FCC 47 CFR PART 22 SUBPART H AND PART 24 SUBPART E
&
INDUSTRY CANADA RSS-132 & RSS-133

TEST REPORT

For

Tablet PC

Model No.:
FCC: AIM-75S-6; AIM-75H-6; AIM-75S-6XXXXXXXXXXXXXXXX; AIM-75H-6XXXXXXXXXXXXXXXX; AIM75S-6XXXXXXXXXXXXXXXX; AIM75H-6XXXXXXXXXXXXXXXX (where "X" may be any alphanumeric character, "-" or blank)

IC: AIM-75S-6; AIM-75H-6

Trade Name: ADVANTECH

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.
Wugu Laboratory
No.11, Wugong 6th Rd., Wugu Dist.,
New Taipei City 24891, Taiwan. (R.O.C.)
Issued Date: September 7, 2021

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		September 7, 2021		Initial Issue	ALL	Doris Chu

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APPENDIX 1 - PHOTOGRAPHS OF EUT

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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:	Tablet PC
Trade Name:	ADVANTECH
Model No.:	FCC: AIM-75S-6; AIM-75H-6; AIM-75S-6XXXXXXXXXXXXXXXX; AIM-75H-6XXXXXXXXXXXXXXXX; AIM75S-6XXXXXXXXXXXXXXXX; AIM75H-6XXXXXXXXXXXXXXXX (where “X” may be any alphanumeric character, “-” or blank) IC: AIM-75S-6; AIM-75H-6
Date of Test:	December 14, 2020 ~ May 25, 2021

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APPLICABLE STANDARDS	
STANDARD	**TEST RESULT**
FCC 47 CFR Part 22 Subpart H & Part 24 Subpart E & IC RSS-132 Issue 3: January, 2013 and IC RSS-133 Issue 6: January, 2018	No non-compliance noted
Statements of Conformity	
Determination of compliance is based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.	

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 ANSI C63.26-2015 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 and IC RSS-132 Issue 3 and RSS-133 Issue 6.

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.

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2. EUT DESCRIPTION

Product	Tablet PC
Model No.	FCC: AIM-75S-6; AIM-75H-6; AIM-75S-6XXXXXXXXXXXXXXXX; AIM-75H-6XXXXXXXXXXXXXXXX; AIM75S-6XXXXXXXXXXXXXXXX; AIM75H-6XXXXXXXXXXXXXXXX (where "X" may be any alphanumeric character, "-" or blank) IC: AIM-75S-6; AIM-75H-6
Model Discrepancy	Please see remark as below.
Trade	ADVANTECH
Received Date	November 2, 2020
Power Supply	1. EUT Power by Adapter. (1) FSP / FSP045-A1BR I/P: 100-240Vac, 50-60Hz, 1.2A O/P: 5Vdc, 3.0A, 15.0W; 9.0Vdc, 3.0A, 27.0W; 12.0Vdc, 3.0A, 36.0W; 15.0Vdc, 3.0A, 45.0W; 20.0Vdc, 2.25A, 45.0W (2) GlobTek, Inc / GTM96605-GEN2-A1-T2 I/P: 100-240Vac, 50-60Hz, 1.5A O/P: 5Vdc, 4.6A; 5.8Vdc, 4.6A; 9Vdc, 4.4A; 12Vdc, 4A; 15Vdc, 3.6A; 20Vdc, 3A (3) DELTA / MEA-045AA2C I/P: 100-240V~1.0A Max. 50-60Hz O/P: 5VDC, 3A; 9VDC, 3A; 10VDC, 3A; 12VDC, 3A; 15VDC, 3A; 20VDC, 2.25A 2. EUT Power by Rechargeable Li-ion Battery. ADVANTECH / AIM-BAT-8 Rating: 3.8Vdc, 4900mAh, 18.62Wh
Frequency Range	WCDMA / HSDPA / HSUPA Band II: 1852.4 ~ 1907.6 MHz WCDMA / HSDPA / HSUPA Band V: 826.4 ~ 846.6MHz
Transmit Power (EIRP Power)	WCDMA Band II: 25.64 dBm WCDMA Band V: 22.24 dBm
Transmit Power (ERP Power)	WCDMA Band V: 20.09 dBm
Antenna Gain	Antenna type: PIFA 1. YAGEO / 6036B0281601 / Main (TX) Band II: 2.14 dBi Band V: -0.97 dBi 2. YAGEO / 6036B0281701 / Aux Band II: 0.76 dBi Band V: 0.38 dBi
HW Version	AX2
SW Version	0.3.6.9_20201021.021551
EUT Serial #	200CT32E00162
Module	Quectel / EM06-A

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Remark:

1. For more details, refer to the User's manual of the EUT.
2. Disclaimer: Antenna information is provided by the applicant, test results of this report are applicable to the sample EUT received.
3. Disclaimer: Variant information between/among model numbers / trademarks are provided by the applicant, test results of this report are applicable to the sample EUT received of main test model name.
4. Model Discrepancy:

Model	Adapter	Tablet color
AIM-75H-6	1. GlobTek, Inc / GTM96605-GEN2-A1-T2 I/P: 100-240VAC, 50-60Hz, 1.5A O/P: 5VDC, 4.6A; 5.8VDC, 4.6A; 9VDC, 4.4A; 12VDC, 4A; 15VDC, 3.6A; 20VDC, 3A 2. DELTA / MEA-045AA2C IP: 100-240V~1.0A Max. 50-60Hz O/P: 5VDC, 3A; 9VDC, 3A; 10VDC, 3A; 12VDC, 3A; 15VDC, 3A; 20VDC, 2.25A	White
AIM-75S-6	1. FSP / FSP045-A1BR I/P: 100-240VAC, 50-60Hz, 1.2A O/P: 5.0VDC, 3.0A 15.0W; 9.0VDC, 3.0A 27.0W; 12.0VDC, 3.0A 36.0W; 15.0VDC, 3.0A 45.0W; 20.0VDC, 2.25A 45.0W	Black
AIM-75S-6XXXXXXXXXXXXXXXX; AIM-75H-6XXXXXXXXXXXXXXXX; AIM75S-6XXXXXXXXXXXXXXXX; AIM75H-6XXXXXXXXXXXXXXXX (where "X" may be any alphanumeric character, "-" or blank)	All the above models are identical except for the designation of model numbers. The suffix of (where "X" may be any alphanumeric character , "-" or blank) on model number is just for marketing purpose only.	

Emission Designator					
System	**Band**	**Frequency Range(MHz)**	**Emission Designator (99% OBW)**	**Maximum ERP (W)**	**Maximum EIRP (W)**
WCDMA 12.2K RMC	**II**	**1852.4MHz ~1907.6MHz**	**4M17F9W**	**N/A**	**0.3664**
	V	**826.4MHz ~ 846.6MHz**	**4M15F9W**	**0.1021**	**0.1675**

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3. TEST METHODOLOGY

Both conducted and radiated testing were performed according to FCC CFR 47, Part 2, Part 22 Subpart H and Part 24 Subpart E

The tests documented in this report were performed in accordance with IC RSS-132, RSS-133 and ANSI C63.26: 2015.

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.

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3.2 DESCRIPTION OF TEST MODES

The EUT 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. (GlobTek)** **Mode 2: EUT power by Adapter. (FSP)** **Mode 3: EUT power by Adapter. (DELTA)** **Mode 4: EUT power by Battery**
Worst Mode	☐ **Mode 1** ☒ **Mode 2** ☐ **Mode 3** ☐ **Mode 4**
Worst Position	☐ **Placed in fixed position.** ☒ **Placed in fixed position at X-Plane (E2-Plane)** ☐ **Placed in fixed position at Y-Plane (E1-Plane)** ☐ **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. (GlobTek)** **Mode 2: EUT power by Adapter. (FSP)** **Mode 3: EUT power by Adapter. (DELTA)** **Mode 4: EUT power by Battery**
Worst Mode	☐ **Mode 1** ☒ **Mode 2** ☐ **Mode 3** ☐ **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

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4. TEST SUMMERY

FCC Standard Section	IC Standard Secction	Report Section	Test Item	Result
-	-	2	Antenna Requirement	Pass
22.913(a), 24.232(c)	RSS-132, section 5.4 RSS-133, section 6.4	8.1	ERP and EIRP Measurement	Pass
2.1049	RSS-GEN 6.7	8.2	Occupied Bandwidth Measurement	Pass
22.913(d), 24.232(d)	RSS-132, section 5.4 RSS-133, section 6.4	8.3	Peak to Average Ratio	Pass
22.917(a), 24.238(a)	RSS-132 section 5.5 RSS-133 section 6.5	8.4	Out of Band Emission at Antenna Terminals	Pass
22.917(a), 24.238(a)	RSS-132 section 5.5 RSS-133 section 6.5	8.5	Spurious Radiation Measurement	Pass
2.1055, 22.355, 24.235	RSS-132 section 5.3 RSS-133 section 6.3	8.6	Frequency Stability v.s. temperature measurement	Pass

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5. INSTRUMENT CALIBRATION

5.1 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.

5.2 MEASUREMENT EQUIPMENT USED

Equipment Used for Emissions Measurement

Remark: *Each piece of equipment is scheduled for calibration once a year.*

RF Conducted Test Site					
Equipment	**Manufacturer**	**Model**	**S/N**	**Cal Date**	**Cal Due**
Coaxial Cable	Woken	WC12	CC003	06/29/2020	06/28/2021
Power Divider	Solvang Technology	STI08-0015	008	08/05/2020	08/04/2021
Radio Communication Analyzer	Anritsu	MT-8820C	6201240043	07/17/2020	07/16/2021
Thermostatic/Humidity Chamber	TAICHY	MHG-150LF	930619	09/24/2020	09/23/2021
EXA Signal Analyzer	KEYSIGHT	N9010B	MY55460167	09/07/2020	09/06/2021
Software	N/A				

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3M 966 Chamber Test Site					
Equipment	**Manufacturer**	**Model**	**S/N**	**Cal Date**	**Cal Due**
Band Reject Filters	MICRO TRONICS	BRM 50702	120	02/25/2020	02/24/2021
Bilog Antenna	Sunol Sciences	JB3	A030105	07/24/2020	07/23/2021
Coaxial Cable	HUBER SUHNER	SUCOFLEX 104PEA	20995	02/25/2020	02/24/2021
Coaxial Cable	EMCI	EMC105	190914+327109/4	09/19/2020	09/18/2021
Digital Thermo-Hygro Meter	WISEWIND	1206	D07	01/15/2020	01/14/2021
double Ridged Guide Horn Antenna	ETC	MCTD 1209	DRH13M02003	09/30/2020	09/29/2021
Loop Ant	COM-POWER	AL-130	121051	03/27/2020	03/26/2021
Pre-Amplifier	EMEC	EM330	060609	02/25/2020	02/24/2021
Pre-Amplifier	EMEC	EM01G26G	060570	06/29/2020	06/28/2021
PSA Series Spectrum Analyzer	Agilent	E4446A	MY46180323	07/24/2020	07/23/2021
S.G.	Agilent	E8257C	US42340383	07/21/2020	07/20/2021
Bilog Antenna	Sunol Sciences	JB1	A052609	07/24/2020	07/23/2021
Horn Antenna	ETS LINDGREN	3117	00055165	07/22/2020	07/21/2021
Horn Antenna	EMCO	3116	2487	05/11/2020	05/10/2021
Horn Antenna	ETS LINDGREN	3116	00026370	12/11/2020	12/10/2021
K Type Cable	Huber+Suhner	SUCOFLEX 102	29406/2	12/09/2020	12/08/2021
K Type Cable	Huber+Suhner	SUCOFLEX 102	22470/2	12/09/2020	12/08/2021
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				

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5.3 MEASUREMENT UNCERTAINTY

PARAMETER	UNCERTAINTY
AC Powerline Conducted Emission	+/- 1.2575
Emission bandwidth, 20dB bandwidth	+/- 0.0014
RF output power, conducted	+/- 1.14
Power density, conducted	+/- 1.40
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.*

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6. FACILITIES AND ACCREDITATIONS

6.1 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

Canada Regisreation number: 2324G

The lab has been recognized as the FCC accredited lad under the KDB 974614 D01 and is listed in the FCC pubic Access Link (PAL) database, FCC Registration No. :444940, the FCC Designation No.:TW1309

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.10: 2013 and CISPR Publication 22.

6.2 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.”

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7. SETUP OF EQUIPMENT UNDER TEST

7.1 SETUP CONFIGURATION OF EUT

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

7.2 SUPPORT EQUIPMENT

No	Equipment	Brand	Model	Series No.	FCC ID	IC
1	NB(J)	TOSHIBA	PT345T-00L002	N/A	PD97260H	1000M-7260H

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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8. FCC PART 22 & 24 REQUIREMENTS & INDUSTRY CANADA RSS-132 & RSS-133

8.1 ERP & EIRP MEASUREMENT

LIMIT

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

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

RSS-132, section 5.4

The transmitter output power shall be measured in terms of average power. The equivalent isotropically radiated power (e.i.r.p.) for mobile equipment shall not exceed 11.5 watts. Refer to SRSP-503 for base station e.i.r.p. limits.

