

FCC PART 27
FCC PART 22H, PART 24E
TEST REPORT

For

Shenzhen Winext Technology Co. Ltd

No.602,Building E,Shenzhen Creative&Cultural Park,Futian District,Futian Shenzhen, China

FCC ID: 2AFI2GW5000

Report Type: Original Report	Product Type: LoRa Gateway
Report Number: RSZ170324008-00B	
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Oscar Ye	
Reviewed By:	Engineer
Prepared By:	Bay Area Compliance Laboratories Corp. (Kunshan) No.248 Chenghu Road, Kunshan, Jiangsu province, China Tel: +86-0512-86175000 Fax: +86-0512-88934268 www.baclcorp.com.cn

Note: This test report is prepared for the customer shown above and for the equipment described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp.

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Shenzhen Winext Technology Co. Ltd's* product, model number: *GW5000 (FCC ID: 2AFI2GW5000)* or the "EUT" in this report was a *LoRa Gateway*, which was measured approximately: 110 mm (L) × 202 mm (W) × 204 mm (H), rated with input voltage: DC 48.0V POE Supply.

Notes: This series products model: GW5000 and GW5000A/GW5000B/GW5000C/GW5000E/GW8000 are identical; they have the identical schematics, only named differently. Model GW5000 was selected for fully testing, the detailed information can be referred to the declaration which was stated and guaranteed by the applicant.

**All measurement and test data in this report was gathered from production sample serial number: 1700489 (Assigned by BACL, Kunshan). The EUT supplied by the applicant was received on 2017-03-24.*

Objective

This test report is prepared on behalf of *Shenzhen Winext Technology Co. Ltd* in accordance with Part 2-Subpart J, Part 22 Subpart H, Part 24 Subpart E and Part 27 of the Federal Communication Commissions rules.

The objective is to determine the compliance of the EUT with FCC rules for output power, modulation characteristic, occupied bandwidth, and spurious emission at antenna terminal, spurious radiated emission, frequency stability and band edge.

Related Submittal(s)/Grant(s)

FCC Part 15.247 DTS and Part 15.249 DXX submissions with FCC ID: 2AFI2GW5000.

Test Methodology

All tests and measurements indicated in this document were performed in accordance with the Code of Federal Regulations Title 47 Part 2-Subpart J as well as the following parts:

Part 22 Subpart H - Public Mobile Services
Part 24 Subpart E - Personal Communication Services
Part 27 – Miscellaneous wireless communications services

Applicable Standards: TIA/EIA 603-D.

All emissions measurement was performed at Bay Area Compliance Laboratories Corp. (Kunshan). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Measurement Uncertainty

Item		Uncertainty
Radiated emission	30MHz~1GHz	±5.91dB
	Above 1G	±4.92dB
Temperature		±1.0℃
Humidity		±6%

Test Facility

The test site used by Bay Area Compliance Laboratories Corp. (Kunshan) to collect test data is located on the No.248 Chenghu Road, Kunshan, Jiangsu province, China

Test site at Bay Area Compliance Laboratories Corp. (Kunshan) has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on November 06, 2014. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2014.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 815570. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The EUT was configured for testing according to TIA/EIA-603-D.

The final qualification test was performed with the EUT operating at normal mode.

