

# PARTIAL FCC RADIO TEST REPORT

**Name of Sample:** Mobile Cellular Phone  
**Model of Sample:** XT2529-3, XT2529-4  
**Applicant:** Motorola Mobility LLC  
**Issued Date:** 2025-04-15



**ADR TEST AND CERTIFICATION CENTER**  
**Motorola Mobility LLC, a Lenovo Company**

**Add: No. 19, Gao Xin 4th Road Wuhan, People's Republic of China 430205**

**Phone: (86) 13696970830**

**E-mail: [suyj3@motorola.com](mailto:suyj3@motorola.com)**

Name of Client	Motorola Mobility LLC		
Address of Client	222 W, Merchandise Mart Plaza, Chicago IL 60654 USA		
Trademark	Motorola	Type Name or ID	IHDT56AV3
Applicant No.	RF189617	Sample No.	SN: N4BS220207 SN: N4BS220244 SN: N4BS2B0143
Delivering Date	2025-02-26	Test Date(s)	2025-03-07 to 2025-03-24
Sample Illustration	None		
Standard	47 CFR Part 2,27		
Conclusion	PASS		
Remarks	None		

Editor: Chuan Sun

Reviewer: Jianfeng Wen

Signatory: Eric Lin

Chuan Sun

Jianfeng Wen

Eric Lin

## Matters Needing Attention

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### REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
25ADRTCC5013	Rev. 01	Initial issue of report	2025-03-24
25ADRTCC5013	Rev. 02	Update device information and result data description	2025-04-07
25ADRTCC5013	Rev. 03	Update SW information	2025-04-07
25ADRTCC5013	Rev. 04	Add test value calculation formula, amplifier information and the worse plot.	2025-04-14
25ADRTCC5013	Rev. 05	Added OSP device information	2025-04-15

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## 1. Information Of Equipment Under Test(EUT)

<b>Product Name:</b>	Mobile Cellular Phone	
<b>Brand Name:</b>	Motorola	
<b>Model Name:</b>	XT2529-3, XT2529-4	
<b>Type Name:</b>	IHDT56AV3	
<b>Software Version:</b>	V2VOJ35.45	
<b>Hardware Version:</b>	DVT2	
<b>IMEI Code:</b>	357325840026116/357325840026124 for Sample 1 357325840029755/357325840029763 for Sample 1 357325840035398/357325840035406 for Sample 2	
<b>Supports Radio application in this standard:</b>		
<b>Accessory</b>		
<b>Product</b>	<b>Brand</b>	<b>model</b>
AC Adapter 1(US)	Motorola (Salcomp)	MC-331L
AC Adapter 1(US)	Motorola (Chenyang)	MC-331L
AC Adapter 1(US)	Motorola (Salcomp)	MC-331
Battery 1	Motorola (Sunwoda)	RB52
Battery 2	Motorola (NVT)	RB52
USB Cable 1	Motorola(Yihuaxing)	T365-020/T365-020-01/T365-020-02
USB Cable 2	Motorola(WASHIN)	HX-TL-01/HX-TL-07/HX-TL-08
USB Cable 3	Motorola(Juwei)	JWUB1614-T03H /JWUB1705-T03H JWUB1856-T03H
USB Cable 4	Motorola(Saibao)	STN-A131A
USB Cable 5	Motorola(WASHIN)	HX-TL-04

### Remark:

1. The EUT's information was declared by manufacturer. Please refer to the manufacturer's specifications or user's manual for more detailed description.
2. This partial report only includes 5G NR RSE test data, 5G NR other test cases are shown separately.
3. This report includes the first and second source sample. The first source sample (SN: N4BS220207, N4BS220244 Applicant No. is RF189617) collectively referred to as sample1, and the second source sample (SN: N4BS2B0112, Applicant No. is RF189617) collectively referred to as sample2.
4. There are two models of EUT, they are XT2529-3 and XT2529-4. Please refer to the product equivalence statement for specific differences. Based on the differences, we selected XT2529-4 (Sample 1) for full testing, and selected the worst case (5G SA Cases 1) of XT2529-4 (Sample 1) to verify XT2529-4(Sample 2).

