



**FCC PART 15/IC RSS-210  
TEST REPORT  
No. 2013WLN0775**

**for**

**Sony Mobile Communications AB**

**Wi-Fi Display Adapter**

**Type: RW-0100**

**With**

**FCC ID: PY7-RW0100**

**IC: 4170B- RW0100**

**Hardware Version: AP**

**Software Version: 0.1.1.1**

**Issued Date: 2013-09-30**

**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 TMC Beijing.

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## 1. TEST LATORATORY

### 1.1. Testing Location

Company Name: TMC Beijing, Telecommunication Metrology Center of MIIT  
Address: No 52 Hua Yuanbei Road, Haidian District, Beijing, P.R.China  
Postal Code: 100191  
Telephone: 008610623046332561  
Fax: 008610623046332504

### 1.2. Project data

Testing Start Date: 2013-09-09  
Testing End Date: 2013-09-26

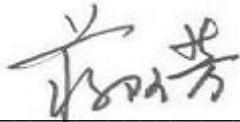
### 1.3. Signature



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Xu Zhongfei

(Prepared this test report)



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Jiang Afang

(Reviewed this test report)



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Xiao Li

Deputy Director of the laboratory

(Approved this test report)

## **2. CLIENT INFORMATION**

### **2.1. Applicant Information**

Company Name: Sony Mobile Communications (China) Co. Ltd  
Address /Post: Sony Mobile R&D Center, No. 16, Guangshun South Street,  
Chaoyang District  
City: Beijing  
Postal Code: 100102  
Country: China  
Contact: Ma, Gang  
Telephone: +86-10-58656312  
Fax: +86-10-58659049

### **2.2. Manufacturer Information**

Company Name: Sony Mobile Communications AB  
Address /Post: Nya Vattentornet, 22188 Lund, Sweden  
City: Lund  
Postal Code: 22188  
Country: Sweden  
Contact Person: Nordlof, Anders  
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Fax: +46-10-800 2441

### **3. EQUIPMENT UNDER TEST (EUT) AND ANCILLARY**

#### **EQUIPMENT(AE)**

##### **3.1. About EUT**

Description	Wi-Fi Display Adapter
Type	RW-0100
FCC ID	PY7-RW0100
IC	4170B- RW0100
WLAN Frequency Range	ISM Bands: 5150MHz~5250MHz
Type of modulation	OFDM
MAX Radiated Power	7.85dBm(OFDM)
MAX Conducted Power	6.25dBm(OFDM)
Extreme Temperature	-20/+55°C
Voltage	USB cable power

Note: Photographs of EUT are shown in ANNEX C of this test report. Components list, please refer to documents of the manufacturer; it is also included in the original test record of Telecommunication Metrology Center of MIIT of People's Republic of China.

##### **3.2. Internal Identification of EUT used during the test**

<b>EUT ID*</b>	<b>S/N</b>	<b>HW Version</b>	<b>SW Version</b>
EUT1	13341D1DCE0251A	AP	0.1.1.1
EUT2	13341D1DCE02B22	AP	0.1.1.1

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

##### **3.3. Internal Identification of AE used during the test**

<b>AE ID*</b>	<b>Description</b>	<b>Type</b>	<b>SN</b>
AE1	AC/DC Adapter	AC-0400-EU	8512W19 100304
AE2	USB Cable	AI-0700	124412D41165448

\*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 Wi-Fi Display Adapter with integrated antenna. It has a USB port and a HDMI port.

It support WLAN (802.11 a/b/g/n) and NFC functions. For 2.4GHz 802.11n, it also supports MIMO. It includes normal options: AC/DC adapter, USB cable and HDMI cable.

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.

FCC Part15	Title 47 of the Code of Federal Regulations; Chapter I Part 15 - Radio frequency devices	Oct, 2012
UNII: KDB 789033	Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - Part 15, Subpart E	2012-09
RSS-GEN	Spectrum Management and Telecommunications - Radio Standards Specification General Requirements and Information for the Certification of Radiocommunication Equipment	Issue 3
RSS-210	Spectrum Management and Telecommunications - Radio Standards Specification Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment	Issue 8

#### **5. LABORATORY ENVIRONMENT**

Conducted RF performance testing is performed in shielding room.

EMC performance testing is performed in Semi-anechoic chamber.



## 6. SUMMARY OF TEST RESULTS

### 6.1. Summary of Test Results

SUMMARY OF MEASUREMENT RESULTS	Sub-clause of Part15E	Sub-clause of IC	Verdict
Maximum Output Power	15.407	A9	<b>P</b>
Power Spectral Density	15.407	A9	<b>P</b>
Occupied 26dB Bandwidth	15.403	A9	<b>P</b>
Band edge compliance	15.407	A9	<b>P</b>
Transmitter spurious emissions radiated	15.407	A9	<b>P</b>
Receiver spurious emissions radiated	15.407	A9	<b>P</b>
Spurious emissions radiated < 30 MHz	15.407	A9	<b>P</b>
Spurious emissions conducted < 30 MHz	15.407	7.2.2	<b>P</b>
Peak Excursion	15.407	A9	<b>P</b>
Frequency Stability	15.407	A9	<b>NA</b>
Transmit Power Control	15.407	A9	<b>NA</b>

Please refer to **ANNEX A** for detail.

Terms used in Verdict column

P	Pass, The EUT complies with the essential requirements in the standard.
NM	Not measured, The test was not measured by TMC
NA	Not Applicable, The test was not applicable
F	Fail, The EUT does not comply with the essential requirements in the standard

### 6.2. Statements

TMC has evaluated the test cases requested by the client/manufacturer as listed in section 6.1 of this report for the EUT specified in section 3 according to the standards or reference documents listed in section 4.1.

This report only deals with the WLAN function among the features described in section 3.

### 6.3. Test Conditions

For this report, all the test cases are tested under normal temperature and normal voltage, and also under norm humidity, the specific condition is shown as follows:

Temperature	26°C
Voltage	USB cable power
Humidity	44%

## 7. TEST EQUIPMENTS UTILIZED

### Conducted test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Due date
1	Vector Signal Analyzer	FSQ40	200089	Rohde & Schwarz	2014-07-08
2	Test Receiver	ESS	847151/015	Rohde & Schwarz	2013-10-30
3	LISN	ESH2-Z5	829991/012	Rohde & Schwarz	2014-08-12
4	Shielding Room	S81	/	ETS-Lindgren	/

### Radiated emission test system

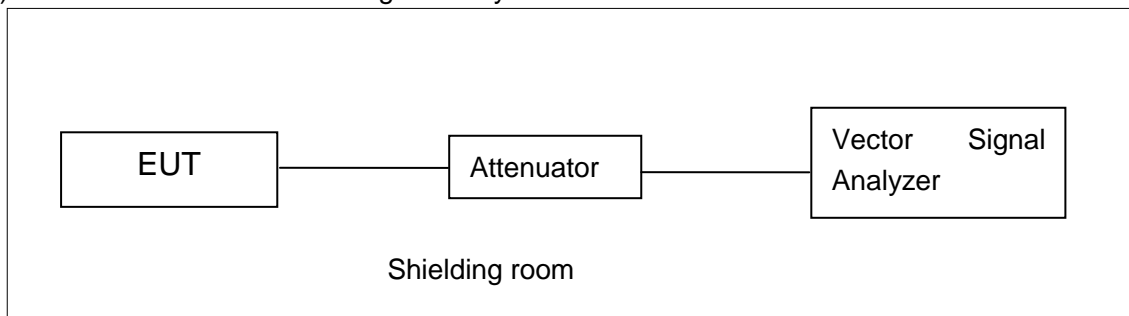
No.	Equipment	Model	Serial Number	Manufacturer	Calibration Due date
1	Test Receiver	ESI40	831564/002	Rohde & Schwarz	2014-02-12
2	BiLog Antenna	3142B	9908-1403	EMCO	2014-03-15
3	Dual-Ridge Waveguide Horn Antenna	3115	9906-5827	EMCO	2013-12-25
4	Dual-Ridge Waveguide Horn Antenna	3116	2661	EMCO	2014-06-30
5	Semi-anechoic chamber	/	CT000332-1074	Frankonia German	/

## ANNEX A: MEASUREMENT RESULTS

### A.1. Measurement Method

#### A.1.1. Conducted Measurements

- 1). Connect the EUT to the test system correctly.
- 2). Set the EUT to the required work mode.
- 3). Set the EUT to the required channel.
- 4). Set the spectrum analyzer to start measurement.
- 5). Record the values. Vector Signal Analyzer

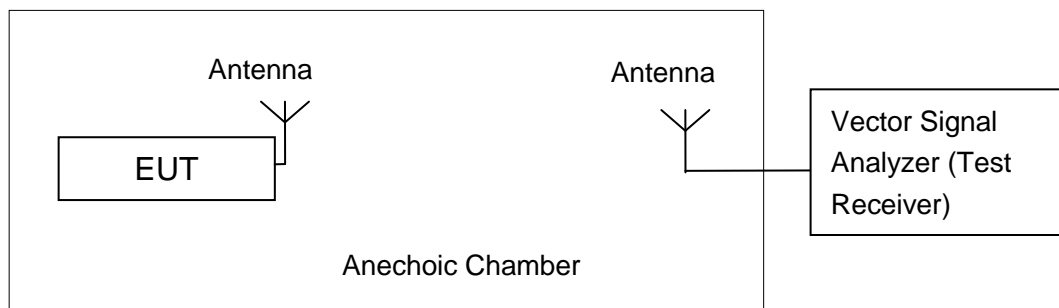


#### A.1.2. Radiated Emission Measurements

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 = 10Hz;



The measurement is made according to KDB 789033

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.

## A.2. Maximum Peak Output Power

### Measurement Limit and Method:

Standard	Frequency (MHz)	Limit (dBm)
FCC CRF Part 15.407(a)	5150MHz~5250MHz	17dBm or 4+10logB

Limit use the less value, and B is the 26dB bandwidth.

The measurement method SA-1 is made according to KDB 789033

### Measurement Uncertainty:

Measurement Uncertainty	0.75dB
-------------------------	--------

### A.2.1. Output Power Verification

This test is only for mode verification, and the selected mode will be used for the future measurement.

### Measurement Results:

OFDM/a mode	Maximum Conducted Power (dBm)							
data rate (Mbps)	6	9	12	18	24	36	48	54
36 (5180 MHz)	5.83	5.67	5.39	5.15	4.45	4.07	3.27	2.84

OFDM/n-HT20 mode	Maximum Conducted Power (dBm)							
data rate (Mbps)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
36 (5180 MHz)	6.14	5.76	5.14	4.74	4.93	3.53	3.01	2.87

Selected data rate for all measurement:

OFDM /a-mode: 6Mbps

OFDM /n-HT20 mode: MCS0

### A.2.2. Antenna Gain

The antenna gain of the complete system is calculated by the difference of radiated power and the conducted power of the EUT.

Test	Channel	
Tnom,Vnom	Low(5180MHz)	High(5240MHz)
<b>Conducted Power(dBm)</b>	11.06	10.79
<b>Radiated Power(dBm)</b>	12.77	12.17
<b>Gain(dBi)</b>	1.71	1.38

Antenna Gain = Radiated value (with radiated sample) - Conducted values (with conducted samples)

### A.2.3. Maximum Output Power

#### Measurement Results:

##### 802.11a mode

Type	Test Result (dBm)	
	5180MHz(Ch36)	5240MHz(Ch48)
Conducted(dBm)	5.83	6.06
Radiated(dBm)	7.54	7.44

##### 802.11n-HT20 mode

Type	Test Result (dBm)	
	5180MHz(Ch36)	5240MHz(Ch48)
conducted(dBm)	6.14	6.25
Radiated(dBm)	7.85	7.63

**Conclusion: PASS**

### A.3. Peak Power Spectral Density (conducted)

#### Measurement Limit:

Standard	Frequency (MHz)	Limit (dBm/MHz)
FCC CRF Part 15.407(a)	5150MHz~5250MHz	4

The output power measurement method SA-1 is made according to KDB 789033

#### Measurement Uncertainty:

Measurement Uncertainty	0.75dB
-------------------------	--------

Note: Configuration information to be tested as follows:

Modulation type and data rate:

802.11a	802.11n-HT20
6Mbps(OFDM)	MCS0(OFDM)

#### Measurement Results:

Mode	Channel	Power Spectral Density (dBm/MHz)	Conclusion
802.11a	5180 MHz	-19.42	P
	5200 MHz	-19.28	P
	5240 MHz	-19.02	P
802.11n HT20	5180 MHz	-18.88	P
	5200 MHz	-17.57	P
	5240 MHz	-18.99	P

**Conclusion: PASS**

#### A.4. Occupied 26dB Bandwidth(conducted)

##### Measurement Limit:

Standard	Limit (kHz)
FCC 47 CFR Part 15.403 (i)	/

The measurement is made according to KDB 789033

##### Measurement Uncertainty:

Measurement Uncertainty	60.80Hz
-------------------------	---------

Note: Configuration information to be tested as follows:

Modulation type and data rate:

802.11a	802.11n-HT20
6Mbps(OFDm)	MCS0(OFDm)

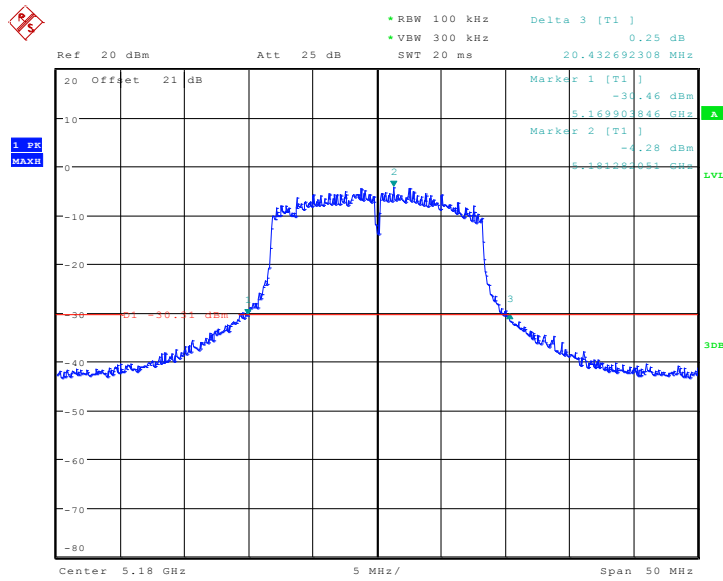
This Configuration information is worse case, please refer to A.2.1

##### Measurement Result:

Mode	Channel	Occupied 26dB Bandwidth ( kHz)		conclusion
		Fig.1	20433	
802.11a	5180 MHz	Fig.1	20433	P
	5200 MHz	Fig.2	20353	P
	5240 MHz	Fig.3	20994	P
802.11n HT20	5180 MHz	Fig.4	21474	P
	5200 MHz	Fig.5	20833	P
	5240 MHz	Fig.6	21635	P

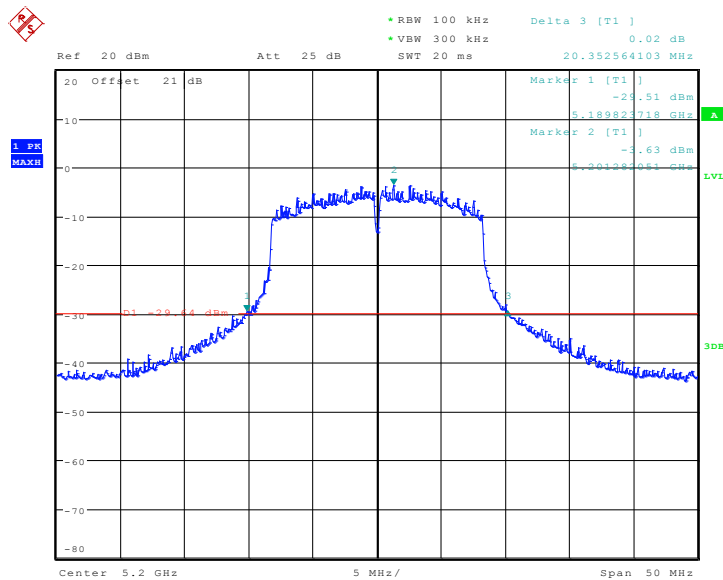
**Conclusion: PASS**

Test graphs as below:



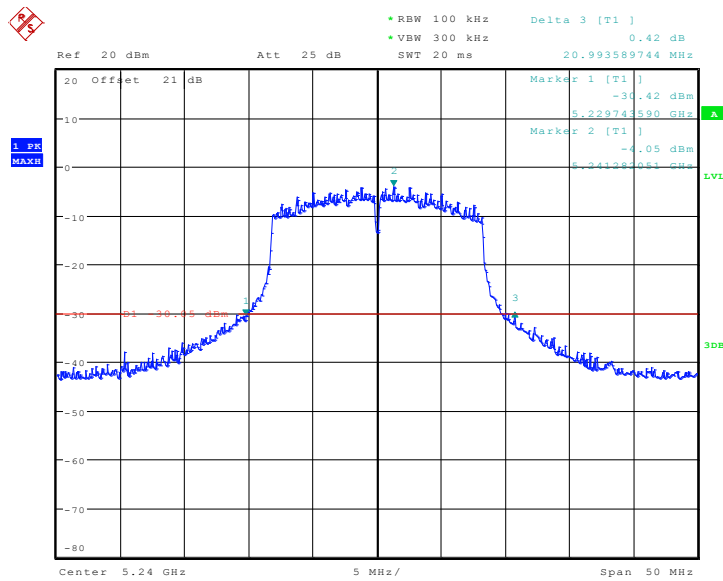
Date: 22.SRP.2013 17:23:13

**Fig. 1 Occupied 26dB Bandwidth (802.11a, 5180MHz)**



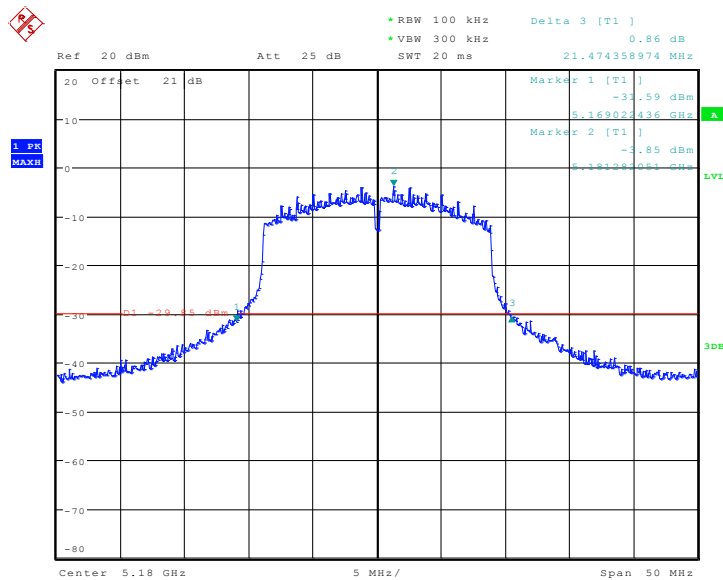
Date: 22.SRP.2013 17:24:58

**Fig. 2 Occupied 26dB Bandwidth (802.11a, 5200MHz)**



Date: 22.SEP.2013 17:26:30

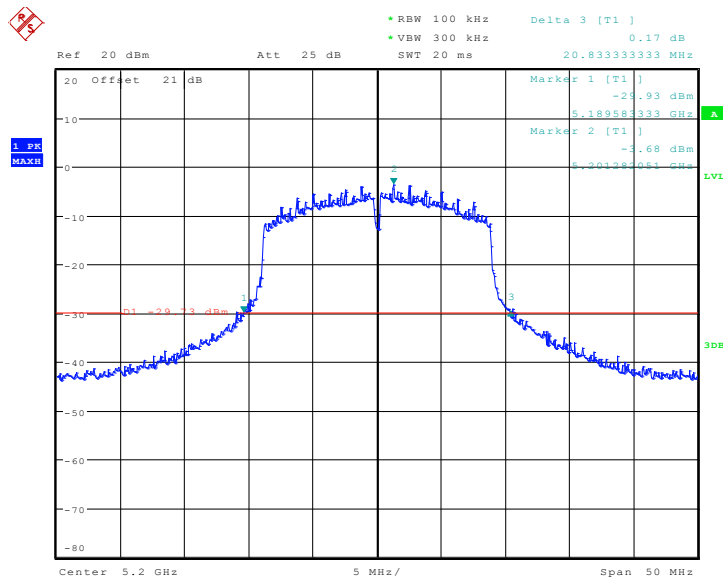
**Fig. 3 Occupied 26dB Bandwidth (802.11a, 5240MHz)**



Date: 22.SEP.2013 17:41:43

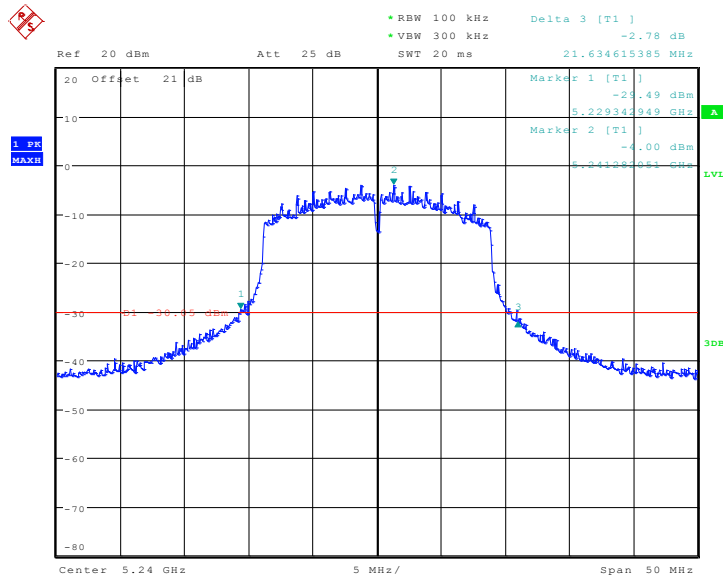
**Fig. 4 Occupied 26dB Bandwidth (802.11n-HT20, 5180MHz)**





Date: 22.SEP.2013 17:42:59

**Fig. 5 Occupied 26dB Bandwidth (802.11n-HT20, 5200MHz)**



Date: 22.SEP.2013 17:44:14

**Fig. 6 Occupied 26dB Bandwidth (802.11n-HT20, 5240MHz)**

## A.5. Band Edges Compliance

### A5.1 Band Edges - conducted

#### Measurement Limit:

Standard	Limit (dBc)
FCC 47 CFR Part 15.407	> 20

The measurement is made according to KDB 789033

#### Measurement Uncertainty:

Measurement Uncertainty	0.75dB
-------------------------	--------

Note: Configuration information to be tested as follows:

Modulation type and data rate:

802.11a	802.11n-HT20
6Mbps(OFDM)	MCS0(OFDM)

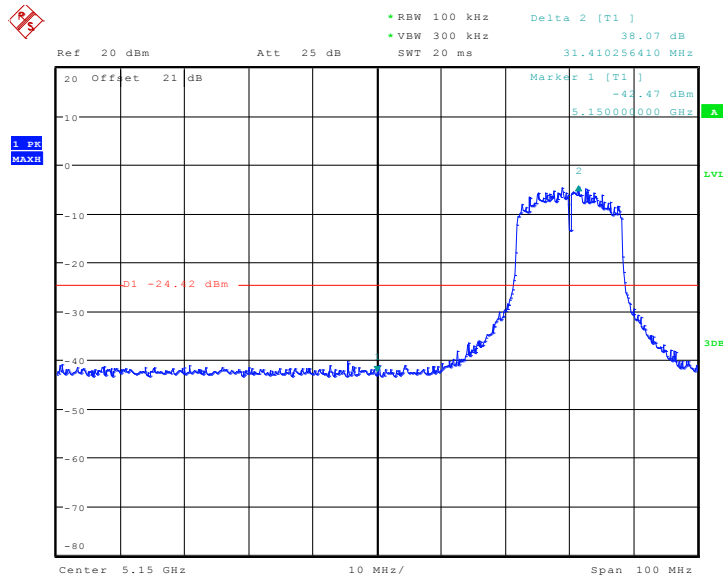
This Configuration information is worse case, please refer to A.2.1

#### Measurement Result:

Mode	Channel	Test Results		Conclusion
802.11a	5180 MHz	Fig.7	18.05	P
	5240 MHz	Fig.8	5.64	P
802.11n HT20	5180 MHz	Fig.9	17.46	P
	5240 MHz	Fig.10	4.02	P

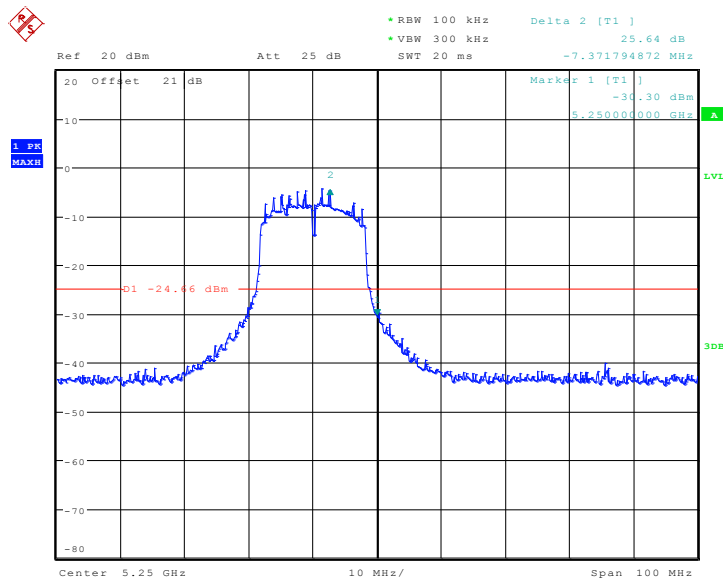
**Conclusion: PASS**

Test graphs as below:



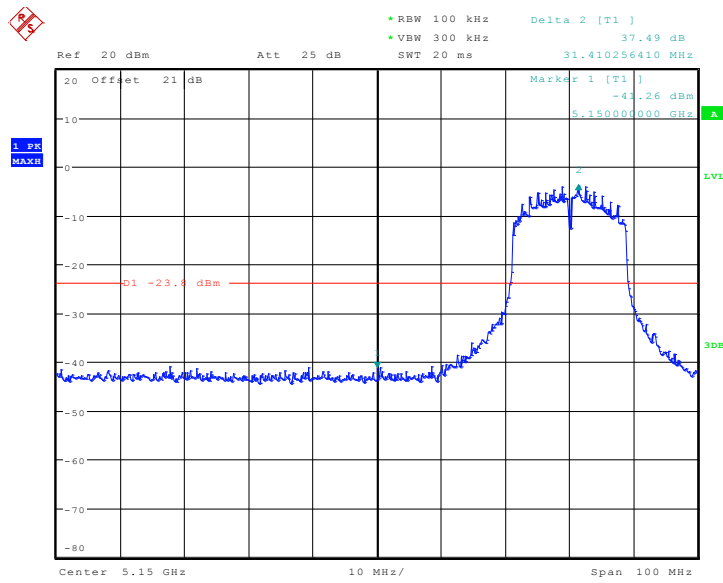
Date: 22.SEP.2013 18:02:59

**Fig. 7 Band Edges (802.11a, 5180MHz)**



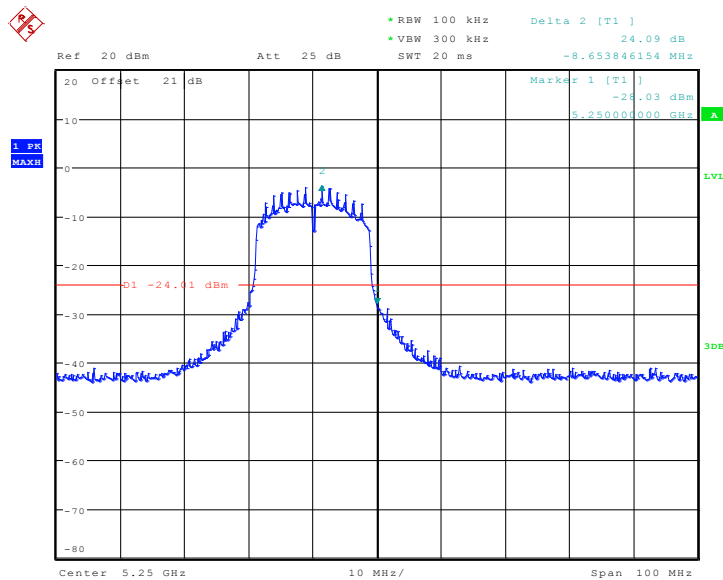
Date: 30.SEP.2013 12:25:01

**Fig. 8 Band Edges (802.11a, 5240MHz)**



Date: 22.SEP.2013 18:06:35

**Fig. 9 Band Edges (802.11n-HT20, 5180MHz)**



Date: 30.SEP.2013 12:24:22

**Fig. 10 Band Edges (802.11n-HT20, 5240MHz)**

### A5.1 Band Edges - Radiated

#### Measurement Limit:

Standard	Limit (dBc)
FCC 47 CFR Part 15.407	> 20

The measurement is made according to KDB 789033

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)).

#### Measurement Uncertainty:

Measurement Uncertainty	0.75dB
-------------------------	--------

Note: Configuration information to be tested as follows:

Modulation type and data rate:

802.11a	802.11n-HT20
6Mbps(OFDM)	MCS0(OFDM)

This Configuration information is worse case, please refer to A.2.1

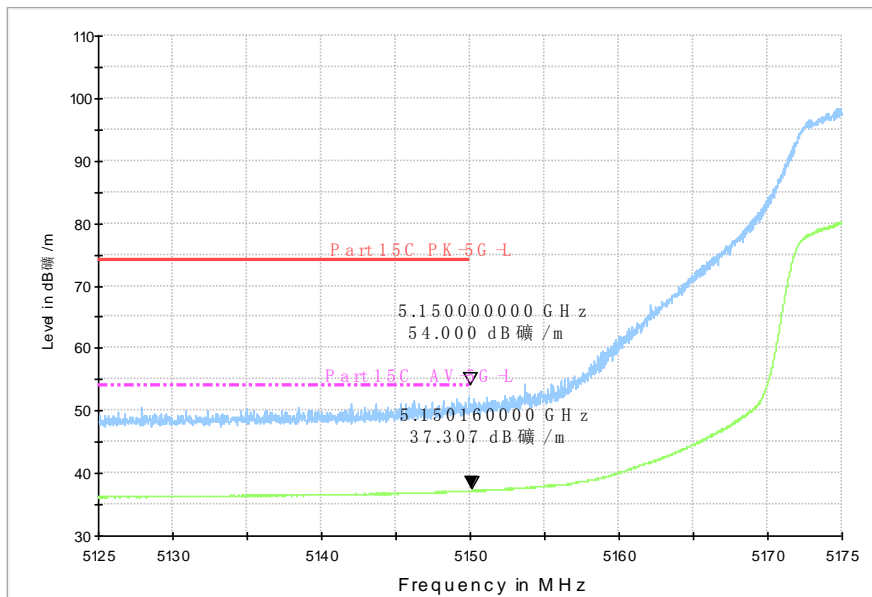
#### Measurement Result:

Mode	Channel	Test Results	Conclusion
802.11a	5180 MHz	Fig.11	P
802.11n-HT20	5180 MHz	Fig.12	P

**Conclusion: PASS**

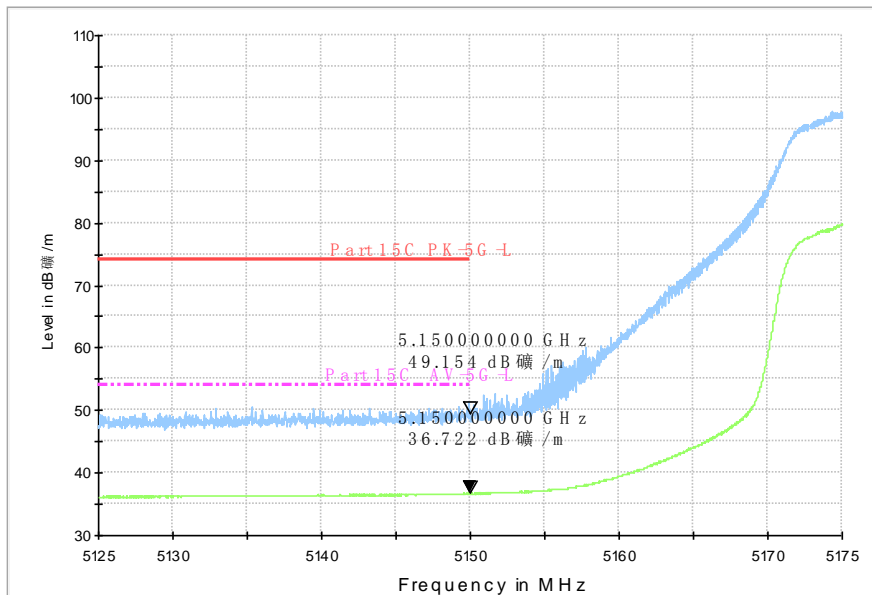
Test graphs as below:

RE - Power-5.125GHz-5.175GHz



**Fig. 11 Band Edges (802.11a, 5180MHz)**

RE - Power-5.125GHz-5.175GHz



**Fig. 12 Band Edges (802.11n-HT20, 5180MHz)**

## A.6. Transmitter Spurious Emission

### Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.407	-27 dBm/MHz

The measurement is made according to KDB 789033

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(dBμV/m)	Measurement distance(m)
30-88	40.0	3
88-216	43.5	3
216-960	46.0	3
Above 960	54.0	3

Note: for frequency range below 960MHz, the limit in 15.209 is defined in 10m test distance. The limit used above is calculated from 10m to 3m

### Measurement Uncertainty:

Frequency Range	Uncertainty(dB)
30MHz ≤ f ≤ 2GHz	0.63
2GHz ≤ f ≤ 3.6GHz	0.82
3.6GHz ≤ f ≤ 8GHz	1.55
8GHz ≤ f ≤ 20GHz	1.86
20GHz ≤ f ≤ 22GHz	1.90
22GHz ≤ f ≤ 26GHz	2.20

Note: Configuration information to be tested as follows:

Modulation type and data rate:

802.11a	802.11n-HT20
6Mbps(OFDM)	MCS0(OFDM)

This Configuration information is worse case, please refer to A.2.1

### Measurement Results:

**802.11a mode**

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11a	36(5180MHz)	30 MHz ~1 GHz	Fig.13	P
		1 GHz ~ 3 GHz	Fig.14	P
		3 GHz ~ 6 GHz	Fig.15	P
		6 GHz ~ 18 GHz	Fig.16	P
		18 GHz ~ 26.5 GHz	Fig.17	P
		26.5 GHz ~ 40 GHz	Fig.18	P
	40(5200MHz)	30 MHz ~1 GHz	Fig.19	P
		1 GHz ~ 3 GHz	Fig.20	P
		3 GHz ~ 6 GHz	Fig.21	P
		6 GHz ~ 18 GHz	Fig.22	P
		18 GHz ~ 26.5 GHz	Fig.23	P
		26.5 GHz ~ 40 GHz	Fig.24	P
	48(5240MHz)	30 MHz ~1 GHz	Fig.25	P
		1 GHz ~ 3 GHz	Fig.26	P
		3 GHz ~ 6 GHz	Fig.27	P
		6 GHz ~ 18 GHz	Fig.28	P
		18 GHz ~ 26.5 GHz	Fig.29	P
		26.5 GHz ~ 40 GHz	Fig.30	P

**802.11n-HT20 mode**

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n HT20	36(5180MHz)	30 MHz ~1 GHz	Fig.31	P
		1 GHz ~ 3 GHz	Fig.32	P
		3 GHz ~ 6 GHz	Fig.33	P
		6 GHz ~ 18 GHz	Fig.34	P
		18 GHz ~ 26.5 GHz	Fig.35	P
		26.5 GHz ~ 40 GHz	Fig.36	P
	40(5200MHz)	30 MHz ~1 GHz	Fig.37	P
		1 GHz ~ 3 GHz	Fig.38	P
		3 GHz ~ 6 GHz	Fig.39	P
		6 GHz ~ 18 GHz	Fig.40	P
		18 GHz ~ 26.5 GHz	Fig.41	P
		26.5 GHz ~ 40 GHz	Fig.42	P
	48(5240MHz)	30 MHz ~1 GHz	Fig.43	P
		1 GHz ~ 3 GHz	Fig.44	P
		3 GHz ~ 6 GHz	Fig.45	P
		6 GHz ~ 18 GHz	Fig.46	P
		18 GHz ~ 26.5 GHz	Fig.47	P
		26.5 GHz ~ 40 GHz	Fig.48	P

