

FCC RF Test Report

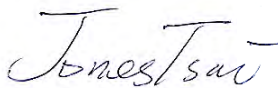
APPLICANT : ZTE CORPORATION
EQUIPMENT : LTE/WCDMA/GSM Multi-Mode Digital Mobile Phone
BRAND NAME : ZTE
MODEL NAME : ZTE Blade A430, BGH Joy Smart A7G, Blade A430
FCC ID : SRQ-BLADEA430
STANDARD : 47 CFR Part 2, 24(E), 27(L), 27(M)
CLASSIFICATION : PCS Licensed Transmitter Held to Ear (PCE)

The product was received on Dec. 15, 2015 and testing was completed on Jan. 29, 2015. 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 / EIA-603-C-2004 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.



Reviewed by: Joseph Lin / Supervisor



Approved by: Jones Tsai / Manager



SPORTON INTERNATIONAL (KUNSHAN) INC.
No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P. R. China



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG4D1505B	Rev. 01	Initial issue of report	Feb. 11, 2015



SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	§2.1046	Conducted Output Power	Reporting Only	PASS	-
3.2	§24.232(d)	Peak-to-Average Ratio	<13 dB	PASS	-
3.3	§24.232(c) §27.50(h)(2)	Equivalent Isotropic Radiated Power (Band 2) (Band 7)	EIRP < 2Watt	PASS	-
	§27.50(d)(4)	Equivalent Isotropic Radiated Power (Band 4)	EIRP < 1Watt		
3.4	§2.1049 §24.238(b) §27.53(h)(3) §27.53(m)(6)	99% Occupied Bandwidth and 26dB Bandwidth	Reporting Only	PASS	-
3.5	§2.1051 §24.238(a) §27.53(h)	Conducted Band Edge Measurement (Band 2) (Band 4)	$< 43 + 10 \log_{10}(P[\text{Watt}])$	PASS	-
	§2.1051 §27.53(m)(4)	Conducted Band Edge Measurement (Band 7)	< 5MHz: -10 dBm 5 MHz~6MHz or 26dB(BW): -13 dBm ≥6MHz or 26dB(BW): -25 dBm		

Report Section	FCC Rule	Description	Limit	Result	Remark
3.6	§2.1051 §24.238(a) §27.53(h)	Conducted Spurious Emission (Band 2) (Band 4)	$< 43+10\log_{10}(P[\text{Watts}])$	PASS	-
	§2.1051 §27.53(m)(4)	Conducted Spurious Emission (Band 7)	$< 55+10\log_{10}(P[\text{Watts}])$	PASS	-
3.7	§2.1053 §24.238(a) §27.53(h)	Radiated Spurious Emission (Band 2) (Band 4)	$< 43+10\log_{10}(P[\text{Watts}])$	PASS	Under limit 0.72 dB at 7590.000 MHz
	§2.1053 §27.53(m)(4)	Radiated Spurious Emission (Band 7)	$< 55+10\log_{10}(P[\text{Watts}])$	PASS	
3.8	§2.1055 §24.235 §27.54	Frequency Stability Temperature & Voltage	within authorized band	PASS	-



1 General Description

1.1 Applicant

ZTE CORPORATION

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

1.2 Manufacturer

ZTE CORPORATION

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

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	LTE/WCDMA/GSM Multi-Mode Digital Mobile Phone
Brand Name	ZTE
Model Name	ZTE Blade A430, BGH Joy Smart A7G, Blade A430
FCC ID	SRQ-BLADEA430
EUT supports Radios application	GSM/GPRS/EGPRS/WCDMA/HSPA/HSPA+/DC-HSDPA/LTE WLAN2.4GHz 802.11b/g/n HT20/HT40 Bluetooth v3.0+EDR Bluetooth v4.0 LE
HW Version	WMBQ
SW Version	ZTE-CN-TB25S-P632A10V0.0.1B01L2
EUT Stage	Identical Prototype

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.4 Product Specification subjective to this standard

Product Specification subjective to this standard	
Tx Frequency	LTE Band 2 : 1850.7 MHz ~ 1909.3 MHz LTE Band 4 : 1710.7 MHz ~ 1754.3 MHz LTE Band 7 : 2502.5 MHz ~ 2567.5 MHz
Rx Frequency	LTE Band 2 : 1930.7 MHz ~ 1989.3 MHz LTE Band 4 : 2110.7 MHz ~ 2154.3 MHz LTE Band 7 : 2622.5MHz ~ 2687.5 MHz
Bandwidth	LTE Band 2 : 1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz / 20MHz LTE Band 4 : 1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz / 20MHz LTE Band 7 : 5MHz/ 10MHz / 15MHz / 20MHz
Maximum Output Power to Antenna	LTE Band 2 : 20.87 dBm LTE Band 4 : 21.88 dBm LTE Band 7 : 21.25 dBm
Antenna Type	PIFA Antenna
Type of Modulation	QPSK / 16QAM

1.5 Modification of EUT

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

1.6 Maximum EIRP Power, Frequency Tolerance, and Emission Designator

FCC Rule	System	Type of Modulation	BW	Emission Designator	Frequency Tolerance (ppm)	Maximum EIRP
Part 24	LTE Band 2	QPSK	1.4 MHz	1M10G7D	-	0.2698 W
Part 24	LTE Band 2	16QAM	1.4 MHz	1M10W7D	-	0.2218 W
Part 24	LTE Band 2	QPSK	3 MHz	2M72G7D	-	0.2729 W
Part 24	LTE Band 2	16QAM	3 MHz	2M72W7D	-	0.2183 W
Part 24	LTE Band 2	QPSK	5 MHz	4M51G7D	-	0.2564 W
Part 24	LTE Band 2	16QAM	5 MHz	4M51W7D	-	0.2228 W
Part 24	LTE Band 2	QPSK	10 MHz	9M03G7D	0.0020 ppm	0.2270 W
Part 24	LTE Band 2	16QAM	10 MHz	9M03W7D	-	0.2023 W
Part 24	LTE Band 2	QPSK	15 MHz	13M5G7D	-	0.2742 W
Part 24	LTE Band 2	16QAM	15 MHz	13M4W7D	-	0.2393 W
Part 24	LTE Band 2	QPSK	20 MHz	18M5G7D	-	0.2761 W
Part 24	LTE Band 2	16QAM	20 MHz	18M6W7D	-	0.2350 W



FCC Rule	System	Type of Modulation	BW	Emission Designator	Frequency Tolerance (ppm)	Maximum EIRP
Part 27	LTE Band 4	QPSK	1.4 MHz	1M09G7D	-	0.1413 W
Part 27	LTE Band 4	16QAM	1.4 MHz	1M09W7D	-	0.1109 W
Part 27	LTE Band 4	QPSK	3 MHz	2M72G7D	-	0.1309 W
Part 27	LTE Band 4	16QAM	3 MHz	2M72W7D	-	0.1076 W
Part 27	LTE Band 4	QPSK	5MHz	4M50G7D	-	0.1321 W
Part 27	LTE Band 4	16QAM	5MHz	4M51W7D	-	0.1109 W
Part 27	LTE Band 4	QPSK	10MHz	9M05G7D	0.0118 ppm	0.1315 W
Part 27	LTE Band 4	16QAM	10MHz	9M03W7D	-	0.1086 W
Part 27	LTE Band 4	QPSK	15MHz	13M5G7D	-	0.1312 W
Part 27	LTE Band 4	16QAM	15MHz	13M5W7D	-	0.1072 W
Part 27	LTE Band 4	QPSK	20MHz	18M4G7D	-	0.1315 W
Part 27	LTE Band 4	16QAM	20MHz	18M4W7D	-	0.1109 W
Part 27	LTE Band 7	QPSK	5MHz	4M52G7D	-	0.0942 W
Part 27	LTE Band 7	16QAM	5MHz	4M51W7D	-	0.0817 W
Part 27	LTE Band 7	QPSK	10MHz	9M03G7D	0.0024 ppm	0.0887 W
Part 27	LTE Band 7	16QAM	10MHz	9M05W7D	-	0.0738 W
Part 27	LTE Band 7	QPSK	15MHz	13M5G7D	-	0.0877 W
Part 27	LTE Band 7	16QAM	15MHz	13M5W7D	-	0.0927 W
Part 27	LTE Band 7	QPSK	20MHz	18M5G7D	-	0.1047 W
Part 27	LTE Band 7	16QAM	20MHz	18M4W7D	-	0.0726 W



1.7 Testing Location

Test Site	SPORTON INTERNATIONAL (KUNSHAN) INC.		
Test Site Location	No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P. R. China TEL: +86-0512-5790-0158 FAX: +86-0512-5790-0958		
Test Site No.	Sporton Site No.		FCC Registration No.
	TH01-KS	03CH01-KS	149928

Test Site	SPORTON INTERNATIONAL (SHENZHEN) INC.		
Test Site Location	1F & 2F, Building A, Morning Business Center, No. 4003 ShiGu Rd., Xili Town, Nanshan District, Shenzhen, Guangdong, P. R. China TEL: +86-755-8637-9589 FAX: +86-755-8637-9595		
Test Site No.	Sporton Site No.		
	OTA02-SZ		

1.8 Applicable Standards

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

- ♦ 47 CFR Part 2, 24(E), 27(L), 27(M)
- ♦ ANSI / TIA / EIA-603-C-2004
- ♦ FCC KDB 971168 D01 Power Meas. License Digital Systems v02r02

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 v02r02 with maximum output power.

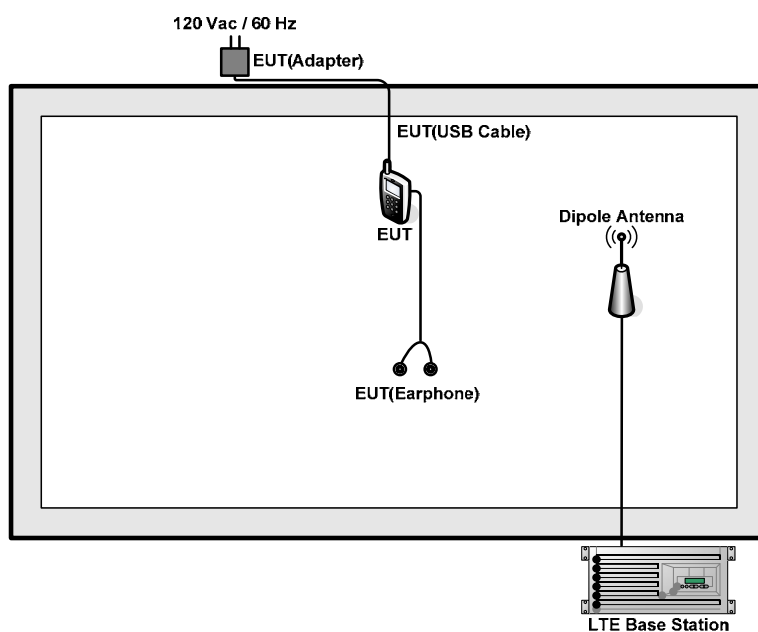
Radiated measurements are performed by rotating the EUT in three different orthogonal test planes to find the maximum emission.

Test Items	Band	Bandwidth (MHz)						Modulation		RB #			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	1	Half	Full	L	M	H
Max. Output Power	2	v	v	v	v	v	v	v	v	v	v	v	v	v	v
	4	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
Peak-to-Average Ratio	2						v	v	v	v		v	v	v	v
	4						v	v	v	v		v	v	v	v
	7	-	-				v	v	v	v		v	v	v	v
26dB and 99% Bandwidth	2	v	v	v	v	v	v	v	v			v		v	
	4	v	v	v	v	v	v	v	v			v		v	
	7	-	-	v	v	v	v	v	v			v		v	
Conducted Band Edge	2	v	v	v	v	v	v	v	v	v		v	v		v
	4	v	v	v	v	v	v	v	v	v		v	v		v
	7	-	-	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	1	Half	Full	L	M	H
Conducted Spurious Emission	2	v	v	v	v	v	v	v	v	v			v	v	v
	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
Frequency Stability	2				v			v				v		v	
	4				v			v				v		v	
	7	-	-		v			v				v		v	
E.I.R.P.	2	v	v	v	v	v	v	v	v	v			v	v	v
	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
Radiated Spurious Emission	2	v	v	v	v	v	v	v		v				v	
	4	v	v	v	v	v	v	v		v				v	
	7	-	-	v	v	v	v	v		v				v	
Note	- The mark "v " means that this configuration is chosen for testing - The mark "- " means that this bandwidth is not supported. - 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.	LTE Base Station	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8 m
2.	DC Power Supply	GW INSTEK	GPD-2303S	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 5dB.

Example :

$$\begin{aligned}\text{Offset(dB)} &= \text{RF cable loss(dB)} \\ &= 5 \text{ (dB)}\end{aligned}$$

3 Test Result

3.1 Conducted Output Power Measurement

3.1.1 Description of the Conducted Output Power 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.

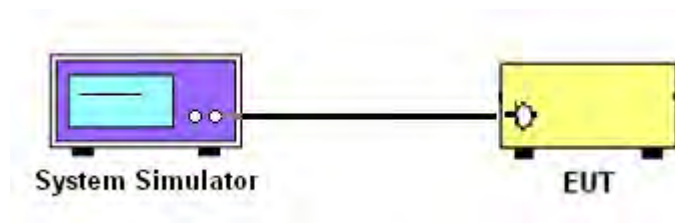
3.1.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.1.3 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.

3.1.4 Test Setup





3.1.5 Test Result of Conducted Output Power

<LTE Band 2 Conducted Power>

BW [MHz]	Modulation	RB Size	RB Offset	Power (dBm) Low Ch. / Freq.	Power (dBm) Middle Ch. / Freq.	Power (dBm) High Ch. / Freq.
Channel				18700	18900	19100
Frequency (MHz)				1860	1880	1900
20	QPSK	1	0	20.67	20.87	20.77
20	QPSK	1	49	20.55	20.28	20.56
20	QPSK	1	99	20.21	20.48	20.46
20	QPSK	50	0	19.64	19.68	19.63
20	QPSK	50	24	19.62	19.48	19.62
20	QPSK	50	49	19.50	19.61	19.61
20	QPSK	100	0	19.60	19.67	19.60
20	16QAM	1	0	19.93	20.29	20.34
20	16QAM	1	49	20.24	20.01	20.19
20	16QAM	1	99	19.88	20.09	20.07
20	16QAM	50	0	18.76	18.56	18.84
20	16QAM	50	24	18.72	18.64	18.81
20	16QAM	50	49	18.64	18.75	18.80
20	16QAM	100	0	18.74	18.72	18.83
Channel				18675	18900	19125
Frequency (MHz)				1857.5	1880	1902.5
15	QPSK	1	0	20.44	20.29	20.49
15	QPSK	1	37	20.50	20.16	20.40
15	QPSK	1	74	20.30	20.50	20.37
15	QPSK	36	0	19.46	19.33	19.49
15	QPSK	36	18	19.50	19.31	19.45
15	QPSK	36	37	19.45	19.42	19.48
15	QPSK	75	0	19.48	19.40	19.49
15	16QAM	1	0	19.72	19.65	19.81
15	16QAM	1	37	19.80	19.59	19.78
15	16QAM	1	74	19.66	19.89	19.69
15	16QAM	36	0	18.57	18.44	18.60
15	16QAM	36	18	18.62	18.43	18.59
15	16QAM	36	37	18.56	18.57	18.60
15	16QAM	75	0	18.65	18.60	18.68



BW [MHz]	Modulation	RB Size	RB Offset	Power (dBm) Low Ch. / Freq.	Power (dBm) Middle Ch. / Freq.	Power (dBm) High Ch. / Freq.
Channel				18650	18900	19150
Frequency (MHz)				1855	1880	1905
10	QPSK	1	0	20.19	20.04	20.18
10	QPSK	1	24	20.41	20.14	20.43
10	QPSK	1	49	20.12	20.11	20.02
10	QPSK	25	0	19.36	19.26	19.38
10	QPSK	25	12	19.40	19.24	19.44
10	QPSK	25	24	19.37	19.26	19.35
10	QPSK	50	0	19.40	19.29	19.41
10	16QAM	1	0	19.63	19.62	19.35
10	16QAM	1	24	19.95	19.76	19.65
10	16QAM	1	49	19.67	19.72	19.24
10	16QAM	25	0	18.43	18.33	18.60
10	16QAM	25	12	18.50	18.32	18.67
10	16QAM	25	24	18.51	18.39	18.57
10	16QAM	50	0	18.55	18.45	18.59
Channel				18625	18900	19175
Frequency (MHz)				1852.5	1880	1907.5
5	QPSK	1	0	20.85	20.67	20.80
5	QPSK	1	12	20.36	20.07	20.30
5	QPSK	1	24	20.70	20.51	20.57
5	QPSK	12	0	19.47	19.34	19.50
5	QPSK	12	6	19.39	19.21	19.40
5	QPSK	12	11	19.46	19.22	19.40
5	QPSK	25	0	19.48	19.31	19.44
5	16QAM	1	0	19.92	20.00	20.10
5	16QAM	1	12	19.59	19.44	19.65
5	16QAM	1	24	19.83	19.84	19.88
5	16QAM	12	0	18.59	18.49	18.70
5	16QAM	12	6	18.51	18.35	18.57
5	16QAM	12	11	18.61	18.39	18.59
5	16QAM	25	0	18.53	18.40	18.57



BW [MHz]	Modulation	RB Size	RB Offset	Power (dBm) Low Ch. / Freq.	Power (dBm) Middle Ch. / Freq.	Power (dBm) High Ch. / Freq.
Channel				18615	18900	19185
Frequency (MHz)				1851.5	1880	1908.5
3	QPSK	1	0	20.86	20.75	20.83
3	QPSK	1	7	20.76	20.49	20.79
3	QPSK	1	14	20.77	20.57	20.76
3	QPSK	8	0	19.84	19.70	19.86
3	QPSK	8	4	19.84	19.65	19.86
3	QPSK	8	7	19.93	19.71	19.89
3	QPSK	15	0	19.89	19.72	19.87
3	16QAM	1	0	20.38	20.36	20.47
3	16QAM	1	7	20.37	20.23	20.38
3	16QAM	1	14	20.37	20.35	20.41
3	16QAM	8	0	19.00	18.88	19.02
3	16QAM	8	4	19.01	18.86	19.02
3	16QAM	8	7	19.10	18.91	19.08
3	16QAM	15	0	19.04	18.92	19.09
Channel				18607	18900	19193
Frequency (MHz)				1850.7	1880	1909.3
1.4	QPSK	1	0	20.80	20.64	20.83
1.4	QPSK	1	2	20.74	20.50	20.67
1.4	QPSK	1	5	20.79	20.61	20.82
1.4	QPSK	3	0	20.74	20.53	20.74
1.4	QPSK	3	1	20.68	20.48	20.70
1.4	QPSK	3	2	20.71	20.50	20.67
1.4	QPSK	6	0	19.77	19.60	19.76
1.4	16QAM	1	0	20.06	19.97	20.09
1.4	16QAM	1	2	19.96	19.90	20.03
1.4	16QAM	1	5	20.16	20.02	20.13
1.4	16QAM	3	0	19.88	19.75	19.90
1.4	16QAM	3	1	19.87	19.74	19.91
1.4	16QAM	3	2	19.90	19.75	19.90
1.4	16QAM	6	0	18.95	18.82	18.98

**<LTE Band 4 Conducted Power>**

BW [MHz]	Modulation	RB Size	RB Offset	Power (dBm) Low Ch. / Freq.	Power (dBm) Middle Ch. / Freq.	Power (dBm) High Ch. / Freq.
Channel				20050	20175	20300
Frequency (MHz)				1720	1732.5	1745
20	QPSK	1	0	21.73	21.88	21.74
20	QPSK	1	49	21.65	21.60	21.60
20	QPSK	1	99	21.59	21.52	21.52
20	QPSK	50	0	20.80	20.83	20.81
20	QPSK	50	24	20.73	20.79	20.75
20	QPSK	50	49	20.74	20.76	20.72
20	QPSK	100	0	20.75	20.79	20.77
20	16QAM	1	0	21.15	21.17	21.14
20	16QAM	1	49	21.00	20.98	21.02
20	16QAM	1	99	20.90	20.95	20.96
20	16QAM	50	0	19.86	19.89	19.90
20	16QAM	50	24	19.82	19.84	19.86
20	16QAM	50	49	19.79	19.80	19.79
20	16QAM	100	0	19.79	19.84	19.84
Channel				20025	20175	20325
Frequency (MHz)				1717.5	1732.5	1747.5
15	QPSK	1	0	21.87	21.86	21.85
15	QPSK	1	37	21.83	21.78	21.77
15	QPSK	1	74	21.76	21.71	21.69
15	QPSK	36	0	20.84	20.84	20.86
15	QPSK	36	18	20.82	20.81	20.80
15	QPSK	36	37	20.79	20.79	20.75
15	QPSK	75	0	20.73	20.84	20.76
15	16QAM	1	0	21.39	21.35	21.32
15	16QAM	1	37	21.36	21.25	21.29
15	16QAM	1	74	21.24	21.18	21.23
15	16QAM	36	0	19.92	19.93	19.91
15	16QAM	36	18	19.90	19.88	19.87
15	16QAM	36	37	19.86	19.86	19.84
15	16QAM	75	0	19.84	19.89	19.80



BW [MHz]	Modulation	RB Size	RB Offset	Power (dBm) Low Ch. / Freq.	Power (dBm) Middle Ch. / Freq.	Power (dBm) High Ch. / Freq.
Channel				20000	20175	20350
Frequency (MHz)				1715	1732.5	1750
10	QPSK	1	0	21.87	21.87	21.76
10	QPSK	1	24	21.86	21.84	21.78
10	QPSK	1	49	21.75	21.50	21.66
10	QPSK	25	0	20.85	20.79	20.83
10	QPSK	25	12	20.80	20.82	20.79
10	QPSK	25	24	20.78	20.78	20.78
10	QPSK	50	0	20.79	20.86	20.77
10	16QAM	1	0	21.08	21.02	20.67
10	16QAM	1	24	21.04	21.00	20.79
10	16QAM	1	49	21.00	20.78	20.70
10	16QAM	25	0	19.93	19.94	19.86
10	16QAM	25	12	19.90	19.91	19.83
10	16QAM	25	24	19.89	19.90	19.81
10	16QAM	50	0	19.83	19.91	19.86
Channel				19975	20175	20375
Frequency (MHz)				1712.5	1732.5	1752.5
5	QPSK	1	0	21.74	21.76	21.74
5	QPSK	1	12	21.80	21.59	21.71
5	QPSK	1	24	21.70	21.67	21.62
5	QPSK	12	0	20.90	20.89	20.86
5	QPSK	12	6	20.89	20.77	20.83
5	QPSK	12	11	20.89	20.75	20.84
5	QPSK	25	0	20.82	20.83	20.76
5	16QAM	1	0	20.86	20.87	20.84
5	16QAM	1	12	20.89	20.78	20.83
5	16QAM	1	24	20.78	20.75	20.71
5	16QAM	12	0	19.90	19.91	19.89
5	16QAM	12	6	19.92	19.82	19.89
5	16QAM	12	11	19.94	19.82	19.88
5	16QAM	25	0	19.85	19.86	19.80



BW [MHz]	Modulation	RB Size	RB Offset	Power (dBm) Low Ch. / Freq.	Power (dBm) Middle Ch. / Freq.	Power (dBm) High Ch. / Freq.
Channel				19965	20175	20385
Frequency (MHz)				1711.5	1732.5	1753.5
3	QPSK	1	0	21.61	21.82	21.76
3	QPSK	1	7	21.66	21.79	21.79
3	QPSK	1	14	21.61	21.61	21.59
3	QPSK	8	0	20.82	20.83	20.76
3	QPSK	8	4	20.79	20.85	20.75
3	QPSK	8	7	20.78	20.81	20.76
3	QPSK	15	0	20.78	20.80	20.73
3	16QAM	1	0	21.03	21.25	21.27
3	16QAM	1	7	21.07	21.04	20.76
3	16QAM	1	14	21.03	21.20	21.22
3	16QAM	8	0	19.78	19.99	19.80
3	16QAM	8	4	19.77	19.85	19.80
3	16QAM	8	7	19.77	19.92	19.71
3	16QAM	15	0	19.77	19.89	19.90
Channel				19957	20175	20393
Frequency (MHz)				1710.7	1732.5	1754.3
1.4	QPSK	1	0	21.75	21.73	21.66
1.4	QPSK	1	2	21.85	21.68	21.81
1.4	QPSK	1	5	21.67	21.68	21.64
1.4	QPSK	3	0	21.87	21.75	21.84
1.4	QPSK	3	1	21.85	21.74	21.81
1.4	QPSK	3	2	21.84	21.76	21.81
1.4	QPSK	6	0	20.84	20.85	20.79
1.4	16QAM	1	0	21.01	20.99	20.97
1.4	16QAM	1	2	21.12	21.01	21.07
1.4	16QAM	1	5	21.32	20.92	20.92
1.4	16QAM	3	0	20.96	20.93	20.92
1.4	16QAM	3	1	20.95	20.91	20.90
1.4	16QAM	3	2	20.98	20.94	20.94
1.4	16QAM	6	0	20.03	20.03	19.98



<LTE Band 7 Conducted Power>

BW [MHz]	Modulation	RB Size	RB Offset	Power (dBm) Low Ch. / Freq.	Power (dBm) Middle Ch. / Freq.	Power (dBm) High Ch. / Freq.
Channel				20850	21100	21350
Frequency (MHz)				2510	2535	2560
20	QPSK	1	0	21.09	20.58	21.25
20	QPSK	1	49	21.05	20.32	21.24
20	QPSK	1	99	21.00	20.42	21.23
20	QPSK	50	0	20.22	19.31	20.26
20	QPSK	50	24	20.21	19.13	20.20
20	QPSK	50	49	20.20	19.22	20.25
20	QPSK	100	0	20.21	19.26	20.22
20	16QAM	1	0	20.30	19.93	20.49
20	16QAM	1	49	20.41	19.34	20.36
20	16QAM	1	99	20.28	19.88	20.35
20	16QAM	50	0	19.28	18.30	19.21
20	16QAM	50	24	19.25	18.13	19.19
20	16QAM	50	49	19.23	18.26	19.23
20	16QAM	100	0	19.23	18.32	19.22
Channel				20825	21100	21375
Frequency (MHz)				2507.5	2535	2562.5
15	QPSK	1	0	20.90	20.31	21.15
15	QPSK	1	37	21.14	20.21	21.18
15	QPSK	1	74	21.13	20.23	21.23
15	QPSK	36	0	20.02	19.16	20.24
15	QPSK	36	18	20.13	19.02	20.29
15	QPSK	36	37	20.27	19.08	20.31
15	QPSK	75	0	20.17	19.09	20.31
15	16QAM	1	0	20.36	19.75	20.36
15	16QAM	1	37	20.44	19.37	20.44
15	16QAM	1	74	20.42	19.71	20.43
15	16QAM	36	0	19.06	18.17	19.26
15	16QAM	36	18	19.24	18.07	19.27
15	16QAM	36	37	19.23	18.06	19.30
15	16QAM	75	0	19.25	18.12	19.31



BW [MHz]	Modulation	RB Size	RB Offset	Power (dBm) Low Ch. / Freq.	Power (dBm) Middle Ch. / Freq.	Power (dBm) High Ch. / Freq.
Channel				20800	21100	21400
Frequency (MHz)				2505	2535	2565
10	QPSK	1	0	20.80	20.03	21.17
10	QPSK	1	24	20.84	19.80	21.23
10	QPSK	1	49	21.01	19.80	21.22
10	QPSK	25	0	19.88	19.03	20.25
10	QPSK	25	12	19.93	18.94	20.28
10	QPSK	25	24	20.07	19.00	20.28
10	QPSK	50	0	20.00	19.00	20.30
10	16QAM	1	0	19.65	18.93	20.18
10	16QAM	1	24	20.01	18.74	20.24
10	16QAM	1	49	20.14	18.70	20.14
10	16QAM	25	0	18.94	18.04	19.29
10	16QAM	25	12	19.13	17.96	19.30
10	16QAM	25	24	19.17	17.98	19.28
10	16QAM	50	0	19.14	18.10	19.30
Channel				20775	21100	21425
Frequency (MHz)				2502.5	2535	2567.5
5	QPSK	1	0	21.17	20.48	21.17
5	QPSK	1	12	20.77	19.85	21.22
5	QPSK	1	24	21.15	20.30	21.16
5	QPSK	12	0	20.01	19.06	20.33
5	QPSK	12	6	19.92	18.92	20.31
5	QPSK	12	11	19.94	18.98	20.33
5	QPSK	25	0	19.99	19.02	20.26
5	16QAM	1	0	20.21	19.62	20.29
5	16QAM	1	12	19.92	18.92	20.43
5	16QAM	1	24	20.14	19.35	20.32
5	16QAM	12	0	19.09	18.06	19.32
5	16QAM	12	6	18.94	17.97	19.28
5	16QAM	12	11	19.01	17.99	19.32
5	16QAM	25	0	19.10	18.07	19.19

Note: maximum average power for LTE.

