



***Full***

# **TEST REPORT**

**No. I17D00153-SRD05**

***For***

**Client : Mobiwire SAS**

**Production : 4G Smartphone**

**Model Name : MobiWire Waneta, ALTICE S60**

**FCC ID: QPN-WANETA**

**Hardware Version: V01**

**Software Version: WE552\_ALTICE\_S60**

**Issued date: 2017-07-05**

**Note:**

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of ECIT Shanghai.

**Test Laboratory:**

ECIT Shanghai, East China Institute of Telecommunications

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**Revision Version**

| Report Number   | Revision | Date       | Memo                            |
|-----------------|----------|------------|---------------------------------|
| I17D00153-SRD05 | 00       | 2017-07-05 | Initial creation of test report |

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## 1. Test Laboratory

### 1.1. Testing Location

|                       |                                                                                   |
|-----------------------|-----------------------------------------------------------------------------------|
| Company Name:         | ECIT Shanghai, East China Institute of Telecommunications                         |
| Address:              | 7-8F, G Area, No. 668, Beijing East Road, Huangpu District, Shanghai, P. R. China |
| Postal Code:          | 200001                                                                            |
| Telephone:            | (+86)-021-63843300                                                                |
| Fax:                  | (+86)-021-63843301                                                                |
| FCC Registration NO.: | 489729                                                                            |

### 1.2. Testing Environment

|                      |           |
|----------------------|-----------|
| Normal Temperature:  | 15-35°C   |
| Extreme Temperature: | -10/+55°C |
| Relative Humidity:   | 20-75%    |

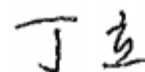
### 1.3. Project data

|                     |            |
|---------------------|------------|
| Project Leader:     | Zhou Yan   |
| Testing Start Date: | 2017-06-25 |
| Testing End Date:   | 2017-07-03 |

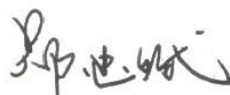
### 1.4. Signature



Yang Dejun  
(Prepared this test report)



Ding Li  
(Reviewed this test report)



Zheng Zhongbin  
Director of the laboratory  
(Approved this test report)

## 2. Client Information

### 2.1. Applicant Information

Company Name: Mobiwire SAS  
Address: 79 AVENUE FRANCOIS ARAGO 92017 NANTERRE CEDEX  
France.  
Telephone: +33 178 14 09 33  
Email: alexandre.minazio@mobiwire.com

### 2.2. Manufacturer Information

Company Name: Mobiwire SAS  
Address: 79 AVENUE FRANCOIS ARAGO 92017 NANTERRE CEDEX  
France.  
Telephone: +33 178 14 09 33  
Email: alexandre.minazio@mobiwire.com

### 3. Equipment Under Test (EUT) and Ancillary Equipment (AE)

#### 3.1. About EUT

|                      |                                          |
|----------------------|------------------------------------------|
| EUT Description      | 4G Smartphone                            |
| Model name           | MobiWire Waneta, ALTICE S60              |
| FCC ID               | QPN-WANETA                               |
| Frequency            | GSM850/900/1800/1900;<br>WCDMA Band II/V |
| Extreme Temperature  | -10/+55°C                                |
| Nominal Voltage      | 3.8V                                     |
| Extreme High Voltage | 4.35V                                    |
| Extreme Low Voltage  | 3.4V                                     |

Note: Photographs of EUT are shown in ANNEX A of this test report.

#### 3.2. Internal Identification of EUT used during the test

| EUT ID* | SN or IMEI | HW Version | SW Version       | Date of receipt |
|---------|------------|------------|------------------|-----------------|
| N01     | N/A        | V01        | WE552_ALTICE_S60 | 2017-06-22      |

\*EUT ID: is used to identify the test sample in the lab internally.

#### 3.3. Internal Identification of AE used during the test

| AE ID* | Description   | SN  |
|--------|---------------|-----|
| AE1    | RF cable      | --- |
| AE2    | Dummy Battery | --- |

\*AE ID: is used to identify the test sample in the lab internally.

#### 3.4. Statements

The product name MobiWire Waneta, ALTICE S60, supporting GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/HSPA+/WLAN/BT/BLE/GPS, manufactured by Mobiwire SAS, is a variant product for testing. According to the variant description, all the test results please refer to I17D00122-SRD05 which is the test report for the initial product of MobiWire Waneta+, ALTICE S70.

ECIT has verified that the compliance of the tested device specified in section 5 of this test report is successfully evaluated according to the procedure and test methods as defined in type certification requirement listed in section 5 of this test report.

## 4. Reference Documents

### 4.1. Reference Documents for testing

The following documents listed in this section are referred for testing.

| Reference      | Title                                                                                                                                      | Version |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------|---------|
| FCC Part 24    | PERSONAL COMMUNICATIONS SERVICES                                                                                                           | 2014    |
| FCC Part 22    | PUBLIC MOBILE SERVICES                                                                                                                     | 2014    |
| ANSI-TIA-603-D | Land Mobile FM or PM Communications Equipment<br>Measurement and Performance Standards                                                     | 2010    |
| ANSI C63.4     | Methods of Measurement of Radio-Noise Emissions from<br>Low-Voltage Electrical and Electronic Equipment in the<br>Range of 9 kHz to 40 GHz | 2014    |

**5. SUMMARY OF TEST RESULTS**

| Item | Test items                     | FCC rules                          | result |
|------|--------------------------------|------------------------------------|--------|
| 1    | Output Power                   | 2.1046/22.913(a)/24.232(c)         | Pass   |
| 2    | Peak-to-Average Ratio          | 24.232(d)                          | Pass   |
| 3    | 99%Occupied Bandwidth          | 2.1049(h)(i)/ 22.917(b)            | Pass   |
| 4    | -26dB Emission Bandwidth       | 22.917(b)/§24.238(b)               | Pass   |
| 5    | Band Edge at antenna terminals | 22.917(a)/24.238(a)                | Pass   |
| 6    | Frequency stability            | 2.1055/24.235                      | Pass   |
| 7    | Conducted Spurious mission     | 2.1053/22.917(a)/24.238(a)         | Pass   |
| 8    | Emission Limit                 | 2.1051/22.917/24.238/22.913/24.232 | Pass   |

## 6. Test Equipment Utilized

### Climate chamber

| No. | Equipment       | Model  | Serial Number | Manufacturer | Calibration date | Cal.interval |
|-----|-----------------|--------|---------------|--------------|------------------|--------------|
| 1   | Climate chamber | SH-641 | 92012011      | ESPEC        | 2016-01-06       | 2 Year       |

### Radiated emission test system

The test equipment and ancillaries used are as follows.

| No. | Equipment                            | Model    | Serial Number | Manufacturer | Calibration date | Cal.interval |
|-----|--------------------------------------|----------|---------------|--------------|------------------|--------------|
| 1   | Universal Radio Communication Tester | CMU200   | 123123        | R&S          | 2017-05-11       | 1 Year       |
| 2   | EMI Test Receiver                    | ESU40    | 100307        | R&S          | 2017-05-11       | 1 Year       |
| 3   | TRILOG Broadband Antenna             | VULB9163 | VULB9163-515  | Schwarzbeck  | 2017-02-25       | 3 Year       |
| 4   | Double-ridged Waveguide Antenna      | ETS-3117 | 00135890      | ETS          | 2017-01-11       | 3 Year       |
| 5   | 2-Line V-Network                     | ENV216   | 101380        | R&S          | 2017-05-11       | 1 Year       |
| 6   | Substitution Antenna                 | ETS-3117 | 00135890      | ETS          | 2017-01-11       | 3 Year       |
| 7   | RF Signal Generator                  | SMF100A  | 102314        | R&S          | 2017-05-11       | 1 Year       |
| 8   | Substitution Antenna                 | VUBA9117 | 9117-266      | Schwarzbeck  | 2014-08-19       | 3 Year       |
| 9   | Amplifier                            | SCU03    | 10009         | R&S          | 2017-01-05       | 1 Year       |

|    |             |                       |          |         |            |        |
|----|-------------|-----------------------|----------|---------|------------|--------|
| 10 | Amplifier   | NTWPA<br>-008610<br>F | 12023024 | Rflight | 2017-01-05 | 1 Year |
| 11 | Attenuators | BW-N3<br>W5+          | /        | MCL     | 2017-01-05 | 1 Year |

**Conducted test system**

| No. | Name                                 | Type     | SN               | Manufacture | Calibration date | Cal.interval |
|-----|--------------------------------------|----------|------------------|-------------|------------------|--------------|
| 1   | Spectrum Analyzer                    | FSQ26    | 101096           | R&S         | 2017-05-11       | 1 Year       |
| 2   | Universal Radio Communication Tester | CMU200   | 123102           | R&S         | 2017-05-11       | 1 Year       |
| 3   | DC Power Supply                      | ZUP60-14 | LOC-220Z006-0007 | TDL-Lambda  | 2017-05-11       | 1 Year       |

## 7. Test Environment

**Shielding Room1** (6.0 meters×3.0 meters×2.7 meters) did not exceed following limits along the conducted RF performance testing:

|                          |                            |
|--------------------------|----------------------------|
| Temperature              | Min. = 15 °C, Max. = 35 °C |
| Relative humidity        | Min. = 20 %, Max. = 75 %   |
| Shielding effectiveness  | > 100 dB                   |
| Ground system resistance | < 0.5 Ω                    |

**Control room** did not exceed following limits along the EMC testing:

|                          |                            |
|--------------------------|----------------------------|
| Temperature              | Min. = 15 °C, Max. = 35 °C |
| Relative humidity        | Min. = 25 %, Max. = 75 %   |
| Shielding effectiveness  | > 100 dB                   |
| Electrical insulation    | > 10 kΩ                    |
| Ground system resistance | < 0.5 Ω                    |

**Fully-anechoic chamber1** (6.9 meters×10.9 meters×5.4 meters) did not exceed following limits along the EMC testing:

|                              |                                            |
|------------------------------|--------------------------------------------|
| Temperature                  | Min. = 15 °C, Max. = 35 °C                 |
| Relative humidity            | Min. = 25 %, Max. = 75 %                   |
| Shielding effectiveness      | > 100 dB                                   |
| Electrical insulation        | > 10 kΩ                                    |
| Ground system resistance     | < 0.5 Ω                                    |
| VSWR                         | Between 0 and 6 dB, from 1GHz to 18GHz     |
| Site Attenuation Deviation   | Between -4 and 4 dB, 30MHz to 1GHz         |
| Uniformity of field strength | Between 0 and 6 dB, from 80MHz to 3000 MHz |

## **ANNEX A. MEASUREMENT RESULTS**

### **ANNEX A.1. OUTPUT POWER**

#### **A.1.1. Summary**

During the process of testing, the EUT was controlled Rhode & Schwarz Digital Radio. Communication tester (CMU-200) to ensure max power transmission and proper modulation. This result contains peak output power and EIRP measurements for the EUT. In all cases, output power is within the specified limits.

#### **A.1.2. Conducted**

##### **A.1.2.1. Method of Measurements**

Method of measurements please refer to KDB971168 D01 v02r02 clause 5.

