# FCC RF Test Report

| | | |
|---|---|---|
| APPLICANT | : | Motorola Mobility, LLC |
| EQUIPMENT | : | Mobile Cellular Phone |
| BRAND NAME | : | Motorola Mobility, LLC |
| MODEL NAME | : | 4242 |
| FCC ID | : | IHDT56QC7 |
| STANDARD | : | FCC 47 CFR Part 2, and 90(S) |
| CLASSIFICATION | : | PCS Licensed Transmitter Held to Ear (PCE) |

**The product was received on Nov. 15, 2014 and testing was completed on Dec. 14, 2014. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI / TIA / EIA-603-C-2004 and shown compliance with the applicable technical standards.**

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

**Reviewed by: Joseph Lin / Supervisor**

**Approved by: Jones Tsai / Manager**

Testing Laboratory
1190

***SPORTON INTERNATIONAL INC.***

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

# TABLE OF CONTENTS

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

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

**1 GENERAL DESCRIPTION** ..... **5**

1.1 Applicant ..... 5
1.2 Manufacturer ..... 5
1.3 Feature of Equipment Under Test ..... 5
1.4 Product Specification of Equipment Under Test ..... 6
1.5 Modification of EUT ..... 6
1.6 Maximum Frequency Tolerance and Emission Designator ..... 6
1.7 Testing Site ..... 7
1.8 Applied Standards ..... 7

**2 TEST CONFIGURATION OF EQUIPMENT UNDER TEST** ..... **8**

2.1 Test Mode ..... 8
2.2 Connection Diagram of Test System ..... 9
2.3 Support Unit used in test configuration and system ..... 9
2.4 Measurement Results Explanation Example ..... 9

**3 TEST RESULT** ..... **10**

3.1 Conducted Output Power Measurement ..... 10
3.2 99% Occupied Bandwidth and 26dB Bandwidth Measurement ..... 13
3.3 Emissions Mask Measurement ..... 34
3.4 Emissions Mask – Out Of Band Emissions Measurement ..... 59
3.5 Field Strength of Spurious Radiation Measurement ..... 70
3.6 Frequency Stability Measurement ..... 82

**4 LIST OF MEASURING EQUIPMENT** ..... **84**

**5 UNCERTAINTY OF EVALUATION** ..... **85**

# REVISION HISTORY

| REPORT NO. | VERSION | DESCRIPTION | ISSUED DATE |
|---|---|---|---|
| FW4N1482-04B | Rev. 01 | Initial issue of report | Jan. 08, 2015 |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

# SUMMARY OF TEST RESULT

| Report Section | FCC Rule | Description | Limit | Result | Remark |
|---|---|---|---|---|---|
| 3.1 | §2.1046 | Conducted Output Power | N/A , Reporting only | PASS | - |
| 3.2 | §2.1049<br>§90.209 | Occupied Bandwidth and 26dB Bandwidth | N/A<br>(Reporting only) | PASS | - |
| 3.3 | §2.1051<br>§90.691 | Emission masks – In-band emissions | < $50+10\log_{10}$(P[Watts]) | PASS | - |
| 3.4 | §2.1051<br>§90.691 | Emission masks – Out of band emissions | < $43+10\log_{10}$(P[Watts]) | PASS | - |
| 3.5 | §2.1053<br>§90.691 | Field Strength of Spurious Radiation | < $43+10\log_{10}$(P[Watts]) | PASS | Under limit 44.02 dB at 3256.000 MHz |
| 3.6 | §2.1055<br>§90.213 | Frequency Stability for Temperature & Voltage | < 2.5 ppm | PASS | - |

# 1 General Description

## 1.1 Applicant

**Motorola Mobility, LLC**
222 W. Merchandise Mart Plaza, Chicago IL 60654 USA

## 1.2 Manufacturer

**Motorola Mobility, LLC**
222 W. Merchandise Mart Plaza, Chicago IL 60654 USA

## 1.3 Feature of Equipment Under Test

| Product Feature | |
|---|---|
| **Equipment** | Mobile Cellular Phone |
| **Brand Name** | Motorola Mobility, LLC |
| **Model Name** | 4242 |
| **FCC ID** | IHDT56QC7 |
| **IMEI Code** | 990005460018022 |
| **EUT supports Radios application** | GSM/EGPRS/CDMA/EV-DO/WCDMA/HSPA/LTE<br>WLAN 11b/g/n HT20<br>Bluetooth v2.1 + EDR<br>Bluetooth v4.0 - LE |
| **HW Version** | P2B |
| **EUT Stage** | Identical Prototype |

| Accessory List | |
|---|---|
| **AC Adapter** | Brand Name : Motorola |
| | Model Name : SPN5810A |

## 1.4 Product Specification of Equipment Under Test

| Product Specification subjective to this standard | |
|---|---|
| **Tx Frequency** | 814.7 ~ 823.3 MHz |
| **Rx Frequency** | 859.7 ~ 868.3 MHz |
| **Bandwidth** | 1.4MHz / 3MHz / 5MHz / 10MHz |
| **Maximum Output Power to Antenna** | 23.39 dBm |
| **Antenna Type** | Fixed Internal Antenna |
| **Type of Modulation** | QPSK / 16QAM |

**Remark:** This test report recorded only product characteristics and test results of PCS Licensed Transmitter Held to Ear (PCE).

## 1.5 Modification of EUT

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

## 1.6 Maximum Frequency Tolerance and Emission Designator

| FCC Rule | System | Type of Modulation | BW | Emission Designator | Frequency Tolerance (ppm) |
|---|---|---|---|---|---|
| Part 90S | LTE Band 26 | QPSK | 1.4 MHz | 1M10G7D | - |
| Part 90S | LTE Band 26 | 16QAM | 1.4 MHz | 1M10D7W | - |
| Part 90S | LTE Band 26 | QPSK | 3 MHz | 2M73G7D | - |
| Part 90S | LTE Band 26 | 16QAM | 3 MHz | 2M73D7W | - |
| Part 90S | LTE Band 26 | QPSK | 5 MHz | 4M51G7D | - |
| Part 90S | LTE Band 26 | 16QAM | 5 MHz | 4M51D7W | - |
| Part 90S | LTE Band 26 | QPSK | 10 MHz | 9M11G7D | 0.0020 ppm |
| Part 90S | LTE Band 26 | 16QAM | 10 MHz | 9M05D7W | - |

## 1.7 Testing Site

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

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

## 1.8 Applied Standards

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

- FCC 47 CFR Part 2, 90
- ANSI / TIA / EIA-603-C-2004
- FCC KDB 971168 D01 Power Meas. License Digital Systems v02r02

**Remark:**

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

# 2 Test Configuration of Equipment Under Test

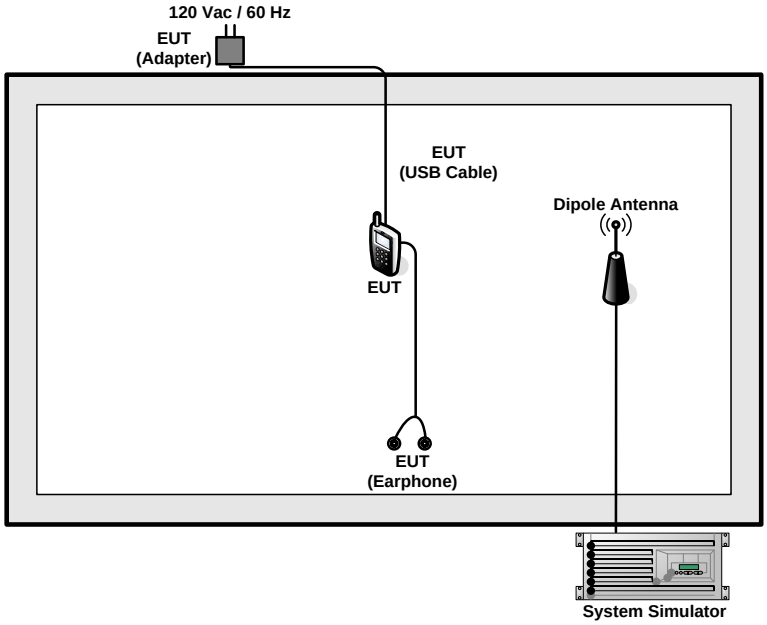
## 2.1 Test Mode

During all testing, EUT is in link mode with base station emulator at maximum power level. The spurious emission measurements were carried out in semi-anechoic chamber with 3-meter test range, and EUT is rotated on three test planes to find out the worst emission.

Frequency range investigated for radiated emission is 30 MHz to 9000 MHz.

| 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 | 26 | v | v | v | v | - | - | v | v | v | v | v | v | v | v |
| 26dB and 99% Bandwidth | 26 | v | v | v | v | - | - | v | v | | | v | v | v | v |
| Emission masks In-band emissions | 26 | v | v | v | v | - | - | v | v | v | | v | v | | v |
| Emission masks – Out of band emissions | 26 | v | v | v | v | - | - | v | v | v | | | v | v | v |
| Frequency Stability | 26 | | | | v | - | - | v | | | | v | | v | |
| Radiated Spurious Emission | 26 | v | v | v | v | - | - | v | | v | | | v | v | v |
| Note | 1. The mark "v " means that this configuration is chosen for testing<br>2. The mark "-" means that this bandwidth is not supported. | | | | | | | | | | | | | | |

## 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. | System Simulator | 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 RF conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level will be exactly the RF output level.

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

*Offset = RF cable loss + attenuator factor.*

The following shows an offset computation example with RF cable loss 4.2 dB and a 10dB attenuator.

Example :

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

= 4.2 + 10 = 14.2 (dB)

# 3 Test Result

## 3.1 Conducted Output Power Measurement

### 3.1.1 Description of the Conducted Output Power Measurement

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

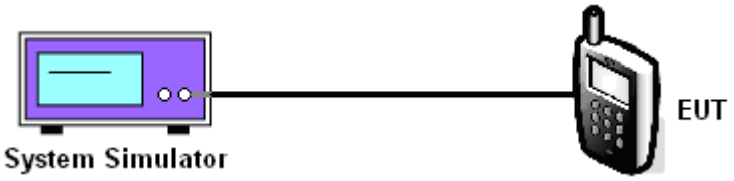
### 3.1.2 Measuring Instruments

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 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 26 Conducted Power>**

| BW [MHz] | Modulation | RB Size | RB Offset | Power (dBm) Low Ch. / Freq. | Power (dBm) Middle Ch. / Freq. | Power (dBm) High Ch. / Freq. |
|---|---|---|---|---|---|---|
| **Channel** | | | | | **26740** | |
| **Frequency (MHz)** | | | | | **819** | |
| 10 | QPSK | 1 | 0 | | **23.39** | |
| 10 | QPSK | 1 | 24 | | 23.38 | |
| 10 | QPSK | 1 | 49 | | 23.25 | |
| 10 | QPSK | 25 | 0 | | 22.29 | |
| 10 | QPSK | 25 | 12 | | 22.11 | |
| 10 | QPSK | 25 | 24 | | 22.18 | |
| 10 | QPSK | 50 | 0 | | 22.10 | |
| 10 | 16QAM | 1 | 0 | | 22.25 | |
| 10 | 16QAM | 1 | 24 | | 22.19 | |
| 10 | 16QAM | 1 | 49 | | 22.08 | |
| 10 | 16QAM | 25 | 0 | | 21.69 | |
| 10 | 16QAM | 25 | 12 | | 21.60 | |
| 10 | 16QAM | 25 | 24 | | 21.57 | |
| 10 | 16QAM | 50 | 0 | | 21.17 | |
| **Channel** | | | | **26715** | **26740** | **26765** |
| **Frequency (MHz)** | | | | **816.5** | **819** | **821.5** |
| 5 | QPSK | 1 | 0 | 23.14 | 23.22 | 23.17 |
| 5 | QPSK | 1 | 12 | 23.12 | 23.13 | 23.08 |
| 5 | QPSK | 1 | 24 | 23.00 | 23.08 | 22.94 |
| 5 | QPSK | 12 | 0 | 22.34 | 22.26 | 22.22 |
| 5 | QPSK | 12 | 6 | 22.29 | 22.29 | 22.37 |
| 5 | QPSK | 12 | 11 | 22.23 | 22.33 | 22.20 |
| 5 | QPSK | 25 | 0 | 22.21 | 22.23 | 22.34 |
| 5 | 16QAM | 1 | 0 | 22.63 | 22.64 | 22.49 |
| 5 | 16QAM | 1 | 12 | 22.38 | 22.44 | 22.42 |
| 5 | 16QAM | 1 | 24 | 22.31 | 22.38 | 22.36 |
| 5 | 16QAM | 12 | 0 | 21.26 | 21.54 | 21.11 |
| 5 | 16QAM | 12 | 6 | 21.42 | 21.57 | 21.29 |
| 5 | 16QAM | 12 | 11 | 21.61 | 21.56 | 21.15 |
| 5 | 16QAM | 25 | 0 | 21.18 | 21.34 | 21.21 |

| BW [MHz] | Modulation | RB Size | RB Offset | Power (dBm) Low Ch. / Freq. | Power (dBm) Middle Ch. / Freq. | Power (dBm) High Ch. / Freq. |
|---|---|---|---|---|---|---|
| **Channel** | | | | **26705** | **26740** | **26775** |
| **Frequency (MHz)** | | | | **815.5** | **819** | **822.5** |
| 3 | QPSK | 1 | 0 | 23.05 | 23.19 | 23.18 |
| 3 | QPSK | 1 | 7 | 23.17 | 23.18 | 23.17 |
| 3 | QPSK | 1 | 14 | 23.10 | 23.17 | 23.19 |
| 3 | QPSK | 8 | 0 | 22.37 | 22.35 | 22.24 |
| 3 | QPSK | 8 | 4 | 22.23 | 22.36 | 22.24 |
| 3 | QPSK | 8 | 7 | 22.23 | 22.35 | 22.19 |
| 3 | QPSK | 15 | 0 | 22.29 | 22.28 | 22.22 |
| 3 | 16QAM | 1 | 0 | 22.19 | 22.47 | 22.54 |
| 3 | 16QAM | 1 | 7 | 22.03 | 22.49 | 22.43 |
| 3 | 16QAM | 1 | 14 | 22.12 | 22.20 | 22.31 |
| 3 | 16QAM | 8 | 0 | 21.38 | 21.47 | 21.11 |
| 3 | 16QAM | 8 | 4 | 21.35 | 21.55 | 21.27 |
| 3 | 16QAM | 8 | 7 | 21.34 | 21.18 | 21.40 |
| 3 | 16QAM | 15 | 0 | 21.39 | 21.05 | 21.11 |
| **Channel** | | | | **26697** | **26740** | **26783** |
| **Frequency (MHz)** | | | | **814.7** | **819** | **823.3** |
| 1.4 | QPSK | 1 | 0 | 23.18 | 23.18 | 23.07 |
| 1.4 | QPSK | 1 | 2 | 23.19 | 23.16 | 23.18 |
| 1.4 | QPSK | 1 | 5 | 23.12 | 23.14 | 23.01 |
| 1.4 | QPSK | 3 | 0 | 23.20 | 23.18 | 23.20 |
| 1.4 | QPSK | 3 | 1 | 23.19 | 23.11 | 23.19 |
| 1.4 | QPSK | 3 | 2 | 23.17 | 23.15 | 23.19 |
| 1.4 | QPSK | 6 | 0 | 22.30 | 22.25 | 22.19 |
| 1.4 | 16QAM | 1 | 0 | 22.47 | 22.55 | 22.44 |
| 1.4 | 16QAM | 1 | 2 | 22.41 | 22.22 | 22.36 |
| 1.4 | 16QAM | 1 | 5 | 22.33 | 22.38 | 22.52 |
| 1.4 | 16QAM | 3 | 0 | 22.38 | 22.01 | 22.40 |
| 1.4 | 16QAM | 3 | 1 | 22.36 | 22.06 | 22.46 |
| 1.4 | 16QAM | 3 | 2 | 22.41 | 22.06 | 22.19 |
| 1.4 | 16QAM | 6 | 0 | 21.28 | 20.92 | 20.92 |

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

## 3.2 99% Occupied Bandwidth and 26dB Bandwidth Measurement

### 3.2.1 Description of (Occupied) Bandwidth Limitations Measurement

The 99% 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 emission bandwidth is defined as the width of the signal between two points, located at the 2 sides of the carrier frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

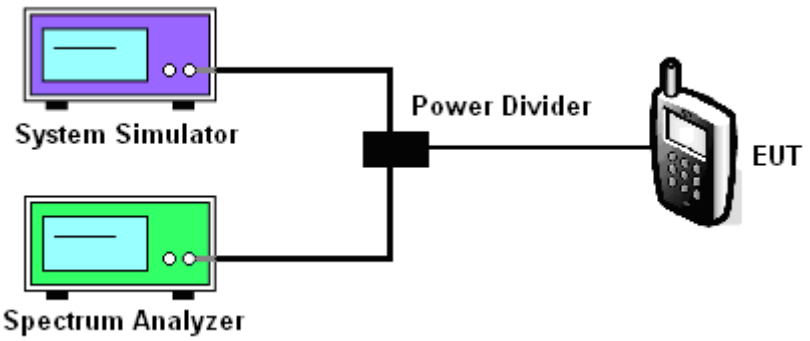
### 3.2.2 Measuring Instruments

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 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.

