# FCC RF Test Report

| | | |
|---|---|---|
| APPLICANT | : | VERTU Corporation Limited |
| EQUIPMENT | : | Cellular Telephone |
| BRAND NAME | : | VERTU |
| MODEL NAME | : | SIGNATURE TOUCH |
| TYPE (LTE) | : | RM-980V |
| TYPE (WCDMA) | : | RM-980C |
| FCC ID | : | P7QRM-980V |
| STANDARD | : | 47 CFR Part 2, 22(H), 24(E), 27 |
| CLASSIFICATION | : | PCS Licensed Transmitter Held to Ear (PCE) |

**The product was received on Mar. 03, 2014 and testing was completed on May 20, 2014. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI / TIA / EIA-603-C-2004 and shown compliance with the applicable technical standards.**

**The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.**

**Reviewed by: Joseph Lin / Supervisor**

**Approved by: Jones Tsai / Manager**

Testing Laboratory
1190

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

# TABLE OF CONTENTS

**REVISION HISTORY** ..... **3**

**SUMMARY OF TEST RESULT** ..... **4**

**1 GENERAL DESCRIPTION** ..... **6**

1.1 Applicant ..... 6
1.2 Manufacturer ..... 6
1.3 Product Feature of Equipment Under Test ..... 6
1.4 Product Specification subjective to this standard ..... 7
1.5 Modification of EUT ..... 8
1.6 Maximum ERP/EIRP Power, Frequency Tolerance, and Emission Designator ..... 8
1.7 Testing Location ..... 10
1.8 Applicable Standards ..... 11

**2 TEST CONFIGURATION OF EQUIPMENT UNDER TEST** ..... **12**

2.1 Test Mode ..... 12
2.2 Connection Diagram of Test System ..... 14
2.3 Support Unit used in test configuration and system ..... 15
2.4 Measurement Results Explanation Example ..... 15

**3 TEST RESULT** ..... **16**

3.1 Conducted Output Power Measurement ..... 16
3.2 Peak-to-Average Ratio ..... 31
3.3 Effective Radiated Power and Equivalent Isotropic Radiated Power Measurement ..... 50
3.4 Occupied Bandwidth ..... 65
3.5 Conducted Band Edge Measurement ..... 210
3.6 Conducted Spurious Emission Measurement ..... 312
3.7 Radiated Spurious Emission Measurement ..... 386
3.8 Frequency Stability Measurement ..... 534

**4 LIST OF MEASURING EQUIPMENT** ..... **541**

**5 UNCERTAINTY OF EVALUATION** ..... **542**

**APPENDIX A. SETUP PHOTOGRAPHS**

# REVISION HISTORY

| REPORT NO. | VERSION | DESCRIPTION | ISSUED DATE |
|---|---|---|---|
| FG430314B | Rev. 01 | Initial issue of report | May 26, 2014 |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

# SUMMARY OF TEST RESULT

| Report Section | FCC Rule | IC Rule | Description | Limit | Result | Remark |
|---|---|---|---|---|---|---|
| 3.1 | §2.1046 | RSS-Gen(4.8)<br>RSS-130(4.4)<br>RSS-132(5.4)<br>RSS-133(6.4)<br>RSS-139(6.4)<br>RSS-199(4.4) | Conducted Output Power | Reporting Only | PASS | - |
| 3.2 | §24.232(d)<br>§27.50(d)(5) | RSS-130(4.4)<br>RSS-132(5.4)<br>RSS-133(6.4)<br>RSS-139(6.4) | Peak-to-Average Ratio | <13 dB | PASS | - |
| 3.3 | §22.913(a)(2) | RSS-132(5.4)<br>SRSP-503(5.1.3) | Effective Radiated Power<br>(Band 5) | ERP < 7 Watts | PASS | - |
| | §27.50(c)(10) | N/A | Effective Radiated Power<br>(Band 17) | ERP < 3 Watts | | |
| | N/A | RSS-130(4.4) | Equivalent Isotropic Radiated Power<br>(Band 17) | EIRP < 5 Watts | | |
| | §24.232(c)<br>§27.50(h)(2) | RSS-133(6.4)<br>SRSP-510(5.1.2)<br>RSS-199(4.4) | Equivalent Isotropic Radiated Power<br>(Band 2)(Band 25) (Band 7) | EIRP < 2Watt | | |
| | §27.50(d)(4) | RSS-139(6.4)<br>SRSP-513(5.1.2) | Equivalent Isotropic Radiated Power<br>(Band 4) | EIRP < 1Watt | | |
| 3.4 | §2.1049<br>§22.917(b)<br>§24.238(b)<br>§27.53(g)(3)<br>§27.53(l)(6) | RSS-GEN(4.6.1)<br>RSS-132(3.1)<br>RSS-133(3.1)<br>RSS-139(3.1)<br>RSS-199(4.2) | Occupied Bandwidth | Reporting Only | PASS | - |

| Report Section | FCC Rule | IC Rule | Description | Limit | Result | Remark |
|---|---|---|---|---|---|---|
| 3.5 | §2.1051<br>§22.917(a)<br>§24.238(a)<br>§27.53(f)<br>§27.53(g)<br>§27.53(l)(4) | RSS-GEN(4.9)<br>RSS-132(5.5)<br>RSS-133(6.5.1)<br>RSS-130(4.6)<br>RSS-139(6.5)<br>RSS-199(4.5) | Conducted Band Edge Measurement<br>(Band 2) (Band 4) (Band 5)<br>(Band 17) (Band 25) (Band 7) | < 43+10log10(P[Watts]) | PASS | - |
| 3.6 | §2.1051<br>§22.917(a)<br>§24.238(a)<br>§27.53(f)<br>§27.53(g) | RSS-GEN(4.9)<br>RSS-132(5.5)<br>RSS-133(6.5.1)<br>RSS-130(4.6)<br>RSS-139(6.5) | Conducted Spurious Emission<br>(Band 2) (Band 4) (Band 5)<br>(Band 17) (Band 25) | < 43+10log$_{10}$(P[Watts]) | PASS | - |
| | §2.1051<br>§27.53(l)(4) | RSS-GEN(4.9)<br>RSS-199 (4.5) | Conducted Spurious Emission<br>(Band 7) | < 55+10log10(P[Watts]) | PASS | - |
| 3.7 | §2.1053<br>§22.917(a)<br>§24.238(a)<br>§27.53(f)<br>§27.53(g) | RSS-GEN(4.9)<br>RSS-132 (5.5)<br>RSS-133 (6.5.1)<br>RSS-130(4.6)<br>RSS-139(6.5) | Radiated Spurious Emission<br>(Band 2) (Band 4) (Band 5)<br>(Band 17) (Band 25) | < 43+10log$_{10}$(P[Watts]) | PASS | Under limit 6.30 dB at 5200.000 MHz |
| | §2.1053<br>§27.53(l)(4) | RSS-GEN(4.9)<br>RSS-199(4.5) | Radiated Spurious Emission<br>(Band 7) | < 55+10log$_{10}$(P[Watts]) | PASS | - |
| 3.8 | §2.1055<br>§22.355<br>§24.235<br>§27.54 | RSS-GEN(4.7)<br>RSS-132(5.3)<br>RSS-133(6.3)<br>RSS-130(4.3)<br>RSS-139(6.3)<br>RSS-199(4.3) | Frequency Stability<br>Temperature & Voltage | < 2.5 ppm | PASS | |

# 1 General Description

## 1.1 Applicant

**VERTU Corporation Limited**
Beacon Hill Road, Church Crookham, Hampshire GU52 8DY, United Kingdom

## 1.2 Manufacturer

**VERTU Corporation Limited**
Beacon Hill Road, Church Crookham, Hampshire GU52 8DY, United Kingdom

## 1.3 Product Feature of Equipment Under Test

| Product Feature | |
|---|---|
| **Equipment** | Cellular Telephone |
| **Brand Name** | VERTU |
| **Model Name** | SIGNATURE TOUCH |
| **Type (LTE)** | RM-980V |
| **Type (WCDMA)** | RM-980C |
| **FCC ID** | P7QRM-980V |
| **Sample 1** | LTE SKU |
| **Sample 2** | WCDMA SKU |
| **Sample 3** | LTE SKU with 2nd EMMC |
| **EUT supports Radios application** | GSM/EGPRS/WCDMA/HSPA/LTE/NFC<br>WLAN 11b/g/n HT20<br>WLAN 11a/n HT20/HT40<br>WLAN 11ac VHT20/VHT40/VHT80<br>Bluetooth v3.0 + EDR<br>Bluetooth v4.0 – LE |
| **HW Version** | F2 |
| **SW Version** | 1_160_0001 |
| **EUT Stage** | Identical Prototype |

**Remark:**

1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
2. There are three different types of EUT sample #1, sample #2 and sample #3. For WWAN bands, Sample 1 support WCDMA and LTE bands, sample #2 only support WCDMA band and LTE band is disabled by software. Sample #1 and Sample #3 are different for EMMC. We choose sample #1 to perform all tests.

| Specification of Accessory | | |
|---|---|---|
| AC Adapter | Brand Name | VERTU |
| | Model Name | AC-32V |
| Car Charger | Brand Name | VERTU |
| | Model Name | DC-30V |
| Battery | Brand Name | VERTU |
| | Model Name | BP-9V |
| Portable Power Charger | Brand Name | VERTU |
| | Model Name | DC-15V |
| Earphone 1 | Brand Name | VERTU |
| | Model Name | WH-4V |
| Earphone 2 | Brand Name | VERTU |
| | Model Name | WH-5V |
| USB Cable | Brand Name | VERTU |
| Wireless Charger | Brand Name | VERTU |
| | Model Name | AC-35V |

## 1.4 Product Specification subjective to this standard

| Product Specification subjective to this standard | |
|---|---|
| Tx Frequency | LTE Band 5 : 824.7 MHz ~ 848.3 MHz<br>LTE Band 2 : 1850.7 MHz ~ 1909.3 MHz<br>LTE Band 25 : 1850.7MHz ~ 1914.3 MHz<br>LTE Band 4 : 1710.7 MHz ~ 1754.3 MHz<br>LTE Band 17 : 706.5 MHz ~ 713.5 MHz<br>LTE Band 7 : 2502.5 MHz ~ 2567.5 MHz |
| Rx Frequency | LTE Band 5 : 869.7 MHz ~ 893.3 MHz<br>LTE Band 2 : 1930.7 MHz ~ 1989.3 MHz<br>LTE Band 25 : 1930.7MHz ~ 1994.3 MHz<br>LTE Band 4 : 2110.7 MHz ~ 2154.3 MHz<br>LTE Band 17 : 736.5 MHz ~ 743.5 MHz<br>LTE Band 7 : 2622.5MHz ~ 2687.5 MHz |
| Bandwidth | 1.4MHz / 3MHz / 5MHz / 10MHz (Band 5)<br>1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz / 20MHz (Band 2)<br>1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz / 20MHz (Band 25)<br>1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz / 20MHz (Band 4)<br>5MHz / 10MHz (Band 17)<br>5MHz/ 10MHz / 15MHz / 20MHz (LTE Band 7) |
| Maximum Output Power to Antenna | LTE Band 5 : 23.15 dBm / 0.21 W<br>LTE Band 2 : 23.08 dBm / 0.20 W<br>LTE Band 25 : 23.29 dBm / 0.21 W<br>LTE Band 4 : 23.20 dBm / 0.21 W<br>LTE Band 17 : 23.07 dBm / 0.20 W<br>LTE Band 7 : 23.97 dBm / 0.25 W |
| Antenna Type | Monopole + Parasitic 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 | - | 0.06 W |
| Part 22 | LTE Band 5 | 16QAM | 1.4 MHz | 1M11D7W | - | 0.05 W |
| Part 22 | LTE Band 5 | QPSK | 3 MHz | 2M73G7D | - | - |
| Part 22 | LTE Band 5 | 16QAM | 3 MHz | 2M73D7W | - | - |
| Part 22 | LTE Band 5 | QPSK | 5 MHz | 4M51G7D | - | - |
| Part 22 | LTE Band 5 | 16QAM | 5 MHz | 4M50D7W | - | - |
| Part 22 | LTE Band 5 | QPSK | 10 MHz | 9M10G7D | 0.0005 ppm | 0.08 W |
| Part 22 | LTE Band 5 | 16QAM | 10 MHz | 9M08D7W | - | 0.05 W |
| Part 24 | LTE Band 2 | QPSK | 1.4 MHz | 1M10G7D | - | 0.15 W |
| Part 24 | LTE Band 2 | 16QAM | 1.4 MHz | 1M10D7W | - | 0.12 W |
| Part 24 | LTE Band 2 | QPSK | 3 MHz | 2M73G7D | - | - |
| Part 24 | LTE Band 2 | 16QAM | 3 MHz | 2M73D7W | - | - |
| Part 24 | LTE Band 2 | QPSK | 5 MHz | 4M50G7D | - | - |
| Part 24 | LTE Band 2 | 16QAM | 5 MHz | 4M50D7W | - | - |
| Part 24 | LTE Band 2 | QPSK | 10 MHz | 9M06G7D | 0.0003 ppm | - |
| Part 24 | LTE Band 2 | 16QAM | 10 MHz | 9M06D7W | - | - |
| Part 24 | LTE Band 2 | QPSK | 15 MHz | 13M5G7D | - | - |
| Part 24 | LTE Band 2 | 16QAM | 15 MHz | 13M5D7W | - | - |
| Part 24 | LTE Band 2 | QPSK | 20 MHz | 18M5G7D | - | 0.15 W |
| Part 24 | LTE Band 2 | 16QAM | 20 MHz | 18M5D7W | - | 0.12 W |

| FCC Rule | System | Type of Modulation | BW | Emission Designator | Frequency Tolerance (ppm) | Maximum ERP/EIRP |
|---|---|---|---|---|---|---|
| Part 24 | LTE Band 25 | QPSK | 1.4 MHz | 1M10G7D | - | 0.13 W |
| Part 24 | LTE Band 25 | 16QAM | 1.4 MHz | 1M10D7W | - | 0.11 W |
| Part 24 | LTE Band 25 | QPSK | 3 MHz | 2M73G7D | - | - |
| Part 24 | LTE Band 25 | 16QAM | 3 MHz | 2M73D7W | - | - |
| Part 24 | LTE Band 25 | QPSK | 5 MHz | 4M50G7D | - | - |
| Part 24 | LTE Band 25 | 16QAM | 5 MHz | 4M50D7W | - | - |
| Part 24 | LTE Band 25 | QPSK | 10 MHz | 9M06G7D | 0.0002 ppm | - |
| Part 24 | LTE Band 25 | 16QAM | 10 MHz | 9M06D7W | - | - |
| Part 24 | LTE Band 25 | QPSK | 15 MHz | 13M5G7D | - | - |
| Part 24 | LTE Band 25 | 16QAM | 15 MHz | 13M5D7W | - | - |
| Part 24 | LTE Band 25 | QPSK | 20 MHz | 18M5G7D | - | 0.16 W |
| Part 24 | LTE Band 25 | 16QAM | 20 MHz | 18M5D7W | - | 0.14 W |
| Part 27 | LTE Band 4 | QPSK | 1.4 MHz | 1M10G7D | - | 0.17 W |
| Part 27 | LTE Band 4 With WPC | QPSK | 1.4 MHz | - | - | 0.37 W |
| Part 27 | LTE Band 4 | 16QAM | 1.4 MHz | 1M10D7W | - | 0.13 W |
| Part 27 | LTE Band 4 | QPSK | 3 MHz | 2M72G7D | - | - |
| Part 27 | LTE Band 4 | 16QAM | 3 MHz | 2M73D7W | - | - |
| Part 27 | LTE Band 4 | QPSK | 5MHz | 4M50G7D | - | - |
| Part 27 | LTE Band 4 | 16QAM | 5MHz | 4M51D7W | - | - |
| Part 27 | LTE Band 4 | QPSK | 10MHz | 9M10G7D | 0.0002 ppm | - |
| Part 27 | LTE Band 4 | 16QAM | 10MHz | 9M06D7W | - | - |
| Part 27 | LTE Band 4 | QPSK | 15MHz | 13M5G7D | - | - |
| Part 27 | LTE Band 4 | 16QAM | 15MHz | 13M5D7W | - | - |
| Part 27 | LTE Band 4 | QPSK | 20MHz | 18M6G7D | - | 0.15 W |
| Part 27 | LTE Band 4 | 16QAM | 20MHz | 18M6D7W | - | 0.12 W |
| Part 27 | LTE Band 17 | QPSK | 5MHz | 4M50G7D | - | 0.18 W |
| Part 27 | LTE Band 17 | 16QAM | 5MHz | 4M51D7W | - | 0.14 W |
| Part 27 | LTE Band 17 | QPSK | 10MHz | 9M10G7D | 0.0005 ppm | 0.16 W |
| Part 27 | LTE Band 17 | 16QAM | 10MHz | 9M06D7W | - | 0.13 W |

| FCC Rule | System | Type of Modulation | BW | Emission Designator | Frequency Tolerance (ppm) | Maximum ERP/EIRP |
|---|---|---|---|---|---|---|
| Part 27 | LTE Band 7 | QPSK | 5MHz | 4M51G7D | - | 0.10 W |
| Part 27 | LTE Band 7 | 16QAM | 5MHz | 4M49D7W | - | 0.09 W |
| Part 27 | LTE Band 7 | QPSK | 10MHz | 9M10G7D | 0.0052 ppm | - |
| Part 27 | LTE Band 7 | 16QAM | 10MHz | 9M04D7W | - | - |
| Part 27 | LTE Band 7 | QPSK | 15MHz | 13M5G7D | - | - |
| Part 27 | LTE Band 7 | 16QAM | 15MHz | 13M5D7W | - | - |
| Part 27 | LTE Band 7 | QPSK | 20MHz | 18M5G7D | - | 0.09 W |
| Part 27 | LTE Band 7 | 16QAM | 20MHz | 18M5D7W | - | 0.08 W |

## 1.7 Testing Location

| | | | |
|---|---|---|---|
| **Test Site** | SPORTON INTERNATIONAL INC. | | |
| **Test Site Location** | No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park,<br>Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.<br>TEL: +886-3-327-3456<br>FAX: +886-3-328-4978 | | |
| **Test Site No.** | **Sporton Site No.** | | **FCC/IC Registration No.** |
| | TH02-HY | 03CH08-HY | 636805/4086B-2 |

## 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

The test mode table below consisted of antenna port conducted and radiated test items was performed according to the KDB 971168 D01 and the ANSI / TIA / EIA-603-C. The radiated measurements were performed with rotating EUT in three orthogonal test planes to find the maximum emission and were carried out in a semi-anechoic chamber with 3-meter test range.

| Test Items | Band | Bandwidth (MHz) | | | | | | Modulation | | RB # | | | Test Channel | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1.4 | 3 | 5 | 10 | 15 | 20 | QPSK | 16QAM | 1 | Half | Full | L | M | H |
| Max. Output Power | 2 | v | v | v | v | v | v | v | v | v | v | v | v | v | v |
| | 4 | v | v | v | v | v | v | v | v | v | v | v | v | v | v |
| | 5 | v | v | v | v | -- | -- | v | v | v | v | v | v | v | v |
| | 7 | - | - | v | v | v | v | v | v | v | v | v | v | v | v |
| | 17 | - | - | v | v | - | - | v | v | v | v | v | v | v | v |
| | 25 | v | v | v | v | v | v | v | v | v | v | v | v | v | v |
| Peak - to - Average Ratio | 2 | | | | | | v | | v | v | | v | v | v | v |
| | 4 | | | | | | v | | v | v | | v | v | v | v |
| | 5 | | | | v | - | - | | v | v | | v | v | v | v |
| | 7 | - | - | | | | v | | v | v | | v | v | v | v |
| | 17 | - | - | | v | - | - | | v | v | | v | v | v | v |
| | 25 | | | | | | v | | v | v | | v | v | v | v |
| 26dB and 99% Bandwidth | 2 | v | v | v | v | v | v | v | v | | | v | v | v | v |
| | 4 | v | v | v | v | v | v | v | v | | | v | v | v | v |
| | 5 | v | v | v | v | - | - | v | v | | | v | v | v | v |
| | 7 | - | - | v | v | v | v | v | v | | | v | v | v | v |
| | 17 | - | - | v | v | - | - | v | v | | | v | v | v | v |
| | 25 | v | v | v | v | v | v | v | v | | | v | v | v | v |
| Conducted Band Edge | 2 | v | v | v | v | v | v | v | v | v | | v | v | | v |
| | 4 | v | v | v | v | v | v | v | v | v | | v | v | | v |
| | 5 | v | v | v | v | - | - | v | v | v | | v | v | | v |
| | 7 | - | - | v | v | v | v | v | v | v | | v | v | | v |
| | 17 | - | - | v | v | - | - | v | v | v | | v | v | | v |
| | 25 | v | v | v | v | v | v | v | v | v | | v | v | | v |

| Test Items | Band | Bandwidth (MHz) | | | | | | Modulation | | RB # | | | Test Channel | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1.4 | 3 | 5 | 10 | 15 | 20 | QPSK | 16QAM | 1 | Half | Full | L | M | H |
| Conducted Spurious Emission | 2 | v | v | v | v | v | v | v | v | v | | | v | v | v |
| | 4 | v | v | v | v | v | v | v | v | v | | | v | v | v |
| | 5 | v | v | v | v | - | - | v | v | v | | | v | v | v |
| | 7 | - | - | v | v | v | v | v | v | v | | | v | v | v |
| | 17 | - | - | v | v | - | - | v | v | v | | | v | v | v |
| | 25 | v | v | v | v | v | v | v | v | v | | | v | v | v |
| Frequency Stability | 2 | | | | v | | | v | | | | v | | v | |
| | 4 | | | | v | | | v | | | | v | | v | |
| | 5 | | | | v | - | - | v | | | | v | | v | |
| | 7 | - | - | | v | | | v | | | | v | | v | |
| | 17 | - | - | | v | - | - | v | | | | v | | v | |
| | 25 | | | | v | | | v | | | | v | | v | |
| E.R.P/ E.I.R.P | 2 | v | | | | | v | v | v | v | | | v | v | v |
| | 4 | v | | | | | v | v | v | v | | | v | v | v |
| | 4 (WPC) | v | | | | | | v | | v | | | v | v | v |
| | 5 | v | | | v | - | - | v | v | v | | | v | v | v |
| | 7 | - | - | v | | | v | v | v | v | | | v | v | v |
| | 17 | - | - | v | v | - | - | v | v | v | | | v | v | v |
| | 25 | v | | | | | v | v | v | v | | | v | v | v |
| Radiated Spurious Emission | 2 | v | v | v | v | v | v | v | | v | | | v | v | v |
| | 4 | v | v | v | v | v | v | v | | v | | | v | v | v |
| | 4 (WPC) | | | | v | | | v | | v | | | v | | |
| | 5 | v | v | v | v | - | - | v | | v | | | v | v | v |
| | 7 | - | - | v | v | v | v | v | | v | | | v | v | v |
| | 17 | - | - | v | v | - | - | v | | v | | | v | v | v |
| | 25 | v | v | v | v | v | v | v | | v | | | v | v | v |

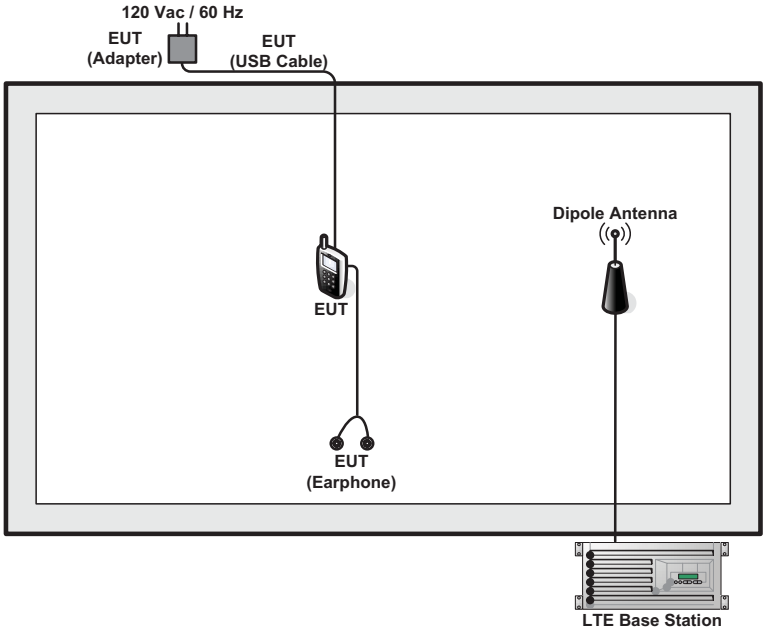
**Note:**

1. The mark " v " means that the configuration is chosen for testing ; the mark "-" means that the bandwidth is not supported.

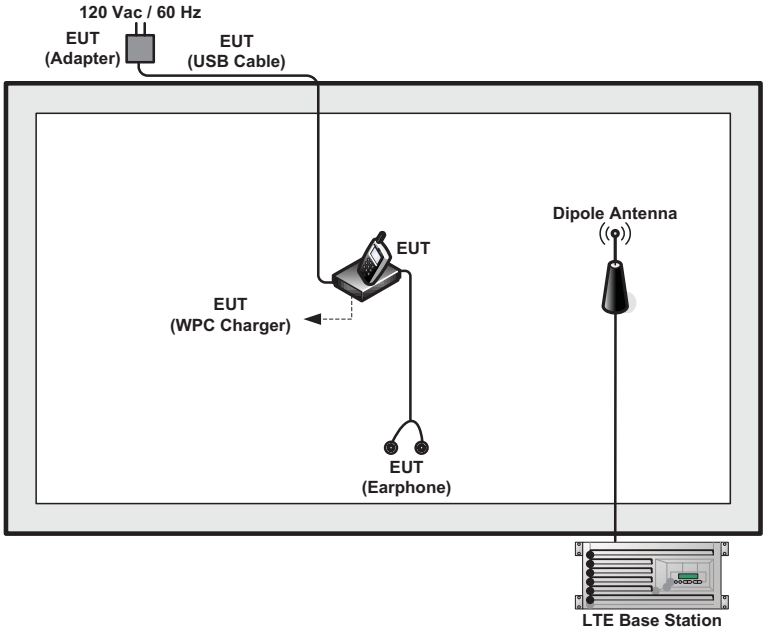
2. For E.R.P/E.I.R.P. measurement, the widest bandwidth of each band is mainly chosen for testing due to the highest conducted power in yellow mark as listed in the section 3.1. The ERP/ERIP with the lowest bandwidth are also measured for reporting only.
3. The Radiated Spurious Emission is investigated from 30MHz to 10 times of fundamental signal and the configuration is chosen for final radiated spurious emission measurement, since it is the highest RF power level among all RB configurations and there is no significant difference between QPSK and 16QAM modulation in conducted spurious emission test result.
4. The radiated spurious emission tests were performed with adapter, battery, USB Cable, and earphone 1.

## 2.2 Connection Diagram of Test System

**<EUT with Adapter Mode>**



**<EUT with WPC charging mode>**




## 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 :

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

= 4.2 + 10 = 14.2 (dB)

# 3 Test Result

## 3.1 Conducted Output Power Measurement

### 3.1.1 Description of the Conducted Output Power Measurement

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

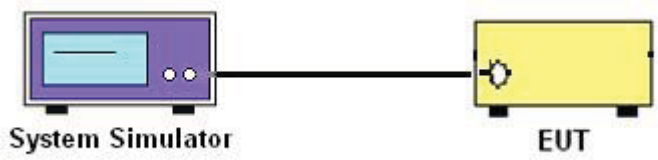
### 3.1.2 Measuring Instruments

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 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 | 22.88 | 23.15 | 23.02 |
| 10 | QPSK | 1 | 24 | 22.86 | 23.13 | 23.01 |
| 10 | QPSK | 1 | 49 | 22.87 | 23.00 | 23.00 |
| 10 | QPSK | 25 | 0 | 21.93 | 22.00 | 22.05 |
| 10 | QPSK | 25 | 12 | 21.95 | 21.95 | 22.02 |
| 10 | QPSK | 25 | 24 | 21.96 | 22.01 | 22.10 |
| 10 | QPSK | 50 | 0 | 21.95 | 22.06 | 22.05 |
| 10 | 16QAM | 1 | 0 | 21.81 | 21.83 | 21.97 |
| 10 | 16QAM | 1 | 24 | 21.83 | 21.89 | 21.98 |
| 10 | 16QAM | 1 | 49 | 21.82 | 22.18 | 21.99 |
| 10 | 16QAM | 25 | 0 | 21.01 | 21.10 | 21.14 |
| 10 | 16QAM | 25 | 12 | 21.01 | 21.07 | 21.09 |
| 10 | 16QAM | 25 | 24 | 20.98 | 21.07 | 21.19 |
| 10 | 16QAM | 50 | 0 | 21.00 | 21.03 | 21.11 |
| Channel | | | | 20425 | 20525 | 20625 |
| Frequency (MHz) | | | | 826.5 | 836.5 | 846.5 |
| 5 | QPSK | 1 | 0 | 22.98 | 22.97 | 23.11 |
| 5 | QPSK | 1 | 12 | 22.85 | 22.94 | 23.09 |
| 5 | QPSK | 1 | 24 | 22.90 | 22.93 | 23.02 |
| 5 | QPSK | 12 | 0 | 21.82 | 21.99 | 22.16 |
| 5 | QPSK | 12 | 6 | 21.90 | 22.03 | 22.18 |
| 5 | QPSK | 12 | 11 | 21.94 | 22.03 | 22.08 |
| 5 | QPSK | 25 | 0 | 21.96 | 21.95 | 22.17 |
| 5 | 16QAM | 1 | 0 | 21.87 | 21.86 | 22.10 |
| 5 | 16QAM | 1 | 12 | 21.85 | 21.91 | 22.06 |
| 5 | 16QAM | 1 | 24 | 21.84 | 21.90 | 21.96 |
| 5 | 16QAM | 12 | 0 | 20.95 | 21.09 | 21.24 |
| 5 | 16QAM | 12 | 6 | 21.03 | 21.10 | 21.22 |
| 5 | 16QAM | 12 | 11 | 21.04 | 21.10 | 21.14 |
| 5 | 16QAM | 25 | 0 | 21.04 | 21.06 | 21.21 |

| 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 | 22.92 | 22.99 | 23.14 |
| 3 | QPSK | 1 | 7 | 22.83 | 22.99 | 23.03 |
| 3 | QPSK | 1 | 14 | 22.95 | 23.00 | 23.05 |
| 3 | QPSK | 8 | 0 | 21.97 | 22.08 | 22.20 |
| 3 | QPSK | 8 | 4 | 21.90 | 22.05 | 22.09 |
| 3 | QPSK | 8 | 7 | 21.86 | 22.08 | 22.12 |
| 3 | QPSK | 15 | 0 | 21.93 | 22.05 | 22.15 |
| 3 | 16QAM | 1 | 0 | 21.88 | 21.93 | 22.09 |
| 3 | 16QAM | 1 | 7 | 21.78 | 21.92 | 21.96 |
| 3 | 16QAM | 1 | 14 | 21.87 | 21.99 | 22.01 |
| 3 | 16QAM | 8 | 0 | 21.09 | 21.11 | 21.29 |
| 3 | 16QAM | 8 | 4 | 21.02 | 21.17 | 21.18 |
| 3 | 16QAM | 8 | 7 | 20.98 | 21.11 | 21.21 |
| 3 | 16QAM | 15 | 0 | 20.94 | 21.11 | 21.15 |
| Channel | | | | 20407 | 20525 | 20643 |
| Frequency (MHz) | | | | 824.7 | 836.5 | 848.3 |
| 1.4 | QPSK | 1 | 0 | 22.98 | 23.10 | 23.12 |
| 1.4 | QPSK | 1 | 2 | 22.97 | 23.03 | 23.07 |
| 1.4 | QPSK | 1 | 5 | 22.90 | 23.05 | 23.10 |
| 1.4 | QPSK | 3 | 0 | 23.00 | 23.05 | 23.08 |
| 1.4 | QPSK | 3 | 1 | 22.97 | 23.06 | 23.07 |
| 1.4 | QPSK | 3 | 2 | 22.99 | 23.05 | 23.06 |
| 1.4 | QPSK | 6 | 0 | 22.04 | 22.12 | 22.13 |
| 1.4 | 16QAM | 1 | 0 | 21.94 | 22.03 | 22.10 |
| 1.4 | 16QAM | 1 | 2 | 21.95 | 22.05 | 22.05 |
| 1.4 | 16QAM | 1 | 5 | 21.83 | 22.04 | 21.99 |
| 1.4 | 16QAM | 3 | 0 | 21.98 | 22.03 | 22.11 |
| 1.4 | 16QAM | 3 | 1 | 21.96 | 22.03 | 22.08 |
| 1.4 | 16QAM | 3 | 2 | 21.97 | 21.95 | 22.07 |
| 1.4 | 16QAM | 6 | 0 | 20.98 | 21.05 | 21.05 |

<LTE Band 2 Conducted Power>

| BW [MHz] | Modulation | RB Size | RB Offset | Power (dBm) Low Ch. / Freq. | Power (dBm) Middle Ch. / Freq. | Power (dBm) High Ch. / Freq. |
|---|---|---|---|---|---|---|
| Channel | | | | 18700 | 18900 | 19100 |
| Frequency (MHz) | | | | 1860 | 1880 | 1900 |
| 20 | QPSK | 1 | 0 | 22.97 | 23.08 | 23.03 |
| 20 | QPSK | 1 | 49 | 22.96 | 22.85 | 22.89 |
| 20 | QPSK | 1 | 99 | 22.73 | 22.89 | 23.02 |
| 20 | QPSK | 50 | 0 | 22.01 | 21.95 | 22.02 |
| 20 | QPSK | 50 | 24 | 21.91 | 21.94 | 21.99 |
| 20 | QPSK | 50 | 49 | 21.83 | 21.89 | 22.00 |
| 20 | QPSK | 100 | 0 | 21.92 | 21.88 | 22.00 |
| 20 | 16QAM | 1 | 0 | 21.96 | 21.83 | 22.12 |
| 20 | 16QAM | 1 | 49 | 21.95 | 21.81 | 21.84 |
| 20 | 16QAM | 1 | 99 | 21.66 | 21.84 | 21.93 |
| 20 | 16QAM | 50 | 0 | 21.01 | 20.91 | 21.12 |
| 20 | 16QAM | 50 | 24 | 20.91 | 20.95 | 21.08 |
| 20 | 16QAM | 50 | 49 | 20.85 | 20.98 | 21.01 |
| 20 | 16QAM | 100 | 0 | 20.96 | 20.96 | 21.10 |
| Channel | | | | 18675 | 18900 | 19125 |
| Frequency (MHz) | | | | 1857.5 | 1880 | 1902.5 |
| 15 | QPSK | 1 | 0 | 22.93 | 22.82 | 22.90 |
| 15 | QPSK | 1 | 37 | 22.96 | 22.86 | 22.97 |
| 15 | QPSK | 1 | 74 | 22.74 | 22.89 | 23.03 |
| 15 | QPSK | 36 | 0 | 22.00 | 21.84 | 21.87 |
| 15 | QPSK | 36 | 18 | 22.02 | 21.85 | 22.00 |
| 15 | QPSK | 36 | 37 | 21.93 | 21.87 | 21.92 |
| 15 | QPSK | 75 | 0 | 22.06 | 21.92 | 21.99 |
| 15 | 16QAM | 1 | 0 | 21.92 | 21.76 | 21.87 |
| 15 | 16QAM | 1 | 37 | 21.95 | 21.83 | 21.92 |
| 15 | 16QAM | 1 | 74 | 21.70 | 21.82 | 21.95 |
| 15 | 16QAM | 36 | 0 | 20.99 | 20.92 | 20.99 |
| 15 | 16QAM | 36 | 18 | 20.99 | 20.94 | 21.01 |
| 15 | 16QAM | 36 | 37 | 20.93 | 20.95 | 21.02 |
| 15 | 16QAM | 75 | 0 | 21.04 | 20.95 | 21.09 |

| BW [MHz] | Modulation | RB Size | RB Offset | Power (dBm) Low Ch. / Freq. | Power (dBm) Middle Ch. / Freq. | Power (dBm) High Ch. / Freq. |
|---|---|---|---|---|---|---|
| Channel | | | | 18650 | 18900 | 19150 |
| Frequency (MHz) | | | | 1855 | 1880 | 1905 |
| 10 | QPSK | 1 | 0 | 22.92 | 22.80 | 22.91 |
| 10 | QPSK | 1 | 24 | 22.88 | 22.84 | 22.92 |
| 10 | QPSK | 1 | 49 | 22.93 | 22.83 | 23.03 |
| 10 | QPSK | 25 | 0 | 21.97 | 21.83 | 21.97 |
| 10 | QPSK | 25 | 12 | 21.97 | 21.90 | 21.94 |
| 10 | QPSK | 25 | 24 | 21.93 | 21.90 | 22.03 |
| 10 | QPSK | 50 | 0 | 21.97 | 21.85 | 22.02 |
| 10 | 16QAM | 1 | 0 | 21.90 | 21.72 | 21.81 |
| 10 | 16QAM | 1 | 24 | 21.85 | 21.76 | 21.90 |
| 10 | 16QAM | 1 | 49 | 21.86 | 21.84 | 21.95 |
| 10 | 16QAM | 25 | 0 | 20.98 | 20.95 | 21.11 |
| 10 | 16QAM | 25 | 12 | 20.96 | 20.95 | 21.05 |
| 10 | 16QAM | 25 | 24 | 20.98 | 21.01 | 21.17 |
| 10 | 16QAM | 50 | 0 | 20.95 | 20.93 | 21.04 |
| Channel | | | | 18625 | 18900 | 19175 |
| Frequency (MHz) | | | | 1852.5 | 1880 | 1907.5 |
| 5 | QPSK | 1 | 0 | 22.87 | 22.80 | 22.93 |
| 5 | QPSK | 1 | 12 | 22.84 | 22.84 | 22.99 |
| 5 | QPSK | 1 | 24 | 22.88 | 22.97 | 23.01 |
| 5 | QPSK | 12 | 0 | 21.96 | 21.88 | 22.06 |
| 5 | QPSK | 12 | 6 | 21.94 | 21.85 | 22.04 |
| 5 | QPSK | 12 | 11 | 21.94 | 21.91 | 22.08 |
| 5 | QPSK | 25 | 0 | 21.95 | 21.91 | 22.03 |
| 5 | 16QAM | 1 | 0 | 21.84 | 21.77 | 21.91 |
| 5 | 16QAM | 1 | 12 | 21.81 | 21.79 | 21.99 |
| 5 | 16QAM | 1 | 24 | 21.81 | 21.87 | 21.97 |
| 5 | 16QAM | 12 | 0 | 20.97 | 20.98 | 21.18 |
| 5 | 16QAM | 12 | 6 | 20.96 | 20.96 | 21.16 |
| 5 | 16QAM | 12 | 11 | 20.97 | 20.97 | 21.16 |
| 5 | 16QAM | 25 | 0 | 20.94 | 20.95 | 21.15 |

| BW [MHz] | Modulation | RB Size | RB Offset | Power (dBm) Low Ch. / Freq. | Power (dBm) Middle Ch. / Freq. | Power (dBm) High Ch. / Freq. |
|---|---|---|---|---|---|---|
| Channel | | | | 18615 | 18900 | 19185 |
| Frequency (MHz) | | | | 1851.5 | 1880 | 1908.5 |
| 3 | QPSK | 1 | 0 | 22.88 | 22.83 | 23.02 |
| 3 | QPSK | 1 | 7 | 22.86 | 22.81 | 22.98 |
| 3 | QPSK | 1 | 14 | 22.86 | 22.96 | 23.03 |
| 3 | QPSK | 8 | 0 | 21.93 | 21.91 | 22.07 |
| 3 | QPSK | 8 | 4 | 21.92 | 21.89 | 22.09 |
| 3 | QPSK | 8 | 7 | 21.92 | 21.85 | 22.12 |
| 3 | QPSK | 15 | 0 | 21.96 | 21.86 | 22.10 |
| 3 | 16QAM | 1 | 0 | 21.90 | 21.75 | 21.97 |
| 3 | 16QAM | 1 | 7 | 21.86 | 21.77 | 21.97 |
| 3 | 16QAM | 1 | 14 | 21.83 | 21.90 | 22.01 |
| 3 | 16QAM | 8 | 0 | 20.97 | 20.97 | 21.15 |
| 3 | 16QAM | 8 | 4 | 20.97 | 20.96 | 21.16 |
| 3 | 16QAM | 8 | 7 | 20.98 | 21.00 | 21.17 |
| 3 | 16QAM | 15 | 0 | 20.91 | 20.91 | 21.11 |
| Channel | | | | 18607 | 18900 | 19193 |
| Frequency (MHz) | | | | 1850.7 | 1880 | 1909.3 |
| 1.4 | QPSK | 1 | 0 | 22.93 | 22.89 | 23.07 |
| 1.4 | QPSK | 1 | 2 | 22.88 | 22.86 | 23.04 |
| 1.4 | QPSK | 1 | 5 | 22.94 | 22.90 | 23.06 |
| 1.4 | QPSK | 3 | 0 | 22.90 | 22.87 | 23.00 |
| 1.4 | QPSK | 3 | 1 | 22.86 | 22.89 | 23.05 |
| 1.4 | QPSK | 3 | 2 | 22.87 | 22.88 | 23.06 |
| 1.4 | QPSK | 6 | 0 | 21.98 | 21.96 | 22.16 |
| 1.4 | 16QAM | 1 | 0 | 21.89 | 21.85 | 22.05 |
| 1.4 | 16QAM | 1 | 2 | 21.88 | 21.81 | 22.02 |
| 1.4 | 16QAM | 1 | 5 | 21.93 | 21.83 | 22.01 |
| 1.4 | 16QAM | 3 | 0 | 21.92 | 21.83 | 21.99 |
| 1.4 | 16QAM | 3 | 1 | 21.86 | 21.86 | 21.98 |
| 1.4 | 16QAM | 3 | 2 | 21.87 | 21.87 | 21.92 |
| 1.4 | 16QAM | 6 | 0 | 20.86 | 20.84 | 21.03 |

<LTE Band 25 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 | | | | 26140 | 26340 | 26590 |
| Frequency (MHz) | | | | 1860 | 1880 | 1905 |
| 20 | QPSK | 1 | 0 | 23.14 | 23.29 | 23.20 |
| 20 | QPSK | 1 | 49 | 22.94 | 22.97 | 23.13 |
| 20 | QPSK | 1 | 99 | 22.92 | 22.89 | 22.99 |
| 20 | QPSK | 50 | 0 | 22.47 | 22.39 | 22.48 |
| 20 | QPSK | 50 | 24 | 22.43 | 22.38 | 22.43 |
| 20 | QPSK | 50 | 49 | 22.44 | 22.44 | 22.41 |
| 20 | QPSK | 100 | 0 | 22.45 | 22.45 | 22.35 |
| 20 | 16QAM | 1 | 0 | 22.53 | 22.35 | 22.39 |
| 20 | 16QAM | 1 | 49 | 22.36 | 22.32 | 22.43 |
| 20 | 16QAM | 1 | 99 | 22.39 | 22.33 | 22.29 |
| 20 | 16QAM | 50 | 0 | 21.45 | 21.35 | 21.49 |
| 20 | 16QAM | 50 | 24 | 21.42 | 21.38 | 21.46 |
| 20 | 16QAM | 50 | 49 | 21.43 | 21.38 | 21.47 |
| 20 | 16QAM | 100 | 0 | 21.43 | 21.40 | 21.45 |
| Channel | | | | 26115 | 26340 | 26615 |
| Frequency (MHz) | | | | 1857.5 | 1880 | 1907.5 |
| 15 | QPSK | 1 | 0 | 23.02 | 23.02 | 23.06 |
| 15 | QPSK | 1 | 37 | 22.94 | 22.96 | 23.14 |
| 15 | QPSK | 1 | 74 | 22.99 | 23.00 | 23.03 |
| 15 | QPSK | 36 | 0 | 22.43 | 22.43 | 22.47 |
| 15 | QPSK | 36 | 18 | 22.34 | 22.41 | 22.49 |
| 15 | QPSK | 36 | 37 | 22.40 | 22.38 | 22.40 |
| 15 | QPSK | 75 | 0 | 22.40 | 22.43 | 22.43 |
| 15 | 16QAM | 1 | 0 | 22.42 | 22.42 | 22.46 |
| 15 | 16QAM | 1 | 37 | 22.41 | 22.36 | 22.43 |
| 15 | 16QAM | 1 | 74 | 22.33 | 22.35 | 22.36 |
| 15 | 16QAM | 36 | 0 | 21.47 | 21.41 | 21.48 |
| 15 | 16QAM | 36 | 18 | 21.38 | 21.32 | 21.42 |
| 15 | 16QAM | 36 | 37 | 21.40 | 21.36 | 21.41 |
| 15 | 16QAM | 75 | 0 | 21.34 | 21.40 | 21.37 |

| BW [MHz] | Modulation | RB Size | RB Offset | Power (dBm) Low Ch. / Freq. | Power (dBm) Middle Ch. / Freq. | Power (dBm) High Ch. / Freq. |
|---|---|---|---|---|---|---|
| Channel | | | | 26090 | 26340 | 26640 |
| Frequency (MHz) | | | | 1855 | 1880 | 1910 |
| 10 | QPSK | 1 | 0 | 23.03 | 23.02 | 23.15 |
| 10 | QPSK | 1 | 24 | 23.02 | 22.94 | 23.11 |
| 10 | QPSK | 1 | 49 | 22.93 | 22.94 | 22.91 |
| 10 | QPSK | 25 | 0 | 22.37 | 22.38 | 22.44 |
| 10 | QPSK | 25 | 12 | 22.37 | 22.36 | 22.45 |
| 10 | QPSK | 25 | 24 | 22.42 | 22.43 | 22.42 |
| 10 | QPSK | 50 | 0 | 22.44 | 22.43 | 22.37 |
| 10 | 16QAM | 1 | 0 | 22.37 | 22.37 | 22.49 |
| 10 | 16QAM | 1 | 24 | 22.39 | 22.33 | 22.48 |
| 10 | 16QAM | 1 | 49 | 22.37 | 22.41 | 22.24 |
| 10 | 16QAM | 25 | 0 | 21.46 | 21.39 | 21.49 |
| 10 | 16QAM | 25 | 12 | 21.47 | 21.36 | 21.45 |
| 10 | 16QAM | 25 | 24 | 21.41 | 21.39 | 21.45 |
| 10 | 16QAM | 50 | 0 | 21.38 | 21.35 | 21.42 |
| Channel | | | | 26065 | 26340 | 26665 |
| Frequency (MHz) | | | | 1852.5 | 1880 | 1912.5 |
| 5 | QPSK | 1 | 0 | 23.00 | 22.94 | 23.14 |
| 5 | QPSK | 1 | 12 | 22.96 | 22.91 | 23.12 |
| 5 | QPSK | 1 | 24 | 22.97 | 22.93 | 22.73 |
| 5 | QPSK | 12 | 0 | 22.37 | 22.37 | 22.48 |
| 5 | QPSK | 12 | 6 | 22.36 | 22.39 | 22.41 |
| 5 | QPSK | 12 | 11 | 22.38 | 22.41 | 22.42 |
| 5 | QPSK | 25 | 0 | 22.36 | 22.43 | 22.37 |
| 5 | 16QAM | 1 | 0 | 22.38 | 22.28 | 22.48 |
| 5 | 16QAM | 1 | 12 | 22.33 | 22.26 | 22.47 |
| 5 | 16QAM | 1 | 24 | 22.29 | 22.31 | 22.06 |
| 5 | 16QAM | 12 | 0 | 21.42 | 21.39 | 21.41 |
| 5 | 16QAM | 12 | 6 | 21.42 | 21.38 | 21.47 |
| 5 | 16QAM | 12 | 11 | 21.42 | 21.38 | 21.42 |
| 5 | 16QAM | 25 | 0 | 21.43 | 21.37 | 21.37 |

| BW [MHz] | Modulation | RB Size | RB Offset | Power (dBm) Low Ch. / Freq. | Power (dBm) Middle Ch. / Freq. | Power (dBm) High Ch. / Freq. |
|---|---|---|---|---|---|---|
| Channel | | | | 26055 | 26340 | 26675 |
| Frequency (MHz) | | | | 1851.5 | 1880 | 1913.5 |
| 3 | QPSK | 1 | 0 | 23.01 | 23.02 | 23.16 |
| 3 | QPSK | 1 | 7 | 22.96 | 22.97 | 23.02 |
| 3 | QPSK | 1 | 14 | 22.98 | 22.92 | 22.89 |
| 3 | QPSK | 8 | 0 | 22.41 | 22.49 | 22.49 |
| 3 | QPSK | 8 | 4 | 22.41 | 22.48 | 22.43 |
| 3 | QPSK | 8 | 7 | 22.39 | 22.45 | 22.44 |
| 3 | QPSK | 15 | 0 | 22.45 | 22.29 | 22.33 |
| 3 | 16QAM | 1 | 0 | 22.36 | 22.35 | 22.45 |
| 3 | 16QAM | 1 | 7 | 22.40 | 22.39 | 22.42 |
| 3 | 16QAM | 1 | 14 | 22.32 | 22.35 | 22.23 |
| 3 | 16QAM | 8 | 0 | 21.46 | 21.45 | 21.45 |
| 3 | 16QAM | 8 | 4 | 21.46 | 21.47 | 21.47 |
| 3 | 16QAM | 8 | 7 | 21.44 | 21.47 | 21.42 |
| 3 | 16QAM | 15 | 0 | 21.36 | 21.37 | 21.38 |
| Channel | | | | 26047 | 26340 | 26683 |
| Frequency (MHz) | | | | 1850.7 | 1880 | 1914.3 |
| 1.4 | QPSK | 1 | 0 | 23.02 | 22.89 | 23.24 |
| 1.4 | QPSK | 1 | 2 | 23.03 | 22.86 | 23.07 |
| 1.4 | QPSK | 1 | 5 | 22.93 | 22.90 | 22.95 |
| 1.4 | QPSK | 3 | 0 | 22.96 | 22.87 | 23.11 |
| 1.4 | QPSK | 3 | 1 | 22.94 | 22.89 | 23.02 |
| 1.4 | QPSK | 3 | 2 | 22.91 | 22.88 | 22.89 |
| 1.4 | QPSK | 6 | 0 | 22.46 | 22.26 | 22.24 |
| 1.4 | 16QAM | 1 | 0 | 22.39 | 22.15 | 22.49 |
| 1.4 | 16QAM | 1 | 2 | 22.41 | 22.07 | 22.36 |
| 1.4 | 16QAM | 1 | 5 | 22.19 | 22.06 | 22.06 |
| 1.4 | 16QAM | 3 | 0 | 22.18 | 22.03 | 22.11 |
| 1.4 | 16QAM | 3 | 1 | 22.18 | 22.06 | 22.04 |
| 1.4 | 16QAM | 3 | 2 | 22.16 | 22.07 | 22.01 |
| 1.4 | 16QAM | 6 | 0 | 21.39 | 21.04 | 21.17 |