The EUT was set up for the max output power with pseudo random data modulation.

The power was measured with Rhode & Schwarz Spectrum Analyzer FSQ(peak).

These measurements were done at 3 frequencies, 1850.2 MHz, 1880.0MHz and 1909.8MHz for PCS1900 band; 824.2MHz, 836.6MHz and 848.8MHz for GSM850 band. (bottom, middle and top of operational frequency range).

These measurements were done at 3 frequencies, 1852.4 MHz, 1880.0MHz and 1907.6MHz for WCDMA Band II; 826.4MHz, 836.6MHz and 846.6MHz for WCDMA Band V. (bottom, middle and top of operational frequency range).

##### **A.1.2.2 Test procedures:**

1. The transmitter output port was connected to base station.
2. Set the EUT at maximum power through base station.
3. Select lowest, middle, and highest channels for each band and different modulation.
4. Measure the maximum burst peak power for GSM and maximum peak power for other modulation signal.

##### **A.1.2.3 Limit:**

22.913(a) Mobile stations are limited to 7watts.

24.232(c) Mobile and portable stations are limited to 2 watts.

##### **A.1.2.4 Test Procedure:**

The transmitter output power was connected to calibrated attenuator, the other end of which was connected to signal analyzer. Transmitter output power was read off the power in dBm. The power outputs at the transmitter antenna port was determined by adding the value of attenuator to the signal analyzer reading.

##### **A.1.2.5 GSM Test Condition:**

| RBW | VBW | Sweep time | Span |
|-----|-----|------------|------|
|-----|-----|------------|------|

|      |      |       |       |
|------|------|-------|-------|
| 1MHz | 1MHz | 300ms | 10MHz |
|------|------|-------|-------|

**A.1.2.6 WCDMA Test Condition:**

|       |       |            |       |
|-------|-------|------------|-------|
| RBW   | VBW   | Sweep time | Span  |
| 10MHz | 10MHz | 800ms      | 50MHz |

**A.1.2.7 Measurement results:**

| GSM 850 (GMSK)         |                  |
|------------------------|------------------|
| Channel/fc(MHz)        | Peak power (dBm) |
| Mid 189/836.4          | 32.89            |
| Low 128/824.2          | 32.939           |
| High 251/848.8         | 32.79            |
| GPRS 850 (GMSK 1 Slot) |                  |
| Channel/fc(MHz)        | Peak power (dBm) |
| Mid 189/836.4          | 32.893           |
| Low 128/824.2          | 32.913           |
| High 251/848.8         | 32.793           |
| EDGE 850 (8PSK 1 Slot) |                  |
| Channel/fc(MHz)        | Peak power (dBm) |
| Mid 189/836.4          | 27.671           |
| Low 128/824.2          | 27.707           |
| High 251/848.8         | 27.478           |

| GSM 1900(GMSK)  |                  |
|-----------------|------------------|
| Channel/fc(MHz) | Peak power (dBm) |
| Mid 661/1880    | 30.316           |

|                         |                  |
|-------------------------|------------------|
| Low 512/1850.2          | 30.331           |
| High 810/1909.8         | 30.312           |
| GPRS 1900 (GMSK 1 Slot) |                  |
| Channel/fc(MHz)         | Peak power (dBm) |
| Mid 661/1880            | 30.295           |
| Low 512/1850.2          | 30.348           |
| High 810/1909.8         | 30.341           |
| EDGE 1900 (8PSK 1 Slot) |                  |
| Channel/fc(MHz)         | Peak power (dBm) |
| Mid 661/1880            | 27.037           |
| Low 512/1850.2          | 26.967           |
| High 810/1909.8         | 27.074           |

|                  |                  |
|------------------|------------------|
| WCDMA II         |                  |
| Channel/fc(MHz)  | Peak power (dBm) |
| Mid 9400 /1880   | 26.13            |
| Low 9262/1852.4  | 25.889           |
| High 9538/1907.6 | 26.079           |
| WCDMA BAND V     |                  |
| Channel/fc(MHz)  | Peak power (dBm) |
| Mid 4183/836.6   | 26.084           |
| Low 4132/826.4   | 25.6             |
| High 4233/846.6  | 25.273           |

**Conclusion: PASS**

## ANNEX A.2. Peak-to-Average Power Ratio

Method of test measurements please refer to KDB971168 D01 v02r02 clause 5.7.

**A.2.1 PAPR Limit**

The peak-to-average power ratio (PAPR) of the transmission may not exceed 13dB

**A.2.2 Test procedures**

1. The EUT was connected to the spectrum analyzer and system simulator via a power divider.
2.
  - 1) Select the spectrum analyzer CCDF function.
  - 2) Set RBW  $\geq$  signal's occupied bandwidth.
  - 3) Set the number of counts to a value that stabilizes the measured CCDF curve;
  - 4) Sweep time  $\geq$  1s.
3. Record the maximum PAPR level associated with a probability of 0.1%.

**A.2.3 Test results:**

| GSM850          |       |       |       |
|-----------------|-------|-------|-------|
| Channel         | 128   | 189   | 251   |
| Frequency (MHz) | 824.2 | 836.4 | 848.8 |
| PAPR(dB)        | 8.43  | 8.69  | 8.66  |
| GPRS850         |       |       |       |
| Channel         | 128   | 189   | 251   |
| Frequency (MHz) | 824.2 | 836.4 | 848.8 |
| PAPR(dB)        | 8.64  | 8.71  | 8.71  |
| EDGE850         |       |       |       |
| Channel         | 128   | 189   | 251   |
| Frequency (MHz) | 824.2 | 836.4 | 848.8 |
| PAPR(dB)        | 8.64  | 8.77  | 8.35  |

| GSM1900         |        |      |        |
|-----------------|--------|------|--------|
| Channel         | 512    | 661  | 810    |
| Frequency (MHz) | 1850.2 | 1880 | 1909.8 |
| PAPR(dB)        | 8.66   | 8.60 | 8.55   |
| GPRS1900        |        |      |        |

|                 |        |       |        |
|-----------------|--------|-------|--------|
| Channel         | 512    | 661   | 810    |
| Frequency (MHz) | 1850.2 | 1880  | 1909.8 |
| PAPR(dB)        | 8.85   | 8.67  | 8.39   |
| <b>EDGE1900</b> |        |       |        |
| Channel         | 128    | 189   | 251    |
| Frequency (MHz) | 824.2  | 836.4 | 848.8  |
| PAPR(dB)        | 8.64   | 8.71  | 8.71   |

|                      |        |      |        |
|----------------------|--------|------|--------|
| <b>WCDMA Band II</b> |        |      |        |
| Channel              | 9262   | 9400 | 9538   |
| Frequency (MHz)      | 1852.4 | 1880 | 1907.6 |
| PAPR(dB)             | 3.78   | 3.94 | 3.53   |

|                     |       |       |       |
|---------------------|-------|-------|-------|
| <b>WCDMA Band V</b> |       |       |       |
| Channel             | 4132  | 4183  | 4233  |
| Frequency (MHz)     | 826.4 | 836.4 | 846.6 |
| PAPR(dB)            | 3.33  | 3.87  | 3.74  |

**Conclusion: PASS**

### **ANNEX A.3. Occupied Bandwidth**

Method of test please refer to KDB971168 D01 v02r02 clause 4.0.

#### **A.3.1. Occupied Bandwidth**

Similar to conducted emissions; occupied bandwidth measurements are only provided for selected frequencies in order to reduce the amount of submitted data. Data were taken at the extreme and mid frequencies of GSM850, PCS1900, WCDMA BANDII and WCDMA BANDV.

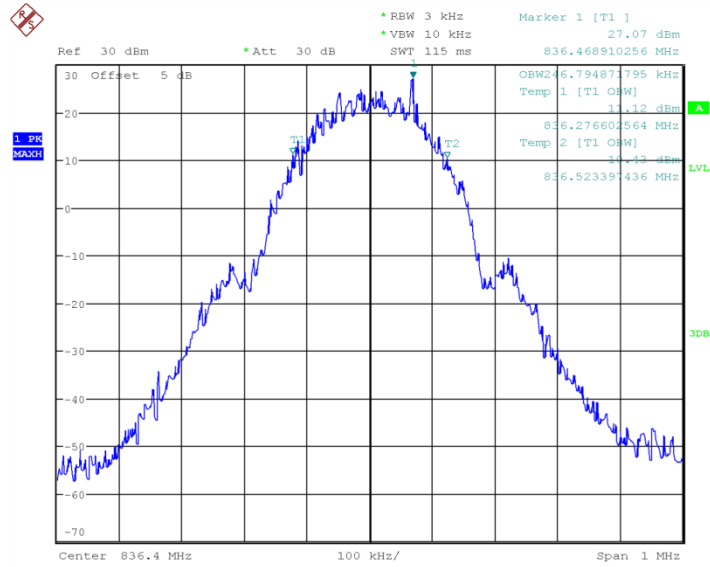
#### **A.3.2 Test Procedure:**

1. The EUT output RF connector was connected with a short cable to the signal analyzer.
2. RBW was set to about 1% of emission BW, VBW  $\geq$  3 times RBW,.
3. 99% bandwidth were measured, the occupied bandwidth is delta frequency between the two points where the display line intersects the signal trace.

**A.3.3 Test result:**

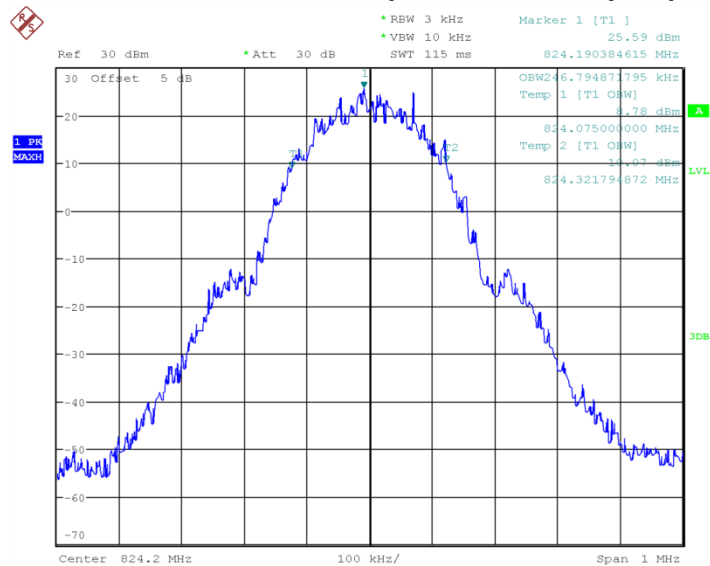
| GSM850       |                    |                             |
|--------------|--------------------|-----------------------------|
| Test channel | Frequency (MHz)    | 99% Occupied Bandwidth(KHz) |
| Mid 189      | 836.4              | 246.795                     |
| Low 128      | 824.2              | 246.795                     |
| High 251     | 848.8              | 243.59                      |
| GPRS850      |                    |                             |
| Test channel | Frequency (MHz)    | 99% Occupied Bandwidth(KHz) |
| Mid 189      | 836.4              | 243.59                      |
| Low 128      | 824.2              | 245.192                     |
| High 251     | 848.8              | 245.192                     |
| EDGE850      |                    |                             |
| Test channel | Frequency (MHz795) | 99% Occupied Bandwidth(KHz) |
| Mid 189      | 836.4              | 243.59                      |
| Low 128      | 824.2              | 243.59                      |
| High 251     | 848.8              | 241.987                     |

