



# FCC RF Test Report

**APPLICANT** : BandRich Inc.  
**EQUIPMENT** : LTE FDD&TDD WLAN VoIP Home Router  
**BRAND NAME** : BandLuxe  
**MODEL NAME** : R565  
**FCC ID** : UZI-565R66  
**STANDARD** : 47 CFR Part 2, 27  
**CLASSIFICATION** : Licensed Non-Broadcast Station Transmitter (TNB)

The product was received on May 19, 2014 and testing was completed on Jun. 12, 2014. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI / TIA / EIA-603-C-2004 and the testing has shown the tested sample to be in compliance with the applicable technical standards.

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

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Reviewed by: Joseph Lin / Supervisor

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Approved by: Jones Tsai / Manager



## **SPORTON INTERNATIONAL INC.**

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## REVISION HISTORY

| REPORT NO. | VERSION | DESCRIPTION                                                  | ISSUED DATE   |
|------------|---------|--------------------------------------------------------------|---------------|
| FG451961   | Rev. 01 | Initial issue of report                                      | Jun. 19, 2014 |
| FG451961   | Rev. 02 | Revising LTE Band 4 & 41 emission designator in section 1.6. | Jun. 20, 2014 |
| FG451961   | Rev. 03 | Revising classification.                                     | Jun. 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-139 (6.4)<br>RSS-199 (4.4) | Conducted Output Power                                                       | Reporting Only        | PASS   | -      |
| 3.2            | §27.50(d)(5)                                      | RSS-130(4.4)<br>RSS-139 (6.4)<br>RSS-199 (4.4)                 | Peak-to-Average Ratio                                                        | <13 dB                | PASS   | -      |
| 3.3            | §27.50(c)(10)                                     | N/A                                                            | Effective Radiated Power<br>(Band 12) (Band 17)                              | ERP < 3 Watt          | PASS   | -      |
|                | N/A                                               | RSS-130(4.4)                                                   | Equivalent Isotropic Radiated Power<br>(Band 12) (Band 17)                   | EIRP < 5 Watt         |        |        |
|                | §27.50(d)(4)                                      | RSS-139 (6.4)<br>SRSP-513(5.1.2)                               | Equivalent Isotropic Radiated Power<br>(Band 4)                              | EIRP < 1Watt          |        |        |
|                | §27.50(h)(2)                                      | RSS-199 (4.4)                                                  | Equivalent Isotropic Radiated Power<br>(Band 41)                             | EIRP < 2Watt          |        |        |
| 3.4            | §2.1049<br>§27.53(g)(3)<br>§27.53(l)(6)           | RSS-GEN(4.6.1)<br>RSS-139 (3.1)<br>RSS-199 (4.2)               | Occupied Bandwidth                                                           | Reporting Only        | PASS   | -      |
| 3.5            | §2.1051<br>§27.53(f)<br>§27.53(g)<br>§27.53(l)(4) | RSS-GEN(4.9)<br>RSS-130(4.6)<br>RSS-139 (6.5)<br>RSS-199 (4.5) | Conducted Band Edge Measurement<br>(Band 4) (Band 12) (Band 17)<br>(Band 41) | < 43+10log10(P[Watt]) | PASS   | -      |



| Report Section | FCC Rule                          | IC Rule                                                        | Description                                                   | Limit                               | Result | Remark                                    |
|----------------|-----------------------------------|----------------------------------------------------------------|---------------------------------------------------------------|-------------------------------------|--------|-------------------------------------------|
| 3.6            | §2.1051<br>§27.53(f)<br>§27.53(g) | RSS-GEN(4.9)<br>RSS-130(4.6)<br>RSS-139 (6.5)                  | Conducted Spurious Emission<br>(Band 4) (Band 12) (Band 17)   | $< 43+10\log_{10}(P[\text{Watts}])$ | PASS   | -                                         |
|                | §2.1051<br>§27.53(l)(4)           | RSS-GEN(4.9)<br>RSS-199 (4.5)                                  | Conducted Spurious Emission<br>(Band 41)                      | $< 55+10\log_{10}(P[\text{Watts}])$ |        |                                           |
| 3.7            | §2.1053<br>§27.53(f)<br>§27.53(g) | RSS-GEN(4.9)<br>RSS-130(4.6)<br>RSS-139 (6.5)                  | Radiated Spurious Emission<br>(Band 4)<br>(Band 12) (Band 17) | $< 43+10\log_{10}(P[\text{Watts}])$ | PASS   | Under limit<br>3.63 dB at<br>7760.000 MHz |
|                | §2.1053<br>§27.53(l)(4)           | RSS-GEN(4.9)<br>RSS-199 (4.5)                                  | Radiated Spurious Emission<br>(Band 41)                       | $< 55+10\log_{10}(P[\text{Watts}])$ |        |                                           |
| 3.8            | §2.1055<br>§27.54                 | RSS-GEN(4.7)<br>RSS-130(4.3)<br>RSS-139 (6.3)<br>RSS-199 (4.3) | Frequency Stability<br>Temperature & Voltage                  | $< 2.5 \text{ ppm}$                 | PASS   |                                           |

# 1 General Description

## 1.1 Applicant

**BandRich Inc.**

6F., No. 71, Zhouzi St., Neihu Dist., Taipei City 11493, Taiwan (R.O.C.)

## 1.2 Manufacturer

**FAIR GOAL ELECTRONIC CO.**

1F., No.97-1, Haihu, Luzhu Township, Taoyuan County 338, Taiwan (R.O.C.)

## 1.3 Product Feature of Equipment Under Test

| Product Feature                 |                                   |
|---------------------------------|-----------------------------------|
| Equipment                       | LTE FDD&TDD WLAN VoIP Home Router |
| Brand Name                      | BandLuxe                          |
| Model Name                      | R565                              |
| FCC ID                          | UZI-565R66                        |
| EUT supports Radios application | LTE<br>WLAN 11b/g/n HT20/HT40     |
| HW Version                      | 1.0                               |
| SW Version                      | AR_1_00000000_2_001_9961          |
| EUT Stage                       | Production Unit                   |

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

## 1.4 Product Specification subjective to this standard

| Product Specification subjective to this standard |                                                                                                                                                                                     |
|---------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Tx Frequency</b>                               | LTE Band 4 : 1710.7 MHz ~ 1754.3 MHz<br>LTE Band 12 : 699 MHz ~ 716 MHz<br>LTE Band 17 : 706.5 MHz ~ 713.5 MHz<br>LTE Band 41 : 2498.5MHz ~ 2687.5 MHz                              |
| <b>Rx Frequency</b>                               | LTE Band 4 : 2110.7 MHz ~ 2154.3 MHz<br>LTE Band 12 : 729 MHz ~ 746 MHz<br>LTE Band 17 : 736.5 MHz ~ 743.5 MHz<br>LTE Band 41 : 2498.5MHz ~ 2687.5 MHz                              |
| <b>Bandwidth</b>                                  | LTE Band 4 : 1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz / 20MHz<br>LTE Band 12 : 1.4MHz / 3MHz / 5MHz / 10MHz<br>LTE Band 17 : 5MHz / 10MHz<br>LTE Band 41 : 5MHz / 10MHz / 15MHz / 20MHz |
| <b>Maximum Output Power to Antenna</b>            | LTE Band 4 : 22.99 dBm<br>LTE Band 12 : 22.54 dBm<br>LTE Band 17 : 22.53 dBm<br>LTE Band 41 : 24.32 dBm                                                                             |
| <b>Antenna Type</b>                               | Fixed Internal Antenna                                                                                                                                                              |
| <b>Antenna Gain</b>                               | LTE Band 4 : 4.00 dBi<br>LTE Band 12 : 1.50 dBi<br>LTE Band 17 : 1.50 dBi<br>LTE Band 41 : 3.00 dBi                                                                                 |
| <b>Type of Modulation</b>                         | QPSK / 16QAM /64QAM(Downlink only)                                                                                                                                                  |

## 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 27  | LTE Band 12 | QPSK               | 1.4 MHz | 1M10G7D             | -                         | 0.10 W           |
| Part 27  | LTE Band 12 | 16QAM              | 1.4 MHz | 1M10D7W             | -                         | 0.08 W           |
| Part 27  | LTE Band 12 | QPSK               | 3 MHz   | 2M73G7D             | -                         | -                |
| Part 27  | LTE Band 12 | 16QAM              | 3 MHz   | 2M74D7W             | -                         | -                |
| Part 27  | LTE Band 12 | QPSK               | 5 MHz   | 4M50G7D             | -                         | 0.10 W           |
| Part 27  | LTE Band 12 | 16QAM              | 5 MHz   | 4M50D7W             | -                         | 0.08 W           |
| Part 27  | LTE Band 12 | QPSK               | 10 MHz  | 9M10G7D             | 0.01 ppm                  | -                |
| Part 27  | LTE Band 12 | 16QAM              | 10 MHz  | 9M04D7W             | -                         | -                |
| Part 27  | LTE Band 17 | QPSK               | 5MHz    | 4M51G7D             | -                         | 0.09 W           |
| Part 27  | LTE Band 17 | 16QAM              | 5MHz    | 4M50D7W             | -                         | 0.07 W           |
| Part 27  | LTE Band 17 | QPSK               | 10MHz   | 9M08G7D             | 0.01 ppm                  | -                |
| Part 27  | LTE Band 17 | 16QAM              | 10MHz   | 9M06D7W             | -                         | -                |



| <b>FCC Rule</b> | <b>System</b> | <b>Type of Modulation</b> | <b>BW</b> | <b>Emission Designator</b> | <b>Frequency Tolerance (ppm)</b> | <b>Maximum ERP/EIRP</b> |
|-----------------|---------------|---------------------------|-----------|----------------------------|----------------------------------|-------------------------|
| Part 27         | LTE Band 4    | QPSK                      | 1.4 MHz   | 1M10G7D                    | -                                | 0.47 W                  |
| Part 27         | LTE Band 4    | 16QAM                     | 1.4 MHz   | 1M11D7W                    | -                                | 0.34 W                  |
| Part 27         | LTE Band 4    | QPSK                      | 3 MHz     | 2M74G7D                    | -                                | -                       |
| Part 27         | LTE Band 4    | 16QAM                     | 3 MHz     | 2M74D7W                    | -                                | -                       |
| Part 27         | LTE Band 4    | QPSK                      | 5MHz      | 4M51G7D                    | -                                | -                       |
| Part 27         | LTE Band 4    | 16QAM                     | 5MHz      | 4M51D7W                    | -                                | -                       |
| Part 27         | LTE Band 4    | QPSK                      | 10MHz     | 9M10G7D                    | 0.01 ppm                         | 0.68 W                  |
| Part 27         | LTE Band 4    | 16QAM                     | 10MHz     | 9M08D7W                    | -                                | 0.54 W                  |
| Part 27         | LTE Band 4    | QPSK                      | 15MHz     | 13M5G7D                    | -                                | -                       |
| Part 27         | LTE Band 4    | 16QAM                     | 15MHz     | 13M5D7W                    | -                                | -                       |
| Part 27         | LTE Band 4    | QPSK                      | 20MHz     | 18M6G7D                    | -                                | -                       |
| Part 27         | LTE Band 4    | 16QAM                     | 20MHz     | 18M6D7W                    | -                                | -                       |
| Part 27         | LTE Band 41   | QPSK                      | 5MHz      | 4M52G7D                    | -                                | 0.13 W                  |
| Part 27         | LTE Band 41   | 16QAM                     | 5MHz      | 4M51D7W                    | -                                | 0.11 W                  |
| Part 27         | LTE Band 41   | QPSK                      | 10MHz     | 9M10G7D                    | 0.01 ppm                         | -                       |
| Part 27         | LTE Band 41   | 16QAM                     | 10MHz     | 9M08D7W                    | -                                | -                       |
| Part 27         | LTE Band 41   | QPSK                      | 15MHz     | 13M5G7D                    | -                                | -                       |
| Part 27         | LTE Band 41   | 16QAM                     | 15MHz     | 13M5D7W                    | -                                | -                       |
| Part 27         | LTE Band 41   | QPSK                      | 20MHz     | 18M6G7D                    | -                                | 0.23 W                  |
| Part 27         | LTE Band 41   | 16QAM                     | 20MHz     | 18M6D7W                    | -                                | 0.17 W                  |

## 1.7 Testing Location

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

|                           |                                                                                                                                                                 |           |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| <b>Test Site</b>          | SPORTON INTERNATIONAL INC.                                                                                                                                      |           |
| <b>Test Site Location</b> | No. 52, Hwa Ya 1 <sup>st</sup> 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 |           |
| <b>Test Site No.</b>      | <b>Sporton Site No.</b>                                                                                                                                         |           |
|                           | TH02-HY                                                                                                                                                         | 03CH07-HY |

## 1.8 Applicable Standards

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

- 47 CFR Part 2, 27
- ANSI / TIA / EIA-603-C-2004
- FCC KDB 971168 D01 Power Meas. License Digital Systems v02r01

### Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.



## 2 Test Configuration of Equipment Under Test

### 2.1 Test Mode

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

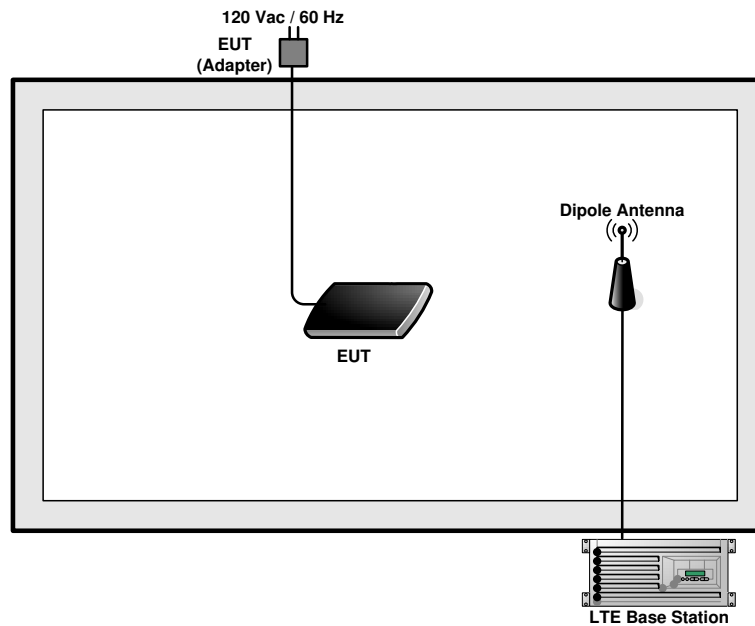
Radiated measurements are performed by rotating the EUT in three different orthogonal test planes to find the maximum emission.

| Test Items             | Band | Bandwidth (MHz) |   |   |    |    |    | Modulation |       | RB # |      |      | Test Channel |   |   |
|------------------------|------|-----------------|---|---|----|----|----|------------|-------|------|------|------|--------------|---|---|
|                        |      | 1.4             | 3 | 5 | 10 | 15 | 20 | QPSK       | 16QAM | 1    | Half | Full | L            | M | H |
| Max. Output Power      | 4    | ✓               | ✓ | ✓ | ✓  | ✓  | ✓  | ✓          | ✓     | ✓    | ✓    | ✓    | ✓            | ✓ | ✓ |
|                        | 12   | ✓               | ✓ | ✓ | ✓  | -  | -  | ✓          | ✓     | ✓    | ✓    | ✓    | ✓            | ✓ | ✓ |
|                        | 41   | -               | - | ✓ | ✓  | ✓  | ✓  | ✓          | ✓     | ✓    | ✓    | ✓    | ✓            | ✓ | ✓ |
|                        | 17   | -               | - | ✓ | ✓  | -  | -  | ✓          | ✓     | ✓    | ✓    | ✓    | ✓            | ✓ | ✓ |
| Peak-to-Average Ratio  | 4    |                 |   |   |    |    | ✓  |            | ✓     | ✓    |      | ✓    | ✓            | ✓ | ✓ |
|                        | 12   |                 |   |   | ✓  | -  | -  |            | ✓     | ✓    |      | ✓    | ✓            | ✓ | ✓ |
|                        | 41   | -               | - |   |    |    | ✓  |            | ✓     | ✓    |      | ✓    | ✓            | ✓ | ✓ |
|                        | 17   | -               | - |   | ✓  | -  | -  |            | ✓     | ✓    |      | ✓    | ✓            | ✓ | ✓ |
| 26dB and 99% Bandwidth | 4    | ✓               | ✓ | ✓ | ✓  | ✓  | ✓  | ✓          | ✓     |      |      | ✓    | ✓            | ✓ | ✓ |
|                        | 12   | ✓               | ✓ | ✓ | ✓  | -  | -  | ✓          | ✓     |      |      | ✓    | ✓            | ✓ | ✓ |
|                        | 41   | -               | - | ✓ | ✓  | ✓  | ✓  | ✓          | ✓     |      |      | ✓    | ✓            | ✓ | ✓ |
|                        | 17   | -               | - | ✓ | ✓  | -  | -  | ✓          | ✓     |      |      | ✓    | ✓            | ✓ | ✓ |
| Conducted Band Edge    | 4    | ✓               | ✓ | ✓ | ✓  | ✓  | ✓  | ✓          | ✓     | ✓    |      | ✓    | ✓            |   | ✓ |
|                        | 12   | ✓               | ✓ | ✓ | ✓  | -  | -  | ✓          | ✓     | ✓    |      | ✓    | ✓            |   | ✓ |
|                        | 41   | -               | - | ✓ | ✓  | ✓  | ✓  | ✓          | ✓     | ✓    |      | ✓    | ✓            |   | ✓ |
|                        | 17   | -               | - | ✓ | ✓  | -  | -  | ✓          | ✓     | ✓    |      | ✓    | ✓            |   | ✓ |



| 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<br>Spurious<br>Emission | 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | ✓               | ✓ | ✓ | ✓  | ✓  | ✓  | ✓          | ✓     | ✓    |      |      |              | ✓ |   |
|                                   | 12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | ✓               | ✓ | ✓ | ✓  | -  | -  | ✓          | ✓     | ✓    |      |      |              | ✓ |   |
|                                   | 41                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | -               | - | ✓ | ✓  | ✓  | ✓  | ✓          | ✓     | ✓    |      |      |              | ✓ |   |
|                                   | 17                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | -               | - | ✓ | ✓  | -  | -  | ✓          | ✓     | ✓    |      |      |              | ✓ |   |
| Stability                         | 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                 |   |   | ✓  |    |    | ✓          |       |      |      | ✓    |              | ✓ |   |
|                                   | 12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                 |   |   | ✓  | -  | -  | ✓          |       |      |      | ✓    |              | ✓ |   |
|                                   | 41                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | -               | - |   | ✓  |    |    | ✓          |       |      |      | ✓    |              | ✓ |   |
|                                   | 17                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | -               | - |   | ✓  | -  | -  | ✓          |       |      |      | ✓    |              | ✓ |   |
| E.R.P./ E.I.R.P.                  | 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | ✓               |   |   | ✓  |    |    | ✓          | ✓     | ✓    |      |      | ✓            | ✓ | ✓ |
|                                   | 12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | ✓               |   | ✓ |    | -  | -  | ✓          | ✓     | ✓    |      |      | ✓            | ✓ | ✓ |
|                                   | 41                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | -               | - | ✓ |    |    | ✓  | ✓          | ✓     | ✓    |      |      | ✓            | ✓ | ✓ |
|                                   | 17                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | -               | - | ✓ |    | -  | -  | ✓          | ✓     | ✓    |      |      | ✓            | ✓ | ✓ |
| Radiated<br>Spurious<br>Emission  | 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | ✓               | ✓ | ✓ | ✓  | ✓  | ✓  | ✓          |       | ✓    |      |      |              | ✓ |   |
|                                   | 12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | ✓               | ✓ | ✓ | ✓  | -  | -  | ✓          |       | ✓    |      |      |              | ✓ |   |
|                                   | 41                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | -               | - | ✓ | ✓  | ✓  | ✓  | ✓          |       | ✓    |      |      |              | ✓ |   |
|                                   | 17                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | -               | - | ✓ | ✓  | -  | -  | ✓          |       | ✓    |      |      |              | ✓ |   |
| Note                              | <p>1. The mark “✓” means that this configuration is chosen for testing</p> <p>2. The mark “-” means that this bandwidth is not supported.</p> <p>3. For E.R.P./E.I.R.P. measurement, the widest bandwidth of each band is chosen for testing due to highest conducted power. Besides, the lowest bandwidth of each band is also measured for reporting only.</p> <p>4. The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported.</p> |                 |   |   |    |    |    |            |       |      |      |      |              |   |   |

## 2.2 Connection Diagram of Test System



## 2.3 Support Unit used in test configuration and system

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



## 2.4 Measurement Results Explanation Example

**For all conducted test items:**

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

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

*Offset = RF cable loss + attenuator factor.*

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

Example :

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

### 3 Test Result

#### 3.1 Conducted Output Power Measurement

##### 3.1.1 Description of the Conducted Output Power Measurement

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

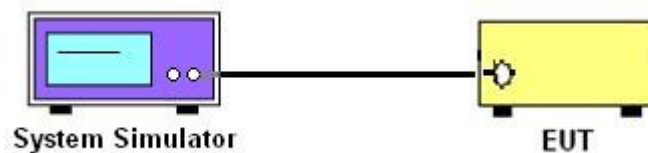
##### 3.1.2 Measuring Instruments

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

##### 3.1.3 Test Procedures

1. The transmitter output port was connected to the system simulator.
2. Set EUT at maximum power through the system simulator.
3. Select lowest, middle, and highest channels for each band and different modulation.
4. Measure and record the power level from the system simulator.

##### 3.1.4 Test Setup



### 3.1.5 Test Result of Conducted Output Power

#### <LTE Band 4 Conducted Power>

| BW [MHz]        | Modulation | RB Size | RB Offset | Power (dBm)<br>Low<br>Ch. / Freq. | Power (dBm)<br>Middle<br>Ch. / Freq. | Power (dBm)<br>High<br>Ch. / Freq. |
|-----------------|------------|---------|-----------|-----------------------------------|--------------------------------------|------------------------------------|
| Channel         |            |         |           | 20050                             | 20175                                | 20300                              |
| Frequency (MHz) |            |         |           | 1720                              | 1732.5                               | 1745                               |
| 20              | QPSK       | 1       | 0         | 22.82                             | 21.78                                | 22.62                              |
| 20              | QPSK       | 1       | 49        | 21.94                             | 22.61                                | 22.75                              |
| 20              | QPSK       | 1       | 99        | 22.32                             | 22.46                                | 22.58                              |
| 20              | QPSK       | 50      | 0         | 21.25                             | 21.24                                | 21.50                              |
| 20              | QPSK       | 50      | 24        | 20.93                             | 21.44                                | 21.43                              |
| 20              | QPSK       | 50      | 49        | 20.97                             | 21.48                                | 21.60                              |
| 20              | QPSK       | 100     | 0         | 21.15                             | 21.34                                | 21.55                              |
| 20              | 16QAM      | 1       | 0         | 21.83                             | 21.03                                | 21.75                              |
| 20              | 16QAM      | 1       | 49        | 21.04                             | 21.36                                | 21.69                              |
| 20              | 16QAM      | 1       | 99        | 20.87                             | 21.26                                | 22.87                              |
| 20              | 16QAM      | 50      | 0         | 20.27                             | 20.20                                | 20.48                              |
| 20              | 16QAM      | 50      | 24        | 20.04                             | 20.47                                | 20.53                              |
| 20              | 16QAM      | 50      | 49        | 19.99                             | 20.49                                | 20.72                              |
| 20              | 16QAM      | 100     | 0         | 20.25                             | 20.42                                | 20.60                              |
| Channel         |            |         |           | 20025                             | 20175                                | 20325                              |
| Frequency (MHz) |            |         |           | 1717.5                            | 1732.5                               | 1747.5                             |
| 15              | QPSK       | 1       | 0         | 22.83                             | 22.23                                | 22.66                              |
| 15              | QPSK       | 1       | 37        | 22.07                             | 22.56                                | 22.69                              |
| 15              | QPSK       | 1       | 74        | 22.14                             | 22.57                                | 22.87                              |
| 15              | QPSK       | 36      | 0         | 21.45                             | 21.39                                | 21.36                              |
| 15              | QPSK       | 36      | 18        | 21.13                             | 21.50                                | 21.82                              |
| 15              | QPSK       | 36      | 37        | 20.84                             | 21.64                                | 21.58                              |
| 15              | QPSK       | 75      | 0         | 21.07                             | 21.49                                | 21.66                              |
| 15              | 16QAM      | 1       | 0         | 21.92                             | 21.34                                | 21.14                              |
| 15              | 16QAM      | 1       | 37        | 21.24                             | 21.56                                | 21.74                              |
| 15              | 16QAM      | 1       | 74        | 21.14                             | 21.18                                | 22.54                              |
| 15              | 16QAM      | 36      | 0         | 20.51                             | 20.40                                | 20.41                              |
| 15              | 16QAM      | 36      | 18        | 20.22                             | 20.52                                | 20.84                              |
| 15              | 16QAM      | 36      | 37        | 19.99                             | 20.67                                | 20.67                              |
| 15              | 16QAM      | 75      | 0         | 20.16                             | 20.47                                | 20.60                              |



| BW<br>[MHz]     | Modulation | RB<br>Size | RB<br>Offset | Power (dBm)<br>Low<br>Ch. / Freq. | Power (dBm)<br>Middle<br>Ch. / Freq. | Power (dBm)<br>High<br>Ch. / Freq. |
|-----------------|------------|------------|--------------|-----------------------------------|--------------------------------------|------------------------------------|
| Channel         |            |            |              | 20000                             | 20175                                | 20350                              |
| Frequency (MHz) |            |            |              | 1715                              | 1732.5                               | 1750                               |
| 10              | QPSK       | 1          | 0            | 22.90                             | 22.44                                | 22.92                              |
| 10              | QPSK       | 1          | 24           | 22.47                             | 22.61                                | 22.58                              |
| 10              | QPSK       | 1          | 49           | 21.99                             | 22.66                                | 22.71                              |
| 10              | QPSK       | 25         | 0            | 21.67                             | 21.40                                | 21.83                              |
| 10              | QPSK       | 25         | 12           | 21.43                             | 21.60                                | 21.73                              |
| 10              | QPSK       | 25         | 24           | 21.15                             | 21.74                                | 21.72                              |
| 10              | QPSK       | 50         | 0            | 21.28                             | 21.45                                | 21.71                              |
| 10              | 16QAM      | 1          | 0            | 21.91                             | 21.15                                | 22.15                              |
| 10              | 16QAM      | 1          | 24           | 21.18                             | 21.39                                | 21.65                              |
| 10              | 16QAM      | 1          | 49           | 21.04                             | 21.72                                | 22.98                              |
| 10              | 16QAM      | 25         | 0            | 20.69                             | 20.49                                | 21.03                              |
| 10              | 16QAM      | 25         | 12           | 20.48                             | 20.59                                | 21.00                              |
| 10              | 16QAM      | 25         | 24           | 20.16                             | 20.66                                | 20.80                              |
| 10              | 16QAM      | 50         | 0            | 20.28                             | 20.43                                | 20.66                              |
| Channel         |            |            |              | 19975                             | 20175                                | 20375                              |
| Frequency (MHz) |            |            |              | 1712.5                            | 1732.5                               | 1752.5                             |
| 5               | QPSK       | 1          | 0            | 22.92                             | 22.36                                | 22.62                              |
| 5               | QPSK       | 1          | 12           | 22.74                             | 22.61                                | 22.77                              |
| 5               | QPSK       | 1          | 24           | 22.46                             | 22.73                                | 22.93                              |
| 5               | QPSK       | 12         | 0            | 21.75                             | 21.55                                | 21.84                              |
| 5               | QPSK       | 12         | 6            | 21.61                             | 21.67                                | 21.73                              |
| 5               | QPSK       | 12         | 11           | 21.65                             | 21.74                                | 21.83                              |
| 5               | QPSK       | 25         | 0            | 21.60                             | 21.54                                | 21.68                              |
| 5               | 16QAM      | 1          | 0            | 22.00                             | 21.18                                | 21.66                              |
| 5               | 16QAM      | 1          | 12           | 21.81                             | 21.45                                | 21.71                              |
| 5               | 16QAM      | 1          | 24           | 21.36                             | 21.66                                | 21.89                              |
| 5               | 16QAM      | 12         | 0            | 20.53                             | 20.64                                | 20.76                              |
| 5               | 16QAM      | 12         | 6            | 20.84                             | 20.67                                | 20.74                              |
| 5               | 16QAM      | 12         | 11           | 20.80                             | 20.74                                | 20.79                              |
| 5               | 16QAM      | 25         | 0            | 20.67                             | 20.62                                | 20.73                              |



| BW<br>[MHz]     | Modulation | RB<br>Size | RB<br>Offset | Power (dBm)<br>Low<br>Ch. / Freq. | Power (dBm)<br>Middle<br>Ch. / Freq. | Power (dBm)<br>High<br>Ch. / Freq. |
|-----------------|------------|------------|--------------|-----------------------------------|--------------------------------------|------------------------------------|
| Channel         |            |            |              | 19965                             | 20175                                | 20385                              |
| Frequency (MHz) |            |            |              | 1711.5                            | 1732.5                               | 1753.5                             |
| 3               | QPSK       | 1          | 0            | 22.93                             | 22.57                                | 22.77                              |
| 3               | QPSK       | 1          | 7            | 22.76                             | 22.85                                | 22.84                              |
| 3               | QPSK       | 1          | 14           | 22.70                             | 22.73                                | 22.88                              |
| 3               | QPSK       | 8          | 0            | 22.00                             | 21.62                                | 21.84                              |
| 3               | QPSK       | 8          | 4            | 21.49                             | 21.68                                | 21.86                              |
| 3               | QPSK       | 8          | 7            | 21.67                             | 21.71                                | 21.85                              |
| 3               | QPSK       | 15         | 0            | 21.50                             | 21.64                                | 21.83                              |
| 3               | 16QAM      | 1          | 0            | 21.97                             | 21.46                                | 21.45                              |
| 3               | 16QAM      | 1          | 7            | 21.78                             | 21.48                                | 21.76                              |
| 3               | 16QAM      | 1          | 14           | 21.58                             | 21.55                                | 22.57                              |
| 3               | 16QAM      | 8          | 0            | 20.59                             | 20.64                                | 20.80                              |
| 3               | 16QAM      | 8          | 4            | 20.74                             | 20.66                                | 20.85                              |
| 3               | 16QAM      | 8          | 7            | 20.69                             | 20.71                                | 20.84                              |
| 3               | 16QAM      | 15         | 0            | 20.65                             | 20.70                                | 20.90                              |
| Channel         |            |            |              | 19957                             | 20175                                | 20393                              |
| Frequency (MHz) |            |            |              | 1710.7                            | 1732.5                               | 1754.3                             |
| 1.4             | QPSK       | 1          | 0            | 22.92                             | 22.71                                | 22.94                              |
| 1.4             | QPSK       | 1          | 2            | 22.87                             | 22.55                                | 22.99                              |
| 1.4             | QPSK       | 1          | 5            | 22.92                             | 22.59                                | 22.93                              |
| 1.4             | QPSK       | 3          | 0            | 22.94                             | 22.49                                | 22.98                              |
| 1.4             | QPSK       | 3          | 1            | 22.87                             | 22.61                                | 22.91                              |
| 1.4             | QPSK       | 3          | 2            | 22.89                             | 22.64                                | 22.91                              |
| 1.4             | QPSK       | 6          | 0            | 22.00                             | 21.71                                | 21.80                              |
| 1.4             | 16QAM      | 1          | 0            | 21.95                             | 21.34                                | 21.90                              |
| 1.4             | 16QAM      | 1          | 2            | 21.98                             | 21.42                                | 22.02                              |
| 1.4             | 16QAM      | 1          | 5            | 22.00                             | 21.47                                | 21.95                              |
| 1.4             | 16QAM      | 3          | 0            | 22.03                             | 21.61                                | 21.95                              |
| 1.4             | 16QAM      | 3          | 1            | 21.96                             | 21.50                                | 22.59                              |
| 1.4             | 16QAM      | 3          | 2            | 21.97                             | 21.71                                | 22.56                              |
| 1.4             | 16QAM      | 6          | 0            | 20.63                             | 20.76                                | 20.90                              |



## &lt;LTE Band 12 Conducted Power&gt;

| BW [MHz]        | Modulation | RB Size | RB Offset | Power (dBm)<br>Low<br>Ch. / Freq. | Power (dBm)<br>Middle<br>Ch. / Freq. | Power (dBm)<br>High<br>Ch. / Freq. |
|-----------------|------------|---------|-----------|-----------------------------------|--------------------------------------|------------------------------------|
| Channel         |            |         |           | 23060                             | 23095                                | 23130                              |
| Frequency (MHz) |            |         |           | 704                               | 707.5                                | 711                                |
| 10              | QPSK       | 1       | 0         | 22.25                             | 22.49                                | 22.34                              |
| 10              | QPSK       | 1       | 24        | 22.50                             | 22.35                                | 22.16                              |
| 10              | QPSK       | 1       | 49        | 22.25                             | 22.22                                | 22.51                              |
| 10              | QPSK       | 25      | 0         | 21.30                             | 21.33                                | 21.21                              |
| 10              | QPSK       | 25      | 12        | 21.47                             | 21.21                                | 21.11                              |
| 10              | QPSK       | 25      | 24        | 21.25                             | 21.20                                | 21.17                              |
| 10              | QPSK       | 50      | 0         | 21.19                             | 21.16                                | 21.13                              |
| 10              | 16QAM      | 1       | 0         | 21.19                             | 21.42                                | 21.43                              |
| 10              | 16QAM      | 1       | 24        | 21.43                             | 21.34                                | 21.20                              |
| 10              | 16QAM      | 1       | 49        | 21.26                             | 21.15                                | 21.44                              |
| 10              | 16QAM      | 25      | 0         | 20.29                             | 20.37                                | 20.16                              |
| 10              | 16QAM      | 25      | 12        | 20.47                             | 20.26                                | 20.11                              |
| 10              | 16QAM      | 25      | 24        | 20.33                             | 20.19                                | 20.33                              |
| 10              | 16QAM      | 50      | 0         | 20.26                             | 20.16                                | 20.13                              |
| Channel         |            |         |           | 23035                             | 23095                                | 23155                              |
| Frequency (MHz) |            |         |           | 701.5                             | 707.5                                | 713.5                              |
| 5               | QPSK       | 1       | 0         | 22.27                             | 22.20                                | 22.18                              |
| 5               | QPSK       | 1       | 12        | 22.29                             | 22.36                                | 22.39                              |
| 5               | QPSK       | 1       | 24        | 22.51                             | 22.17                                | 22.54                              |
| 5               | QPSK       | 12      | 0         | 21.25                             | 21.39                                | 21.25                              |
| 5               | QPSK       | 12      | 6         | 21.33                             | 21.35                                | 21.34                              |
| 5               | QPSK       | 12      | 11        | 21.44                             | 21.26                                | 21.42                              |
| 5               | QPSK       | 25      | 0         | 21.40                             | 21.24                                | 21.18                              |
| 5               | 16QAM      | 1       | 0         | 21.20                             | 21.12                                | 21.09                              |
| 5               | 16QAM      | 1       | 12        | 21.21                             | 21.36                                | 21.31                              |
| 5               | 16QAM      | 1       | 24        | 21.42                             | 21.18                                | 21.47                              |
| 5               | 16QAM      | 12      | 0         | 20.30                             | 20.41                                | 20.30                              |
| 5               | 16QAM      | 12      | 6         | 20.39                             | 20.38                                | 20.46                              |
| 5               | 16QAM      | 12      | 11        | 20.47                             | 20.29                                | 20.43                              |
| 5               | 16QAM      | 25      | 0         | 20.42                             | 20.25                                | 20.20                              |



| BW [MHz]               | Modulation | RB Size | RB Offset | Power (dBm)<br>Low<br>Ch. / Freq. | Power (dBm)<br>Middle<br>Ch. / Freq. | Power (dBm)<br>High<br>Ch. / Freq. |
|------------------------|------------|---------|-----------|-----------------------------------|--------------------------------------|------------------------------------|
| <b>Channel</b>         |            |         |           | <b>23025</b>                      | <b>23095</b>                         | <b>23165</b>                       |
| <b>Frequency (MHz)</b> |            |         |           | <b>700.5</b>                      | <b>707.5</b>                         | <b>714.5</b>                       |
| 3                      | QPSK       | 1       | 0         | 22.19                             | 22.44                                | 22.24                              |
| 3                      | QPSK       | 1       | 7         | 22.31                             | 22.36                                | 22.41                              |
| 3                      | QPSK       | 1       | 14        | 22.35                             | 22.15                                | 22.51                              |
| 3                      | QPSK       | 8       | 0         | 21.34                             | 21.40                                | 21.35                              |
| 3                      | QPSK       | 8       | 4         | 21.29                             | 21.34                                | 21.40                              |
| 3                      | QPSK       | 8       | 7         | 21.36                             | 21.27                                | 21.38                              |
| 3                      | QPSK       | 15      | 0         | 21.27                             | 21.29                                | 21.40                              |
| 3                      | 16QAM      | 1       | 0         | 21.20                             | 21.42                                | 21.20                              |
| 3                      | 16QAM      | 1       | 7         | 21.28                             | 21.36                                | 21.30                              |
| 3                      | 16QAM      | 1       | 14        | 21.30                             | 21.25                                | 21.47                              |
| 3                      | 16QAM      | 8       | 0         | 20.35                             | 20.35                                | 20.28                              |
| 3                      | 16QAM      | 8       | 4         | 20.28                             | 20.32                                | 20.34                              |
| 3                      | 16QAM      | 8       | 7         | 20.30                             | 20.23                                | 20.32                              |
| 3                      | 16QAM      | 15      | 0         | 20.31                             | 20.35                                | 20.43                              |
| <b>Channel</b>         |            |         |           | <b>23017</b>                      | <b>23095</b>                         | <b>23173</b>                       |
| <b>Frequency (MHz)</b> |            |         |           | <b>699.7</b>                      | <b>707.5</b>                         | <b>715.3</b>                       |
| 1.4                    | QPSK       | 1       | 0         | 22.23                             | 22.38                                | 22.40                              |
| 1.4                    | QPSK       | 1       | 2         | 22.36                             | 22.34                                | 22.40                              |
| 1.4                    | QPSK       | 1       | 5         | 22.40                             | 22.24                                | 22.52                              |
| 1.4                    | QPSK       | 3       | 0         | 22.27                             | 22.34                                | 22.35                              |
| 1.4                    | QPSK       | 3       | 1         | 22.28                             | 22.36                                | 22.37                              |
| 1.4                    | QPSK       | 3       | 2         | 22.29                             | 22.36                                | 22.47                              |
| 1.4                    | QPSK       | 6       | 0         | 21.38                             | 21.26                                | 21.51                              |
| 1.4                    | 16QAM      | 1       | 0         | 21.15                             | 21.39                                | 21.32                              |
| 1.4                    | 16QAM      | 1       | 2         | 21.22                             | 21.34                                | 21.35                              |
| 1.4                    | 16QAM      | 1       | 5         | 21.32                             | 21.33                                | 21.43                              |
| 1.4                    | 16QAM      | 3       | 0         | 21.33                             | 21.39                                | 21.40                              |
| 1.4                    | 16QAM      | 3       | 1         | 21.27                             | 21.41                                | 21.41                              |
| 1.4                    | 16QAM      | 3       | 2         | 21.28                             | 21.43                                | 21.47                              |
| 1.4                    | 16QAM      | 6       | 0         | 20.45                             | 20.35                                | 20.50                              |



## &lt;LTE Band 17 Conducted Power&gt;

| BW [MHz]        | Modulation | RB Size | RB Offset | Power (dBm)<br>Low<br>Ch. / Freq. | Power (dBm)<br>Middle<br>Ch. / Freq. | Power (dBm)<br>High<br>Ch. / Freq. |
|-----------------|------------|---------|-----------|-----------------------------------|--------------------------------------|------------------------------------|
| Channel         |            |         |           | 23780                             | 23790                                | 23800                              |
| Frequency (MHz) |            |         |           | 709                               | 710                                  | 711                                |
| 10              | QPSK       | 1       | 0         | 22.23                             | 22.35                                | 22.50                              |
| 10              | QPSK       | 1       | 24        | 22.11                             | 22.20                                | 22.18                              |
| 10              | QPSK       | 1       | 49        | 22.32                             | 22.42                                | 22.44                              |
| 10              | QPSK       | 25      | 0         | 21.29                             | 21.27                                | 21.26                              |
| 10              | QPSK       | 25      | 12        | 21.21                             | 21.24                                | 21.16                              |
| 10              | QPSK       | 25      | 24        | 21.15                             | 21.15                                | 21.17                              |
| 10              | QPSK       | 50      | 0         | 21.07                             | 21.14                                | 21.10                              |
| 10              | 16QAM      | 1       | 0         | 21.18                             | 21.29                                | 21.45                              |
| 10              | 16QAM      | 1       | 24        | 21.23                             | 21.24                                | 21.17                              |
| 10              | 16QAM      | 1       | 49        | 21.22                             | 21.30                                | 21.31                              |
| 10              | 16QAM      | 25      | 0         | 20.29                             | 20.30                                | 20.26                              |
| 10              | 16QAM      | 25      | 12        | 20.30                             | 20.21                                | 20.23                              |
| 10              | 16QAM      | 25      | 24        | 20.25                             | 20.25                                | 20.29                              |
| 10              | 16QAM      | 50      | 0         | 20.08                             | 20.16                                | 20.18                              |
| Channel         |            |         |           | 23755                             | 23790                                | 23825                              |
| Frequency (MHz) |            |         |           | 706.5                             | 710                                  | 713.5                              |
| 5               | QPSK       | 1       | 0         | 22.35                             | 22.25                                | 22.12                              |
| 5               | QPSK       | 1       | 12        | 22.53                             | 22.16                                | 22.32                              |
| 5               | QPSK       | 1       | 24        | 22.15                             | 22.19                                | 22.39                              |
| 5               | QPSK       | 12      | 0         | 21.29                             | 21.17                                | 21.26                              |
| 5               | QPSK       | 12      | 6         | 21.47                             | 21.19                                | 21.25                              |
| 5               | QPSK       | 12      | 11        | 21.41                             | 21.16                                | 21.42                              |
| 5               | QPSK       | 25      | 0         | 21.29                             | 21.15                                | 21.22                              |
| 5               | 16QAM      | 1       | 0         | 21.31                             | 21.32                                | 21.09                              |
| 5               | 16QAM      | 1       | 12        | 21.50                             | 21.20                                | 21.30                              |
| 5               | 16QAM      | 1       | 24        | 21.23                             | 21.14                                | 21.30                              |
| 5               | 16QAM      | 12      | 0         | 20.42                             | 20.20                                | 20.33                              |
| 5               | 16QAM      | 12      | 6         | 20.60                             | 20.28                                | 20.36                              |
| 5               | 16QAM      | 12      | 11        | 20.50                             | 20.24                                | 20.43                              |
| 5               | 16QAM      | 25      | 0         | 20.34                             | 20.23                                | 20.25                              |



