

**FCC 47 CFR PART 27 SUBPART L
&
INDUSTRY CANADA RSS-139**

TEST REPORT

For

LE920-NA

Trade Name: Telit

Model: LE920-NA

Issued to

**Telit Communications S.p.A.
Via Stazione di Prosecco 5/B
34010 Sgonico, Trieste - Italy**

Issued by

**Compliance Certification Services Inc.
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Issued Date: December 14, 2015**



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Revision History

Rev.		Issue Date		Revisions	Effect Page	Revised By
00		December 14, 2015		Initial Issue	ALL	Doris Chu

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1. TEST RESULT CERTIFICATION

Applicant: Telit Communications S.p.A.
Via Stazione di Prosecco 5/B
34010 Sgonico, Trieste - Italy

Manufacturer: Telit Communications S.p.A.
Via Stazione di Prosecco 5/B
34010 Sgonico, Trieste - Italy

Equipment Under Test: LE920-NA

Trade Name: Telit

Model Number: LE920-NA

Date of Test: December 10, 2015

APPLICABLE STANDARDS	
STANDARD	TEST RESULT
FCC 47 CFR PART 27 SUBPART L & IC RSS-139 Issue 2: February 2009	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 and the energy emitted by the sample EUT tested as described in this report is in compliance with radiated emission limits of FCC Rule FCC PART 27 Subpart L, IC RSS-139 Issue 2.

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

Approved by:

Reviewed by:



Miller Lee
Manager
Compliance Certification Services Inc.



Angel Cheng
Section Manager
Compliance Certification Services Inc.

2. EUT DESCRIPTION

Product	LE920-NA
Trade Name	Telit
Model Number	LE920-NA
Model Discrepancy	N/A
Received Date	May 28, 2015
Power Supply	DC 3.8V powered from Host device.
Frequency Range	WCDMA / HSDPA / HSUPA Band IV: 1710-1755 MHz
Transmit Power (ERP & EIRP Power)	WCDMA Band IV: 16.44 dBm HSDPA Band IV: 15.20 dBm HSUPA Band IV: 15.53 dBm
Cellular Phone Protocol	WCDMA: Quadrature Phase Shift Keying (QPSK) with Root-raised cosine pulse shaping filters (roll off = 0.22)
Antenna Gain	Gain: 2.14 dBi
Antenna Type	1/4l Antenna

Remark: The sample selected for test was engineering sample that approximated to production product and was provided by manufacturer.

3. TEST METHODOLOGY

Both conducted and radiated testing were performed according to the procedures document of ANSI C63.10: 2013, TIA/EIA-603-C: 2004 and FCC CFR 47, Part 27 Subpart L.

The tests documented in this report were performed in accordance with IC RSS-132, SPSR503, RSS-133, SPSR510 and ANSI C63.10: 2013 and TIA/EIA-603-C.

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 EUT EXERCISE

The EUT was operated in the engineering mode to fix the TX frequency that was for the purpose of the measurements.

3.3 GENERAL TEST PROCEDURES

Conducted Emissions

According to the requirements in ANSI C63.10: 2013. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-peak and average detector modes.

Radiated Emissions

The EUT is placed on a turn table, which is 1.5 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in ANSI C63.10: 2013.

3.4 DESCRIPTION OF TEST MODES

The EUT (model: LE920-NA) had been tested under operating condition.

EUT staying in continuous transmitting mode was programmed.

After verification, all tests carried out are with the worst-case test modes as shown below except radiated spurious emission below 1GHz and power line conducted emissions below 30MHz, which worst case was in normal link mode and receiving radiated spurious emission above 1GHz, which worst case was in CH Mid mode only.

WCDMA Band IV:

Channel Low (CH1312), Channel Mid (CH1427) and Channel High (CH1513) were chosen for full testing.

WCDMA / HSDPA Band IV:

Channel Low (CH1312), Channel Mid (CH1427) and Channel High (CH1513) were chosen for full testing.

WCDMA / HSUPA Band IV:

Channel Low (CH1312), Channel Mid (CH1427) and Channel High (CH1513) were chosen for full testing.

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 Due
Spectrum Analyzer	Agilent	E4446A	US42510252	11/22/2016
Thermostatic/Humidity Chamber	TAICHY	MHG-150LF	930619	10/07/2016
AC Power Source	EXTECH	6205	1140845	N.C.R
DC Power Supply	ABM	8301HD	D011531	N.C.R
Power Meter	Anritsu	ML2495A	1012009	07/07/2016
Power Sensor	Anritsu	MA2411A	0917072	07/07/2016
Spectrum Analyzer	ROHDE&SCHWARZ	FSV40	101073	07/19/2016

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4407B	MY44212686	03/17/2016
Pre-Amplifier	MITEQ	AFS44-00102650-42-10P-44	1042473	04/13/2016
'Bilog Antenna	Sunol Sciences	JB1	A0526009	08/05/2016
Turn Table	CCS	CC-T-1F	N/A	N.C.R
Antenna Tower	CCS	CC-A-1F	N/A	N.C.R
Controller	CCS	CC-C-1F	N/A	N.C.R
Spectrum Analyzer	ROHDE&SCHWARZ	FSV40	101073	07/19/2016
Horn Antenna	EMCO	3117	00055165	01/26/2016
Wideband Radio Communication Tester	ROHDE&SCHWARZ	CMU 200	100535	09/17/2016

