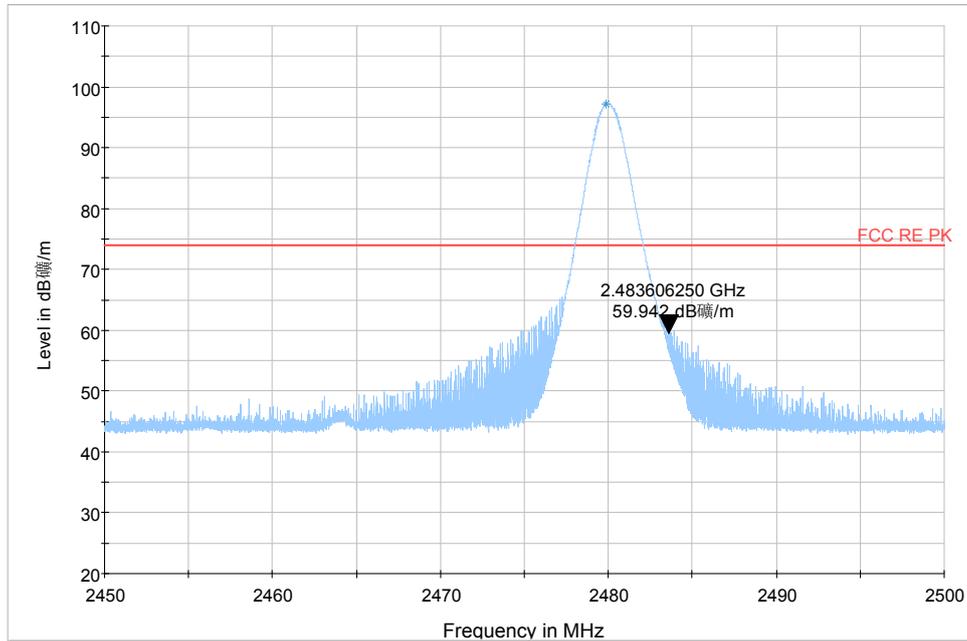


Lower band edge average-CH 0

Note: The signal beyond the limit is carrier, a font (Level in dB μ V/m) in the test plot =(level in dBuV/m)

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

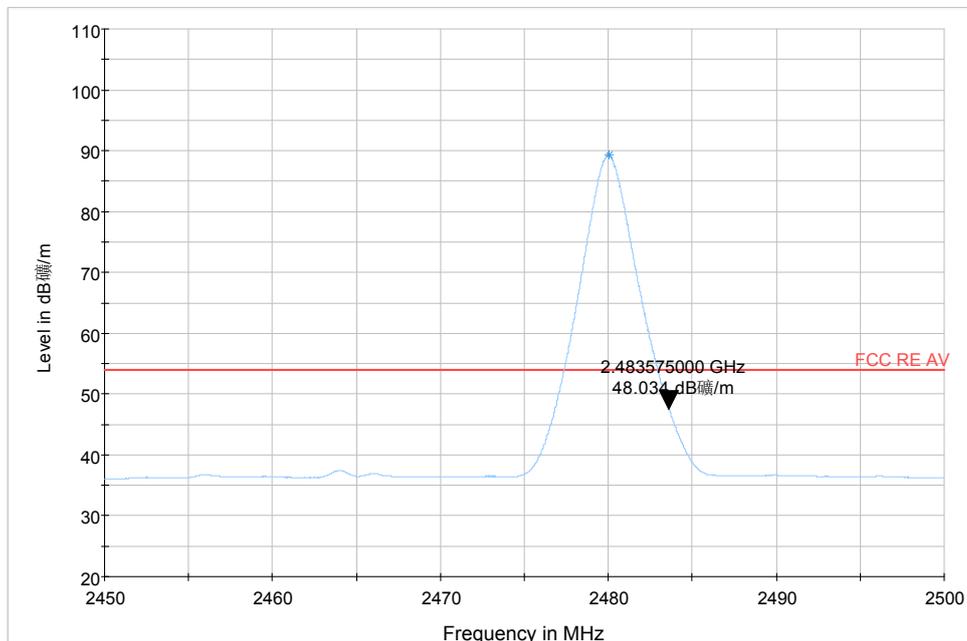
DH5- Channel 78



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

Higher band edge Peak-CH 78

Note: The signal beyond the limit is carrier, a font (Level in dBμV/m) in the test plot =(level in dBuV/m)



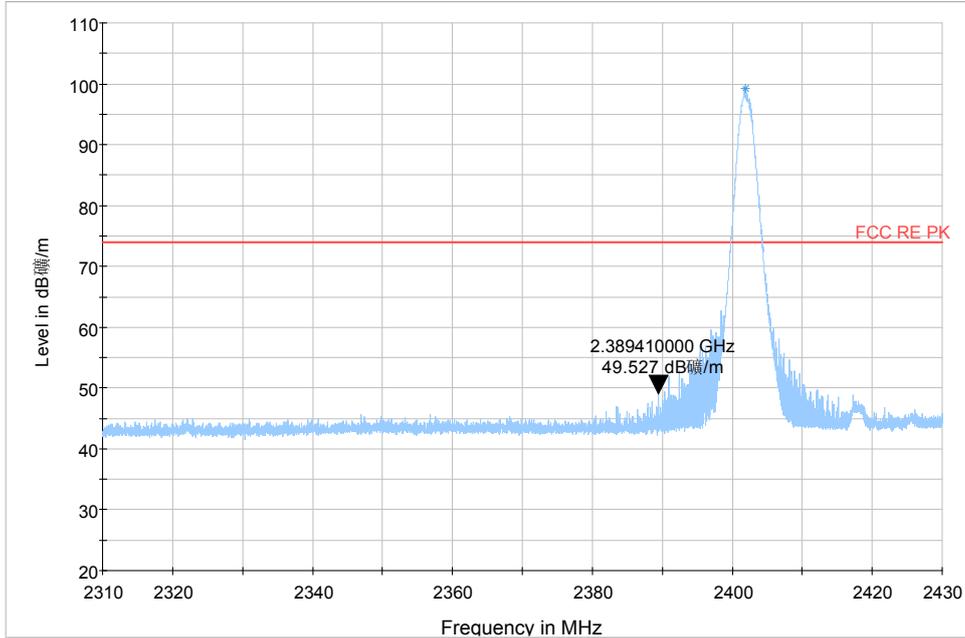
— FCC RE AV — Preview Result 1-AVG * Data Reduction Result 1 [2]-AVG

Higher band edge average-CH 78

Note: The signal beyond the limit is carrier, a font (Level in dBμV/m) in the test plot =(level in dBuV/m)

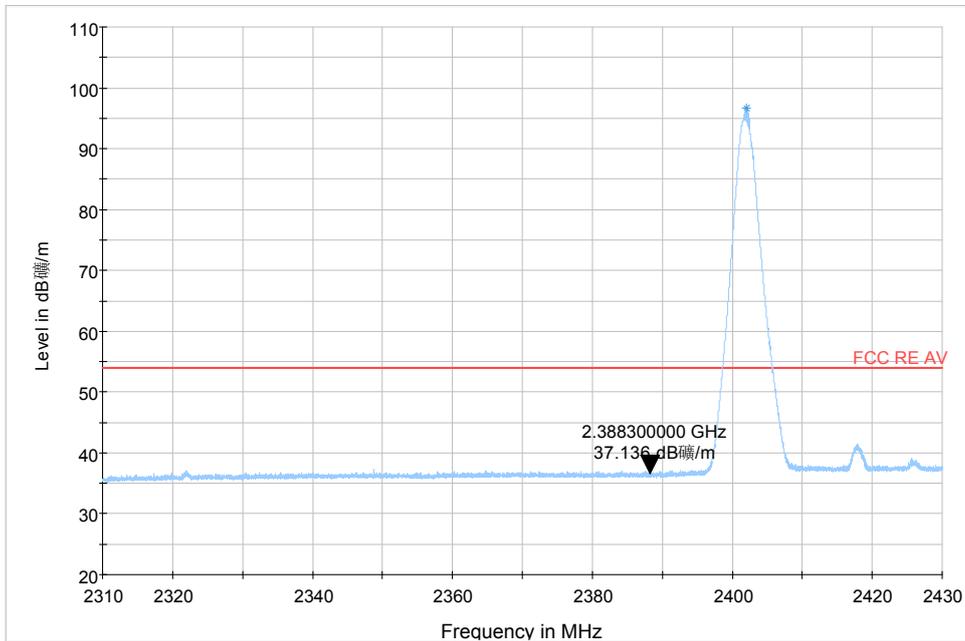
TA Technology (Shanghai) Co., Ltd. Test Report

3DH5- Channel 0



Lower band edge Peak-CH 0

Note: The signal beyond the limit is carrier, a font (Level in dBμV/m) in the test plot =(level in dBuV/m)

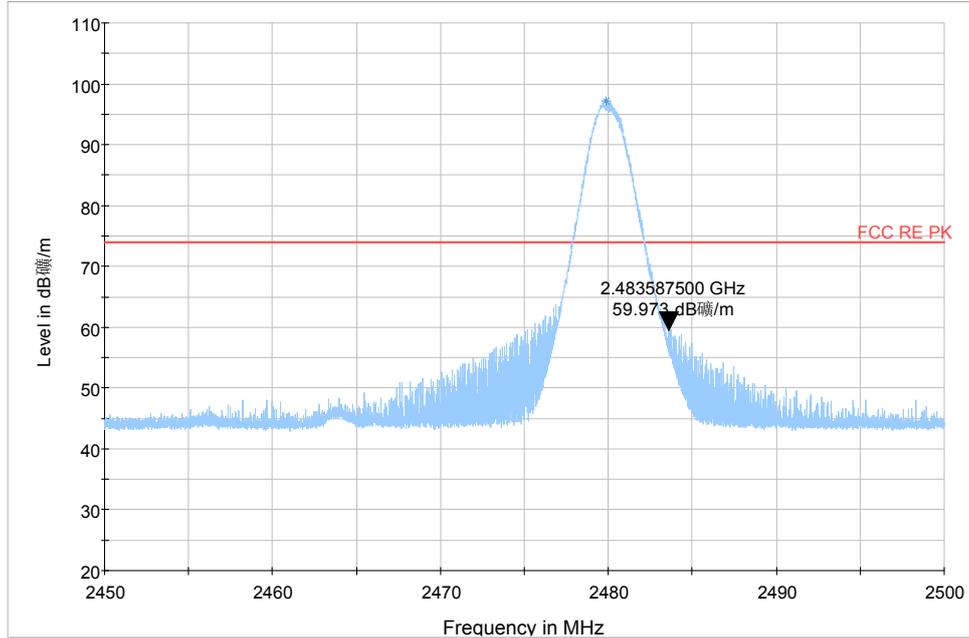


Lower band edge average-CH 0

Note: The signal beyond the limit is carrier, a font (Level in dBμV/m) in the test plot =(level in dBuV/m)

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

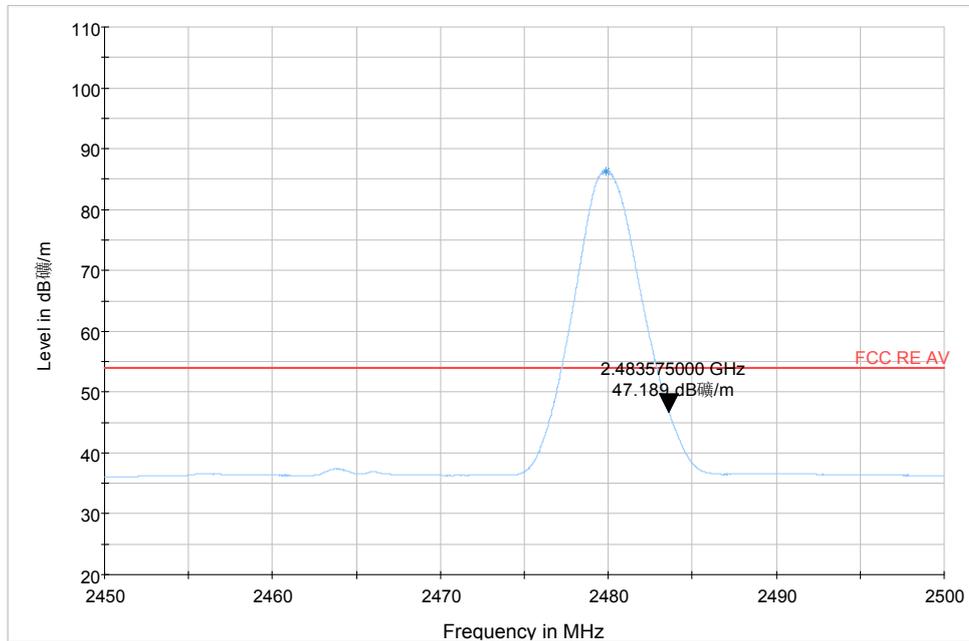
3DH5- Channel 78



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

Higher band edge Peak-CH 78

Note: The signal beyond the limit is carrier, a font (Level in dBμV/m) in the test plot =(level in dBuV/m)



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

Higher band edge average-CH 78

Note: The signal beyond the limit is carrier, a font (Level in dBμV/m) in the test plot =(level in dBuV/m)

TA Technology (Shanghai) Co., Ltd.

Test Report

3.9. Number of hopping Frequency

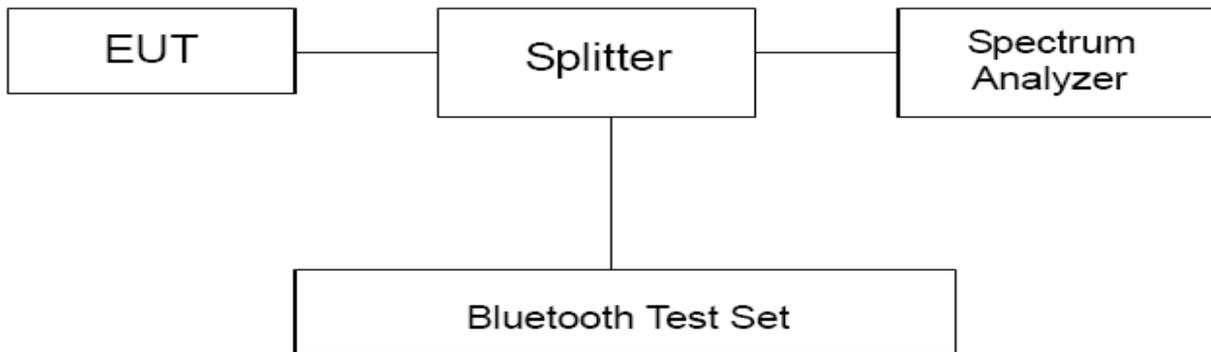
Ambient condition

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

Method of Measurement

The EUT was connected to the spectrum analyzer and Bluetooth test set via a power splitter with a known loss. RBW is set to 300KHz and VBW is set to 3 MHz on spectrum analyzer. Set EUT on Hopping on mode.

Test setup



Limits

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

Limits	\geq 15 channels
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TA Technology (Shanghai) Co., Ltd. Test Report

Report No.:RXA1509-0168RF01R1

Page 45 of 99

Test Results:

DH5

Number of hopping channels	conclusion
79	PASS



2400 MHz – 2483.5 MHz

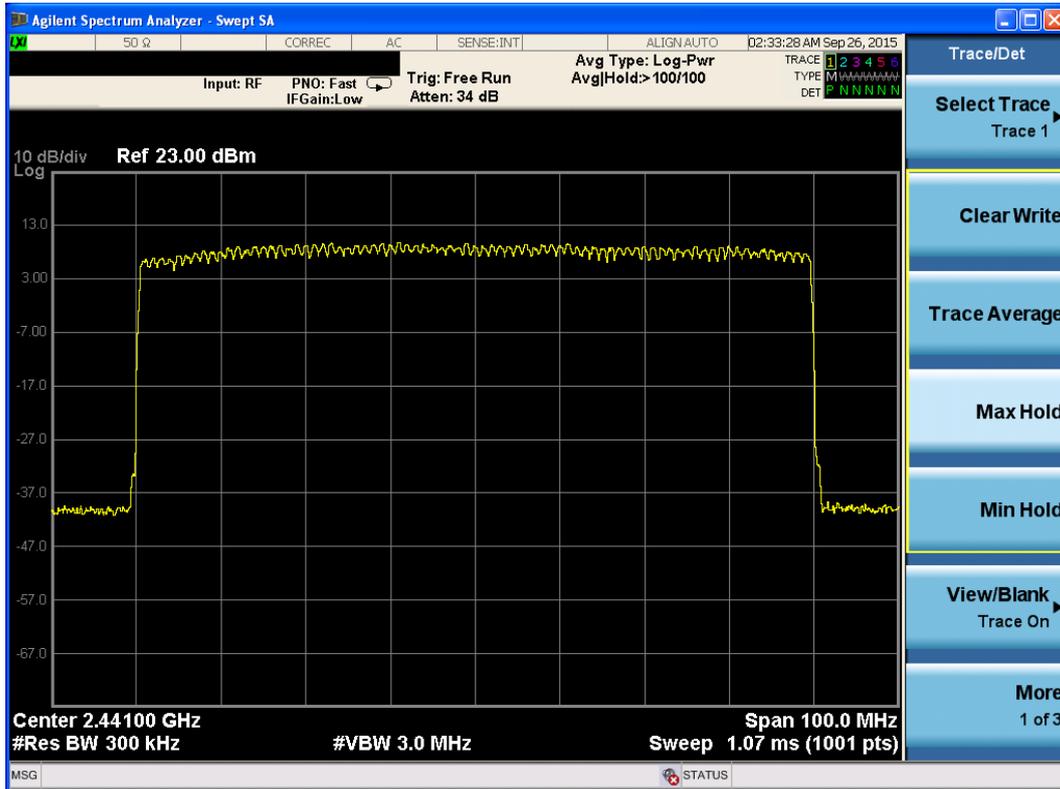
TA Technology (Shanghai) Co., Ltd. Test Report

Report No.:RXA1509-0168RF01R1

Page 46of 99

2DH5

Number of hopping channels	conclusion
79	PASS



2400 MHz – 2483.5 MHz

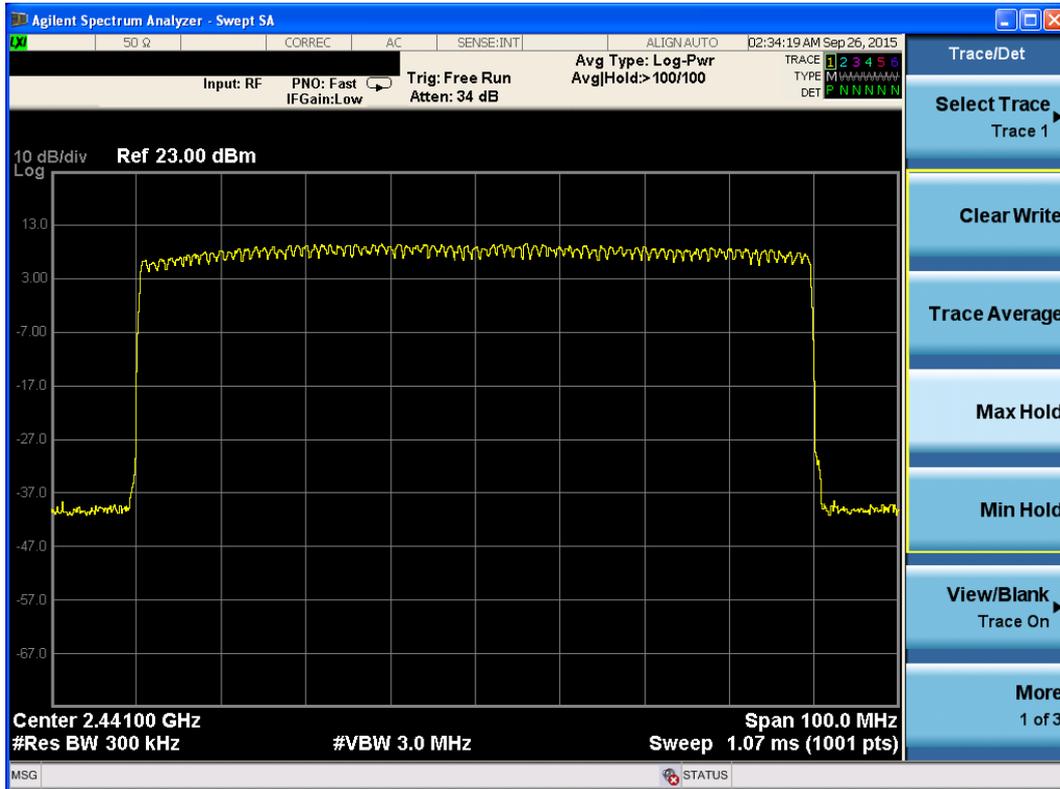
TA Technology (Shanghai) Co., Ltd. Test Report

Report No.:RXA1509-0168RF01R1

Page 47 of 99

3DH5

Number of hopping channels	conclusion
79	PASS



2400 MHz – 2483.5 MHz

TA Technology (Shanghai) Co., Ltd.

Test Report

Report No.:RXA1509-0168RF01R1

Page 48 of 99

3.10. Spurious RF Conducted Emissions

Ambient condition

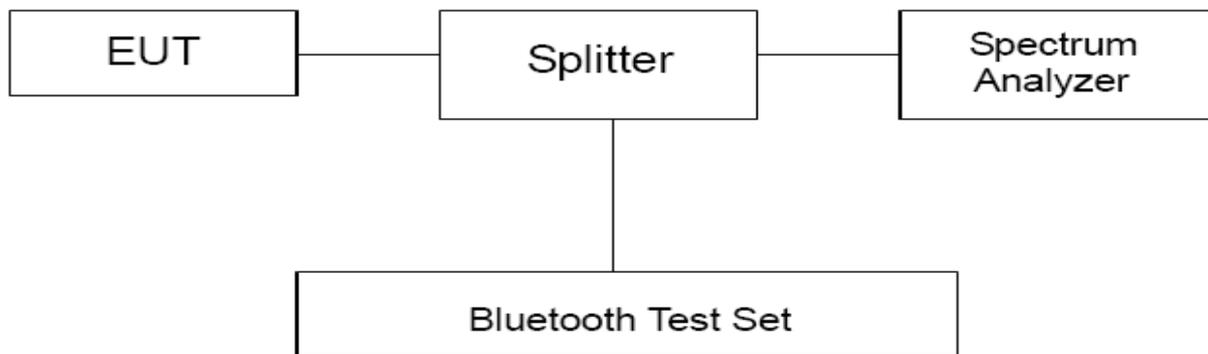
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

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

The test is in transmitting mode.

