FCC RF Test Report

APPLICANT	: OnePlus Technology(Shenzhen)Co., Ltd
EQUIPMENT	: Smart Phone
BRAND NAME	: ONEPLUS
MODEL NAME	: GM1925
FCC ID	: 2ABZ2-GM1925
STANDARD	: 47 CFR Part 2, 27(L), 27(M), 27(N)
CLASSIFICATION	: PCS Licensed Transmitter Held to Ear (PCE)

The product was received on Apr. 22, 2019 and completely tested on May 23, 2019. We, Sporton International (ShenZhen) Inc., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.26-2015 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International (ShenZhen) Inc., the test report shall not be reproduced except in full.

Derreck Chen

Reviewed by: Derreck Chen / Supervisor

Eric Shih

Approved by: Eric Shih / Manager

ACCREDITED Cert #5145.01

Sporton International (ShenZhen) Inc.

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People's Republic of China

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG942205D	Rev. 01	Initial issue of report	Jun. 10, 2019

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.4	§2.1046	Conducted Output Power	Reporting Only	PASS	-
	N/A	Effective Radiated Power (Band 71)	ERP < 3 Watt	PASS	
	§27.50(h)(2)	Equivalent Isotropic Radiated Power (Band 7) (Band 38) (Band 41)	EIRP < 2Watt	PASS	
	§27.50(d)(4)	Equivalent Isotropic Radiated Power (Band 4) (Band 66)	EIRP < 1Watt	PASS	
3.5	N/A	Peak-to-Average Ratio	<13 dB	PASS	-
3.6	§2.1049	Occupied Bandwidth	Reporting Only	PASS	-
3.7	§2.1051 §27.53(h)	Conducted Band Edge Measurement (Band 4) (Band 66) (Band 71)	< 43+10log10(P[Watts])	PASS	-
	§27.53(m)(4)	Conducted Band Edge Measurement (Band 7) (Band 38) (Band 41)	§27.53(m)(4)		
3.8	§2.1051 §27.53(h)	Conducted Spurious Emission (Band 4) (Band 66) (Band 71)	< 43+10log10(P[Watts])	PASS	-
	§2.1051 §27.53(m)(4)	Conducted Spurious Emission (Band 7) (Band 38) (Band 41)	< 55+10log$_{10}$(P[Watts])		
3.9	§2.1055 §22.355	Frequency Stability Temperature & Voltage	< 2.5 ppm for Part 22	PASS	-
	§2.1055 §24.235 §27.54		Within Authorized Band		
4.4	§2.1053 §27.53(h)	Radiated Spurious Emission (Band 4) (Band 66) (Band 71)	< 43+10log$_{10}$(P[Watts])	PASS	Under limit 15.89 dB at 7765.770 MHz
	§2.1053 §27.53(m)(4)	Radiated Spurious Emission (Band 7) (Band 38) (Band 41)	< 55+10log$_{10}$(P[Watts])		

1 General Description

1.1 Applicant

OnePlus Technology(Shenzhen)Co., Ltd

18C02, 18C03, 18C04 and 18C05, Shum Yip Terra Building, Binhe Avenue North, Futian District, Shenzhen

1.2 Product Feature of Equipment Under Test

Product Feature	
Equipment	Smart Phone
Brand Name	ONEPLUS
Model Name	GM1925
FCC ID	2ABZ2-GM1925
EUT supports Radios application	GSM/CDMA/WCDMA/LTE/5G NR WLAN 2.4GHz 802.11b/g/n HT20/HT40 WLAN 5GHz 802.11a/n HT20/HT40 WLAN 5GHz 802.11ac VHT20/VHT40/VHT80 Bluetooth BR / EDR / LE NFC/GNSS
HW Version	31
SW Version	9.5.5.GM25CC
EUT Stage	Production Unit

1.3 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx Frequency	LTE Band 4 : 1710.7 MHz ~ 1754.3 MHz LTE Band 7 : 2502.5 MHz ~ 2567.5 MHz LTE Band 38 : 2572.5MHz ~ 2617.5MHz LTE Band 41 : 2498.5 MHz ~ 2687.5 MHz LTE Band 66 : 1710.7 MHz ~ 1779.3 MHz LTE Band 71: 665.5 MHz ~ 695.5MHz
Rx Frequency	LTE Band 4 : 2110.7 MHz ~ 2154.3 MHz LTE Band 7 : 2622.5MHz ~ 2687.5 MHz LTE Band 38 : 2572.5MHz ~ 2617.5MHz LTE Band 41 : 2498.5 MHz ~ 2687.5 MHz LTE Band 66 : 2110.7 MHz~ 2179.3 MHz LTE Band 71: 619.5 MHz ~ 649.5MHz
Bandwidth	LTE Band 4 : 1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz / 20MHz LTE Band 7 : 5MHz/ 10MHz / 15MHz / 20MHz LTE Band 38 : 5MHz / 10MHz / 15MHz / 20MHz LTE Band 41 : 5MHz / 10MHz / 15MHz / 20MHz LTE Band 66 : 1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz / 20MHz LTE Band 71 : 5MHz / 10MHz / 15MHz / 20MHz
Maximum Output Power to Antenna	LTE Band 4 : 23.74 dBm LTE Band 7 : 24.05 dBm LTE Band 38 : 24.06 dBm LTE Band 41 : 24.82 dBm LTE Band 66 : 24.05 dBm LTE Band 71 : 24.15 dBm
Antenna Gain	**Top Antenna:** LTE Band 71 : -2.50 dBm **Bottom Antenna:** LTE Band 4 : -0.50 dBm LTE Band 7 : -0.50 dBm LTE Band 38 : -0.50 dBm LTE Band 41 : -0.50 dBm LTE Band 66 : -0.50 dBm LTE Band 71 : -2.50 dBm
Type of Modulation	QPSK / 16QAM / 64QAM

Note: The Maximum ERP/EIRP is calculated from Max Output power and Max antenna gain.

1.4 Modification of EUT

No modifications are made to the EUT during all test items.

1.5 Maximum ERP/EIRP Power, Frequency Tolerance, and Emission Designator

LTE Band 4		QPSK			16QAM		
BW (MHz)	Frequency Range (MHz)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum EIRP(W)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum EIRP(W)
1.4	1710.7 ~ 1754.3	1M09G7D	-	0.2009	1M09W7D	-	0.1660
3	1711.5 ~ 1753.5	2M72G7D	-	0.1991	2M74W7D	-	0.1667
5	1712.5 ~ 1752.5	4M48G7D	-	0.2014	4M51W7D	-	0.1694
10	1715.0 ~ 1750.0	9M03G7D	0.0008	0.1991	9M05W7D	-	0.1698
15	1717.5 ~ 1747.5	13M5G7D	-	0.2080	13M5W7D	-	0.1758
20	1720.0 ~ 1745.0	18M5G7D	-	0.2061	18M4W7D	-	0.1730

LTE Band 4		64QAM		
BW (MHz)	Frequency Range (MHz)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum EIRP(W)
1.4	1710.7 ~ 1754.3	1M09W7D	-	0.1303
3	1711.5 ~ 1753.5	2M73W7D	-	0.1346
5	1712.5 ~ 1752.5	4M51W7D	-	0.1312
10	1715.0 ~ 1750.0	9M05W7D	-	0.1309
15	1717.5 ~ 1747.5	13M5W7D	-	0.1346
20	1720.0 ~ 1745.0	18M5W7D	-	0.1377

LTE Band 7		QPSK			16QAM		
BW (MHz)	Frequency Range (MHz)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum EIRP(W)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum EIRP(W)
5	2502.5 ~ 2567.5	4M51G7D	-	0.2234	4M50W7D	-	0.1849
10	2505.0 ~ 2565.0	9M07G7D	0.0011	0.2193	9M01W7D	-	0.1849
15	2507.5 ~ 2562.5	13M4G7D	-	0.2254	13M5W7D	-	0.1905
20	2510.0 ~ 2560.0	18M3G7D	-	0.2265	18M5W7D	-	0.1914

LTE Band 7		64QAM		
BW (MHz)	Frequency Range (MHz)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum EIRP(W)
5	2502.5 ~ 2567.5	4M49W7D	-	0.1403
10	2505.0 ~ 2565.0	9M05W7D	-	0.1396
15	2507.5 ~ 2562.5	13M5W7D	-	0.1462
20	2510.0 ~ 2560.0	18M4W7D	-	0.1426

LTE Band 38		QPSK			16QAM		
BW (MHz)	Frequency Range (MHz)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum EIRP(W)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum EIRP(W)
5	2572.5 ~ 2617.5	4M54G7D	-	0.2223	4M51W7D	-	0.1875
10	2575.0 ~ 2615.0	9M07G7D	0.0007	0.2123	8M97W7D	-	0.1778
15	2577.5 ~ 2612.5	13M5G7D	-	0.2259	13M5W7D	-	0.1871
20	2580.0 ~ 2610.0	18M5G7D	-	0.2270	18M4W7D	-	0.1871

LTE Band 38		64QAM		
BW (MHz)	Frequency Range (MHz)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum EIRP(W)
5	2572.5 ~ 2617.5	4M50W7D	-	0.1233
10	2575.0 ~ 2615.0	9M09W7D	-	0.1282
15	2577.5 ~ 2612.5	13M5W7D	-	0.1343
20	2580.0 ~ 2610.0	18M4W7D	-	0.1318

LTE Band 41		QPSK			16QAM		
BW (MHz)	Frequency Range (MHz)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum EIRP(W)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum EIRP(W)
5	2498.5 ~ 2687.5	4M49G7D	-	0.2642	4M48W7D	-	0.2234
10	2501.0 ~ 2685.0	9M05G7D	0.0014	0.2606	9M03W7D	-	0.2188
15	2503.5 ~ 2682.5	13M5G7D	-	0.2667	13M5W7D	-	0.2286
20	2506.0 ~ 2680.0	18M5G7D	-	0.2704	18M5W7D	-	0.2270

LTE Band 41		64QAM		
BW (MHz)	Frequency Range (MHz)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum EIRP(W)
5	2498.5 ~ 2687.5	4M49W7D	-	0.1746
10	2501.0 ~ 2685.0	9M07W7D	-	0.1702
15	2503.5 ~ 2682.5	13M5W7D	-	0.1786
20	2506.0 ~ 2680.0	18M2W7D	-	0.2128

LTE Band 66		QPSK			16QAM		
BW (MHz)	Frequency Range (MHz)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum EIRP(W)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum EIRP(W)
1.4	1710.7 ~ 1779.3	1M09G7D	-	0.2118	1M09W7D	-	0.1758
3	1711.5 ~ 1778.5	2M71G7D	-	0.2104	2M73W7D	-	0.1795
5	1712.5 ~ 1777.5	4M52G7D	-	0.2138	4M50W7D	-	0.1791
10	1715.0 ~ 1775.0	9M09G7D	0.0029	0.2133	9M03W7D	-	0.1803
15	1717.5 ~ 1772.5	13M5G7D	-	0.2218	13M4W7D	-	0.1892
20	1720.0 ~ 1770.0	18M4G7D	-	0.2265	18M3W7D	-	0.1866

LTE Band 66		64QAM		
BW (MHz)	Frequency Range (MHz)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum EIRP(W)
1.4	1710.7 ~ 1779.3	1M09W7D	-	0.1528
3	1711.5 ~ 1778.5	2M73W7D	-	0.1439
5	1712.5 ~ 1777.5	4M50W7D	-	0.1406
10	1715.0 ~ 1775.0	9M05W7D	-	0.1413
15	1717.5 ~ 1772.5	13M5W7D	-	0.1483
20	1720.0 ~ 1770.0	18M4W7D	-	0.1429

LTE Band 71		QPSK			16QAM		
BW (MHz)	Frequency Range (MHz)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum EIRP(W)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum EIRP(W)
5	665.5 ~ 695.5	4M50G7D	-	0.0881	4M49W7D	-	0.0698
10	668.0 ~ 693.0	9M05G7D	0.0023	0.0865	9M03W7D	-	0.0708
15	670.5 ~ 690.5	13M5G7D	-	0.0887	13M4W7D	-	0.0701
20	673.0 ~ 688.0	18M4G7D	-	0.0891	18M4W7D	-	0.0743

LTE Band 71		64QAM		
BW (MHz)	Frequency Range (MHz)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum EIRP(W)
5	665.5 ~ 695.5	4M49W7D	-	0.0566
10	668.0 ~ 693.0	9M05W7D	-	0.0579
15	670.5 ~ 690.5	13M4W7D	-	0.0575
20	673.0 ~ 688.0	18M4W7D	-	0.0575

1.6 Testing Location

Sporton International (Shenzhen) Inc. is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.01.

Test Firm	Sporton International (Shenzhen) Inc.		
Test Site Location	1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen, 518055 People's Republic of China TEL: +86-755-86379589 FAX: +86-755-86379595		
Test Site No.	**Sporton Site No.**	**FCC Designation No.**	**FCC Test Firm Registration No.**
	TH01-SZ	CN1256	421272

Test Firm	Sporton International (Shenzhen) Inc.		
Test Site Location	No. 3 Bldg the third floor of south, Shahe River west, Fengzeyuan Warehouse, Nanshan Shenzhen, 518055 People's Republic of China TEL: +86-755-33202398		
Test Site No.	**Sporton Site No.**	**FCC Designation No.**	**FCC Test Firm Registration No.**
	03CH02-SZ	CN1256	421272

1.7 Applicable Standards

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

- 47 CFR Part 2, 27(L), 27(M), 27(N)
- ANSI C63.26-2015
- FCC KDB 971168 D01 Power Meas License Digital Systems v03r01
- FCC KDB 412172 D01 Determining ERP and EIRP v01r01

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

2 Test Configuration of Equipment Under Test

2.1 Test Mode

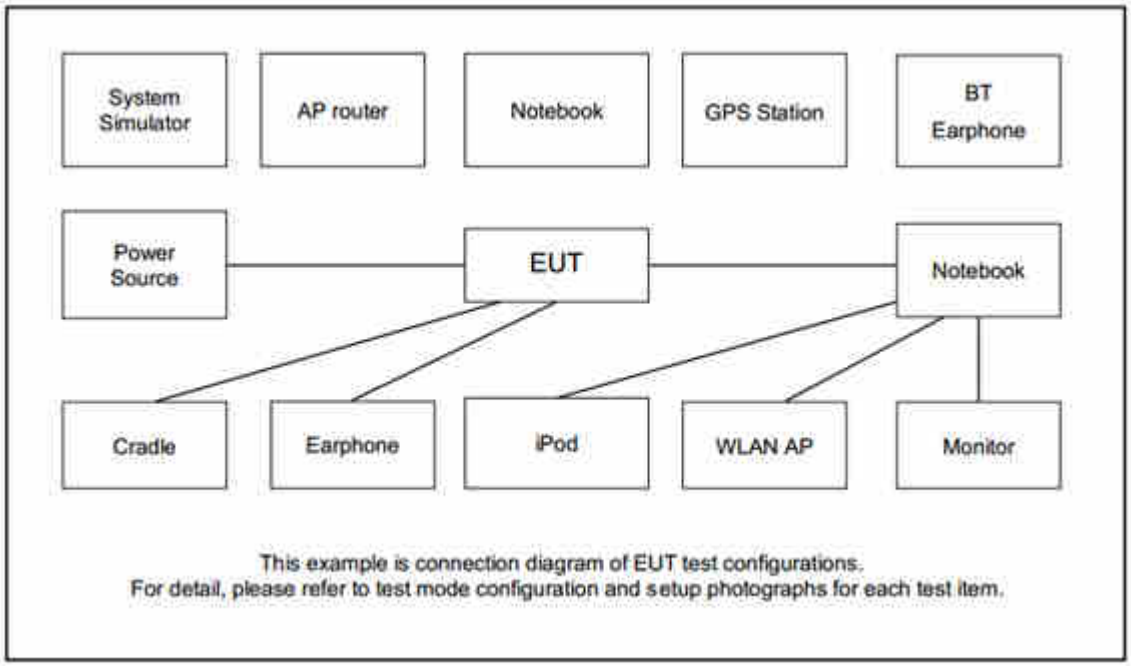
Antenna port conducted and radiated test items listed below are performed according to KDB 971168 D01 Power Meas License Digital Systems v03r01 with maximum output power.

Radiated measurements are performed by rotating the EUT in three different orthogonal test planes to find the maximum emission.

Test Items	Band	Bandwidth (MHz)						Modulation			RB #			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	64QAM	1	Half	Full	L	M	H
Max. Output Power	4	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
	7	-	-	v	v	v	v	v	v	v	v	v	v	v	v	v
	38	-	-	v	v	v	v	v	v	v	v	v	v	v	v	v
	41	-	-	v	v	v	v	v	v	v	v	v	v	v	v	v
	66	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
	71	-	-	v	v	v	v	v	v	v	v	v	v	v	v	v
Peak-to-Average Ratio	4						v	v	v	v	v		v	v	v	v
	7	-	-				v	v	v	v	v		v	v	v	v
	38	-	-				v	v	v	v	v		v	v	v	v
	41	-	-				v	v	v	v	v		v	v	v	v
	66						v	v	v	v	v		v	v	v	v
	71	-	-				v	v	v	v	v		v	v	v	v
26dB and 99% Bandwidth	4	v	v	v	v	v	v	v	v	v			v	v	v	v
	7	-	-	v	v	v	v	v	v	v			v	v	v	v
	38	-	-	v	v	v	v	v	v	v			v	v	v	v
	41	-	-	v	v	v	v	v	v	v			v	v	v	v
	66	v	v	v	v	v	v	v	v	v			v	v	v	v
	71	-	-	v	v	v	v	v	v	v			v	v	v	v
Conducted Band Edge	4	v	v	v	v	v	v	v	v	v	v		v	v		v
	7	-	-	v	v	v	v	v	v	v	v		v	v		v
	38	-	-	v	v	v	v	v	v	v	v		v	v		v
	41	-	-	v	v	v	v	v	v	v	v		v	v		v
	66	v	v	v	v	v	v	v	v	v	v		v	v		v
	71	-	-	v	v	v	v	v	v	v	v		v	v		v

Test Items	Band	Bandwidth (MHz)						Modulation			RB #			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	64QAM	1	Half	Full	L	M	H
Conducted Spurious Emission	4	v	v	v	v	v	v	v	v	v	v			v	v	v
	7	-	-	v	v	v	v	v	v	v	v			v	v	v
	38	-	-	v	v	v	v	v	v	v	v			v	v	v
	41	-	-	v	v	v	v	v	v	v	v			v	v	v
	66	v	v	v	v	v	v	v	v	v	v			v	v	v
	71	-	-	v	v	v	v	v	v	v	v			v	v	v
Frequency Stability	4				v			v					v		v	
	7	-	-		v			v					v		v	
	38	-	-		v			v					v		v	
	41	-	-		v			v					v		v	
	66				v			v					v		v	
	71	-	-		v			v					v		v	
E.R.P / E.I.R.P	4	v	v	v	v	v	v	v	v	v	v			v	v	v
	7	-	-	v	v	v	v	v	v	v	v			v	v	v
	38	-	-	v	v	v	v	v	v	v	v			v	v	v
	41	-	-	v	v	v	v	v	v	v	v			v	v	v
	66	v	v	v	v	v	v	v	v	v	v			v	v	v
	71	-	-	v	v	v	v	v	v	v	v			v	v	v
Radiated Spurious Emission	4	Worst Case													v	
	7	Worst Case													v	
	38	Worst Case													v	
	41	Worst Case													v	
	66	Worst Case													v	
	71	Worst Case													v	
Note	1. The mark "**v** " means that this configuration is chosen for testing 2. The mark "-" means that this bandwidth is not supported. 3. The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported.															

2.2 Connection Diagram of Test System



2.3 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	System Simulator	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8 m
2.	DC Power Supply	GW INSTEK	GPS-3030D	N/A	N/A	Unshielded, 1.8 m

2.4 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 4.5 dB and 10dB attenuator.

Example :

Offset(dB) = RF cable loss(dB) + attenuator factor(dB).

= 4.5 + 10 = 14.5 (dB)

2.5 Frequency List of Low/Middle/High Channels

LTE Band 4 Channel and Frequency List				
BW [MHz]	**Channel/Frequency(MHz)**	**Lowest**	**Middle**	**Highest**
20	Channel	20050	20175	20300
	Frequency	1720	1732.5	1745
15	Channel	20025	20175	20325
	Frequency	1717.5	1732.5	1747.5
10	Channel	20000	20175	20350
	Frequency	1715	1732.5	1750
5	Channel	19975	20175	20375
	Frequency	1712.5	1732.5	1752.5
3	Channel	19965	20175	20385
	Frequency	1711.5	1732.5	1753.5
1.4	Channel	19957	20175	20393
	Frequency	1710.7	1732.5	1754.3

LTE Band 7 Channel and Frequency List				
BW [MHz]	**Channel/Frequency(MHz)**	**Lowest**	**Middle**	**Highest**
20	Channel	20850	21100	21350
	Frequency	2510	2535	2560
15	Channel	20825	21100	21375
	Frequency	2507.5	2535	2562.5
10	Channel	20800	21100	21400
	Frequency	2505	2535	2565
5	Channel	20775	21100	21425
	Frequency	2502.5	2535	2567.5

LTE Band 38 Channel and Frequency List				
BW [MHz]	**Channel/Frequency(MHz)**	**Lowest**	**Middle**	**Highest**
20	Channel	37850	38000	38150
	Frequency	2580	2595	2610
15	Channel	37825	38000	38175
	Frequency	2577.5	2595	2612.5
10	Channel	37800	38000	38200
	Frequency	2575	2595	2615
5	Channel	37775	38000	38225
	Frequency	2572.5	2595	2617.5

LTE Band 41 Channel and Frequency List				
BW [MHz]	**Channel/Frequency(MHz)**	**Lowest**	**Middle**	**Highest**
20	Channel	39750	40620	41490
	Frequency	2506	2593	2680
15	Channel	39725	40620	41515
	Frequency	2503.5	2593	2682.5
10	Channel	39700	40620	41540
	Frequency	2501	2593	2685
5	Channel	39675	40620	41565
	Frequency	2498.5	2593	2687.5

LTE Band 66 Channel and Frequency List				
BW [MHz]	**Channel/Frequency(MHz)**	**Lowest**	**Middle**	**Highest**
20	Channel	132072	132322	132572
	Frequency	1720	1745	1770
15	Channel	132047	132322	132597
	Frequency	1717.5	1745	1772.5
10	Channel	132022	132322	132622
	Frequency	1715	1745	1775
5	Channel	131997	132322	132647
	Frequency	1712.5	1745	1777.5
3	Channel	131987	132322	132657
	Frequency	1711.5	1745	1778.5
1.4	Channel	131979	132322	132665
	Frequency	1710.7	1745	1779.3

LTE Band 71 Channel and Frequency List				
BW [MHz]	**Channel/Frequency(MHz)**	**Lowest**	**Middle**	**Highest**
20	Channel	133222	133322	133372
	Frequency	673.0	680.5	688.0
15	Channel	133197	133297	133397
	Frequency	670.5	680.5	690.5
10	Channel	133172	133272	133422
	Frequency	668.0	678.0	693.0
5	Channel	133147	133247	133447
	Frequency	665.5	675.5	695.5

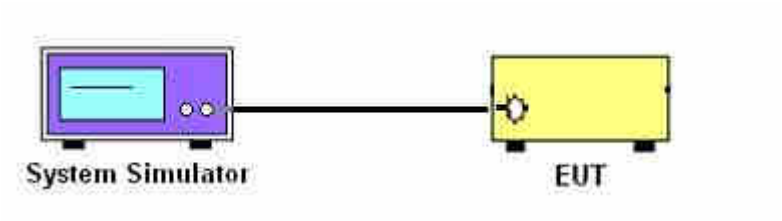
3 Conducted Test Items

3.1 Measuring Instruments

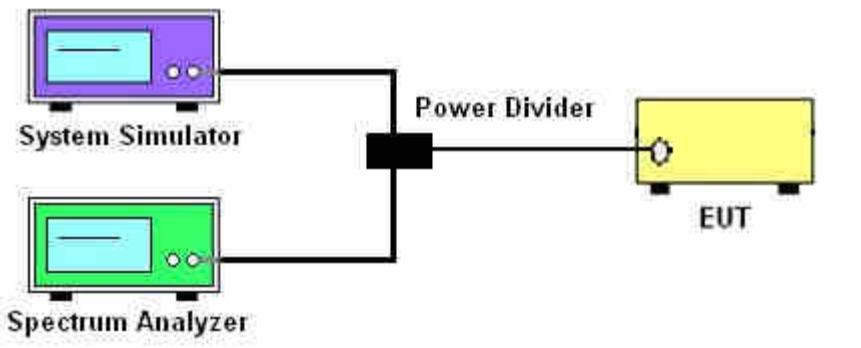
See list of measuring instruments of this test report.

3.2 Test Setup

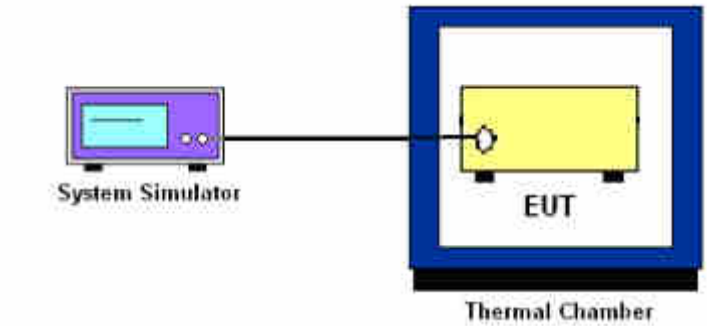
3.2.1 Conducted Output Power



3.2.2 Peak-to-Average Ratio, Occupied Bandwidth ,Conducted Band-Edge and Conducted Spurious Emission



3.2.3 Frequency Stability



3.3 Test Result of Conducted Test

Please refer to Appendix A.

3.4 Conducted Output Power and ERP/EIRP

3.4.1 Description of the Conducted Output Power Measurement and ERP/EIRP Measurement

A system simulator was used to establish communication with the EUT. Its parameters were set to force the EUT transmitting at maximum output power. The measured power in the radio frequency on the transmitter output terminals shall be reported.

The ERP of mobile transmitters must not exceed 3 Watts for LTE Band 71.

The EIRP of mobile transmitters must not exceed 2 Watts for LTE Band 7and Band 38 and Band 41.

The EIRP of mobile transmitters must not exceed 1 Watts for LTE Band 4 and Band 66.

According to KDB 412172 D01 Power Approach,

$EIRP = P_T + G_T – L_C$, $ERP = EIRP - 2.15$, where

P_T = transmitter output power in dBm

G_T = gain of the transmitting antenna in dBi

L_C = signal attenuation in the connecting cable between the transmitter and antenna in dB

3.4.2 Test Procedures

1. The testing follows ANSI C63.26 Section 5.2
2. The transmitter output port was connected to the system simulator.
3. Set EUT at maximum power through the system simulator.
4. Select lowest, middle, and highest channels for each band and different modulation.
5. Measure and record the power level from the system simulator.

3.5 Peak-to-Average Ratio

3.5.1 Description of the PAR Measurement

Power Complementary Cumulative Distribution Function (CCDF) curves provide a means for characterizing the power peaks of a digitally modulated signal on a statistical basis. A CCDF curve depicts the probability of the peak signal amplitude exceeding the average power level. Most contemporary measurement instrumentation include the capability to produce CCDF curves for an input signal provided that the instrument's resolution bandwidth can be set wide enough to accommodate the entire input signal bandwidth. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

3.5.2 Test Procedures

1. The testing follows ANSI C63.26 Section 5.2.3.4 (CCDF).
2. The EUT was connected to spectrum and system simulator via a power divider.
3. Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer.
4. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1 %.
5. Record the deviation as Peak to Average Ratio.

3.6 Occupied Bandwidth

3.6.1 Description of Occupied Bandwidth Measurement

The occupied bandwidth is the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5% of the total mean transmitted power.

The 26 dB emission bandwidth is defined as the frequency range between two points, one above and one below the carrier frequency, at which the spectral density of the emission is attenuated 26 dB below the maximum in-band spectral density of the modulated signal. Spectral density (power per unit bandwidth) is to be measured with a detector of resolution bandwidth equal to approximately 1.0% of the emission bandwidth.

