RF TEST REPORT

Applicant	ZTE Corporation
FCC ID	SRQ-ZTEBLADEA3
Product	LTE/WCDMA/GSM(GPRS) Multi-Mode Digital Mobile Phone
Model	ZTE BLADE A3
Report No.	R1807A0334-R3
Issue Date	August 17, 2018

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC CFR47 Part 2 (2017)/ FCC CFR47 Part 27C (2017)**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Jiangpeng Lan

Performed by: Jiangpeng Lan

Kai Xu

Approved by: Kai Xu

TA Technology (Shanghai) Co., Ltd.

No.145, Jintang Rd, Tangzhen Industry Park, Pudong Shanghai, China

TEL: +86-021-50791141/2/3

FAX: +86-021-50791141/2/3-8000

Table of Contents

Summary of Measurement Results

Number	Test Case	Clause in FCC rules	Verdict
1	RF power output	2.1046	PASS
2	Effective Isotropic Radiated power	27.50(d)(4) /27.50(h)(2)	PASS
3	Occupied Bandwidth	2.1049	PASS
4	Band Edge Compliance	27.53(h) /27.53(m)	PASS
5	Peak-to-Average Power Ratio	27.50(d)/KDB971168 D01(5.7)	PASS
6	Frequency Stability	2.1055 / 27.54	PASS
7	Spurious Emissions at Antenna Terminals	2.1051 27.53(h) /27.53(m)	PASS
8	Radiates Spurious Emission	2.1053 /27.53(h) /27.53(m)	PASS
Date of Testing: June 21, 2018 ~ August 3, 2018			
Note: PASS: The EUT complies with the essential requirements in the standard. FAIL: The EUT does not comply with the essential requirements in the standard.			

1 Test Laboratory

1.1 Notes of the Test Report

This report shall not be reproduced in full or partial, without the written approval of **TA technology (shanghai) co., Ltd.** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein .Measurement Uncertainties were not taken into account and are published for informational purposes only. This report is written to support regulatory compliance of the applicable standards stated above.

1.2 Test facility

CNAS (accreditation number: L2264)

TA Technology (Shanghai) Co., Ltd. has obtained the accreditation of China National Accreditation Service for Conformity Assessment (CNAS).

FCC (Designation number: CN1179, Test Firm Registration Number: 446626)

TA Technology (Shanghai) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

IC (recognition number is 8510A)

TA Technology (Shanghai) Co., Ltd. has been listed by industry Canada to perform electromagnetic emission measurement.

VCCI (recognition number is C-4595, T-2154, R-4113, G-10766)

TA Technology (Shanghai) Co., Ltd. has been listed by industry Japan to perform electromagnetic emission measurement.

A2LA (Certificate Number: 3857.01)

TA Technology (Shanghai) Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform electromagnetic emission measurement.

1.3 Testing Location

Company:	TA Technology (Shanghai) Co., Ltd.
Address:	No.145, Jintang Rd, Tangzhen Industry Park, Pudong Shanghai, China
City:	Shanghai
Post code:	201201
Country:	P. R. China
Contact:	Xu Kai
Telephone:	+86-021-50791141/2/3
Fax:	+86-021-50791141/2/3-8000
Website:	http://www.ta-shanghai.com
E-mail:	xukai@ta-shanghai.com

2 General Description of Equipment under Test

Client Information

Applicant	ZTE Corporation
Applicant address	ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China
Manufacturer	ZTE Corporation
Manufacturer address	ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China

General information

EUT Description			
Model	ZTE BLADE A3		
IMEI	869930030002115		
Hardware Version	uzfA		
Software Version	CLA_GT_A3_V1.0		
Power Supply	Battery/AC adapter		
Antenna Type	Internal Antenna		
Test Mode(s)	WCDMA Band IV; LTE Band 7		
Test Modulation	(WCDMA)QPSK; (LTE)QPSK 16QAM;		
HSDPA UE Category	24		
HSUPA UE Category	6		
LTE Category	4		
Maximum E.I.R.P./ E.R.P.	WCDMA Band IV:	19.99dBm	
	LTE Band 7:	24.08dBm	
Rated Power Supply Voltage:	3.8V		
Extreme Voltage	Minimum: 3.5V Maximum: 4.2V		
Extreme Temperature	Lowest: -10°C Highest: +55°C		
Operating Frequency Range(s)	Mode	Tx (MHz)	Rx (MHz)
	WCDMA Band IV	1710 ~ 1755	2110 ~ 2155
	LTE Band 7	2500 ~ 2570	2620 ~ 2690
EUT Accessory			
Adapter	Manufacturer: Shenzhen Dokocom Energy Technology Co., Ltd. Model: STC-A508A-Z		
Battery	Manufacturer: Jiade Energy Technology (Zhuhai) Co., Ltd. Model: Li3824T43P4h695945		
Earphone	Manufacturer: Shenzhen FDC Electronics Co. ,Ltd. Model: DEM-66		
USB Extend Cable	70cm Cable, Shielded		
Note：1. The information of the EUT is declared by the manufacturer.			

3 Applied Standards

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

Test standards

FCC CFR47 Part 2 (2017)

FCC CFR47 Part 27C (2017)

ANSI/TIA-603-E (2016)

KDB 971168 D01 Power Meas License Digital Systems v03r01

4 Test Configuration

Radiated measurements are performed by rotating the EUT in three different orthogonal test planes. EUT stand-up position (Z axis), lie-down position (X, Y axis). Receiver antenna polarization (horizontal and vertical), the worst emission was found in position (X axis, horizontal polarization) and the worst case was recorded.

All mode and data rates and positions and RB size and modulations were investigated.
Subsequently, only the worst case emissions are reported.
The following testing in WCDMA/LTE is set based on the maximum RF Output Power.
The following testing in different Bandwidth is set to detailin the following table:

Test modes are chosen to be reported as the worst case configuration below for WCDMA Band IV:

Test items	**Modes/Modulation**
	WCDMA Band IV
RF power output	RMC HSDPA/HSUPA DC-HSDPA
Effective Isotropic Radiated power	RMC
Occupied Bandwidth	RMC
Band Edge Compliance	RMC
Peak-to-Average Power Ratio	RMC
Frequency Stability	RMC
Spurious Emissions at Antenna Terminals	RMC
Radiates Spurious Emission	RMC

Test modes are chosen to be reported as the worst case configuration below for LTE Band 7:

Test items	Modes	Bandwidth (MHz)						Modulation		RB			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	1	50%	100%	L	M	H
RF power output	LTE 7	-	-	O	O	O	O	O	O	O	O	O	O	O	O
Effective Isotropic Radiated power	LTE 7	-	-	O	O	O	O	O	O	O	O	O	O	O	O
Occupied Bandwidth	LTE 7	-	-	O	O	O	O	O	O	-	-	O	-	O	-
Band Edge Compliance	LTE 7	-	-	O	O	O	O	O	O	O	-	O	O	-	O
Peak-to-Average Power Ratio	LTE 7	-	-	O	O	O	O	O	O	-	-	O	O	O	O
Frequency Stability	LTE 7	-	-	O	O	O	O	O	O	O	O	O	O	O	O
Spurious Emissions at Antenna Terminals	LTE 7	-	-	O	O	O	O	O	-	O	-	-	O	O	O
Radiates Spurious Emission	LTE 7	-	-	O	-	O	O	O	-	O	-	-	O	O	O
Note	1. The mark “O” means that this configuration is chosen for testing. 2. The mark “-” means that this configuration is not testing.														

5 Test Case Results

5.1 RF Power Output

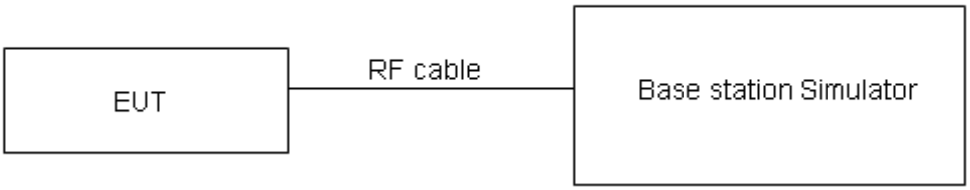
Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Methods of Measurement

During the process of the testing, The EUT is controlled by the Base Station Simulator to ensure max power transmission and proper modulation.

Test Setup



The loss between RF output port of the EUT and the input port of the tester has been taken into consideration.

Limits

No specific RF power output requirements in part 2.1046.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 2, U=0.4 dB.

Test Results

WCDMA Band IV		AV Conducted Power(dBm)		
		Channel 1312	Channel 1413	Channel 1513
		1712.4 (MHz)	1732.6 (MHz)	1752.6(MHz)
RMC	12.2k	22.09	22.55	21.62
HSDPA	Sub - Test 1	22.02	22.50	21.54
	Sub - Test 2	21.05	21.47	20.56
	Sub - Test 3	21.04	21.49	20.53
	Sub - Test 4	20.51	20.99	20.05
HSUPA	Sub - Test 1	20.52	21.00	20.03
	Sub - Test 2	21.01	21.46	20.51
	Sub - Test 3	20.00	20.44	19.50
	Sub - Test 4	20.47	20.92	19.99
	Sub - Test 5	19.93	20.41	19.47
DC-HSDPA	Sub - Test 1	20.94	21.39	20.45
	Sub - Test 2	20.93	21.41	20.46
	Sub - Test 3	20.92	21.40	20.45
	Sub - Test 4	20.50	20.89	19.96

LTE Band 7				Conducted Power(dBm)		
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				20775/2502.5	21100/2535	21425/2567.5
5MHz	QPSK	1	0	23.64	23.59	23.63
		1	13	23.53	23.28	23.72
		1	24	23.46	23.74	23.64
		12	0	22.54	22.47	22.55
		12	6	22.56	22.35	22.49
		12	13	22.50	22.50	22.37
		25	0	22.42	22.50	22.65
	16QAM	1	0	22.87	23.04	23.10
		1	13	22.85	22.70	22.94
		1	24	22.38	22.55	22.46
		12	0	21.51	21.44	21.50
		12	6	21.52	21.39	21.48
		12	13	21.42	21.44	21.37
		25	0	21.56	21.57	21.65
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				20800/2505	21100/2535	21400/2565
10MHz	QPSK	1	0	23.66	23.60	23.66
		1	25	23.56	23.33	23.76
		1	49	23.48	23.78	23.67
		25	0	22.57	22.52	22.59
		25	13	22.59	22.40	22.53
		25	25	22.52	22.54	22.42
		50	0	22.50	22.52	22.69
	16QAM	1	0	22.89	23.07	23.12
		1	25	22.88	22.74	22.97
		1	49	22.41	22.57	22.49
		25	0	21.54	21.49	21.54
		25	13	21.54	21.43	21.51
		25	25	21.45	21.49	21.41
		50	0	21.59	21.62	21.69
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				20825/2507.5	21100/2535	21375/2562.5
15MHz	QPSK	1	0	23.65	23.56	23.64
		1	38	23.54	23.32	23.73
		1	74	23.45	23.73	23.63
		36	0	22.55	22.48	22.56
		36	18	22.56	22.35	22.49
		36	39	22.49	22.51	22.38
		75	0	22.48	22.48	22.64
	16QAM	1	0	22.84	23.05	23.10

		1	38	22.86	22.71	22.95
		1	74	22.38	22.53	22.46
		36	0	21.51	21.47	21.51
		36	18	21.51	21.38	21.47
		36	39	21.43	21.45	21.38
		75	0	21.56	21.57	21.65
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				20850/2510	21100/2535	21350/2560
20MHz	QPSK	1	0	23.62	23.52	23.61
		1	50	23.53	23.28	23.71
		1	99	23.43	23.72	23.60
		50	0	22.52	22.43	22.52
		50	25	22.54	22.31	22.46
		50	50	22.46	22.46	22.34
		100	0	22.45	22.43	22.60
	16QAM	1	0	23.02	23.01	23.05
		1	50	22.82	22.69	22.91
		1	99	22.36	22.50	22.44
		50	0	21.48	21.43	21.48
		50	25	21.48	21.36	21.44
		50	50	21.40	21.40	21.34
		100	0	21.54	21.53	21.62

5.2 Effective Isotropic Radiated Power

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Methods of Measurement

1. The testing follows FCC KDB 971168 D01 v03r01 Section 5.8 and ANSI/TIA-603-E (2016).

a) Connect the equipment as illustrated. Mount the equipment with the manufacturer specified antenna in a vertical orientation on a manufacturer specified mounting surface located on a non-conducting rotating platform of a RF anechoic chamber (preferred) or a standard radiation site.

b) Key the transmitter, then rotate the EUT 360° azimuthally and record spectrum analyzer power level (LVL) measurements at angular increments that are sufficiently small to permit resolution of all peaks. If a standard radiation test site is used, raise and lower the test antenna to obtain a maximum reading at each angular increment. (Note: several batteries may be needed to offset the effect of battery voltage droop, which should not exceed 5% of the manufactured specified battery voltage during transmission).

c) Replace the transmitter under test with a vertically polarized half-wave dipole (or an antenna whose gain is known relative to an ideal half-wave dipole). The center of the antenna should be at the same location as the center of the antenna under test.

d) Connect the antenna to a signal generator with a known output power and record the path loss (in dB) as LOSS. If a standard radiation test site is used, raise and lower the test antenna to obtain a maximum reading.LOSS = Generator Output Power (dBm) – Analyzer reading (dBm)

e) Determine the effective radiated output power at each angular position from the readings in steps b) and d) using the following equation:ERP (dBm) = LVL (dBm) + LOSS (dB)

f) The maximum ERP is the maximum value determined in the preceding step.

g) When calculating ERP, in addition to knowing the antenna radiation and matching characteristics, it is necessary to know the loss values of all elements (e.g.transmission line attenuation, mismatches, filters, combiners) interposed between the point where transmitter output power is measured, and the point where power is applied to the antenna. ERP can then be calculated as follows:

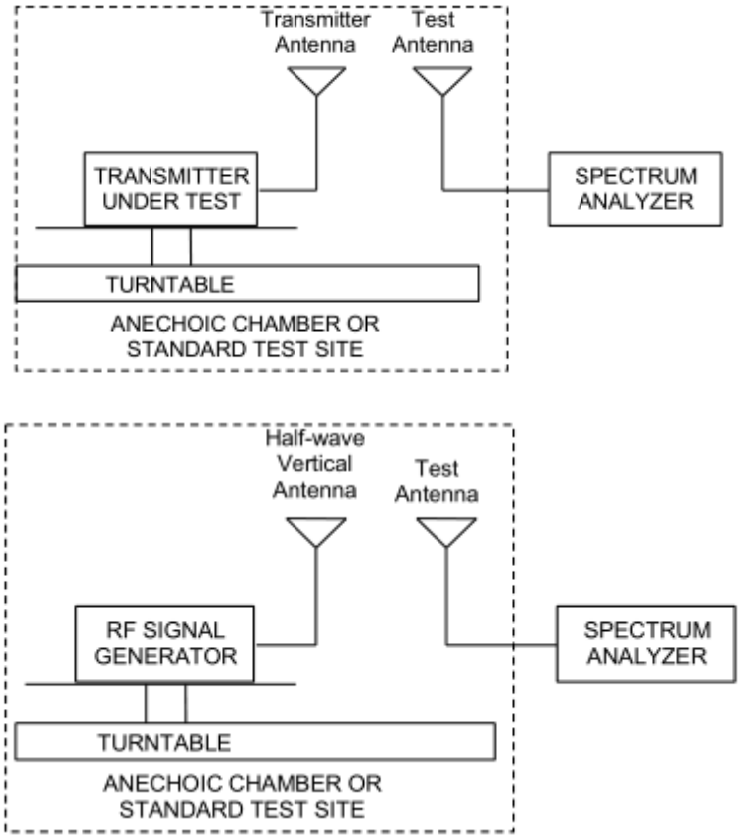
EIRP (dBm) = Output Power (dBm) - Losses (dB) + Antenna Gain (dBd)

where:dBd refers to gain relative to an ideal dipole.