**Conclusion: PASS****GSM 850**



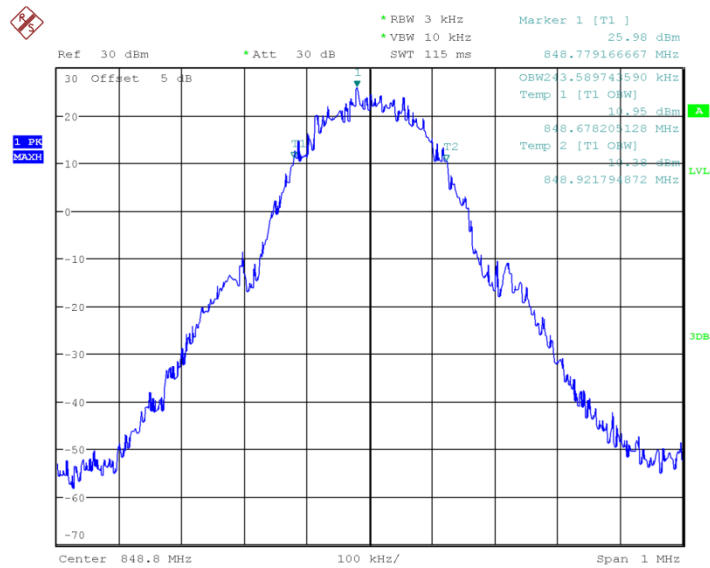
Date: 23.JUN.2017 12:36:20

## Channel 189-Occupied Bandwidth (99%)



Date: 23.JUN.2017 12:36:57

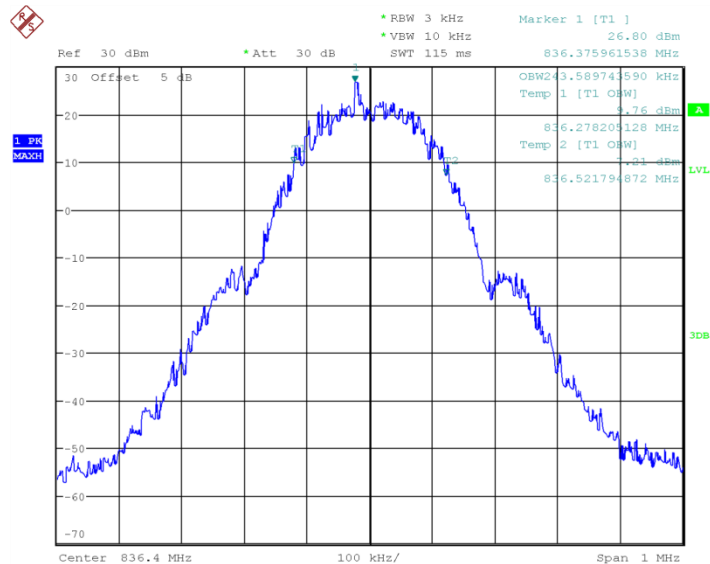
## Channel 128-Occupied Bandwidth (99%)



Date: 23 JUN 2017 12:37:35

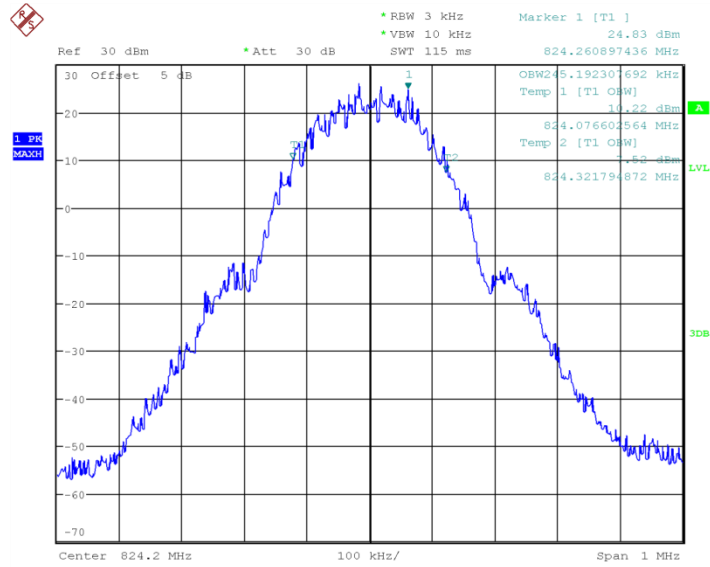
## Channel 251-Occupied Bandwidth (99%)

## GPRS 850



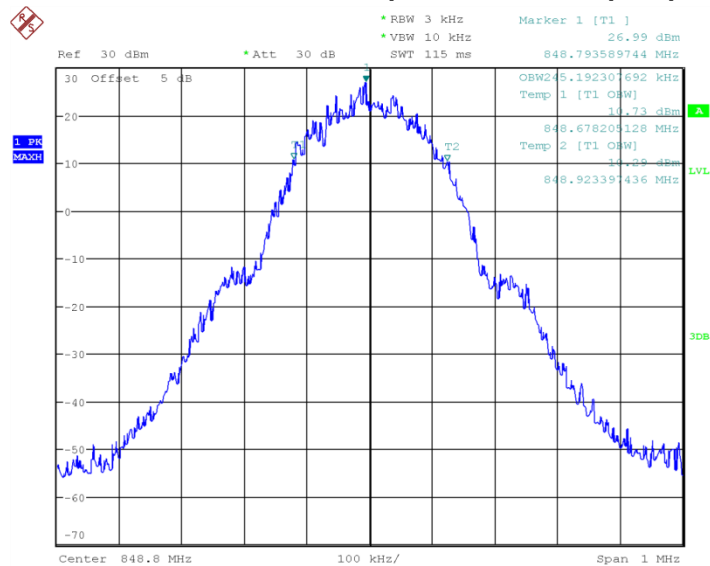
Date: 23 JUN 2017 12:39:59

## Channel 189-Occupied Bandwidth (99%)



Date: 23.JUN.2017 12:40:35

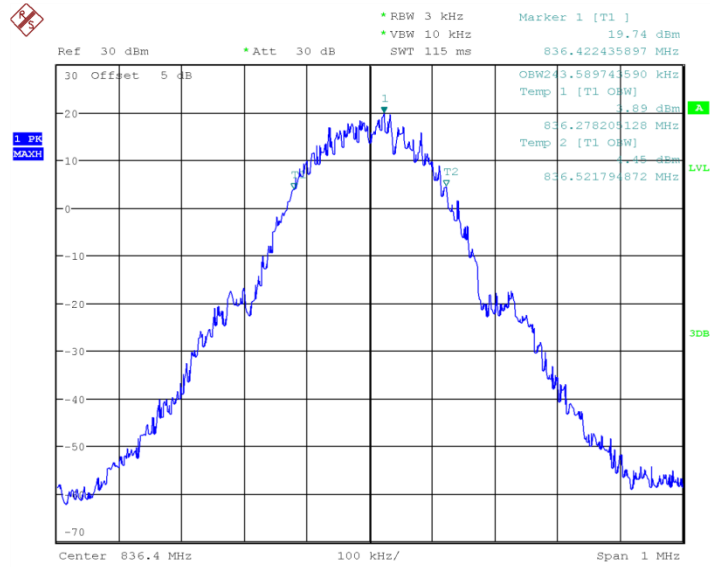
## Channel 128-Occupied Bandwidth (99%)



Date: 23.JUN.2017 12:41:11

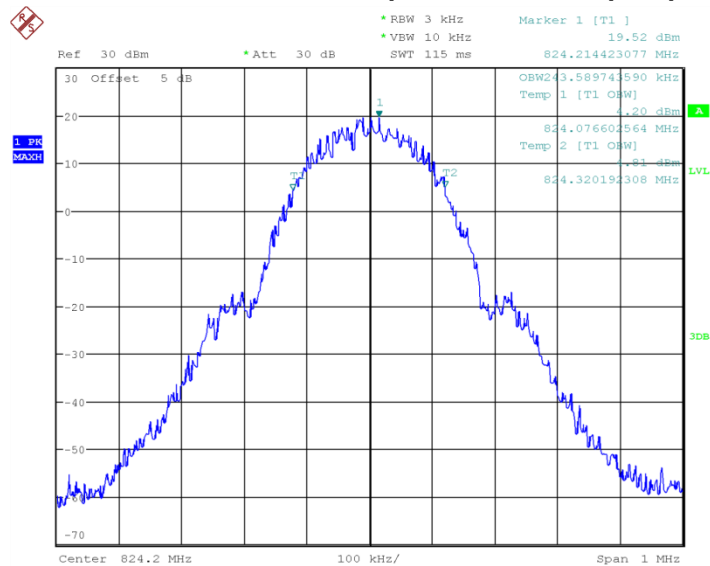
## Channel 251-Occupied Bandwidth (99%)

EDGE 850



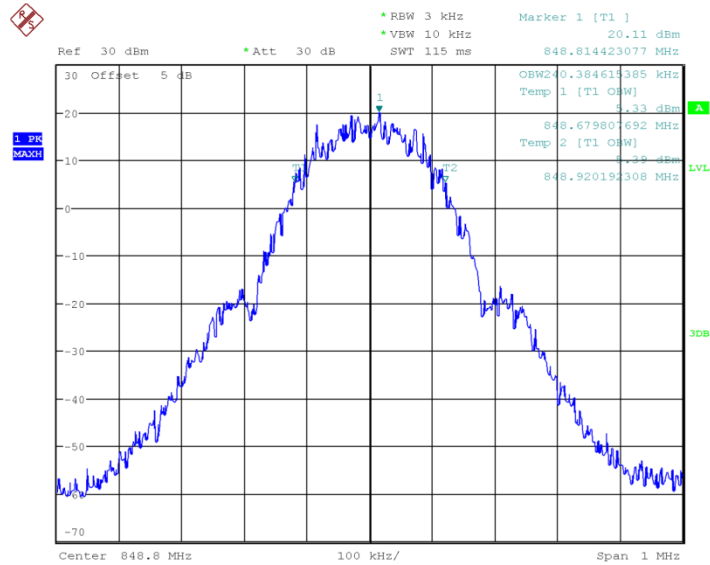
Date: 23.JUN.2017 12:44:12

## Channel 189-Occupied Bandwidth (99%)



Date: 23.JUN.2017 12:44:47

## Channel 128-Occupied Bandwidth (99%)



Date: 23.JUN.2017 12:45:23

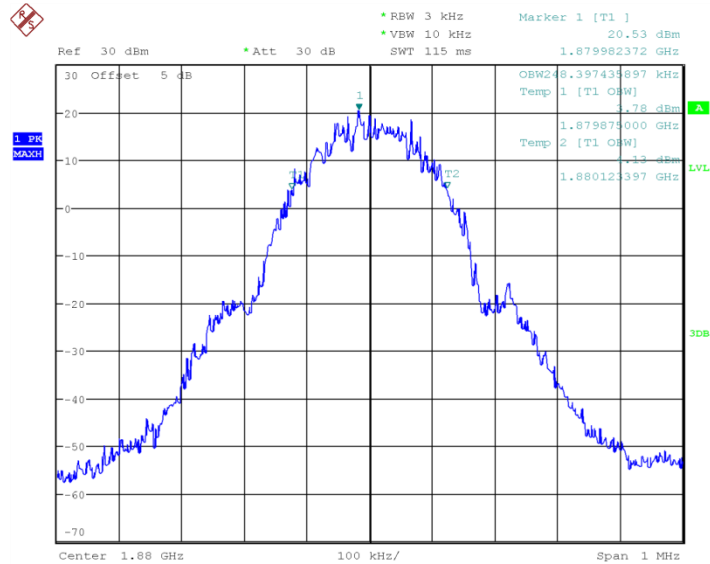
## Channel 251-Occupied Bandwidth (99%)

