

# No. I17N00068-LTE

for

Power Idea Technology (Shenzhen) Co., Ltd.

**TD-LTE** digital mobile phone

**Model Name: RG730** 

IC: 11113A-RG730

with

Hardware Version: 1.04

Software Version: RG730 US 25 V1.01 V02W 20161205

Issued Date: 2017-03-06

#### Note:

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of CTTL.

#### **Test Laboratory:**

IC O.A.T.S listed: No.21856

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# **REPORT HISTORY**

Report Number	Revision	Description	Issue Date
I17N00068-LTE	Rev.0	1st edition	2017-03-06

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# 1. Test Laboratory

## 1.1. Testing Location

Company Name: CTTL ShenZhen, Telecommunication Technology Labs, Academy of

Telecommunication Research, MIIT

Address: TCL International E city No. 1001 Zhongshanyuan Road, Nanshan

District, Shenzhen, Guangdong, China

Postal Code: 518048

Telephone: +86(755)33322000 Fax: +86(755)33322000

## 1.2. <u>Testing Environment</u>

Normal Temperature: 15-35°C Relative Humidity: 20-75%

Air pressure 980 - 1040 hPa

The climatic requirements above are general exclude the special requirements for dedicated test environments listed in section 5 and some specific test cases in other parts of this report.

#### 1.3. Project data

Testing Start Date: 2017-01-18
Testing End Date: 2017-02-28

#### 1.4. Signature

lai	Minghua
	this test report)
(i repared	tilis test report)
Ya	ng Zi'an
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	ng Bojun

(Approved this test report)



# 2. Client Information

## 2.1. Applicant Information

Company Name: Power Idea Technology (Shenzhen) Co., Ltd.

4th Floor, A Section, Languang Science&technology Building, No.7

Address / Post: Xinxi RD, Hi-Tech Industrial Park North, Nanshan District, ShenZhen,

P.R.C.

Contact Person: alex.ma

Contact Email alex.ma@pwidea.com Telephone: 0086-0755-86220211

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#### 2.2. Manufacturer Information

Company Name: Power Idea Technology (Shenzhen) Co., Ltd.

4th Floor, A Section, Languang Science&technology Building, No.7

Address / Post: Xinxi RD, Hi-Tech Industrial Park North, Nanshan District, ShenZhen,

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# 3. Equipment Under Test (EUT) and Ancillary Equipment (AE)

#### 3.1. About EUT

Description TD-LTE digital mobile phone

Model Name RG730

IC 11113A-RG730 Antenna Integrated

RF power setting in TEST SW RG730\_US\_25\_V1.01\_V02W\_20161205 Extreme vol. Limits 3.6VDC to 4.2VDC (nominal: 3.7VDC)

Extreme temp. Tolerance -30°C to +50°C

Note: Components list, please refer to documents of the manufacturer; it is also included in the original test record of CTTL, Telecommunication Technology Labs, Academy of Telecommunication Research, MIIT

#### 3.2. Internal Identification of EUT used during the test

EUT ID*	IMEI	<b>HW Version</b>	SW Version	Sample Arrival Date
S01	867453021949725	1.04	RG730_US_25_V1.0	2017-01-18
			1_V02W_20161205	

<sup>\*</sup>EUT ID: is used to identify the test sample in the lab internally.

#### 3.3. Internal Identification of AE used during the test

# AE ID\* Description AE1 Battery AE2 Charger

AE1

Model Li-ion Rechargeable Battery

Manufacturer Springpower Technology (Shenzhen) Co., LTD

Capacitance 3020mAh

AE2

Model HKC0055010-2D

Manufacturer SHENZHEN HUNTKEY ELECTRIC CO., LTD

#### 3.4. General Description

The Equipment Under Test (EUT) is a model TD-LTE mobile phone with integrated antenna. It consists of normal options: lithium battery, charger. Manual and specifications of the EUT were provided to fulfil the test.

<sup>\*</sup>AE ID: is used to identify the test sample in the lab internally.



# 4. Reference Documents

# 4.1. Reference Documents for testing

The following documents listed in this section are referred for testing.

Reference	Title	Version	
RSS-Gen	RSS-Gen —General Requirements for Compliance of	Issue 4	
	Radio Apparatus		
RSS-130	Mobile Broadband Services (MBS) Equipment Operating in	Issue 1	
	the Frequency		
	Bands 698-756 MHz and 777-787 MHz		
RSS-132	Cellular Telephones Employing New Technologies	Issue 3	
	Operating in the Bands 824-849 MHz and 869-894 MHz		
RSS-133	2 GHz Personal Communications Services	Issue 6	
RSS-139	Advanced Wireless Services Equipment Operating in the Issue 3		
	Bands 1710-1755 MHz and 2110-2155 MHz		
ANSI/TIA-603-D	Land Mobile FM or PM Communications Equipment	2010	
	Measurement and Performance Standards		
ANSI C63.4	Methods of Measurement of Radio-Noise Emissions from	2014	
	Low-Voltage Electrical and Electronic Equipment in the		
	Range of 9 kHz to 40 GHz		
KDB 971168 D01	Power Meas License Digital Systems	v02r02	
ANSI C63.26	American National Standard of Procedures for Compliance	2015	
	Testing of Licensed Transmitters Used in Licensed Radio		
	Service		
	001 1100		



# 5. LABORATORY ENVIRONMENT

**Semi-anechoic chamber SAC-1** (23 meters × 17meters × 10meters) did not exceed following limits along the EMC testing:

Min. = 15 °C, Max. = 35 °C
Min. = 15 %, Max. = 75 %
0.014MHz - 1MHz, >60dB;
1MHz - 1000MHz, >90dB.
> 2 MΩ
< 4Ω
< ± 4 dB, 3m/10m distance,
from 30 to 1000 MHz
Between 0 and 6 dB, from 1GHz to 18GHz
Between 0 and 6 dB, from 80 to 3000 MHz

**Fully-anechoic chamber FAC-3** (9 meters × 6.5 meters × 4 meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. = 15 %, Max. = 75 %
Shielding effectiveness	0.014MHz - 1MHz, >60dB;
	1MHz - 1000MHz, >90dB.
Electrical insulation	> 2 MΩ
Ground system resistance	< 4 Ω
Site voltage standing-wave ratio (Svswr)	Between 0 and 6 dB, from 1GHz to 18GHz
Uniformity of field strength	Between 0 and 6 dB, from 80 to 4000 MHz

**Shielded room** did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. = 20 %, Max. = 75 %
Shielding effectiveness	0.014MHz - 1MHz, >60dB;
	1MHz - 1000MHz, >90dB.
Electrical insulation	> 2 MΩ
Ground system resistance	< 4 Ω



# 6. SUMMARY OF TEST RESULTS

# 6.1. Summary of test results

Abbreviations used in this clause:		
	Р	Pass
Verdict Column	F	Fail
	NA	Not applicable
	NM	Not measured
Location Column	A/B/C/D	The test is performed in test location A, B, C or D
Location Column	A/B/C/D	which are described in section 1.1 of this report

#### LTE Band 2

Items	Test Name	Clause in IC rules RSS-Gen and RSS- 133	Verdict
1	Output Power	6.4	Р
2	Emission Limit	6.5	Р
3	Frequency Stability	6.3	Р
4	Occupied Bandwidth	6.6	Р
5	Emission Bandwidth	6.6	Р
6	Band Edge Compliance	6.5	Р
7	Conducted Spurious Emission	6.13/6.5	Р
8	Peak to Average Power Ratio	6.4	Р

Items	Test Name	Clause in IC rules RSS-Gen and RSS- 139	Verdict
1	Output Power	6.5	Р
2	Emission Limit	6.6	Р
3	Frequency Stability	6.4	Р
4	Occupied Bandwidth	6.6	Р
5	Emission Bandwidth	6.6	Р
6	Band Edge Compliance	6.6	Р
7	Conducted Spurious Emission	6.6	Р
8	Peak to Average Power Ratio	6.5	Р



#### LTE Band 5

Items	Test Name	Clause in IC rules RSS-Gen and RSS-132	Verdict
1	Output Power	5.4	Р
2	Emission Limit	5.5	Р
3	Frequency Stability	5.3	Р
4	Occupied Bandwidth	6.6	Р
5	Emission Bandwidth	6.6	Р
6	Band Edge Compliance	5.5	Р
7	Conducted Spurious Emission	6.13/5.5	Р
8	Peak to Average Power Ratio	5.4	P

## LTE Band 7

Items	Test Name	Clause in IC rules RSS-Gen and RSS- 133	Verdict
1	Output Power	6.4	Р
2	Emission Limit	6.5	Р
3	Frequency Stability	6.3	Р
4	Occupied Bandwidth	6.6	Р
5	Emission Bandwidth	6.6	Р
6	Band Edge Compliance	6.5	Р
7	Conducted Spurious Emission	6.13/6.5	Р
8	Peak to Average Power Ratio	6.4	Р

Items	Test Name	Clause in IC rules RSS-Gen and RSS- 130	Verdict
1	Output Power	4.4	Р
2	Emission Limit	4.6	Р
3	Frequency Stability	4.3	Р
4	Occupied Bandwidth	6.6	Р
5	Emission Bandwidth	6.6	Р
6	Band Edge Compliance	4.6	Р
7	Conducted Spurious Emission	4.6	Р
8	Peak to Average Power Ratio	4.4	Р



#### LTE Band 13

Items	Test Name	Clause in IC rules RSS-Gen and RSS- 130	Verdict
1	Output Power	4.4	Р
2	Emission Limit	4.6	Р
3	Frequency Stability	4.3	Р
4	Occupied Bandwidth	6.6	Р
5	Emission Bandwidth	6.6	Р
6	Band Edge Compliance	4.6	Р
7	Conducted Spurious Emission	4.6	Р
8	Peak to Average Power Ratio	4.4	Р

## LTE Band 17

Items	Test Name	Clause in IC rules RSS-Gen and RSS- 130	Verdict
1	Output Power	4.4	Р
2	Emission Limit	4.6	Р
3	Frequency Stability	4.3	Р
4	Occupied Bandwidth	6.6	Р
5	Emission Bandwidth	6.6	Р
6	Band Edge Compliance	4.6	Р
7	Conducted Spurious Emission	4.6	Р
8	Peak to Average Power Ratio	4.4	Р

Items	Test Name	Clause in IC rules RSS-Gen and RSS- 133	Verdict
1	Output Power	6.4	Р
2	Emission Limit	6.5	Р
3	Frequency Stability	6.3	Р
4	Occupied Bandwidth	6.6	Р
5	Emission Bandwidth	6.6	Р
6	Band Edge Compliance	6.5	Р
7	Conducted Spurious Emission	6.13/6.5	Р
8	Peak to Average Power Ratio	6.4	Р



#### LTE Band 26

Items	Test Name	Clause in IC rules RSS-Gen and RSS-132	Verdict
1	Output Power	5.4	Р
2	Emission Limit	5.5	Р
3	Frequency Stability	5.3	Р
4	Occupied Bandwidth	6.6	Р
5	Emission Bandwidth	6.6	Р
6	Band Edge Compliance	5.5	Р
7	Conducted Spurious Emission	6.13/5.5	Р
8	Peak to Average Power Ratio	5.4	Р

Items	Test Name	Clause in IC rules RSS-Gen and RSS- 133	Verdict
1	Output Power	6.4	Р
2	Emission Limit	6.5	Р
3	Frequency Stability	6.3	Р
4	Occupied Bandwidth	6.6	Р
5	Emission Bandwidth	6.6	Р
6	Band Edge Compliance	6.5	Р
7	Conducted Spurious Emission	6.13/6.5	Р
8	Peak to Average Power Ratio	6.4	Р



# 7. Test Equipments Utilized

NO.	Description	TYPE	Manufacture	series number	CAL DUE DATE
1	Test Receiver	ESR7	R&S	101675	2017-07-21
2	BiLog Antenna	VULB9163	Schwarzbeck	9163330	2017-04-22
3	Horn Antenna	3117	ETS-Lindgren	00066585	2019-03-05
4	Antenna	SBA 9113	814	Schwarzbeck	/
5	Antenna	SBA 9112	302	Schwarzbeck	/
6	Antenna	3160-09	LM4750/00118388	ETS-Lindgren	2018.07.14
7	preamplifier	83017A	MY39501110	Agilent	/
8	Signal Generator	SMR40	R&S	100541	2017-06-27
9	Fully Anechoic Chamber	FACT5-2.0	ETS-Lindgren	4166	2018-05-13
10	Spectrum Analyzer	FSP40	R&S	100378	2017-12-15
11	Universal Radio Communication Tester	CMU200	R&S	114544	2017-09-09
12	Universal Radio Communication Tester	CMW500	R&S	158344	2017-07-21
13	Universal Radio Communication Tester	CMU200	R&S	123210	2017-12-25
14	Spectrum Analyzer	FSU	R&S	200679	2017-12-25
15	Temperature Chamber	SH-241	ESPECs	92007516	2017-11-29
16	DC Power Supply	U3606A	Agilent Technologies	MY50450012	2017-11-22

#### **Test software**

ltem	Name	Vesion
Radiated	EMC32	Version 10.01.00



# **ANNEX A: MEASUREMENT RESULTS**

#### **A.1 OUTPUT POWER**

#### A.1.1 Summary

During the process of testing, the EUT was controlled via Rhode & Schwarz Digital Radio Communication tester (CMW500) to ensure max power transmission and proper modulation.

This result contains peak output power and ERP/EIRP measurements for the EUT.

In all cases, output power is within the specified limits.

#### A.1.2 Conducted

#### A.1.2.1 Method of Measurements

The EUT was set up for the max output power with pseudo random data modulation.

These measurements were done at 3 frequencies (bottom, middle and top of operational frequency range) for each bandwidth.

#### A.1.2.2 Measurement result

Bandwidth	RB size/offset	Fragues av (MHz)	Power	(dBm)
Danuwium	RD SIZE/OIISEL	Frequency (MHz)	QPSK	16QAM 21.60 21.76 21.47 21.60 21.75 21.44 21.38 21.56 21.30 20.50 20.65 20.42 21.58 21.69 21.48 21.60 21.73 21.44 20.50 20.66 20.39
		1909.3	22.26	21.60
	1 RB high	1880.0	22.44	21.76
		1850.7	22.29	21.47
		1909.3	22.27	21.60
	1 RB low	1880.0	22.45	21.75
1.4MHz		1850.7	22.29	21.44
		1909.3	22.32	21.38
	50% RB mid	1880.0	22.51	21.56
		1850.7	22.36	21.30
	100% RB	1909.3	21.39	20.50
		1880.0	21.52	20.65
		1850.7	21.41	20.42
		1908.5	22.23	21.58
	1 RB high	1880.0	22.37	21.69
		1851.5	22.26	21.48
		1908.5	22.25	21.60
3MHz	1 RB low	1880.0	22.41	21.73
		1851.5	22.26	21.44
		1908.5	21.38	20.50
	50% RB mid	1880.0	21.54	20.66
		1851.5	21.39	20.39



		1908.5	21.41	20.47
	100% RB	1880.0	21.54	20.61
		1851.5	21.44	20.40
		1907.5	22.22	21.56
	1 RB high	1880.0	22.40	21.73
		1852.5	22.25	21.52
		1907.5	22.31	21.63
	1 RB low	1880.0	22.47	21.82
5MHz		1852.5	22.33	21.51
JIVII 12		1907.5	21.39	20.47
	50% RB mid	1880.0	21.56	20.65
		1852.5	21.42	20.40
		1907.5	21.37	20.42
	100% RB	1880.0	21.50	20.57
		1852.5	21.41	20.38
		1905.0	22.25	21.61
	1 RB high	1880.0	22.38	21.73
		1855.0	22.36	21.67
		1905.0	22.34	21.65
10MHz	1 RB low	1880.0	22.51	21.84
		1855.0	22.36	21.52
TOME		1905.0	21.33	20.41
	50% RB mid	1880.0	21.51	20.58
		1855.0	21.42	20.42
		1905.0	21.38	20.45
	100% RB	1880.0	21.52	20.59
		1855.0	21.43	20.45
		1902.5	22.32	21.67
	1 RB high	1880.0	22.50	21.83
		1857.5	22.37	21.67
		1902.5	22.35	21.69
	1 RB low	1880.0	22.51	21.85
15MHz	-	1857.5	22.38	21.56
		1902.5	22.39	21.44
	50% RB mid			
	50% KB IIIIU	1880.0	22.57	21.62
		1857.5	22.41	21.44
		1902.5	21.39	20.46
	100% RB	1880.0	21.52	20.58
		1857.5	21.44	20.44



		1900.0	22.21	21.60
	1 RB high	1880.0	22.31	21.65
		1860.0	22.39	21.76
		1900.0	22.37	21.73
	1 RB low	1880.0	22.52	21.86
20MHz		1860.0	22.39	21.55
ZUIVITZ		1900.0	21.34	20.43
	50% RB mid	1880.0	21.49	20.58
		1860.0	21.45	20.52
		1900.0	21.34	20.39
	100% RB	1880.0	21.48	20.53
		1860.0	21.45	20.48



Dandwidth	DD oizo/offost	Fraguency (MIII-)	Power(dBm)	
Bandwidth	RB size/offset	Frequency (MHz)	QPSK	16QAM
		1754.3	22.61	21.81
	1 RB high	1732.5	22.55	21.78
		1710.7	22.54	21.74
		1754.3	22.61	21.83
	1 RB low	1732.5	22.57	21.82
4 40411-		1710.7	22.55	21.75
1.4MHz		1754.3	22.69	21.66
	50% RB mid	1732.5	22.63	21.60
		1710.7	22.60	21.57
		1754.3	21.71	20.73
	100% RB	1732.5	21.64	20.67
		1710.7	21.64	20.66
		1753.5	22.55	21.80
	1 RB high	1732.5	22.49	21.73
		1711.5	22.49	21.69
	1 RB low	1753.5	22.57	21.80
		1732.5	22.53	21.76
3MHz		1711.5	22.52	21.73
SIVITZ	50% RB mid	1753.5	21.70	20.71
		1732.5	21.66	20.66
		1711.5	21.67	20.66
	100% RB	1753.5	21.70	20.67
		1732.5	21.64	20.63
		1711.5	21.66	20.63
		1752.5	22.55	21.80
	1 RB high	1732.5	22.49	21.74
		1712.5	22.50	21.71
		1752.5	22.61	21.85
	1 RB low	1732.5	22.62	21.88
5MHz		1712.5	22.60	21.80
SIVITIZ		1752.5	21.71	20.68
	50% RB mid	1732.5	21.69	20.64
		1712.5	21.68	20.63
		1752.5	21.69	20.65
	100% RB	1732.5	21.64	20.60
		1712.5	21.64	20.59
40141-	4 DD bink	1750.0	22.60	21.80
10MHz	1 RB high	1732.5	22.49	21.72



		1715.0	22.50	21.80
		1750.0	22.53	21.74
	1 RB low	1732.5	22.66	21.88
		1715.0	22.62	21.82
		1750.0	21.67	20.63
	50% RB mid	1732.5	21.66	20.60
		1715.0	21.64	20.59
		1750.0	21.67	20.64
	100% RB	1732.5	21.66	20.61
		1715.0	21.69	20.64
		1747.5	22.54	21.74
	1 RB high	1732.5	22.64	21.89
		1717.5	22.64	21.85
		1747.5	22.57	21.78
	1 RB low	1732.5	22.67	21.89
458411		1717.5	22.66	21.84
15MHz		1747.5	22.58	21.54
	50% RB mid	1732.5	22.72	21.69
		1717.5	22.67	21.62
	100% RB	1747.5	21.61	20.56
		1732.5	21.72	20.68
		1717.5	21.68	20.62
		1745.0	22.59	21.83
	1 RB high	1732.5	22.46	21.65
		1720.0	22.62	21.82
		1745.0	22.65	21.86
	1 RB low	1732.5	22.71	21.92
201411-		1720.0	22.69	21.84
20MHz		1745.0	21.61	20.58
	50% RB mid	1732.5	21.68	20.65
		1720.0	21.72	20.67
		1745.0	21.64	20.59
	100% RB	1732.5	21.64	20.59
		1720.0	21.69	20.64



Pandwidth	DD size/offeet	Fraguesey (MILE)	Power(dBm)	
Bandwidth	RB size/offset	Frequency (MHz)	QPSK	16QAM
		848.3	22.38	21.70
	1 RB high	836.5	22.31	21.66
		824.7	22.29	21.53
		848.3	22.36	21.67
	1 RB low	836.5	22.28	21.61
1.4MHz		824.7	22.31	21.53
1.4WITZ		848.3	22.41	21.46
	50% RB mid	836.5	22.33	21.39
		824.7	22.35	21.34
		848.3	21.51	20.60
	100% RB	836.5	21.38	20.47
		824.7	21.36	20.40
		847.5	22.33	21.63
	1 RB high	836.5	22.30	21.64
		825.5	22.27	21.50
	1 RB low	847.5	22.33	21.61
		836.5	22.25	21.60
3MHz		825.5	22.26	21.54
SIVITZ	50% RB mid	847.5	21.49	20.56
		836.5	21.41	20.47
		825.5	21.39	20.41
	100% RB	847.5	21.52	20.53
		836.5	21.36	20.38
		825.5	21.38	20.34
	1 RB high	846.5	22.38	21.71
		836.5	22.32	21.66
		826.5	22.31	21.55
		846.5	22.35	21.58
	1 RB low	836.5	22.33	21.64
ENALI-		826.5	22.37	21.61
5MHz		846.5	21.54	20.53
	50% RB mid	836.5	21.41	20.44
		826.5	21.42	20.39
		846.5	21.49	20.47
	100% RB	836.5	21.39	20.37
		826.5	21.38	20.35
40041-	4 DD 1:-1-	844.0	22.46	21.79
10MHz	1 RB high	836.5	22.35	21.63



	829.0	22.37	21.67
	844.0	22.43	21.72
1 RB low	836.5	22.40	21.67
	829.0	22.40	21.62
	844.0	21.44	20.40
50% RB mid	836.5	21.43	20.43
	829.0	21.43	20.40
	844.0	21.49	20.47
100% RB	836.5	21.44	20.44
	829.0	21.45	20.43



Donduidth	DD size/effect	Frequency (MHz)	Power(dBm)	
Bandwidth	RB size/offset	Frequency (MHz)	QPSK	16QAM
		2567.5	22.10	21.46
	1 RB high	2535.0	22.69	22.08
		2502.5	22.50	21.89
		2567.5	22.66	22.03
	1 RB low	2535.0	22.99	22.38
5MHz		2502.5	22.36	21.77
SIVIEZ		2567.5	21.25	20.44
	50% RB mid	2535.0	21.62	20.80
		2502.5	21.22	20.41
		2567.5	21.31	20.53
	100% RB	2535.0	21.70	20.87
		2502.5	21.30	20.49
		2565.0	21.85	21.15
	1 RB high	2535.0	22.24	21.63
		2505.0	22.45	21.78
	1 RB low	2565.0	23.27	22.47
		2535.0	22.88	22.23
10MHz		2505.0	21.99	21.34
TOWN 12	50% RB mid	2565.0	21.89	21.01
		2535.0	21.75	20.90
		2505.0	21.35	20.51
		2565.0	21.91	21.06
	100% RB	2535.0	21.79	20.96
		2505.0	21.41	20.58
		2562.5	23.31	22.50
	1 RB high	2535.0	23.06	22.26
		2507.5	22.39	21.66
		2562.5	23.26	22.47
	1 RB low	2535.0	23.54	22.72
		2507.5	22.34	21.60
15MHz		2562.5	23.33	22.33
	50% RB mid	2535.0	23.35	22.39
	JO /0 IND IIIId	2507.5	22.36	21.43
		+		
	4000/ ==	2562.5	22.32	21.37
	100% RB	2535.0	22.45	21.50
		2507.5	21.46	20.56
20MHz	1 RB high	2560.0	23.39	22.25



		2535.0	23.51	22.45
		2510.0	23.58	22.85
		2560.0	23.30	22.62
	1 RB low	2535.0	23.49	22.76
		2510.0	22.94	22.02
		2560.0	22.38	21.43
	50% RB mid	2535.0	22.59	21.53
		2510.0	22.32	21.25
		2560.0	22.39	21.44
	100% RB	2535.0	22.56	21.58
		2510.0	22.53	21.42



Bandwidth	RB size/offset	Frequency (MHz)	Power	r(dBm)
Danuwiutii	RD Size/Offset	Frequency (MHZ)	QPSK	16QAM
		715.3	22.37	21.72
	1 RB high	707.5	22.40	21.73
		699.7	22.34	21.70
		715.3	22.37	21.70
	1 RB low	707.5	22.40	21.73
1.4MHz		699.7	22.33	21.70
1.4IVITZ		715.3	22.45	21.49
	50% RB mid	707.5	22.45	21.52
		699.7	22.40	21.49
		715.3	21.47	20.59
	100% RB	707.5	21.49	20.62
		699.7	21.42	20.57
		714.5	22.36	21.71
	1 RB high	707.5	22.37	21.72
		700.5	21.81	21.21
	1 RB low	714.5	22.07	21.40
		707.5	22.35	21.69
2N4LI=		700.5	22.30	21.66
3MHz	50% RB mid	714.5	21.48	20.61
		707.5	21.51	20.61
		700.5	21.30	20.41
		714.5	21.43	20.50
	100% RB	707.5	21.48	20.55
		700.5	21.24	20.30
		713.5	22.38	21.73
	1 RB high	707.5	22.42	21.77
		701.5	22.41	21.75
		713.5	22.45	21.79
	1 RB low	707.5	22.42	21.75
ENALI-		701.5	22.38	21.75
5MHz		713.5	21.39	20.45
	50% RB mid	707.5	21.56	20.60
		701.5	21.10	20.35
		713.5	21.42	20.46
	100% RB	707.5	21.48	20.52
		701.5	21.24	20.38
40041-	4 DD Link	711.0	22.52	21.84
10MHz	1 RB high	707.5	22.55	21.87



		704.0	22.52	21.86
		711.0	22.44	21.79
	1 RB low	707.5	22.44	21.78
		704.0	22.39	21.72
		711.0	21.52	20.54
	50% RB mid	707.5	21.51	20.54
		704.0	21.40	20.43
		711.0	21.53	20.56
	100% RB	707.5	21.53	20.56
		704.0	21.42	20.44



Dan duri dila	DD size/effect		Power	r(dBm)
Bandwidth	RB size/offset	Frequency (MHz)	QPSK	16QAM
		784.5	22.17	21.45
	1 RB high	782.0	22.38	21.75
		779.5	22.43	21.63
		784.5	22.43	21.69
	1 RB low	782.0	22.49	21.77
5MHz		779.5	22.42	21.52
SIVITZ		784.5	21.49	20.55
	50% RB mid	782.0	21.55	20.52
		779.5	21.62	20.63
	100% RB	784.5	21.41	20.45
		782.0	21.52	20.50
		779.5	21.53	20.53
	1 RB high	782.0	22.23	21.52
		782.0	22.22	21.53
		782.0	22.22	21.53
		782.0	22.45	21.64
	1 RB low	782.0	22.46	21.64
10MHz		782.0	22.46	21.65
TOIVIE		782.0	21.52	20.50
	50% RB mid	782.0	21.52	20.50
		782.0	21.52	20.50
		782.0	21.49	20.52
	100% RB	782.0	21.49	20.52
		782.0	21.49	20.51



