



FCC RF Test Report

APPLICANT : Motorola Mobility LLC
EQUIPMENT : Mobile Cellular Phone
BRAND NAME : Motorola
MODEL NAME : XT1925-7
FCC ID : IHDT56XD7
STANDARD : 47 CFR Part 2, 22(H), 24(E), 27(M)
CLASSIFICATION : PCS Licensed Transmitter Held to Ear (PCE)

The product was received on Dec. 25, 2017 and completely tested on Feb. 12, 2018. We, Sporton International (Kunshan) Inc., would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI/TIA-603-E and the testing has shown the tested sample to be in 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 (Kunshan) Inc., the test report shall not be reproduced except in full.



Approved by: James Huang / Manager

Sporton International (Kunshan) Inc.

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China***



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG7D2507-01B	Rev. 01	Initial issue of report	Mar. 05, 2018



SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.4	§2.1046	Conducted Output Power	Reporting Only	PASS	-
	§22.913(a)(2)	Effective Radiated Power (Band 5) (Band 26)	ERP < 7 Watt	PASS	-
	§24.232(c)	Equivalent Isotropic Radiated Power (Band 2)	EIRP < 2Watt	PASS	-
3.5	§24.232(d)	Peak-to-Average Ratio	<13 dB	PASS	-
3.6	§2.1049	Occupied Bandwidth	Reporting Only	PASS	-
3.7	§2.1051 §24.238(a)	Conducted Band Edge Measurement (Band 2)	< 43+10log ₁₀ (P[Watts])	PASS	-
	§27.53(m)(4)	Conducted Band Edge Measurement (Band 38)	§27.53(m)(4)		
3.8	§2.1051 §24.238(a)	Conducted Spurious Emission (Band 2)	< 43+10log ₁₀ (P[Watts])	PASS	-
	§2.1051 §27.53(m)(4)	Conducted Spurious Emission (Band 38)	< 55+10log ₁₀ (P[Watts])		
3.9	§2.1055 §24.235 §27.54	Frequency Stability Temperature & Voltage	Within Authorized Band	PASS	-
4.4	§2.1053 §22.917(a) §24.238(a)	Radiated Spurious Emission (Band 2) (Band 5) (Band 26)	< 43+10log ₁₀ (P[Watts])	PASS	Under limit 16.56 dB at 15525.000 MHz
	§2.1053 §27.53(m)(4)	Radiated Spurious Emission (Band 7) (Band 38)	< 55+10log ₁₀ (P[Watts])		



1 General Description

1.1 Applicant

Motorola Mobility LLC

222 W, Merchandise Mart Plaza, Chicago IL 60654 USA

1.2 Manufacturer

Motorola Mobility LLC

222 W, Merchandise Mart Plaza, Chicago IL 60654 USA

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Cellular Phone
Brand Name	Motorola
Model Name	XT1925-7
FCC ID	IHDT56XD7
EUT supports Radios application	GSM/GPRS/EGPRS/WCDMA/HSPA/DC-HSDPA/ HSPA+(16QAM Uplink is not supported)/LTE/NFC WLAN 2.4GHz 802.11b/g/n HT20/ WLAN 5GHz 802.11a/n HT20/HT40 Bluetooth v3.0 + EDR / Bluetooth v4.0 LE Bluetooth v4.1 LE / Bluetooth v4.2 LE
IMEI Code	Conducted: 351848090017598/351848090017606 for LTE B2/38 Radiation: 351848090014033/351848090014041
HW Version	DVT1-B
SW Version	ali_n-userdebug 8.0.0 OPS27.55 1276 intcfg,test-keys
EUT Stage	Identical Prototype

1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx Frequency	LTE Band 2 : 1850.7 MHz ~ 1909.3 MHz LTE Band 5 : 824.7 MHz ~ 848.3 MHz LTE Band 7 : 2502.5 MHz ~ 2567.5 MHz LTE Band 26 : 824.7MHz ~ 848.3 MHz LTE Band 38 : 2572.5MHz ~ 2617.5MHz
Rx Frequency	LTE Band 2 : 1930.7 MHz ~ 1989.3 MHz LTE Band 5 : 869.7 MHz ~ 893.3 MHz LTE Band 7 : 2622.5MHz ~ 2687.5 MHz LTE Band 26 : 869.7MHz ~ 893.3MHz LTE Band 38 : 2572.5MHz ~ 2617.5MHz
Bandwidth	LTE Band 2 : 1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz / 20MHz LTE Band 5 : 1.4MHz / 3MHz / 5MHz / 10MHz LTE Band 7 : 5MHz/ 10MHz / 15MHz / 20MHz LTE Band 26 : 1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz LTE Band 38 : 5MHz / 10MHz / 15MHz / 20MHz
Antenna Gain	LTE Band 2 : -1.78 dBi LTE Band 5 : -1.93 dBi LTE Band 7 : 0.90 dBi for Antenna #2, 0.67 dBi for Antenna #3 LTE Band 26 : -1.23 dBi LTE Band 38 : -0.23 dBi for Antenna #2, 0.48 dBi for Antenna #3
Type of Modulation	QPSK / 16QAM / 64QAM

1.5 Modification of EUT

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



1.6 Specification of Accessory

Specification of Accessory				
AC Adapter 1(US)	Brand Name	Motorola (Salom)	Model Name	SC-22
	Power Rating	I/P: 100-240 Vac, 500mA, O/P: 5Vdc,3000mA or 9Vdc,1600mA or 12Vdc,1200mA		
AC Adapter 1(EU)	Brand Name	Motorola (Salom)	Model Name	SC-23
	Power Rating	I/P: 100-240 Vac, 500mA, O/P: 5Vdc,3000mA or 9Vdc,1600mA or 12Vdc,1200mA		
AC Adapter 1(UK)	Brand Name	Motorola (Salom)	Model Name	SC-24
	Power Rating	I/P: 100-240 Vac, 500mA, O/P: 5Vdc,3000mA or 9Vdc,1600mA or 12Vdc,1200mA		
AC Adapter 1(IN)	Brand Name	Motorola (Salom)	Model Name	SC-25
	Power Rating	I/P: 100-240 Vac, 500mA, O/P: 5Vdc,3000mA or 9Vdc,1600mA or 12Vdc,1200mA		
AC Adapter 1(AU)	Brand Name	Motorola (Salom)	Model Name	SC-26
	Power Rating	I/P: 100-240 Vac, 500mA, O/P: 5Vdc,3000mA or 9Vdc,1600mA or 12Vdc,1200mA		
AC Adapter 1 (Indonesia)	Brand Name	Motorola (Salom)	Model Name	SC-23
	Power Rating	I/P: 100-240 Vac, 500mA, O/P: 5Vdc,3000mA or 9Vdc,1600mA or 12Vdc,1200mA		
AC Adapter 2(US)	Brand Name	Motorola (Chenyang)	Model Name	SC-22
	Power Rating	I/P: 100-240 Vac, 500mA, O/P: 5Vdc,3000mA or 9Vdc,1600mA or 12Vdc,1200mA		
AC Adapter 2(EU)	Brand Name	Motorola (Chenyang)	Model Name	SC-23
	Power Rating	I/P: 100-240 Vac, 500mA, O/P: 5Vdc,3000mA or 9Vdc,1600mA or 12Vdc,1200mA		
AC Adapter 2(UK)	Brand Name	Motorola (Chenyang)	Model Name	SC-24
	Power Rating	I/P: 100-240 Vac, 500mA, O/P: 5Vdc,3000mA or 9Vdc,1600mA or 12Vdc,1200mA		
AC Adapter 2(IN)	Brand Name	Motorola (Chenyang)	Model Name	SC-25
	Power Rating	I/P: 100-240 Vac, 500mA, O/P: 5Vdc,3000mA or 9Vdc,1600mA or 12Vdc,1200mA		
AC Adapter 2(AU)	Brand Name	Motorola (Chenyang)	Model Name	SC-26
	Power Rating	I/P: 100-240 Vac, 500mA, O/P: 5Vdc,3000mA or 9Vdc,1600mA or 12Vdc,1200mA		
Battery	Brand Name	Motorola (ATL)	Model Name	HG30
	Power Rating	3.8Vdc,3000mAh	Type	Li-ion
Earphone 1	Brand Name	Motorola (Jiahe)	Model Name	LS-118M-12
	Signal Line Type	1.2 meter, non-shielded cable, without ferrite core		
Earphone 2	Brand Name	Motorola (Lianyun)	Model Name	TS910A-38AMS01WHR-M
	Signal Line Type	1.2 meter, non-shielded cable, without ferrite core		
USB Cable	Brand Name	Motorola (Liqi)	Model Name	L32B-053000100-ALL
	Signal Line Type	1.0 meter, shielded cable, without ferrite core		



1.7 Re-use of Measured Data

1.7.1 Introduction Section

This application re-uses data collected on a similar device. The subject device of this application (Model: XT1925-7, FCC ID: IHDT56XD7) is electrically identical to the reference device (Model: XT1925-6, XT1925-12, XT1925DL, FCC ID: IHDT56XD1) for the portions of the circuitry corresponding to the data being re-used, as treated by KDB Publication 178919 D01.

1.7.2 Difference Section

For details concerning the similarity with respect to component placement, mechanical/electrical design etc., some difference of population/depopulation to enable support of different cellular bands, please refer to the Product Equality Declaration.

The re-used RF data includes the following bands provided in Appendix D (Sporton RF Report No. FG7D2507B for the reference device Model: XT1925-6, XT1925-12, XT1925DL, FCC ID: IHDT56XD1):

1.7.3 Spot Check Verification Data Section

In order to confirm hardware similarity of the subject device with the reference device, spot check measurements were performed on the subject device for Conducted Band-edge and Conducted spurious emission, the test result were consistent with FCC ID: IHDT56XD1

Assertions concerning the similarity of these devices are based on representations by the applicant. The applicant accepts full responsibility for the validity of the similarity claim, and for the determination that verification test data are sufficient to support it.

**1.7.4 Reference detail Section:**

Equipment Class	Reference FCC ID	Folder Test	Report Title/Section
PCE (2G/3G)	IHDT56XD1	Part22H.24E.27L (FG7D2507A)	All sections (except RSE/ERP/EIRP) applicable for GSM 850 / 1900, WCDMA Band V
			Conducted Power applicable for GSM 850 / 1900, WCDMA Band II / V
PCE (LTE)	IHDT56XD1	Part22H.24E.27L.27M.27F.27H (FG7D2507B)	All sections of Conducted item applicable fo for LTE Band 5/7/26
			Conducted Power applicable for LTE Band 2/5/7/26/38
			EIRP applicable for LTE Band 7/38
PCE (LTE)	IHDT56XD1	Part90S(FW7D2507B)	All sections (except RSE) applicable



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

LTE Band 2		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	1850.7 ~ 1909.3	1M10G7D	-	0.1265	1M10W7D	-	0.1069
3	1851.5 ~ 1908.5	2M73G7D	-	0.1279	2M73W7D	-	0.1084
5	1852.5 ~ 1907.5	4M51G7D	-	0.1291	4M50W7D	-	0.1112
10	1855.0 ~ 1905.0	9M07G7D	0.0023	0.1306	9M03W7D	-	0.1132
15	1857.5 ~ 1902.5	13M5G7D	-	0.1291	13M5W7D	-	0.1138
20	1860.0 ~ 1900.0	18M5G7D	-	0.1321	18M5W7D	-	0.1094
LTE Band 2		64QAM					
BW (MHz)	Frequency Range (MHz)	Emission Designator (99%OBW)		Frequency Tolerance (ppm)	Maximum EIRP(W)		
1.4	1850.7 ~ 1909.3	1M10W7D		-	0.0826		
3	1851.5 ~ 1908.5	2M74W7D		-	0.0859		
5	1852.5 ~ 1907.5	4M51W7D		-	0.0849		
10	1855.0 ~ 1905.0	9M01W7D		-	0.0891		
15	1857.5 ~ 1902.5	13M5W7D		-	0.0859		
20	1860.0 ~ 1900.0	18M4W7D		-	0.0849		
LTE Band 5		QPSK			16QAM		
BW (MHz)	Frequency Range (MHz)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum ERP(W)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum ERP(W)
1.4	824.7 ~ 848.3	-	-	0.0794	-	-	0.0667
3	825.5 ~ 847.5	-	-	0.0789	-	-	0.0664
5	826.5 ~ 846.5	-	-	0.0807	-	-	0.0710
10	829.0 ~ 844.0	-	-	0.0889	-	-	0.0778
LTE Band 5		64QAM					
BW (MHz)	Frequency Range (MHz)	Emission Designator (99%OBW)		Frequency Tolerance (ppm)	Maximum ERP(W)		
1.4	824.7 ~ 848.3	-		-	0.0546		
3	825.5 ~ 847.5	-		-	0.0551		
5	826.5 ~ 846.5	-		-	0.0537		
10	829.0 ~ 844.0	-		-	0.0575		



LTE Band 26		QPSK			16QAM		
BW (MHz)	Frequency Range (MHz)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum ERP(W)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum ERP(W)
1.4	824.7 ~ 848.3	-	-	0.1042	-	-	0.0902
3	825.5 ~ 847.5	-	-	0.0968	-	-	0.0904
5	826.5 ~ 846.5	-	-	0.1009	-	-	0.0899
10	829.0 ~ 844.0	-	-	0.1099	-	-	0.0904
15	831.5 ~ 841.5	-	-	0.1107	-	-	0.0897
CH26765	821.5	-	-	0.0938	-	-	0.0789
LTE Band 26		64QAM					
BW (MHz)	Frequency Range (MHz)	Emission Designator (99%OBW)		Frequency Tolerance (ppm)	Maximum ERP(W)		
1.4	824.7 ~ 848.3	-		-	0.0682		
3	825.5 ~ 847.5	-		-	0.0698		
5	826.5 ~ 846.5	-		-	0.0690		
10	829.0 ~ 844.0	-		-	0.0724		
15	831.5 ~ 841.5	-		-	0.0719		
CH26765	821.5	-		-	0.0617		



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)	
				Ant.2	Ant.3			Ant.2	Ant.3
5	2572.5 ~ 2617.5	4M50G7D	-	-	-	4M51W7D	-	-	-
10	2575.0 ~ 2615.0	9M05G7D	0.0018	-	-	9M01W7D	-	-	-
15	2577.5 ~ 2612.5	13M6G7D	-	-	-	13M5W7D	-	-	-
20	2580.0 ~ 2610.0	18M5G7D	-	-	-	18M4W7D	-	-	-
LTE Band 38		64QAM							
BW (MHz)	Frequency Range (MHz)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum EIRP(W)				Ant.2	Ant.3
5	2572.5 ~ 2617.5	4M50W7D	-	-	-	-	-	-	-
10	2575.0 ~ 2615.0	9M07W7D	-	-	-	-	-	-	-
15	2577.5 ~ 2612.5	13M5W7D	-	-	-	-	-	-	-
20	2580.0 ~ 2610.0	18M5W7D	-	-	-	-	-	-	-

1.9 Testing Location

Sporton International (Kunshan) Inc. is accredited to ISO 17025 by National Voluntary Laboratory Accreditation Program (NVLAP code: 600155-0) and the FCC designation No. is CN5013.

Test Site	Sporton International (Kunshan) Inc.		
Test Site Location	No.3-2 Ping-Xiang Rd, Kunshan Development Zone Kunshan City Jiangsu Province 215335 China TEL : +86-512-57900158 FAX : +86-512-57900958		
Test Site No.	Sporton Site No.		FCC Test Firm Registration No.
	TH01-KS	03CH03-KS	630927

Note: The test site complies with ANSI C63.4 2014 requirement.

1.10 Applicable Standards

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

- 47 CFR Part 2, 22(H), 24(E), 27(M)
- ANSI/TIA-603-E
- FCC KDB 971168 D01 Power Meas License Digital Systems v03
- 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 v03 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	2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	-	-
	5	✓	✓	✓	✓	-	-	✓	✓	✓	✓	✓	✓	-	-	-
	7	-	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	-	-
	38	-	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	-	-
	26	✓	✓	✓	✓	✓	-	✓	✓	✓	✓	✓	✓	-	-	-
Peak-to-Average Ratio	2						✓	✓	✓	✓	✓		✓	✓	✓	✓
	5				✓	-	-	✓	✓	✓	✓		✓	-	-	-
	7	-	-				✓	✓	✓	✓	✓		✓	-	-	-
	38	-	-				✓	✓	✓	✓	✓		✓	✓	✓	✓
	26					✓	-	✓	✓	✓	✓		✓	-	-	-

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
26dB and 99% Bandwidth	2	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓
	5	✓	✓	✓	✓	-	-	✓	✓	✓			✓	-	-	-
	7	-	-	✓	✓	✓	✓	✓	✓	✓			✓	-	-	-
	38	-	-	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓
	26	✓	✓	✓	✓	✓	-	✓	✓	✓			✓	-	-	-
Conducted Band Edge	2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓
	5	✓	✓	✓	✓	-	-	✓	✓	✓	✓		✓	-		-
	7	-	-	✓	✓	✓	✓	✓	✓	✓	✓		✓	-		-
	38	-	-	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓
	26	✓	✓	✓	✓	✓	-	✓	✓	✓	✓		✓	-		-

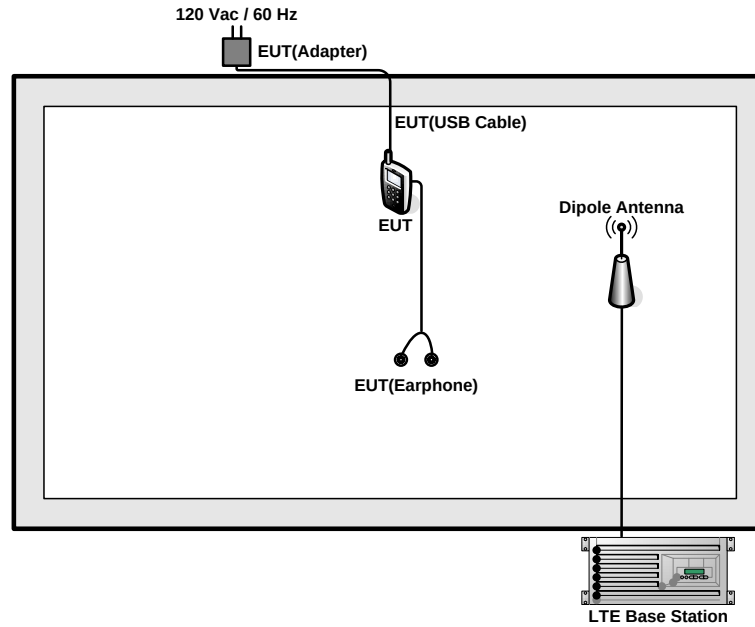


Test Items	Band	Bandwidth (MHz)						Modulation			RB #			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	64QAM	1	Half	Full	L	M	H
Conducted Spurious Emission	2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓
	5	✓	✓	✓	✓	-	-	✓	✓	✓	✓			-	-	-
	7	-	-	✓	✓	✓	✓	✓	✓	✓	✓			-	-	-
	38	-	-	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓
	26	✓	✓	✓	✓	✓	-	✓	✓	✓	✓			-	-	-
Frequency Stability	2				✓			✓					✓		✓	
	5				✓	-	-	✓					✓		-	
	7	-	-		✓			✓					✓		-	
	38	-	-		✓			✓					✓		✓	
	26				✓		-	✓					✓		-	