3.6.2 Test Procedures

1. The testing follows ANSI C63.26 Section 5.4
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be between two and five times the anticipated OBW.
4. The nominal resolution bandwidth (RBW) shall be in the range of 1 to 5 % of the anticipated OBW, and the VBW shall be at least 3 times the RBW.
5. Set the detection mode to peak, and the trace mode to max hold.
6. Determine the reference value: Set the EUT to transmit a modulated signal. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace. (this is the reference value)
7. Determine the “-26 dB down amplitude” as equal to (Reference Value – X).
8. Place two markers, one at the lowest and the other at the highest frequency of the envelope of the spectral display such that each marker is at or slightly below the “–X dB down amplitude” determined in step 6. If a marker is below this “-X dB down amplitude” value it shall be placed as close as possible to this value. The OBW is the positive frequency difference between the two markers.
9. Use the 99 % power bandwidth function of the spectrum analyzer and report the measured bandwidth.

3.7 Conducted Band Edge

3.7.1 Description of Conducted Band Edge Measurement

27.53 (g)

For operations in the 600MHz band and 698 -746 MHz band, the FCC limit is 43 + 10log10(P[Watts]) dB below the transmitter power P(Watts) in a 100 kHz bandwidth. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

27.53 (h)

For operations in the 1710 – 1755 MHz band, the FCC limit is 43 + $10\log_{10}$(P[Watts]) dB below the transmitter power P(Watts) in a 1 MHz bandwidth. However, in the 1MHz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

27.53(m)(4)

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

3.7.2 Test Procedures

1. The testing follows ANSI C63.26 section 5.7
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The band edges of low and high channels for the highest RF powers were measured.
4. Set RBW >= 1% EBW in the 1MHz band immediately outside and adjacent to the band edge.
5. Beyond the 1 MHz band from the band edge, RBW=1MHz was used Set spectrum analyzer with RMS detector.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
7. Checked that all the results comply with the emission limit line.
   Example:
   The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)
   = P(W)- [43 + 10log(P)] (dB)
   = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB) = -13dBm.
8. For LTE Band 7, 38, 41, the other 40 dB, and 55 dB have additionally applied same calculation above.

3.8 Conducted Spurious Emission

3.8.1 Description of Conducted Spurious Emission Measurement

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least 43 + 10 log (P) dB.

For Band 7,38,41:

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least 55 + 10 log (P) dB.

It is measured by means of a calibrated spectrum analyzer and scanned from 30 MHz up to a frequency including its 10^{th} harmonic.

3.8.2 Test Procedures

1. The testing follows ANSI C63.26 section 5.7
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
4. The middle channel for the highest RF power within the transmitting frequency was measured.
5. The conducted spurious emission for the whole frequency range was taken.
6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz.
7. Set spectrum analyzer with RMS detector.
8. Taking the record of maximum spurious emission.
9. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
10. The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)
    = P(W)- [43 + 10log(P)] (dB)
    = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)
    = -13dBm.
11. For Band 7, 38, 41
    The limit line is derived from 55 + 10log(P)dB below the transmitter power P(Watts)
    = P(W)- [55+ 10log(P)] (dB)
    = [30+ 10log(P)] (dBm) - [55+ 10log(P)] (dB)
    = -25dBm.

3.9 Frequency Stability

3.9.1 Description of Frequency Stability Measurement

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within ±0.00025% (±2.5ppm) of the center frequency.

3.9.2 Test Procedures for Temperature Variation

1. The testing follows ANSI C63.26 section 5.6.4
2. The EUT was set up in the thermal chamber and connected with the system simulator.
3. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute.
4. With power OFF, the temperature was raised in 10°C step up to 50°C. The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.

3.9.3 Test Procedures for Voltage Variation

1. The testing follows ANSI C63.26 section 5.6.5
2. The EUT was placed in a temperature chamber at 20±5°C and connected with the system simulator.
3. The power supply voltage to the EUT was varied from 85% to 115% of the nominal value for other than hand carried battery equipment.
4. For hand carried, battery powered equipment, reduce the primary ac or dc supply voltage to the battery operating end point, which shall be specified by the manufacturer.
5. The variation in frequency was measured for the worst case.

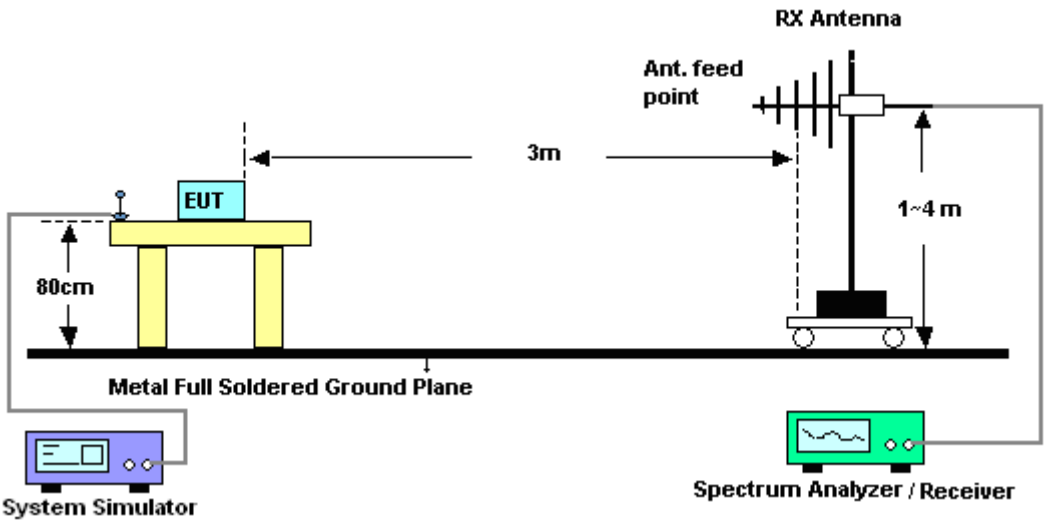
4 Radiated Test Items

4.1 Measuring Instruments

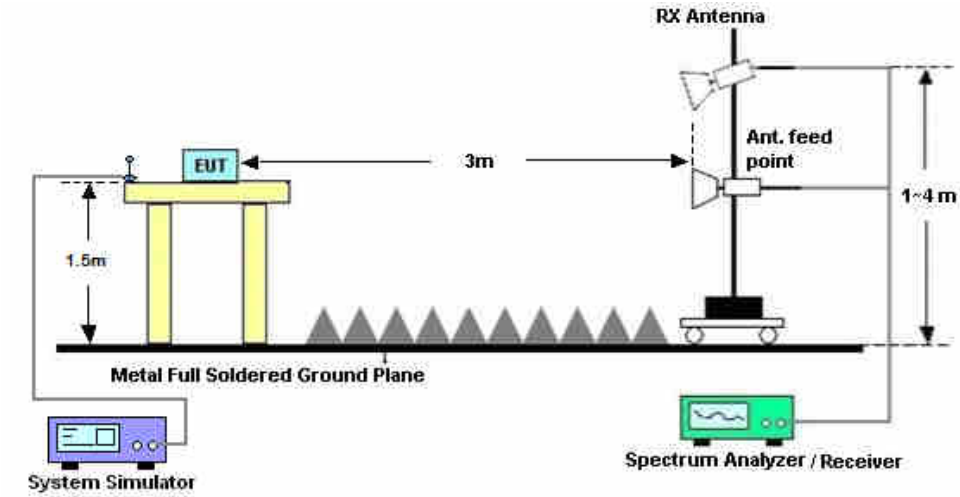
See list of measuring instruments of this test report.

4.2 Test Setup

4.2.1 For radiated test from 30MHz to 1GHz



4.2.2 For radiated test above 1GHz



4.3 Test Result of Radiated Test

Please refer to Appendix B.

4.4 Radiated Spurious Emission

4.4.1 Description of Radiated Spurious Emission

The radiated spurious emission was measured by substitution method according to ANSI C63.26. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 43 + 10 log (P) dB.

For Band 7, 38, 41

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 55 + 10 log (P) dB.

The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

4.4.2 Test Procedures

1. The testing follows ANSI C63.26 Section 5.5
2. The EUT was placed on a turntable with 0.8 meter height for frequency below 1GHz and 1.5 meter height for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the receiving antenna mounted on the antenna tower.
4. The table was rotated 360 degrees to determine the position of the highest spurious emission.
5. The height of the receiving antenna is varied between 1m to 4m to search the maximum spurious emission for both horizontal and vertical polarizations.
6. During the measurement, the system simulator parameters were set to force the EUT transmitting at maximum output power.
7. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
8. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
9. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
10. EIRP (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain
11. ERP (dBm) = EIRP - 2.15
12. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
    The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)
    = P(W)- [43 + 10log(P)] (dB)
    = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)
    = -13dBm.
13. For Band 7, 38, 41:
    The limit line is derived from 55 + 10log(P)dB below the transmitter power P(Watts)

5 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV40	101078	10Hz~40GHz	Apr. 18, 2019	May 06, 2019~ May 23, 2019	Apr. 17, 2020	Conducted (TH01-SZ)
Thermal Chamber	Ten Billion Hongzhangroup	LP-150U	H2014081803	-40~+150°C	Dec. 22, 2018	May 06, 2019~ May 23, 2019	Dec. 21, 2019	Conducted (TH01-SZ)
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY55150213	10Hz~44GHz	Apr. 19, 2019	May 18, 2019~ May 21, 2019	Apr. 18, 2020	Radiation (03CH02-SZ)
Bilog Antenna	TeseQ	CBL6112D	35407	30MHz-2GHz	Jun. 05, 2018	May 18, 2019~ May 21, 2019	Jun. 04, 2019	Radiation (03CH02-SZ)
Double Ridge Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-1285	1GHz~18GHz	Jan. 07, 2019	May 18, 2019~ May 21, 2019	Jan. 06, 2020	Radiation (03CH02-SZ)
HF Amplifier	MITEQ	TTA1840-35 -HG	1871923	18GHz~40GHz	Jul. 16, 2018	May 18, 2019~ May 21, 2019	Jul. 25, 2019	Radiation (03CH02-SZ)
SHF-EHF Horn	com-power	AH-840	101071	18Ghz-40GHz	Mar. 30, 2019	May 18, 2019~ May 21, 2019	Mar. 29, 2020	Radiation (03CH02-SZ)
LF Amplifier	Burgeon	BPA-530	102211	0.01~3000Mhz	Oct. 18, 2018	May 18, 2019~ May 21, 2019	Oct. 18, 2019	Radiation (03CH02-SZ)
HF Amplifier	Agilent	8449B	3008A01023	1GHz~26.5GHz	Oct. 18, 2018	May 18, 2019~ May 21, 2019	Oct. 17, 2019	Radiation (03CH02-SZ)
AC Power Source	Chroma	61601	616010002470	N/A	NCR	May 18, 2019~ May 21, 2019	NCR	Radiation (03CH02-SZ)
Turn Table	Chaintek	T-200	N/A	0~360 degree	NCR	May 18, 2019~ May 21, 2019	NCR	Radiation (03CH02-SZ)
Antenna Mast	Chaintek	MBS-400	N/A	1 m~4 m	NCR	May 18, 2019~ May 21, 2019	NCR	Radiation (03CH02-SZ)

NCR: No Calibration Required

6 Uncertainty of Evaluation

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI 63.26-2015. All the measurement uncertainty value were shown with a coverage K=2 to indicate 95% level of confidence. The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance.

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.5dB**

Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**3.3dB**

Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**3.7dB**

Appendix A. Test Results of Conducted Test

Conducted Output Power(Average power)

Bottom Antenna

LTE Band 4 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
20	1	0	QPSK	23.58	23.74	23.64
20	1	49		23.54	23.58	23.57
20	1	99		23.52	23.49	23.47
20	50	0		22.78	22.85	22.80
20	50	24		22.75	22.80	22.74
20	50	50		22.68	22.74	22.67
20	100	0		22.73	22.78	22.72
20	1	0	16-QAM	22.87	22.85	22.88
20	1	49		22.80	22.82	22.77
20	1	99		22.81	22.70	22.68
20	50	0		21.78	21.83	21.77
20	50	24		21.73	21.80	21.74
20	50	50		21.69	21.72	21.66
20	100	0		21.72	21.76	21.72
20	1	0	64-QAM	21.74	21.89	21.80
20	1	49		21.69	21.83	21.83
20	1	99		21.67	21.76	21.60
20	50	0		20.60	20.77	20.75
20	50	24		20.59	20.73	20.72
20	50	50		20.57	20.70	20.67
20	100	0		20.56	20.74	20.69
15	1	0	QPSK	23.62	23.59	23.64
15	1	37		23.59	23.68	23.52
15	1	74		23.56	23.53	23.46
15	36	0		22.73	22.81	22.73
15	36	20		22.72	22.79	22.71
15	36	39		22.68	22.74	22.65
15	75	0		22.72	22.79	22.70

15	1	0		22.85	22.91	22.93
15	1	37		22.72	22.95	22.80
15	1	74		22.89	22.88	22.71
15	36	0	**16-QAM**	21.72	21.78	21.73
15	36	20		21.72	21.80	21.72
15	36	39		21.68	21.73	21.64
15	75	0		21.70	21.78	21.71
15	1	0		21.70	21.74	21.79
15	1	37		21.57	21.72	21.68
15	1	74		21.62	21.74	21.66
15	36	0	**64-QAM**	20.62	20.78	20.71
15	36	20		20.59	20.77	20.71
15	36	39		20.54	20.67	20.64
15	75	0		20.53	20.70	20.65

LTE Band 4 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
10	1	0	QPSK	23.41	23.48	23.44
10	1	25		23.35	23.39	23.49
10	1	49		23.33	23.35	23.35
10	25	0		22.54	22.64	22.57
10	25	12		22.56	22.62	22.56
10	25	25		22.46	22.52	22.47
10	50	0		22.49	22.58	22.49
10	1	0	16-QAM	22.60	22.72	22.68
10	1	25		22.67	22.80	22.57
10	1	49		22.51	22.56	22.47
10	25	0		21.55	21.66	21.60
10	25	12		21.57	21.65	21.57
10	25	25		21.43	21.53	21.47
10	50	0		21.50	21.60	21.54
10	1	0	64-QAM	21.54	21.66	21.56
10	1	25		21.50	21.67	21.56
10	1	49		21.42	21.55	21.46
10	25	0		20.39	20.58	20.50
10	25	12		20.41	20.56	20.52
10	25	25		20.31	20.49	20.38
10	50	0		20.37	20.57	20.46
5	1	0	QPSK	23.45	23.46	23.39
5	1	12		23.42	23.54	23.49
5	1	24		23.34	23.42	23.37
5	12	0		22.53	22.57	22.53
5	12	7		22.55	22.64	22.57
5	12	13		22.54	22.64	22.52
5	25	0		22.51	22.60	22.51
5	1	0	16-QAM	22.71	22.70	22.70
5	1	12		22.66	22.79	22.70
5	1	24		22.58	22.62	22.60
5	12	0		21.54	21.59	21.49
5	12	7		21.57	21.65	21.52

5	12	13		21.52	21.62	21.53
5	25	0		21.52	21.64	21.49
5	1	0		21.46	21.57	21.52
5	1	12		21.46	21.68	21.54
5	1	24		21.38	21.58	21.43
5	12	0	64-QAM	20.44	20.57	20.43
5	12	7		20.45	20.66	20.47
5	12	13		20.39	20.57	20.46
5	25	0		20.36	20.55	20.40

LTE Band 4 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
3	1	0	QPSK	23.38	23.42	23.39
3	1	8		23.41	23.49	23.41
3	1	14		23.35	23.46	23.38
3	8	0		22.53	22.57	22.53
3	8	4		22.57	22.63	22.59
3	8	7		22.52	22.61	22.47
3	15	0		22.54	22.59	22.55
3	1	0	16-QAM	22.59	22.67	22.58
3	1	8		22.67	22.72	22.62
3	1	14		22.60	22.69	22.57
3	8	0		21.54	21.60	21.56
3	8	4		21.62	21.68	21.63
3	8	7		21.56	21.68	21.52
3	15	0		21.58	21.64	21.54
3	1	0	64-QAM	21.50	21.60	21.56
3	1	8		21.59	21.79	21.66
3	1	14		21.47	21.63	21.50
3	8	0		20.40	20.51	20.49
3	8	4		20.44	20.67	20.52
3	8	7		20.45	20.61	20.43
3	15	0		20.38	20.58	20.47
1.4	1	0	QPSK	23.33	23.45	23.34
1.4	1	3		23.41	23.53	23.40
1.4	1	5		23.37	23.46	23.36
1.4	3	0		23.33	23.47	23.35
1.4	3	1		23.41	23.52	23.39
1.4	3	3		23.44	23.53	23.41
1.4	6	0		22.46	22.54	22.46
1.4	1	0	16-QAM	22.51	22.59	22.57
1.4	1	3		22.60	22.70	22.68
1.4	1	5		22.56	22.65	22.61
1.4	3	0		22.35	22.54	22.43
1.4	3	1		22.44	22.61	22.48

1.4	3	3		22.46	22.60	22.47
1.4	6	0		21.50	21.67	21.53
1.4	1	0		21.30	21.60	21.48
1.4	1	3		21.40	21.65	21.56
1.4	1	5		21.40	21.59	21.49
1.4	3	0	64-QAM	21.37	21.53	21.44
1.4	3	1		21.43	21.62	21.48
1.4	3	3		21.39	21.56	21.44
1.4	6	0		20.30	20.45	20.31

LTE Band 7 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
20	1	0	QPSK	23.69	23.86	23.99
20	1	49		23.70	23.86	24.05
20	1	99		23.68	23.90	24.04
20	50	0		22.82	23.15	23.19
20	50	24		22.90	23.10	23.17
20	50	50		22.89	23.09	23.11
20	100	0		22.87	23.09	23.17
20	1	0	16-QAM	23.03	23.10	23.29
20	1	49		23.01	23.09	23.29
20	1	99		22.88	23.13	23.32
20	50	0		21.83	22.08	22.17
20	50	24		21.89	22.07	22.14
20	50	50		21.91	22.06	22.14
20	100	0		21.86	22.06	22.10
20	1	0	64-QAM	21.62	21.79	21.96
20	1	49		21.63	21.79	21.95
20	1	99		21.70	21.87	22.04
20	50	0		20.59	20.84	20.98
20	50	24		20.65	20.86	20.98
20	50	50		20.69	20.87	20.91
20	100	0		20.61	20.85	20.95
15	1	0	QPSK	23.73	23.89	24.01
15	1	37		23.69	23.93	24.03
15	1	74		23.71	23.94	23.89
15	36	0		22.81	23.05	23.14
15	36	20		22.86	23.05	23.14
15	36	39		22.89	23.00	23.14
15	75	0		22.86	23.06	23.17
15	1	0	16-QAM	23.02	23.13	23.27
15	1	37		22.98	23.12	23.30
15	1	74		22.97	23.15	23.25
15	36	0		21.81	22.06	22.14
15	36	20		21.88	22.06	22.12

15	36	39		21.85	22.03	22.10
15	75	0		21.85	22.06	22.13
15	1	0		21.74	21.87	22.11
15	1	37		21.69	21.79	21.98
15	1	74		21.72	21.85	22.15
15	36	0	64-QAM	20.54	20.87	20.98
15	36	20		20.59	20.86	20.97
15	36	39		20.61	20.85	20.99
15	75	0		20.56	20.84	20.99

LTE Band 7 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
10	1	0	QPSK	23.59	23.84	23.87
10	1	25		23.53	23.74	23.91
10	1	49		23.53	23.80	23.91
10	25	0		22.67	22.90	22.99
10	25	12		22.67	22.89	23.00
10	25	25		22.62	22.89	22.94
10	50	0		22.67	22.90	22.94
10	1	0	16-QAM	22.80	23.06	23.11
10	1	25		22.77	22.94	23.17
10	1	49		22.76	23.05	23.08
10	25	0		21.66	21.89	21.97
10	25	12		21.68	21.89	21.97
10	25	25		21.67	21.87	21.95
10	50	0		21.68	21.90	21.98
10	1	0	64-QAM	21.57	21.77	21.88
10	1	25		21.49	21.82	21.89
10	1	49		21.52	21.85	21.95
10	25	0		20.35	20.69	20.75
10	25	12		20.38	20.69	20.78
10	25	25		20.34	20.67	20.79
10	50	0		20.34	20.68	20.78
5	1	0	QPSK	23.60	23.76	23.83
5	1	12		23.60	23.90	23.99
5	1	24		23.60	23.93	23.96
5	12	0		22.68	22.85	22.95
5	12	7		22.79	22.92	23.04
5	12	13		22.74	23.00	23.08
5	25	0		22.70	22.85	23.02
5	1	0	16-QAM	22.76	22.99	23.08
5	1	12		22.85	23.12	23.14
5	1	24		22.81	23.09	23.17
5	12	0		21.69	21.83	21.92
5	12	7		21.76	21.93	22.00

5	12	13		21.77	22.01	22.06
5	25	0		21.67	21.87	21.99
5	1	0		21.52	21.78	21.88
5	1	12		21.55	21.89	21.93
5	1	24		21.57	21.85	21.97
5	12	0	64-QAM	20.43	20.67	20.78
5	12	7		20.47	20.85	20.89
5	12	13		20.50	20.80	20.92
5	25	0		20.41	20.71	20.83

LTE Band 38 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
20	1	0	QPSK	23.95	23.90	23.81
20	1	49		24.06	24.05	23.96
20	1	99		23.94	23.92	23.86
20	50	0		23.14	23.14	23.03
20	50	24		23.15	23.16	23.05
20	50	50		23.19	23.18	23.11
20	100	0		23.18	23.17	23.03
20	1	0	16-QAM	23.18	23.16	23.07
20	1	49		23.22	23.22	23.07
20	1	99		23.21	23.20	23.04
20	50	0		22.15	22.16	22.00
20	50	24		22.22	22.20	22.08
20	50	50		22.22	22.17	22.05
20	100	0		22.14	22.14	22.02
20	1	0	64-QAM	21.70	21.39	21.33
20	1	49		21.62	21.45	21.38
20	1	99		21.69	21.50	21.44
20	50	0		20.97	20.86	20.74
20	50	24		20.98	20.83	20.78
20	50	50		21.07	20.71	20.72
20	100	0		20.93	20.77	20.74
15	1	0	QPSK	23.99	23.99	23.83
15	1	37		24.04	24.02	23.85
15	1	74		24.00	23.98	23.82
15	36	0		23.13	23.15	22.95
15	36	20		23.19	23.14	23.04
15	36	39		23.18	23.14	22.96
15	75	0		23.17	23.15	22.98
15	1	0	16-QAM	23.17	23.14	23.00
15	1	37		23.22	23.22	23.03
15	1	74		23.20	23.19	23.00
15	36	0		22.11	22.07	21.92
15	36	20		22.16	22.15	21.96

15	36	39		22.13	22.11	21.95
15	75	0		22.19	22.15	21.96
15	1	0		21.71	21.60	21.56
15	1	37		21.78	21.53	21.52
15	1	74		21.70	21.54	21.49
15	36	0	64-QAM	20.95	20.70	20.66
15	36	20		20.93	20.72	20.69
15	36	39		20.89	20.71	20.67
15	75	0		21.09	20.75	20.69

LTE Band 38 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
10	1	0	QPSK	23.63	23.70	23.52
10	1	25		23.66	23.67	23.59
10	1	49		23.77	23.76	23.59
10	25	0		22.90	22.93	22.76
10	25	12		22.99	22.94	22.80
10	25	25		22.96	22.97	22.80
10	50	0		22.97	22.96	22.80
10	1	0	16-QAM	22.91	22.97	22.80
10	1	25		22.89	22.92	22.87
10	1	49		22.95	23.00	22.82
10	25	0		21.94	21.93	21.79
10	25	12		21.99	21.98	21.82
10	25	25		22.02	21.99	21.79
10	50	0		22.00	21.97	21.82
10	1	0	64-QAM	21.42	21.31	21.17
10	1	25		21.58	21.30	21.08
10	1	49		21.27	21.23	21.21
10	25	0		20.84	20.60	20.61
10	25	12		20.82	20.58	20.58
10	25	25		20.91	20.58	20.53
10	50	0		20.83	20.57	20.60
5	1	0	QPSK	23.89	23.82	23.73
5	1	12		23.89	23.92	23.73
5	1	24		23.97	23.91	23.70
5	12	0		23.04	23.03	22.87
5	12	7		23.13	23.08	22.91
5	12	13		23.16	23.13	22.97
5	25	0		23.10	23.02	22.87
5	1	0	16-QAM	23.07	23.00	22.89
5	1	12		23.15	23.19	22.97
5	1	24		23.23	23.21	22.93
5	12	0		22.08	22.01	21.85
5	12	7		22.11	22.07	21.92

5	12	13		22.15	22.13	21.98
5	25	0		22.09	22.09	21.94
5	1	0		21.30	21.22	21.31
5	1	12		21.36	21.34	21.32
5	1	24		21.39	21.41	21.36
5	12	0	64-QAM	20.56	20.53	20.56
5	12	7		20.63	20.55	20.61
5	12	13		20.59	20.61	20.62
5	25	0		20.62	20.64	20.58

LTE Band 41 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
20	1	0	QPSK	24.40	24.68	24.44
20	1	49		24.42	24.82	24.71
20	1	99		24.35	24.79	24.62
20	50	0		23.61	23.93	23.73
20	50	24		23.64	24.00	23.78
20	50	50		23.65	24.02	23.86
20	100	0		23.61	23.92	23.78
20	1	0	16-QAM	23.67	23.93	23.75
20	1	49		23.64	24.06	23.90
20	1	99		23.65	24.05	24.04
20	50	0		22.65	22.99	22.79
20	50	24		22.69	23.02	22.84
20	50	50		22.70	23.05	22.94
20	100	0		22.64	23.02	22.85
20	1	0	64-QAM	23.61	23.78	23.66
20	1	49		23.59	23.70	23.73
20	1	99		23.54	23.70	23.78
20	50	0		22.58	22.72	22.73
20	50	24		22.60	22.77	22.77
20	50	50		22.63	22.79	22.73
20	100	0		22.70	22.75	22.79
15	1	0	QPSK	24.45	24.73	24.51
15	1	37		24.50	24.76	24.67
15	1	74		24.42	24.74	24.75
15	36	0		23.60	23.90	23.75
15	36	20		23.66	23.99	23.84
15	36	39		23.66	24.00	23.86
15	75	0		23.63	23.99	23.79
15	1	0	16-QAM	23.66	23.97	23.78
15	1	37		23.67	24.09	23.92
15	1	74		23.64	24.06	24.03
15	36	0		22.59	22.93	22.73
15	36	20		22.64	23.01	22.84

15	36	39		22.64	23.02	22.86
15	75	0		22.64	23.02	22.82
15	1	0		22.62	22.91	22.68
15	1	37		22.63	23.02	22.86
15	1	74		22.57	23.01	22.70
15	36	0	64-QAM	21.62	21.96	21.77
15	36	20		21.67	22.03	21.86
15	36	39		21.66	22.04	21.77
15	75	0		21.65	22.01	21.83

LTE Band 41 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
10	1	0	QPSK	24.26	24.58	24.39
10	1	25		24.23	24.62	24.43
10	1	49		24.23	24.66	24.41
10	25	0		23.45	23.82	23.64
10	25	12		23.48	23.84	23.65
10	25	25		23.45	23.81	23.63
10	50	0		23.48	23.84	23.64
10	1	0	16-QAM	23.51	23.87	23.70
10	1	25		23.53	23.90	23.76
10	1	49		23.47	23.89	23.72
10	25	0		22.50	22.88	22.70
10	25	12		22.53	22.89	22.71
10	25	25		22.49	22.90	22.67
10	50	0		22.51	22.89	22.70
10	1	0	64-QAM	22.46	22.78	22.63
10	1	25		22.44	22.81	22.66
10	1	49		22.39	22.78	22.63
10	25	0		21.58	21.93	21.74
10	25	12		21.55	21.93	21.74
10	25	25		21.53	21.91	21.74
10	50	0		21.50	21.88	21.68
5	1	0	QPSK	24.29	24.65	24.44
5	1	12		24.32	24.70	24.50
5	1	24		24.34	24.72	24.50
5	12	0		23.50	23.78	23.60
5	12	7		23.53	23.84	23.72
5	12	13		23.51	23.88	23.67
5	25	0		23.50	23.82	23.61
5	1	0	16-QAM	23.54	23.89	23.69
5	1	12		23.58	23.99	23.77
5	1	24		23.58	23.98	23.78
5	12	0		22.50	22.81	22.68
5	12	7		22.53	22.86	22.76