## 2. Details Of Test

### 2.1 Applicant

<b>Applicant Name:</b>	Motorola Mobility LLC
<b>Address:</b>	222 W, Merchandise Mart Plaza, Chicago IL 60654 USA

### 2.2 Location of Test

<b>Test Site 1:</b>	ADR TEST AND CERTIFICATION CENTER
<b>Address:</b>	NO.19, Gao Xin 4 <sup>th</sup> Road, Wuhan, 430205, P.R China

### 2.3 Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

**47 CFR Part 2,27**

**ANSI C63.26-2015**

**FCC KDB 971168 D01 Power Meas License Digital Systems v03r01**

**FCC KDB 412172 D01 Determining ERP and EIRP v01r01**

### 3. Result Summary

FCC Rule	Description	Limit	Result (PASS/FAIL)	Remark
§ 2.1053 § 27.53(l)(2)	Radiated Spurious Emission (5G NR n77) (5G NR n78)	$< 43+10\log_{10}(P[\text{Watts}])$	PASS	-
§ 2.1053 § 27.53(m)(4)	Radiated Spurious Emission (5G NR n41)	$< 55+10\log_{10}(P[\text{Watts}])$	PASS	-

decision rules: Statements of conformity (e.g., Pass/Fail) to specifications are made in this report without taking measurement uncertainty into account except when requested by the customer. Where statements of conformity are made in this report, the following decision rules are applied:

PASS- Results within limits/specifications

FAIL- Results exceed limits/specifications

Remark:

- For the test result, the EUT had been tested with all test modes. But only the worst case was shown in test report.
- 5G NR N77 cover N78.

Summary of Environment Condition, Test Date and Test Engineer for all Test Items

Test items	Ambient Temperature ( °C )	Relative Humidity (%)	Test Date	Test Engineer
Radiated spurious emissions	20-25	34-42	Mar.07, 2025~ Mar.24, 2025	Man Cao Mingzhu Li Chuanghui xiao

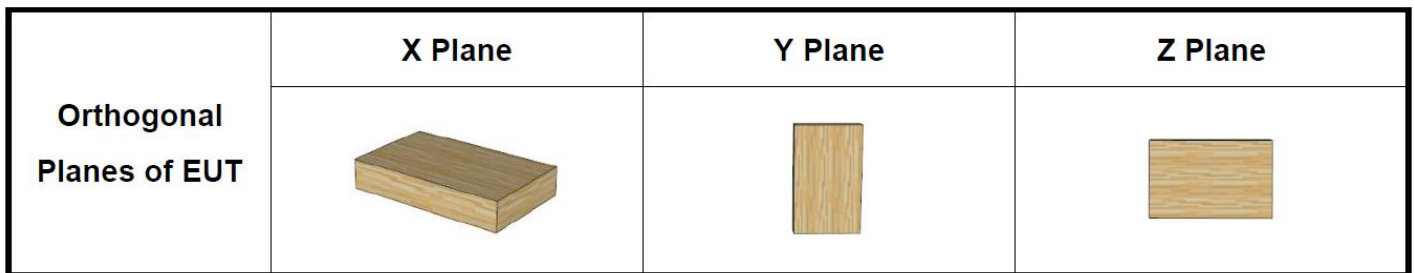
## 4. Tests Configuration Of EUT

### 4.1 EUT Test Modes

Antenna port conducted and radiated test items are performed according to KDB 971168 D01 Power Meas License Digital Systems v03r01 with maximum output power.

For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (X plane) were recorded in this report.

The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only worst case emissions are reported.



#### Sample 1

##### 5G SA

Cases	Ant.	Band	Channel	configuration
1	1	n41	518598	QPSK, BW 100MHz, RB Size 1, RB Offset 1
2	5	n77	656000	QPSK, BW 100MHz, RB Size 1, RB Offset 1

##### 5G NSA (ENDC Combos)

Cases	Ant.	Band	Channel		configuration	
			LTE	5GNR	LTE	5GNR
1	1+5	41A+n77A	40620	656000	QPSK, BW 20MHz, RB Size 1, RB Offset 0	QPSK, BW 100MHz, RB Size 1, RB Offset 1

#### Sample 2

##### 5G SA

Cases	Ant.	Band	Channel	configuration
1	1	n41	518598	QPSK, BW 100MHz, RB Size 1, RB Offset 1

