



FCC RF Test Report

APPLICANT : ZTE CORPORATION
EQUIPMENT : WCDMA/LTE Multi-Mode Digital Mobile Phone
BRAND NAME : ZTE
MODEL NAME : Z826
FCC ID : SRQ-Z826
STANDARD : 47 CFR Part 2, 27(L), 27(H), 27(M)
CLASSIFICATION : PCS Licensed Transmitter Held to Ear (PCE)

The product was received on Sep. 25, 2014 and testing was completed on Nov. 07, 2014. 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



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG492505B	Rev. 01	Initial issue of report	Nov. 10, 2014



SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	§2.1046	RSS-Gen(4.8) RSS-130(4.4) RSS-139 (6.4) RSS-199 (4.4)	Conducted Output Power	Reporting Only	PASS	-
3.2	N/A	RSS-130(4.4) RSS-139 (6.4)	Peak-to-Average Ratio	Reporting Only	PASS	-
3.3	§27.50(b)(10) §27.50(c)(10) §27.50(c)(9)	N/A	Effective Radiated Power (Band 17)	ERP < 3 Watt	PASS	-
	§27.50(h)(2)	RSS-199 (4.4)	Equivalent Isotropic Radiated Power (Band 7)	EIRP < 2Watt		
	§27.50(d)(4)	RSS-139 (6.4) SRSP-513(5.1.2)	Equivalent Isotropic Radiated Power (Band 4)	EIRP < 1Watt		
3.4	§2.1049 §27.53(h)(3) §27.53(m)(6)	RSS-GEN(4.6.1) RSS-139 (3.1) RSS-199 (4.2) RSS-130(3.1)	99% Occupied Bandwidth and 26dB Bandwidth	Reporting Only	PASS	-



Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.5	§2.1051 §27.53(g) §27.53(h)	RSS-GEN(4.9) RSS-130(4.6) RSS-139 (6.5)	Conducted Band Edge Measurement (Band 4) (Band 17)	$< 43+10\log_{10}(P[\text{Watt}])$	PASS	-
	§2.1051 §27.53(m)(4)	RSS-GEN(4.9) RSS-199 (4.5)	Conducted Band Edge Measurement (Band 7)	$< 5\text{MHz}: -10 \text{ dBm}$ $5 \text{ MHz} \sim 6\text{MHz} \text{ or}$ $26\text{dB(BW)}: -13 \text{ dBm}$ $\geq 6\text{MHz} \text{ or } 26\text{dB(BW)}:$ -25 dBm		
3.6	§2.1051 §27.53(g) §27.53(h)	RSS-GEN(4.9) RSS-130(4.6) RSS-139 (6.5)	Conducted Spurious Emission (Band 4) (Band 17)	$< 43+10\log_{10}(P[\text{Watts}])$	PASS	-
	§2.1051 §27.53(m)(4)	RSS-GEN(4.9) RSS-199 (4.5)	Conducted Spurious Emission (Band 7)	$< 55+10\log_{10}(P[\text{Watts}])$	PASS	-
3.7	§2.1053 §27.53(g) §27.53(h)	RSS-GEN(4.9) RSS-130(4.6) RSS-139 (6.5)	Radiated Spurious Emission (Band 4) (Band 17)	$< 43+10\log_{10}(P[\text{Watts}])$	PASS	Under limit 20.60 dB at 5060.000 MHz
	§2.1053 §27.53(m)(4)	RSS-GEN(4.9) RSS-199 (4.5)	Radiated Spurious Emission (Band 7)	$< 55+10\log_{10}(P[\text{Watts}])$	PASS	
3.8	§2.1055 §27.54	RSS-GEN(4.7) RSS-130(4.3) RSS-139 (6.3) RSS-199 (4.3)	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	WCDMA/LTE Multi-Mode Digital Mobile Phone
Brand Name	ZTE
Model Name	Z826
FCC ID	SRQ-Z826
EUT supports Radios application	GSM/GPRS/EGPRS/WCDMA/HSPA/DC-HSDPA/HSPA+ (Downlink Only)/LTE WLAN 2.4GHz 802.11b/g/n HT20 Bluetooth v2.1 + EDR/Bluetooth v4.0 LE
HW Version	wumA
SW Version	Z826V1.0.0B02
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 4 : 1710.7 MHz ~ 1754.3 MHz LTE Band 7 : 2502.5 MHz ~ 2567.5 MHz LTE Band 17 : 706.5 MHz ~ 713.5 MHz
Rx Frequency	LTE Band 4 : 2110.7 MHz ~ 2154.3 MHz LTE Band 7 : 2622.5MHz ~ 2687.5 MHz LTE Band 17 : 736.5 MHz ~ 743.5 MHz
Bandwidth	LTE Band 4 : 1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz / 20MHz LTE Band 7 : 5MHz/ 10MHz / 15MHz / 20MHz LTE Band 17 : 5MHz / 10MHz
Maximum Output Power to Antenna	LTE Band 4 : 23.15 dBm LTE Band 7 : 22.86 dBm LTE Band 17 : 23.48 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 ERP/EIRP Power, Frequency Tolerance, and Emission Designator

FCC Rule	System	Type of Modulation	BW	Emission Designator	Frequency Tolerance (ppm)	Maximum ERP/EIRP
Part 27L	LTE Band 4	QPSK	1.4 MHz	1M10G7D	-	0.22 W
Part 27L	LTE Band 4	16QAM	1.4 MHz	1M10W7D	-	0.13 W
Part 27L	LTE Band 4	QPSK	3 MHz	2M73G7D	-	-
Part 27L	LTE Band 4	16QAM	3 MHz	2M73W7D	-	-
Part 27L	LTE Band 4	QPSK	5MHz	4M49G7D	-	-
Part 27L	LTE Band 4	16QAM	5MHz	4M50W7D	-	-
Part 27L	LTE Band 4	QPSK	10MHz	9M09G7D	0.0133 ppm	-
Part 27L	LTE Band 4	16QAM	10MHz	9M01W7D	-	-
Part 27L	LTE Band 4	QPSK	15MHz	13M5G7D	-	-
Part 27L	LTE Band 4	16QAM	15MHz	13M5W7D	-	-
Part 27L	LTE Band 4	QPSK	20MHz	18M4G7D	-	0.28 W
Part 27L	LTE Band 4	16QAM	20MHz	18M3W7D	-	0.10 W
Part 27M	LTE Band 7	QPSK	5MHz	4M50G7D	-	0.10 W
Part 27M	LTE Band 7	16QAM	5MHz	4M50W7D	-	0.07 W
Part 27M	LTE Band 7	QPSK	10MHz	9M07G7D	0.0071 ppm	-
Part 27M	LTE Band 7	16QAM	10MHz	9M01W7D	-	-
Part 27M	LTE Band 7	QPSK	15MHz	13M5G7D	-	-
Part 27M	LTE Band 7	16QAM	15MHz	13M5W7D	-	-
Part 27M	LTE Band 7	QPSK	20MHz	18M3G7D	-	0.11 W
Part 27M	LTE Band 7	16QAM	20MHz	18M3W7D	-	0.07 W
Part 27H	LTE Band 17	QPSK	5MHz	4M50G7D	-	0.05 W
Part 27H	LTE Band 17	16QAM	5MHz	4M50W7D	-	0.04 W
Part 27H	LTE Band 17	QPSK	10MHz	9M13G7D	0.0310 ppm	0.04 W
Part 27H	LTE Band 17	16QAM	10MHz	9M05W7D	-	0.05 W



1.7 Testing Location

Test Site	SPORTON INTERNATIONAL (KUNSHAN) INC.		
Test Site Location	No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P.R.C. TEL: +86-0512-5790-0158 FAX: +86-0512-5790-0958		
Test Site No.	Sporton Site No.		FCC/IC Registration No.
	TH01-KS	03CH01-KS	149928/4086E-1

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, 27(L), 27(H), 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.

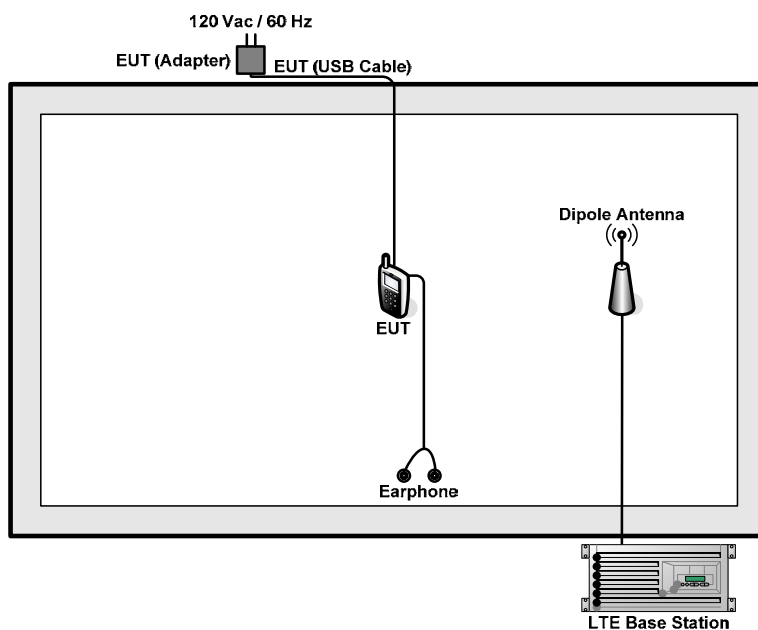
Radiated measurements are performed by rotating the EUT in three different orthogonal test planes to find the maximum emission.

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	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
	17	-	-	v	v	-	-	v	v	v	v	v	v	v	v
Peak-to-Average Ratio	4						v	v	v	v		v	v	v	v
	7	-	-				v	v	v	v		v	v	v	v
	17	-	-		v	-	-	v	v	v		v	v	v	v
26dB and 99% Bandwidth	4	v	v	v	v	v	v	v	v			v	v	v	v
	7	-	-	v	v	v	v	v	v			v	v	v	v
	17	-	-	v	v	-	-	v	v			v	v	v	v
Conducted Band Edge	4	v	v	v	v	v	v	v	v	v		v	v		v
	7	-	-	v	v	v	v	v	v	v		v	v		v
	17	-	-	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	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
	17	-	-	v	v	-	-	v	v	v			v	v	v
Frequency Stability	4				v			v				v		v	
	7	-	-		v			v				v		v	
	17	-	-		v	-	-	v				v		v	
E.R.P./ E.I.R.P.	4	v					v	v	v	v			v	v	v
	7	-	-	v			v	v	v	v			v	v	v
	17	-	-	v	v	-	-	v	v	v			v	v	v
Radiated Spurious Emission	4	v	v	v	v	v	v	v		v			v	v	v
	7	-	-	v	v	v	v	v		v			v	v	v
	17	-	-	v	v	-	-	v		v			v	v	v
Note	1. The mark "v " means that this configuration is chosen for testing 2. The mark "- " means that this bandwidth is not supported. 3. For E.R.P/E.I.R.P. measurement, the widest bandwidth and the bandwidth with the highest conducted power of each band is chosen for testing. Besides, the lowest bandwidth of each band is also measured for reporting only. 4. 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.	Earphone	Lenovo	SH100	N/A	Unshielded, 1.2 m	N/A
3.	DC Power Supply	GW INSTEK	GPD-2303S	N/A	N/A	N/A



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 dB.

Example :

Offset(dB) = RF cable loss(dB) = 5 (dB)

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.

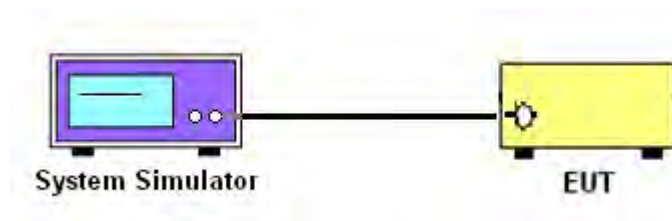
3.1.2 Measuring Instruments

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 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	22.89	22.93	22.95
20	QPSK	1	49	22.95	23.15	23.10
20	QPSK	1	99	22.83	22.85	22.92
20	QPSK	50	0	22.00	21.95	22.02
20	QPSK	50	24	21.95	22.06	22.03
20	QPSK	50	49	21.96	22.01	22.04
20	QPSK	100	0	21.96	22.08	22.01
20	16QAM	1	0	22.19	21.70	22.07
20	16QAM	1	49	22.24	22.01	22.18
20	16QAM	1	99	21.99	21.77	22.10
20	16QAM	50	0	20.93	20.92	21.00
20	16QAM	50	24	20.84	20.92	21.06
20	16QAM	50	49	20.90	20.87	20.94
20	16QAM	100	0	20.95	20.94	21.10
Channel				20025	20175	20325
Frequency (MHz)				1717.5	1732.5	1747.5
15	QPSK	1	0	22.90	22.93	23.02
15	QPSK	1	37	22.79	22.88	22.95
15	QPSK	1	74	22.98	22.95	23.06
15	QPSK	36	0	21.96	22.04	22.04
15	QPSK	36	18	21.85	21.94	21.99
15	QPSK	36	37	21.90	21.99	22.04
15	QPSK	75	0	21.97	22.08	22.11
15	16QAM	1	0	21.97	21.89	21.88
15	16QAM	1	37	21.77	21.51	21.53
15	16QAM	1	74	21.96	21.77	21.68
15	16QAM	36	0	20.90	20.92	20.93
15	16QAM	36	18	20.85	20.94	21.01
15	16QAM	36	37	20.83	20.93	20.97
15	16QAM	75	0	20.92	20.92	21.03



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	22.79	22.99	23.00
10	QPSK	1	24	22.87	23.00	23.03
10	QPSK	1	49	22.84	22.86	22.99
10	QPSK	25	0	21.87	22.03	22.05
10	QPSK	25	12	21.90	22.05	22.02
10	QPSK	25	24	21.86	21.96	22.01
10	QPSK	50	0	21.94	21.94	22.07
10	16QAM	1	0	22.02	21.64	21.76
10	16QAM	1	24	22.07	21.86	21.89
10	16QAM	1	49	21.93	21.74	21.84
10	16QAM	25	0	20.92	21.00	21.10
10	16QAM	25	12	20.89	21.01	21.02
10	16QAM	25	24	20.93	20.97	21.02
10	16QAM	50	0	20.82	20.90	20.96
Channel				19975	20175	20375
Frequency (MHz)				1712.5	1732.5	1752.5
5	QPSK	1	0	22.87	22.97	23.02
5	QPSK	1	12	22.80	22.89	22.94
5	QPSK	1	24	22.86	22.93	22.94
5	QPSK	12	0	21.90	21.99	22.06
5	QPSK	12	6	21.85	21.98	22.05
5	QPSK	12	11	21.89	21.91	21.99
5	QPSK	25	0	21.87	21.95	22.08
5	16QAM	1	0	21.69	22.09	22.19
5	16QAM	1	12	21.63	21.66	22.17
5	16QAM	1	24	21.42	21.90	22.05
5	16QAM	12	0	20.81	20.96	21.09
5	16QAM	12	6	20.89	20.94	21.12
5	16QAM	12	11	20.77	20.88	21.16
5	16QAM	25	0	20.98	20.96	21.04



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	22.89	23.07	23.04
3	QPSK	1	7	22.88	22.98	22.93
3	QPSK	1	14	22.87	22.96	22.99
3	QPSK	8	0	21.95	22.01	22.07
3	QPSK	8	4	21.88	22.01	22.08
3	QPSK	8	7	21.89	22.01	22.08
3	QPSK	15	0	21.90	22.07	22.02
3	16QAM	1	0	21.75	21.81	21.66
3	16QAM	1	7	22.10	22.11	22.20
3	16QAM	1	14	22.09	22.05	22.09
3	16QAM	8	0	20.86	20.98	21.06
3	16QAM	8	4	21.04	20.91	21.17
3	16QAM	8	7	20.92	21.00	21.04
3	16QAM	15	0	20.90	20.94	21.06
Channel				19957	20175	20393
Frequency (MHz)				1710.7	1732.5	1754.3
1.4	QPSK	1	0	22.75	22.77	22.82
1.4	QPSK	1	2	22.67	22.77	22.94
1.4	QPSK	1	5	22.73	22.84	22.92
1.4	QPSK	3	0	22.75	22.87	22.85
1.4	QPSK	3	1	22.77	22.90	22.96
1.4	QPSK	3	2	22.76	22.89	22.89
1.4	QPSK	6	0	21.77	21.85	21.91
1.4	16QAM	1	0	21.62	21.82	21.90
1.4	16QAM	1	2	21.67	22.08	21.94
1.4	16QAM	1	5	21.39	21.96	21.67
1.4	16QAM	3	0	21.66	21.69	21.85
1.4	16QAM	3	1	21.66	21.82	21.83
1.4	16QAM	3	2	21.61	21.63	21.75
1.4	16QAM	6	0	20.61	20.82	20.86



<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	22.73	22.75	22.76
20	QPSK	1	49	22.75	22.86	22.85
20	QPSK	1	99	22.74	22.81	22.72
20	QPSK	50	0	21.77	21.83	21.79
20	QPSK	50	24	21.79	21.84	21.82
20	QPSK	50	49	21.68	21.82	21.75
20	QPSK	100	0	21.77	21.80	21.79
20	16QAM	1	0	21.68	21.52	21.56
20	16QAM	1	49	21.55	21.71	21.58
20	16QAM	1	99	21.61	21.95	21.42
20	16QAM	50	0	20.78	20.82	20.85
20	16QAM	50	24	20.78	20.83	20.83
20	16QAM	50	49	20.74	20.82	20.80
20	16QAM	100	0	20.70	20.71	20.88
Channel				20825	21100	21375
Frequency (MHz)				2507.5	2535	2562.5
15	QPSK	1	0	22.65	22.72	22.64
15	QPSK	1	37	22.68	22.79	22.66
15	QPSK	1	74	22.73	22.73	22.57
15	QPSK	36	0	21.69	21.77	21.62
15	QPSK	36	18	21.72	21.73	21.60
15	QPSK	36	37	21.72	21.82	21.59
15	QPSK	75	0	21.69	21.82	21.65
15	16QAM	1	0	21.79	21.41	21.85
15	16QAM	1	37	21.26	21.90	21.42
15	16QAM	1	74	21.33	21.89	21.49
15	16QAM	36	0	20.65	20.75	20.61
15	16QAM	36	18	20.64	20.73	20.66
15	16QAM	36	37	20.65	20.73	20.61
15	16QAM	75	0	20.63	20.68	20.58



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	22.49	22.74	22.63
10	QPSK	1	24	22.64	22.75	22.60
10	QPSK	1	49	22.67	22.69	22.57
10	QPSK	25	0	21.64	21.73	21.70
10	QPSK	25	12	21.64	21.79	21.63
10	QPSK	25	24	21.70	21.75	21.57
10	QPSK	50	0	21.66	21.79	21.67
10	16QAM	1	0	21.83	21.62	21.28
10	16QAM	1	24	21.80	21.78	21.59
10	16QAM	1	49	21.84	21.89	21.33
10	16QAM	25	0	20.65	20.80	20.76
10	16QAM	25	12	20.71	20.80	20.68
10	16QAM	25	24	20.70	20.76	20.69
10	16QAM	50	0	20.61	20.66	20.66
Channel				20775	21100	21425
Frequency (MHz)				2502.5	2535	2567.5
5	QPSK	1	0	22.50	22.63	22.60
5	QPSK	1	12	22.62	22.76	22.64
5	QPSK	1	24	22.65	22.73	22.60
5	QPSK	12	0	21.61	21.79	21.56
5	QPSK	12	6	21.58	21.73	21.57
5	QPSK	12	11	21.65	21.81	21.53
5	QPSK	25	0	21.66	21.71	21.54
5	16QAM	1	0	21.24	21.86	21.37
5	16QAM	1	12	21.88	21.35	21.43
5	16QAM	1	24	21.77	21.61	21.37
5	16QAM	12	0	20.60	20.74	20.75
5	16QAM	12	6	20.69	20.66	20.67
5	16QAM	12	11	20.69	20.66	20.64
5	16QAM	25	0	20.59	20.71	20.70

**<LTE Band 17 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				23780	23790	23800
Frequency (MHz)				709	710	711
10	QPSK	1	0	23.23	23.32	23.25
10	QPSK	1	24	23.25	23.14	23.31
10	QPSK	1	49	23.28	23.48	23.40
10	QPSK	25	0	22.33	22.34	22.31
10	QPSK	25	12	22.33	22.31	22.26
10	QPSK	25	24	22.32	22.37	22.35
10	QPSK	50	0	22.24	22.34	22.32
10	16QAM	1	0	22.38	22.06	22.15
10	16QAM	1	24	22.42	22.13	22.41
10	16QAM	1	49	22.28	22.12	22.40
10	16QAM	25	0	21.39	21.35	21.30
10	16QAM	25	12	21.35	21.30	21.20
10	16QAM	25	24	21.24	21.31	21.46
10	16QAM	50	0	21.22	21.21	21.25
Channel				23755	23790	23825
Frequency (MHz)				706.5	710	713.5
5	QPSK	1	0	23.29	23.19	23.33
5	QPSK	1	12	23.33	23.21	23.28
5	QPSK	1	24	23.35	23.35	23.37
5	QPSK	12	0	22.34	22.35	22.27
5	QPSK	12	6	22.34	22.30	22.33
5	QPSK	12	11	22.39	22.22	22.37
5	QPSK	25	0	22.38	22.33	22.36
5	16QAM	1	0	22.49	22.52	22.27
5	16QAM	1	12	22.44	22.17	21.91
5	16QAM	1	24	22.43	22.45	22.14
5	16QAM	12	0	21.36	21.29	21.44
5	16QAM	12	6	21.35	21.32	21.28
5	16QAM	12	11	21.32	21.18	21.44
5	16QAM	25	0	21.31	21.24	21.36

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.

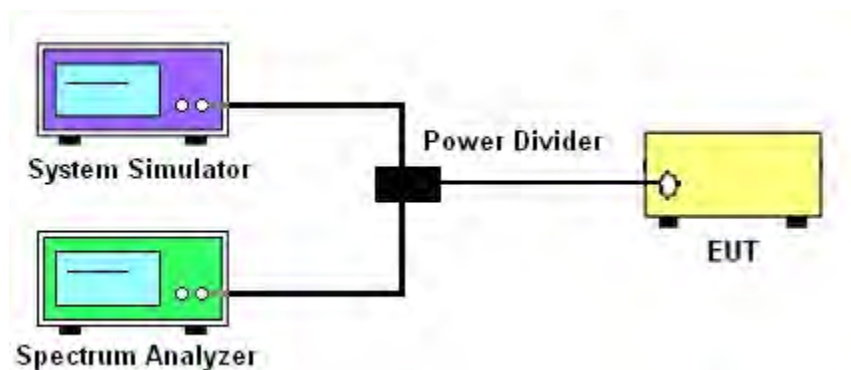
3.2.2 Measuring Instruments

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 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	4.64	4.64	4.35
20	QPSK	100	0	5.19	5.07	5.07
20	16QAM	1	0	6.00	6.23	5.62
20	16QAM	100	0	6.03	6.09	5.94

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	5.39	5.19	4.87
20	QPSK	100	0	5.13	5.19	4.93
20	16QAM	1	0	6.43	6.32	6.17
20	16QAM	100	0	6.14	6.17	5.88

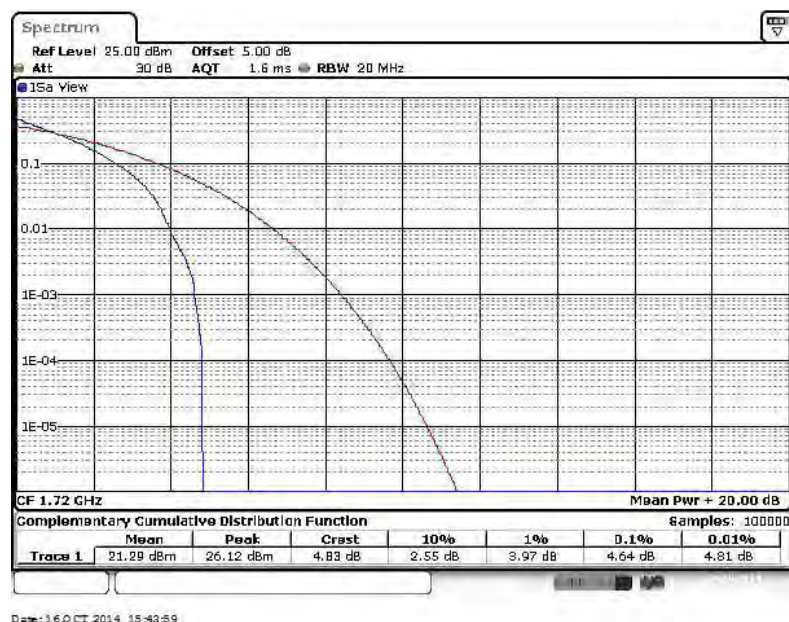
LTE Band 17						
BW [MHz]	Modulation	RB Size	RB Offset	Power (dBm) Low Ch. / Freq.	Power (dBm) Middle Ch. / Freq.	Power (dBm) High Ch. / Freq.
Channel				23780	23790	23800
Frequency (MHz)				709	710	711
10	QPSK	1	0	4.55	4.55	4.87
10	QPSK	50	0	5.16	5.30	5.39
10	16QAM	1	0	5.68	5.91	6.29
10	16QAM	50	0	6.23	6.20	6.17



3.2.6 Peak to Average Power Ratio

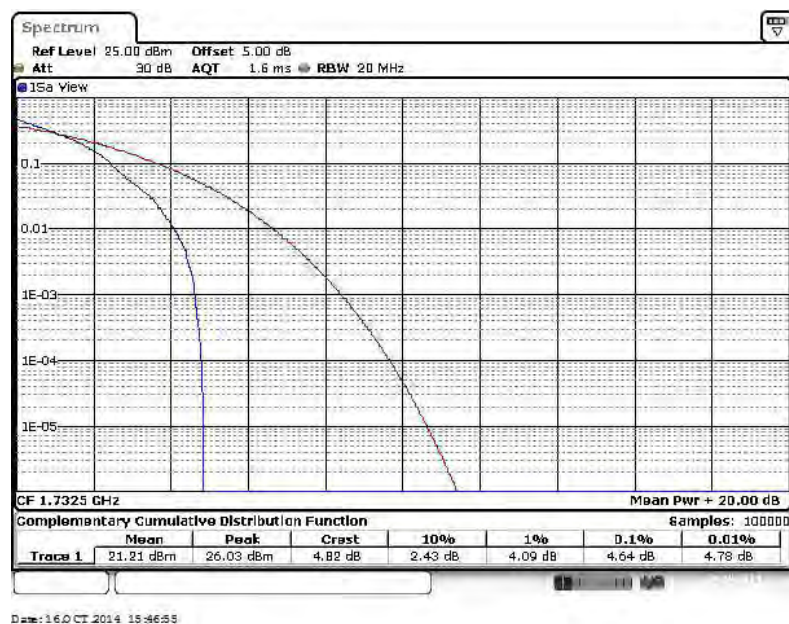
Peak-to-Average Ratio on LTE Band 4

20MHz / QPSK in Ch. 20050 (1RB Size)

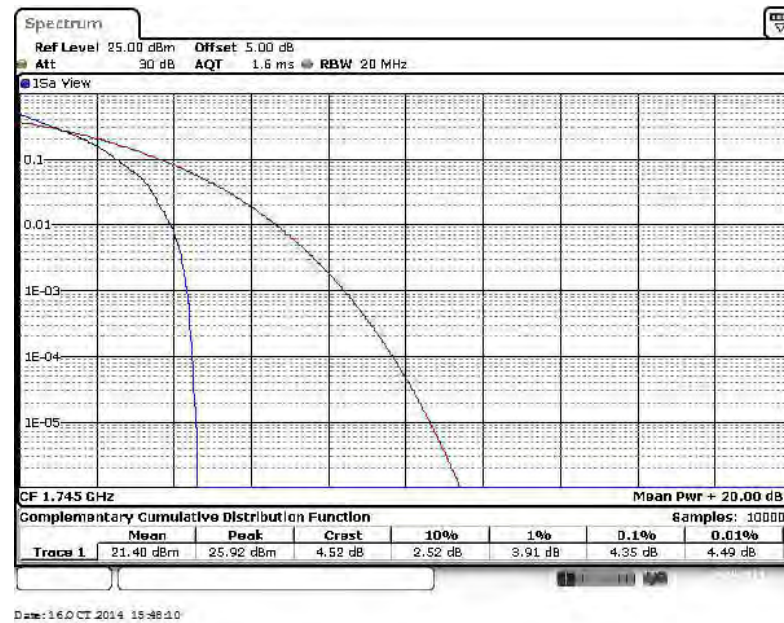


Peak-to-Average Ratio on LTE Band 4

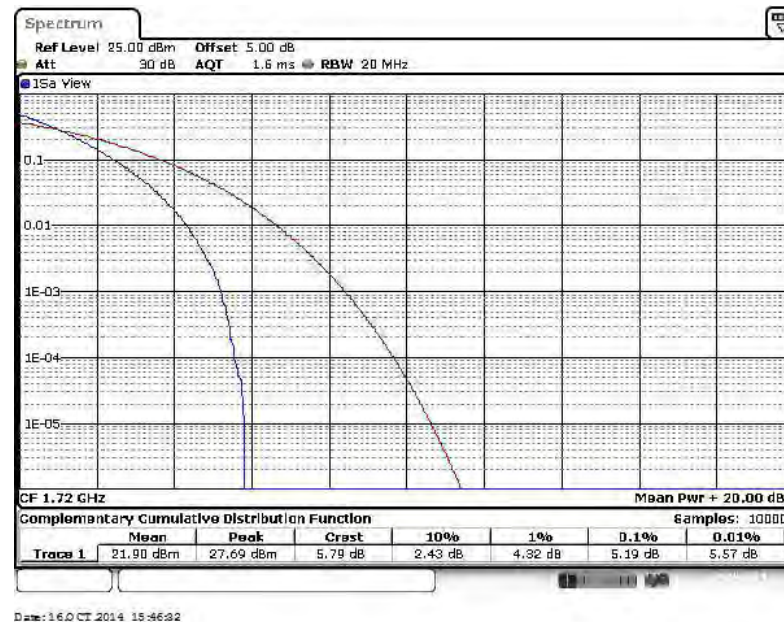
20MHz / QPSK in Ch. 20175 (1RB Size)



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

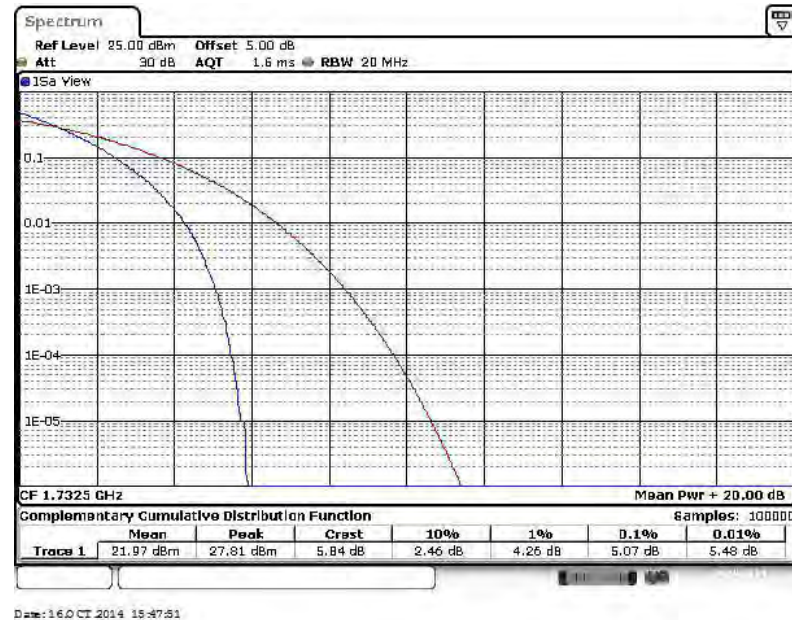


Peak-to-Average Ratio on LTE Band 4
20MHz / QPSK in Ch. 20050 (100RB Size)

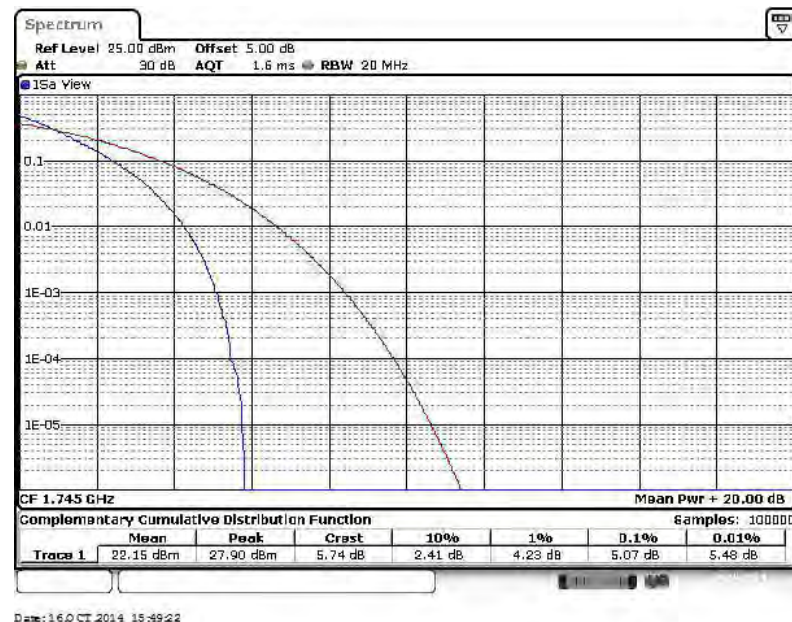




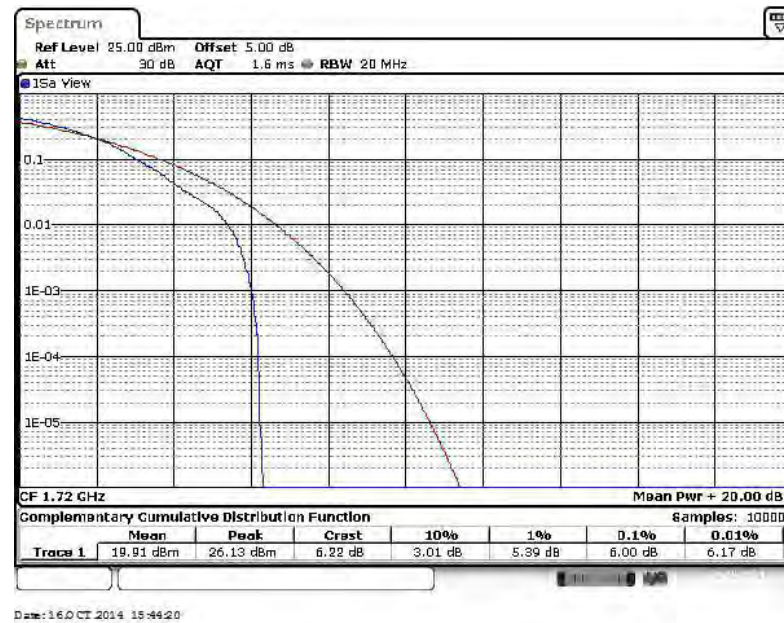
Peak-to-Average Ratio on LTE Band 4
20MHz / QPSK in Ch. 20175 (100RB Size)



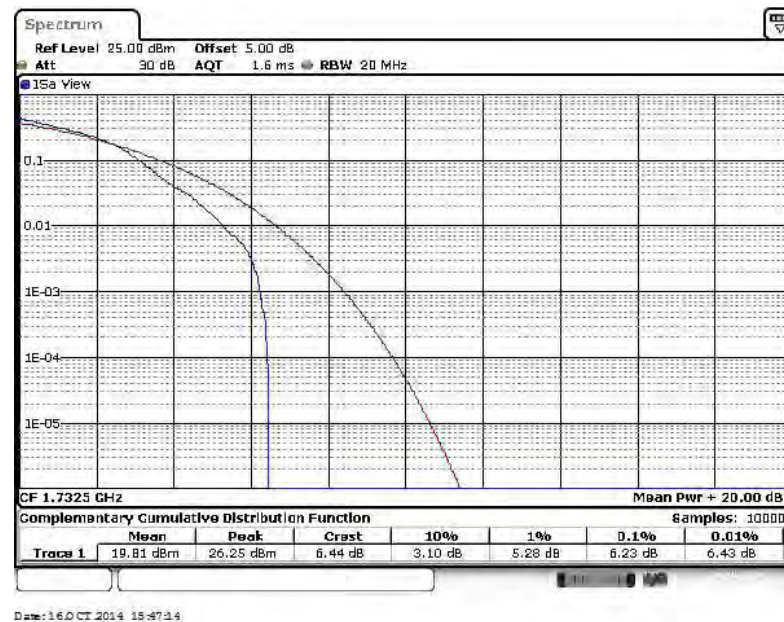
Peak-to-Average Ratio on LTE Band 4
20MHz / QPSK in Ch. 20300 (100RB Size)



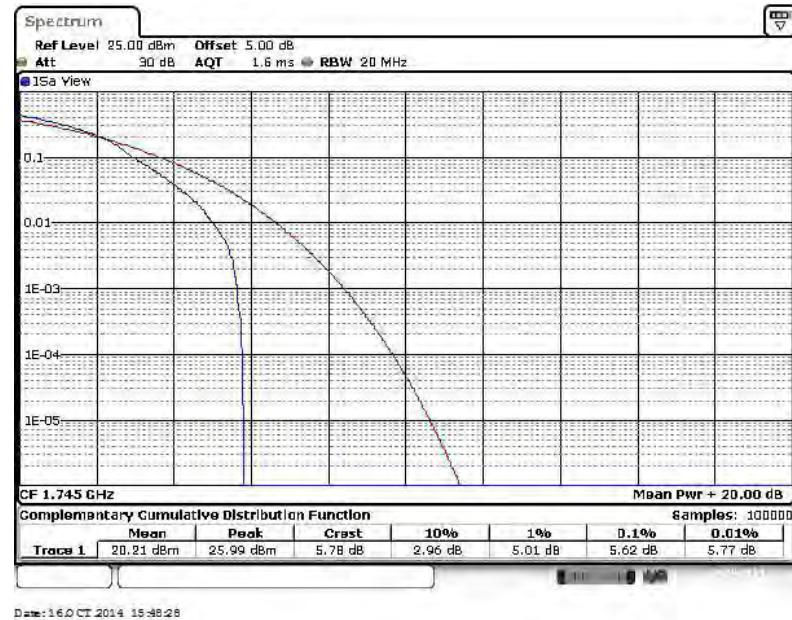
Peak-to-Average Ratio on LTE Band 4
20MHz / 16QAM in Ch. 20050 (1RB Size)



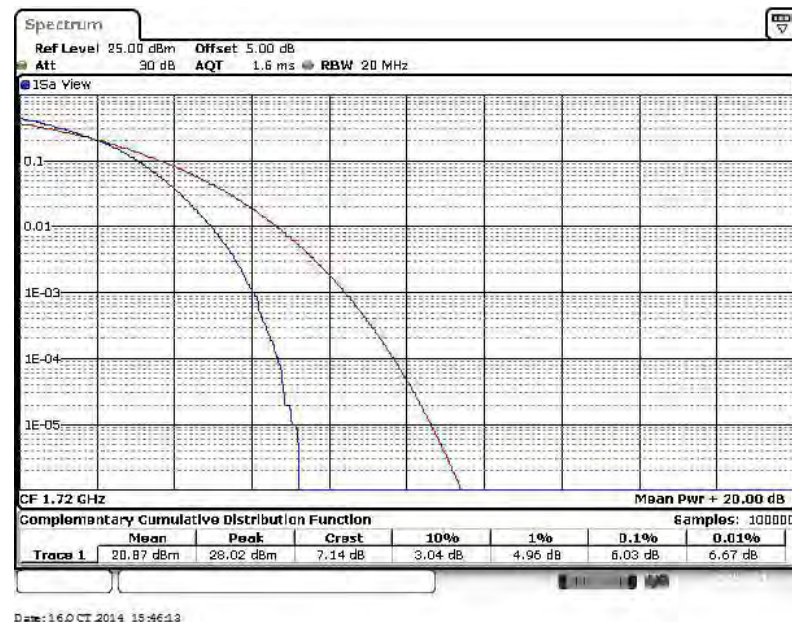
Peak-to-Average Ratio on LTE Band 4
20MHz / 16QAM in Ch. 20175 (1RB Size)



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

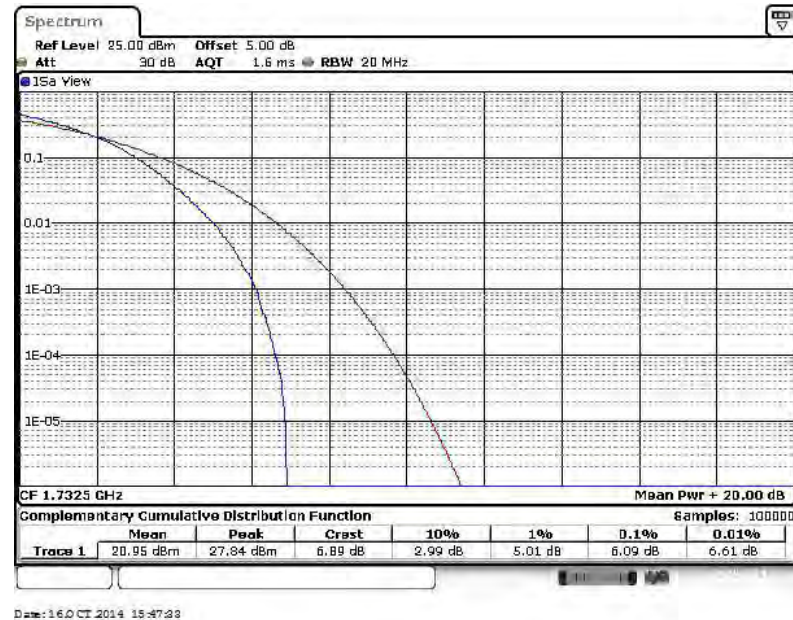


Peak-to-Average Ratio on LTE Band 4
20MHz / 16QAM in Ch. 20500 (100RB Size)

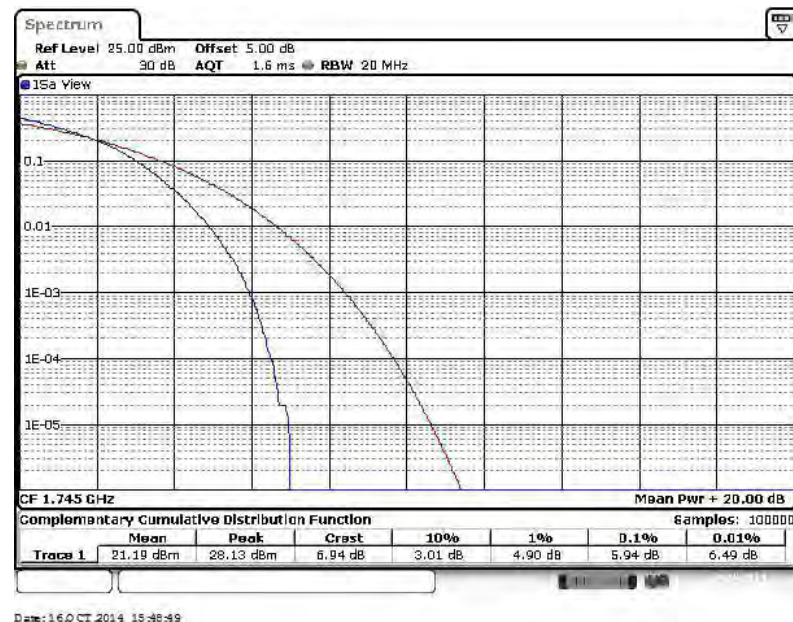




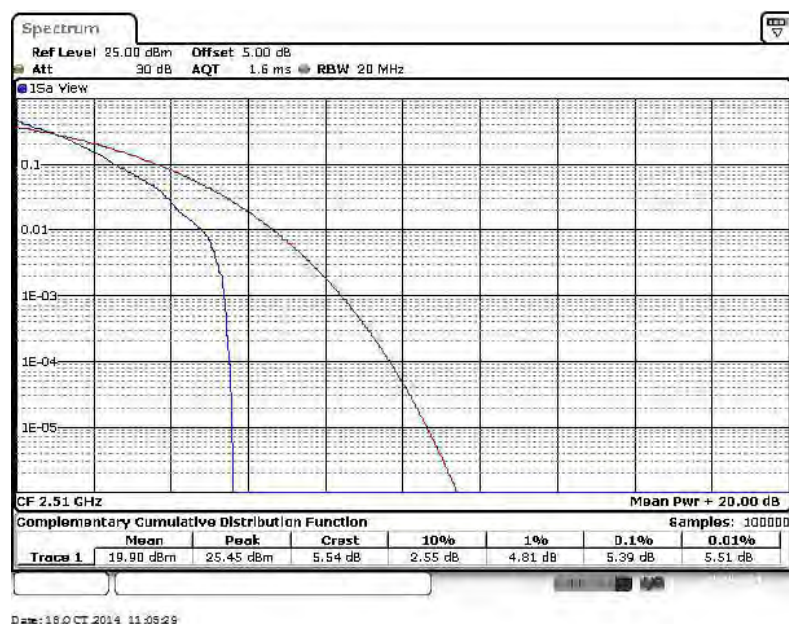
Peak-to-Average Ratio on LTE Band 4
20MHz / 16QAM in Ch. 20175 (100RB Size)