3.2 Peak-to-Average Ratio

3.2.1 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.

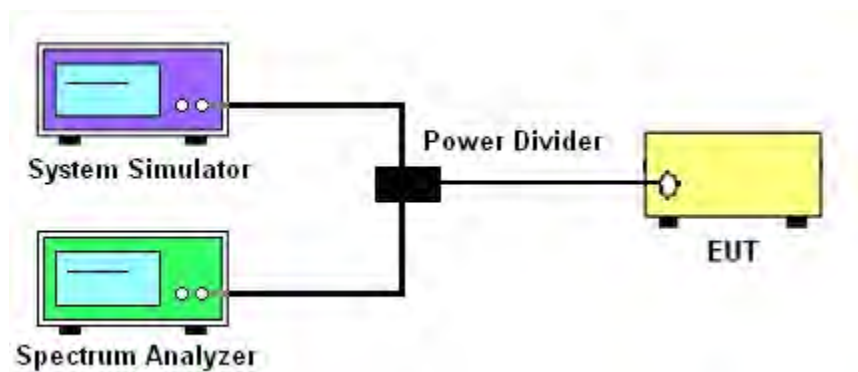
3.2.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.2.3 Test Procedures

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

3.2.4 Test Setup



3.2.5 Test Result of Peak-to-Average Ratio

LTE Band 2						
BW [MHz]	Modulation	RB Size	RB Offset	Power (dBm) Low Ch. / Freq.	Power (dBm) Middle Ch. / Freq.	Power (dBm) High Ch. / Freq.
Channel				18700	18900	19100
Frequency (MHz)				1860	1880	1900
20	QPSK	1	0	5.16	5.30	5.59
20	QPSK	100	0	5.80	5.94	5.91
20	16QAM	1	0	7.13	6.26	6.72
20	16QAM	100	0	6.58	6.84	6.72

LTE Band 4						
BW [MHz]	Modulation	RB Size	RB Offset	Power (dBm) Low Ch. / Freq.	Power (dBm) Middle Ch. / Freq.	Power (dBm) High Ch. / Freq.
Channel				20050	20175	20300
Frequency (MHz)				1720	1732.5	1745
20	QPSK	1	0	4.58	4.46	4.61
20	QPSK	100	0	5.33	5.71	5.62
20	16QAM	1	0	5.39	6.26	5.91
20	16QAM	100	0	6.29	6.35	6.41

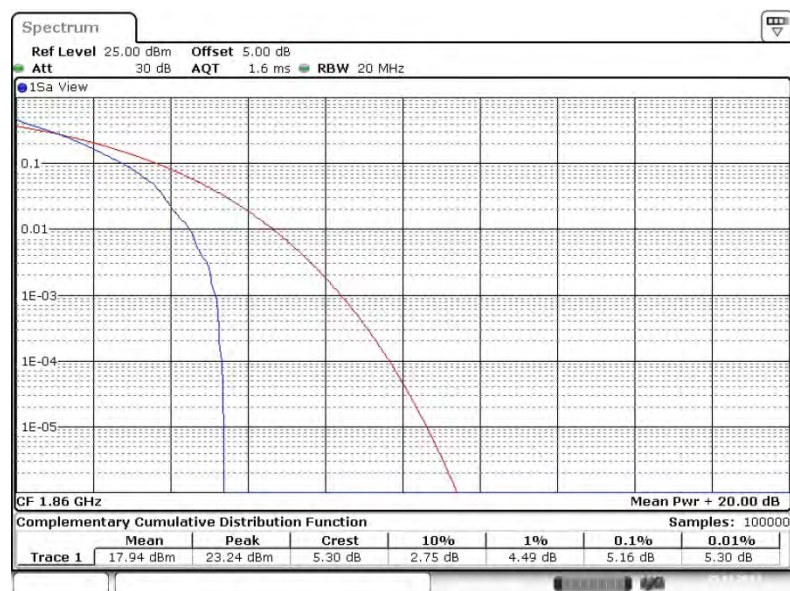
LTE Band 7						
BW [MHz]	Modulation	RB Size	RB Offset	Power (dBm) Low Ch. / Freq.	Power (dBm) Middle Ch. / Freq.	Power (dBm) High Ch. / Freq.
Channel				20850	21100	21350
Frequency (MHz)				2510	2535	2560
20	QPSK	1	0	3.62	3.80	3.54
20	QPSK	100	0	4.78	4.38	4.99
20	16QAM	1	0	4.75	4.29	4.29
20	16QAM	100	0	5.65	5.30	5.94



3.2.7 Peak to Average Power Ratio

Peak-to-Average Ratio on LTE Band 2

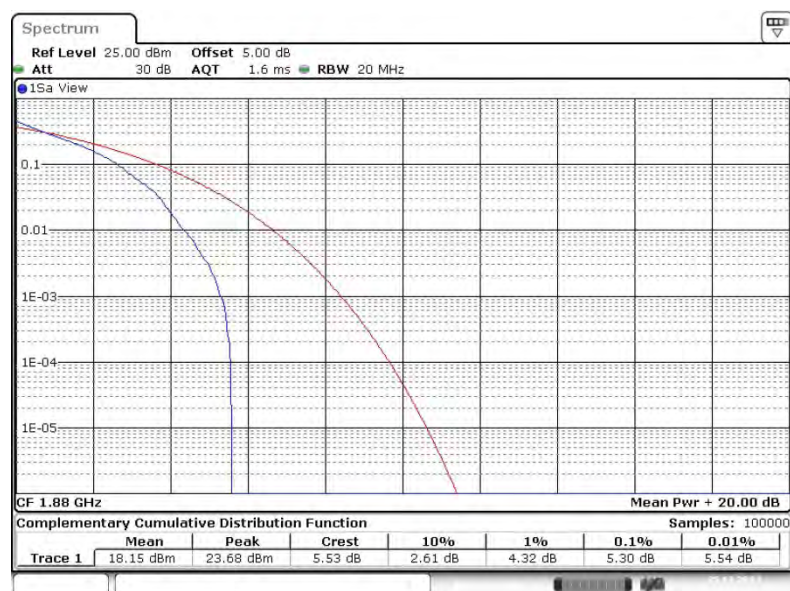
20MHz / QPSK in Ch. 18700 (1RB Size)



Date: 25 DEC. 2014 23:00:41

Peak-to-Average Ratio on LTE Band 2

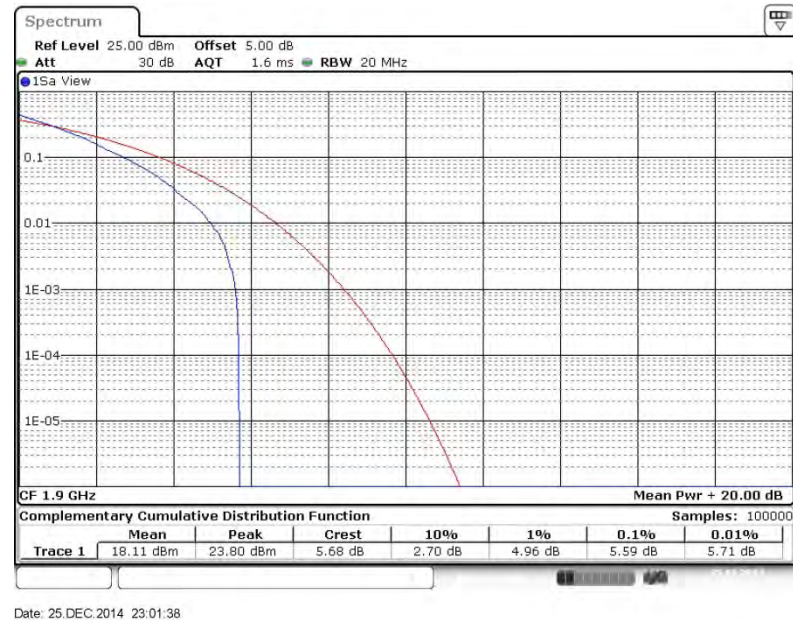
20MHz / QPSK in Ch. 18900 (1RB Size)



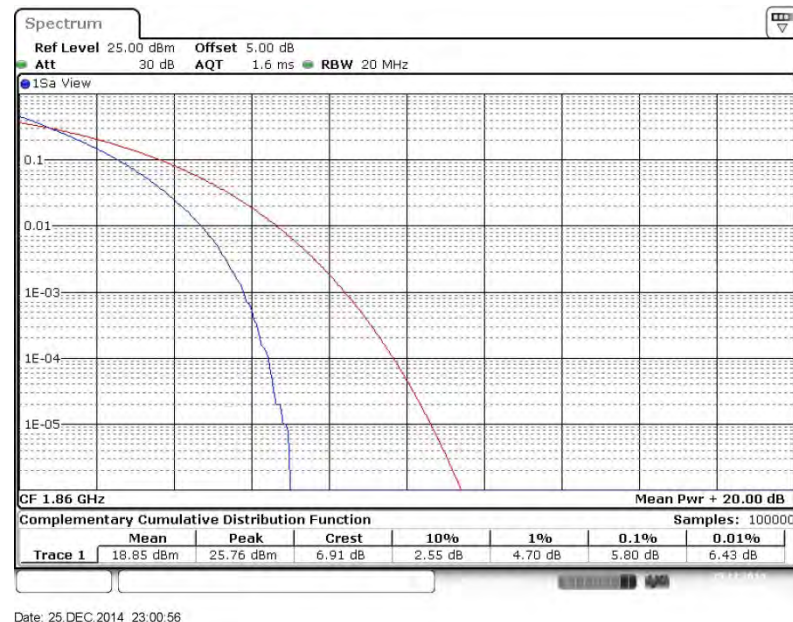
Date: 25 DEC. 2014 23:01:24



Peak-to-Average Ratio on LTE Band 2
20MHz / QPSK in Ch. 19100 (1RB Size)

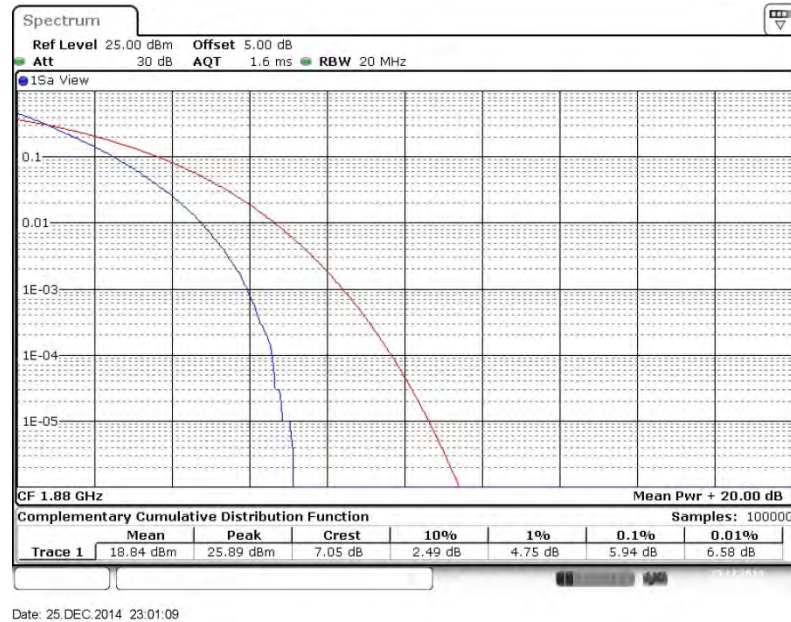


Peak-to-Average Ratio on LTE Band 2
20MHz / QPSK in Ch. 18700 (100RB Size)

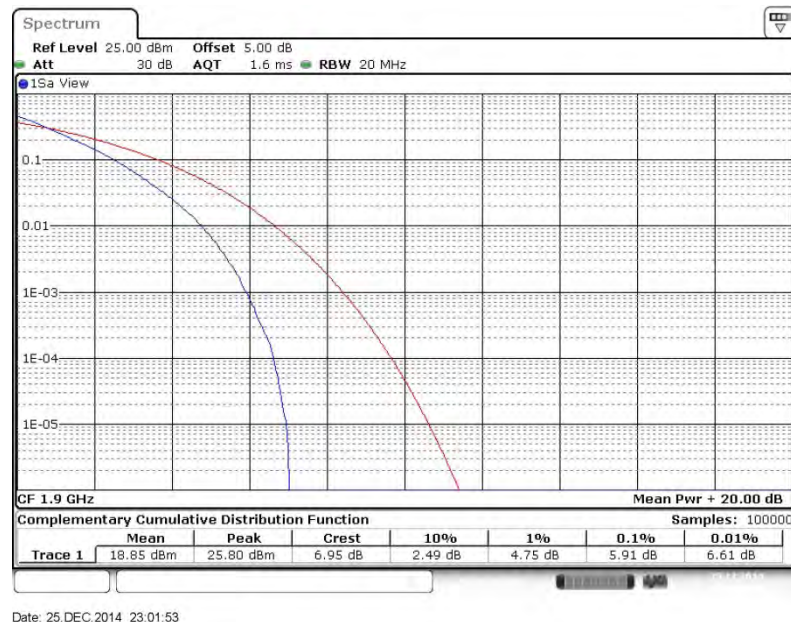




Peak-to-Average Ratio on LTE Band 2
20MHz / QPSK in Ch. 18900 (100RB Size)

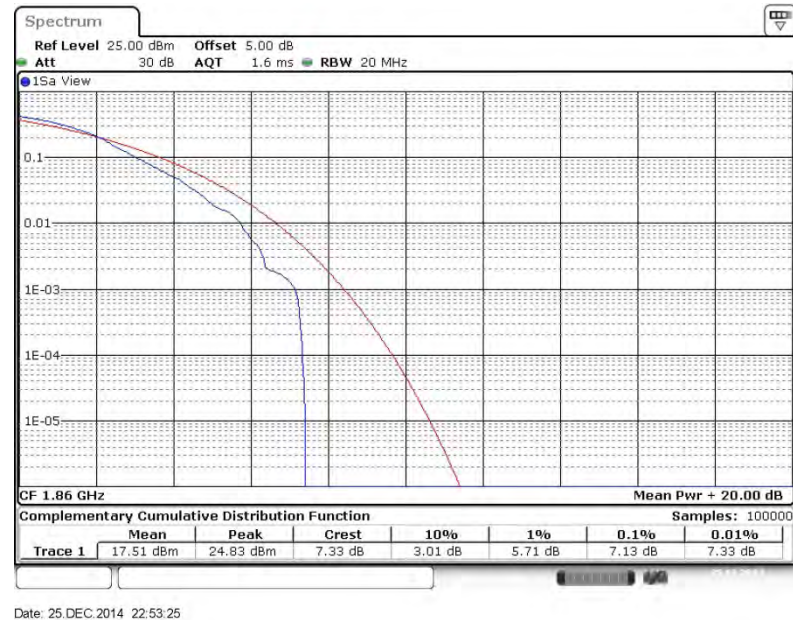


Peak-to-Average Ratio on LTE Band 2
20MHz / QPSK in Ch. 19100 (100RB Size)

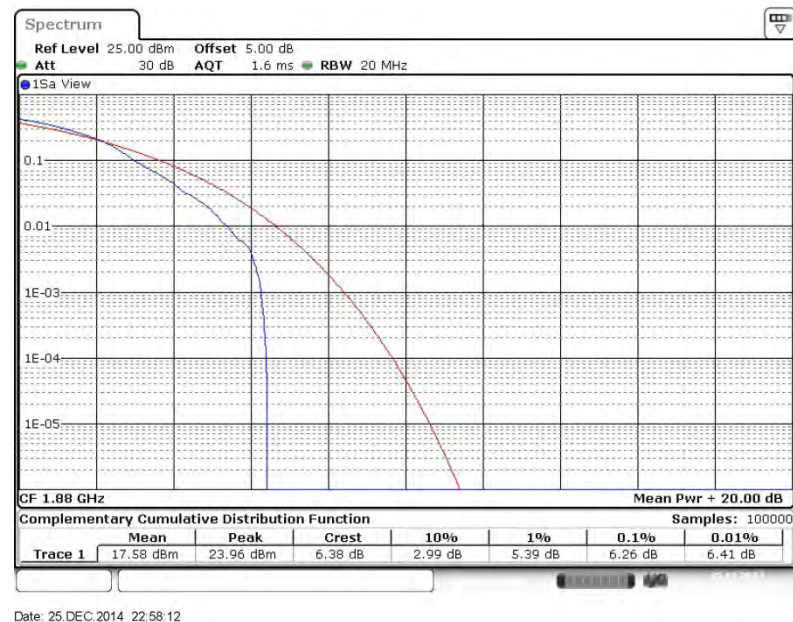




Peak-to-Average Ratio on LTE Band 2
20MHz / 16QAM in Ch. 18700 (1RB Size)

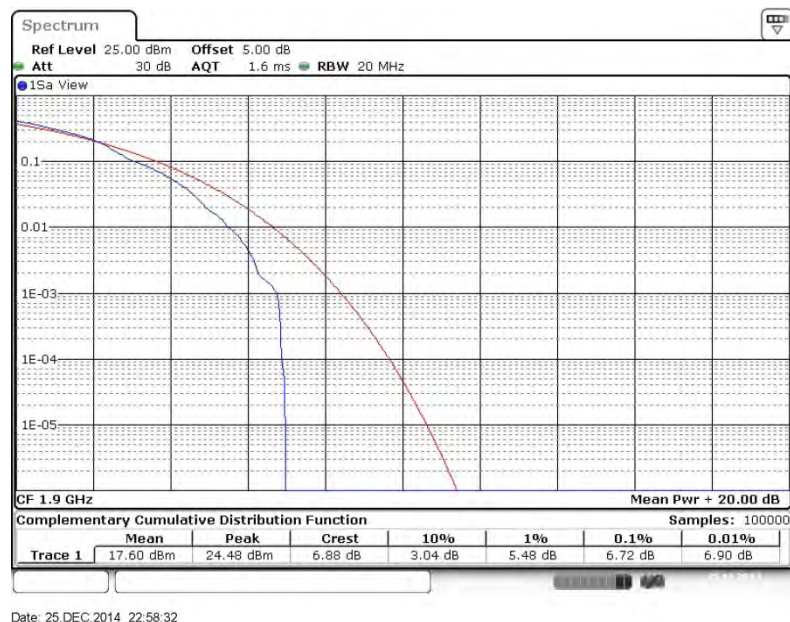


Peak-to-Average Ratio on LTE Band 2
20MHz / 16QAM in Ch. 18900 (1RB Size)

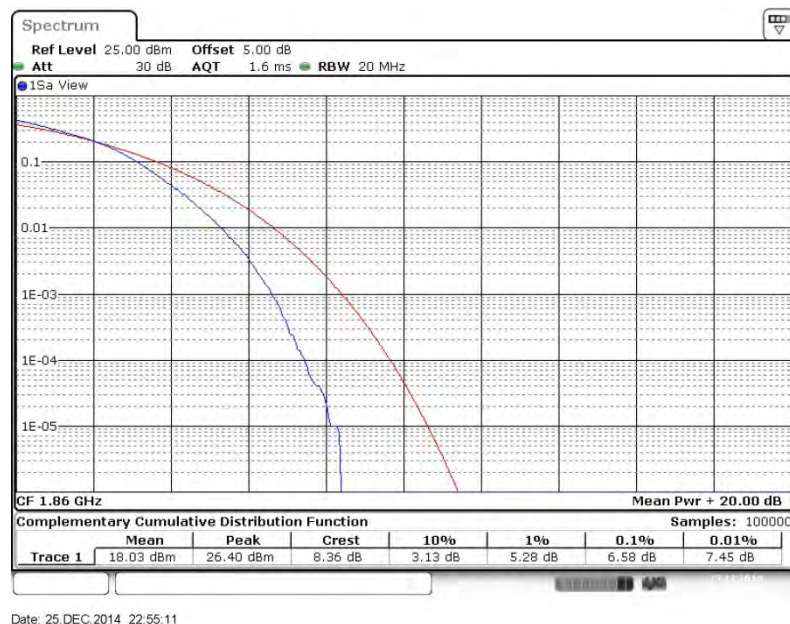




Peak-to-Average Ratio on LTE Band 2
20MHz / 16QAM in Ch. 19100 (1RB Size)

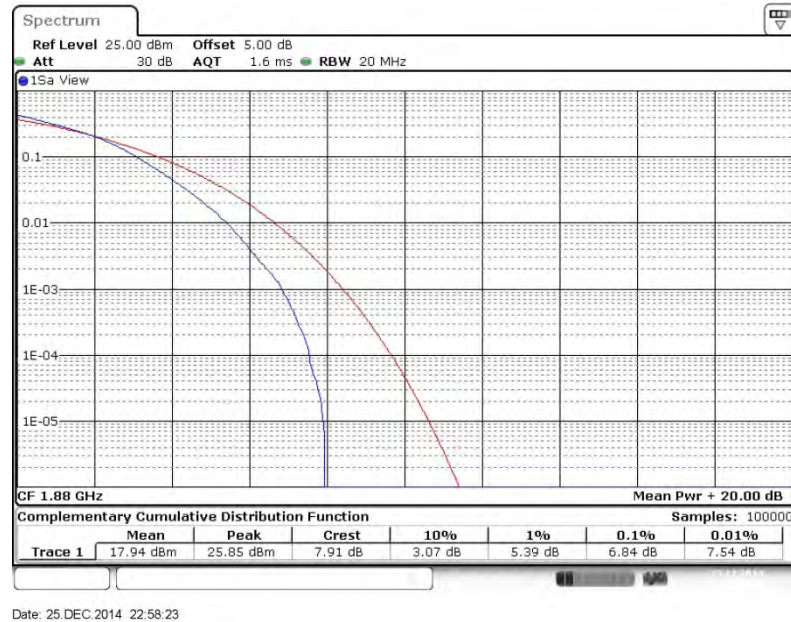


Peak-to-Average Ratio on LTE Band 2
20MHz / 16QAM in Ch. 18700 (100RB Size)

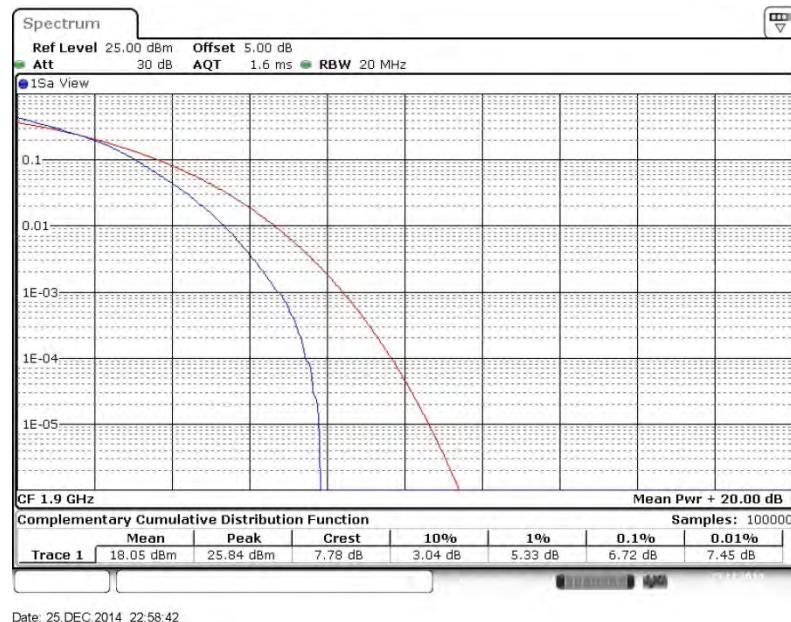




Peak-to-Average Ratio on LTE Band 2
20MHz / 16QAM in Ch. 18900 (100RB Size)

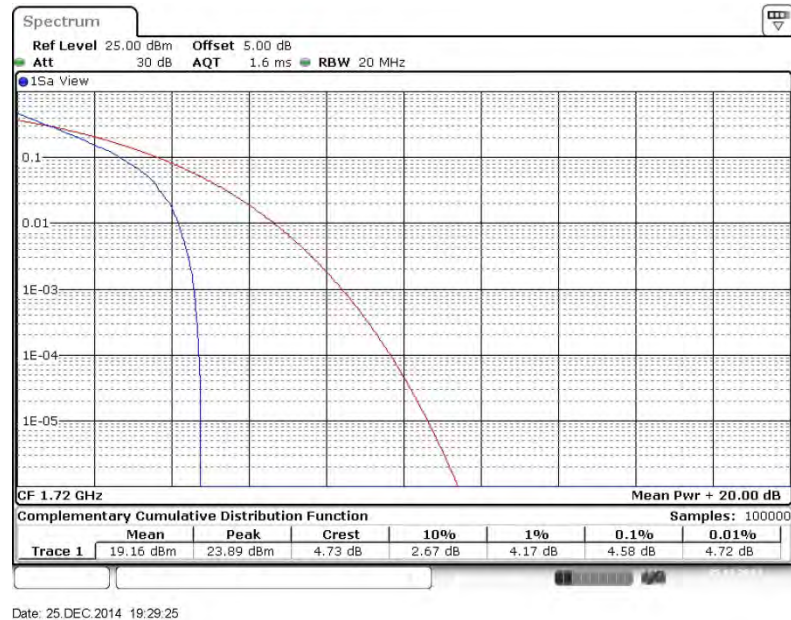


Peak-to-Average Ratio on LTE Band 2
20MHz / 16QAM in Ch. 19100 (100RB Size)