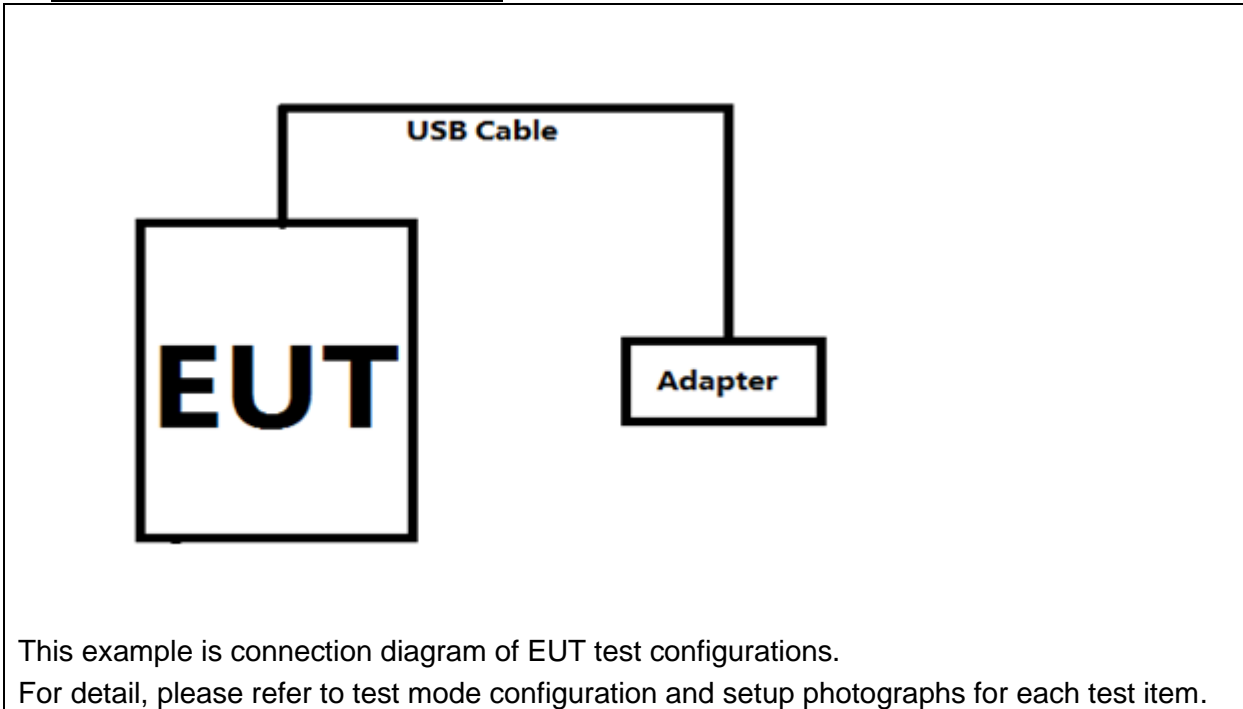
Remark:

1. If there is over one kind of accessories, each one should be applied in all the test modes.
2. All the cases will be tested the Traffic Mode.

Traffic Mode: When the EUT state is switched on and with Radio Resource Control (RRC) connection established.

3. Pre-scanned harmonic for the different antenna combinations, we choose the worst antenna mode to perform final test. Only the worst case will be recorded in this report.

**4.2 Configuration Of Test System**



This example is connection diagram of EUT test configurations.  
 For detail, please refer to test mode configuration and setup photographs for each test item.

**4.3 Support Unit For Test**

Name	Model Name	Manufacturer	S/N
System Simulator	CMX500	R&S	102510

## 5. Test Description

### 5.1 Radiated spurious emissions

#### 5.1.1 Limit

Based on 47 CFR, the RF fundamental frequency should be excluded against the limit line in the operating frequency band.

The limit line example:

$$43 + 10\log(P)\text{dB below the transmitter power } P(\text{Watts})$$

$$= P(\text{W}) - [43 + 10\log(P)] (\text{dB})$$

$$= [30 + 10\log(P)] (\text{dBm}) - [43 + 10\log(P)] (\text{dB})$$

$$= -13\text{dBm.}$$

#### 5.1.2 Test Procedure

1. The testing follows ANSI C63.26 Section 5.5.
2. The EUT was placed on a turntable with 0.8 meter height for frequency below 1GHz and 1.5 meter height for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the receiving antenna mounted on the antenna tower.
4. The table was rotated 360 degrees to determine the position of the highest spurious emission.
5. The height of the receiving antenna is varied between 1m to 4m to search the maximum spurious emission for both horizontal and vertical polarizations.
6. During the measurement, the system simulator parameters were set to force the EUT transmitting at maximum output power.
7. Make the measurement with the spectrum analyzer's RBW=100kHz(30M~1GHz) or 1MHz(above 1GHz), VBW=300kHz(30M~1GHz) or 1MHz(above 1GHz), taking the record of maximum spurious emission.
8. Radiated measurement using the Field Strength Method. Using the test configuration shown in 5.1.3. We measure the radiated emissions directly from the EUT and convert the measured field strength or received power to ERP or EIRP, as required, for comparison to the applicable limits. As stated in 5.5.1 of ANSI C63.26-2015, the field strength measurement method using a test site validated to the requirements of ANSI C63.4 is an alternative to the substitution measurement method.
9. Radiated Power Measurement Calculation According to ANSI C63.26-2015.
  - a)  $E (\text{dB}\mu\text{V}/\text{m}) = \text{Measured amplitude level (dB}\mu\text{V}) + \text{Cable Loss (dB)} + \text{Antenna Factor (dB/m)}$ .
  - b)  $E (\text{dB}\mu\text{V}/\text{m}) = \text{Measured amplitude level (dBm)} + 107 + \text{Cable Loss (dB)} + \text{Antenna Factor (dB/m)}$ .
  - c)  $E (\text{dB}\mu\text{V}/\text{m}) = \text{EIRP (dBm)} - 20\log(D) + 104.8$ ; where D is the measurement distance (in the far field region) in m.
  - d)  $\text{EIRP (dBm)} = E (\text{dB}\mu\text{V}/\text{m}) + 20\log(D) - 104.8$ ; where D is the measurement distance (in the far field region) in m.

So, from d)

The measuring distance is usually at 3m, then  $20*\text{Log}(3)=9.5424$ .

Then,  $\text{EIRP (dBm)} = E (\text{dB}\mu\text{V}/\text{m}) + 9.5424 - 104.8 = E (\text{dB}\mu\text{V}/\text{m}) - 95.2576$ .
10. If the emission level of the EUT in PEAK measurement mode was 3 dB lower than the limit specified, peak values of EUT will be reported. Otherwise, the level will be measured by using the RMS mode and reported.

Test Set-up

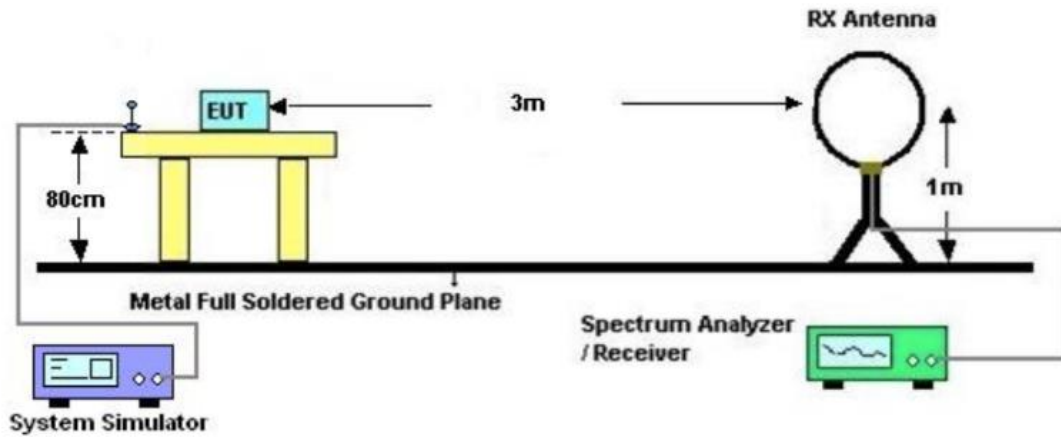


Figure.1 Test set-up of radiated emissions (Below 30MHz)