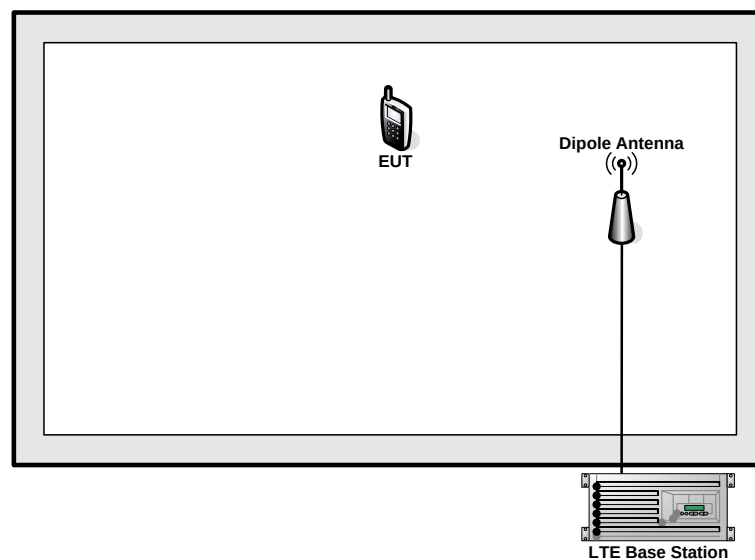
Test Items	Band	Bandwidth (MHz)						Modulation			RB #			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	64QAM	1	Half	Full	L	M	H
E.R.P./ E.I.R.P.	2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓
	5	✓	✓	✓	✓	-	-	✓	✓	✓	✓			✓	✓	✓
	7	-	-	✓	✓	✓	✓	✓	✓	✓	✓			-	-	-
	38	-	-	✓	✓	✓	✓	✓	✓	✓	✓			-	-	-
	26	✓	✓	✓	✓	✓	-	✓	✓	✓	✓			✓	✓	✓
Radiated Spurious Emission	2						✓	✓			✓				✓	
	5				✓	-	-	✓			✓				✓	
	7	-	-				✓	✓			✓				✓	
	38	-	-				✓	✓			✓				✓	
	26					✓	-	✓			✓				✓	
Note	- The mark "✓" means that this configuration is chosen for testing - The mark "- " means that this bandwidth is not for testing. - The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different BW/RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported. - Antenna #2 and Antenna #3 support LTE Band 7/38, the two antenna could switch Main Antenna and Diversity Antenna for each other.															

2.2 Connection Diagram of Test System

For LTE B2/5/7(Ant. 3)/26/38



For LTE B7(Ant. 2)



2.3 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	LTE Base Station	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8 m
2.	DC Power Supply	GW	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 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.

Offset = RF cable loss.

Following shows an offset computation example with cable loss 5.0 dB.

Example :

$$\begin{aligned}\text{Offset(dB)} &= \text{RF cable loss(dB)}. \\ &= 5.0 \text{ (dB)}\end{aligned}$$



2.5 Frequency List of Low/Middle/High Channels

LTE Band 2 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
20	Channel	18700	18900	19100
	Frequency	1860	1880	1900
15	Channel	18675	18900	19125
	Frequency	1857.5	1880	1902.5
10	Channel	18650	18900	19150
	Frequency	1855	1880	1905
5	Channel	18625	18900	19175
	Frequency	1852.5	1880	1907.5
3	Channel	18615	18900	19185
	Frequency	1851.5	1880	1908.5
1.4	Channel	18607	18900	19193
	Frequency	1850.7	1880	1909.3

LTE Band 5 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
10	Channel	20450	20525	20600
	Frequency	829	836.5	844
5	Channel	20425	20525	20625
	Frequency	826.5	836.5	846.5
3	Channel	20415	20525	20635
	Frequency	825.5	836.5	847.5
1.4	Channel	20407	20525	20643
	Frequency	824.7	836.5	848.3



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 26 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
15	Channel	26865	26915	26965
	Frequency	831.5	836.5	841.5
10	Channel	26840	26915	26990
	Frequency	829	836.5	844
5	Channel	26815	26915	27015
	Frequency	826.5	836.5	846.5
3	Channel	26805	26915	27025
	Frequency	825.5	836.5	847.5
1.4	Channel	26797	26915	27033
	Frequency	824.7	836.5	848.3

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

3 Conducted Test Items

3.1 Measuring Instruments

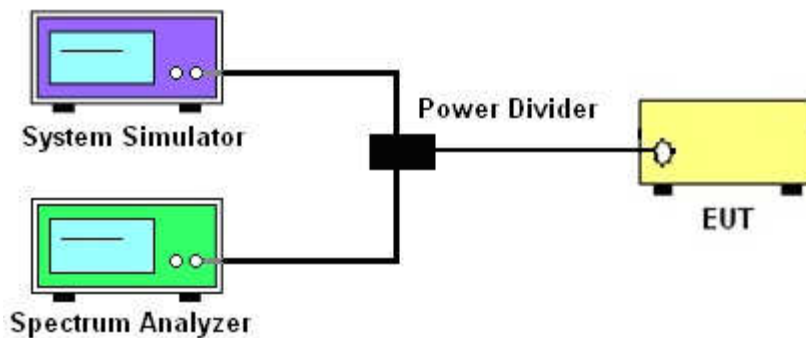
See list of measuring instruments of this test report.

3.2 Test Setup

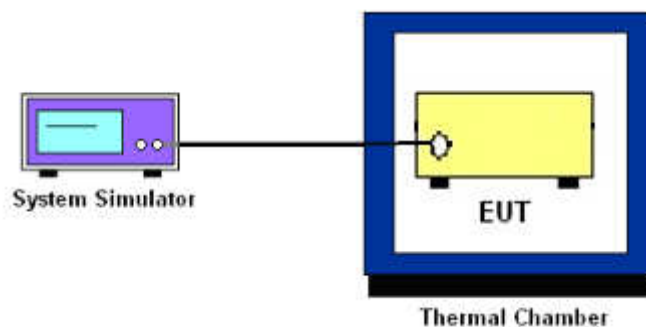
3.2.1 Conducted Output Power



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 7 Watts for LTE Band 5, Band 26.

The EIRP of mobile transmitters must not exceed 2 Watts for LTE Band 2

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 transmitter output port was connected to the system simulator.
2. Set EUT at maximum power through the system simulator.
3. Select lowest, middle, and highest channels for each band and different modulation.
4. 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 FCC KDB 971168 v03 Section 5.7.1.
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 FCC KDB 971168 v03 Section 4.1 and 4.2.
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

24.238 (a)

For operations in the 1850-1910 and 1930-1990 MHz band, the FCC limit is $43 + 10\log_{10}(P[\text{Watts}])$ dB below the transmitter power $P(\text{Watts})$ in a 1MHz bandwidth. However, in the 1 MHz bands immediately outside and adjacent to the 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 than $43 + 10 \log (P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log (P)$ dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

3.7.2 Test Procedures

1. The testing follows FCC KDB 971168 v03 Section 6.0.
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 $\geq 1\%$ 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.
6. Set spectrum analyzer with RMS detector.
7. Offset has included the duty factor for LTE Band 38. Duty factor $= 10 \log (1/x)$, where x is the measured duty cycle.
8. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
9. Checked that all the results comply with the emission limit line.

Example:

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

$$= P(W) - [43 + 10\log(P)] \text{ (dB)}$$

$$= [30 + 10\log(P)] \text{ (dBm)} - [43 + 10\log(P)] \text{ (dB)} = -13\text{dBm}.$$

10. For LTE Band 38, 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 38:

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 10th harmonic.

3.8.2 Test Procedures

1. The testing follows FCC KDB 971168 v03 Section 6.0.
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. Offset has included the duty factor for LTE Band 38. Duty factor = $10 \log (1/x)$, where x is the measured duty cycle.
8. Set spectrum analyzer with RMS detector.
9. Taking the record of maximum spurious emission.
10. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
11. The limit line is derived from $43 + 10 \log (P)$ dB below the transmitter power P(Watts)
= $P(W) - [43 + 10 \log (P)]$ (dB)
= $[30 + 10 \log (P)]$ (dBm) - $[43 + 10 \log (P)]$ (dB)
= -13dBm.
12. For Band 38
The limit line is derived from $55 + 10 \log (P)$ dB below the transmitter power P(Watts)
= $P(W) - [55 + 10 \log (P)]$ (dB)
= $[30 + 10 \log (P)]$ (dBm) - $[55 + 10 \log (P)]$ (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 $\pm 0.00025\%$ ($\pm 2.5\text{ppm}$) of the center frequency.

3.9.2 Test Procedures for Temperature Variation

1. The testing follows FCC KDB 971168 v03 Section 9.0.
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 FCC KDB 971168 v03 Section 9.0.
2. The EUT was placed in a temperature chamber at $20\pm 5^{\circ}\text{C}$ and connected with the system simulator.
3. The power supply voltage to the EUT was varied from 85% to 115% of the nominal value measured at the input to the EUT.
4. The variation in frequency was measured for the worst case.

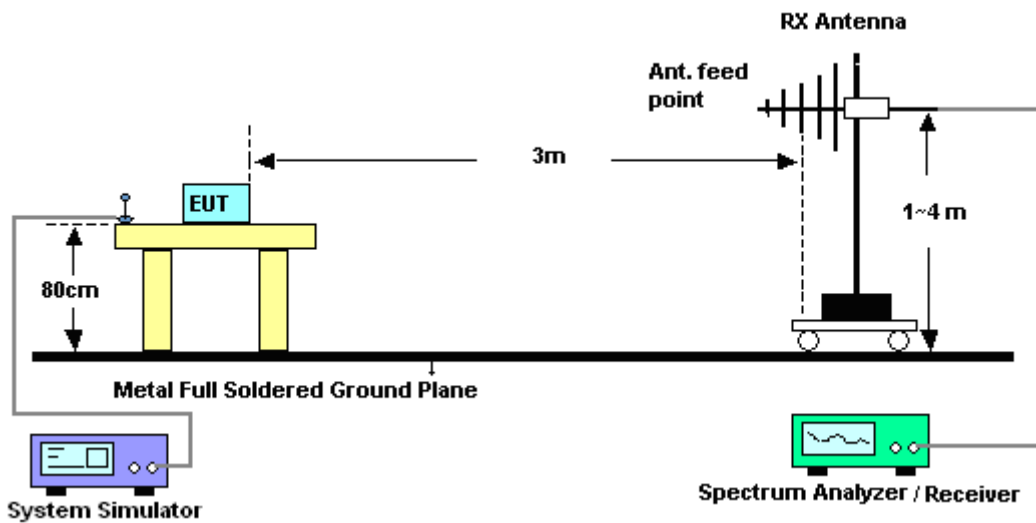
4 Radiated Test Items

4.1 Measuring Instruments

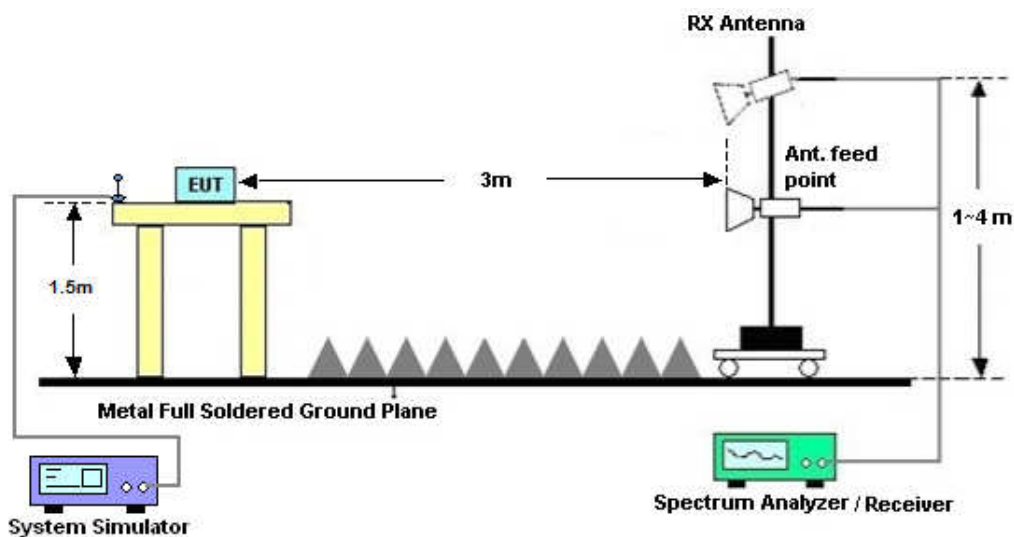
See list of measuring instruments of this test report.

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/TIA-603-E. 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

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.

4.4.2 Test Procedures

1. The testing follows FCC KDB 971168 v03 Section 5.8 and ANSI/TIA-603-E Section 2.2.12.
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. $EIRP \text{ (dBm)} = S.G. \text{ Power} - Tx \text{ Cable Loss} + Tx \text{ Antenna Gain}$
11. $ERP \text{ (dBm)} = EIRP - 2.15$
12. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power P(Watts)
 $= P(W) - [43 + 10\log(P)] \text{ (dB)}$
 $= [30 + 10\log(P)] \text{ (dBm)} - [43 + 10\log(P)] \text{ (dB)}$
 $= -13\text{dBm}.$

13. For Band 7, 38:

The limit line is derived from $55 + 10\log(P)$ dB below the transmitter power P(Watts)
 $EIRP \text{ (dBm)} = S.G. \text{ Power} - Tx \text{ Cable Loss} + Tx \text{ Antenna Gain}$
 $ERP \text{ (dBm)} = EIRP - 2.15$



5 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV40	101040	10Hz~40GHz	Aug. 08, 2017	Dec. 30, 2017~ Jan. 03, 2018	Aug. 07, 2018	Conducted (TH01-KS)
Radio communication analyzer	Anritsu	MT8820C	6201300652	2G/3G/LTE_ full band	Aug. 08, 2017	Dec. 30, 2017~ Jan. 03, 2018	Aug. 07, 2018	Conducted (TH01-KS)
Thermal Chamber	Hongzhan	LP-150U	HZ014011440	-40~+150°C 20%~95%RH	Apr. 18, 2017	Dec. 30, 2017~ Jan. 03, 2018	Apr. 17, 2018	Conducted (TH01-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55150244	10Hz~44GHz	Apr. 18, 2017	Jan. 25, 2018~ Feb. 12, 2018	Apr. 17, 2018	Radiation (03CH03-KS)
Bilog Antenna	TeseQ	CBL6112D	35406	25MHz~2GHz	Apr. 22, 2017	Jan. 25, 2018~ Feb. 12, 2018	Apr. 21, 2018	Radiation (03CH03-KS)
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-1356	1GHz~18GHz	Apr. 22, 2017	Jan. 25, 2018~ Feb. 12, 2018	Apr. 21, 2018	Radiation (03CH03-KS)
SHF-EHF Horn	Schwarzbeck	BBHA 9170	BBHA170249	15GHz~40GHz	Feb. 15, 2017	Jan. 25, 2018~ Feb. 12, 2018	Feb. 14, 2018	Radiation (03CH03-KS)
Amplifier	com-power	PA-103A	161069	1MHz~1000MHz / 32 dB	Apr. 18, 2017	Jan. 25, 2018~ Feb. 12, 2018	Apr. 17, 2018	Radiation (03CH03-KS)
Amplifier	MITEQ	TTA1840-35 -HG	1887435	18GHz~40GHz	Oct. 12, 2017	Jan. 25, 2018~ Feb. 12, 2018	Oct. 11, 2018	Radiation (03CH03-KS)
high gain Amplifier	MITEQ	AMF-7D-00 101800-30-1	2025788	1GHz~18GHz	Apr. 18, 2017	Jan. 25, 2018~ Feb. 12, 2018	Apr. 17, 2018	Radiation (03CH03-KS)
Amplifier	Agilent	8449B	3008A02370	1GHz~26.5GHz	Oct. 12, 2017	Jan. 25, 2018~ Feb. 12, 2018	Oct. 11, 2018	Radiation (03CH03-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Jan. 25, 2018~ Feb. 12, 2018	NCR	Radiation (03CH03-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Jan. 25, 2018~ Feb. 12, 2018	NCR	Radiation (03CH03-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Jan. 25, 2018~ Feb. 12, 2018	NCR	Radiation (03CH03-KS)

NCR: No Calibration Required



6 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	2.8 dB
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Uncertainty of Radiated Emission Measurement (1GHz ~ 40GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	3.3 dB
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Appendix A. Test Results of Conducted Test

ERP/EIRP

LTE Band 2 ($G_T - L_C = -1.78$ dB) QPSK									
Bandwidth	1.4M			3M			5M		
Channel	18607	18900	19193	18615	18900	19185	18625	18900	19175
	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)
Frequency	1850.7	1880	1909.3	1851.5	1880	1908.5	1852.5	1880	1907.5
(MHz)									
Conducted Power (dBm)	22.29	22.71	22.80	22.40	22.70	22.85	22.57	22.82	22.89
Conducted Power (Watts)	0.1694	0.1866	0.1905	0.1738	0.1862	0.1928	0.1807	0.1914	0.1945
EIRP(dBm)	20.51	20.93	21.02	20.62	20.92	21.07	20.79	21.04	21.11
EIRP(Watts)	0.1125	0.1239	0.1265	0.1153	0.1236	0.1279	0.1199	0.1271	0.1291