RSS-133, section 6.4

The equivalent isotropically radiated power (e.i.r.p.) for transmitters shall not exceed the limits given in SRSP-510. Moreover, base station transmitters operating in the band 1930-1995 MHz shall not have output power exceeding 100 watts.

TEST PROCEDURES

CONDUCTED POWER MEASUREMENT:

1. The transmitter output power was connected to the call box.
2. Set EUT at maximum output power via call box.
3. Set Call box at lowest, middle and highest channels for each band and modulation.

TEST RESULTS

No non-compliance noted.

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Temperature: 25℃ **Humidity:** 57% RH

Tested by: Jerry Chang **Test Date:** May 25, 2021

WCDMA Band II

Band	Mode		UL Ch No.	Freq. (MHz)	MPR (dB)	Max. Meas. Avg Pwr (dBm)	Reduced Meas. Avg Pwr	EIRP (dBm)
W-CDMA Band II	Rel 99	RMC, 12.2 kbps	9262	1852.4	N/A	23.33	18.50	25.47
			9400	1880.0	N/A	23.50	18.65	**25.64**
			9538	1907.6	N/A	23.45	18.42	25.59
	HSDPA	Subtest 1	9262	1852.4	0	22.33	18.30	24.47
			9400	1880.0	0	22.37	18.50	24.51
			9538	1907.6	0	22.37	18.19	24.51
		Subtest 2	9262	1852.4	0	22.27	18.30	24.41
			9400	1880.0	0	22.25	18.50	24.39
			9538	1907.6	0	22.53	18.15	24.67
		Subtest 3	9262	1852.4	0.5	21.84	17.86	23.98
			9400	1880.0	0.5	21.75	17.95	23.89
			9538	1907.6	0.5	21.96	17.58	24.10
		Subtest 4	9262	1852.4	0.5	21.79	17.87	23.93
			9400	1880.0	0.5	21.72	17.94	23.86
			9538	1907.6	0.5	21.97	17.61	24.11
	HSUPA	Subtest 1	9262	1852.4	0	22.28	18.26	24.42
			9400	1880.0	0	22.25	18.41	24.39
			9538	1907.6	0	22.55	18.11	24.69
		Subtest 2	9262	1852.4	2	21.73	17.77	23.87
			9400	1880.0	2	21.61	17.92	23.75
			9538	1907.6	2	21.87	17.66	24.01
		Subtest 3	9262	1852.4	1	22.26	18.24	24.40
			9400	1880.0	1	22.21	18.39	24.35
			9538	1907.6	1	22.41	18.07	24.55
		Subtest 4	9262	1852.4	2	21.72	18.27	23.86
			9400	1880.0	2	21.86	18.46	24.00
			9538	1907.6	2	21.80	18.17	23.94
		Subtest 5	9262	1852.4	0	22.23	18.26	24.37
			9400	1880.0	0	22.21	18.43	24.35
			9538	1907.6	0	22.50	18.12	24.64

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WCDMA Band V

Band	Mode		UL Ch No.	Freq. (MHz)	MPR (dB)	Max. Meas. Avg Pwr (dBm)	Reduced Meas. Avg Pwr	ERP (dBm)	EIRP (dBm)
W-CDMA Band V	Rel 99	RMC, 12.2 kbps	4132	826.4	N/A	23.17	20.58	20.05	22.20
			4183	836.6	N/A	23.15	20.42	20.03	22.18
			4233	846.6	N/A	23.21	20.65	**20.09**	**22.24**
	HSDPA	Subtest 1	4132	826.4	0	22.06	19.97	18.94	21.09
			4183	836.6	0	22.06	19.74	18.94	21.09
			4233	846.6	0	22.22	20.00	19.10	21.25
		Subtest 2	4132	826.4	0	22.03	20.03	18.91	21.06
			4183	836.6	0	22.05	19.75	18.93	21.08
			4233	846.6	0	22.23	19.93	19.11	21.26
		Subtest 3	4132	826.4	0.5	21.68	19.58	18.56	20.71
			4183	836.6	0.5	21.61	19.37	18.49	20.64
			4233	846.6	0.5	21.70	19.50	18.58	20.73
		Subtest 4	4132	826.4	0.5	21.71	19.68	18.59	20.74
			4183	836.6	0.5	21.70	19.31	18.58	20.73
			4233	846.6	0.5	21.74	19.53	18.62	20.77
	HSUPA	Subtest 1	4132	826.4	0	22.08	20.08	18.96	21.11
			4183	836.6	0	22.14	19.73	19.02	21.17
			4233	846.6	0	22.21	19.93	19.09	21.24
		Subtest 2	4132	826.4	2	21.45	19.46	18.33	20.48
			4183	836.6	2	21.53	19.23	18.41	20.56
			4233	846.6	2	21.55	19.41	18.43	20.58
		Subtest 3	4132	826.4	1	21.99	20.13	18.87	21.02
			4183	836.6	1	21.95	19.76	18.83	20.98
			4233	846.6	1	22.04	19.94	18.92	21.07
		Subtest 4	4132	826.4	2	21.86	19.95	18.74	20.89
			4183	836.6	2	21.78	19.70	18.66	20.81
			4233	846.6	2	21.92	19.96	18.80	20.95
		Subtest 5	4132	826.4	0	22.06	20.03	18.94	21.09
			4183	836.6	0	22.13	19.77	19.01	21.16
			4233	846.6	0	22.15	19.92	19.03	21.18

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8.2 OCCUPIED BANDWIDTH MEASUREMENT

Limits

For Reporting purpose only.

TEST PROCEDURES

KDB 971168 D01

1. The occupied bandwidth was measured with the spectrum analyzer at the lowest, middle and highest channels in each band and different modulation. The 99% and -26dB bandwidth was measured and recorded.
2. RBW = 1-5% of the expected OBW
3. VBW ≥ 3 x RBW
4. Detector = Peak
5. Trace mode = max. hold

TEST RESULTS

No non-compliance noted

Temperature:	25℃	**Humidity:**	57% RH
Tested by:	Jerry Chang	**Test Date:**	May 25, 2021

Test Data

Test Mode	CH	Frequency (MHz)	99% Bandwidth (MHz)	26 dB Bandwidth (MHz)
WCDMA 12.2k RMC (Band II)	Lowest	1852.4	4.1706	4.7240
	Middle	1880.0	4.1435	4.7260
	Highest	1907.6	4.1558	4.6910
WCDMA 12.2k RMC (Band V)	Lowest	826.4	4.1310	4.6910
	Middle	836.6	4.1362	4.7020
	Highest	846.6	4.1451	4.7350

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Test Plot

WCDMA 12.2k RMC (Band II)

Low CH

Mid CH

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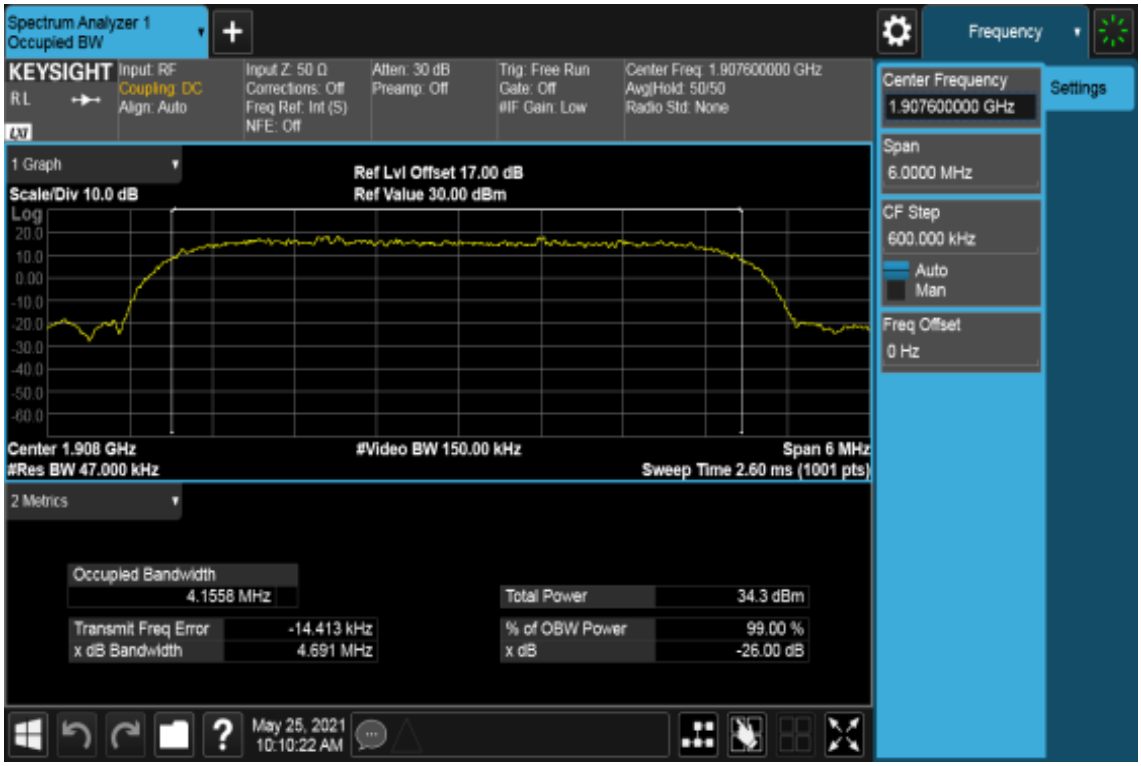
High CH



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WCDMA 12.2k RMC (Band V)

Low CH

Mid CH

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High CH

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8.3 PEAK TO AVERAGE RATIO

Limit

FCC §22.913(d), Band 5

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB

FCC §24.232(d), Band 2

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB

RSS-132 section 5.4 and RSS-133 section 6.4

The peak-to-average power ratio (PAPR) of the transmitter shall not exceed 13 dB for more than 0.1% of the time using a signal corresponding to the highest PAPR during periods of continuous transmission.

Test Procedures

1. Set resolution/measurement bandwidth ≥ signal's occupied bandwidth;
2. Set the number of counts to a value that stabilizes the measured CCDF curve;
3. Record the maximum PAPR level associated with a probability of 0.1%.

Test Data

Temperature: 25℃ **Humidity:** 57% RH

Tested by: Jerry Chang **Test Date:** May 25, 2021

Freq. (MHz)	CH	Peak-to-Average Ratio (dB)	Freq. (MHz)	CH	Peak-to-Average Ratio (dB)
		WCDMA II			WCDMA V
1852.4	9262	2.78	826.4	4132	2.96
1880	9400	**2.74**	836.6	4183	**2.88**
1907.6	9538	2.78	846.6	4233	2.56