## &lt;LTE Band 41 Conducted Power&gt;

| BW [MHz]        | Modulation | RB Size | RB Offset | Power (dBm)<br>Low<br>Ch. / Freq. | Power (dBm)<br>Middle<br>Ch. / Freq. | Power (dBm)<br>High<br>Ch. / Freq. |
|-----------------|------------|---------|-----------|-----------------------------------|--------------------------------------|------------------------------------|
| Channel         |            |         |           | 39750                             | 40620                                | 41490                              |
| Frequency (MHz) |            |         |           | 2506                              | 2593                                 | 2680                               |
| 20              | QPSK       | 1       | 0         | 19.89                             | 21.42                                | 24.32                              |
| 20              | QPSK       | 1       | 49        | 21.43                             | 21.68                                | 22.98                              |
| 20              | QPSK       | 1       | 99        | 21.71                             | 22.08                                | 21.80                              |
| 20              | QPSK       | 50      | 0         | 20.88                             | 21.62                                | 23.73                              |
| 20              | QPSK       | 50      | 24        | 21.31                             | 21.72                                | 23.04                              |
| 20              | QPSK       | 50      | 49        | 21.54                             | 21.93                                | 22.42                              |
| 20              | QPSK       | 100     | 0         | 21.16                             | 21.76                                | 23.07                              |
| 20              | 16QAM      | 1       | 0         | 20.14                             | 21.51                                | 23.74                              |
| 20              | 16QAM      | 1       | 49        | 21.58                             | 21.73                                | 22.42                              |
| 20              | 16QAM      | 1       | 99        | 21.86                             | 22.11                                | 21.24                              |
| 20              | 16QAM      | 50      | 0         | 21.06                             | 21.63                                | 23.12                              |
| 20              | 16QAM      | 50      | 24        | 21.48                             | 21.72                                | 22.46                              |
| 20              | 16QAM      | 50      | 49        | 21.71                             | 21.93                                | 21.77                              |
| 20              | 16QAM      | 100     | 0         | 21.37                             | 21.77                                | 22.48                              |
| Channel         |            |         |           | 39725                             | 40620                                | 41515                              |
| Frequency (MHz) |            |         |           | 2503.5                            | 2593                                 | 2682.5                             |
| 15              | QPSK       | 1       | 0         | 18.46                             | 20.30                                | 22.96                              |
| 15              | QPSK       | 1       | 37        | 19.93                             | 20.79                                | 22.18                              |
| 15              | QPSK       | 1       | 74        | 19.96                             | 20.81                                | 21.10                              |
| 15              | QPSK       | 36      | 0         | 19.37                             | 20.60                                | 22.61                              |
| 15              | QPSK       | 36      | 18        | 19.90                             | 20.80                                | 22.17                              |
| 15              | QPSK       | 36      | 37        | 20.06                             | 20.87                                | 21.60                              |
| 15              | QPSK       | 75      | 0         | 19.74                             | 20.75                                | 22.12                              |
| 15              | 16QAM      | 1       | 0         | 18.91                             | 20.45                                | 21.98                              |
| 15              | 16QAM      | 1       | 37        | 20.38                             | 20.94                                | 21.23                              |
| 15              | 16QAM      | 1       | 74        | 20.42                             | 20.94                                | 20.15                              |
| 15              | 16QAM      | 36      | 0         | 19.70                             | 20.64                                | 21.62                              |
| 15              | 16QAM      | 36      | 18        | 20.23                             | 20.84                                | 21.15                              |
| 15              | 16QAM      | 36      | 37        | 20.41                             | 20.90                                | 20.60                              |
| 15              | 16QAM      | 75      | 0         | 20.13                             | 20.83                                | 21.16                              |



| BW [MHz]        | Modulation | RB Size | RB Offset | Power (dBm)<br>Low<br>Ch. / Freq. | Power (dBm)<br>Middle<br>Ch. / Freq. | Power (dBm)<br>High<br>Ch. / Freq. |
|-----------------|------------|---------|-----------|-----------------------------------|--------------------------------------|------------------------------------|
| Channel         |            |         |           | 39700                             | 40620                                | 41540                              |
| Frequency (MHz) |            |         |           | 2501                              | 2593                                 | 2685                               |
| 10              | QPSK       | 1       | 0         | 18.89                             | 20.87                                | 22.68                              |
| 10              | QPSK       | 1       | 24        | 19.39                             | 20.58                                | 21.65                              |
| 10              | QPSK       | 1       | 49        | 20.30                             | 21.23                                | 21.50                              |
| 10              | QPSK       | 25      | 0         | 19.21                             | 20.74                                | 22.13                              |
| 10              | QPSK       | 25      | 12        | 19.50                             | 20.71                                | 21.71                              |
| 10              | QPSK       | 25      | 24        | 19.86                             | 20.89                                | 21.50                              |
| 10              | QPSK       | 50      | 0         | 19.58                             | 20.84                                | 21.80                              |
| 10              | 16QAM      | 1       | 0         | 19.38                             | 21.05                                | 21.75                              |
| 10              | 16QAM      | 1       | 24        | 19.87                             | 20.75                                | 20.71                              |
| 10              | 16QAM      | 1       | 49        | 20.73                             | 21.35                                | 20.56                              |
| 10              | 16QAM      | 25      | 0         | 19.63                             | 20.84                                | 21.19                              |
| 10              | 16QAM      | 25      | 12        | 19.91                             | 20.81                                | 20.75                              |
| 10              | 16QAM      | 25      | 24        | 20.27                             | 20.98                                | 20.57                              |
| 10              | 16QAM      | 50      | 0         | 19.99                             | 20.93                                | 20.85                              |
| Channel         |            |         |           | 39675                             | 40620                                | 41565                              |
| Frequency (MHz) |            |         |           | 2498.5                            | 2593                                 | 2687.5                             |
| 5               | QPSK       | 1       | 0         | 18.23                             | 20.38                                | 21.52                              |
| 5               | QPSK       | 1       | 12        | 18.84                             | 20.47                                | 21.21                              |
| 5               | QPSK       | 1       | 24        | 19.20                             | 20.51                                | 20.90                              |
| 5               | QPSK       | 12      | 0         | 18.59                             | 20.48                                | 21.36                              |
| 5               | QPSK       | 12      | 6         | 18.92                             | 20.58                                | 21.26                              |
| 5               | QPSK       | 12      | 11        | 19.06                             | 20.57                                | 21.09                              |
| 5               | QPSK       | 25      | 0         | 18.88                             | 20.54                                | 21.18                              |
| 5               | 16QAM      | 1       | 0         | 18.70                             | 20.53                                | 20.53                              |
| 5               | 16QAM      | 1       | 12        | 19.35                             | 20.66                                | 20.31                              |
| 5               | 16QAM      | 1       | 24        | 19.73                             | 20.72                                | 20.02                              |
| 5               | 16QAM      | 12      | 0         | 18.98                             | 20.56                                | 20.37                              |
| 5               | 16QAM      | 12      | 6         | 19.31                             | 20.65                                | 20.27                              |
| 5               | 16QAM      | 12      | 11        | 19.45                             | 20.64                                | 20.12                              |
| 5               | 16QAM      | 25      | 0         | 19.31                             | 20.66                                | 20.26                              |

**Note:** maximum average power for LTE.

## 3.2 Peak-to-Average Ratio

### 3.2.1 Description of the PAR Measurement

Power Complementary Cumulative Distribution Function (CCDF) curves provide a means for characterizing the power peaks of a digitally modulated signal on a statistical basis. A CCDF curve depicts the probability of the peak signal amplitude exceeding the average power level. Most contemporary measurement instrumentation include the capability to produce CCDF curves for an input signal provided that the instrument's resolution bandwidth can be set wide enough to accommodate the entire input signal bandwidth. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

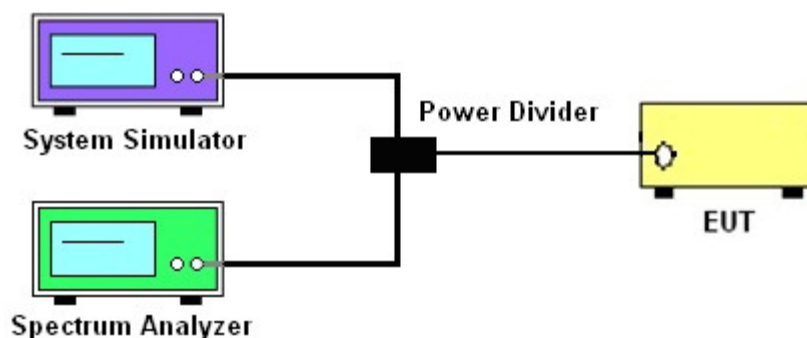
### 3.2.2 Measuring Instruments

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

### 3.2.3 Test Procedures

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

### 3.2.4 Test Setup



### 3.2.5 Test Result of Peak-to-Average Ratio

| LTE Band 4      |            |         |           |                                   |                                      |                                    |
|-----------------|------------|---------|-----------|-----------------------------------|--------------------------------------|------------------------------------|
| BW [MHz]        | Modulation | RB Size | RB Offset | Power (dBm)<br>Low<br>Ch. / Freq. | Power (dBm)<br>Middle<br>Ch. / Freq. | Power (dBm)<br>High<br>Ch. / Freq. |
| Channel         |            |         |           | 20050                             | 20175                                | 20300                              |
| Frequency (MHz) |            |         |           | 1720                              | 1732.5                               | 1745                               |
| 20              | 16QAM      | 1       | 0         | 6.06                              | 6.09                                 | 5.51                               |
| 20              | 16QAM      | 100     | 0         | 6.22                              | 6.03                                 | 6.12                               |

| LTE Band 12     |            |         |           |                                   |                                      |                                    |
|-----------------|------------|---------|-----------|-----------------------------------|--------------------------------------|------------------------------------|
| BW [MHz]        | Modulation | RB Size | RB Offset | Power (dBm)<br>Low<br>Ch. / Freq. | Power (dBm)<br>Middle<br>Ch. / Freq. | Power (dBm)<br>High<br>Ch. / Freq. |
| Channel         |            |         |           | 23060                             | 23095                                | 23130                              |
| Frequency (MHz) |            |         |           | 704                               | 707.5                                | 711                                |
| 10              | 16QAM      | 1       | 0         | 6.44                              | 6.35                                 | 7.02                               |
| 10              | 16QAM      | 50      | 0         | 6.76                              | 6.76                                 | 6.83                               |

| LTE Band 17     |            |         |           |                                   |                                      |                                    |
|-----------------|------------|---------|-----------|-----------------------------------|--------------------------------------|------------------------------------|
| BW [MHz]        | Modulation | RB Size | RB Offset | Power (dBm)<br>Low<br>Ch. / Freq. | Power (dBm)<br>Middle<br>Ch. / Freq. | Power (dBm)<br>High<br>Ch. / Freq. |
| Channel         |            |         |           | 23780                             | 23790                                | 23800                              |
| Frequency (MHz) |            |         |           | 709                               | 710                                  | 711                                |
| 10              | 16QAM      | 1       | 0         | 6.79                              | 6.89                                 | 6.99                               |
| 10              | 16QAM      | 50      | 0         | 6.83                              | 6.83                                 | 6.83                               |

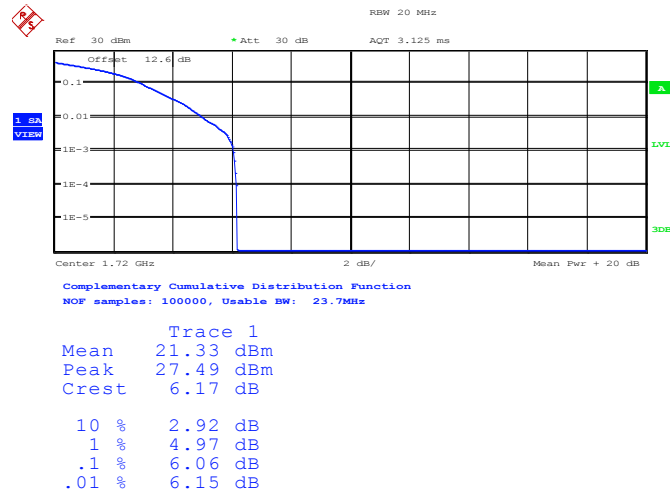
| LTE Band 41     |            |         |           |                                   |                                      |                                    |
|-----------------|------------|---------|-----------|-----------------------------------|--------------------------------------|------------------------------------|
| BW [MHz]        | Modulation | RB Size | RB Offset | Power (dBm)<br>Low<br>Ch. / Freq. | Power (dBm)<br>Middle<br>Ch. / Freq. | Power (dBm)<br>High<br>Ch. / Freq. |
| Channel         |            |         |           | 39750                             | 40620                                | 41490                              |
| Frequency (MHz) |            |         |           | 2506                              | 2593                                 | 2680                               |
| 20              | 16QAM      | 1       | 0         | 7.95                              | 7.95                                 | 7.98                               |
| 20              | 16QAM      | 100     | 0         | 7.85                              | 8.04                                 | 7.95                               |



### 3.2.6 Peak to Average Power Ratio

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

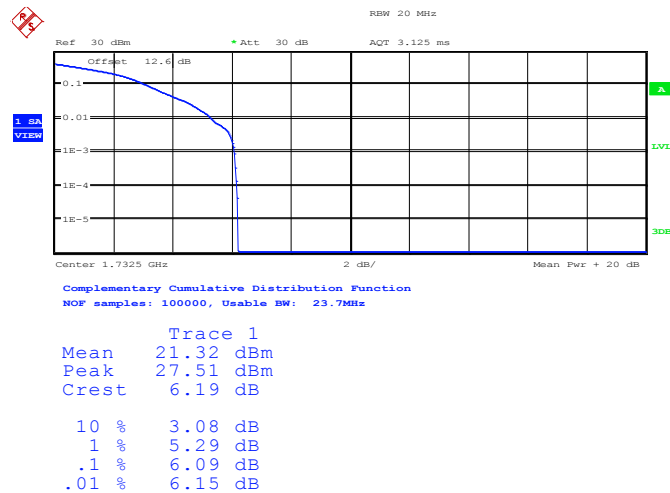
20MHz / 16QAM in Ch. 20050 (1RB Size)



Date: 25.MAY.2014 09:18:45

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

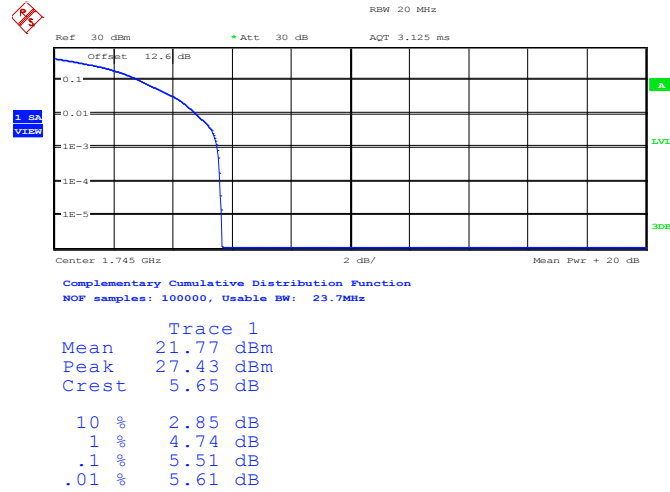
20MHz / 16QAM in Ch. 20175 (1RB Size)



Date: 25.MAY.2014 09:19:27

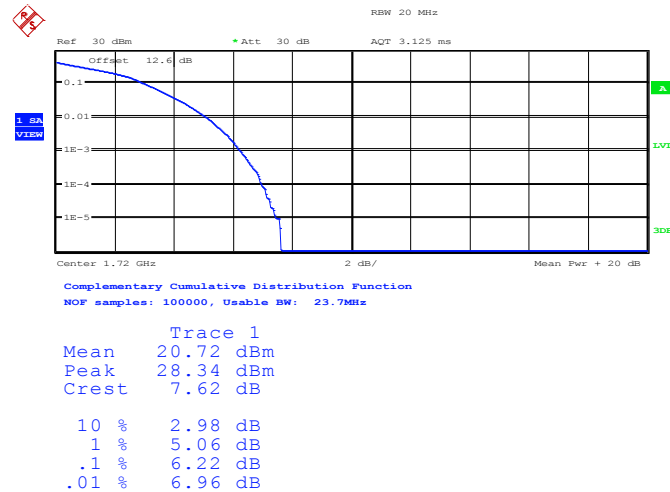


Peak-to-Average Ratio on LTE Band 4  
20MHz / 16QAM in Ch. 20300 (1RB Size)



Date: 25.MAY.2014 09:20:31

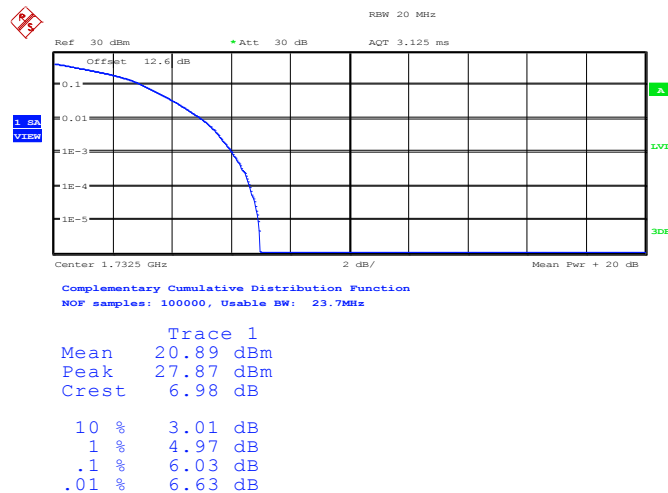
Peak-to-Average Ratio on LTE Band 4  
20MHz / 16QAM in Ch. 20050 (100RB Size)



Date: 25.MAY.2014 09:19:05

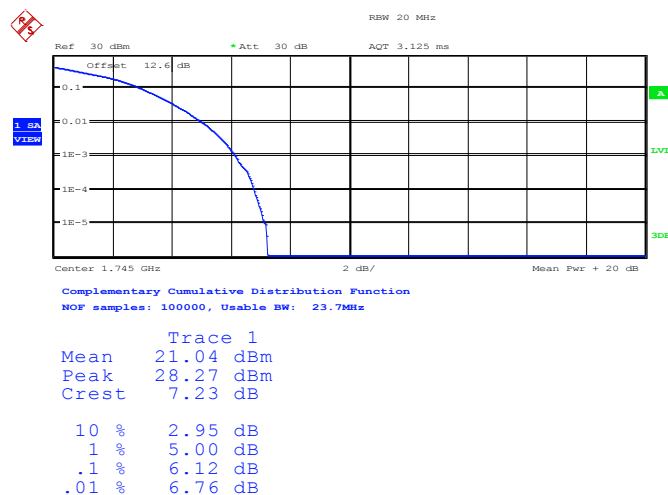


Peak-to-Average Ratio on LTE Band 4  
20MHz / 16QAM in Ch. 20175 (100RB Size)



Date: 25.MAY.2014 09:19:47

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

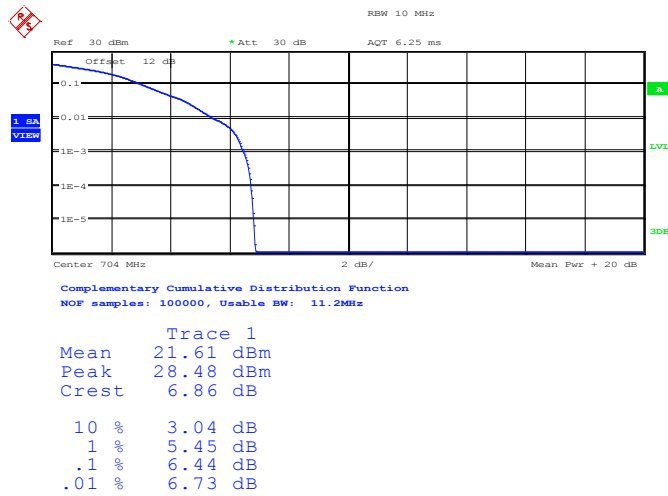


Date: 25.MAY.2014 09:20:54



Peak-to-Average Ratio on LTE Band 12

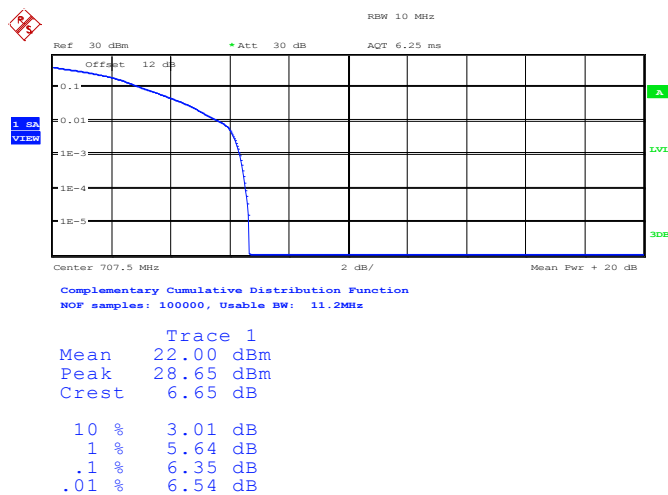
10MHz / 16QAM in Ch. 23060 (1RB Size)



Date: 25.MAY.2014 13:06:54

Peak-to-Average Ratio on LTE Band 12

10MHz / 16QAM in Ch. 23095 (1RB Size)

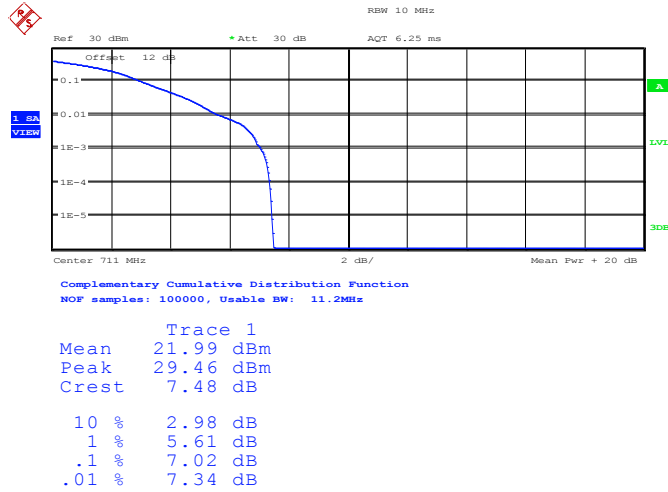


Date: 25.MAY.2014 13:05:19



Peak-to-Average Ratio on LTE Band 12

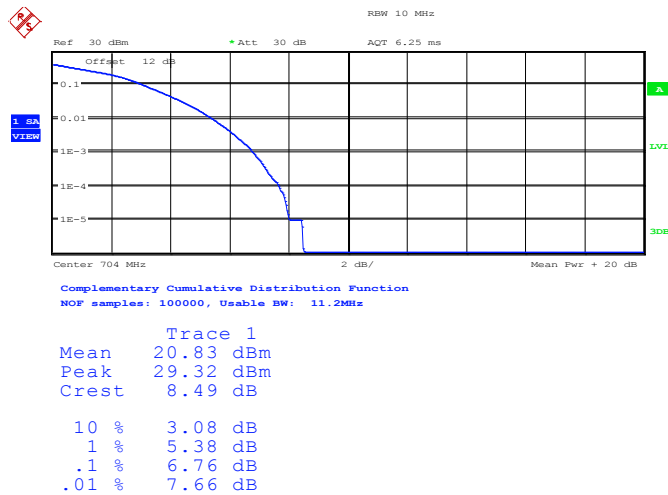
10MHz / 16QAM in Ch. 23130 (1RB Size)



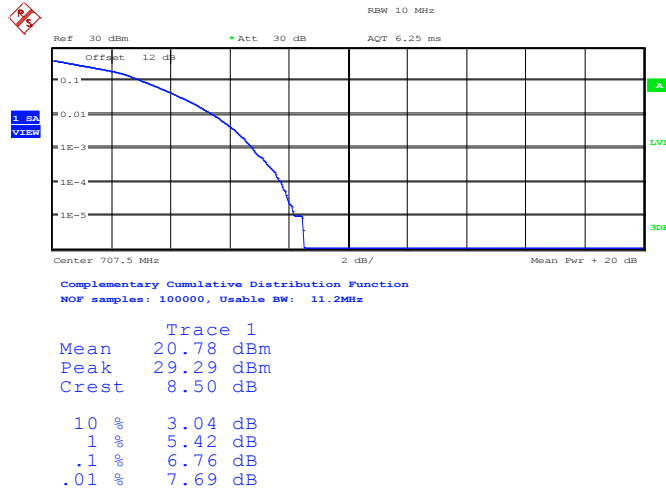
Date: 25.MAY.2014 13:04:57

Peak-to-Average Ratio on LTE Band 12

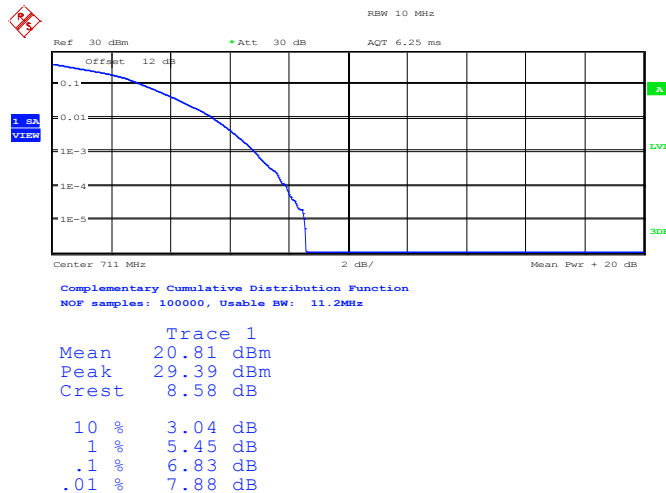
10MHz / 16QAM in Ch. 23060 (50RB Size)



Date: 25.MAY.2014 13:06:05

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


Date: 25.MAY.2014 13:05:41

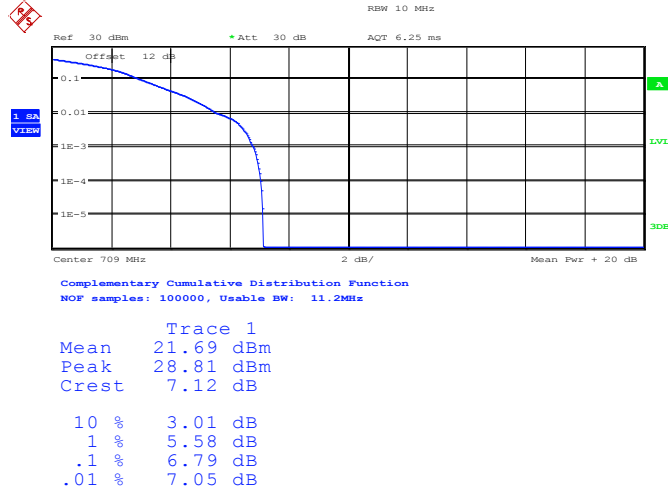
**Peak-to-Average Ratio on LTE Band 12**
**10MHz / 16QAM in Ch. 23130 (50RB Size)**


Date: 25.MAY.2014 13:04:32



Peak-to-Average Ratio on LTE Band 17

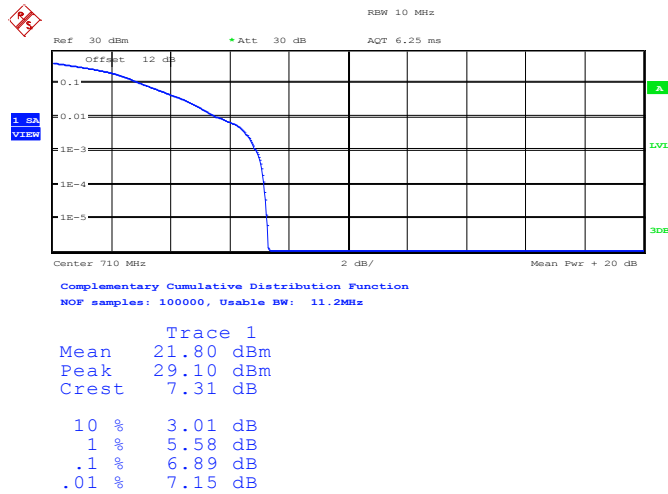
10MHz / 16QAM in Ch. 23780 (1RB Size)



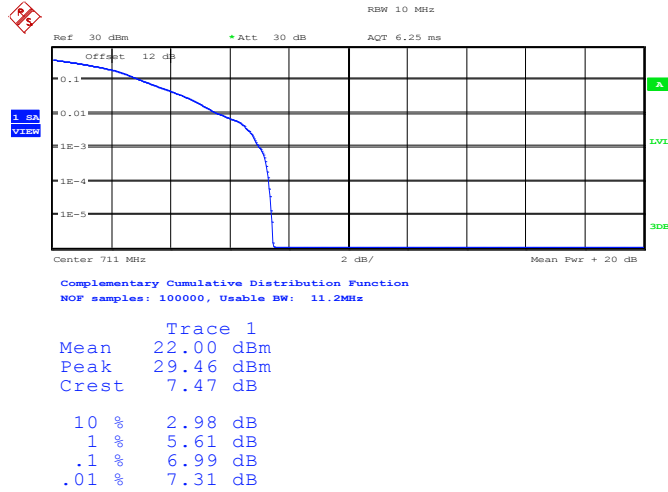
Date: 25.MAY.2014 09:55:19

Peak-to-Average Ratio on LTE Band 17

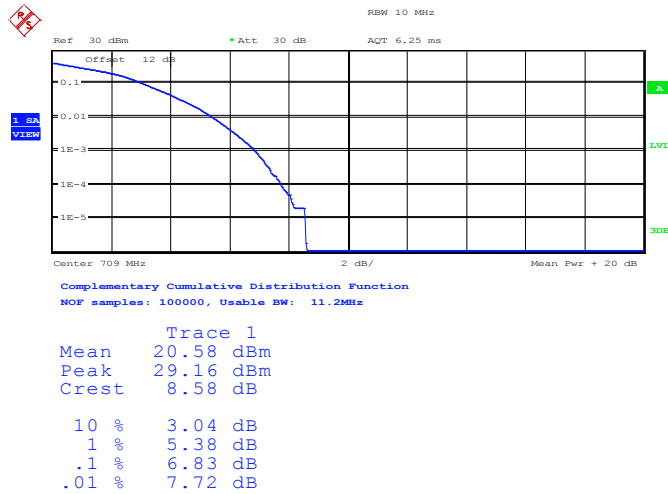
10MHz / 16QAM in Ch. 23790 (1RB Size)



Date: 25.MAY.2014 09:56:07

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


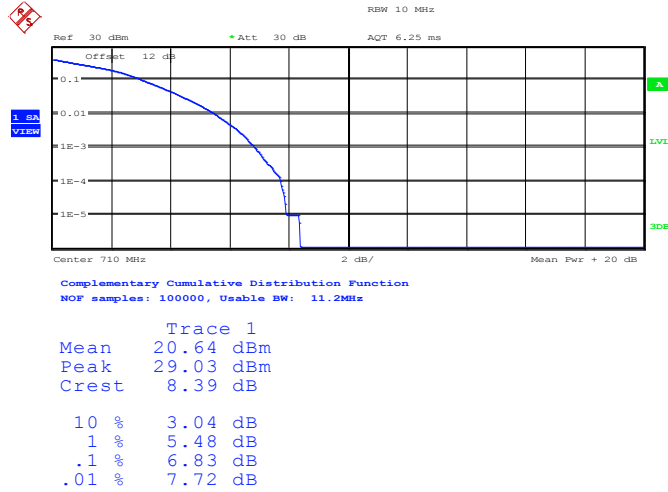
Date: 25.MAY.2014 09:56:59

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


Date: 25.MAY.2014 09:55:49

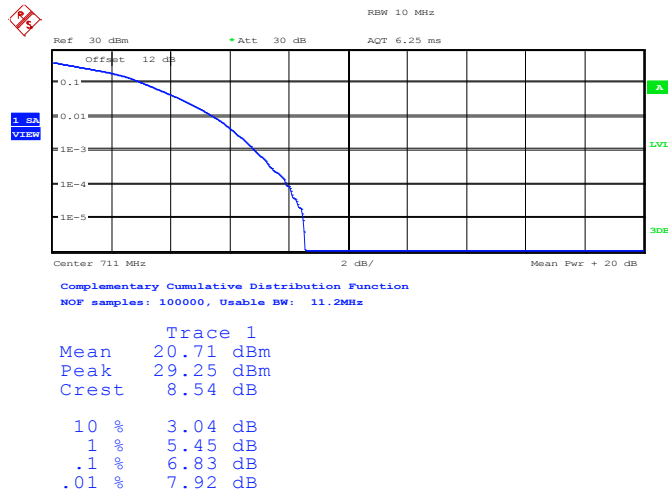


Peak-to-Average Ratio on LTE Band 17  
10MHz / 16QAM in Ch. 23790 (50RB Size)



Date: 25.MAY.2014 09:56:33

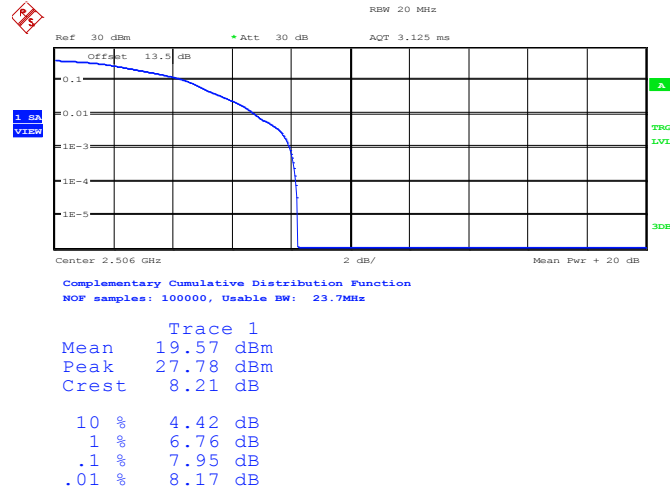
Peak-to-Average Ratio on LTE Band 17  
10MHz / 16QAM in Ch. 23800 (50RB Size)



Date: 25.MAY.2014 09:57:57

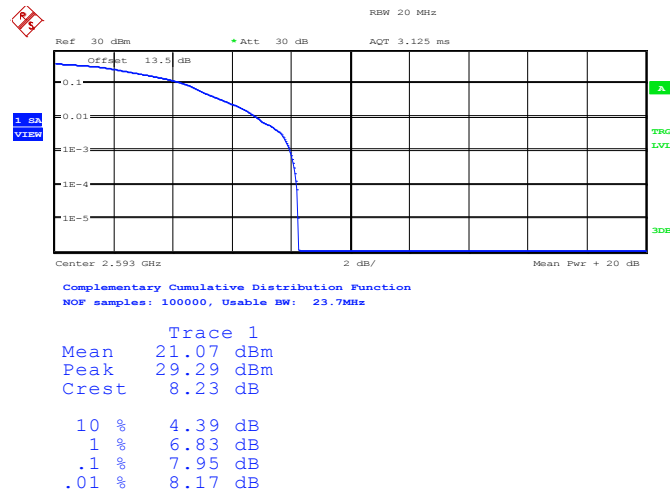


Peak-to-Average Ratio on LTE Band 41  
20MHz / 16QAM in Ch. 39750 (1RB Size)



Date: 3.JUN.2014 10:22:23

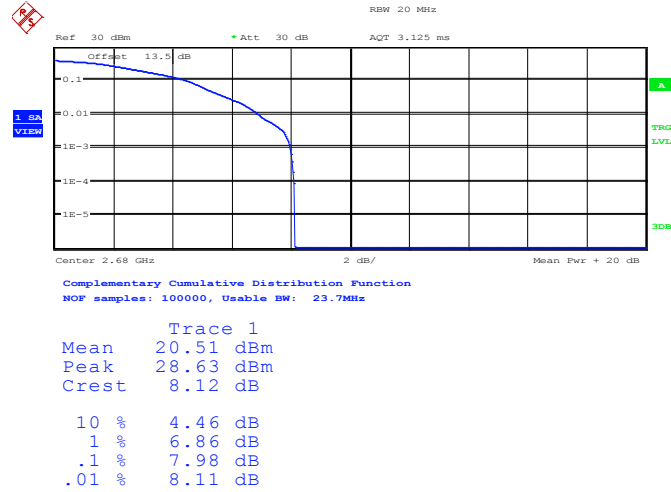
Peak-to-Average Ratio on LTE Band 41  
20MHz / 16QAM in Ch. 40620 (1RB Size)



Date: 3.JUN.2014 10:21:52

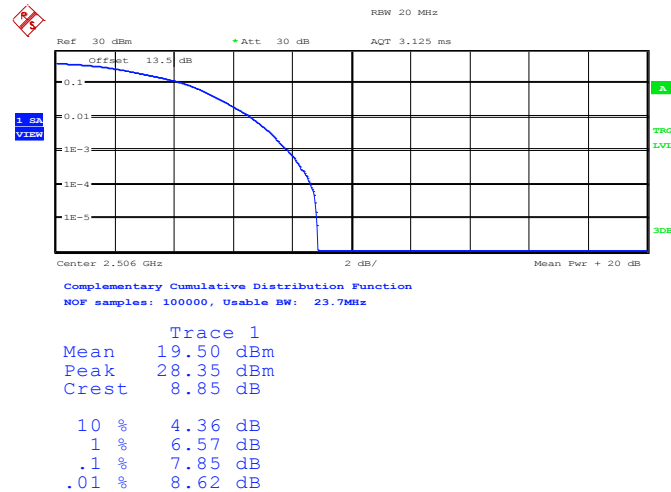


Peak-to-Average Ratio on LTE Band 41  
20MHz / 16QAM in Ch. 41490 (1RB Size)



Date: 3.JUN.2014 10:31:13

Peak-to-Average Ratio on LTE Band 41  
20MHz / 16QAM in Ch. 39750 (100RB Size)

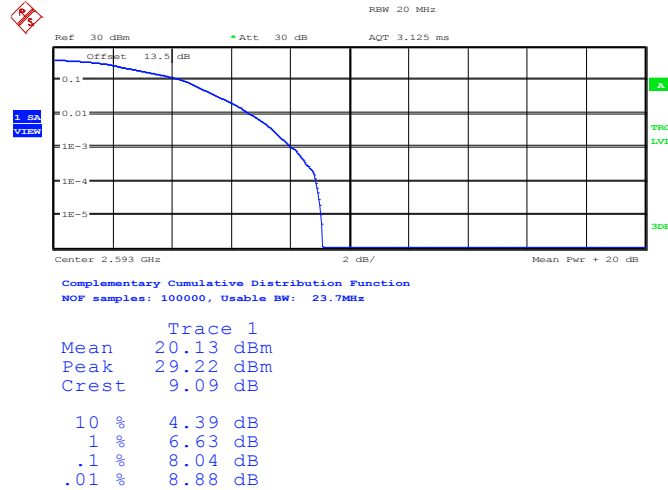


Date: 3.JUN.2014 10:30:09



Peak-to-Average Ratio on LTE Band 41

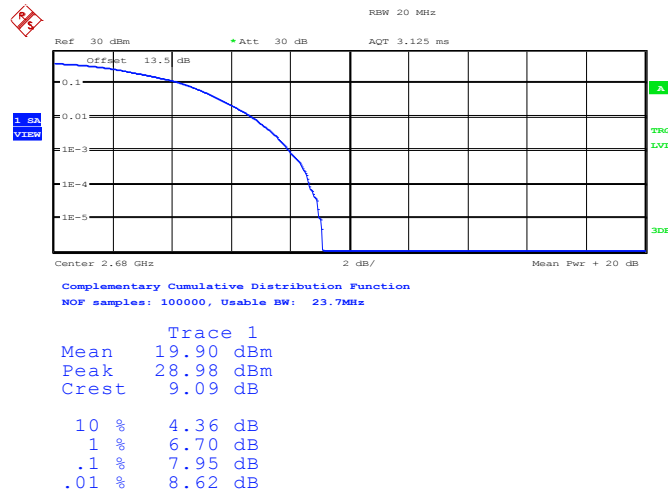
20MHz / 16QAM in Ch. 40620 (100RB Size)



Date: 3.JUN.2014 10:21:20

Peak-to-Average Ratio on LTE Band 41

20MHz / 16QAM in Ch. 41490 (100RB Size)



Date: 3.JUN.2014 10:30:59

### 3.3 Effective Radiated Power and Equivalent Isotropic Radiated Power Measurement

#### 3.3.1 Description of the ERP/EIRP Measurement

Effective radiated power output measurements by substitution method according to ANSI / TIA / EIA-603-C-2004, and the spectrum analyzer configuration follows KDB 971168 D01 Power Meas. License Digital Systems v02r01. Mobile and portable (hand-held) stations operating are limited to average ERP of 3 watts with LTE band 12 / 17.

Equivalent isotropic radiated power output measurements by substitution method according to ANSI / TIA / EIA-603-C-2004, and the spectrum analyzer configuration follows KDB 971168 D01 Power Meas. License Digital Systems v02r01. Mobile and portable (hand-held) stations operating are limited to average EIRP of 2 watts with LTE band 41 and 1 watt with LTE band 4.

#### 3.3.2 Measuring Instruments

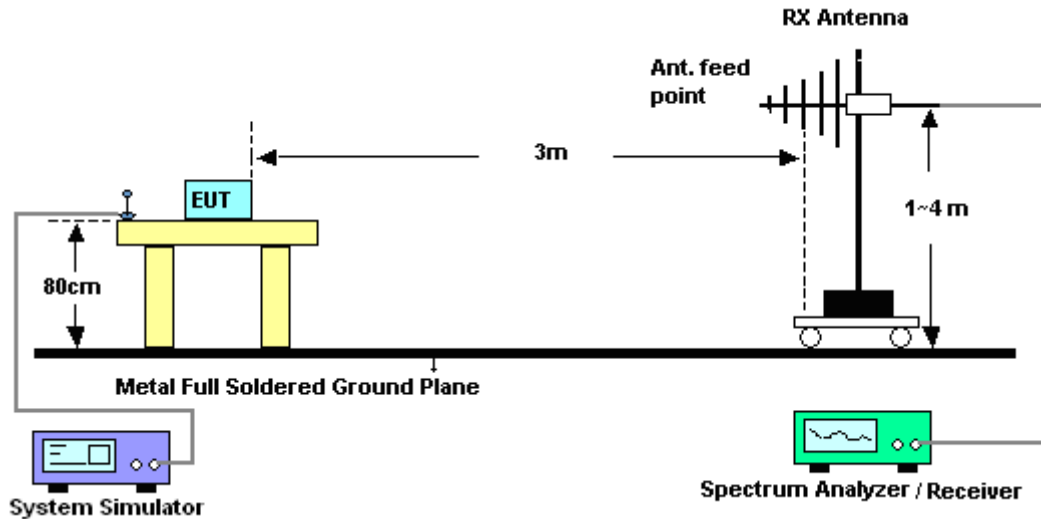
The measuring equipment is listed in the section 4 of this test report.