Test setup



Limits

Rule Part 15.247(d) 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
DH5	2402	6.6	-13.4
	2441	8.8	-11.2
	2480	7.6	-12.4
EDR	2402	5.3	-14.7
	2441	7.8	-12.2
	2480	5.8	-14.2

TA Technology (Shanghai) Co., Ltd.

Test Report

Report No.:RXA1509-0168RF01R1

Page 49 of 99

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

TA Technology (Shanghai) Co., Ltd.

Test Report

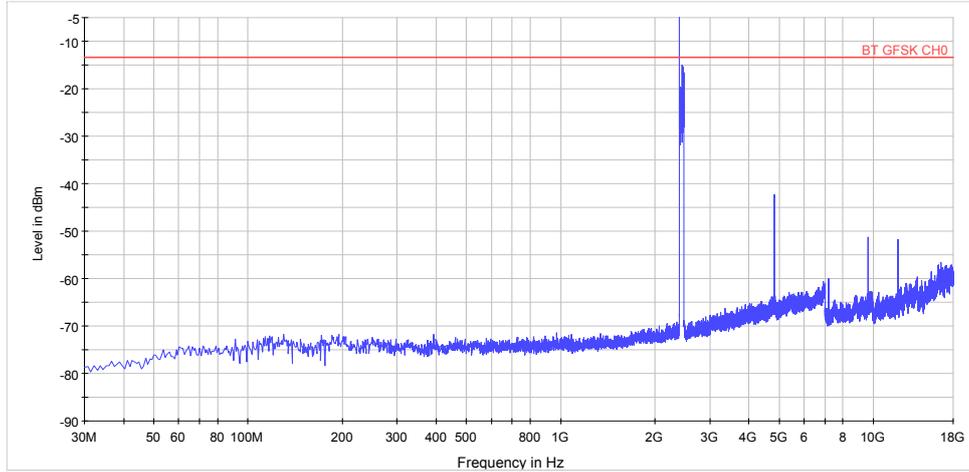
Report No.:RXA1509-0168RF01R1

Page 50 of 99

Test Results:

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

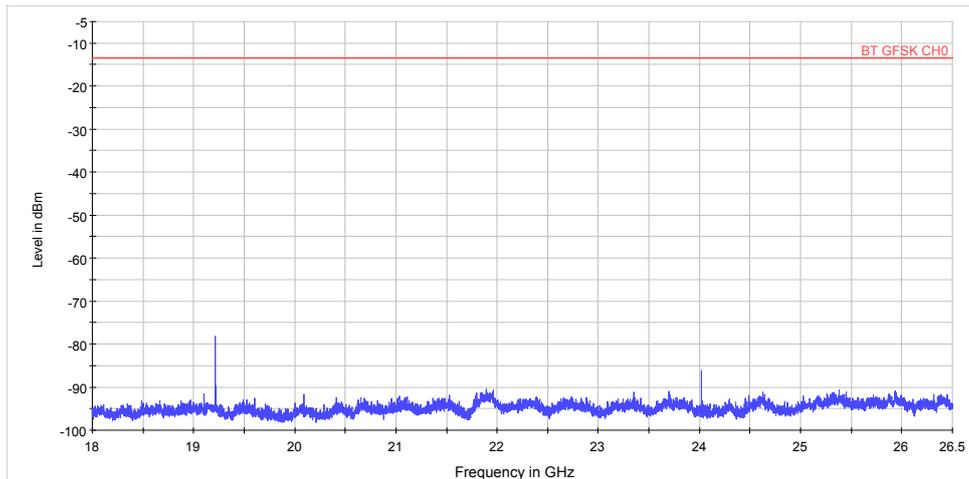
GFSK-CH0:



MaxPeak-MaxHold-PK+ BT GFSK CH0

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

Harmonic	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)
2	4804.5	-42.36	-13.40	28.96
4	9608.0	-51.28	-13.40	37.88
5	12010.0	-51.85	-13.40	38.45



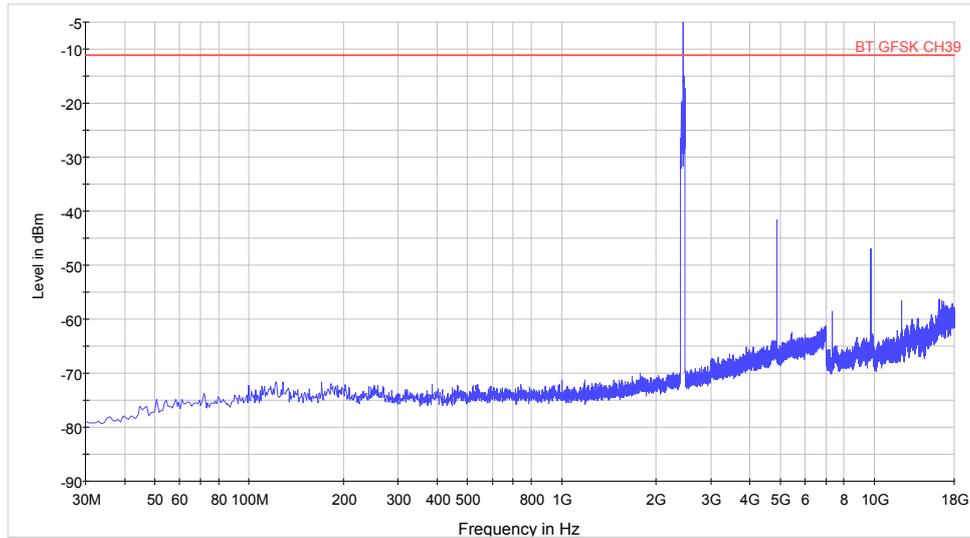
MaxPeak-MaxHold-PK+ BT GFSK CH0

Spurious RF conducted emissions from 18GHz to 26.5GHz

Harmonic	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)
8	19215.5	-78.10	-13.40	64.70
10	24020.0	-86.13	-13.40	72.73

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

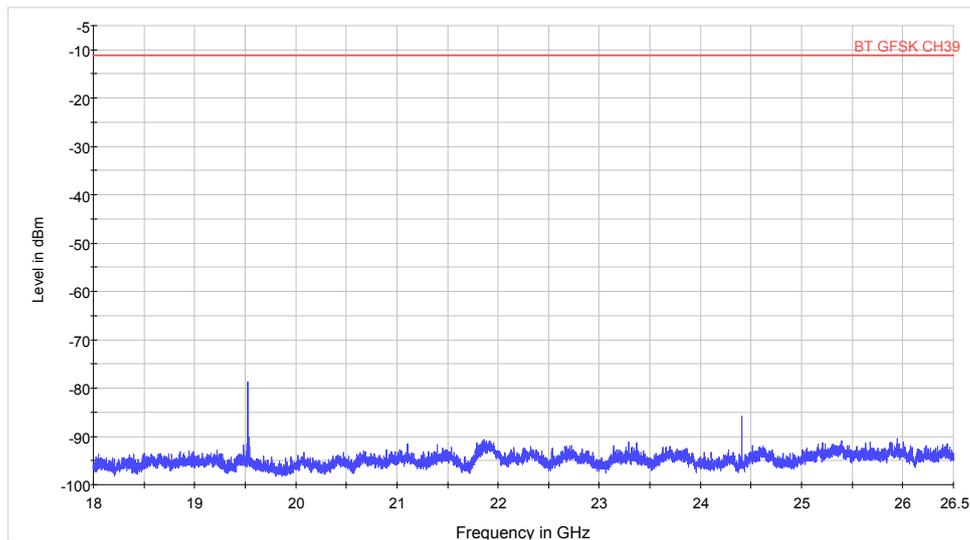
GFSK-CH39:



MaxPeak-MaxHold-PK+ BT GFSK CH39

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

Harmonic	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)
2	4881.8	-41.70	-11.20	30.50
4	9764.0	-46.90	-11.20	35.70



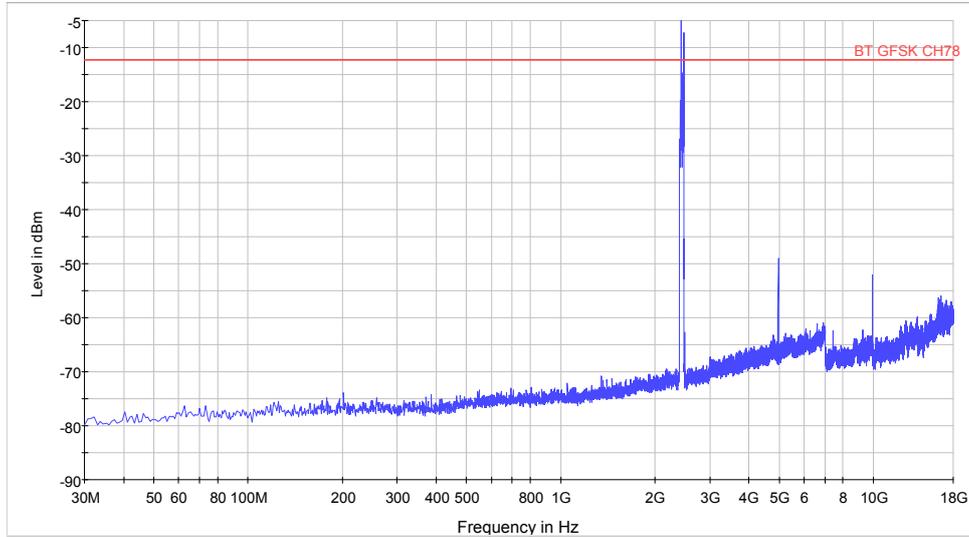
MaxPeak-MaxHold-PK+ BT GFSK CH39

Spurious RF conducted emissions from 18GHz to 26.5GHz

Harmonic	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)
8	19527.9	-78.82	-11.20	67.62
10	24410.0	-85.82	-11.20	74.62

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

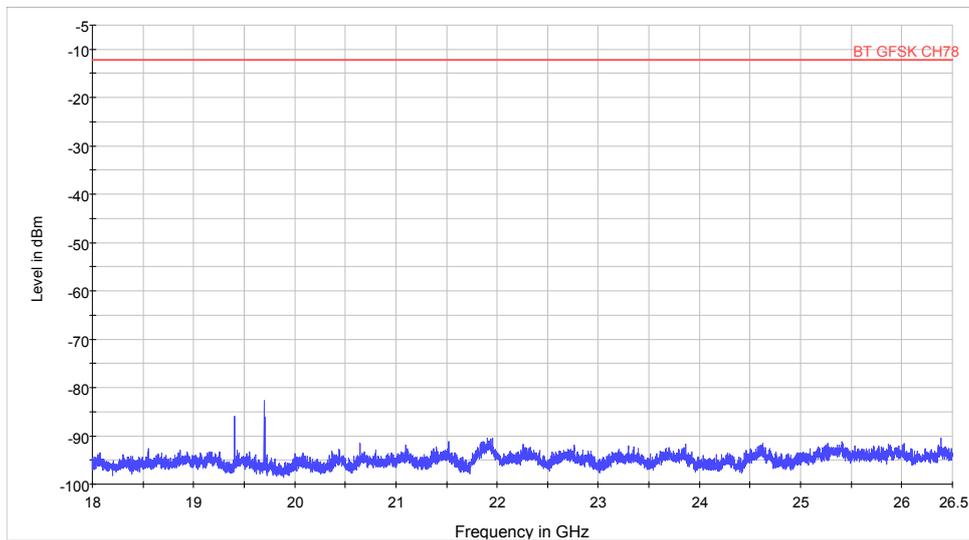
GFSK-CH78:



MaxPeak-MaxHold-PK+ BT GFSK CH78

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

Harmonic	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)
2	4960.0	-48.96	-12.40	36.76
4	9920.0	-52.06	-12.40	39.86



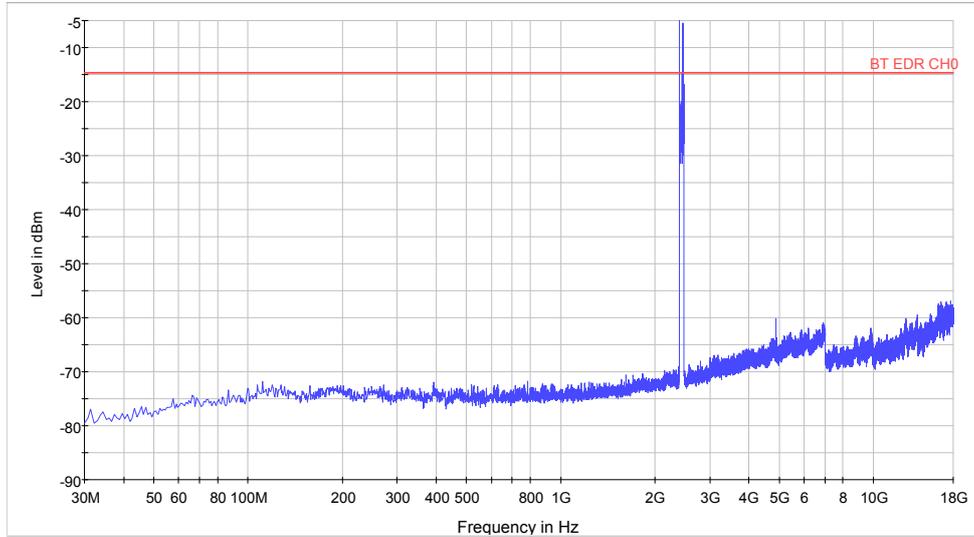
MaxPeak-MaxHold-PK+ BT GFSK CH78

Spurious RF conducted emissions from 18GHz to 26.5GHz

Harmonic	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)
8	19695.8	-82.63	-12.40	70.43

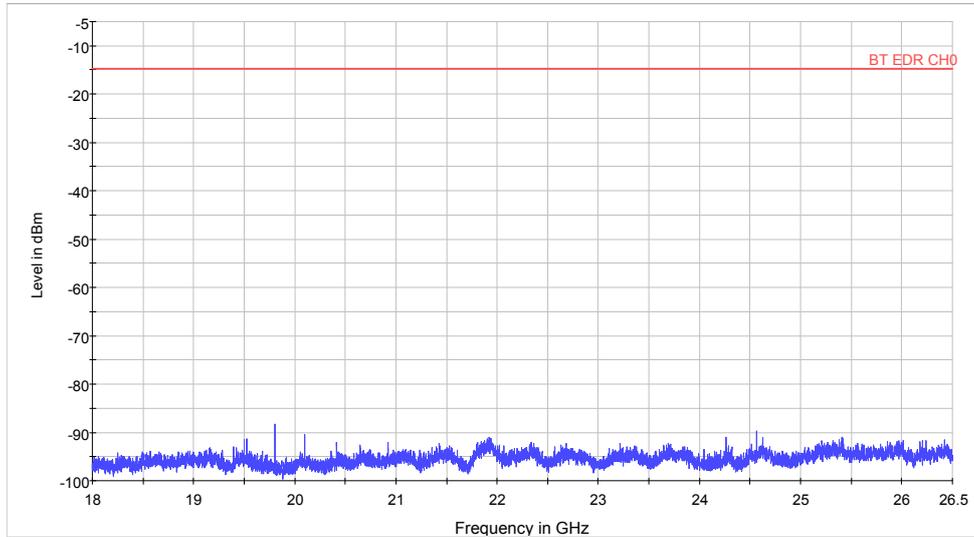
TA Technology (Shanghai) Co., Ltd. Test Report

EDR-CH0:



MaxPeak-MaxHold-PK+ BT EDR CH0

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



MaxPeak-MaxHold-PK+ BT EDR CH0

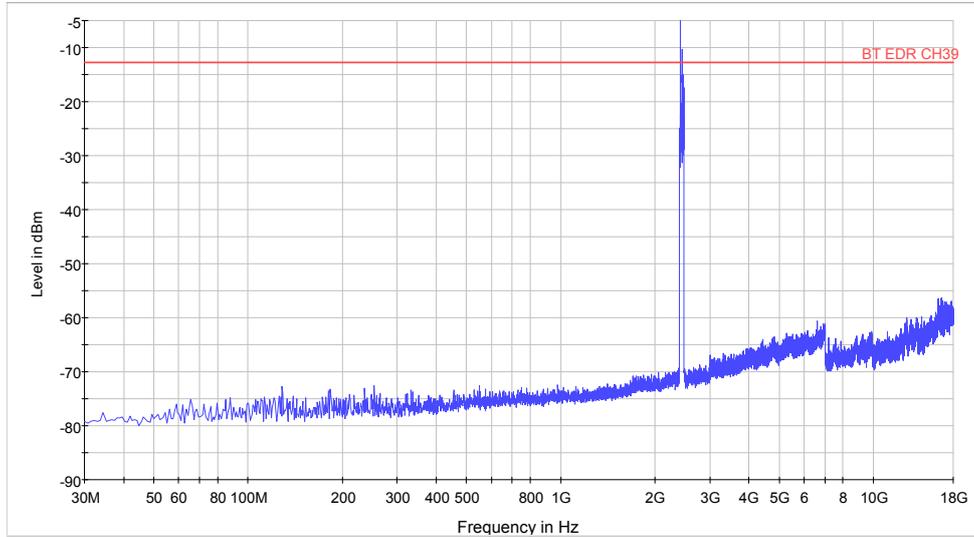
Spurious RF conducted emissions from 18GHz to 26.5GHz

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

Report No.:RXA1509-0168RF01R1

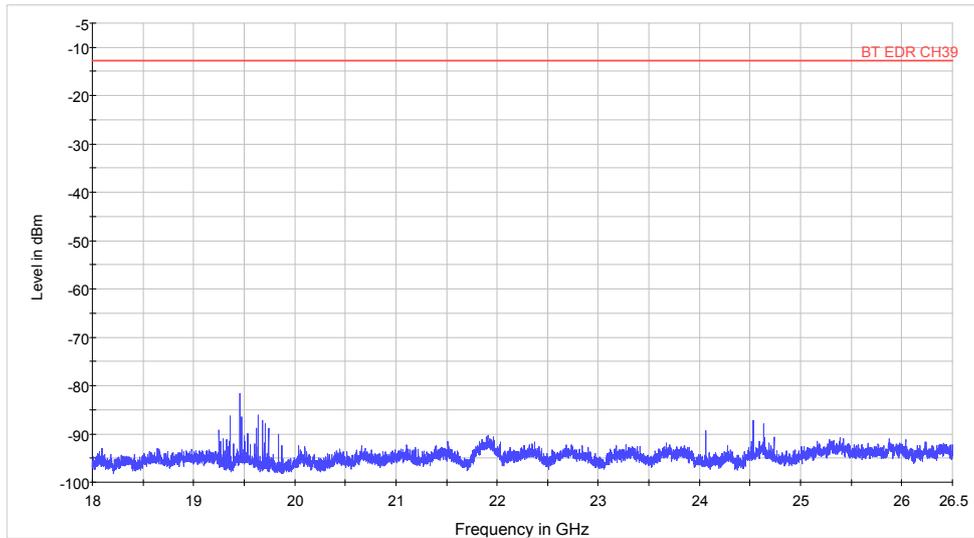
Page 54of 99

EDR -CH39:



MaxPeak-MaxHold-PK+ BT EDR CH39

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

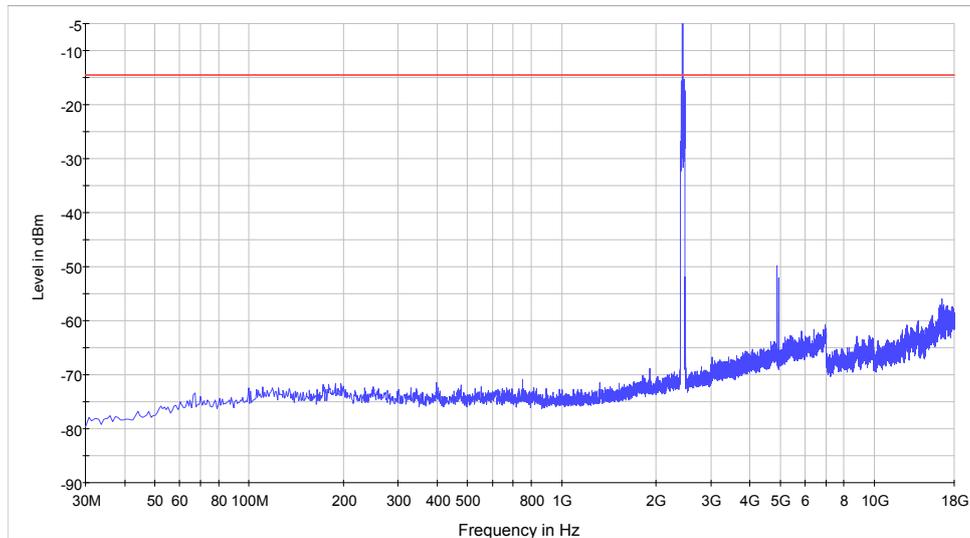


MaxPeak-MaxHold-PK+ BT EDR CH39

Spurious RF conducted emissions from 18GHz to 26.5GHz

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

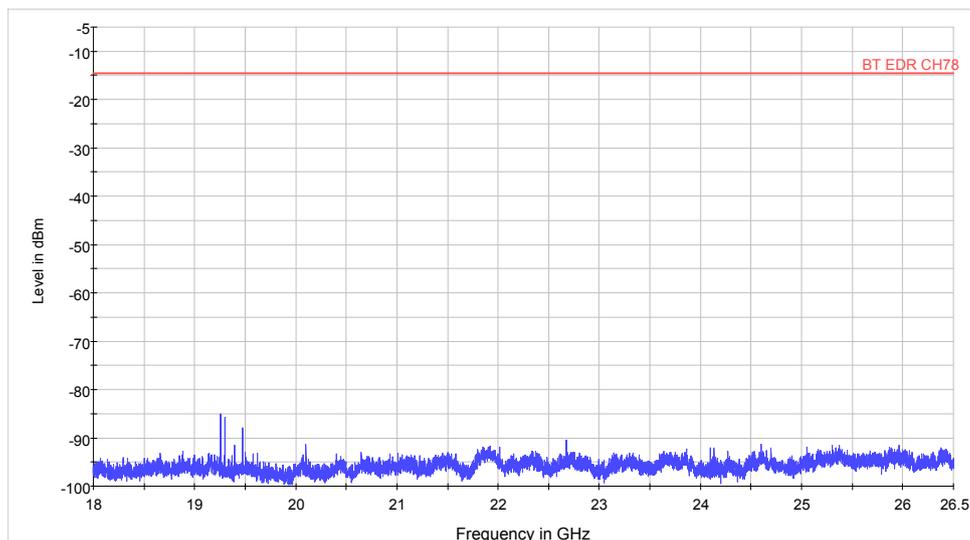
EDR -CH78:



MaxPeak-MaxHold-PK+ BT EDR CH78

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

Harmonic	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)
2	4890.0	-49.88	-14.5	35.38



MaxPeak-MaxHold-PK+ BT EDR CH78

Spurious RF conducted emissions from 18GHz to 26.5GHz

TA Technology (Shanghai) Co., Ltd.

