



**FCC PART 15C
TEST REPORT
(RADIATED PART)
No. I15Z40514-SRD10**

for

Sony Mobile Communications Inc.

GSM/WCDMA/LTE Device

FCC ID: PY7-PM0796

with

Hardware Version: A

Software Version: 1292-7201, s_atp_1_41_5_2

Issued Date: 2015-04-19



Note:

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 CTTL.

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REPORT HISTORY

Report Number	Revision	Description	Issue Date
I15Z40514-SRD10	Rev.0	1st edition	2015-05-04
I15Z40514-SRD10	Rev.1	Revised the description of EUT	2015-05-19

CONTENTS

1. TEST LABORATORY	4
1.1. TESTING LOCATION	4
1.2. TESTING ENVIRONMENT	4
1.3. PROJECT DATA	4
1.4. SIGNATURE.....	4
2. CLIENT INFORMATION	5
2.1. APPLICANT INFORMATION.....	5
2.2. MANUFACTURER INFORMATION.....	5
3. EQUIPMENT UNDER TEST (EUT) AND ANCILLARY EQUIPMENT (AE)	6
3.1. ABOUT EUT.....	6
3.2. INTERNAL IDENTIFICATION OF EUT	6
3.3. INTERNAL IDENTIFICATION OF AE.....	6
3.4. GENERAL DESCRIPTION	6
4. REFERENCE DOCUMENTS.....	7
4.1. DOCUMENTS SUPPLIED BY APPLICANT	7
4.2. REFERENCE DOCUMENTS FOR TESTING	7
5. TEST FACILITIES UTILIZED	8
ANNEX A: DETAILED TEST RESULTS	9
A.1. MEASUREMENT METHOD	9
A.2. RADIATED EMISSION	10
A.3. AC POWERLINE CONDUCTED EMISSION	30
ANNEX B: ACCREDITATION CERTIFICATE	33

1. Test Laboratory

1.1. Testing Location

Location 1:CTTL(huayuan North Road)

Address: No. 52, Huayuan North Road, Haidian District, Beijing,
P. R. China100191

Location 2:CTTL(Shouxiang)

Address: No. 51 Shouxiang Science Building, Xueyuan Road,
Haidian District, Beijing, P. R. China100191

1.2. Testing Environment

Normal Temperature: 15-35°C
Extreme Temperature: -10/+55°C
Relative Humidity: 20-75%

1.3. Project data

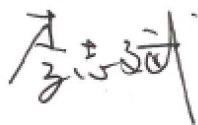
Testing Start Date: 2015-03-20
Testing End Date: 2015-04-27

1.4. Signature



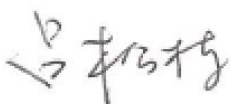
Xu Zhongfei

(Prepared this test report)



Li Zhibin

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(Approved this test report)

2. Client Information

2.1. Applicant Information

Company Name: Sony Mobile Communications (China) Co. Ltd
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Street, Chaoyang District
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2.2. Manufacturer Information

Company Name: Sony Mobile Communications Inc.
Address /Post: 1-8-15 Konan, Minato-ku, Tokyo, 108-0075, Japan
Contact Ma, Gang
Email /
Telephone: /
Fax: /

3. Equipment Under Test (EUT) and Ancillary Equipment (AE)

3.1. About EUT

Description	GSM/WCDMA/LTE Device
FCC ID	PY7-PM0796
Frequency Band	ISM 2400MHz~2483.5MHz
Type of Modulation	GFSK/ $\pi/4$ DQPSK/8DPSK
Number of Channels	79
Power Supply	3.8V DC by Battery

3.2. Internal Identification of EUT

EUT ID*	SN or IMEI	HW Version	SW Version
EUT1	004402148063096	A	1292-7201,s_atp _1_41_5_2

*EUT ID: is used to identify the test sample in the lab internally.

3.3. Internal Identification of AE

AE ID*	Description	Type	SN
AE1	Travel Charger	/	/
AE3	USB Cable	1447A7PC000350C	/

*AE ID: is used to identify the test sample in the lab internally.

3.4. General Description

The Equipment Under Test (EUT) is a model of GSM/WCDMA/LTE Device with integrated antenna and embedded battery.

It has MP3, camera, USB memory, FM radio, GPS receiver, NFC, Bluetooth (EDR, BLE), ANT+, WLAN (802.11 a/ac/b/g/n) and Wi-Fi hotspot functions.

It consists of normal options: USB cable and travel charger.

Manual and specifications of the EUT were provided to fulfil the test.

Samples undergoing test were selected by the client.

4. Reference Documents

4.1. Documents supplied by applicant

EUT feature information is supplied by the applicant or manufacturer, which is the basis of testing.

4.2. Reference Documents for testing

The following documents listed in this section are referred for testing.

Reference	Title	Version
FCC Part15	FCC CFR 47, Part 15, Subpart C:	2014
	15.205 Restricted bands of operation;	
	15.209 Radiated emission limits, general requirements;	
ANSI C63.10	15.247 Operation within the bands 902–928MHz, 2400–2483.5 MHz, and 5725–5850 MHz.	2009
	American National Standard for Testing Unlicensed Wireless Devices	
FCC Part 2	Frequency Allocations and Radio Treaty Matters; General Rules and Regulations	2014

5. Test Facilities Utilized

Radiated emission test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Period	Calibration Due date
1	Test Receiver	ESCI 7	100948	Rohde & Schwarz	1 year	2015-07-16
2	Loop antenna	HFH2-Z2	829324/00 7	Rohde & Schwarz	3 year	2017-12-16
3	BiLog Antenna	VULB9163	234	Schwarzbeck	3 year	2016-09-15
4	Dual-Ridge Waveguide Horn Antenna	3115	6914	EMCO	3 year	2017-12-15
5	Dual-Ridge Waveguide Horn Antenna	3116	2661	ETS-Lindgren	3 year	2017-06-30
6	Vector Signal Analyzer	FSV	101047	Rohde & Schwarz	1 year	2015-07-03
7	Semi-anechoic chamber	/	CT000332 -1074	Frankonia German	/	/
8	Bluetooth Tester	CBT	100153	Rohde & Schwarz	1 year	2015-09-18

ANNEX A: Detailed Test Results

A.1. Measurement Method

A.1.1. Radiated Emission Measurements

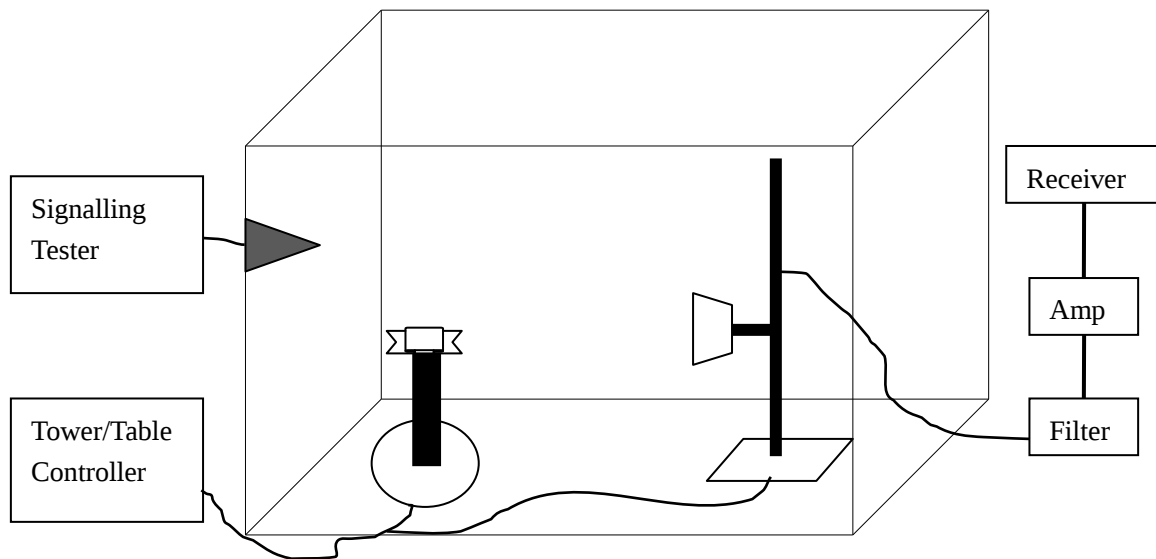
The measurement is made according to ANSI C63.10

The radiated emission test is performed in semi-anechoic chamber. The distance from the EUT to the reference point of measurement antenna is 3m. The test is carried out on both vertical and horizontal polarization and only maximization result of both polarizations is kept. During the test, the turntable is rotated 360° and the measurement antenna is moved from 1m to 4m to get the maximization result.

In the case of radiated emission, the used settings are as follows,

Sweep frequency from 30 MHz to 1GHz, RBW = 100 kHz, VBW = 300 kHz;

Sweep frequency from 1 GHz to 26GHz, RBW = 1MHz, VBW = 1MHz;



A.2. Radiated Emission**Measurement Limit:**

Standard	Limit
FCC 47 CFR Part 15.247, 15.205, 15.209	20dB below peak output power

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)).

The measurement is made according to ANSI C63.10

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
Above 960	500	54

Test Condition

The EUT was placed on a non-conductive table. The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

Frequency of emission (MHz)	RBW/VBW	Sweep Time(s)
30-1000	100KHz/300KHz	5
1000-4000	1MHz/1MHz	15
4000-18000	1MHz/1MHz	40
18000-26500	1MHz/1MHz	20

Measurement Results:

Result= P_{Mea} +ARPL

For GFSK

Channel	Frequency Range	Test Results	Conclusion
Ch 0 2402 MHz	1 GHz ~ 3 GHz	Fig.1	P
	3 GHz ~ 18 GHz	Fig.2	P
Ch 39 2441 MHz	9 kHz ~ 30 MHz	Fig.3	P
	30 MHz ~ 1 GHz	Fig.4	P
	1 GHz ~ 3 GHz	Fig.5	P
	3 GHz ~ 18 GHz	Fig.6	P
Ch 78 2480 MHz	1 GHz ~ 3 GHz	Fig.7	P
	3 GHz ~ 18 GHz	Fig.8	P
Power	2.38GHz~2.4GHz---L	Fig.9	P
Power	2.45GHz~2.5GHz---H	Fig.10	P
For all channels	18 GHz ~ 26 GHz	Fig.11	P