#### 3.3.3 Test Procedures

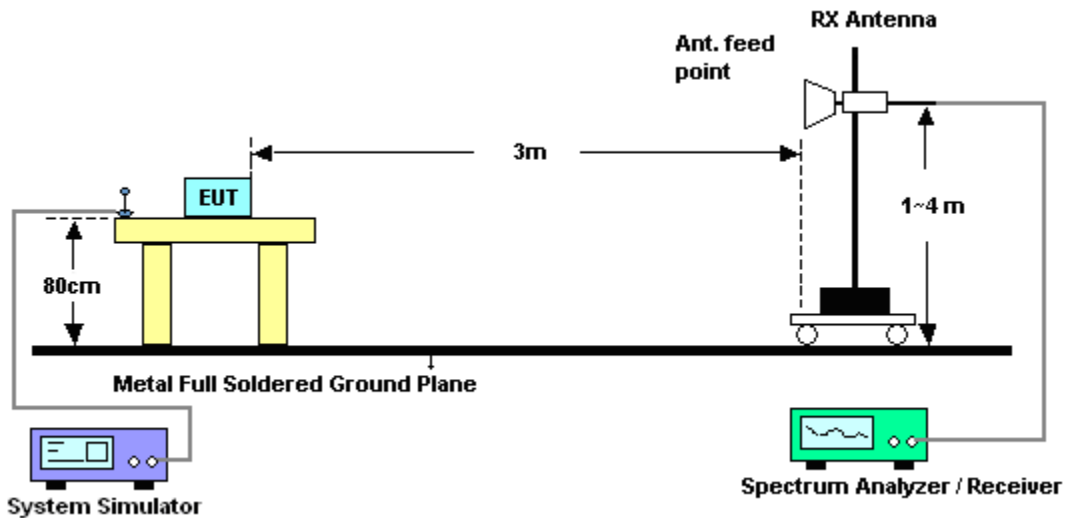
1. The EUT was placed on a non-conductive rotating platform 0.8 meters high in a semi-anechoic chamber. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and a spectrum analyzer with RMS detector per section 5. of KDB 971168 D01.
2. During the measurement, the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

### 3.3.4 Test Setup

For Effective Radiated Power



For Equivalent Isotropic Radiated Power



**3.3.5 Test Result of ERP/EIRP**

| LTE Band 4 Radiated Power EIRP for BW 1.4MHz / QPSK |              |                           |               |             |
|-----------------------------------------------------|--------------|---------------------------|---------------|-------------|
| Horizontal Polarization                             |              |                           |               |             |
| Frequency<br>(MHz)                                  | LVL<br>(dBm) | Correction Factor<br>(dB) | EIRP<br>(dBm) | EIRP<br>(W) |
| 1710.70                                             | -17.71       | 43.43                     | 25.72         | 0.37        |
| 1732.50                                             | -17.47       | 43.34                     | 25.87         | 0.39        |
| 1754.30                                             | -16.94       | 43.65                     | 26.71         | 0.47        |
| Vertical Polarization                               |              |                           |               |             |
| Frequency<br>(MHz)                                  | LVL<br>(dBm) | Correction Factor<br>(dB) | EIRP<br>(dBm) | EIRP<br>(W) |
| 1710.70                                             | -21.49       | 46.93                     | 25.44         | 0.35        |
| 1732.50                                             | -22.10       | 46.19                     | 24.09         | 0.26        |
| 1754.30                                             | -22.36       | 47.30                     | 24.94         | 0.31        |

| LTE Band 4 Radiated Power EIRP for BW 1.4MHz / 16QAM |              |                           |               |             |
|------------------------------------------------------|--------------|---------------------------|---------------|-------------|
| Horizontal Polarization                              |              |                           |               |             |
| Frequency<br>(MHz)                                   | LVL<br>(dBm) | Correction Factor<br>(dB) | EIRP<br>(dBm) | EIRP<br>(W) |
| 1710.70                                              | -18.06       | 43.43                     | 25.37         | 0.34        |
| 1732.50                                              | -18.39       | 43.34                     | 24.95         | 0.31        |
| 1754.30                                              | -18.41       | 43.65                     | 25.24         | 0.33        |
| Vertical Polarization                                |              |                           |               |             |
| Frequency<br>(MHz)                                   | LVL<br>(dBm) | Correction Factor<br>(dB) | EIRP<br>(dBm) | EIRP<br>(W) |
| 1710.70                                              | -22.62       | 46.93                     | 24.31         | 0.27        |
| 1732.50                                              | -21.27       | 46.19                     | 24.92         | 0.31        |
| 1754.30                                              | -22.11       | 47.30                     | 25.19         | 0.33        |

| LTE Band 4 Radiated Power EIRP for BW 10MHz / QPSK |              |                           |               |             |
|----------------------------------------------------|--------------|---------------------------|---------------|-------------|
| Horizontal Polarization                            |              |                           |               |             |
| Frequency<br>(MHz)                                 | LVL<br>(dBm) | Correction Factor<br>(dB) | EIRP<br>(dBm) | EIRP<br>(W) |
| 1715.00                                            | -17.32       | 42.22                     | 24.90         | 0.31        |
| 1732.50                                            | -17.06       | 43.34                     | 26.28         | 0.42        |
| 1750.00                                            | -17.98       | 44.37                     | 26.39         | 0.44        |
| Vertical Polarization                              |              |                           |               |             |
| Frequency<br>(MHz)                                 | LVL<br>(dBm) | Correction Factor<br>(dB) | EIRP<br>(dBm) | EIRP<br>(W) |
| 1715.00                                            | -19.04       | 45.79                     | 26.75         | 0.47        |
| 1732.50                                            | -18.47       | 46.19                     | 27.72         | 0.59        |
| 1750.00                                            | -18.89       | 47.21                     | 28.32         | 0.68        |

| LTE Band 4 Radiated Power EIRP for BW 10MHz / 16QAM |              |                           |               |             |
|-----------------------------------------------------|--------------|---------------------------|---------------|-------------|
| Horizontal Polarization                             |              |                           |               |             |
| Frequency<br>(MHz)                                  | LVL<br>(dBm) | Correction Factor<br>(dB) | EIRP<br>(dBm) | EIRP<br>(W) |
| 1715.00                                             | -18.45       | 42.22                     | 23.77         | 0.24        |
| 1732.50                                             | -18.13       | 43.34                     | 25.21         | 0.33        |
| 1750.00                                             | -18.58       | 44.37                     | 25.79         | 0.38        |
| Vertical Polarization                               |              |                           |               |             |
| Frequency<br>(MHz)                                  | LVL<br>(dBm) | Correction Factor<br>(dB) | EIRP<br>(dBm) | EIRP<br>(W) |
| 1715.00                                             | -19.91       | 45.79                     | 25.88         | 0.39        |
| 1732.50                                             | -19.24       | 46.19                     | 26.95         | 0.50        |
| 1750.00                                             | -19.90       | 47.21                     | 27.31         | 0.54        |

| LTE Band 12 Radiated Power ERP for BW 1.4MHz / QPSK |              |                           |              |            |
|-----------------------------------------------------|--------------|---------------------------|--------------|------------|
| Horizontal Polarization                             |              |                           |              |            |
| Frequency<br>(MHz)                                  | LVL<br>(dBm) | Correction Factor<br>(dB) | ERP<br>(dBm) | ERP<br>(W) |
| 699.70                                              | -19.72       | 32.74                     | 10.87        | 0.01       |
| 707.50                                              | -19.96       | 32.45                     | 10.34        | 0.01       |
| 715.30                                              | -18.27       | 32.03                     | 11.61        | 0.01       |
| Vertical Polarization                               |              |                           |              |            |
| Frequency<br>(MHz)                                  | LVL<br>(dBm) | Correction Factor<br>(dB) | ERP<br>(dBm) | ERP<br>(W) |
| 699.70                                              | -14.93       | 36.16                     | 19.08        | 0.08       |
| 707.50                                              | -14.98       | 36.04                     | 18.91        | 0.08       |
| 715.30                                              | -13.07       | 35.08                     | 19.86        | 0.10       |

| LTE Band 12 Radiated Power ERP for BW 1.4MHz / 16QAM |              |                           |              |            |
|------------------------------------------------------|--------------|---------------------------|--------------|------------|
| Horizontal Polarization                              |              |                           |              |            |
| Frequency<br>(MHz)                                   | LVL<br>(dBm) | Correction Factor<br>(dB) | ERP<br>(dBm) | ERP<br>(W) |
| 699.70                                               | -20.27       | 32.74                     | 10.32        | 0.01       |
| 707.50                                               | -20.06       | 32.45                     | 10.24        | 0.01       |
| 715.30                                               | -19.49       | 32.03                     | 10.39        | 0.01       |
| Vertical Polarization                                |              |                           |              |            |
| Frequency<br>(MHz)                                   | LVL<br>(dBm) | Correction Factor<br>(dB) | ERP<br>(dBm) | ERP<br>(W) |
| 699.70                                               | -15.35       | 36.16                     | 18.66        | 0.07       |
| 707.50                                               | -14.67       | 36.04                     | 19.22        | 0.08       |
| 715.30                                               | -14.19       | 35.08                     | 18.74        | 0.07       |

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

| LTE Band 12 Radiated Power ERP for BW 5MHz / QPSK |              |                           |              |            |
|---------------------------------------------------|--------------|---------------------------|--------------|------------|
| Horizontal Polarization                           |              |                           |              |            |
| Frequency<br>(MHz)                                | LVL<br>(dBm) | Correction Factor<br>(dB) | ERP<br>(dBm) | ERP<br>(W) |
| 701.50                                            | -19.50       | 32.83                     | 11.18        | 0.01       |
| 707.50                                            | -20.09       | 32.45                     | 10.21        | 0.01       |
| 713.50                                            | -18.50       | 32.07                     | 11.42        | 0.01       |
| Vertical Polarization                             |              |                           |              |            |
| Frequency<br>(MHz)                                | LVL<br>(dBm) | Correction Factor<br>(dB) | ERP<br>(dBm) | ERP<br>(W) |
| 701.50                                            | -15.01       | 35.94                     | 18.78        | 0.08       |
| 707.50                                            | -15.17       | 36.04                     | 18.72        | 0.07       |
| 713.50                                            | -12.95       | 35.15                     | 20.05        | 0.10       |

| LTE Band 12 Radiated Power ERP for BW 5MHz / 16QAM |              |                           |              |            |
|----------------------------------------------------|--------------|---------------------------|--------------|------------|
| Horizontal Polarization                            |              |                           |              |            |
| Frequency<br>(MHz)                                 | LVL<br>(dBm) | Correction Factor<br>(dB) | ERP<br>(dBm) | ERP<br>(W) |
| 701.50                                             | -20.47       | 32.83                     | 10.21        | 0.01       |
| 707.50                                             | -20.98       | 32.45                     | 9.32         | 0.01       |
| 713.50                                             | -19.62       | 32.07                     | 10.30        | 0.01       |
| Vertical Polarization                              |              |                           |              |            |
| Frequency<br>(MHz)                                 | LVL<br>(dBm) | Correction Factor<br>(dB) | ERP<br>(dBm) | ERP<br>(W) |
| 701.50                                             | -16.04       | 35.94                     | 17.75        | 0.06       |
| 707.50                                             | -16.53       | 36.04                     | 17.36        | 0.05       |
| 713.50                                             | -14.22       | 35.15                     | 18.78        | 0.08       |

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

| LTE Band 17 Radiated Power ERP for BW 5MHz / QPSK |              |                           |              |            |
|---------------------------------------------------|--------------|---------------------------|--------------|------------|
| Horizontal Polarization                           |              |                           |              |            |
| Frequency<br>(MHz)                                | LVL<br>(dBm) | Correction Factor<br>(dB) | ERP<br>(dBm) | ERP<br>(W) |
| 706.50                                            | -17.78       | 30.84                     | 10.91        | 0.01       |
| 710.00                                            | -20.18       | 30.86                     | 8.53         | 0.01       |
| 713.50                                            | -19.55       | 30.81                     | 9.11         | 0.01       |
| Vertical Polarization                             |              |                           |              |            |
| Frequency<br>(MHz)                                | LVL<br>(dBm) | Correction Factor<br>(dB) | ERP<br>(dBm) | ERP<br>(W) |
| 706.50                                            | -12.98       | 34.59                     | 19.46        | 0.09       |
| 710.00                                            | -15.85       | 34.03                     | 16.03        | 0.04       |
| 713.50                                            | -15.08       | 33.68                     | 16.45        | 0.04       |

| LTE Band 17 Radiated Power ERP for BW 5MHz / 16QAM |              |                           |              |            |
|----------------------------------------------------|--------------|---------------------------|--------------|------------|
| Horizontal Polarization                            |              |                           |              |            |
| Frequency<br>(MHz)                                 | LVL<br>(dBm) | Correction Factor<br>(dB) | ERP<br>(dBm) | ERP<br>(W) |
| 706.50                                             | -19.06       | 30.84                     | 9.63         | 0.01       |
| 710.00                                             | -21.22       | 30.86                     | 7.49         | 0.01       |
| 713.50                                             | -20.85       | 30.81                     | 7.81         | 0.01       |
| Vertical Polarization                              |              |                           |              |            |
| Frequency<br>(MHz)                                 | LVL<br>(dBm) | Correction Factor<br>(dB) | ERP<br>(dBm) | ERP<br>(W) |
| 706.50                                             | -13.98       | 34.59                     | 18.46        | 0.07       |
| 710.00                                             | -16.79       | 34.03                     | 15.09        | 0.03       |
| 713.50                                             | -16.13       | 33.68                     | 15.40        | 0.03       |

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

| LTE Band 41 Radiated Power EIRP for BW 5MHz / QPSK |              |                           |               |             |
|----------------------------------------------------|--------------|---------------------------|---------------|-------------|
| Horizontal Polarization                            |              |                           |               |             |
| Frequency<br>(MHz)                                 | LVL<br>(dBm) | Correction Factor<br>(dB) | EIRP<br>(dBm) | EIRP<br>(W) |
| 2501.00                                            | -23.21       | 46.52                     | 21.16         | 0.13        |
| 2593.00                                            | -24.10       | 47.40                     | 21.15         | 0.13        |
| 2685.00                                            | -25.06       | 47.19                     | 19.98         | 0.10        |
| Vertical Polarization                              |              |                           |               |             |
| Frequency<br>(MHz)                                 | LVL<br>(dBm) | Correction Factor<br>(dB) | EIRP<br>(dBm) | EIRP<br>(W) |
| 2501.00                                            | -28.15       | 49.13                     | 18.83         | 0.08        |
| 2593.00                                            | -27.87       | 48.54                     | 18.52         | 0.07        |
| 2685.00                                            | -29.60       | 48.59                     | 16.84         | 0.05        |

| LTE Band 41 Radiated Power EIRP for BW 5MHz / 16QAM |              |                           |               |             |
|-----------------------------------------------------|--------------|---------------------------|---------------|-------------|
| Horizontal Polarization                             |              |                           |               |             |
| Frequency<br>(MHz)                                  | LVL<br>(dBm) | Correction Factor<br>(dB) | EIRP<br>(dBm) | EIRP<br>(W) |
| 2501.00                                             | -23.92       | 46.52                     | 20.45         | 0.11        |
| 2593.00                                             | -25.37       | 47.40                     | 19.88         | 0.10        |
| 2685.00                                             | -26.57       | 47.19                     | 18.47         | 0.07        |
| Vertical Polarization                               |              |                           |               |             |
| Frequency<br>(MHz)                                  | LVL<br>(dBm) | Correction Factor<br>(dB) | EIRP<br>(dBm) | EIRP<br>(W) |
| 2501.00                                             | -29.24       | 49.13                     | 17.74         | 0.06        |
| 2593.00                                             | -29.46       | 48.54                     | 16.93         | 0.05        |
| 2685.00                                             | -30.58       | 48.59                     | 15.86         | 0.04        |

| LTE Band 41 Radiated Power EIRP for BW 20MHz / QPSK |              |                           |               |             |
|-----------------------------------------------------|--------------|---------------------------|---------------|-------------|
| Horizontal Polarization                             |              |                           |               |             |
| Frequency<br>(MHz)                                  | LVL<br>(dBm) | Correction Factor<br>(dB) | EIRP<br>(dBm) | EIRP<br>(W) |
| 2506.00                                             | -21.47       | 47.16                     | 23.54         | 0.23        |
| 2593.00                                             | -23.32       | 47.36                     | 21.89         | 0.15        |
| 2680.00                                             | -23.52       | 46.94                     | 21.27         | 0.13        |
| Vertical Polarization                               |              |                           |               |             |
| Frequency<br>(MHz)                                  | LVL<br>(dBm) | Correction Factor<br>(dB) | EIRP<br>(dBm) | EIRP<br>(W) |
| 2506.00                                             | -27.91       | 49.50                     | 19.44         | 0.09        |
| 2593.00                                             | -29.26       | 48.50                     | 17.09         | 0.05        |
| 2680.00                                             | -29.44       | 48.73                     | 17.14         | 0.05        |

| LTE Band 41 Radiated Power EIRP for BW 20MHz / 16QAM |              |                           |               |             |
|------------------------------------------------------|--------------|---------------------------|---------------|-------------|
| Horizontal Polarization                              |              |                           |               |             |
| Frequency<br>(MHz)                                   | LVL<br>(dBm) | Correction Factor<br>(dB) | EIRP<br>(dBm) | EIRP<br>(W) |
| 2506.00                                              | -22.65       | 47.16                     | 22.36         | 0.17        |
| 2593.00                                              | -23.74       | 47.36                     | 21.47         | 0.14        |
| 2680.00                                              | -24.33       | 46.94                     | 20.46         | 0.11        |
| Vertical Polarization                                |              |                           |               |             |
| Frequency<br>(MHz)                                   | LVL<br>(dBm) | Correction Factor<br>(dB) | EIRP<br>(dBm) | EIRP<br>(W) |
| 2506.00                                              | -28.52       | 49.50                     | 18.83         | 0.08        |
| 2593.00                                              | -29.55       | 48.50                     | 16.80         | 0.05        |
| 2680.00                                              | -30.06       | 48.73                     | 16.52         | 0.04        |

### 3.4 Occupied Bandwidth

#### 3.4.1 Description of Occupied Bandwidth Measurement

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

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

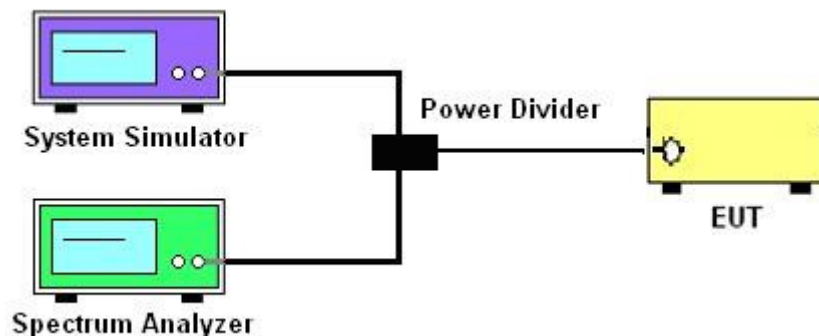
#### 3.4.2 Measuring Instruments

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

#### 3.4.3 Test Procedures

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

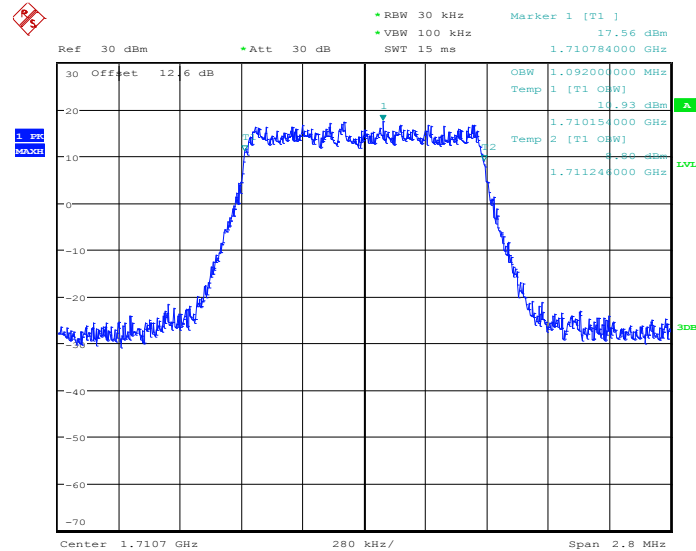
#### 3.4.4 Test Setup



### 3.4.5 Test Result (Plots) of Occupied Bandwidth

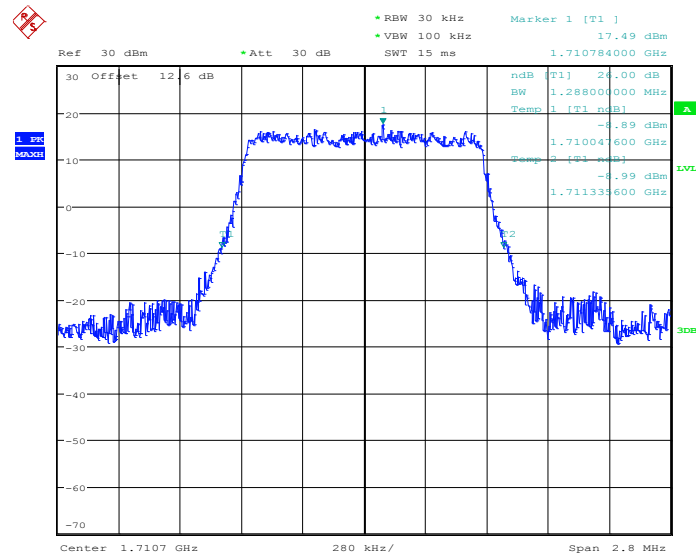
|               |            |                    |               |
|---------------|------------|--------------------|---------------|
| <b>Band :</b> | LTE Band 4 | <b>BW / Mod. :</b> | 1.4MHz / QPSK |
|---------------|------------|--------------------|---------------|

#### 99% Occupied Bandwidth Plot on Channel 19957



Date: 25.MAY.2014 07:40:15

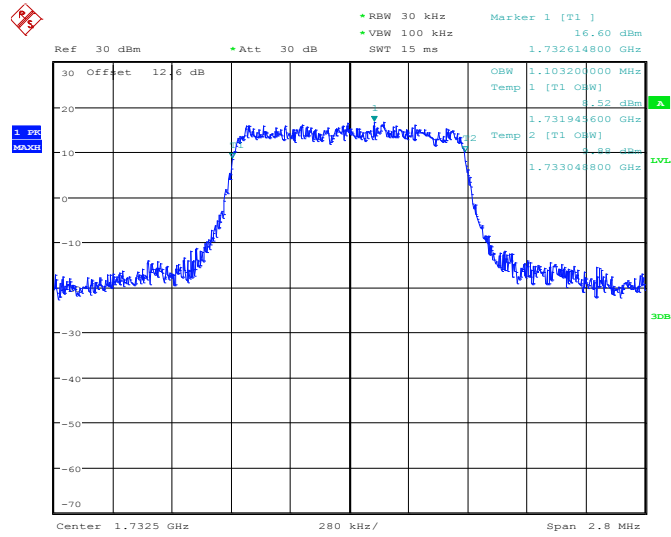
#### 26dB Bandwidth Plot on Channel 19957



Date: 25.MAY.2014 07:40:50

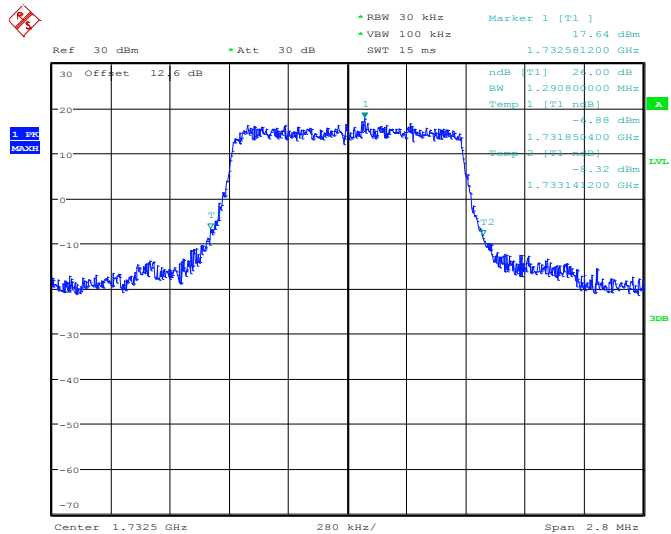


### 99% Occupied Bandwidth Plot on Channel 20175



Date: 25.MAY.2014 07:46:34

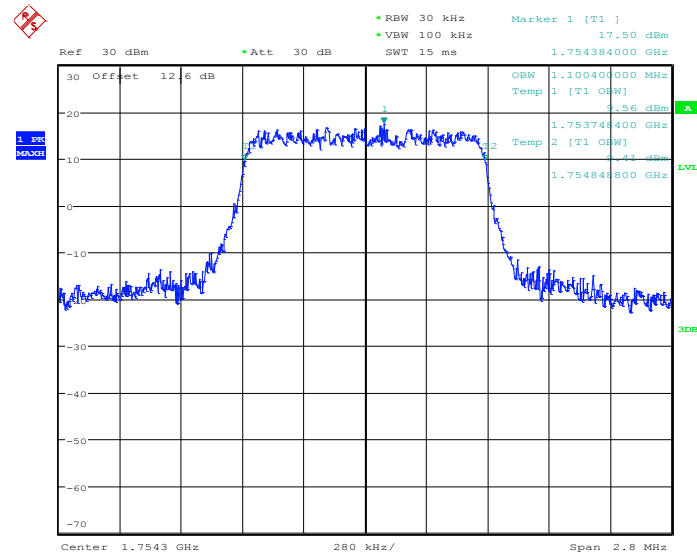
### 26dB Bandwidth Plot on Channel 20175



Date: 25.MAY.2014 07:47:08

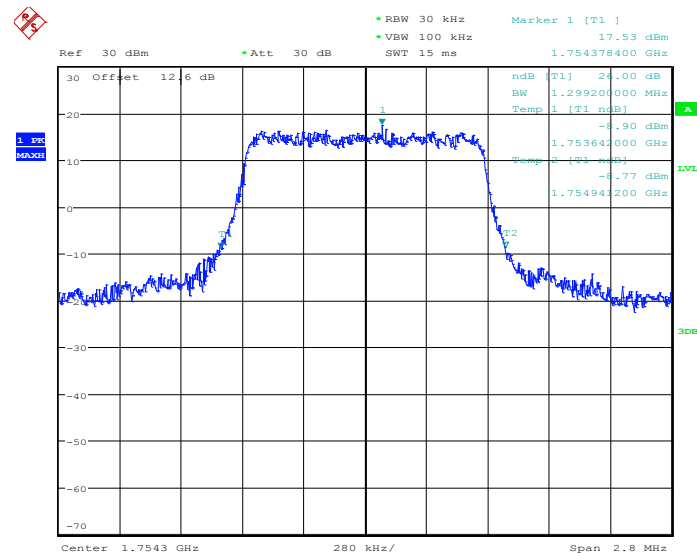


### 99% Occupied Bandwidth Plot on Channel 20393



Date: 25.MAY.2014 07:49:43

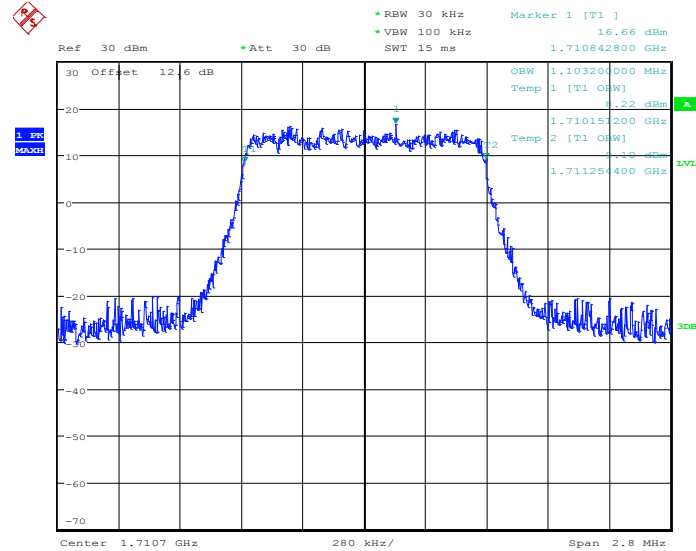
### 26dB Bandwidth Plot on Channel 20393



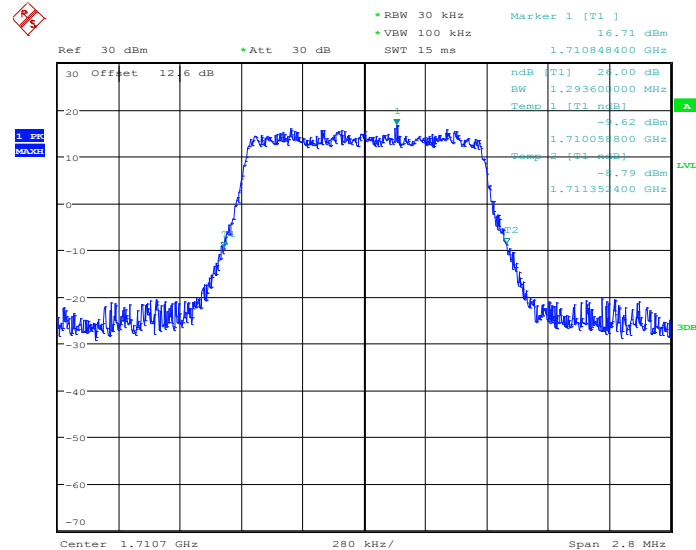
Date: 25.MAY.2014 07:50:17



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

**99% Occupied Bandwidth Plot on Channel 19957**

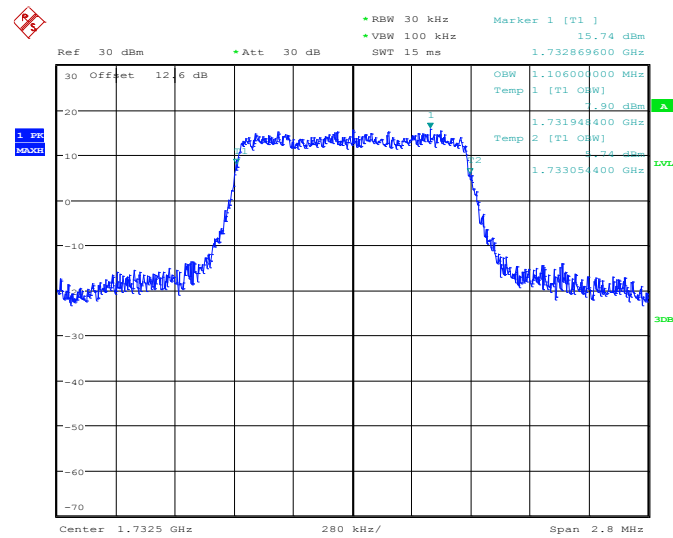
Date: 25.MAY.2014 07:40:32

**26dB Bandwidth Plot on Channel 19957**

Date: 25.MAY.2014 07:41:08

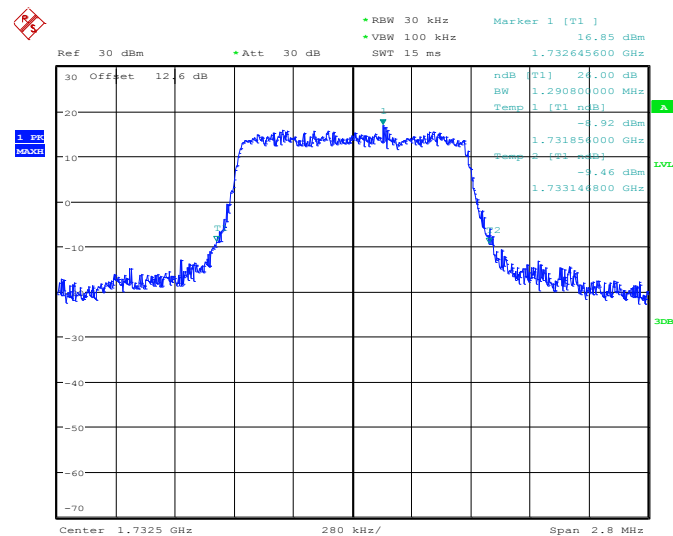


### 99% Occupied Bandwidth Plot on Channel 20175



Date: 25.MAY.2014 07:46:50

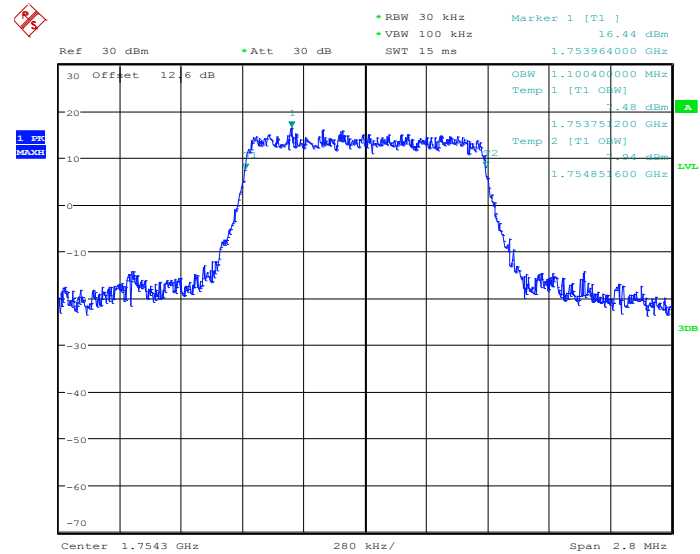
### 26dB Bandwidth Plot on Channel 20175



Date: 25.MAY.2014 07:47:26

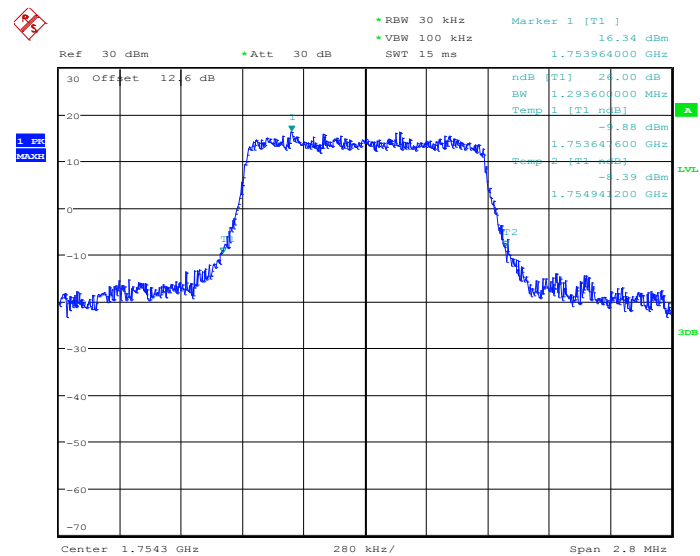


99% Occupied Bandwidth Plot on Channel 20393



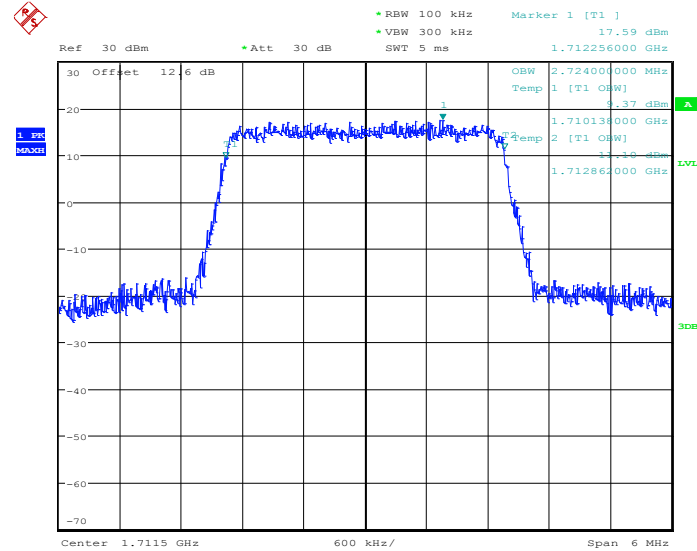
Date: 25.MAY.2014 07:49:59

26dB Bandwidth Plot on Channel 20393

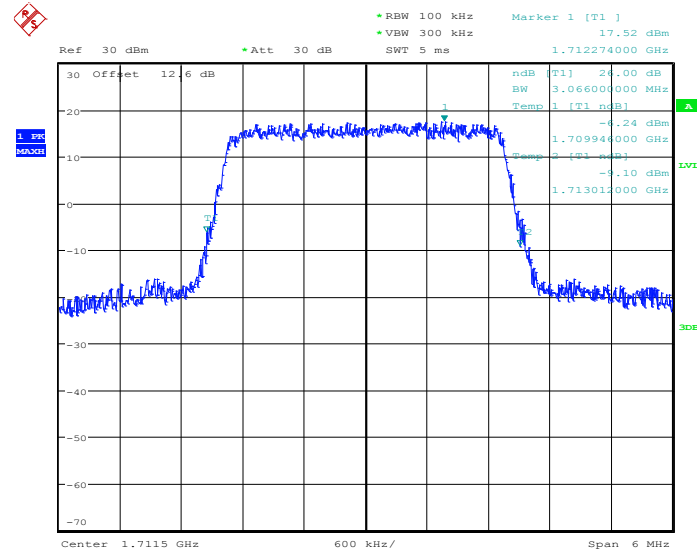


Date: 25.MAY.2014 07:50:35

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

**99% Occupied Bandwidth Plot on Channel 19965**


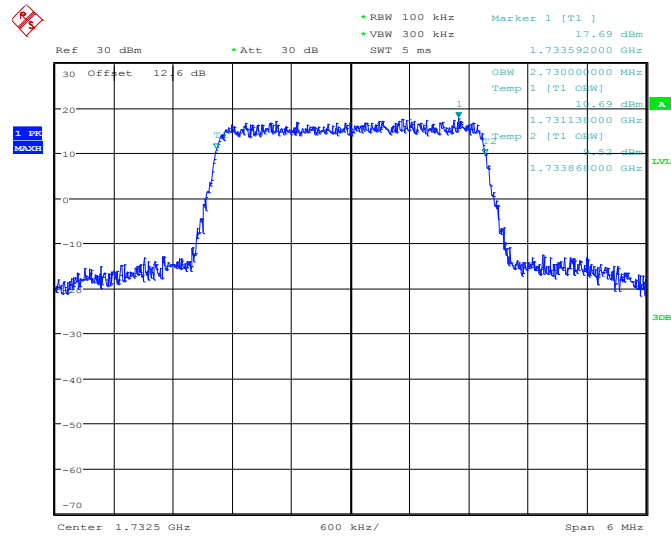
Date: 25.MAY.2014 07:56:06

**26dB Bandwidth Plot on Channel 19965**


Date: 25.MAY.2014 07:56:40

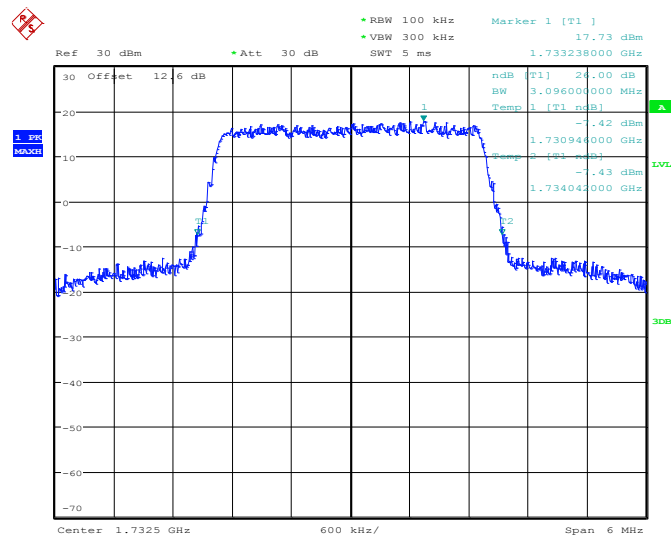


99% Occupied Bandwidth Plot on Channel 20175



Date: 25.MAY.2014 08:02:24

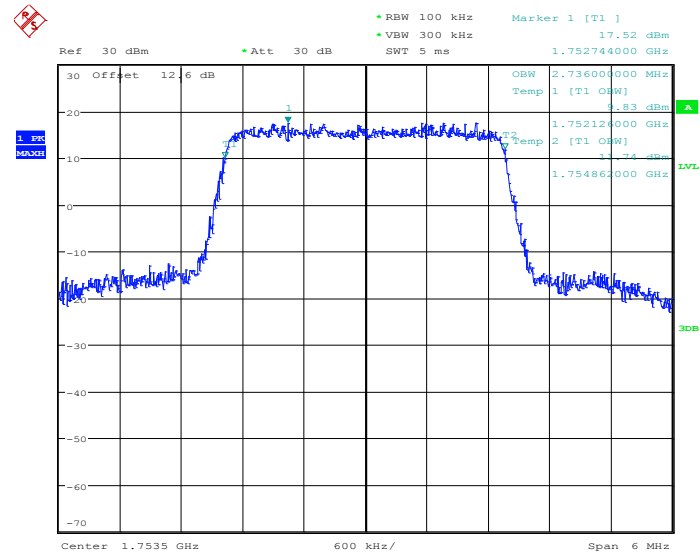
26dB Bandwidth Plot on Channel 20175



Date: 25.MAY.2014 08:02:58

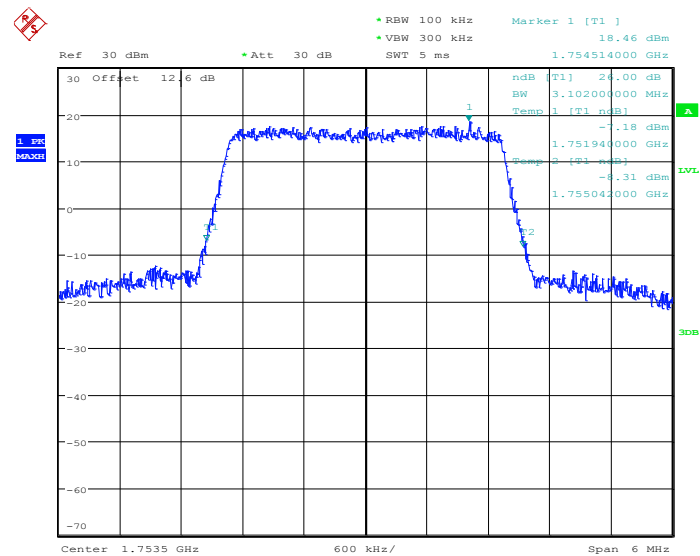


99% Occupied Bandwidth Plot on Channel 20385



Date: 25.MAY.2014 08:05:34

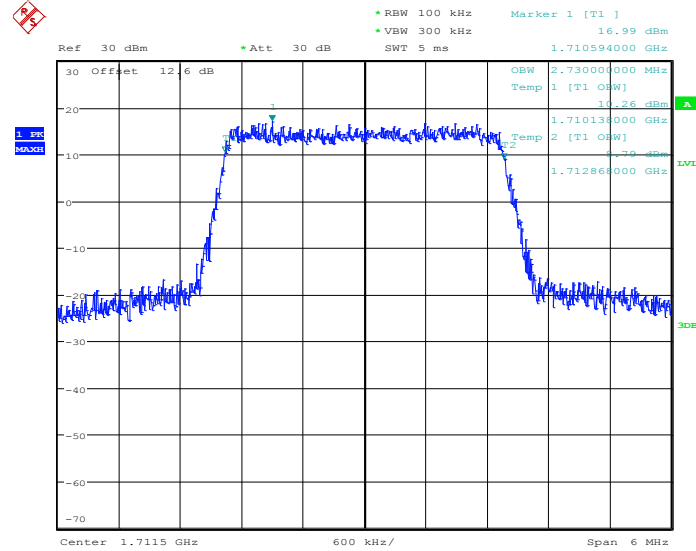
26dB Bandwidth Plot on Channel 20385



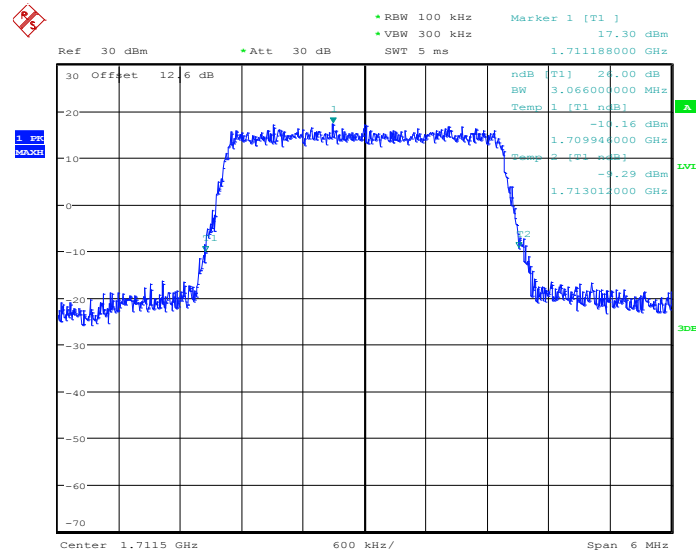
Date: 25.MAY.2014 08:06:09



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

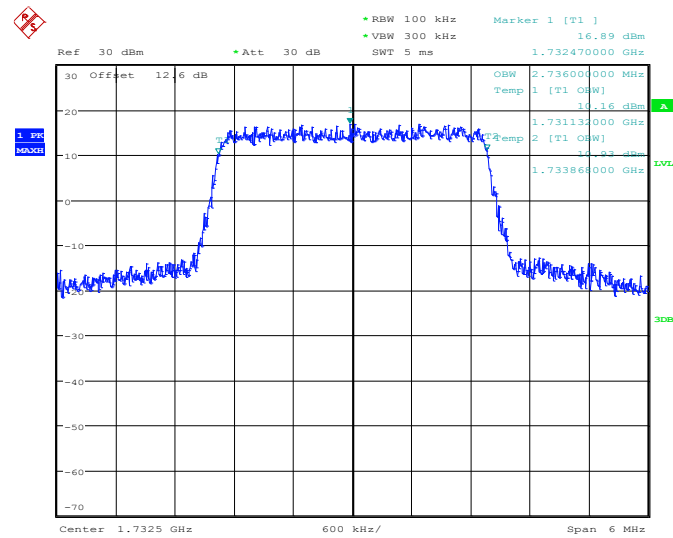
**99% Occupied Bandwidth Plot on Channel 19965**

Date: 25.MAY.2014 07:56:22

**26dB Bandwidth Plot on Channel 19965**

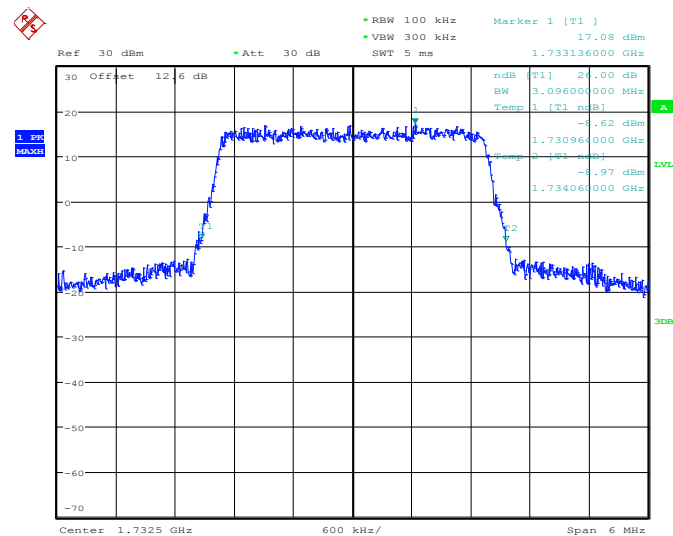
Date: 25.MAY.2014 07:56:58

### 99% Occupied Bandwidth Plot on Channel 20175



Date: 25.MAY.2014 08:02:40

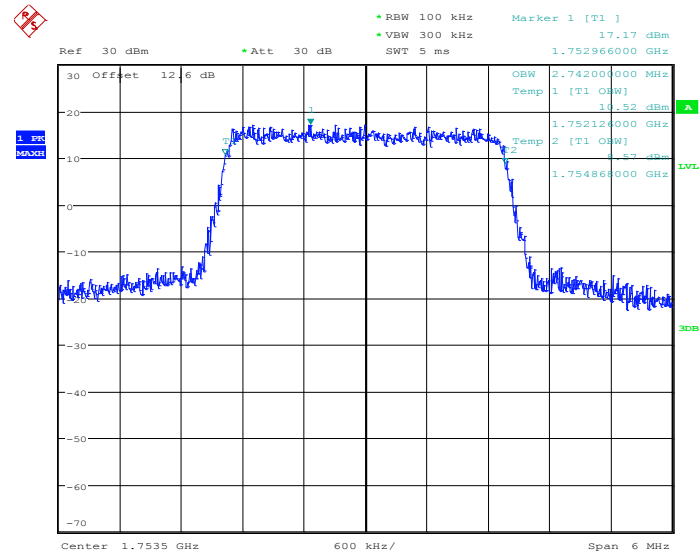
### 26dB Bandwidth Plot on Channel 20175