LTE Band 2 ($G_T - L_C = -1.78$ dB) QPSK									
Bandwidth	10M			15M			20M		
Channel	18650	18900	19150	18675	18900	19125	18650	18900	19100
	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)
Frequency	1855	1880	1905	1857.5	1880	1902.5	1860	1880	1900
(MHz)									
Conducted Power (dBm)	22.42	22.81	22.94	22.67	22.86	22.89	22.69	22.99	22.77
Conducted Power (Watts)	0.1746	0.1910	0.1968	0.1849	0.1932	0.1945	0.1858	0.1991	0.1892
EIRP(dBm)	20.64	21.03	21.16	20.89	21.08	21.11	20.91	21.21	20.99
EIRP(Watts)	0.1159	0.1268	0.1306	0.1227	0.1282	0.1291	0.1233	0.1321	0.1256



LTE Band 2 ($G_T - L_C = -1.78$ dB) 16QAM									
Bandwidth	1.4M			3M			5M		
Channel	18607	18900	19193	18615	18900	19185	18625	18900	19175
	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)
Frequency (MHz)	1850.7	1880	1909.3	1851.5	1880	1908.5	1852.5	1880	1907.5
Conducted Power (dBm)	21.50	21.92	22.07	21.74	21.91	22.13	21.69	21.96	22.24
Conducted Power (Watts)	0.1413	0.1556	0.1611	0.1493	0.1552	0.1633	0.1476	0.1570	0.1675
EIRP(dBm)	19.72	20.14	20.29	19.96	20.13	20.35	19.91	20.18	20.46
EIRP(Watts)	0.0938	0.1033	0.1069	0.0991	0.1030	0.1084	0.0979	0.1042	0.1112

LTE Band 2 ($G_T - L_C = -1.78$ dB) 16QAM									
Bandwidth	10M			15M			20M		
Channel	18650	18900	19150	18675	18900	19125	18650	18900	19100
	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)
Frequency (MHz)	1855	1880	1905	1857.5	1880	1902.5	1860	1880	1900
Conducted Power (dBm)	21.74	21.96	22.32	21.86	22.17	22.34	21.93	22.16	22.17
Conducted Power (Watts)	0.1493	0.1570	0.1706	0.1535	0.1648	0.1714	0.1560	0.1644	0.1648
EIRP(dBm)	19.96	20.18	20.54	20.08	20.39	20.56	20.15	20.38	20.39
EIRP(Watts)	0.0991	0.1042	0.1132	0.1019	0.1094	0.1138	0.1035	0.1091	0.1094



LTE Band 2 ($G_T - L_C = -1.78$ dB) 64QAM									
Bandwidth	1.4M			3M			5M		
Channel	18607	18900	19193	18615	18900	19185	18625	18900	19175
	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)
Frequency	1850.7	1880	1909.3	1851.5	1880	1908.5	1852.5	1880	1907.5
(MHz)									
Conducted Power (dBm)	20.61	20.89	20.95	20.60	20.88	21.12	20.70	20.96	21.07
Conducted Power (Watts)	0.1151	0.1227	0.1245	0.1148	0.1225	0.1294	0.1175	0.1247	0.1279
EIRP(dBm)	18.83	19.11	19.17	18.82	19.10	19.34	18.92	19.18	19.29
EIRP(Watts)	0.0764	0.0815	0.0826	0.0762	0.0813	0.0859	0.0780	0.0828	0.0849

LTE Band 2 ($G_T - L_C = -1.78$ dB) 64QAM									
Bandwidth	10M			15M			20M		
Channel	18650	18900	19150	18675	18900	19125	18650	18900	19100
	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)
Frequency	1855	1880	1905	1857.5	1880	1902.5	1860	1880	1900
(MHz)									
Conducted Power (dBm)	20.81	20.96	21.28	20.99	21.06	21.12	20.92	21.07	21.04
Conducted Power (Watts)	0.1205	0.1247	0.1343	0.1256	0.1276	0.1294	0.1236	0.1279	0.1271
EIRP(dBm)	19.03	19.18	19.50	19.21	19.28	19.34	19.14	19.29	19.26
EIRP(Watts)	0.0800	0.0828	0.0891	0.0834	0.0847	0.0859	0.0820	0.0849	0.0843

LTE Band 5 ($G_T - L_C = -1.93$ dB) QPSK									
Bandwidth	1.4M			3M			5M		
Channel	20407	20525	20643	20415	20525	20635	20425	20525	20625
	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)
Frequency	824.7	836.5	848.3	825.5	836.5	847.5	826.5	836.5	846.5
(MHz)									
Conducted Power (dBm)	22.74	22.81	23.08	22.73	23.05	22.74	22.80	22.70	23.15
Conducted Power (Watts)	0.1879	0.1910	0.2032	0.1875	0.2018	0.1879	0.1905	0.1862	0.2065
ERP(dBm)	18.66	18.73	19.00	18.65	18.97	18.66	18.72	18.62	19.07
ERP(Watts)	0.0735	0.0746	0.0794	0.0733	0.0789	0.0735	0.0745	0.0728	0.0807

LTE Band 5 ($G_T - L_C = -1.93$ dB) QPSK			
Bandwidth	10M		
Channel	20450	20525	20600
	(Low)	(Mid)	(High)
Frequency	829	836.5	844
(MHz)			
Conducted Power (dBm)	23.19	23.42	23.57
Conducted Power (Watts)	0.2084	0.2198	0.2275
ERP(dBm)	19.11	19.34	19.49
ERP(Watts)	0.0815	0.0859	0.0889



LTE Band 5 ($G_T - L_C = -1.93$ dB) 16QAM									
Bandwidth	1.4M			3M			5M		
Channel	20407	20525	20643	20415	20525	20635	20425	20525	20625
	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)
Frequency	824.7	836.5	848.3	825.5	836.5	847.5	826.5	836.5	846.5
(MHz)									
Conducted Power (dBm)	22.08	22.32	22.12	22.00	22.15	22.30	22.12	22.34	22.59
Conducted Power (Watts)	0.1614	0.1706	0.1629	0.1585	0.1641	0.1698	0.1629	0.1714	0.1816
ERP(dBm)	18.00	18.24	18.04	17.92	18.07	18.22	18.04	18.26	18.51
ERP(Watts)	0.0631	0.0667	0.0637	0.0619	0.0641	0.0664	0.0637	0.0670	0.0710

LTE Band 5 ($G_T - L_C = -1.93$ dB) 16QAM			
Bandwidth	10M		
Channel	20450	20525	20600
	(Low)	(Mid)	(High)
Frequency	829	836.5	844
(MHz)			
Conducted Power (dBm)	22.42	22.94	22.99
Conducted Power (Watts)	0.1746	0.1968	0.1991
ERP(dBm)	18.34	18.86	18.91
ERP(Watts)	0.0682	0.0769	0.0778



LTE Band 5 ($G_T - L_C = -1.93$ dB) 64QAM									
Bandwidth	1.4M			3M			5M		
Channel	20407	20525	20643	20415	20525	20635	20425	20525	20625
	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)
Frequency	824.7	836.5	848.3	825.5	836.5	847.5	826.5	836.5	846.5
(MHz)									
Conducted Power (dBm)	20.94	21.31	21.45	20.95	21.35	21.49	21.00	21.29	21.38
Conducted Power (Watts)	0.1242	0.1352	0.1396	0.1245	0.1365	0.1409	0.1259	0.1346	0.1374
ERP(dBm)	16.86	17.23	17.37	16.87	17.27	17.41	16.92	17.21	17.30
ERP(Watts)	0.0485	0.0528	0.0546	0.0486	0.0533	0.0551	0.0492	0.0526	0.0537

LTE Band 5 ($G_T - L_C = -1.93$ dB) 64QAM			
Bandwidth	10M		
Channel	20450	20525	20600
	(Low)	(Mid)	(High)
Frequency	829	836.5	844
(MHz)			
Conducted Power (dBm)	21.34	21.68	21.63
Conducted Power (Watts)	0.1361	0.1472	0.1455
ERP(dBm)	17.26	17.60	17.55
ERP(Watts)	0.0532	0.0575	0.0569



LTE Band 26 ($G_T - L_C = -1.23$ dB) QPSK									
Bandwidth	1.4M			3M			5M		
Channel	26797	26915	27033	26805	26915	27025	26815	26915	27015
	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)
Frequency	824.7	836.5	848.3	825.5	836.5	847.5	826.5	836.5	846.5
(MHz)									
Conducted Power (dBm)	22.69	23.08	23.56	22.78	22.99	23.24	22.61	23.08	23.42
Conducted Power (Watts)	0.1858	0.2032	0.2270	0.1897	0.1991	0.2109	0.1824	0.2032	0.2198
ERP(dBm)	19.31	19.70	20.18	19.40	19.61	19.86	19.23	19.70	20.04
ERP(Watts)	0.0853	0.0933	0.1042	0.0871	0.0914	0.0968	0.0838	0.0933	0.1009

LTE Band 26 ($G_T - L_C = -1.23$ dB) QPSK							
Bandwidth	10M			15M			15M
Channel	26840	26915	26990	26865	26915	26965	26765
	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)	(Low)
Frequency	829	836.5	844	831.5	836.5	841.5	821.5
(MHz)							
Conducted Power (dBm)	23.12	23.37	23.79	23.82	23.79	23.65	23.10
Conducted Power (Watts)	0.2051	0.2173	0.2393	0.2410	0.2393	0.2317	0.2042
ERP(dBm)	19.74	19.99	20.41	20.44	20.41	20.27	19.72
ERP(Watts)	0.0942	0.0998	0.1099	0.1107	0.1099	0.1064	0.0938



LTE Band 26 ($G_T - L_C = -1.23$ dB) 16QAM									
Bandwidth	1.4M			3M			5M		
Channel	26797	26915	27033	26805	26915	27025	26815	26915	27015
	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)
Frequency	824.7	836.5	848.3	825.5	836.5	847.5	826.5	836.5	846.5
(MHz)									
Conducted Power (dBm)	22.00	22.24	22.93	21.94	22.16	22.94	22.03	22.27	22.92
Conducted Power (Watts)	0.1585	0.1675	0.1963	0.1563	0.1644	0.1968	0.1596	0.1687	0.1959
ERP(dBm)	18.62	18.86	19.55	18.56	18.78	19.56	18.65	18.89	19.54
ERP(Watts)	0.0728	0.0769	0.0902	0.0718	0.0755	0.0904	0.0733	0.0774	0.0899

LTE Band 26 ($G_T - L_C = -1.23$ dB) 16QAM							
Bandwidth	10M			15M			15M
Channel	26840	26915	26990	26865	26915	26965	26765
	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)	(Low)
Frequency	829	836.5	844	831.5	836.5	841.5	821.5
(MHz)							
Conducted Power (dBm)	22.46	22.28	22.94	22.91	22.88	22.91	22.35
Conducted Power (Watts)	0.1762	0.1690	0.1968	0.1954	0.1941	0.1954	0.1718
ERP(dBm)	19.08	18.90	19.56	19.53	19.50	19.53	18.97
ERP(Watts)	0.0809	0.0776	0.0904	0.0897	0.0891	0.0897	0.0789



LTE Band 26 ($G_T - L_C = -1.23$ dB) 64QAM									
Bandwidth	1.4M			3M			5M		
Channel	26797	26915	27033	26805	26915	27025	26815	26915	27015
	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)
Frequency	824.7	836.5	848.3	825.5	836.5	847.5	826.5	836.5	846.5
(MHz)									
Conducted Power (dBm)	20.88	21.23	21.72	20.85	21.15	21.82	21.03	21.22	21.77
Conducted Power (Watts)	0.1225	0.1327	0.1486	0.1216	0.1303	0.1521	0.1268	0.1324	0.1503
ERP(dBm)	17.50	17.85	18.34	17.47	17.77	18.44	17.65	17.84	18.39
ERP(Watts)	0.0562	0.0610	0.0682	0.0558	0.0598	0.0698	0.0582	0.0608	0.0690

LTE Band 26 ($G_T - L_C = -1.23$ dB) 64QAM							
Bandwidth	10M			15M			15M
Channel	26840	26915	26990	26865	26915	26965	26765
	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)	(Low)
Frequency	829	836.5	844	831.5	836.5	841.5	821.5
(MHz)							
Conducted Power (dBm)	21.30	21.50	21.98	21.50	21.47	21.95	21.28
Conducted Power (Watts)	0.1349	0.1413	0.1578	0.1413	0.1403	0.1567	0.1343
ERP(dBm)	17.92	18.12	18.60	18.12	18.09	18.57	17.90
ERP(Watts)	0.0619	0.0649	0.0724	0.0649	0.0644	0.0719	0.0617

Peak-to-Average Ratio

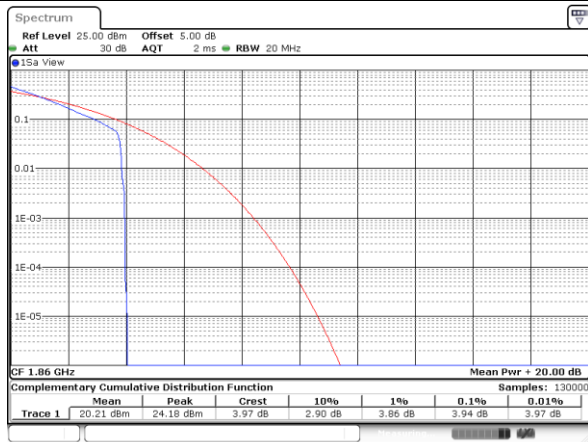
Mode	LTE Band 2 / 20MHz				
Mod.	QPSK		16QAM		Limit: 13dB
RB Size	1RB	Full RB	1RB	Full RB	Result
Lowest CH	3.94	5.04	4.67	5.94	PASS
Middle CH	3.62	5.16	4.64	6.12	
Highest CH	3.8	4.78	4.38	5.83	
Mode	LTE Band 2 / 20MHz				
Mod.	64QAM				Limit: 13dB
RB Size	1RB	Full RB			Result
Lowest CH	4.64	6.03			PASS
Middle CH	4.58	6.09			
Highest CH	4.61	5.88			

Mode	LTE Band 38 / 20MHz				
Mod.	QPSK		16QAM		Limit: 13dB
RB Size	1RB	Full RB	1RB	Full RB	Result
Lowest CH	4.81	5.1	5.77	6.14	PASS
Middle CH	5.48	5.77	5.65	5.94	
Highest CH	5.54	5.13	5.54	6.7	
Mod.	64QAM		Limit: 13dB		
RB Size	1RB	Full RB	Result		
Lowest CH	5.74	5.97	PASS		
Middle CH	5.91	5.88			
Highest CH	5.80	5.71			