| GSM1900      |                 |                             |
|--------------|-----------------|-----------------------------|
| Test channel | Frequency (MHz) | 99% Occupied Bandwidth(KHz) |
| Mid 661      | 1880            | 245.192                     |
| Low 512      | 1850.2          | 233.974                     |
| High 810     | 1909.8          | 222.756                     |
| GPRS1900     |                 |                             |
| Test channel | Frequency (MHz) | 99% Occupied Bandwidth(KHz) |
| Mid 661      | 1880            | 270.833                     |
| Low 512      | 1850.2          | 241.987                     |
| High 810     | 1909.8          | 261.218                     |
| EDGE1900     |                 |                             |
| Test channel | Frequency (MHz) | 99% Occupied Bandwidth(KHz) |
| Mid 661      | 1880            | 251.603                     |
| Low 512      | 1850.2          | 224.359                     |

|          |        |         |
|----------|--------|---------|
| High 810 | 1909.8 | 225.962 |
|----------|--------|---------|

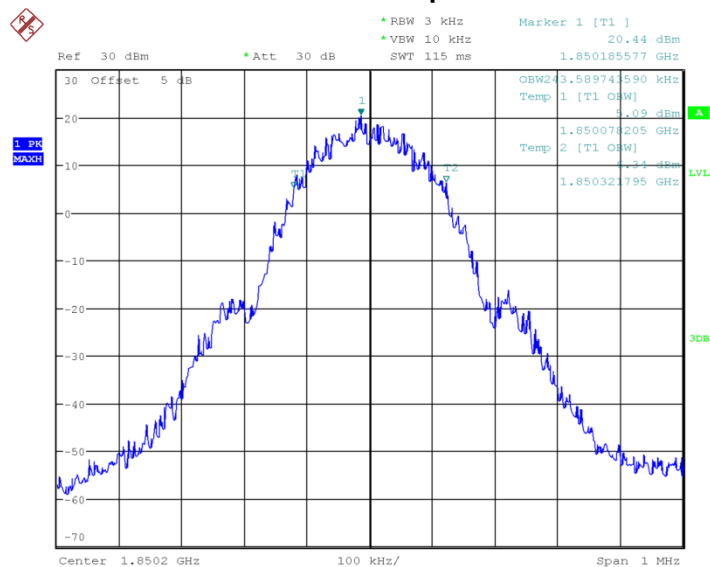
Conclusion: PASS

GSM 1900



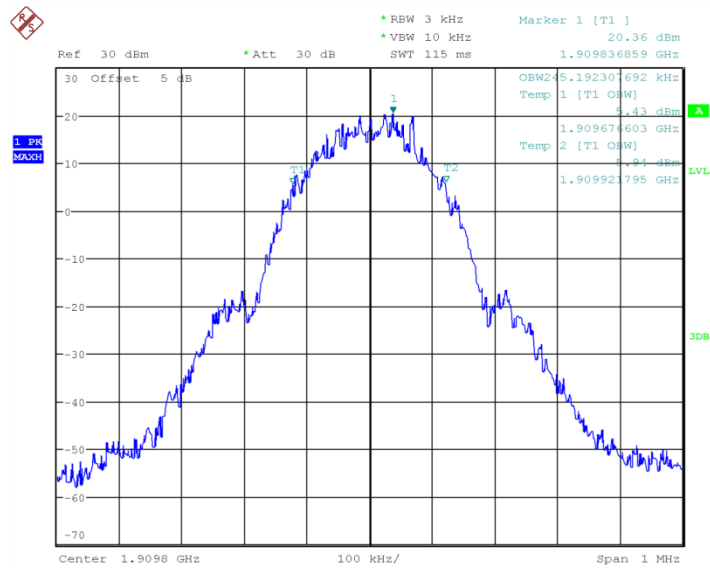
Date: 23.JUN.2017 12:48:06

## Channel 661-Occupied Bandwidth



Date: 23.JUN.2017 12:48:43

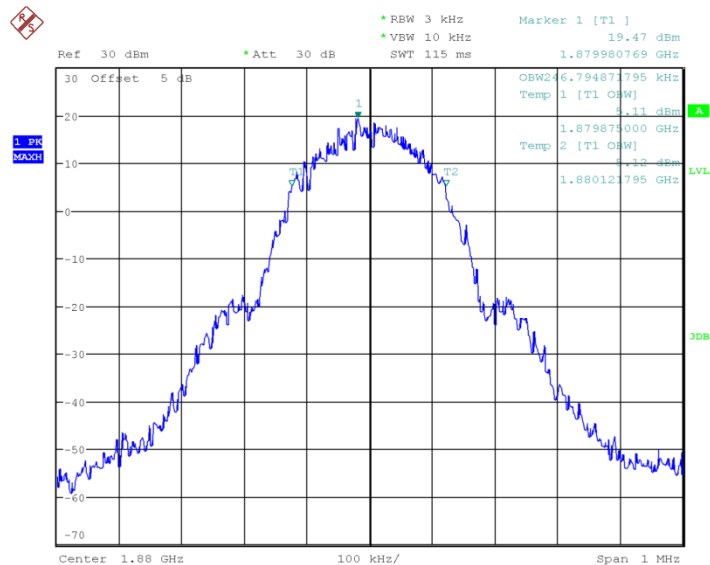
## Channel512-Occupied Bandwidth



Date: 23.JUN.2017 12:49:21

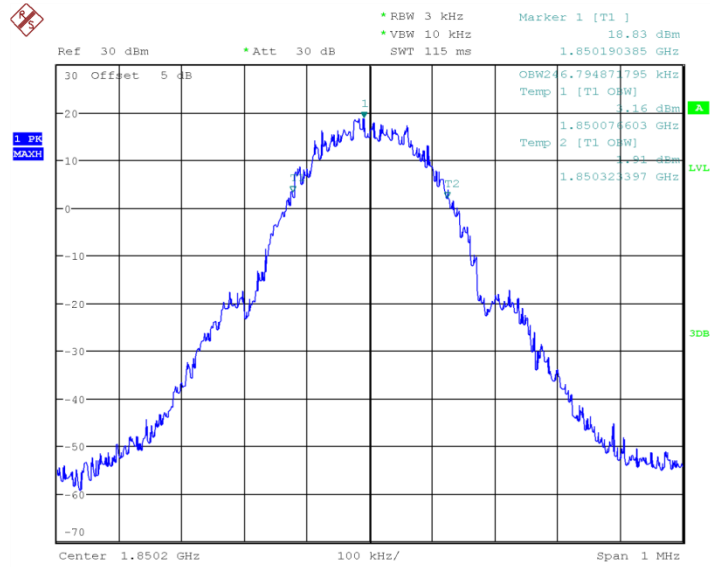
## Channel 810-Occupied Bandwidth

### EGPRS 1900



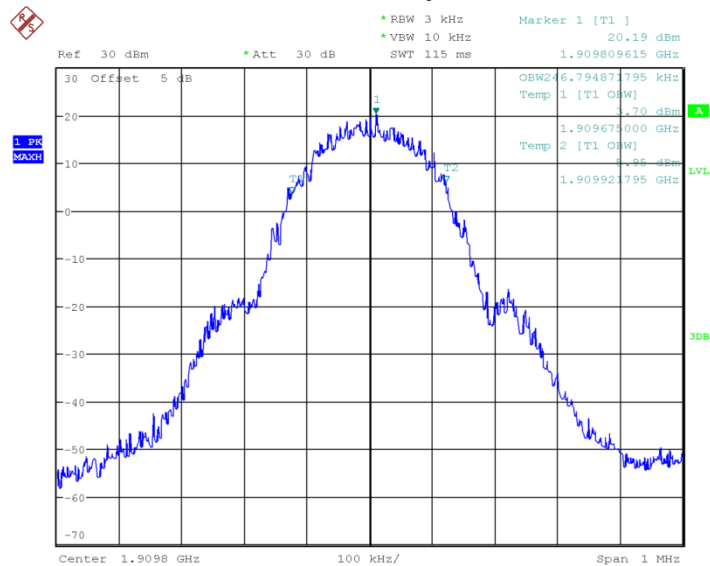
Date: 23.JUN.2017 12:51:57

## Channel 661-Occupied Bandwidth



Date: 23.JUN.2017 12:52:32

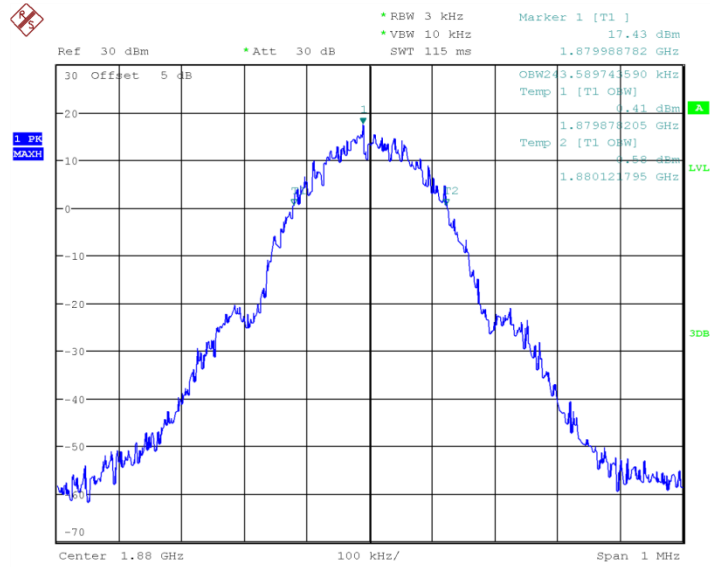
## Channel512-Occupied Bandwidth



Date: 23.JUN.2017 12:53:08

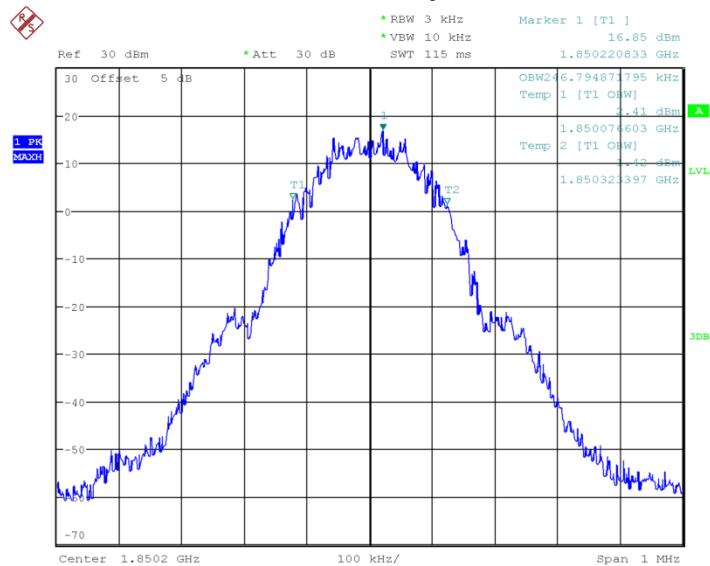
## Channel 810-Occupied Bandwidth

EDGE 1900