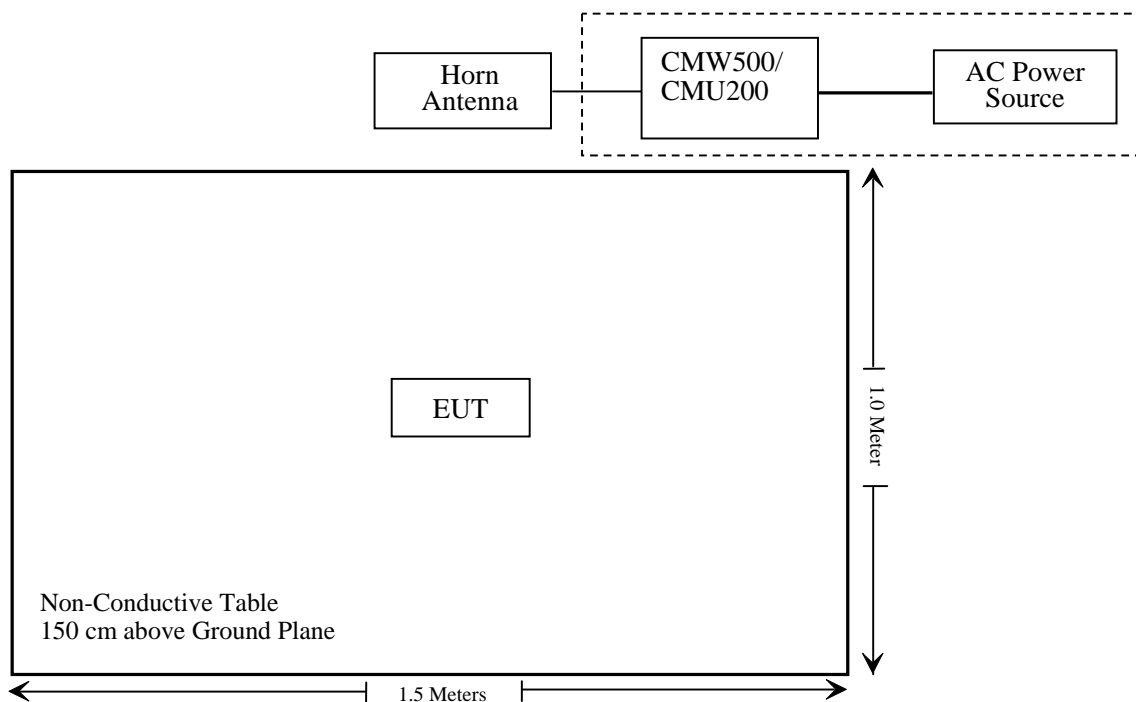
Equipment Modifications

No modification was made to the EUT.

Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	1201.002K50-116218-UY
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	110605

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§1.1307 (b) (1) & §2.1091	Maximum Permissible exposure (MPE)	Compliance
§2.1046; § 22.913 (a); § 24.232 (c); §27.50 (c)(d)	RF Output Power	Compliance*
§ 2.1047	Modulation Characteristics	Compliance*
§ 2.1049; § 22.905; § 22.917; § 24.238; §27.53	Occupied Bandwidth	Compliance*
§ 2.1051; § 22.917 (a); § 24.238 (a); §27.53 (h)(m)	Spurious Emissions at Antenna Terminal	Compliance*
§ 2.1053; § 22.917 (a); § 24.238 (a); §27.53 (h)(m)	Field Strength of Spurious Radiation	Compliance
§ 22.917 (a); § 24.238 (a); §27.53 (h)(m)	Band Edge	Compliance*
§ 2.1055; § 22.355; § 24.235; §27.54;	Frequency stability	Compliance*

Compliance*: The EUT utilized one LTE module which had been certified on 2016-07-18 and CIIPC on 2017-03-15, the FCC ID is XMR201605EC25A. So these test items please referred to the report No.: RTWK160705001-00 (original report) and RKS160908001-00A(CIIPC report), which were tested by Bay Area Compliance Laboratories Corp (TaiWan).

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated Emission Test					
Sonoma Instrument	Amplifier	330	171377	2016-12-12	2017-12-12
Rohde & Schwarz	EMI Test Receiver	ESCI	100195	2016-11-25	2017-11-25
Sunol Sciences	Broadband Antenna	JB3	A090314-2	2016-01-09	2019-01-08
Sunol Sciences	Broadband Antenna	JB3	A090314-1	2016-01-09	2019-01-08
Narda	Pre-amplifier	AFS42-00101800	2001270	2016-09-08	2017-09-08
EMCO	Horn Antenna	3116	9510-2384	2015-11-07	2018-11-06
Rohde & Schwarz	Signal Analyzer	FSIQ26	100048	2016-11-25	2017-11-25
ETS	Horn Antenna	3115	6229	2016-12-12	2019-12-12
ETS	Horn Antenna	3115	9311-4159	2016-01-11	2019-01-10
R&S	Auto test Software	EMC32	V 09.10.0	NCR	NCR
haojintech	Coaxial Cable	Cable-1	001	2016-12-12	2017-12-12
haojintech	Coaxial Cable	Cable-2	002	2016-12-12	2017-12-12
haojintech	Coaxial Cable	Cable-3	003	2016-12-12	2017-12-12
MICRO-COAX	Coaxial Cable	Cable-4	004	2016-12-12	2017-12-12
MICRO-COAX	Coaxial Cable	Cable-5	005	2016-12-12	2017-12-12
MICRO-COAX	Coaxial Cable	Cable-7	007	2016-12-12	2017-12-12
HP	Signal Generator	8341B	2624A00116	2016-08-29	2017-08-29