<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 | 23.02 | 23.20 | 23.18 |
| 20 | QPSK | 1 | 49 | 22.96 | 23.09 | 22.96 |
| 20 | QPSK | 1 | 99 | 22.98 | 22.89 | 22.87 |
| 20 | QPSK | 50 | 0 | 22.40 | 22.17 | 22.26 |
| 20 | QPSK | 50 | 24 | 22.36 | 22.10 | 22.03 |
| 20 | QPSK | 50 | 49 | 22.23 | 22.10 | 21.90 |
| 20 | QPSK | 100 | 0 | 22.33 | 22.16 | 22.00 |
| 20 | 16QAM | 1 | 0 | 22.18 | 22.16 | 22.10 |
| 20 | 16QAM | 1 | 49 | 22.40 | 22.05 | 21.93 |
| 20 | 16QAM | 1 | 99 | 21.96 | 21.80 | 21.84 |
| 20 | 16QAM | 50 | 0 | 21.41 | 21.18 | 21.16 |
| 20 | 16QAM | 50 | 24 | 21.29 | 21.11 | 21.05 |
| 20 | 16QAM | 50 | 49 | 21.20 | 21.12 | 20.92 |
| 20 | 16QAM | 100 | 0 | 21.32 | 21.16 | 21.05 |
| Channel | | | | 20025 | 20175 | 20325 |
| Frequency (MHz) | | | | 1717.5 | 1732.5 | 1747.5 |
| 15 | QPSK | 1 | 0 | 23.05 | 23.18 | 22.99 |
| 15 | QPSK | 1 | 37 | 23.19 | 23.08 | 22.93 |
| 15 | QPSK | 1 | 74 | 23.10 | 22.92 | 22.67 |
| 15 | QPSK | 36 | 0 | 22.38 | 22.11 | 22.12 |
| 15 | QPSK | 36 | 18 | 22.25 | 22.12 | 22.07 |
| 15 | QPSK | 36 | 37 | 22.25 | 22.12 | 22.00 |
| 15 | QPSK | 75 | 0 | 22.33 | 22.15 | 22.04 |
| 15 | 16QAM | 1 | 0 | 22.38 | 22.19 | 21.95 |
| 15 | 16QAM | 1 | 37 | 22.21 | 22.06 | 21.92 |
| 15 | 16QAM | 1 | 74 | 22.06 | 21.84 | 21.86 |
| 15 | 16QAM | 36 | 0 | 21.29 | 21.13 | 21.03 |
| 15 | 16QAM | 36 | 18 | 21.27 | 21.13 | 21.00 |
| 15 | 16QAM | 36 | 37 | 21.28 | 21.04 | 20.99 |
| 15 | 16QAM | 75 | 0 | 21.24 | 21.16 | 21.06 |

| 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 | 23.02 | 23.09 | 22.96 |
| 10 | QPSK | 1 | 24 | 23.16 | 23.07 | 22.94 |
| 10 | QPSK | 1 | 49 | 23.11 | 23.01 | 22.88 |
| 10 | QPSK | 25 | 0 | 22.34 | 22.14 | 22.06 |
| 10 | QPSK | 25 | 12 | 22.30 | 22.06 | 22.07 |
| 10 | QPSK | 25 | 24 | 22.29 | 22.11 | 22.02 |
| 10 | QPSK | 50 | 0 | 22.35 | 22.10 | 22.01 |
| 10 | 16QAM | 1 | 0 | 22.21 | 22.11 | 21.95 |
| 10 | 16QAM | 1 | 24 | 22.13 | 22.05 | 21.91 |
| 10 | 16QAM | 1 | 49 | 22.18 | 21.98 | 21.93 |
| 10 | 16QAM | 25 | 0 | 21.36 | 21.17 | 20.97 |
| 10 | 16QAM | 25 | 12 | 21.37 | 21.19 | 21.03 |
| 10 | 16QAM | 25 | 24 | 21.31 | 21.14 | 21.06 |
| 10 | 16QAM | 50 | 0 | 21.37 | 21.13 | 21.01 |
| Channel | | | | 19975 | 20175 | 20375 |
| Frequency (MHz) | | | | 1712.5 | 1732.5 | 1752.5 |
| 5 | QPSK | 1 | 0 | 23.03 | 23.05 | 22.93 |
| 5 | QPSK | 1 | 12 | 23.12 | 23.04 | 22.90 |
| 5 | QPSK | 1 | 24 | 23.17 | 23.03 | 22.84 |
| 5 | QPSK | 12 | 0 | 22.14 | 22.15 | 22.08 |
| 5 | QPSK | 12 | 6 | 22.27 | 22.09 | 22.03 |
| 5 | QPSK | 12 | 11 | 22.41 | 22.14 | 21.99 |
| 5 | QPSK | 25 | 0 | 22.27 | 22.14 | 22.00 |
| 5 | 16QAM | 1 | 0 | 22.18 | 22.04 | 22.07 |
| 5 | 16QAM | 1 | 12 | 22.34 | 22.03 | 21.90 |
| 5 | 16QAM | 1 | 24 | 22.15 | 21.98 | 21.89 |
| 5 | 16QAM | 12 | 0 | 21.16 | 21.17 | 21.06 |
| 5 | 16QAM | 12 | 6 | 21.28 | 21.16 | 21.04 |
| 5 | 16QAM | 12 | 11 | 21.43 | 21.16 | 21.05 |
| 5 | 16QAM | 25 | 0 | 21.29 | 21.16 | 21.05 |

| 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 | 23.03 | 23.10 | 22.95 |
| 3 | QPSK | 1 | 7 | 23.11 | 23.03 | 22.91 |
| 3 | QPSK | 1 | 14 | 23.18 | 23.03 | 22.88 |
| 3 | QPSK | 8 | 0 | 22.12 | 22.09 | 22.05 |
| 3 | QPSK | 8 | 4 | 22.25 | 22.07 | 22.03 |
| 3 | QPSK | 8 | 7 | 22.35 | 22.10 | 21.94 |
| 3 | QPSK | 15 | 0 | 22.30 | 22.15 | 21.99 |
| 3 | 16QAM | 1 | 0 | 22.35 | 22.16 | 22.18 |
| 3 | 16QAM | 1 | 7 | 22.32 | 22.06 | 21.92 |
| 3 | 16QAM | 1 | 14 | 22.25 | 21.98 | 21.88 |
| 3 | 16QAM | 8 | 0 | 21.17 | 21.14 | 21.04 |
| 3 | 16QAM | 8 | 4 | 21.32 | 21.14 | 21.04 |
| 3 | 16QAM | 8 | 7 | 21.35 | 21.17 | 21.07 |
| 3 | 16QAM | 15 | 0 | 21.21 | 21.13 | 21.01 |
| Channel | | | | 19957 | 20175 | 20393 |
| Frequency (MHz) | | | | 1710.7 | 1732.5 | 1754.3 |
| 1.4 | QPSK | 1 | 0 | 22.84 | 23.11 | 22.82 |
| 1.4 | QPSK | 1 | 2 | 22.97 | 23.08 | 22.74 |
| 1.4 | QPSK | 1 | 5 | 22.98 | 23.11 | 22.77 |
| 1.4 | QPSK | 3 | 0 | 22.90 | 23.15 | 22.70 |
| 1.4 | QPSK | 3 | 1 | 22.97 | 23.09 | 22.72 |
| 1.4 | QPSK | 3 | 2 | 22.99 | 23.07 | 22.69 |
| 1.4 | QPSK | 6 | 0 | 21.97 | 22.16 | 21.84 |
| 1.4 | 16QAM | 1 | 0 | 22.08 | 22.09 | 22.05 |
| 1.4 | 16QAM | 1 | 2 | 22.13 | 22.08 | 22.09 |
| 1.4 | 16QAM | 1 | 5 | 22.23 | 22.09 | 21.95 |
| 1.4 | 16QAM | 3 | 0 | 21.93 | 22.13 | 21.86 |
| 1.4 | 16QAM | 3 | 1 | 21.99 | 22.08 | 21.89 |
| 1.4 | 16QAM | 3 | 2 | 22.01 | 22.06 | 21.86 |
| 1.4 | 16QAM | 6 | 0 | 21.06 | 21.08 | 21.00 |

<LTE Band 17 Conducted Power>

| BW [MHz] | Modulation | RB Size | RB Offset | Power (dBm) Low Ch. / Freq. | Power (dBm) Middle Ch. / Freq. | Power (dBm) High Ch. / Freq. |
|---|---|---|---|---|---|---|
| Channel | | | | 23780 | 23790 | 23800 |
| Frequency (MHz) | | | | 709 | 710 | 711 |
| 10 | QPSK | 1 | 0 | 23.03 | 23.07 | 22.97 |
| 10 | QPSK | 1 | 24 | 22.88 | 22.89 | 22.90 |
| 10 | QPSK | 1 | 49 | 23.02 | 22.97 | 22.96 |
| 10 | QPSK | 25 | 0 | 21.91 | 21.90 | 21.93 |
| 10 | QPSK | 25 | 12 | 21.99 | 21.96 | 21.93 |
| 10 | QPSK | 25 | 24 | 22.00 | 21.99 | 22.01 |
| 10 | QPSK | 50 | 0 | 21.95 | 21.97 | 21.93 |
| 10 | 16QAM | 1 | 0 | 21.73 | 21.80 | 21.76 |
| 10 | 16QAM | 1 | 24 | 21.83 | 21.84 | 21.87 |
| 10 | 16QAM | 1 | 49 | 22.00 | 21.89 | 21.94 |
| 10 | 16QAM | 25 | 0 | 21.02 | 21.00 | 21.01 |
| 10 | 16QAM | 25 | 12 | 21.00 | 21.05 | 21.04 |
| 10 | 16QAM | 25 | 24 | 21.05 | 21.04 | 21.06 |
| 10 | 16QAM | 50 | 0 | 20.97 | 20.97 | 21.03 |
| Channel | | | | 23755 | 23790 | 23825 |
| Frequency (MHz) | | | | 706.5 | 710 | 713.5 |
| 5 | QPSK | 1 | 0 | 22.87 | 22.86 | 22.88 |
| 5 | QPSK | 1 | 12 | 22.77 | 22.90 | 22.87 |
| 5 | QPSK | 1 | 24 | 22.92 | 22.91 | 22.94 |
| 5 | QPSK | 12 | 0 | 21.96 | 21.94 | 21.97 |
| 5 | QPSK | 12 | 6 | 21.93 | 21.92 | 21.93 |
| 5 | QPSK | 12 | 11 | 21.94 | 21.94 | 21.94 |
| 5 | QPSK | 25 | 0 | 21.92 | 21.95 | 21.97 |
| 5 | 16QAM | 1 | 0 | 21.84 | 21.85 | 21.87 |
| 5 | 16QAM | 1 | 12 | 21.76 | 21.84 | 21.83 |
| 5 | 16QAM | 1 | 24 | 21.87 | 21.85 | 21.86 |
| 5 | 16QAM | 12 | 0 | 21.03 | 21.02 | 21.05 |
| 5 | 16QAM | 12 | 6 | 21.03 | 21.03 | 21.04 |
| 5 | 16QAM | 12 | 11 | 21.04 | 21.05 | 21.02 |
| 5 | 16QAM | 25 | 0 | 21.02 | 21.02 | 21.00 |

<LTE Band 7 Conducted Power>

| BW [MHz] | Modulation | RB Size | RB Offset | Power (dBm) Low Ch. / Freq. | Power (dBm) Middle Ch. / Freq. | Power (dBm) High Ch. / Freq. |
|---|---|---|---|---|---|---|
| Channel | | | | 20850 | 21100 | 21350 |
| Frequency (MHz) | | | | 2510.0 | 2535.0 | 2560.0 |
| 20 | QPSK | 1 | 0 | 23.55 | 23.97 | 23.19 |
| 20 | QPSK | 1 | 49 | 23.00 | 23.81 | 22.87 |
| 20 | QPSK | 1 | 99 | 23.23 | 23.46 | 22.56 |
| 20 | QPSK | 50 | 0 | 22.23 | 22.96 | 21.98 |
| 20 | QPSK | 50 | 24 | 22.24 | 22.98 | 22.00 |
| 20 | QPSK | 50 | 49 | 21.99 | 22.66 | 21.91 |
| 20 | QPSK | 100 | 0 | 22.11 | 22.80 | 21.89 |
| 20 | 16QAM | 1 | 0 | 22.78 | 22.78 | 22.25 |
| 20 | 16QAM | 1 | 49 | 22.19 | 22.99 | 22.20 |
| 20 | 16QAM | 1 | 99 | 22.45 | 22.31 | 21.87 |
| 20 | 16QAM | 50 | 0 | 21.24 | 21.96 | 21.01 |
| 20 | 16QAM | 50 | 24 | 21.47 | 21.98 | 21.06 |
| 20 | 16QAM | 50 | 49 | 21.57 | 21.70 | 20.99 |
| 20 | 16QAM | 100 | 0 | 21.38 | 21.83 | 20.94 |
| Channel | | | | 20825 | 21100 | 21375 |
| Frequency (MHz) | | | | 2507.5 | 2535.0 | 2562.5 |
| 15 | QPSK | 1 | 0 | 23.39 | 23.88 | 22.76 |
| 15 | QPSK | 1 | 37 | 22.83 | 23.60 | 22.64 |
| 15 | QPSK | 1 | 74 | 22.77 | 23.30 | 22.58 |
| 15 | QPSK | 36 | 0 | 22.24 | 22.97 | 21.82 |
| 15 | QPSK | 36 | 18 | 21.95 | 22.78 | 21.84 |
| 15 | QPSK | 36 | 37 | 21.77 | 22.64 | 21.82 |
| 15 | QPSK | 75 | 0 | 22.06 | 22.79 | 21.78 |
| 15 | 16QAM | 1 | 0 | 22.58 | 22.98 | 22.07 |
| 15 | 16QAM | 1 | 37 | 22.10 | 22.90 | 21.99 |
| 15 | 16QAM | 1 | 74 | 22.07 | 22.58 | 21.90 |
| 15 | 16QAM | 36 | 0 | 21.29 | 21.97 | 20.89 |
| 15 | 16QAM | 36 | 18 | 20.98 | 21.84 | 20.93 |
| 15 | 16QAM | 36 | 37 | 20.78 | 21.69 | 20.91 |
| 15 | 16QAM | 75 | 0 | 21.14 | 21.85 | 20.85 |

| BW [MHz] | Modulation | RB Size | RB Offset | Power (dBm) Low Ch. / Freq. | Power (dBm) Middle Ch. / Freq. | Power (dBm) High Ch. / Freq. |
|---|---|---|---|---|---|---|
| Channel | | | | 20800 | 21100 | 21400 |
| Frequency (MHz) | | | | 2505.0 | 2535.0 | 2565.0 |
| 10 | QPSK | 1 | 0 | 23.37 | 23.88 | 22.70 |
| 10 | QPSK | 1 | 24 | 23.00 | 23.62 | 22.62 |
| 10 | QPSK | 1 | 49 | 22.72 | 23.47 | 22.53 |
| 10 | QPSK | 25 | 0 | 22.30 | 22.97 | 21.79 |
| 10 | QPSK | 25 | 12 | 22.14 | 22.73 | 21.79 |
| 10 | QPSK | 25 | 24 | 21.94 | 22.64 | 21.77 |
| 10 | QPSK | 50 | 0 | 22.10 | 22.77 | 21.76 |
| 10 | 16QAM | 1 | 0 | 22.71 | 22.97 | 21.99 |
| 10 | 16QAM | 1 | 24 | 22.31 | 22.92 | 21.94 |
| 10 | 16QAM | 1 | 49 | 22.00 | 22.78 | 21.84 |
| 10 | 16QAM | 25 | 0 | 21.39 | 21.96 | 20.88 |
| 10 | 16QAM | 25 | 12 | 21.21 | 21.81 | 20.88 |
| 10 | 16QAM | 25 | 24 | 20.98 | 21.71 | 20.86 |
| 10 | 16QAM | 50 | 0 | 21.16 | 21.85 | 20.85 |
| Channel | | | | 20775 | 21100 | 21425 |
| Frequency (MHz) | | | | 2502.5 | 2535.0 | 2567.5 |
| 5 | QPSK | 1 | 0 | 23.30 | 23.64 | 22.48 |
| 5 | QPSK | 1 | 12 | 23.10 | 23.47 | 22.40 |
| 5 | QPSK | 1 | 24 | 22.96 | 23.38 | 22.36 |
| 5 | QPSK | 12 | 0 | 22.34 | 22.72 | 21.63 |
| 5 | QPSK | 12 | 6 | 22.26 | 22.63 | 21.56 |
| 5 | QPSK | 12 | 11 | 22.19 | 22.61 | 21.55 |
| 5 | QPSK | 25 | 0 | 22.25 | 22.59 | 21.59 |
| 5 | 16QAM | 1 | 0 | 22.63 | 22.94 | 21.79 |
| 5 | 16QAM | 1 | 12 | 22.43 | 22.77 | 21.74 |
| 5 | 16QAM | 1 | 24 | 22.26 | 22.69 | 21.68 |
| 5 | 16QAM | 12 | 0 | 21.43 | 21.80 | 20.72 |
| 5 | 16QAM | 12 | 6 | 21.35 | 21.71 | 20.65 |
| 5 | 16QAM | 12 | 11 | 21.27 | 21.68 | 20.63 |
| 5 | 16QAM | 25 | 0 | 21.33 | 21.66 | 20.68 |

## 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.

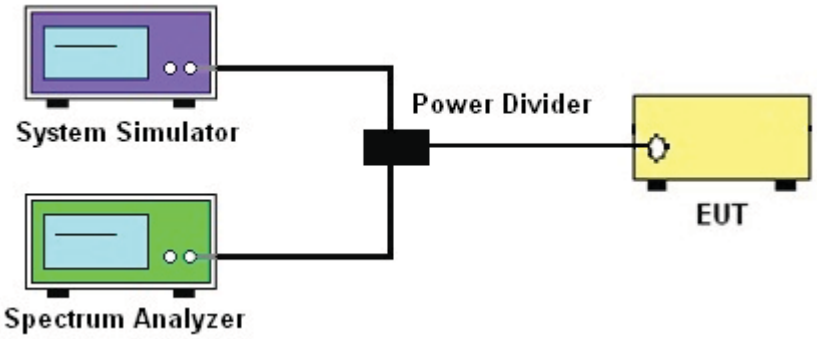
### 3.2.2 Measuring Instruments

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) | | | | 829.0 | 836.5 | 844.0 |
| 10 | 16QAM | 1 | 0 | 5.77 | 5.38 | 5.10 |
| 10 | 16QAM | 50 | 0 | 6.28 | 6.06 | 6.12 |

| LTE Band 2 | | | | | | |
|---|---|---|---|---|---|---|
| BW [MHz] | Modulation | RB Size | RB Offset | Power (dBm) Low Ch. / Freq. | Power (dBm) Middle Ch. / Freq. | Power (dBm) High Ch. / Freq. |
| Channel | | | | 18700 | 18900 | 19100 |
| Frequency (MHz) | | | | 1860.0 | 1880.0 | 1900.0 |
| 20 | 16QAM | 1 | 0 | 6.54 | 5.80 | 5.96 |
| 20 | 16QAM | 100 | 0 | 6.19 | 6.19 | 6.06 |

| LTE Band 25 | | | | | | |
|---|---|---|---|---|---|---|
| BW [MHz] | Modulation | RB Size | RB Offset | Power (dBm) Low Ch. / Freq. | Power (dBm) Middle Ch. / Freq. | Power (dBm) High Ch. / Freq. |
| Channel | | | | 26140 | 26340 | 26590 |
| Frequency (MHz) | | | | 1860.0 | 1880.0 | 1905.0 |
| 20 | 16QAM | 1 | 0 | 6.54 | 5.80 | 5.71 |
| 20 | 16QAM | 100 | 0 | 6.19 | 6.19 | 6.09 |

| 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) | | | | 1720.0 | 1732.5 | 1745.0 |
| 20 | 16QAM | 1 | 0 | 4.68 | 5.61 | 5.51 |
| 20 | 16QAM | 100 | 0 | 5.74 | 5.80 | 5.61 |

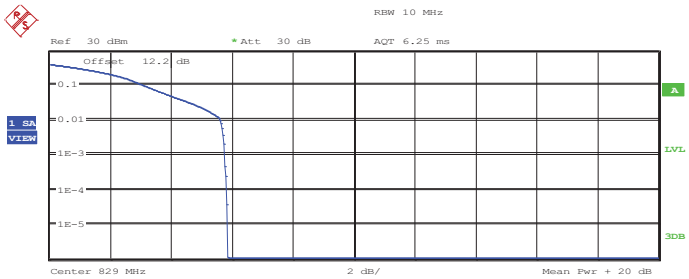
| LTE Band 17 | | | | | | |
|---|---|---|---|---|---|---|
| BW [MHz] | Modulation | RB Size | RB Offset | Power (dBm) Low Ch. / Freq. | Power (dBm) Middle Ch. / Freq. | Power (dBm) High Ch. / Freq. |
| Channel | | | | 23780 | 23790 | 23800 |
| Frequency (MHz) | | | | 709.0 | 710.0 | 711.0 |
| 10 | 16QAM | 1 | 0 | 5.03 | 5.13 | 5.19 |
| 10 | 16QAM | 50 | 0 | 5.96 | 5.99 | 5.99 |

| LTE Band 7 | | | | | | |
|---|---|---|---|---|---|---|
| BW [MHz] | Modulation | RB Size | RB Offset | Power (dBm) Low Ch. / Freq. | Power (dBm) Middle Ch. / Freq. | Power (dBm) High Ch. / Freq. |
| Channel | | | | 20850 | 21100 | 21350 |
| Frequency (MHz) | | | | 2510.0 | 2535.0 | 2560.0 |
| 20 | 16QAM | 1 | 0 | 4.49 | 4.33 | 4.42 |
| 20 | 16QAM | 100 | 0 | 5.80 | 5.71 | 5.74 |

## 3.2.6 Peak to Average Power Ratio

**Peak-to-Average Ratio on LTE Band 5**

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



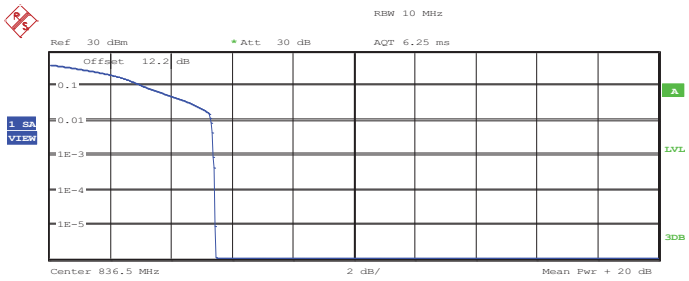

Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 11.2MHz

| | Trace 1 |
|---|---|
| Mean | 22.19 dBm |
| Peak | 28.02 dBm |
| Crest | 5.83 dB |
| 10 % | 3.11 dB |
| 1 % | 5.61 dB |
| .1 % | 5.77 dB |
| .01 % | 5.83 dB |

Date: 21.MAR.2014 14:23:31

**Peak-to-Average Ratio on LTE Band 5**

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



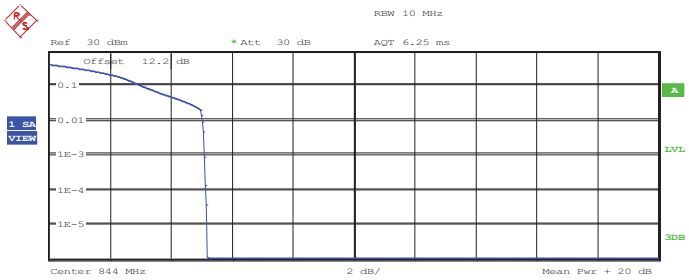

Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 11.2MHz

| | Trace 1 |
|---|---|
| Mean | 22.32 dBm |
| Peak | 27.76 dBm |
| Crest | 5.44 dB |
| 10 % | 3.08 dB |
| 1 % | 5.32 dB |
| .1 % | 5.38 dB |
| .01 % | 5.45 dB |

Date: 21.MAR.2014 14:24:04

**Peak-to-Average Ratio on LTE Band 5**

**10MHz / 16QAM in Ch. 20600 (1RB Size)**



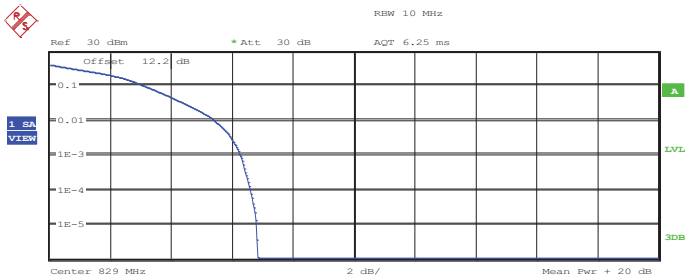

Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 11.2MHz

| | Trace 1 |
|---|---|
| Mean | 22.42 dBm |
| Peak | 27.58 dBm |
| Crest | 5.16 dB |
| 10 % | 3.04 dB |
| 1 % | 5.03 dB |
| .1 % | 5.10 dB |
| .01 % | 5.13 dB |

Date: 21.MAR.2014 14:24:43

**Peak-to-Average Ratio on LTE Band 5**

**10MHz / 16QAM in Ch. 20450 (50RB Size)**



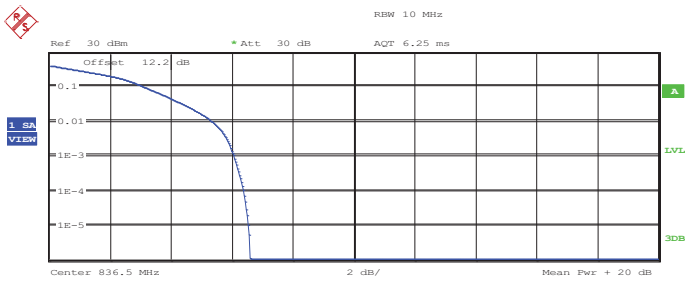

Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 11.2MHz

| | Trace 1 |
|---|---|
| Mean | 21.61 dBm |
| Peak | 28.44 dBm |
| Crest | 6.83 dB |
| 10 % | 3.14 dB |
| 1 % | 5.42 dB |
| .1 % | 6.28 dB |
| .01 % | 6.60 dB |

Date: 21.MAR.2014 14:23:47

**Peak-to-Average Ratio on LTE Band 5**

**10MHz / 16QAM in Ch. 20525 (50RB Size)**



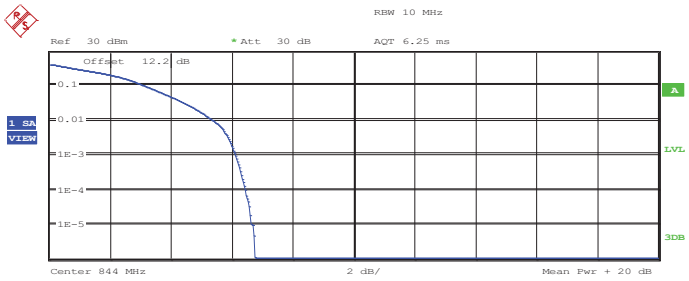

Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 11.2MHz

| | Trace 1 |
|---|---|
| Mean | 21.59 dBm |
| Peak | 28.19 dBm |
| Crest | 6.60 dB |
| 10 % | 3.11 dB |
| 1 % | 5.32 dB |
| .1 % | 6.06 dB |
| .01 % | 6.38 dB |

Date: 21.MAR.2014 14:24:24

**Peak-to-Average Ratio on LTE Band 5**

**10MHz / 16QAM in Ch. 20600 (50RB Size)**



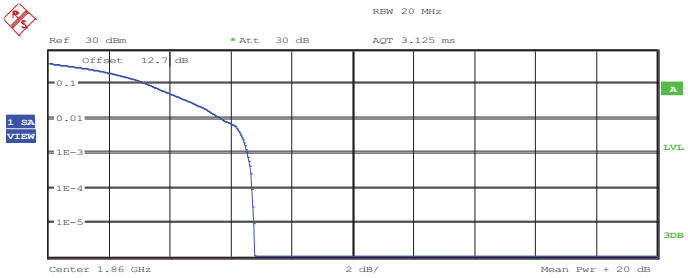

Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 11.2MHz

| | Trace 1 |
|---|---|
| Mean | 21.68 dBm |
| Peak | 28.43 dBm |
| Crest | 6.75 dB |
| 10 % | 3.11 dB |
| 1 % | 5.35 dB |
| .1 % | 6.12 dB |
| .01 % | 6.44 dB |

Date: 21.MAR.2014 14:25:09

**Peak-to-Average Ratio on LTE Band 2 and LTE Band 25**

**20MHz / 16QAM in Ch. 18700 and Ch. 26140 – Low Channel (1RB Size)**



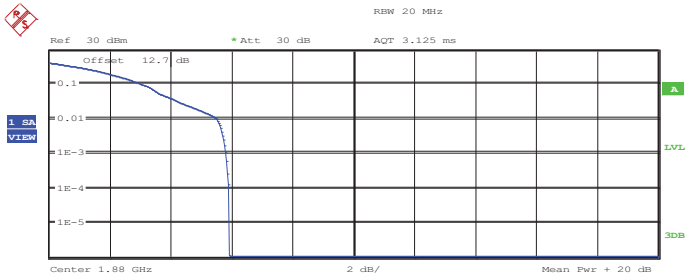

Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

| | Trace 1 |
|---|---|
| Mean | 21.39 dBm |
| Peak | 28.16 dBm |
| Crest | 6.77 dB |
| 10 % | 3.27 dB |
| 1 % | 5.67 dB |
| .1 % | 6.54 dB |
| .01 % | 6.70 dB |

Date: 20.MAR.2014 15:40:19

**Peak-to-Average Ratio on LTE Band 2 and LTE Band 25**

**20MHz / 16QAM in Ch. 18900 and Ch. 26590 – Middle Channel (1RB Size)**



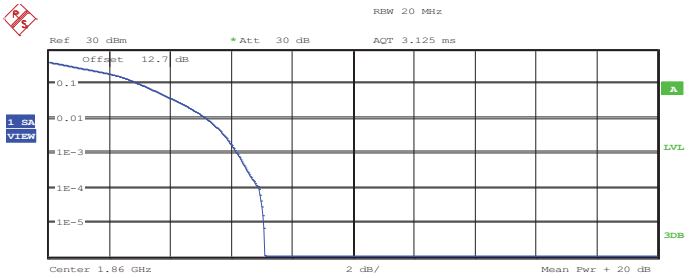

Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

| | Trace 1 |
|---|---|
| Mean | 21.42 dBm |
| Peak | 27.34 dBm |
| Crest | 5.92 dB |
| 10 % | 3.04 dB |
| 1 % | 5.51 dB |
| .1 % | 5.80 dB |
| .01 % | 5.90 dB |

Date: 20.MAR.2014 15:41:20

**Peak-to-Average Ratio on LTE Band 2 and LTE Band 25**

**20MHz / 16QAM in Ch. 18700 and Ch. 26140 – Low Channel (100RB Size)**



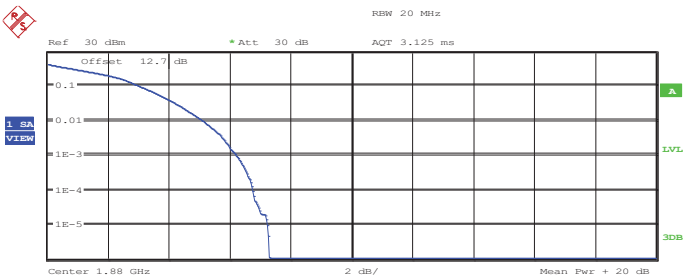

Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

| | Trace 1 |
|---|---|
| Mean | 21.21 dBm |
| Peak | 28.30 dBm |
| Crest | 7.10 dB |
| 10 % | 3.01 dB |
| 1 % | 5.19 dB |
| .1 % | 6.19 dB |
| .01 % | 6.92 dB |

Date: 20.MAR.2014 15:40:52

**Peak-to-Average Ratio on LTE Band 2 and LTE Band 25**

**20MHz / 16QAM in Ch. 18900 and Ch. 26590 – Middle Channel (100RB Size)**



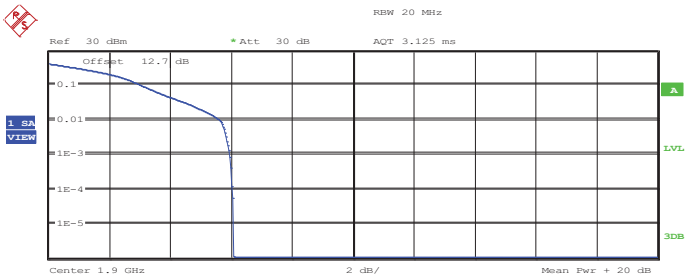

Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

| | Trace 1 |
|---|---|
| Mean | 21.17 dBm |
| Peak | 28.47 dBm |
| Crest | 7.30 dB |
| 10 % | 3.04 dB |
| 1 % | 5.10 dB |
| .1 % | 6.19 dB |
| .01 % | 6.76 dB |

Date: 20.MAR.2014 15:41:35

**Peak-to-Average Ratio on LTE Band 2**

**20MHz / 16QAM in Ch. 19100 – High Channel (1RB Size)**



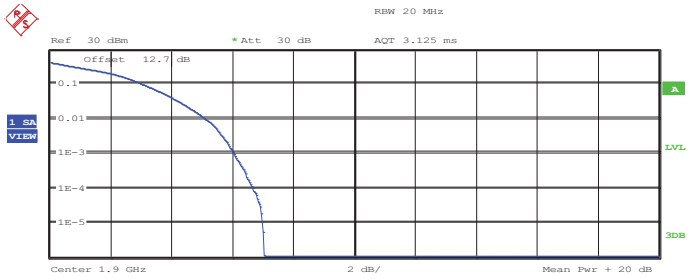

Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

| | Trace 1 |
|---|---|
| Mean | 21.74 dBm |
| Peak | 27.81 dBm |
| Crest | 6.08 dB |
| 10 % | 3.04 dB |
| 1 % | 5.61 dB |
| .1 % | 5.96 dB |
| .01 % | 6.03 dB |

Date: 20.MAR.2014 15:41:55

**Peak-to-Average Ratio on LTE Band 2**

**20MHz / 16QAM in Ch. 19100 – High Channel (100RB Size)**



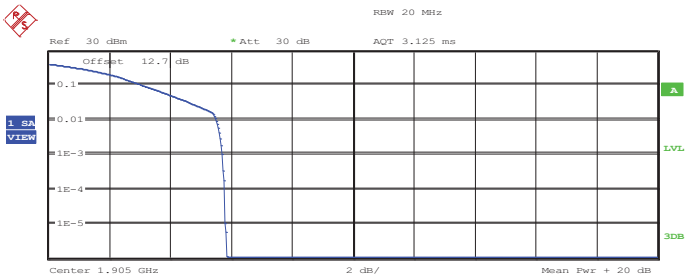

Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

| | Trace 1 |
|---|---|
| Mean | 21.19 dBm |
| Peak | 28.24 dBm |
| Crest | 7.04 dB |
| 10 % | 3.04 dB |
| 1 % | 5.10 dB |
| .1 % | 6.06 dB |
| .01 % | 6.67 dB |

Date: 20.MAR.2014 15:42:13

**Peak-to-Average Ratio on LTE Band 25**

**20MHz / 16QAM in Ch. 26590 – High Channel (1RB Size)**



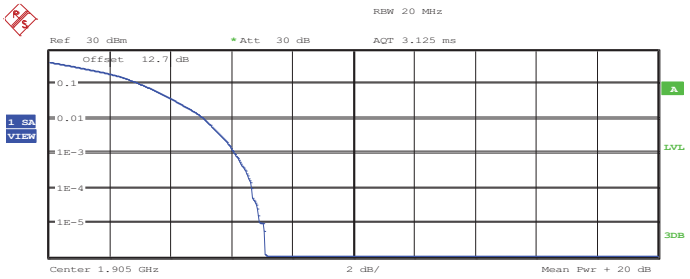

Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

| | Trace 1 |
|---|---|
| Mean | 22.09 dBm |
| Peak | 27.95 dBm |
| Crest | 5.86 dB |
| 10 % | 3.08 dB |
| 1 % | 5.48 dB |
| .1 % | 5.71 dB |
| .01 % | 5.77 dB |

Date: 21.MAR.2014 16:48:35

**Peak-to-Average Ratio on LTE Band 25**

**20MHz / 16QAM in Ch. 26590 – High Channel (100RB Size)**




Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

| | Trace 1 |
|---|---|
| Mean | 21.55 dBm |
| Peak | 28.66 dBm |
| Crest | 7.11 dB |
| 10 % | 3.01 dB |
| 1 % | 5.06 dB |
| .1 % | 6.09 dB |
| .01 % | 6.67 dB |

Date: 21.MAR.2014 16:48:50

**Peak-to-Average Ratio on LTE Band 4**

**20MHz / 16QAM in Ch. 20050 (1RB Size)**

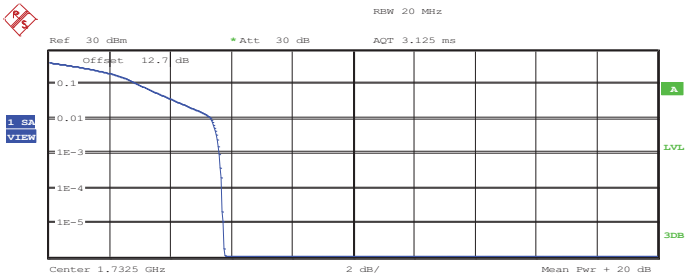
Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

| | Trace 1 |
|---|---|
| Mean | 21.70 dBm |
| Peak | 26.38 dBm |
| Crest | 4.68 dB |
| 10 % | 2.92 dB |
| 1 % | 4.55 dB |
| .1 % | 4.68 dB |
| .01 % | 4.71 dB |

Date: 21.MAR.2014 09:56:43

**Peak-to-Average Ratio on LTE Band 4**

**20MHz / 16QAM in Ch. 20175 (1RB Size)**



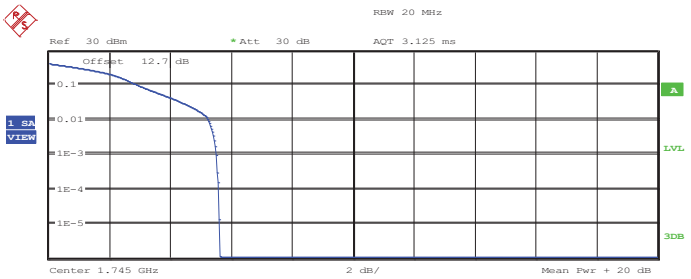

Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

| | Trace 1 |
|---|---|
| Mean | 21.62 dBm |
| Peak | 27.39 dBm |
| Crest | 5.77 dB |
| 10 % | 2.95 dB |
| 1 % | 5.32 dB |
| .1 % | 5.61 dB |
| .01 % | 5.71 dB |

Date: 21.MAR.2014 09:57:22

**Peak-to-Average Ratio on LTE Band 4**

**20MHz / 16QAM in Ch. 20300 (1RB Size)**



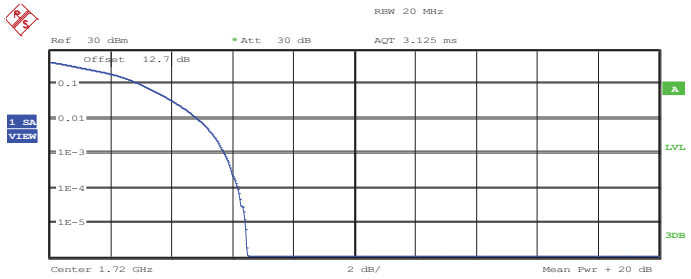

Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

| | Trace 1 |
|---|---|
| Mean | 21.77 dBm |
| Peak | 27.37 dBm |
| Crest | 5.60 dB |
| 10 % | 2.95 dB |
| 1 % | 5.22 dB |
| .1 % | 5.51 dB |
| .01 % | 5.58 dB |

Date: 21.MAR.2014 09:58:04

**Peak-to-Average Ratio on LTE Band 4**

**20MHz / 16QAM in Ch. 20500 (100RB Size)**



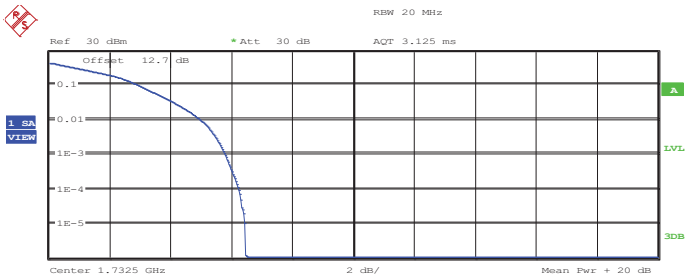

Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

| | Trace 1 |
|---|---|
| Mean | 21.17 dBm |
| Peak | 27.65 dBm |
| Crest | 6.48 dB |
| 10 % | 2.98 dB |
| 1 % | 4.84 dB |
| .1 % | 5.74 dB |
| .01 % | 6.15 dB |

Date: 21.MAR.2014 09:57:02

**Peak-to-Average Ratio on LTE Band 4**

**20MHz / 16QAM in Ch. 20175 (100RB Size)**



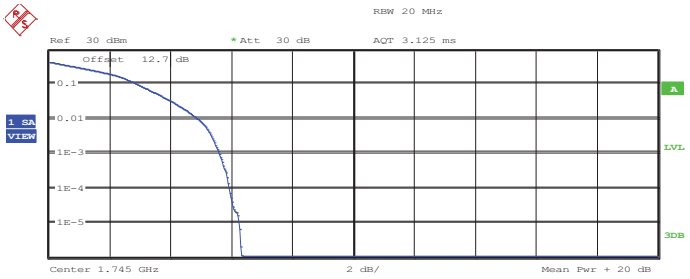

Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

| | Trace 1 |
|---|---|
| Mean | 20.99 dBm |
| Peak | 27.46 dBm |
| Crest | 6.47 dB |
| 10 % | 2.92 dB |
| 1 % | 4.97 dB |
| .1 % | 5.80 dB |
| .01 % | 6.22 dB |

Date: 21.MAR.2014 09:57:39

**Peak-to-Average Ratio on LTE Band 4**

**20MHz / 16QAM in Ch. 20300 (100RB Size)**



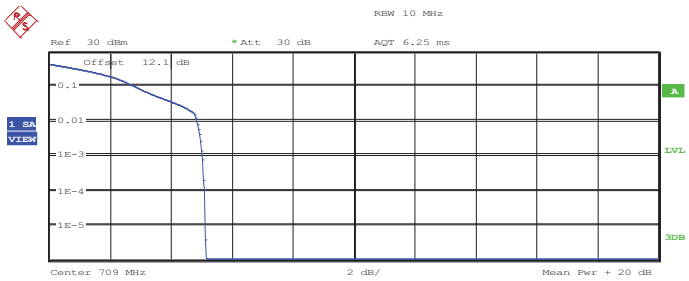

Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

| | Trace 1 |
|---|---|
| Mean | 20.98 dBm |
| Peak | 27.30 dBm |
| Crest | 6.32 dB |
| 10 % | 2.88 dB |
| 1 % | 4.87 dB |
| .1 % | 5.61 dB |
| .01 % | 5.93 dB |

Date: 21.MAR.2014 09:58:27

**Peak-to-Average Ratio on LTE Band 17**

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



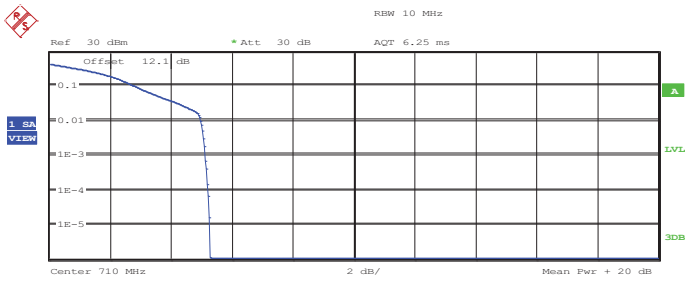

Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 11.2MHz

| | Trace 1 |
|---|---|
| Mean | 22.11 dBm |
| Peak | 27.23 dBm |
| Crest | 5.12 dB |
| 10 % | 2.79 dB |
| 1 % | 4.84 dB |
| .1 % | 5.03 dB |
| .01 % | 5.10 dB |

Date: 21.MAR.2014 17:33:11

**Peak-to-Average Ratio on LTE Band 17**

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



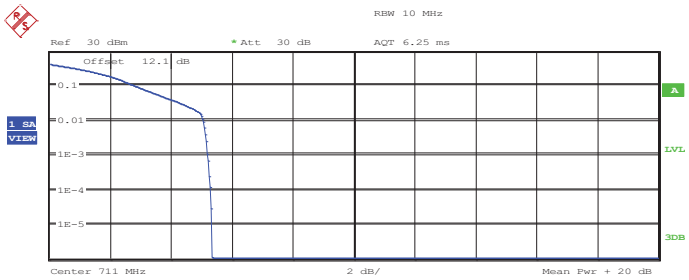

Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 11.2MHz

| | Trace 1 |
|---|---|
| Mean | 22.34 dBm |
| Peak | 27.60 dBm |
| Crest | 5.26 dB |
| 10 % | 2.79 dB |
| 1 % | 4.97 dB |
| .1 % | 5.13 dB |
| .01 % | 5.22 dB |

Date: 21.MAR.2014 17:34:01

**Peak-to-Average Ratio on LTE Band 17**

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



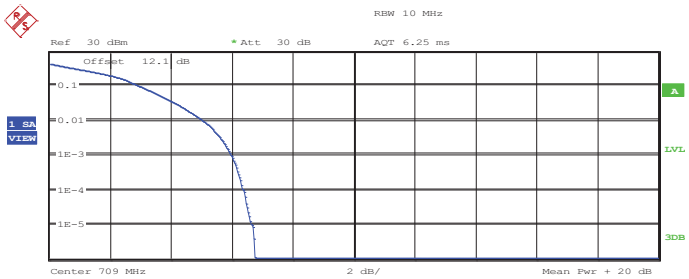

Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 11.2MHz

| | Trace 1 |
|---|---|
| Mean | 22.21 dBm |
| Peak | 27.53 dBm |
| Crest | 5.32 dB |
| 10 % | 2.82 dB |
| 1 % | 5.06 dB |
| .1 % | 5.19 dB |
| .01 % | 5.29 dB |

Date: 21.MAR.2014 17:34:40

**Peak-to-Average Ratio on LTE Band 17**

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



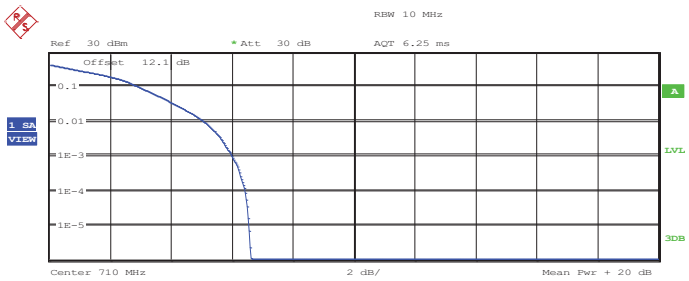

Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 11.2MHz

| | Trace 1 |
|---|---|
| Mean | 21.55 dBm |
| Peak | 28.29 dBm |
| Crest | 6.75 dB |
| 10 % | 2.95 dB |
| 1 % | 5.03 dB |
| .1 % | 5.96 dB |
| .01 % | 6.38 dB |

Date: 21.MAR.2014 17:33:29

**Peak-to-Average Ratio on LTE Band 17**

**10MHz / 16QAM in Ch. 23790 (50RB Size)**



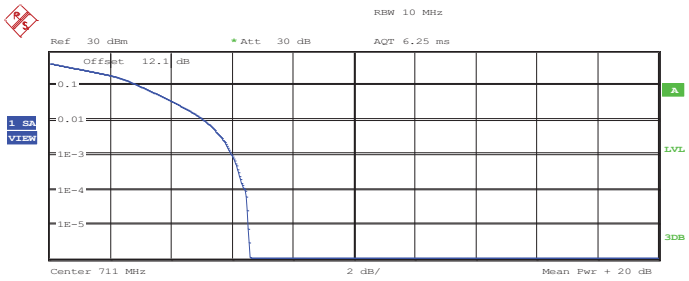

Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 11.2MHz

| | Trace 1 |
|---|---|
| Mean | 21.48 dBm |
| Peak | 28.09 dBm |
| Crest | 6.61 dB |
| 10 % | 2.92 dB |
| 1 % | 5.06 dB |
| .1 % | 5.99 dB |
| .01 % | 6.44 dB |

Date: 21.MAR.2014 17:34:22

**Peak-to-Average Ratio on LTE Band 17**

**10MHz / 16QAM in Ch. 23800 (50RB Size)**



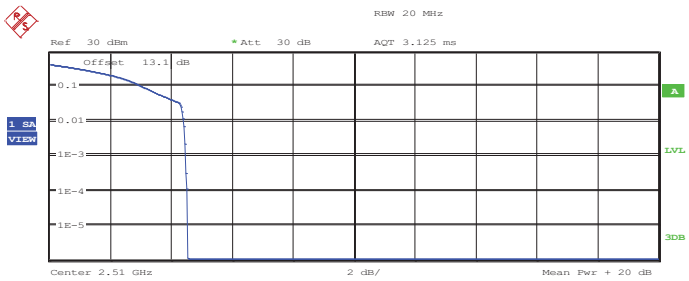

Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 11.2MHz

| | Trace 1 |
|---|---|
| Mean | 21.52 dBm |
| Peak | 28.10 dBm |
| Crest | 6.58 dB |
| 10 % | 2.95 dB |
| 1 % | 5.06 dB |
| .1 % | 5.99 dB |
| .01 % | 6.41 dB |

Date: 21.MAR.2014 17:35:00

**Peak-to-Average Ratio on LTE Band 7**

**20MHz / 16QAM in Ch. 20850 (1RB Size)**



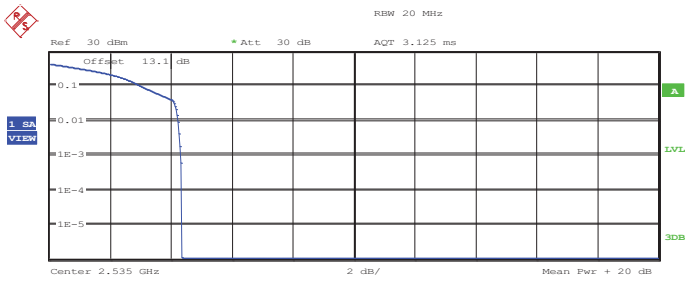

Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

| | Trace 1 |
|---|---|
| Mean | 22.08 dBm |
| Peak | 26.61 dBm |
| Crest | 4.53 dB |
| 10 % | 3.04 dB |
| 1 % | 4.39 dB |
| .1 % | 4.49 dB |
| .01 % | 4.52 dB |

Date: 26.MAR.2014 11:03:45

**Peak-to-Average Ratio on LTE Band 7**

**20MHz / 16QAM in Ch. 21100 (1RB Size)**



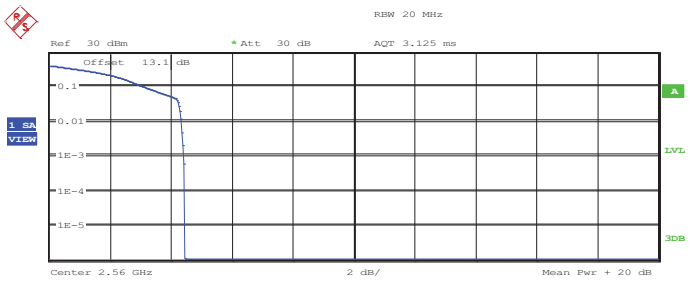

Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

| | Trace 1 |
|---|---|
| Mean | 22.40 dBm |
| Peak | 26.74 dBm |
| Crest | 4.34 dB |
| 10 % | 3.01 dB |
| 1 % | 4.23 dB |
| .1 % | 4.33 dB |
| .01 % | 4.36 dB |

Date: 26.MAR.2014 11:04:24

**Peak-to-Average Ratio on LTE Band 7**

**20MHz / 16QAM in Ch. 21350 (1RB Size)**



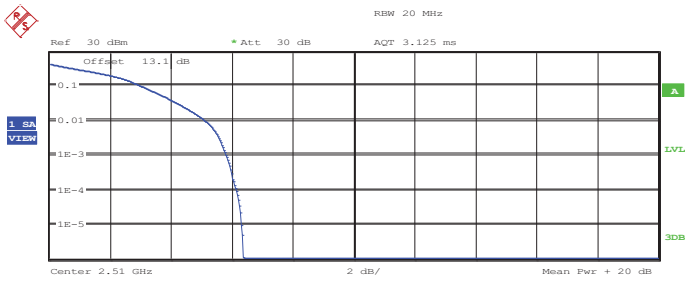

Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

| | Trace 1 |
|---|---|
| Mean | 22.18 dBm |
| Peak | 26.60 dBm |
| Crest | 4.43 dB |
| 10 % | 3.14 dB |
| 1 % | 4.33 dB |
| .1 % | 4.42 dB |
| .01 % | 4.46 dB |

Date: 26.MAR.2014 11:05:05

**Peak-to-Average Ratio on LTE Band 7**

**20MHz / 16QAM in Ch. 20850 (100RB Size)**



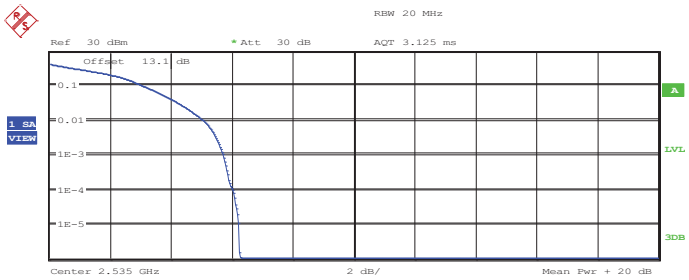

Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

| | Trace 1 |
|---|---|
| Mean | 21.16 dBm |
| Peak | 27.53 dBm |
| Crest | 6.37 dB |
| 10 % | 3.01 dB |
| 1 % | 5.10 dB |
| .1 % | 5.80 dB |
| .01 % | 6.15 dB |

Date: 26.MAR.2014 11:04:09

**Peak-to-Average Ratio on LTE Band 7**

**20MHz / 16QAM in Ch. 21100 (100RB Size)**



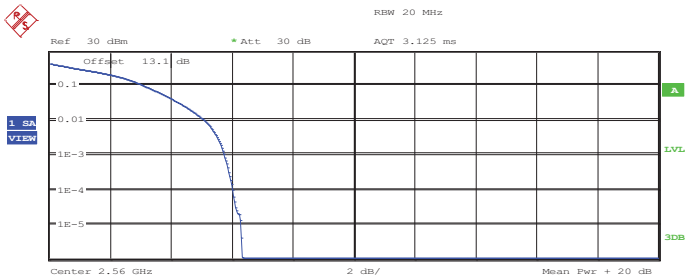

Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

| | Trace 1 |
|---|---|
| Mean | 21.48 dBm |
| Peak | 27.72 dBm |
| Crest | 6.25 dB |
| 10 % | 3.08 dB |
| 1 % | 5.03 dB |
| .1 % | 5.71 dB |
| .01 % | 6.03 dB |

Date: 26.MAR.2014 11:04:44

**Peak-to-Average Ratio on LTE Band 7**

**20MHz / 16QAM in Ch. 21350 (100RB Size)**




Complementary Cumulative Distribution Function
NOF samples: 100000, Usable BW: 23.7MHz

| | Trace 1 |
|---|---|
| Mean | 20.99 dBm |
| Peak | 27.31 dBm |
| Crest | 6.32 dB |
| 10 % | 3.11 dB |
| 1 % | 5.10 dB |
| .1 % | 5.74 dB |
| .01 % | 6.03 dB |

Date: 26.MAR.2014 11:05:23

## 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 watt with LTE band 17.

Equivalent isotropic radiated power output measurements by substitution method according to ANSI / TIA / EIA-603-C-2004, and the spectrum analyzer configuration follows KDB 971168 D01 Power Meas. License Digital Systems v02r01. Mobile and portable (hand-held) stations operating are limited to average EIRP of 2 watts with LTE band 2, 25, 7 and 1 watt with LTE band 4.