Test Report

3.11. Radiates Emission

Ambient condition

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

Method of Measurement

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

Sweep the whole frequency band through the range from 9 kHz to the 10th harmonic of the carrier, and the emissions less than 20 dB below the permissible value are reported.

During the test, below 30MHz, the center of the loop shall be 1 meters; above 30MHz, the height of receive antenna shall be moved from 1 to 4 meters, and the antenna shall be performed under horizontal and vertical polarization. The turntable shall be rotated from 0 to 360 degrees for detecting the maximum of radiated spurious signal level. The measurements shall be repeated with orthogonal polarization of the test antenna. The data of cable loss and antenna factor has been calibrated in full testing frequency range before the testing.

Set the spectrum analyzer in the following:

Below 1GHz (detector: Peak and Quasi-Peak)

RBW=100kHz / VBW=300kHz / Sweep=AUTO

Above 1GHz(detector: Peak):

(a) PEAK: RBW=1MHz VBW=3MHz/ Sweep=AUTO

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

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

The test is in transmitting mode.

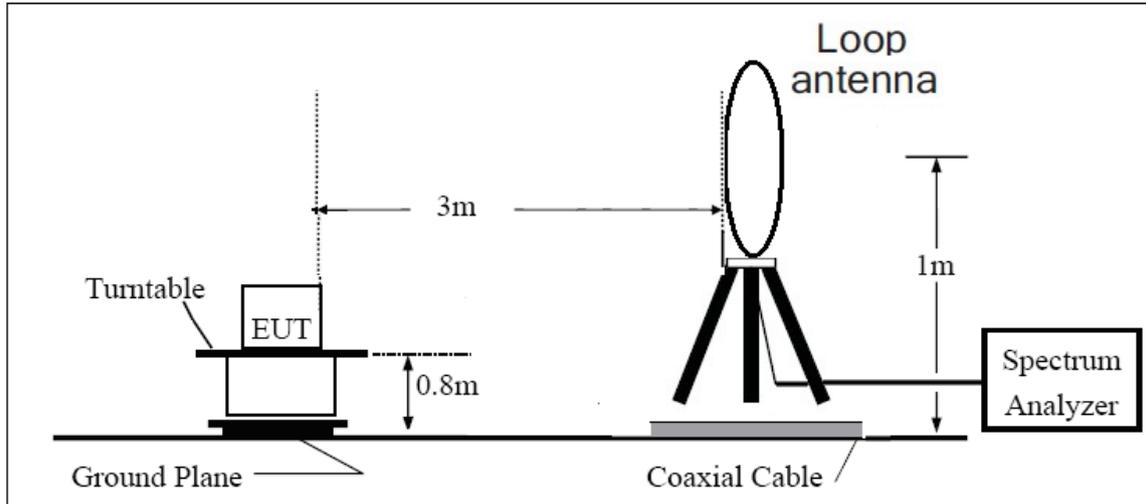
TA Technology (Shanghai) Co., Ltd. Test Report

Report No.:RXA1509-0168RF01R1

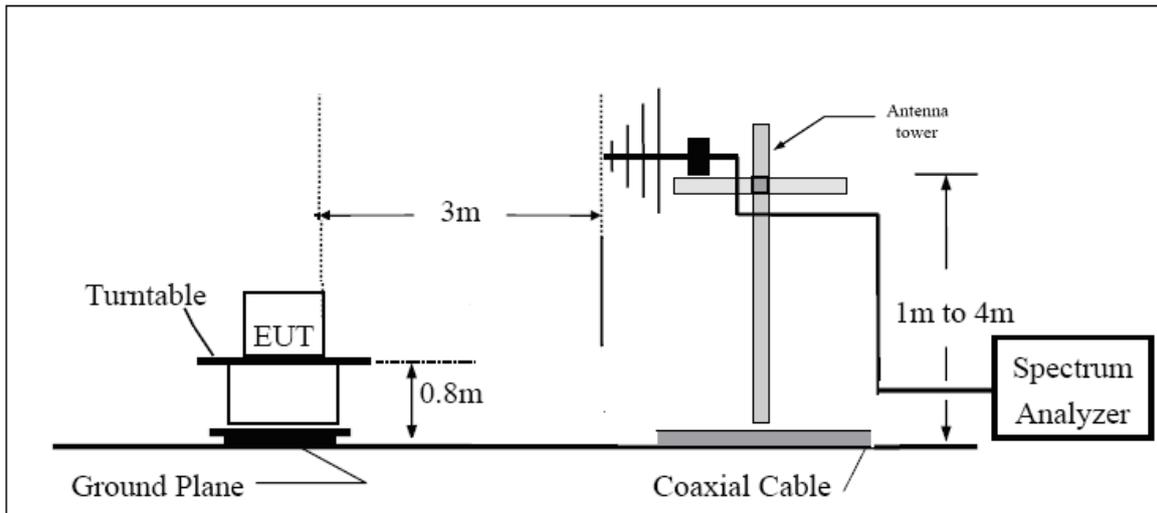
Page 57of 99

Test setup

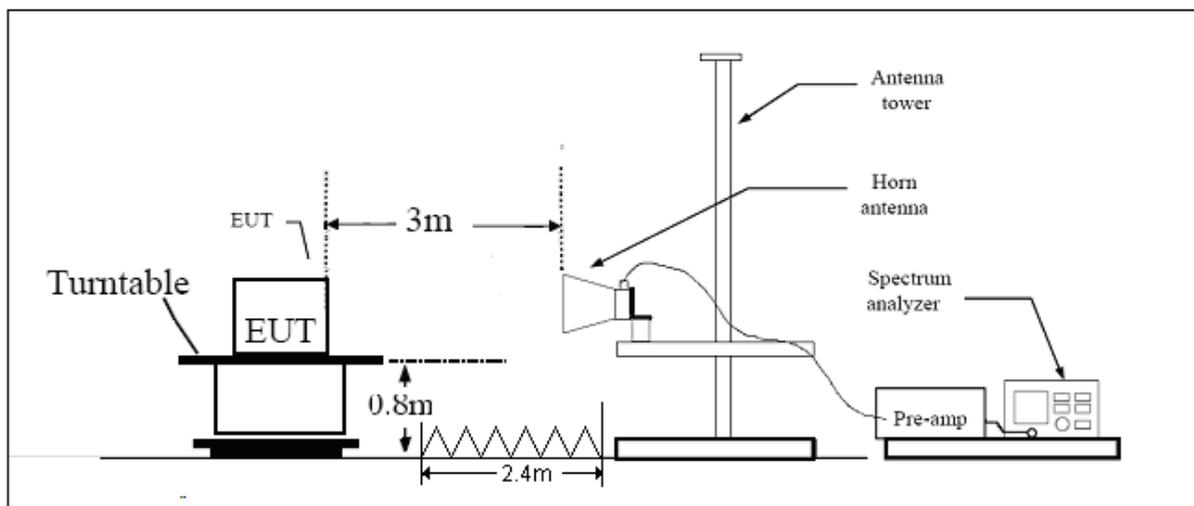
9KHz~~~ 30MHz



30MHz~~~ 1GHz



Above 1GHz



TA Technology (Shanghai) Co., Ltd.

Test Report

Report No.:RXA1509-0168RF01R1

Page 58 of 99

Limits

Rule Part 15.247(d) specifies that “In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c)).”

Limit in restricted band

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

§15.35(b)

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

Measurement Uncertainty

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

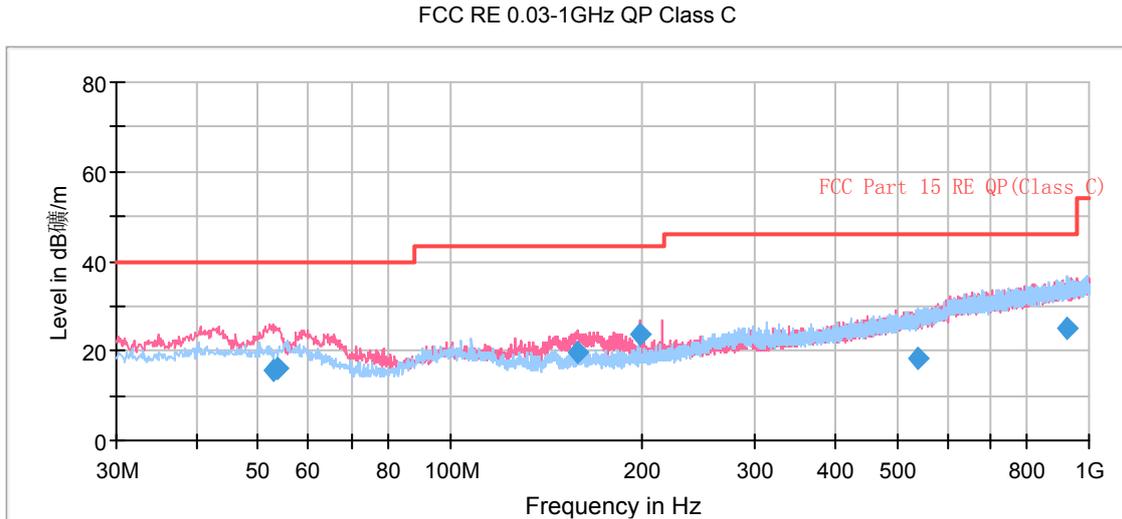
Frequency	Uncertainty
9KHz-30MHz	3.55 dB
30MHz-200MHz	4.19 dB
200MHz-1GHz	3.63 dB
Above 1GHz	3.68 dB

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

Test result

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

GFSK-Channel 0



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

Note: a font (Level in dB_{μV/m}) in the test plot =(level in dB_{μV/m})

Radiates Emission from 30MHz to 1GHz

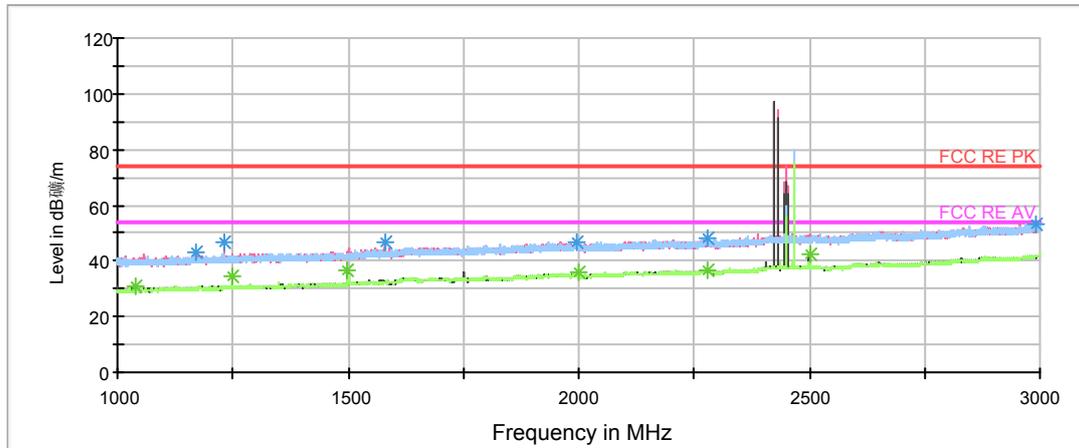
Frequency (MHz)	Quasi-Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
52.833750	15.6	100.0	V	38.0	2.8	-12.8	24.4	40.0
53.687500	16.1	100.0	V	61.0	3.3	-12.8	23.9	40.0
157.801250	19.7	100.0	V	232.0	10.1	-9.6	23.8	43.5
198.011250	23.8	100.0	V	114.0	11.9	-11.9	19.7	43.5
538.320000	18.4	125.0	H	128.0	-2.4	-20.8	27.6	46.0
925.396250	24.9	111.0	H	41.0	-0.9	-25.8	21.1	46.0

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

Report No.:RXA1509-0168RF01R1

Page 60 of 99

RE 1G-3GHz PK+AV



- FCC RE PK
- FCC RE AV
- Preview Result 1V-PK+
- Preview Result 2V-AVG
- Preview Result 1H-PK+
- Preview Result 2H-AVG
- * Data Reduction Result 1 [2]-PK+
- * Data Reduction Result 2 [2]-AVG

Radiates Emission from 1GHz to 3GHz

Note: The signal beyond the limit is carrier.

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

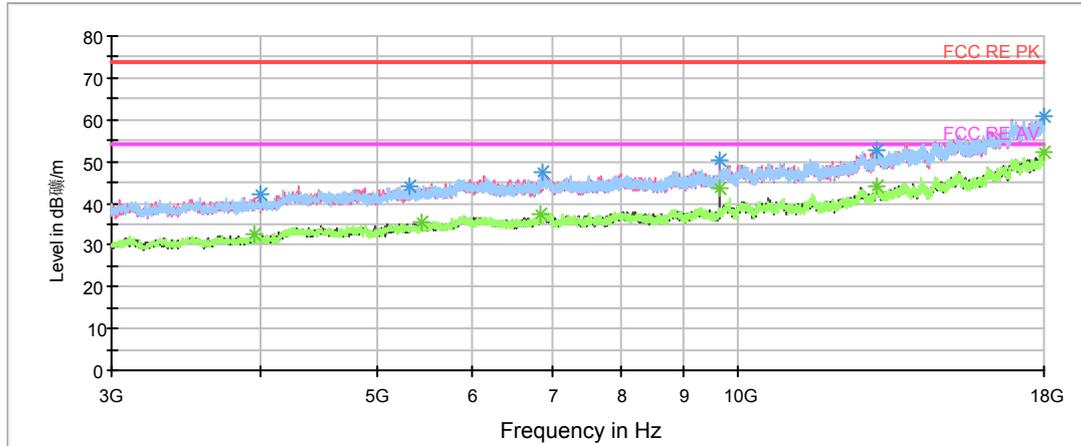
Note: The signal beyond the limit is carrier. a font (Level in dBμV/m) in the test plot =(level in dBuV/m)

Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1040.000000	40.1	100.0	V	246.0	31.0	-9.1	33.9	74
1249.750000	41.8	100.0	V	258.0	33.8	-8.0	32.2	74
1499.750000	43.3	100.0	V	176.0	36.6	-6.7	30.7	74
1999.750000	45.6	100.0	V	246.0	42.2	-3.4	28.4	74
2280.000000	46.4	100.0	V	0.0	45.1	-1.3	27.6	74
2500.000000	49.6	100.0	V	205.0	49.4	-0.2	24.4	74
Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1040.000000	31.1	100.0	V	246.0	22.0	-9.1	22.9	54
1249.750000	34.5	100.0	V	258.0	26.5	-8.0	19.5	54
1499.750000	36.4	100.0	V	176.0	29.7	-6.7	17.6	54
1999.750000	36.0	100.0	V	246.0	32.6	-3.4	18.0	54
2280.000000	36.9	100.0	V	0.0	35.6	-1.3	17.1	54
2500.000000	42.3	100.0	V	205.0	42.1	-0.2	11.7	54

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
- FCC RE AV
- Preview Result 1V-PK+
- Preview Result 2V-AVG
- Preview Result 1H-PK+
- Preview Result 2H-AVG
- * Data Reduction Result 1 [1]-PK+
- * Data Reduction Result 2 [1]-AVG

Radiates Emission from 3GHz to 18GHz

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

Note: a font (Level in dBµV/m) in the test plot =(level in dBuV/m)

Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3948.750000	38.5	100.0	H	175.0	38.4	-0.1	35.5	74
5441.250000	42.1	100.0	V	264.0	38.3	-3.8	31.9	74
6840.000000	44.3	100.0	H	147.0	37.8	-6.5	29.7	74
9648.750000	50.3	100.0	V	15.0	39.8	-10.5	23.7	74
13048.125000	50.2	100.0	V	344.0	34.0	-16.2	23.8	74
17992.500000	59.9	100.0	V	197.0	34.6	-25.3	14.1	74

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3948.750000	32.5	100.0	H	175.0	32.4	-0.1	21.5	54
5441.250000	35.2	100.0	V	264.0	31.4	-3.8	18.8	54
6840.000000	37.5	100.0	H	147.0	31.0	-6.5	16.5	54
9648.750000	43.7	100.0	V	15.0	33.2	-10.5	10.3	54
13048.125000	44.0	100.0	V	344.0	27.8	-16.2	10.0	54
17992.500000	52.3	100.0	V	197.0	27.0	-25.3	1.7	54

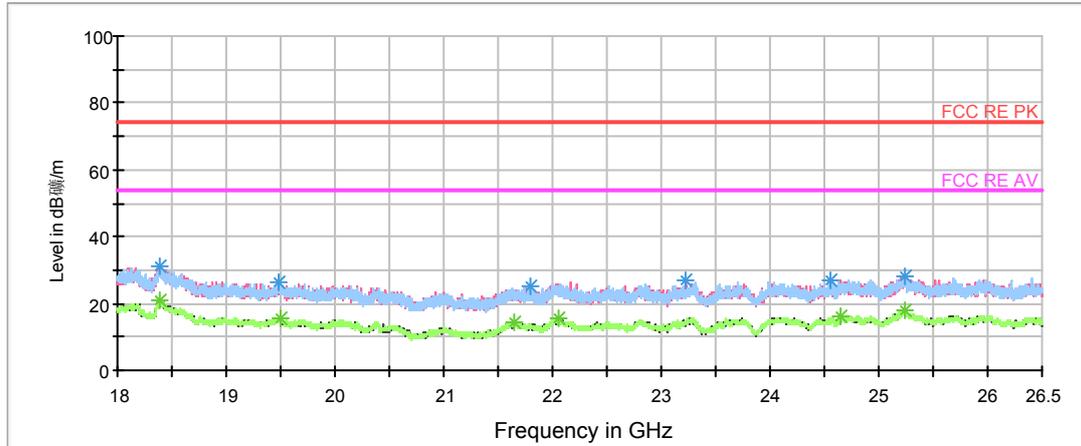
Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

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

Report No.:RXA1509-0168RF01R1

Page 62 of 99

RE 18-26.5GHz PK+AV



- FCC RE PK
- FCC RE AV
- Preview Result 1V-PK+
- Preview Result 1H-PK+
- Preview Result 2V-AVG
- Preview Result 2H-AVG
- * Data Reduction Result 1 [1]-PK+
- * Data Reduction Result 2 [1]-AVG

Radiates Emission from 18GHz to 26.5GHz

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

Note: a font (Level in dB μ V/m) in the test plot =(level in dBuV/m)

Frequency (MHz)	Peak (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18383.562500	29.7	V	0.0	24.9	-4.8	44.3	74
19505.562500	25.4	H	0.0	17.9	-7.5	48.6	74
21642.250000	22.3	H	0.0	13.2	-9.1	51.7	74
22060.875000	24.9	H	0.0	16.8	-8.1	49.1	74
24655.500000	24.5	H	0.0	17.5	-7.0	49.5	74
25239.875000	24.9	H	0.0	18.7	-6.2	49.1	74

Frequency (MHz)	Average (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18383.562500	20.8	V	0.0	16.0	-4.8	33.2	54
19505.562500	15.7	H	0.0	8.2	-7.5	38.3	54
21642.250000	14.4	H	0.0	5.3	-9.1	39.6	54
22060.875000	15.6	H	0.0	7.5	-8.1	38.4	54
24655.500000	16.4	H	0.0	9.4	-7.0	37.6	54
25239.875000	18.1	H	0.0	11.9	-6.2	35.9	54

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

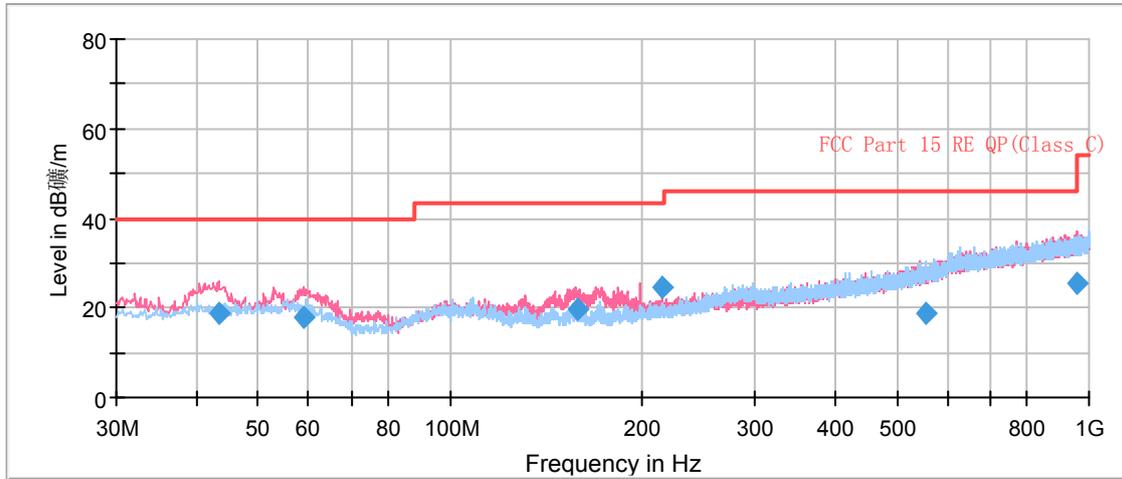
TA Technology (Shanghai) Co., Ltd. Test Report

Report No.:RXA1509-0168RF01R1

Page 63of 99

GFSK-Channel 39

FCC RE 0.03-1GHz QP Class C



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

Note: a font (Level in dB/m)in the test plot =(level in dBuV/m)

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)
43.297500	18.6	100.0	V	37.0	5.5	13.1	21.4	40.0
58.898750	17.7	100.0	V	47.0	5.2	12.5	22.3	40.0
157.632500	19.5	100.0	V	213.0	9.9	9.6	24.0	43.5
214.502500	24.4	100.0	V	66.0	11.8	12.6	19.1	43.5
555.741250	18.8	100.0	H	261.0	-2.4	21.2	27.2	46.0
958.212500	25.4	100.0	V	224.0	-0.8	26.2	20.6	46.0

