



FCC ID: M82-WP7610  
Report No.: T200207D01-RP1

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Rev.: 05

## FCC 47 CFR PART 22 SUBPART H AND PART 24 SUBPART E

# TEST REPORT

For

Module

Model:WP7610

Trade Name: Advantech; Advantech Service-IoT

Issued to

**Advantech Co., Ltd.**

No.1, Alley 20, Lane 26, Rueiguang Road, Neihu District, Taipei 114, Taiwan, R.O.C.

Issued by

**Compliance Certification Services Inc.**

No.11, Wugong 6th Rd., Wugu Dist.,  
New Taipei City 24891, Taiwan. (R.O.C.)

Issued Date: January 7, 2021

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Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.  
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**Revision History**

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	August 12, 2020	Initial Issue	ALL	Angel Cheng
01	November 12, 2020	1. Revised temperature 、 humidity and test date. 2. Added Host device information.	P.5, P.14	Angel Cheng
02	December 22, 2020	1. Revised section 7.1.	P.14-16	Angel Cheng
03	December 30, 2020	1. Revised section 7.1.	P.14-16	Angel Cheng
04	January 6, 2021	1. Revised section 7.1.	P.15-16	Angel Cheng
05	January 7, 2021	1. Revised section 7.1.	P.15-16	Angel Cheng



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## 1. TEST RESULT CERTIFICATION

**Applicant:** Advantech Co., Ltd.  
No.1, Alley 20, Lane 26, Rueiguang Road, Neihu District,  
Taipei 114, Taiwan, R.O.C.

**Manufacturer:** Advantech Co.Ltd.  
No.1, Alley 20, Lane 26, Rueiguang Road, Neihu District,  
Taipei 114, Taiwan, R.O.C.

**Equipment Under Test:** Module

**Trade Name:** Advantech; Advantech Service-IoT

**Model Number:** WP7610

**Date of Test:** February 21 ~ July 16, 2020

APPLICABLE STANDARDS	
STANDARD	TEST RESULT
FCC 47 CFR Part 22 Subpart H & Part 24 Subpart E	No non-compliance noted

### We hereby certify that:

The above equipment was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in TIA/EIA-603-C: 2004 and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rule FCC PART 22 Subpart H and PART 24 Subpart E.

The test results of this report relate only to the tested sample identified in this report.

Approved by:

---

Kevin Tsai  
Deputy Manager  
Compliance Certification Services Inc.

## 2. EUT DESCRIPTION

<b>Product</b>	Module
<b>Trade Name</b>	Advantech; Advantech Service-IoT
<b>Model Number</b>	WP7610
<b>Received Date</b>	February 7, 2020
<b>Power Supply</b>	Powered from host device.
<b>Frequency Range</b>	WCDMA / HSDPA / HSUPA Band II: 1852.4 ~ 1907.6 MHz WCDMA / HSDPA / HSUPA Band V: 826.4 ~ 846.6MHz
<b>Cellular Phone Protocol</b>	WCDMA: Quadrature Phase Shift Keying (QPSK) with Root-raised cosine pulse shaping filters (roll off = 0.22)
<b>Antenna Gain</b>	Part No.: MA231.LBC.002 PIFA Antenna Band II Antenna gain: 1.37 dBi Band V Antenna gain: 2.26 dBi
<b>Host device information</b>	Product : Computer Trade name: ADVANTECH Model: TREK-572

### Remark:

1. The sample selected for test was engineering sample that approximated to production product and was provided by manufacturer.
2. For test mode WCDMA, HSUPA, HSDPA and HSPA+ were pretest. The worst case was WCDMA in this test report.
3. Disclaimer  
Antenna information is provided by the applicant, test results of this report are applicable to the sample EUT received.

### 3. TEST METHODOLOGY

Both conducted and radiated testing were performed according to the procedures document on chapter 13 of ANSI C63.10: 2013, TIA/EIA-603-C: 2004 and FCC CFR 47, Part 2, PART 22 SUBPART H AND PART 24 SUBPART E

#### 3.1 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

#### 3.2 DESCRIPTION OF TEST MODES

The EUT (model: WP7610) had been tested under operating condition.

The EUT be set in maximum power transmission via call box during testing.

##### 3.2.1 The worst mode of measurement

Radiated Emission Measurement Above 1G	
Test Condition	Radiated Emission Above 1G
Power supply Mode	Mode 1: EUT power by Adapter
Worst Mode	<input checked="" type="checkbox"/> Mode 1 <input type="checkbox"/> Mode 2 <input type="checkbox"/> Mode 3 <input type="checkbox"/> Mode 4
Worst Position	<input type="checkbox"/> Placed in fixed position. <input checked="" type="checkbox"/> Placed in fixed position at X-Plane (E2-Plane) <input type="checkbox"/> Placed in fixed position at Y-Plane (E1-Plane) <input type="checkbox"/> Placed in fixed position at Z-Plane (H-Plane)

Radiated Emission Measurement Below 1G	
Test Condition	Radiated Emission Below 1G
Power supply Mode	Mode 1: EUT power by Adapter
Worst Mode	<input checked="" type="checkbox"/> Mode 1 <input type="checkbox"/> Mode 2 <input type="checkbox"/> Mode 3 <input type="checkbox"/> Mode 4

*Remark:*

1. The worst mode was record in this test report.
2. EUT pre-scanned in three axis ,X,Y, Z and two polarity, for radiated measurement. The worst case(X-Plane) were recorded in this report

## 4. INSTRUMENT CALIBRATION

### 4.1 MEASURING INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

### 4.2 MEASUREMENT EQUIPMENT USED

#### Equipment Used for Emissions Measurement

*Remark: Each piece of equipment is scheduled for calibration once a year and Loop Antenna is scheduled for calibration once three years.*

Conducted Emissions Test Site					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Coaxial Cable	Woken	WC12	CC003	06/29/2020	06/28/2021
Coaxial Cable	Woken	WC12	CC001	06/29/2020	06/28/2021
Power Divider	Solvang Technology	STI08-0015	008	08/06/2019	08/05/2020
Signal Analyzer	R&S	FSV 40	101073	09/25/2019	09/24/2020
Wideband Radio Communication Tester	R&S	CMW 500	116875	07/29/2019	07/28/2020
Software	N/A				

Wugu 966 Chamber A					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Band Reject Filters	MICRO TRONICS	BRM 50702	120	02/26/2019	02/25/2020
Bilog Antenna	Sunol Sciences	JB3	A030105	07/26/2019	07/25/2020
Coaxial Cable	HUBER SUHNER	SUCOFLEX 104PEA	20995	02/26/2019	02/25/2020
Coaxial Cable	EMCI	EMC105	190914+25111	09/20/2019	09/19/2020
Digital Thermo-Hygro Meter	WISEWIND	1206	D07	01/15/2020	01/14/2021
double Ridged Guide Horn Antenna	ETC	MCTD 1209	DRH13M02003	10/04/2019	10/03/2020
Loop Ant	COM-POWER	AL-130	121051	03/22/2019	03/21/2020
Pre-Amplifier	EMEC	EM330	060609	02/26/2019	02/25/2020
Pre-Amplifier	HP	8449B	3008A00965	02/26/2019	02/25/2020
Wideband Radio Communication Tester	R&S	CMW 500	116875	07/29/2019	07/28/2020
PSA Series Spectrum Analyzer	Agilent	E4446A	MY46180323	05/29/2019	05/28/2020
Antenna Tower	CCS	CC-A-1F	N/A	N.C.R	N.C.R
Controller	CCS	CC-C-1F	N/A	N.C.R	N.C.R
Turn Table	CCS	CC-T-1F	N/A	N.C.R	N.C.R
Software	e3 6.11-20180413				

### 4.3 MEASUREMENT UNCERTAINTY

PARAMETER	UNCERTAINTY
3M Semi Anechoic Chamber / 30M~200M	+/- 4.12
3M Semi Anechoic Chamber / 200M~1000M	+/- 4.68
3M Semi Anechoic Chamber / 1G~8G	+/- 5.18
3M Semi Anechoic Chamber / 8G~18G	+/- 5.47
3M Semi Anechoic Chamber / 18G~26G	+/- 3.81
3M Semi Anechoic Chamber / 26G~40G	+/- 3.87

**Remark:** This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of  $k=2$ .

### 4.4 FACILITIES AND TEST LOCATION

All measurement facilities used to collect the measurement data are located at No.11, Wugong 6th Rd., Wugu Dist., New Taipei City 24891, Taiwan. (R.O.C.)