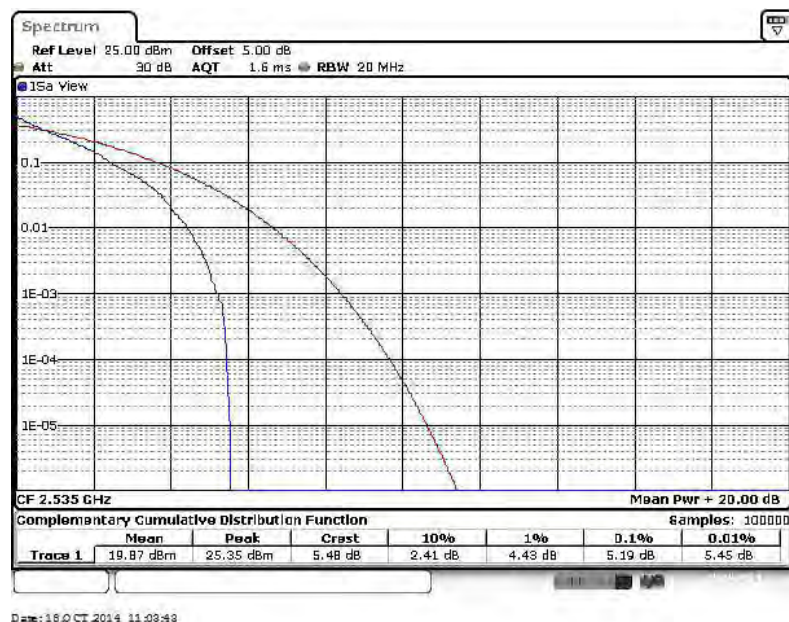
Peak-to-Average Ratio on LTE Band 4
20MHz / 16QAM in Ch. 20300 (100RB Size)



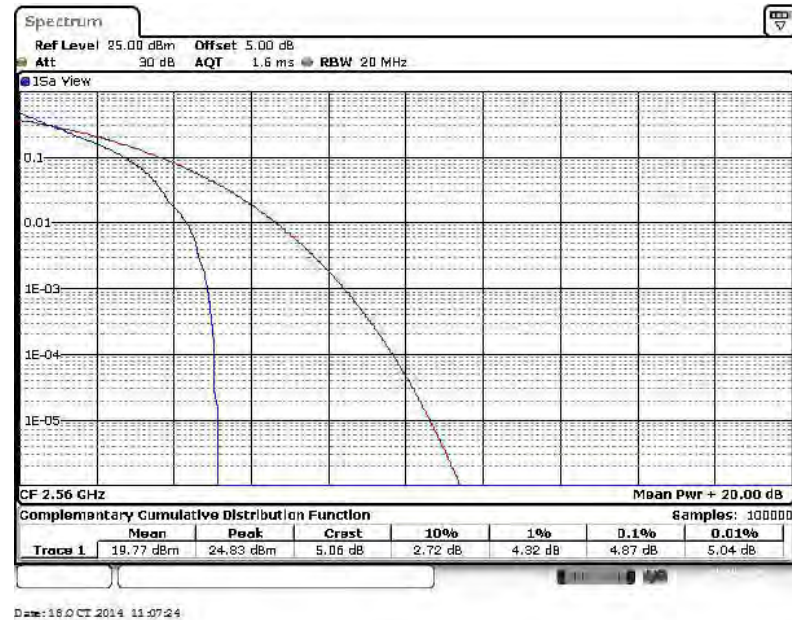
Peak-to-Average Ratio on LTE Band 7
20MHz / QPSK in Ch. 20850 (1RB Size)



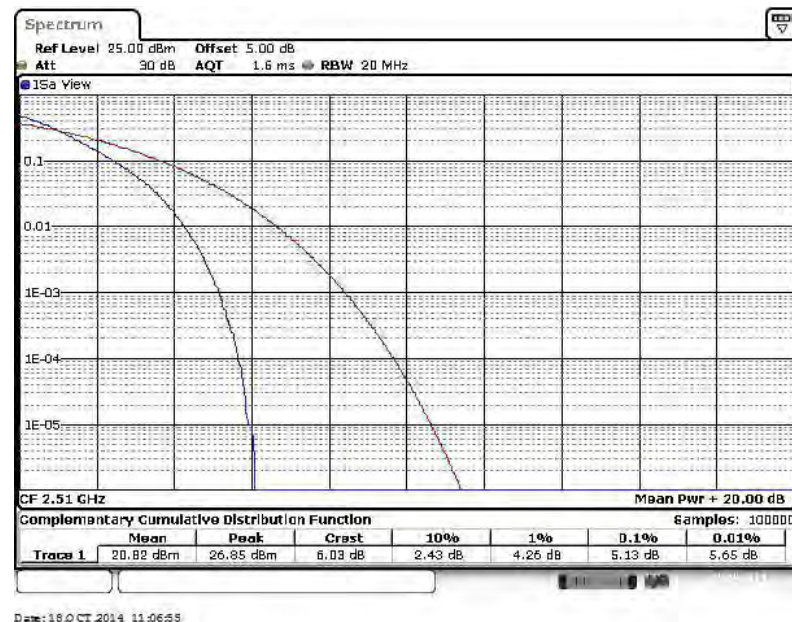
Peak-to-Average Ratio on LTE Band 7
20MHz / QPSK in Ch. 21100 (1RB Size)



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

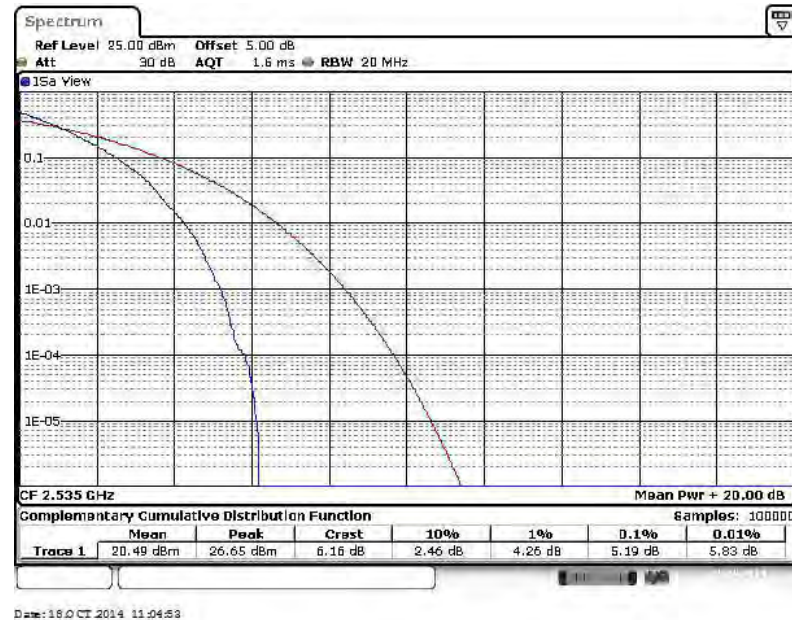


Peak-to-Average Ratio on LTE Band 7
20MHz / QPSK in Ch. 20850 (100RB Size)

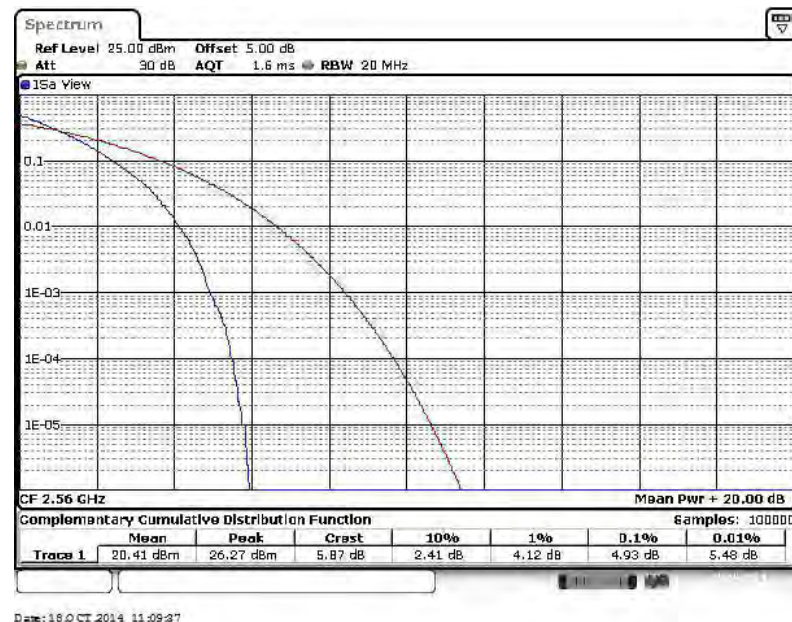




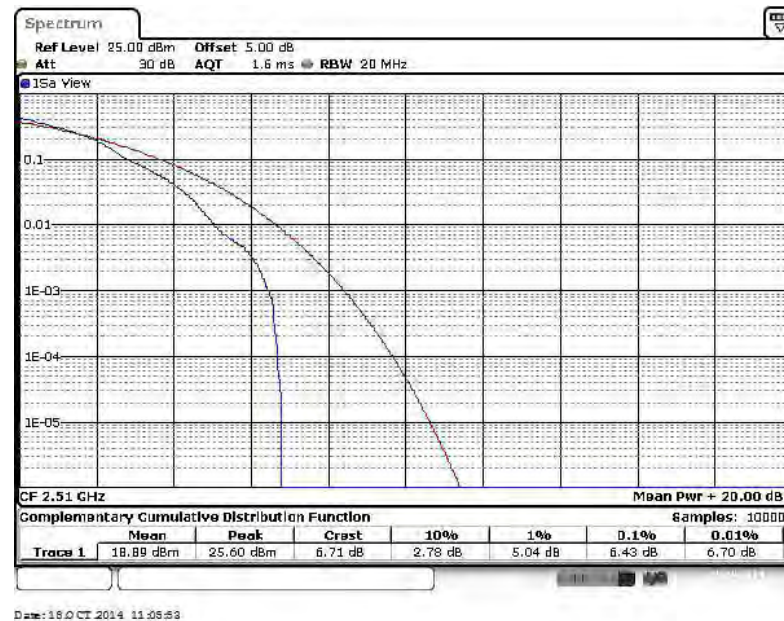
Peak-to-Average Ratio on LTE Band 7
20MHz / QPSK in Ch. 21100 (100RB Size)



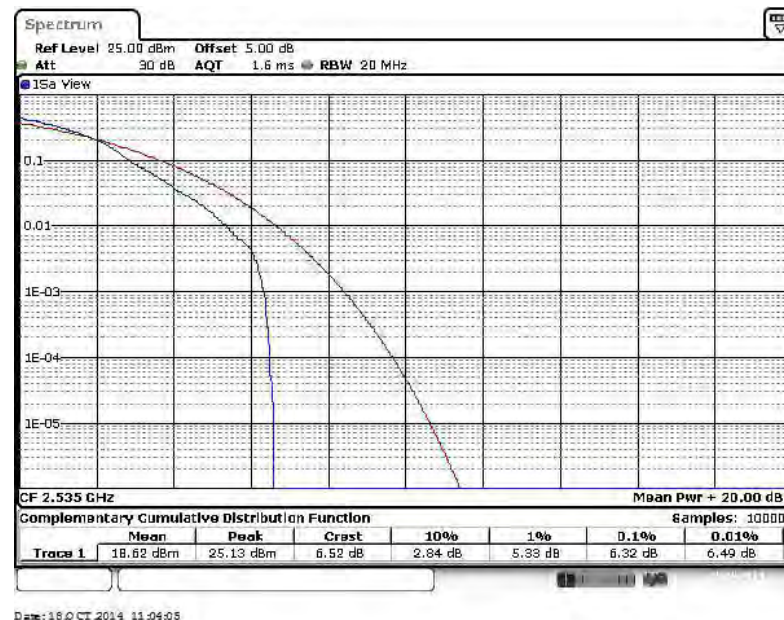
Peak-to-Average Ratio on LTE Band 7
20MHz / QPSK in Ch. 21350 (100RB Size)



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

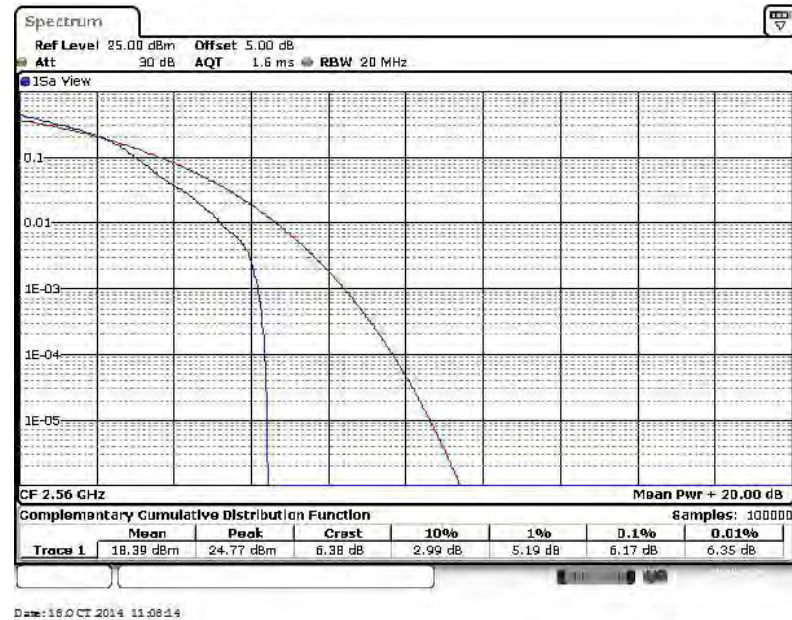


Peak-to-Average Ratio on LTE Band 7
20MHz / 16QAM in Ch. 21100 (1RB Size)

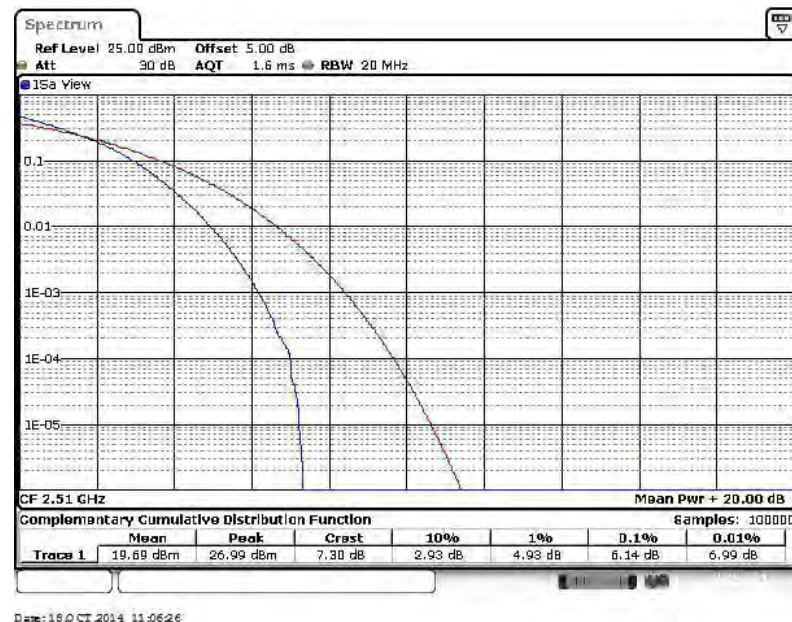




Peak-to-Average Ratio on LTE Band 7
20MHz / 16QAM in Ch. 21350 (1RB Size)

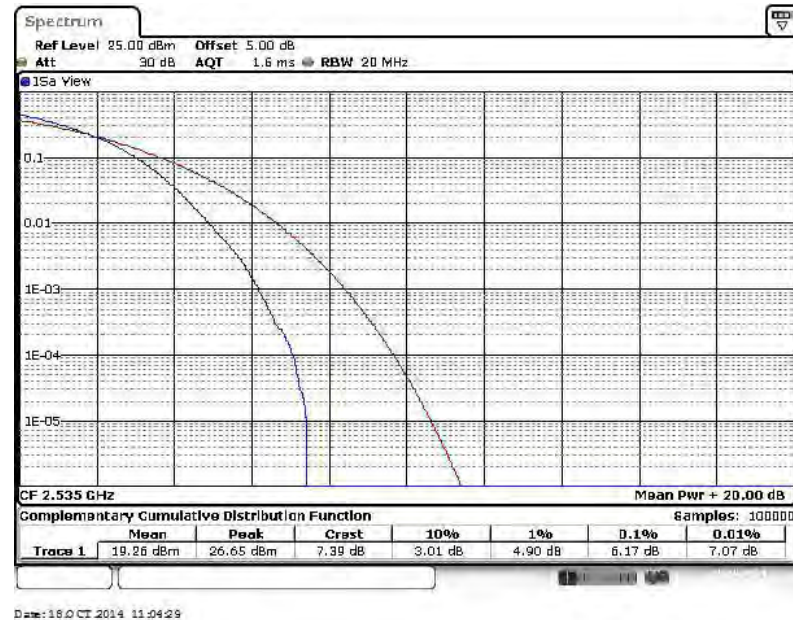


Peak-to-Average Ratio on LTE Band 7
20MHz / 16QAM in Ch. 20850 (100RB Size)

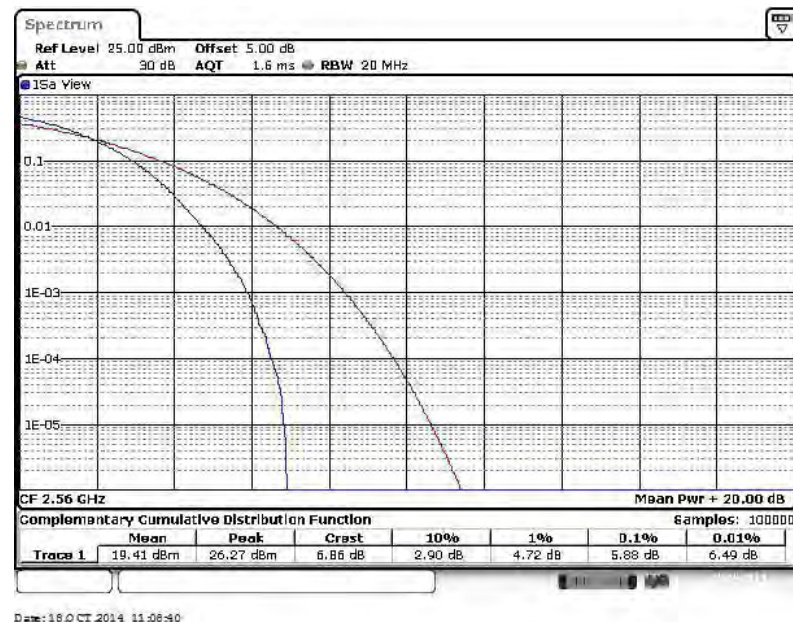




Peak-to-Average Ratio on LTE Band 7
20MHz / 16QAM in Ch. 21100 (100RB Size)



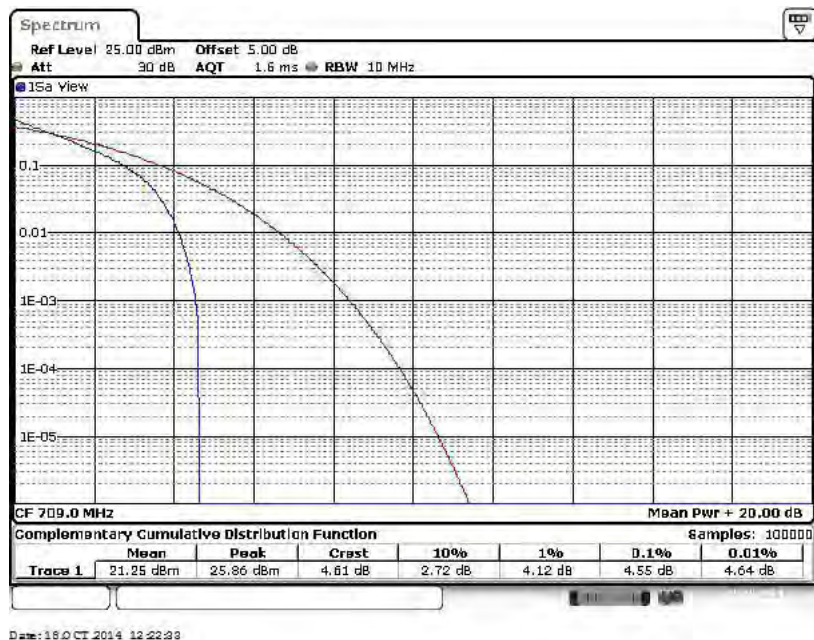
Peak-to-Average Ratio on LTE Band 7
20MHz / 16QAM in Ch. 21350 (100RB Size)





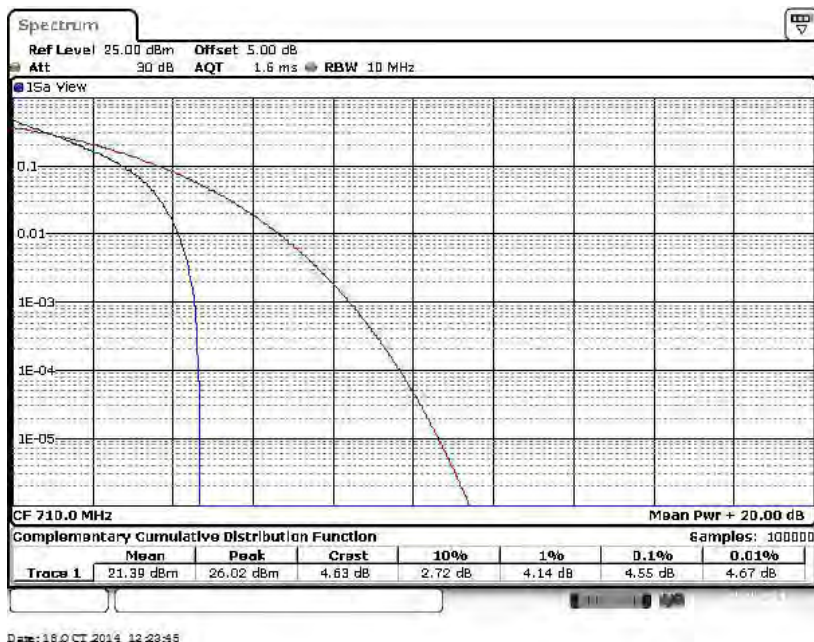
Peak-to-Average Ratio on LTE Band 17

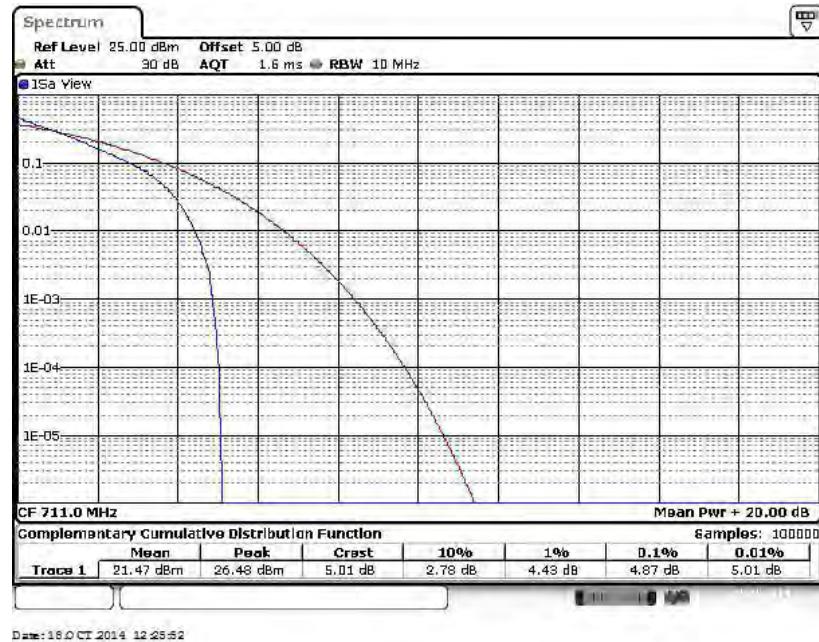
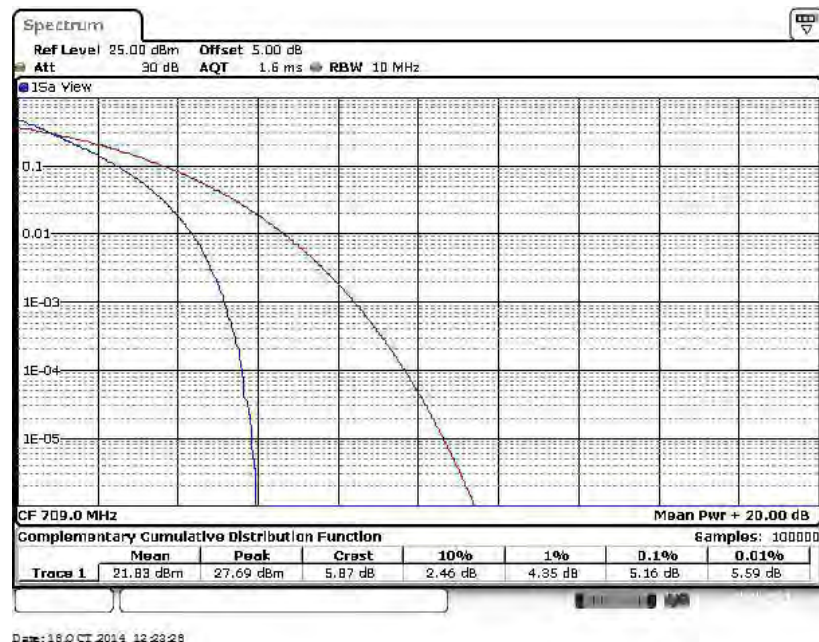
10MHz / QPSK in Ch. 23780 (1RB Size)



Peak-to-Average Ratio on LTE Band 17

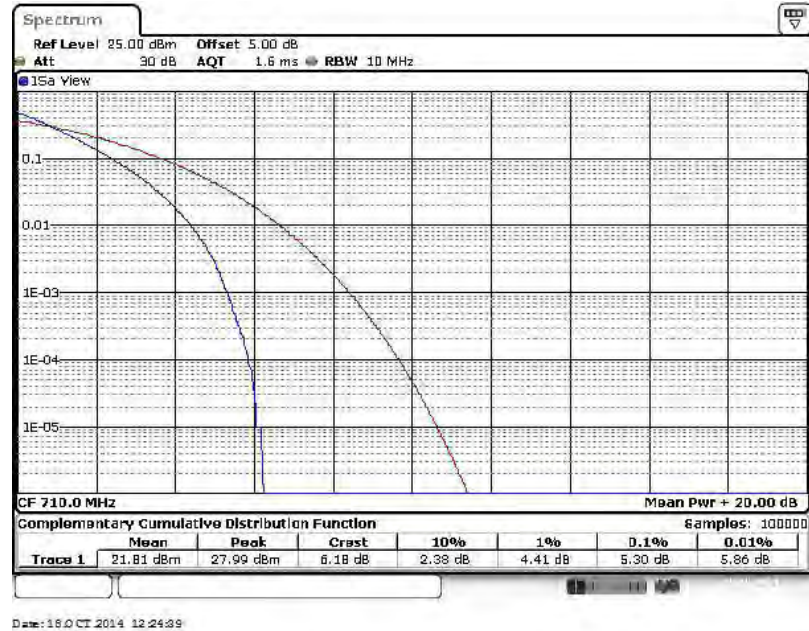
10MHz / QPSK in Ch. 23790 (1RB Size)



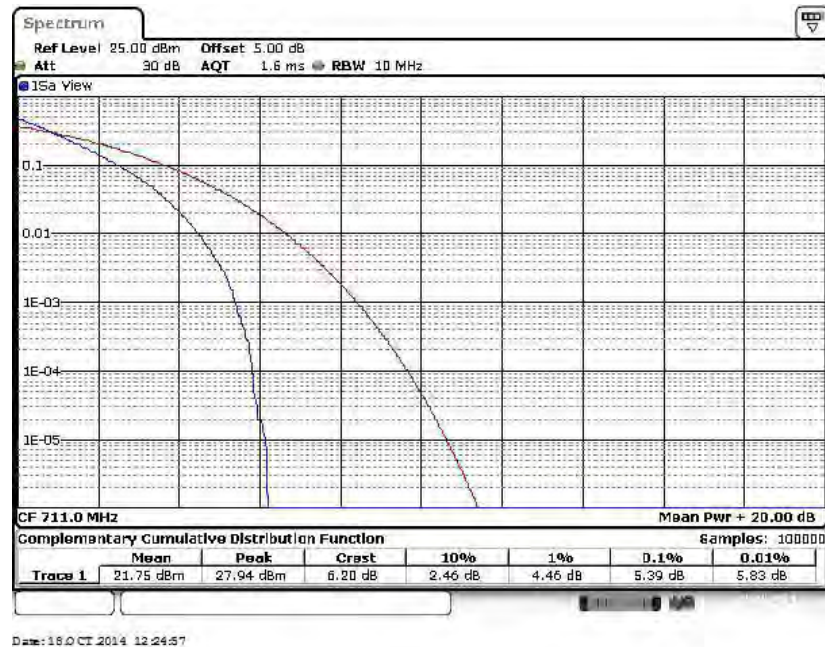
Peak-to-Average Ratio on LTE Band 17
10MHz / QPSK in Ch. 23800 (1RB Size)

Peak-to-Average Ratio on LTE Band 17
10MHz / QPSK in Ch. 23780 (50RB Size)


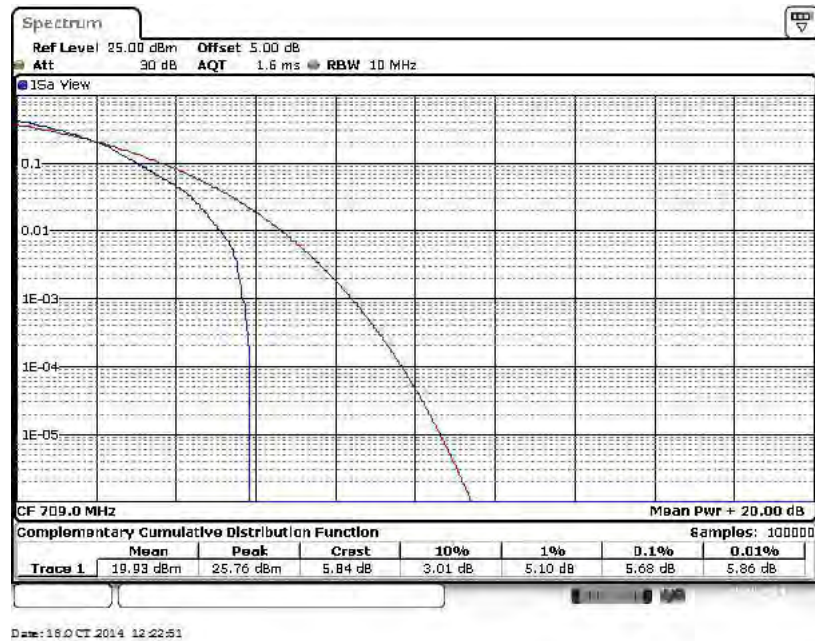
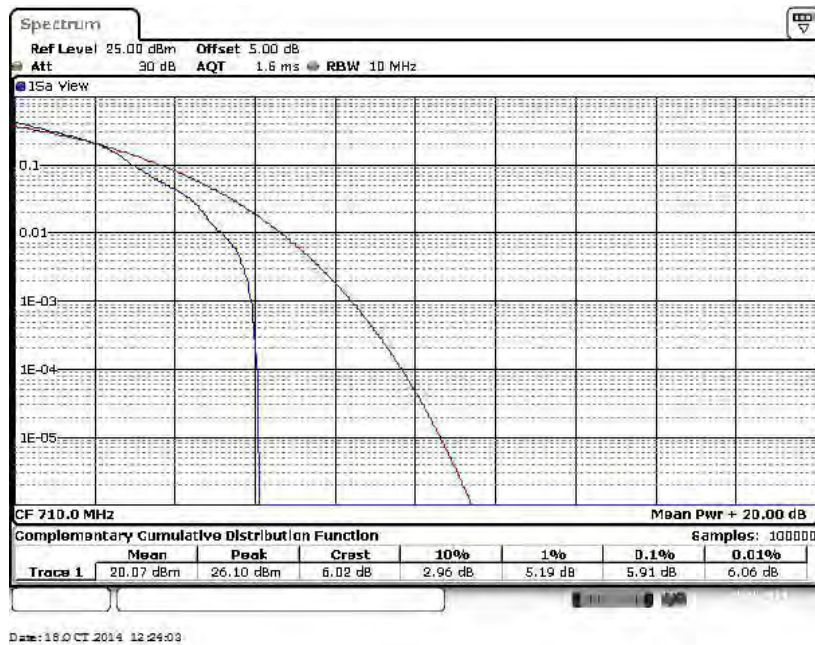


Peak-to-Average Ratio on LTE Band 17
10MHz / QPSK in Ch. 23790 (50RB Size)



Peak-to-Average Ratio on LTE Band 17
10MHz / QPSK in Ch. 23800 (50RB Size)

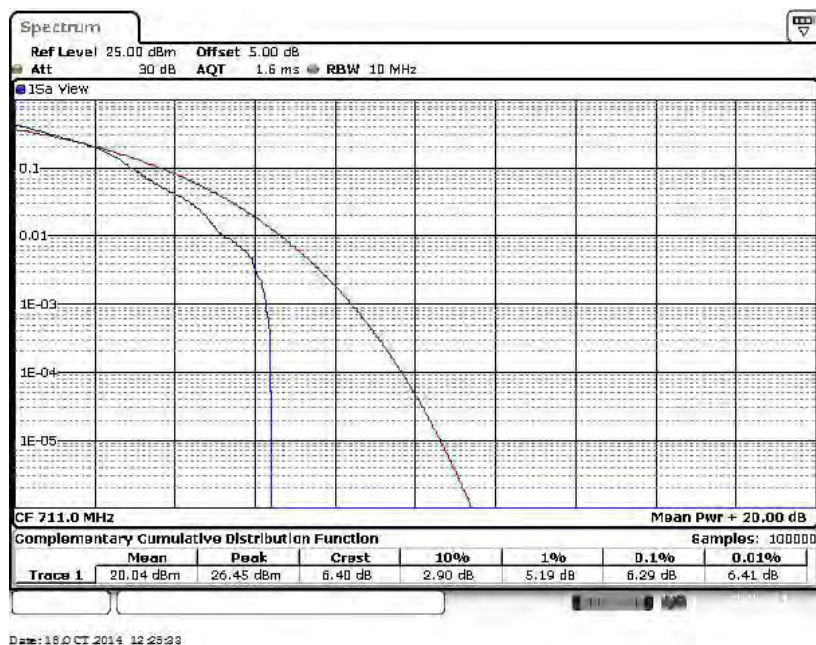


Peak-to-Average Ratio on LTE Band 17
10MHz / 16QAM in Ch. 23780 (1RB Size)

Peak-to-Average Ratio on LTE Band 17
10MHz / 16QAM in Ch. 23790 (1RB Size)




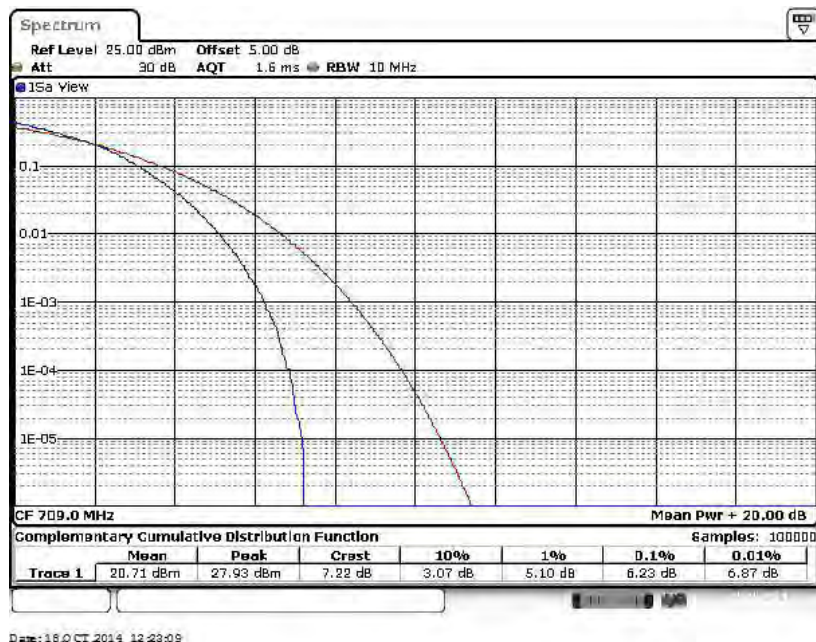
Peak-to-Average Ratio on LTE Band 17

10MHz / 16QAM in Ch. 23800 (1RB Size)

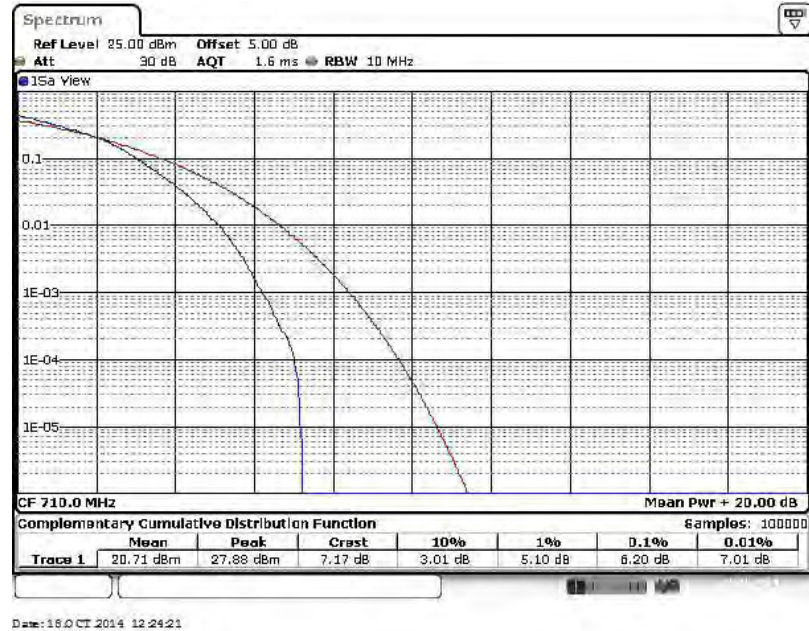


Peak-to-Average Ratio on LTE Band 17

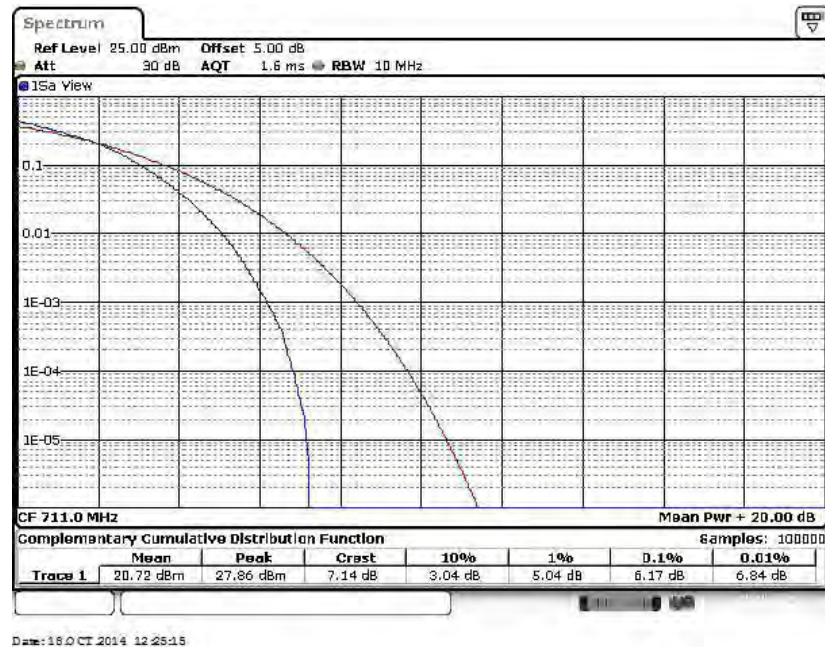
10MHz / 16QAM in Ch. 23780 (50RB Size)



Peak-to-Average Ratio on LTE Band 17
10MHz / 16QAM in Ch. 23790 (50RB Size)



Peak-to-Average Ratio on LTE Band 17
10MHz / 16QAM in Ch. 23800 (50RB Size)



3.3 Effective Radiated Power and Equivalent Isotropic Radiated Power Measurement

3.3.1 Description of the ERP/EIRP Measurement

Effective 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 ERP of 3 watts with LTE band 17.

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 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

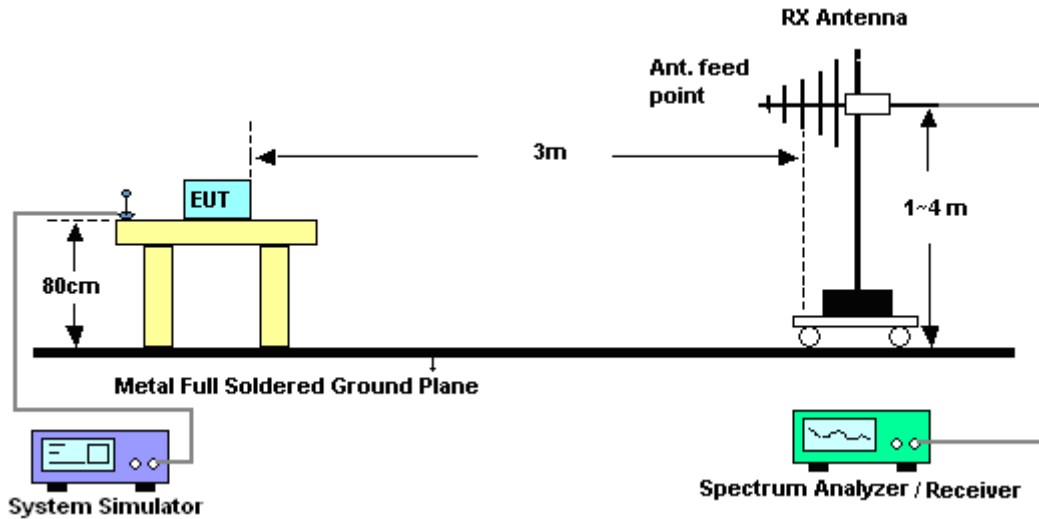
1. The EUT was placed on a non-conductive rotating platform 0.8 meters high in a semi-anechoic chamber. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and a spectrum analyzer with RMS detector per section 5. of KDB 971168 D01.
2. During the measurement, the system simulator parameters were set to force the EUT transmitting at maximum output power. The maximum emission was recorded from analyzer power level (LVL) from the 360 degrees rotation of the turntable and the test antenna raised and lowered over a range from 1 to 4 meters in both horizontally and vertically polarized orientations.
3. Effective Isotropic Radiated Power (EIRP) was measured by substitution method according to TIA/EIA-603-C. The EUT was replaced by dipole antenna (substitution antenna) at same location, and then a known power from S.G. was applied into the dipole antenna through a Tx cable, and then recorded the maximum Analyzer reading through raised and lowered the test antenna. The correction factor (in dB) = S.G. - Tx Cable loss + Substitution antenna gain - Analyzer reading. Then the EUT's EIRP was calculated with the correction factor, $EIRP = LVL + \text{Correction factor}$ and $ERP = EIRP - 2.15$.

