

ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 22 SUBPART H, PART 24 SUBPART E and PART 27 SUBPART **B, C & SUBPART L REQUIREMENT**

| | 01 |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| Applicant: | Sharp Corporation, Mobile Communication B.U. 2-13-1, Hachihonmatsu-Iida, Higashi-hiroshima-shi, Hiroshima 739-0192, Japan |
| Manufacturer: | Sharp Corporation 1 Takumi-cho, Sakai-ku, Sakai-Shi, Osaka 590-8522, Japan |
| Product Name: | Smart Phone |
| Report Number: | ER/2018/80112 |
| FCC ID: | APYHRO00266 |
| FCC Rule Part: | 2 , 22H & 24E & 27B, C & L |
| Issue Date: | Oct. 02, 2018 |
| Date of Test: | Aug. 01, 2018 ~ Sep. 05, 2018 |
| Date of EUT Received: | Aug. 01, 2018 |
| We hereby cortify that: | |

OF

We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. Electronics & Communication Laboratory The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.26-2015 and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits.

The test results of this report relate only to the tested sample identified in this report.

Marcus Tseng

Tested By:

Marcus Tseng / Sr. Engineer

Approved By: CHUN, CHIZEH, CHIEN, CHIEN, CHUN-CHIEH, CHEN/

Asst. Supervisor

0513

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.



Revision History

| Report Number | Revision | Description | Effected Page | Issue Date | Revised By |
|---------------|----------|------------------------------|------------------|---------------|------------|
| ER/2018/80112 | Rev.00 | Initial creation of document | All | Oct. 02, 2018 | Yuri Tsai |



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1. GENERAL PRODUCT INFORMATION

1.1. Product Description

General:

| Product Name: | Smart Phone |
|-------------------|----------------------------------------|
| Hardware Version: | DVT |
| Software Version: | N/A |
| Power Supply: | 3.85V from Rechargeable Li-ion Battery |
| IMEI: | 004401116493012 / 004401116492501 |

1.2. GSM / WCDMA / LTE: Cellular Phone Standards Frequency Range

| Operating Frequency (MHz) | | | | |
|---------------------------|--------|---|--------|--|
| GSM/GPRS 850 | 824.2 | - | 848.8 | |
| GSM/GPRS 1900 | 1850.2 | - | 1909.8 | |

| Operating Frequency (MHz) | | | | |
|---------------------------|-------|---|-------|--|
| WCDMA / HSPA+ Band V | 826.4 | - | 846.6 | |

| LTE Band | BW (MHz) | Operation Frequency (MHz) | | | |
|----------|-------------|------------------------------|---|-------|--|
| | 1.4 | 824.7 | - | 848.3 | |
| 5 | 3 | 825.5 | - | 847.5 | |
| 5 | 5 | 826.5 | - | 846.5 | |
| | 10 | 829.0 | - | 844.0 | |
| | 1.4 | 699.7 | - | 715.3 | |
| 12 | 3 | 700.5 | - | 714.5 | |
| 12 | 5 | 701.5 | - | 713.5 | |
| | 10 | 704.0 | - | 711.0 | |
| 17 | 5 | 706.5 | - | 713.5 | |
| 17 | 10 | 709.0 | - | 711.0 | |

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1.3. Type of Emission & Max ERP/EIRP Power Measurement Result:

| | ERP / EIRP (dBm) | | (W) | Type of Emission |
|-----------|------------------|------|-------|------------------|
| GSM 850 | 23.66 | ERP | 0.232 | 243KGXW |
| GPRS 850 | 24.83 | ERP | 0.304 | 243KGXW |
| GSM 1900 | 24.42 | EIRP | 0.277 | 241KGXW |
| GPRS 1900 | 26.19 | EIRP | 0.416 | 244KGXW |

| | ERP / EIRP (dBm) | | (W) | Type of Emission |
|--------------|------------------|-----|-------|------------------|
| WCDMA Band V | 21.14 | ERP | 0.130 | 4M13F9W |
| HSDPA Band V | 22.45 | ERP | 0.176 | 4M12F9W |
| HSUPA Band V | 22.22 | ERP | 0.167 | 4M13F9W |

| LTE Band | BW (MHz) | Modulation | | ERP / EIRP (dBm) | | Type of Emission |
|-------------|-------------|------------|-------|---------------------|-------|---------------------|
| | 1.4 | QPSK | 23.28 | ERP | 0.213 | 1M09G7D |
| | 1.4 | 16QAM | 22.42 | ERP | 0.175 | 1M09D7W |
| | 3 | QPSK | 23.11 | ERP | 0.205 | 2M70G7D |
| 5 | 3 | 16QAM | 22.35 | ERP | 0.172 | 2M70D7W |
| 5 | 5 | QPSK | 24.63 | ERP | 0.290 | 4M50G7D |
| | 5 | 16QAM | 23.93 | ERP | 0.247 | 4M50D7W |
| | 10 | QPSK | 23.16 | ERP | 0.207 | 9M01G7D |
| | 10 | 16QAM | 22.36 | ERP | 0.172 | 8M97D7W |
| | 5 | QPSK | 23.2 | ERP | 0.209 | 4M50G7D |
| 17 | 5 | 16QAM | 22.47 | ERP | 0.177 | 4M51D7W |
| 17 | 10 | QPSK | 23.29 | ERP | 0.213 | 9M01G7D |
| | 10 | 16QAM | 22.75 | ERP | 0.188 | 8M96D7W |