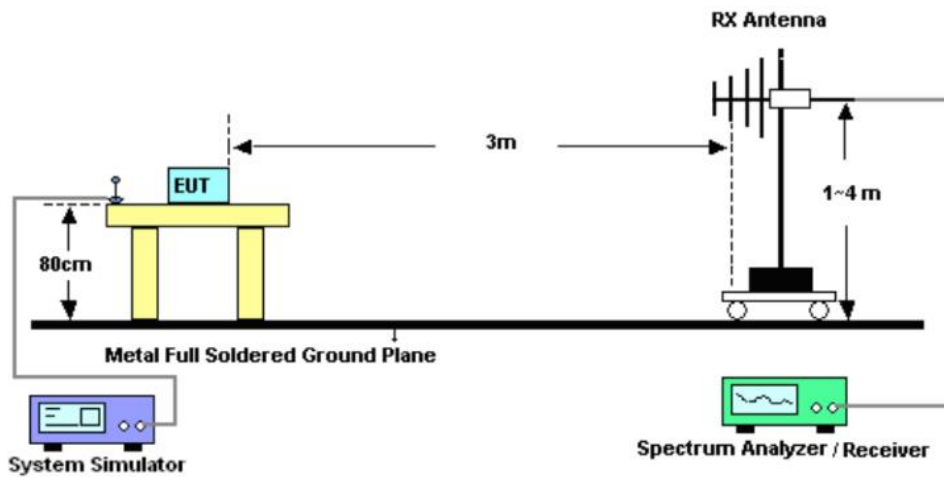


Figure.2 Test set-up of radiated emissions (30MHz~1GHz)

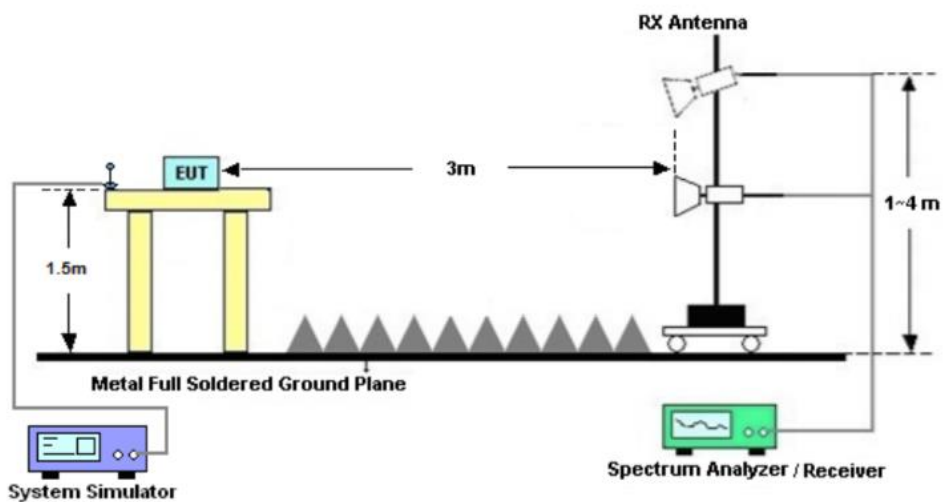


Figure.3 Test set-up of radiated emissions (above 1GHz)

**5.1.3 Test Results**

The EUT has met the requirements.

Test data refer to the section 7.1 of this report.

Only the worst test result was shown in this report.

Only the plots of the worst case are shown in this report.

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.

The data example:

Channel	Frequency ( MHz )	EIRP ( dBm )	Limit ( dBm )	Over Limit ( dB )	Correction [dB]	Detector	Polarization (H/V)
M	7636	-33.85	-25.00	-8.85	39.26	PK	H

Correction = Antenna factor + Cable loss – Preamplifier gain

E (dBuV/m) = Reading level + Correction

The measuring distance is 3m, then

EIRP= E (dBuV/m) - 95.26= Reading level + Correction- 95.26= Reading level+ Antenna factor + Cable loss – Preamplifier gain- 95.26

Over Limit = EIRP – Limit

Note: Reading level/ Antenna factor /Cable loss /Preamplifier gain are calculated by software background and are not shown in the data sheet.

### 6. Test Equipment And Software

Main Test Equipment						
Test items	Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration interval(year)
RSE	Log-per.-Antenna	R&S	VULB9163	9163-893	2024/01/19	2
	Double Ridged Horde Antenna	R&S	HF907	100545	2025/02/10	3
	Double Ridged Horde Antenna	R&S	QWH-SL-18-40-K-SG	12004	2025/02/10	3
	Loop Antenna	R&S	FMZB	1513	2024/04/23	3
	EMI Test Receiver ( Below30MHz /30M~1GHz)	R&S	ESR7	101188	2024/07/08	1
	Signal Analyzer (Above 1GHz)	R&S	FSV40	100956	2024/11/13	1
	SAC	ETS	/	5582	2025/01/15	3
	Turn Table	ETS	TT	2090	/	/
	Maturo NCA	Maturo	NCDv2.0	/	/	/
	Antenna Mast	Maturo	BAM 4.0-P	92536	/	/
	SCU18F	R&S	/	101084	/	/
	SCU40H48M	R&S	/	100250	/	/
	OSP	R&S	B155G	100852	/	/
Remark: OSP(B155G) is an integrated system of amplifiers and attenuators, for the frequency range of 1G -18 GHz, and during measurement the internal path will be switched to the appropriate amplifier and attenuator corresponding to frequencies to be measured. The complete system frequency response is verified prior to the measurement.						
Software Information						
Test Item	Software Name			Version		
RSE	ELEKTRA			V5.05.0		