4. The instrument settings (RBW, VBW, detector) for the ERP/EIRP measurements are as following table:

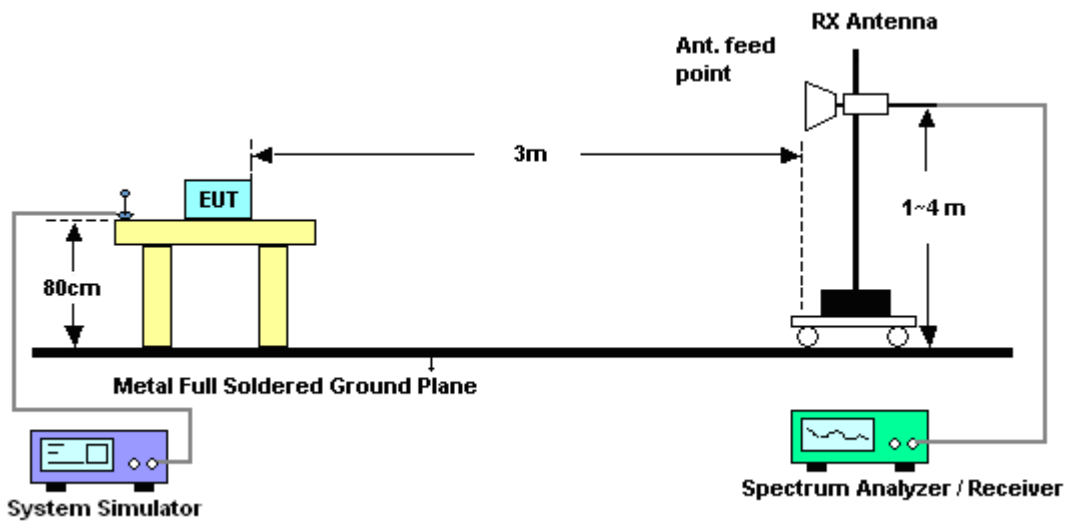
LTE						
LTE BW	1.4M	3M	5M	10M	15M	20M
Span	3MHz	6MHz	10MHz	20MHz	30MHz	40MHz
RBW	30kHz	100kHz	100kHz	300kHz	300kHz	300kHz
VBW	100kHz	300kHz	300kHz	1MHz	1MHz	1MHz
Detector	RMS	RMS	RMS	RMS	RMS	RMS
Trace	Average	Average	Average	Average	Average	Average
Average Type	Power	Power	Power	Power	Power	Power
Sweep Count	100	100	100	100	100	100

3.3.4 Test Setup

For Effective Radiated Power



For Equivalent Isotropic Radiated Power



3.3.5 Test Result of ERP/EIRP

LTE Band 4 Radiated Power EIRP for BW 1.4MHz / QPSK				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1710.7	-16.78	39.98	23.20	0.21
1732.5	-17.22	40.73	23.51	0.22
1754.3	-17.94	40.83	22.89	0.19
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1710.7	-22.22	41.22	19.00	0.08
1732.5	-23.43	41.41	17.98	0.06
1754.3	-25.08	41.68	16.60	0.05

LTE Band 4 Radiated Power EIRP for BW 1.4MHz / 16QAM				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1710.7	-22.86	39.98	17.12	0.05
1732.5	-21.48	40.73	19.25	0.08
1754.3	-21.38	40.83	19.45	0.09
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1710.7	-20.15	41.22	21.07	0.13
1732.5	-21.41	41.41	20.00	0.10
1754.3	-21.01	41.68	20.67	0.12

LTE Band 4 Radiated Power EIRP for BW 20MHz / QPSK				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1720.0	-18.88	39.98	21.10	0.13
1732.5	-16.19	40.73	24.54	0.28
1745.0	-19.88	40.83	20.95	0.12
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1720.0	-24.86	41.22	16.36	0.04
1732.5	-26.26	41.41	15.15	0.03
1745.0	-24.12	41.68	17.56	0.06

LTE Band 4 Radiated Power EIRP for BW 20MHz / 16QAM				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1720.0	-20.59	39.98	19.39	0.09
1732.5	-20.83	40.73	19.90	0.10
1745.0	-21.43	40.83	19.40	0.09
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1720.0	-26.26	41.22	14.96	0.03
1732.5	-25.17	41.41	16.24	0.04
1745.0	-24.83	41.68	16.85	0.05

LTE Band 7 Radiated Power EIRP for BW 5MHz / QPSK				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
2502.5	-22.19	43.58	19.24	0.08
2535.0	-21.78	43.84	19.91	0.10
2567.5	-22.44	43.72	19.13	0.08
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
2502.5	-26.52	45.66	16.99	0.05
2535.0	-27.03	46.02	16.84	0.05
2567.5	-27.53	44.93	15.25	0.03

LTE Band 7 Radiated Power EIRP for BW 5MHz / 16QAM				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
2502.5	-25.96	43.58	15.47	0.04
2535.0	-24.05	43.84	17.64	0.06
2567.5	-25.63	43.72	15.94	0.04
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
2502.5	-27.62	45.66	15.89	0.04
2535.0	-25.29	46.02	18.58	0.07
2567.5	-27.33	44.93	15.45	0.04

LTE Band 7 Radiated Power EIRP for BW 20MHz / QPSK				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
2510.0	-21.08	43.58	20.35	0.11
2535.0	-21.32	43.84	20.37	0.11
2560.0	-22.79	43.72	18.78	0.08
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
2510.0	-28.35	45.66	15.16	0.03
2535.0	-25.64	46.02	18.23	0.07
2560.0	-26.34	44.93	16.44	0.04

LTE Band 7 Radiated Power EIRP for BW 20MHz / 16QAM				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
2510.0	-24.48	43.58	16.95	0.05
2535.0	-23.39	43.84	18.3	0.07
2560.0	-22.85	43.72	18.72	0.07
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
2510.0	-30.45	45.66	13.06	0.02
2535.0	-30.07	46.02	13.8	0.02
2560.0	-30.09	44.93	12.69	0.02

LTE Band 17 Radiated Power ERP for BW 5MHz / QPSK				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
706.50	-9.80	27.37	15.42	0.03
710.00	-8.66	27.52	16.71	0.05
713.50	-11.83	27.63	13.65	0.02
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
706.50	-18.50	29.71	9.06	0.01
710.00	-17.27	29.78	10.36	0.01
713.50	-17.71	29.95	10.09	0.01

LTE Band 17 Radiated Power ERP for BW 5MHz / 16QAM				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
706.50	-9.38	27.37	15.84	0.04
710.00	-10.76	27.52	14.61	0.03
713.50	-11.11	27.63	14.37	0.03
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
706.50	-17.14	29.71	10.42	0.01
710.00	-20.61	29.78	7.02	0.01
713.50	-17.08	29.95	10.72	0.01

* ERP = LVL (dBm) + Correction Factor (dB) - 2.15

LTE Band 17 Radiated Power ERP for BW 10MHz / QPSK				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
709.00	-11.83	27.37	13.39	0.02
710.00	-9.02	27.52	16.35	0.04
711.00	-13.74	27.63	11.74	0.01
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
709.00	-16.61	29.71	10.95	0.01
710.00	-17.93	29.78	9.70	0.01
711.00	-19.72	29.95	8.08	0.01

LTE Band 17 Radiated Power ERP for BW 10MHz / 16QAM				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
709.00	-12.77	27.37	12.45	0.02
710.00	-9.71	27.52	15.66	0.04
711.00	-11.24	27.63	14.24	0.03
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
709.00	-11.89	29.71	15.67	0.04
710.00	-10.32	29.78	17.31	0.05
711.00	-11.97	29.95	15.83	0.04

* ERP = LVL (dBm) + Correction Factor (dB) - 2.15

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.

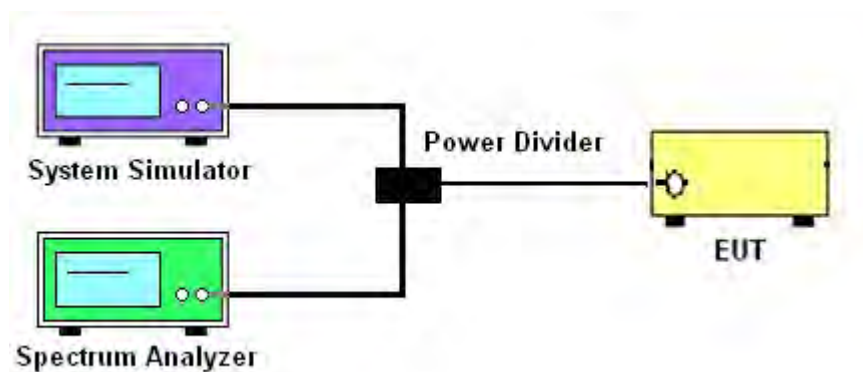
3.4.2 Measuring Instruments

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 4											
BW / Mod.	1.4MHz / QPSK			1.4MHz / 16QAM			3MHz / QPSK			3MHz / 16QAM		
	Low	Mid.	High	Low	Mid.	High	Low	Mid.	High	Low	Mid.	High
99% OBW (MHz)	1.091	1.097	1.094	1.097	1.097	1.097	2.727	2.721	2.727	2.721	2.721	2.727
26dB BW (MHz)	1.295	1.295	1.295	1.290	1.290	1.284	3.039	3.039	3.039	3.051	3.051	3.051
BW / Mod.	5MHz / QPSK			5MHz / 16QAM			10MHz / QPSK			10MHz / 16QAM		
	Low	Mid.	High	Low	Mid.	High	Low	Mid.	High	Low	Mid.	High
99% OBW (MHz)	4.486	4.486	4.496	4.496	4.486	4.496	9.051	9.051	9.091	9.011	8.991	9.011
26dB BW (MHz)	5.025	5.025	5.015	5.025	5.015	5.015	9.930	10.030	9.890	9.950	9.970	9.990
BW / Mod.	15MHz / QPSK			15MHz / 16QAM			20MHz / QPSK			20MHz / 16QAM		
	Low	Mid.	High	Low	Mid.	High	Low	Mid.	High	Low	Mid.	High
99% OBW (MHz)	13.457	13.487	13.487	13.427	13.457	13.457	18.382	18.422	18.422	18.382	18.262	18.342
26dB BW (MHz)	14.715	14.565	14.745	14.655	14.865	14.865	20.260	20.300	20.420	20.140	20.380	20.300

Modes	LTE Band 7											
BW / Mod.	5MHz / QPSK			5MHz / 16QAM			10MHz / QPSK			10MHz / 16QAM		
	Low	Mid.	High	Low	Mid.	High	Low	Mid.	High	Low	Mid.	High
99% OBW (MHz)	4.496	4.486	4.496	4.496	4.486	4.486	9.071	9.071	9.071	9.011	9.011	9.011
26dB BW (MHz)	4.985	5.015	5.015	5.025	5.035	5.015	10.070	10.050	10.010	10.090	9.970	9.890
BW / Mod.	15MHz / QPSK			15MHz / 16QAM			20MHz / QPSK			20MHz / 16QAM		
	Low	Mid.	High	Low	Mid.	High	Low	Mid.	High	Low	Mid.	High
99% OBW (MHz)	13.457	13.457	13.457	13.457	13.397	13.427	18.342	18.342	18.302	18.342	18.342	18.182
26dB BW (MHz)	14.655	14.655	14.595	14.745	14.655	14.685	20.180	20.380	20.340	20.260	20.140	20.140

Modes	LTE Band 17											
BW / Mod.	5MHz / QPSK			5MHz / 16QAM			10MHz / QPSK			10MHz / 16QAM		
	Low	Mid.	High	Low	Mid.	High	Low	Mid.	High	Low	Mid.	High
99% OBW (MHz)	4.496	4.496	4.486	4.486	4.496	4.486	9.091	9.091	9.131	9.031	9.031	9.051
26dB BW (MHz)	5.025	5.035	5.025	5.015	5.025	5.025	10.010	10.070	10.030	10.010	10.050	9.990

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

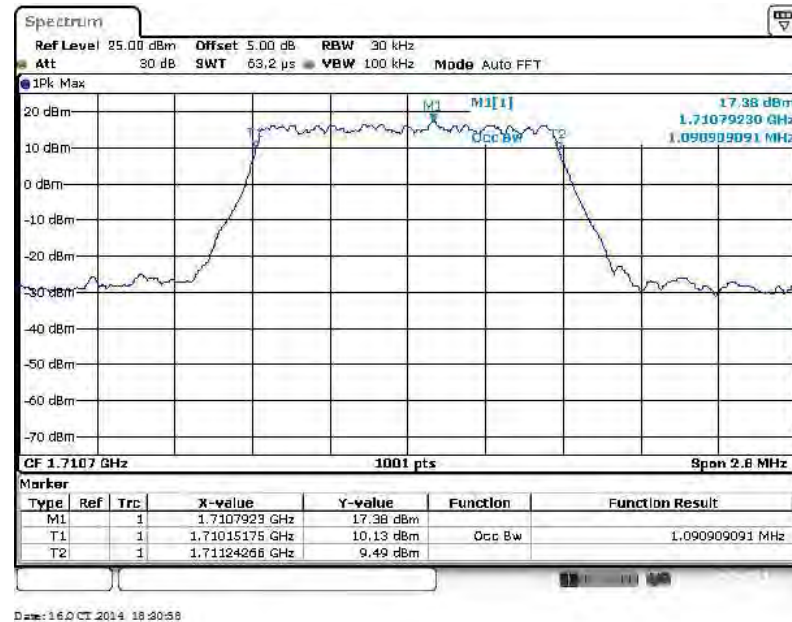
BW15MHz RB setting : RB Size 75, RB offset 0

BW20MHz RB setting : RB Size 100, RB offset 0

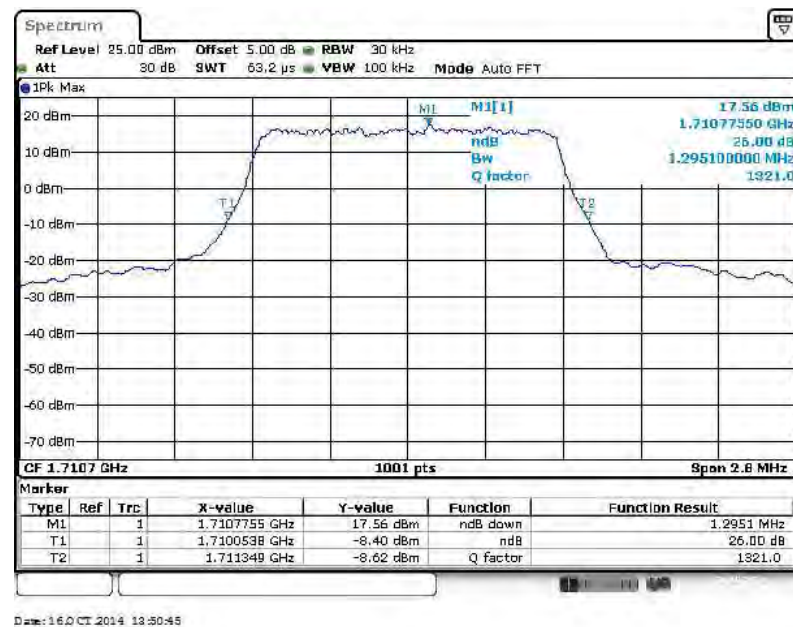
3.4.6 Test Result (Plots) of 99% Occupied Bandwidth

Band :	LTE Band 4	BW / Mod. :	1.4MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 19957

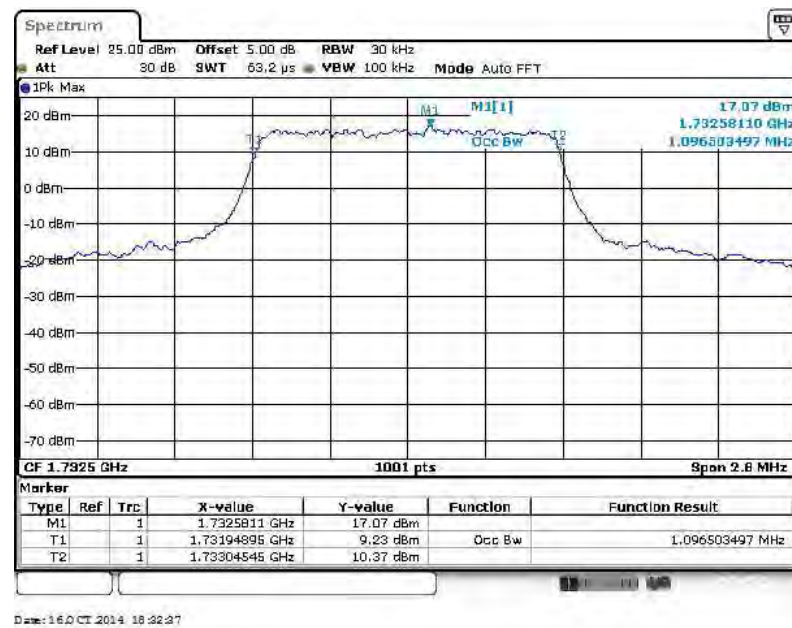


26dB Bandwidth Plot on Channel 19957

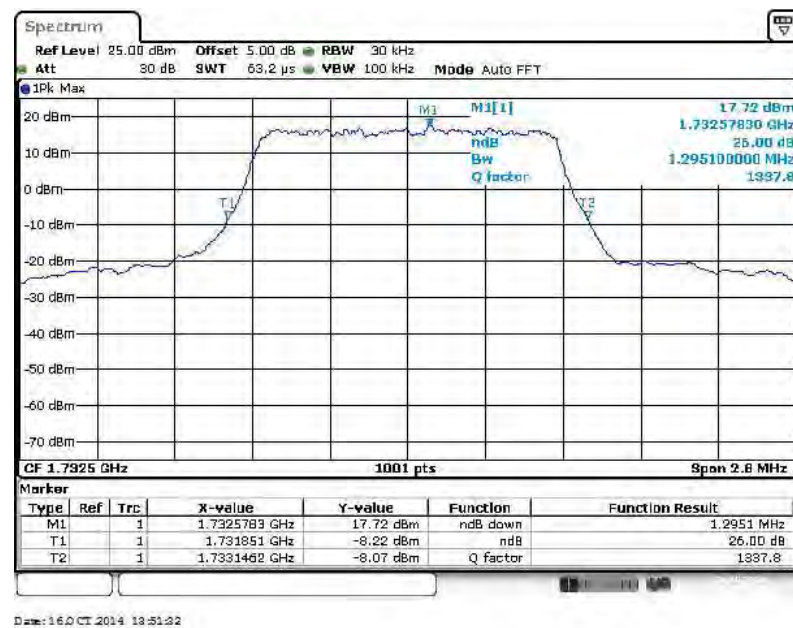




99% Occupied Bandwidth Plot on Channel 20175

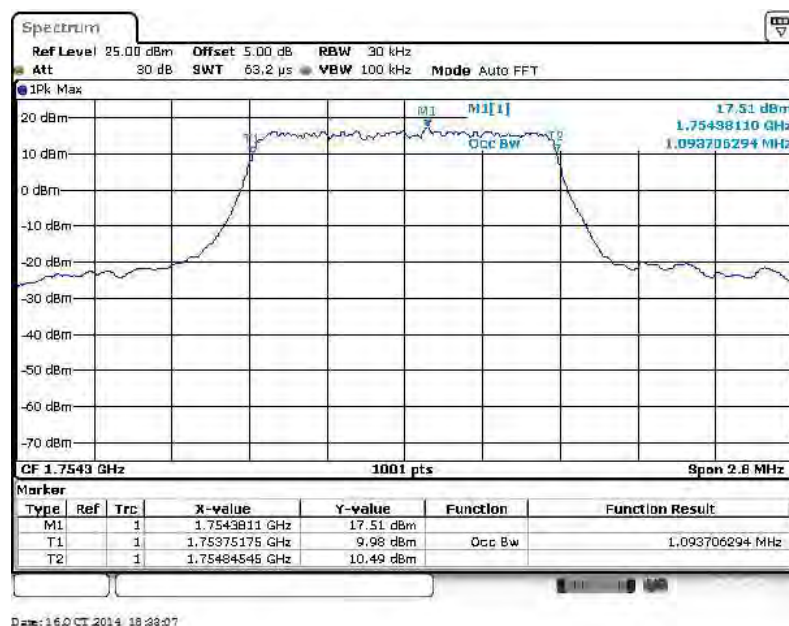


26dB Bandwidth Plot on Channel 20175

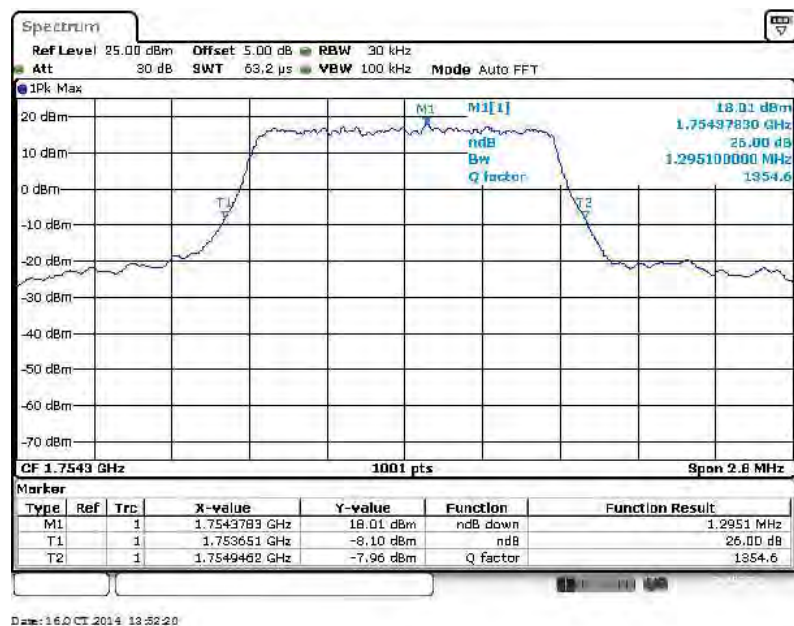




99% Occupied Bandwidth Plot on Channel 20393



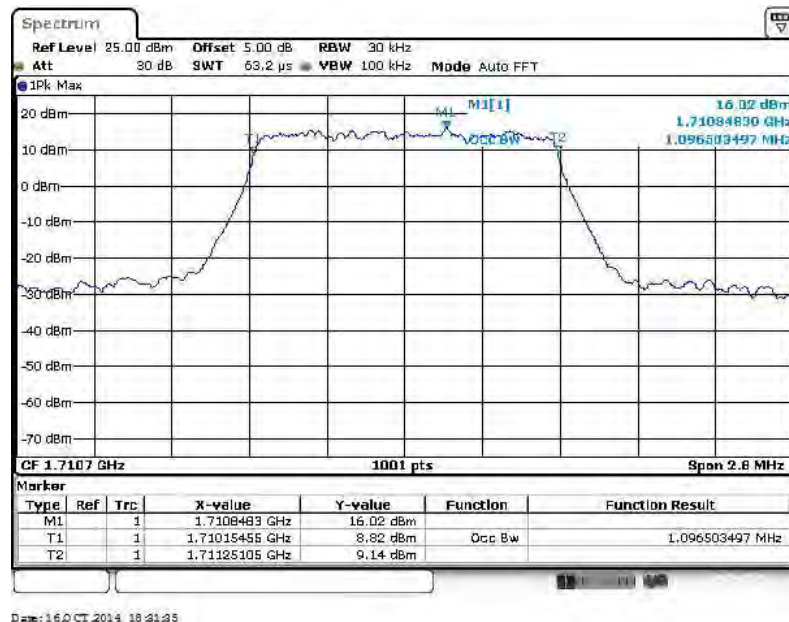
26dB Bandwidth Plot on Channel 20393



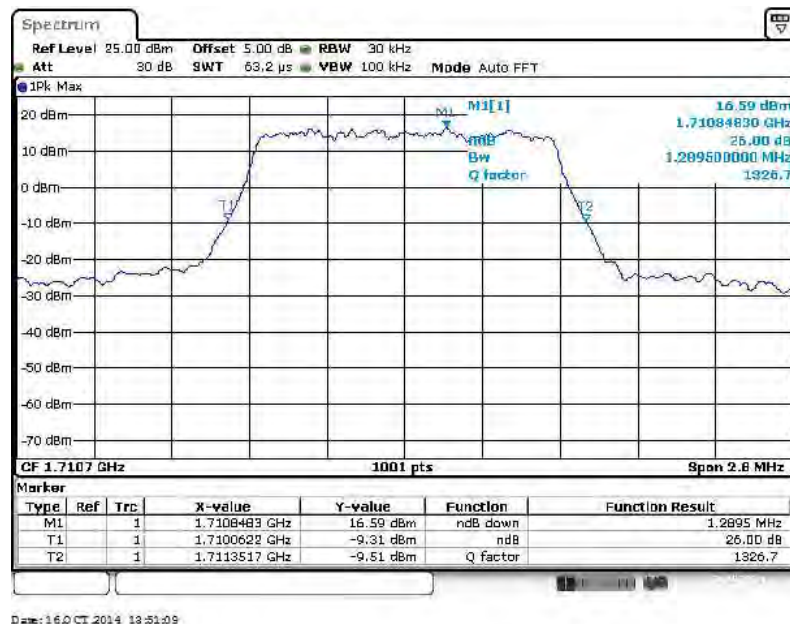


Band :	LTE Band 4	BW / Mod. :	1.4MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 19957

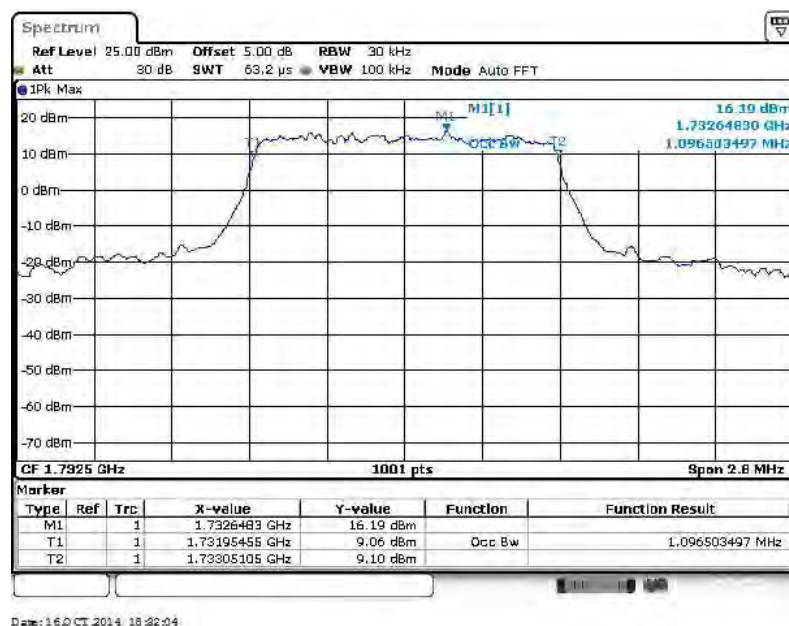


26dB Bandwidth Plot on Channel 19957

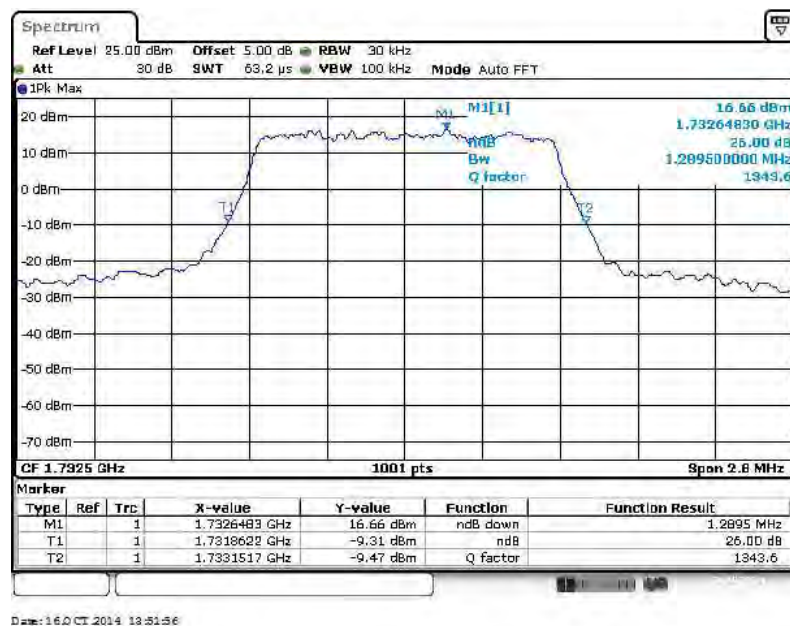




99% Occupied Bandwidth Plot on Channel 20175

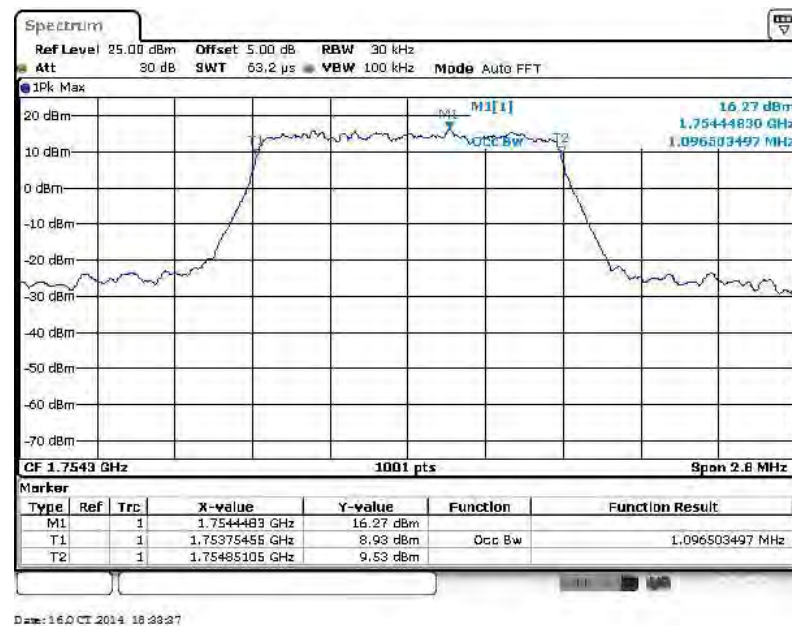


26dB Bandwidth Plot on Channel 20175

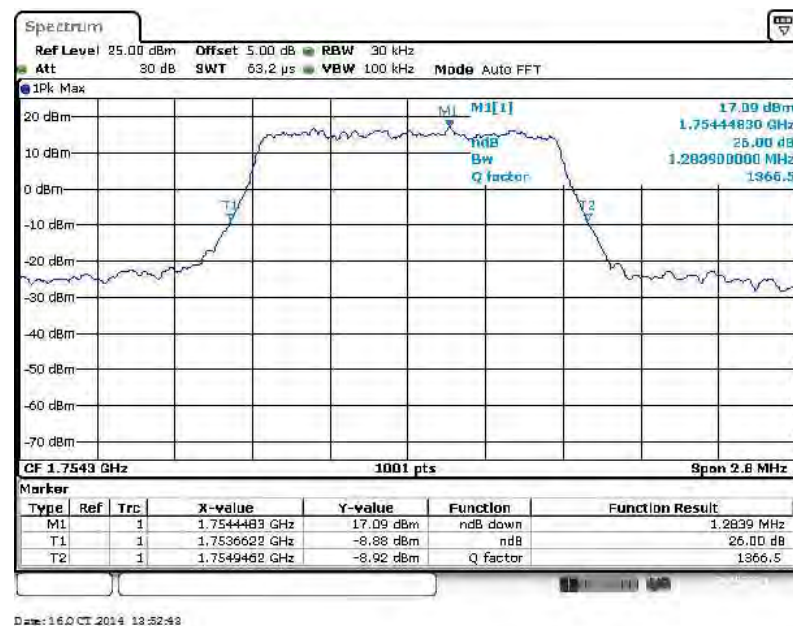




99% Occupied Bandwidth Plot on Channel 20393



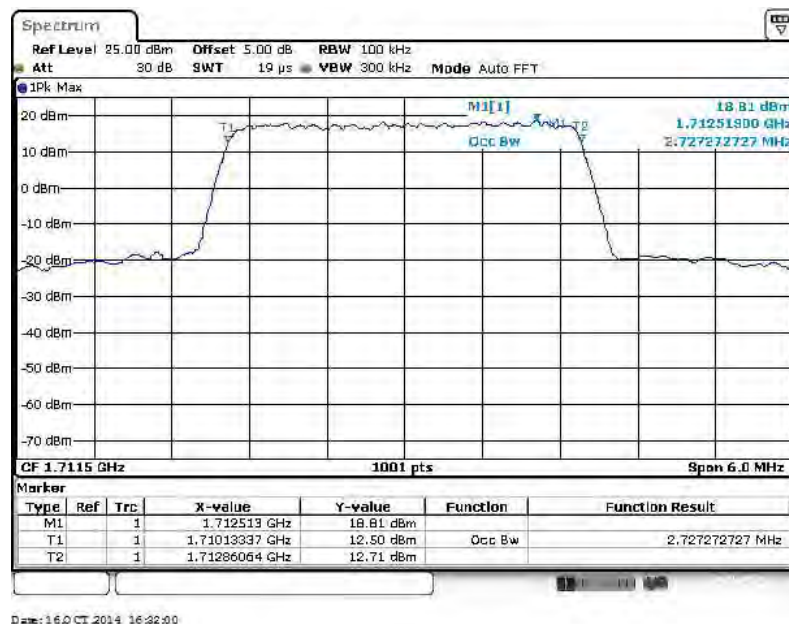
26dB Bandwidth Plot on Channel 20393



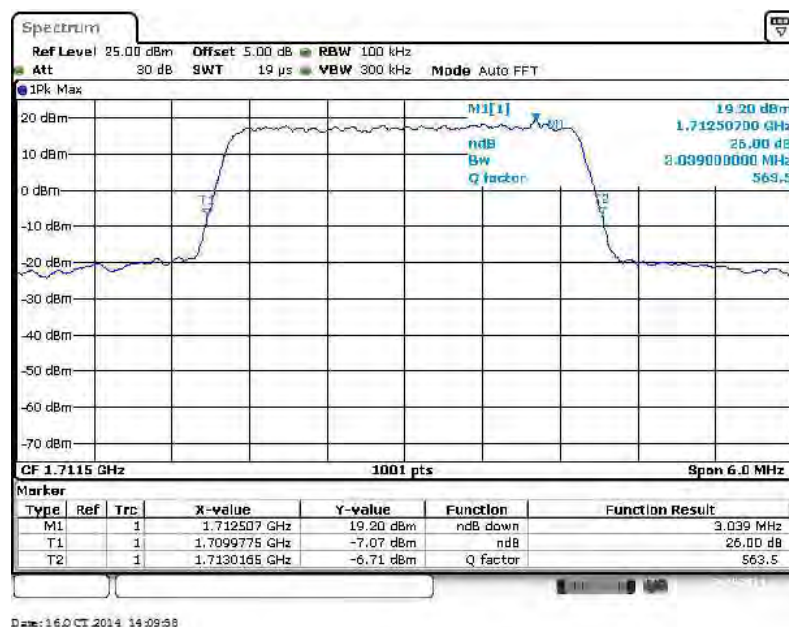


Band :	LTE Band 4	BW / Mod. :	3MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 19965

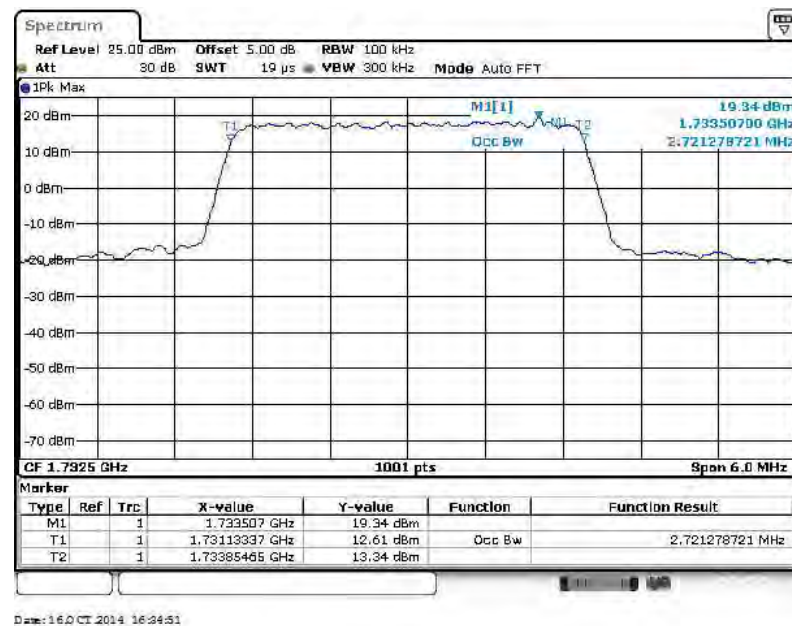


26dB Bandwidth Plot on Channel 19965

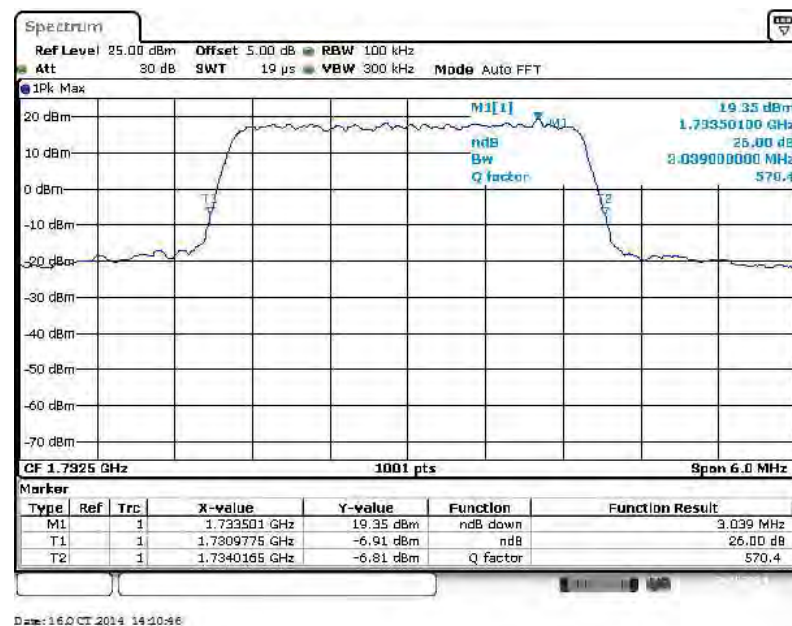




99% Occupied Bandwidth Plot on Channel 20175

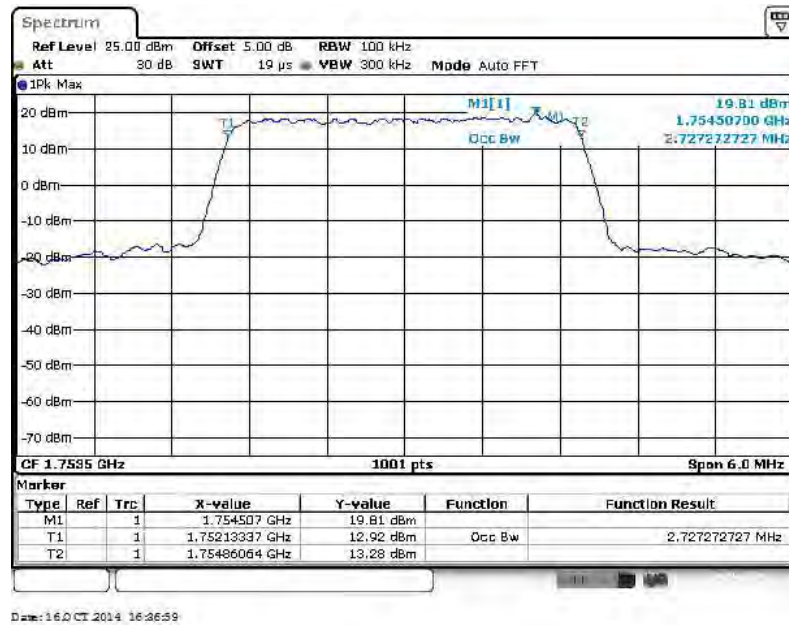


26dB Bandwidth Plot on Channel 20175

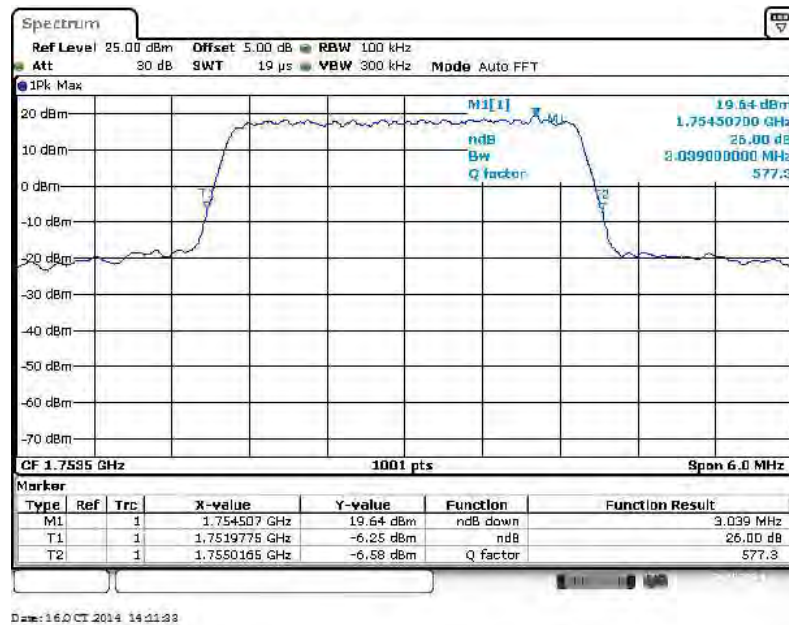




99% Occupied Bandwidth Plot on Channel 20385



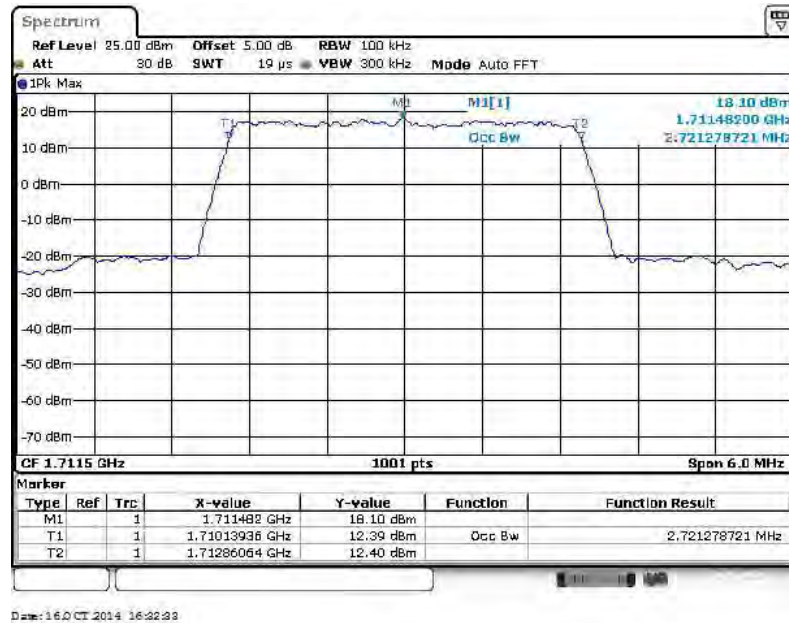
26dB Bandwidth Plot on Channel 20385



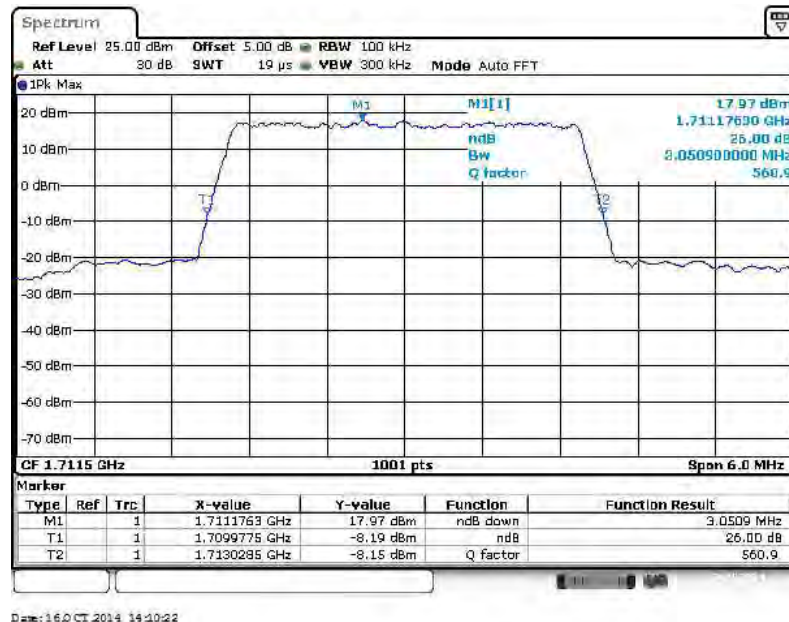


Band :	LTE Band 4	BW / Mod. :	3MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 19965