| LTE Band | BW (MHz) | Modulation | ERP / EIRP (dBm) | | (W) | Type of Emission |
|-------------|-------------|------------|---------------------|-----|-------|---------------------|
| | 1.4 | QPSK | 23.27 | ERP | 0.212 | 1M09G7D |
| | 1.4 | 16QAM | 22.27 | ERP | 0.169 | 1M10D7W |
| | 3 | QPSK | 22.99 | ERP | 0.199 | 2M70G7D |
| 12 | 3 | 16QAM | 22.26 | ERP | 0.168 | 2M77D7W |
| 12 | 5 QPS | QPSK | 22.92 | ERP | 0.196 | 4M50G7D |
| | 5 | 16QAM | 22.25 | ERP | 0.168 | 4M50D7W |
| | 10 | QPSK | 23.52 | ERP | 0.225 | 8M98G7D |
| | 10 | 16QAM | 22.08 | ERP | 0.161 | 8M96D7W |



1.4. Test Methodology of Applied Standards

CC 47 CFR Part 2, 22, 24, 27.

ANSI C63.26-2015

KDB971168 D01 Power Meas license Digital System v03

KDB941225 D01 SAR test for 3G devices v03r01 (SAR Measurement Procedures for 3G Devices, WCDMA / HSPA) was used for EUT and Base station setting.

TS 151 010-1 is used to set, and measure the output power.

Note: All test items have been performed and record as per the above standards.

1.5. Test Facility

SGS Taiwan Ltd. Electronics & Communication Laboratory No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803 code 0513)

FCC Registration Numbers are: 509634 / TW0001

1.6. Special Accessories

1.7. No special accessories were used during testing.

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Equipment Modifications

There were no modifications incorporated into the EUT.

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2. SYSTEM TEST CONFIGURATION

2.1. EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2. EUT Exercise

The EUT (Transmitter) was operated in the continuous transmission mode employed with the simulator of the Base Station that fixates at test default channels to fix the Tx frequency which was for the purpose of the measurements.

2.3. Test Procedure

2.3.1 Conducted Measurement at Antenna Port

According to measurement procured ANSI C63.26-2015, the EUT is placed on a turn table which is 0.8 m above ground plane. A low loss of RF cable was used to connect the antenna port of EUT to measurement equipment.

2.3.2 Radiated Emissions (ERP/EIRP)

According to measurement procured ANSI C63.26-2015, The EUT is a placed on as turn table, for emission measurements below 1 GHz is 0.8 m above ground plane, for emission measurements above 1 GHz, the table height shall be 1.5 m. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both Horizontal and Vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter (EUT) was rotated through three orthogonal axes and measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made "while keeping the antenna in the 'cone of radiation' from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response." is still within the 3dB illumination BW of the measurement antenna according to the requirements in Section 8 and 13.

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 attenuation factor between EUT conducted port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly EUT RF output level.

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Note:

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

Following shows an offset computation in physical test.

| | RF cable loss (dB) | Attenuation factor(dB) | offset(dB) |
|-------------------------|--------------------|------------------------|------------|
| Low Band (Below 1GHz) | 0.2 | 21 | 21.2 |
| High Band (Above 1 GHz) | 0.5 | 21.36 | 21.86 |

2.5. Final Amplifier Voltage and Current Information:

| Test Mode | DC voltage (V) | DC current (mA) |
|-------------|----------------|-----------------|
| GSM 850 | | 324 |
| GSM 1900 | 3.85 | 375 |
| WCDMA B5 | | 634 |
| LTE Band 5 | | 609.380 |
| LTE Band 12 | | 615.670 |
| LTE Band 17 | | 618.160 |

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2.6. Configuration of Tested System

Fig. 2-1 Configuration of Tested System (Fixed Channel-Conducted)

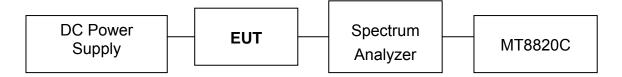
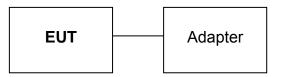


Fig. 2-2 Configuration of Tested System (Fixed Channel-Radiated)



Remote Side



Table 2-1 Equipment Used in

| ltem | Equipment | Mfr/Brand | Model/ Type No. | Series No. | Data Cable | Power Cord |
|------|--------------------------------|-----------|--------------------|------------|------------|-------------|
| 1. | Radio Communication Analyer | Anritsu | MT8820C | 6201465317 | shielded | Un-shielded |