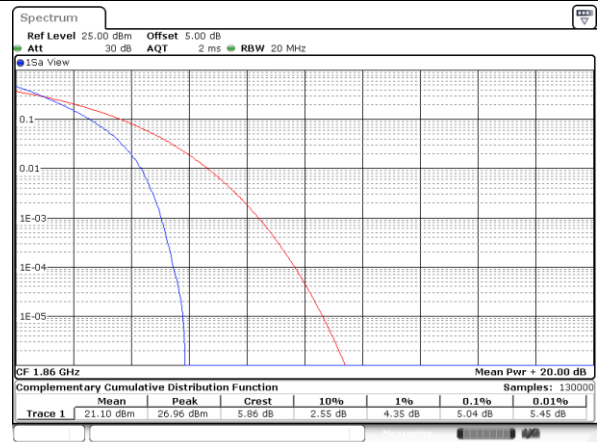


LTE Band 2 / 20MHz / QPSK

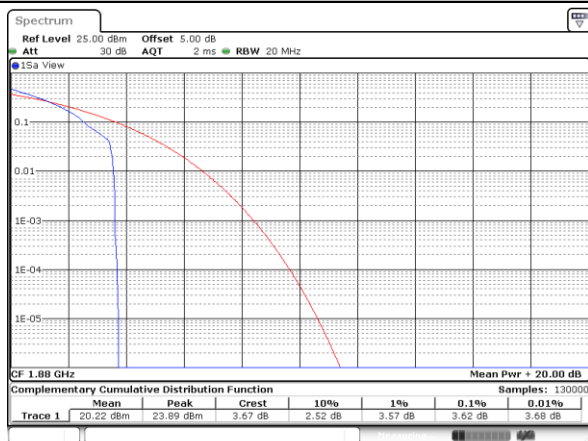
Lowest Channel / 1RB



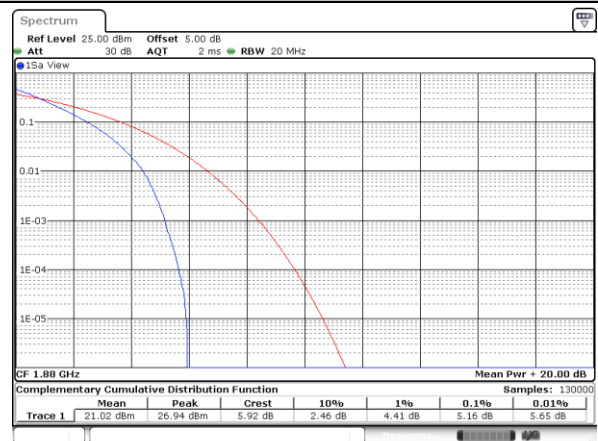
Lowest Channel / Full RB



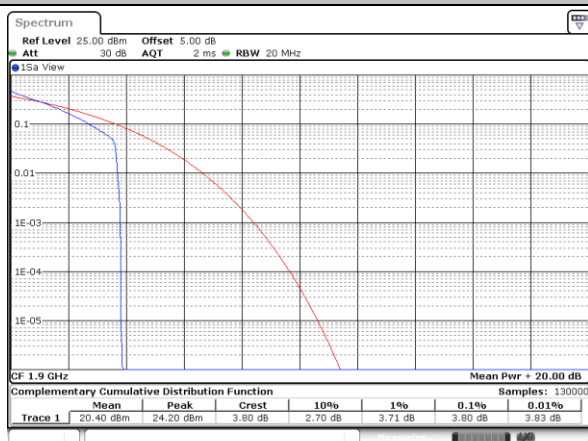
Middle Channel / 1RB



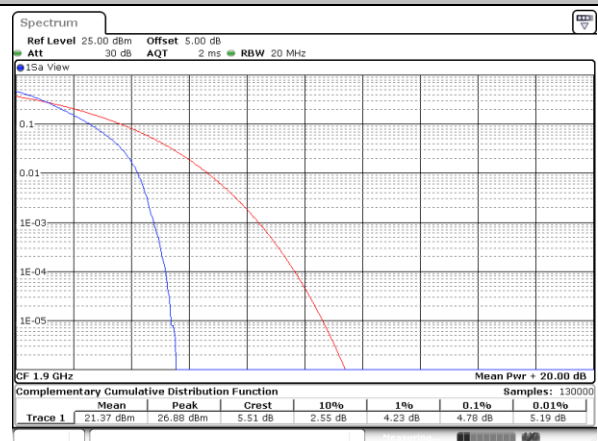
Middle Channel / Full RB



Highest Channel / 1RB



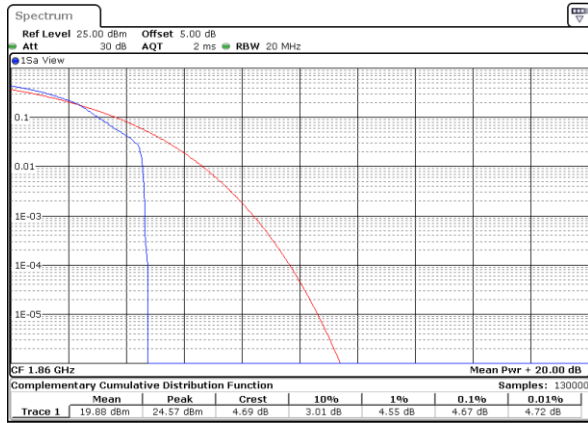
Highest Channel / Full RB



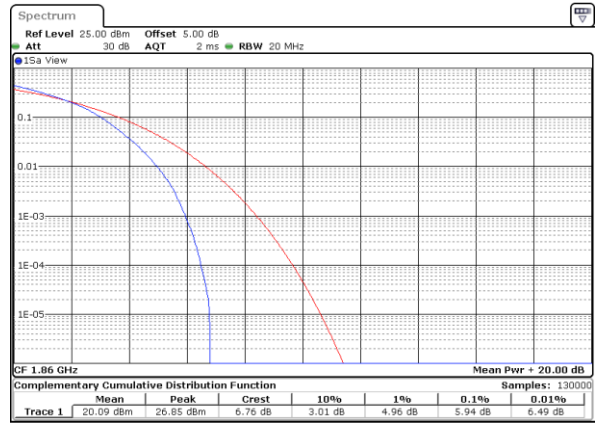


LTE Band 2 / 20MHz / 16QAM

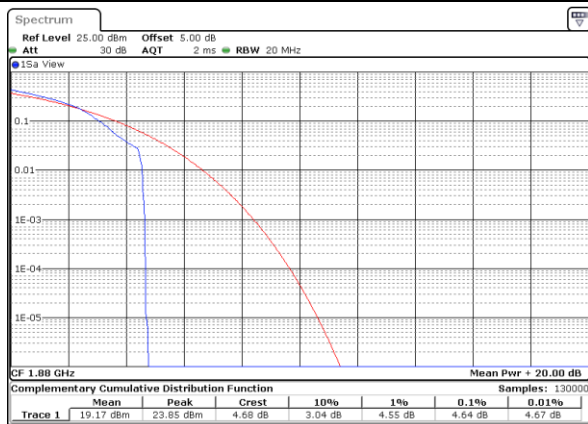
Lowest Channel / 1RB



Lowest Channel / Full RB



Middle Channel / 1RB



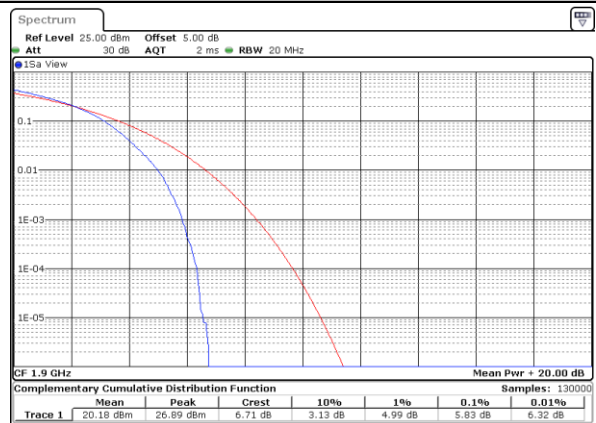
Middle Channel / Full RB



Highest Channel / 1RB



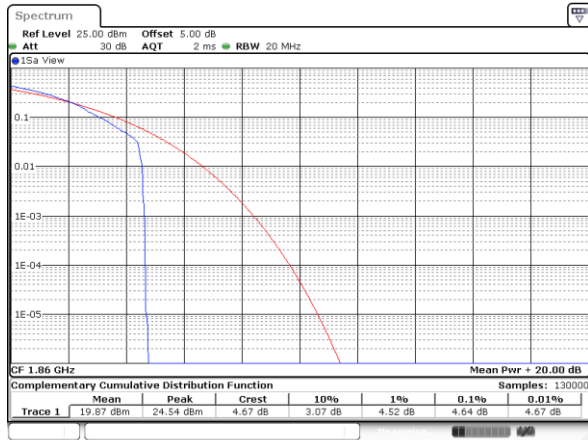
Highest Channel / Full RB



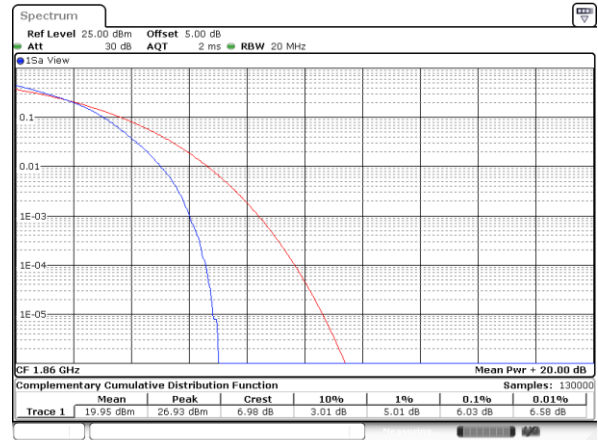


LTE Band 2 / 20MHz / 64QAM

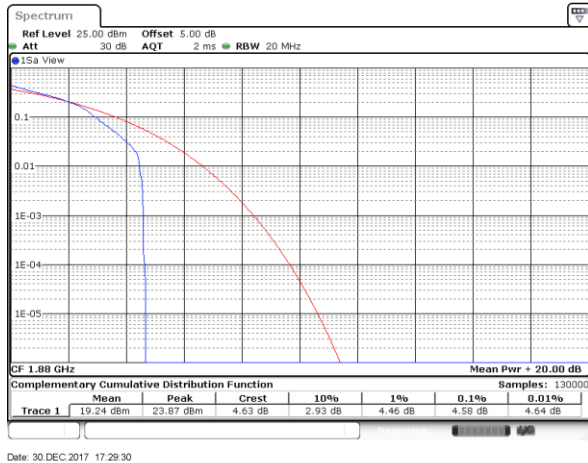
Lowest Channel / 1RB



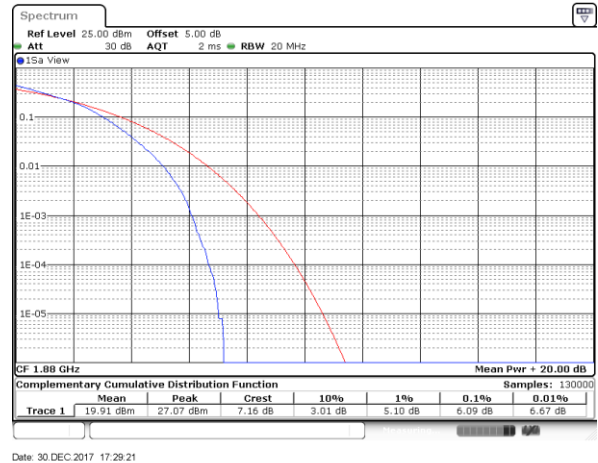
Lowest Channel / Full RB



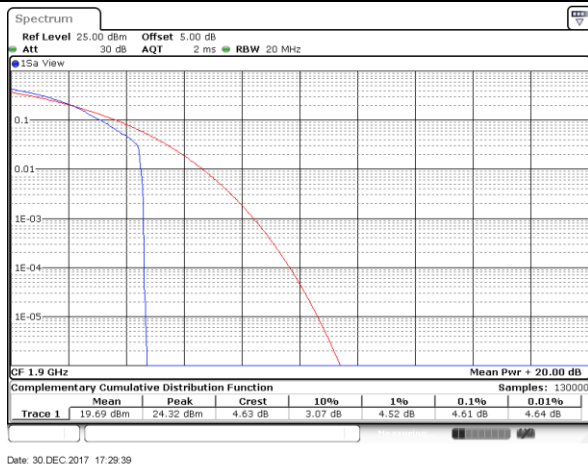
Middle Channel / 1RB



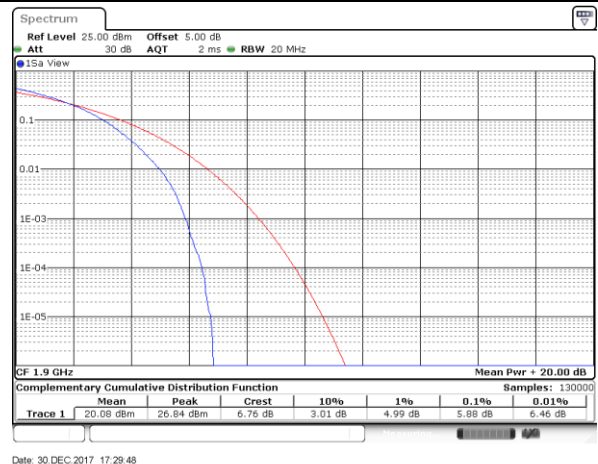
Middle Channel / Full RB



Highest Channel / 1RB



Highest Channel / Full RB



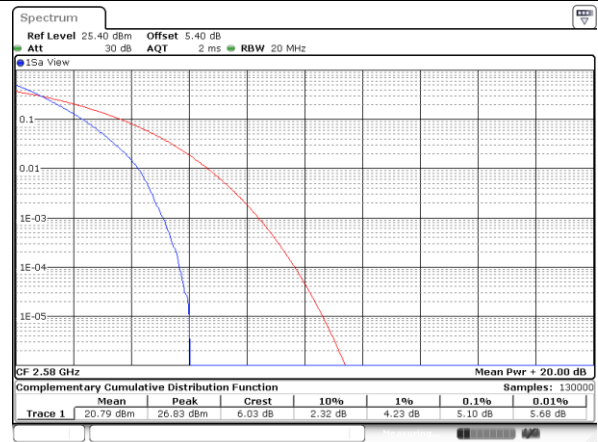


LTE Band 38 / 20MHz / QPSK

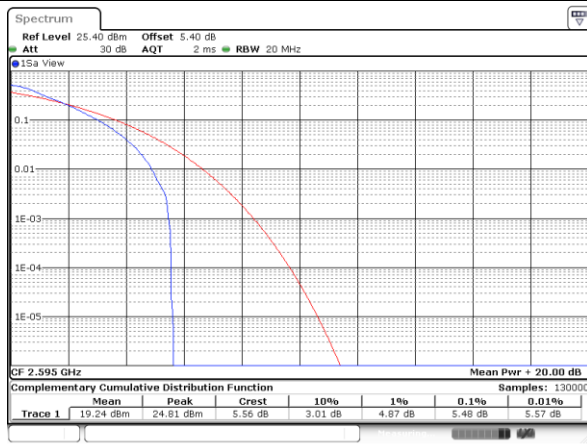
Lowest Channel / 1RB



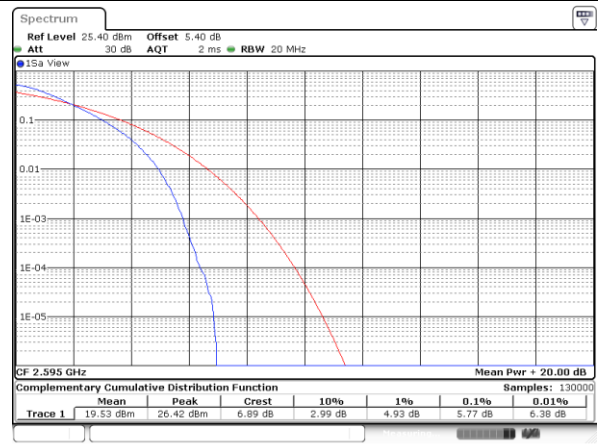
Lowest Channel / Full RB



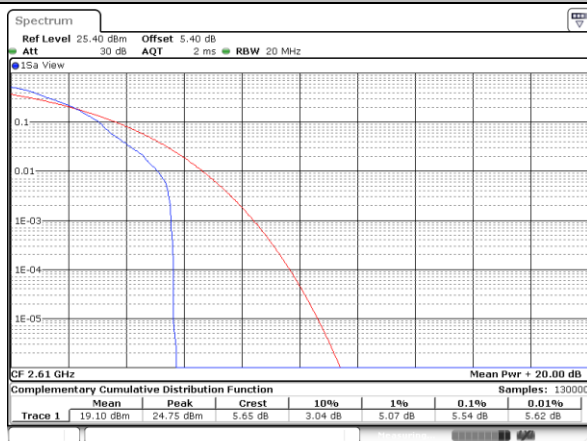
Middle Channel / 1RB



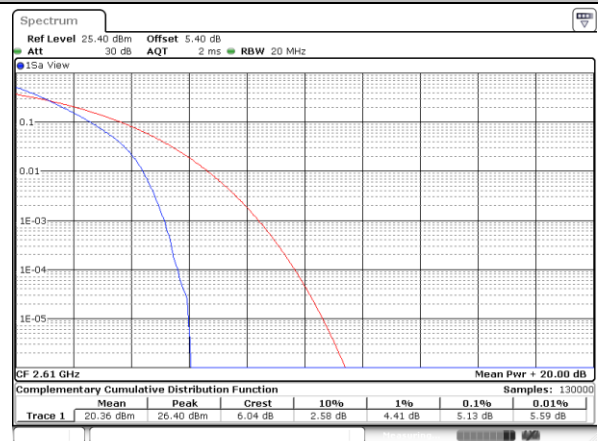
Middle Channel / Full RB



Highest Channel / 1RB



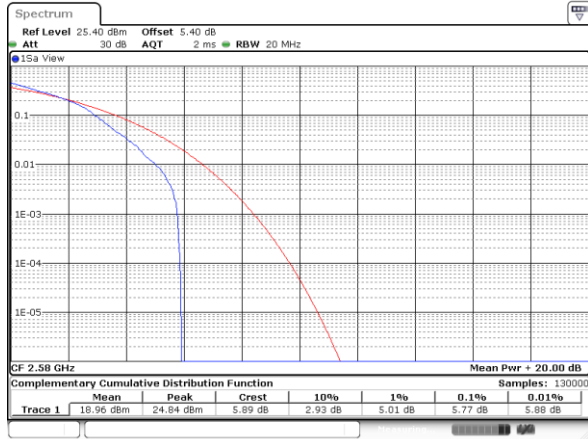
Highest Channel / Full RB



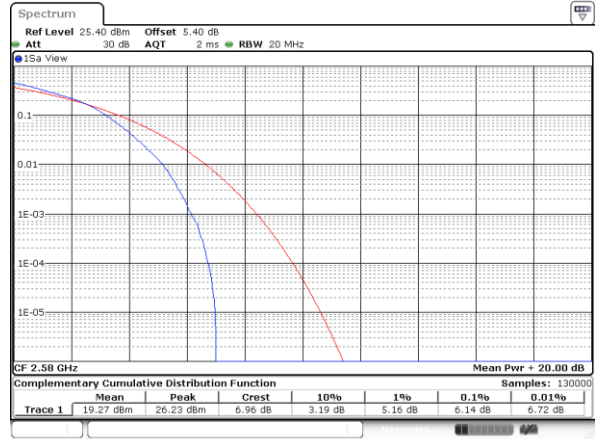


LTE Band 38 / 20MHz / 16QAM

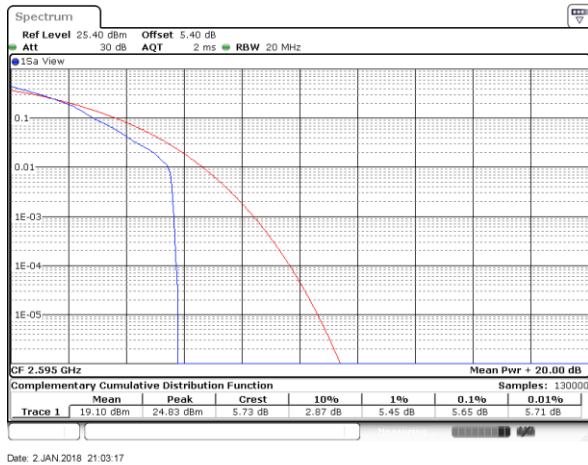
Lowest Channel / 1RB



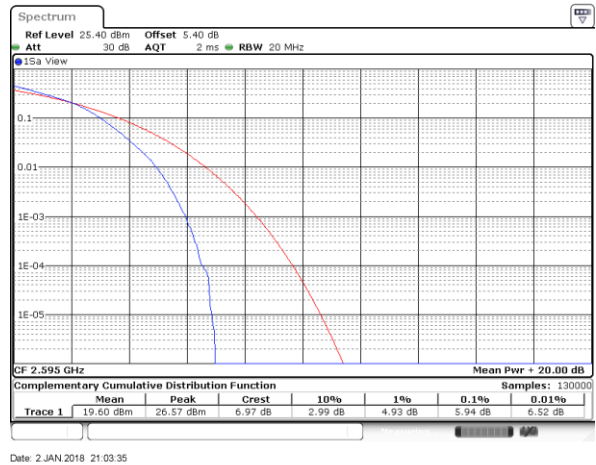
Lowest Channel / Full RB



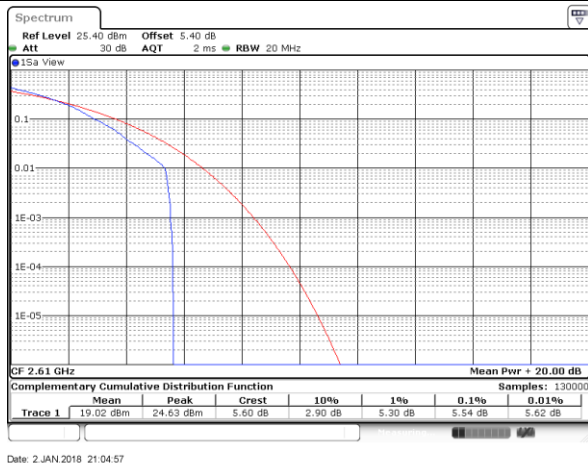
Middle Channel / 1RB



