

FCC RF Test Report

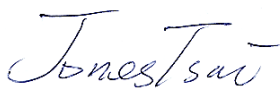
APPLICANT : Motorola Mobility, LLC
EQUIPMENT : Mobile Cellular Phone
BRAND NAME : Motorola Mobility, LLC
MODEL NAME : 4009
FCC ID : IHDT56PH2
STANDARD : 47 CFR Part 2, 22(H), 27
CLASSIFICATION : PCS Licensed Transmitter Held to Ear (PCE)

The product was received on May 05, 2014 and testing was completed on Jun. 06, 2014. We, SPORTON INTERNATIONAL 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 INC., the test report shall not be reproduced except in full.



Reviewed by: Joseph Lin / Supervisor



Approved by: Jones Tsai / Manager



SPORTON INTERNATIONAL INC.

No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG450533B	Rev. 01	Initial issue of report	Jun. 09, 2014

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	§2.1046	Conducted Output Power	Reporting Only	PASS	-
3.2	§27.50(d)(5)	Peak-to-Average Ratio	<13 dB	PASS	-
3.3	§22.913(a)(2)	Effective Radiated Power (Band 5)	ERP < 7 Watt	PASS	-
	§27.50(c)(10)	Effective Radiated Power (Band 12) (Band 17)	ERP < 3 Watt		
	§27.50(d)(4)	Equivalent Isotropic Radiated Power (Band 4)	EIRP < 1Watt		
3.4	§2.1049 §22.917(b) §27.53(g)(3)	Occupied Bandwidth	Reporting Only	PASS	-
3.5	§2.1051 §22.917(a) §27.53(f) §27.53(g)	Conducted Band Edge Measurement (Band 4) (Band 5) (Band 12) (Band 17)	< 43+10log10(P[Watt])	PASS	-



Report Section	FCC Rule	Description	Limit	Result	Remark
3.6	§2.1051 §22.917(a) §27.53(f) §27.53(g)	Conducted Spurious Emission (Band 4) (Band 5) (Band 12) (Band 17)	$< 43+10\log_{10}(P[\text{Watts}])$	PASS	-
3.7	§2.1053 §22.917(a) §27.53(f) §27.53(g)	Radiated Spurious Emission (Band 4) (Band 5) (Band 12) (Band 17)	$< 43+10\log_{10}(P[\text{Watts}])$	PASS	Under limit 1.76 dB at 1416.000 MHz
3.8	§2.1055 §22.355 §27.54	Frequency Stability Temperature & Voltage	$< 2.5 \text{ ppm}$	PASS	-



1 General Description

1.1 Applicant

Motorola Mobility, LLC

222 W Merchandise Mart Plaza, Suite 1800, Chicago, IL 60654, United States

1.2 Manufacturer

Motorola Mobility, LLC

222 W Merchandise Mart Plaza, Suite 1800, Chicago, IL 60654, United States

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Cellular Phone
Brand Name	Motorola Mobility, LLC
Model Name	4009
FCC ID	IHDT56PH2
IMEI Code	990005290038943
EUT supports Radios application	CDMA/EV-DO/LTE WLAN 11b/g/n(HT20) Bluetooth v3.0 + EDR Bluetooth v4.0 + LE
HW Version	P3
SW Version	peregrine_usc_userdebug_4.4.3_KXB21.14-L1.12_14_intcf g_test-keys_usc_US
EUT Stage	Production Unit

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

Accessory List	
AC Adapter	Brand Name : Motorola
	Model Name : Agate Lite US/CAN WHT - SPN5810A
Earphone	Brand Name : Motorola
	Model Name : SJN1181A

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 5 : 824.7 MHz ~ 848.3 MHz LTE Band 12 : 699.7 MHz ~ 715.3 MHz LTE Band 17 : 706.5 MHz ~ 713.5 MHz
Rx Frequency	LTE Band 4 : 2110.7 MHz ~ 2154.3 MHz LTE Band 5 : 869.7 MHz ~ 893.3 MHz LTE Band 12 : 729.7 MHz ~ 745.3 MHz LTE Band 17 : 736.5 MHz ~ 743.5 MHz
Bandwidth	LTE Band 4 : 1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz / 20MHz LTE Band 5 : 1.4MHz / 3MHz / 5MHz / 10MHz LTE Band 12 : 1.4MHz / 3MHz / 5MHz / 10MHz LTE Band 17 : 5MHz / 10MHz
Maximum Output Power to Antenna	LTE Band 4 : 23.20 dBm LTE Band 5 : 22.50 dBm LTE Band 12 : 22.57 dBm LTE Band 17 : 22.38 dBm
Antenna Type	Fixed Internal 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 22	LTE Band 5	QPSK	1.4 MHz	1M10G7D	-	0.057 W
Part 22	LTE Band 5	16QAM	1.4 MHz	1M10D7W	-	0.035 W
Part 22	LTE Band 5	QPSK	3 MHz	2M72G7D	-	0.055 W
Part 22	LTE Band 5	16QAM	3 MHz	2M73D7W	-	0.034 W
Part 22	LTE Band 5	QPSK	5 MHz	4M50G7D	-	0.049 W
Part 22	LTE Band 5	16QAM	5 MHz	4M50D7W	-	0.030 W
Part 22	LTE Band 5	QPSK	10 MHz	9M10G7D	0.006 ppm	0.058 W
Part 22	LTE Band 5	16QAM	10 MHz	9M06D7W	-	0.037 W
Part 27	LTE Band 4	QPSK	1.4 MHz	1M10G7D	-	0.297 W
Part 27	LTE Band 4	16QAM	1.4 MHz	1M10D7W	-	0.181 W
Part 27	LTE Band 4	QPSK	3 MHz	2M73G7D	-	0.310 W
Part 27	LTE Band 4	16QAM	3 MHz	2M73D7W	-	0.190 W
Part 27	LTE Band 4	QPSK	5MHz	4M50G7D	-	0.305 W
Part 27	LTE Band 4	16QAM	5MHz	4M50D7W	-	0.188 W
Part 27	LTE Band 4	QPSK	10MHz	9M08G7D	0.003 ppm	0.320 W
Part 27	LTE Band 4	16QAM	10MHz	9M06D7W	-	0.200 W
Part 27	LTE Band 4	QPSK	15MHz	13M5G7D	-	0.321 W
Part 27	LTE Band 4	16QAM	15MHz	13M5D7W	-	0.207 W
Part 27	LTE Band 4	QPSK	20MHz	18M4G7D	-	0.357 W
Part 27	LTE Band 4	16QAM	20MHz	18M4D7W	-	0.211 W



FCC Rule	System	Type of Modulation	BW	Emission Designator	Frequency Tolerance (ppm)	Maximum ERP/EIRP
Part 27	LTE Band 12	QPSK	1.4 MHz	1M10G7D	-	0.104 W
Part 27	LTE Band 12	16QAM	1.4 MHz	1M10D7W	-	0.058 W
Part 27	LTE Band 12	QPSK	3 MHz	2M72G7D	-	0.104 W
Part 27	LTE Band 12	16QAM	3 MHz	2M73D7W	-	0.058 W
Part 27	LTE Band 12	QPSK	5MHz	4M51G7D	-	0.108 W
Part 27	LTE Band 12	16QAM	5MHz	4M50D7W	-	0.060 W
Part 27	LTE Band 12	QPSK	10MHz	9M08G7D	0.002 ppm	0.104 W
Part 27	LTE Band 12	16QAM	10MHz	9M04D7W	-	0.059 W
Part 27	LTE Band 17	QPSK	5MHz	4M50G7D	-	0.093 W
Part 27	LTE Band 17	16QAM	5MHz	4M50D7W	-	0.053 W
Part 27	LTE Band 17	QPSK	10MHz	9M08G7D	0.005 ppm	0.093 W
Part 27	LTE Band 17	16QAM	10MHz	9M04D7W	-	0.055 W

1.7 Testing Location

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code : 1190) and the FCC designation No. TW1022 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC Test.

Test Site	SPORTON INTERNATIONAL INC.	
Test Site Location	No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-327-3456 FAX: +886-3-328-4978	
Test Site No.	Sporton Site No.	
	TH02-HY	03CH07-HY

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, 22(H), 24(E), 27
- ♦ ANSI / TIA / EIA-603-C-2004
- ♦ FCC KDB 971168 D01 Power Meas. License Digital Systems v02r01

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

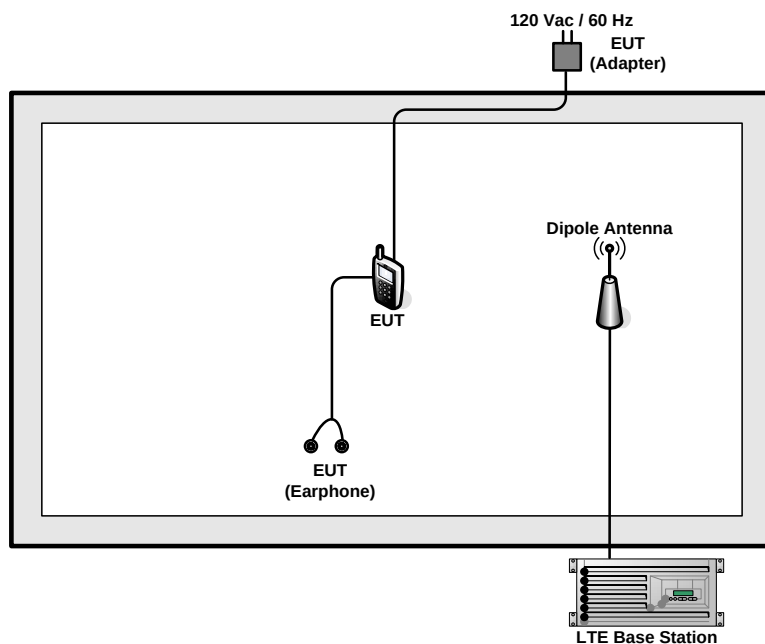
Antenna port conducted and radiated test items listed below are performed according to KDB 971168 D01 Power Meas. License Digital Systems v02r01 with maximum output power.

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
	5	v	v	v	v	-	-	v	v	v	v	v	v	v	v
	12	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
	5				v	-	-		v	v		v	v	v	v
	12				v	-	-		v	v		v	v	v	v
	17	-	-		v	-	-		v	v		v	v	v	v
26dB and 99% Bandwidth	4	v	v	v	v	v	v	v	v			v	v	v	v
	5	v	v	v	v	-	-	v	v			v	v	v	v
	12	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
	5	v	v	v	v	-	-	v	v	v		v	v		v
	12	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
	5	v	v	v	v	-	-	v	v	v			v	v	v
	12	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	
	5				v	-	-	v				v		v	
	12				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	v			v	v	v
	5	v	v	v	v	-	-	v	v	v			v	v	v
	12	v	v	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
	5	v	v	v	v	-	-	v		v			v	v	v
	12	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. 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

2.4 Measurement Results Explanation Example

For all conducted test items:

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

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

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 4.2 dB and 10dB attenuator.

Example :

$$\begin{aligned}\text{Offset(dB)} &= \text{RF cable loss(dB)} + \text{attenuator factor(dB)} \\ &= 4.2 + 10 = 14.2 \text{ (dB)}\end{aligned}$$

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.

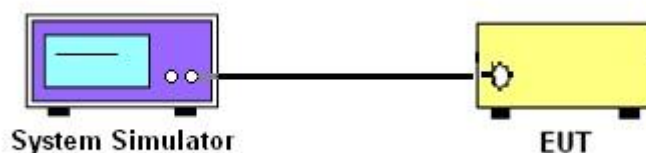
3.1.2 Measuring Instruments

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 5 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				20450	20525	20600
Frequency (MHz)				829	836.5	844
10	QPSK	1	0	22.50	22.42	22.48
10	QPSK	1	24	22.34	22.41	22.24
10	QPSK	1	49	22.36	22.33	22.29
10	QPSK	25	0	21.25	21.52	21.25
10	QPSK	25	12	21.23	21.43	21.25
10	QPSK	25	24	21.38	21.41	21.39
10	QPSK	50	0	21.33	21.52	21.32
10	16QAM	1	0	21.49	21.37	21.45
10	16QAM	1	24	21.28	21.38	21.18
10	16QAM	1	49	21.34	21.27	21.34
10	16QAM	25	0	20.32	20.52	20.34
10	16QAM	25	12	20.35	20.45	20.26
10	16QAM	25	24	20.38	20.41	20.40
10	16QAM	50	0	20.34	20.47	20.34
Channel				20425	20525	20625
Frequency (MHz)				826.5	836.5	846.5
5	QPSK	1	0	22.36	22.14	22.21
5	QPSK	1	12	22.26	22.11	22.19
5	QPSK	1	24	22.26	22.12	22.12
5	QPSK	12	0	21.27	21.32	21.30
5	QPSK	12	6	21.22	21.27	21.29
5	QPSK	12	11	21.25	21.24	21.29
5	QPSK	25	0	21.21	21.23	21.24
5	16QAM	1	0	21.33	21.16	21.16
5	16QAM	1	12	21.18	21.15	21.13
5	16QAM	1	24	21.19	21.15	21.06
5	16QAM	12	0	20.31	20.31	20.33
5	16QAM	12	6	20.25	20.23	20.31
5	16QAM	12	11	20.30	20.23	20.27
5	16QAM	25	0	20.24	20.24	20.27



BW [MHz]	Modulation	RB Size	RB Offset	Power (dBm) Low Ch. / Freq.	Power (dBm) Middle Ch. / Freq.	Power (dBm) High Ch. / Freq.
Channel				20415	20525	20635
Frequency (MHz)				825.5	836.5	847.5
3	QPSK	1	0	22.36	22.26	22.26
3	QPSK	1	7	22.29	22.19	22.17
3	QPSK	1	14	22.30	22.23	22.08
3	QPSK	8	0	21.32	21.28	21.22
3	QPSK	8	4	21.29	21.23	21.36
3	QPSK	8	7	21.23	21.21	21.29
3	QPSK	15	0	21.22	21.28	21.28
3	16QAM	1	0	21.31	21.28	21.28
3	16QAM	1	7	21.23	21.13	21.15
3	16QAM	1	14	21.24	21.19	21.07
3	16QAM	8	0	20.39	20.30	20.25
3	16QAM	8	4	20.38	20.25	20.34
3	16QAM	8	7	20.31	20.24	20.26
3	16QAM	15	0	20.28	20.22	20.25
Channel				20407	20525	20643
Frequency (MHz)				824.7	836.5	848.3
1.4	QPSK	1	0	22.43	22.28	22.29
1.4	QPSK	1	2	22.31	22.26	22.21
1.4	QPSK	1	5	22.41	22.19	22.13
1.4	QPSK	3	0	22.34	22.27	22.26
1.4	QPSK	3	1	22.31	22.25	22.20
1.4	QPSK	3	2	22.37	22.19	22.17
1.4	QPSK	6	0	21.35	21.27	21.25
1.4	16QAM	1	0	21.34	21.26	21.25
1.4	16QAM	1	2	21.26	21.23	21.14
1.4	16QAM	1	5	21.31	21.14	21.08
1.4	16QAM	3	0	21.29	21.22	21.21
1.4	16QAM	3	1	21.26	21.19	21.17
1.4	16QAM	3	2	21.27	21.23	21.14
1.4	16QAM	6	0	20.23	20.14	20.13



<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	23.20	22.95	22.86
20	QPSK	1	49	22.95	22.79	22.73
20	QPSK	1	99	22.82	22.74	22.85
20	QPSK	50	0	22.09	21.94	21.90
20	QPSK	50	24	22.03	21.88	21.87
20	QPSK	50	49	21.87	21.84	21.86
20	QPSK	100	0	21.99	21.87	21.87
20	16QAM	1	0	22.10	21.90	21.82
20	16QAM	1	49	21.92	21.79	21.72
20	16QAM	1	99	21.72	21.69	21.81
20	16QAM	50	0	21.07	20.83	20.81
20	16QAM	50	24	20.99	20.79	20.85
20	16QAM	50	49	20.86	20.74	20.80
20	16QAM	100	0	20.99	20.86	20.80
Channel				20025	20175	20325
Frequency (MHz)				1717.5	1732.5	1747.5
15	QPSK	1	0	23.17	22.96	22.88
15	QPSK	1	37	23.10	22.71	22.87
15	QPSK	1	74	22.94	22.73	22.84
15	QPSK	36	0	22.18	21.87	21.92
15	QPSK	36	18	22.11	21.80	21.89
15	QPSK	36	37	21.99	21.74	21.94
15	QPSK	75	0	22.14	21.86	21.89
15	16QAM	1	0	22.05	21.93	21.83
15	16QAM	1	37	22.04	21.66	21.81
15	16QAM	1	74	21.89	21.67	21.82
15	16QAM	36	0	21.10	20.83	20.88
15	16QAM	36	18	20.98	20.78	20.88
15	16QAM	36	37	20.94	20.72	20.85
15	16QAM	75	0	21.04	20.85	20.88



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	23.16	22.88	22.80
10	QPSK	1	24	23.14	22.80	22.79
10	QPSK	1	49	23.10	22.71	22.78
10	QPSK	25	0	22.09	21.82	21.92
10	QPSK	25	12	22.19	21.80	21.98
10	QPSK	25	24	22.18	21.78	22.03
10	QPSK	50	0	22.22	21.85	22.04
10	16QAM	1	0	22.08	21.88	21.76
10	16QAM	1	24	22.07	21.75	21.74
10	16QAM	1	49	22.03	21.65	21.75
10	16QAM	25	0	21.08	20.82	20.92
10	16QAM	25	12	21.10	20.78	20.98
10	16QAM	25	24	21.16	20.81	20.97
10	16QAM	50	0	21.14	20.80	20.95
Channel				19975	20175	20375
Frequency (MHz)				1712.5	1732.5	1752.5
5	QPSK	1	0	23.15	22.80	22.94
5	QPSK	1	12	23.08	22.66	22.91
5	QPSK	1	24	23.14	22.72	22.90
5	QPSK	12	0	22.23	21.85	22.07
5	QPSK	12	6	22.16	21.87	22.04
5	QPSK	12	11	22.12	21.74	22.11
5	QPSK	25	0	22.24	21.88	22.03
5	16QAM	1	0	22.07	21.75	21.90
5	16QAM	1	12	22.05	21.65	21.88
5	16QAM	1	24	22.06	21.63	21.89
5	16QAM	12	0	21.16	20.84	21.06
5	16QAM	12	6	21.08	20.82	21.04
5	16QAM	12	11	21.10	20.72	21.13
5	16QAM	25	0	21.17	20.81	20.99



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	23.16	22.80	23.10
3	QPSK	1	7	23.05	22.72	23.09
3	QPSK	1	14	23.15	22.72	23.08
3	QPSK	8	0	22.16	21.84	22.07
3	QPSK	8	4	22.19	21.80	22.15
3	QPSK	8	7	22.14	21.76	22.11
3	QPSK	15	0	22.22	21.87	22.12
3	16QAM	1	0	22.09	21.77	22.04
3	16QAM	1	7	22.01	21.65	22.03
3	16QAM	1	14	22.02	21.68	22.01
3	16QAM	8	0	21.16	20.82	21.06
3	16QAM	8	4	21.22	20.85	21.15
3	16QAM	8	7	21.10	20.74	21.09
3	16QAM	15	0	21.16	20.80	21.11
Channel				19957	20175	20393
Frequency (MHz)				1710.7	1732.5	1754.3
1.4	QPSK	1	0	23.18	22.87	23.18
1.4	QPSK	1	2	23.16	22.82	23.12
1.4	QPSK	1	5	23.15	22.73	23.13
1.4	QPSK	3	0	23.16	22.86	23.17
1.4	QPSK	3	1	23.15	22.85	23.13
1.4	QPSK	3	2	23.14	22.86	23.10
1.4	QPSK	6	0	22.21	21.88	22.17
1.4	16QAM	1	0	22.09	21.82	22.08
1.4	16QAM	1	2	22.03	21.80	22.07
1.4	16QAM	1	5	22.08	21.68	22.00
1.4	16QAM	3	0	22.07	21.81	22.06
1.4	16QAM	3	1	22.08	21.80	22.05
1.4	16QAM	3	2	22.07	21.78	22.03
1.4	16QAM	6	0	21.07	20.73	20.96

<LTE Band 12 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				23060	23095	23130
Frequency (MHz)				704	707.5	711
10	QPSK	1	0	22.30	22.57	22.20
10	QPSK	1	24	22.29	22.47	22.19
10	QPSK	1	49	22.26	22.56	22.19
10	QPSK	25	0	21.36	21.20	21.26
10	QPSK	25	12	21.32	21.22	21.34
10	QPSK	25	24	21.26	21.32	21.22
10	QPSK	50	0	21.44	21.32	21.36
10	16QAM	1	0	21.28	21.55	21.22
10	16QAM	1	24	21.27	21.46	21.21
10	16QAM	1	49	21.23	21.52	21.15
10	16QAM	25	0	20.44	20.23	20.27
10	16QAM	25	12	20.32	20.24	20.35
10	16QAM	25	24	20.28	20.32	20.31
10	16QAM	50	0	20.44	20.33	20.36
Channel				23035	23095	23155
Frequency (MHz)				701.5	707.5	713.5
5	QPSK	1	0	22.34	22.04	22.31
5	QPSK	1	12	22.31	22.02	22.24
5	QPSK	1	24	22.30	22.01	22.11
5	QPSK	12	0	21.48	21.24	21.25
5	QPSK	12	6	21.52	21.27	21.14
5	QPSK	12	11	21.46	21.21	21.25
5	QPSK	25	0	21.39	21.26	21.15
5	16QAM	1	0	21.34	21.04	21.25
5	16QAM	1	12	21.32	21.01	21.20
5	16QAM	1	24	21.31	21.03	21.10
5	16QAM	12	0	20.59	20.23	20.30
5	16QAM	12	6	20.58	20.24	20.23
5	16QAM	12	11	20.47	20.20	20.34
5	16QAM	25	0	20.51	20.20	20.24

BW [MHz]	Modulation	RB Size	RB Offset	Power (dBm) Low Ch. / Freq.	Power (dBm) Middle Ch. / Freq.	Power (dBm) High Ch. / Freq.
Channel				23025	23095	23165
Frequency (MHz)				700.5	707.5	714.5
3	QPSK	1	0	22.45	22.17	22.24
3	QPSK	1	7	22.42	22.15	22.23
3	QPSK	1	14	22.44	22.16	22.13
3	QPSK	8	0	21.34	21.26	21.20
3	QPSK	8	4	21.44	21.24	21.21
3	QPSK	8	7	21.41	21.17	21.07
3	QPSK	15	0	21.49	21.23	21.17
3	16QAM	1	0	21.43	21.16	21.20
3	16QAM	1	7	21.33	21.13	21.19
3	16QAM	1	14	21.41	21.15	21.08
3	16QAM	8	0	20.44	20.24	20.35
3	16QAM	8	4	20.53	20.20	20.32
3	16QAM	8	7	20.52	20.24	20.23
3	16QAM	15	0	20.51	20.21	20.22
Channel				23017	23095	23173
Frequency (MHz)				699.7	707.5	715.3
1.4	QPSK	1	0	22.49	22.26	22.24
1.4	QPSK	1	2	22.39	22.23	22.18
1.4	QPSK	1	5	22.45	22.13	22.07
1.4	QPSK	3	0	22.39	22.22	22.13
1.4	QPSK	3	1	22.41	22.19	22.13
1.4	QPSK	3	2	22.45	22.21	22.09
1.4	QPSK	6	0	21.36	21.23	21.14
1.4	16QAM	1	0	21.52	21.20	21.20
1.4	16QAM	1	2	21.44	21.14	21.15
1.4	16QAM	1	5	21.43	21.09	21.03
1.4	16QAM	3	0	21.40	21.15	21.07
1.4	16QAM	3	1	21.36	21.19	21.10
1.4	16QAM	3	2	21.41	21.17	21.02
1.4	16QAM	6	0	20.29	20.11	20.09

<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	22.31	22.38	22.18
10	QPSK	1	24	22.30	22.16	22.17
10	QPSK	1	49	22.30	22.34	22.13
10	QPSK	25	0	21.36	21.33	21.27
10	QPSK	25	12	21.34	21.40	21.32
10	QPSK	25	24	21.36	21.38	21.38
10	QPSK	50	0	21.52	21.47	21.46
10	16QAM	1	0	21.29	21.37	21.20
10	16QAM	1	24	21.28	21.19	21.18
10	16QAM	1	49	21.27	21.35	21.07
10	16QAM	25	0	20.33	20.33	20.31
10	16QAM	25	12	20.30	20.38	20.40
10	16QAM	25	24	20.40	20.44	20.42
10	16QAM	50	0	20.39	20.45	20.36
Channel				23755	23790	23825
Frequency (MHz)				706.5	710	713.5
5	QPSK	1	0	22.26	22.03	22.23
5	QPSK	1	12	22.15	22.01	22.22
5	QPSK	1	24	22.23	22.01	22.16
5	QPSK	12	0	21.30	21.25	21.28
5	QPSK	12	6	21.21	21.24	21.18
5	QPSK	12	11	21.21	21.30	21.16
5	QPSK	25	0	21.25	21.23	21.19
5	16QAM	1	0	21.24	21.10	21.16
5	16QAM	1	12	21.09	21.01	21.15
5	16QAM	1	24	21.21	21.02	21.10
5	16QAM	12	0	20.25	20.22	20.36
5	16QAM	12	6	20.19	20.21	20.26
5	16QAM	12	11	20.20	20.27	20.26
5	16QAM	25	0	20.27	20.24	20.27

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.

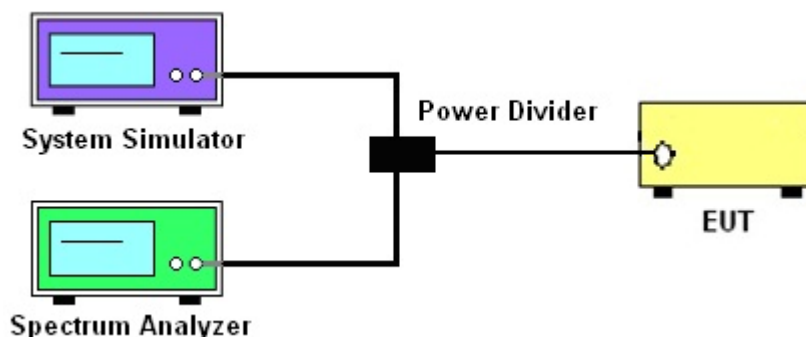
3.2.2 Measuring Instruments

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 5						
BW [MHz]	Modulation	RB Size	RB Offset	Power (dBm) Low Ch. / Freq.	Power (dBm) Middle Ch. / Freq.	Power (dBm) High Ch. / Freq.
Channel				20450	20525	20600
Frequency (MHz)				829	836.5	844
10	16QAM	1	0	6.76	6.96	7.05
10	16QAM	50	0	6.60	6.60	6.57

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	16QAM	1	0	6.28	6.86	7.24
20	16QAM	100	0	6.57	6.79	6.67

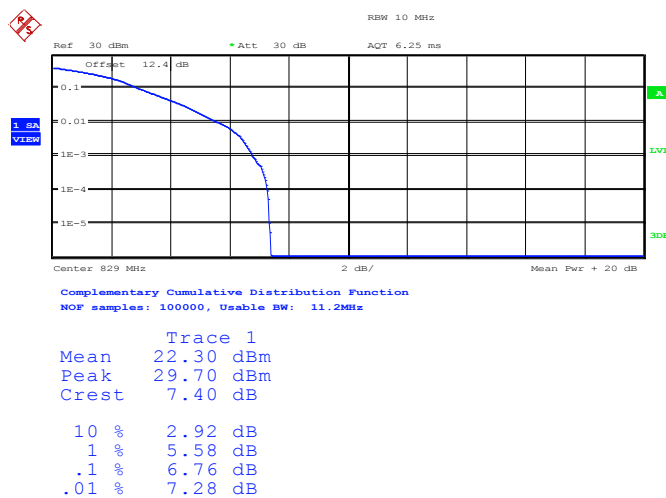
LTE Band 12						
BW [MHz]	Modulation	RB Size	RB Offset	Power (dBm) Low Ch. / Freq.	Power (dBm) Middle Ch. / Freq.	Power (dBm) High Ch. / Freq.
Channel				23060	23095	23130
Frequency (MHz)				704	707.5	711
10	16QAM	1	0	7.37	6.99	7.18
10	16QAM	50	0	6.63	6.79	6.67

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	16QAM	1	0	7.05	7.15	7.34
10	16QAM	50	0	6.67	6.73	6.76

3.2.6 Peak to Average Power Ratio

Peak-to-Average Ratio on LTE Band 5

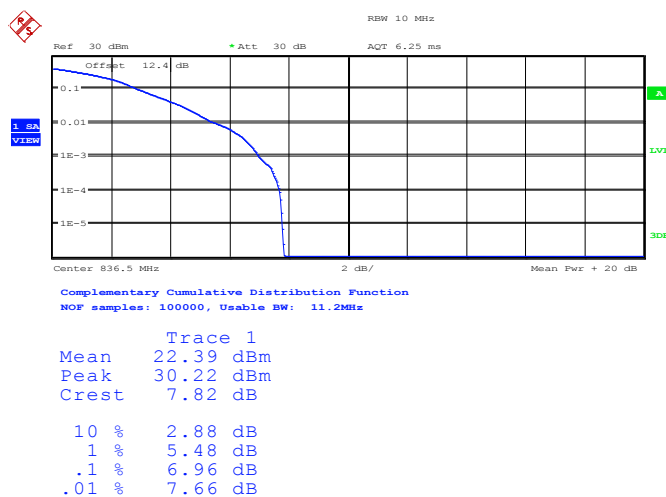
10MHz / 16QAM in Ch. 20450 (1RB Size)



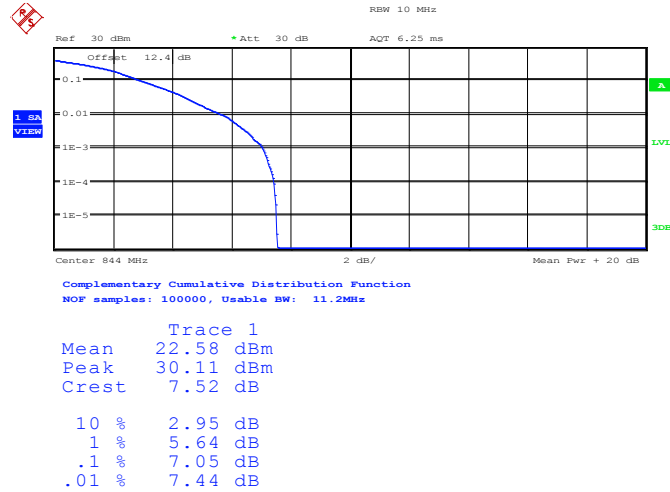
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Peak-to-Average Ratio on LTE Band 5

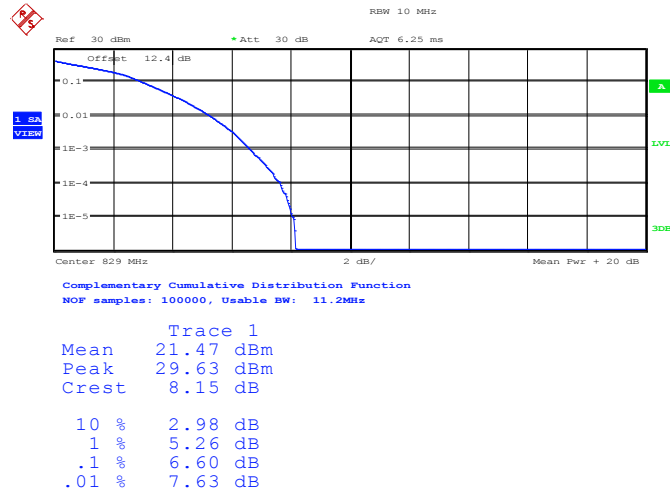
10MHz / 16QAM in Ch. 20525 (1RB Size)



Date: 27.MAY.2014 20:02:10

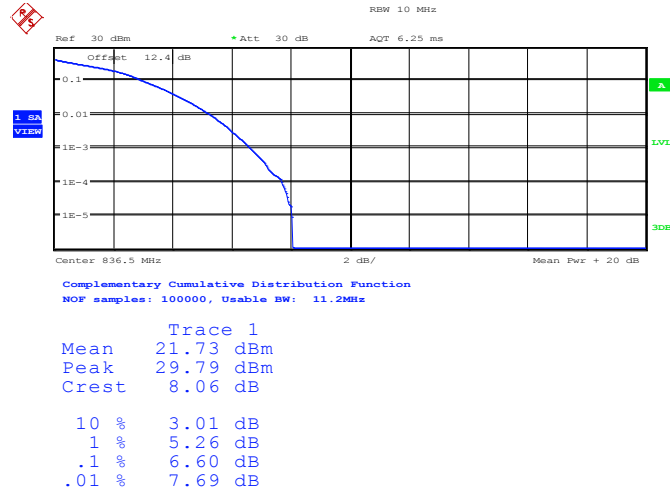
Peak-to-Average Ratio on LTE Band 5
10MHz / 16QAM in Ch. 20600 (1RB Size)


Date: 27.MAY.2014 20:02:40

Peak-to-Average Ratio on LTE Band 5
10MHz / 16QAM in Ch. 20450 (50RB Size)


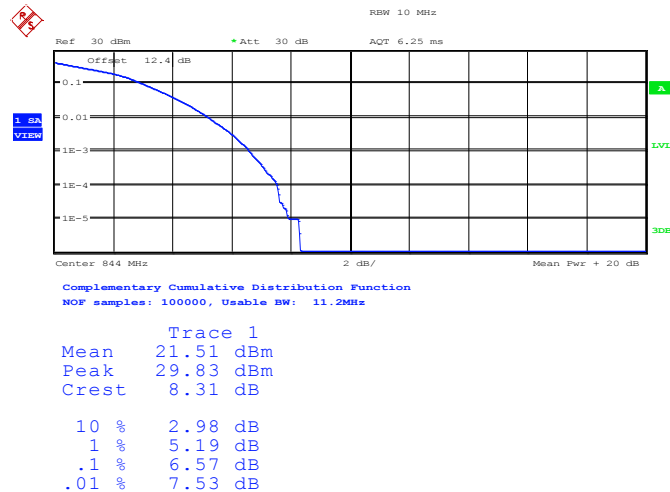
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Peak-to-Average Ratio on LTE Band 5
10MHz / 16QAM in Ch. 20525 (50RB Size)



Date: 27.MAY.2014 20:02:25

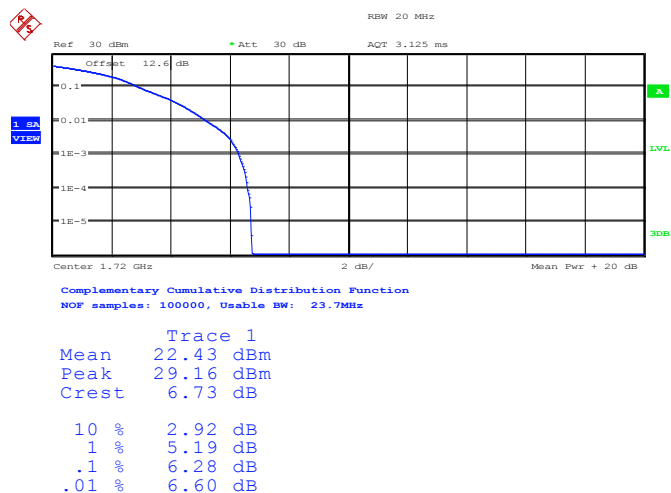
Peak-to-Average Ratio on LTE Band 5
10MHz / 16QAM in Ch. 20600 (50RB Size)



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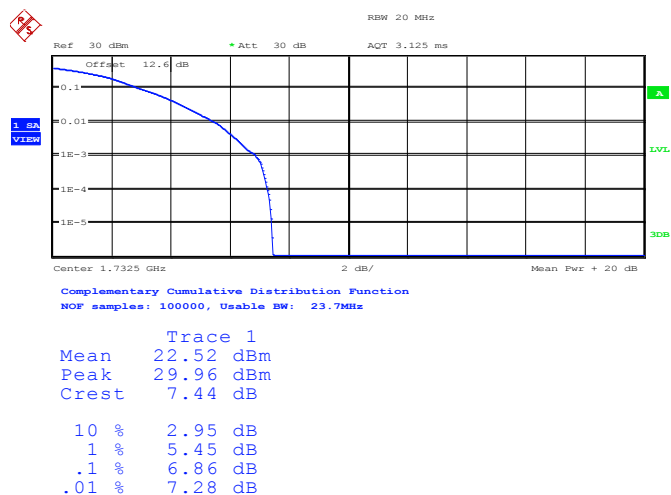


Peak-to-Average Ratio on LTE Band 4
20MHz / 16QAM in Ch. 20050 (1RB Size)



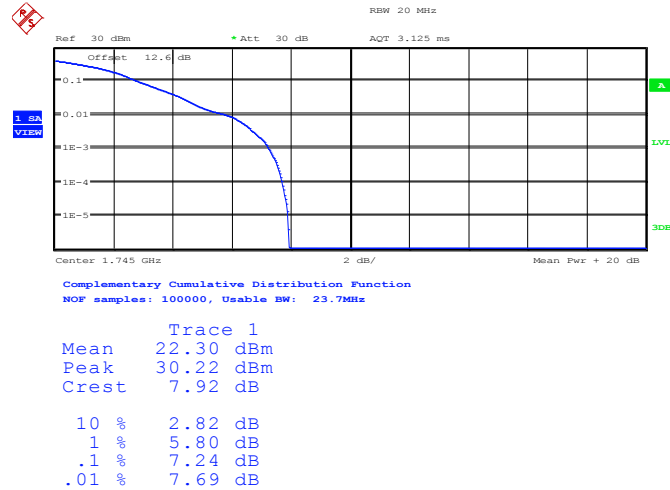
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Peak-to-Average Ratio on LTE Band 4
20MHz / 16QAM in Ch. 20175 (1RB Size)