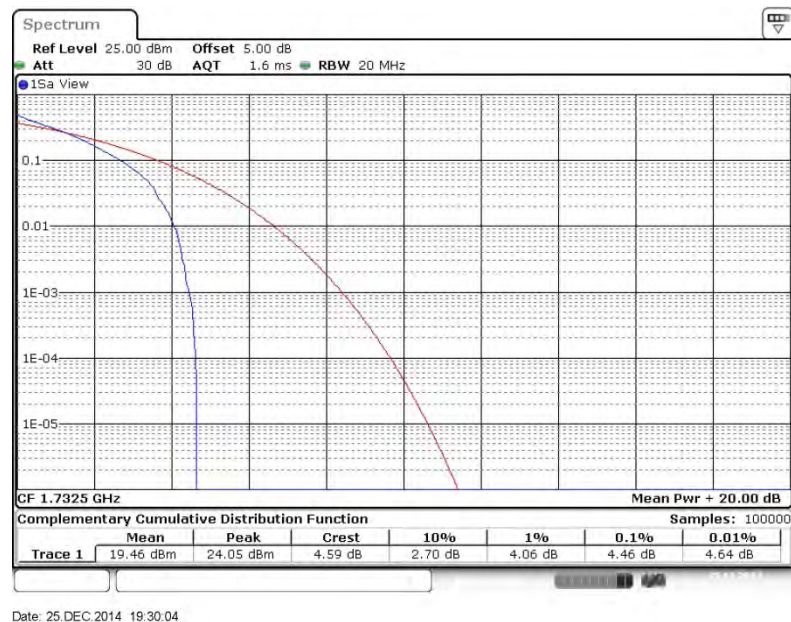




Peak-to-Average Ratio on LTE Band 4
20MHz / QPSK in Ch. 20050 (1RB Size)

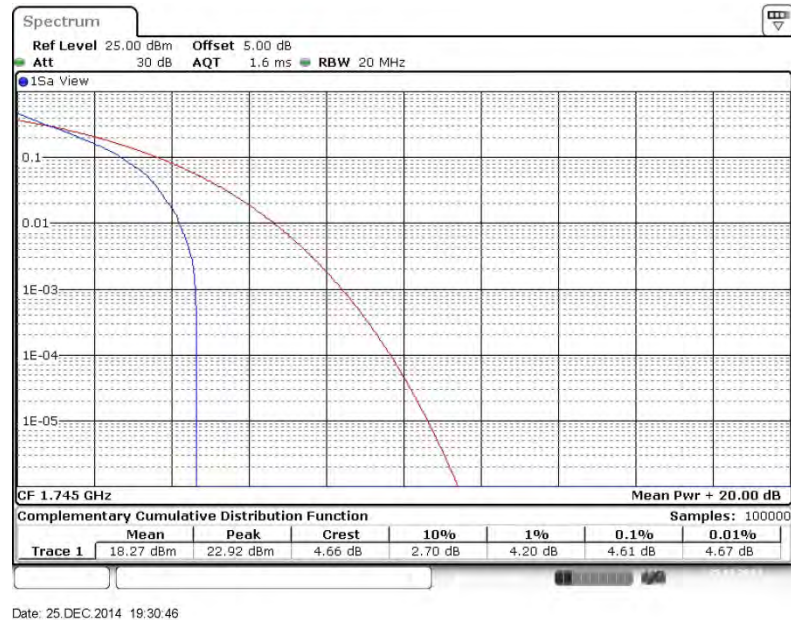


Peak-to-Average Ratio on LTE Band 4
20MHz / QPSK in Ch. 20175 (1RB Size)

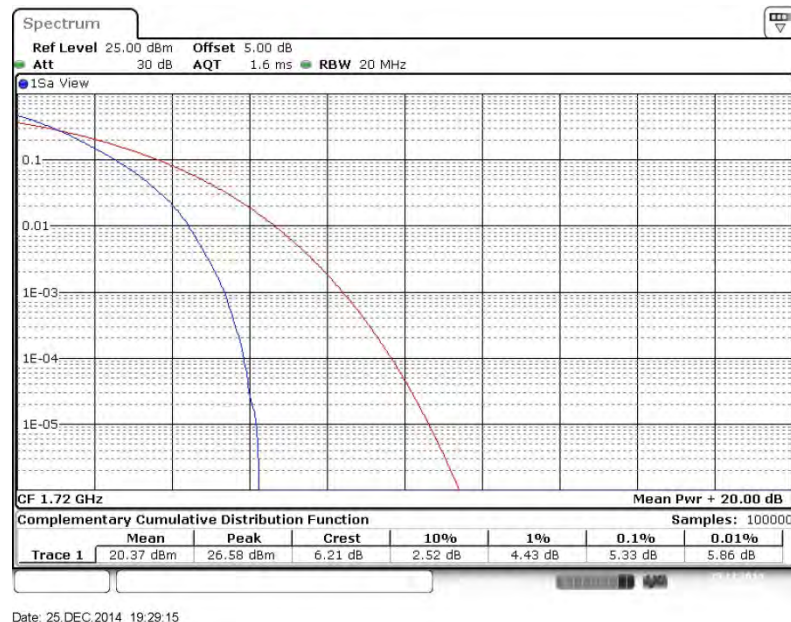




Peak-to-Average Ratio on LTE Band 4
20MHz / QPSK in Ch. 20300 (1RB Size)

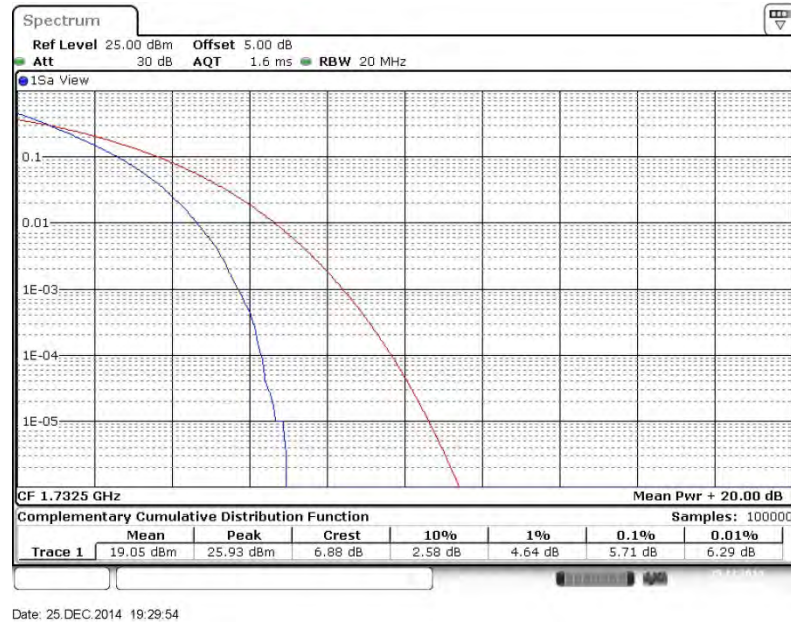


Peak-to-Average Ratio on LTE Band 4
20MHz / QPSK in Ch. 20500 (100RB Size)

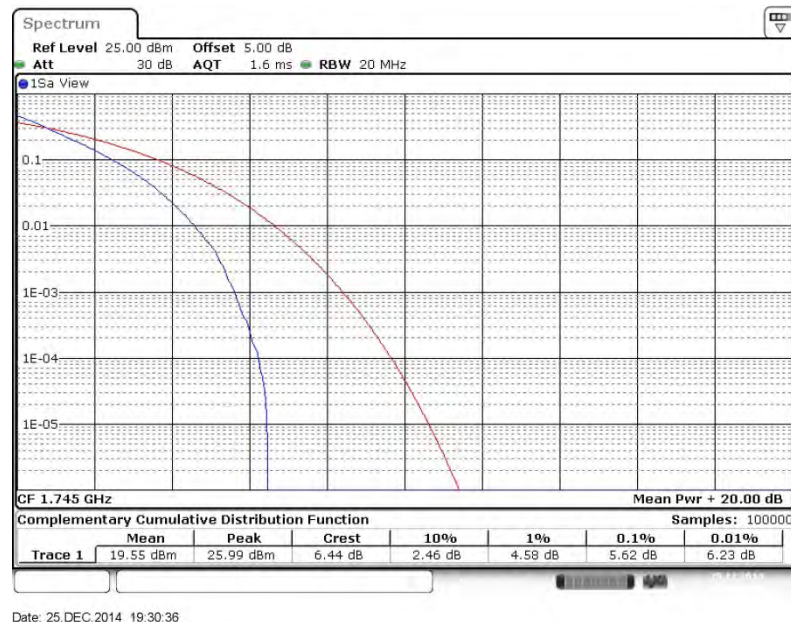




Peak-to-Average Ratio on LTE Band 4
20MHz / QPSK in Ch. 20175 (100RB Size)

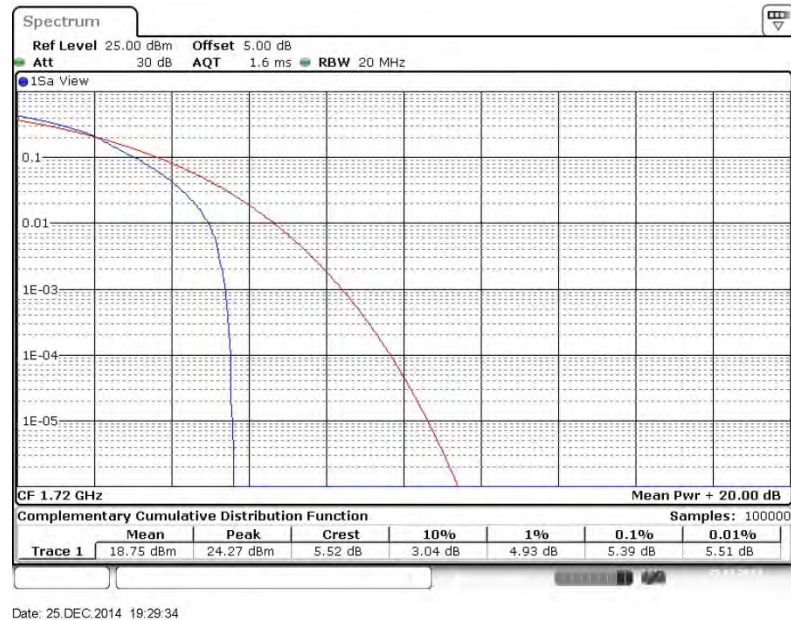


Peak-to-Average Ratio on LTE Band 4
20MHz / QPSK in Ch. 20300 (100RB Size)

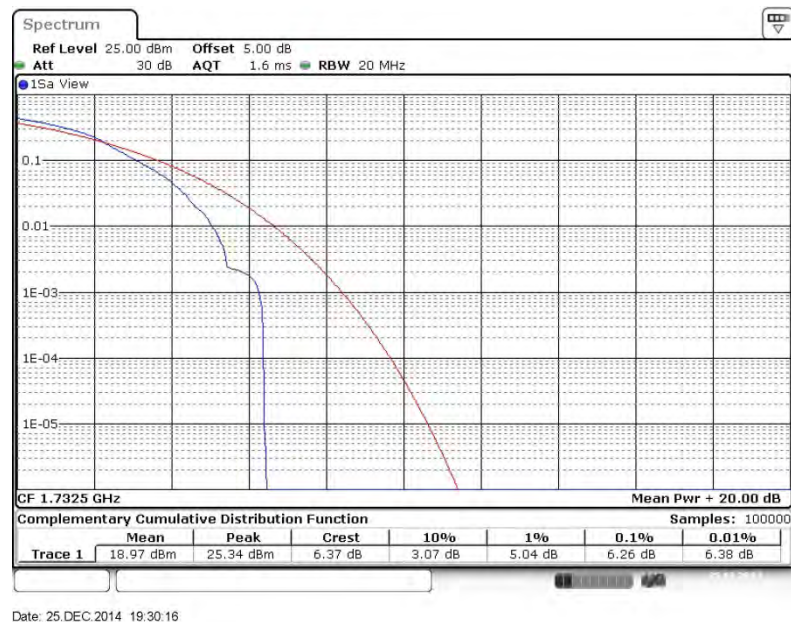




Peak-to-Average Ratio on LTE Band 4
20MHz / 16QAM in Ch. 20050 (1RB Size)

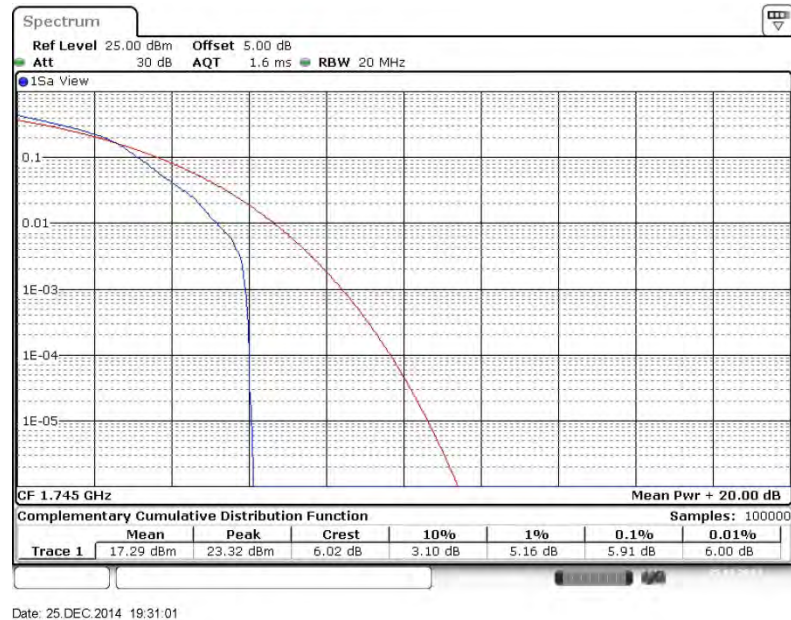


Peak-to-Average Ratio on LTE Band 4
20MHz / 16QAM in Ch. 20175 (1RB Size)

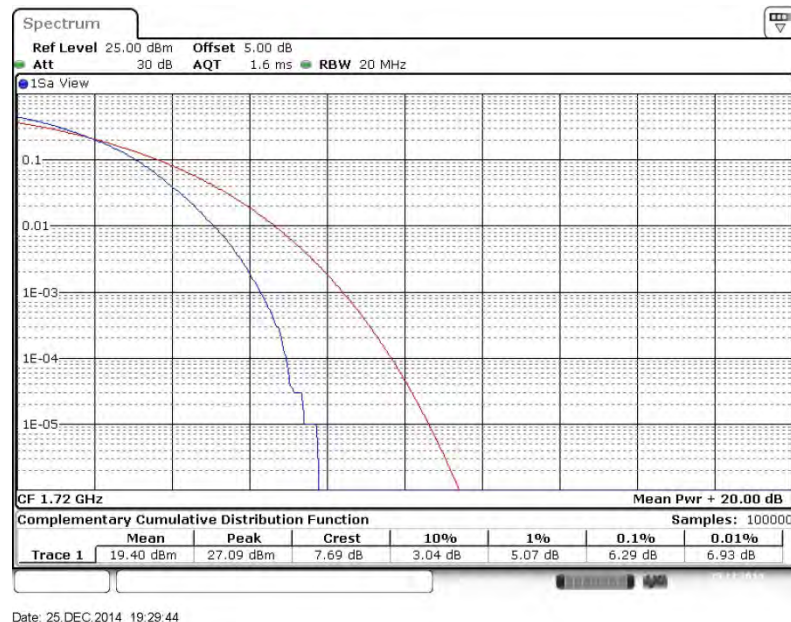




Peak-to-Average Ratio on LTE Band 4
20MHz / 16QAM in Ch. 20300 (1RB Size)

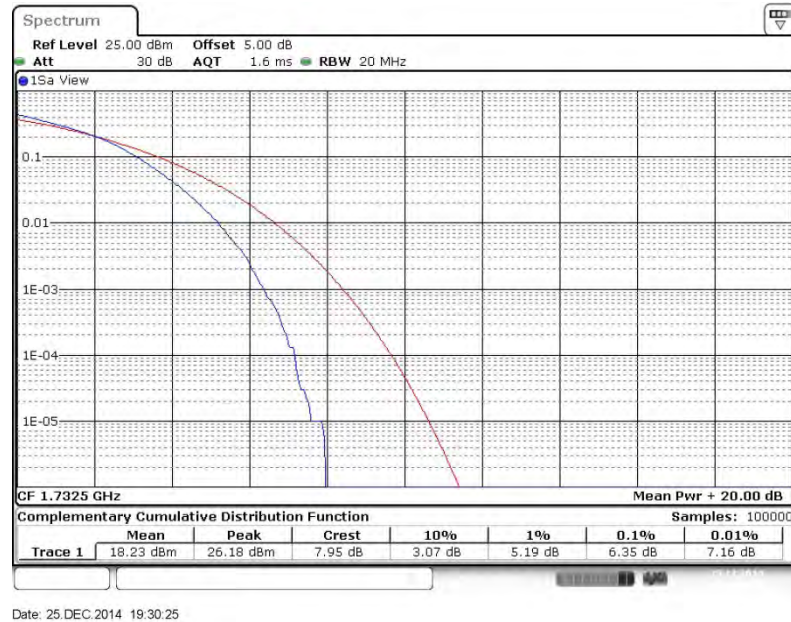


Peak-to-Average Ratio on LTE Band 4
20MHz / 16QAM in Ch. 20500 (100RB Size)

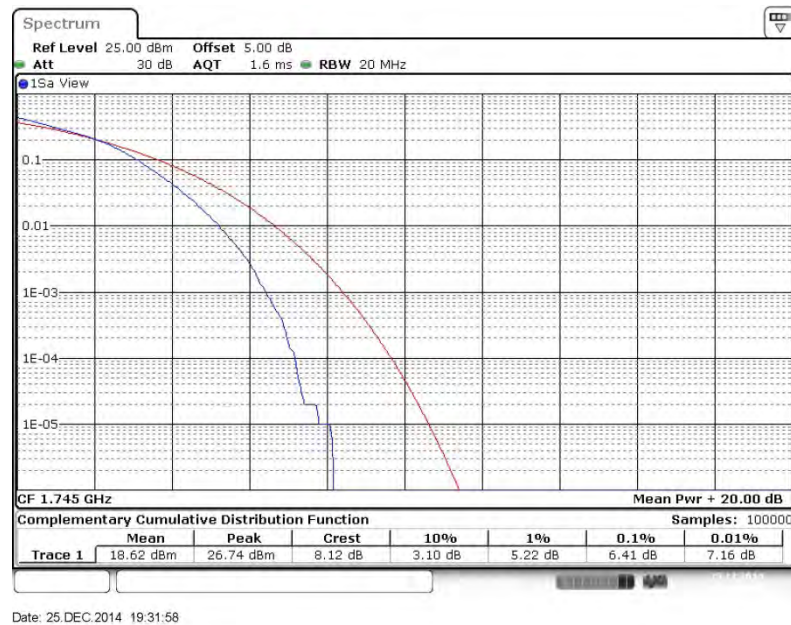




Peak-to-Average Ratio on LTE Band 4
20MHz / 16QAM in Ch. 20175 (100RB Size)



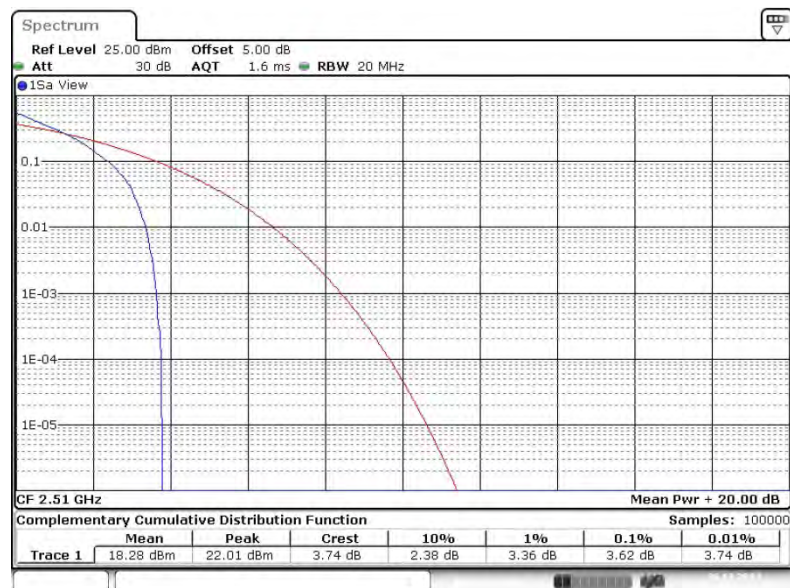
Peak-to-Average Ratio on LTE Band 4
20MHz / 16QAM in Ch. 20300 (100RB Size)





Peak-to-Average Ratio on LTE Band 7

20MHz / QPSK in Ch. 20850 (1RB Size)



Date: 26 DEC. 2014 01:42:32

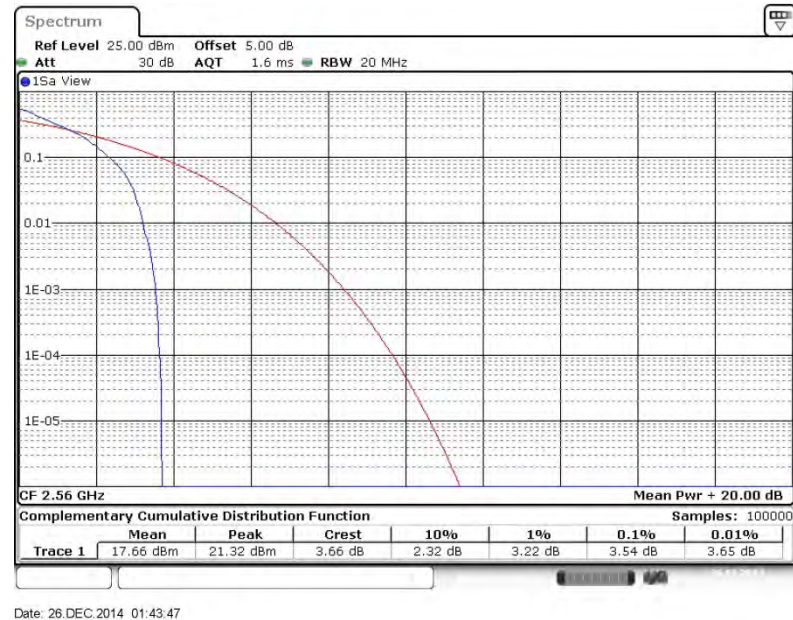
Peak-to-Average Ratio on LTE Band 7

20MHz / QPSK in Ch. 21100 (1RB Size)

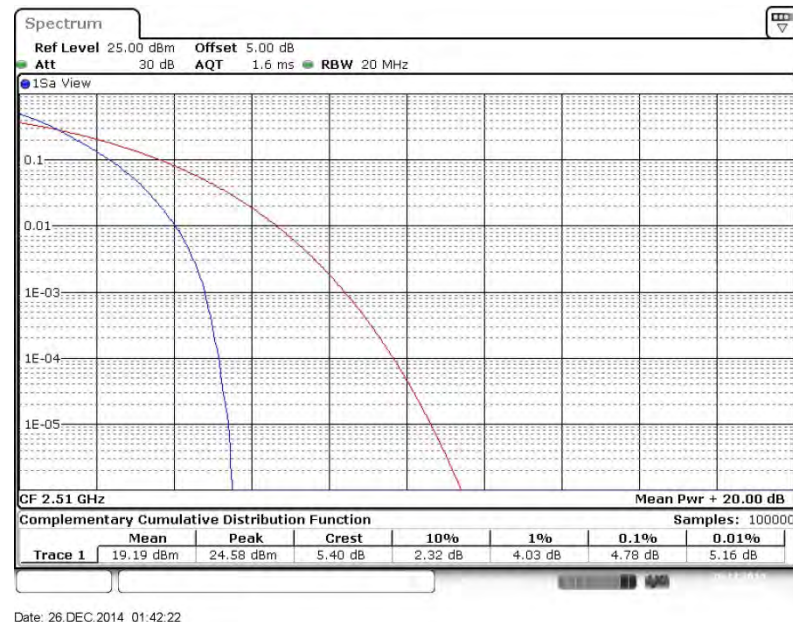


Date: 26 DEC. 2014 01:43:07

Peak-to-Average Ratio on LTE Band 7
20MHz / QPSK in Ch. 21350 (1RB Size)

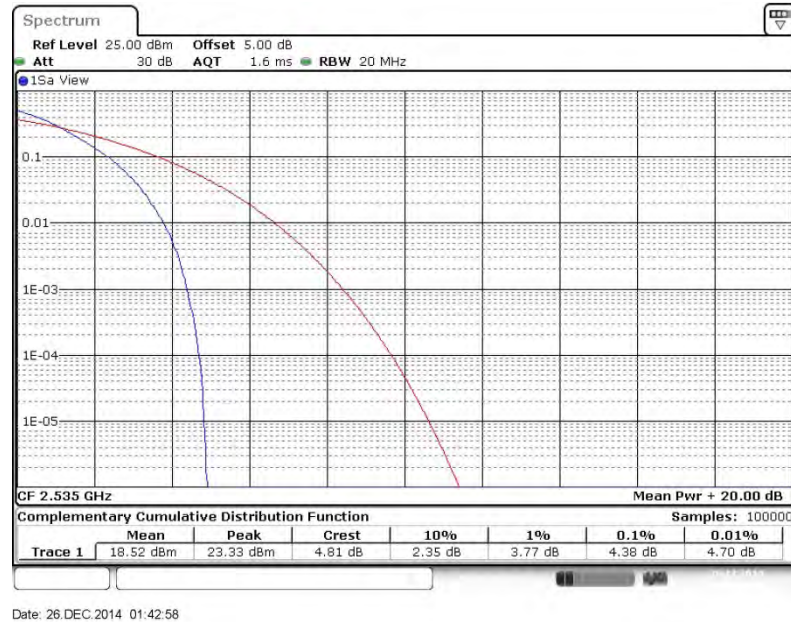


Peak-to-Average Ratio on LTE Band 7
20MHz / QPSK in Ch. 20850 (100RB Size)

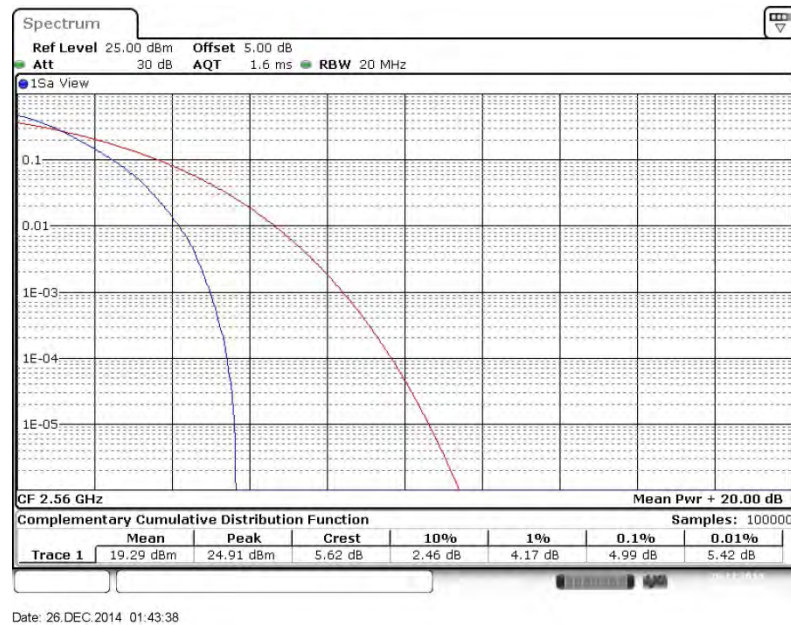




Peak-to-Average Ratio on LTE Band 7
20MHz / QPSK in Ch. 21100 (100RB Size)