5	12	13		22.52	22.92	22.75
5	25	0		22.56	22.89	22.69
5	1	0		22.46	22.82	22.65
5	1	12		22.50	22.89	22.71
5	1	24		22.56	22.92	22.73
5	12	0	64-QAM	21.52	21.87	21.68
5	12	7		21.55	21.90	21.81
5	12	13		21.55	21.94	21.76
5	25	0		21.58	21.91	21.72

LTE Band 66 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
20	1	0	QPSK	23.86	24.05	23.90
20	1	49		23.84	23.88	23.72
20	1	99		23.79	23.72	23.56
20	50	0		23.04	23.11	22.97
20	50	24		22.98	23.04	22.92
20	50	50		22.88	22.95	22.81
20	100	0		22.97	23.03	22.89
20	1	0	16-QAM	23.16	23.17	23.21
20	1	49		23.11	23.18	22.99
20	1	99		23.00	23.08	22.81
20	50	0		22.07	22.15	21.97
20	50	24		22.01	22.08	21.93
20	50	50		21.88	21.95	21.78
20	100	0		21.96	22.01	21.87
20	1	0	64-QAM	21.95	22.05	21.96
20	1	49		21.93	22.04	21.72
20	1	99		21.90	21.95	21.59
20	50	0		20.91	21.11	20.82
20	50	24		20.83	21.04	20.75
20	50	50		20.77	20.92	20.65
20	100	0		20.84	20.98	20.73
15	1	0	QPSK	23.96	23.78	23.87
15	1	37		23.72	23.85	23.73
15	1	74		23.73	23.79	23.60
15	36	0		23.05	23.11	22.93
15	36	20		22.95	23.01	22.89
15	36	39		22.86	22.94	22.74
15	75	0		22.95	23.03	22.84
15	1	0	16-QAM	23.13	23.27	23.12
15	1	37		22.99	23.07	22.88
15	1	74		22.95	23.04	22.79
15	36	0		22.02	22.12	21.95
15	36	20		21.94	22.00	21.88

15	36	39		21.84	21.94	21.78
15	75	0		21.95	22.02	21.88
15	1	0		21.93	22.21	21.90
15	1	37		21.79	22.03	21.81
15	1	74		21.78	21.95	21.75
15	36	0	64-QAM	20.89	21.07	20.78
15	36	20		20.82	21.01	20.72
15	36	39		20.74	20.92	20.63
15	75	0		20.80	21.00	20.69

LTE Band 66 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
10	1	0	QPSK	23.65	23.79	23.64
10	1	25		23.68	23.72	23.49
10	1	49		23.58	23.66	23.57
10	25	0		22.80	22.86	22.70
10	25	12		22.78	22.82	22.71
10	25	25		22.68	22.81	22.62
10	50	0		22.76	22.86	22.67
10	1	0	16-QAM	22.97	23.06	22.86
10	1	25		22.98	22.89	22.74
10	1	49		22.89	22.92	22.70
10	25	0		21.80	21.89	21.72
10	25	12		21.78	21.87	21.70
10	25	25		21.68	21.76	21.60
10	50	0		21.79	21.80	21.65
10	1	0	64-QAM	21.73	22.00	21.74
10	1	25		21.76	21.95	21.60
10	1	49		21.76	21.93	21.56
10	25	0		20.66	20.84	20.52
10	25	12		20.64	20.83	20.51
10	25	25		20.60	20.74	20.46
10	50	0		20.59	20.81	20.51
5	1	0	QPSK	23.61	23.73	23.53
5	1	12		23.70	23.80	23.60
5	1	24		23.72	23.77	23.58
5	12	0		22.71	22.80	22.64
5	12	7		22.85	22.87	22.65
5	12	13		22.78	22.89	22.74
5	25	0		22.77	22.84	22.63
5	1	0	16-QAM	22.85	22.90	22.80
5	1	12		22.97	22.99	22.85
5	1	24		22.95	23.03	22.83
5	12	0		21.75	21.80	21.64
5	12	7		21.87	21.83	21.66

5	12	13		21.81	21.87	21.66
5	25	0		21.83	21.84	21.63
5	1	0		21.64	21.86	21.60
5	1	12		21.76	21.93	21.62
5	1	24		21.81	21.98	21.66
5	12	0	64-QAM	20.61	20.86	20.50
5	12	7		20.70	20.86	20.49
5	12	13		20.70	20.86	20.54
5	25	0		20.62	20.80	20.46

LTE Band 66 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
3	1	0	QPSK	23.60	23.69	23.54
3	1	8		23.65	23.73	23.54
3	1	14		23.66	23.73	23.58
3	8	0		22.77	22.81	22.65
3	8	4		22.80	22.82	22.71
3	8	7		22.77	22.82	22.65
3	15	0		22.77	22.77	22.68
3	1	0	16-QAM	22.87	22.96	22.84
3	1	8		22.96	23.04	22.85
3	1	14		22.97	23.03	22.87
3	8	0		21.82	21.84	21.70
3	8	4		21.86	21.90	21.70
3	8	7		21.82	21.89	21.69
3	15	0		21.80	21.80	21.71
3	1	0	64-QAM	21.69	21.90	21.63
3	1	8		21.88	22.08	21.71
3	1	14		21.82	21.97	21.65
3	8	0		20.67	20.81	20.54
3	8	4		20.72	20.84	20.55
3	8	7		20.67	20.87	20.53
3	15	0		20.62	20.76	20.49
1.4	1	0	QPSK	23.46	23.60	23.42
1.4	1	3		23.62	23.76	23.55
1.4	1	5		23.54	23.64	23.45
1.4	3	0		23.58	23.62	23.44
1.4	3	1		23.62	23.73	23.53
1.4	3	3		23.64	23.74	23.57
1.4	6	0		22.66	22.67	22.53
1.4	1	0	16-QAM	22.71	22.82	22.60
1.4	1	3		22.84	22.95	22.75
1.4	1	5		22.78	22.86	22.65
1.4	3	0		22.61	22.66	22.49
1.4	3	1		22.68	22.77	22.65

1.4	3	3		22.60	22.75	22.64
1.4	6	0		21.71	21.73	21.54
1.4	1	0		21.94	22.11	21.89
1.4	1	3		22.06	22.30	22.04
1.4	1	5		22.01	22.25	21.89
1.4	3	0	64-QAM	22.05	22.23	21.87
1.4	3	1		22.10	22.34	21.97
1.4	3	3		22.06	22.26	21.97
1.4	6	0		20.95	21.10	20.86

Top Antenna

LTE Band 71 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
20	1	0	QPSK	23.99	24.15	24.13
20	1	49		23.98	24.05	24.03
20	1	99		24.12	23.88	23.88
20	50	0		23.16	23.18	23.20
20	50	24		23.18	23.29	23.28
20	50	50		23.19	23.28	23.13
20	100	0		23.22	23.25	23.24
20	1	0	16-QAM	23.25	23.32	23.34
20	1	49		23.21	23.36	23.31
20	1	99		23.04	23.13	23.22
20	50	0		21.92	22.02	22.01
20	50	24		21.98	22.16	21.94
20	50	50		22.06	22.17	21.93
20	100	0		22.04	22.11	22.05
20	1	0	64-QAM	22.12	22.13	22.11
20	1	49		22.11	22.19	22.25
20	1	99		22.06	22.12	22.16
20	50	0		21.12	21.16	21.21
20	50	24		21.15	21.11	21.01
20	50	50		21.11	21.21	21.15
20	100	0		21.09	21.15	21.02
15	1	0	QPSK	24.04	24.07	24.06
15	1	37		24.01	24.13	24.03
15	1	74		24.04	24.08	23.94
15	36	0		23.07	23.15	23.27
15	36	20		23.14	23.26	23.26
15	36	39		23.19	23.24	23.15
15	75	0		23.11	23.28	23.20
15	1	0	16-QAM	23.10	23.11	23.01
15	1	37		23.04	23.06	22.98
15	1	74		23.05	23.02	22.97
15	36	0		22.00	22.02	22.06
15	36	20		22.11	22.01	22.07

15	36	39		21.98	21.95	21.92
15	75	0		21.86	21.93	21.85
15	1	0		21.89	22.25	21.93
15	1	37		22.01	22.21	21.99
15	1	74		22.05	22.19	22.08
15	36	0	64-QAM	21.12	21.07	21.11
15	36	20		21.02	21.11	21.01
15	36	39		21.09	21.03	21.08
15	75	0		21.09	21.04	20.95

LTE Band 71 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
10	1	0	QPSK	23.93	24.02	24.01
10	1	25		23.91	23.99	24.02
10	1	49		23.90	24.02	23.87
10	25	0		23.02	23.12	23.08
10	25	12		23.03	23.14	23.10
10	25	25		22.94	23.12	23.06
10	50	0		23.02	23.17	23.07
10	1	0	16-QAM	23.11	23.09	23.15
10	1	25		23.01	23.05	22.92
10	1	49		22.95	23.12	22.89
10	25	0		22.01	22.08	22.02
10	25	12		22.06	22.04	21.95
10	25	25		21.95	22.11	21.98
10	50	0		21.99	22.06	22.03
10	1	0	64-QAM	22.12	22.28	22.13
10	1	25		22.15	22.27	21.89
10	1	49		22.04	22.03	21.84
10	25	0		21.11	21.04	21.01
10	25	12		21.05	20.99	20.78
10	25	25		20.92	20.89	20.82
10	50	0		20.99	21.04	20.81
5	1	0	QPSK	23.80	23.94	23.92
5	1	12		23.89	24.01	23.98
5	1	24		23.97	24.10	24.02
5	12	0		22.92	23.06	23.01
5	12	7		23.05	23.23	23.11
5	12	13		23.05	23.20	23.08
5	25	0		23.01	23.18	23.07
5	1	0	16-QAM	22.85	22.96	22.89
5	1	12		22.84	23.01	22.91
5	1	24		22.92	23.09	22.94
5	12	0		22.01	22.03	21.86
5	12	7		21.85	21.95	21.82

5	12	13		21.97	22.12	22.03
5	25	0		21.82	21.95	21.93
5	1	0		21.89	21.99	21.84
5	1	12		21.96	22.18	21.97
5	1	24		22.05	22.06	22.05
5	12	0	64-QAM	21.12	21.02	21.13
5	12	7		21.05	21.09	21.14
5	12	13		21.13	21.06	21.01
5	25	0		21.07	21.05	20.92

ERP/EIRP

Bottom Antenna

LTE Band 4 (GT - LC = -0.50 dB) QPSK									
Bandwidth	1.4M			3M			5M		
Channel	19957	20175	20393	19965	20175	20385	19975	20175	20375
	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)
Frequency (MHz)	1710.7	1732.5	1754.3	1711.5	1732.5	1753.5	1712.5	1732.5	1752.5
Conducted Power (dBm)	23.41	23.53	23.40	23.41	23.49	23.41	23.42	23.54	23.49
Conducted Power (Watts)	0.2193	0.2254	0.2188	0.2193	0.2234	0.2193	0.2198	0.2259	0.2234
EIRP(dBm)	22.91	23.03	22.90	22.91	22.99	22.91	22.92	23.04	22.99
EIRP(Watts)	0.1954	0.2009	0.1950	0.1954	0.1991	0.1954	0.1959	0.2014	0.1991

LTE Band 4 (GT - LC = -0.50 dB) QPSK									
Bandwidth	10M			15M			20M		
Channel	20000	20175	20350	20025	20175	20325	20050	20175	20300
	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)
Frequency (MHz)	1715	1732.5	1750	1717.5	1732.5	1747.5	1720	1732.5	1745
Conducted Power (dBm)	23.35	23.39	23.49	23.59	23.68	23.52	23.58	23.74	23.64
Conducted Power (Watts)	0.2163	0.2183	0.2234	0.2286	0.2333	0.2249	0.2280	0.2366	0.2312
EIRP(dBm)	22.85	22.89	22.99	23.09	23.18	23.02	23.08	23.24	23.14
EIRP(Watts)	0.1928	0.1945	0.1991	0.2037	0.2080	0.2004	0.2032	0.2109	0.2061

LTE Band 4 (GT - LC = -0.50 dB) 16QAM									
Bandwidth	1.4M			3M			5M		
Channel	19957	20175	20393	19965	20175	20385	19975	20175	20375
	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)
Frequency (MHz)	1710.7	1732.5	1754.3	1711.5	1732.5	1753.5	1712.5	1732.5	1752.5
Conducted Power (dBm)	22.60	22.70	22.68	22.67	22.72	22.62	22.66	22.79	22.70
Conducted Power (Watts)	0.1820	0.1862	0.1854	0.1849	0.1871	0.1828	0.1845	0.1901	0.1862
EIRP(dBm)	22.10	22.20	22.18	22.17	22.22	22.12	22.16	22.29	22.20
EIRP(Watts)	0.1622	0.1660	0.1652	0.1648	0.1667	0.1629	0.1644	0.1694	0.1660

LTE Band 4 (GT - LC = -0.50 dB) 16QAM									
Bandwidth	10M			15M			20M		
Channel	20000	20175	20350	20025	20175	20325	20050	20175	20300
	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)
Frequency (MHz)	1715	1732.5	1750	1717.5	1732.5	1747.5	1720	1732.5	1745
Conducted Power (dBm)	22.67	22.80	22.57	22.72	22.95	22.80	22.87	22.85	22.88
Conducted Power (Watts)	0.1849	0.1905	0.1807	0.1871	0.1972	0.1905	0.1936	0.1928	0.1941
EIRP(dBm)	22.17	22.30	22.07	22.22	22.45	22.30	22.37	22.35	22.38
EIRP(Watts)	0.1648	0.1698	0.1611	0.1667	0.1758	0.1698	0.1726	0.1718	0.1730

LTE Band 4 (GT - LC = -0.50 dB) 64QAM									
Bandwidth	1.4M			3M			5M		
Channel	19957	20175	20393	19965	20175	20385	19975	20175	20375
	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)
Frequency (MHz)	1710.7	1732.5	1754.3	1711.5	1732.5	1753.5	1712.5	1732.5	1752.5
Conducted Power (dBm)	21.40	21.65	21.56	21.59	21.79	21.66	21.46	21.68	21.54
Conducted Power (Watts)	0.1380	0.1462	0.1432	0.1442	0.1510	0.1466	0.1400	0.1472	0.1426
EIRP(dBm)	20.90	21.15	21.06	21.09	21.29	21.16	20.96	21.18	21.04
EIRP(Watts)	0.1230	0.1303	0.1276	0.1285	0.1346	0.1306	0.1247	0.1312	0.1271

LTE Band 4 (GT - LC = -0.50 dB) 64QAM									
Bandwidth	10M			15M			20M		
Channel	20000	20175	20350	20025	20175	20325	20050	20175	20300
	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)
Frequency (MHz)	1715	1732.5	1750	1717.5	1732.5	1747.5	1720	1732.5	1745
Conducted Power (dBm)	21.50	21.67	21.56	21.70	21.74	21.79	21.74	21.89	21.80
Conducted Power (Watts)	0.1413	0.1469	0.1432	0.1479	0.1493	0.1510	0.1493	0.1545	0.1514
EIRP(dBm)	21.00	21.17	21.06	21.20	21.24	21.29	21.24	21.39	21.30
EIRP(Watts)	0.1259	0.1309	0.1276	0.1318	0.1330	0.1346	0.1330	0.1377	0.1349

LTE Band 7 (GT - LC = -0.50 dB) QPSK			
Bandwidth	**5M**		
Channel	**20775**	**21100**	**21425**
	(Low)	**(Mid)**	**(High)**
Frequency (MHz)	**2502.5**	**2535**	**2567.5**
Conducted Power (dBm)	23.60	23.90	23.99
Conducted Power (Watts)	0.2291	0.2455	0.2506
EIRP(dBm)	23.10	23.40	23.49
EIRP(Watts)	0.2042	0.2188	0.2234

LTE Band 7 (GT - LC = -0.50 dB) QPSK									
Bandwidth	**10M**			**15M**			**20M**		
Channel	**20800**	**21100**	**21400**	**20825**	**21100**	**21375**	**20850**	**21100**	**21350**
	(Low)	**(Mid)**	**(High)**	**(Low)**	**(Mid)**	**(High)**	**(Low)**	**(Mid)**	**(High)**
Frequency (MHz)	**2505**	**2535**	**2565**	**2507.5**	**2535**	**2562.5**	**2510**	**2535**	**2560**
Conducted Power (dBm)	23.53	23.74	23.91	23.69	23.93	24.03	23.70	23.86	24.05
Conducted Power (Watts)	0.2254	0.2366	0.2460	0.2339	0.2472	0.2529	0.2344	0.2432	0.2541
EIRP(dBm)	23.03	23.24	23.41	23.19	23.43	23.53	23.20	23.36	23.55
EIRP(Watts)	0.2009	0.2109	0.2193	0.2084	0.2203	0.2254	0.2089	0.2168	0.2265

LTE Band 7 (GT - LC = -0.50 dB) 16QAM			
Bandwidth	5M		
Channel	20775	21100	21425
	(Low)	(Mid)	(High)
Frequency (MHz)	2502.5	2535	2567.5
Conducted Power (dBm)	22.81	23.09	23.17
Conducted Power (Watts)	0.1910	0.2037	0.2075
EIRP(dBm)	22.31	22.59	22.67
EIRP(Watts)	0.1702	0.1816	0.1849

LTE Band 7 (GT - LC = -0.50 dB) 16QAM									
Bandwidth	10M			15M			20M		
Channel	20800	21100	21400	20825	21100	21375	20850	21100	21350
	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)
Frequency (MHz)	2505	2535	2565	2507.5	2535	2562.5	2510	2535	2560
Conducted Power (dBm)	22.77	22.94	23.17	22.98	23.12	23.30	22.88	23.13	23.32
Conducted Power (Watts)	0.1892	0.1968	0.2075	0.1986	0.2051	0.2138	0.1941	0.2056	0.2148
EIRP(dBm)	22.27	22.44	22.67	22.48	22.62	22.80	22.38	22.63	22.82
EIRP(Watts)	0.1687	0.1754	0.1849	0.1770	0.1828	0.1905	0.1730	0.1832	0.1914

LTE Band 7 (GT - LC = -0.50 dB) 64QAM			
Bandwidth	5M		
Channel	20775	21100	21425
	(Low)	(Mid)	(High)
Frequency (MHz)	2502.5	2535	2567.5
Conducted Power (dBm)	21.57	21.85	21.97
Conducted Power (Watts)	0.1435	0.1531	0.1574
EIRP(dBm)	21.07	21.35	21.47
EIRP(Watts)	0.1279	0.1365	0.1403

LTE Band 7 (GT - LC = -0.50 dB) 64QAM									
Bandwidth	10M			15M			20M		
Channel	20800	21100	21400	20825	21100	21375	20850	21100	21350
	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)
Frequency (MHz)	2505	2535	2565	2507.5	2535	2562.5	2510	2535	2560
Conducted Power (dBm)	21.52	21.85	21.95	21.72	21.85	22.15	21.70	21.87	22.04
Conducted Power (Watts)	0.1419	0.1531	0.1567	0.1486	0.1531	0.1641	0.1479	0.1538	0.1600
EIRP(dBm)	21.02	21.35	21.45	21.22	21.35	21.65	21.20	21.37	21.54
EIRP(Watts)	0.1265	0.1365	0.1396	0.1324	0.1365	0.1462	0.1318	0.1371	0.1426

LTE Band 38 (GT - LC = -0.50 dB) QPSK			
Bandwidth	5M		
Channel	37775	38000	38225
	(Low)	(Mid)	(High)
Frequency (MHz)	2572.5	2595	2617.5
Conducted Power (dBm)	23.97	23.91	23.70
Conducted Power (Watts)	0.2495	0.2460	0.2344
EIRP(dBm)	23.47	23.41	23.20
EIRP(Watts)	0.2223	0.2193	0.2089

LTE Band 38 (GT - LC = -0.50 dB) QPSK									
Bandwidth	10M			15M			20M		
Channel	37800	38000	38200	37825	38000	38175	37850	38000	38150
	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)	(Low)	(Mid)	(Mid)
Frequency (MHz)	2575	2595	2615	2577.5	2595	2612.5	2580	2595	2610
Conducted Power (dBm)	23.77	23.76	23.59	24.04	24.02	23.85	24.06	24.05	23.96
Conducted Power (Watts)	0.2382	0.2377	0.2286	0.2535	0.2523	0.2427	0.2547	0.2541	0.2489
EIRP(dBm)	23.27	23.26	23.09	23.54	23.52	23.35	23.56	23.55	23.46
EIRP(Watts)	0.2123	0.2118	0.2037	0.2259	0.2249	0.2163	0.2270	0.2265	0.2218

LTE Band 38 (GT - LC = -0.50 dB) 16QAM			
Bandwidth	**5M**		
Channel	**37775**	**38000**	**38225**
	(Low)	**(Mid)**	**(High)**
Frequency (MHz)	**2572.5**	**2595**	**2617.5**
Conducted Power (dBm)	23.23	23.21	22.93
Conducted Power (Watts)	0.2104	0.2094	0.1963
EIRP(dBm)	22.73	22.71	22.43
EIRP(Watts)	0.1875	0.1866	0.1750

LTE Band 38 (GT - LC = -0.50 dB) 16QAM									
Bandwidth	**10M**			**15M**			**20M**		
Channel	**37800**	**38000**	**38200**	**37825**	**38000**	**38175**	**37850**	**38000**	**38150**
	(Low)	**(Mid)**	**(High)**	**(Low)**	**(Mid)**	**(High)**	**(Low)**	**(Mid)**	**(Mid)**
Frequency (MHz)	**2575**	**2595**	**2615**	**2577.5**	**2595**	**2612.5**	**2580**	**2595**	**2610**
Conducted Power (dBm)	22.95	23.00	22.82	23.22	23.22	23.03	23.22	23.22	23.07
Conducted Power (Watts)	0.1972	0.1995	0.1914	0.2099	0.2099	0.2009	0.2099	0.2099	0.2028
EIRP(dBm)	22.45	22.50	22.32	22.72	22.72	22.53	22.72	22.72	22.57
EIRP(Watts)	0.1758	0.1778	0.1706	0.1871	0.1871	0.1791	0.1871	0.1871	0.1807

LTE Band 38 (GT - LC = -0.50 dB) 64QAM			
Bandwidth	5M		
Channel	37775	38000	38225
	(Low)	(Mid)	(High)
Frequency (MHz)	2572.5	2595	2617.5
Conducted Power (dBm)	21.39	21.41	21.36
Conducted Power (Watts)	0.1377	0.1384	0.1368
EIRP(dBm)	20.89	20.91	20.86
EIRP(Watts)	0.1227	0.1233	0.1219

LTE Band 38 (GT - LC = -0.50 dB) 64QAM									
Bandwidth	10M			15M			20M		
Channel	37800	38000	38200	37825	38000	38175	37850	38000	38150
	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)	(Low)	(Mid)	(Mid)
Frequency (MHz)	2575	2595	2615	2577.5	2595	2612.5	2580	2595	2610
Conducted Power (dBm)	21.58	21.30	21.08	21.78	21.53	21.52	21.70	21.39	21.33
Conducted Power (Watts)	0.1439	0.1349	0.1282	0.1507	0.1422	0.1419	0.1479	0.1377	0.1358
EIRP(dBm)	21.08	20.80	20.58	21.28	21.03	21.02	21.20	20.89	20.83
EIRP(Watts)	0.1282	0.1202	0.1143	0.1343	0.1268	0.1265	0.1318	0.1227	0.1211

LTE Band 41 (G_T - L_C = -0.50 dB) QPSK									
Bandwidth	**5M**			**10M**			**15M**		
Channel	**39675**	**40620**	**41565**	**39700**	**40620**	**41540**	**39725**	**40620**	**41515**
	(Low)	**(Mid)**	**(High)**	**(Low)**	**(Mid)**	**(High)**	**(Low)**	**(Mid)**	**(High)**
Frequency (MHz)	**2498.5**	**2593**	**2687.5**	**2501**	**2593**	**2685**	**2503.5**	**2593**	**2682.5**
Conducted Power (dBm)	24.34	24.72	24.50	24.23	24.66	24.41	24.50	24.76	24.67
Conducted Power (Watts)	0.2716	0.2965	0.2818	0.2649	0.2924	0.2761	0.2818	0.2992	0.2931
EIRP(dBm)	23.84	24.22	24.00	23.73	24.16	23.91	24.00	24.26	24.17
EIRP(Watts)	0.2421	0.2642	0.2512	0.2360	0.2606	0.2460	0.2512	0.2667	0.2612

LTE Band 41 (G_T - L_C = -0.50 dB) QPSK			
Bandwidth	**20M**		
Channel	**39750**	**40620**	**41490**
	(Low)	**(Mid)**	**(High)**
Frequency (MHz)	**2506**	**2593**	**2680**
Conducted Power (dBm)	24.42	24.82	24.71
Conducted Power (Watts)	0.2767	0.3034	0.2958
EIRP(dBm)	23.92	24.32	24.21
EIRP(Watts)	0.2466	0.2704	0.2636

LTE Band 41 (G_T - L_C = -0.50 dB) 16QAM									
Bandwidth	**5M**			**10M**			**15M**		
Channel	**39675**	**40620**	**41565**	**39700**	**40620**	**41540**	**39725**	**40620**	**41515**
	(Low)	**(Mid)**	**(High)**	**(Low)**	**(Mid)**	**(High)**	**(Low)**	**(Mid)**	**(High)**
Frequency (MHz)	**2498.5**	**2593**	**2687.5**	**2501**	**2593**	**2685**	**2503.5**	**2593**	**2682.5**
Conducted Power (dBm)	23.58	23.99	23.77	23.53	23.90	23.76	23.67	24.09	23.92
Conducted Power (Watts)	0.2280	0.2506	0.2382	0.2254	0.2455	0.2377	0.2328	0.2564	0.2466
EIRP(dBm)	23.08	23.49	23.27	23.03	23.40	23.26	23.17	23.59	23.42
EIRP(Watts)	0.2032	0.2234	0.2123	0.2009	0.2188	0.2118	0.2075	0.2286	0.2198

LTE Band 41 (G_T - L_C = -0.50 dB) 16QAM			
Bandwidth	**20M**		
Channel	**39750**	**40620**	**41490**
	(Low)	**(Mid)**	**(High)**
Frequency (MHz)	**2506**	**2593**	**2680**
Conducted Power (dBm)	23.64	24.06	23.90
Conducted Power (Watts)	0.2312	0.2547	0.2455
EIRP(dBm)	23.14	23.56	23.40
EIRP(Watts)	0.2061	0.2270	0.2188

LTE Band 41 (G_T - L_C = -0.50 dB) 64QAM									
Bandwidth	**5M**			**10M**			**15M**		
Channel	**39675**	**40620**	**41565**	**39700**	**40620**	**41540**	**39725**	**40620**	**41515**
	(Low)	**(Mid)**	**(High)**	**(Low)**	**(Mid)**	**(High)**	**(Low)**	**(Mid)**	**(High)**
Frequency (MHz)	**2498.5**	**2593**	**2687.5**	**2501**	**2593**	**2685**	**2503.5**	**2593**	**2682.5**
Conducted Power (dBm)	22.56	22.92	22.73	22.44	22.81	22.66	22.63	23.02	22.86
Conducted Power (Watts)	0.1803	0.1959	0.1875	0.1754	0.1910	0.1845	0.1832	0.2004	0.1932
EIRP(dBm)	22.06	22.42	22.23	21.94	22.31	22.16	22.13	22.52	22.36
EIRP(Watts)	0.1607	0.1746	0.1671	0.1563	0.1702	0.1644	0.1633	0.1786	0.1722