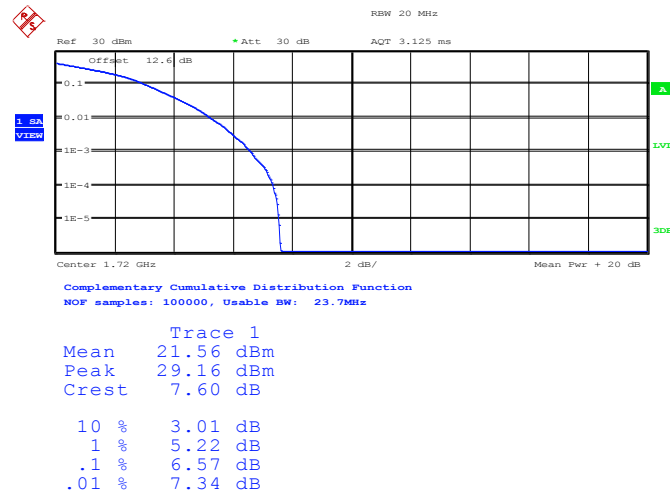
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Peak-to-Average Ratio on LTE Band 4
20MHz / 16QAM in Ch. 20300 (1RB Size)



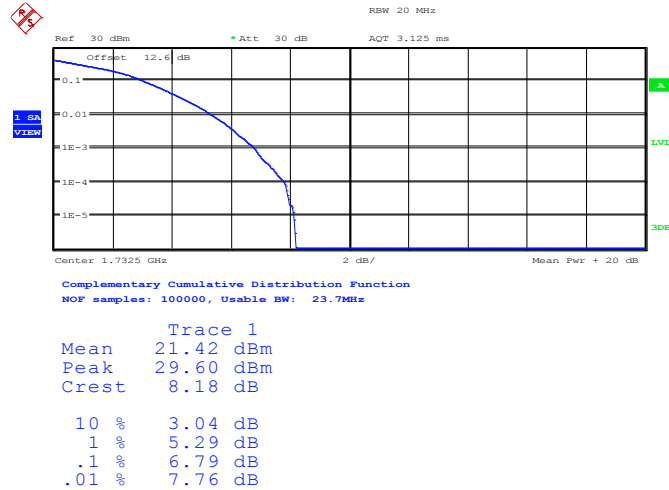
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Peak-to-Average Ratio on LTE Band 4
20MHz / 16QAM in Ch. 20050 (100RB Size)



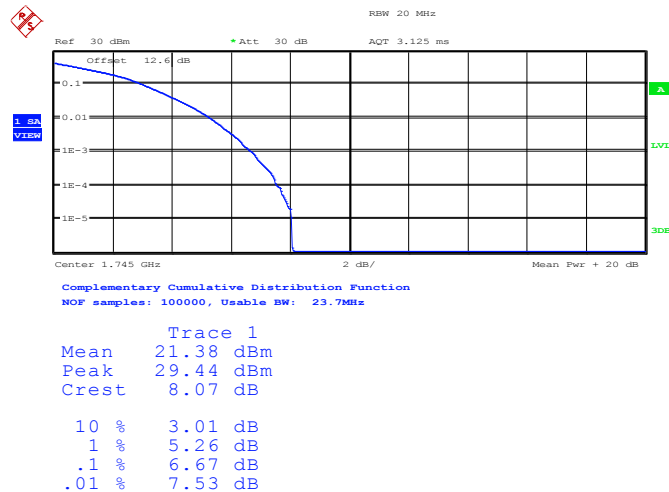
Date: 27.MAY.2014 18:20:51

Peak-to-Average Ratio on LTE Band 4
20MHz / 16QAM in Ch. 201750 (100RB Size)



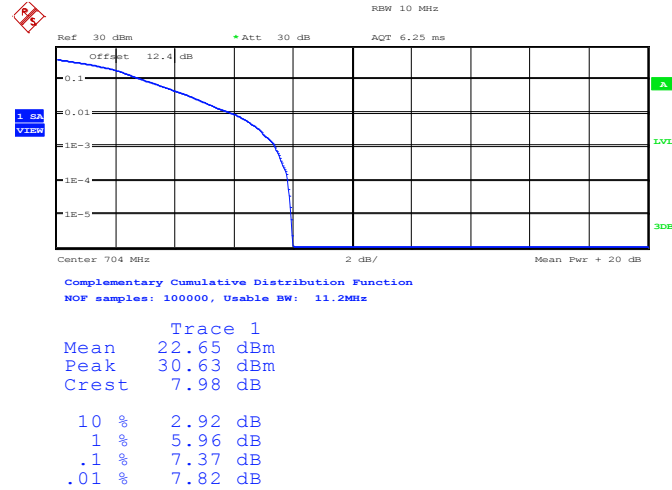
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Peak-to-Average Ratio on LTE Band 4
20MHz / 16QAM in Ch. 20300 (100RB Size)



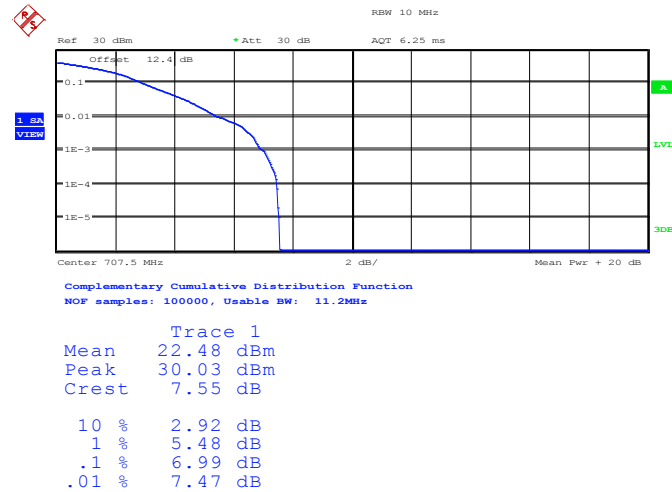
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Peak-to-Average Ratio on LTE Band 12
10MHz / 16QAM in Ch. 23060 (1RB Size)



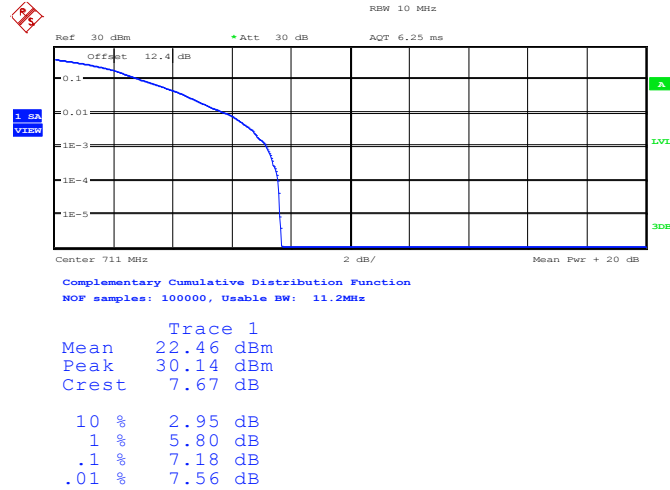
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Peak-to-Average Ratio on LTE Band 12
10MHz / 16QAM in Ch. 23095 (1RB Size)



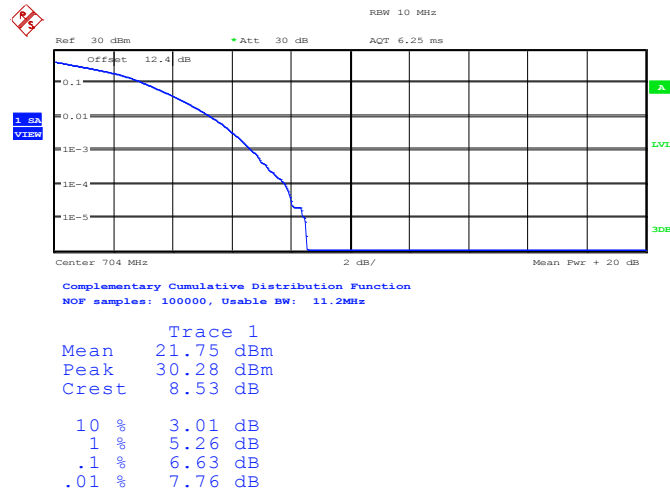
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Peak-to-Average Ratio on LTE Band 12
10MHz / 16QAM in Ch. 23130 (1RB Size)



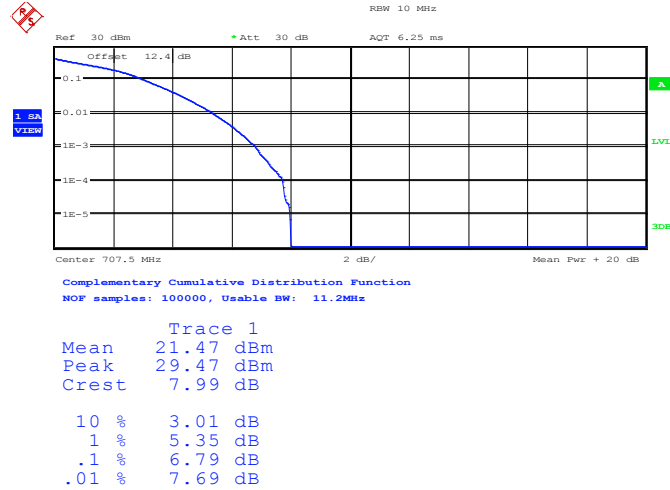
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Peak-to-Average Ratio on LTE Band 12
10MHz / 16QAM in Ch. 23060 (50RB Size)



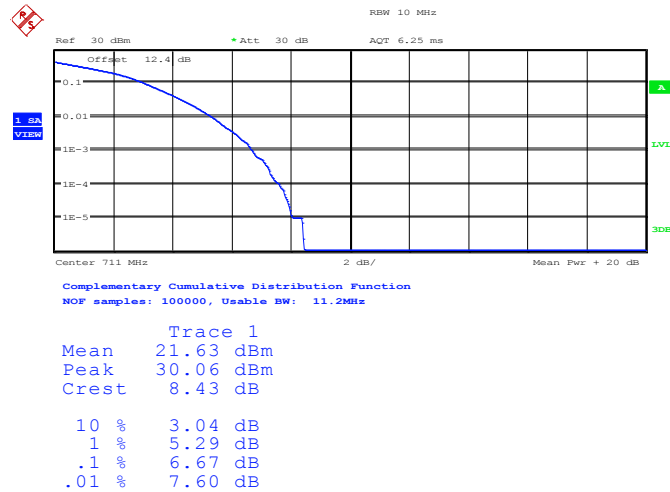
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Peak-to-Average Ratio on LTE Band 12
10MHz / 16QAM in Ch. 23095 (50RB Size)



Date: 27.MAY.2014 22:22:46

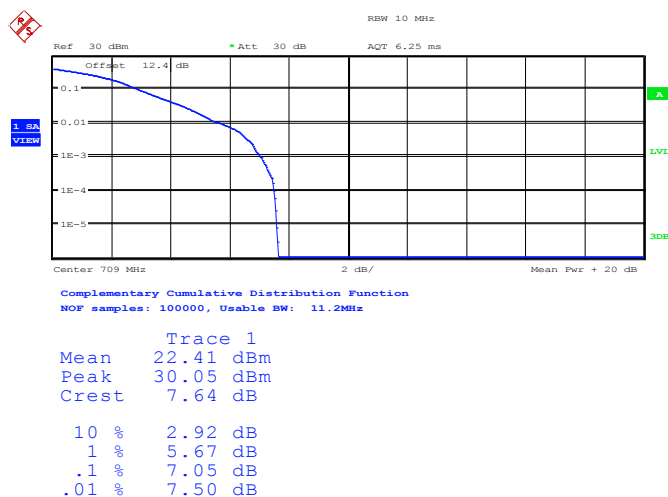
Peak-to-Average Ratio on LTE Band 12
10MHz / 16QAM in Ch. 23130 (50RB Size)



Date: 27.MAY.2014 22:25:59

Peak-to-Average Ratio on LTE Band 17

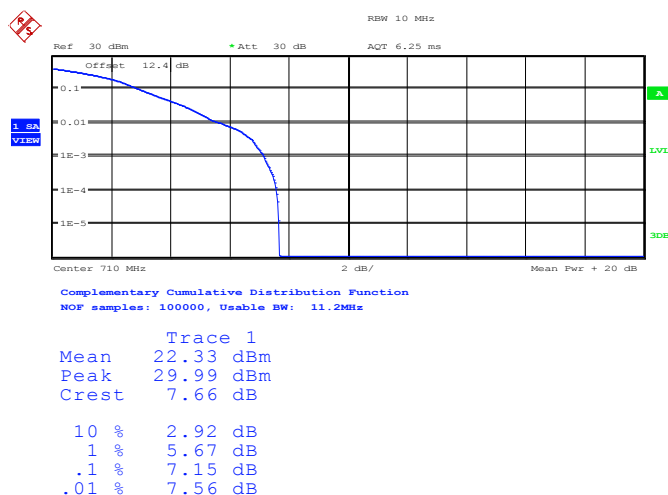
10MHz / 16QAM in Ch. 23780 (1RB Size)



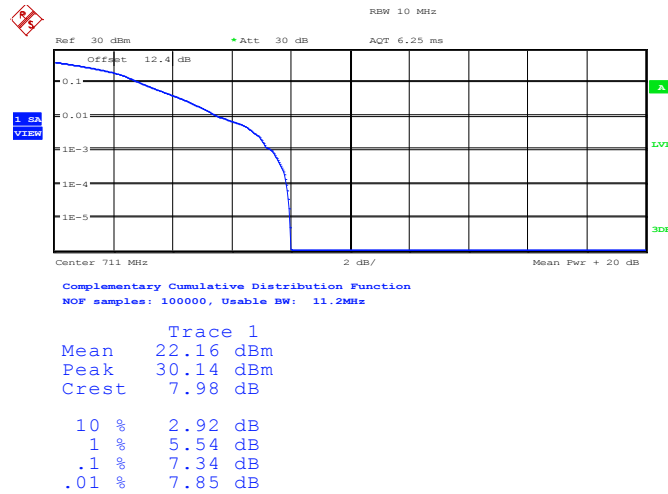
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Peak-to-Average Ratio on LTE Band 17

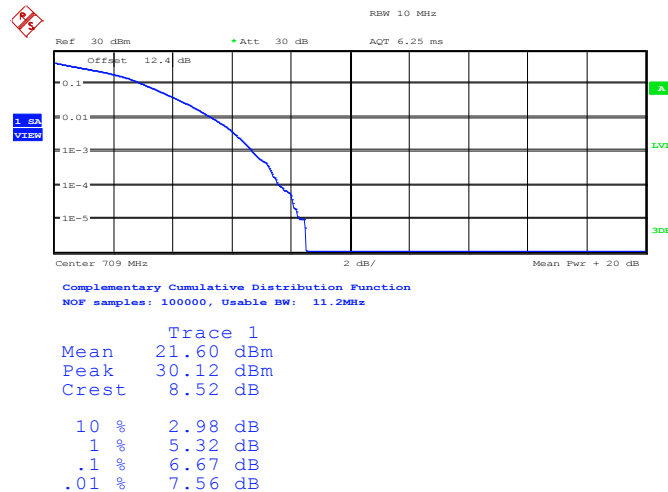
10MHz / 16QAM in Ch. 23790 (1RB Size)



Date: 27.MAY.2014 23:06:11

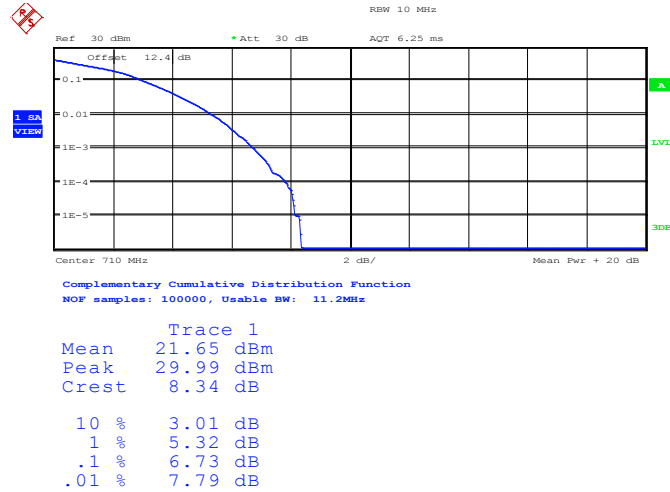
Peak-to-Average Ratio on LTE Band 17
10MHz / 16QAM in Ch. 23800 (1RB Size)


Date: 27.MAY.2014 23:06:43

Peak-to-Average Ratio on LTE Band 17
10MHz / 16QAM in Ch. 23780 (50RB Size)


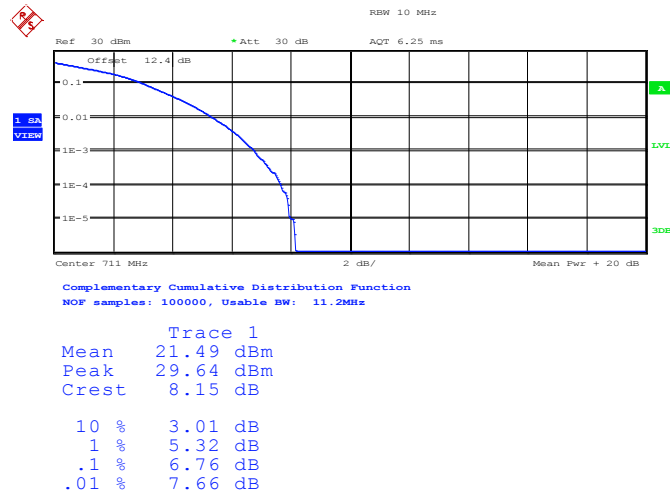
Date: 27.MAY.2014 23:01:22

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



Date: 27.MAY.2014 23:06:26

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



Date: 27.MAY.2014 23:06:59

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 v02r01. Mobile and portable (hand-held) stations operating are limited to average ERP of 7 watts with LTE band 5 and 3 watts with LTE band 12 / 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 v02r01. Mobile and portable (hand-held) stations operating are limited to average EIRP of 1 watt with LTE band 4.

3.3.2 Measuring Instruments

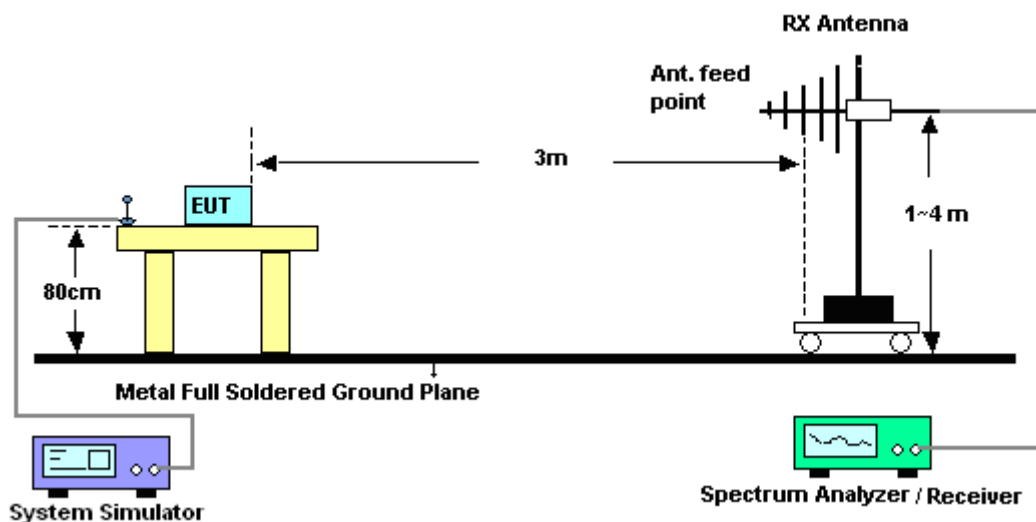
The measuring equipment is listed in the section 4 of this test report.

3.3.3 Test Procedures

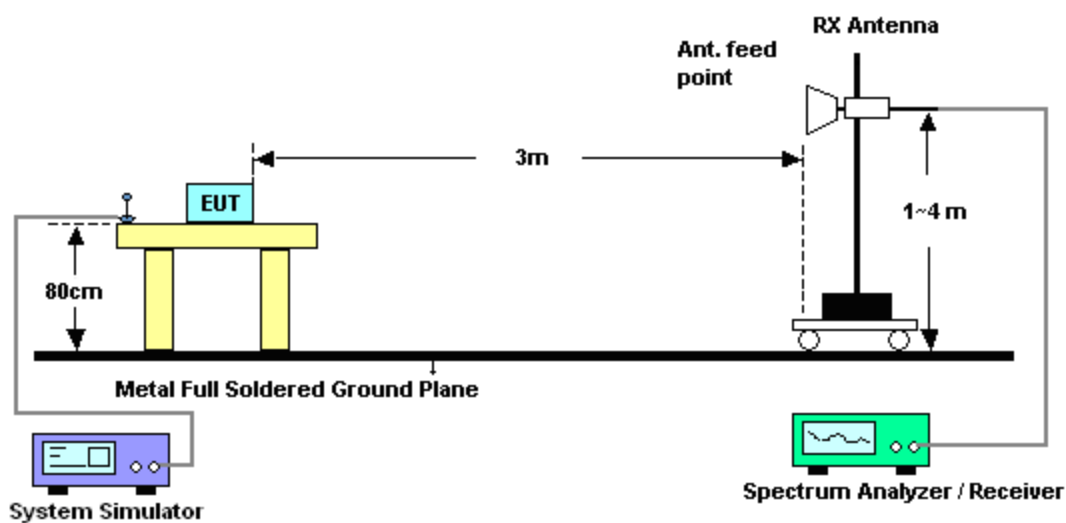
1. The EUT was placed on a non-conductive rotating platform 0.8 meters high in a semi-anechoic chamber. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and a spectrum analyzer with RMS detector per section 5. of KDB 971168 D01.
2. During the measurement, the 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 $ERP = EIRP - 2.15$.

3.3.4 Test Setup

For Effective Radiated Power



For Equivalent Isotropic Radiated Power



3.3.5 Test Result of ERP/EIRP

LTE Band 5 Radiated Power ERP for BW 1.4MHz / QPSK				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
824.7	-12.89	31.54	16.50	0.045
836.5	-12.33	32.04	17.56	0.057
848.3	-15.17	32.59	15.27	0.034
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
824.7	-24.80	32.93	5.98	0.004
836.5	-21.21	32.82	9.46	0.009
848.3	-26.85	33.62	4.62	0.003

LTE Band 5 Radiated Power ERP for BW 1.4MHz / 16QAM				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
824.7	-15.06	31.54	14.33	0.027
836.5	-14.42	32.04	15.47	0.035
848.3	-17.39	32.59	13.05	0.020
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
824.7	-26.82	32.93	3.96	0.003
836.5	-23.24	32.82	7.43	0.006
848.3	-28.74	33.62	2.73	0.002

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

LTE Band 5 Radiated Power ERP for BW 3MHz / QPSK				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
825.5	-12.74	31.54	16.65	0.046
836.5	-12.52	32.04	17.37	0.055
847.5	-15.97	32.59	14.47	0.028
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
825.5	-24.38	32.93	6.40	0.004
836.5	-21.39	32.82	9.28	0.009
847.5	-26.35	33.62	5.12	0.003

LTE Band 5 Radiated Power ERP for BW 3MHz / 16QAM				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
825.5	-14.77	31.44	14.52	0.028
836.5	-14.57	32.04	15.32	0.034
847.5	-17.09	32.63	13.39	0.022
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
825.5	-26.57	32.78	4.06	0.003
836.5	-23.37	32.82	7.30	0.005
847.5	-28.51	33.4	2.74	0.002

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

LTE Band 5 Radiated Power ERP for BW 5MHz / QPSK				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
826.5	-12.43	31.44	16.86	0.049
836.5	-13.02	32.04	16.87	0.049
846.5	-14.60	32.63	15.88	0.039
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
826.5	-24.20	32.78	6.43	0.004
836.5	-22.09	32.82	8.58	0.007
846.5	-25.81	33.4	5.44	0.004

LTE Band 5 Radiated Power ERP for BW 5MHz / 16QAM				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
826.5	-14.54	31.44	14.75	0.030
836.5	-15.16	32.04	14.73	0.030
846.5	-16.71	32.63	13.77	0.024
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
826.5	-26.25	32.78	4.38	0.003
836.5	-24.34	32.82	6.33	0.004
846.5	-27.84	33.4	3.41	0.002

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

LTE Band 5 Radiated Power ERP for BW 10MHz / QPSK				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
829	-11.66	31.44	17.63	0.058
836.5	-13.96	32.04	15.93	0.039
844	-13.62	32.63	16.86	0.049
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
829	-23.59	32.78	7.04	0.005
836.5	-22.95	32.82	7.72	0.006
844	-24.97	33.4	6.28	0.004

LTE Band 5 Radiated Power ERP for BW 10MHz / 16QAM				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
829	-13.56	31.44	15.73	0.037
836.5	-16.15	32.04	13.74	0.024
844	-15.59	32.63	14.89	0.031
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
829	-25.47	32.78	5.16	0.003
836.5	-24.99	32.82	5.68	0.004
844	-24.85	33.4	6.40	0.004

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

LTE Band 4 Radiated Power EIRP for BW 1.4MHz / QPSK				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1710.70	-18.11	41.65	23.54	0.226
1732.50	-19.48	42.95	23.47	0.222
1754.30	-18.77	42.28	23.51	0.224
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1710.70	-18.88	43.57	24.69	0.294
1732.50	-21.57	45.94	24.37	0.274
1754.30	-20.47	45.2	24.73	0.297

LTE Band 4 Radiated Power EIRP for BW 1.4MHz / 16QAM				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1710.70	-19.81	41.65	21.84	0.153
1732.50	-21.38	42.95	21.57	0.144
1754.30	-20.60	42.28	21.68	0.147
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1710.70	-21.05	43.57	22.52	0.179
1732.50	-23.76	45.94	22.18	0.165
1754.30	-22.62	45.2	22.58	0.181

LTE Band 4 Radiated Power EIRP for BW 3MHz / QPSK				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1711.50	-17.93	41.58	23.65	0.232
1732.50	-19.58	42.95	23.37	0.217
1753.50	-18.50	42.12	23.62	0.230
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1711.50	-18.86	43.49	24.63	0.290
1732.50	-21.58	45.94	24.36	0.273
1753.50	-20.02	44.94	24.92	0.310

LTE Band 4 Radiated Power EIRP for BW 3MHz / 16QAM				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1711.50	-19.65	41.58	21.93	0.156
1732.50	-21.50	42.95	21.45	0.140
1753.50	-20.34	42.12	21.78	0.151
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1711.50	-20.86	43.49	22.63	0.183
1732.50	-23.74	45.94	22.20	0.166
1753.50	-22.16	44.94	22.78	0.190

LTE Band 4 Radiated Power EIRP for BW 5MHz / QPSK				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1712.50	-17.84	41.62	23.78	0.239
1732.50	-18.87	42.06	23.19	0.208
1752.50	-18.22	41.73	23.51	0.224
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1712.50	-18.69	43.45	24.76	0.299
1732.50	-21.45	45.68	24.23	0.265
1752.50	-20.04	44.88	24.84	0.305

LTE Band 4 Radiated Power EIRP for BW 5MHz / 16QAM				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1712.50	-19.68	41.62	21.94	0.156
1732.50	-20.80	42.06	21.26	0.134
1752.50	-20.11	41.73	21.62	0.145
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1712.50	-20.75	43.45	22.70	0.186
1732.50	-23.64	45.68	22.04	0.160
1752.50	-22.15	44.88	22.73	0.188

LTE Band 4 Radiated Power EIRP for BW 10MHz / QPSK				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1715.00	-17.73	42.12	24.39	0.275
1732.50	-18.85	42.06	23.21	0.209
1750.00	-17.86	41.57	23.71	0.235
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1715.00	-19.76	44.81	25.05	0.320
1732.50	-21.61	45.68	24.07	0.255
1750.00	-19.99	44.74	24.75	0.299

LTE Band 4 Radiated Power EIRP for BW 10MHz / 16QAM				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1715.00	-19.66	42.12	22.46	0.176
1732.50	-20.89	42.06	21.17	0.131
1750.00	-19.97	41.57	21.60	0.145
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1715.00	-21.81	44.81	23.00	0.200
1732.50	-23.80	45.68	21.88	0.154
1750.00	-22.14	44.74	22.60	0.182

LTE Band 4 Radiated Power EIRP for BW 15MHz / QPSK				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1717.50	-17.33	41.79	24.46	0.279
1732.50	-18.87	42.06	23.19	0.208
1747.50	-17.65	41.31	23.66	0.232
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1717.50	-19.92	44.99	25.07	0.321
1732.50	-21.75	45.68	23.93	0.247
1747.50	-20.24	44.95	24.71	0.296

LTE Band 4 Radiated Power EIRP for BW 15MHz / 16QAM				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1717.50	-19.19	41.79	22.60	0.182
1732.50	-20.77	42.06	21.29	0.135
1747.50	-19.65	41.31	21.66	0.147
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1717.50	-21.84	44.99	23.15	0.207
1732.50	-23.71	45.68	21.97	0.157
1747.50	-22.25	44.95	22.70	0.186

LTE Band 4 Radiated Power EIRP for BW 20MHz / QPSK				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1720.00	-17.17	41.43	24.26	0.267
1732.50	-18.79	42.06	23.27	0.212
1745.00	-17.48	41.15	23.67	0.233
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1720.00	-18.35	43.87	25.52	0.357
1732.50	-20.75	45.68	24.93	0.311
1745.00	-19.56	44.39	24.83	0.304

LTE Band 4 Radiated Power EIRP for BW 20MHz / 16QAM				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1720.00	-18.86	41.43	22.57	0.181
1732.50	-20.65	42.06	21.41	0.138
1745.00	-19.54	41.15	21.61	0.145
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1720.00	-20.62	43.87	23.25	0.211
1732.50	-23.56	45.68	22.12	0.163
1745.00	-21.86	44.39	22.53	0.179

LTE Band 12 Radiated Power ERP for BW 1.4MHz / QPSK				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
699.70	-10.44	32.74	20.15	0.104
707.50	-10.52	32.45	19.78	0.095
715.30	-10.43	32.03	19.45	0.088
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
699.70	-23.56	36.16	10.45	0.011
707.50	-23.26	36.04	10.63	0.012
715.30	-22.21	35.08	10.72	0.012

LTE Band 12 Radiated Power ERP for BW 1.4MHz / 16QAM				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
699.70	-12.95	32.74	17.64	0.058
707.50	-13.11	32.45	17.19	0.052
715.30	-13.00	32.03	16.88	0.049
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
699.70	-25.86	36.16	8.15	0.007
707.50	-25.68	36.04	8.21	0.007
715.30	-24.65	35.08	8.28	0.007

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

LTE Band 12 Radiated Power ERP for BW 3MHz / QPSK				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
700.50	-10.50	32.8	20.15	0.104
707.50	-10.66	32.45	19.64	0.092
714.50	-10.33	32.04	19.56	0.090
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
700.50	-23.30	35.94	10.49	0.011
707.50	-23.27	36.04	10.62	0.012
714.50	-22.20	35.24	10.89	0.012

LTE Band 12 Radiated Power ERP for BW 3MHz / 16QAM				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
700.50	-13.03	32.8	17.62	0.058
707.50	-13.22	32.45	17.08	0.051
714.50	-12.88	32.04	17.01	0.050
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
700.50	-25.77	35.94	8.02	0.006
707.50	-25.78	36.04	8.11	0.007
714.50	-24.92	35.24	8.17	0.007

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

LTE Band 12 Radiated Power ERP for BW 5MHz / QPSK				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
701.50	-10.36	32.83	20.32	0.108
707.50	-10.66	32.45	19.64	0.092
713.50	-10.32	32.07	19.60	0.091
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
701.50	-23.02	35.94	10.77	0.012
707.50	-23.41	36.04	10.48	0.011
713.50	-22.17	35.15	10.83	0.012

LTE Band 12 Radiated Power ERP for BW 5MHz / 16QAM				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
701.50	-12.90	32.83	17.78	0.060
707.50	-13.14	32.45	17.16	0.052
713.50	-12.84	32.07	17.08	0.051
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
701.50	-25.51	35.94	8.28	0.007
707.50	-25.80	36.04	8.09	0.006
713.50	-24.62	35.15	8.38	0.007

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

LTE Band 12 Radiated Power ERP for BW 10MHz / QPSK				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
704.00	-10.51	32.82	20.16	0.104
707.50	-10.43	32.45	19.87	0.097
711.00	-10.62	32.37	19.60	0.091
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
704.00	-23.32	35.87	10.40	0.011
707.50	-23.18	36.04	10.71	0.012
711.00	-22.58	35.39	10.66	0.012

LTE Band 12 Radiated Power ERP for BW 10MHz / 16QAM				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
704.00	-13.01	32.82	17.66	0.058
707.50	-12.60	32.45	17.70	0.059
711.00	-13.00	32.37	17.22	0.053
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
704.00	-25.56	35.87	8.16	0.007
707.50	-25.26	36.04	8.63	0.007
711.00	-24.79	35.39	8.45	0.007

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

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	-8.99	30.84	19.70	0.093
710.00	-9.13	30.86	19.58	0.091
713.50	-9.05	30.81	19.61	0.091
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
706.50	-21.67	34.59	10.77	0.012
710.00	-21.06	34.03	10.82	0.012
713.50	-20.54	33.68	10.99	0.013

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	-11.45	30.84	17.24	0.053
710.00	-11.60	30.86	17.11	0.051
713.50	-11.57	30.81	17.09	0.051
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
706.50	-24.11	34.59	8.33	0.007
710.00	-23.31	34.03	8.57	0.007
713.50	-22.94	33.68	8.59	0.007

* 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	-8.92	30.77	19.70	0.093
710.00	-9.34	30.86	19.37	0.086
711.00	-9.07	30.82	19.60	0.091
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
709.00	-21.38	34.16	10.63	0.012
710.00	-21.26	34.03	10.62	0.012
711.00	-21.05	33.94	10.74	0.012

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	-11.23	30.77	17.39	0.055
710.00	-11.43	30.86	17.28	0.054
711.00	-11.48	30.82	17.19	0.052
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
709.00	-23.43	34.16	8.58	0.007
710.00	-23.25	34.03	8.63	0.007
711.00	-23.28	33.94	8.51	0.007

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

3.4 Occupied Bandwidth

3.4.1 Description of Occupied Bandwidth Measurement

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

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

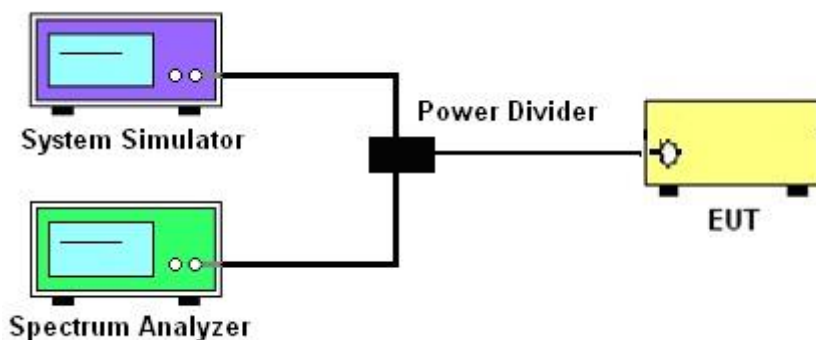
3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

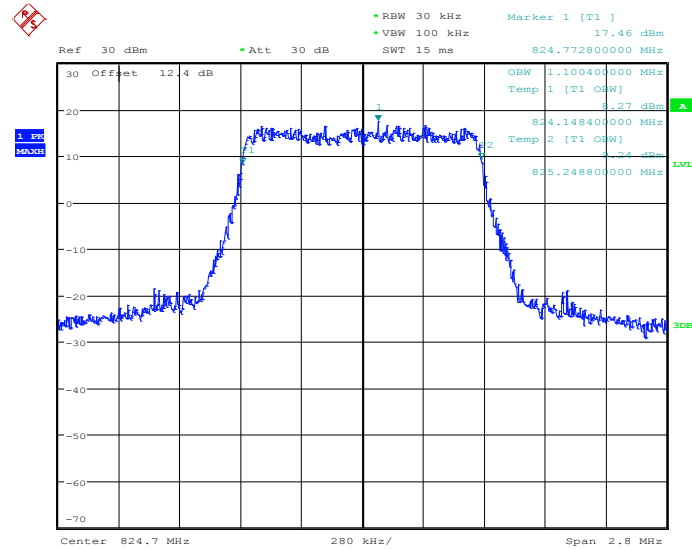
1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
2. The 26dB and 99% occupied bandwidth (BW) of the middle channel for the highest RF power with full RB sizes were measured.