**Conclusion: PASS**

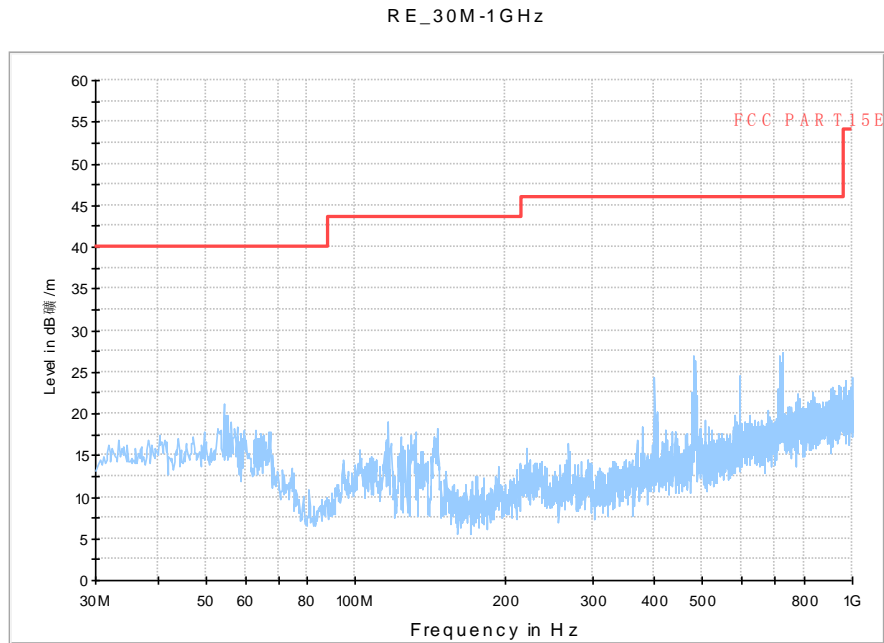
**Test graphs as below:**



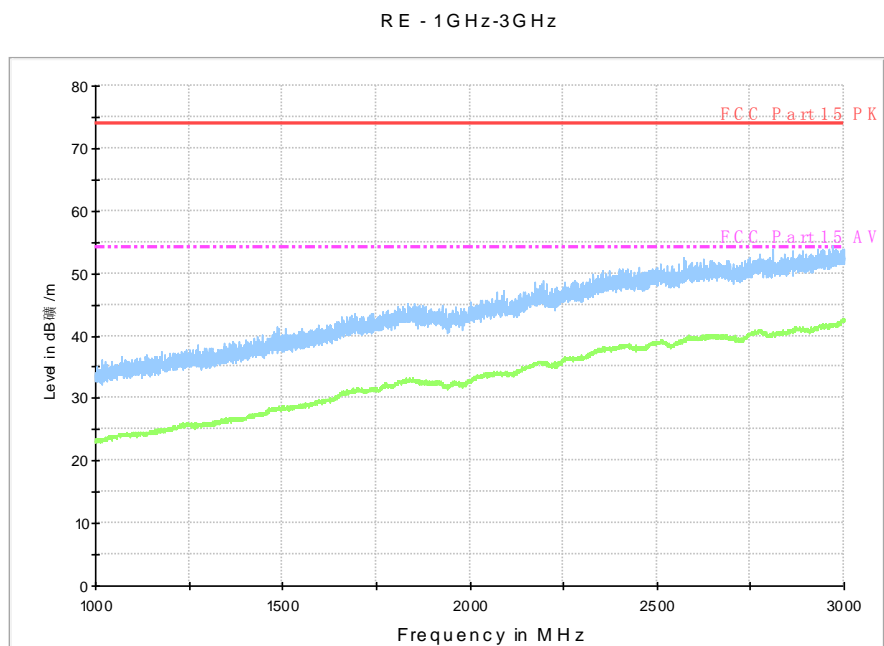
**Note:**

A "reference path loss" is established and the  $A_{Rpl}$  is the attenuation of "reference path loss", and including the gain of receive antenna, the gain of the preamplifier, the cable loss.

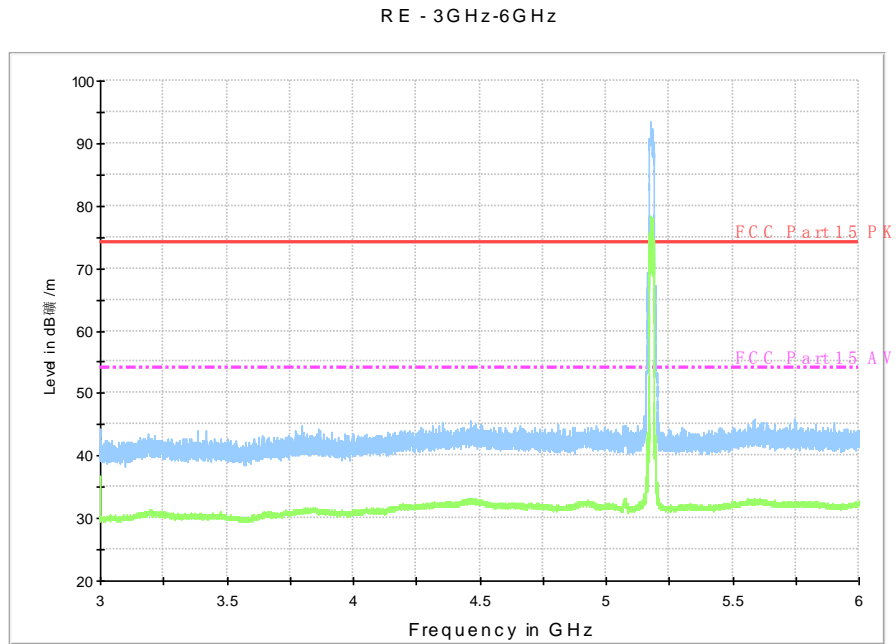
$P_{Mea}$  is the field strength recorded from the instrument.



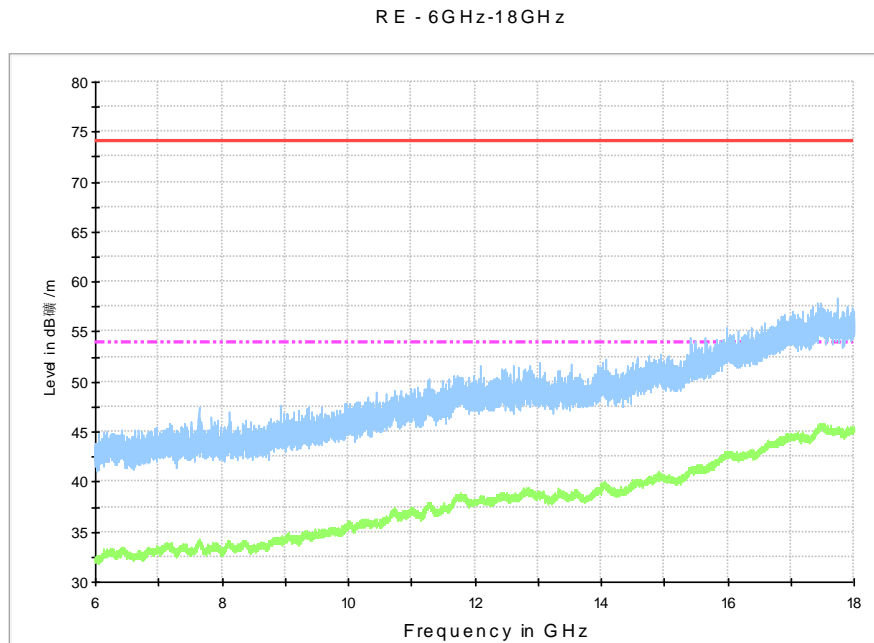
**Fig. 13 Radiated Spurious Emission (802.11a, ch36, 30 MHz-1 GHz)**



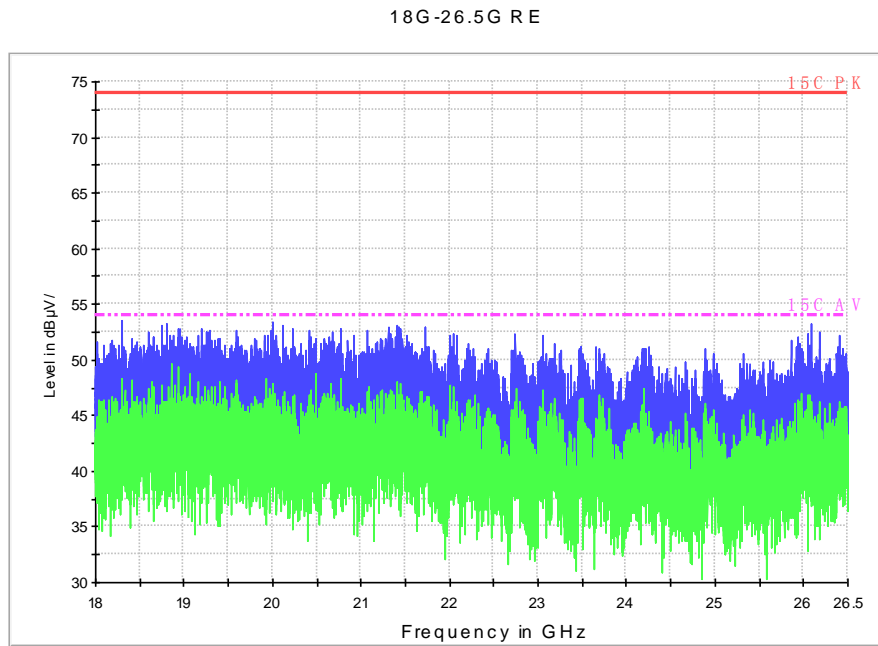
**Fig. 14 Radiated Spurious Emission (802.11a, ch36, 1 GHz-3 GHz)**



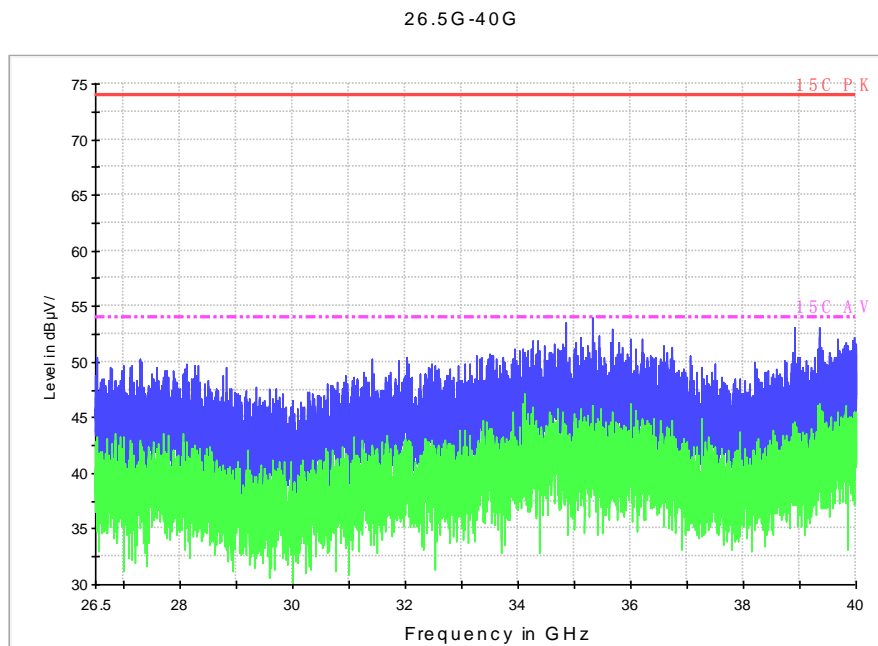
**Fig. 15 Radiated Spurious Emission (802.11a, ch36, 3 GHz-6 GHz)**



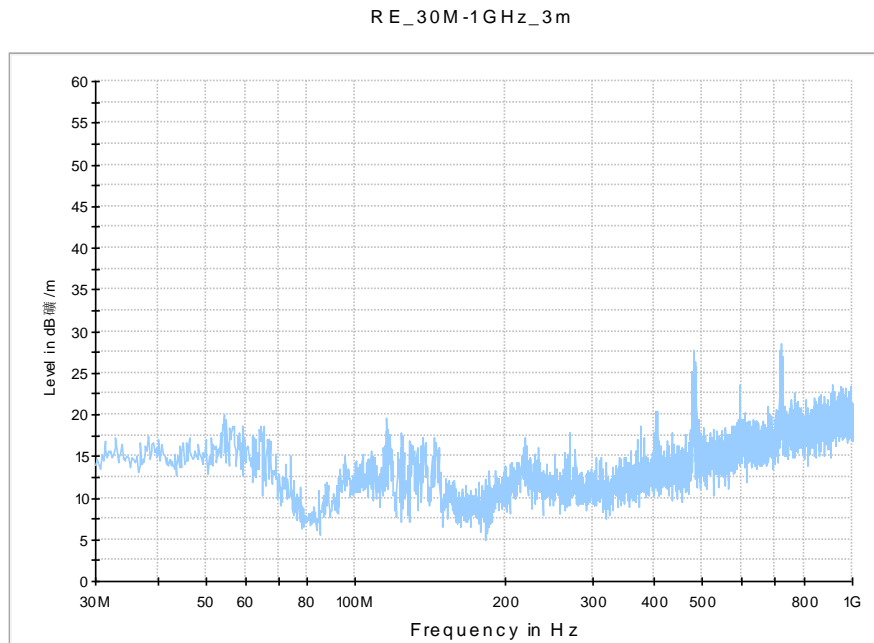
**Fig. 16 Radiated Spurious Emission (802.11a, ch36, 6 GHz-18 GHz)**



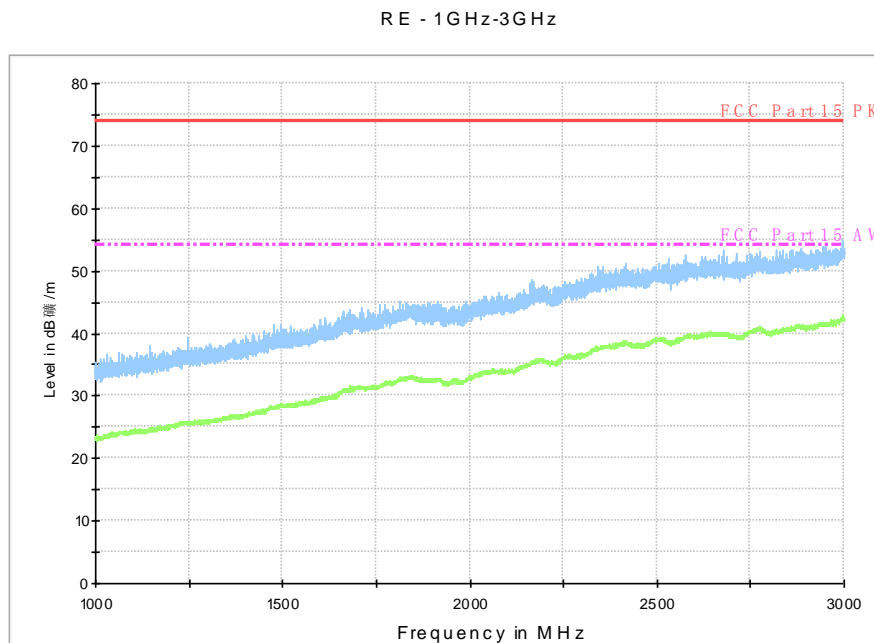
**Fig. 17 Radiated Spurious Emission (802.11a, ch36, 18 GHz-26.5 GHz)**



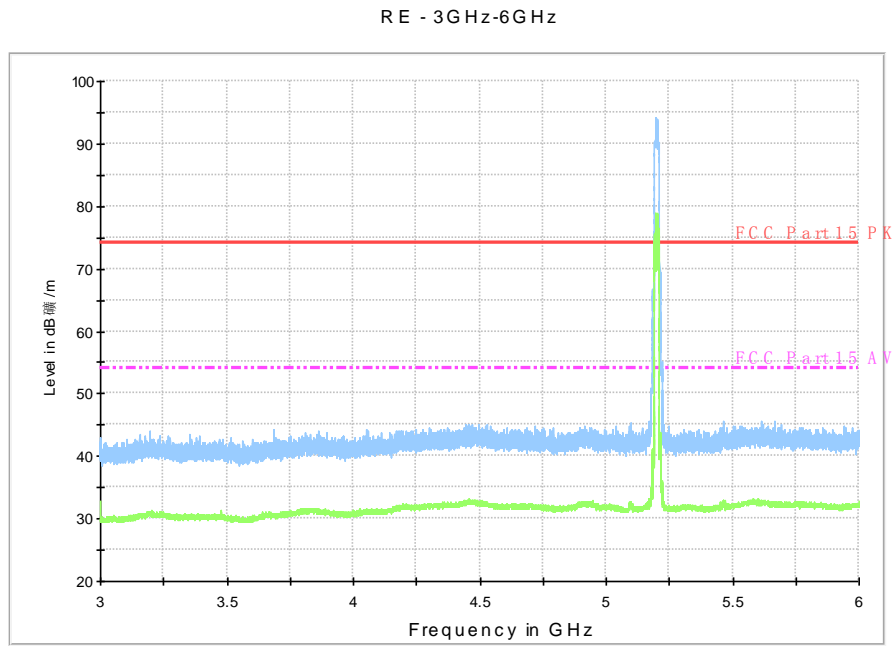
**Fig. 18 Radiated Spurious Emission (802.11a, ch36, 26.5 GHz-40 GHz)**