For $\pi/4$ DQPSK

Channel	Frequency Range	Test Results	Conclusion
Ch 0 2402 MHz	1 GHz ~ 3 GHz	Fig.12	P
	3 GHz ~ 18 GHz	Fig.13	P
Ch 39 2441 MHz	30 MHz ~ 1 GHz	Fig.14	P
	1 GHz ~ 3 GHz	Fig.15	P
	3 GHz ~ 18 GHz	Fig.16	P
Ch 78 2480 MHz	1 GHz ~ 3 GHz	Fig.17	P
	3 GHz ~ 18 GHz	Fig.18	P
Power	2.38GHz~2.4GHz---L	Fig.19	P
Power	2.45GHz~2.5GHz---H	Fig.20	P
For all channels	18 GHz ~ 26 GHz	Fig.21	P

For 8DPSK

Channel	Frequency Range	Test Results	Conclusion
Ch 0 2402 MHz	1 GHz ~ 3 GHz	Fig.22	P
	3 GHz ~ 18 GHz	Fig.23	P
Ch 39 2441 MHz	30 MHz ~ 1 GHz	Fig.24	P
	1 GHz ~ 3 GHz	Fig.25	P
	3 GHz ~ 18 GHz	Fig.26	P
Ch 78 2480 MHz	1 GHz ~ 3 GHz	Fig.27	P
	3 GHz ~ 18 GHz	Fig.28	P
Power	2.38GHz~2.4GHz---L	Fig.29	P
Power	2.45GHz~2.5GHz---H	Fig.30	P
For all channels	18 GHz ~ 26 GHz	Fig.31	P

GFSK Ch 0 - Average

Frequency(MHz)	Result(dBuv/m)	ARPL (dB)	PMea(dBuv/m)	Polarization
2390.138	35.2	-11.1	46.3	V
17883.281	46.4	27.1	19.3	V
17877.656	46.4	27.1	19.3	V
17882.344	46.4	27.1	19.3	V
17902.031	46.3	27.1	19.2	V
17895.000	46.3	27.1	19.2	V

GFSK Ch 39 - Average

Frequency(MHz)	Result(dBuv/m)	ARPL (dB)	Pmea(dBuv/m)	Polarization
17879.531	46.2	27.1	19.100	V
17891.719	46.1	27.1	19.000	V
17872.969	46.1	27.1	19.000	V
17872.031	46.1	27.1	19.000	V
17906.250	46.1	27.1	19.000	H
17881.875	46.1	27.1	19.000	V

GFSK Ch 78 - Average

Frequency(MHz)	Result(dBuv/m)	ARPL (dB)	Pmea(dBuv/m)	Polarization
2483.506	51.6	-11.2	62.8	V
17884.219	46.3	27.1	19.2	V
17899.688	46.2	27.1	19.1	V
17873.438	46.2	27.1	19.1	V
17880.000	46.2	27.1	19.1	V
17874.375	46.1	27.1	19.0	V

 $\pi/4$ DQPSK Ch 0 - Average

Frequency(MHz)	Result(dBuv/m)	ARPL (dB)	Pmea(dBuv/m)	Polarization
2389.194	35.3	-11.1	46.4	V
17894.063	46.4	27.1	19.3	V
17883.750	46.3	27.1	19.2	V
17887.969	46.2	27.1	19.1	V
17876.250	46.1	27.1	19.0	V
17885.156	46.1	27.1	19.0	V

 $\pi/4$ DQPSK Ch 39 - Average

Frequency(MHz)	Result(dBuv/m)	ARPL (dB)	Pmea(dBuv/m)	Polarization
17881.875	46.3	27.1	19.2	V
17877.656	46.1	27.1	19.0	H
17898.281	46.0	27.1	18.9	V
17903.438	46.0	27.1	18.9	V
17882.344	45.9	27.1	18.8	V
17870.625	45.9	27.1	18.8	V

$\pi/4$ DQPSK Ch 78 - Average

Frequency(MHz)	Result(dBuv/m)	ARPL (dB)	Pmea(dBuv/m)	Polarization
2483.500	50.4	-11.2	61.6	V
17879.063	46.1	27.1	19.0	H
17887.969	46.0	27.1	18.9	V
17871.094	46.0	27.1	18.9	V
17900.625	46.0	27.1	18.9	V
17885.625	46.0	27.1	18.9	V

8DPSK Ch 0 - Average

Frequency(MHz)	Result(dBuv/m)	ARPL (dB)	Pmea(dBuv/m)	Polarization
2389.919	35.2	-11.1	46.3	V
17888.906	46.2	27.1	19.1	V
17895.469	46.1	27.1	19.0	V
17873.906	46.1	27.1	19.0	V
17876.250	46.0	27.1	18.9	V
17878.125	45.9	27.1	18.8	V

8DPSK Ch 39 - Average

Frequency(MHz)	Result(dBuv/m)	ARPL (dB)	Pmea(dBuv/m)	Polarization
17872.969	46.1	27.1	19.0	V
17875.313	46.1	27.1	19.0	V
17884.219	46.0	27.1	18.9	V
17895.938	46.0	27.1	18.9	V
17897.813	46.0	27.1	18.9	V
17898.750	46.0	27.1	18.9	H

8DPSK Ch 78 - Average

Frequency(MHz)	Result(dBuv/m)	ARPL (dB)	Pmea(dBuv/m)	Polarization
2483.500	50.4	-11.2	61.6	V
17885.625	46.1	27.1	19.0	V
17887.969	46.1	27.1	19.0	H
17874.844	46.0	27.1	18.9	H
17894.063	46.0	27.1	18.9	V
17866.875	46.0	27.1	18.9	V

Conclusion: PASS

Test graphs as below:

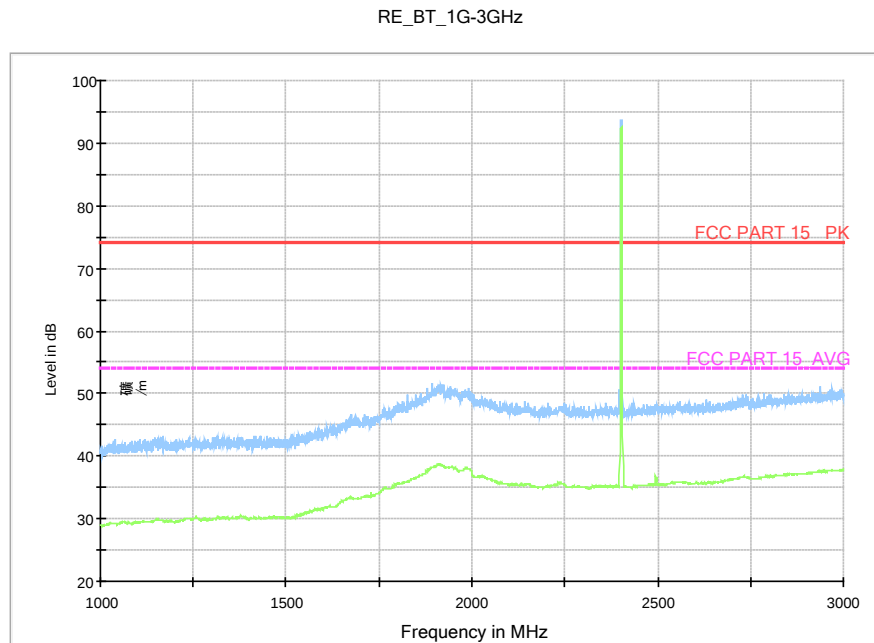


Fig.1. Radiated emission: GFSK, Channel 0, 1 GHz - 3 GHz

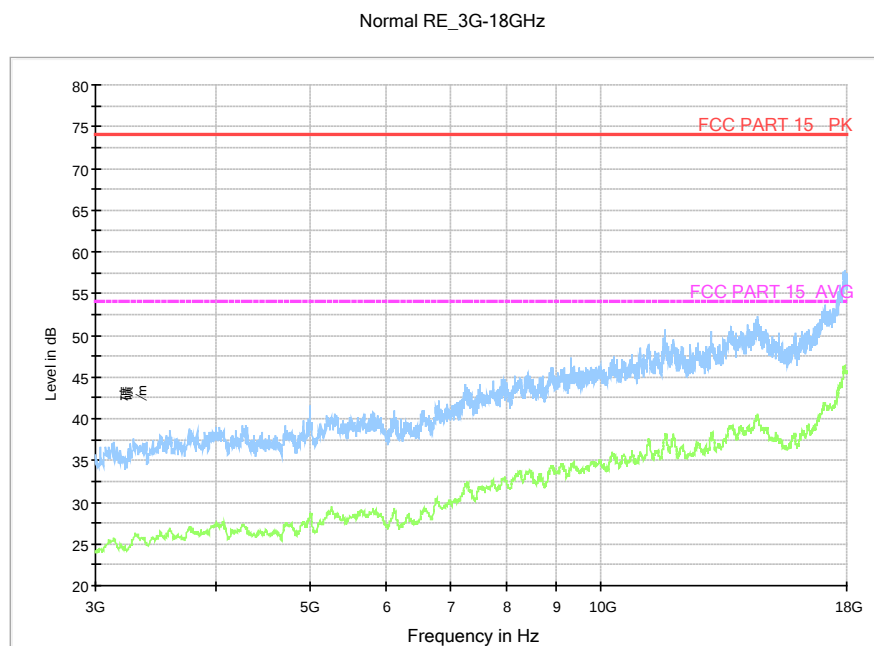


Fig.2. Radiated emission: GFSK, Channel 0, 3 GHz - 18 GHz

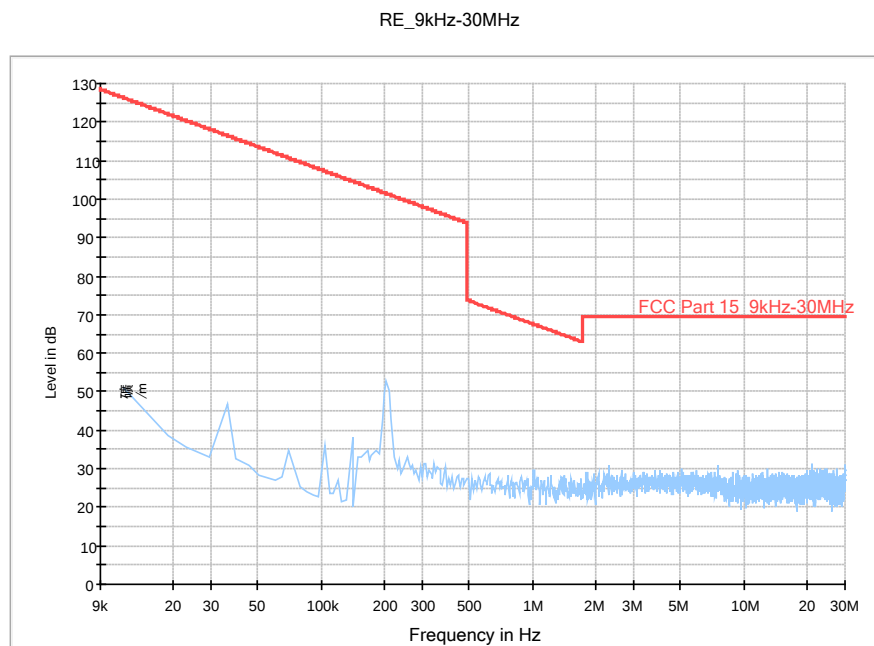


Fig.3. Radiated emission: GFSK, Channel 39, 9 kHz - 30 MHz

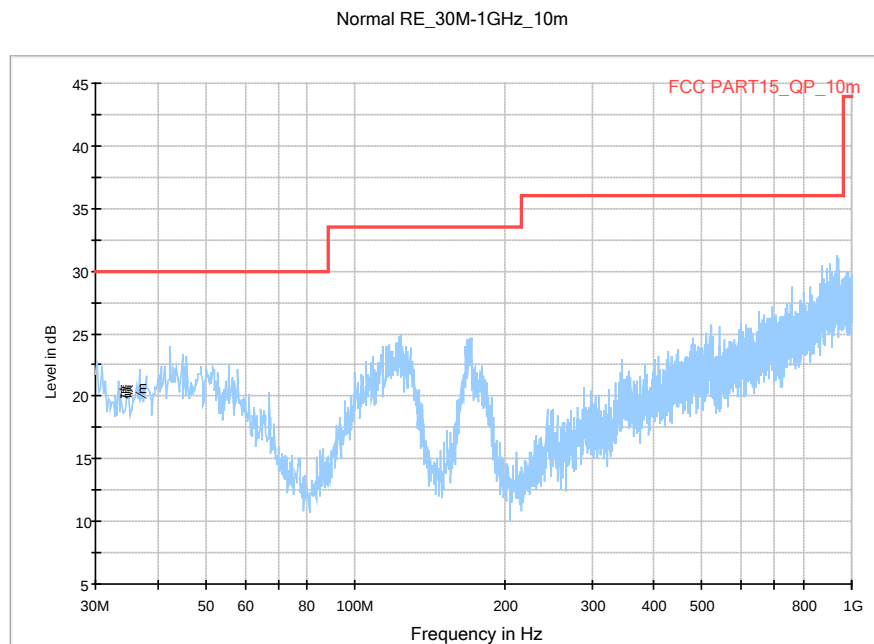


Fig.4. Radiated emission: GFSK, Channel 39, 30 MHz - 1 GHz

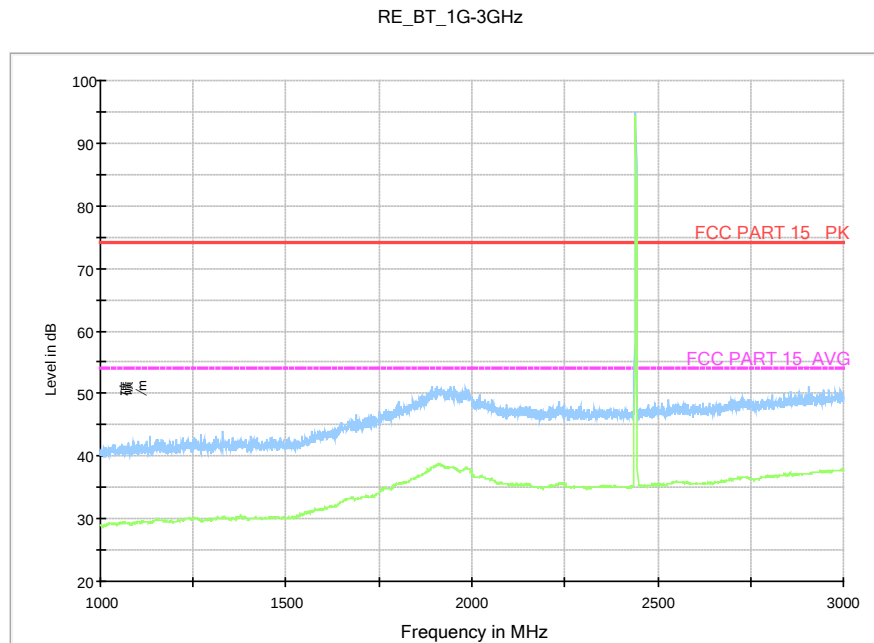


Fig.5. Radiated emission: GFSK, Channel 39, 1 GHz - 3 GHz

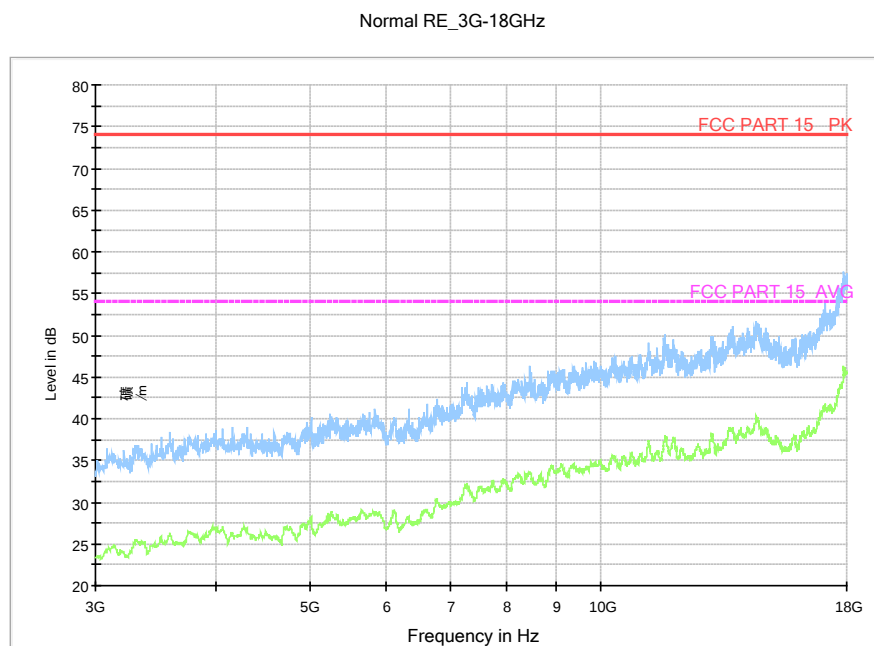


Fig.6. Radiated emission: GFSK, Channel 39, 3 GHz - 18 GHz

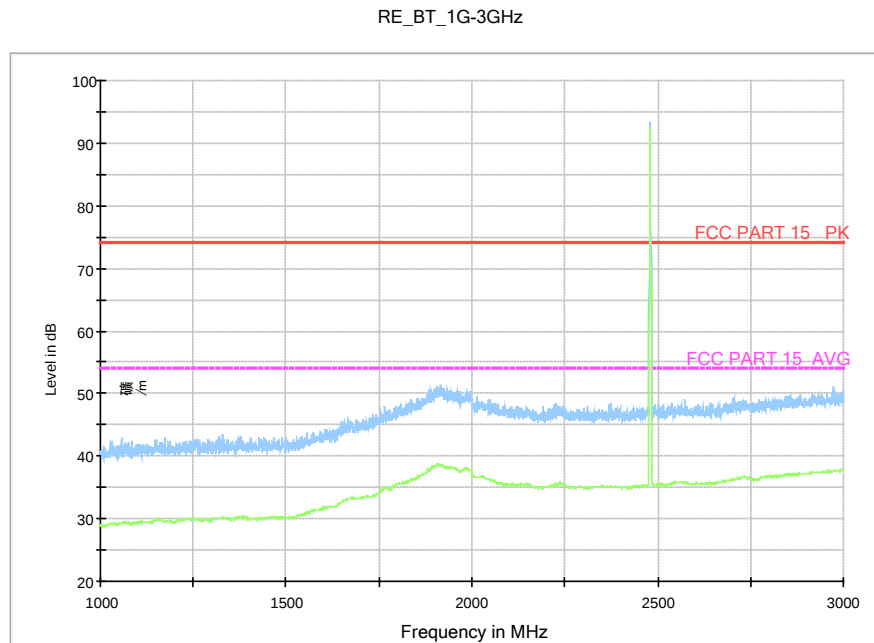


Fig.7. Radiated emission: GFSK, Channel 78, 1 GHz - 3 GHz

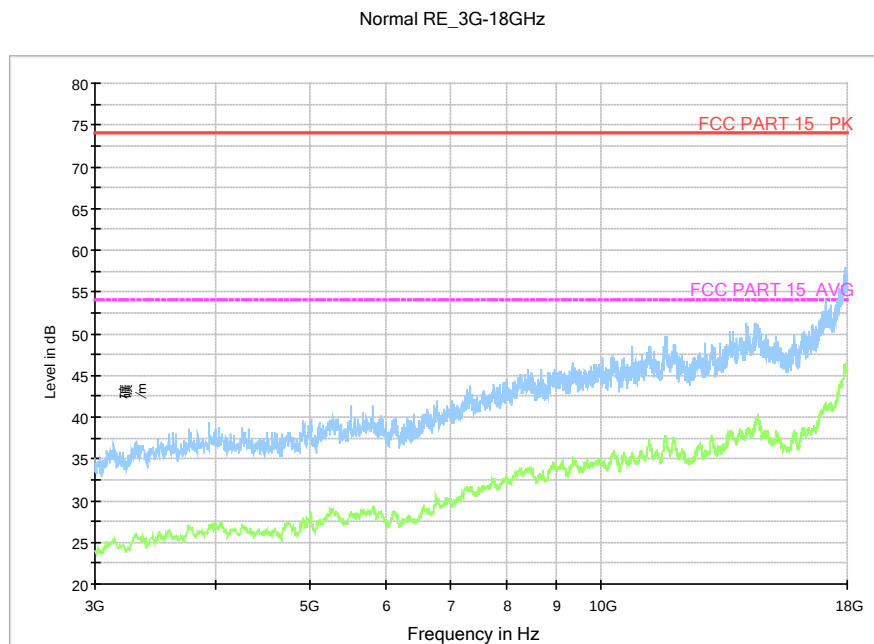


Fig.8. Radiated emission: GFSK, Channel 78, 3 GHz - 18 GHz

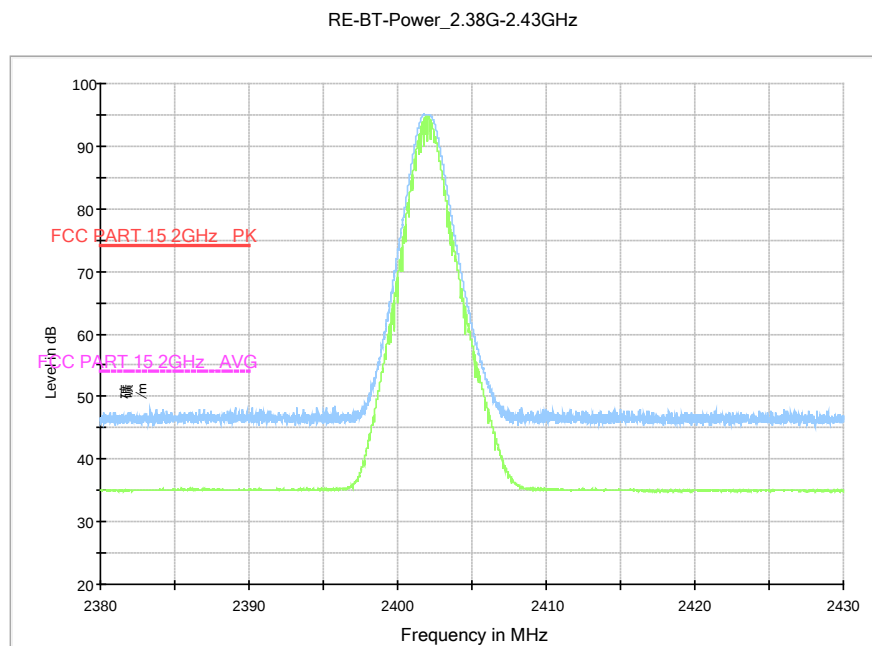


Fig.9. Radiated emission (Power): GFSK, low channel

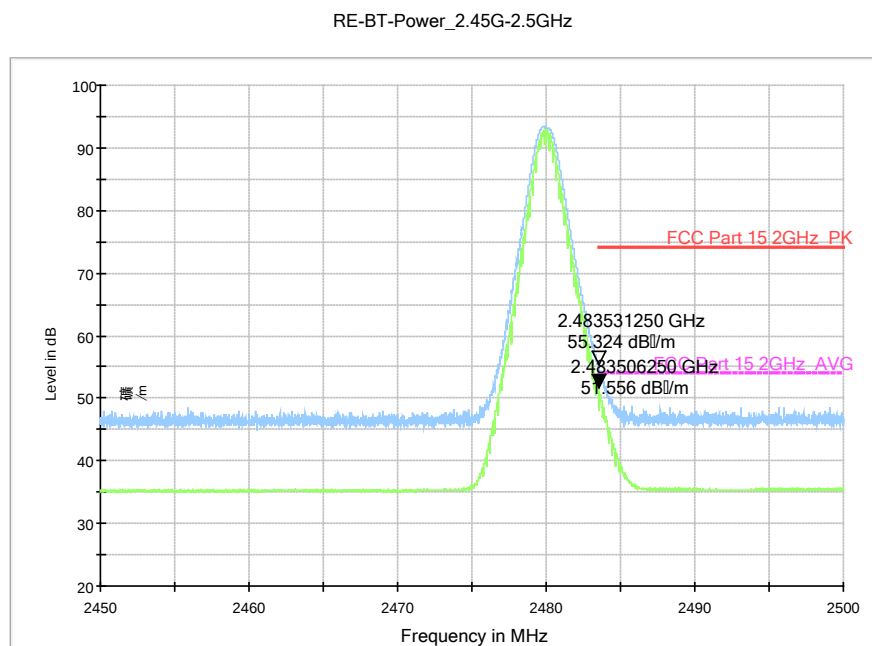


Fig.10. Radiated emission (Power) GFSK, high channel

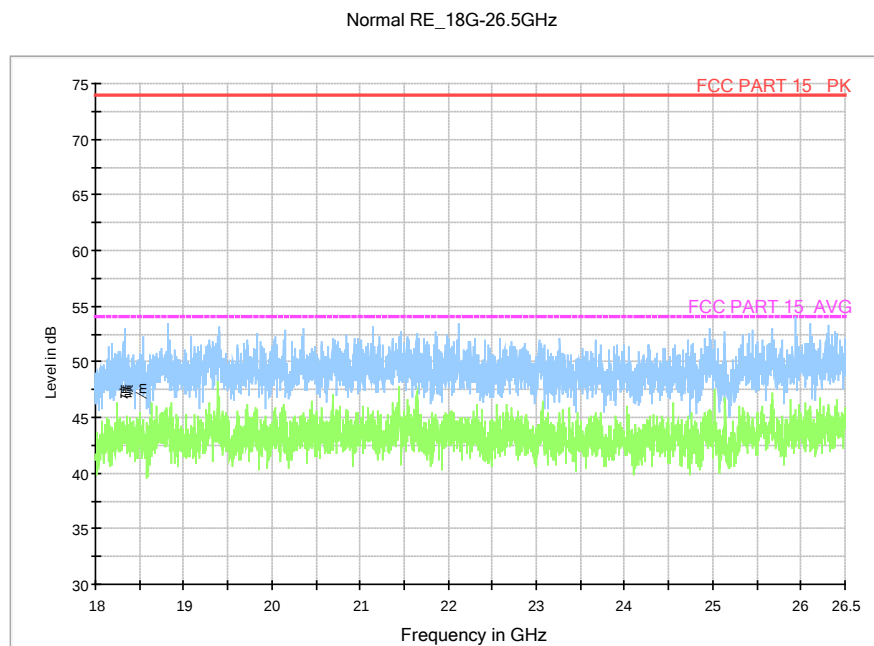


Fig.11. Radiated emission: GFSK, 18 GHz - 26 GHz

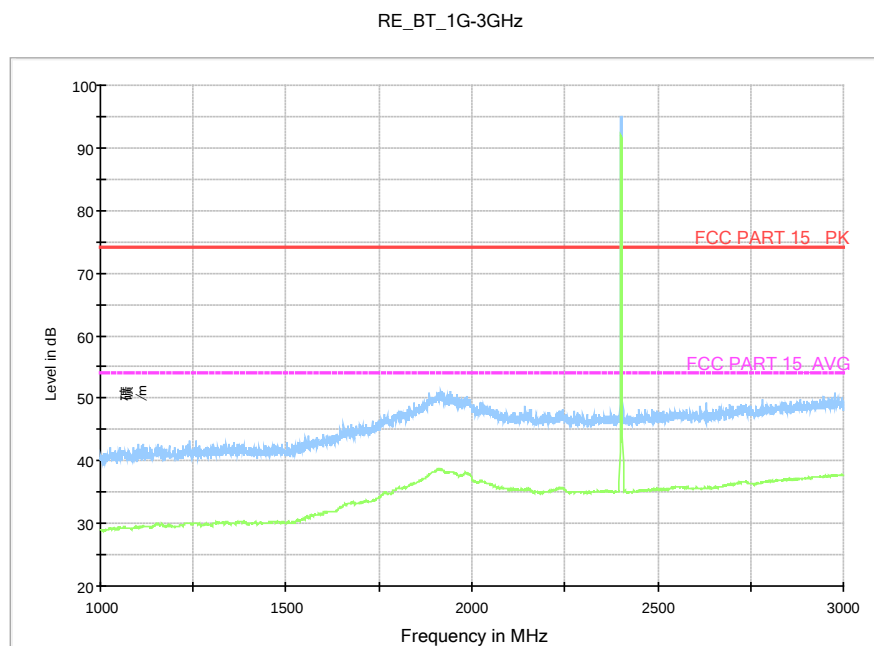