Date: 25.MAY.2014 08:03:16

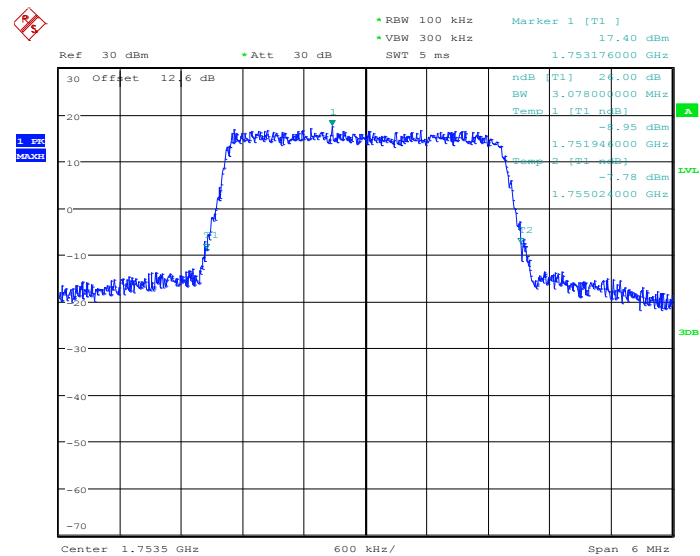


99% Occupied Bandwidth Plot on Channel 20385



Date: 25.MAY.2014 08:05:51

26dB Bandwidth Plot on Channel 20385

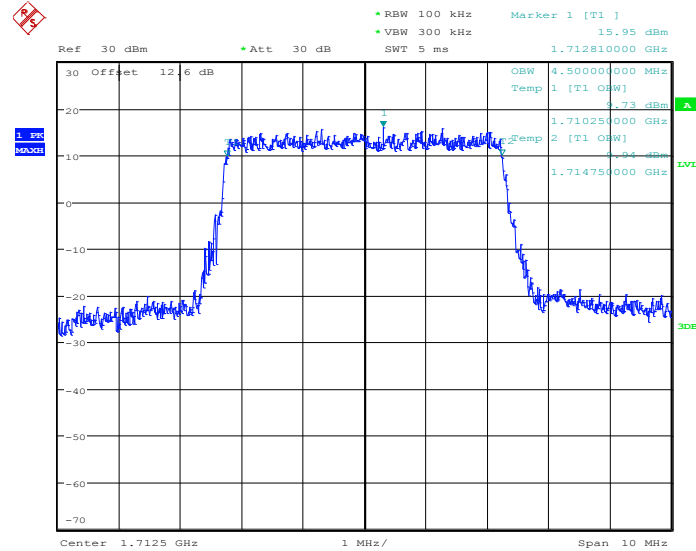


Date: 25.MAY.2014 08:06:27



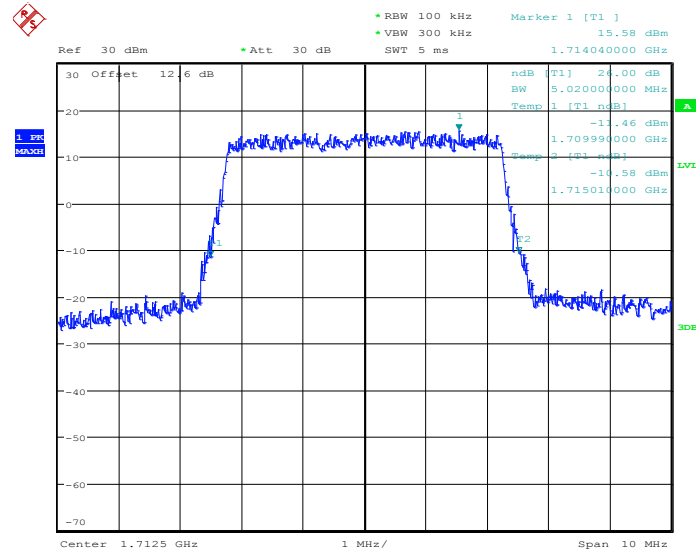
|        |            |             |             |
|--------|------------|-------------|-------------|
| Band : | LTE Band 4 | BW / Mod. : | 5MHz / QPSK |
|--------|------------|-------------|-------------|

### 99% Occupied Bandwidth Plot on Channel 19975



Date: 25.MAY.2014 08:11:59

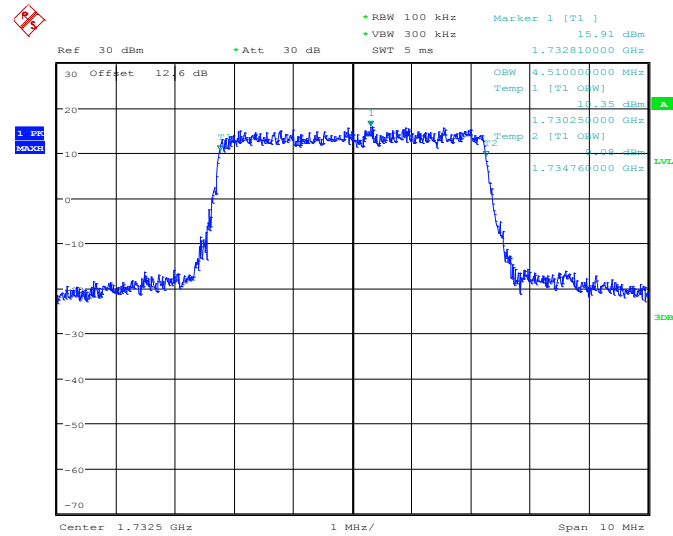
### 26dB Bandwidth Plot on Channel 19975



Date: 25.MAY.2014 08:12:34

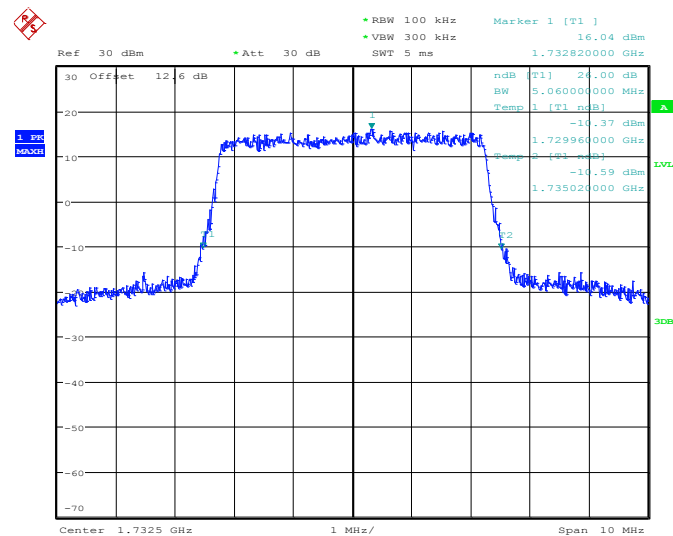


99% Occupied Bandwidth Plot on Channel 20175



Date: 25.MAY.2014 08:18:18

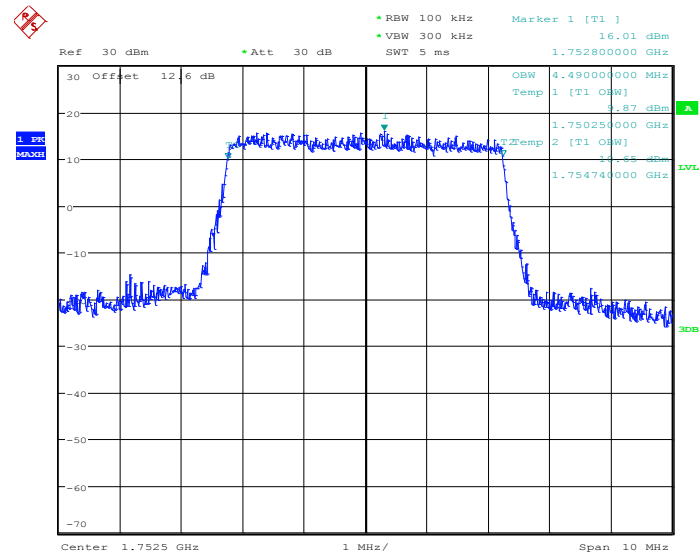
26dB Bandwidth Plot on Channel 20175



Date: 25.MAY.2014 08:18:53

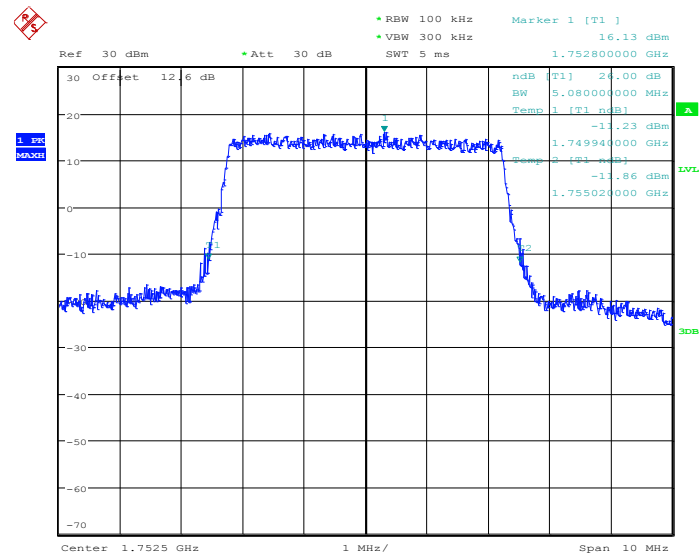


### 99% Occupied Bandwidth Plot on Channel 20375



Date: 25.MAY.2014 08:21:28

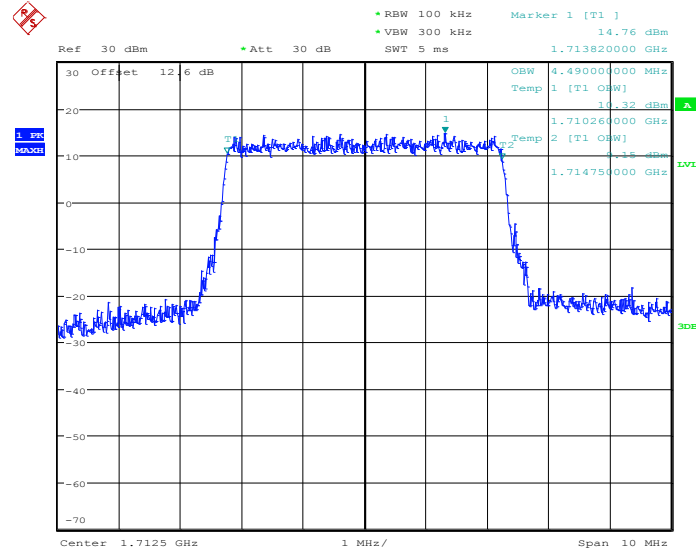
### 26dB Bandwidth Plot on Channel 20375



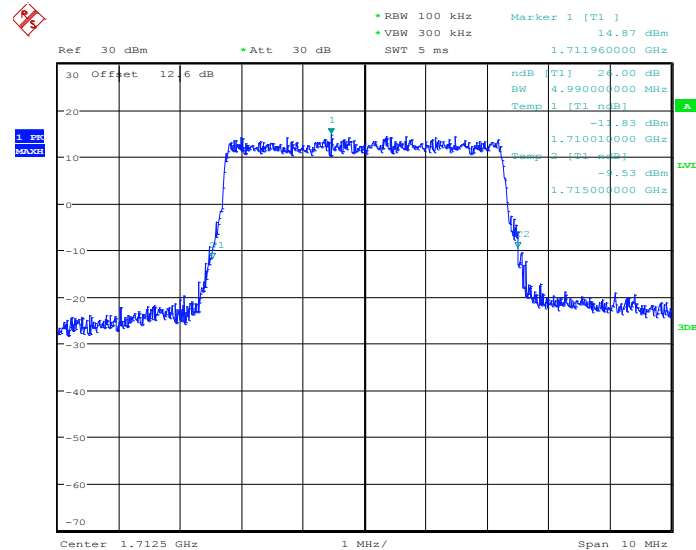
Date: 25.MAY.2014 08:22:02



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

**99% Occupied Bandwidth Plot on Channel 19975**

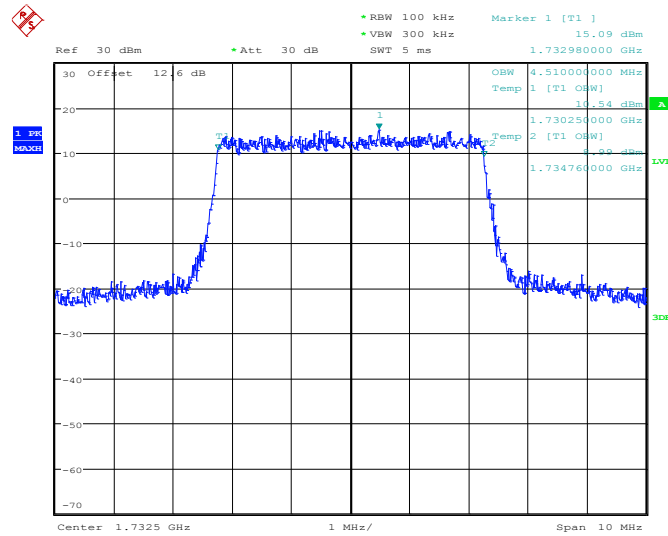
Date: 25.MAY.2014 08:12:16

**26dB Bandwidth Plot on Channel 19975**

Date: 25.MAY.2014 08:12:51

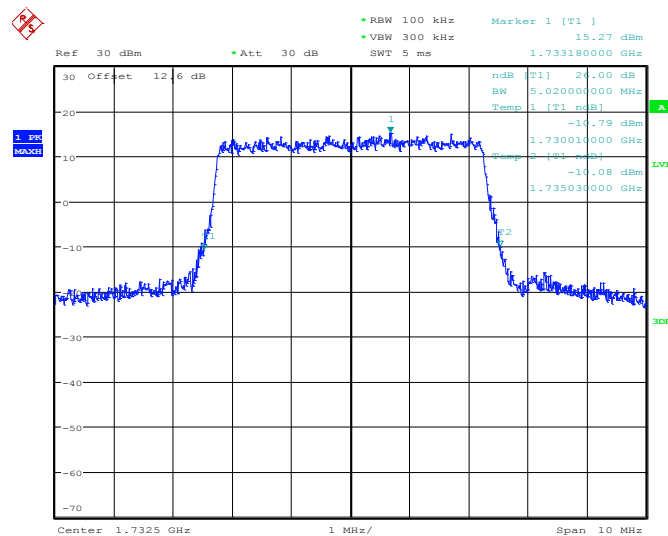


99% Occupied Bandwidth Plot on Channel 20175



Date: 25.MAY.2014 08:18:35

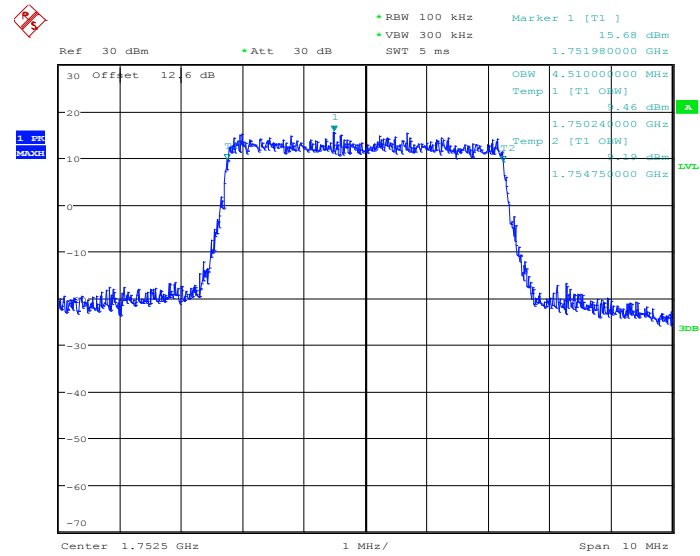
26dB Bandwidth Plot on Channel 20175



Date: 25.MAY.2014 08:19:11

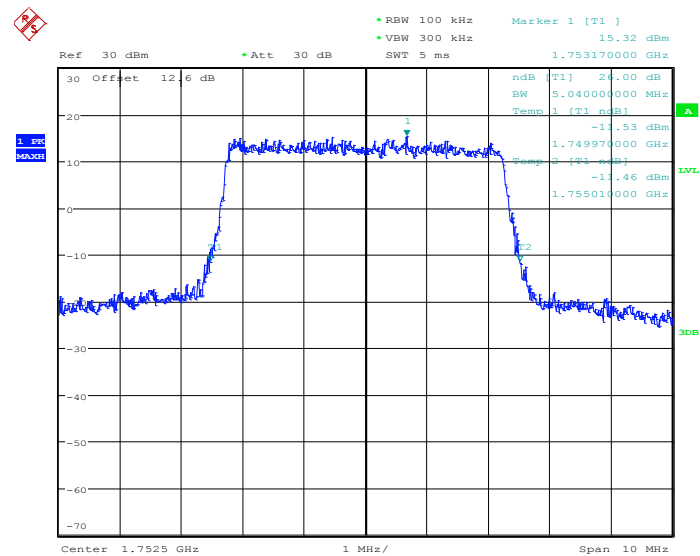


### 99% Occupied Bandwidth Plot on Channel 20375



Date: 25.MAY.2014 08:21:44

### 26dB Bandwidth Plot on Channel 20375

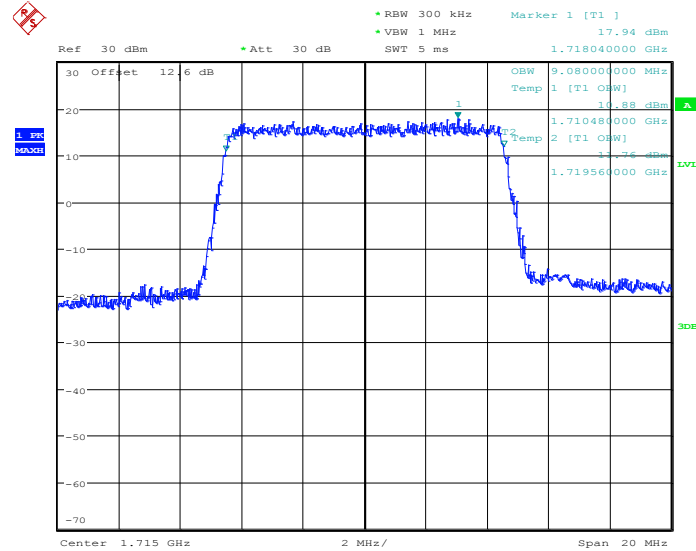


Date: 25.MAY.2014 08:22:20



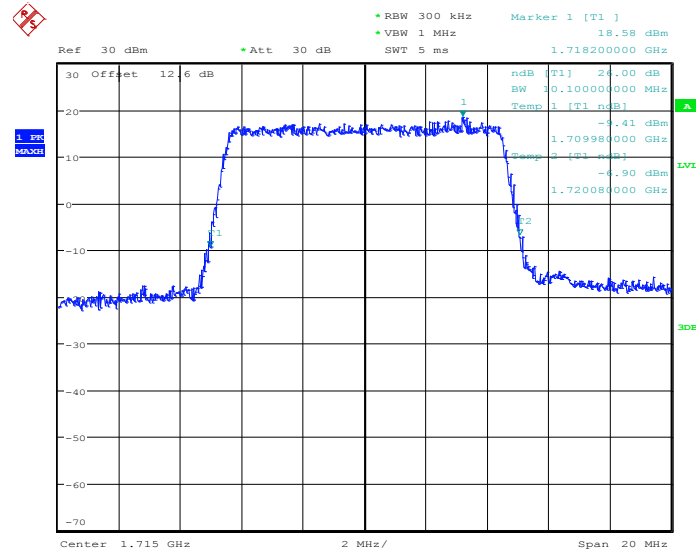
|        |            |             |              |
|--------|------------|-------------|--------------|
| Band : | LTE Band 4 | BW / Mod. : | 10MHz / QPSK |
|--------|------------|-------------|--------------|

### 99% Occupied Bandwidth Plot on Channel 20000



Date: 25.MAY.2014 08:27:52

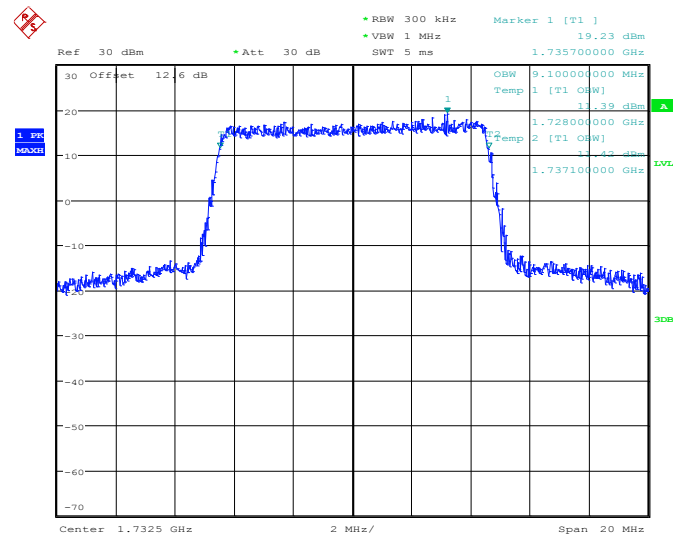
### 26dB Bandwidth Plot on Channel 20000



Date: 25.MAY.2014 08:28:26

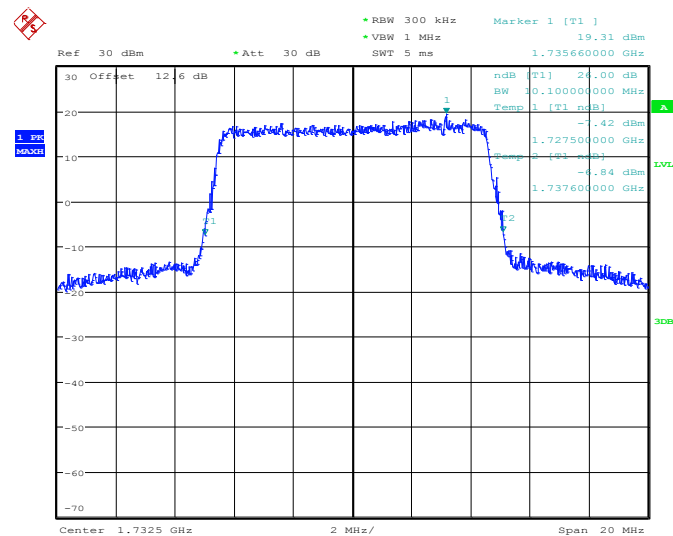


### 99% Occupied Bandwidth Plot on Channel 20175



Date: 25.MAY.2014 08:34:10

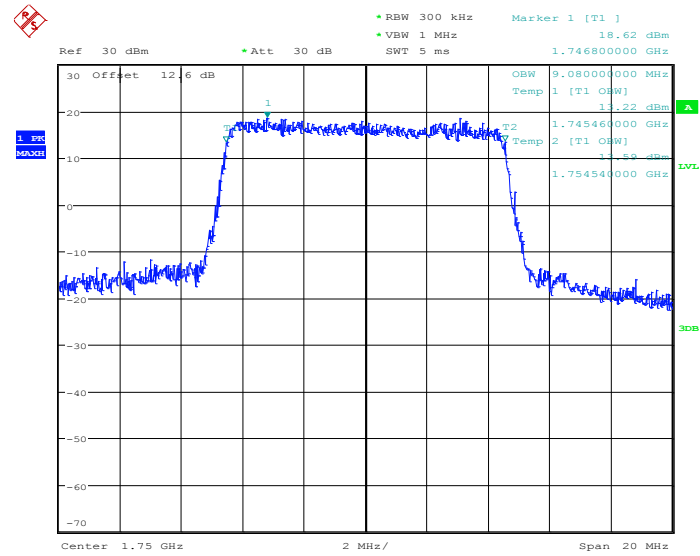
### 26dB Bandwidth Plot on Channel 20175



Date: 25.MAY.2014 08:34:44

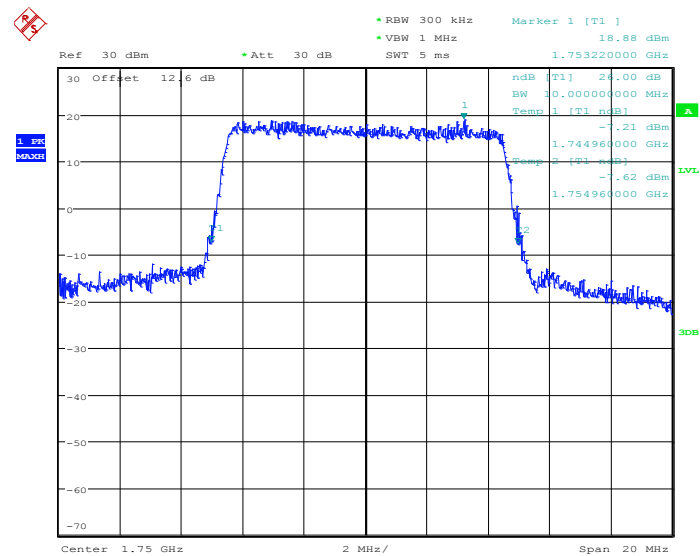


99% Occupied Bandwidth Plot on Channel 20350



Date: 25.MAY.2014 08:37:19

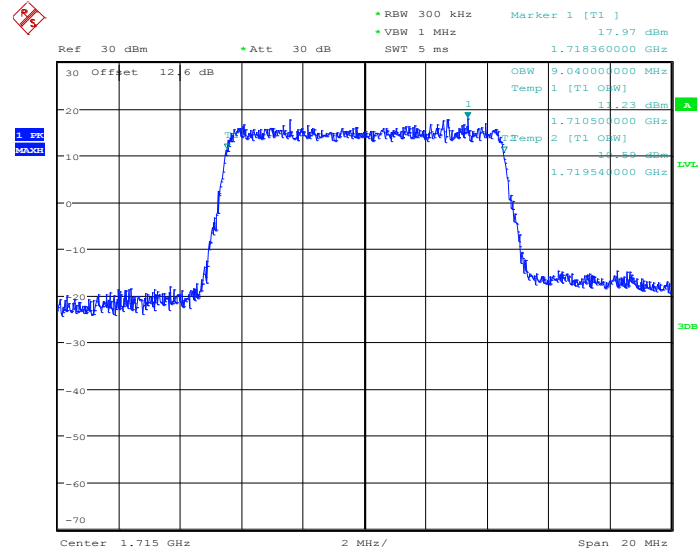
26dB Bandwidth Plot on Channel 20350



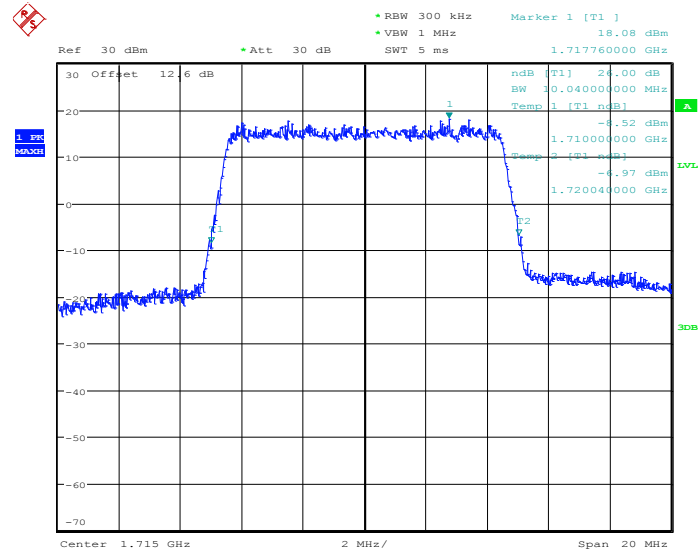
Date: 25.MAY.2014 08:37:53



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

**99% Occupied Bandwidth Plot on Channel 20000**

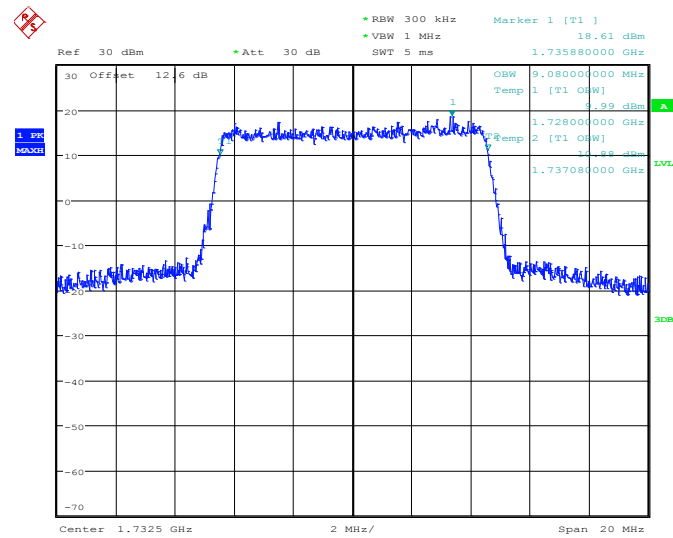
Date: 25.MAY.2014 08:28:08

**26dB Bandwidth Plot on Channel 20000**

Date: 25.MAY.2014 08:28:44

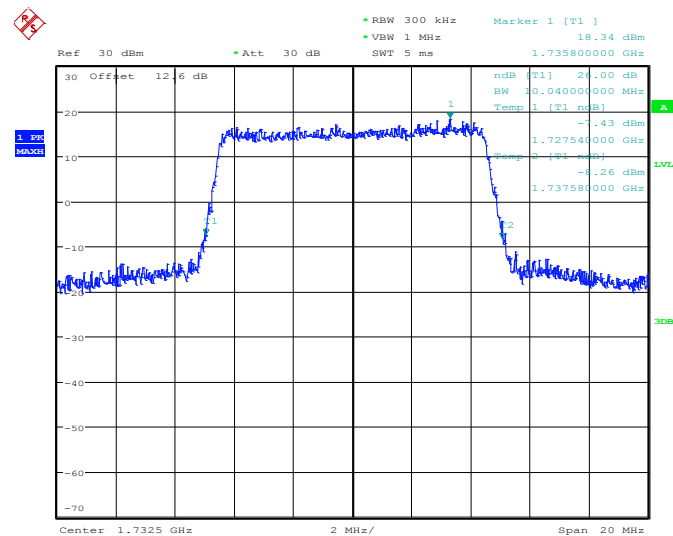


### 99% Occupied Bandwidth Plot on Channel 20175



Date: 25.MAY.2014 08:34:26

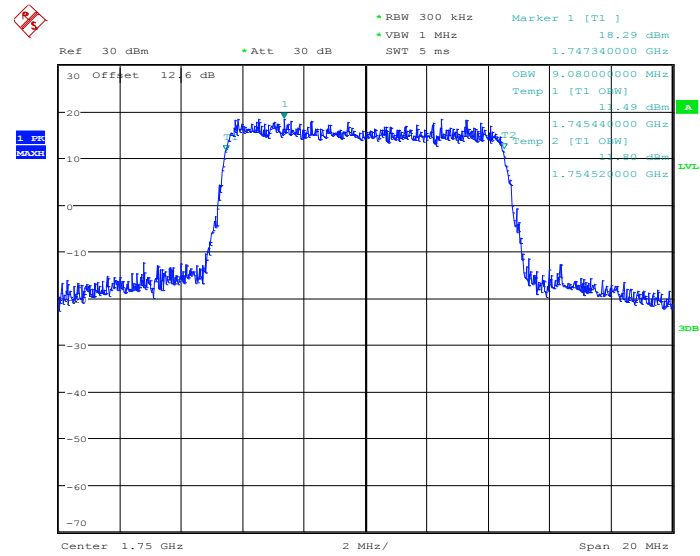
### 26dB Bandwidth Plot on Channel 20175



Date: 25.MAY.2014 08:35:02

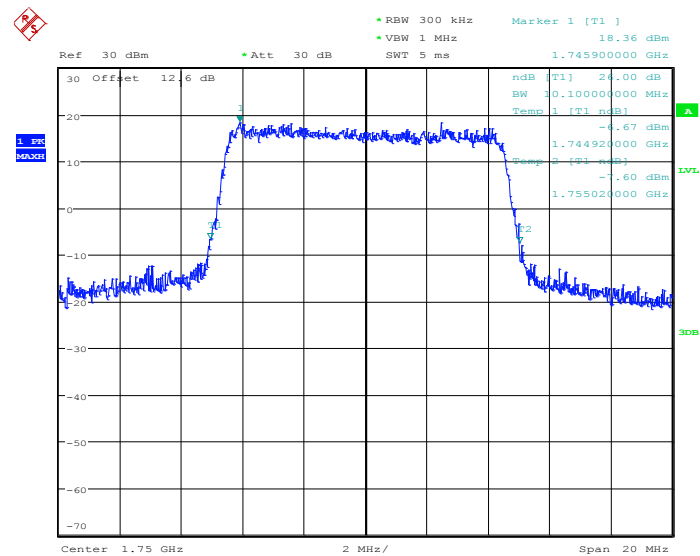


99% Occupied Bandwidth Plot on Channel 20350



Date: 25.MAY.2014 08:37:35

26dB Bandwidth Plot on Channel 20350

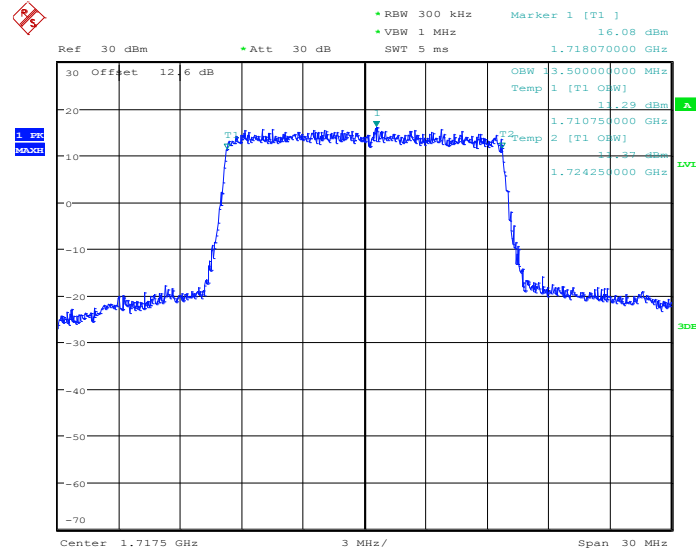


Date: 25.MAY.2014 08:38:11



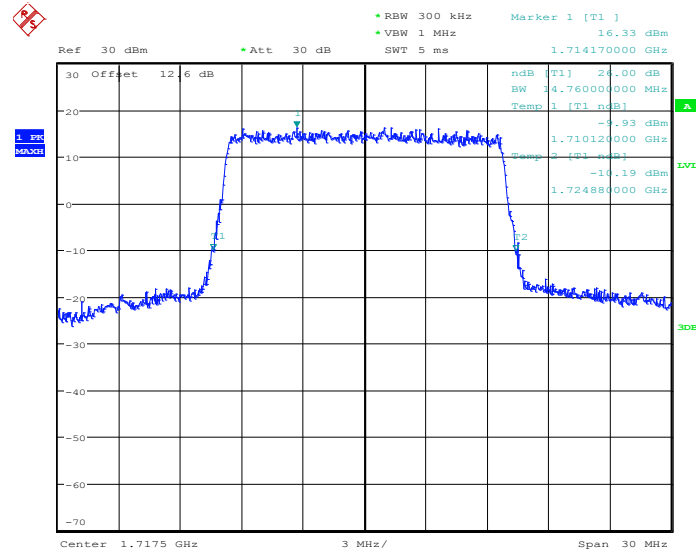
|        |            |             |              |
|--------|------------|-------------|--------------|
| Band : | LTE Band 4 | BW / Mod. : | 15MHz / QPSK |
|--------|------------|-------------|--------------|

### 99% Occupied Bandwidth Plot on Channel 2025

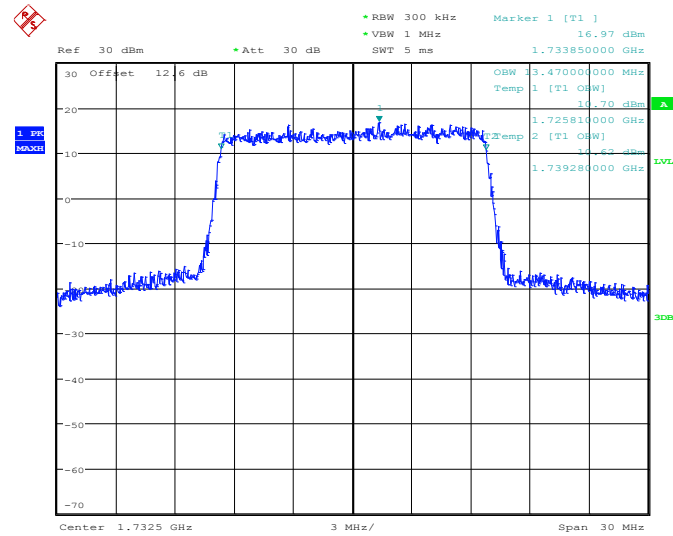


Date: 25.MAY.2014 08:43:43

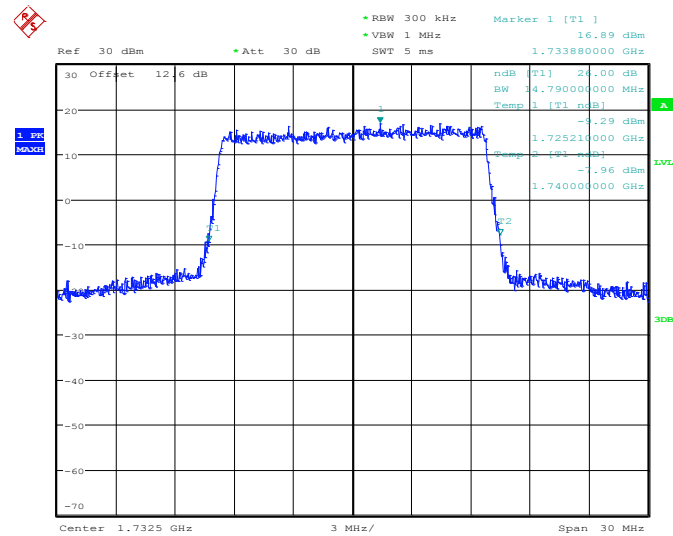
### 26dB Bandwidth Plot on Channel 2025



Date: 25.MAY.2014 08:44:18

**99% Occupied Bandwidth Plot on Channel 20175**

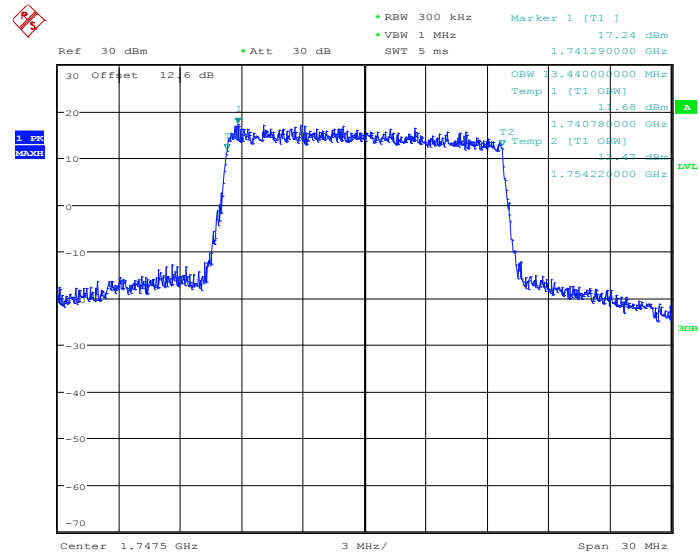
Date: 25.MAY.2014 08:50:02

**26dB Bandwidth Plot on Channel 20175**

Date: 25.MAY.2014 08:50:37

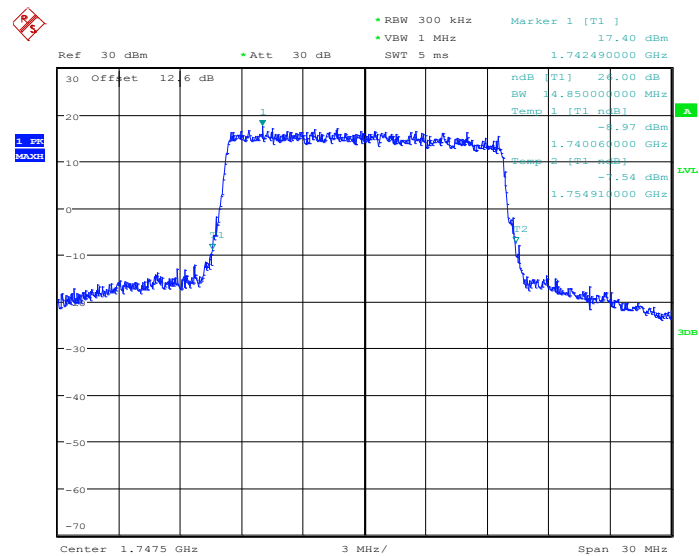


### 99% Occupied Bandwidth Plot on Channel 20325



Date: 25.MAY.2014 08:53:12

### 26dB Bandwidth Plot on Channel 20325

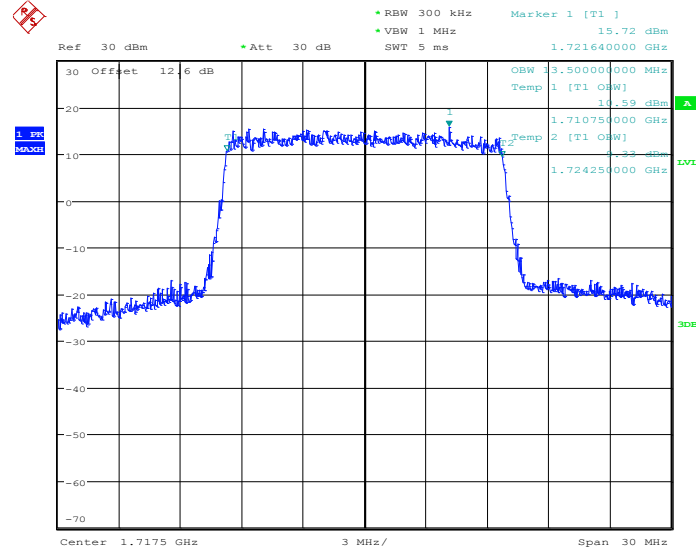


Date: 25.MAY.2014 08:53:46



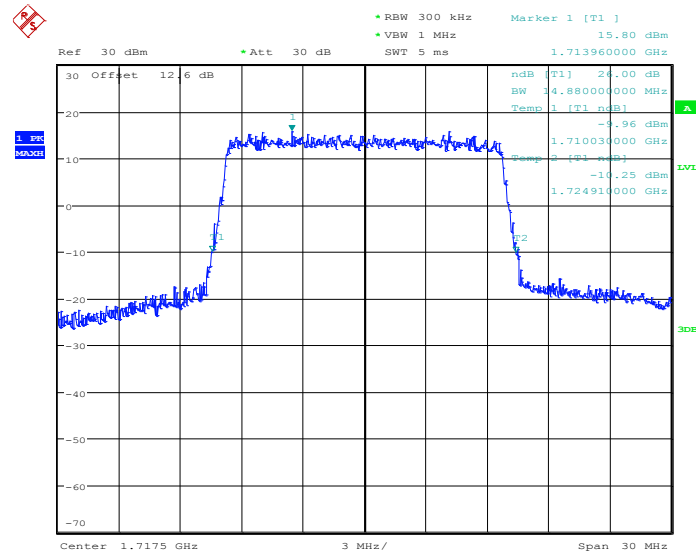
|        |            |             |               |
|--------|------------|-------------|---------------|
| Band : | LTE Band 4 | BW / Mod. : | 15MHz / 16QAM |
|--------|------------|-------------|---------------|

### 99% Occupied Bandwidth Plot on Channel 20025



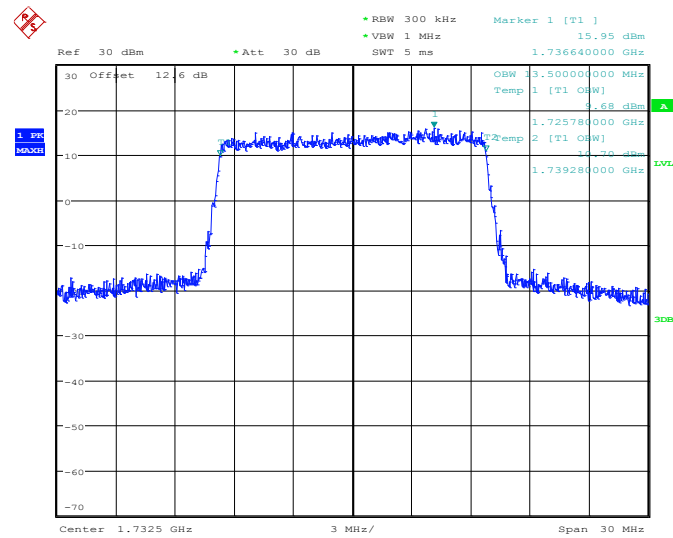
Date: 25.MAY.2014 08:44:00

### 26dB Bandwidth Plot on Channel 20025



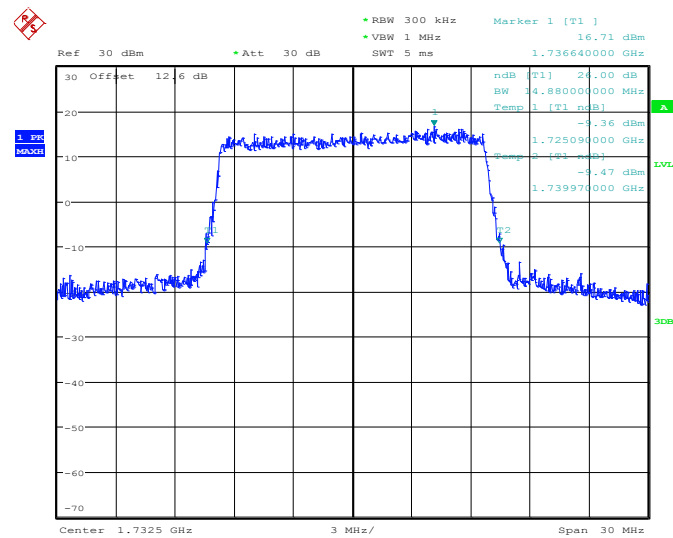
Date: 25.MAY.2014 08:44:36

### 99% Occupied Bandwidth Plot on Channel 20175



Date: 25.MAY.2014 08:50:19

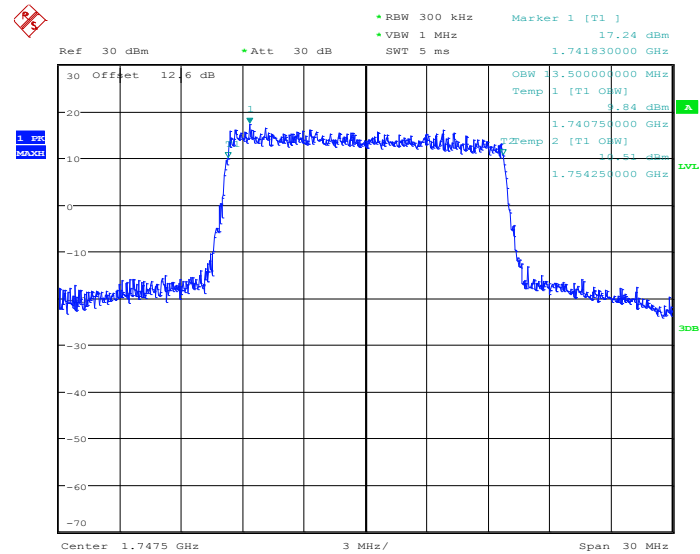
### 26dB Bandwidth Plot on Channel 20175