Bandwidth	RB size/offset	Fragues ov (MIII-)	Power	(dBm)
Bandwidin	RB Size/Offset	Frequency (MHz)	QPSK	16QAM
		713.5	22.36	21.71
	1 RB high	710.0	22.38	21.72
		706.5	22.39	21.72
		713.5	22.42	21.74
	1 RB low	710.0	22.39	21.73
5MHz		706.5	22.39	21.73
DIVIDZ		713.5	21.50	20.56
	50% RB mid	710.0	21.54	20.59
		706.5	21.18	20.33
	100% RB	713.5	21.46	20.51
		710.0	21.46	20.52
		706.5	21.29	20.34
	1 RB high	711.0	22.46	21.79
		710.0	22.45	21.76
		709.0	22.45	21.77
		711.0	21.89	21.22
	1 RB low	710.0	22.18	21.52
400411-		709.0	22.39	21.75
10MHz		711.0	21.49	20.54
	50% RB mid	710.0	21.49	20.54
		709.0	21.43	20.47
		711.0	21.48	20.52
	100% RB	710.0	21.42	20.47
		709.0	21.42	20.46



Dandwidth	RB size/offset	Fraguency (MUz)	Power(dBm)		
Bandwidth	RB SIZE/OIISET	Frequency (MHz)	QPSK	16QAM	
		1914.3	22.42	21.51	
	1 RB high	1882.5	22.47	21.70	
		1850.7	22.27	21.41	
		1914.3	22.42	21.53	
	1 RB low	1882.5	22.48	21.73	
1.4MHz		1850.7	22.29	21.37	
1.7101112		1914.3	22.50	21.39	
	50% RB mid	1882.5	22.52	21.51	
		1850.7	22.34	21.26	
		1914.3	21.55	20.55	
	100% RB	1882.5	21.56	20.66	
		1850.7	21.37	20.42	
		1913.5	22.39	21.46	
	1 RB high	1882.5	22.41	21.66	
		1851.5	22.25	21.39	
	1 RB low	1913.5	22.35	21.51	
		1882.5	22.45	21.69	
ON41 I-		1851.5	22.27	21.34	
3MHz	50% RB mid	1913.5	21.53	20.54	
		1882.5	21.54	20.63	
		1851.5	21.39	20.35	
		1913.5	21.53	20.53	
	100% RB	1882.5	21.56	20.60	
		1851.5	21.51	20.35	
		1912.5	22.38	21.49	
	1 RB high	1882.5	22.42	21.68	
		1852.5	22.27	21.47	
		1912.5	22.35	21.56	
	1 RB low	1882.5	22.52	21.77	
CNALL.		1852.5	22.34	21.42	
5MHz		1912.5	21.51	20.51	
	50% RB mid	1882.5	21.58	20.62	
		1852.5	21.42	20.36	
		1912.5	21.49	20.48	
	100% RB	1882.5	21.55	20.58	
		1852.5	21.42	20.34	
10MHz	1 RB high	1910.0	22.08	21.38	



		1882.5	22.44	21.68
		1855.0	22.38	21.59
		1910.0	22.35	21.62
	1 RB low	1882.5	22.56	21.83
		1855.0	22.38	21.47
		1910.0	21.41	20.43
	50% RB mid	1882.5	21.56	20.59
		1855.0	21.45	20.40
		1910.0	21.48	20.50
	100% RB	1882.5	21.61	20.63
		1855.0	21.46	20.44
		1907.5	22.35	21.61
	1 RB high	1882.5	22.57	21.83
		1857.5	22.41	21.61
		1907.5	22.40	21.64
	1 RB low	1882.5	22.57	21.86
458411-		1857.5	22.43	21.52
15MHz		1907.5	22.44	21.45
	50% RB mid	1882.5	22.61	21.62
		1857.5	22.46	21.40
		1907.5	21.43	20.46
	100% RB	1882.5	21.65	20.66
		1857.5	21.49	20.43
		1905.0	22.42	21.56
	1 RB high	1882.5	22.37	21.64
		1860.0	22.46	21.72
		1905.0	22.44	21.70
	1 RB low	1882.5	22.58	21.86
001411		1860.0	22.43	21.56
20MHz		1905.0	21.38	20.44
	50% RB mid	1882.5	21.56	20.61
		1860.0	21.51	20.52
		1905.0	21.41	20.45
	100% RB	1882.5	21.56	20.60
		1860.0	21.52	20.52
L	1		1	1



Bandwidth	RB size/offset	Frequency (MHz)	Power	r(dBm)
Danuwium	IVD SIZE/OIISE(	i requericy (IVITIZ)	QPSK	16QAM
		848.3	22.37	21.65
	1 RB high	831.5	22.24	21.56
		814.7	22.27	21.59
		848.3	22.36	21.65
	1 RB low	831.5	22.24	21.57
1.4MHz		814.7	22.31	21.58
1.711112		848.3	22.42	21.43
	50% RB mid	831.5	22.32	21.36
		814.7	22.35	21.37
		848.3	21.49	20.58
	100% RB	831.5	21.35	20.42
		814.7	21.40	20.48
		847.5	22.33	21.57
	1 RB high	831.5	22.19	21.46
		815.5	22.20	21.40
		847.5	22.28	21.48
	1 RB low	831.5	22.20	21.42
3MHz		815.5	22.25	21.37
SIVITZ	50% RB mid	847.5	21.45	20.52
		831.5	21.37	20.43
		815.5	21.40	20.38
		847.5	21.45	20.48
	100% RB	831.5	21.36	20.36
		815.5	21.43	20.38
		846.5	22.34	21.60
	1 RB high	831.5	22.22	21.51
		816.5	22.33	21.59
		846.5	22.36	21.57
	1 RB low	831.5	22.29	21.49
5MHz		816.5	22.34	21.55
JIVIE		846.5	21.49	20.49
	50% RB mid	831.5	21.40	20.40
		816.5	21.45	20.44
		846.5	21.45	20.43
	100% RB	831.5	21.33	20.34
		816.5	21.41	20.40
10MHz	1 RB high	844.0	22.32	21.65



		831.5	22.24	21.55
		820.0	22.32	21.57
		844.0	22.25	21.57
	1 RB low	831.5	22.32	21.56
		820.0	22.35	21.59
		844.0	21.41	20.37
	50% RB mid	831.5	21.34	20.33
		820.0	21.42	20.40
	100% RB	844.0	21.42	20.41
		831.5	21.37	20.37
		820.0	21.42	20.40
	1 RB high	841.5	22.30	21.57
		831.5	22.37	21.59
		822.5	22.44	21.70
		841.5	22.32	21.62
	1 RB low	831.5	22.37	21.60
15MHz		822.5	22.38	21.63
ISIVIEZ		841.5	22.34	21.37
	50% RB mid	831.5	22.42	21.39
		822.5	22.47	21.48
		841.5	21.32	20.31
	100% RB	831.5	21.43	20.39
		822.5	21.42	20.44



Bandwidth	DP size/offeet	Fraguancy (MUz)	Power	r(dBm)	
Bandwidth	RB size/offset	Frequency (MHz)	QPSK	16QAM	
		2617.5	22.22	21.52	
	1 RB high	2595.0	22.30	21.60	
		2572.5	22.22	21.40	
		2617.5	22.20	21.58	
	1 RB low	2595.0	22.31	21.53	
5MHz		2572.5	22.21	21.38	
SIVIFIZ		2617.5	21.39	20.64	
	50% RB mid	2595.0	21.50	20.67	
		2572.5	21.28	20.33	
		2617.5	21.33	20.49	
	100% RB	2595.0	21.40	20.57	
		2572.5	21.26	20.30	
		2615.0	22.20	21.53	
	1 RB high	2595.0	22.31	21.69	
		2575.0	22.25	21.43	
		2615.0	22.22	21.60	
	1 RB low	2595.0	22.29	21.52	
10MHz		2575.0	22.20	21.38	
TUIVIEZ		2615.0	21.34	20.56	
	50% RB mid	2595.0	21.42	20.56	
		2575.0	21.30	20.35	
		2615.0	21.37	20.58	
	100% RB	2595.0	21.42	20.55	
		2575.0	21.31	20.35	
		2612.5	22.16	21.61	
	1 RB high	2595.0	22.31	21.58	
		2577.5	22.25	21.43	
		2612.5	22.24	21.64	
	1 RB low	2595.0	22.28	21.53	
		2577.5	22.20	21.40	
15MHz		2612.5	22.24	21.53	
	50% RB mid	2595.0	22.33	21.42	
	JU/0 IND IIIIU	2595.0	22.33	21.42	
		+			
	42224 ==	2612.5	21.31	20.54	
	100% RB	2595.0	21.39	20.55	
		2577.5	21.27	20.33	
20MHz	1 RB high	2610.0	22.20	21.54	



		2595.0	22.35	21.69
		2580.0	22.31	21.53
		2610.0	22.21	21.55
	1 RB low	2595.0	22.27	21.50
		2580.0	22.19	21.37
		2610.0	21.35	20.58
	50% RB mid	2595.0	21.43	20.56
		2580.0	21.33	20.39
		2610.0	21.35	20.49
	100% RB	2595.0	21.47	20.54
		2580.0	21.34	20.37



#### A.1.3 Radiated

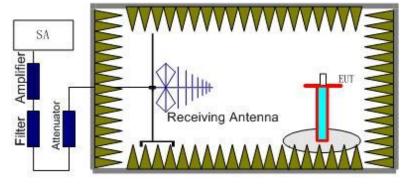
#### A.1.3.1 Description

This is the test for the maximum radiated power from the EUT.

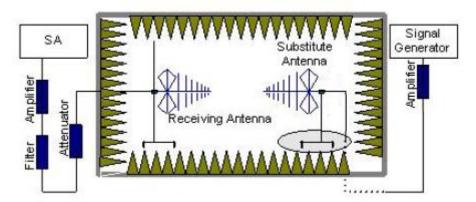
#### A.1.3.2 Method of Measurement

The measurements procedures in TIA-603-D-2010 are used.

1. EUT was placed on a 1.5 meter high non-conductive stand at a 3 meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT for emission measurements. The height of receiving antenna is 1.5m. The test setup refers to figure below. Detected emissions were maximized at each frequency by rotating the EUT through 360° and adjusting the receiving antenna polarization. The radiated emission measurements of all transmit frequencies in three channels (High, Middle, Low) were measured with peak detector.



- 2. The EUT is then put into continuously transmitting mode at its maximum power level during the test. And the maximum value of the receiver should be recorded as (Pr).
- 3. The EUT shall be replaced by a substitution antenna. The test setup refers to figure below.



In the chamber, a 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 ( $P_{\text{Mea}}$ ) is applied to the input of the substitution antenna. Adjust the level of the signal generator output until the value of the receiver reaches the previously recorded ( $P_{\text{r}}$ ). The power of signal source ( $P_{\text{Mea}}$ ) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.

4. An amplifier should be connected to the Signal Source output port. And the cable should be



connected between the amplifier and the substitution antenna.

The cable loss (P<sub>cl</sub>), the substitution antenna Gain (G<sub>a</sub>) and the amplifier Gain (P<sub>Ag</sub>) should be recorded after test.

The measurement results are obtained as described below:

Power (EIRP) =  $P_{Mea} - P_{Ag} - P_{cl} + G_a$ 

- 5. This value is EIRP since the measurement is calibrated using an antenna of known gain (unit dBi) and known input power.
- 6. ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP -2.15.



#### A.1.3.3 Measurement result

## LTE Band 2- EIRP 24. 232(b)

**Limits:** ≤33dBm (2W)

## LTE Band 2\_1.4MHz\_QPSK

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
1850.70	-8.45	-29.40	0.15	21.10	33.00	Н
1880.00	-5.70	-29.30	0.25	23.85	33.00	Н
1909.30	-7.01	-29.30	0.35	22.64	33.00	Н

## LTE Band 2\_3MHz\_QPSK

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	Ga Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
1851.50	-8.72	-29.40	0.15	20.83	33.00	Н
1880.00	-6.43	-29.30	0.25	23.12	33.00	Н
1908.50	-6.58	-29.30	0.35	23.07	33.00	Н

#### LTE Band 2\_5MHz\_QPSK

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	Ga Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
1852.50	-8.32	-29.40	0.15	21.23	33.00	Н
1880.00	-6.56	-29.30	0.25	22.99	33.00	Н
1907.50	-7.09	-29.30	0.35	22.56	33.00	Н

#### LTE Band 2\_10MHz\_QPSK

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	Ga Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
1855.00	-9.28	-29.40	0.15	20.27	33.00	Н
1880.00	-7.40	-29.30	0.25	22.15	33.00	Н
1905.00	-7.10	-29.30	0.35	22.55	33.00	Н

#### LTE Band 2\_15MHz\_QPSK

	Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
	1857.50	-9.75	-29.40	0.15	19.80	33.00	Н
	1880.00	-8.73	-29.30	0.25	20.82	33.00	Н
Ī	1902.50	-8.82	-29.30	0.35	20.83	33.00	Н

# LTE Band 2\_20 MHz\_QPSK

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	Ga Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
1860.00	-10.54	-29.40	0.15	19.01	33.00	Н
1880.00	-9.33	-29.30	0.25	20.22	33.00	Н
1900.00	-9.27	-29.30	0.35	20.38	33.00	Н



#### LTE Band 2\_1.4MHz\_16QAM

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	Ga Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
1850.70	-7.88	-29.40	0.15	21.67	33.00	Н
1880.00	-6.45	-29.30	0.25	23.11	33.00	Н
1909.30	-6.16	-29.30	0.35	23.49	33.00	Н

#### LTE Band 2\_3MHz\_16QAM

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	Ga Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
1851.50	-7.99	-29.40	0.15	21.56	33.00	Н
1880.00	-6.60	-29.30	0.25	22.95	33.00	Н
1908.50	-6.26	-29.30	0.35	23.39	33.00	Н

#### LTE Band 2\_5MHz\_16QAM

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	Ga Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
1852.50	-7.95	-29.40	0.15	21.60	33.00	Н
1880.00	-6.57	-29.30	0.25	22.98	33.00	Н
1907.50	-6.18	-29.30	0.35	23.47	33.00	Н

#### LTE Band 2\_10MHz\_16QAM

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
1855.00	-9.05	-29.40	0.15	20.50	33.00	Н
1880.00	-6.94	-29.30	0.25	22.61	33.00	Н
1905.00	-6.62	-29.30	0.35	23.03	33.00	Н

#### LTE Band 2\_15MHz\_16QAM

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
1857.50	-10.31	-29.40	0.15	19.24	33.00	Н
1880.00	-9.19	-29.30	0.25	20.36	33.00	Н
1902.50	-9.10	-29.30	0.35	20.55	33.00	Н

#### LTE Band 2 20 MHz 16QAM

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Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	Ga Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
1860.00	-9.68	-29.40	0.15	19.87	33.00	Н
1880.00	-9.52	-29.30	0.25	20.03	33.00	Н
1900.00	-8.44	-29.30	0.35	21.21	33.00	Н

Peak EIRP (dBm)= $P_{Mea}(-5.70dBm)-(P_{cl}+P_{Ag})$  (-29.30dB)+ $G_a(0.25dB)$  =23.85dBm



## LTE Band 4- EIRP 27.50(d)

**Limits:** ≤30dBm (1W)

## LTE Band 4\_1.4MHz\_QPSK

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	Ga Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
1710.70	-7.11	-29.60	0.39	22.88	30.00	Н
1732.50	-5.21	-29.60	0.27	24.66	30.00	Н
1754.30	-5.74	-29.50	0.17	23.93	30.00	Н

#### LTE Band 4\_3MHz\_QPSK

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
1711.50	-7.39	-29.60	0.39	22.60	30.00	Н
1732.50	-5.17	-29.60	0.27	24.70	30.00	Н
1753.50	-5.32	-29.50	0.17	24.36	30.00	Н

## LTE Band 4\_5MHz\_QPSK

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
1712.50	-6.83	-29.60	0.39	23.16	30.00	Н
1732.50	-5.56	-29.60	0.27	24.31	30.00	Н
1752.50	-5.88	-29.50	0.17	23.79	30.00	Н

#### LTE Band 4\_10MHz\_QPSK

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
1715.00	-7.68	-29.60	0.39	22.31	30.00	Н
1732.50	-6.09	-29.60	0.27	23.79	30.00	Н
1750.50	-6.32	-29.50	0.17	23.35	30.00	Н

## LTE Band 4\_15MHz\_QPSK

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	Ga Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
1717.50	-8.20	-29.60	0.39	21.79	30.00	Н
1732.50	-6.40	-29.60	0.27	23.47	30.00	Н
1747.50	-6.50	-29.50	0.17	23.17	30.00	Н

## LTE Band 4\_20MHz\_QPSK

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
1720.00	-8.70	-29.60	0.39	21.29	30.00	Н
1732.50	-6.84	-29.60	0.27	23.03	30.00	Н
1745.00	-6.72	-29.50	0.17	22.61	30.00	Н



#### LTE Band 4\_1.4MHz\_16QAM

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	Ga Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
1710.70	-8.26	-29.60	0.39	21.73	30.00	Н
1732.50	-7.50	-29.60	0.27	22.37	30.00	Н
1754.30	-7.51	-29.50	0.17	22.16	30.00	Н

#### LTE Band 4\_3MHz\_16QAM

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	Ga Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
1711.50	-7.21	-29.60	0.39	22.78	30.00	Н
1732.50	-5.01	-29.60	0.27	24.86	30.00	Н
1753.50	-5.20	-29.50	0.17	24.47	30.00	Н

#### LTE Band 4\_5MHz\_16QAM

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	Ga Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
1712.50	-7.19	-29.60	0.39	22.80	30.00	Н
1732.50	-5.50	-29.60	0.27	24.37	30.00	Н
1752.50	-5.74	-29.50	0.17	23.93	30.00	Н

#### LTE Band 4\_10MHz\_16QAM

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	Ga Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
1715.00	-7.83	-29.60	0.39	22.17	30.00	Н
1732.50	-6.59	-29.60	0.27	23.29	30.00	Н
1750.50	-6.32	-29.50	0.17	23.35	30.00	Н

#### LTE Band 4 15MHz 16QAM

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
1717.50	-7.99	-29.60	0.39	22.00	30.00	Н
1732.50	-6.96	-29.60	0.27	22.91	30.00	Н
1747.50	-6.48	-29.50	0.17	23.19	30.00	Н

#### LTE Band 4\_20MHz\_16QAM

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
1720.00	-9.20	-29.60	0.39	20.80	30.00	Н
1732.50	-7.34	-29.60	0.27	22.54	30.00	Н
1745.00	-6.88	-29.50	0.17	22.79	30.00	Н

 $Peak \; EIRP \; (dBm) = P_{Mea}(-5.01dBm) - \; (P_{cl} + P_{Ag}) \; \; (-29.60dB) + G_a(0.27dB) = 24.86dBm$ 



# LTE Band 5- ERP 22.913(a) Limits: ≤38.45dBm (7W) LTE Band 5\_1.4MHz\_QPSK

P<sub>cl</sub>(dB)+ Ga Antenna Correction Frequency(MHz) P<sub>Mea</sub>(dBm) ERP(dBm) Limit(dBm) Polarization  $P_{Ag}(dB)$ Gain(dB) (dB) 824.70 -8.83 -33.60 0.28 2.15 22.90 38.45 Н 836.50 -9.19 -33.50 0.25 2.15 22.41 38.45 Н 848.30 -8.77 -33.50 0.21 2.15 22.79 38.45 Н

#### LTE Band 5\_3MHz\_QPSK

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
825.50	-9.20	-33.60	0.28	2.15	22.53	38.45	Н
836.50	-8.97	-33.50	0.25	2.15	22.63	38.45	Н
847.50	-8.77	-33.50	0.21	2.15	22.79	38.45	Н

#### LTE Band 5\_5MHz\_QPSK

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
826.50	-9.23	-33.60	0.28	2.15	22.50	38.45	Н
836.50	-9.69	-33.50	0.25	2.15	21.91	38.45	Н
846.50	-9.90	-33.50	0.21	2.15	21.66	38.45	Н

### LTE Band 5\_10MHz\_QPSK

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
829.00	-10.66	-33.60	0.28	2.15	21.07	38.45	Н
836.50	-10.40	-33.50	0.25	2.15	21.20	38.45	Н
844.00	-9.19	-33.50	0.21	2.15	21.95	38.45	Н



## LTE Band 5\_1.4MHz\_16QAM

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
824.70	-8.97	-33.60	0.28	2.15	22.76	38.45	Н
836.50	-9.48	-33.50	0.25	2.15	22.12	38.45	Н
848.30	-8.94	-33.50	0.21	2.15	22.62	38.45	Н

#### LTE Band 5\_3MHz\_16QAM

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
825.50	-9.91	-33.60	0.28	2.15	21.82	38.45	Н
836.50	-9.42	-33.50	0.25	2.15	22.18	38.45	Н
847.50	-9.05	-33.50	0.21	2.15	22.51	38.45	Н

#### LTE Band 5\_5MHz\_16QAM

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
826.50	-9.81	-33.60	0.28	2.15	21.92	38.45	Н
836.50	-9.36	-33.50	0.25	2.15	22.24	38.45	Н
846.50	-9.71	-33.50	0.21	2.15	21.85	38.45	Н

## LTE Band 5\_10MHz\_16QAM

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
829.00	-10.30	-33.60	0.28	2.15	21.43	38.45	Н
836.50	-9.84	-33.50	0.25	2.15	21.76	38.45	Н
844.00	-9.46	-33.50	0.21	2.15	22.10	38.45	Н

 $Peak \ ERP \ (dBm) = P_{Mea}(-8.83dBm) - \ (P_{cl} + P_{Ag}) \ \ (-33.60dB) + G_a(0.28dB) \ -2.15dB = 22.90dBm$ 



## LTE Band 7- EIRP 27.50(h)(2)

Limits: ≤33 dBm (2W) LTE Band 7\_5MHz\_QPSK

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
2502.50	-5.10	-28.70	0.59	24.19	33.00	Н
2535.00	-4.16	-28.60	0.45	24.89	33.00	Н
2567.50	-3.56	-28.60	-0.01	25.03	33.00	Н

## LTE Band 7\_10MHz\_QPSK

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
2505.00	-5.73	-28.70	0.59	23.56	33.00	Н
2535.00	-4.76	-28.60	0.45	24.29	33.00	Н
2565.00	-3.48	-28.60	-0.01	25.11	33.00	Н

# LTE Band 7\_15MHz\_QPSK

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	Ga Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
2507.50	-6.42	-28.70	0.59	22.87	33.00	Н
2535.00	-5.68	-28.60	0.45	23.37	33.00	Н
2562.50	-4.80	-28.60	-0.01	23.80	33.00	Н

#### LTE Band 7\_20MHz\_QPSK

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
2510.00	-6.21	-28.70	0.59	23.08	33.00	Н
2535.00	-5.70	-28.60	0.45	23.35	33.00	Н
2560.00	-5.09	-28.60	-0.01	23.50	33.00	Н



## LTE Band 7\_5MHz\_16QAM

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	Ga Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
2502.50	-5.19	-28.70	0.59	24.10	33.00	Н
2535.00	-3.38	-28.60	0.45	25.67	33.00	н
2567.50	-2.96	-28.60	-0.01	25.63	33.00	Н

#### LTE Band 7\_10MHz\_16QAM

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
2505.00	-5.40	-28.70	0.59	23.90	33.00	Н
2535.00	-4.38	-28.60	0.45	24.67	33.00	Н
2565.00	-2.96	-28.60	-0.01	25.63	33.00	Н

#### LTE Band 7\_15MHz\_16QAM

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
2507.50	-5.60	-28.70	0.59	23.69	33.00	Н
2535.00	-5.07	-28.60	0.45	23.99	33.00	Н
2562.50	-4.40	-28.60	-0.01	24.19	33.00	Н

#### LTE Band 7\_20MHz\_16QAM

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
2510.00	-5.98	-28.70	0.59	23.32	33.00	Н
2535.00	-5.18	-28.60	0.45	23.87	33.00	Н
2560.00	-4.41	-28.60	-0.01	24.18	33.00	Н

Peak EIRP (dBm)= $P_{Mea}$ (-3.38dBm)- ( $P_{cl}+P_{Ag}$ ) (-28.60dB)+ $G_a$ (0.45dB) -2.15dB =25.67dBm



## LTE Band 12 - ERP 27.50(c)(10)

Limits: ≤34.77dBm (3W) LTE Band 12\_1.4MHz\_QPSK

Frequency(MHz)	P <sub>Mea</sub> (dBm)	Cable Loss(dB)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
699.70	-19.93	1.90	-44.66	-0.77	2.15	21.45	34.77	Н
707.50	-19.96	1.91	-44.94	-0.62	2.15	21.54	34.77	Н
715.30	-20.10	1.92	-45.26	-0.50	2.15	21.59	34.77	Н

#### LTE Band 12\_3MHz\_QPSK

Frequency(MHz)	P <sub>Mea</sub> (dBm)	Cable Loss(dB)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
700.50	-20.12	1.90	-44.68	-0.76	2.15	21.27	34.77	Н
707.50	-19.97	1.91	-44.94	-0.62	2.15	21.53	34.77	Н
714.50	-20.17	1.92	-45.26	-0.50	2.15	21.52	34.77	Н

## LTE Band 12\_5MHz\_QPSK

Frequency(MHz)	P <sub>Mea</sub> (dBm)	Cable Loss(dB)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
701.50	-20.52	1.90	-44.81	-0.74	2.15	20.98	34.77	Н
707.50	-19.97	1.91	-44.94	-0.62	2.15	21.53	34.77	Н
713.50	-20.33	1.92	-45.22	-0.50	2.15	21.32	34.77	Н

## LTE Band 12\_10MHz\_QPSK

Frequency(MHz)	P <sub>Mea</sub> (dBm)	Cable Loss(dB)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
704.00	-20.93	1.91	-44.93	-0.70	2.15	20.64	34.77	Н
707.50	-19.97	1.91	-44.94	-0.62	2.15	21.53	34.77	Н
711.00	-19.80	1.92	-45.19	-0.53	2.15	21.85	34.77	Н



## LTE Band 12\_1.4MHz\_16QAM

Frequency(MHz)	P <sub>Mea</sub> (dBm)	Cable Loss(dB)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
699.70	-20.86	1.90	-44.66	-0.77	2.15	20.52	34.77	Н
707.50	-20.80	1.91	-44.94	-0.62	2.15	20.70	34.77	Н
715.30	-21.03	1.92	-45.26	-0.50	2.15	20.66	34.77	Н

## LTE Band 12\_3MHz\_16QAM

Frequency(MHz)	P <sub>Mea</sub> (dBm)	Cable Loss(dB)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
700.50	-21.07	1.90	-44.68	-0.76	2.15	20.32	34.77	Н
707.50	-20.65	1.91	-44.94	-0.62	2.15	20.85	34.77	Н
714.50	-21.05	1.92	-45.26	-0.50	2.15	20.64	34.77	Н

#### LTE Band 12 5MHz 16QAM

Frequency(MHz)	P <sub>Mea</sub> (dBm)	Cable Loss(dB)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
701.50	-21.32	1.90	-44.81	-0.74	2.15	20.18	34.77	Н
707.50	-20.77	1.91	-44.94	-0.62	2.15	20.73	34.77	Н
713.50	-21.01	1.92	-45.22	-0.50	2.15	20.64	34.77	Н