Test site	Test Engineer	Remark
Radiation	Jerry Chang	-
RF Conducted	Jane Wang	-

**Remark:** The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.



## 5. FACILITIES AND ACCREDITATIONS

### 5.1 FACILITIES

- No.199, Chunghsen Road, Hsintien City, Taipei Hsien, Taiwan, R.O.C.  
Tel: 886-2-2217-0894 / Fax: 886-2-2217-1029
- No.11, Wugong 6th Rd., Wugu Dist., New Taipei City 24891, Taiwan. (R.O.C.)  
Tel: 886-2-2299-9720 / Fax: 886-2-2298-4045
- No.81-1, Lane 210, Bade 2nd Rd., Lujhu Township, Taoyuan County 33841, TAIWAN, R.O.C.  
Tel: 886-3-324-0332 / Fax: 886-3-324-5235

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

### 5.2 EQUIPMENT

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

## 6. SETUP OF EQUIPMENT UNDER TEST

### 6.1 SETUP CONFIGURATION OF EUT

See test photographs attached in Appendix I for the actual connections between EUT and support equipment.

### 6.2 SUPPORT EQUIPMENT

No.	Device Type	Brand	Model	FCC ID	Series No.	Data Cable	Power Cord
	N/A						

**Remark:**

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.



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## 7. FCC PART 22 & 24 REQUIREMENTS

### 7.1 ERP & EIRP MEASUREMENT

#### LIMIT

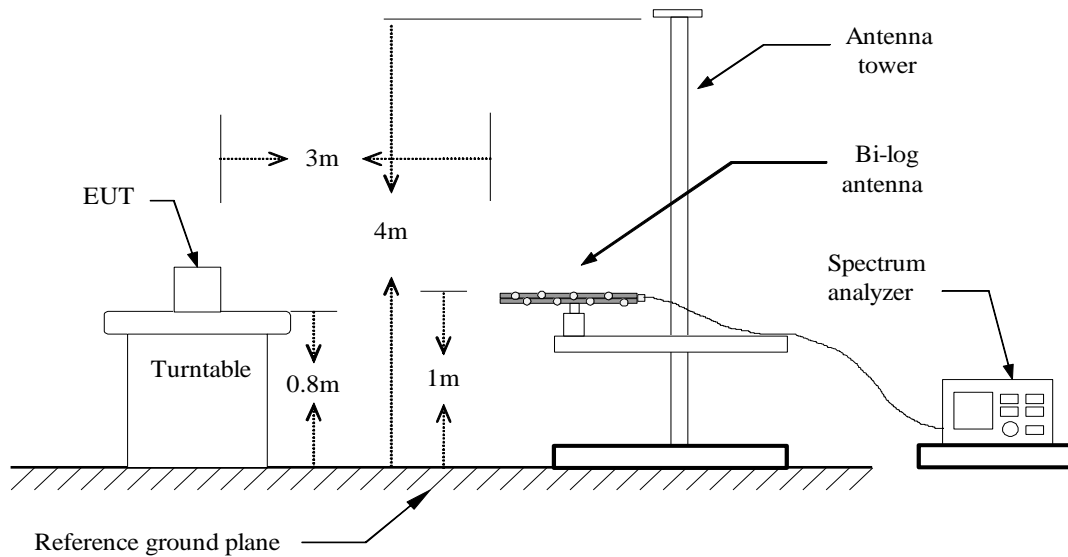
According to FCC §2.1046

FCC 22.913(a): The Effective Radiated Power (ERP) of mobile transmitters must not exceed 7 Watts.

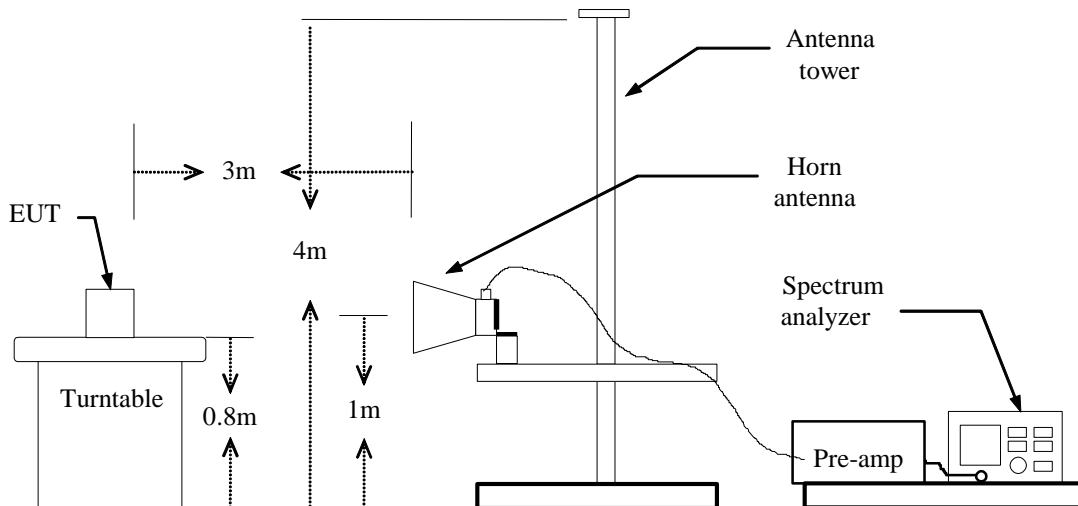
FCC 24.232(b): The equivalent Isotropic Radiated Power (EIRP) must not exceed 2 Watts.

## Test Configuration

### Below 1 GHz

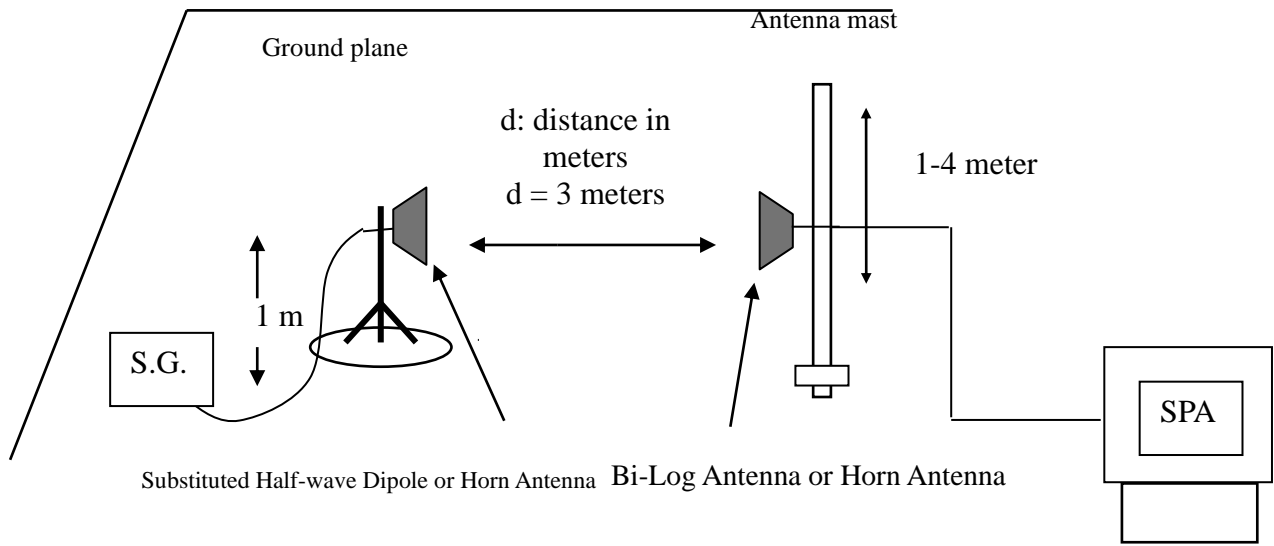


### Above 1 GHz



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**For Substituted Method Test Set-UP**



**TEST PROCEDURE**

The EUT was placed on an non-conductive turntable using a non-conductive support. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer.

During the measurement of the EUT, the resolution bandwidth was set to 5MHz and the average bandwidth was set to 50MHz. The highest emission was recorded with the rotation of the turntable and the lowering of the test antenna. The reading was recorded and the field strength (E in dBuV/m) was calculated.