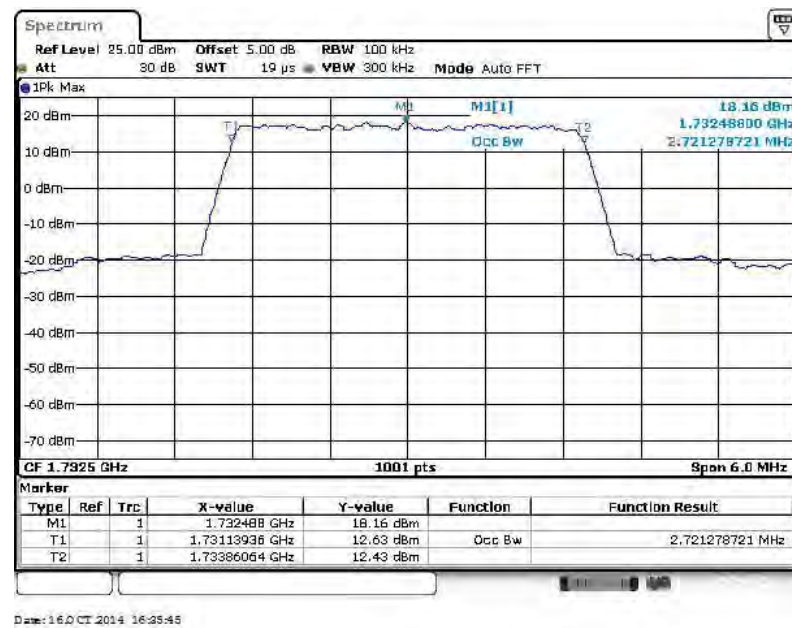


26dB Bandwidth Plot on Channel 19965

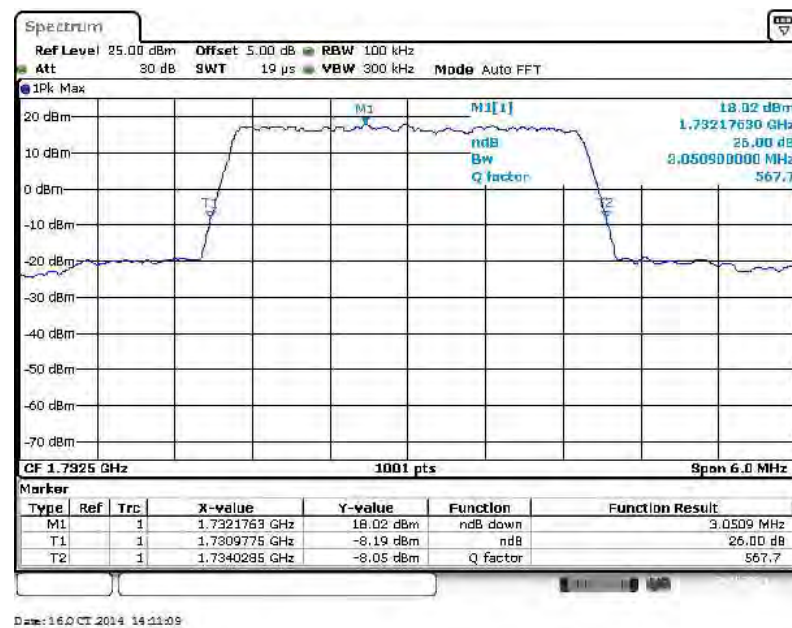




99% Occupied Bandwidth Plot on Channel 20175

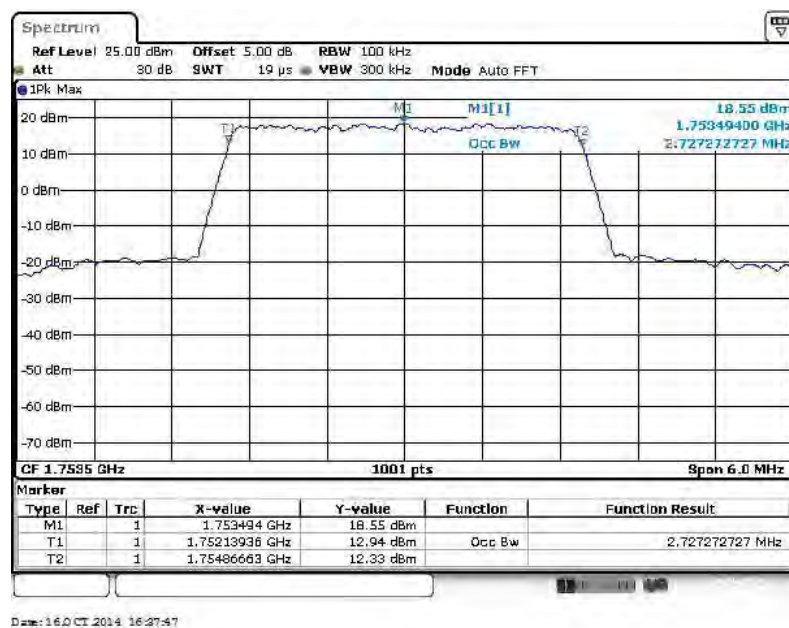


26dB Bandwidth Plot on Channel 20175

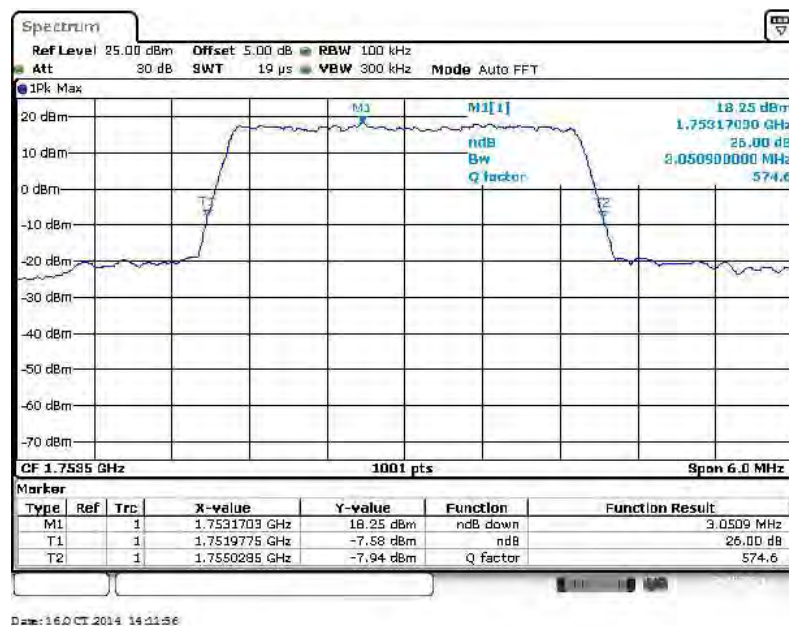




99% Occupied Bandwidth Plot on Channel 20385



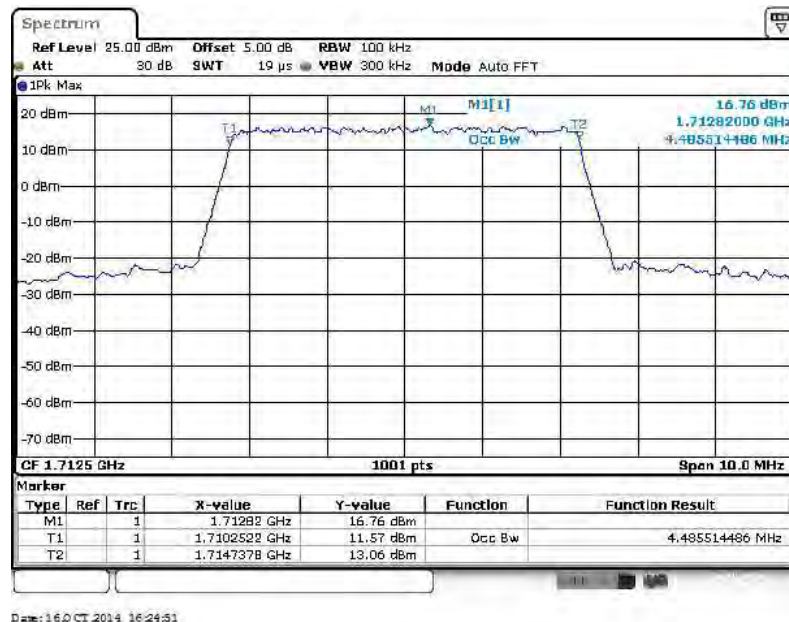
26dB Bandwidth Plot on Channel 20385



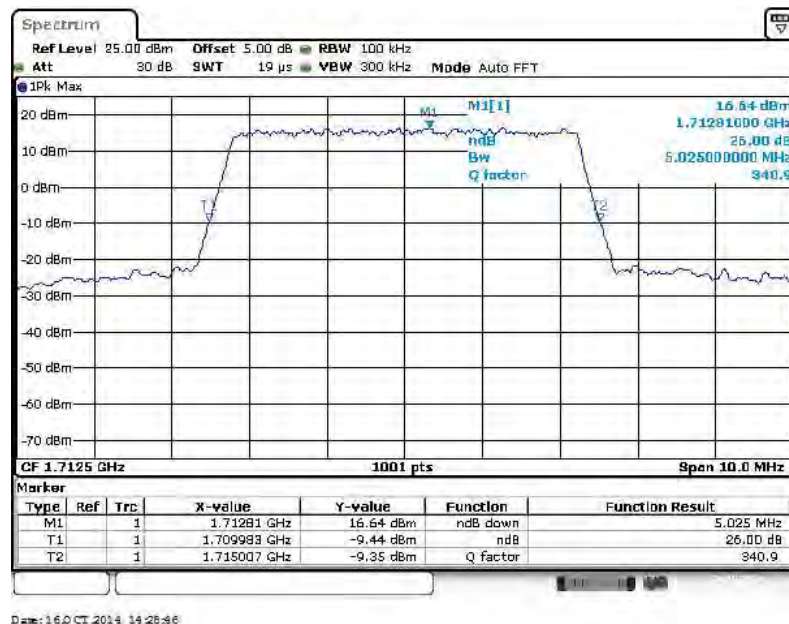


Band :	LTE Band 4	BW / Mod. :	5MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 19975

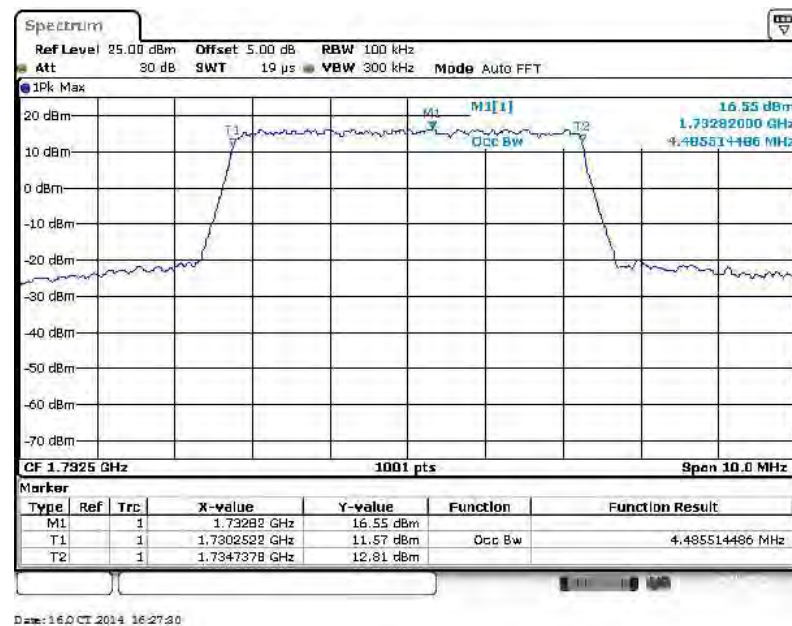


26dB Bandwidth Plot on Channel 19975

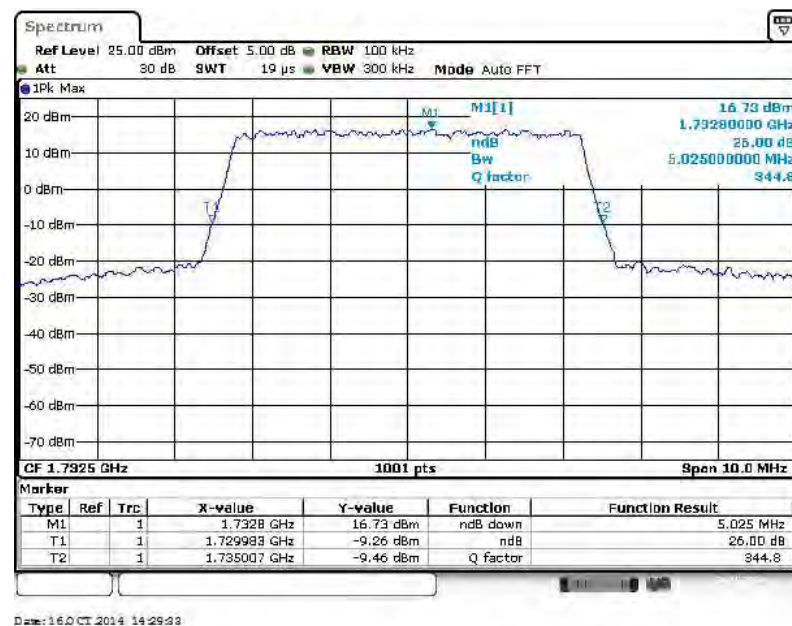




99% Occupied Bandwidth Plot on Channel 20175

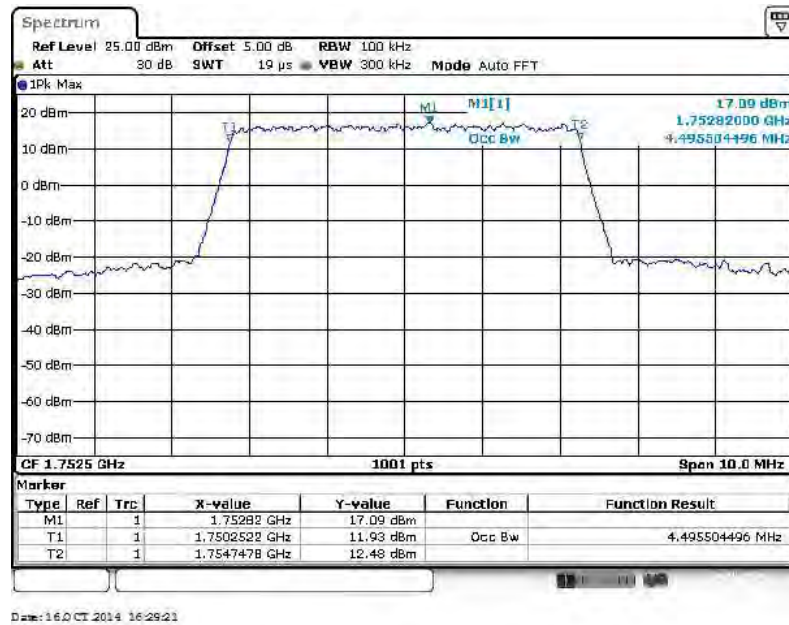


26dB Bandwidth Plot on Channel 20175

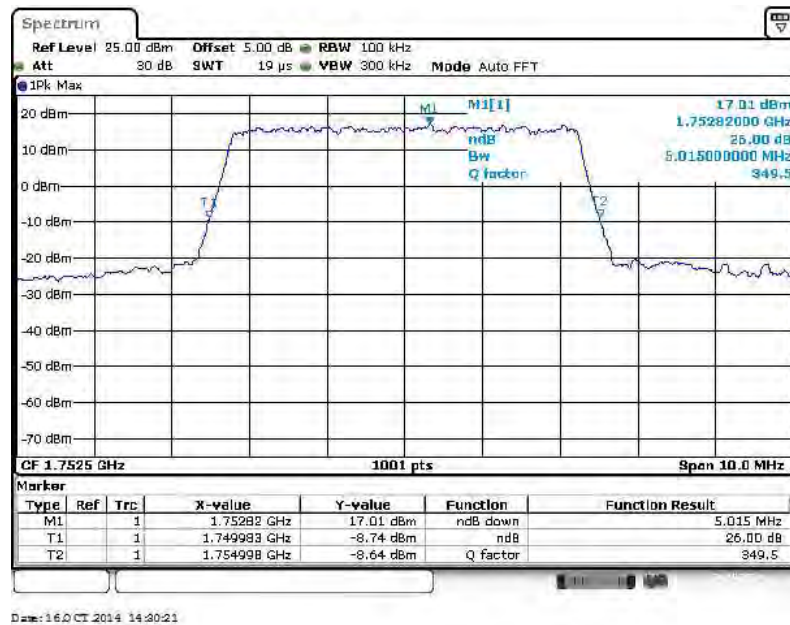




99% Occupied Bandwidth Plot on Channel 20375



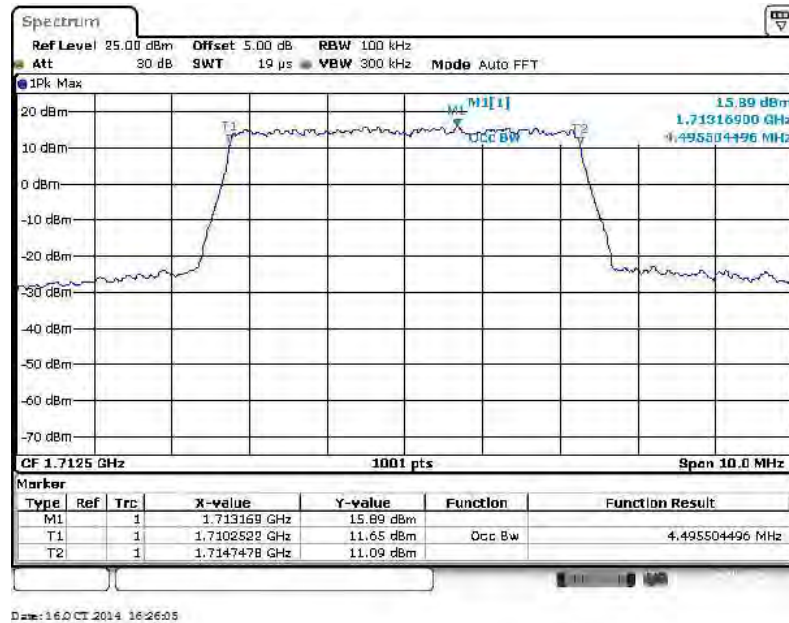
26dB Bandwidth Plot on Channel 20375



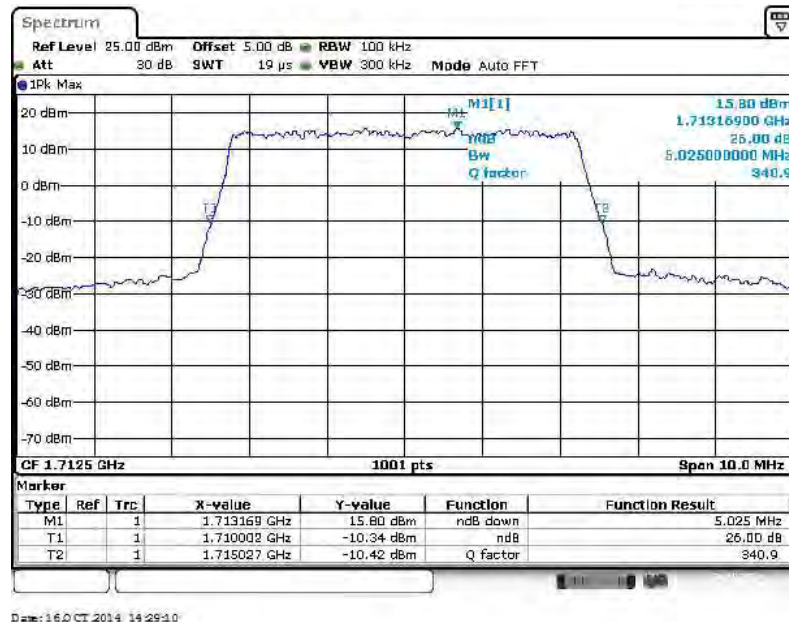


Band :	LTE Band 4	BW / Mod. :	5MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 19975

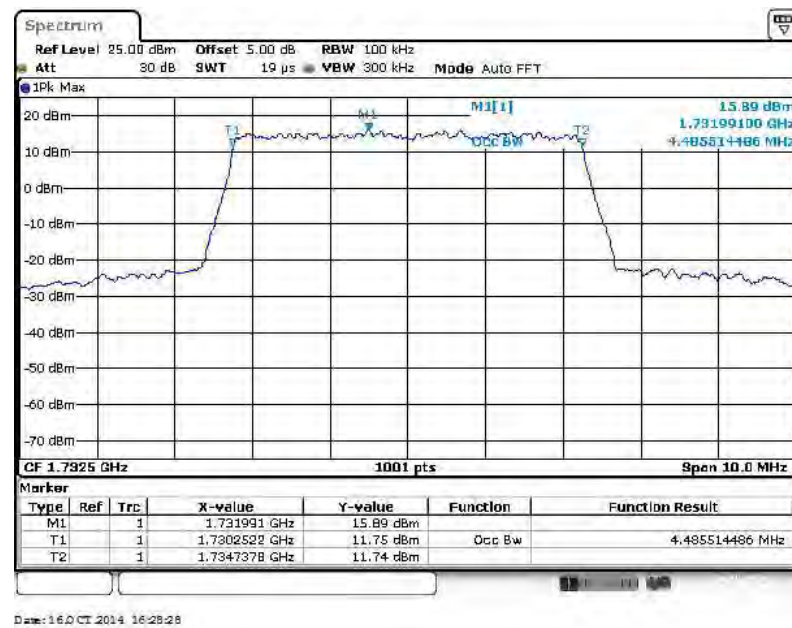


26dB Bandwidth Plot on Channel 19975

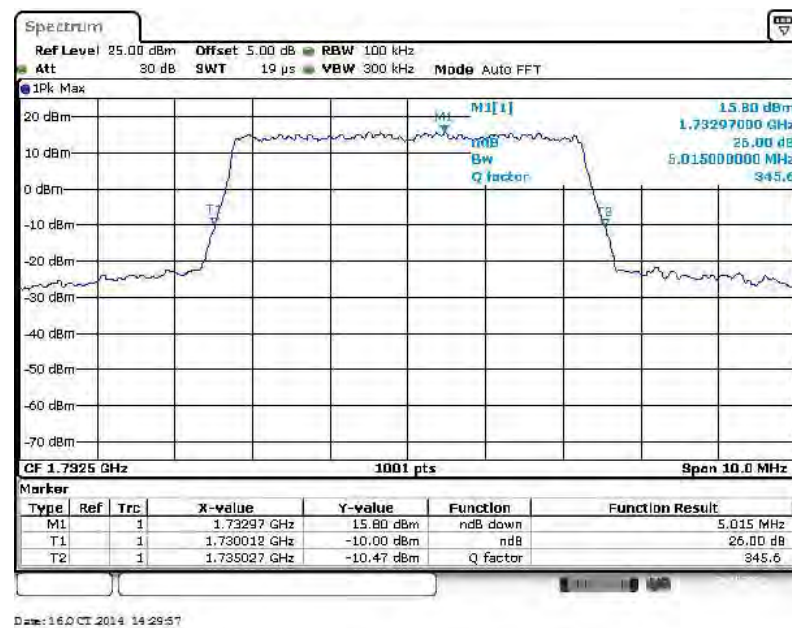




99% Occupied Bandwidth Plot on Channel 20175

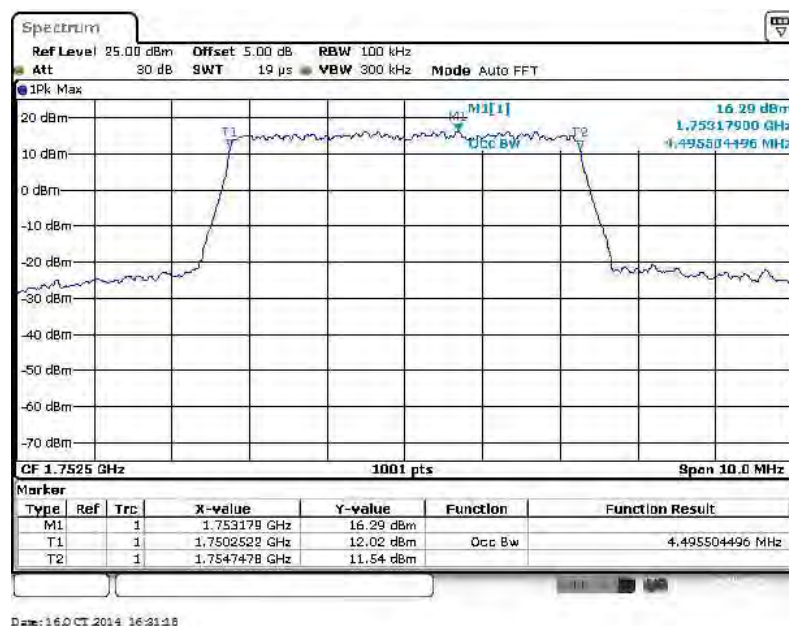


26dB Bandwidth Plot on Channel 20175

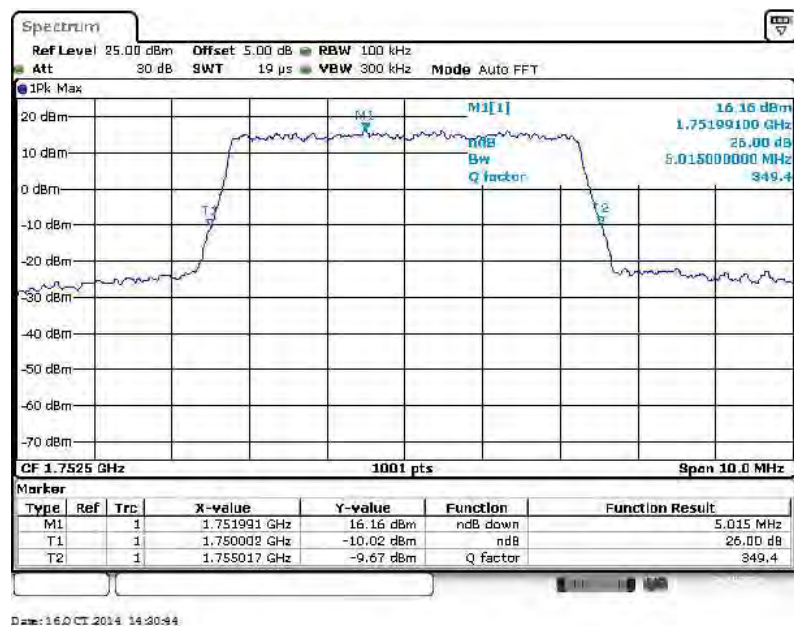




99% Occupied Bandwidth Plot on Channel 20375



26dB Bandwidth Plot on Channel 20375

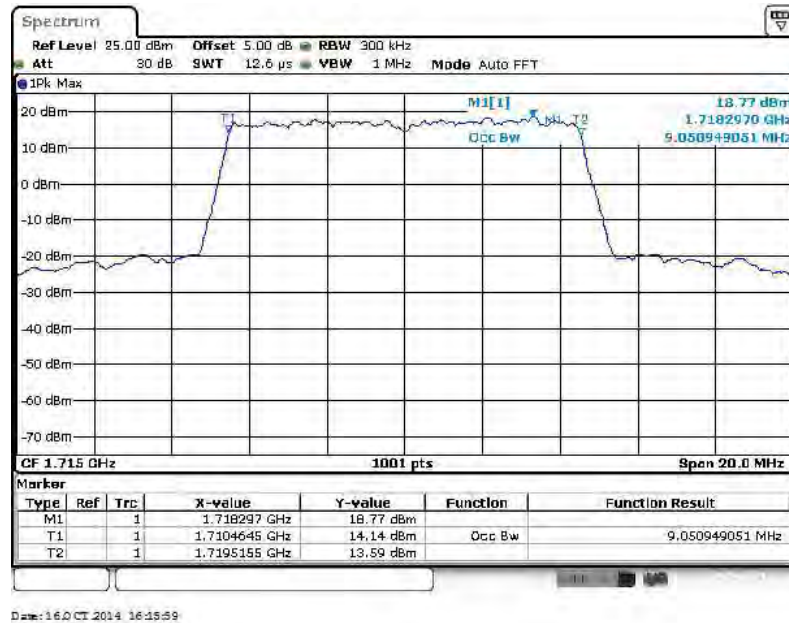




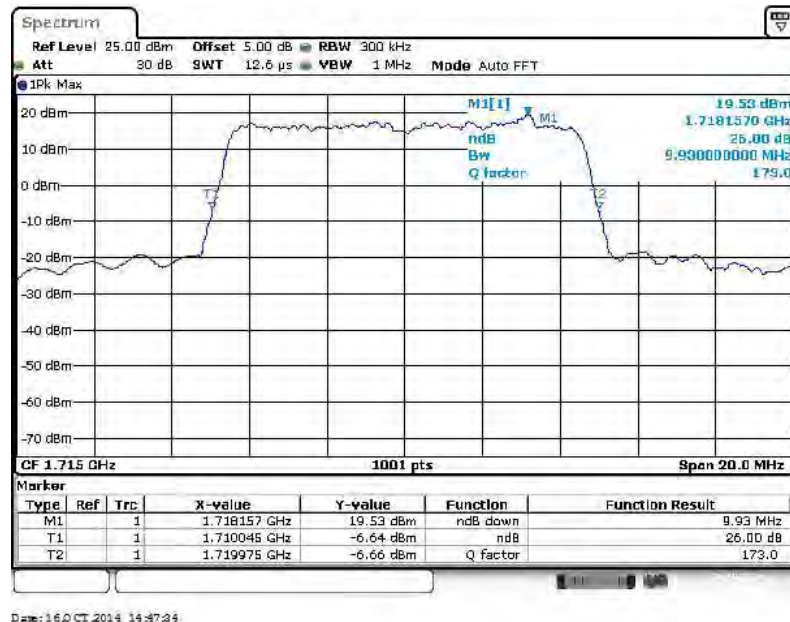
Band : LTE Band 4

BW / Mod. : 10MHz / QPSK

99% Occupied Bandwidth Plot on Channel 20000

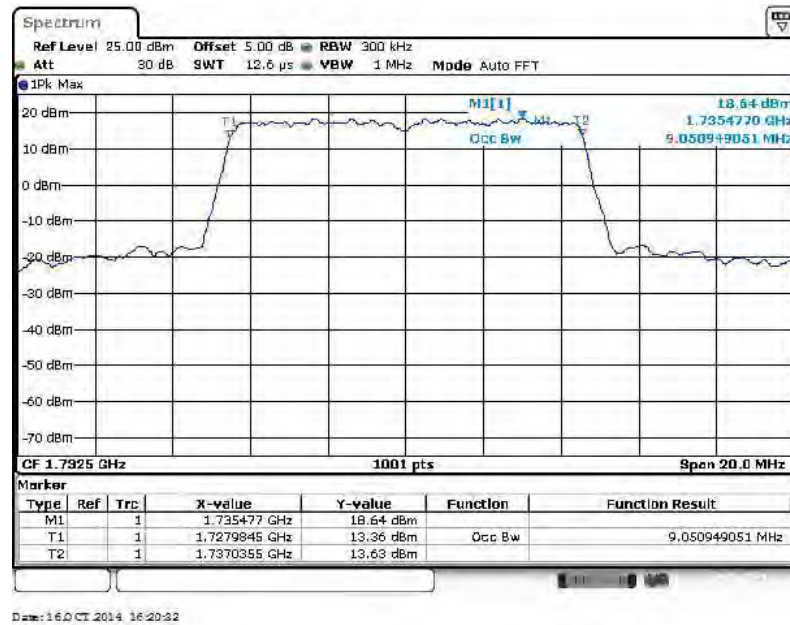


26dB Bandwidth Plot on Channel 20000

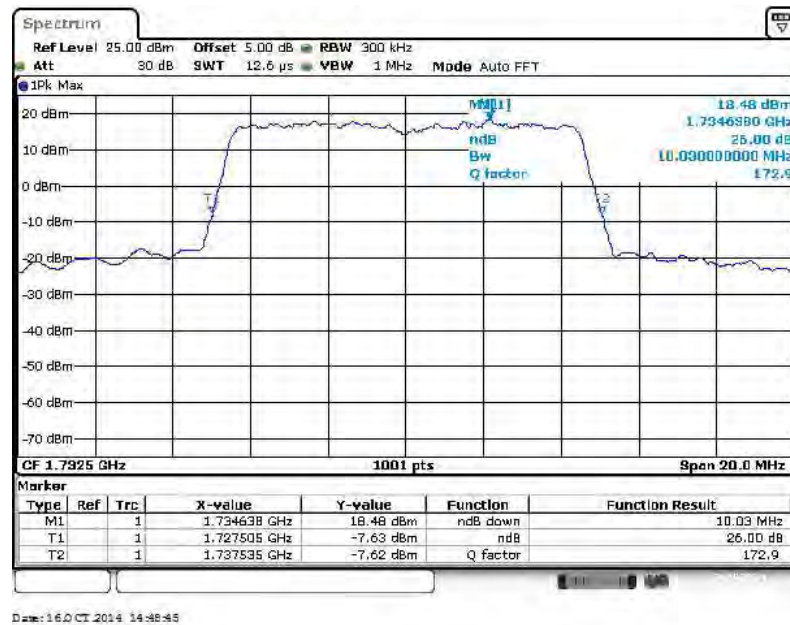




99% Occupied Bandwidth Plot on Channel 20175

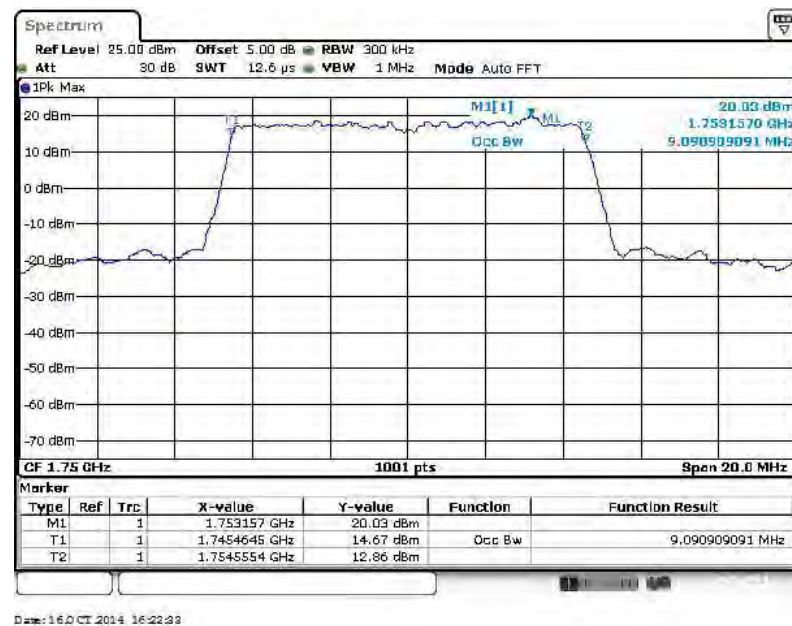


26dB Bandwidth Plot on Channel 20175

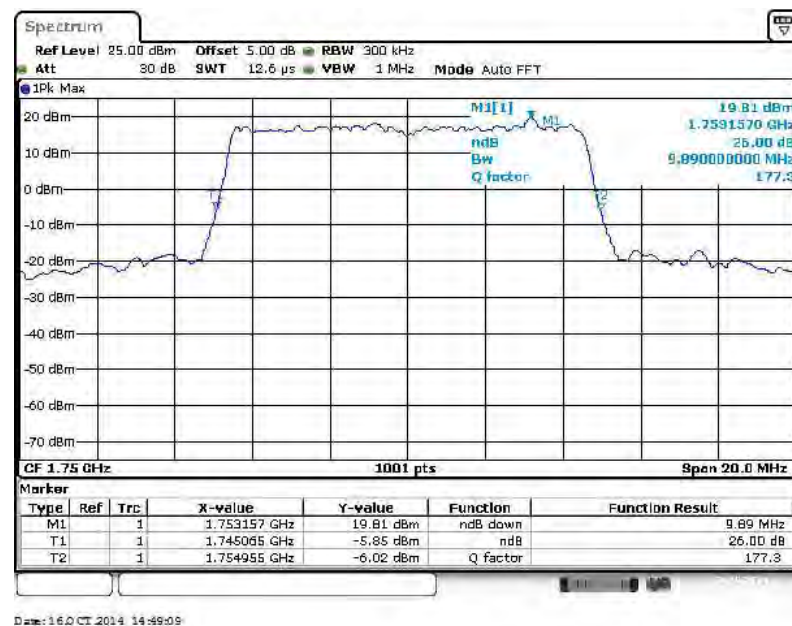




99% Occupied Bandwidth Plot on Channel 20350



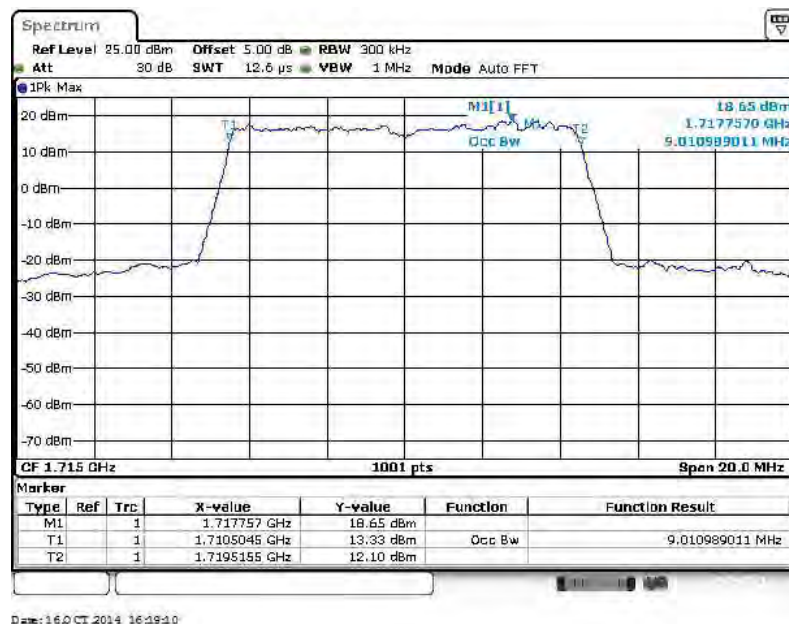
26dB Bandwidth Plot on Channel 20350



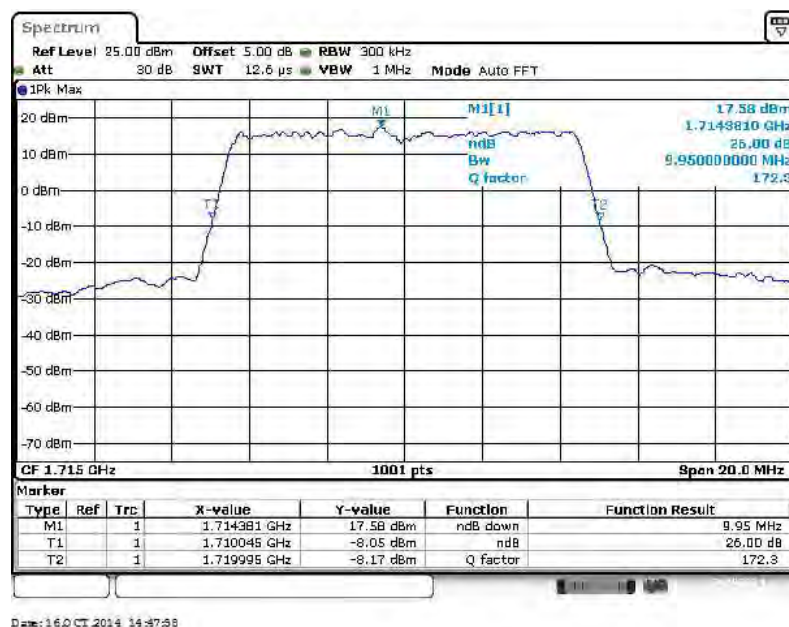


Band :	LTE Band 4	BW / Mod. :	10MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 20000

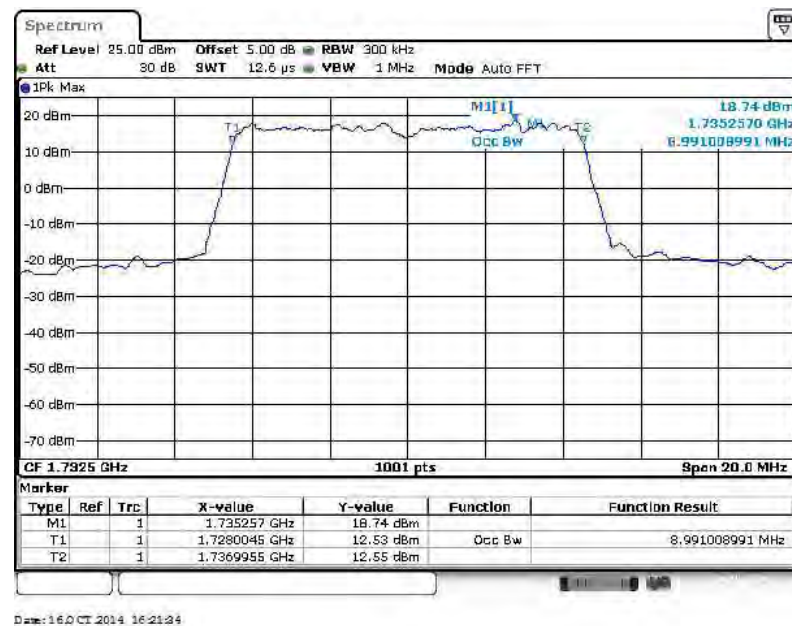


26dB Bandwidth Plot on Channel 20000

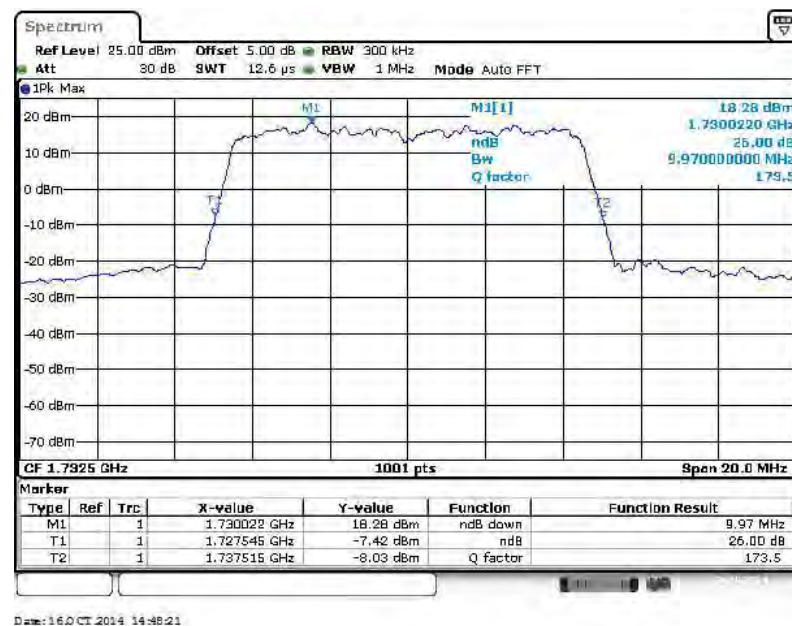




99% Occupied Bandwidth Plot on Channel 20175

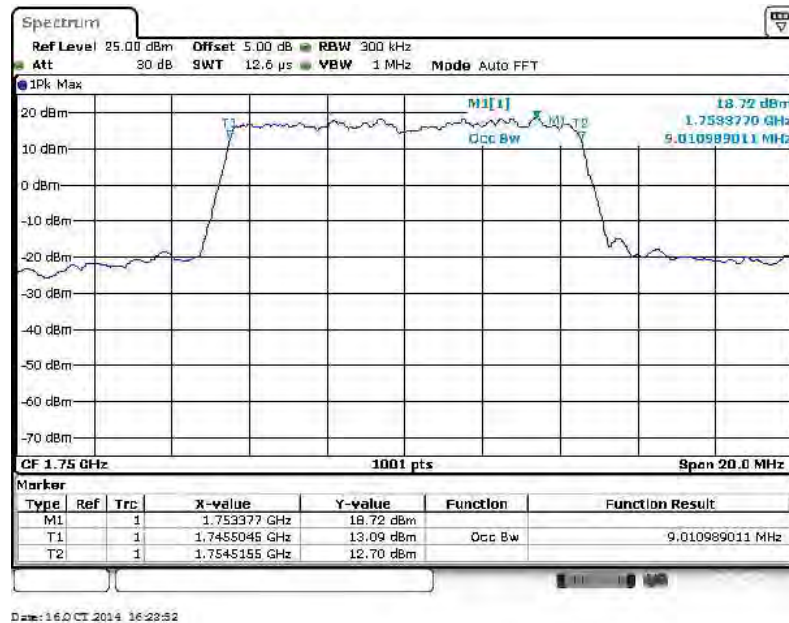


26dB Bandwidth Plot on Channel 20175

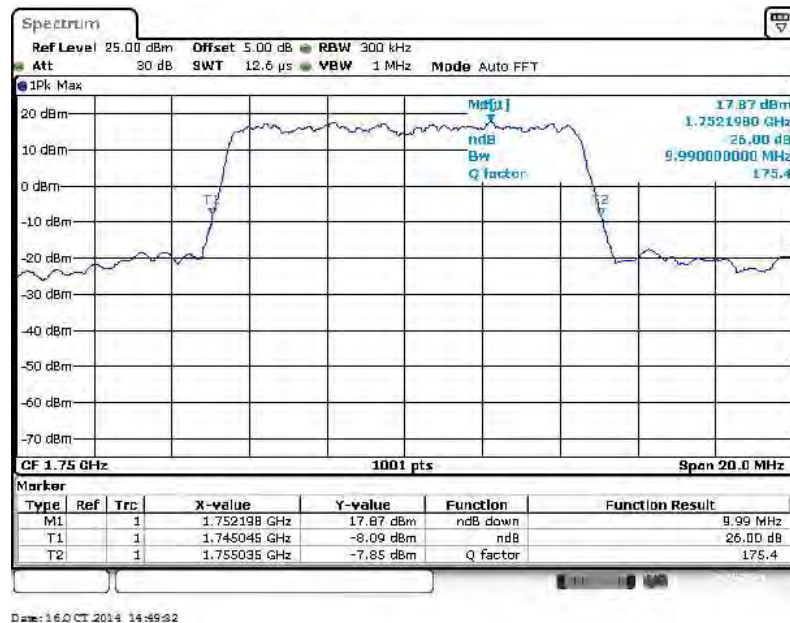




99% Occupied Bandwidth Plot on Channel 20350



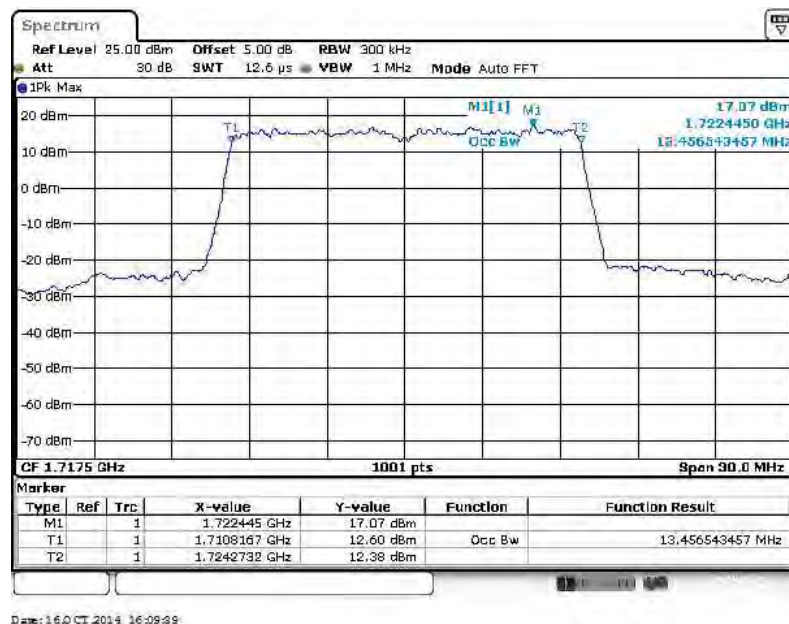
26dB Bandwidth Plot on Channel 20350



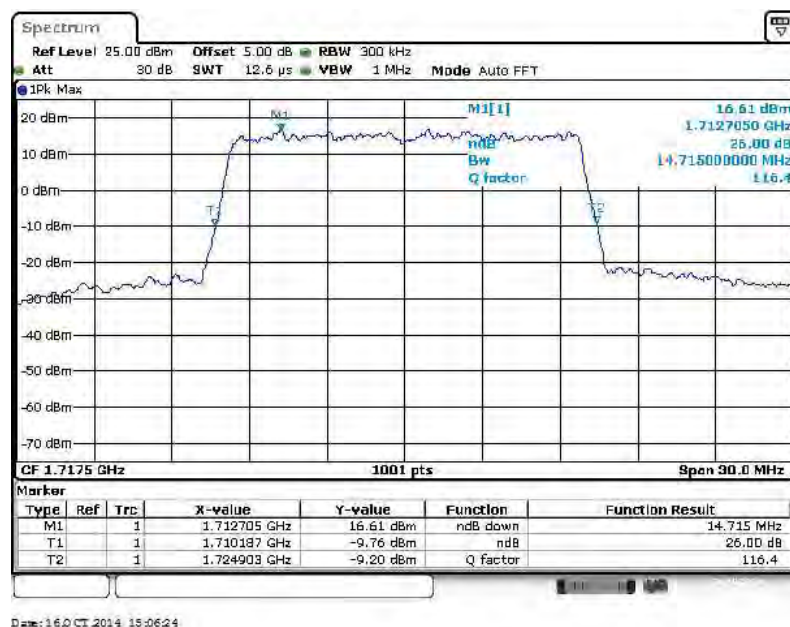


Band :	LTE Band 4	BW / Mod. :	15MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 20025