#### LTE Band 12\_10MHz\_16QAM

Frequency(MHz)	P <sub>Mea</sub> (dBm)	Cable Loss(dB)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
704.00	-21.79	1.91	-44.93	-0.70	2.15	19.78	34.77	Н
707.50	-20.69	1.91	-44.94	-0.62	2.15	20.81	34.77	Н
711.00	-20.74	1.92	-45.19	-0.53	2.15	20.91	34.77	Н

Peak ERP (dBm)= $P_{Mea}$ (-19.80dBm)- Cable Loss(1.92) - ( $P_{cl}$ + $P_{Ag}$ ) (-45.19dB)- $G_a$ (-0.53dB) -2.15dB =21.85dBm



# **LTE Band 13- ERP 27.53(g) Limits:** ≤34.77dBm (3W)

LTE Band 13\_5MHz\_QPSK

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
779.50	-10.57	-34.00	0.28	2.15	21.56	34.77	Н
782.00	-10.25	-34.00	0.25	2.15	21.85	34.77	Н
784.50	-10.28	-34.10	0.26	2.15	21.93	34.77	Н

## LTE Band 13\_10MHz\_QPSK

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
782.00	-10.86	-34.00	0.25	2.15	21.25	34.77	Н
782.00	-10.86	-34.00	0.25	2.15	21.25	34.77	Н
782.00	-10.86	-34.00	0.25	2.15	21.25	34.77	Н

#### LTE Band 13\_5MHz\_16QAM

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Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
779.50	-10.42	-34.00	0.28	2.15	21.71	34.77	Н
782.00	-10.18	-34.00	0.25	2.15	21.92	34.77	Н
784.50	-10.18	-34.10	0.26	2.15	22.03	34.77	Н

#### LTE Band 13\_10MHz\_16QAM

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
782.00	-10.42	-34.00	0.25	2.15	21.68	34.77	Η
782.00	-10.42	-34.00	0.25	2.15	21.68	34.77	Н
782.00	-10.42	-34.00	0.25	2.15	21.68	34.77	Н

 $Peak \; ERP \; (dBm) = P_{Mea}(-8.52dBm) - \; (P_{cl} + P_{Ag}) \; \; (-34.10dB) + G_a(0.26dB) \; -2.15dB \; = 23.70dBm$ 



# **LTE Band 17- ERP 27.53(g) Limits:** ≤34.77dBm (3W)

LTE Band 17\_5MHz\_QPSK

Frequency(MHz)	P <sub>Mea</sub> (dBm)	Cable Loss(dB)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
706.50	-21.13	1.91	-45.53	-0.66	2.15	21.01	34.77	Н
710.00	-20.39	1.92	-45.68	-0.54	2.15	21.76	34.77	Н
713.50	-20.19	1.92	-45.22	-0.50	2.15	21.46	34.77	Н

#### LTE Band 17\_10MHz\_QPSK

Frequency(MHz)	P <sub>Mea</sub> (dBm)	Cable Loss(dB)	P <sub>d</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
709.00	-20.56	1.92	-45.64	-0.57	2.15	21.58	34.77	Н
710.00	-20.47	1.92	-45.68	-0.54	2.15	21.68	34.77	Н
711.00	-19.85	1.92	-45.19	-0.53	2.15	21.80	34.77	Н

#### LTE Band 17\_5MHz\_16QAM

Frequency(MHz)	P <sub>Mea</sub> (dBm)	Cable Loss(dB)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
706.50	-21.83	1.91	-45.53	-0.66	2.15	20.31	34.77	Н
710.00	-21.27	1.92	-45.68	-0.54	2.15	20.88	34.77	Н
713.50	-20.85	1.92	-45.22	-0.50	2.15	20.80	34.77	Н

#### LTE Band 17 10MHz 16QAM

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Frequency(MHz)	P <sub>Mea</sub> (dBm)	Cable Loss(dB)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
709.00	-21.35	1.92	-45.64	-0.57	2.15	20.79	34.77	Н
710.00	-21.21	1.92	-45.68	-0.54	2.15	20.94	34.77	Н
711.00	-20.79	1.92	-45.19	-0.53	2.15	20.86	34.77	Н

Peak ERP (dBm)= $P_{Mea}$ (-19.85dBm)- Cable Loss(1.92) - ( $P_{cl}$ + $P_{Ag}$ ) (-45.19dB)- $G_a$ (-0.53dB) -2.15dB =21.80dBm



#### LTE Band 25- EIRP 24. 232(b)

**Limits:** ≤33dBm (2W)

## LTE Band 25\_1.4MHz\_QPSK

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
1850.70	-9.37	-29.40	0.15	20.19	33.00	Н
1882.50	-8.48	-29.30	0.25	21.07	33.00	Н
1914.30	-8.84	-29.30	0.35	20.81	33.00	Н

#### LTE Band 25\_3MHz\_QPSK

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
1851.50	-9.30	-29.40	0.15	20.25	33.00	Н
1882.50	-8.11	-29.30	0.25	21.44	33.00	Н
1913.50	-8.52	-29.30	0.35	21.13	33.00	Н

#### LTE Band 25\_5MHz\_QPSK

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	Ga Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
1852.50	-9.88	-29.40	0.15	19.67	33.00	Н
1882.50	-8.18	-29.30	0.25	21.37	33.00	Н
1912.50	-9.94	-29.30	0.35	19.71	33.00	Н

#### LTE Band 25\_10MHz\_QPSK

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	Ga Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
1855.00	-10.60	-29.40	0.15	18.95	33.00	Н
1882.00	-9.53	-29.30	0.25	20.02	33.00	Н
1910.00	-9.79	-29.30	0.35	19.86	33.00	Н

#### LTE Band 25\_15MHz\_QPSK

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	Ga Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
1857.50	-11.17	-29.40	0.15	18.38	33.00	Н
1882.50	-10.47	-29.30	0.25	19.08	33.00	Н
1907.50	-11.35	-29.30	0.35	18.30	33.00	Н

### LTE Band 25\_20 MHz\_QPSK

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
1860.00	-11.46	-29.40	0.15	18.09	33.00	Н
1882.50	-10.81	-29.30	0.25	18.74	33.00	Н
1905.00	-11.61	-29.30	0.35	18.04	33.00	Н



#### LTE Band 25\_1.4MHz\_16QAM

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	Ga Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
1850.70	-10.62	-29.40	0.15	18.94	33.00	Н
1882.50	-8.80	-29.30	0.25	20.75	33.00	Н
1914.30	-9.97	-29.30	0.35	19.68	33.00	Н

#### LTE Band 25\_3MHz\_16QAM

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	Ga Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
1851.50	-10.51	-29.40	0.15	19.04	33.00	Н
1882.50	-9.07	-29.30	0.25	20.48	33.00	Н
1913.50	-10.08	-29.30	0.35	19.57	33.00	Н

#### LTE Band 25\_5MHz\_16QAM

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
1852.50	-10.58	-29.40	0.15	18.97	33.00	Н
1882.50	-8.97	-29.30	0.25	20.58	33.00	Н
1912.50	-10.18	-29.30	0.35	19.47	33.00	Н

#### LTE Band 25\_10MHz\_16QAM

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
1855.00	-11.08	-29.40	0.15	18.47	33.00	Н
1882.00	-9.86	-29.30	0.25	19.70	33.00	Н
1910.00	-10.28	-29.30	0.35	19.37	33.00	Н

#### LTE Band 25\_15MHz\_16QAM

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	Ga Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
1857.50	-11.32	-29.40	0.15	18.23	33.00	Н
1882.50	-10.52	-29.30	0.25	19.03	33.00	Н
1907.50	-10.66	-29.30	0.35	18.99	33.00	Н

#### LTE Band 25\_20 MHz\_16QAM

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	Ga Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
1860.00	-11.52	-29.40	0.15	18.03	33.00	Н
1882.50	-10.71	-29.30	0.25	18.84	33.00	Н
1905.00	-11.45	-29.30	0.35	18.20	33.00	Н

Peak EIRP (dBm)= $P_{Mea}(-8.11dBm)-(P_{cl}+P_{Ag})$  (-29.30dB)+ $G_a(0.25dB)$  =21.44dBm



# **LTE Band 26- ERP 27.53(g) Limits:** ≤38.45dBm (7W)

LTE Band 26\_1.4MHz\_QPSK

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
814.70	-9.39	-33.60	0.28	2.15	22.34	38.45	Н
831.50	-10.49	-33.50	0.25	2.15	21.11	38.45	Н
848.30	-8.52	-33.50	0.21	2.15	23.04	38.45	Н

## LTE Band 26\_3MHz\_QPSK

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
815.50	-9.40	-33.60	0.28	2.15	22.33	38.45	Н
831.50	-10.27	-33.50	0.25	2.15	21.33	38.45	Н
847.50	-9.17	-33.50	0.21	2.15	22.39	38.45	Н

# LTE Band 26\_5MHz\_QPSK

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
816.50	-9.07	-33.60	0.28	2.15	22.66	38.45	Н
831.50	-10.23	-33.50	0.25	2.15	21.37	38.45	Н
846.50	-9.62	-33.50	0.21	2.15	21.94	38.45	Н

## LTE Band 26\_10MHz\_QPSK

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
820.00	-8.94	-33.60	0.28	2.15	22.79	38.45	Н
831.50	-10.54	-33.50	0.25	2.15	21.06	38.45	Н
844.00	-9.33	-33.50	0.21	2.15	22.23	38.45	Н

## LTE Band 26\_15MHz\_QPSK

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
822.50	-11.32	-33.60	0.28	2.15	20.41	38.45	Н
831.50	-10.48	-33.50	0.25	2.15	21.12	38.45	Н
841.50	-11.18	-33.50	0.21	2.15	20.38	38.45	Н



#### LTE Band 26\_1.4MHz\_16QAM

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
814.70	-9.66	-33.60	0.28	2.15	22.07	38.45	Н
831.50	-10.49	-33.50	0.25	2.15	21.11	38.45	Н
848.30	-8.74	-33.50	0.21	2.15	22.82	38.45	Н

# LTE Band 26\_3MHz\_16QAM

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
815.50	-9.51	-33.60	0.28	2.15	22.22	38.45	Н
831.50	-10.50	-33.50	0.25	2.15	21.10	38.45	Н
847.50	-9.74	-33.50	0.21	2.15	21.82	38.45	Н

## LTE Band 26\_5MHz\_16QAM

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
816.50	-9.11	-33.60	0.28	2.15	22.63	38.45	Н
831.50	-10.70	-33.50	0.25	2.15	20.90	38.45	Н
846.50	-9.74	-33.50	0.21	2.15	21.82	38.45	Н

# LTE Band 26\_10MHz\_16QAM

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
820.00	-8.97	-33.60	0.28	2.15	22.76	38.45	Н
831.50	-10.81	-33.50	0.25	2.15	20.79	38.45	Н
844.00	-9.54	-33.50	0.21	2.15	22.02	38.45	Н

#### LTE Band 26\_15MHz\_16QAM

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
822.50	-10.62	-33.60	0.28	2.15	21.11	38.45	Н
831.50	-10.29	-33.50	0.25	2.15	21.31	38.45	Н
841.50	-10.39	-33.50	0.21	2.15	21.17	38.45	Н

 $Peak \; EIRP \; (dBm) = P_{Mea}(-8.52dBm) - \; (\; P_{cl} + P_{Ag}) \; \; (-33.50dB) + G_a(0.21dB) \; = 23.04dBm$ 



#### LTE Band 38- EIRP

**Limits:** ≤33dBm (2W)

## LTE Band 38\_5MHz\_QPSK

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
2572.50	-4.61	-28.60	0.38	24.37	33.00	Н
2595.00	-3.61	-28.60	0.31	25.30	33.00	Н
2617.50	-2.53	-28.60	0.30	26.37	33.00	Н

# LTE Band 38\_10MHz\_QPSK

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	Ga Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
2575.00	-5.22	-28.60	0.38	23.76	33.00	Н
2595.00	-4.30	-28.60	0.31	24.61	33.00	Н
2615.00	-3.36	-28.60	0.30	25.54	33.00	Н

# LTE Band 38\_15MHz\_QPSK

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	Ga Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
2577.50	-6.23	-28.60	0.38	22.75	33.00	Н
2595.00	-5.11	-28.60	0.31	23.81	33.00	Н
2612.50	-4.83	-28.60	0.30	24.07	33.00	Н

#### LTE Band 38\_20 MHz\_QPSK

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	Ga Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
2580.00	-6.69	-28.60	0.38	22.29	33.00	Н
2595.00	-4.82	-28.60	0.31	24.09	33.00	Н
2610.00	-4.58	-28.60	0.30	24.32	33.00	Н



#### LTE Band 38\_5MHz\_16QAM

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	Ga Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
2572.50	-4.76	-28.60	0.38	24.22	33.00	Н
2595.00	-3.54	-28.60	0.31	25.37	33.00	Н
2617.50	-2.57	-28.60	0.30	26.33	33.00	Н

#### LTE Band 38\_10MHz\_16QAM

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	Ga Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
2575.00	-4.75	-28.60	0.38	24.23	33.00	Н
2595.00	-3.82	-28.60	0.31	25.09	33.00	Н
2615.00	-2.74	-28.60	0.30	26.16	33.00	Н

#### LTE Band 38\_15MHz\_16QAM

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	Ga Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
2577.50	-6.24	-28.60	0.38	22.74	33.00	Н
2595.00	-5.53	-28.60	0.31	23.38	33.00	Н
2612.50	-4.09	-28.60	0.30	24.81	33.00	Н

#### LTE Band 38\_20 MHz\_16QAM

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	EIRP(dBm)	Limit(dBm)	Polarization
2580.00	-6.48	-28.60	0.38	22.50	33.00	Н
2595.00	-5.10	-28.60	0.31	23.81	33.00	Н
2610.00	-3.92	-28.60	0.30	24.99	33.00	Н

 $Peak \; EIRP \; (dBm) = P_{Mea}(-2.53dBm) - \; (\; P_{cl} + P_{Ag}) \; \; (-28.60dB) + G_a(0.30dB) \; = 26.37dBm \; \; (\; P_{cl} + P_{Ag}) \; \; (\; P_{cl} + P_$ 

#### **ANALYZER SETTINGS:**

RBW = VBW = 8MHz for occupied bandwidths equal to or less than 5MHz.

RBW = VBW = 20MHz for occupied bandwidths equal to or greater than 10MHz.

Note: Expanded measurement uncertainty is U = 0.96 dB, k = 2.



#### A.2 EMISSION LIMIT

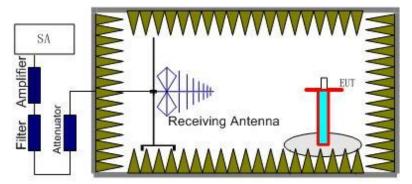
#### A.2.1 Measurement Method

The measurements procedures in TIA-603-D-2010 are used. This measurement is carried out in fully-anechoic chamber FAC-3.

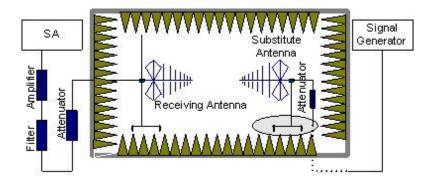
The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment, which is the transmitted carrier. The spectrum was scanned with the mobile station transmitting at carrier frequencies that pertain to low, mid and high channels of the LTE Bands 2, 4, 5, 7,12,13,17,25,26,38.

#### The procedure of radiated spurious emissions is as follows:

1. EUT was placed on a 1.5 meter high non-conductive stand at a 3 meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT for emission measurements. The height of receiving antenna is 1.5m. The test setup refers to figure below. Detected emissions were maximized at each frequency by rotating the EUT through 360° and adjusting the receiving antenna polarization. The radiated emission measurements of all non-harmonic and harmonics of the transmit frequency through the 10th harmonic were measured with peak detector.



- 2. The EUT is then put into continuously transmitting mode at its maximum power level during the test. And the maximum value of the receiver should be recorded as (Pr).
- 3. The EUT shall be replaced by a substitution antenna. The test setup refers to figure below.



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 ( $P_{\text{Mea}}$ ) is applied to the input of the



substitution antenna. Adjust the level of the signal generator output until the value of the receiver reaches the previously recorded ( $P_r$ ). The power of signal source ( $P_{Mea}$ ) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.

4. The Path loss (P<sub>pl</sub>) between the Signal Source with the Substitution Antenna and the Substitution Antenna Gain (G<sub>a</sub>) should be recorded after test.

An amplifier should be connected in for the test.

The Path loss (Ppl) is the summation of the cable loss and the gain of the amplifier.

The measurement results are obtained as described below:

Power (EIRP)= $P_{Mea} - P_{pl} + G_a$ 

- 5. This value is EIRP since the measurement is calibrated using an antenna of known gain (unit: dBi) and known input power.
- 6. ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP -2.15dB.

#### A.2.2 Measurement Limit

The specification that emissions shall be attenuated below the transmitter power (P) by at least 43 + 10 log (P) dB, translates in the relevant power range (1 to 0.001 W) to -13 dBm. At 1 W the specified minimum attenuation becomes 43 dB and relative to a 30 dBm (1 W) carrier becomes a limit of -13 dBm. At 0.001 W (0 dBm) the minimum attenuation is 13 dB, which again yields a limit of -13 dBm. In this way a translation of the specification from relative to absolute terms is carried out.

#### A.2.3 Measurement Results

Radiated emissions measurements were made only at the upper, middle, and lower carrier frequencies of the LTE Bands 2, 4, 5, 7,12,13,17,25,26,38. It was decided that measurements at these three carrier frequencies would be sufficient to demonstrate compliance with emissions limits because it was seen that all the significant spurs occur well outside the band and no radiation was seen from a carrier in one block of the LTE Bands 2, 4, 5, 7,12,13,17,25,26,38 into any of the other blocks. The equipment must still, however, meet emissions requirements with the carrier at all frequencies over which it is capable of operating and it is the manufacturer's responsibility to verify this.



## LTE Band 2, 1.4MHz, QPSK, Channel 18607

Frequency(MHz)	P <sub>Mea</sub> (dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit (dBm)	Polarization
5552.25	-31.50	1.30	-2.64	-35.44	-13.00	V
17196.09	-33.15	2.90	-0.79	-36.84	-13.00	Н
17390.34	-33.13	2.90	-0.98	-37.01	-13.00	Н
17613.47	-32.95	3.20	-1.01	-37.16	-13.00	Н
17787.38	-33.46	3.20	-0.75	-37.41	-13.00	Н
17920.59	-32.09	3.20	-0.64	-35.93	-13.00	Н

#### LTE Band 2, 1.4MHz, QPSK, Channel 18900

Frequency(MHz)	P <sub>Mea</sub> (dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit (dBm)	Polarization
5640.00	-26.38	1.30	-2.54	-30.22	-13.00	V
16810.88	-34.05	2.90	-0.26	-37.21	-13.00	V
17291.25	-33.12	2.90	-1.01	-37.03	-13.00	Н
17602.97	-32.67	3.20	-1.01	-36.88	-13.00	Н
17837.91	-32.39	3.20	-0.84	-36.43	-13.00	Н
17848.41	-32.45	3.20	-0.84	-36.49	-13.00	Н

## LTE Band 2, 1.4MHz, QPSK, Channel 19193

Frequency(MHz)	P <sub>Mea</sub> (dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit (dBm)	Polarization
5728.13	-26.49	1.50	-2.73	-30.72	-13.00	V
16822.03	-34.45	2.90	-0.26	-37.61	-13.00	Н
17413.31	-32.57	3.20	-1.08	-36.85	-13.00	Н
17608.88	-33.29	3.20	-1.01	-37.50	-13.00	Н
17791.31	-33.06	3.20	-0.75	-37.01	-13.00	Н
17919.28	-32.44	3.20	-0.64	-36.28	-13.00	Н



#### LTE Band 2, 1.4MHz, 16QAM, Channel 18607

Frequency(MHz)	P <sub>Mea</sub> (dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit (dBm)	Polarization
5551.88	-32.24	1.30	-2.64	-36.18	-13.00	V
17199.38	-33.17	2.90	-0.79	-36.86	-13.00	Н
17456.63	-32.91	3.20	-1.08	-37.19	-13.00	Н
17628.56	-33.25	3.20	-1.01	-37.46	-13.00	Н
17760.47	-33.16	3.20	-0.75	-37.11	-13.00	Н
17923.22	-31.31	3.20	-0.64	-35.15	-13.00	Н

#### LTE Band 2, 1.4MHz, 16QAM, Channel 18900

Frequency(MHz)	P <sub>Mea</sub> (dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit (dBm)	Polarization
5640.00	-27.93	1.30	-2.54	-31.77	-13.00	V
17199.38	-33.51	2.90	-0.79	-37.20	-13.00	Н
17274.19	-33.22	2.90	-1.01	-37.13	-13.00	Н
17405.44	-32.73	3.20	-1.08	-37.01	-13.00	Н
17831.34	-33.08	3.20	-0.84	-37.12	-13.00	Н
17840.53	-32.04	3.20	-0.84	-36.08	-13.00	Н

#### LTE Band 2, 1.4MHz, 16QAM, Channel 19193

Frequency(MHz)	P <sub>Mea</sub> (dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit (dBm)	Polarization
5727.75	-27.09	1.50	-2.73	-31.32	-13.00	V
16799.06	-34.15	2.90	-0.26	-37.31	-13.00	Н
17444.16	-32.56	3.20	-1.08	-36.84	-13.00	Н
17608.22	-32.73	3.20	-1.01	-36.94	-13.00	Н
17809.69	-32.21	3.20	-0.84	-36.25	-13.00	Н
17934.38	-32.52	3.20	-0.64	-36.36	-13.00	Н

Note: The maximum value of expanded measurement uncertainty for this test item is U = 4.2 dB, k = 2.



## LTE Band 4, 1.4MHz QPSK, Channel 19957

Frequency(MHz)	P <sub>Mea</sub> (dBm)	Path	Antenna	Peak	Limit	Polarization
Frequency(MHZ)		Loss	Gain	EIRP(dBm)	(dBm)	Polarization
17138.34	-33.64	2.90	-0.79	-37.33	-13.00	Н
17219.72	-32.29	2.90	-1.01	-36.20	-13.00	Н
17446.78	-32.79	3.20	-1.08	-37.07	-13.00	Н
17615.44	-31.88	3.20	-1.01	-36.09	-13.00	Н
17830.69	-32.68	3.20	-0.84	-36.72	-13.00	Н
17928.47	-31.42	3.20	-0.64	-35.26	-13.00	Н

#### LTE Band 4, 1.4MHz, QPSK, Channel 20175

Fragueney/MHz)	P <sub>Mea</sub> (dBm)	Path	Antenna	Peak	Limit	Polarization			
Frequency(MHz)		Loss	Gain	EIRP(dBm)	(dBm)	Polarization			
5197.88	-27.58	1.20	-1.95	-30.73	-13.00	V			
17274.19	-31.68	2.90	-1.01	-35.59	-13.00	Н			
17446.78	-31.23	3.20	-1.08	-35.51	-13.00	Н			
17626.59	-31.82	3.20	-1.01	-36.03	-13.00	Н			
17776.22	-31.36	3.20	-0.75	-35.31	-13.00	Н			
17858.25	-30.70	3.20	-0.84	-34.74	-13.00	Н			

## LTE Band 4, 1.4MHz, QPSK, Channel 20393

[	P <sub>Mea</sub> (dBm)	Path	Antenna	Peak	Limit	Delevinetiev
Frequency(MHz)		Loss	Gain	EIRP(dBm)	(dBm)	Polarization
5263.13	-23.02	1.20	-2.07	-26.29	-13.00	V
17259.75	-33.32	2.90	-1.01	-37.23	-13.00	Н
17390.34	-33.08	2.90	-0.98	-36.96	-13.00	Н
17623.97	-32.34	3.20	-1.01	-36.55	-13.00	Н
17784.75	-32.79	3.20	-0.75	-36.74	-13.00	Н
17928.47	-31.68	3.20	-0.64	-35.52	-13.00	Н



## LTE Band 4, 1.4MHz, 16QAM, Channel 19957

Frequency(MHz)	(MHz) P <sub>Mea</sub> (dBm)	Path	Antenna	Peak	Limit	Polarization
1 requeries (IVII 12)	i Mea(GDIII)	Loss	Gain	EIRP(dBm)	(dBm)	1 olarization
16816.13	-33.82	2.90	-0.26	-36.98	-13.00	V
17139.00	-33.03	2.90	-0.79	-36.72	-13.00	Н
17450.72	-32.42	3.20	-1.08	-36.70	-13.00	Н
17600.34	-32.08	3.20	-1.01	-36.29	-13.00	Н
17784.09	-32.24	3.20	-0.75	-36.19	-13.00	Н
17923.22	-31.83	3.20	-0.64	-35.67	-13.00	Н

#### LTE Band 4, 1.4MHz, 16QAM, Channel 20175

Fraguency/MII=\ D	D (dDm)	Path	Antenna	Peak	Limit	Delegization
Frequency(MHz)	P <sub>Mea</sub> (dBm)	Loss	Gain	EIRP(dBm)	(dBm)	Polarization
5197.50	-24.22	1.20	-1.95	-27.37	-13.00	V
16816.78	-33.36	2.90	-0.26	-36.52	-13.00	Н
17413.31	-31.23	3.20	-1.08	-35.51	-13.00	Н
17606.91	-31.50	3.20	-1.01	-35.71	-13.00	Н
17734.22	-31.74	3.20	-0.75	-35.69	-13.00	V
17923.88	-30.67	3.20	-0.64	-34.51	-13.00	Н

## LTE Band 4, 1.4MHz, 16QAM, Channel 20393

Francisco es (MIII-)	ency(MHz) P <sub>Mea</sub> (dBm)	Path	Antenna	Peak	Limit	Dalasiastias
Frequency(MHZ)		Loss	Gain	EIRP(dBm)	(dBm)	Polarization
5262.75	-23.21	1.20	-2.07	-26.48	-13.00	V
16803.66	-33.84	3.20	-0.26	-37.30	-13.00	Н
17444.16	-31.45	3.20	-1.08	-35.73	-13.00	Н
17605.59	-32.82	3.20	-1.01	-37.03	-13.00	Н
17786.06	-32.89	3.20	-0.75	-36.84	-13.00	Н
17924.53	-31.78	3.20	-0.64	-35.62	-13.00	Н

Note: The maximum value of expanded measurement uncertainty for this test item is U = 4.2 dB, k = 2.