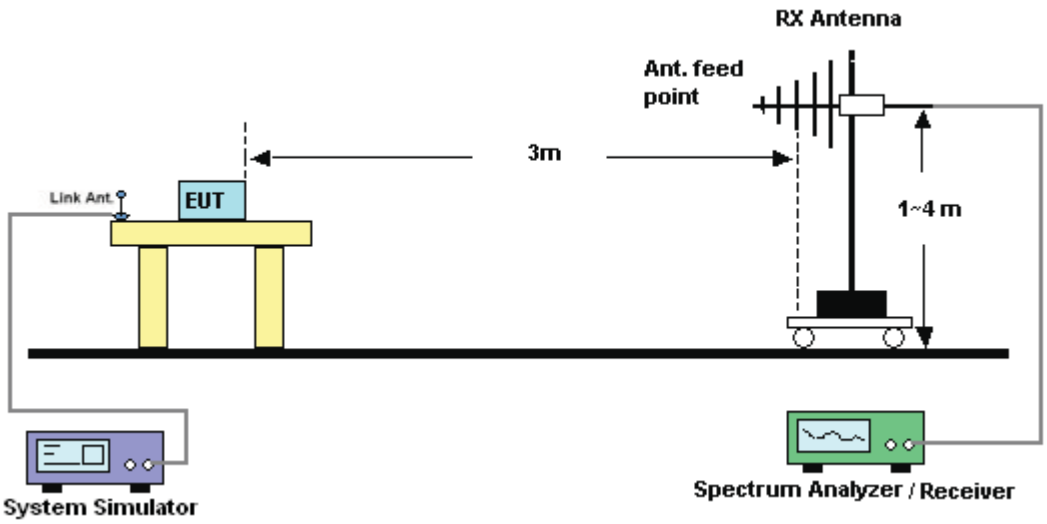
### 3.3.2 Measuring Instruments

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

### 3.3.3 Test Procedures

1. The EUT was placed on a non-conductive rotating platform 0.8 meters high in a semi-anechoic chamber. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and a spectrum analyzer 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 + Correction factor and ERP = EIRP – 2.15.

### 3.3.4 Test Setup



### 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 | -11.85 | 31.99 | 17.99 | 0.06 |
| 836.5 | -12.49 | 32.06 | 17.42 | 0.06 |
| 848.3 | -13.06 | 32.73 | 17.52 | 0.06 |
| Vertical Polarization | | | | |
| Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | ERP (dBm) | ERP (W) |
| 824.7 | -22.10 | 34.35 | 10.10 | 0.01 |
| 836.5 | -22.26 | 33.96 | 9.55 | 0.01 |
| 848.3 | -21.92 | 33.52 | 9.45 | 0.01 |

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

| 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 | -12.99 | 31.99 | 16.85 | 0.05 |
| 836.5 | -13.49 | 32.06 | 16.42 | 0.04 |
| 848.3 | -14.00 | 32.73 | 16.58 | 0.05 |
| Vertical Polarization | | | | |
| Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | ERP (dBm) | ERP (W) |
| 824.7 | -23.18 | 34.35 | 9.02 | 0.01 |
| 836.5 | -23.27 | 33.96 | 8.54 | 0.01 |
| 848.3 | -22.91 | 33.52 | 8.46 | 0.01 |

* 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 | -11.01 | 32.12 | 18.96 | 0.08 |
| 836.5 | -11.63 | 32.06 | 18.28 | 0.07 |
| 844 | -12.28 | 32.32 | 17.89 | 0.06 |
| Vertical Polarization | | | | |
| Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | ERP (dBm) | ERP (W) |
| 829 | -19.17 | 34.34 | 13.02 | 0.02 |
| 836.5 | -18.62 | 33.96 | 13.19 | 0.02 |
| 844 | -20.99 | 33.72 | 10.58 | 0.01 |

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

| LTE Band 5 Radiated Power ERP for BW 10MHz / 16QAM | | | | |
|---|---|---|---|---|
| Horizontal Polarization | | | | |
| Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | ERP (dBm) | ERP (W) |
| 829 | -12.71 | 32.12 | 17.26 | 0.05 |
| 836.5 | -12.86 | 32.06 | 17.05 | 0.05 |
| 844 | -13.15 | 32.32 | 17.02 | 0.05 |
| Vertical Polarization | | | | |
| Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | ERP (dBm) | ERP (W) |
| 829 | -21.19 | 34.34 | 11.00 | 0.01 |
| 836.5 | -21.88 | 33.96 | 9.93 | 0.01 |
| 844 | -22.49 | 33.72 | 9.08 | 0.01 |

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

| LTE Band 2 Radiated Power EIRP for BW 1.4MHz / QPSK | | | | |
|---|---|---|---|---|
| Horizontal Polarization | | | | |
| Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (W) |
| 1850.7 | -19.04 | 39.89 | 20.85 | 0.12 |
| 1880.0 | -18.99 | 39.74 | 20.75 | 0.12 |
| 1909.3 | -19.14 | 39.90 | 20.76 | 0.12 |
| Vertical Polarization | | | | |
| Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (W) |
| 1850.7 | -18.40 | 40.07 | 21.67 | 0.15 |
| 1880.0 | -18.77 | 40.35 | 21.58 | 0.14 |
| 1909.3 | -20.00 | 40.63 | 20.63 | 0.12 |

| LTE Band 2 Radiated Power EIRP for BW 1.4MHz / 16QAM | | | | |
|---|---|---|---|---|
| Horizontal Polarization | | | | |
| Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (W) |
| 1850.7 | -20.04 | 39.89 | 19.85 | 0.10 |
| 1880.0 | -20.02 | 39.74 | 19.72 | 0.09 |
| 1909.3 | -19.97 | 39.90 | 19.93 | 0.10 |
| Vertical Polarization | | | | |
| Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (W) |
| 1850.7 | -19.36 | 40.07 | 20.71 | 0.12 |
| 1880.0 | -19.78 | 40.35 | 20.57 | 0.11 |
| 1909.3 | -20.82 | 40.63 | 19.81 | 0.10 |

| LTE Band 2 Radiated Power EIRP for BW 20MHz / QPSK | | | | |
|---|---|---|---|---|
| Horizontal Polarization | | | | |
| Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (W) |
| 1860.0 | -19.50 | 39.77 | 20.27 | 0.11 |
| 1880.0 | -19.89 | 39.74 | 19.85 | 0.10 |
| 1900.0 | -18.95 | 39.90 | 20.95 | 0.12 |
| Vertical Polarization | | | | |
| Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (W) |
| 1860.0 | -18.99 | 40.42 | 21.43 | 0.14 |
| 1880.0 | -18.58 | 40.35 | 21.77 | 0.15 |
| 1900.0 | -20.07 | 40.64 | 20.57 | 0.11 |

| LTE Band 2 Radiated Power EIRP for BW 20MHz / 16QAM | | | | |
|---|---|---|---|---|
| Horizontal Polarization | | | | |
| Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (W) |
| 1860.0 | -20.06 | 39.77 | 19.71 | 0.09 |
| 1880.0 | -20.64 | 39.74 | 19.10 | 0.08 |
| 1900.0 | -19.74 | 39.90 | 20.16 | 0.10 |
| Vertical Polarization | | | | |
| Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (W) |
| 1860.0 | -19.48 | 40.42 | 20.94 | 0.12 |
| 1880.0 | -19.40 | 40.35 | 20.95 | 0.12 |
| 1900.0 | -20.86 | 40.64 | 19.78 | 0.10 |

| LTE Band 25 Radiated Power EIRP for BW 1.4MHz / QPSK | | | | |
|---|---|---|---|---|
| Horizontal Polarization | | | | |
| Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (W) |
| 1914.30 | -18.54 | 39.64 | 21.10 | 0.13 |
| Vertical Polarization | | | | |
| Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (W) |
| 1914.30 | -20.02 | 40.34 | 20.32 | 0.11 |

| LTE Band 25 Radiated Power EIRP for BW 1.4MHz / 16QAM | | | | |
|---|---|---|---|---|
| Horizontal Polarization | | | | |
| Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (W) |
| 1914.30 | -19.17 | 39.64 | 20.47 | 0.11 |
| Vertical Polarization | | | | |
| Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (W) |
| 1914.30 | -20.64 | 40.34 | 19.70 | 0.09 |

| LTE Band 25 Radiated Power EIRP for BW 20MHz / QPSK | | | | |
|---|---|---|---|---|
| Horizontal Polarization | | | | |
| Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (W) |
| 1905.00 | -19.25 | 39.91 | 20.66 | 0.12 |
| Vertical Polarization | | | | |
| Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (W) |
| 1905.00 | -18.66 | 40.59 | 21.93 | 0.16 |

| LTE Band 25 Radiated Power EIRP for BW 20MHz / 16QAM | | | | |
|---|---|---|---|---|
| Horizontal Polarization | | | | |
| Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (W) |
| 1905.00 | -19.68 | 39.91 | 20.23 | 0.11 |
| Vertical Polarization | | | | |
| Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (W) |
| 1905.00 | -19.06 | 40.59 | 21.53 | 0.14 |

| 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 | -19.90 | 38.773 | 18.87 | 0.08 |
| 1732.50 | -19.22 | 39.128 | 19.91 | 0.10 |
| 1754.30 | -19.40 | 39.114 | 19.71 | 0.09 |
| Vertical Polarization | | | | |
| Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (W) |
| 1710.70 | -16.39 | 38.274 | 21.88 | 0.15 |
| 1732.50 | -15.96 | 38.363 | 22.40 | 0.17 |
| 1754.30 | -17.50 | 38.442 | 20.94 | 0.12 |

| 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 | -20.39 | 38.773 | 18.38 | 0.07 |
| 1732.50 | -20.22 | 39.128 | 18.91 | 0.08 |
| 1754.30 | -19.84 | 39.114 | 19.27 | 0.08 |
| Vertical Polarization | | | | |
| Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (W) |
| 1710.70 | -17.02 | 38.274 | 21.25 | 0.13 |
| 1732.50 | -17.14 | 38.363 | 21.22 | 0.13 |
| 1754.30 | -17.93 | 38.442 | 20.51 | 0.11 |

| LTE Band 4 Radiated Power EIRP for BW 1.4MHz / QPSK (WPC Chaging Mode) | | | | |
|---|---|---|---|---|
| Horizontal Polarization | | | | |
| Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (W) |
| 1710.70 | -25.31 | 38.773 | 13.46 | 0.02 |
| 1732.50 | -23.44 | 39.128 | 15.69 | 0.04 |
| 1754.30 | -24.75 | 39.114 | 14.36 | 0.03 |
| Vertical Polarization | | | | |
| Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (W) |
| 1710.70 | -27.23 | 38.274 | 11.04 | 0.01 |
| 1732.50 | -27.51 | 38.363 | 10.85 | 0.01 |
| 1754.30 | -27.85 | 38.442 | 10.59 | 0.01 |

| 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 | -20.16 | 38.771 | 18.61 | 0.07 |
| 1732.50 | -19.23 | 39.128 | 19.90 | 0.10 |
| 1745.00 | -19.67 | 39.186 | 19.52 | 0.09 |
| Vertical Polarization | | | | |
| Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (W) |
| 1720.00 | -17.03 | 37.951 | 20.92 | 0.12 |
| 1732.50 | -16.69 | 38.363 | 21.67 | 0.15 |
| 1745.00 | -17.03 | 38.175 | 21.15 | 0.13 |

| 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 | -19.93 | 38.771 | 18.84 | 0.08 |
| 1732.50 | -20.21 | 39.128 | 18.92 | 0.08 |
| 1745.00 | -20.22 | 39.186 | 18.97 | 0.08 |
| Vertical Polarization | | | | |
| Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (W) |
| 1720.00 | -17.86 | 37.951 | 20.09 | 0.10 |
| 1732.50 | -17.61 | 38.363 | 20.75 | 0.12 |
| 1745.00 | -17.50 | 38.175 | 20.68 | 0.12 |

| LTE Band 17 Radiated Power ERP / EIRP for BW 5MHz / QPSK | | | | | | |
|---|---|---|---|---|---|---|
| Horizontal Polarization | | | | | | |
| Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | ERP (dBm) | EIRP (dBm) | ERP (W) | EIRP (W) |
| 706.50 | -8.32 | 30.772 | 20.30 | 22.45 | 0.11 | 0.18 |
| 710.00 | -8.74 | 30.902 | 20.01 | 22.16 | 0.10 | 0.16 |
| 713.50 | -9.06 | 31.493 | 20.28 | 22.43 | 0.11 | 0.18 |
| Vertical Polarization | | | | | | |
| Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | ERP (dBm) | EIRP (dBm) | ERP (W) | EIRP (W) |
| 706.50 | -21.23 | 33.466 | 10.09 | 12.24 | 0.01 | 0.02 |
| 710.00 | -19.11 | 33.293 | 12.03 | 14.18 | 0.02 | 0.03 |
| 713.50 | -19.56 | 33.591 | 11.88 | 14.03 | 0.02 | 0.03 |

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

| LTE Band 17 Radiated Power ERP / EIRP for BW 5MHz / 16QAM | | | | | | |
|---|---|---|---|---|---|---|
| Horizontal Polarization | | | | | | |
| Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | ERP (dBm) | EIRP (dBm) | ERP (W) | EIRP (W) |
| 706.50 | -9.45 | 30.772 | 19.17 | 21.32 | 0.08 | 0.14 |
| 710.00 | -9.79 | 30.902 | 18.96 | 21.11 | 0.08 | 0.13 |
| 713.50 | -9.92 | 31.493 | 19.42 | 21.57 | 0.09 | 0.14 |
| Vertical Polarization | | | | | | |
| Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | ERP (dBm) | EIRP (dBm) | ERP (W) | EIRP (W) |
| 706.50 | -22.18 | 33.466 | 9.14 | 11.29 | 0.01 | 0.01 |
| 710.00 | -20.17 | 33.293 | 10.97 | 13.12 | 0.01 | 0.02 |
| 713.50 | -20.24 | 33.591 | 11.20 | 13.35 | 0.01 | 0.02 |

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

| LTE Band 17 Radiated Power ERP / EIRP for BW 10MHz / QPSK | | | | | | |
|---|---|---|---|---|---|---|
| Horizontal Polarization | | | | | | |
| Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | ERP (dBm) | EIRP (dBm) | ERP (W) | EIRP (W) |
| 709.00 | -8.96 | 30.889 | 19.78 | 21.93 | 0.10 | 0.16 |
| 710.00 | -8.91 | 30.902 | 19.84 | 21.99 | 0.10 | 0.16 |
| 711.00 | -9.07 | 31.101 | 19.88 | 22.03 | 0.10 | 0.16 |
| Vertical Polarization | | | | | | |
| Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | ERP (dBm) | EIRP (dBm) | ERP (W) | EIRP (W) |
| 709.00 | -18.93 | 33.311 | 12.23 | 14.38 | 0.02 | 0.03 |
| 710.00 | -19.21 | 33.293 | 11.93 | 14.08 | 0.02 | 0.03 |
| 711.00 | -19.07 | 33.433 | 12.21 | 14.36 | 0.02 | 0.03 |

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

| LTE Band 17 Radiated Power ERP / EIRP for BW 10MHz / 16QAM | | | | | | |
|---|---|---|---|---|---|---|
| Horizontal Polarization | | | | | | |
| Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | ERP (dBm) | EIRP (dBm) | ERP (W) | EIRP (W) |
| 709.00 | -9.97 | 30.889 | 18.77 | 20.92 | 0.08 | 0.12 |
| 710.00 | -9.96 | 30.902 | 18.79 | 20.94 | 0.08 | 0.12 |
| 711.00 | -9.93 | 31.101 | 19.02 | 21.17 | 0.08 | 0.13 |
| Vertical Polarization | | | | | | |
| Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | ERP (dBm) | EIRP (dBm) | ERP (W) | EIRP (W) |
| 709.00 | -20.36 | 33.311 | 10.80 | 12.95 | 0.01 | 0.02 |
| 710.00 | -20.37 | 33.293 | 10.77 | 12.92 | 0.01 | 0.02 |
| 711.00 | -20.36 | 33.433 | 10.92 | 13.07 | 0.01 | 0.02 |

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

| LTE Band 7 Radiated Power EIRP for BW 5MHz / QPSK | | | | |
|---|---|---|---|---|
| Horizontal Polarization | | | | |
| Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (W) |
| 2502.5 | -20.89 | 40.98 | 20.09 | 0.10 |
| 2535.0 | -21.17 | 41.05 | 19.88 | 0.10 |
| 2567.5 | -22.83 | 41.01 | 18.18 | 0.07 |
| Vertical Polarization | | | | |
| Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (W) |
| 2502.5 | -26.73 | 42.48 | 15.75 | 0.04 |
| 2535.0 | -26.88 | 42.76 | 15.88 | 0.04 |
| 2567.5 | -28.64 | 42.33 | 13.69 | 0.02 |

| LTE Band 7 Radiated Power EIRP for BW 5MHz / 16QAM | | | | |
|---|---|---|---|---|
| Horizontal Polarization | | | | |
| Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (W) |
| 2502.5 | -21.32 | 40.98 | 19.66 | 0.09 |
| 2535.0 | -22.04 | 41.05 | 19.01 | 0.08 |
| 2567.5 | -23.21 | 41.01 | 17.80 | 0.06 |
| Vertical Polarization | | | | |
| Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (W) |
| 2502.5 | -27.33 | 42.48 | 15.15 | 0.03 |
| 2535.0 | -27.70 | 42.76 | 15.06 | 0.03 |
| 2567.5 | -29.11 | 42.33 | 13.22 | 0.02 |

| LTE Band 7 Radiated Power EIRP for BW 20MHz / QPSK | | | | |
|---|---|---|---|---|
| Horizontal Polarization | | | | |
| Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (W) |
| 2510.0 | -20.89 | 40.47 | 19.58 | 0.09 |
| 2535.0 | -21.61 | 41.05 | 19.44 | 0.09 |
| 2560.0 | -21.78 | 41.19 | 19.41 | 0.09 |
| Vertical Polarization | | | | |
| Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (W) |
| 2510.0 | -27.27 | 42.05 | 14.78 | 0.03 |
| 2535.0 | -27.19 | 42.76 | 15.57 | 0.04 |
| 2560.0 | -27.75 | 42.10 | 14.35 | 0.03 |

| LTE Band 7 Radiated Power EIRP for BW 20MHz / 16QAM | | | | |
|---|---|---|---|---|
| Horizontal Polarization | | | | |
| Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (W) |
| 2510.0 | -21.95 | 40.47 | 18.52 | 0.07 |
| 2535.0 | -21.96 | 41.05 | 19.09 | 0.08 |
| 2560.0 | -23.11 | 41.19 | 18.08 | 0.06 |
| Vertical Polarization | | | | |
| Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (W) |
| 2510.0 | -28.28 | 42.05 | 13.77 | 0.02 |
| 2535.0 | -27.36 | 42.76 | 15.40 | 0.03 |
| 2560.0 | -28.92 | 42.10 | 13.18 | 0.02 |

## 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 26dB 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 26 dB.
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.

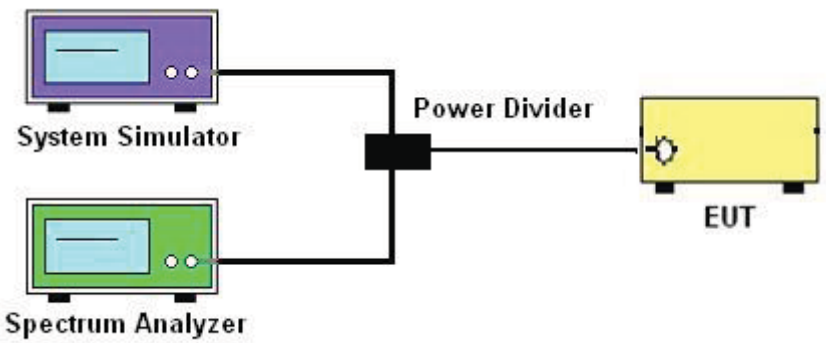
### 3.4.2 Measuring Instruments

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 powers with full RB sizes were measured.

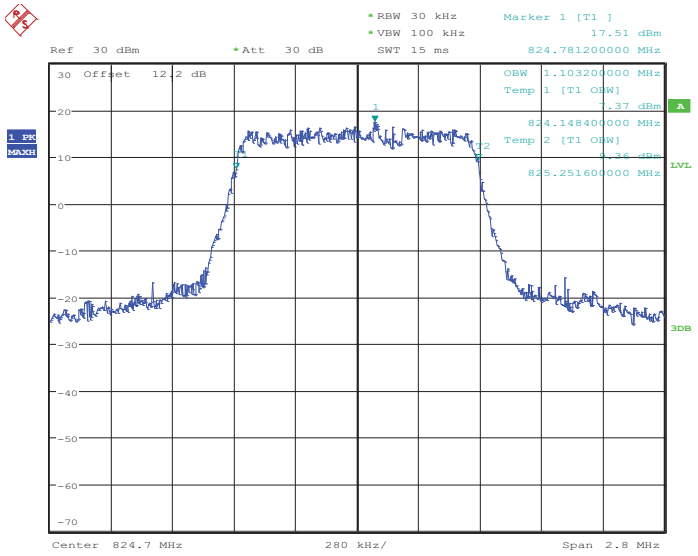
### 3.4.4 Test Setup



## 3.4.5 Test Result (Plots) of Occupied Bandwidth

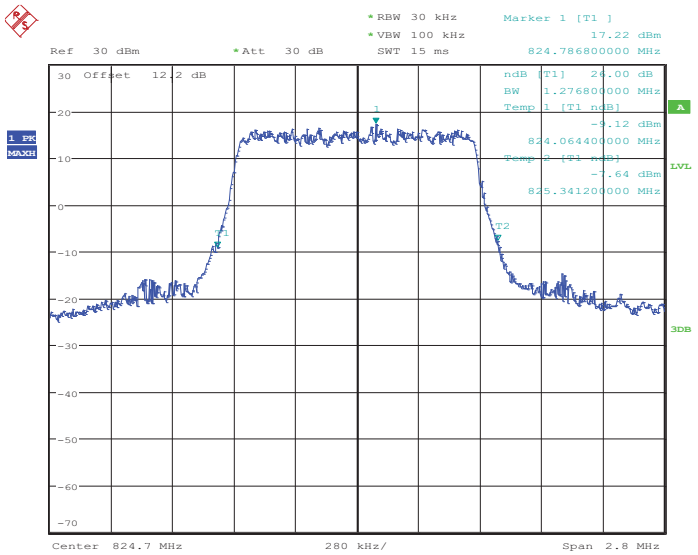
| Band : | LTE Band 5 | BW / Mod. : | 1.4MHz / QPSK |
|---|---|---|---|

**99% Occupied Bandwidth Plot on Channel 20407**



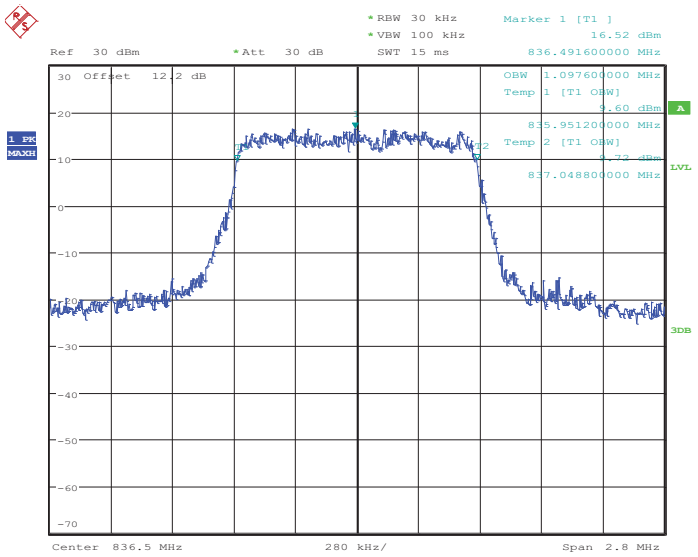

Date: 21.MAR.2014 11:08:16

**26dB Bandwidth Plot on Channel 20407**



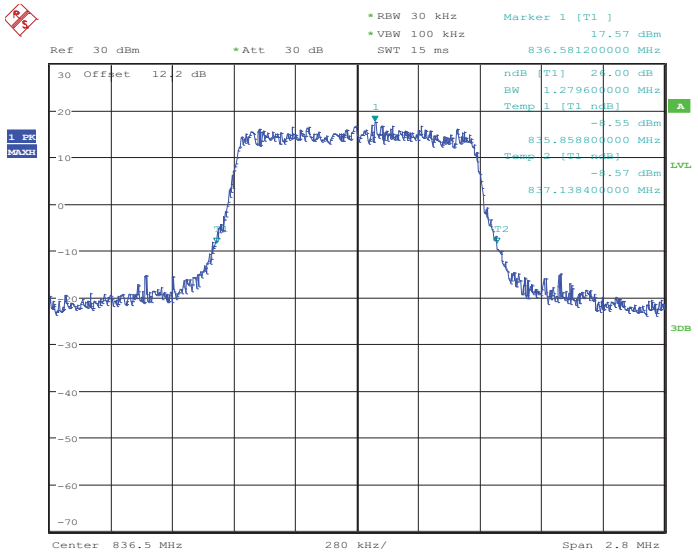

Date: 21.MAR.2014 11:09:09

### 99% Occupied Bandwidth Plot on Channel 20525



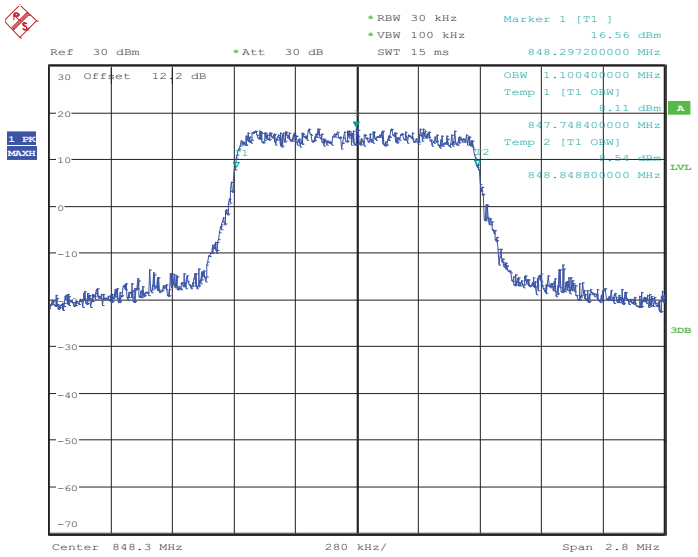

Date: 21.MAR.2014 11:14:31

### 26dB Bandwidth Plot on Channel 20525



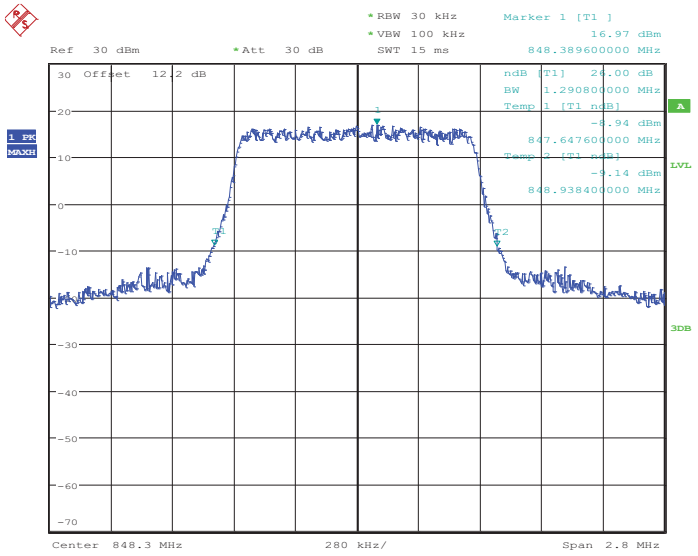

Date: 21.MAR.2014 11:15:04

### 99% Occupied Bandwidth Plot on Channel 20643




Date: 21.MAR.2014 11:17:38

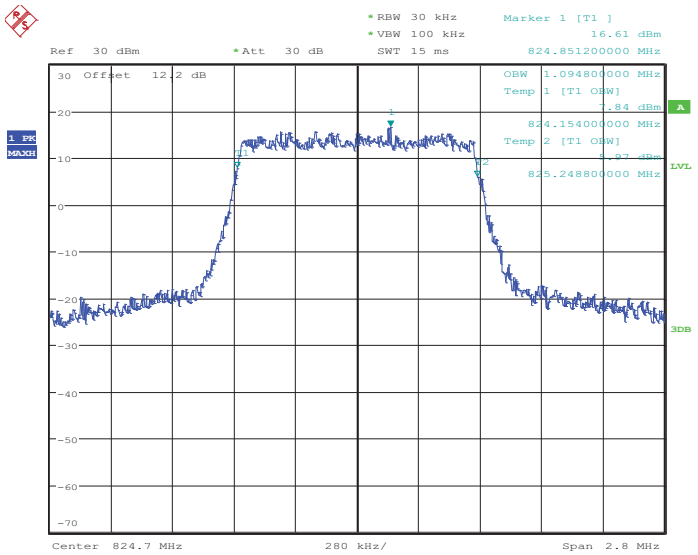
### 26dB Bandwidth Plot on Channel 20643




Date: 21.MAR.2014 11:18:12

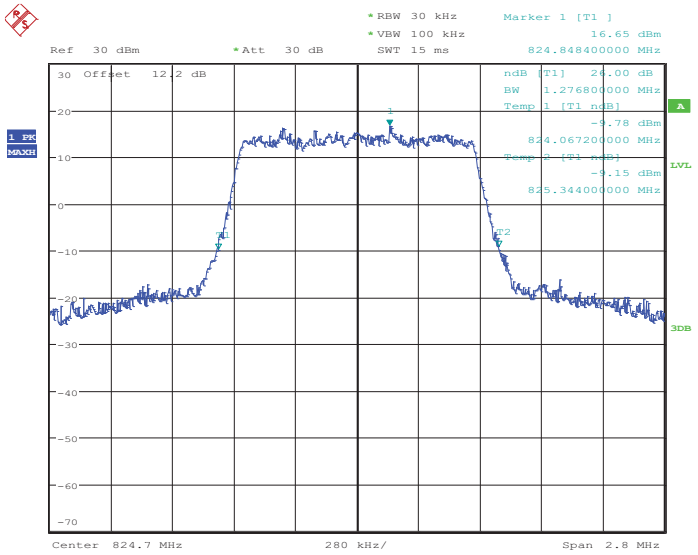
| Band : | LTE Band 5 | BW / Mod. : | 1.4MHz / 16QAM |
|---|---|---|---|

### 99% Occupied Bandwidth Plot on Channel 20407



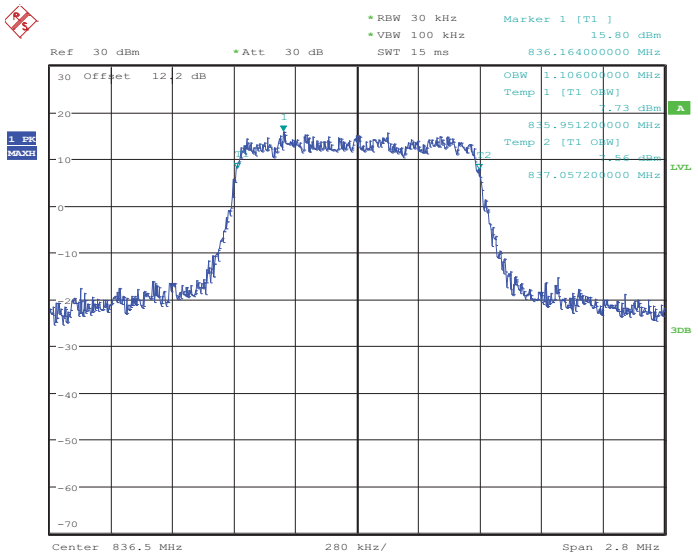

Date: 21.MAR.2014 11:08:33

### 26dB Bandwidth Plot on Channel 20407



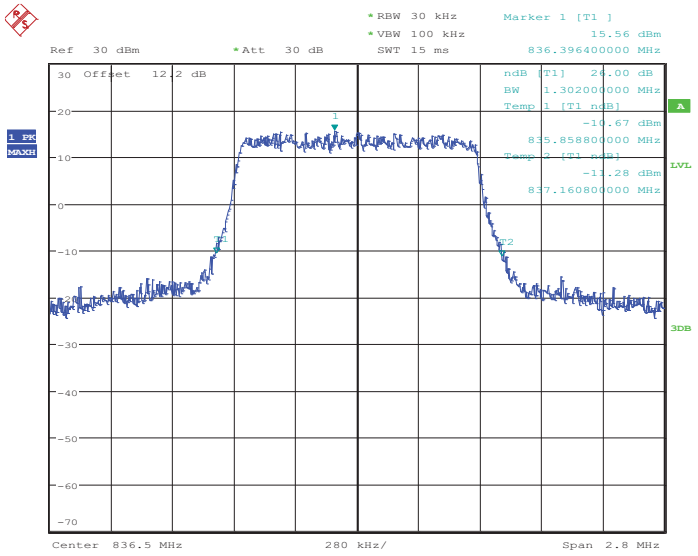

Date: 21.MAR.2014 11:08:51

### 99% Occupied Bandwidth Plot on Channel 20525



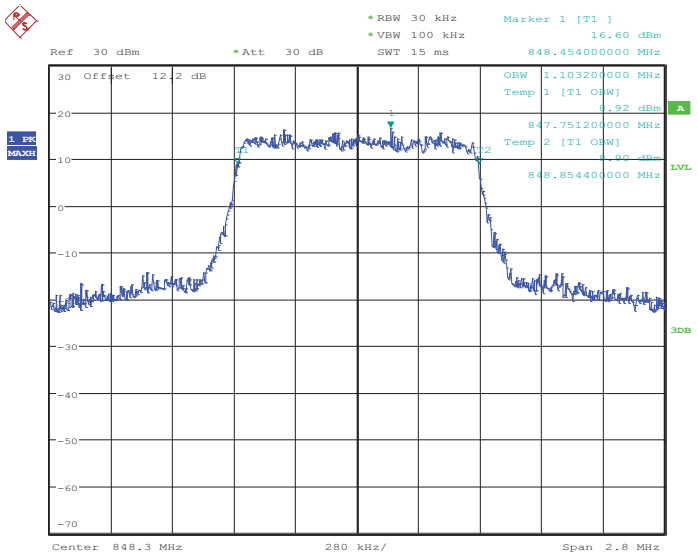

Date: 21.MAR.2014 11:14:47

### 26dB Bandwidth Plot on Channel 20525



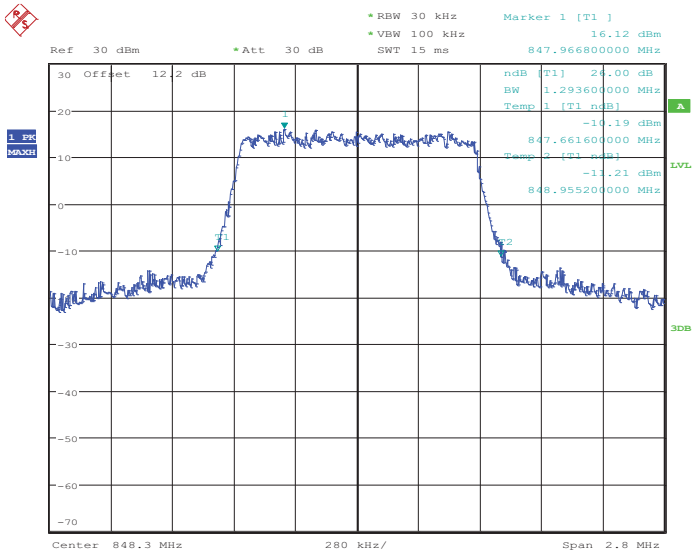

Date: 21.MAR.2014 11:15:22

### 99% Occupied Bandwidth Plot on Channel 20643




Date: 21.MAR.2014 11:17:54

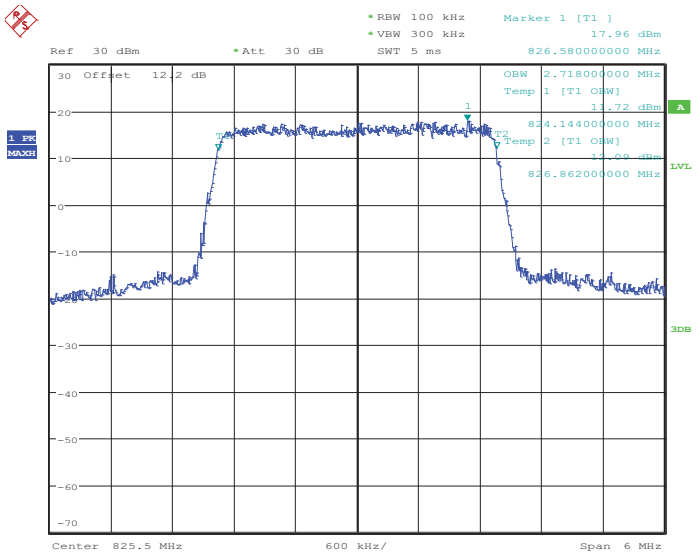
### 26dB Bandwidth Plot on Channel 20643




Date: 21.MAR.2014 11:18:29

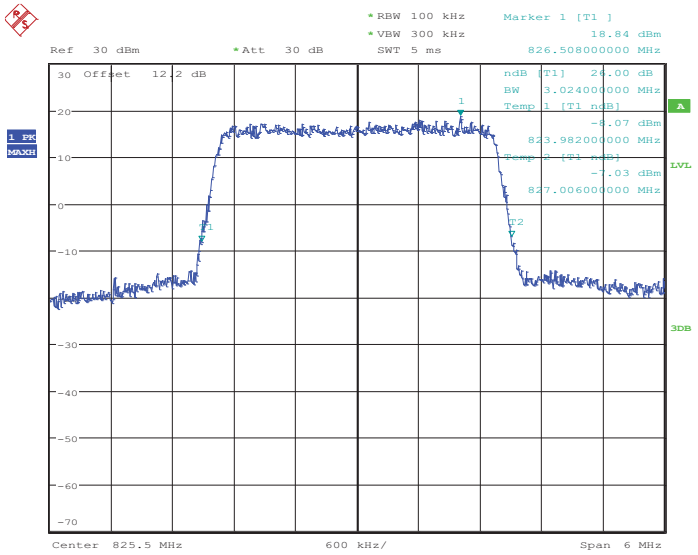
| Band : | LTE Band 5 | BW / Mod. : | 3MHz / QPSK |
|---|---|---|---|

### 99% Occupied Bandwidth Plot on Channel 20415



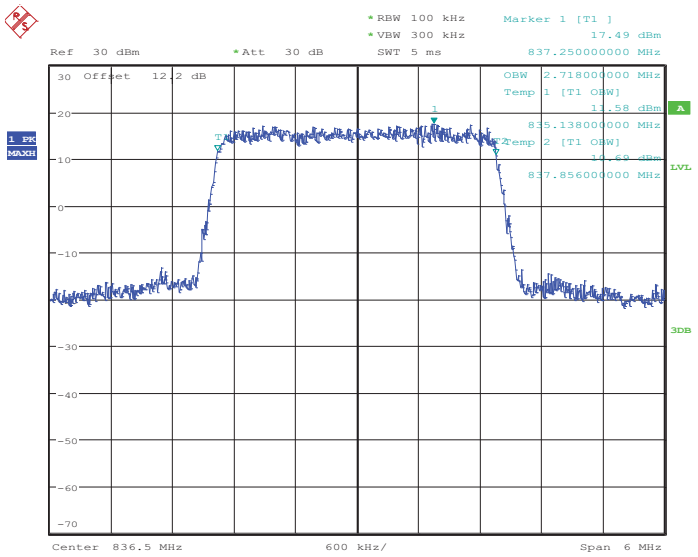

Date: 21.MAR.2014 17:55:42

### 26dB Bandwidth Plot on Channel 20415



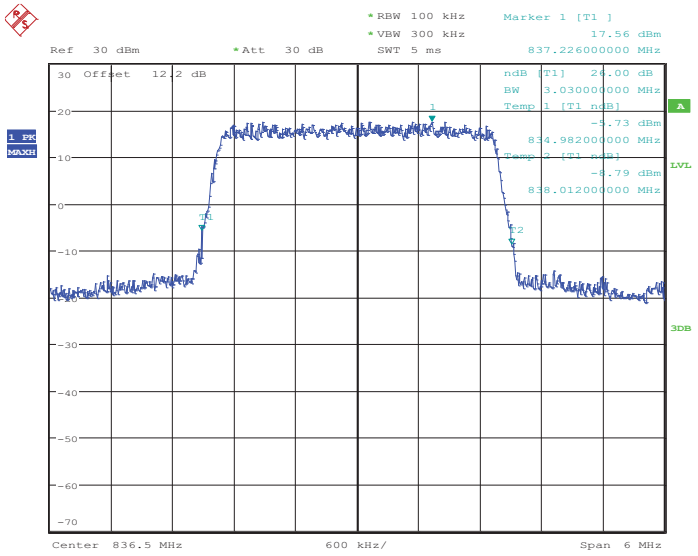

Date: 21.MAR.2014 12:46:38

### 99% Occupied Bandwidth Plot on Channel 20525



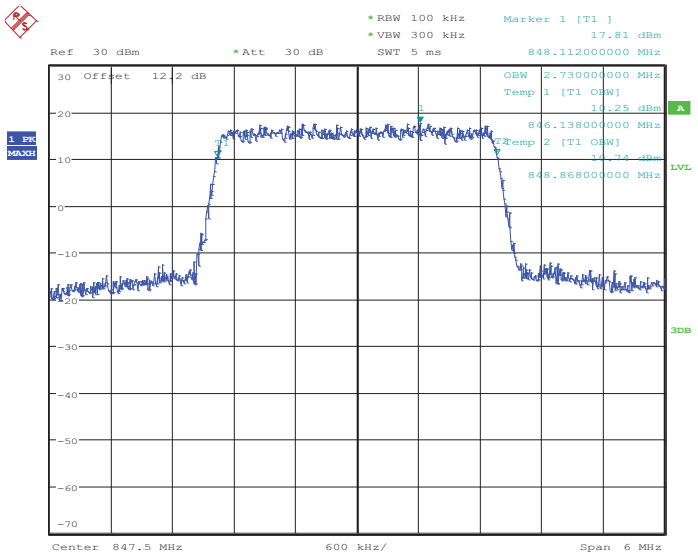

Date: 21.MAR.2014 12:52:20

### 26dB Bandwidth Plot on Channel 20525



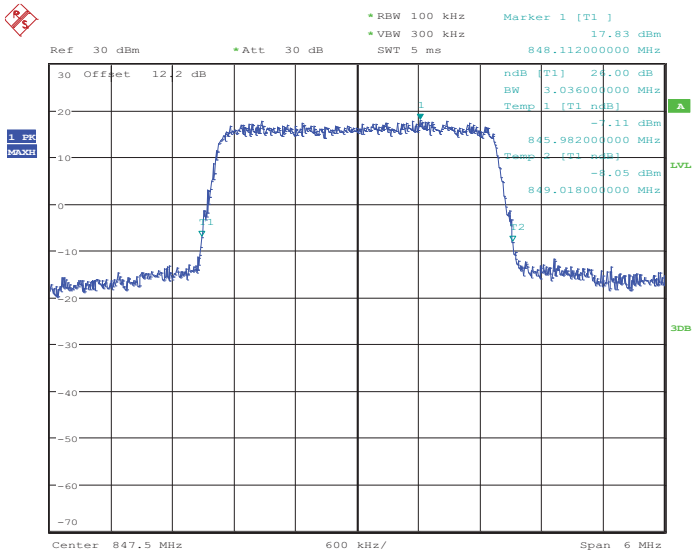

Date: 21.MAR.2014 12:52:54

### 99% Occupied Bandwidth Plot on Channel 20635




Date: 21.MAR.2014 12:55:27

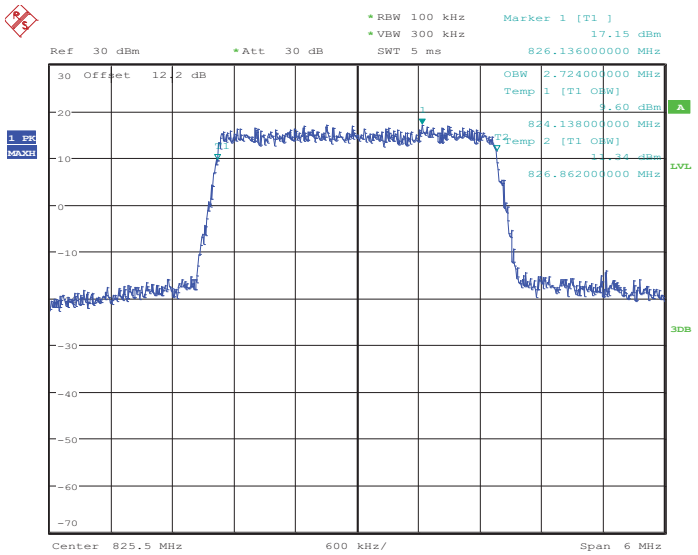
### 26dB Bandwidth Plot on Channel 20635




Date: 21.MAR.2014 12:56:01

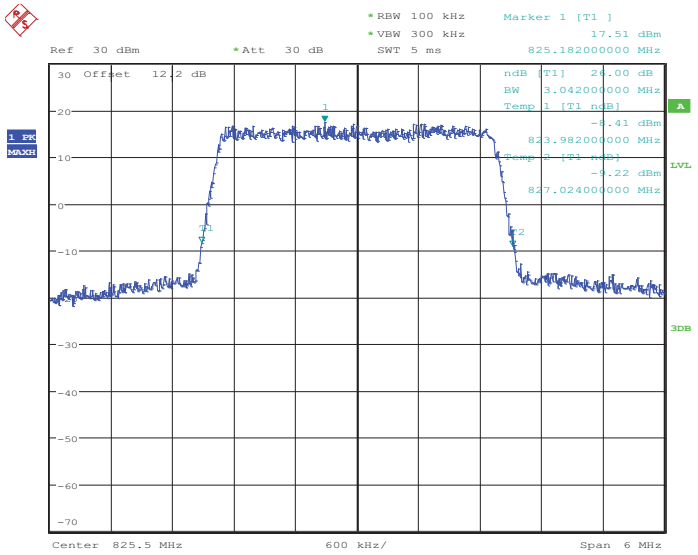
| Band : | LTE Band 5 | BW / Mod. : | 3MHz / 16QAM |
|---|---|---|---|

### 99% Occupied Bandwidth Plot on Channel 20415



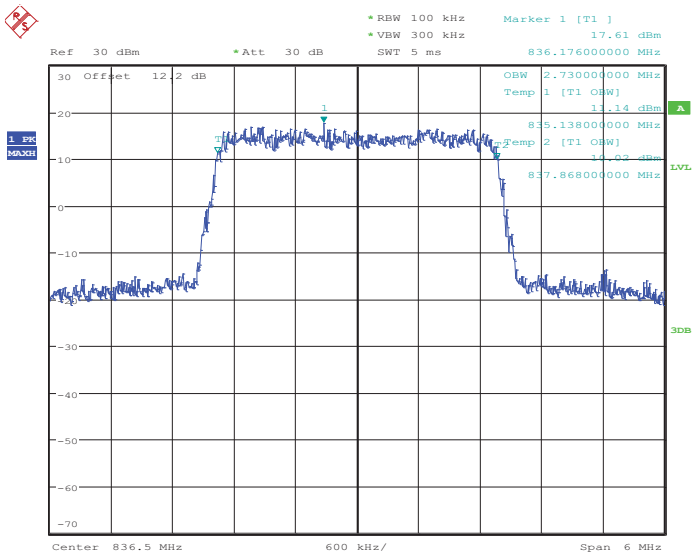

Date: 21.MAR.2014 12:46:18

### 26dB Bandwidth Plot on Channel 20415



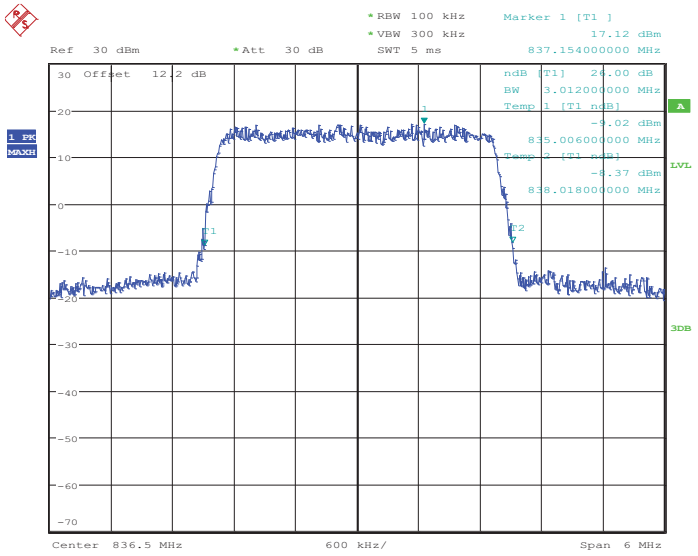

Date: 21.MAR.2014 12:46:57

### 99% Occupied Bandwidth Plot on Channel 20525



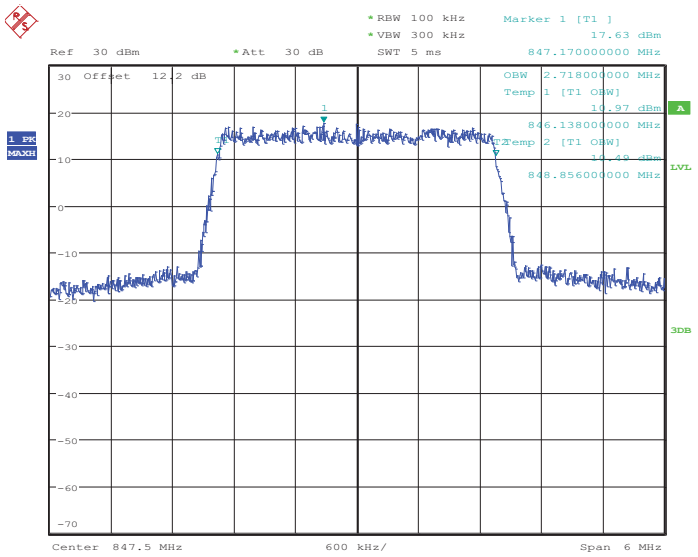

Date: 21.MAR.2014 12:52:36

### 26dB Bandwidth Plot on Channel 20525



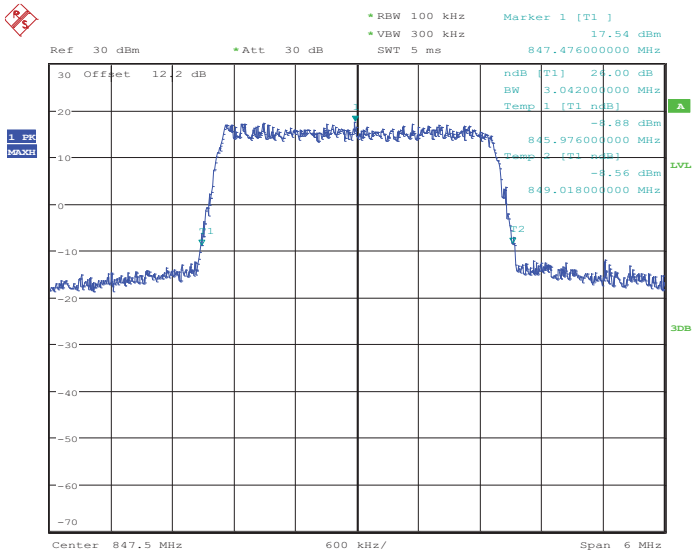

Date: 21.MAR.2014 12:53:12

### 99% Occupied Bandwidth Plot on Channel 20635




Date: 21.MAR.2014 12:55:43

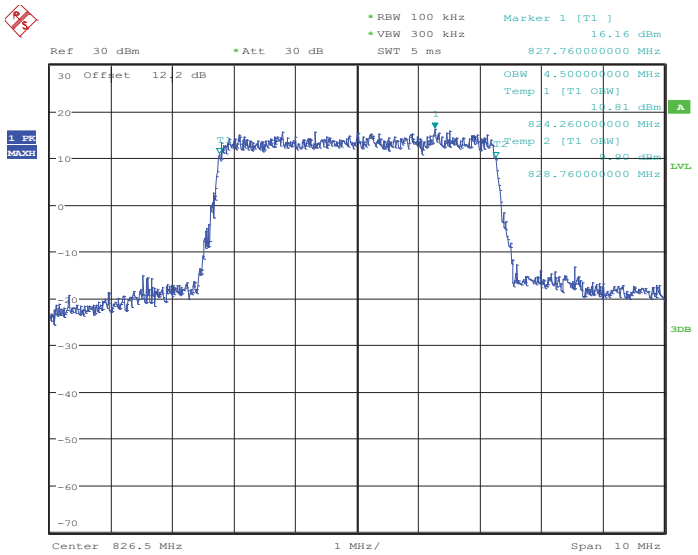
### 26dB Bandwidth Plot on Channel 20635