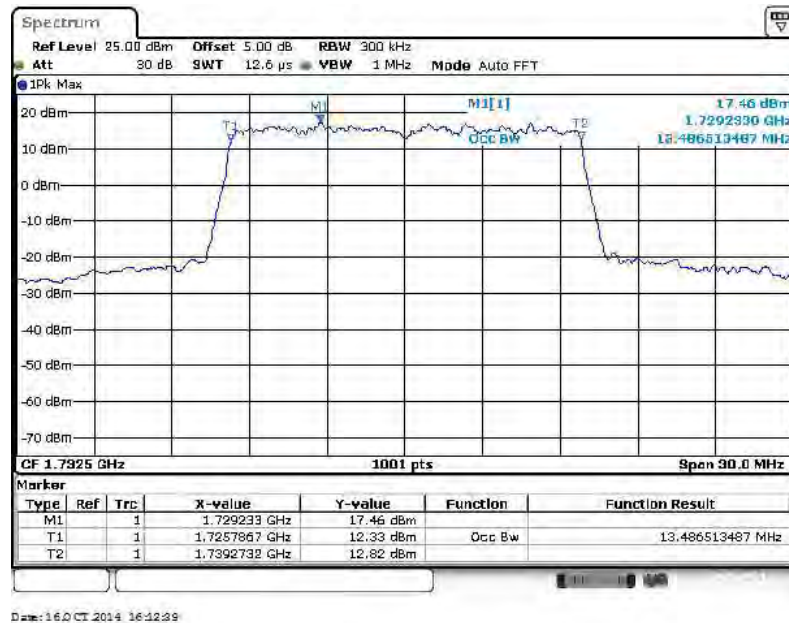


26dB Bandwidth Plot on Channel 20025

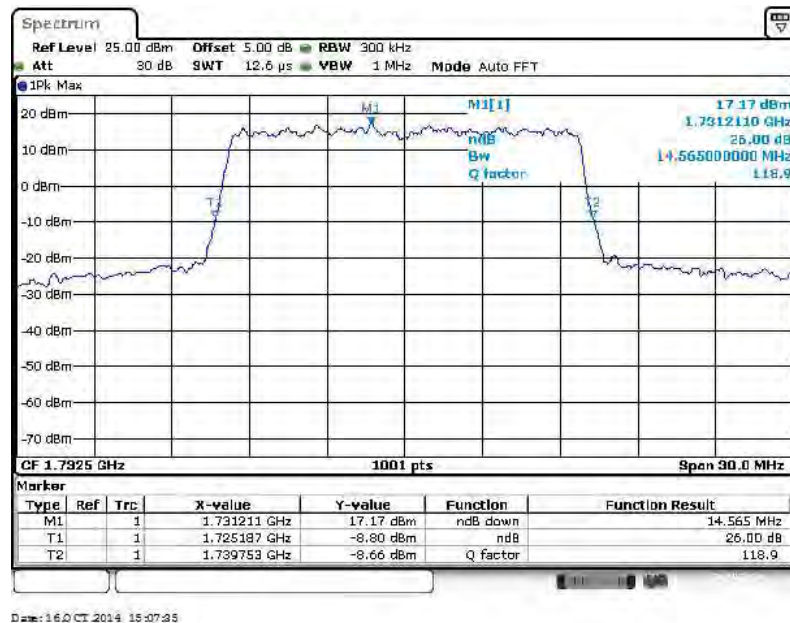




99% Occupied Bandwidth Plot on Channel 20175

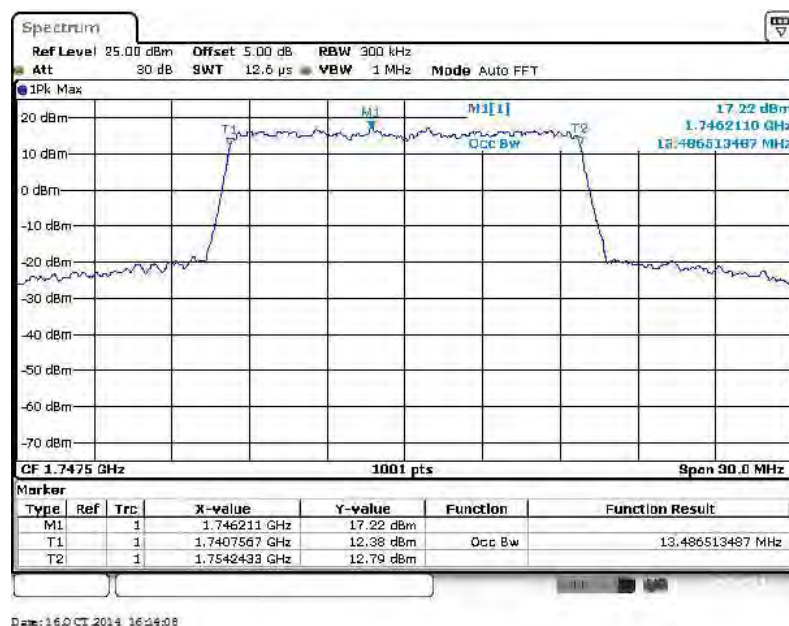


26dB Bandwidth Plot on Channel 20175

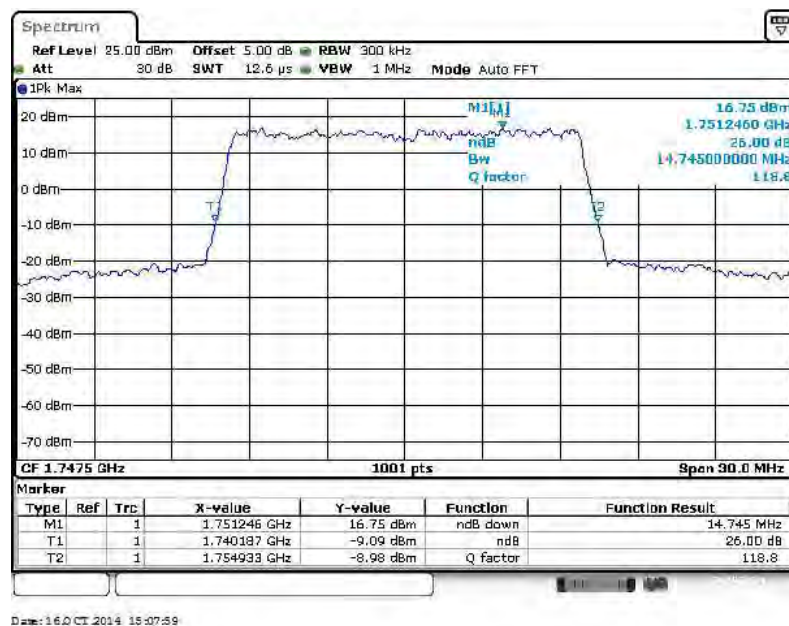




99% Occupied Bandwidth Plot on Channel 20325



26dB Bandwidth Plot on Channel 20325

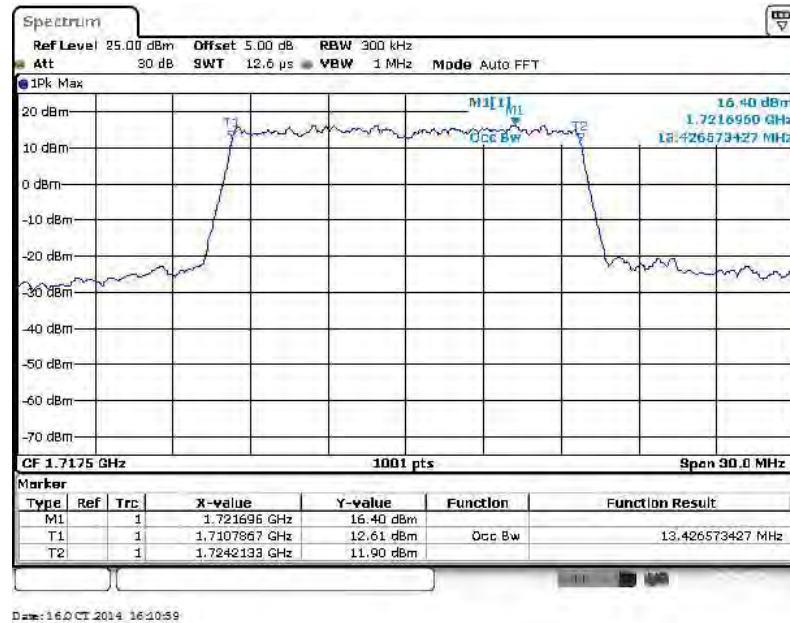




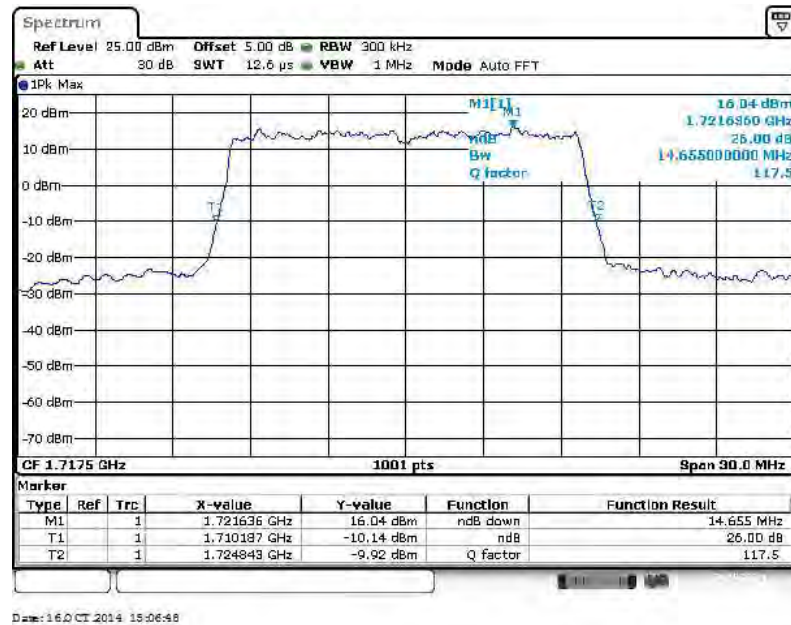
Band : LTE Band 4

BW / Mod. : 15MHz / 16QAM

99% Occupied Bandwidth Plot on Channel 20025

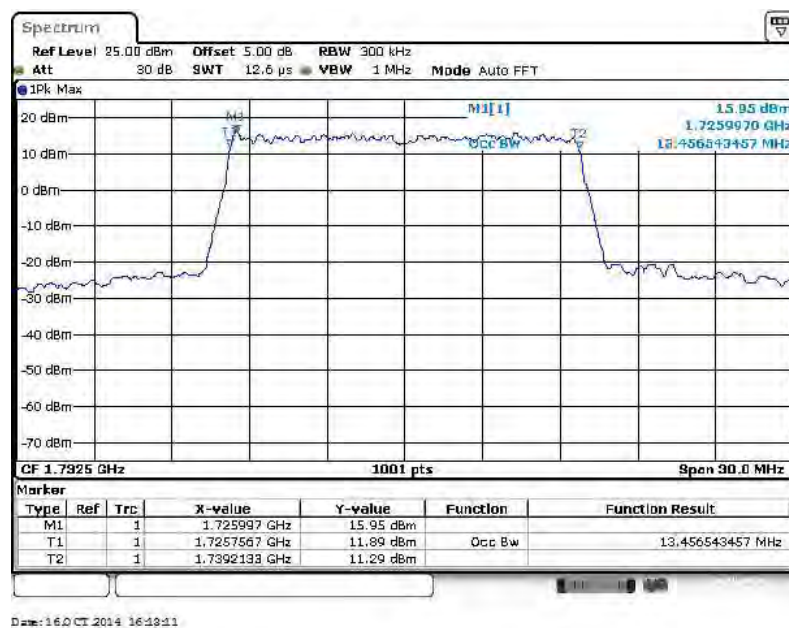


26dB Bandwidth Plot on Channel 20025

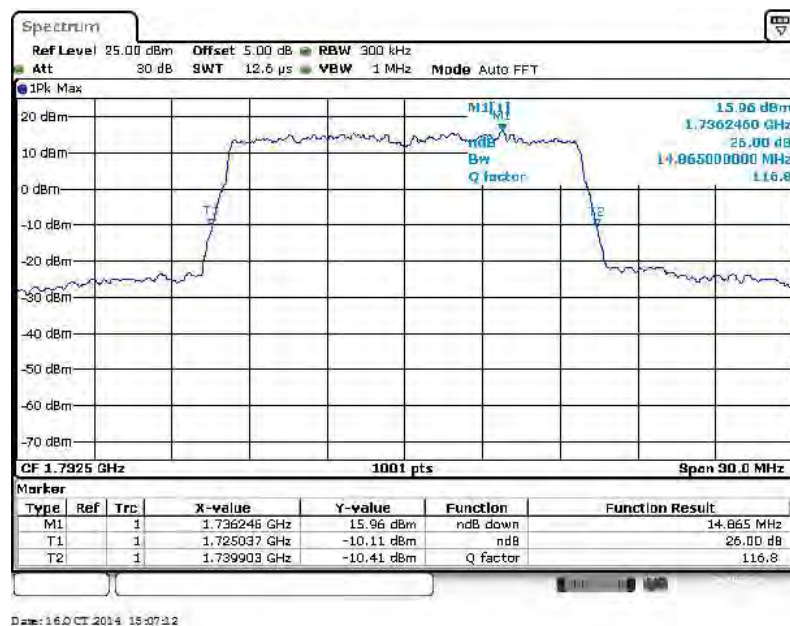




99% Occupied Bandwidth Plot on Channel 20175

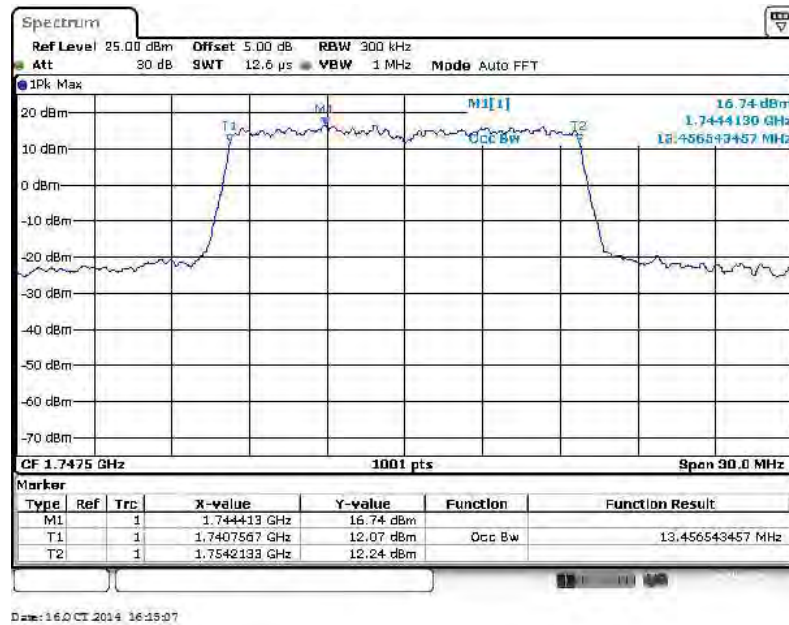


26dB Bandwidth Plot on Channel 20175

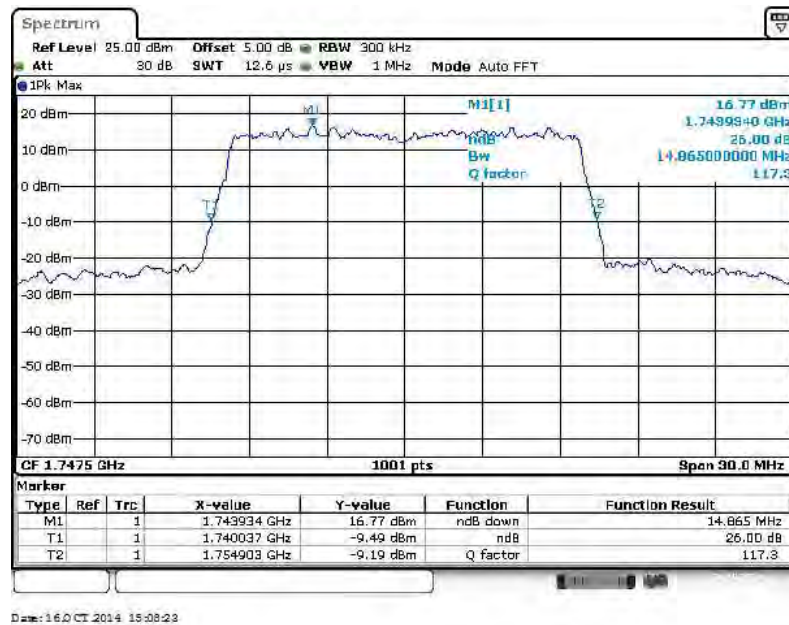




99% Occupied Bandwidth Plot on Channel 20325



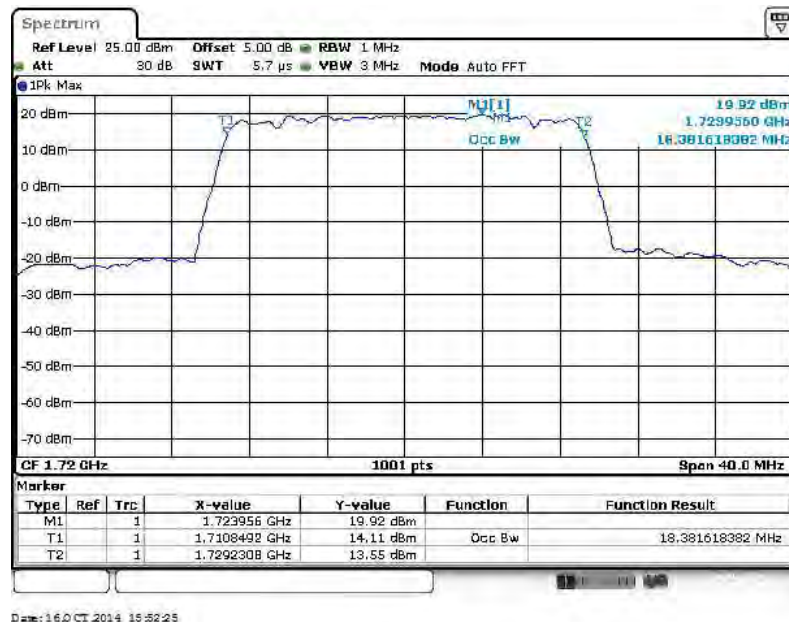
26dB Bandwidth Plot on Channel 20325



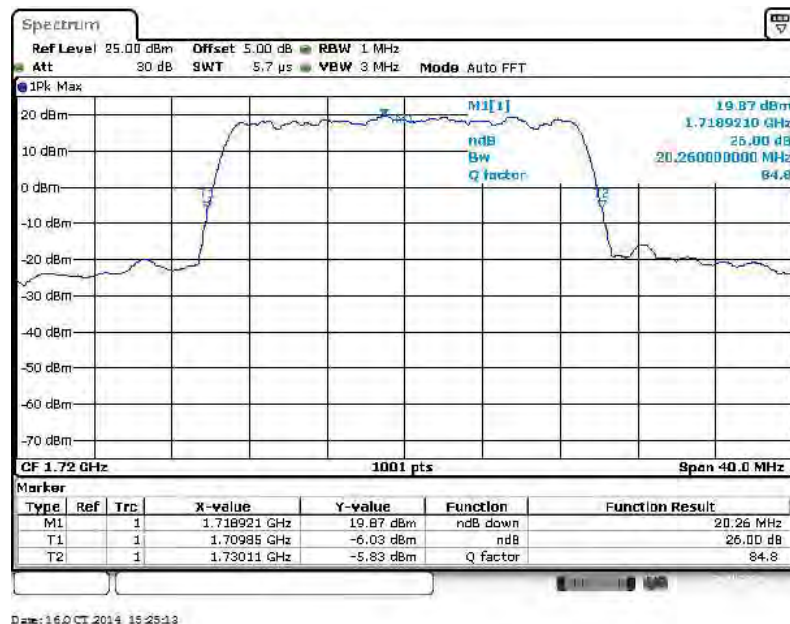


Band :	LTE Band 4	BW / Mod. :	20MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 20050

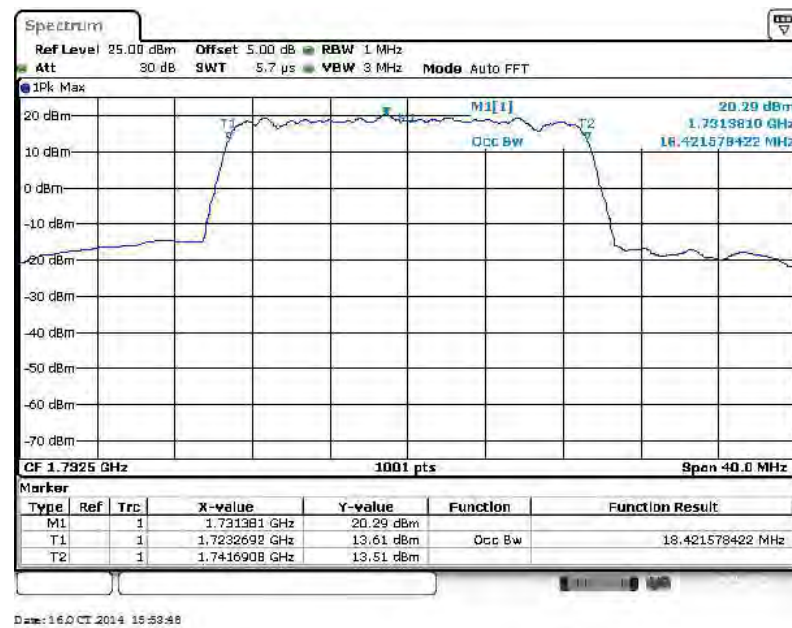


26dB Bandwidth Plot on Channel 20050

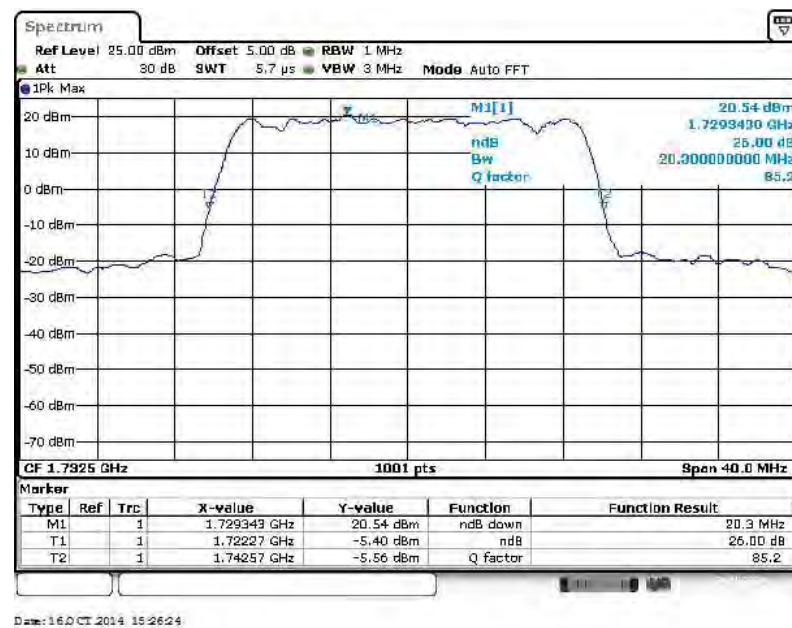




99% Occupied Bandwidth Plot on Channel 20175

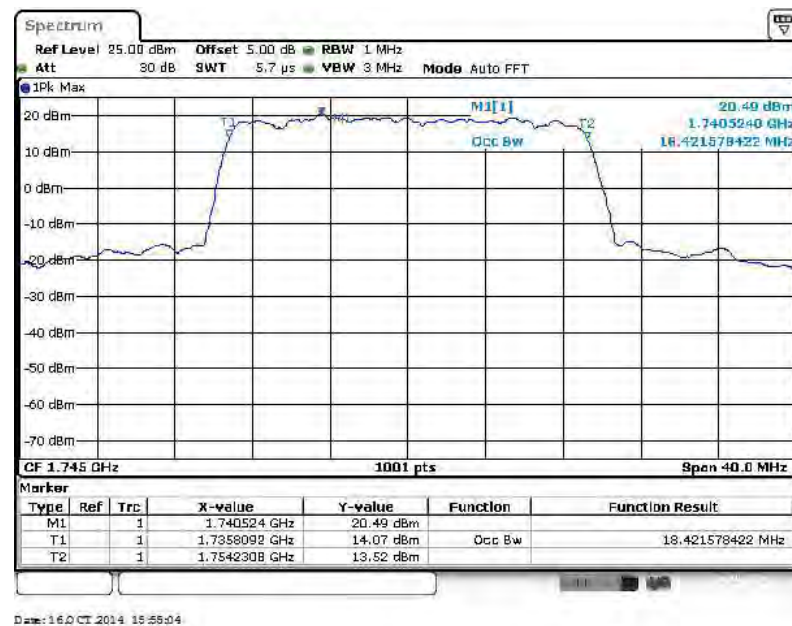


26dB Bandwidth Plot on Channel 20175

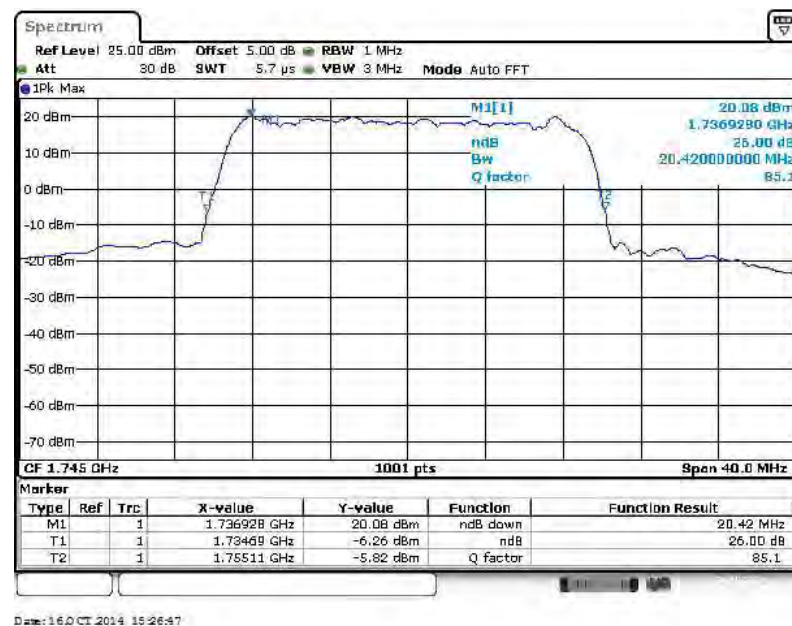




99% Occupied Bandwidth Plot on Channel 20300



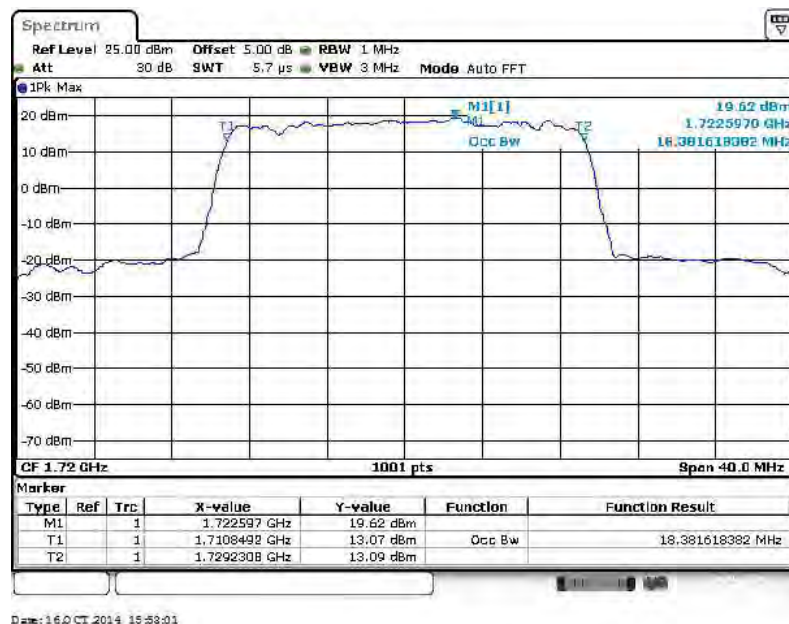
26dB Bandwidth Plot on Channel 20300



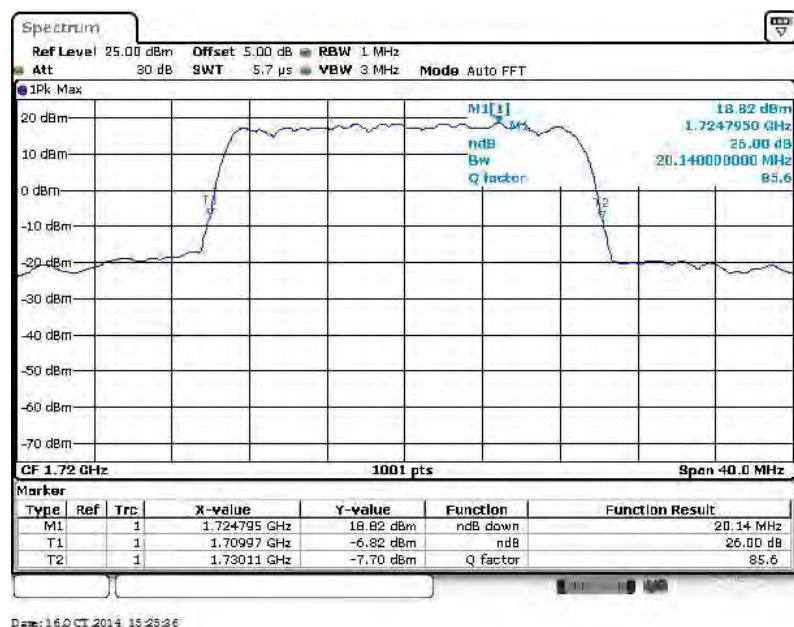


Band :	LTE Band 4	BW / Mod. :	20MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 20050

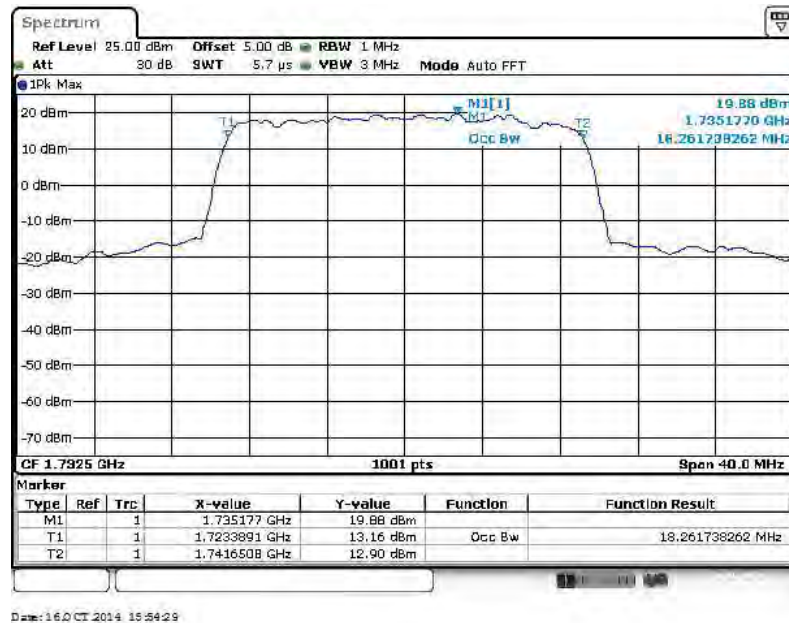


26dB Bandwidth Plot on Channel 20050

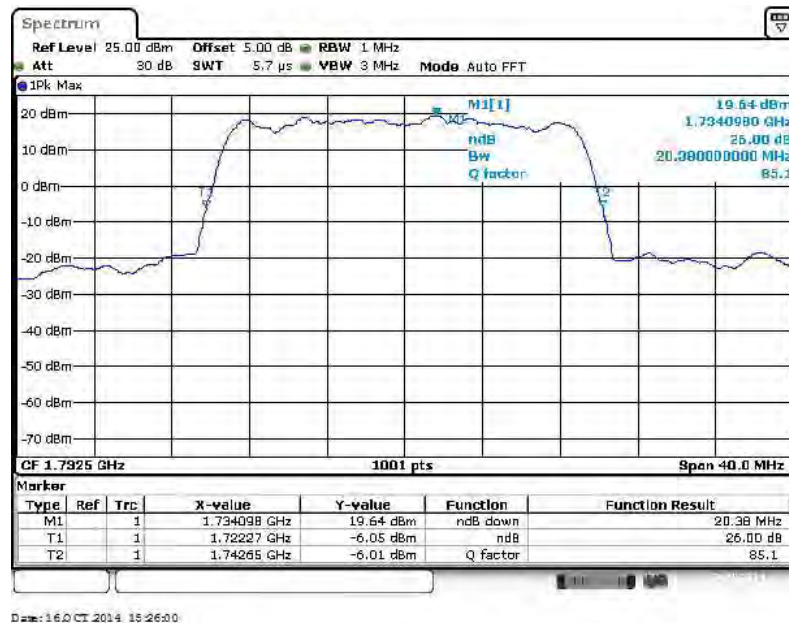




99% Occupied Bandwidth Plot on Channel 20175

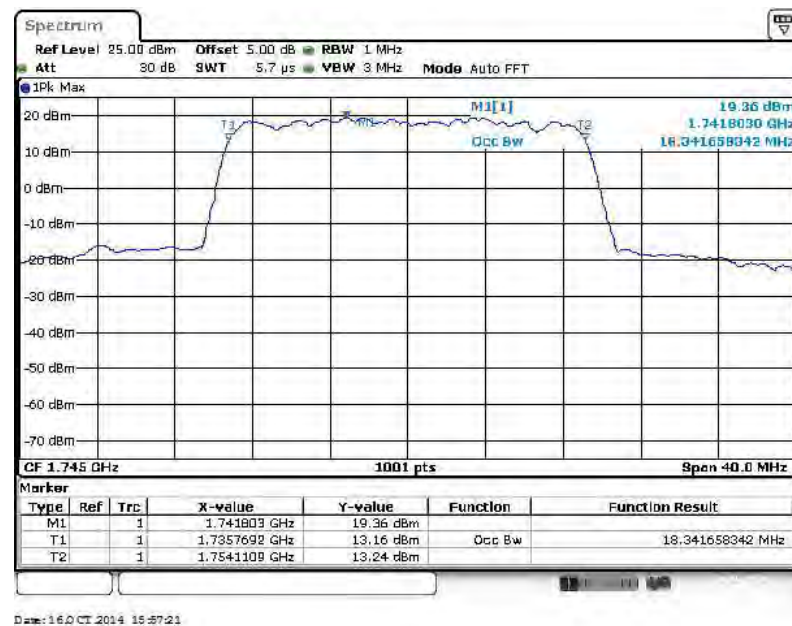


26dB Bandwidth Plot on Channel 20175

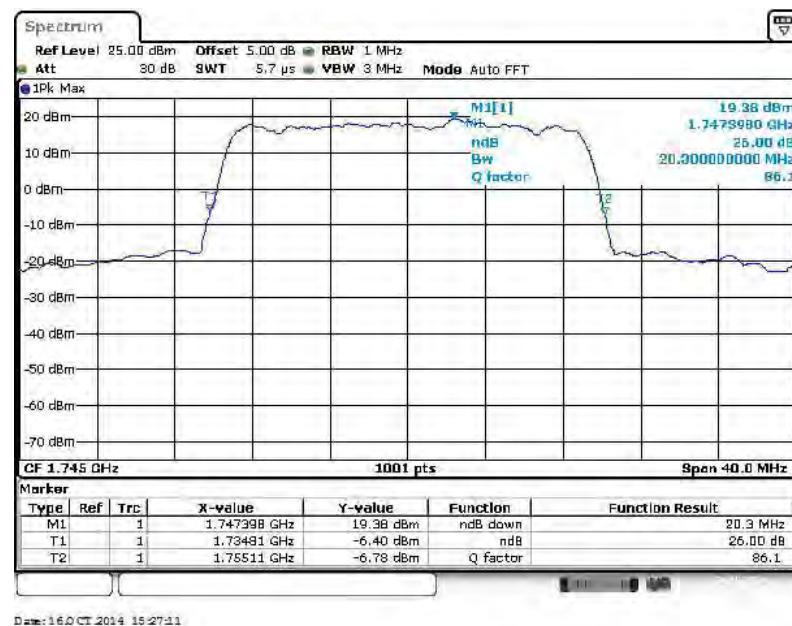




99% Occupied Bandwidth Plot on Channel 20300



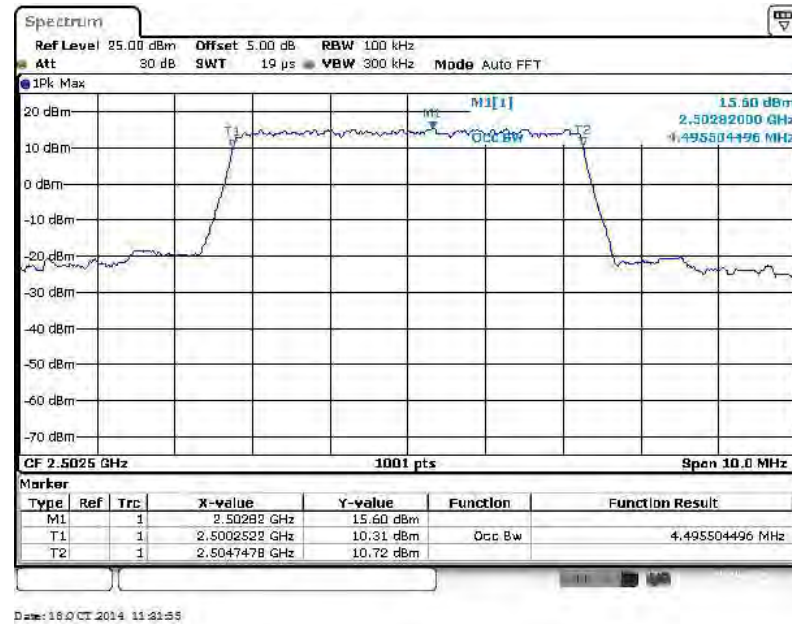
26dB Bandwidth Plot on Channel 20300



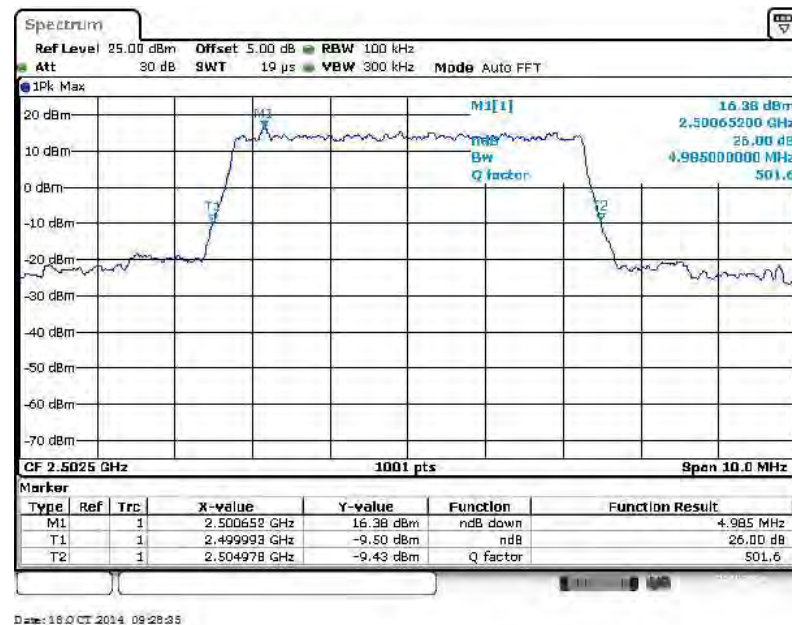


Band :	LTE Band 7	BW / Mod. :	5MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 20775