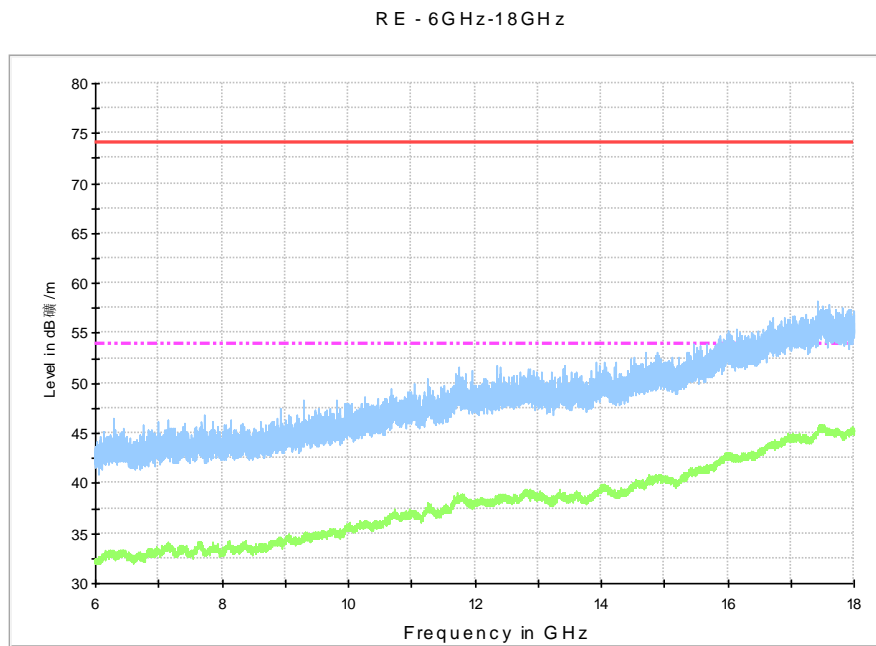
**Fig. 19 Radiated Spurious Emission (802.11a, ch40, 30 MHz-1 GHz)**



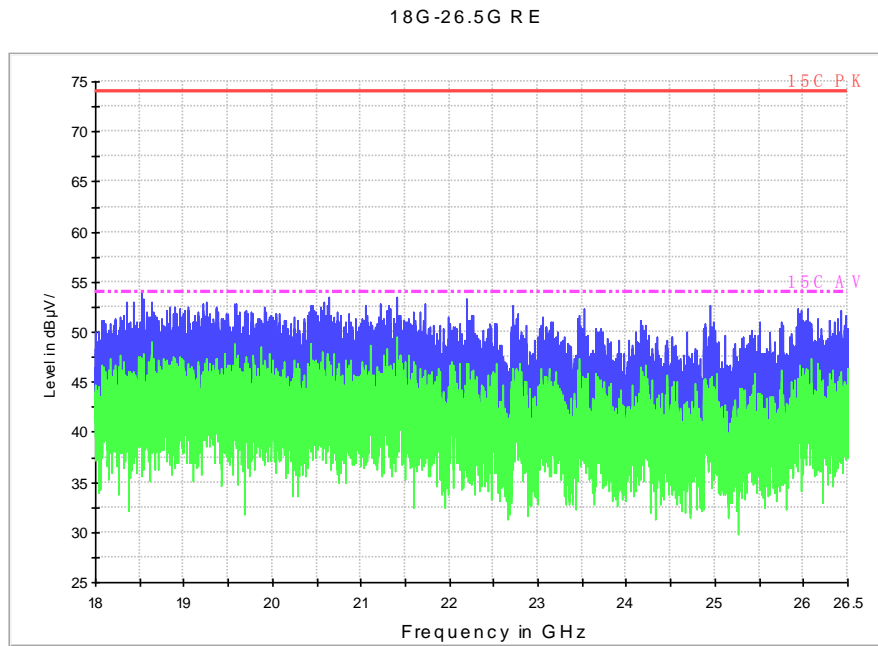
**Fig. 20 Radiated Spurious Emission (802.11a, ch40, 1 GHz-3 GHz)**



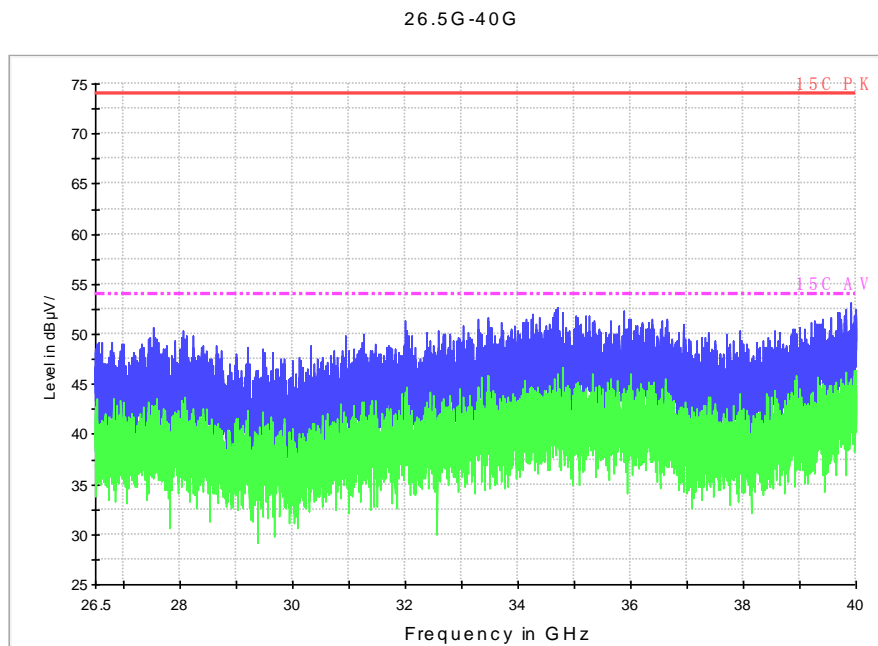
**Fig. 21 Radiated Spurious Emission (802.11a, ch40, 3 GHz-6 GHz)**



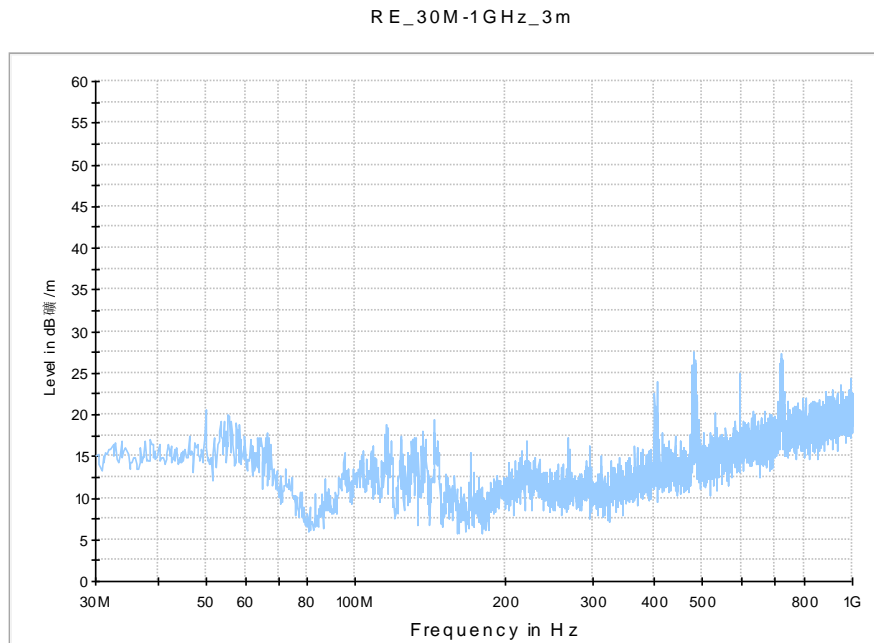
**Fig. 22 Radiated Spurious Emission (802.11a, ch40, 6 GHz-18 GHz)**



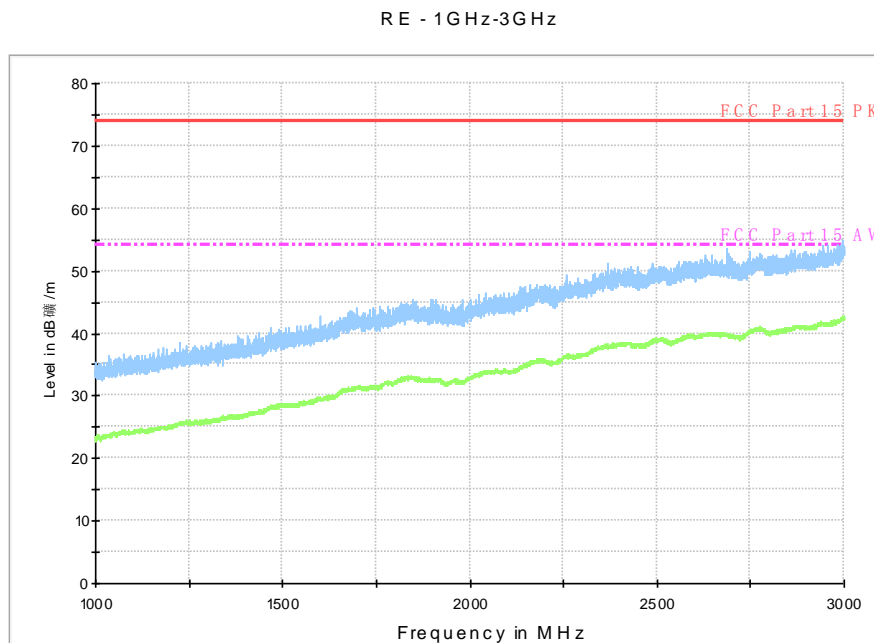
**Fig. 23 Radiated Spurious Emission (802.11a, ch40, 18 GHz-26.5 GHz)**



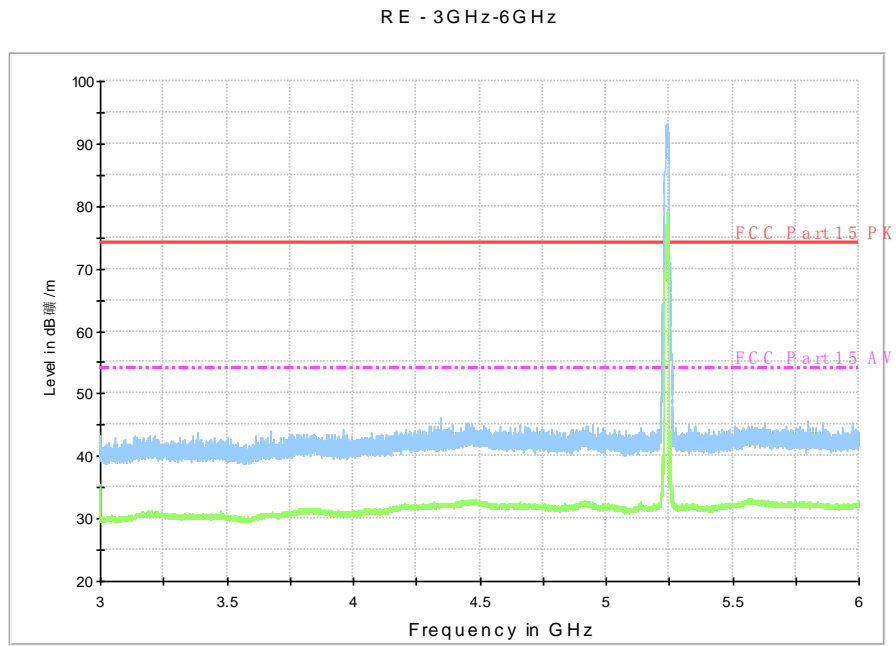
**Fig. 24 Radiated Spurious Emission (802.11a, ch40, 26.5 GHz-40 GHz)**



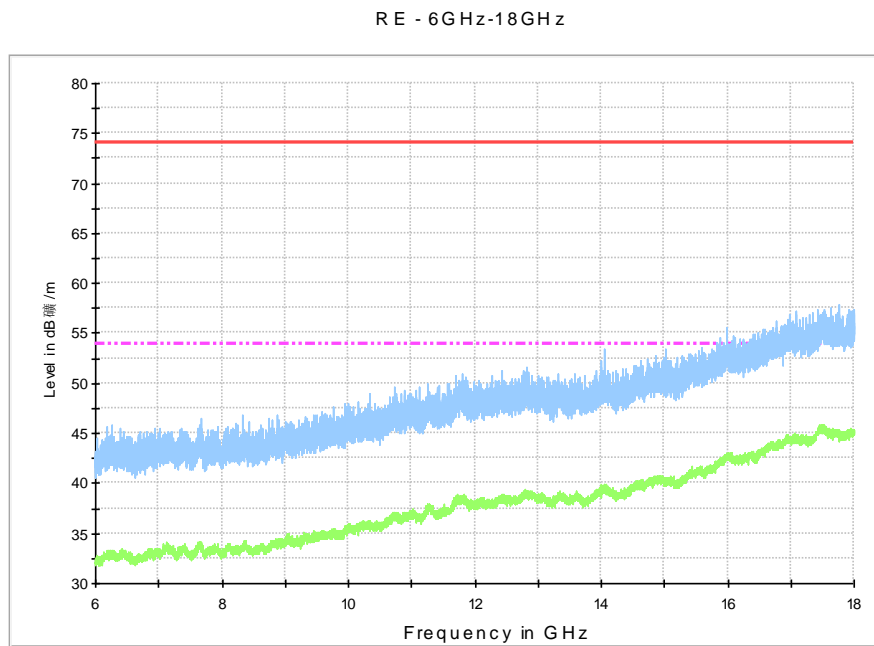
**Fig. 25 Radiated Spurious Emission (802.11a, ch48, 30 MHz-1 GHz)**



**Fig. 26 Radiated Spurious Emission (802.11a, ch48, 1 GHz-3 GHz)**

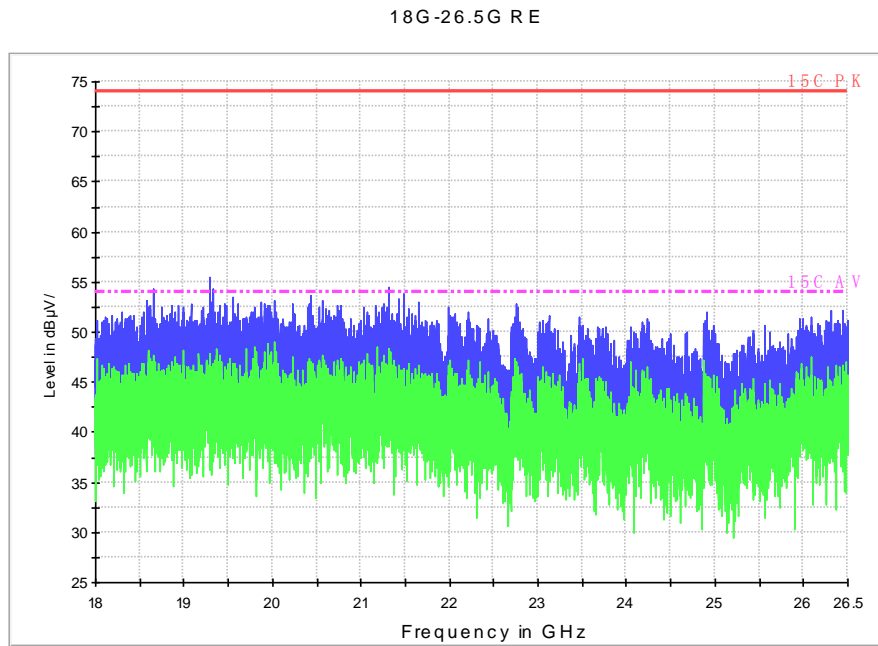


**Fig. 27 Radiated Spurious Emission (802.11a, ch48, 3 GHz-6 GHz)**

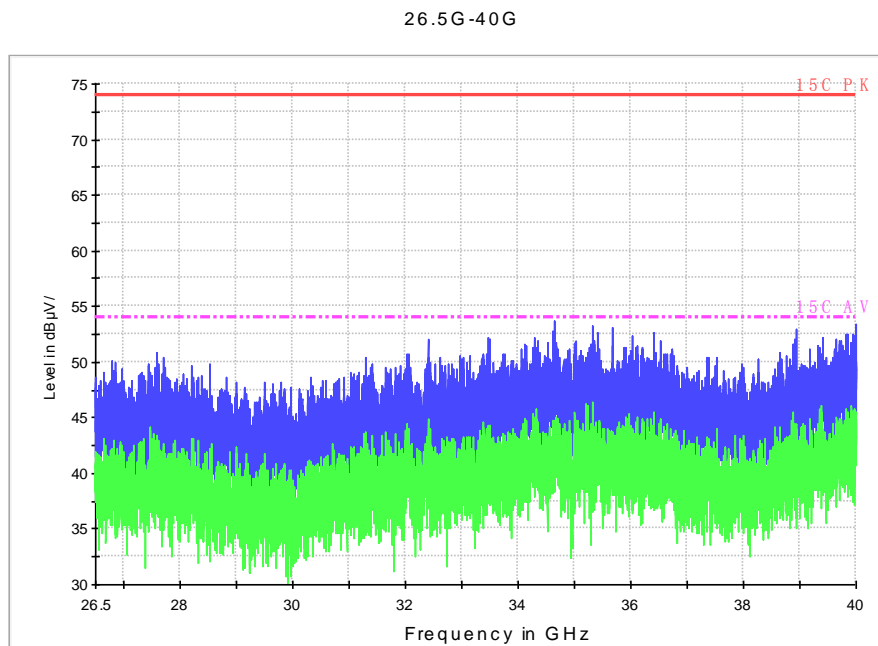


**Fig. 28 Radiated Spurious Emission (802.11a, ch48, 6 GHz-18 GHz)**

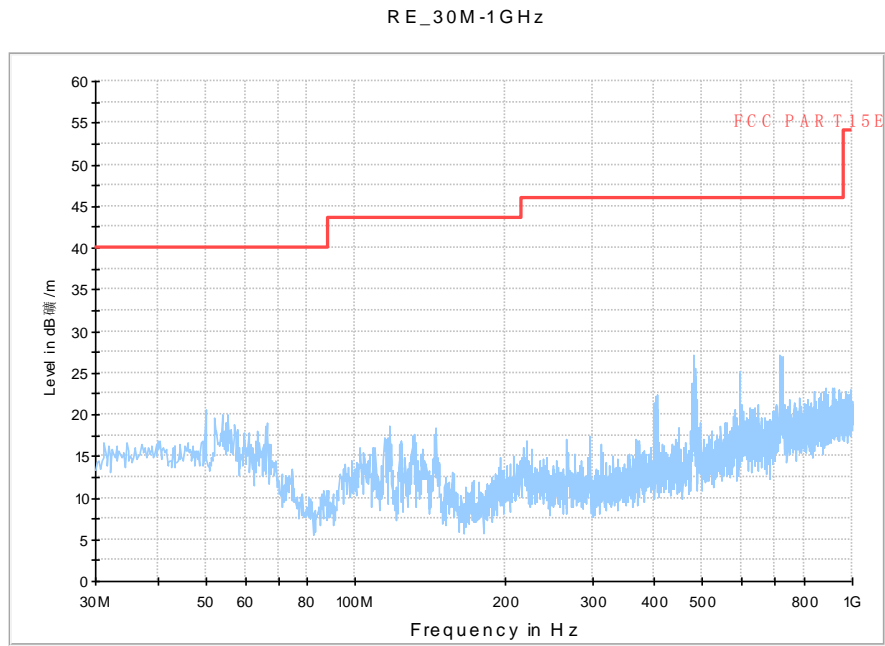




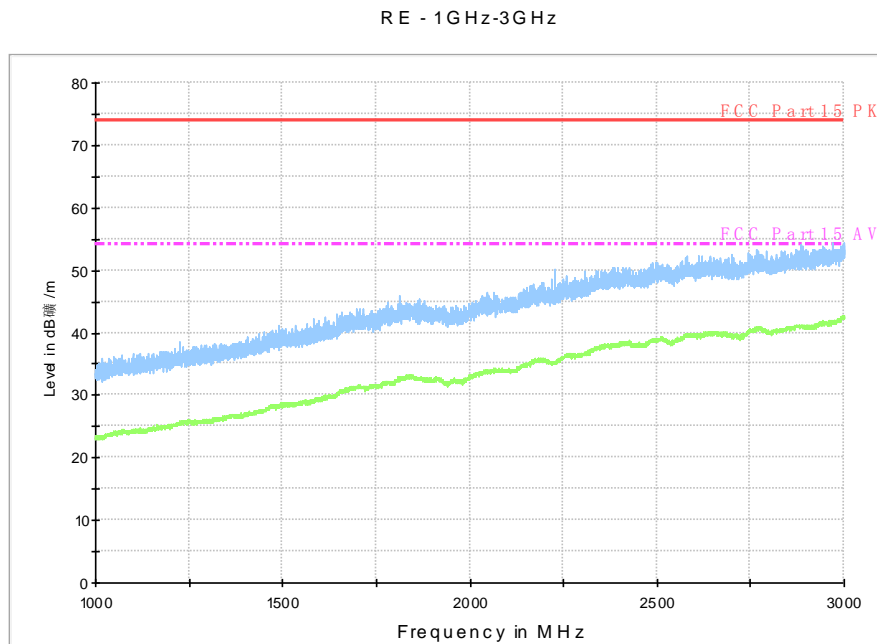
**Fig. 29 Radiated Spurious Emission (802.11a, ch48, 18 GHz-26.5 GHz)**