## LTE Band 5, 1.4MHz, QPSK, Channel 20407

Frequency(MHz) F	P <sub>Mea</sub> (dBm)	Path	Antenna	Peak	Limit	Polarization
Frequency(MHZ)	PMea(UDIII)	Loss	Gain	ERP(dBm)	(dBm)	Polarization
6785.50	-40.37	1.80	-2.82	-47.14	-13.00	V
7057.00	-40.80	1.80	-2.85	-47.60	-13.00	Н
8065.50	-41.15	1.80	-2.18	-47.28	-13.00	V
9303.00	-42.14	2.10	-1.12	-47.51	-13.00	V
9356.50	-42.02	2.10	-1.12	-47.39	-13.00	V
9904.50	-42.73	2.20	-0.40	-47.48	-13.00	V

## LTE Band 5, 1.4MHz, QPSK, Channel 20525

Frequency(MHz) P <sub>Mea</sub> (d	P <sub>Mea</sub> (dBm)	Path	Antenna	Peak	Limit	Polarization
Frequency(Minz)	Mea(ubiii)	Loss	Gain	ERP(dBm)	(dBm)	Polarization
7021.00	-41.14	1.80	-2.85	-47.94	-13.00	V
8162.00	-41.85	1.80	-2.15	-47.95	-13.00	Н
8742.00	-41.77	2.00	-1.63	-47.55	-13.00	Н
8775.50	-42.15	2.00	-1.63	-47.93	-13.00	V
9211.00	-41.89	2.10	-1.16	-47.30	-13.00	V
9367.50	-42.41	2.10	-1.12	-47.78	-13.00	Н

# LTE Band 5, 1.4MHz, QPSK, Channel 20643

Frequency(MHz) P <sub>Mea</sub> (dB	D. (dPm)	Path	Antenna	Peak	Limit	Polarization
Frequency(MHZ)	P <sub>Mea</sub> (dBm)	Loss	Gain	ERP(dBm)	(dBm)	Polarization
8573.50	-40.77	2.00	-1.77	-46.69	-13.00	Н
8735.50	-41.77	2.00	-1.63	-47.55	-13.00	V
9170.00	-41.95	2.10	-1.36	-47.56	-13.00	V
9254.50	-42.32	2.10	-1.16	-47.73	-13.00	V
9415.50	-42.31	2.10	-0.86	-47.42	-13.00	V
9620.00	-42.89	2.10	-0.66	-47.80	-13.00	V



#### LTE Band 5, 1.4MHz, 16QAM, Channel 20407

Fraguenov/MHz) D.	D. (dPm)	Path	Antenna	Peak	Limit	Polarization
Frequency(MHz)	P <sub>Mea</sub> (dBm)	Loss	Gain	ERP(dBm)	(dBm)	Polarization
7587.50	-41.02	1.80	-2.57	-47.54	-13.00	V
8064.50	-41.55	1.80	-2.18	-47.68	-13.00	V
8540.00	-41.91	2.00	-1.77	-47.83	-13.00	V
8574.50	-41.26	2.00	-1.77	-47.18	-13.00	Н
9175.50	-41.08	2.10	-1.36	-46.69	-13.00	V
9252.00	-41.99	2.10	-1.16	-47.40	-13.00	V

## LTE Band 5, 1.4MHz, 16QAM, Channel 20525

Frequency(MHz) P <sub>Mea</sub> (d	P <sub>Mea</sub> (dBm)	Path	Antenna	Peak	Limit	Polarization
i requericy(ivii iz)	r Mea(ubiii)	Loss	Gain	ERP(dBm)	(dBm)	Folanzation
7062.00	-41.05	1.80	-2.85	-47.85	-13.00	V
8572.50	-42.03	2.00	-1.77	-47.95	-13.00	Н
8735.50	-42.01	2.10	-1.63	-47.89	-13.00	V
9066.50	-42.14	2.10	-1.42	-47.81	-13.00	Н
9115.50	-42.33	2.10	-1.36	-47.94	-13.00	V
9349.00	-42.56	2.10	-1.12	-47.93	-13.00	Н

## LTE Band 5, 1.4MHz, 16QAM, Channel 20643

Fragues 24/MHz)	D. (dDm)	Path	Antenna	Peak	Limit	Delegization
Frequency(MHz)	P <sub>Mea</sub> (dBm)	Loss	Gain	ERP(dBm)	(dBm)	Polarization
8065.50	-41.25	1.80	-2.18	-47.38	-13.00	Н
8257.50	-41.38	1.80	-1.90	-47.23	-13.00	V
9157.00	-41.56	2.10	-1.36	-47.17	-13.00	V
9250.00	-41.49	2.10	-1.16	-46.90	-13.00	V
9320.00	-41.49	2.10	-1.12	-46.86	-13.00	V
9887.50	-42.84	2.20	-0.38	-47.57	-13.00	V

Note: The maximum value of expanded measurement uncertainty for this test item is U = 4.2 dB, k = 2.



## LTE Band 7, 5 MHz, QPSK, Channel 20775

Frequency(M Hz)	P <sub>Mea</sub> (dBm)	Path Loss	Antenn a Gain	Peak EIRP(dBm )	Limit (dBm)	Polarizatio n
7506.94	-32.39	1.80	-2.57	-36.76	-13.00	V
16854.84	-33.73	2.90	-0.26	-36.89	-13.00	V
17444.81	-32.99	3.20	-1.08	-37.27	-13.00	Н
17593.13	-32.80	3.20	-0.81	-36.81	-13.00	Н
17837.91	-32.23	3.20	-0.84	-36.27	-13.00	Н
17923.22	-30.62	3.20	-0.64	-34.46	-13.00	Н

#### LTE Band 7, 5 MHz, QPSK, Channel 21100

Frequency(M Hz)	P <sub>Mea</sub> (dBm)	Path Loss	Antenn a Gain	Peak EIRP(dBm )	Limit (dBm)	Polarizatio n
7601.44	-32.25	1.80	-2.58	-36.63	-13.00	V
17196.09	-33.33	2.90	-0.79	-37.02	-13.00	Н
17431.69	-32.56	3.20	-1.08	-36.84	-13.00	Н
17528.16	-33.02	3.20	-0.81	-37.03	-13.00	Н
17775.56	-31.79	3.20	-0.75	-35.74	-13.00	Н
17907.47	-31.94	3.20	-0.64	-35.78	-13.00	Н

## LTE Band 7, 5 MHz, QPSK, Channel 21425

Frequency(M Hz)	P <sub>Mea</sub> (dBm)	Path Loss	Antenn a Gain	Peak EIRP(dBm )	Limit (dBm)	Polarizatio n
16858.13	-33.21	2.90	-0.26	-36.37	-13.00	V
17146.88	-31.48	2.90	-0.79	-35.17	-13.00	Н
17393.63	-31.24	2.90	-0.98	-35.12	-13.00	Н
17617.41	-30.74	3.20	-1.01	-34.95	-13.00	Н
17747.34	-31.23	3.20	-0.75	-35.18	-13.00	Н
17926.50	-30.47	3.20	-0.64	-34.31	-13.00	Н



## LTE Band 7, 5 MHz, 16QAM, Channel 20775

Frequency(MH z)	P <sub>Mea</sub> (dB m)	Path Loss	Antenn a Gain	Peak EIRP(dBm )	Limit (dBm)	Polarizatio n
7511.16	-31.40	1.80	-2.57	-35.77	-13.00	V
17295.19	-33.22	2.90	-1.01	-37.13	-13.00	Н
17459.25	-32.37	3.20	-1.08	-36.65	-13.00	Н
17608.22	-32.32	3.20	-1.01	-36.53	-13.00	Н
17793.94	-32.15	3.20	-0.75	-36.10	-13.00	Н
17929.78	-32.96	3.20	-0.64	-36.80	-13.00	Н

#### LTE Band 7, 5 MHz, 16QAM, Channel 21100

Frequency(M Hz)	P <sub>Mea</sub> (dBm)	Path Loss	Antenn a Gain	Peak EIRP(dBm )	Limit (dBm)	Polarizatio n
7606.50	-31.24	1.80	-2.58	-35.62	-13.00	V
17191.50	-33.36	2.90	-0.79	-37.05	-13.00	Н
17423.81	-32.47	3.20	-1.08	-36.75	-13.00	V
17595.75	-32.65	3.20	-0.81	-36.66	-13.00	Н
17770.31	-32.17	3.20	-0.75	-36.12	-13.00	Н
17921.25	-31.01	3.20	-0.64	-34.85	-13.00	Н

#### LTE Band 7, 5 MHz, 16QAM, Channel 21425

Frequency(M Hz)	P <sub>Mea</sub> (dBm)	Path Loss	Antenn a Gain	Peak EIRP(dBm )	Limit (dBm)	Polarizatio n
17202.00	-32.27	2.90	-1.01	-36.18	-13.00	Н
17286.66	-32.56	2.90	-1.01	-36.47	-13.00	Н
17450.72	-31.34	3.20	-1.08	-35.62	-13.00	Н
17598.38	-32.66	3.20	-0.81	-36.67	-13.00	Н
17777.53	-32.63	3.20	-0.75	-36.58	-13.00	Н
17925.84	-31.73	3.20	-0.64	-35.57	-13.00	Н

Note: The maximum value of expanded measurement uncertainty for this test item is U = 4.2 dB, k = 2.



## LTE Band 12, 1.4MHz, QPSK, Channel 23017

Fragues av (MIII-)	P <sub>Mea</sub> (dBm)	Path	Antenna	Peak	Limit	Polarization
Frequency(MHz)		Loss	Gain	ERP(dBm)	(dBm)	Polarization
1399.46	-33.89	3.56	-4.98	-34.62	-13.00	V
2099.39	-44.03	4.40	-4.90	-45.68	-13.00	V
2799.20	-50.41	5.04	-6.64	-50.96	-13.00	V
3498.90	-43.10	5.69	-8.20	-42.74	-13.00	Н
4198.83	-46.32	6.23	-9.10	-45.60	-13.00	Н
4898.22	-46.11	6.73	-9.80	-45.19	-13.00	Н

## LTE Band 12, 1.4MHz, QPSK, Channel 23095

Fraguenov/MHz)	P <sub>Mea</sub> (dBm)	Path	Antenna	Peak	Limit	Polarization
Frequency(MHz)		Loss	Gain	ERP(dBm)	(dBm)	Polarization
2122.64	-39.83	4.41	-4.97	-41.42	-13.00	V
2830.09	-46.90	5.07	-6.69	-47.43	-13.00	V
3537.99	-42.03	5.75	-8.25	-41.68	-13.00	Н
4245.63	-45.05	6.25	-9.15	-44.30	-13.00	V
4953.32	-46.94	6.73	-9.85	-45.97	-13.00	Н
5660.70	-51.42	7.19	-10.57	-50.19	-13.00	V

# LTE Band 12, 1.4MHz, QPSK, Channel 23173

Fraguanov/MHz)	MHz) P <sub>Mea</sub> (dBm)	Path	Antenna	Peak	Limit	Polarization
Frequency(MHz)		Loss	Gain	ERP(dBm)	(dBm)	Polarization
1430.78	-40.00	3.61	-5.14	-40.62	-13.00	V
2146.14	-45.60	4.41	-5.04	-47.12	-13.00	V
2861.63	-46.68	5.10	-6.75	-47.18	-13.00	V
3576.79	-44.44	5.70	-8.31	-43.98	-13.00	Н
4292.21	-46.00	6.29	-9.19	-45.25	-13.00	Н
5007.82	-44.70	6.78	-9.91	-43.72	-13.00	Н



#### LTE Band 12, 1.4MHz, 16QAM, Channel 23017

Fraguera (MIII)	P <sub>Mea</sub> (dBm)	Path	Antenna	Peak	Limit	Polarization
Frequency(MHz)		Loss	Gain	ERP(dBm)	(dBm)	Polarization
1399.64	-35.37	3.56	-4.98	-36.10	-13.00	V
2099.43	-40.19	4.40	-4.90	-41.84	-13.00	V
2799.42	-49.96	5.04	-6.64	-50.51	-13.00	V
3498.87	-43.31	5.69	-8.20	-42.95	-13.00	Н
4198.75	-48.51	6.23	-9.10	-47.79	-13.00	Н
4898.95	-50.29	6.74	-9.80	-49.38	-13.00	Н

#### LTE Band 12, 1.4MHz 16QAM, Channel 23095

Fraguency (MHz)	PMea(dBm)	Path	Antenna	Peak	Limit	Dolorization
Frequency(MHz)		Loss	Gain	ERP(dBm)	(dBm)	Polarization
2122.70	-39.11	4.41	-4.97	-40.70	-13.00	V
2830.44	-47.74	5.07	-6.69	-48.27	-13.00	V
3537.86	-42.72	5.75	-8.25	-42.37	-13.00	Н
4245.66	-44.86	6.25	-9.15	-44.11	-13.00	V
4953.27	-48.36	6.73	-9.85	-47.39	-13.00	Н
5660.54	-52.81	7.19	-10.57	-51.58	-13.00	V

## LTE Band 12, 1.4MHz, 16QAM, Channel 23173

Fragues av (MIII-)	PMea(dBm)	Path	Antenna	Peak	Limit	Delegization
Frequency(MHz)	Piviea(dBm)	Loss	Gain	ERP(dBm)	(dBm)	Polarization
1431.05	-39.77	3.61	-5.14	-40.39	-13.00	V
2146.14	-45.68	4.41	-5.04	-47.20	-13.00	V
2861.25	-47.09	5.10	-6.75	-47.59	-13.00	V
3577.05	-44.11	5.70	-8.31	-43.65	-13.00	Н
4292.29	-47.37	6.29	-9.19	-46.62	-13.00	V
5008.03	-44.98	6.78	-9.91	-44.00	-13.00	Н

Note: The maximum value of expanded measurement uncertainty for this test item is U = 4.2 dB, k = 2.



## LTE Band 13, 5 MHz, QPSK, Channel 23205

Fraguency/MHz)	P <sub>Mea</sub> (dBm)	Path	Antenna	Peak	Limit	Polarization
Frequency(MHz)		Loss	Gain	ERP(dBm)	(dBm)	Polarization
8571.50	-41.12	2.00	-1.77	-47.04	-13.00	Н
8672.00	-41.56	2.00	-1.64	-47.35	-13.00	V
9170.00	-41.50	2.10	-1.36	-47.11	-13.00	V
9206.00	-42.16	2.10	-1.16	-47.57	-13.00	V
9405.00	-41.71	2.10	-0.86	-46.82	-13.00	V
9628.50	-42.95	2.10	-0.66	-47.86	-13.00	Н

## LTE Band 13, 5 MHz, QPSK, Channel 23230

Fraguanay(MHz) D. (	D (dDm)	Path	Antenna	Peak	Limit	Polarization
Frequency(MHz)	P <sub>Mea</sub> (dBm)	Loss	Gain	ERP(dBm)	(dBm)	Polarization
6753.50	-40.77	1.80	-2.82	-47.54	-13.00	V
7567.00	-41.37	1.80	-2.57	-47.89	-13.00	V
8587.50	-41.36	2.00	-1.77	-47.28	-13.00	V
8788.00	-42.22	2.00	-1.63	-48.00	-13.00	Н
9161.00	-42.21	2.10	-1.36	-47.82	-13.00	V
9210.00	-42.27	2.10	-1.16	-47.68	-13.00	Н

# LTE Band 13, 5 MHz, QPSK, Channel 23255

Fraguanay(MHz) D. (d	D. (dDm)	Path	Antenna	Peak	Limit	Delerization
Frequency(MHz)	P <sub>Mea</sub> (dBm)	Loss	Gain	ERP(dBm)	(dBm)	Polarization
7021.50	-40.87	1.80	-2.85	-47.67	-13.00	V
7116.00	-40.89	1.80	-2.77	-47.61	-13.00	Н
8604.50	-41.87	2.00	-1.64	-47.66	-13.00	Н
9165.00	-41.81	2.10	-1.36	-47.42	-13.00	V
9211.50	-42.12	2.10	-1.16	-47.53	-13.00	V
9925.50	-42.18	2.20	-0.40	-46.93	-13.00	Н



#### LTE Band 13, 5 MHz, 16QAM, Channel 23205

Frequency(MHz)	P <sub>Mea</sub> (dBm)	Path	Antenna	Peak	Limit	Polarization
Frequency(Minz)		Loss	Gain	ERP(dBm)	(dBm)	Polarization
7074.50	-40.99	1.80	-2.85	-47.79	-13.00	V
8651.50	-41.12	2.00	-1.64	-46.91	-13.00	V
8696.50	-41.44	2.00	-1.64	-47.23	-13.00	V
8873.00	-42.04	2.00	-1.48	-47.67	-13.00	V
9121.00	-41.72	2.10	-1.36	-47.33	-13.00	V
9336.00	-41.89	2.10	-1.12	-47.26	-13.00	V

## LTE Band 13, 5 MHz, 16QAM, Channel 23230

Fragues av (MIII)	P <sub>Mea</sub> (dBm)	Path	Antenna	Peak	Limit	Polarization
Frequency(MHz)		Loss	Gain	ERP(dBm)	(dBm)	Polarization
7020.50	-41.07	1.80	-2.85	-47.87	-13.00	Н
8250.50	-41.81	1.80	-1.90	-47.66	-13.00	V
8624.00	-41.91	2.00	-1.64	-47.70	-13.00	V
9191.00	-41.72	2.10	-1.36	-47.33	-13.00	V
9218.00	-41.42	2.10	-1.16	-46.83	-13.00	V
9318.50	-42.36	2.10	-1.12	-47.73	-13.00	V

## LTE Band 13, 5 MHz, 16QAM, Channel 23255

Fragues av/MUT	P <sub>Mea</sub> (dBm)	Path	Antenna	Peak	Limit	Delegization
Frequency(MHz)		Loss	Gain	ERP(dBm)	(dBm)	Polarization
7063.50	-40.71	1.80	-2.85	-47.51	-13.00	V
8673.50	-41.74	2.00	-1.64	-47.53	-13.00	V
9168.00	-42.03	2.10	-1.36	-47.64	-13.00	V
9216.00	-41.59	2.10	-1.16	-47.00	-13.00	V
9321.50	-42.13	2.10	-1.12	-47.50	-13.00	V
9829.50	-42.96	2.20	-0.38	-47.69	-13.00	V

Note: The maximum value of expanded measurement uncertainty for this test item is U = 4.2 dB, k = 2.



## LTE Band 17, 5 MHz, QPSK, Channel 23755

Frequency(MHz)	D. (dDm)	Path	Antenna	Peak	Limit	Polarization
	P <sub>Mea</sub> (dBm)	Loss	Gain	ERP(dBm)	(dBm)	Polarization
1413.33	-41.43	3.57	-5.05	-42.10	-13.00	V
2120.07	-42.12	4.39	-4.96	-43.70	-13.00	V
2826.63	-47.25	5.07	-6.69	-47.78	-13.00	V
3533.37	-41.86	5.74	-8.25	-41.50	-13.00	Н
4239.92	-46.47	6.24	-9.14	-45.72	-13.00	Н
4946.82	-48.86	6.74	-9.85	-47.90	-13.00	Н

## LTE Band 17, 5 MHz, QPSK, Channel 23790

Frequency(MHz)	D (dDm)	Path	Antenna	Peak	Limit	Polarization
	P <sub>Mea</sub> (dBm)	Loss	Gain	ERP(dBm)	(dBm)	Polarization
2130.63	-42.01	4.40	-4.99	-43.57	-13.00	V
2840.57	-51.26	5.09	-6.71	-51.79	-13.00	V
3550.81	-45.01	5.71	-8.27	-44.60	-13.00	Н
4260.74	-48.65	6.26	-9.16	-47.90	-13.00	Н
4971.43	-50.41	6.74	-9.87	-49.43	-13.00	Н
5689.37	-62.47	7.20	-10.56	-61.26	-13.00	Н

# LTE Band 17, 5 MHz, QPSK, Channel 23825

Frequency(MHz)	D. (dPm)	Path	Antenna	Peak	Limit	Polarization
	P <sub>Mea</sub> (dBm)	Loss	Gain	ERP(dBm)	(dBm)	Polarization
1427.40	-37.46	3.59	-5.12	-38.08	-13.00	V
2141.17	-41.87	4.41	-5.02	-43.41	-13.00	V
2854.69	-44.78	5.11	-6.74	-45.30	-13.00	V
3568.41	-43.48	5.69	-8.30	-43.02	-13.00	Н
4282.32	-46.35	6.29	-9.18	-45.61	-13.00	Н
4995.64	-44.13	6.78	-9.90	-43.16	-13.00	Н



#### LTE Band 17, 5 MHz, 16QAM, Channel 23755

Frequency(MHz)	D. (dDm)	Path	Antenna	Peak	Limit	Polarization
	P <sub>Mea</sub> (dBm)	Loss	Gain	ERP(dBm)	(dBm)	Polarization
1413.15	-41.89	3.57	-5.05	-42.56	-13.00	V
2120.12	-40.75	4.39	-4.96	-42.33	-13.00	V
2826.71	-46.90	5.07	-6.69	-47.43	-13.00	V
3533.27	-41.61	5.74	-8.25	-41.25	-13.00	Н
4239.86	-47.93	6.24	-9.14	-47.18	-13.00	Н
4946.70	-48.57	6.74	-9.85	-47.61	-13.00	Н

## LTE Band 17, 5 MHz, 16QAM, Channel 23790

Frequency(MHz)	D (dDm)	Path	Antenna	Peak	Limit	Polarization
	P <sub>Mea</sub> (dBm)	Loss	Gain	ERP(dBm)	(dBm)	Polarization
2130.63	-42.01	4.40	-4.99	-43.57	-13.00	V
2840.57	-51.26	5.09	-6.71	-51.79	-13.00	V
3550.81	-45.01	5.71	-8.27	-44.60	-13.00	Н
4260.74	-48.65	6.26	-9.16	-47.90	-13.00	Н
4971.43	-50.41	6.74	-9.87	-49.43	-13.00	Н
5689.37	-62.47	7.20	-10.56	-61.26	-13.00	Н

# LTE Band 17, 5 MHz, 16QAM, Channel 23825

Frequency(MHz)	P <sub>Mea</sub> (dBm)	Path	Antenna	Peak	Limit	Delegization
		Loss	Gain	ERP(dBm)	(dBm)	Polarization
1427.39	-38.33	3.59	-5.12	-38.95	-13.00	V
2141.01	-41.99	4.41	-5.02	-43.53	-13.00	V
2854.78	-45.92	5.11	-6.74	-46.44	-13.00	V
3568.59	-43.80	5.69	-8.30	-43.34	-13.00	Н
4281.82	-47.53	6.29	-9.18	-46.79	-13.00	Н
4995.79	-47.29	6.79	-9.90	-46.33	-13.00	Н

Note: The maximum value of expanded measurement uncertainty for this test item is U = 4.2 dB, k = 2.



## LTE Band 25, 1.4MHz, QPSK, Channel 26047

Frequency(MHz)	P <sub>Mea</sub> (dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit (dBm)	Polarization
5552.25	-31.78	1.30	-2.64	-35.72	-13.00	V
17196.09	-32.69	2.90	-0.79	-36.38	-13.00	Н
17446.78	-32.46	3.20	-1.08	-36.74	-13.00	Н
17597.72	-32.89	3.20	-0.81	-36.90	-13.00	Н
17793.94	-32.78	3.20	-0.75	-36.73	-13.00	V
17931.09	-32.47	3.20	-0.64	-36.31	-13.00	Н

#### LTE Band 25, 1.4MHz, QPSK, Channel 26365

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Frequency(MHz)	P <sub>Mea</sub> (dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit (dBm)	Polarization
5647.88	-30.08	1.30	-2.54	-33.92	-13.00	Н
17154.75	-32.77	2.90	-0.79	-36.46	-13.00	Н
17456.63	-32.60	3.20	-1.08	-36.88	-13.00	V
17584.59	-32.60	3.20	-0.81	-36.61	-13.00	Н
17753.25	-32.62	3.20	-0.75	-36.57	-13.00	Н
17924.53	-31.72	3.20	-0.64	-35.56	-13.00	Н

## LTE Band 25, 1.4MHz, QPSK, Channel 26683

Frequency(MHz)	P <sub>Mea</sub> (dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit (dBm)	Polarization
5743.13	-28.27	1.50	-2.73	-32.50	-13.00	V
16820.72	-33.82	2.90	-0.26	-36.98	-13.00	Н
17450.06	-32.49	3.20	-1.08	-36.77	-13.00	Н
17600.34	-32.62	3.20	-1.01	-36.83	-13.00	Н
17796.56	-32.31	3.20	-0.75	-36.26	-13.00	Н
17845.13	-32.01	3.20	-0.84	-36.05	-13.00	Н



#### LTE Band 25, 1.4MHz, 16QAM, Channel 26047

Frequency(MHz)	P <sub>Mea</sub> (dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit (dBm)	Polarization
5551.88	-32.84	1.30	-2.64	-36.78	-13.00	V
16741.31	-34.51	2.90	-0.26	-37.67	-13.00	Н
17199.38	-32.89	2.90	-0.79	-36.58	-13.00	Н
17442.19	-32.60	3.20	-1.08	-36.88	-13.00	Н
17766.38	-33.30	3.20	-0.75	-37.25	-13.00	Н
17938.97	-32.45	3.20	-0.64	-36.29	-13.00	Н

#### LTE Band 25, 1.4MHz, 16QAM, Channel 26365

Frequency(MHz)	P <sub>Mea</sub> (dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit (dBm)	Polarization
5647.88	-30.91	1.30	-2.54	-34.75	-13.00	V
16810.88	-33.80	2.90	-0.26	-36.96	-13.00	Н
17274.19	-32.97	2.90	-1.01	-36.88	-13.00	Н
17398.22	-32.89	2.90	-0.98	-36.77	-13.00	Н
17764.41	-31.94	3.20	-0.75	-35.89	-13.00	Н
17925.19	-31.57	3.20	-0.64	-35.41	-13.00	Н

#### LTE Band 25, 1.4MHz, 16QAM, Channel 26683

Frequency(MHz)	P <sub>Mea</sub> (dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit (dBm)	Polarization
5742.75	-28.41	1.50	-2.73	-32.64	-13.00	V
17155.41	-32.75	2.90	-0.79	-36.44	-13.00	Н
17446.78	-31.04	3.20	-1.08	-35.32	-13.00	Н
17618.06	-31.47	3.20	-1.01	-35.68	-13.00	Н
17799.19	-31.93	3.20	-0.75	-35.88	-13.00	Н
17916.00	-31.42	3.20	-0.64	-35.26	-13.00	Н

Note: The maximum value of expanded measurement uncertainty for this test item is U = 4.2 dB, k = 2.