LTE Band 41 (G_T - L_C = -0.50 dB) 64QAM			
Bandwidth	**20M**		
Channel	**39750**	**40620**	**41490**
	(Low)	**(Mid)**	**(High)**
Frequency (MHz)	**2506**	**2593**	**2680**
Conducted Power (dBm)	23.61	23.78	23.66
Conducted Power (Watts)	0.2296	0.2388	0.2323
EIRP(dBm)	23.11	23.28	23.16
EIRP(Watts)	0.2046	0.2128	0.2070

LTE Band 66 (GT - LC = -0.50 dB) QPSK									
Bandwidth	1.4M			3M			5M		
Channel	131979	132322	132665	131987	132322	132657	131997	132322	132647
	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)
Frequency (MHz)	1710.7	1745	1779.3	1711.5	1745	1778.5	1712.5	1745	1777.5
Conducted Power (dBm)	23.62	23.76	23.55	23.65	23.73	23.54	23.70	23.80	23.60
Conducted Power (Watts)	0.2301	0.2377	0.2265	0.2317	0.2360	0.2259	0.2344	0.2399	0.2291
EIRP(dBm)	23.12	23.26	23.05	23.15	23.23	23.04	23.20	23.30	23.10
EIRP(Watts)	0.2051	0.2118	0.2018	0.2065	0.2104	0.2014	0.2089	0.2138	0.2042

LTE Band 66 (GT - LC = -0.50 dB) QPSK									
Bandwidth	10M			15M			20M		
Channel	132022	132322	132622	132047	132322	132597	132072	132322	132572
	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)	(Low)	(Mid)	(Mid)
Frequency (MHz)	1715	1745	1775	1717.5	1745	1772.5	1720	1745	1770
Conducted Power (dBm)	23.65	23.79	23.64	23.96	23.78	23.87	23.86	24.05	23.90
Conducted Power (Watts)	0.2317	0.2393	0.2312	0.2489	0.2388	0.2438	0.2432	0.2541	0.2455
EIRP(dBm)	23.15	23.29	23.14	23.46	23.28	23.37	23.36	23.55	23.40
EIRP(Watts)	0.2065	0.2133	0.2061	0.2218	0.2128	0.2173	0.2168	0.2265	0.2188

LTE Band 66 (GT - LC = -0.50 dB) 16QAM									
Bandwidth	1.4M			3M			5M		
Channel	131979	132322	132665	131987	132322	132657	131997	132322	132647
	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)
Frequency (MHz)	1710.7	1745	1779.3	1711.5	1745	1778.5	1712.5	1745	1777.5
Conducted Power (dBm)	22.84	22.95	22.75	22.96	23.04	22.85	22.95	23.03	22.83
Conducted Power (Watts)	0.1923	0.1972	0.1884	0.1977	0.2014	0.1928	0.1972	0.2009	0.1919
EIRP(dBm)	22.34	22.45	22.25	22.46	22.54	22.35	22.45	22.53	22.33
EIRP(Watts)	0.1714	0.1758	0.1679	0.1762	0.1795	0.1718	0.1758	0.1791	0.1710

LTE Band 66 (GT - LC = -0.50 dB) 16QAM									
Bandwidth	10M			15M			20M		
Channel	132022	132322	132622	132047	132322	132597	132072	132322	132572
	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)	(Low)	(Mid)	(Mid)
Frequency (MHz)	1715	1745	1775	1717.5	1745	1772.5	1720	1745	1770
Conducted Power (dBm)	22.97	23.06	22.86	23.13	23.27	23.12	23.16	23.17	23.21
Conducted Power (Watts)	0.1982	0.2023	0.1932	0.2056	0.2123	0.2051	0.2070	0.2075	0.2094
EIRP(dBm)	22.47	22.56	22.36	22.63	22.77	22.62	22.66	22.67	22.71
EIRP(Watts)	0.1766	0.1803	0.1722	0.1832	0.1892	0.1828	0.1845	0.1849	0.1866

LTE Band 66 (GT - LC = -0.50 dB) 64QAM									
Bandwidth	1.4M			3M			5M		
Channel	131979	132322	132665	131987	132322	132657	131997	132322	132647
	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)
Frequency (MHz)	1710.7	1745	1779.3	1711.5	1745	1778.5	1712.5	1745	1777.5
Conducted Power (dBm)	22.10	22.34	21.97	21.88	22.08	21.71	21.81	21.98	21.66
Conducted Power (Watts)	0.1622	0.1714	0.1574	0.1542	0.1614	0.1483	0.1517	0.1578	0.1466
EIRP(dBm)	21.60	21.84	21.47	21.38	21.58	21.21	21.31	21.48	21.16
EIRP(Watts)	0.1445	0.1528	0.1403	0.1374	0.1439	0.1321	0.1352	0.1406	0.1306

LTE Band 66 (GT - LC = -0.50 dB) 64QAM									
Bandwidth	10M			15M			20M		
Channel	132022	132322	132622	132047	132322	132597	132072	132322	132572
	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)	(Low)	(Mid)	(Mid)
Frequency (MHz)	1715	1745	1775	1717.5	1745	1772.5	1720	1745	1770
Conducted Power (dBm)	21.73	22.00	21.74	21.93	22.21	21.90	21.95	22.05	21.96
Conducted Power (Watts)	0.1489	0.1585	0.1493	0.1560	0.1663	0.1549	0.1567	0.1603	0.1570
EIRP(dBm)	21.23	21.50	21.24	21.43	21.71	21.40	21.45	21.55	21.46
EIRP(Watts)	0.1327	0.1413	0.1330	0.1390	0.1483	0.1380	0.1396	0.1429	0.1400

Top Antenna

LTE Band 71 (GT - LC = -2.50 dB) QPSK									
Bandwidth	5M			10M			15M		
Channel	133147	133297	133447	133172	133297	133422	133197	133297	133397
	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)
Frequency (MHz)	665.5	680.5	695.5	668	680.5	693	670.5	680.5	690.5
Conducted Power (dBm)	23.97	24.10	24.02	23.93	24.02	24.01	24.01	24.13	24.03
Conducted Power (Watts)	0.2495	0.2570	0.2523	0.2472	0.2523	0.2518	0.2518	0.2588	0.2529
ERP(dBm)	19.32	19.45	19.37	19.28	19.37	19.36	19.36	19.48	19.38
ERP(Watts)	0.0855	0.0881	0.0865	0.0847	0.0865	0.0863	0.0863	0.0887	0.0867

LTE Band 71 (GT - LC = -2.50 dB) QPSK			
Bandwidth	20M		
Channel	133222	133297	133372
	(Low)	(Mid)	(High)
Frequency (MHz)	673	680.5	688
Conducted Power (dBm)	23.99	24.15	24.13
Conducted Power (Watts)	0.2506	0.2600	0.2588
ERP(dBm)	19.34	19.50	19.48
ERP(Watts)	0.0859	0.0891	0.0887

LTE Band 71 (GT - LC = -2.50 dB) 16QAM									
Bandwidth	5M			10M			15M		
Channel	133147	133297	133447	133172	133297	133422	133197	133297	133397
	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)
Frequency (MHz)	665.5	680.5	695.5	668	680.5	693	670.5	680.5	690.5
Conducted Power (dBm)	22.92	23.09	22.94	23.11	23.09	23.15	23.10	23.11	23.01
Conducted Power (Watts)	0.1959	0.2037	0.1968	0.2046	0.2037	0.2065	0.2042	0.2046	0.2000
ERP(dBm)	18.27	18.44	18.29	18.46	18.44	18.50	18.45	18.46	18.36
ERP(Watts)	0.0671	0.0698	0.0675	0.0701	0.0698	0.0708	0.0700	0.0701	0.0685

LTE Band 71 (GT - LC = -2.50 dB) 16QAM			
Bandwidth	20M		
Channel	133222	133297	133372
	(Low)	(Mid)	(High)
Frequency (MHz)	673	680.5	688
Conducted Power (dBm)	23.21	23.36	23.31
Conducted Power (Watts)	0.2094	0.2168	0.2143
ERP(dBm)	18.56	18.71	18.66
ERP(Watts)	0.0718	0.0743	0.0735

LTE Band 71 (GT - LC = -2.50 dB) 64QAM									
Bandwidth	5M			10M			15M		
Channel	133147	133297	133447	133172	133297	133422	133197	133297	133397
	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)
Frequency (MHz)	665.5	680.5	695.5	668	680.5	693	670.5	680.5	690.5
Conducted Power (dBm)	21.96	22.18	21.97	22.12	22.28	22.13	21.89	22.25	21.93
Conducted Power (Watts)	0.1570	0.1652	0.1574	0.1629	0.1690	0.1633	0.1545	0.1679	0.1560
ERP(dBm)	17.31	17.53	17.32	17.47	17.63	17.48	17.24	17.60	17.28
ERP(Watts)	0.0538	0.0566	0.0540	0.0558	0.0579	0.0560	0.0530	0.0575	0.0535

LTE Band 71 (GT - LC = -2.50 dB) 64QAM			
Bandwidth	20M		
Channel	133222	133297	133372
	(Low)	(Mid)	(High)
Frequency (MHz)	673	680.5	688
Conducted Power (dBm)	22.11	22.19	22.25
Conducted Power (Watts)	0.1626	0.1656	0.1679
ERP(dBm)	17.46	17.54	17.60
ERP(Watts)	0.0557	0.0568	0.0575

Peak-to-Average Ratio

Mode	LTE Band 4 / 20MHz				
Mod.	QPSK		16QAM		Limit: 13dB
RB Size	1RB	Full RB	1RB	Full RB	Result
Lowest CH	3.57	4.99	4.41	5.88	PASS
Middle CH	3.57	4.99	4.32	5.91	
Highest CH	3.59	4.99	4.17	5.86	
Mode	LTE Band 4 / 20MHz				
Mod.	64QAM		-		Limit: 13dB
RB Size	1RB	Full RB	-	-	Result
Lowest CH	4.20	5.83	-	-	PASS
Middle CH	4.43	5.86	-	-	
Highest CH	4.14	5.83	-	-	

Mode	LTE Band 7 / 20MHz				
Mod.	QPSK		16QAM		Limit: 13dB
RB Size	1RB	Full RB	1RB	Full RB	Result
Lowest CH	3.57	4.93	4.43	5.88	PASS
Middle CH	3.57	4.99	4.29	5.88	
Highest CH	3.59	5.01	4.29	5.91	
Mode	LTE Band 7 / 20MHz				
Mod.	64QAM		-		Limit: 13dB
RB Size	1RB	Full RB	-	-	Result
Lowest CH	4.17	5.83	-	-	PASS
Middle CH	4.00	5.83	-	-	
Highest CH	4.26	5.91	-	-	

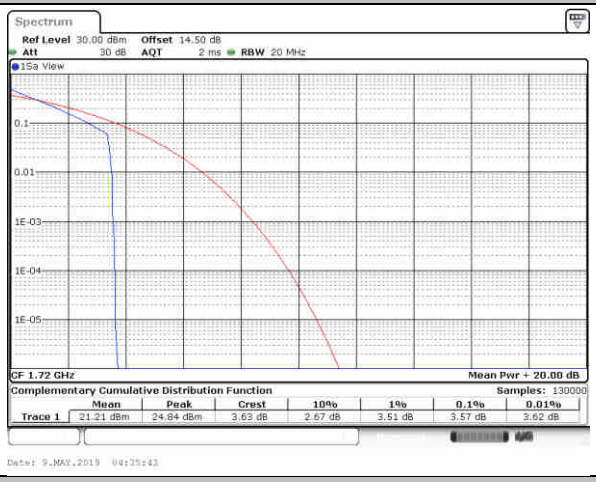
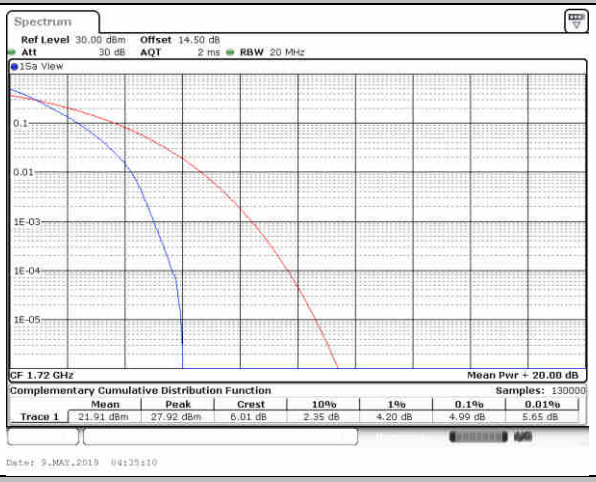
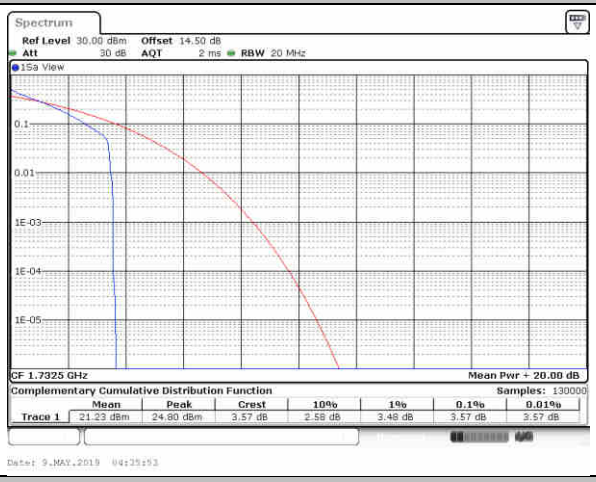
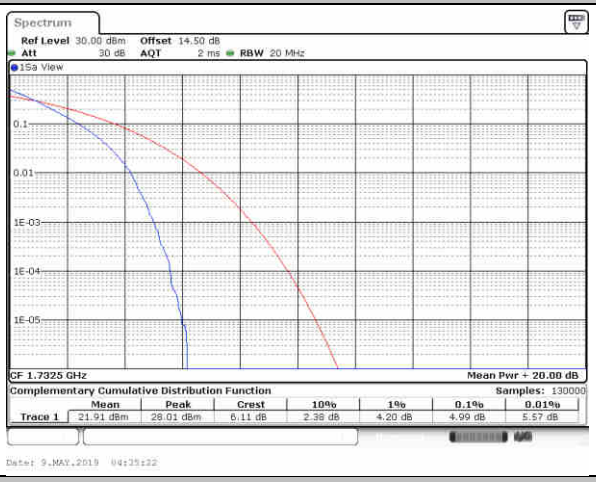
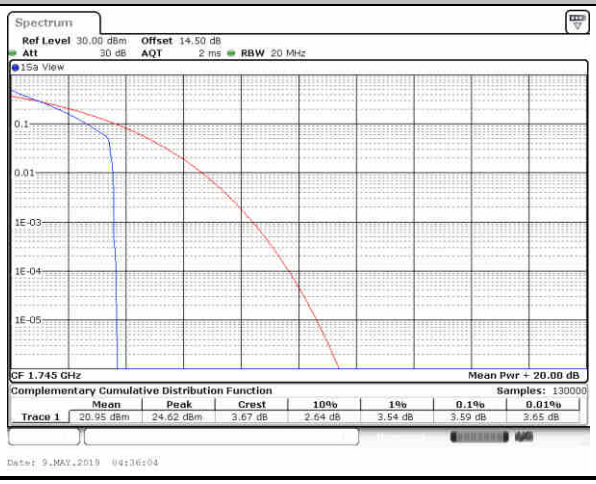
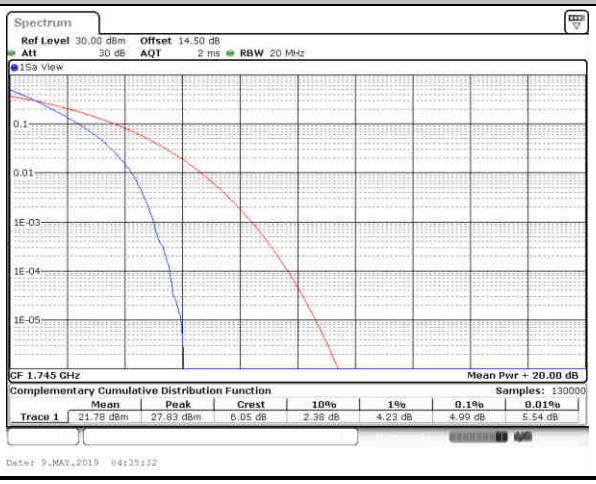
Mode	LTE Band 38 / 20MHz				
Mod.	QPSK		16QAM		Limit: 13dB
RB Size	1RB	Full RB	1RB	Full RB	Result
Lowest CH	4.32	5.68	4.61	6.29	PASS
Middle CH	4.52	6.17	4.75	6.67	
Highest CH	4.49	5.07	4.67	6.58	
Mode	LTE Band 38 / 20MHz				
Mod.	64QAM				Limit: 13dB
RB Size	1RB	Full RB			Result
Lowest CH	4.55	6.26			PASS
Middle CH	5.04	6.41			
Highest CH	4.81	6.35			

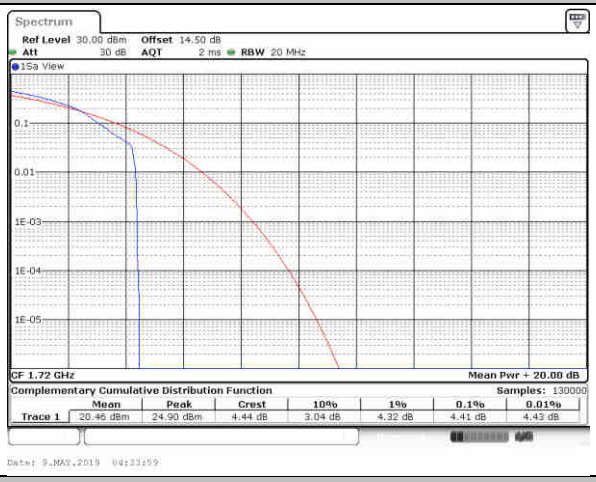
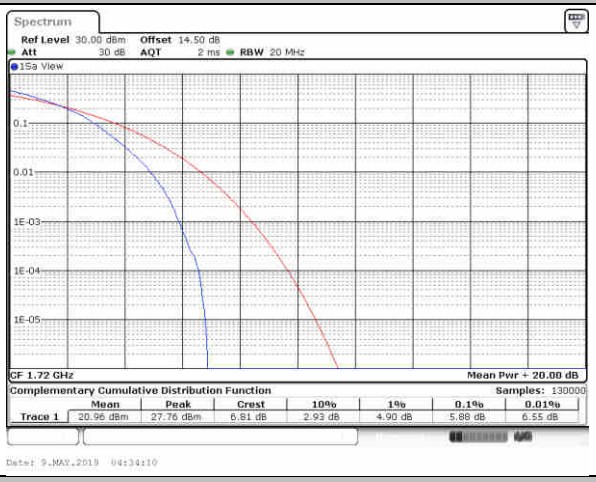
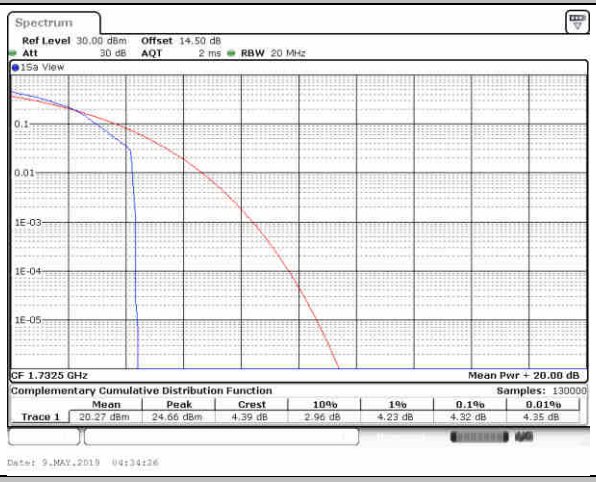
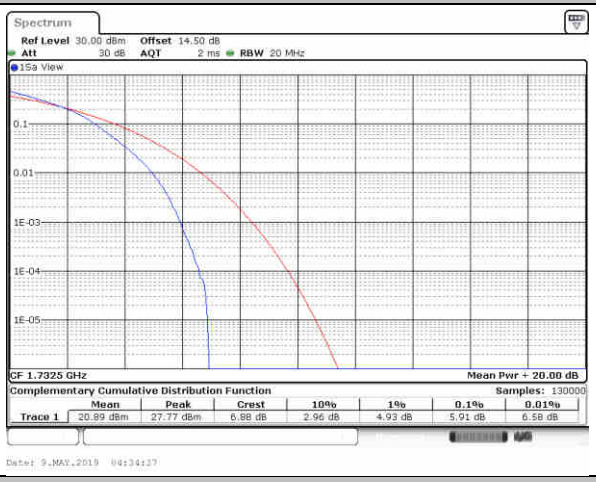
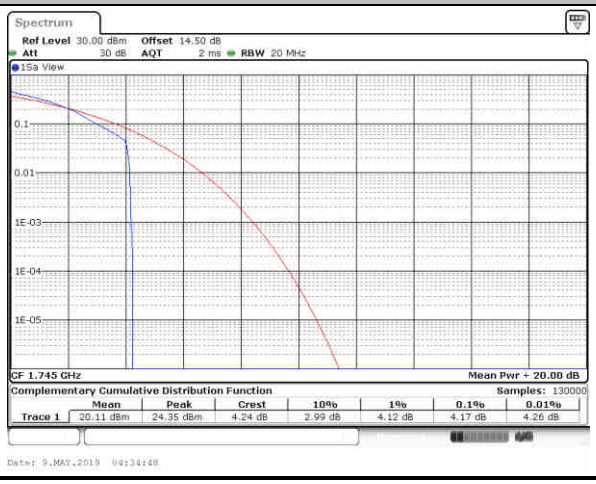
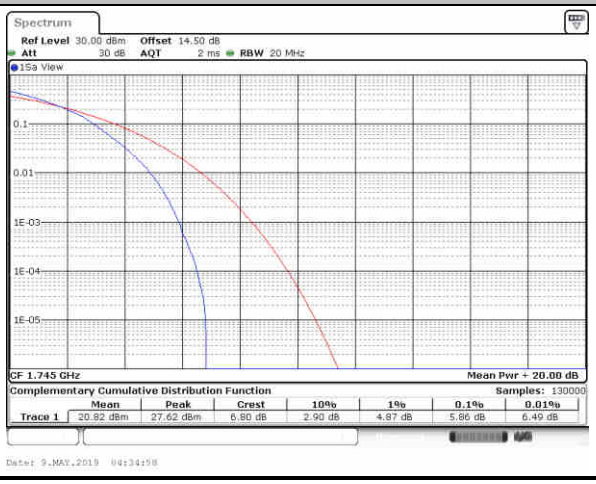
Mode	LTE Band 41 / 20MHz				
Mod.	QPSK		16QAM		Limit: 13dB
RB Size	1RB	Full RB	1RB	Full RB	Result
Lowest CH	6.23	5.77	4.96	6.12	PASS
Middle CH	5.33	7.97	4.61	7.71	
Highest CH	5.48	5.74	5.57	6.75	
Mode	LTE Band 41/ 20MHz				
Mod.	64QAM				Limit: 13dB
RB Size	1RB	Full RB			Result
Lowest CH	4.49	7.97			PASS
Middle CH	5.88	6.46			
Highest CH	4.61	6.29			

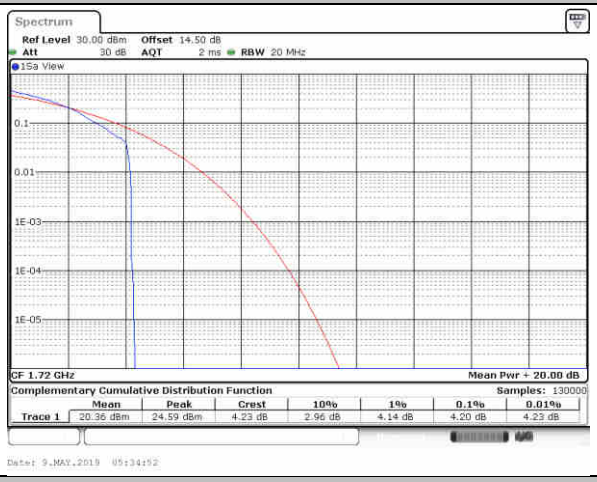
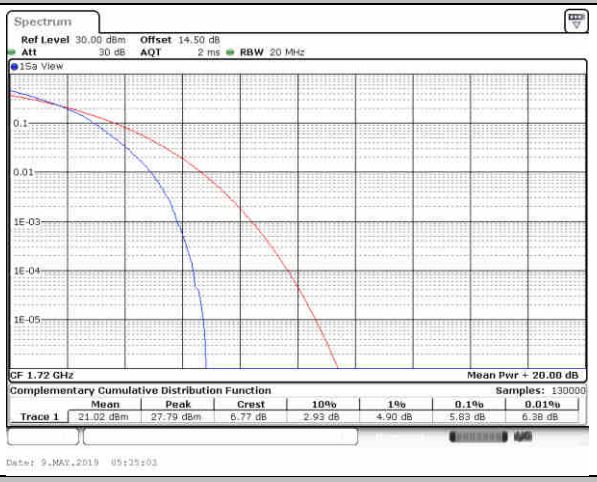
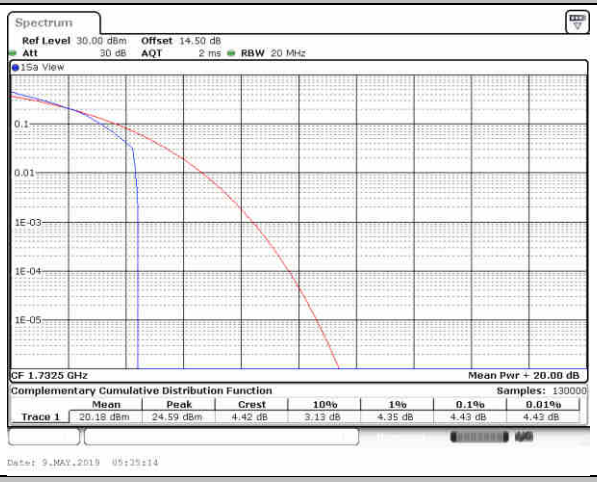
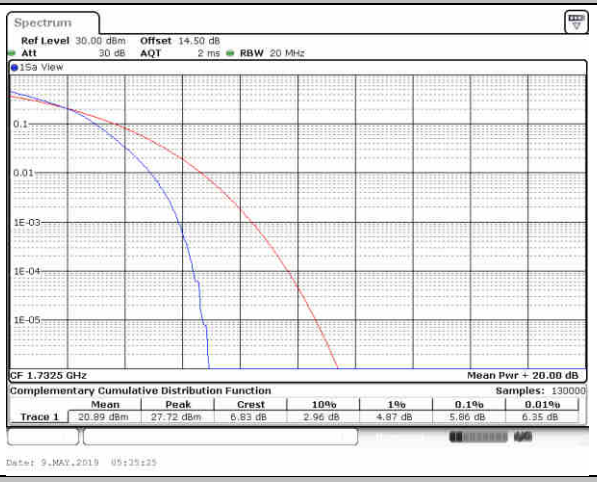
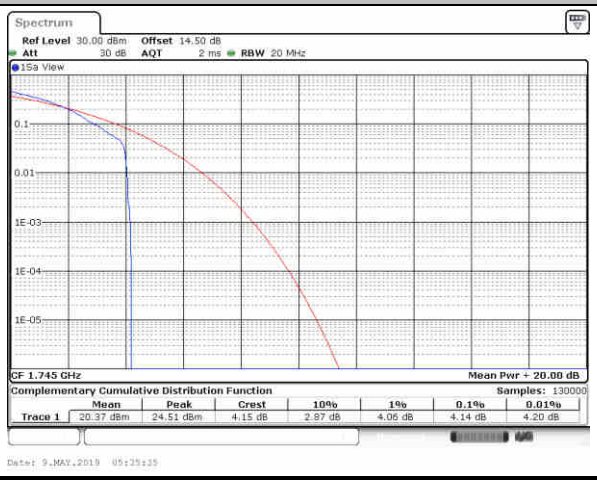
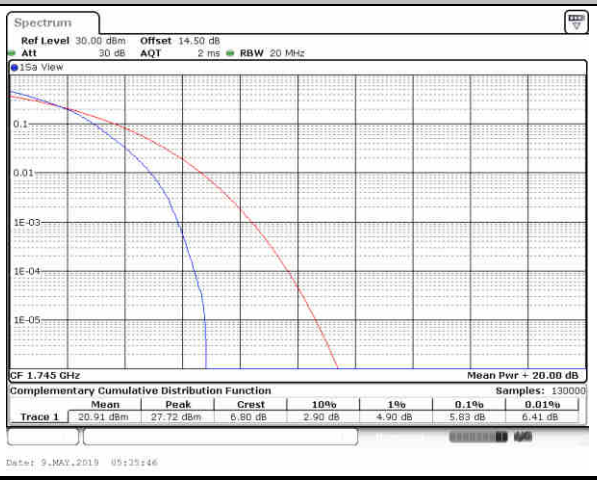
Mode	LTE Band 66 / 20MHz				
Mod.	QPSK		16QAM		Limit: 13dB
RB Size	1RB	Full RB	1RB	Full RB	Result
Lowest CH	3.57	4.87	4.35	5.83	PASS
Middle CH	3.59	5.01	4.17	5.94	
Highest CH	3.65	4.99	4.17	5.91	