### 7. System Measurement Uncertainty

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI 63.26-2015. All the measurement uncertainty value were shown with a coverage K=2 to indicate 95% level of confidence. The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance.

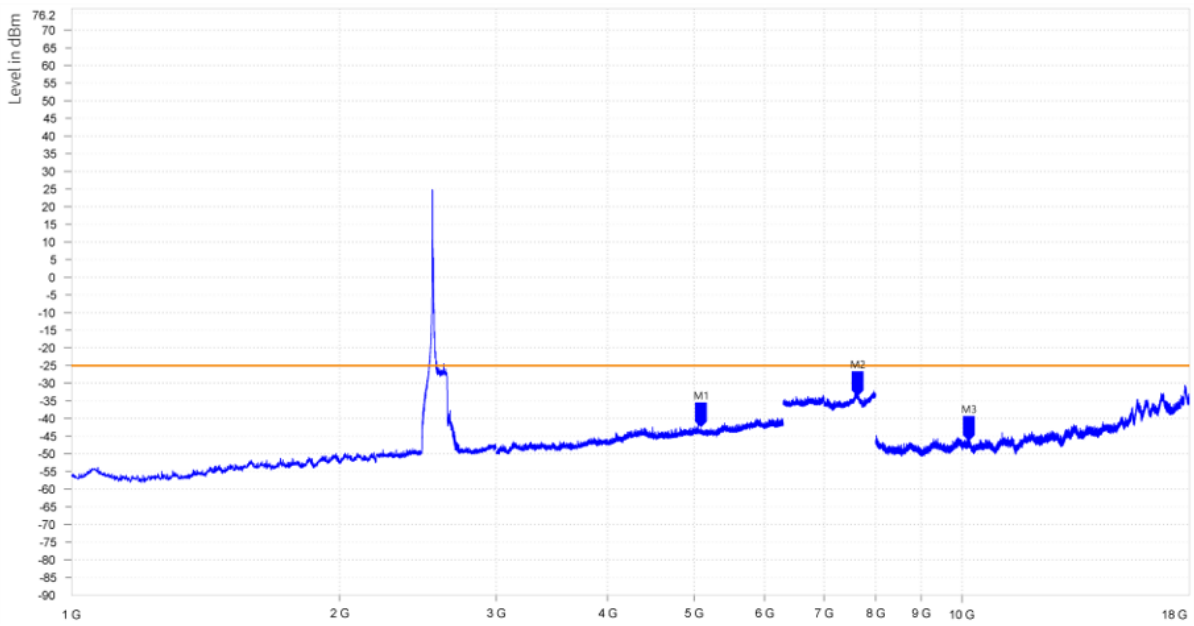
Measurement Uncertainty	
Items	Extended Uncertainty
RE(30MHz~1GHz)	U=5.9dB; k=2
RE(1GHz~18GHz)	U=5.0dB; k=2
RE(18GHz-40GHz)	U=5.1dB; k=2