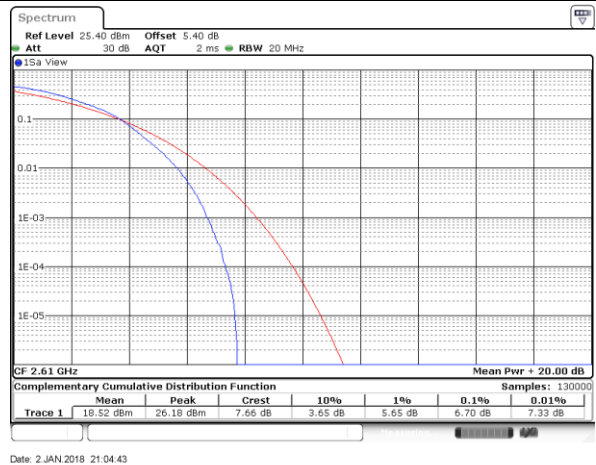
Middle Channel / Full RB



Highest Channel / 1RB



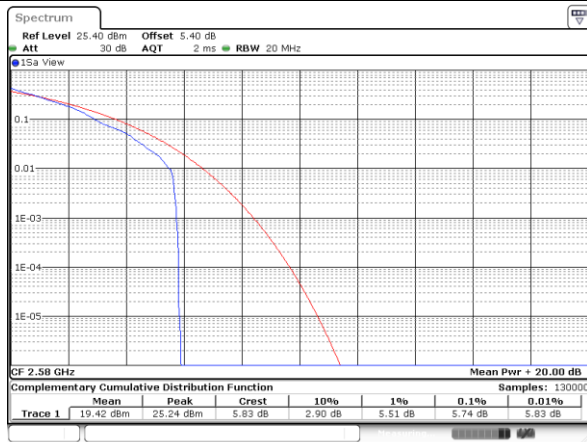
Highest Channel / Full RB



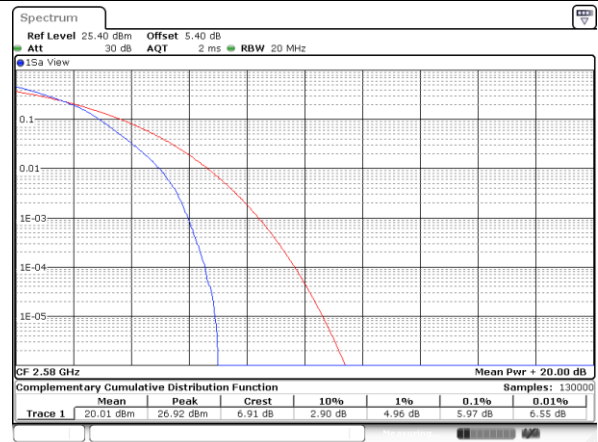


LTE Band 38 / 20MHz / 64QAM

Lowest Channel / 1RB



Lowest Channel / Full RB



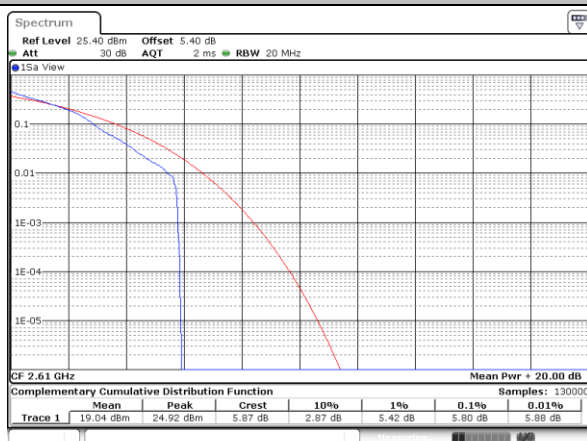
Middle Channel / 1RB



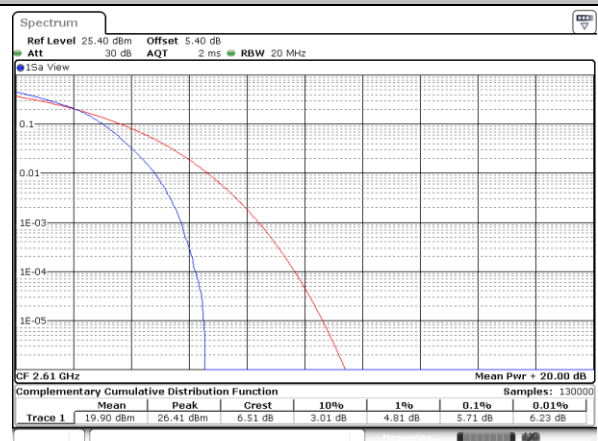
Middle Channel / Full RB



Highest Channel / 1RB



Highest Channel / Full RB



**26dB Bandwidth**

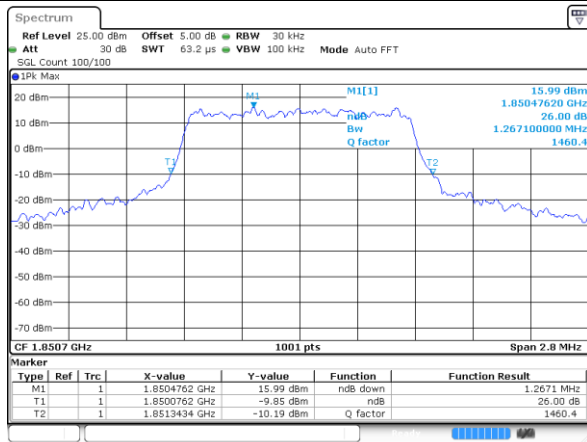
Mode	LTE Band 2 : 26dB BW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Lowest CH	1.267	1.284	3.003	3.015	4.895	4.875	9.75	9.69	14.655	14.535	20.34	20.14
Middle CH	1.292	1.278	2.991	3.021	4.925	4.925	9.81	9.73	14.326	14.446	20.18	20.06
Highest CH	1.326	1.262	3.009	3.051	4.945	4.915	9.77	9.89	14.535	14.206	20.26	20.06
Mode	LTE Band 2 : 26dB BW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	64QAM		64QAM		64QAM		64QAM		64QAM		64QAM	
Lowest CH	1.315		3.003		4.925		9.69		14.715		20.14	
Middle CH	1.273		3.021		4.865		9.67		14.356		20.34	
Highest CH	1.329		2.991		4.935		9.85		14.266		20.18	

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	4.855	4.845	9.67	9.63	14.116	14.625	20.1	20.06	4.975	9.69	14.356	20.26
Middle CH	4.985	4.885	9.71	9.79	14.386	14.146	20.34	20.14	4.925	9.83	14.146	20.1
Highest CH	4.985	4.895	9.77	9.73	14.356	14.236	20.1	20.3	4.935	9.91	14.356	20.02



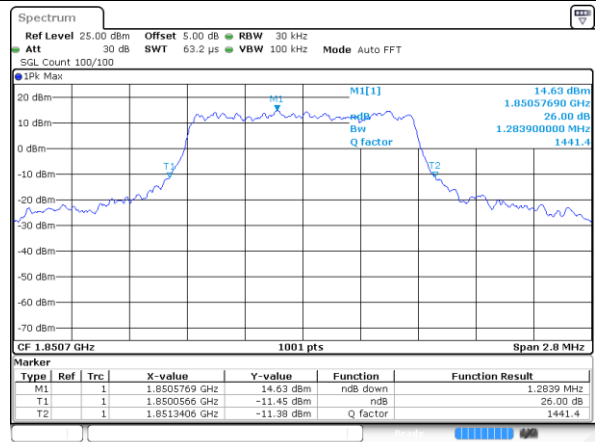
LTE Band 2

Lowest Channel / 1.4MHz / QPSK



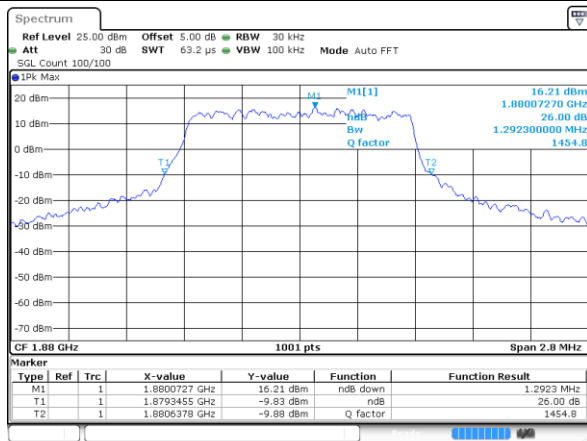
Date: 30 DEC 2017 13:33:05

Lowest Channel / 1.4MHz / 16QAM



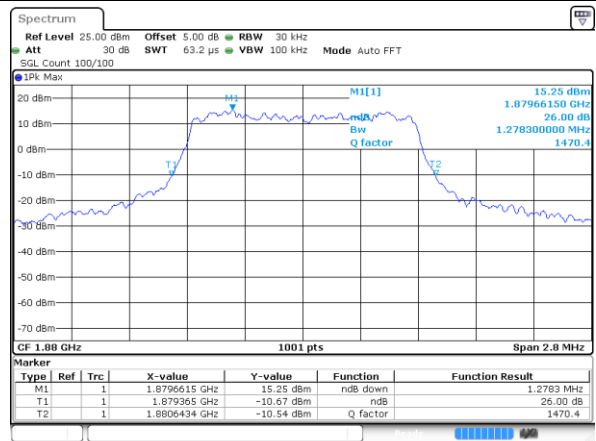
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Middle Channel / 1.4MHz / QPSK



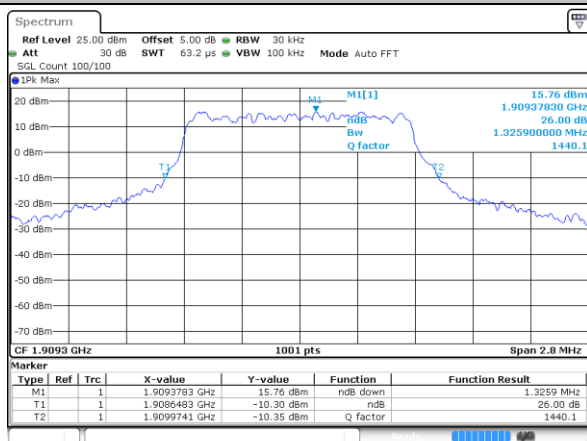
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Middle Channel / 1.4MHz / 16QAM