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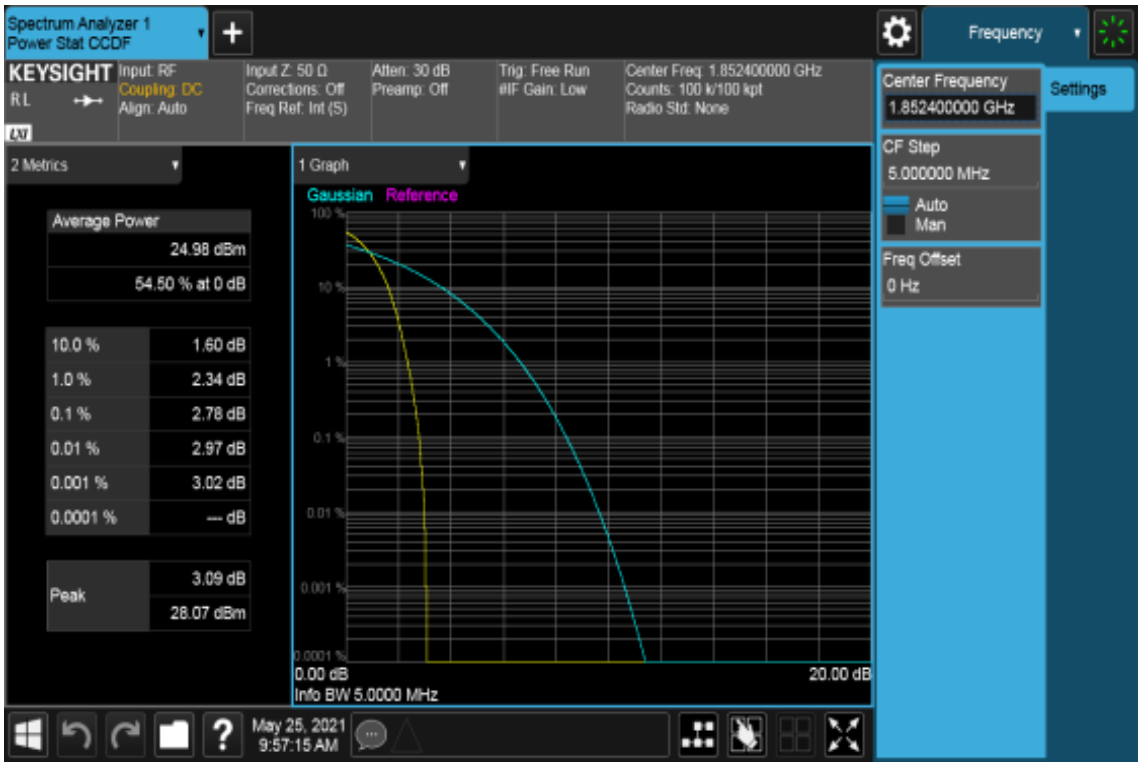
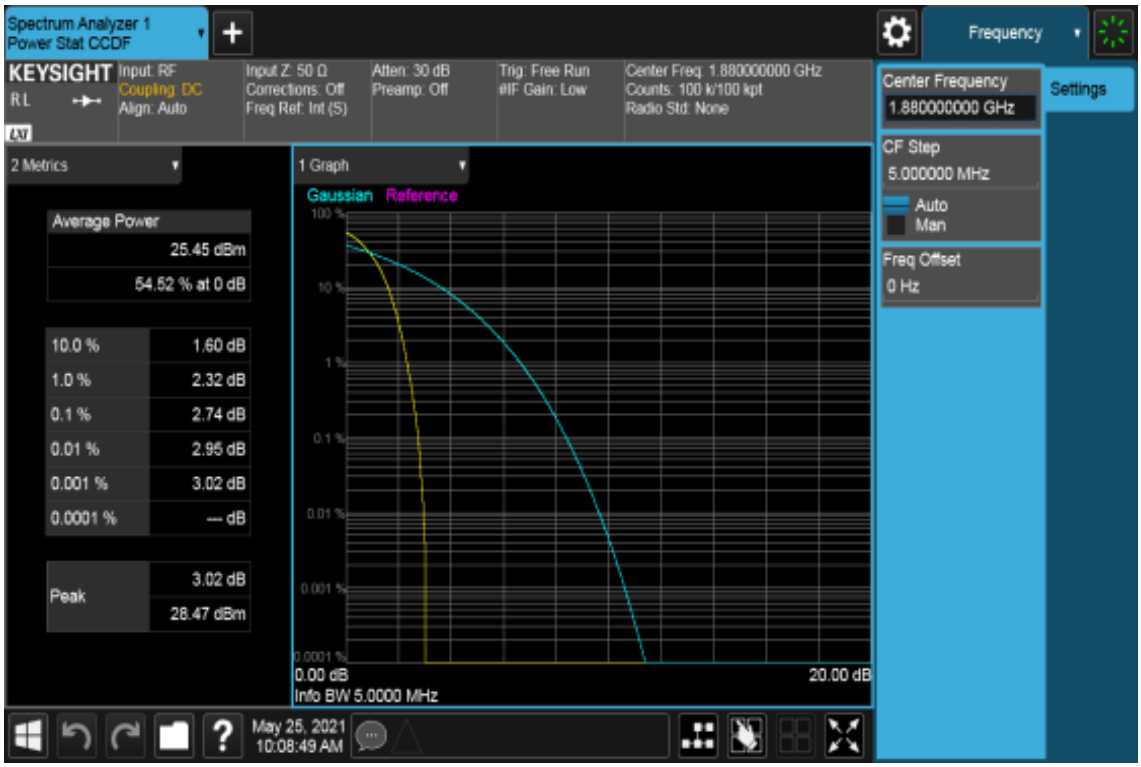
WCDMA 12.2k RMC (Band II)

Low CH



Mid CH



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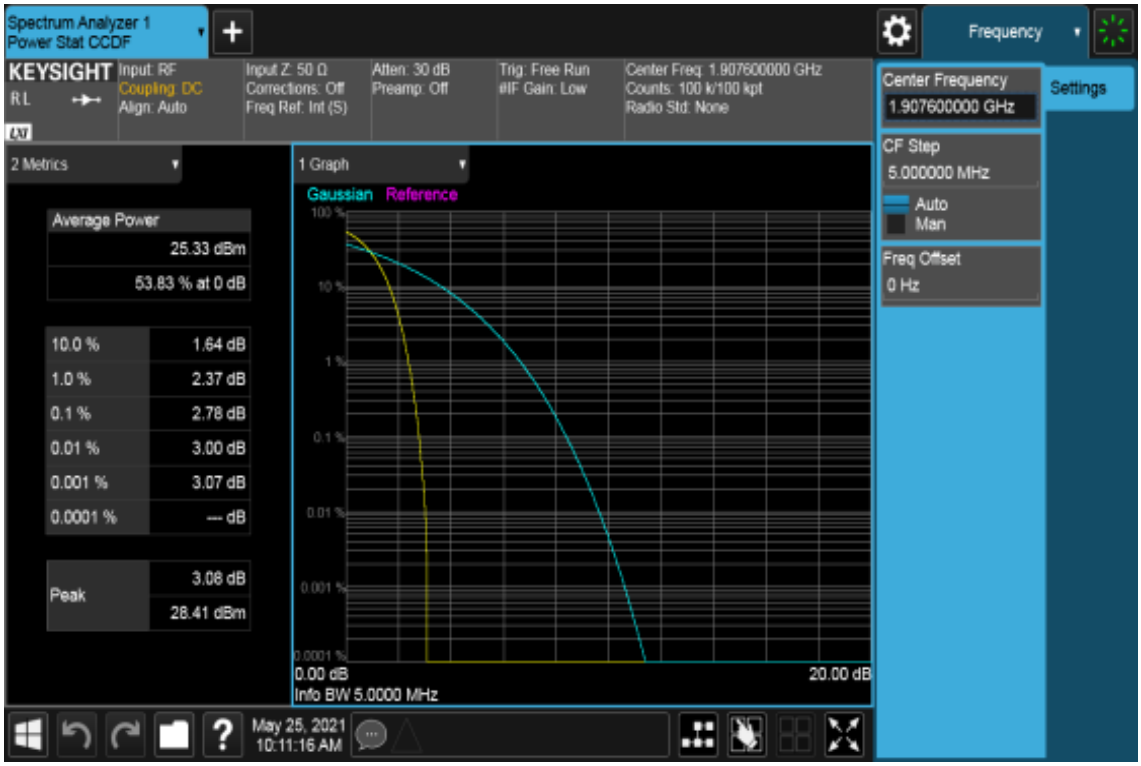
High CH



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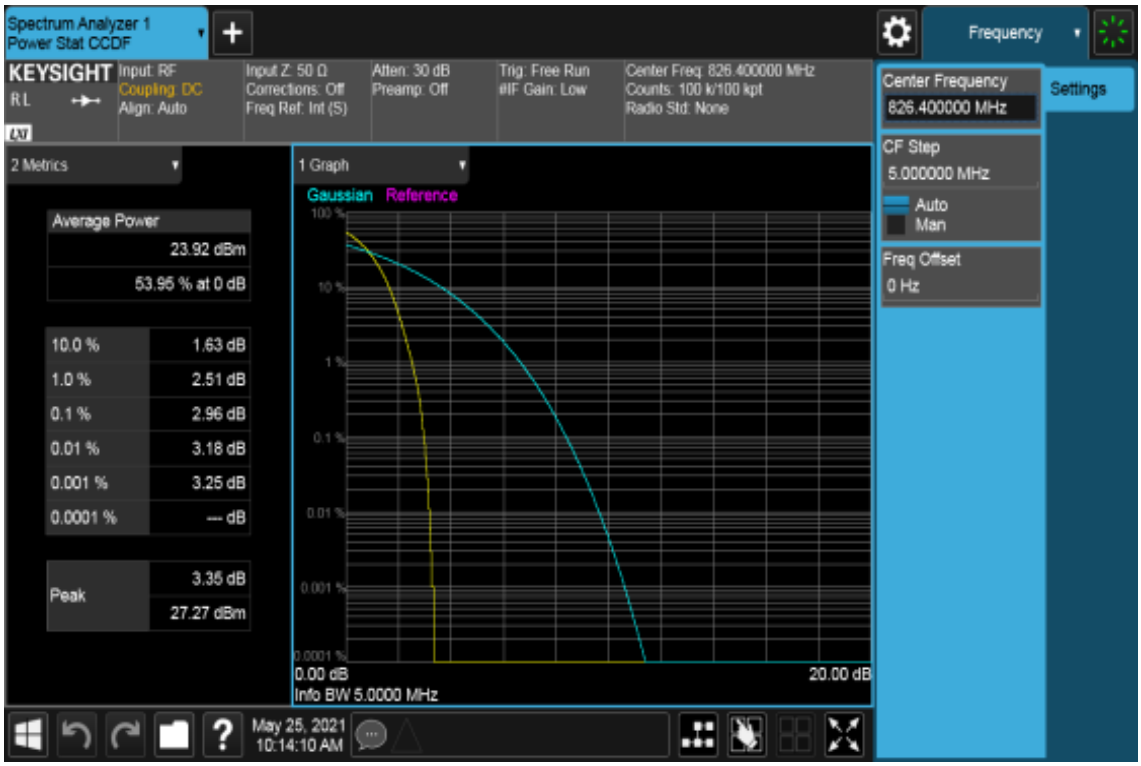
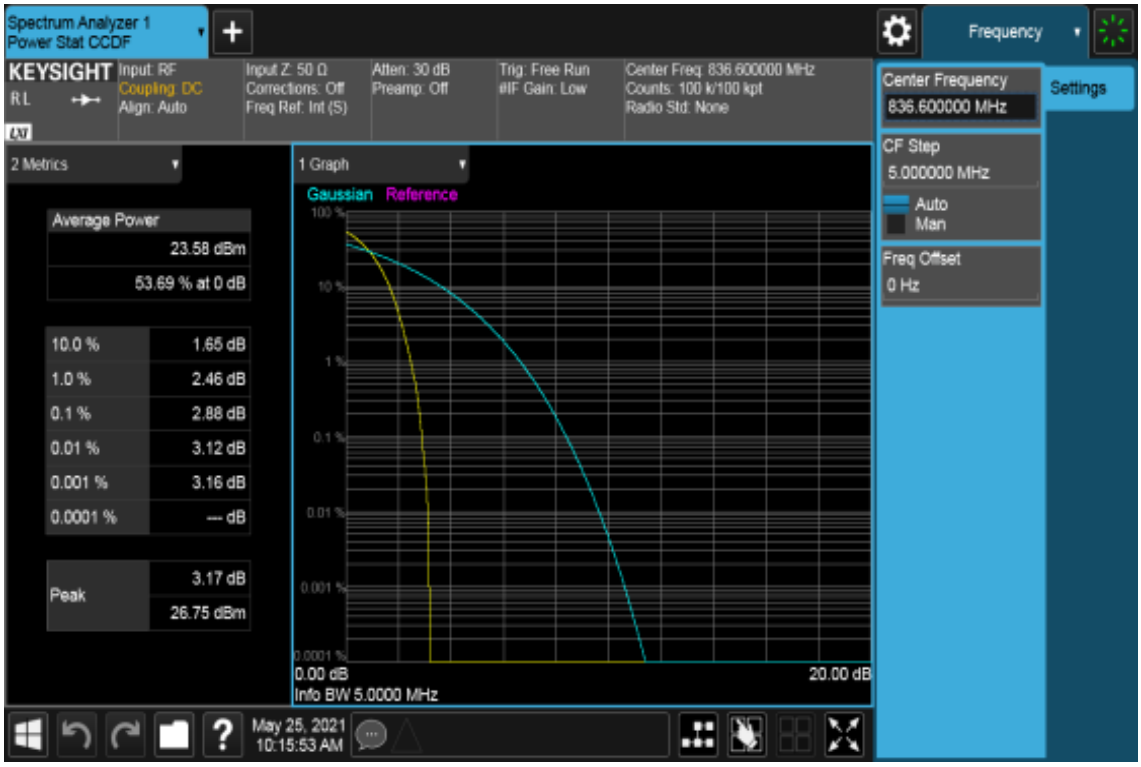
WCDMA 12.2k RMC (Band V)