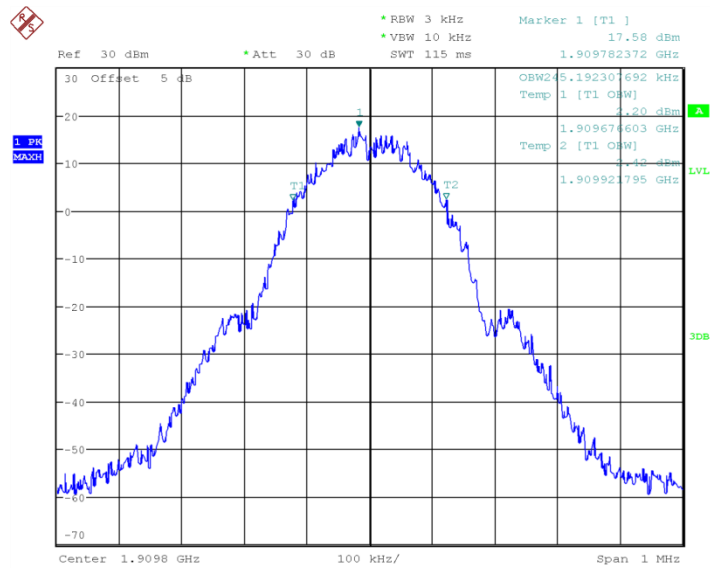
Date: 23.JUN.2017 12:55:32

## Channel 661-Occupied Bandwidth



Date: 23.JUN.2017 12:56:08

## Channel512-Occupied Bandwidth

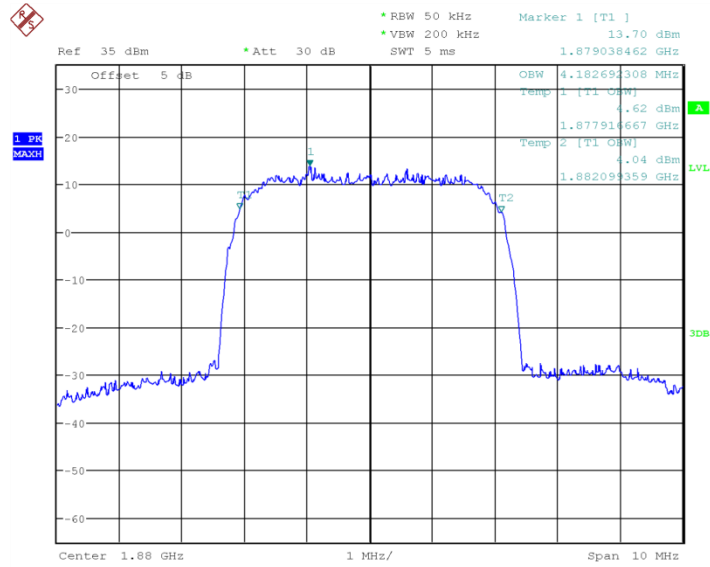


Date: 23.JUN.2017 12:56:44

## Channel 810-Occupied Bandwidth

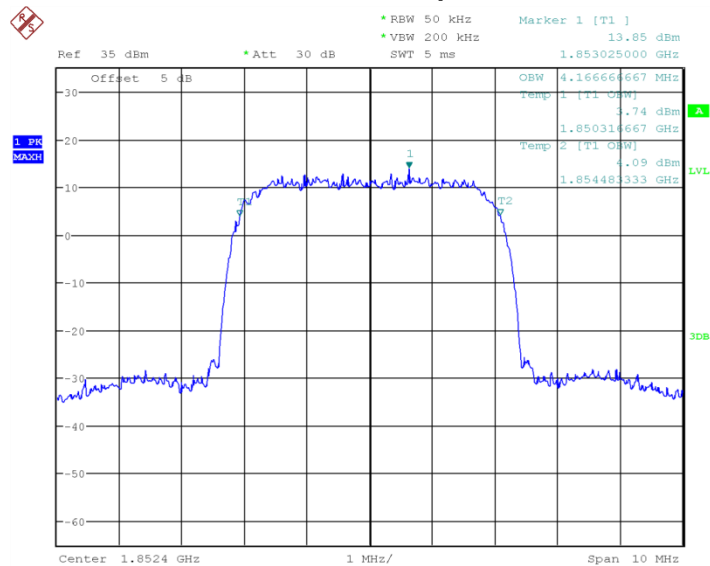
| WCDMA BAND II |                 |                             |
|---------------|-----------------|-----------------------------|
| Test channel  | Frequency (MHz) | 99% Occupied Bandwidth(MHz) |
| Mid 9400      | 1880            | 4.18                        |
| Low 9262      | 1852.4          | 4.17                        |
| High 9538     | 1907.6          | 4.17                        |

**Conclusion: PASS**  
**WCDMA BAND II**



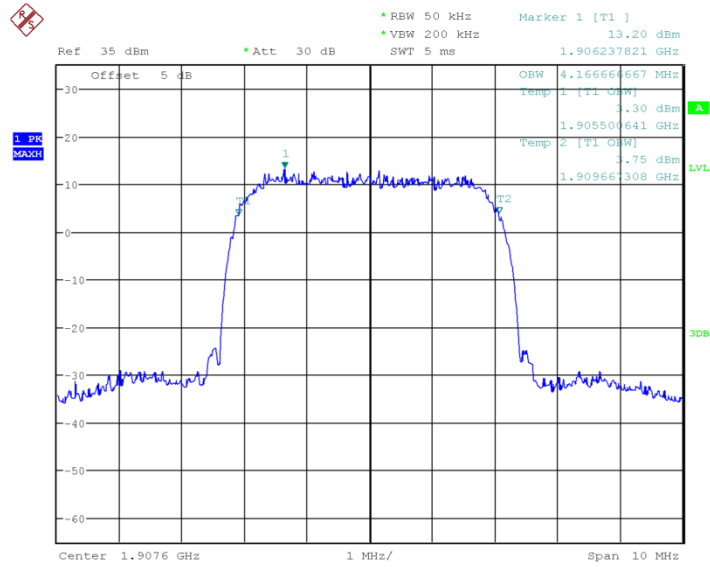
Date: 23.JUN.2017 08:18:29

## Channel 9400-Occupied Bandwidth



Date: 23.JUN.2017 08:19:06

## Channel 1852-Occupied Bandwidth



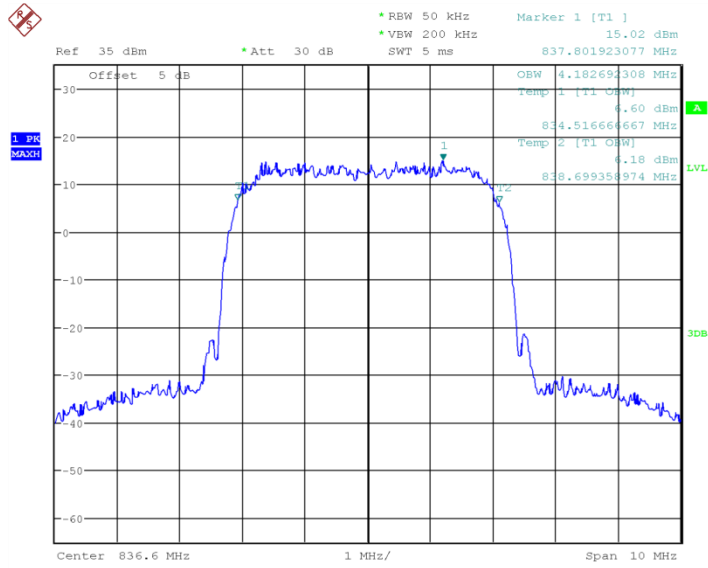
Date: 23.JUN.2017 08:19:44

## Channel 1907-Occupied Bandwidth

| WCDMA BAND V |                 |                             |
|--------------|-----------------|-----------------------------|
| Test channel | Frequency (MHz) | 99% Occupied Bandwidth(MHz) |
| Mid 4183     | 836.6           | 4.18                        |
| Low 4132     | 826.4           | 4.17                        |
| High 4233    | 846.6           | 4.20                        |

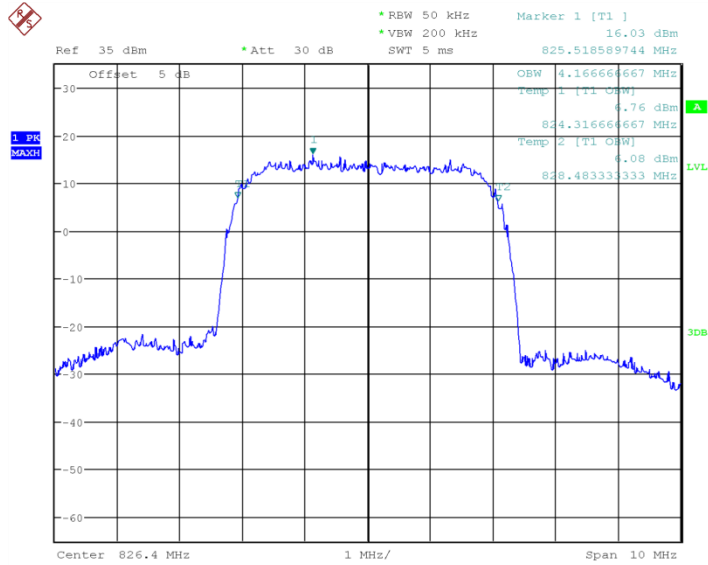
**Conclusion: PASS**

## WCDMA BAND V



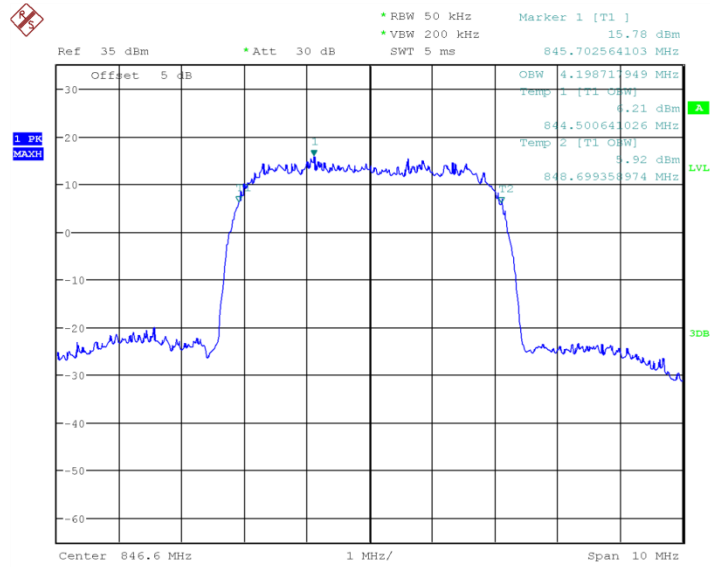
Date: 23.JUN.2017 08:20:43

## Channel 4183-Occupied Bandwidth



Date: 23.JUN.2017 08:21:21

## Channel 4132-Occupied Bandwidth



Date: 23.JUN.2017 08:21:58

## Channel 4233-Occupied Bandwidth

**ANNEX A.4. -26dB Emission Bandwidth**

Method of test please refer to KDB971168 D01 v02r02 clause 4.0.