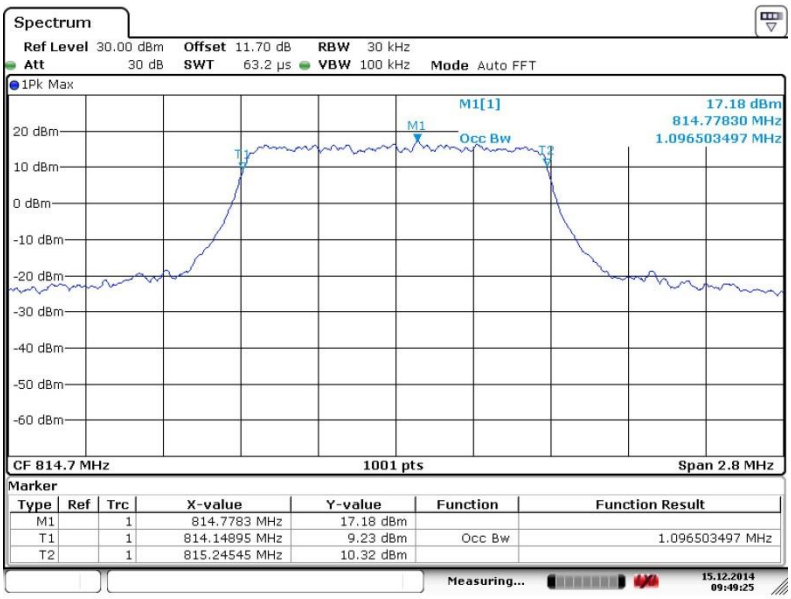
### 3.2.4 Test Setup



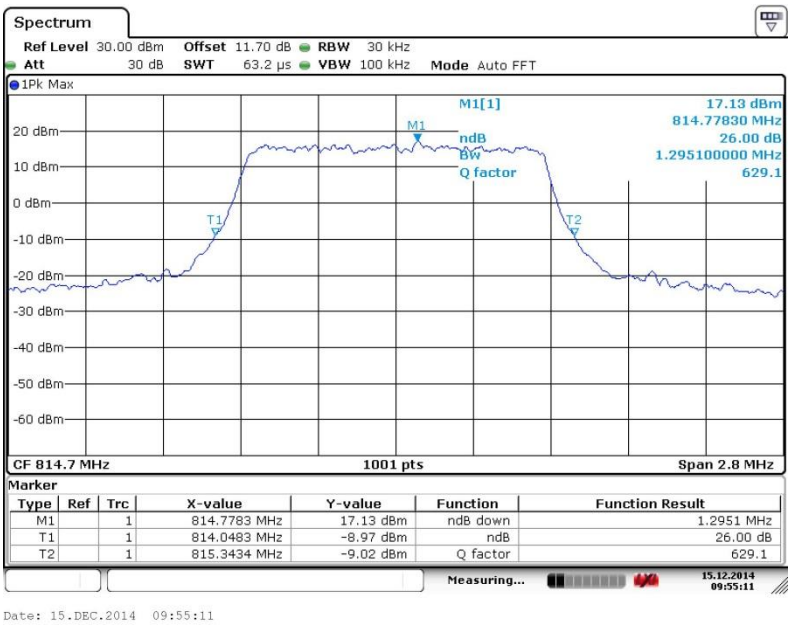
### 3.2.5 Test Result of 99% Occupied Bandwidth and 26dB Bandwidth

| Band : | LTE Band 26 | BW / Mod. : | 1.4MHz / QPSK |
|---|---|---|---|

**99% Occupied Bandwidth Plot on Channel 26697**

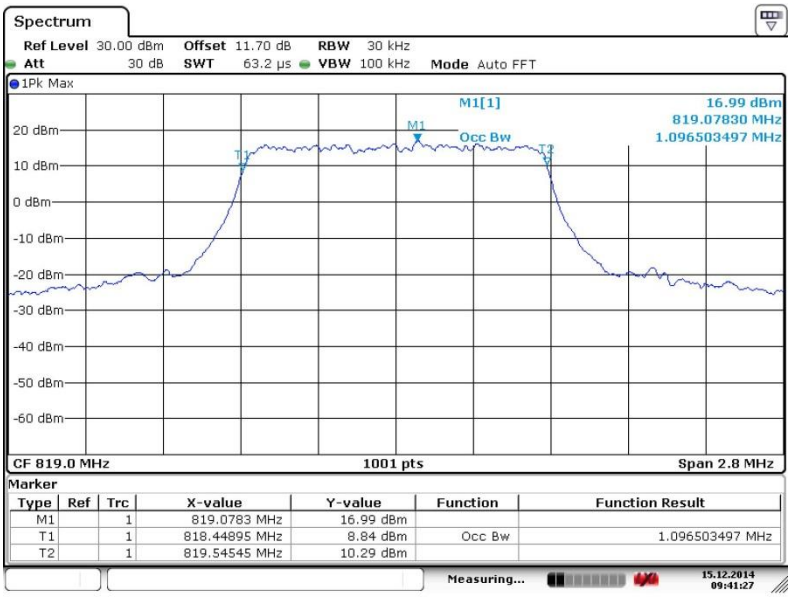



**26dB Bandwidth Plot on Channel 26697**



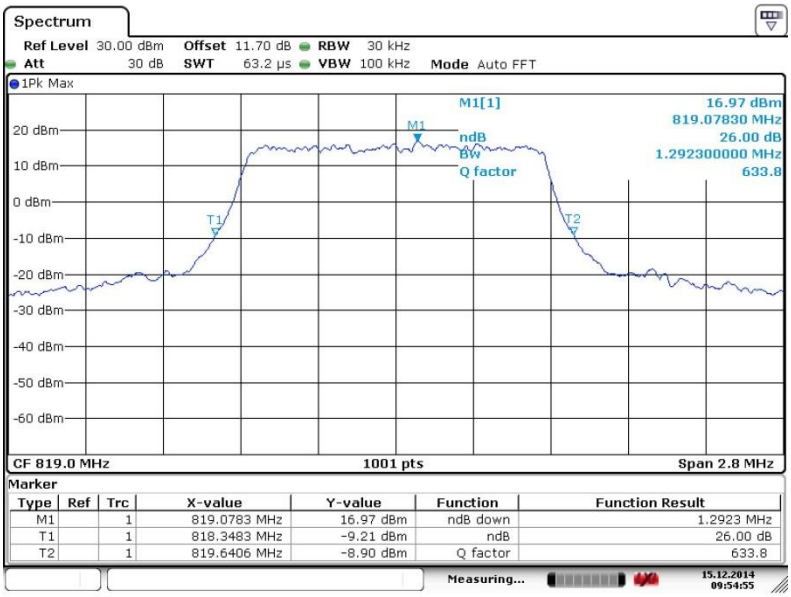
| Band : | LTE Band 26 | BW / Mod. : | 1.4MHz / QPSK |
|---|---|---|---|

**99% Occupied Bandwidth Plot on Channel 26740**




Date: 15.DEC.2014 09:41:27

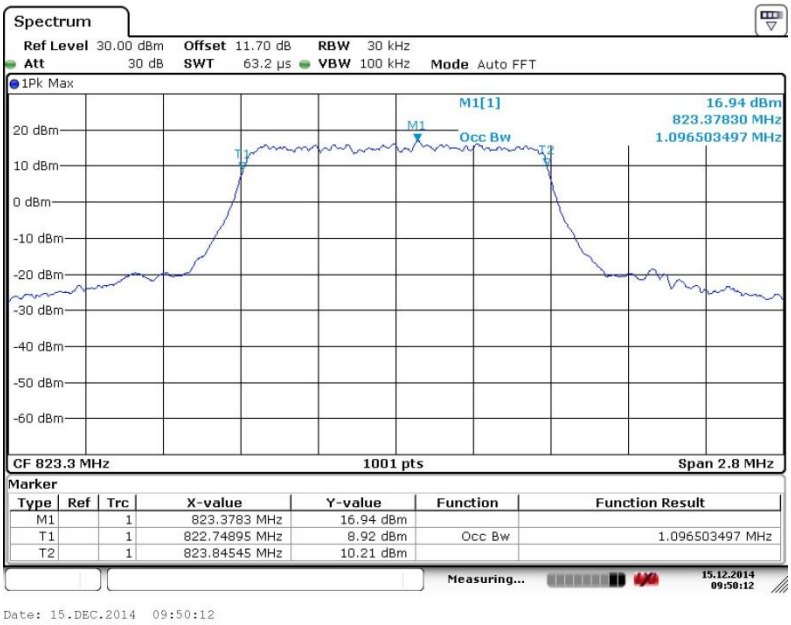
**26dB Bandwidth Plot on Channel 26740**




Date: 15.DEC.2014 09:54:55

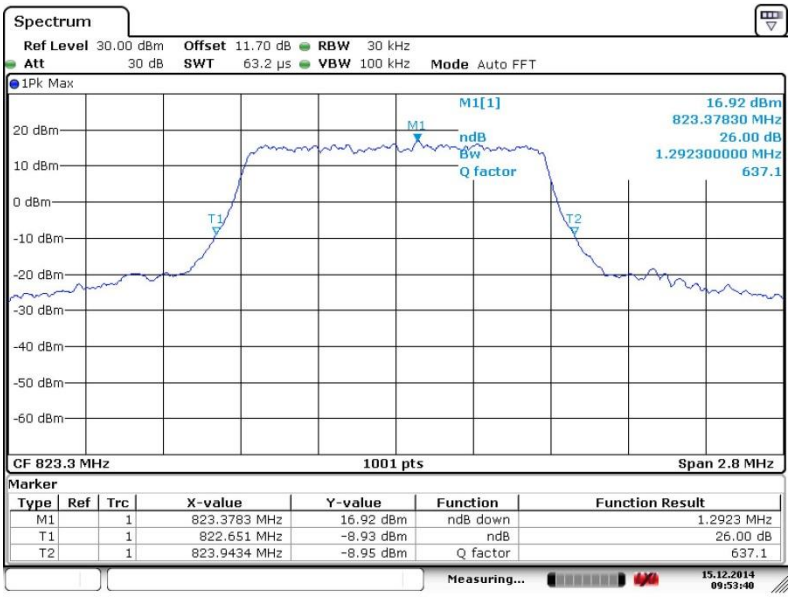
| Band : | LTE Band 26 | BW / Mod. : | 1.4MHz / QPSK |
|---|---|---|---|

**99% Occupied Bandwidth Plot on Channel 26783**




Date: 15.DEC.2014 09:50:12

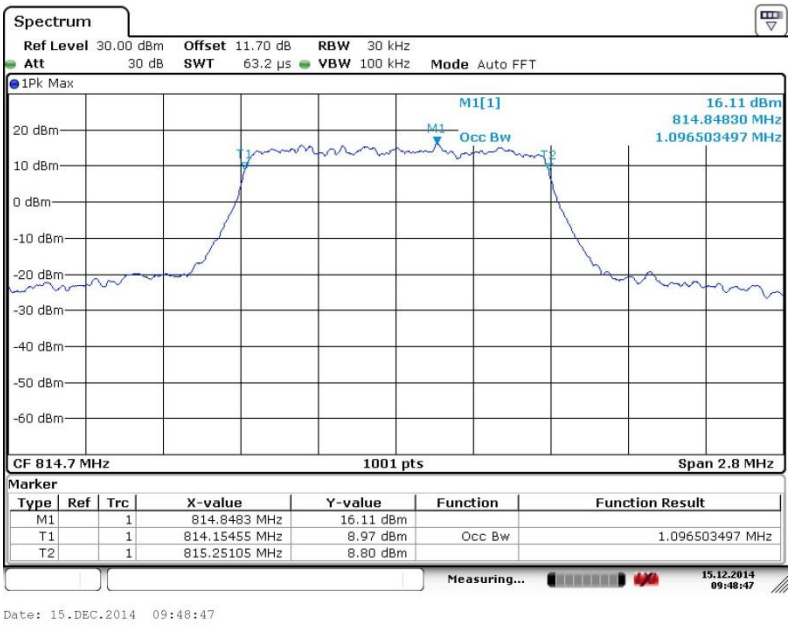
**26dB Bandwidth Plot on Channel 26783**