Low CH



Mid CH



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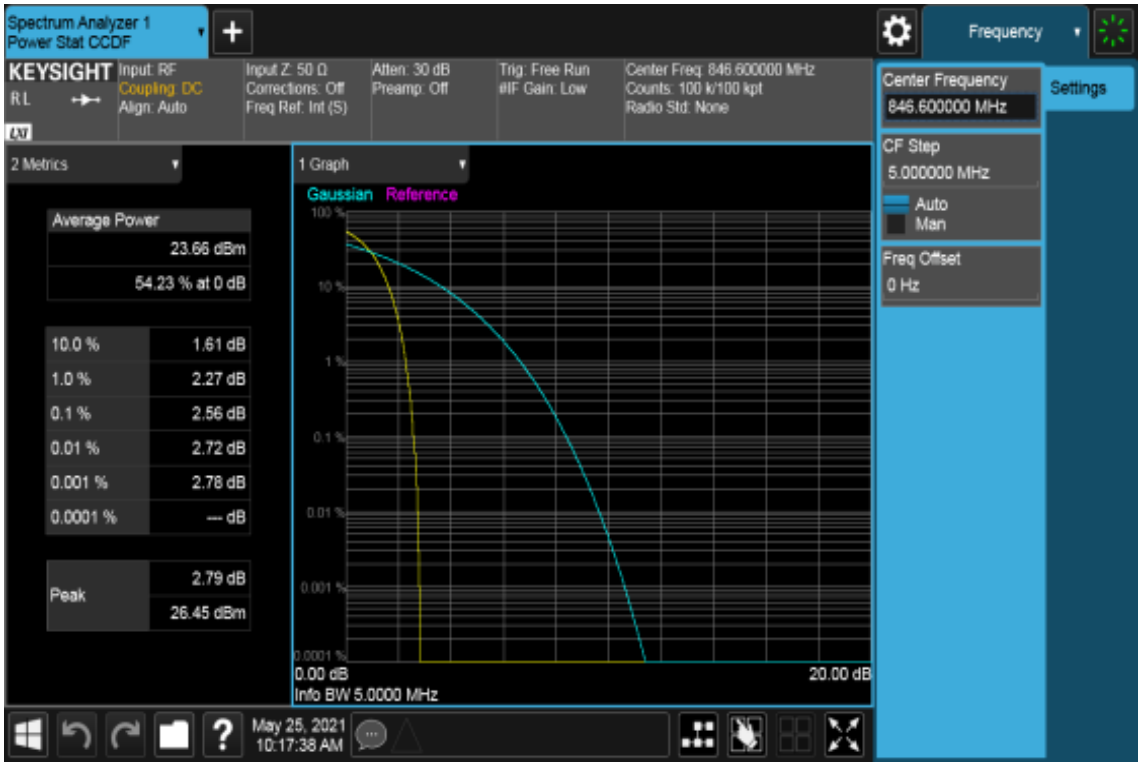
High CH



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8.4 OUT OF BAND EMISSION AT ANTENNA TERMINALS

Limit

FCC §22.917(a), Band V

For operations in the 824-849 MHz band, out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

FCC §24.238(a), Band II

For operations in the 1850-1910 and 1930-1950 MHz band, out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

RSS-132 section 5.5 and RSS-133 section 6.5

In the first 1.0 MHz band immediately outside and adjacent to each of the sub-bands specified in Section 5.1, the power of emissions per any 1% of the occupied bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least 43 + 10 log10 p (watts).

TEST PROCEDURE

a) Conducted Emission
The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation The resolution bandwidth of the spectrum analyzer was set at 1MHz, sufficient scans were taken to show the out of band Emissions if any up to 10th harmonic.
1. To connect Antenna Port of EUT to Spectrum.
2. Set RBW = 1MHz & VBW = 1MHz on Spectrum.
3. Allow trace to fully stabilize
4. Repeat above procedures until all default test channel measured were complete.

b) Band Edge
1. To connect Antenna Port of EUT to Spectrum.
2. The band edge of low and high channels for the highest RF powers was measured. Setting RBW ≥ 1% EBW.
3. Allow trace to fully stabilize
4. Repeat above procedures until all default test channel measured were complete.

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TEST RESULTS

No non-compliance noted.

Test Data

Temperature:	25℃	**Humidity:**	57% RH
Tested by:	Jerry Chang	**Test Date:**	May 25, 2021

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Band Edge
WCDMA 12.2k RMC (Band II)
Low CH

High CH

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WCDMA 12.2k RMC (Band V)

Low CH

High CH

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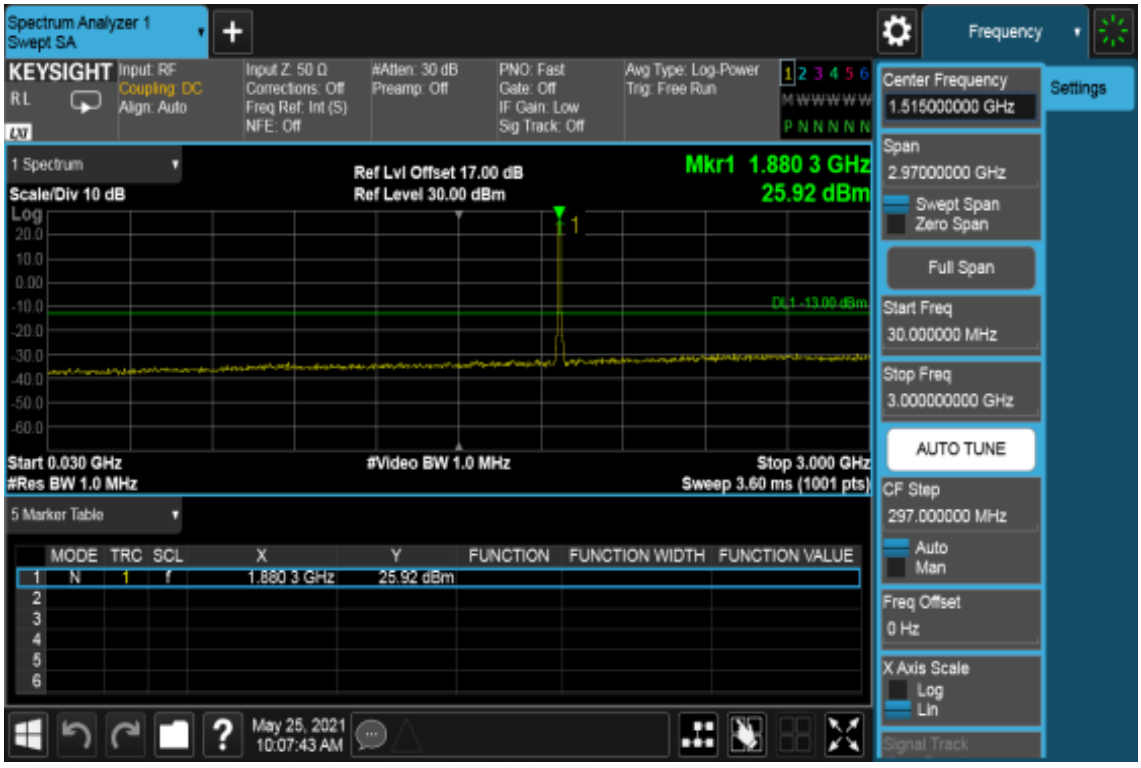
Spurious Emission

WCDMA 12.2k RMC Low (Band II)

Low CH

Mid CH



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High CH

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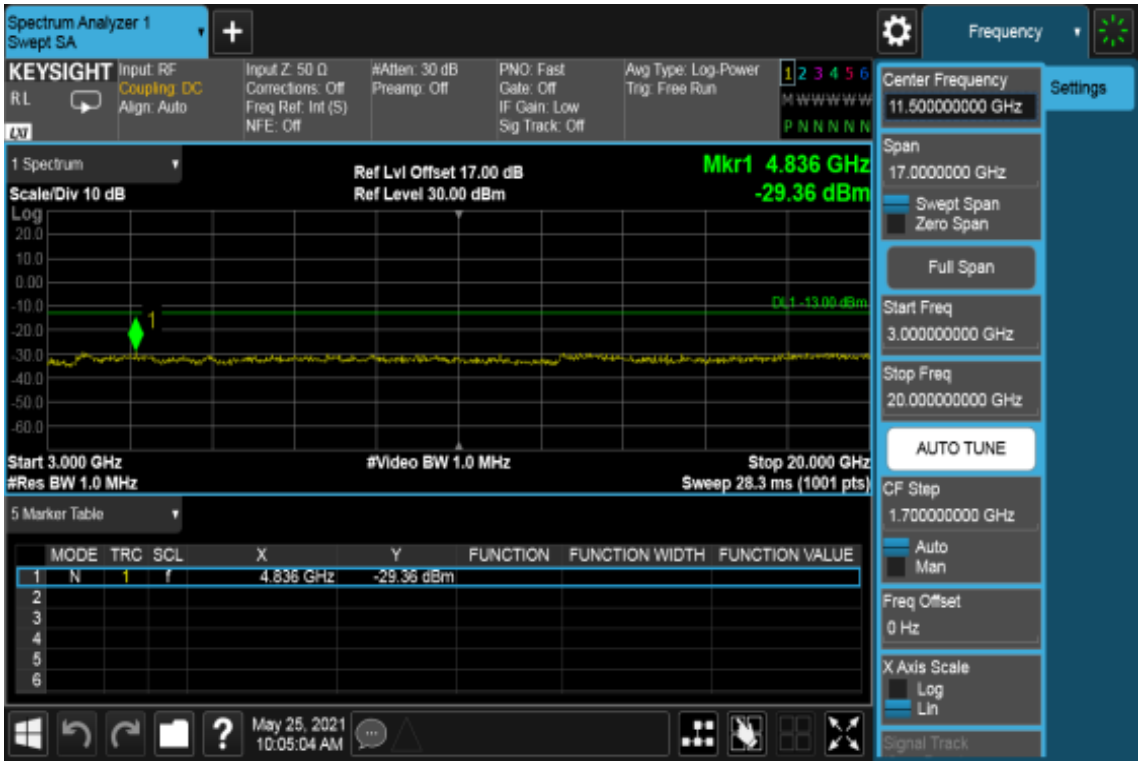
WCDMA 12.2k RMC High (Band II)

Low CH



Mid CH

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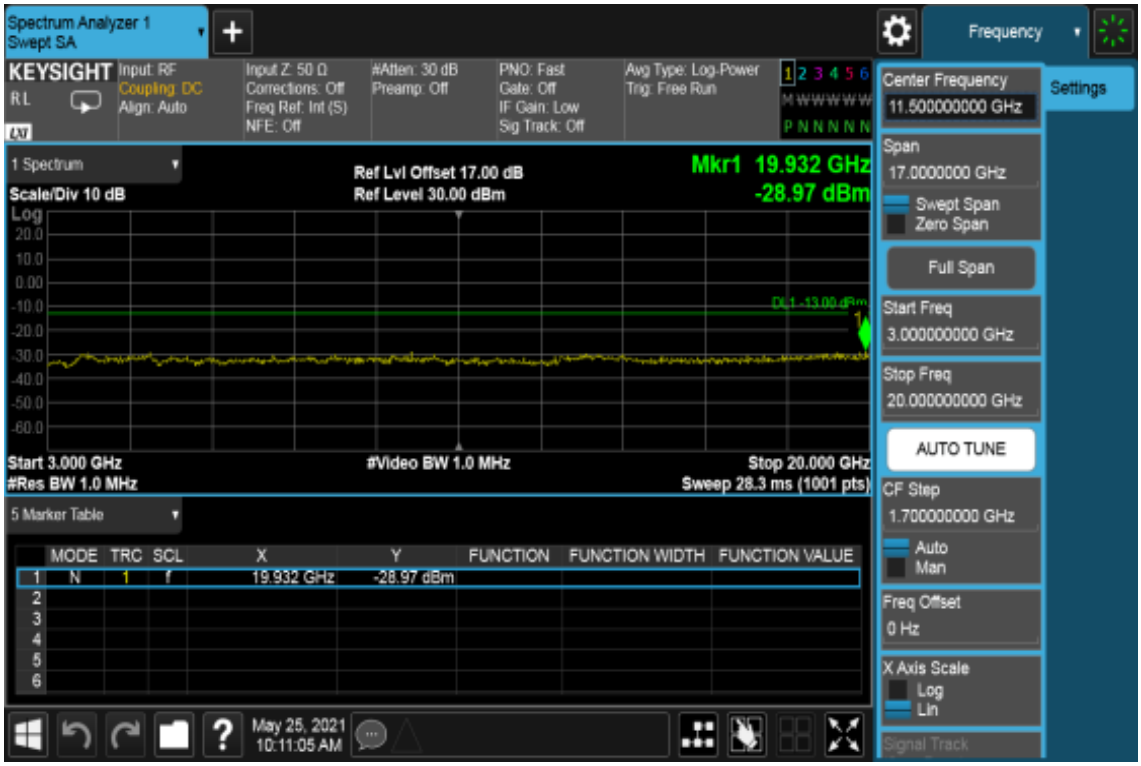
High CH