Date: 25.MAY.2014 08:50:55

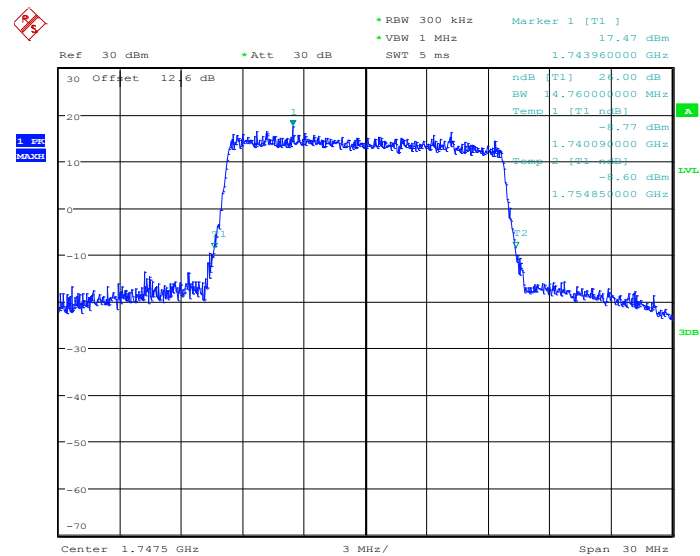


### 99% Occupied Bandwidth Plot on Channel 20325



Date: 25.MAY.2014 08:53:28

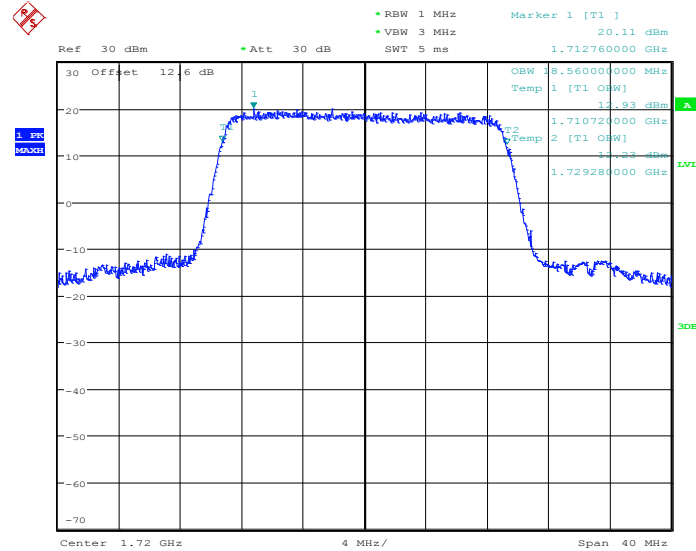
### 26dB Bandwidth Plot on Channel 20325



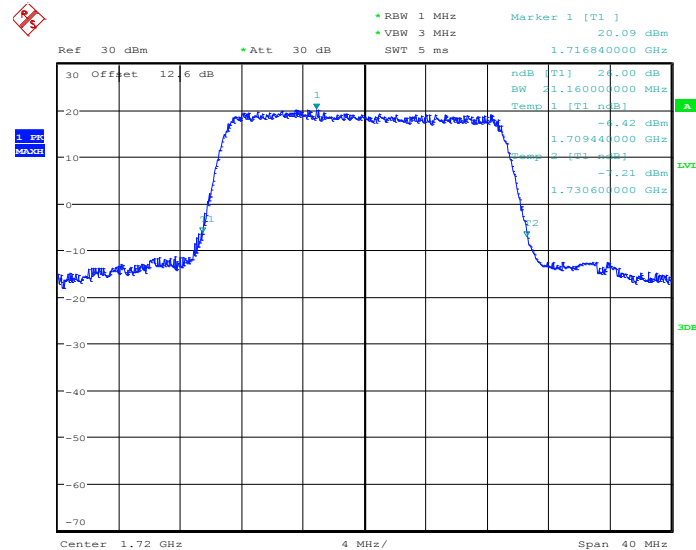
Date: 25.MAY.2014 08:54:04



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

**99% Occupied Bandwidth Plot on Channel 20050**

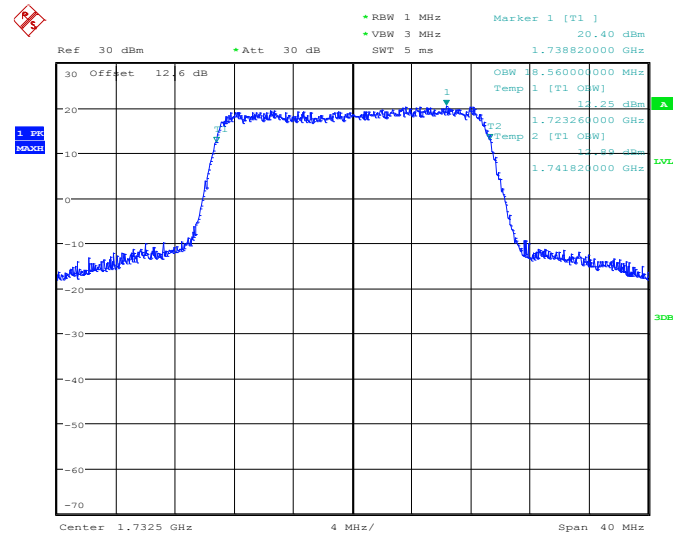
Date: 25.MAY.2014 08:59:36

**26dB Bandwidth Plot on Channel 20050**

Date: 25.MAY.2014 09:00:10

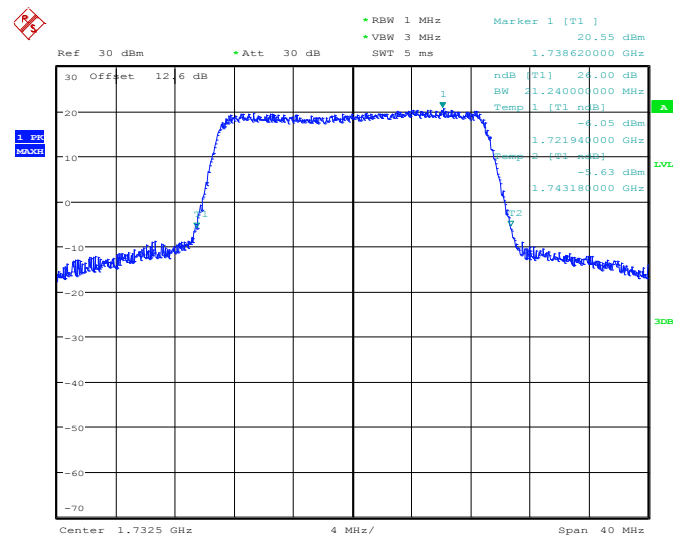


99% Occupied Bandwidth Plot on Channel 20175



Date: 25.MAY.2014 09:05:55

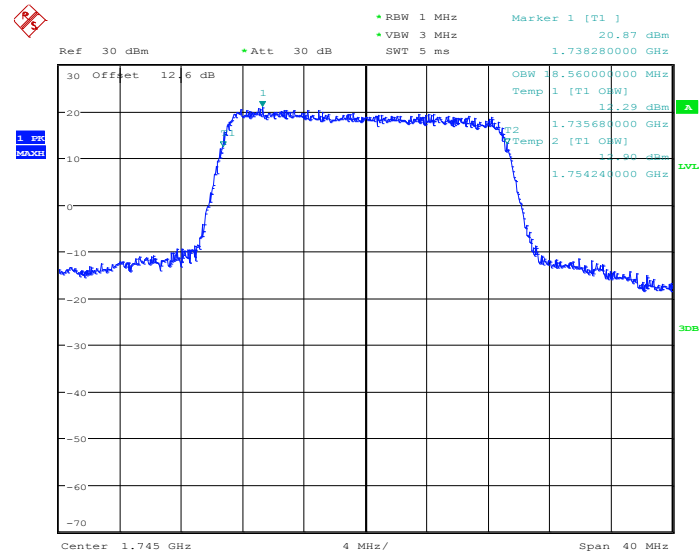
26dB Bandwidth Plot on Channel 20175



Date: 25.MAY.2014 09:06:29

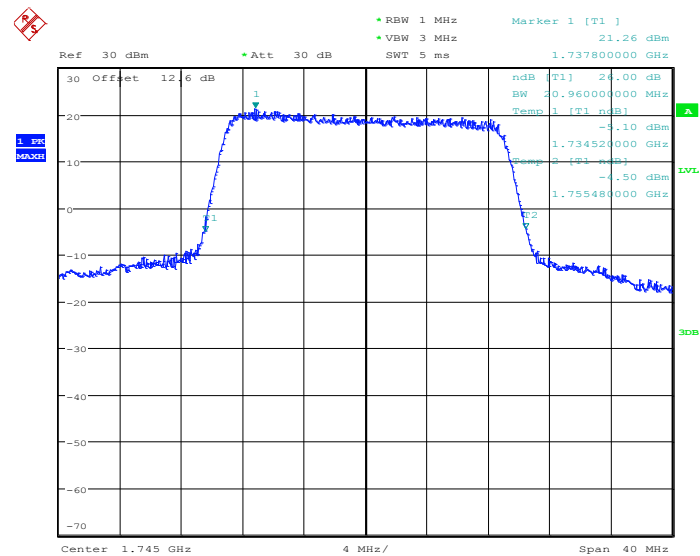


99% Occupied Bandwidth Plot on Channel 20300



Date: 25.MAY.2014 09:09:04

26dB Bandwidth Plot on Channel 20300

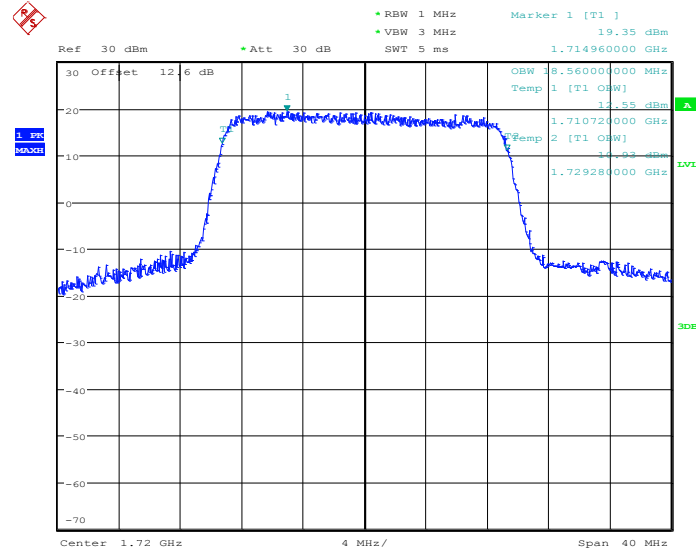


Date: 25.MAY.2014 09:09:39



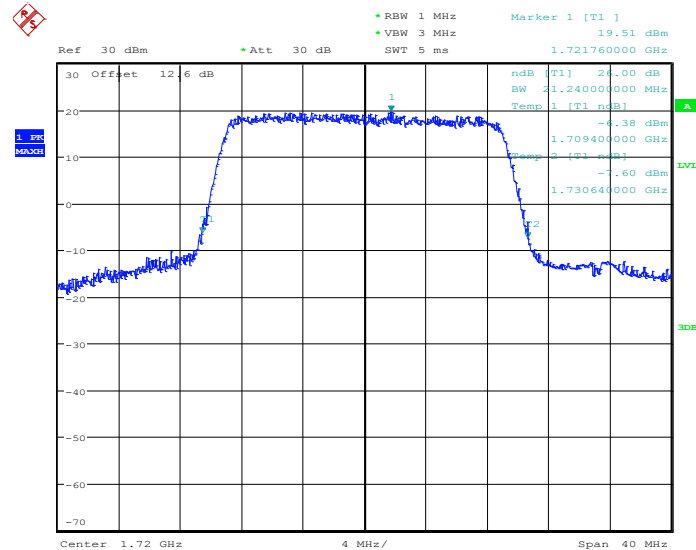
|        |            |             |               |
|--------|------------|-------------|---------------|
| Band : | LTE Band 4 | BW / Mod. : | 20MHz / 16QAM |
|--------|------------|-------------|---------------|

### 99% Occupied Bandwidth Plot on Channel 20050



Date: 25.MAY.2014 08:59:52

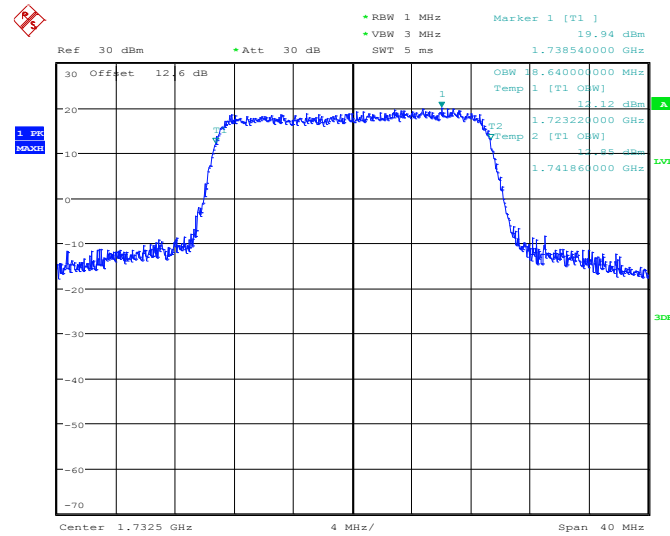
### 26dB Bandwidth Plot on Channel 20050



Date: 25.MAY.2014 09:00:28

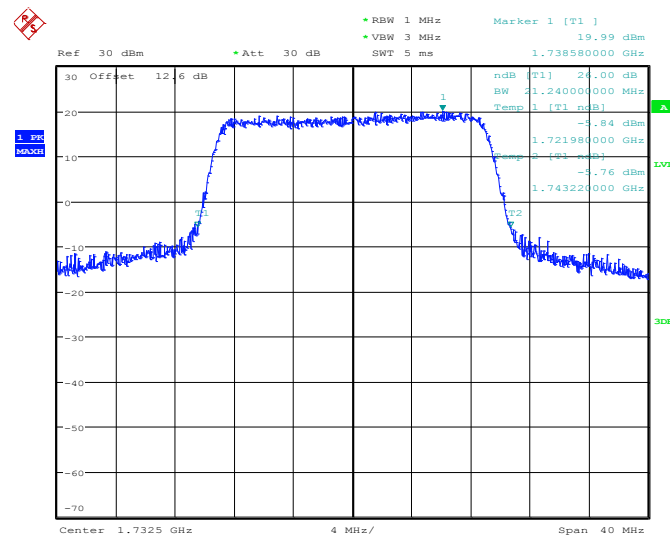


99% Occupied Bandwidth Plot on Channel 20175



Date: 25.MAY.2014 09:06:11

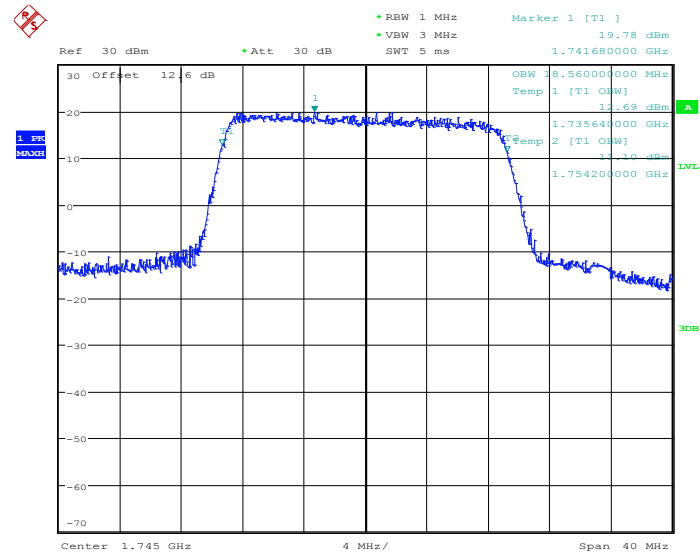
26dB Bandwidth Plot on Channel 20175



Date: 25.MAY.2014 09:06:47

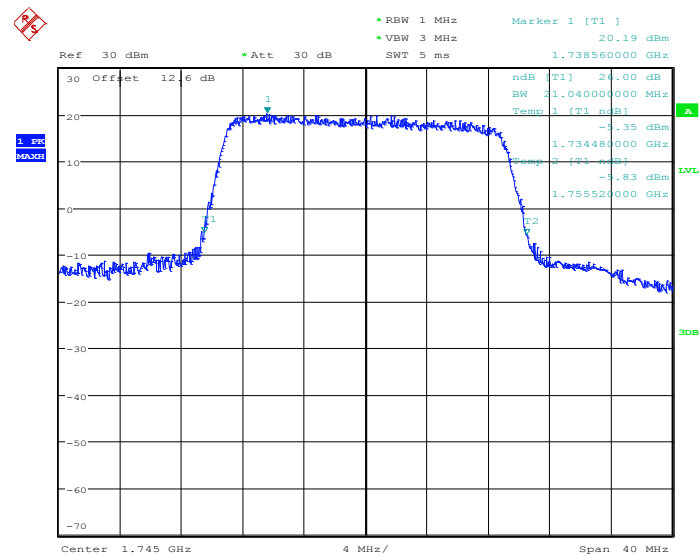


99% Occupied Bandwidth Plot on Channel 20300



Date: 25.MAY.2014 09:09:21

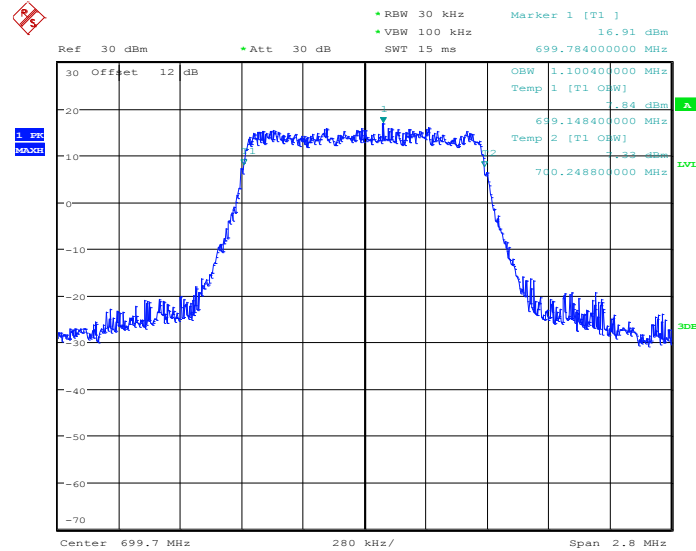
26dB Bandwidth Plot on Channel 20300



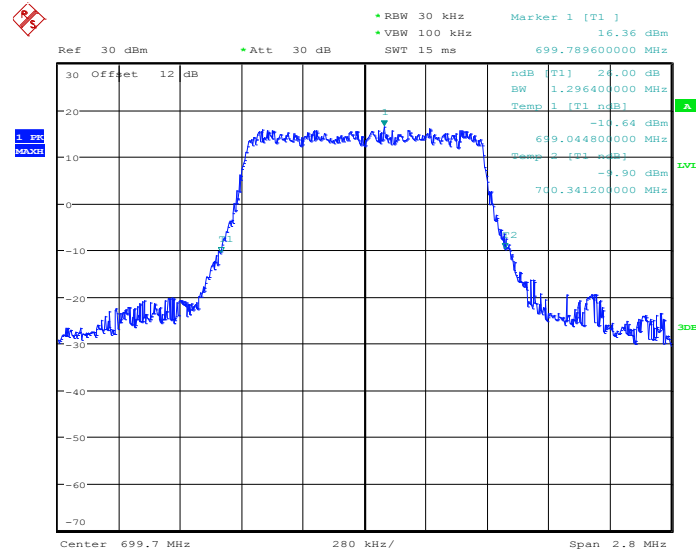
Date: 25.MAY.2014 09:09:57



|               |             |                    |               |
|---------------|-------------|--------------------|---------------|
| <b>Band :</b> | LTE Band 12 | <b>BW / Mod. :</b> | 1.4MHz / QPSK |
|---------------|-------------|--------------------|---------------|

**99% Occupied Bandwidth Plot on Channel 23017**

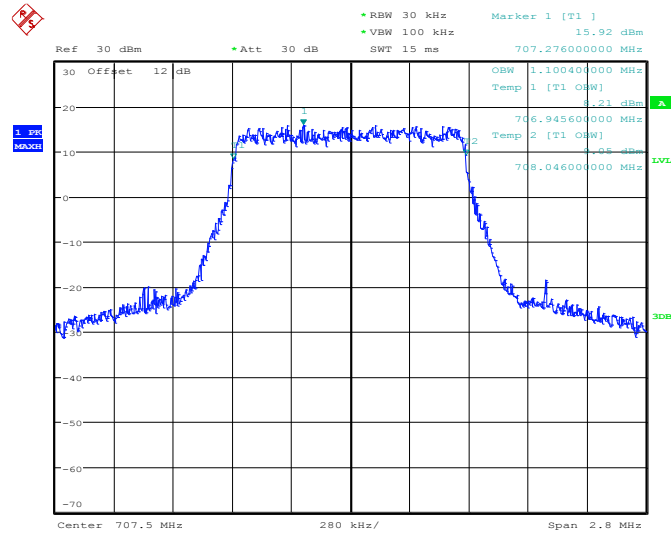
Date: 25.MAY.2014 09:59:32

**26dB Bandwidth Plot on Channel 23017**

Date: 25.MAY.2014 10:00:24

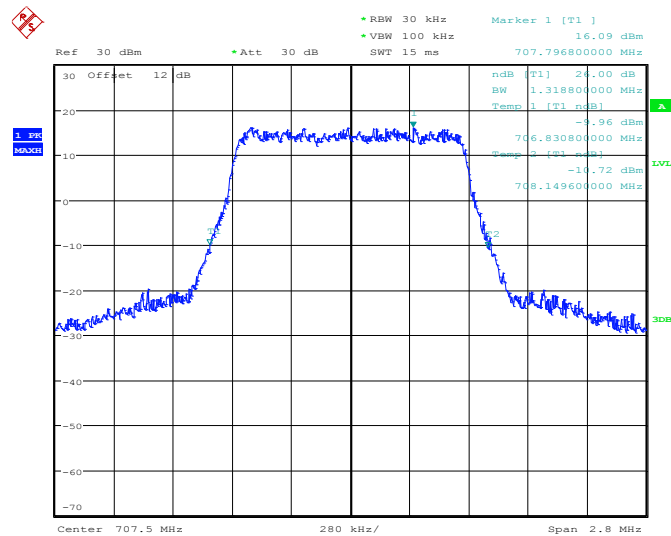


99% Occupied Bandwidth Plot on Channel 23095



Date: 25.MAY.2014 10:28:58

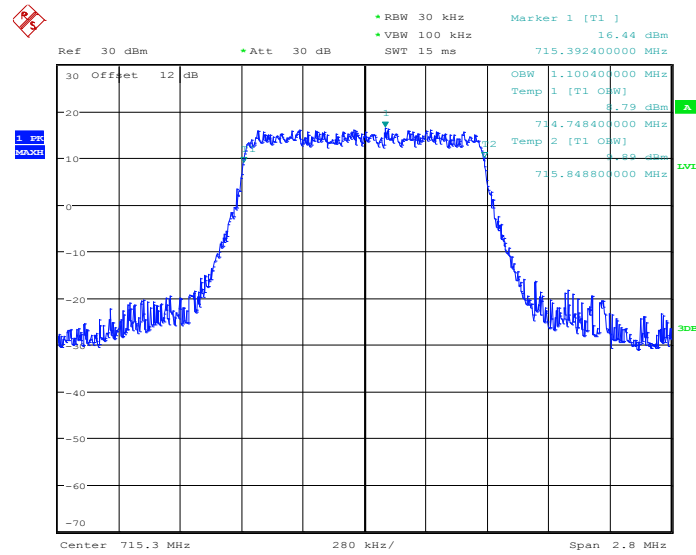
26dB Bandwidth Plot on Channel 23095



Date: 25.MAY.2014 10:29:16

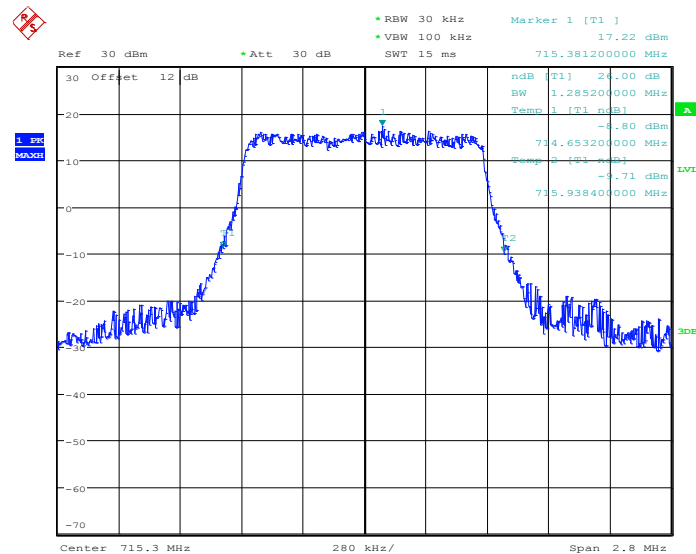


99% Occupied Bandwidth Plot on Channel 23173



Date: 25.MAY.2014 10:31:51

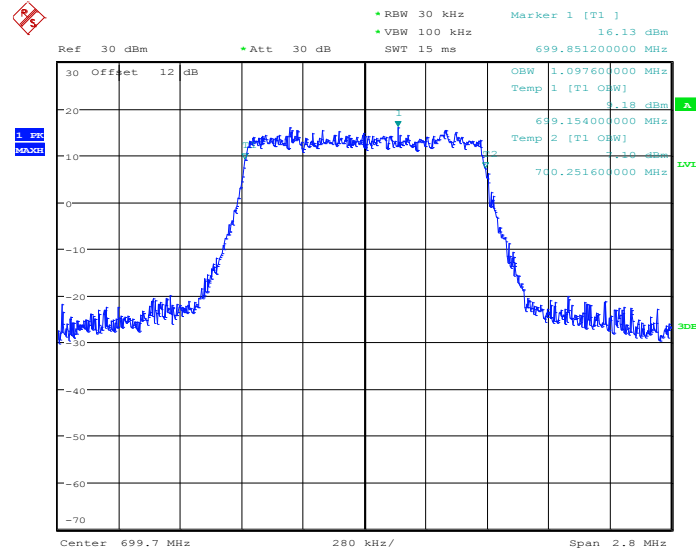
26dB Bandwidth Plot on Channel 23173



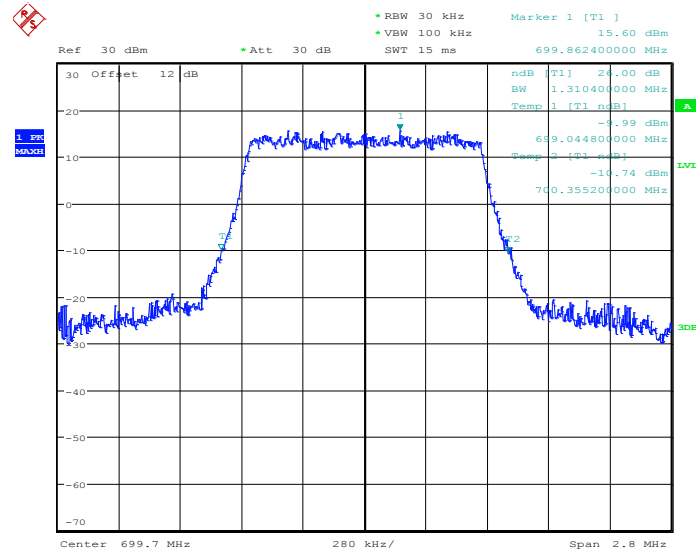
Date: 25.MAY.2014 10:32:43



|               |             |                    |                |
|---------------|-------------|--------------------|----------------|
| <b>Band :</b> | LTE Band 12 | <b>BW / Mod. :</b> | 1.4MHz / 16QAM |
|---------------|-------------|--------------------|----------------|

**99% Occupied Bandwidth Plot on Channel 23017**

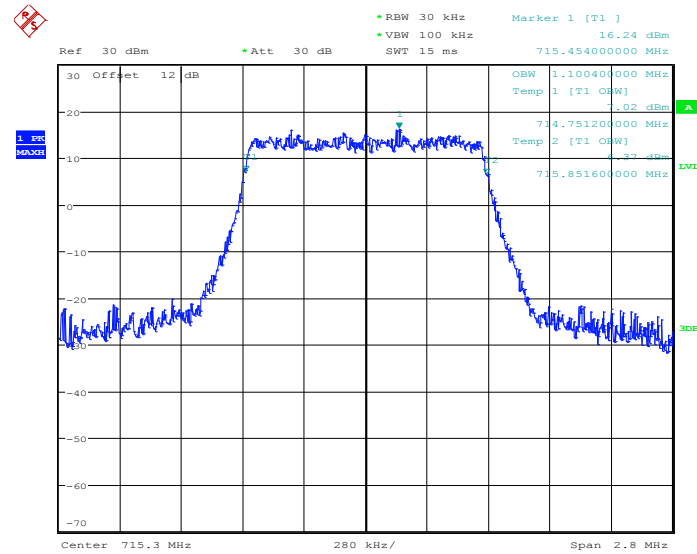
Date: 25.MAY.2014 09:59:48

**26dB Bandwidth Plot on Channel 23017**

Date: 25.MAY.2014 10:00:06

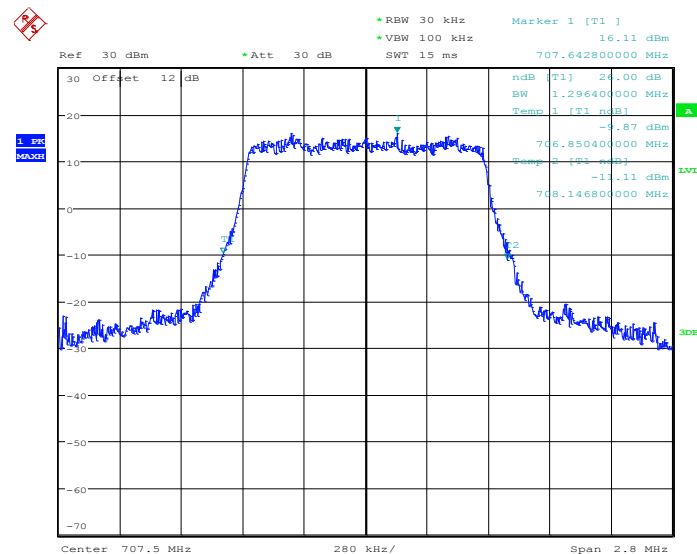


### 99% Occupied Bandwidth Plot on Channel 23095



Date: 25.MAY.2014 10:32:07

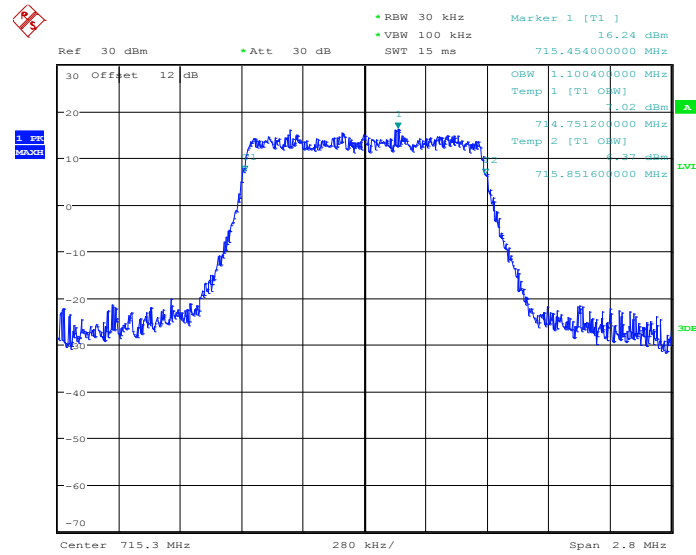
### 26dB Bandwidth Plot on Channel 23095



Date: 25.MAY.2014 10:29:34

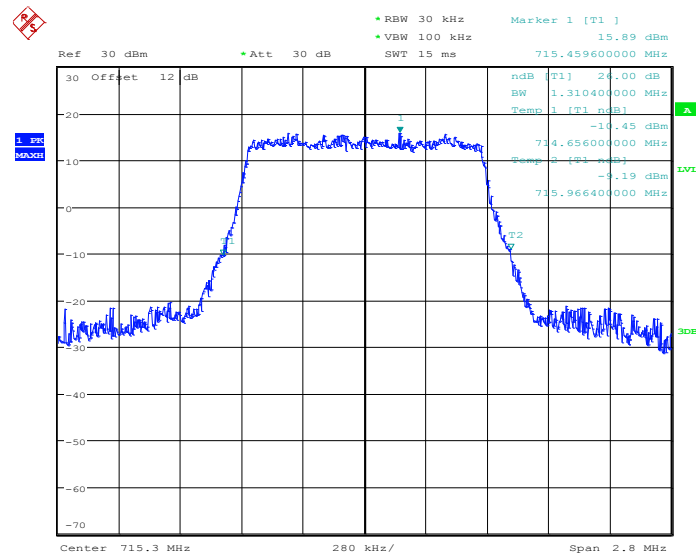


99% Occupied Bandwidth Plot on Channel 23173



Date: 25.MAY.2014 10:32:07

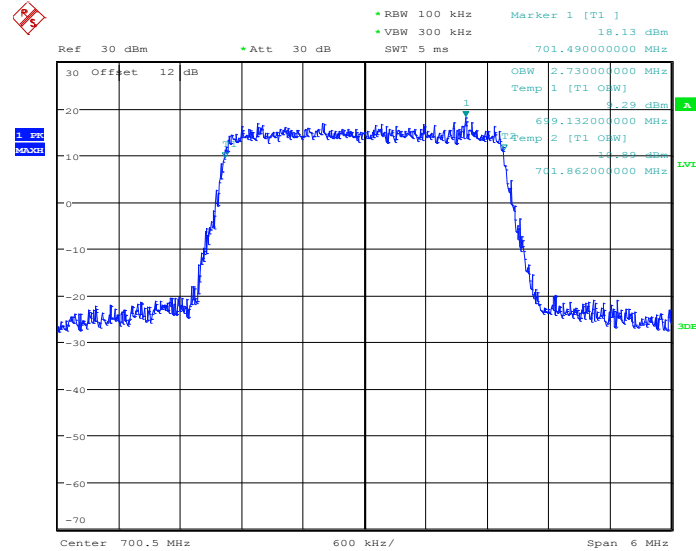
26dB Bandwidth Plot on Channel 23173



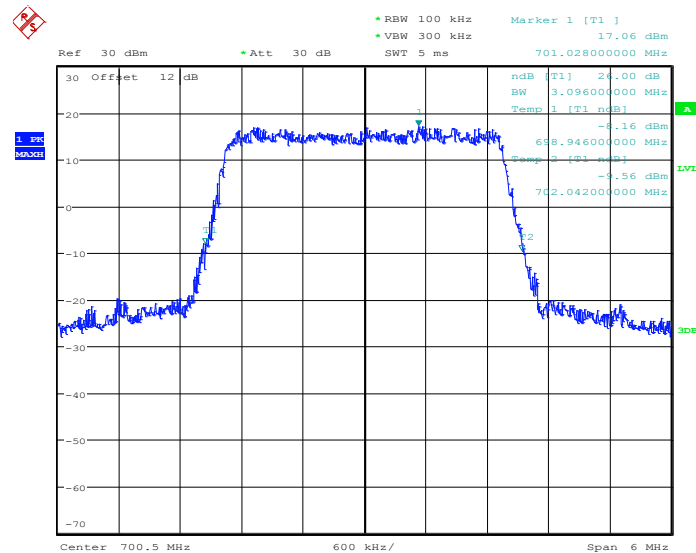
Date: 25.MAY.2014 10:32:25



|               |             |                    |             |
|---------------|-------------|--------------------|-------------|
| <b>Band :</b> | LTE Band 12 | <b>BW / Mod. :</b> | 3MHz / QPSK |
|---------------|-------------|--------------------|-------------|

**99% Occupied Bandwidth Plot on Channel 23025**

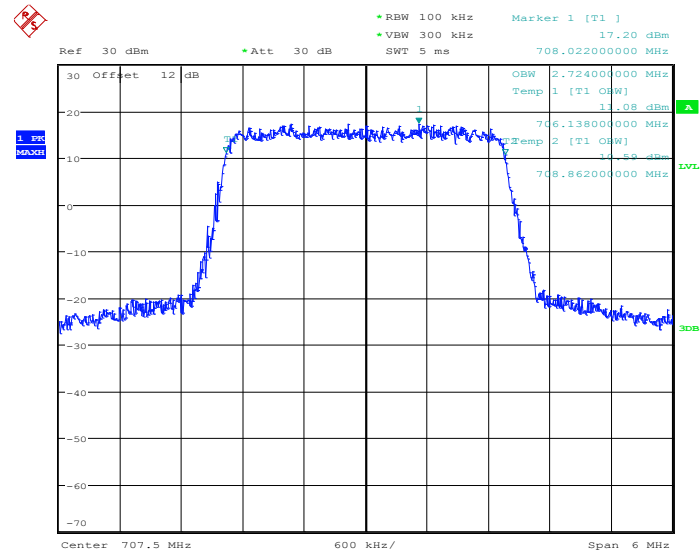
Date: 25.MAY.2014 10:38:17

**26dB Bandwidth Plot on Channel 23025**

Date: 25.MAY.2014 10:39:09

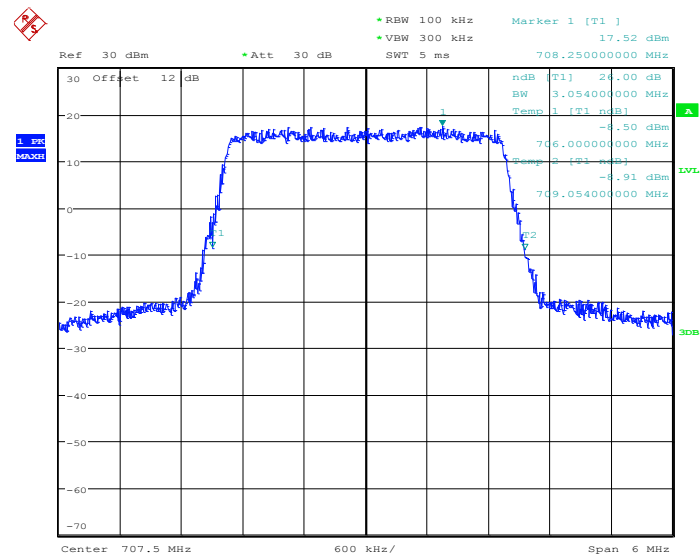


### 99% Occupied Bandwidth Plot on Channel 23095



Date: 25.MAY.2014 10:45:59

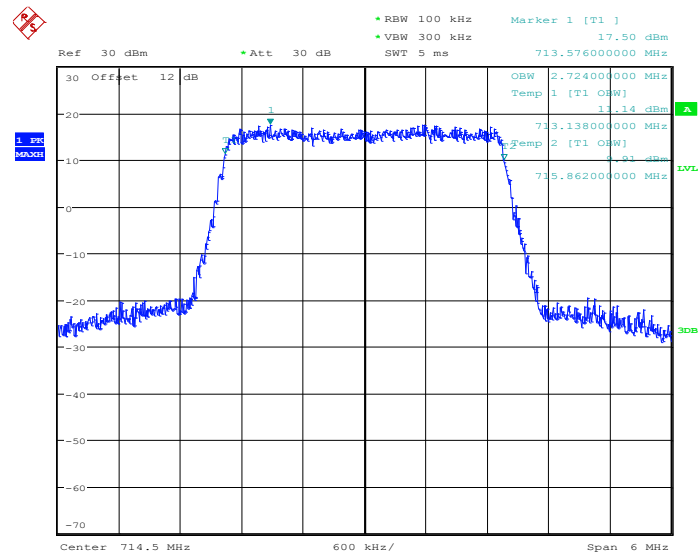
### 26dB Bandwidth Plot on Channel 23095



Date: 25.MAY.2014 10:46:17

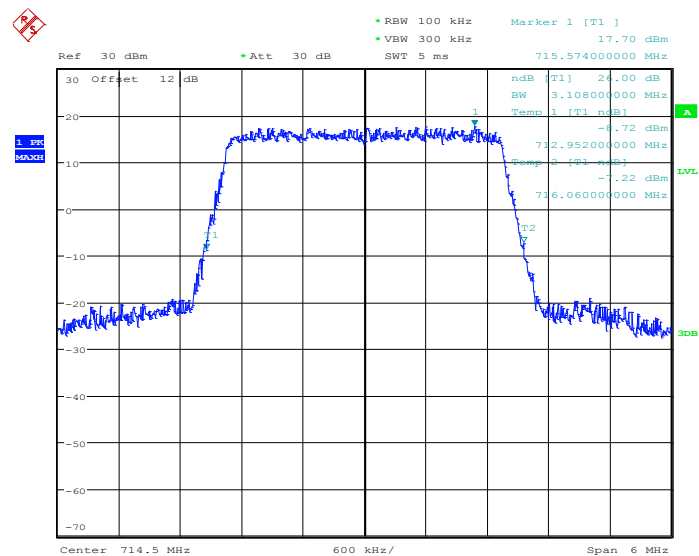


99% Occupied Bandwidth Plot on Channel 23165



Date: 25.MAY.2014 10:48:52

26dB Bandwidth Plot on Channel 23165

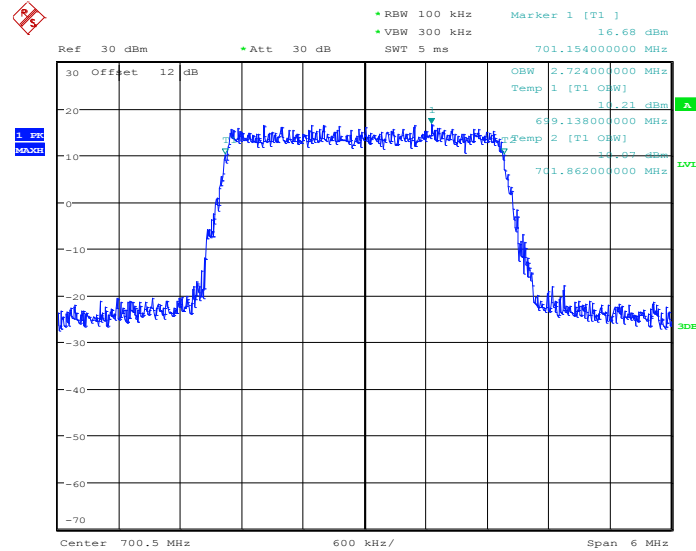


Date: 25.MAY.2014 10:49:44



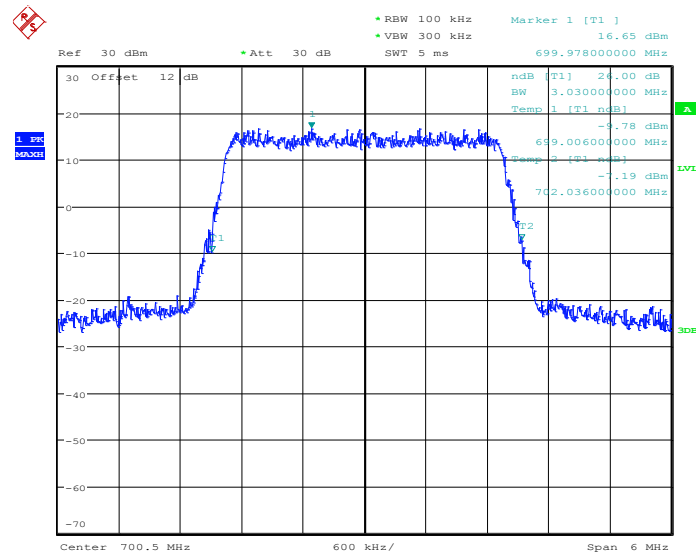
|        |             |             |              |
|--------|-------------|-------------|--------------|
| Band : | LTE Band 12 | BW / Mod. : | 3MHz / 16QAM |
|--------|-------------|-------------|--------------|