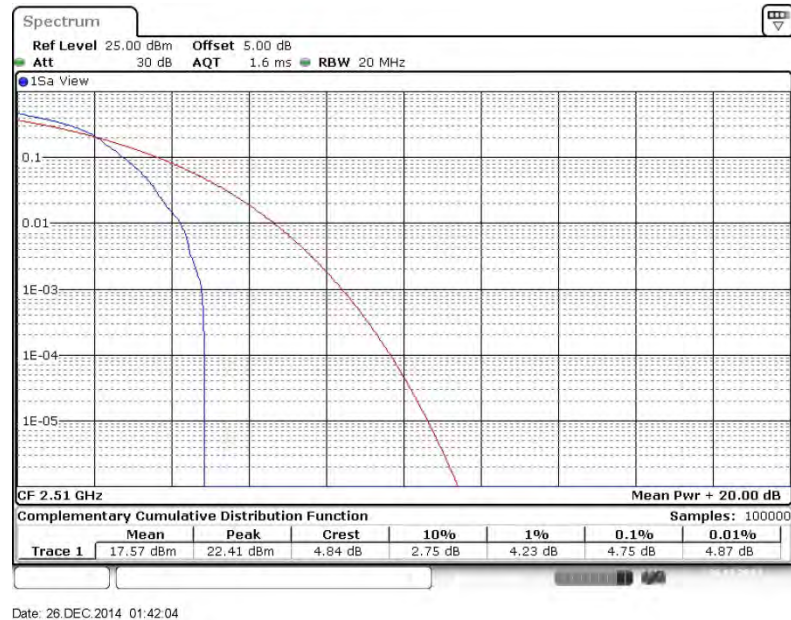


Peak-to-Average Ratio on LTE Band 7
20MHz / QPSK in Ch. 21350 (100RB Size)

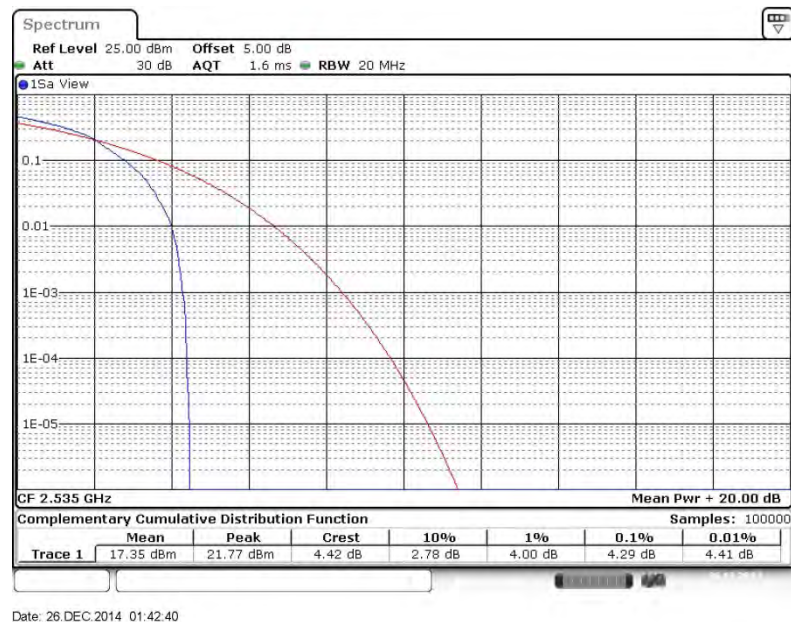




Peak-to-Average Ratio on LTE Band 7
20MHz / 16QAM in Ch. 20850 (1RB Size)

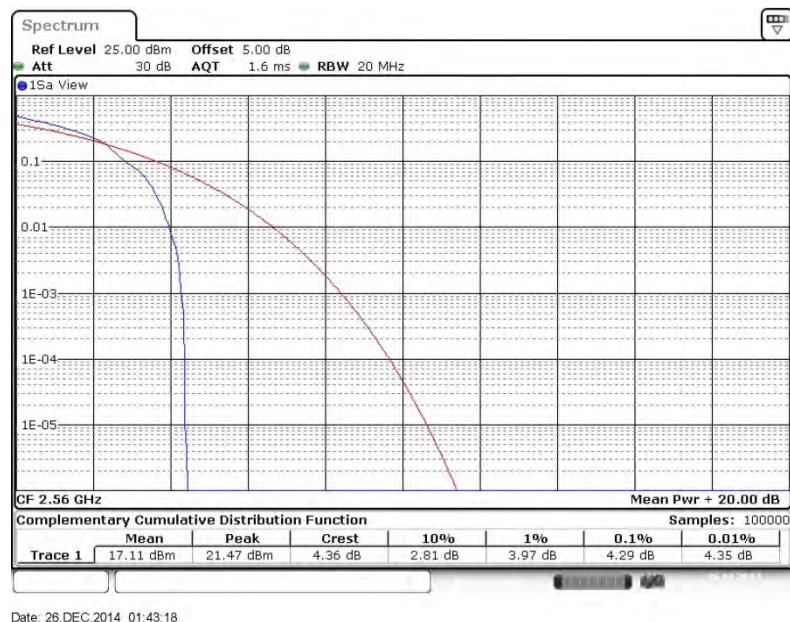


Peak-to-Average Ratio on LTE Band 7
20MHz / 16QAM in Ch. 21100 (1RB Size)

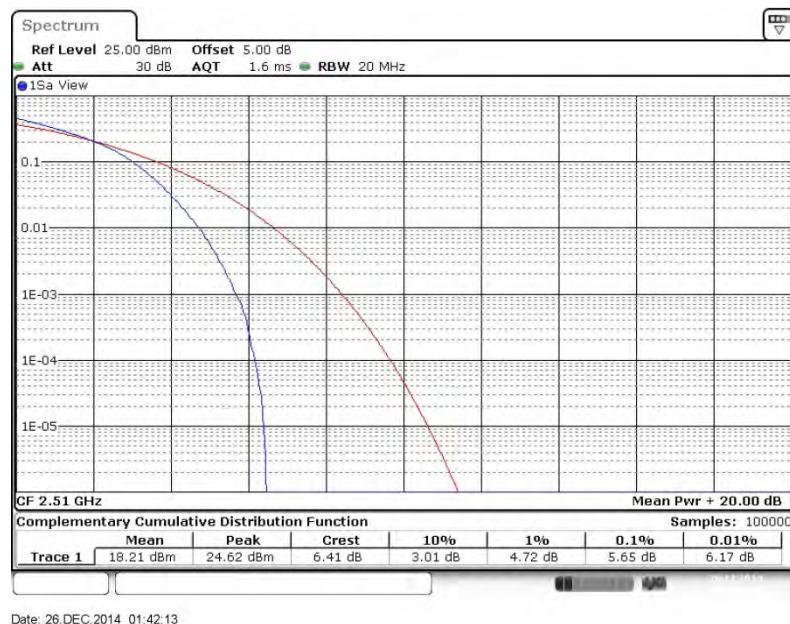




Peak-to-Average Ratio on LTE Band 7
20MHz / 16QAM in Ch. 21350 (1RB Size)

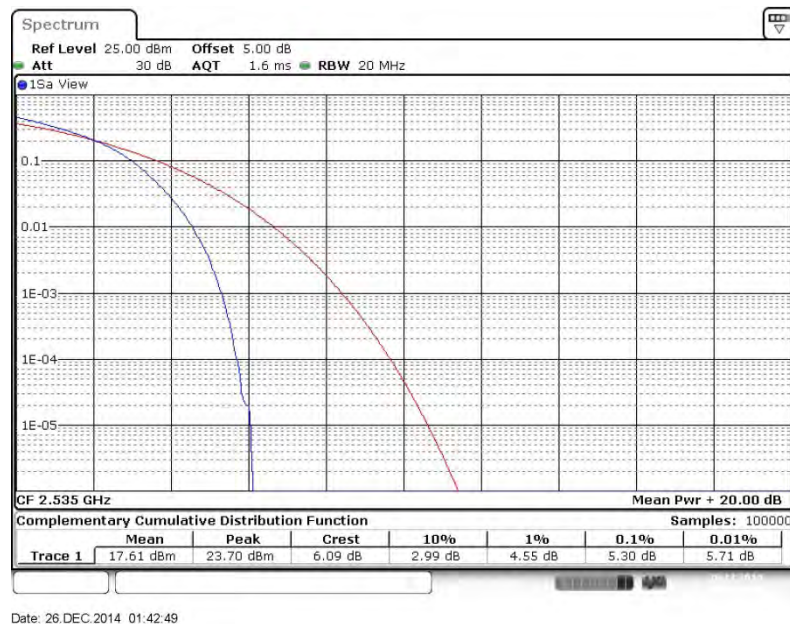


Peak-to-Average Ratio on LTE Band 7
20MHz / 16QAM in Ch. 20850 (100RB Size)

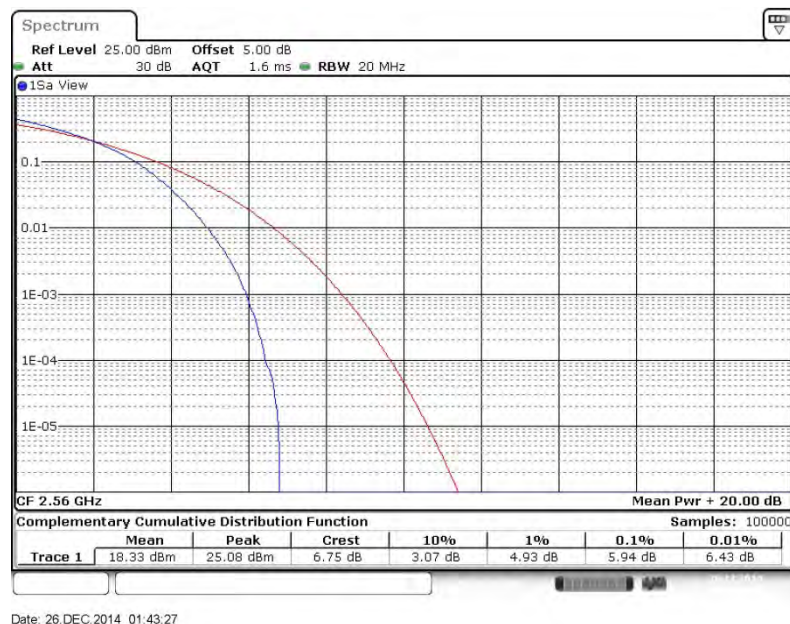




Peak-to-Average Ratio on LTE Band 7
20MHz / 16QAM in Ch. 21100 (100RB Size)



Peak-to-Average Ratio on LTE Band 7
20MHz / 16QAM in Ch. 21350 (100RB Size)



3.3 Equivalent Isotropic Radiated Power Measurement

3.3.1 Description of the EIRP Measurement

Equivalent isotropic radiated power output measurements by substitution method according to ANSI / TIA / EIA-603-C-2004, and the spectrum analyzer configuration follows KDB 971168 D01 Power Meas. License Digital Systems v02r02. Mobile and portable (hand-held) stations operating are limited to average EIRP of 2 watts with LTE band 2 / 7 and 1 watt with LTE band 4.

3.3.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.3.3 Test Procedures

1. The EUT was placed on a turntable with 1.5 meter height in a fully anechoic chamber.
2. The EUT was set at 3 meters from the receiving antenna, which was mounted on the antenna tower.
3. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and a spectrum analyzer which used a channel power option across EUT's signal bandwidth per section 4.0 of KDB 971168 D01.
4. The table was rotated 360 degrees to determine the position of the highest radiated power.
5. The height of the receiving antenna is adjusted to look for the maximum EIRP.
6. Taking the record of maximum EIRP.
7. A dipole antenna was substituted in place of the EUT and was driven by a signal generator.
8. The conducted power at the terminal of the dipole antenna is measured.
9. Repeat step 3 to step 5 to get the maximum EIRP of the substitution antenna.
10. $EIRP = P_s + E_t - E_s + G_s = P_s + R_t - R_s + G_s$

P_s (dBm) : Input power to substitution antenna.

G_s (dBi or dBd) : Substitution antenna Gain.

$E_t = R_t + AF$

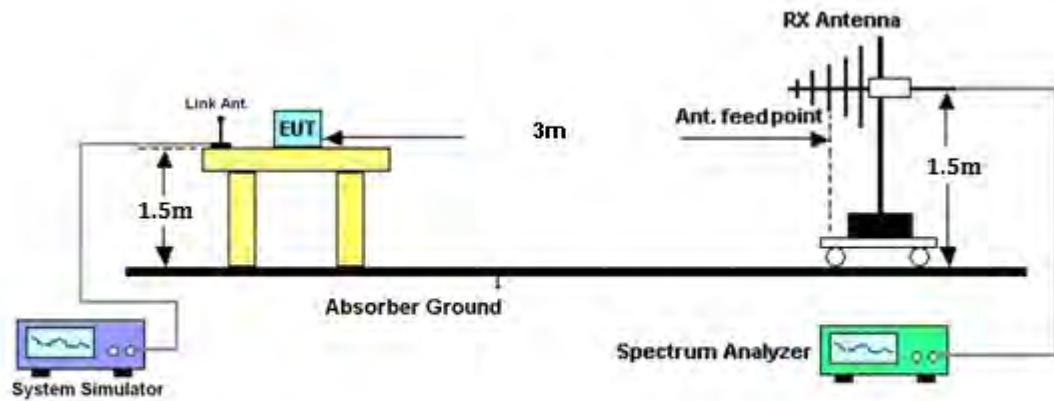
$E_s = R_s + AF$

AF (dB/m) : Receive antenna factor

R_t : The highest received signal in spectrum analyzer for EUT.

R_s : The highest received signal in spectrum analyzer for substitution antenna.

3.3.4 Test Setup



3.3.5 Test Result of EIRP

LTE Band 2 Radiated Power EIRP								
LTE Band	Channel BW (MHz)	Modulation	RB Configuration		Freq. (MHz)	EIRP (dBm)	EIRP (W)	H/V
			RB Size	RB Offset				
2	1.4	QPSK	1	0	1850.7	23.65	0.2317	H
2	1.4	QPSK	1	0	1880	23.64	0.2312	H
2	1.4	QPSK	1	0	1909.3	23.24	0.2109	H
2	1.4	QPSK	1	0	1850.7	24.31	0.2698	V
2	1.4	QPSK	1	0	1880	24.07	0.2553	V
2	1.4	QPSK	1	0	1909.3	23.45	0.2213	V
2	1.4	16QAM	1	5	1850.7	22.52	0.1786	H
2	1.4	16QAM	1	5	1880	22.93	0.1963	H
2	1.4	16QAM	1	5	1909.3	22.89	0.1945	H
2	1.4	16QAM	1	5	1850.7	23.20	0.2089	V
2	1.4	16QAM	1	5	1880	23.46	0.2218	V
2	1.4	16QAM	1	5	1909.3	23.17	0.2075	V
2	3	QPSK	1	0	1851.5	23.69	0.2339	H
2	3	QPSK	1	0	1880	23.49	0.2234	H
2	3	QPSK	1	0	1908.5	22.82	0.1914	H
2	3	QPSK	1	0	1851.5	24.36	0.2729	V
2	3	QPSK	1	0	1880	23.93	0.2472	V
2	3	QPSK	1	0	1908.5	23.02	0.2004	V
2	3	16QAM	1	0	1851.5	22.44	0.1754	H
2	3	16QAM	1	0	1880	22.89	0.1945	H
2	3	16QAM	1	0	1908.5	22.16	0.1644	H
2	3	16QAM	1	0	1851.5	23.12	0.2051	V
2	3	16QAM	1	0	1880	23.39	0.2183	V
2	3	16QAM	1	0	1908.5	22.49	0.1774	V

LTE Band 2 Radiated Power EIRP								
LTE Band	Channel BW (MHz)	Modulation	RB Configuration		Freq. (MHz)	EIRP (dBm)	EIRP (W)	H/V
			RB Size	RB Offset				
2	5	QPSK	1	0	1852.5	23.33	0.2153	H
2	5	QPSK	1	0	1880	23.43	0.2203	H
2	5	QPSK	1	0	1907.5	22.56	0.1803	H
2	5	QPSK	1	0	1852.5	24.09	0.2564	V
2	5	QPSK	1	0	1880	24.02	0.2523	V
2	5	QPSK	1	0	1907.5	22.94	0.1968	V
2	5	16QAM	1	0	1852.5	22.79	0.1901	H
2	5	16QAM	1	0	1880	22.94	0.1968	H
2	5	16QAM	1	0	1907.5	22.39	0.1734	H
2	5	16QAM	1	0	1852.5	23.48	0.2228	V
2	5	16QAM	1	0	1880	23.47	0.2223	V
2	5	16QAM	1	0	1907.5	22.73	0.1875	V
2	10	QPSK	1	24	1855	22.75	0.1884	H
2	10	QPSK	1	24	1880	22.95	0.1972	H
2	10	QPSK	1	24	1905	22.02	0.1592	H
2	10	QPSK	1	24	1855	23.53	0.2254	V
2	10	QPSK	1	24	1880	23.56	0.2270	V
2	10	QPSK	1	24	1905	22.45	0.1758	V
2	10	16QAM	1	24	1855	22.32	0.1706	H
2	10	16QAM	1	24	1880	22.53	0.1791	H
2	10	16QAM	1	24	1905	22.26	0.1683	H
2	10	16QAM	1	24	1855	23.01	0.2000	V
2	10	16QAM	1	24	1880	23.06	0.2023	V
2	10	16QAM	1	24	1905	22.64	0.1837	V



LTE Band 2 Radiated Power EIRP								
LTE Band	Channel BW (MHz)	Modulation	RB Configuration		Freq. (MHz)	EIRP (dBm)	EIRP (W)	H/V
			RB Size	RB Offset				
2	15	QPSK	1	37	1857.5	22.46	0.1762	H
2	15	QPSK	1	74	1880	23.83	0.2415	H
2	15	QPSK	1	0	1902.5	22.96	0.1977	H
2	15	QPSK	1	37	1857.5	23.17	0.2075	V
2	15	QPSK	1	74	1880	24.38	0.2742	V
2	15	QPSK	1	0	1902.5	23.53	0.2254	V
2	15	16QAM	1	37	1857.5	22.12	0.1629	H
2	15	16QAM	1	74	1880	23.36	0.2168	H
2	15	16QAM	1	0	1902.5	23.29	0.2133	H
2	15	16QAM	1	37	1857.5	22.76	0.1888	V
2	15	16QAM	1	74	1880	23.79	0.2393	V
2	15	16QAM	1	0	1902.5	23.77	0.2382	V
2	20	QPSK	1	0	1860	23.34	0.2158	H
2	20	QPSK	1	0	1880	22.06	0.1607	H
2	20	QPSK	1	0	1900	23.80	0.2399	H
2	20	QPSK	1	0	1860	24.11	0.2576	V
2	20	QPSK	1	0	1880	22.86	0.1932	V
2	20	QPSK	1	0	1900	24.41	0.2761	V
2	20	16QAM	1	49	1860	21.57	0.1435	H
2	20	16QAM	1	0	1880	21.41	0.1384	H
2	20	16QAM	1	0	1900	23.22	0.2099	H
2	20	16QAM	1	49	1860	22.21	0.1663	V
2	20	16QAM	1	0	1880	22.10	0.1622	V
2	20	16QAM	1	0	1900	23.71	0.2350	V



LTE Band 4 Radiated Power EIRP								
LTE Band	Channel BW (MHz)	Modulation	RB Configuration		Freq. (MHz)	EIRP (dBm)	EIRP (W)	H/V
			RB Size	RB Offset				
4	1.4	QPSK	3	0	1710.7	19.84	0.0964	H
4	1.4	QPSK	3	2	1732.5	21.10	0.1288	H
4	1.4	QPSK	3	0	1754.3	20.48	0.1117	H
4	1.4	QPSK	3	0	1710.7	20.09	0.1021	V
4	1.4	QPSK	3	2	1732.5	21.50	0.1413	V
4	1.4	QPSK	3	0	1754.3	20.77	0.1194	V
4	1.4	16QAM	1	5	1710.7	17.83	0.0607	H
4	1.4	16QAM	1	2	1732.5	20.09	0.1021	H
4	1.4	16QAM	1	2	1754.3	19.65	0.0923	H
4	1.4	16QAM	1	5	1710.7	18.19	0.0659	V
4	1.4	16QAM	1	2	1732.5	20.45	0.1109	V
4	1.4	16QAM	1	2	1754.3	19.84	0.0964	V
4	3	QPSK	1	7	1711.5	18.53	0.0713	H
4	3	QPSK	1	0	1732.5	20.84	0.1213	H
4	3	QPSK	1	7	1753.5	19.89	0.0975	H
4	3	QPSK	1	7	1711.5	18.83	0.0764	V
4	3	QPSK	1	0	1732.5	21.17	0.1309	V
4	3	QPSK	1	7	1753.5	20.20	0.1047	V
4	3	16QAM	1	7	1711.5	17.61	0.0577	H
4	3	16QAM	1	0	1732.5	19.99	0.0998	H
4	3	16QAM	1	0	1753.5	18.93	0.0782	H
4	3	16QAM	1	7	1711.5	18.00	0.0631	V
4	3	16QAM	1	0	1732.5	20.32	0.1076	V
4	3	16QAM	1	0	1753.5	19.12	0.0817	V



LTE Band 4 Radiated Power EIRP								
LTE Band	Channel BW (MHz)	Modulation	RB Configuration		Freq. (MHz)	EIRP (dBm)	EIRP (W)	H/V
			RB Size	RB Offset				
4	5	QPSK	1	12	1712.5	18.11	0.0647	H
4	5	QPSK	1	0	1732.5	20.86	0.1219	H
4	5	QPSK	1	0	1752.5	19.35	0.0861	H
4	5	QPSK	1	12	1712.5	18.34	0.0682	V
4	5	QPSK	1	0	1732.5	21.21	0.1321	V
4	5	QPSK	1	0	1752.5	19.65	0.0923	V
4	5	16QAM	1	12	1712.5	17.26	0.0532	H
4	5	16QAM	1	0	1732.5	19.90	0.0977	H
4	5	16QAM	1	0	1752.5	18.62	0.0728	H
4	5	16QAM	1	12	1712.5	17.66	0.0583	V
4	5	16QAM	1	0	1732.5	20.45	0.1109	V
4	5	16QAM	1	0	1752.5	19.10	0.0813	V
4	10	QPSK	1	0	1715	18.25	0.0668	H
4	10	QPSK	1	0	1732.5	20.89	0.1227	H
4	10	QPSK	1	24	1750	18.75	0.0750	H
4	10	QPSK	1	0	1715	18.48	0.0705	V
4	10	QPSK	1	0	1732.5	21.19	0.1315	V
4	10	QPSK	1	24	1750	18.98	0.0791	V
4	10	16QAM	1	0	1715	18.28	0.0673	H
4	10	16QAM	1	0	1732.5	19.89	0.0975	H
4	10	16QAM	1	24	1750	18.09	0.0644	H
4	10	16QAM	1	0	1715	18.72	0.0745	V
4	10	16QAM	1	0	1732.5	20.36	0.1086	V
4	10	16QAM	1	24	1750	18.58	0.0721	V



LTE Band 4 Radiated Power EIRP								
LTE Band	Channel BW (MHz)	Modulation	RB Configuration		Freq. (MHz)	EIRP (dBm)	EIRP (W)	H/V
			RB Size	RB Offset				
4	15	QPSK	1	0	1717.5	17.94	0.0622	H
4	15	QPSK	1	0	1732.5	20.81	0.1205	H
4	15	QPSK	1	0	1747.5	18.48	0.0705	H
4	15	QPSK	1	0	1717.5	18.27	0.0671	V
4	15	QPSK	1	0	1732.5	21.18	0.1312	V
4	15	QPSK	1	0	1747.5	19.14	0.0820	V
4	15	16QAM	1	0	1717.5	18.48	0.0705	H
4	15	16QAM	1	0	1732.5	20.09	0.1021	H
4	15	16QAM	1	0	1747.5	19.12	0.0817	H
4	15	16QAM	1	0	1717.5	18.83	0.0764	V
4	15	16QAM	1	0	1732.5	20.30	0.1072	V
4	15	16QAM	1	0	1747.5	19.50	0.0891	V
4	20	QPSK	1	0	1720	18.14	0.0652	H
4	20	QPSK	1	0	1732.5	20.74	0.1186	H
4	20	QPSK	1	0	1745	19.81	0.0957	H
4	20	QPSK	1	0	1720	18.51	0.0710	V
4	20	QPSK	1	0	1732.5	21.19	0.1315	V
4	20	QPSK	1	0	1745	20.39	0.1094	V
4	20	16QAM	1	0	1720	17.98	0.0628	H
4	20	16QAM	1	0	1732.5	19.92	0.0982	H
4	20	16QAM	1	0	1745	20.12	0.1028	H
4	20	16QAM	1	0	1720	18.34	0.0682	V
4	20	16QAM	1	0	1732.5	20.26	0.1062	V
4	20	16QAM	1	0	1745	20.45	0.1109	V



LTE Band 7 Radiated Power EIRP								
LTE Band	Channel BW (MHz)	Modulation	RB Configuration		Freq. (MHz)	EIRP (dBm)	EIRP (W)	H/V
			RB Size	RB Offset				
7	5	QPSK	1	0	2502.5	19.62	0.0916	H
7	5	QPSK	1	0	2535	16.87	0.0486	H
7	5	QPSK	1	12	2567.5	15.60	0.0363	H
7	5	QPSK	1	0	2502.5	19.74	0.0942	V
7	5	QPSK	1	0	2535	16.78	0.0476	V
7	5	QPSK	1	12	2567.5	15.45	0.0351	V
7	5	16QAM	1	0	2502.5	19.04	0.0802	H
7	5	16QAM	1	0	2535	15.36	0.0344	H
7	5	16QAM	1	12	2567.5	14.67	0.0293	H
7	5	16QAM	1	0	2502.5	19.12	0.0817	V
7	5	16QAM	1	0	2535	15.18	0.0330	V
7	5	16QAM	1	12	2567.5	14.52	0.0283	V
7	10	QPSK	1	49	2505	19.48	0.0887	H
7	10	QPSK	1	0	2535	16.65	0.0462	H
7	10	QPSK	1	24	2565	15.78	0.0378	H
7	10	QPSK	1	49	2505	19.46	0.0883	V
7	10	QPSK	1	0	2535	16.55	0.0452	V
7	10	QPSK	1	24	2565	15.62	0.0365	V
7	10	16QAM	1	49	2505	18.68	0.0738	H
7	10	16QAM	1	0	2535	16.35	0.0432	H
7	10	16QAM	1	24	2565	14.82	0.0303	H
7	10	16QAM	1	49	2505	18.64	0.0731	V
7	10	16QAM	1	0	2535	16.26	0.0423	V
7	10	16QAM	1	24	2565	14.68	0.0294	V



LTE Band 7 Radiated Power EIRP								
LTE Band	Channel BW (MHz)	Modulation	RB Configuration		Freq. (MHz)	EIRP (dBm)	EIRP (W)	H/V
			RB Size	RB Offset				
7	15	QPSK	1	37	2507.5	19.43	0.0877	H
7	15	QPSK	1	0	2535	16.85	0.0484	H
7	15	QPSK	1	74	2562.5	15.55	0.0359	H
7	15	QPSK	1	37	2507.5	19.38	0.0867	V
7	15	QPSK	1	0	2535	16.69	0.0467	V
7	15	QPSK	1	74	2562.5	15.34	0.0342	V
7	15	16QAM	1	37	2507.5	19.67	0.0927	H
7	15	16QAM	1	0	2535	17.00	0.0501	H
7	15	16QAM	1	37	2562.5	15.04	0.0319	H
7	15	16QAM	1	37	2507.5	18.59	0.0723	V
7	15	16QAM	1	0	2535	16.85	0.0484	V
7	15	16QAM	1	37	2562.5	14.90	0.0309	V
7	20	QPSK	1	0	2510	19.95	0.0989	H
7	20	QPSK	1	0	2535	18.12	0.0649	H
7	20	QPSK	1	0	2560	15.82	0.0382	H
7	20	QPSK	1	0	2510	20.20	0.1047	V
7	20	QPSK	1	0	2535	17.99	0.0630	V
7	20	QPSK	1	0	2560	15.53	0.0357	V
7	20	16QAM	1	49	2510	18.61	0.0726	H
7	20	16QAM	1	0	2535	17.29	0.0536	H
7	20	16QAM	1	0	2560	15.17	0.0329	H
7	20	16QAM	1	49	2510	18.61	0.0726	V
7	20	16QAM	1	0	2535	17.04	0.0506	V
7	20	16QAM	1	0	2560	14.86	0.0306	V

3.4 99% Occupied Bandwidth and 26dB Bandwidth Measurement

3.4.1 Description of 99% Occupied Bandwidth and 26dB 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.

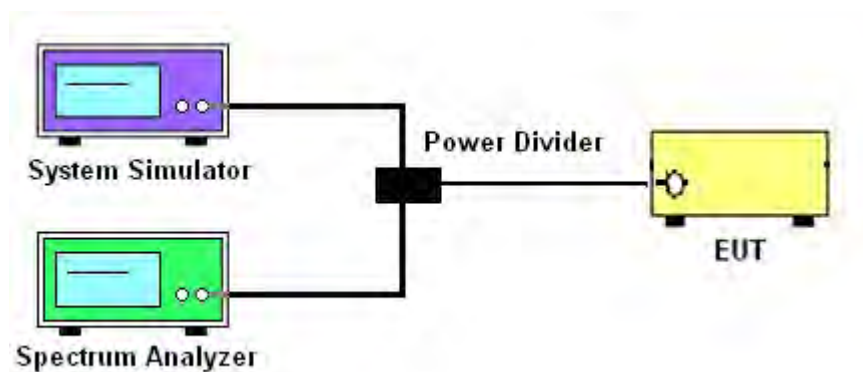
3.4.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.4.3 Test Procedures

1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
2. The 26dB and 99% occupied bandwidth (BW) of the middle channel for the highest RF power with full RB sizes were measured.