## LTE Band 26, 1.4MHz, QPSK, Channel 26697

Frequency(MHz)	P <sub>Mea</sub> (dBm)	Path Loss	Antenna Gain	Peak ERP(dBm)	Limit (dBm)	Polarization
7059.00	-40.86	1.80	-2.85	-47.66	-13.00	V
7589.50	-40.80	1.80	-2.57	-47.32	-13.00	V
8530.00	-41.54	2.00	-1.77	-47.46	-13.00	V
8579.50	-41.80	2.00	-1.77	-47.72	-13.00	Н
9204.00	-41.77	2.10	-1.16	-47.18	-13.00	Н
9737.00	-42.42	2.20	-0.71	-47.48	-13.00	Н

## LTE Band 26, 1.4MHz, QPSK, Channel 26865

Frequency(MHz)	P <sub>Mea</sub> (dBm)	Path Loss	Antenna Gain	Peak ERP(dBm)	Limit (dBm)	Polarization
8400.00	-42.20	1.80	-1.79	-47.94	-13.00	V
8597.00	-41.93	2.00	-1.77	-47.85	-13.00	Н
8720.00	-41.80	2.00	-1.63	-47.58	-13.00	V
9185.50	-41.14	2.10	-1.36	-46.75	-13.00	V
9350.00	-41.89	2.10	-1.12	-47.26	-13.00	Н
9456.00	-42.68	2.10	-0.86	-47.79	-13.00	V

## LTE Band 26, 1.4MHz, QPSK, Channel 27033

Frequency(MHz)	P <sub>Mea</sub> (dBm)	Path Loss	Antenna Gain	Peak ERP(dBm)	Limit (dBm)	Polarization
7027.00	-40.84	1.80	-2.85	-47.64	-13.00	V
7645.50	-41.00	1.80	-2.58	-47.53	-13.00	Н
8611.50	-41.56	2.00	-1.64	-47.35	-13.00	Н
9115.00	-41.94	2.10	-1.36	-47.55	-13.00	V
9194.50	-42.19	2.10	-1.36	-47.80	-13.00	V
9404.50	-42.43	2.10	-0.86	-47.54	-13.00	V



#### LTE Band 26, 1.4MHz, 16QAM, Channel 26697

Frequency(MHz)	P <sub>Mea</sub> (dBm)	Path Loss	Antenna Gain	Peak ERP(dBm)	Limit (dBm)	Polarization
7021.50	-40.57	1.80	-2.85	-47.37	-13.00	V
7079.00	-40.96	1.80	-2.85	-47.76	-13.00	V
8123.50	-41.96	1.80	-2.15	-48.06	-13.00	V
8334.50	-41.53	1.80	-2.04	-47.52	-13.00	V
8634.50	-42.16	2.00	-1.64	-47.95	-13.00	V
9205.50	-42.15	2.10	-1.16	-47.56	-13.00	Н

#### LTE Band 26, 1.4MHz, 16QAM, Channel 26865

Frequency(MHz)	P <sub>Mea</sub> (dBm)	Path Loss	Antenna Gain	Peak ERP(dBm)	Limit (dBm)	Polarization
7017.00	-40.72	1.80	-2.85	-47.52	-13.00	V
8060.00	-41.55	1.80	-2.18	-47.68	-13.00	V
8917.50	-42.14	2.10	-1.58	-47.97	-13.00	V
9170.50	-42.09	2.10	-1.36	-47.70	-13.00	V
9221.00	-42.43	2.10	-1.16	-47.84	-13.00	Н
9393.00	-41.67	2.10	-1.12	-47.04	-13.00	V

## LTE Band 26, 1.4MHz, 16QAM, Channel 27033

Frequency(MHz)	P <sub>Mea</sub> (dBm)	Path Loss	Antenna Gain	Peak ERP(dBm)	Limit (dBm)	Polarization
4242.00	-41.06	1.20	-2.02	-46.43	-13.00	Н
8024.00	-41.49	1.80	-2.18	-47.62	-13.00	V
8593.00	-42.05	2.00	-1.77	-47.97	-13.00	Н
9062.00	-42.03	2.10	-1.42	-47.70	-13.00	Н
9111.50	-42.08	2.10	-1.36	-47.69	-13.00	Н
9739.50	-42.45	2.20	-0.71	-47.51	-13.00	Н

Note: The maximum value of expanded measurement uncertainty for this test item is U = 4.2 dB, k = 2.



## LTE Band 38, 5 MHz, QPSK, Channel 37775

Fragues av/MUI=)	D (dDm)	Path	Antenna	Peak	Limit	Dolorization
Frequency(MHz)	P <sub>Mea</sub> (dBm)	Loss	Gain	EIRP(dBm)	(dBm)	Polarization
7717.03	-32.06	1.80	-2.53	-36.39	-13.00	V
16822.03	-33.73	2.90	-0.26	-36.89	-13.00	Н
17448.09	-32.52	3.20	-1.08	-36.80	-13.00	Н
17595.75	-32.93	3.20	-0.81	-36.94	-13.00	Н
17784.09	-32.36	3.20	-0.75	-36.31	-13.00	Н
17918.63	-32.09	3.20	-0.64	-35.93	-13.00	Н

## LTE Band 38, 5 MHz, QPSK, Channel 38000

Fraguera (MIII)	D (dDm)	Path	Antenna	Peak	Limit	Polarization
Frequency(MHz)	P <sub>Mea</sub> (dBm)	Loss	Gain	EIRP(dBm)	(dBm)	Polarization
5190.38	-34.27	1.20	-1.95	-37.42	-13.00	V
7784.53	-31.06	1.80	-2.53	-35.39	-13.00	V
17194.13	-33.61	2.90	-0.79	-37.30	-13.00	Н
17373.28	-33.35	2.90	-0.98	-37.23	-13.00	Н
17769.66	-32.32	3.20	-0.75	-36.27	-13.00	Н
17921.25	-32.72	3.20	-0.64	-36.56	-13.00	Н

# LTE Band 38, 5 MHz, QPSK, Channel 38225

Eroguenov/MHz)	D. (dPm)	Path	Antenna	Peak	Limit	Polarization
Frequency(MHz)	P <sub>Mea</sub> (dBm)	Loss	Gain	EIRP(dBm)	(dBm)	Polarization
16878.47	-34.13	2.90	-0.26	-37.29	-13.00	Н
17209.22	-33.71	2.90	-1.01	-37.62	-13.00	Н
17450.06	-32.43	3.20	-1.08	-36.71	-13.00	Н
17603.63	-32.77	3.20	-1.01	-36.98	-13.00	Н
17746.69	-33.34	3.20	-0.75	-37.29	-13.00	V
17900.91	-31.57	3.20	-0.64	-35.41	-13.00	Н



## LTE Band 38, 5 MHz, 16QAM, Channel 37775

Fraguanov/MUz)	D. (dDm)	Path	Antenna	Peak	Limit	Polarization
Frequency(MHz)	P <sub>Mea</sub> (dBm)	Loss	Gain	EIRP(dBm)	(dBm)	Polarization
7717.03	-31.85	1.80	-2.53	-36.18	-13.00	V
16751.81	-33.45	2.90	-0.26	-36.61	-13.00	Н
17199.38	-32.83	2.90	-0.79	-36.52	-13.00	Н
17452.69	-32.36	3.20	-1.08	-36.64	-13.00	Н
17761.13	-32.72	3.20	-0.75	-36.67	-13.00	Н
17923.88	-31.97	3.20	-0.64	-35.81	-13.00	Н

## LTE Band 38, 5 MHz, 16QAM, Channel 38000

Fraguenov/MHz)	D (dDm)	Path	Antenna	Peak	Limit	Polarization
Frequency(MHz)	P <sub>Mea</sub> (dBm)	Loss	Gain	EIRP(dBm)	(dBm)	Polarization
7783.69	-30.86	1.80	-2.53	-35.19	-13.00	V
17202.66	-32.67	2.90	-1.01	-36.58	-13.00	Н
17349.66	-32.81	2.90	-0.98	-36.69	-13.00	V
17457.94	-32.22	3.20	-1.08	-36.50	-13.00	Н
17786.72	-32.81	3.20	-0.75	-36.76	-13.00	V
17921.25	-31.60	3.20	-0.64	-35.44	-13.00	Н

## LTE Band 38, 5 MHz, 16QAM, Channel 38225

Francisco es (MIII-)	D (dDm)	Path	Antenna	Peak	Limit	Delegization
Frequency(MHz)	P <sub>Mea</sub> (dBm)	Loss	Gain	EIRP(dBm)	(dBm)	Polarization
7852.03	-32.49	1.80	-2.45	-36.74	-13.00	V
16822.03	-33.64	2.90	-0.26	-36.80	-13.00	Н
17413.97	-31.70	3.20	-1.08	-35.98	-13.00	Н
17595.75	-32.56	3.20	-0.81	-36.57	-13.00	Н
17784.09	-31.81	3.20	-0.75	-35.76	-13.00	Н
17929.13	-31.58	3.20	-0.64	-35.42	-13.00	Н

Note: The maximum value of expanded measurement uncertainty for this test item is U = 4.2 dB, k = 2.



## A.3 FREQUENCY STABILITY

#### A.3.1 Method of Measurement

In order to measure the carrier frequency under the condition of AFC lock, it is necessary to make measurements with the EUT in a "call mode". This is accomplished with the use of R&S CMW500 DIGITAL RADIO COMMUNICATION TESTER.

- 1. Measure the carrier frequency at room temperature.
- 2. Subject the EUT to overnight soak at -30°C.
- 3. With the EUT, powered via nominal voltage, connected to the CMW500 and in a simulated call on middle channel, measure the carrier frequency. These measurements should be made within 2 minutes of Powering up the EUT, to prevent significant self-warming.
- 4. Repeat the above measurements at 10°C increments from -30°C to +50°C. Allow at least 1.5 hours at each temperature, unpowered, before making measurements.
- 5. Re-measure carrier frequency at room temperature with nominal voltage. Vary supply voltage from minimum voltage to maximum voltage, in 0.1Volt increments re-measuring carrier frequency at each voltage. Pause at nominal voltage for 1.5 hours unpowered, to allow any self-heating to stabilize, before continuing.
- 6. Subject the EUT to overnight soak at  $+50^{\circ}$ C.
- 7. With the EUT, powered via nominal voltage, connected to the CMW500 and in a simulated call on the centre channel, measure the carrier frequency. These measurements should be made within 2 minutes of Powering up the EUT, to prevent significant self-warming.
- 8. Repeat the above measurements at 10 °C increments from +50 °C to -30 °C. Allow at least 1.5 hours at each temperature, unpowered, before making measurements.
- 9. At all temperature levels hold the temperature to +/- 0.5°C during the measurement procedure.

#### A.3.2 Measurement Limit

#### A.3.2.1 For Hand carried battery powered equipment

According to the JTC standard the frequency stability of the carrier shall be accurate to within 0.1 ppm of the received frequency from the base station. The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. As this transceiver is considered "Hand carried, battery powered equipment" This requires that the lower voltage for frequency stability testing be specified by the manufacturer. This transceiver is specified to operate with an input voltage of between 3.6VDC and 4.2VDC, with a nominal voltage of 3.7VDC. Operation above or below these voltage limits is prohibited by transceiver software in order to prevent improper operation as well as to protect components from overstress. For the purposes of measuring frequency stability these voltage limits are to be used.

#### A.3.2.2 For equipment powered by primary supply voltage

According to the JTC standard the frequency stability of the carrier shall be accurate to within 0.1 ppm of the received frequency from the base station. The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.



#### A.3.3 Measurement results

## LTE Band 2, 1.4MHz bandwidth (worst case of all bandwidths)

## Frequency Error vs Voltage

Voltage	Frequency	y error (Hz)	Frequency error (ppm)		
(V)	QPSK	16QAM	QPSK	16QAM	
3.6	6	-25	0.003	0.013	
3.7	-20	6	0.011	0.003	
4.2	14	-19	0.007	0.010	

## **Frequency Error vs Temperature**

Temperature	Frequenc	Frequency error (Hz)		error (ppm)
(℃)	QPSK	16QAM	QPSK	16QAM
-30°	-8	35	0.004	0.019
-20°	-6	26	0.003	0.014
-10°	-12	17	0.006	0.009
0°	3	44	0.002	0.023
10°	15	59	0.008	0.031
20°	22	52	0.012	0.028
30°	36	46	0.019	0.024
40°	-6	41	0.003	0.022
50°	-11	33	0.006	0.018

## LTE Band 4, 1.4MHz bandwidth (worst case of all bandwidths)

## Frequency Error vs Voltage

Voltage	Frequency	y error (Hz)	Frequency error (ppm)		
(V)	QPSK	16QAM	QPSK	16QAM	
3.6	6	19	0.003	0.011	
3.7	-3	25	0.002	0.014	
4.2	19	4	0.011	0.002	

Temperature	Frequency	y error (Hz)	Frequency e	error (ppm)
(℃)	QPSK	16QAM	QPSK	16QAM
-30°	36	6	0.021	0.003
-20°	24	14	0.014	0.008
-10°	3	26	0.002	0.015
0°	1	31	0.001	0.018
10°	-5	-5	0.003	0.003
20°	12	3	0.007	0.002
30°	16	18	0.009	0.010
40°	27	22	0.016	0.013
50°	32	35	0.018	0.020



# LTE Band 5, 1.4MHz bandwidth (worst case of all bandwidths)

## Frequency Error vs Voltage

Voltage	Frequency	y error (Hz)	Frequency error (ppm)		
(V)	QPSK	16QAM	QPSK	16QAM	
3.6	16	9	0.019	0.011	
3.7	3	18	0.004	0.022	
4.2	28	3	0.033	0.004	

## **Frequency Error vs Temperature**

Temperature	Frequency	y error (Hz)	Frequency error (ppm)	
(℃)	QPSK	16QAM	QPSK	16QAM
-30°	39	11	0.047	0.013
-20°	45	24	0.054	0.029
-10°	16	5	0.019	0.006
0°	13	31	0.016	0.037
10°	8	16	0.010	0.019
20°	6	28	0.007	0.033
30°	15	34	0.018	0.041
40°	25	8	0.030	0.010
50°	7	16	0.008	0.019

# LTE Band 7, 10MHz bandwidth (worst case of all bandwidths)

# Frequency Error vs Voltage

Voltage	Frequency error (Hz)		Frequency error (ppm)	
(V)	QPSK	16QAM	QPSK	16QAM
3.6	15	-9	0.006	0.004
3.7	28	-14	0.011	0.006
4.2	11	5	0.004	0.002

Temperature	Frequenc	y error (Hz)	Frequency error (ppm)	
(℃)	QPSK	16QAM	QPSK	16QAM
-30°	14	-9	0.006	0.004
-20°	8	-18	0.003	0.007
-10°	17	36	0.007	0.014
0°	22	8	0.009	0.003
10°	15	14	0.006	0.006
20°	3	17	0.001	0.007
30°	19	29	0.007	0.011
40°	27	33	0.011	0.013
50°	33	40	0.013	0.016



# LTE Band 12, 1.4MHz bandwidth (worst case of all bandwidths)

## Frequency Error vs Voltage

Voltage	Frequency error (Hz)		Frequency	error (ppm)
(V)	QPSK	16QAM	QPSK	16QAM
3.6	-9	-3	0.013	0.004
3.7	11	16	0.016	0.023
4.2	-24	-17	0.034	0.024

## **Frequency Error vs Temperature**

Temperature	Frequency	y error (Hz)	Frequency error (ppm)	
(℃)	QPSK	16QAM	QPSK	16QAM
-30°	-20	9	0.028	0.013
-20°	14	25	0.020	0.035
-10°	26	18	0.037	0.025
0°	-3	26	0.004	0.037
10°	18	-3	0.025	0.004
20°	-9	-19	0.013	0.027
30°	-6	-47	0.008	0.066
40°	17	-34	0.024	0.048
50°	36	15	0.051	0.021

# LTE Band 13, 10MHz bandwidth (worst case of all bandwidths)

## Frequency Error vs Voltage

Voltage	Frequency error (Hz)		Frequency error (ppm)	
(V)	QPSK	16QAM	QPSK	16QAM
3.6	22	16	0.028	0.020
3.7	6	-5	0.008	0.006
4.2	14	3	0.018	0.004

Temperature	Frequenc	y error (Hz)	Frequency error (ppm)	
(℃)	QPSK	16QAM	QPSK	16QAM
-30°	16	14	0.020	0.018
-20°	2	6	0.003	0.008
-10°	10	8	0.013	0.010
0°	1	11	0.001	0.014
10°	14	9	0.018	0.012
20°	-3	-1	0.004	0.001
30°	25	2	0.032	0.003
40°	24	3	0.031	0.004
50°	38	14	0.049	0.018



# LTE Band 17, 10MHz bandwidth (worst case of all bandwidths)

## Frequency Error vs Voltage

Voltage	Frequency error (Hz)		Frequency error (ppm)	
(V)	QPSK	16QAM	QPSK	16QAM
3.6	13	18	0.018	0.025
3.7	-6	26	0.008	0.037
4.2	-2	9	0.003	0.013

## **Frequency Error vs Temperature**

Temperature	Frequency	y error (Hz)	Frequency error (ppm)	
(℃)	QPSK	16QAM	QPSK	16QAM
-30°	22	11	0.031	0.015
-20°	14	4	0.020	0.006
-10°	15	-3	0.021	0.004
0°	41	-15	0.058	0.021
10°	38	-11	0.054	0.015
20°	55	-8	0.077	0.011
30°	29	2	0.041	0.003
40°	8	-6	0.011	0.008
50°	13	12	0.018	0.017

# LTE Band 25, 10MHz bandwidth (worst case of all bandwidths)

## Frequency Error vs Voltage

Voltage	Frequency error (Hz)		Frequency error (ppm)	
(V)	QPSK	16QAM	QPSK	16QAM
3.6	26	-8	0.014	0.004
3.7	3	5	0.002	0.003
4.2	28	11	0.015	0.006

Temperature	Frequenc	Frequency error (Hz)		Frequency error (ppm)	
(℃)	QPSK	16QAM	QPSK	16QAM	
-30°	-9	22	0.005	0.012	
-20°	-1	5	0.001	0.003	
-10°	12	14	0.006	0.007	
0°	-6	8	0.003	0.004	
10°	25	3	0.013	0.002	
20°	13	16	0.007	0.008	
30°	27	22	0.014	0.012	
40°	38	9	0.020	0.005	
50°	45	1	0.024	0.001	



# LTE Band 26, 10MHz bandwidth (worst case of all bandwidths)

## Frequency Error vs Voltage

Voltage	Frequency error (Hz)		Frequency error (ppm)	
(V)	QPSK	16QAM	QPSK	16QAM
3.6	19	12	0.023	0.014
3.7	25	19	0.030	0.023
4.2	8	25	0.010	0.030

## **Frequency Error vs Temperature**

Temperature	Frequency	y error (Hz)	Frequency error (ppm)	
(℃)	QPSK	16QAM	QPSK	16QAM
-30°	12	22	0.014	0.026
-20°	-5	36	0.006	0.043
-10°	14	17	0.017	0.020
0°	-9	24	0.011	0.029
10°	-26	18	0.031	0.022
20°	-17	-8	0.020	0.010
30°	15	3	0.018	0.004
40°	33	11	0.040	0.013
50°	25	25	0.030	0.030

# LTE Band 38, 10MHz bandwidth (worst case of all bandwidths)

#### Frequency Error vs Voltage

rioquonoy Error vo voltago				
Voltage	Frequency error (Hz)		Frequency	error (ppm)
(V)	QPSK	16QAM	QPSK	16QAM
3.6	-13	24	0.005	0.009
3.7	8	-20	0.003	0.008
4.2	-26	-15	0.010	0.006

## **Frequency Error vs Temperature**

Temperature	Frequenc	y error (Hz)	Frequency	error (ppm)
(℃)	QPSK	16QAM	QPSK	16QAM
-30°	22	-25	0.008	0.010
-20°	9	-26	0.003	0.010
-10°	18	-9	0.007	0.003
0°	6	-18	0.002	0.007
10°	17	-27	0.007	0.010
20°	22	-33	0.008	0.013
30°	35	-8	0.013	0.003
40°	19	5	0.007	0.002
50°	24	-26	0.009	0.010

Expanded measurement uncertainty for this test item is 10 Hz, k = 2.



## A.4 OCCUPIED BANDWIDTH

#### A.4.1 Occupied Bandwidth Results

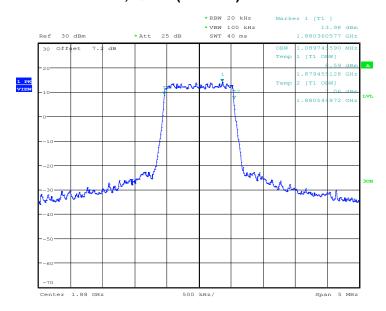
Occupied bandwidth measurements are only provided for selected frequencies in order to reduce the amount of submitted data. Data were taken at the extreme and mid frequencies of the US Cellular/PCS frequency bands. The table below lists the measured 99% BW. Spectrum analyzer plots are included on the following pages.

The transmitter shall be operated at its maximum carrier power measured under normal test conditions. The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts. The resolution bandwidth shall be set to as close to 1% of the selected span as is possible without being below 1%. The video bandwidth shall be set to 3 times the resolution bandwidth. Video averaging is not permitted. Where practical, a sampling detector shall be used given that a peak or peak hold may produce a wider bandwidth than actual. The trace data points are recovered and directly summed in linear terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached and that frequency recorded. The process is repeated for the highest frequency data points. This frequency is recorded. The span between the two recorded frequencies is the occupied bandwidth.

#### LTE band 2, 1.4MHz (99%)

Frequency(MHz)	Occupied Bandwidth (99%)( kHz)	
1880.0	QPSK	16QAM
	1089.74	1097.76

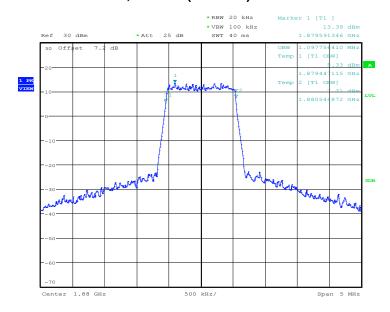
LTE band 2, 1.4MHz Bandwidth, QPSK (99% BW)



Date: 16.FEB.2017 23:38:38



## LTE band 2, 1.4MHz Bandwidth, 16QAM (99% BW)



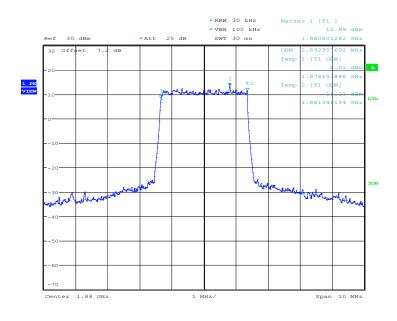
Date: 16.FEB.2017 23:39:38



## LTE band 2, 3MHz (99%)

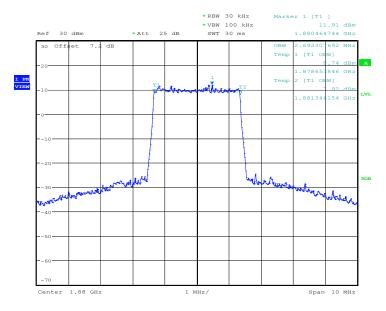
Frequency(MHz)	Occupied Bandwidth (99%)( kHz)	
1880.0	QPSK	16QAM
	2692.31	2692.31

LTE band 2, 3MHz Bandwidth, QPSK (99% BW)



Date: 17.FEB.2017 00:53:36

## LTE band 2, 3MHz Bandwidth, 16QAM (99% BW)



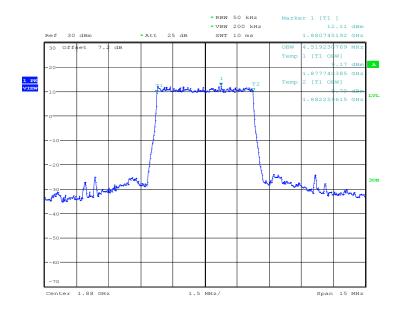
Date: 17.FEB.2017 00:51:03



## LTE band 2, 5MHz (99%)

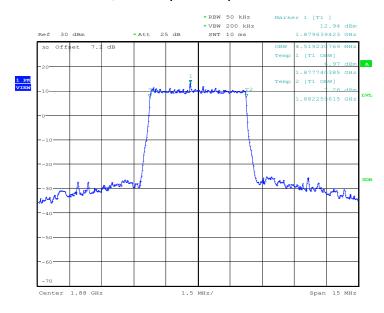
Frequency(MHz)	Occupied Bandwidth (99%)( kHz)	
1880.0	QPSK	16QAM
	4519.23	4519.23

LTE band 2, 5MHz Bandwidth, QPSK (99% BW)



Date: 17.FEB.2017 00:55:50

## LTE band 2, 5MHz Bandwidth,16QAM (99% BW)



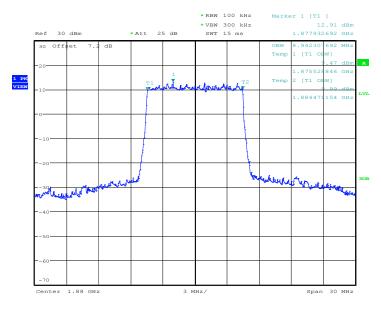
Date: 17.FEB.2017 00:56:51



## LTE band 2, 10MHz (99%)

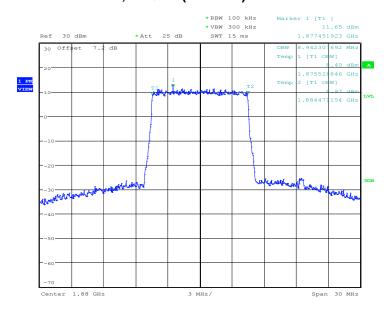
Frequency(MHz)	Occupied Bandwidth (99%)( kHz)	
1880.0	QPSK	16QAM
	8942.31	8942.31

## LTE band 2, 10MHz Bandwidth, QPSK (99% BW)



Date: 17.FEB.2017 02:10:37

## LTE band 2, 10MHz Bandwidth, 16QAM (99% BW)



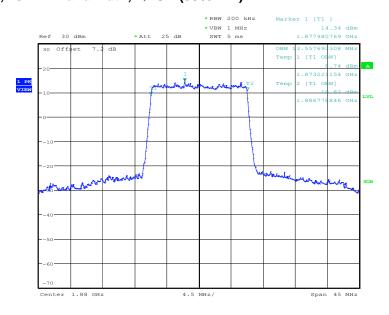
Date: 17.FEB.2017 02:10:05



#### LTE band 2, 15MHz (99%)

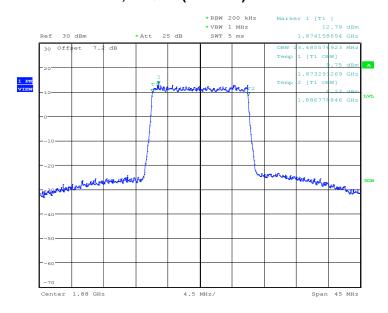
Frequency(MHz)	Occupied Bandwidth (99%)( kHz)	
1880.0	QPSK	16QAM
	13557.69	13485.58

## LTE band 2, 15MHz Bandwidth, QPSK (99% BW)



Date: 17.FEB.2017 02:12:14

## LTE band 2, 15MHz Bandwidth, 16QAM (99% BW)



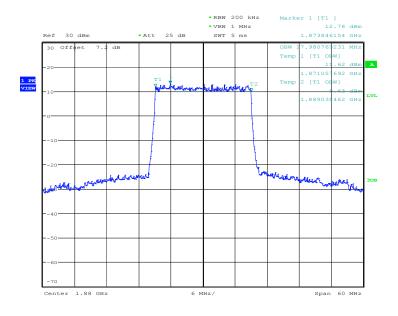
Date: 17.FEB.2017 02:12:43



## LTE band 2, 20MHz (99%)

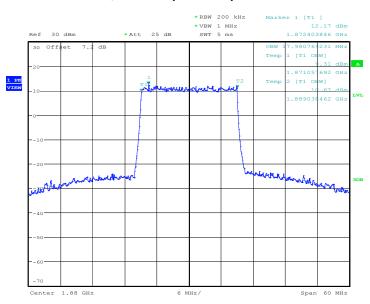
Frequency(MHz)	Occupied Bandwidth (99%)( kHz)	
1880.0	QPSK	16QAM
	17980.77	17980.77

## LTE band 2, 20MHz Bandwidth, QPSK (99% BW)



Date: 17.FEB.2017 02:47:09

## LTE band 2, 20MHz Bandwidth, 16QAM (99% BW)



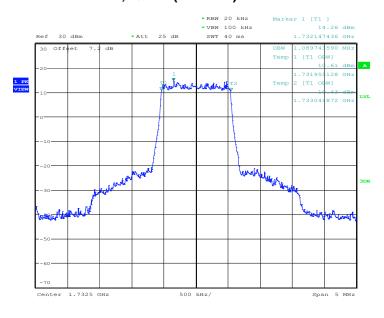
Date: 17.FEB.2017 02:49:09



## LTE band 4, 1.4MHz (99%)

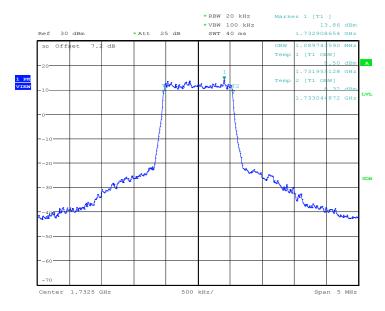
Frequency(MHz)	Occupied Bandwidth (99%)( kHz)	
1732.5	QPSK	16QAM
	1089.74	1089.74