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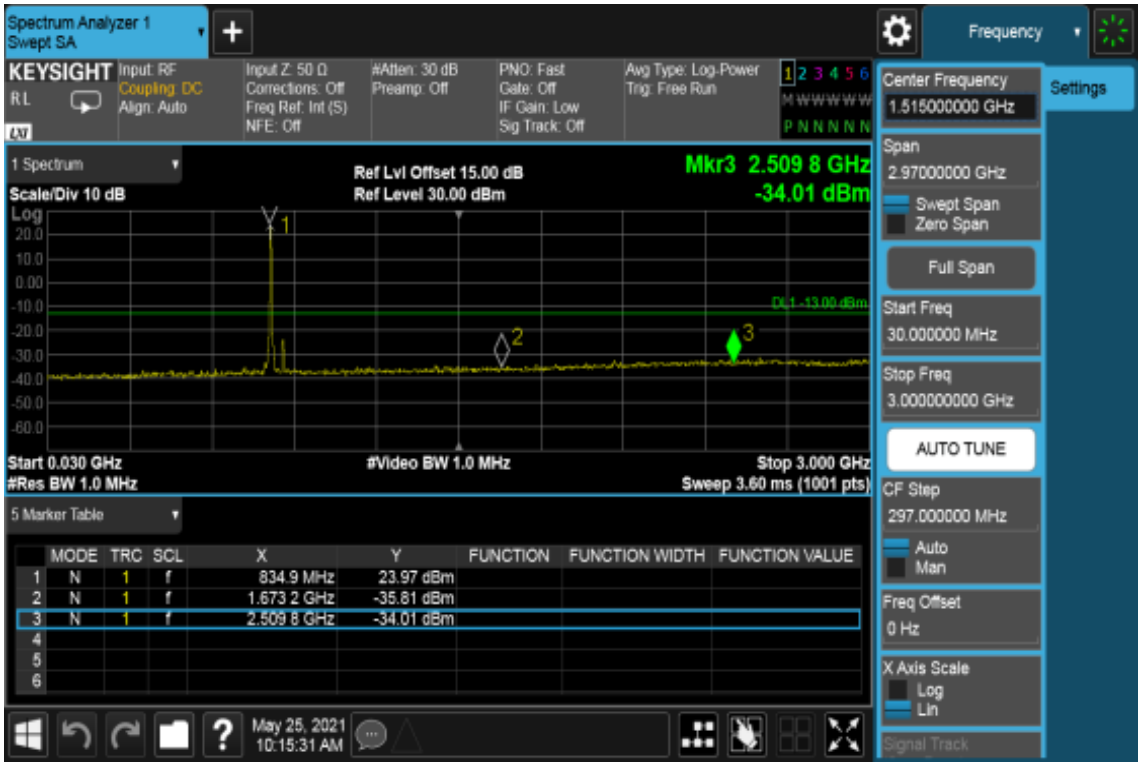
WCDMA 12.2k RMC Low (Band V)

Low CH

Mid CH



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High CH

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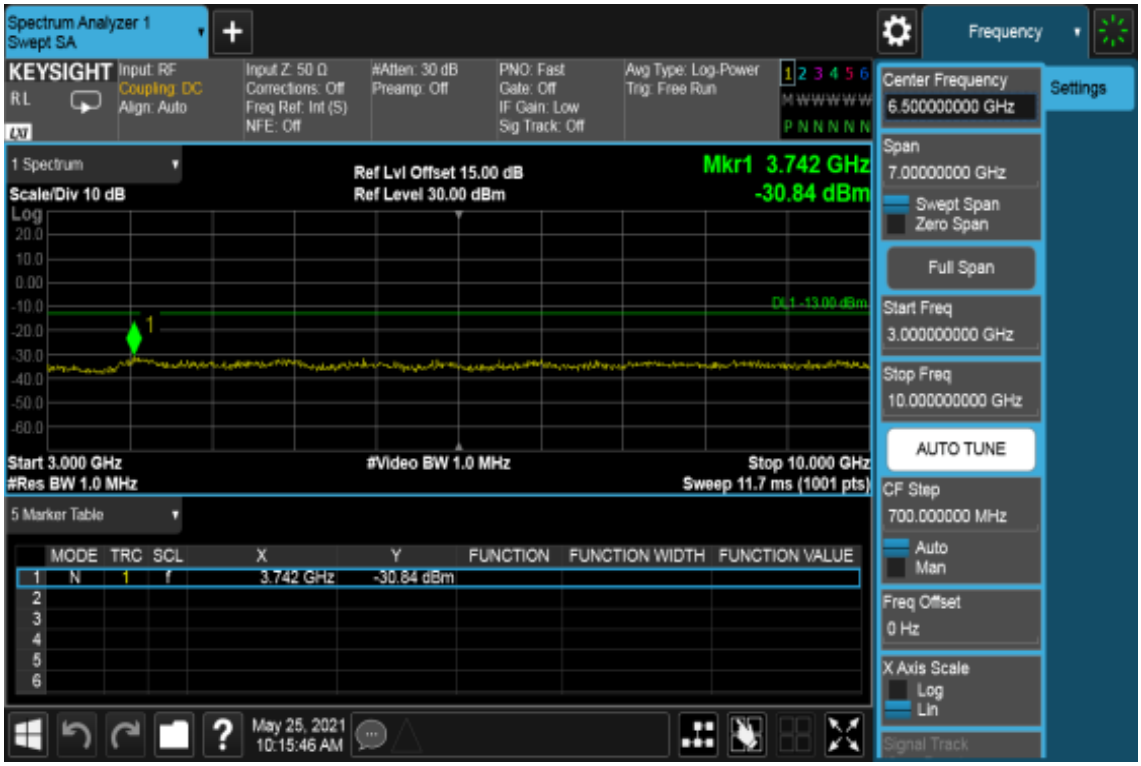
WCDMA 12.2k RMC High (Band V)

Low CH

Mid CH



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8.5 SPURIOUS RADIATION MEASUREMENT

Limit

FCC §22.917(a), Band 5

For operations in the 824-849 MHz band, out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

FCC §24.238(a), Band 2

For operations in the 1850-1910 and 1930-1950 MHz band, out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

RSS-132 section 5.5 and RSS-133 section 6.5

In the first 1.0 MHz band immediately outside and adjacent to each of the sub-bands specified in Section 5.1, the power of emissions per any 1% of the occupied bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least 43 + 10 log10 p (watts).

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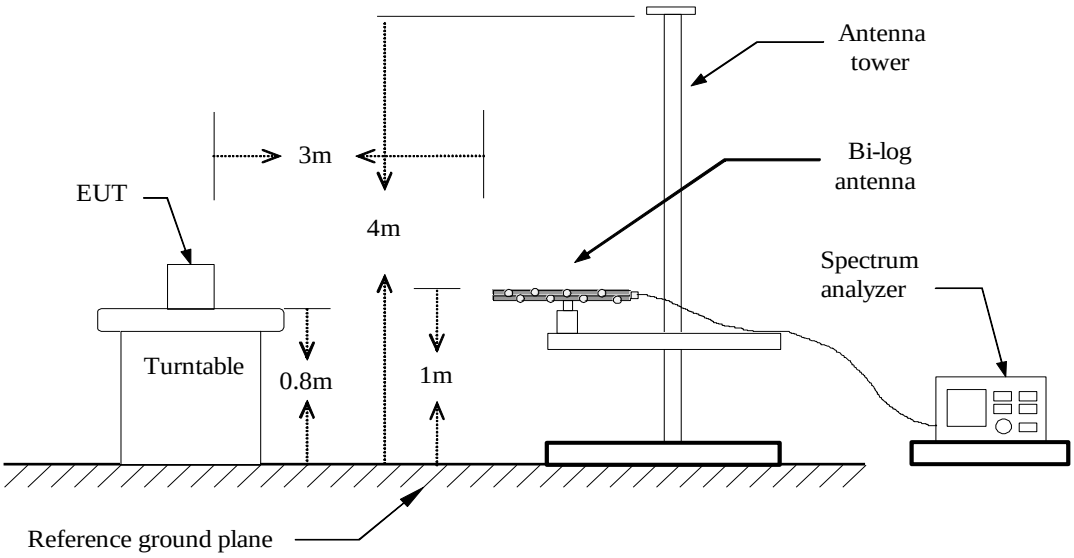
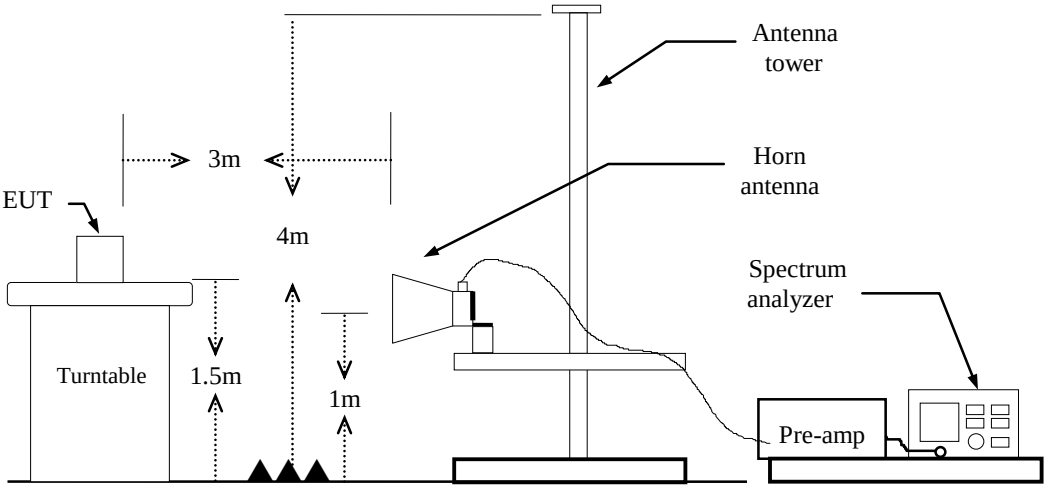
Test Configuration

Below 1 GHz



Above 1 GHz



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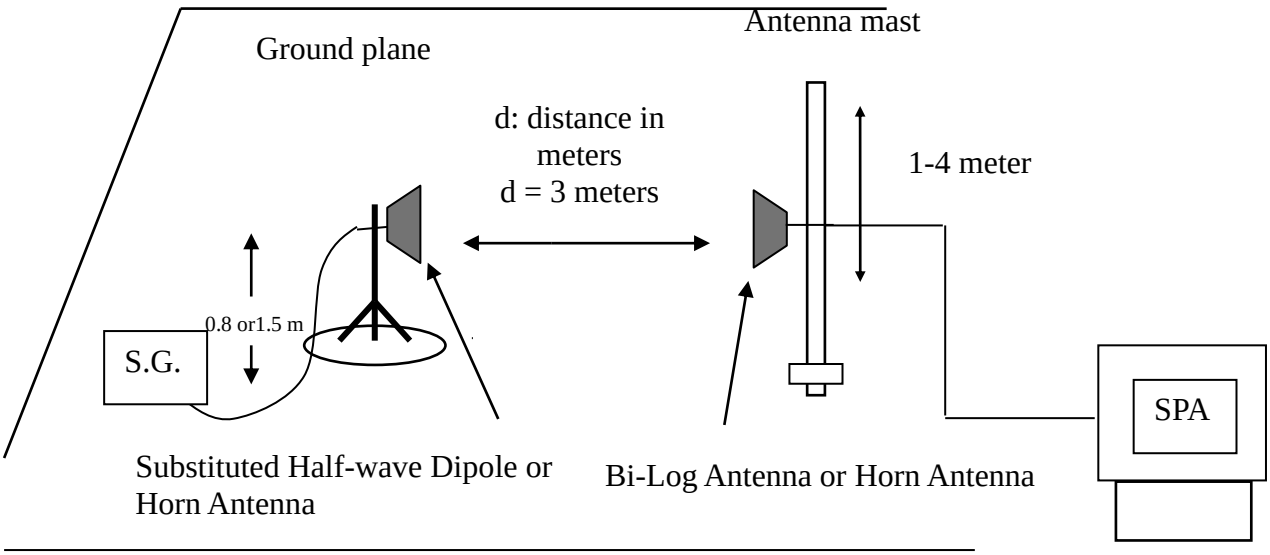
Substituted Method Test Set-up



TEST PROCEDURE

1. According to KDB 971168 D01.
2. The EUT was placed on a turntable
   (1) Below 1G : 0.8m
   (2) Above 1G : 1.5m
   (3) EUT set 3m from the receiving antenna
   (4) The table was rotated 360 degrees of the highest spurious emission to determine the position.
3. Set the spectrum analyzer , RBW=1MHz, VBW=3MHz.
4. A horn antenna was driven by a signal generator.
5. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission

ERP = S.G. output (dBm) + Antenna Gain (dBd) – Cable (dB)

EIRP = S.G. output (dBm) + Antenna Gain (dBi) – Cable (dB)

TEST RESULTS

Refer to the attached tabular data sheets.