3.4.4 Test Setup



3.4.5 Test Result of 99% Occupied Bandwidth and 26dB Bandwidth

Modes	LTE Band 2			
BW / Mod.	1.4MHz / QPSK	1.4MHz / 16QAM	3MHz / QPSK	3MHz / 16QAM
99% OBW (MHz)	1.097	1.097	2.721	2.721
26dB BW (MHz)	1.264	1.273	3.033	3.027
BW / Mod.	5MHz / QPSK	5MHz / 16QAM	10MHz / QPSK	10MHz / 16QAM
99% OBW (MHz)	4.505	4.505	9.031	9.031
26dB BW (MHz)	5.075	5.115	9.990	10.010
BW / Mod.	15MHz / QPSK	15MHz / 16QAM	20MHz / QPSK	20MHz / 16QAM
99% OBW (MHz)	13.487	13.427	18.501	18.621
26dB BW (MHz)	14.745	14.715	20.539	20.300

Modes	LTE Band 4			
BW / Mod.	1.4MHz / QPSK	1.4MHz / 16QAM	3MHz / QPSK	3MHz / 16QAM
99% OBW (MHz)	1.091	1.094	2.721	2.721
26dB BW (MHz)	1.262	1.276	3.033	3.027
BW / Mod.	5MHz / QPSK	5MHz / 16QAM	10MHz / QPSK	10MHz / 16QAM
99% OBW (MHz)	4.496	4.505	9.051	9.031
26dB BW (MHz)	5.075	5.085	10.070	9.950
BW / Mod.	15MHz / QPSK	15MHz / 16QAM	20MHz / QPSK	20MHz / 16QAM
99% OBW (MHz)	13.546	13.457	18.382	18.422
26dB BW (MHz)	14.685	14.775	20.300	20.380

Modes	LTE Band 7			
BW / Mod.	5MHz / QPSK	5MHz / 16QAM	10MHz / QPSK	10MHz / 16QAM
99% OBW (MHz)	4.515	4.505	9.031	9.051
26dB BW (MHz)	5.155	5.075	10.230	10.030
BW / Mod.	15MHz / QPSK	15MHz / 16QAM	20MHz / QPSK	20MHz / 16QAM
99% OBW (MHz)	13.457	13.487	18.541	18.422
26dB BW (MHz)	14.835	14.685	20.340	20.420

Note:

The maximum RB configurations of the 99% Occupied Bandwidth and 26dB Bandwidth summary as below:

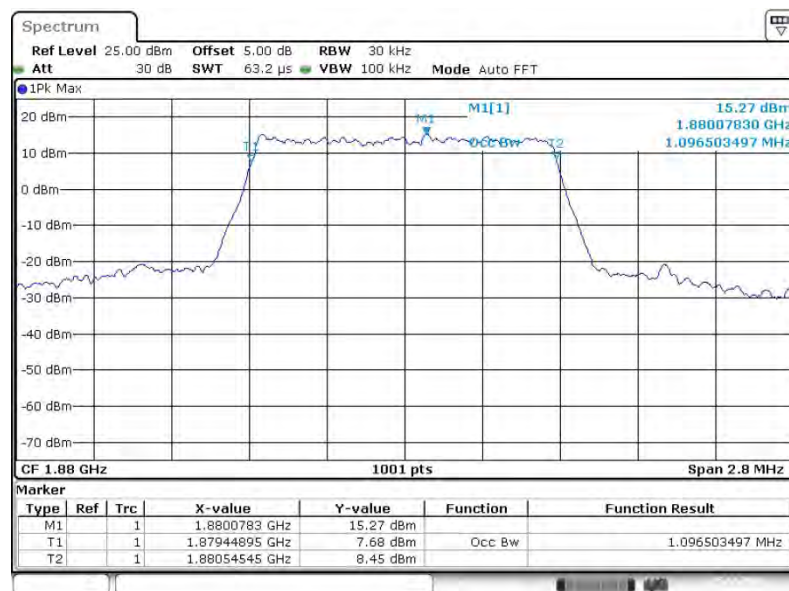
BW1.4MHz RB setting : RB Size 6, RB offset 0
 BW3.0MHz RB setting : RB Size 15, RB offset 0
 BW5.0MHz RB setting : RB Size 25, RB offset 0
 BW10MHz RB setting : RB Size 50, RB offset 0
 BW15MHz RB setting : RB Size 75, RB offset 0
 BW20MHz RB setting : RB Size 100, RB offset 0



3.4.6 Test Result (Plots) of Occupied Bandwidth

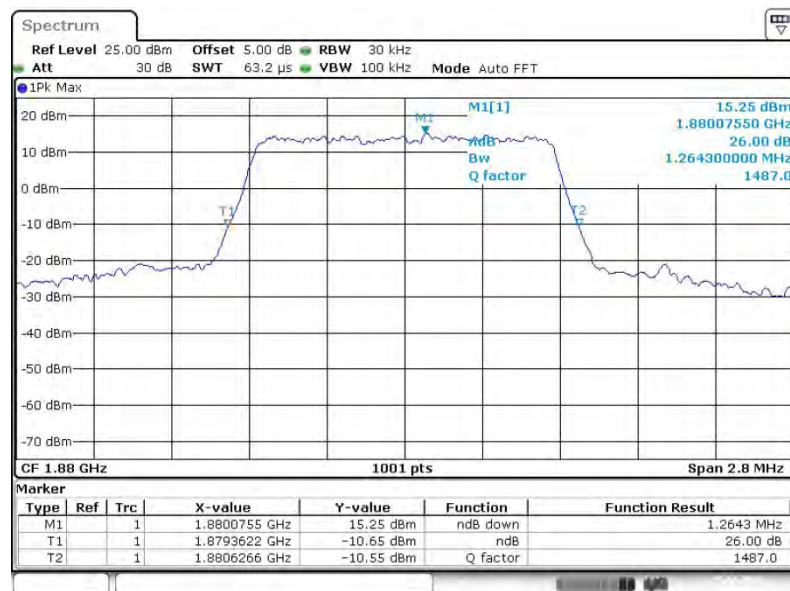
Band :	LTE Band 2	BW / Mod. :	1.4MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 18900



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26dB Bandwidth Plot on Channel 18900

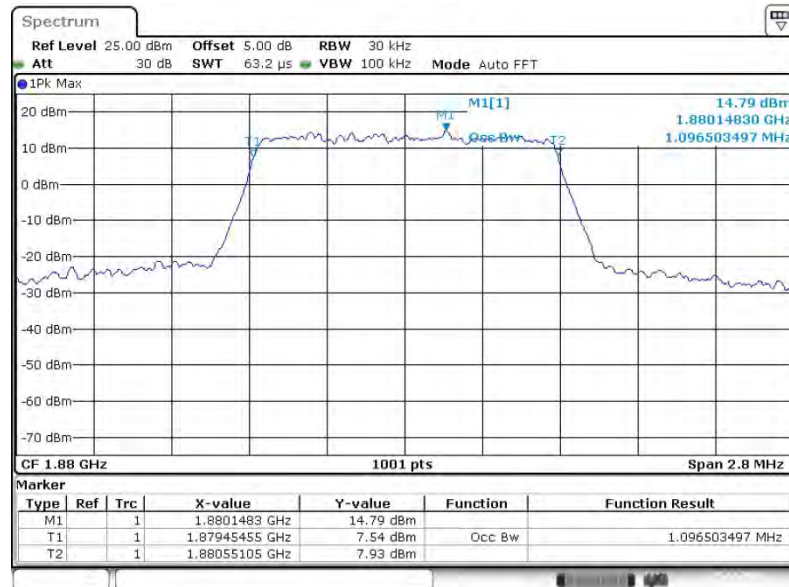


Date: 25.DEC.2014 20:47:33



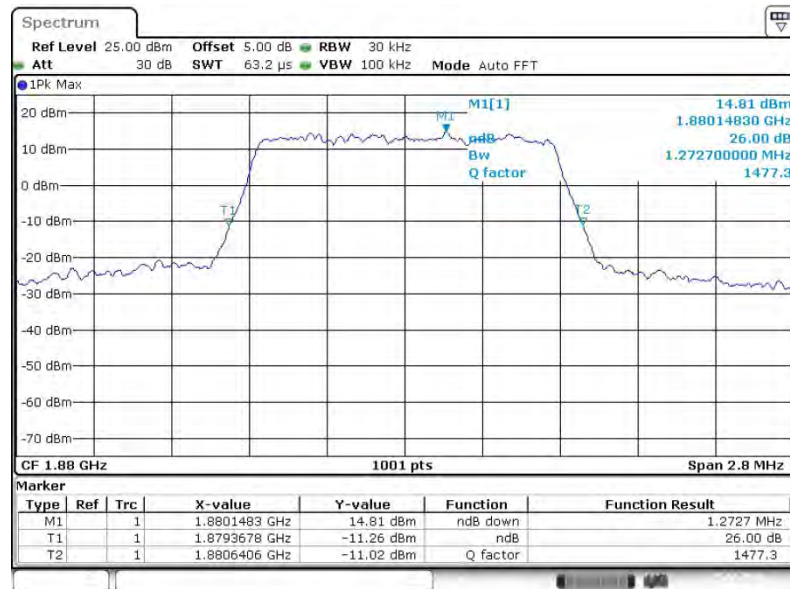
Band :	LTE Band 2	BW / Mod. :	1.4MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 18900



Date: 25.DEC.2014 20:47:22

26dB Bandwidth Plot on Channel 18900

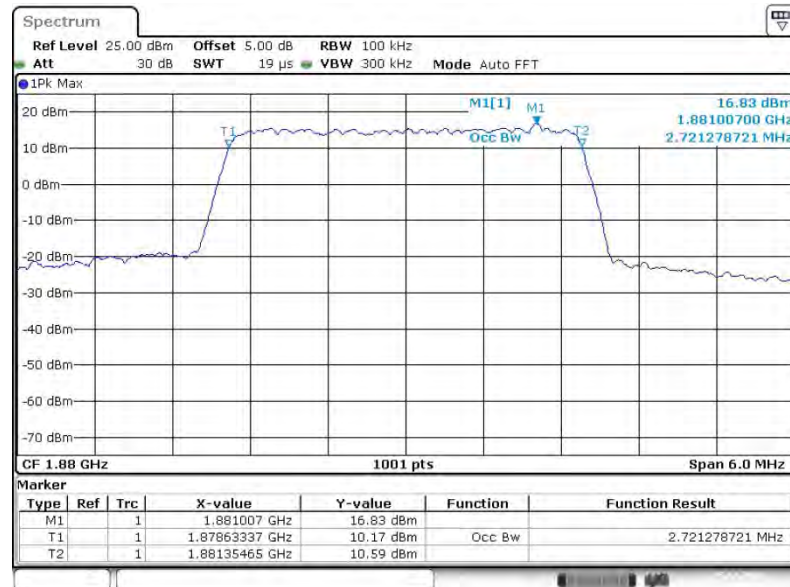


Date: 25.DEC.2014 20:47:45



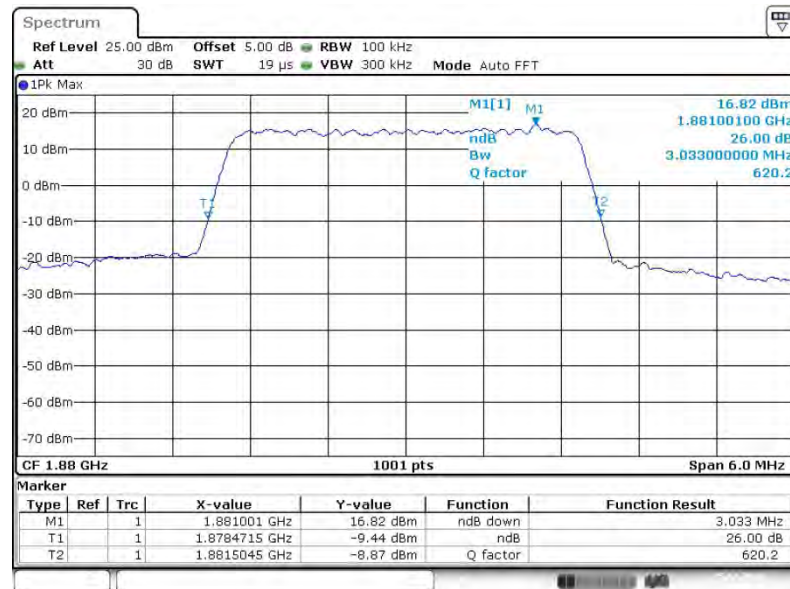
Band :	LTE Band 2	BW / Mod. :	3MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 18900



Date: 25.DEC.2014 21:20:11

26dB Bandwidth Plot on Channel 18900

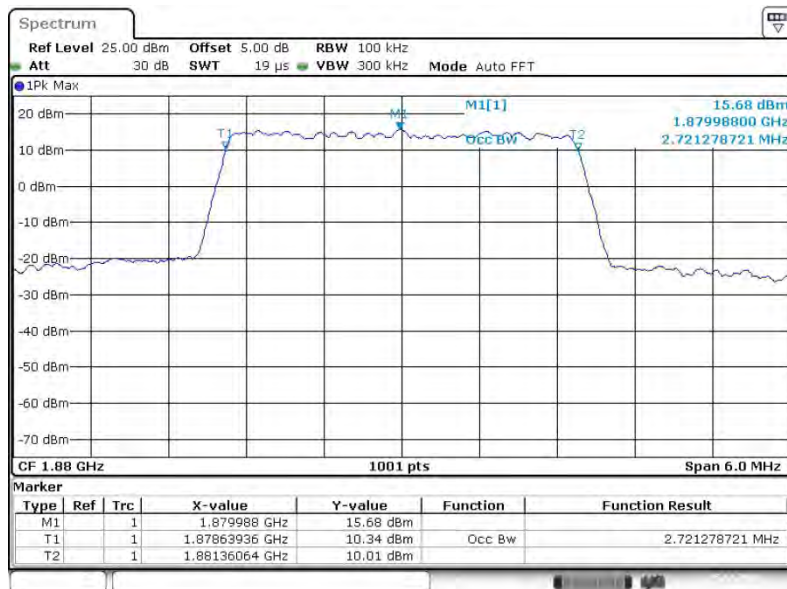


Date: 25.DEC.2014 21:20:33



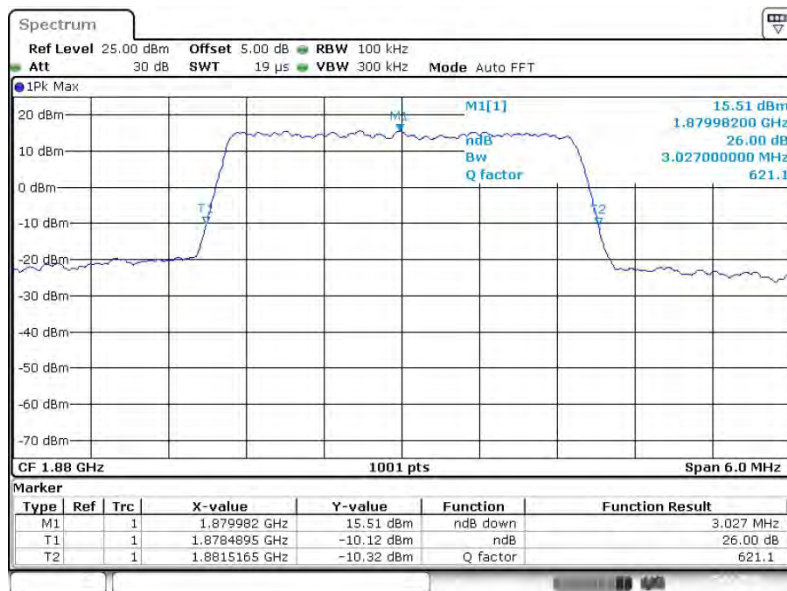
Band :	LTE Band 2	BW / Mod. :	3MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 18900



Date: 25.DEC.2014 21:20:21

26dB Bandwidth Plot on Channel 18900

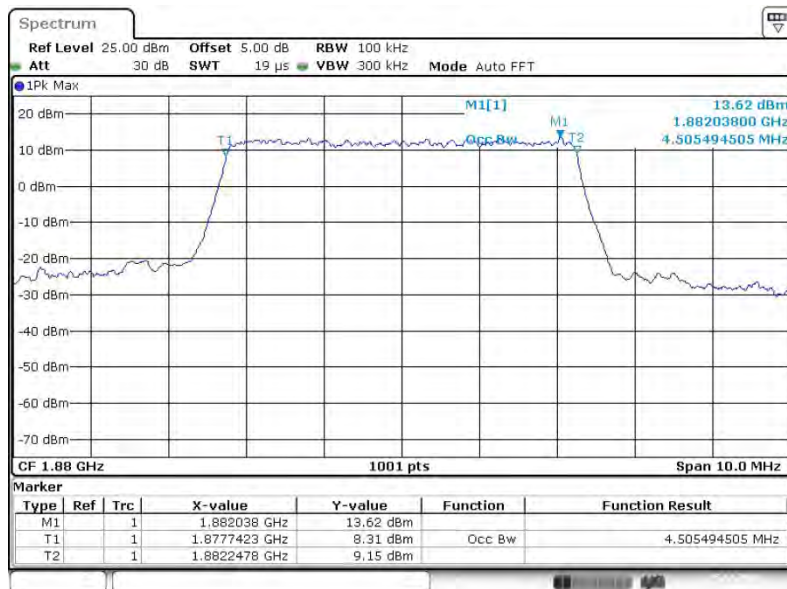


Date: 25.DEC.2014 21:20:45



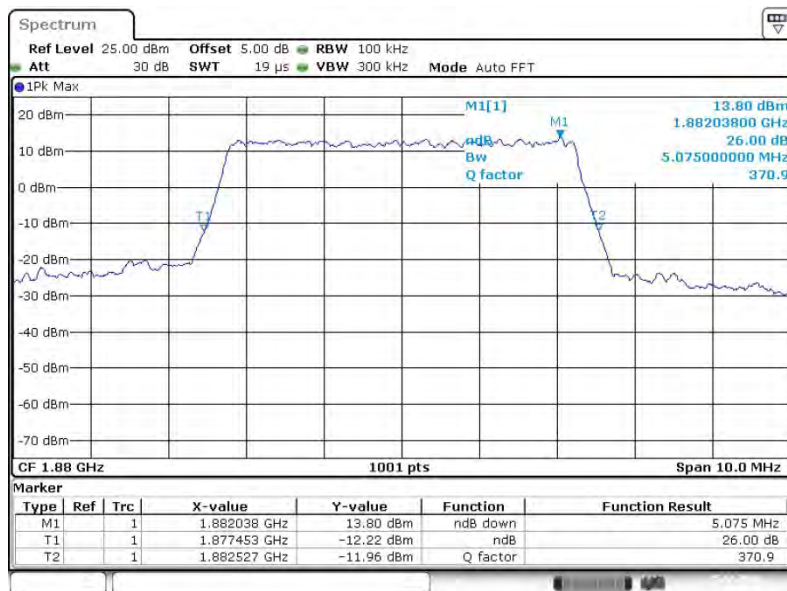
Band :	LTE Band 2	BW / Mod. :	5MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 18900



Date: 25.DEC.2014 21:39:13

26dB Bandwidth Plot on Channel 18900

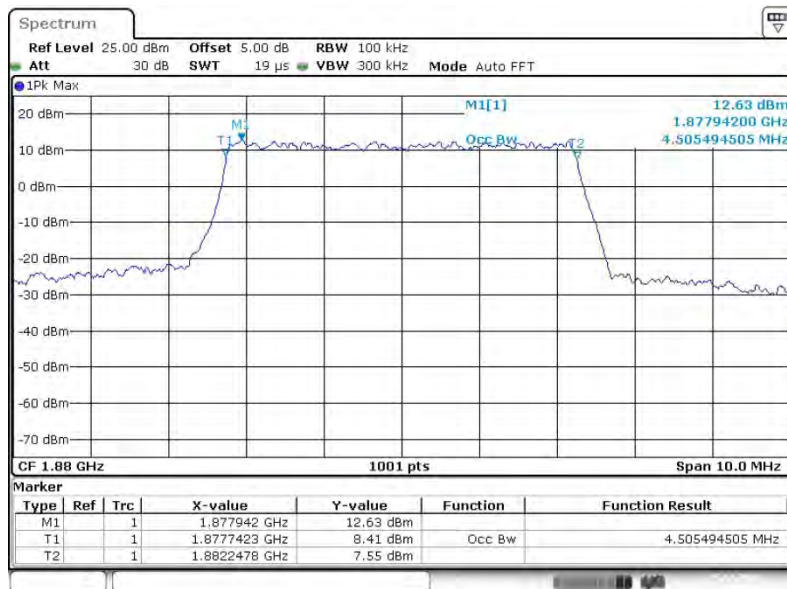


Date: 25.DEC.2014 21:39:34



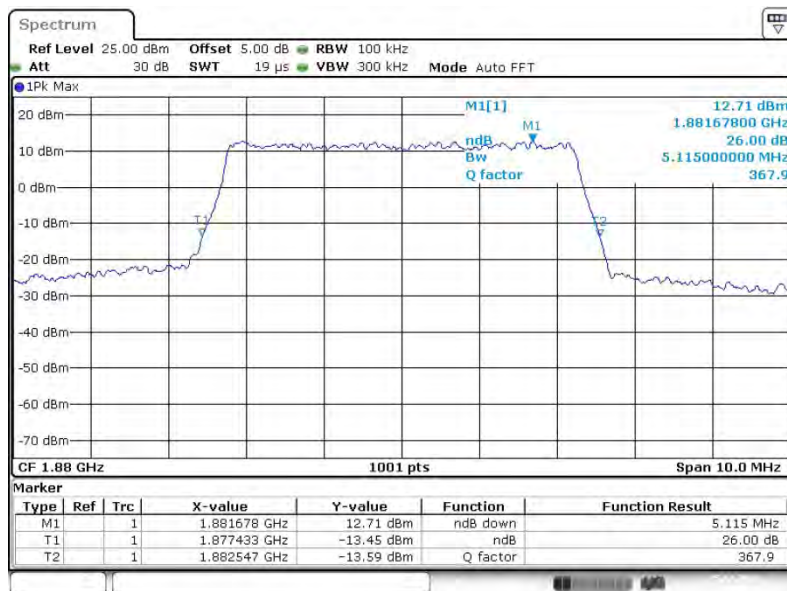
Band :	LTE Band 2	BW / Mod. :	5MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 18900



Date: 25.DEC.2014 21:39:22

26dB Bandwidth Plot on Channel 18900

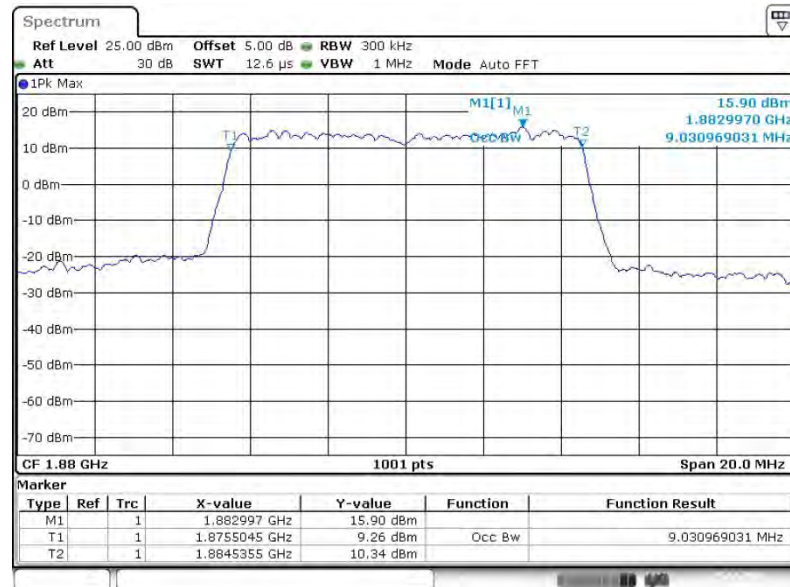


Date: 25.DEC.2014 21:39:46



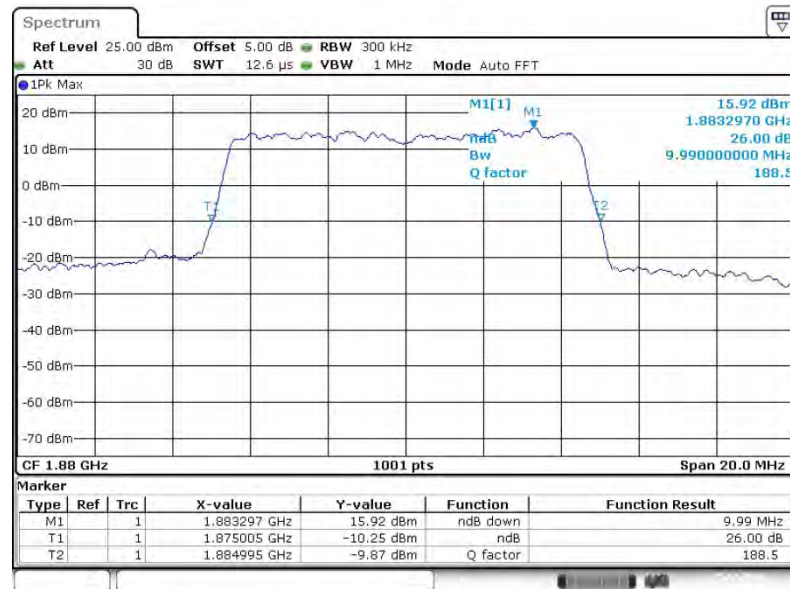
Band :	LTE Band 2	BW / Mod. :	10MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 18900