## LTE band 4, 1.4MHz Bandwidth, QPSK (99% BW)



Date: 16.FEB.2017 23:49:05

## LTE band 4, 1.4MHz Bandwidth, 16QAM (99% BW)



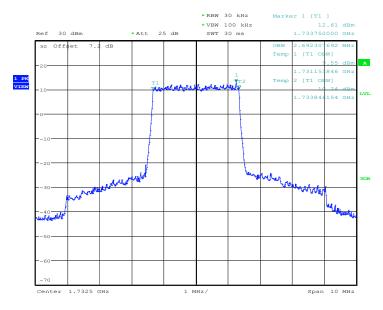
Date: 16.FEB.2017 23:48:16



## LTE band 4, 3MHz (99%)

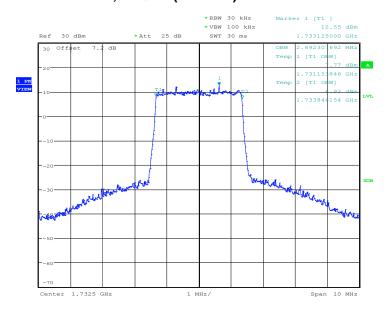
Frequency(MHz)	Occupied Bandwidth (99%)( kHz)	
1732.5	QPSK	16QAM
	2692.31	2692.31

## LTE band 4, 3MHz Bandwidth, QPSK (99% BW)



Date: 17.FEB.2017 00:43:42

## LTE band 4, 3MHz Bandwidth, 16QAM (99% BW)



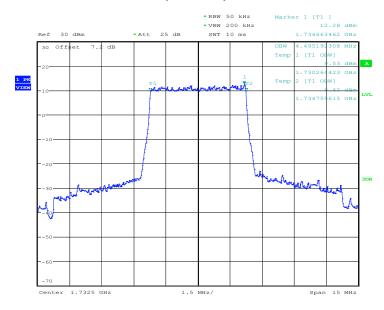
Date: 17.FEB.2017 00:44:24



## LTE band 4, 5MHz (99%)

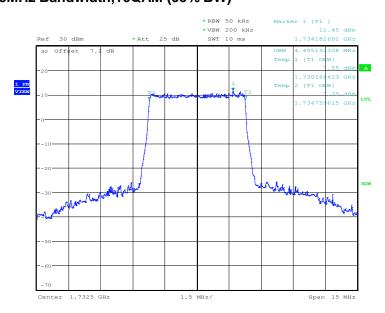
Frequency(MHz)	Occupied Bandwidth (99%)( kHz)	
1732.5	QPSK	16QAM
	4495.19	4495.19

## LTE band 4, 5MHz Bandwidth, QPSK (99% BW)



Date: 17.FEB.2017 01:03:21

## LTE band 4, 5MHz Bandwidth,16QAM (99% BW)



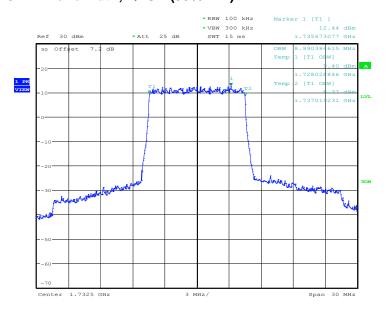
Date: 17.FEB.2017 01:02:24



## LTE band 4, 10MHz (99%)

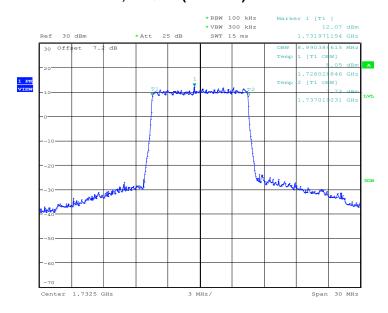
Frequency(MHz)	Occupied Bandwidth (99%)( kHz)	
1732.5	QPSK	16QAM
	8990.38	8990.38

## LTE band 4, 10MHz Bandwidth, QPSK (99% BW)



Date: 17.FEB.2017 02:05:29

## LTE band 4, 10MHz Bandwidth, 16QAM (99% BW)



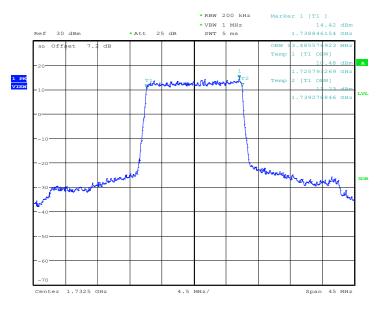
Date: 17.FEB.2017 02:06:33



## LTE band 4, 15MHz (99%)

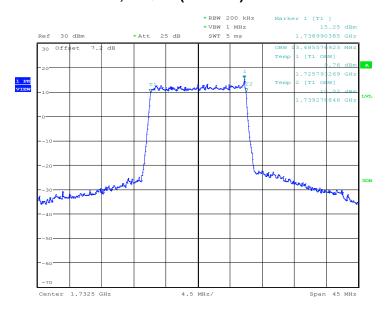
Frequency(MHz)	Occupied Bandwidth (99%)( kHz)	
1732.5	QPSK	16QAM
1732.3	13485.58	13485.58

## LTE band 4, 15MHz Bandwidth, QPSK (99% BW)



Date: 17.FEB.2017 02:18:41

## LTE band 4, 15MHz Bandwidth, 16QAM (99% BW)



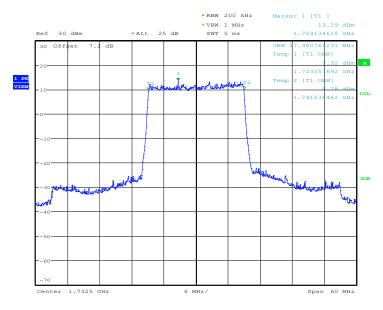
Date: 17.FEB.2017 02:17:54



## LTE band 4, 20MHz (99%)

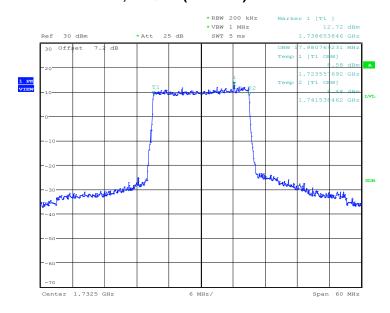
Frequency(MHz)	Occupied Bandwidth (99%)( kHz)	
4722 F	QPSK	16QAM
1732.5	17980.77	17980.77

## LTE band 4, 20MHz Bandwidth, QPSK (99% BW)



Date: 17.FEB.2017 02:45:14

## LTE band 4, 20MHz Bandwidth, 16QAM (99% BW)



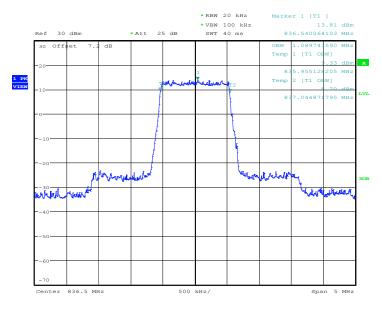
Date: 17.FEB.2017 02:44:42



## LTE band 5, 1.4MHz (99%)

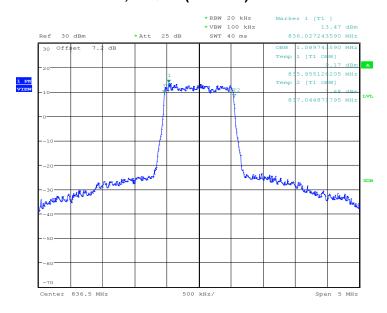
Frequency(MHz)	Occupied Bandwidth (99%)( kHz)	
926 5	QPSK	16QAM
836.5	1089.74	1089.74

## LTE band 5, 1.4MHz Bandwidth, QPSK (99% BW)



Date: 16.FEB.2017 23:49:50

## LTE band 5, 1.4MHz Bandwidth, 16QAM (99% BW)



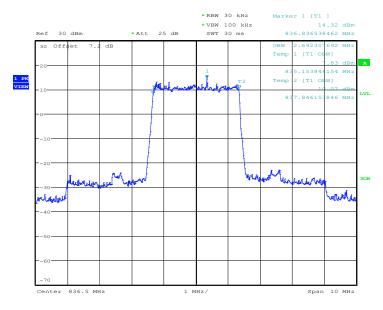
Date: 16.FEB.2017 23:50:18



## LTE band 5, 3MHz (99%)

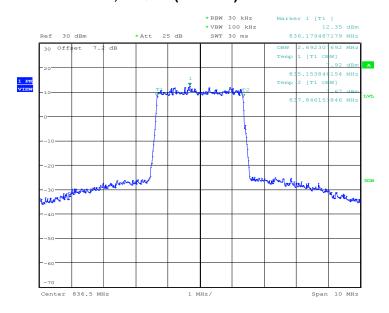
Frequency(MHz)	Occupied Bandwidth (99%)( kHz)	
836.5	QPSK	16QAM
636.5	2692.31	2692.31

## LTE band 5, 3MHz Bandwidth, QPSK (99% BW)



Date: 17.FEB.2017 00:42:50

## LTE band 5, 3MHz Bandwidth, 16QAM (99% BW)



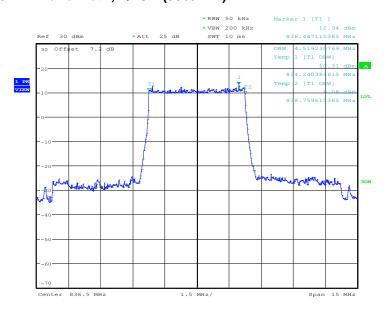
Date: 17.FEB.2017 00:41:51



## LTE band 5, 5MHz (99%)

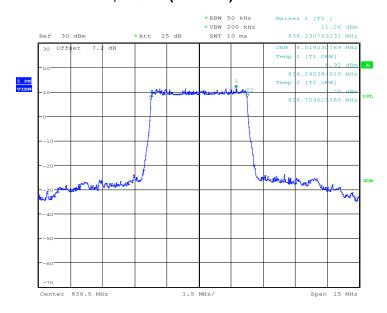
Frequency(MHz)	Occupied Bandwidth (99%)( kHz)	
926 5	QPSK	16QAM
836.5	4519.23	4519.23

## LTE band 5, 5MHz Bandwidth, QPSK (99% BW)



Date: 17.FEB.2017 01:04:35

## LTE band 5, 5MHz Bandwidth,16QAM (99% BW)



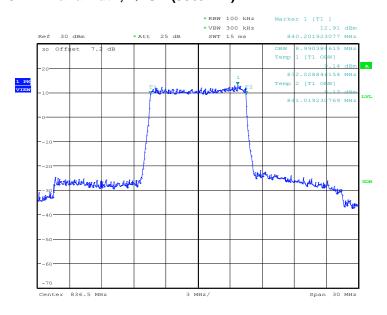
Date: 17.FEB.2017 01:05:47



## LTE band 5, 10MHz (99%)

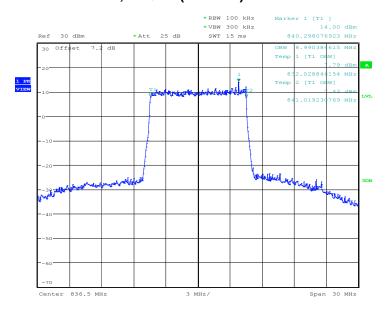
Frequency(MHz)	Occupied Bandwidth (99%)( kHz)	
836.5	QPSK	16QAM
636.3	8990.38	8990.38

## LTE band 5, 10MHz Bandwidth, QPSK (99% BW)



Date: 17.FEB.2017 02:04:39

## LTE band 5, 10MHz Bandwidth, 16QAM (99% BW)



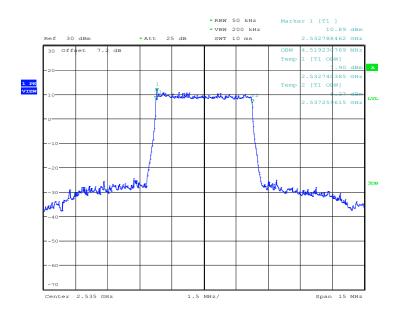
Date: 17.FEB.2017 02:04:00



## LTE band 7, 5MHz (99%)

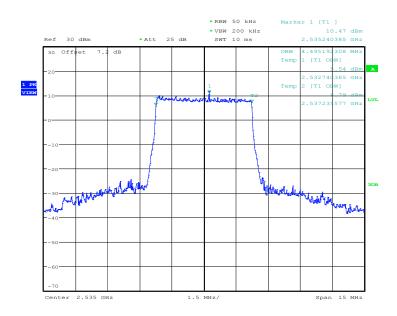
Frequency(MHz)	Occupied Bandwidth (99%)( kHz)	
2535.0	QPSK	16QAM
2535.0	4519.23	4519.23

LTE band 7, 5MHz Bandwidth, QPSK (99% BW)



Date: 17.FEB.2017 01:13:10

## LTE band 7, 5MHz Bandwidth,16QAM (99% BW)



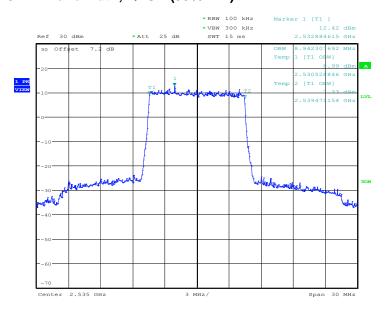
Date: 17.FEB.2017 01:12:36



## LTE band 7, 10MHz (99%)

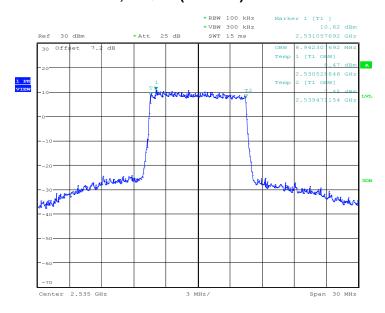
Frequency(MHz)	Occupied Bandwidth (99%)( kHz)	
2525.0	QPSK	16QAM
2535.0	8942.31	8942.31

## LTE band 7, 10MHz Bandwidth, QPSK (99% BW)



Date: 17.FEB.2017 01:59:23

## LTE band 7, 10MHz Bandwidth, 16QAM (99% BW)



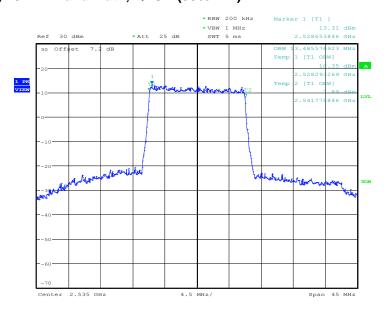
Date: 17.FEB.2017 02:00:02



#### LTE band 7, 15MHz (99%)

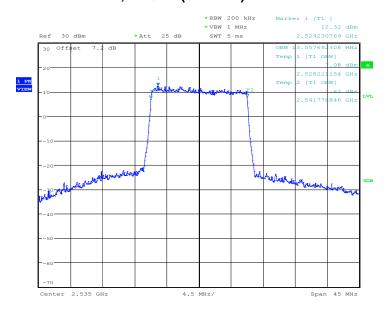
Frequency(MHz)	Occupied Bandwidth (99%)( kHz)	
2525.0	QPSK	16QAM
2535.0	13485.58	13557.69

## LTE band 7, 15MHz Bandwidth, QPSK (99% BW)



Date: 17.FEB.2017 02:19:45

## LTE band 7, 15MHz Bandwidth, 16QAM (99% BW)



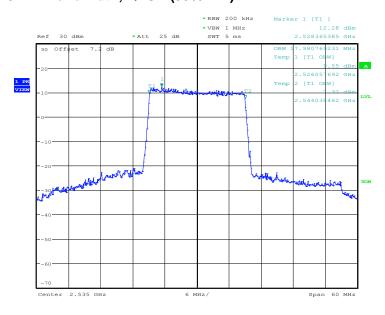
Date: 17.FEB.2017 02:20:25



#### LTE band 7, 20MHz (99%)

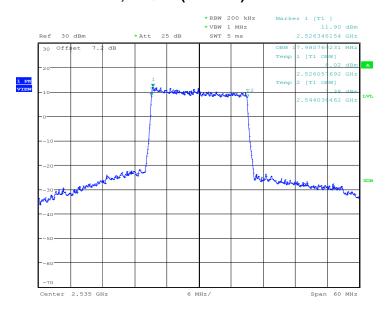
Frequency(MHz)	Occupied Bandwidth (99%)( kHz)	
2525.0	QPSK	16QAM
2535.0	17980.77	17980.77

## LTE band 7, 20MHz Bandwidth, QPSK (99% BW)



Date: 17.FEB.2017 02:38:18

## LTE band 7, 20MHz Bandwidth, 16QAM (99% BW)



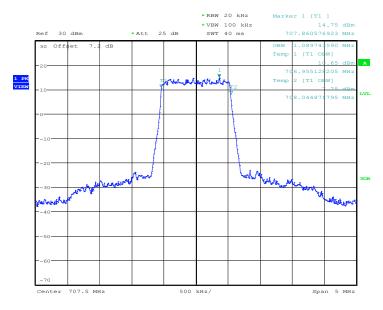
Date: 17.FEB.2017 02:39:13



## LTE band 12, 1.4MHz (99%)

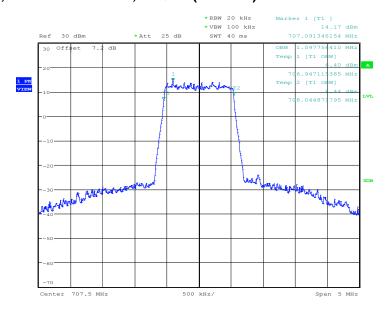
Frequency(MHz)	Occupied Bandwidth (99%)( kHz)	
707.5	QPSK	16QAM
707.5	1089.74	1097.76

## LTE band 12, 1.4MHz Bandwidth, QPSK (99% BW)



Date: 16.FEB.2017 23:56:13

## LTE band 12, 1.4MHz Bandwidth, 16QAM (99% BW)



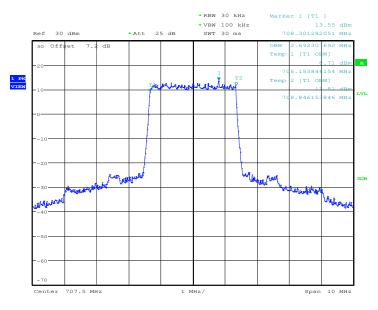
Date: 16.FEB.2017 23:55:37



## LTE band 12, 3MHz (99%)

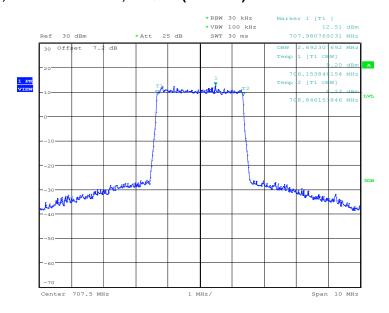
Frequency(MHz)	Occupied Bandwidth (99%)( kHz)	
707.5	QPSK	16QAM
707.5	2692.31	2692.31

## LTE band 12, 3MHz Bandwidth, QPSK (99% BW)



Date: 17.FEB.2017 00:36:02

## LTE band 12, 3MHz Bandwidth, 16QAM (99% BW)



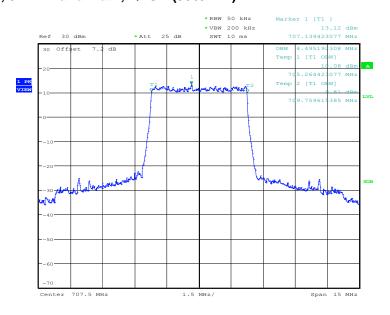
Date: 17.FEB.2017 00:36:47



#### LTE band 12, 5MHz (99%)

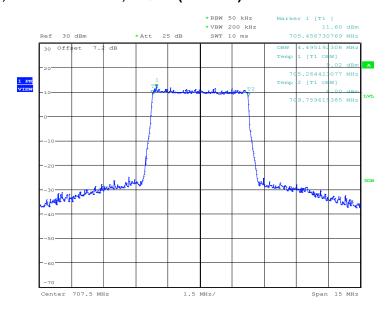
Frequency(MHz)	Occupied Bandwidth (99%)( kHz)	
707.5	QPSK	16QAM
	4495.19	4495.19

## LTE band 12, 5MHz Bandwidth, QPSK (99% BW)



Date: 17.FEB.2017 01:14:52

## LTE band 12, 5MHz Bandwidth,16QAM (99% BW)



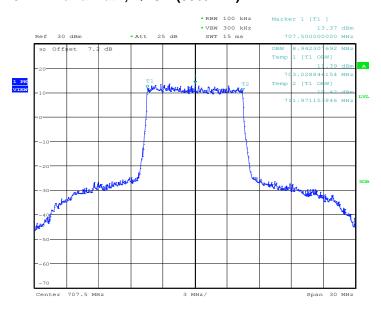
Date: 17.FEB.2017 01:15:27



## LTE band 12, 10MHz (99%)

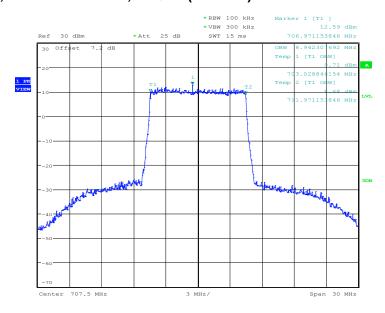
Frequency(MHz)	Occupied Bandwidth (99%)( kHz)	
707.5	QPSK	16QAM
	8942.31	8942.31

## LTE band 12, 10MHz Bandwidth, QPSK (99% BW)



Date: 17.FEB.2017 01:58:19

## LTE band 12, 10MHz Bandwidth, 16QAM (99% BW)



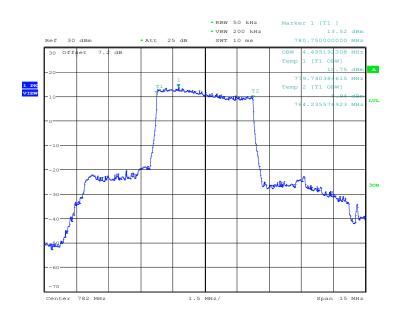
Date: 17.FEB.2017 01:57:53



## LTE band 13, 5MHz (99%)

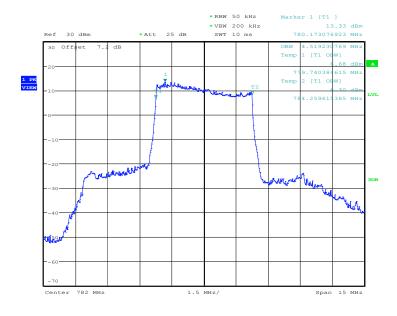
Frequency(MHz)	Occupied Bandwidth (99%)( kHz)	
782.0	QPSK	16QAM
	4495.19	4519.23

LTE band 13, 5MHz Bandwidth, QPSK (99% BW)



Date: 17.FEB.2017 01:20:29

## LTE band 13, 5MHz Bandwidth,16QAM (99% BW)



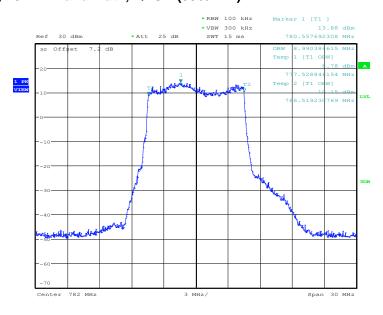
Date: 17.FEB.2017 01:19:53



#### LTE band 13, 10MHz (99%)

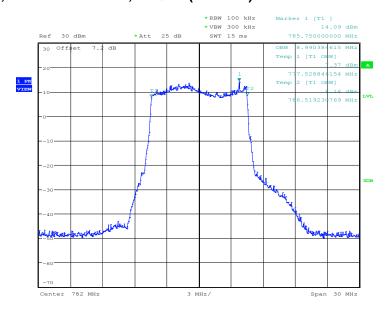
Frequency(MHz)	Occupied Bandwidth (99%)( kHz)	
782.0	QPSK	16QAM
	8990.38	8990.38

## LTE band 13, 10MHz Bandwidth, QPSK (99% BW)



Date: 17.FEB.2017 01:54:03

## LTE band 13, 10MHz Bandwidth, 16QAM (99% BW)



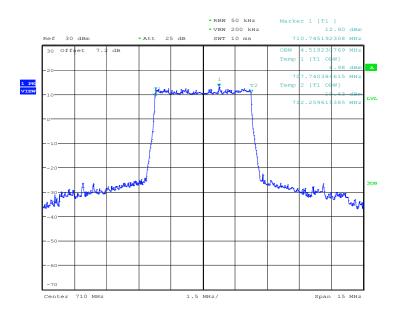
Date: 17.FEB.2017 01:54:34



## LTE band 17, 5MHz (99%)

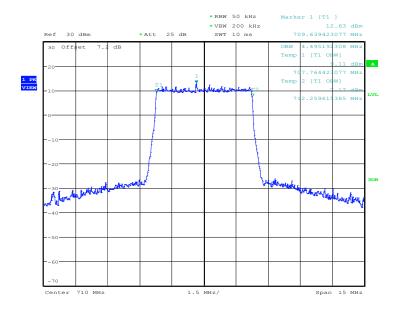
Frequency(MHz)	Occupied Bandwidth (99%)( kHz)	
710.0	QPSK	16QAM
	4519.23	4495.19

## LTE band 17, 5MHz Bandwidth, QPSK (99% BW)



Date: 17.FEB.2017 01:21:23

## LTE band 17, 5MHz Bandwidth,16QAM (99% BW)



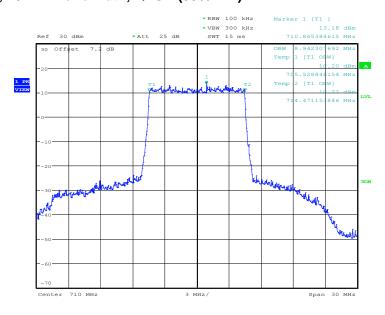
Date: 17.FEB.2017 01:22:08



## LTE band 17, 10MHz (99%)

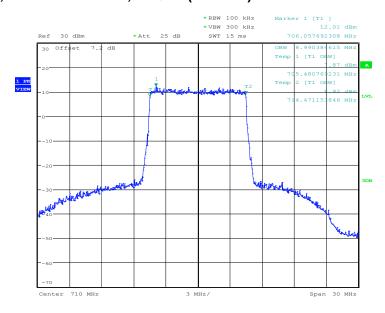
Frequency(MHz)	Occupied Bandwidth (99%)( kHz)	
710.0	QPSK	16QAM
710.0	8942.31	8990.38