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3. SUMMARY OF TEST RESULTS

| FCC Rules | Description Of Test | Result |
|----------------------------------------------------------------------|--------------------------------------|-----------|
| §2.1046(a) | RF Power Output | Compliant |
| §2.1046(a) §22.913(a)(5) §24.232(c) §27.50(c)(10) §27.50(h)(2) | ERP/ EIRP measurement | Compliant |
| §2.1049(h) | 99% & 26dB Occuupied Bandwidth | Compliant |
| §2.1051 §22.917(a) | Out of Band Emissions at Antenna | |
| §24.238(a) §27.53(g) | Terminals and Band Edge / | Compliant |
| §27.53(m)(4) | Emission mask requirements | |
| §2.1053 §22.917(a) §24.238(a) §27.53(g) §27.53(m)(4) | Field Strength of Spurious Radiation | Compliant |
| §24.232(d) §22.913 | Peak to Average Ratio | Compliant |
| §2.1055(a)(1) §22.355 §24.235 §27.54 | Frequency Stability | Compliant |



4. DESCRIPTION OF TEST MODES

4.1. The Worst Test Modes and Channel Details

- 1. The EUT has been tested under operating condition.
- 2. Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, X(E1)Y(E2)Z(H) axis and antenna ports. The worst case was found as listed below. Following channel(s) was (were) selected for the final test as listed below:

| BAND | ERP/EIRP | RADIATED EMISSION |
|-------------------|----------|----------------------|
| GSM/GPRS 850 | H-plan | H-plan |
| GSM/GPRS 1900 | H-plan | H-plan |
| WCDMA/HSPA Band V | H-plan | H-plan |
| LTE Band 5 | H-plan | H-plan |
| LTE Band 12 | H-plan | H-plan |
| LTE Band 17 | H-plan | H-plan |

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GSM/GPRS MODE

| TEST ITEM | AVAILABLE CHANNEL | TESTED CHANNEL | MODE |
|-----------------------|----------------------|-------------------|---------------|
| ERP | 128 to 251 | 128, 190, 251 | GSM/GPRS 850 |
| EIRP | 512 to 810 | 512, 661, 810 | GSM/GPRS 1900 |
| FREQUENCY STABILITY | 128 to 251 | 190 | GPRS 850 |
| | 512 to 810 | 661 | GPRS 1900 |
| OCCUPIED BANDWIDTH | 128 to 251 | 190 | GSM/GPRS 850 |
| | 512 to 810 | 661 | GSM/GPRS 1900 |
| PEAK TO AVERAGE RATIO | 128 to 251 | 128, 190, 251 | GSM/GPRS 850 |
| | 512 to 810 | 512, 661, 810 | GSM/GPRS 1900 |
| BAND EDGE | 128 to 251 | 128, 251 | GSM/GPRS 850 |
| | 512 to 810 | 512, 810 | GSM/GPRS 1900 |
| CONDCUDETED EMISSION | 128 to 251 | 128, 190, 251 | GSM/GPRS 850 |
| | 512 to 810 | 512, 661, 810 | GSM/GPRS 1900 |
| RADIATED EMISSION | 128 to 251 | 128, 190, 251 | GPRS 850 |
| | 512 to 810 | 512, 661, 810 | GPRS 1900 |

WCDMA/HSPA MODE

| TEST ITEM | AVAILABLE CHANNEL | TESTED CHANNEL | MODE |
|--------------------------|----------------------|-------------------|-------------------|
| ERP | 4132 to 4233 | 4132, 4183, 4233 | WCDMA/HSPA Band V |
| FREQUENCY STABILITY | 4132 to 4233 | 4183 | WCDMA Band V |
| OCCUPIED BANDWIDTH | 4132 to 4233 | 4132, 4183, 4233 | WCDMA/HSPA Band V |
| PEAK TO AVERAGE RATIO | 4132 to 4233 | 4132, 4183, 4233 | WCDMA/HSPA Band V |
| BAND EDGE | 4132 to 4233 | 4132, 4233 | WCDMA Band V |
| CONDCUDETED EMISSION | 4132 to 4233 | 4132, 4183, 4233 | WCDMA/HSPA Band V |
| RADIATED EMISSION | 4132 to 4233 | 4132, 4183, 4233 | WCDMA Band V |