Date: 25.DEC.2014 21:58:14

26dB Bandwidth Plot on Channel 18900

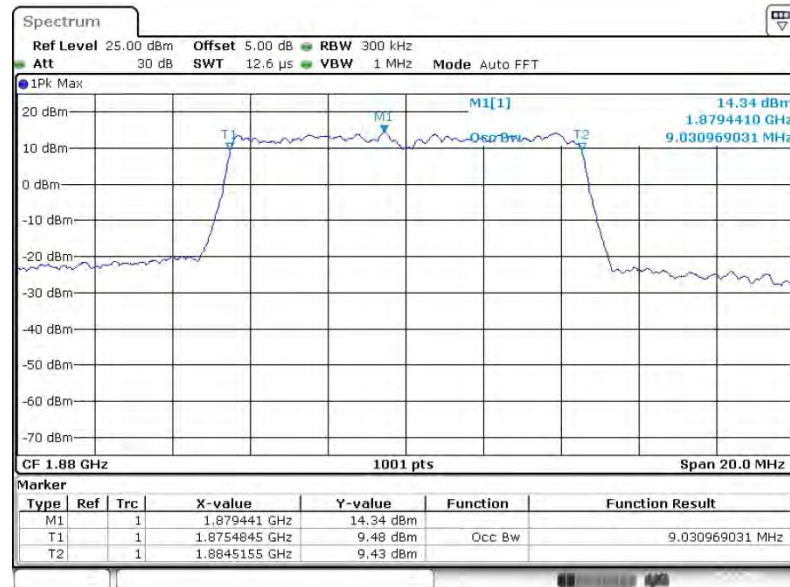


Date: 25.DEC.2014 21:58:35



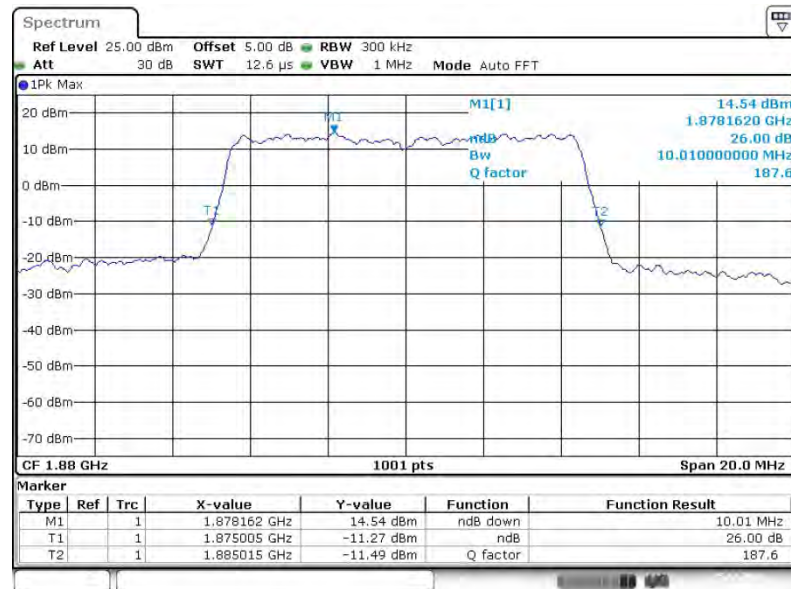
Band :	LTE Band 2	BW / Mod. :	10MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 18900



Date: 25.DEC.2014 21:58:24

26dB Bandwidth Plot on Channel 18900



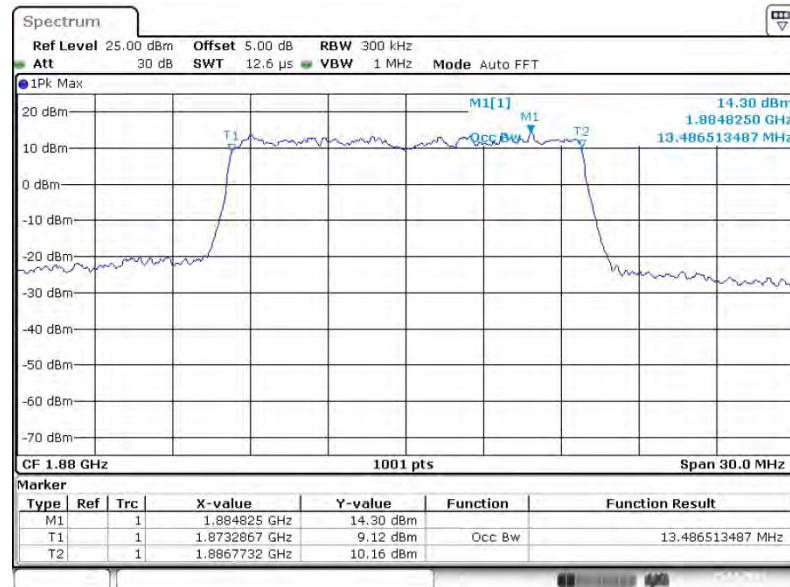
Date: 25.DEC.2014 21:58:47



Band : LTE Band 2

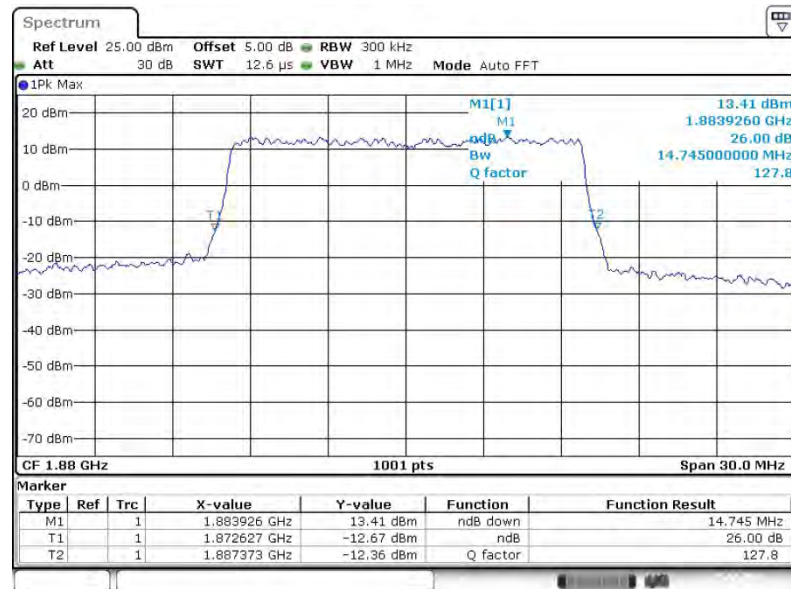
BW / Mod. : 15MHz / QPSK

99% Occupied Bandwidth Plot on Channel 18900



Date: 25.DEC.2014 22:17:15

26dB Bandwidth Plot on Channel 18900

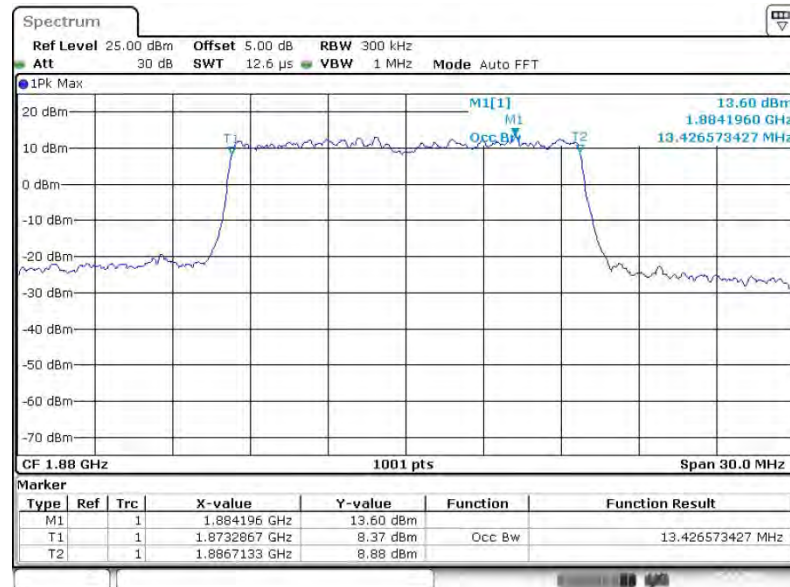


Date: 25.DEC.2014 22:17:36



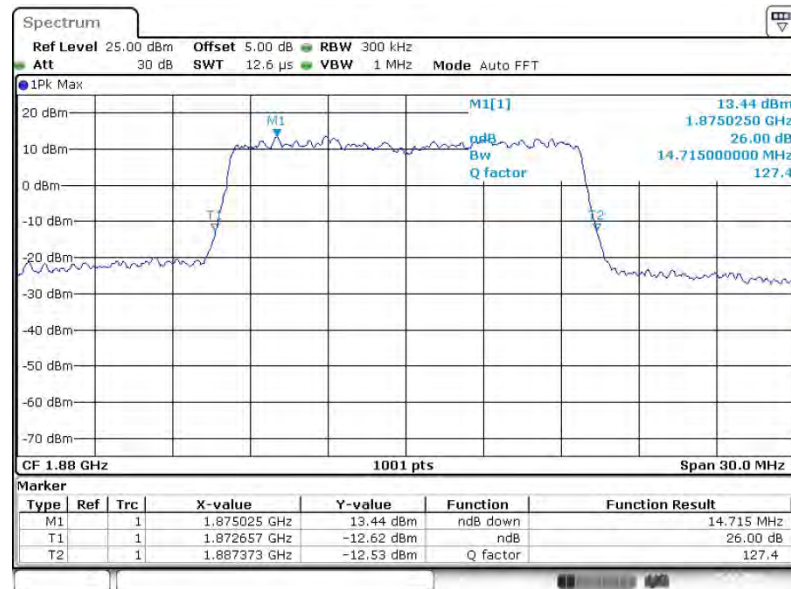
Band :	LTE Band 2	BW / Mod. :	15MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 18900



Date: 25.DEC.2014 22:17:24

26dB Bandwidth Plot on Channel 18900



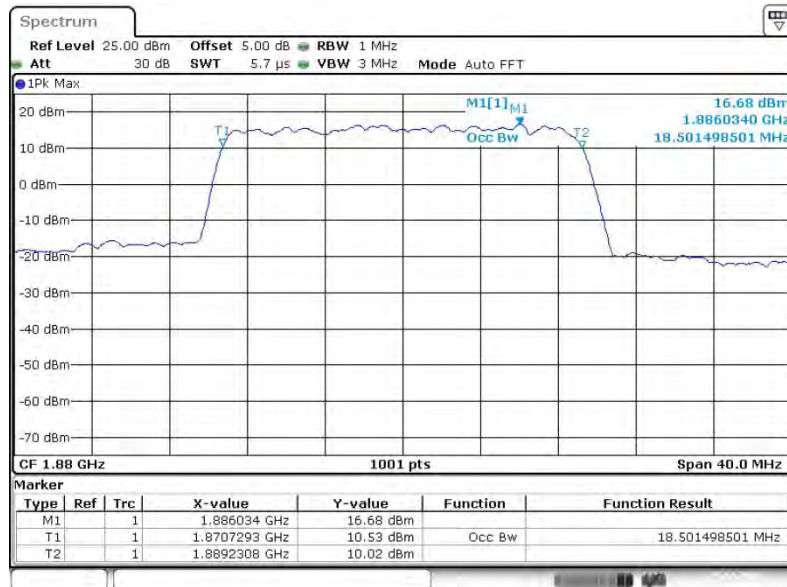
Date: 25.DEC.2014 22:17:48



Band : LTE Band 2

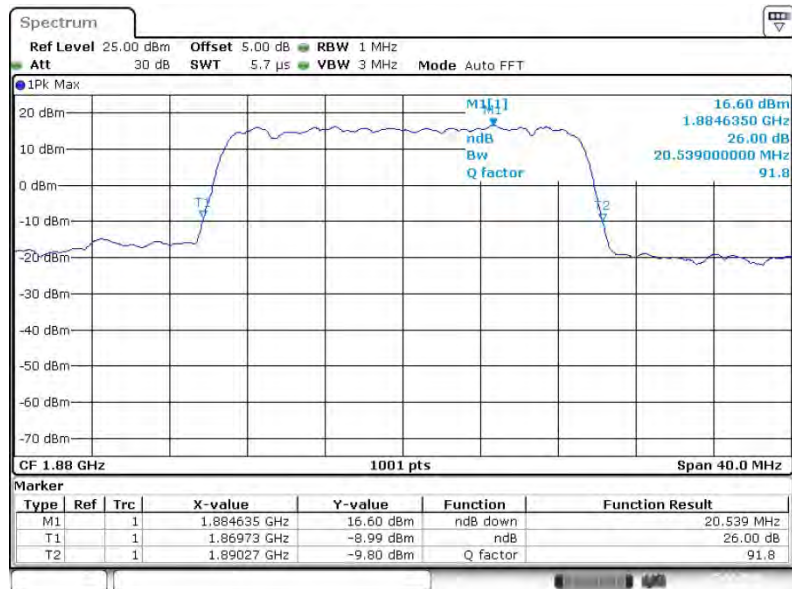
BW / Mod. : 20MHz / QPSK

99% Occupied Bandwidth Plot on Channel 18900



Date: 25.DEC.2014 22:42:13

26dB Bandwidth Plot on Channel 18900



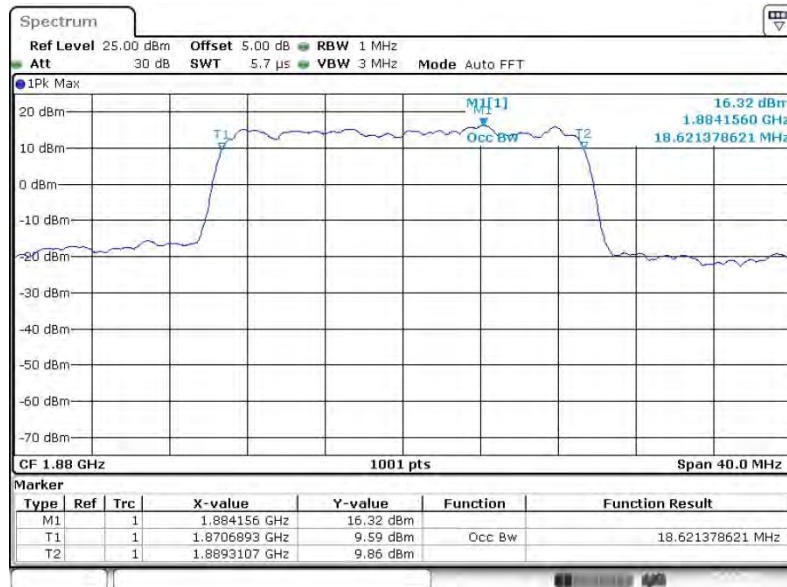
Date: 25.DEC.2014 22:42:35



Band : LTE Band 2

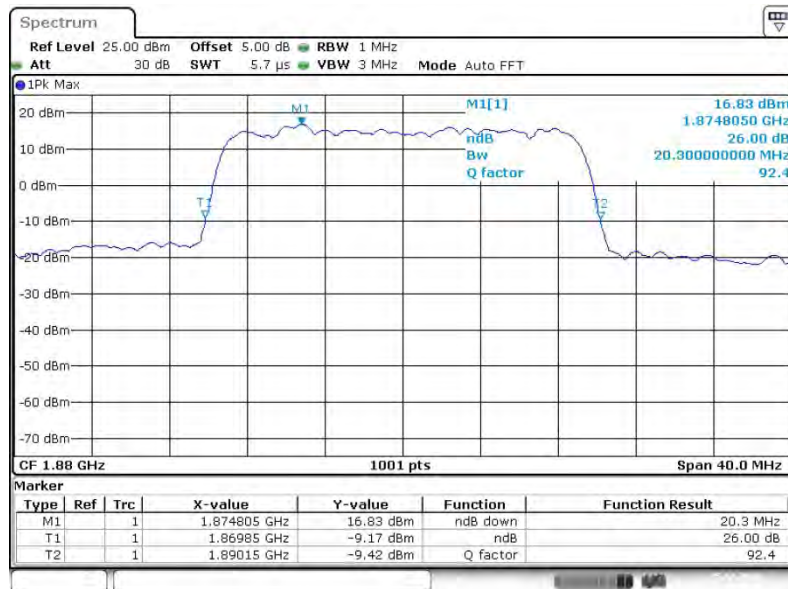
BW / Mod. : 20MHz / 16QAM

99% Occupied Bandwidth Plot on Channel 18900



Date: 25.DEC.2014 22:42:23

26dB Bandwidth Plot on Channel 18900

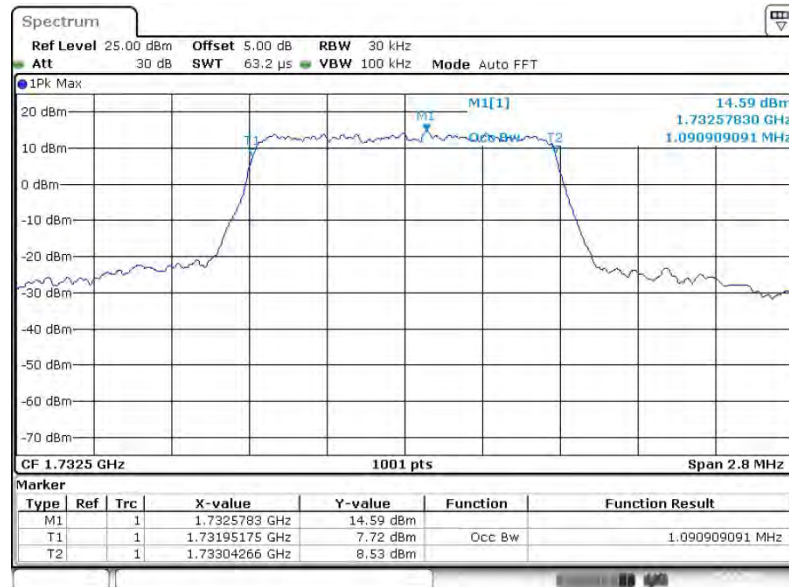


Date: 25.DEC.2014 22:42:47



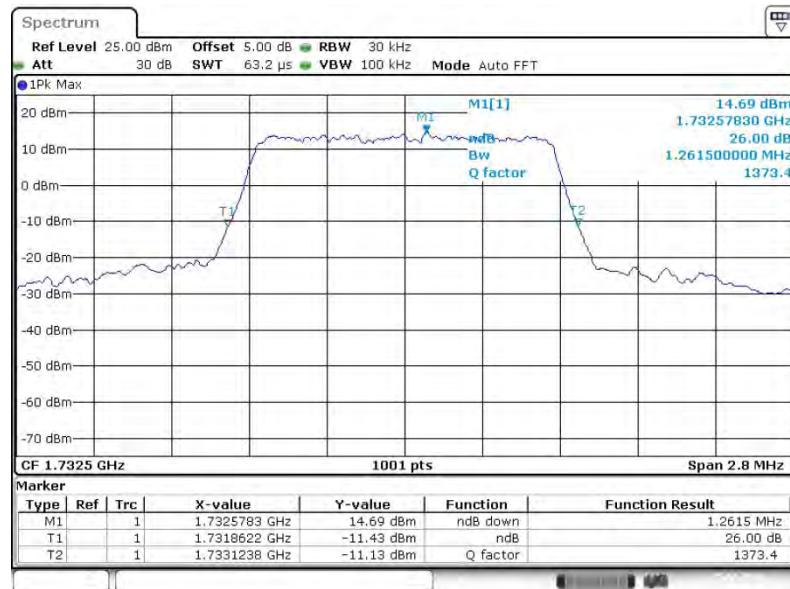
Band :	LTE Band 4	BW / Mod. :	1.4MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 20175



Date: 25.DEC.2014 16:59:02

26dB Bandwidth Plot on Channel 20175

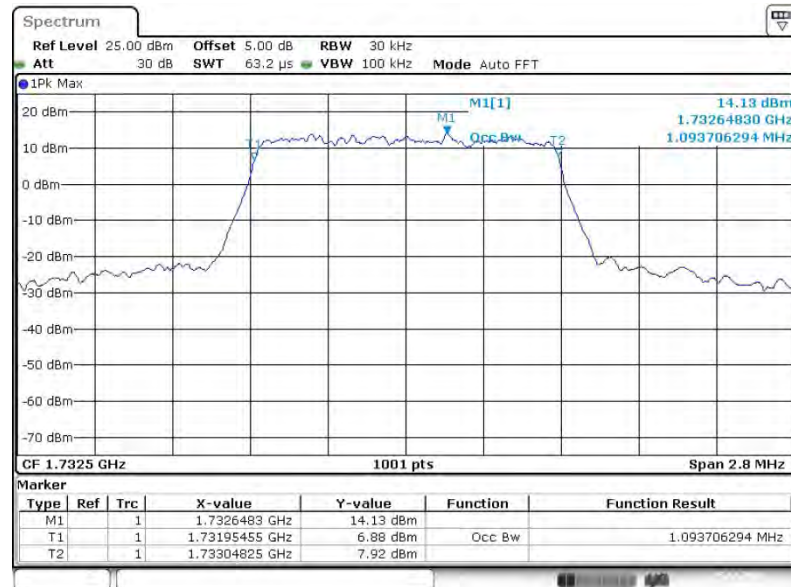


Date: 25.DEC.2014 16:59:24



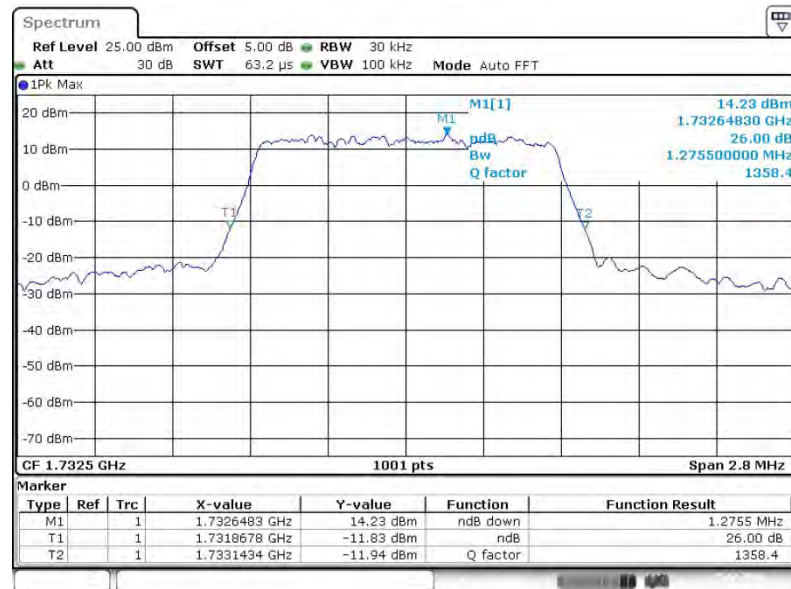
Band :	LTE Band 4	BW / Mod. :	1.4MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 20175



Date: 25.DEC.2014 16:59:12

26dB Bandwidth Plot on Channel 20175



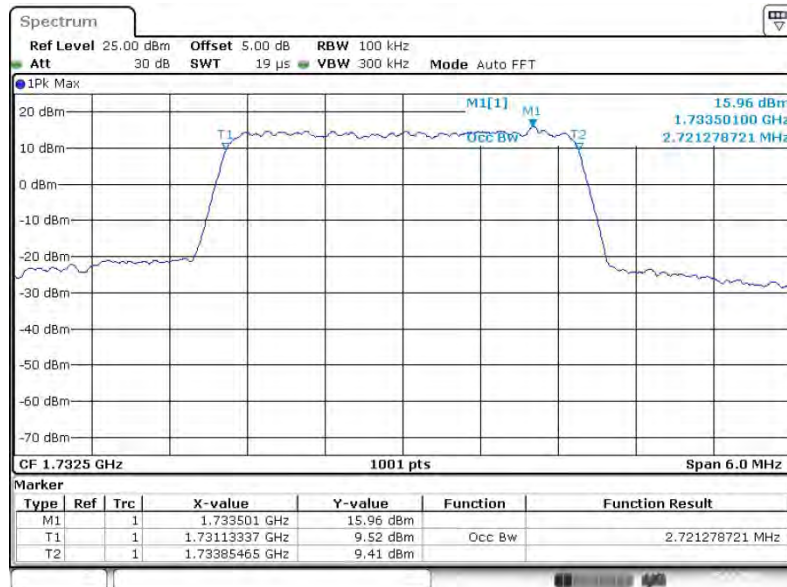
Date: 25.DEC.2014 16:59:36



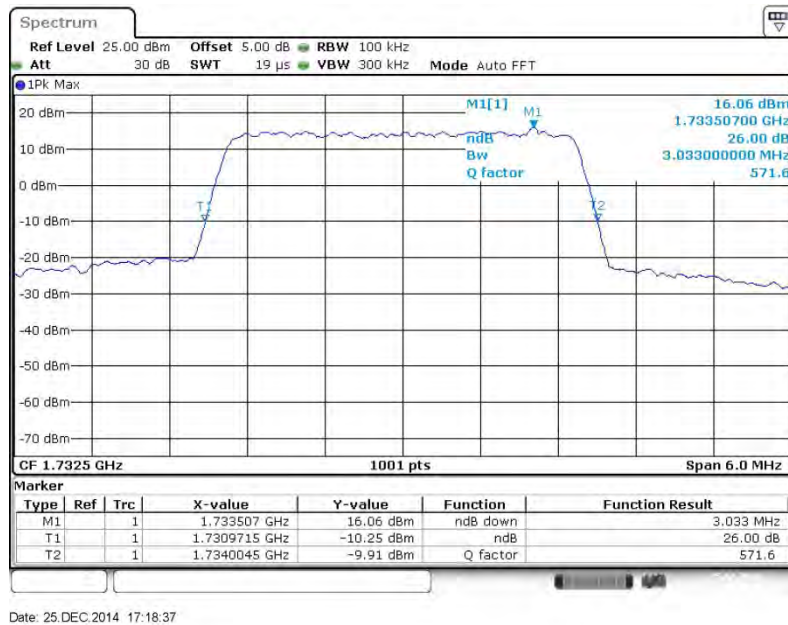
Band : LTE Band 4

BW / Mod. : 3MHz / QPSK

99% Occupied Bandwidth Plot on Channel 20175

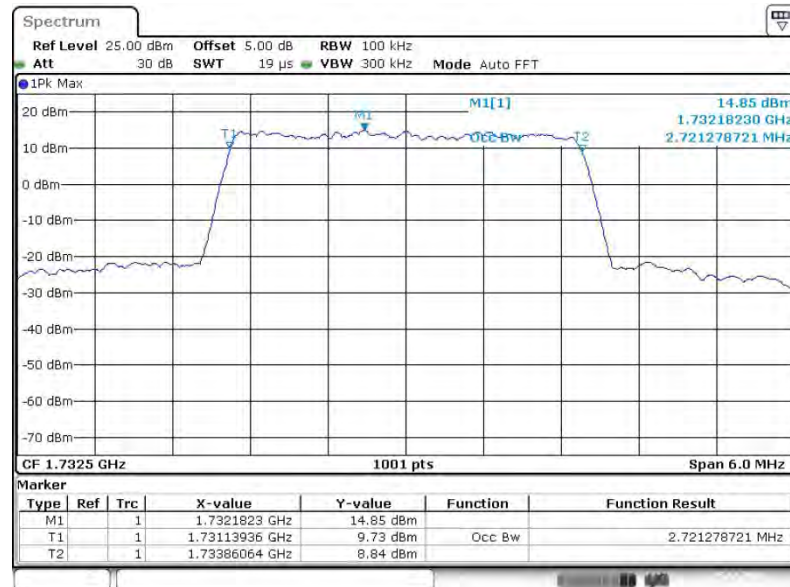
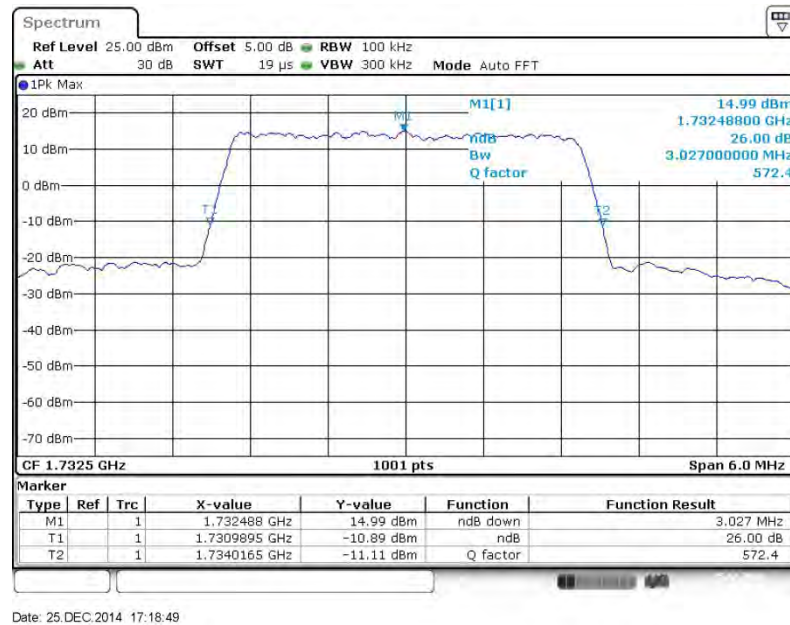