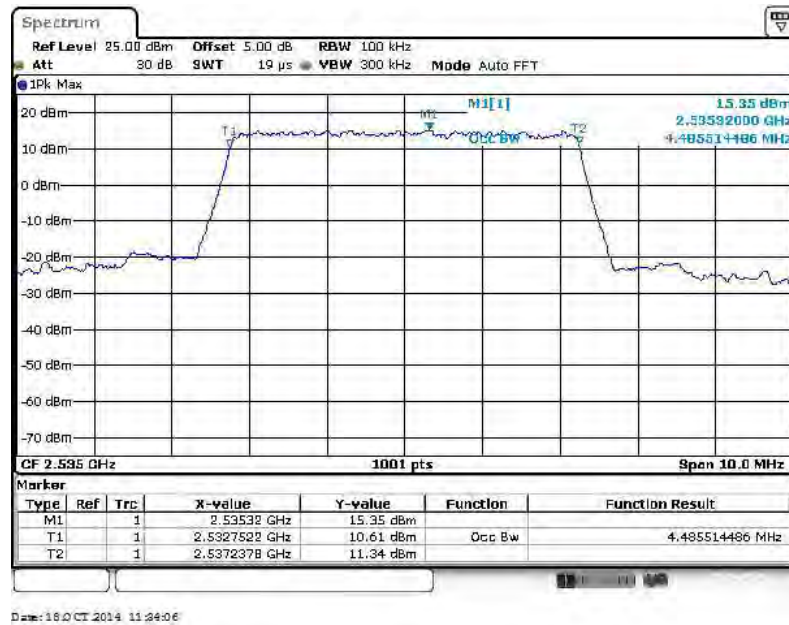


26dB Bandwidth Plot on Channel 20775

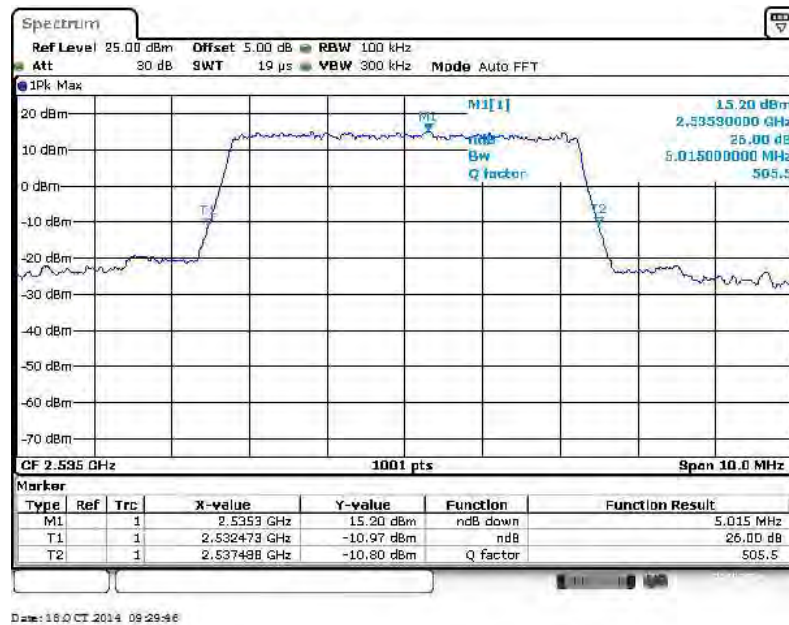




99% Occupied Bandwidth Plot on Channel 21100

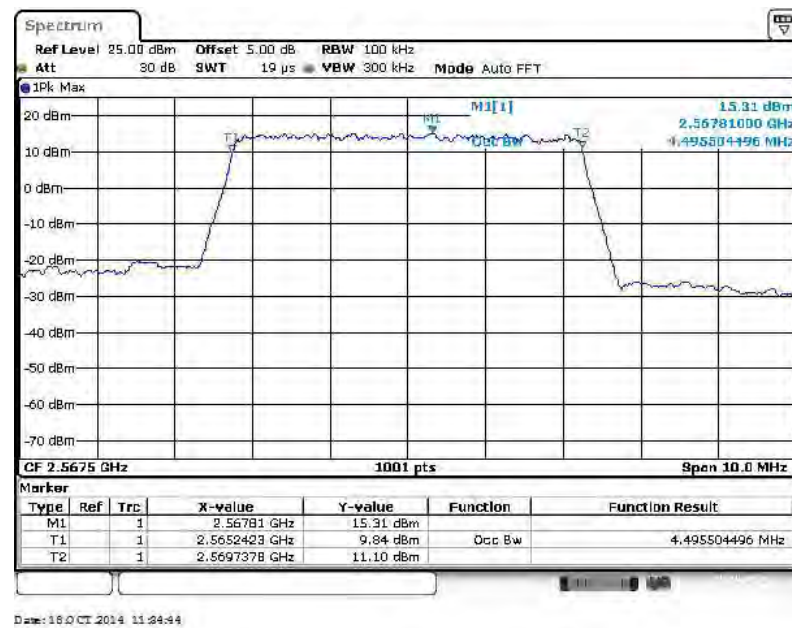


26dB Bandwidth Plot on Channel 21100

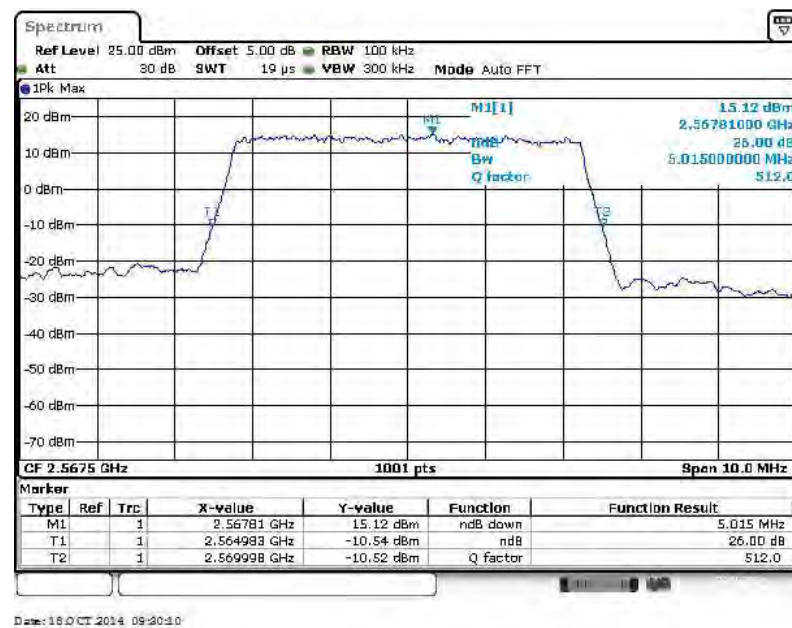




99% Occupied Bandwidth Plot on Channel 21425



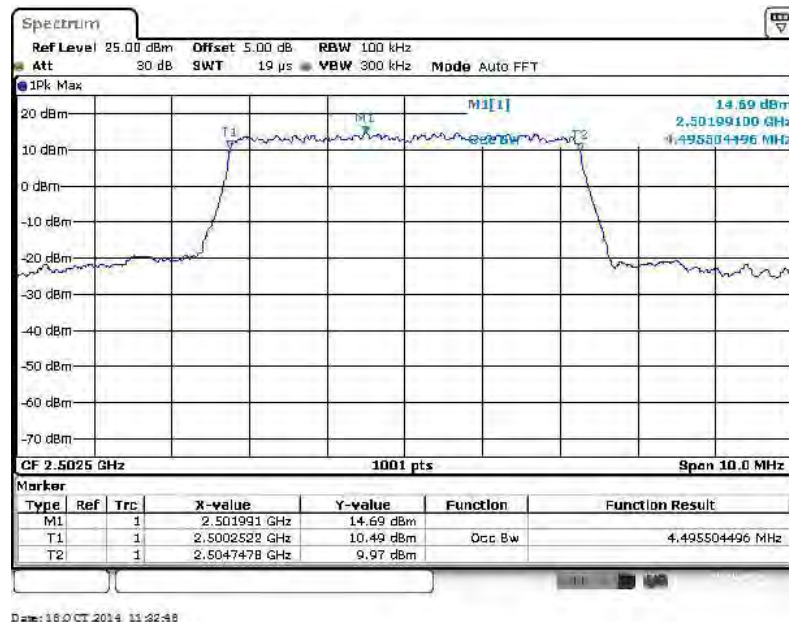
26dB Bandwidth Plot on Channel 21425



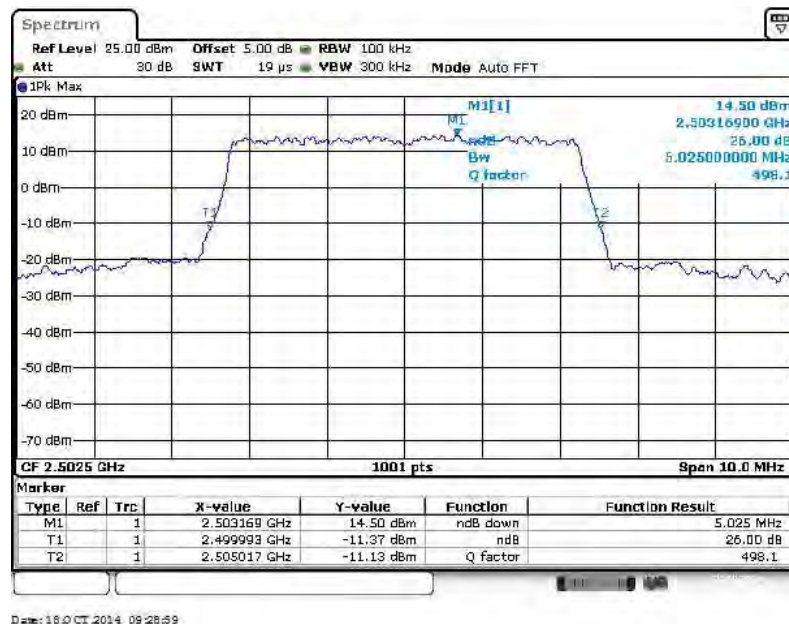


Band :	LTE Band 7	BW / Mod. :	5MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 20775

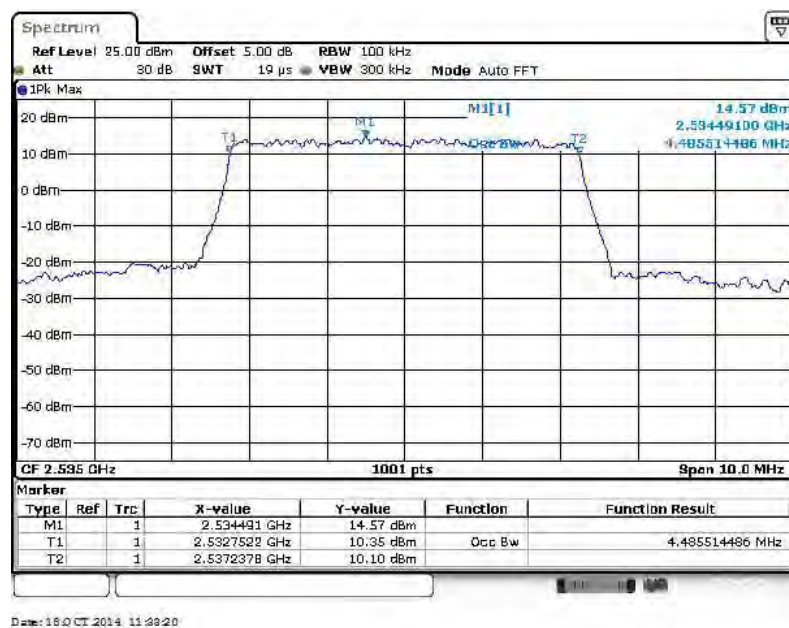


26dB Bandwidth Plot on Channel 20775

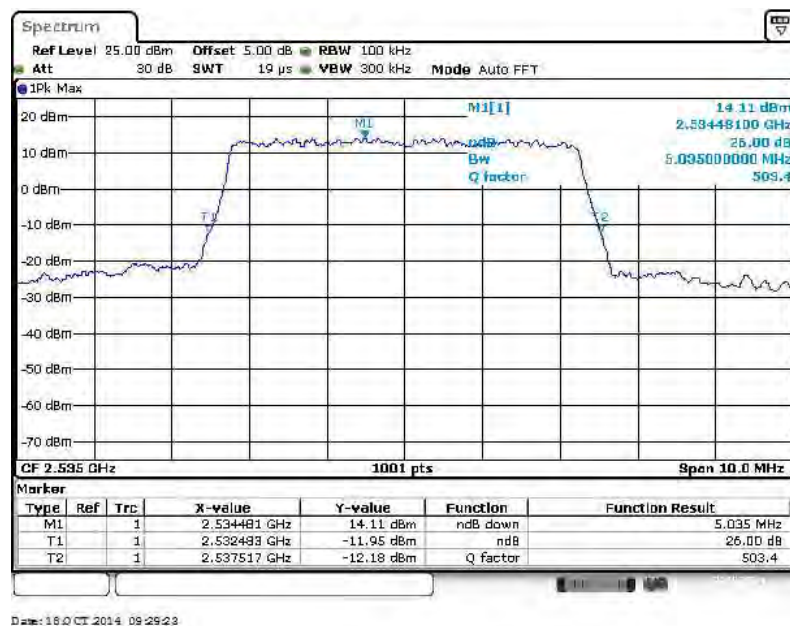




99% Occupied Bandwidth Plot on Channel 21100

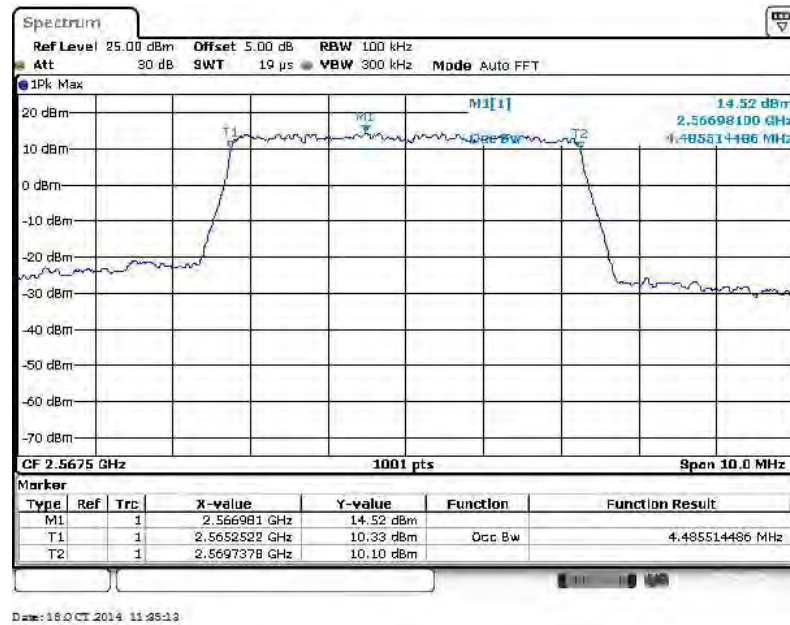


26dB Bandwidth Plot on Channel 21100

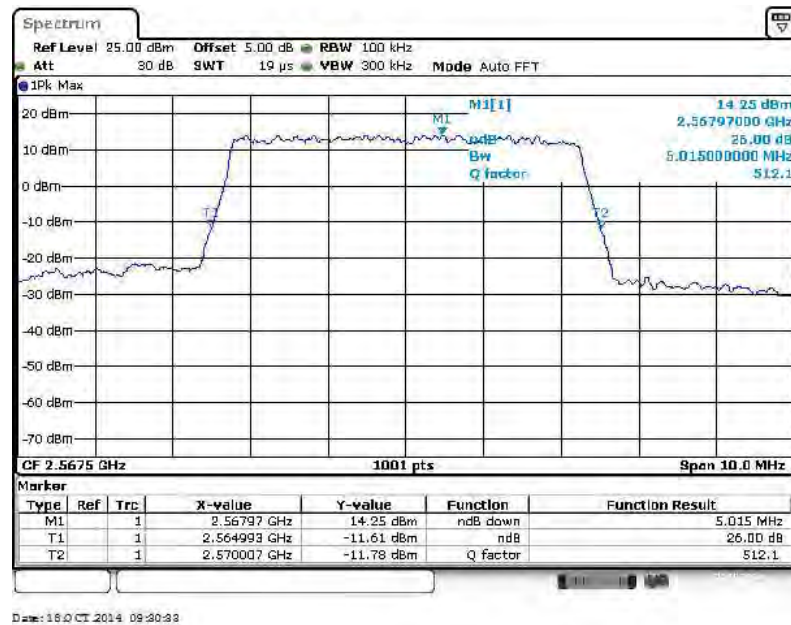




99% Occupied Bandwidth Plot on Channel 21425



26dB Bandwidth Plot on Channel 21425

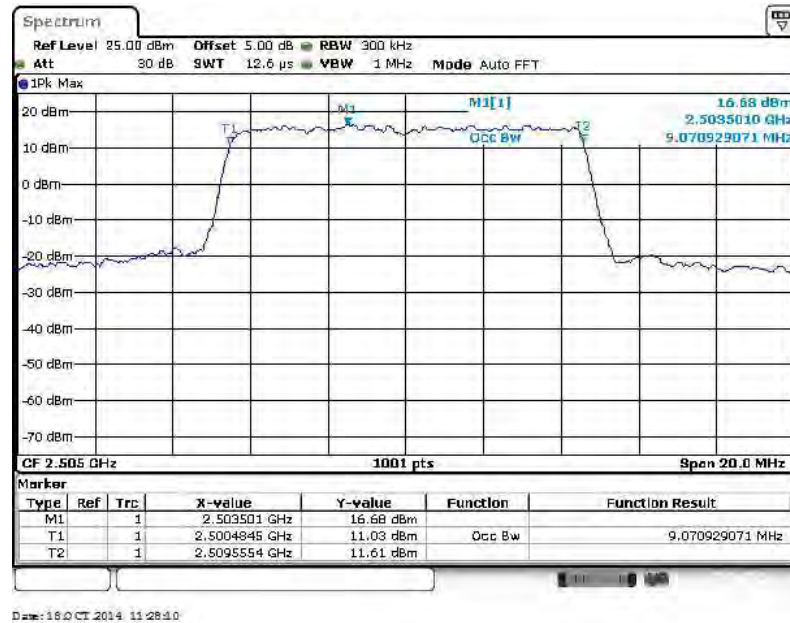




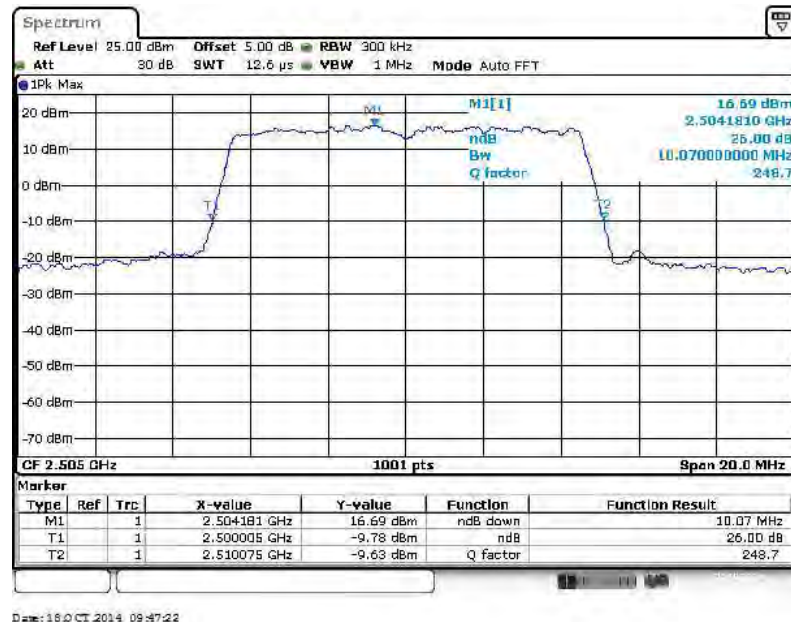
Band : LTE Band 7

BW / Mod. : 10MHz / QPSK

99% Occupied Bandwidth Plot on Channel 20800

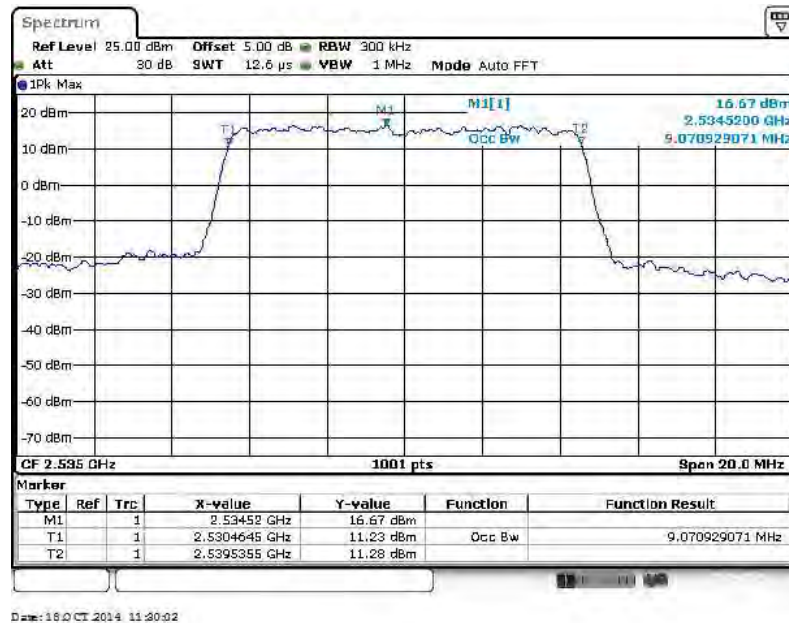


26dB Bandwidth Plot on Channel 20800

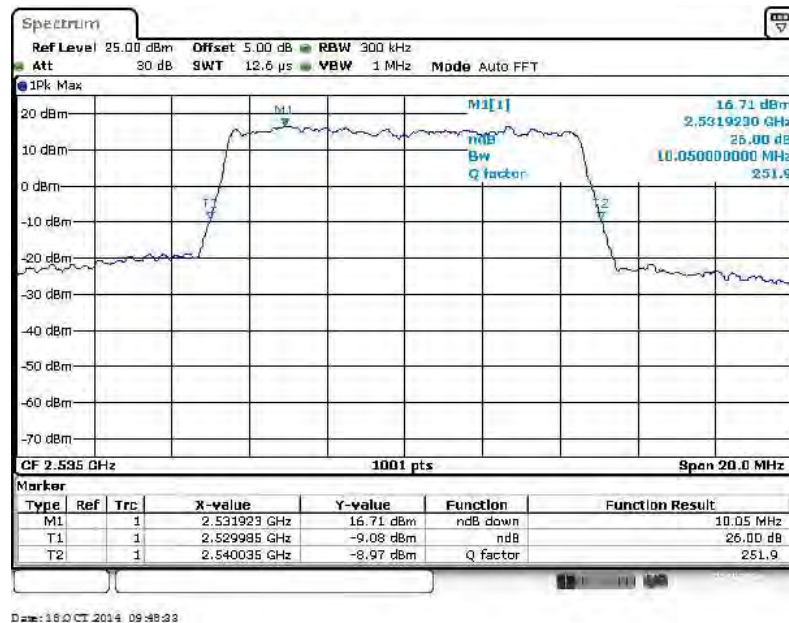




99% Occupied Bandwidth Plot on Channel 21100

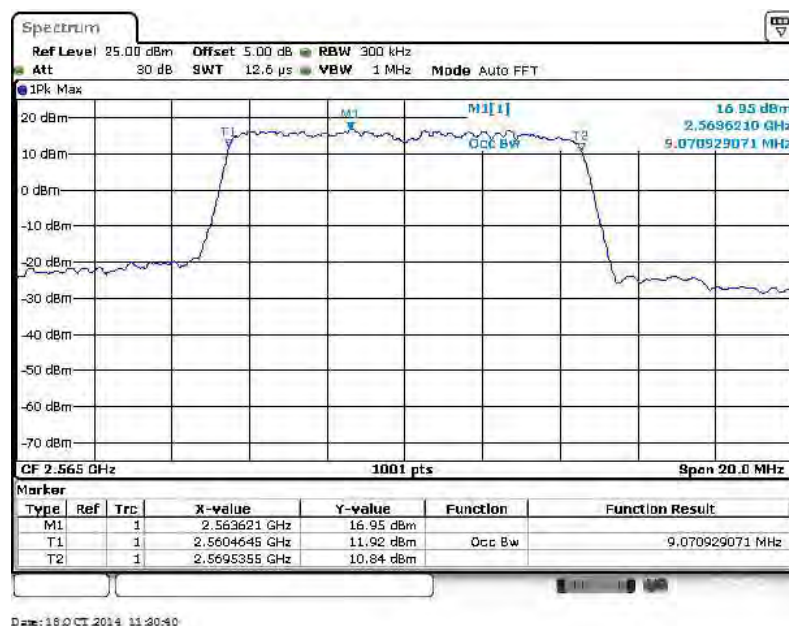


26dB Bandwidth Plot on Channel 21100

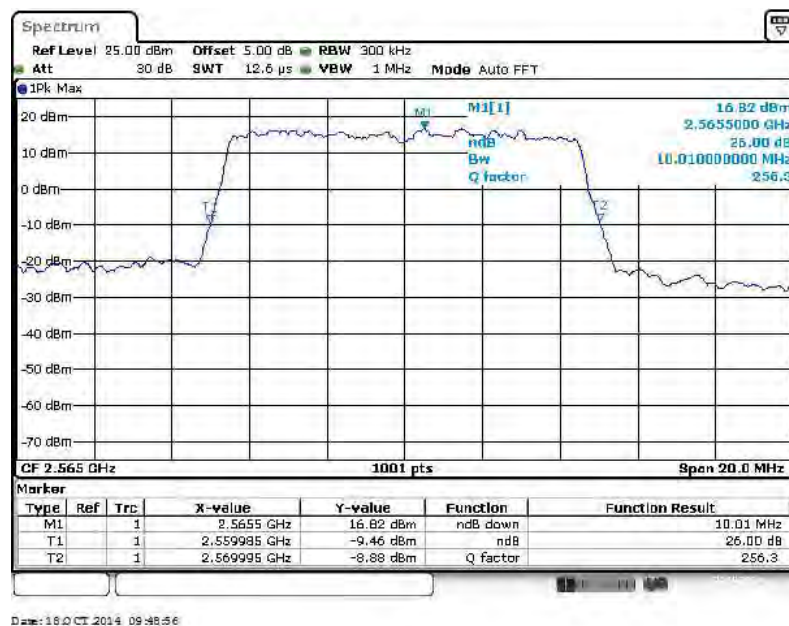




99% Occupied Bandwidth Plot on Channel 21400



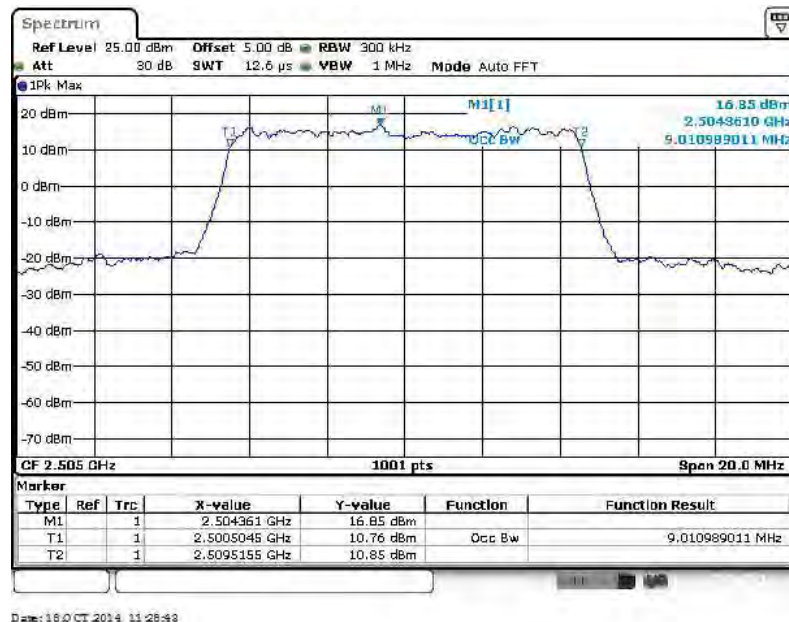
26dB Bandwidth Plot on Channel 21400



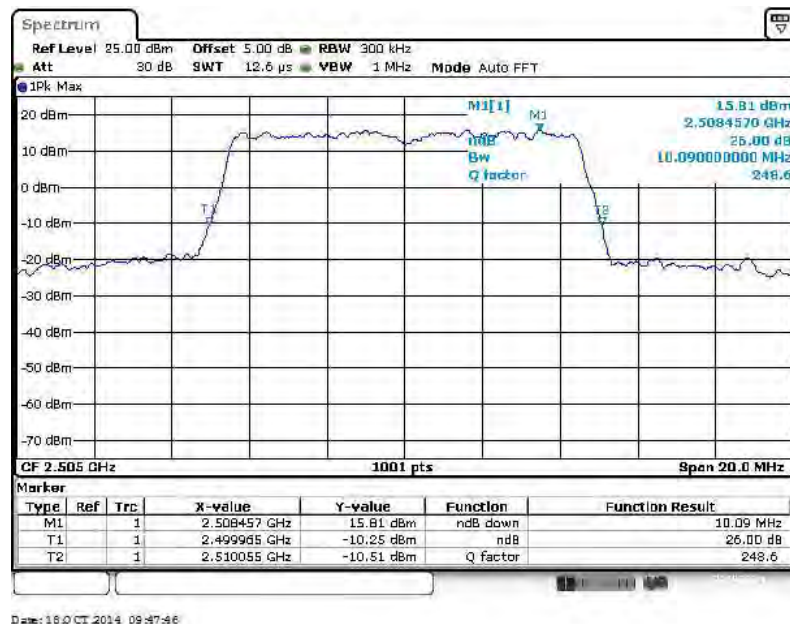


Band :	LTE Band 7	BW / Mod. :	10MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 20800

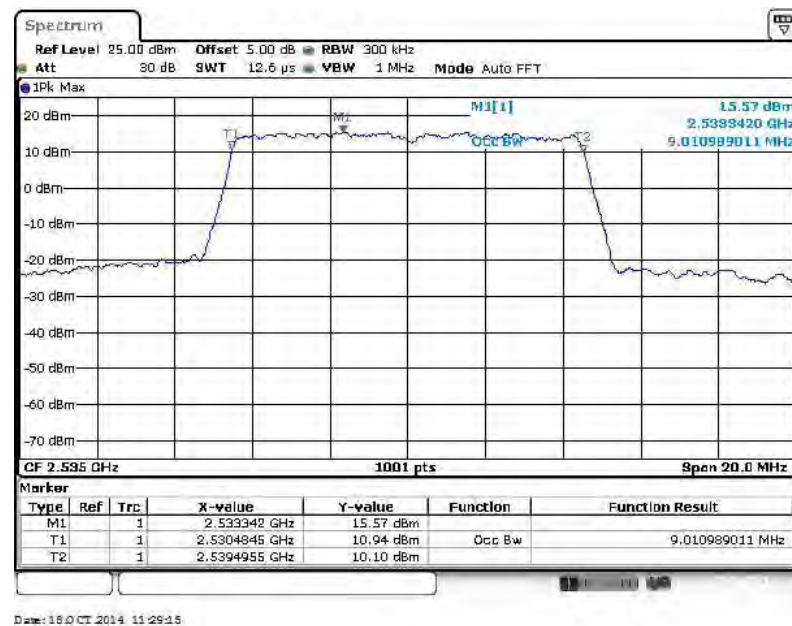


26dB Bandwidth Plot on Channel 20800

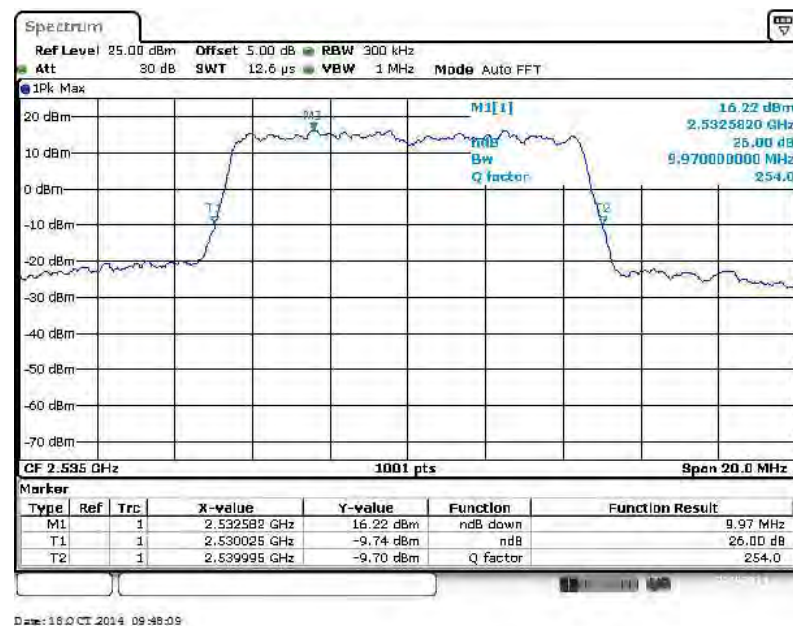




99% Occupied Bandwidth Plot on Channel 21100

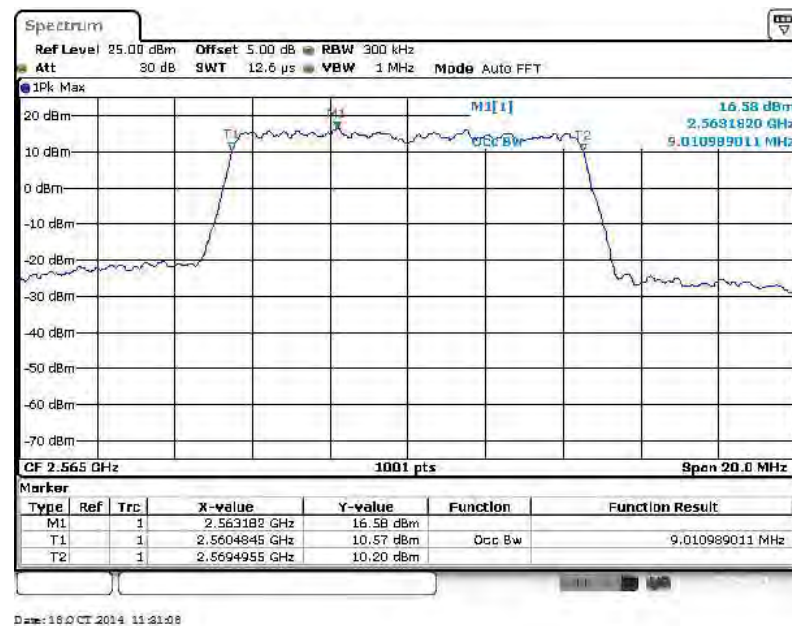


26dB Bandwidth Plot on Channel 21100

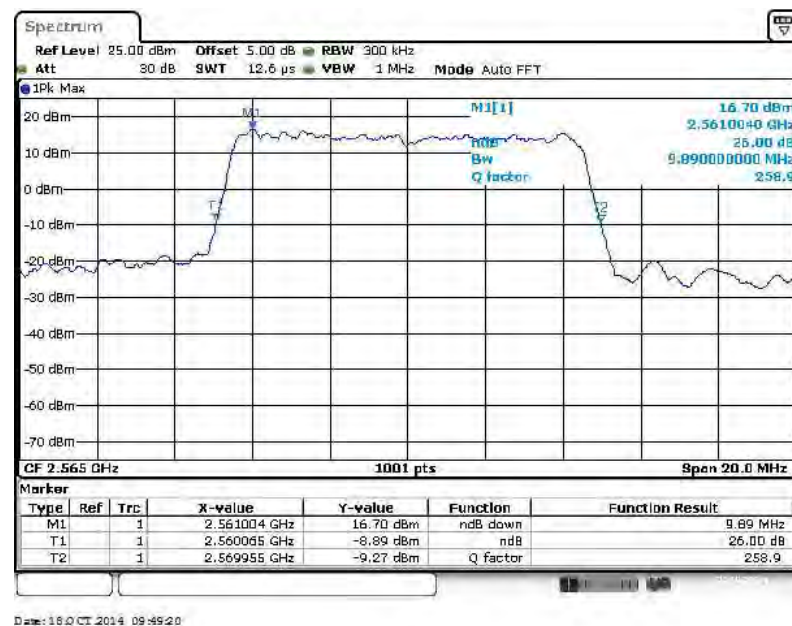




99% Occupied Bandwidth Plot on Channel 21400



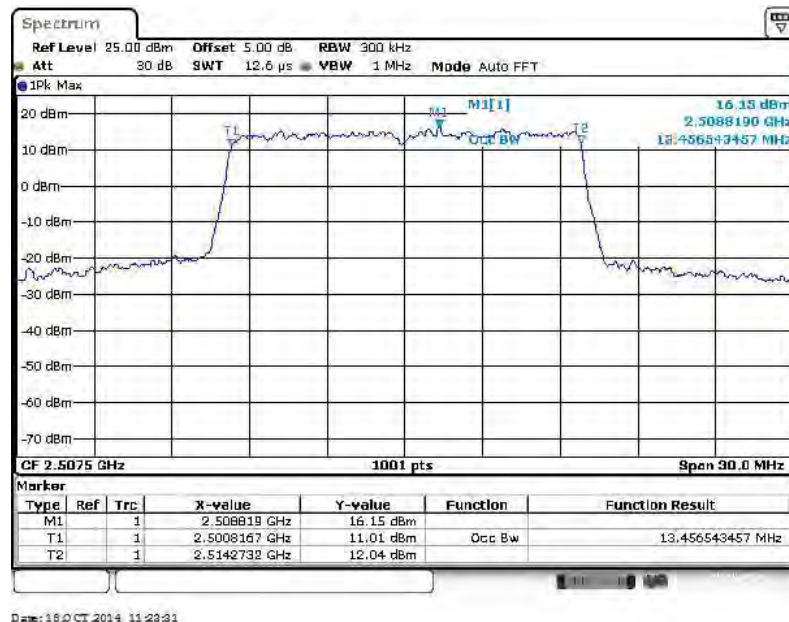
26dB Bandwidth Plot on Channel 21400



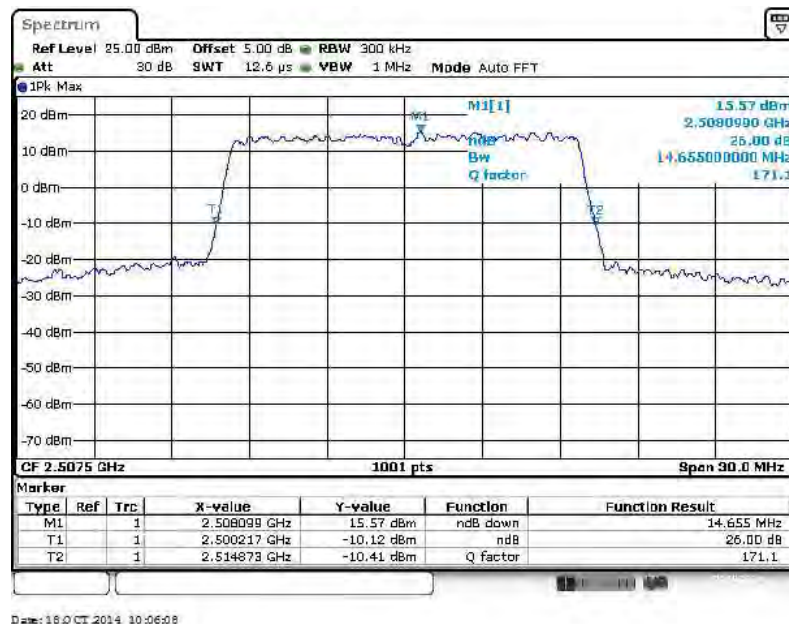


Band :	LTE Band 7	BW / Mod. :	15MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 20825

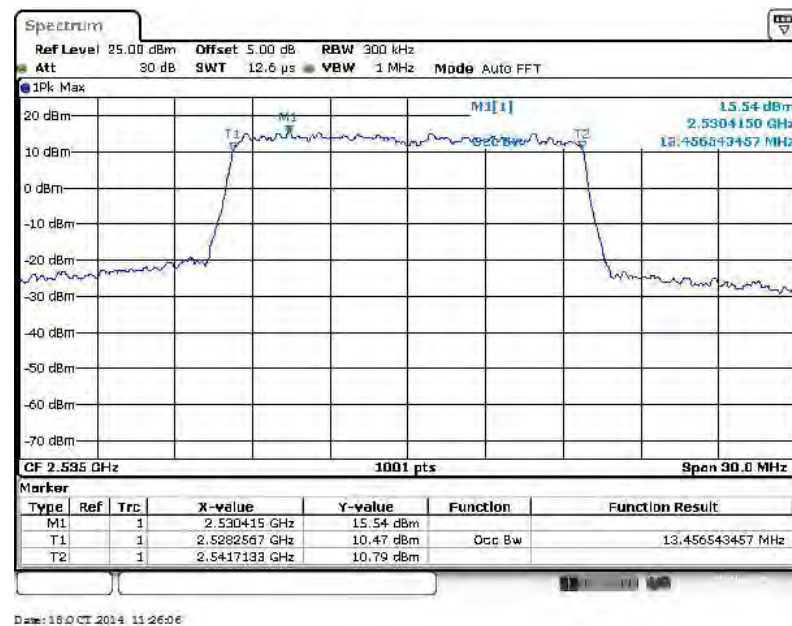


26dB Bandwidth Plot on Channel 20825

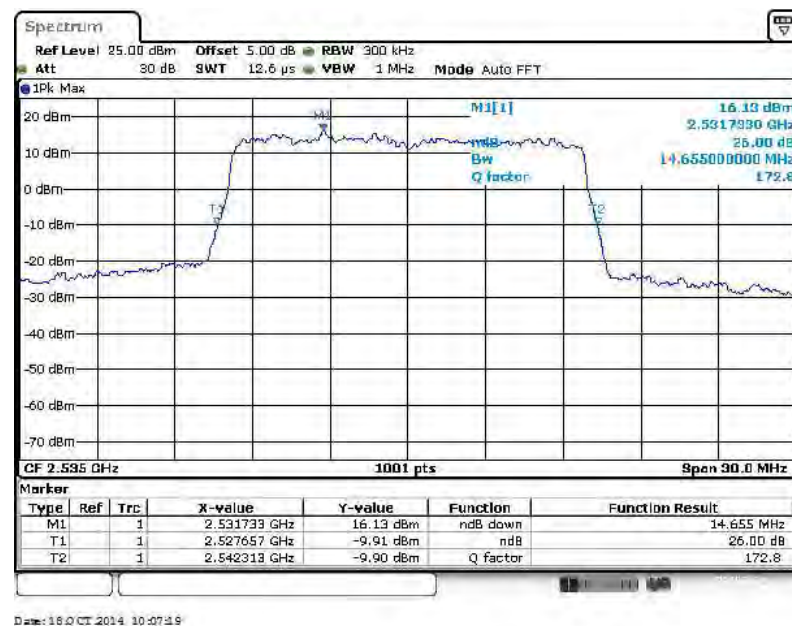




99% Occupied Bandwidth Plot on Channel 21100

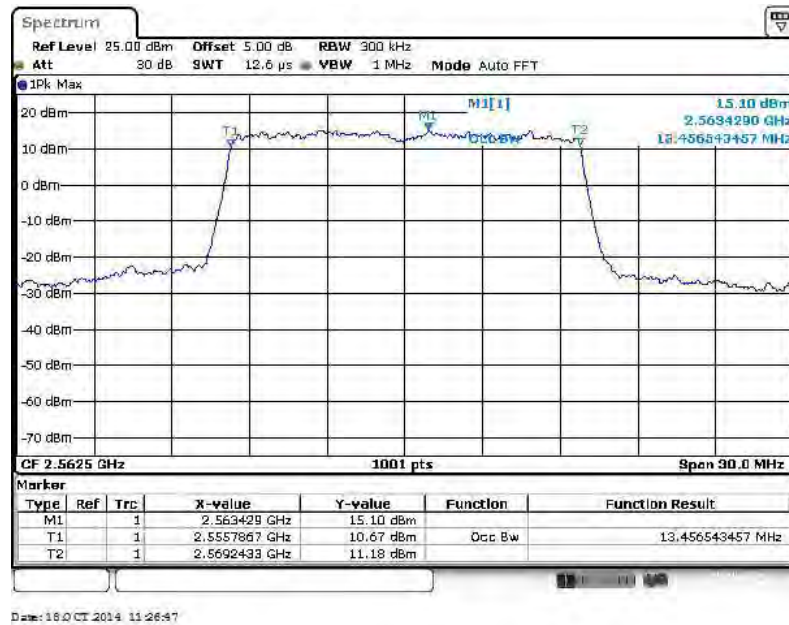


26dB Bandwidth Plot on Channel 21100

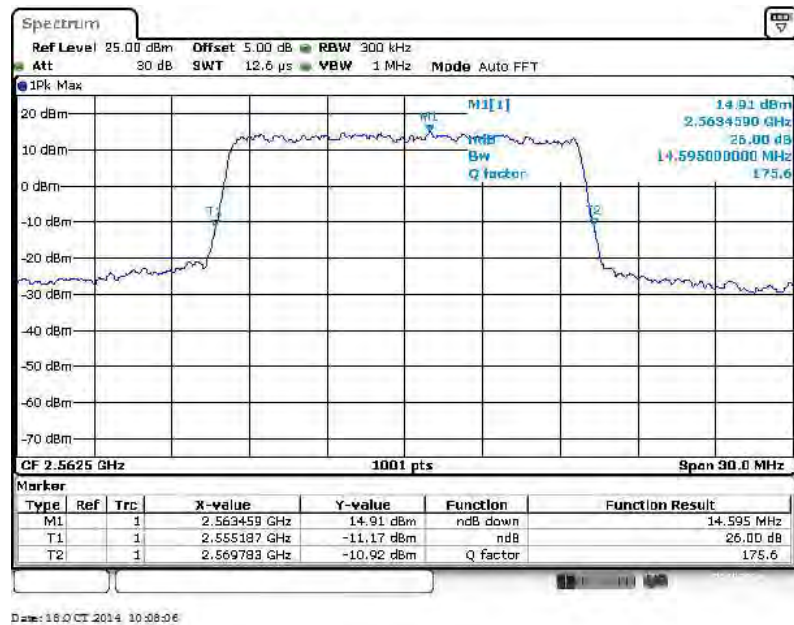




99% Occupied Bandwidth Plot on Channel 21375



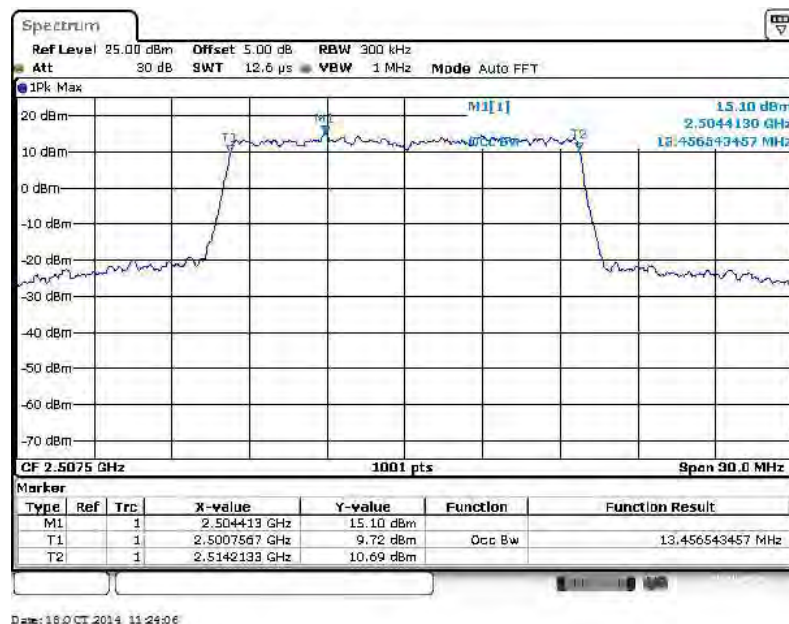
26dB Bandwidth Plot on Channel 21375



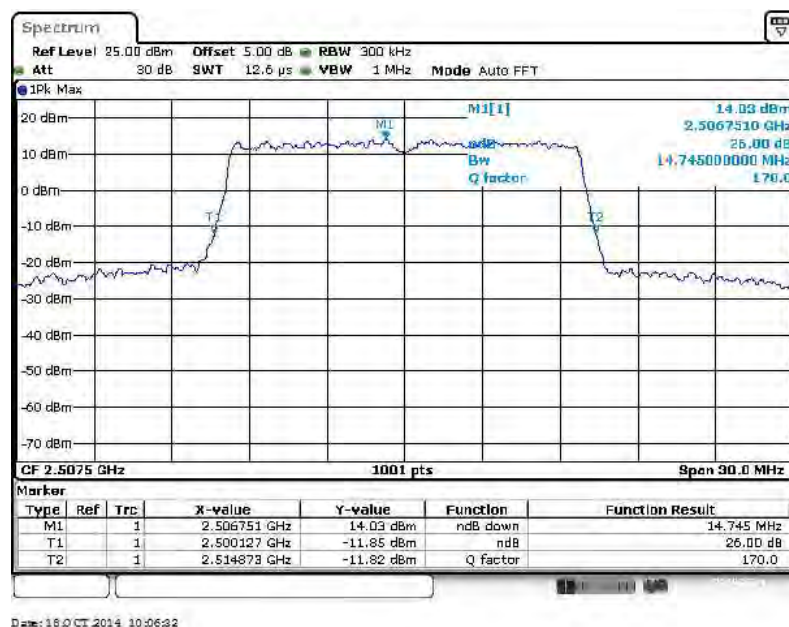


Band :	LTE Band 7	BW / Mod. :	15MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 20825