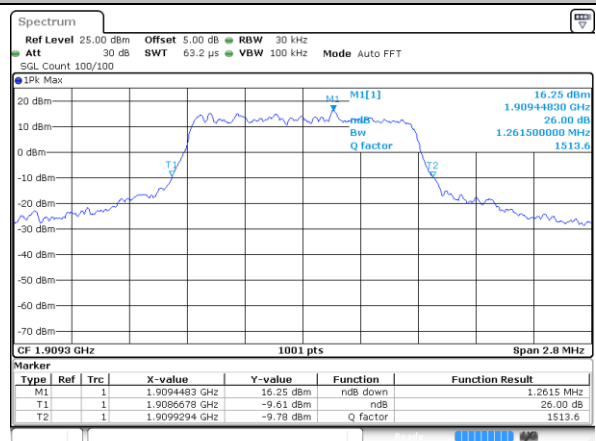
Date: 30 DEC 2017 13:40:12

Highest Channel / 1.4MHz / QPSK



Date: 30 DEC 2017 13:42:31

Highest Channel / 1.4MHz / 16QAM

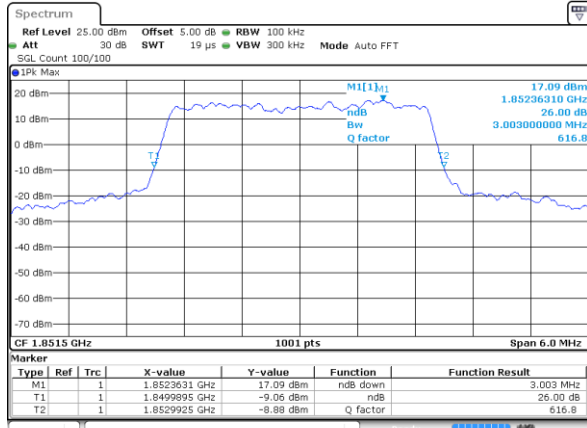


Date: 30 DEC 2017 13:42:41



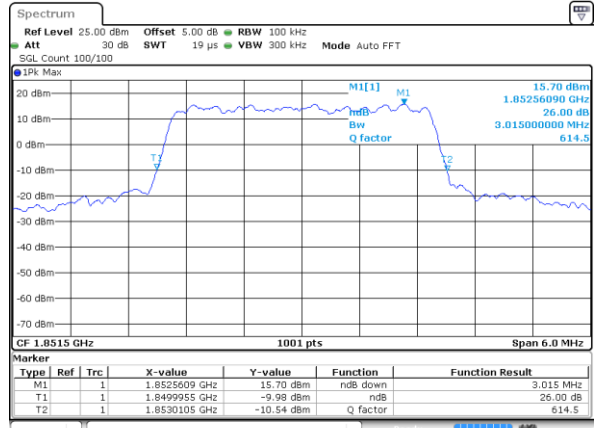
LTE Band 2

Lowest Channel / 3MHz / QPSK



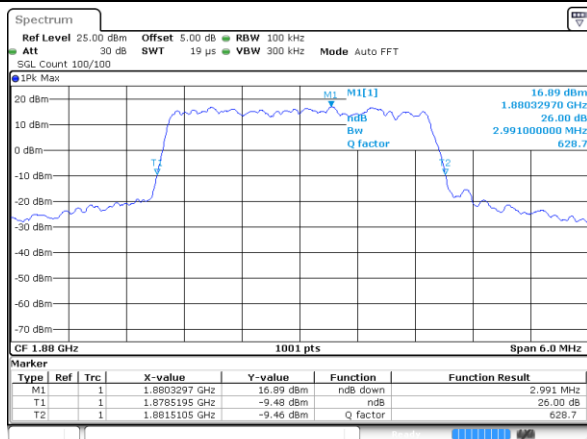
Date: 30 DEC 2017 13:49:29

Lowest Channel / 3MHz / 16QAM



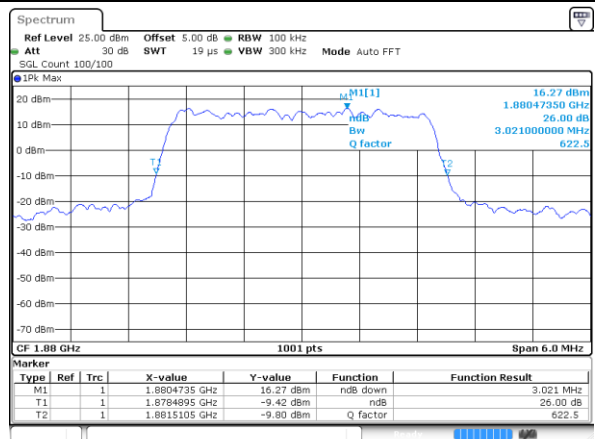
Date: 30 DEC 2017 13:49:39

Middle Channel / 3MHz / QPSK



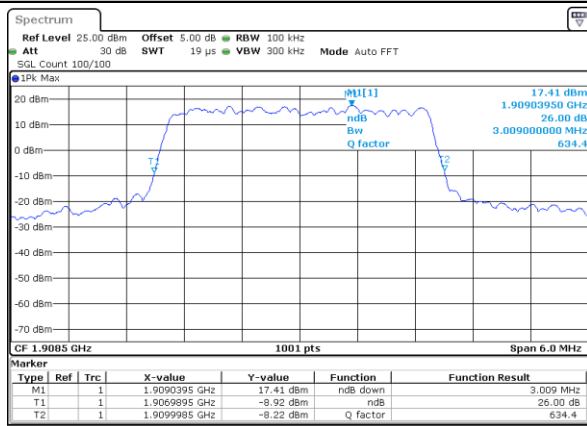
Date: 30 DEC 2017 13:56:26

Middle Channel / 3MHz / 16QAM



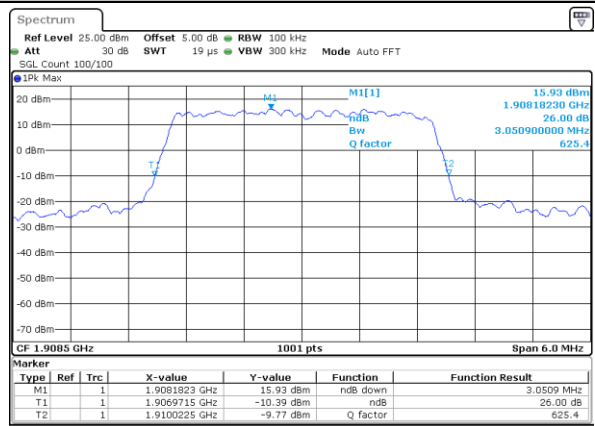
Date: 30 DEC 2017 13:56:36

Highest Channel / 3MHz / QPSK



Date: 30 DEC 2017 13:58:55

Highest Channel / 3MHz / 16QAM

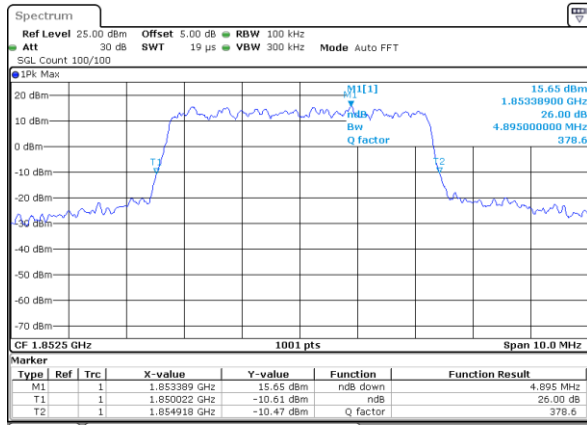


Date: 30 DEC 2017 13:59:05



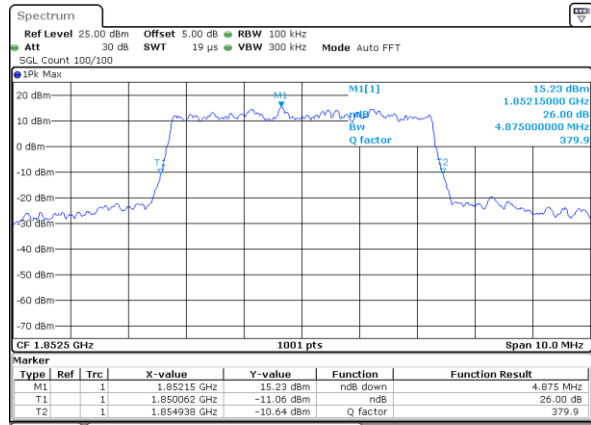
LTE Band 2

Lowest Channel / 5MHz / QPSK



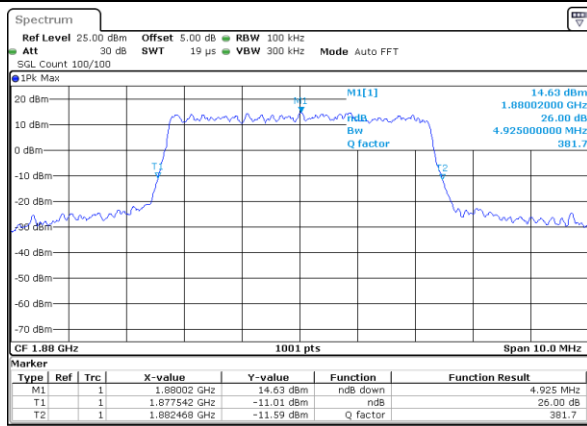
Date: 30 DEC 2017 14:05:53

Lowest Channel / 5MHz / 16QAM



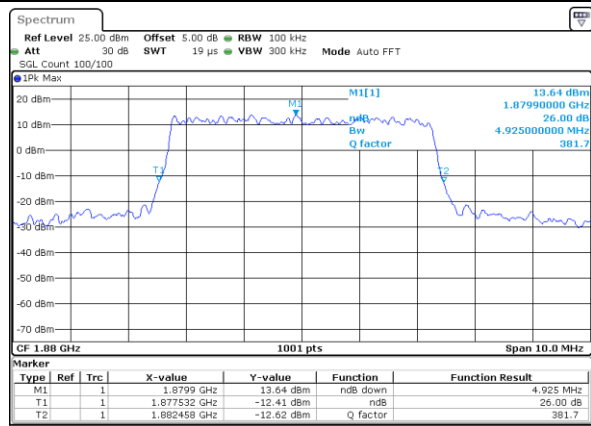
Date: 30 DEC 2017 14:06:02

Middle Channel / 5MHz / QPSK



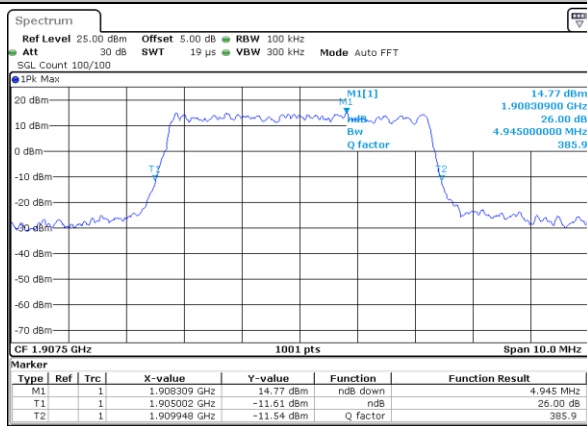
Date: 30 DEC 2017 14:12:50

Middle Channel / 5MHz / 16QAM



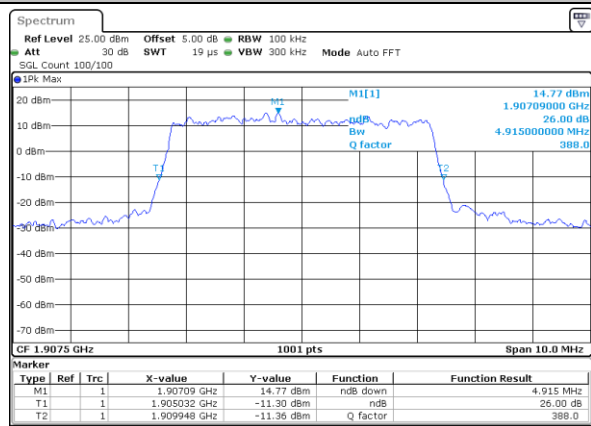
Date: 30 DEC 2017 14:13:00

Highest Channel / 5MHz / QPSK



Date: 30 DEC 2017 14:15:18

Highest Channel / 5MHz / 16QAM

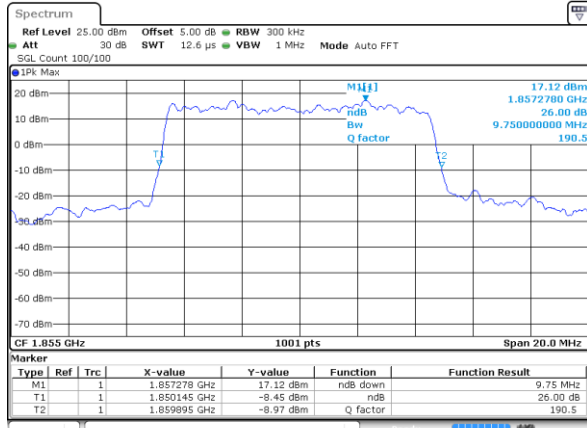


Date: 30 DEC 2017 14:15:28

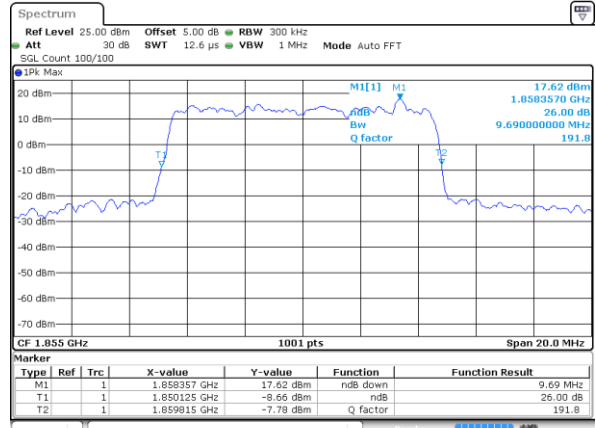


LTE Band 2

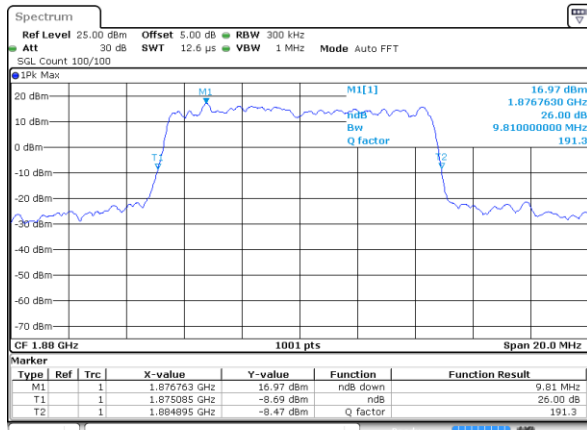
Lowest Channel / 10MHz / QPSK



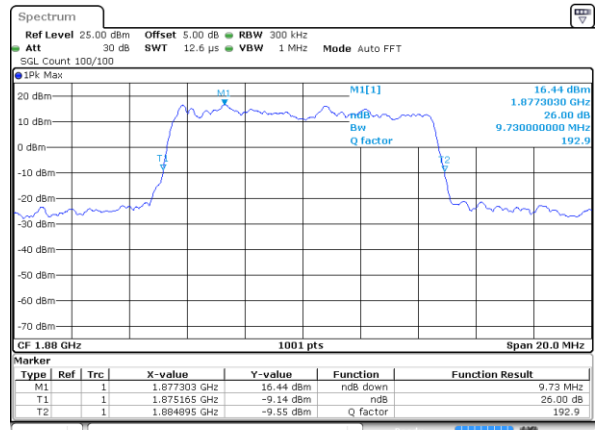
Lowest Channel / 10MHz / 16QAM



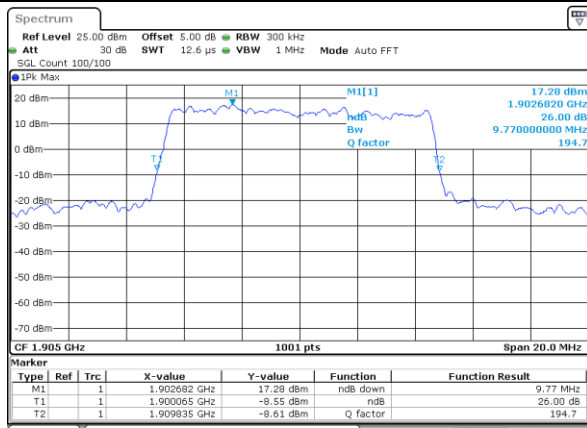
Middle Channel / 10MHz / QPSK



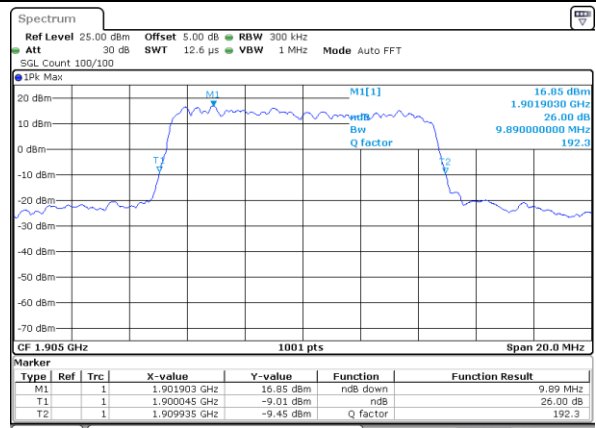
Middle Channel / 10MHz / 16QAM



Highest Channel / 10MHz / QPSK



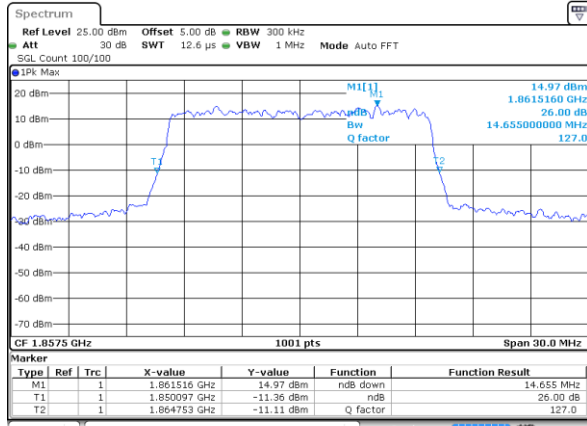
Highest Channel / 10MHz / 16QAM



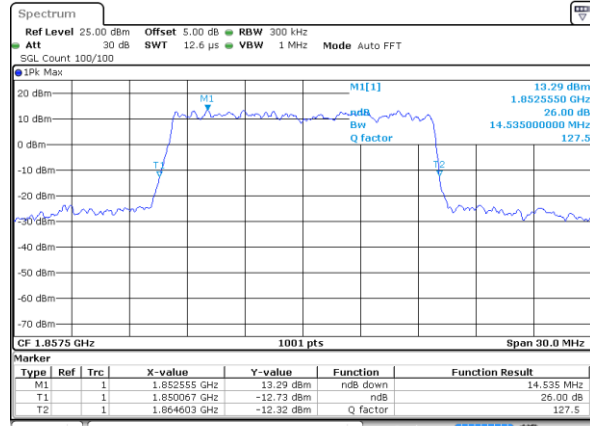


LTE Band 2

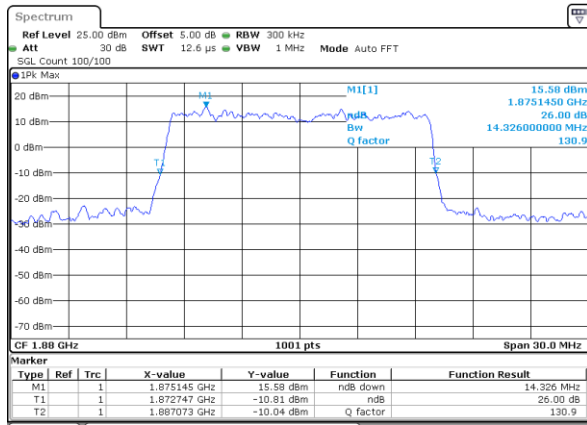
Lowest Channel / 15MHz / QPSK



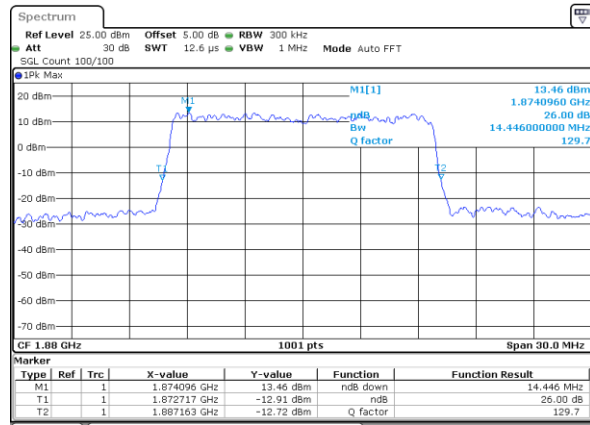
Lowest Channel / 15MHz / 16QAM



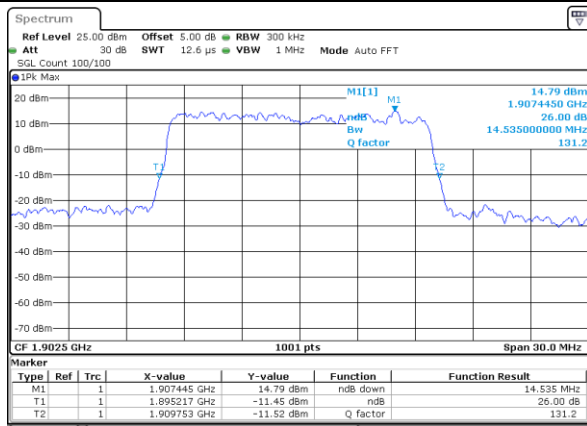