### Test Data

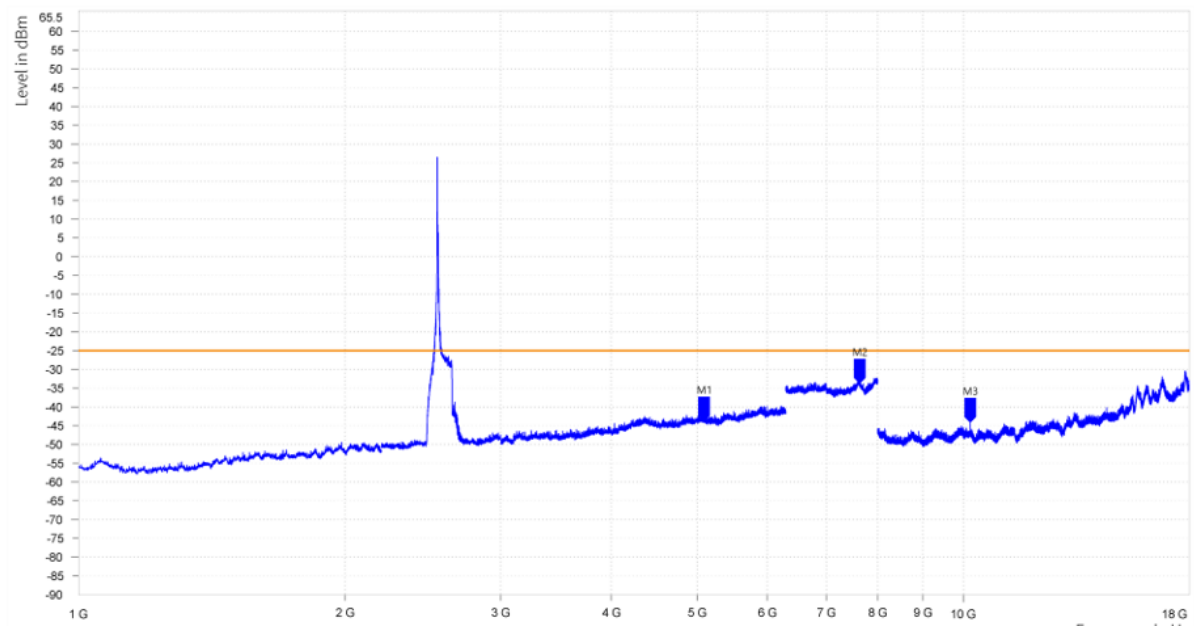
### 7.1 RSE

Sample 1

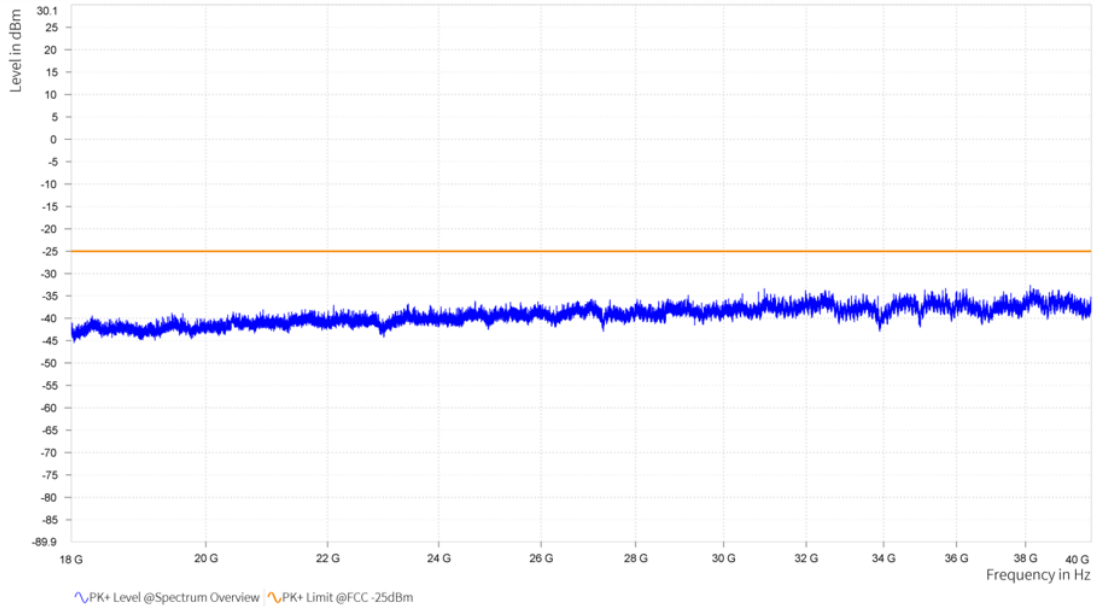
1G-18G H



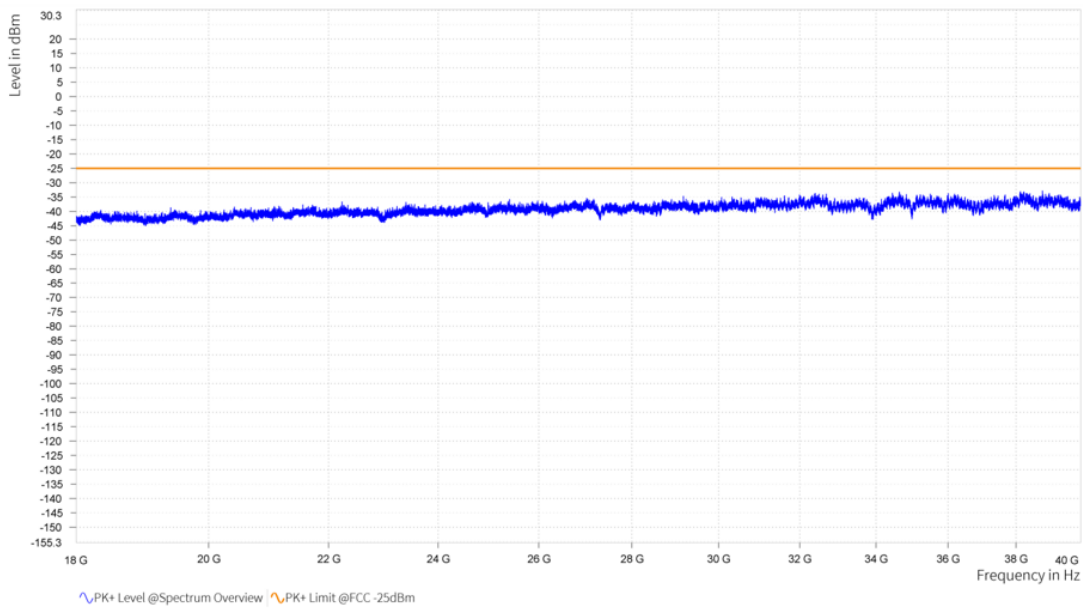
1G-18G V



18G-40G-H



18G-40G-V



N41 SA							
Channel	Frequency ( MHz )	EIRP ( dBm )	Limit ( dBm )	Over Limit ( dB )	Correction [dB]	Detector	Polarization (H/V)
Middle	5091	-42.67	-25.00	-17.67	29.03	PK	H
	7636	-33.85	-25.00	-8.85	39.26	PK	H
	10177	-46.55	-25.00	-21.55	26.51	PK	H
	5091	-43.80	-25.00	-18.80	29.03	PK	V
	7636	-34.00	-25.00	-9.00	39.26	PK	V
	10177	-43.11	-25.00	-18.11	26.51	PK	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

N77 SA							
Channel	Frequency ( MHz )	EIRP ( dBm )	Limit ( dBm )	Over Limit ( dB )	Correction [dB]	Detector	Polarization (H/V)
Middle	7680	-36.31	-13.00	-23.31	39.14	PK	H
	11520	-48.23	-13.00	-35.23	27.21	PK	H
	15359	-41.02	-13.00	-28.02	33.17	PK	H
	7680	-35.65	-13.00	-22.65	39.14	PK	V
	11520	-49.26	-13.00	-36.26	27.21	PK	V