### LTE band 17, 10MHz Bandwidth, QPSK (99% BW)



Date: 17.FEB.2017 01:53:15

## LTE band 17, 10MHz Bandwidth, 16QAM (99% BW)



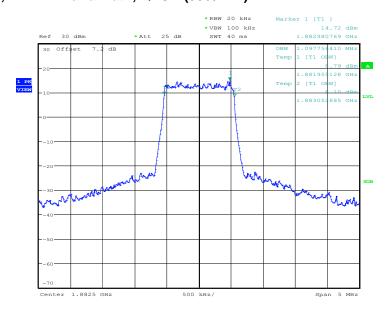
Date: 17.FEB.2017 01:52:41



#### LTE band 25, 1.4MHz (99%)

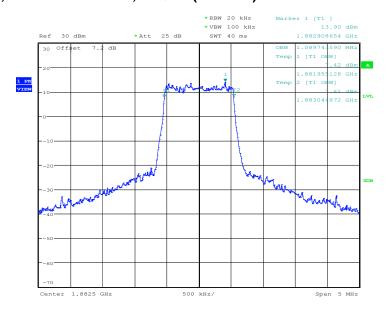
Frequency(MHz)	Occupied Bandwidth (99%)( kHz)	
4000 F	QPSK	16QAM
1882.5	1097.76	1089.74

### LTE band 25, 1.4MHz Bandwidth, QPSK (99% BW)



Date: 17.FEB.2017 00:16:53

## LTE band 25, 1.4MHz Bandwidth, 16QAM (99% BW)



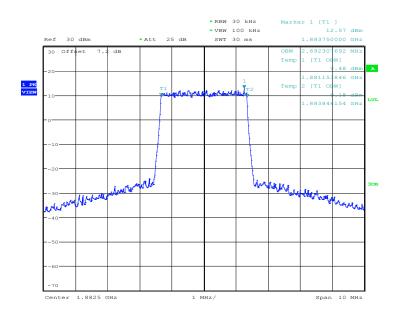
Date: 17.FEB.2017 00:17:27



#### LTE band25, 3MHz (99%)

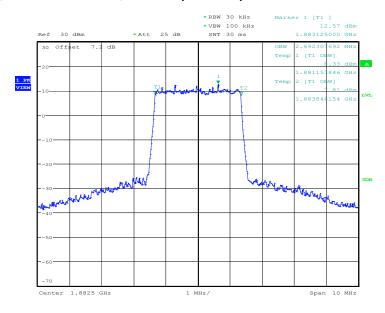
Frequency(MHz)	Occupied Bandwidth (99%)( kHz)	
1882.5	QPSK	16QAM
1002.3	2692.31	2692.31

LTE band 25, 3MHz Bandwidth, QPSK (99% BW)



Date: 17.FEB.2017 00:34:59

## LTE band 25, 3MHz Bandwidth, 16QAM (99% BW)



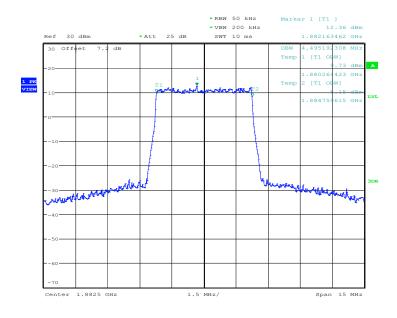
Date: 17.FEB.2017 00:33:45



#### LTE band 25, 5MHz (99%)

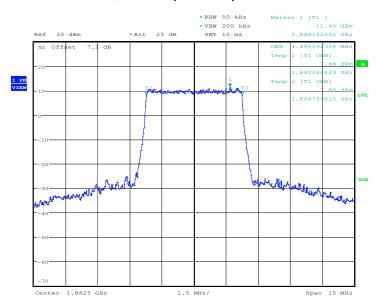
Frequency(MHz)	Occupied Bandwidth (99%)( kHz)	
4000 5	QPSK	16QAM
1882.5	4495.19	4495.19

LTE band 25, 5MHz Bandwidth, QPSK (99% BW)



Date: 17.FEB.2017 01:27:14

## LTE band 25, 5MHz Bandwidth,16QAM (99% BW)



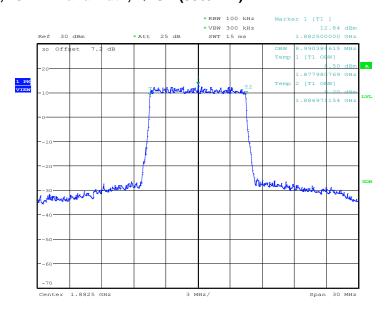
Date: 17.FEB.2017 01:26:25



#### LTE band 25, 10MHz (99%)

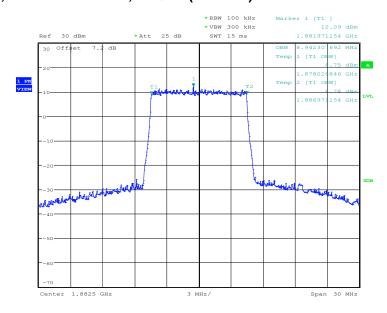
Frequency(MHz)	Occupied Bandwidth (99%)( kHz)	
1882.5	QPSK	16QAM
1002.3	8990.38	8942.31

### LTE band 25, 10MHz Bandwidth, QPSK (99% BW)



Date: 17.FEB.2017 01:47:35

## LTE band 25, 10MHz Bandwidth, 16QAM (99% BW)



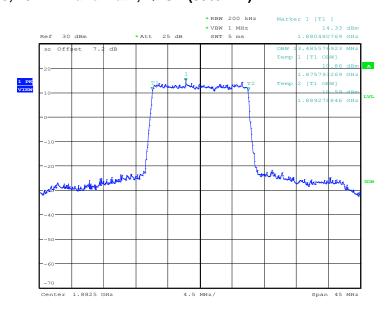
Date: 17.FEB.2017 01:48:05



#### LTE band 25, 15MHz (99%)

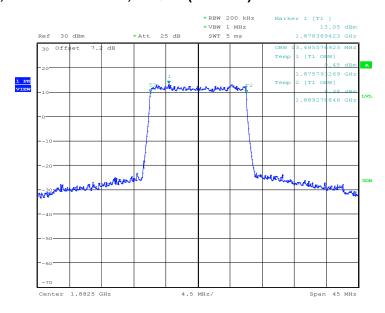
Frequency(MHz)	Occupied Bandwidth (99%)( kHz)	
1882.5	QPSK	16QAM
1002.3	13485.58	13485.58

### LTE band 25, 15MHz Bandwidth, QPSK (99% BW)



Date: 17.FEB.2017 02:24:11

## LTE band 25, 15MHz Bandwidth, 16QAM (99% BW)



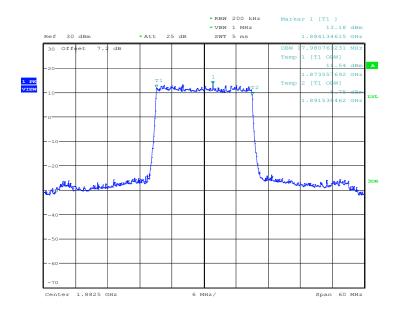
Date: 17.FEB.2017 02:23:31



#### LTE band 25, 20MHz (99%)

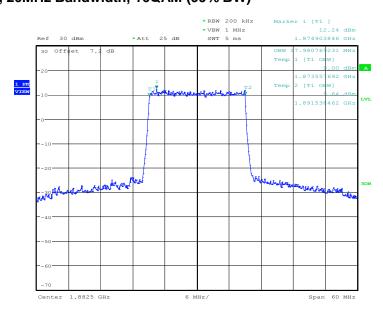
Frequency(MHz)	Occupied Bandwidth (99%)( kHz)	
4000 5	QPSK	16QAM
1882.5	17980.77	17980.77

### LTE band 25, 20MHz Bandwidth, QPSK (99% BW)



Date: 17.FEB.2017 02:36:50

## LTE band 25, 20MHz Bandwidth, 16QAM (99% BW)



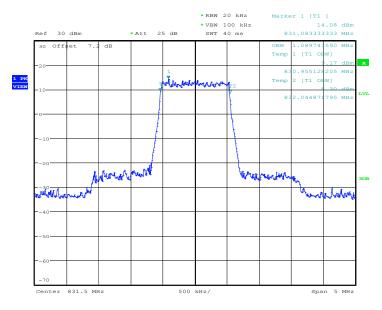
Date: 17.FEB.2017 02:36:01



#### LTE band 26, 1.4MHz (99%)

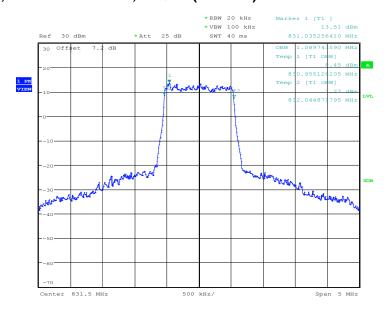
Frequency(MHz)	Occupied Bandwidth (99%)( kHz)	
924.5	QPSK	16QAM
831.5	1089.74	1089.74

#### LTE band 26, 1.4MHz Bandwidth, QPSK (99% BW)



Date: 17.FEB.2017 00:27:24

## LTE band 26, 1.4MHz Bandwidth, 16QAM (99% BW)



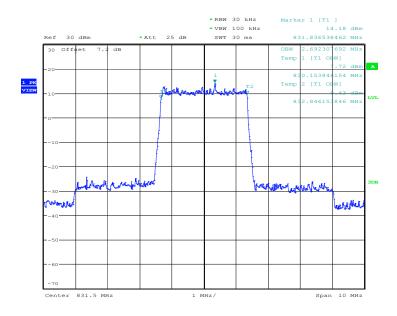
Date: 17.FEB.2017 00:26:58



#### LTE band26, 3MHz (99%)

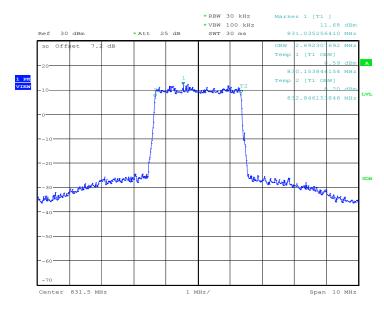
Frequency(MHz)	Occupied Bandwidth (99%)( kHz)	
924.5	QPSK	16QAM
831.5	2692.31	2692.31

#### LTE band 26, 3MHz Bandwidth, QPSK (99% BW)



Date: 17.FEB.2017 00:28:32

## LTE band 26, 3MHz Bandwidth, 16QAM (99% BW)



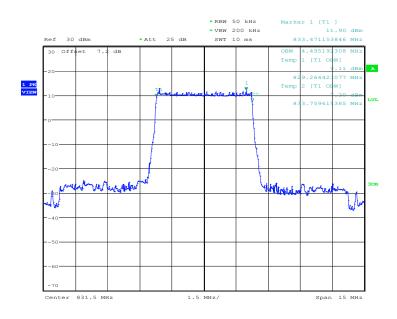
Date: 17.FEB.2017 00:29:05



#### LTE band 26, 5MHz (99%)

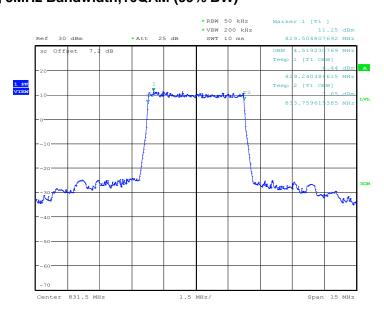
Frequency(MHz)	Occupied Bandwidth (99%)( kHz)	
924.5	QPSK	16QAM
831.5	4495.19	4519.23

### LTE band 26, 5MHz Bandwidth, QPSK (99% BW)



Date: 17.FEB.2017 01:28:09

## LTE band 26, 5MHz Bandwidth,16QAM (99% BW)



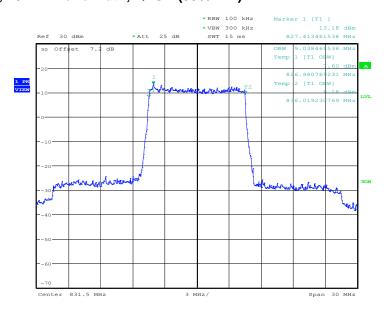
Date: 17.FEB.2017 01:29:29



#### LTE band 26, 10MHz (99%)

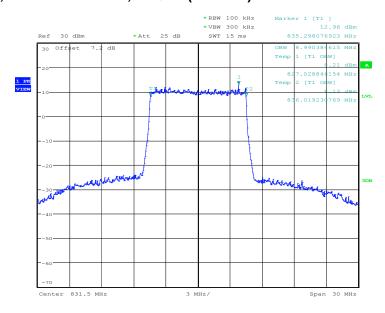
Frequency(MHz)	Occupied Bandwidth (99%)( kHz)	
924.5	QPSK	16QAM
831.5	9038.46	8990.38

### LTE band 26, 10MHz Bandwidth, QPSK (99% BW)



Date: 17.FEB.2017 01:37:07

## LTE band 26, 10MHz Bandwidth, 16QAM (99% BW)



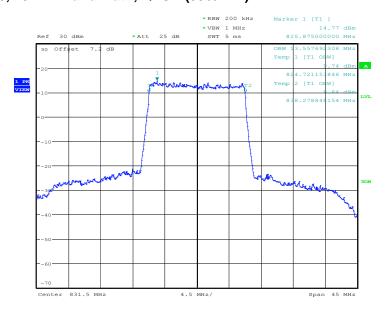
Date: 17.FEB.2017 01:35:45



#### LTE band 26, 15MHz (99%)

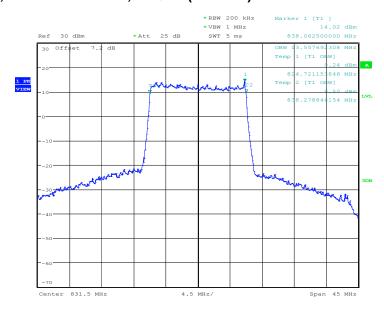
Frequency(MHz)	Occupied Bandwidth (99%)( kHz)	
924.5	QPSK	16QAM
831.5	13557.69	13557.69

### LTE band 26, 15MHz Bandwidth, QPSK (99% BW)



Date: 17.FEB.2017 02:25:36

## LTE band 26, 15MHz Bandwidth, 16QAM (99% BW)



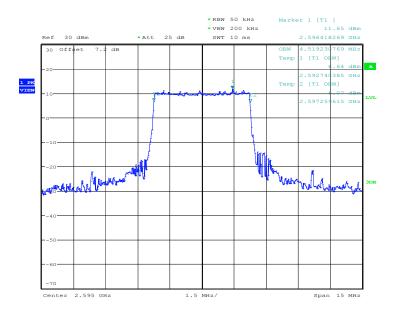
Date: 17.FEB.2017 02:26:32



#### LTE band 38, 5MHz (99%)

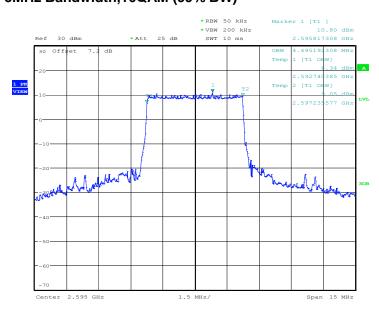
Frequency(MHz)	Occupied Bandwidth (99%)( kHz)	
2505.0	QPSK	16QAM
2595.0	4519.23	4495.19

### LTE band 38, 5MHz Bandwidth, QPSK (99% BW)



Date: 17.FEB.2017 03:20:20

## LTE band 38, 5MHz Bandwidth,16QAM (99% BW)



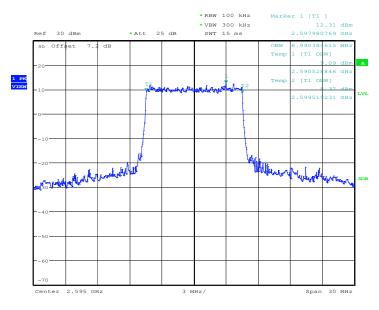
Date: 17.FEB.2017 03:21:07



#### LTE band 38, 10MHz (99%)

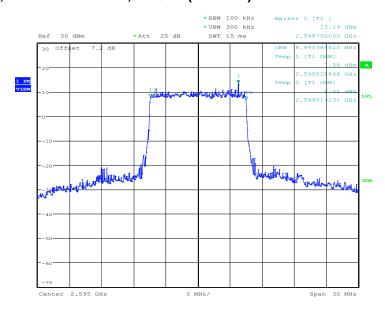
Frequency(MHz)	Occupied Bandwidth (99%)( kHz)	
2505.0	QPSK	16QAM
2595.0	8990.38	8990.38

#### LTE band 38, 10MHz Bandwidth, QPSK (99% BW)



Date: 17.FEB.2017 03:19:18

## LTE band 38, 10MHz Bandwidth, 16QAM (99% BW)



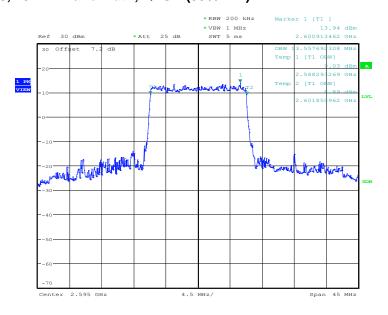
Date: 17.FEB.2017 03:18:33



#### LTE band 38, 15MHz (99%)

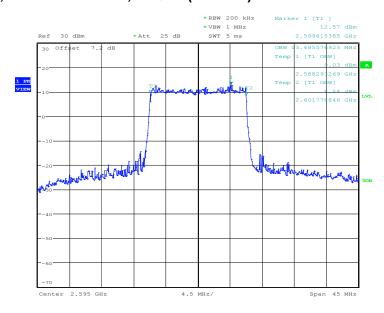
Frequency(MHz)	Occupied Bandwidth (99%)( kHz)	
2505.0	QPSK	16QAM
2595.0	13557.69	134485.58

### LTE band 38, 15MHz Bandwidth, QPSK (99% BW)



Date: 17.FEB.2017 03:14:29

# LTE band 38, 15MHz Bandwidth, 16QAM (99% BW)



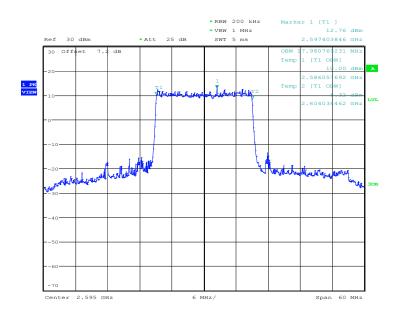
Date: 17.FEB.2017 03:15:14



## LTE band 38, 20MHz (99%)

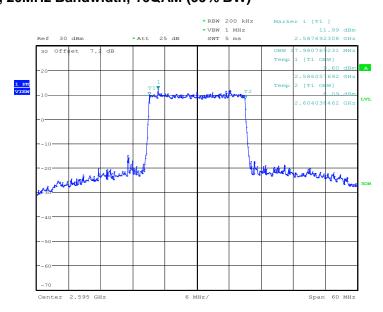
Frequency(MHz)	Occupied Bandwidth (99%)( kHz)	
2505.0	QPSK	16QAM
2595.0	17980.77	17980.77

### LTE band 38, 20MHz Bandwidth, QPSK (99% BW)



Date: 17.FEB.2017 03:13:35

## LTE band 38, 20MHz Bandwidth, 16QAM (99% BW)



Date: 17.FEB.2017 03:12:55



## A.5 EMISSION BANDWIDTH

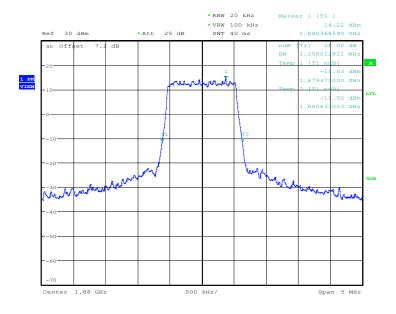
#### A.5.1Emission Bandwidth Results

The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power. Table below lists the measured -26dBc BW. Spectrum analyzer plots are included on the following pages.

LTE band 2, 1.4MHz (-26dBc)

Frequency(MHz)	Occupied Bandwidth (-26dBc)( kHz)	
1880.0	QPSK	16QAM
	1258.01	1274.04

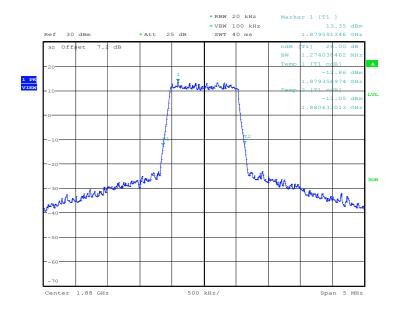
LTE band 2, 1.4MHz Bandwidth, QPSK (-26dBc BW)



Date: 16.FEB.2017 23:41:32



## LTE band 2, 1.4MHz Bandwidth, 16QAM (-26dBc BW)



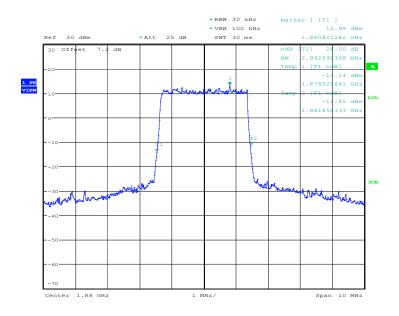
Date: 16.FEB.2017 23:40:18



#### LTE band 2, 3MHz (-26dBc)

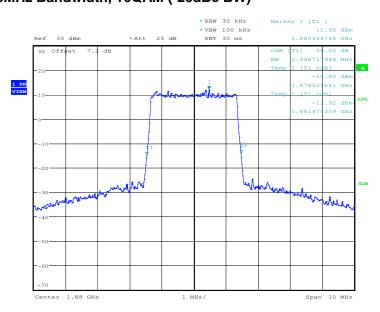
Frequency(MHz)	Occupied Bandwidth (-26dBc)( kHz)	
1990.0	QPSK	16QAM
1880.0	2932.69	2948.72

LTE band 2, 3MHz Bandwidth, QPSK (-26dBc BW)



Date: 17.FEB.2017 00:47:34

## LTE band 2, 3MHz Bandwidth, 16QAM (-26dBc BW)



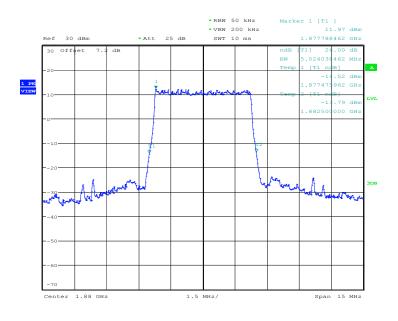
Date: 17.FEB.2017 00:49:18



#### LTE band 2, 5MHz (-26dBc)

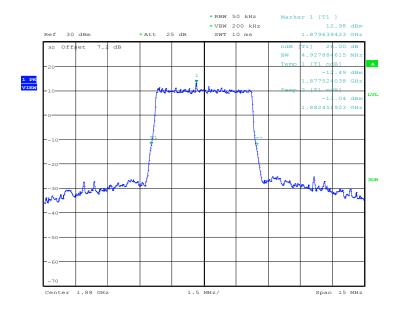
Frequency(MHz)	Occupied Bandwidth (-26dBc)( kHz)	
1990.0	QPSK	16QAM
1880.0	5024.04	4927.88

LTE band 2, 5MHz Bandwidth, QPSK (-26dBc BW)



Date: 17.FEB.2017 00:59:38

#### LTE band 2, 5MHz Bandwidth,16QAM (-26dBc BW)



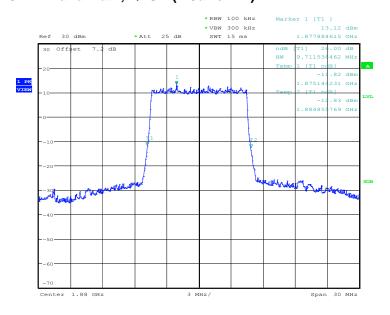
Date: 17.FEB.2017 00:58:29



#### LTE band 2, 10MHz (-26dBc)

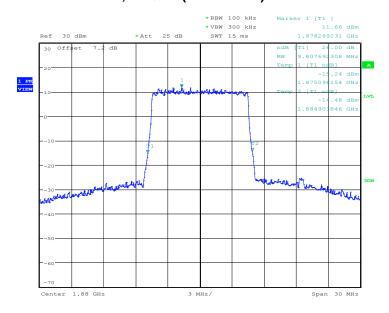
Frequency(MHz)	Occupied Bandwidth (-26dBc)( kHz)	
1000.0	QPSK	16QAM
1880.0	9711.54	9807.69

### LTE band 2, 10MHz Bandwidth, QPSK (-26dBc BW)



Date: 17.FEB.2017 02:08:57

## LTE band 2, 10MHz Bandwidth, 16QAM (-26dBc BW)



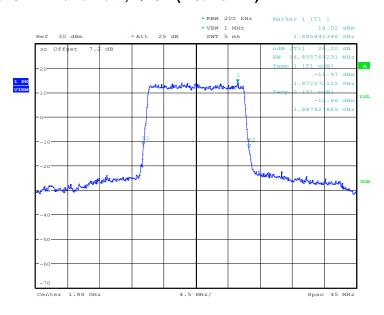
Date: 17.FEB.2017 02:09:37



#### LTE band 2, 15MHz (-26dBc)

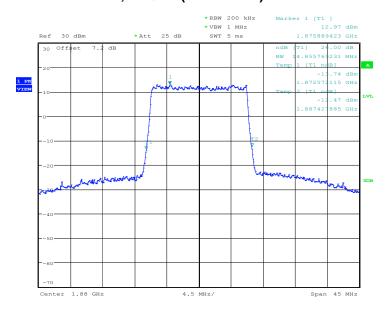
Frequency(MHz)	Occupied Bandwidth (-26dBc)( kHz)	
1000.0	QPSK	16QAM
1880.0	14855.77	14855.77

### LTE band 2, 15MHz Bandwidth, QPSK (-26dBc BW)



Date: 17.FEB.2017 02:15:11

## LTE band 2, 15MHz Bandwidth, 16QAM (-26dBc BW)



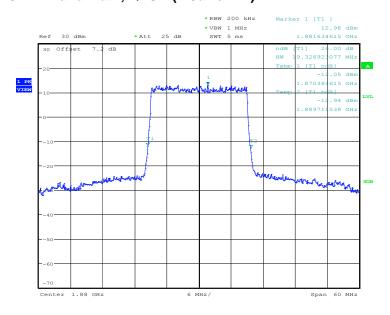
Date: 17.FEB.2017 02:14:32



#### LTE band 2, 20MHz (-26dBc)

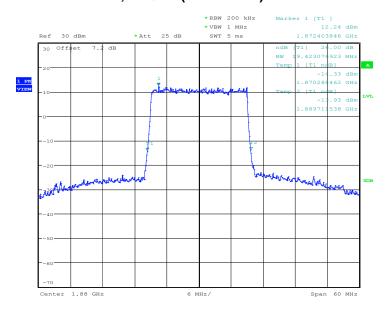
Frequency(MHz)	Occupied Bandwidth (-26dBc)( kHz)	
1000.0	QPSK	16QAM
1880.0	19326.92	19423.08