EIRP (dBm) = ERP (dBm) + 2.15 (dB.)

The RB allocation refers to section 5.1, using the maximum output power configuration.

Test setup



Note: Area side:2.4mX3.6m

The radiated emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in stand-up position (Z axis) and the worst case was recorded.

Limits

Rule Part 27.50(d) (4) specifies that “Fixed, mobile and portable (hand-held) stations operating in the 1710–1755 MHz band are limited to 1 watt EIRP”

Rule Part 27.50(h) (2) specifies that “Mobile and other user stations. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.”

Part 27.50(d)(4)Limit	≤ 1 W (30 dBm)
Part 27.50(h)(2) Limit	≤ 2 W (33 dBm)

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 2, U= 1.19 dB

Test Results

The measurement is performed for both of horizontal and vertical antenna Polarization, and only the data of worst mode is recorded in this report.

Mode	Channel	Frequency (MHz)	Polarization	EIRP (dBm)	Limit (dBm)	Conclusion
WCDMA Band IV	Low	1712.4	Horizontal	19.98	30	Pass
	Mid	1732.6	Horizontal	19.06	30	Pass
	High	1752.6	Horizontal	19.99	30	Pass

LTE Band 7						
Band width	Channel	Frequency (MHz)	Polarization	EIRP (dBm)	Limit (dBm)	Conclusion
5 MHz (QPSK)	Low	2502.5	Horizontal	22.66	33	Pass
	Mid	2535	Horizontal	23.29	33	Pass
	High	2567.5	Horizontal	23.90	33	Pass
10 MHz (QPSK)	Low	2505	Horizontal	22.78	33	Pass
	Mid	2535	Horizontal	23.41	33	Pass
	High	2565	Horizontal	23.72	33	Pass
15 MHz (QPSK)	Low	2507.5	Horizontal	22.98	33	Pass
	Mid	2535	Horizontal	23.38	33	Pass
	High	2562.5	Horizontal	24.08	33	Pass
20 MHz (QPSK)	Low	2510	Horizontal	23.01	33	Pass
	Mid	2535	Horizontal	23.54	33	Pass
	High	2560	Horizontal	23.98	33	Pass
5 MHz (16QAM)	Low	2502.5	Horizontal	22.16	33	Pass
	Mid	2535	Horizontal	22.71	33	Pass
	High	2567.5	Horizontal	23.35	33	Pass
10 MHz (16QAM)	Low	2505	Horizontal	22.26	33	Pass
	Mid	2535	Horizontal	22.97	33	Pass
	High	2565	Horizontal	23.18	33	Pass
15 MHz (16QAM)	Low	2507.5	Horizontal	22.43	33	Pass
	Mid	2535	Horizontal	22.74	33	Pass
	High	2562.5	Horizontal	23.67	33	Pass
20 MHz (16QAM)	Low	2510	Horizontal	22.46	33	Pass
	Mid	2535	Horizontal	23.01	33	Pass
	High	2560	Horizontal	23.39	33	Pass

5.3 Occupied Bandwidth

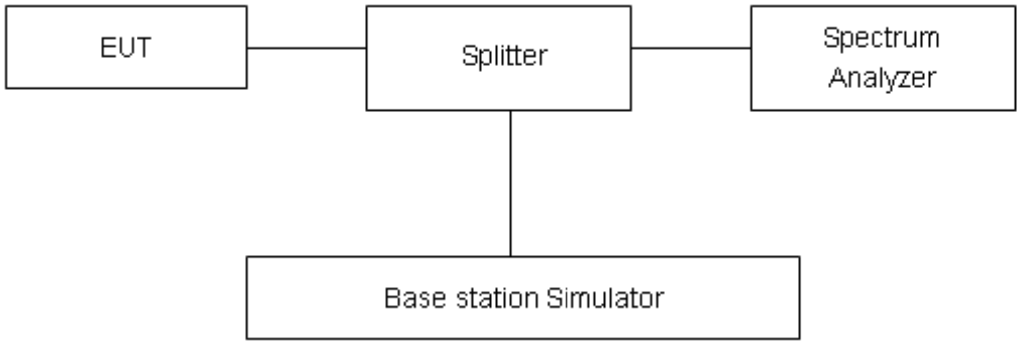
Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The occupied bandwidth is measured using spectrum analyzer.
RBW is set to 51 kHz, VBW is set to 160 kHz for WCDMA Band IV.
RBW is set to 100 kHz, VBW is set to 300 kHz for LTE Band 7 (5MHz).
RBW is set to 300 kHz, VBW is set to 1MHz for LTE Band 7 (10MHz/15MHz/20MHz).
99% power and -26dBc occupied bandwidths are recorded. Spectrum analyzer plots are included on the following pages.

Test Setup



Limits

No specific occupied bandwidth requirements in part 2.1049.

Measurement Uncertainty

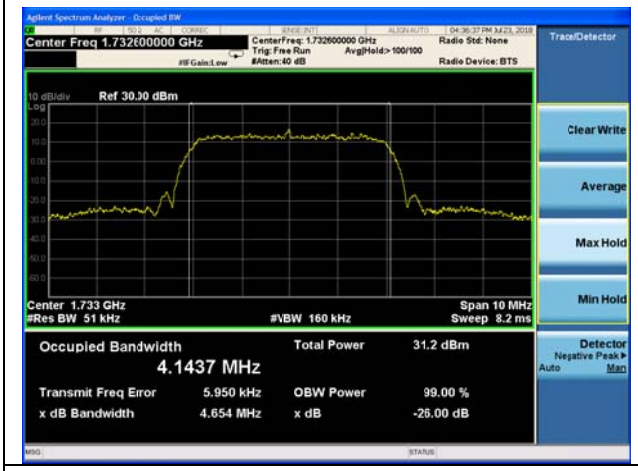
The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 2, U=624Hz.

Test Result

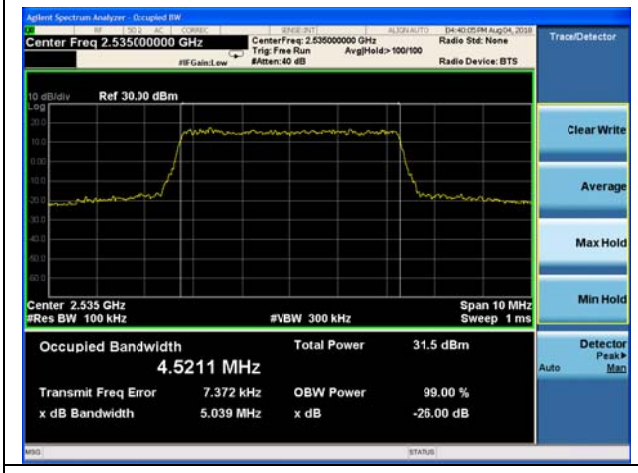
Mode	Channel	Frequency (MHz)	99% Power Bandwidth(MHz)	-26dBc Bandwidth(MHz)
WCDMA Band IV (RMC)	1413	1732.6	4.1437	4.6540

LTE Band 7						
RB	Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	99% Power Bandwidth(MHz)	-26dBc Bandwidth(MHz)
100%	QPSK	5	21100	2535	4.5211	5.039
		10	21100	2535	9.0610	10.230
		15	21100	2535	13.5400	14.930
		20	21100	2535	17.9710	19.570
	16QAM	5	21100	2535	4.5282	5.052
		10	21100	2535	9.0602	10.050
		15	21100	2535	13.512	14.830
		20	21100	2535	18.016	19.600

WCDMA Band IV CH Middle



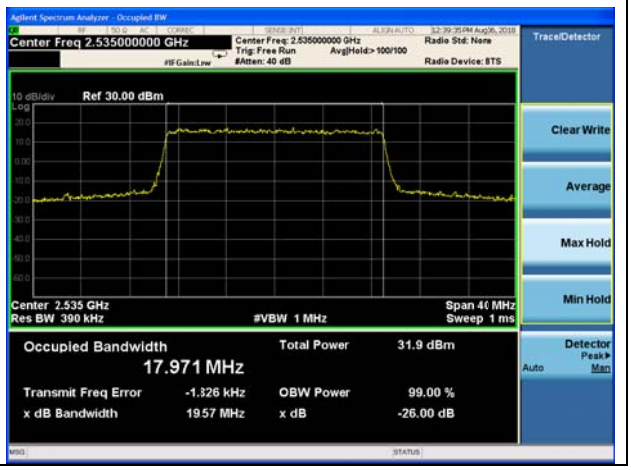
LTE Band 7 QPSK 5MHz CH-Middle



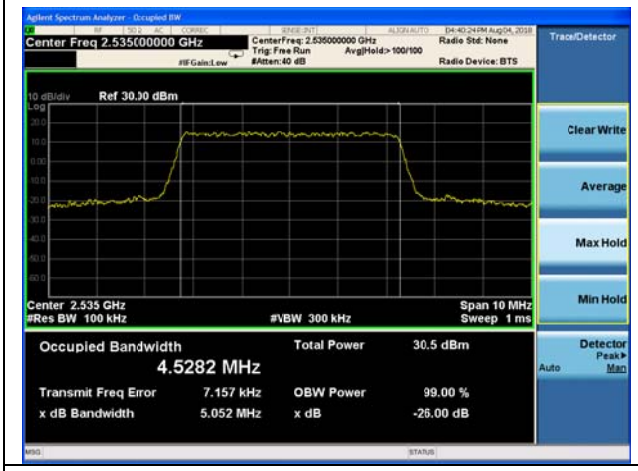
LTE Band 7 QPSK 10MHz CH-Middle

LTE Band 7 QPSK 15MHz CH-Middle

LTE Band 7 QPSK 20MHz CH-Middle

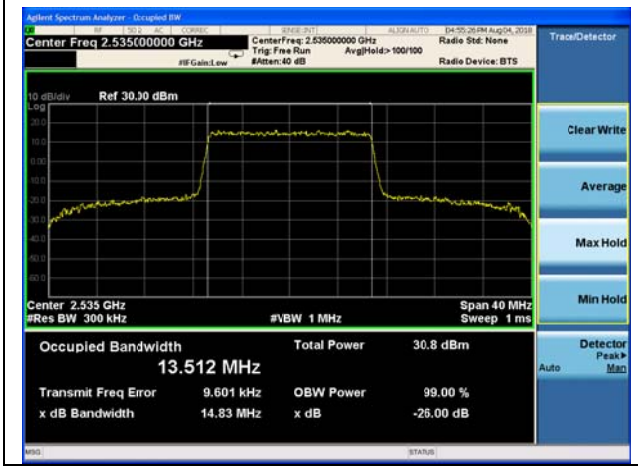


LTE Band 7 16QAM 5MHz CH-Middle

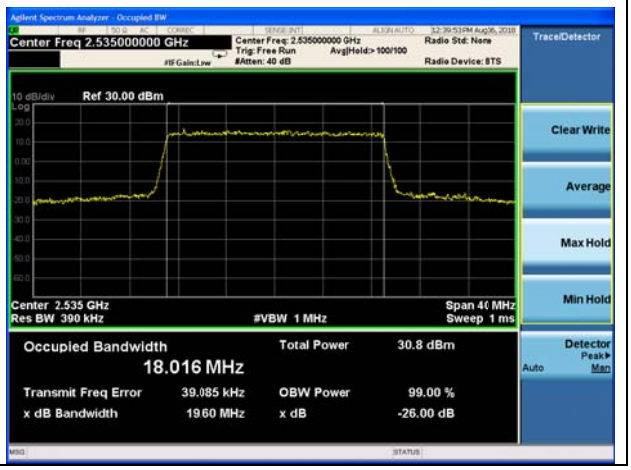


LTE Band 7 16QAM 10MHz CH-Middle

LTE Band 7 16QAM 15MHz CH-Middle



LTE Band 7 16QAM 20MHz CH-Middle



5.4 Band Edge Compliance

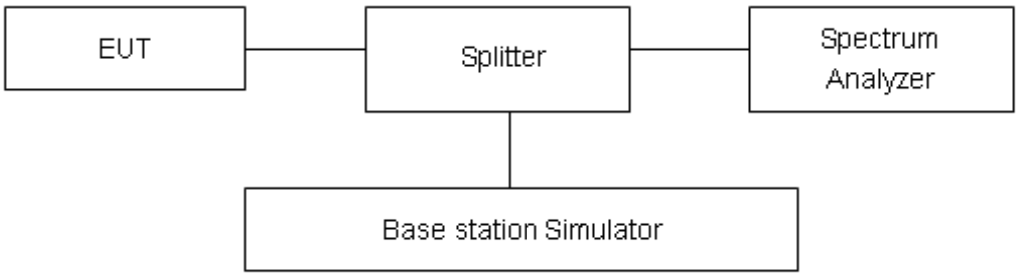
Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The band edge of the lowest and highest channels were measured.
The testing follows KDB 971168 D01 v03r01 Section 6.0
1.The EUT was connected to spectrum analyzer and system simulator via a power divider.
2. The band edges of low and high channels for the highest RF powers were measured.
3. RBW is set to 51 kHz, VBW is set to 160 kHz for WCDMA Band IV.
RBW is set to 50 kHz, VBW is set to 200 kHz for LTE Band 7 (5MHz).
RBW is set to 100 kHz, VBW is set to 300kHz for LTE Band 7 (10MHz).
RBW is set to 200 kHz, VBW is set to 1MHz for LTE Band 7 (15MHz/20MHz).
on spectrum analyzer.
4. Set spectrum analyzer with RMS detector.
5. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
6. Checked that all the results comply with the emission limit line.

Test Setup



Limits

Rule Part 27.53(h)/ specifies that " for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 $\log_{10}$ (P) dB"

Part 27.53(m) (4)/ specifies that "for BRS and EBS stations. 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)(4) of this section. In addition, the attenuation factor shall not be less that 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.

Example:

The limit line is derived from 43 + 10log (P) dB below the transmitter power P(Watts)

= P(W)- [43 + 10log(P)] (dB)

= [30 + 10log (P)] (dBm) - [43 + 10log(P)] (dB) = -13dBm.

Measurement Uncertainty

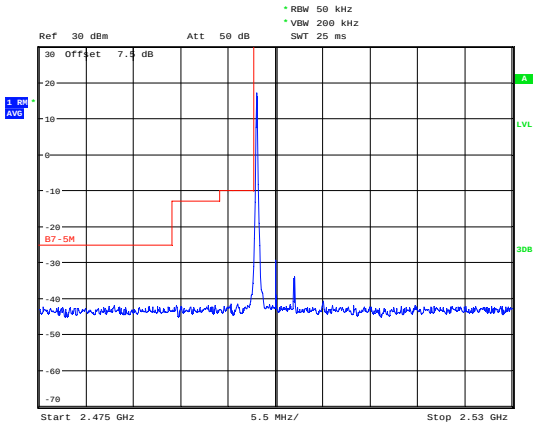
The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 1.96, U=0.684dB.

Test Result

All the test traces in the plots shows the test results clearly.