ERP in frequency band 824-849MHz, and EIRP in frequency band 1851.25 –1910MHz were measured using a substitution method. The EUT was replaced by half-wave dipole (824-849MHz) or horn antenna (1851.25-1910MHz) connected to a signal generator. The spectrum analyzer reading was recorded and ERP/EIRP was calculated as follows:

$$ERP = S.G. \text{ output (dBm)} + \text{Antenna Gain (dBi)} - \text{Cable (dB)} - 2.15$$

$$EIRP = S.G. \text{ output (dBm)} + \text{Antenna Gain (dBi)} - \text{Cable (dB)}$$

**TEST RESULTS**

*No non-compliance noted.*

**Temperature:** 24°C                      **Test Date:** July 16, 2020  
**Humidity:** 50 % RH                      **Tested by:** Jane Wang

Band	Data Rate or Sub-test	UL/DL Channel No.	Frequency (MHz)	Average power (dBm)	EIRP (dBm)
WCDMA Band 2	RMC 12.2Kbps	9262/9662	1852.4	23.0	24.4
		9400/9800	1880.0	22.0	23.4
		9538/9938	1907.6	21.5	22.9

Band	Data Rate or Sub-test	UL/DL Channel No.	Frequency (MHz)	Average power (dBm)	ERP (dBm)
WCDMA Band 5	RMC 12.2Kbps	4132/4357	826.4	23.5	23.6
		4182/4407	836.4	22.8	22.9
		4233/4458	846.6	21.8	21.9

Band	Data Rate or Sub-test	UL/DL Channel No.	Frequency(MHz)	Average power(dBm)	E.I.R.P. Power
HSUPA II	1	9262/9662	1852.4	23.0	24.4
		9400/9800	1880.0	21.7	23.1
		9538/9938	1907.6	21.0	22.4
	2	9262/9662	1852.4	22.9	24.3
		9400/9800	1880.0	21.6	23.0
		9538/9938	1907.6	20.9	22.3
	3	9262/9662	1852.4	22.9	24.3
		9400/9800	1880.0	21.7	23.1
		9538/9938	1907.6	20.9	22.3
	4	9262/9662	1852.4	22.9	24.3
		9400/9800	1880.0	21.8	23.2
		9538/9938	1907.6	21.0	22.4
	5	9262/9662	1852.4	22.8	24.2
		9400/9800	1880.0	21.8	23.2
		9538/9938	1907.6	20.9	22.3

Band	Data Rate or Sub-test	UL/DL Channel No.	Frequency(MHz)	Average power(dBm)	E.R.P. Power
HSUPA V	1	4132/4357	826.4	23.4	23.5
		4182/4407	836.4	22.7	22.8
		4233/4458	846.6	22.1	22.2
	2	4132/4357	826.4	23.3	23.4
		4182/4407	836.4	22.6	22.7
		4233/4458	846.6	22.0	22.1
	3	4132/4357	826.4	23.4	23.5
		4182/4407	836.4	22.6	22.7
		4233/4458	846.6	22.0	22.1
	4	4132/4357	826.4	23.3	23.4
		4182/4407	836.4	22.5	22.6
		4233/4458	846.6	22.0	22.1
	5	4132/4357	826.4	23.4	23.5
		4182/4407	836.4	22.6	22.7
		4233/4458	846.6	22.1	22.2

Band	Data Rate or Sub-test	UL/DL Channel No.	Frequency(MHz)	Average power(dBm)	E.I.R.P. Power
HSDPA II	1	9262/9662	1852.4	22.8	24.2
		9400/9800	1880.0	21.7	23.1
		9538/9938	1907.6	20.8	22.2
	2	9262/9662	1852.4	22.8	24.2
		9400/9800	1880.0	21.8	23.2
		9538/9938	1907.6	20.8	22.2
	3	9262/9662	1852.4	22.7	24.1
		9400/9800	1880.0	21.7	23.1
		9538/9938	1907.6	20.7	22.1
	4	9262/9662	1852.4	22.6	24.0
		9400/9800	1880.0	21.7	23.1
		9538/9938	1907.6	20.7	22.1

Band	Data Rate or Sub-test	UL/DL Channel No.	Frequency(MHz)	Average power(dBm)	E.R.P. Power
HSDPA V	1	4132/4357	826.4	23.3	23.4
		4182/4407	836.4	22.6	22.7
		4233/4458	846.6	22.2	22.3
	2	4132/4357	826.4	23.2	23.3
		4182/4407	836.4	22.6	22.7
		4233/4458	846.6	22.2	22.3
	3	4132/4357	826.4	22.3	22.4
		4182/4407	836.4	22.7	22.8
		4233/4458	846.6	22.2	22.3
	4	4132/4357	826.4	23.2	23.3
		4182/4407	836.4	22.5	22.6
		4233/4458	846.6	22.2	22.3



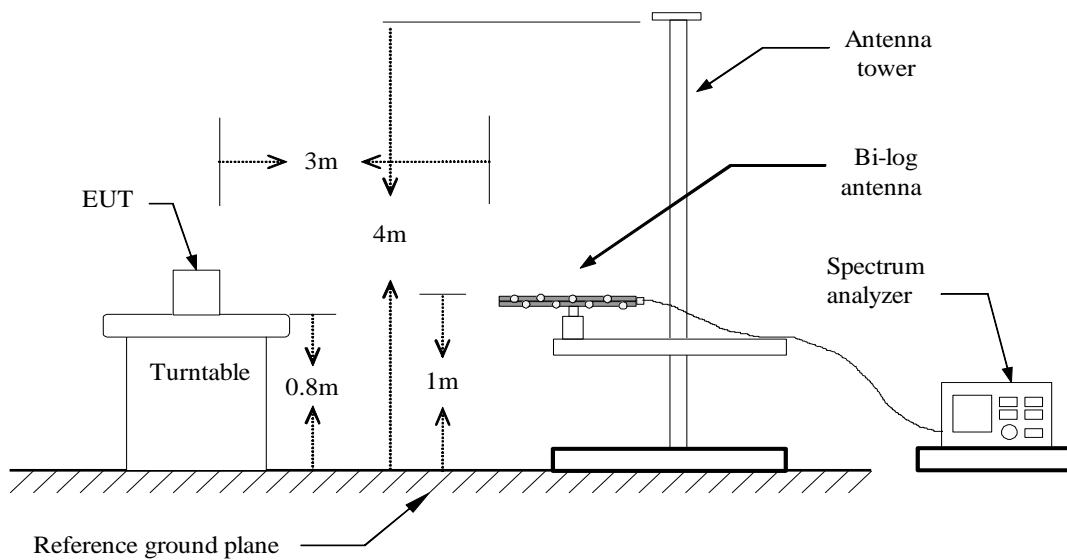
## 7.2 FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT

### LIMIT

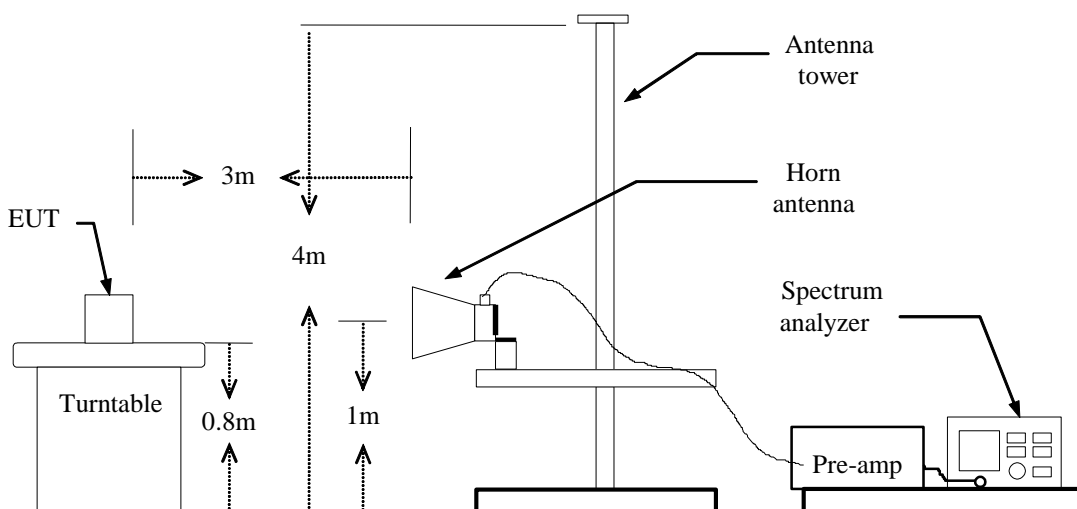
According to FCC §2.1053

### Test Configuration

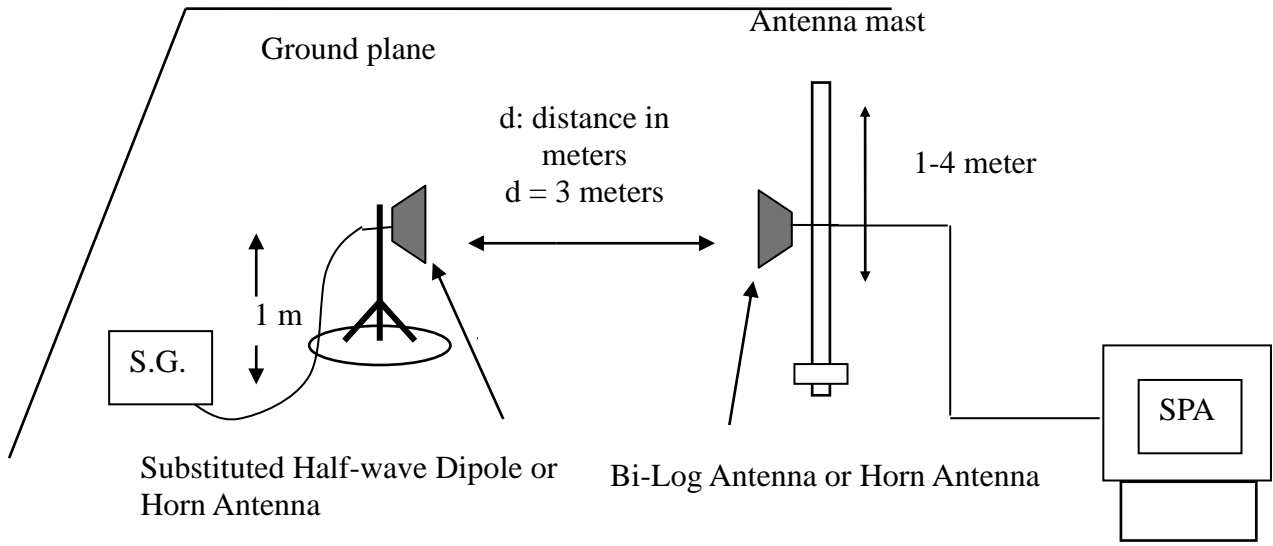
#### Below 1 GHz



#### Above 1 GHz



**Substituted Method Test Set-up**



**TEST PROCEDURE**

The EUT was placed on a non-conductive, 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.

The frequency range up to tenth harmonic was investigated for each of three fundamental frequency (low, middle and high channels). Once spurious emission were identified, the power of the emission was determined using the substitution method.

The spurious emissions attenuation was calculated as the difference between radiated power at the fundamental frequency and the spurious emissions frequency.

$$ERP = \text{S.G. output (dBm)} + \text{Antenna Gain (dBd)} - \text{Cable (dB)}$$

$$EIRP = \text{S.G. output (dBm)} + \text{Antenna Gain (dBi)} - \text{Cable (dB)}$$

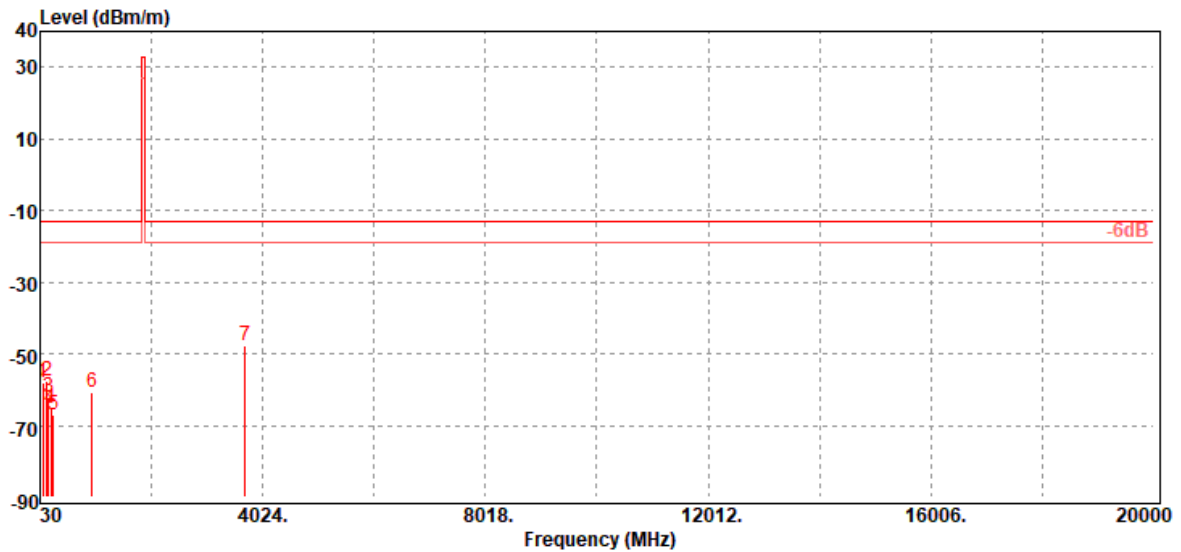
**TEST RESULTS**

*Refer to the attached tabular data sheets.*

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**Radiated Spurious Emission Measurement Result**

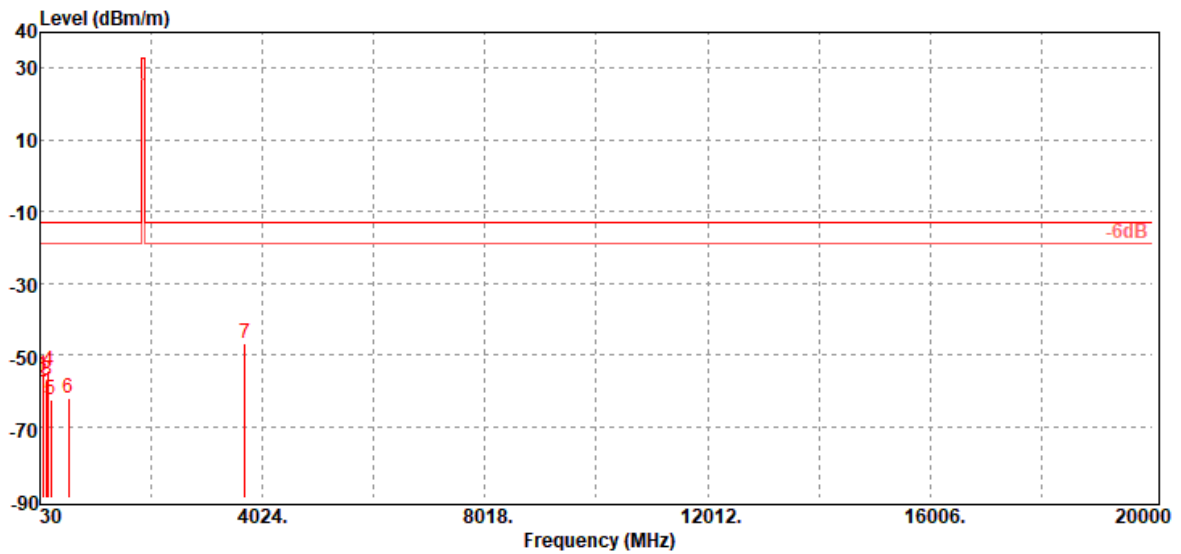
<b>Operation Mode:</b>	WCDMA 12.2k RMC Band II / TX /Low CH	<b>Test Date:</b>	February 21, 2020
<b>Temperature:</b>	21.4°C	<b>Tested by:</b>	Jerry Chang
<b>Humidity:</b>	51 % RH	<b>Polarity:</b>	Ver.