3.4.4 Test Setup

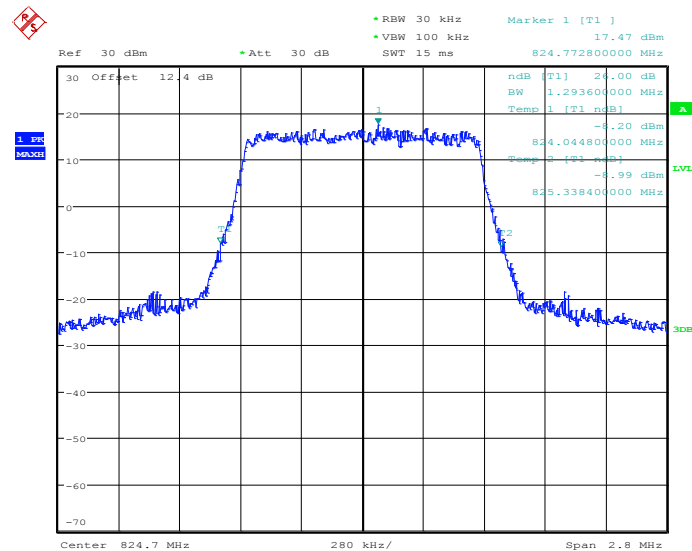


3.4.5 Test Result (Plots) of Occupied Bandwidth

Band :	LTE Band 5	BW / Mod. :	1.4MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 20407


Date: 27.MAY.2014 20:03:41

26dB Bandwidth Plot on Channel 20407


Date: 27.MAY.2014 20:04:33



• RBW 30 kHz Marker 1 [T1] 17.72 dBm
 • VBW 100 kHz
 Ref 30 dBm • Att 30 dB SWT 15 ms 836.572800000 MHz

30 Offset 12.4 dB
 20
 10
 0
 -10
 -20
 -30
 -40
 -50
 -60
 -70

1 Freq
 HOLD

1.100400000 MHz
 Temp 1 [T1 CRW] 8.06 dBm
 835.945600000 MHz
 Temp 2 [T1 CRW] 10.44 dBm
 837.046000000 MHz

A
 LVL
 3DB

Center 836.5 MHz 280 kHz/ Span 2.8 MHz

Date: 27.MAY.2014 20:10:03

• RBW 30 kHz
 • VBW 100 kHz
 SWT 15 ms

Ref 30 dBm
 Att 30 dB

Marker 1 [T1]
 836.578400000 MHz

1. Freq
 MAGN

30 Offset 12.4 dB
 20
 10
 0
 -10
 -20
 -30
 -40
 -50
 -60
 -70

ndB [T1] 24.00 dB
 BW 1.282400000 MHz
 Temp 1 [T1 ndB] -1.56 dBm
 836.578400000 MHz
 Temp 2 [T1 ndB] -6.45 dBm
 837.146800000 MHz

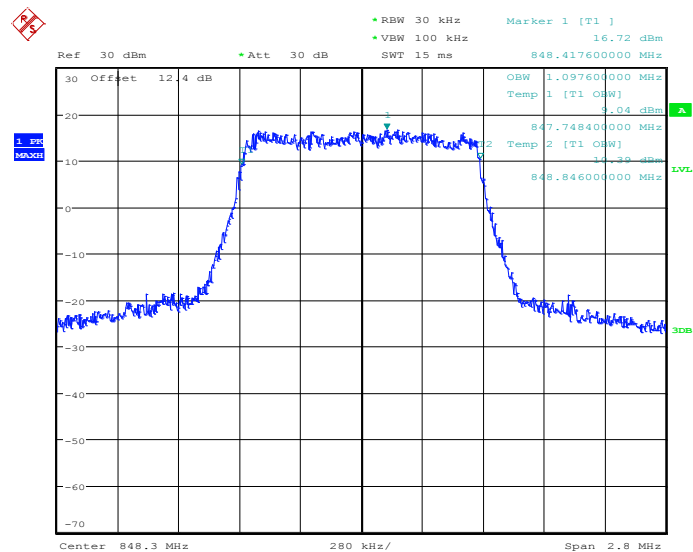
1
 2

Center 836.5 MHz
 280 kHz/
 Span 2.8 MHz

Date: 27.MAY.2014 20:10:37

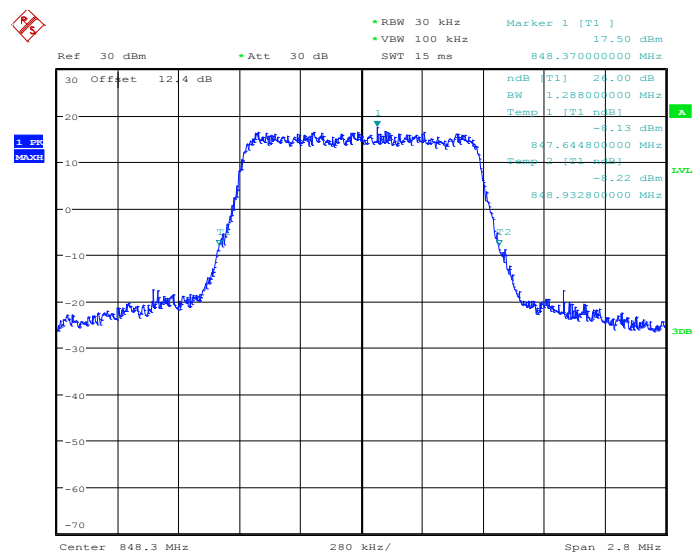


99% Occupied Bandwidth Plot on Channel 20643



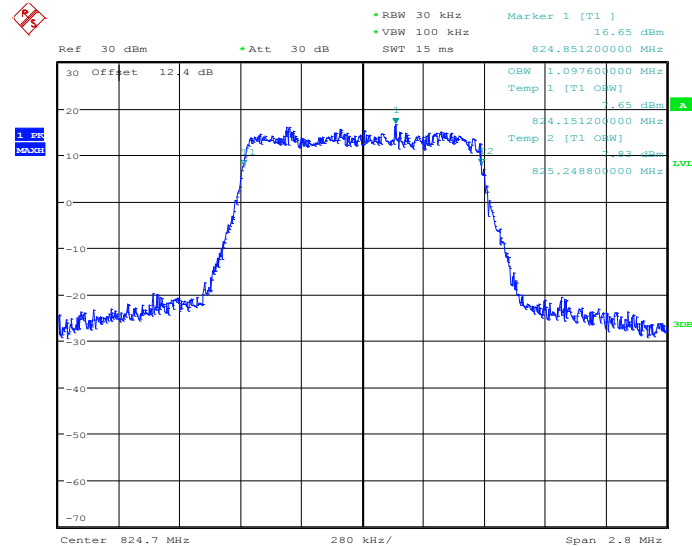
Date: 27.MAY.2014 20:13:13

26dB Bandwidth Plot on Channel 20643

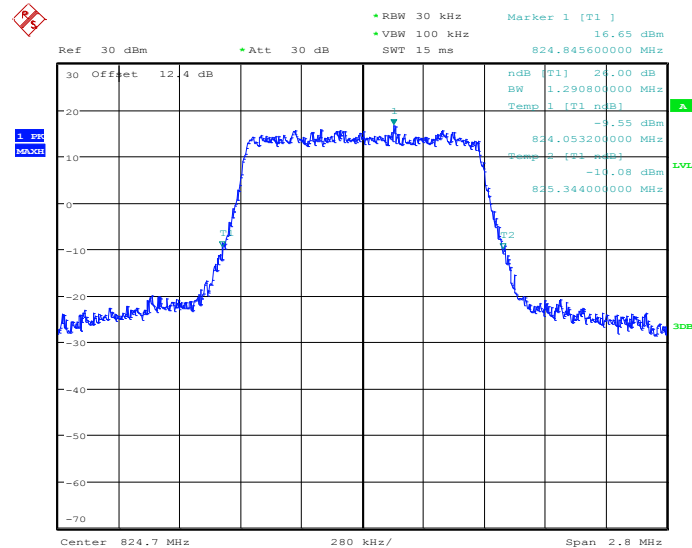


Date: 27.MAY.2014 20:13:47

Band :	LTE Band 5	BW / Mod. :	1.4MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 20407


Date: 27.MAY.2014 20:03:57

26dB Bandwidth Plot on Channel 20407


Date: 27.MAY.2014 20:04:15

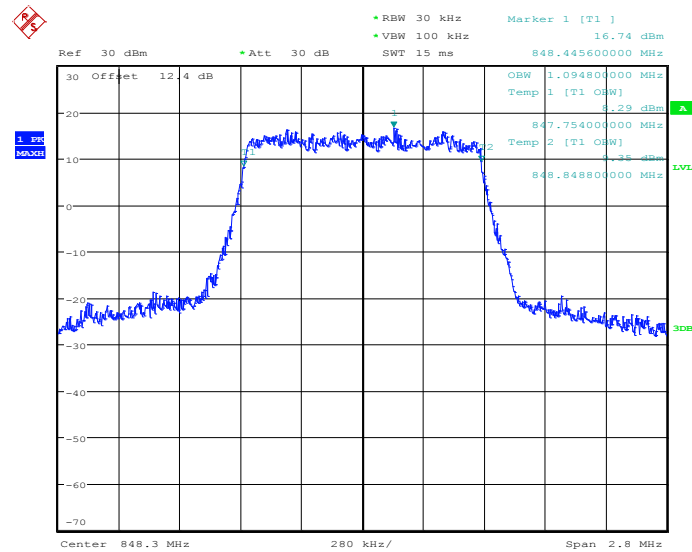


26dB Bandwidth Plot on Channel 20525



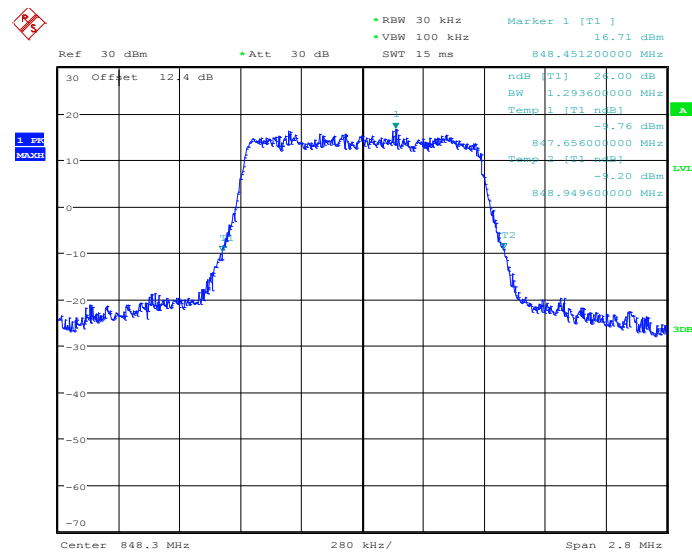


99% Occupied Bandwidth Plot on Channel 20643



Date: 27.MAY.2014 20:13:29

26dB Bandwidth Plot on Channel 20643

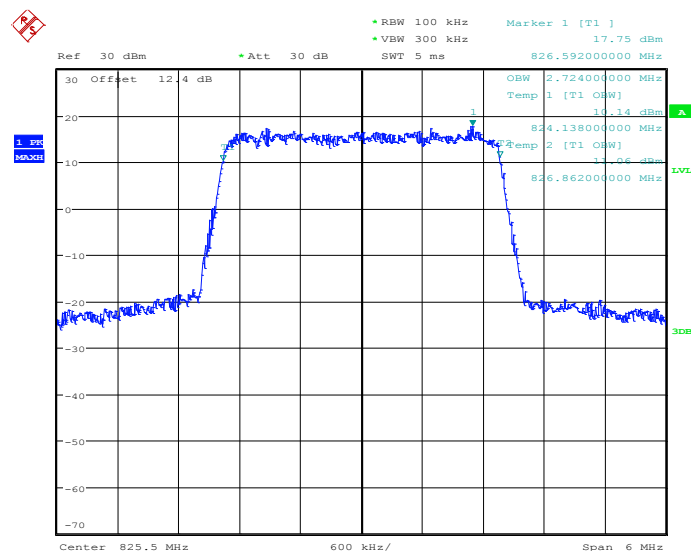


Date: 27.MAY.2014 20:14:06



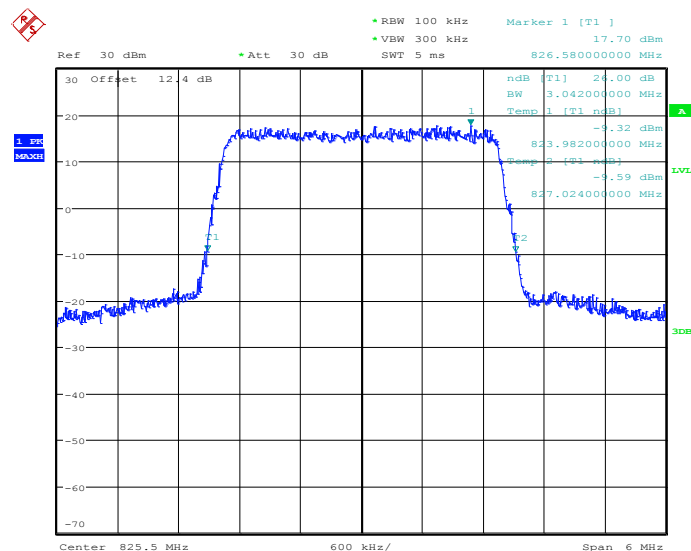
Band :	LTE Band 5	BW / Mod. :	3MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 20415

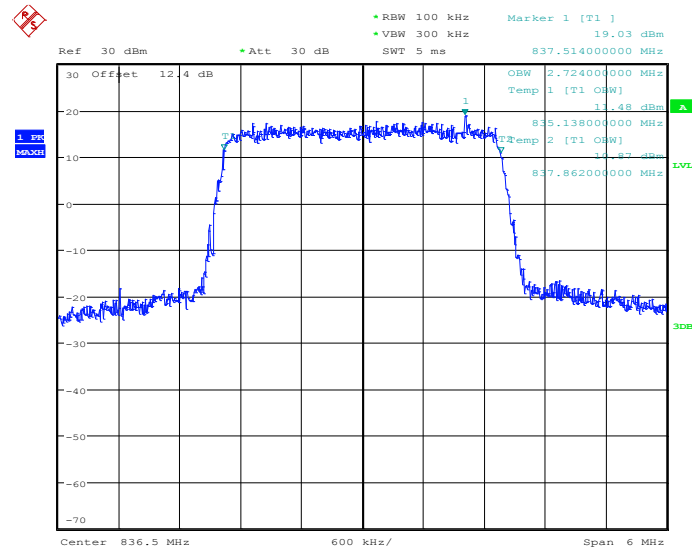


Date: 27.MAY.2014 19:13:55

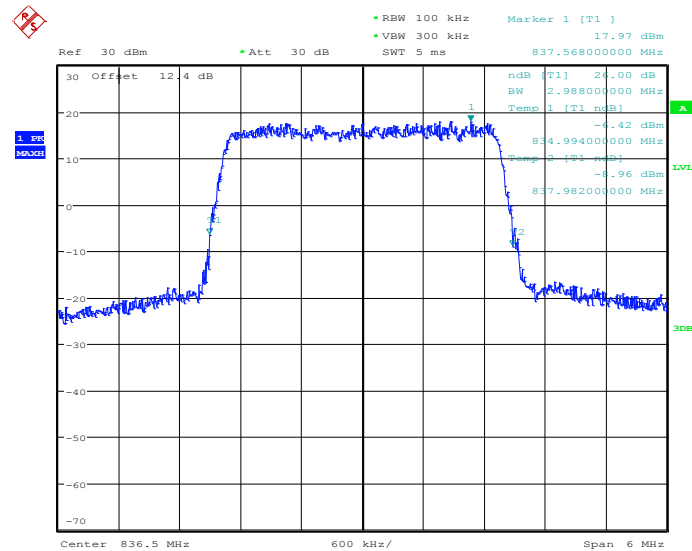
26dB Bandwidth Plot on Channel 20415



Date: 27.MAY.2014 19:14:29

99% Occupied Bandwidth Plot on Channel 20525


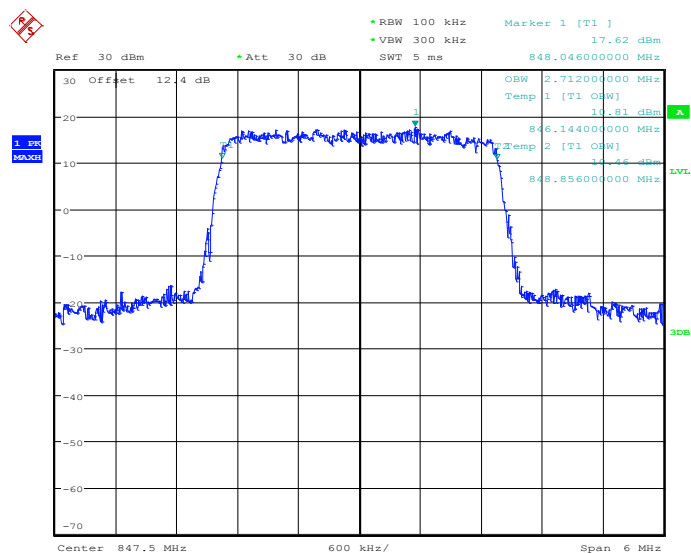
Date: 27.MAY.2014 19:20:16

26dB Bandwidth Plot on Channel 20525


Date: 27.MAY.2014 19:20:50

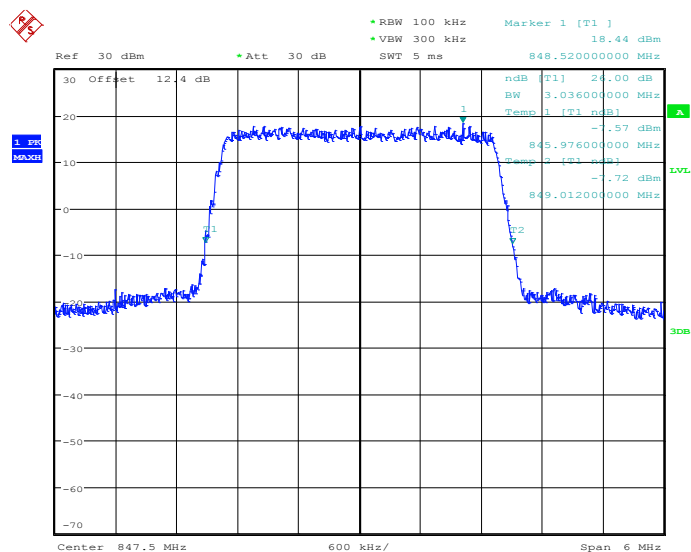


99% Occupied Bandwidth Plot on Channel 20635



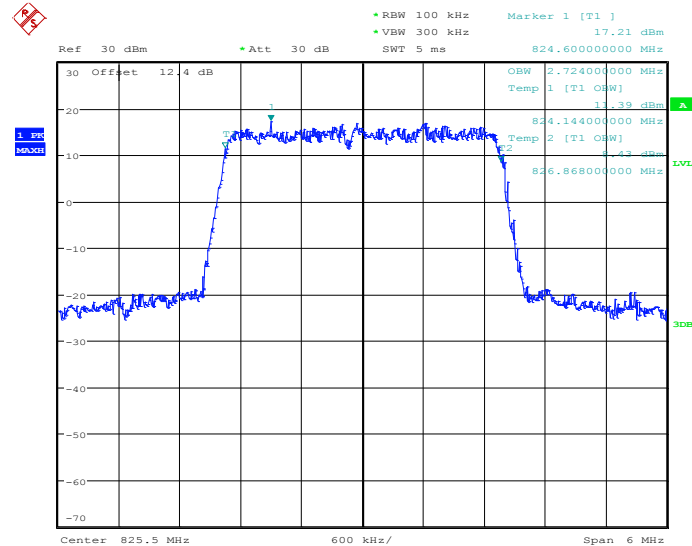
Date: 27.MAY.2014 19:23:26

26dB Bandwidth Plot on Channel 20635

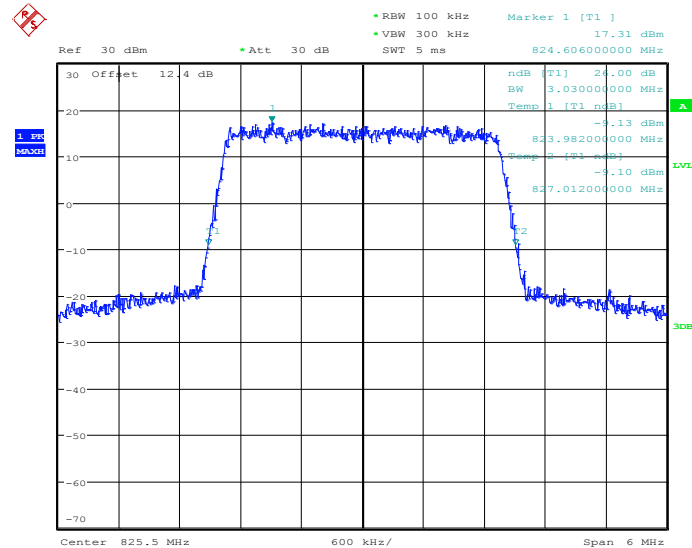


Date: 27.MAY.2014 19:24:00

Band :	LTE Band 5	BW / Mod. :	3MHz / 16QAM
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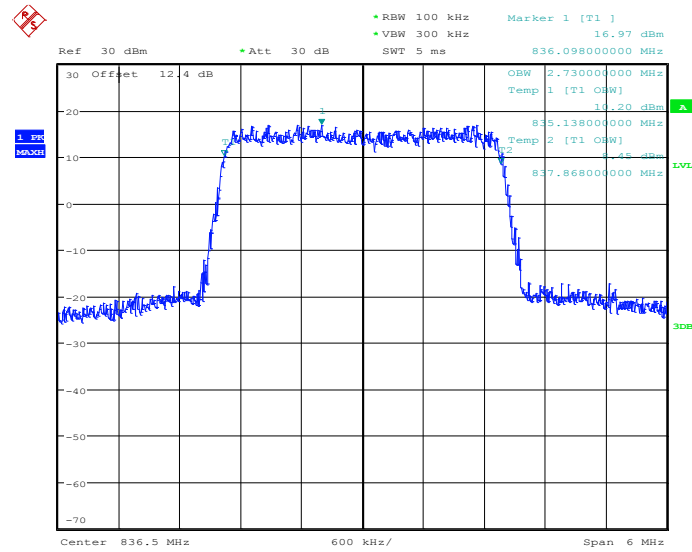
99% Occupied Bandwidth Plot on Channel 20415


Date: 27.MAY.2014 19:14:11

26dB Bandwidth Plot on Channel 20415


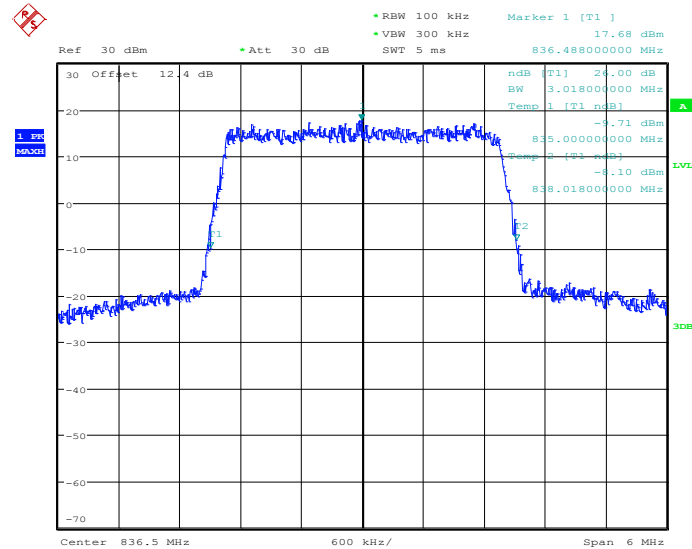
Date: 27.MAY.2014 19:14:47

99% Occupied Bandwidth Plot on Channel 20525



Date: 27.MAY.2014 19:20:32

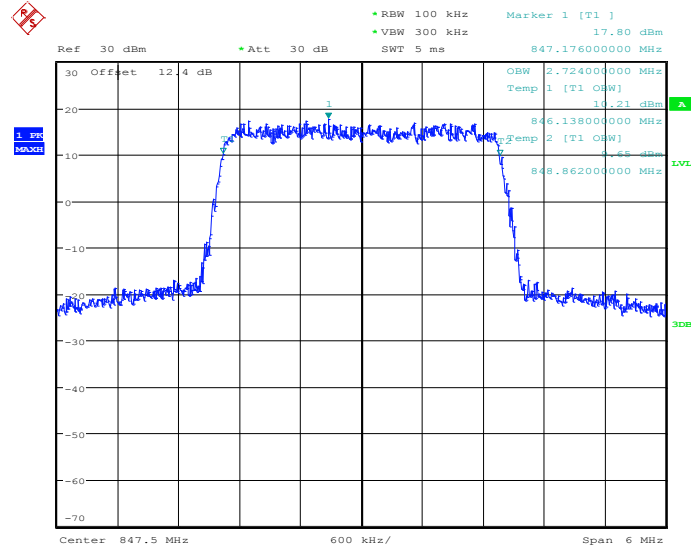
26dB Bandwidth Plot on Channel 20525



Date: 27.MAY.2014 19:21:08

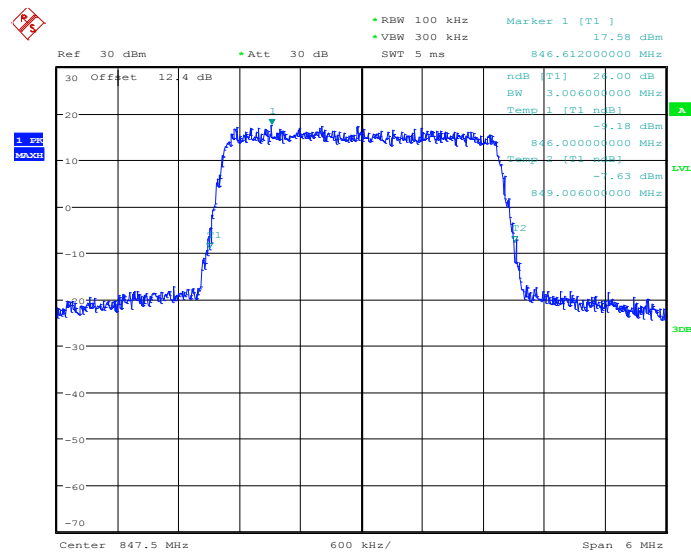


99% Occupied Bandwidth Plot on Channel 20635



Date: 27.MAY.2014 19:23:42

26dB Bandwidth Plot on Channel 20635



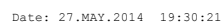
Date: 27.MAY.2014 19:24:19

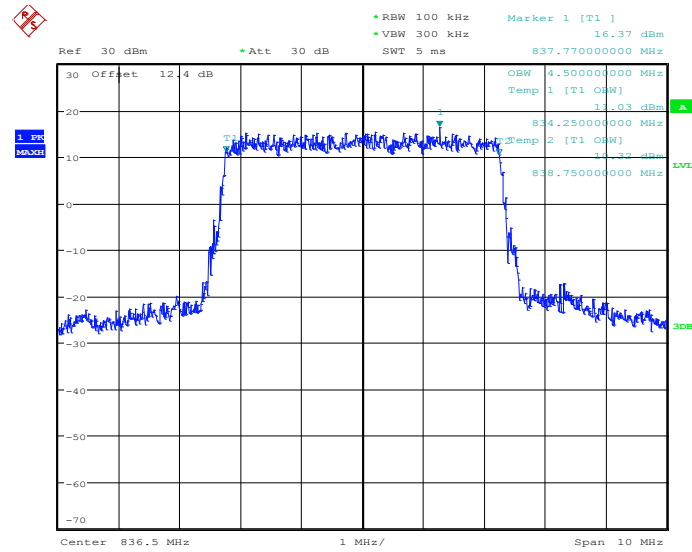


99% Occupied Bandwidth Plot on Channel 20425

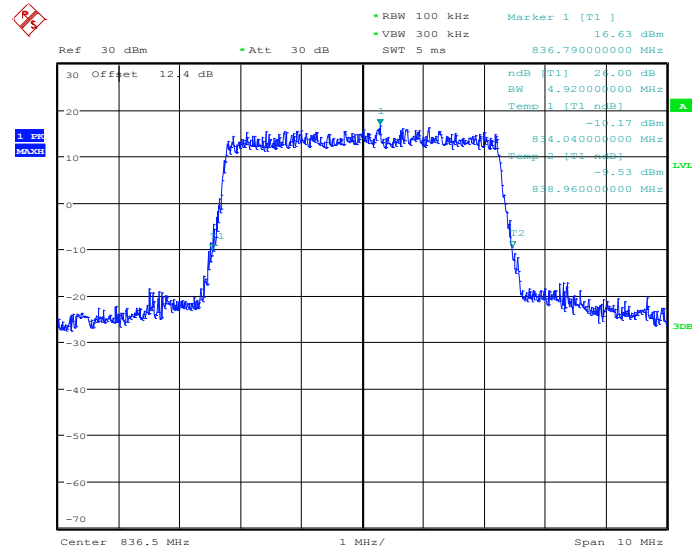


26dB Bandwidth Plot on Channel 20425



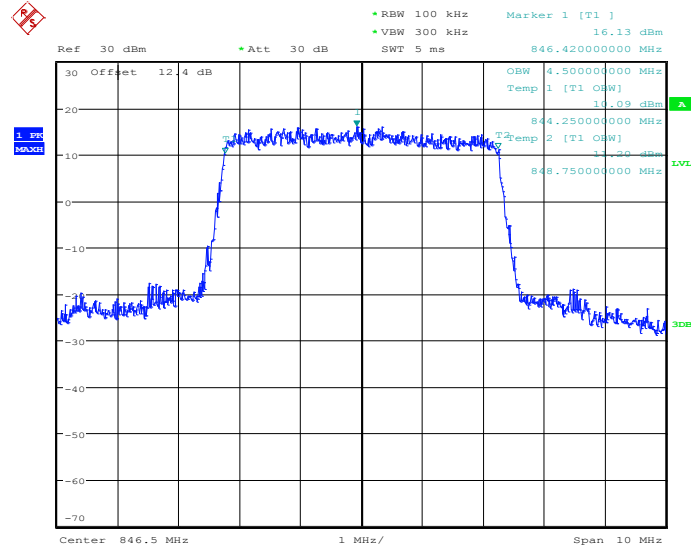
99% Occupied Bandwidth Plot on Channel 20525


Date: 27.MAY.2014 19:36:08

26dB Bandwidth Plot on Channel 20525


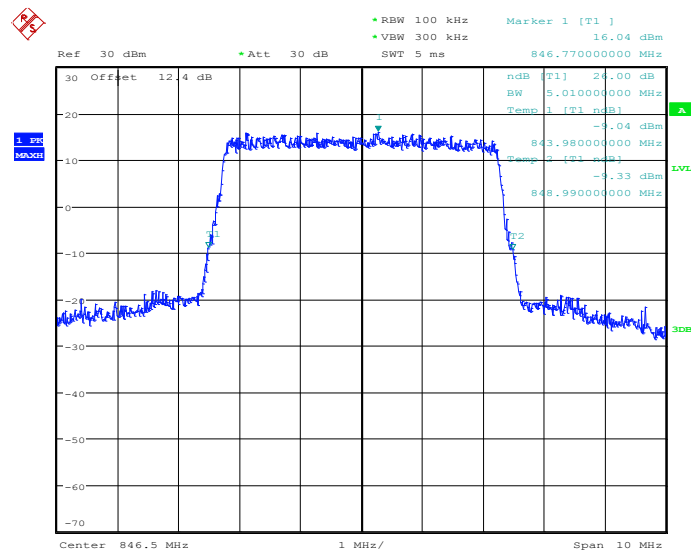
Date: 27.MAY.2014 19:36:42

99% Occupied Bandwidth Plot on Channel 20625



Date: 27.MAY.2014 19:39:18

26dB Bandwidth Plot on Channel 20625

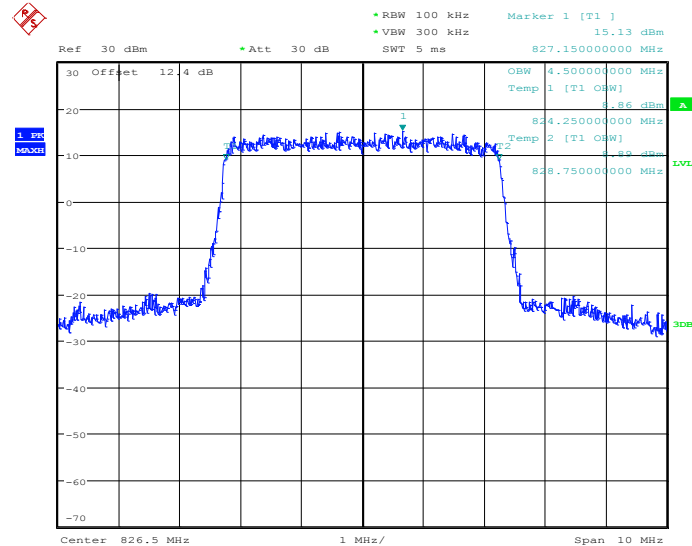


Date: 27.MAY.2014 19:39:52



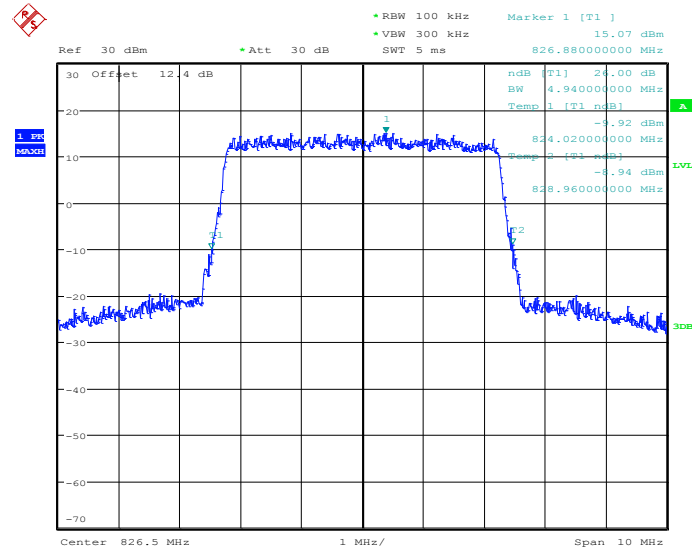
Band :	LTE Band 5	BW / Mod. :	5MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 20425



Date: 27.MAY.2014 19:30:03

26dB Bandwidth Plot on Channel 20425



Date: 27.MAY.2014 19:30:39

[illegible]

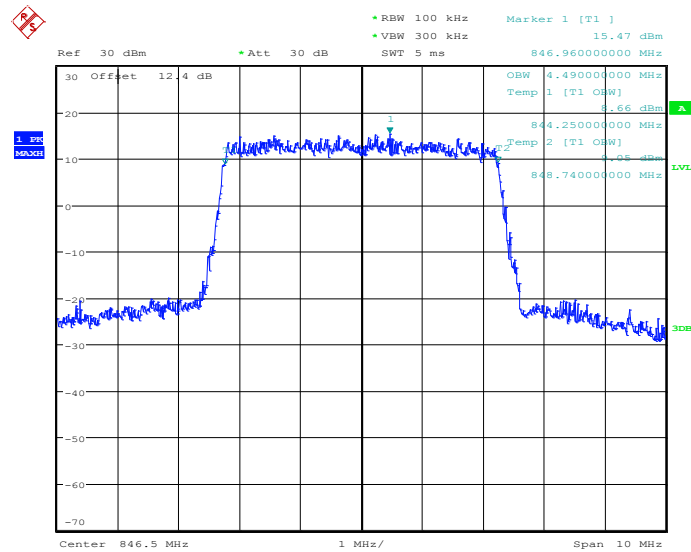
Date: 27.MAY.2014 19:36:24

[illegible]

Date: 27.MAY.2014 19:37:00

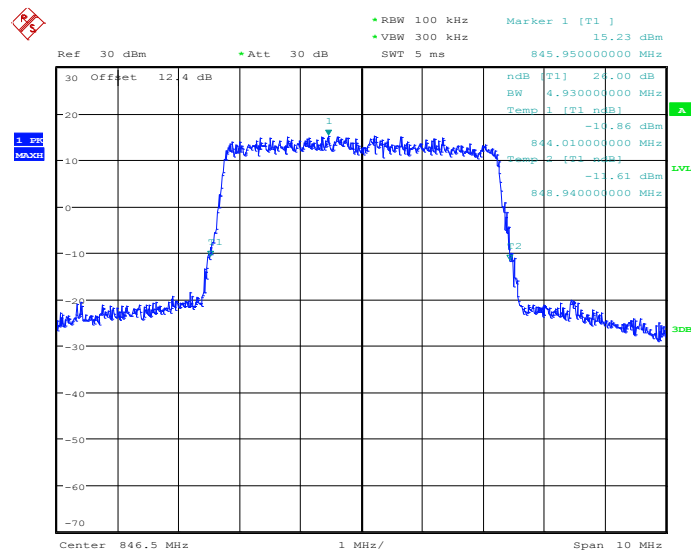


99% Occupied Bandwidth Plot on Channel 20625



Date: 27.MAY.2014 19:39:34

26dB Bandwidth Plot on Channel 20625

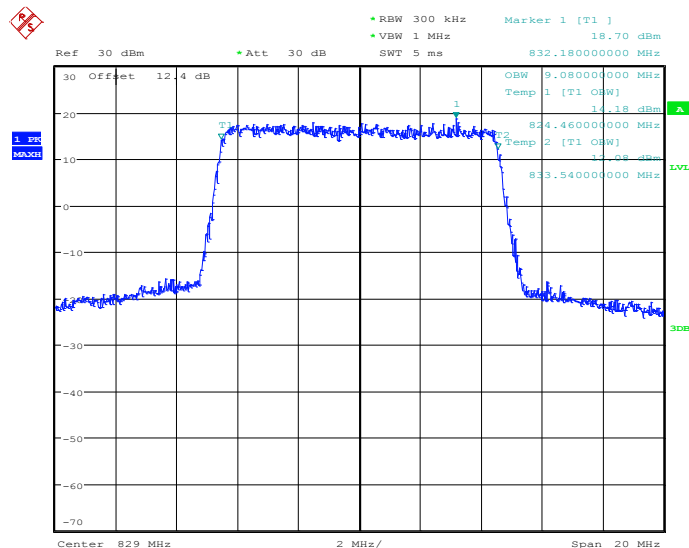


Date: 27.MAY.2014 19:40:11



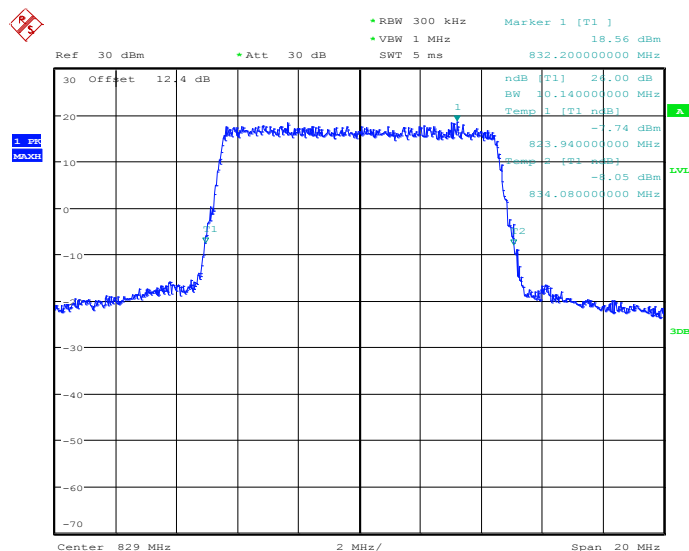
Band :	LTE Band 5	BW / Mod. :	10MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 20450