### 99% Occupied Bandwidth Plot on Channel 23025



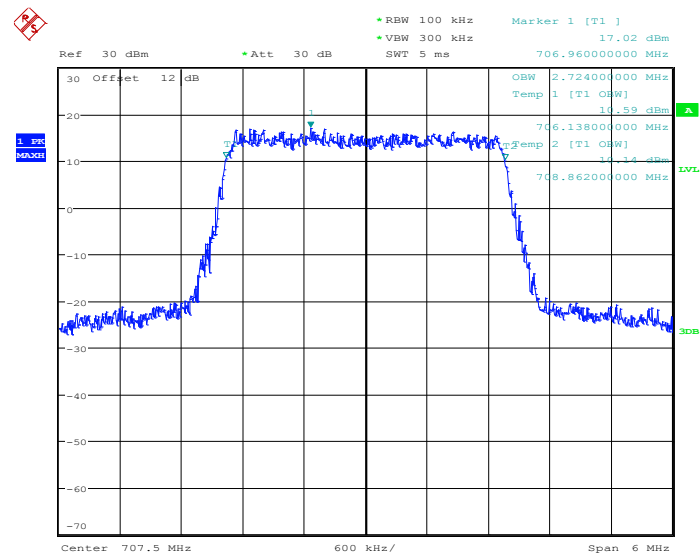
Date: 25.MAY.2014 10:38:33

### 26dB Bandwidth Plot on Channel 23025



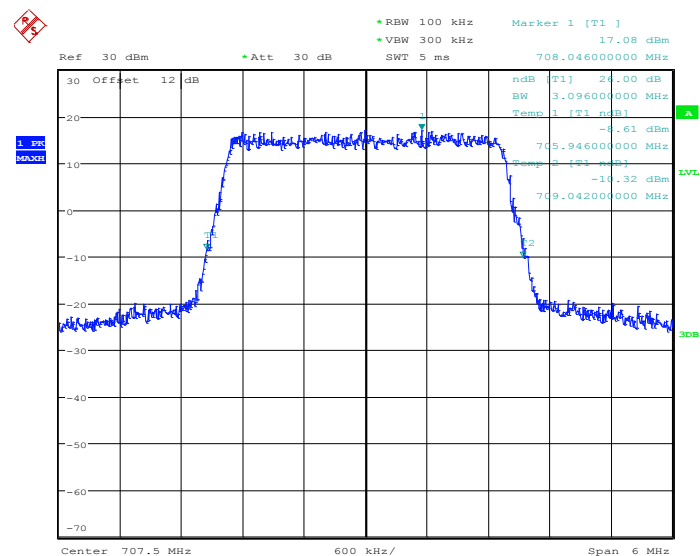
Date: 25.MAY.2014 10:38:51

### 99% Occupied Bandwidth Plot on Channel 23095



Date: 25.MAY.2014 10:45:43

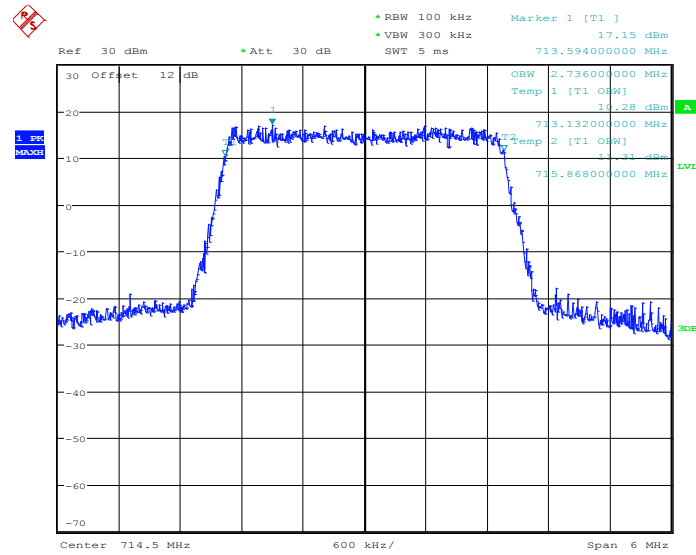
### 26dB Bandwidth Plot on Channel 23095



Date: 25.MAY.2014 10:46:35

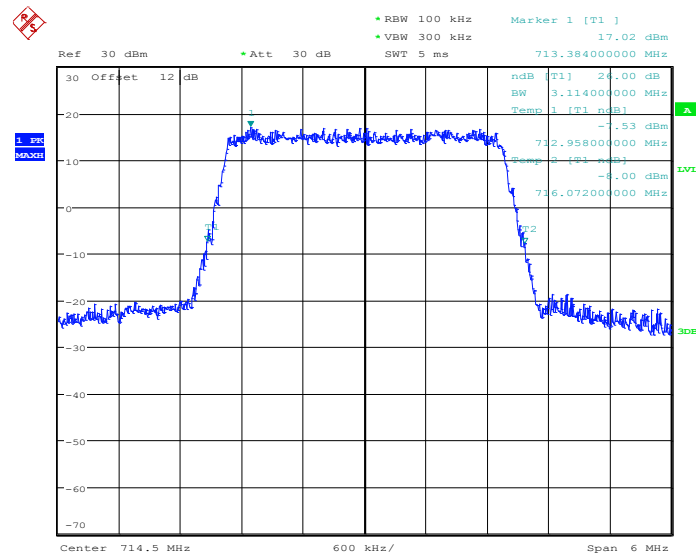


99% Occupied Bandwidth Plot on Channel 23165



Date: 25.MAY.2014 10:49:08

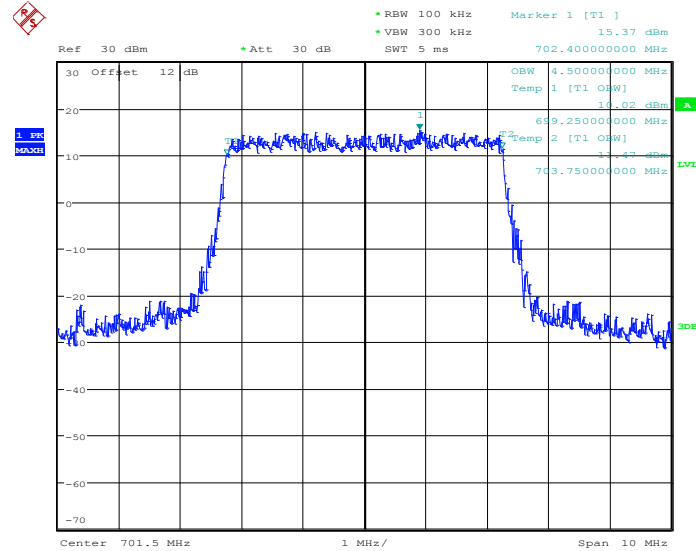
26dB Bandwidth Plot on Channel 23165



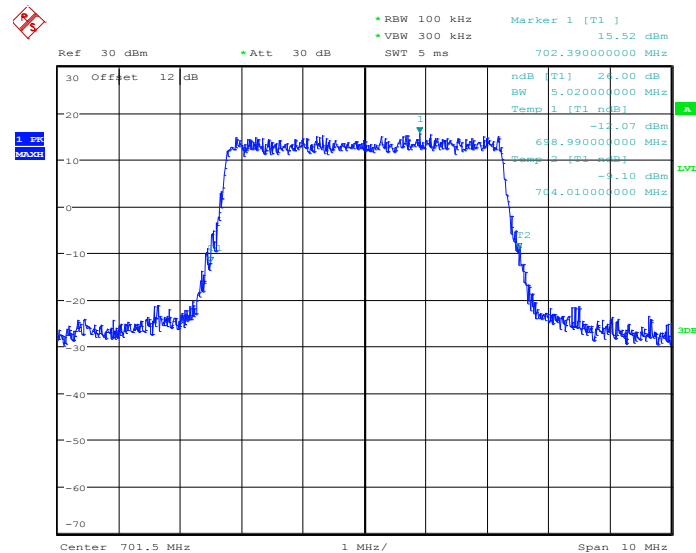
Date: 25.MAY.2014 10:49:26



|               |             |                    |             |
|---------------|-------------|--------------------|-------------|
| <b>Band :</b> | LTE Band 12 | <b>BW / Mod. :</b> | 5MHz / QPSK |
|---------------|-------------|--------------------|-------------|

**99% Occupied Bandwidth Plot on Channel 23035**

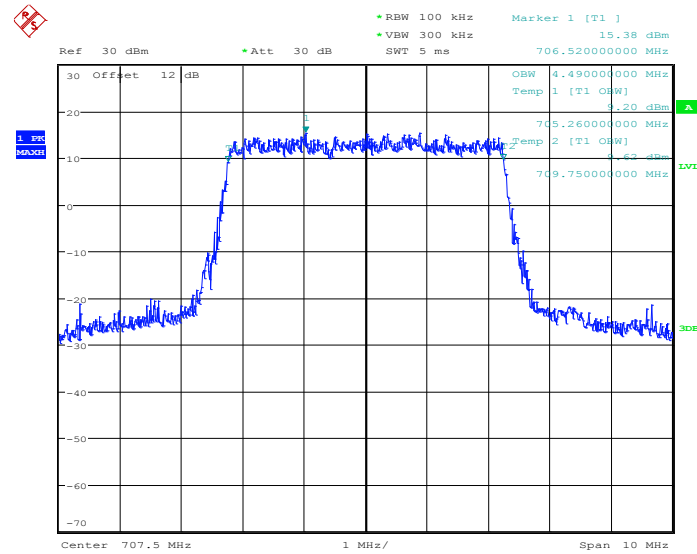
Date: 25.MAY.2014 10:55:21

**26dB Bandwidth Plot on Channel 23035**

Date: 25.MAY.2014 10:56:13

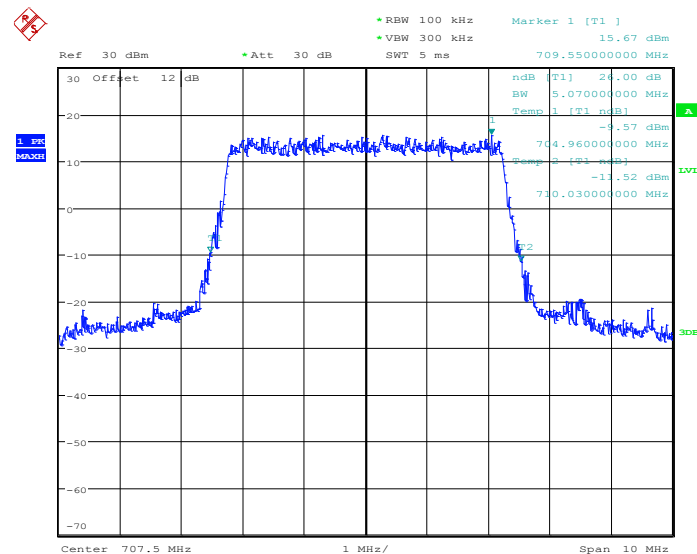


### 99% Occupied Bandwidth Plot on Channel 23095



Date: 25.MAY.2014 11:02:27

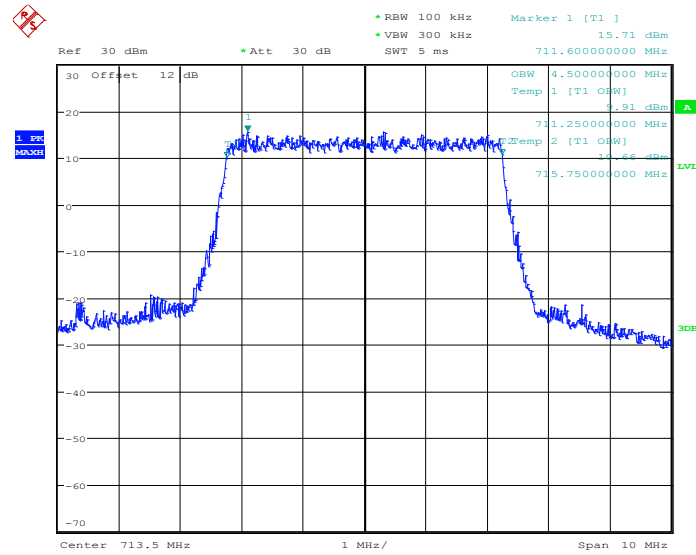
### 26dB Bandwidth Plot on Channel 23095



Date: 25.MAY.2014 11:02:45

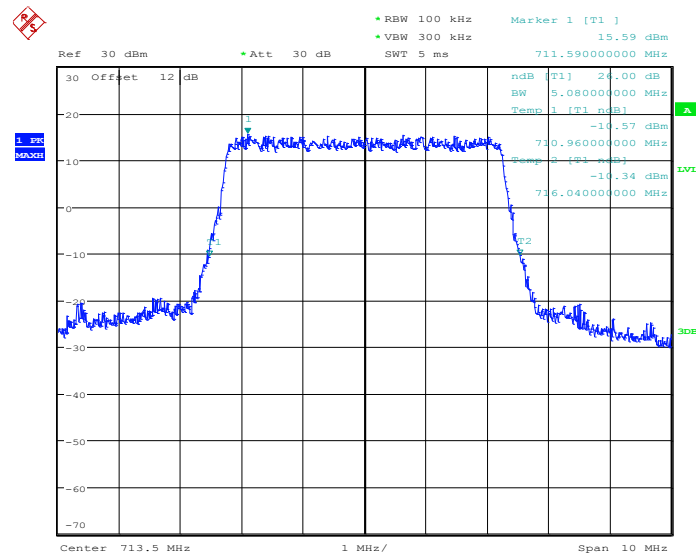


99% Occupied Bandwidth Plot on Channel 23155



Date: 25.MAY.2014 11:05:20

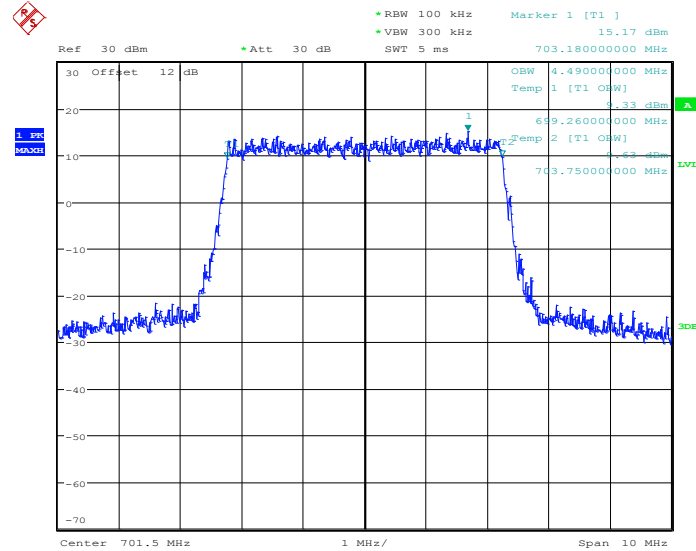
26dB Bandwidth Plot on Channel 23155



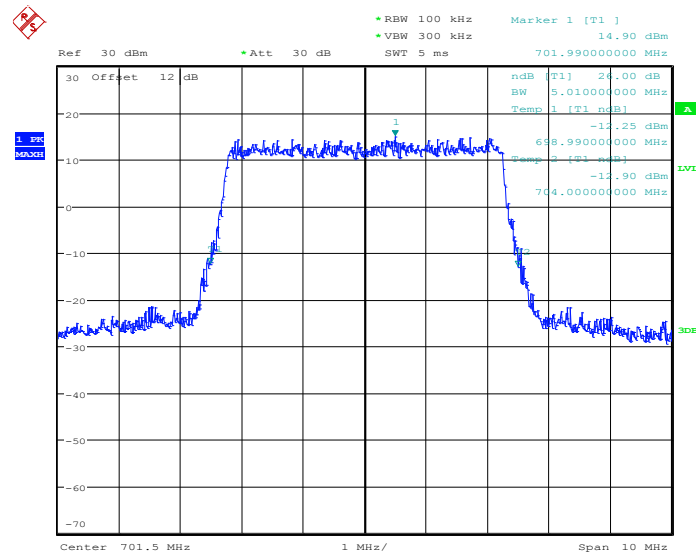
Date: 25.MAY.2014 11:06:13



|               |             |                    |              |
|---------------|-------------|--------------------|--------------|
| <b>Band :</b> | LTE Band 12 | <b>BW / Mod. :</b> | 5MHz / 16QAM |
|---------------|-------------|--------------------|--------------|

**99% Occupied Bandwidth Plot on Channel 23035**

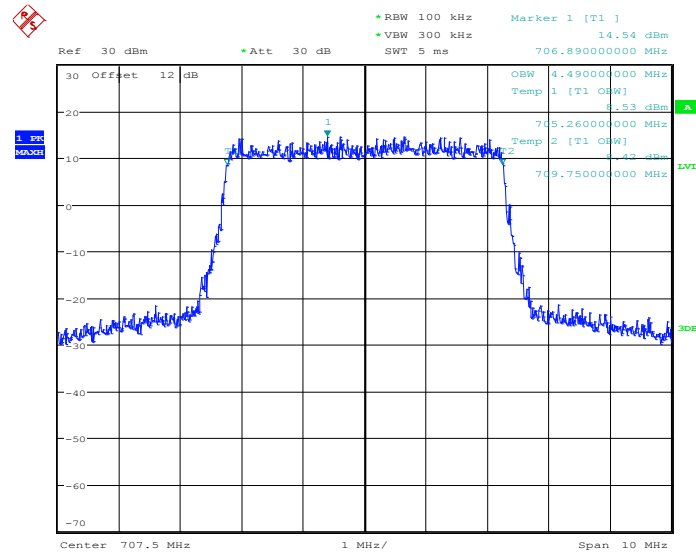
Date: 25.MAY.2014 10:55:37

**26dB Bandwidth Plot on Channel 23035**

Date: 25.MAY.2014 10:55:55

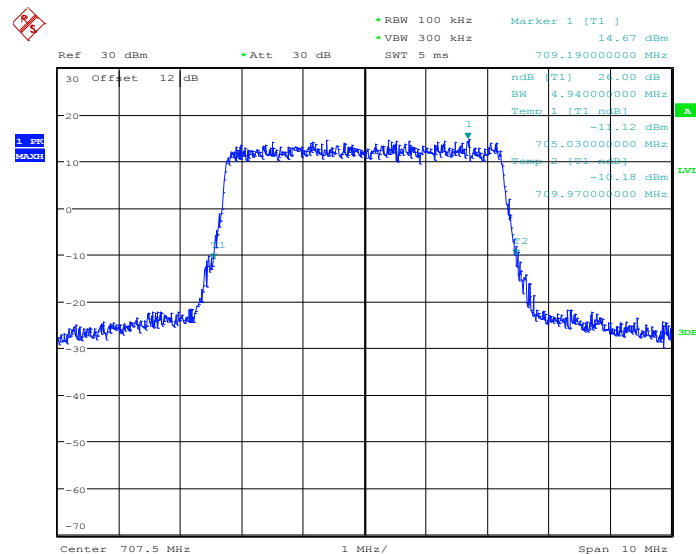


### 99% Occupied Bandwidth Plot on Channel 23095



Date: 25.MAY.2014 11:02:11

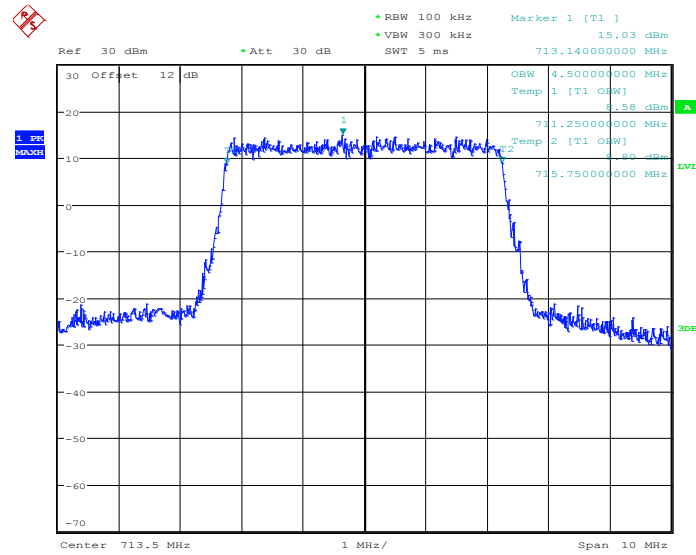
### 26dB Bandwidth Plot on Channel 23095



Date: 25.MAY.2014 11:03:03

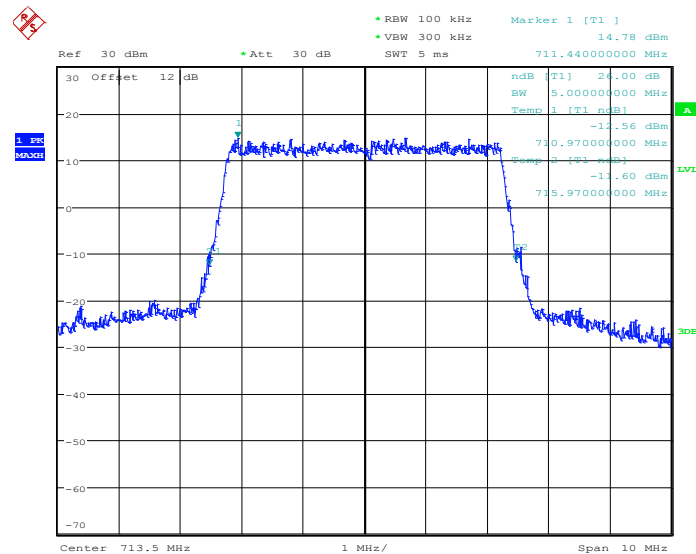


99% Occupied Bandwidth Plot on Channel 23155



Date: 25.MAY.2014 11:05:37

26dB Bandwidth Plot on Channel 23155

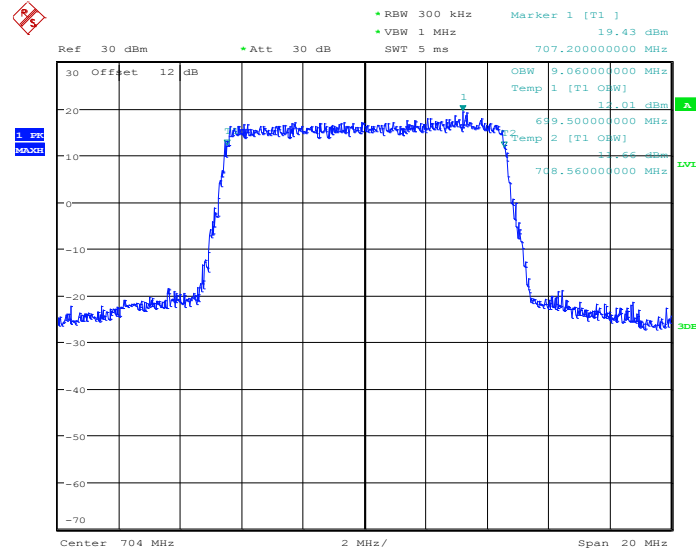


Date: 25.MAY.2014 11:05:55



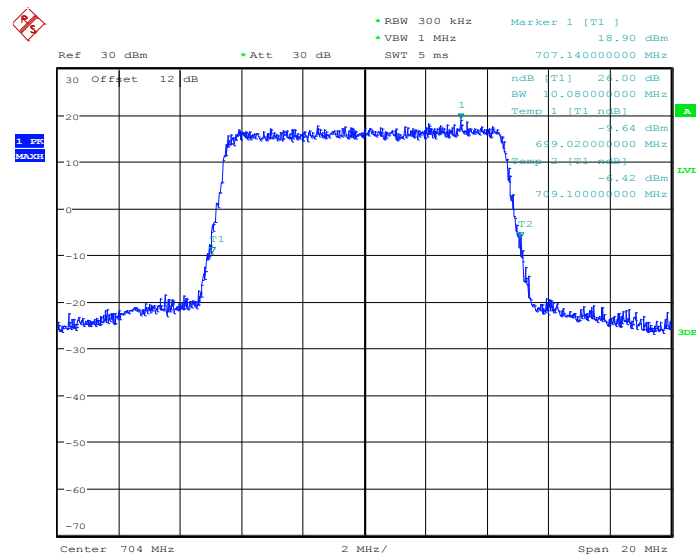
|        |             |             |              |
|--------|-------------|-------------|--------------|
| Band : | LTE Band 12 | BW / Mod. : | 10MHz / QPSK |
|--------|-------------|-------------|--------------|

### 99% Occupied Bandwidth Plot on Channel 23060



Date: 25.MAY.2014 11:36:28

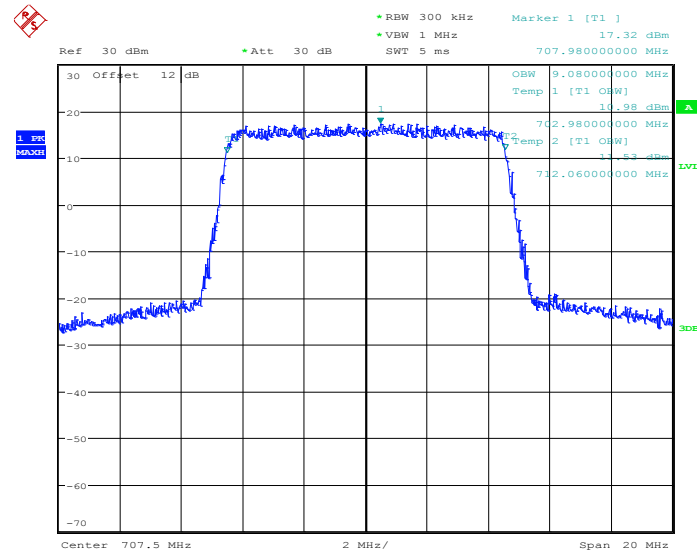
### 26dB Bandwidth Plot on Channel 23060



Date: 25.MAY.2014 11:37:21

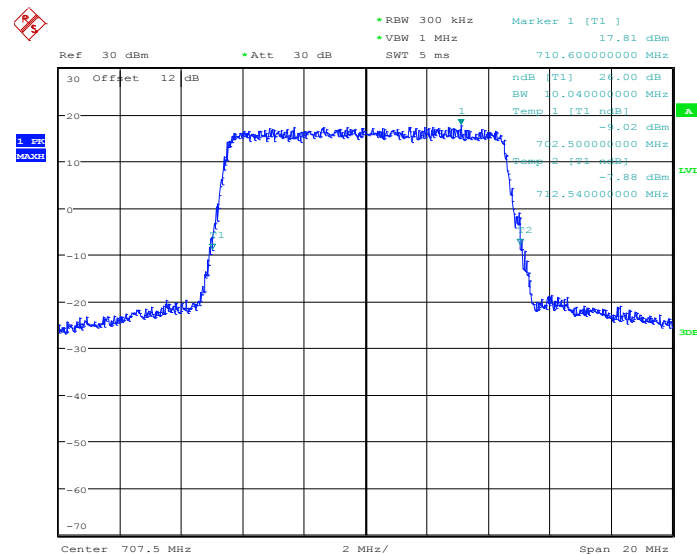


### 99% Occupied Bandwidth Plot on Channel 23095



Date: 25.MAY.2014 11:37:53

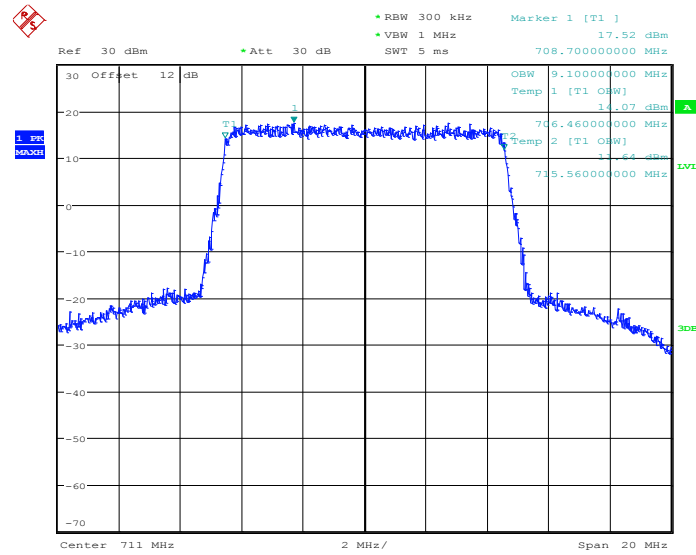
### 26dB Bandwidth Plot on Channel 23095



Date: 25.MAY.2014 11:38:12

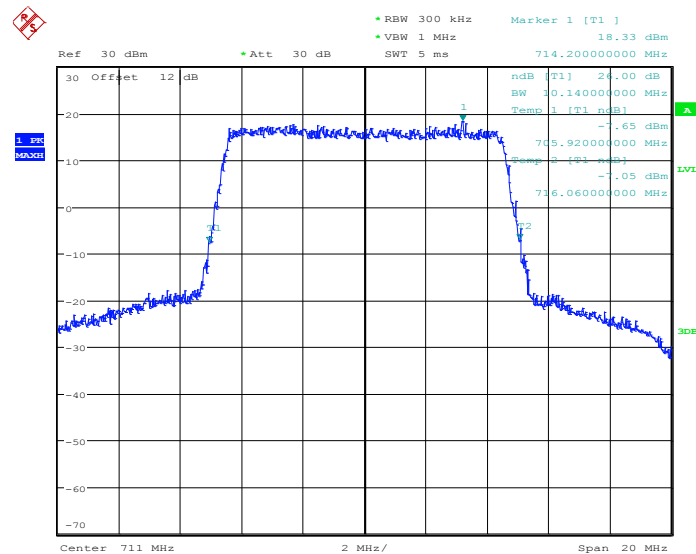


### 99% Occupied Bandwidth Plot on Channel 23130



Date: 25.MAY.2014 11:38:46

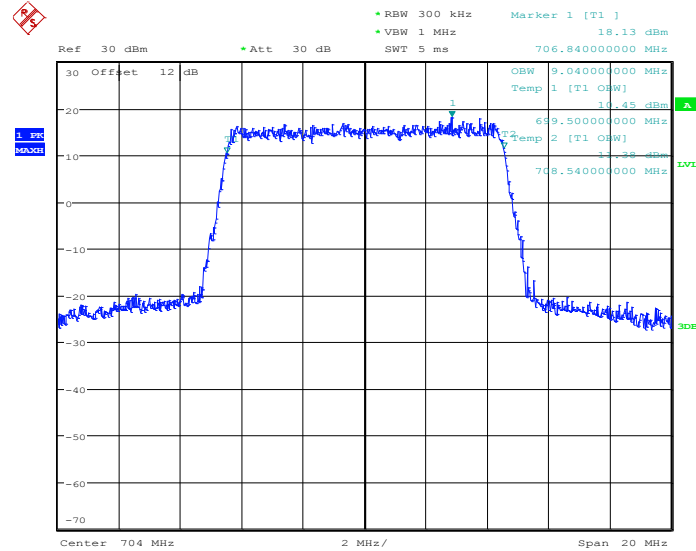
### 26dB Bandwidth Plot on Channel 23130



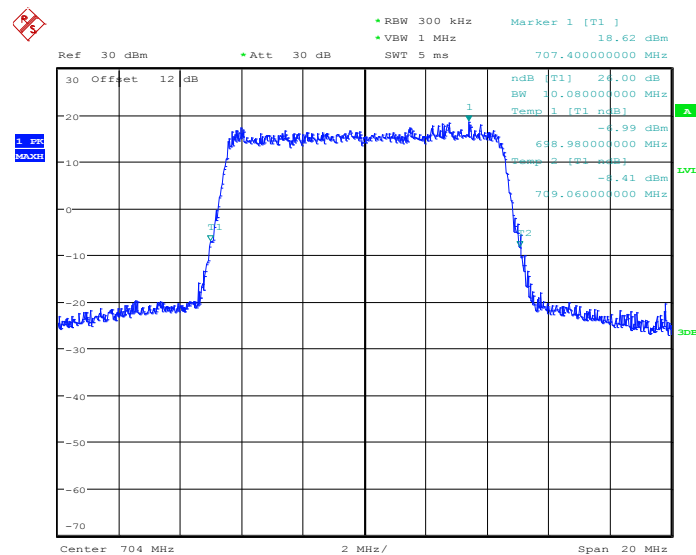
Date: 25.MAY.2014 11:39:40



|               |             |                    |               |
|---------------|-------------|--------------------|---------------|
| <b>Band :</b> | LTE Band 12 | <b>BW / Mod. :</b> | 10MHz / 16QAM |
|---------------|-------------|--------------------|---------------|

**99% Occupied Bandwidth Plot on Channel 23060**

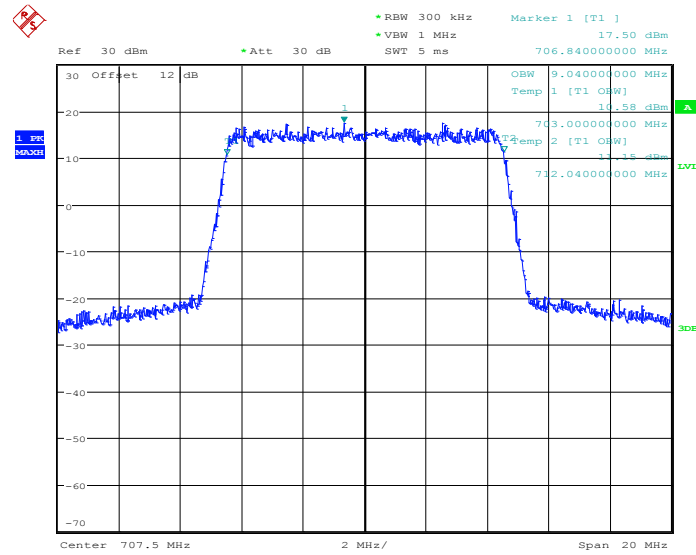
Date: 25.MAY.2014 11:36:45

**26dB Bandwidth Plot on Channel 23060**

Date: 25.MAY.2014 11:37:03

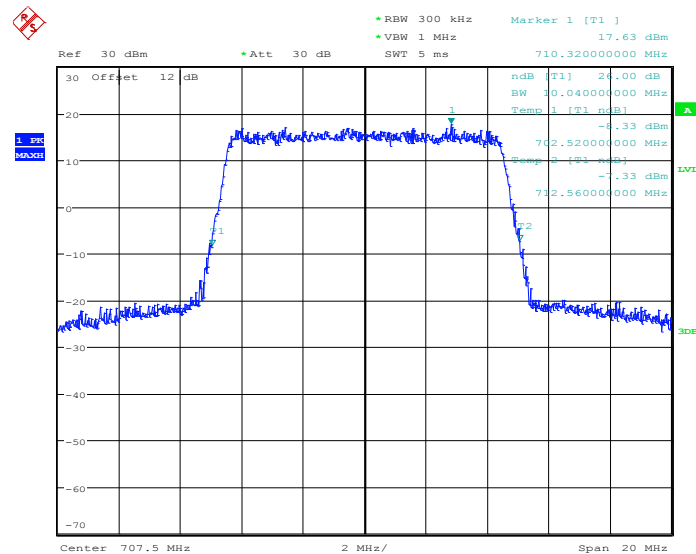


99% Occupied Bandwidth Plot on Channel 23095



Date: 25.MAY.2014 11:37:37

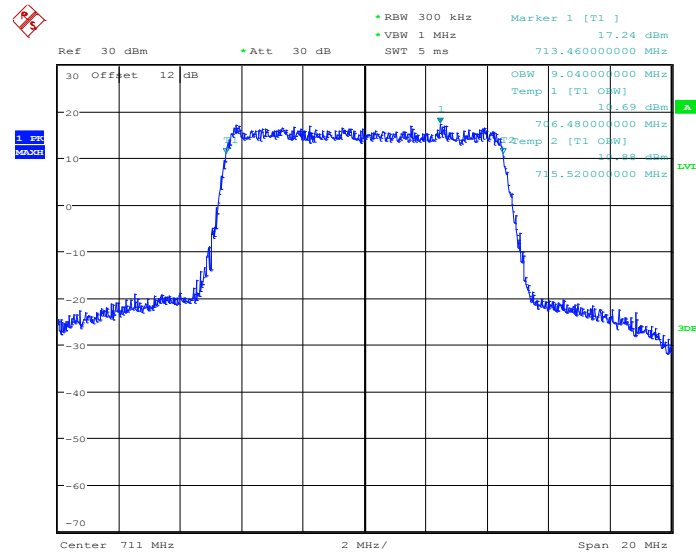
26dB Bandwidth Plot on Channel 23095



Date: 25.MAY.2014 11:38:30

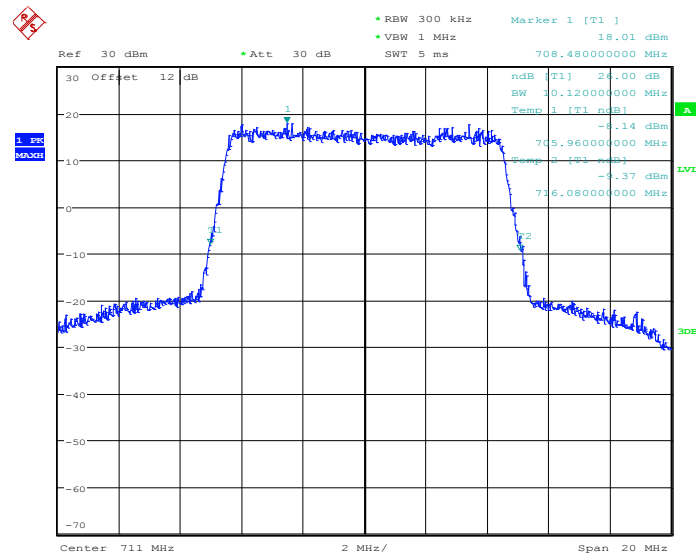


99% Occupied Bandwidth Plot on Channel 23130



Date: 25.MAY.2014 11:39:03

26dB Bandwidth Plot on Channel 23130

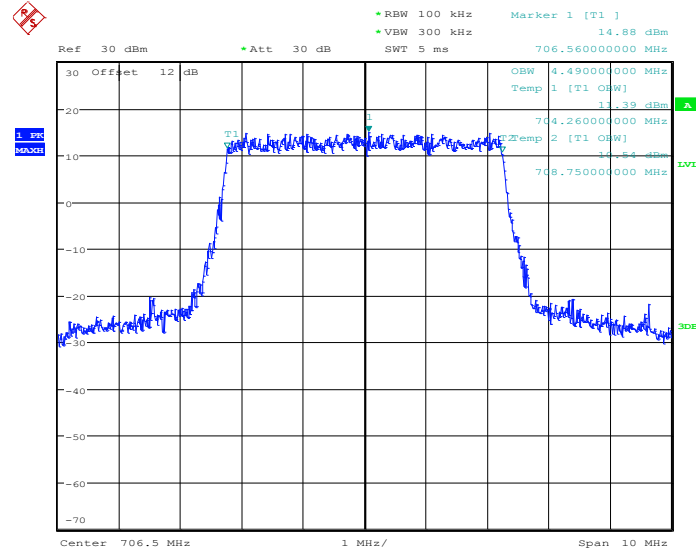


Date: 25.MAY.2014 11:39:21



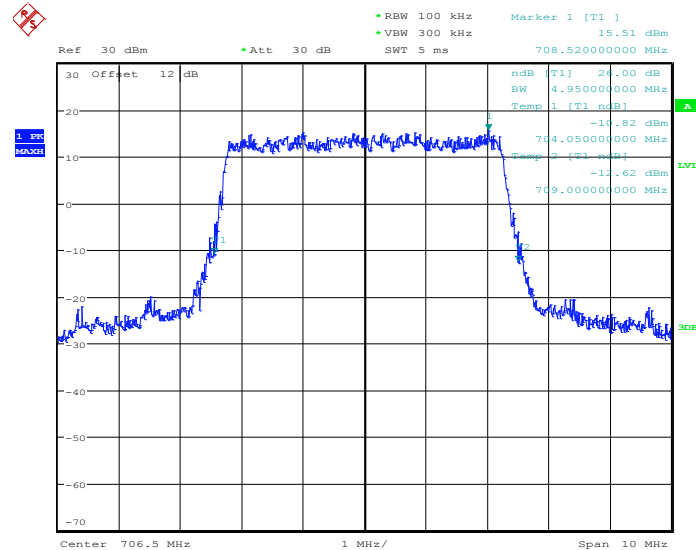
|        |             |             |             |
|--------|-------------|-------------|-------------|
| Band : | LTE Band 17 | BW / Mod. : | 5MHz / QPSK |
|--------|-------------|-------------|-------------|

### 99% Occupied Bandwidth Plot on Channel 23755



Date: 25.MAY.2014 09:23:17

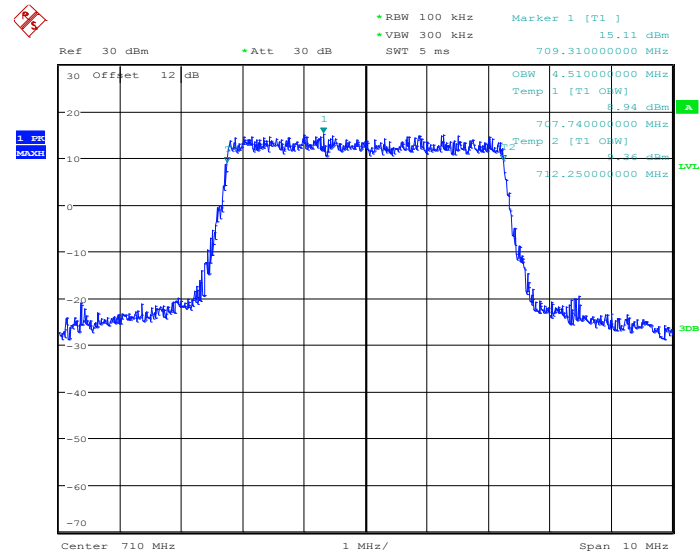
### 26dB Bandwidth Plot on Channel 23755



Date: 25.MAY.2014 09:23:51

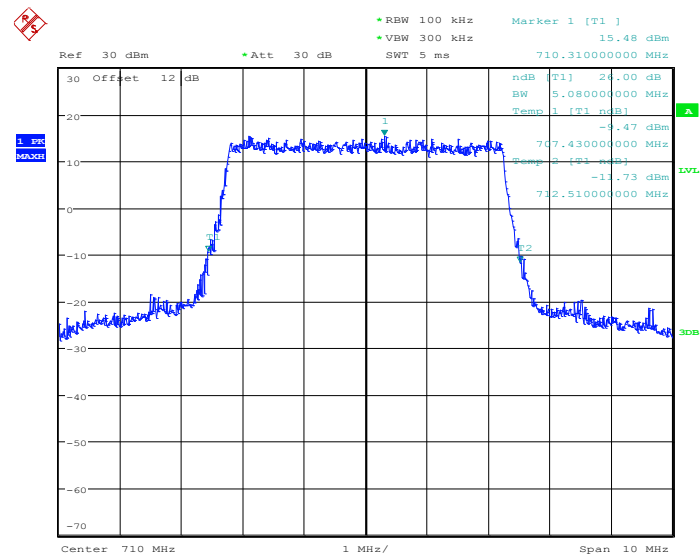


### 99% Occupied Bandwidth Plot on Channel 23790



Date: 25.MAY.2014 09:29:36

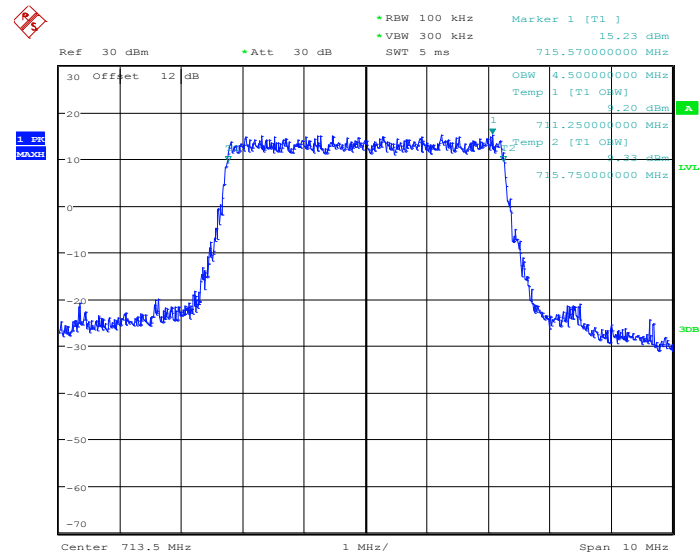
### 26dB Bandwidth Plot on Channel 23790