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Kunshan) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

FCC §15.247 (i) & §1.1307 (b) (1) & §2.1091- MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Applicable Standard

According to subpart 15.247 (i) and subpart 1.1307 (b)(1), 2.1091 systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to RF energy level in excess of the communication guidelines.

Limits for General Population/Uncontrolled Exposure

Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Averaging Time (Minutes)
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f ²)	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30

f = frequency in MHz

* = Plane-wave equivalent power density

Result

Calculated Formulary:

Predication of MPE limit at a given distance

$$S = \frac{PG}{4\pi R^2}$$

S = power density (in appropriate units, e.g. mW/cm²)

P = power input to the antenna (in appropriate units, e.g., mW).

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain.

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

For simultaneously transmit system, the calculated power density should comply with:

$$\sum_i \frac{S_i}{S_{Limit,i}} \leq 1$$

Mode	Antenna Gain		Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm ²)	MPE Limit (mW/cm ²)
	(dBi)	(numeric)	(dBm)	(mW)			
LTE (BAND II)	2	1.58	24	251.19	20	0.08	1
LTE (BAND IV)	2	1.58	24	251.19	20	0.08	1
LTE (BAND XII)	2	1.58	24	251.19	20	0.08	0.466
WCDMA (BAND II)	2	1.58	23.5	223.87	20	0.07	1
WCDMA (BAND IV)	2	1.58	23.5	223.87	20	0.07	1
WCDMA (BAND V)	2	1.58	23.5	223.87	20	0.07	0.549
WIFI	1	1.26	7.5	5.62	20	0.0014	1

$$\sum_i \frac{S_i}{S_{Limit,i}} = 0.0014/1 + 0.08/0.466 = 0.17 < 1$$

Note: To maintain compliance with the FCC's RF exposure guidelines, place the equipment at least 20cm from nearby persons.

Result: Compliance

FCC § 2.1046, § 22.913 (a) & § 24.232 (c); §27.50(c) (d) - RF OUTPUT POWER

Applicable Standard

According to FCC §2.1046 and §22.913 (a), the ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

According to FCC §2.1046 and §24.232 (C), mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications.

According to §27.50(d), the maximum EIRP must not exceed 1Watts (30dBm) for 1710-1755MHz. The peak-to-average power ratio (PAPR) of the transmitter output power must not exceed 13 dB.

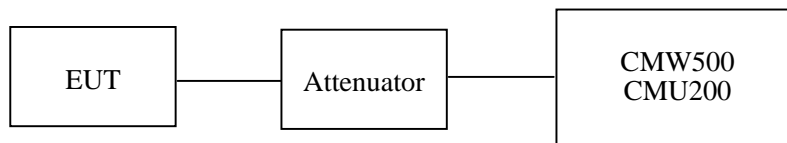
According to §27.50(c), Portable stations (hand-held devices) in the 600 MHz uplink band and the 698-746 MHz band, and fixed and mobile stations in the 600 MHz uplink band are limited to 3 watts ERP.

According to §27.50(d), the maximum EIRP must not exceed 1Watts (30dBm) for 1710-1755MHz.

Test Procedure

Conducted method:

The RF output of the transmitter was connected to the CMW500/CMU200 through sufficient attenuation.



Radiated method:

TIA 603-D section 2.2.17

Test Data

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	50 %
ATM Pressure:	101.0 kPa

The testing was performed by Echo Wu on 2017-07-01.