26dB Bandwidth Plot on Channel 20175





Band :	LTE Band 4	BW / Mod. :	3MHz / 16QAM
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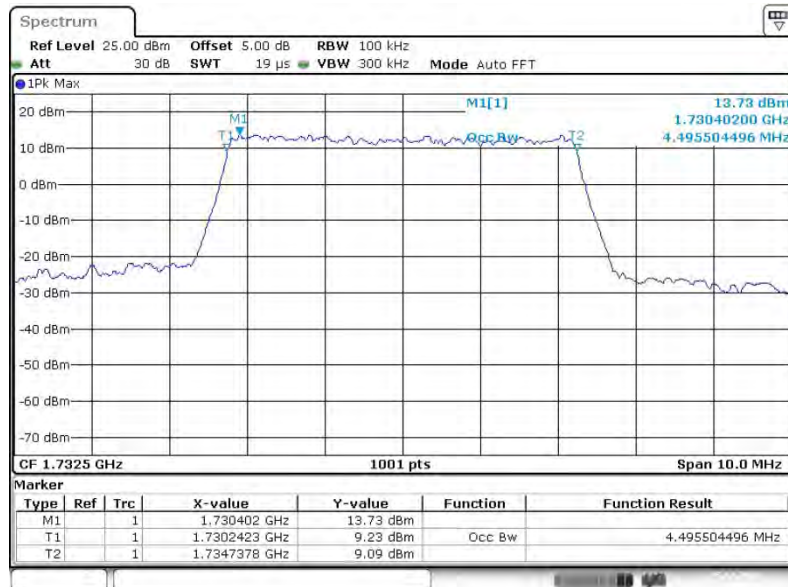
99% Occupied Bandwidth Plot on Channel 20175**26dB Bandwidth Plot on Channel 20175**



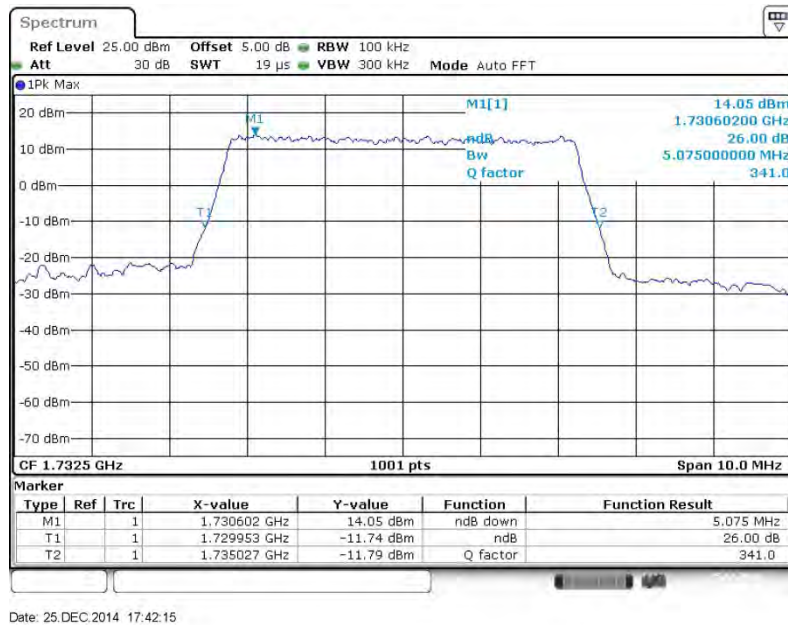
Band : LTE Band 4

BW / Mod. : 5MHz / QPSK

99% Occupied Bandwidth Plot on Channel 20175



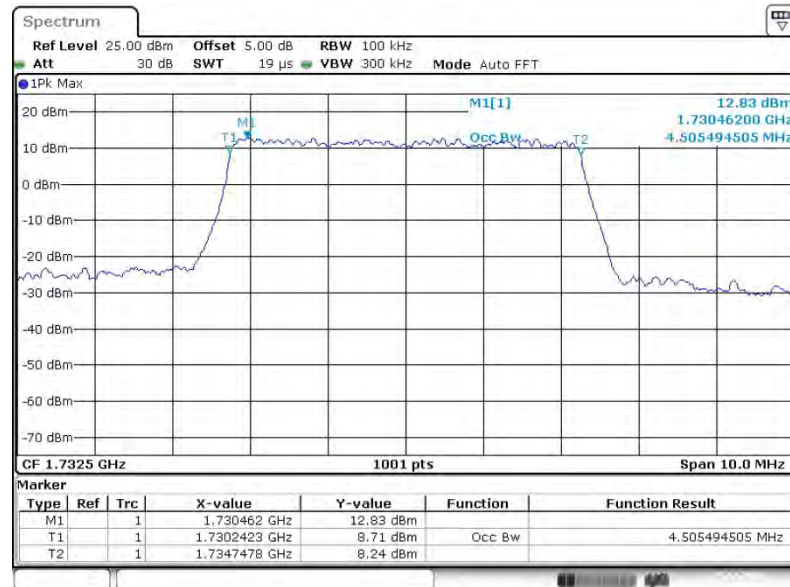
26dB Bandwidth Plot on Channel 20175





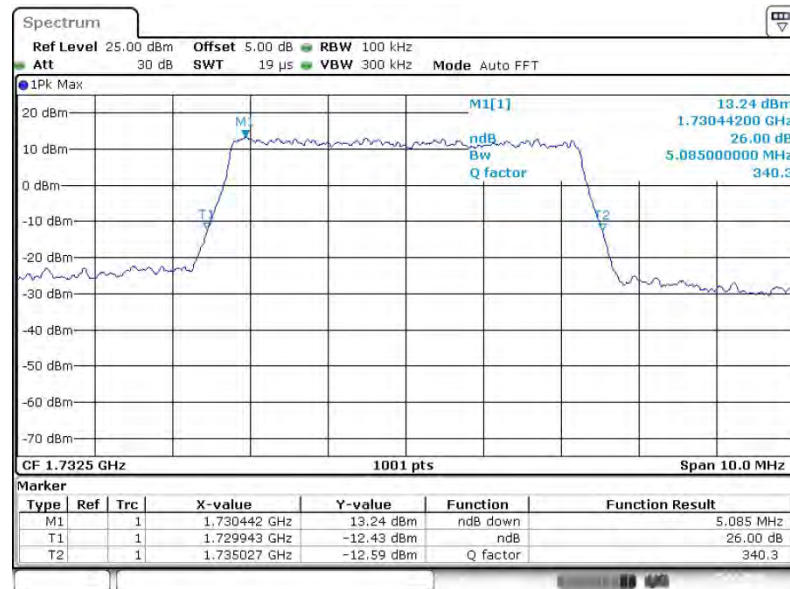
Band :	LTE Band 4	BW / Mod. :	5MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 20175



Date: 25.DEC.2014 17:42:03

26dB Bandwidth Plot on Channel 20175



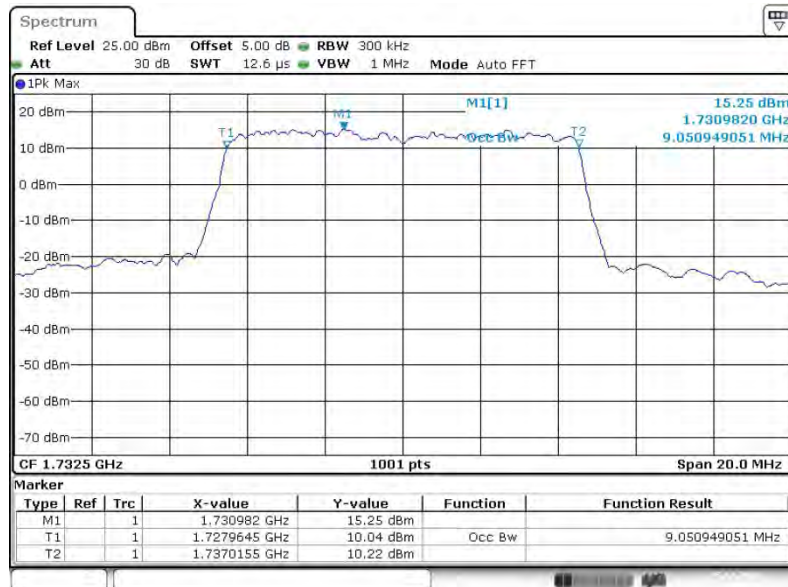
Date: 25.DEC.2014 17:42:27



Band : LTE Band 4

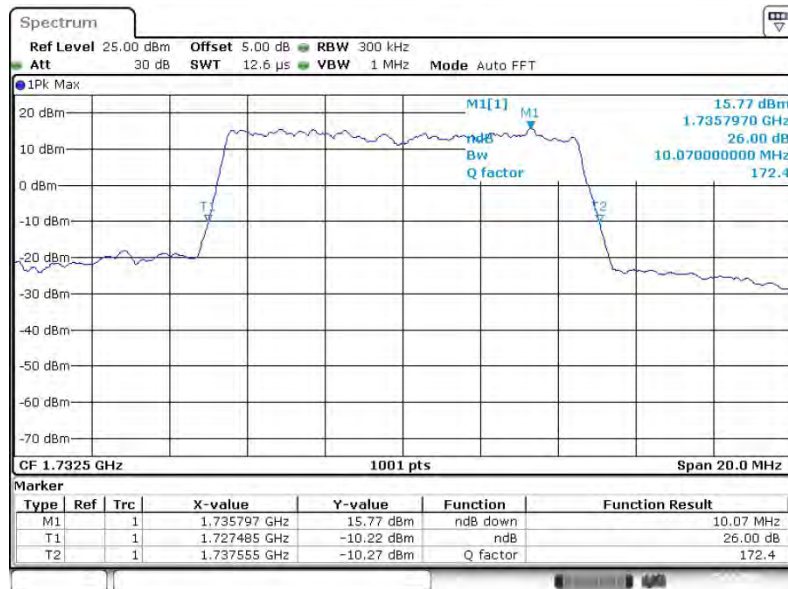
BW / Mod. : 10MHz / QPSK

99% Occupied Bandwidth Plot on Channel 20175



Date: 25.DEC.2014 18:04:20

26dB Bandwidth Plot on Channel 20175

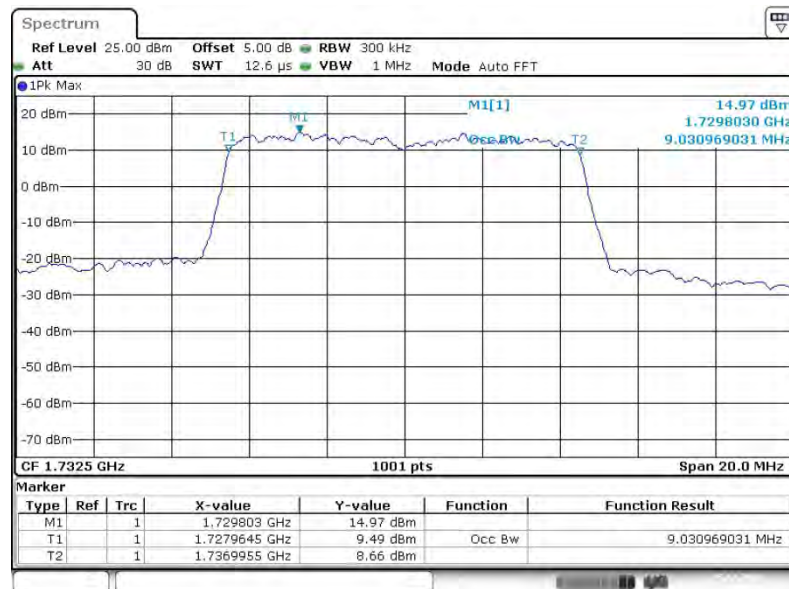


Date: 25.DEC.2014 18:04:42



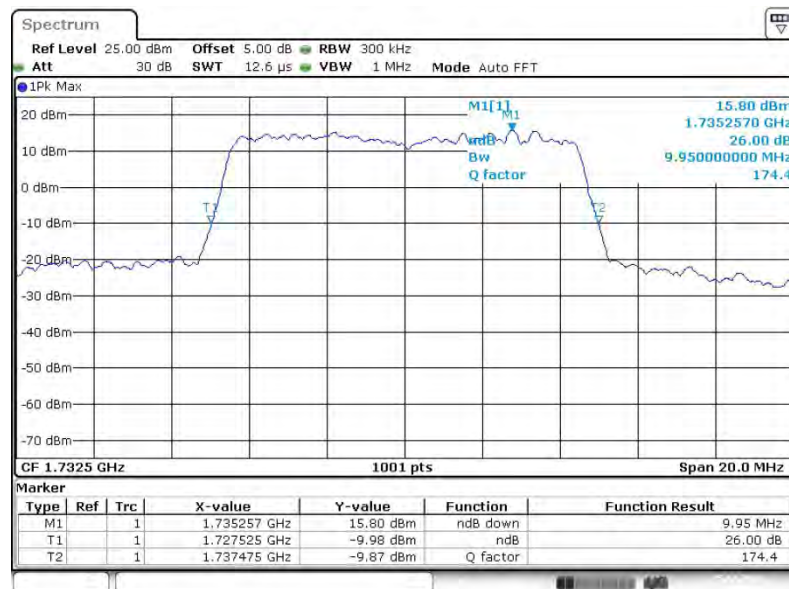
Band :	LTE Band 4	BW / Mod. :	10MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 20175



Date: 25.DEC.2014 18:04:30

26dB Bandwidth Plot on Channel 20175



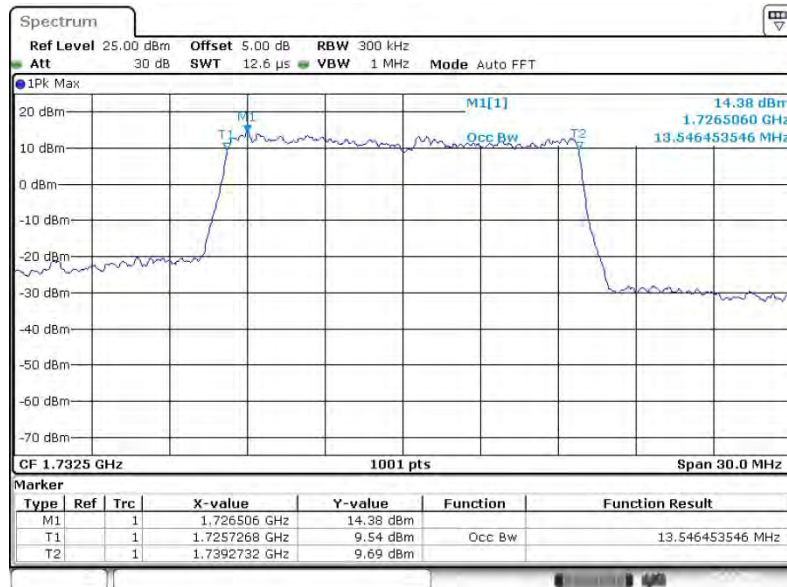
Date: 25.DEC.2014 18:04:53



Band : LTE Band 4

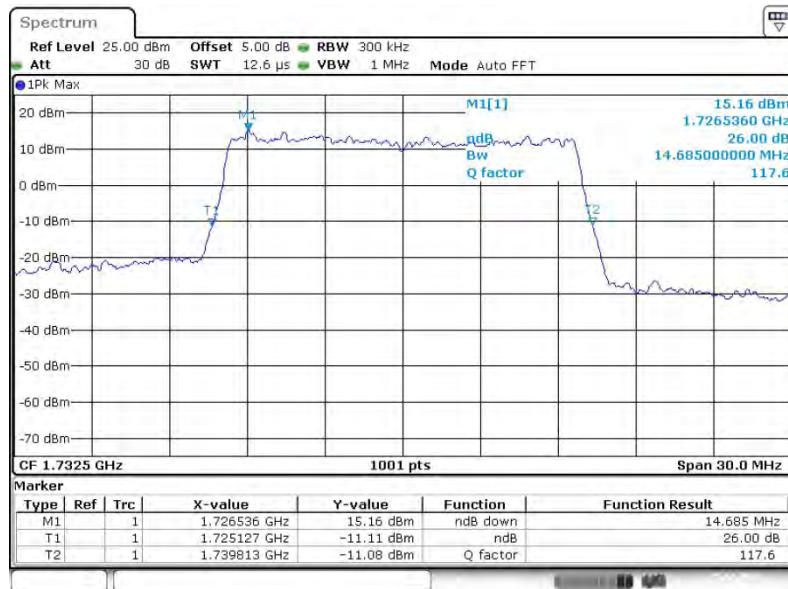
BW / Mod. : 15MHz / QPSK

99% Occupied Bandwidth Plot on Channel 20175



Date: 25.DEC.2014 18:57:25

26dB Bandwidth Plot on Channel 20175



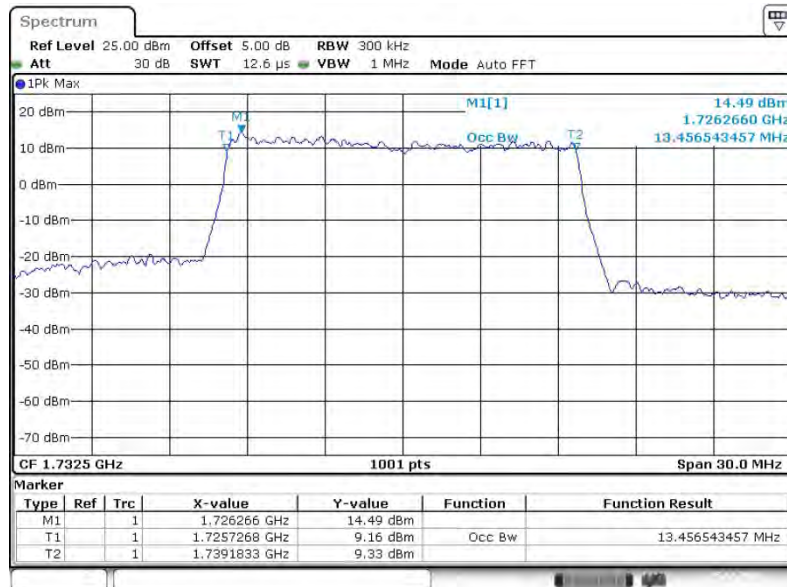
Date: 25.DEC.2014 18:57:47



Band : LTE Band 4

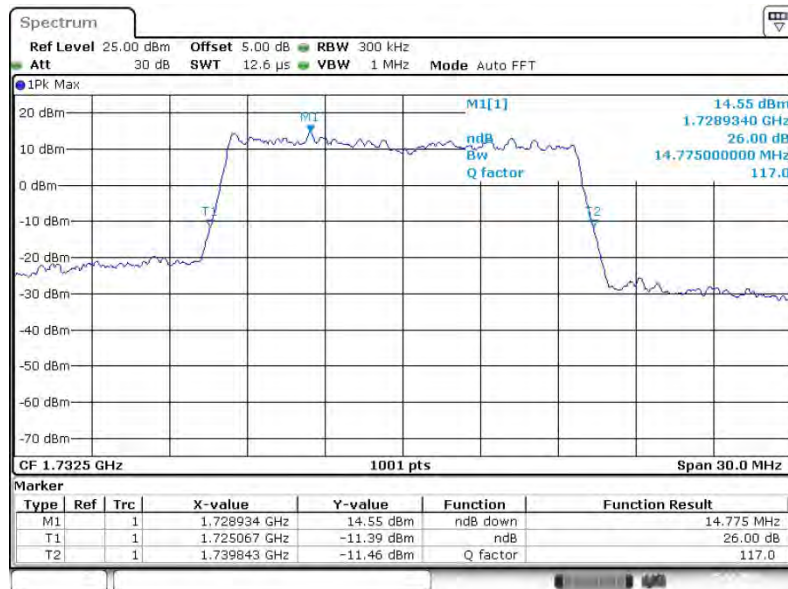
BW / Mod. : 15MHz / 16QAM

99% Occupied Bandwidth Plot on Channel 20175



Date: 25.DEC.2014 18:57:35

26dB Bandwidth Plot on Channel 20175

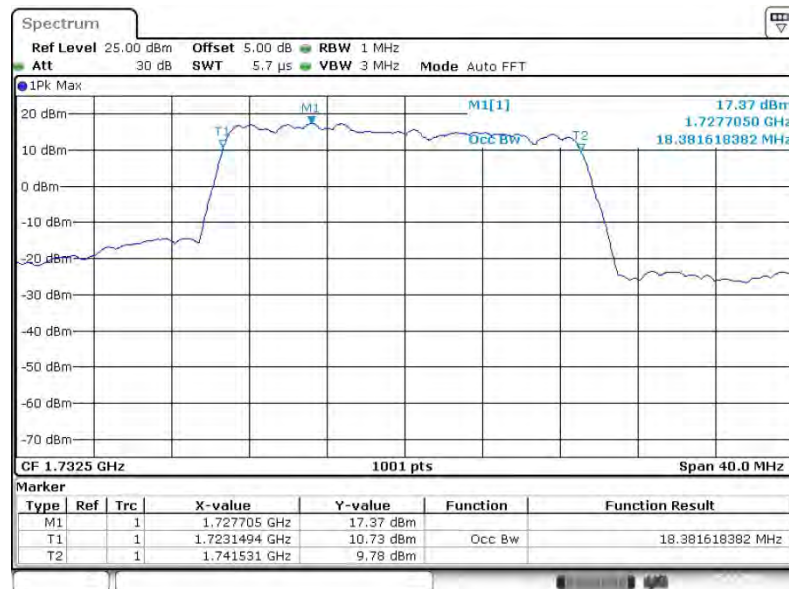


Date: 25.DEC.2014 18:57:59

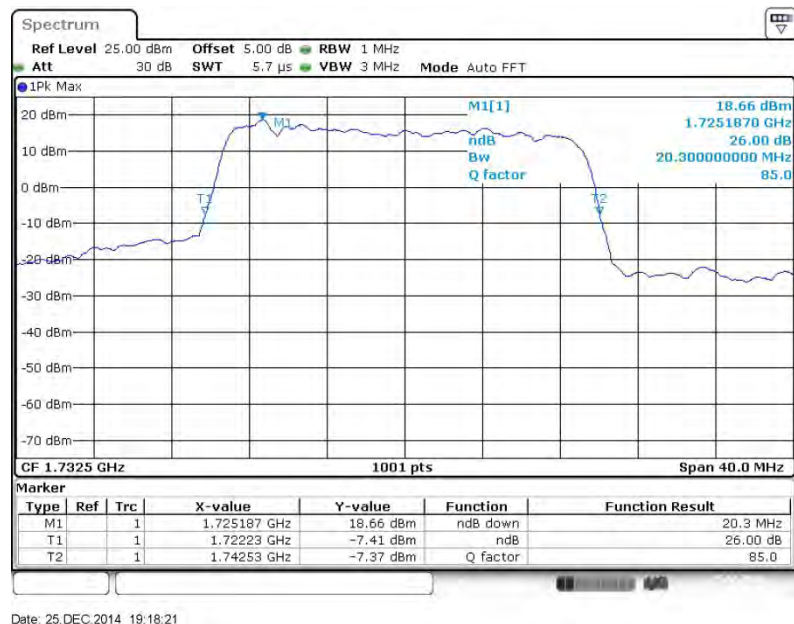


Band :	LTE Band 4	BW / Mod. :	20MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 20175



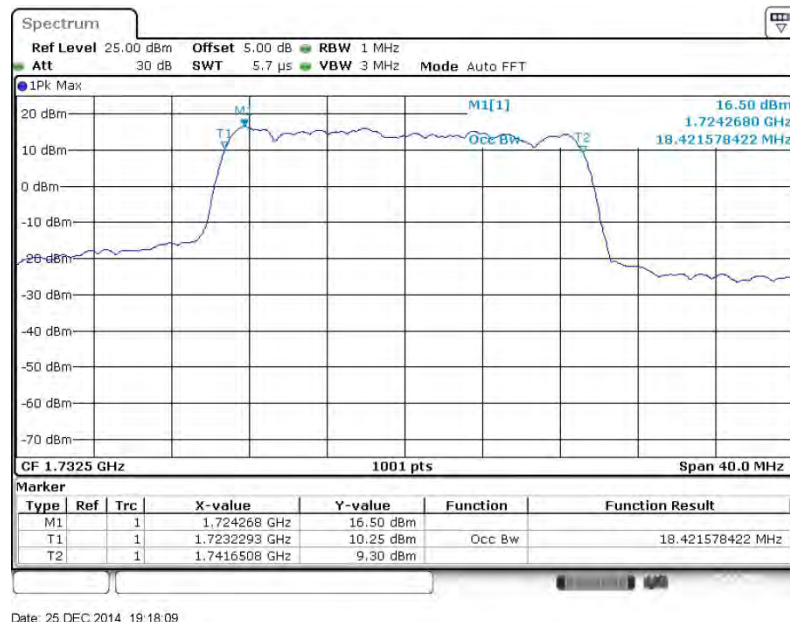
26dB Bandwidth Plot on Channel 20175



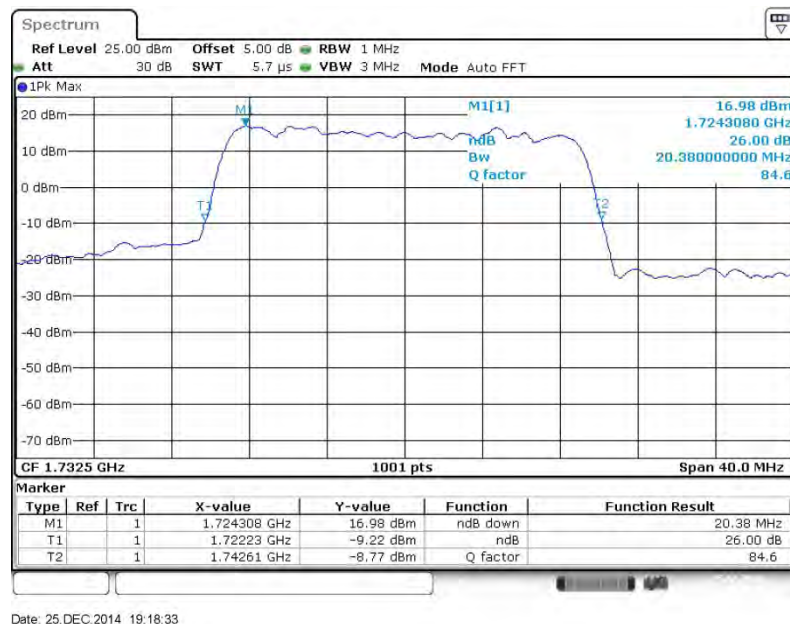


Band :	LTE Band 4	BW / Mod. :	20MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 20175