LTE Band 5 MODE

| TEST ITEM | AVAILABLE | TESTED | CHANNEL | MODULATION | MODE |
|------------------------|----------------|---------------------|-----------|--------------|---------------------------------|
| | CHANNEL | CHANNEL | BANDWIDTH | MODULATION | WODE |
| | 20470 to 20643 | 20470, 20525, 20643 | 1.4MHz | QPSK, 16QAM, | 1 RB/ 0,5 RB Offest |
| ERP | 20415 to 20635 | 20415, 20525, 20635 | 3MHz | QPSK, 16QAM, | 1 RB/ 0,14 RB Offest |
| EKP | 20425 to 20625 | 20425, 20525, 20625 | 5MHz | QPSK, 16QAM, | 1 RB/ 0,24 RB Offest |
| | 20450 to 20600 | 20450, 20525, 20600 | 10MHz | QPSK, 16QAM, | 1 RB/ 0,49 RB Offest |
| FREQUENCY STABILITY | 20450 to 20600 | 20525 | 10MHz | QPSK | Full RB |
| | 20470 to 20643 | 20470, 20525, 20643 | 1.4MHz | QPSK, 16QAM, | Full RB |
| OCCUPIED BAND- | 20415 to 20635 | 20415, 20525, 20635 | 3MHz | QPSK, 16QAM, | Full RB |
| WIDTH | 20425 to 20625 | 20425, 20525, 20625 | 5MHz | QPSK, 16QAM, | Full RB |
| | 20450 to 20600 | 20450, 20525, 20600 | 10MHz | QPSK, 16QAM, | Full RB |
| | 20470 to 20643 | 20470, 20525, 20643 | 1.4MHz | 16QAM | Full RB |
| PEAK TO AVERAGE | 20415 to 20635 | 20415, 20525, 20635 | 3MHz | 16QAM | Full RB |
| RATIO | 20425 to 20625 | 20425, 20525, 20625 | 5MHz | 16QAM | Full RB |
| | 20450 to 20600 | 20450, 20525, 20600 | 10MHz | 16QAM | Full RB |
| | 20470 to 20643 | 20470, 20643 | 1.4MHz | QPSK | 1 RB/ 0,5 RB Offes Full RB |
| | 20415 to 20635 | 20415, 20635 | 3MHz | QPSK | 1 RB/ 0,14 RB Offest Full RB |
| BAND EDGE | 20425 to 20625 | 20425, 20625 | 5MHz | QPSK | 1 RB/ 0,24 RB Offest Full RB |
| | 20450 to 20600 | 20450, 20600 | 10MHz | QPSK | 1 RB/ 0,49 RB Offest Full RB |
| | 20470 to 20643 | 20470, 20525, 20643 | 1.4MHz | QPSK | 1 RB, 0 RB Offest |
| CONDCUDETED | 20415 to 20635 | 20415, 20525, 20635 | 3MHz | QPSK | 1 RB, 0 RB Offest |
| EMISSION | 20425 to 20625 | 20425, 20525, 20625 | 5MHz | QPSK | 1 RB, 0 RB Offest |
| | 20450 to 20600 | 20450, 20525, 20600 | 10MHz | QPSK | 1 RB, 0 RB Offest |
| RADIATED EMISSION | 20415 to 20635 | 20415, 20525, 20635 | 3MHz | 16QAM | 1 RB, 0 RB Offest |



LTE Band 12 MODE

| TEST ITEM | AVAILABLE CHANNEL | TESTED CHANNEL | CHANNEL BANDWIDTH | MODULATION | MODE |
|------------------------|----------------------|---------------------|----------------------|--------------|---------------------------------|
| | 23017 to 23173 | 23017, 23095, 23173 | 1.4MHz | QPSK, 16QAM, | 1 RB/ 0,5 RB Offest |
| ERP | 23025 to 23165 | 23025, 23095, 23165 | 3MHz | QPSK, 16QAM, | 1 RB/ 0,14 RB Offest |
| EKP | 23035 to 23155 | 23035, 23095, 23155 | 5MHz | QPSK, 16QAM, | 1 RB/ 0,24 RB Offest |
| | 23060 to 23130 | 23060, 23095, 23130 | 10MHz | QPSK, 16QAM, | 1 RB/ 0,49 RB Offest |
| FREQUENCY STABILITY | 23060 to 23130 | 23095 | 10MHz | QPSK | Full RB |
| | 23017 to 23173 | 23017, 23095, 23173 | 1.4MHz | QPSK, 16QAM, | Full RB |
| OCCUPIED | 23025 to 23165 | 23025, 23095, 23165 | 3MHz | QPSK, 16QAM, | Full RB |
| BANDWIDTH | 23035 to 23155 | 23035, 23095, 23155 | 5MHz | QPSK, 16QAM, | Full RB |
| | 23060 to 23130 | 23060, 23095, 23130 | 10MHz | QPSK, 16QAM, | Full RB |
| | 23017 to 23173 | 23017, 23095, 23173 | 1.4MHz | 16QAM | Full RB |
| PEAK TO AV- | 23025 to 23165 | 23025, 23095, 23165 | 3MHz | 16QAM | Full RB |
| ERAGE RATIO | 23035 to 23155 | 23035, 23095, 23155 | 5MHz | 16QAM | Full RB |
| | 23060 to 23130 | 23060, 23095, 23130 | 10MHz | 16QAM | Full RB |
| | 23017 to 23173 | 23017, 23095, 23173 | 1.4MHz | QPSK | 1 RB/ 0,5 RB Offes Full RB |
| | 23025 to 23165 | 23025, 23095, 23165 | 3MHz | QPSK | 1 RB/ 0,14 RB Offest Full RB |
| BAND EDGE | 23035 to 23155 | 23035, 23095, 23155 | 5MHz | QPSK | 1 RB/ 0,24 RB Offest Full RB |
| | 23060 to 23130 | 23060, 23095, 23130 | 10MHz | QPSK | 1 RB/ 0,49 RB Offest Full RB |
| CONDCU- | 23017 to 23173 | 23017, 23095, 23173 | 1.4MHz | QPSK | 1 RB, 0 RB Offest |
| DETED EMIS- | 23025 to 23165 | 23025, 23095, 23165 | 3MHz | QPSK | 1 RB, 0 RB Offest |
| | 23035 to 23155 | 23035, 23095, 23155 | 5MHz | QPSK | 1 RB, 0 RB Offest |
| SION | 23060 to 23130 | 23060, 23095, 23130 | 10MHz | QPSK | 1 RB, 0 RB Offest |
| RADIATED EMISSION | 23017 to 23173 | 23017, 23095, 23173 | 1.4MHz | 16QAM | 1 RB, 0 RB Offest |