	15359	-42.71	-13.00	-29.71	33.17	PK	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

EN-DC_41A_n77A							
Channel	Frequency ( MHz )	EIRP ( dBm )	Limit ( dBm )	Over Limit ( dB )	Correction [dB]	Detector	Polarization (H/V)
Middle	7680	-35.35	-13.00	-22.35	39.14	PK	H
	11520	-48.96	-13.00	-35.96	27.21	PK	H
	15360	-41.38	-13.00	-28.38	33.17	PK	H
	7680	-34.75	-13.00	-21.75	39.14	PK	V
	11520	-50.13	-13.00	-37.13	27.21	PK	V
	15360	-41.79	-13.00	-28.79	33.17	PK	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

Sample 2

N41 SA- Sample 2							
Channel	Frequency ( MHz )	EIRP ( dBm )	Limit ( dBm )	Over Limit ( dB )	Correction [dB]	Detector	Polarization (H/V)
Middle	5091	-43.72	-25.00	-18.72	29.03	PK	H
	7636	-33.97	-25.00	-8.97	39.26	PK	H
	10177	-47.51	-25.00	-22.51	26.51	PK	H
	5091	-44.60	-25.00	-19.60	29.03	PK	V
	7636	-34.69	-25.00	-9.69	39.26	PK	V
	10177	-46.71	-25.00	-21.71	26.51	PK	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.