The Conducted Power please refer to FCC ID: XMR201605EC25A

Radiated power:

Cellular Band (Part 22H)

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)	Substituted Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)			
WCDMA Mode, Middle channel										
836.6	86.65	120	2.2	H	16.4	0.26	4.75	20.89	38.45	17.56
836.6	91.37	73	2.0	V	17.1	0.26	4.75	21.59	38.45	16.86

PCS Band (Part 24E)

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)	Substituted Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)			
WCDMA Mode, Middle channel										
1880.00	74.39	289	2.5	H	12.9	0.45	8.84	21.29	33	11.71
1880.00	77.42	358	2.5	V	13.7	0.45	8.84	22.09	33	10.91

AWS Band (Part 27)

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)	Substituted Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)			
WCDMA Mode, Middle channel										
1732.60	78.27	289	2.5	H	14.7	0.40	8.52	22.82	30	7.18
1732.60	80.54	358	2.5	V	15.0	0.40	8.52	23.12	30	6.88

LTE EIRP:

Band 2:

Frequency	Receiver	Turntable	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)
(MHz)	Reading (dBμV)	Angle Degree	Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)		
QPSK									
Middle Channel 1.4M									
1880.00	73.19	271	1.8	H	11.7	0.45	8.84	20.09	33
1880.00	80.22	261	1.3	V	16.5	0.45	8.84	24.89	33
Middle Channel 3M									
1880.00	73.79	115	1.3	H	12.3	0.45	8.84	20.69	33
1880.00	79.12	310	2.1	V	15.4	0.45	8.84	23.79	33
Middle Channel 5M									
1880.00	73.79	170	1.3	H	12.3	0.45	8.84	20.69	33
1880.00	78.32	253	1.8	V	14.6	0.45	8.84	22.99	33
Middle Channel 10M									
1880.00	73.09	5	1.8	H	11.6	0.45	8.84	19.99	33
1880.00	78.62	55	2.3	V	14.9	0.45	8.84	23.29	33
Middle Channel 15M									
1880.00	72.49	313	1.1	H	11.0	0.45	8.84	19.39	33
1880.00	77.82	232	2.2	V	14.1	0.45	8.84	22.49	33
Middle Channel 20M									
1880.00	72.79	26	2.4	H	11.3	0.45	8.84	19.69	33
1880.00	76.82	228	1.2	V	13.1	0.45	8.84	21.49	33
16QAM									
Middle Channel 1.4M									
1880.00	73.29	321	2.0	H	11.8	0.45	8.84	20.19	33
1880.00	80.12	342	2.2	V	16.4	0.45	8.84	24.79	33
Middle Channel 3M									
1880.00	73.59	105	2.3	H	12.1	0.45	8.84	20.49	33
1880.00	79.12	68	1.6	V	15.4	0.45	8.84	23.79	33
Middle Channel 5M									
1880.00	73.09	198	1.9	H	11.6	0.45	8.84	19.99	33
1880.00	78.42	35	1.8	V	14.7	0.45	8.84	23.09	33
Middle Channel 10M									
1880.00	73.19	342	1.5	H	11.7	0.45	8.84	20.09	33
1880.00	78.32	44	1.0	V	14.6	0.45	8.84	22.99	33
Middle Channel 15M									
1880.00	72.39	343	2.3	H	10.9	0.45	8.84	19.29	33
1880.00	78.02	184	1.1	V	14.3	0.45	8.84	22.69	33
Middle Channel 20M									
1880.00	72.29	63	2.1	H	10.8	0.45	8.84	19.19	33
1880.00	77.92	70	2.1	V	14.2	0.45	8.84	22.59	33

Band 4:

Frequency	Receiver	Turntable	Rx Antenna		Substituted			Absolute Level	Limit
(MHz)	Reading (dBμV)	Angle Degree	Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)	(dBm)	(dBm)
QPSK									
Middle Channel 1.4M									
1732.50	78.37	13	2.5	H	14.8	0.40	8.52	22.92	30
1732.50	82.54	186	1.5	V	17.0	0.40	8.52	25.12	30
Middle Channel 3M									
1732.50	77.67	45	1.6	H	14.1	0.40	8.52	22.22	30
1732.50	82.04	36	1.0	V	16.5	0.40	8.52	24.62	30
Middle Channel 5M									
1732.50	77.47	117	2.0	H	13.9	0.40	8.52	22.02	30
1732.50	81.34	160	1.9	V	15.8	0.40	8.52	23.92	30
Middle Channel 10M									
1732.50	77.67	278	1.4	H	14.1	0.40	8.52	22.22	30
1732.50	81.14	187	1.3	V	15.6	0.40	8.52	23.72	30
Middle Channel 15M									
1732.50	77.57	336	1.5	H	14.0	0.40	8.52	22.12	30
1732.50	80.94	204	1.0	V	15.4	0.40	8.52	23.52	30
Middle Channel 20M									
1732.50	76.87	235	1.4	H	13.3	0.40	8.52	21.42	30
1732.50	79.84	1	1.8	V	14.3	0.40	8.52	22.42	30
16QAM									
Middle Channel 1.4M									
1732.50	78.47	97	1.3	H	14.9	0.40	8.52	23.02	30
1732.50	82.74	190	1.3	V	17.2	0.40	8.52	25.32	30
Middle Channel 3M									
1732.50	78.27	21	1.8	H	14.7	0.40	8.52	22.82	30
1732.50	83.14	152	1.2	V	17.6	0.40	8.52	25.72	30
Middle Channel 5M									
1732.50	78.17	199	2.3	H	14.6	0.40	8.52	22.72	30
1732.50	81.34	312	1.7	V	15.8	0.40	8.52	23.92	30
Middle Channel 10M									
1732.50	77.27	257	1.7	H	13.7	0.40	8.52	21.82	30
1732.50	81.24	359	2.0	V	15.7	0.40	8.52	23.82	30
Middle Channel 15M									
1732.50	76.77	337	2.2	H	13.2	0.40	8.52	21.32	30
1732.50	79.44	179	1.6	V	13.9	0.40	8.52	22.02	30
Middle Channel 20M									
1732.50	76.17	238	1.1	H	12.6	0.40	8.52	20.72	30
1732.50	79.24	215	2.3	V	13.7	0.40	8.52	21.82	30

Band 12:

Frequency	Receiver	Turntable	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)
(MHz)	Reading (dBμV)	Angle Degree	Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)		
QPSK									
Middle Channel 1.4M									
707.5	97.91	125	1.1	H	19.6	0.26	4.25	23.59	34.77
707.5	96.67	222	1.5	V	21.4	0.26	4.25	25.39	34.77
Middle Channel 3M									
707.5	97.41	27	1.3	H	19.1	0.26	4.25	23.09	34.77
707.5	96.07	82	1.4	V	20.8	0.26	4.25	24.79	34.77
Middle Channel 5M									
707.5	96.62	285	1.0	H	18.3	0.26	4.25	22.29	34.77
707.5	95.48	272	1.4	V	20.2	0.26	4.25	24.19	34.77
Middle Channel 10M									
707.5	95.52	100	2.3	H	17.2	0.26	4.25	21.19	34.77
707.5	94.78	71	1.6	V	19.5	0.26	4.25	23.49	34.77
16QAM									
Middle Channel 1.4M									
707.5	97.61	342	1.5	H	19.3	0.26	4.25	23.29	34.77
707.5	96.47	221	1.2	V	21.2	0.26	4.25	25.19	34.77
Middle Channel 3M									
707.5	97.01	117	1.4	H	18.7	0.26	4.25	22.69	34.77
707.5	96.07	178	1.5	V	20.8	0.26	4.25	24.79	34.77
Middle Channel 5M									
707.5	96.52	195	1.8	H	18.2	0.26	4.25	22.19	34.77
707.5	94.78	49	2.2	V	19.5	0.26	4.25	23.49	34.77
Middle Channel 10M									
707.5	95.92	165	1.1	H	17.6	0.26	4.25	21.59	34.77
707.5	93.98	162	2.0	V	18.7	0.26	4.25	22.69	34.77

Note:

- 1) Absolute Level = Substituted Level - Cable loss + Antenna Gain
- 2) Margin = Limit- Absolute Level

FCC § 2.1053; § 22.917 (a); § 24.238 (a); § 27.53 (h)(m) SPURIOUS RADIATED EMISSIONS

Applicable Standard

FCC § 2.1053, § 22.917(a) and § 24.238(a) and § 27.53(h)(m)

For mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log (P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than $43 + 10 \log (P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log (P)$ dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

Test Procedure

The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load which was also placed on the turntable.