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

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

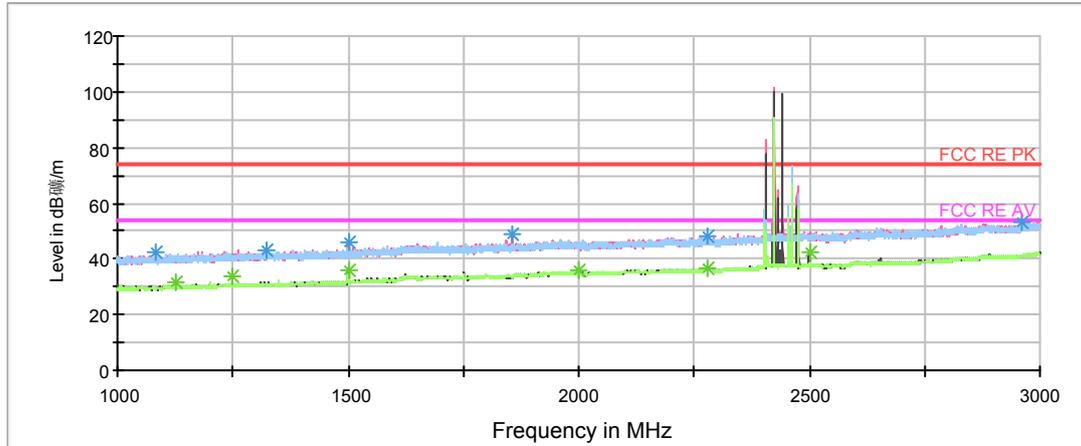
3. Margin = Limit – Quasi-Peak

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

Report No.:RXA1509-0168RF01R1

Page 64 of 99

RE 1G-3GHz PK+AV



- FCC RE PK
- FCC RE AV
- Preview Result 1V-PK+
- Preview Result 2V-AVG
- Preview Result 1H-PK+
- Preview Result 2H-AVG
- * Data Reduction Result 1 [2]-PK+
- * Data Reduction Result 2 [2]-AVG

Radiates Emission from 1GHz to 3GHz

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

Note: The signal beyond the limit is carrier. a font (Level in dBμV/m) in the test plot =(level in dBuV/m)

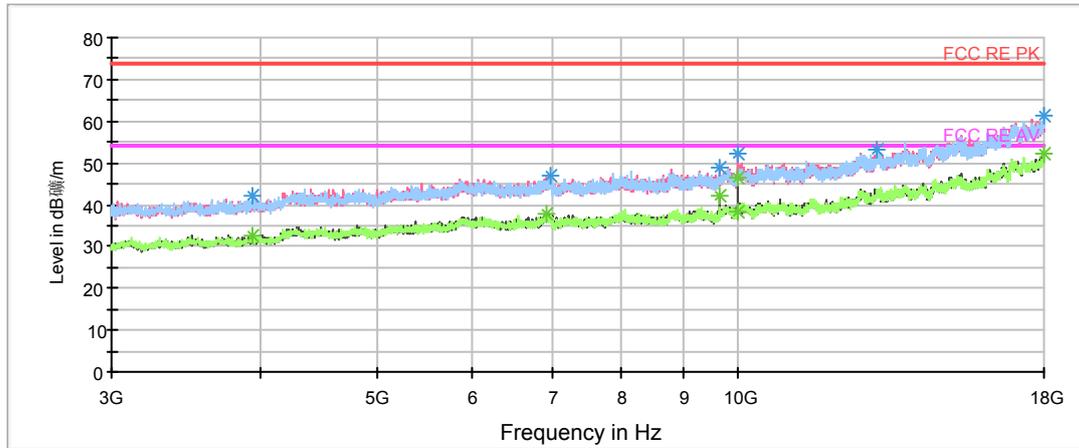
Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1124.750000	40.3	100.0	H	172.0	31.9	-8.4	33.7	74
1250.000000	41.5	100.0	V	307.0	33.5	-8.0	32.5	74
1500.000000	43.9	100.0	V	165.0	37.2	-6.7	30.1	74
1999.500000	44.8	100.0	V	253.0	41.4	-3.4	29.2	74
2278.250000	46.4	100.0	V	330.0	45.0	-1.4	27.6	74
2500.000000	48.5	100.0	V	206.0	48.3	-0.2	25.5	74

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1124.750000	31.4	100.0	H	172.0	23.0	-8.4	22.6	54
1250.000000	34.1	100.0	V	307.0	26.1	-8.0	19.9	54
1500.000000	35.8	100.0	V	165.0	29.1	-6.7	18.2	54
1999.500000	35.8	100.0	V	253.0	32.4	-3.4	18.2	54
2278.250000	36.8	100.0	V	330.0	35.4	-1.4	17.2	54
2500.000000	42.3	100.0	V	206.0	42.1	-0.2	11.7	54

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
- FCC RE AV
- Preview Result 1V-PK+
- Preview Result 2V-AVG
- Preview Result 1H-PK+
- Preview Result 2H-AVG
- * Data Reduction Result 1 [1]-PK+
- * Data Reduction Result 2 [1]-AVG

Radiates Emission from 3GHz to 18GHz

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

Note: a font (Level in dB_{μV/m}) in the test plot =(level in dBuV/m)

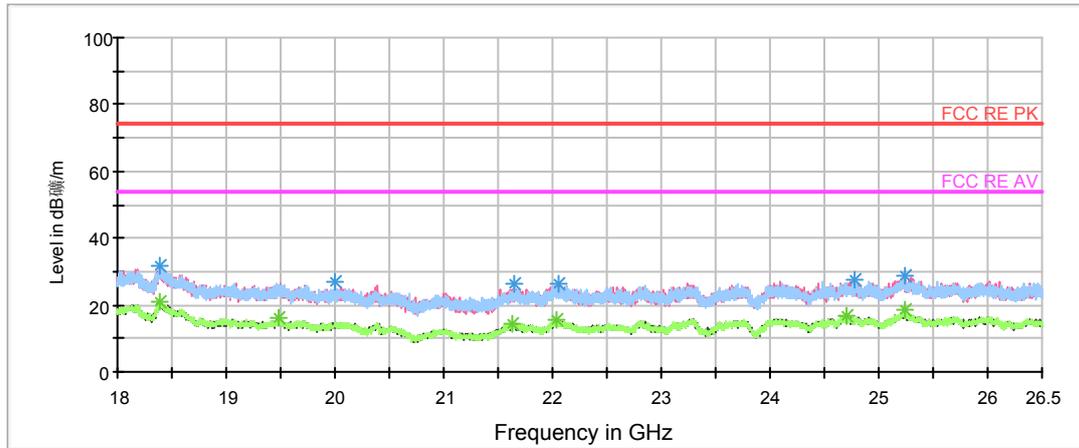
Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3935.625000	42.4	100.0	H	26.0	42.4	-0.0	31.6	74
6909.375000	45.2	100.0	H	52.0	38.3	-6.9	28.8	74
9648.750000	49.1	100.0	V	28.0	38.6	-10.5	24.9	74
9991.875000	52.0	100.0	V	28.0	39.1	-12.9	22.0	74
9991.875000	46.4	100.0	H	168.0	33.5	-12.9	27.6	74
18000.000000	60.0	100.0	V	294.0	34.6	-25.4	14.0	74

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3935.625000	32.6	100.0	H	26.0	32.6	-0.0	21.4	54
6909.375000	38.0	100.0	H	52.0	31.1	-6.9	16.0	54
9648.750000	42.0	100.0	V	28.0	31.5	-10.5	12.0	54
9991.875000	46.3	100.0	V	28.0	33.4	-12.9	7.7	54
9991.875000	38.1	100.0	H	168.0	25.2	-12.9	15.9	54
18000.000000	52.3	100.0	V	294.0	26.9	-25.4	1.7	54

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

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

RE 18-26.5GHz PK+AV



- FCC RE PK
- FCC RE AV
- Preview Result 1V-PK+
- Preview Result 2V-AVG
- Preview Result 1H-PK+
- Preview Result 2H-AVG
- * Data Reduction Result 1 [1]-PK+
- * Data Reduction Result 2 [1]-AVG

Radiates Emission from 18GHz to 26.5GHz

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

Note: a font (Level in dB_{uV/m}) in the test plot =(level in dBuV/m)

Frequency (MHz)	Peak (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18394.187500	30.5	H	0.0	25.6	-4.9	43.5	74
19481.125000	23.9	H	0.0	16.1	-7.8	50.1	74
21621.000000	21.7	V	0.0	12.7	-9.0	52.3	74
22038.562500	24.1	V	0.0	16.1	-8.0	49.9	74
24709.687500	24.9	H	0.0	18.3	-6.6	49.1	74
25234.562500	26.7	H	0.0	20.7	-6.0	47.3	74

Frequency (MHz)	Average (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18394.187500	20.8	H	0.0	15.9	-4.9	33.2	54
19481.125000	16.0	H	0.0	8.2	-7.8	38.0	54
21621.000000	14.3	V	0.0	5.3	-9.0	39.7	54
22038.562500	15.5	V	0.0	7.5	-8.0	38.5	54
24709.687500	16.7	H	0.0	10.1	-6.6	37.3	54
25234.562500	18.3	H	0.0	12.3	-6.0	35.7	54

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

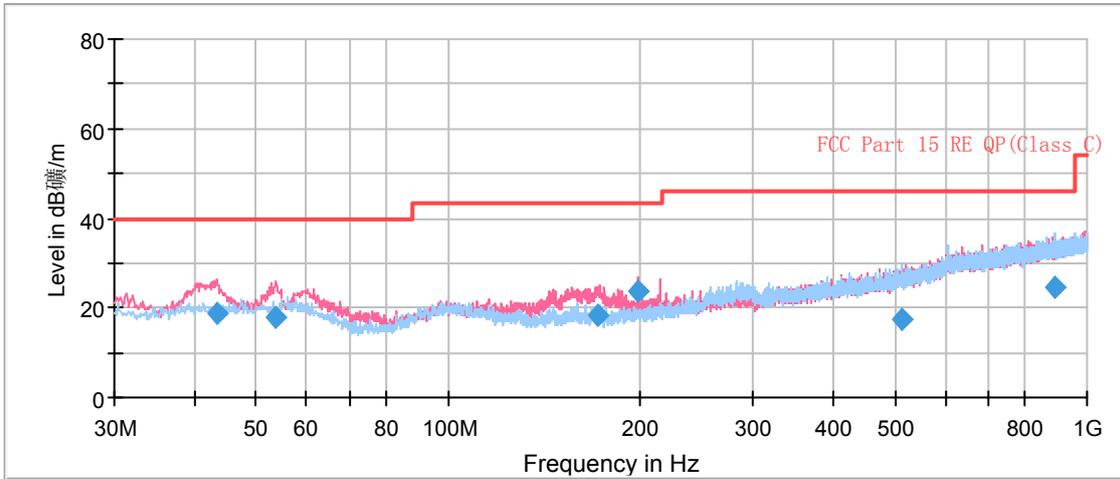
TA Technology (Shanghai) Co., Ltd. Test Report

Report No.:RXA1509-0168RF01R1

Page 67 of 99

GFSK-Channel 78

FCC RE 0.03-1GHz QP Class C



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

Note: a font (Level in dB/m) in the test plot =(level in dBuV/m)

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)
43.377500	18.7	100.0	V	28.0	5.6	13.1	21.3	40.0
53.686250	17.7	100.0	V	345.0	4.9	12.8	22.3	40.0
171.905000	18.5	100.0	V	37.0	8.1	10.4	25.0	43.5
198.011250	23.6	100.0	V	109.0	11.7	11.9	19.9	43.5
513.468750	17.6	100.0	H	163.0	-2.6	20.2	28.4	46.0
889.623750	24.7	125.0	H	0.0	-0.8	25.5	21.3	46.0

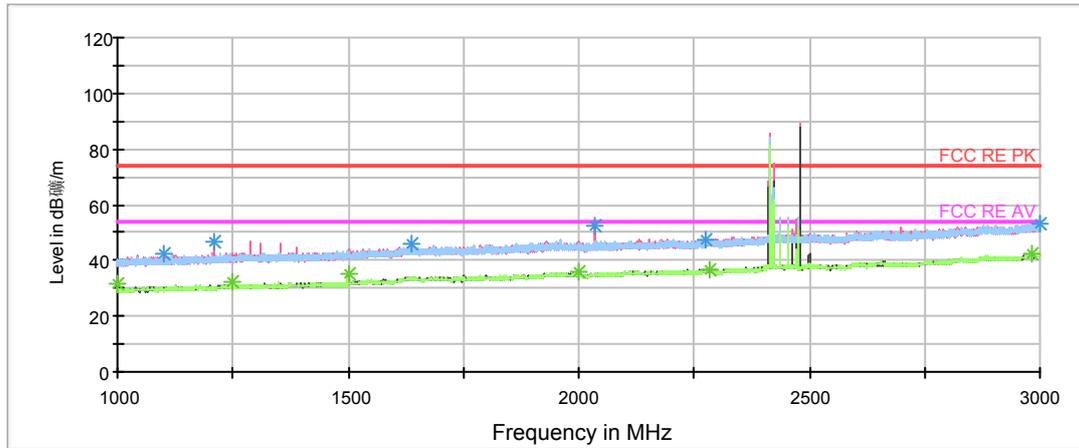
Remark: 1. Quasi-Peak = Reading value + Correction factor

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

3. Margin = Limit – Quasi-Peak

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

RE 1G-3GHz PK+AV



- FCC RE PK
- FCC RE AV
- Preview Result 1V-PK+
- Preview Result 2V-AVG
- Preview Result 1H-PK+
- Preview Result 2H-AVG
- * Data Reduction Result 1 [2]-PK+
- * Data Reduction Result 2 [2]-AVG

Radiates Emission from 1GHz to 3GHz

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

Note: The signal beyond the limit is carrier. a font (Level in dBμV/m) in the test plot =(level in dBuV/m)

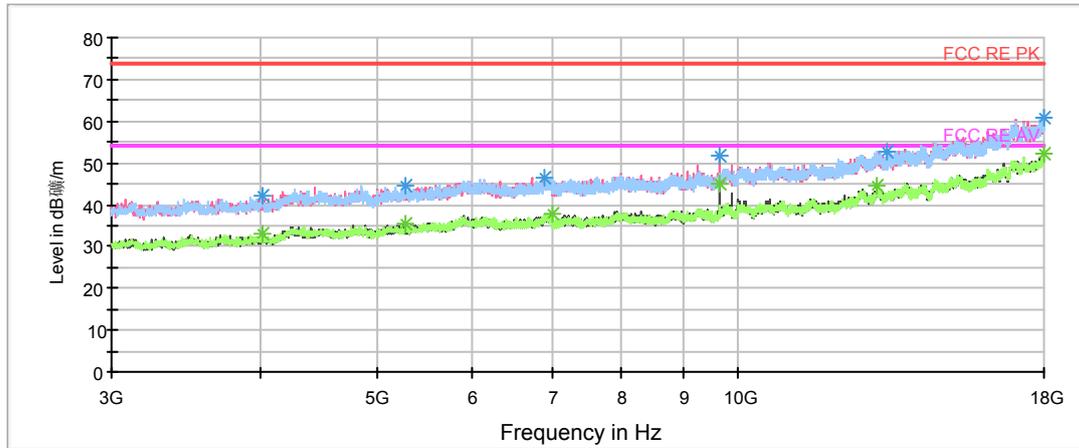
Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1000.000000	39.2	100.0	V	195.0	30.0	-9.2	34.8	74
1250.250000	42.5	100.0	V	255.0	34.5	-8.0	31.5	74
1500.000000	43.8	100.0	V	172.0	37.1	-6.7	30.2	74
2000.000000	44.5	100.0	V	201.0	41.1	-3.4	29.5	74
2284.750000	46.1	100.0	V	255.0	44.6	-1.5	27.9	74
2984.000000	51.1	100.0	V	112.0	48.9	-2.2	22.9	74

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1000.000000	31.5	100.0	V	195.0	22.3	-9.2	22.5	54
1250.250000	32.5	100.0	V	255.0	24.5	-8.0	21.5	54
1500.000000	35.3	100.0	V	172.0	28.6	-6.7	18.7	54
2000.000000	36.0	100.0	V	201.0	32.6	-3.4	18.0	54
2284.750000	36.8	100.0	V	255.0	35.3	-1.5	17.2	54
2984.000000	42.4	100.0	V	112.0	40.2	-2.2	11.6	54

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
- FCC RE AV
- Preview Result 1V-PK+
- Preview Result 2V-AVG
- Preview Result 1H-PK+
- Preview Result 2H-AVG
- * Data Reduction Result 1 [1]-PK+
- * Data Reduction Result 2 [1]-AVG

Radiates Emission from 3GHz to 18GHz

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

Note: a font (Level in dB_{μV/m}) in the test plot =(level in dBuV/m)

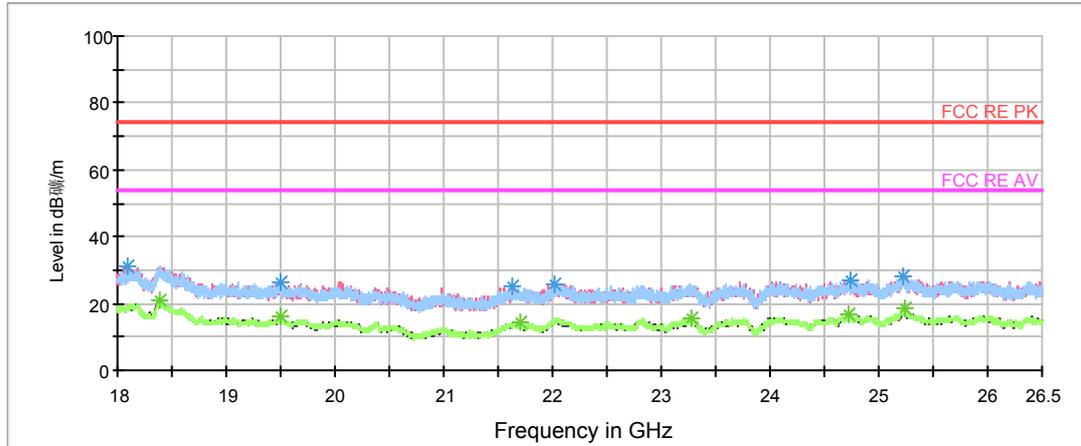
Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
4005.000000	40.3	100.0	V	97.0	39.8	-0.5	33.7	74
5272.500000	43.3	100.0	H	144.0	39.6	-3.7	30.7	74
6993.750000	45.2	100.0	H	0.0	38.8	-6.4	28.8	74
9648.750000	51.7	100.0	V	12.0	41.2	-10.5	22.3	74
13063.125000	51.9	100.0	V	110.0	35.7	-16.2	22.1	74
17998.125000	59.2	100.0	V	322.0	33.8	-25.4	14.8	74

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
4005.000000	32.9	100.0	V	97.0	32.4	-0.5	21.1	54
5272.500000	35.3	100.0	H	144.0	31.6	-3.7	18.7	54
6993.750000	38.0	100.0	H	0.0	31.6	-6.4	16.0	54
9648.750000	45.1	100.0	V	12.0	34.6	-10.5	8.9	54
13063.125000	44.4	100.0	V	110.0	28.2	-16.2	9.6	54
17998.125000	52.4	100.0	V	322.0	27.0	-25.4	1.6	54

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

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

RE 18-26.5GHz PK+AV



- FCC RE PK
- FCC RE AV
- Preview Result 1V-PK+
- Preview Result 2V-AVG
- Preview Result 1H-PK+
- Preview Result 2H-AVG
- * Data Reduction Result 1 [1]-PK+
- * Data Reduction Result 2 [1]-AVG

Radiates Emission from 18GHz to 26.5GHz

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

Note: a font (Level in dB μ V/m) in the test plot =(level in dBuV/m)

Frequency (MHz)	Peak (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18393.125000	28.6	V	0.0	23.7	-4.9	45.4	74
19497.062500	24.7	H	0.0	17.2	-7.5	49.3	74
21696.437500	22.0	H	0.0	12.7	-9.3	52.0	74
23282.750000	24.3	V	0.0	17.2	-7.1	49.7	74
24727.750000	27.1	V	0.0	20.9	-6.2	46.9	74
25234.562500	27.2	V	0.0	21.2	-6.0	46.8	74

Frequency (MHz)	Average (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18393.125000	21.0	V	0.0	16.1	-4.9	33.0	54
19497.062500	16.1	H	0.0	8.6	-7.5	37.9	54
21696.437500	14.4	H	0.0	5.1	-9.3	39.6	54
23282.750000	15.8	V	0.0	8.7	-7.1	38.2	54
24727.750000	16.8	V	0.0	10.6	-6.2	37.2	54
25234.562500	18.3	V	0.0	12.3	-6.0	35.7	54

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

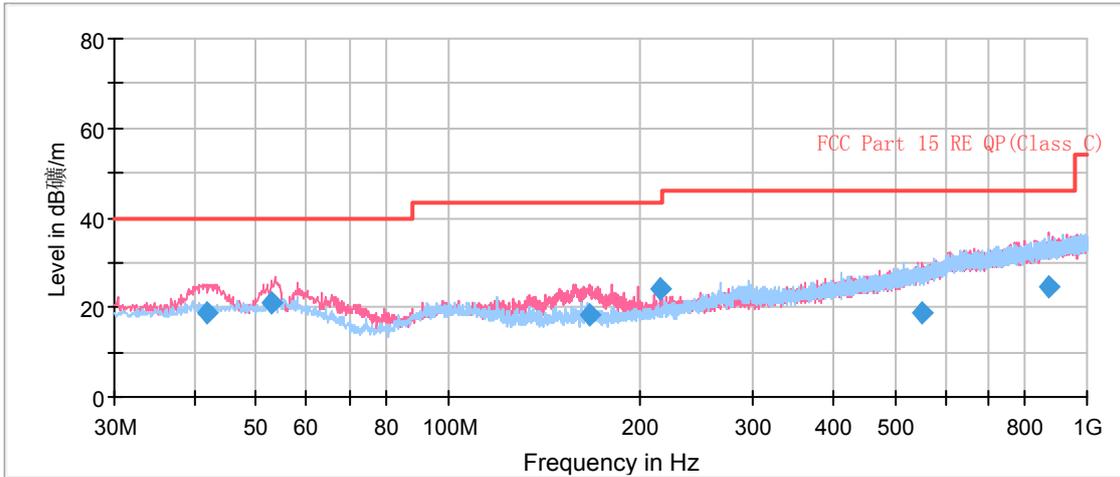
TA Technology (Shanghai) Co., Ltd. Test Report

Report No.:RXA1509-0168RF01R1

Page 71 of 99

EDR-Channel 0

FCC RE 0.03-1GHz QP Class C



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

Note: a font (Level in dB μ V/m)in the test plot =(level in dBuV/m)

Radiates Emission from 30MHz to 1GHz

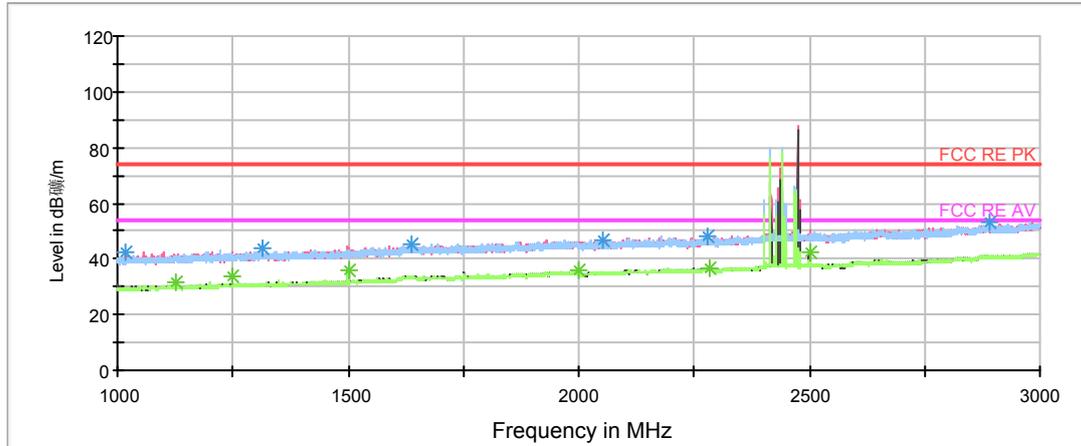
Frequency (MHz)	Quasi-Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
41.798750	18.7	100.0	V	22.0	5.5	-13.2	21.3	40.0
53.002500	20.8	100.0	V	138.0	8.0	-12.8	19.2	40.0
166.602500	18.5	125.0	V	14.0	8.4	-10.1	25.0	43.5
214.502500	24.2	100.0	V	338.0	11.6	-12.6	19.3	43.5
552.743750	18.8	100.0	V	286.0	-2.3	-21.1	27.2	46.0
872.572500	24.5	100.0	V	268.0	-0.8	-25.3	21.5	46.0

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

Report No.:RXA1509-0168RF01R1

Page 72 of 99

RE 1G-3GHz PK+AV



- FCC RE PK
- FCC RE AV
- Preview Result 1V-PK+
- Preview Result 2V-AVG
- Preview Result 1H-PK+
- Preview Result 2H-AVG
- * Data Reduction Result 1 [2]-PK+
- * Data Reduction Result 2 [2]-AVG

Radiates Emission from 1GHz to 3GHz

Note: The signal beyond the limit is carrier.