Date: 27.MAY.2014 19:45:39

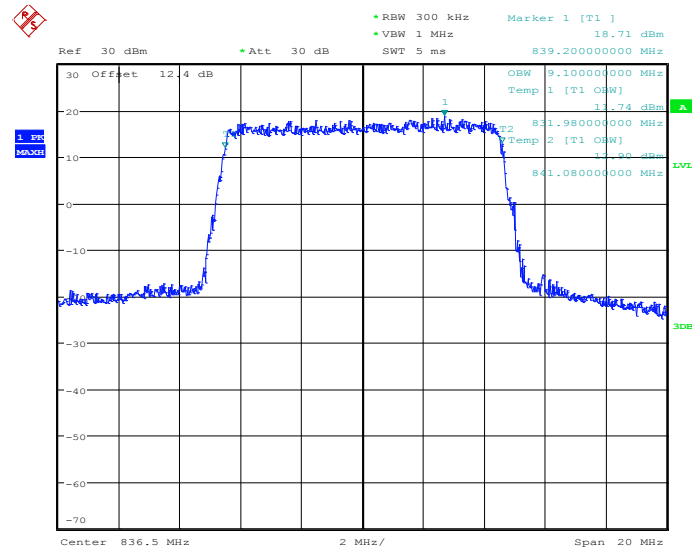
26dB Bandwidth Plot on Channel 20450



Date: 27.MAY.2014 19:46:13

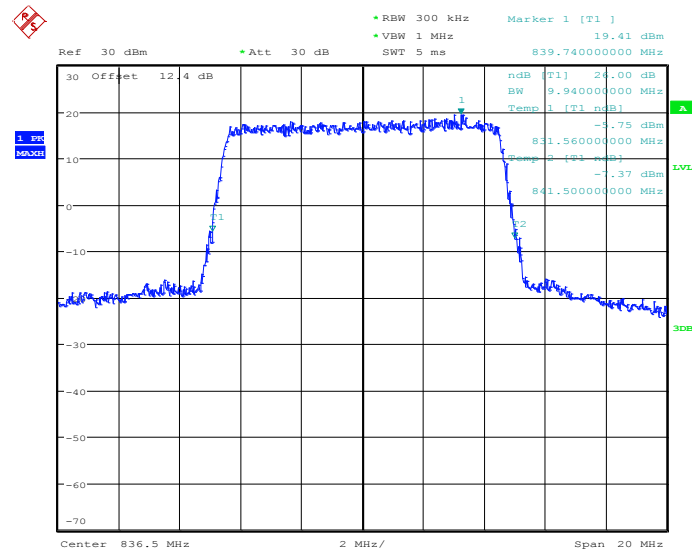


99% Occupied Bandwidth Plot on Channel 20525



Date: 27.MAY.2014 19:52:00

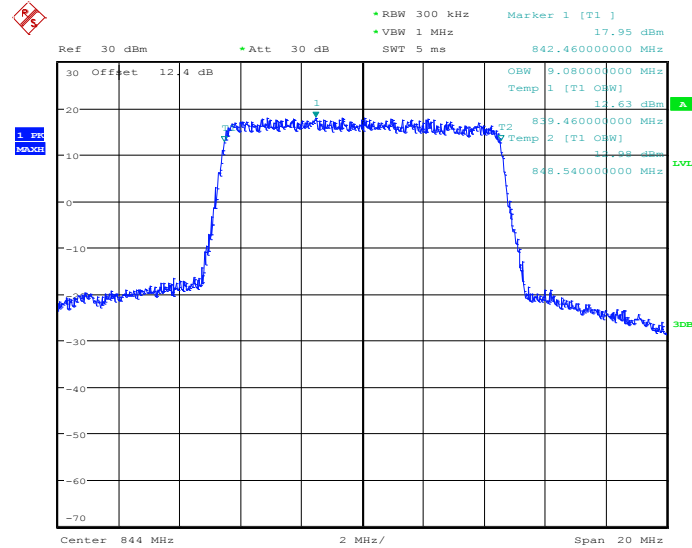
26dB Bandwidth Plot on Channel 20525



Date: 27.MAY.2014 19:52:34

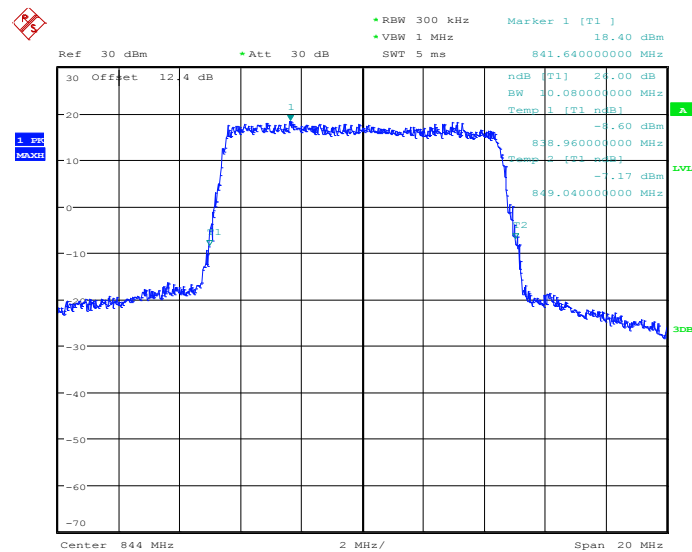


99% Occupied Bandwidth Plot on Channel 20600



Date: 27.MAY.2014 19:55:10

26dB Bandwidth Plot on Channel 20600

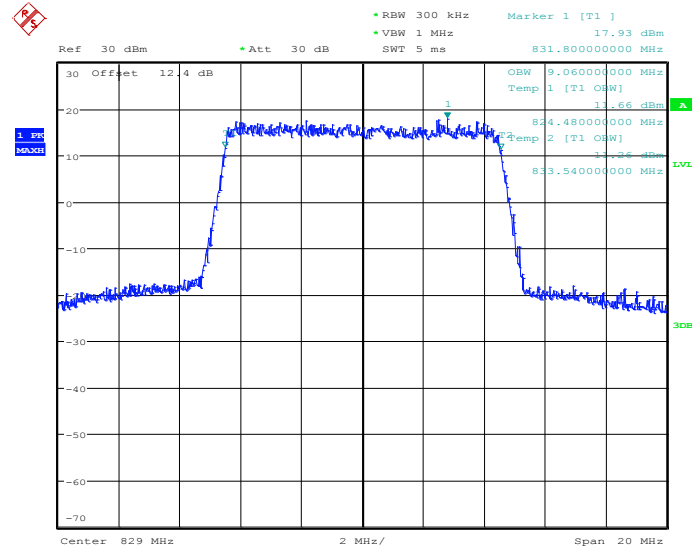


Date: 27.MAY.2014 19:55:44



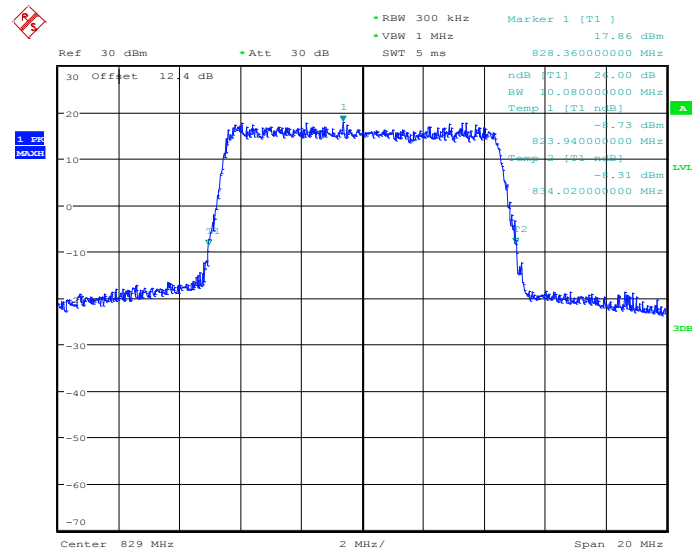
Band :	LTE Band 5	BW / Mod. :	10MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 20450



Date: 27.MAY.2014 19:45:55

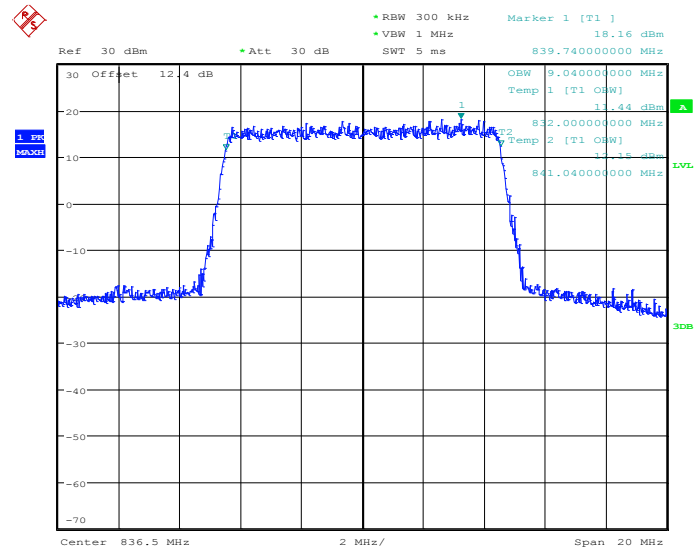
26dB Bandwidth Plot on Channel 20450



Date: 27.MAY.2014 19:46:31

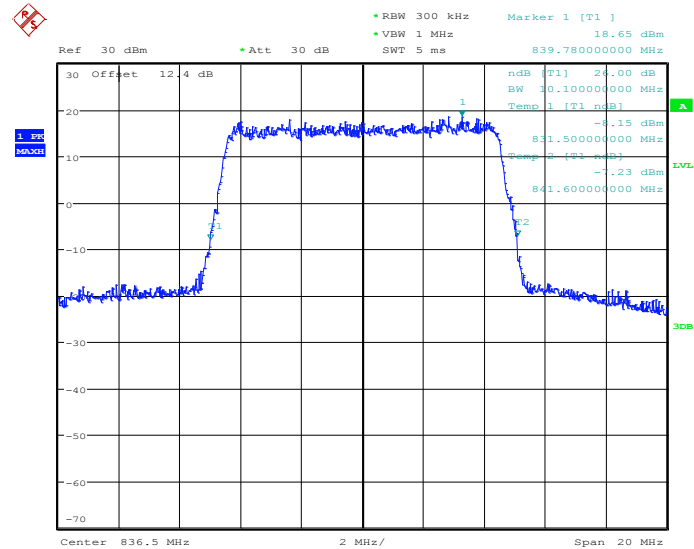


99% Occupied Bandwidth Plot on Channel 20525

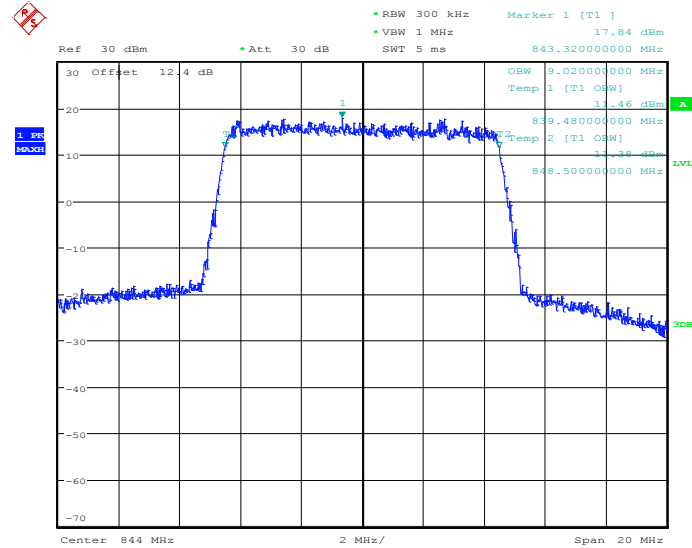


Date: 27.MAY.2014 19:52:16

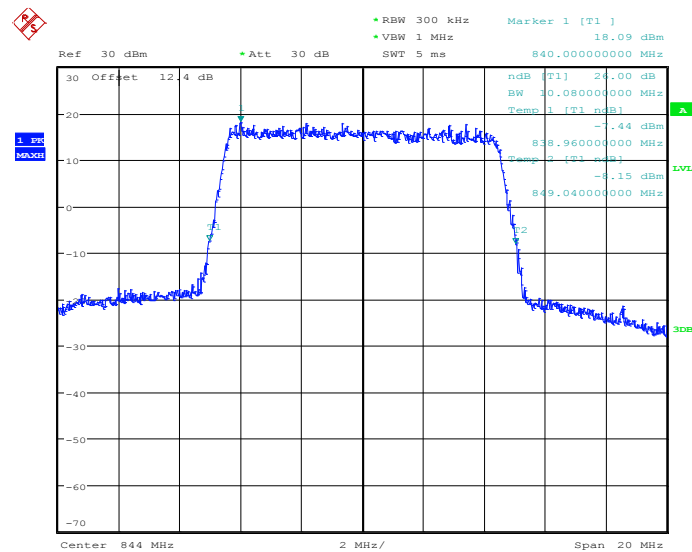
26dB Bandwidth Plot on Channel 20525



Date: 27.MAY.2014 19:52:52

99% Occupied Bandwidth Plot on Channel 20600


Date: 27.MAY.2014 19:55:26

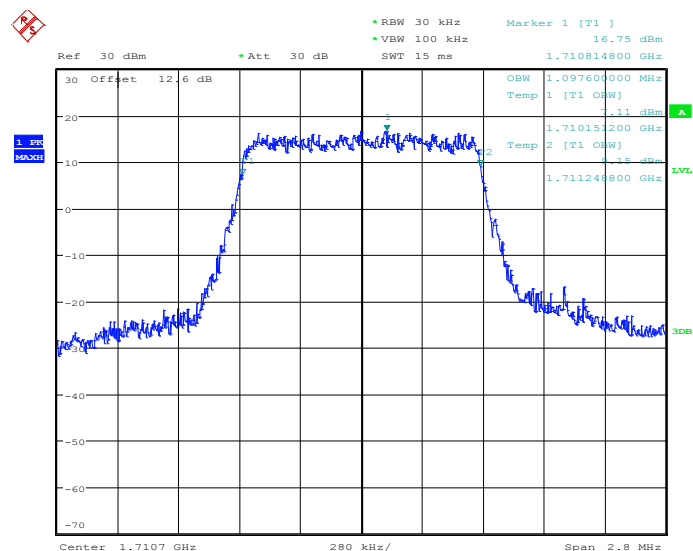
26dB Bandwidth Plot on Channel 20600


Date: 27.MAY.2014 19:56:03



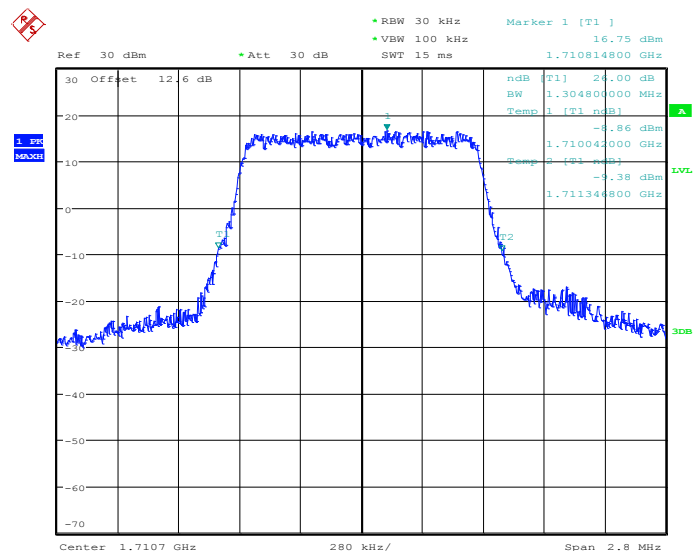
Band :	LTE Band 4	BW / Mod. :	1.4MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 19957

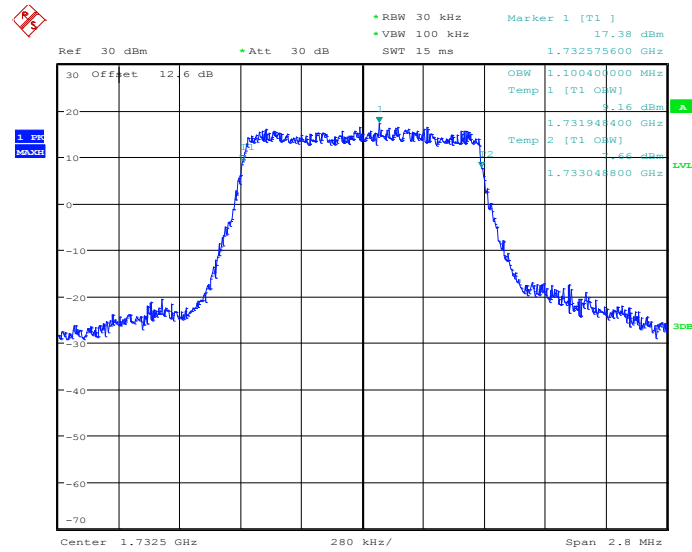


Date: 27.MAY.2014 16:41:25

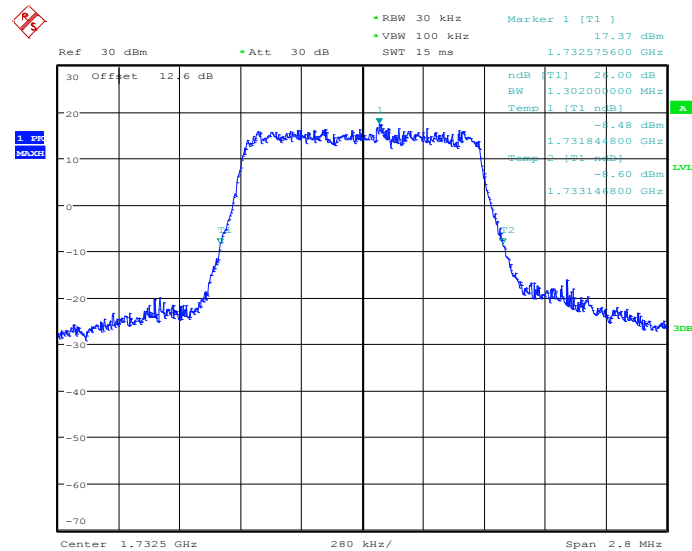
26dB Bandwidth Plot on Channel 19957



Date: 27.MAY.2014 16:42:00

99% Occupied Bandwidth Plot on Channel 20175


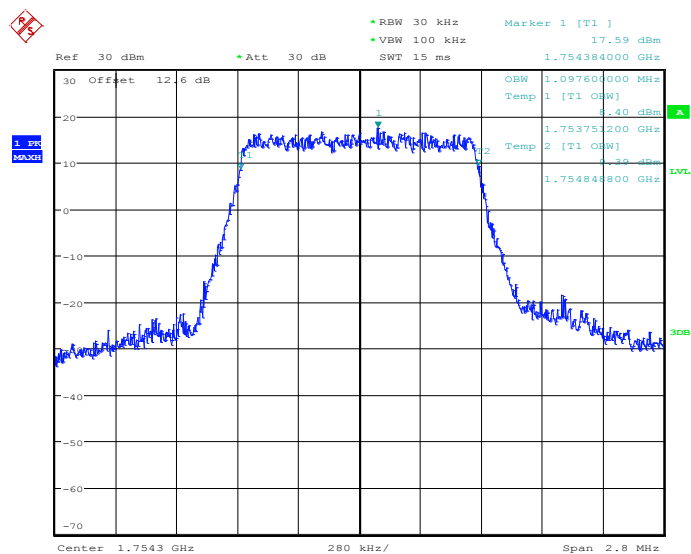
Date: 27.MAY.2014 16:47:45

26dB Bandwidth Plot on Channel 20175


Date: 27.MAY.2014 16:48:20

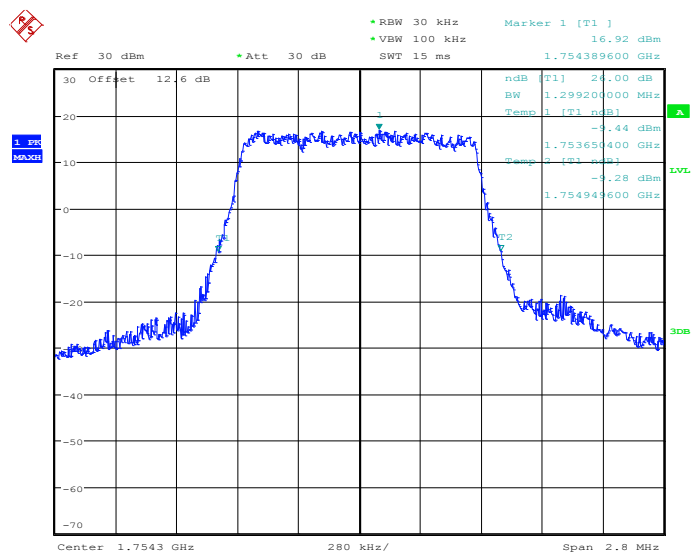


99% Occupied Bandwidth Plot on Channel 20393



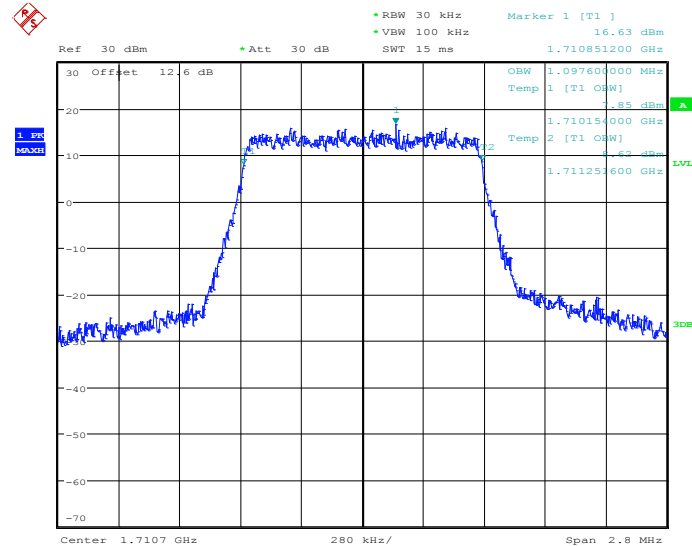
Date: 27.MAY.2014 16:50:55

26dB Bandwidth Plot on Channel 20393

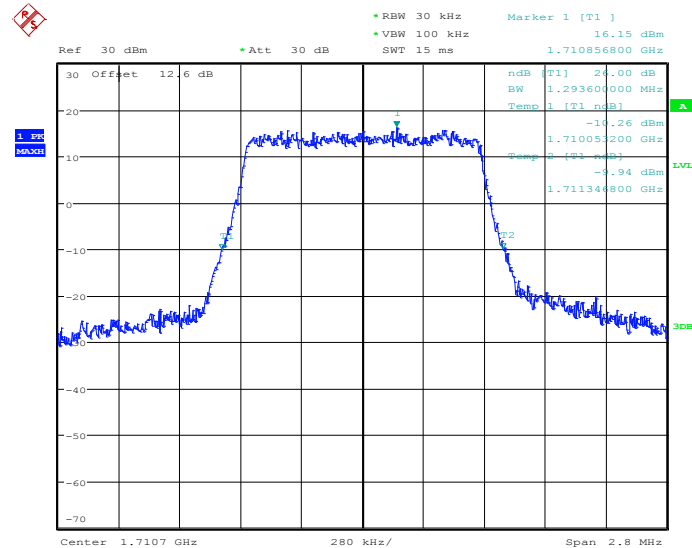


Date: 27.MAY.2014 16:51:29

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


Date: 27.MAY.2014 16:41:42

26dB Bandwidth Plot on Channel 19957


Date: 27.MAY.2014 16:42:18



• RBW 30 kHz
 • VBW 100 kHz
 SWT 15 ms
 Marker 1 [T1]
 16.34 dBm
 1.732648400 GHz

Ref 30 dBm
 • Att 30 dB
 1.732648400 GHz

30 Offset 12.6 dB
 20
 10
 0
 -10
 -20
 -30
 -40
 -50
 -60
 -70

1. Freq
 HDSOH

1.097604000 MHz
 Temp 1 [T1 CRW]
 1.731954000 GHz
 Temp 2 [T1 CRW]
 1.733054600 GHz

1.78 dBm
 1.10 dBm

30dB

Center 1.7325 GHz
 280 kHz/
 Span 2.8 MHz

Date: 27.MAY.2014 16:48:02

• RBW 30 kHz
 • VBW 100 kHz
 SWT 15 ms
 Ref 30 dBm
 Att 30 dB
 Marker 1 [T1]
 16.27 dBm

30 Offset 12.6 dB
 20
 10
 0
 -10
 -20
 -30
 -40
 -50
 -60
 -70

30
 20
 10
 0
 -10
 -20
 -30
 -40
 -50
 -60
 -70

1. Freq
 MAG301

1. V1

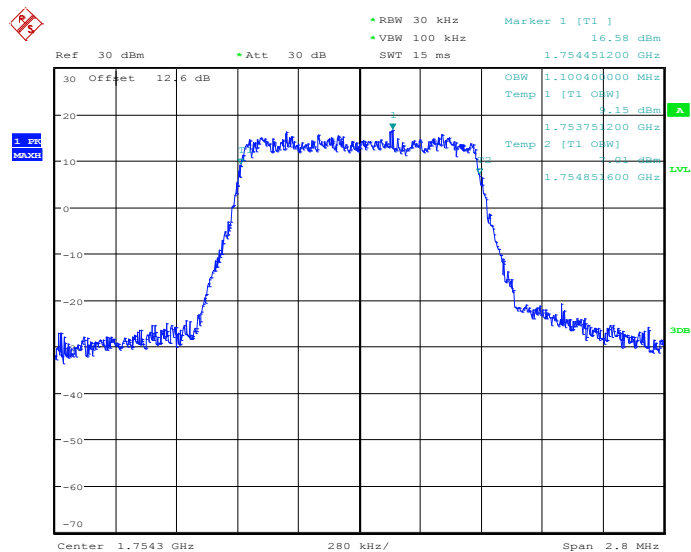
1.7325 GHz
 280 kHz/
 Span 2.8 MHz

ndB [T1] 24.00 dB
 BW 1.28800000 MHz
 Temp 1 [T1 ndB]
 -9.45 dBm
 1.731858800 GHz
 Temp 2 [T1 ndB]
 -9.79 dBm
 1.733144800 GHz

Date: 27.MAY.2014 16:48:38

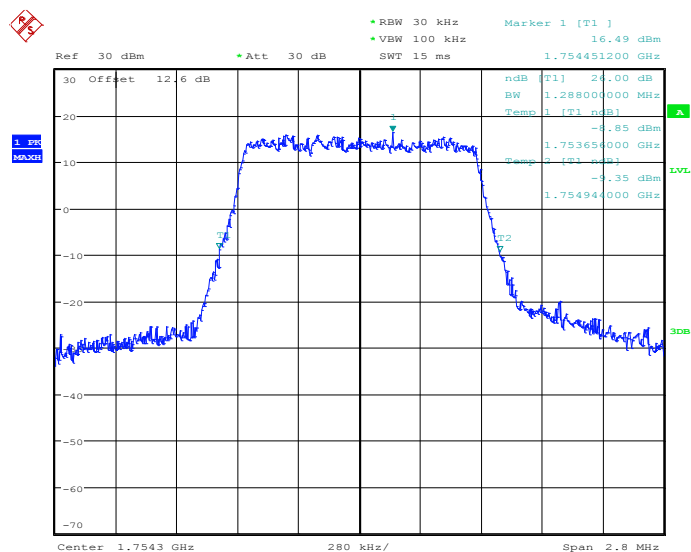


99% Occupied Bandwidth Plot on Channel 20393



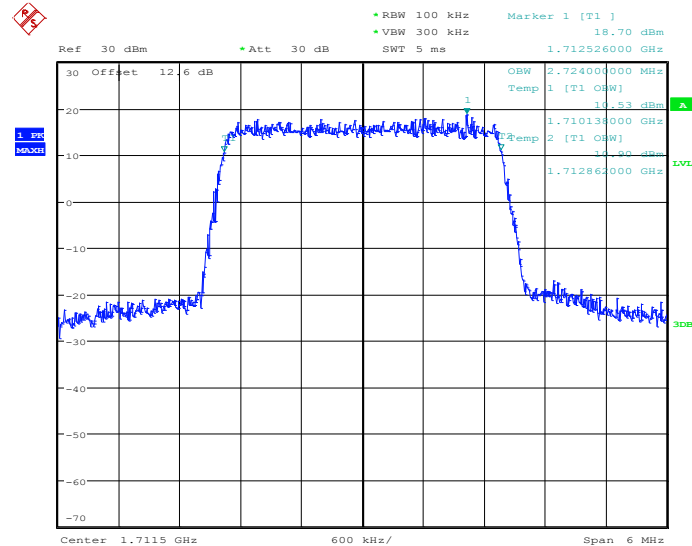
Date: 27.MAY.2014 16:51:11

26dB Bandwidth Plot on Channel 20393

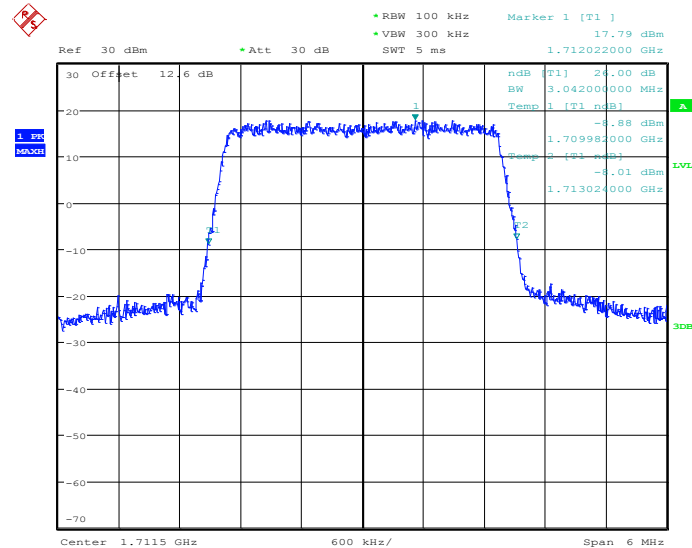


Date: 27.MAY.2014 16:51:48

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


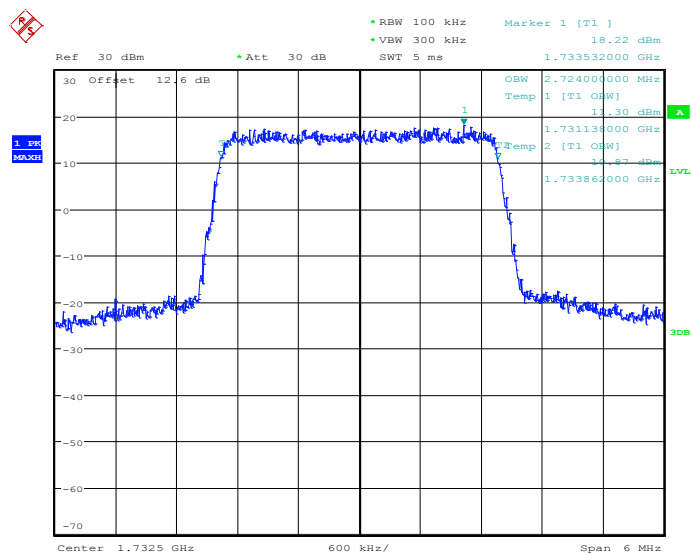
Date: 27.MAY.2014 16:59:30

26dB Bandwidth Plot on Channel 19965


Date: 27.MAY.2014 17:00:04

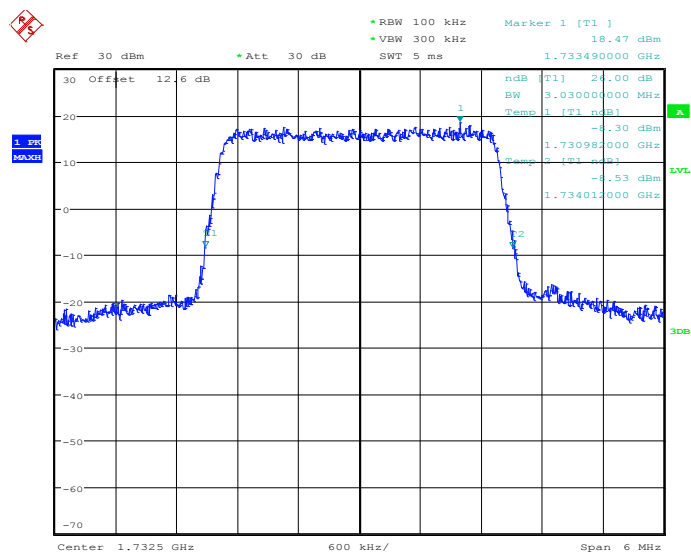


99% Occupied Bandwidth Plot on Channel 20175

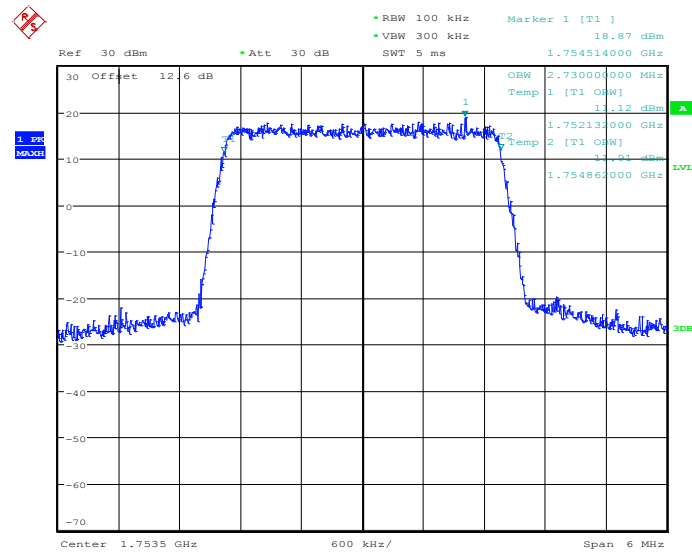


Date: 27.MAY.2014 17:05:51

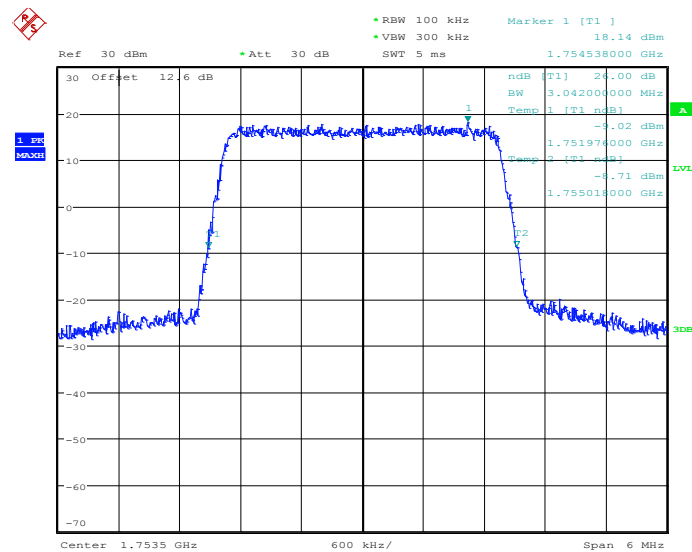
26dB Bandwidth Plot on Channel 20175



Date: 27.MAY.2014 17:06:26

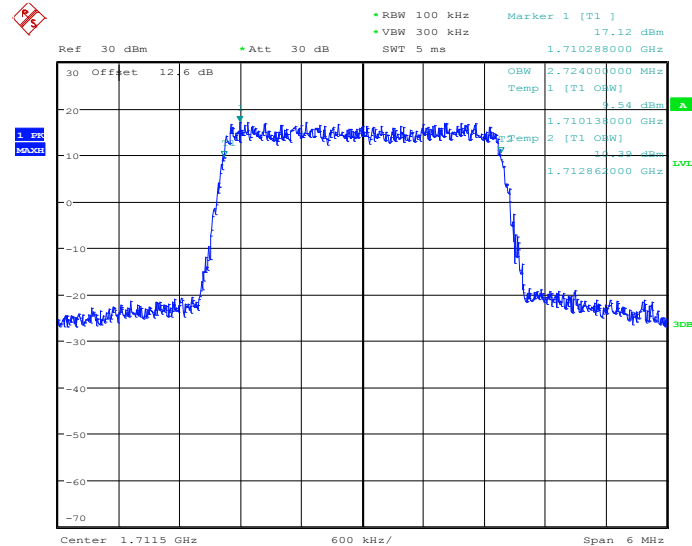
99% Occupied Bandwidth Plot on Channel 20385