LTE Band 17 MODE

| TEST ITEM | AVAILABLE CHANNEL | TESTED CHANNEL | CHANNEL BANDWIDTH | MODULATION | MODE |
|------------------------|----------------------|---------------------|----------------------|--------------|---------------------------------|
| ERP | 23755 to 23825 | 23755, 23790, 23825 | 5MHz | QPSK, 16QAM, | 1 RB/ 0,24 RB Offest |
| EKP | 23780 to 23800 | 23780, 23790, 23800 | 10MHz | QPSK, 16QAM, | 1 RB/ 0,49 RB Offest |
| FREQUENCY STABILITY | 23780 to 23800 | 23790 | 10MHz | QPSK | Full RB |
| OCCUPIED BAND- | 23755 to 23825 | 23755, 23790, 23825 | 5MHz | QPSK, 16QAM, | Full RB |
| WIDTH | 23780 to 23800 | 23780, 23790, 23800 | 10MHz | QPSK, 16QAM, | Full RB |
| PEAK TO AVERAGE | 23755 to 23825 | 23755, 23790, 23825 | 5MHz | 16QAM | Full RB |
| RATIO | 23780 to 23800 | 23780, 23790, 23800 | 10MHz | 16QAM | Full RB |
| | 23755 to 23825 | 23755, 23825 | 5MHz | QPSK | 1 RB/ 0,24 RB Offest Full RB |
| BAND EDGE | 23780 to 23800 | 23780, 23800 | 10MHz | QPSK | 1 RB/ 0,49 RB Offest Full RB |
| CONDCUDETED | 23755 to 23825 | 23755, 23790, 23825 | 5MHz | QPSK | 1 RB, 0 RB Offest |
| EMISSION | 23780 to 23800 | 23780, 23790, 23800 | 10MHz | QPSK | 1 RB, 0 RB Offest |
| RADIATED EMISSION | 23755 to 23825 | 23755, 23790, 23825 | 5MHz | 16QAM | 1 RB, 0 RB Offest |



5. MEASUREMENT UNCERTAINTY

| Test Items | Uncertainty |
|----------------------------------------------------------------|---------------------------------------------------------------------------|
| RF Power Output | +/- 1.10 dB |
| ERP/ EIRP measurement | Vertical Polarization = +/- 4.74dB Horizontal Polarization =+/- 4.62dB |
| 99% Occupied Bandwidth | +/- 5.19 Hz |
| Out of Band Emissions at Antenna Terminals and Band Edge | +/- 0.70 dB |
| Peak to Average Ratio | +/- 0.70 dB |
| Frequency Stability vs. Temperature | +/- 5.19 Hz |
| Frequency Stability vs. Voltage | +/- 5.19 Hz |
| Temperature | +/- 0.65 °C |
| Humidity | +/- 4.6 % |
| DC / AC Power Source | DC= +/- 0.13%, AC=+/- 0.2% |

Radiated Spurious Emission:

| Measurement uncertainty (Polarization : Vertical) | 9kHz – 30MHz: +/- 2.87 dB |
|--------------------------------------------------------------|----------------------------|
| | 30MHz - 180MHz: +/- 3.37dB |
| | 180MHz -417MHz: +/- 3.19dB |
| | 0.417GHz-1GHz: +/- 3.19dB |
| | 1GHz - 18GHz: +/- 4.04dB |
| | 18GHz - 40GHz: +/- 4.04dB |

| | 9kHz – 30MHz: +/- 2.87 dB |
|----------------------------------------------------------------|----------------------------|
| | 30MHz - 167MHz: +/- 4.22dB |
| Measurement uncertainty (Polarization : Horizontal) | 167MHz -500MHz: +/- 3.44dB |
| | 0.5GHz-1GHz: +/- 3.39dB |
| | 1GHz - 18GHz: +/- 4.08dB |
| | 18GHz - 40GHz: +/- 4.08dB |

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

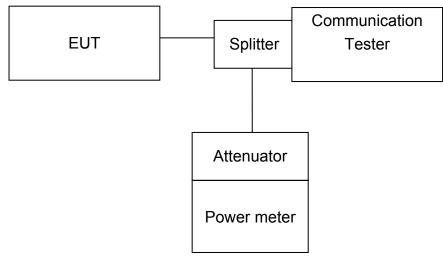


6. RF CONDUCTED OUTPUT POWER MEASUREMENT

6.1. Standard Applicable

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

6.2. Test Set-up



Note: Measurement setup for testing on Antenna connector

6.3. Measurement Procedure

The transmitter output was connected to a calibrated attenuator, the other end of which was connected to a power meter. Transmitter output was read off the power meter in dBm. The power output at the transmitter antenna port was determined by adding the value of the attenuator to the power meter reading. TS 151 010-1 is reference to conduct the test measurement of output power.

The Procedure of KDB941225 (SAR Measurement Procedures for 3G devices, (WCD-MA/HSPA) was used for EUT and Base station setting. RMC 12.2kps is used for this testing, and KDB 971168 D01 Power Meas License Digital System as the supplemental test methodology to adjust the proper setting obtaining the measurement results

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製

SGS Taiwan Ltd.