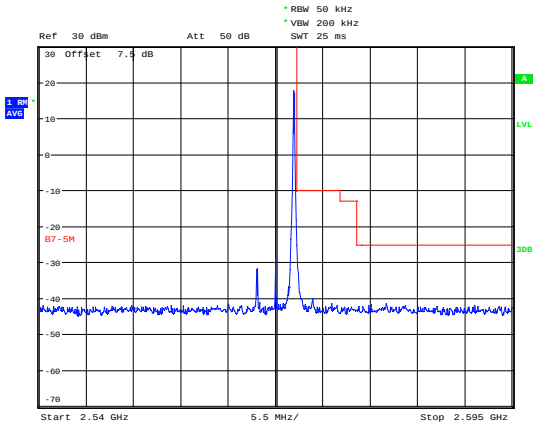
WCDMA Band IV CH-Low	WCDMA Band IV CH-High
	

LTE Band 7 QPSK 5MHz CH-Low, 1 RB



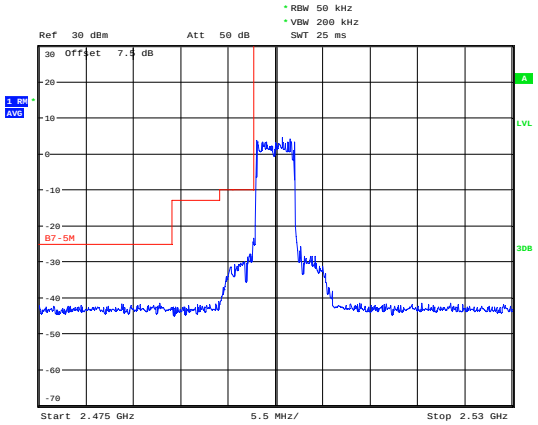
Date: 10.AUG.2018 11:08:59

LTE Band 7 QPSK 5MHz CH-High, 1 RB



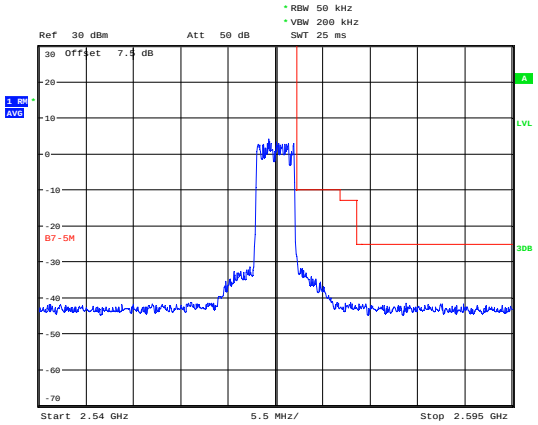
Date: 10.AUG.2018 11:13:41

LTE Band 7 QPSK 5MHz CH-Low, 100%RB



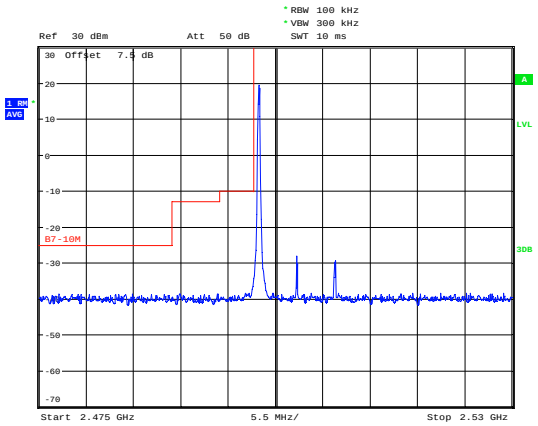
Date: 10.AUG.2018 11:10:27

LTE Band 7 QPSK 5MHz CH-High, 100%RB



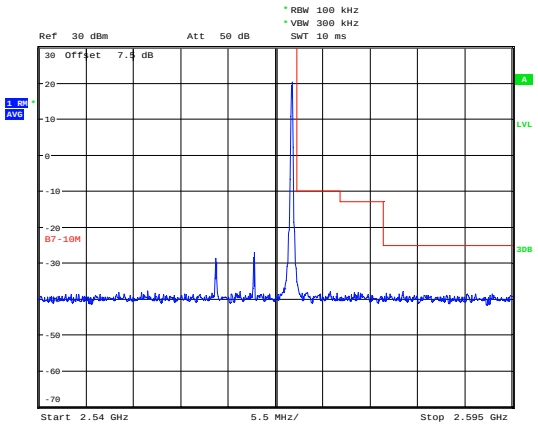
Date: 10.AUG.2018 11:15:28

LTE Band 7 QPSK 10MHz CH-Low, 1 RB



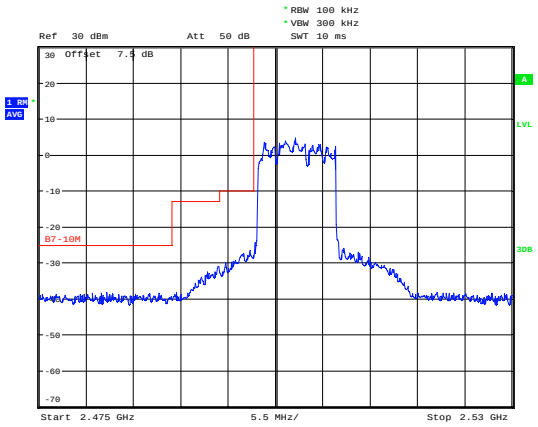
Date: 10.AUG.2018 11:29:13

LTE Band 7 QPSK 10MHz CH-High, 1 RB



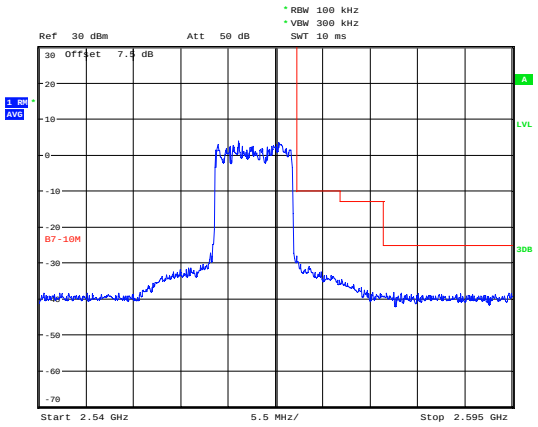
Date: 10.AUG.2018 11:27:01

LTE Band 7 QPSK 10MHz CH-Low, 100%RB



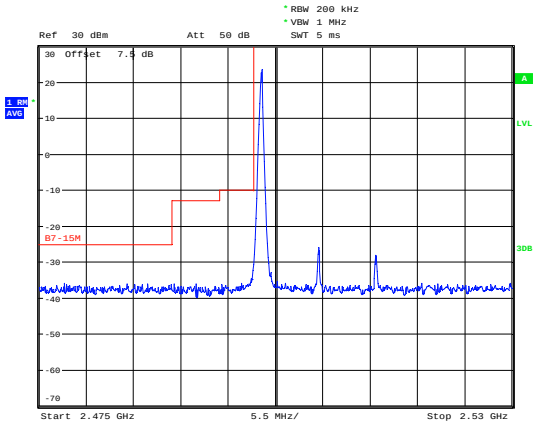
Date: 10.AUG.2018 11:30:00

LTE Band 7 QPSK 10MHz CH-High, 100%RB



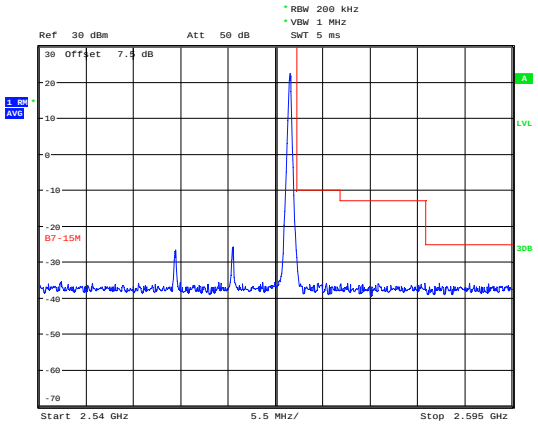
Date: 10.AUG.2018 11:27:48

LTE Band 7 QPSK 15MHz CH-Low, 1 RB



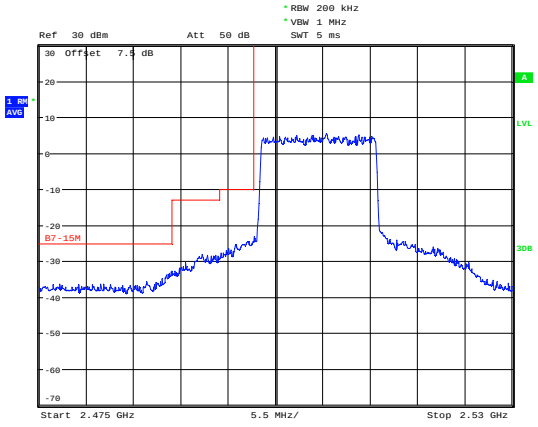
Date: 10.AUG.2018 11:31:21

LTE Band 7 QPSK 15MHz CH-High, 1 RB



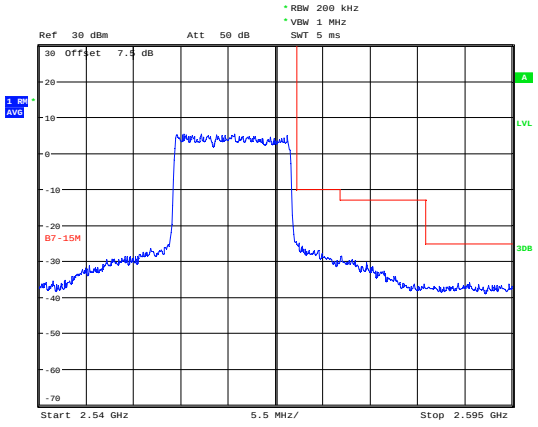
Date: 10.AUG.2018 11:36:35

LTE Band 7 QPSK 15MHz CH-Low, 100%RB



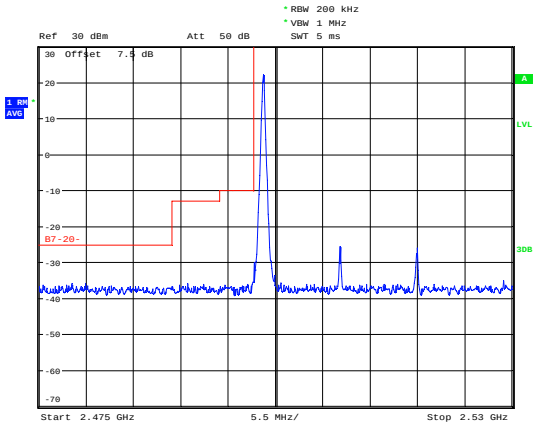
Date: 10.AUG.2018 11:32:26

LTE Band 7 QPSK 15MHz CH-High, 100%RB



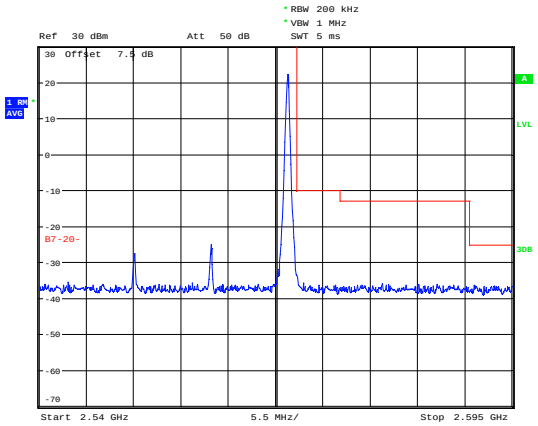
Date: 10.AUG.2018 11:37:28

LTE Band 7 QPSK 20MHz CH-Low, 1 RB



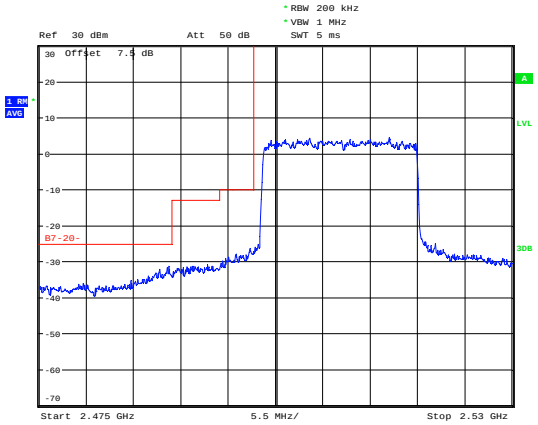
Date: 10.AUG.2018 11:42:38

LTE Band 7 QPSK 20MHz CH-High, 1 RB



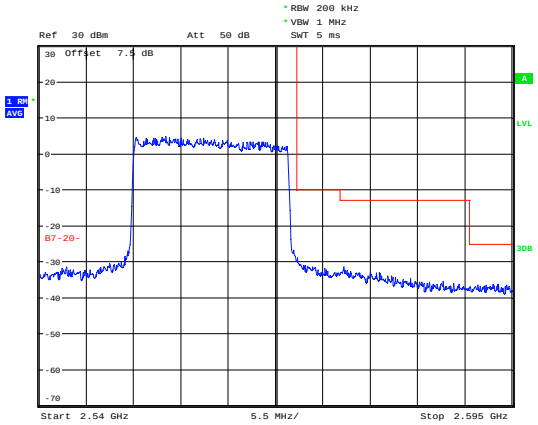
Date: 10.AUG.2018 11:39:12

LTE Band 7 QPSK 20MHz CH-Low, 100%RB



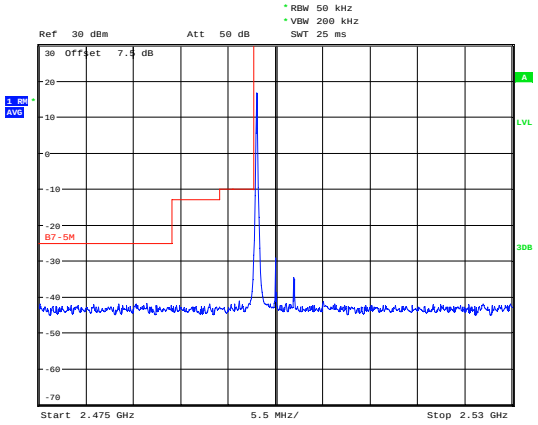
Date: 10.AUG.2018 11:43:27

LTE Band 7 QPSK 20MHz CH-High, 100%RB



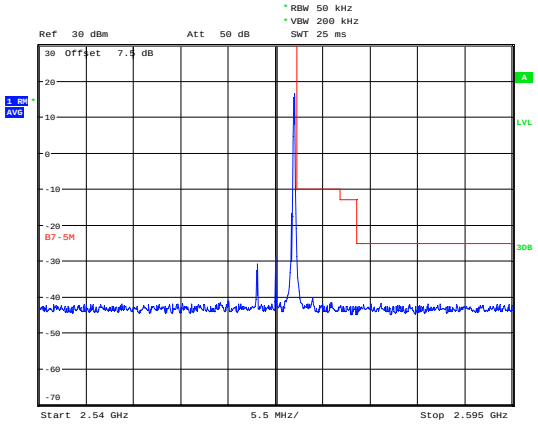
Date: 10.AUG.2018 11:40:05

LTE Band 7 16QAM 5MHz CH-Low, 1 RB



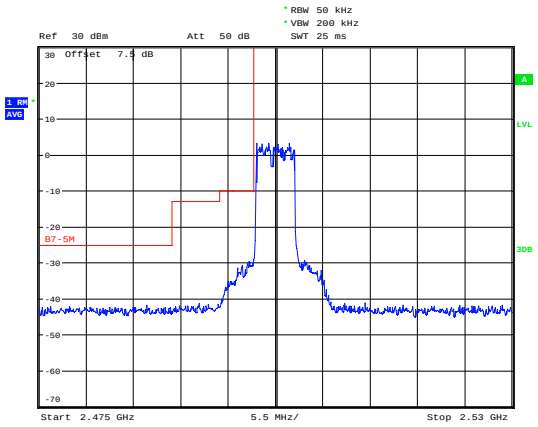
Date: 10.AUG.2018 11:09:34

LTE Band 7 16QAM 5MHz CH-High, 1 RB



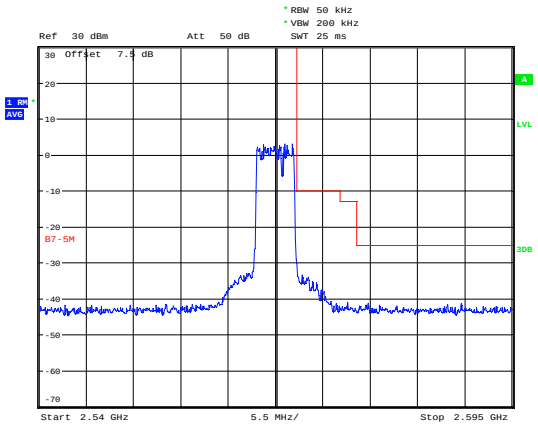
Date: 10.AUG.2018 11:13:56

LTE Band 7 16QAM 5MHz CH-Low, 100%RB



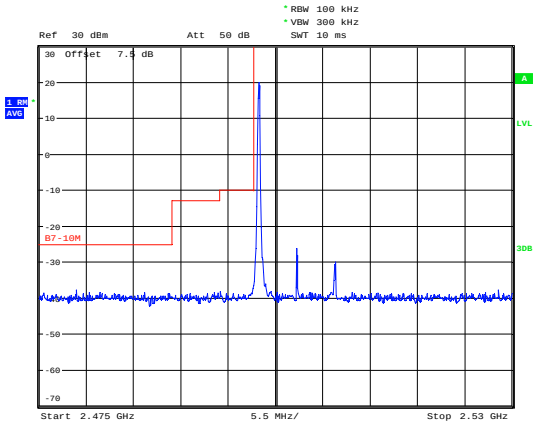
Date: 10.AUG.2018 11:10:06

LTE Band 7 16QAM 5MHz CH-High, 100%RB



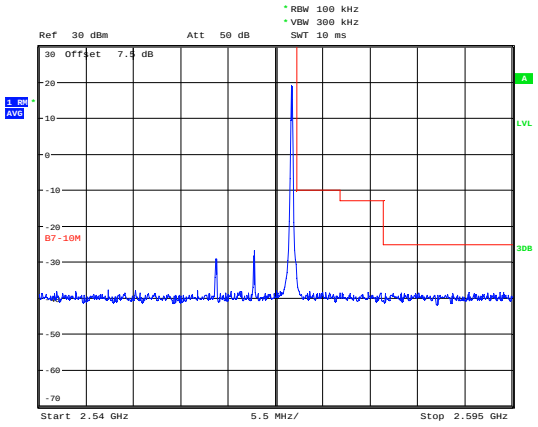
Date: 10.AUG.2018 11:15:14

LTE Band 7 16QAM 10MHz CH-Low, 1 RB



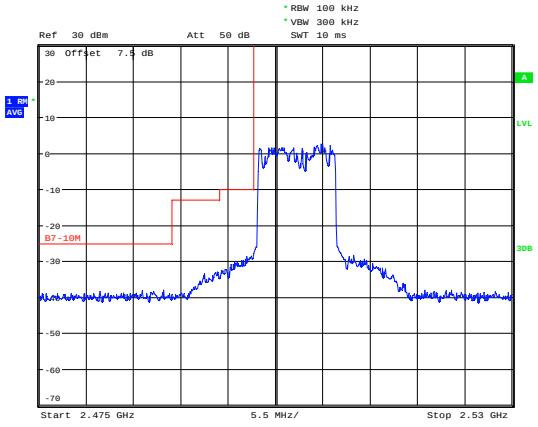
Date: 10.AUG.2018 11:29:32

LTE Band 7 16QAM 10MHz CH-High, 1 RB



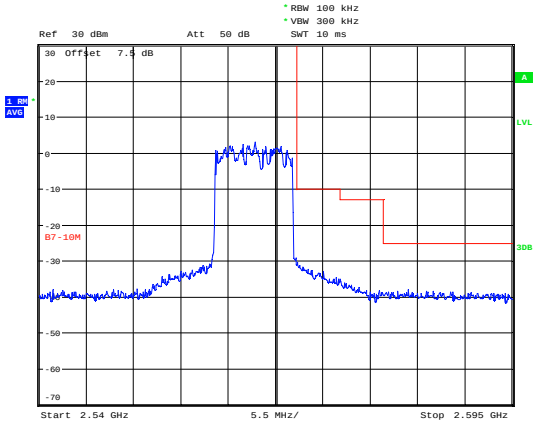
Date: 10.AUG.2018 11:27:20

LTE Band 7 16QAM 10MHz CH-Low, 100%RB



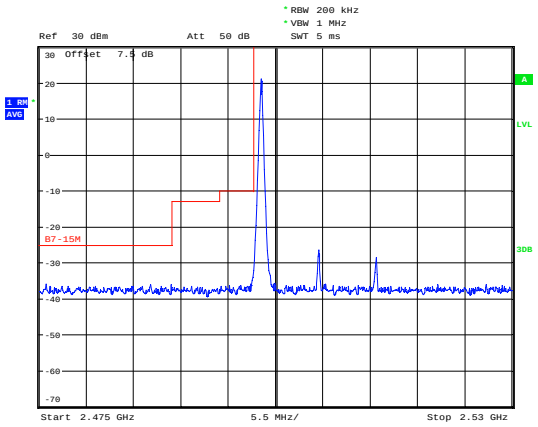
Date: 10.AUG.2018 11:29:46

LTE Band 7 16QAM 10MHz CH-High, 100%RB

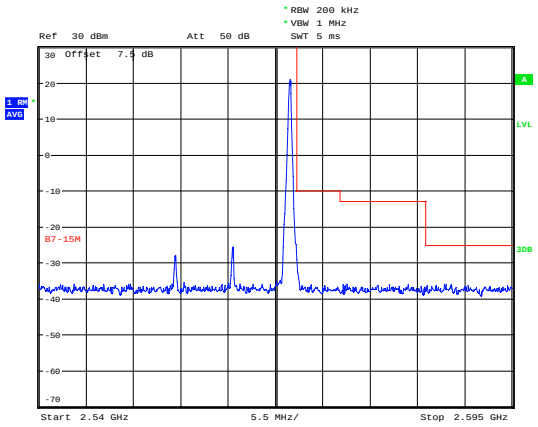


Date: 10.AUG.2018 11:27:35

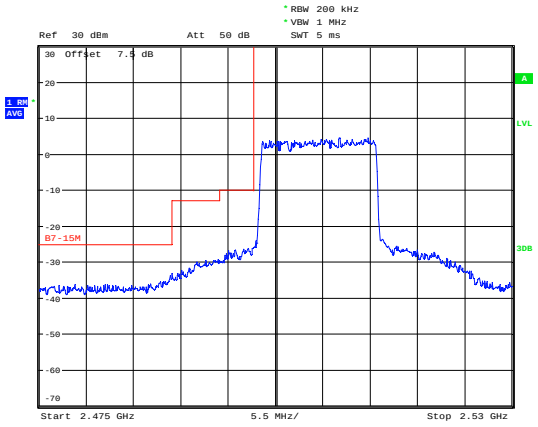
LTE Band 7 16QAM 15MHz CH-Low, 1 RB



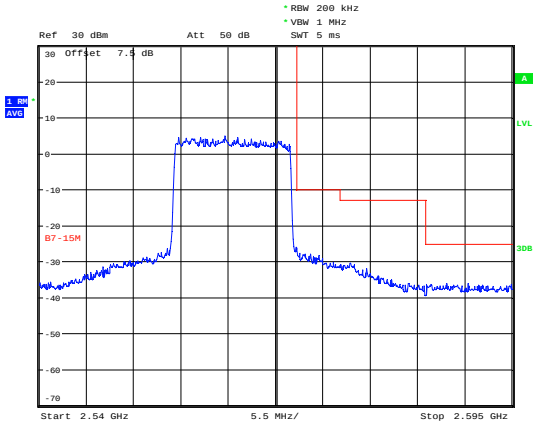
LTE Band 7 16QAM 15MHz CH-High, 1 RB



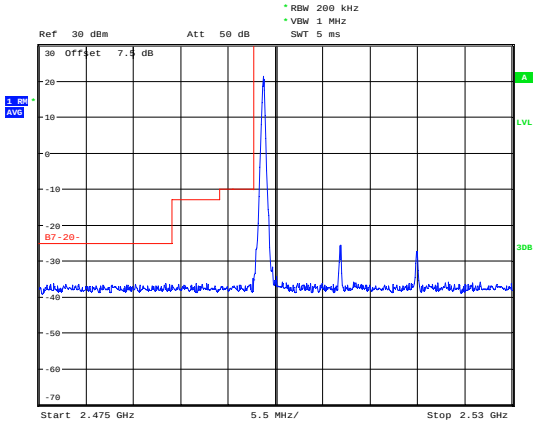
LTE Band 7 16QAM 15MHz CH-Low, 100%RB



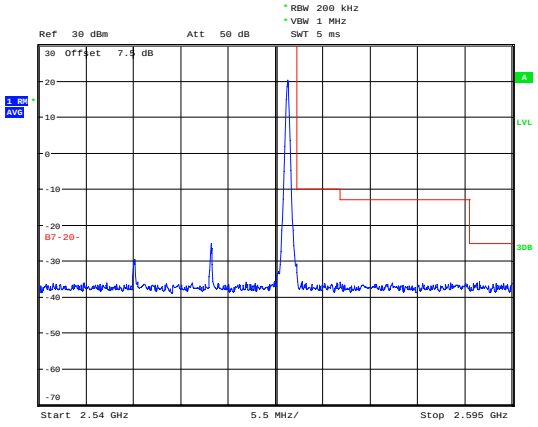
LTE Band 7 16QAM 15MHz CH-High, 100%RB



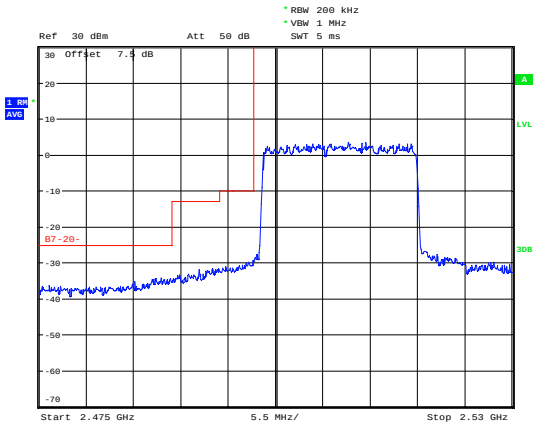
LTE Band 7 16QAM 20MHz CH-Low, 1 RB