Date: 27.MAY.2014 17:09:02

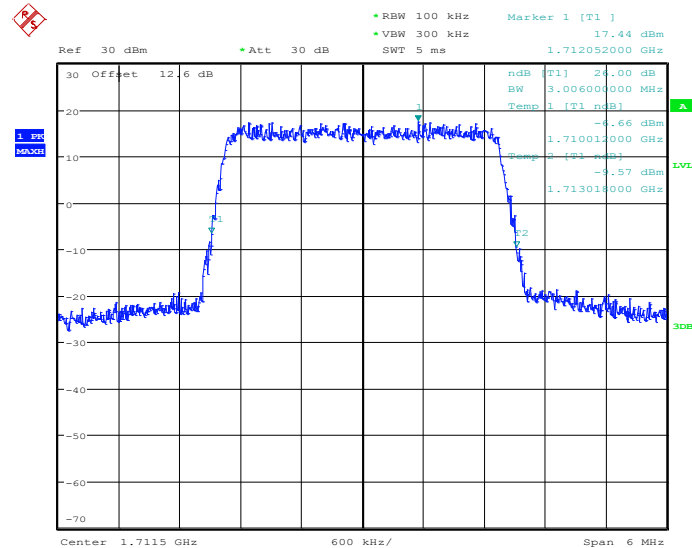
26dB Bandwidth Plot on Channel 20385


Date: 27.MAY.2014 17:09:37

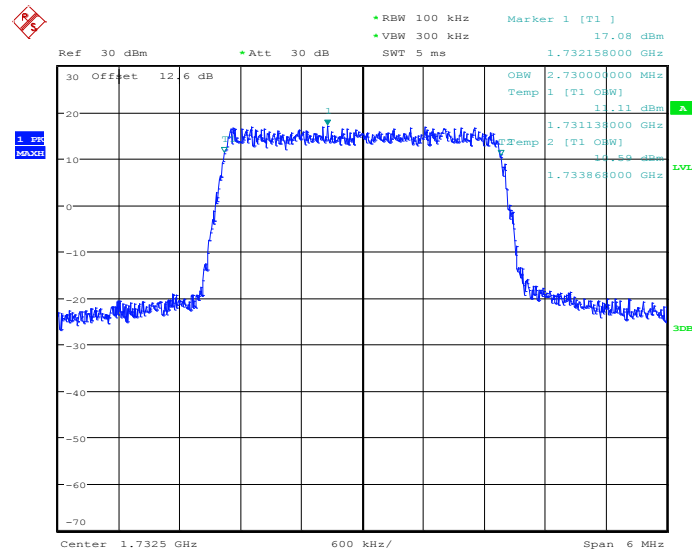
Band :	LTE Band 4	BW / Mod. :	3MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 19965


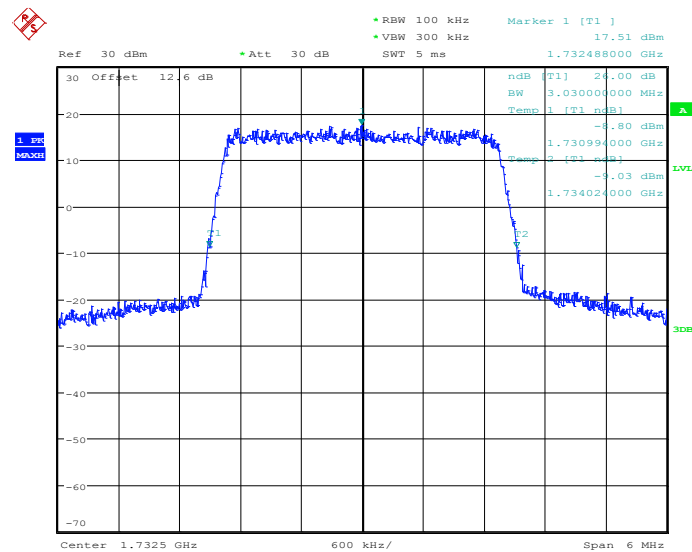
Date: 27.MAY.2014 16:59:46

26dB Bandwidth Plot on Channel 19965


Date: 27.MAY.2014 17:00:22

99% Occupied Bandwidth Plot on Channel 20175


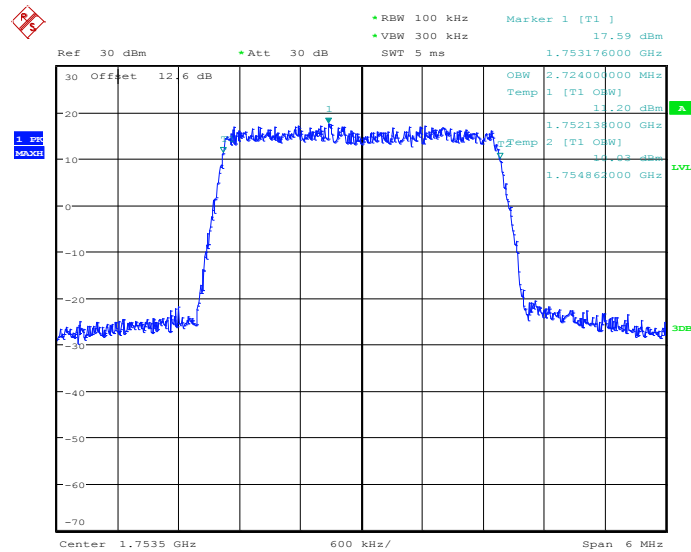
Date: 27.MAY.2014 17:06:07

26dB Bandwidth Plot on Channel 20175


Date: 27.MAY.2014 17:06:44

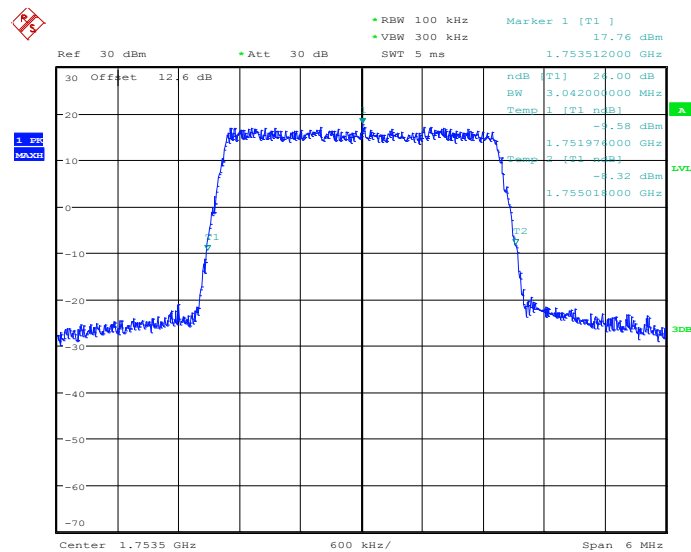


99% Occupied Bandwidth Plot on Channel 20385



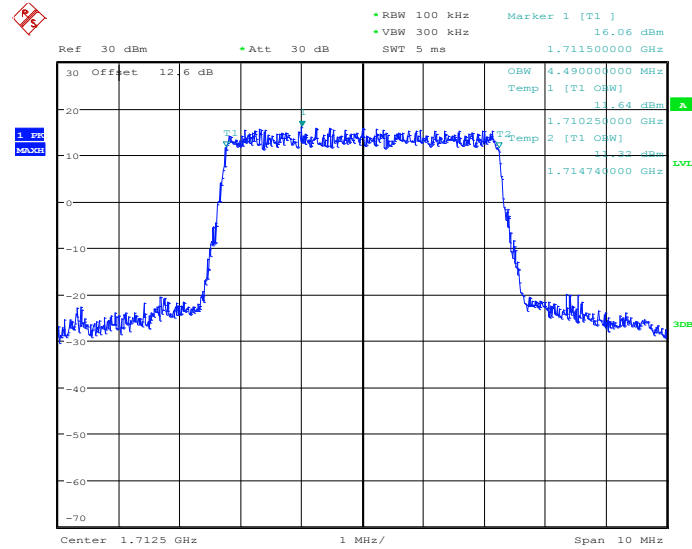
Date: 27.MAY.2014 17:09:19

26dB Bandwidth Plot on Channel 20385

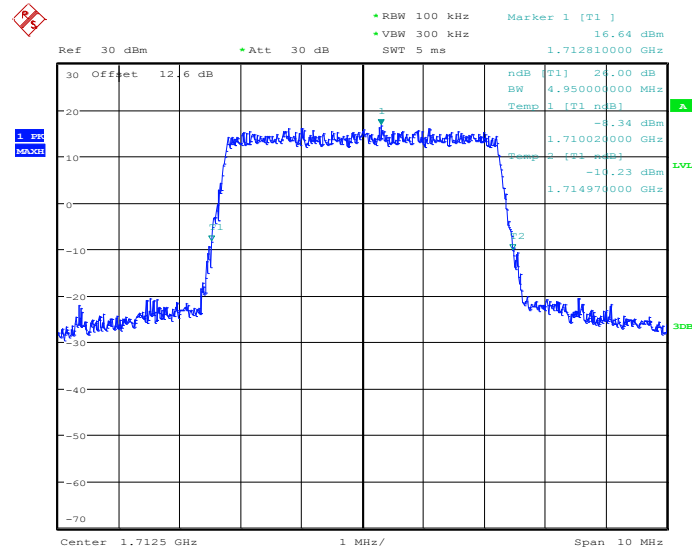


Date: 27.MAY.2014 17:09:55

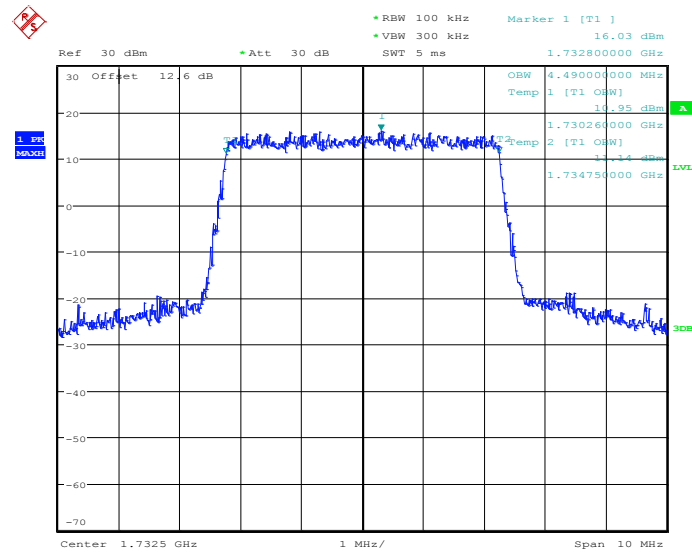
Band :	LTE Band 4	BW / Mod. :	5MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 19975


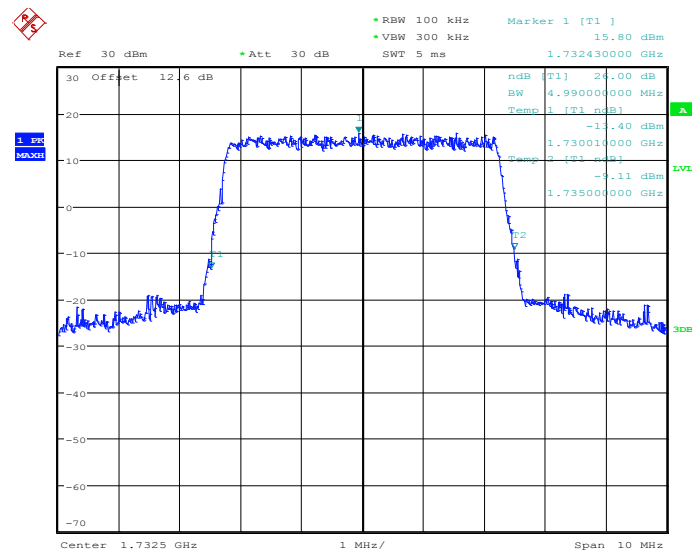
Date: 27.MAY.2014 17:15:23

26dB Bandwidth Plot on Channel 19975


Date: 27.MAY.2014 17:15:57

99% Occupied Bandwidth Plot on Channel 20175


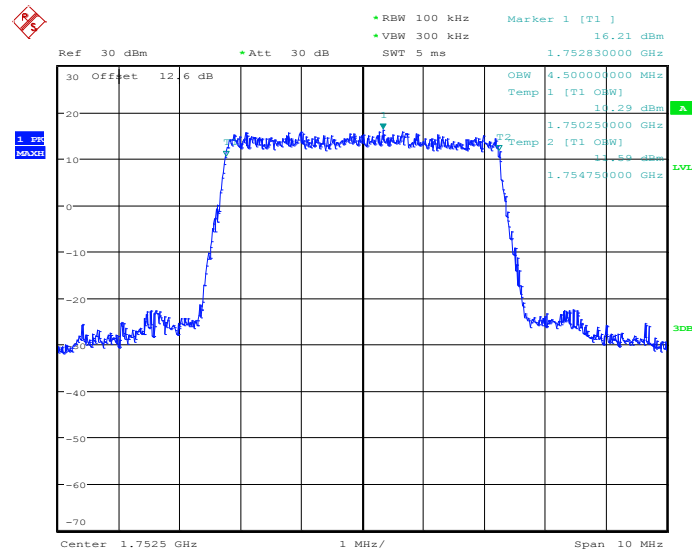
Date: 27.MAY.2014 17:21:45

26dB Bandwidth Plot on Channel 20175


Date: 27.MAY.2014 17:22:19

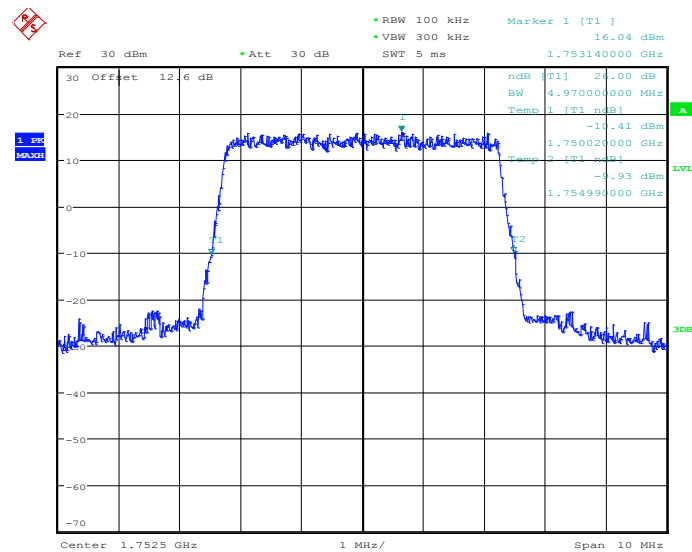


99% Occupied Bandwidth Plot on Channel 20375



Date: 27.MAY.2014 17:24:55

26dB Bandwidth Plot on Channel 20375

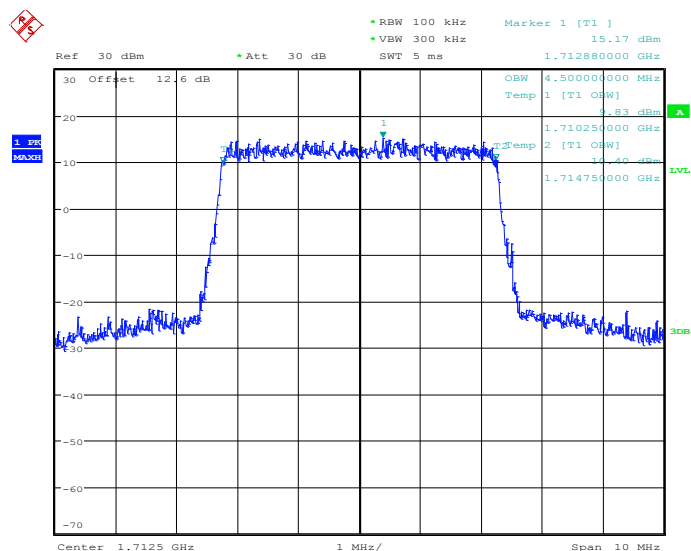


Date: 27.MAY.2014 17:25:30



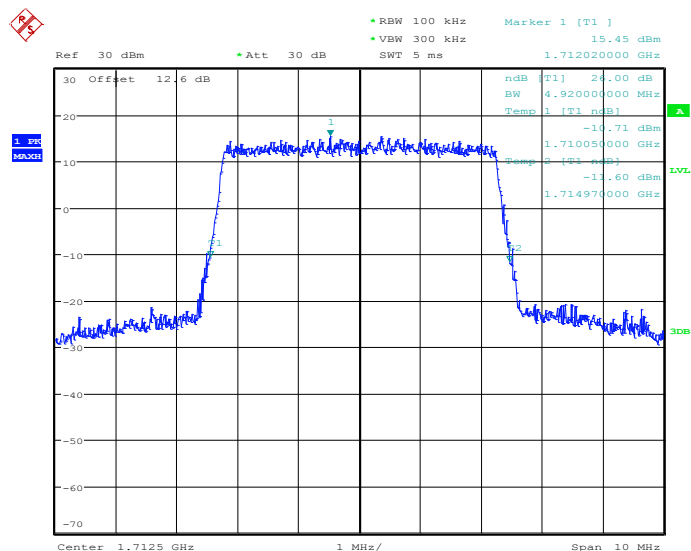
Band :	LTE Band 4	BW / Mod. :	5MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 19975



Date: 27.MAY.2014 17:15:39

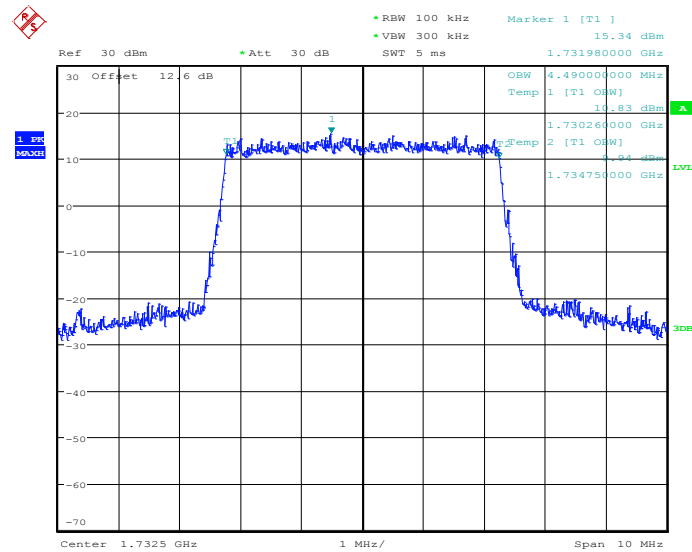
26dB Bandwidth Plot on Channel 19975



Date: 27.MAY.2014 17:16:15

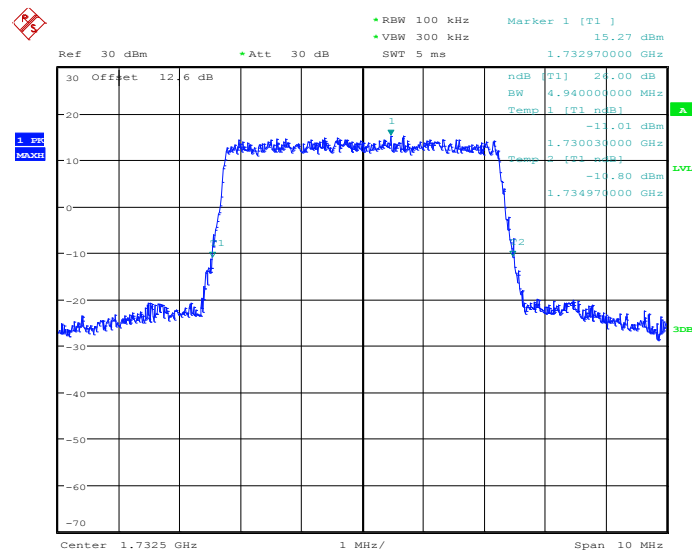


99% Occupied Bandwidth Plot on Channel 20175



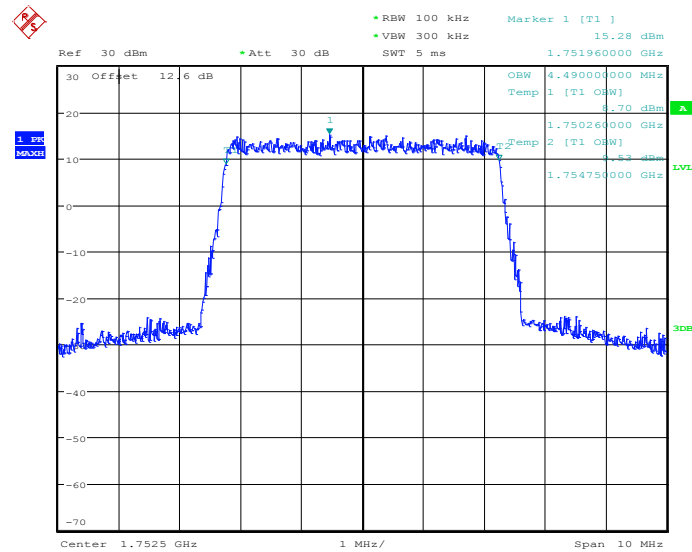
Date: 27.MAY.2014 17:22:01

26dB Bandwidth Plot on Channel 20175



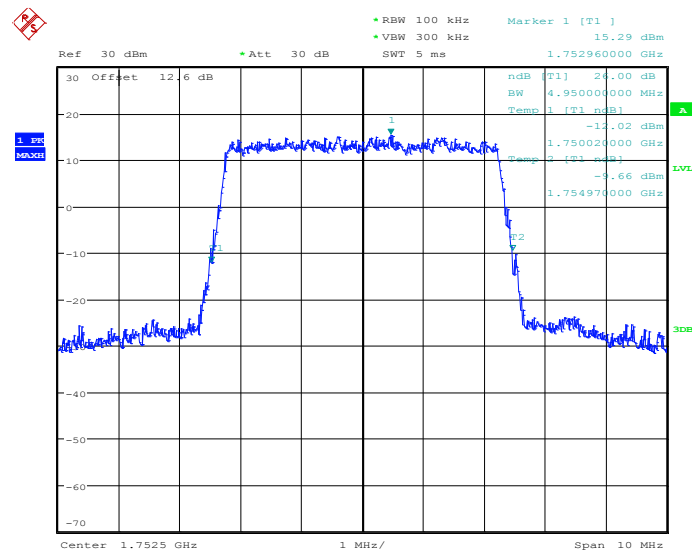
Date: 27.MAY.2014 17:22:38

99% Occupied Bandwidth Plot on Channel 20375



Date: 27.MAY.2014 17:25:12

26dB Bandwidth Plot on Channel 20375

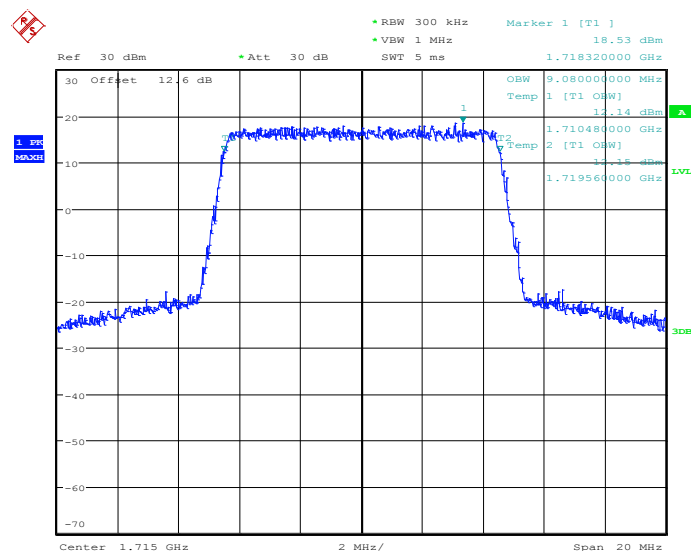


Date: 27.MAY.2014 17:25:48



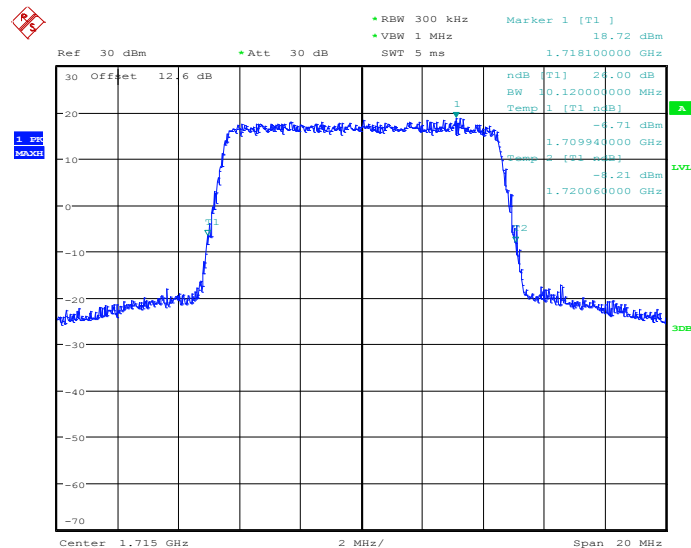
Band :	LTE Band 4	BW / Mod. :	10MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 20000



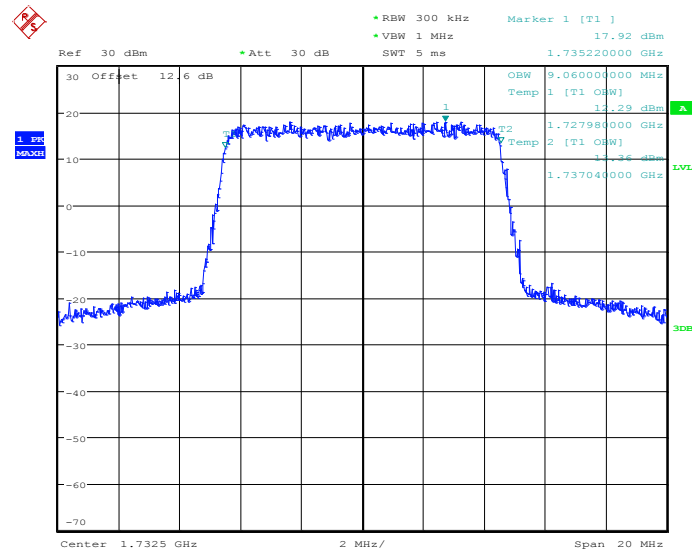
Date: 27.MAY.2014 17:31:16

26dB Bandwidth Plot on Channel 20000



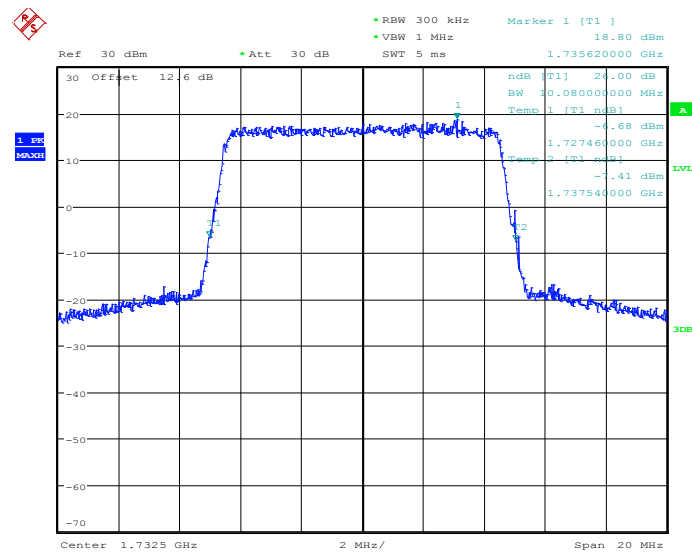
Date: 27.MAY.2014 17:31:50

99% Occupied Bandwidth Plot on Channel 20175

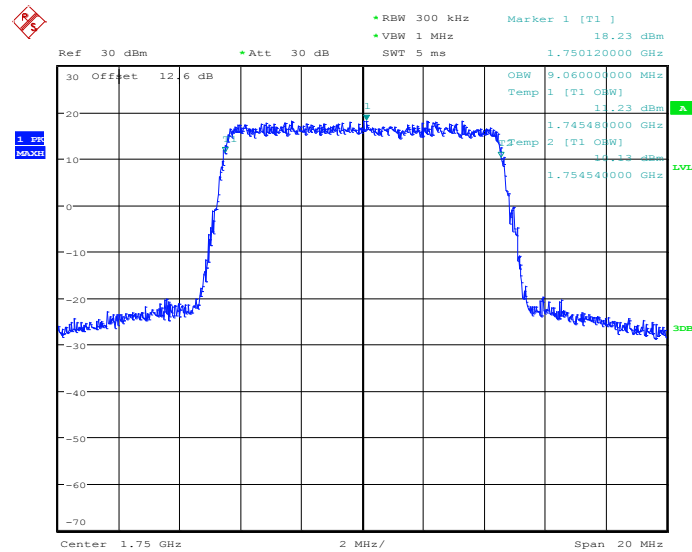


Date: 27.MAY.2014 17:37:36

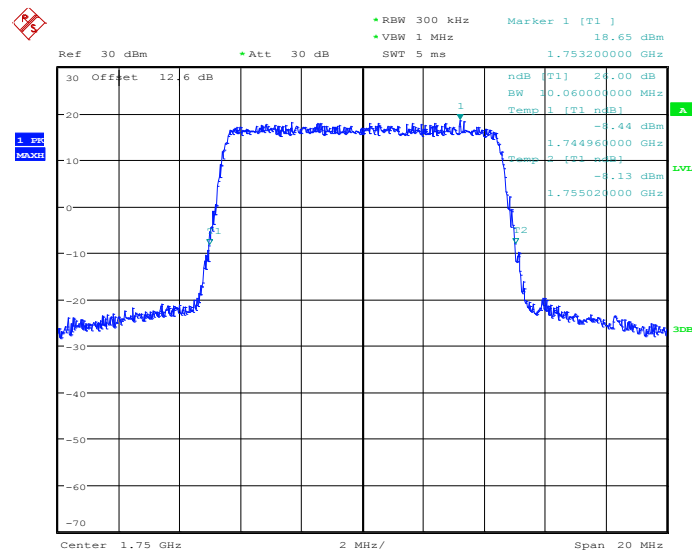
26dB Bandwidth Plot on Channel 20175



Date: 27.MAY.2014 17:38:10

99% Occupied Bandwidth Plot on Channel 20350


Date: 27.MAY.2014 17:40:46

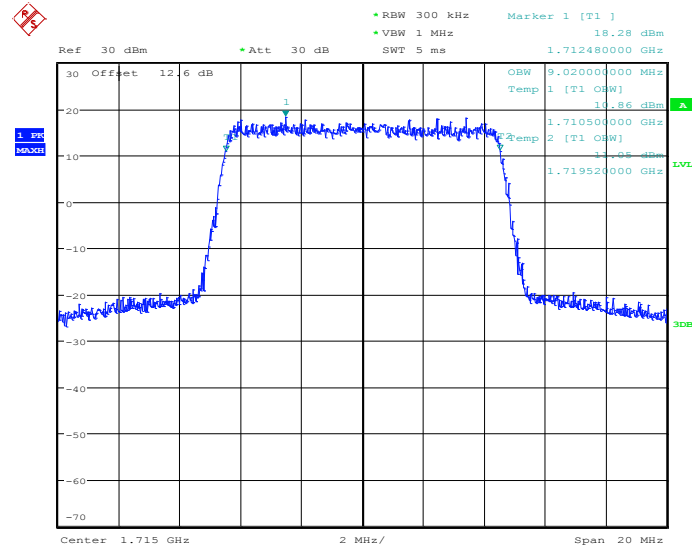
26dB Bandwidth Plot on Channel 20350


Date: 27.MAY.2014 17:41:20



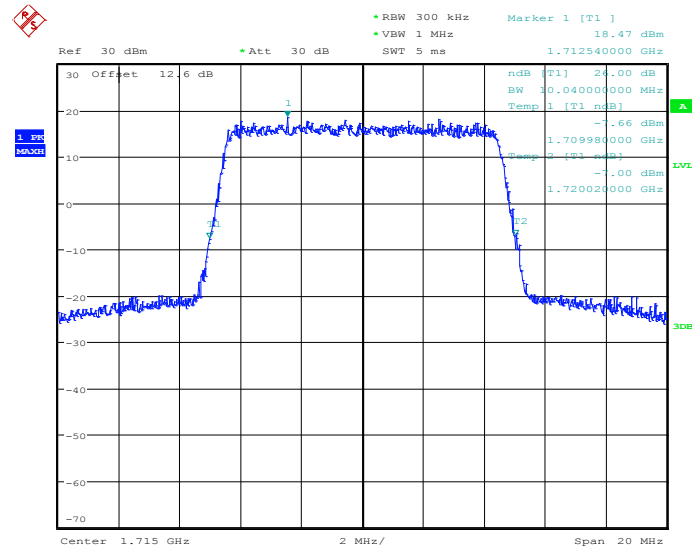
Band :	LTE Band 4	BW / Mod. :	10MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 20000



Date: 27.MAY.2014 17:31:32

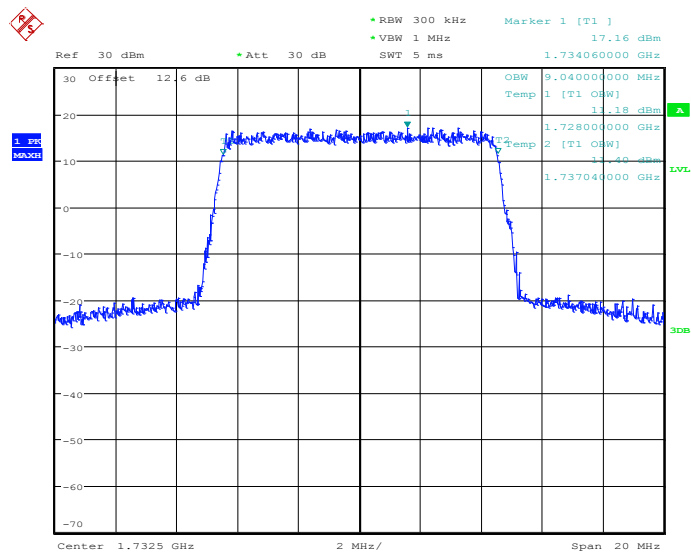
26dB Bandwidth Plot on Channel 20000



Date: 27.MAY.2014 17:32:08

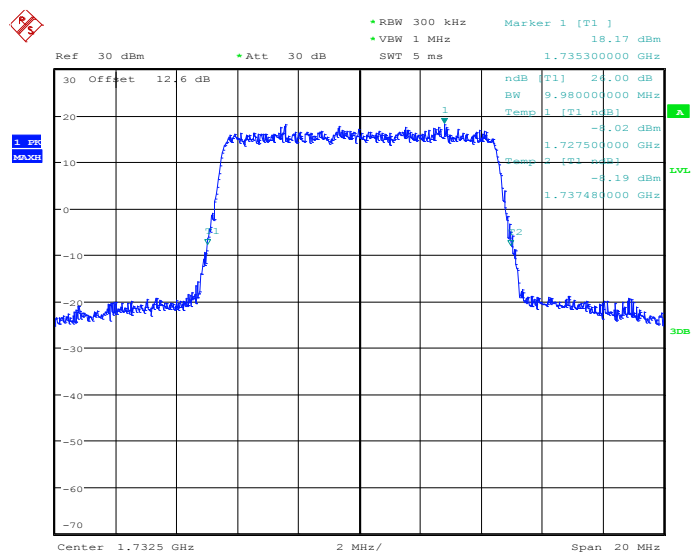


99% Occupied Bandwidth Plot on Channel 20175



Date: 27.MAY.2014 17:37:52

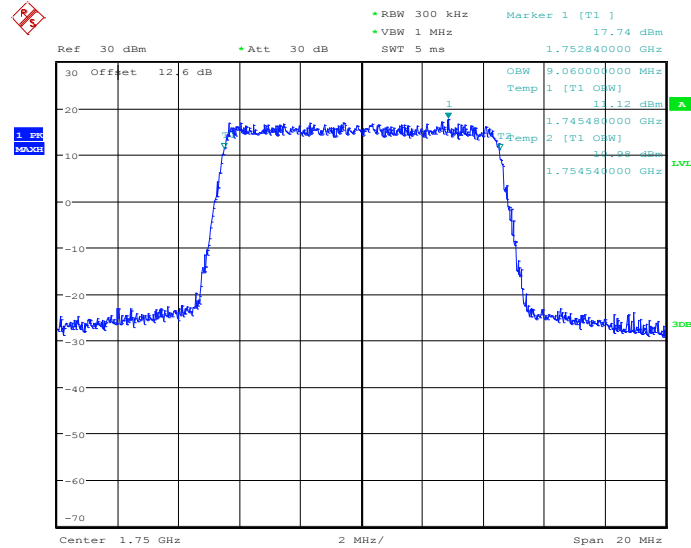
26dB Bandwidth Plot on Channel 20175



Date: 27.MAY.2014 17:38:29

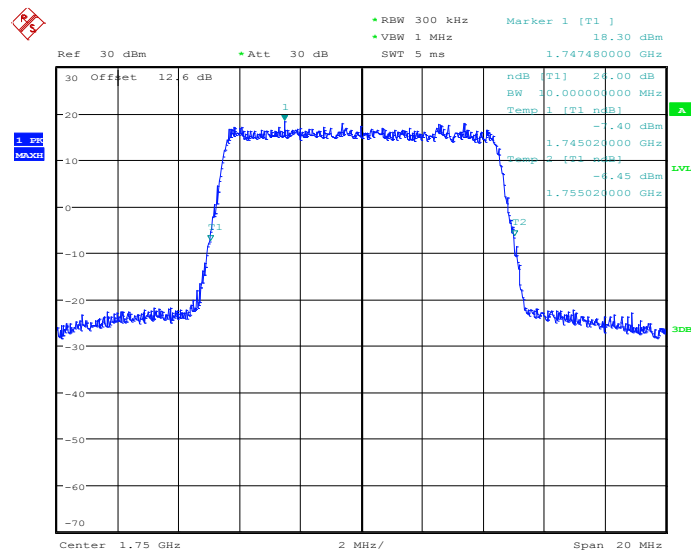


99% Occupied Bandwidth Plot on Channel 20350



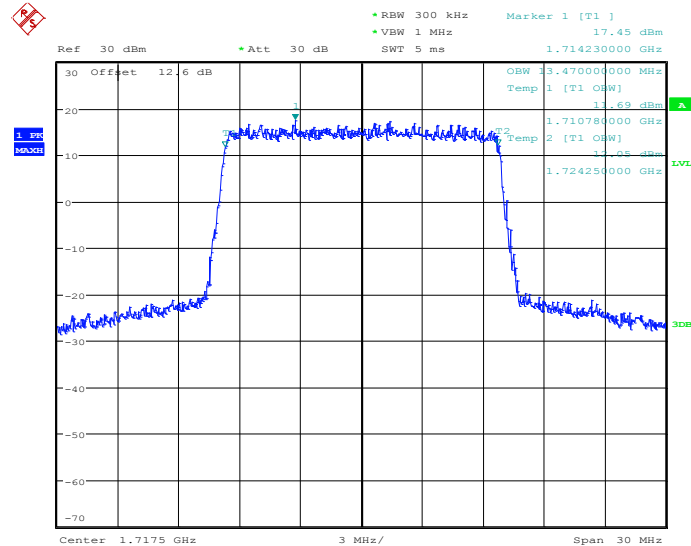
Date: 27.MAY.2014 17:41:02

26dB Bandwidth Plot on Channel 20350

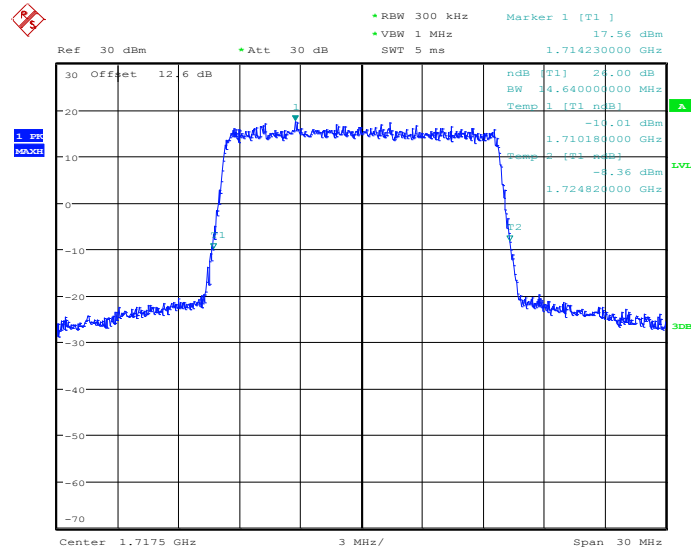


Date: 27.MAY.2014 17:41:38

Band :	LTE Band 4	BW / Mod. :	15MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 2025


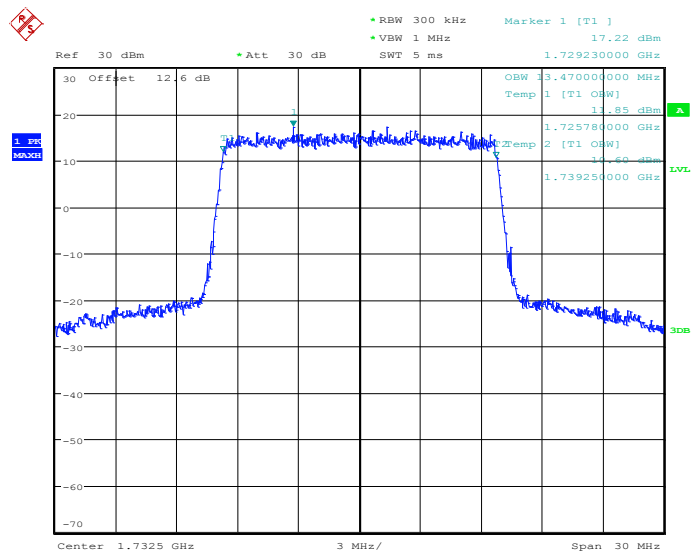
Date: 27.MAY.2014 17:47:06

26dB Bandwidth Plot on Channel 2025


Date: 27.MAY.2014 17:47:40

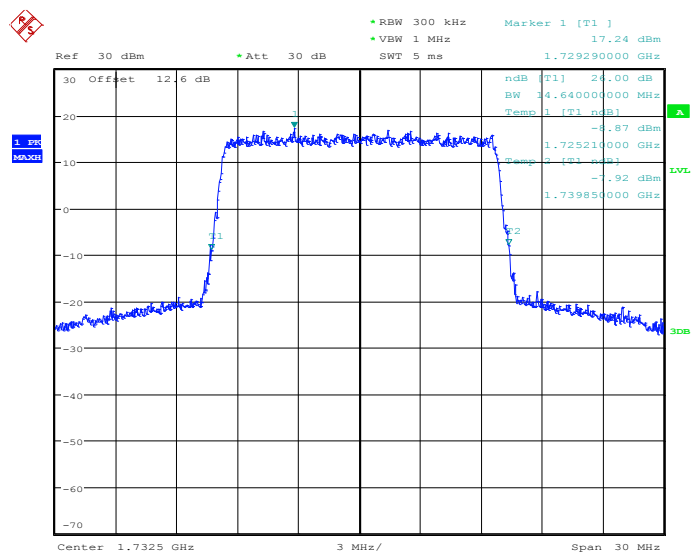


99% Occupied Bandwidth Plot on Channel 20175



Date: 27.MAY.2014 17:53:26

26dB Bandwidth Plot on Channel 20175



Date: 27.MAY.2014 17:54:01



1. Pk
NOISE

Ref 30 dBm Att 30 dB RBW 300 kHz VBW 1 MHz SWT 5 ms Marker 1 [T1]

30 Offset 12.6 dB

30 dBm

20

10

0

-10

-20

-30

-40

-50

-60

-70

30 MHz/

Span 30 MHz

3.470000000 MHz

Temp 1 [T1] 11.34 dBm

1.740780000 GHz

Temp 2 [T1] 11.82 dBm

1.754250000 GHz

30 dB

Date: 27.MAY.2014 17:56:36

The screenshot shows a Keysight Spectrum Analyzer interface. The main display area shows a spectrum plot with a sharp peak at 1.7475 GHz. The plot is overlaid on a grid. The x-axis represents frequency, and the y-axis represents power in dBm. The peak is labeled with '1.7475 GHz' and '1.7475 GHz'.