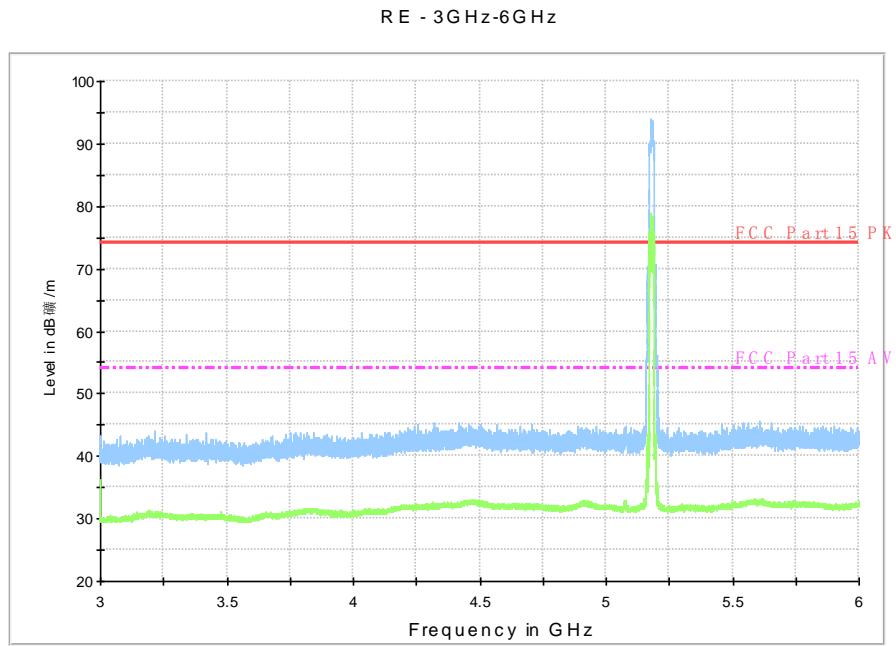
**Fig. 30 Radiated Spurious Emission (802.11a, ch48, 26.5 GHz-40 GHz)**



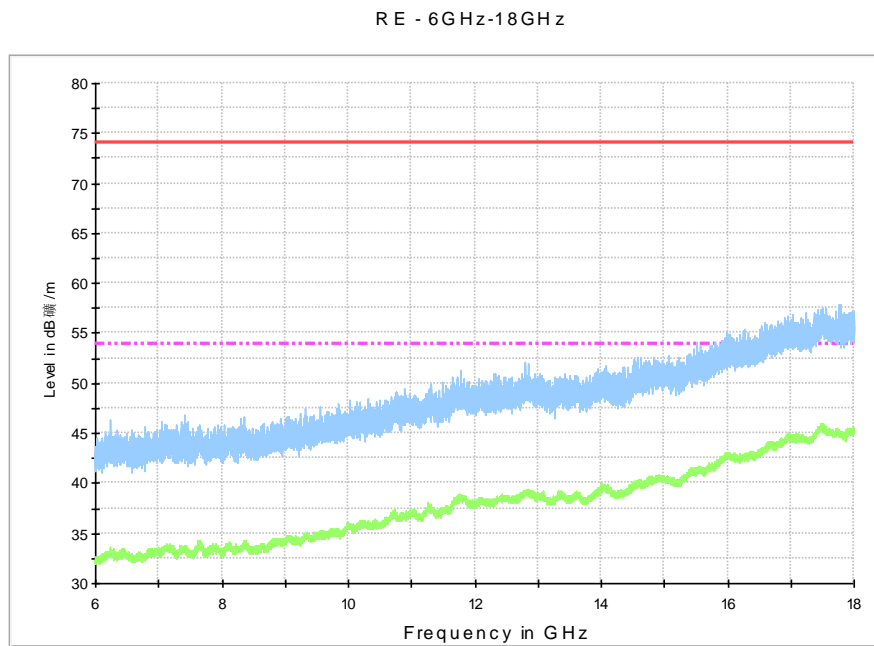
**Fig. 31 Radiated Spurious Emission (802.11n-HT20, ch36, 30 MHz-1 GHz)**



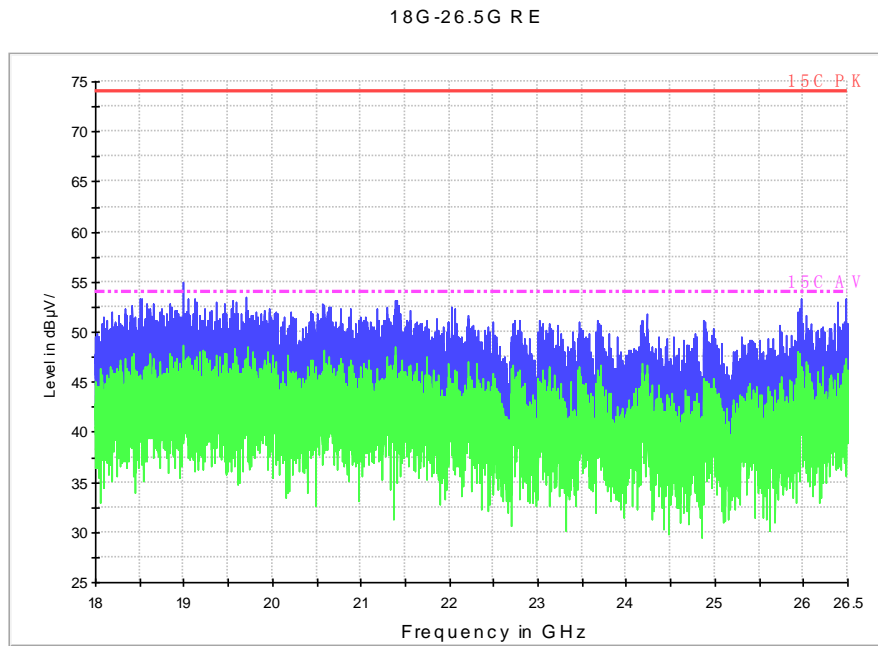
**Fig. 32 Radiated Spurious Emission (802.11n-HT20, ch36, 1 GHz-3 GHz)**



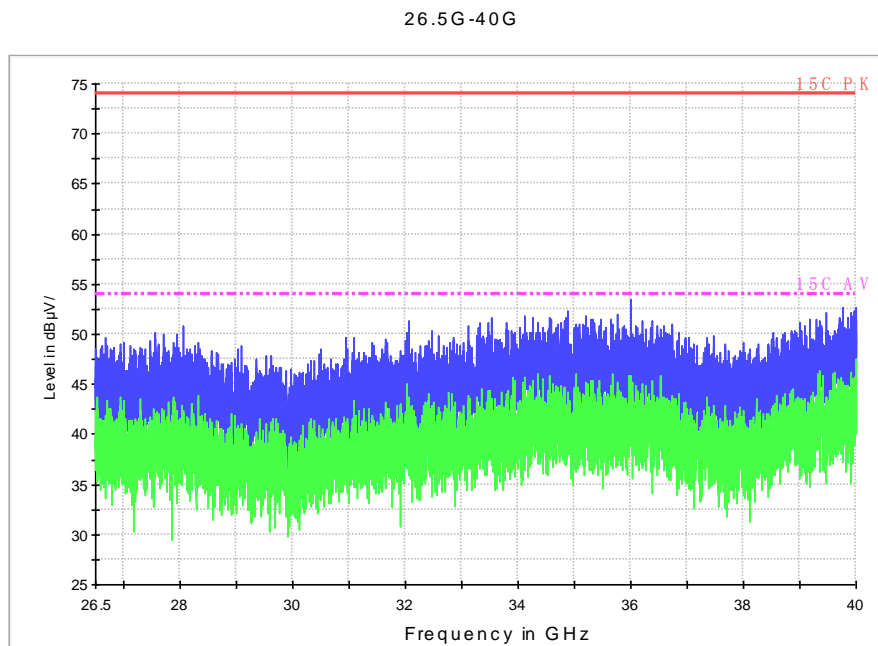
**Fig. 33 Radiated Spurious Emission (802.11n-HT20, ch36, 3 GHz-6 GHz)**



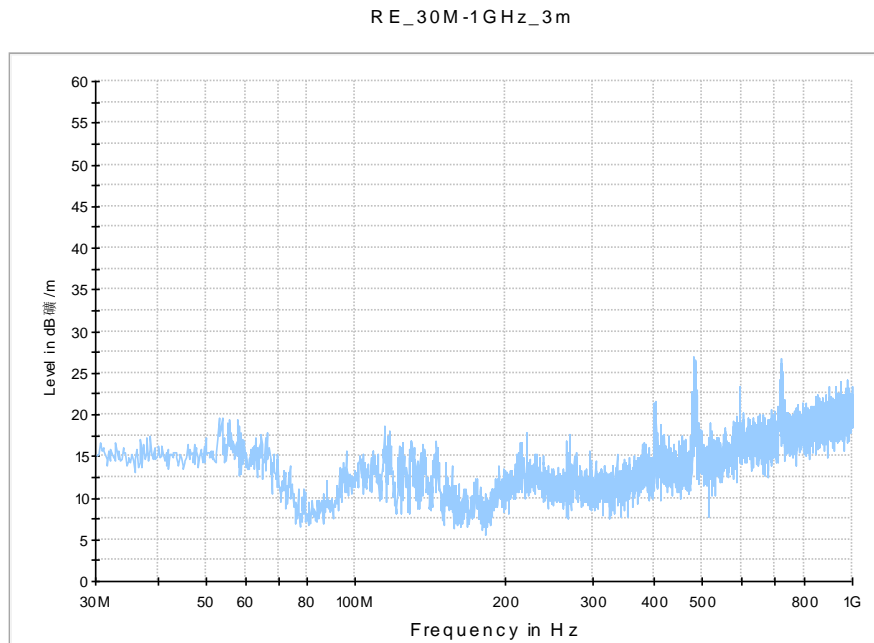
**Fig. 34 Radiated Spurious Emission (802.11n-HT20, ch36, 6 GHz-18 GHz)**



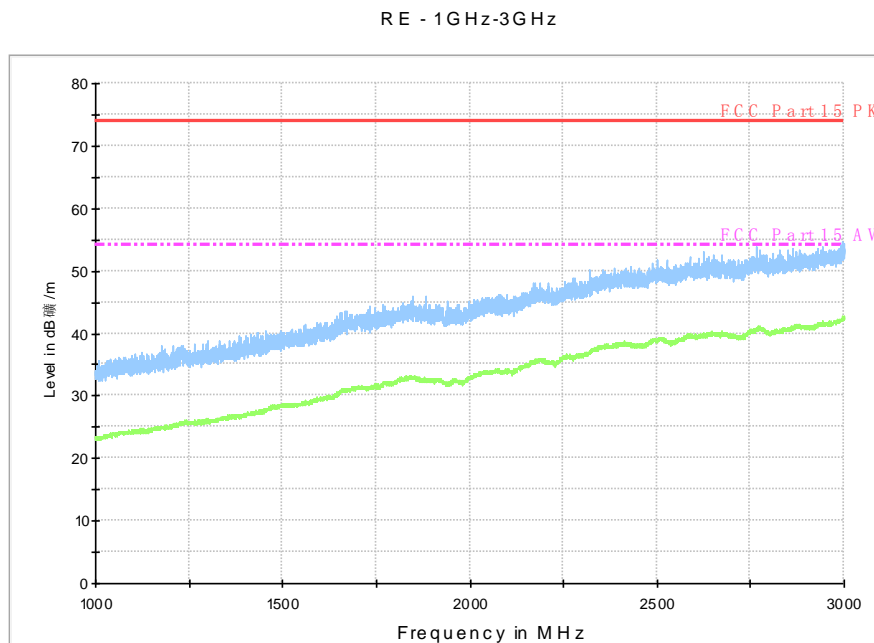
**Fig. 35 Radiated Spurious Emission (802.11n-HT20, ch36, 18 GHz-26.5 GHz)**



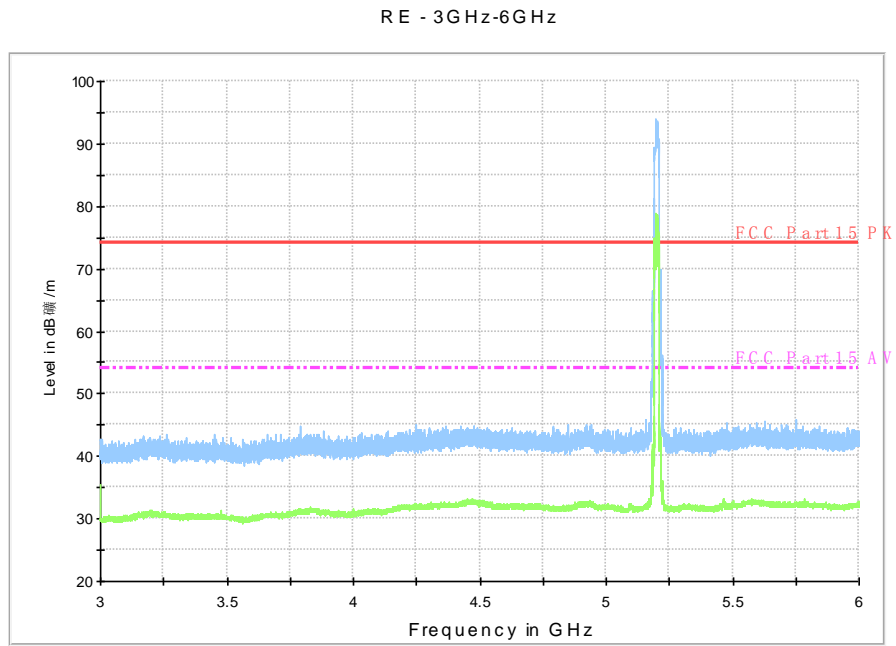
**Fig. 36 Radiated Spurious Emission (802.11n-HT20, ch36, 26.5 GHz-40 GHz)**



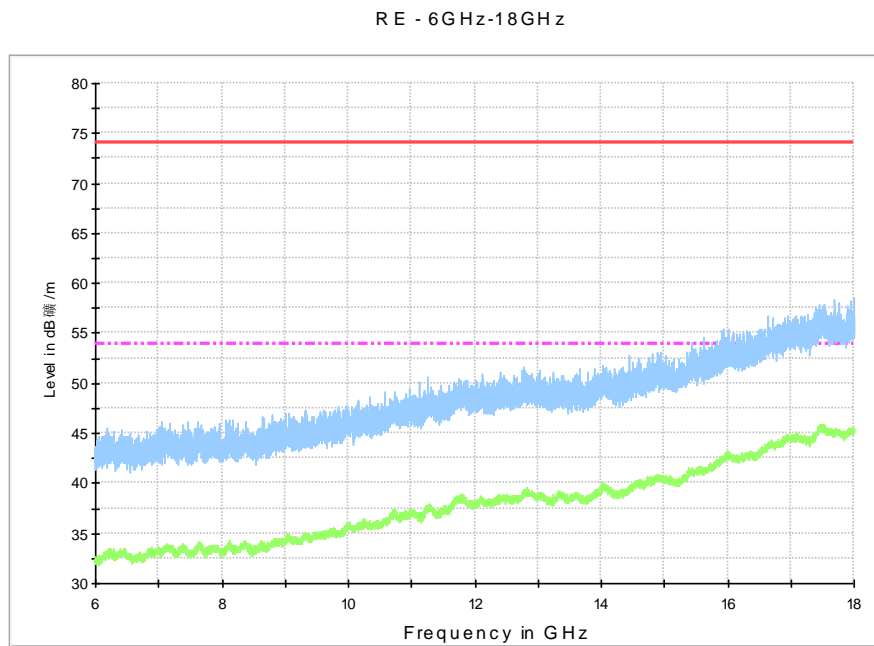
**Fig. 37 Radiated Spurious Emission (802.11n-HT20, ch40, 30 MHz-1 GHz)**