Freq. (MHz)	ERP/EIRP (dBm)	SG Output Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
80.44	-58.08	-48.89	-8.46	-0.73	-13.00	-45.08	V
153.19	-57.70	-49.96	-6.72	-1.02	-13.00	-44.70	V
182.29	-62.22	-56.91	-4.20	-1.11	-13.00	-49.22	V
225.94	-65.13	-61.96	-1.94	-1.23	-13.00	-52.13	V
272.50	-67.20	-63.24	-2.60	-1.36	-13.00	-54.20	V
968.96	-60.68	-56.74	-1.30	-2.64	-13.00	-47.68	V
3704.80	-47.68	-54.45	12.49	-5.72	-13.00	-34.68	V

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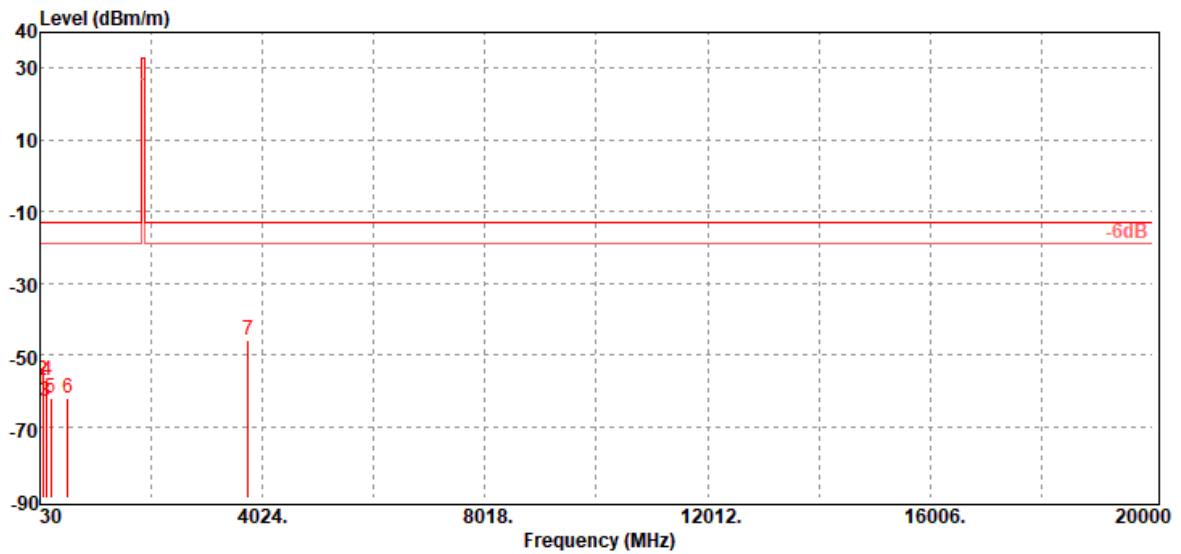
<b>Operation Mode:</b>	WCDMA 12.2k RMC Band II / TX /Low CH	<b>Test Date:</b>	February 21, 2020
<b>Temperature:</b>	21.4°C	<b>Tested by:</b>	Jerry Chang
<b>Humidity:</b>	51 % RH	<b>Polarity:</b>	Hor.



Freq. (MHz)	ERP/EIRP (dBm)	SG Output Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
73.65	-56.02	-46.22	-9.10	-0.70	-13.00	-43.02	H
80.44	-57.64	-48.45	-8.46	-0.73	-13.00	-44.64	H
154.16	-57.06	-49.26	-6.78	-1.02	-13.00	-44.06	H
175.50	-54.31	-48.37	-4.85	-1.09	-13.00	-41.31	H
222.06	-62.73	-59.55	-1.96	-1.22	-13.00	-49.73	H
537.31	-62.08	-58.85	-1.30	-1.93	-13.00	-49.08	H
3704.80	-46.92	-53.69	12.49	-5.72	-13.00	-33.92	H

Report No.: T200207D01-RP1

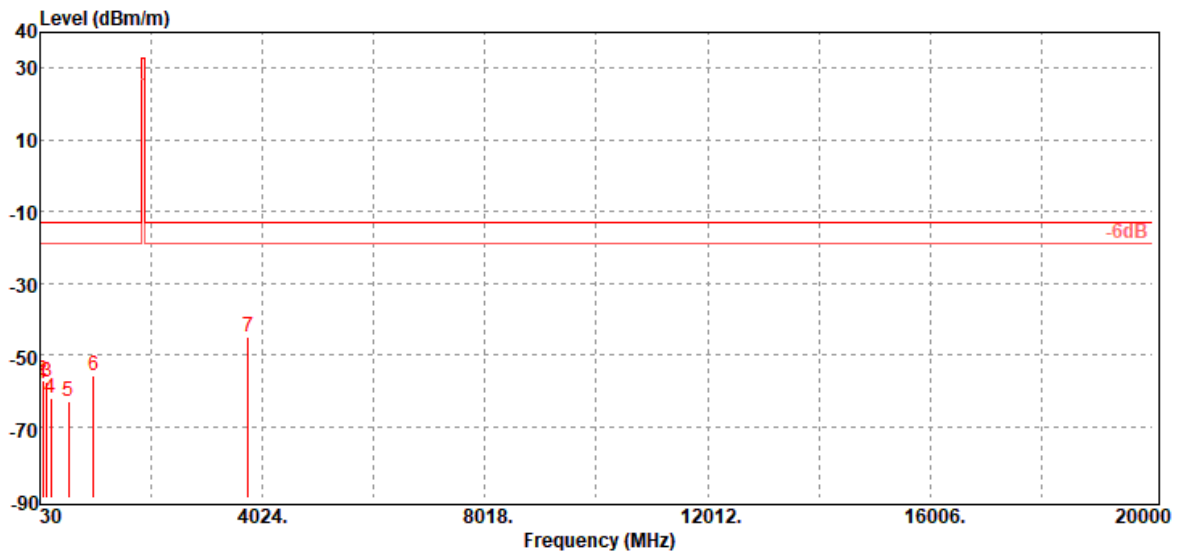
<b>Operation Mode:</b>	WCDMA 12.2k RMC Band II / TX /Mid CH	<b>Test Date:</b>	February 21, 2020
<b>Temperature:</b>	21.4°C	<b>Tested by:</b>	Jerry Chang
<b>Humidity:</b>	51 % RH	<b>Polarity:</b>	Ver.



Freq. (MHz)	ERP/EIRP (dBm)	SG Output Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
73.65	-59.68	-49.88	-9.10	-0.70	-13.00	-46.68	V
80.44	-56.96	-47.77	-8.46	-0.73	-13.00	-43.96	V
133.79	-63.00	-52.53	-9.52	-0.95	-13.00	-50.00	V
153.19	-57.01	-49.27	-6.72	-1.02	-13.00	-44.01	V
224.00	-61.97	-58.82	-1.92	-1.23	-13.00	-48.97	V
532.46	-61.97	-58.75	-1.30	-1.92	-13.00	-48.97	V
3760.00	-46.10	-52.76	12.42	-5.76	-13.00	-33.10	V

Report No.: T200207D01-RP1

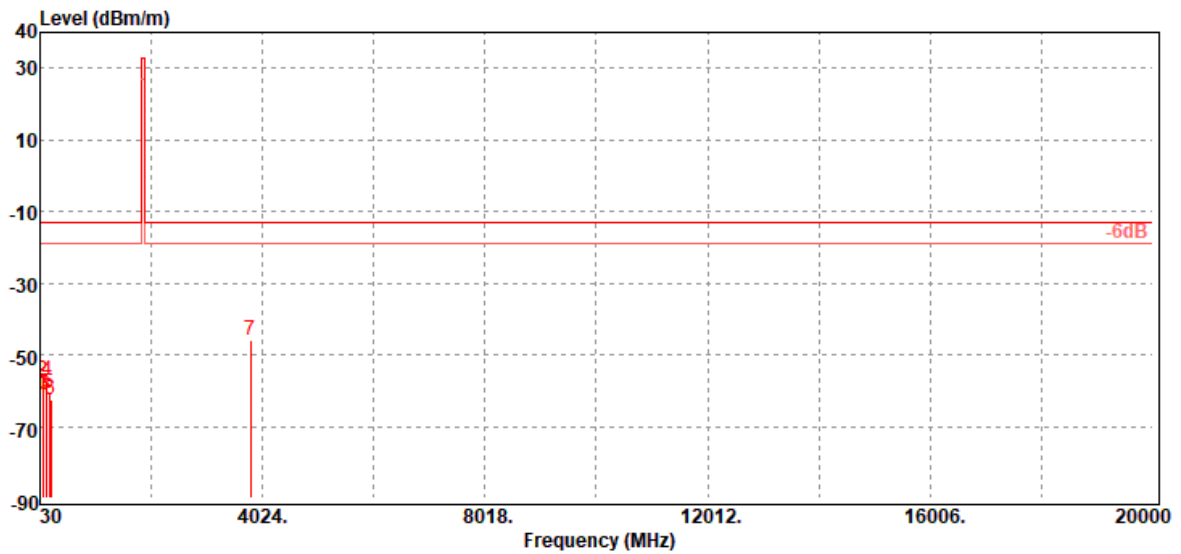
<b>Operation Mode:</b>	WCDMA 12.2k RMC Band II / TX /Mid CH	<b>Test Date:</b>	February 21, 2020
<b>Temperature:</b>	21.4°C	<b>Tested by:</b>	Jerry Chang
<b>Humidity:</b>	51 % RH	<b>Polarity:</b>	Hor.