6.4. Measurement Equipment Used

| EQUIPMENT TYPE | MFR | MODEL NUM- BER | SERIAL NUMBER | LAST CAL. | CAL DUE. |
|----------------------------------|------------|-------------------|------------------|--------------|------------|
| Radio Communi- cation Analyer | Anritsu | MT8820C | 6201107337 | 2018/06/15 | 2019/06/14 |
| Radio Communi- cation Analyer | Anritsu | MT8815B | 6200711454 | 2018/04/05 | 2019/04/04 |
| DC Power Supply | DHA | DPS-3003 | 9411005787 | 2018/08/14 | 2019/08/13 |
| Attenuator | Marvelous | MVE2213-10 | RF31 | 2017/12/26 | 2018/12/25 |
| DC Block | PASTERNACK | PE8210 | RF29 | 2017/12/26 | 2018/12/25 |
| Coaxial Cables | Woken | 00100A1F1A185C | RF231 | 2017/12/26 | 2018/12/25 |

6.5. Measurement Result

RF Conducted Output Power

GSM/GPRS/EDGE (GMSK; 8-PSK) Result:

| EUT Mode | Freq. (MHz) | СН | Conducted Avg. Power (dBm) | ERP /EIRP (dBm) | Limit (dBm) | Margin (dB) |
|-------------|----------------|-----|----------------------------------|--------------------|----------------|----------------|
| | 824.2 | 128 | 32.61 | 32.61 | 38.50 | -5.89 |
| GSM 850 | 836.6 | 190 | 32.57 | 32.57 | 38.50 | -5.93 |
| | 848.8 | 251 | 32.59 | 32.59 | 38.50 | -5.91 |
| | 1850.2 | 512 | 28.87 | 28.87 | 33.00 | -4.13 |
| GSM 1900 | 1880.0 | 661 | 28.88 | 28.88 | 33.00 | -4.12 |
| 1700 | 1909.8 | 810 | 28.77 | 28.77 | 33.00 | -4.23 |

GSM/GPRS/EDGE (GMSK; 8-PSK) Result:

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.



| EUT Mode | Frequency (MHz) | СН | Average Burst Power (1DN 1UP) Class 8 (dBm) | Average Burst Power (1DN 2UP) Class 10 (dBm) | Average Burst Power (1DN 3UP) Class 12 (dBm) | Average Burst Power (1DN 4UP) Class 12 (dBm) |
|--------------|--------------------|-----|------------------------------------------------------------|-------------------------------------------------------------|-------------------------------------------------------------|-------------------------------------------------------------|
| | 824.2 | 128 | 32.61 | 31.16 | 29.22 | 28.10 |
| GPRS 850 | 836.6 | 190 | 32.57 | 31.07 | 29.20 | 27.79 |
| | 848.8 | 251 | 32.59 | 30.88 | 28.89 | 27.76 |
| | 1850.2 | 512 | 28.87 | 26.51 | 24.60 | 23.84 |
| GPRS 1900 | 1880.0 | 661 | 28.88 | 26.50 | 24.63 | 23.91 |
| 1700 | 1909.8 | 810 | 28.77 | 26.48 | 24.52 | 23.77 |



WCDMA MODE:

The following tests were completed according to the test requirements outlined in section 5.2 of the 3GPP TS34.121-1 V8.4.0 specification. The EUT supports power Class 3, which has a nominal maximum output power of 24 dBm (+1.7/-3.7). RMC 12.2kps is used for this testing.

Results:

WCDMA/HSUPA/HSDPA

Band V Result:

| EUT Mode | Freq. (MHz) | СН | Conducted Avg. Power (dBm) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
|-------------|----------------|------|----------------------------------|---------------|----------------|----------------|
| | 826.4 | 4132 | 22.96 | 22.96 | 38.50 | -15.54 |
| WCDMA | 836.6 | 4183 | 22.83 | 22.83 | 38.50 | -15.67 |
| | 846.6 | 4233 | 22.90 | 22.90 | 38.50 | -15.60 |
| | 826.4 | 4132 | 22.27 | 22.27 | 38.50 | -16.23 |
| HSDPA | 836.6 | 4183 | 22.22 | 22.22 | 38.50 | -16.28 |
| | 846.6 | 4233 | 22.38 | 22.38 | 38.50 | -16.12 |
| | 826.4 | 4132 | 22.35 | 22.35 | 38.50 | -16.15 |
| HSUPA | 836.6 | 4183 | 22.31 | 22.31 | 38.50 | -16.19 |
| | 846.6 | 4233 | 22.35 | 22.35 | 38.50 | -16.15 |