4.3 MEASUREMENT UNCERTAINTY

PARAMETER	UNCERTAINTY
3M Semi Anechoic Chamber / 30M~200M	+/-4.0138
3M Semi Anechoic Chamber / 200M~1000M	+/-3.9483
3M Semi Anechoic Chamber / 1G~8G	+/-2.5975
3M Semi Anechoic Chamber / 8G~18G	+/-2.6112
3M Semi Anechoic Chamber / 18G~26G	+/-2.7389
3M Semi Anechoic Chamber / 26G~40G	+/-2.9683

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

5. FACILITIES AND ACCREDITATIONS

5.1 FACILITIES

All measurement facilities used to collect the measurement data are located at

☐ 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., Luchu Hsiang, Taoyuan Hsien 338, Taiwan

Tel: 886-3-324-0332 / Fax: 886-3-324-5235

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

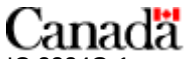
Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

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

5.3 LABORATORY ACCREDITATIONS AND LISTING

The test facilities used to perform radiated and conducted emissions tests are accredited by American Association for Laboratory Accreditation Program for the specific scope accreditation under Lab Code: 0824-01 to perform Electromagnetic Interference tests according to FCC Part 15 and CISPR 22 requirements. In addition, the test facilities are listed with Industry Canada, Certification and Engineering Bureau, IC 2324G-1 for 3M Semi Anechoic Chamber A, 2324G-2 for 3M Semi Anechoic Chamber B.

5.4 TABLE OF ACCREDITATIONS AND LISTINGS

Country	Agency	Scope of Accreditation	Logo
USA	FCC	3M Semi Anechoic Chamber (FCC MRA: TW1039) to perform FCC Part 15 measurements	 FCC MRA: TW1039
Taiwan	TAF	LP0002, RTTE01, FCC Method-47 CFR Part 15 Subpart C, D, E, RSS-210, RSS-310 IDA TS SRD, AS/NZS 4268, AS/NZS 4771, TS 12.1 & 12.2, ETSI EN 300 440-1, ETSI EN 300 440-2, ETSI EN 300 328, ETSI EN 300 220-1, ETSI EN 300 220-2, ETSI EN 301 893, ETSI EN 301 489-1/3/7/17 FCC OET Bulletin 65 + Supplement C, EN 50360, EN 50361, EN 50371, RSS 102, EN 50383, EN 50385, EN 50392, IEC 62209, CNS 14958-1, CNS 14959 FCC Method -47 CFR Part 15 Subpart B IEC / EN 61000-3-2, IEC / EN 61000-3-3, IEC / EN 61000-4-2/3/4/5/6/8/11	
Canada	Industry Canada	3M Semi Anechoic Chamber (IC 2324G-1 / IC 2324G-2) to perform	 IC 2324G-1 IC 2324G-2

* No part of this report may be used to claim or imply product endorsement by A2LA or any agency of the US Government.

6. SETUP OF EQUIPMENT UNDER TEST

6.1 SETUP CONFIGURATION OF EUT

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

6.2 SUPPORT EQUIPMENT

No.	Device Type	Brand	Model	Series No.	FCC ID	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.*

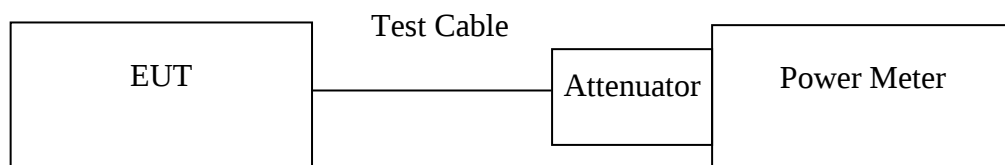
7. FCC PART 27 REQUIREMENTS & INDUSTRY CANADA RSS-139

7.1 PEAK POWER

LIMIT

According to FCC §2.1046.

Test Configuration



Remark: Measurement setup for testing on Antenna connector

TEST PROCEDURE

The transmitter output was connected to a calibrated attenuator, the other end of which was connected to a power meter. Transmitter output was read off the power meter in dBm. The power output at the transmitter antenna port was determined by adding the value of the attenuator to the power meter reading.

TEST RESULTS

No non-compliance noted.

Test Data

Test Mode	CH	Frequency (MHz)	Peak Power (dBm)	Peak Power (W)
WCDMA Band IV	1312	1712.40	26.33	0.49888
	1427	1735.40	26.37	0.49774
	1513	1752.60	26.12	0.47424

Test Mode	CH	Frequency (MHz)	Peak Power (dBm)	Peak Power (W)
HSDPA Band IV	1312	1712.40	26.28	0.46559
	1427	1735.40	26.34	0.44463
	1513	1752.60	26.04	0.48306

Test Mode	CH	Frequency (MHz)	Peak Power (dBm)	Peak Power (W)
HSUPA Band IV	1312	1712.40	26.24	0.48306
	1427	1735.40	26.23	0.47098
	1513	1752.60	25.91	0.45082

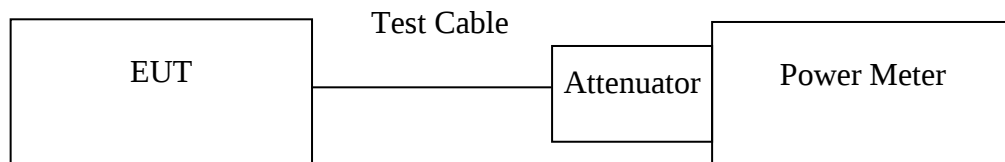
Remark: The value of factor includes both the loss of cable and external attenuator

7.2 AVERAGE POWER

LIMIT

For reporting purposes only.