Key parameters and settings visible on the screen include:

- Ref:** 30 dBm
- Att:** 30 dB
- RBW:** 300 kHz
- VBW:** 1 MHz
- SWT:** 5 ms
- Marker 1 [T1]:** 1.748130000 GHz, 24.00 dB
- Center:** 1.7475 GHz
- Span:** 30 MHz
- Bandwidth (BW):** 14.670000000 MHz
- Tempo 1 [T1]:** 1.740210000 GHz, -9.25 dBm
- Tempo 2 [T2]:** 1.754880000 GHz, -11.17 dBm

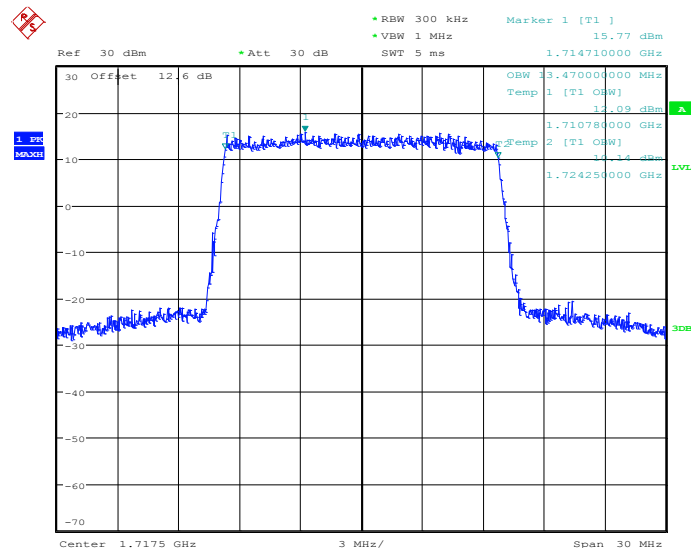
The plot shows a signal with a sharp peak at 1.7475 GHz, which is the center frequency. The signal is measured at 30 dBm. The RBW is 300 kHz, and the VBW is 1 MHz. The SWT is 5 ms. The marker 1 [T1] is at 1.748130000 GHz, 24.00 dB. The center frequency is 1.7475 GHz, and the span is 30 MHz. The bandwidth (BW) is 14.670000000 MHz. The tempo 1 [T1] is at 1.740210000 GHz, -9.25 dBm. The tempo 2 [T2] is at 1.754880000 GHz, -11.17 dBm.

Date: 27.MAY.2014 17:57:11



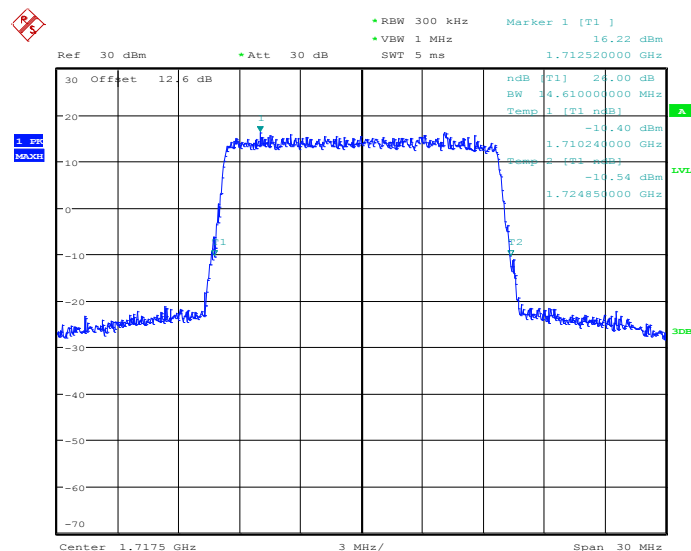
Band :	LTE Band 4	BW / Mod. :	15MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 2025



Date: 27.MAY.2014 17:47:22

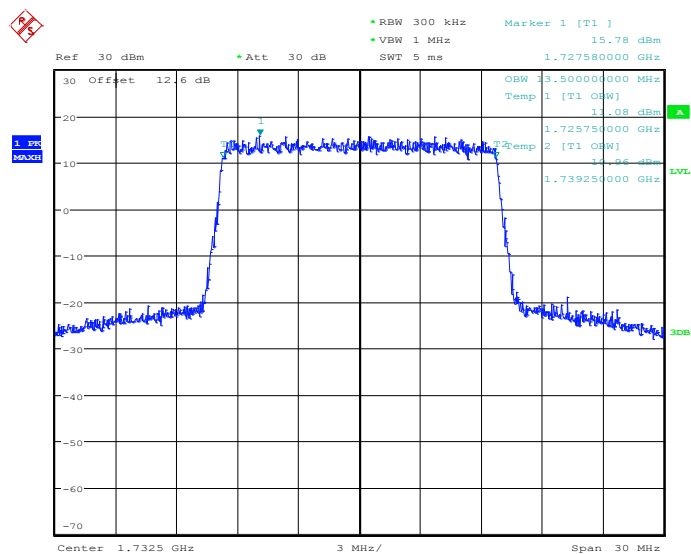
26dB Bandwidth Plot on Channel 2025



Date: 27.MAY.2014 17:47:58

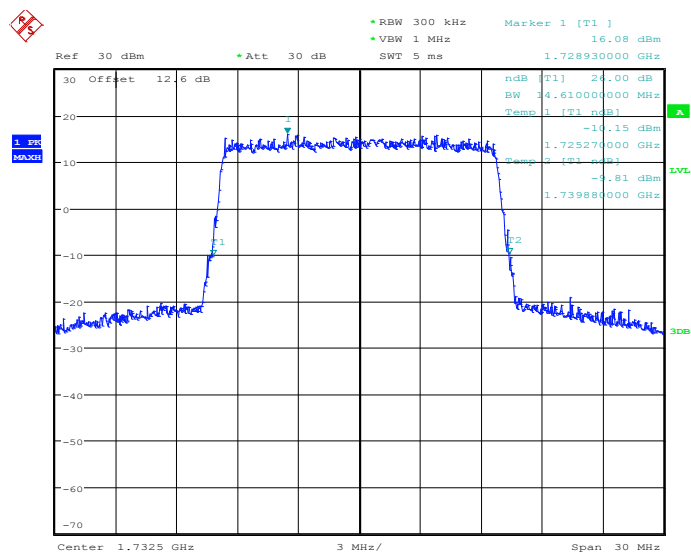


99% Occupied Bandwidth Plot on Channel 20175



Date: 27.MAY.2014 17:53:43

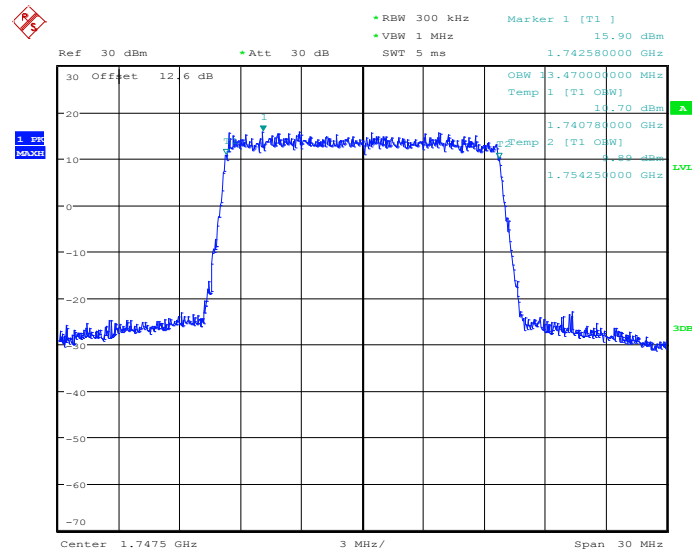
26dB Bandwidth Plot on Channel 20175



Date: 27.MAY.2014 17:54:19

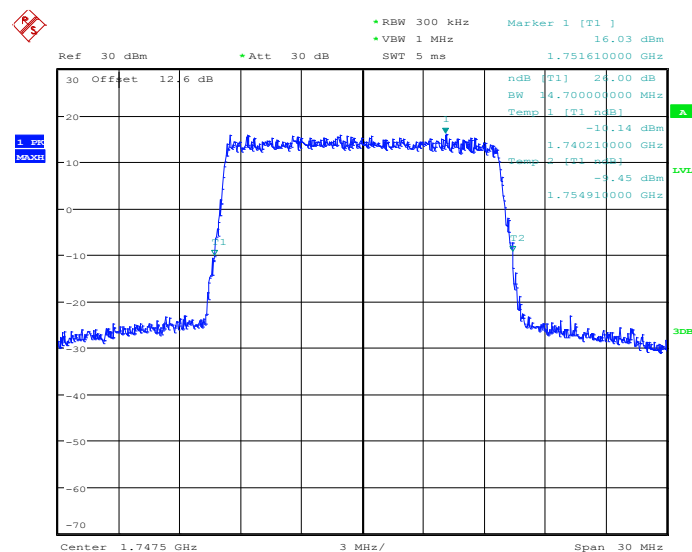


99% Occupied Bandwidth Plot on Channel 20325



Date: 27.MAY.2014 17:56:53

26dB Bandwidth Plot on Channel 20325



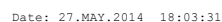
Date: 27.MAY.2014 17:57:29



99% Occupied Bandwidth Plot on Channel 20050

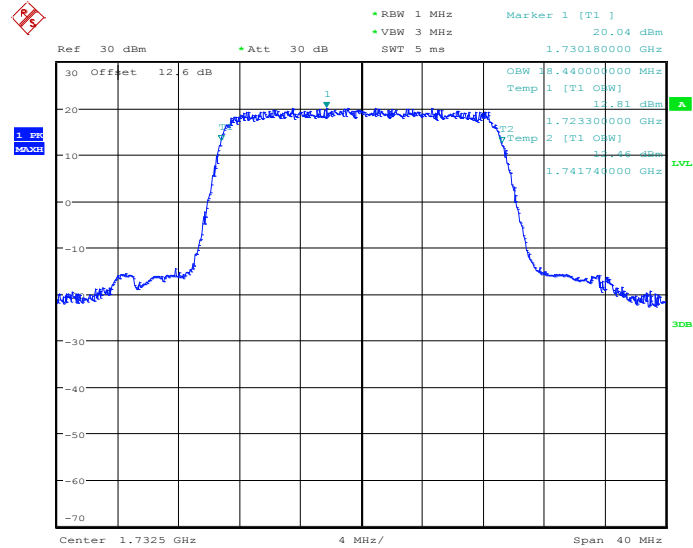


26dB Bandwidth Plot on Channel 20050



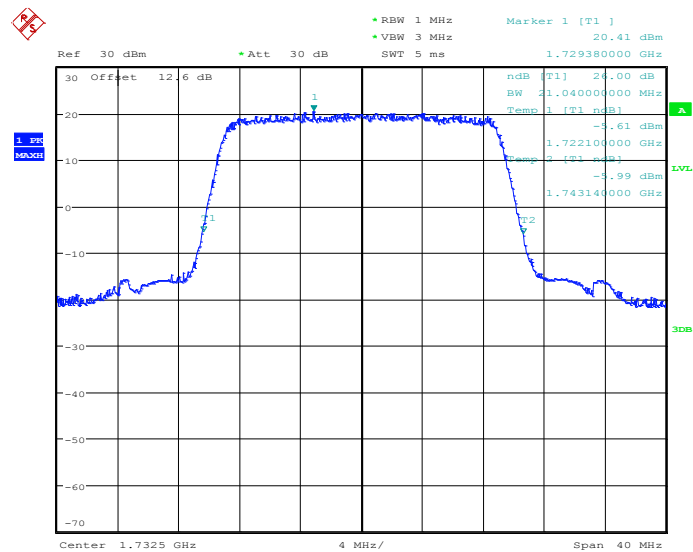


99% Occupied Bandwidth Plot on Channel 20175

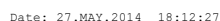


Date: 27.MAY.2014 18:09:17

26dB Bandwidth Plot on Channel 20175



Date: 27.MAY.2014 18:09:51



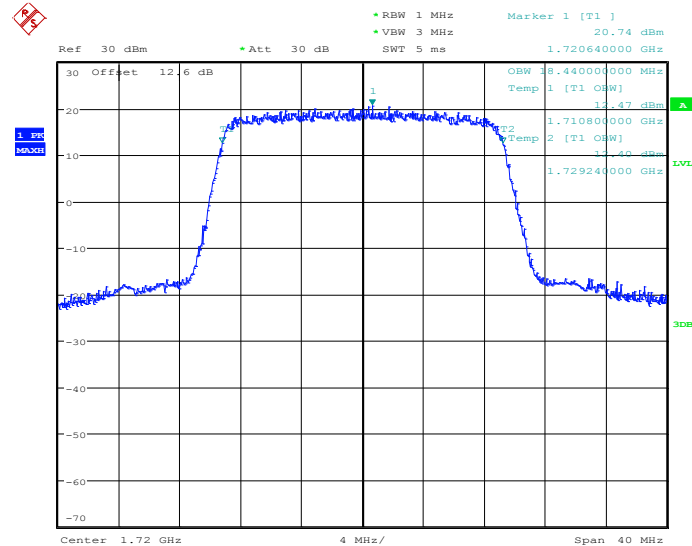
26dB Bandwidth Plot on Channel 20300





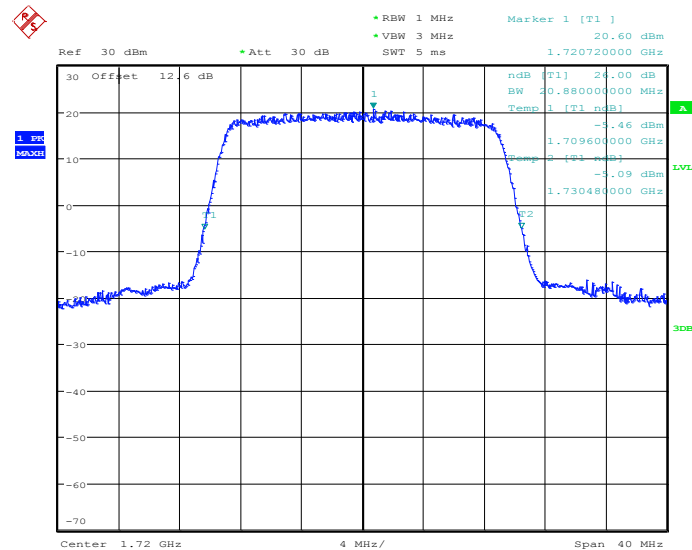
Band :	LTE Band 4	BW / Mod. :	20MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 20050



Date: 27.MAY.2014 18:03:13

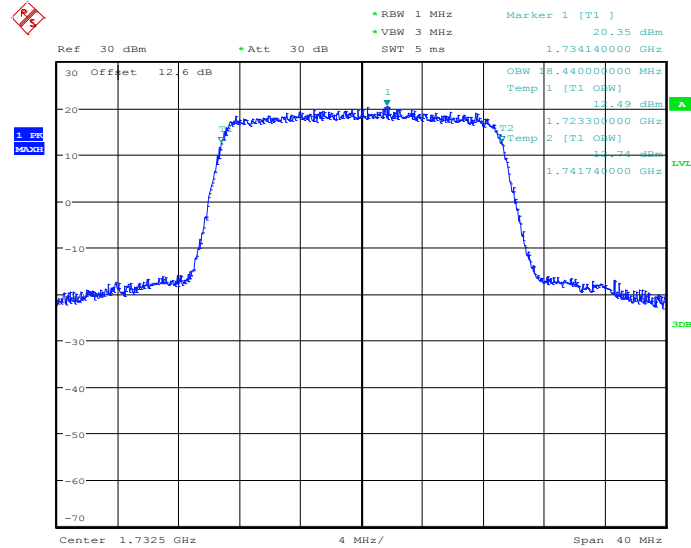
26dB Bandwidth Plot on Channel 20050



Date: 27.MAY.2014 18:03:49

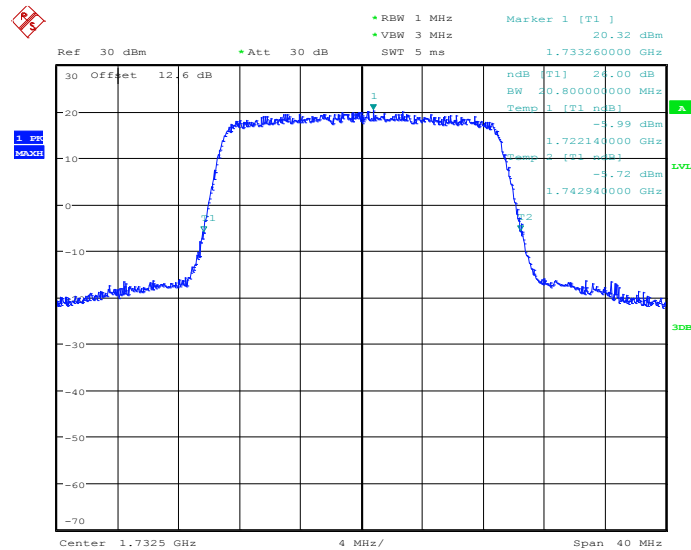


99% Occupied Bandwidth Plot on Channel 20175



Date: 27.MAY.2014 18:09:33

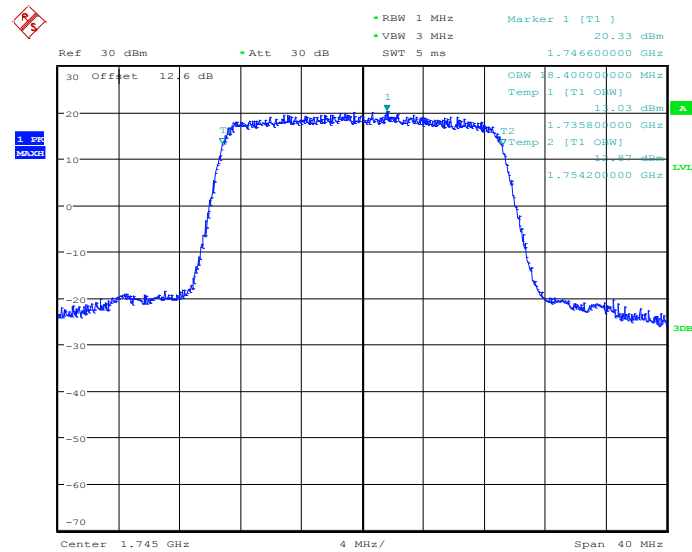
26dB Bandwidth Plot on Channel 20175



Date: 27.MAY.2014 18:10:09

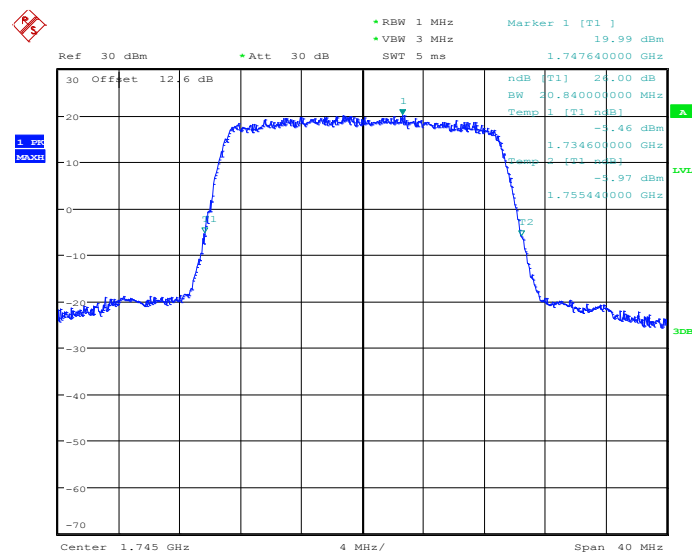


99% Occupied Bandwidth Plot on Channel 20300



Date: 27.MAY.2014 18:12:43

26dB Bandwidth Plot on Channel 20300

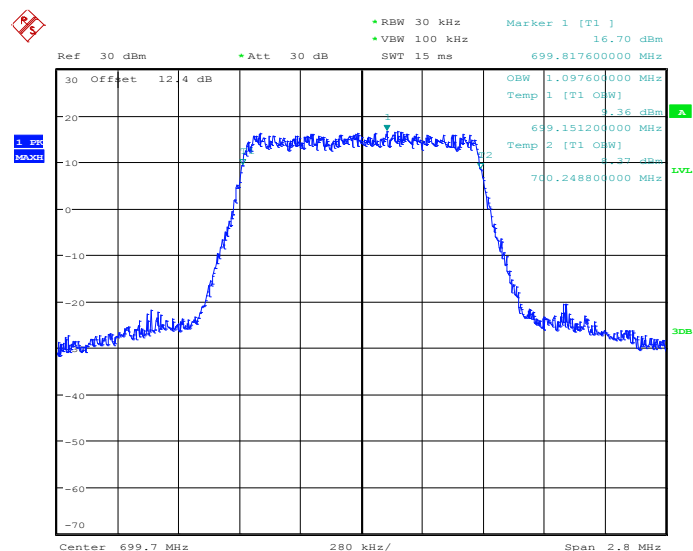


Date: 27.MAY.2014 18:13:19



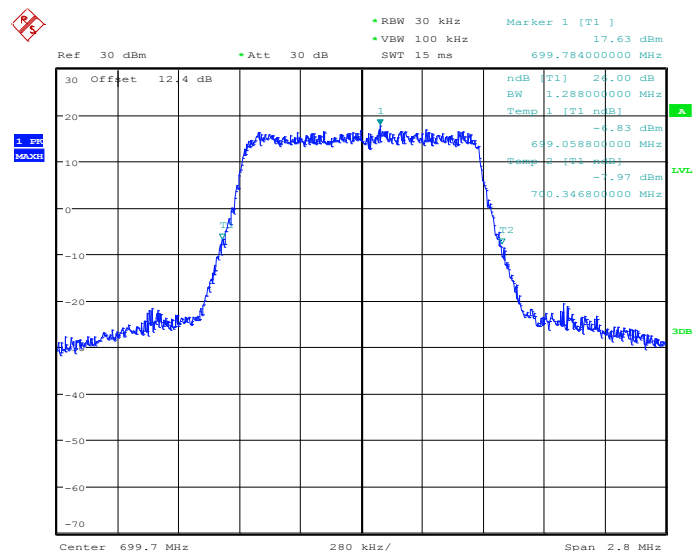
Band :	LTE Band 12	BW / Mod. :	1.4MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 23017



Date: 27.MAY.2014 20:22:30

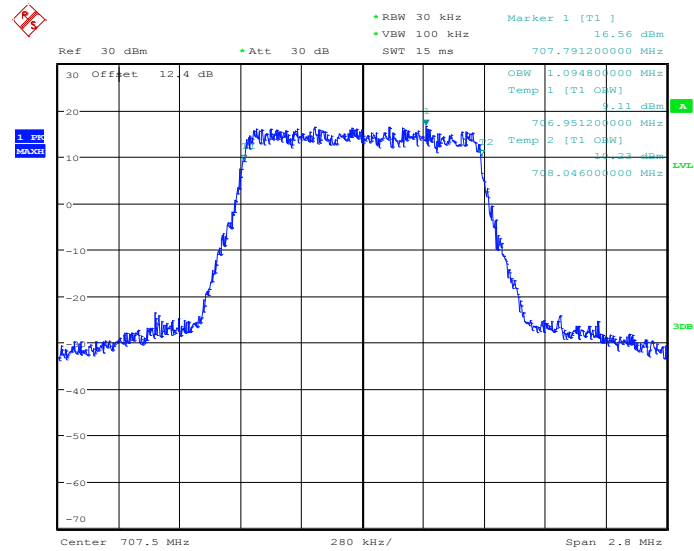
26dB Bandwidth Plot on Channel 23017



Date: 27.MAY.2014 20:23:23

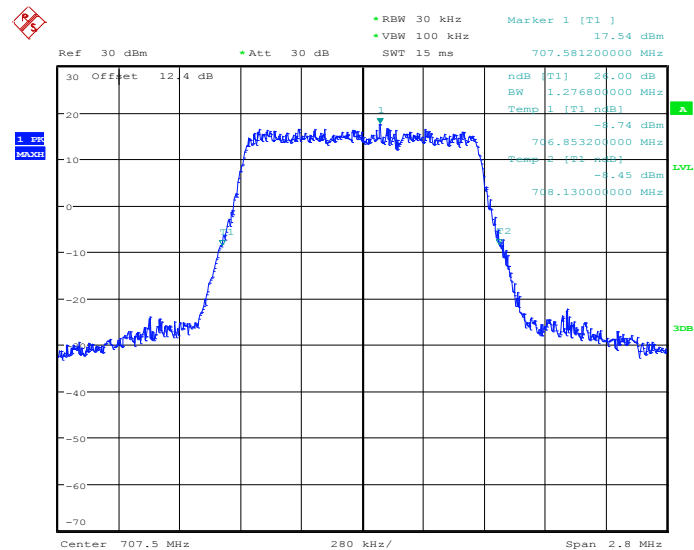


99% Occupied Bandwidth Plot on Channel 23095



Date: 27.MAY.2014 20:29:08

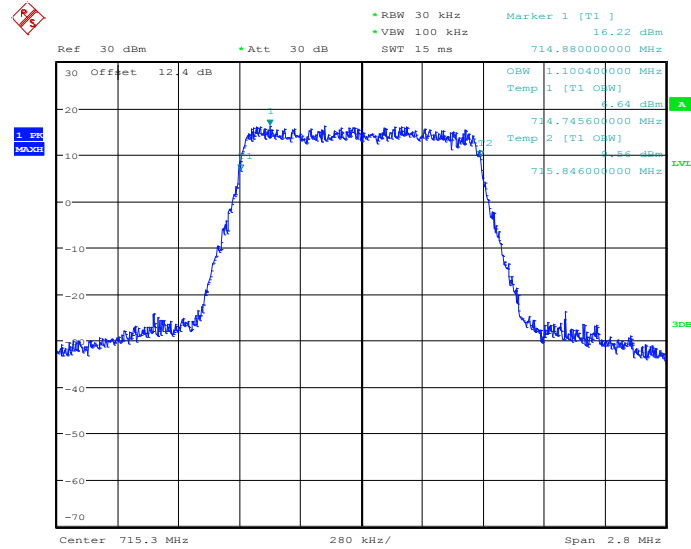
26dB Bandwidth Plot on Channel 23095



Date: 27.MAY.2014 20:29:26

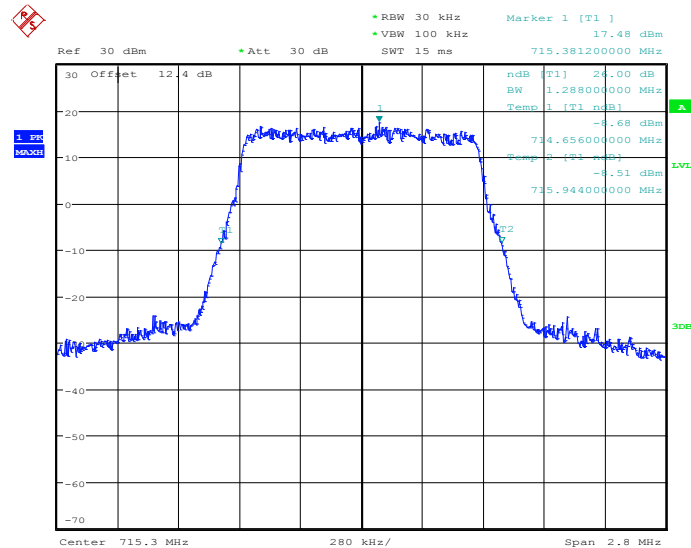


99% Occupied Bandwidth Plot on Channel 23173



Date: 27.MAY.2014 20:32:01

26dB Bandwidth Plot on Channel 23173

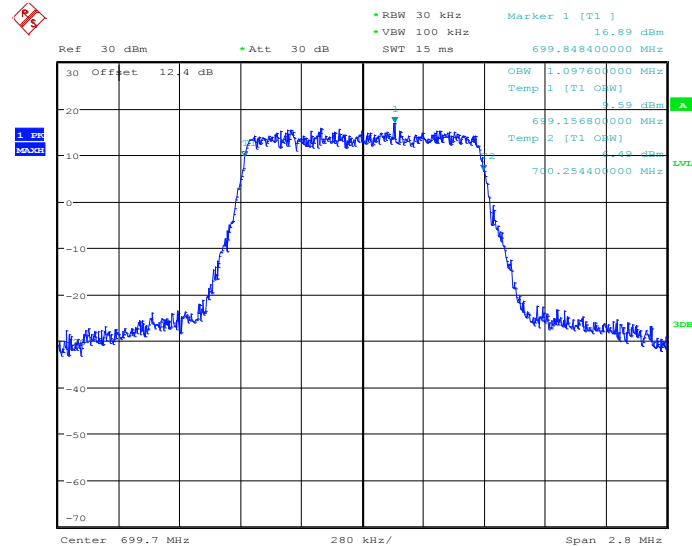


Date: 27.MAY.2014 20:32:54



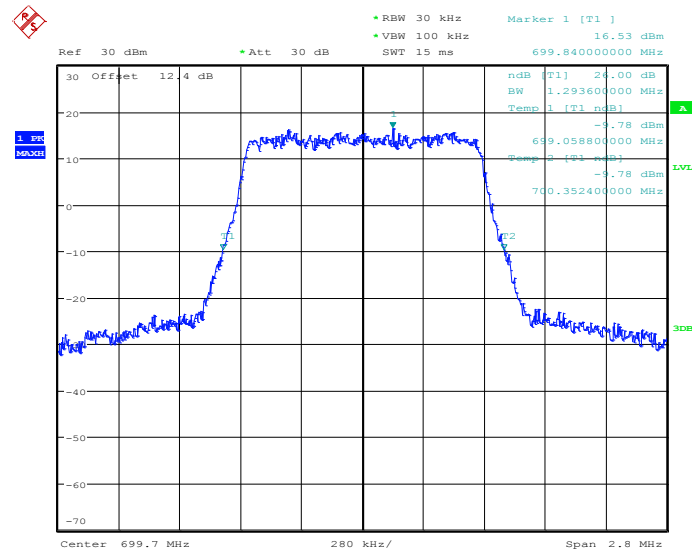
Band :	LTE Band 12	BW / Mod. :	1.4MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 23017



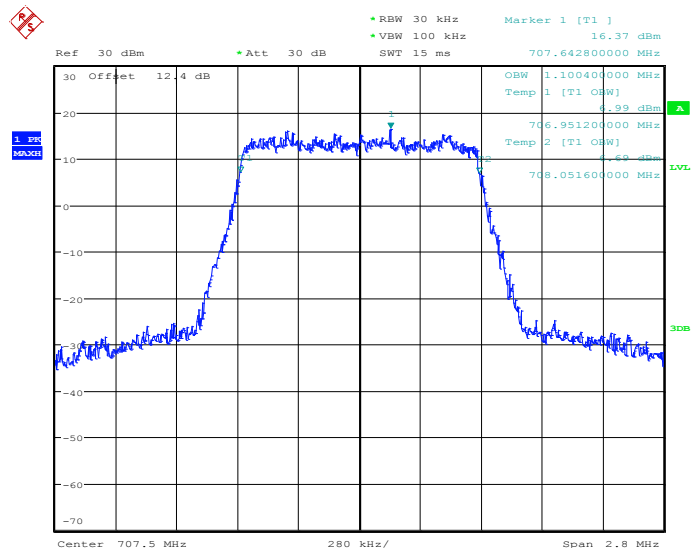
Date: 27.MAY.2014 20:22:47

26dB Bandwidth Plot on Channel 23017



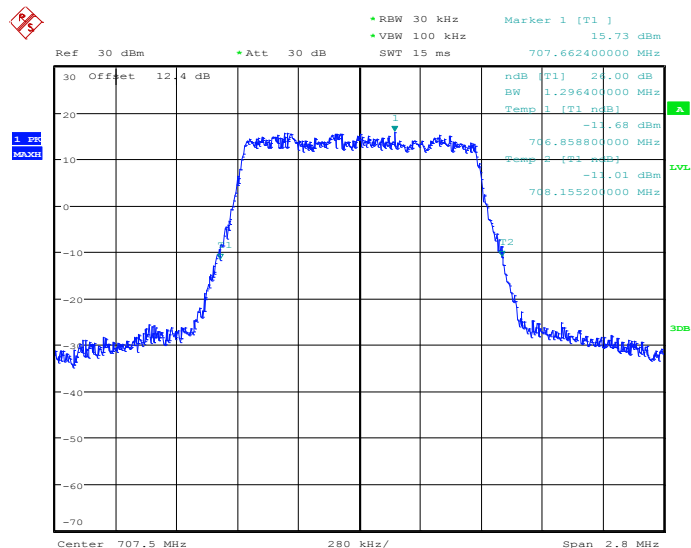
Date: 27.MAY.2014 20:23:05

99% Occupied Bandwidth Plot on Channel 23095



Date: 27.MAY.2014 20:28:52

26dB Bandwidth Plot on Channel 23095



Date: 27.MAY.2014 20:29:44



• RBW 30 kHz
 • VBW 100 kHz
 SWT 15 ms

Marker 1 [T1]
 16.41 dBm
 714.96120000 MHz

Ref 30 dBm
 • Att 30 dB

30 Offset 12 4 dB
 20
 10
 0
 -10
 -20
 -30
 -40
 -50
 -60
 -70

OSW 1.097600000 MHz
 Temp 1 [T1 OSW]
 1.87 dBm
 714.751200000 MHz
 Temp 2 [T1 OSW]
 1.62 dBm
 715.848800000 MHz