Date: 21.MAR.2014 12:56:19

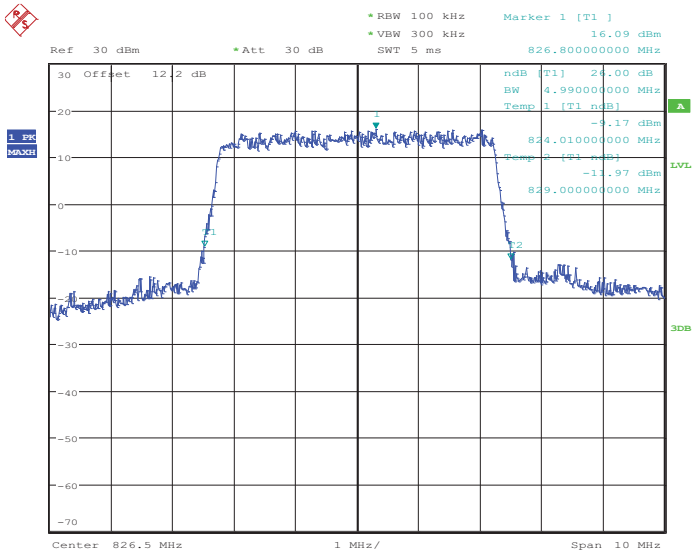
| Band : | LTE Band 5 | BW / Mod. : | 5MHz / QPSK |
|---|---|---|---|

### 99% Occupied Bandwidth Plot on Channel 20425



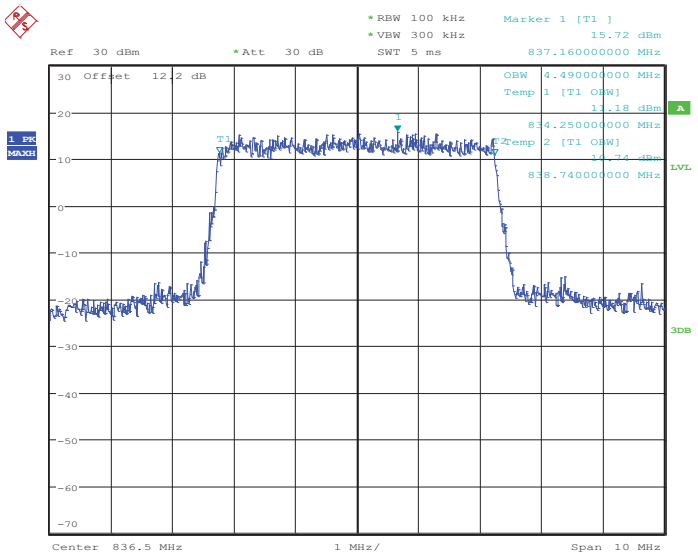

Date: 21.MAR.2014 13:01:46

### 26dB Bandwidth Plot on Channel 20425



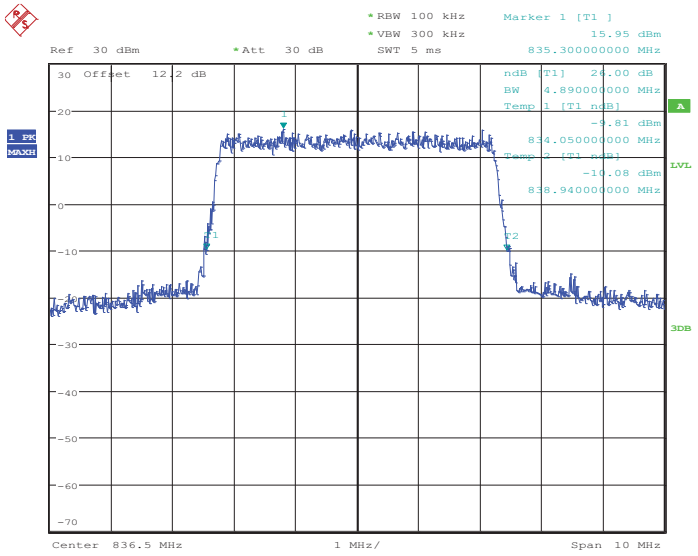

Date: 21.MAR.2014 13:02:20

### 99% Occupied Bandwidth Plot on Channel 20525



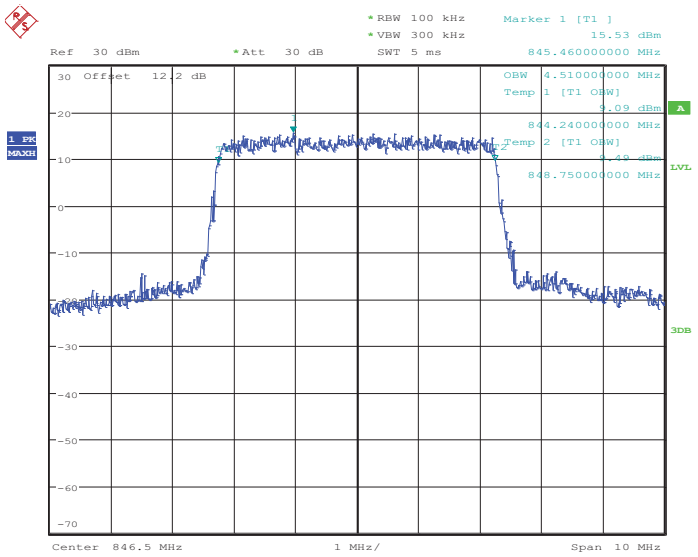

Date: 21.MAR.2014 13:08:00

### 26dB Bandwidth Plot on Channel 20525



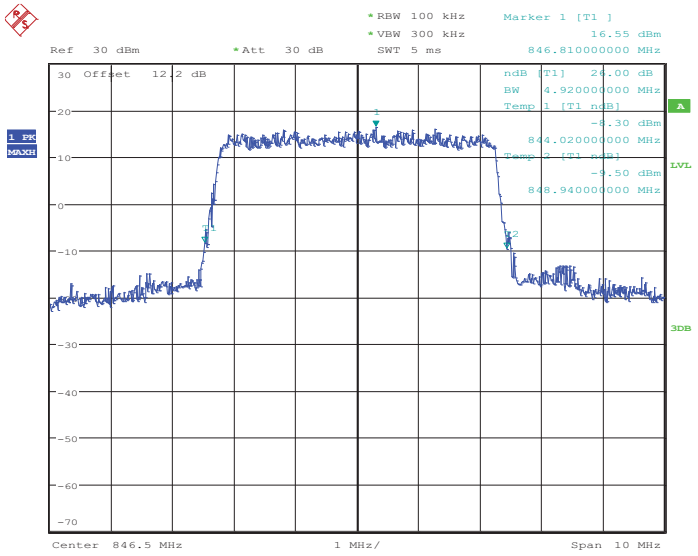

Date: 21.MAR.2014 13:08:36

### 99% Occupied Bandwidth Plot on Channel 20625




Date: 21.MAR.2014 13:11:10

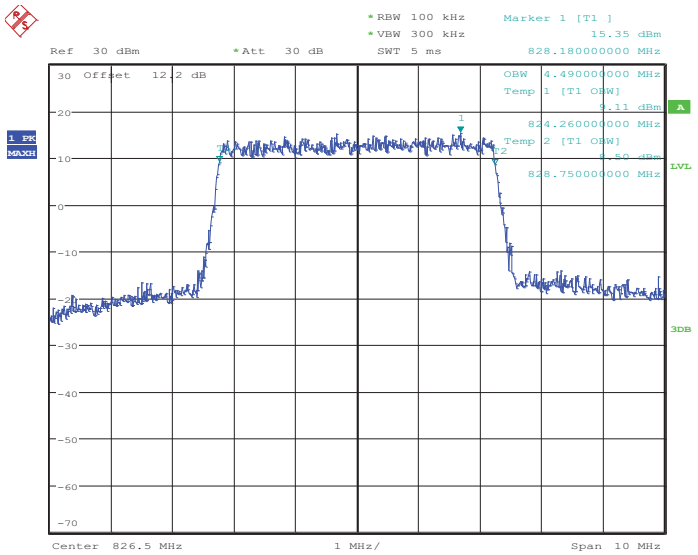
### 26dB Bandwidth Plot on Channel 20625




Date: 21.MAR.2014 13:11:44

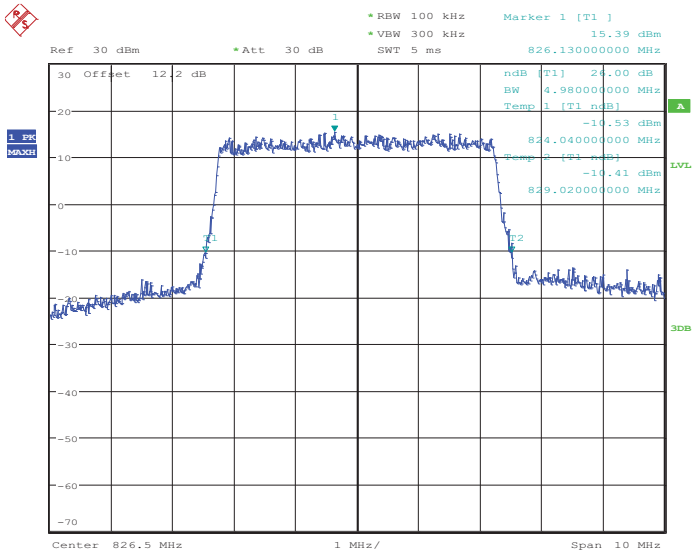
| Band : | LTE Band 5 | BW / Mod. : | 5MHz / 16QAM |
|---|---|---|---|

### 99% Occupied Bandwidth Plot on Channel 20425



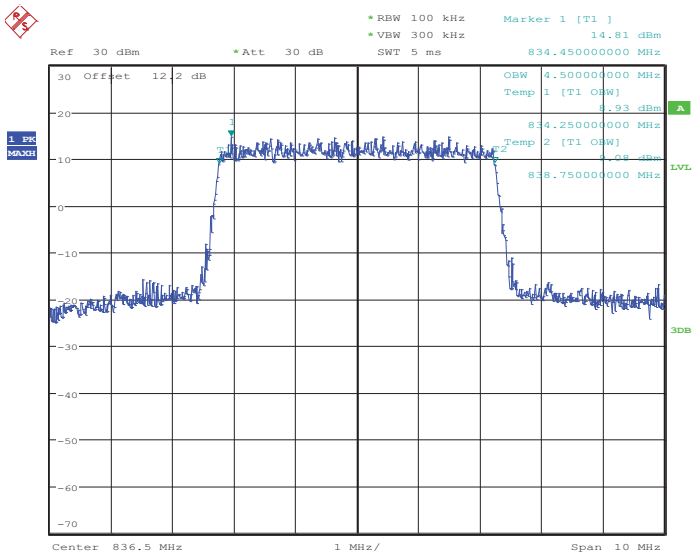

Date: 21.MAR.2014 13:02:02

### 26dB Bandwidth Plot on Channel 20425



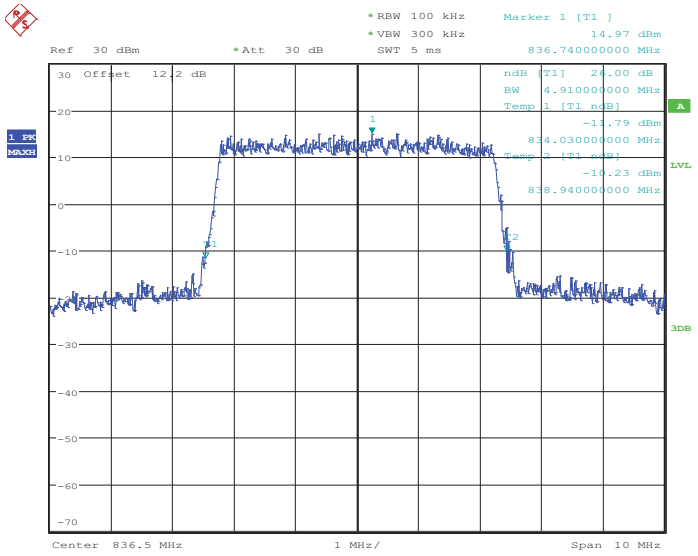

Date: 21.MAR.2014 13:02:38

### 99% Occupied Bandwidth Plot on Channel 20525



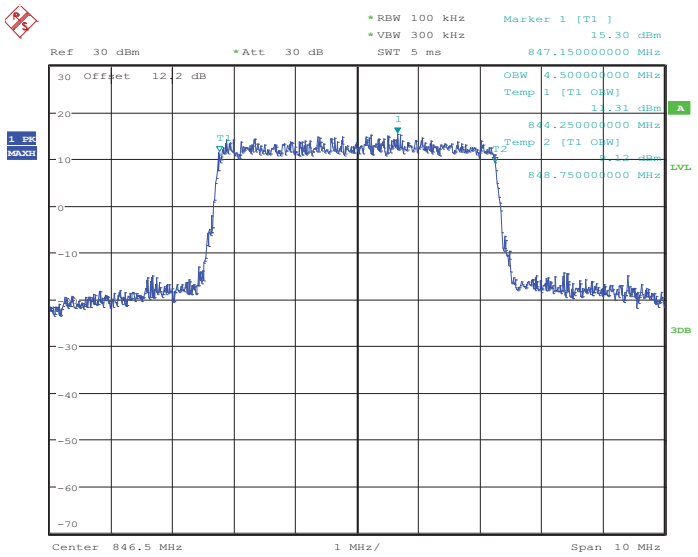

Date: 21.MAR.2014 13:08:18

### 26dB Bandwidth Plot on Channel 20525



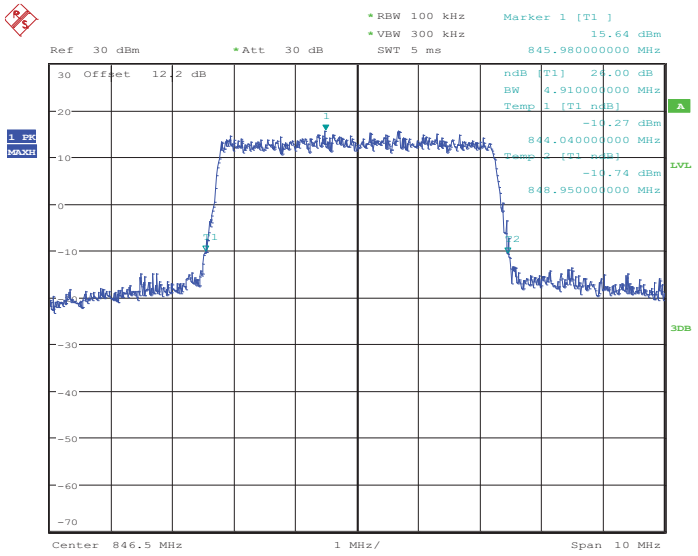

Date: 21.MAR.2014 13:08:54

### 99% Occupied Bandwidth Plot on Channel 20625




Date: 21.MAR.2014 13:11:26

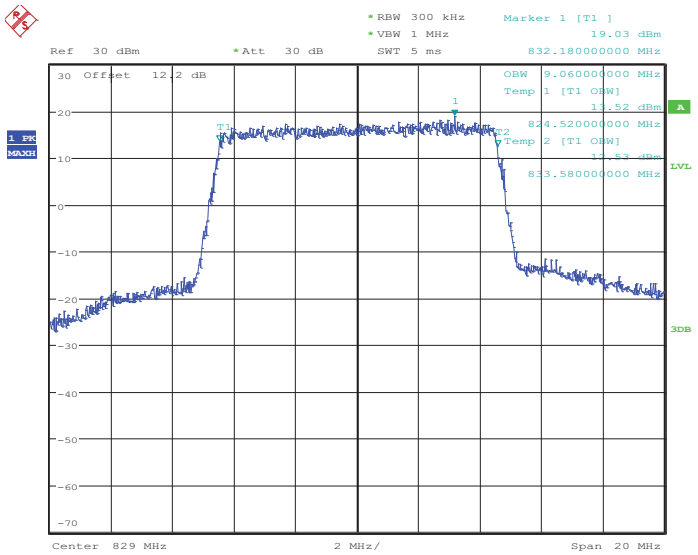
### 26dB Bandwidth Plot on Channel 20625




Date: 21.MAR.2014 13:12:01

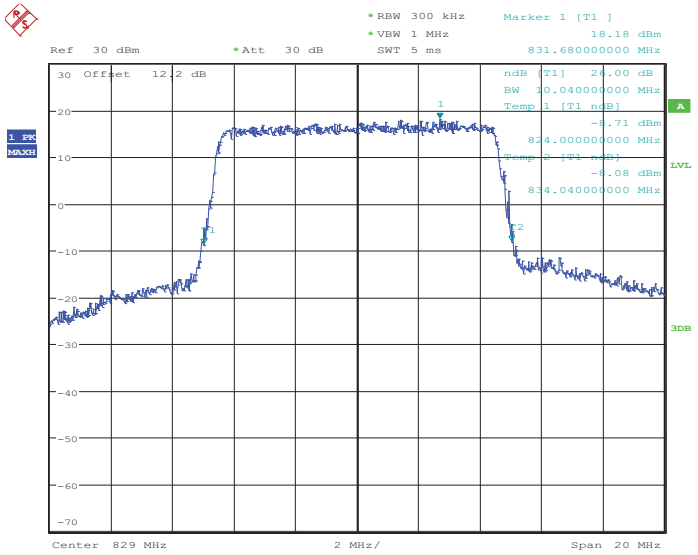
| Band : | LTE Band 5 | BW / Mod. : | 10MHz / QPSK |
|---|---|---|---|

### 99% Occupied Bandwidth Plot on Channel 20450



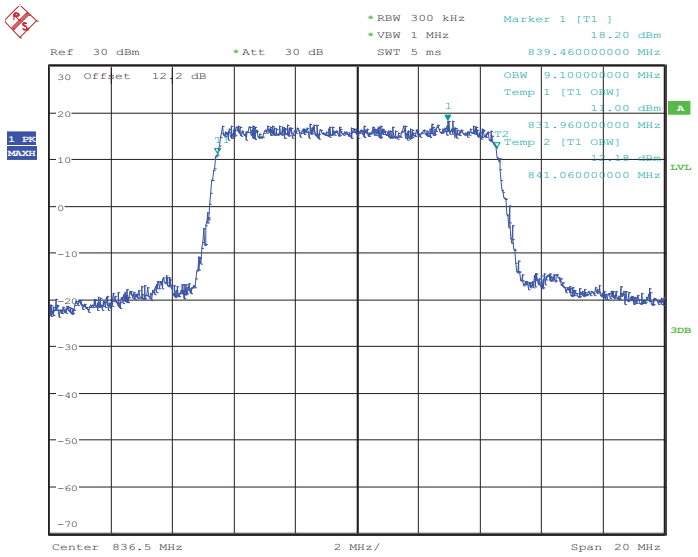

Date: 21.MAR.2014 14:07:03

### 26dB Bandwidth Plot on Channel 20450



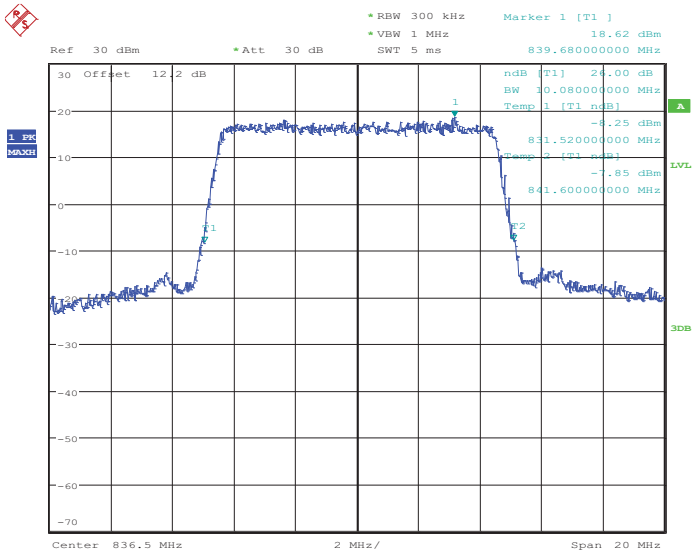

Date: 21.MAR.2014 14:07:37

### 99% Occupied Bandwidth Plot on Channel 20525



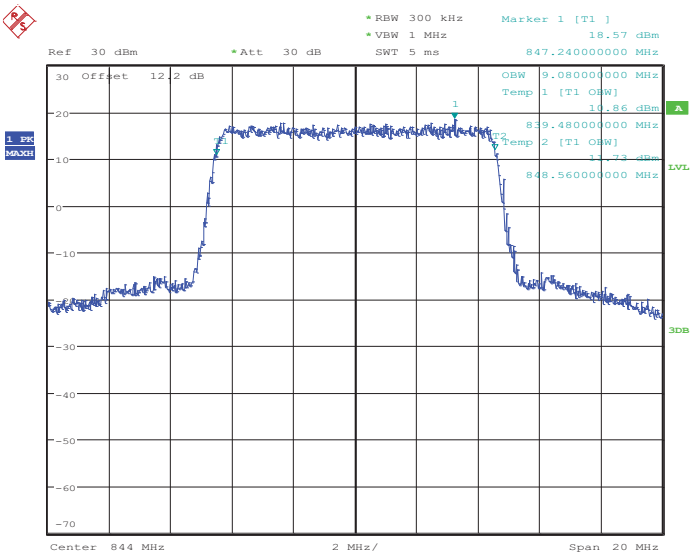

Date: 21.MAR.2014 14:13:18

### 26dB Bandwidth Plot on Channel 20525



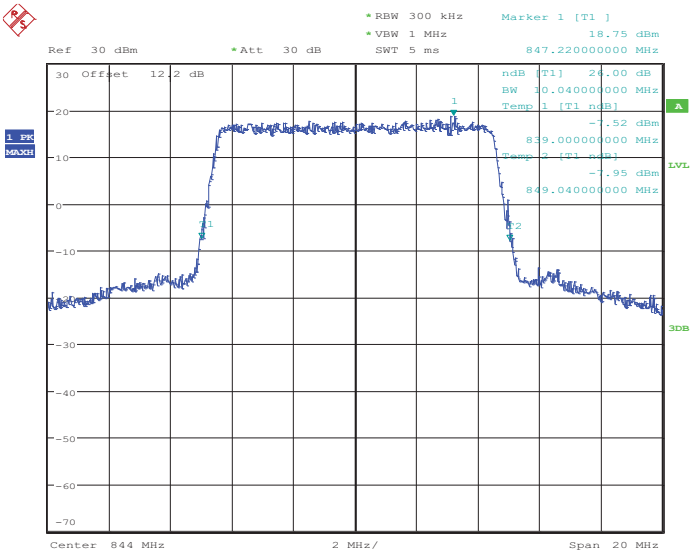

Date: 21.MAR.2014 14:13:52

### 99% Occupied Bandwidth Plot on Channel 20600




Date: 21.MAR.2014 14:16:25

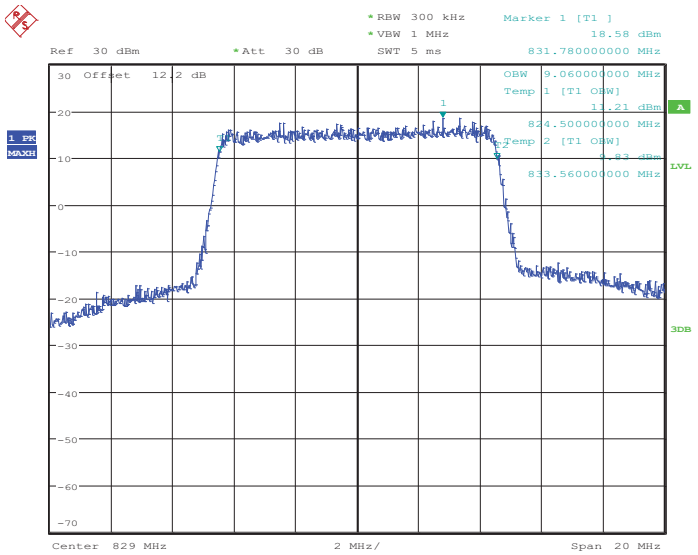
### 26dB Bandwidth Plot on Channel 20600




Date: 21.MAR.2014 14:16:59

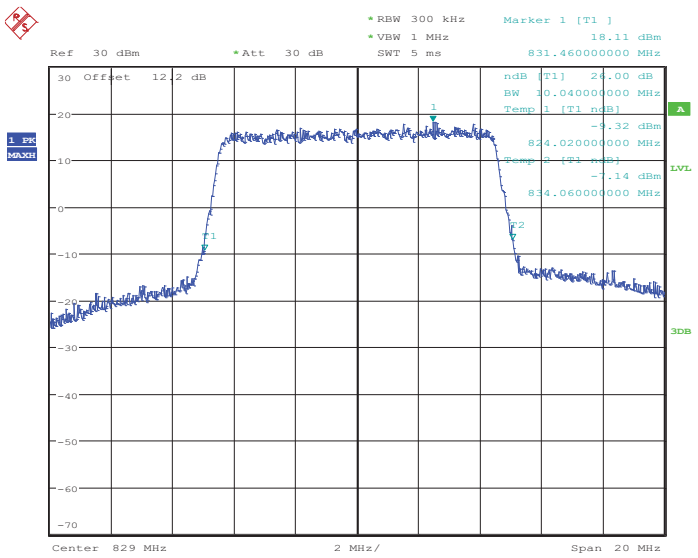
| Band : | LTE Band 5 | BW / Mod. : | 10MHz / 16QAM |
|---|---|---|---|

### 99% Occupied Bandwidth Plot on Channel 20450



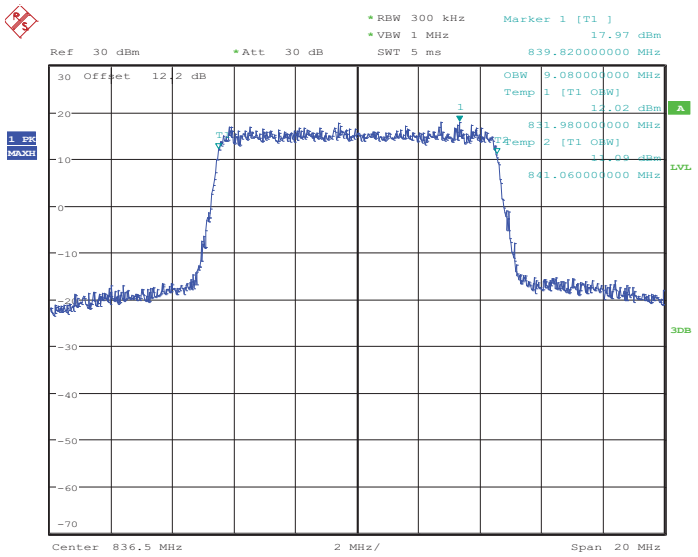

Date: 21.MAR.2014 14:07:19

### 26dB Bandwidth Plot on Channel 20450



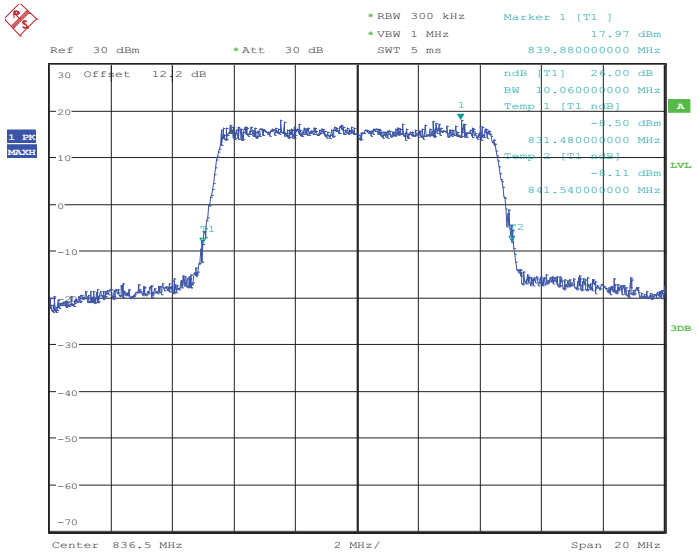

Date: 21.MAR.2014 14:07:55

### 99% Occupied Bandwidth Plot on Channel 20525



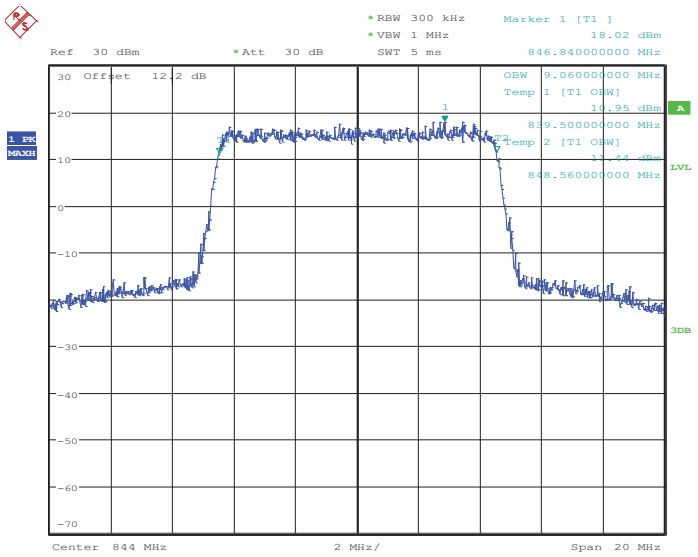

Date: 21.MAR.2014 14:13:34

### 26dB Bandwidth Plot on Channel 20525



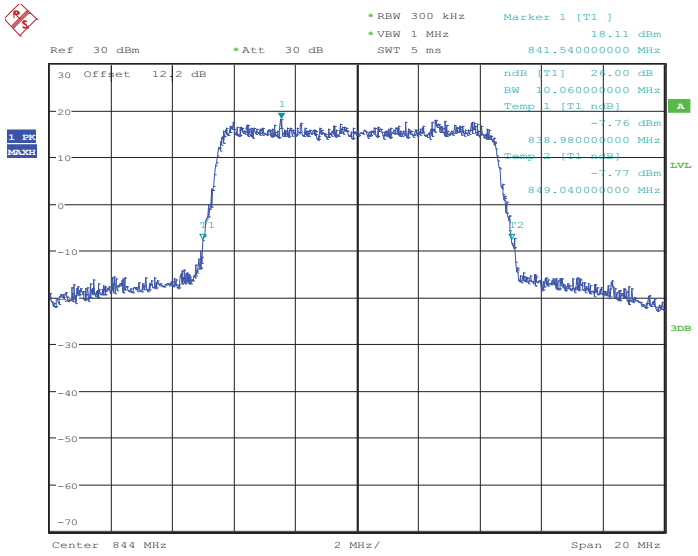

Date: 21.MAR.2014 14:14:09

### 99% Occupied Bandwidth Plot on Channel 20600




Date: 21.MAR.2014 14:16:41

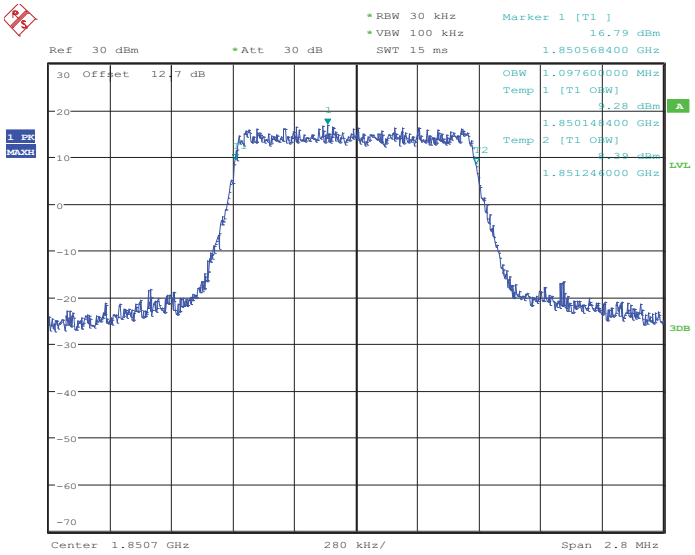
### 26dB Bandwidth Plot on Channel 20600




Date: 21.MAR.2014 14:17:17

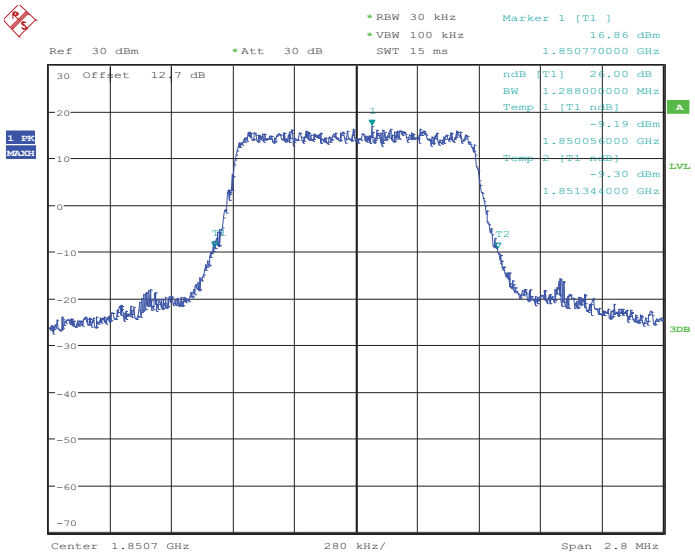
| Band : | LTE Band 2 / LTE Band 25<br>(Low Channel and Middle Channel) | BW / Mod. : | 1.4MHz / QPSK |
|---|---|---|---|

**99% Occupied Bandwidth Plot on Channel 18607 / Channel 26047**



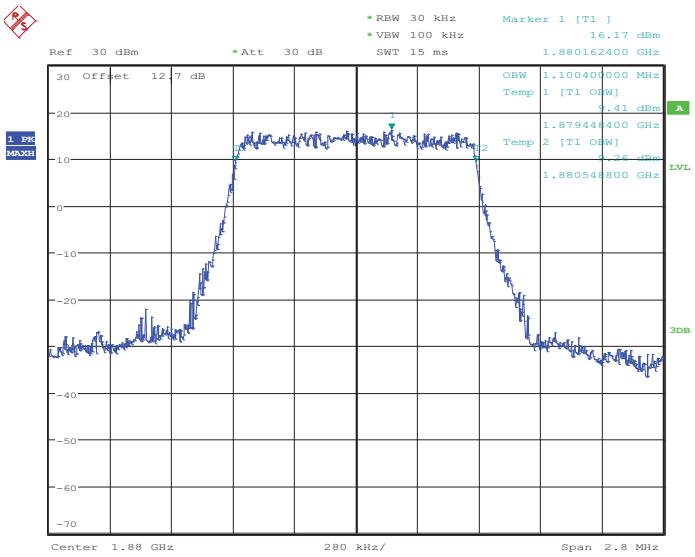

Date: 20.MAR.2014 10:04:55

**26dB Bandwidth Plot on Channel 18607 / Channel 26047**



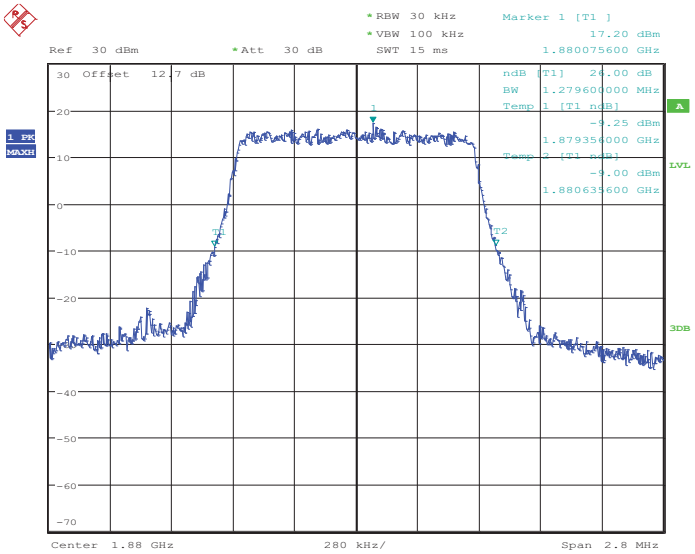

Date: 20.MAR.2014 10:05:29

### 99% Occupied Bandwidth Plot on Channel 18900 / Channel 26340




Date: 20.MAR.2014 10:11:01

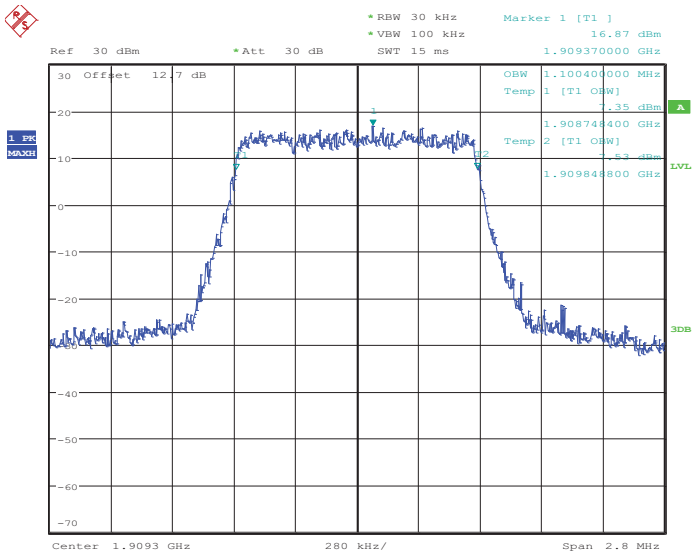
### 26dB Bandwidth Plot on Channel 18900 / Channel 26340




Date: 20.MAR.2014 10:11:34

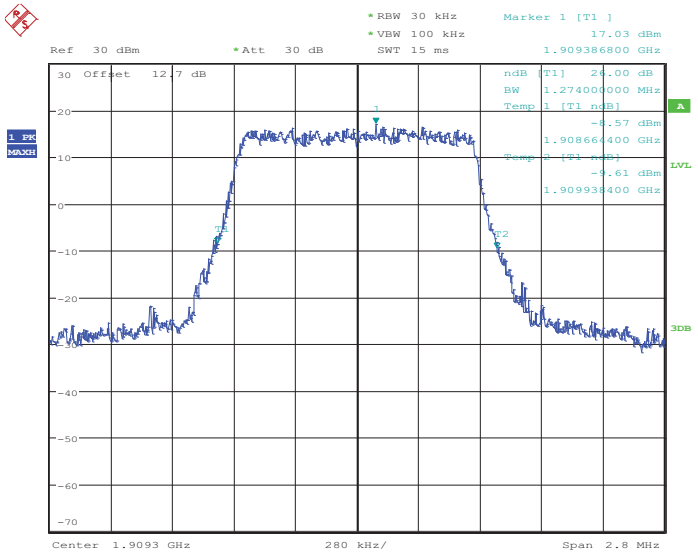
| Band : | LTE Band 2 (High Channel) | BW / Mod. : | 1.4MHz / QPSK |
|---|---|---|---|

### 99% Occupied Bandwidth Plot on Channel 19193




Date: 20.MAR.2014 10:14:05

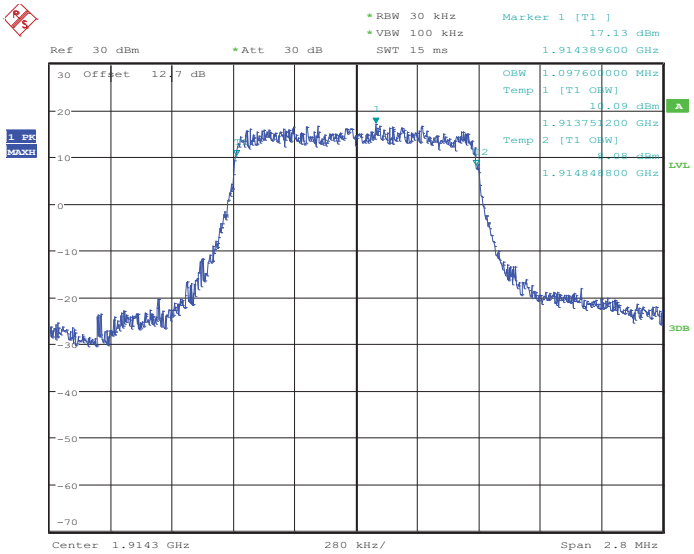
### 26dB Bandwidth Plot on Channel 19193




Date: 20.MAR.2014 10:14:38

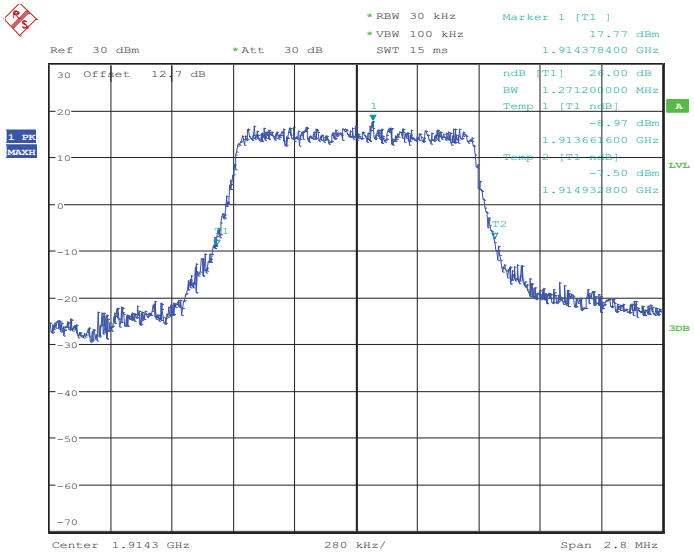
| Band : | LTE Band 25 (High Channel) | BW / Mod. : | 1.4MHz / QPSK |
|---|---|---|---|

**99% Occupied Bandwidth Plot on Channel 26683**




Date: 21.MAR.2014 16:11:03

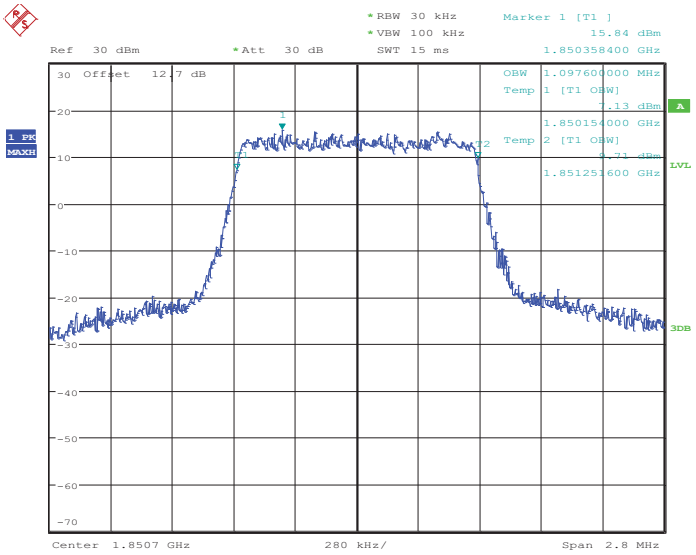
**26dB Bandwidth Plot on Channel 26683**




Date: 21.MAR.2014 16:11:37

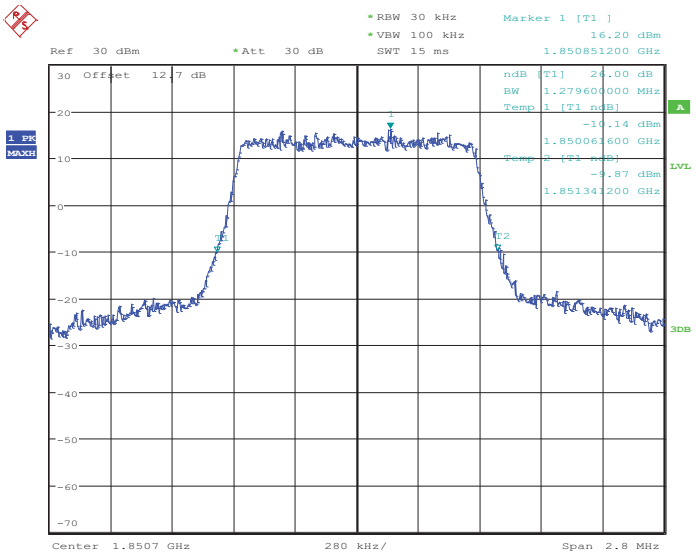
| Band : | LTE Band 2 / LTE Band 25<br>(Low Channel and Middle Channel) | BW / Mod. : | 1.4MHz / 16QAM |
|---|---|---|---|

**99% Occupied Bandwidth Plot on Channel 18607 / Channel 26047**



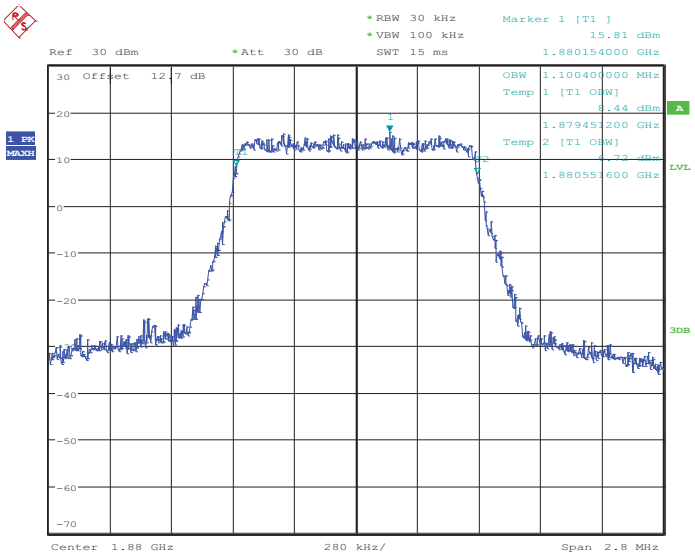

Date: 20.MAR.2014 10:05:11

**26dB Bandwidth Plot on Channel 18607 / Channel 26047**

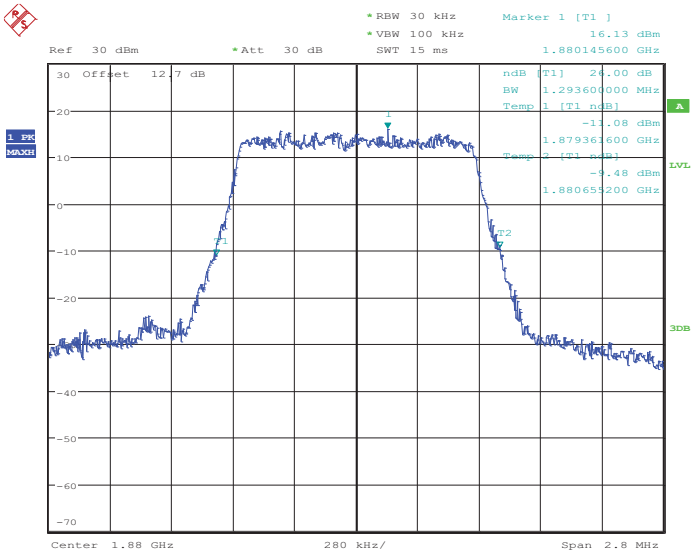



Date: 20.MAR.2014 10:05:46

### 99% Occupied Bandwidth Plot on Channel 18900 / Channel 26340

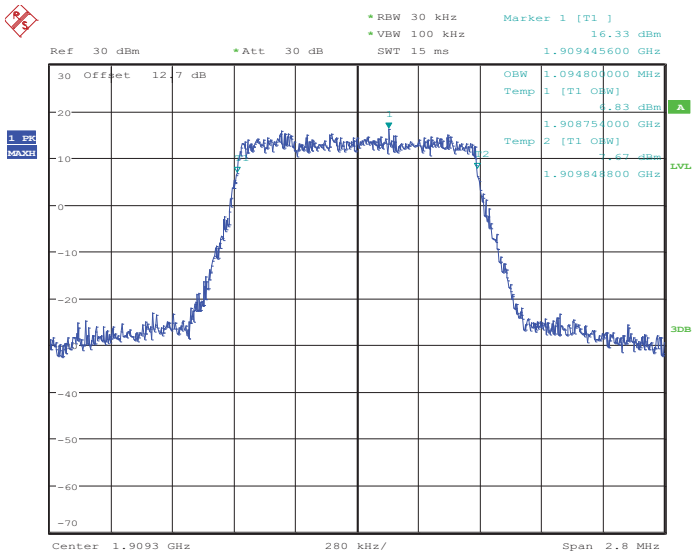



### 26dB Bandwidth Plot on Channel 18900 / Channel 26340



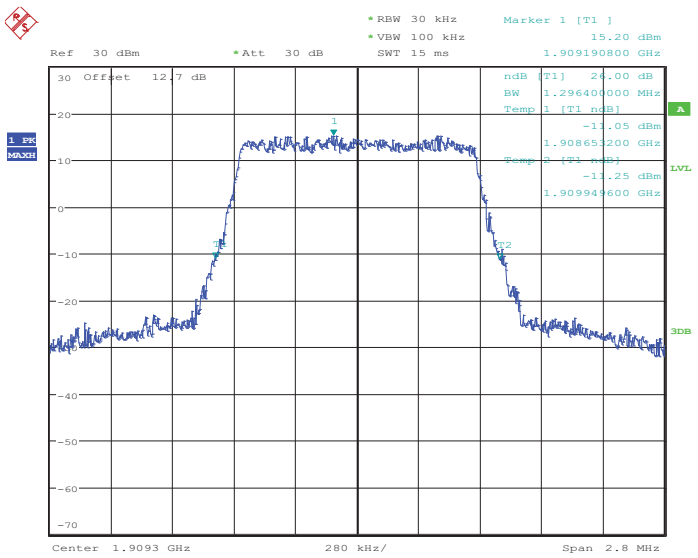
| Band : | LTE Band 2 (High Channel) | BW / Mod. : | 1.4MHz / 16QAM |
|---|---|---|---|