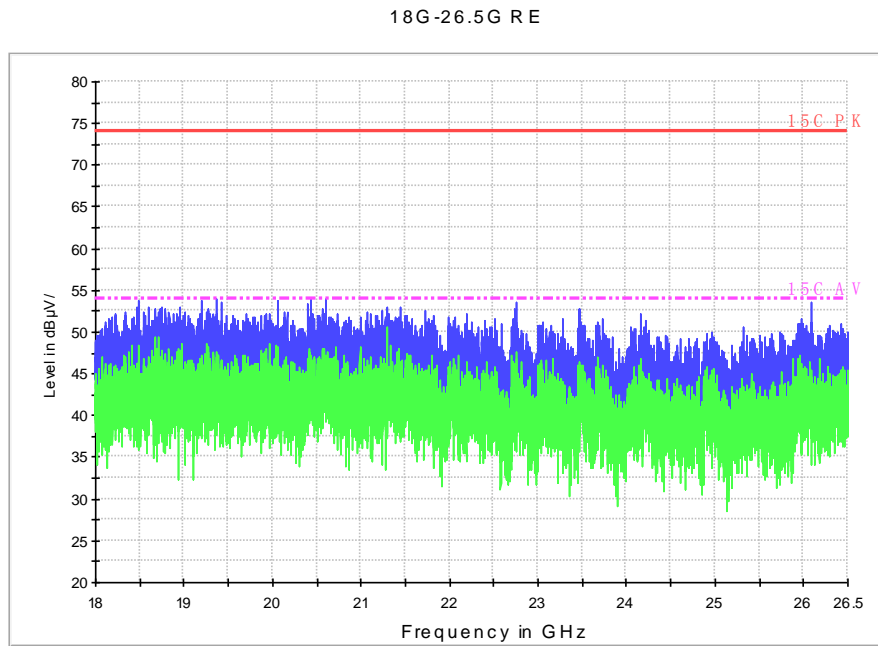
**Fig. 38 Radiated Spurious Emission (802.11n-HT20, ch40, 1 GHz-3 GHz)**



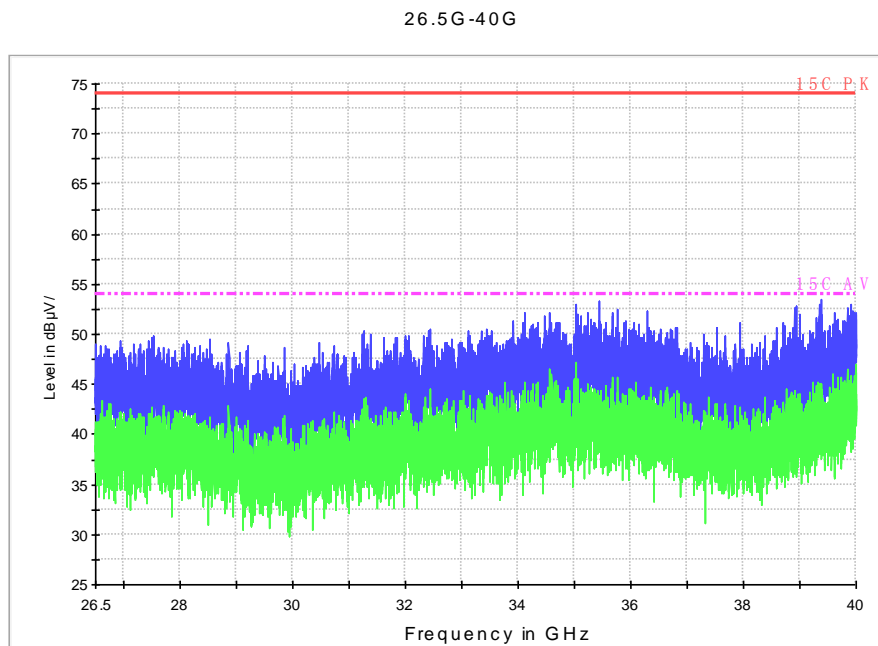
**Fig. 39 Radiated Spurious Emission (802.11n-HT20, ch40, 3 GHz-6 GHz)**



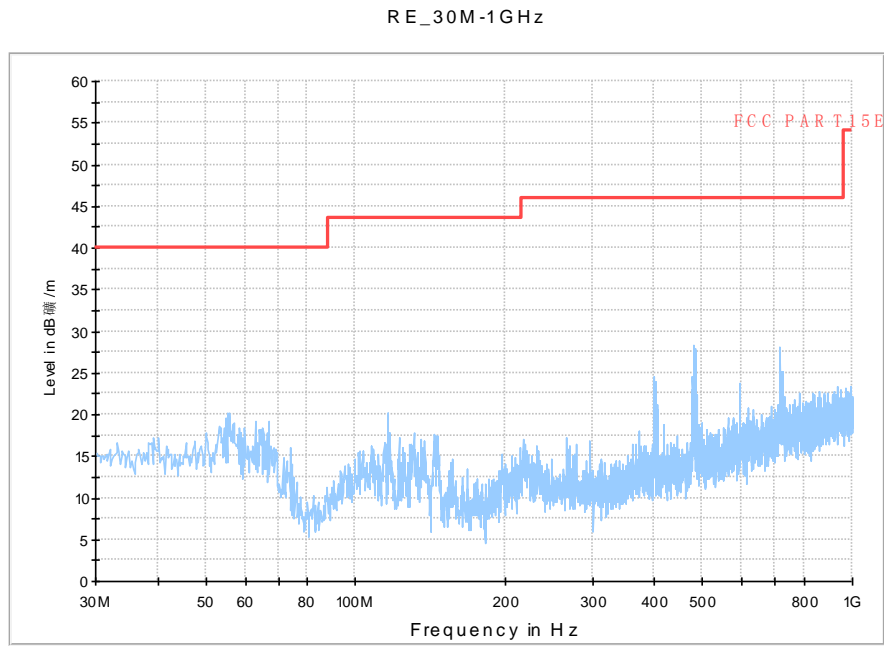
**Fig. 40 Radiated Spurious Emission (802.11n-HT20, ch40, 6 GHz-18 GHz)**



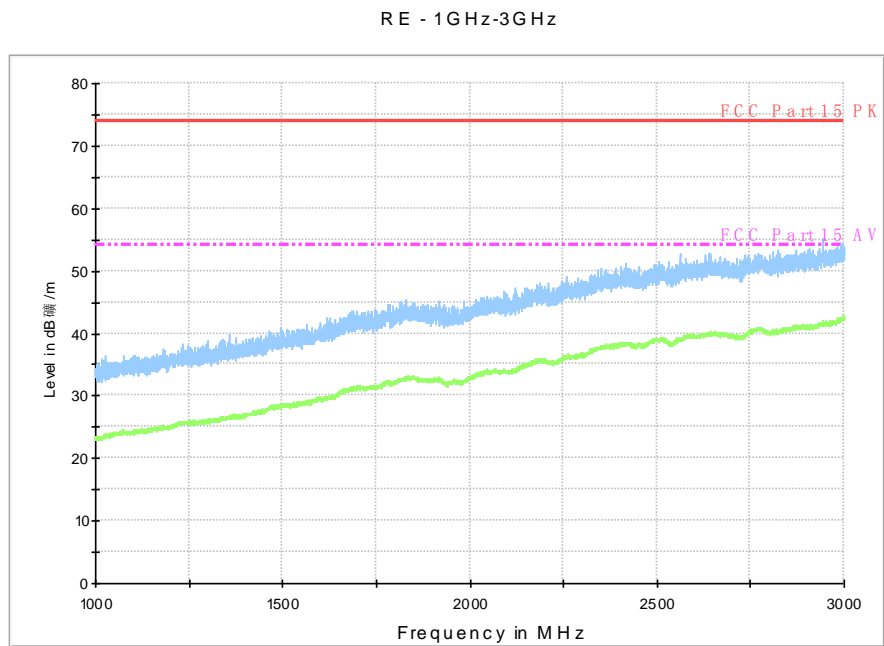
**Fig. 41 Radiated Spurious Emission (802.11n-HT20, ch40, 18 GHz-26.5 GHz)**



**Fig. 42 Radiated Spurious Emission (802.11n-HT20, ch40, 26.5 GHz-40 GHz)**

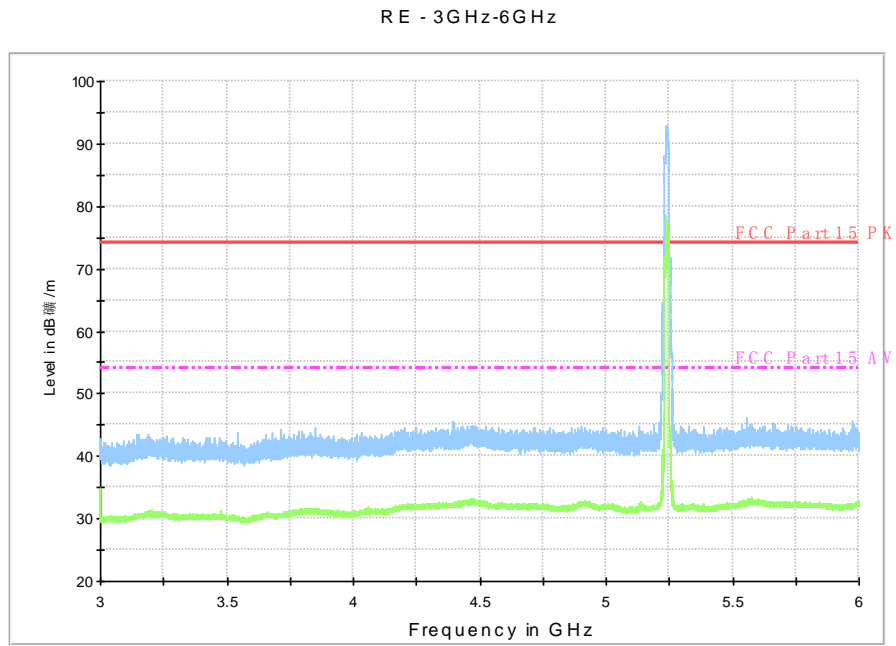


**Fig. 43 Radiated Spurious Emission (802.11n-HT20, ch48, 30 MHz-1 GHz)**

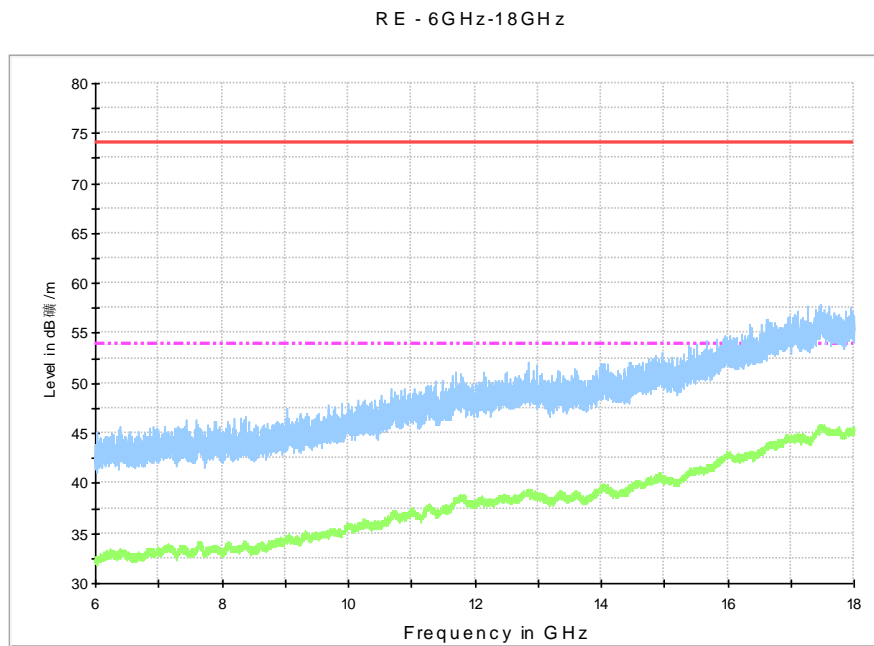


**Fig. 44 Radiated Spurious Emission (802.11n-HT20, ch48, 1 GHz-3 GHz)**

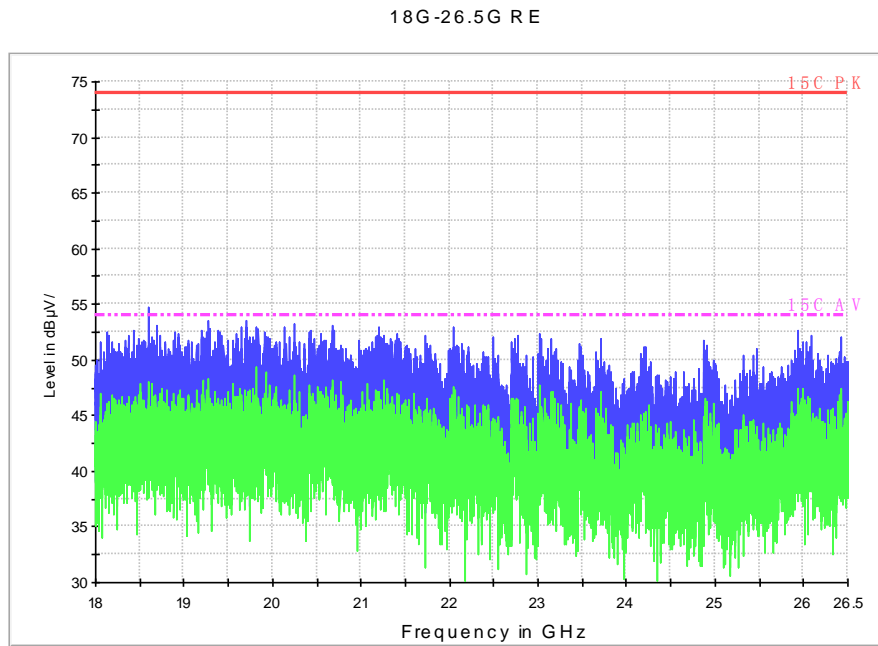




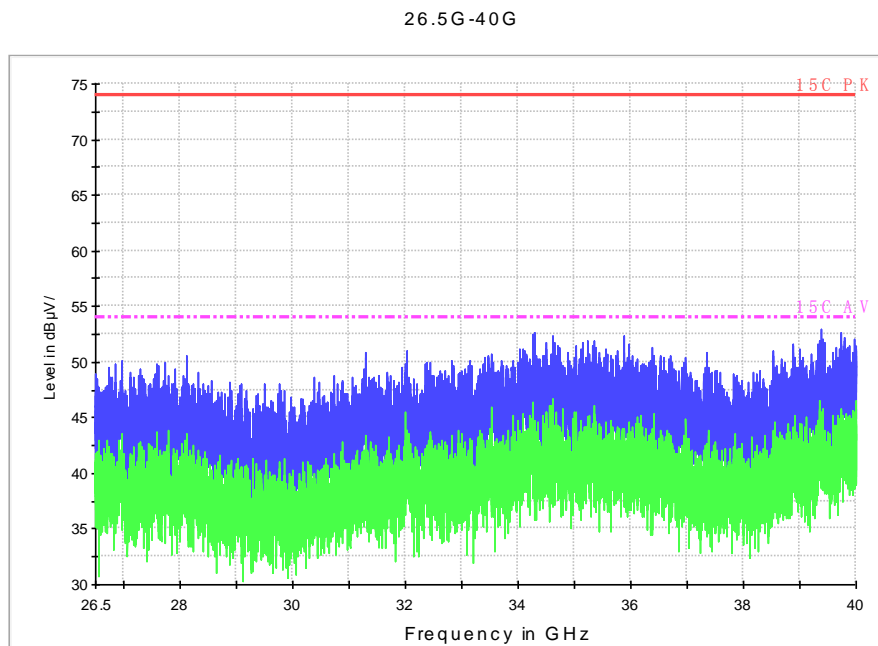
**Fig. 45 Radiated Spurious Emission (802.11n-HT20, ch48, 3 GHz-6 GHz)**



**Fig. 46 Radiated Spurious Emission (802.11n-HT20, ch48, 6 GHz-18 GHz)**



**Fig. 47 Radiated Spurious Emission (802.11n-HT20, ch48, 18 GHz-26.5 GHz)**



**Fig. 48 Radiated Spurious Emission (802.11n-HT20, ch48, 26.5 GHz-40 GHz)**

### A.7. RX Spurious Emissions Radiated < 30MHz

**Measurement Limit:**

Frequency (MHz)	Field strength(dB $\mu$ V/m)	Measurement distance(m)
30 - 88	30.0	10
88 - 216	33.5	10
216 - 960	36.0	10
Above 960	54.0	3

**Measurement uncertainty:**

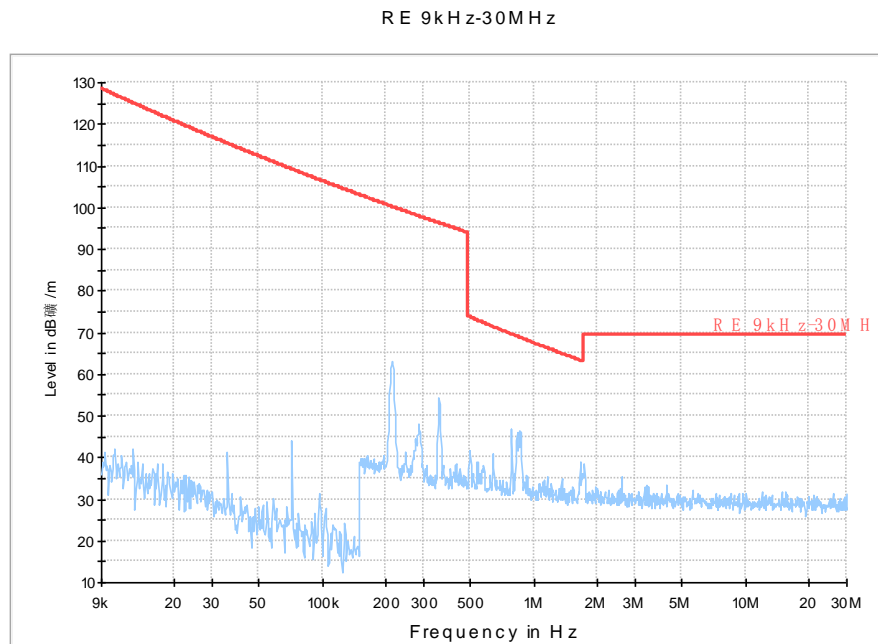
Expanded measurement uncertainty for this test item is U =2.6dB, k=2.