Fig.12. Radiated emission: $\pi/4$ DQPSK, Channel 0, 1 GHz - 3 GHz

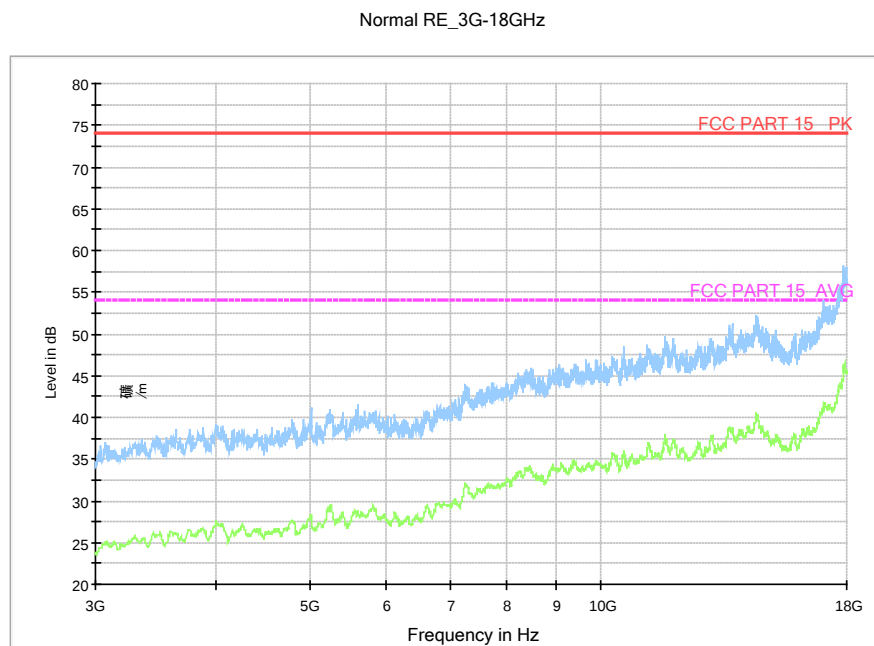


Fig.13. Radiated emission: $\pi/4$ DQPSK, Channel 0, 3 GHz - 18 GHz

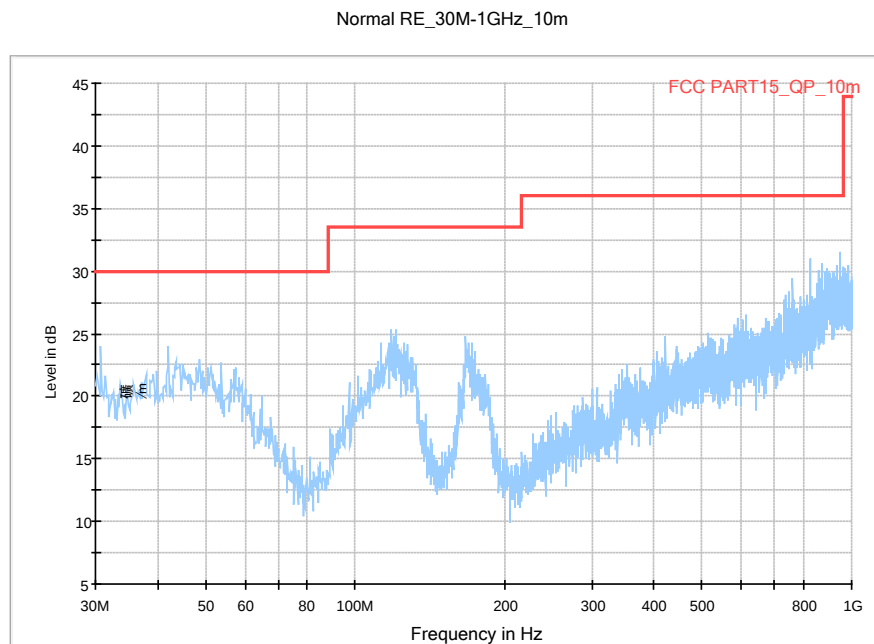


Fig.14. Radiated emission: $\pi/4$ DQPSK, Channel 39, 30 MHz - 1 GHz

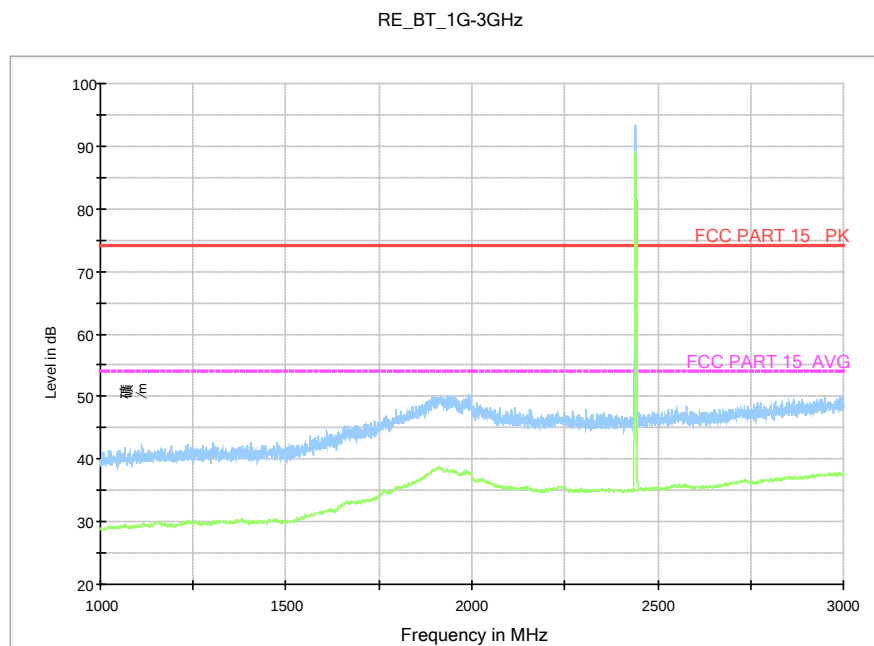


Fig.15. Radiated emission: $\pi/4$ DQPSK, Channel 39, 1 GHz - 3 GHz

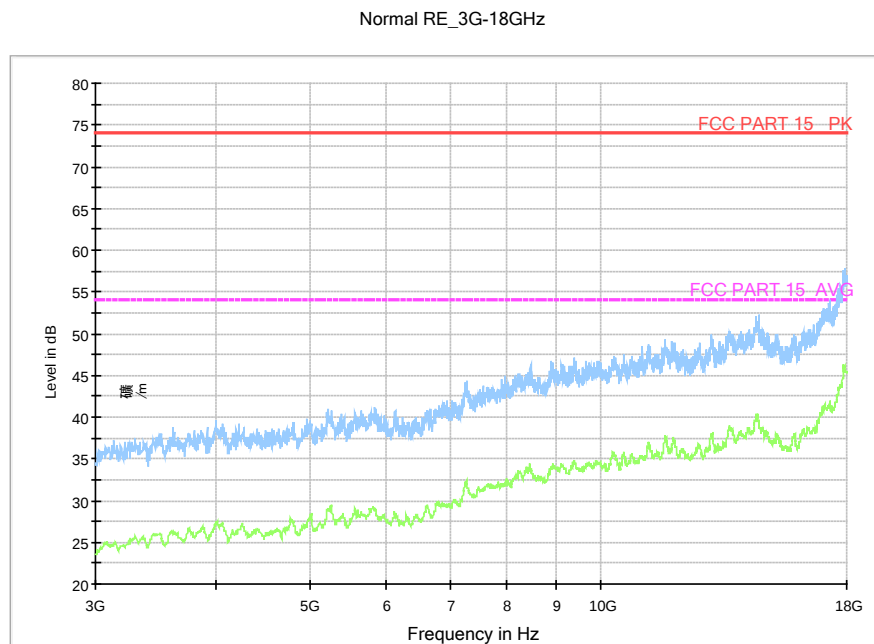


Fig.16. Radiated emission: $\pi/4$ DQPSK, Channel 39, 3 GHz - 18 GHz

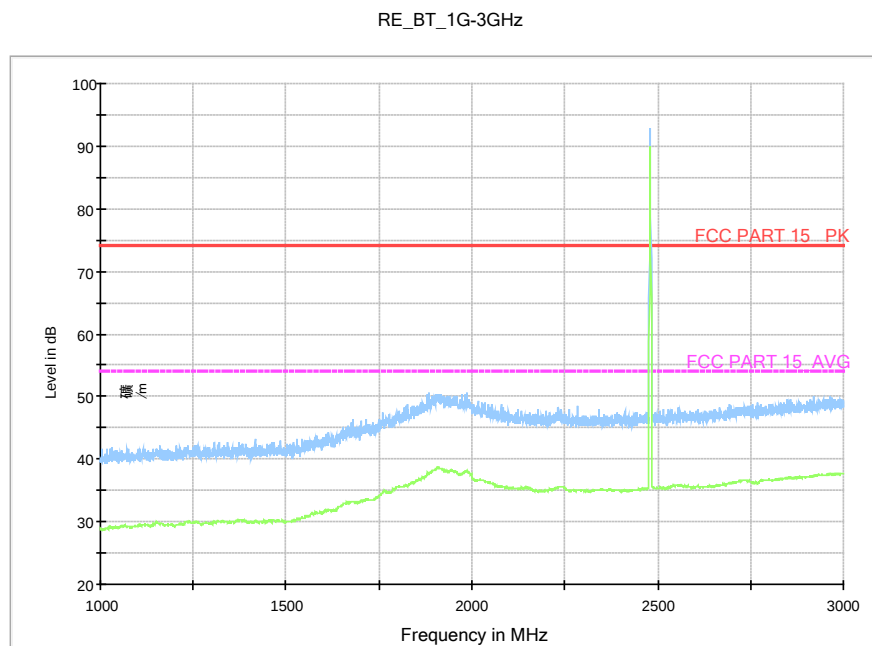


Fig.17. Radiated emission: $\pi/4$ DQPSK, Channel 78, 1 GHz - 3 GHz

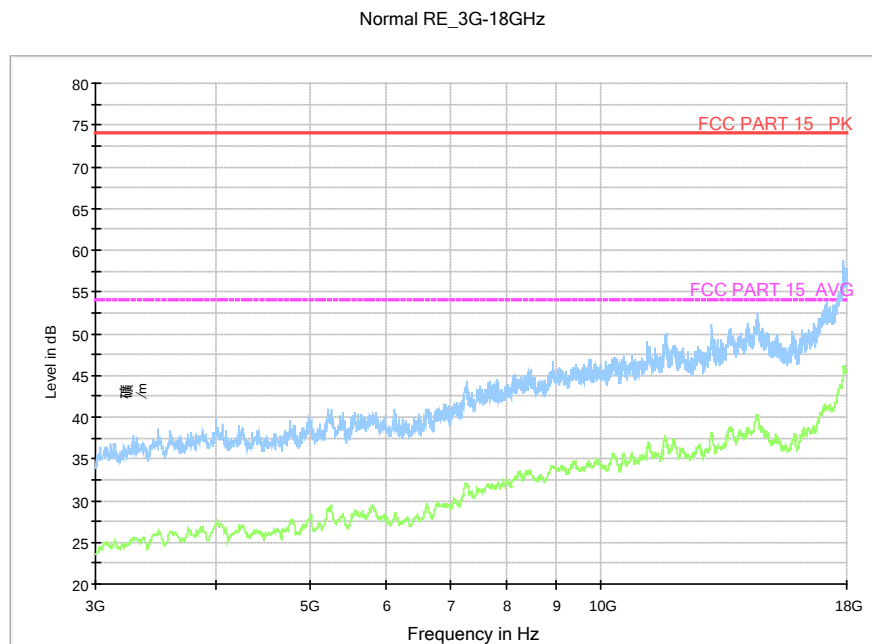


Fig.18. Radiated emission: $\pi/4$ DQPSK, Channel 78, 3 GHz - 18 GHz

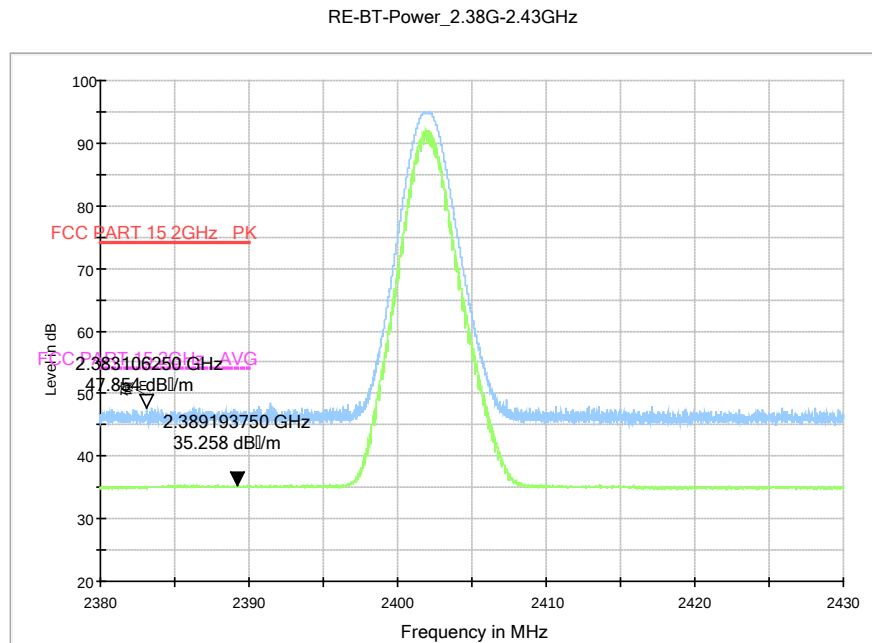


Fig.19. Radiated emission (Power): $\pi/4$ DQPSK, low channel

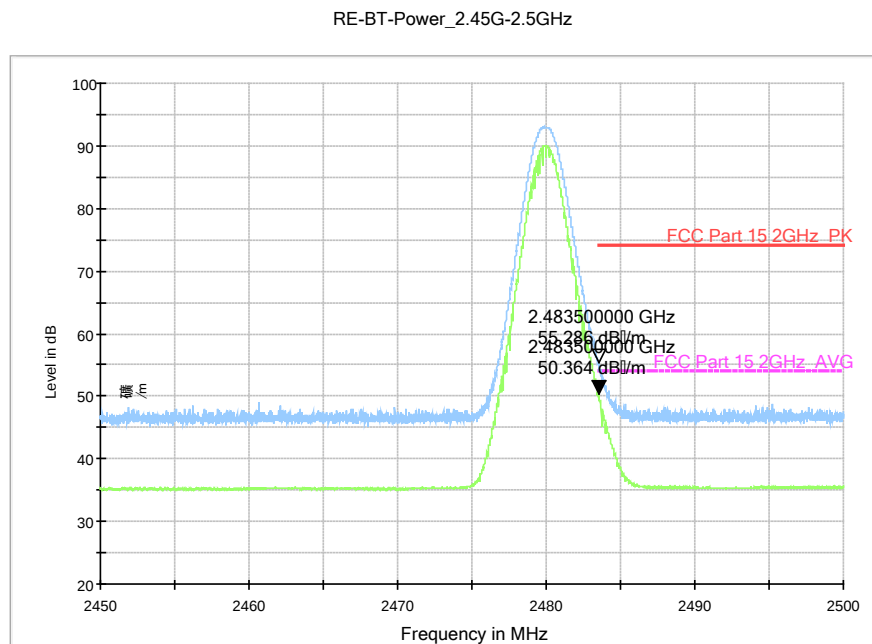


Fig.20. Radiated emission (Power): $\pi/4$ DQPSK, high channel

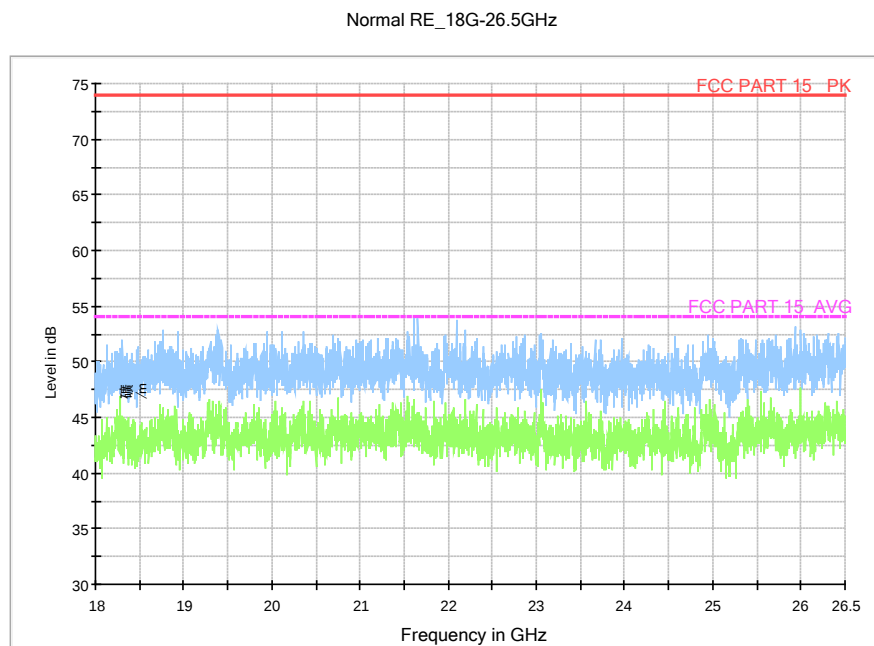


Fig.21. Radiated emission: $\pi/4$ DQPSK, 18 GHz - 26 GHz

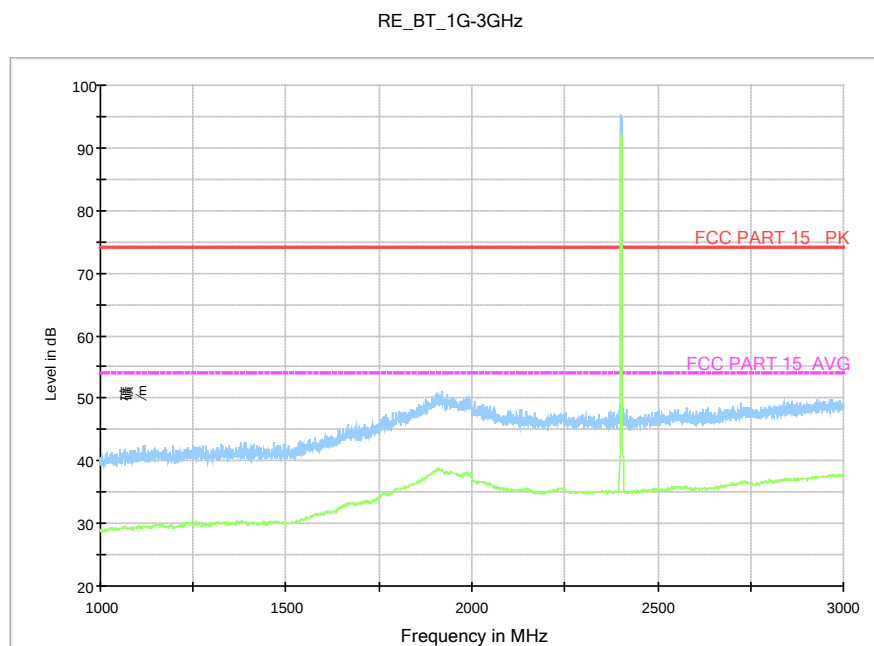


Fig.22. Radiated emission: 8DPSK, Channel 0, 1 GHz - 3 GHz