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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LTE Result: FDD Band 5

| Antenna | gain (dBi) | 0 | | | | | | | |
|-------------|---------------|--------------------|---------------|------------|--------------|-------------------------------|--------------------------|------------------------|----------------|
| | | LTE Ban | d 5_Uplink fr | equen | cy band | : 824 to 849 | MHz | | |
| BW (MHz) | UL Channel | Frequency (MHz) | Modulation | RB Size | RB Offset | Conducted Average (dBm) | EIRP Average (dBm) | EIRP Limit (dBm) | Margin (dB) |
| | | | | 1 | 0 | 23.16 | 23.16 | 38.45 | -15.29 |
| | 20407 | 824.7 | QPSK | 1 | 5 | 23.23 | 23.23 | 38.45 | -15.22 |
| | 20407 | 824.7 | UPSK | 3 | 2 | 22.35 | 22.35 | 38.45 | -16.1 |
| | | | | 6 | 0 | 22.39 | 22.39 | 38.45 | -16.06 |
| | | | | 1 | 0 | 23.00 | 23.00 | 38.45 | -15.45 |
| | 20525 | 836.5 | QPSK | 1 | 5 | 23.10 | 23.10 | 38.45 | -15.35 |
| | 20525 | 030.3 | UPSK | 3 | 2 | 22.34 | 22.34 | 38.45 | -16.11 |
| | | | | 6 | 0 | 22.36 | 22.36 | 38.45 | -16.09 |
| | | 848.3 | QPSK | 1 | 0 | 23.28 | 23.28 | 38.45 | -15.17 |
| | 20643 | | | 1 | 5 | 22.44 | 22.44 | 38.45 | -16.01 |
| | 20043 | | | 3 | 2 | 22.43 | 22.43 | 38.45 | -16.02 |
| 1.4 | | | | 6 | 0 | 22.14 | 22.14 | 38.45 | -16.31 |
| 1.4 | | | | 1 | 0 | 22.42 | 22.42 | 38.45 | -16.03 |
| | 20407 | 824.7 | 16QAM | 1 | 5 | 22.22 | 22.22 | 38.45 | -16.23 |
| | 20407 | 024.7 | TOQAM | 3 | 2 | 21.55 | 21.55 | 38.45 | -16.9 |
| | | | | 6 | 0 | 21.35 | 21.35 | 38.45 | -17.1 |
| | | | | 1 | 0 | 22.26 | 22.26 | 38.45 | -16.19 |
| | 20525 | 836.5 | 16QAM | 1 | 5 | 22.18 | 22.18 | 38.45 | -16.27 |
| | 20323 | 030.5 | TOQAM | 3 | 2 | 21.26 | 21.26 | 38.45 | -17.19 |
| | | | | 6 | 0 | 21.28 | 21.28 | 38.45 | -17.17 |
| | | | | 1 | 0 | 22.36 | 22.36 | 38.45 | -16.09 |
| | 20643 | 848.3 | 16QAM | 1 | 5 | 21.92 | 21.92 | 38.45 | -16.53 |
| | 20043 | 070.0 | | 3 | 2 | 21.15 | 21.15 | 38.45 | -17.3 |
| | | | | 6 | 0 | 21.16 | 21.16 | 38.45 | -17.29 |



| Antenna | gain (dBi) | 0 | | | | | | | |
|-------------|---------------|--------------------|---------------|------------|--------------|-------------------------------|--------------------------|------------------------|----------------|
| | | LTE Ban | d 5_Uplink fr | equen | cy band | : 824 to 849 | MHz | | |
| BW (MHz) | UL Channel | Frequency (MHz) | Modulation | RB Size | RB Offset | Conducted Average (dBm) | EIRP Average (dBm) | EIRP Limit (dBm) | Margin (dB) |
| | | | | 1 | 0 | 22.83 | 22.83 | 38.45 | -15.62 |
| | 20415 | 825.5 | QPSK | 1 | 14 | 22.94 | 22.94 | 38.45 | -15.51 |
| | 20415 | 020.0 | ULDV | 8 | 4 | 22.40 | 22.40 | 38.45 | -16.05 |
| | | | | 15 | 0 | 22.30 | 22.30 | 38.45 | -16.15 |
| | | | | 1 | 0 | 22.98 | 22.98 | 38.45 | -15.47 |
| | 20525 | 836.5 | QPSK | 1 | 14 | 22.98 | 22.98 | 38.45 | -15.47 |
| | 20323 | 030.0 | UF SK | 8 | 4 | 22.34 | 22.34 | 38.45 | -16.11 |
| | | | | 15 | 0 | 22.36 | 22.36 | 38.45 | -16.09 |
| | | 847.5 | QPSK | 1 | 0 | 23.11 | 23.11 | 38.45 | -15.34 |
| | 20635 | | | 1 | 14 | 22.16 | 22.16 | 38.45 | -16.29 |
| | | | | 8 | 4 | 22.31 | 22.31 | 38.45 | -16.14 |
| 3 | | | | 15 | 0 | 22.38 | 22.38 | 38.45 | -16.07 |
| 5 | | | | 1 | 0 | 22.32 | 22.32 | 38.45 | -16.13 |
| | 20415 | 825.5 | 16QAM | 1 | 14 | 22.35 | 22.35 | 38.45 | -16.1 |
| | 20413 | 023.3 | | 8 | 4 | 21.33 | 21.33 | 38.45 | -17.12 |
| | | | | 15 | 0 | 21.38 | 21.38 | 38.45 | -17.07 |
| | | | | 1 | 0 | 22.25 | 22.25 | 38.45 | -16.2 |
| | 20525 | 836.5 | 16QAM | 1 | 14 | 21.87 | 21.87 | 38.45 | -16.58 |
| | 20323 | 030.3 | | 8 | 4 | 21.25 | 21.25 | 38.45 | -17.2 |
| | | | | 15 | 0 | 21.12 | 21.12 | 38.45 | -17.33 |
| | | | | 1 | 0 | 22.28 | 22.28 | 38.45 | -16.17 |
| | 20635 | 847 5 | 16QAM | 1 | 14 | 21.70 | 21.70 | 38.45 | -16.75 |
| | 20635 | 847.5 | | 8 | 4 | 21.26 | 21.26 | 38.45 | -17.19 |
| | | | | 15 | 0 | 21.11 | 21.11 | 38.45 | -17.34 |