**Measurement Results:**

Mode	Frequency Range	Test Results	Conclusion
IDLE	9 kHz ~30 MHz	Fig.49	P

**Conclusion: PASS**

Test graphs as below:



**Fig. 49 RX Radiated Spurious Emission**

### A.8. Spurious Emissions Radiated < 30MHz

**Measurement Limit:**

Frequency (MHz)	Field strength(dB $\mu$ V/m)	Measurement distance
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30

The measurement is made according to KDB 789033

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)).

**Measurement uncertainty:**

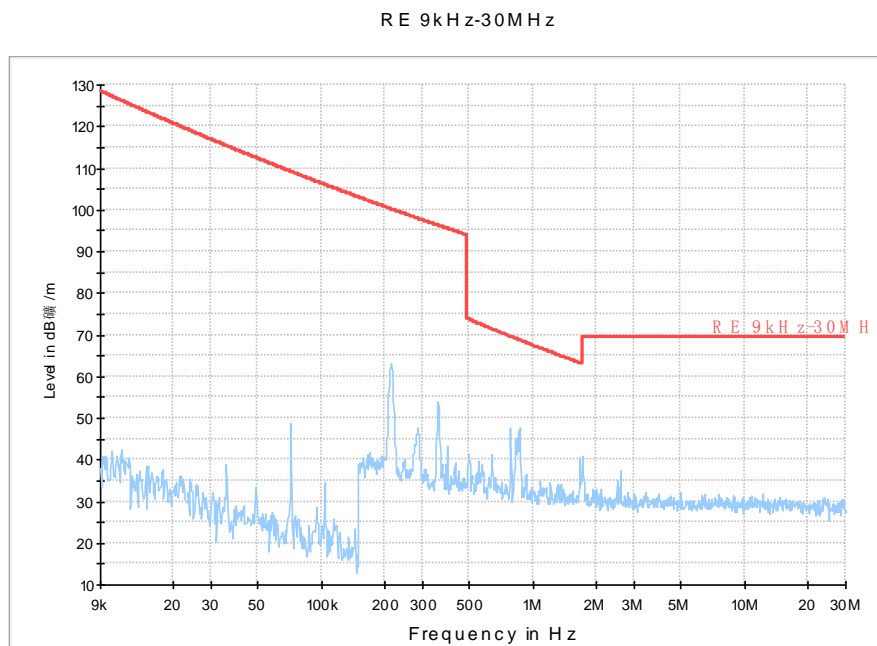
Expanded measurement uncertainty for this test item is U =2.6dB, k=2.

**Measurement Results:**

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11a	40(5200MHz)	9 kHz ~30 MHz	Fig.50	P

**Conclusion: PASS**

Test graphs as below:



**Fig. 50 Radiated Spurious Emission (802.11a, ch40, 9 kHz ~30 MHz)**

### A.9. Spurious Emission Conducted < 30MHz

**Test Condition:**

Voltage (V)	Frequency (Hz)
110	60

**Measurement uncertainty:**

Expanded measurement uncertainty for this test item is U =3.2dB, k=2.

**Measurement Result and limit:**

WLAN (Quasi-peak Limit)

Frequency range (MHz)	Quasi-peak Limit (dB $\mu$ V)	Result (dB $\mu$ V)	Conclusion
		With charger	
0.15 to 0.5	66 to 56	Fig. 51	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.

WLAN (Average Limit)

Frequency range (MHz)	Average Limit (dB $\mu$ V)	Result (dB $\mu$ V)	Conclusion
		With charger	
0.15 to 0.5	56 to 46	Fig.51	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 KDB 789033

**Conclusion: PASS**

**Test graphs as below:**

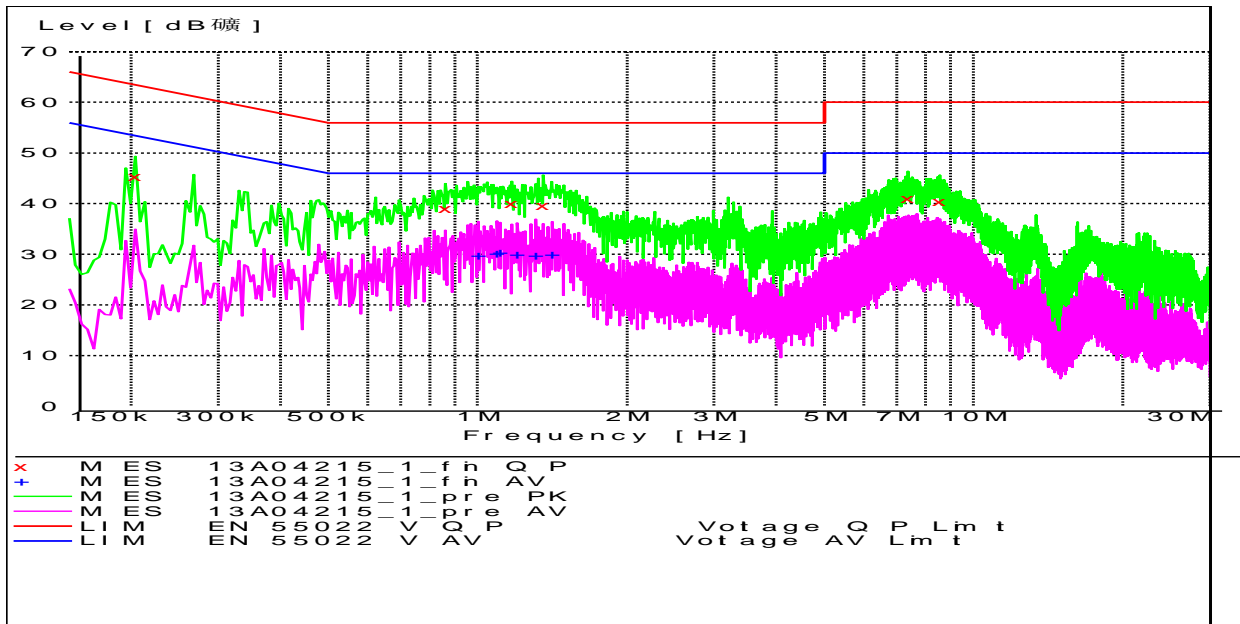


Fig. 51 Conducted Spurious Emission-TX

Measurement Result: 13A04215\_1\_fin QP

Frequency (MHz)	Level (dBμV)	Transd (dB)	Limit (dBμV)	Margin (dB)	Line	PE
0.204000	45.40	9.8	63	18.0	L1	GND
0.861000	39.00	9.8	56	17.0	L1	GND
1.171500	40.00	9.7	56	16.0	L1	GND
1.356000	39.70	9.7	56	16.3	L1	GND
7.377500	41.10	9.7	60	18.9	L1	GND
8.547500	40.50	9.7	60	19.5	L1	GND

Measurement Result: 13A04215\_1\_fin AV

Frequency (MHz)	Level (dBμV)	Transd (dB)	Limit (dBμV)	Margin (dB)	Line	PE
1.000500	29.80	9.7	46	16.2	N	GND
1.095000	30.10	9.7	46	15.9	L1	GND
1.108500	30.40	9.7	46	15.6	N	GND
1.203000	30.00	9.7	46	16.0	N	GND
1.311000	29.70	9.7	46	16.3	L1	GND
1.414500	30.00	9.7	46	16.0	N	GND

### A.10. Peak Excursion

#### Measurement Limit:

Standard	Limit (dB)
FCC 47 CFR Part 15.407	13

The measurement is made according to KDB 789033

#### Measurement Uncertainty:

Measurement Uncertainty	0.75 dB
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Note: Configuration information to be tested as follows:

Modulation type and data rate:

802.11a	802.11n-HT20
6Mbps(OFDM)	MCS0(OFDM)

This Configuration information is worse case, please refer to A.2.1

#### Measurement Result:

##### 11a mode

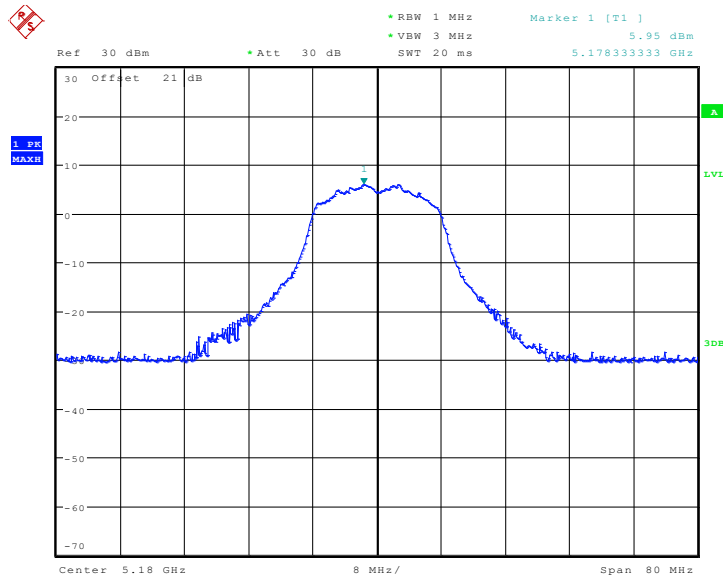
Type	Peak Excursion					
	5180MHz (Ch36)		5200MHz (Ch40)		5240MHz (Ch48)	
Peak (dBm)	Fig.52	5.95	Fig.53	6.05	Fig.54	5.67
Average(dBm)	Fig.55	-2.76	Fig.56	-2.95	Fig.57	-3.13
Result (dB)	8.71		9.00		8.80	

##### 11n-HT20 mode

Type	Peak Excursion					
	5180MHz (Ch36)		5200MHz (Ch40)		5240MHz (Ch48)	
Peak (dBm)	Fig.58	5.45	Fig.59	5.53	Fig.60	5.59
Average(dBm)	Fig.61	-2.83	Fig.62	-2.71	Fig.63	-2.65
Result (dB)	8.28		8.24		8.24	

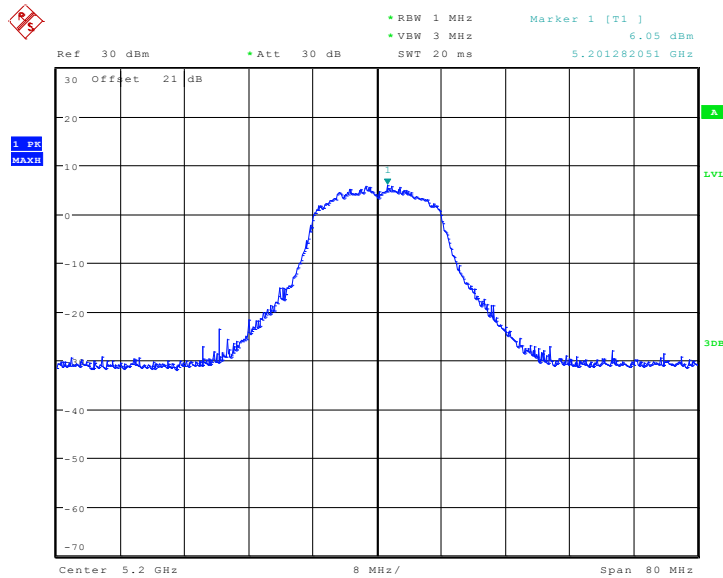
**Conclusion: PASS**

Test graphs as below:



Date: 22.SEP.2013 18:14:38

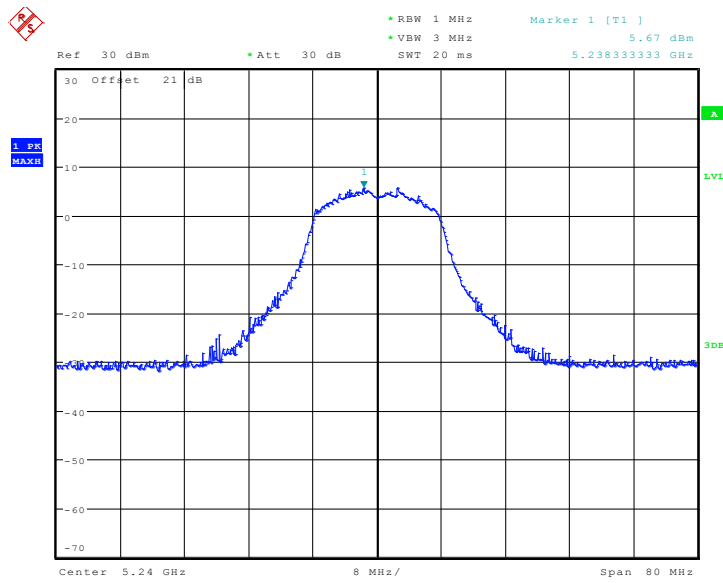
**Fig. 52 Peak Excursions (802.11a, ch36, peak)**



Date: 22.SEP.2013 18:16:12

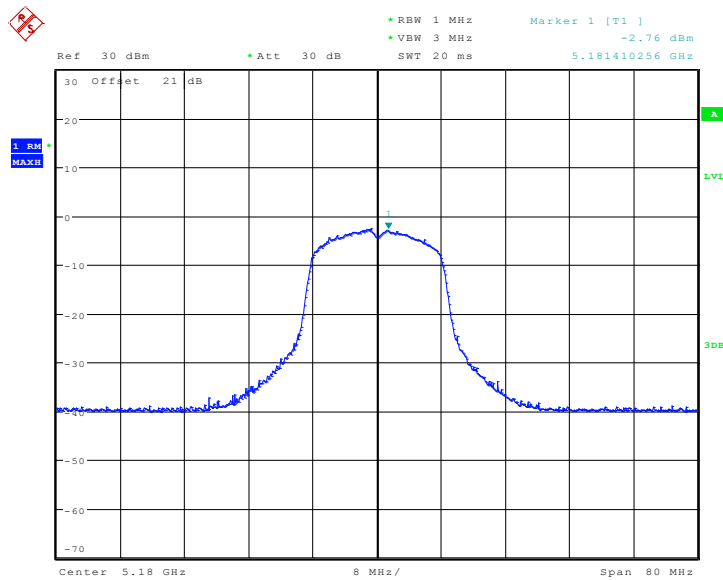
**Fig. 53 Peak Excursions (802.11a, ch40, peak)**