Test Configuration



Remark: *Measurement setup for testing on Antenna connector*

TEST PROCEDURE

The transmitter output was connected to a calibrated attenuator, the other end of which was connected to a power meter. Transmitter output was read off the power meter in dBm. The power output at the transmitter antenna port was determined by adding the value of the attenuator to the power meter reading.

TEST RESULTS

No non-compliance noted.

Test Data

Test Mode	CH	Frequency (MHz)	Average Power (dBm)
WCDMA Band IV	1312	1712.40	24.89
	1427	1735.40	24.95
	1513	1752.60	24.96

Test Mode	CH	Frequency (MHz)	Average Power (dBm)
HSDPA Band IV	1312	1712.40	24.76
	1427	1735.40	24.91
	1513	1752.60	24.88

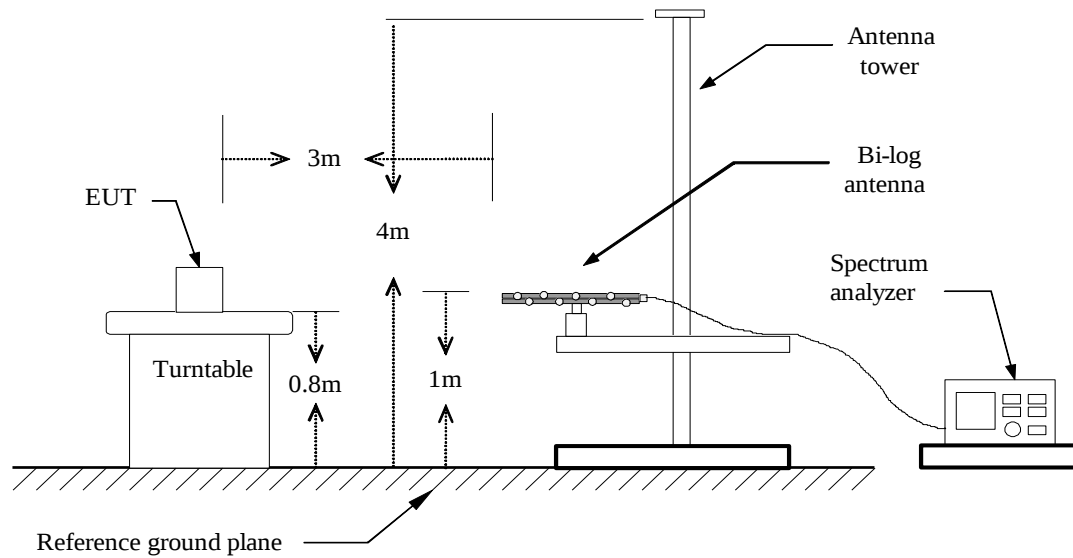
Test Mode	CH	Frequency (MHz)	Average Power (dBm)
HSUPA Band IV	1312	1712.40	24.61
	1427	1735.40	24.74
	1513	1752.60	24.89

Remark: The value of factor includes both the loss of cable and external attenuator