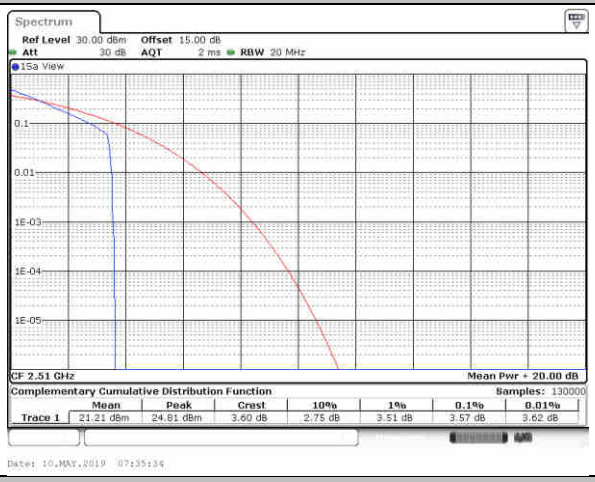
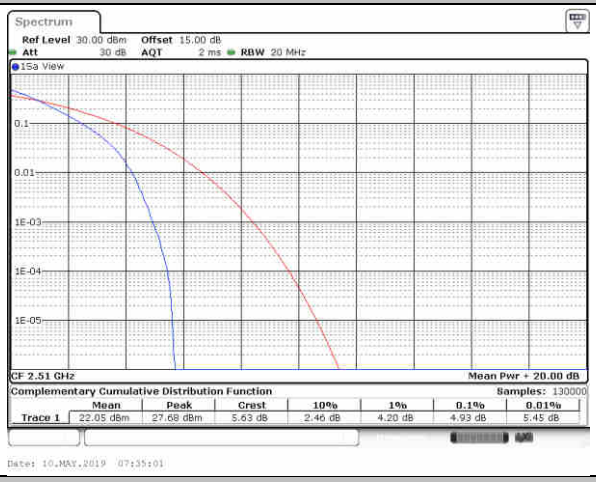
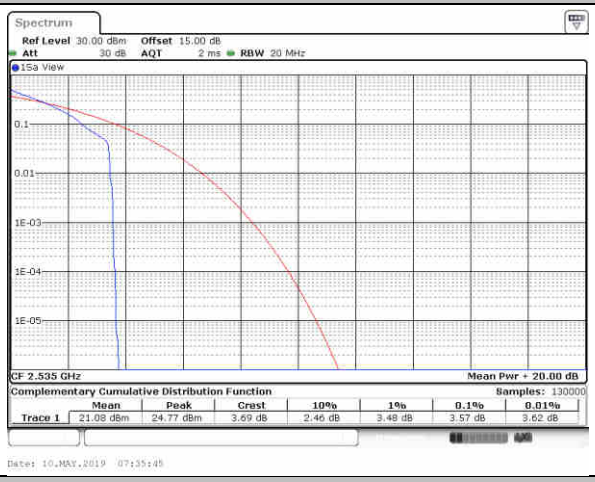
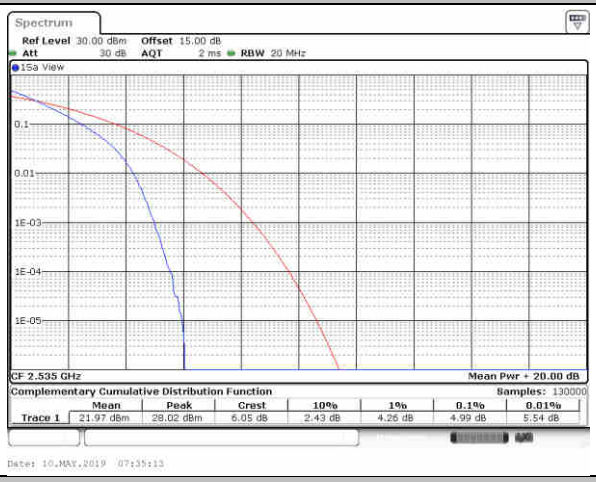
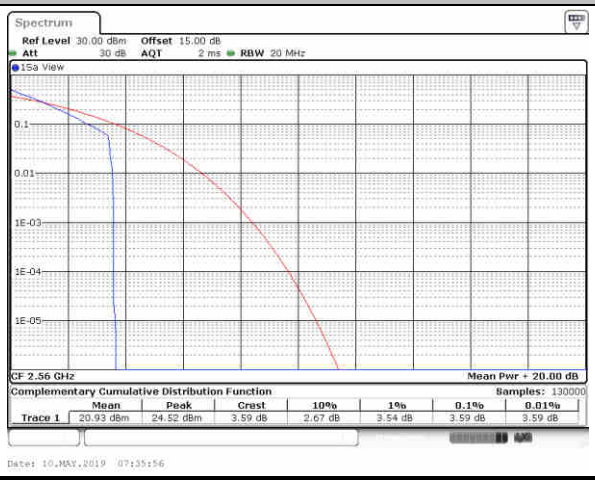
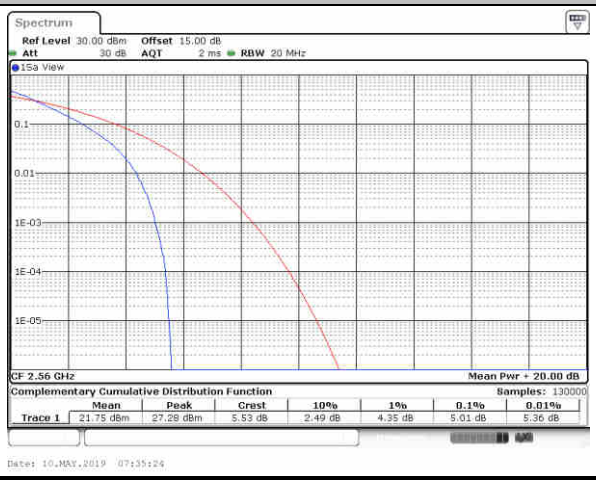
Mode	64QAM		Limit: 13dB
RB Size	1RB	Full RB	Result
Lowest CH	4.23	5.86	PASS
Middle CH	4.2	5.83	
Highest CH	4.46	5.91	

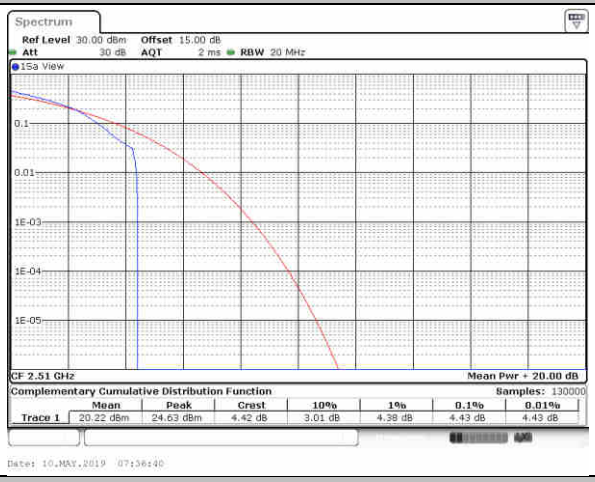
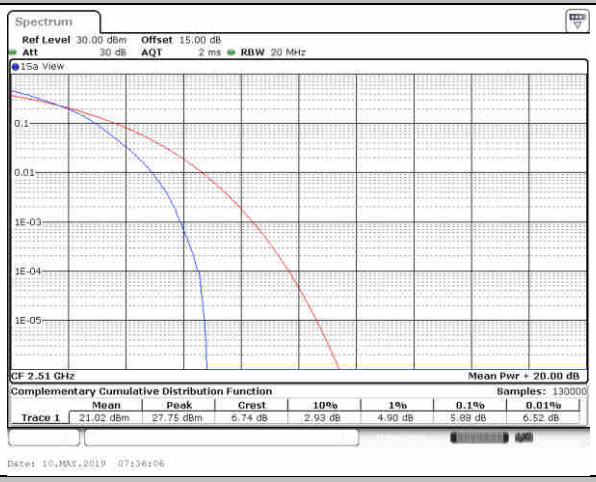
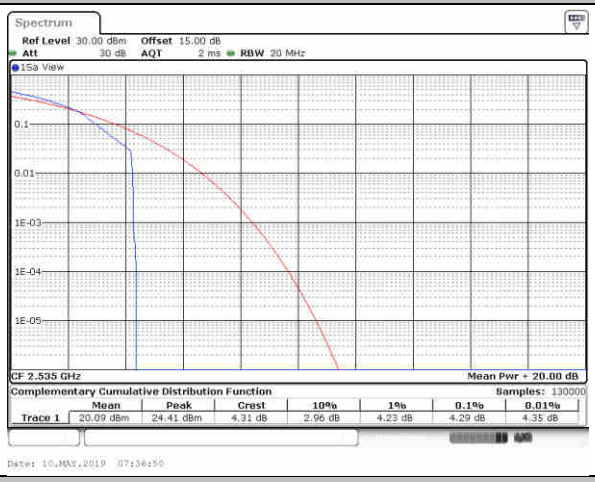
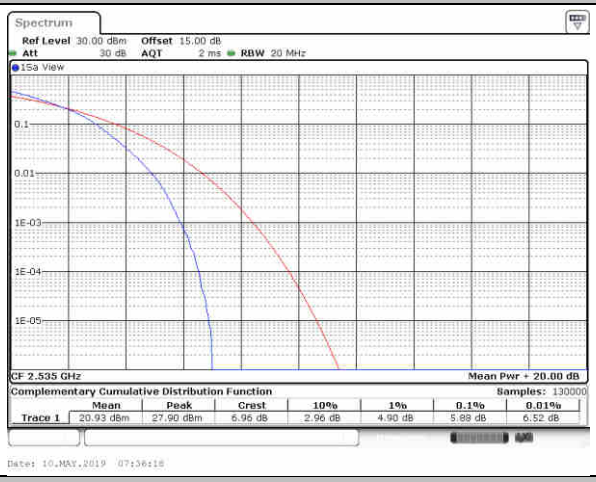
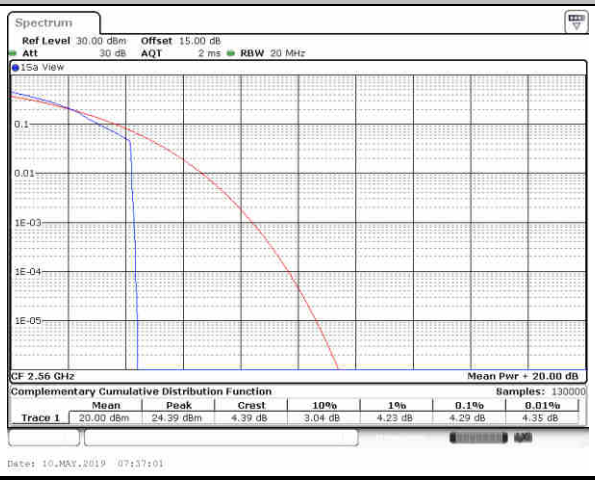
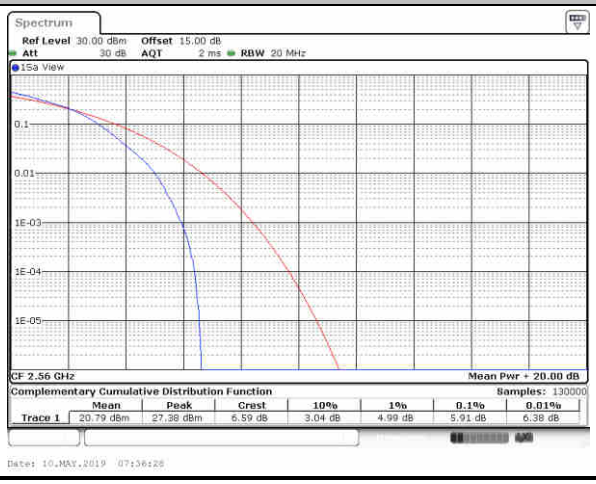
Mode	LTE Band 71 / 20MHz				
Mod.	QPSK		16QAM		Limit: 13dB
RB Size	1RB	Full RB	1RB	Full RB	Result
Lowest CH	3.48	4.93	4.35	5.94	PASS
Middle CH	3.74	4.99	4.49	5.94	
Highest CH	3.59	4.99	4.41	5.83	
Mode	LTE Band 7 / 20MHz				
Mod.	64QAM				Limit: 13dB
RB Size	1RB	Full RB			Result
Lowest CH	4.99	6.38			PASS
Middle CH	5.39	6.38			
Highest CH	5.1	6.38			

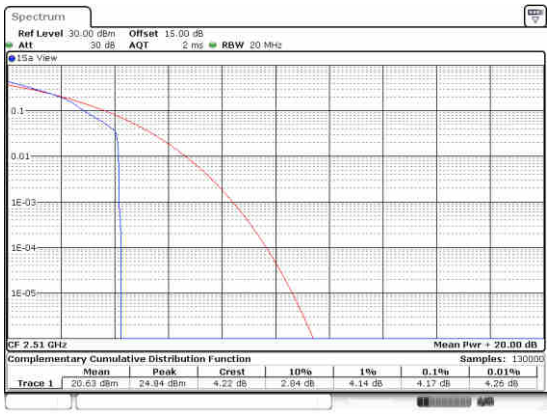
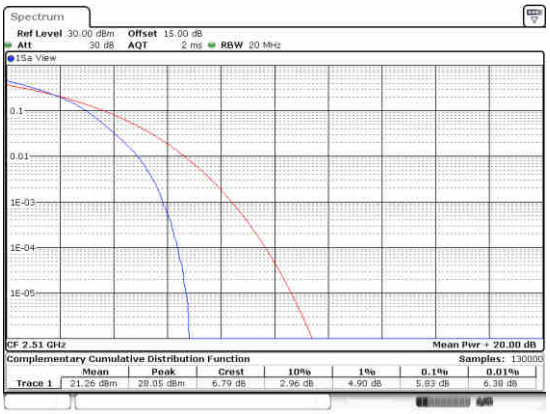
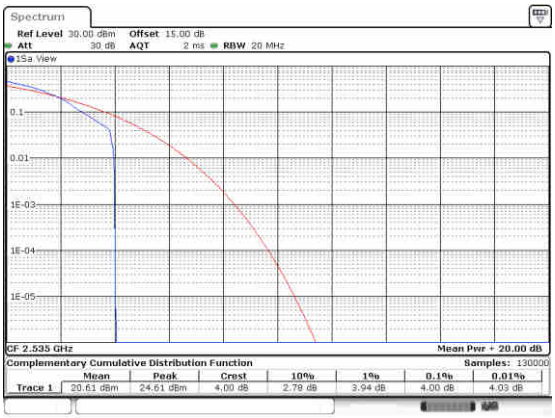
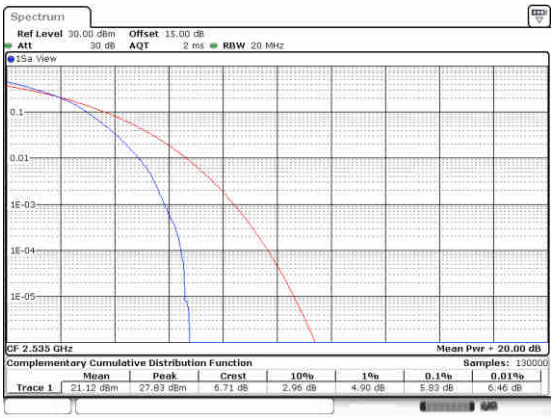
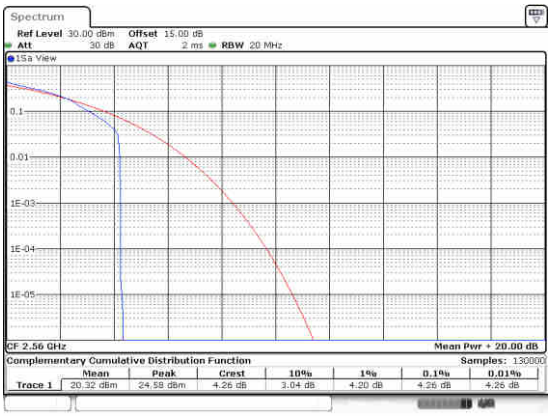
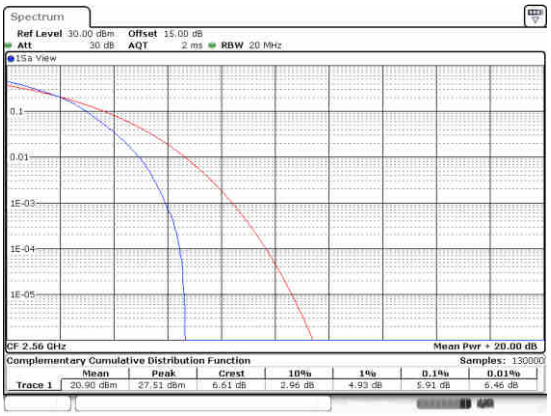
LTE Band 4 / 20MHz / QPSK	
Lowest Channel / 1RB	**Lowest Channel / Full RB**
	
Middle Channel / 1RB	**Middle Channel / Full RB**
	
Highest Channel / 1RB	**Highest Channel / Full RB**
	

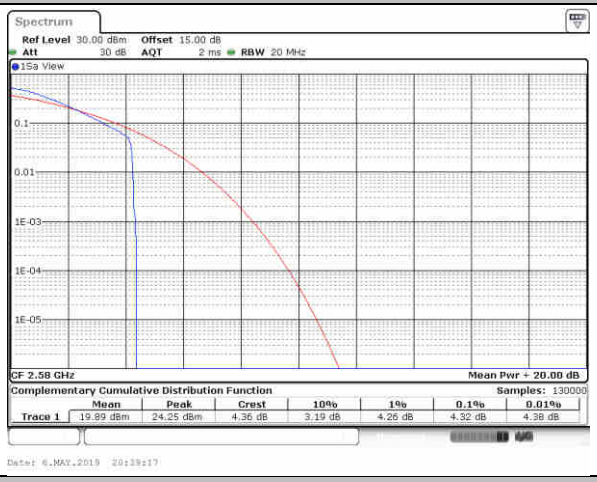
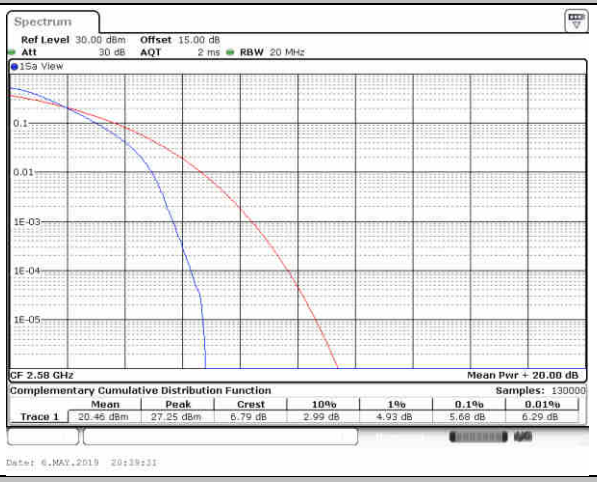
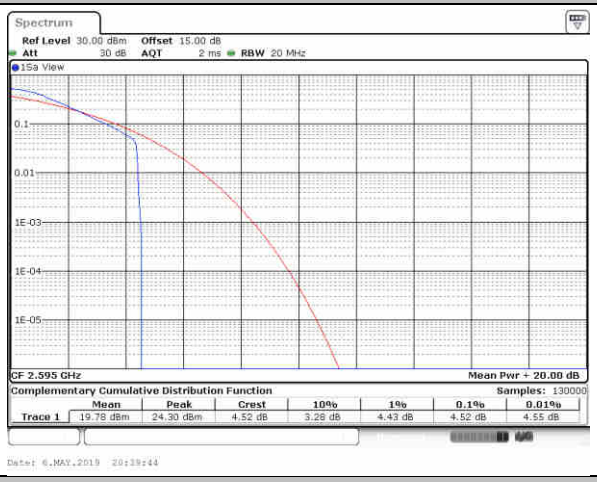
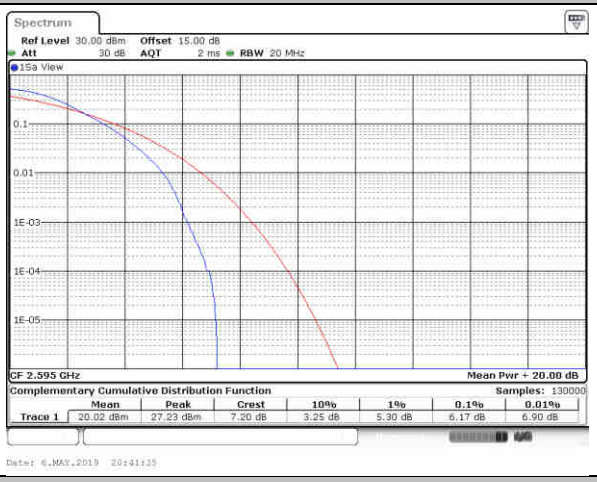
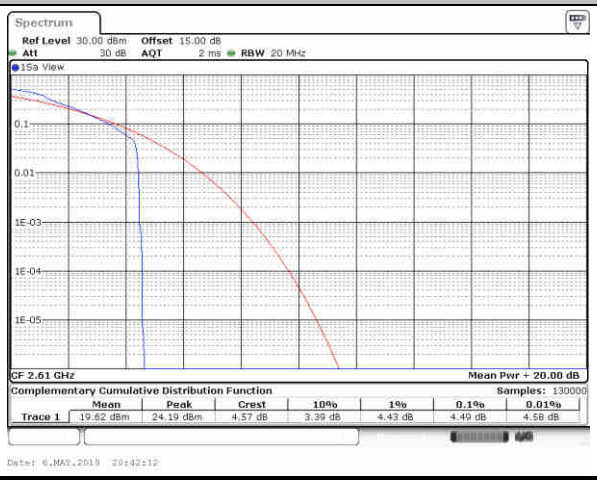
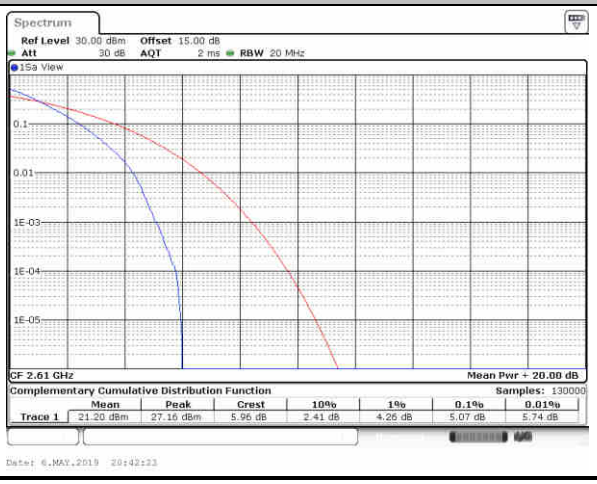
LTE Band 4 / 20MHz / 16QAM	
Lowest Channel / 1RB	**Lowest Channel / Full RB**
	
Middle Channel / 1RB	**Middle Channel / Full RB**
	
Highest Channel / 1RB	**Highest Channel / Full RB**
	

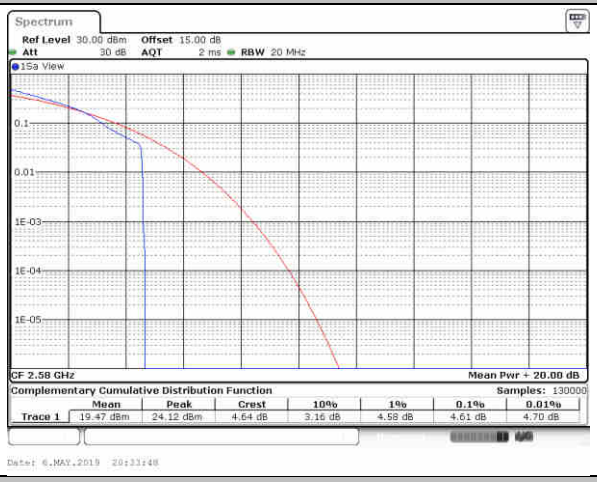
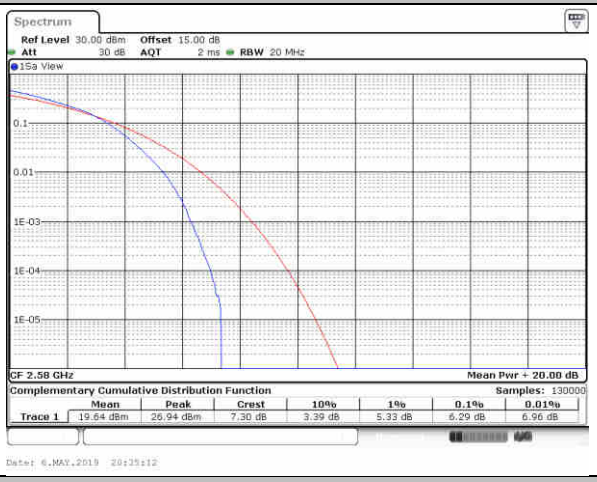
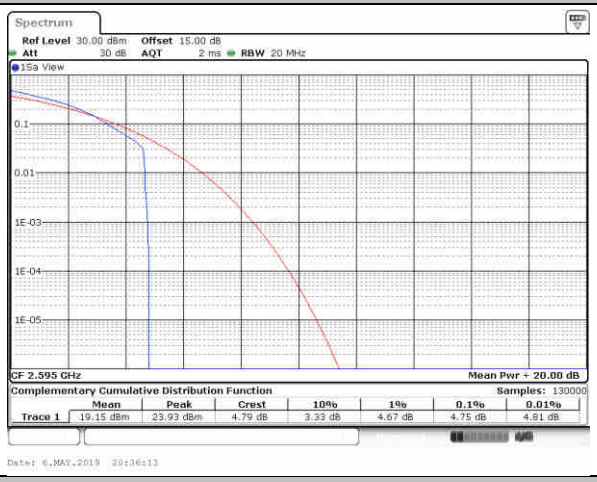
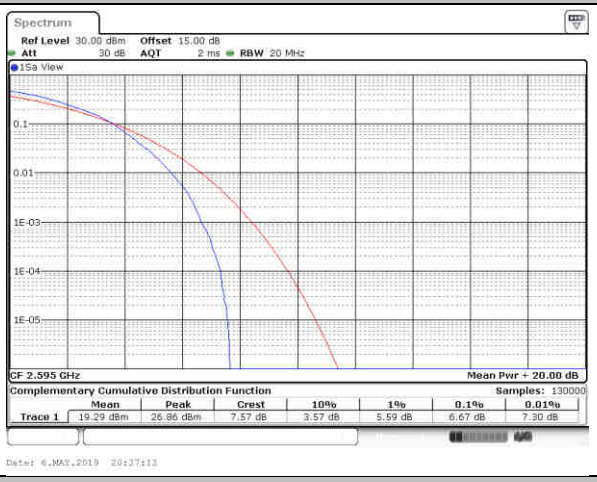
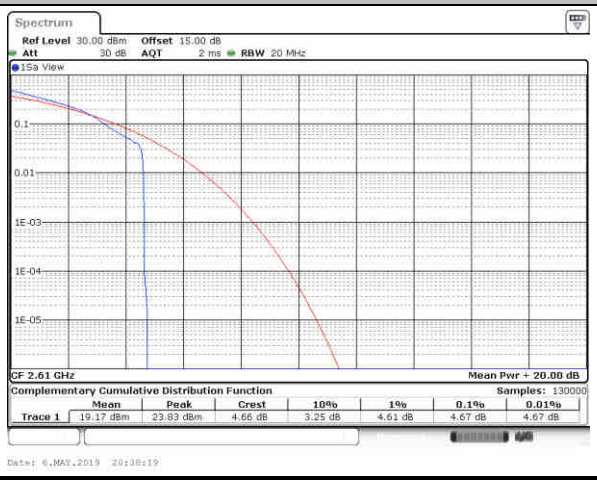
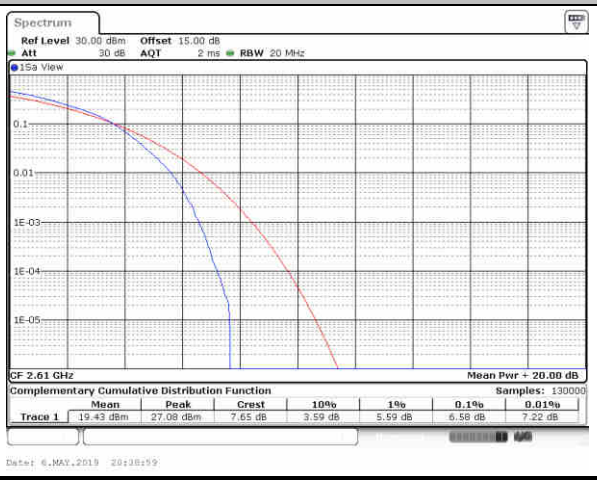
LTE Band 4 / 20MHz / 64QAM	
Lowest Channel / 1RB	**Lowest Channel / Full RB**
	