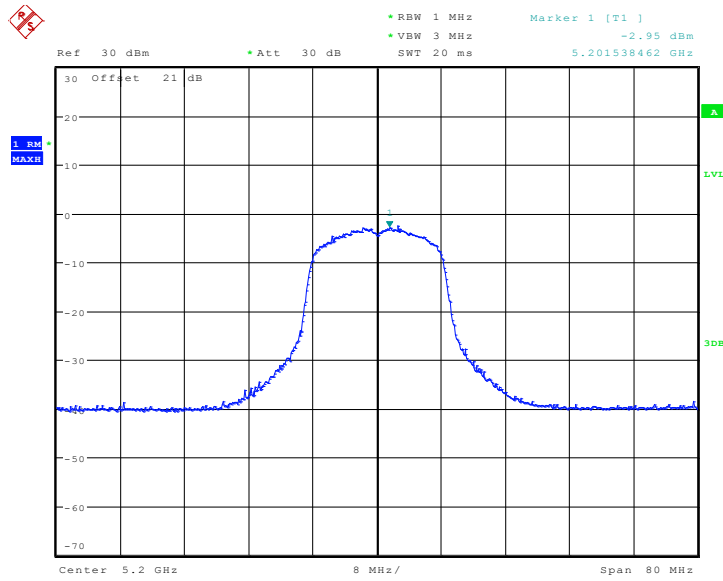
Date: 22.SEP.2013 18:17:23

**Fig. 54 Peak Excursions (802.11a, ch48, peak)**



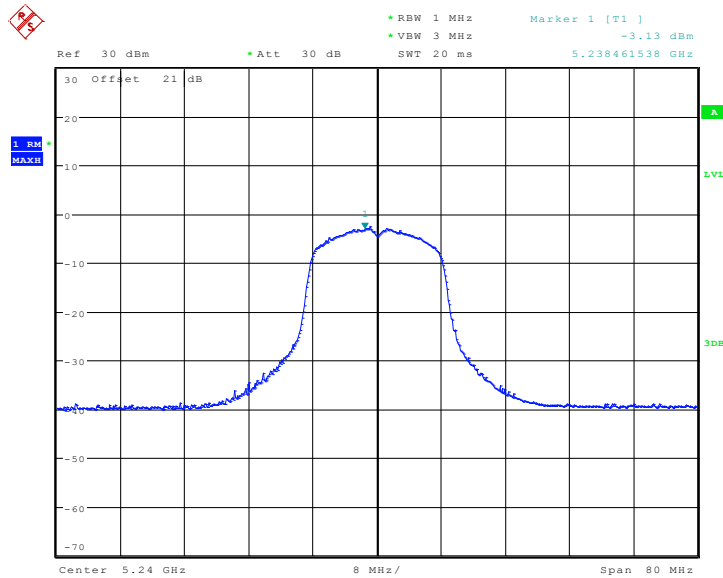
Date: 22.SEP.2013 18:15:15

**Fig. 55 Peak Excursions (802.11n-a, ch36, average)**



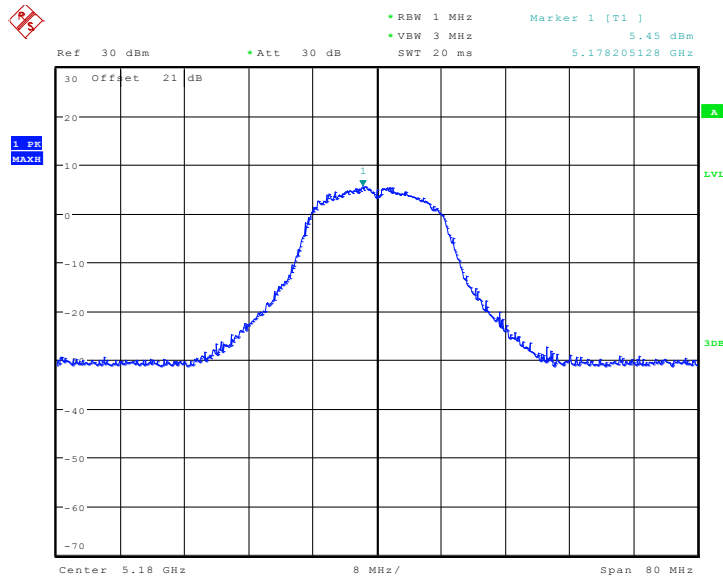
Date: 22.SEP.2013 18:16:35

**Fig. 56 Peak Excursions (802.11n-a, ch40, average)**



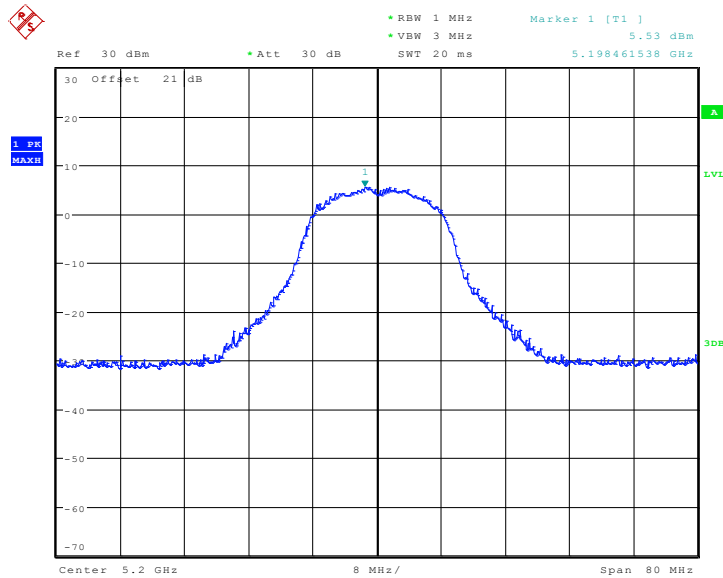
Date: 22.SEP.2013 18:18:00

**Fig. 57 Peak Excursions (802.11n-a, ch48, average)**



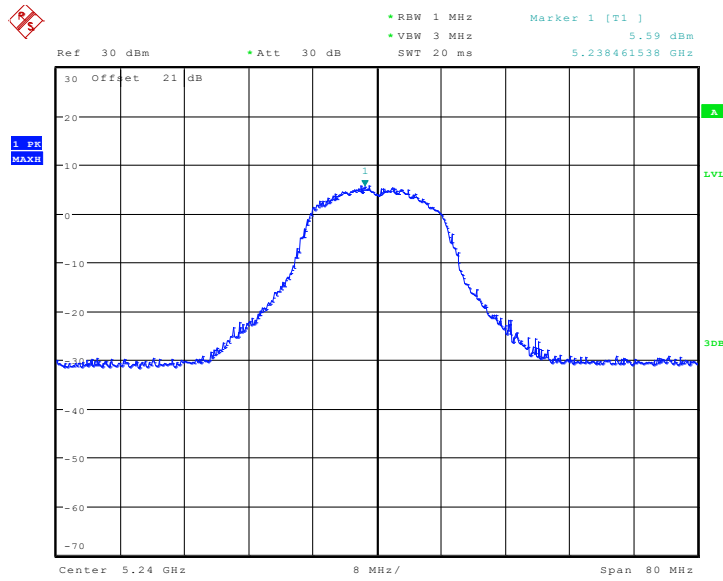
Date: 22.SEP.2013 18:30:33

**Fig. 58 Peak Excursions (802.11n-HT20, ch36, peak)**



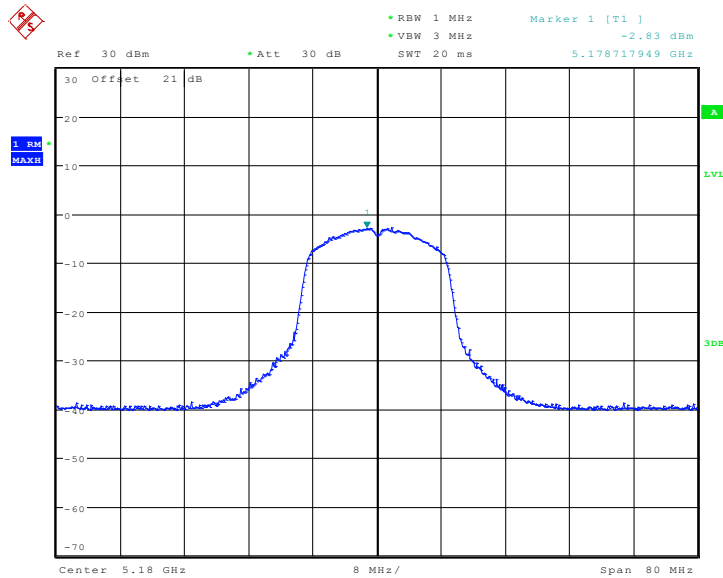
Date: 22.SEP.2013 18:31:50

**Fig. 59 Peak Excursions (802.11n-HT20, ch40, peak)**



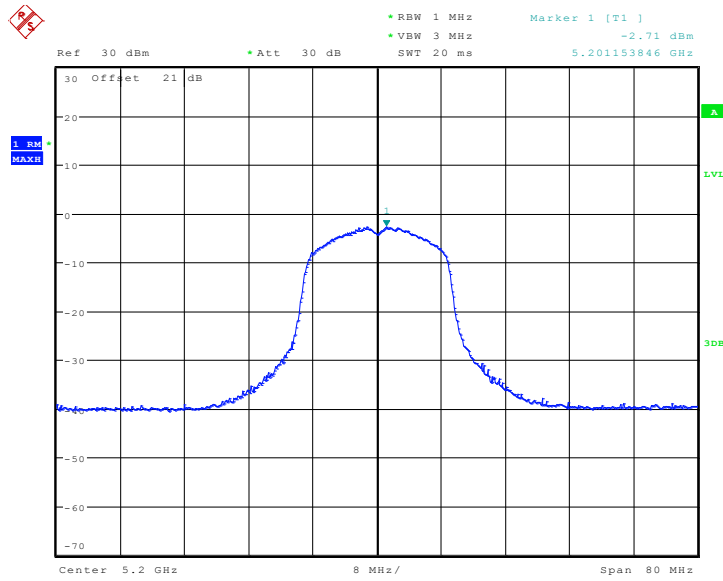
Date: 22.SEP.2013 18:32:49

**Fig. 60 Peak Excursions (802.11n-HT20, ch48, peak)**



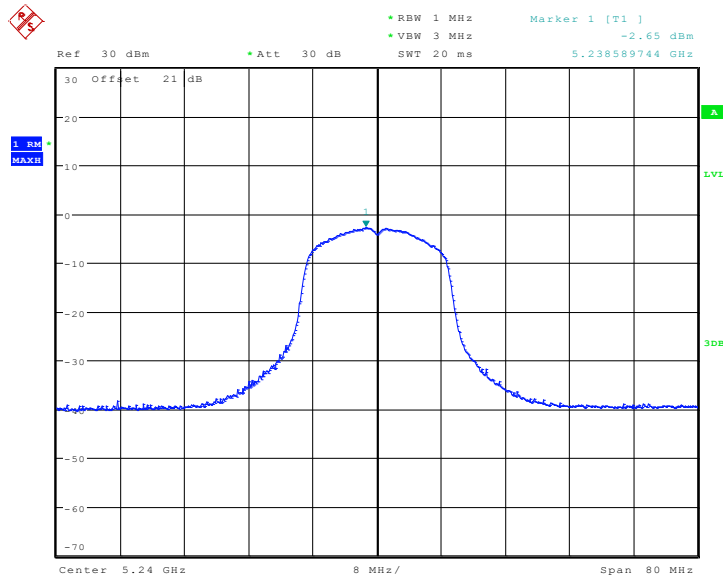
Date: 22.SEP.2013 18:31:00

**Fig. 61 Peak Excursions (802.11n-HT20, ch36, average)**



Date: 22.SEP.2013 18:32:09

**Fig. 62 Peak Excursions (802.11n-HT20, ch40, average)**



Date: 22.SEP.2013 18:33:22

**Fig. 63 Peak Excursions (802.11n-HT20, ch48, average)**

### **A.11. Frequency Stability**

Manufacturers ensured the EUT meet the requirement of frequency stability, such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

### **A.12. Power control**

A Transmission Power Control mechanism is not required for systems with an e.i.r.p. of less than 27dBm (500 mW).

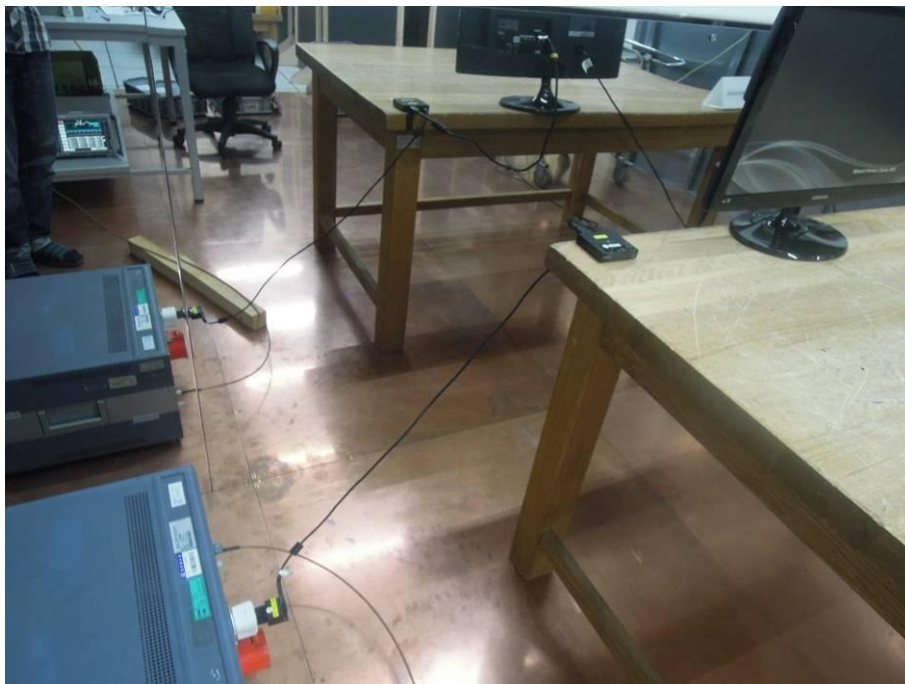
## ANNEX B: PHOTOGRAPHS OF THE TEST SET-UP

### Layout of Radiated Spurious Emission Test

### Layout of Radiated Spurious Emission Test

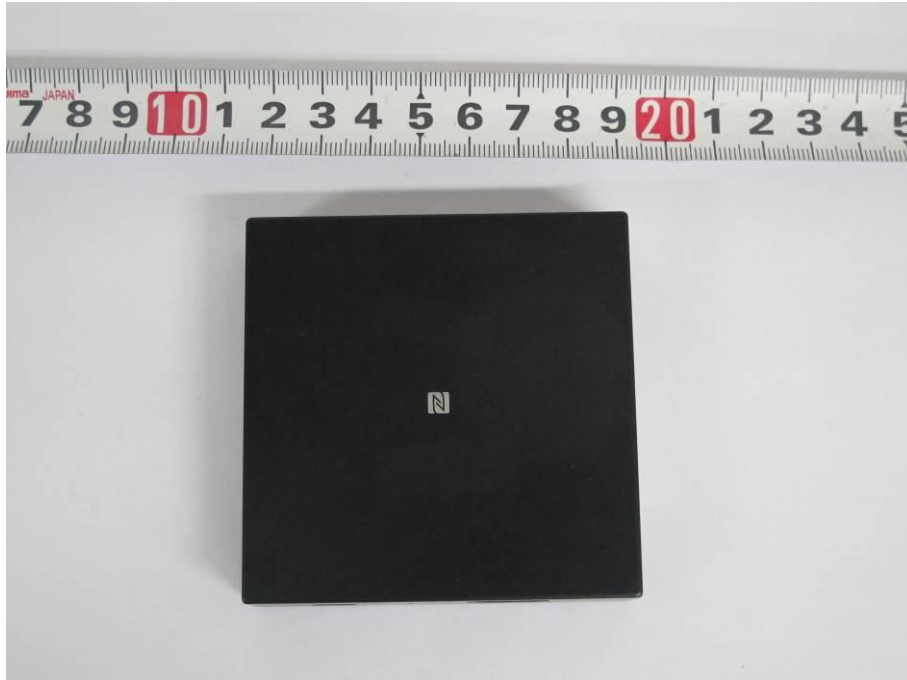


### Layout of AC Powerline Conducted Emission



**ANNEX C: PHOTOGRAPHS OF THE EUT**

**External Photo**



**Wi-Fi Display Adapter**



**Wi-Fi Display Adapter**





**Wi-Fi Display Adapter**



**AC/DC Power Adapter**

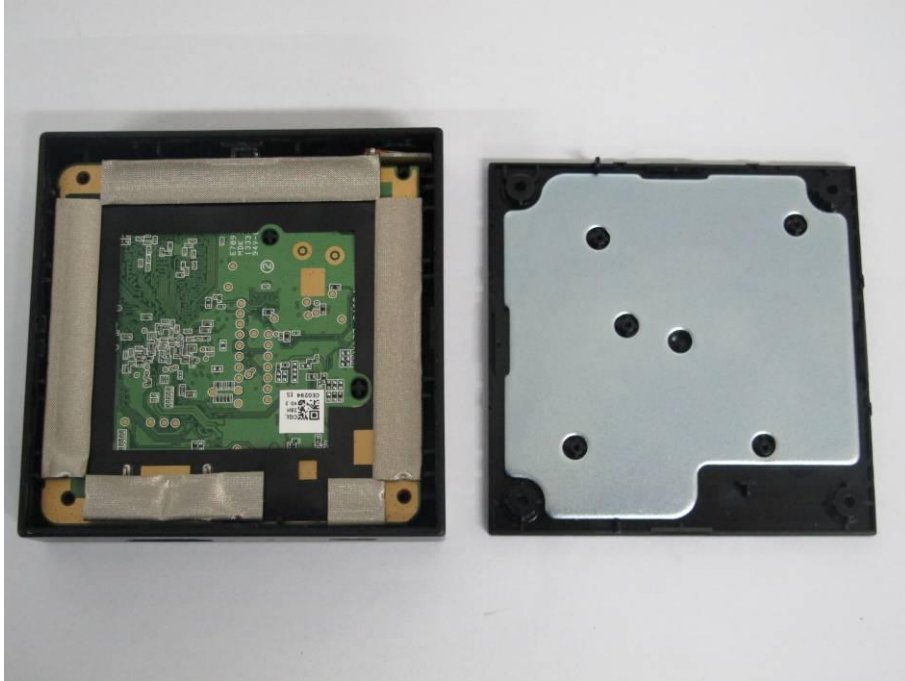


Label of AC/DC Power Adapter

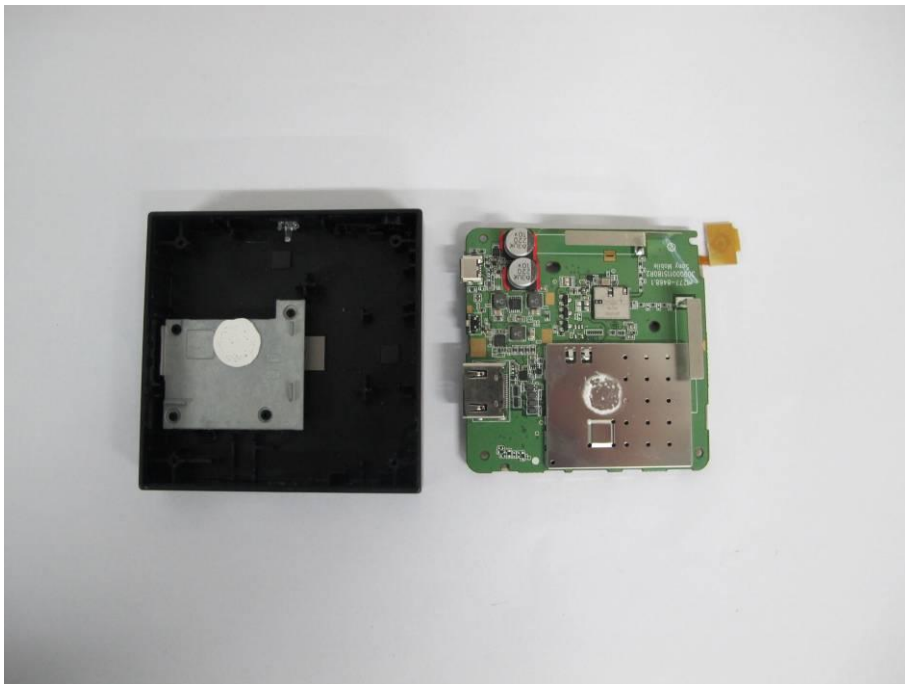


USB Cable

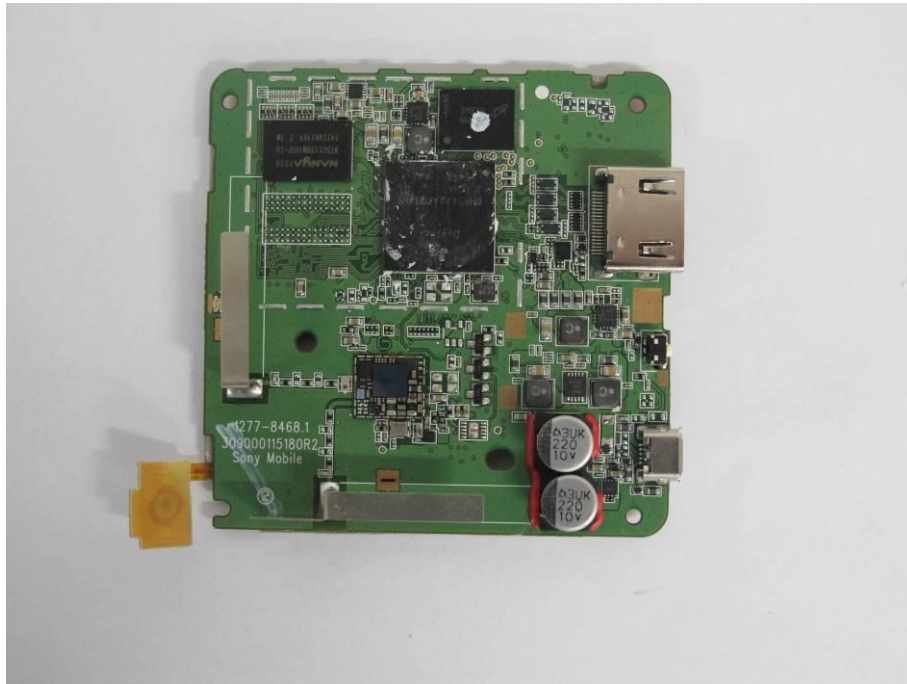
**Internal Photo**



**Wi-Fi Display Adapter Disassembly**



**Wi-Fi Display Adapter Disassembly**



**Wi-Fi Display Adapter Disassembly**

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