Date: 25.MAY.2014 09:30:10

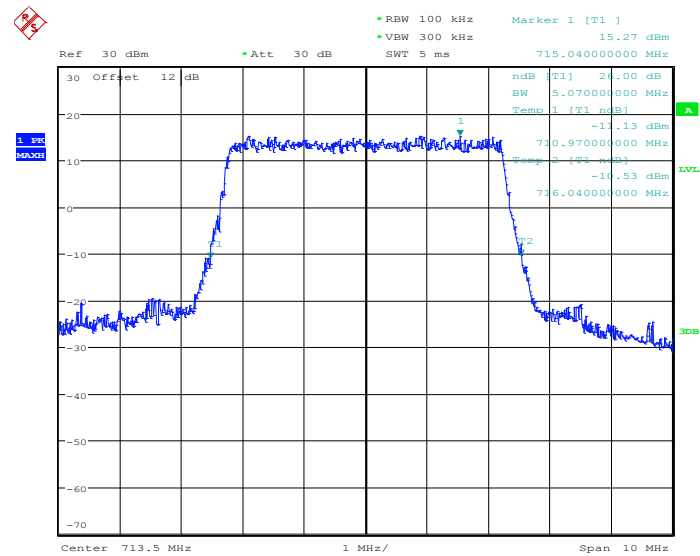


### 99% Occupied Bandwidth Plot on Channel 23825



Date: 25.MAY.2014 09:32:45

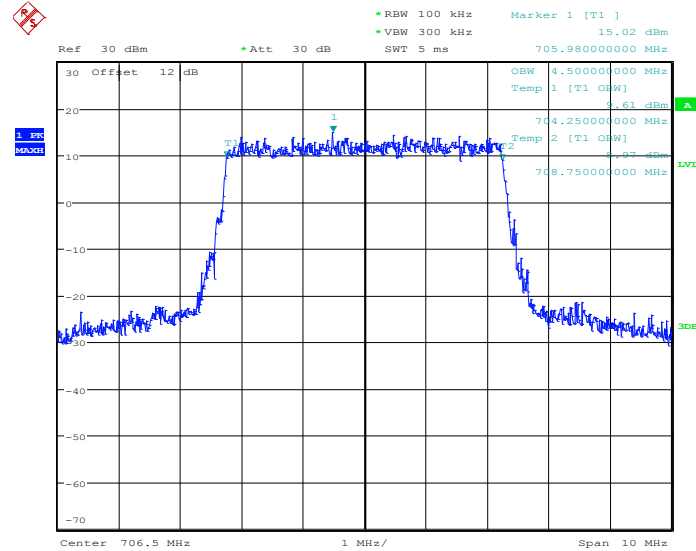
### 26dB Bandwidth Plot on Channel 23825



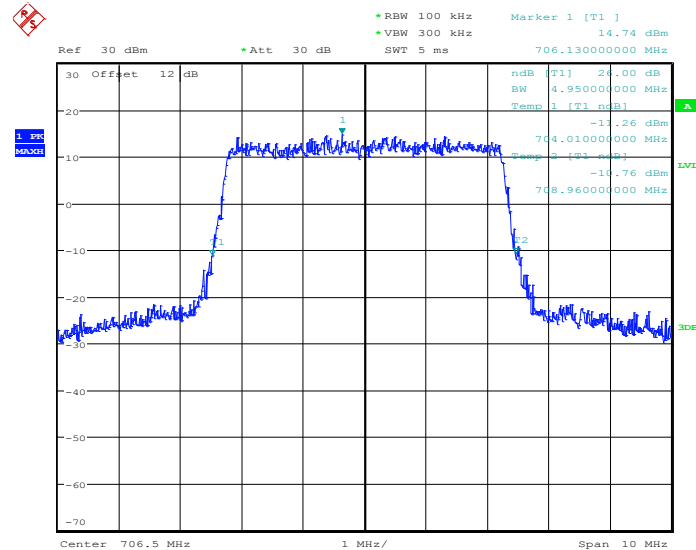
Date: 25.MAY.2014 09:33:19



|               |             |                    |              |
|---------------|-------------|--------------------|--------------|
| <b>Band :</b> | LTE Band 17 | <b>BW / Mod. :</b> | 5MHz / 16QAM |
|---------------|-------------|--------------------|--------------|

**99% Occupied Bandwidth Plot on Channel 23755**

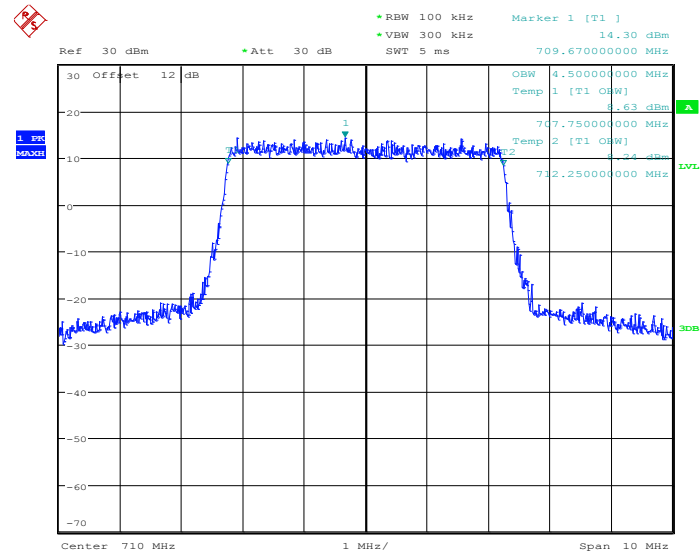
Date: 25.MAY.2014 09:23:33

**26dB Bandwidth Plot on Channel 23755**

Date: 25.MAY.2014 09:24:09

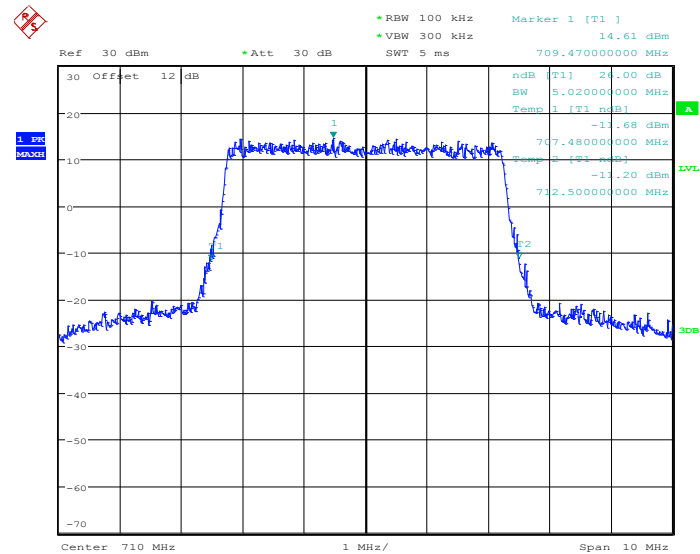


99% Occupied Bandwidth Plot on Channel 23790



Date: 25.MAY.2014 09:29:52

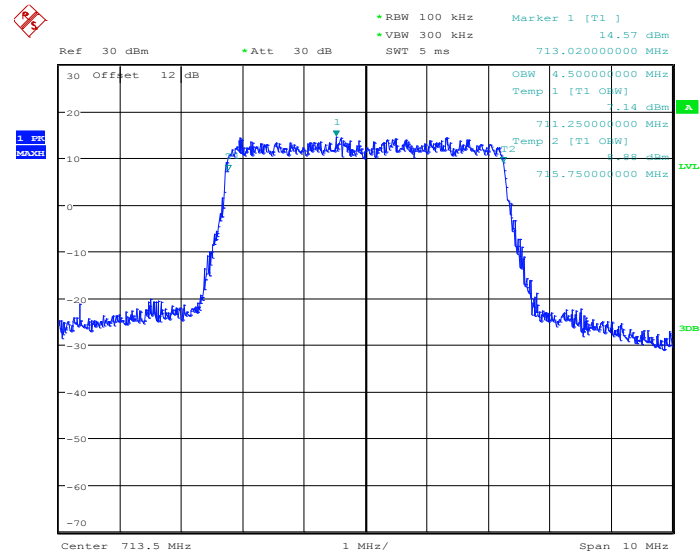
26dB Bandwidth Plot on Channel 23790



Date: 25.MAY.2014 09:30:28

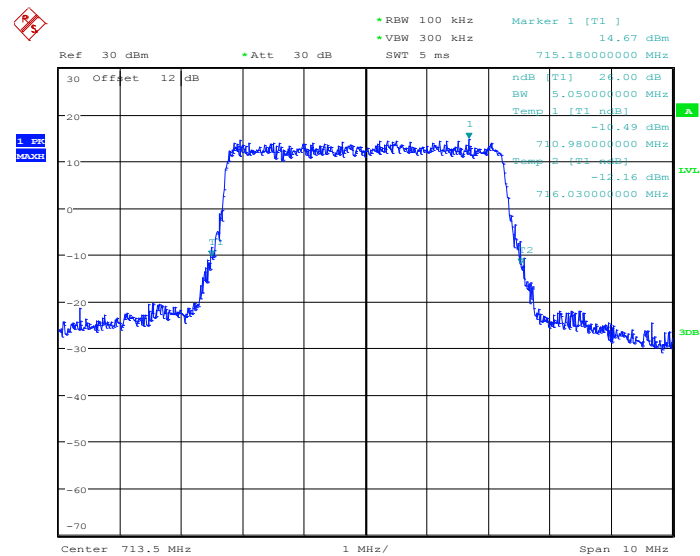


### 99% Occupied Bandwidth Plot on Channel 23855



Date: 25.MAY.2014 09:33:01

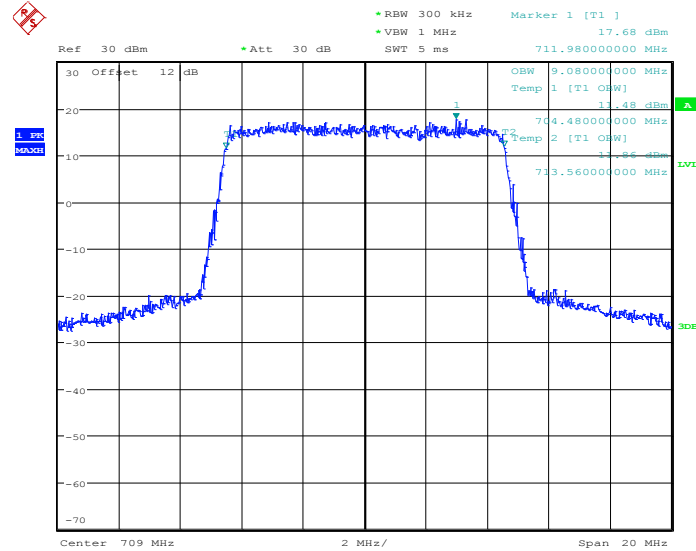
### 26dB Bandwidth Plot on Channel 23855



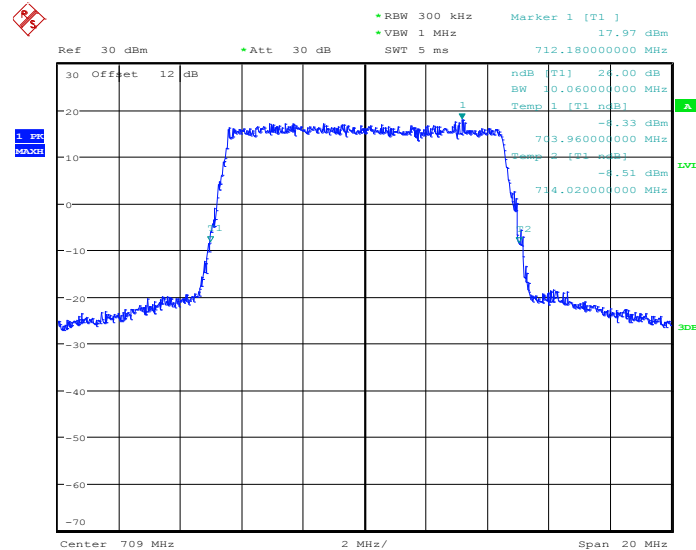
Date: 25.MAY.2014 09:33:37



|               |             |                    |              |
|---------------|-------------|--------------------|--------------|
| <b>Band :</b> | LTE Band 17 | <b>BW / Mod. :</b> | 10MHz / QPSK |
|---------------|-------------|--------------------|--------------|

**99% Occupied Bandwidth Plot on Channel 23780**

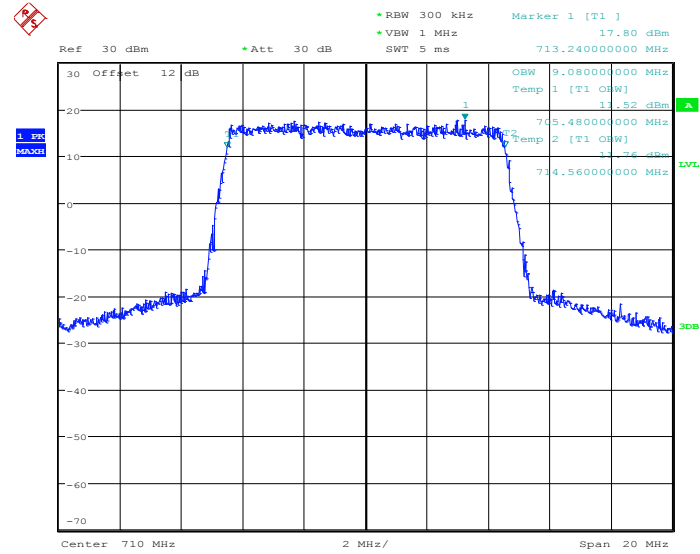
Date: 25.MAY.2014 09:39:09

**26dB Bandwidth Plot on Channel 23780**

Date: 25.MAY.2014 09:39:43

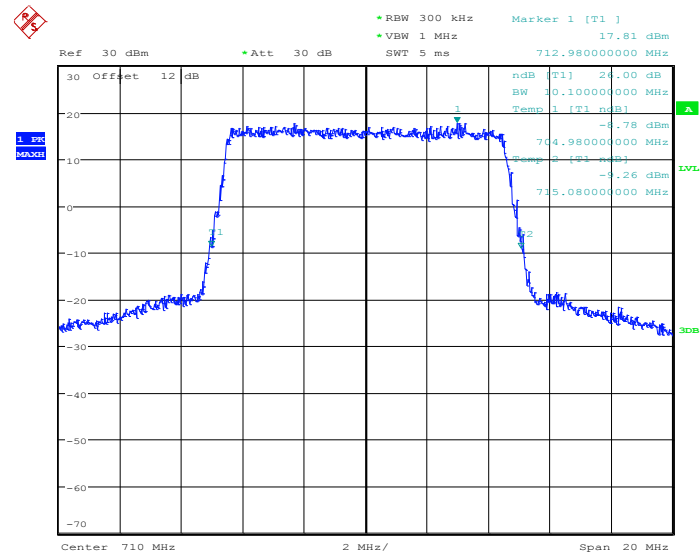


99% Occupied Bandwidth Plot on Channel 23790



Date: 25.MAY.2014 09:45:30

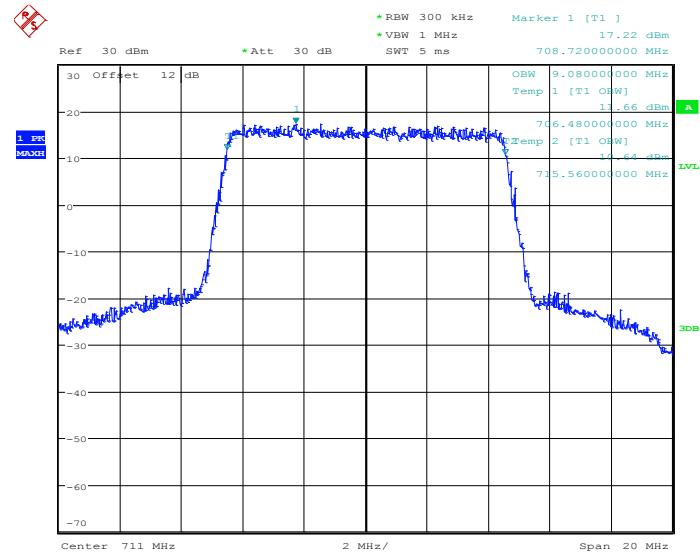
26dB Bandwidth Plot on Channel 23790



Date: 25.MAY.2014 09:46:04

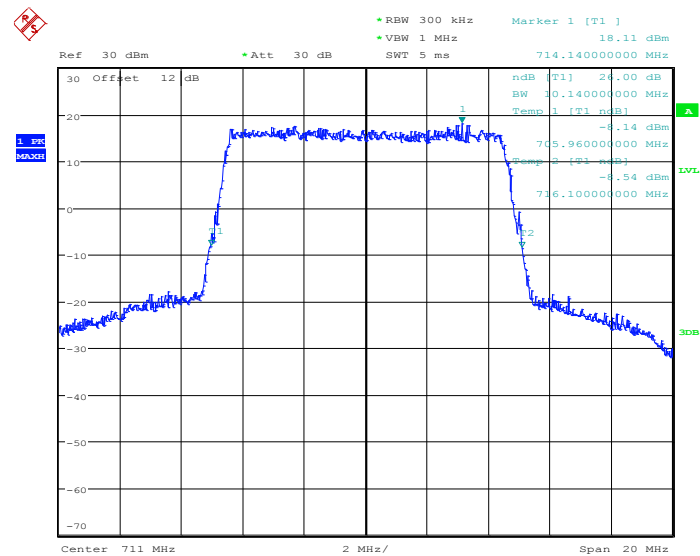


99% Occupied Bandwidth Plot on Channel 23800



Date: 25.MAY.2014 09:48:39

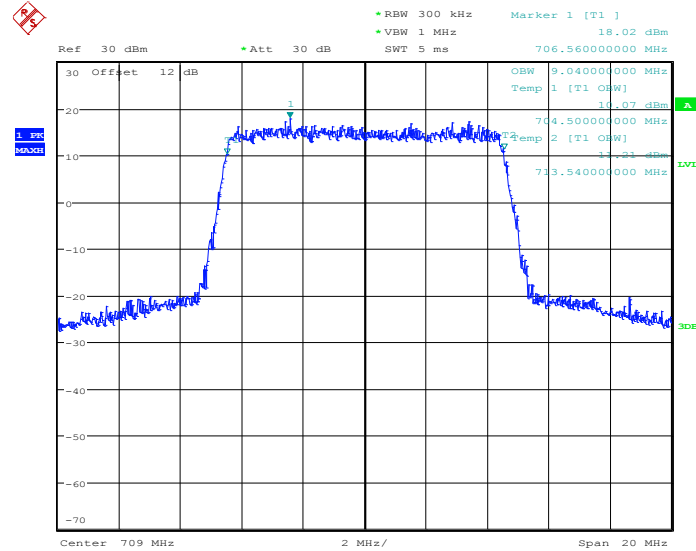
26dB Bandwidth Plot on Channel 23800



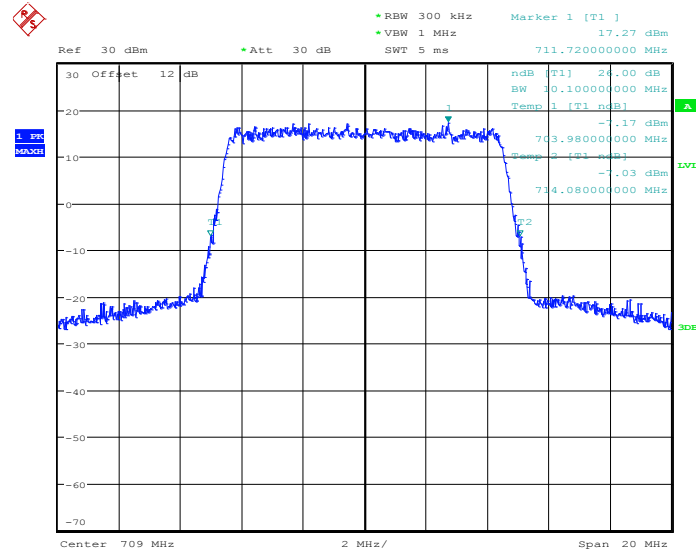
Date: 25.MAY.2014 09:49:13



|               |             |                    |               |
|---------------|-------------|--------------------|---------------|
| <b>Band :</b> | LTE Band 17 | <b>BW / Mod. :</b> | 10MHz / 16QAM |
|---------------|-------------|--------------------|---------------|

**99% Occupied Bandwidth Plot on Channel 23780**

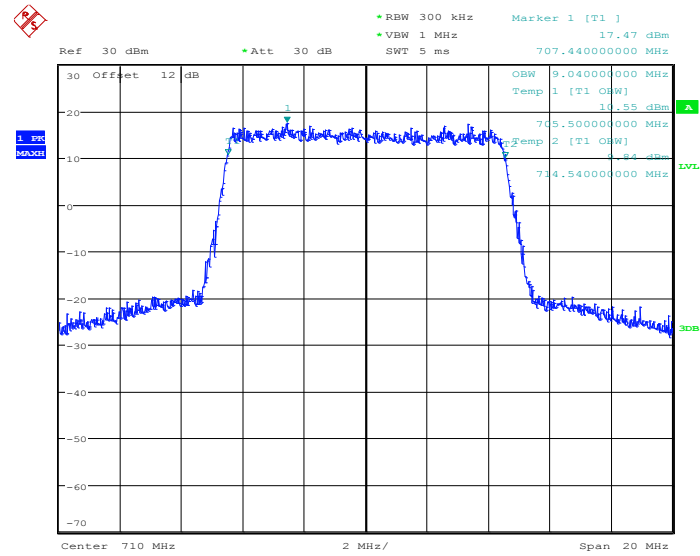
Date: 25.MAY.2014 09:39:25

**26dB Bandwidth Plot on Channel 23780**

Date: 25.MAY.2014 09:40:01

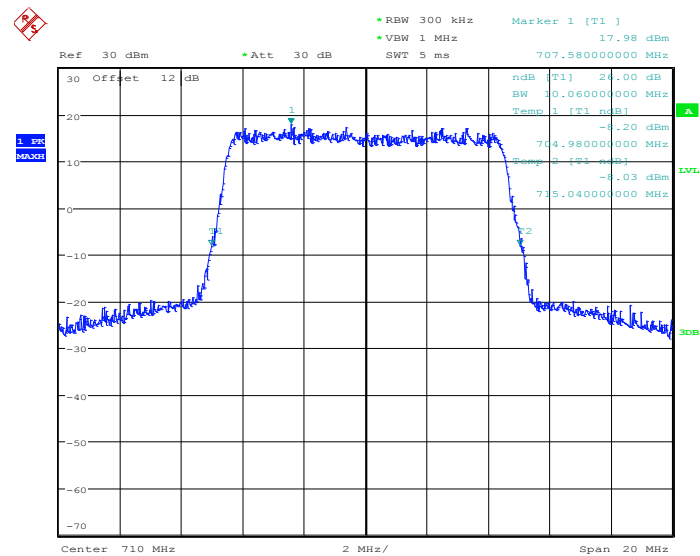


99% Occupied Bandwidth Plot on Channel 23790



Date: 25.MAY.2014 09:45:46

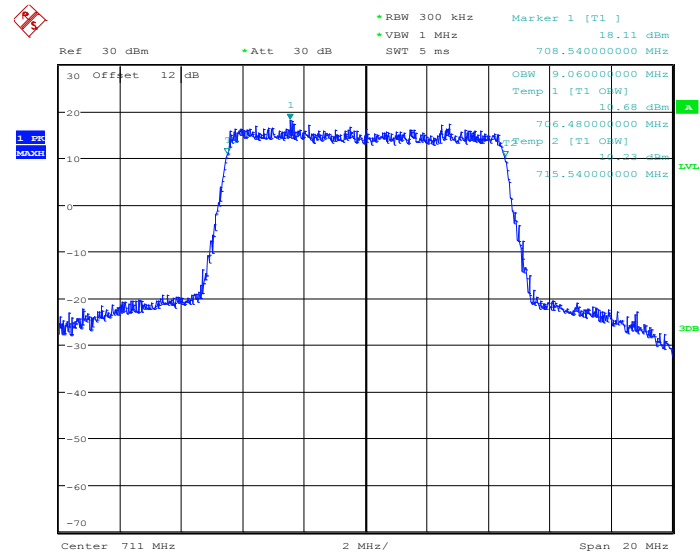
26dB Bandwidth Plot on Channel 23790



Date: 25.MAY.2014 09:46:22

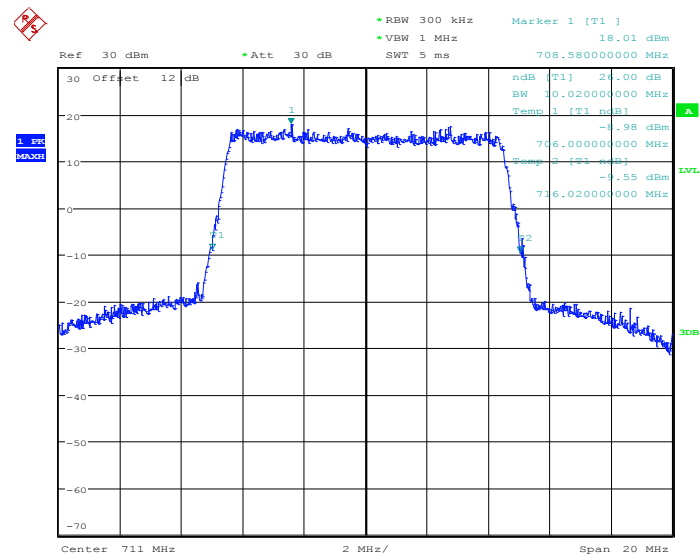


### 99% Occupied Bandwidth Plot on Channel 23800



Date: 25.MAY.2014 09:48:55

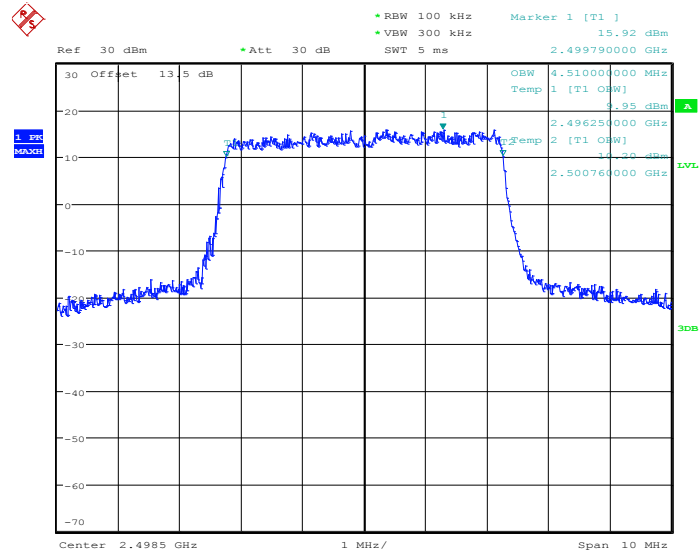
### 26dB Bandwidth Plot on Channel 23800



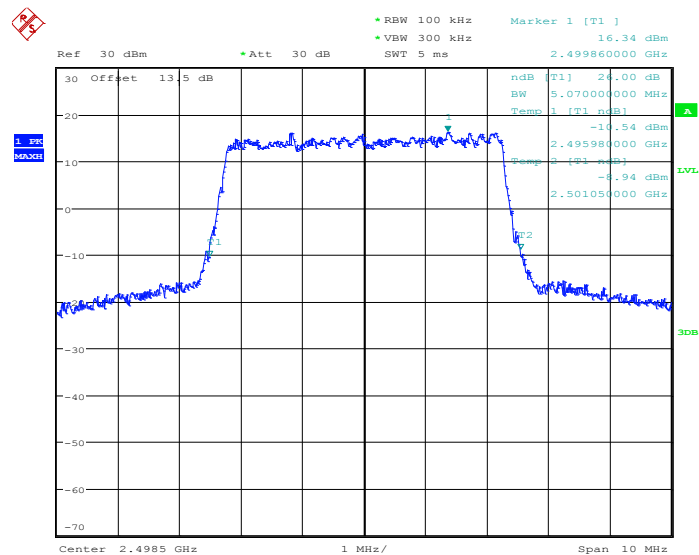
Date: 25.MAY.2014 09:49:31



|               |             |                    |             |
|---------------|-------------|--------------------|-------------|
| <b>Band :</b> | LTE Band 41 | <b>BW / Mod. :</b> | 5MHz / QPSK |
|---------------|-------------|--------------------|-------------|

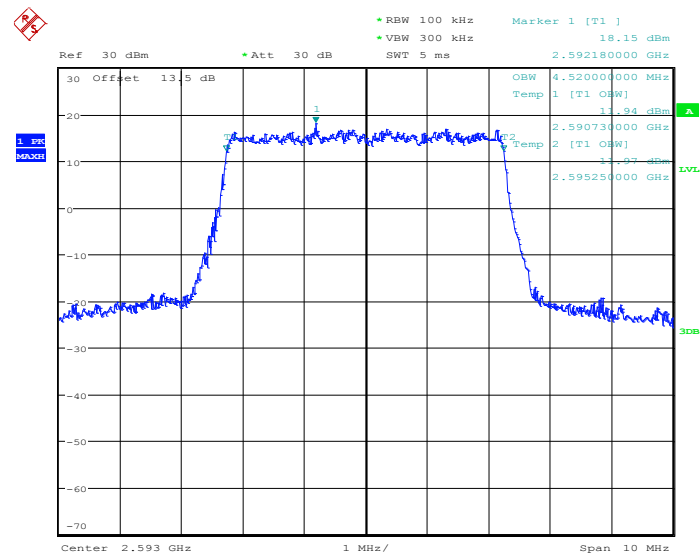
**99% Occupied Bandwidth Plot on Channel 36975**

Date: 25.MAY.2014 13:23:51

**26dB Bandwidth Plot on Channel 36975**

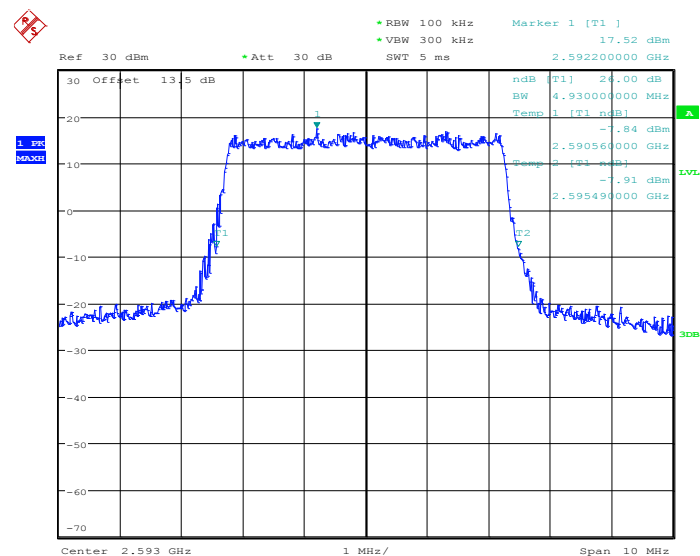
Date: 25.MAY.2014 13:26:48

### 99% Occupied Bandwidth Plot on Channel 40620

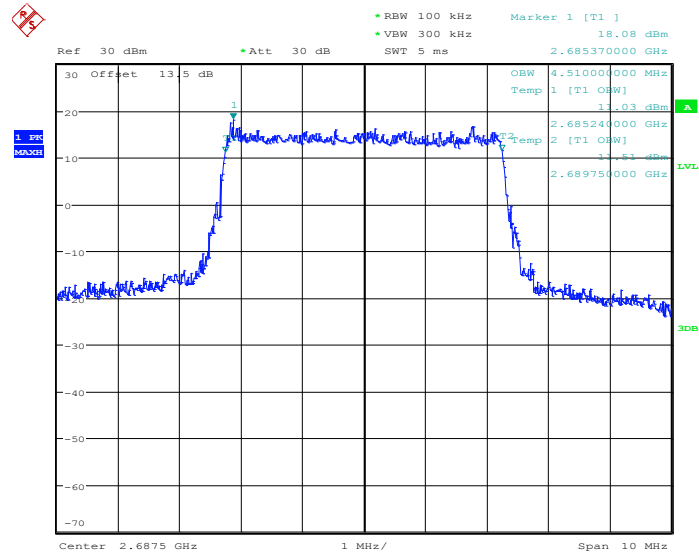


Date: 25.MAY.2014 13:22:27

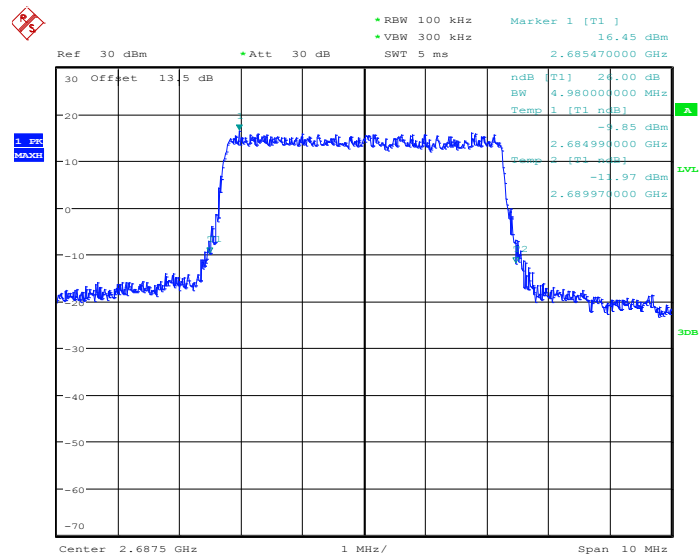
### 26dB Bandwidth Plot on Channel 40620



Date: 25.MAY.2014 13:27:47

**99% Occupied Bandwidth Plot on Channel 41565**


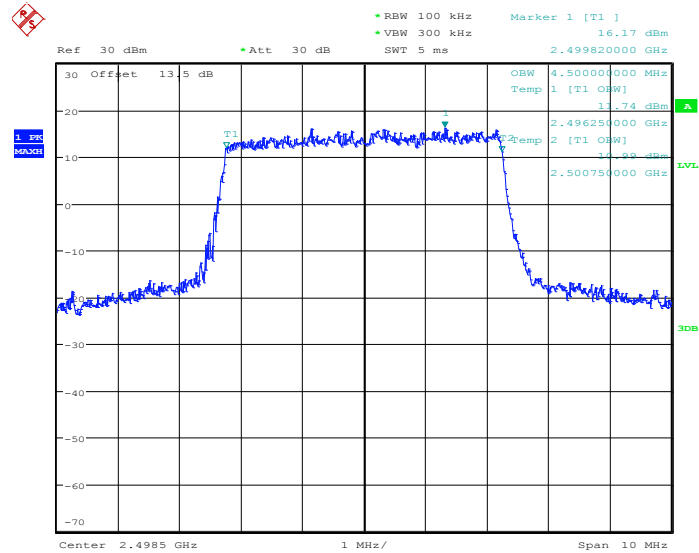
Date: 25.MAY.2014 13:25:09

**26dB Bandwidth Plot on Channel 41565**


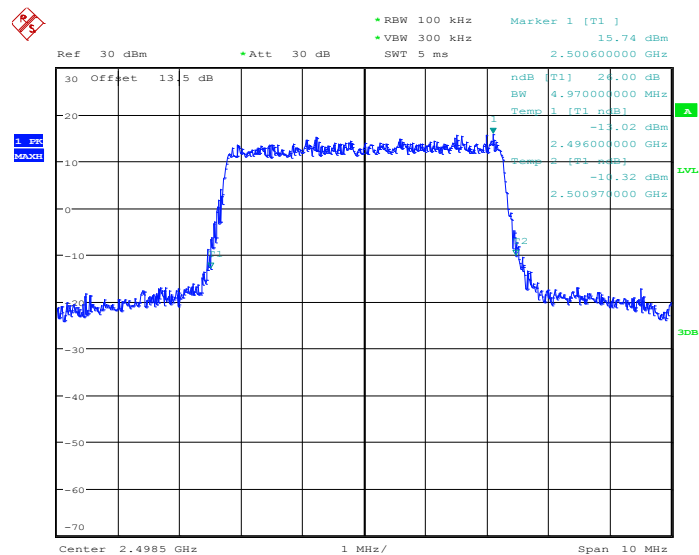
Date: 25.MAY.2014 13:26:05



|               |             |                    |              |
|---------------|-------------|--------------------|--------------|
| <b>Band :</b> | LTE Band 41 | <b>BW / Mod. :</b> | 5MHz / 16QAM |
|---------------|-------------|--------------------|--------------|

**99% Occupied Bandwidth Plot on Channel 36975**

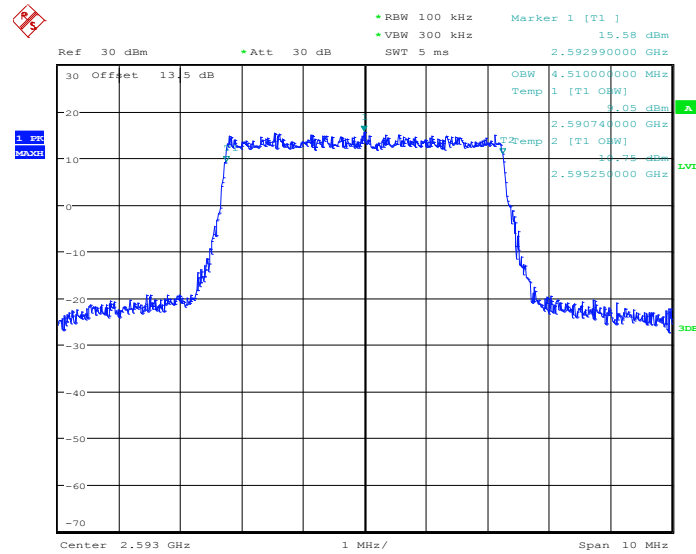
Date: 25.MAY.2014 13:23:29

**26dB Bandwidth Plot on Channel 36975**

Date: 25.MAY.2014 13:27:04

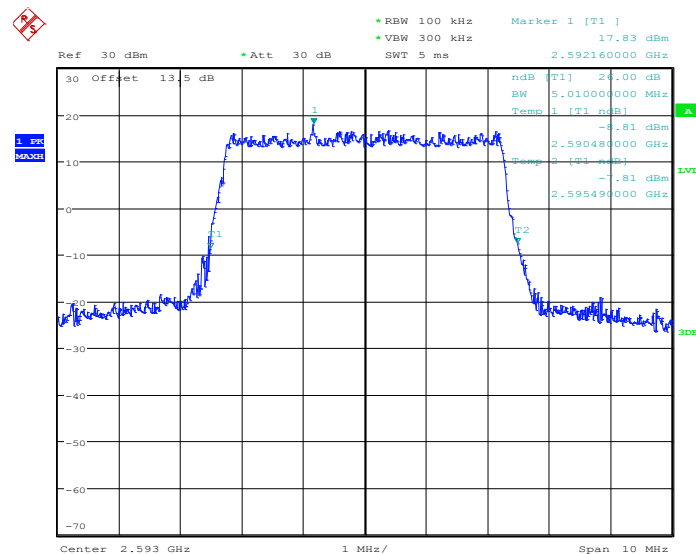


### 99% Occupied Bandwidth Plot on Channel 40620



Date: 25.MAY.2014 13:22:48

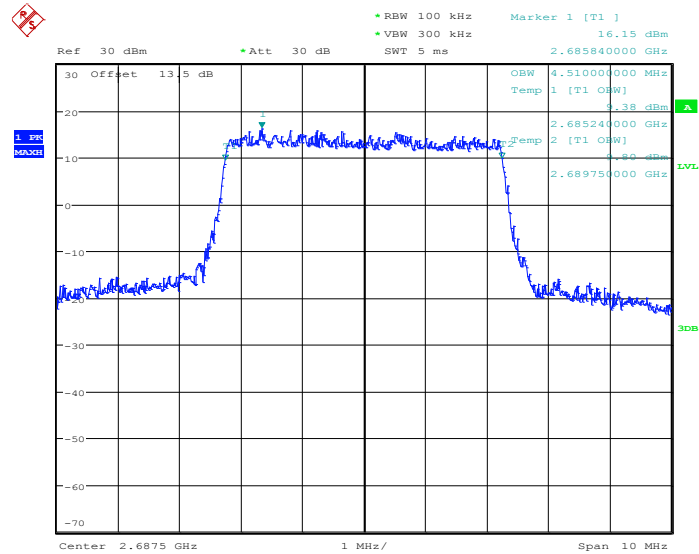
### 26dB Bandwidth Plot on Channel 40620



Date: 25.MAY.2014 13:27:27

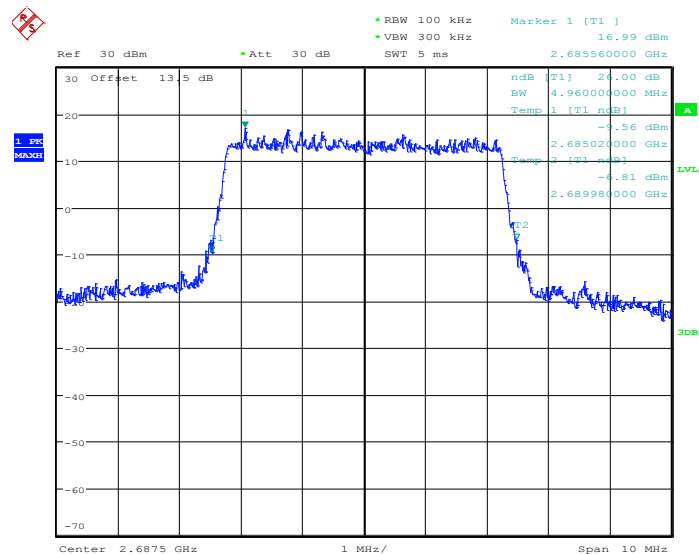


### 99% Occupied Bandwidth Plot on Channel 41565



Date: 25.MAY.2014 13:25:29

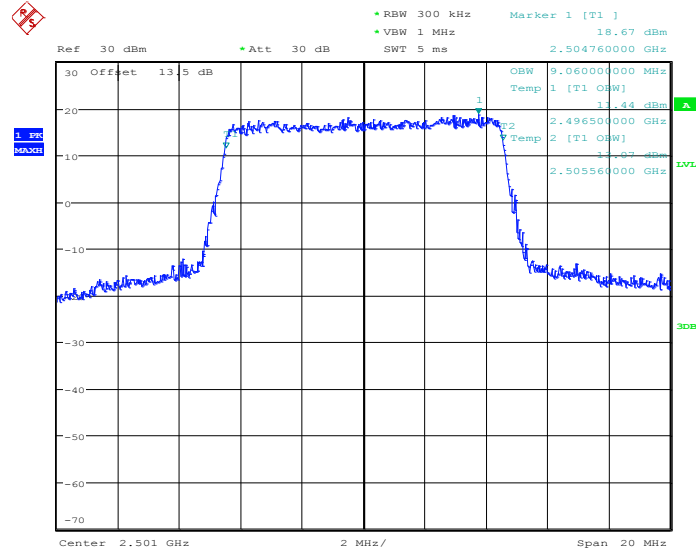
### 26dB Bandwidth Plot on Channel 41565



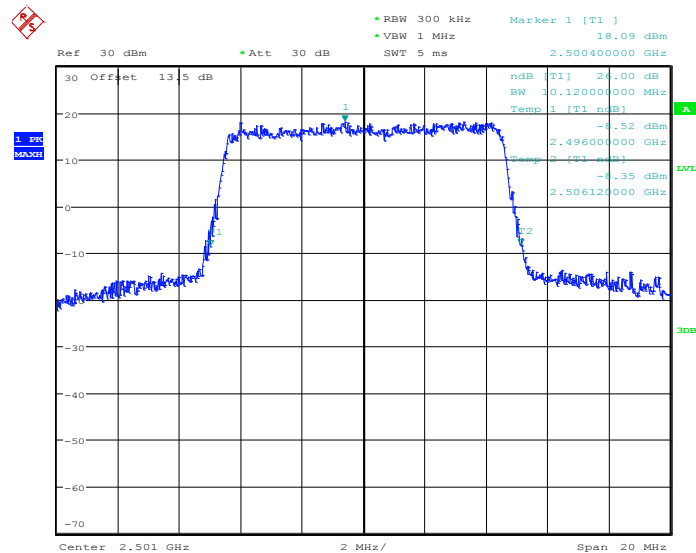
Date: 25.MAY.2014 13:25:50



|               |             |                    |              |
|---------------|-------------|--------------------|--------------|
| <b>Band :</b> | LTE Band 41 | <b>BW / Mod. :</b> | 10MHz / QPSK |
|---------------|-------------|--------------------|--------------|