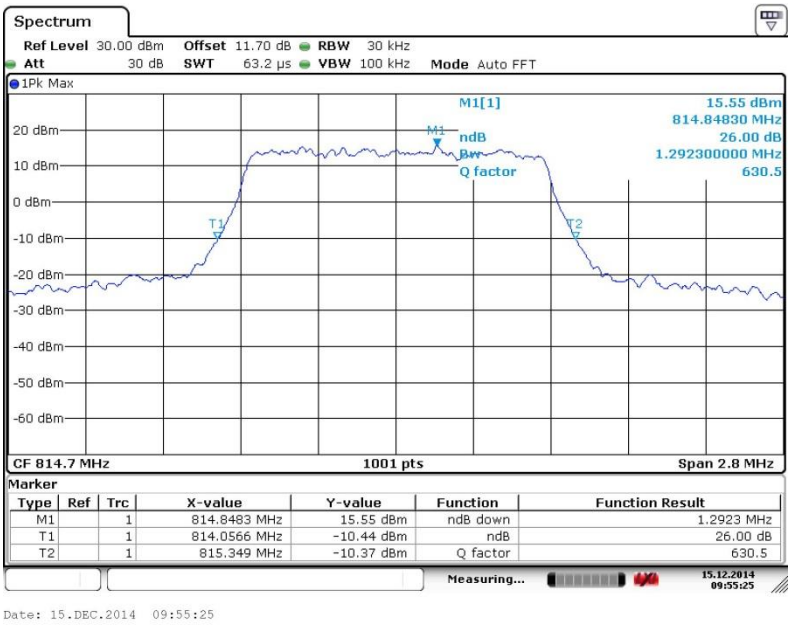

Date: 15.DEC.2014 09:53:40

| Band : | LTE Band 26 | BW / Mod. : | 1.4MHz / 16QAM |
|---|---|---|---|

**99% Occupied Bandwidth Plot on Channel 26697**

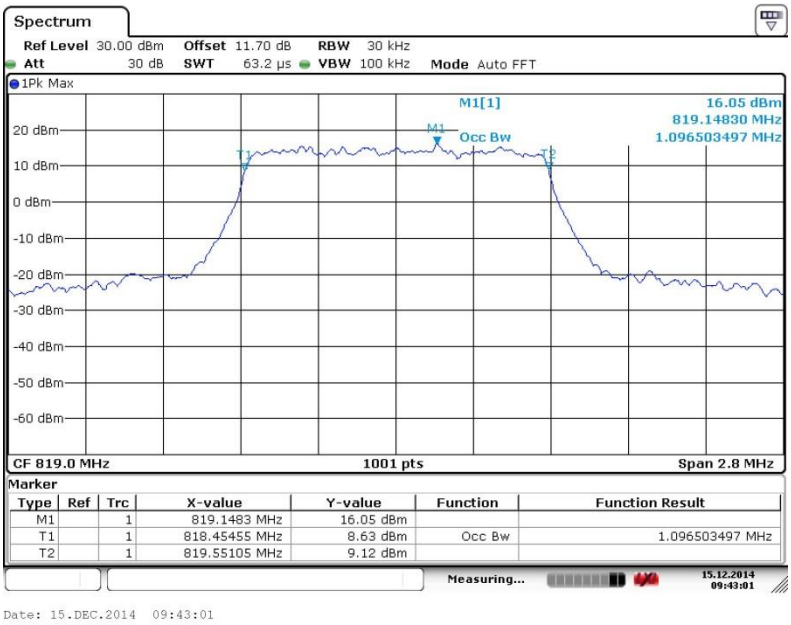



**26dB Bandwidth Plot on Channel 26697**



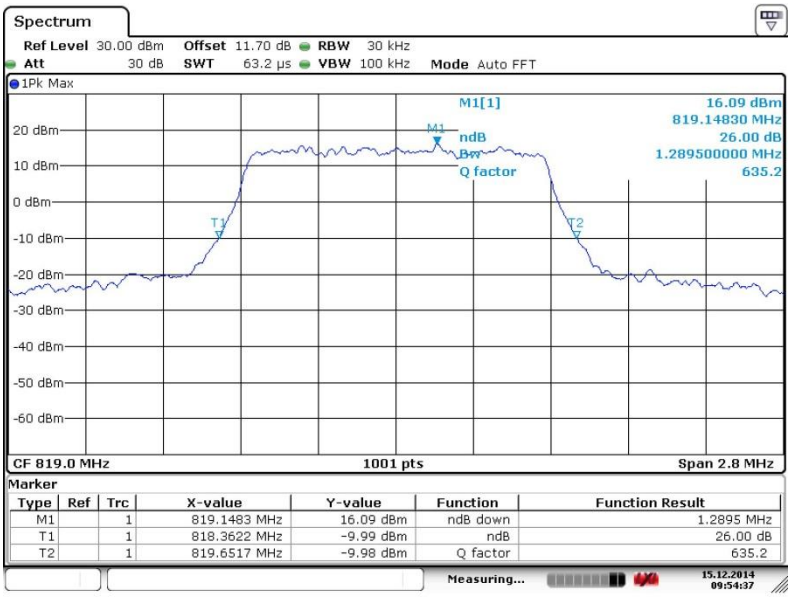
| Band : | LTE Band 26 | BW / Mod. : | 1.4MHz / 16QAM |
|---|---|---|---|

**99% Occupied Bandwidth Plot on Channel 26740**




Date: 15.DEC.2014 09:43:01

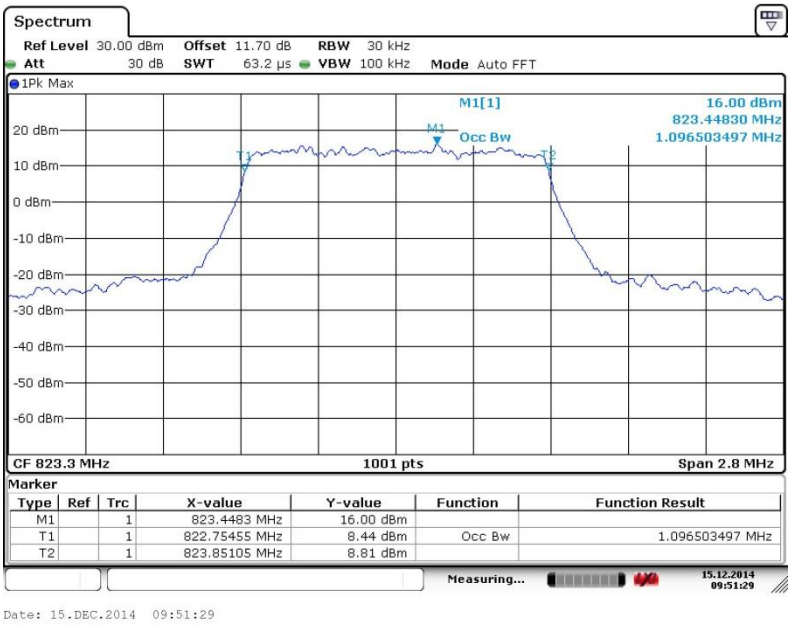
**26dB Bandwidth Plot on Channel 26740**




Date: 15.DEC.2014 09:54:37

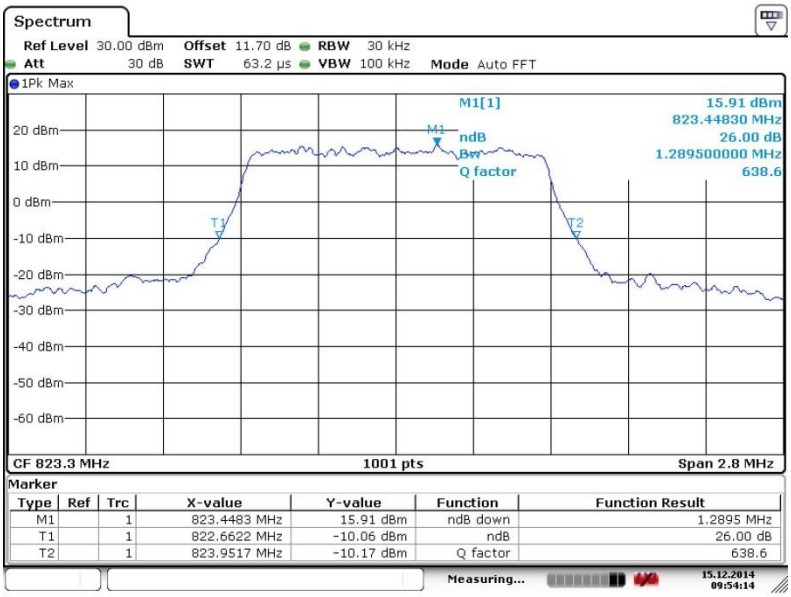
| Band : | LTE Band 26 | BW / Mod. : | 1.4MHz / 16QAM |
|---|---|---|---|

**99% Occupied Bandwidth Plot on Channel 26783**




Date: 15.DEC.2014 09:51:29

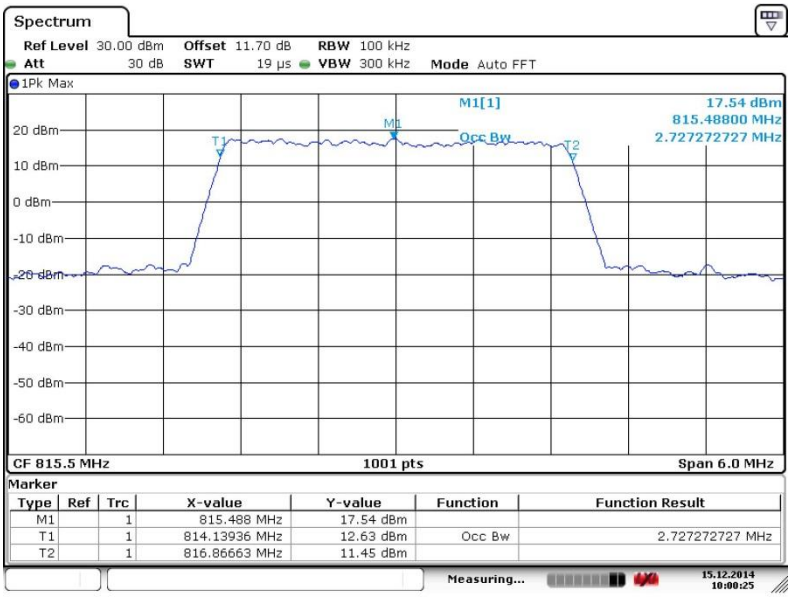
**26dB Bandwidth Plot on Channel 26783**




Date: 15.DEC.2014 09:54:14

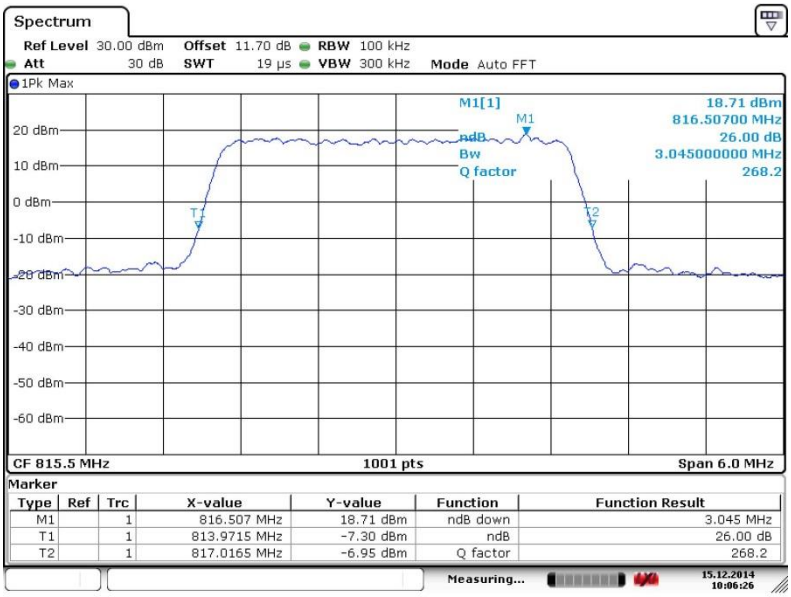
| Band : | LTE Band 26 | BW / Mod. : | 3MHz / QPSK |
|---|---|---|---|

### 99% Occupied Bandwidth Plot on Channel 26705




Date: 15.DEC.2014 10:00:25

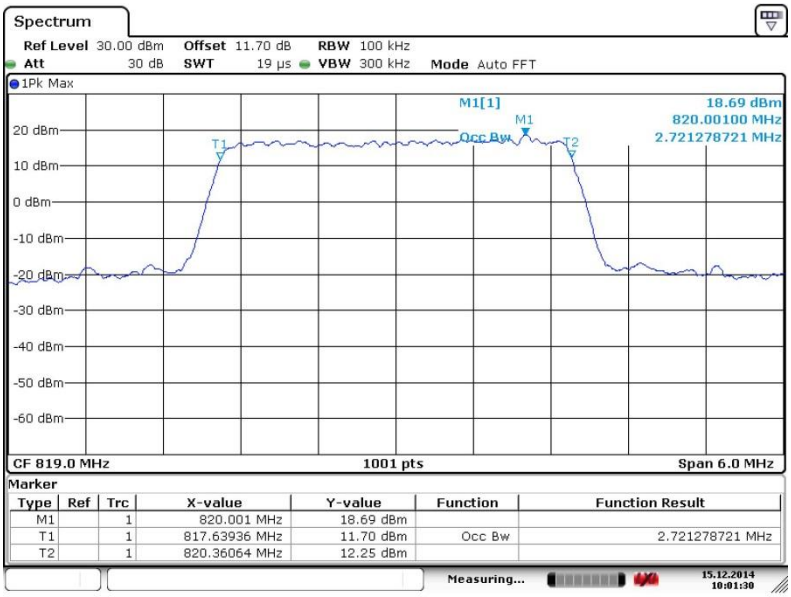
### 26dB Bandwidth Plot on Channel 26705




Date: 15.DEC.2014 10:06:26

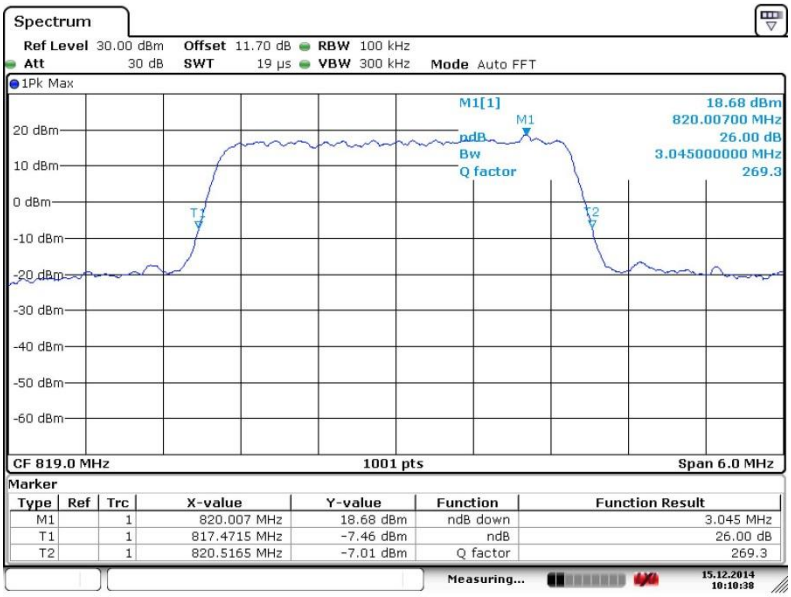
| Band : | LTE Band 26 | BW / Mod. : | 3MHz / QPSK |
|---|---|---|---|

### 99% Occupied Bandwidth Plot on Channel 26740




Date: 15.DEC.2014 10:01:30

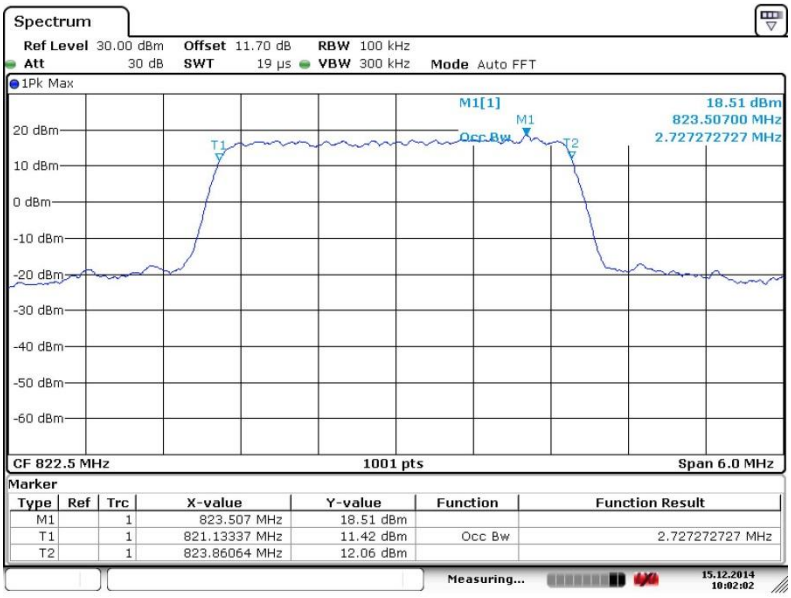
### 26dB Bandwidth Plot on Channel 26740