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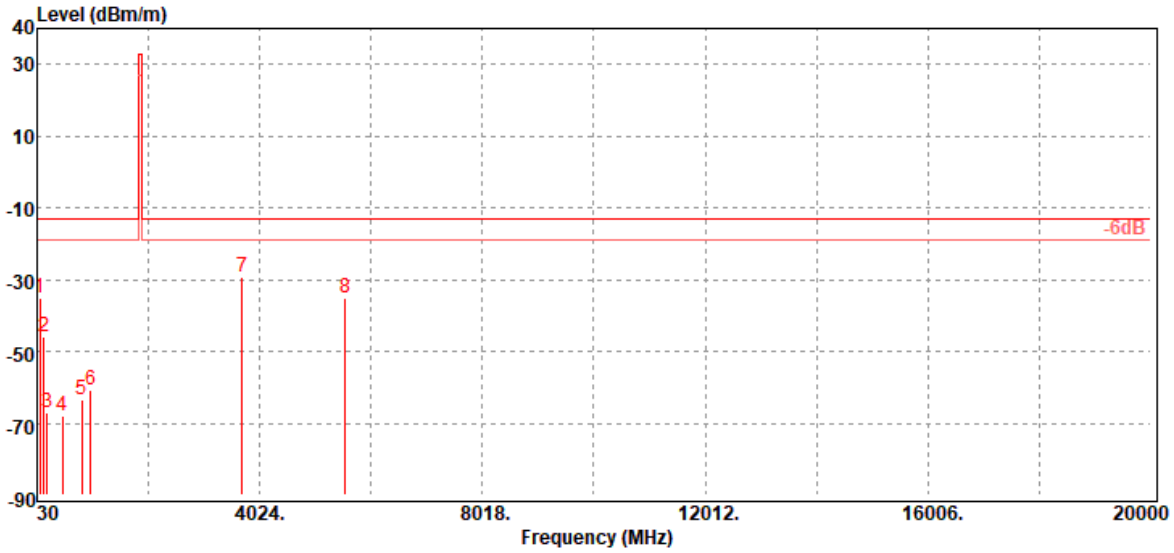
Radiated Spurious Emission Measurement Result

Operation Mode:	WCDMA 12.2k RMC Band II / TX /Low CH	**Test Date:**	December 14, 2021
Temperature:	21.9℃	**Tested by:**	Ray Li
Humidity:	61% 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)
86.26	-35.26	-26.95	-7.55	-0.76	-13.00	-22.26	V
146.40	-45.75	-37.22	-7.54	-0.99	-13.00	-32.75	V
209.45	-66.89	-63.52	-2.18	-1.19	-13.00	-53.89	V
490.75	-68.15	-64.13	-2.17	-1.85	-13.00	-55.15	V
832.19	-63.61	-59.68	-1.50	-2.43	-13.00	-50.61	V
995.15	-60.59	-56.52	-1.40	-2.67	-13.00	-47.59	V
3704.80	-29.18	-35.95	12.49	-5.72	-13.00	-16.18	V
5557.20	-35.08	-41.18	13.19	-7.09	-13.00	-22.08	V

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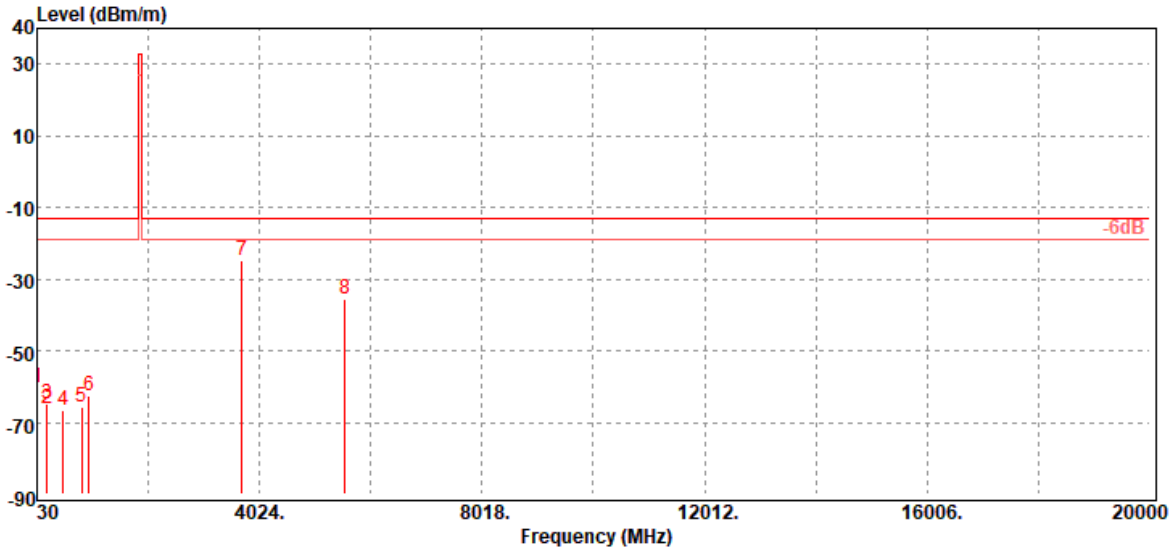
Operation Mode:	WCDMA 12.2k RMC Band II / TX /Low CH	**Test Date:**	December 14, 2021
Temperature:	21.9℃	**Tested by:**	Ray Li
Humidity:	61% RH	**Polarity:**	Hor.



Freq. (MHz)	ERP/EIRP (dBm)	SG Output Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
31.94	-60.13	-31.50	-28.16	-0.47	-13.00	-47.13	H
204.60	-66.00	-61.86	-2.96	-1.18	-13.00	-53.00	H
209.45	-64.93	-61.56	-2.18	-1.19	-13.00	-51.93	H
500.45	-66.41	-62.55	-1.99	-1.87	-13.00	-53.41	H
833.16	-65.51	-61.58	-1.50	-2.43	-13.00	-52.51	H
956.35	-62.58	-58.73	-1.23	-2.62	-13.00	-49.58	H
3704.80	-24.69	-31.46	12.49	-5.72	-13.00	-11.69	H
5557.20	-35.45	-41.55	13.19	-7.09	-13.00	-22.45	H

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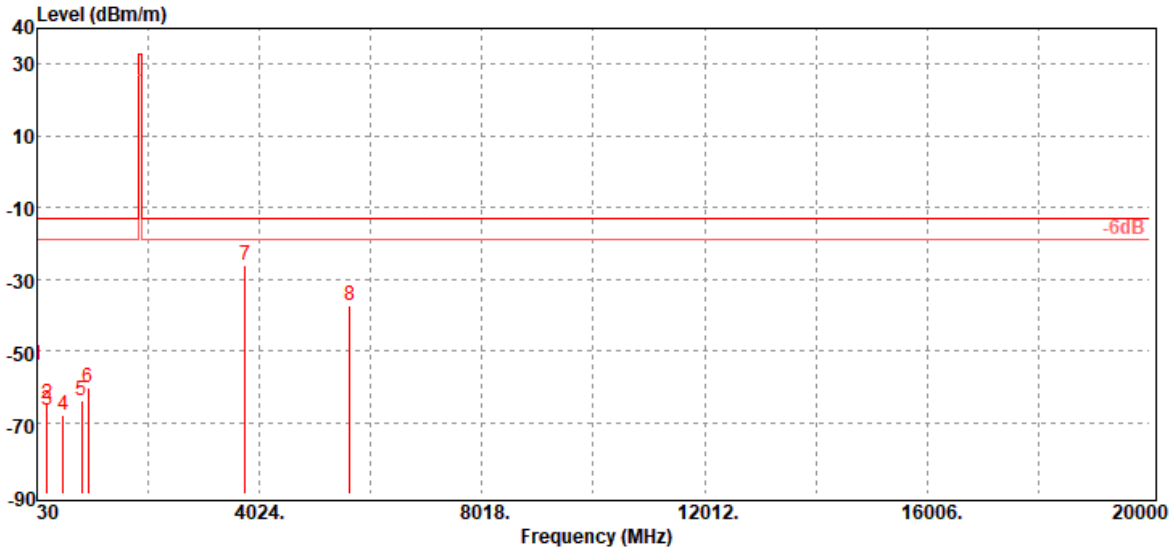
Operation Mode:	WCDMA 12.2k RMC Band II / TX /Mid CH	**Test Date:**	December 14, 2021
Temperature:	21.9℃	**Tested by:**	Ray Li
Humidity:	61% RH	**Polarity:**	Ver.



Freq. (MHz)	ERP/EIRP (dBm)	SG Output Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
42.61	-54.02	-35.74	-17.75	-0.53	-13.00	-41.02	V
204.60	-64.60	-60.46	-2.96	-1.18	-13.00	-51.60	V
209.45	-66.76	-63.39	-2.18	-1.19	-13.00	-53.76	V
500.45	-68.13	-64.27	-1.99	-1.87	-13.00	-55.13	V
827.34	-63.81	-59.89	-1.50	-2.42	-13.00	-50.81	V
954.41	-60.46	-56.64	-1.20	-2.62	-13.00	-47.46	V
3760.00	-26.32	-32.98	12.42	-5.76	-13.00	-13.32	V
5640.00	-37.39	-43.51	13.26	-7.14	-13.00	-24.39	V

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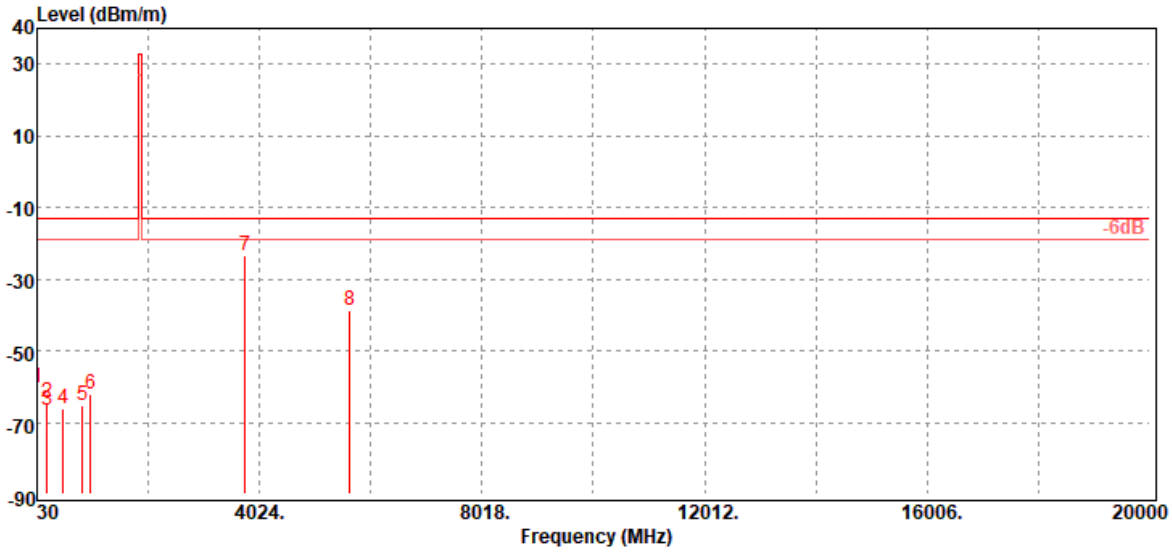
Operation Mode:	WCDMA 12.2k RMC Band II / TX /Mid CH	**Test Date:**	December 14, 2021
Temperature:	21.9℃	**Tested by:**	Ray Li
Humidity:	61% RH	**Polarity:**	Hor.



Freq. (MHz)	ERP/EIRP (dBm)	SG Output Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
31.94	-60.11	-31.48	-28.16	-0.47	-13.00	-47.11	H
204.60	-64.46	-60.32	-2.96	-1.18	-13.00	-51.46	H
209.45	-66.39	-63.02	-2.18	-1.19	-13.00	-53.39	H
497.54	-66.28	-62.42	-2.00	-1.86	-13.00	-53.28	H
844.80	-65.38	-61.53	-1.40	-2.45	-13.00	-52.38	H
987.39	-62.05	-57.99	-1.40	-2.66	-13.00	-49.05	H
3760.00	-23.64	-30.30	12.42	-5.76	-13.00	-10.64	H
5640.00	-38.72	-44.84	13.26	-7.14	-13.00	-25.72	H

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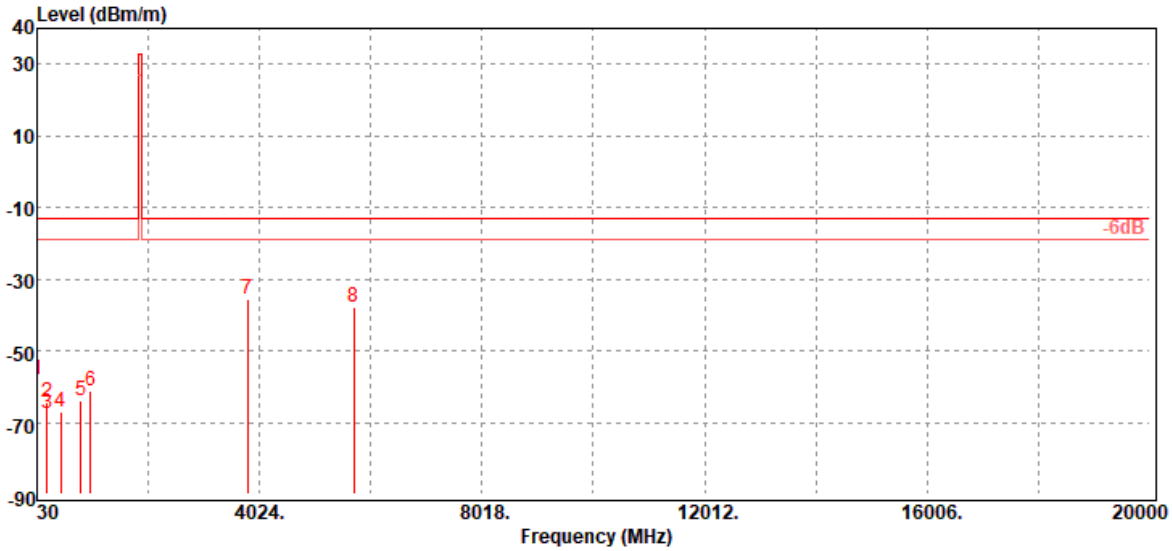
Operation Mode:	WCDMA 12.2k RMC Band II / TX /High CH	**Test Date:**	December 14, 2021
Temperature:	21.9℃	**Tested by:**	Ray Li
Humidity:	61% RH	**Polarity:**	Ver.