**99% Occupied Bandwidth Plot on Channel 39700**

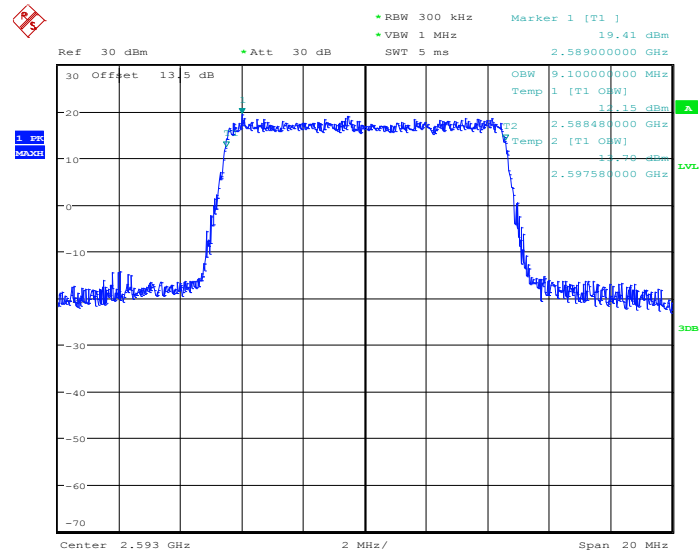
Date: 25.MAY.2014 13:38:17

**26dB Bandwidth Plot on Channel 39700**

Date: 25.MAY.2014 13:34:34

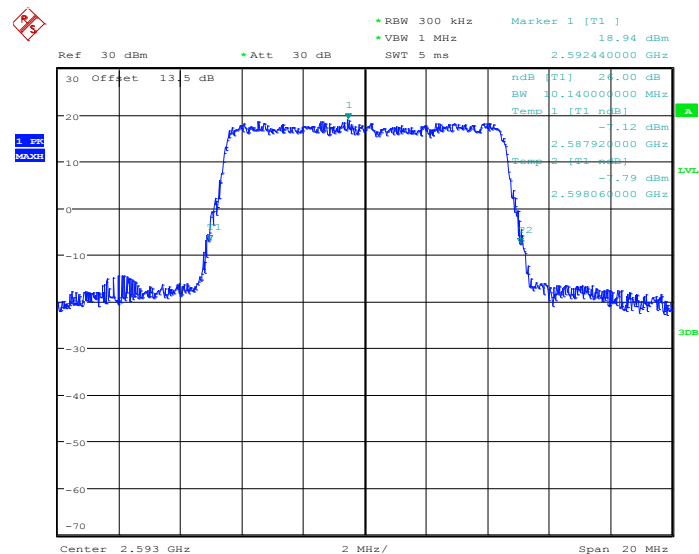


### 99% Occupied Bandwidth Plot on Channel 40620

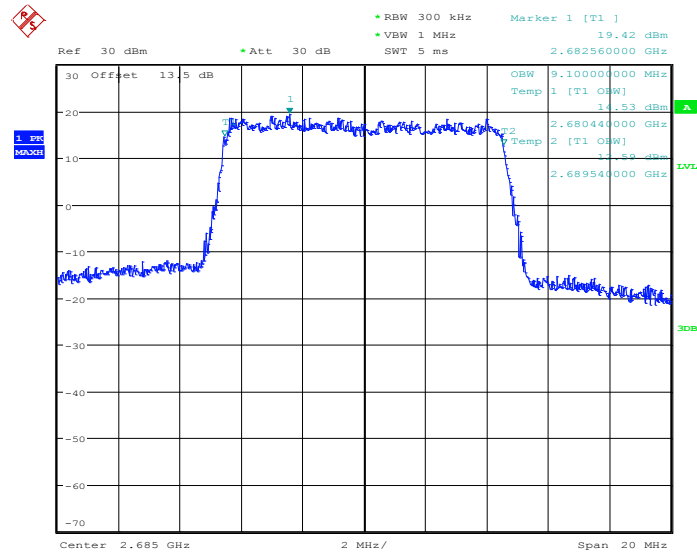


Date: 25.MAY.2014 13:39:04

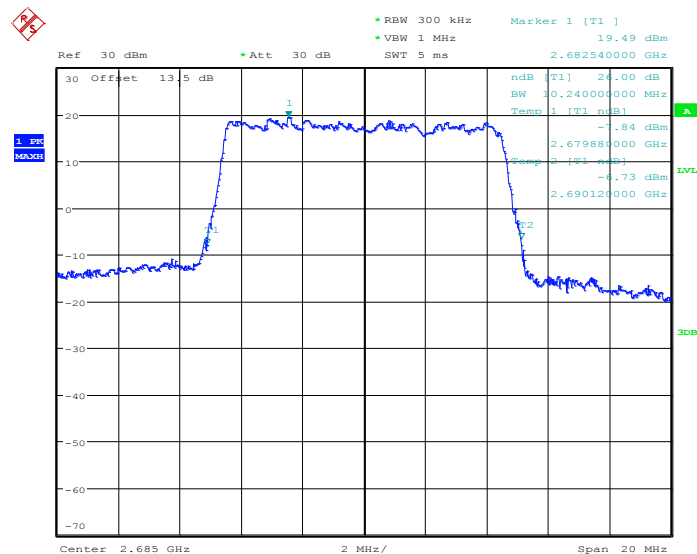
### 26dB Bandwidth Plot on Channel 40620



Date: 25.MAY.2014 13:30:27

**99% Occupied Bandwidth Plot on Channel 41540**


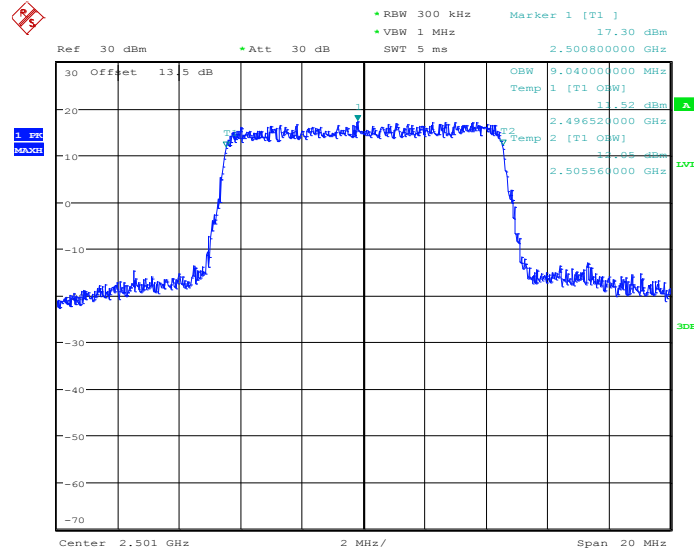
Date: 25.MAY.2014 13:37:19

**26dB Bandwidth Plot on Channel 41540**


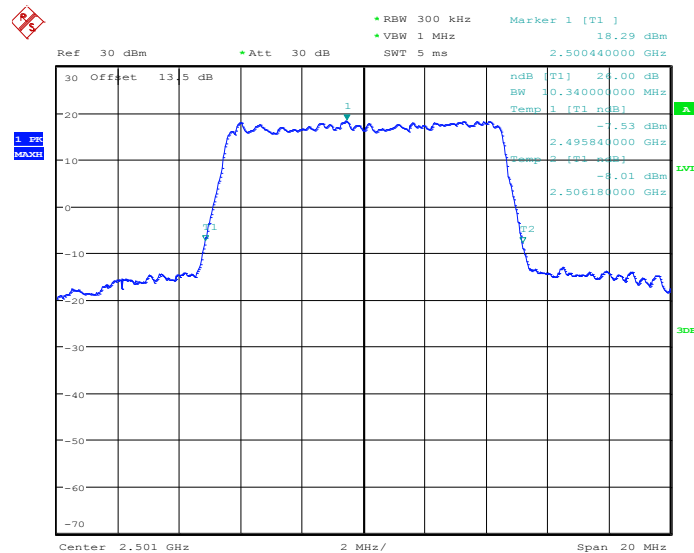
Date: 25.MAY.2014 13:36:32



|               |             |                    |               |
|---------------|-------------|--------------------|---------------|
| <b>Band :</b> | LTE Band 41 | <b>BW / Mod. :</b> | 10MHz / 16QAM |
|---------------|-------------|--------------------|---------------|

**99% Occupied Bandwidth Plot on Channel 39700**

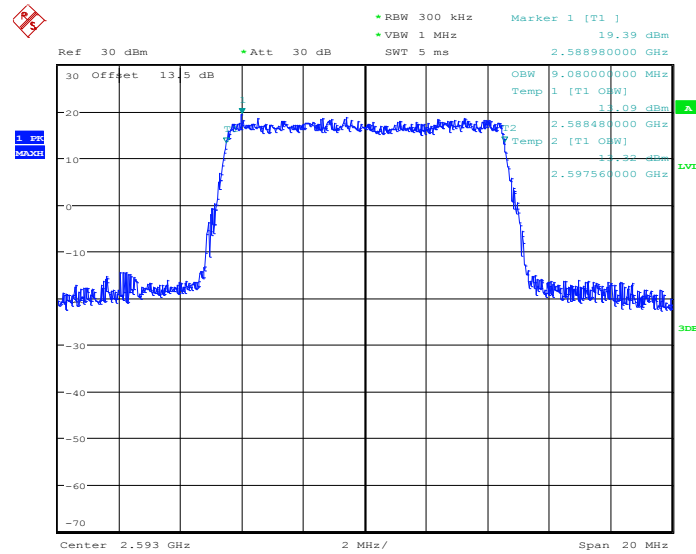
Date: 25.MAY.2014 13:38:29

**26dB Bandwidth Plot on Channel 39700**

Date: 25.MAY.2014 13:34:16

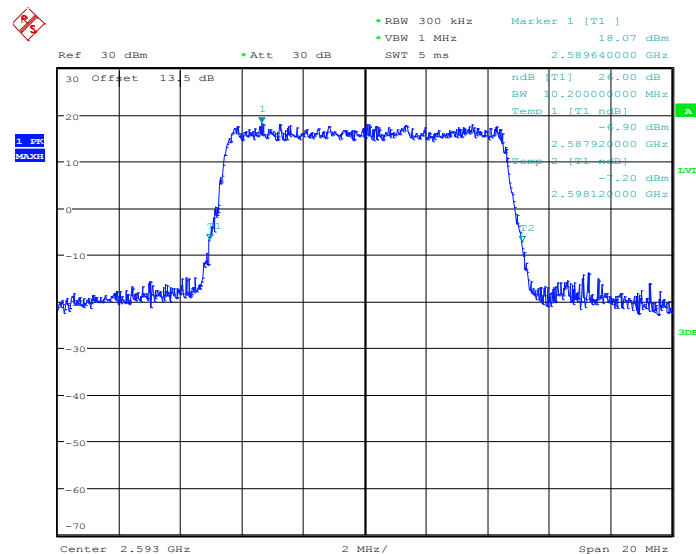


### 99% Occupied Bandwidth Plot on Channel 40620



Date: 25.MAY.2014 13:38:50

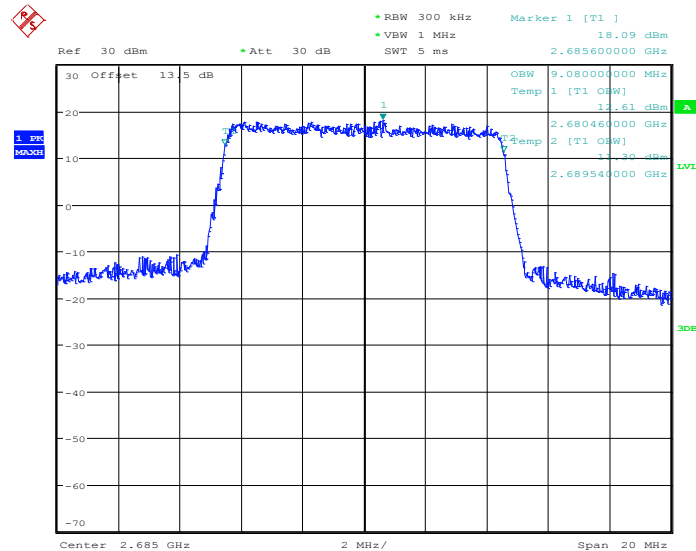
### 26dB Bandwidth Plot on Channel 40620



Date: 25.MAY.2014 13:30:51

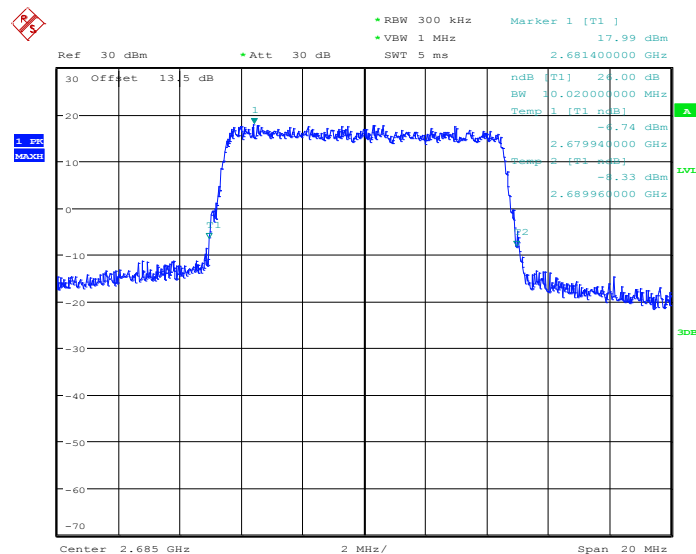


### 99% Occupied Bandwidth Plot on Channel 41540



Date: 25.MAY.2014 13:37:05

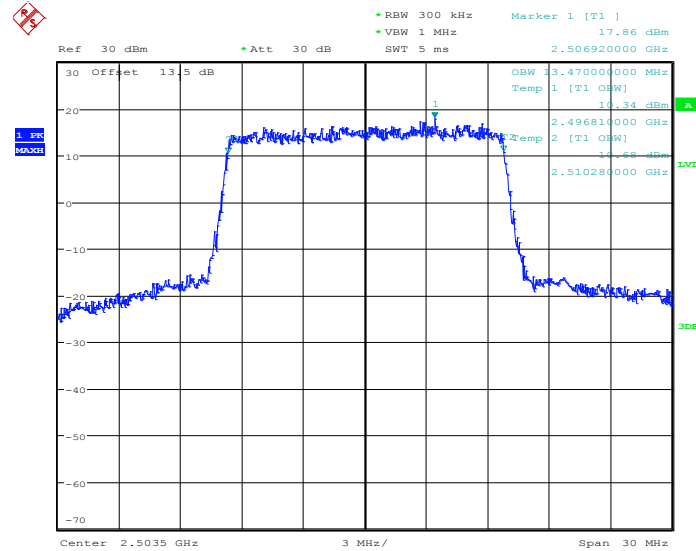
### 26dB Bandwidth Plot on Channel 41540



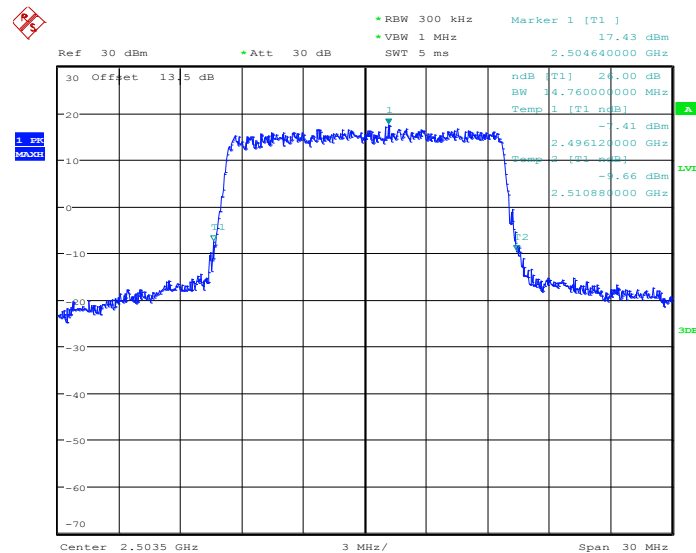
Date: 25.MAY.2014 13:36:44



|               |             |                    |              |
|---------------|-------------|--------------------|--------------|
| <b>Band :</b> | LTE Band 41 | <b>BW / Mod. :</b> | 15MHz / QPSK |
|---------------|-------------|--------------------|--------------|

**99% Occupied Bandwidth Plot on Channel 39725**

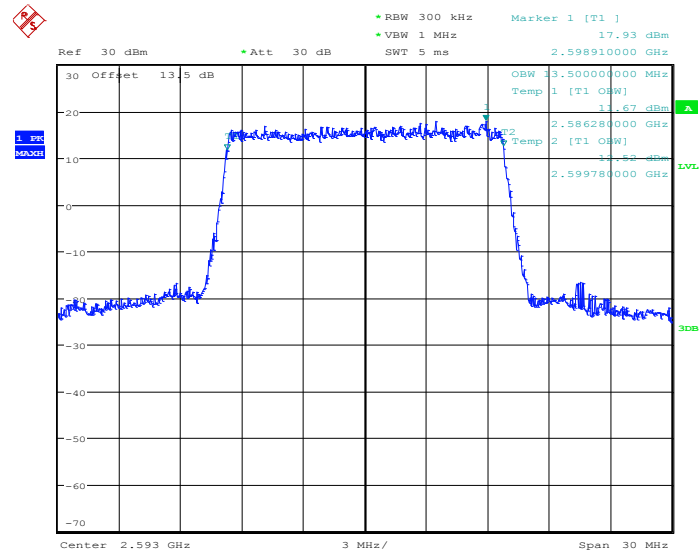
Date: 25.MAY.2014 13:43:26

**26dB Bandwidth Plot on Channel 39725**

Date: 25.MAY.2014 13:47:26

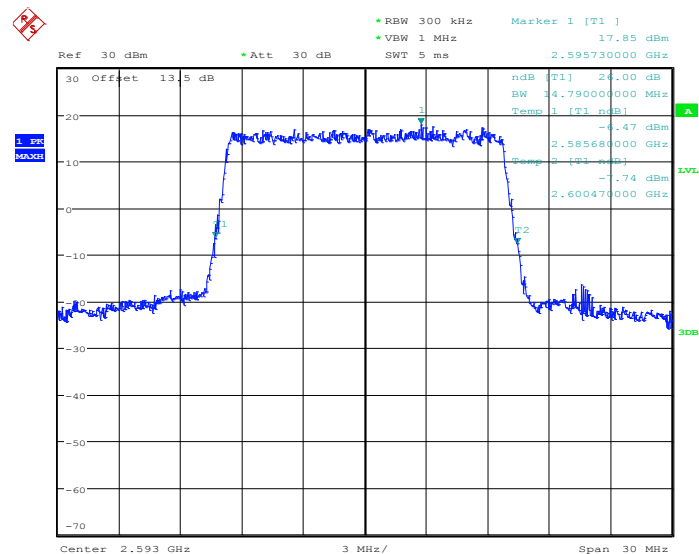


### 99% Occupied Bandwidth Plot on Channel 40620



Date: 25.MAY.2014 13:40:17

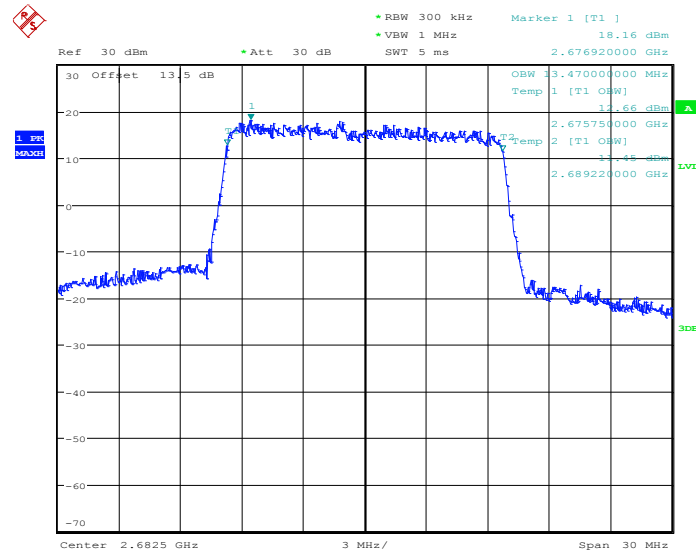
### 26dB Bandwidth Plot on Channel 40620



Date: 25.MAY.2014 13:48:39

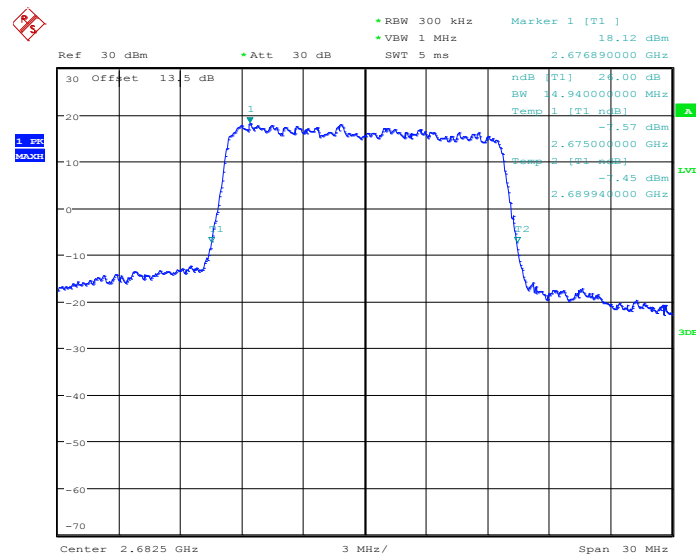


### 99% Occupied Bandwidth Plot on Channel 41515



Date: 25.MAY.2014 13:44:04

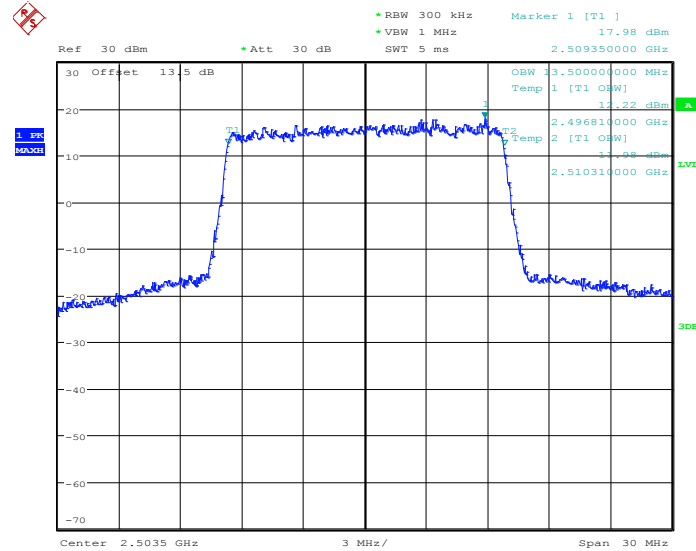
### 26dB Bandwidth Plot on Channel 41515



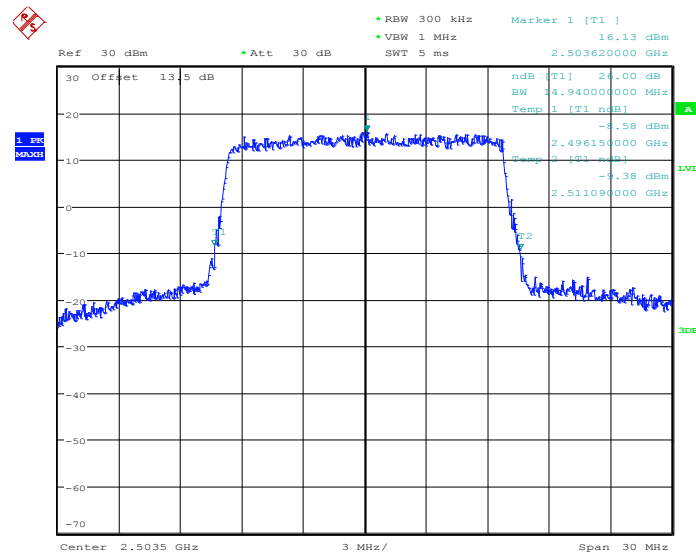
Date: 25.MAY.2014 13:46:48



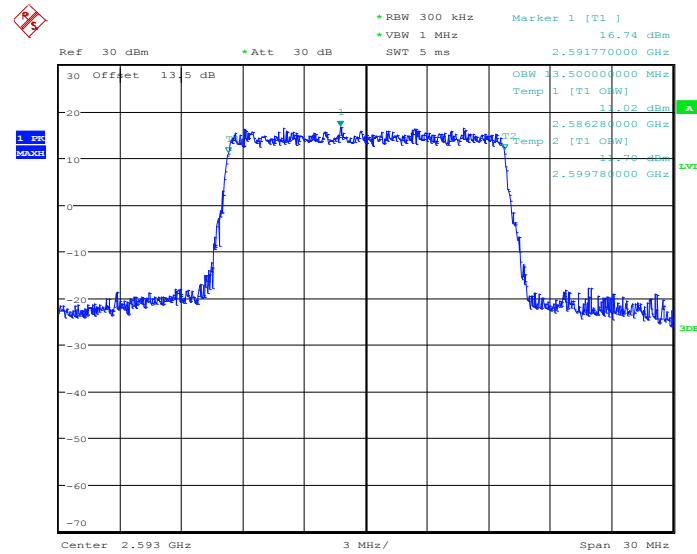
|               |             |                    |               |
|---------------|-------------|--------------------|---------------|
| <b>Band :</b> | LTE Band 41 | <b>BW / Mod. :</b> | 15MHz / 16QAM |
|---------------|-------------|--------------------|---------------|

**99% Occupied Bandwidth Plot on Channel 39725**

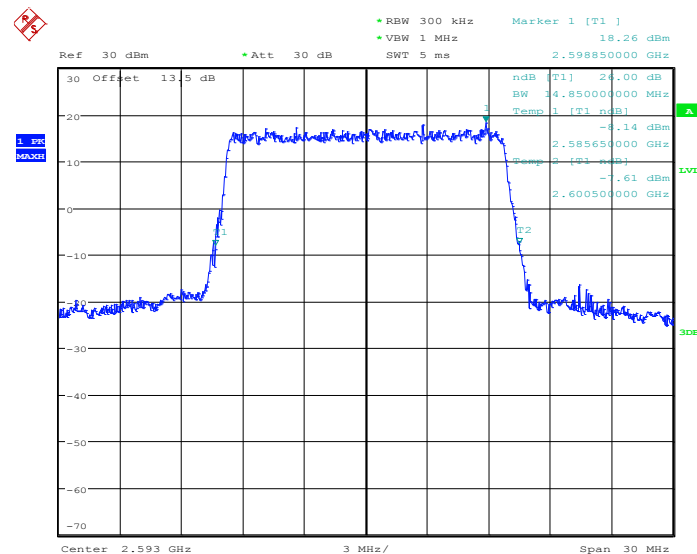
Date: 25.MAY.2014 13:41:07

**26dB Bandwidth Plot on Channel 39725**

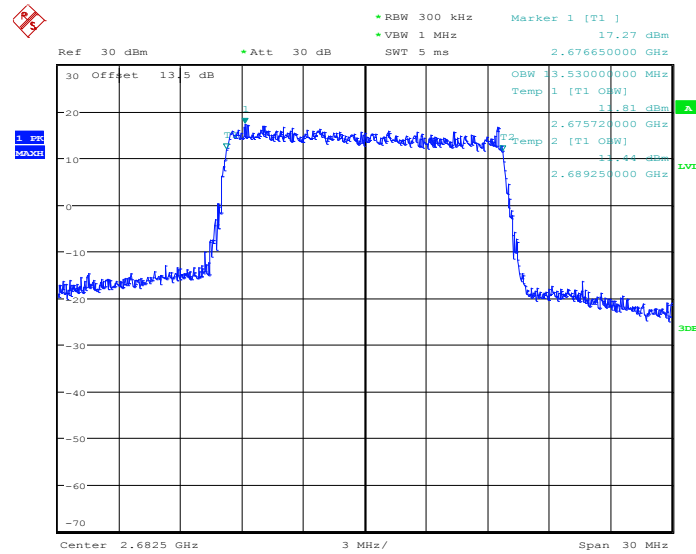
Date: 25.MAY.2014 13:48:02

**99% Occupied Bandwidth Plot on Channel 40620**

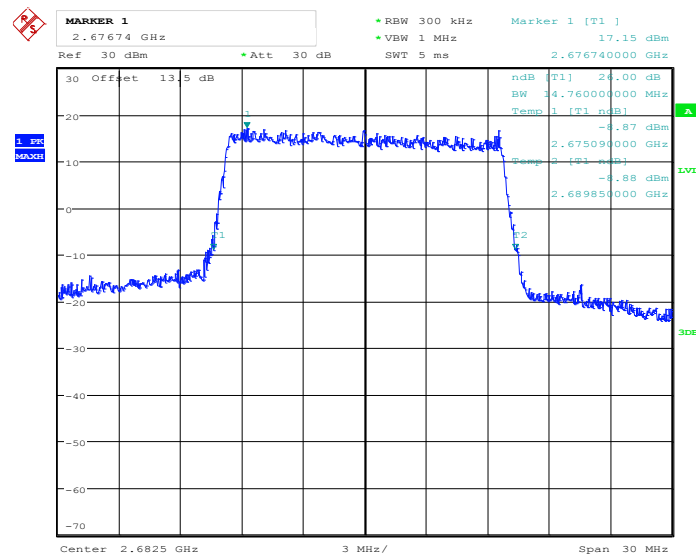
Date: 25.MAY.2014 13:40:33

**26dB Bandwidth Plot on Channel 40620**

Date: 25.MAY.2014 13:48:24

**99% Occupied Bandwidth Plot on Channel 41515**


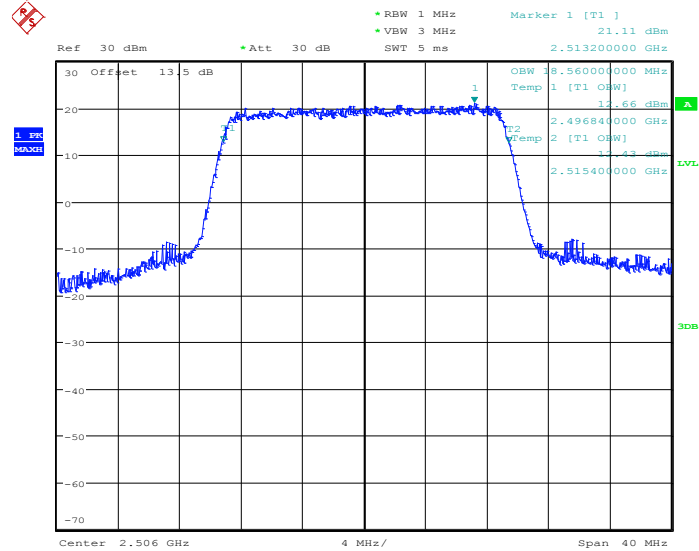
Date: 25.MAY.2014 13:44:20

**26dB Bandwidth Plot on Channel 41515**


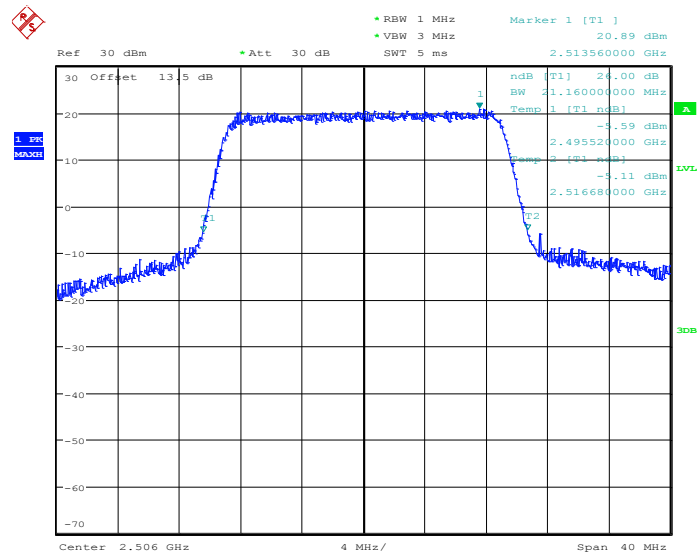
Date: 25.MAY.2014 13:44:43



|               |             |                    |              |
|---------------|-------------|--------------------|--------------|
| <b>Band :</b> | LTE Band 41 | <b>BW / Mod. :</b> | 20MHz / QPSK |
|---------------|-------------|--------------------|--------------|

**99% Occupied Bandwidth Plot on Channel 39750**

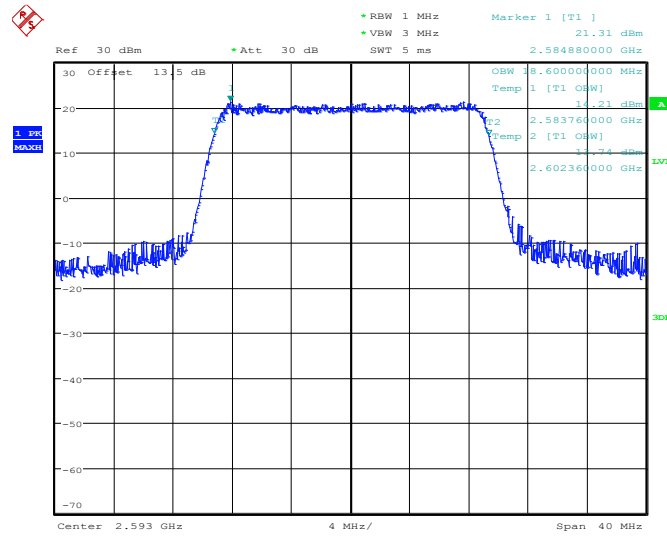
Date: 25.MAY.2014 13:52:07

**26dB Bandwidth Plot on Channel 39750**

Date: 25.MAY.2014 13:50:44

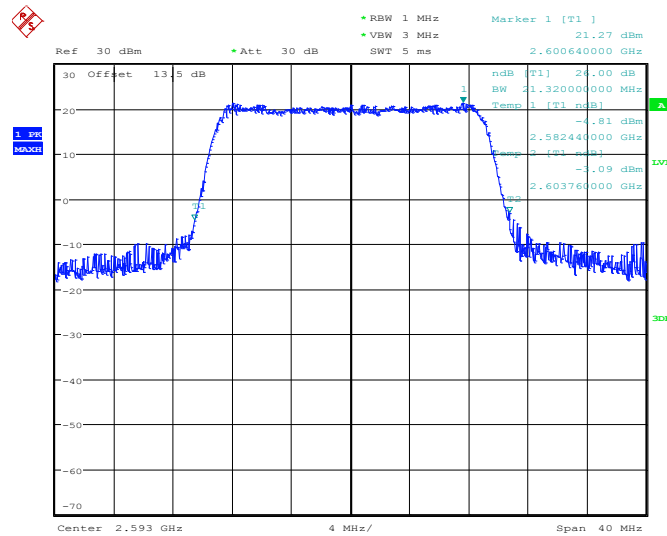


### 99% Occupied Bandwidth Plot on Channel 40620



Date: 25.MAY.2014 13:52:50

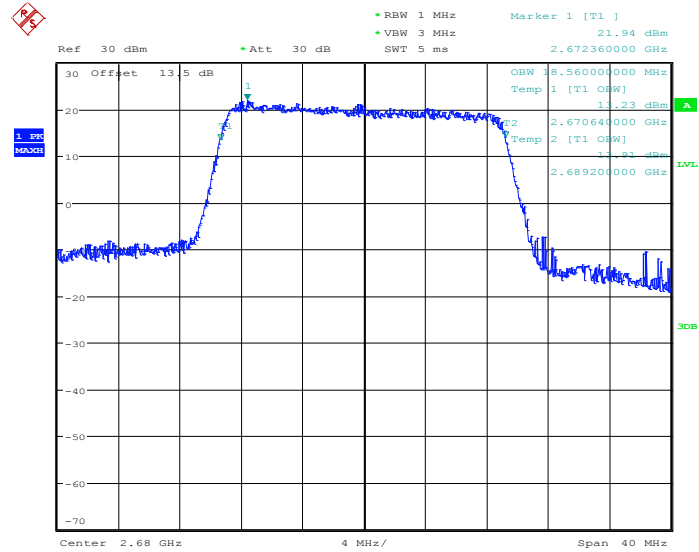
### 26dB Bandwidth Plot on Channel 40620



Date: 25.MAY.2014 13:49:52

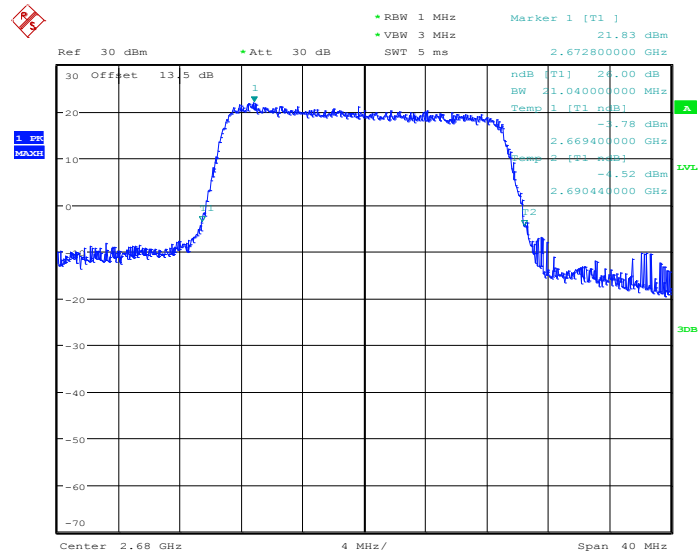


### 99% Occupied Bandwidth Plot on Channel 41490



Date: 25.MAY.2014 13:51:47

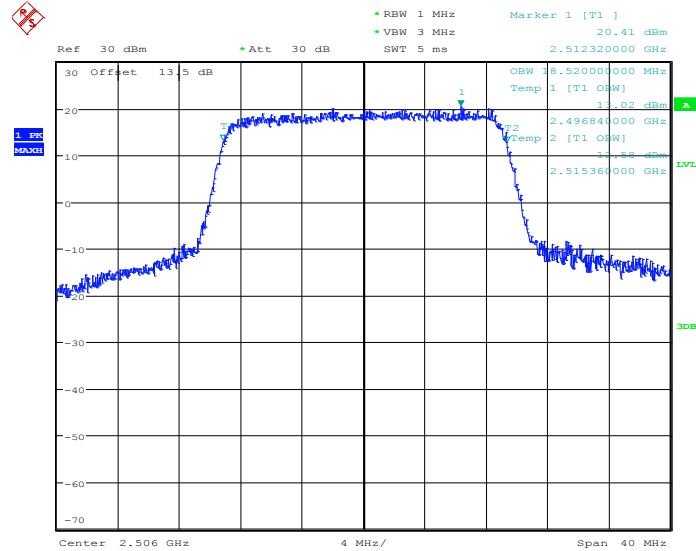
### 26dB Bandwidth Plot on Channel 41490



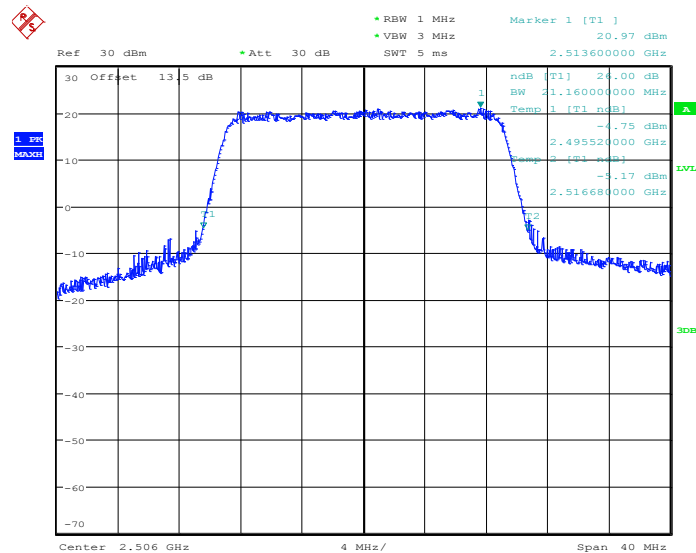
Date: 25.MAY.2014 13:51:01



|               |             |                    |               |
|---------------|-------------|--------------------|---------------|
| <b>Band :</b> | LTE Band 41 | <b>BW / Mod. :</b> | 20MHz / 16QAM |
|---------------|-------------|--------------------|---------------|

**99% Occupied Bandwidth Plot on Channel 39750**

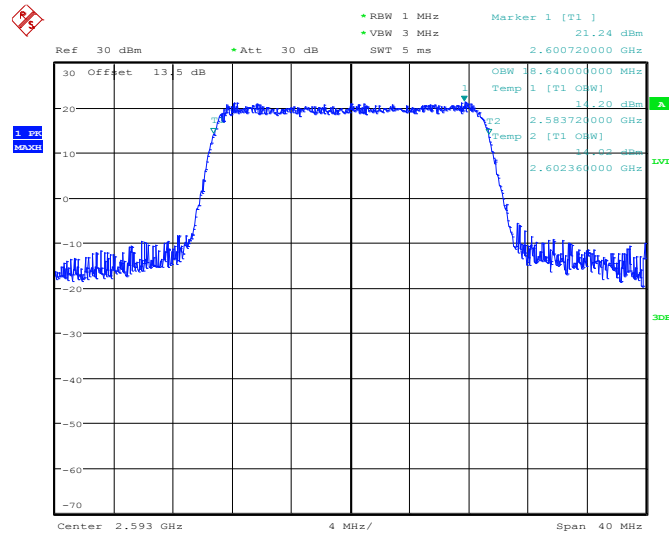
Date: 25.MAY.2014 13:52:18

**26dB Bandwidth Plot on Channel 39750**

Date: 25.MAY.2014 13:50:31

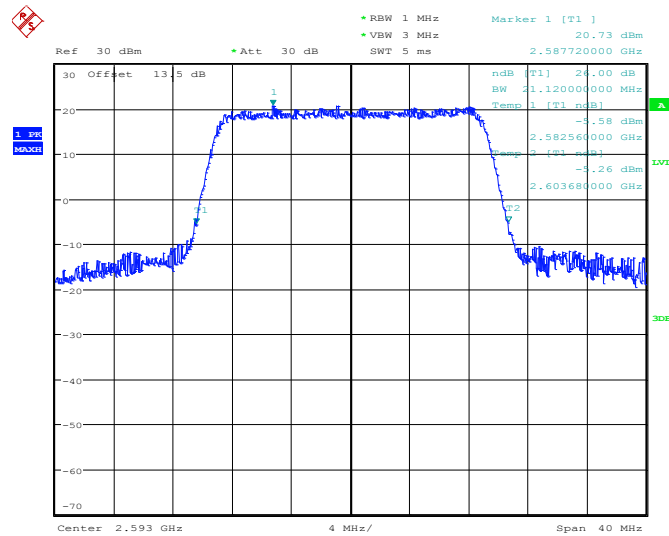


### 99% Occupied Bandwidth Plot on Channel 40620

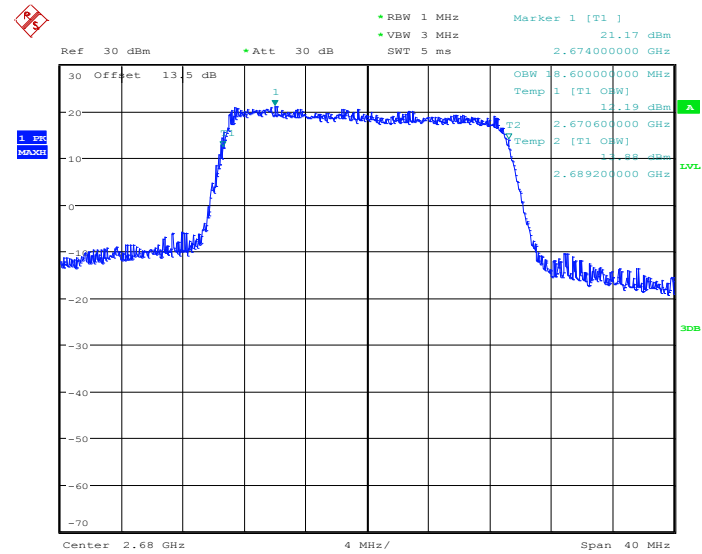


Date: 25.MAY.2014 13:52:34

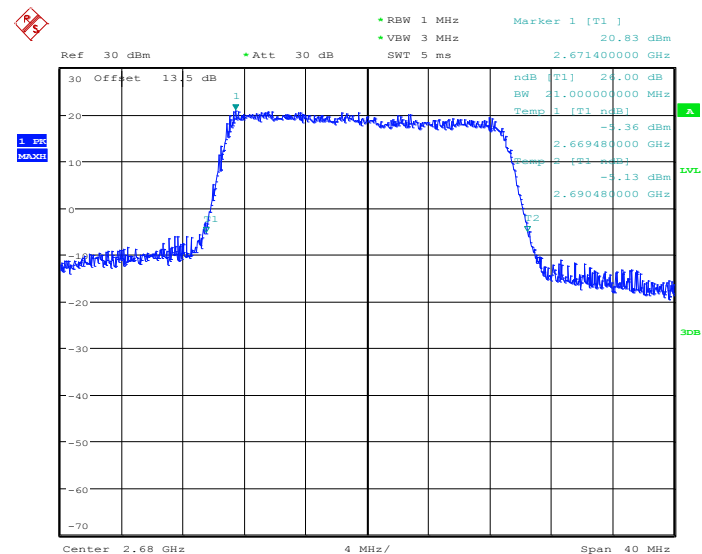
### 26dB Bandwidth Plot on Channel 40620



Date: 25.MAY.2014 13:50:07

**99% Occupied Bandwidth Plot on Channel 41490**


Date: 25.MAY.2014 13:51:32

**26dB Bandwidth Plot on Channel 41490**


Date: 25.MAY.2014 13:51:15