Date: 15.DEC.2014 10:10:38

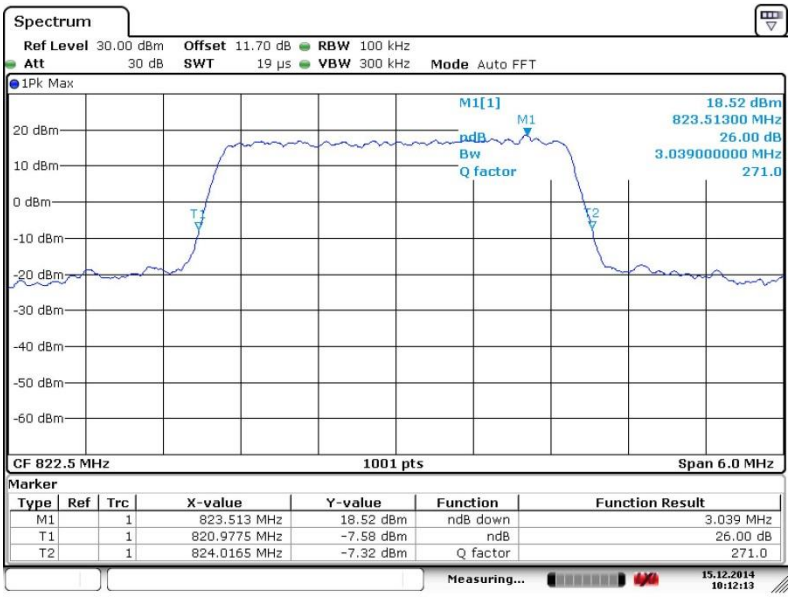
| Band : | LTE Band 26 | BW / Mod. : | 3MHz / QPSK |
|---|---|---|---|

### 99% Occupied Bandwidth Plot on Channel 26775




Date: 15.DEC.2014 10:02:02

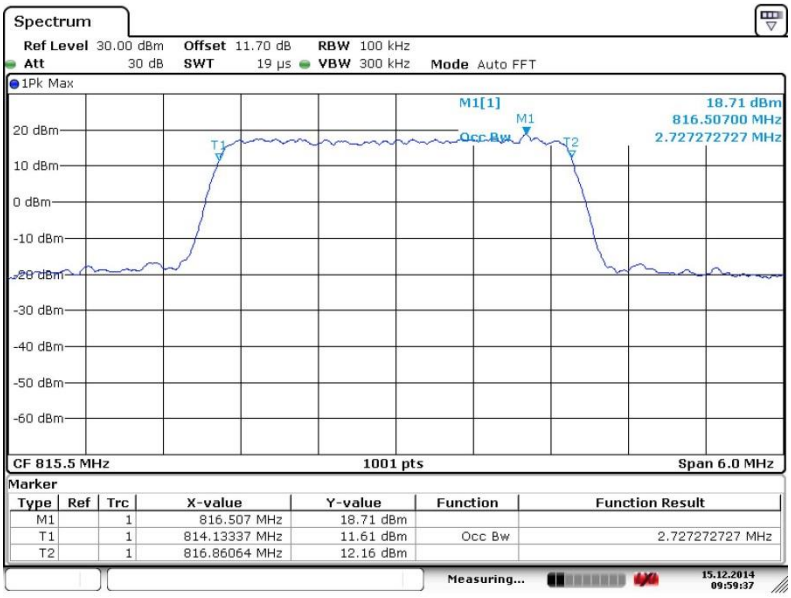
### 26dB Bandwidth Plot on Channel 26775



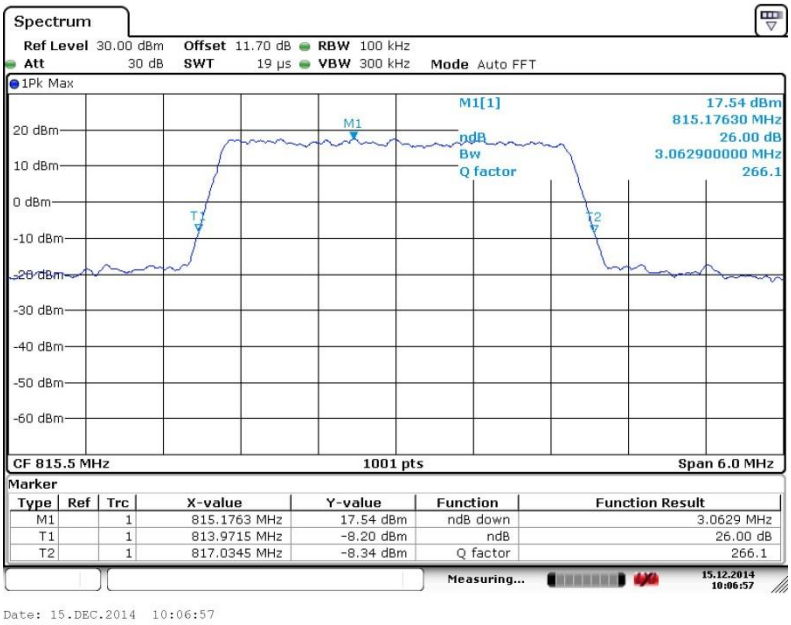

Date: 15.DEC.2014 10:12:13

| Band : | LTE Band 26 | BW / Mod. : | 3MHz / 16QAM |
|---|---|---|---|

**99% Occupied Bandwidth Plot on Channel 26705**

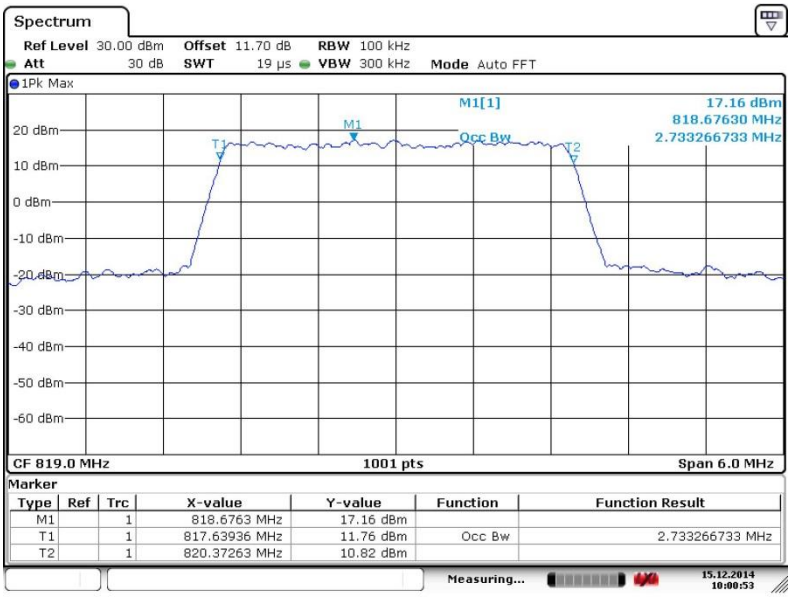



**26dB Bandwidth Plot on Channel 26705**



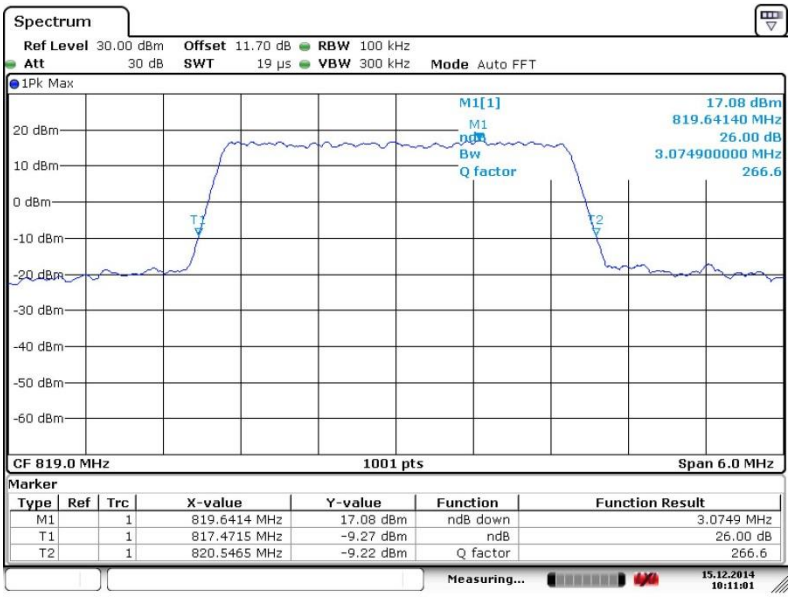
| Band : | LTE Band 26 | BW / Mod. : | 3MHz / 16QAM |
|---|---|---|---|

### 99% Occupied Bandwidth Plot on Channel 26740




Date: 15.DEC.2014 10:00:53

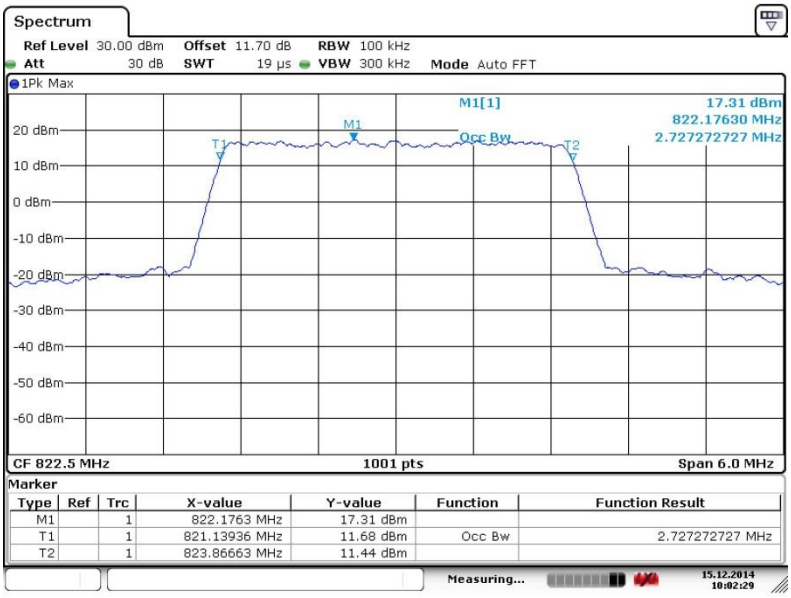
### 26dB Bandwidth Plot on Channel 26740




Date: 15.DEC.2014 10:11:01

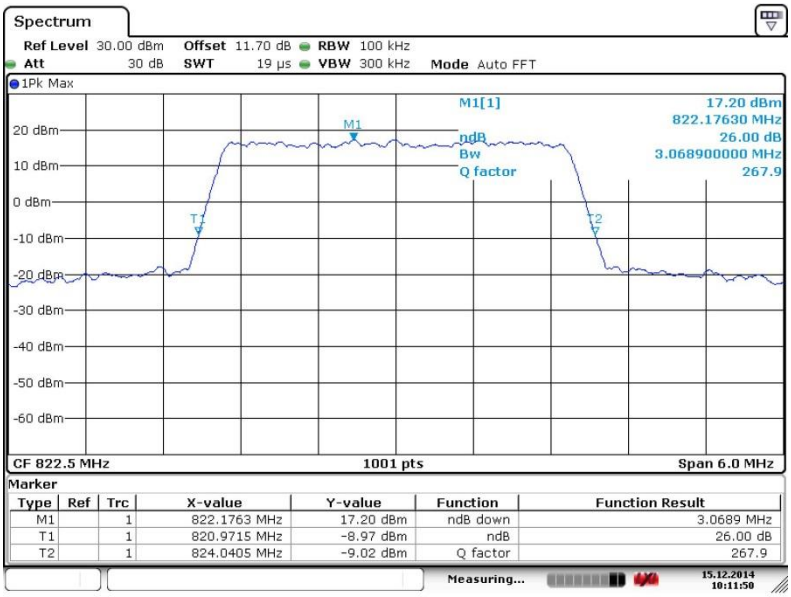
| Band : | LTE Band 26 | BW / Mod. : | 3MHz / 16QAM |
|---|---|---|---|

**99% Occupied Bandwidth Plot on Channel 26775**




Date: 15.DEC.2014 10:02:29

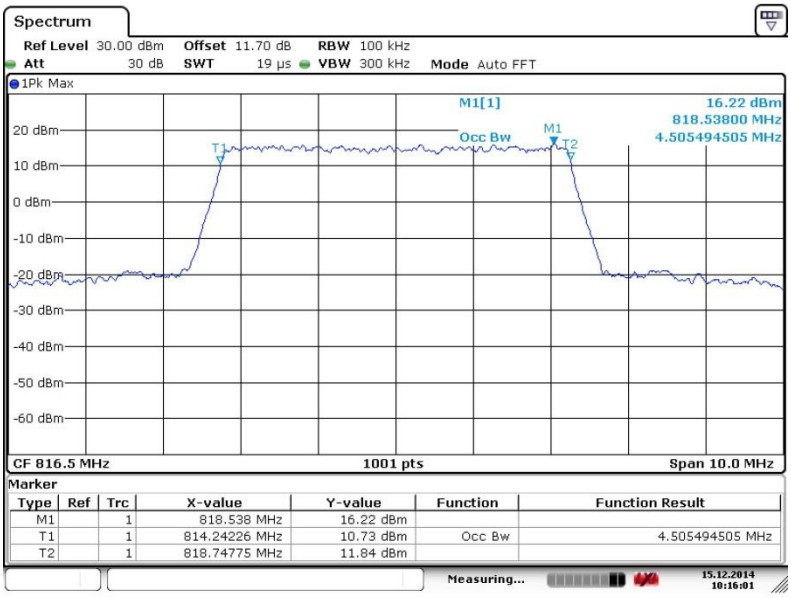
**26dB Bandwidth Plot on Channel 26775**




Date: 15.DEC.2014 10:11:50

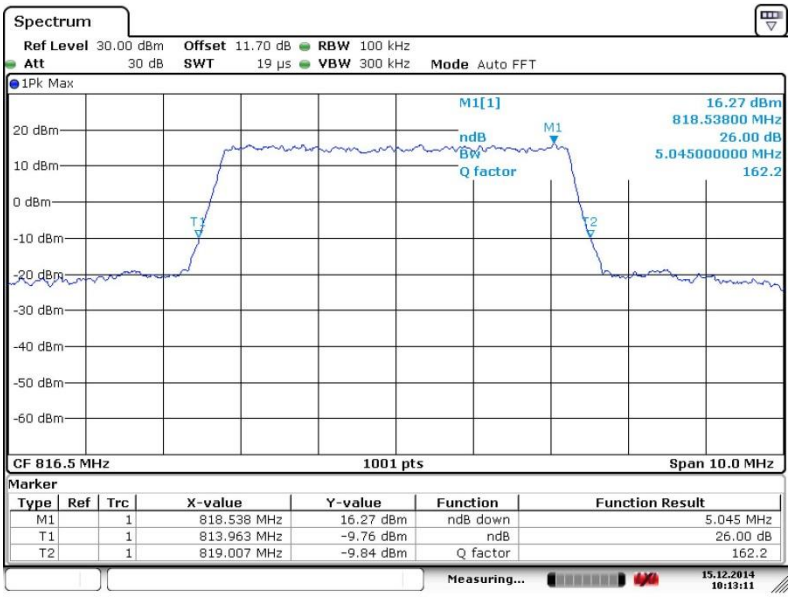
| Band : | LTE Band 26 | BW / Mod. : | 5MHz / QPSK |
|---|---|---|---|