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

Note: The signal beyond the limit is carrier. a font (Level in dBμV/m) in the test plot =(level in dBuV/m)

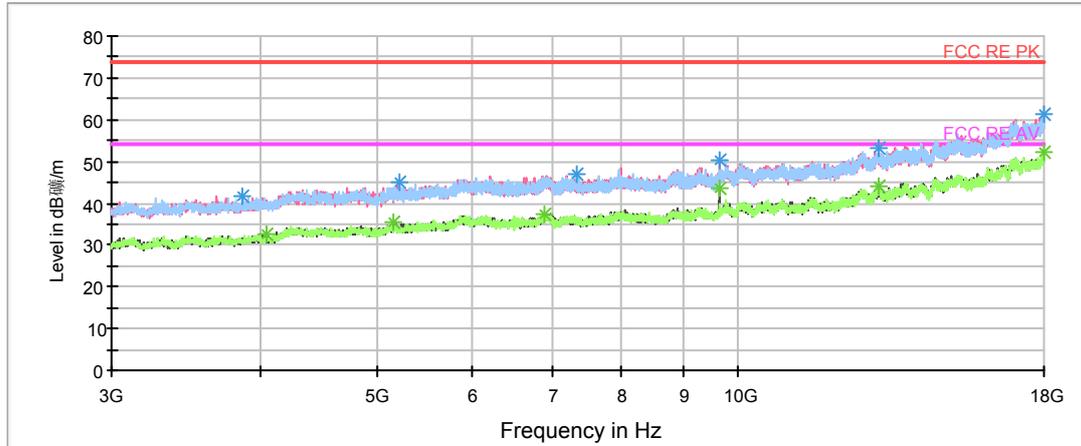
Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1124.500000	40.6	100.0	H	181.0	32.1	-8.5	33.4	74
1249.750000	41.5	100.0	V	241.0	33.5	-8.0	32.5	74
1500.000000	43.8	100.0	V	187.0	37.1	-6.7	30.2	74
1999.750000	45.9	100.0	V	265.0	42.5	-3.4	28.1	74
2282.000000	46.6	100.0	V	315.0	45.2	-1.4	27.4	74
2500.000000	48.2	100.0	V	198.0	48.0	-0.2	25.8	74

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1124.500000	31.7	100.0	H	181.0	23.2	-8.5	22.3	54
1249.750000	33.7	100.0	V	241.0	25.7	-8.0	20.3	54
1500.000000	35.9	100.0	V	187.0	29.2	-6.7	18.1	54
1999.750000	36.1	100.0	V	265.0	32.7	-3.4	17.9	54
2282.000000	36.7	100.0	V	315.0	35.3	-1.4	17.3	54
2500.000000	42.2	100.0	V	198.0	42.0	-0.2	11.8	54

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
- FCC RE AV
- Preview Result 1V-PK+
- Preview Result 2V-AVG
- Preview Result 1H-PK+
- Preview Result 2H-AVG
- * Data Reduction Result 1 [1]-PK+
- * Data Reduction Result 2 [1]-AVG

Radiates Emission from 3GHz to 18GHz

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

Note: a font (Level in dBμV/m) in the test plot =(level in dBuV/m)

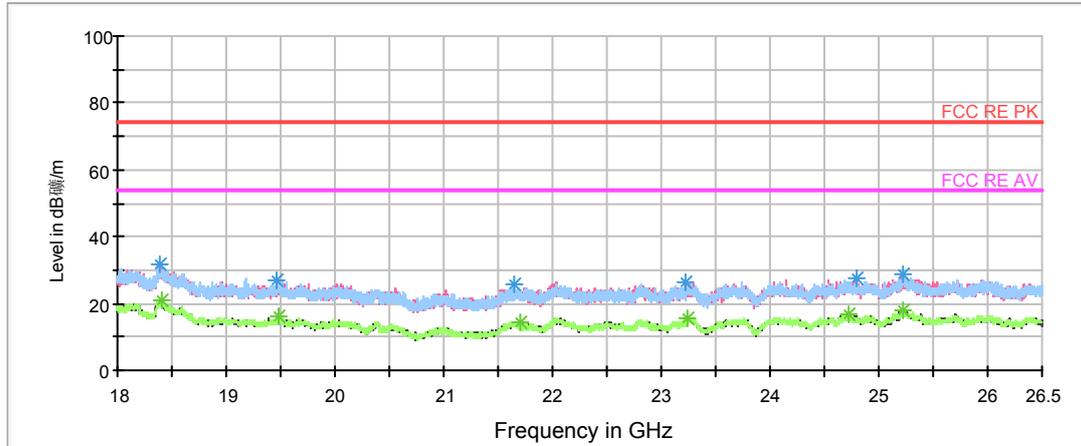
Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
4042.500000	39.9	100.0	V	167.0	39.3	-0.6	34.1	74
5156.250000	42.7	100.0	V	288.0	39.1	-3.6	31.3	74
6892.500000	46.1	100.0	H	316.0	39.2	-6.9	27.9	74
9648.750000	50.5	100.0	V	13.0	40.0	-10.5	23.5	74
13083.750000	51.5	100.0	V	0.0	35.3	-16.2	22.5	74
17977.500000	59.5	100.0	V	353.0	34.4	-25.1	14.5	74

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
4042.500000	32.7	100.0	V	167.0	32.1	-0.6	21.3	54
5156.250000	35.7	100.0	V	288.0	32.1	-3.6	18.3	54
6892.500000	37.4	100.0	H	316.0	30.5	-6.9	16.6	54
9648.750000	43.4	100.0	V	13.0	32.9	-10.5	10.6	54
13083.750000	44.1	100.0	V	0.0	27.9	-16.2	9.9	54
17977.500000	52.0	100.0	V	353.0	26.9	-25.1	2.0	54

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

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

RE 18-26.5GHz PK+AV



- FCC RE PK
- FCC RE AV
- Preview Result 1V-PK+
- Preview Result 2V-AVG
- Preview Result 1H-PK+
- Preview Result 2H-AVG
- * Data Reduction Result 1 [1]-PK+
- * Data Reduction Result 2 [1]-AVG

Radiates Emission from 18GHz to 26.5GHz

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

Note: a font (Level in dB_{μV/m}) in the test plot =(level in dBuV/m)

Frequency (MHz)	Peak (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18404.812500	29.6	V	0.0	24.6	-5.0	44.4	74
19483.250000	23.4	H	0.0	15.7	-7.7	50.6	74
21706.000000	24.2	H	0.0	14.8	-9.4	49.8	74
23248.750000	24.2	V	0.0	16.7	-7.5	49.8	74
24729.875000	25.6	H	0.0	19.4	-6.2	48.4	74
25227.125000	26.3	V	0.0	20.4	-5.9	47.7	74

Frequency (MHz)	Average (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18404.812500	20.8	V	0.0	15.8	-5.0	33.2	54
19483.250000	15.9	H	0.0	8.2	-7.7	38.1	54
21706.000000	14.2	H	0.0	4.8	-9.4	39.8	54
23248.750000	15.5	V	0.0	8.0	-7.5	38.5	54
24729.875000	16.5	H	0.0	10.3	-6.2	37.5	54
25227.125000	18.2	V	0.0	12.3	-5.9	35.8	54

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

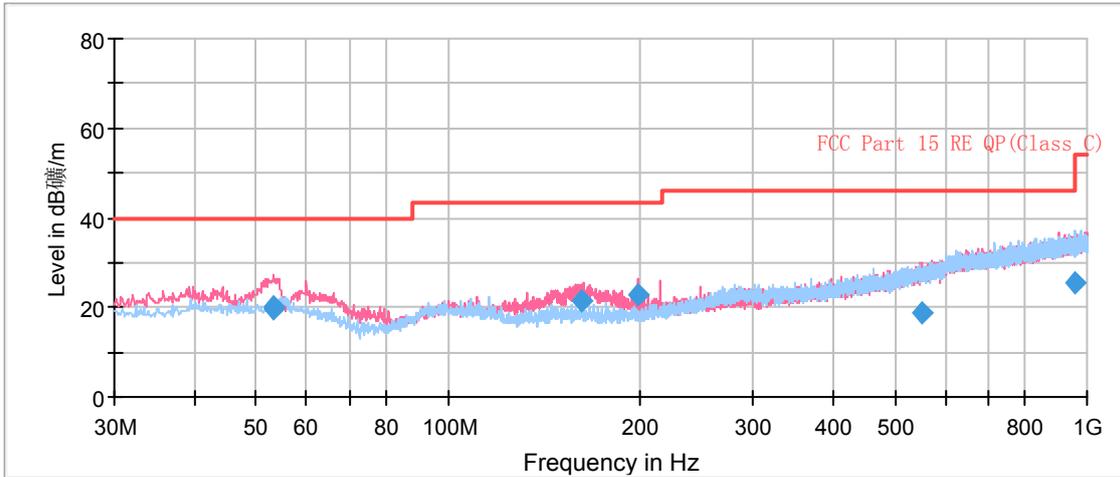
TA Technology (Shanghai) Co., Ltd. Test Report

Report No.:RXA1509-0168RF01R1

Page 75 of 99

EDR-Channel 39

FCC RE 0.03-1GHz QP Class C



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

Note: a font (Level in dB_{μV/m})in the test plot =(level in dBuV/m)

Radiates Emission from 30MHz to 1GHz

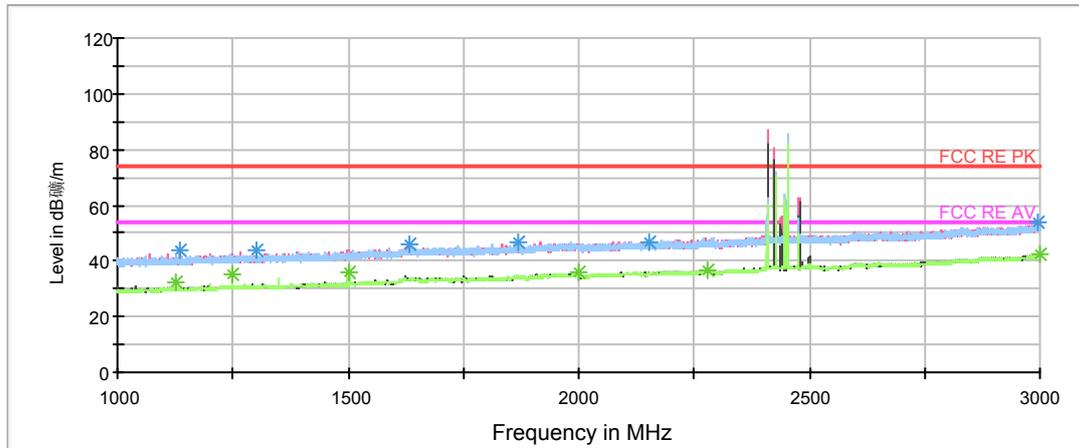
Frequency (MHz)	Quasi-Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
53.080000	20.0	100.0	V	66.0	7.2	-12.8	20.0	40.0
53.407500	19.7	100.0	V	0.0	6.9	-12.8	20.3	40.0
162.005000	21.4	100.0	V	223.0	11.6	-9.8	22.1	43.5
198.011250	22.8	111.0	V	300.0	10.9	-11.9	20.7	43.5
550.521250	18.7	118.0	V	157.0	-2.3	-21.0	27.3	46.0
958.133750	25.5	125.0	H	188.0	-0.7	-26.2	20.5	46.0

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

Report No.:RXA1509-0168RF01R1

Page 76 of 99

RE 1G-3GHz PK+AV



- FCC RE PK
- FCC RE AV
- Preview Result 1V-PK+
- Preview Result 2V-AVG
- * Data Reduction Result 1 [2]-PK+
- * Data Reduction Result 2 [2]-AVG

Radiates Emission from 1GHz to 3GHz

Note: The signal beyond the limit is carrier.

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

Note: The signal beyond the limit is carrier. a font (Level in dBμV/m) in the test plot =(level in dBuV/m)

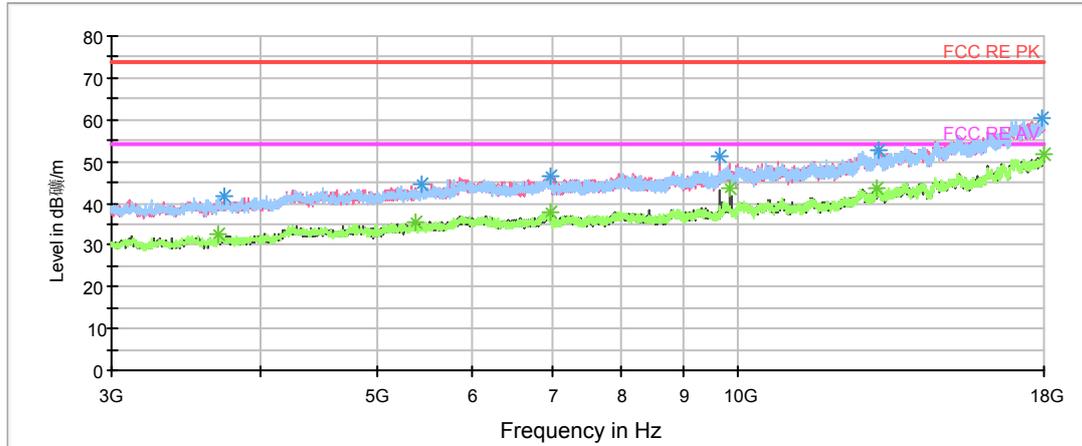
Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1124.750000	40.4	100.0	H	180.0	32.0	-8.4	33.6	74
1250.000000	42.4	100.0	V	258.0	34.4	-8.0	31.6	74
1500.000000	44.1	100.0	V	169.0	37.4	-6.7	29.9	74
1999.750000	45.0	100.0	V	110.0	41.6	-3.4	29.0	74
2278.250000	46.4	100.0	H	126.0	45.0	-1.4	27.6	74
3000.000000	52.2	100.0	H	36.0	49.9	-2.3	21.8	74

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1124.750000	32.0	100.0	H	180.0	23.6	-8.4	22.0	54
1250.000000	35.2	100.0	V	258.0	27.2	-8.0	18.8	54
1500.000000	36.2	100.0	V	169.0	29.5	-6.7	17.8	54
1999.750000	36.2	100.0	V	110.0	32.8	-3.4	17.8	54
2278.250000	36.8	100.0	H	126.0	35.4	-1.4	17.2	54
3000.000000	42.1	100.0	H	36.0	39.8	-2.3	11.9	54

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
- FCC RE AV
- Preview Result 1V-PK+
- Preview Result 2V-AVG
- Preview Result 1H-PK+
- Preview Result 2H-AVG
- * Data Reduction Result 1 [1]-PK+
- * Data Reduction Result 2 [1]-AVG

Radiates Emission from 3GHz to 18GHz

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

Note: a font (Level in dBµV/m) in the test plot =(level in dBµV/m)

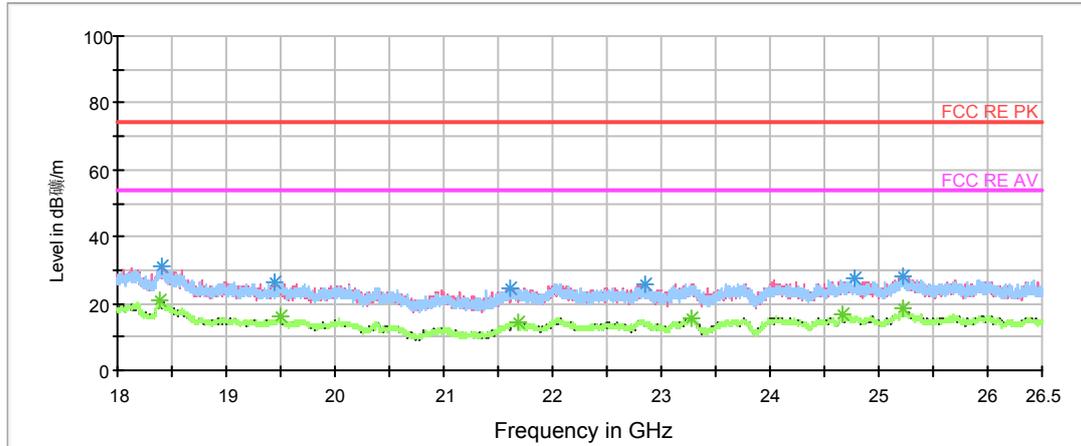
Frequency (MHz)	Peak (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3676.875000	38.6	H	300.0	38.2	-0.4	35.4	74
5390.625000	41.6	H	0.0	37.9	-3.7	32.4	74
6980.625000	46.3	H	44.0	39.8	-6.5	27.7	74
9838.125000	49.1	V	313.0	37.2	-11.9	24.9	74
13057.500000	51.1	V	326.0	34.9	-16.2	22.9	74
17968.125000	58.2	V	353.0	33.2	-25.0	15.8	74

Frequency (MHz)	Average (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3676.875000	32.5	H	300.0	32.1	-0.4	21.5	54
5390.625000	35.4	H	0.0	31.7	-3.7	18.6	54
6980.625000	38.0	H	44.0	31.5	-6.5	16.0	54
9838.125000	43.5	V	313.0	31.6	-11.9	10.5	54
13057.500000	43.7	V	326.0	27.5	-16.2	10.3	54
17968.125000	51.7	V	353.0	26.7	-25.0	2.3	54

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

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

RE 18-26.5GHz PK+AV



- FCC RE PK
- FCC RE AV
- Preview Result 1V-PK+
- Preview Result 2V-AVG
- Preview Result 1H-PK+
- Preview Result 2H-AVG
- * Data Reduction Result 1 [1]-PK+
- * Data Reduction Result 2 [1]-AVG

Radiates Emission from 18GHz to 26.5GHz

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

Note: a font (Level in dB μ V/m) in the test plot =(level in dBuV/m)

Frequency (MHz)	Peak (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18383.562500	29.0	H	0.0	24.2	-4.8	45.0	74
19499.187500	24.3	H	0.0	16.8	-7.5	49.7	74
21679.437500	22.8	V	0.0	13.4	-9.4	51.2	74
23280.625000	23.9	H	0.0	16.8	-7.1	50.1	74
24666.125000	24.1	V	0.0	17.0	-7.1	49.9	74
25223.937500	25.7	H	0.0	19.8	-5.9	48.3	74

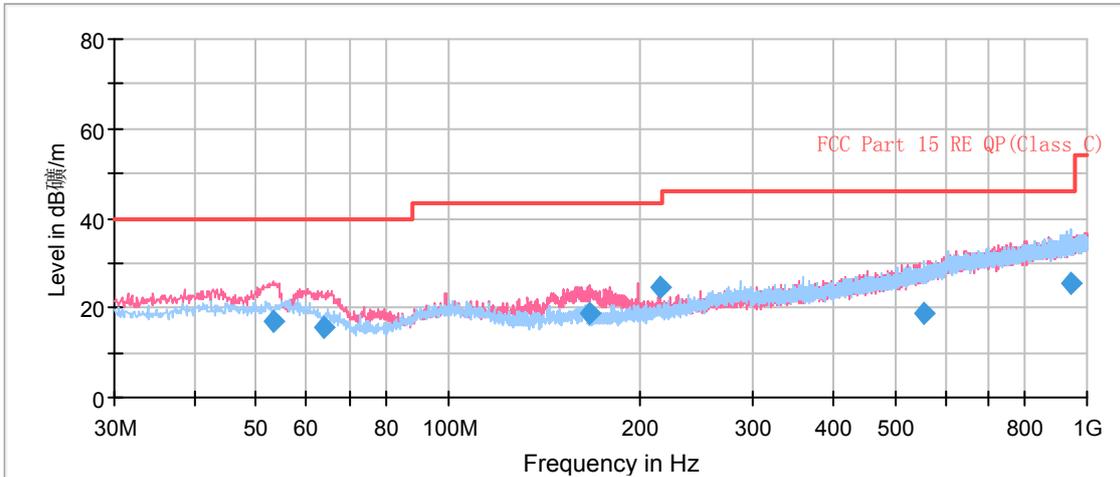
Frequency (MHz)	Average (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18383.562500	20.8	H	0.0	16.0	-4.8	33.2	54
19499.187500	16.0	H	0.0	8.5	-7.5	38.0	54
21679.437500	14.5	V	0.0	5.1	-9.4	39.5	54
23280.625000	15.7	H	0.0	8.6	-7.1	38.3	54
24666.125000	16.7	V	0.0	9.6	-7.1	37.3	54
25223.937500	18.5	H	0.0	12.6	-5.9	35.5	54

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

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

EDR-Channel 78

FCC RE 0.03-1GHz QP Class C



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

Note: a font (Level in dBµV/m)in the test plot =(level in dBµV/m)

Radiates Emission from 30MHz to 1GHz

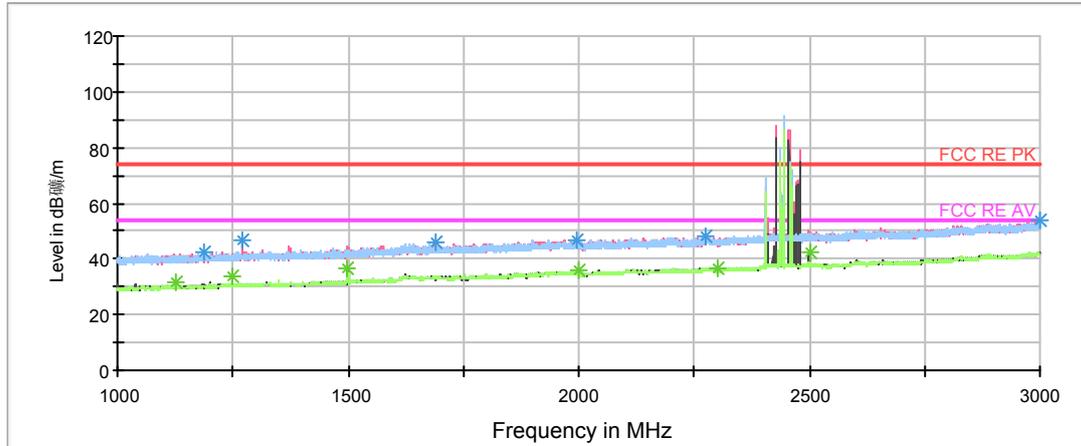
Frequency (MHz)	Quasi-Peak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBµV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBµV/m)
53.320000	17.2	100.0	V	286.0	4.4	-12.8	22.8	40.0
63.903750	15.5	100.0	V	103.0	4.5	-11.0	24.5	40.0
166.442500	18.6	100.0	V	220.0	8.5	-10.1	24.9	43.5
214.501250	24.7	100.0	V	28.0	12.1	-12.6	18.8	43.5
556.705000	18.8	125.0	H	0.0	-2.4	-21.2	27.2	46.0
941.557500	25.3	100.0	H	17.0	-0.7	-26.0	20.7	46.0

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

Report No.:RXA1509-0168RF01R1

Page 80 of 99

RE 1G-3GHz PK+AV



- FCC RE PK
- FCC RE AV
- Preview Result 1V-PK+
- Preview Result 2V-AVG
- Preview Result 1H-PK+
- Preview Result 2H-AVG
- * Data Reduction Result 1 [2]-PK+
- * Data Reduction Result 2 [2]-AVG

Radiates Emission from 1GHz to 3GHz

Note: The signal beyond the limit is carrier.