### 99% Occupied Bandwidth Plot on Channel 19193




Date: 20.MAR.2014 10:14:21

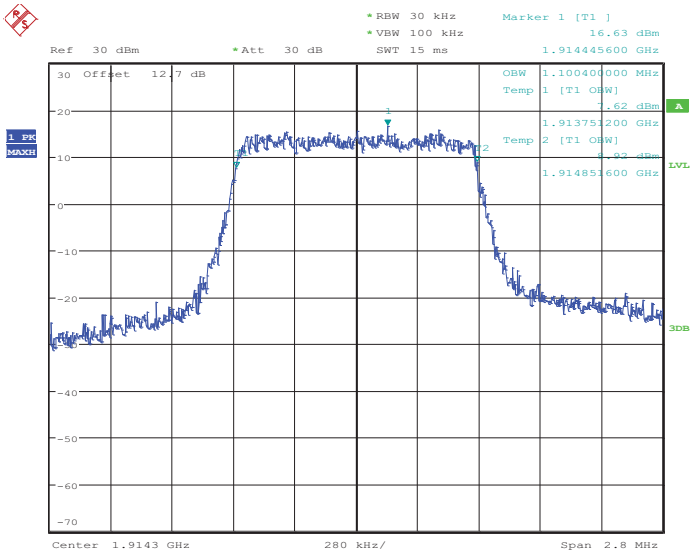
### 26dB Bandwidth Plot on Channel 19193




Date: 20.MAR.2014 10:14:56

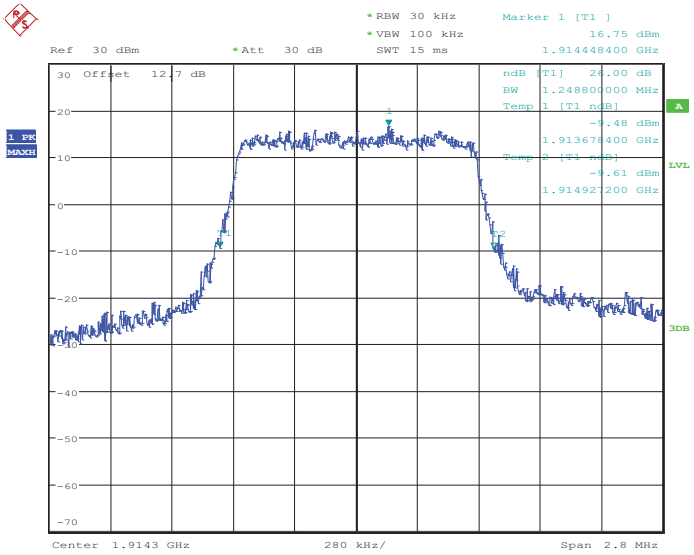
| Band : | LTE Band 25 (High Channel) | BW / Mod. : | 1.4MHz / 16QAM |
|---|---|---|---|

### 99% Occupied Bandwidth Plot on Channel 26683




Date: 21.MAR.2014 16:11:19

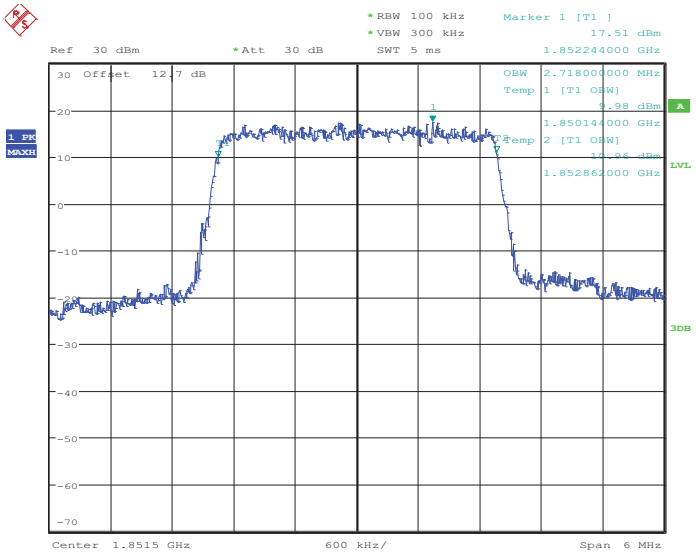
### 26dB Bandwidth Plot on Channel 26683




Date: 21.MAR.2014 16:11:55

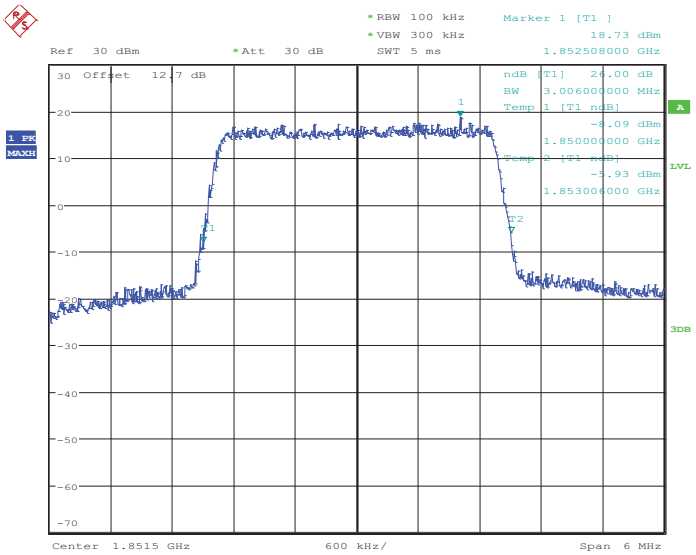
| Band : | LTE Band 2 / LTE Band 25<br>(Low Channel and Middle Channel) | BW / Mod. : | 3MHz / QPSK |
|---|---|---|---|

**99% Occupied Bandwidth Plot on Channel 18615 / Channel 26055**



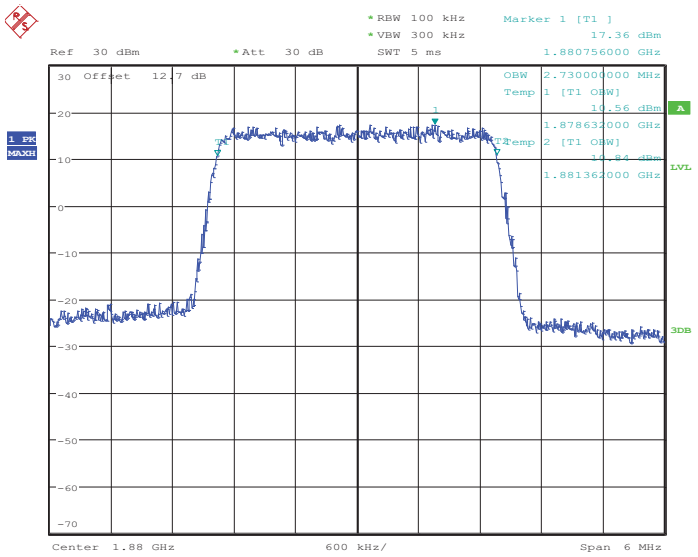

Date: 20.MAR.2014 14:37:00

**26dB Bandwidth Plot on Channel 18615 / Channel 26055**



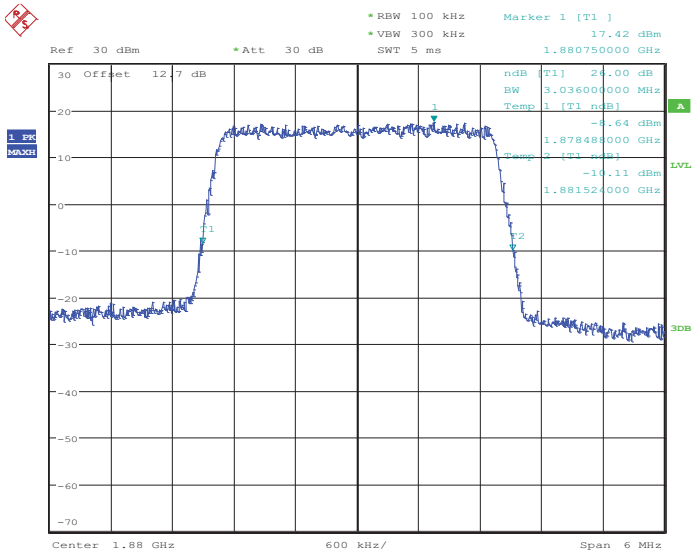

Date: 20.MAR.2014 14:37:17

### 99% Occupied Bandwidth Plot on Channel 18900 / Channel 26340




Date: 20.MAR.2014 14:18:50

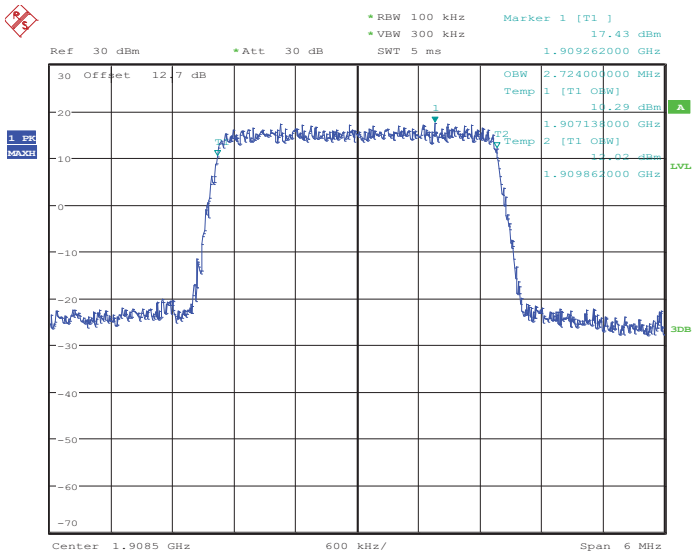
### 26dB Bandwidth Plot on Channel 18900 / Channel 26340




Date: 20.MAR.2014 14:19:23

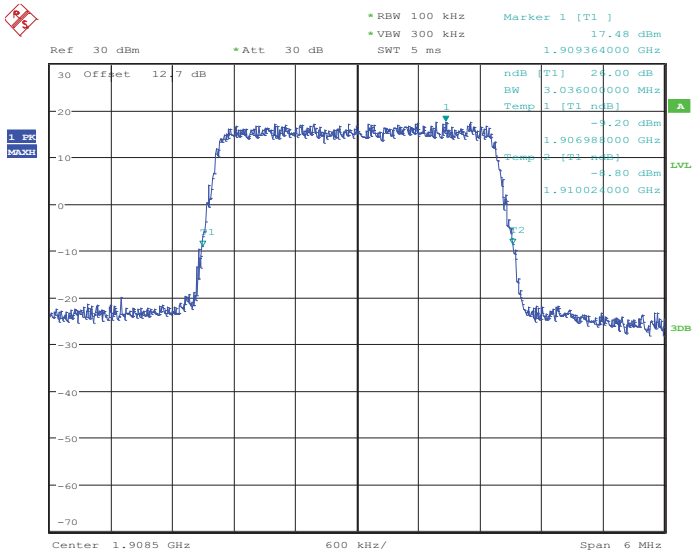
| Band : | LTE Band 2 (High Channel) | BW / Mod. : | 3MHz / QPSK |
|---|---|---|---|

### 99% Occupied Bandwidth Plot on Channel 19185




Date: 20.MAR.2014 14:21:53

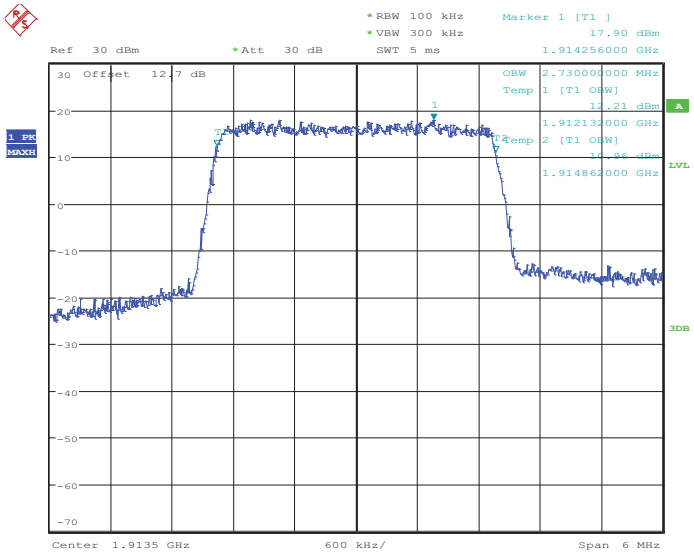
### 26dB Bandwidth Plot on Channel 19185




Date: 20.MAR.2014 14:22:26

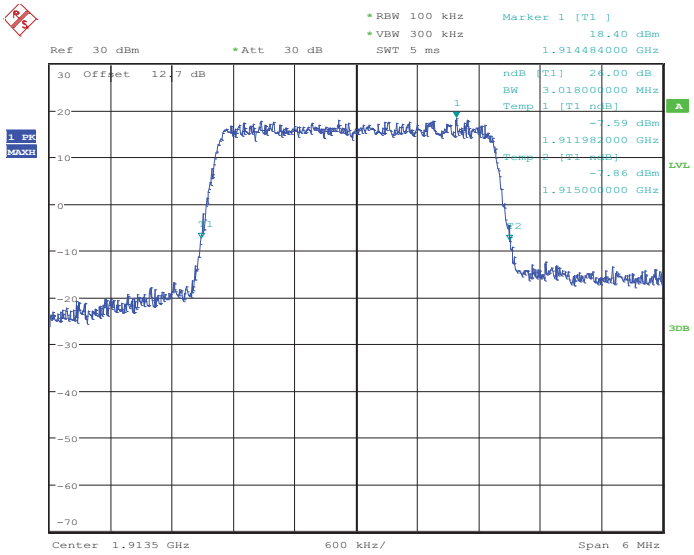
| Band : | LTE Band 25 (High Channel) | BW / Mod. : | 3MHz / QPSK |
|---|---|---|---|

### 99% Occupied Bandwidth Plot on Channel 26675




Date: 21.MAR.2014 16:53:36

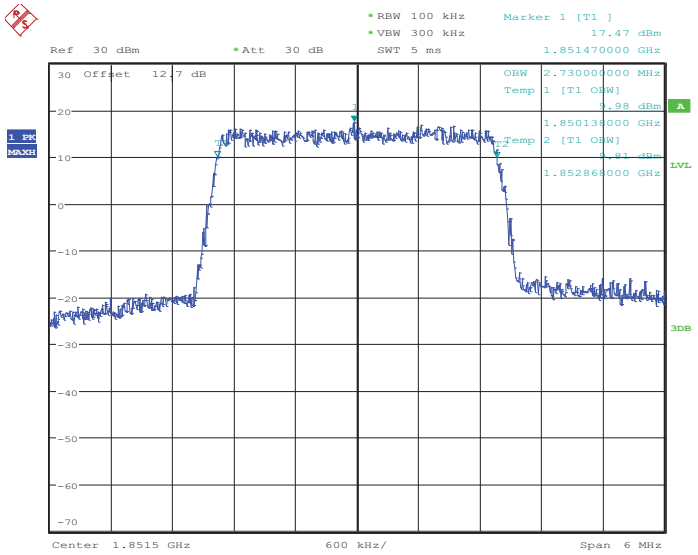
### 26dB Bandwidth Plot on Channel 26675



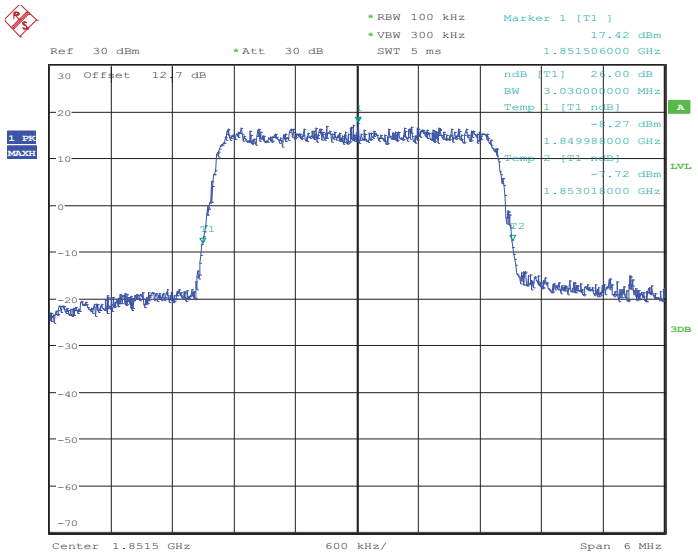

Date: 21.MAR.2014 16:16:58

| Band : | LTE Band 2 / LTE Band 25<br>(Low Channel and Middle Channel) | BW / Mod. : | 3MHz / 16QAM |
|---|---|---|---|

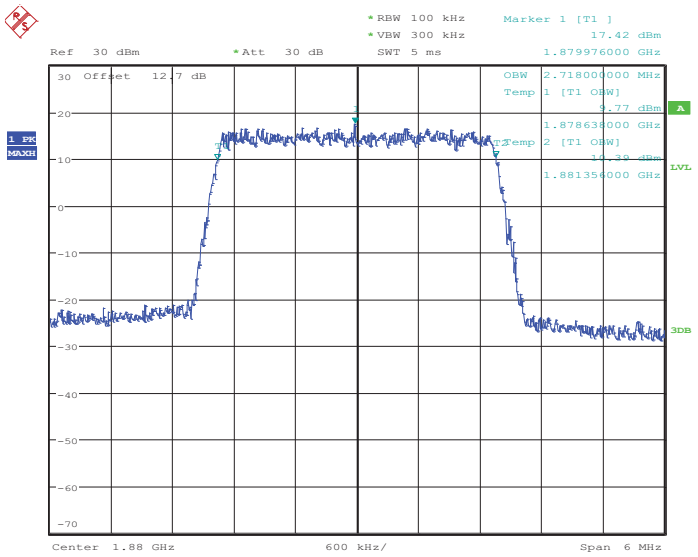
**99% Occupied Bandwidth Plot on Channel 18615 / Channel 26055**




**26dB Bandwidth Plot on Channel 18615 / Channel 26055**

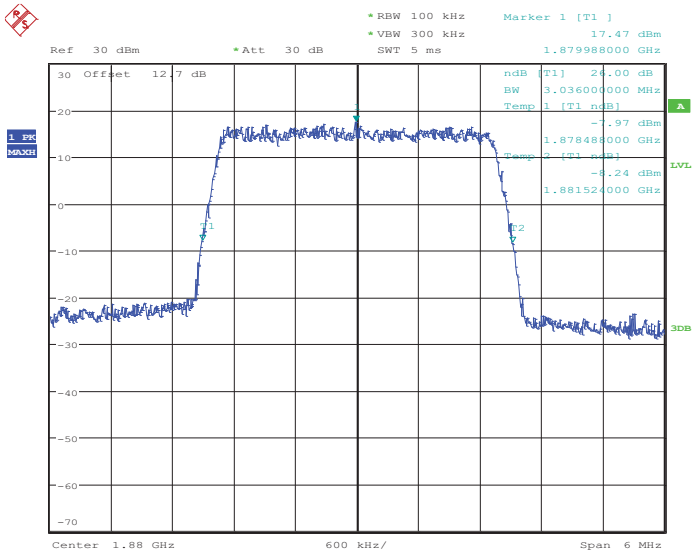


### 99% Occupied Bandwidth Plot on Channel 18900 / Channel 26340




Date: 20.MAR.2014 14:19:05

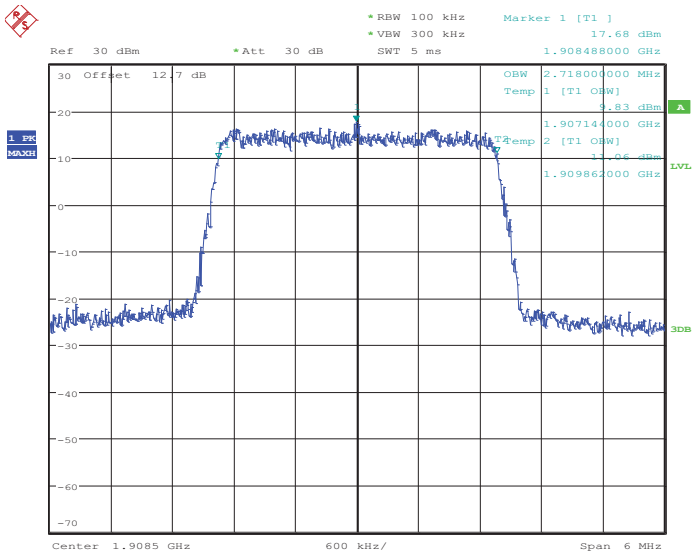
### 26dB Bandwidth Plot on Channel 18900 / Channel 26340




Date: 20.MAR.2014 14:19:40

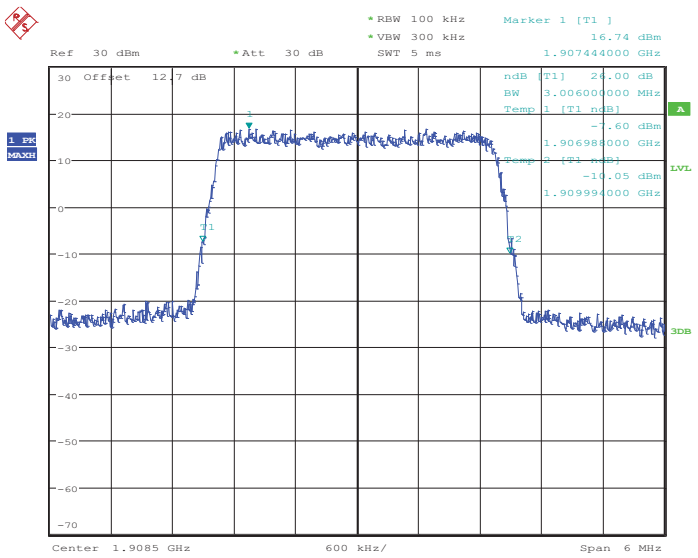
| Band : | LTE Band 2 (High Channel) | BW / Mod. : | 3MHz / 16QAM |
|---|---|---|---|

## 99% Occupied Bandwidth Plot on Channel 19185




Date: 20.MAR.2014 14:22:09

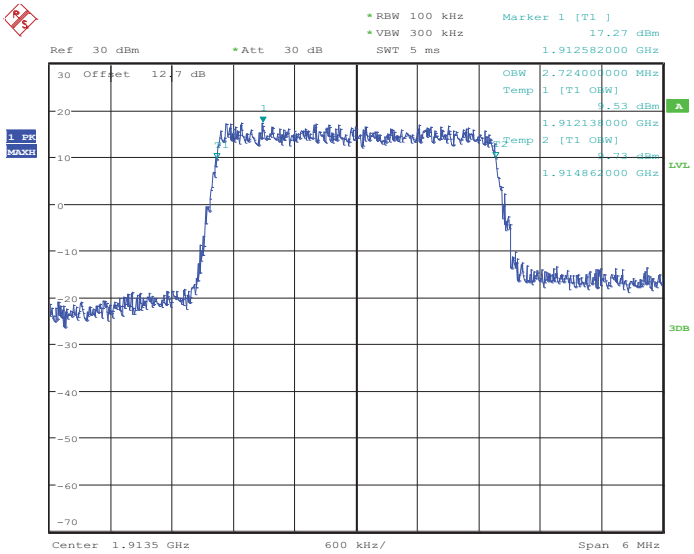
## 26dB Bandwidth Plot on Channel 19185




Date: 20.MAR.2014 14:22:43

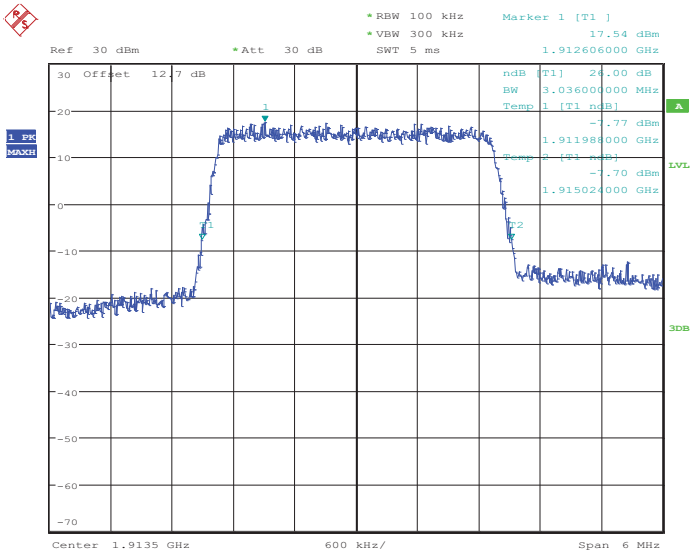
| Band : | LTE Band 25 (High Channel) | BW / Mod. : | 3MHz / 16QAM |
|---|---|---|---|

### 99% Occupied Bandwidth Plot on Channel 26675




Date: 21.MAR.2014 16:16:40

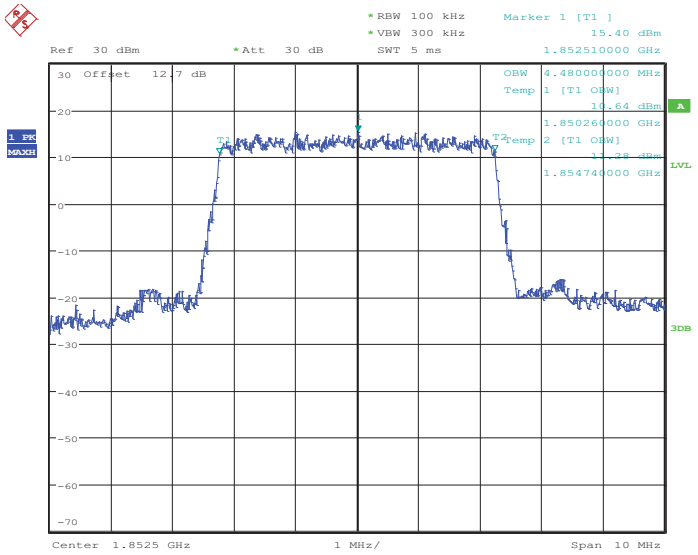
### 26dB Bandwidth Plot on Channel 26675




Date: 21.MAR.2014 16:17:16

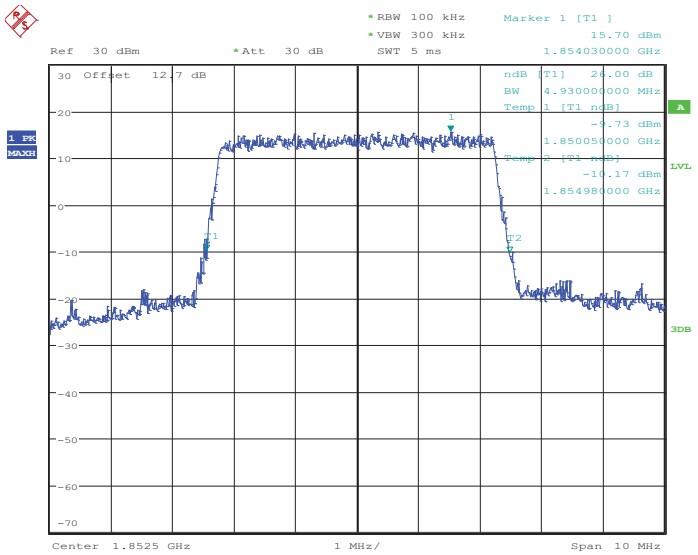
| Band : | LTE Band 2 / LTE Band 25<br>(Low Channel and Middle Channel) | BW / Mod. : | 5MHz / QPSK |
|---|---|---|---|

**99% Occupied Bandwidth Plot on Channel 18625 / Channel 26065**



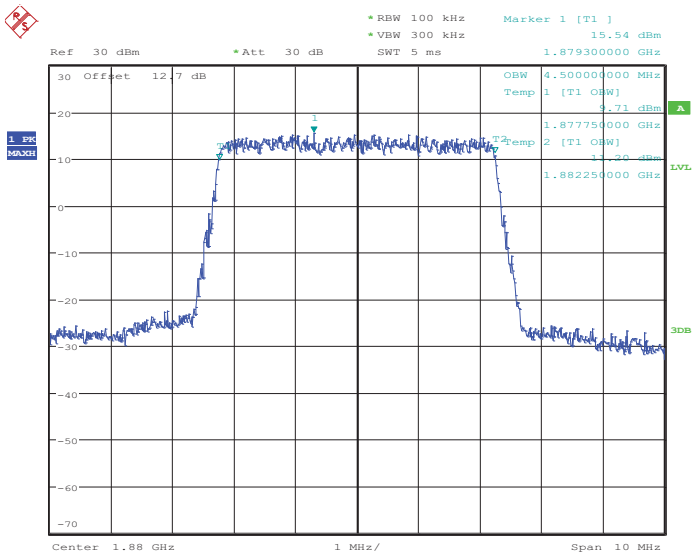

Date: 20.MAR.2014 14:38:24

**26dB Bandwidth Plot on Channel 18625 / Channel 26065**



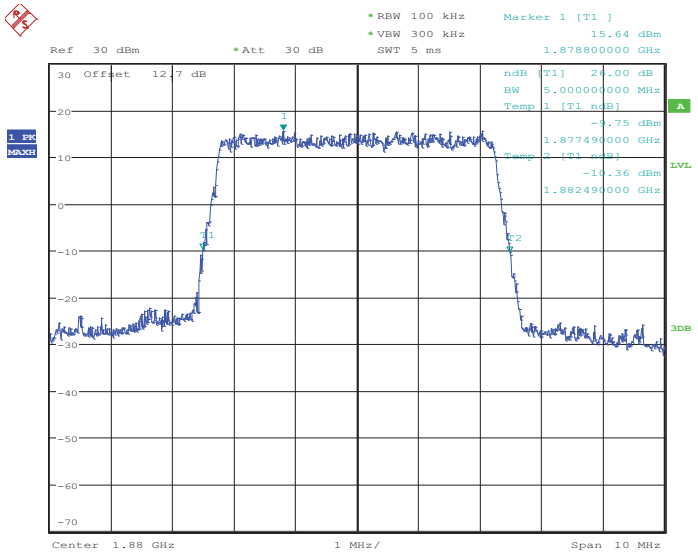

Date: 20.MAR.2014 14:38:57

### 99% Occupied Bandwidth Plot on Channel 18900 / Channel 26340




Date: 20.MAR.2014 14:44:32

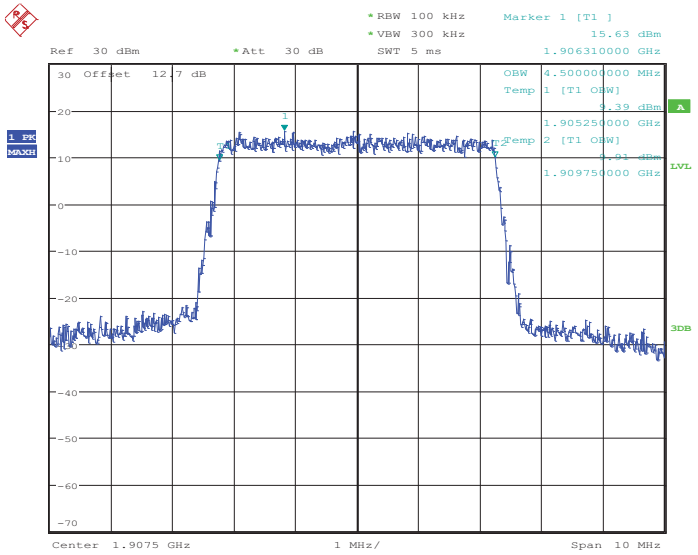
### 26dB Bandwidth Plot on Channel 18900 / Channel 26340




Date: 20.MAR.2014 14:45:04

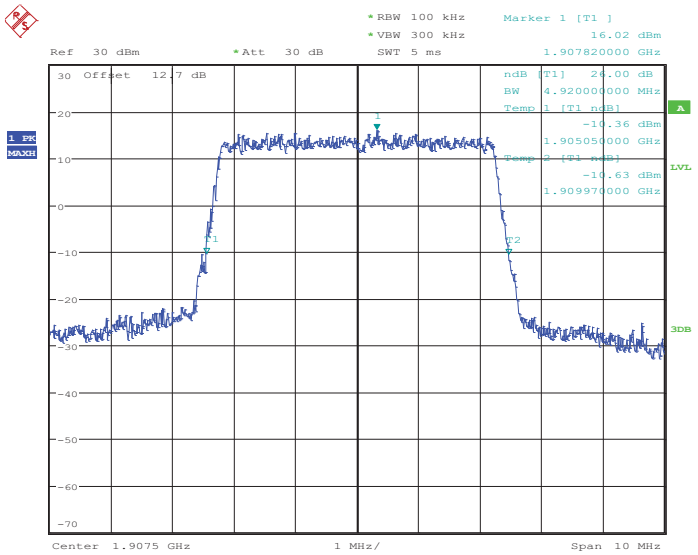
| Band : | LTE Band 2 (High Channel) | BW / Mod. : | 5MHz / QPSK |
|---|---|---|---|

### 99% Occupied Bandwidth Plot on Channel 19175




Date: 20.MAR.2014 14:47:36

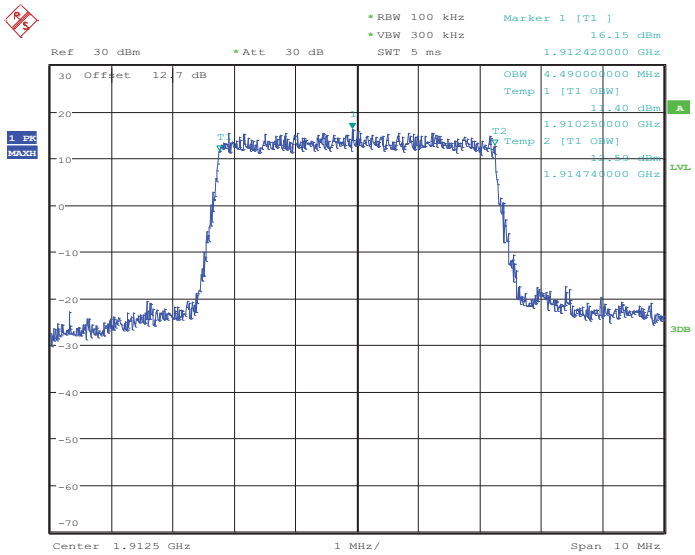
### 26dB Bandwidth Plot on Channel 19175




Date: 20.MAR.2014 14:48:08

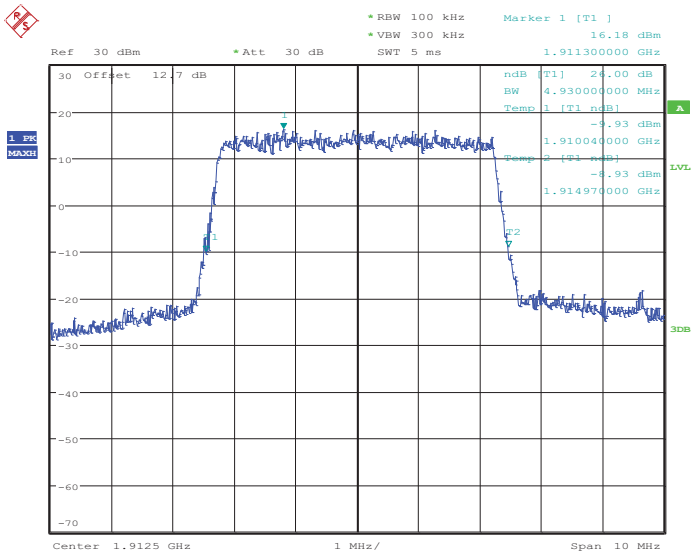
| Band : | LTE Band 25 (High Channel) | BW / Mod. : | 5MHz / QPSK |
|---|---|---|---|

### 99% Occupied Bandwidth Plot on Channel 26665




Date: 21.MAR.2014 16:22:47

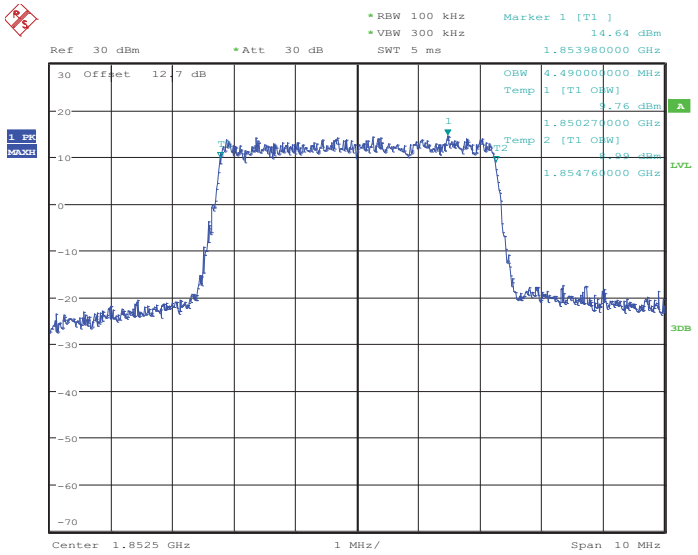
### 26dB Bandwidth Plot on Channel 26665




Date: 21.MAR.2014 16:23:22

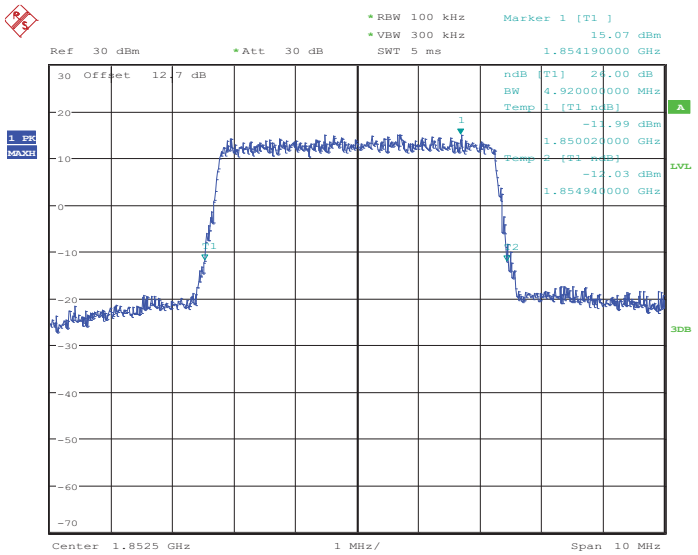
| Band : | LTE Band 2 / LTE Band 25<br>(Low Channel and Middle Channel) | BW / Mod. : | 5MHz / 16QAM |
|---|---|---|---|

**99% Occupied Bandwidth Plot on Channel 18625 / Channel 26065**



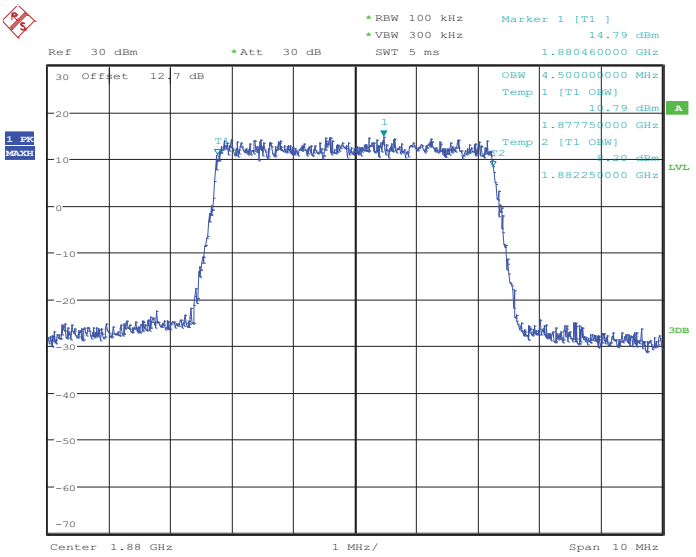

Date: 20.MAR.2014 14:38:39

**26dB Bandwidth Plot on Channel 18625 / Channel 26065**



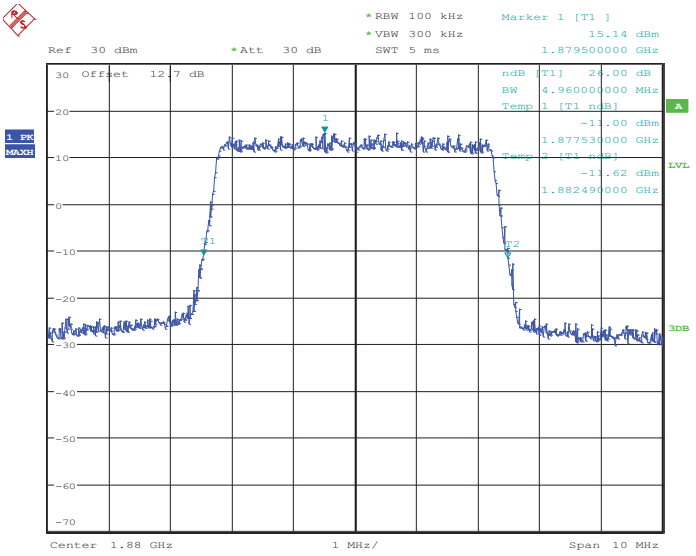

Date: 20.MAR.2014 14:39:14

### 99% Occupied Bandwidth Plot on Channel 18900 / Channel 26340




Date: 20.MAR.2014 14:44:47

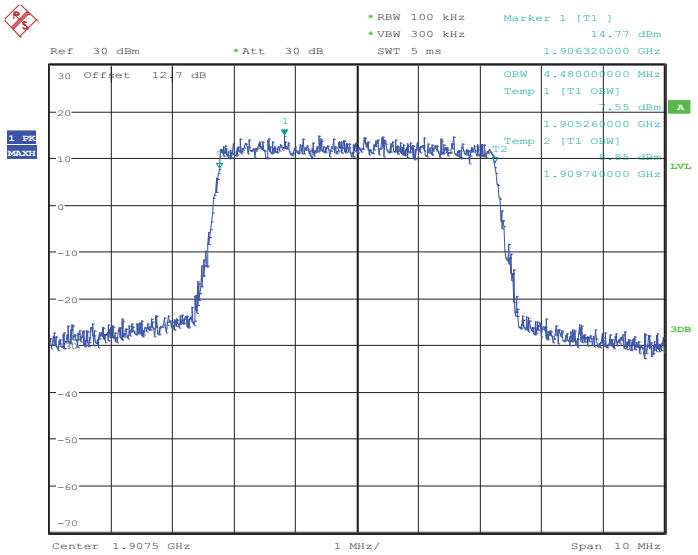
### 26dB Bandwidth Plot on Channel 18900 / Channel 26340




Date: 20.MAR.2014 14:45:21

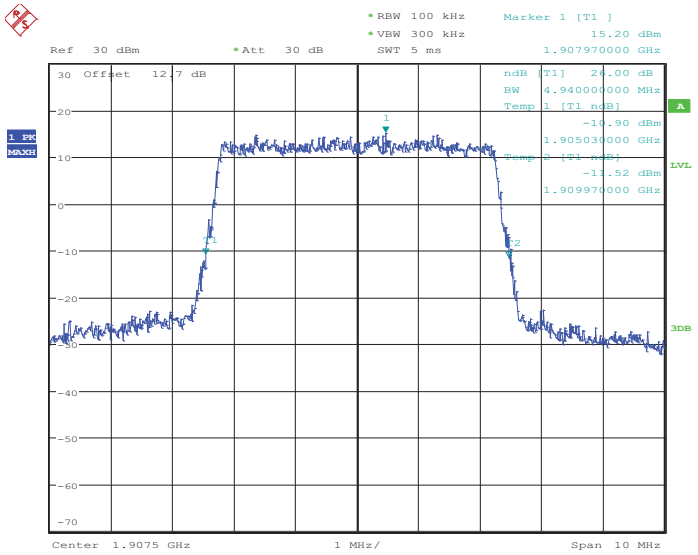
| Band : | LTE Band 2 (High Channel) | BW / Mod. : | 5MHz / 16QAM |
|---|---|---|---|

### 99% Occupied Bandwidth Plot on Channel 19175




Date: 20.MAR.2014 14:47:51

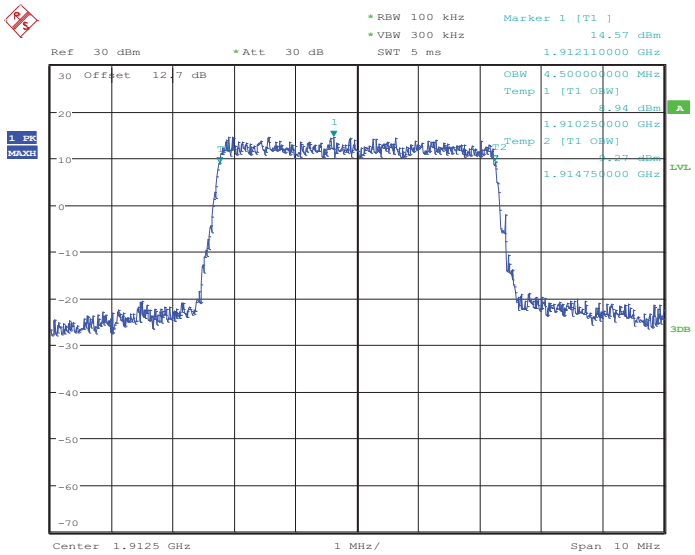
### 26dB Bandwidth Plot on Channel 19175




Date: 20.MAR.2014 14:48:25

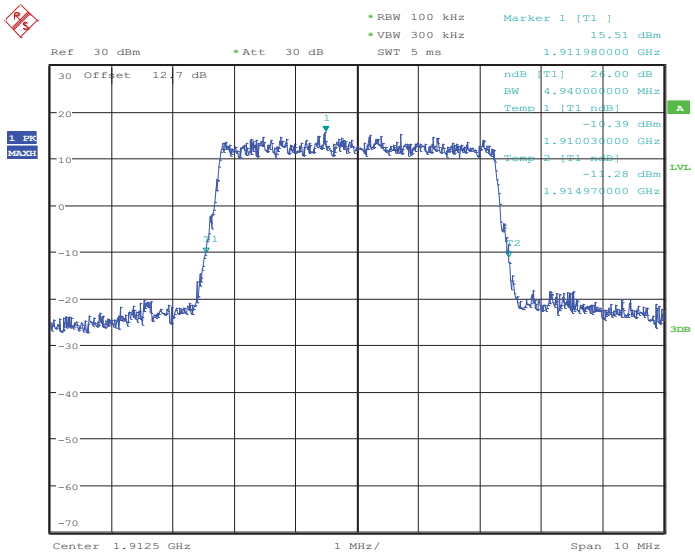
| Band : | LTE Band 25 (High Channel) | BW / Mod. : | 5MHz / 16QAM |
|---|---|---|---|

### 99% Occupied Bandwidth Plot on Channel 26665




Date: 21.MAR.2014 16:23:04

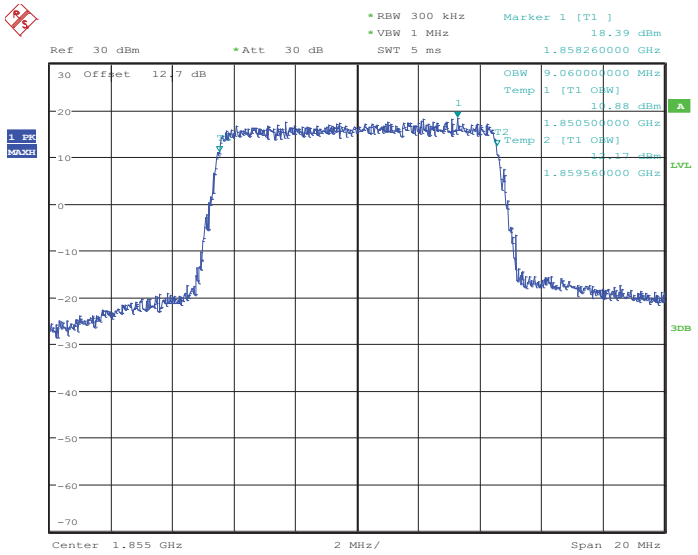
### 26dB Bandwidth Plot on Channel 26665




Date: 21.MAR.2014 16:23:40

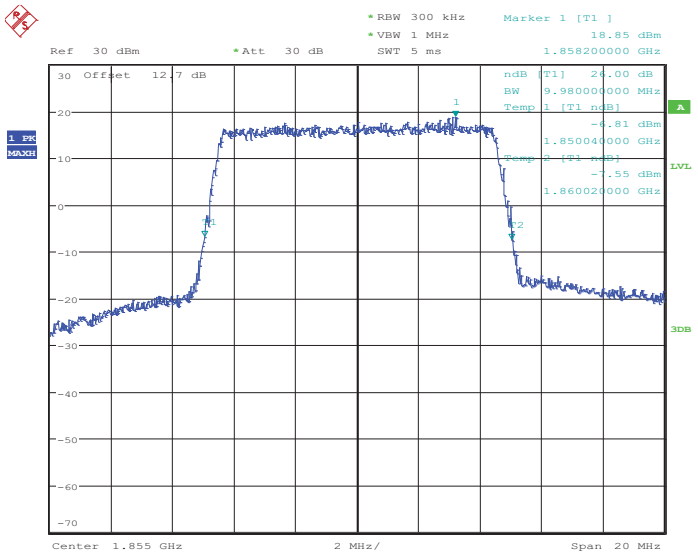
| Band : | LTE Band 2 / LTE Band 25<br>(Low Channel and Middle Channel) | BW / Mod. : | 10MHz / QPSK |
|---|---|---|---|

**99% Occupied Bandwidth Plot on Channel 18650 / Channel 26090**



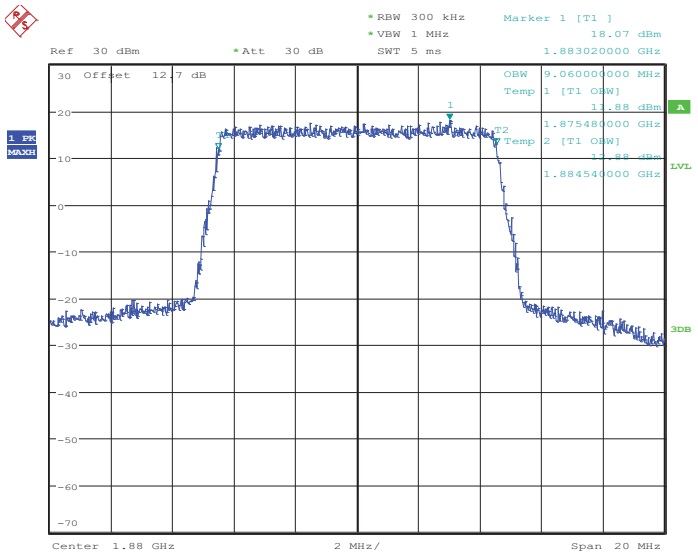

Date: 20.MAR.2014 14:53:49

**26dB Bandwidth Plot on Channel 18650 / Channel 26090**



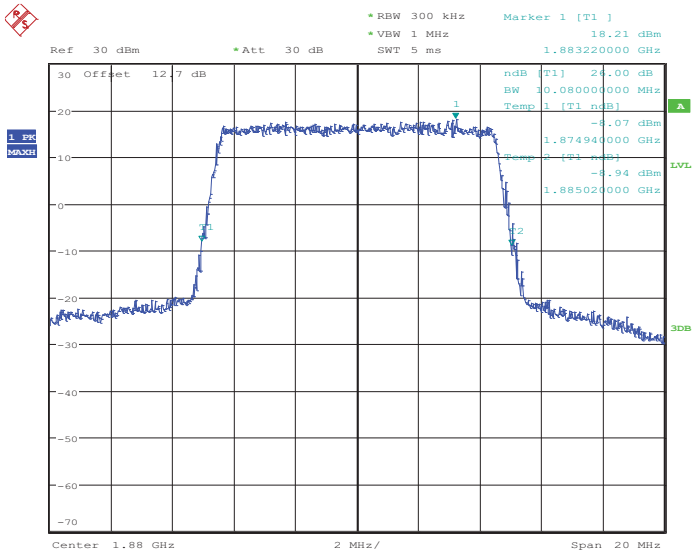

Date: 20.MAR.2014 14:54:22

## 99% Occupied Bandwidth Plot on Channel 18900 / Channel 26340




Date: 20.MAR.2014 14:59:58

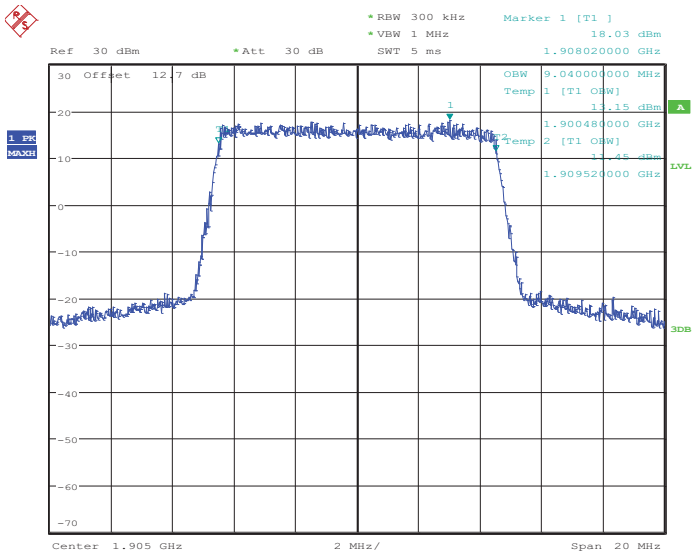
## 26dB Bandwidth Plot on Channel 18900 / Channel 26340