LTE Band 7 16QAM 20MHz CH-High, 1 RB

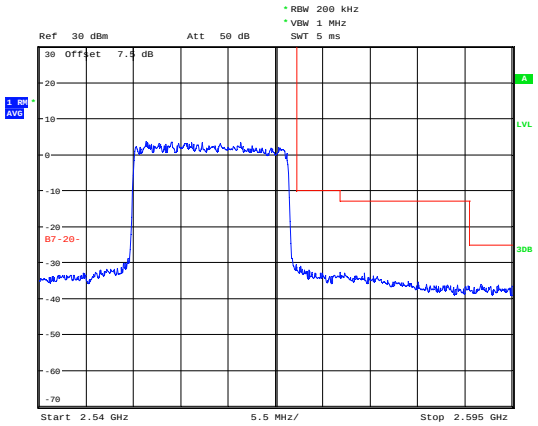


LTE Band 7 16QAM 20MHz CH-Low, 100%RB



Date: 10.AUG.2018 11:43:11

LTE Band 7 16QAM 20MHz CH-High, 100%RB



Date: 10.AUG.2018 11:39:46

5.5 Peak-to-Average Power Ratio (PAPR)

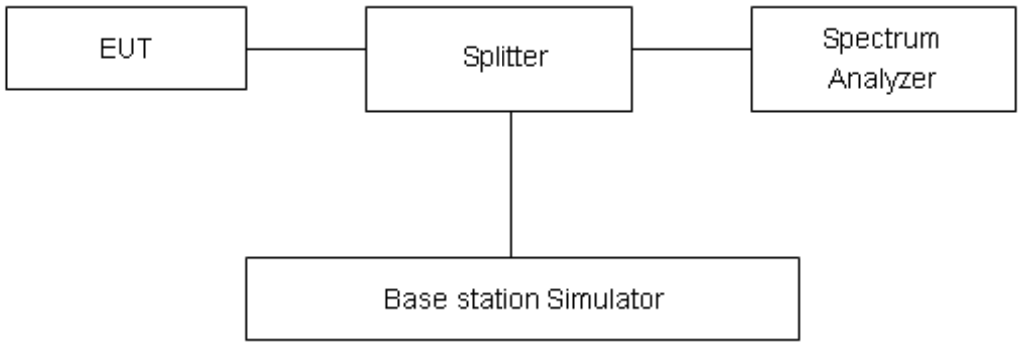
Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Methods of Measurement

Measure the total peak power and record as PPk. And measure the total average power and record as PAvg. Both the peak and average power levels must be expressed in the same logarithmic units (*e.g.*, dBm). Determine the PAPR from:
PAPR (dB) = PPk (dBm) - PAvg (dBm).

Test Setup



Limits

Rule Part 27.50(d)(5) Equipment employed must be authorized in accordance with the provisions of 24.51. Power measurements for transmissions by stations authorized under this section may be made either in accordance with a Commission-approved average power technique or in compliance with paragraph (d)(6) of this section. 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.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for thenormal distribution is with the coverage factor k = 2, U= 0.4 dB.

Test Results

WCDMA Band IV	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
RMC	1312	1712.4	25.48	22.09	3.39	≤13	PASS
	1413	1732.6	25.97	22.55	3.42	≤13	PASS
	1513	1752.6	24.95	21.62	3.33	≤13	PASS

LTE Band 7								
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	5	20775	2502.5	27.29	22.42	4.87	≤13	PASS
		21100	2535	27.22	22.50	4.72	≤13	PASS
		21425	2567.5	27.45	22.65	4.80	≤13	PASS
	10	20800	2505	27.04	22.50	4.54	≤13	PASS
		21100	2535	27.18	22.52	4.66	≤13	PASS
		21400	2565	27.34	22.69	4.65	≤13	PASS
	15	20825	2507.5	26.93	22.48	4.45	≤13	PASS
		21100	2535	27.12	22.48	4.64	≤13	PASS
		21375	2562.5	27.24	22.64	4.60	≤13	PASS
	20	20850	2510	26.91	22.45	4.46	≤13	PASS
		21100	2535	27.05	22.43	4.62	≤13	PASS
		21350	2560	27.17	22.60	4.57	≤13	PASS
16QAM	5	20775	2502.5	27.45	21.56	5.89	≤13	PASS
		21100	2535	27.01	21.57	5.44	≤13	PASS
		21425	2567.5	27.16	21.65	5.51	≤13	PASS
	10	20800	2505	26.84	21.59	5.25	≤13	PASS
		21100	2535	27.03	21.62	5.41	≤13	PASS
		21400	2565	27.12	21.69	5.43	≤13	PASS
	15	20825	2507.5	26.77	21.56	5.21	≤13	PASS
		21100	2535	26.94	21.57	5.37	≤13	PASS
		21375	2562.5	26.99	21.65	5.34	≤13	PASS
	20	20850	2510	26.76	21.54	5.22	≤13	PASS
		21100	2535	26.91	21.53	5.38	≤13	PASS
		21350	2560	26.97	21.62	5.35	≤13	PASS

5.6 Frequency Stability

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

Frequency Stability (Temperature Variation)

The temperature inside the climate chamber is varied from -30°C to +55°C in 10°C step size.

(1)With all power removed, the temperature was decreased to -10°C and permitted to stabilize for three hours.

(2)Measure the carrier frequency with the test equipment in a “call mode”. These measurements should be made within 1 minute of powering up the mobile station, to prevent significant self warming.

(3) Repeat the above measurements at 10°C increments from -30°C to +55°C. Allow at least 1.5 hours at each temperature, un-powered, before making measurements.