### 99% Occupied Bandwidth Plot on Channel 26715




Date: 15.DEC.2014 10:16:01

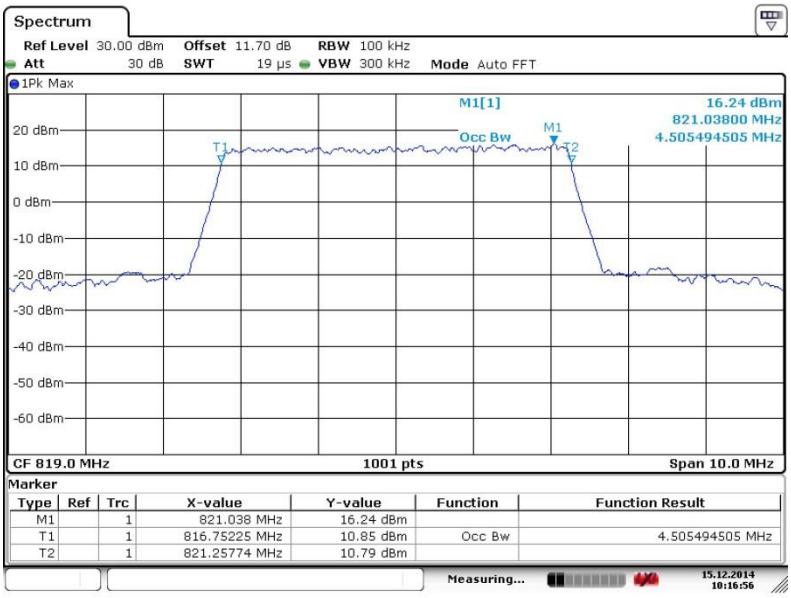
### 26dB Bandwidth Plot on Channel 26715



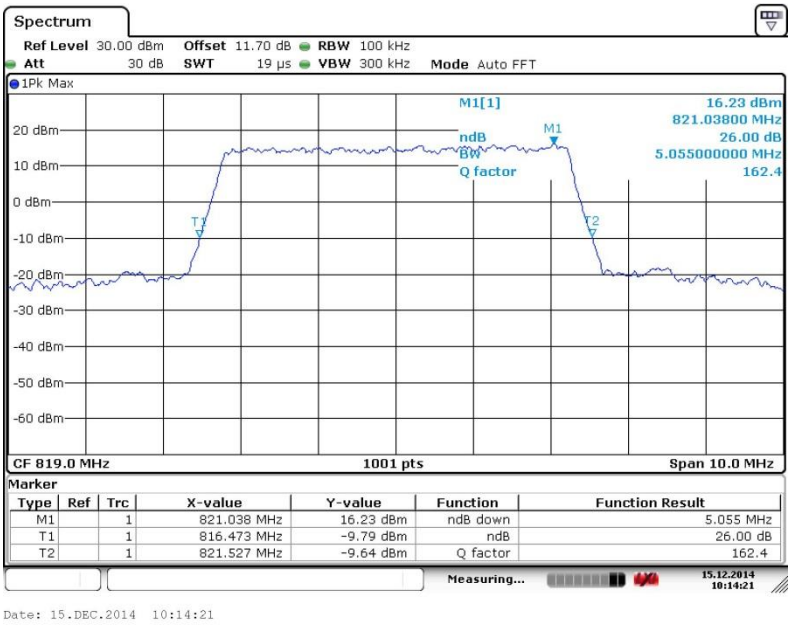

Date: 15.DEC.2014 10:13:11

| Band : | LTE Band 26 | BW / Mod. : | 5MHz / QPSK |
|---|---|---|---|

### 99% Occupied Bandwidth Plot on Channel 26740

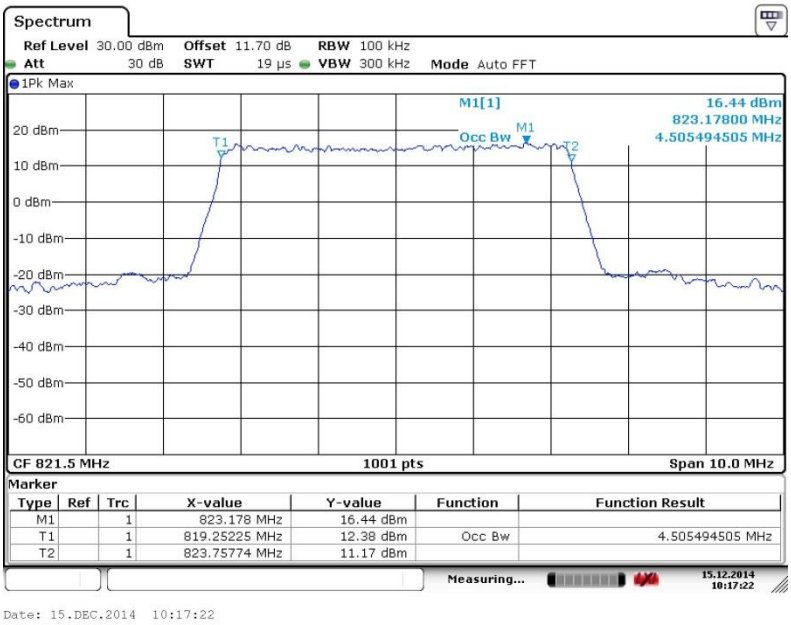



### 26dB Bandwidth Plot on Channel 26740



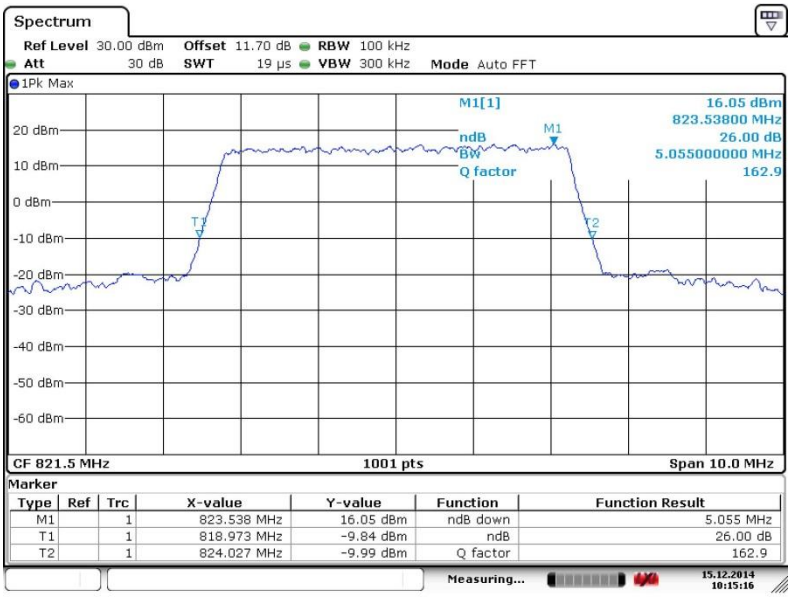
| Band : | LTE Band 26 | BW / Mod. : | 5MHz / QPSK |
|---|---|---|---|

**99% Occupied Bandwidth Plot on Channel 26765**




Date: 15.DEC.2014 10:17:22

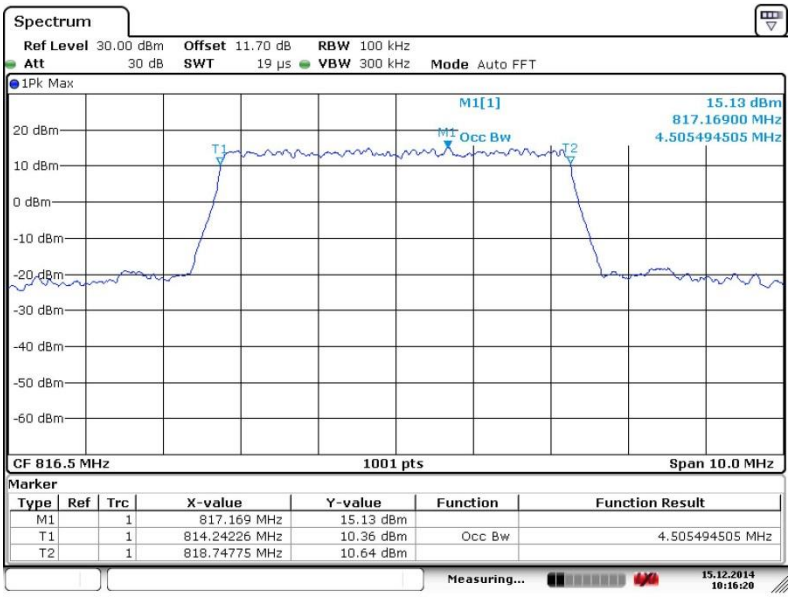
**26dB Bandwidth Plot on Channel 26765**