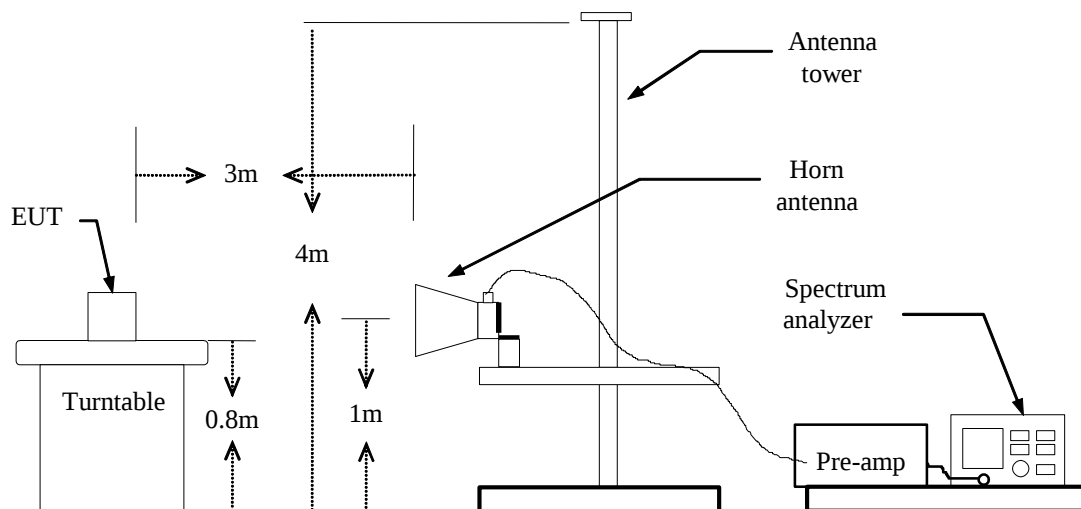
7.3 ERP & EIRP MEASUREMENT

Test Configuration

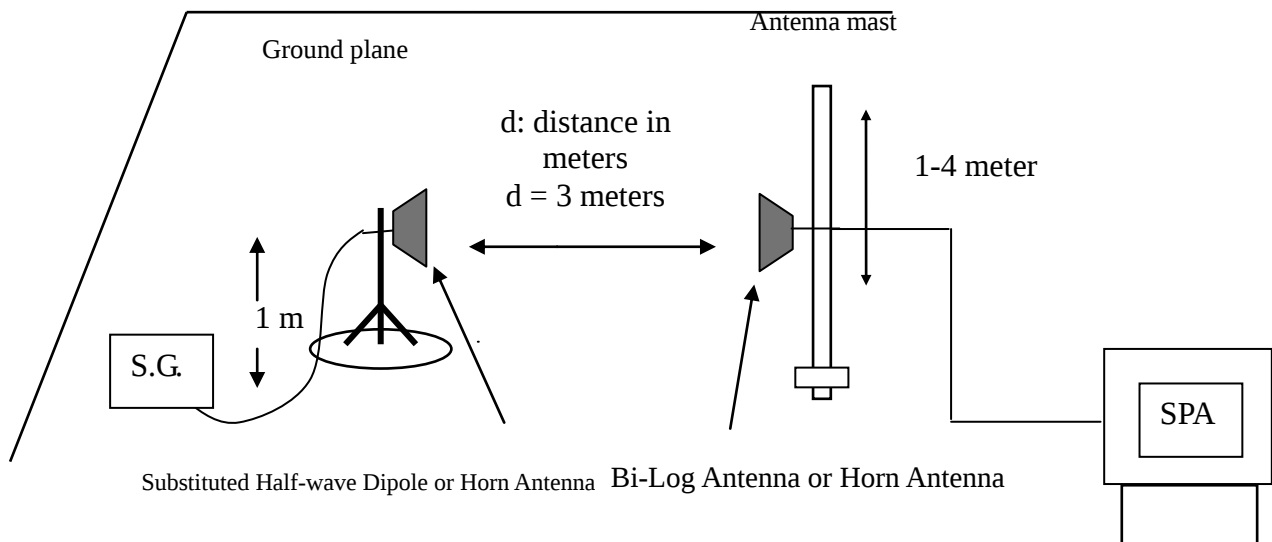
Below 1 GHz



Above 1 GHz



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 3MHz and the average bandwidth was set to 3MHz. 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. output (dBm) + Antenna Gain (dBd) – Cable (dB)

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

TEST RESULTS

No non-compliance noted.

WCDMA BAND IV Test Data

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
1312	1712.800	V	12.33	5.13	5.92	13.12	33.00	-19.88
	1712.900	H	13.76	5.13	5.92	14.55	33.00	-18.45
1427	1735.100	V	12.76	5.17	5.88	13.47	33.00	-19.53
	1734.700	H	15.16	5.17	5.88	15.87	33.00	-17.13
1513	1753.600	V	11.53	5.21	5.84	12.16	33.00	-20.84
	1753.400	H	15.81	5.21	5.84	*16.44	33.00	-16.56

HSDPA BAND IV Test Data

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
1312	1713.100	V	12.25	5.13	5.92	13.04	33.00	-19.96
	1712.200	H	11.59	5.13	5.92	12.38	33.00	-20.62
1427	1736.100	V	12.63	5.17	5.88	13.34	33.00	-19.66
	1734.700	H	13.16	5.17	5.88	13.87	33.00	-19.13
1513	1753.300	V	10.43	5.21	5.84	11.06	33.00	-21.94
	1752.000	H	14.55	5.2	5.85	*15.20	33.00	-17.80

HSUPA BAND IV Test Data

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
1312	1711.300	V	11.47	5.13	5.92	12.26	33.00	-20.74
	1712.900	H	11.76	5.13	5.92	12.55	33.00	-20.45
1427	1735.100	V	10.76	5.17	5.88	11.47	33.00	-21.53
	1734.600	H	12.92	5.17	5.88	13.63	33.00	-19.37
1513	1753.900	V	10.2	5.21	5.84	10.83	33.00	-22.17
	1753.800	H	14.9	5.21	5.84	*15.53	33.00	-17.47

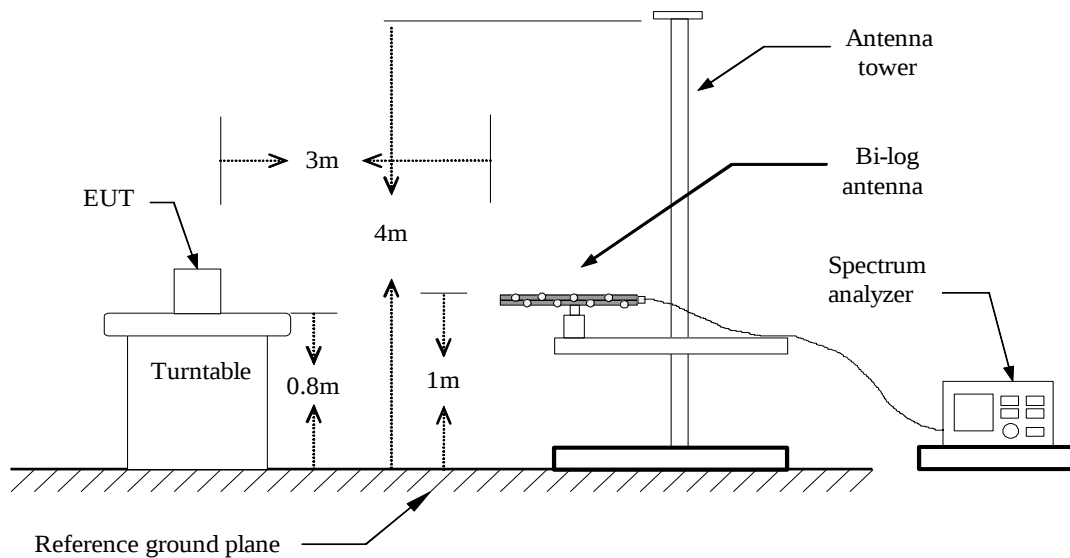
7.4 FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT

LIMIT

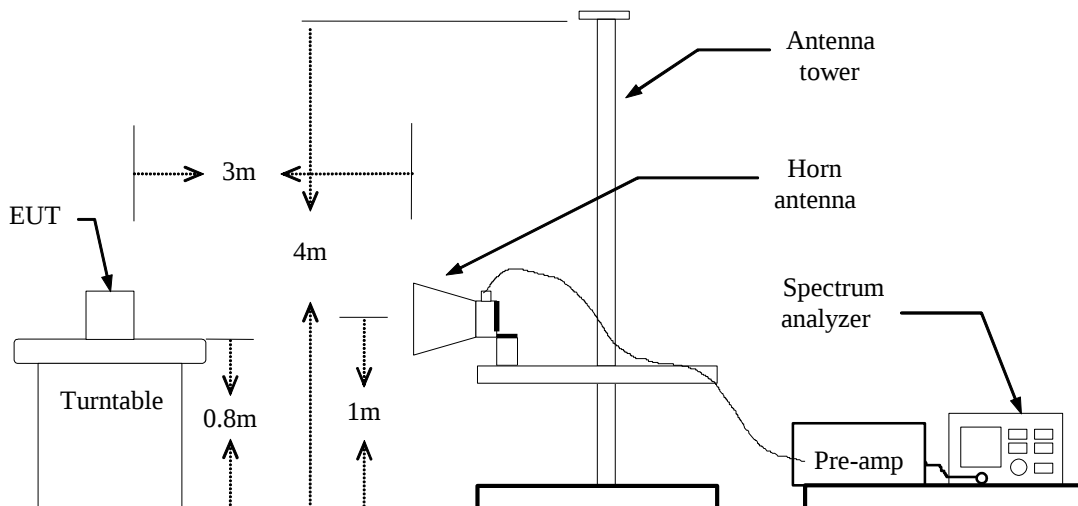
§27.53 (g) and RSS-139 § 6.5 For operations in the 1710–1755MHz and 2110–2155 MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least $43 + 10 \log_{10} (P)$ dB.

Test Configuration

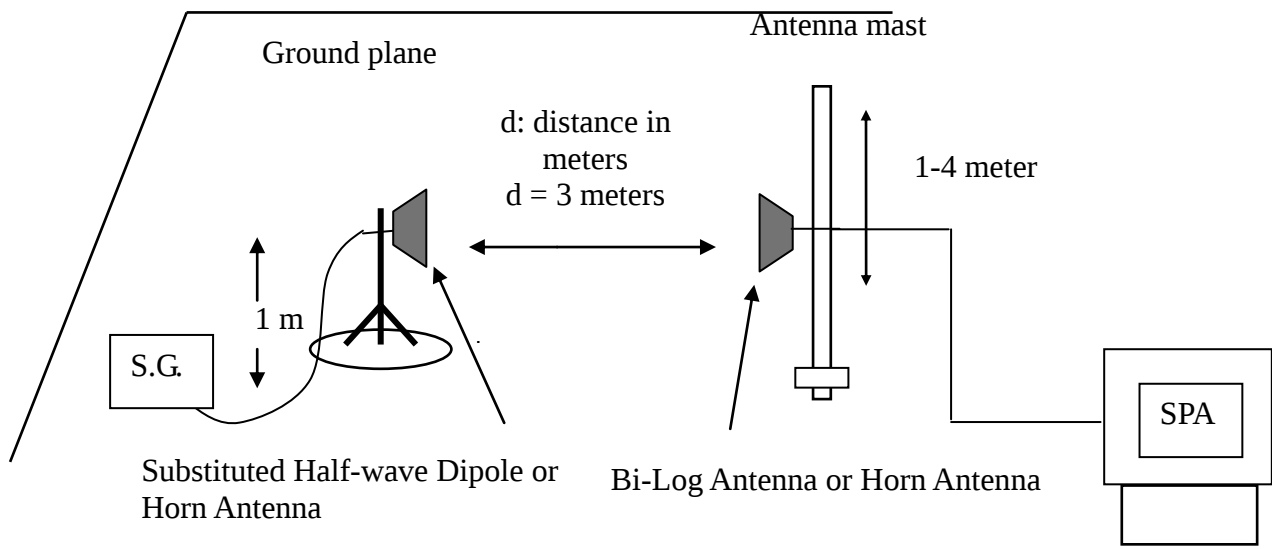
Below 1 GHz



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.

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

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

TEST RESULTS

Refer to the attached tabular data sheets.