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

Note: The signal beyond the limit is carrier. a font (Level in dB μ V/m) in the test plot =(level in dBuV/m)

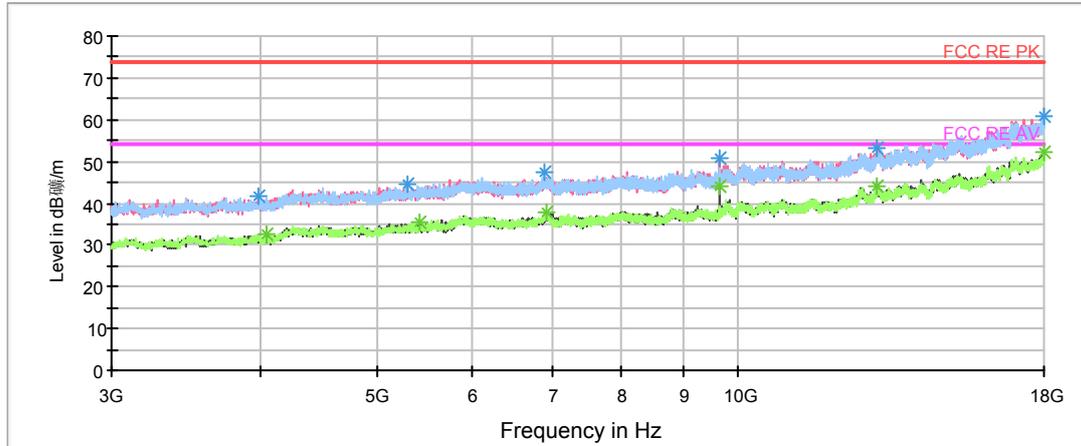
Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1124.750000	40.5	100.0	H	179.0	32.1	-8.4	33.5	74
1250.250000	41.1	100.0	V	253.0	33.1	-8.0	32.9	74
1499.750000	44.2	100.0	V	164.0	37.5	-6.7	29.8	74
1999.750000	45.9	100.0	V	359.0	42.5	-3.4	28.1	74
2299.250000	45.8	100.0	V	229.0	43.6	-2.2	28.2	74
2500.250000	48.9	100.0	V	205.0	48.7	-0.2	25.1	74

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1124.750000	31.6	100.0	H	179.0	23.2	-8.4	22.4	54
1250.250000	33.4	100.0	V	253.0	25.4	-8.0	20.6	54
1499.750000	36.4	100.0	V	164.0	29.7	-6.7	17.6	54
1999.750000	36.1	100.0	V	359.0	32.7	-3.4	17.9	54
2299.250000	36.7	100.0	V	229.0	34.5	-2.2	17.3	54
2500.250000	42.3	100.0	V	205.0	42.1	-0.2	11.7	54

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
- FCC RE AV
- Preview Result 1V-PK+
- Preview Result 2V-AVG
- Preview Result 1H-PK+
- Preview Result 2H-AVG
- * Data Reduction Result 1 [1]-PK+
- * Data Reduction Result 2 [1]-AVG

Radiates Emission from 3GHz to 18GHz

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

Note: a font (Level in dBμV/m) in the test plot =(level in dBuV/m)

Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
4035.000000	40.1	100.0	H	232.0	39.5	-0.6	33.9	74
5413.125000	43.2	100.0	V	352.0	39.5	-3.7	30.8	74
6916.875000	44.6	100.0	H	137.0	37.7	-6.9	29.4	74
9648.750000	50.8	100.0	V	14.0	40.3	-10.5	23.2	74
13061.250000	50.5	100.0	H	70.0	34.3	-16.2	23.5	74
17975.625000	59.5	100.0	H	70.0	34.4	-25.1	14.5	74

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
4035.000000	32.3	100.0	H	232.0	31.7	-0.6	21.7	54
5413.125000	35.2	100.0	V	352.0	31.5	-3.7	18.8	54
6916.875000	37.8	100.0	H	137.0	30.9	-6.9	16.2	54
9648.750000	44.0	100.0	V	14.0	33.5	-10.5	10.0	54
13061.250000	44.2	100.0	H	70.0	28.0	-16.2	9.8	54
17975.625000	52.3	100.0	H	70.0	27.2	-25.1	1.7	54

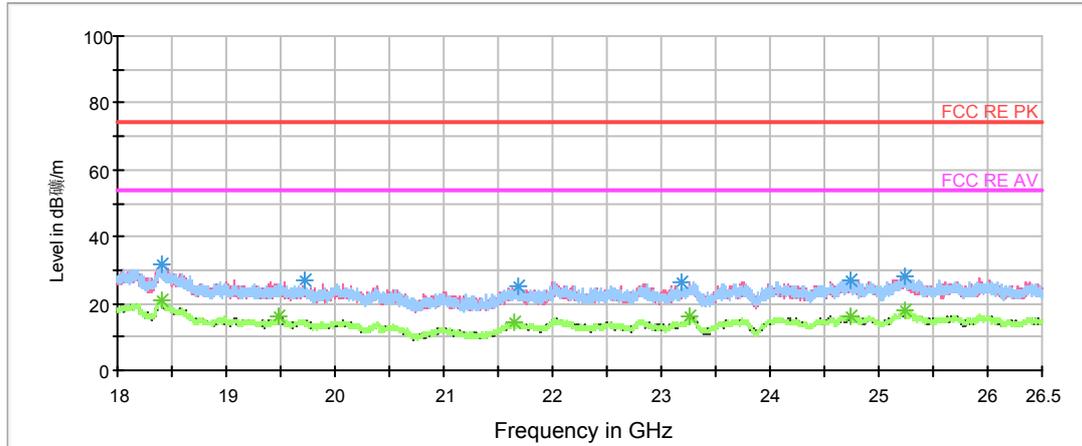
Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

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

Report No.:RXA1509-0168RF01R1

Page 82 of 99

RE 18-26.5GHz PK+AV



- FCC RE PK
- FCC RE AV
- Preview Result 1V-PK+
- Preview Result 2V-AVG
- Preview Result 1H-PK+
- Preview Result 2H-AVG
- * Data Reduction Result 1 [1]-PK+
- * Data Reduction Result 2 [1]-AVG

Radiates Emission from 18GHz to 26.5GHz

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

Note: a font (Level in dB μ V/m) in the test plot =(level in dBuV/m)

Frequency (MHz)	Peak (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18398.437500	28.4	V	0.0	23.5	-4.9	45.6	74
19476.875000	24.0	H	0.0	16.2	-7.8	50.0	74
21655.000000	22.2	H	0.0	13.0	-9.2	51.8	74
23253.000000	23.2	H	0.0	15.7	-7.5	50.8	74
24736.250000	25.7	V	0.0	19.4	-6.3	48.3	74
25237.750000	26.4	H	0.0	20.3	-6.1	47.6	74

Frequency (MHz)	Average (dBuV/m)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18398.437500	21.0	V	0.0	16.1	-4.9	33.0	54
19476.875000	16.2	H	0.0	8.4	-7.8	37.8	54
21655.000000	14.4	H	0.0	5.2	-9.2	39.6	54
23253.000000	15.9	H	0.0	8.4	-7.5	38.1	54
24736.250000	16.4	V	0.0	10.1	-6.3	37.6	54
25237.750000	18.2	H	0.0	12.1	-6.1	35.8	54

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

TA Technology (Shanghai) Co., Ltd.

Test Report

Report No.:RXA1509-0168RF01R1

Page 83 of 99

3.12. Conducted Emission

Ambient condition

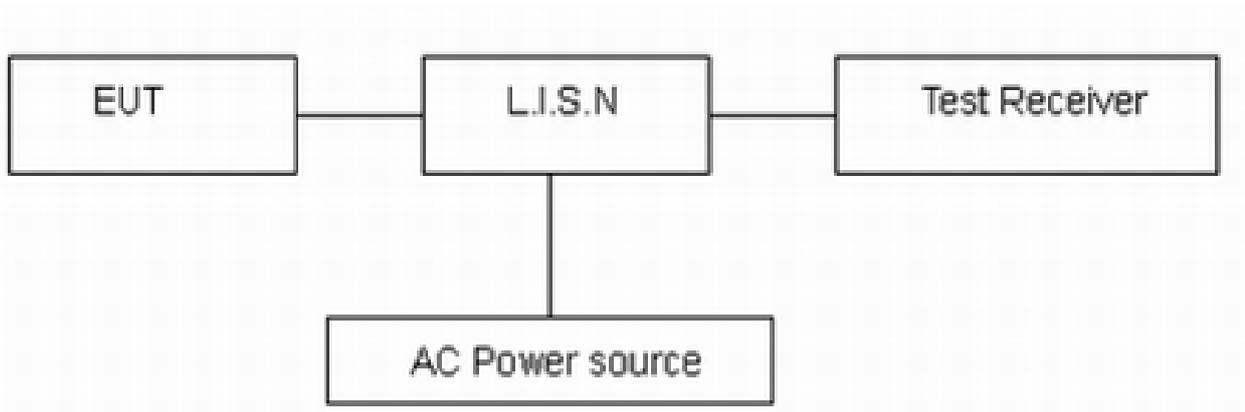
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Methods of Measurement

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

The test is in transmitting mode.

Test Setup



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

Limits

Frequency (MHz)	Conducted Limits(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.

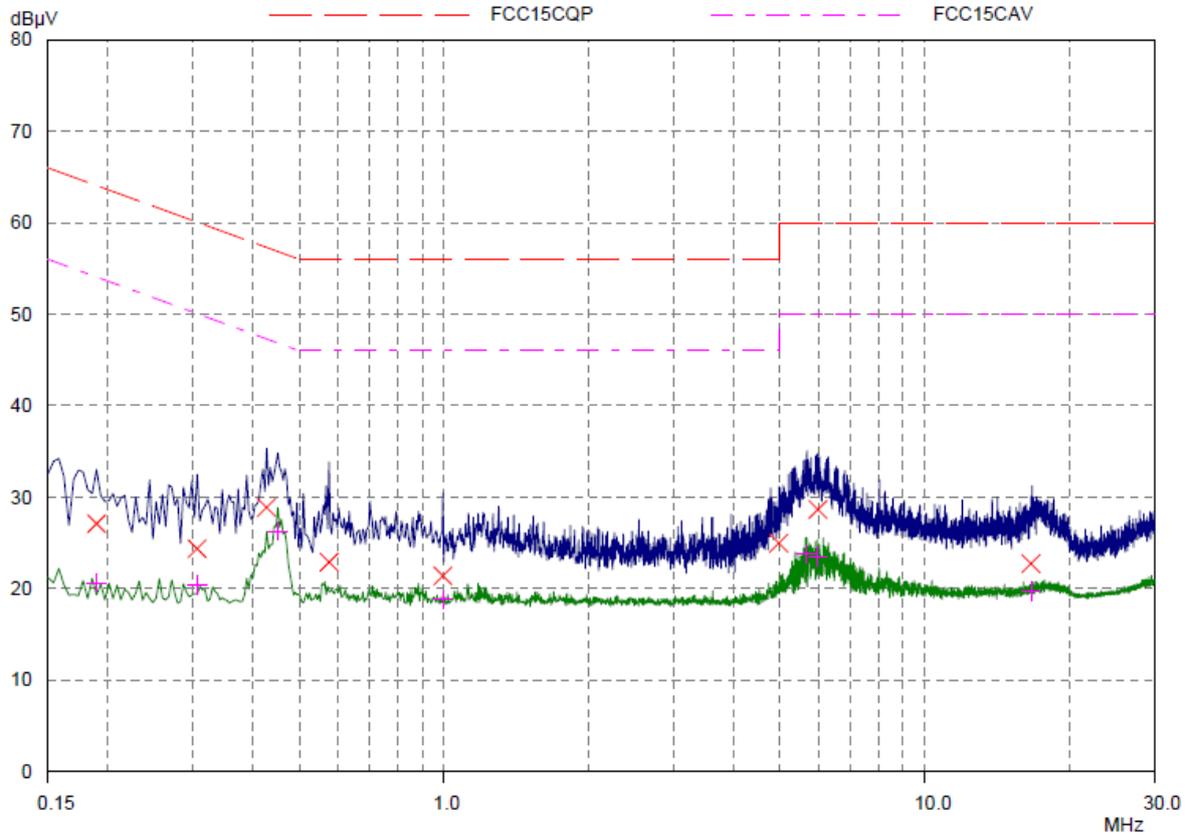
TA Technology (Shanghai) Co., Ltd. Test Report

Report No.:RXA1509-0168RF01R1

Page 84of 99

Test Results:

Basic Rate-CH0



Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -	PE -
0.18906	27.10	64.08	36.98	L1	gnd
0.30625	24.36	60.07	35.71	L1	gnd
0.42734	28.88	57.30	28.42	L1	gnd
0.57578	22.90	56.00	33.10	L1	gnd
0.99375	21.40	56.00	34.60	L1	gnd
4.9664	24.98	56.00	31.02	L1	gnd
5.98984	28.66	60.00	31.34	L1	gnd
16.62265	22.73	60.00	37.27	L1	gnd

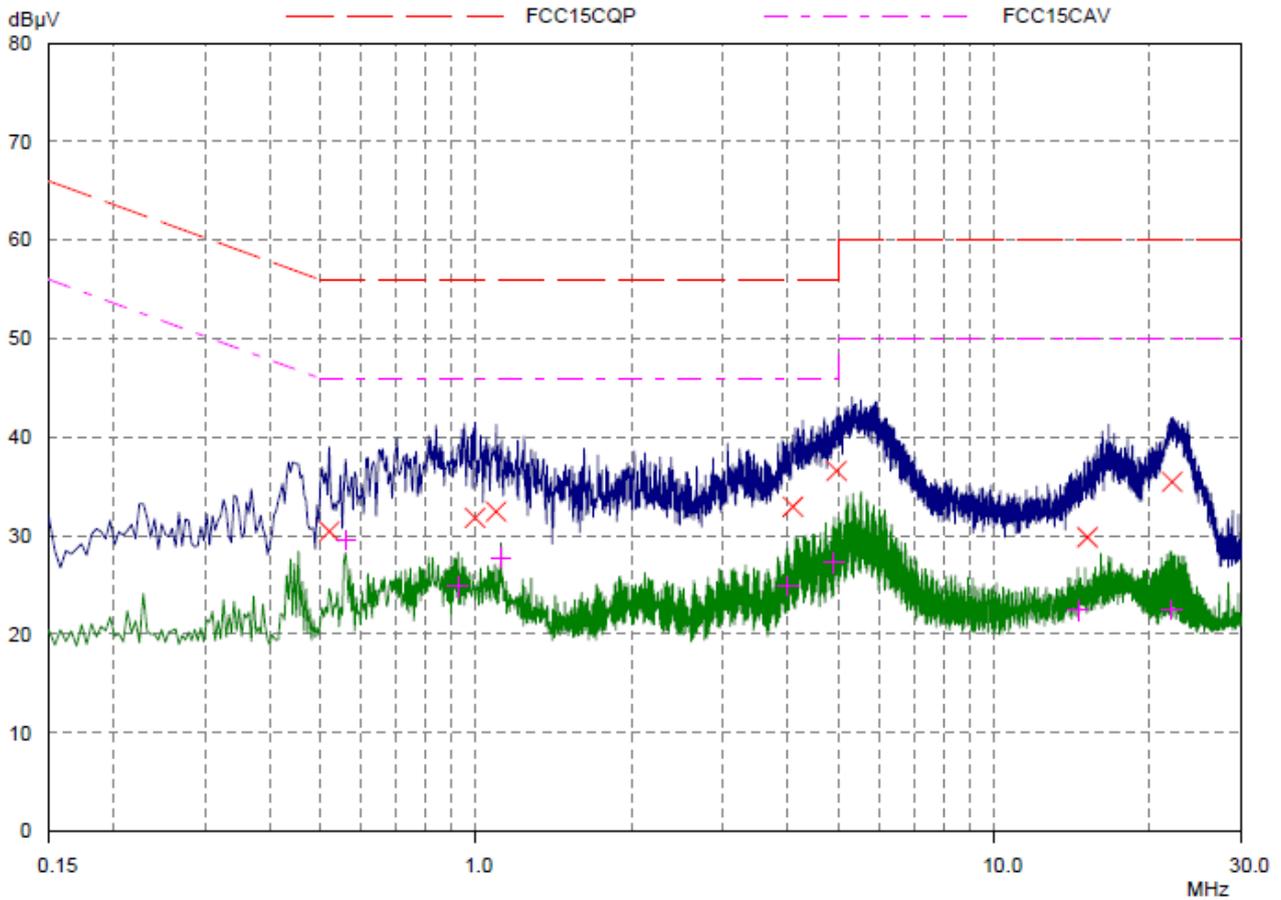
Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -	PE -
0.18906	20.62	54.08	33.46	L1	gnd
0.30625	20.37	50.07	29.70	L1	gnd
0.45078	26.32	46.86	20.54	L1	gnd
0.99375	18.82	46.00	27.18	L1	gnd
5.66953	23.78	50.00	26.22	L1	gnd
5.98984	23.47	50.00	26.53	L1	gnd
16.62265	19.71	50.00	30.29	L1	gnd

L Line

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

Report No.:RXA1509-0168RF01R1

Page 85 of 99



Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase	PE
0.52109	30.44	56.00	25.56	N	gnd
0.99765	31.82	56.00	24.18	N	gnd
1.09531	32.44	56.00	23.56	N	gnd
4.0953	32.96	56.00	23.04	N	gnd
4.97031	36.58	56.00	19.42	N	gnd
15.17343	29.84	60.00	30.16	N	gnd
22.07578	35.46	60.00	24.54	N	gnd

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase	PE
0.56015	29.58	46.00	16.42	N	gnd
0.92343	24.84	46.00	21.16	N	gnd
1.11875	27.75	46.00	18.25	N	gnd
3.99765	24.92	46.00	21.08	N	gnd
4.91171	27.30	46.00	18.70	N	gnd
14.53671	22.44	50.00	27.56	N	gnd
22.0289	22.49	50.00	27.51	N	gnd

N Line

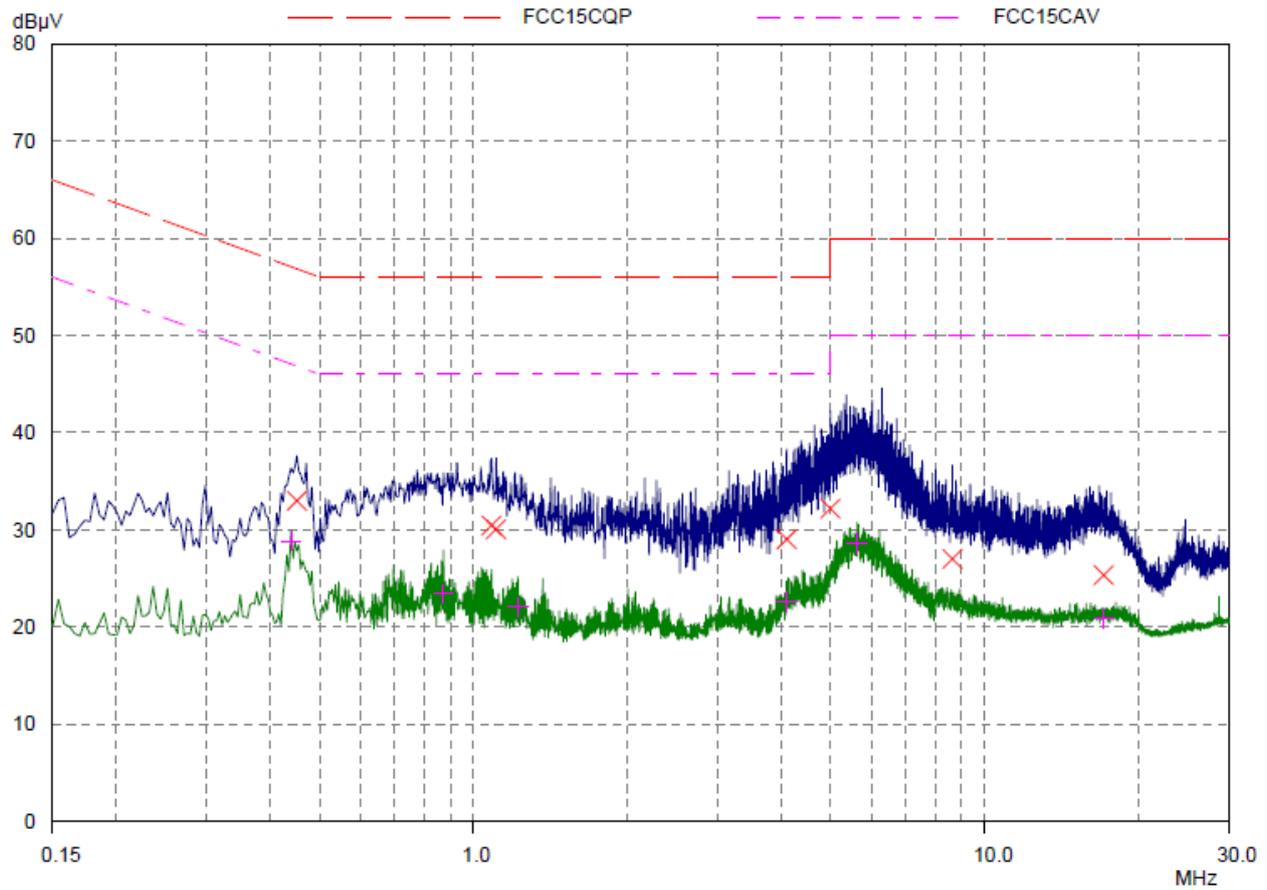
Conducted Emission from 150 KHz to 30 MHz