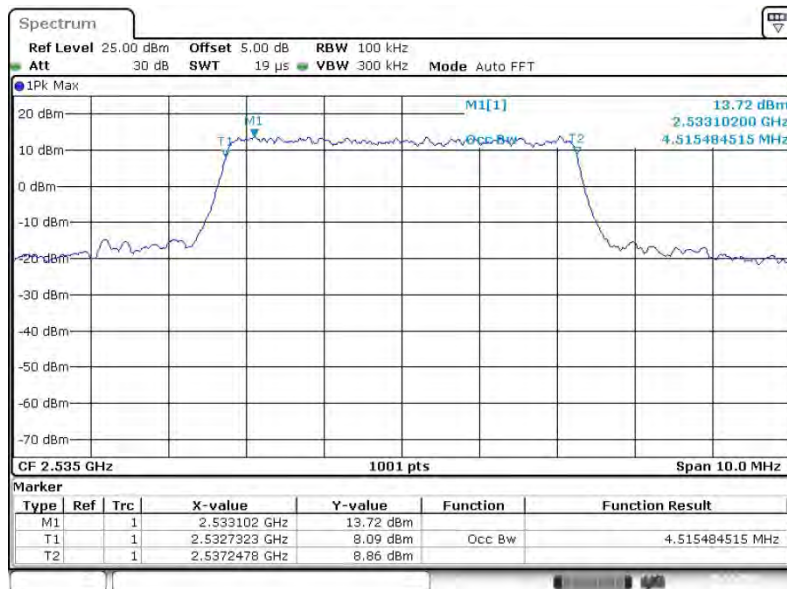
26dB Bandwidth Plot on Channel 20175





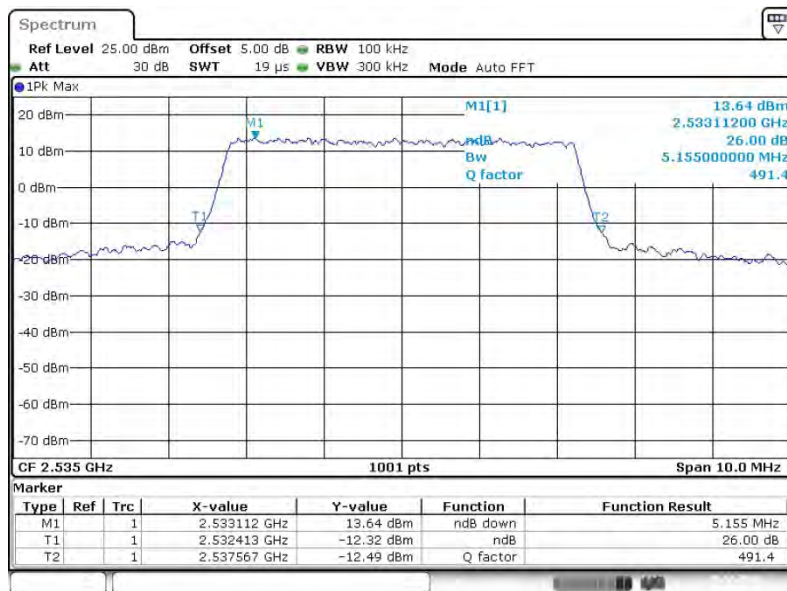
Band :	LTE Band 7	BW / Mod. :	5MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 21100



Date: 26 DEC.2014 00:33:20

26dB Bandwidth Plot on Channel 21100

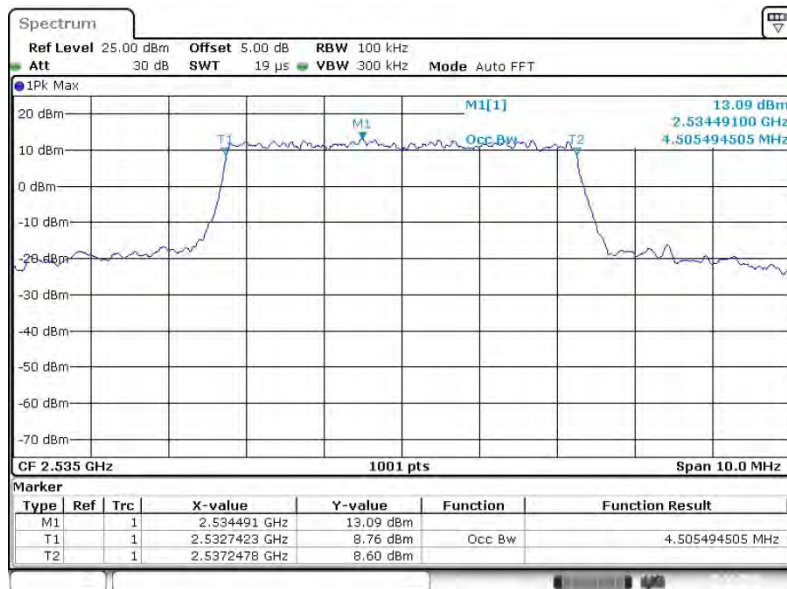


Date: 26 DEC.2014 00:33:42

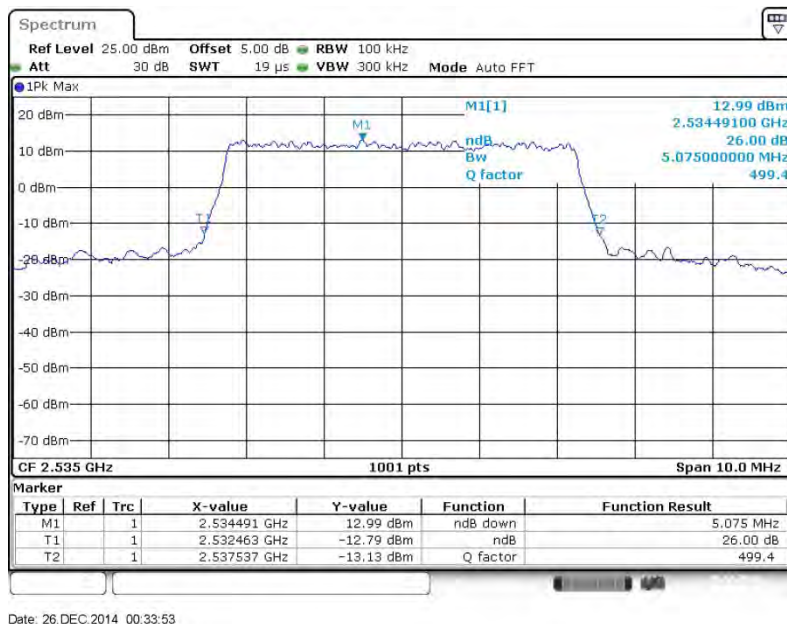


Band :	LTE Band 7	BW / Mod. :	5MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 21100



26dB Bandwidth Plot on Channel 21100

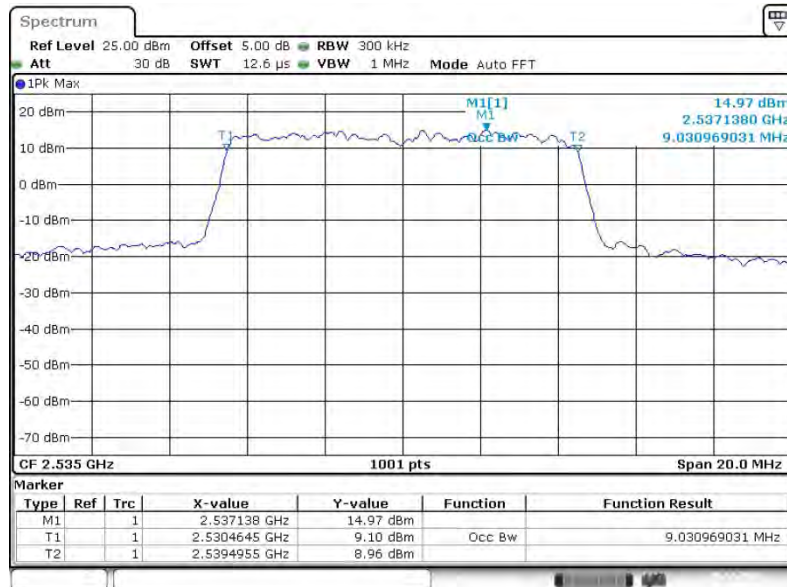




Band : LTE Band 7

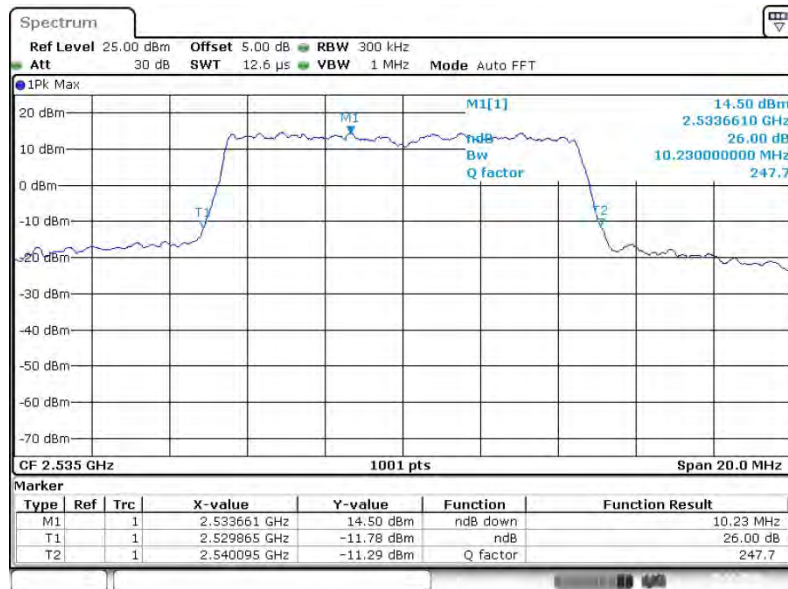
BW / Mod. : 10MHz / QPSK

99% Occupied Bandwidth Plot on Channel 21100



Date: 26 DEC.2014 00:52:23

26dB Bandwidth Plot on Channel 21100

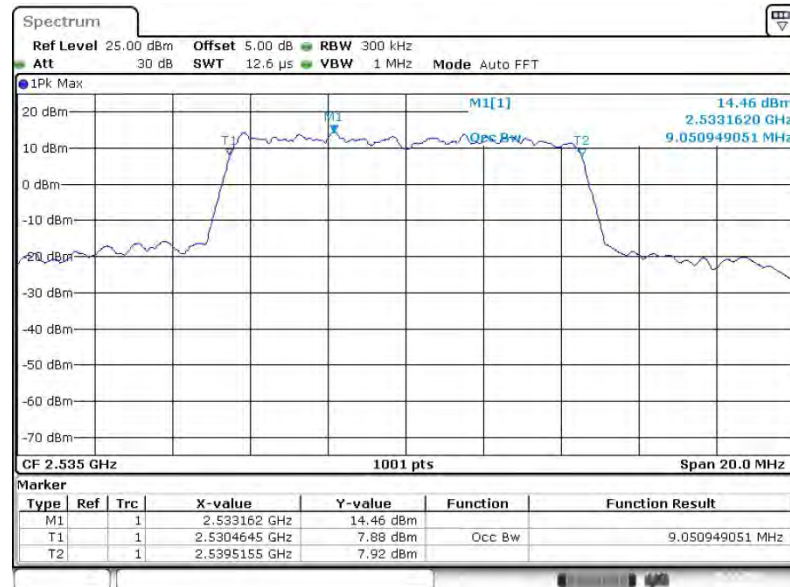


Date: 26 DEC.2014 00:52:45



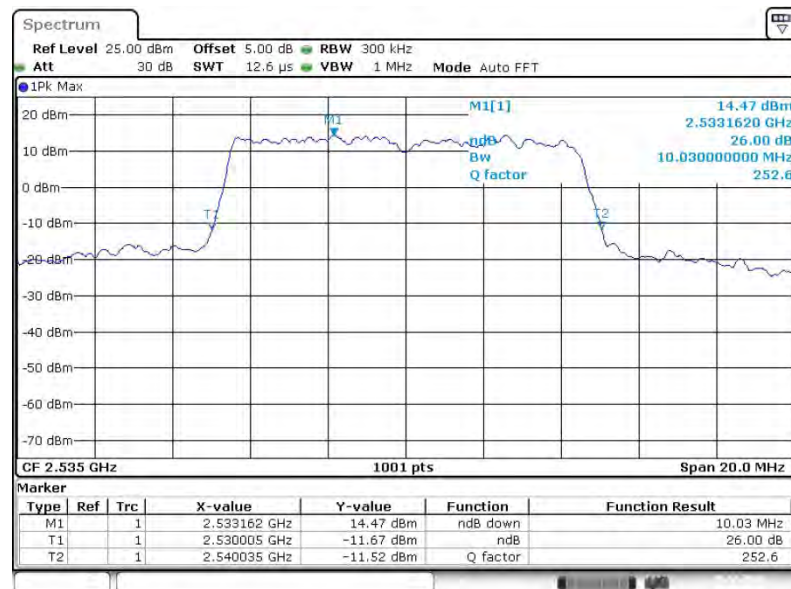
Band :	LTE Band 7	BW / Mod. :	10MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 21100



Date: 26 DEC. 2014 00:52:33

26dB Bandwidth Plot on Channel 21100



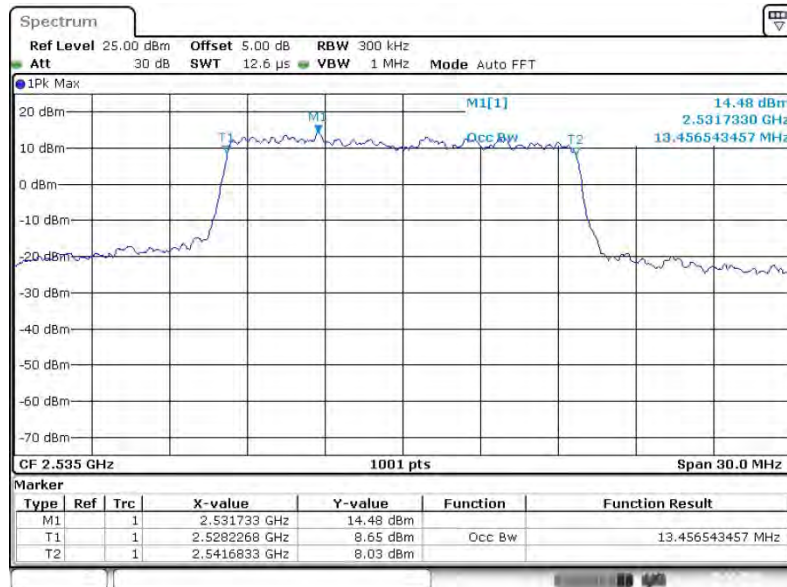
Date: 26 DEC. 2014 00:52:57



Band : LTE Band 7

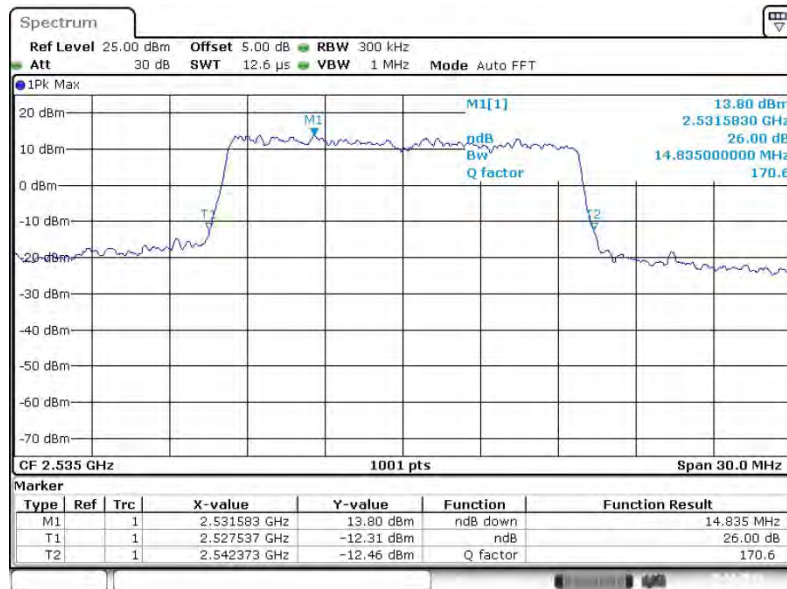
BW / Mod. : 15MHz / QPSK

99% Occupied Bandwidth Plot on Channel 21100



Date: 26 DEC.2014 01:11:26

26dB Bandwidth Plot on Channel 21100

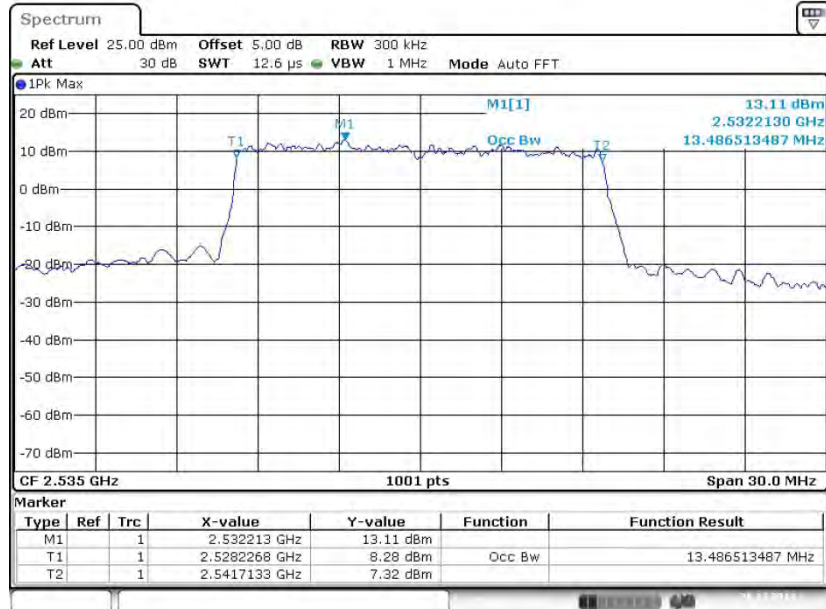


Date: 26 DEC.2014 01:11:48



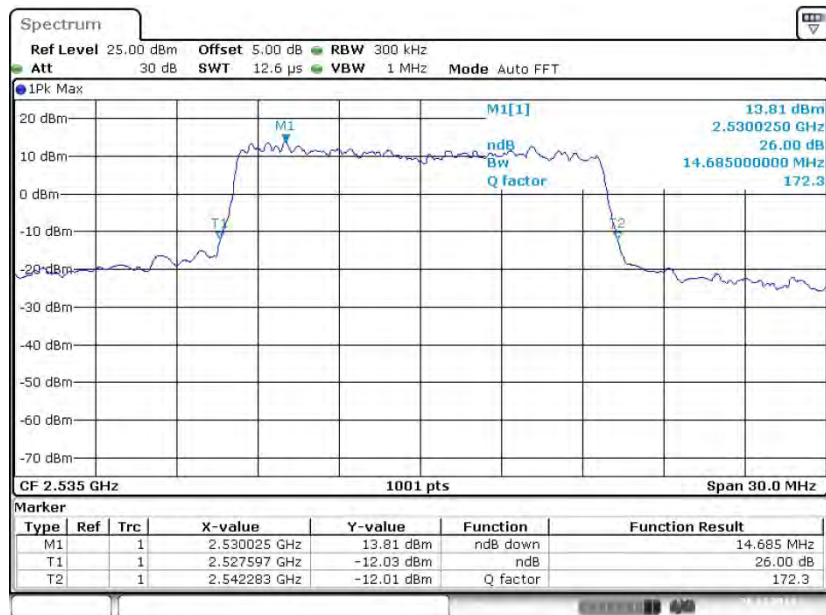
Band :	LTE Band 7	BW / Mod. :	15MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 21100



Date: 26 DEC 2014 01:11:36

26dB Bandwidth Plot on Channel 21100

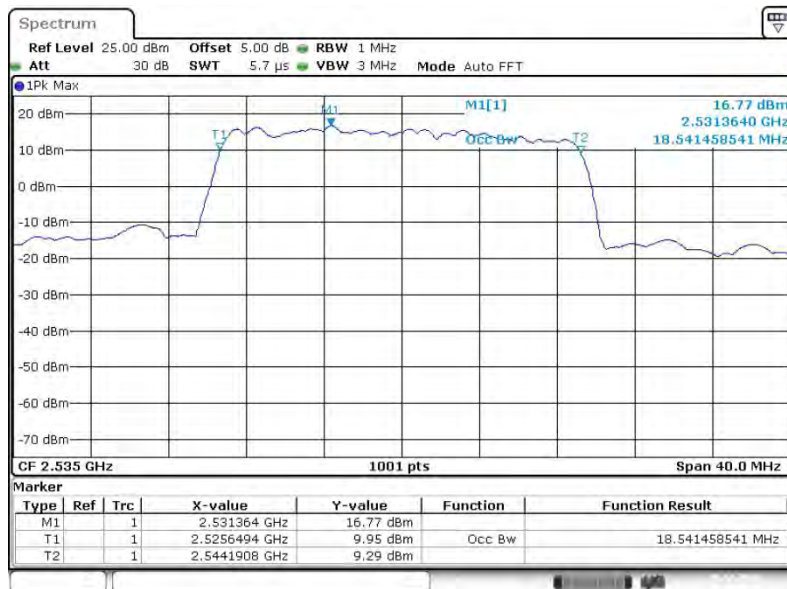


Date: 26 DEC 2014 01:12:00



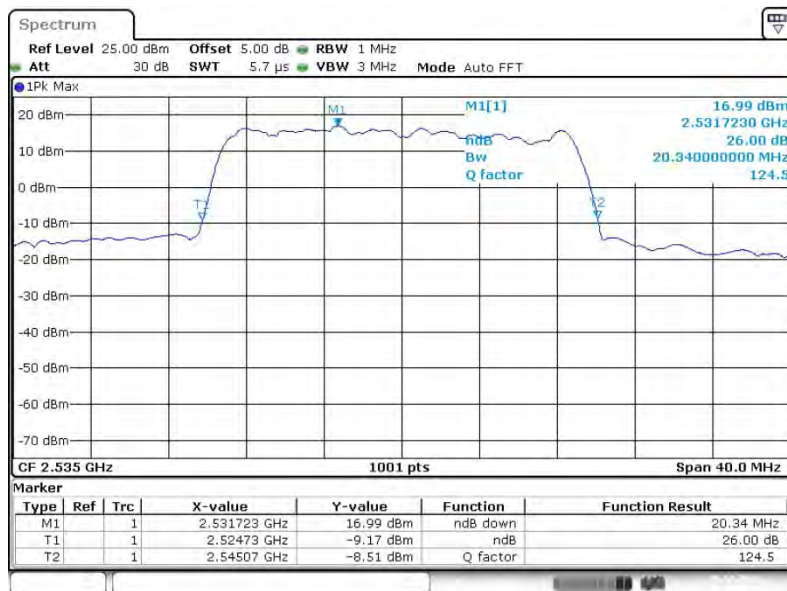
Band :	LTE Band 7	BW / Mod. :	20MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 21100



Date: 26 DEC.2014 01:30:29

26dB Bandwidth Plot on Channel 21100

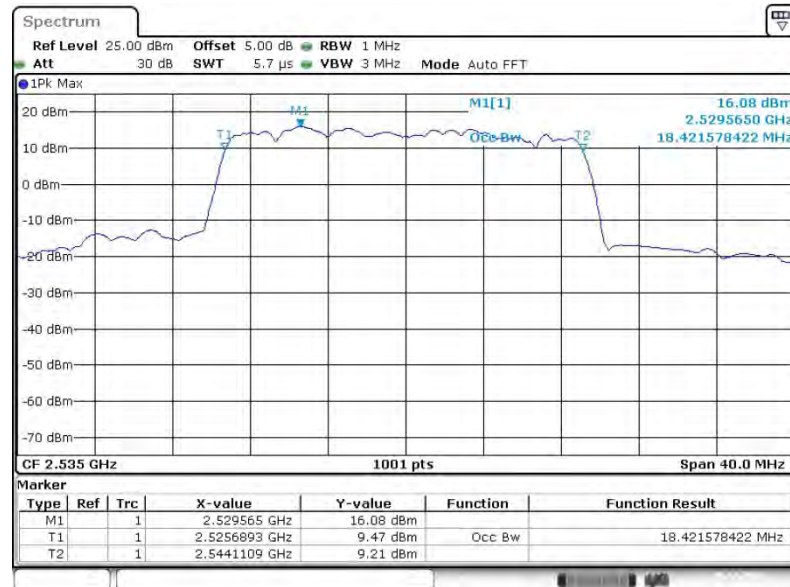


Date: 26 DEC.2014 01:30:51



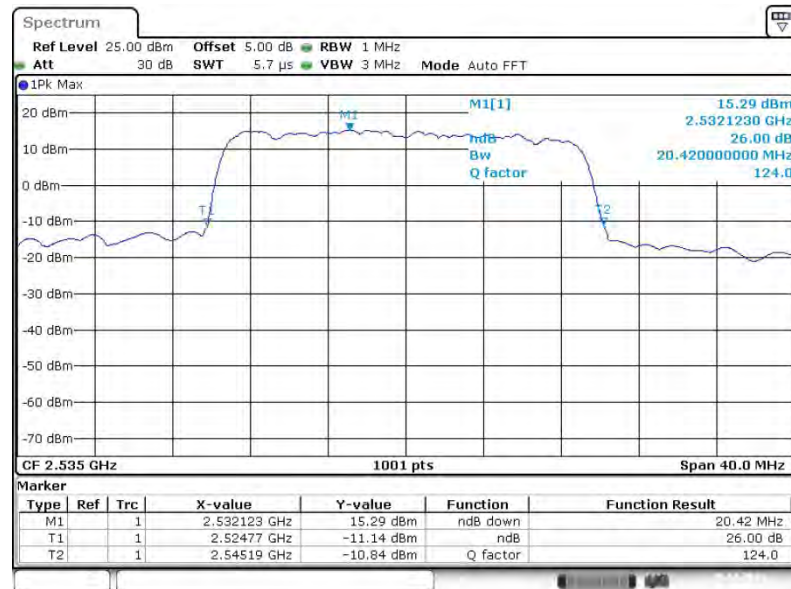
Band :	LTE Band 7	BW / Mod. :	20MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 21100



Date: 26 DEC.2014 01:30:39

26dB Bandwidth Plot on Channel 21100



Date: 26 DEC.2014 01:31:03