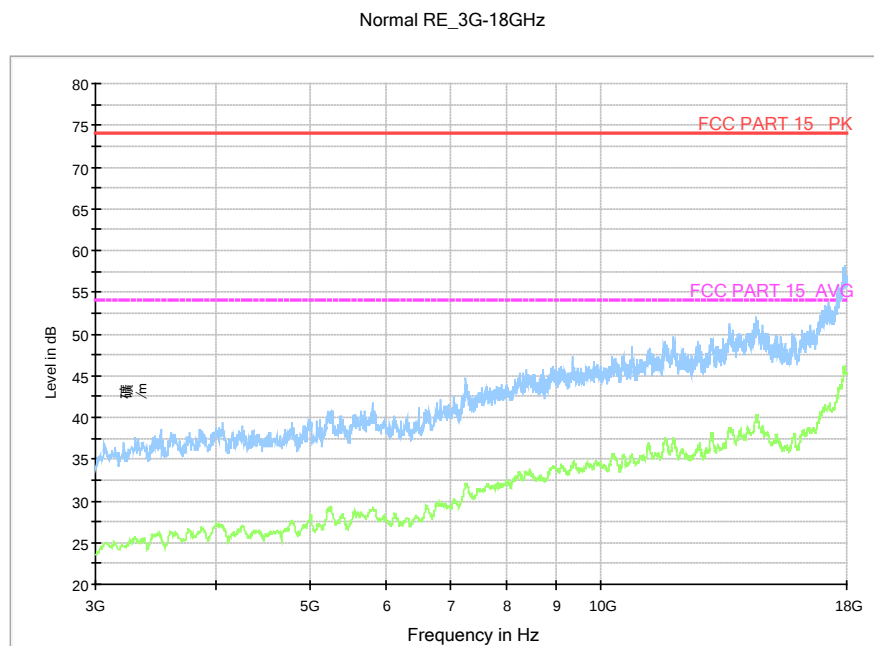


Fig.23. Radiated emission: 8DPSK, Channel 0, 3 GHz - 18 GHz

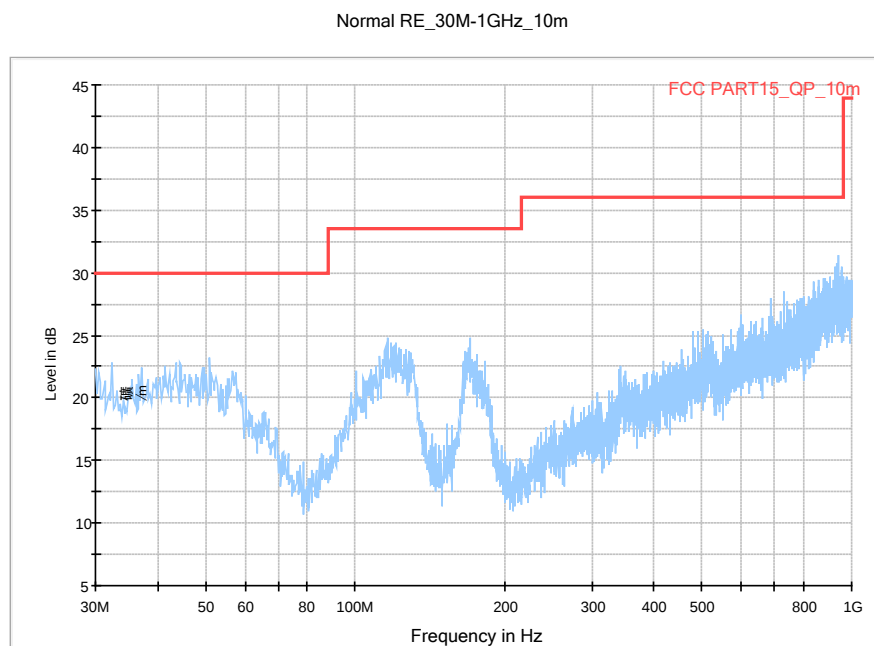


Fig.24. Radiated emission: 8DPSK, Channel 39, 30 MHz - 1 GHz

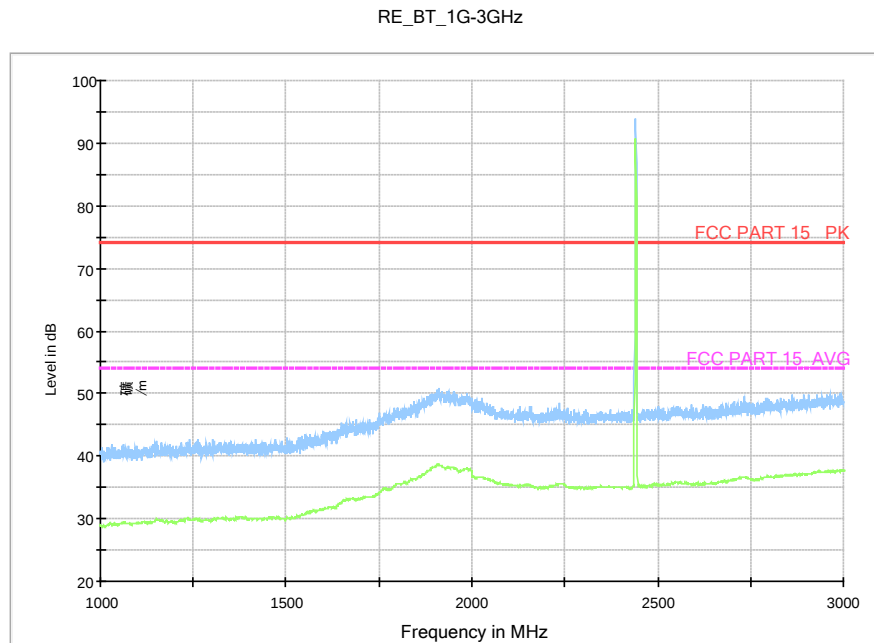


Fig.25. Radiated emission: 8DPSK, Channel 39, 1 GHz - 3 GHz

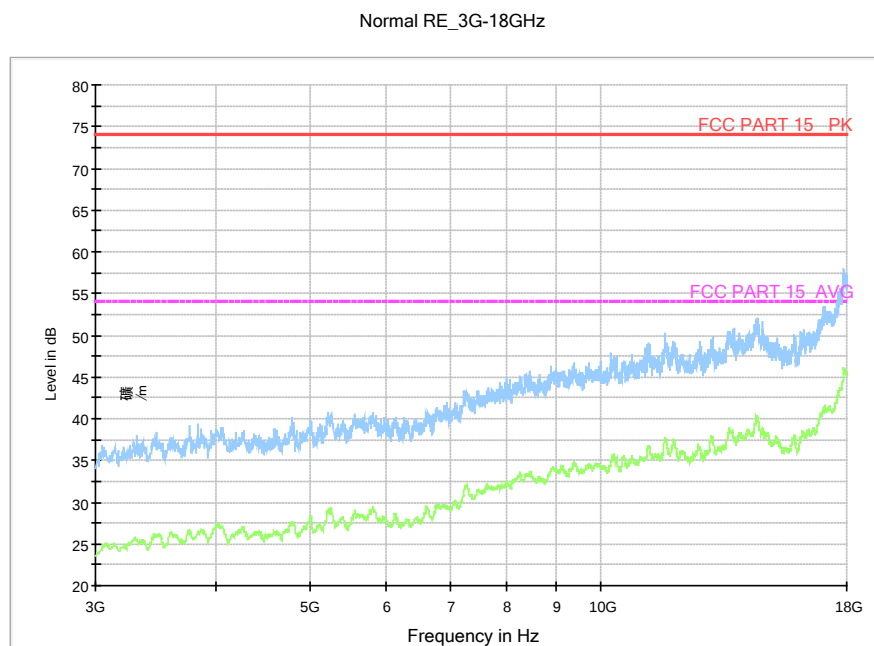


Fig.26. Radiated emission: 8DPSK, Channel 39, 3 GHz - 18 GHz

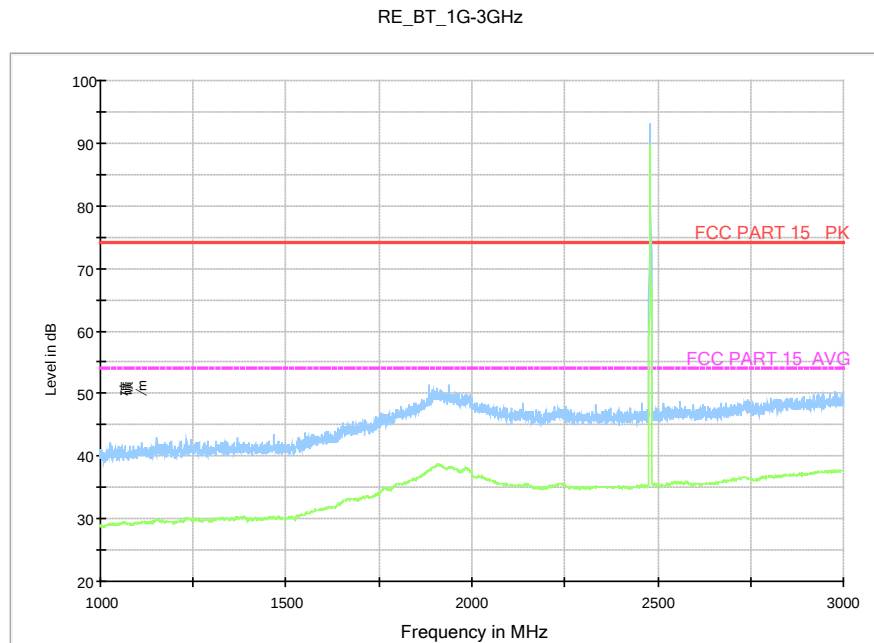


Fig.27. Radiated emission: 8DPSK, Channel 78, 1 GHz - 3 GHz

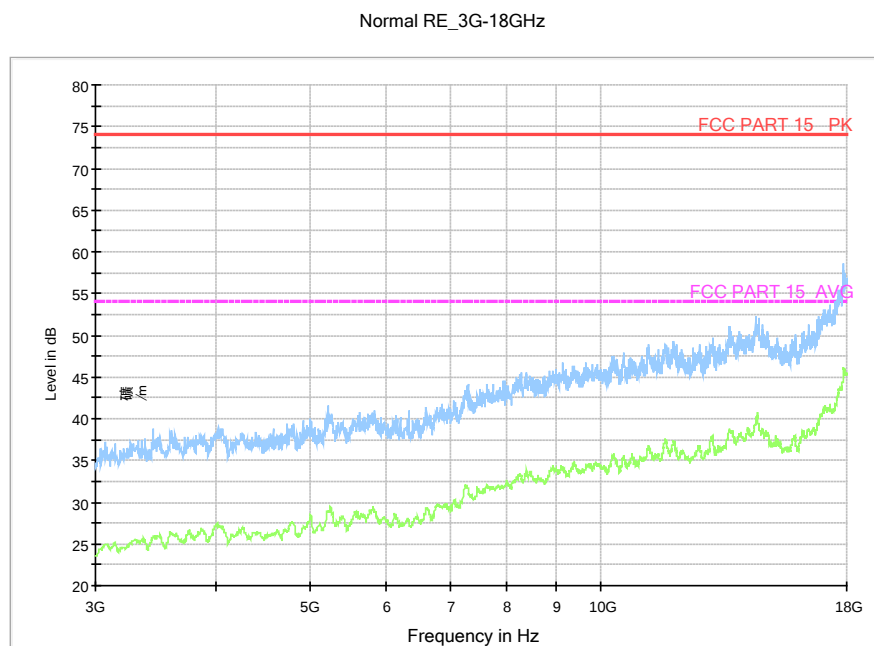


Fig.28. Radiated emission: 8DPSK, Channel 78, 3 GHz - 18 GHz

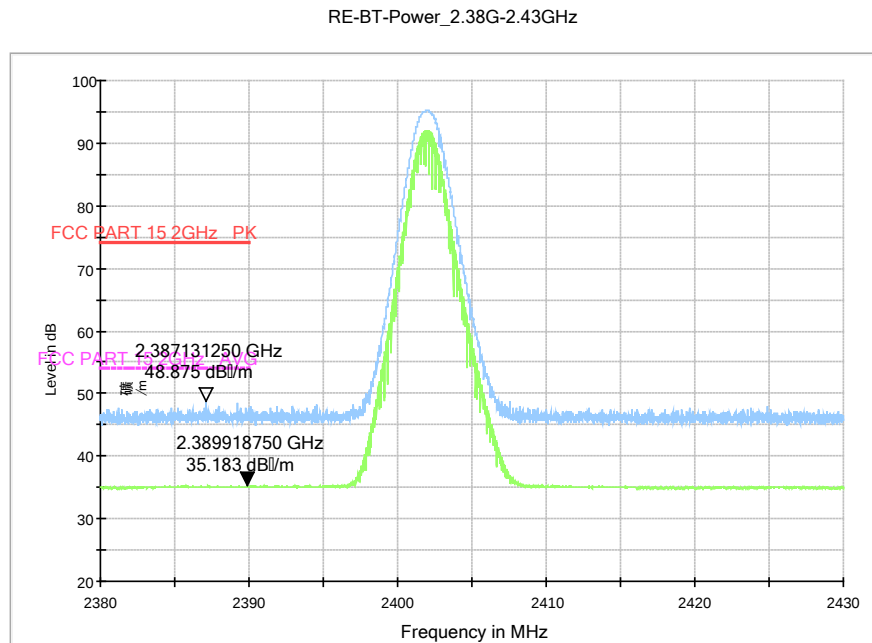


Fig.29. Radiated emission (Power): 8DPSK, low channel

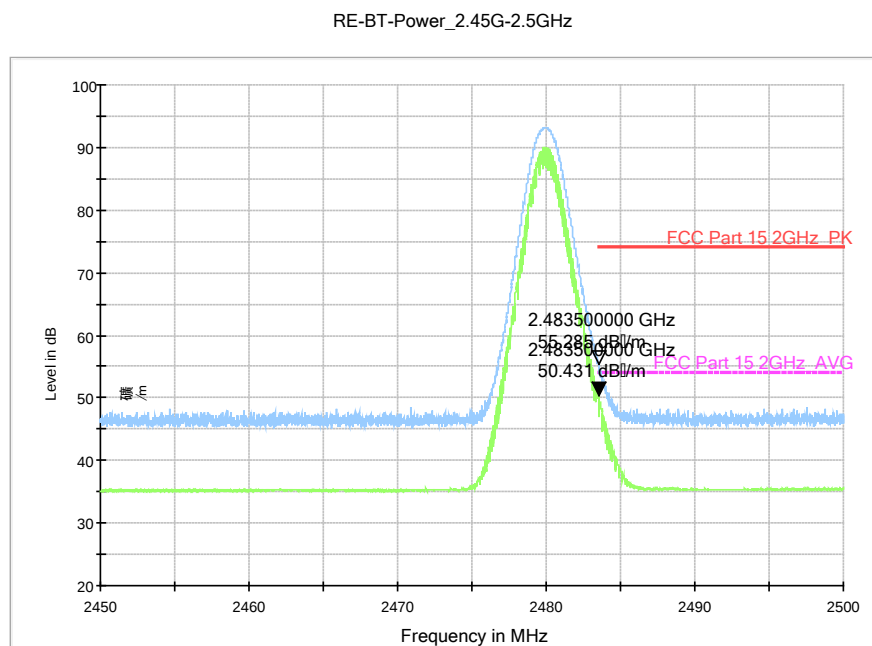


Fig.30. Radiated emission (Power): 8DPSK, high channel

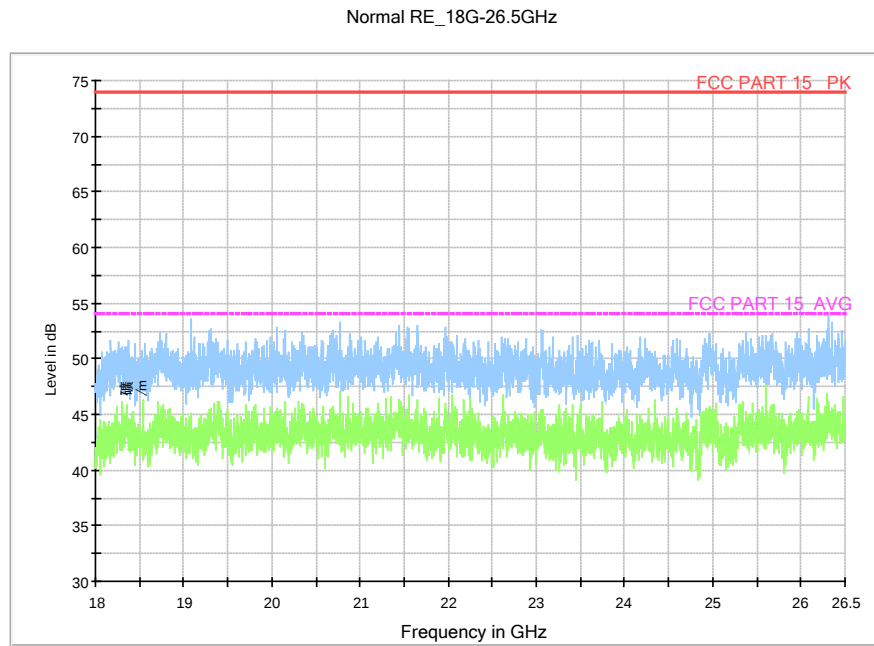


Fig.31. Radiated emission: 8DPSK, 18 GHz - 26 GHz

A.3. AC Powerline Conducted Emission**Test Condition**

Voltage (V)	Frequency (Hz)
120	60

Measurement Result and limit:**Bluetooth (Quasi-peak Limit)**

Frequency range (MHz)	Quasi-peak Limit (dB μ V)	Conclusion