Frequency Stability (Voltage Variation)

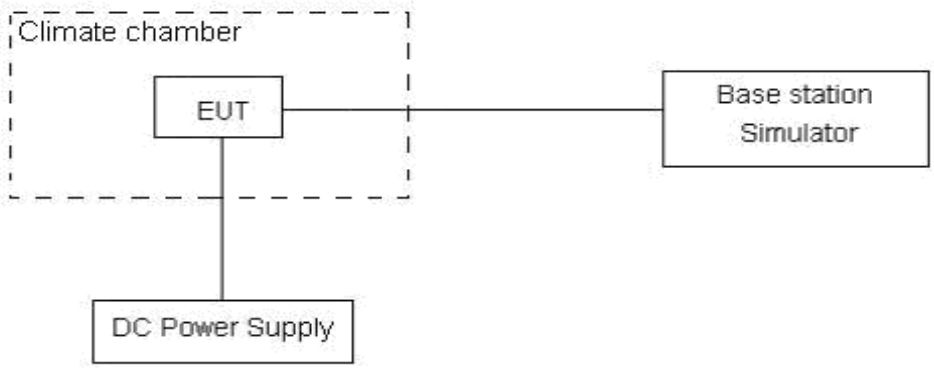
The frequency stability shall be measured with variation of primary supply voltage as follows:

(1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment.

(2) For hand carried, battery powered equipment, reduce primary supply voltage to the battery-operating end point which shall be specified by the manufacturer.

This transceiver is specified to operate with an input voltage of between 3.5 V and 4.2 V, with a nominal voltage of 3.8V.

Test setup



Limits

No specific frequency stability requirements in part 27.54

Measurement Uncertainty

The assessed measurement uncertainty to ensure 99.75% confidence level for the normal distribution is with the coverage factor k = 3,U=0.01ppm.

Test Result

WCDMA Band IV					
Condition		1710	1755	Delta(Hz)	Frequency Stability(ppm)
Temperature	Voltage	F low@-13dBm(MHz)	F high@-13dBm(MHz)		
Normal（25°C）	Normal	1710.0279	1754.9113	4.60	0.00265
Extreme（55°C）		1710.0272	1754.9122	-1.93	-0.00111
Extreme（50°C）		1710.0269	1754.9123	-3.20	-0.00185
Extreme（40°C）		1710.0284	1754.9108	1.01	0.00058
Extreme（30°C）		1710.0273	1754.9119	0.47	0.00027
Extreme（20°C）		1710.0271	1754.9122	-2.10	-0.00121
Extreme（10C）		1710.0286	1754.9106	-3.87	-0.00223
Extreme（0°C）		1710.0277	1754.9115	-1.71	-0.00099
Extreme（-10°C）		1710.0291	1754.9122	2.33	0.00134
Extreme（-20°C）		1710.0323	1754.9153	-5.09	-0.00294
Extreme（-30°C）		1710.0339	1754.9175	1.02	0.00059
25C	LV	1710.0316	1754.9147	-1.09	-0.00063
	HV	1710.0303	1754.9156	1.10	0.00063

LTE Band 7					
(QPSK, 20MHz BANDWIDTH)					
Condition		2500	2570	Delta (Hz)	Frequency Stability(ppm)
Temperature	Voltage	F low@-13dBm(MHz)	F high@-13dBm(MHz)		
Normal（25°C）	Normal	2500.4380	2569.6782	9.66	0.00381
Extreme（55°C）		2500.4381	2569.6781	9.81	0.00387
Extreme（50°C）		2500.4396	2569.6766	8.87	0.00350
Extreme（40°C）		2500.4388	2569.6774	11.36	0.00448
Extreme（30°C）		2500.4389	2569.6773	8.96	0.00353
Extreme（20°C）		2500.4382	2569.6780	-10.47	-0.00413
Extreme（10C）		2500.4390	2569.6772	-6.84	-0.00270
Extreme（0°C）		2500.4393	2569.6769	-12.80	-0.00505
Extreme（-10°C）		2500.4383	2569.6779	-10.94	-0.00432
Extreme（-20°C）		2500.4391	2569.6771	-10.06	-0.00397
Extreme（-30°C）		2500.4384	2569.6778	9.34	0.00368
25°C	LV	2500.4385	2569.6777	-8.03	-0.00317
	HV	2500.4394	2569.6768	-18.87	-0.00744
(16QAM,20MHz BANDWIDTH)					
Condition		2500	2570	Delta (Hz)	Frequency Stability(ppm)
Temperature	Voltage	F low@-13dBm(MHz)	F high@-13dBm(MHz)		
Normal（25°C）	Normal	2500.3995	2569.6123	-5.66	-0.00223
Extreme（55°C）		2500.3996	2569.6122	-15.65	-0.00617
Extreme（50°C）		2500.4011	2569.6107	-14.92	-0.00589
Extreme（40°C）		2500.4003	2569.6115	7.42	0.00293
Extreme（30°C）		2500.4004	2569.6114	-18.22	-0.00719
Extreme（20°C）		2500.3997	2569.6121	8.20	0.00323
Extreme（10C）		2500.4005	2569.6113	9.76	0.00385
Extreme（0°C）		2500.4008	2569.6110	-8.15	-0.00321
Extreme（-10°C）		2500.3998	2569.6120	-17.35	-0.00684
Extreme（-20°C）		2500.4006	2569.6112	-10.17	-0.00401
Extreme（-30°C）		2500.3999	2569.6119	-7.27	-0.00287
25°C	LV	2500.4000	2569.6118	-9.96	-0.00393
	HV	2500.4009	2569.6109	8.30	0.00327

5.7 Spurious Emissions at Antenna Terminals

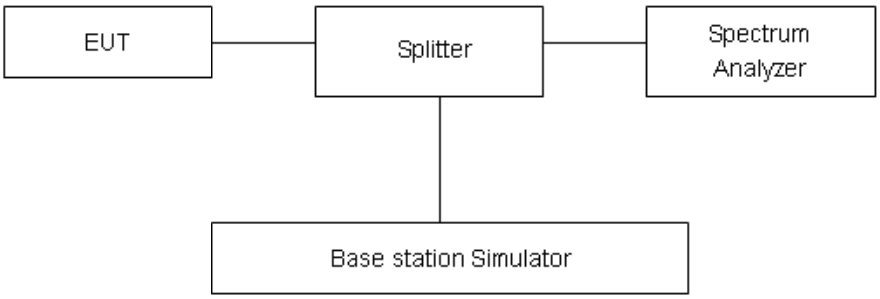
Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The measurement is carried out using a spectrum analyzer. The spectrum analyzer scans from 9kHz to the 10th harmonic of the carrier. The peak detector is used.
RBW is set to 100kHz, VBW is set to 300kHz for 30MHz~1GHz
RBW is set to 1MHz, VBW is set to 3MHz for above 1GHz, Sweep is set to ATUO.
Of those disturbances below (limit – 20 dB), the mark is not required for the EUT.
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test setup



Limits

Part 27.53(h) specifies that “for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 log10 (P) dB..”

Rule Part 27.53(m) 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)(4) of this section.

Part 27.53(h) Limit	-13 dBm
Part 27.53(m) Limit	-25 dBm

Measurement Uncertainty

The assessed measurement uncertainty to ensure 99.75% confidence level for the normal distribution is with the coverage factor *k* = 1.96.

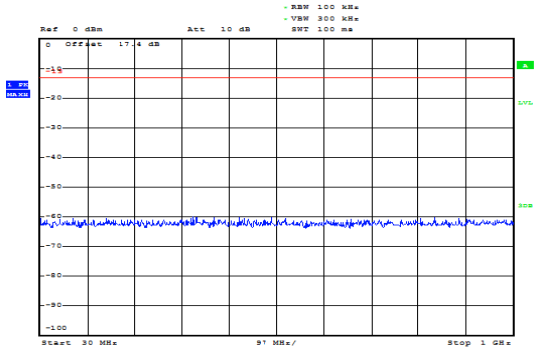
Frequency	Uncertainty
9kHz-1GHz	0.684 dB
1GHz-27GHz	1.407 dB

Test Result

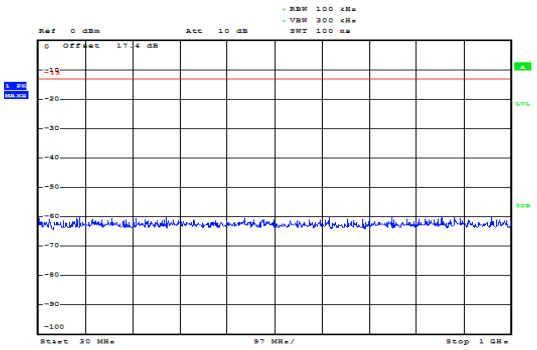
Sweep the whole frequency band through the range from 9kHz to the 10th harmonic of the carrier, the emissions more than 20 dB below the limit are not reported.

The signal beyond the limit is carrier.