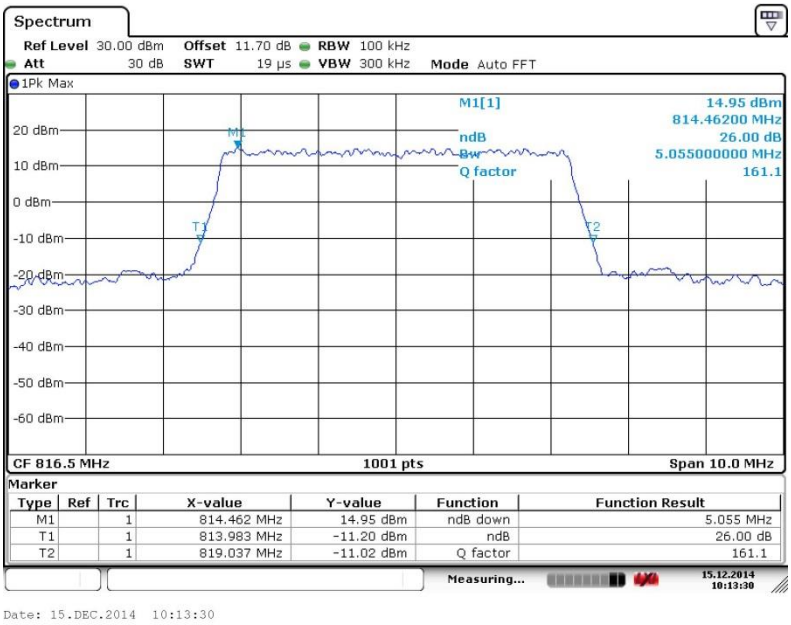

Date: 15.DEC.2014 10:15:16

| Band : | LTE Band 26 | BW / Mod. : | 5MHz / 16QAM |
|---|---|---|---|

**99% Occupied Bandwidth Plot on Channel 26715**

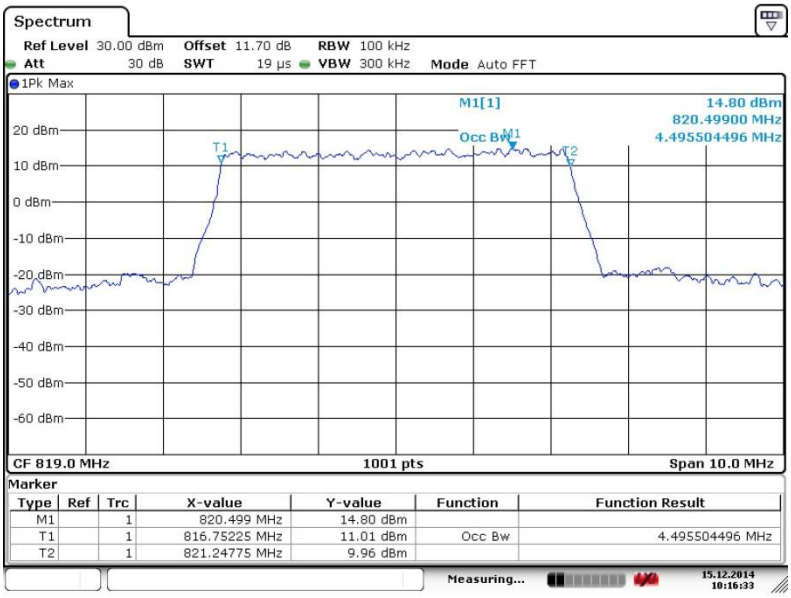



**26dB Bandwidth Plot on Channel 26715**

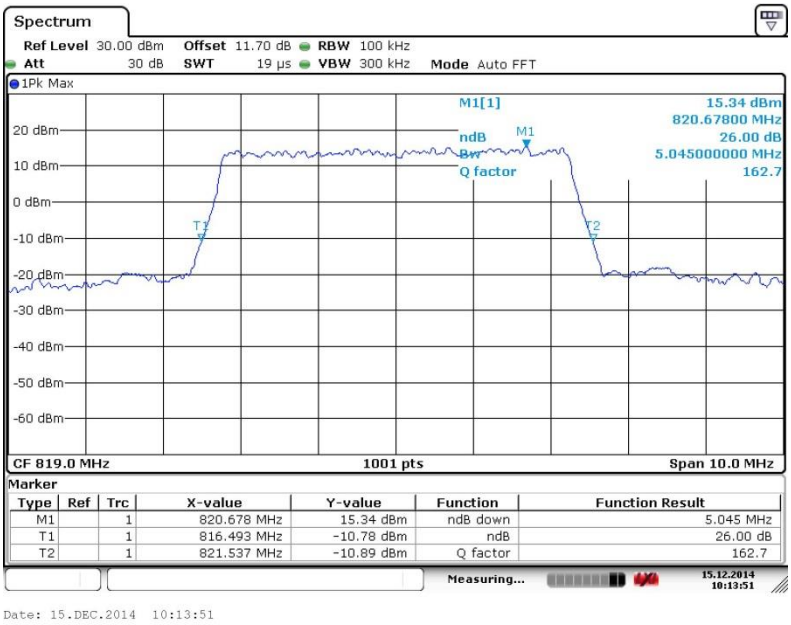


| Band : | LTE Band 26 | BW / Mod. : | 5MHz / 16QAM |
|---|---|---|---|

### 99% Occupied Bandwidth Plot on Channel 26740

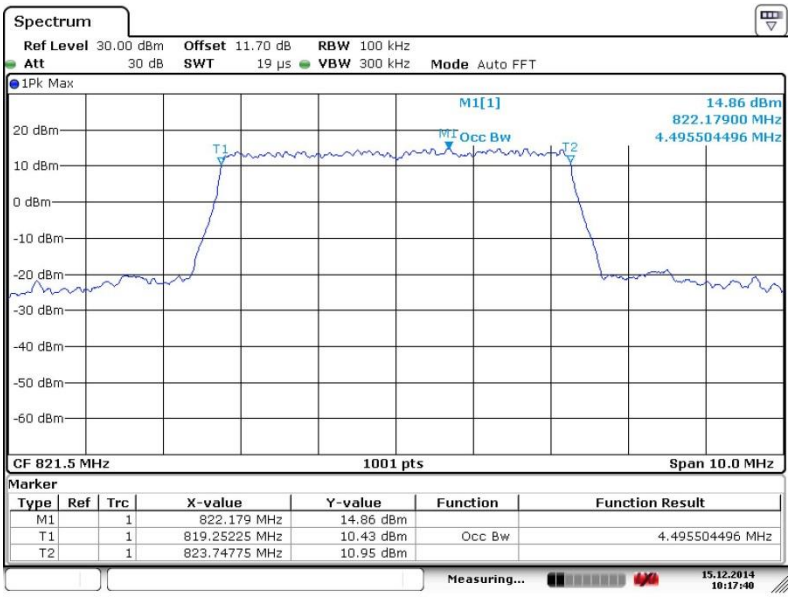



### 26dB Bandwidth Plot on Channel 26740

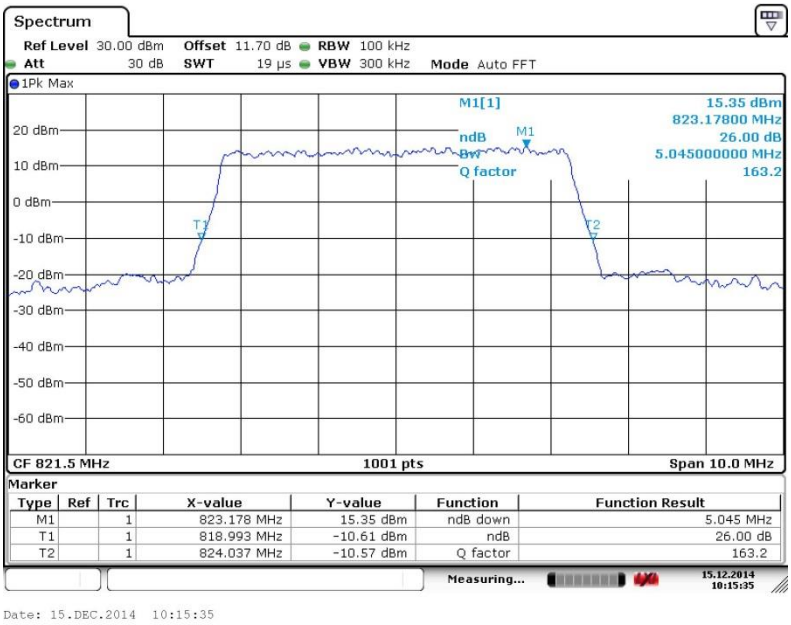


| Band : | LTE Band 26 | BW / Mod. : | 5MHz / 16QAM |
|---|---|---|---|

### 99% Occupied Bandwidth Plot on Channel 26765

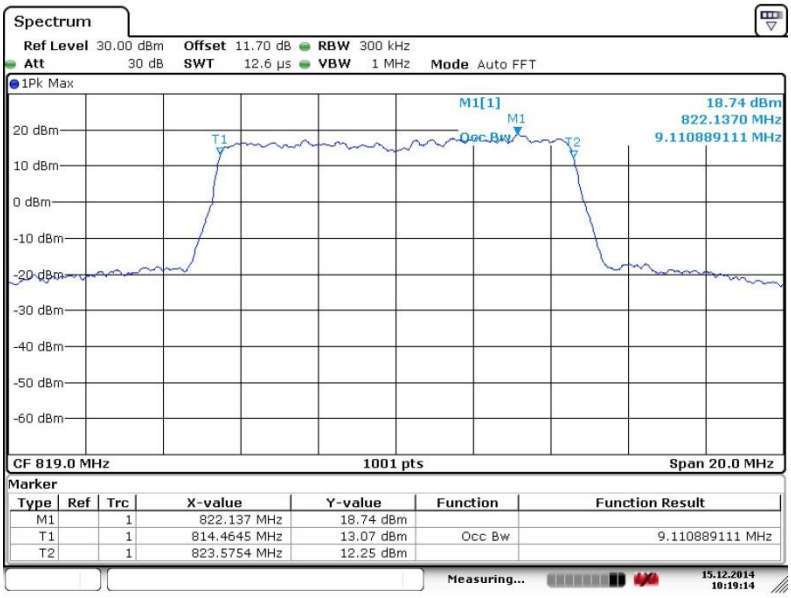



### 26dB Bandwidth Plot on Channel 26765



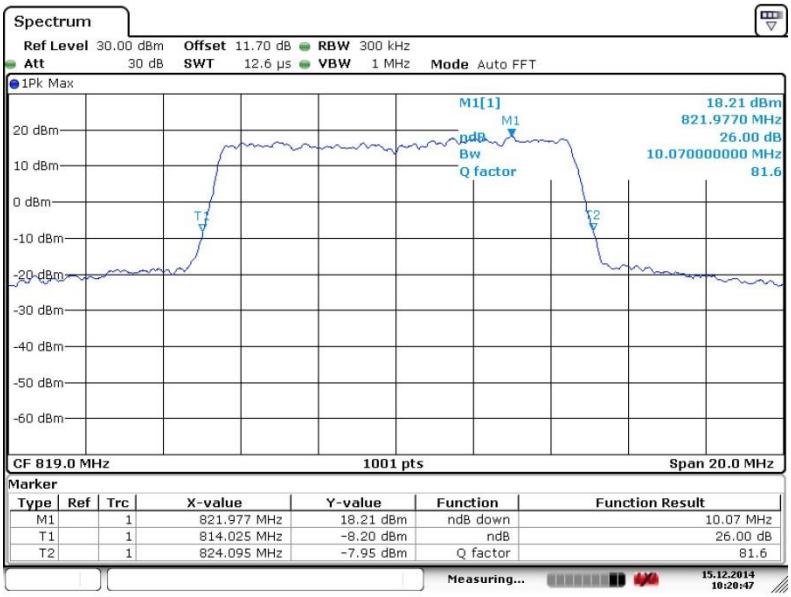
| Band : | LTE Band 26 | BW / Mod. : | 10MHz / QPSK |
|---|---|---|---|

**99% Occupied Bandwidth Plot on Channel 26740**




Date: 15.DEC.2014 10:19:14

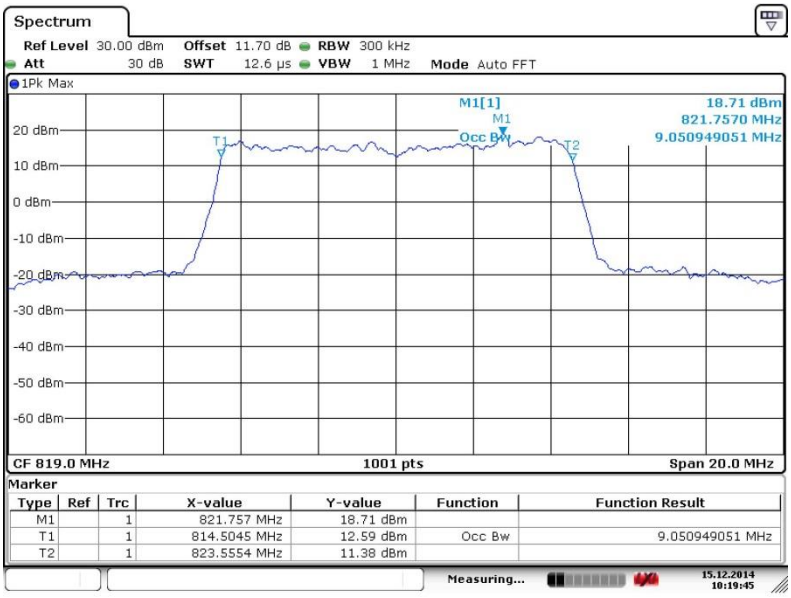
**26dB Bandwidth Plot on Channel 26740**



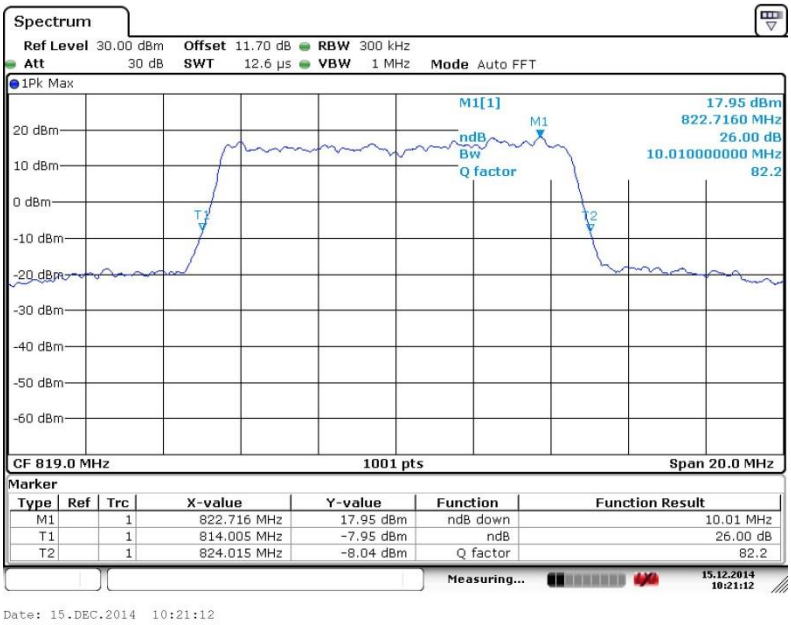

Date: 15.DEC.2014 10:20:47

| Band : | LTE Band 26 | BW / Mod. : | 10MHz / 16QAM |
|---|---|---|---|

**99% Occupied Bandwidth Plot on Channel 26740**




**26dB Bandwidth Plot on Channel 26740**



## 3.3 Emissions Mask Measurement

### 3.3.1 Description of Emissions Mask Measurement

Equipment used in this licensed to EA or non-EA systems shall comply with the emission mask provisions of FCC Part 90.691.(a)

(a) Out-of-band emission requirement shall apply only to the "outer" channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows:

(1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 116 $Log_{10}$(f/6.1) decibels or 50 + 10 $Log_{10}$(P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 43 + 10$Log_{10}$(P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

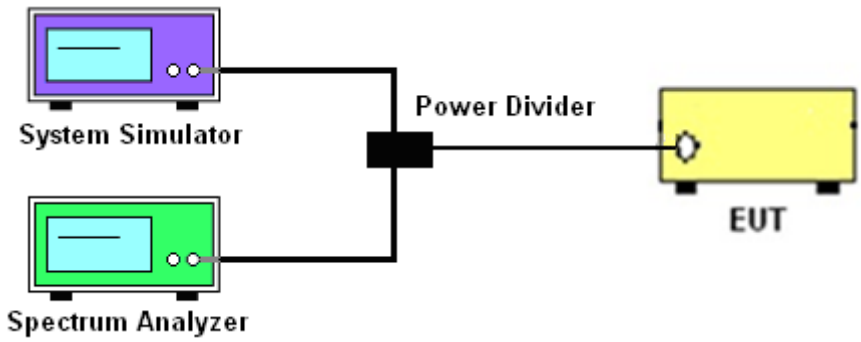
### 3.3.2 Measuring Instruments

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

### 3.3.3 Test Procedures

1. The EUT was connected to spectrum analyzer and base station via power divider.
2. The emissions mask of low and high channels for the highest RF powers were measured.
3. The measured RBW and the VBW set 3 times of RBW are then set in spectrum analyzer, and the RBW correction factor 10log (1% of OBW/measured RBW)(dB) was compensated, if required.
4. The test results were shown below plots with a correction offset factor including cable loss, insertion loss of power divider.

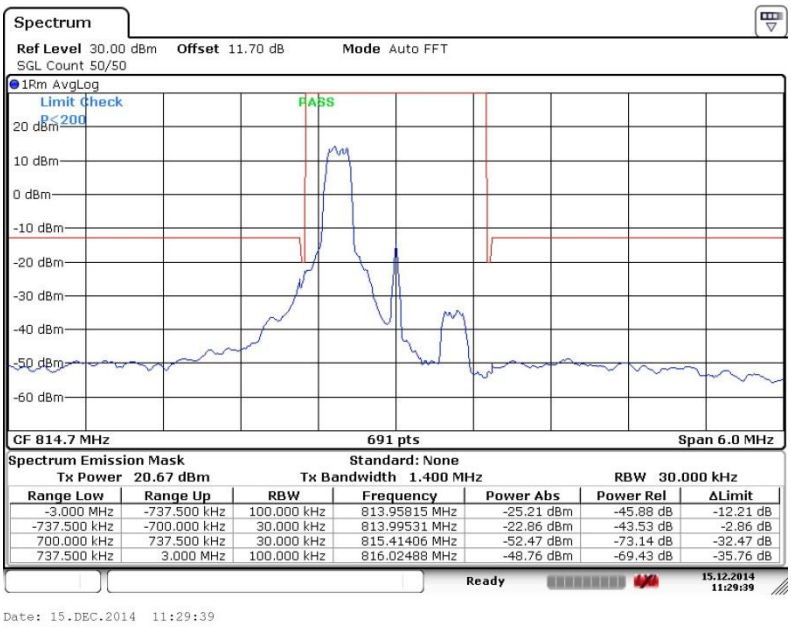
### 3.3.4 Test Setup



### 3.3.5 Test Result (Plots) of Conducted Emissions Mask

| Band : | LTE Band 26 | Band Width : | 1.4MHz / QPSK |
|---|---|---|---|

**Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0**




Remark:

Test Result(dBm) = Power Abs(dBm) + (1% of OBW/measured RBW) (dB)

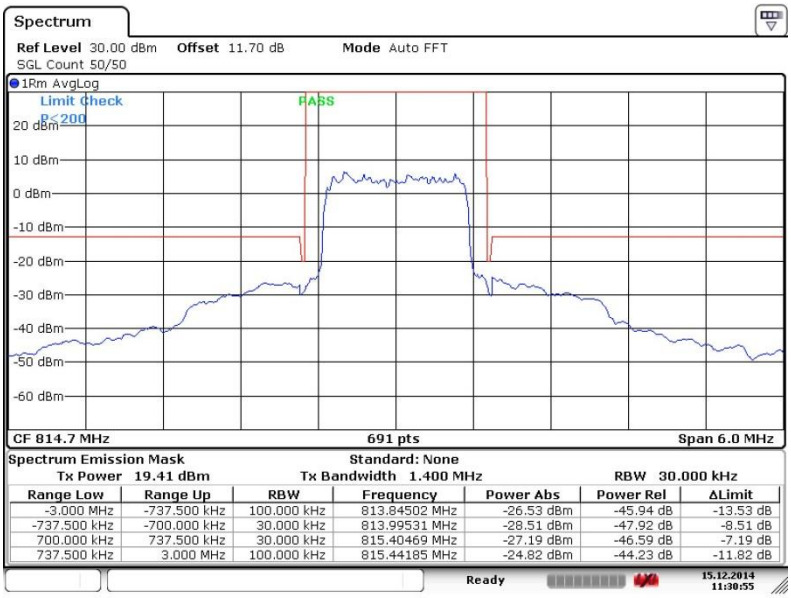
= Power Abs (dBm) +10*LOG(37.5kHz/30kHz)(dB)

= Power Abs (dBm) +0.97 (dB)

<1> Test result of 813.99531MHz: - 21.57(dBm) + 0.97(dB)= -20.60 (dBm)