0.15 to 0.5	66 to 56	P
0.5 to 5	56	
5 to 30	60	

NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

Bluetooth (Average Limit)

Frequency range (MHz)	Average Limit (dB μ V)	Conclusion
0.15 to 0.5	56 to 46	P
0.5 to 5	46	
5 to 30	50	

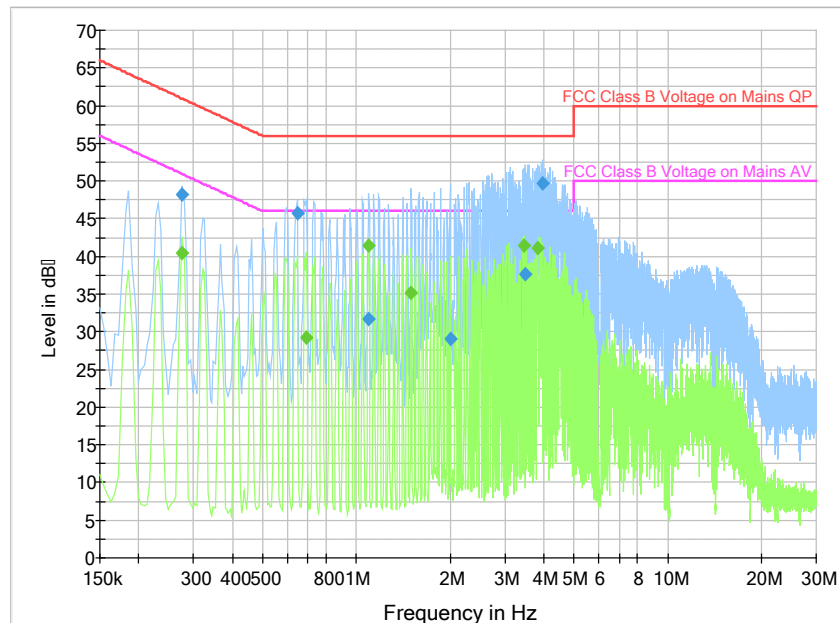
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

The measurement is made according to ANSI C63.10

Conclusion: PASS

Test graphs as below:

Traffic:



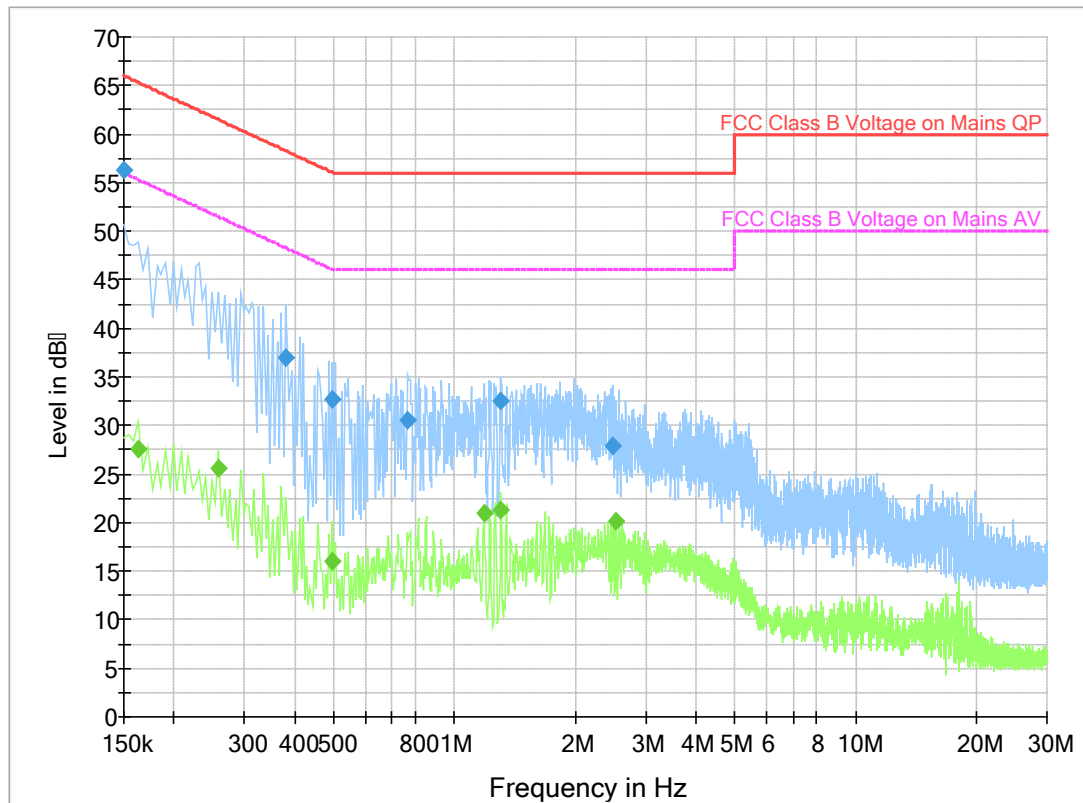
Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.276000	48.2	2000.	9.000	On	L1	19.8	12.7	60.9	
0.645000	45.7	2000.	9.000	On	L1	19.8	10.3	56.0	
1.095000	31.8	2000.	9.000	On	L1	19.7	24.2	56.0	
1.999500	29.0	2000.	9.000	On	N	19.6	27.0	56.0	
3.498000	37.7	2000.	9.000	On	L1	19.6	18.3	56.0	
3.970500	49.7	2000.	9.000	On	L1	19.7	6.3	56.0	

Final Result 2

Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.276000	40.5	2000.	9.000	On	L1	19.8	10.4	50.9	
0.690000	29.2	2000.	9.000	On	L1	19.8	16.8	46.0	
1.095000	41.5	2000.	9.000	On	L1	19.7	4.5	46.0	
1.500000	35.1	2000.	9.000	On	L1	19.6	10.9	46.0	
3.462000	41.5	2000.	9.000	On	L1	19.6	4.5	46.0	