Freq. (MHz)	ERP/EIRP (dBm)	SG Output Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
41.64	-57.85	-38.71	-18.62	-0.52	-13.00	-44.85	V
204.60	-64.37	-60.23	-2.96	-1.18	-13.00	-51.37	V
210.42	-67.50	-64.21	-2.10	-1.19	-13.00	-54.50	V
458.74	-67.17	-63.29	-2.10	-1.78	-13.00	-54.17	V
813.76	-63.91	-60.10	-1.42	-2.39	-13.00	-50.91	V
995.15	-61.20	-57.13	-1.40	-2.67	-13.00	-48.20	V
3815.20	-35.45	-42.12	12.47	-5.80	-13.00	-22.45	V
5722.80	-37.69	-43.60	13.10	-7.19	-13.00	-24.69	V

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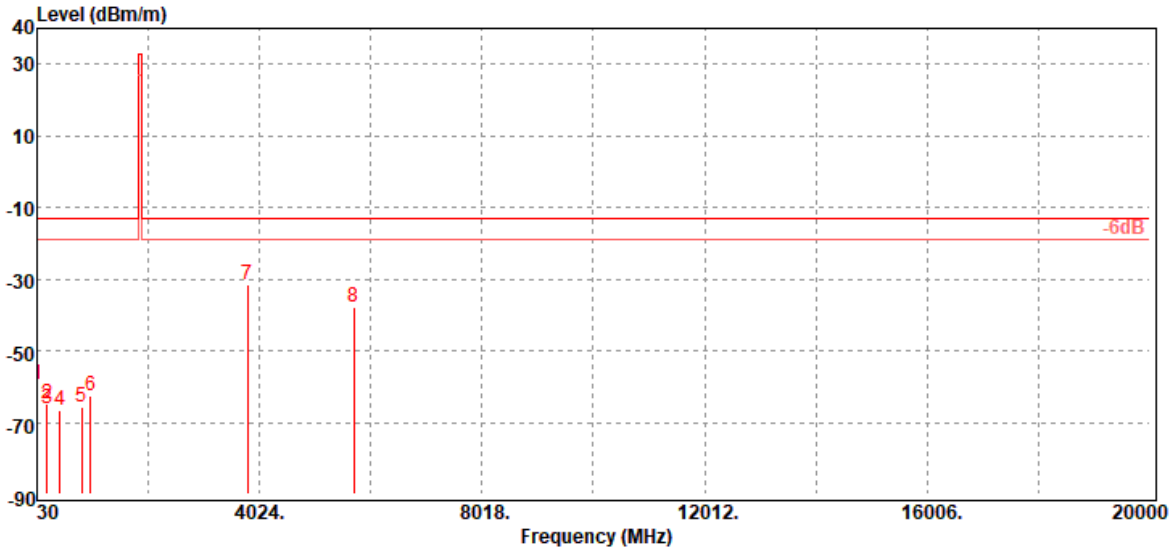
Operation Mode:	WCDMA 12.2k RMC Band II / TX / High CH	**Test Date:**	December 14, 2021
Temperature:	21.9℃	**Tested by:**	Ray Li
Humidity:	61% RH	**Polarity:**	Hor.



Freq. (MHz)	ERP/EIRP (dBm)	SG Output Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
31.94	-59.46	-30.83	-28.16	-0.47	-13.00	-46.46	H
204.60	-64.64	-60.50	-2.96	-1.18	-13.00	-51.64	H
211.39	-65.96	-62.67	-2.10	-1.19	-13.00	-52.96	H
444.19	-66.70	-62.85	-2.10	-1.75	-13.00	-53.70	H
827.34	-65.89	-61.97	-1.50	-2.42	-13.00	-52.89	H
992.24	-62.48	-58.41	-1.40	-2.67	-13.00	-49.48	H
3815.20	-31.60	-38.27	12.47	-5.80	-13.00	-18.60	H
5722.80	-37.78	-43.69	13.10	-7.19	-13.00	-24.78	H

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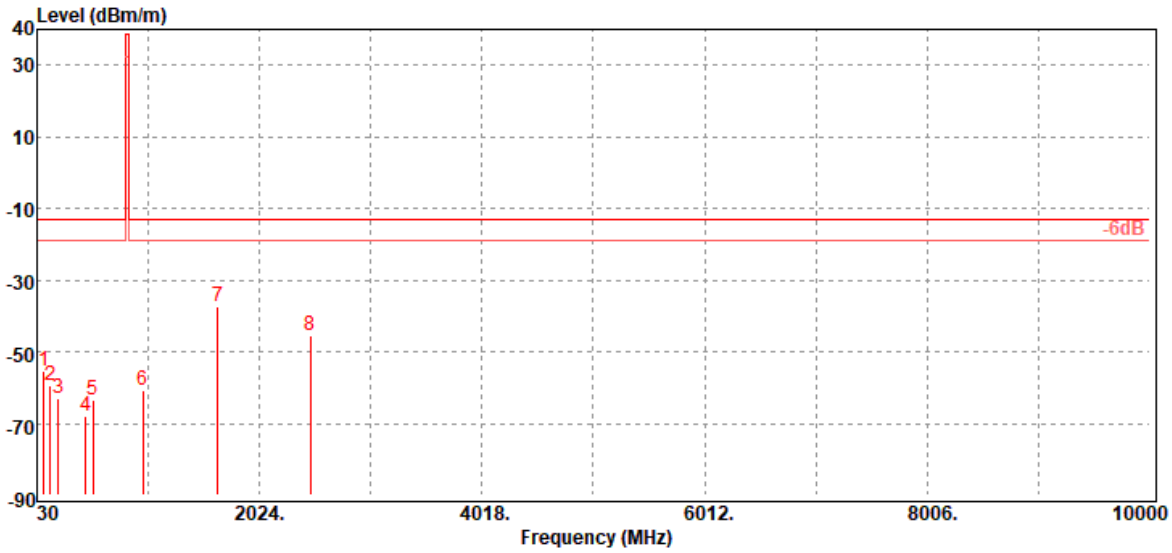
Radiated Spurious Emission Measurement Result

Operation Mode:	WCDMA 12.2k RMC Band V / TX / Low CH	**Test Date:**	December 15, 2021
Temperature:	21.9℃	**Tested by:**	Ray Li
Humidity:	61 % 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)
88.20	-55.30	-47.37	-7.16	-0.77	-13.00	-42.30	V
151.25	-59.23	-51.17	-7.05	-1.01	-13.00	-46.23	V
221.09	-62.98	-59.78	-1.98	-1.22	-13.00	-49.98	V
469.41	-67.75	-63.56	-2.39	-1.80	-13.00	-54.75	V
532.46	-63.36	-60.14	-1.30	-1.92	-13.00	-50.36	V
978.66	-60.90	-56.92	-1.33	-2.65	-13.00	-47.90	V
1652.80	-37.48	-43.65	9.72	-3.55	-13.00	-24.48	V
2479.20	-45.38	-51.55	10.72	-4.55	-13.00	-32.38	V

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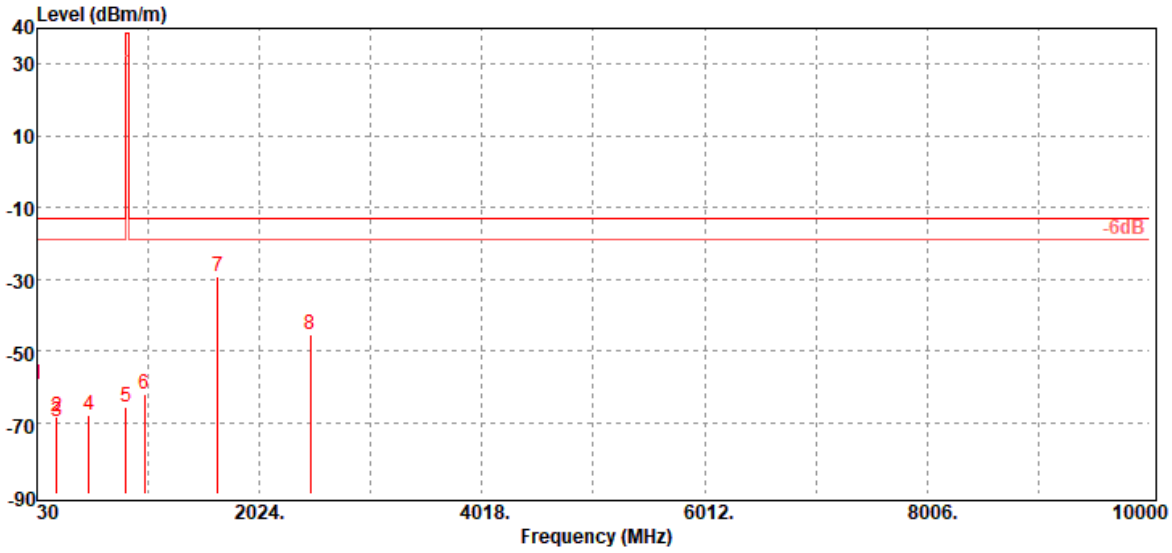
Operation Mode:	WCDMA 12.2k RMC Band V / TX / Low CH	**Test Date:**	December 15, 2021
Temperature:	21.9℃	**Tested by:**	Ray Li
Humidity:	61 % RH	**Polarity:**	Hor.



Freq. (MHz)	ERP/EIRP (dBm)	SG Output Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
31.94	-59.37	-30.74	-28.16	-0.47	-13.00	-46.37	H
204.60	-68.30	-64.16	-2.96	-1.18	-13.00	-55.30	H
209.45	-69.84	-66.47	-2.18	-1.19	-13.00	-56.84	H
497.54	-68.00	-64.14	-2.00	-1.86	-13.00	-55.00	H
825.40	-65.61	-61.70	-1.50	-2.41	38.45	-104.06	H
992.24	-62.33	-58.26	-1.40	-2.67	-13.00	-49.33	H
1652.80	-29.24	-35.41	9.72	-3.55	-13.00	-16.24	H
2479.20	-45.30	-51.47	10.72	-4.55	-13.00	-32.30	H

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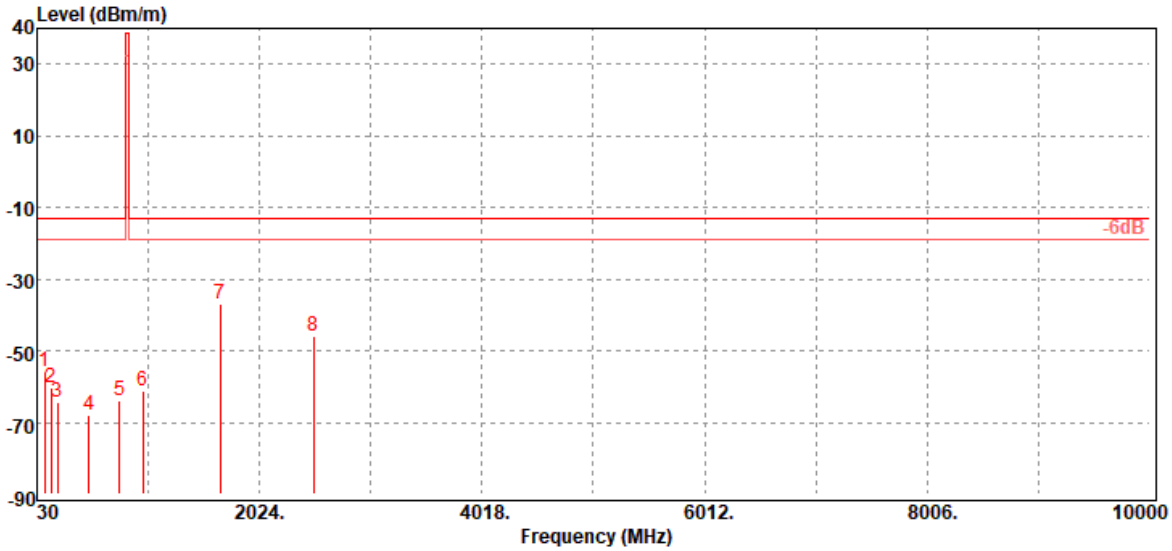
Operation Mode:	WCDMA 12.2k RMC Band V / TX / Mid CH	**Test Date:**	December 15, 2021
Temperature:	21.9℃	**Tested by:**	Ray Li
Humidity:	61 % RH	**Polarity:**	Ver.