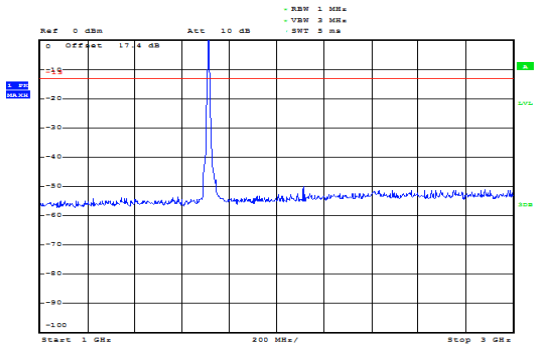
WCDMA Band IV CH-Low 30MHz~1GHz



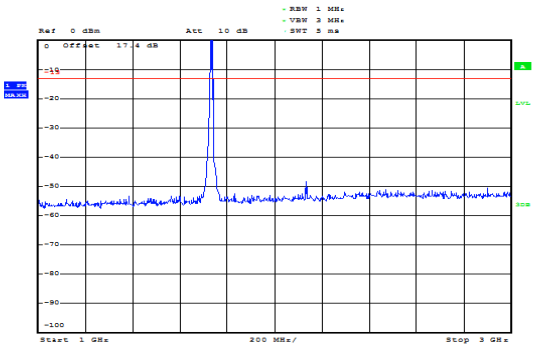
WCDMA Band IV CH-Middle 30MHz~1GHz



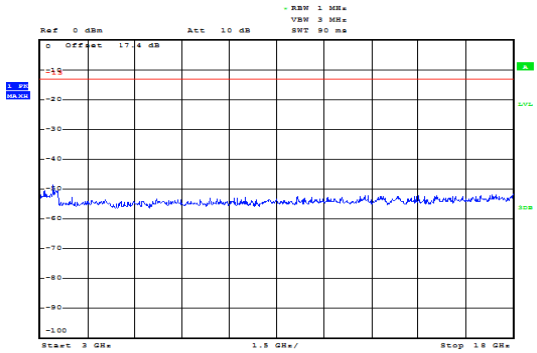
WCDMA Band IV CH-Low 1GHz~3GHz



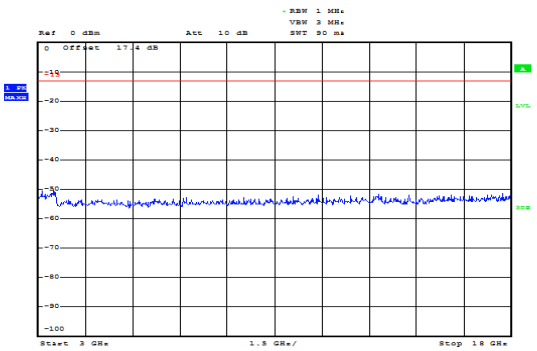
WCDMA Band IV CH-Middle 1GHz~3GHz



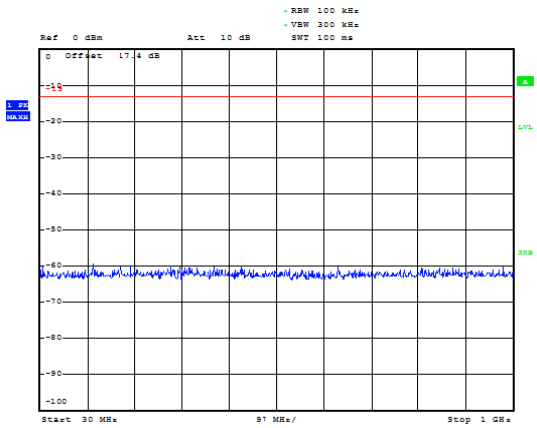
WCDMA Band IV CH-Low 3GHz~18GHz



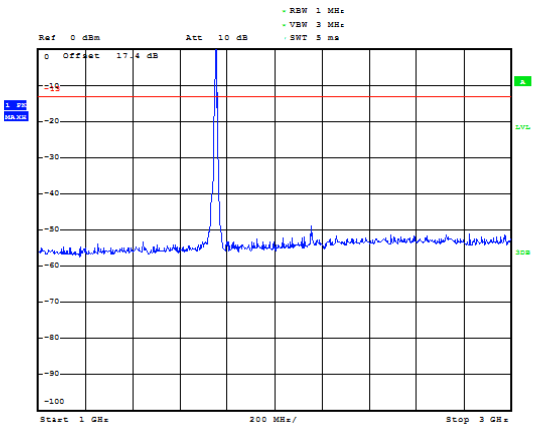
WCDMA Band IV CH-Middle 3GHz~18GHz



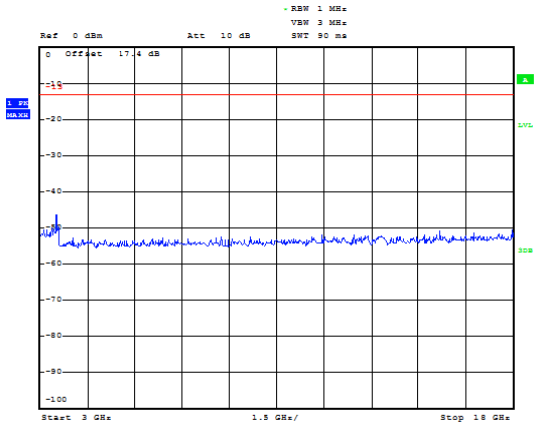
WCDMA Band IV CH-High 30MHz~1GHz



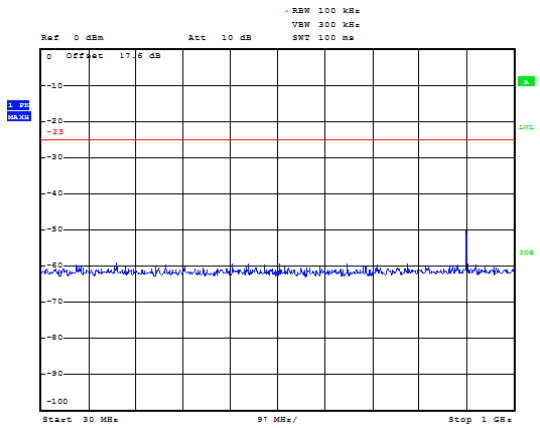
WCDMA Band IV CH-High 1GHz~3GHz



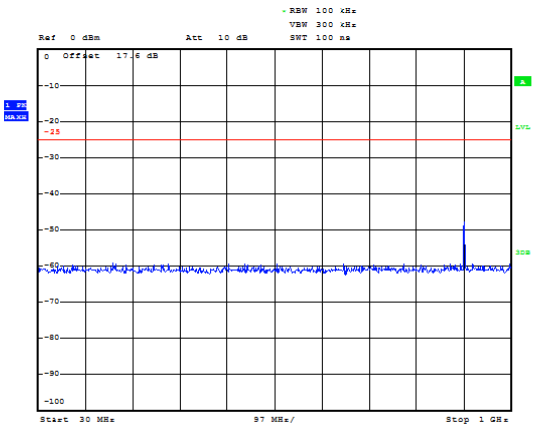
WCDMA Band IV CH-High 3GHz~18GHz



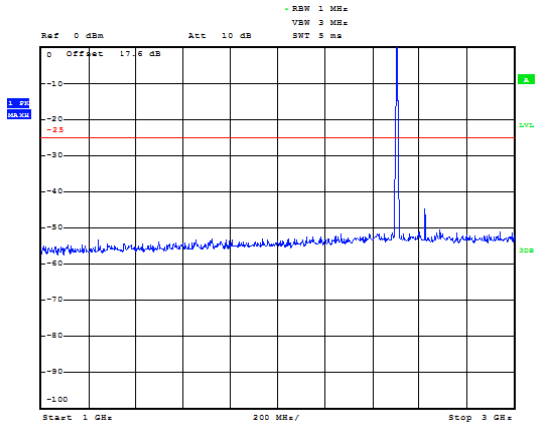
LTE Band 7 5MHz CH-Low 30MHz~1GHz



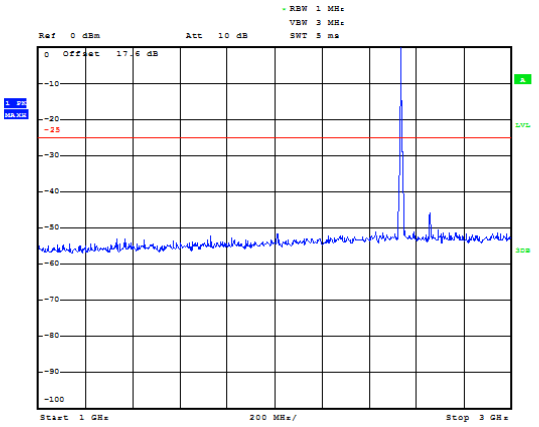
LTE Band 7 5MHz CH-Middle 30MHz~1GHz



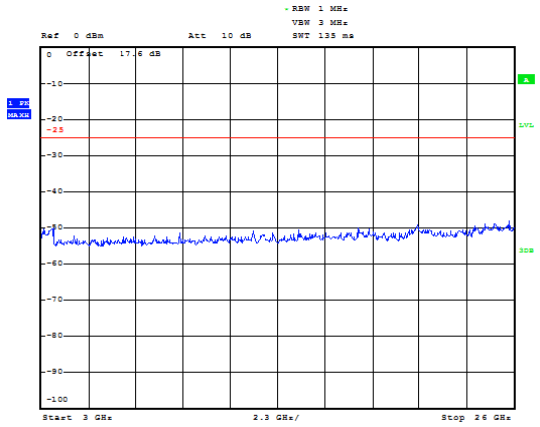
LTE Band 7 5MHz CH-Low 1GHz~3GHz



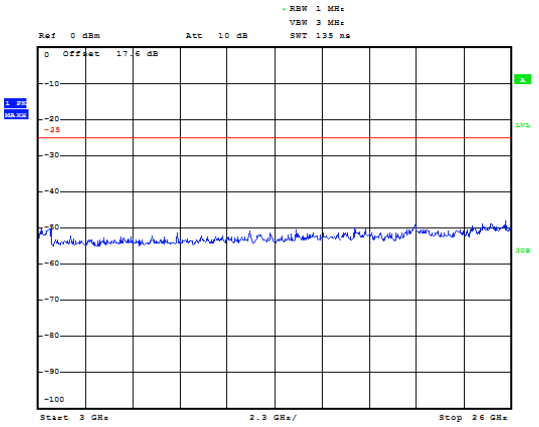
LTE Band 7 5MHz CH-Middle 1GHz~3GHz



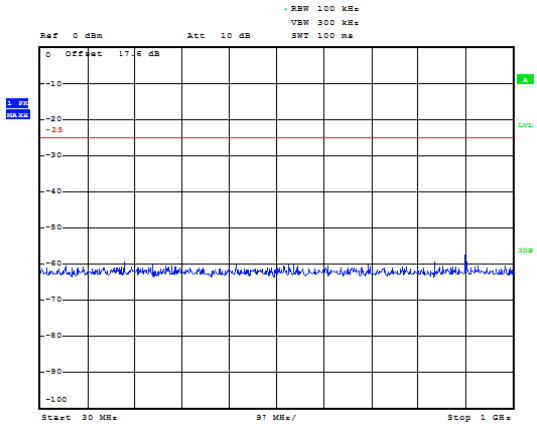
LTE Band 7 5MHz CH-Low 3GHz~18GHz



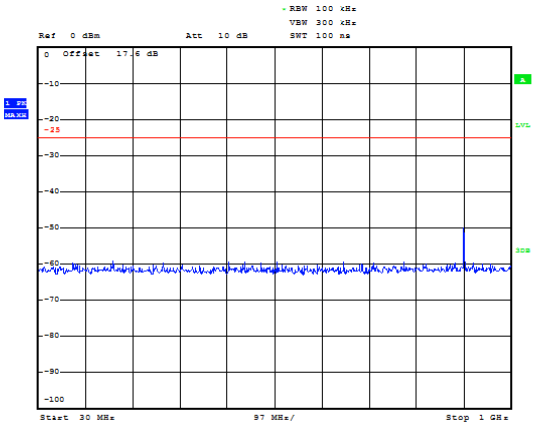
LTE Band 7 5MHz CH-Middle 3GHz~18GHz



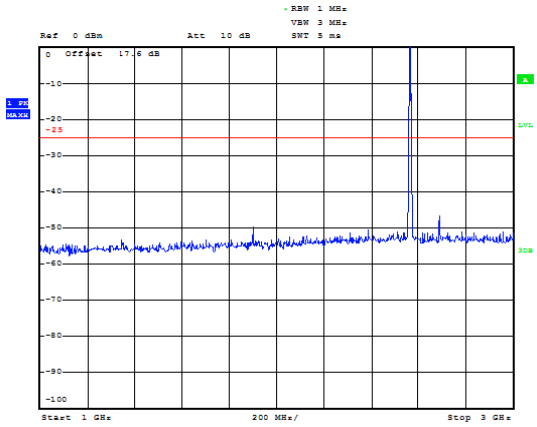
LTE Band 7 5MHz CH-High 30MHz~1GHz



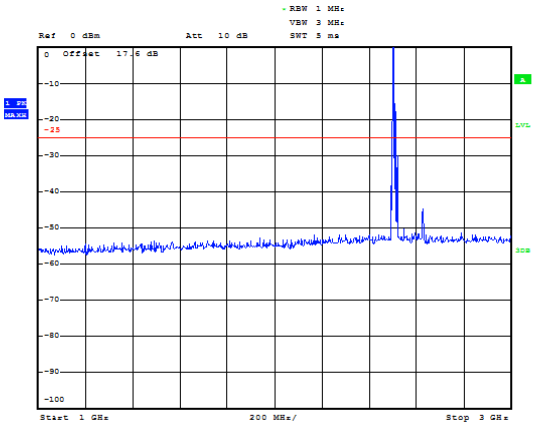
LTE Band 7 10MHz CH-Low 30MHz~1GHz



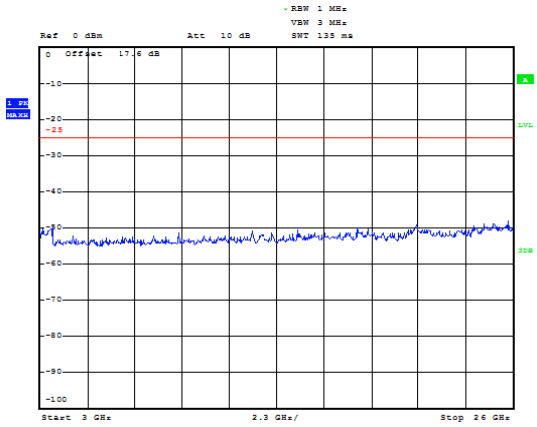
LTE Band 7 5MHz CH-High 1GHz~3GHz



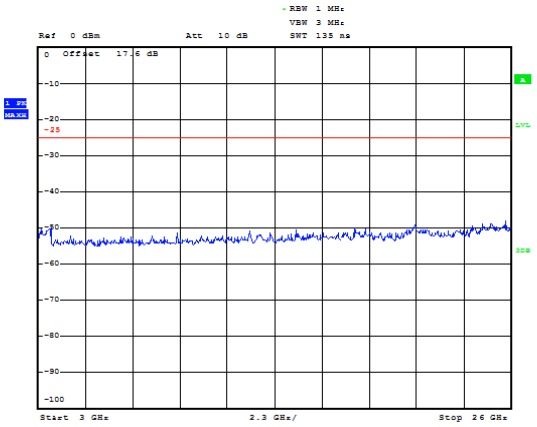
LTE Band 7 10MHz CH-Low 1GHz~3GHz



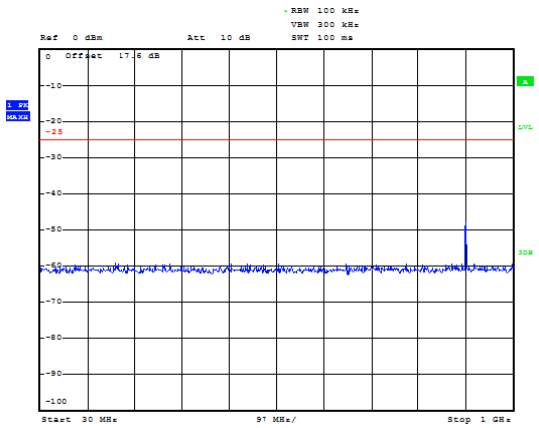
LTE Band 7 5MHz CH-High 3GHz~18GHz



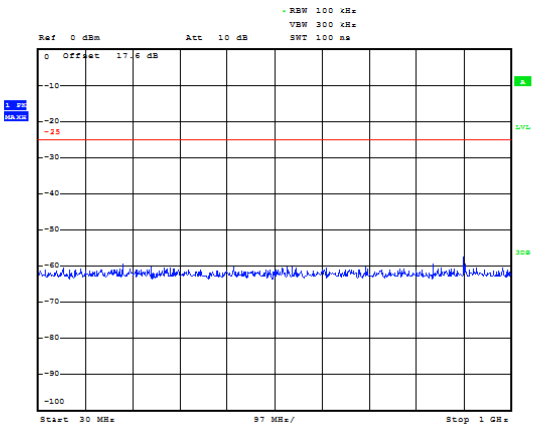
LTE Band 7 10MHz CH-Low 3GHz~18GHz



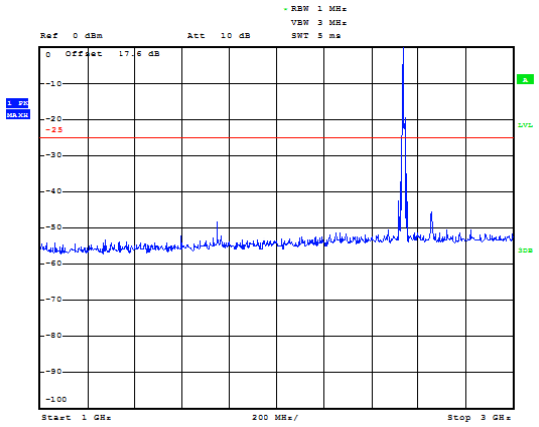
LTE Band 7 10MHz CH-Middle 30MHz~1GHz



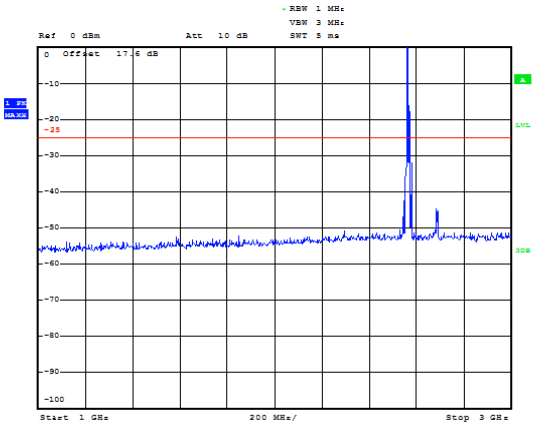
LTE Band 7 10MHz CH-High 30MHz~1GHz