3.831000	41.0	2000.	9.000	On	L1	19.7	5.0	46.0	

Idle:



Final Result 1

Frequency (MHz)	QuasiPeak (dBuV)	Measurement Time	Bandwidth (kHz)	Filter	Line	Correction (dB)	Margin (dB)	Limit (dBuV)	Comment
0.150000	56.3	2000.	9.000	On	L1	20.1	9.7	66.0	
0.379500	36.9	2000.	9.000	On	N	19.8	21.4	58.3	
0.496500	32.8	2000.	9.000	On	L1	19.8	23.3	56.1	
0.766500	30.5	2000.	9.000	On	L1	19.8	25.5	56.0	
1.306500	32.5	2000.	9.000	On	L1	19.6	23.5	56.0	
2.481000	28.0	2000.	9.000	On	L1	19.6	28.0	56.0	

Final Result 2

Frequency (MHz)	CAverage (dBuV)	Measurement Time	Bandwidth (kHz)	Filter	Line	Correction (dB)	Margin (dB)	Limit (dBuV)	Comment
0.163500	27.7	2000.	9.000	On	L1	19.7	27.6	55.3	
0.258000	25.5	2000.	9.000	On	L1	19.8	25.9	51.5	
0.496500	16.1	2000.	9.000	On	N	19.8	30.0	46.1	
1.185000	21.0	2000.	9.000	On	L1	19.7	25.0	46.0	
1.306500	21.2	2000.	9.000	On	L1	19.6	24.8	46.0	
2.530500	20.2	2000.	9.000	On	L1	19.6	25.8	46.0	

ANNEX B: Accreditation Certificate

 China National Accreditation Service for Conformity Assessment LABORATORY ACCREDITATION CERTIFICATE (No. CNAS L0570) Telecommunication Technology Labs, Academy of Telecommunication Research, MIIT <u>No.52, Huayuan North Road, Haidian District, Beijing, China</u> <u>No.51, Xueyuan Road, Haidian District, Beijing, China</u> <i>to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories(CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing and calibration.</i> <i>The scope of accreditation is detailed in the attached schedule bearing the same accreditation number as above. The schedule forms an integral part of this certificate.</i> Date of Issue: 2014-10-29 Date of Expiry: 2017-06-19 Date of Initial Accreditation: 1998-07-03  Signed on behalf of China National Accreditation Service for Conformity Assessment China National Accreditation Service for Conformity Assessment (CNAS) is authorized by Certification and Accreditation Administration of the People's Republic of China (CNCA) to operate the national accreditation schemes for conformity assessment. CNAS is the signatory to International Laboratory Accreditation Cooperation Multilateral Recognition Arrangement (ILAC-MRA) and Asia Pacific Laboratory Accreditation Cooperation Multilateral Recognition Arrangement (APLAC-MRA).
No.CNAS AL 2 0011149

END OF REPORT