Operation Mode: WCDMA Band IV / TX / CH 1312**Test Date:** December 10, 2015**Temperature:** 21°C**Tested by:** Jason Lu**Humidity:** 56 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
44.5500	-39.72	0.76	-8.84	-49.32	-13.00	-36.32	V
136.7000	-56.14	1.38	-0.61	-58.13	-13.00	-45.13	V
230.7900	-66.65	1.8	5.4	-63.05	-13.00	-50.05	V
364.6500	-79.39	2.28	5.75	-75.92	-13.00	-62.92	V
392.7800	-75.9	2.33	5.99	-72.24	-13.00	-59.24	V
780.7800	-77.49	3.3	6.12	-74.67	-13.00	-61.67	V
125.0600	-58.88	1.31	-1.75	-61.94	-13.00	-48.94	H
224.9700	-69.56	1.78	5.36	-65.98	-13.00	-52.98	H
320.0300	-82.28	2.18	5.71	-78.75	-13.00	-65.75	H
399.5700	-77.22	2.39	5.98	-73.63	-13.00	-60.63	H
672.1400	-76.4	3.07	6.34	-73.13	-13.00	-60.13	H
808.9100	-76.22	3.34	6.27	-73.29	-13.00	-60.29	H

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Operation Mode: WCDMA Band IV / TX / CH 1427 **Test Date:** December 10, 2015
Temperature: 21°C **Tested by:** Jason Lu
Humidity: 56 % RH **Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
44.5500	-43.58	0.76	-8.84	-53.18	-13.00	-40.18	V
139.6100	-58.94	1.39	-0.28	-60.61	-13.00	-47.61	V
290.9300	-81.48	2.03	5.43	-78.08	-13.00	-65.08	V
392.7800	-78.93	2.33	5.99	-75.27	-13.00	-62.27	V
557.6800	-79.98	2.84	6.06	-76.76	-13.00	-63.76	V
722.5800	-80.45	3.17	6.48	-77.14	-13.00	-64.14	V
53.2800	-50.52	0.83	-3.94	-55.29	-13.00	-42.29	H
136.7000	-56.37	1.38	-0.61	-58.36	-13.00	-45.36	H
276.3800	-77.65	1.99	5.23	-74.41	-13.00	-61.41	H
403.4500	-75.82	2.41	5.96	-72.27	-13.00	-59.27	H
730.3400	-74.26	3.18	6.39	-71.05	-13.00	-58.05	H
876.8100	-74.22	3.46	6.63	-71.05	-13.00	-58.05	H

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Operation Mode: WCDMA Band IV / TX / CH 1513**Test Date:** December 10, 2015**Temperature:** 21°C**Tested by:** Jason Lu**Humidity:** 56 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
44.5500	-40.53	0.76	-8.84	-50.13	-13.00	-37.13	V
136.7000	-57.42	1.38	-0.61	-59.41	-13.00	-46.41	V
224.9700	-68.07	1.78	5.36	-64.49	-13.00	-51.49	V
269.5900	-76	1.98	5.12	-72.86	-13.00	-59.86	V
381.1400	-76.41	2.31	5.98	-72.74	-13.00	-59.74	V
552.8300	-76.78	2.82	6.14	-73.46	-13.00	-60.46	V
53.2800	-49.26	0.83	-3.94	-54.03	-13.00	-41.03	H
140.5800	-53.65	1.39	-0.19	-55.23	-13.00	-42.23	H
250.1900	-66.25	1.84	5.68	-62.41	-13.00	-49.41	H
381.1400	-71.14	2.31	5.98	-67.47	-13.00	-54.47	H
549.9200	-75.61	2.81	6.18	-72.24	-13.00	-59.24	H
644.0100	-75.11	3.02	6.17	-71.96	-13.00	-58.96	H

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Operation Mode: WCDMA / HSDPA Band IV /
TX / CH 1312

Temperature: 21°C

Humidity: 56 % RH

Test Date: December 10, 2015

Tested by: Jason Lu

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
44.5500	-42.93	0.76	-8.84	-52.53	-13.00	-39.53	V
145.4300	-61.58	1.41	0.26	-62.73	-13.00	-49.73	V
215.2700	-76.73	1.73	5.37	-73.09	-13.00	-60.09	V
392.7800	-77.66	2.33	5.99	-74.00	-13.00	-61.00	V
610.0600	-80.64	2.94	6.29	-77.29	-13.00	-64.29	V
769.1400	-78.52	3.27	6.39	-75.40	-13.00	-62.40	V
53.2800	-49.45	0.83	-3.94	-54.22	-13.00	-41.22	H
136.7000	-54.91	1.38	-0.61	-56.90	-13.00	-43.90	H
259.8900	-69.83	1.91	5.59	-66.15	-13.00	-53.15	H
370.4700	-72.25	2.3	5.82	-68.73	-13.00	-55.73	H
620.7300	-75.22	2.94	6.12	-72.04	-13.00	-59.04	H
729.3700	-69.82	3.18	6.4	-66.60	-13.00	-53.60	H

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Operation Mode: WCDMA / HSDPA Band IV /
TX / CH 1427

Temperature: 21°C

Humidity: 56 % RH

Test Date: December 10, 2015

Tested by: Jason Lu

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
44.5500	-42.84	0.76	-8.84	-52.44	-13.00	-39.44	V
136.7000	-57.67	1.38	-0.61	-59.66	-13.00	-46.66	V
171.6200	-71.84	1.57	2.69	-70.72	-13.00	-57.72	V
224.9700	-77.08	1.78	5.36	-73.50	-13.00	-60.50	V
392.7800	-77.53	2.33	5.99	-73.87	-13.00	-60.87	V
551.8600	-82.29	2.81	6.16	-78.94	-13.00	-65.94	V
53.2800	-48.22	0.83	-3.94	-52.99	-13.00	-39.99	H
136.7000	-55.1	1.38	-0.61	-57.09	-13.00	-44.09	H
226.9100	-63.62	1.79	5.37	-60.04	-13.00	-47.04	H
276.3800	-67.94	1.99	5.23	-64.70	-13.00	-51.70	H
401.5100	-73.28	2.4	5.98	-69.70	-13.00	-56.70	H
746.8300	-74.92	3.2	6.1	-72.02	-13.00	-59.02	H