Middle Channel / 15MHz / QPSK



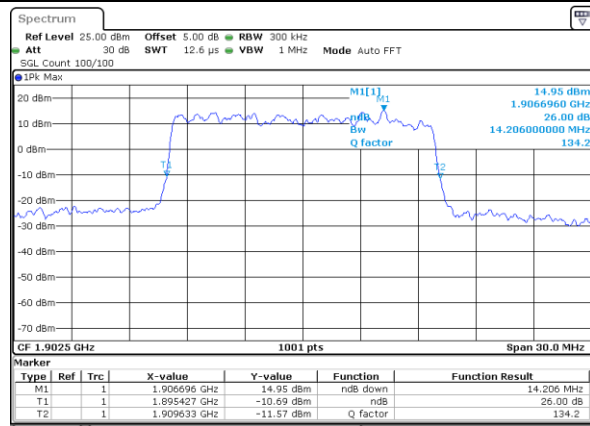
Middle Channel / 15MHz / 16QAM



Highest Channel / 15MHz / QPSK



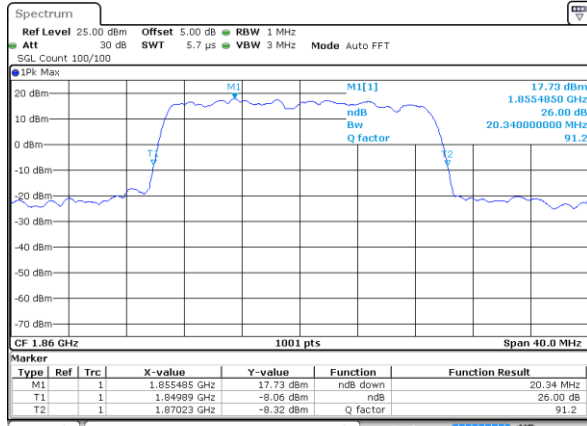
Highest Channel / 15MHz / 16QAM





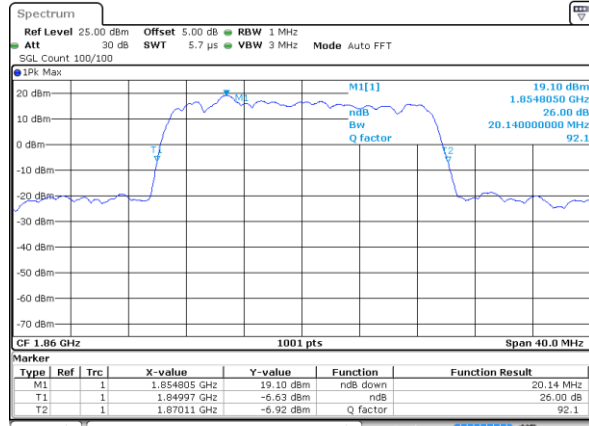
LTE Band 2

Lowest Channel / 20MHz / QPSK



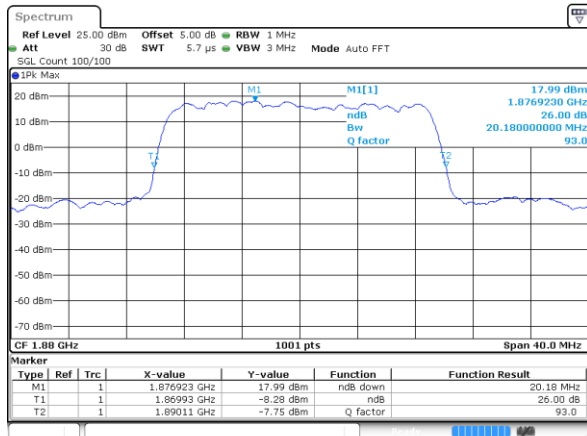
Date: 30 DEC 2017 14:55:04

Lowest Channel / 20MHz / 16QAM



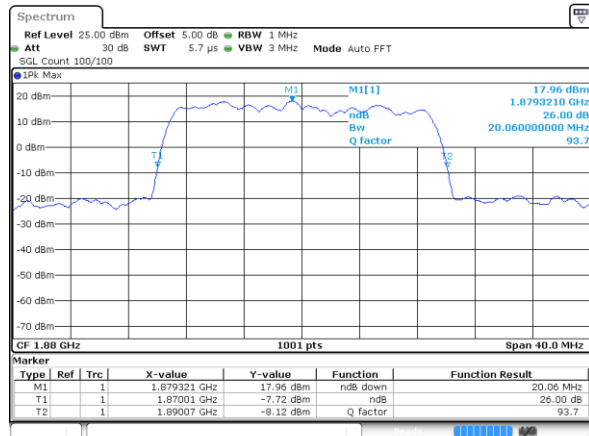
Date: 30 DEC 2017 14:55:14

Middle Channel / 20MHz / QPSK



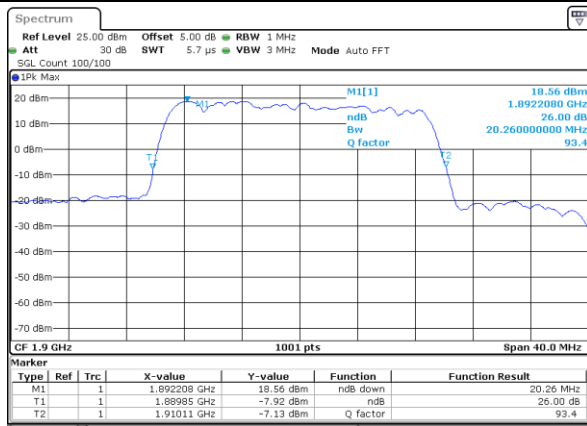
Date: 30 DEC 2017 15:02:02

Middle Channel / 20MHz / 16QAM



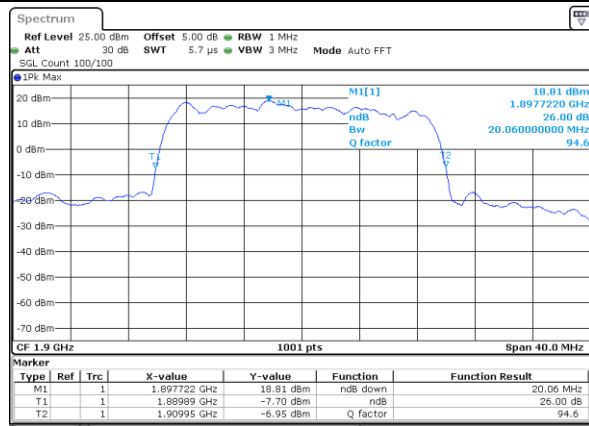
Date: 30 DEC 2017 15:02:12

Highest Channel / 20MHz / QPSK



Date: 30 DEC 2017 15:04:30

Highest Channel / 20MHz / 16QAM

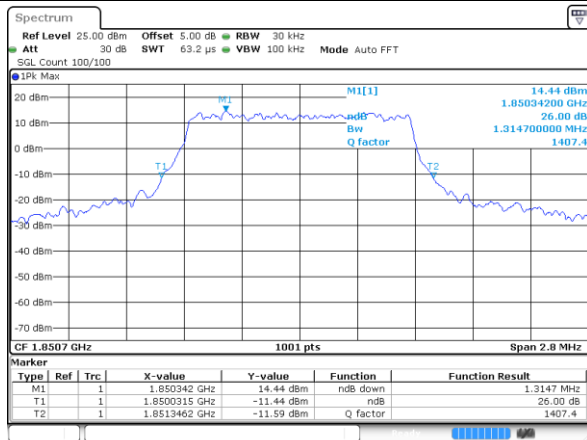


Date: 30 DEC 2017 15:04:40



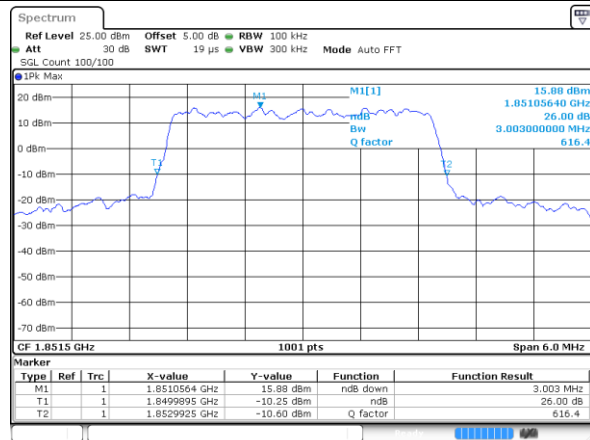
LTE Band 2

Lowest Channel / 1.4MHz / 64QAM



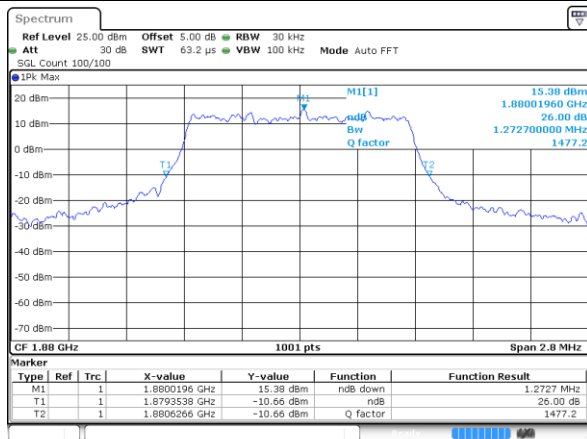
Date: 30 DEC 2017 15:27:02

Lowest Channel / 3MHz / 64QAM



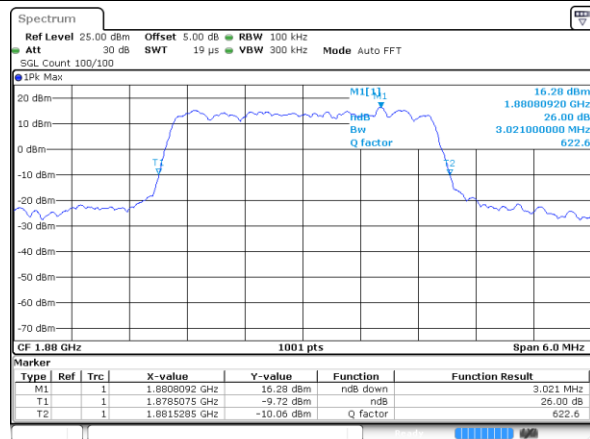
Date: 30 DEC 2017 15:28:03

Middle Channel / 1.4MHz / 64QAM



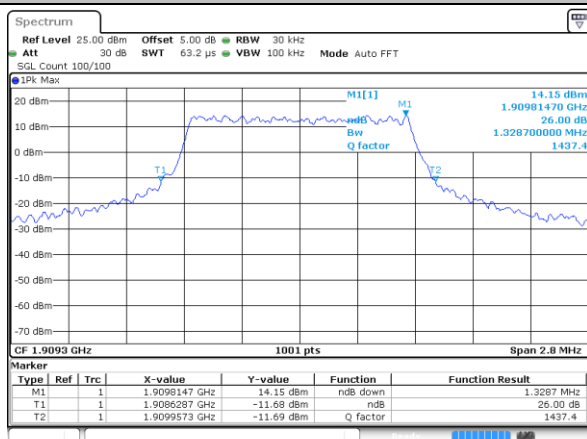
Date: 30 DEC 2017 15:27:22

Middle Channel / 3MHz / 64QAM



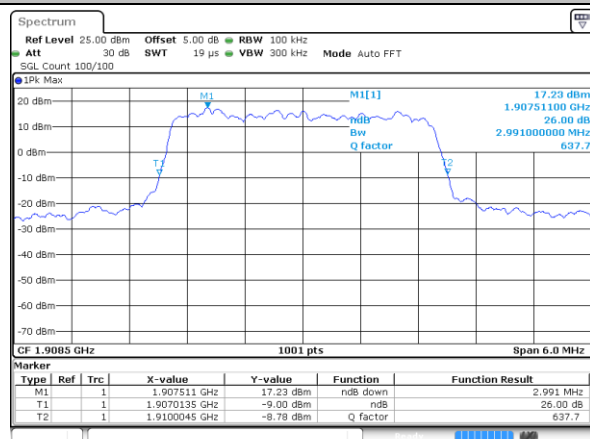
Date: 30 DEC 2017 15:26:23

Highest Channel / 1.4MHz / 64QAM



Date: 30 DEC 2017 15:27:42

Highest Channel / 3MHz / 64QAM

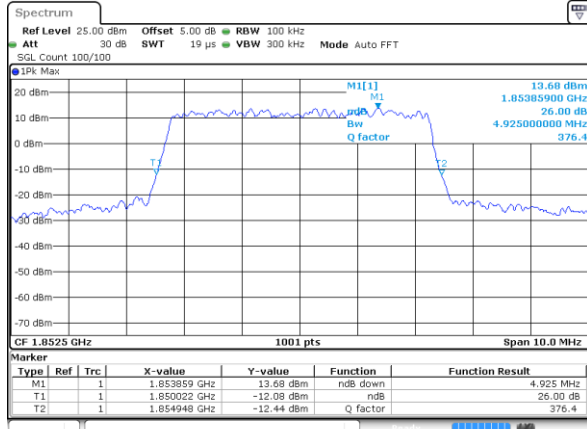


Date: 30 DEC 2017 15:26:42

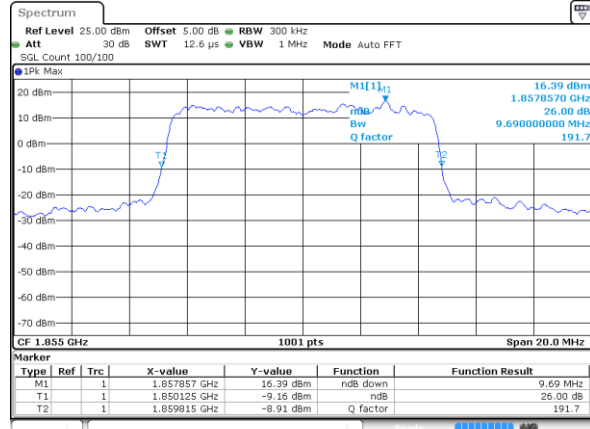


LTE Band 2

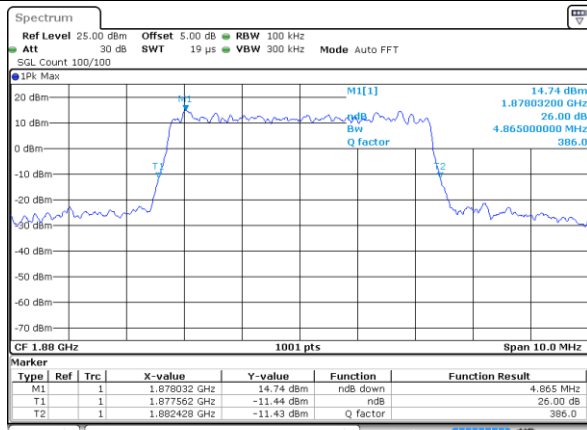
Lowest Channel / 5MHz / 64QAM



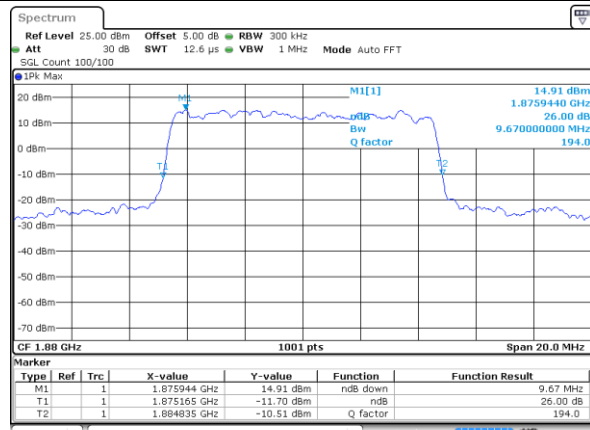
Lowest Channel / 10MHz / 64QAM



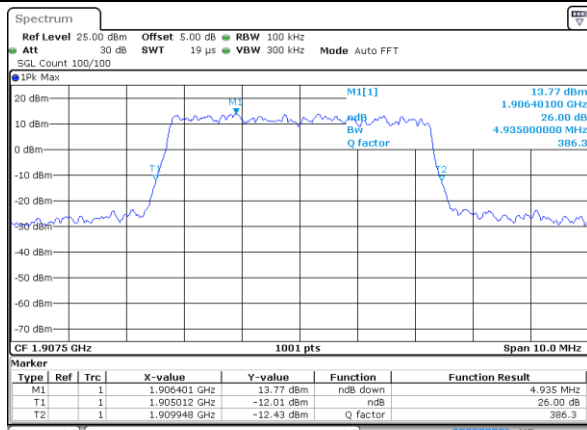
Middle Channel / 5MHz / 64QAM



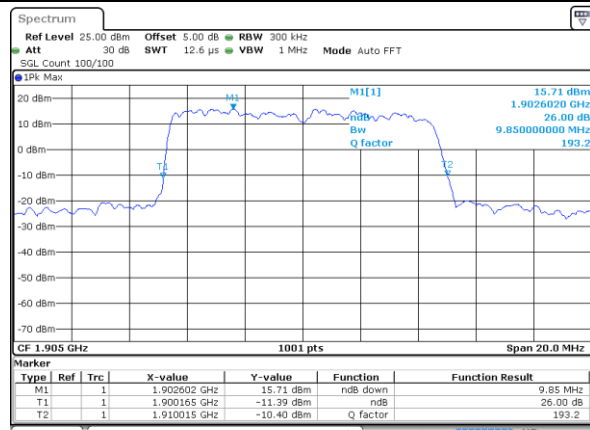
Middle Channel / 10MHz / 64QAM



Highest Channel / 5MHz / 64QAM



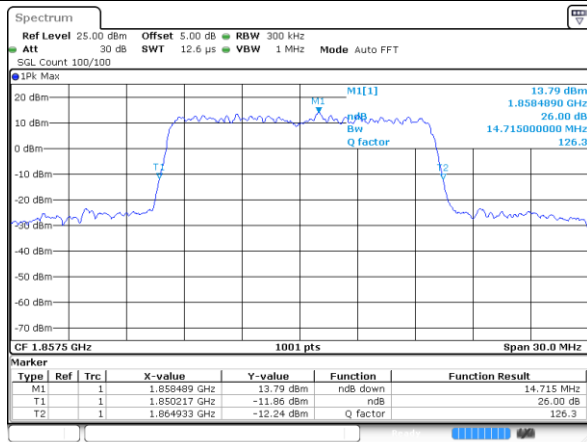
Highest Channel / 10MHz / 64QAM





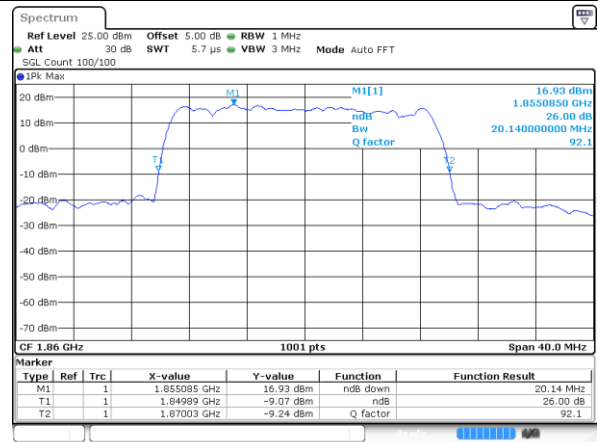
LTE Band 2

Lowest Channel / 15MHz / 64QAM



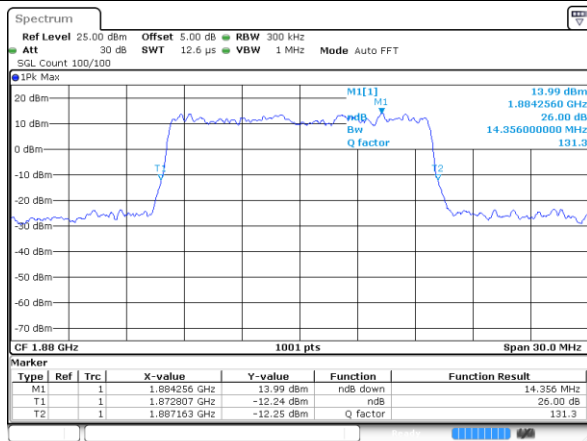
Date: 30 DEC 2017 15:23:05

Lowest Channel / 20MHz / 64QAM



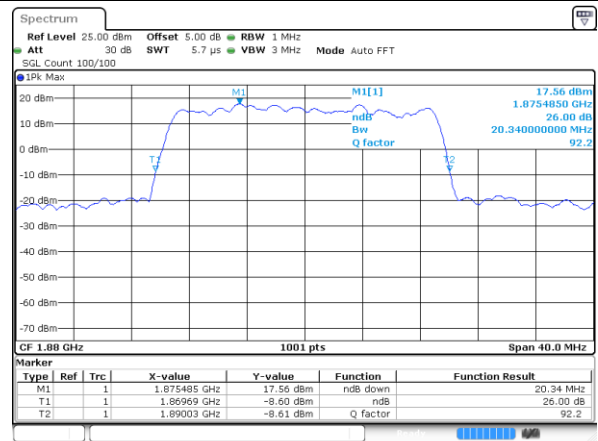
Date: 30 DEC 2017 15:22:05