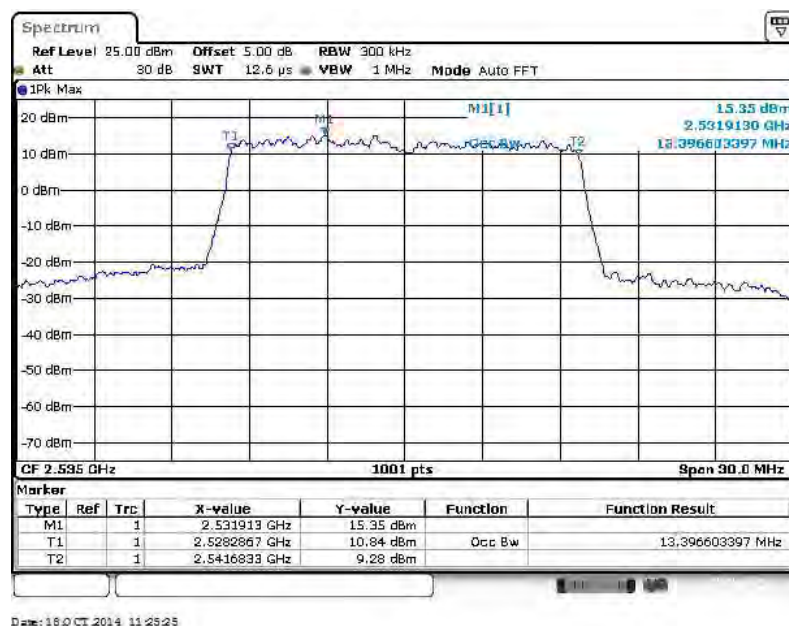


26dB Bandwidth Plot on Channel 20825

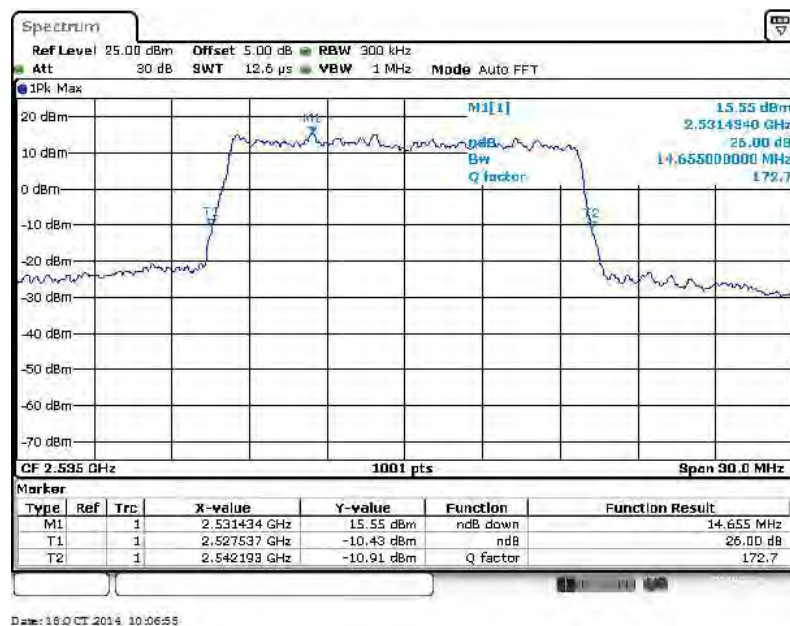




99% Occupied Bandwidth Plot on Channel 21100

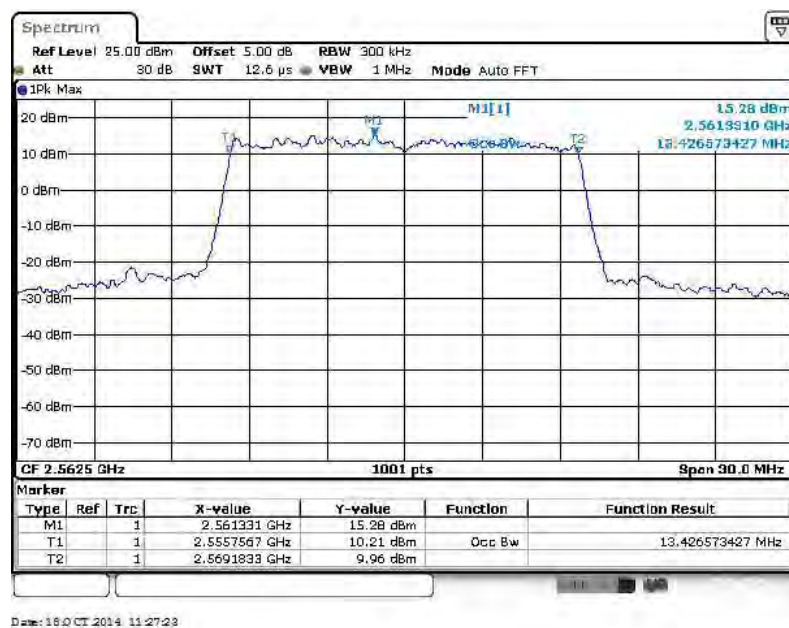


26dB Bandwidth Plot on Channel 21100

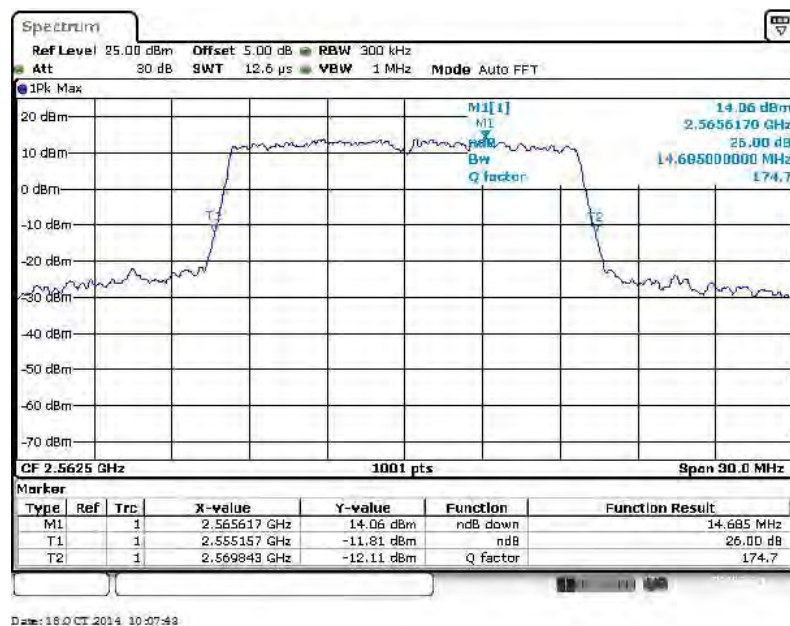




99% Occupied Bandwidth Plot on Channel 21375



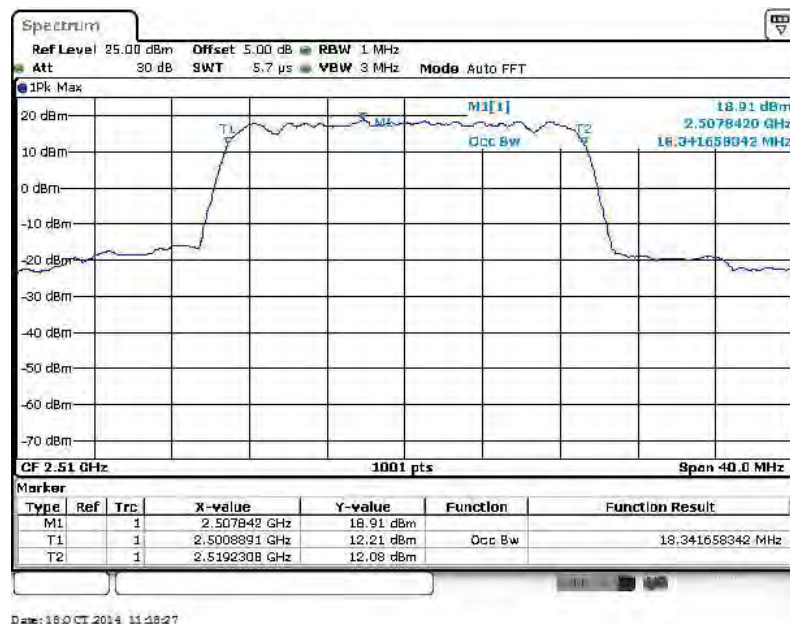
26dB Bandwidth Plot on Channel 21375



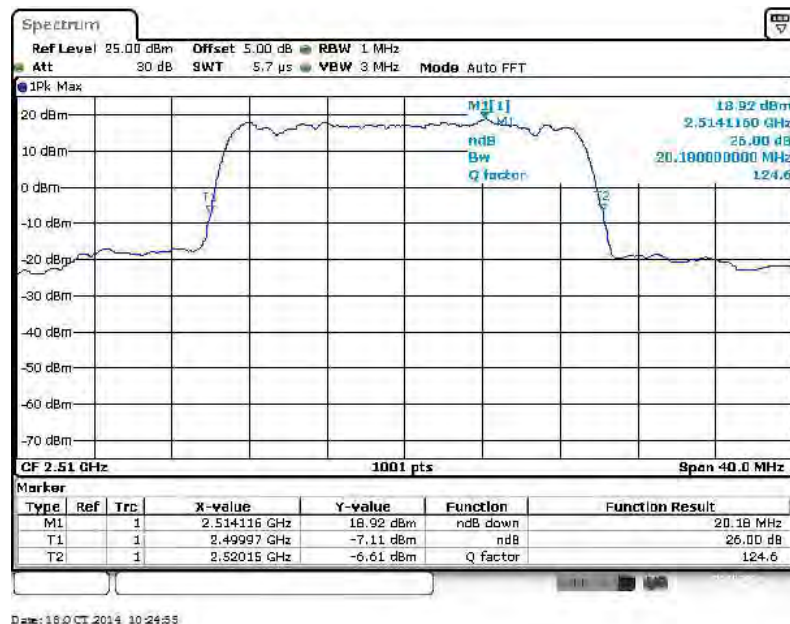


Band :	LTE Band 7	BW / Mod. :	20MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 20850

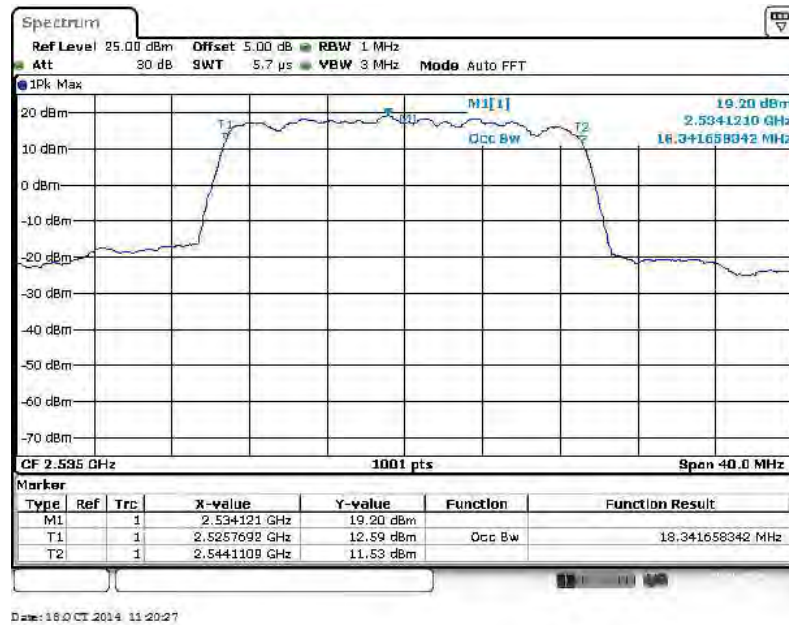


26dB Bandwidth Plot on Channel 20850

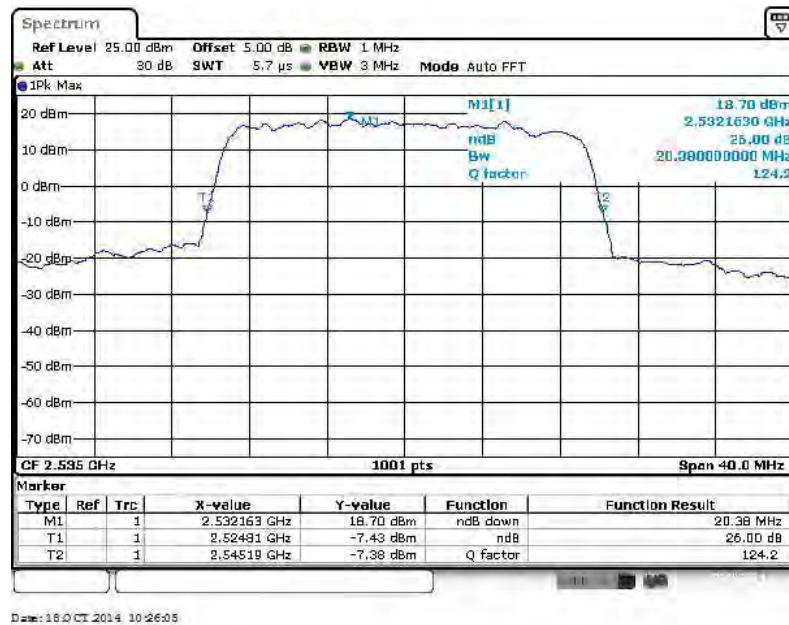




99% Occupied Bandwidth Plot on Channel 21100

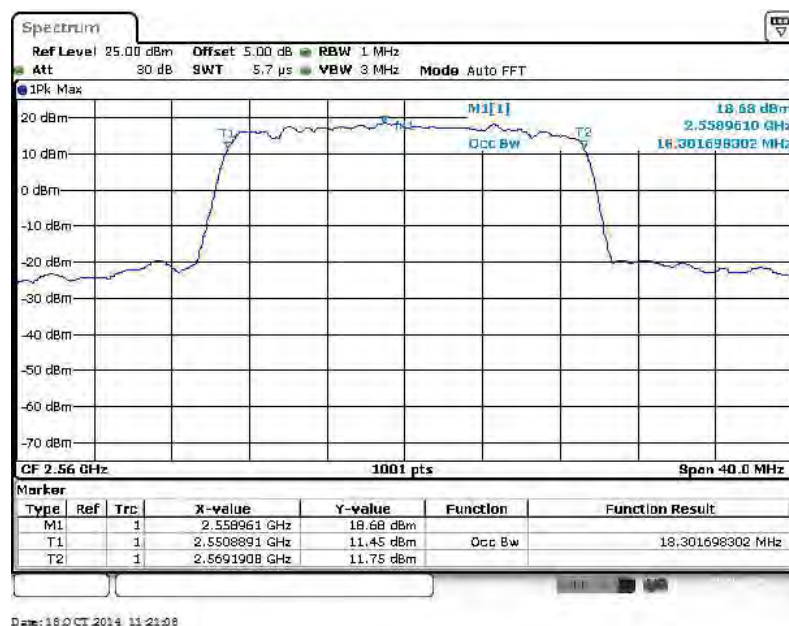


26dB Bandwidth Plot on Channel 21100

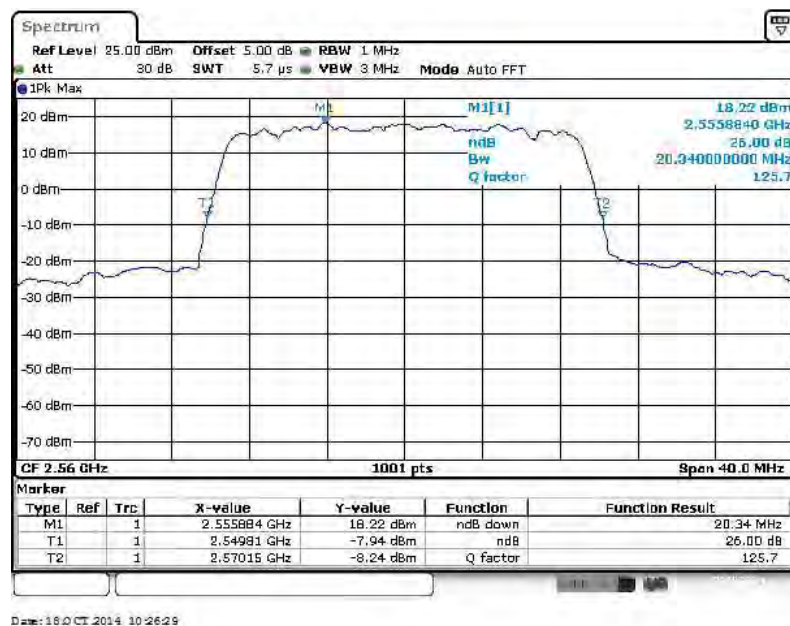




99% Occupied Bandwidth Plot on Channel 21350



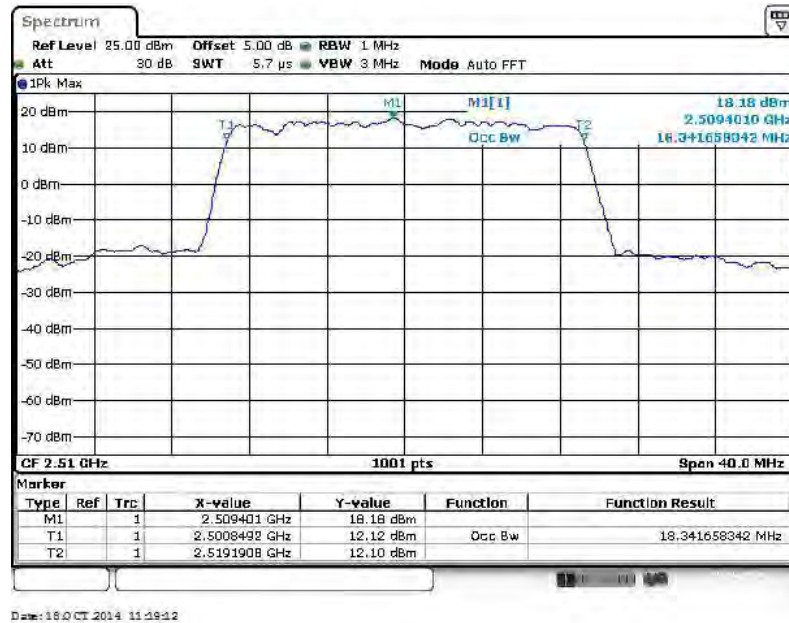
26dB Bandwidth Plot on Channel 21350



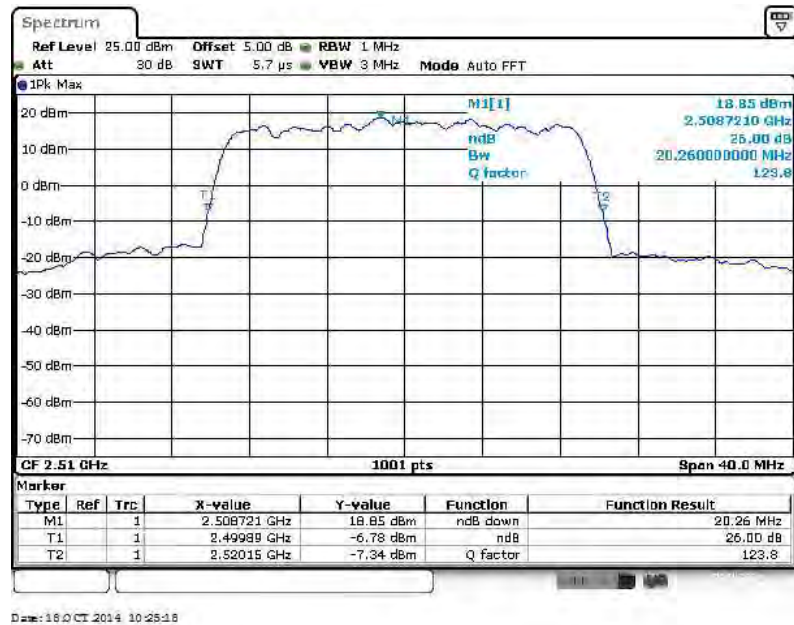


Band :	LTE Band 7	BW / Mod. :	20MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 20850

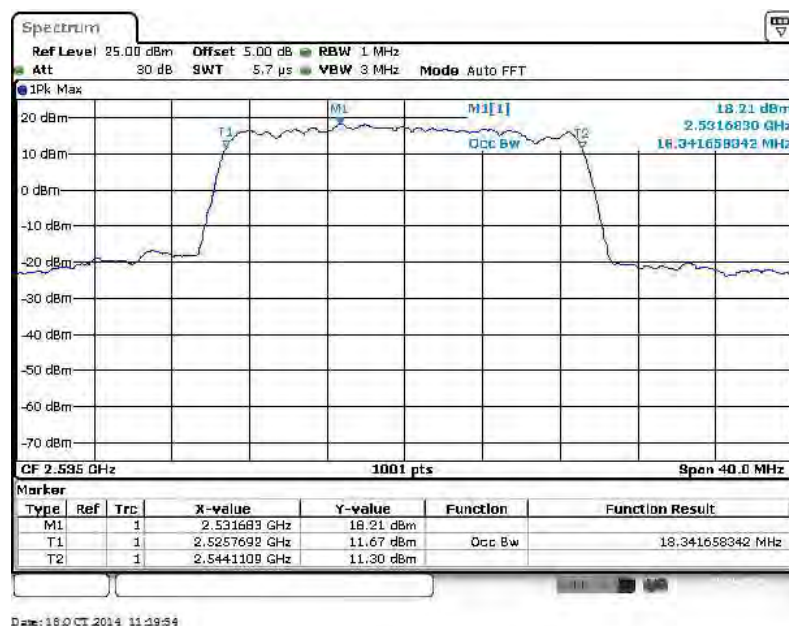


26dB Bandwidth Plot on Channel 20850

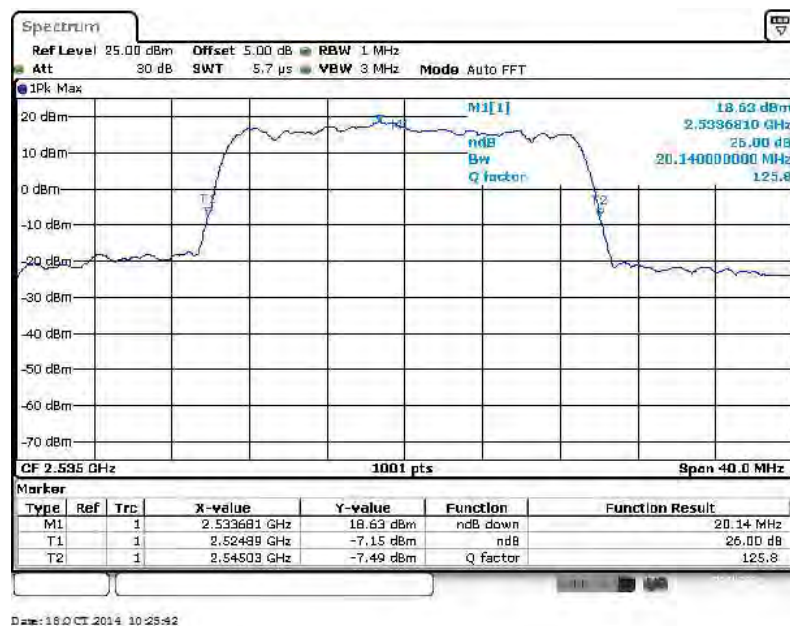




99% Occupied Bandwidth Plot on Channel 21100

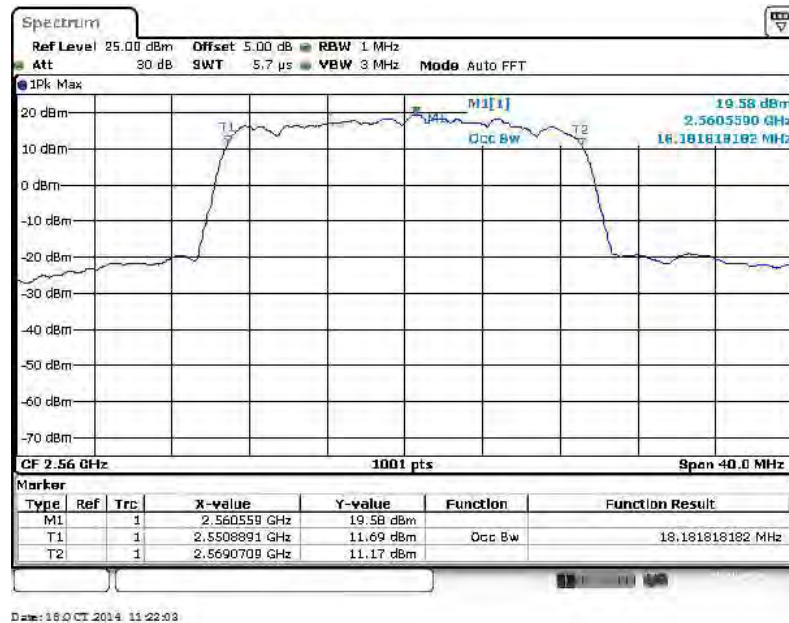


26dB Bandwidth Plot on Channel 21100

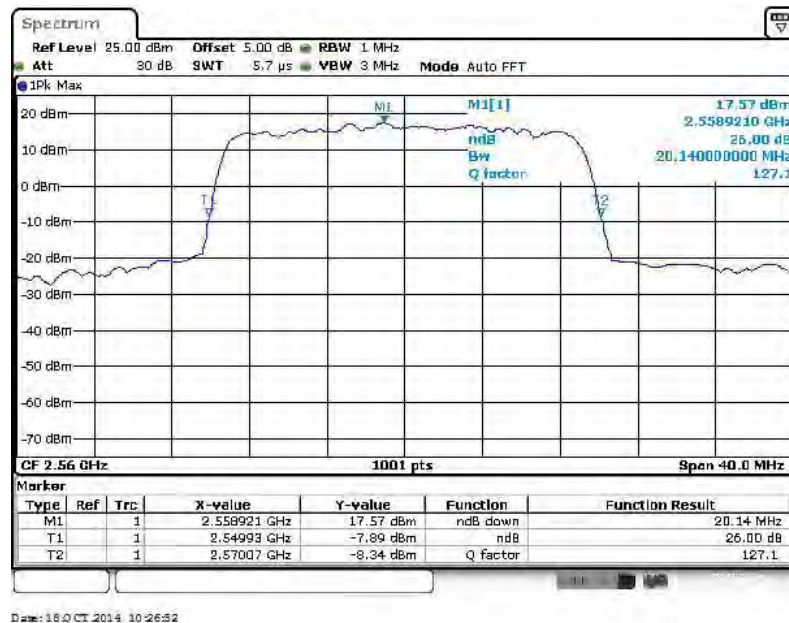




99% Occupied Bandwidth Plot on Channel 21350



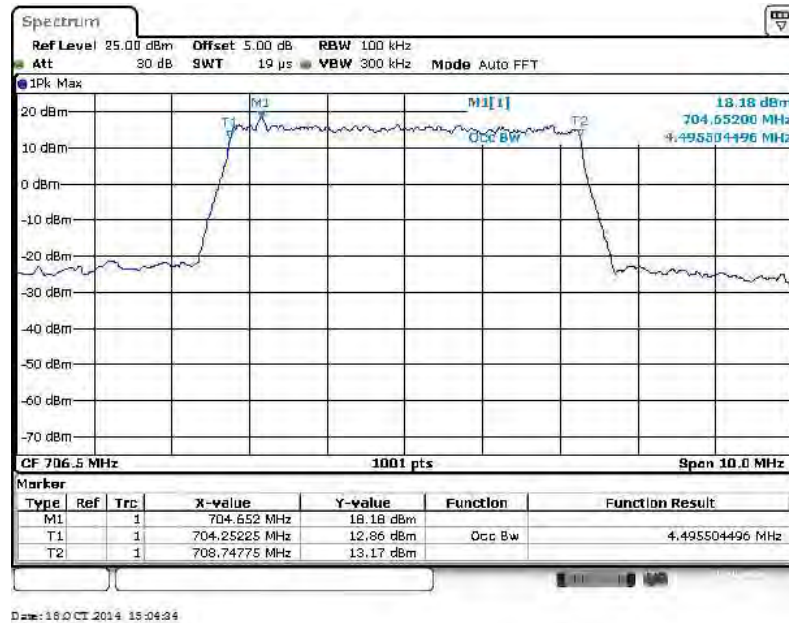
26dB Bandwidth Plot on Channel 21350



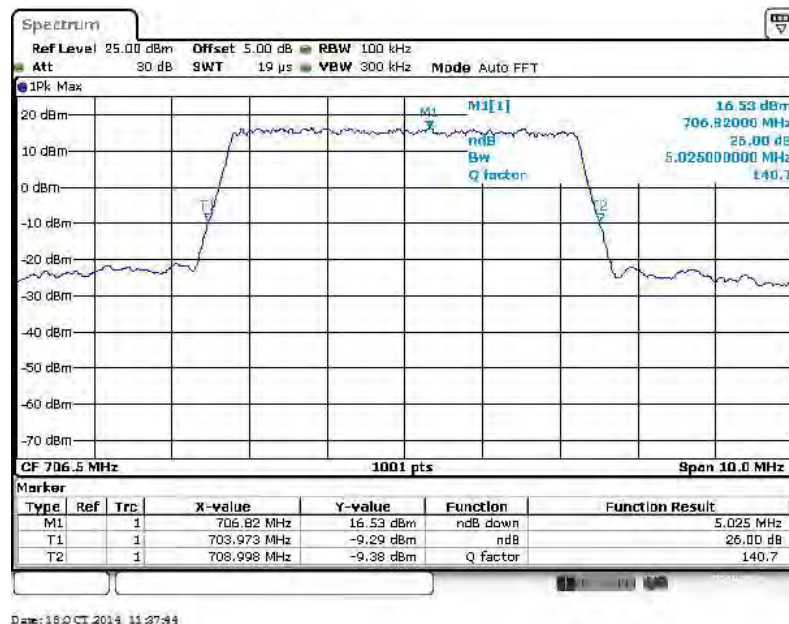


Band :	LTE Band 17	BW / Mod. :	5MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 23755

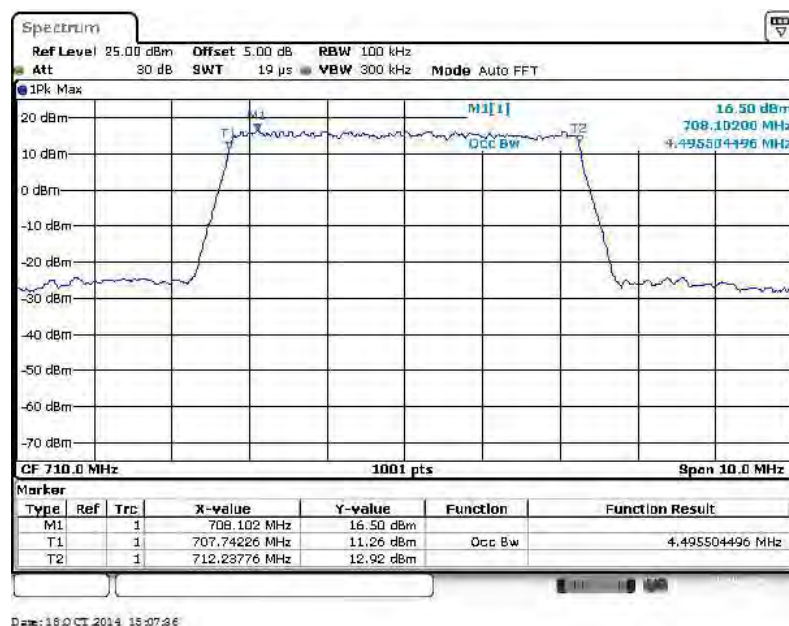


26dB Bandwidth Plot on Channel 23755

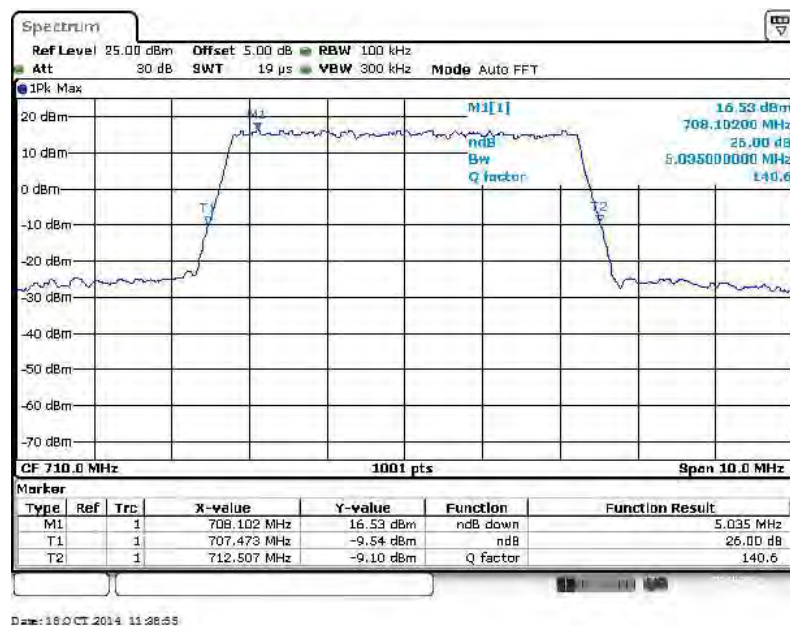




99% Occupied Bandwidth Plot on Channel 23790

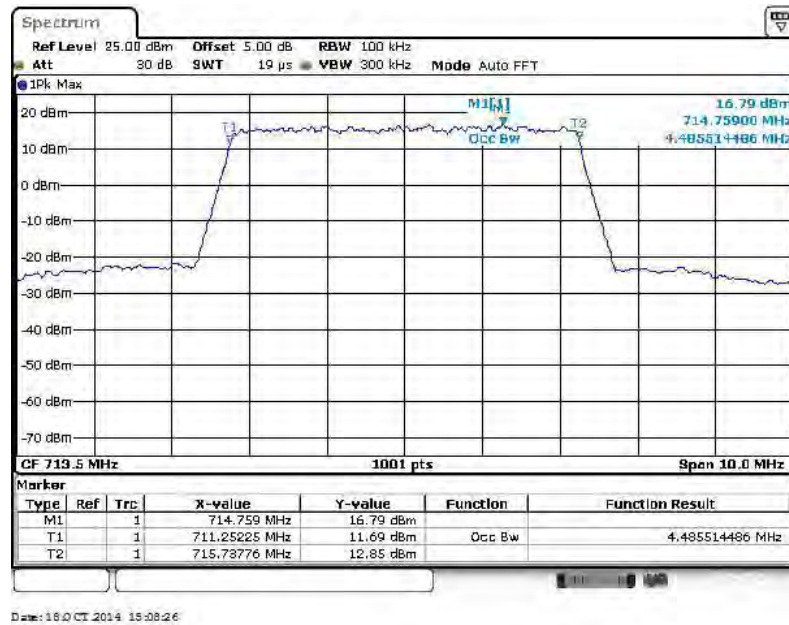


26dB Bandwidth Plot on Channel 23790

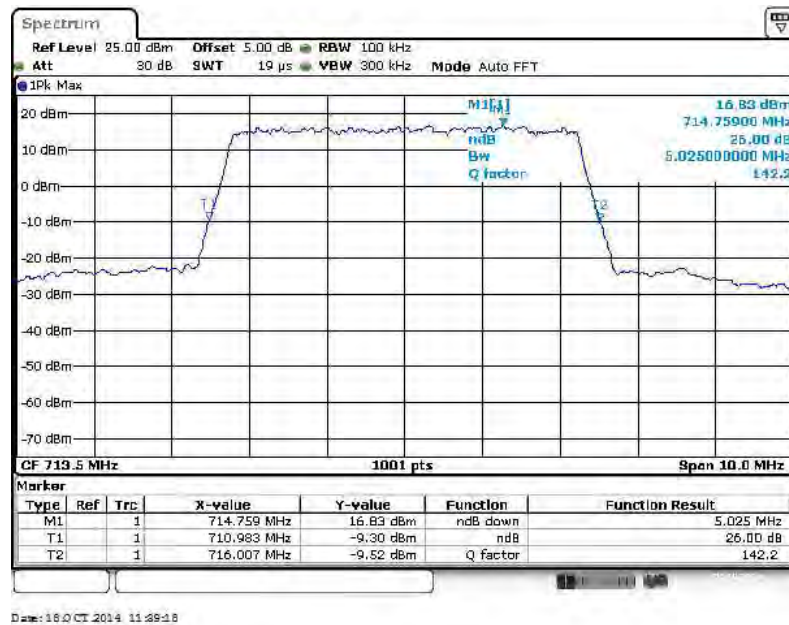




99% Occupied Bandwidth Plot on Channel 23825



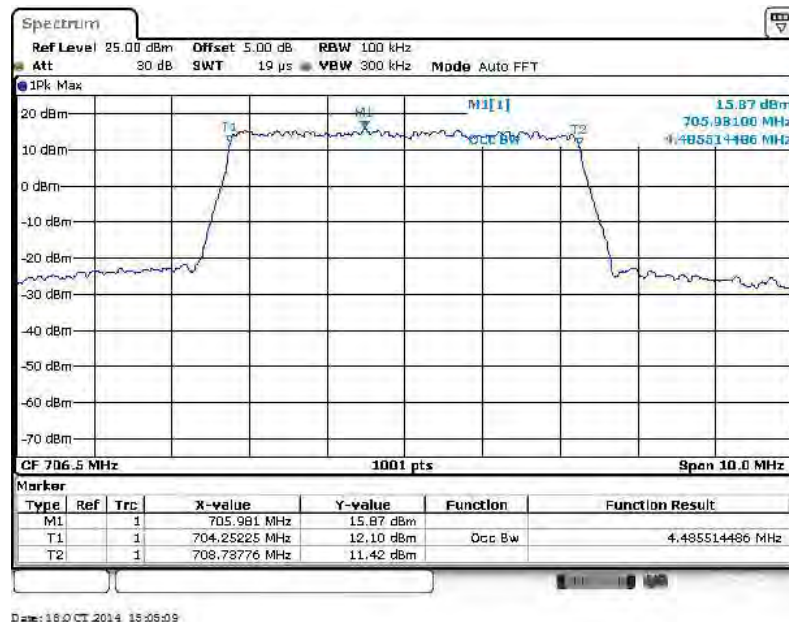
26dB Bandwidth Plot on Channel 23825



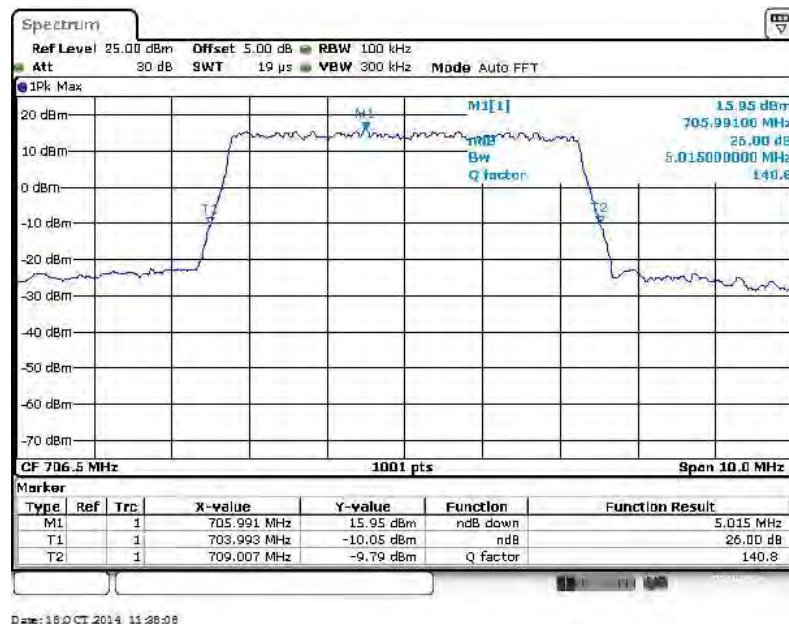


Band :	LTE Band 17	BW / Mod. :	5MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 23755