Middle Channel / 1RB	**Middle Channel / Full RB**
	
Highest Channel / 1RB	**Highest Channel / Full RB**
	

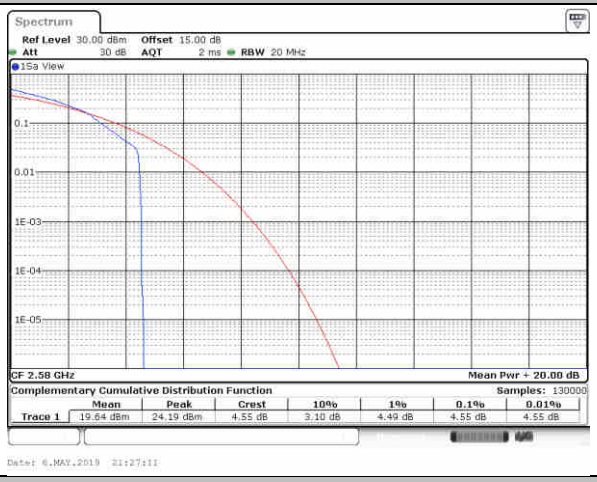
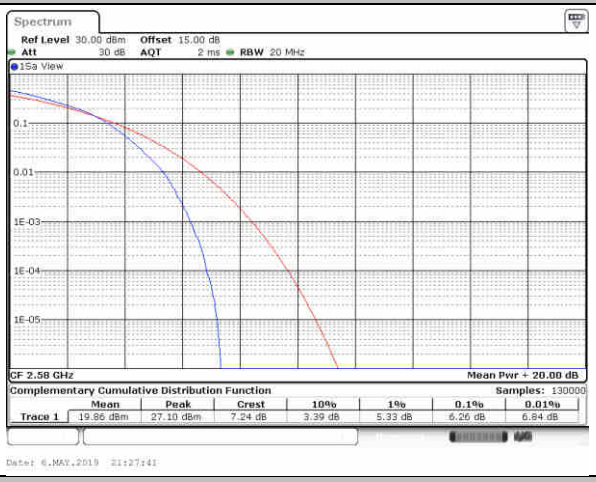
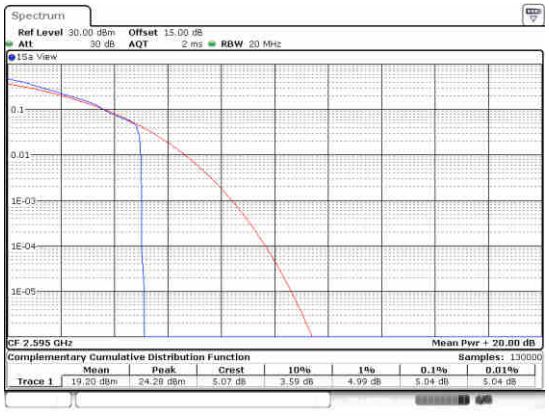
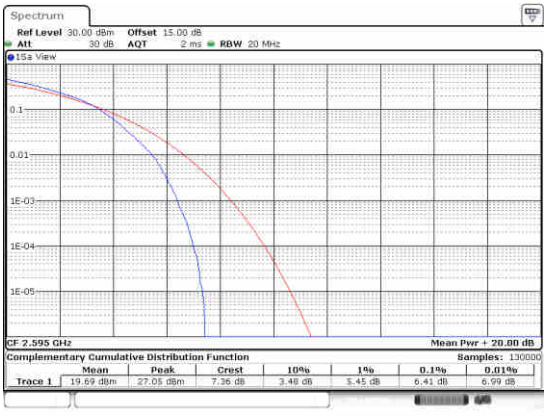
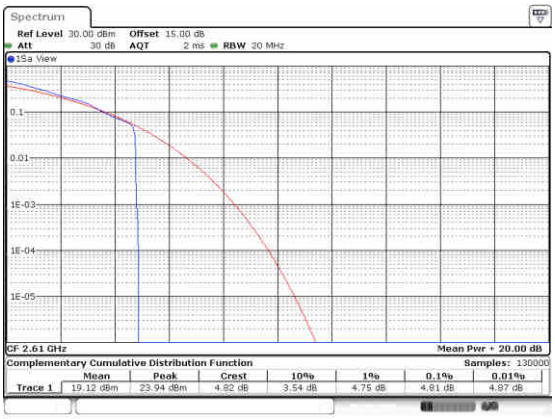
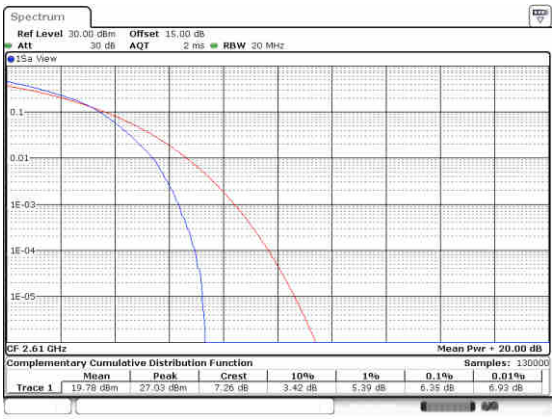
LTE Band 7 / 20MHz / QPSK	
Lowest Channel / 1RB	**Lowest Channel / Full RB**
	
Middle Channel / 1RB	**Middle Channel / Full RB**
	
Highest Channel / 1RB	**Highest Channel / Full RB**
	

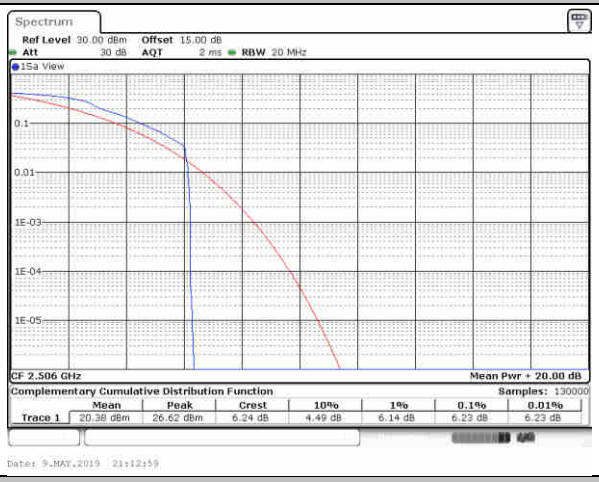
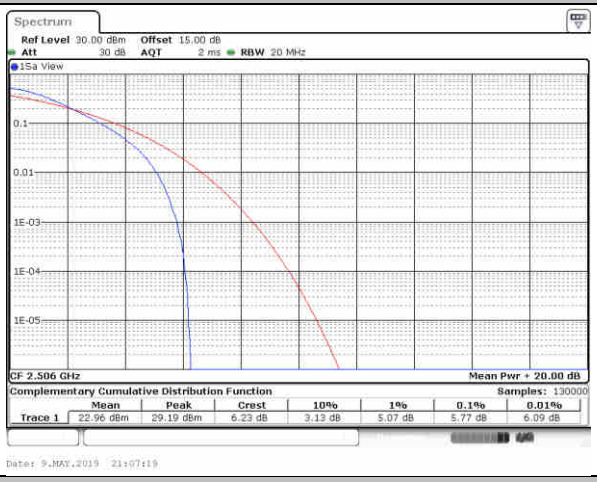
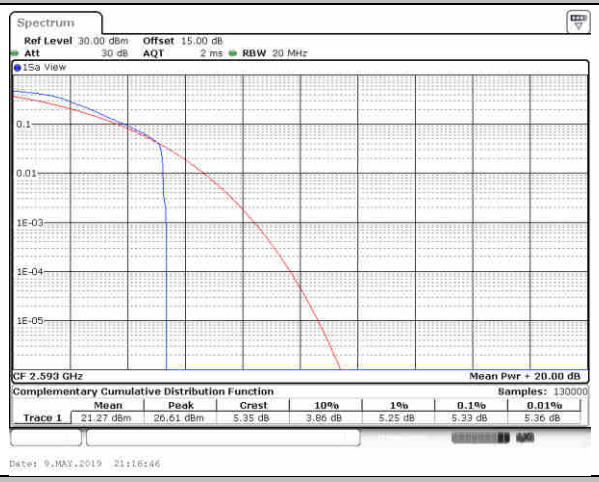
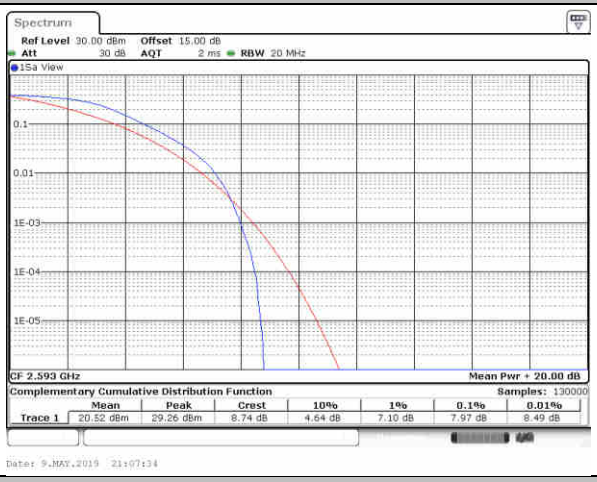
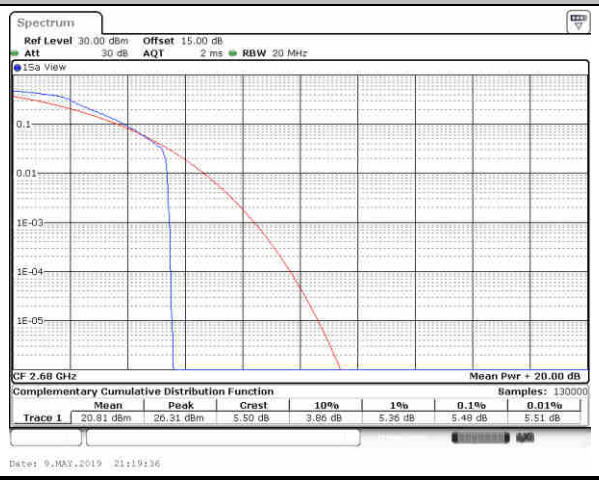
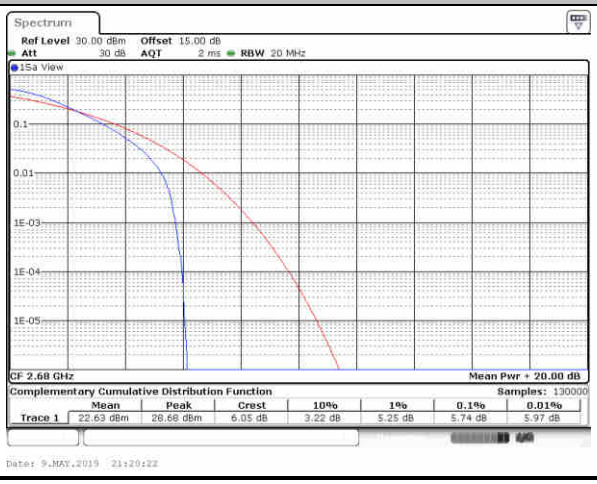
LTE Band 7 / 20MHz / 16QAM	
Lowest Channel / 1RB	**Lowest Channel / Full RB**
	
Middle Channel / 1RB	**Middle Channel / Full RB**
	
Highest Channel / 1RB	**Highest Channel / Full RB**
	

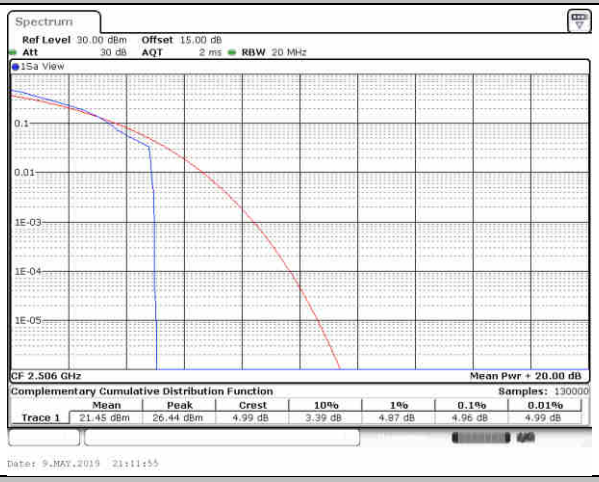
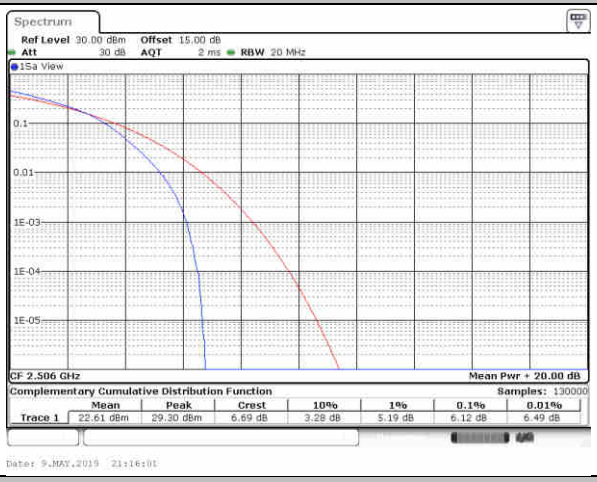
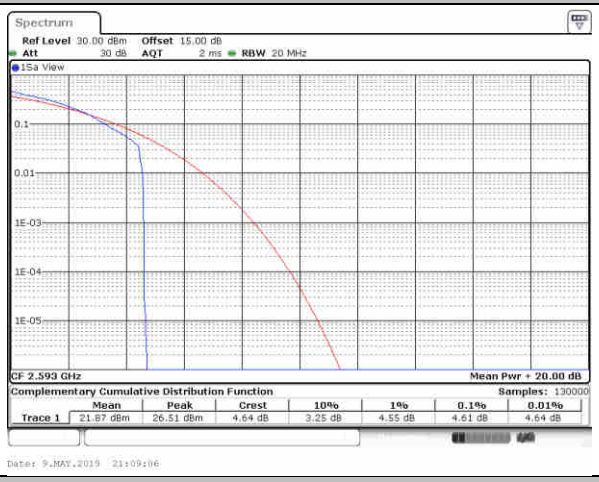
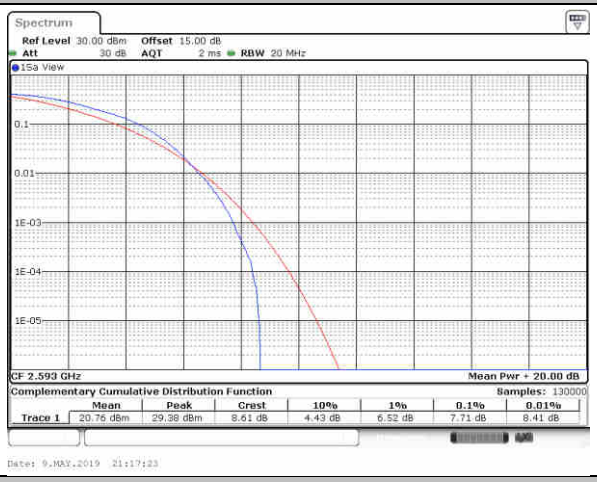
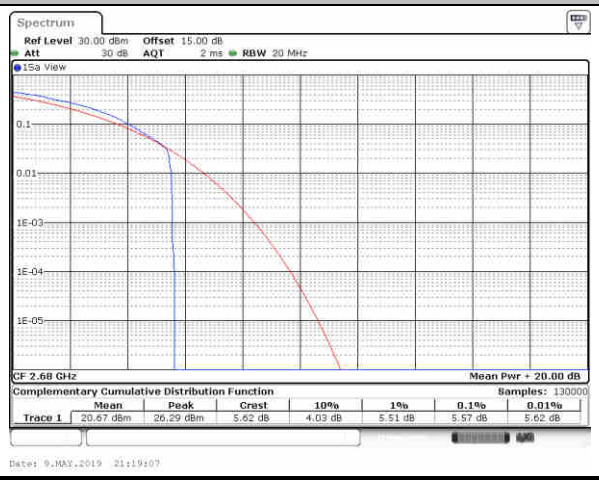
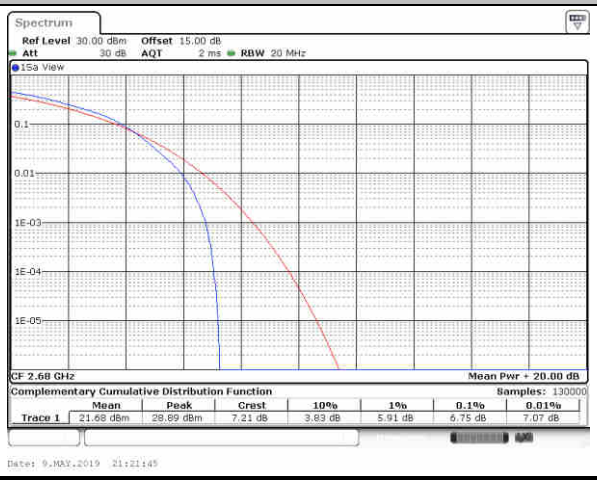
LTE Band 7 / 20MHz / 64QAM	
Lowest Channel / 1RB	**Lowest Channel / Full RB**
	
Middle Channel / 1RB	**Middle Channel / Full RB**
	
Highest Channel / 1RB	**Highest Channel / Full RB**
	

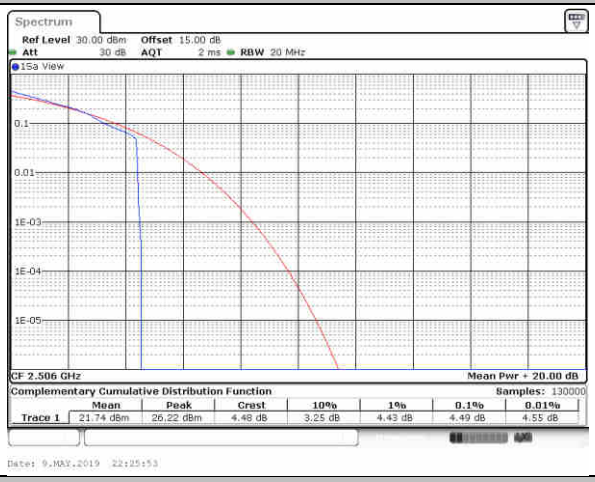
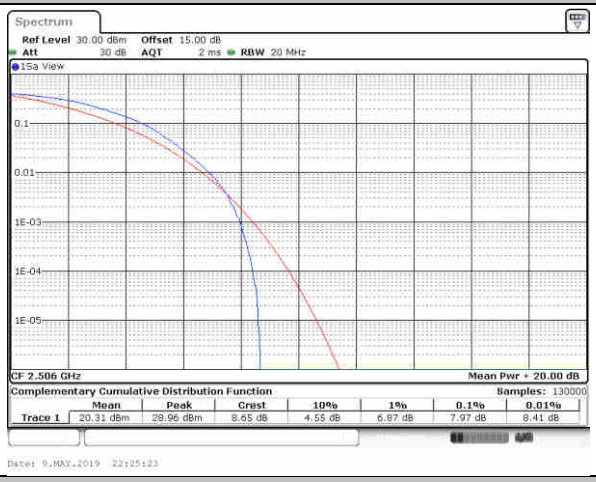
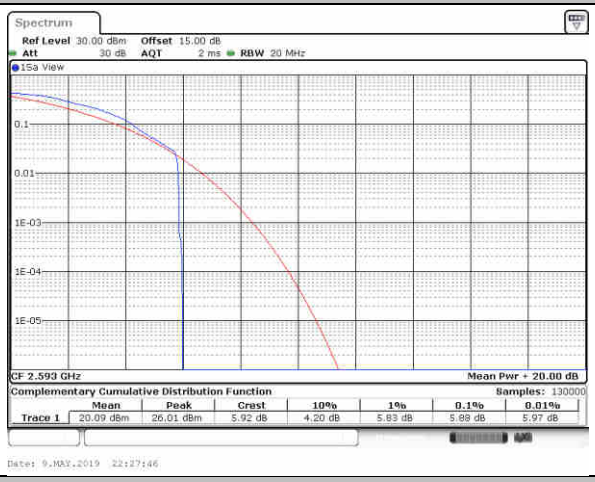
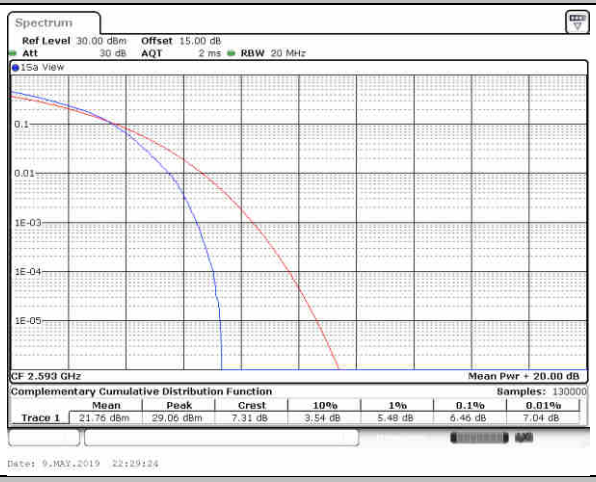
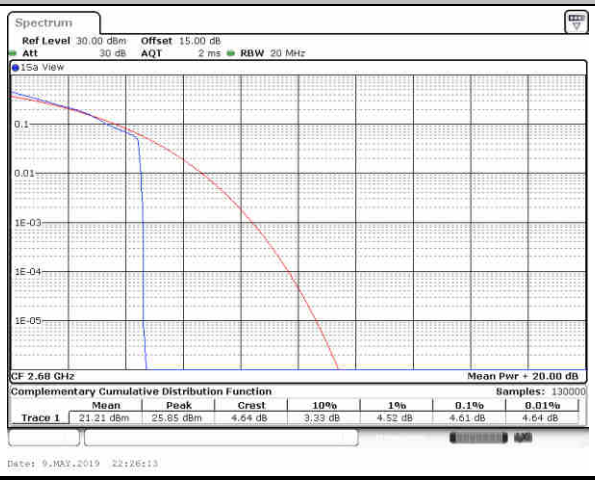
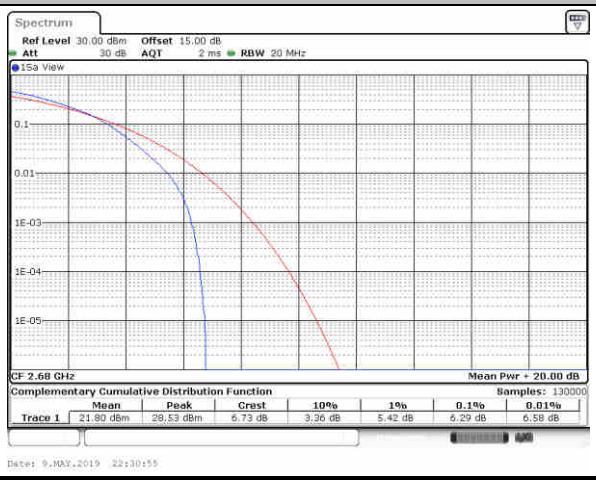
LTE Band 38 / 20MHz / QPSK	
Lowest Channel / 1RB	**Lowest Channel / Full RB**
	