Middle Channel / 15MHz / 64QAM



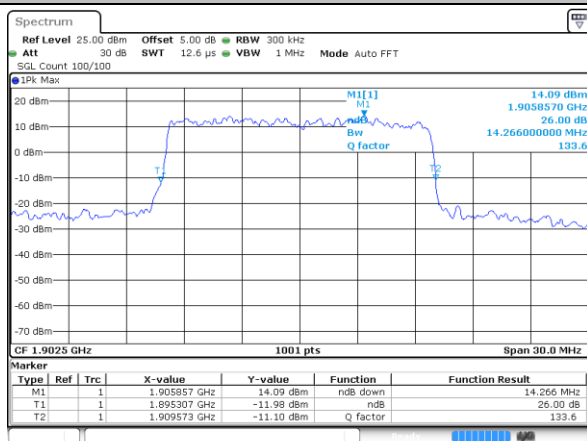
Date: 30 DEC 2017 15:23:25

Middle Channel / 20MHz / 64QAM



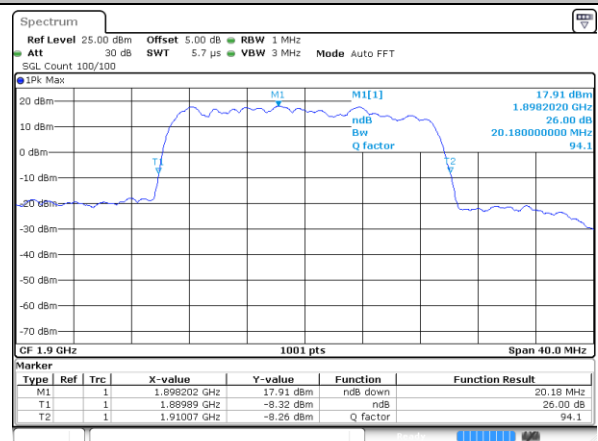
Date: 30 DEC 2017 15:22:25

Highest Channel / 15MHz / 64QAM



Date: 30 DEC 2017 15:23:45

Highest Channel / 20MHz / 64QAM

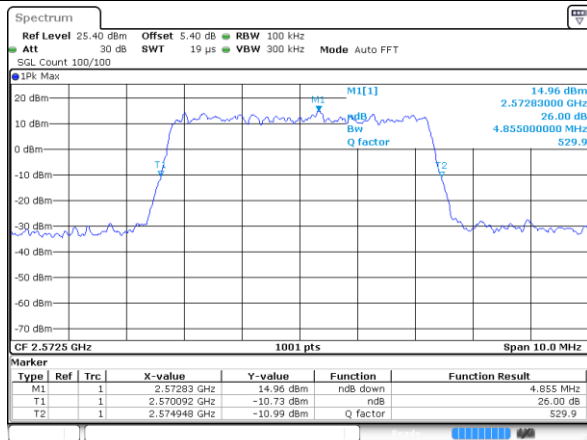


Date: 30 DEC 2017 15:22:45



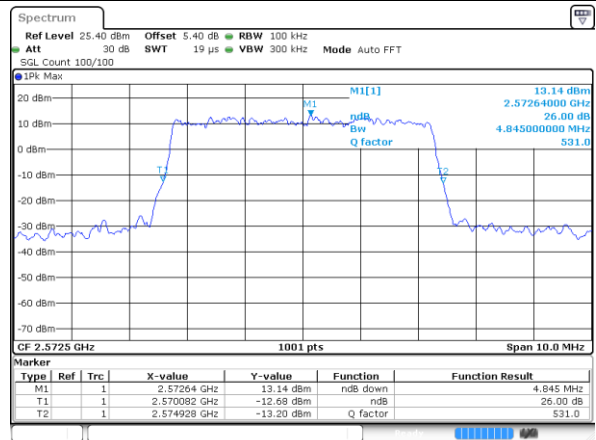
LTE Band 38

Lowest Channel / 5MHz / QPSK



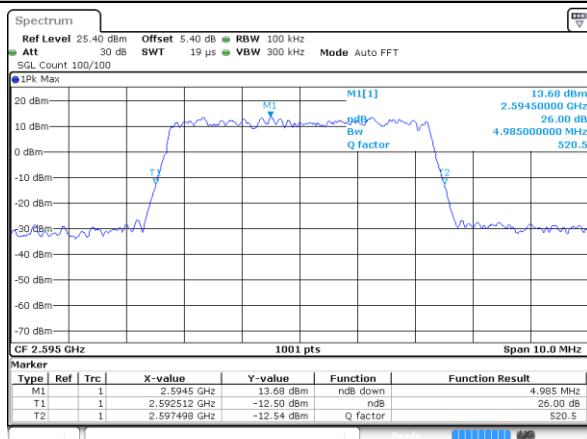
Date: 2 JAN 2018 20:49:19

Lowest Channel / 5MHz / 16QAM



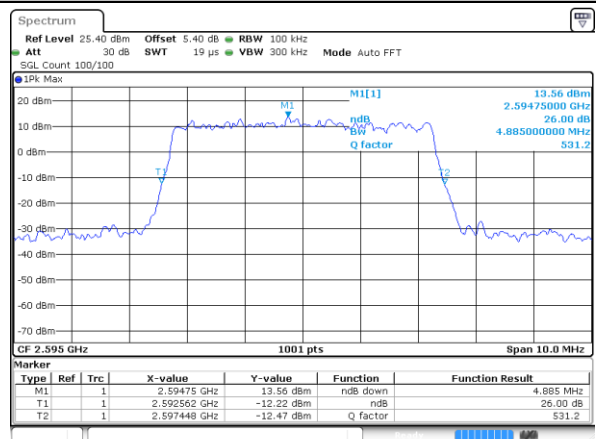
Date: 2 JAN 2018 20:49:55

Middle Channel / 5MHz / QPSK



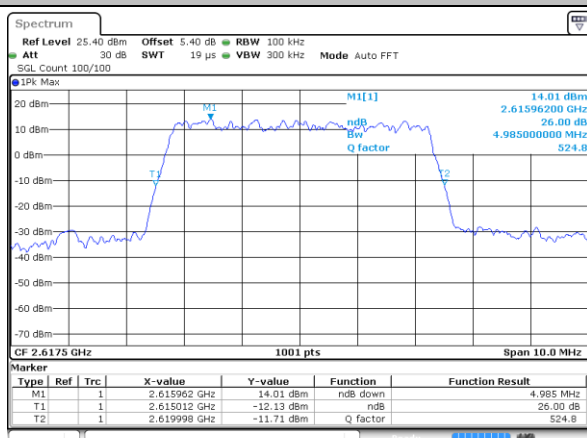
Date: 2 JAN 2018 20:50:26

Middle Channel / 5MHz / 16QAM



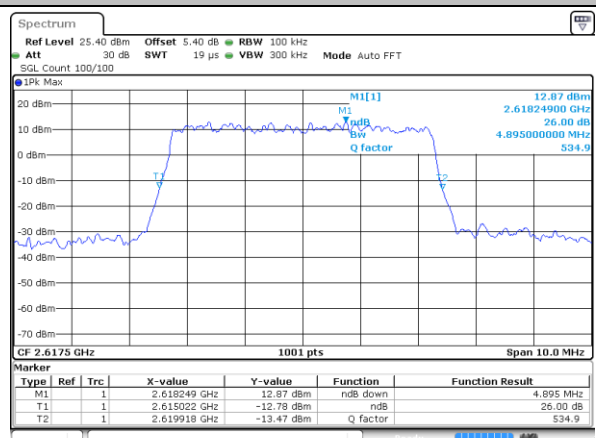
Date: 2 JAN 2018 20:50:49

Highest Channel / 5MHz / QPSK



Date: 2 JAN 2018 20:51:20

Highest Channel / 5MHz / 16QAM

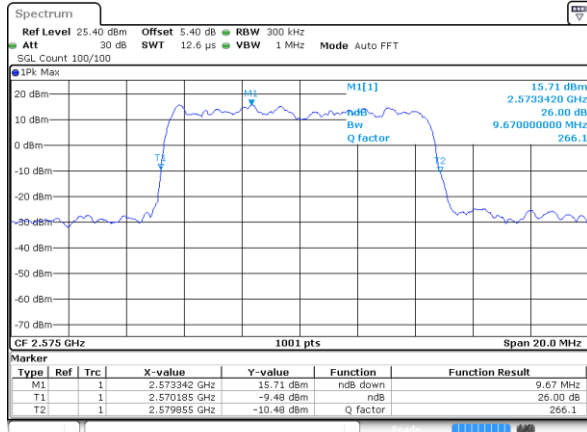


Date: 2 JAN 2018 20:51:44



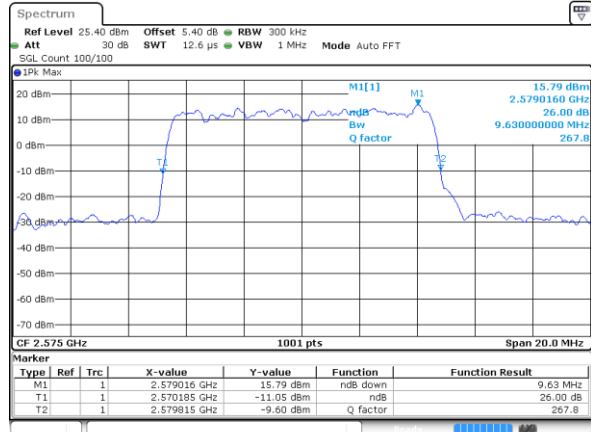
LTE Band 38

Lowest Channel / 10MHz / QPSK



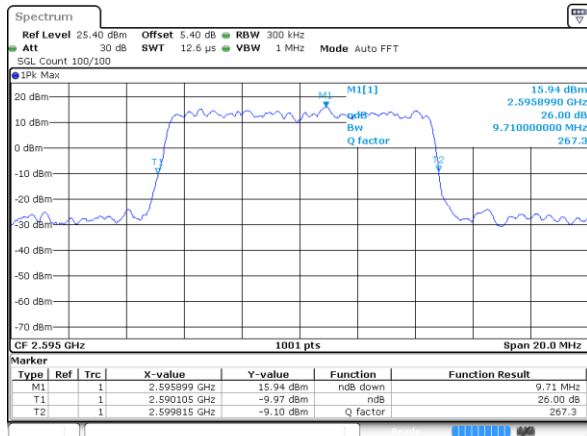
Date: 2 JAN 2018 20:52:19

Lowest Channel / 10MHz / 16QAM



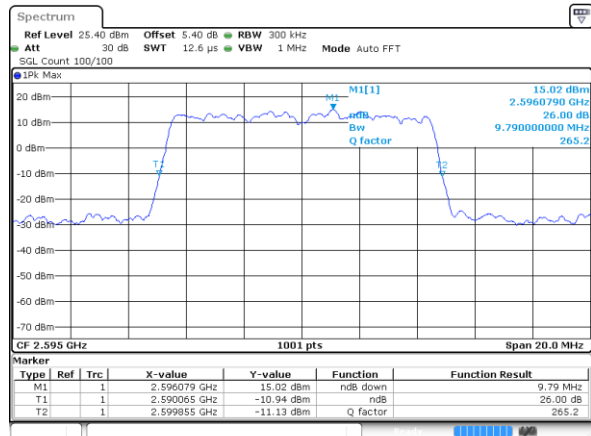
Date: 2 JAN 2018 20:52:42

Middle Channel / 10MHz / QPSK



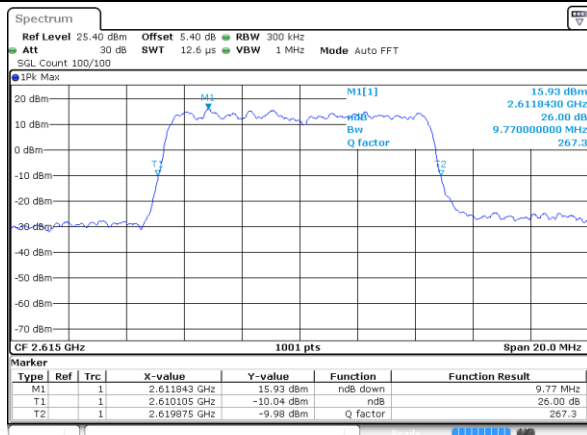
Date: 2 JAN 2018 20:53:06

Middle Channel / 10MHz / 16QAM



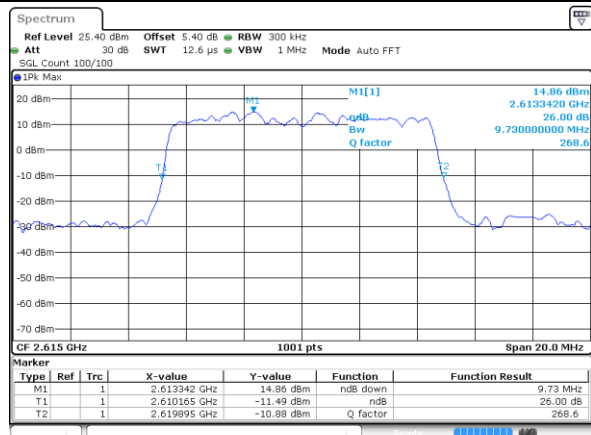
Date: 2 JAN 2018 20:53:35

Highest Channel / 10MHz / QPSK



Date: 2 JAN 2018 20:53:59

Highest Channel / 10MHz / 16QAM

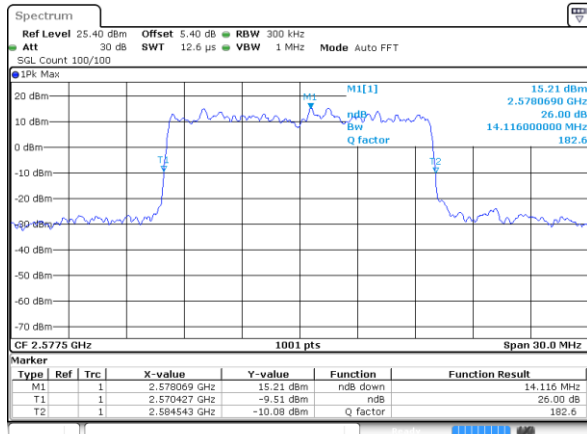


Date: 2 JAN 2018 20:54:21



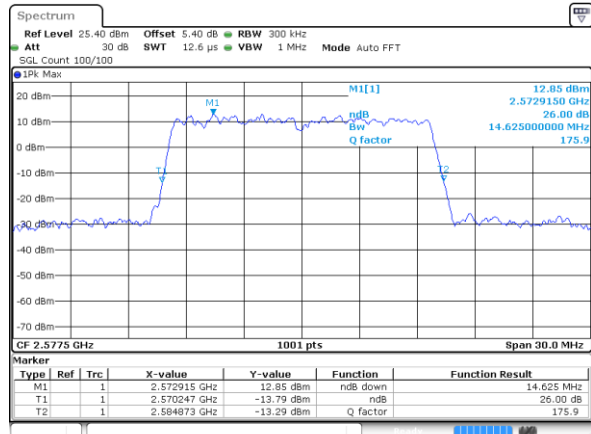
LTE Band 38

Lowest Channel / 15MHz / QPSK



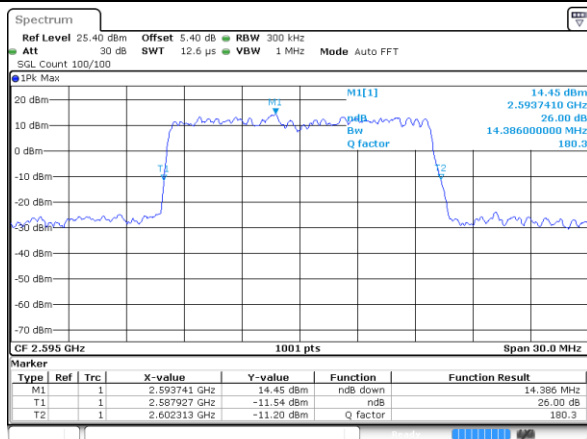
Date: 2 JAN 2018 20:55:22

Lowest Channel / 15MHz / 16QAM



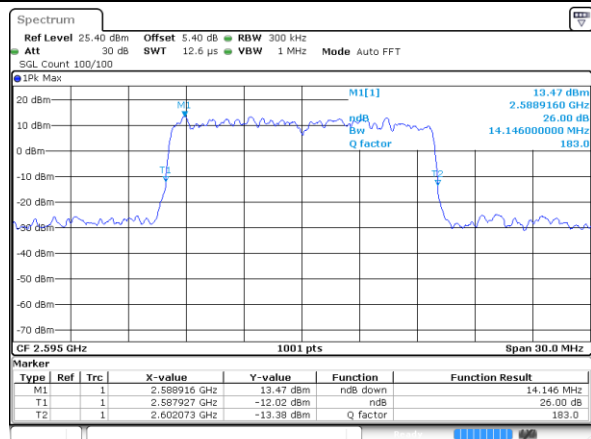
Date: 2 JAN 2018 20:55:44

Middle Channel / 15MHz / QPSK



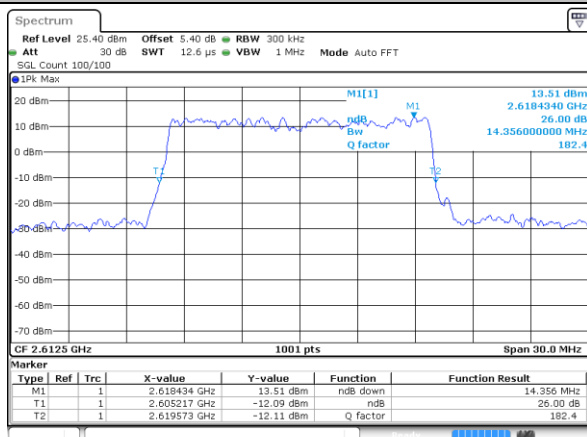
Date: 2 JAN 2018 20:56:15

Middle Channel / 15MHz / 16QAM



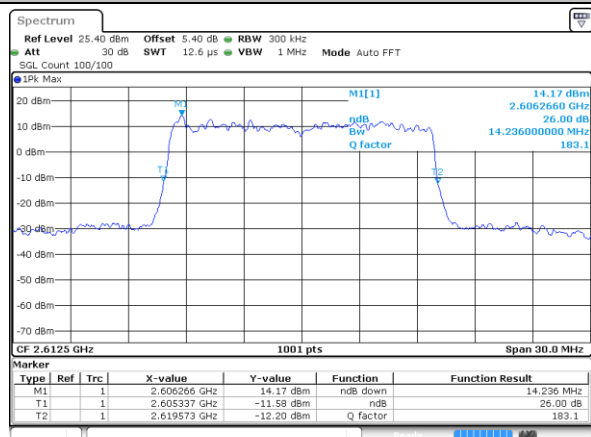
Date: 2 JAN 2018 20:56:46

Highest Channel / 15MHz / QPSK



Date: 2 JAN 2018 20:57:12

Highest Channel / 15MHz / 16QAM



Date: 2 JAN 2018 21:00:58