Freq. (MHz)	ERP/EIRP (dBm)	SG Output Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
73.65	-58.12	-48.32	-9.10	-0.70	-13.00	-45.12	H
80.44	-57.12	-47.93	-8.46	-0.73	-13.00	-44.12	H
153.19	-57.72	-49.98	-6.72	-1.02	-13.00	-44.72	H
225.94	-62.15	-58.98	-1.94	-1.23	-13.00	-49.15	H
536.34	-62.84	-59.61	-1.30	-1.93	-13.00	-49.84	H
997.09	-55.60	-51.52	-1.40	-2.68	-13.00	-42.60	H
3760.00	-44.86	-51.52	12.42	-5.76	-13.00	-31.86	H

Report No.: T200207D01-RP1

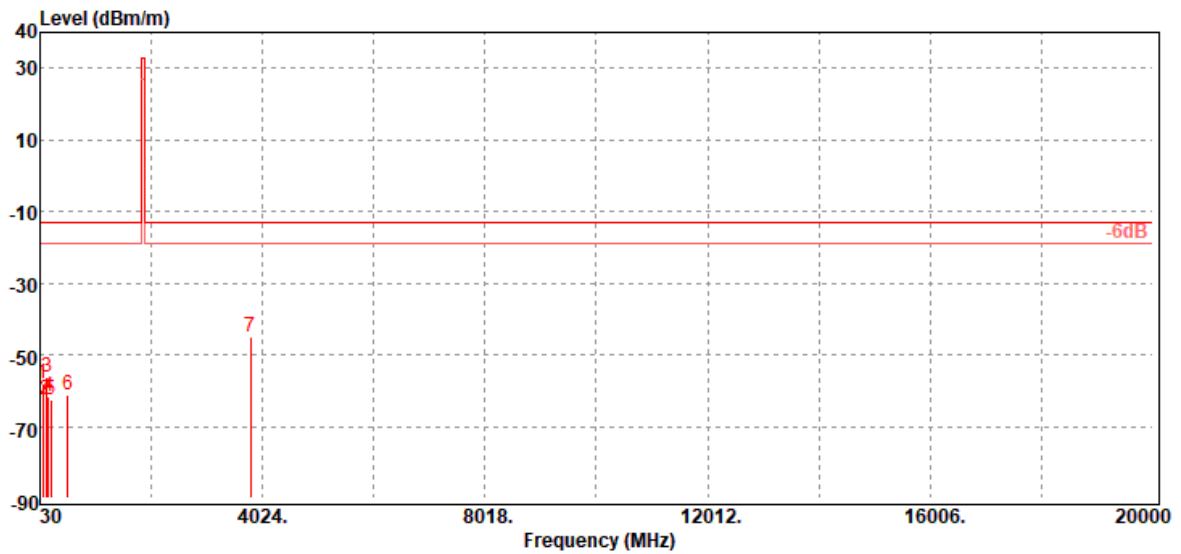
<b>Operation Mode:</b>	WCDMA 12.2k RMC Band II / TX /High CH	<b>Test Date:</b>	February 21, 2020
<b>Temperature:</b>	21.4°C	<b>Tested by:</b>	Jerry Chang
<b>Humidity:</b>	51 % RH	<b>Polarity:</b>	Ver.



Freq. (MHz)	ERP/EIRP (dBm)	SG Output Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
73.65	-60.63	-50.83	-9.10	-0.70	-13.00	-47.63	V
81.41	-57.11	-47.97	-8.40	-0.74	-13.00	-44.11	V
134.76	-61.13	-50.83	-9.35	-0.95	-13.00	-48.13	V
153.19	-56.95	-49.21	-6.72	-1.02	-13.00	-43.95	V
190.05	-60.94	-55.81	-4.00	-1.13	-13.00	-47.94	V
225.94	-62.44	-59.27	-1.94	-1.23	-13.00	-49.44	V
3815.20	-45.81	-52.48	12.47	-5.80	-13.00	-32.81	V

Report No.: T200207D01-RP1

<b>Operation Mode:</b>	WCDMA 12.2k RMC Band II / TX / High CH	<b>Test Date:</b>	February 21, 2020
<b>Temperature:</b>	21.4°C	<b>Tested by:</b>	Jerry Chang
<b>Humidity:</b>	51 % RH	<b>Polarity:</b>	Hor.



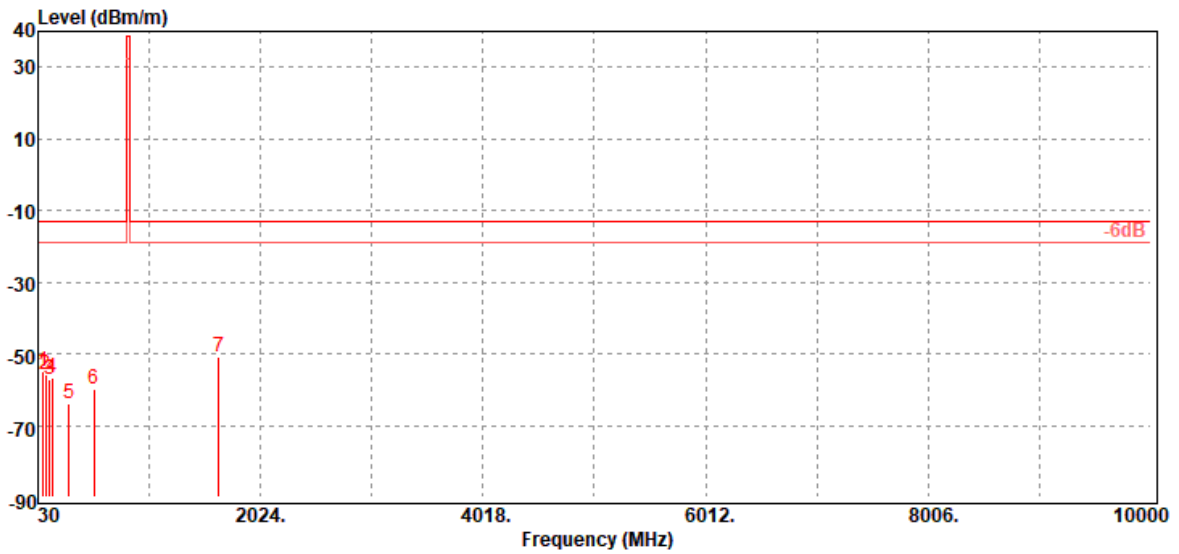
Freq. (MHz)	ERP/EIRP (dBm)	SG Output Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
80.44	-57.98	-48.79	-8.46	-0.73	-13.00	-44.98	H
133.79	-62.63	-52.16	-9.52	-0.95	-13.00	-49.63	H
153.19	-56.44	-48.7	-6.72	-1.02	-13.00	-43.44	H
178.41	-61.86	-56.2	-4.56	-1.10	-13.00	-48.86	H
222.06	-62.73	-59.55	-1.96	-1.22	-13.00	-49.73	H
532.46	-61.24	-58.02	-1.30	-1.92	-13.00	-48.24	H
3815.20	-45.01	-51.68	12.47	-5.80	-13.00	-32.01	H