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Operation Mode: WCDMA / HSDPA Band IV /
TX / CH 1513

Temperature: 21°C

Humidity: 56 % RH

Test Date: December 10, 2015

Tested by: Jason Lu

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
44.5500	-39.96	0.76	-8.84	-49.56	-13.00	-36.56	V
139.6100	-57.6	1.39	-0.28	-59.27	-13.00	-46.27	V
224.9700	-68.74	1.78	5.36	-65.16	-13.00	-52.16	V
235.6400	-70.52	1.8	5.37	-66.95	-13.00	-53.95	V
324.8800	-66.38	2.17	5.7	-62.85	-13.00	-49.85	V
392.7800	-75.1	2.33	5.99	-71.44	-13.00	-58.44	V
53.2800	-49.56	0.83	-3.94	-54.33	-13.00	-41.33	H
158.0400	-56.74	1.47	1.29	-56.92	-13.00	-43.92	H
226.9100	-63.08	1.79	5.37	-59.50	-13.00	-46.50	H
269.5900	-69.05	1.98	5.12	-65.91	-13.00	-52.91	H
398.6000	-70.43	2.38	5.98	-66.83	-13.00	-53.83	H
566.4100	-69.91	2.86	6.06	-66.71	-13.00	-53.71	H

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Operation Mode: WCDMA / HSUPA Band IV / TX / CH 1312
Temperature: 21°C
Humidity: 56 % RH

Test Date: December 10, 2015

Tested by: Jason Lu

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
53.2800	-44.6	0.83	-3.94	-49.37	-13.00	-36.37	V
139.6100	-57.06	1.39	-0.28	-58.73	-13.00	-45.73	V
213.3300	-69.12	1.71	5.4	-65.43	-13.00	-52.43	V
276.3800	-75.35	1.99	5.23	-72.11	-13.00	-59.11	V
386.9600	-75.39	2.32	6	-71.71	-13.00	-58.71	V
490.7500	-74.24	2.67	5.8	-71.11	-13.00	-58.11	V
53.2800	-51.61	0.83	-3.94	-56.38	-13.00	-43.38	H
136.7000	-56.46	1.38	-0.61	-58.45	-13.00	-45.45	H
213.3300	-70.42	1.71	5.4	-66.73	-13.00	-53.73	H
403.4500	-76.67	2.41	5.96	-73.12	-13.00	-60.12	H
597.4500	-77.07	2.9	6.35	-73.62	-13.00	-60.62	H
749.7400	-74.84	3.2	6.1	-71.94	-13.00	-58.94	H

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Operation Mode: WCDMA / HSUPA Band IV / TX / CH 1427
Temperature: 21°C
Humidity: 56 % RH

Test Date: December 10, 2015
Tested by: Jason Lu
Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
44.5500	-42.78	0.76	-8.84	-52.38	-13.00	-39.38	V
136.7000	-58.01	1.38	-0.61	-60.00	-13.00	-47.00	V
235.6400	-78.7	1.8	5.37	-75.13	-13.00	-62.13	V
392.7800	-77.56	2.33	5.99	-73.90	-13.00	-60.90	V
497.5400	-81.48	2.69	5.87	-78.30	-13.00	-65.30	V
637.2200	-80.49	3	6.15	-77.34	-13.00	-64.34	V
53.2800	-49.07	0.83	-3.94	-53.84	-13.00	-40.84	H
136.7000	-54.74	1.38	-0.61	-56.73	-13.00	-43.73	H
203.6300	-64.2	1.65	3.94	-61.91	-13.00	-48.91	H
276.3800	-68.55	1.99	5.23	-65.31	-13.00	-52.31	H
385.0200	-71.03	2.31	5.99	-67.35	-13.00	-54.35	H
418.0000	-72.45	2.46	5.83	-69.08	-13.00	-56.08	H

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Operation Mode: WCDMA / HSUPA Band IV / TX / CH 1513
Temperature: 21°C
Humidity: 56 % RH

Test Date: December 10, 2015
Tested by: Jason Lu
Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
44.5500	-40.37	0.76	-8.84	-49.97	-13.00	-36.97	V
140.5800	-56.8	1.39	-0.19	-58.38	-13.00	-45.38	V
224.9700	-68.6	1.78	5.36	-65.02	-13.00	-52.02	V
249.2200	-74.25	1.84	5.65	-70.44	-13.00	-57.44	V
372.4100	-75.58	2.3	5.85	-72.03	-13.00	-59.03	V
629.4600	-69.45	2.97	6.19	-66.23	-13.00	-53.23	V
44.5500	-47.73	0.76	-8.84	-57.33	-13.00	-44.33	H
235.6400	-72.31	1.8	5.37	-68.74	-13.00	-55.74	H
395.6900	-75.38	2.36	5.99	-71.75	-13.00	-58.75	H
530.5200	-77.38	2.75	6.03	-74.10	-13.00	-61.10	H
729.3700	-72.32	3.18	6.4	-69.10	-13.00	-56.10	H
926.2800	-74.67	3.59	6.48	-71.78	-13.00	-58.78	H