Date: 20.MAR.2014 15:00:31

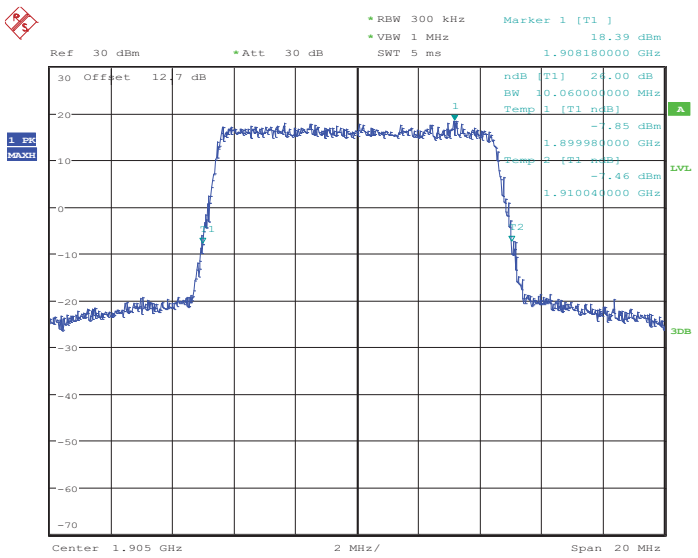
| Band : | LTE Band 2 (High Channel) | BW / Mod. : | 10MHz / QPSK |
|---|---|---|---|

## 99% Occupied Bandwidth Plot on Channel 19150




Date: 20.MAR.2014 15:03:03

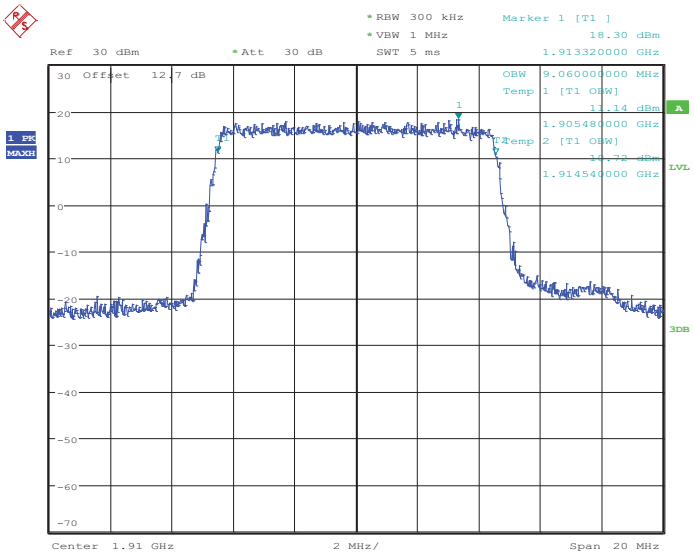
## 26dB Bandwidth Plot on Channel 19150




Date: 20.MAR.2014 15:03:36

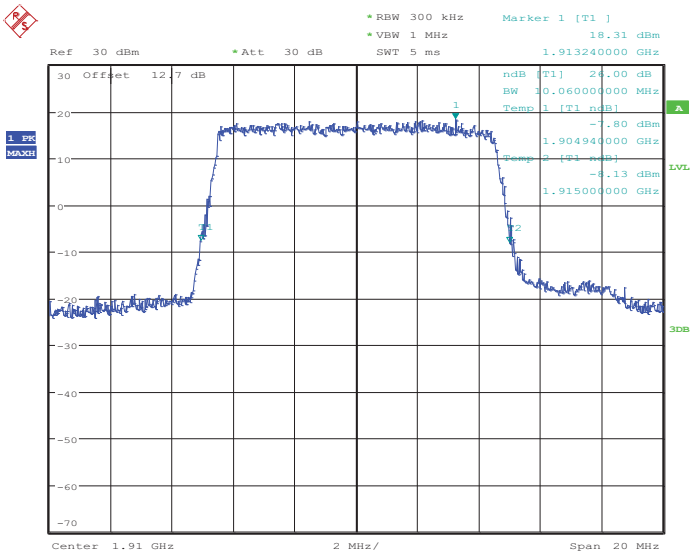
| Band : | LTE Band 25 (High Channel) | BW / Mod. : | 10MHz / QPSK |
|---|---|---|---|

### 99% Occupied Bandwidth Plot on Channel 26640




Date: 21.MAR.2014 16:29:11

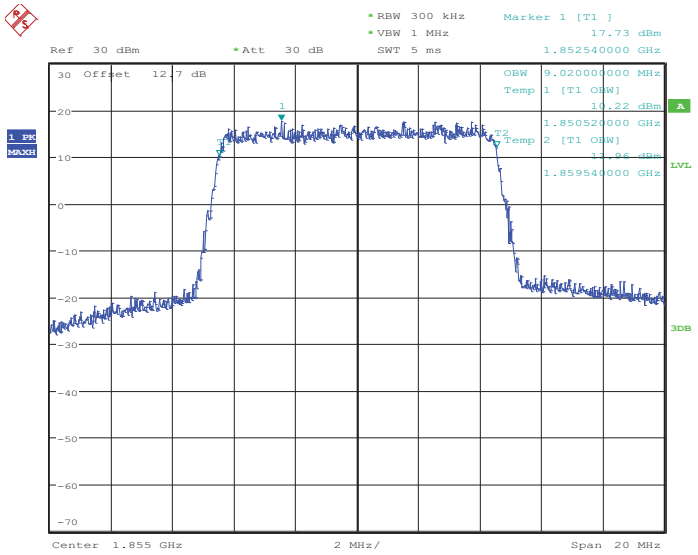
### 26dB Bandwidth Plot on Channel 26640




Date: 21.MAR.2014 16:29:45

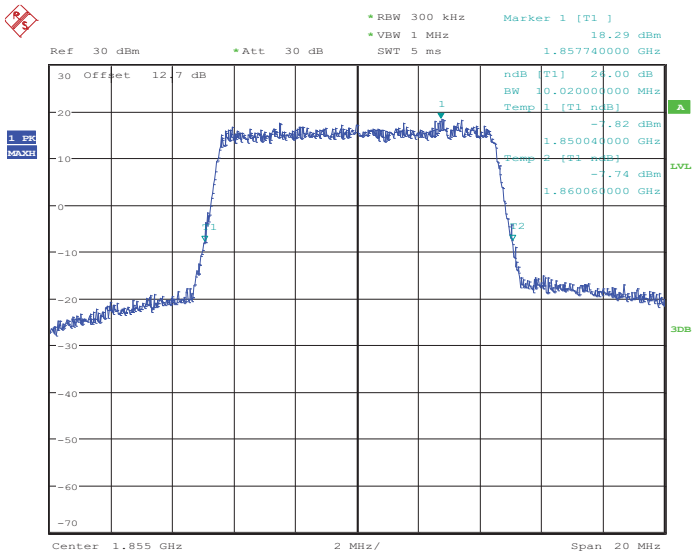
| Band : | LTE Band 2 / LTE Band 25<br>(Low Channel and Middle Channel) | BW / Mod. : | 10MHz / 16QAM |
|---|---|---|---|

**99% Occupied Bandwidth Plot on Channel 18650 / Channel 26090**



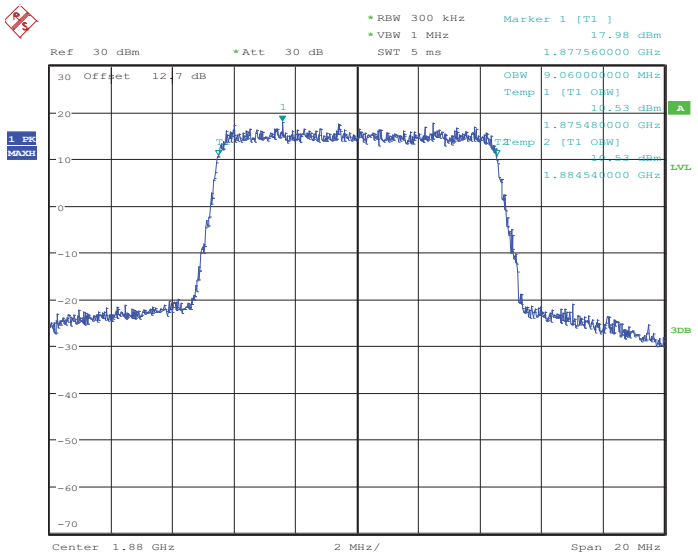

Date: 20.MAR.2014 14:54:05

**26dB Bandwidth Plot on Channel 18650 / Channel 26090**



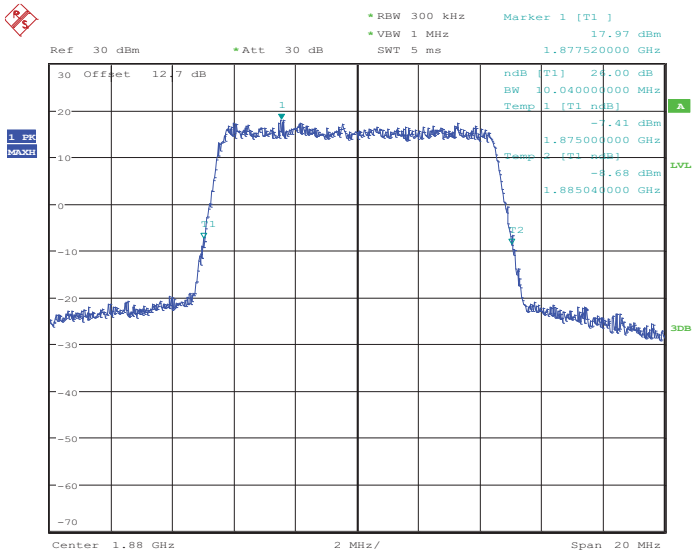

Date: 20.MAR.2014 14:54:40

### 99% Occupied Bandwidth Plot on Channel 18900 / Channel 26340




Date: 20.MAR.2014 15:00:14

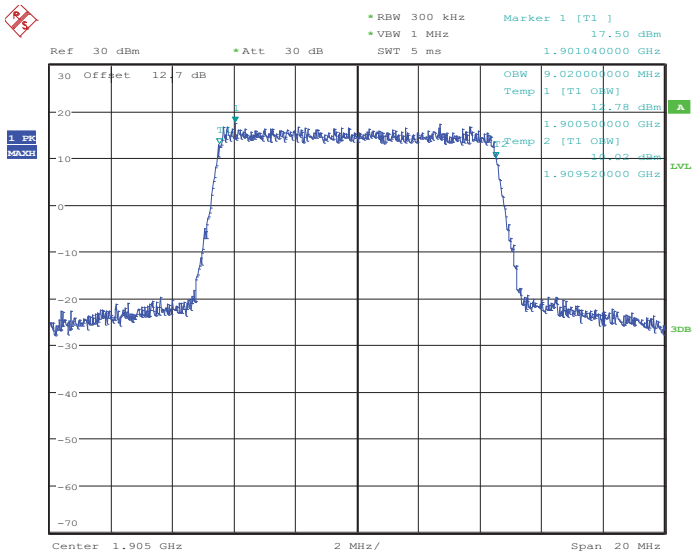
### 26dB Bandwidth Plot on Channel 18900 / Channel 26340




Date: 20.MAR.2014 15:00:49

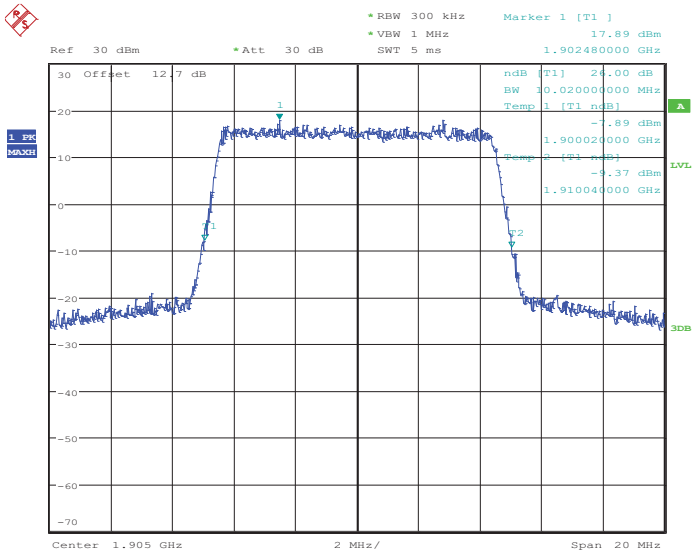
| Band : | LTE Band 2 (High Channel) | BW / Mod. : | 10MHz / 16QAM |
|---|---|---|---|

**99% Occupied Bandwidth Plot on Channel 19150**




Date: 20.MAR.2014 15:03:18

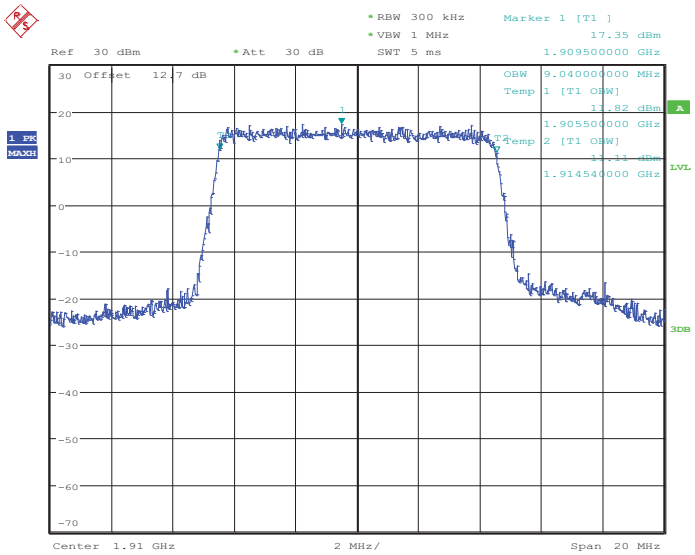
**26dB Bandwidth Plot on Channel 19150**




Date: 20.MAR.2014 15:03:53

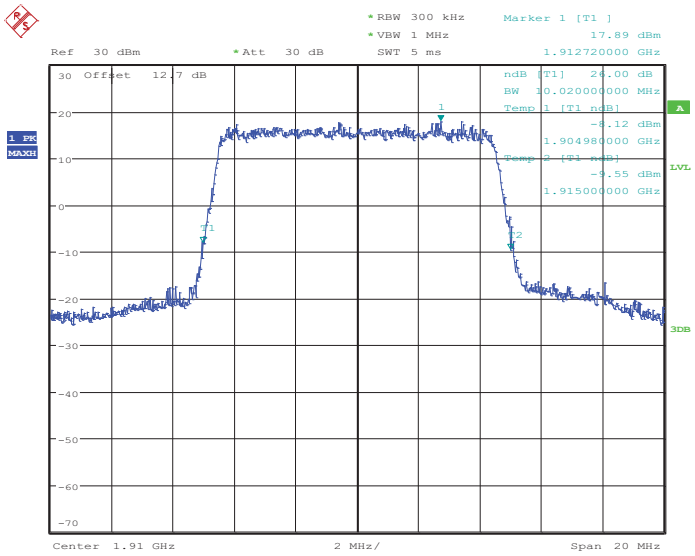
| Band : | LTE Band 25 (High Channel) | BW / Mod. : | 10MHz / 16QAM |
|---|---|---|---|

### 99% Occupied Bandwidth Plot on Channel 26640




Date: 21.MAR.2014 16:29:27

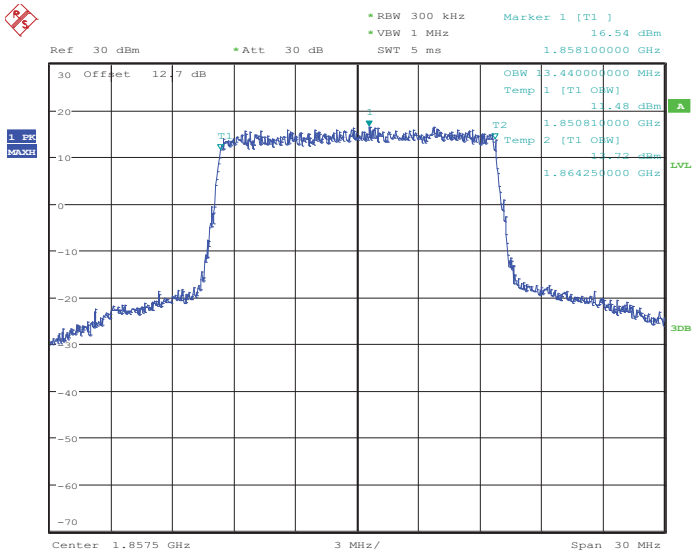
### 26dB Bandwidth Plot on Channel 26640




Date: 21.MAR.2014 16:30:03

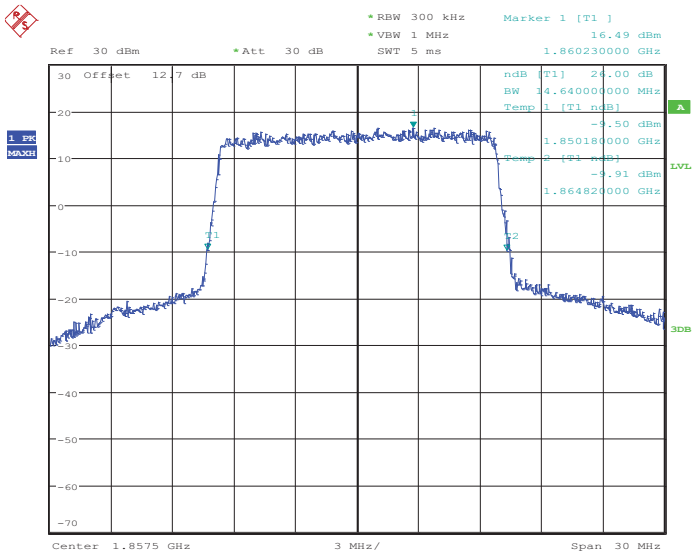
| Band : | LTE Band 2 / LTE Band 25<br>(Low Channel and Middle Channel) | BW / Mod. : | 15MHz / QPSK |
|---|---|---|---|

**99% Occupied Bandwidth Plot on Channel 18675 / Channel 26115**



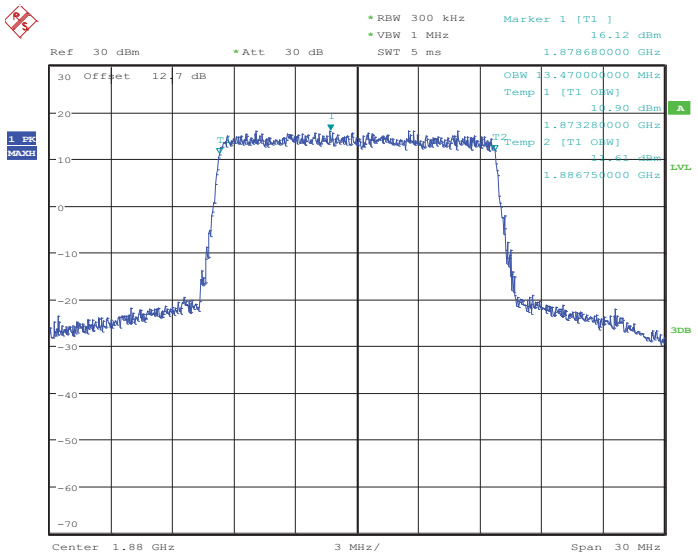

Date: 20.MAR.2014 15:09:17

**26dB Bandwidth Plot on Channel 18675 / Channel 26115**



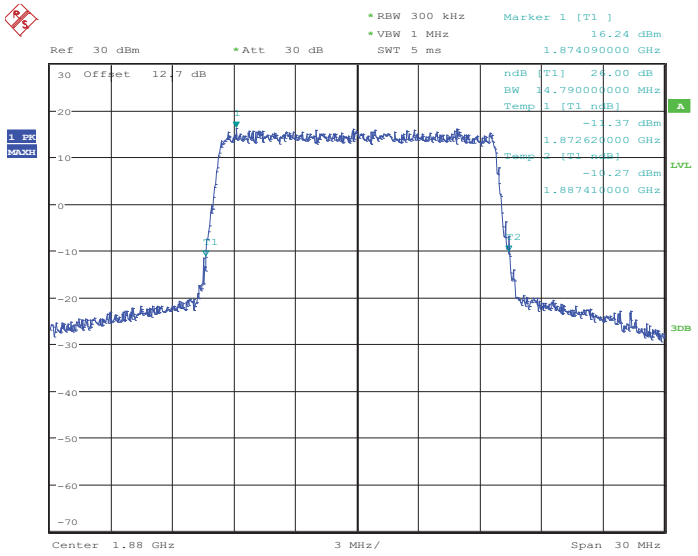

Date: 20.MAR.2014 15:09:50

### 99% Occupied Bandwidth Plot on Channel 18900 / Channel 26340




Date: 20.MAR.2014 15:15:26

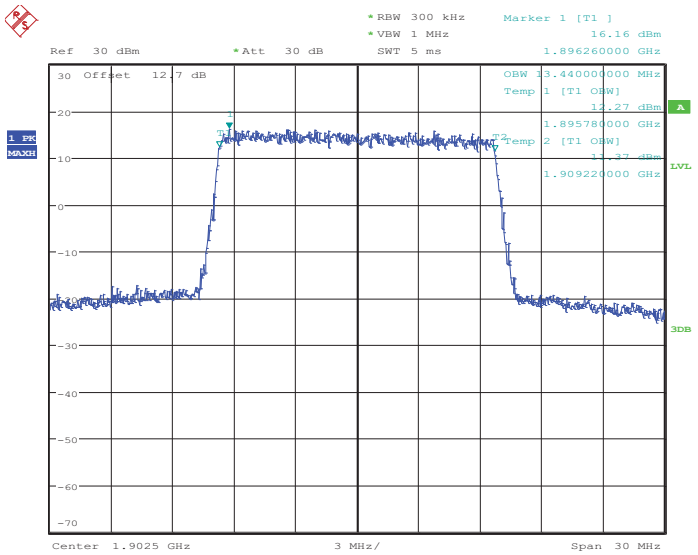
### 26dB Bandwidth Plot on Channel 18900 / Channel 26340




Date: 20.MAR.2014 15:15:59

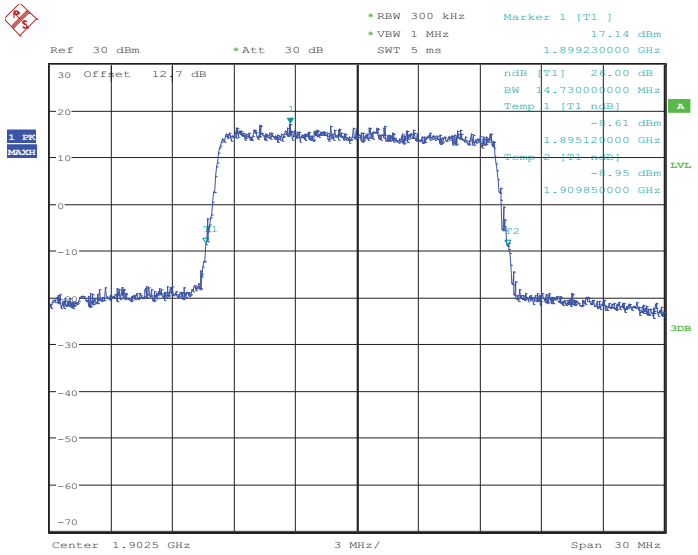
| Band : | LTE Band 2 (High Channel) | BW / Mod. : | 15MHz / QPSK |
|---|---|---|---|

### 99% Occupied Bandwidth Plot on Channel 19125




Date: 20.MAR.2014 15:18:32

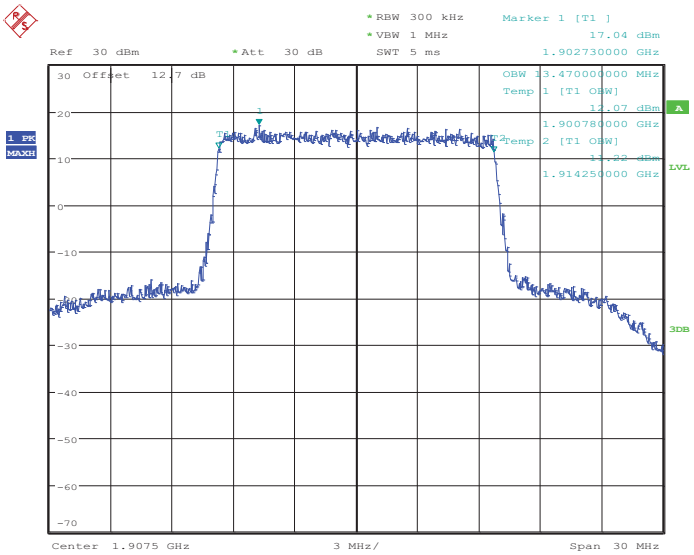
### 26dB Bandwidth Plot on Channel 19125




Date: 20.MAR.2014 15:19:05

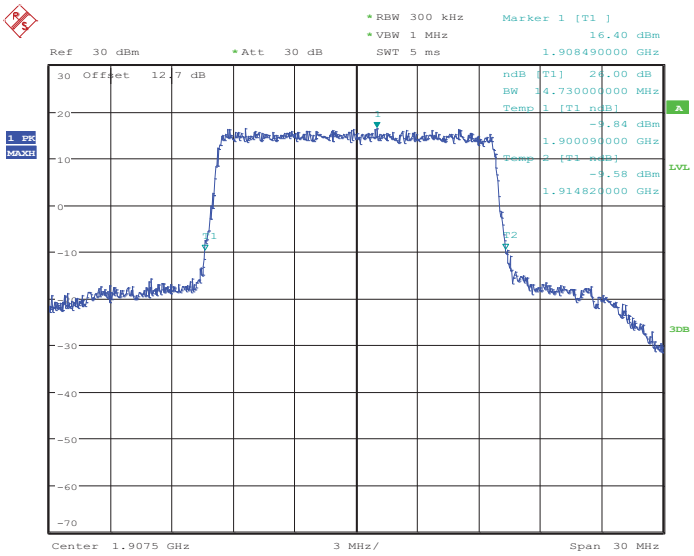
| Band : | LTE Band 25 (High Channel) | BW / Mod. : | 15MHz / QPSK |
|---|---|---|---|

### 99% Occupied Bandwidth Plot on Channel 26615




Date: 21.MAR.2014 16:35:38

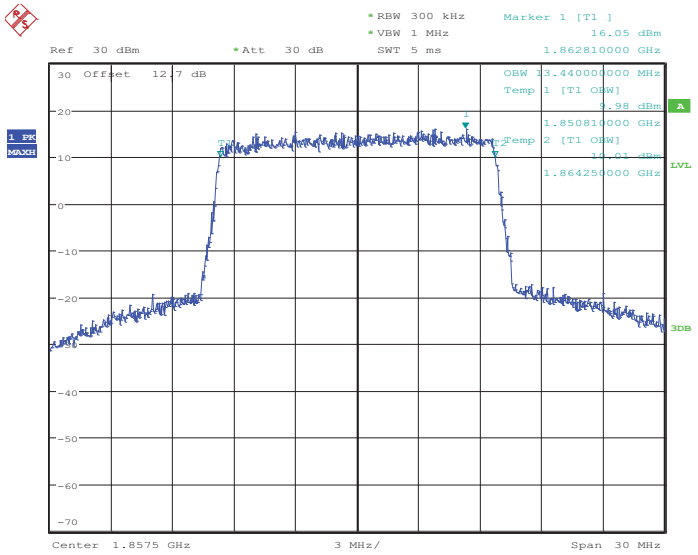
### 26dB Bandwidth Plot on Channel 26615




Date: 21.MAR.2014 16:36:13

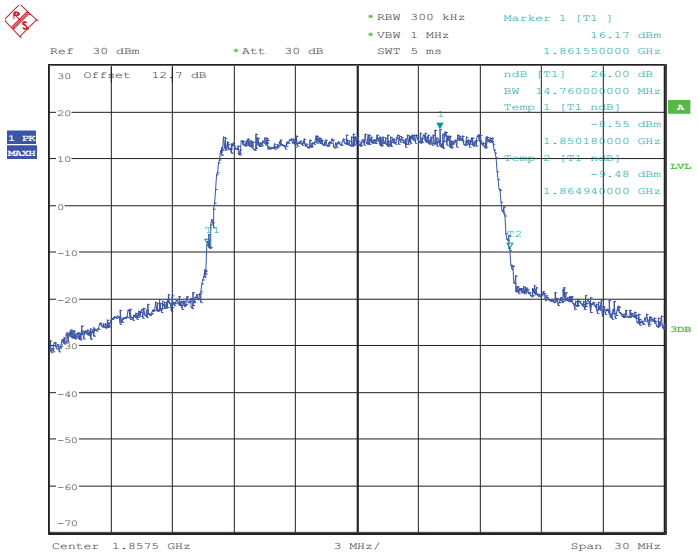
| Band : | LTE Band 2 / LTE Band 25<br>(Low Channel and Middle Channel) | BW / Mod. : | 15MHz / 16QAM |
|---|---|---|---|

**99% Occupied Bandwidth Plot on Channel 18675 / Channel 26115**



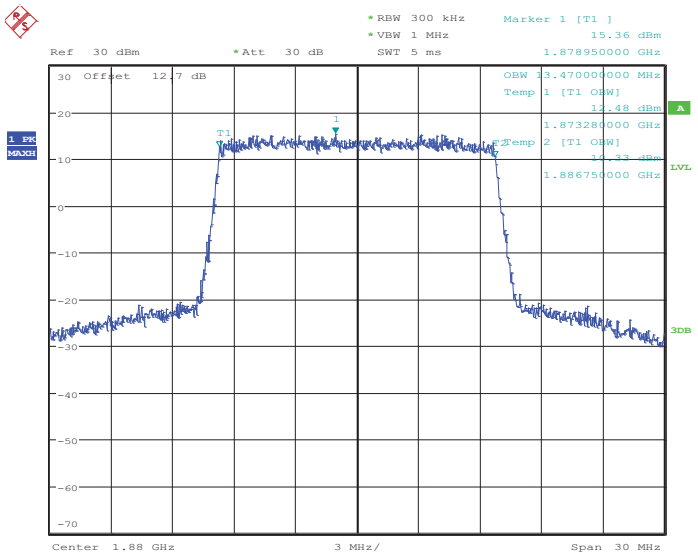

Date: 20.MAR.2014 15:09:32

**26dB Bandwidth Plot on Channel 18675 / Channel 26115**



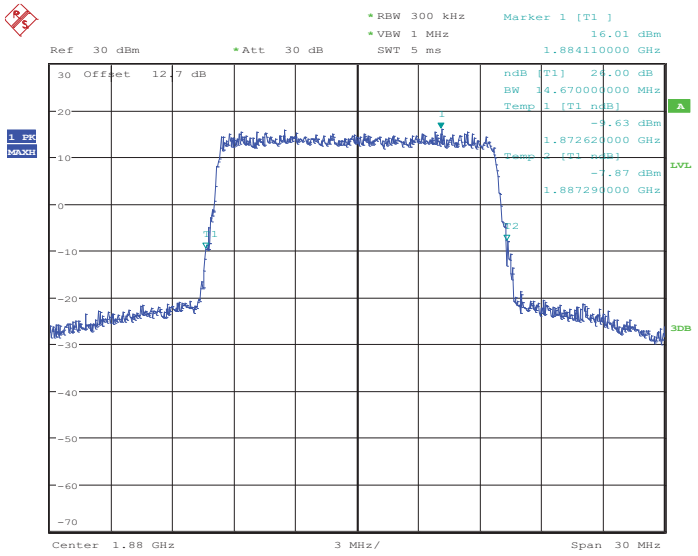

Date: 20.MAR.2014 15:10:07

### 99% Occupied Bandwidth Plot on Channel 18900 / Channel 26340




Date: 20.MAR.2014 15:15:42

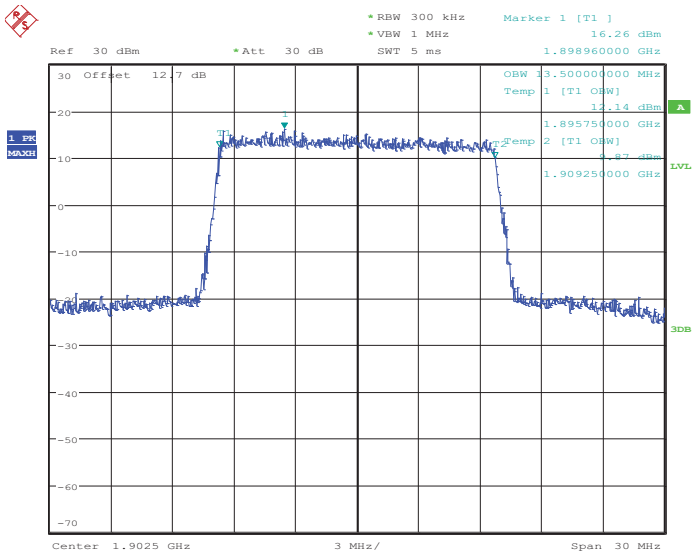
### 26dB Bandwidth Plot on Channel 18900 / Channel 26340




Date: 20.MAR.2014 15:16:17

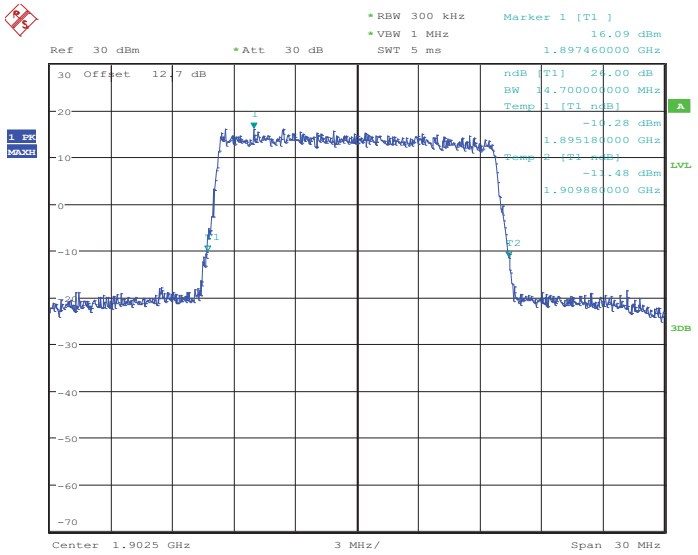
| Band : | LTE Band 2 (High Channel) | BW / Mod. : | 15MHz / 16QAM |
|---|---|---|---|

**99% Occupied Bandwidth Plot on Channel 19125**




Date: 20.MAR.2014 15:18:47

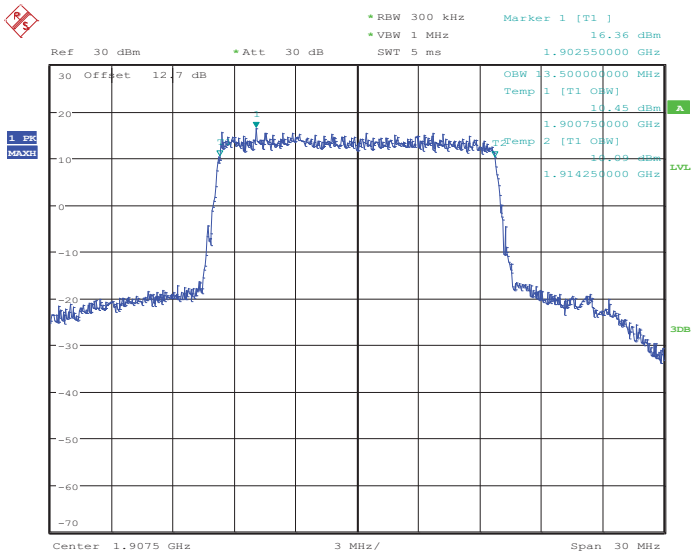
**26dB Bandwidth Plot on Channel 19125**




Date: 20.MAR.2014 15:19:22

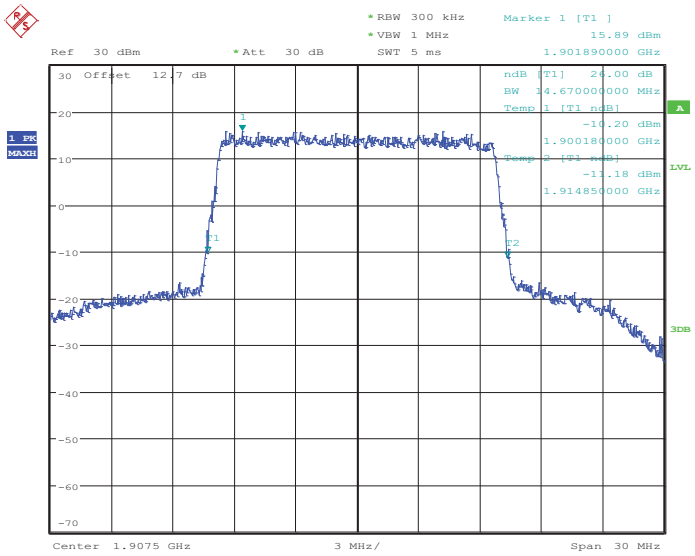
| Band : | LTE Band 25 (High Channel) | BW / Mod. : | 15MHz / 16QAM |
|---|---|---|---|

### 99% Occupied Bandwidth Plot on Channel 26615




Date: 21.MAR.2014 16:35:54

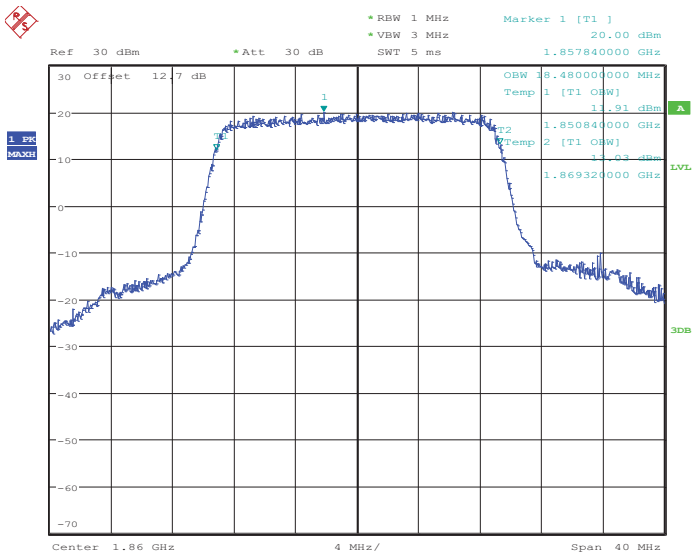
### 26dB Bandwidth Plot on Channel 26615




Date: 21.MAR.2014 16:36:31

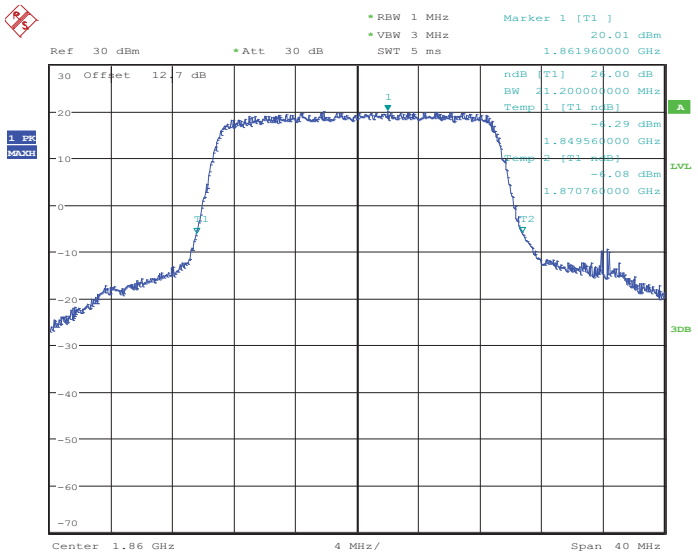
| Band : | LTE Band 2 / LTE Band 25<br>(Low Channel and Middle Channel) | BW / Mod. : | 20MHz / QPSK |
|---|---|---|---|

**99% Occupied Bandwidth Plot on Channel 18700 / Channel 26140**



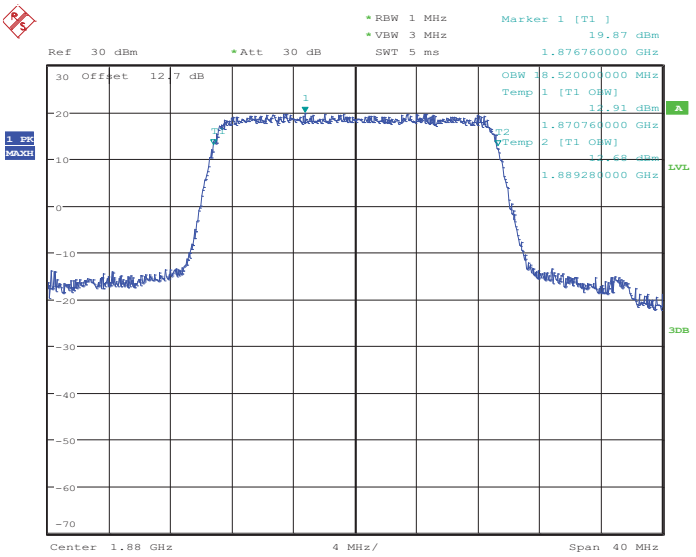

Date: 20.MAR.2014 15:24:46

**26dB Bandwidth Plot on Channel 18700 / Channel 26140**



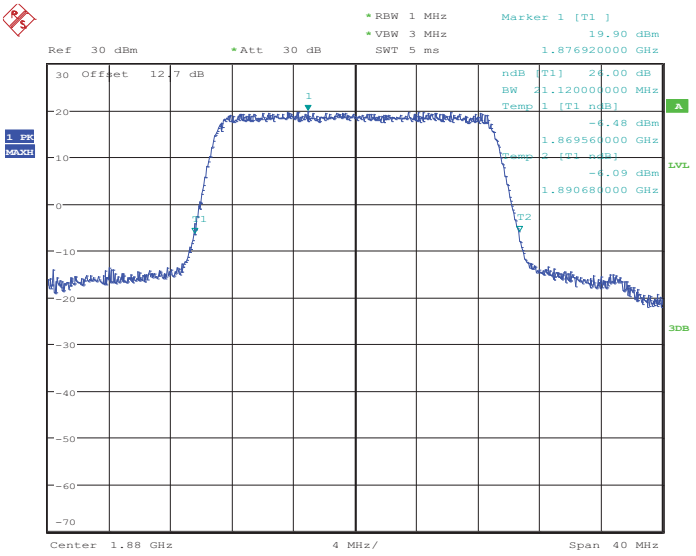

Date: 20.MAR.2014 15:25:19

### 99% Occupied Bandwidth Plot on Channel 18900 / Channel 26340




Date: 20.MAR.2014 15:30:55

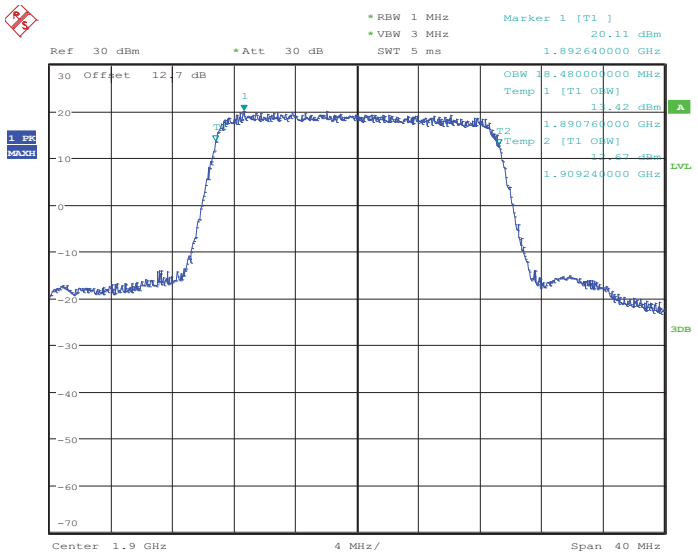
### 26dB Bandwidth Plot on Channel 18900 / Channel 26340




Date: 20.MAR.2014 15:31:28

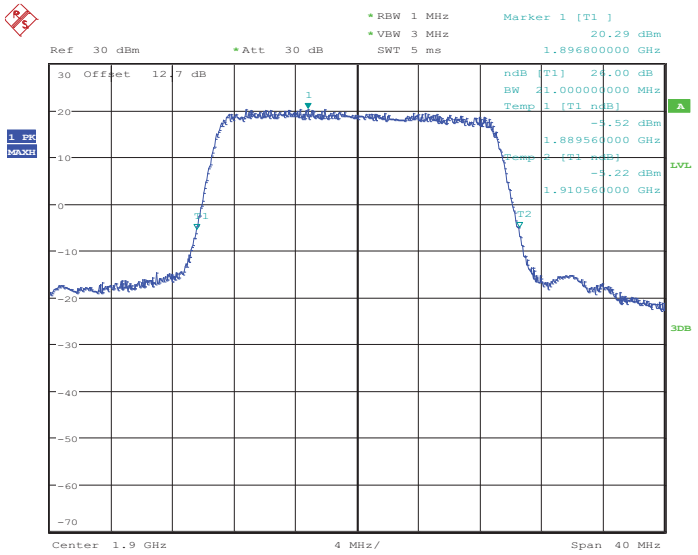
| Band : | LTE Band 2 (High Channel) | BW / Mod. : | 20MHz / QPSK |
|---|---|---|---|

## 99% Occupied Bandwidth Plot on Channel 19100




Date: 20.MAR.2014 15:34:00

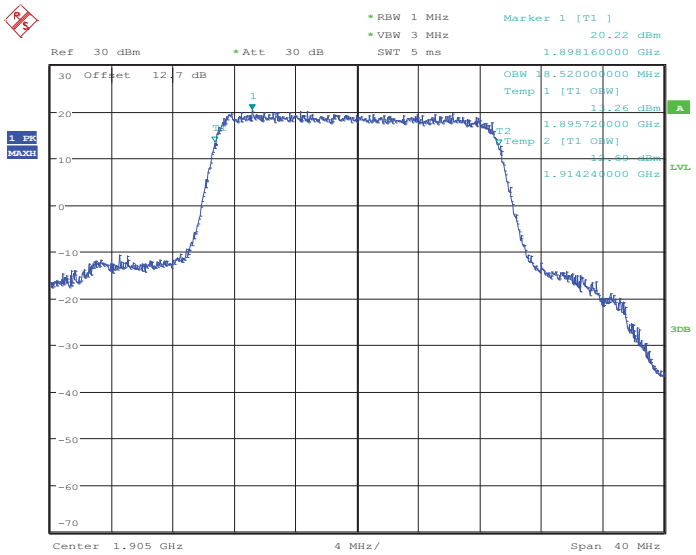
## 26dB Bandwidth Plot on Channel 19100




Date: 20.MAR.2014 15:34:33

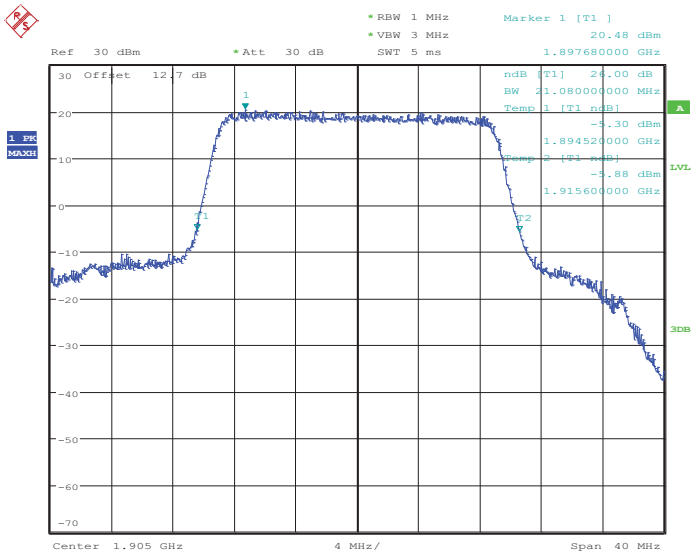
| Band : | LTE Band 25 (High Channel) | BW / Mod. : | 20MHz / QPSK |
|---|---|---|---|

### 99% Occupied Bandwidth Plot on Channel 26590




Date: 21.MAR.2014 16:42:04

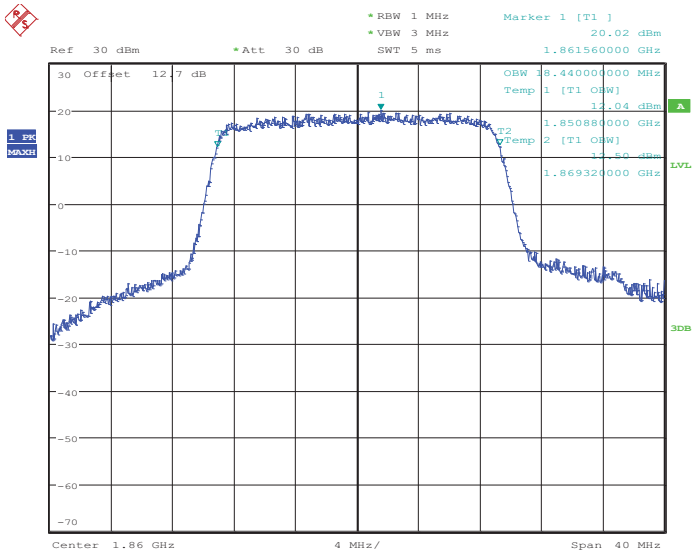
### 26dB Bandwidth Plot on Channel 26590




Date: 21.MAR.2014 16:42:38

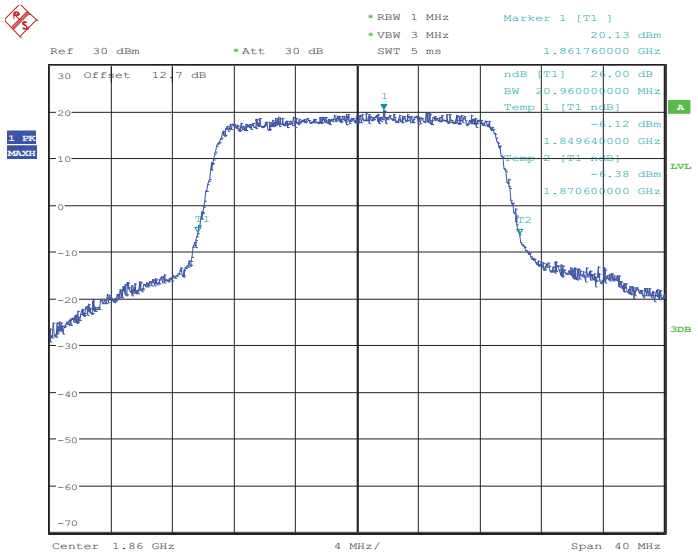
| Band : | LTE Band 2 / LTE Band 25<br>(Low Channel and Middle Channel) | BW / Mod. : | 20MHz / 16QAM |
|---|---|---|---|