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

Report No.:RXA1509-0168RF01R1

Page 86of 99

Basic Rate-CH39



Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -	PE -
0.45078	33.00	56.86	23.86	L1	gnd
1.08359	30.46	56.00	25.54	L1	gnd
1.10703	30.06	56.00	25.94	L1	gnd
4.09921	29.04	56.00	26.96	L1	gnd
4.98984	32.18	56.00	23.82	L1	gnd
8.64609	27.02	60.00	32.98	L1	gnd
17.0914	25.34	60.00	34.66	L1	gnd

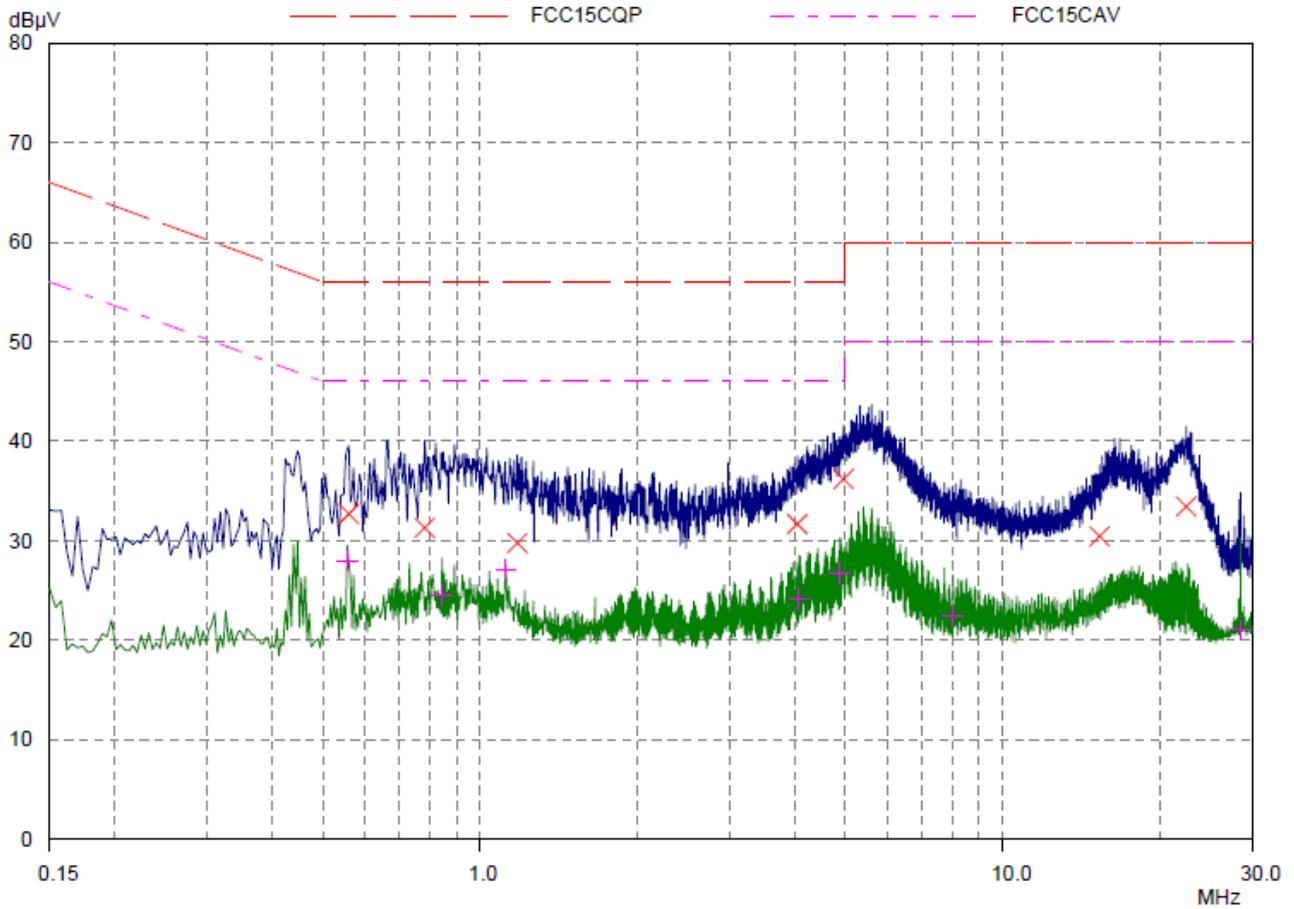
Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -	PE -
0.43906	28.84	47.08	18.24	L1	gnd
0.87265	23.43	46.00	22.57	L1	gnd
1.22031	22.06	46.00	23.94	L1	gnd
4.0953	22.62	46.00	23.38	L1	gnd
5.62656	28.64	50.00	21.36	L1	gnd
17.0914	20.88	50.00	29.12	L1	gnd

L Line

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

Report No.:RXA1509-0168RF01R1

Page 87 of 99



Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -	PE -
0.56015	32.70	56.00	23.30	N	gnd
0.78281	31.28	56.00	24.72	N	gnd
1.17734	29.76	56.00	26.24	N	gnd
4.04453	31.68	56.00	24.32	N	gnd
4.95859	36.20	56.00	19.80	N	gnd
15.32968	30.43	60.00	29.57	N	gnd
22.44687	33.42	60.00	26.58	N	gnd

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -	PE -
0.55625	27.97	46.00	18.03	N	gnd
0.84531	24.53	46.00	21.47	N	gnd
1.11875	27.13	46.00	18.87	N	gnd
4.07578	24.20	46.00	21.80	N	gnd
4.87656	26.70	46.00	19.30	N	gnd
8.0289	22.42	50.00	27.58	N	gnd
28.53671	21.04	50.00	28.96	N	gnd

N Line

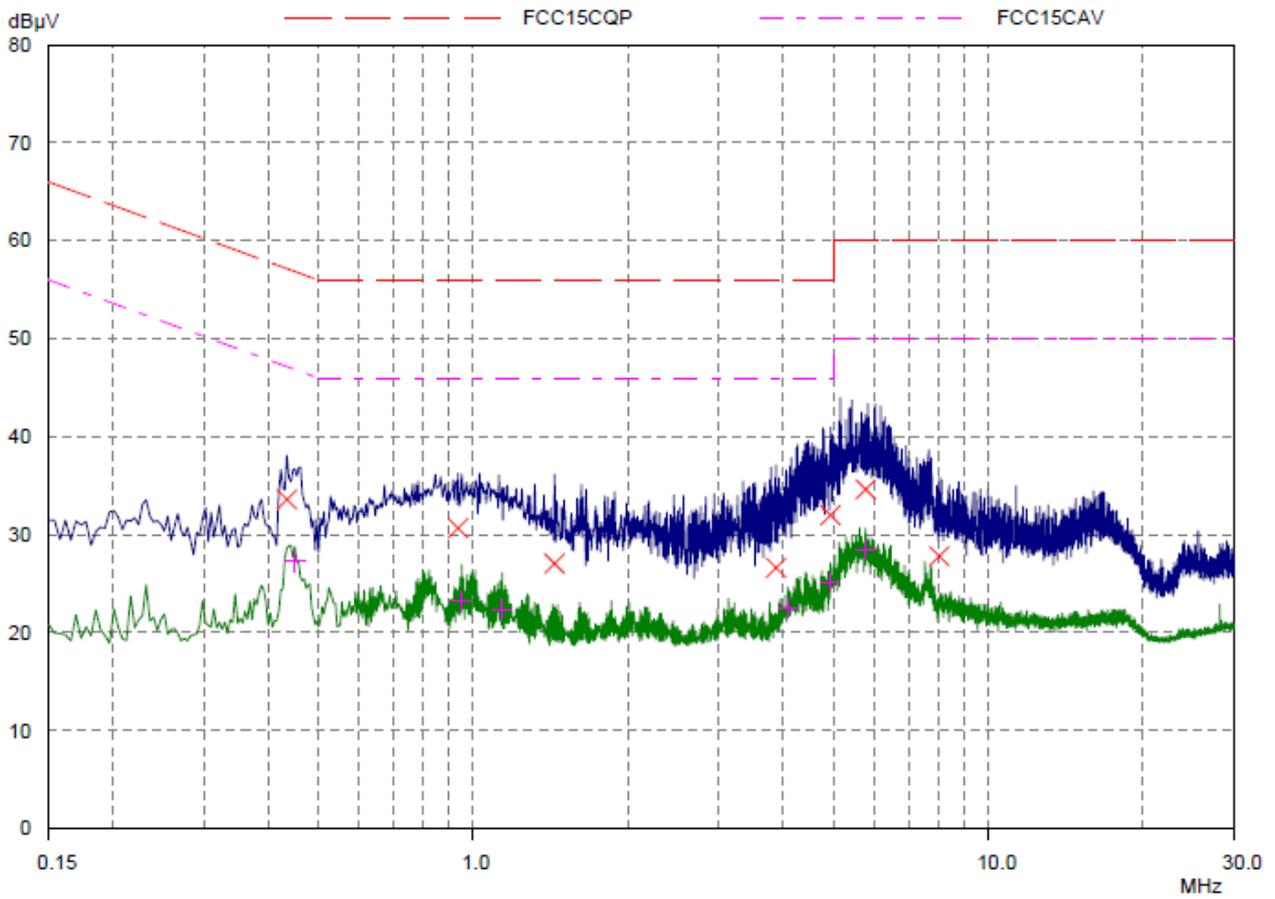
Conducted Emission from 150 KHz to 30 MHz

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

Report No.:RXA1509-0168RF01R1

Page 88of 99

Basic Rate-CH78



Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -	PE -
0.43515	33.60	57.15	23.55	L1	gnd
0.93515	30.66	56.00	25.34	L1	gnd
1.43906	27.04	56.00	28.96	L1	gnd
3.87265	26.62	56.00	29.38	L1	gnd
4.94296	31.98	56.00	24.02	L1	gnd
5.78671	34.62	60.00	25.38	L1	gnd
8.0367	27.80	60.00	32.20	L1	gnd

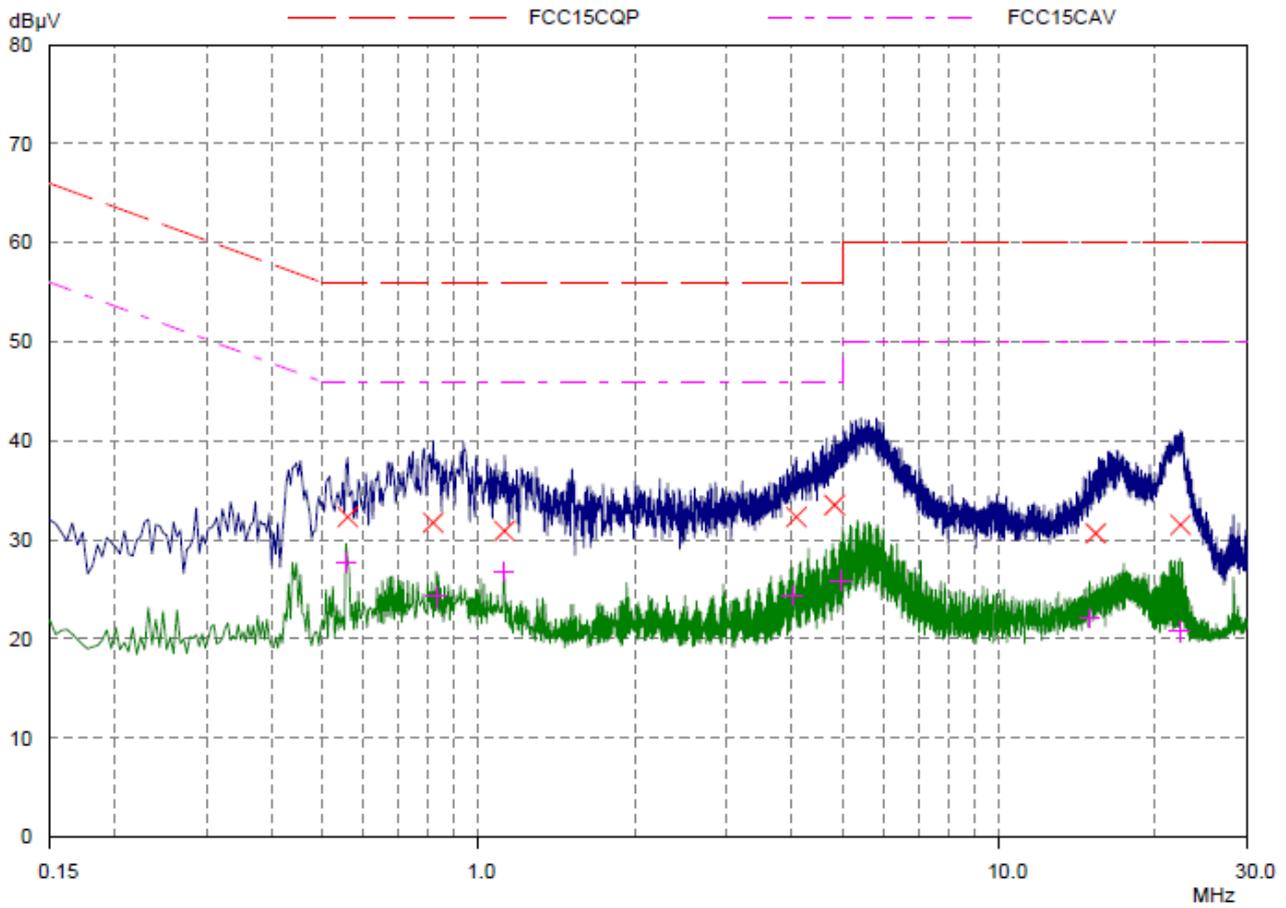
Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -	PE -
0.45078	27.24	46.86	19.62	L1	gnd
0.95078	23.24	46.00	22.76	L1	gnd
1.13828	22.37	46.00	23.63	L1	gnd
4.08359	22.52	46.00	23.48	L1	gnd
4.93515	25.14	46.00	20.86	L1	gnd
5.78671	28.44	50.00	21.56	L1	gnd

L Line

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

Report No.:RXA1509-0168RF01R1

Page 89 of 99



Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -	PE -
0.56015	32.32	56.00	23.68	N	gnd
0.81796	31.74	56.00	24.26	N	gnd
1.12265	30.92	56.00	25.08	N	gnd
4.08359	32.30	56.00	23.70	N	gnd
4.83359	33.52	56.00	22.48	N	gnd
15.36093	30.65	60.00	29.35	N	gnd
22.37656	31.53	60.00	28.47	N	gnd

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -	PE -
0.55625	27.70	46.00	18.30	N	gnd
0.82968	24.29	46.00	21.71	N	gnd
1.11875	26.76	46.00	19.24	N	gnd
4.01328	24.37	46.00	21.63	N	gnd
4.9625	25.92	46.00	20.08	N	gnd
14.93906	22.09	50.00	27.91	N	gnd
22.2789	20.76	50.00	29.24	N	gnd

N Line

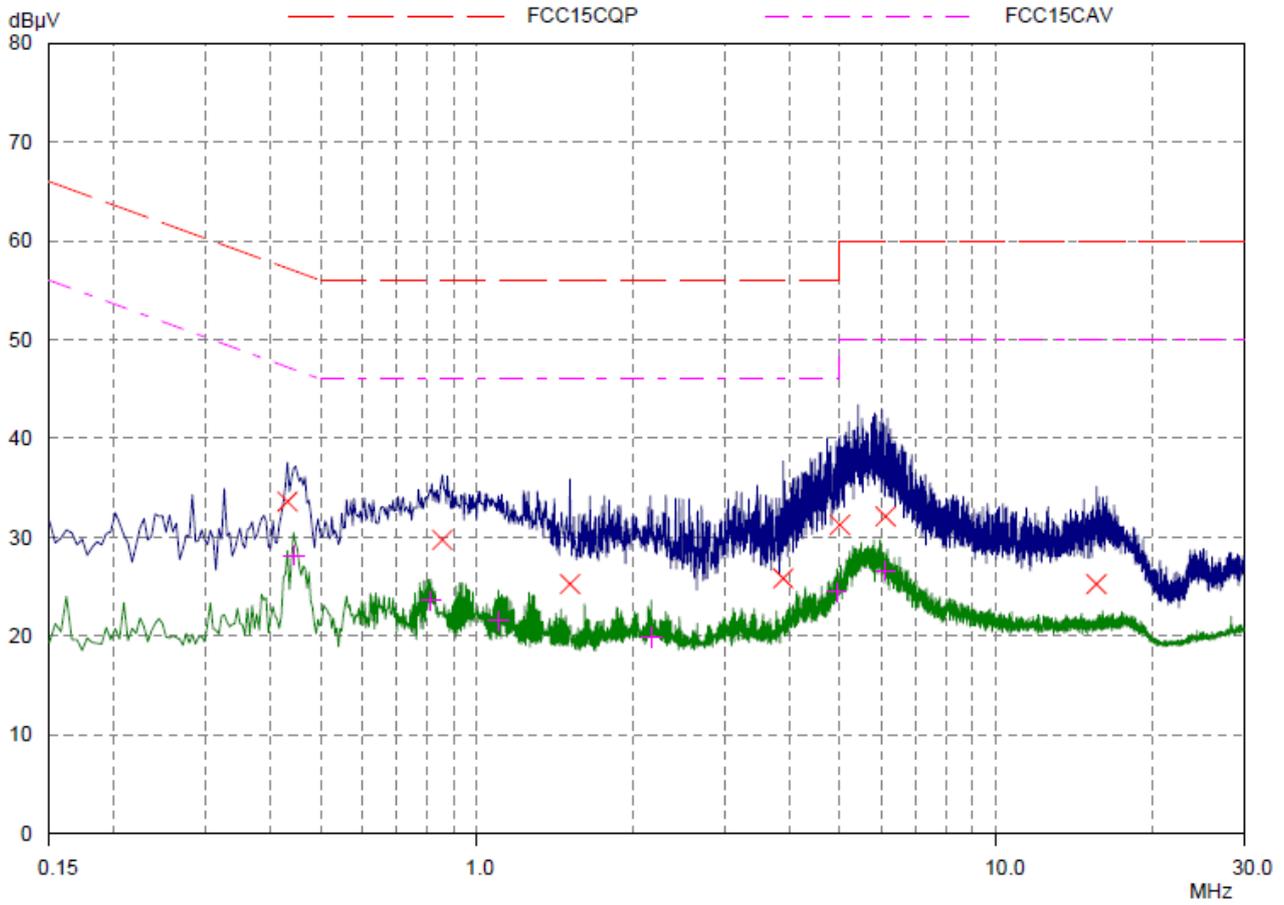
Conducted Emission from 150 KHz to 30 MHz

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

Report No.:RXA1509-0168RF01R1

Page 90 of 99

EDR-CH0



Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -	PE -
0.43125	33.62	57.23	23.61	L1	gnd
0.85703	29.74	56.00	26.26	L1	gnd
1.50937	25.28	56.00	30.72	L1	gnd
3.88828	25.84	56.00	30.16	L1	gnd
4.99765	31.26	56.00	24.74	L1	gnd
6.12265	32.12	60.00	27.88	L1	gnd
15.61093	25.27	60.00	34.73	L1	gnd