### LTE band 2, 20MHz Bandwidth, QPSK (-26dBc BW)



Date: 17.FEB.2017 02:50:39

## LTE band 2, 20MHz Bandwidth, 16QAM (-26dBc BW)



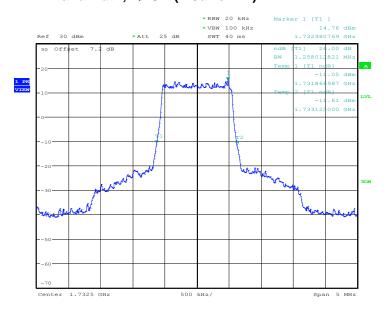
Date: 17.FEB.2017 02:49:52



#### LTE band 4, 1.4MHz (-26dBc)

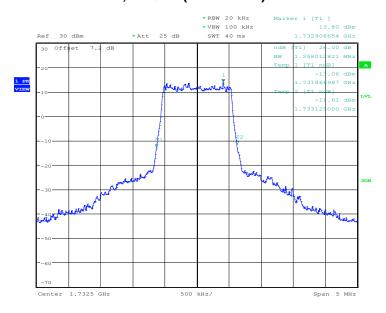
Frequency(MHz)	Occupied Bandwidth (-26dBc)( kHz)	
1732.5	QPSK	16QAM
1732.3	1258.01	1258.01

### LTE band 4, 1.4MHz Bandwidth, QPSK (-26dBc BW)



Date: 16.FEB.2017 23:44:40

## LTE band 4, 1.4MHz Bandwidth, 16QAM (-26dBc BW)



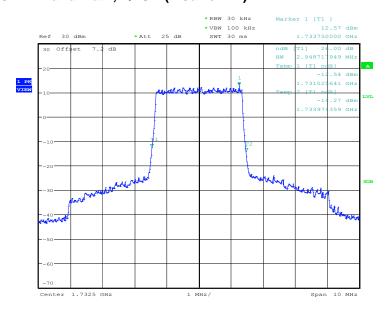
Date: 16.FEB.2017 23:45:43



#### LTE band 4, 3MHz (-26dBc)

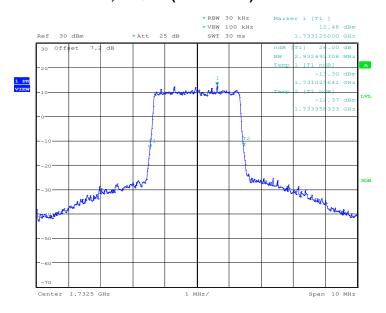
Frequency(MHz)	Occupied Bandwidth (-26dBc)( kHz)	
4722 F	QPSK	16QAM
1732.5	2948.72	2932.69

### LTE band 4, 3MHz Bandwidth, QPSK (-26dBc BW)



Date: 17.FEB.2017 00:46:15

## LTE band 4, 3MHz Bandwidth, 16QAM (-26dBc BW)



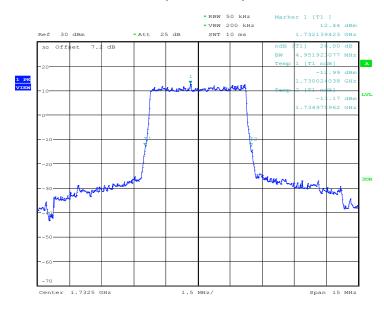
Date: 17.FEB.2017 00:45:34



#### LTE band 4, 5MHz (-26dBc)

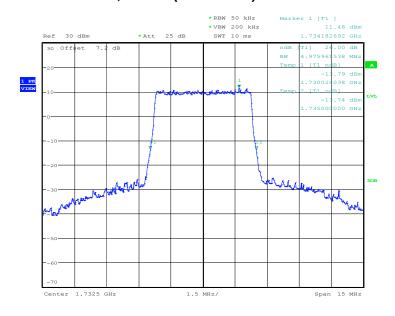
Frequency(MHz)	Occupied Bandwidth (-26dBc)( kHz)	
1732.5	QPSK	16QAM
1732.3	4951.92	4975.96

## LTE band 4, 5MHz Bandwidth, QPSK (-26dBc BW)



Date: 17.FEB.2017 01:00:38

#### LTE band 4, 5MHz Bandwidth,16QAM (-26dBc BW)



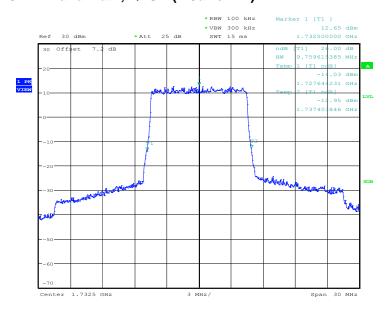
Date: 17.FEB.2017 01:01:43



#### LTE band 4, 10MHz (-26dBc)

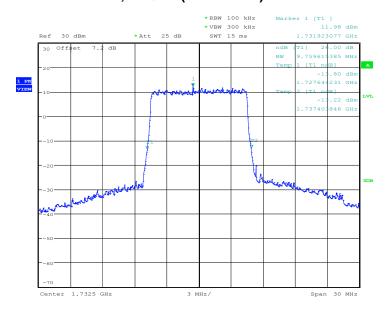
Frequency(MHz)	Occupied Bandwidth (-26dBc)( kHz)	
1732.5	QPSK	16QAM
1732.3	9759.62	9759.62

### LTE band 4, 10MHz Bandwidth, QPSK (-26dBc BW)



Date: 17.FEB.2017 02:08:18

## LTE band 4, 10MHz Bandwidth, 16QAM (-26dBc BW)



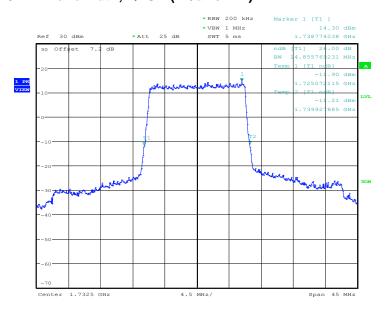
Date: 17.FEB.2017 02:07:43



#### LTE band 4, 15MHz (-26dBc)

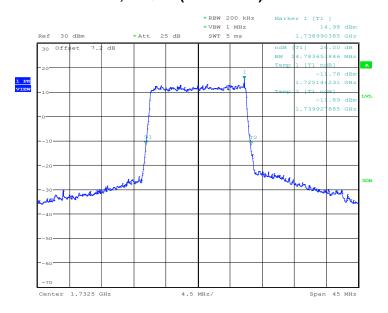
Frequency(MHz)	Occupied Bandwidth (-26dBc)( kHz)	
1732.5	QPSK	16QAM
1732.3	14855.77	14783.65

### LTE band 4, 15MHz Bandwidth, QPSK (-26dBc BW)



Date: 17.FEB.2017 02:16:13

## LTE band 4, 15MHz Bandwidth, 16QAM (-26dBc BW)



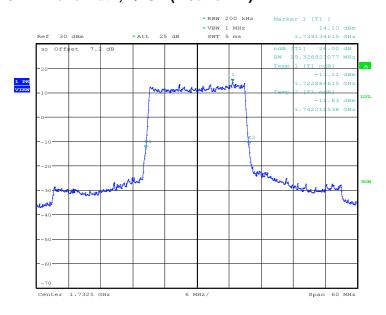
Date: 17.FEB.2017 02:16:53



#### LTE band 4, 20MHz (-26dBc)

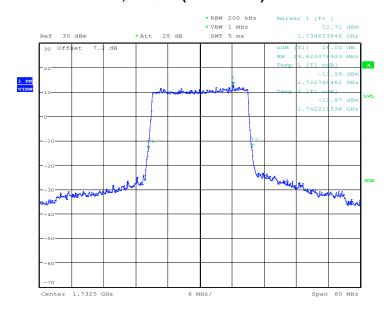
Frequency(MHz)	Occupied Bandwidth (-26dBc)( kHz)	
1732.5	QPSK	16QAM
1732.3	19326.92	19423.08

### LTE band 4, 20MHz Bandwidth, QPSK (-26dBc BW)



Date: 17.FEB.2017 02:43:15

## LTE band 4, 20MHz Bandwidth, 16QAM (-26dBc BW)



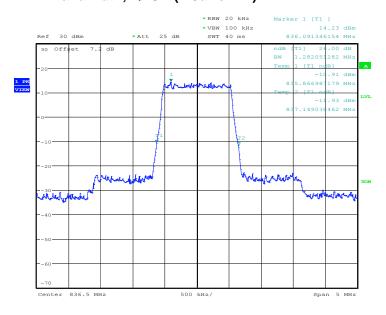
Date: 17.FEB.2017 02:44:07



#### LTE band 5, 1.4MHz (-26dBc)

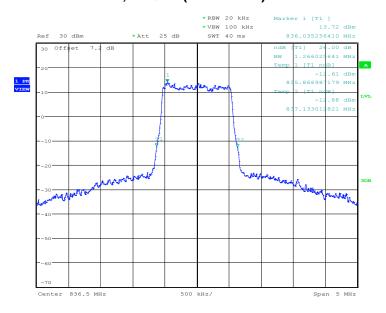
Frequency(MHz)	Occupied Bandwidth (-26dBc)( kHz)	
836.5	QPSK	16QAM
636.3	1282.05	1266.03

### LTE band 5, 1.4MHz Bandwidth, QPSK (-26dBc BW)



Date: 16.FEB.2017 23:52:33

## LTE band 5, 1.4MHz Bandwidth, 16QAM (-26dBc BW)



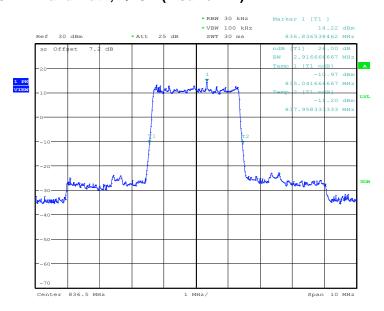
Date: 16.FEB.2017 23:51:50



#### LTE band 5, 3MHz (-26dBc)

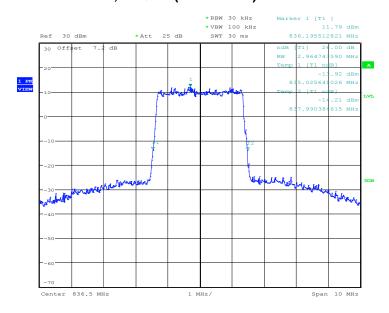
Frequency(MHz)	Occupied Bandwidth (-26dBc)( kHz)	
936 5	QPSK	16QAM
836.5	2916.67	2964.74

### LTE band 5, 3MHz Bandwidth, QPSK (-26dBc BW)



Date: 17.FEB.2017 00:40:26

## LTE band 5, 3MHz Bandwidth, 16QAM (-26dBc BW)



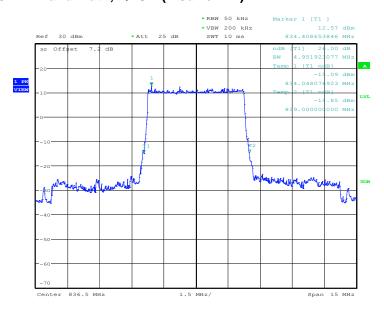
Date: 17.FEB.2017 00:41:02



#### LTE band 5, 5MHz (-26dBc)

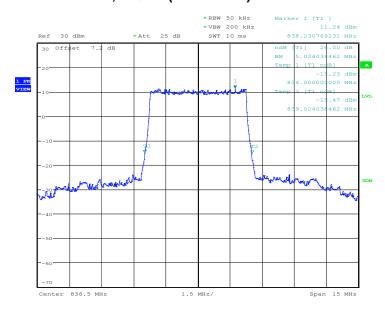
Frequency(MHz)	Occupied Bandwidth (-26dBc)( kHz)	
936 5	QPSK	16QAM
836.5	4951.92	5024.04

### LTE band 5, 5MHz Bandwidth, QPSK (-26dBc BW)



Date: 17.FEB.2017 01:07:48

## LTE band 5, 5MHz Bandwidth,16QAM (-26dBc BW)



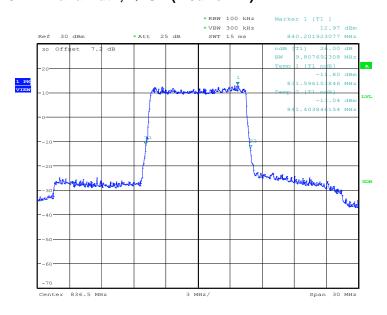
Date: 17.FEB.2017 01:07:13



#### LTE band 5, 10MHz (-26dBc)

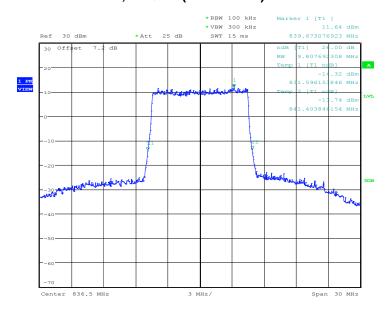
Frequency(MHz)	Occupied Bandwidth (-26dBc)( kHz)	
836.5	QPSK	16QAM
636.3	9807.69	9807.69

### LTE band 5, 10MHz Bandwidth, QPSK (-26dBc BW)



Date: 17.FEB.2017 02:02:43

## LTE band 5, 10MHz Bandwidth, 16QAM (-26dBc BW)



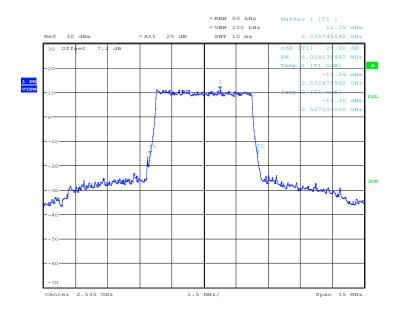
Date: 17.FEB.2017 02:03:29



#### LTE band 7, 5MHz (-26dBc)

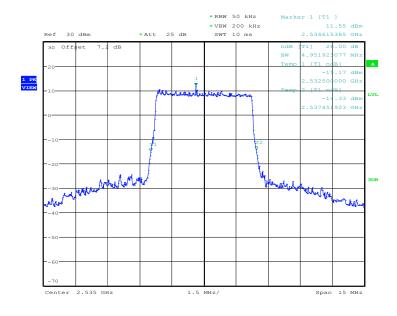
Frequency(MHz)	Occupied Bandwidth (-26dBc)( kHz)	
2535.0	QPSK	16QAM
2535.0	5024.04	4951.92

LTE band 7, 5MHz Bandwidth, QPSK (-26dBc BW)



Date: 17.FEB.2017 01:10:57

#### LTE band 7, 5MHz Bandwidth,16QAM (-26dBc BW)



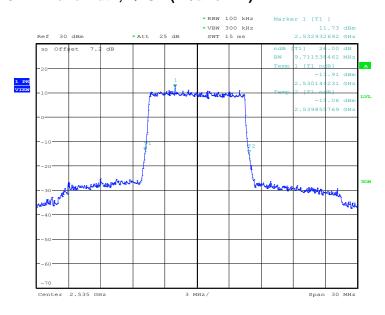
Date: 17.FEB.2017 01:11:59



#### LTE band 7, 10MHz (-26dBc)

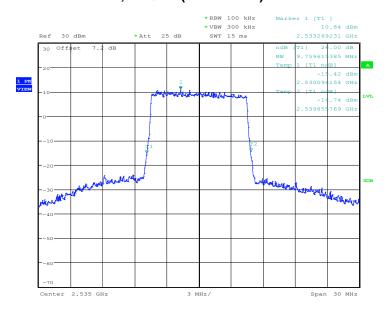
Frequency(MHz)	Occupied Bandwidth (-26dBc)( kHz)	
2525.0	QPSK	16QAM
2535.0	9711.54	9759.62

### LTE band 7, 10MHz Bandwidth, QPSK (-26dBc BW)



Date: 17.FEB.2017 02:01:47

## LTE band 7, 10MHz Bandwidth, 16QAM (-26dBc BW)



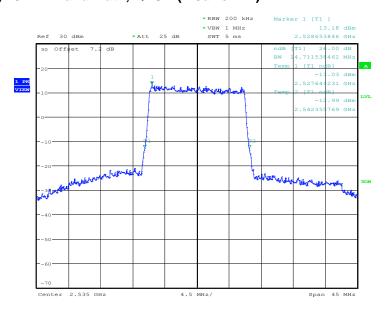
Date: 17.FEB.2017 02:01:08



#### LTE band 7, 15MHz (-26dBc)

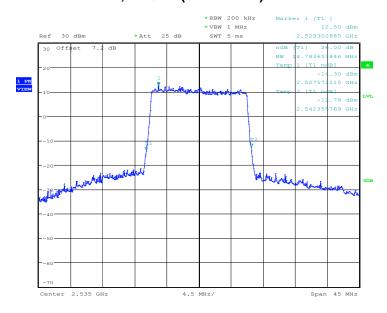
Frequency(MHz)	Occupied Bandwidth (-26dBc)( kHz)	
2525.0	QPSK	16QAM
2535.0	14711.54	14783.65

### LTE band 7, 15MHz Bandwidth, QPSK (-26dBc BW)



Date: 17.FEB.2017 02:21:23

## LTE band 7, 15MHz Bandwidth, 16QAM (-26dBc BW)



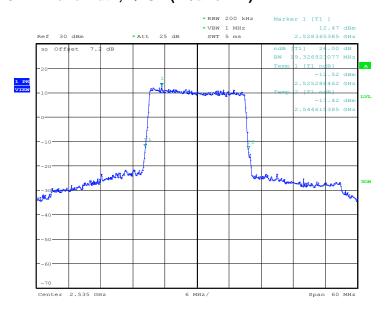
Date: 17.FEB.2017 02:20:52



#### LTE band 7, 20MHz (-26dBc)

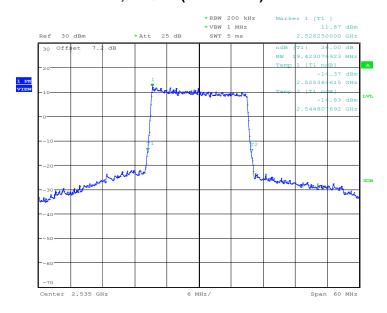
Frequency(MHz)	Occupied Bandwidth (-26dBc)( kHz)	
2525.0	QPSK	16QAM
2535.0	19326.92	19423.08

### LTE band 7, 20MHz Bandwidth, QPSK (-26dBc BW)



Date: 17.FEB.2017 02:41:11

## LTE band 7, 20MHz Bandwidth, 16QAM (-26dBc BW)



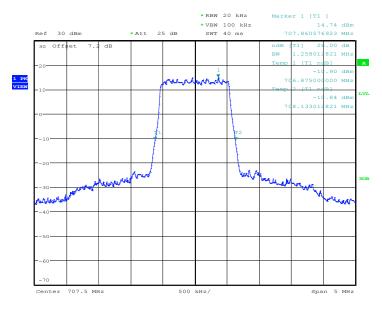
Date: 17.FEB.2017 02:40:27



#### LTE band 12, 1.4MHz (-26dBc)

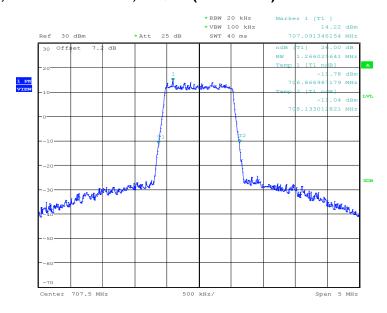
Frequency(MHz)	Occupied Bandwidth (-26dBc)( kHz)	
707.5	QPSK	16QAM
	1258.01	1266.03

#### LTE band 12, 1.4MHz Bandwidth, QPSK (-26dBc BW)



Date: 16.FEB.2017 23:54:33

## LTE band 12, 1.4MHz Bandwidth, 16QAM (-26dBc BW)



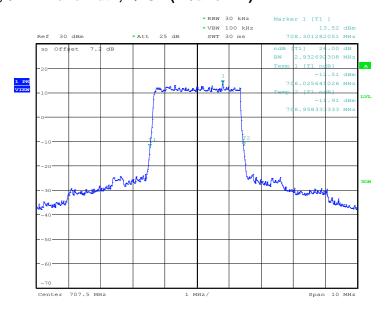
Date: 16.FEB.2017 23:55:01



#### LTE band 12, 3MHz (-26dBc)

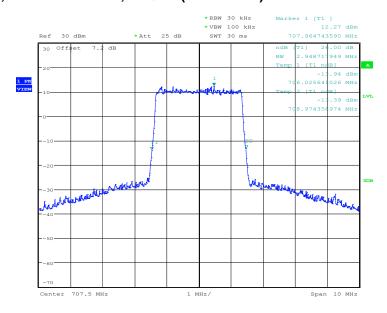
Frequency(MHz)	Occupied Bandwidth (-26dBc)( kHz)	
707.5	QPSK	16QAM
	2932.69	2948.72

### LTE band 12, 3MHz Bandwidth, QPSK (-26dBc BW)



Date: 17.FEB.2017 00:38:51

## LTE band 12, 3MHz Bandwidth, 16QAM (-26dBc BW)



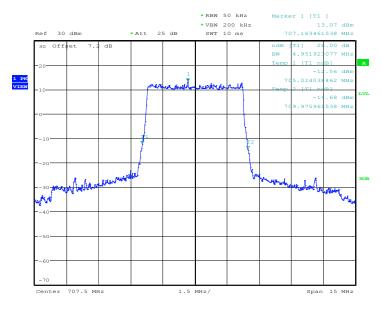
Date: 17.FEB.2017 00:37:25



#### LTE band 12, 5MHz (-26dBc)

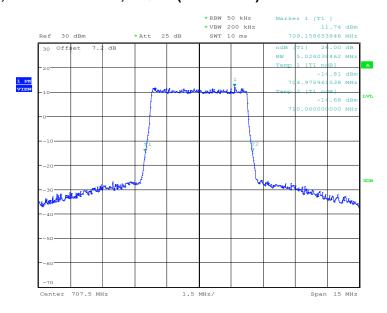
Frequency(MHz)	Occupied Bandwidth (-26dBc)( kHz)	
707.5	QPSK	16QAM
	4951.92	5024.04

#### LTE band 12, 5MHz Bandwidth, QPSK (-26dBc BW)



Date: 17.FEB.2017 01:17:09

## LTE band 12, 5MHz Bandwidth,16QAM (-26dBc BW)



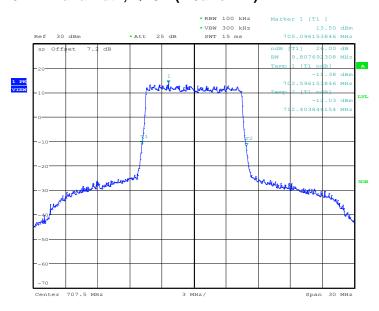
Date: 17.FEB.2017 01:16:30



#### LTE band 12, 10MHz (-26dBc)

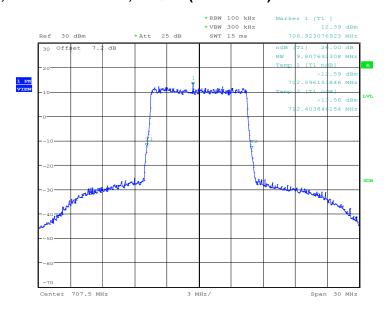
Frequency(MHz)	Occupied Bandwidth (-26dBc)( kHz)	
707.5	QPSK	16QAM
	9807.69	9807.69

### LTE band 12, 10MHz Bandwidth, QPSK (-26dBc BW)



Date: 17.FEB.2017 01:56:44

## LTE band 12, 10MHz Bandwidth, 16QAM (-26dBc BW)



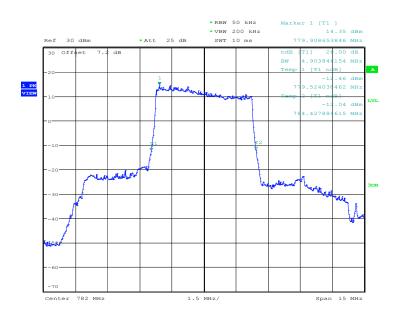
Date: 17.FEB.2017 01:57:26



#### LTE band 13, 5MHz (-26dBc)

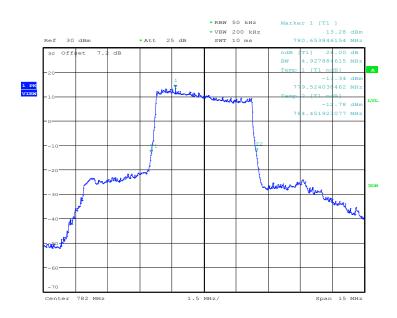
Frequency(MHz)	Occupied Bandwidth (-26dBc)( kHz)	
782.0	QPSK	16QAM
	4903.85	4927.88

LTE band 13, 5MHz Bandwidth, QPSK (-26dBc BW)



Date: 17.FEB.2017 01:18:39

## LTE band 13, 5MHz Bandwidth,16QAM (-26dBc BW)



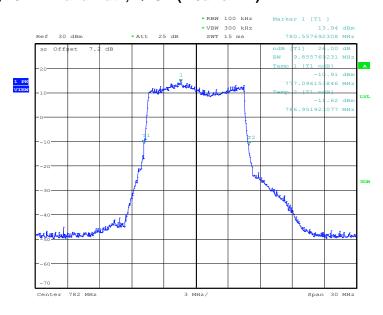
Date: 17.FEB.2017 01:19:17



#### LTE band 13, 10MHz (-26dBc)

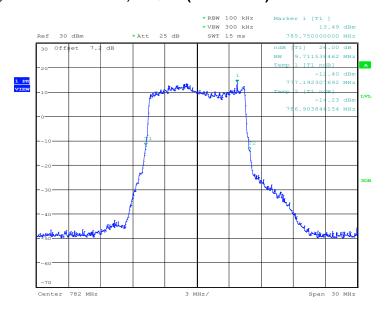
Frequency(MHz)	Occupied Bandwidth (-26dBc)( kHz)	
782.0	QPSK	16QAM
	9855.77	9711.54

### LTE band 13, 10MHz Bandwidth, QPSK (-26dBc BW)



Date: 17.FEB.2017 01:55:33

## LTE band 13, 10MHz Bandwidth, 16QAM (-26dBc BW)



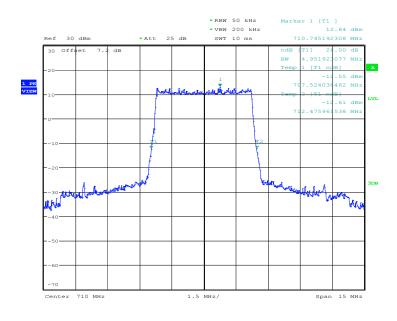
Date: 17.FEB.2017 01:55:00



#### LTE band 17, 5MHz (-26dBc)

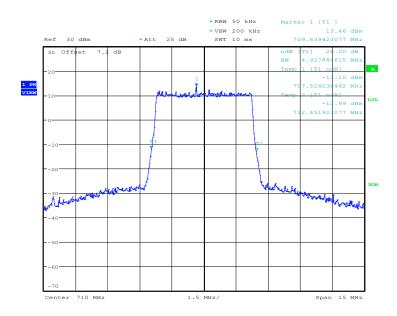
Frequency(MHz)	Occupied Bandwidth (-26dBc)( kHz)	
710.0	QPSK	16QAM
	4951.92	4927.88

### LTE band 17, 5MHz Bandwidth, QPSK (-26dBc BW)



Date: 17.FEB.2017 01:23:47

#### LTE band 17, 5MHz Bandwidth,16QAM (-26dBc BW)



Date: 17.FEB.2017 01:23:18