**99% Occupied Bandwidth Plot on Channel 18700 / Channel 26140**



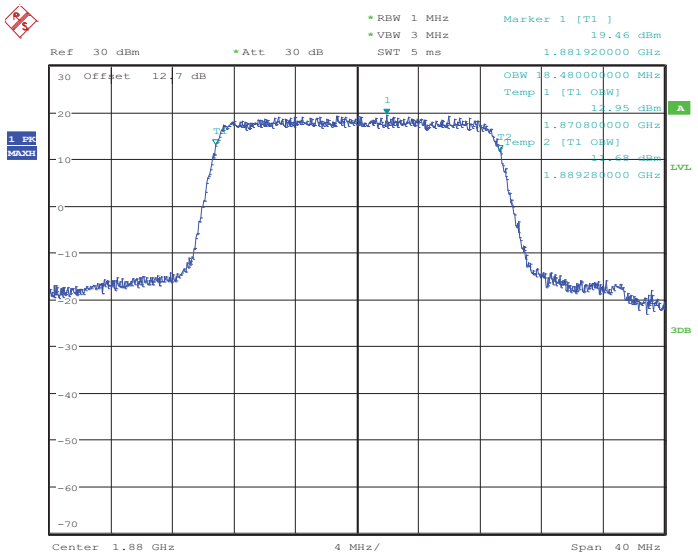

Date: 20.MAR.2014 15:25:01

**26dB Bandwidth Plot on Channel 18700 / Channel 26140**



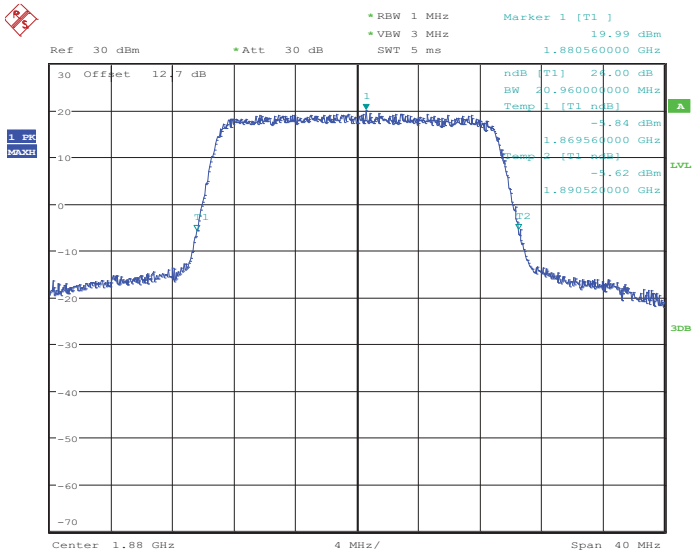

Date: 20.MAR.2014 15:25:36

### 99% Occupied Bandwidth Plot on Channel 18900 / Channel 26340




Date: 20.MAR.2014 15:31:11

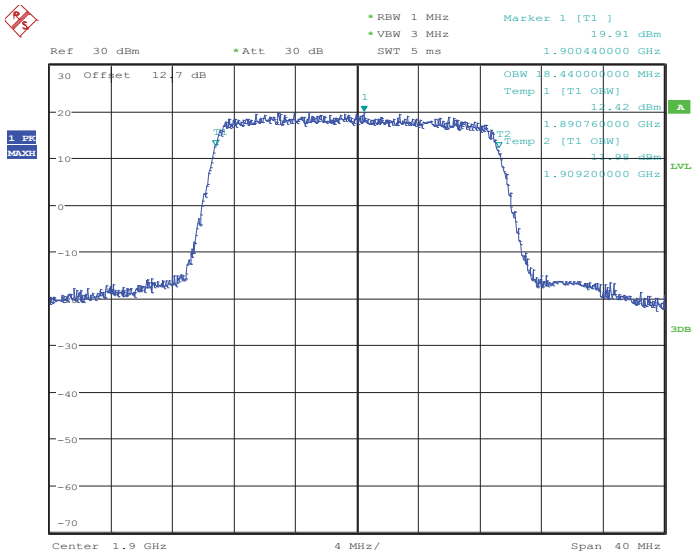
### 26dB Bandwidth Plot on Channel 18900 / Channel 26340




Date: 20.MAR.2014 15:31:46

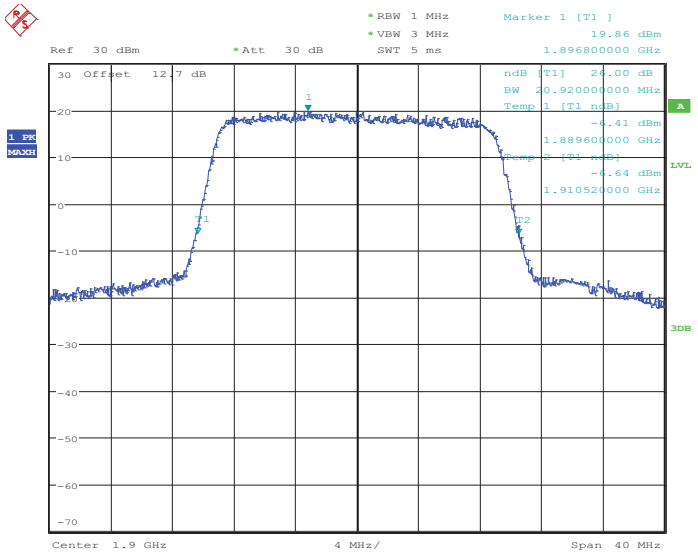
| Band : | LTE Band 2 (High Channel) | BW / Mod. : | 20MHz / 16QAM |
|---|---|---|---|

### 99% Occupied Bandwidth Plot on Channel 19100




Date: 20.MAR.2014 15:34:16

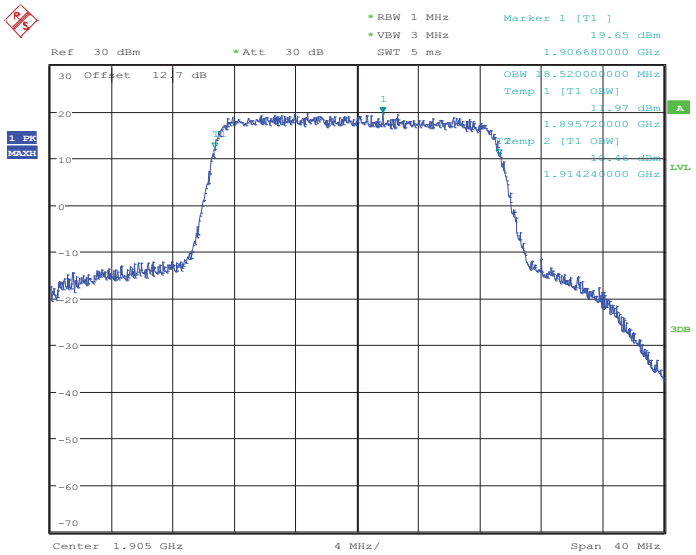
### 26dB Bandwidth Plot on Channel 19100




Date: 20.MAR.2014 15:34:51

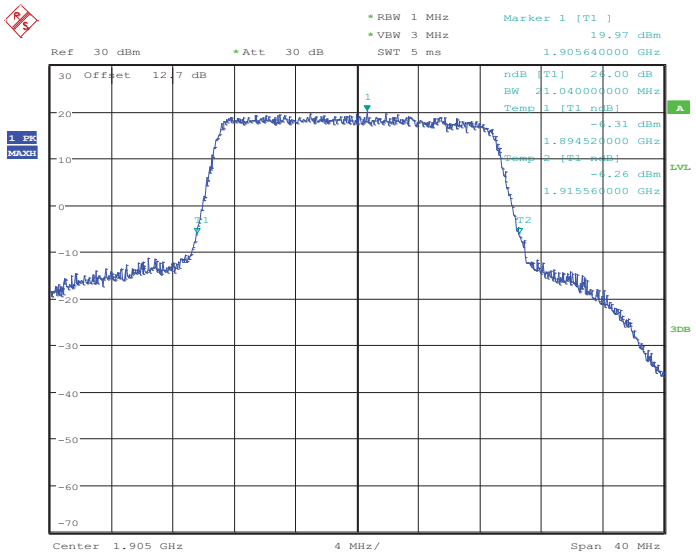
| Band : | LTE Band 25 (High Channel) | BW / Mod. : | 20MHz / 16QAM |
|---|---|---|---|

### 99% Occupied Bandwidth Plot on Channel 26590




Date: 21.MAR.2014 16:42:20

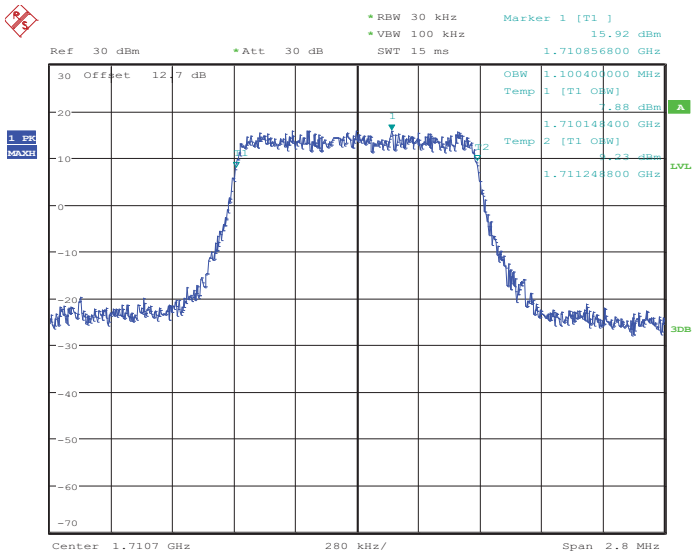
### 26dB Bandwidth Plot on Channel 26590




Date: 21.MAR.2014 16:42:56

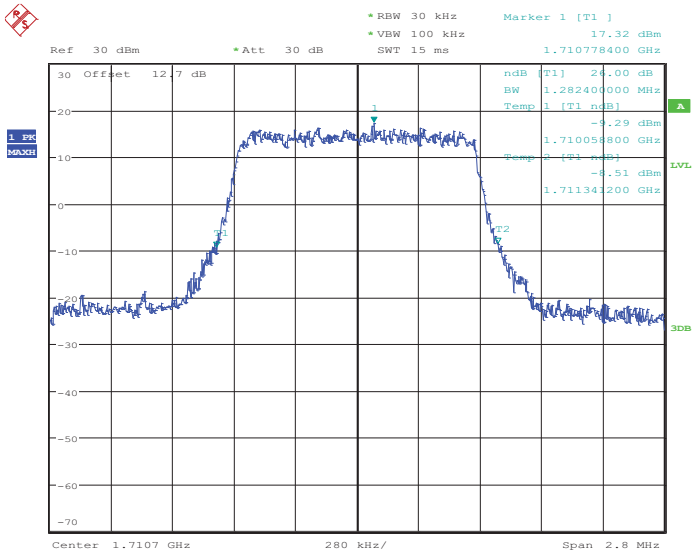
| Band : | LTE Band 4 | BW / Mod. : | 1.4MHz / QPSK |
|---|---|---|---|

### 99% Occupied Bandwidth Plot on Channel 19957



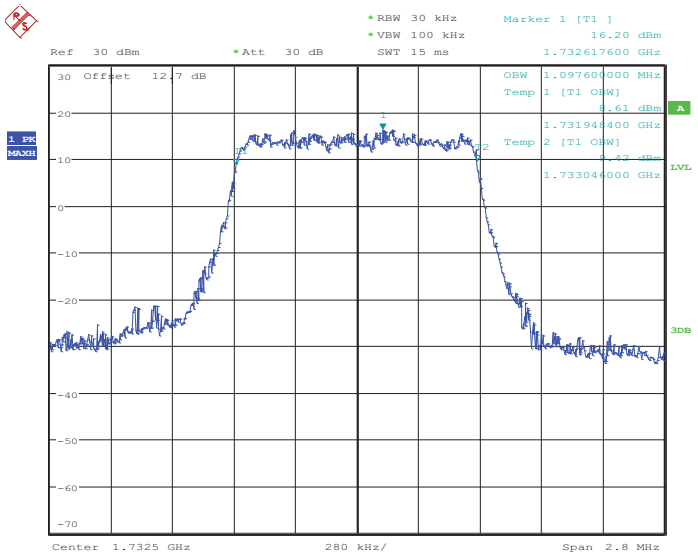

Date: 21.MAR.2014 09:59:56

### 26dB Bandwidth Plot on Channel 19957



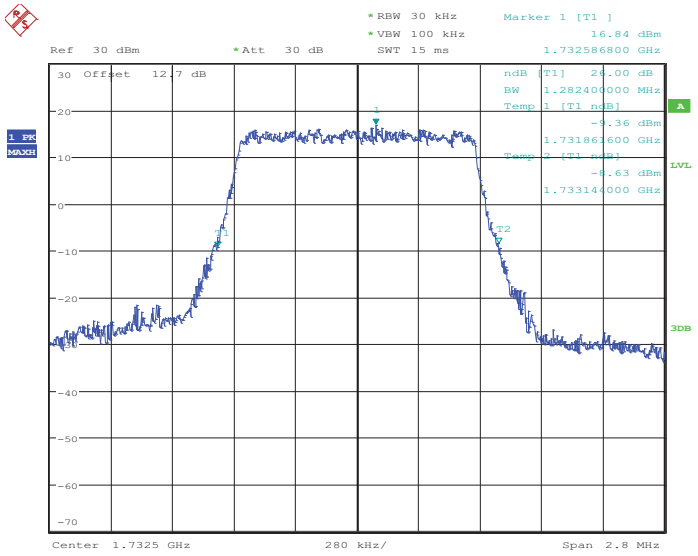

Date: 21.MAR.2014 08:14:44

### 99% Occupied Bandwidth Plot on Channel 20175



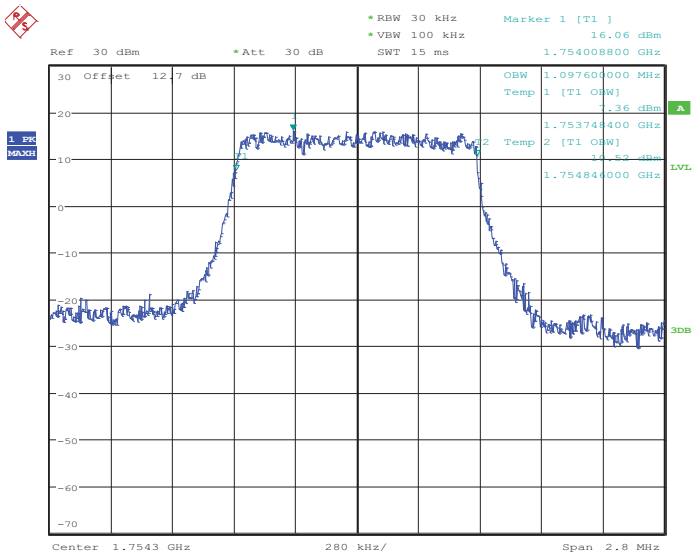

Date: 21.MAR.2014 08:20:22

### 26dB Bandwidth Plot on Channel 20175



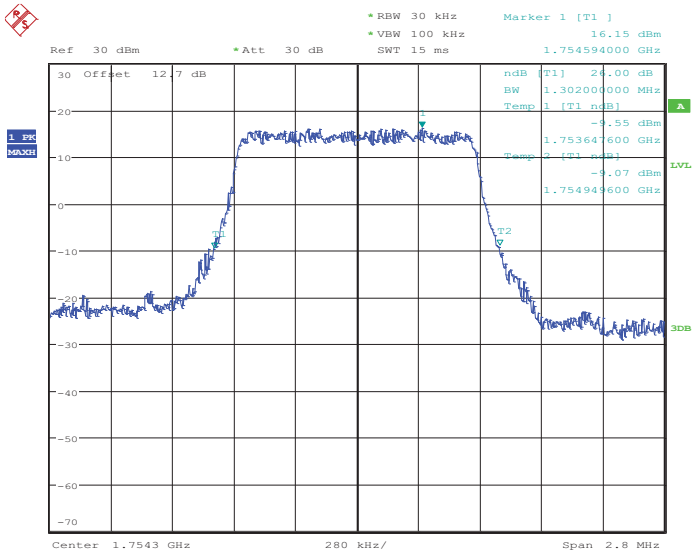

Date: 21.MAR.2014 08:20:55

### 99% Occupied Bandwidth Plot on Channel 20393




Date: 21.MAR.2014 08:23:28

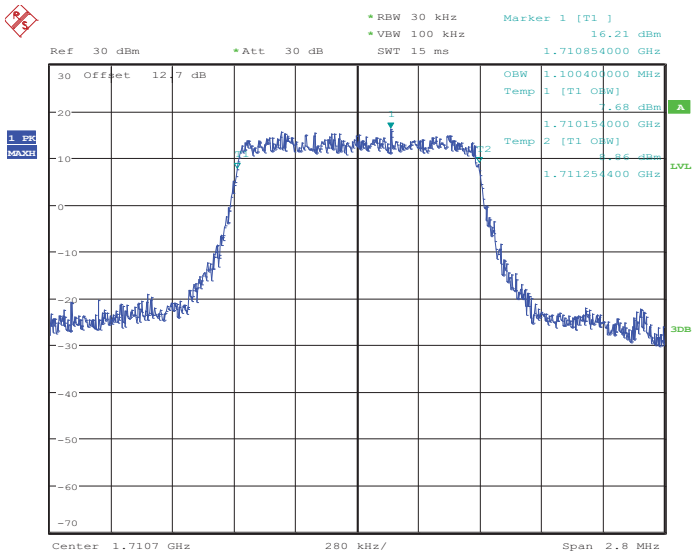
### 26dB Bandwidth Plot on Channel 20393




Date: 21.MAR.2014 08:24:02

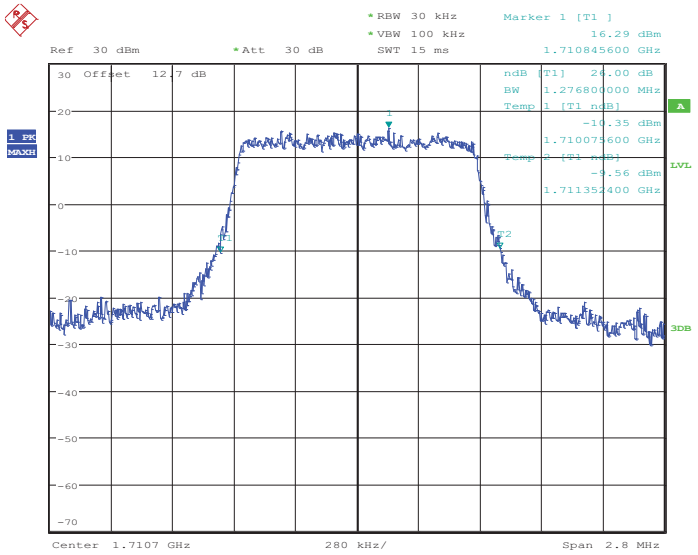
| Band : | LTE Band 4 | BW / Mod. : | 1.4MHz / 16QAM |
|---|---|---|---|

### 99% Occupied Bandwidth Plot on Channel 19957



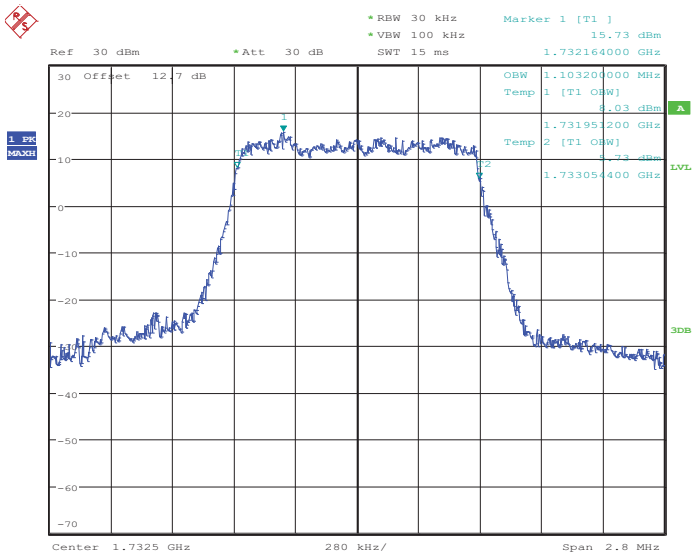

Date: 21.MAR.2014 08:14:26

### 26dB Bandwidth Plot on Channel 19957



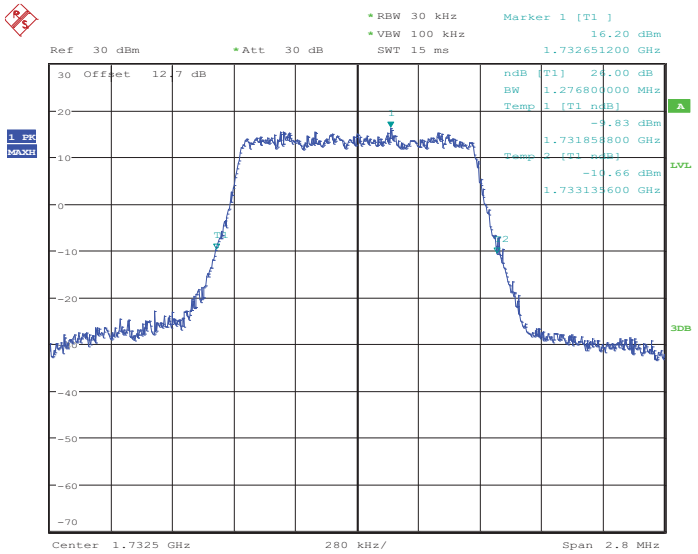

Date: 21.MAR.2014 08:15:01

### 99% Occupied Bandwidth Plot on Channel 20175



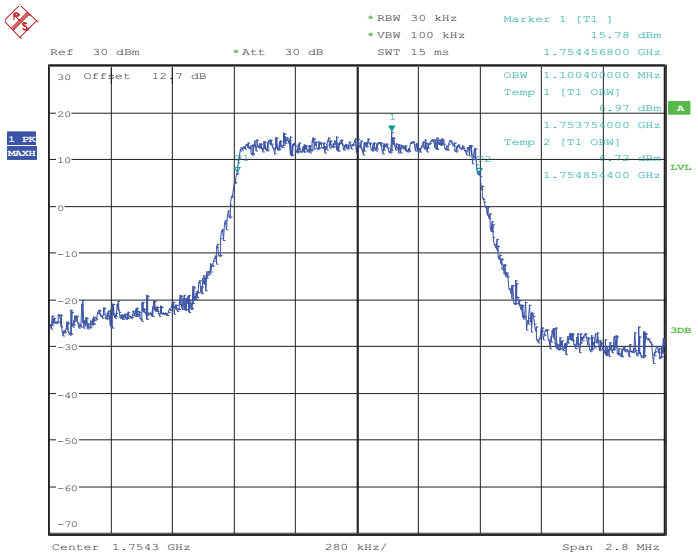

Date: 21.MAR.2014 08:20:37

### 26dB Bandwidth Plot on Channel 20175



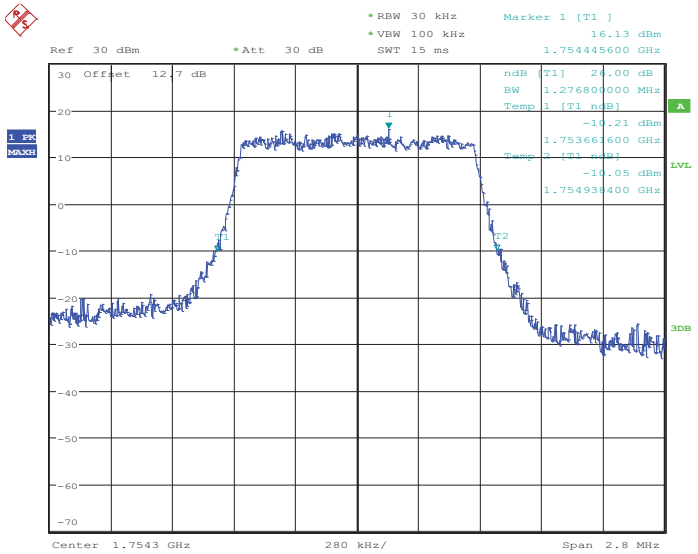

Date: 21.MAR.2014 08:21:13

### 99% Occupied Bandwidth Plot on Channel 20393




Date: 21.MAR.2014 08:23:44

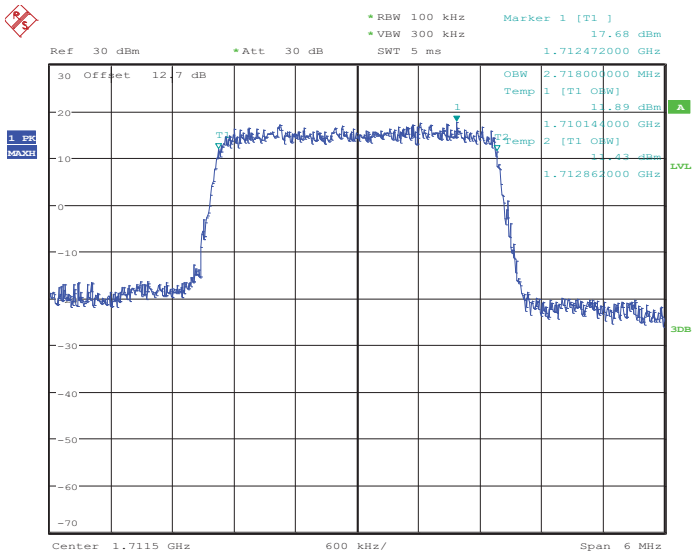
### 26dB Bandwidth Plot on Channel 20393




Date: 21.MAR.2014 08:24:19

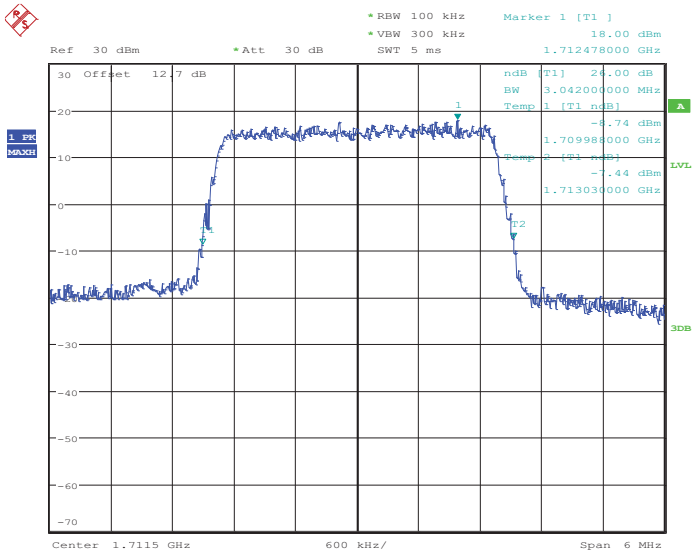
| Band : | LTE Band 4 | BW / Mod. : | 3MHz / QPSK |
|---|---|---|---|

### 99% Occupied Bandwidth Plot on Channel 19965



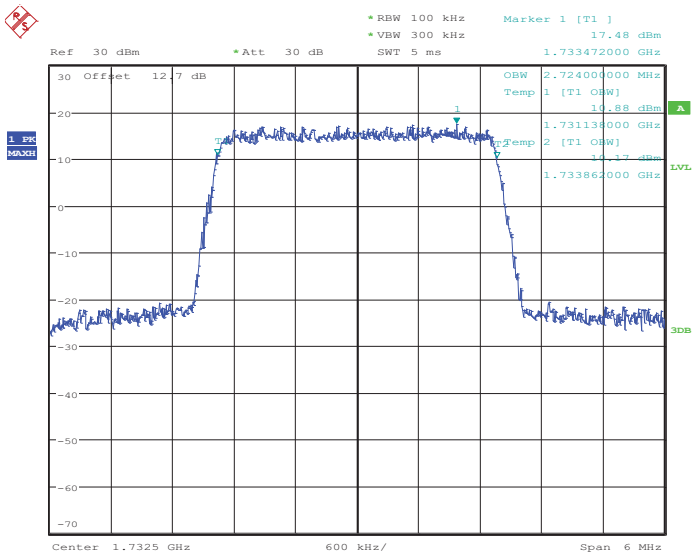

Date: 21.MAR.2014 10:02:16

### 26dB Bandwidth Plot on Channel 19965



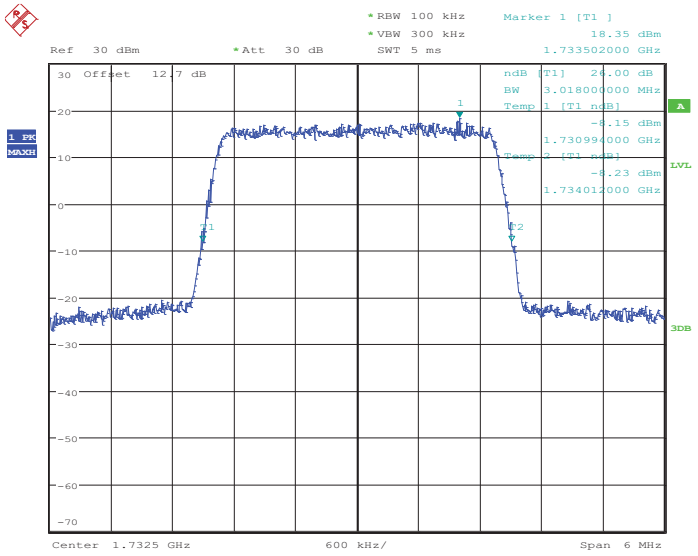

Date: 21.MAR.2014 08:34:48

### 99% Occupied Bandwidth Plot on Channel 20175



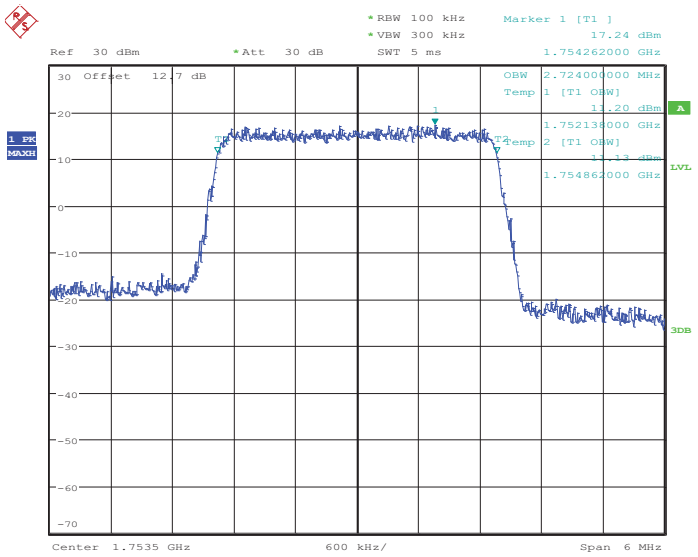

Date: 21.MAR.2014 08:40:26

### 26dB Bandwidth Plot on Channel 20175



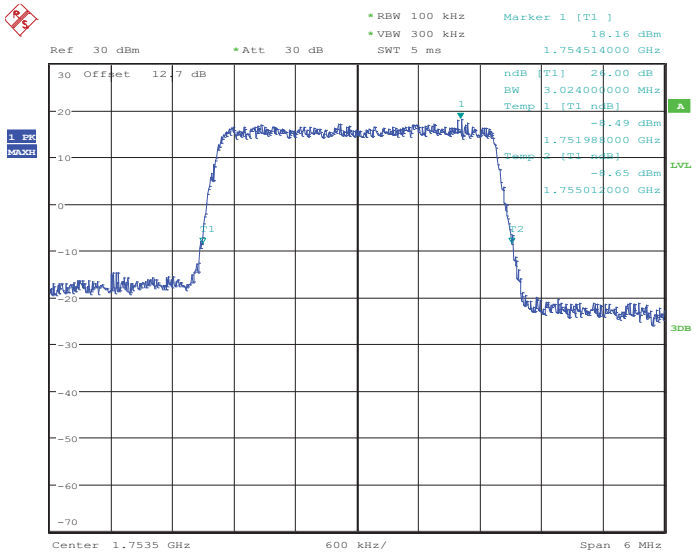

Date: 21.MAR.2014 08:41:00

### 99% Occupied Bandwidth Plot on Channel 20385




Date: 21.MAR.2014 08:43:33

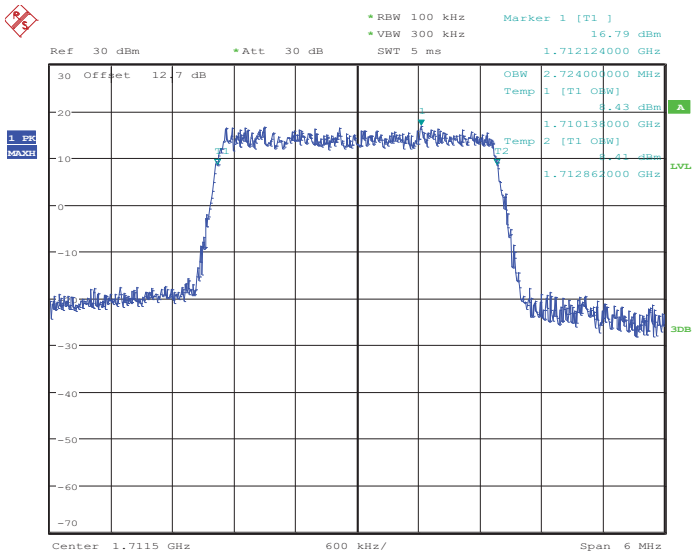
### 26dB Bandwidth Plot on Channel 20385




Date: 21.MAR.2014 08:44:06

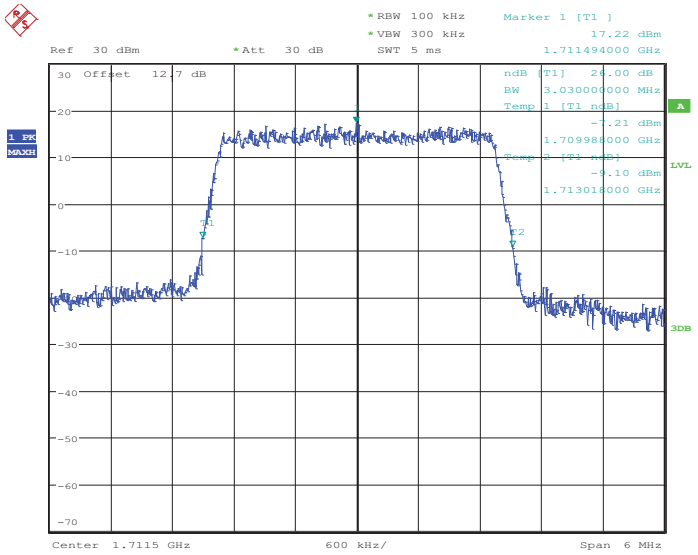
| Band : | LTE Band 4 | BW / Mod. : | 3MHz / 16QAM |
|---|---|---|---|

### 99% Occupied Bandwidth Plot on Channel 19965



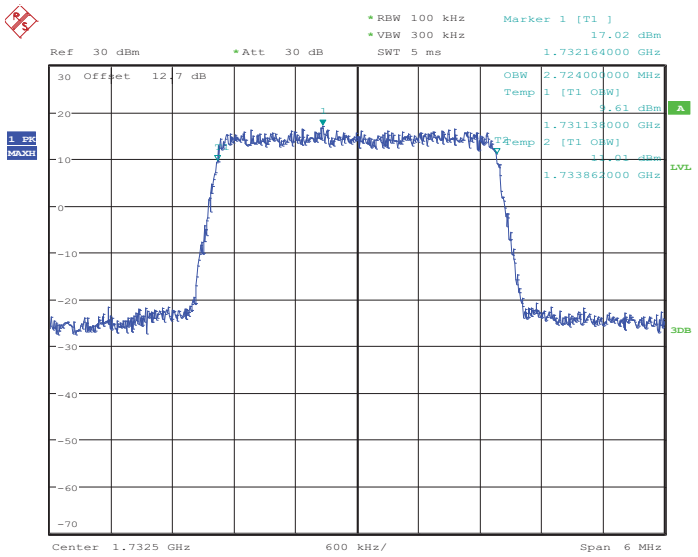

Date: 21.MAR.2014 10:01:30

### 26dB Bandwidth Plot on Channel 19965



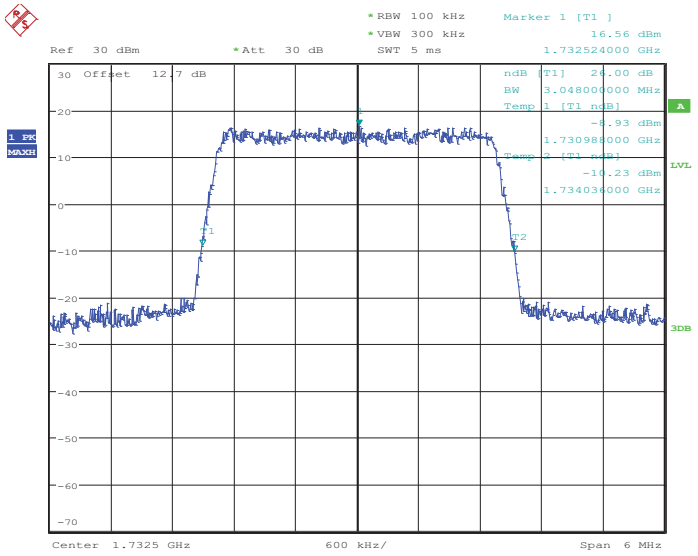

Date: 21.MAR.2014 08:35:06

### 99% Occupied Bandwidth Plot on Channel 20175



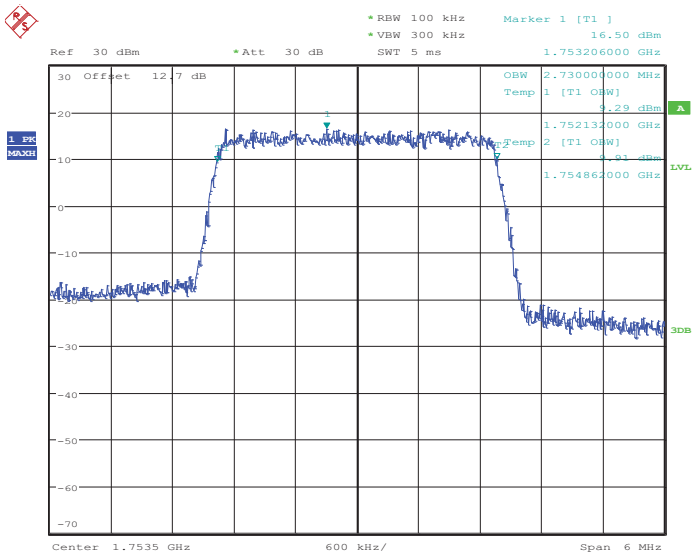

Date: 21.MAR.2014 08:40:42

### 26dB Bandwidth Plot on Channel 20175



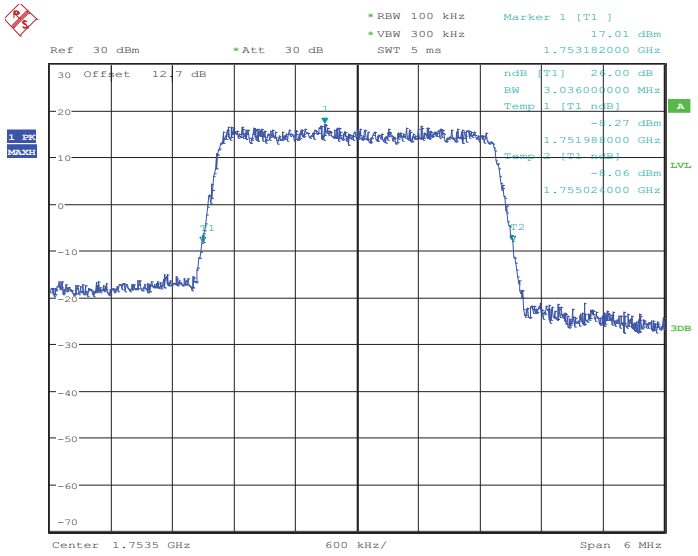

Date: 21.MAR.2014 08:41:18

### 99% Occupied Bandwidth Plot on Channel 20385




Date: 21.MAR.2014 08:43:49

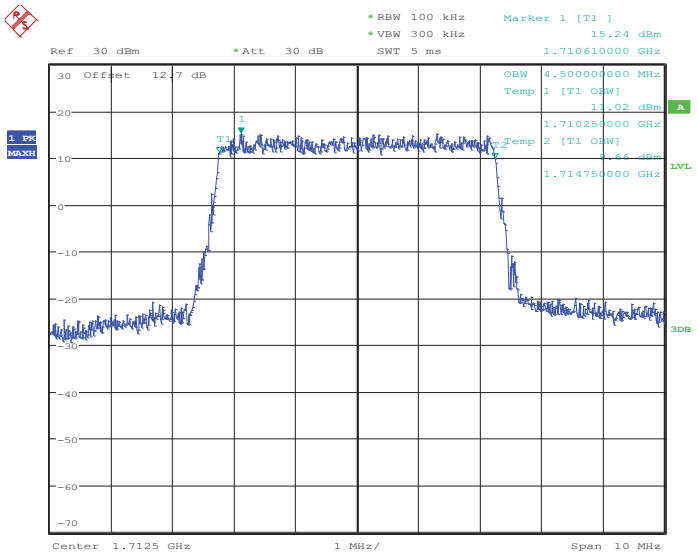
### 26dB Bandwidth Plot on Channel 20385




Date: 21.MAR.2014 08:44:24

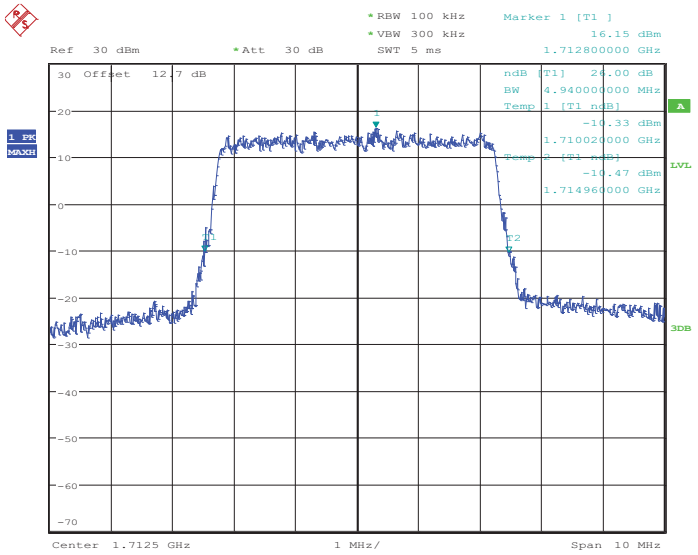
| Band : | LTE Band 4 | BW / Mod. : | 5MHz / QPSK |
|---|---|---|---|

### 99% Occupied Bandwidth Plot on Channel 19975



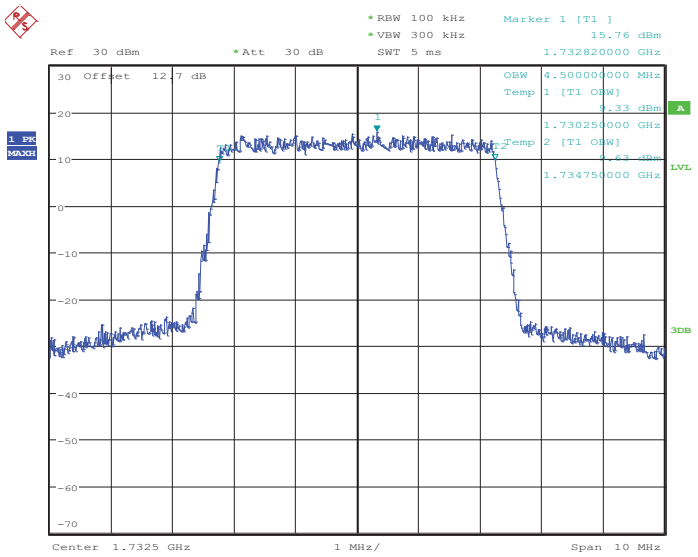

Date: 21.MAR.2014 08:49:48

### 26dB Bandwidth Plot on Channel 19975



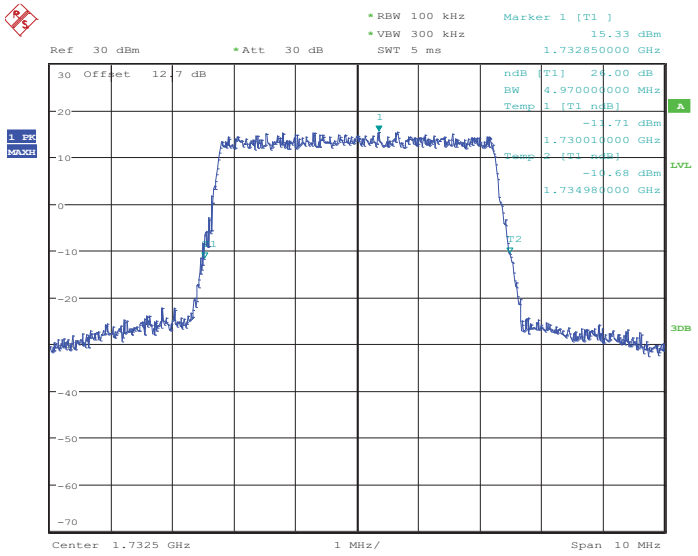

Date: 21.MAR.2014 08:50:22

### 99% Occupied Bandwidth Plot on Channel 20175



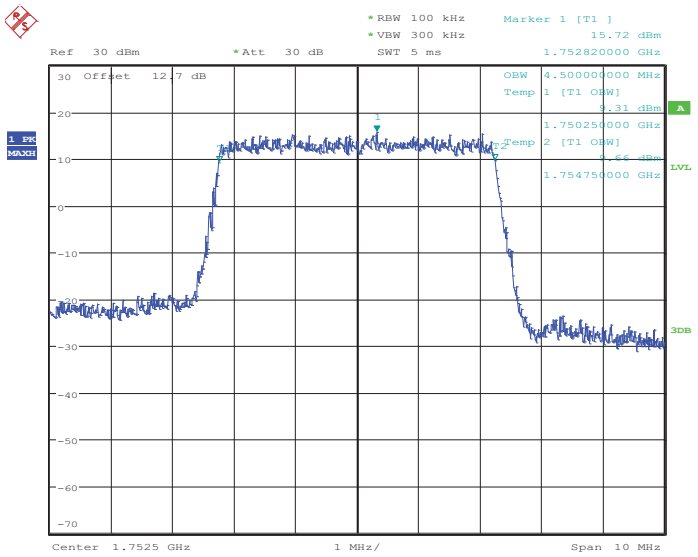

Date: 21.MAR.2014 08:55:59

### 26dB Bandwidth Plot on Channel 20175



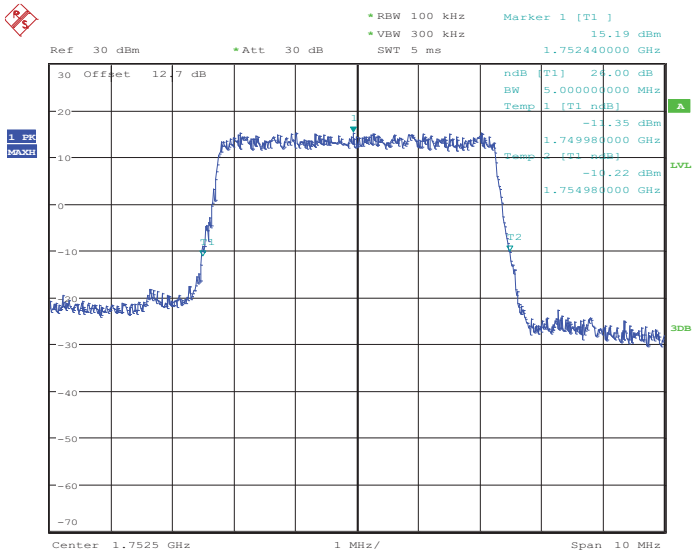

Date: 21.MAR.2014 08:56:33

### 99% Occupied Bandwidth Plot on Channel 20375




Date: 21.MAR.2014 08:59:05

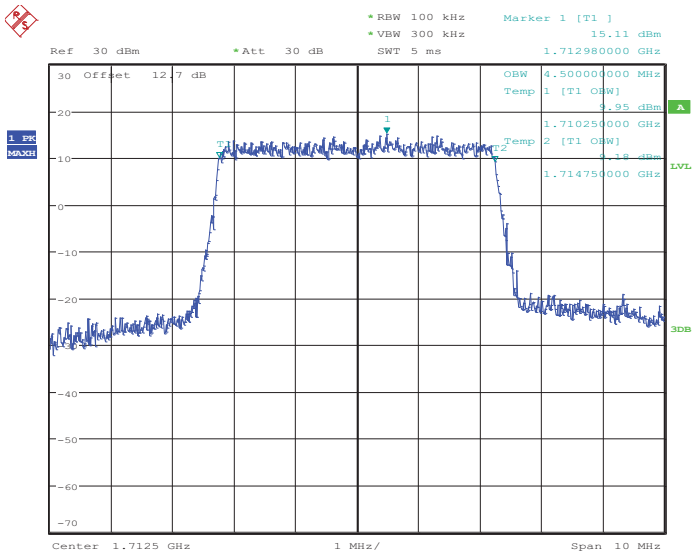
### 26dB Bandwidth Plot on Channel 20375




Date: 21.MAR.2014 08:59:38

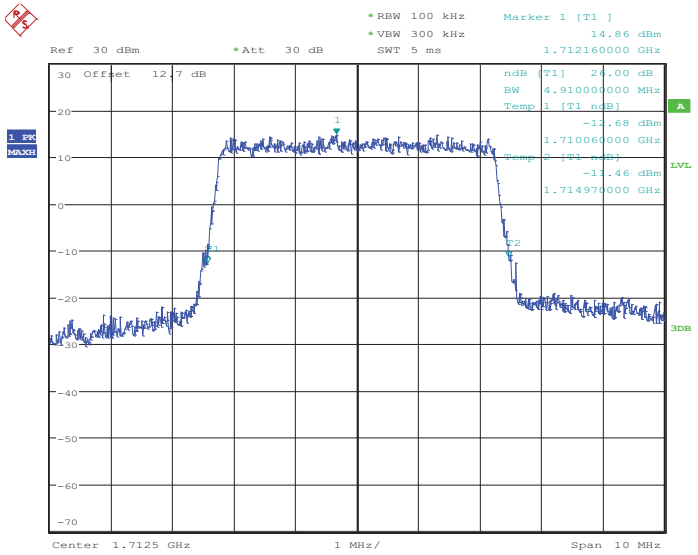
| Band : | LTE Band 4 | BW / Mod. : | 5MHz / 16QAM |
|---|---|---|---|