Report No.: T200207D01-RP1

**Radiated Spurious Emission Measurement Result**

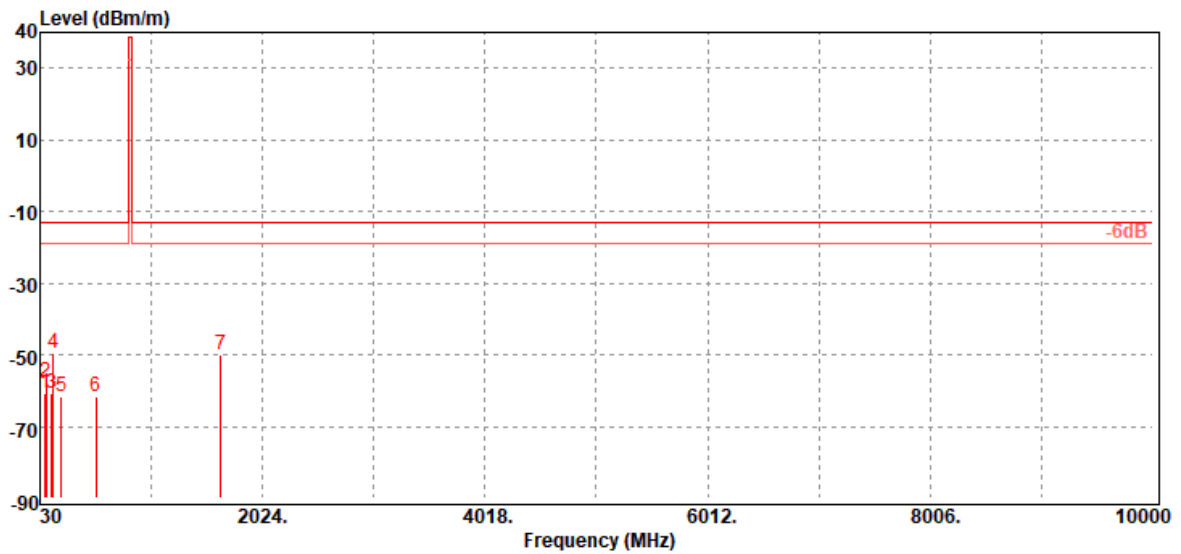
**Operation Mode:** WCDMA 12.2k RMC Band V / TX / Low CH      **Test Date:** February 21, 2020  
**Temperature:** 21.4°C      **Tested by:** Jerry Chang  
**Humidity:** 51 % RH      **Polarity:** Ver.



Freq. (MHz)	ERP/EIRP (dBm)	SG Output Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
80.44	-55.04	-45.85	-8.46	-0.73	-13.00	-42.04	V
94.99	-55.75	-47.65	-7.30	-0.80	-13.00	-42.75	V
133.79	-57.33	-46.86	-9.52	-0.95	-13.00	-44.33	V
153.19	-56.93	-49.19	-6.72	-1.02	-13.00	-43.93	V
304.51	-63.89	-60.54	-1.91	-1.44	-13.00	-50.89	V
529.55	-59.86	-56.64	-1.30	-1.92	-13.00	-46.86	V
1652.80	-50.69	-56.86	9.72	-3.55	-13.00	-37.69	V

Report No.: T200207D01-RP1

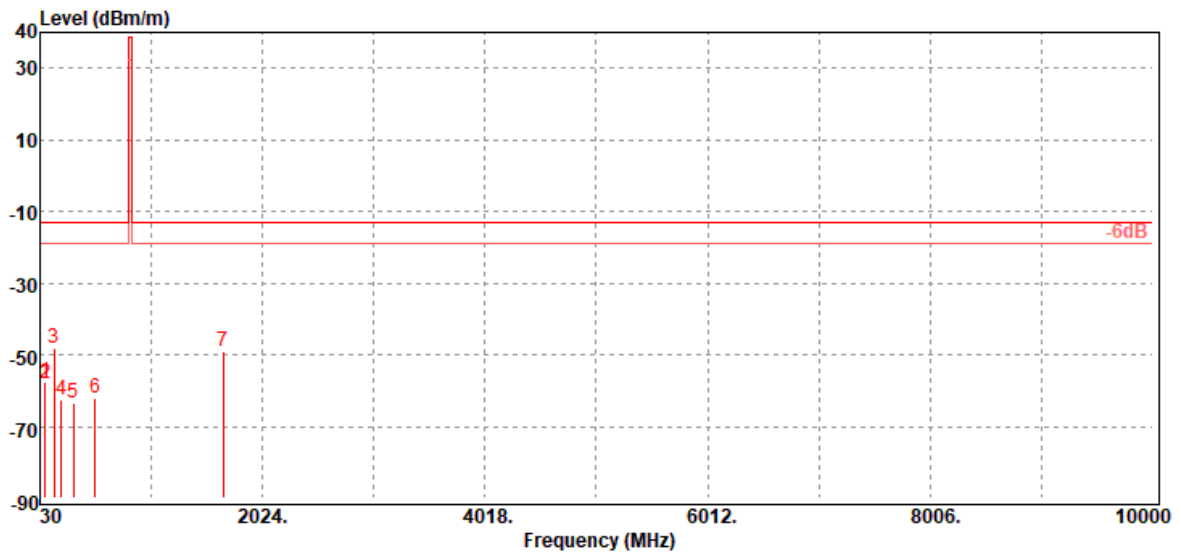
<b>Operation Mode:</b>	WCDMA 12.2k RMC Band V / TX / Low CH	<b>Test Date:</b>	February 21, 2020
<b>Temperature:</b>	21.4°C	<b>Tested by:</b>	Jerry Chang
<b>Humidity:</b>	51 % RH	<b>Polarity:</b>	Hor.



Freq. (MHz)	ERP/EIRP (dBm)	SG Output Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
73.65	-60.73	-50.93	-9.10	-0.70	-13.00	-47.73	H
81.41	-57.71	-48.57	-8.40	-0.74	-13.00	-44.71	H
133.79	-60.58	-50.11	-9.52	-0.95	-13.00	-47.58	H
149.31	-49.60	-41.43	-7.17	-1.00	-13.00	-36.60	H
222.06	-61.87	-58.69	-1.96	-1.22	-13.00	-48.87	H
532.46	-61.60	-58.38	-1.30	-1.92	-13.00	-48.60	H
1652.80	-50.11	-56.28	9.72	-3.55	-13.00	-37.11	H

Report No.: T200207D01-RP1

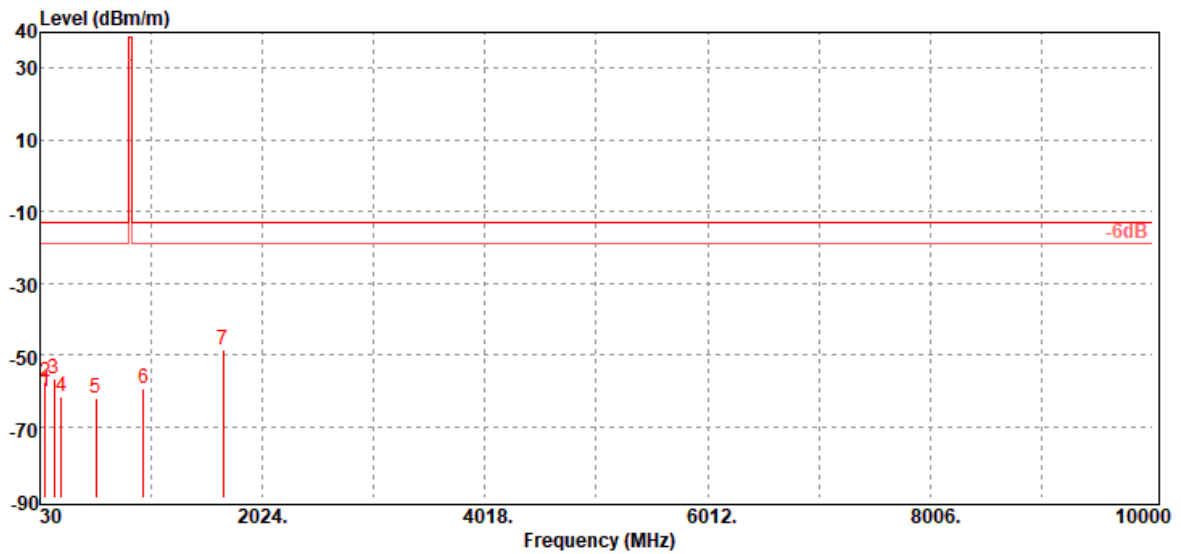
<b>Operation Mode:</b>	WCDMA 12.2k RMC Band V / TX / Mid CH	<b>Test Date:</b>	February 21, 2020
<b>Temperature:</b>	21.4°C	<b>Tested by:</b>	Jerry Chang
<b>Humidity:</b>	51 % RH	<b>Polarity:</b>	Ver.