<2> Test result of 815.40469MHz: - 55.62(dBm) + 0.97(dB)= -54.65 (dBm)

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




Remark:

Test Result(dBm) = Power Abs(dBm) + (1% of OBW/measured RBW) (dB)

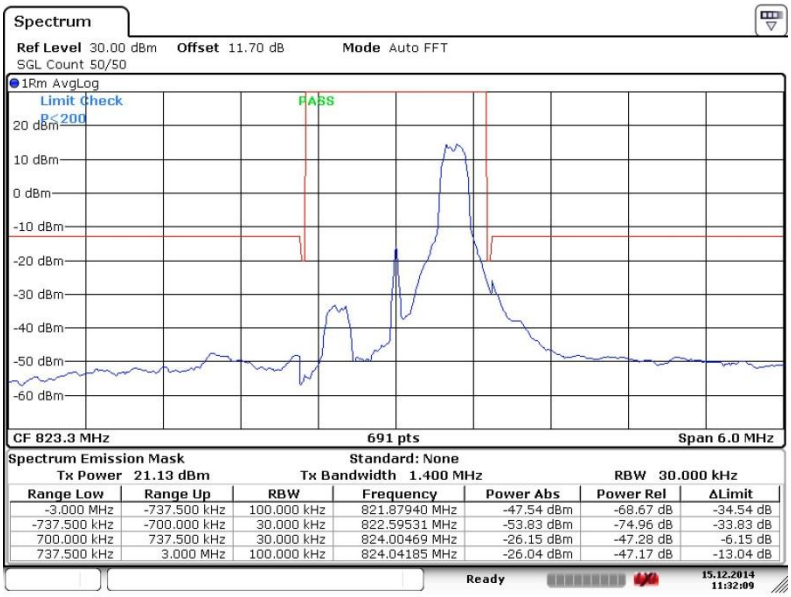
= Power Abs (dBm) +10*LOG(37.5kHz/30kHz)(dB)

= Power Abs (dBm) +0.97 (dB)

<1> Test result of 813.99531MHz: - 28.09(dBm) + 0.97(dB)= -27.12 (dBm)

<2> Test result of 815.40469MHz: - 28.81(dBm) + 0.97(dB)= -27.84 (dBm)

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




Date: 15.DEC.2014 11:32:09

Remark:

Test Result(dBm) = Power Abs(dBm) + (1% of OBW/measured RBW) (dB)

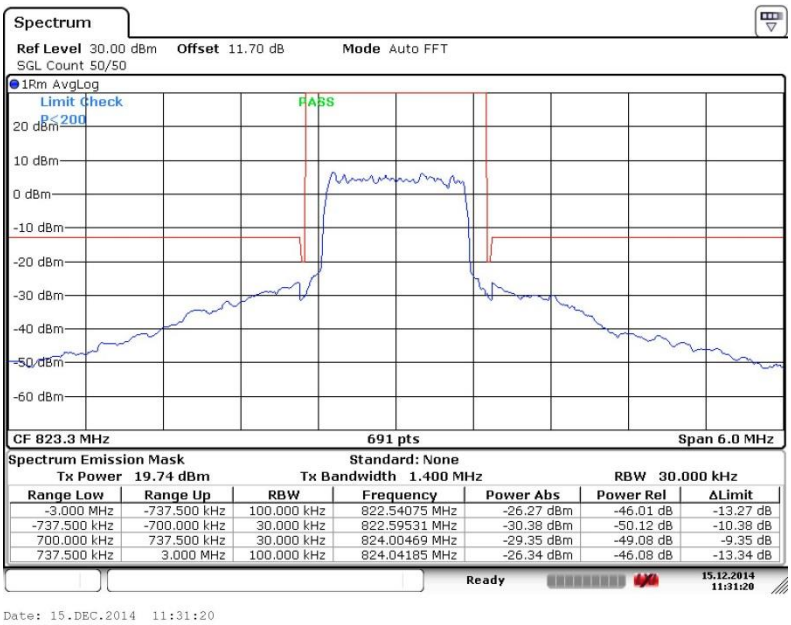
= Power Abs (dBm) +10*LOG(37.5kHz/30kHz)(dB)

= Power Abs (dBm) +0.97 (dB)

<1> Test result of 822.59531MHz: - 56.25(dBm) + 0.97(dB)= -55.28 (dBm)

<2> Test result of 824.00469MHz: - 22.43(dBm) + 0.97(dB)= -21.46 (dBm)

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




Remark:

Test Result(dBm) = Power Abs(dBm) + (1% of OBW/measured RBW) (dB)

= Power Abs (dBm) +10*LOG(37.5kHz/30kHz)(dB)

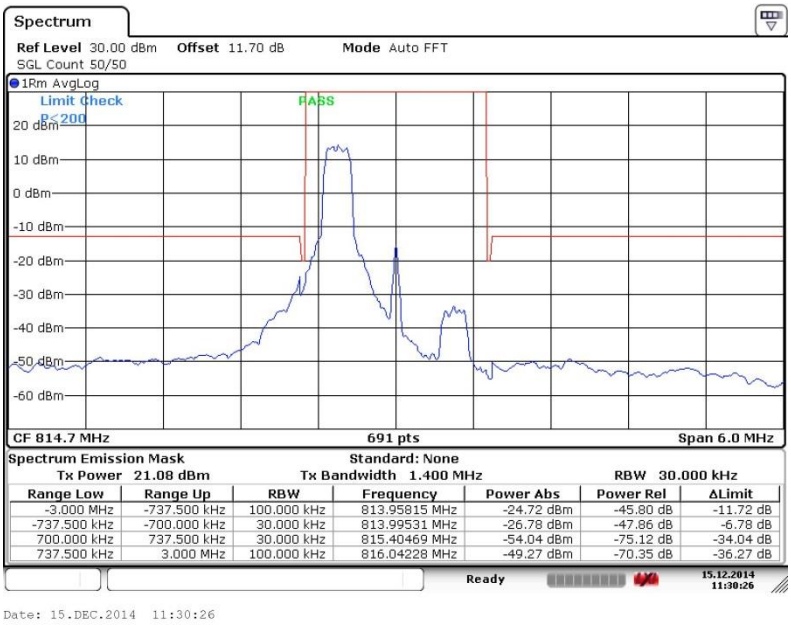
= Power Abs (dBm) +0.97 (dB)

<1> Test result of 822.59531MHz: - 28.30(dBm) + 0.97(dB)= -27.33 (dBm)

<2> Test result of 824.00469MHz: - 28.45(dBm) + 0.97(dB)= -27.48 (dBm)

| Band : | LTE Band 26 | Band Width : | 1.4MHz / 16QAM |
|---|---|---|---|

**Lower Band Edge Plot for 16QAM -RB Size 1, RB Offset 0**




Remark:

Test Result(dBm) = Power Abs(dBm) + (1% of OBW/measured RBW) (dB)

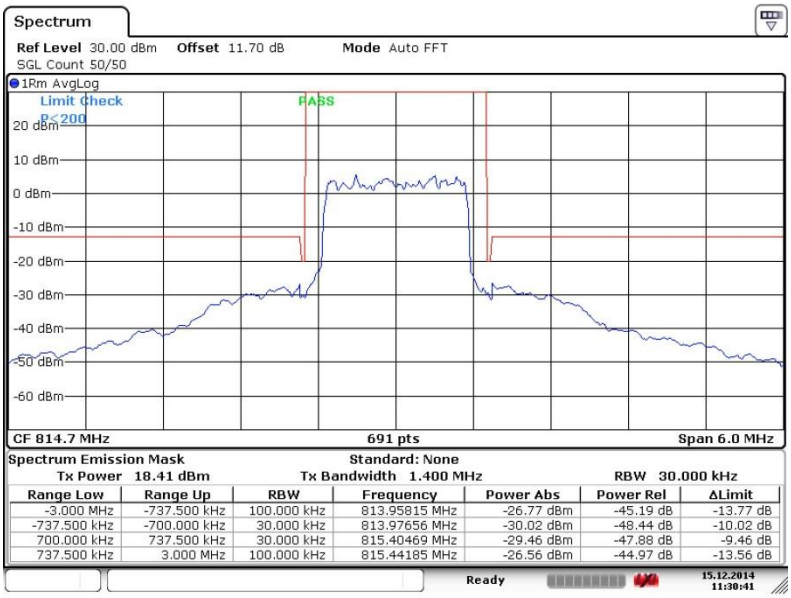
= Power Abs (dBm) +10*LOG(37.5kHz/30kHz)(dB)

= Power Abs (dBm) +0.97 (dB)

<1> Test result of 813.99531MHz: - 21.58(dBm) + 0.97(dB)= -20.61 (dBm)

<2> Test result of 815.40469MHz: - 55.62(dBm) + 0.97(dB)= -54.65 (dBm)

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




Remark:

Test Result(dBm) = Power Abs(dBm) + (1% of OBW/measured RBW) (dB)

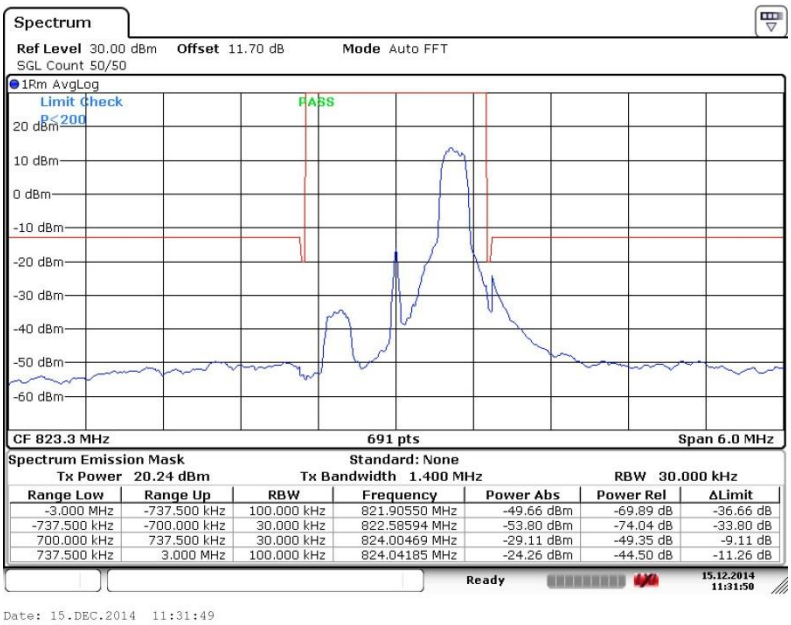
= Power Abs (dBm) +10*LOG(37.5kHz/30kHz)(dB)

= Power Abs (dBm) +0.97 (dB)

<1> Test result of 813.99531MHz: - 28.95(dBm) + 0.97(dB)= -27.98 (dBm)

<2> Test result of 815.40469MHz: - 28.64(dBm) + 0.97(dB)= -27.67 (dBm)

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




Remark:

Test Result(dBm) = Power Abs(dBm) + (1% of OBW/measured RBW) (dB)

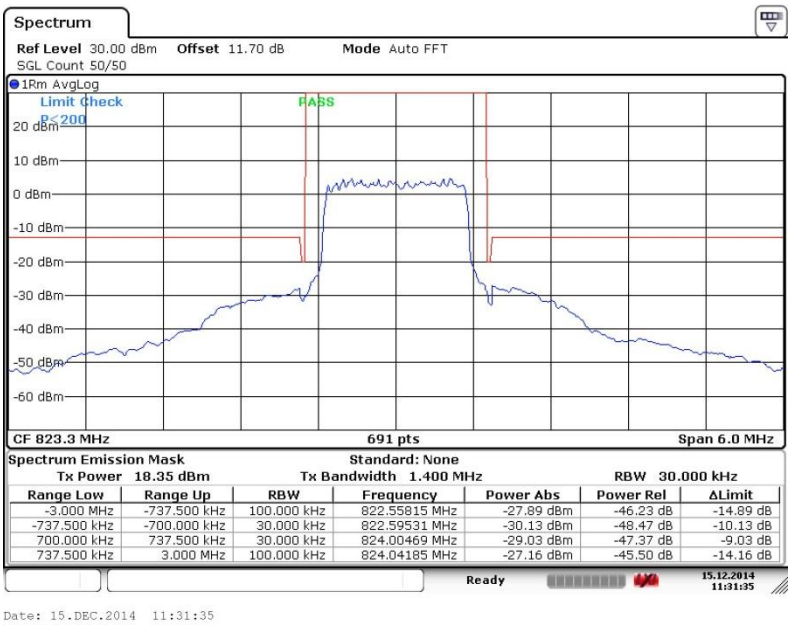
= Power Abs (dBm) +10*LOG(37.5kHz/30kHz)(dB)

= Power Abs (dBm) +0.97 (dB)

<1> Test result of 822.59531MHz: - 55.33(dBm) + 0.97(dB)= -54.36 (dBm)

<2> Test result of 824.00469MHz: -21.00(dBm) + 0.97(dB)= -20.03 (dBm)

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




Remark:

Test Result(dBm) = Power Abs(dBm) + (1% of OBW/measured RBW) (dB)

= Power Abs (dBm) +10*LOG(37.5kHz/30kHz)(dB)

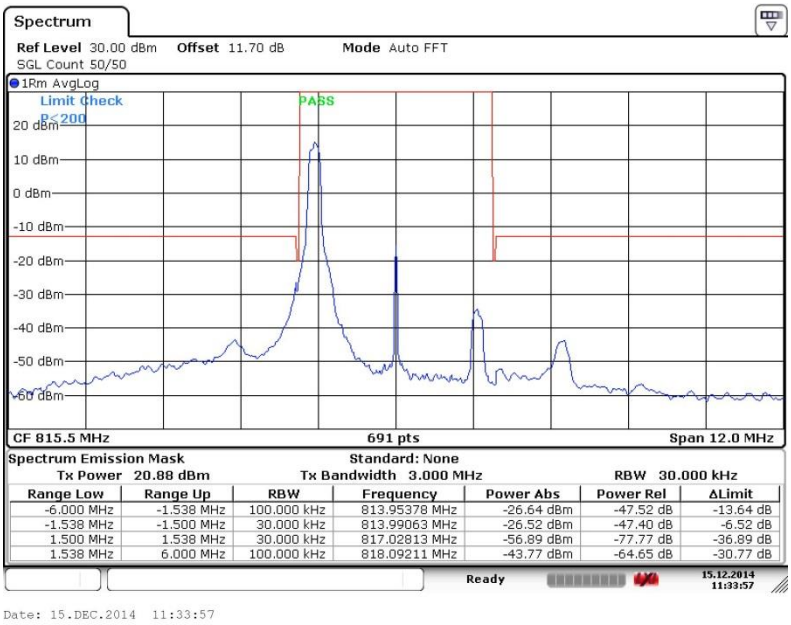
= Power Abs (dBm) +0.97 (dB)

<1> Test result of 822.59531MHz: - 29.89(dBm) + 0.97(dB)= -28.92 (dBm)

<2> Test result of 824.00469MHz: - 28.74(dBm) + 0.97(dB)= -27.77 (dBm)

| Band : | LTE Band 26 | Band Width : | 3MHz / QPSK |
|---|---|---|---|

**Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0**




Remark:

Test Result(dBm) = Power Abs(dBm) + (1% of OBW/measured RBW) (dB)