Middle Channel / 1RB	**Middle Channel / Full RB**
	
Highest Channel / 1RB	**Highest Channel / Full RB**
	

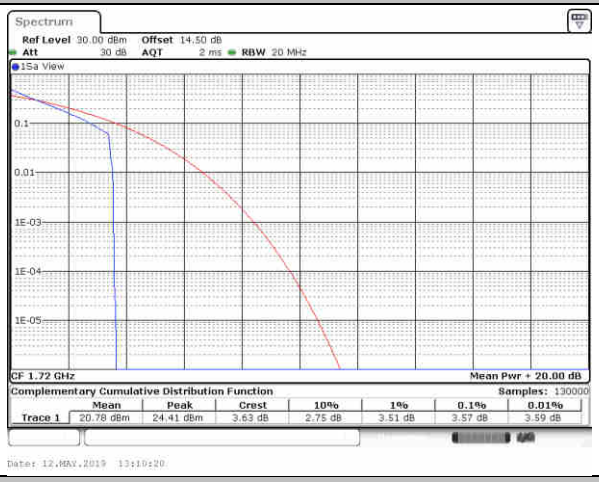
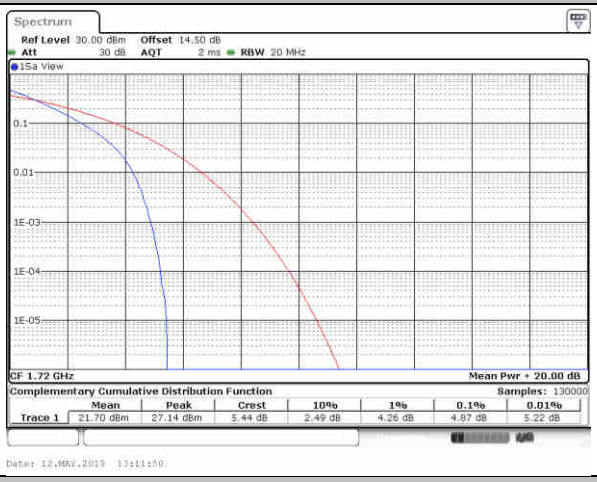
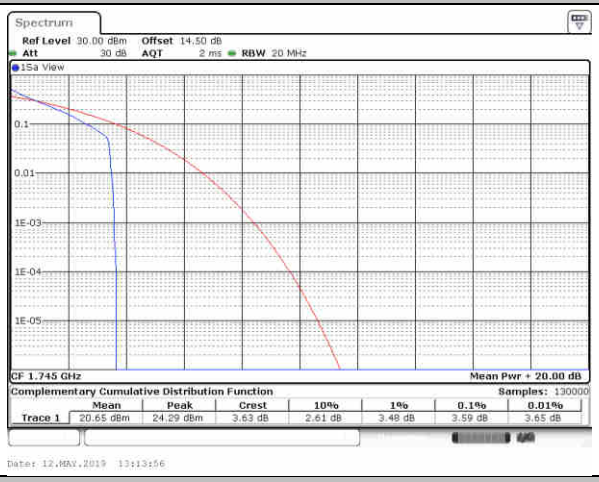
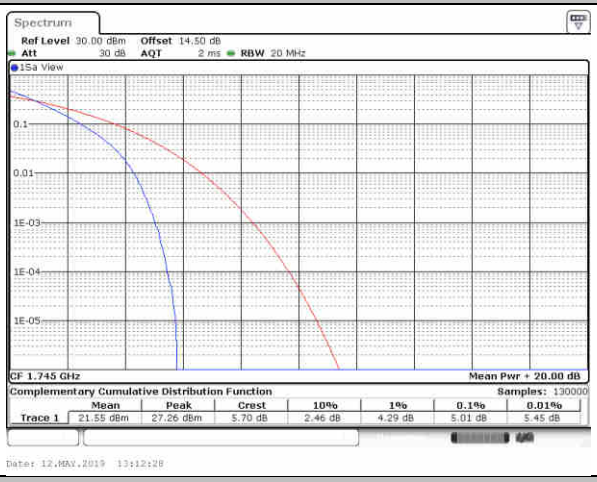
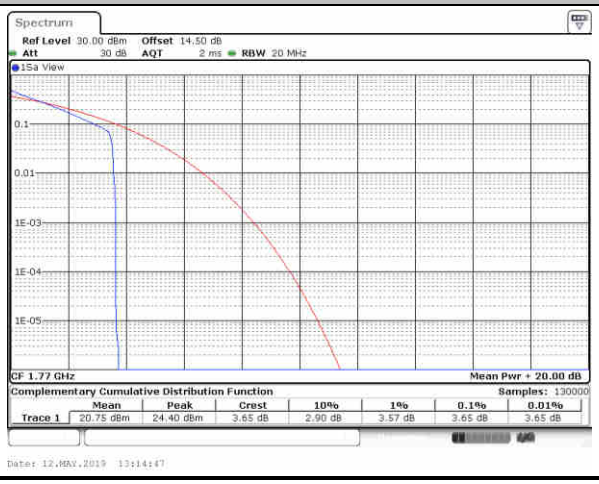
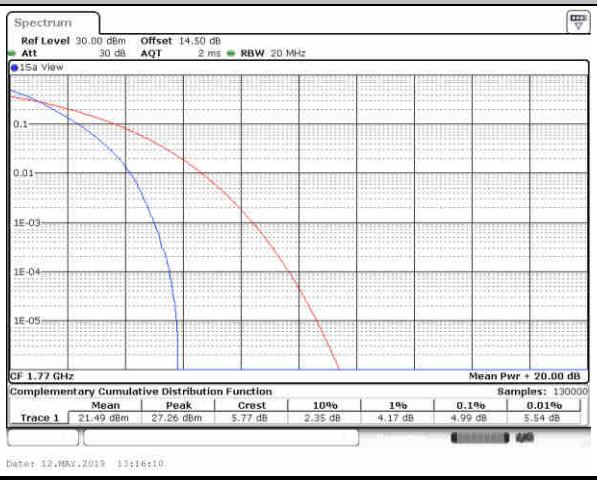
LTE Band 38 / 20MHz / 16QAM	
Lowest Channel / 1RB	**Lowest Channel / Full RB**
	
Middle Channel / 1RB	**Middle Channel / Full RB**
	
Highest Channel / 1RB	**Highest Channel / Full RB**
	

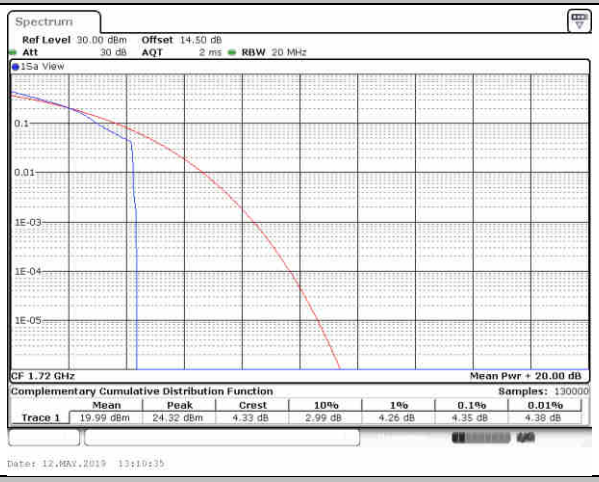
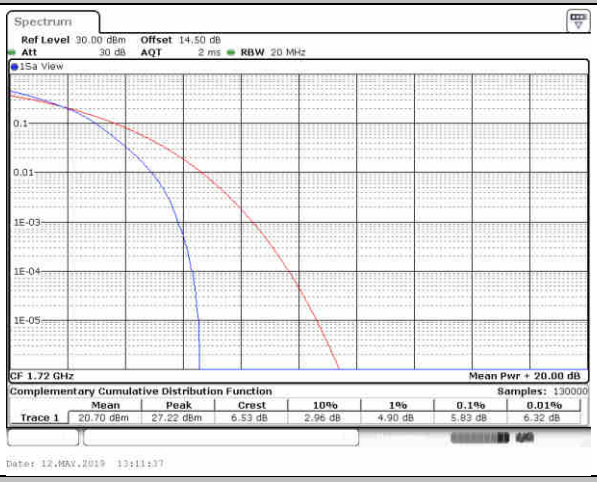
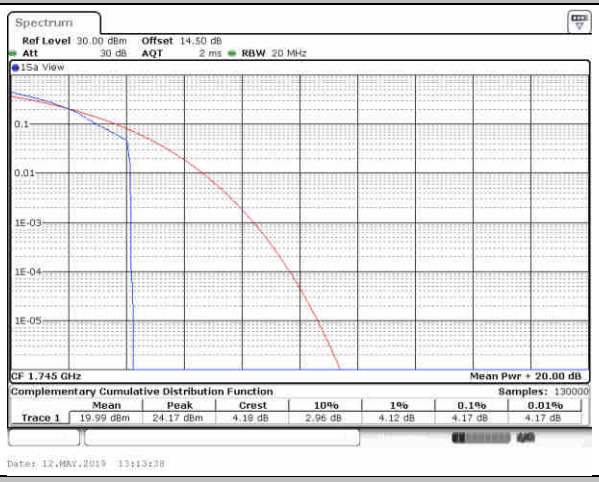
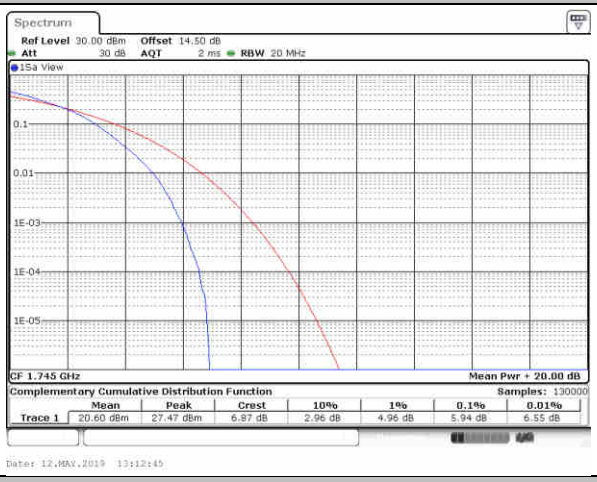
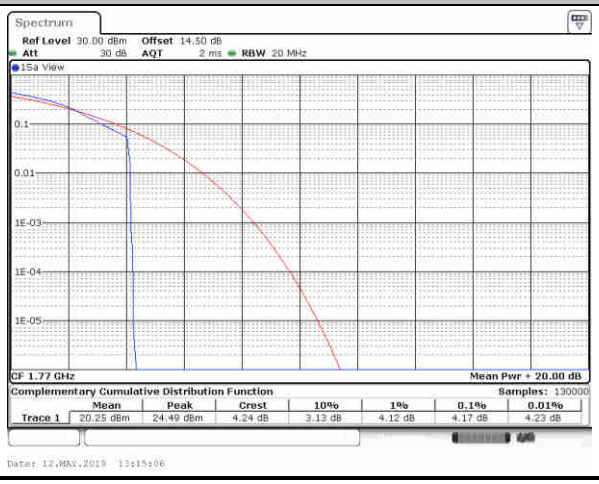
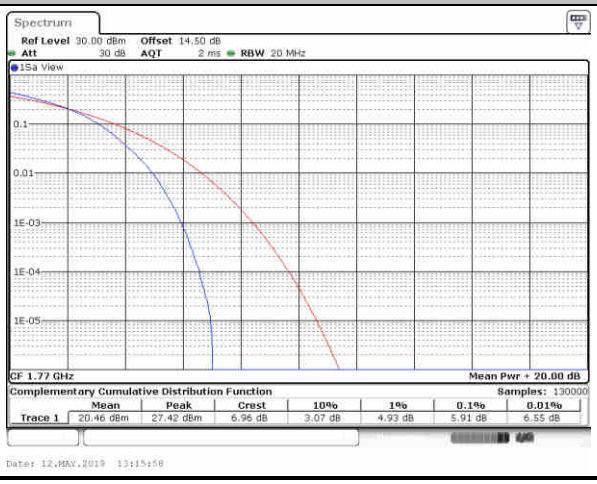
LTE Band 38 / 20MHz / 64QAM	
Lowest Channel / 1RB	**Lowest Channel / Full RB**
	
Middle Channel / 1RB	**Middle Channel / Full RB**
	
Highest Channel / 1RB	**Highest Channel / Full RB**
	

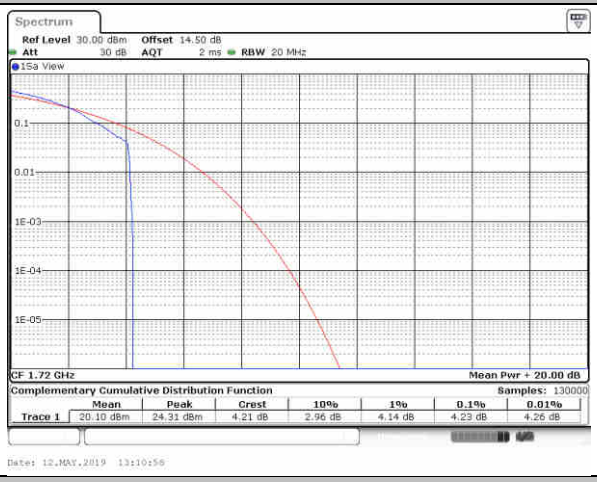
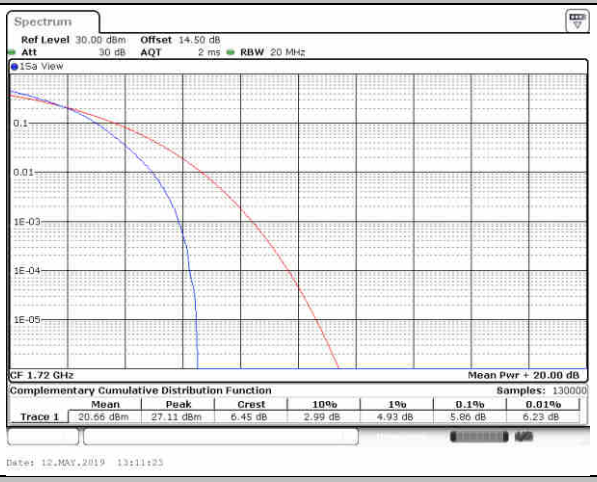
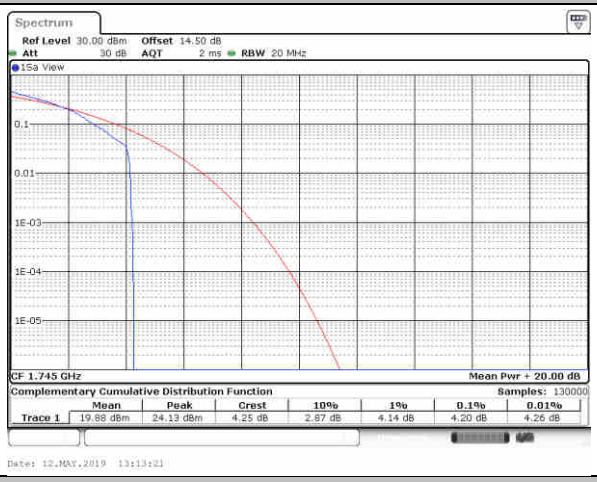
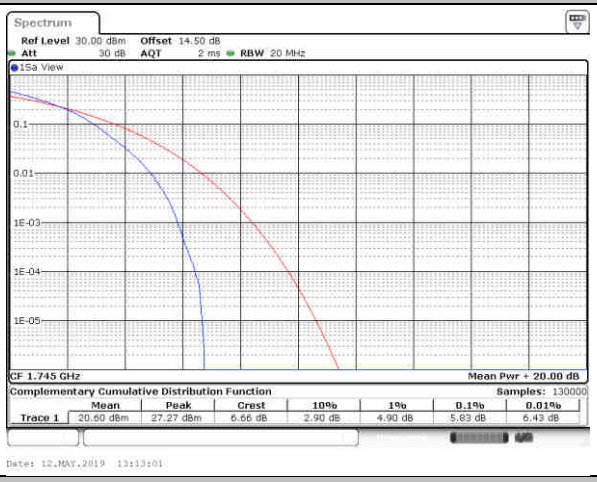
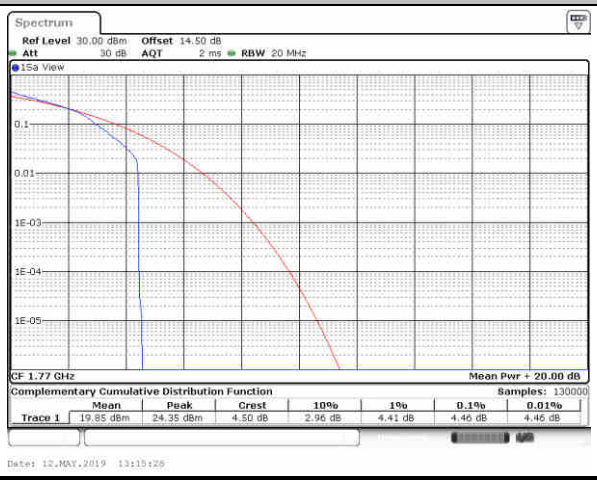
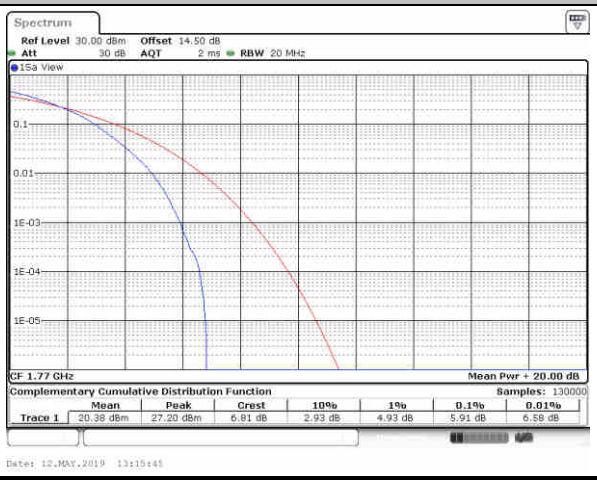
LTE Band 41 / 20MHz / QPSK	
Lowest Channel / 1RB	**Lowest Channel / Full RB**
	
Middle Channel / 1RB	**Middle Channel / Full RB**
	
Highest Channel / 1RB	**Highest Channel / Full RB**
	

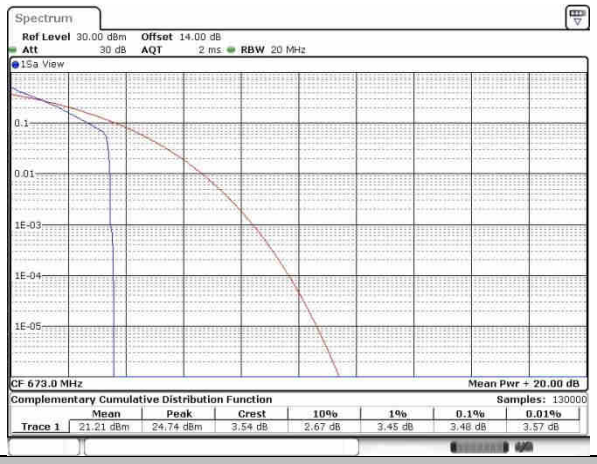
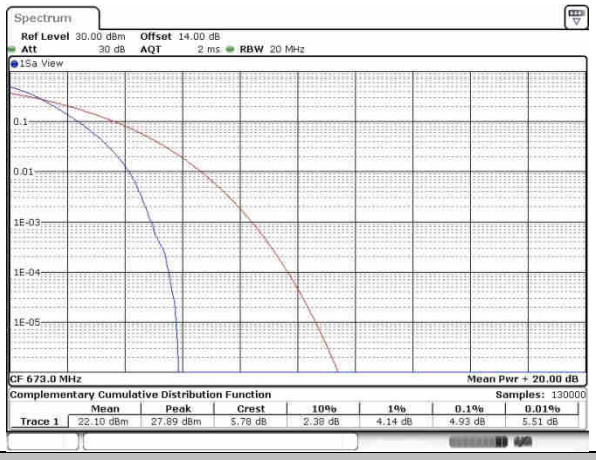
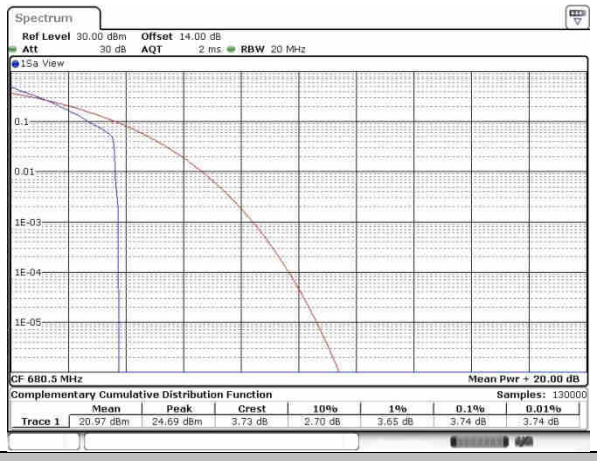
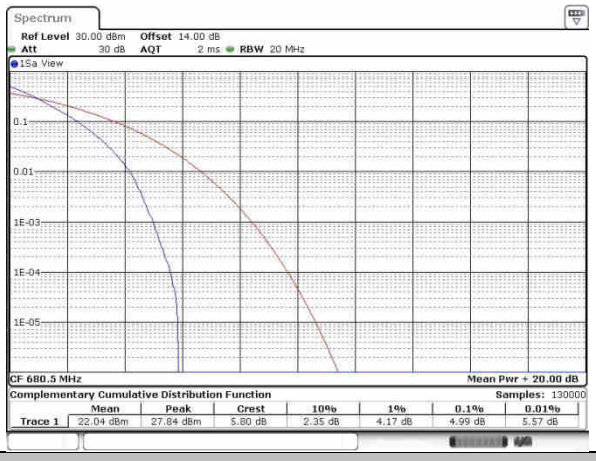
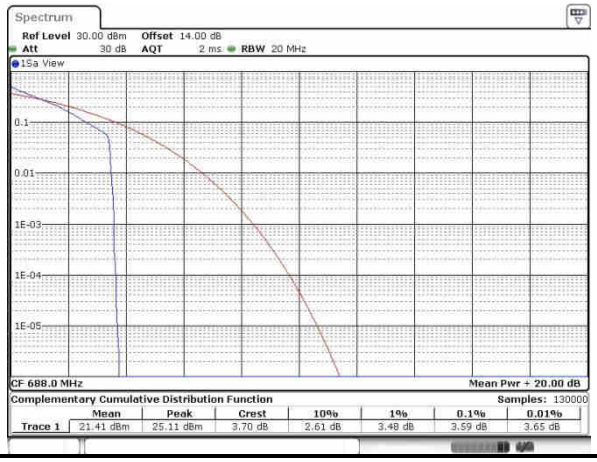
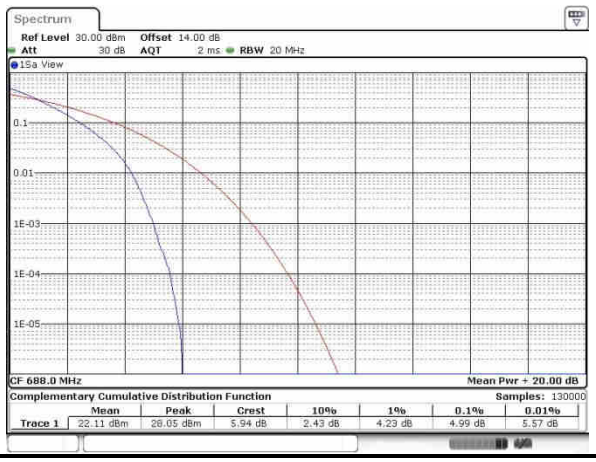
LTE Band 41 / 20MHz / 16QAM	
Lowest Channel / 1RB	**Lowest Channel / Full RB**
	
Middle Channel / 1RB	**Middle Channel / Full RB**
	
Highest Channel / 1RB	**Highest Channel / Full RB**
	

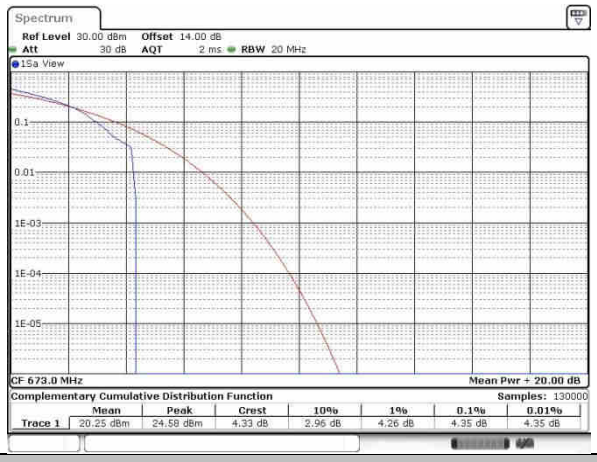
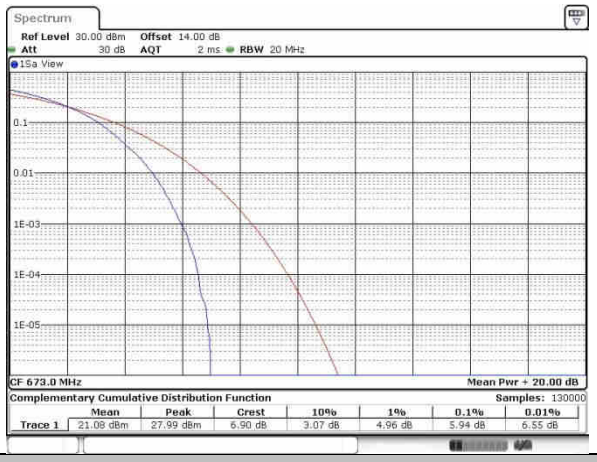
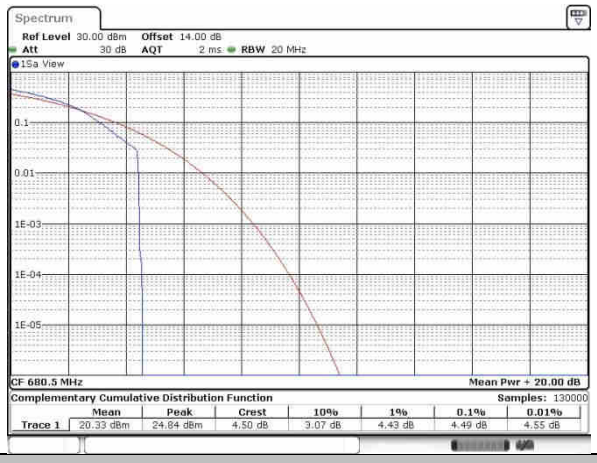
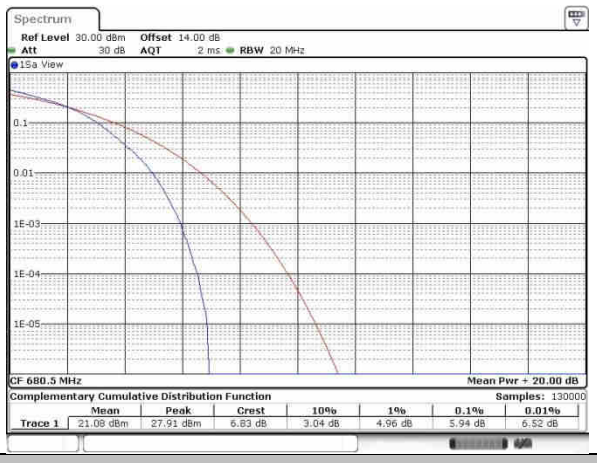
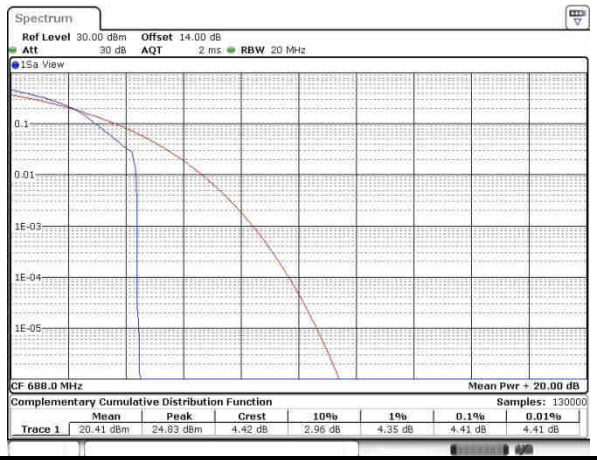
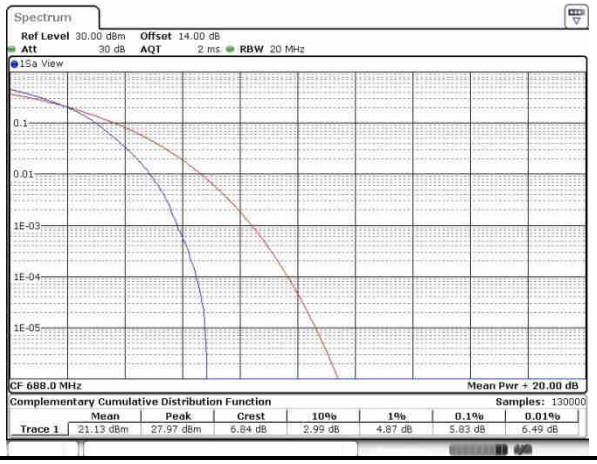
LTE Band 41 / 20MHz / 64QAM	
Lowest Channel / 1RB	**Lowest Channel / Full RB**
	