### 99% Occupied Bandwidth Plot on Channel 19975



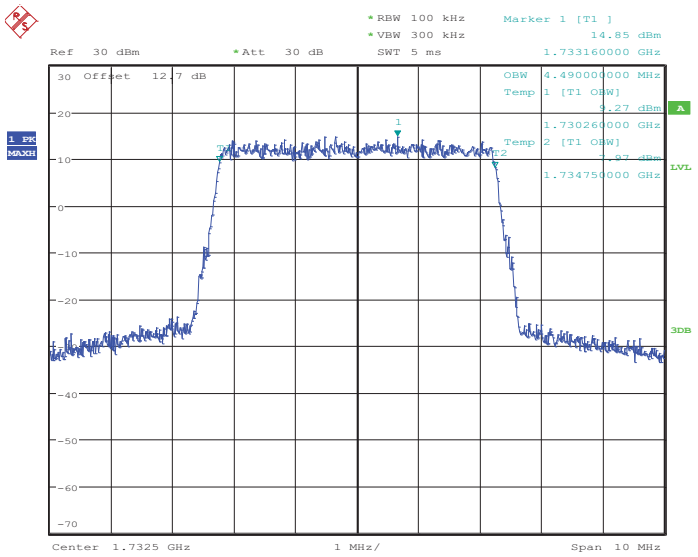

Date: 21.MAR.2014 08:50:04

### 26dB Bandwidth Plot on Channel 19975



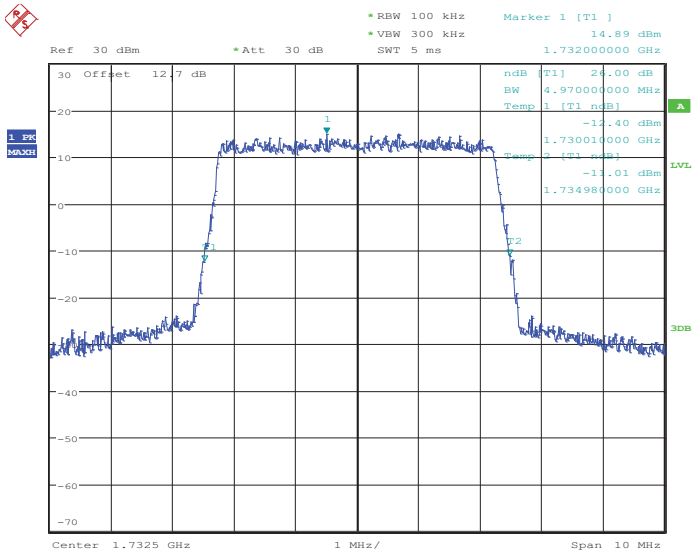

Date: 21.MAR.2014 08:50:39

### 99% Occupied Bandwidth Plot on Channel 20175



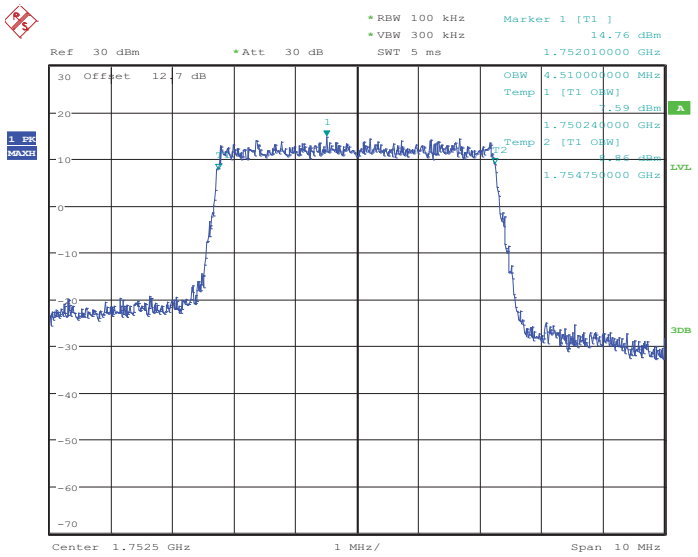

Date: 21.MAR.2014 08:56:15

### 26dB Bandwidth Plot on Channel 20175



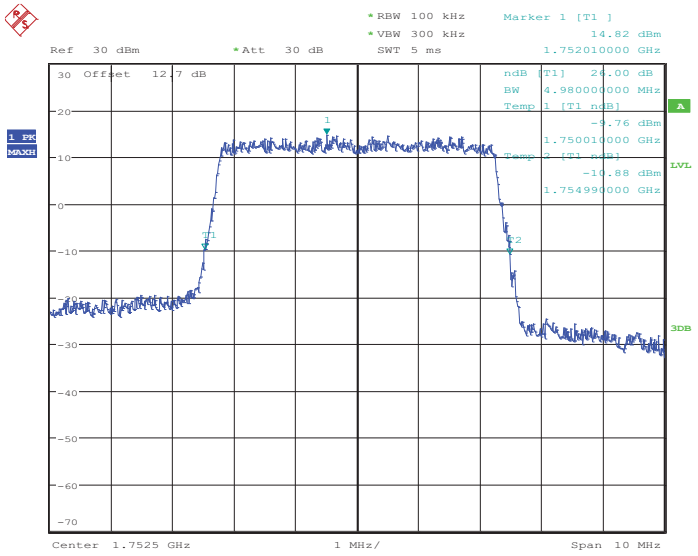

Date: 21.MAR.2014 08:56:50

### 99% Occupied Bandwidth Plot on Channel 20375




Date: 21.MAR.2014 08:59:21

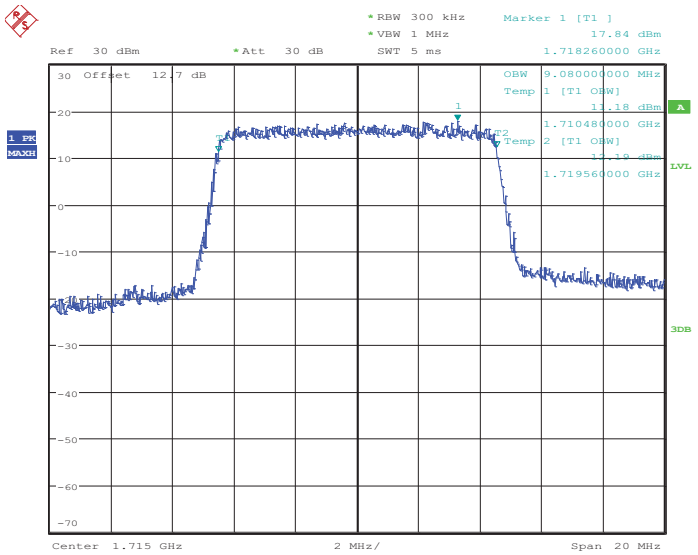
### 26dB Bandwidth Plot on Channel 20375




Date: 21.MAR.2014 08:59:56

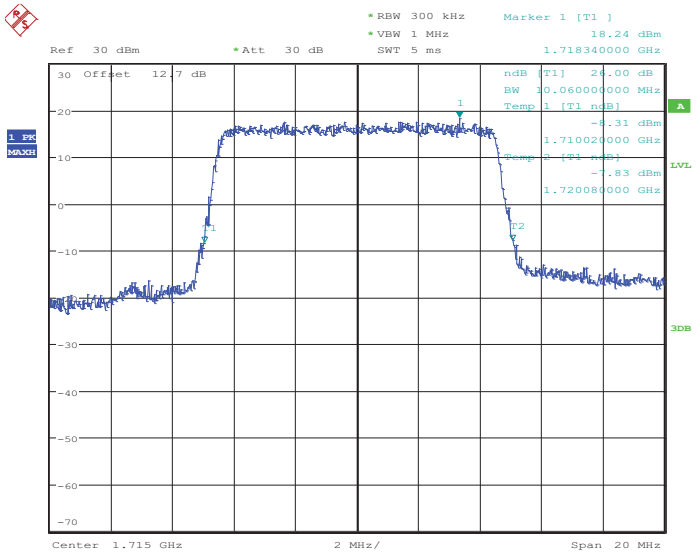
| Band : | LTE Band 4 | BW / Mod. : | 10MHz / QPSK |
|---|---|---|---|

### 99% Occupied Bandwidth Plot on Channel 20000



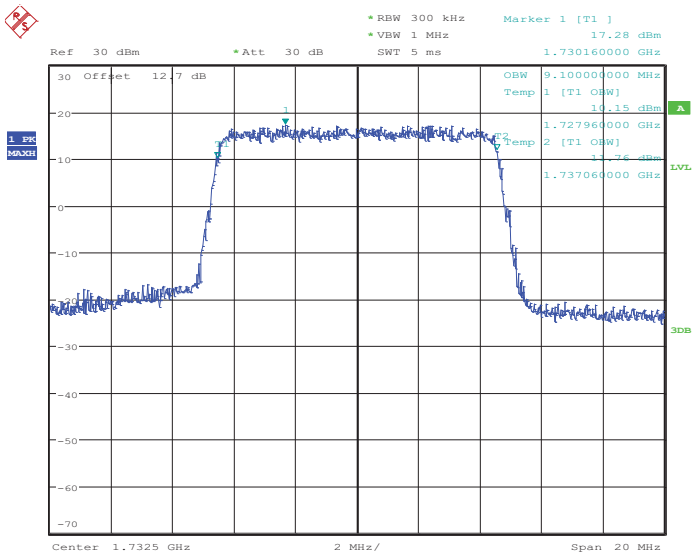

Date: 21.MAR.2014 09:05:20

### 26dB Bandwidth Plot on Channel 20000



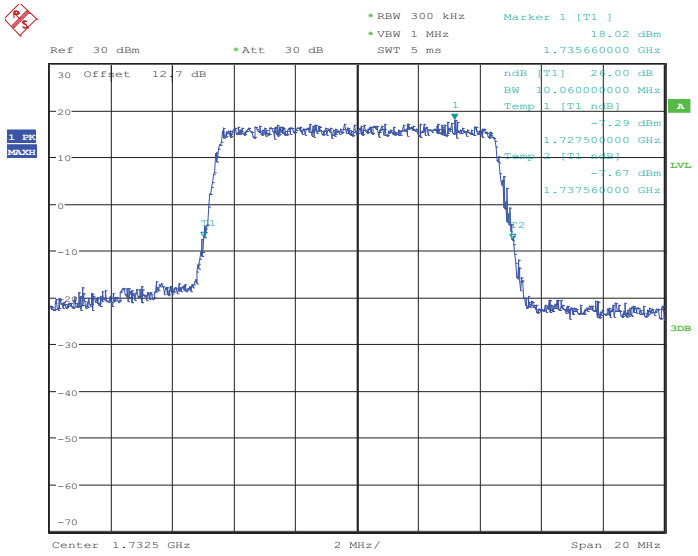

Date: 21.MAR.2014 09:05:54

### 99% Occupied Bandwidth Plot on Channel 20175



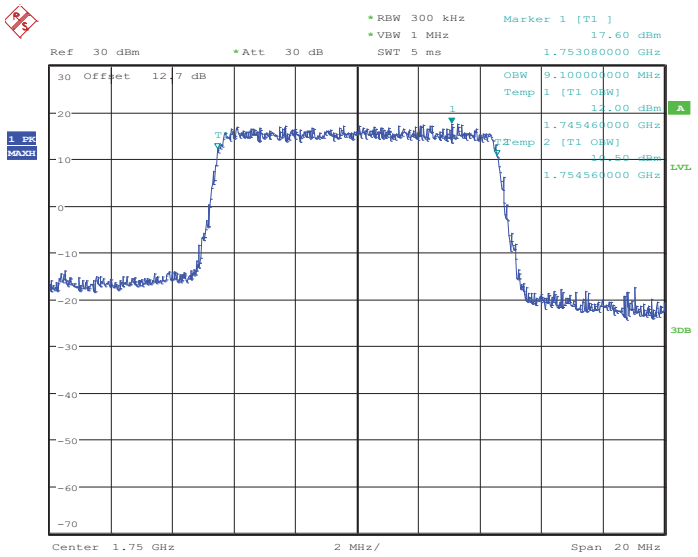

Date: 21.MAR.2014 09:11:32

### 26dB Bandwidth Plot on Channel 20175



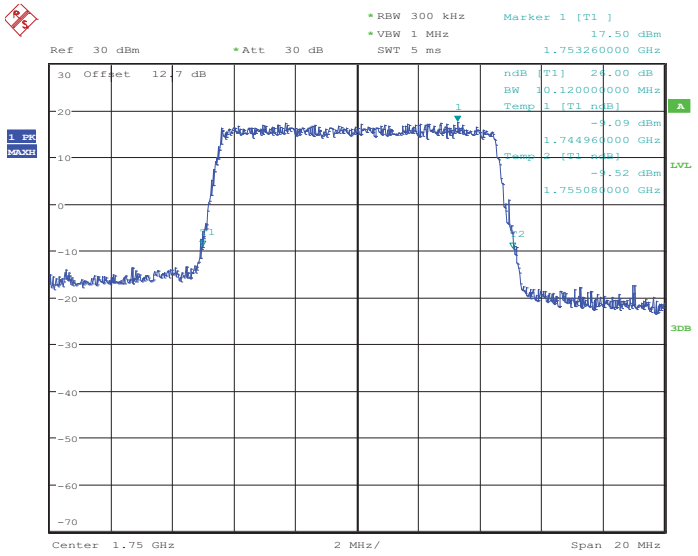

Date: 21.MAR.2014 09:12:05

### 99% Occupied Bandwidth Plot on Channel 20350




Date: 21.MAR.2014 09:14:39

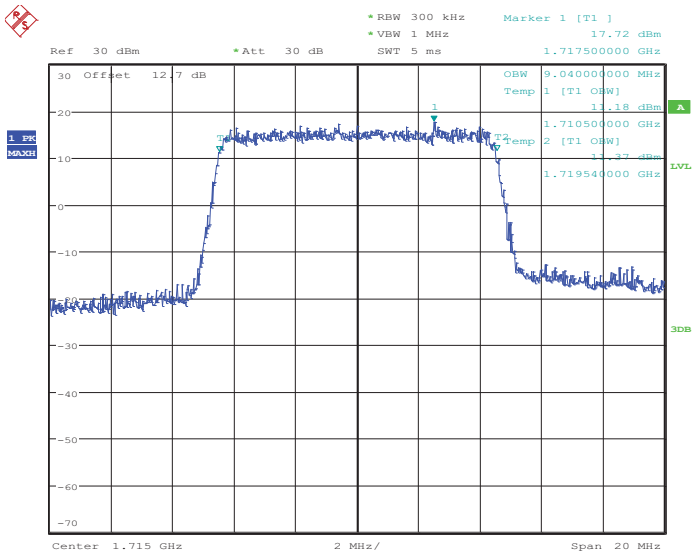
### 26dB Bandwidth Plot on Channel 20350




Date: 21.MAR.2014 09:15:12

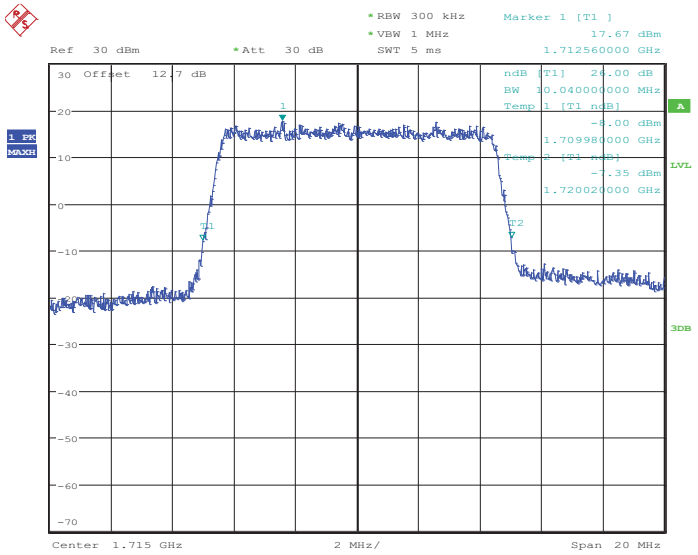
| Band : | LTE Band 4 | BW / Mod. : | 10MHz / 16QAM |
|---|---|---|---|

### 99% Occupied Bandwidth Plot on Channel 20000



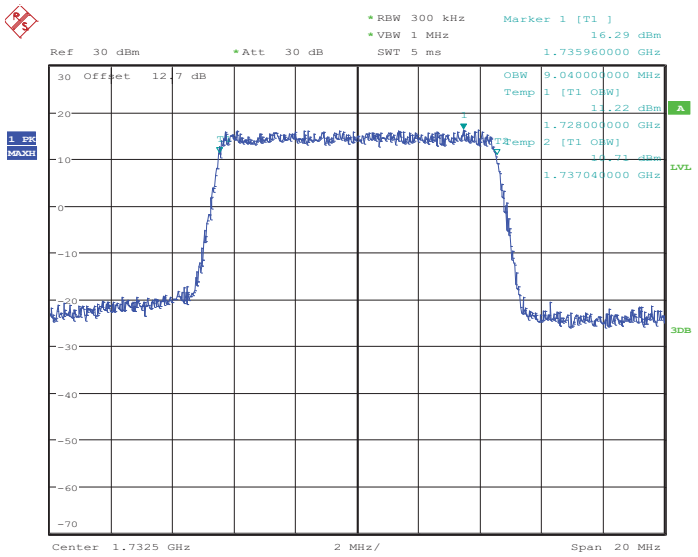

Date: 21.MAR.2014 09:05:36

### 26dB Bandwidth Plot on Channel 20000



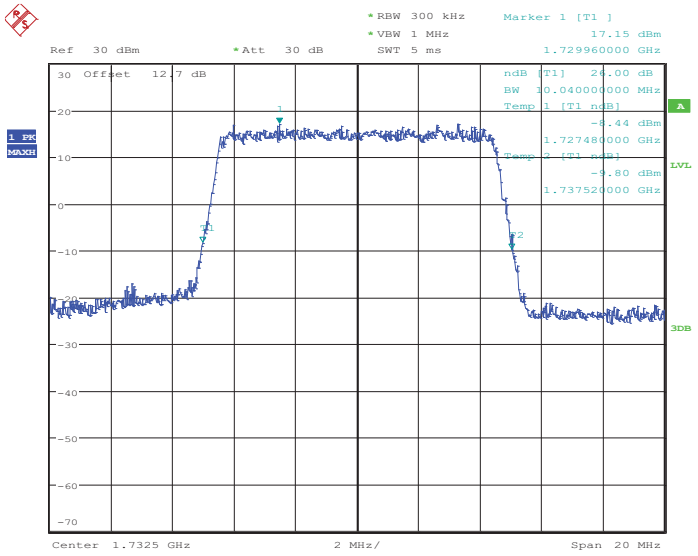

Date: 21.MAR.2014 09:06:12

### 99% Occupied Bandwidth Plot on Channel 20175



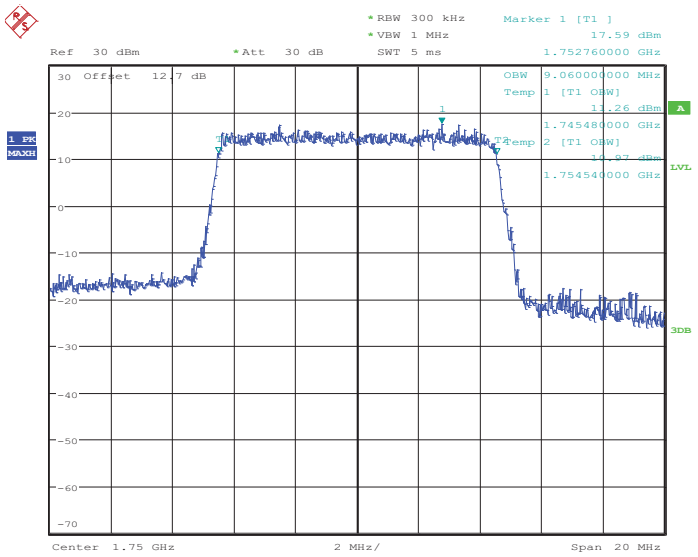

Date: 21.MAR.2014 09:11:48

### 26dB Bandwidth Plot on Channel 20175



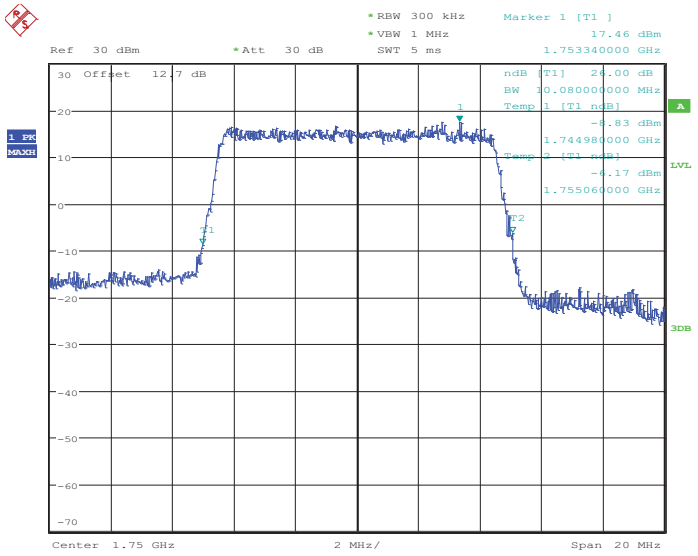

Date: 21.MAR.2014 09:12:23

### 99% Occupied Bandwidth Plot on Channel 20350




Date: 21.MAR.2014 09:14:55

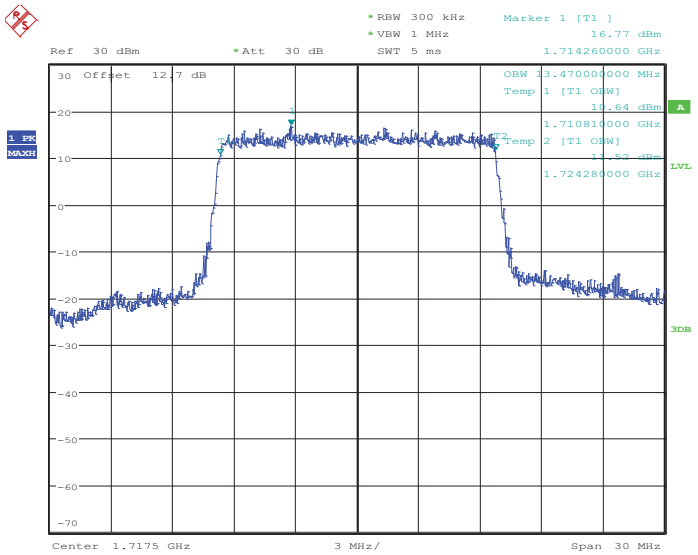
### 26dB Bandwidth Plot on Channel 20350




Date: 21.MAR.2014 09:15:30

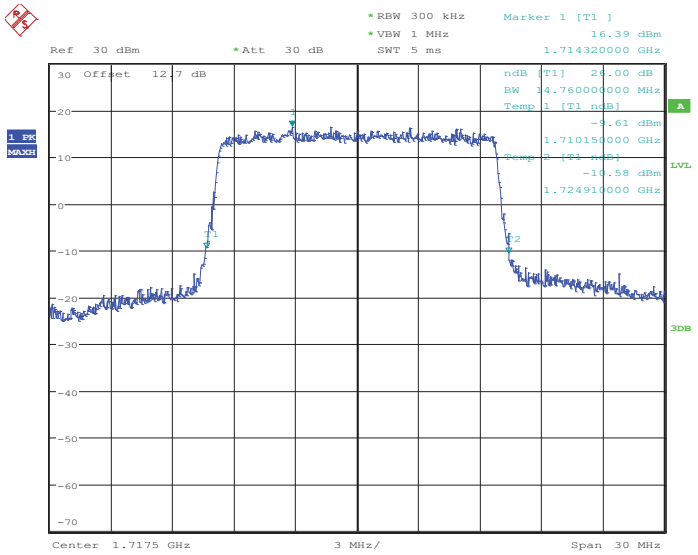
| Band : | LTE Band 4 | BW / Mod. : | 15MHz / QPSK |
|---|---|---|---|

### 99% Occupied Bandwidth Plot on Channel 20025



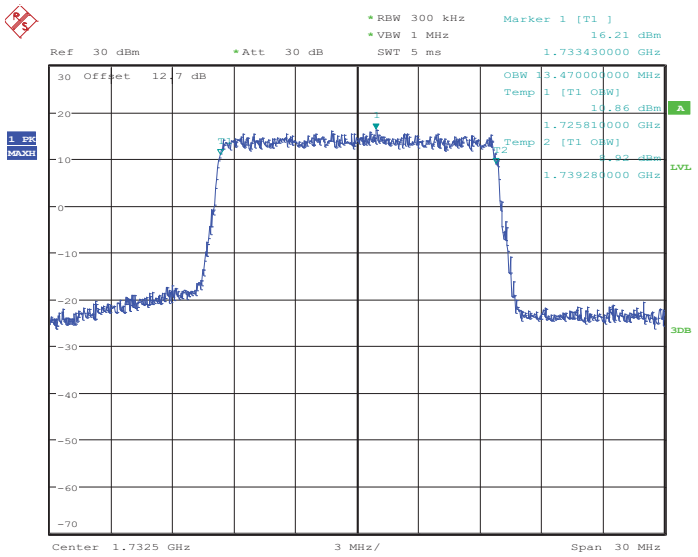

Date: 21.MAR.2014 09:20:56

### 26dB Bandwidth Plot on Channel 20025



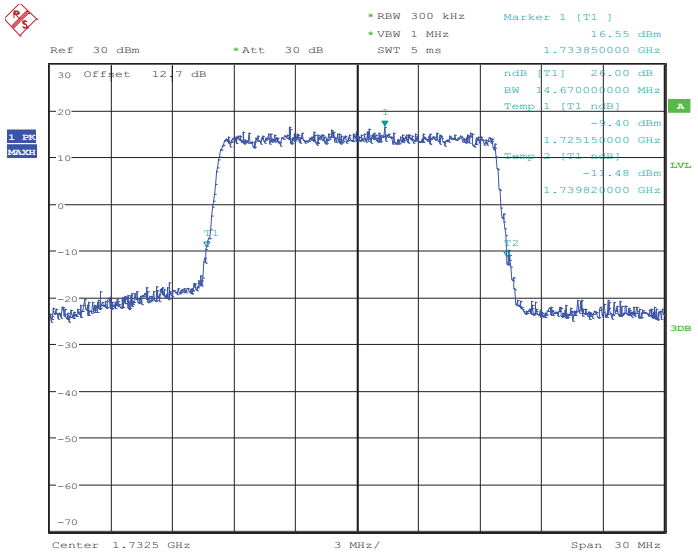

Date: 21.MAR.2014 09:21:30

### 99% Occupied Bandwidth Plot on Channel 20175



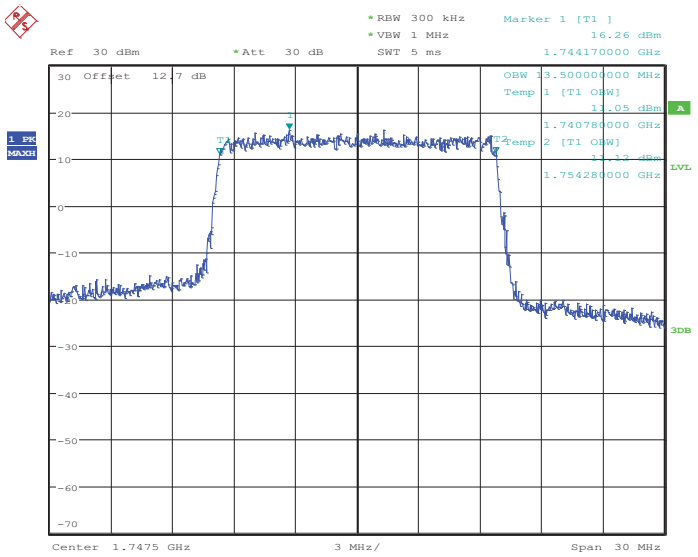

Date: 21.MAR.2014 09:27:08

### 26dB Bandwidth Plot on Channel 20175



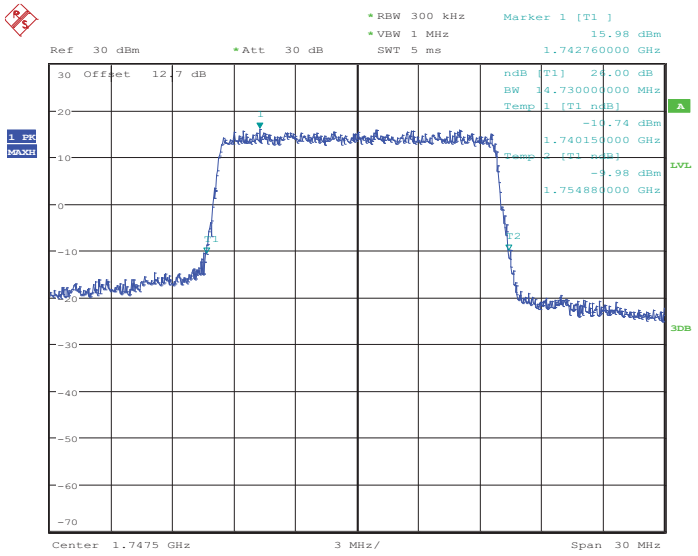

Date: 21.MAR.2014 09:27:42

### 99% Occupied Bandwidth Plot on Channel 20325




Date: 21.MAR.2014 09:30:14

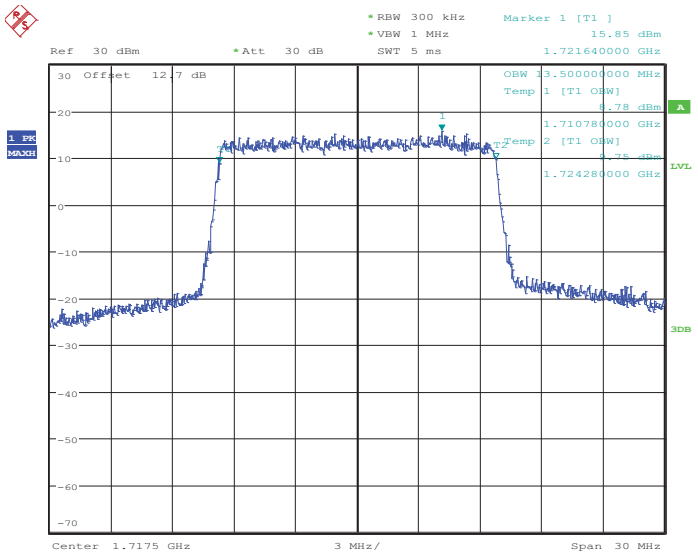
### 26dB Bandwidth Plot on Channel 20325




Date: 21.MAR.2014 09:30:48

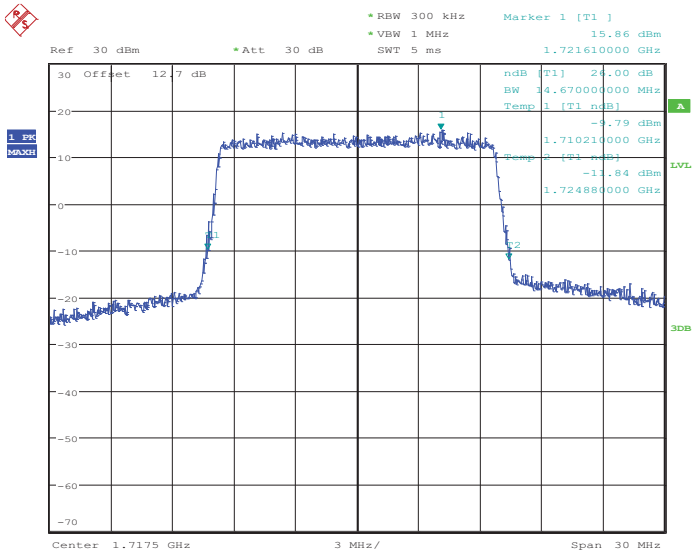
| Band : | LTE Band 4 | BW / Mod. : | 15MHz / 16QAM |
|---|---|---|---|

### 99% Occupied Bandwidth Plot on Channel 20025



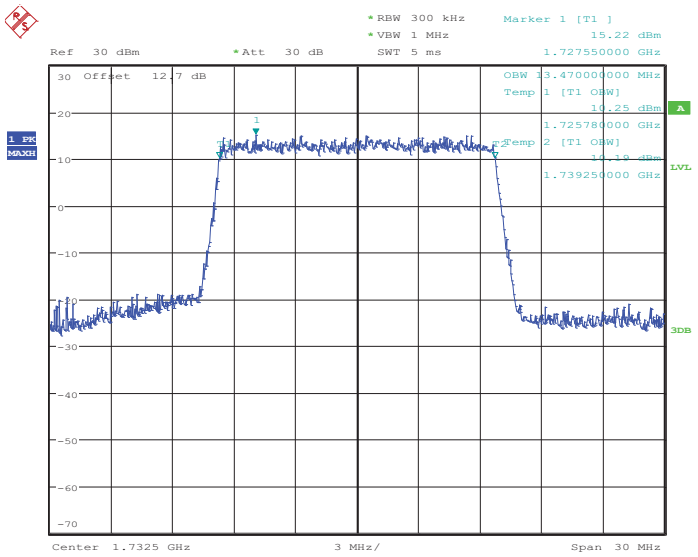

Date: 21.MAR.2014 09:21:12

### 26dB Bandwidth Plot on Channel 20025



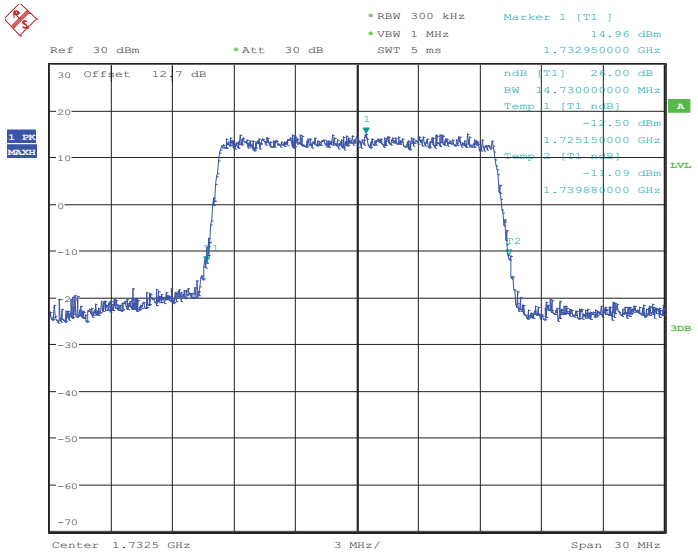

Date: 21.MAR.2014 09:21:47

### 99% Occupied Bandwidth Plot on Channel 20175



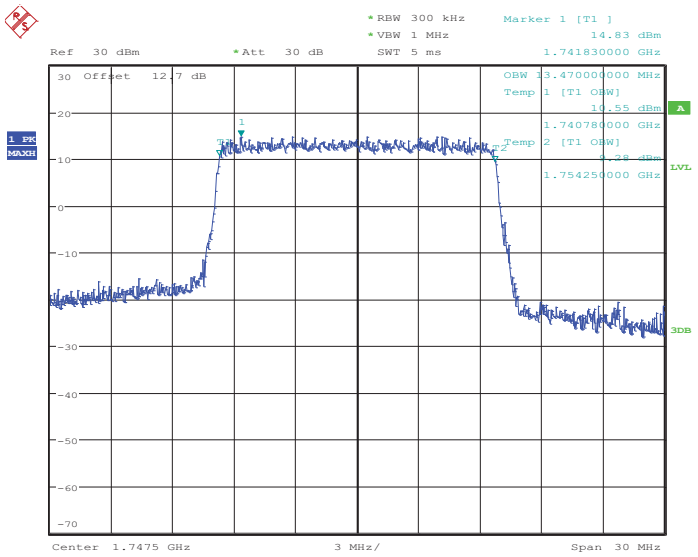

Date: 21.MAR.2014 09:27:24

### 26dB Bandwidth Plot on Channel 20175



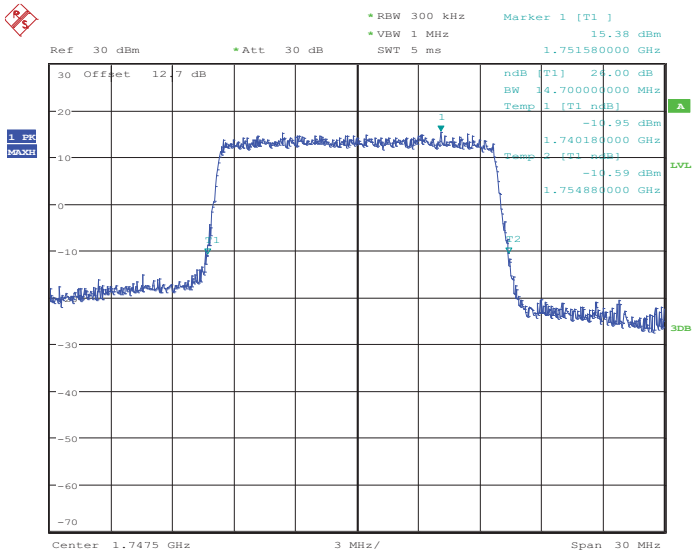

Date: 21.MAR.2014 09:27:59

### 99% Occupied Bandwidth Plot on Channel 20325




Date: 21.MAR.2014 09:30:30

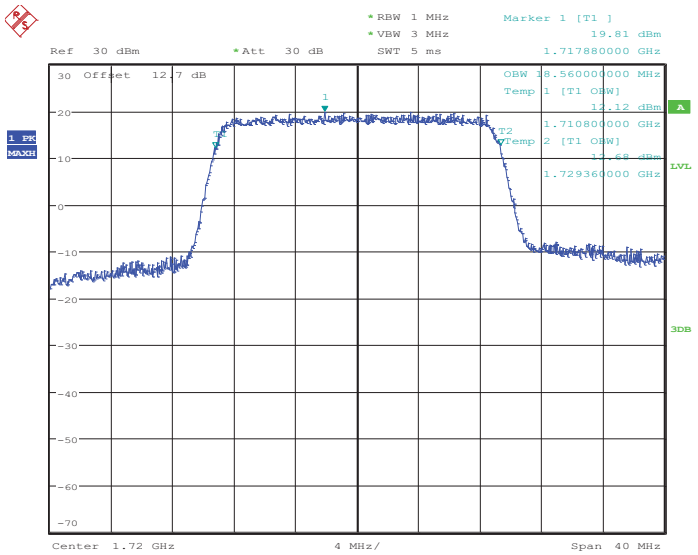
### 26dB Bandwidth Plot on Channel 20325




Date: 21.MAR.2014 09:31:06

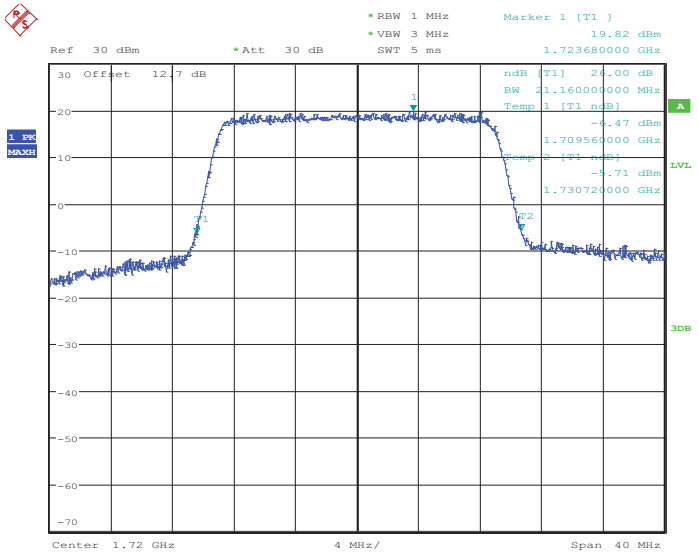
| Band : | LTE Band 4 | BW / Mod. : | 20MHz / QPSK |
|---|---|---|---|

### 99% Occupied Bandwidth Plot on Channel 20050



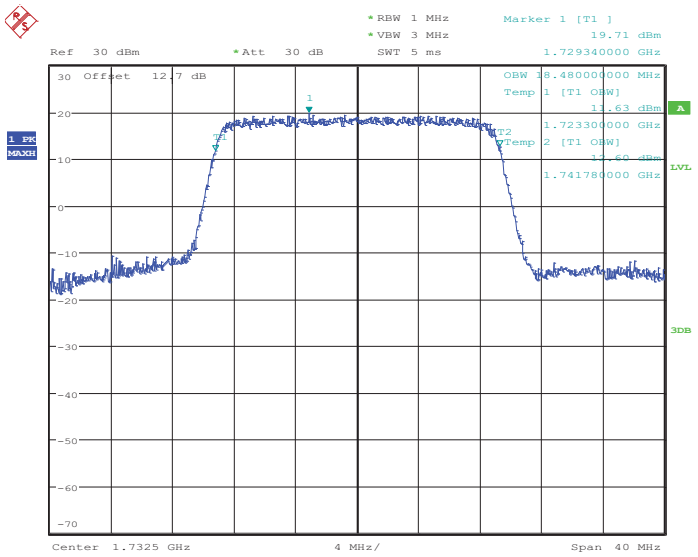

Date: 21.MAR.2014 09:36:33

### 26dB Bandwidth Plot on Channel 20050



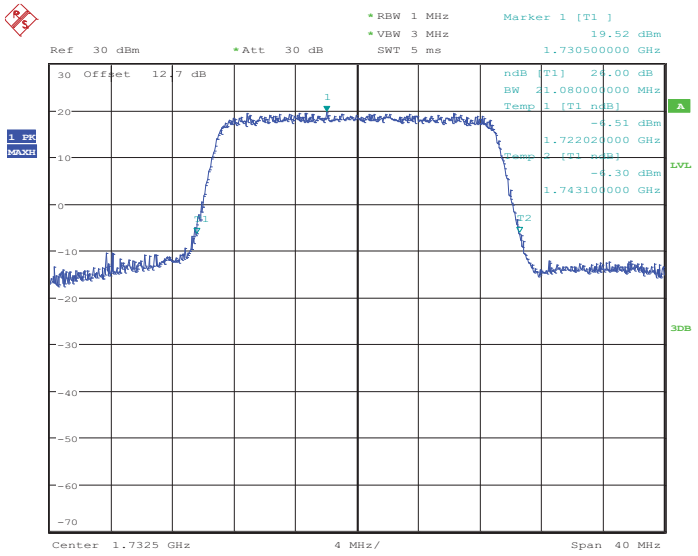

Date: 21.MAR.2014 09:37:06

### 99% Occupied Bandwidth Plot on Channel 20175



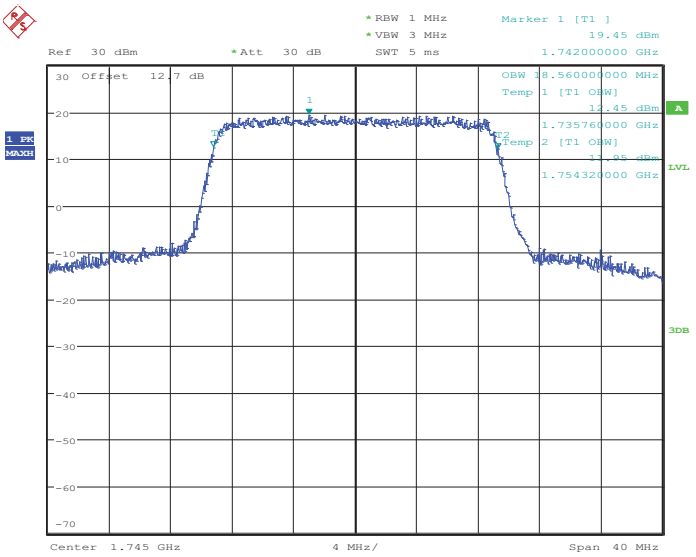

Date: 21.MAR.2014 09:42:46

### 26dB Bandwidth Plot on Channel 20175



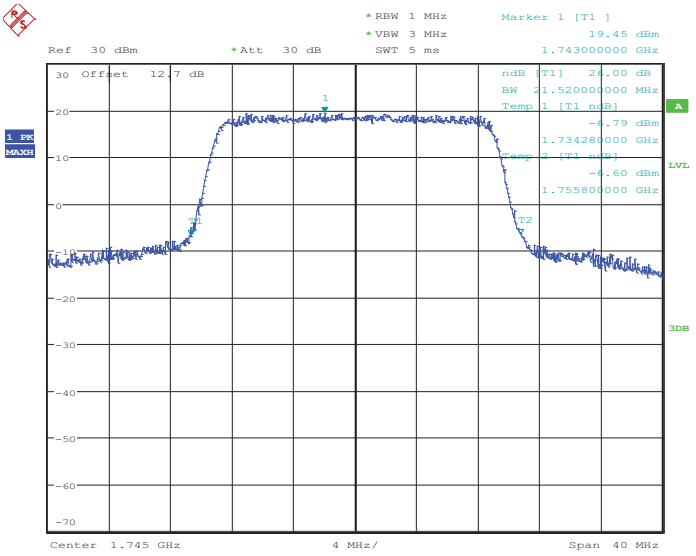

Date: 21.MAR.2014 09:43:20

### 99% Occupied Bandwidth Plot on Channel 20300




Date: 21.MAR.2014 09:45:53

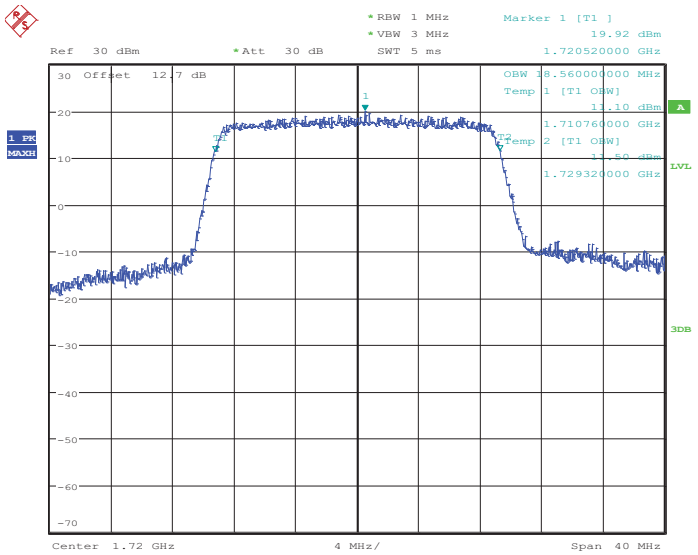
### 26dB Bandwidth Plot on Channel 20300




Date: 21.MAR.2014 09:46:27

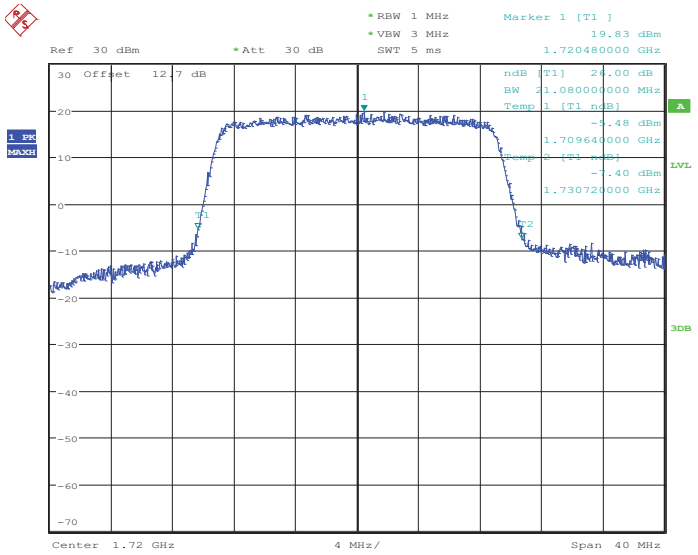
| Band : | LTE Band 4 | BW / Mod. : | 20MHz / 16QAM |
|---|---|---|---|

### 99% Occupied Bandwidth Plot on Channel 20050



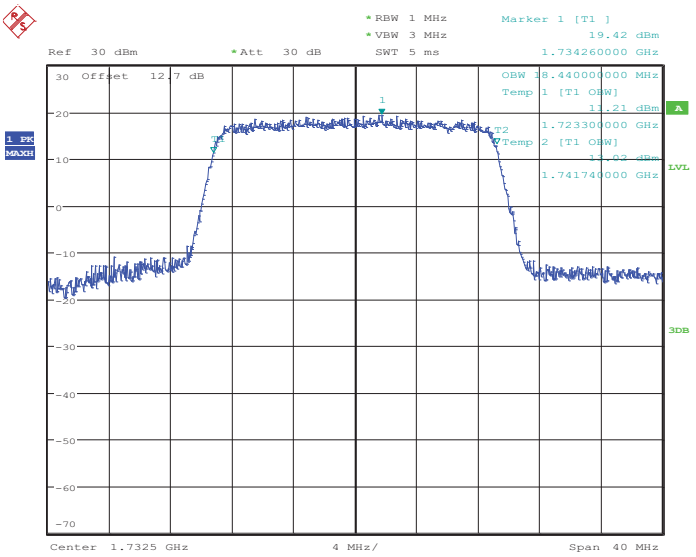

Date: 21.MAR.2014 09:36:49

### 26dB Bandwidth Plot on Channel 20050



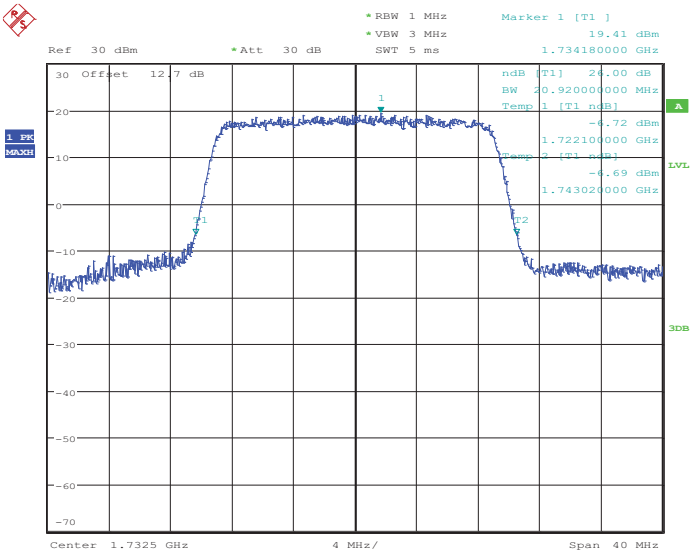

Date: 21.MAR.2014 09:37:24

### 99% Occupied Bandwidth Plot on Channel 20175



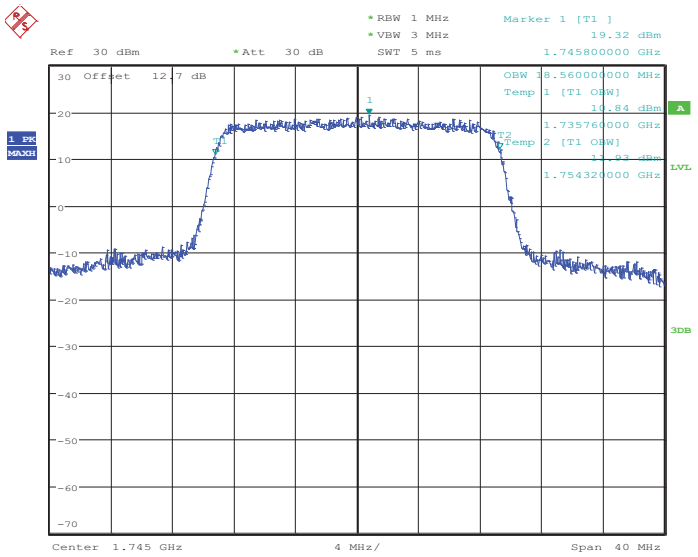

Date: 21.MAR.2014 09:43:02

### 26dB Bandwidth Plot on Channel 20175



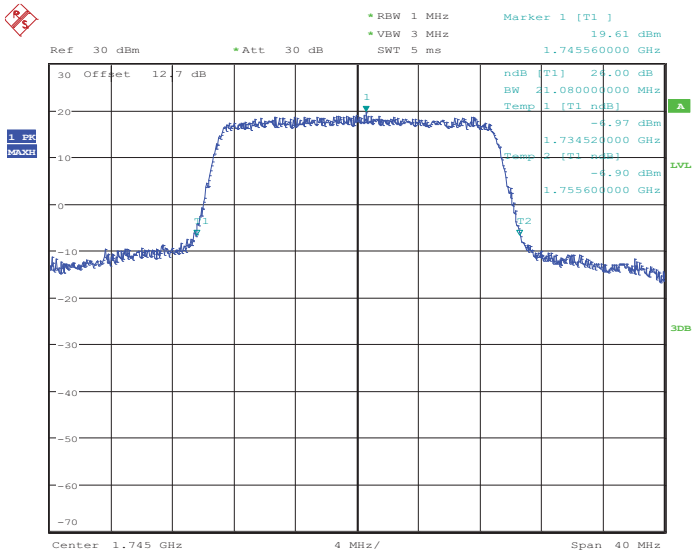

Date: 21.MAR.2014 09:43:37

### 99% Occupied Bandwidth Plot on Channel 20300




Date: 21.MAR.2014 09:46:09

### 26dB Bandwidth Plot on Channel 20300




Date: 21.MAR.2014 09:46:44