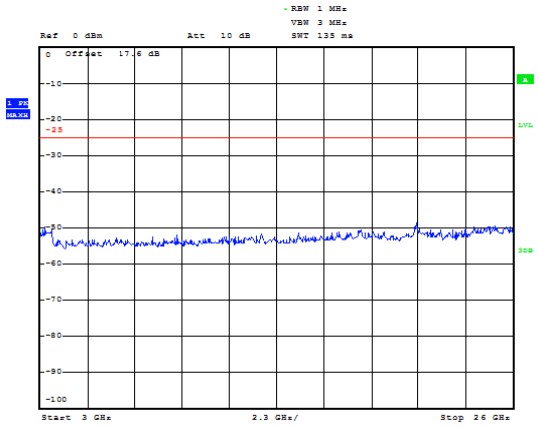
LTE Band 7 10MHz CH-Middle 1GHz~3GHz



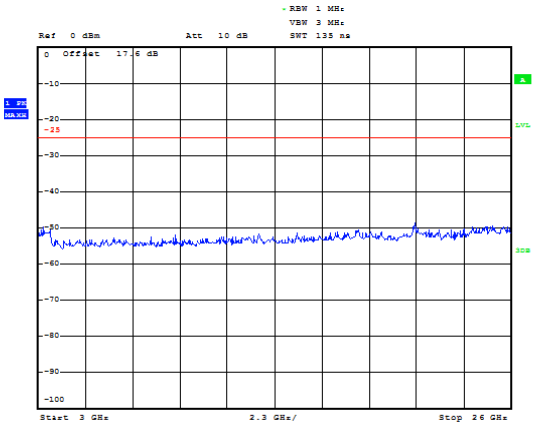
LTE Band 7 10MHz CH-High 1GHz~3GHz



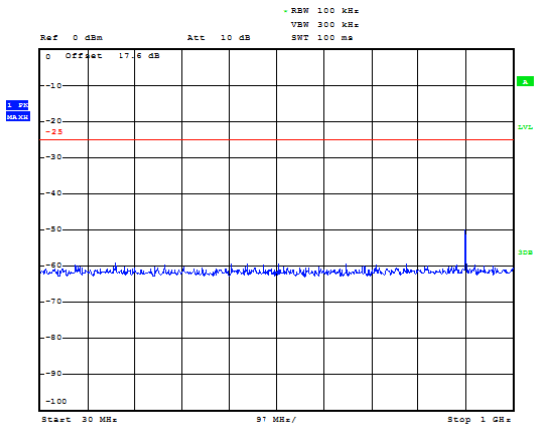
LTE Band 7 10MHz CH-Middle 3GHz~18GHz



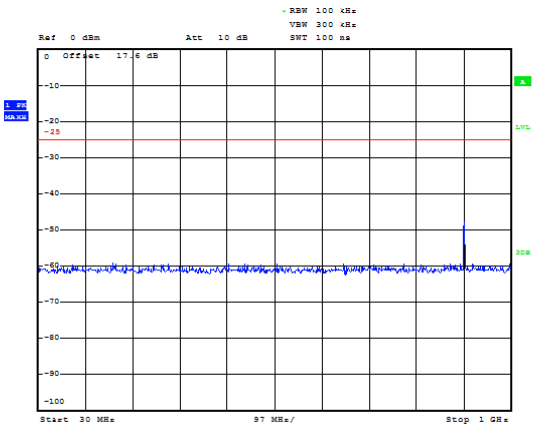
LTE Band 7 10MHz CH-High 3GHz~18GHz



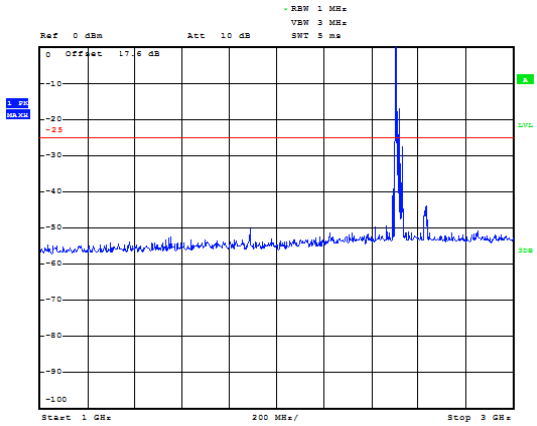
LTE Band 7 15MHz CH-Low 30MHz~1GHz



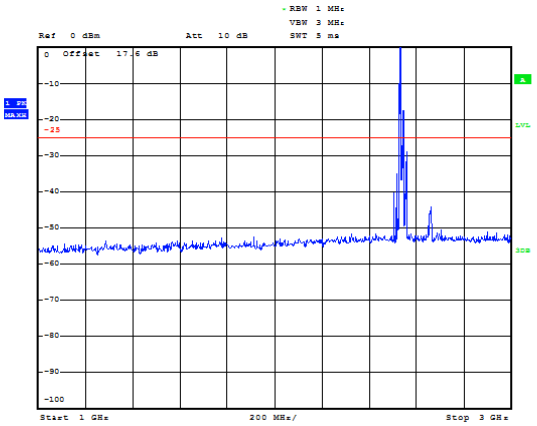
LTE Band 7 15MHz CH-Middle 30MHz~1GHz



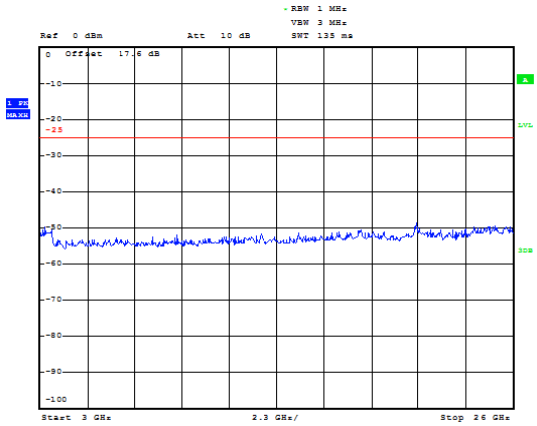
LTE Band 7 15MHz CH-Low 1GHz~3GHz



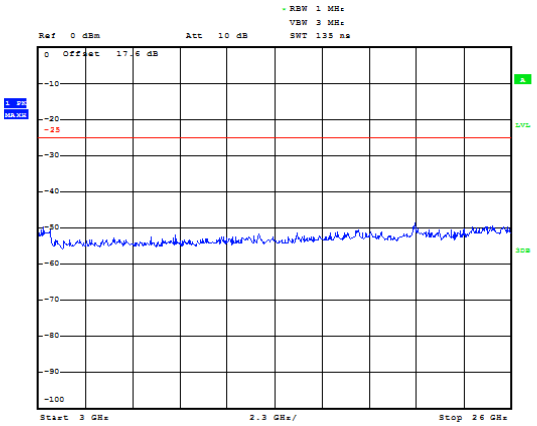
LTE Band 7 15MHz CH-Middle 1GHz~3GHz



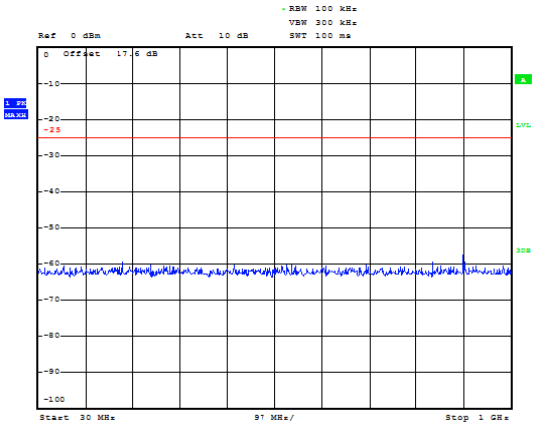
LTE Band 7 15MHz CH-Low 3GHz~18GHz



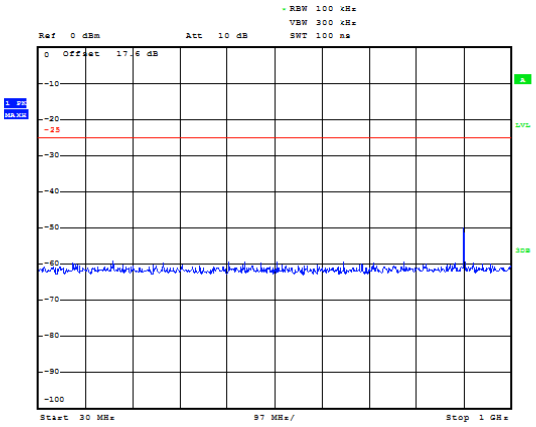
LTE Band 7 15MHz CH-Middle 3GHz~18GHz



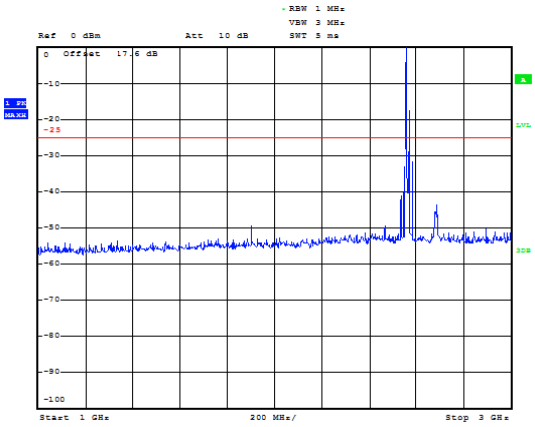
LTE Band 7 15MHz CH-High 30MHz~1GHz



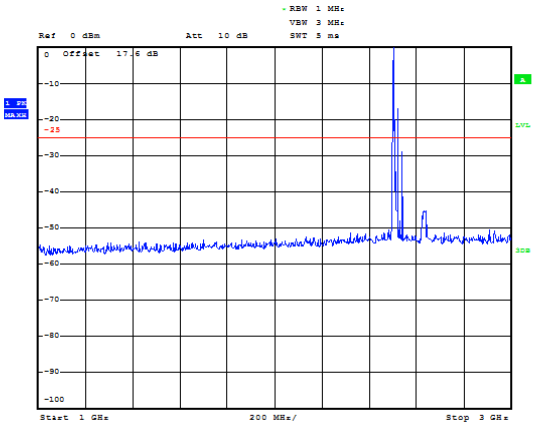
LTE Band 7 20MHz CH-Low 30MHz~1GHz



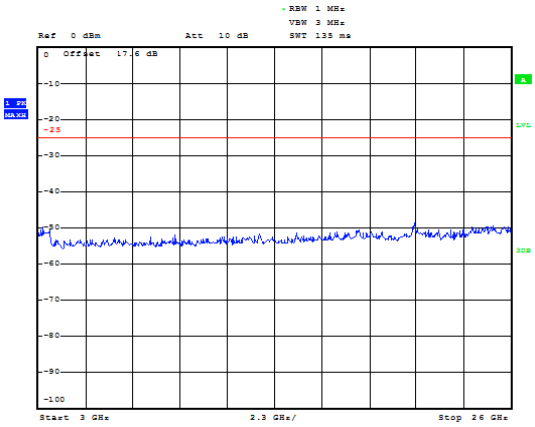
LTE Band 7 15MHz CH-High 1GHz~3GHz



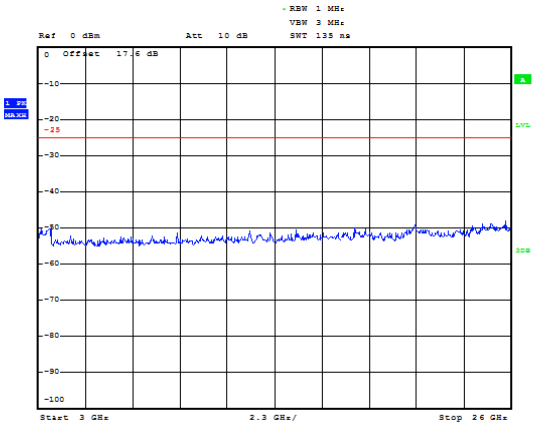
LTE Band 7 20MHz CH-Low 1GHz~3GHz



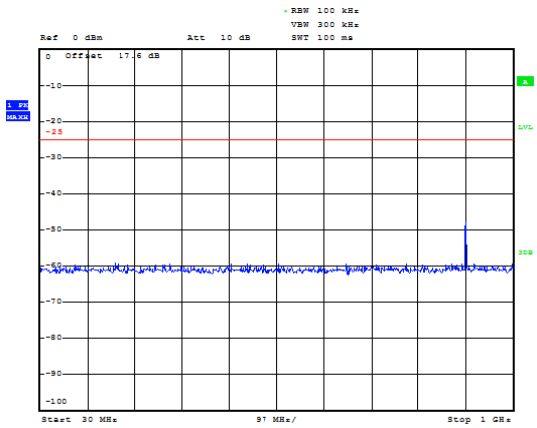
LTE Band 7 15MHz CH-High 3GHz~18GHz



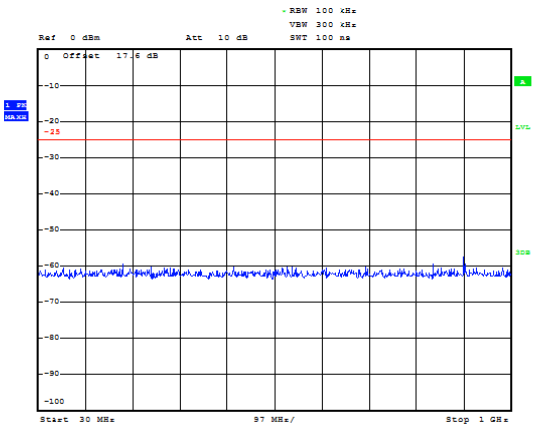
LTE Band 7 20MHz CH-Low 3GHz~18GHz



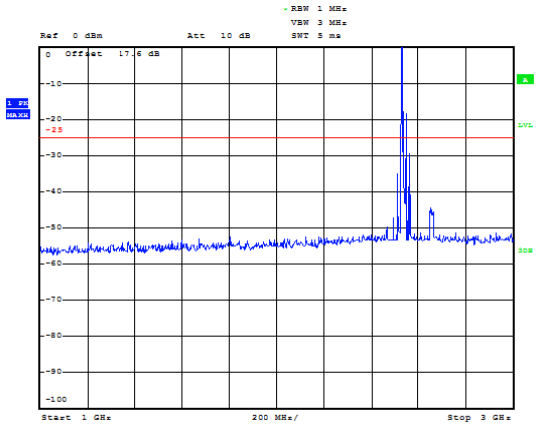
LTE Band 7 20MHz CH-Middle 30MHz~1GHz



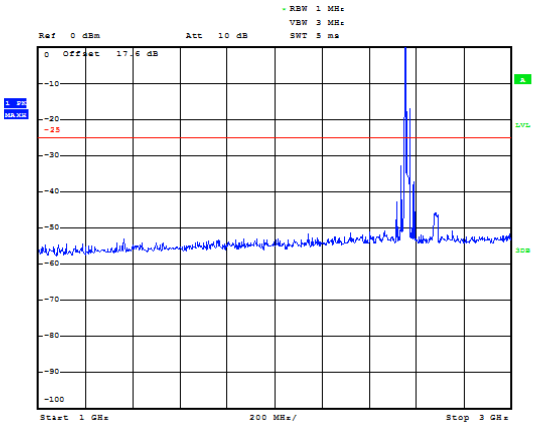
LTE Band 7 20MHz CH-High 30MHz~1GHz



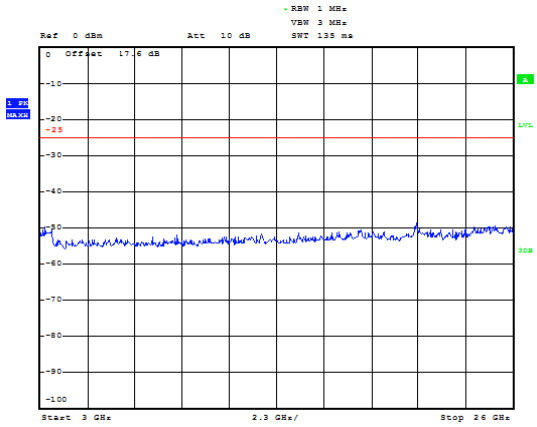
LTE Band 7 20MHz CH-Middle 1GHz~3GHz



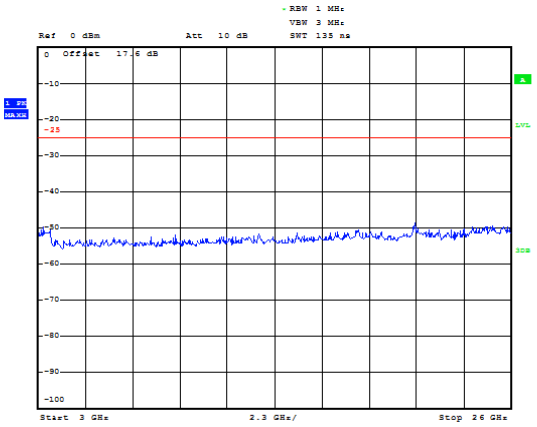
LTE Band 7 20MHz CH-High 1GHz~3GHz



LTE Band 7 20MHz CH-Middle 3GHz~18GHz



LTE Band 7 20MHz CH-High 3GHz~18GHz



5.8 Radiates Spurious Emission

Ambient condition

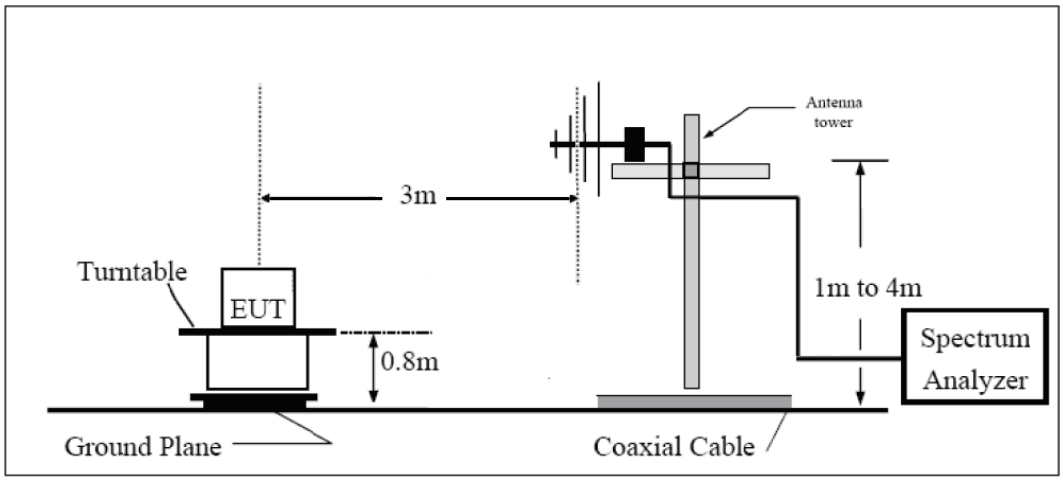
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