Middle Channel / 1RB	**Middle Channel / Full RB**
	
Highest Channel / 1RB	**Highest Channel / Full RB**
	

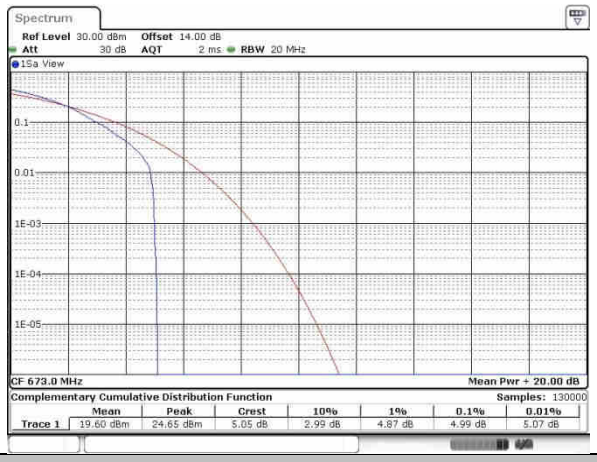
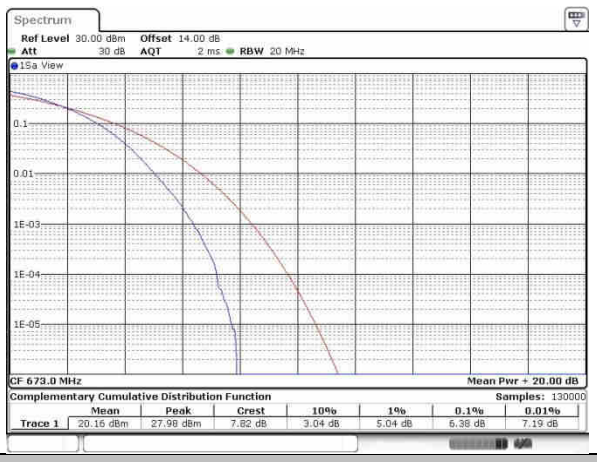
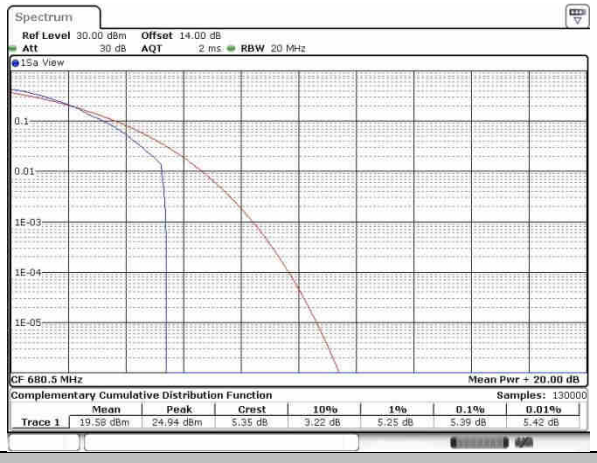
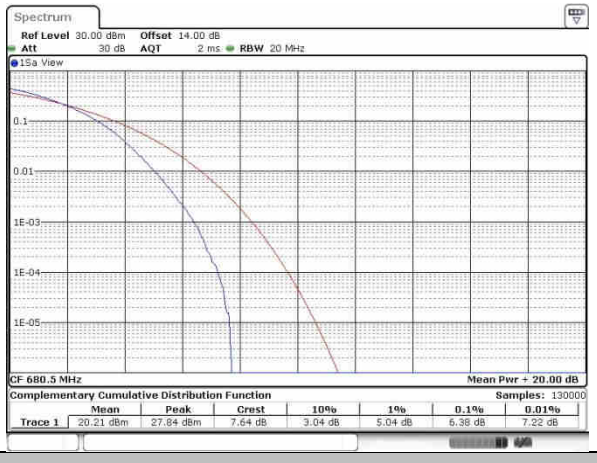
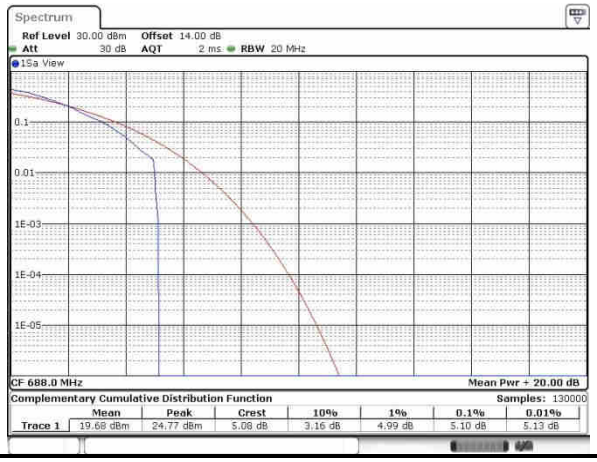
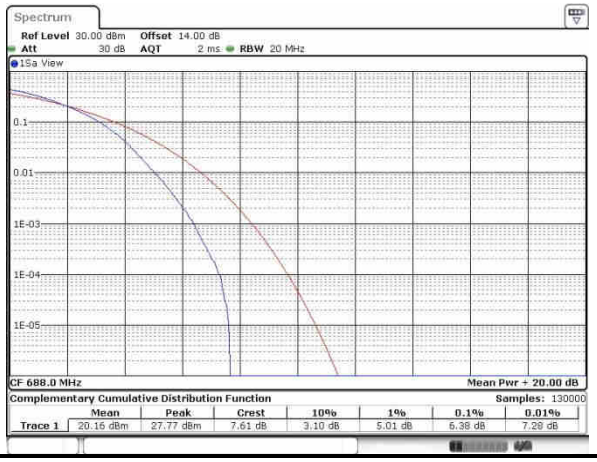
LTE Band 66 / 20MHz / QPSK	
Lowest Channel / 1RB	**Lowest Channel / Full RB**
	
Middle Channel / 1RB	**Middle Channel / Full RB**
	
Highest Channel / 1RB	**Highest Channel / Full RB**
	

LTE Band 66 / 20MHz / 16QAM	
Lowest Channel / 1RB	**Lowest Channel / Full RB**
	
Middle Channel / 1RB	**Middle Channel / Full RB**
	
Highest Channel / 1RB	**Highest Channel / Full RB**
	

LTE Band 66 / 20MHz / 64QAM	
Lowest Channel / 1RB	**Lowest Channel / Full RB**
	
Middle Channel / 1RB	**Middle Channel / Full RB**
	
Highest Channel / 1RB	**Highest Channel / Full RB**
	

LTE Band 71 / 20MHz / QPSK	
Lowest Channel / 1RB	**Lowest Channel / Full RB**
	
Middle Channel / 1RB	**Middle Channel / Full RB**
	
Highest Channel / 1RB	**Highest Channel / Full RB**
	

LTE Band 71 / 20MHz / 16QAM	
Lowest Channel / 1RB	**Lowest Channel / Full RB**
	
Middle Channel / 1RB	**Middle Channel / Full RB**
	
Highest Channel / 1RB	**Highest Channel / Full RB**
	

LTE Band 71 / 20MHz / 64QAM	
Lowest Channel / 1RB	**Lowest Channel / Full RB**
	
Middle Channel / 1RB	**Middle Channel / Full RB**
	
Highest Channel / 1RB	**Highest Channel / Full RB**
	

26dB Bandwidth

Mode	LTE Band 4 : 26dB BW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Lowest CH	1.231	1.245	3.051	3.027	4.895	4.855	9.85	9.79	14.535	14.386	20.22	20.26
Middle CH	1.234	1.234	3.045	3.003	4.875	4.855	9.65	9.77	14.505	14.206	20.18	20.38
Highest CH	1.228	1.231	2.985	3.003	4.915	4.845	9.95	9.89	14.326	14.476	20.18	20.14
Mode	LTE Band 4: 26dB BW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	64QAM	-	64QAM	-	64QAM	-	64QAM	-	64QAM	-	64QAM	-
Lowest CH	1.22	-	3.003	-	4.965	-	9.87	-	14.296	-	20.22	-
Middle CH	1.231	-	2.991	-	4.905	-	9.87	-	14.655	-	20.1	-
Highest CH	1.236	-	3.021	-	4.825	-	9.83	-	14.476	-	20.18	-

Mode	LTE Band 7 : 26dB BW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Lowest CH	-	-	-	-	4.825	4.885	9.69	9.77	14.446	14.146	20.1	20.26
Middle CH	-	-	-	-	4.885	4.845	9.87	9.81	14.476	14.416	20.22	20.14
Highest CH	-	-	-	-	4.895	4.905	9.67	9.91	14.146	14.446	20.18	20.26
Mode	LTE Band 7 : 26dB BW(MHz)											
BW	5MHz		10MHz		15MHz		20MHz					
Mod.	64QAM	-	64QAM	-	64QAM	-	64QAM	-				
Lowest CH	4.895		9.69		14.266		20.26	-				
Middle CH	4.895		9.83		14.386		20.3	-				
Highest CH	4.875		9.81		14.476		20.3	-				

Mode	LTE Band 38 : 26dB BW(MHz)											
BW	5MHz		10MHz		15MHz		20MHz		5MHz	10MHz	15MHz	20MHz
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	64QAM	64QAM	64QAM	64QAM
Lowest CH	4.845	4.745	9.77	9.65	14.116	14.206	20.18	20.18	4.825	9.79	14.116	20.26
Middle CH	4.935	4.855	9.71	9.63	14.176	14.116	20.14	20.3	4.845	9.95	14.296	20.22
Highest CH	4.925	4.815	9.63	9.69	14.386	14.236	20.1	20.3	4.785	9.77	14.146	20.1

Mode	LTE Band 41 : 26dB BW(MHz)											
BW	5MHz		10MHz		15MHz		20MHz		5MHz	10MHz	15MHz	20MHz
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	64QAM	64QAM	64QAM	64QAM
Lowest CH	4.845	4.855	9.65	9.71	14.386	14.356	20.26	20.14	4.895	9.69	14.146	20.06
Middle CH	4.895	4.885	9.61	9.69	14.176	14.206	20.14	20.18	4.775	9.87	14.446	20.10
Highest CH	4.905	4.815	9.69	9.71	14.146	14.476	20.18	20.14	4.775	9.65	14.476	20.10

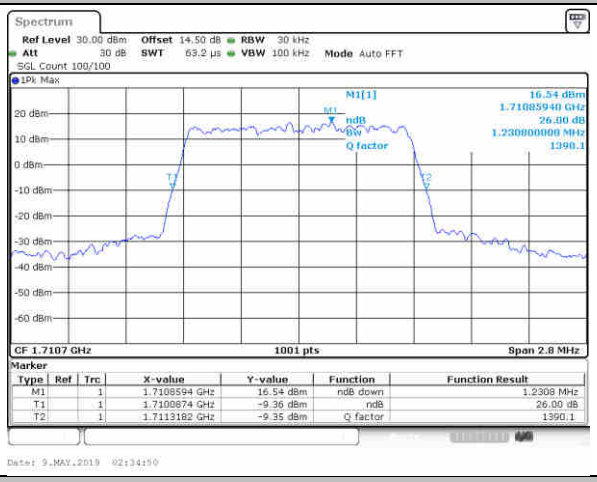
Mode	LTE Band 66 : 26dB BW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Lowest CH	1.225	1.242	2.961	3.027	4.925	4.865	9.81	9.81	14.206	14.296	20.26	20.26
Middle CH	1.211	1.225	3.009	3.003	4.845	4.895	9.71	9.73	14.565	14.206	20.26	20.34
Highest CH	1.234	1.222	3.039	2.985	4.845	4.945	9.83	9.85	14.386	14.356	20.34	20.22

BW	1.4MHz	3MHz	5MHz	10MHz	15MHz	20MHz
Mod.	64QAM	64QAM	64QAM	64QAM	64QAM	64QAM
Lowest CH	1.231	3.027	4.915	9.79	14.266	20.22
Middle CH	1.236	3.039	4.935	9.87	14.446	20.26
Highest CH	1.206	3.003	4.905	9.67	14.416	20.18

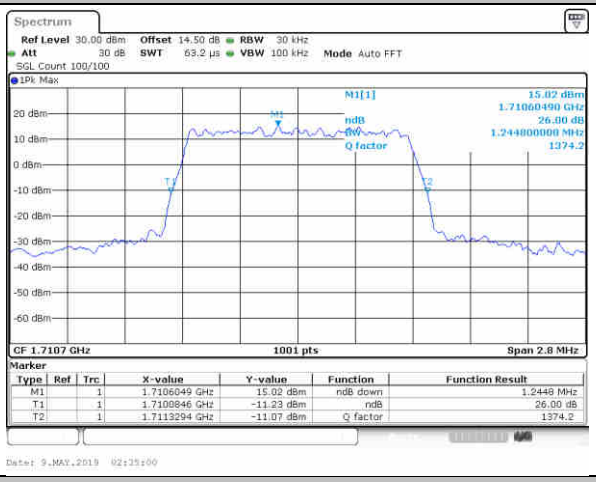
Mode	LTE Band 71 : 26dB BW(MHz)							
BW	5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Lowest CH	4.985	4.975	9.91	9.93	14.595	14.685	20.42	20.3
Middle CH	4.985	4.985	9.97	9.85	14.625	14.715	20.38	20.3
Highest CH	4.975	4.985	9.89	9.95	14.565	14.655	20.38	20.539
Mode	LTE Band 7 : 26dB BW(MHz)							
BW	5MHz		10MHz		15MHz		20MHz	
Mod.	64QAM		64QAM		64QAM		64QAM	
Lowest CH	4.955		9.89		14.715		20.3	
Middle CH	4.955		9.97		14.625		20.539	
Highest CH	4.955		9.91		14.505		20.26	

LTE Band 4

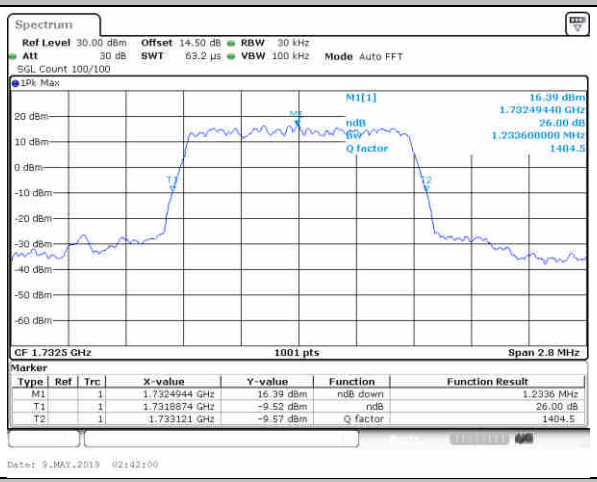
Lowest Channel / 1.4MHz / QPSK



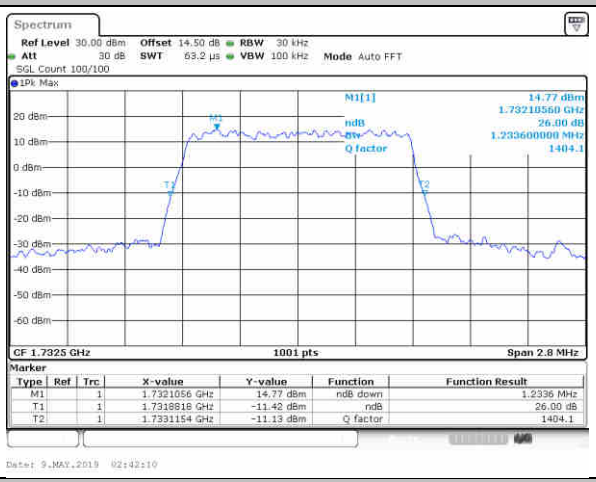
Lowest Channel / 1.4MHz / 16QAM



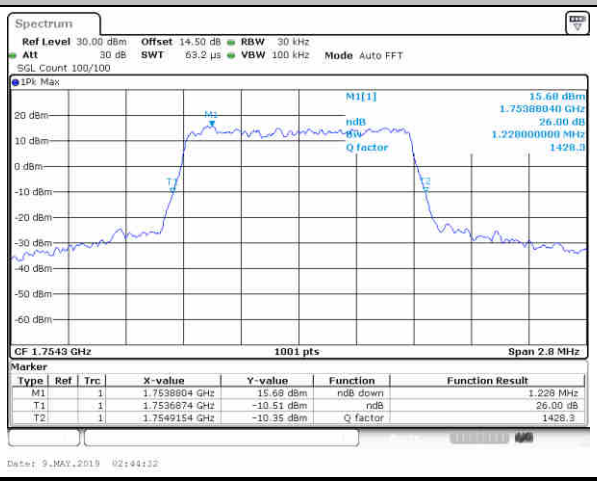
Middle Channel / 1.4MHz / QPSK



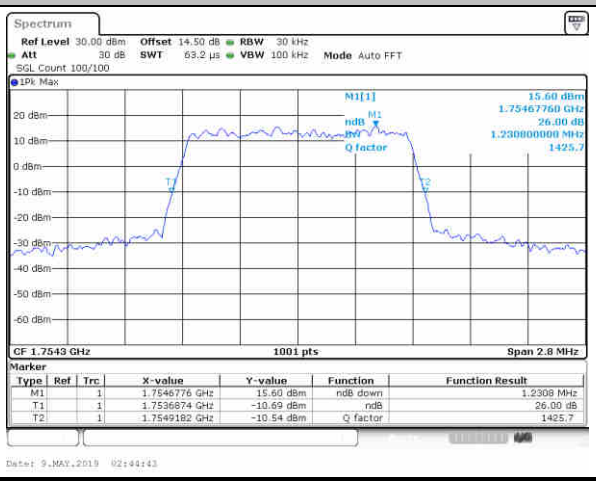
Middle Channel / 1.4MHz / 16QAM



Highest Channel / 1.4MHz / QPSK

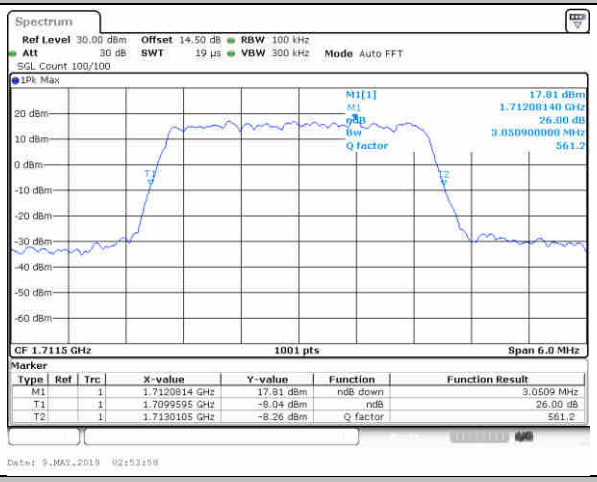


Highest Channel / 1.4MHz / 16QAM

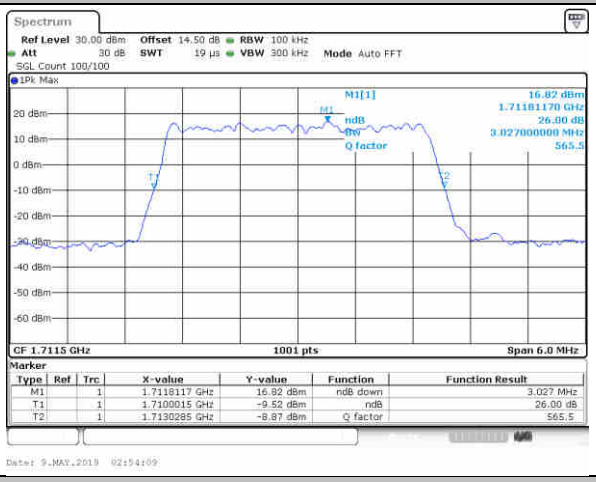


LTE Band 4

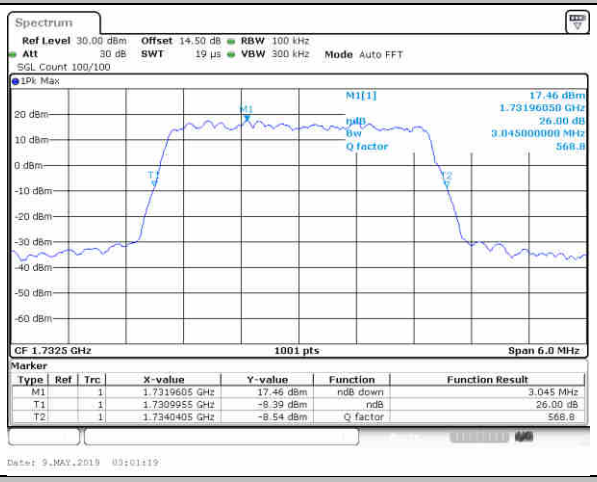
Lowest Channel / 3MHz / QPSK



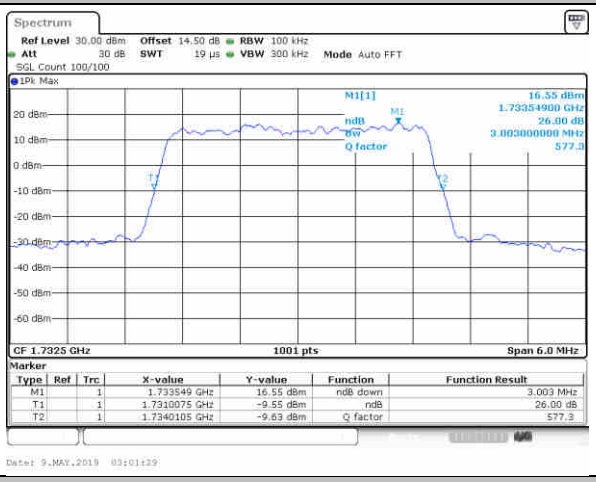
Lowest Channel / 3MHz / 16QAM



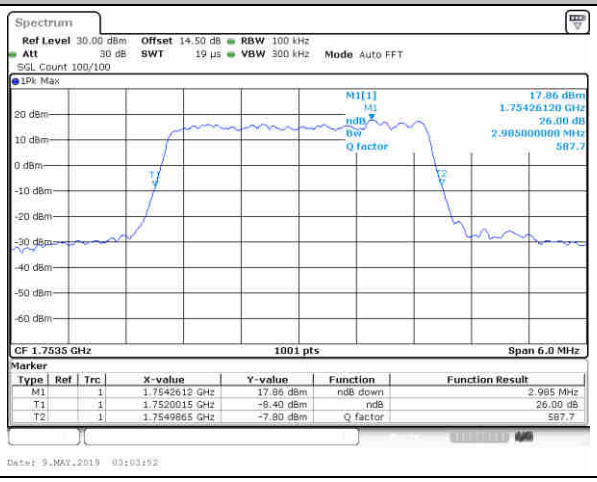
Middle Channel / 3MHz / QPSK



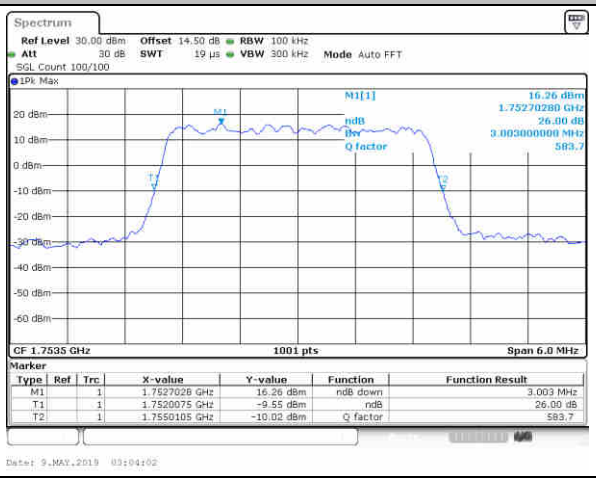
Middle Channel / 3MHz / 16QAM



Highest Channel / 3MHz / QPSK

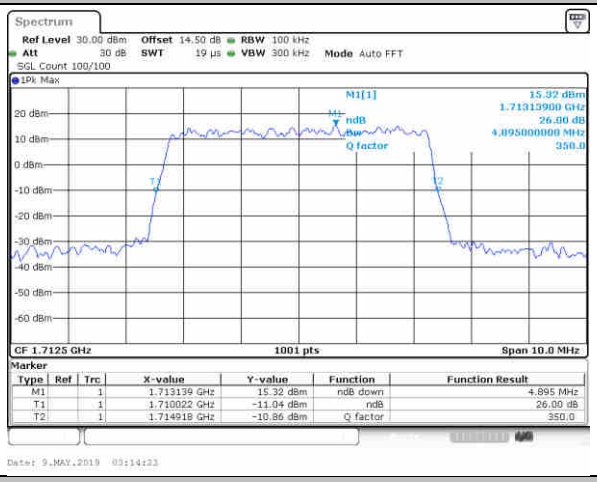


Highest Channel / 3MHz / 16QAM

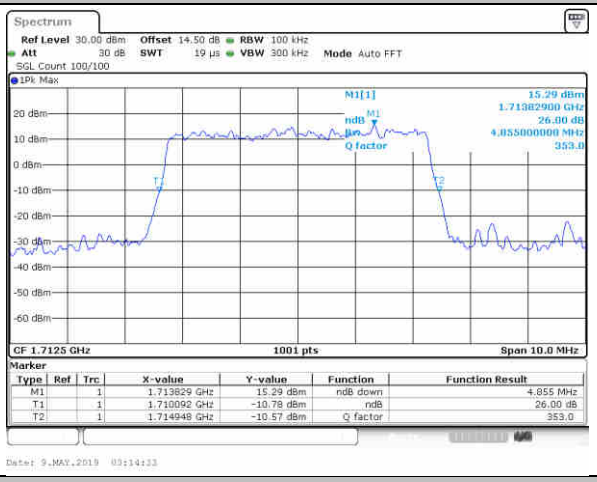


LTE Band 4

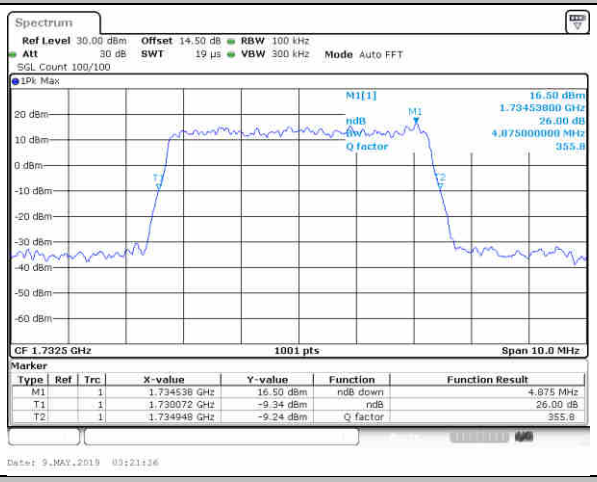
Lowest Channel / 5MHz / QPSK



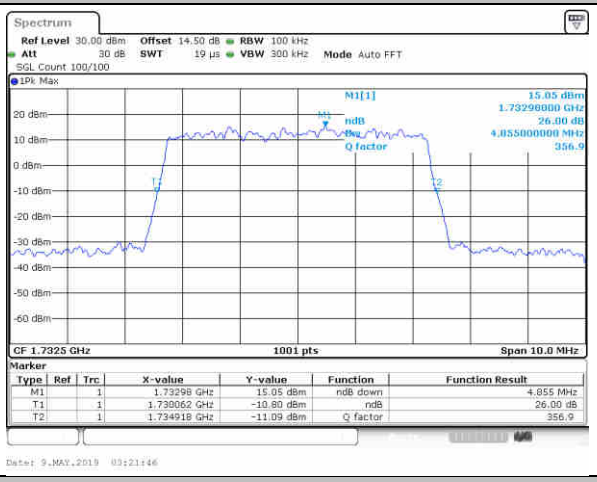
Lowest Channel / 5MHz / 16QAM



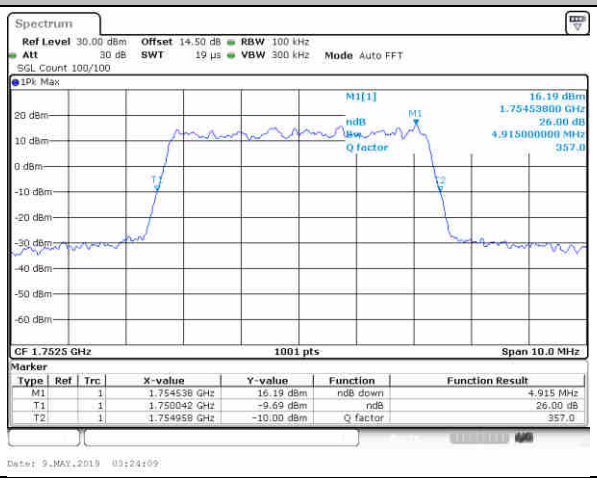
Middle Channel / 5MHz / QPSK



Middle Channel / 5MHz / 16QAM



Highest Channel / 5MHz / QPSK



Highest Channel / 5MHz / 16QAM