The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the receiving antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.

The frequency range up to tenth harmonic of the fundamental frequency was investigated.

Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

Spurious emissions in dB = $10 \lg (\text{TX pwr in Watts}/0.001)$ – the absolute level

Spurious attenuation limit in dB = $43 + 10 \log_{10} (\text{power out in Watts})$

Spurious attenuation limit in dB = $55 + 10 \log_{10} (\text{power out in Watts})$

Test Data

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	50 %
ATM Pressure:	101.0 kPa

The testing was performed by Echo Wu on 2017-05-16.

EUT operation mode: transmitting

Pre-scan with Low, Middle and High channel, the worst case as below:

LTE Band:

Test mode: Transmitting (Pre-scan with all the bandwidth, and worse case as below)

Frequency	Receiver	Turntable	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
(MHz)	Reading (dBμV)	Angle Degree	Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)			
Band 2 (Investigated 30MHz -20GHz)										
Middle channel										
253.84	54.47	240	1.2	H	-55.3	0.2	3.85	-51.65	-13	38.65
253.84	53.48	156	1.6	V	-53.7	0.2	3.85	-50.05	-13	37.05
3760.00	40.72	251	1.7	H	-55.3	0.59	9.72	-46.17	-13	33.17
3760.00	42.81	356	1.3	V	-54.3	0.59	9.72	-45.17	-13	32.17
Band 4 (Investigated 30MHz -20GHz)										
Middle channel										
253.84	53.97	132	1.5	H	-55.8	0.2	3.85	-52.15	-13	39.15
253.84	52.48	305	1.1	V	-54.7	0.2	3.85	-51.05	-13	38.05
3465.00	43.13	334	1.2	H	-53.9	0.54	9.90	-44.54	-13	31.54
3465.00	44.83	273	1.2	V	-53.5	0.54	9.90	-44.14	-13	31.14
Band 12 (Investigated 30MHz -10GHz)										
Middle channel										
253.84	54.17	154	2.2	H	-55.6	0.2	3.85	-51.95	-13	38.95
253.84	51.88	159	1.5	V	-55.3	0.2	3.85	-51.65	-13	38.65
1415.00	39.37	242	2.0	H	-64.7	0.34	7.92	-57.12	-13	44.12
1415.00	40.30	315	2.5	V	-65.5	0.34	7.92	-57.92	-13	44.92

WCDMA BAND:

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)	Substituted Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)			
WCDMA Mode, Middle channel Cellular Band (Investigated 30MHz -10GHz)										
445.57	46.35	58	2.0	H	-56.3	0.23	4.65	-51.88	-13	38.88
445.57	50.89	158	2.0	V	-54.9	0.23	4.65	-50.48	-13	37.48
1673.2	57.62	161	2.3	H	-44.2	0.40	8.52	-36.08	-13	23.08
1673.2	59.79	50	2.2	V	-44.0	0.40	8.52	-35.88	-13	22.88
WCDMA Mode, Middle channel PCS Band (Investigated 30MHz -20GHz)										
445.57	44.73	102	2.4	H	-57.9	0.23	4.65	-53.48	-13	40.48
445.57	50.37	11	1.7	V	-55.4	0.23	4.65	-50.98	-13	37.98
3760	49.62	87	1.4	H	-46.4	0.59	9.72	-37.27	-13	24.27
3760	52.71	99	2.5	V	-44.4	0.59	9.72	-35.27	-13	22.27
WCDMA Mode, Middle channel AWS Band (Investigated 30MHz -20GHz)										
445.57	43.05	115	1.5	H	-59.6	0.23	4.65	-55.18	-13	42.18
445.57	47.20	225	1.5	V	-58.6	0.23	4.65	-54.18	-13	41.18
3465.2	48.15	89	1.7	H	-48.8	0.54	9.90	-39.44	-13	26.44
3465.2	50.38	174	1.7	V	-47.9	0.54	9.90	-38.54	-13	25.54

Note:

- 1) Absolute Level = Substituted Level - Cable loss + Antenna Gain
- 2) Margin = Limit- Absolute Level

******* END OF REPORT *******