1.58
 60.00

Center 715.3 MHz
 280 kHz/
 Span 2.8 MHz

Date: 27.MAY.2014 20:32:18

Ref 30 dBm • Att 30 dB SWT 15 ms 714.961200000 MHz 16.38 dBm

30 Offset 12 4 dB

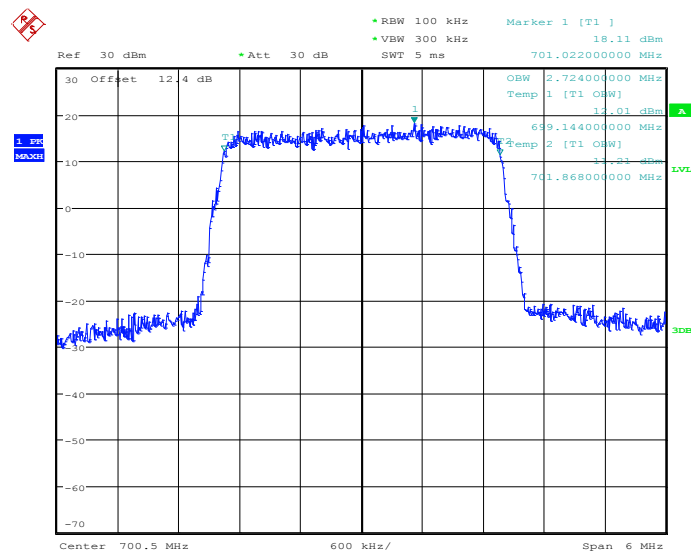
1. PRG
MAX

ndB [T1] 24.00 dB
BW 1.279600000 MHz
Temp 1 [T1 ndB] -9.89 dBm
714.656000000 MHz
Temp 3 [T3 ndB] -9.78 dBm
715.935600000 MHz

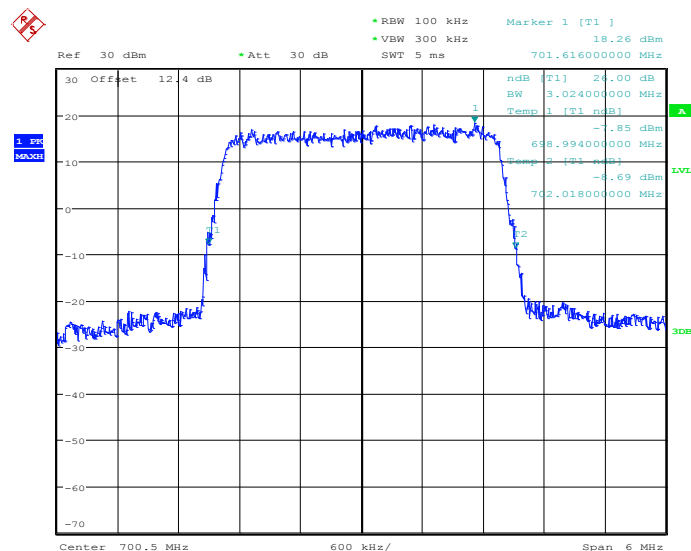
Center 715.3 MHz 280 kHz/ Span 2.8 MHz

Date: 27.MAY.2014 20:32:36

Band :	LTE Band 12	BW / Mod. :	3MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 23025


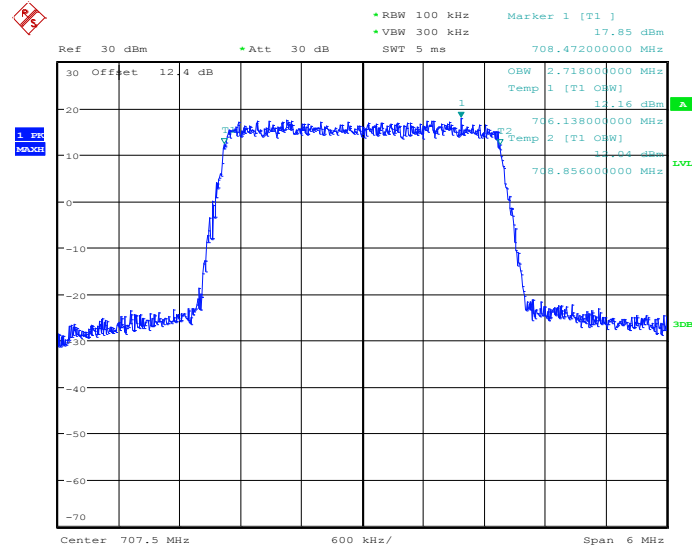
Date: 27.MAY.2014 20:41:12

26dB Bandwidth Plot on Channel 23025


Date: 27.MAY.2014 20:42:05

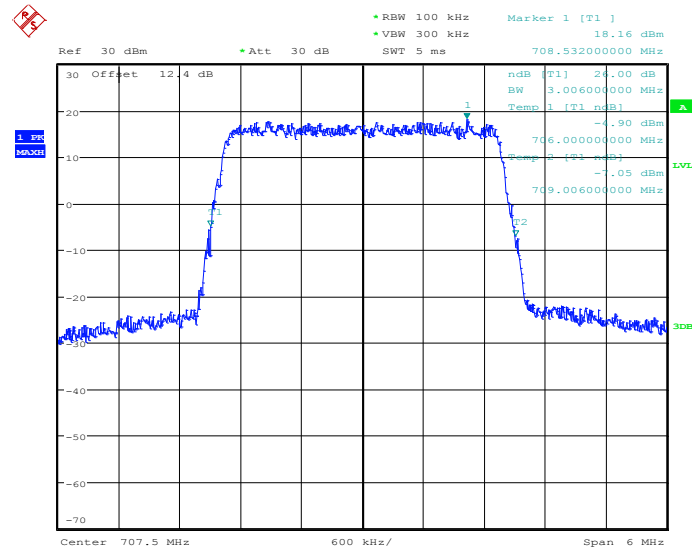


99% Occupied Bandwidth Plot on Channel 23095

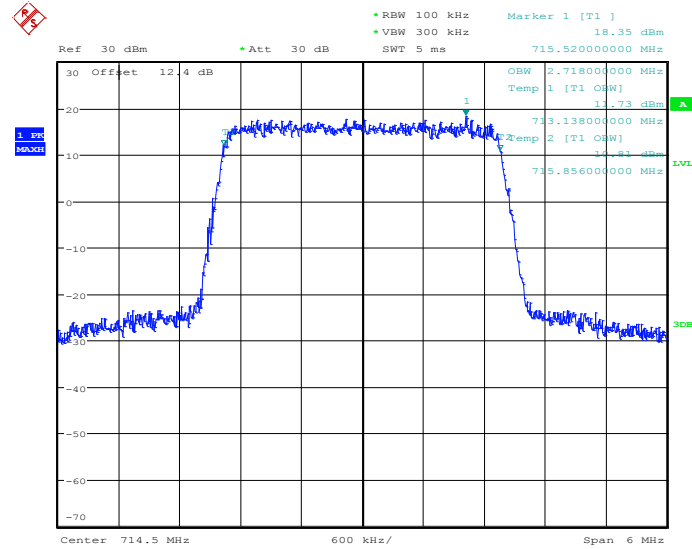


Date: 27.MAY.2014 20:48:03

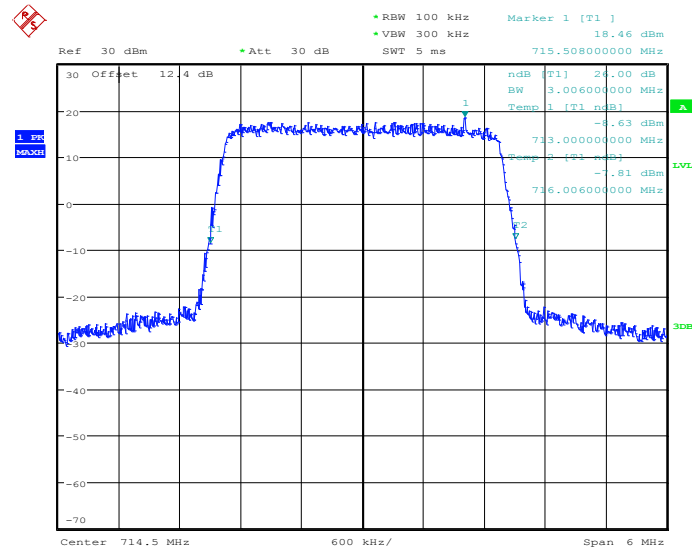
26dB Bandwidth Plot on Channel 23095



Date: 27.MAY.2014 20:48:21

99% Occupied Bandwidth Plot on Channel 23165


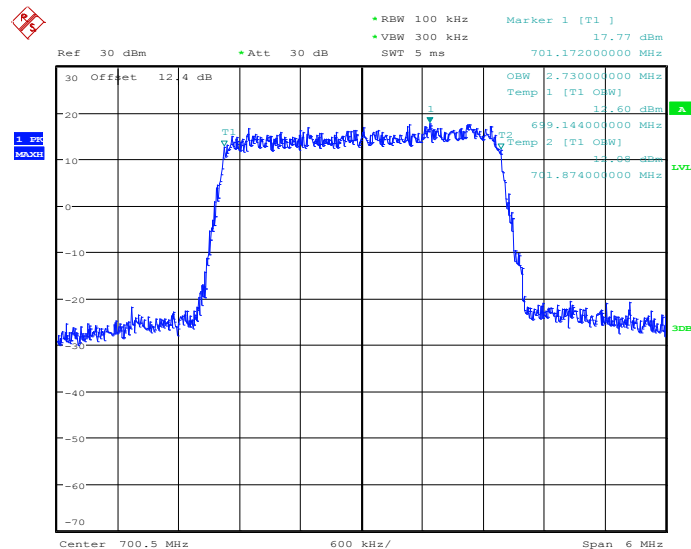
Date: 27.MAY.2014 20:53:48

26dB Bandwidth Plot on Channel 23165


Date: 27.MAY.2014 20:54:41

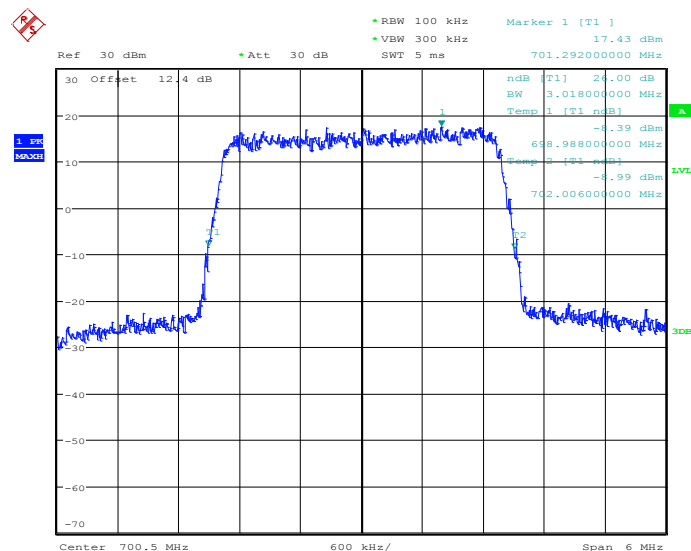
Band :	LTE Band 12	BW / Mod. :	3MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 23025



Date: 27.MAY.2014 20:41:29

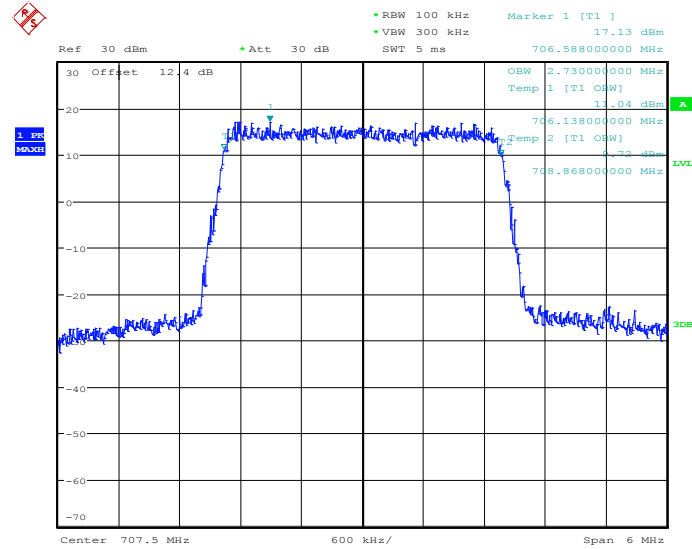
26dB Bandwidth Plot on Channel 23025



Date: 27.MAY.2014 20:41:47

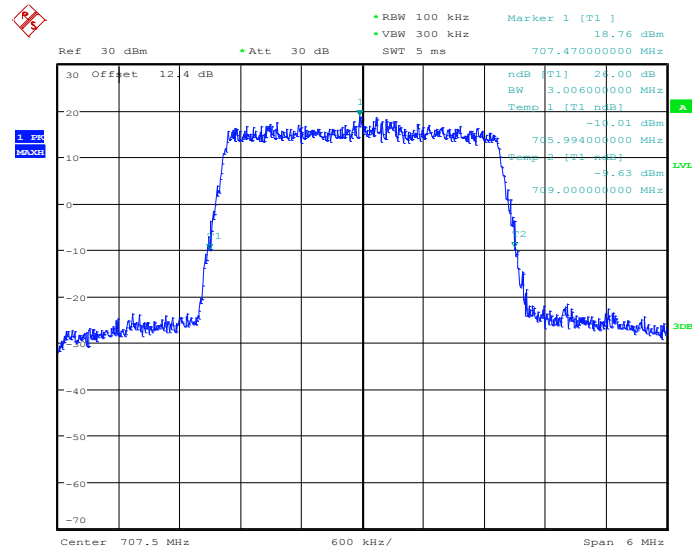


99% Occupied Bandwidth Plot on Channel 23095



Date: 27.MAY.2014 20:47:46

26dB Bandwidth Plot on Channel 23095



Date: 27.MAY.2014 20:48:39



Ref 30 dBm • Att 30 dB

• RBW 100 kHz Marker 1 [T1]
 • VBW 300 kHz 17.30 dBm
 SWT 5 ms 713.618000000 MHz

OSW 2.712000000 MHz
 Temp 1 [T1 OSW] 17.05 dBm
 723.138000000 MHz
 Temp 2 [T1 OSW] 16.74 dBm
 725.850000000 MHz

Center 714.5 MHz 600 kHz / Span 6 MHz

Date: 27.MAY.2014 20:54:05

Ref 30 dBm Att 30 dB RBW 100 kHz VBW 300 kHz SWT 5 ms

Marker 1 [1]

17.74 dBm

714.18200000 MHz

30 Offset 12 4 dB

20

10

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-10

-20

-30

-40

-50

-60

-70

Center 714.5 MHz

600 kHz/

Span 6 MHz

ndB [T1] 24.00 dB

BW 3.054000000 MHz

Temp 1 [T1] ndB

-1.15 dBm

712.976000000 MHz

Temp 3 [T3] ndB

-4.78 dBm

716.030000000 MHz

1. PRG

MAXH

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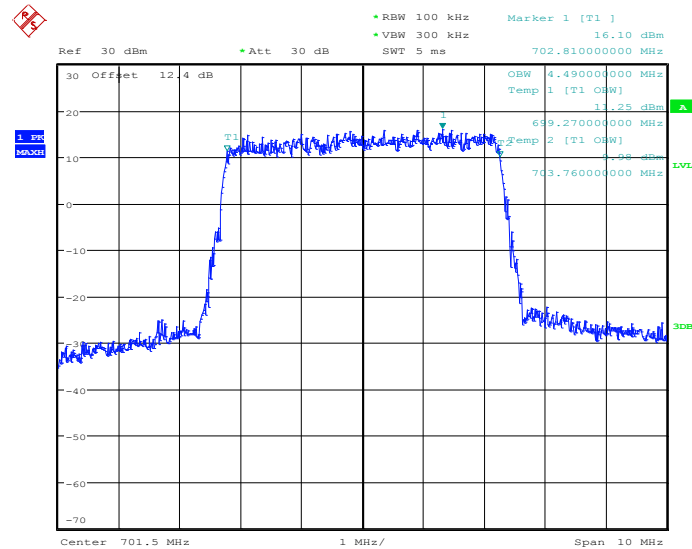
412

413

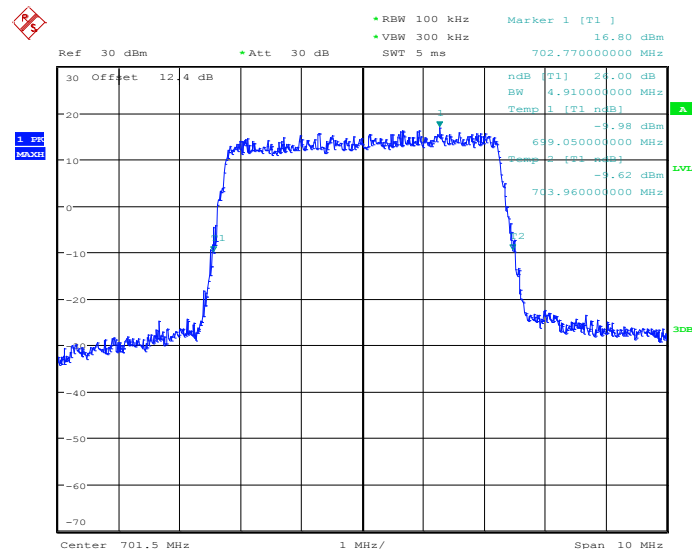
414

Date: 27.MAY.2014 20:54:23

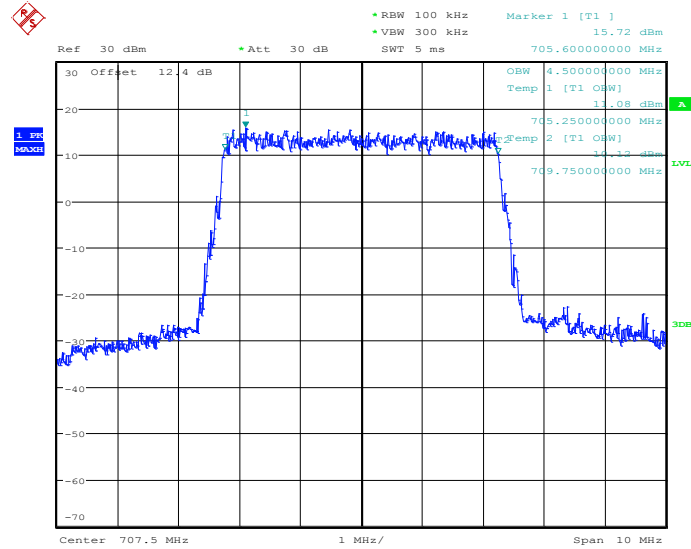
Band :	LTE Band 12	BW / Mod. :	5MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 23035


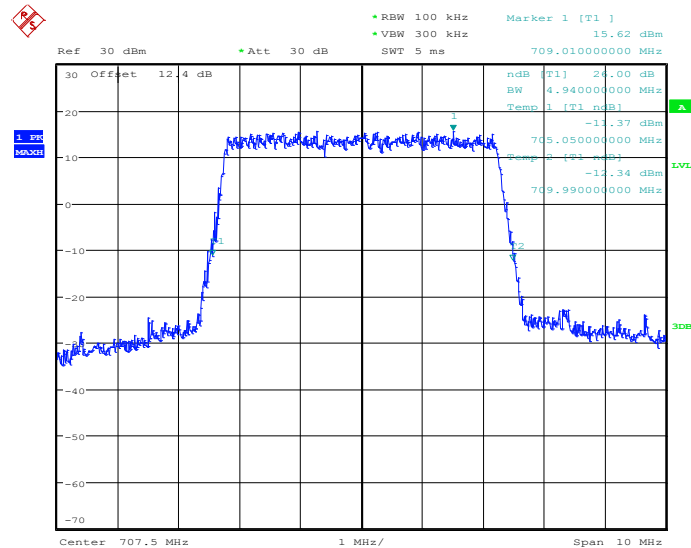
Date: 27.MAY.2014 21:00:18

26dB Bandwidth Plot on Channel 23035


Date: 27.MAY.2014 21:01:10

99% Occupied Bandwidth Plot on Channel 23095


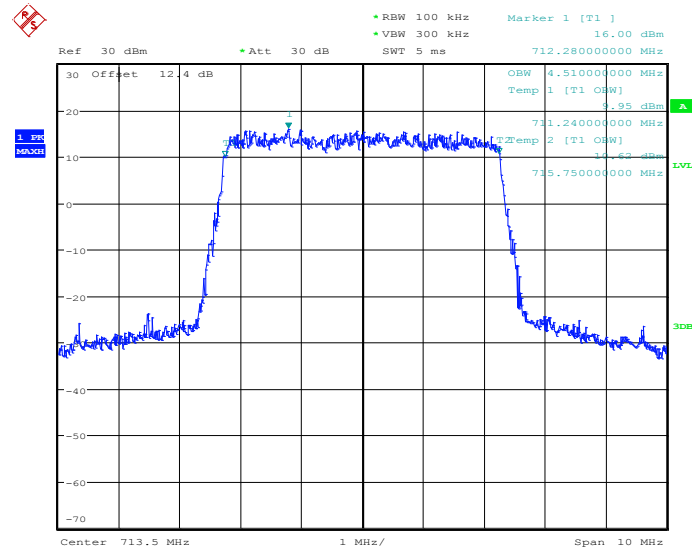
Date: 27.MAY.2014 21:07:25

26dB Bandwidth Plot on Channel 23095


Date: 27.MAY.2014 21:07:43

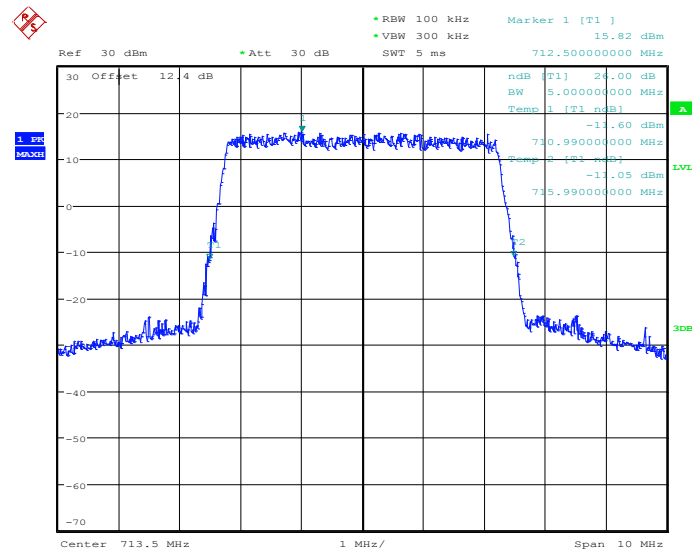


99% Occupied Bandwidth Plot on Channel 23155



Date: 27.MAY.2014 21:10:18

26dB Bandwidth Plot on Channel 23155

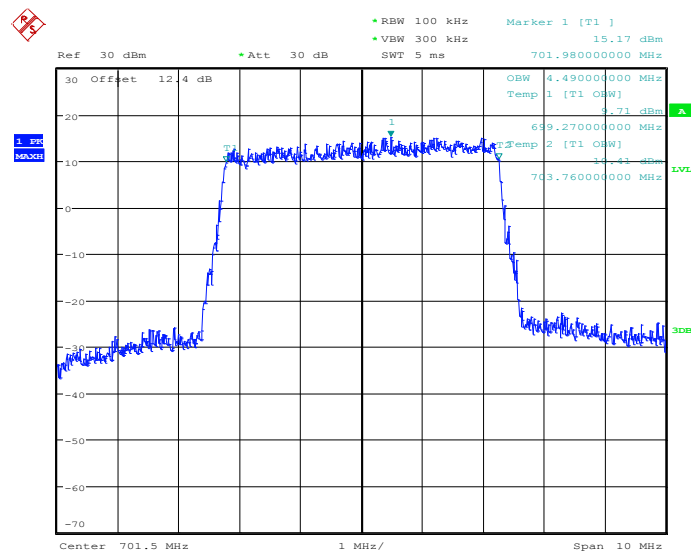


Date: 27.MAY.2014 21:11:11



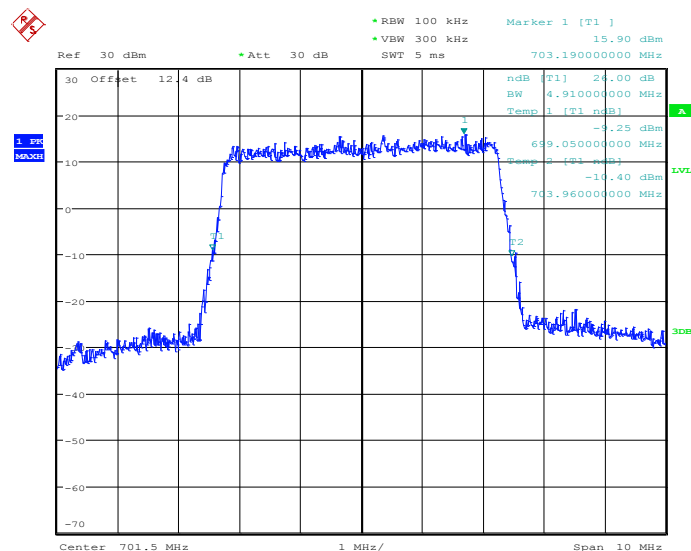
Band :	LTE Band 12	BW / Mod. :	5MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 23035



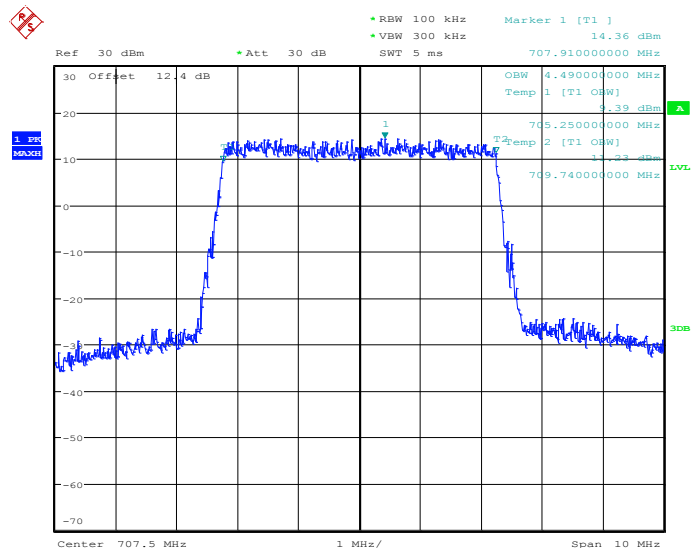
Date: 27.MAY.2014 21:00:34

26dB Bandwidth Plot on Channel 23035



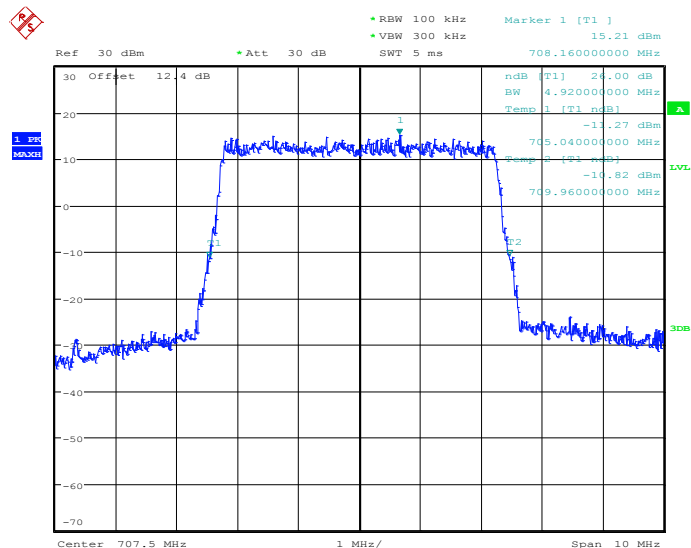
Date: 27.MAY.2014 21:00:52

99% Occupied Bandwidth Plot on Channel 23095

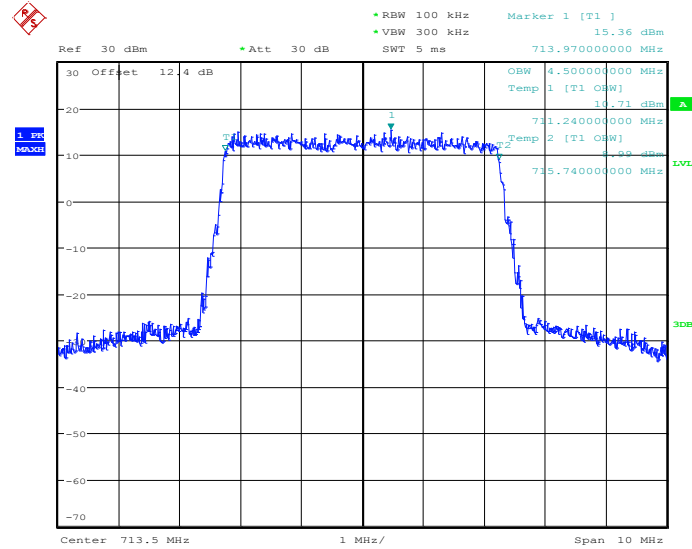


Date: 27.MAY.2014 21:07:08

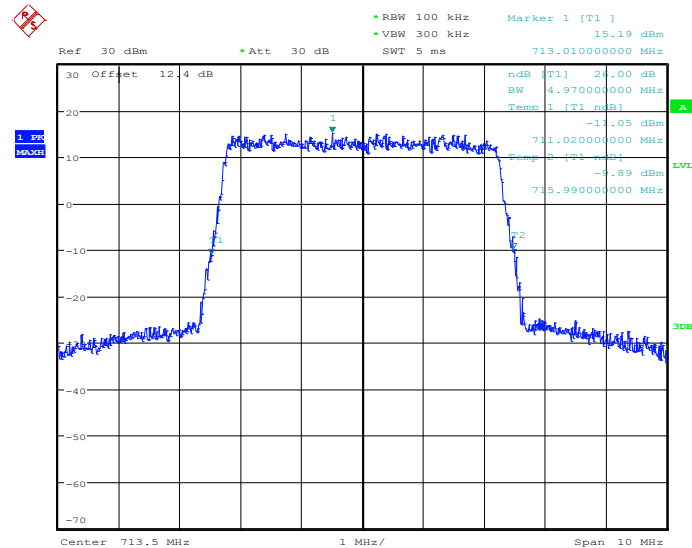
26dB Bandwidth Plot on Channel 23095



Date: 27.MAY.2014 21:08:01

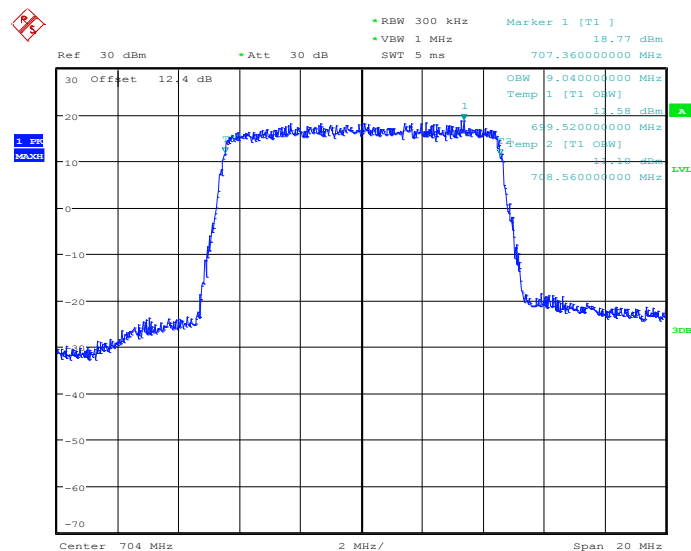
99% Occupied Bandwidth Plot on Channel 23155


Date: 27.MAY.2014 21:10:35

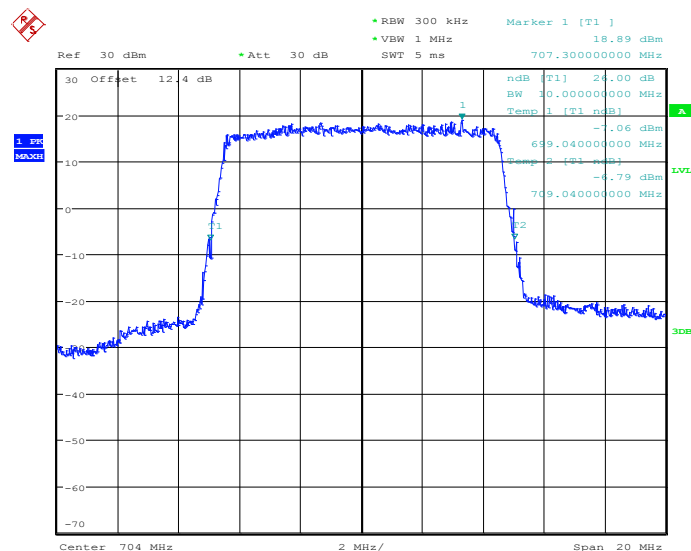
26dB Bandwidth Plot on Channel 23155


Date: 27.MAY.2014 21:10:53

Band :	LTE Band 12	BW / Mod. :	10MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 23060


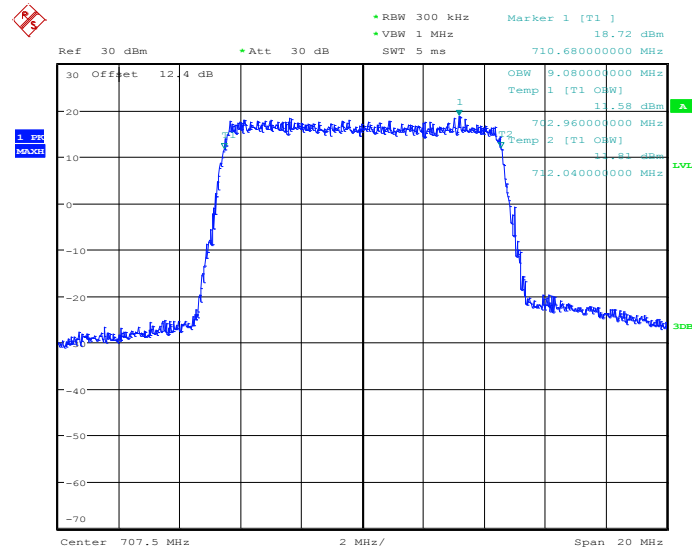
Date: 27.MAY.2014 21:34:28

26dB Bandwidth Plot on Channel 23060


Date: 27.MAY.2014 21:35:20

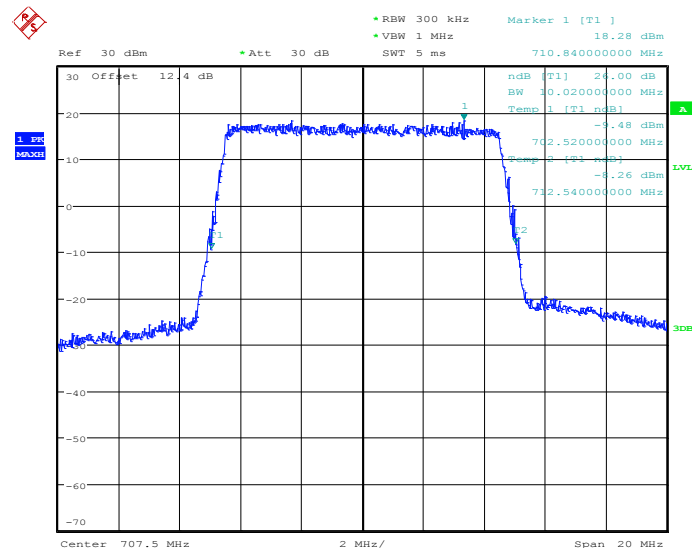


99% Occupied Bandwidth Plot on Channel 23095



Date: 27.MAY.2014 21:35:52

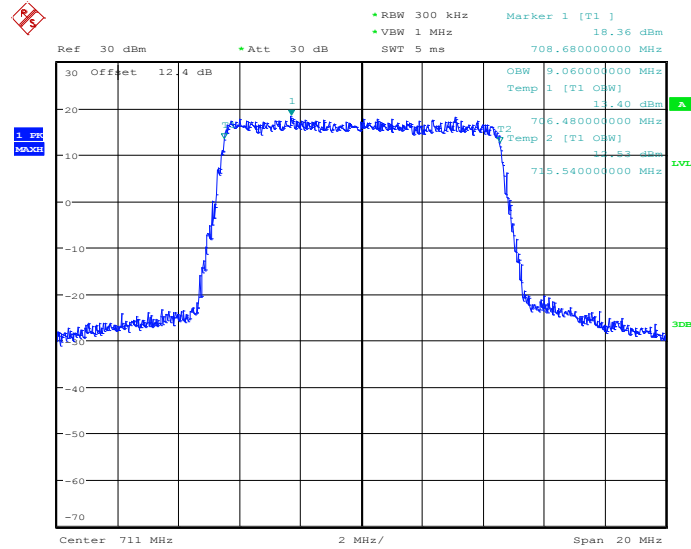
26dB Bandwidth Plot on Channel 23095



Date: 27.MAY.2014 21:36:11

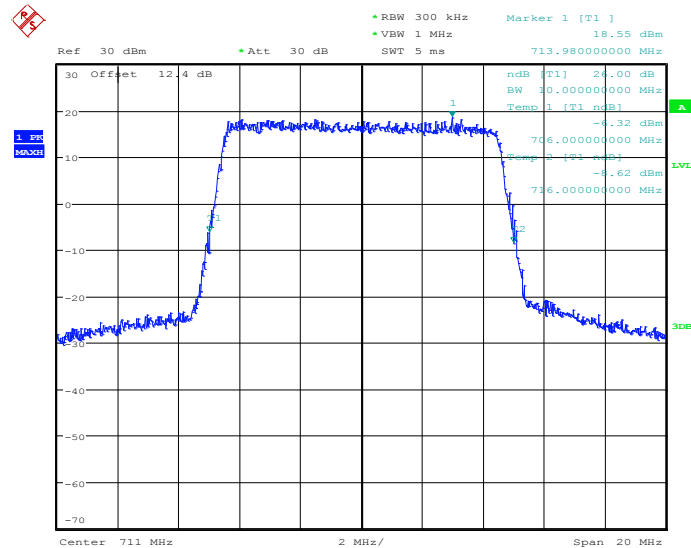


99% Occupied Bandwidth Plot on Channel 23130



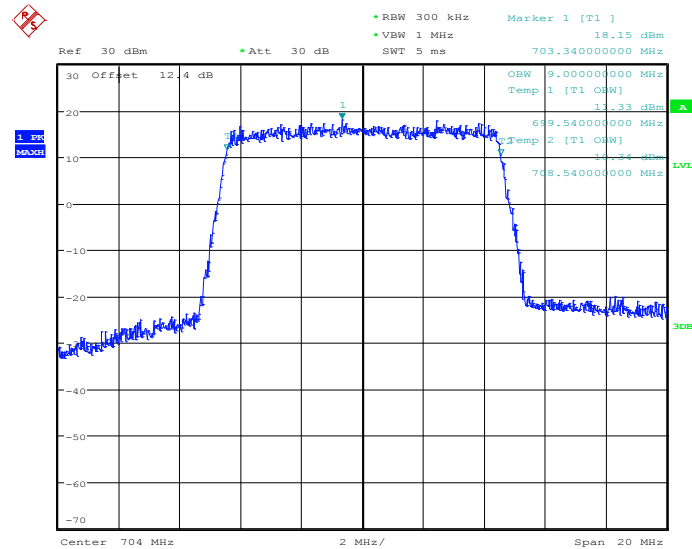
Date: 27.MAY.2014 21:36:45

26dB Bandwidth Plot on Channel 23130

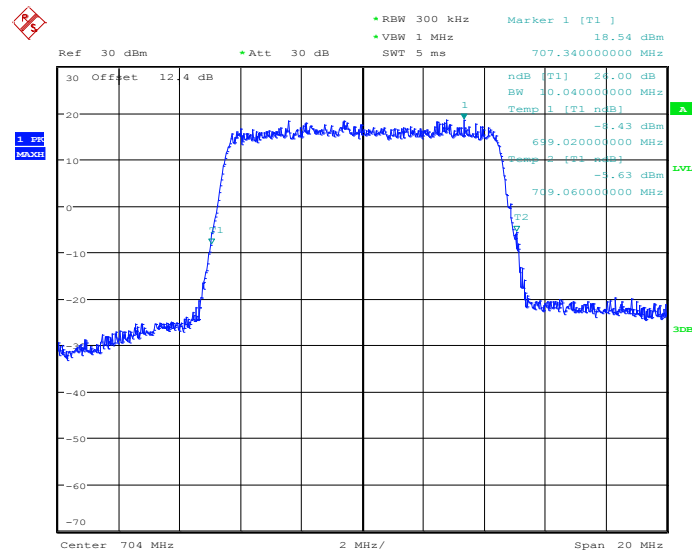


Date: 27.MAY.2014 21:37:37

Band :	LTE Band 12	BW / Mod. :	10MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 23060