**A.4.1. -26dB Emission Bandwidth**

Similar to conducted emissions; occupied bandwidth measurements are only provided for selected frequencies in order to reduce the amount of submitted data. Data were taken at the extreme and mid frequencies of GSM850, PCS1900, WCDMA BANDII and WCDMA BANDV.

**A.4.2 Test Procedure:**

1. The EUT output RF connector was connected with a short cable to the signal analyzer.
2. RBW was set to about 1% of emission BW, VBW  $\geq$  3 times RBW,.
3. 26dB bandwidth were measured, the occupied bandwidth is delta frequency between the two points where the display line intersects the signal trace.

**A.4.3 Measurement methods:**

For GSM: signal analyzer setting as: RBW=3KHz;VBW=10KHz;Span=1MHz.

For WCDMA: signal analyzer setting as: RBW=50KHz;VBW=20KHz;Span=10MHz.

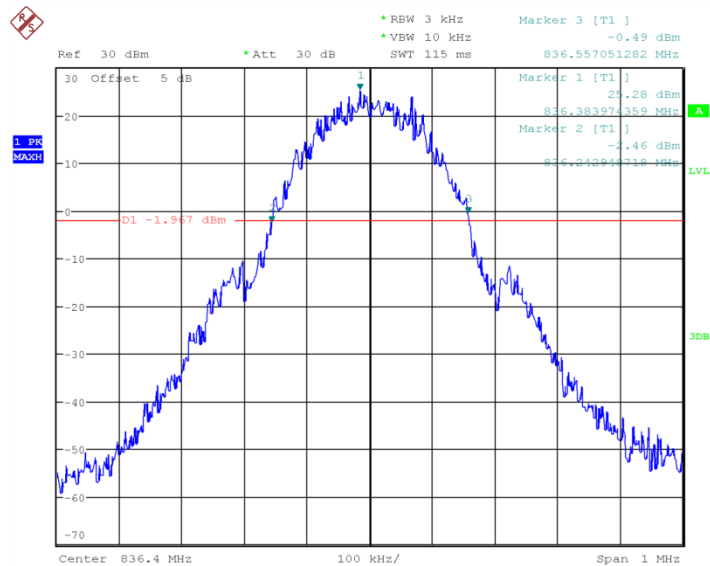
**A.4.4 Test results:**

| GSM 850      |                 |                                |
|--------------|-----------------|--------------------------------|
| Test channel | Frequency (MHz) | -26dBc Emission Bandwidth(KHz) |
| Mid 189      | 836.4           | 314.103                        |
| Low 128      | 824.2           | 307.692                        |
| High 251     | 848.8           | 322.115                        |
| GPRS 850     |                 |                                |
| Test channel | Frequency (MHz) | -26dBc Emission Bandwidth(KHz) |
| Mid 189      | 836.4           | 315.70                         |
| Low 128      | 824.2           | 312.5                          |
| High 251     | 848.8           | 312.5                          |
| EDGE 850     |                 |                                |
| Test channel | Frequency (MHz) | -26dBc Emission Bandwidth(KHz) |
| Mid 189      | 836.4           | 312.5                          |

|          |       |         |
|----------|-------|---------|
| Low 128  | 824.2 | 315.705 |
| High 251 | 848.8 | 314.103 |

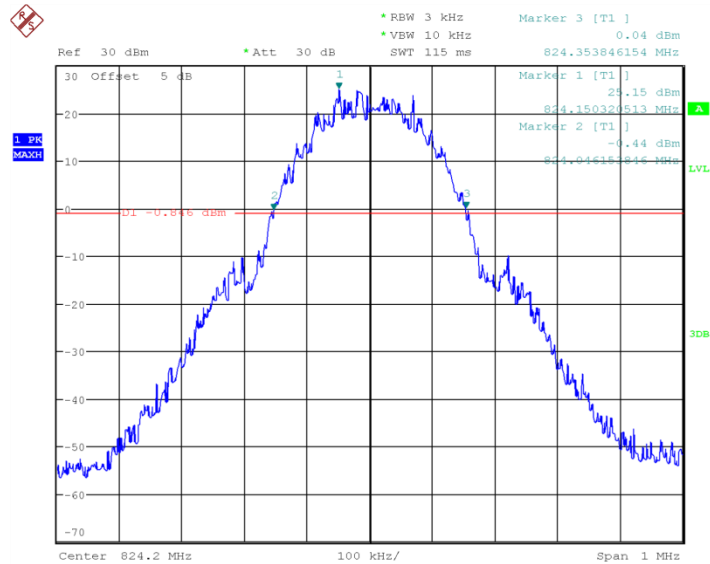
**Conclusion: PASS**

## GSM 850



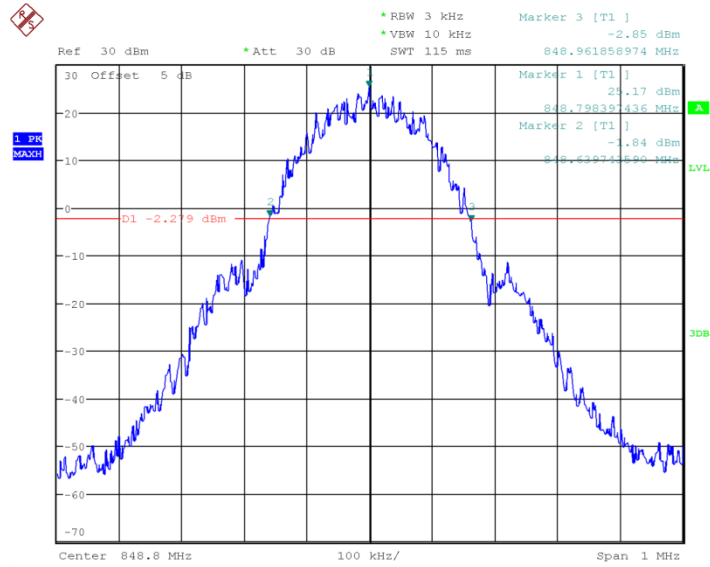
Date: 23.JUN.2017 13:04:25

### Channel 189- Emission Bandwidth (-26dBc BW)



Date: 23.JUN.2017 13:04:54

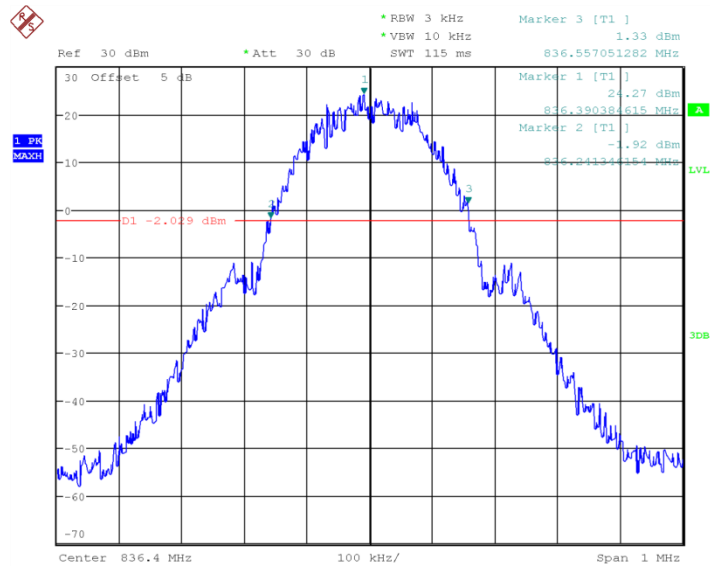
### Channel 128- Emission Bandwidth (-26dBc BW)



Date: 23.JUN.2017 13:05:23

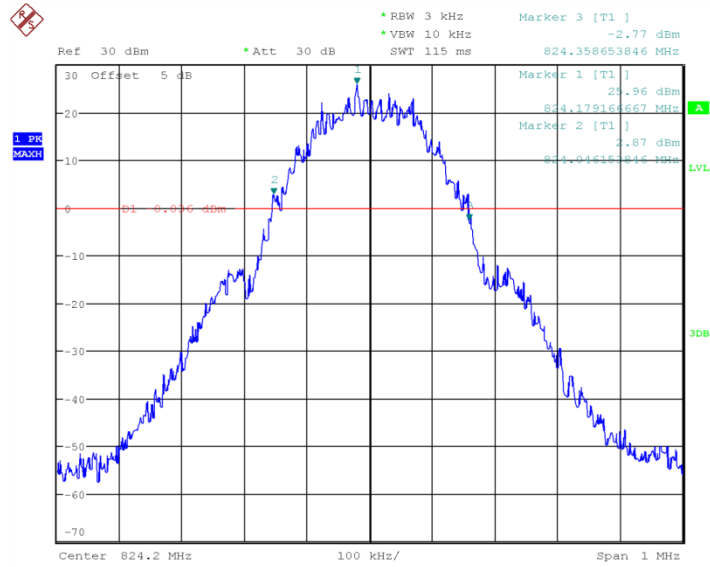
## Channel 251- Emission Bandwidth (-26dBc BW)