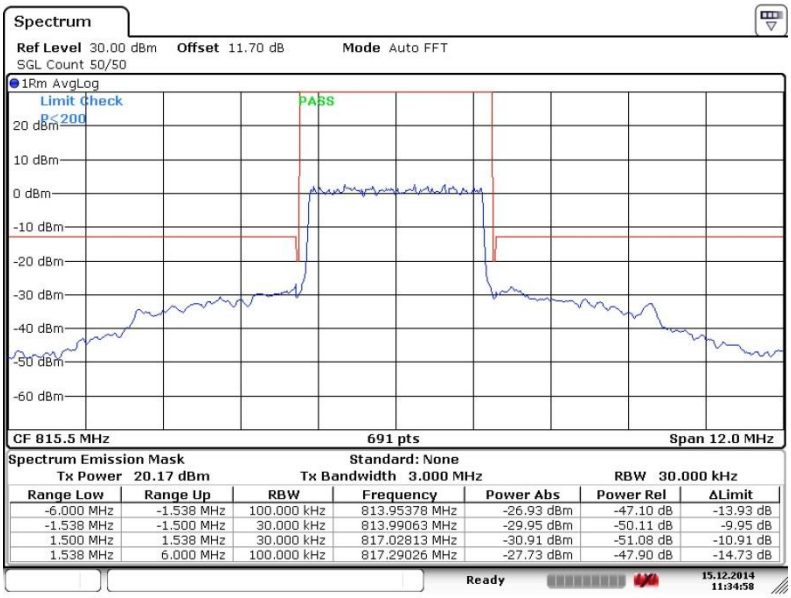
= Power Abs (dBm) +10*LOG(37.5kHz/30kHz)(dB)

= Power Abs (dBm) +0.97 (dB)

<1> Test result of 813.99063MHz: - 21.79(dBm) + 0.97(dB)= -20.82 (dBm)

<2> Test result of 817.00937MHz: - 58.27(dBm) + 0.97(dB)= -57.30 (dBm)

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




Remark:

Test Result(dBm) = Power Abs(dBm) + (1% of OBW/measured RBW) (dB)

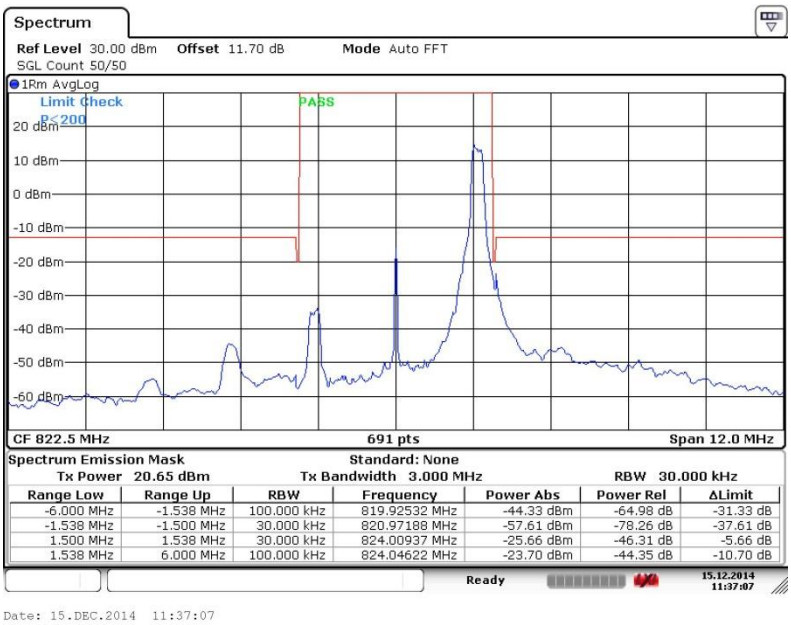
= Power Abs (dBm) +10*LOG(37.5kHz/30kHz)(dB)

= Power Abs (dBm) +0.97 (dB)

<1> Test result of 813.99063MHz: - 30.84(dBm) + 0.97(dB)= -29.87 (dBm)

<2> Test result of 817.00937MHz: -30.37(dBm) + 0.97(dB)= -29.40 (dBm)

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




Remark:

Test Result(dBm) = Power Abs(dBm) + (1% of OBW/measured RBW) (dB)

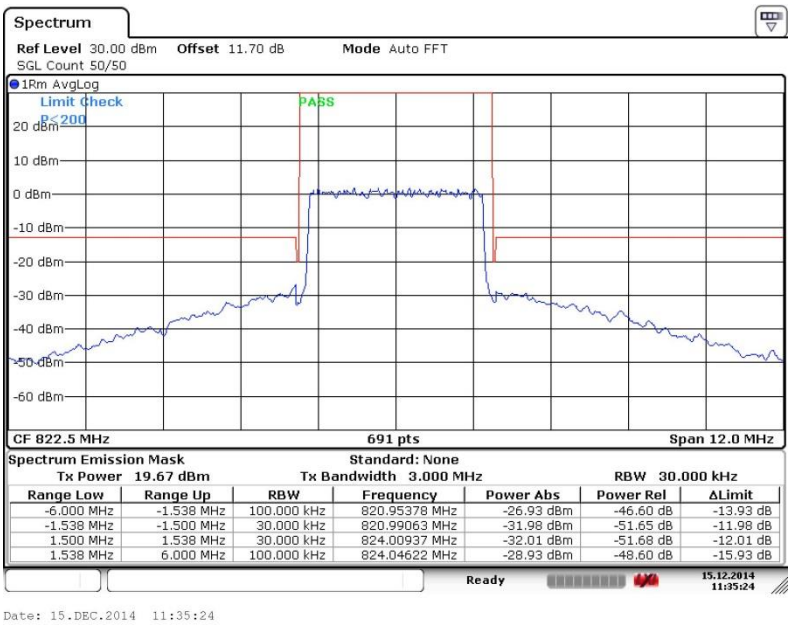
= Power Abs (dBm) +10*LOG(37.5kHz/30kHz)(dB)

= Power Abs (dBm) +0.97 (dB)

<1> Test result of 820.99063MHz: - 59.43(dBm) + 0.97(dB)= -58.46 (dBm)

<2> Test result of 824.00937MHz: - 23.30(dBm) + 0.97(dB)= -22.33 (dBm)

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




Remark:

Test Result(dBm) = Power Abs(dBm) + (1% of OBW/measured RBW) (dB)

= Power Abs (dBm) +10*LOG(37.5kHz/30kHz)(dB)

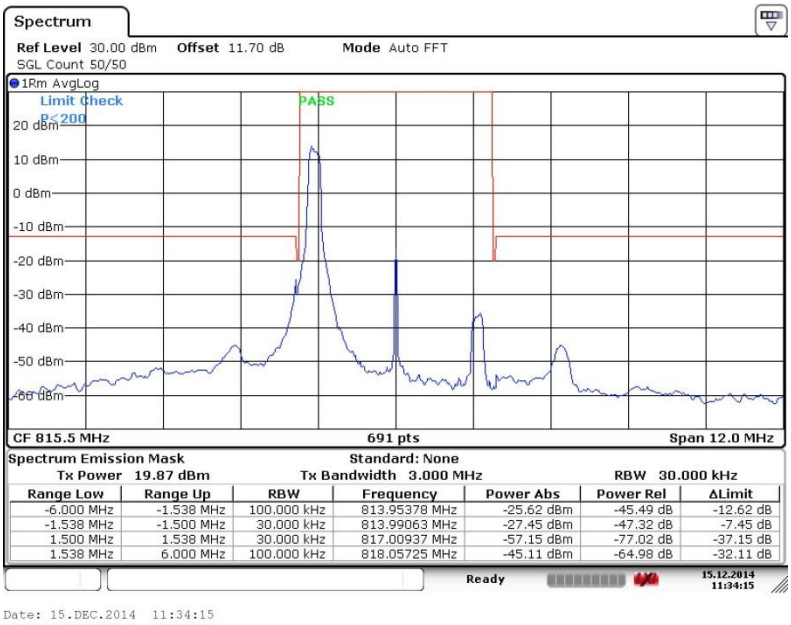
= Power Abs (dBm) +0.97 (dB)

<1> Test result of 820.99063MHz: - 30.99(dBm) + 0.97(dB)= -30.02 (dBm)

<2> Test result of 824.00937MHz: - 28.79(dBm) + 0.97(dB)= -27.82 (dBm)

| Band : | LTE Band 26 | Band Width : | 3MHz / 16QAM |
|---|---|---|---|

**Lower Band Edge Plot for 16QAM-RB Size 1, RB Offset 0**




Remark:

Test Result(dBm) = Power Abs(dBm) + (1% of OBW/measured RBW) (dB)

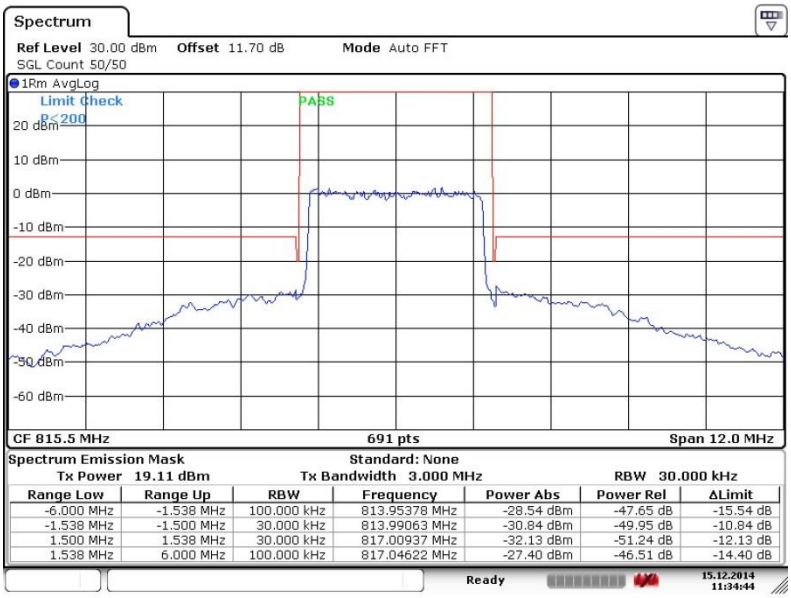
= Power Abs (dBm) +10*LOG(37.5kHz/30kHz)(dB)

= Power Abs (dBm) +0.97 (dB)

<1> Test result of 813.99063MHz: - 22.92(dBm) + 0.97(dB)= -21.95 (dBm)

<2> Test result of 817.00937MHz: - 58.78(dBm) + 0.97(dB)= -57.81 (dBm)

**Lower Band Edge Plot for 16QAM-RB Size 15, RB Offset 0**




Remark:

Test Result(dBm) = Power Abs(dBm) + (1% of OBW/measured RBW) (dB)

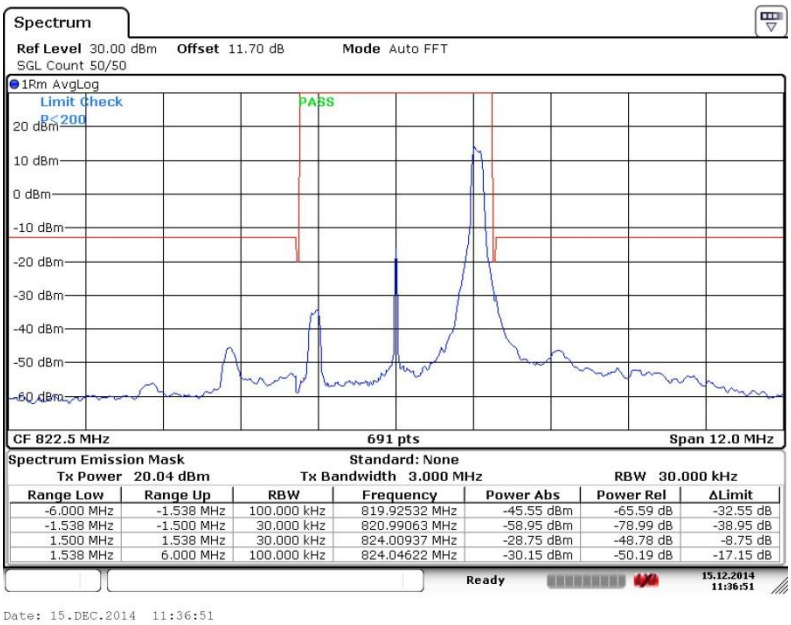
= Power Abs (dBm) +10*LOG(37.5kHz/30kHz)(dB)

= Power Abs (dBm) +0.97 (dB)

<1> Test result of 813.99063MHz: -30.38(dBm) + 0.97(dB)= -29.41 (dBm)

<2> Test result of 817.00937MHz: - 29.86(dBm) + 0.97(dB)= -28.89 (dBm)

**Higher Band Edge Plot for 16QAM-RB Size 1, RB Offset 14**




Remark:

Test Result(dBm) = Power Abs(dBm) + (1% of OBW/measured RBW) (dB)

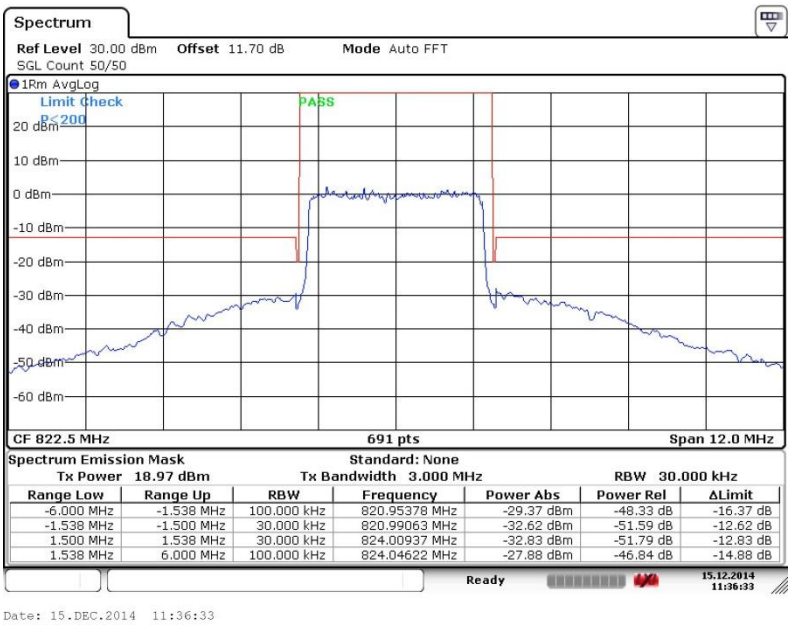
= Power Abs (dBm) +10*LOG(37.5kHz/30kHz)(dB)

= Power Abs (dBm) +0.97 (dB)

<1> Test result of 820.99063MHz: - 58.43(dBm) + 0.97(dB)= -57.46 (dBm)

<2> Test result of 824.00937MHz: - 21.62(dBm) + 0.97(dB)= -20.65 (dBm)

**Higher Band Edge Plot for 16QAM-RB Size 15, RB Offset 0**




Remark:

Test Result(dBm) = Power Abs(dBm) + (1% of OBW/measured RBW) (dB)

= Power Abs (dBm) +10*LOG(37.5kHz/30kHz)(dB)

= Power Abs (dBm) +0.97 (dB)

<1> Test result of 820.99063MHz: - 31.61(dBm) + 0.97(dB)= -30.64 (dBm)

<2> Test result of 824.00937MHz: - 29.59(dBm) + 0.97(dB)= -28.62 (dBm)