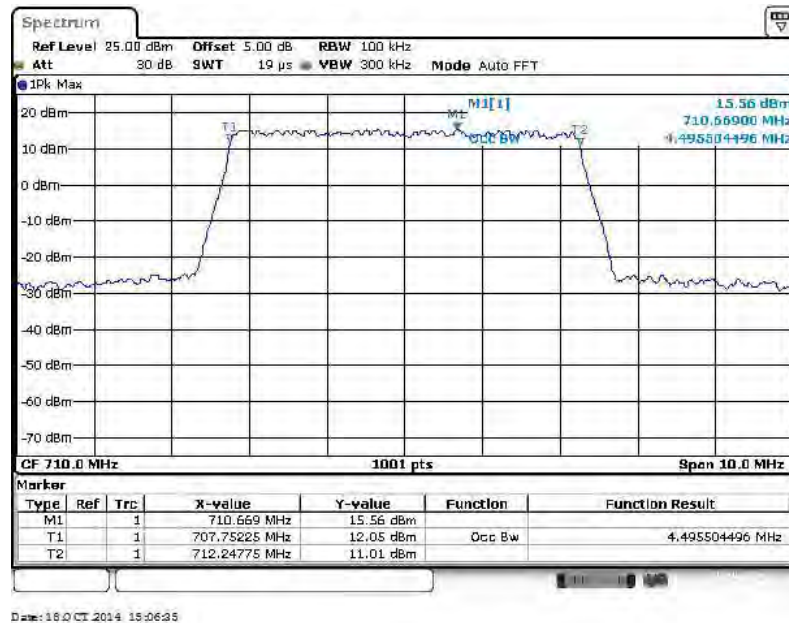


26dB Bandwidth Plot on Channel 23755

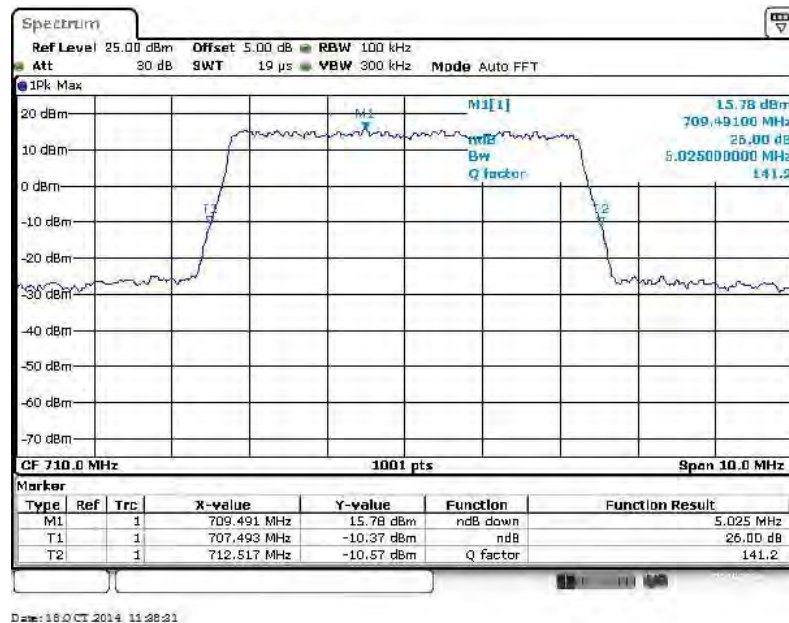




99% Occupied Bandwidth Plot on Channel 23790

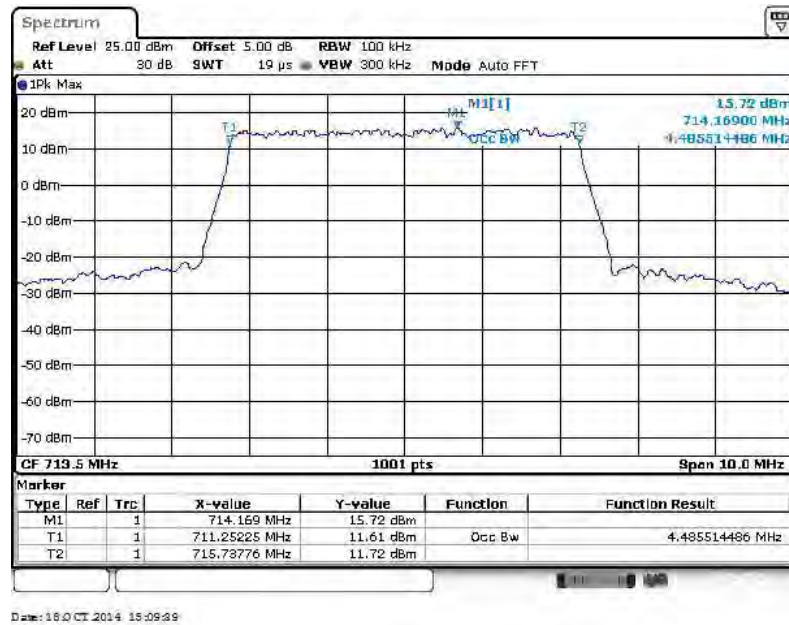


26dB Bandwidth Plot on Channel 23790

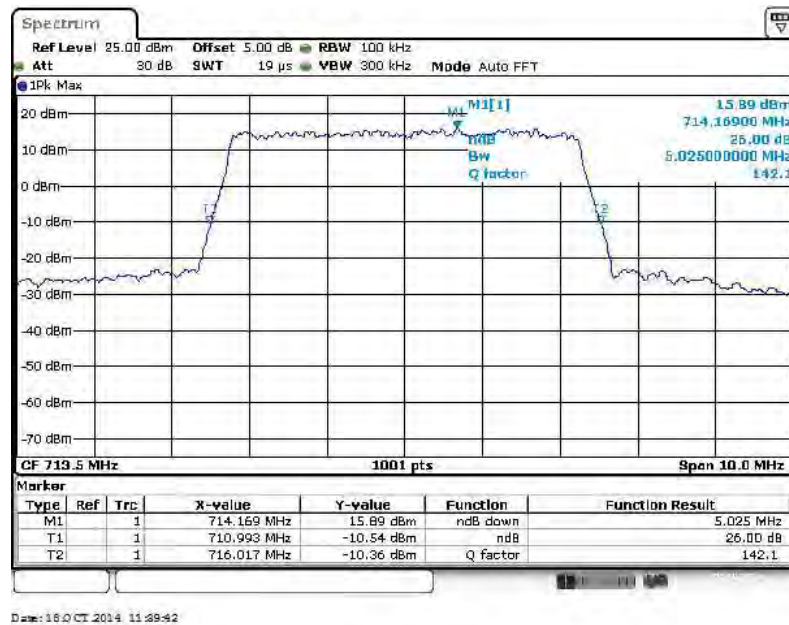




99% Occupied Bandwidth Plot on Channel 23825



26dB Bandwidth Plot on Channel 23825

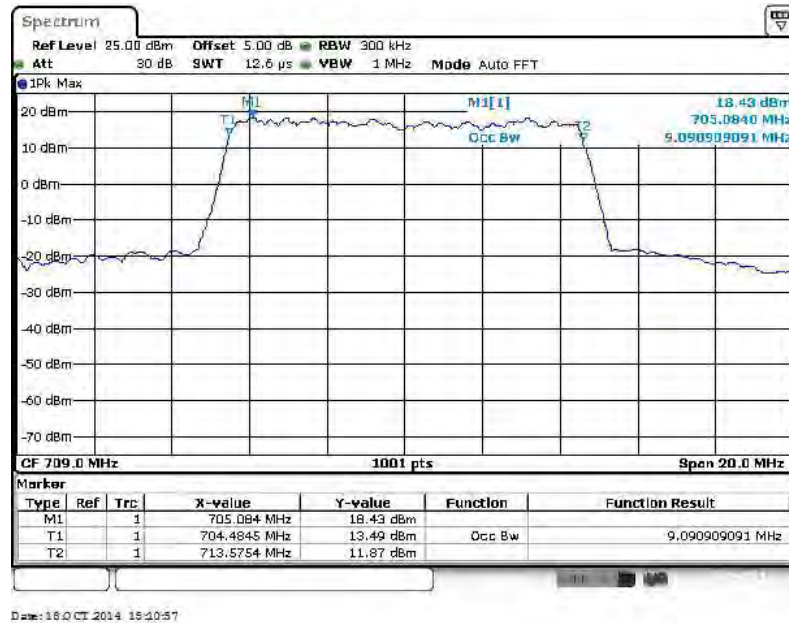




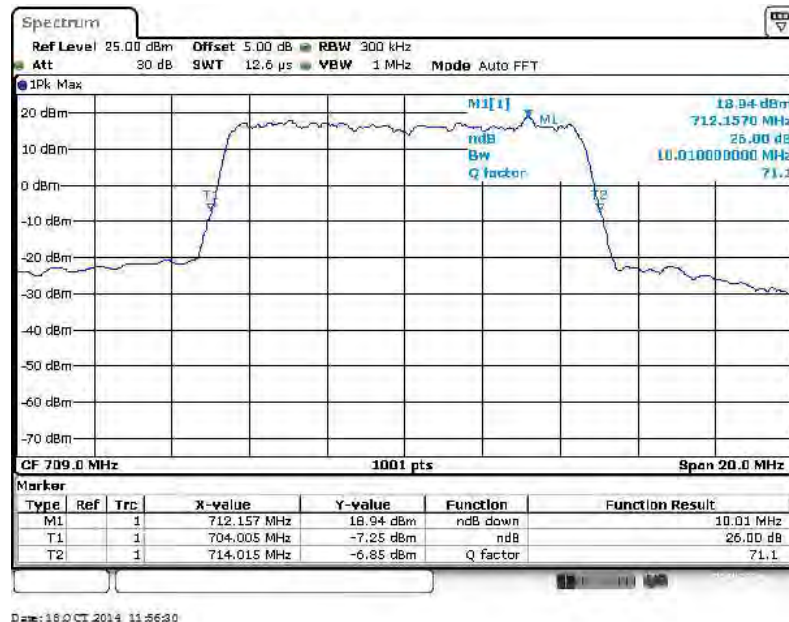
Band : LTE Band 17

BW / Mod. : 10MHz / QPSK

99% Occupied Bandwidth Plot on Channel 23780

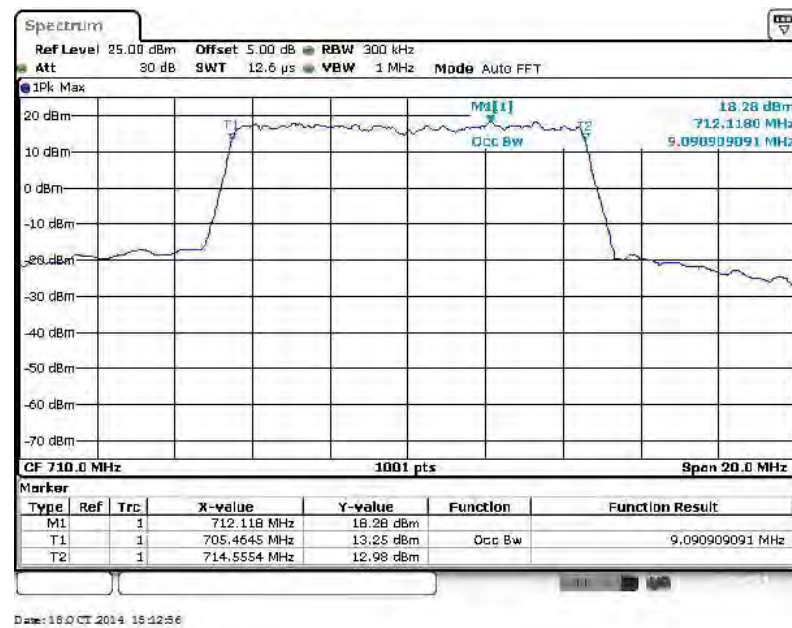


26dB Bandwidth Plot on Channel 23780

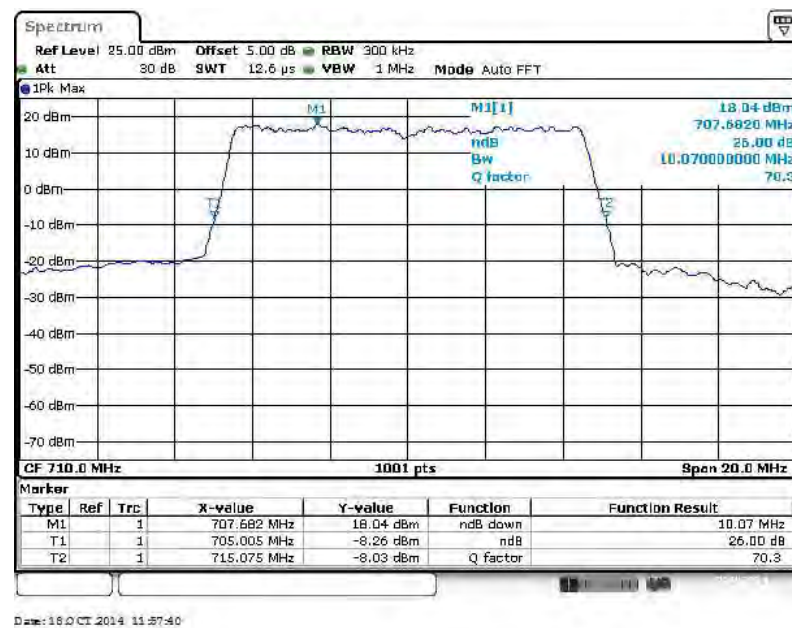




99% Occupied Bandwidth Plot on Channel 23790

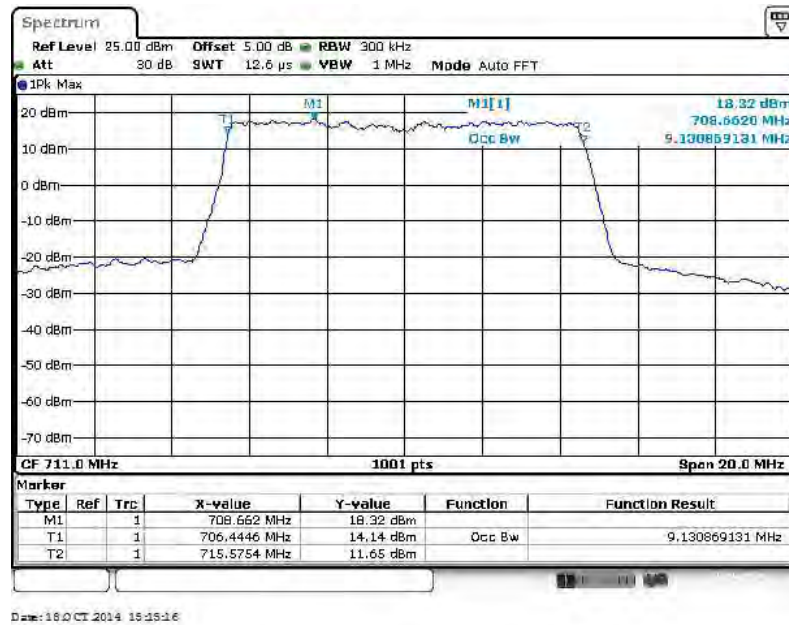


26dB Bandwidth Plot on Channel 23790

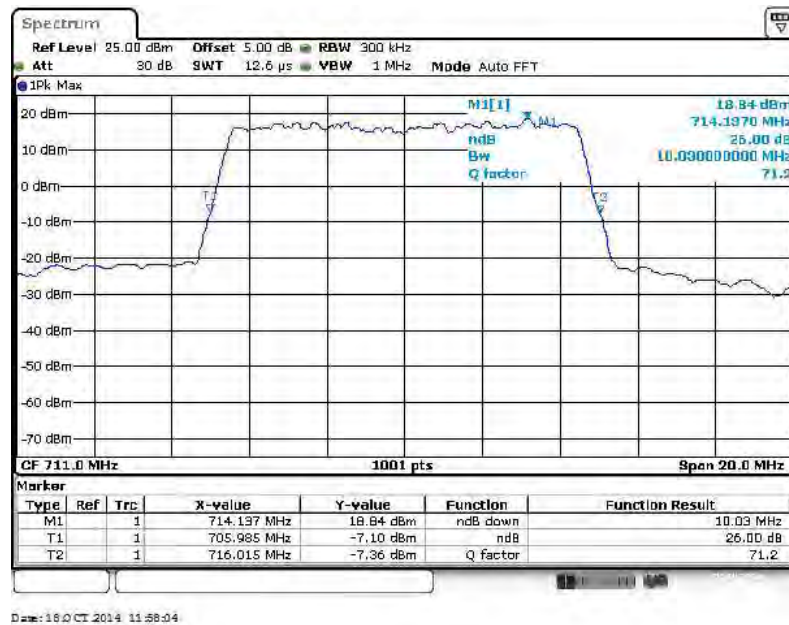




99% Occupied Bandwidth Plot on Channel 23800



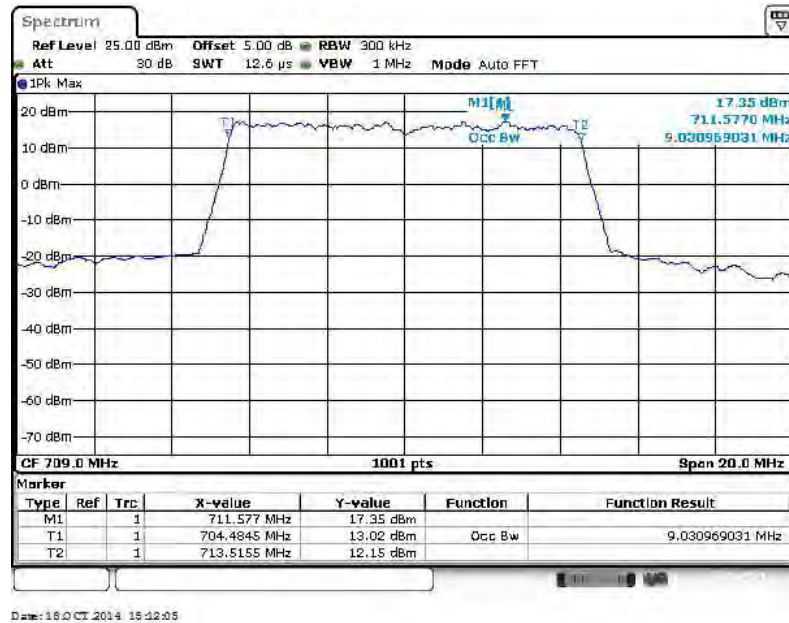
26dB Bandwidth Plot on Channel 23800



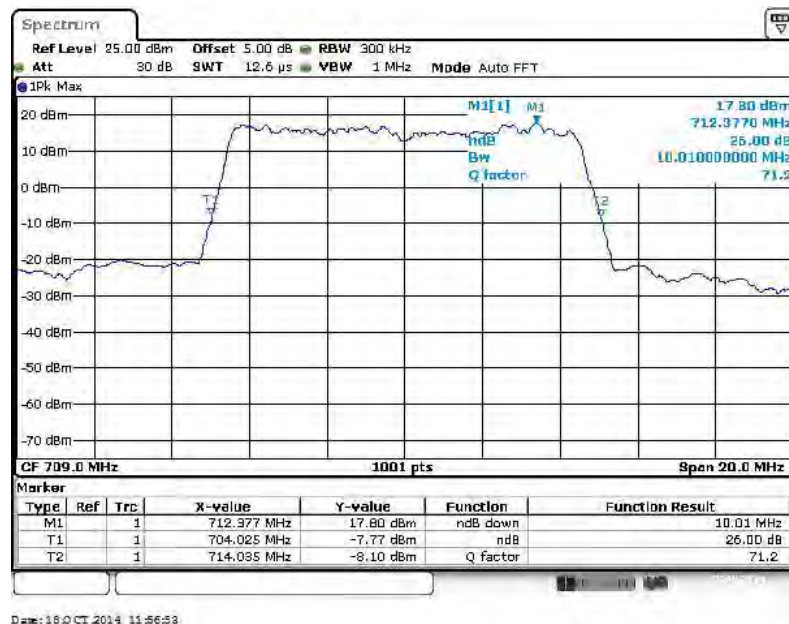


Band :	LTE Band 17	BW / Mod. :	10MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 23780

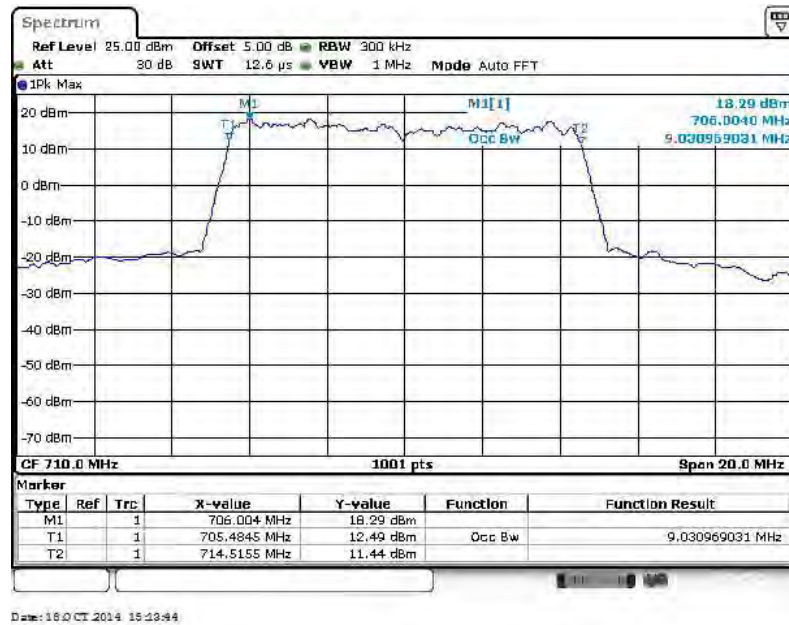


26dB Bandwidth Plot on Channel 23780

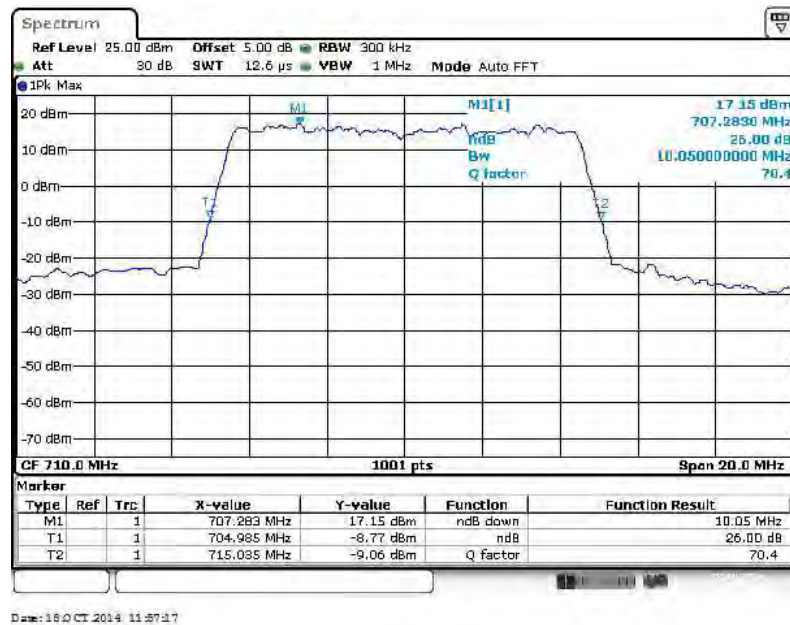




99% Occupied Bandwidth Plot on Channel 23790

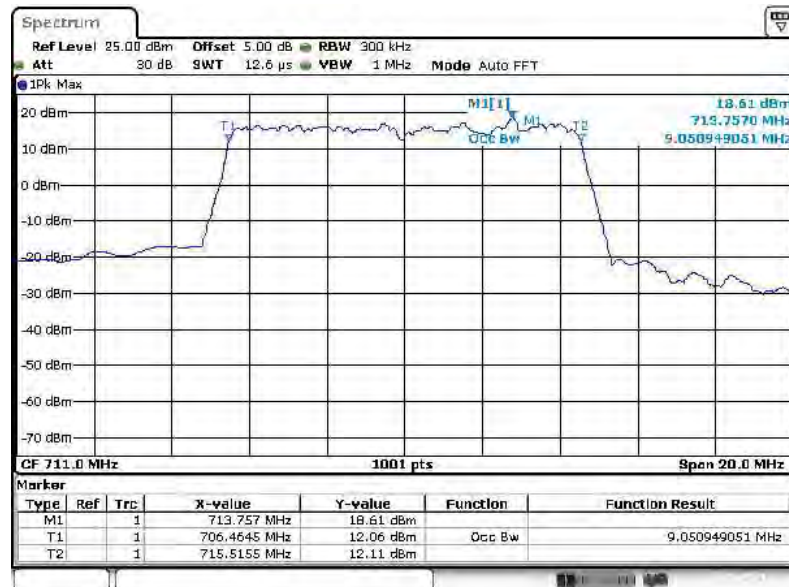


26dB Bandwidth Plot on Channel 23790



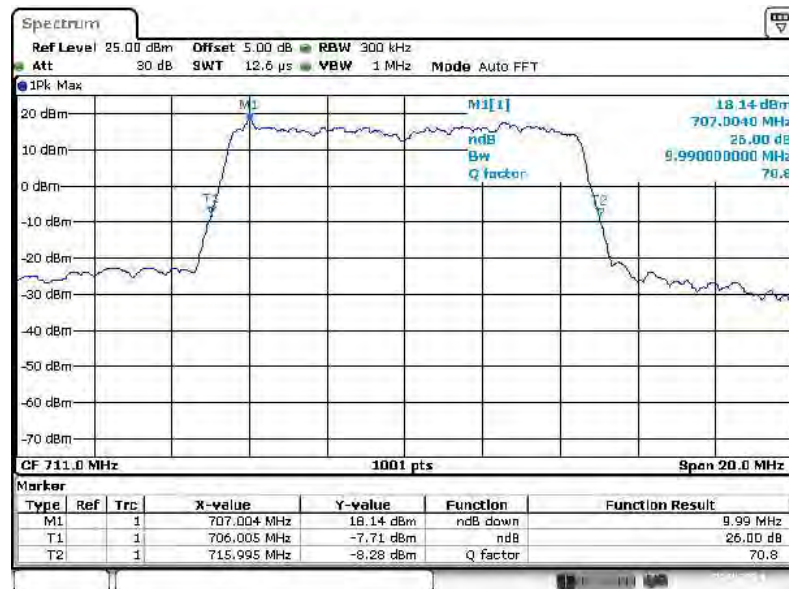


99% Occupied Bandwidth Plot on Channel 23800



Date: 16 OCT 2014 15:14:22

26dB Bandwidth Plot on Channel 23800



Date: 16 OCT 2014 11:58:28



3.5 Conducted Band Edge Measurement

3.5.1 Description of Conducted Band Edge Measurement

27.53 (g) for Band 17

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

27.53 (h) for Band 4

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

27.53(m)(4) for Band 7

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.

3.5.2 Measuring Instruments

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

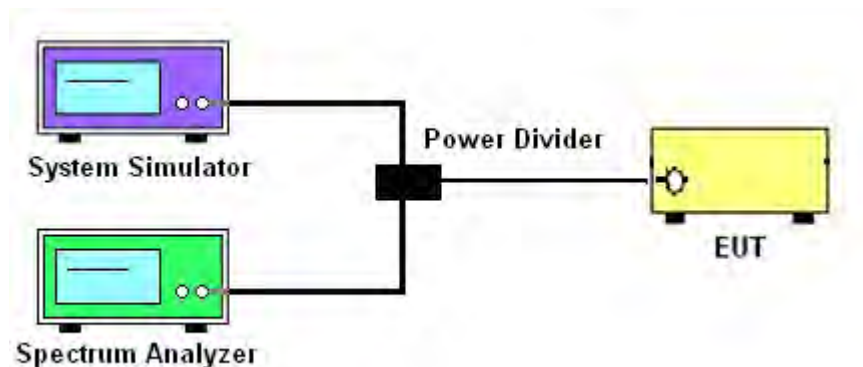
3.5.3 Test Procedures

1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
2. The band edges of low and high channels for the highest RF powers were measured. Set RBW $\geq 1\%$ EBW in the 1MHz band immediately outside and adjacent to the band edge.
3. Set spectrum analyzer with RMS detector.
4. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
5. The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power P(Watts)
 $= P(W) - [43 + 10\log(P)] \text{ (dB)}$
 $= [30 + 10\log(P)] \text{ (dBm)} - [43 + 10\log(P)] \text{ (dB)}$
 $= -13\text{dBm}.$

<For Band 7>

The limit line is derived from $55 + 10\log(P)$ dB below the transmitter power P(Watts)
 $= P(W) - [55 + 10\log(P)] \text{ (dB)}$
 $= [30 + 10\log(P)] \text{ (dBm)} - [55 + 10\log(P)] \text{ (dB)}$
 $= -25\text{dBm}.$

3.5.4 Test Setup

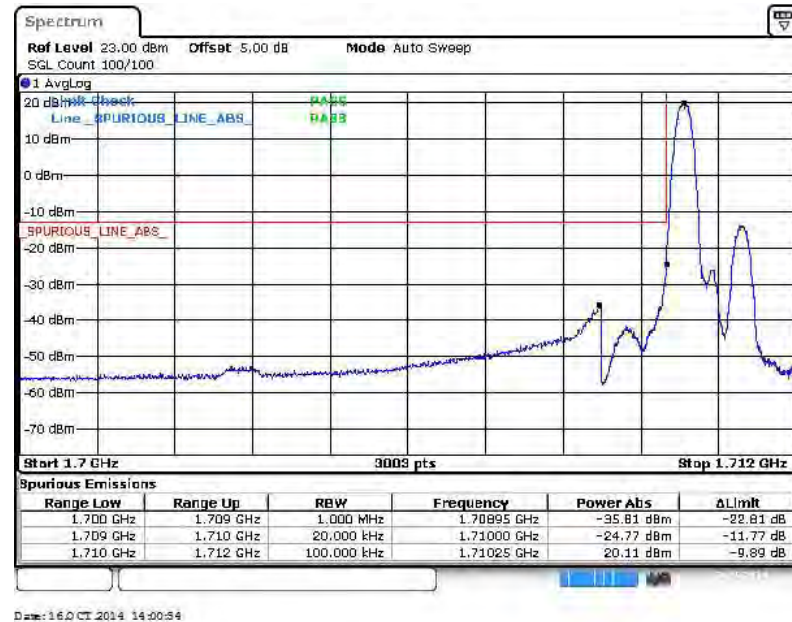




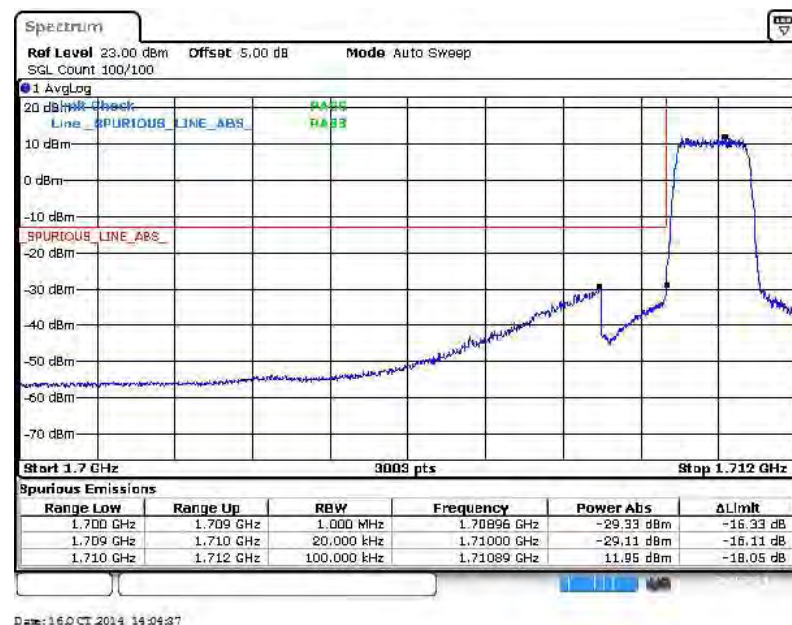
3.5.5 Test Result (Plots) of Conducted Band Edge

Band :	LTE Band 4	Band Width :	1.4MHz / QPSK
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Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0

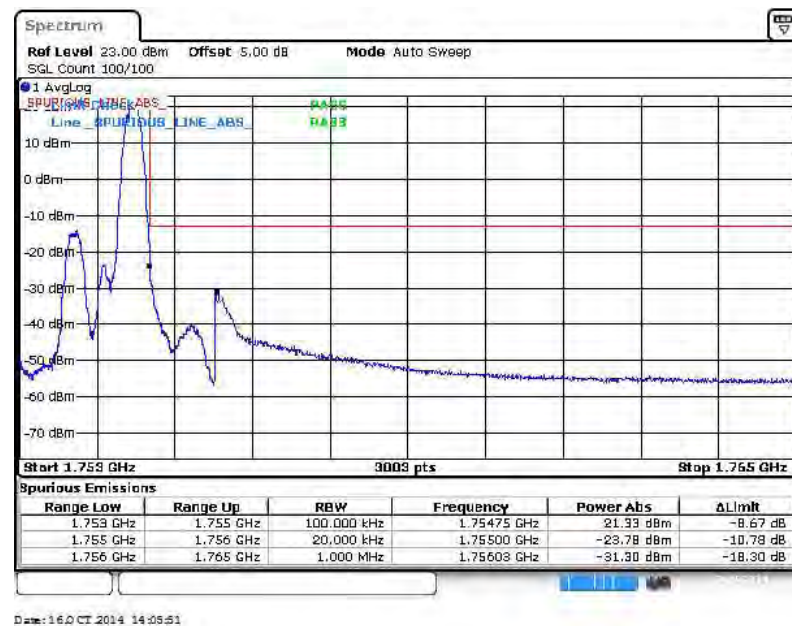


Lower Band Edge Plot for QPSK-RB Size 6, RB Offset 0

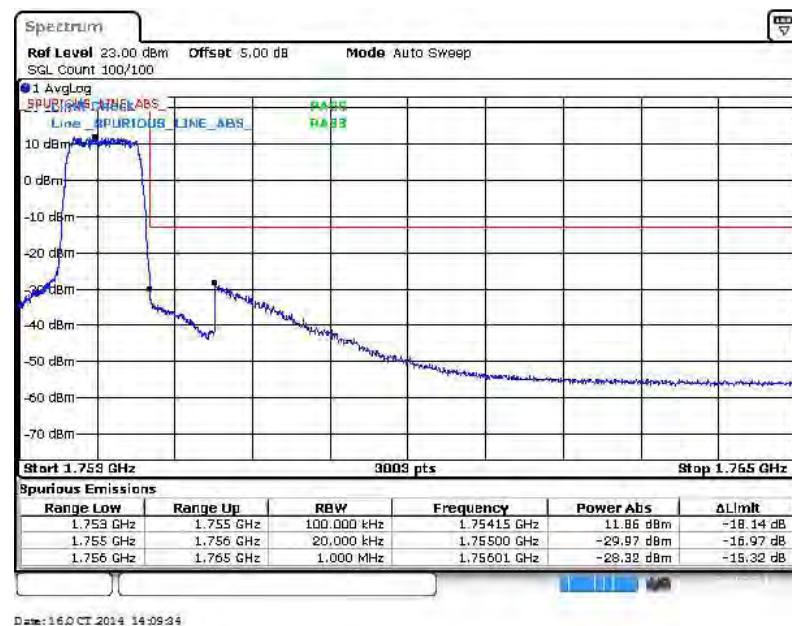




Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 5



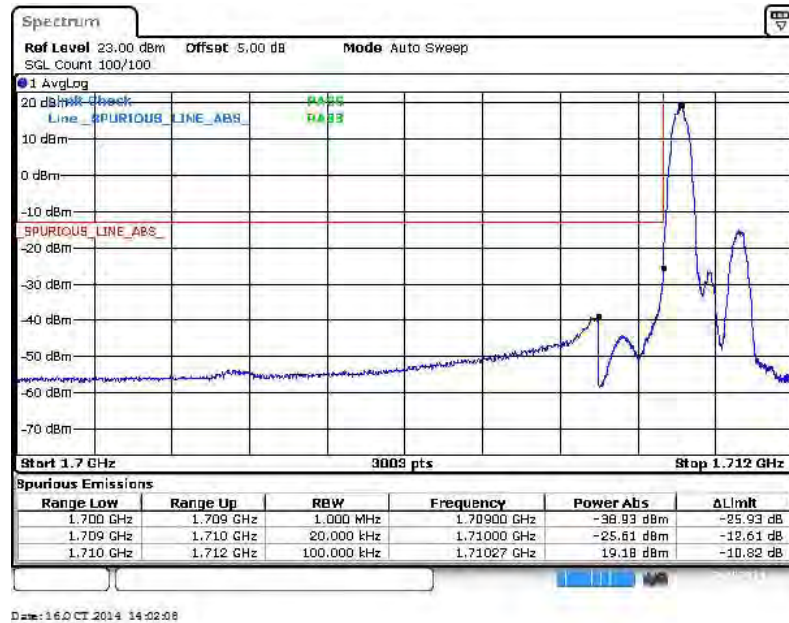
Higher Band Edge Plot for QPSK-RB Size 6, RB Offset 0



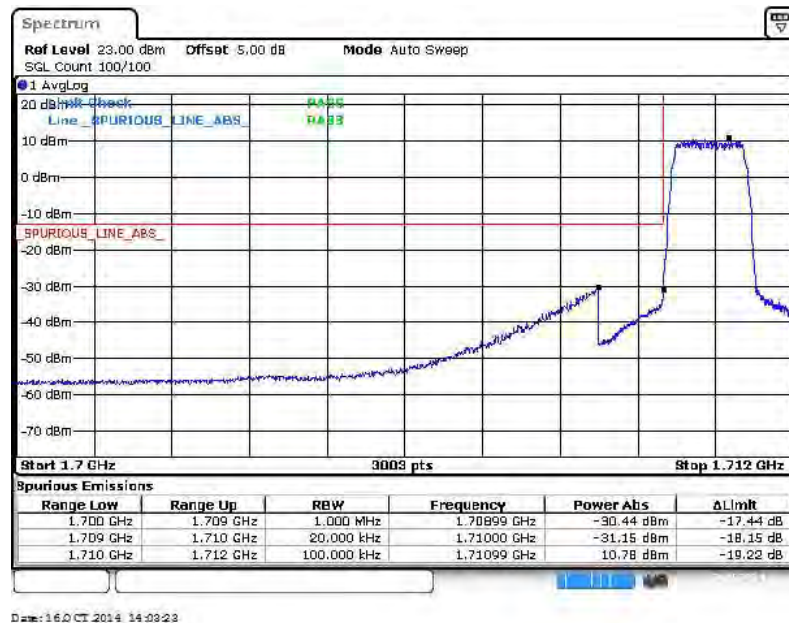


Band :	LTE Band 4	Band Width :	1.4MHz / 16QAM
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Lower Band Edge Plot for 16QAM -RB Size 1, RB Offset 0

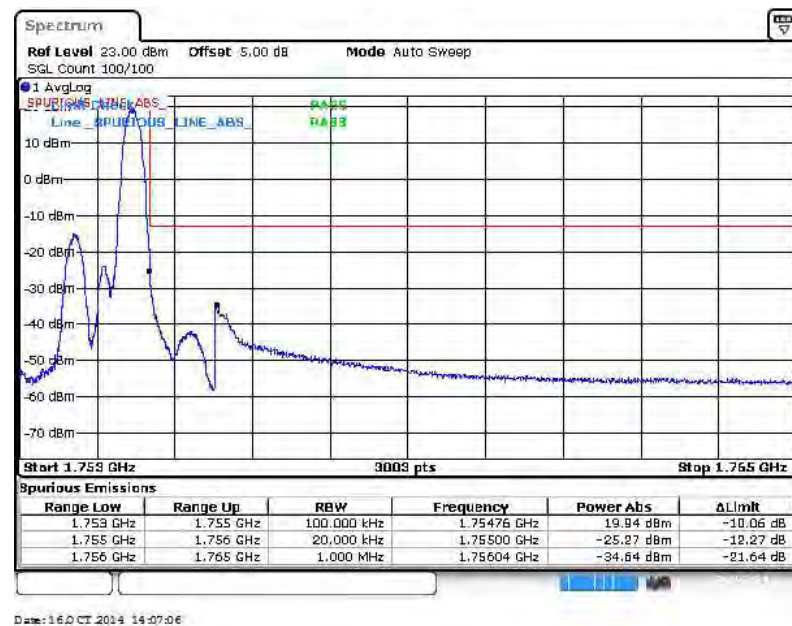


Lower Band Edge Plot for 16QAM-RB Size 6, RB Offset 0

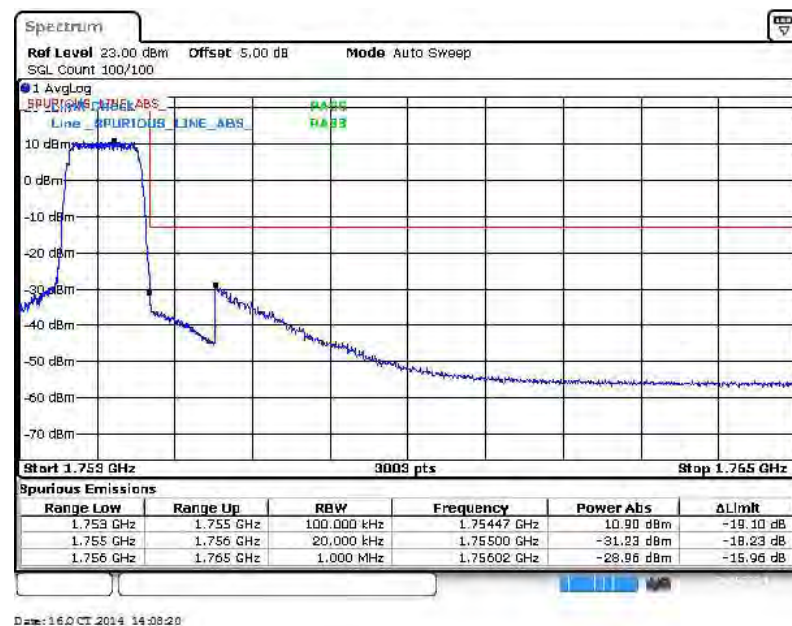




Higher Band Edge Plot for 16QAM-RB Size 1, RB Offset 5



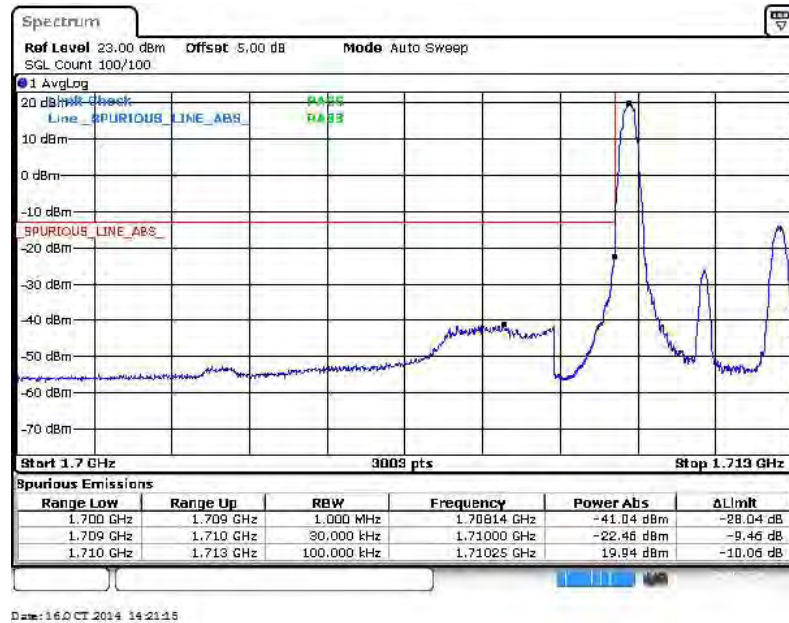
Higher Band Edge Plot for 16QAM-RB Size 6, RB Offset 0



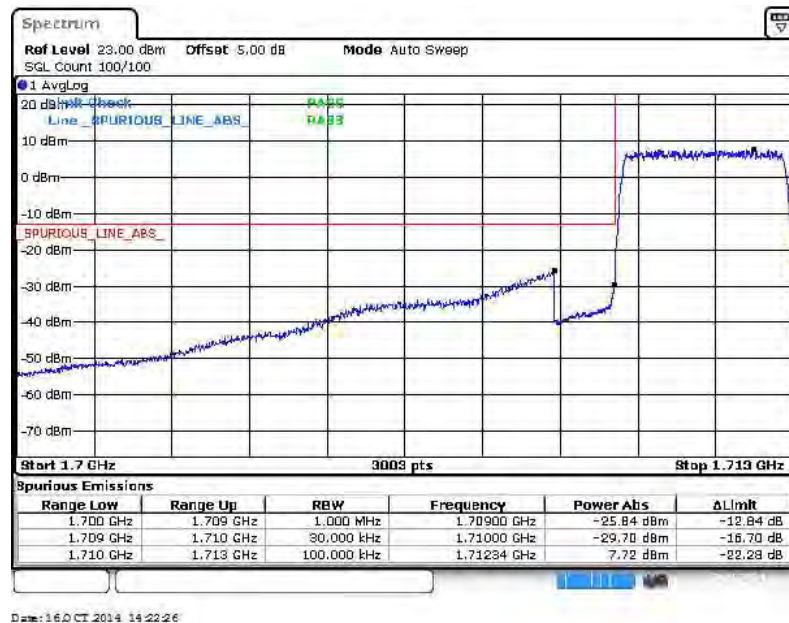


Band :	LTE Band 4	Band Width :	3MHz / QPSK
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Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0

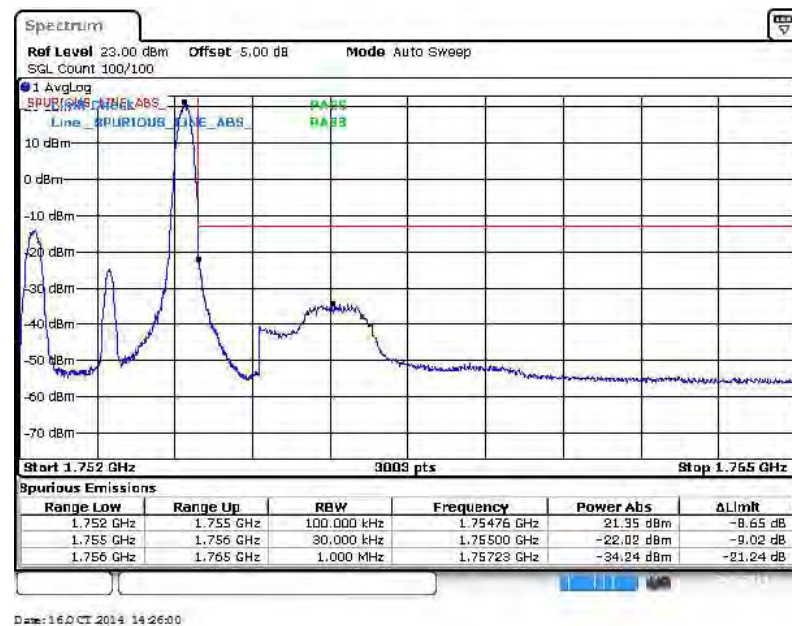


Lower Band Edge Plot for QPSK-RB Size 15, RB Offset 0





Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 14



Higher Band Edge Plot for QPSK-RB Size 15, RB Offset 0