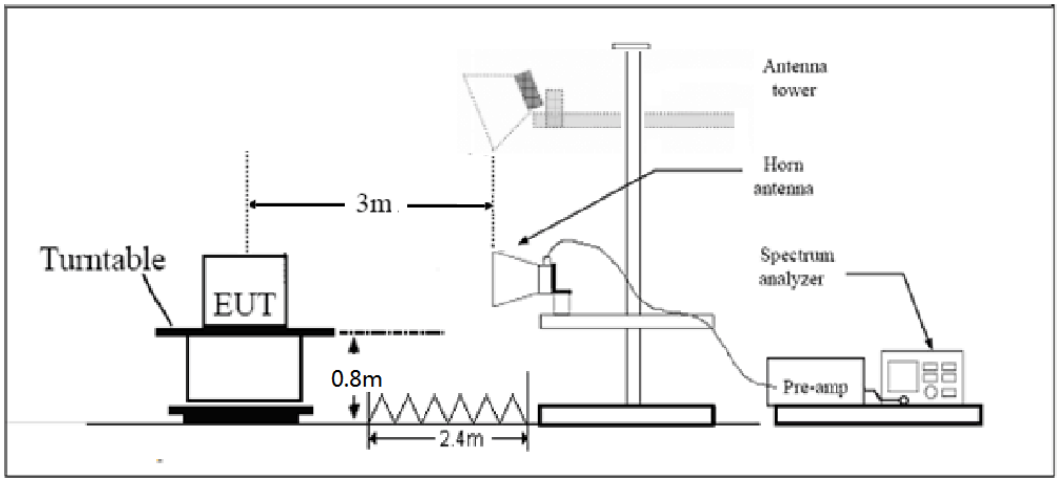
1. The testing follows FCC KDB 971168 D01 v03r01 Section 5.8 and ANSI/TIA-603-E (2016).
2. The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).
3. A log-periodic antenna or double-ridged waveguide horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the same power value on the spectrum analyzer or receiver. The level of the spurious emissions can be calculated through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver.
4. The EUT is then put into continuously transmitting mode at its maximum power level during the test.Set Test Receiver or Spectrum RBW=1MHz,VBW=3MHz, And the maximum value of the receiver should be recorded as (Pr).
5. The EUT shall be replaced by a substitution antenna. In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (PMea) is applied to the input of the substitution antenna, and adjust the level of the signal generator output until the value of the receiver reach the previously recorded (Pr). The power of signal source (PMea) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.
6. A amplifier should be connected to the Signal Source output port. And the cable should be connect between the Amplifier and the Substitution Antenna. The cable loss (Pcl) ,the Substitution Antenna Gain (Ga) and the Amplifier Gain (PAg) should be recorded after test.
7. The measurement results are obtained as described below:
Power(EIRP)=PMea- PAg - Pcl + Ga
The measurement results are amend as described below:
Power(EIRP)=PMea- Pcl + Ga
8. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power. ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP-2.15dBi.
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test setup

30MHz~~~ 1GHz



Above 1GHz



Note: Area side:2.4mX3.6m

The radiated emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in lie-down position (X axis) and the worst case was recorded.

Limits

Rule Part 27.53(h) specifies that “for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 log10 (P) dB..”

Rule Part 27.53(m) 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)(4) of this section.

Part 27.53(h) Limit	-13 dBm
Part 27.53(m) Limit	-25 dBm

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95％ confidence level for the normal distribution is with the coverage factor *k* = ±1.96, *U*= ±3.55 dB.

Test Result

Sweep the whole frequency band through the range from 30MHz to the 10th harmonic of the carrier, the emissions below the noise floor will not be recorded in the report.

WCDMA Band IV CH-Low

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3424.8	-65.95	2.6	10.15	Horizontal	-58.4	-13.0	45.4	90
3	5137.2	-59.75	2.4	11.35	Horizontal	-50.8	-13.0	37.8	225
4	6849.6	-55.25	4.5	10.85	Horizontal	-48.9	-13.0	35.9	0
5	8562.0	-53.55	5.1	11.35	Horizontal	-47.3	-13.0	34.3	180
6	10274.4	-50.35	5.3	11.95	Horizontal	-43.7	-13.0	30.7	45
7	11986.8	-51.15	5.5	13.55	Horizontal	-43.1	-13.0	30.1	45
8	13699.2	-48.55	6.3	13.75	Horizontal	-41.1	-13.0	28.1	225
9	15411.6	-48.65	6.7	13.85	Horizontal	-41.5	-13.0	28.5	180
10	17124.0	-46.35	6.8	14.25	Horizontal	-38.9	-13.0	25.9	90
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2. The worst emission was found in the antenna is Horizontal position.									

WCDMA Band IV CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3465.2	-65.25	2.6	10.75	Horizontal	-57.1	-13.0	44.1	0
3	5197.8	-61.25	2.4	11.05	Horizontal	-52.6	-13.0	39.6	180
4	6930.4	-54.95	4.5	11.15	Horizontal	-48.3	-13.0	35.3	45
5	8663.0	-52.45	5.1	11.35	Horizontal	-46.2	-13.0	33.2	45
6	10395.6	-50.05	5.3	11.95	Horizontal	-43.4	-13.0	30.4	180
7	12128.2	-50.05	5.5	13.55	Horizontal	-42.0	-13.0	29.0	315
8	13860.8	-47.05	6.3	13.75	Horizontal	-39.6	-13.0	26.6	180
9	15593.4	-50.35	6.7	13.85	Horizontal	-43.2	-13.0	30.2	90
10	17326.0	-45.65	6.8	14.25	Horizontal	-38.2	-13.0	25.2	0
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2. The worst emission was found in the antenna is Horizontal position.									

WCDMA Band IV CH-High

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3505.2	-54.05	2.6	10.15	Horizontal	-46.5	-13.0	33.5	180
3	5254.1	-59.45	2.4	11.05	Horizontal	-50.8	-13.0	37.8	0
4	7010.4	-53.85	4.5	11.15	Horizontal	-47.2	-13.0	34.2	180
5	8763.0	-51.95	5.1	11.35	Horizontal	-45.7	-13.0	32.7	45
6	10515.6	-49.65	5.3	11.95	Horizontal	-43.0	-13.0	30.0	45
7	12268.2	-50.75	5.5	13.55	Horizontal	-42.7	-13.0	29.7	135
8	14020.8	-46.65	6.3	13.75	Horizontal	-39.2	-13.0	26.2	135
9	15773.4	-48.75	6.7	13.85	Horizontal	-41.6	-13.0	28.6	315
10	17526.0	-46.95	6.8	14.25	Horizontal	-39.5	-13.0	26.5	180
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2. The worst emission was found in the antenna is Horizontal position.									

LTE Band 7 QPSK 5MHz CH-Low, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	5000.6	-50.45	2.00	9.15	Horizontal	-43.3	-25.0	18.3	180
3	7501.1	-52.45	2.50	11.35	Horizontal	-43.6	-25.0	18.6	225
4	10001.3	-45.15	4.20	12.05	Horizontal	-37.3	-25.0	12.3	45
5	12512.5	-48.05	5.20	12.85	Horizontal	-40.4	-25.0	15.4	180
6	15015.0	-49.33	5.50	14.23	Horizontal	-40.6	-25.0	15.6	270
7	17517.5	-47.55	5.70	14.15	Horizontal	-39.1	-25.0	14.1	135
8	20020.0	--	--	--	--	--	--	--	--
9	22522.5	--	--	--	--	--	--	--	--
10	25025.0	--	--	--	--	--	--	--	--
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2. The worst emission was found in the antenna is Horizontal position.									

LTE Band 7 QPSK 5MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	5065.8	-48.15	2.00	9.15	Horizontal	-41.0	-25.0	16.0	135
3	7598.6	-52.55	2.50	11.35	Horizontal	-43.7	-25.0	18.7	180
4	10130.6	-44.75	4.20	12.05	Horizontal	-36.9	-25.0	11.9	90
5	12675.0	-50.35	5.20	12.85	Horizontal	-42.7	-25.0	17.7	45
6	15210.0	-49.43	5.50	14.23	Horizontal	-40.7	-25.0	15.7	180
7	17745.0	-48.45	5.70	14.15	Horizontal	-40.0	-25.0	15.0	270
8	20280.0	--	--	--	--	--	--	--	--
9	22815.0	--	--	--	--	--	--	--	--
10	25350.0	--	--	--	--	--	--	--	--
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2. The worst emission was found in the antenna is Horizontal position.									

LTE Band 7 QPSK 5MHz CH-High, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	5130.8		2.00	9.15	Horizontal	-37.7	-25.0	12.7	225
3	7696.1	-44.85	2.50	11.35	Horizontal	-40.0	-25.0	15.0	45
4	10261.1	-48.85	4.20	12.05	Horizontal	-38.6	-25.0	13.6	90
5	12837.5	-46.45	5.20	12.85	Horizontal	-41.9	-25.0	16.9	180
6	15405.0	-49.55	5.50	14.23	Horizontal	-42.1	-25.0	17.1	180
7	17972.5	-50.83	5.70	14.15	Horizontal	-39.4	-25.0	14.4	270
8	20540.0	--	--	--	--	--	--	--	--
9	23107.5	--	--	--	--	--	--	--	--
10	25675.0	--	--	--	--	--	--	--	--
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2. The worst emission was found in the antenna is Horizontal position.									

LTE Band 7 QPSK 15MHz CH-Low, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	5001.8	-51.05	2.00	10.15	Horizontal	-42.9	-25.0	17.9	270
3	7502.6	-51.05	2.50	11.35	Horizontal	-42.2	-25.0	17.2	135
4	1000.4	-46.65	4.20	12.05	Horizontal	-38.8	-25.0	13.8	180
5	12537.5	-51.45	5.20	14.85	Horizontal	-41.8	-25.0	16.8	225
6	15045.0	-48.73	5.50	13.23	Horizontal	-41.0	-25.0	16.0	45
7	17552.5	-46.05	5.70	12.15	Horizontal	-39.6	-25.0	14.6	90
8	20060.0	--	--	--	--	--	--	--	--
9	22567.5	--	--	--	--	--	--	--	--
10	25075.0	--	--	--	--	--	--	--	--
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2. The worst emission was found in the antenna is Horizontal position.									

LTE Band 7 QPSK 15MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	5065.8	-51.25	2.00	10.15	Horizontal	-43.1	-25.0	18.1	180
3	7598.6	-50.35	2.50	11.35	Horizontal	-41.5	-25.0	16.5	270
4	10130.6	-46.45	4.20	12.05	Horizontal	-38.6	-25.0	13.6	135
5	12675.0	-50.85	5.20	14.85	Horizontal	-41.2	-25.0	16.2	180
6	15210.0	-47.83	5.50	13.23	Horizontal	-40.1	-25.0	15.1	225
7	17745.0	-45.45	5.70	12.15	Horizontal	-39.0	-25.0	14.0	45
8	20280.0	--	--	--	--	--	--	--	--
9	22815.0	--	--	--	--	--	--	--	--
10	25350.0	--	--	--	--	--	--	--	--
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2. The worst emission was found in the antenna is Horizontal position.									

LTE Band 7 QPSK 15MHz CH-High, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	5112.0	-48.55	2.00	10.15	Horizontal	-40.4	-25.0	15.4	270
3	7667.3	-50.35	2.50	11.35	Horizontal	-41.5	-25.0	16.5	135
4	10250.0	-48.45	4.20	12.05	Horizontal	-40.6	-25.0	15.6	45
5	12812.5	-51.85	5.20	14.85	Horizontal	-42.2	-25.0	17.2	270
6	15375.0	-49.93	5.50	13.23	Horizontal	-42.2	-25.0	17.2	180
7	17937.5	-45.25	5.70	12.15	Horizontal	-38.8	-25.0	13.8	270
8	20500.0	--	--	--	--	--	--	--	--
9	23062.5	--	--	--	--	--	--	--	--
10	25625.0	--	--	--	--	--	--	--	--
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2. The worst emission was found in the antenna is Horizontal position.									

LTE Band 7 QPSK 20MHz CH-Low, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	5002.1	-49.05	2.00	10.15	Horizontal	-40.9	-25.0	15.9	270
3	7530.0	-50.25	2.50	11.35	Horizontal	-41.4	-25.0	16.4	180
4	10040.0	-45.55	4.20	12.05	Horizontal	-37.7	-25.0	12.7	270
5	12550.0	-51.45	5.20	14.85	Horizontal	-41.8	-25.0	16.8	135
6	15060.0	-48.13	5.50	13.23	Horizontal	-40.4	-25.0	15.4	180
7	17570.0	-46.35	5.70	12.15	Horizontal	-39.9	-25.0	14.9	270
8	20080.0	--	--	--	--	--	--	--	--
9	22590.0	--	--	--	--	--	--	--	--
10	25100.0	--	--	--	--	--	--	--	--
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2. The worst emission was found in the antenna is Horizontal position.									

LTE Band 7 QPSK 20MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	5052.4	-46.95	2.00	10.15	Horizontal	-38.8	-25.0	13.8	270
3	7605.0	-48.05	2.50	11.35	Horizontal	-39.2	-25.0	14.2	135
4	10140.0	-46.75	4.20	12.05	Horizontal	-38.9	-25.0	13.9	45
5	12675.0	-52.65	5.20	14.85	Horizontal	-43.0	-25.0	18.0	270
6	15210.0	-49.93	5.50	13.23	Horizontal	-42.2	-25.0	17.2	180
7	17745.0	-45.65	5.70	12.15	Horizontal	-39.2	-25.0	14.2	270
8	20280.0	--	--	--	--	--	--	--	--
9	22815.0	--	--	--	--	--	--	--	--
10	25350.0	--	--	--	--	--	--	--	--
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2. The worst emission was found in the antenna is Horizontal position.									

LTE Band 7 QPSK 20MHz CH-High, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	5102.3	-51.85	2.00	10.15	Horizontal	-43.7	-25.0	18.7	45
3	7680.0	-48.65	2.50	11.35	Horizontal	-39.8	-25.0	14.8	180
4	10240.0	-47.05	4.20	12.05	Horizontal	-39.2	-25.0	14.2	270
5	12800.0	-51.45	5.20	14.85	Horizontal	-41.8	-25.0	16.8	135
6	15360.0	-50.63	5.50	13.23	Horizontal	-42.9	-25.0	17.9	45
7	17920.0	-45.65	5.70	12.15	Horizontal	-39.2	-25.0	14.2	270
8	20480.0	--	--	--	--	--	--	--	--
9	23040.0	--	--	--	--	--	--	--	--
10	25600.0	--	--	--	--	--	--	--	--
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2. The worst emission was found in the antenna is Horizontal position.									

6 Main Test Instruments

Name	Manufacturer	Type	Serial Number	Calibration Date	Expiration Date
Base Station Simulator	R&S	CMW500	113645	2018-05-20	2019-05-19
Universal Radio Communication Tester	Agilent	E5515C	MY48367192	2018-05-20	2019-05-19
Power Splitter	Hua Xiang	SHX-GF2-2-13	10120101	/	/
Spectrum Analyzer	Key sight	N9010A	MY50210259	2018-05-20	2019-05-19
Signal Analyzer	R&S	FSV30	100815	2017-12-17	2018-12-16
Signal generator	R&S	SMB 100A	102594	2018-05-20	2019-05-19
EMI Test Receiver	R&S	ESCI	100948	2018-05-20	2019-05-19
Loop Antenna	SCHWARZBECK	FMZB1519	1519-047	2014-12-06	2019-12-05
Trilog Antenna	SCHWARZBECK	VUBL 9163	9163-201	2017-11-18	2020-11-17
Horn Antenna	R&S	HF907	100126	2014-12-06	2019-12-05
Horn Antenna	ETS-Lindgren	3160-09	00102643	2015-01-30	2020-01-29
Climatic Chamber	ESPEC	SU-242	93000506	2017-12-17	2020-12-16
RF Cable	Agilent	SMA 15cm	0001	/	/
Preampflier	R&S	SCU18	102327	2018-05-20	2019-05-19
MOB COMMS DC SUPPLY	Keysight	66319D	MY43004105	2018-05-20	2019-05-19
Software	R&S	EMC32	V9.26.0	/	/

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