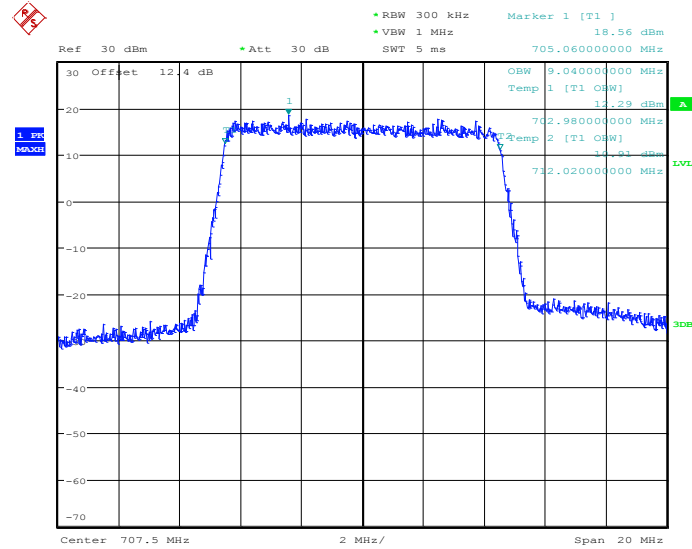
Date: 27.MAY.2014 21:34:44

26dB Bandwidth Plot on Channel 23060


Date: 27.MAY.2014 21:35:02

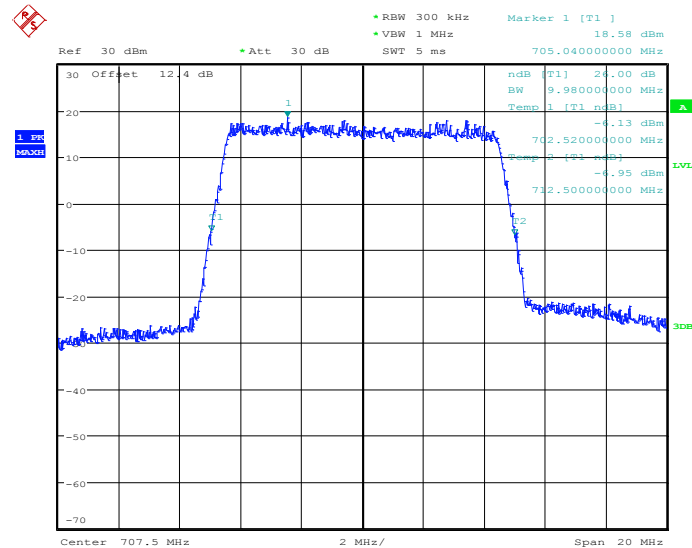


99% Occupied Bandwidth Plot on Channel 23095



Date: 27.MAY.2014 21:35:36

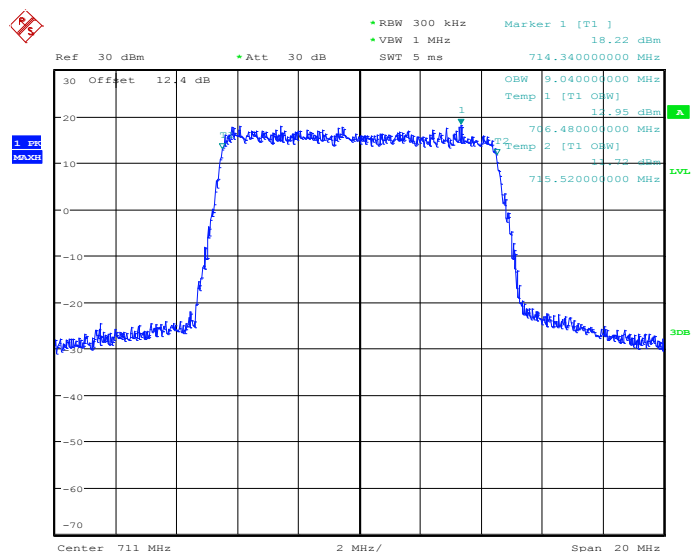
26dB Bandwidth Plot on Channel 23095



Date: 27.MAY.2014 21:36:29

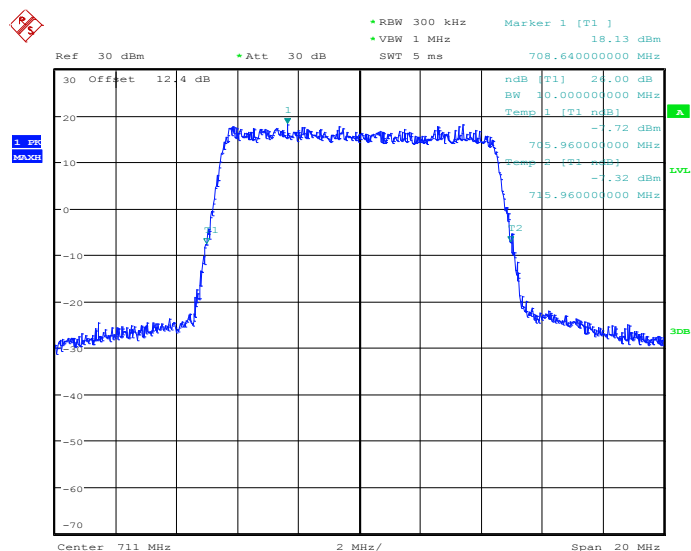


99% Occupied Bandwidth Plot on Channel 23130



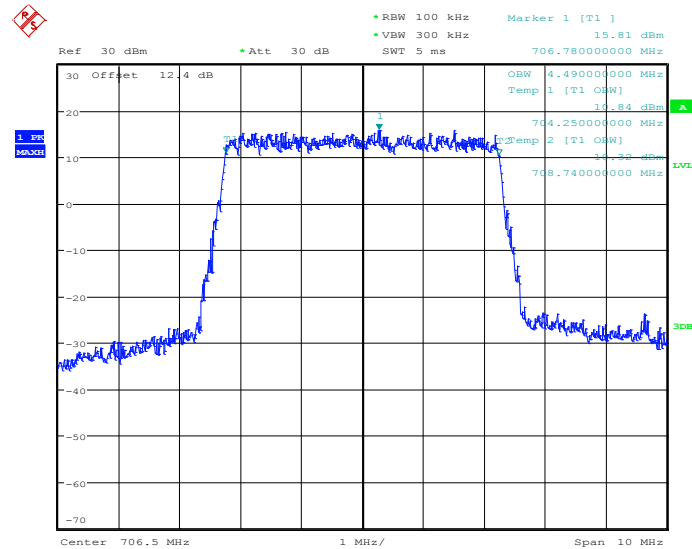
Date: 27.MAY.2014 21:37:01

26dB Bandwidth Plot on Channel 23130

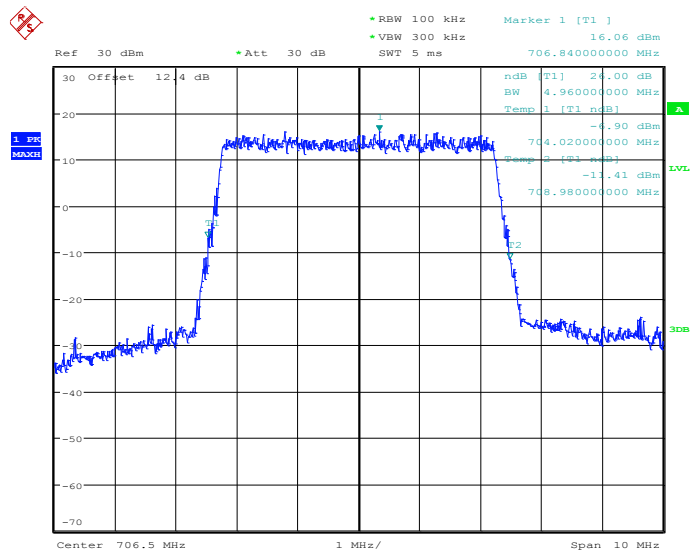


Date: 27.MAY.2014 21:37:19

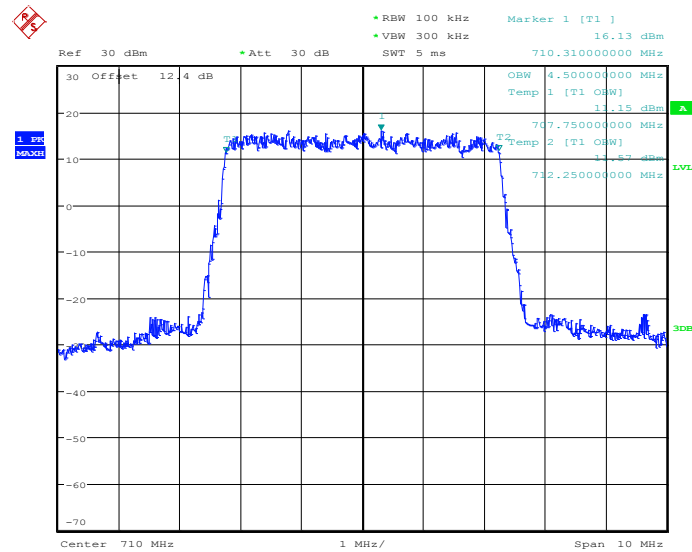
Band :	LTE Band 17	BW / Mod. :	5MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 23755


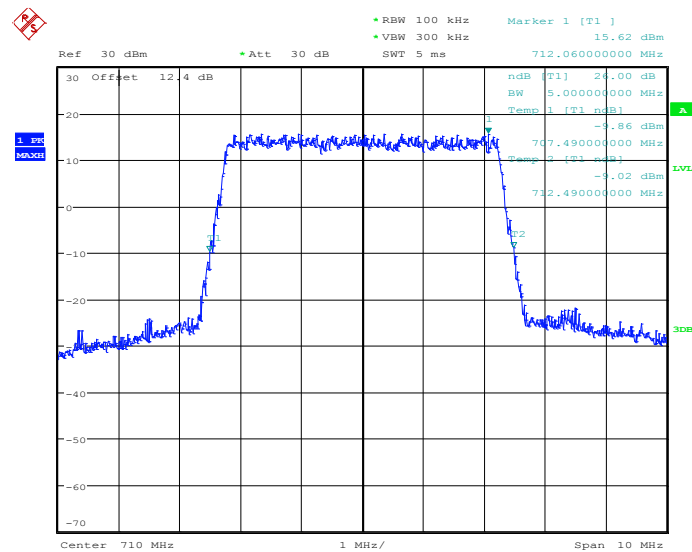
Date: 27.MAY.2014 22:28:52

26dB Bandwidth Plot on Channel 23755


Date: 27.MAY.2014 22:29:26

99% Occupied Bandwidth Plot on Channel 23790


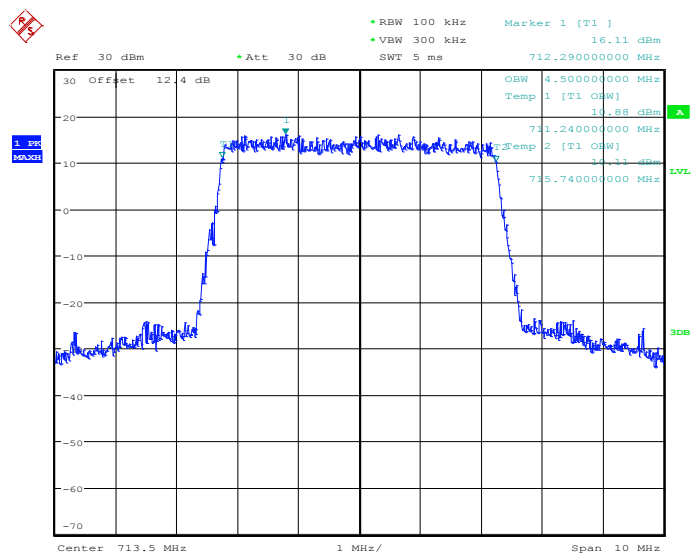
Date: 27.MAY.2014 22:35:13

26dB Bandwidth Plot on Channel 23790


Date: 27.MAY.2014 22:35:48

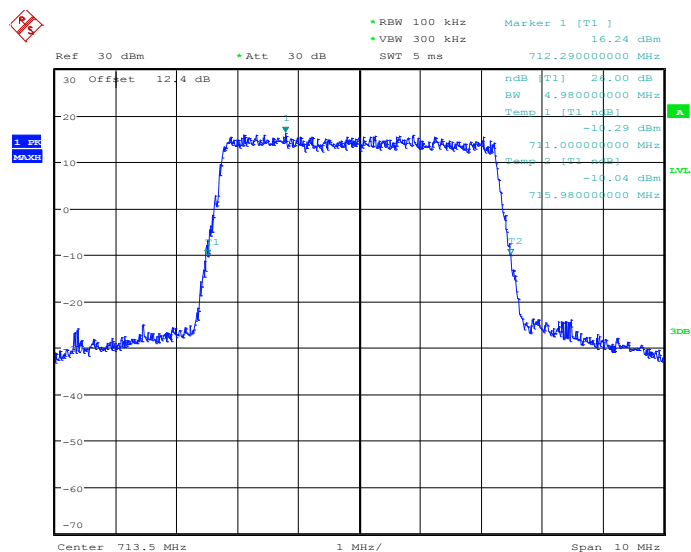


99% Occupied Bandwidth Plot on Channel 23825



Date: 27.MAY.2014 22:38:23

26dB Bandwidth Plot on Channel 23825

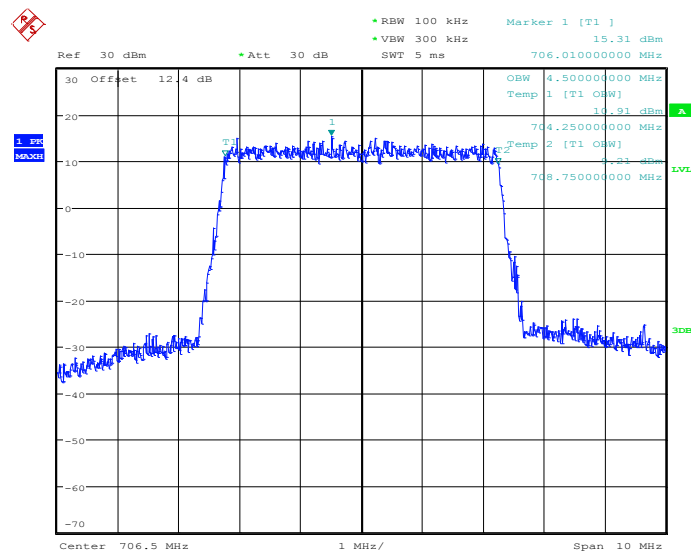


Date: 27.MAY.2014 22:38:57



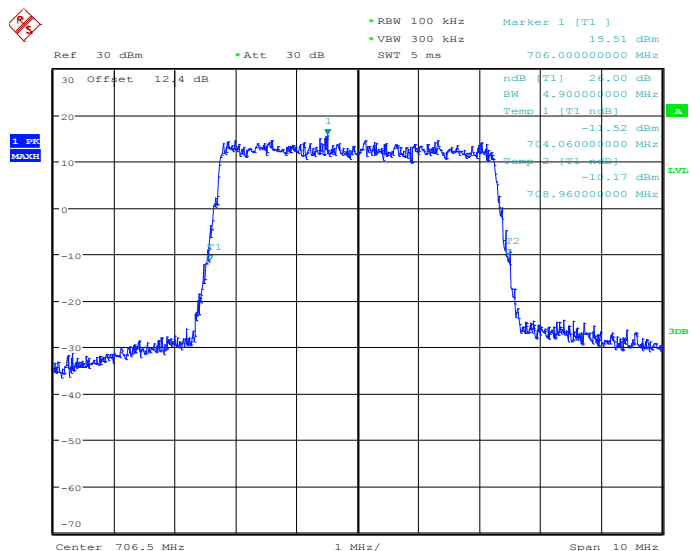
Band :	LTE Band 17	BW / Mod. :	5MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 23755



Date: 27.MAY.2014 22:29:08

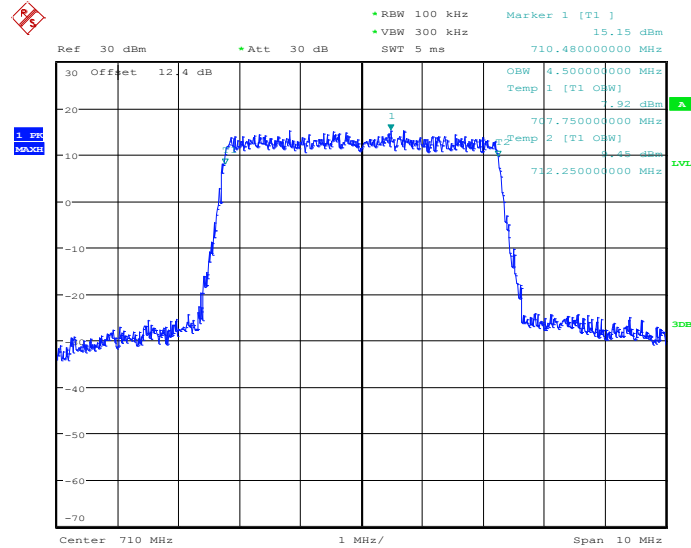
26dB Bandwidth Plot on Channel 23755



Date: 27.MAY.2014 22:29:44

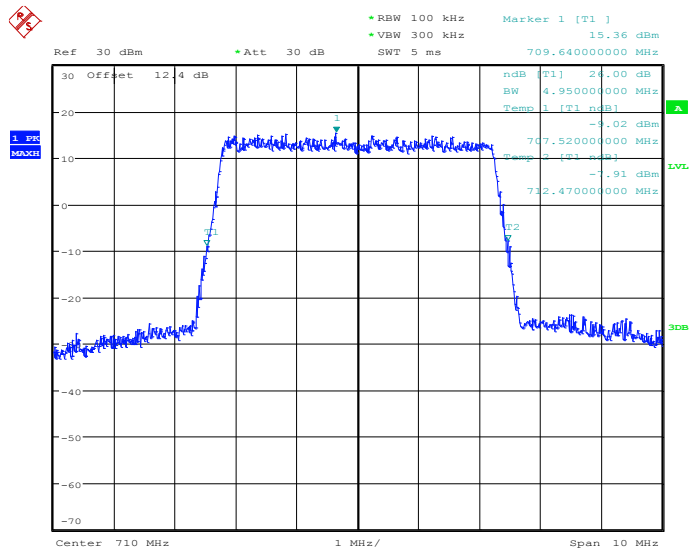


99% Occupied Bandwidth Plot on Channel 23790



Date: 27.MAY.2014 22:35:30

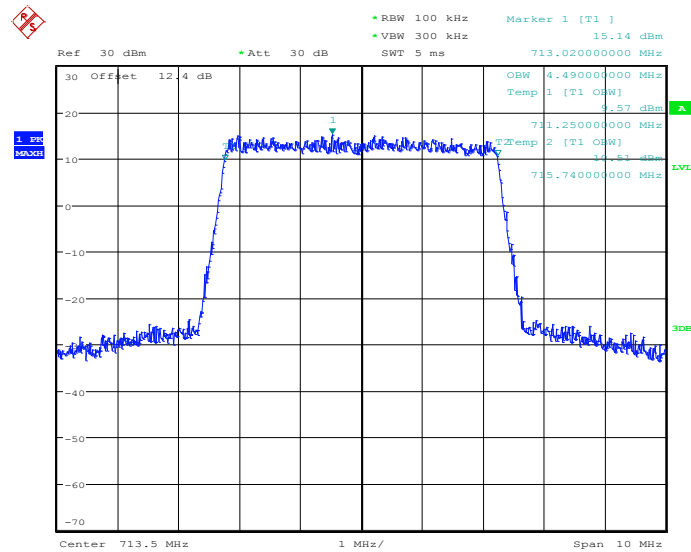
26dB Bandwidth Plot on Channel 23790



Date: 27.MAY.2014 22:36:06

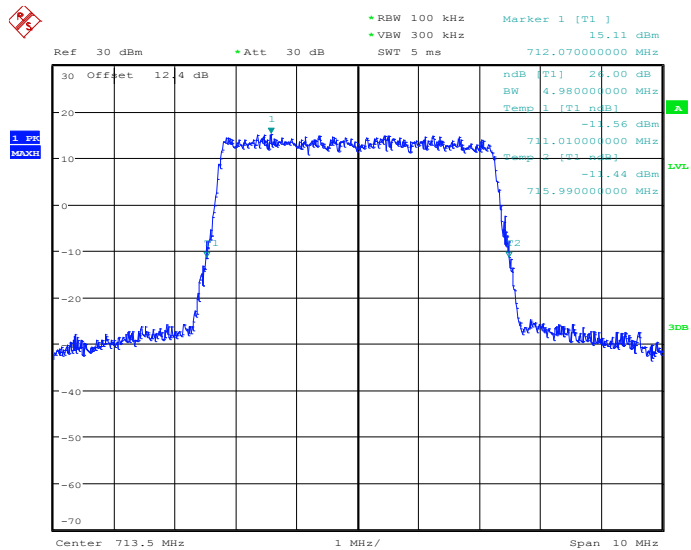


99% Occupied Bandwidth Plot on Channel 23825



Date: 27.MAY.2014 22:38:39

26dB Bandwidth Plot on Channel 23825

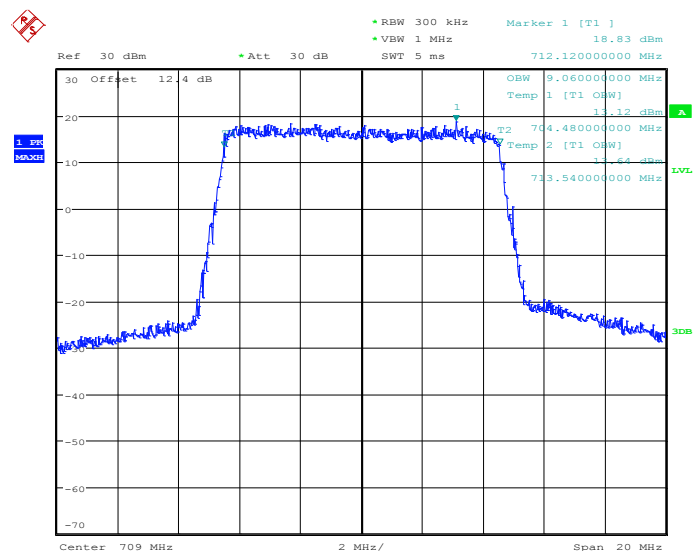


Date: 27.MAY.2014 22:39:16



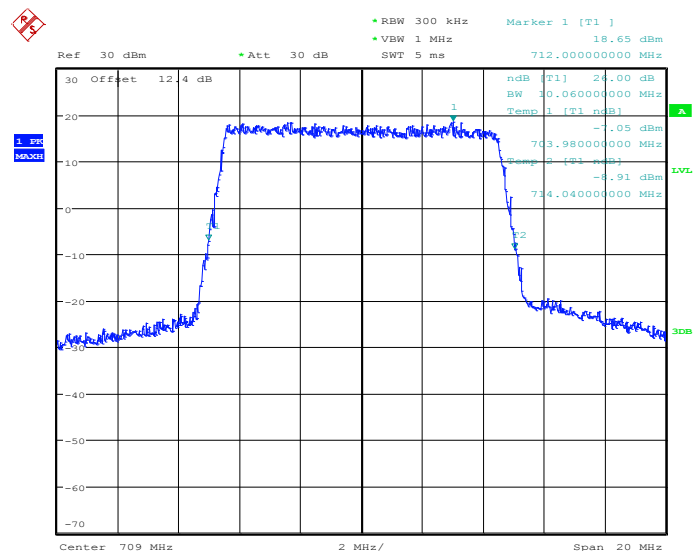
Band :	LTE Band 17	BW / Mod. :	10MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 23780



Date: 27.MAY.2014 22:44:48

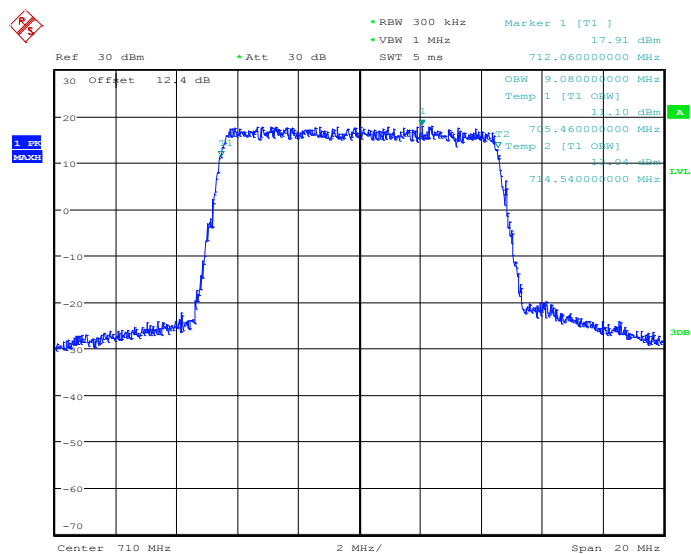
26dB Bandwidth Plot on Channel 23780



Date: 27.MAY.2014 22:45:23

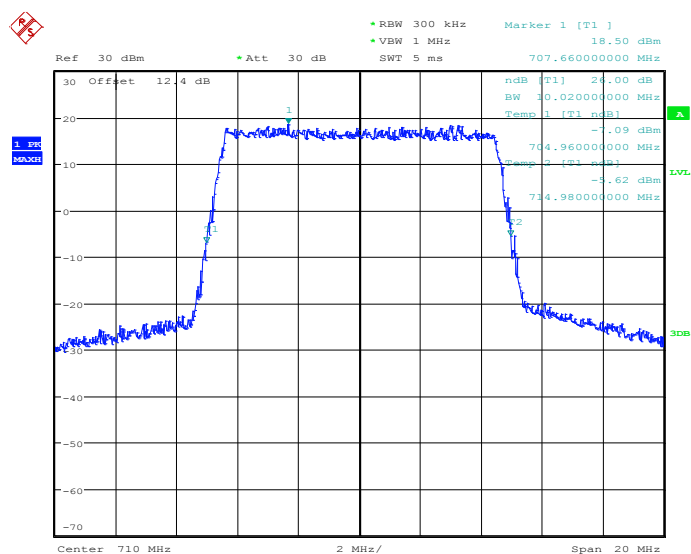


99% Occupied Bandwidth Plot on Channel 23790



Date: 27.MAY.2014 22:51:09

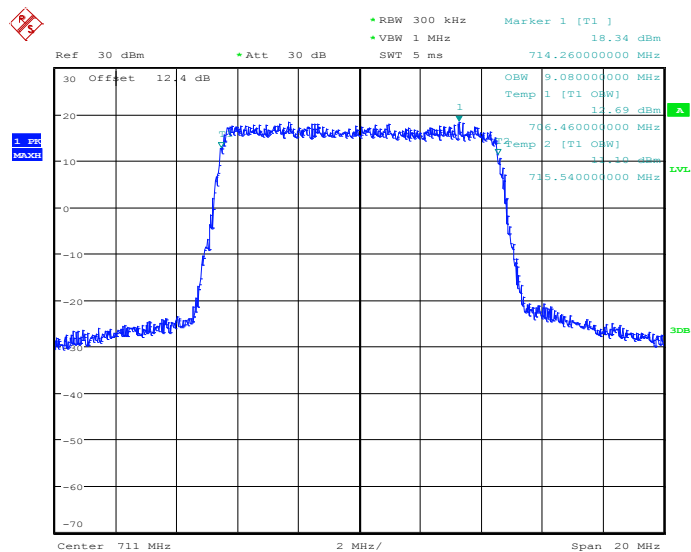
26dB Bandwidth Plot on Channel 23790



Date: 27.MAY.2014 22:51:43

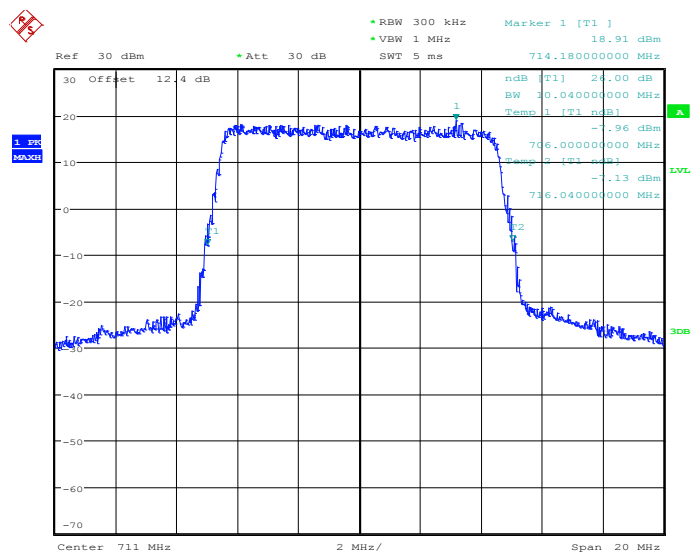


99% Occupied Bandwidth Plot on Channel 23800



Date: 27.MAY.2014 22:54:18

26dB Bandwidth Plot on Channel 23800



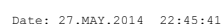
Date: 27.MAY.2014 22:54:53



99% Occupied Bandwidth Plot on Channel 23780

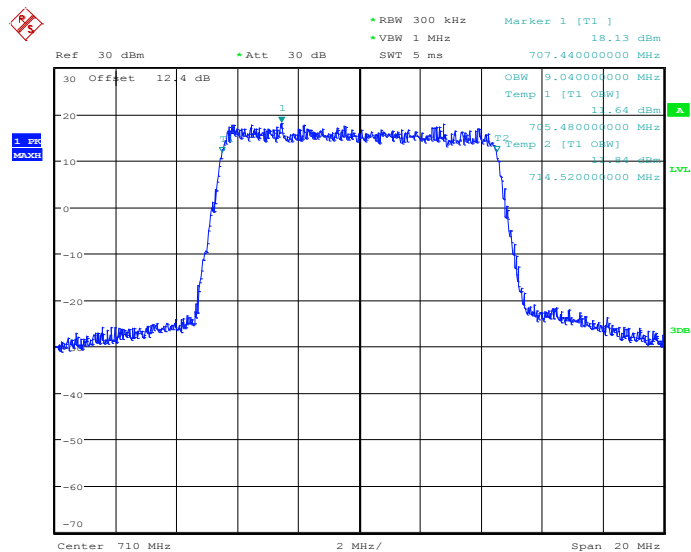


26dB Bandwidth Plot on Channel 23780



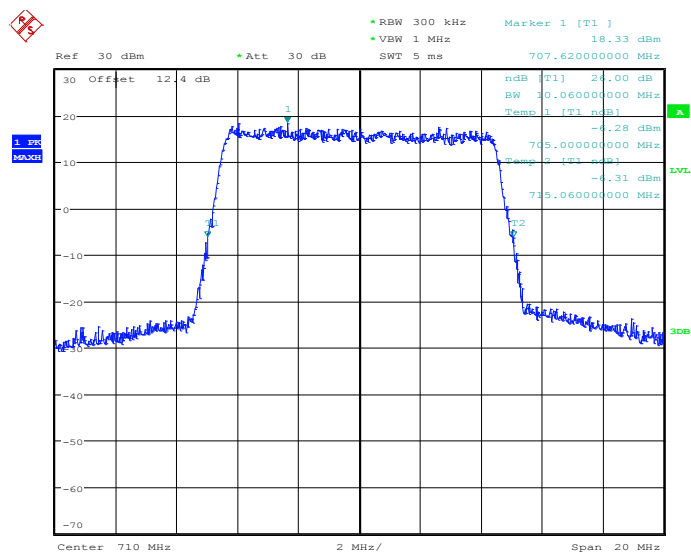


99% Occupied Bandwidth Plot on Channel 23790



Date: 27.MAY.2014 22:51:25

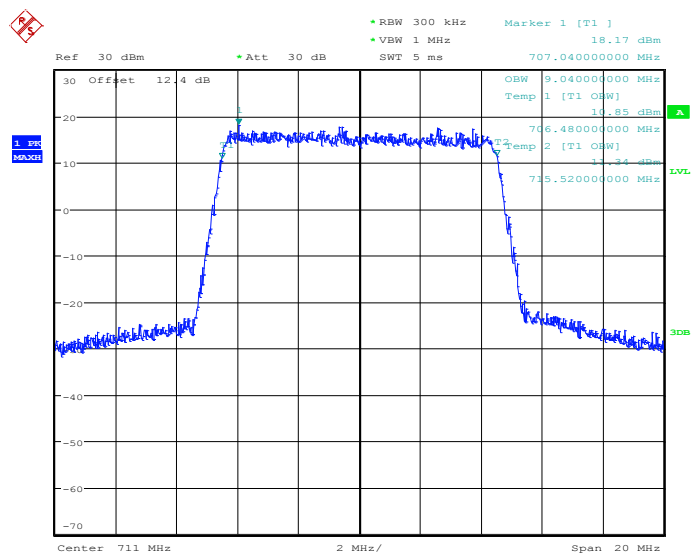
26dB Bandwidth Plot on Channel 23790



Date: 27.MAY.2014 22:52:01

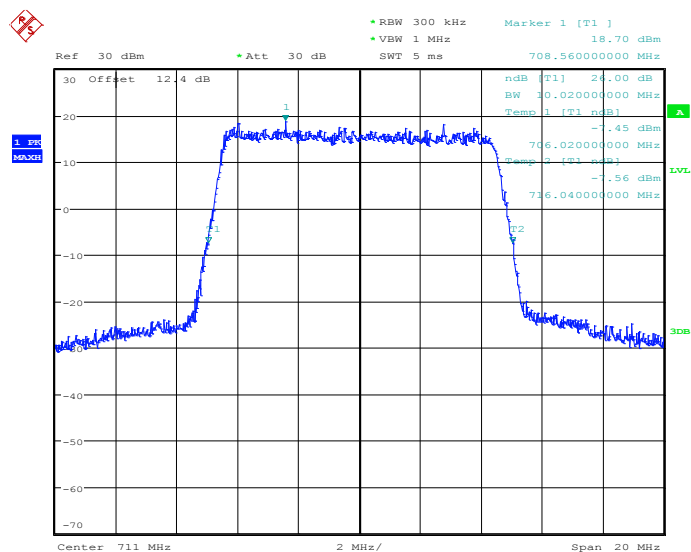


99% Occupied Bandwidth Plot on Channel 23800



Date: 27.MAY.2014 22:54:35

26dB Bandwidth Plot on Channel 23800



Date: 27.MAY.2014 22:55:11