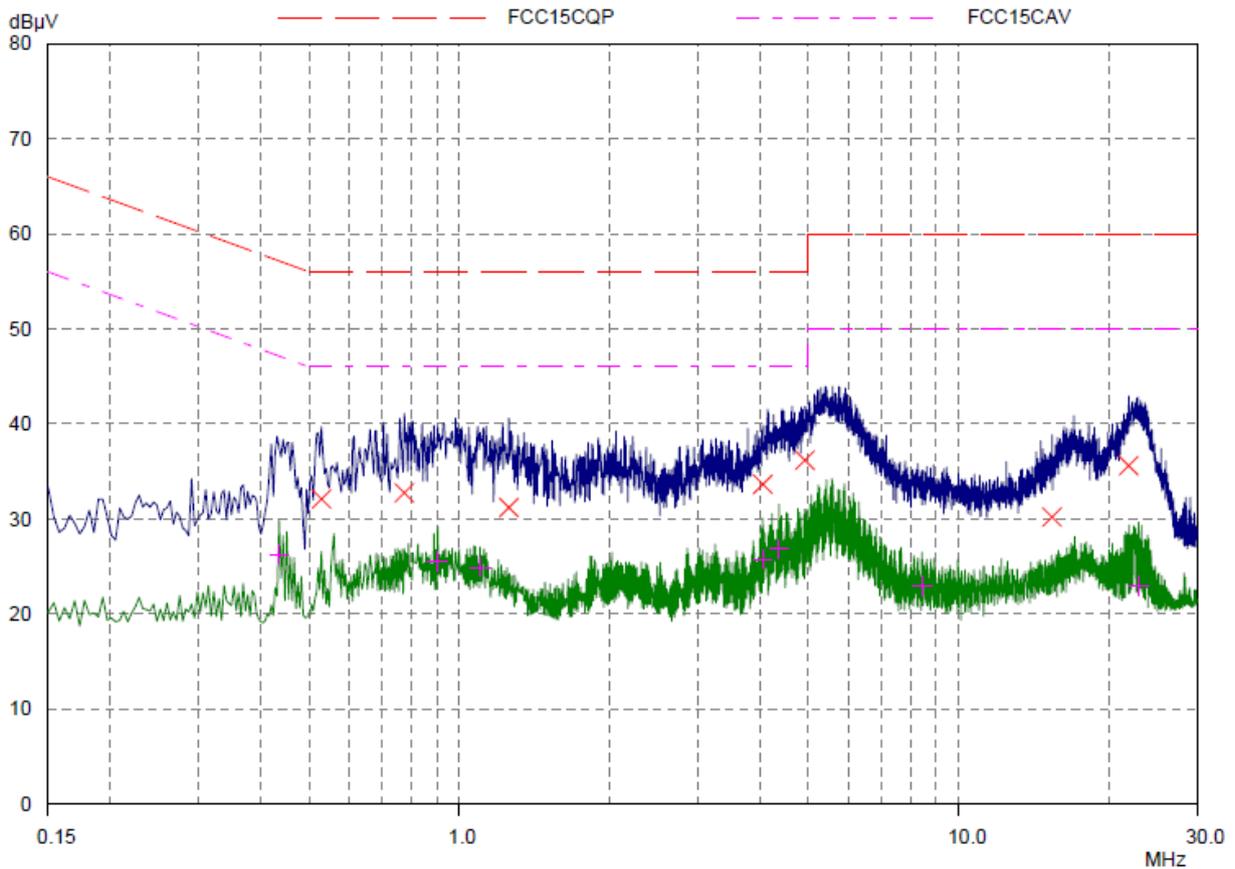
Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -	PE -
0.44296	28.18	47.01	18.83	L1	gnd
0.81406	23.61	46.00	22.39	L1	gnd
1.09921	21.51	46.00	24.49	L1	gnd
2.16562	19.90	46.00	26.10	L1	gnd
4.93125	24.45	46.00	21.55	L1	gnd
6.12265	26.64	50.00	23.36	L1	gnd

L Line

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

Report No.:RXA1509-0168RF01R1

Page 91 of 99



Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -	PE -
0.5289	32.12	56.00	23.88	N	gnd
0.775	32.74	56.00	23.26	N	gnd
1.25546	31.22	56.00	24.78	N	gnd
4.04842	33.66	56.00	22.34	N	gnd
4.91562	36.18	56.00	19.82	N	gnd
15.38046	30.21	60.00	29.79	N	gnd
21.88828	35.59	60.00	24.41	N	gnd

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -	PE -
0.43515	26.26	47.15	20.89	N	gnd
0.9039	25.51	46.00	20.49	N	gnd
1.09921	24.92	46.00	21.08	N	gnd
4.04842	25.79	46.00	20.21	N	gnd
4.36093	26.83	46.00	19.17	N	gnd
8.43515	23.01	50.00	26.99	N	gnd
22.91953	22.99	50.00	27.01	N	gnd

N Line

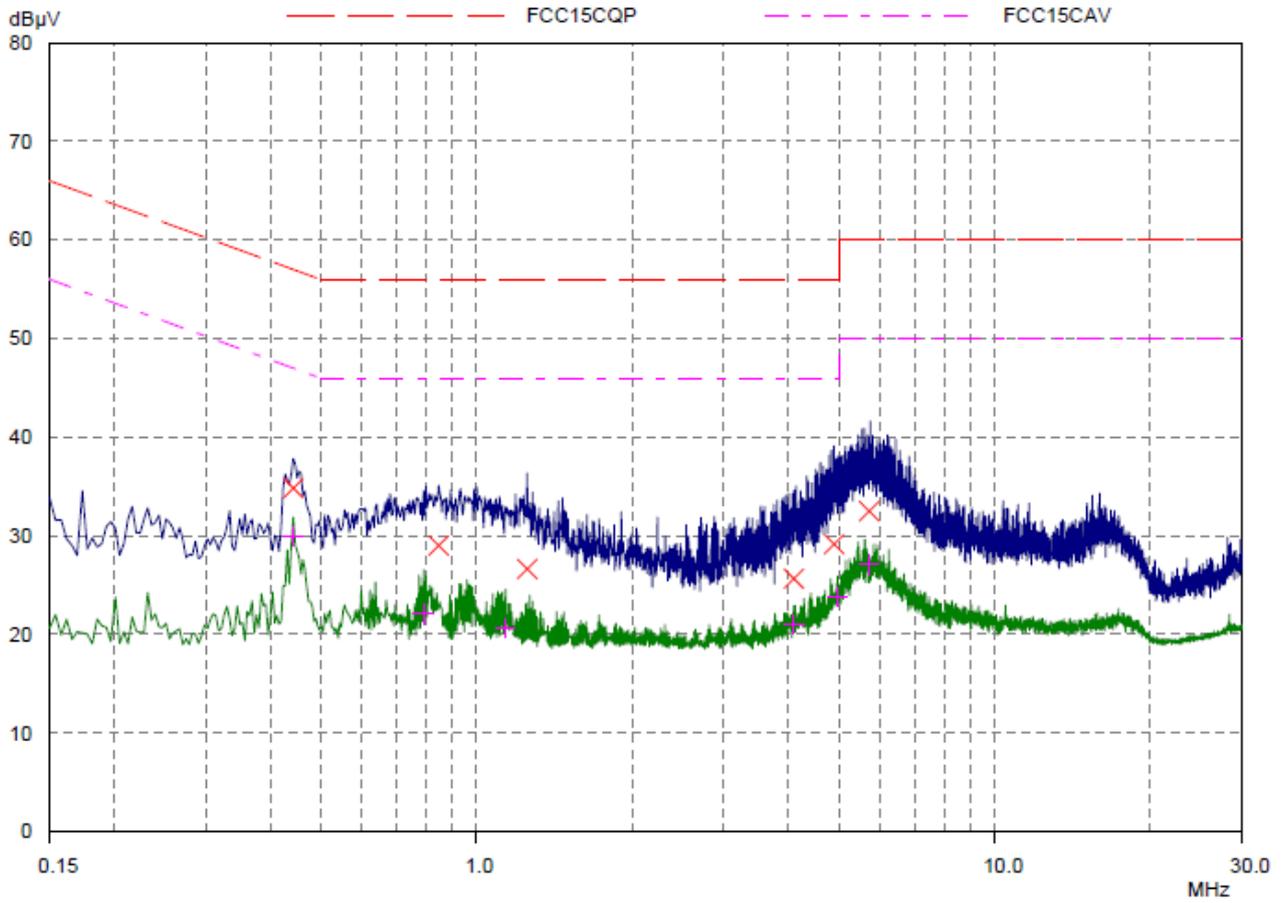
Conducted Emission from 150 KHz to 30 MHz

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

Report No.:RXA1509-0168RF01R1

Page 92of 99

EDR-CH39



Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -	PE -
0.44296	34.84	57.01	22.17	L1	gnd
0.84531	29.00	56.00	27.00	L1	gnd
1.25156	26.64	56.00	29.36	L1	gnd
4.09921	25.66	56.00	30.34	L1	gnd
4.9	29.14	56.00	26.86	L1	gnd
5.72812	32.50	60.00	27.50	L1	gnd

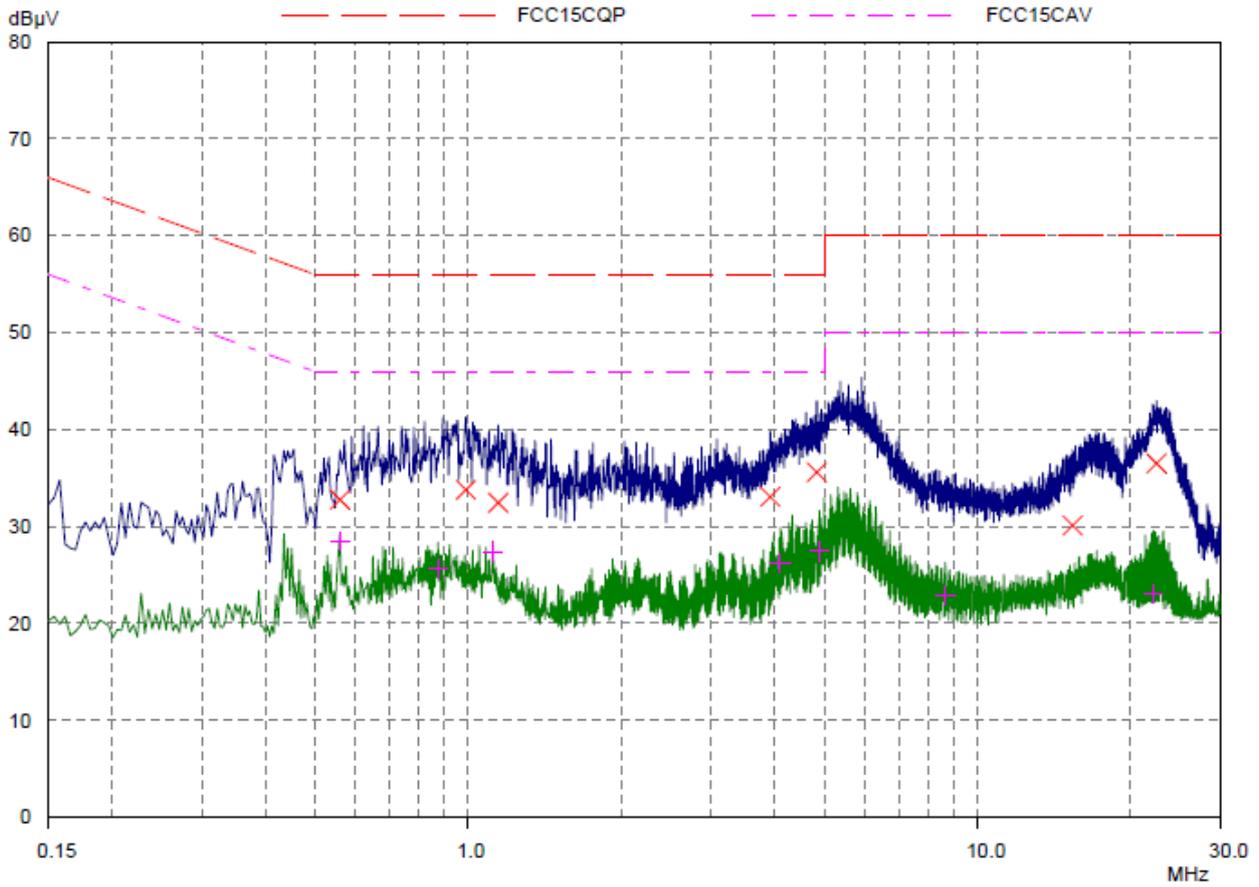
Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -	PE -
0.44296	29.97	47.01	17.04	L1	gnd
0.79062	22.06	46.00	23.94	L1	gnd
1.13828	20.68	46.00	25.32	L1	gnd
4.09921	20.99	46.00	25.01	L1	gnd
4.97812	23.78	46.00	22.22	L1	gnd
5.72812	27.07	50.00	22.93	L1	gnd

L Line

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

Report No.:RXA1509-0168RF01R1

Page 93 of 99



Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase	PE
0.56015	32.76	56.00	23.24	N	gnd
0.98984	33.78	56.00	22.22	N	gnd
1.14609	32.44	56.00	23.56	N	gnd
3.91953	33.06	56.00	22.94	N	gnd
4.83359	35.58	56.00	20.42	N	gnd
15.37265	30.09	60.00	29.91	N	gnd
22.4625	36.50	60.00	23.50	N	gnd

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase	PE
0.56015	28.44	46.00	17.56	N	gnd
0.87265	25.65	46.00	20.35	N	gnd
1.11875	27.42	46.00	18.58	N	gnd
4.10311	26.19	46.00	19.81	N	gnd
4.89218	27.47	46.00	18.53	N	gnd
8.65	22.87	50.00	27.13	N	gnd
22.1539	23.08	50.00	26.92	N	gnd

N Line

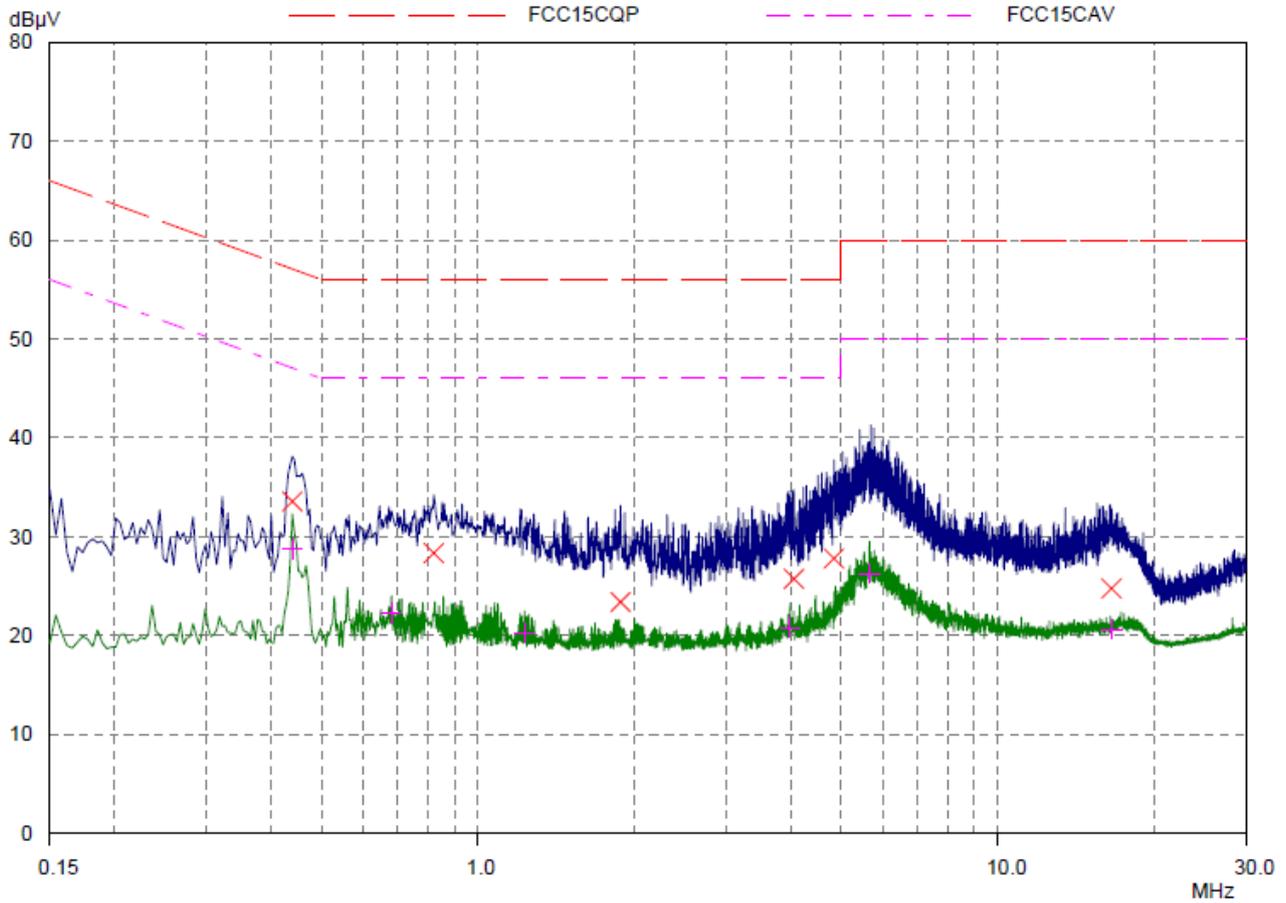
Conducted Emission from 150 KHz to 30 MHz

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

Report No.:RXA1509-0168RF01R1

Page 94 of 99

EDR-CH78



Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -	PE -
0.43906	33.58	57.08	23.50	L1	gnd
0.82187	28.34	56.00	27.66	L1	gnd
1.88046	23.40	56.00	32.60	L1	gnd
4.04842	25.74	56.00	30.26	L1	gnd
4.8375	27.80	56.00	28.20	L1	gnd
16.55624	24.78	60.00	35.22	L1	gnd

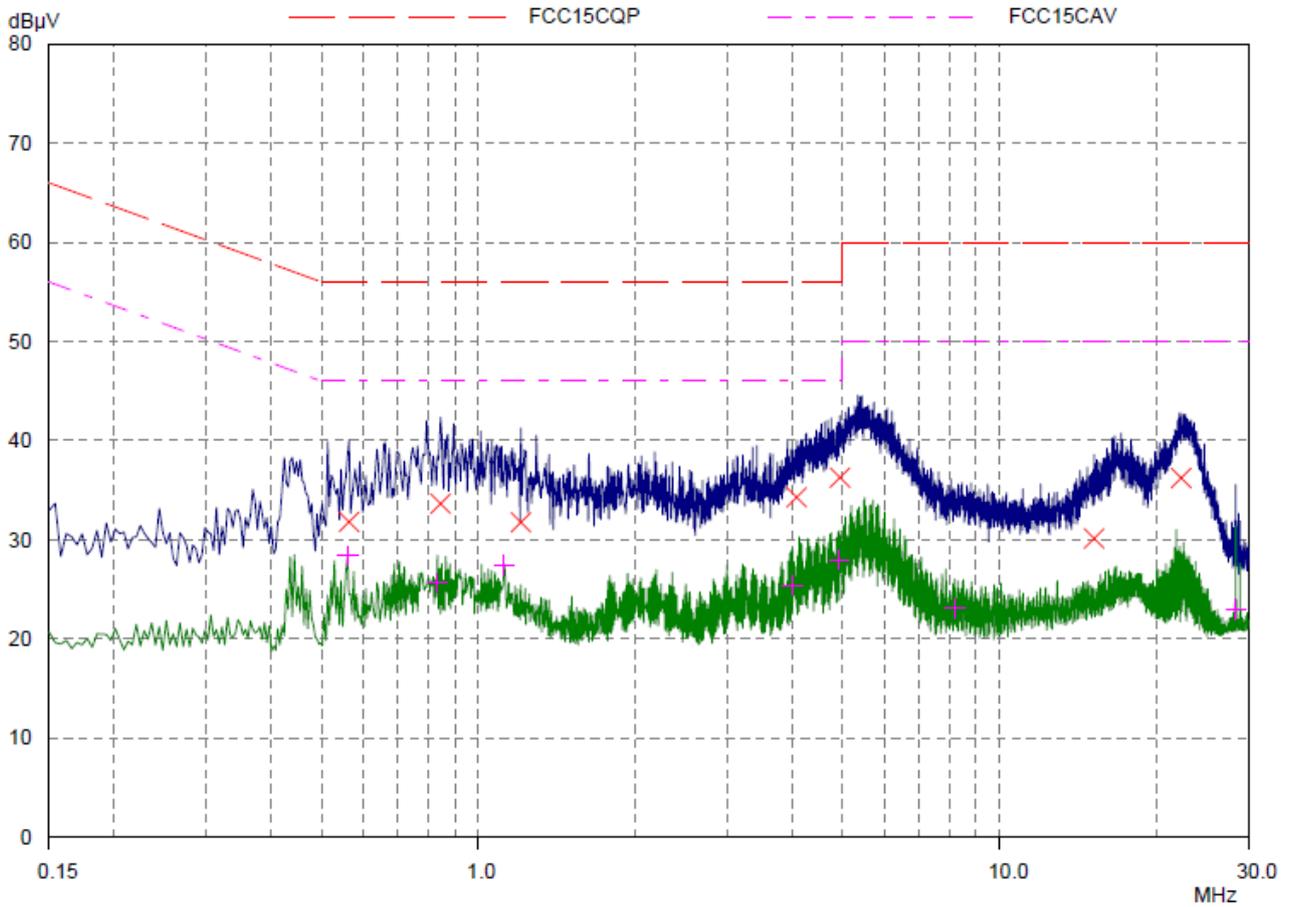
Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -	PE -
0.43906	28.79	47.08	18.29	L1	gnd
0.68125	22.32	46.00	23.68	L1	gnd
1.22812	20.30	46.00	25.70	L1	gnd
3.98203	20.81	46.00	25.19	L1	gnd
5.65781	26.32	50.00	23.68	L1	gnd
16.55624	20.65	50.00	29.35	L1	gnd

L Line

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

Report No.:RXA1509-0168RF01R1

Page 95 of 99



Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Phase -	PE -
0.56406	31.80	56.00	24.20	N	gnd
0.84531	33.64	56.00	22.36	N	gnd
1.20468	31.78	56.00	24.22	N	gnd
4.07578	34.30	56.00	21.70	N	gnd
4.93515	36.28	56.00	19.72	N	gnd
15.17734	30.14	60.00	29.86	N	gnd
22.30234	36.23	60.00	23.77	N	gnd

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -	PE -
0.56015	28.39	46.00	17.61	N	gnd
0.83359	25.65	46.00	20.35	N	gnd
1.11875	27.42	46.00	18.58	N	gnd
4.00546	25.44	46.00	20.56	N	gnd
4.92343	27.97	46.00	18.03	N	gnd
8.19295	23.10	50.00	26.90	N	gnd
28.34921	23.00	50.00	27.00	N	gnd

N Line

Conducted Emission from 150 KHz to 30 MHz

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

Report No.:RXA1509-0168RF01R1

Page 96of 99

4. Main Test Instruments

No.	Name	Type	Manufacturer	Serial Number	Calibration Date	Expiration Time	Valid Period
01	BT Base Station Simulator	CBT	R&S	100271	2015-05-25	2016-05-24	1 year
02	Loop Antenna	FMZB1519	SCHWARZBECK	1519-047	2014-02-29	2017-02-28	3 years
03	EMI Test Receiver	ESCS30	R&S	100138	2014-12-17	2015-12-16	1 year
04	LISN	ENV216	R&S	101171	2014-12-17	2015-12-16	1 year
05	EMI Test Receiver	ESCI	R&S	100948	2015-05-25	2016-05-24	1 year
06	TRILOG Broadband Antenna	VULB 9163	Schwarzbeck	9163-201	2013-11-25	2016-11-24	3 years
07	Double Ridged Waveguide Horn Antenna	HF907	R&S	100126	2015-07-01	2018-06-30	3 years
08	Power Splitter	SHX-GF2-2-13	Hua Xiang	10120101	NA	NA	NA
09	Spectrum Analyzer	FSV30	R&S	100815	2014-12-17	2015-12-16	1 year
10	Standard Gain Horn	3160-09	ETS-Lindgren	00102644	2015-05-19	2018-05-18	3 years
11	RF Cable	SMA 15cm	Agilent	0001	2015-08-04	2015-10-03	2 months

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