### GPRS 850



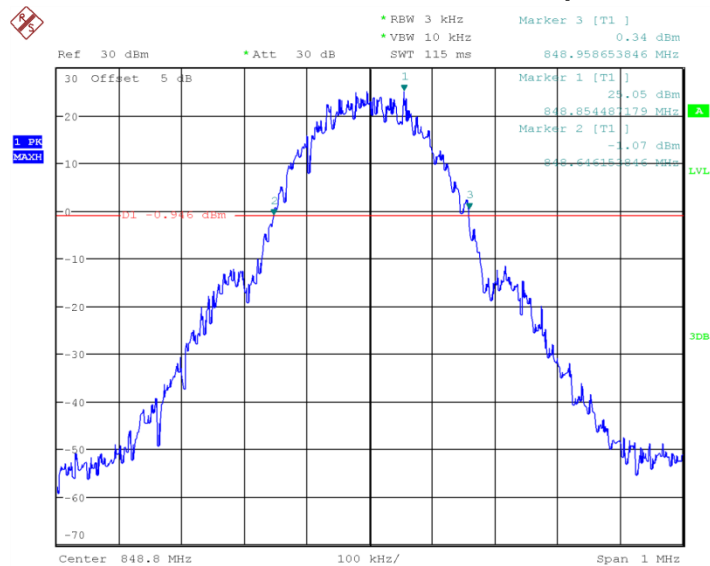
Date: 23.JUN.2017 13:14:25

## Channel 189- Emission Bandwidth (-26dBc BW)



Date: 23.JUN.2017 13:14:52

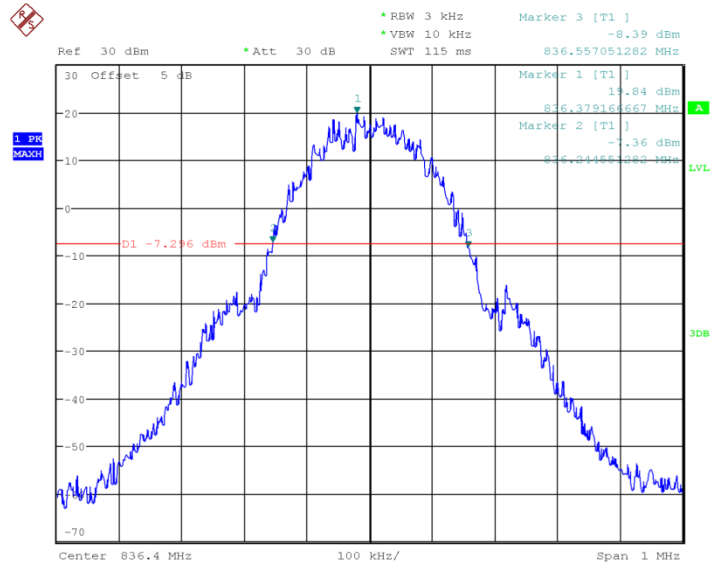
## Channel 128- Emission Bandwidth (-26dBc BW)



Date: 23.JUN.2017 13:15:19

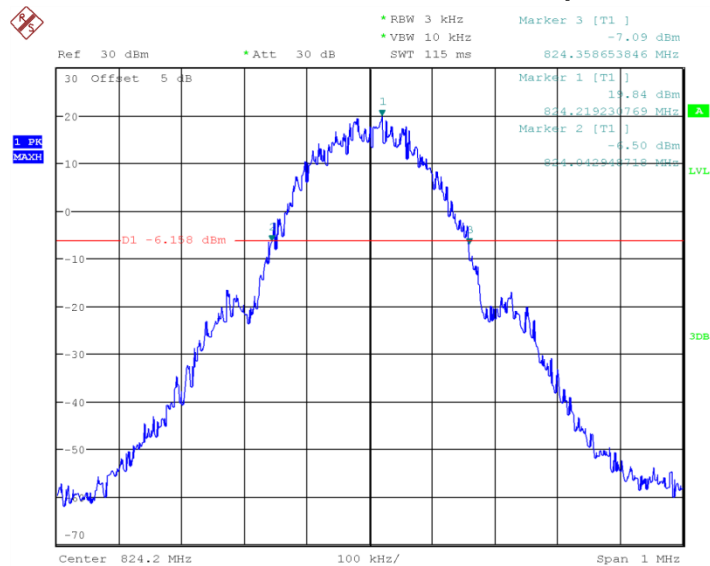
## Channel 251- Emission Bandwidth (-26dBc BW)

EDGE 850



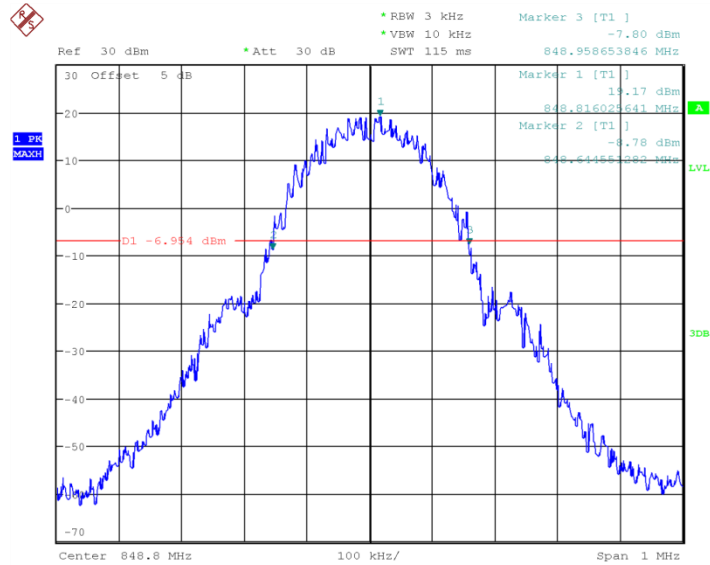
Date: 23.JUN.2017 13:17:39

## Channel 189- Emission Bandwidth (-26dBc BW)



Date: 23.JUN.2017 13:18:05

## Channel 128- Emission Bandwidth (-26dBc BW)



Date: 23.JUN.2017 13:18:32

## Channel 251- Emission Bandwidth (-26dBc BW)

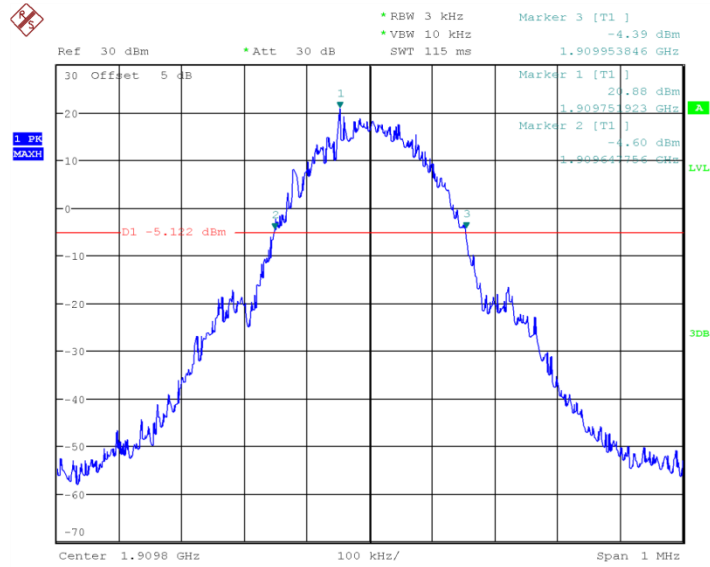
| GSM1900      |                 |                                |
|--------------|-----------------|--------------------------------|
| Test channel | Frequency (MHz) | -26dBc Emission Bandwidth(KHz) |
| Mid 661      | 1880            | 307.692                        |
| Low 512      | 1850.2          | 310.897                        |
| High 810     | 1909.8          | 306.09                         |
| GPRS1900     |                 |                                |
| Test channel | Frequency (MHz) | -26dBc Emission Bandwidth(KHz) |
| Mid 661      | 1880            | 312.5                          |
| Low 512      | 1850.2          | 310.897                        |
| High 810     | 1909.8          | 310.897                        |
| EDGE1900     |                 |                                |
| Test channel | Frequency (MHz) | -26dBc Emission Bandwidth(KHz) |
| Mid 661      | 1880            | 314.103                        |
| Low 512      | 1850.2          | 310.897                        |
| High 810     | 1909.8          | 317.308                        |

## GSM 1900



Date: 23.JUN.2017 13:22:00

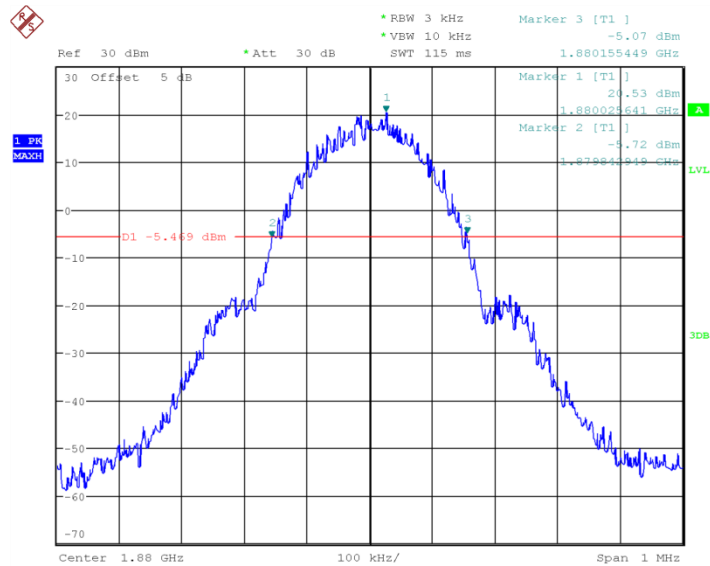
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Report Issued Date : Jul.05.2017



Date: 23.JUN.2017 13:22:27

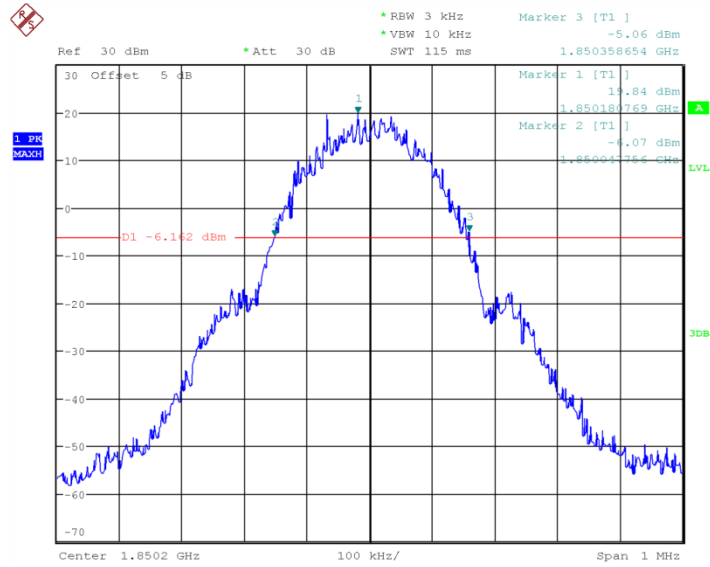
## Channel 810- Emission Bandwidth (-26dBc BW)