Freq. (MHz)	ERP/EIRP (dBm)	SG Output Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
73.65	-57.45	-47.65	-9.10	-0.70	-13.00	-44.45	V
80.44	-58.01	-48.82	-8.46	-0.73	-13.00	-45.01	V
156.10	-47.99	-40.37	-6.59	-1.03	-13.00	-34.99	V
224.00	-62.61	-59.46	-1.92	-1.23	-13.00	-49.61	V
330.70	-63.48	-60.29	-1.69	-1.50	-13.00	-50.48	V
527.61	-62.13	-58.91	-1.30	-1.92	-13.00	-49.13	V
1672.80	-48.98	-55.24	9.84	-3.58	-13.00	-35.98	V

Report No.: T200207D01-RP1

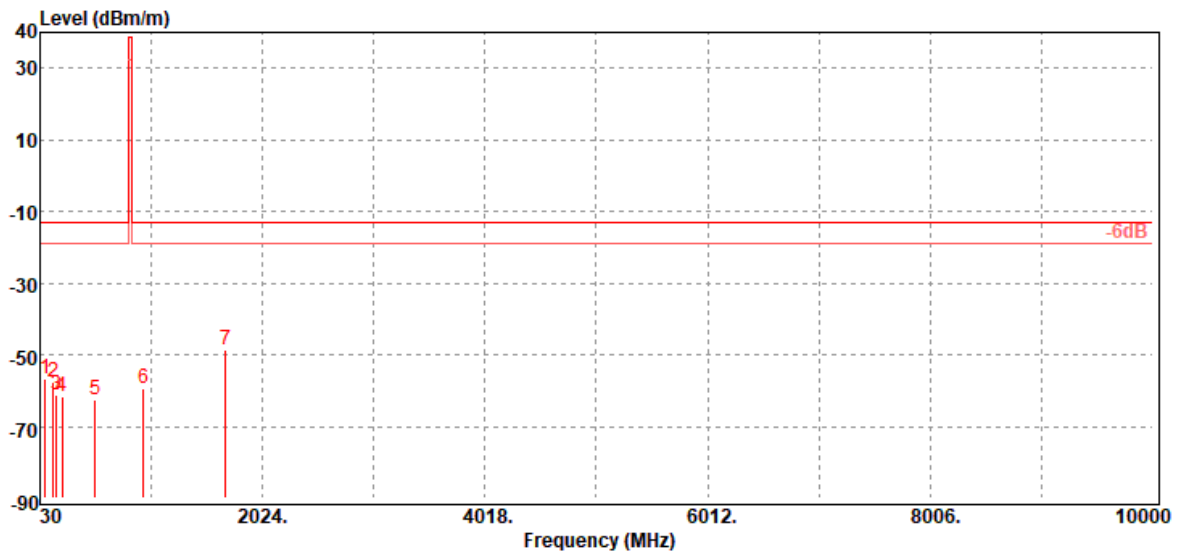
<b>Operation Mode:</b>	WCDMA 12.2k RMC Band V / TX / Mid CH	<b>Test Date:</b>	February 21, 2020
<b>Temperature:</b>	21.4°C	<b>Tested by:</b>	Jerry Chang
<b>Humidity:</b>	51 % RH	<b>Polarity:</b>	Hor.



Freq. (MHz)	ERP/EIRP (dBm)	SG Output Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
73.65	-60.42	-50.62	-9.10	-0.70	-13.00	-47.42	H
80.44	-57.77	-48.58	-8.46	-0.73	-13.00	-44.77	H
153.19	-56.73	-48.99	-6.72	-1.02	-13.00	-43.73	H
219.15	-61.84	-58.6	-2.02	-1.22	-13.00	-48.84	H
529.55	-61.90	-58.68	-1.30	-1.92	-13.00	-48.90	H
956.35	-59.48	-55.63	-1.23	-2.62	-13.00	-46.48	H
1672.80	-48.58	-54.84	9.84	-3.58	-13.00	-35.58	H

Report No.: T200207D01-RP1

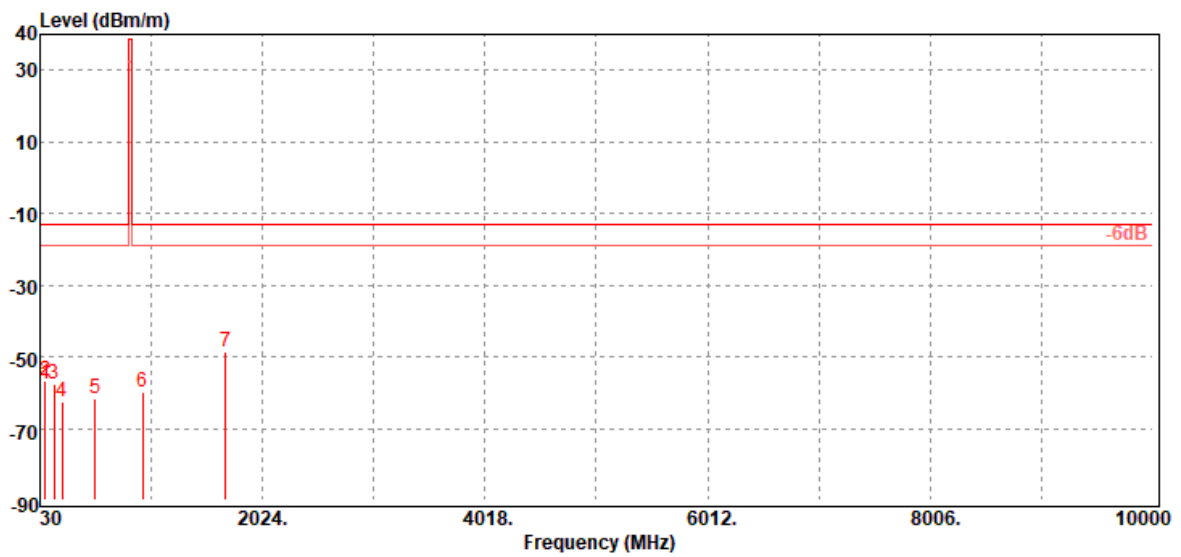
<b>Operation Mode:</b>	WCDMA 12.2k RMC Band V / TX / High CH	<b>Test Date:</b>	February 21, 2020
<b>Temperature:</b>	21.4°C	<b>Tested by:</b>	Jerry Chang
<b>Humidity:</b>	51 % RH	<b>Polarity:</b>	Ver.



Freq. (MHz)	ERP/EIRP (dBm)	SG Output Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
80.44	-56.70	-47.51	-8.46	-0.73	-13.00	-43.70	V
151.25	-57.45	-49.39	-7.05	-1.01	-13.00	-44.45	V
177.44	-61.29	-55.54	-4.66	-1.09	-13.00	-48.29	V
225.94	-61.49	-58.32	-1.94	-1.23	-13.00	-48.49	V
527.61	-62.48	-59.26	-1.30	-1.92	-13.00	-49.48	V
954.41	-59.62	-55.8	-1.20	-2.62	-13.00	-46.62	V
1693.20	-48.75	-55.11	9.96	-3.60	-13.00	-35.75	V

Report No.: T200207D01-RP1

<b>Operation Mode:</b>	WCDMA 12.2k RMC Band V / TX / High CH	<b>Test Date:</b>	February 21, 2020
<b>Temperature:</b>	21.4°C	<b>Tested by:</b>	Jerry Chang
<b>Humidity:</b>	51 % RH	<b>Polarity:</b>	Hor.



Freq. (MHz)	ERP/EIRP (dBm)	SG Output Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
73.65	-57.73	-47.93	-9.10	-0.70	-13.00	-44.73	H
80.44	-56.87	-47.68	-8.46	-0.73	-13.00	-43.87	H
154.16	-57.73	-49.93	-6.78	-1.02	-13.00	-44.73	H
225.94	-62.46	-59.29	-1.94	-1.23	-13.00	-49.46	H
527.61	-61.82	-58.6	-1.30	-1.92	-13.00	-48.82	H
946.65	-59.64	-55.83	-1.20	-2.61	-13.00	-46.64	H
1693.20	-48.40	-54.76	9.96	-3.60	-13.00	-35.40	H

- End of Test Report -