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Above 1GHz**Operation
Mode:**

WCDMA Band IV / TX / CH 1312

Test Date: December 10, 2015**Temperature:** 21°C**Tested by:** Jason Lu**Humidity:** 56 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
3422.000	-51.34	7.64	8.67	-50.31	-13.00	-37.31	V
5116.000	-44.66	9.47	10.65	-43.48	-13.00	-30.48	V
N/A							
3604.000	-45.2	8.11	9	-44.31	-13.00	-31.31	H
3723.000	-44.19	8.21	9.12	-43.28	-13.00	-30.28	H
N/A							

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Operation Mode: WCDMA Band IV / TX / CH 1427 **Test Date:** December 10, 2015
Temperature: 21°C **Tested by:** Jason Lu
Humidity: 56 % RH **Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
5270.000	-44.53	9.62	10.71	-43.44	-13.00	-30.44	V
7615.000	-42.09	12.17	12.82	-41.44	-13.00	-28.44	V
N/A							
4073.000	-42.31	8.43	9.46	-41.28	-13.00	-28.28	H
4675.000	-45.94	9.13	10.08	-44.99	-13.00	-31.99	H
N/A							

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Operation Mode: WCDMA Band IV / TX / CH 1513 **Test Date:** December 10, 2015
Temperature: 21°C **Tested by:** Jason Lu
Humidity: 56 % RH **Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
2155.000	-41.62	5.87	5.62	-41.87	-13.00	-28.87	V
4353.000	-41.91	8.62	9.68	-40.85	-13.00	-27.85	V
N/A							
4374.000	-47.94	8.63	9.7	-46.87	-13.00	-33.87	H
4710.000	-47.08	9.15	10.14	-46.09	-13.00	-33.09	H
N/A							

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Operation Mode: WCDMA / HSDPA Band IV / TX / CH 1312
Temperature: 21°C
Humidity: 56 % RH

Test Date: December 10, 2015

Tested by: Jason Lu

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
5011.000	-42.56	9.41	10.6	-41.37	-13.00	-28.37	V
5886.000	-42.69	10.4	10.88	-42.21	-13.00	-29.21	V
N/A							
3583.000	-51.55	8.07	8.98	-50.64	-13.00	-37.64	H
5816.000	-47.83	10.42	10.86	-47.39	-13.00	-34.39	H
N/A							

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Operation Mode: WCDMA / HSDPA Band IV / TX / CH 1427
Temperature: 21°C
Humidity: 56 % RH

Test Date: December 10, 2015

Tested by: Jason Lu

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
2134.000	-49.71	5.84	5.59	-49.96	-13.00	-36.96	V
3471.000	-49.71	7.78	8.81	-48.68	-13.00	-35.68	V
N/A							
6250.000	-45.35	10.98	11.1	-45.23	-13.00	-32.23	H
7223.000	-42.14	11.89	12.26	-41.77	-13.00	-28.77	H
N/A							

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Operation Mode: WCDMA / HSDPA Band IV / TX / CH 1513
Temperature: 21°C
Humidity: 56 % RH

Test Date: December 10, 2015

Tested by: Jason Lu

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
2155.000	-41.05	5.87	5.62	-41.30	-13.00	-28.30	V
3506.000	-51.98	7.88	8.91	-50.95	-13.00	-37.95	V
N/A							
3247.000	-40.19	7.35	8.14	-39.40	-13.00	-26.40	H
6292.000	-43.15	10.79	11.13	-42.81	-13.00	-29.81	H
N/A							

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Operation Mode: WCDMA / HSUPA Band IV / TX / CH 1312
Temperature: 21°C
Humidity: 56 % RH

Test Date: December 10, 2015

Tested by: Jason Lu

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
3422.000	-51.42	7.64	8.67	-50.39	-13.00	-37.39	V
5844.000	-50.39	10.41	10.87	-49.93	-13.00	-36.93	V
N/A							
3422.000	-51.61	7.64	8.67	-50.58	-13.00	-37.58	H
5172.000	-47.42	9.53	10.67	-46.28	-13.00	-33.28	H
N/A							

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Operation Mode: WCDMA / HSUPA Band IV / TX / CH 1427
Temperature: 21°C
Humidity: 56 % RH

Test Date: December 10, 2015

Tested by: Jason Lu

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
3471.000	-50.39	7.78	8.81	-49.36	-13.00	-36.36	V
5592.000	-44.35	10.17	10.82	-43.70	-13.00	-30.70	V
N/A							
2694.000	-46.56	6.72	6.6	-46.68	-13.00	-33.68	H
5802.000	-50.97	10.42	10.86	-50.53	-13.00	-37.53	H
N/A							

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with "N/A" remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Operation Mode: WCDMA / HSUPA Band IV / TX / CH 1513
Temperature: 21°C
Humidity: 56 % RH

Test Date: December 10, 2015

Tested by: Jason Lu

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
2155.000	-41.74	5.87	5.62	-41.99	-13.00	-28.99	V
4598.000	-43.36	9.13	9.96	-42.53	-13.00	-29.53	V
N/A							
4458.000	-42.2	8.8	9.77	-41.23	-13.00	-28.23	H
7461.000	-44.16	12.2	12.64	-43.72	-13.00	-30.72	H
N/A							

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.