### GPRS 1900



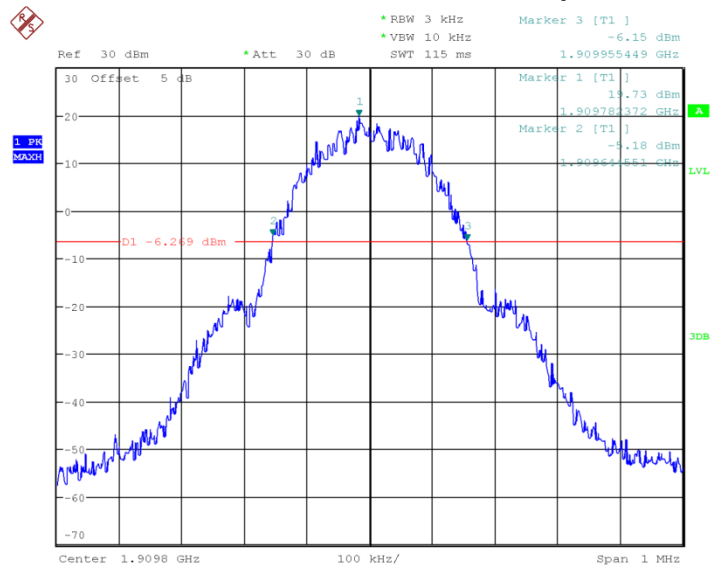
Date: 23.JUN.2017 13:25:18

## Channel 661- Emission Bandwidth (-26dBc BW)



Date: 23.JUN.2017 13:25:45

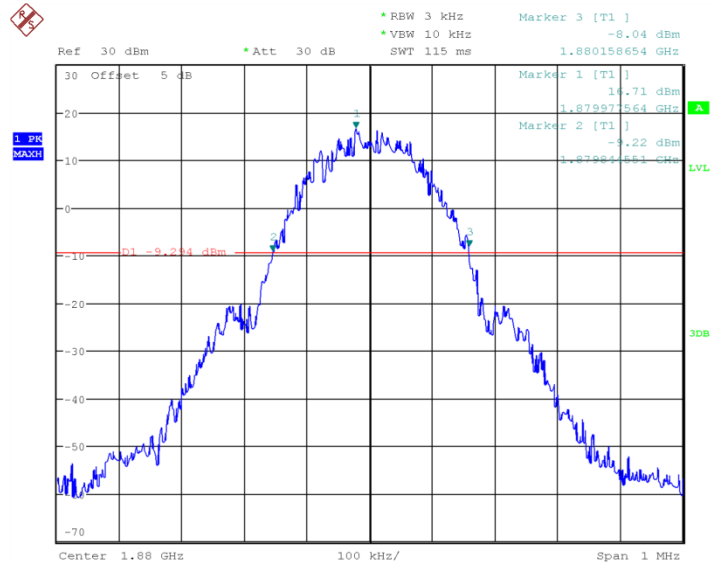
## Channel512- Emission Bandwidth (-26dBc BW)



Date: 23.JUN.2017 13:26:13

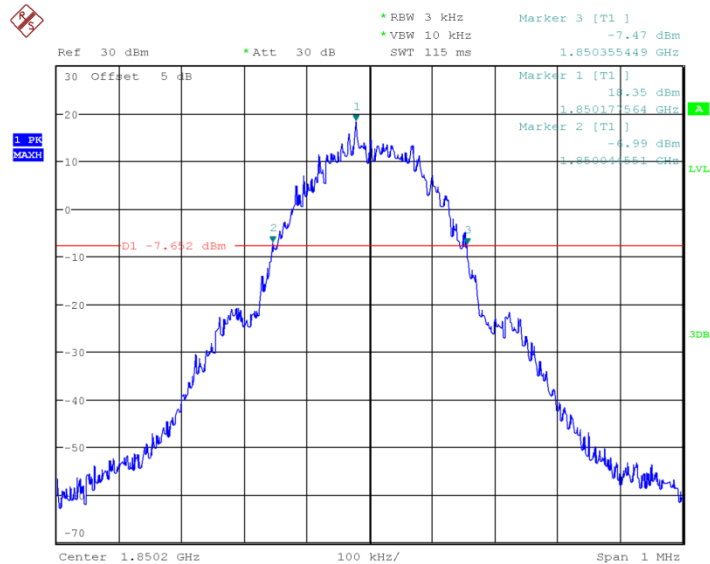
## Channel 810- Emission Bandwidth (-26dBc BW)

EDGE 1900



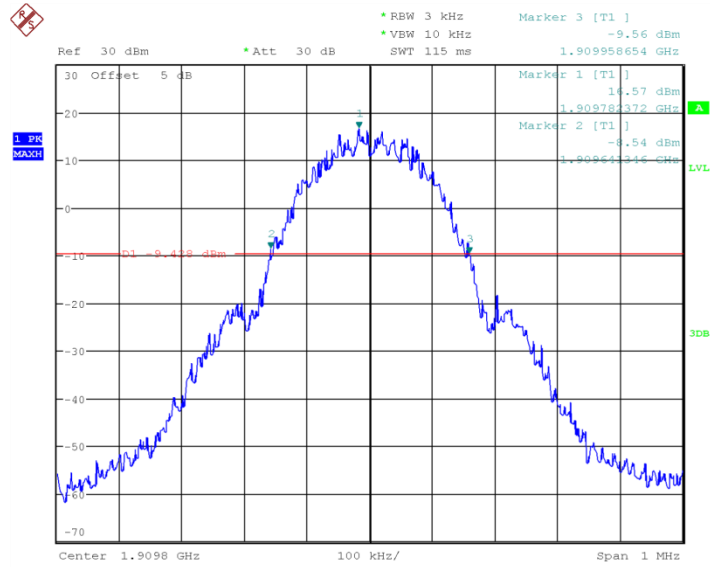
Date: 23.JUN.2017 13:31:46

## Channel 661- Emission Bandwidth (-26dBc BW)



Date: 23.JUN.2017 13:32:14

## Channel 512- Emission Bandwidth (-26dBc BW)



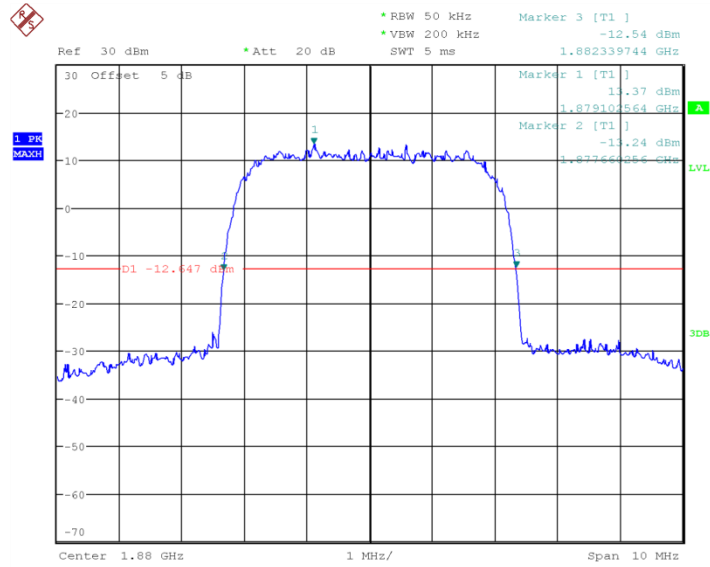
Date: 23.JUN.2017 13:32:42

## Channel 810- Emission Bandwidth (-26dBc BW)

| WCDMA BAND II |                 |                                |
|---------------|-----------------|--------------------------------|
| Test channel  | Frequency (MHz) | -26dBc Emission Bandwidth(MHz) |
| Mid 9400      | 1880            | 4.68                           |
| Low 9262      | 1852.4          | 4.68                           |
| High 9538     | 1907.6          | 4.68                           |

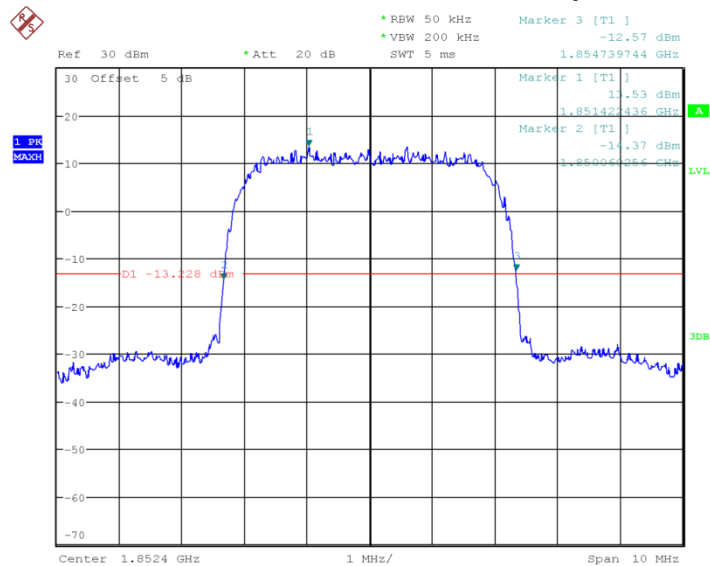
**Conclusion: PASS**

**WCDMA BAND II**



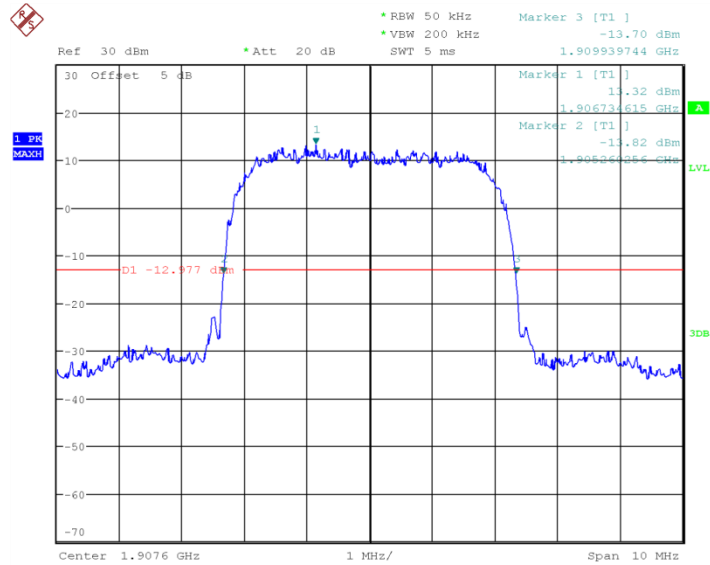
Date: 23.JUN.2017 08:27:08

## Channel 9400- Emission Bandwidth (-26dBc BW)



Date: 23.JUN.2017 08:27:37

## Channel 9262- Emission Bandwidth (-26dBc BW)



Date: 23.JUN.2017 08:28:04

## Channel 9538- Emission Bandwidth (-26dBc BW)

| WCDMA BAND V |                 |                                |
|--------------|-----------------|--------------------------------|
| Test channel | Frequency (MHz) | -26dBc Emission Bandwidth(MHz) |
| Mid 4183     | 836.6           | 4.67                           |
| Low 4132     | 826.4           | 4.68                           |
| High 4233    | 846.6           | 4.71                           |

**Conclusion: PASS**

**WCDMA BAND V**