Freq. (MHz)	ERP/EIRP (dBm)	SG Output Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
94.99	-55.84	-47.74	-7.30	-0.80	-13.00	-42.84	V
153.19	-60.19	-52.45	-6.72	-1.02	-13.00	-47.19	V
217.21	-64.26	-60.99	-2.06	-1.21	-13.00	-51.26	V
493.66	-67.84	-63.94	-2.05	-1.85	-13.00	-54.84	V
770.11	-63.75	-60.02	-1.40	-2.33	-13.00	-50.75	V
975.75	-61.30	-57.28	-1.38	-2.64	-13.00	-48.30	V
1672.80	-37.00	-43.26	9.84	-3.58	-13.00	-24.00	V
2509.20	-45.79	-52.00	10.80	-4.59	-13.00	-32.79	V

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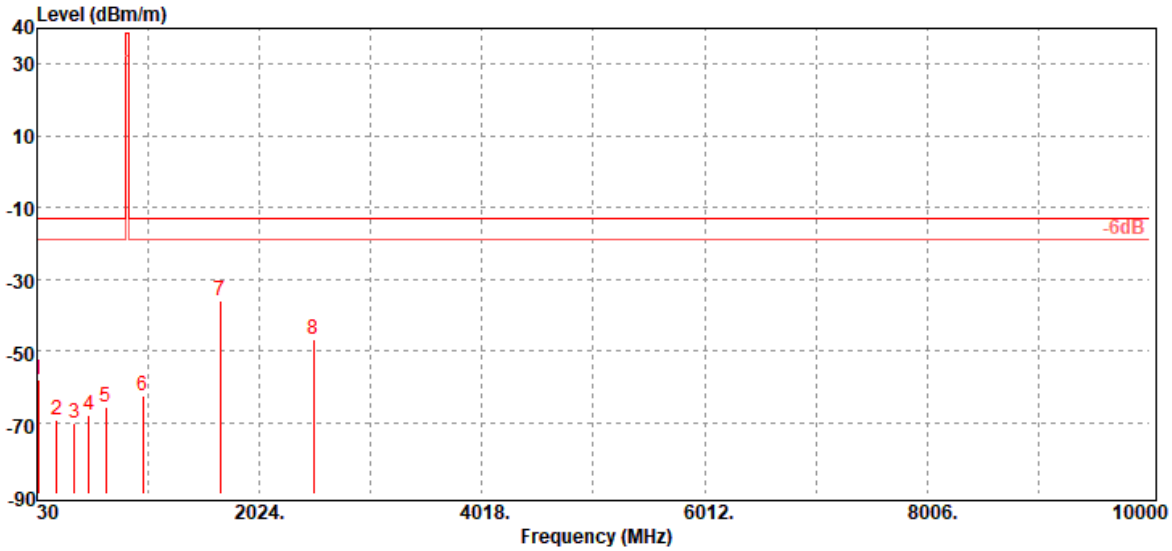
Operation Mode:	WCDMA 12.2k RMC Band V / TX / Mid CH	**Test Date:**	December 15, 2021
Temperature:	21.9℃	**Tested by:**	Ray Li
Humidity:	61 % RH	**Polarity:**	Hor.



Freq. (MHz)	ERP/EIRP (dBm)	SG Output Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
42.61	-57.86	-39.58	-17.75	-0.53	-13.00	-44.86	H
204.60	-69.52	-65.38	-2.96	-1.18	-13.00	-56.52	H
366.59	-70.06	-66.68	-1.80	-1.58	-13.00	-57.06	H
495.60	-67.84	-63.98	-2.00	-1.86	-13.00	-54.84	H
647.89	-65.83	-62.02	-1.66	-2.15	-13.00	-52.83	H
980.60	-62.43	-58.47	-1.31	-2.65	-13.00	-49.43	H
1672.80	-36.11	-42.37	9.84	-3.58	-13.00	-23.11	H
2509.20	-46.65	-52.86	10.80	-4.59	-13.00	-33.65	H

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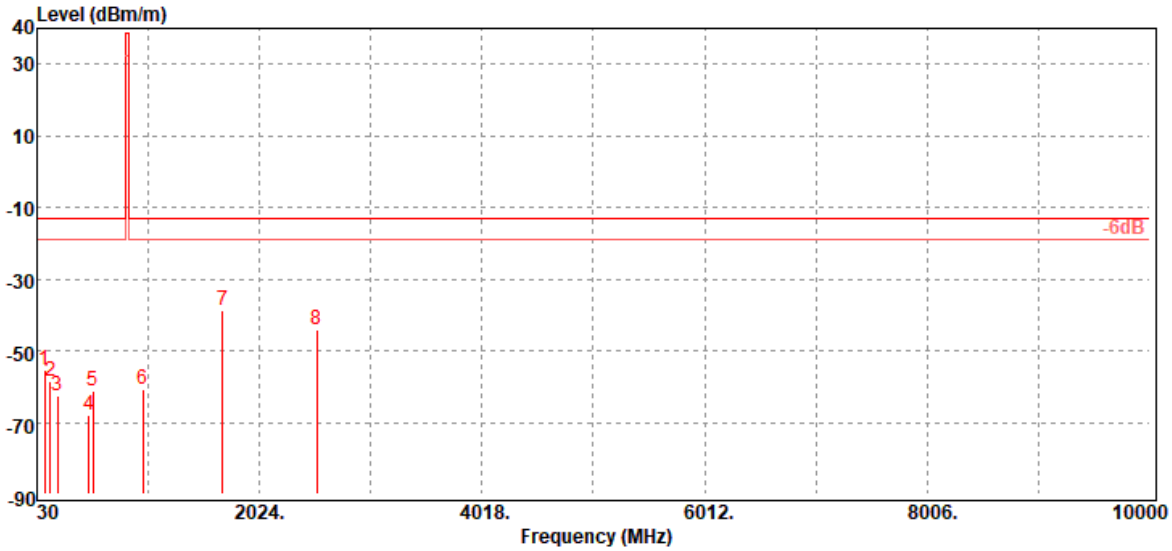
Operation Mode:	WCDMA 12.2k RMC Band V / TX / High CH	**Test Date:**	December 15, 2021
Temperature:	21.9℃	**Tested by:**	Ray Li
Humidity:	61 % RH	**Polarity:**	Ver.



Freq. (MHz)	ERP/EIRP (dBm)	SG Output Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
94.99	-55.19	-47.09	-7.30	-0.80	-13.00	-42.19	V
151.25	-58.31	-50.25	-7.05	-1.01	-13.00	-45.31	V
217.21	-62.35	-59.08	-2.06	-1.21	-13.00	-49.35	V
498.51	-67.78	-63.91	-2.00	-1.87	-13.00	-54.78	V
531.49	-61.31	-58.09	-1.30	-1.92	-13.00	-48.31	V
977.69	-60.95	-56.95	-1.35	-2.65	-13.00	-47.95	V
1693.20	-38.54	-44.90	9.96	-3.60	-13.00	-25.54	V
2539.80	-44.13	-50.31	10.80	-4.62	-13.00	-31.13	V

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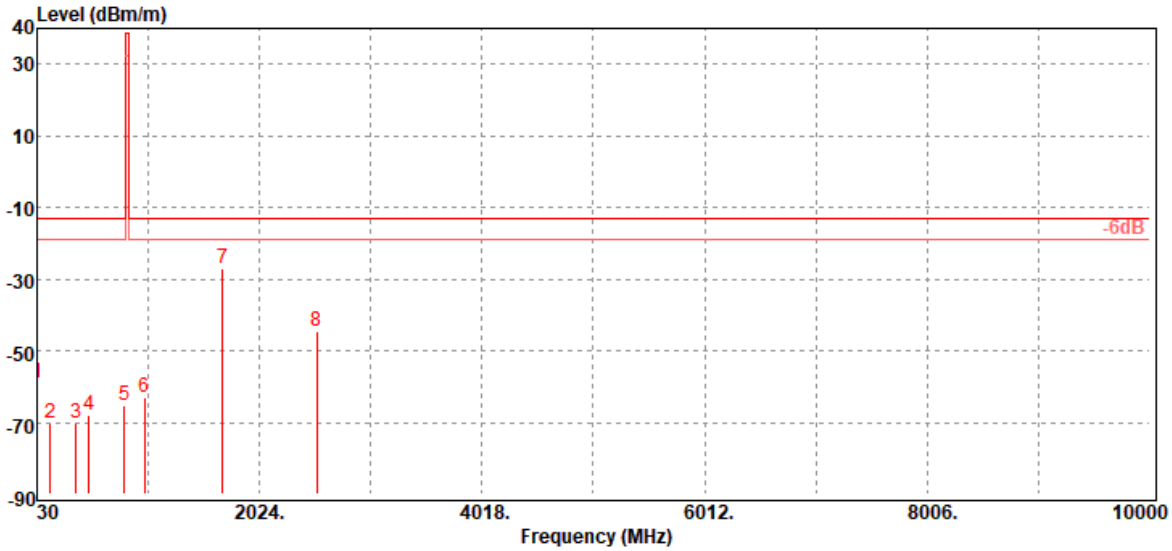
Operation Mode:	WCDMA 12.2k RMC Band V / TX / High CH	**Test Date:**	December 15, 2021
Temperature:	21.9℃	**Tested by:**	Ray Li
Humidity:	61 % RH	**Polarity:**	Hor.



Freq. (MHz)	ERP/EIRP (dBm)	SG Output Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
32.91	-58.90	-31.24	-27.19	-0.47	-13.00	-45.90	H
149.31	-70.09	-61.92	-7.17	-1.00	-13.00	-57.09	H
377.26	-70.03	-66.81	-1.61	-1.61	-13.00	-57.03	H
498.51	-67.87	-64.00	-2.00	-1.87	-13.00	-54.87	H
815.70	-65.43	-61.60	-1.43	-2.40	-13.00	-52.43	H
995.15	-62.94	-58.87	-1.40	-2.67	-13.00	-49.94	H
1693.20	-27.14	-33.50	9.96	-3.60	-13.00	-14.14	H
2539.80	-44.63	-50.81	10.80	-4.62	-13.00	-31.63	H

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8.6 FREQUENCY STABILITY V.S. TEMPERATURE MEASUREMENT

LIMIT

According to FCC §2.1055, FCC §22.355, .FCC §24.235.
According to RSS-132 (5.3) & RSS-133 (6.3).

Test Procedure

Use Anritsu 8820 with frequency Error measurement capability.
Temp = -30 to +50℃ ,Voltage= 85% to 115% of the nominal value for AC powered equipment. Frequency Tolerance: +/-2.5 ppm
NOTE: *The frequency error was recorded frequency error from the communication simulator.*

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TEST RESULTS

No non-compliance noted.

Temperature: 25℃ **Humidity:** 57% RH

Tested by: Jerry Chang **Test Date:** May 25, 2021

WCDMA II Mid Channel 1880 MHz				
Limit: +/- 2.5 ppm				
Vdc	Temp. (℃)	Freq. (MHz)	Delta (Hz)	Limit (Hz)
FREQUENCY ERROR vs. VOLTAGE				
5.5	20	1879.999969	-31	4700
5	20	1880.000034	34	4700
4.75	20	1880.000022	22	4700
3.7 (End point)	20	1880.000007	7	4700
FREQUENCY ERROR vs. Temp.				
5	50	1879.999979	-21	4700
5	40	1879.999997	-3	4700
5	30	1880.000015	15	4700
5	20	1880.000034	34	4700
5	10	1879.99998	-20	4700
5	0	1880.000019	19	4700
5	-10	1879.999963	-37	4700
5	-20	1880.000022	22	4700
5	-30	1880.000024	24	4700

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WCDMA V Mid Channel 836.6 MHz				
Limit: +/- 2.5 ppm				
Vdc	Temp. (℃)	Freq. (MHz)	Delta (Hz)	Limit (Hz)
FREQUENCY ERROR vs. VOLTAGE				
5.5	20	836.600034	34	2091
5	20	836.599965	-35	2091
4.75	20	836.600018	18	2091
3.7 (End point)	20	836.599954	-46	2091
FREQUENCY ERROR vs. Temp.				
5	50	836.600037	37	2091
5	40	836.599972	-28	2091
5	30	836.600011	11	2091
5	20	836.600013	13	2091
5	10	836.600008	8	2091
5	0	836.599963	-37	2091
5	-10	836.600053	53	2091
5	-20	836.599971	-29	2091
5	-30	836.600033	33	2091

- End of Test Report -

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