| Antenna | gain (dBi) | 0 | | | | | | | |
|-------------|---------------|--------------------|---------------|------------|--------------|-------------------------------|--------------------------|------------------------|----------------|
| | | LTE Ban | d 5_Uplink fr | equen | cy band | : 824 to 849 | MHz | | |
| BW (MHz) | UL Channel | Frequency (MHz) | Modulation | RB Size | RB Offset | Conducted Average (dBm) | EIRP Average (dBm) | EIRP Limit (dBm) | Margin (dB) |
| | | | | 1 | 0 | 24.55 | 24.55 | 38.45 | -13.9 |
| | 20425 | 826.5 | QPSK | 1 | 24 | 24.52 | 24.52 | 38.45 | -13.93 |
| | 20420 | 020.0 | ULDV | 12 | 6 | 23.38 | 23.38 | 38.45 | -15.07 |
| | | | | 25 | 0 | 23.39 | 23.39 | 38.45 | -15.06 |
| | | | | 1 | 0 | 24.57 | 24.57 | 38.45 | -13.88 |
| | 20525 | 836.5 | QPSK | 1 | 24 | 24.46 | 24.46 | 38.45 | -13.99 |
| | 20323 | 030.0 | | 12 | 6 | 23.46 | 23.46 | 38.45 | -14.99 |
| | | | | 25 | 0 | 23.49 | 23.49 | 38.45 | -14.96 |
| | | 846.5 | QPSK | 1 | 0 | 24.59 | 24.59 | 38.45 | -13.86 |
| | 20625 | | | 1 | 24 | 24.63 | 24.63 | 38.45 | -13.82 |
| | 20025 | | | 12 | 6 | 23.57 | 23.57 | 38.45 | -14.88 |
| 5 | | | | 25 | 0 | 23.58 | 23.58 | 38.45 | -14.87 |
| 5 | | | | 1 | 0 | 23.82 | 23.82 | 38.45 | -14.63 |
| | 20425 | 826.5 | 16QAM | 1 | 24 | 23.83 | 23.83 | 38.45 | -14.62 |
| | 20420 | 020.0 | TOQAIN | 12 | 6 | 22.47 | 22.47 | 38.45 | -15.98 |
| | | | | 25 | 0 | 22.43 | 22.43 | 38.45 | -16.02 |
| | | | | 1 | 0 | 23.80 | 23.80 | 38.45 | -14.65 |
| | 20525 | 836.5 | 16QAM | 1 | 24 | 23.73 | 23.73 | 38.45 | -14.72 |
| | 20020 | 030.0 | TOQAIN | 12 | 6 | 22.51 | 22.51 | 38.45 | -15.94 |
| | | | | 25 | 0 | 22.49 | 22.49 | 38.45 | -15.96 |
| | | | | 1 | 0 | 23.91 | 23.91 | 38.45 | -14.54 |
| | 20625 | 846.5 | 16QAM | 1 | 24 | 23.93 | 23.93 | 38.45 | -14.52 |
| | 20020 | 040.0 | TOQAIVI | 12 | 6 | 22.66 | 22.66 | 38.45 | -15.79 |
| | | | | 25 | 0 | 22.62 | 22.62 | 38.45 | -15.83 |



| Antenna | gain (dBi) | 0 | | | | | | | |
|-------------|---------------|--------------------|---------------|------------|--------------|-------------------------------|--------------------------|------------------------|----------------|
| | | LTE Ban | d 5_Uplink fr | equen | cy band | : 824 to 849 | MHz | | |
| BW (MHz) | UL Channel | Frequency (MHz) | Modulation | RB Size | RB Offset | Conducted Average (dBm) | EIRP Average (dBm) | EIRP Limit (dBm) | Margin (dB) |
| | | | | 1 | 0 | 23.05 | 23.05 | 38.45 | -15.4 |
| | 20450 | 829 | QPSK | 1 | 49 | 23.03 | 23.03 | 38.45 | -15.42 |
| | 20430 | 029 | ULDV | 25 | 12 | 22.36 | 22.36 | 38.45 | -16.09 |
| | | | | 50 | 0 | 22.37 | 22.37 | 38.45 | -16.08 |
| | | | | 1 | 0 | 23.13 | 23.13 | 38.45 | -15.32 |
| | 20525 | 836.5 | QPSK | 1 | 49 | 23.16 | 23.16 | 38.45 | -15.29 |
| | 20020 | 030.0 | ULDK | 25 | 12 | 22.35 | 22.35 | 38.45 | -16.1 |
| | | | | 50 | 0 | 22.27 | 22.27 | 38.45 | -16.18 |
| | 20600 | 844 | QPSK | 1 | 0 | 22.91 | 22.91 | 38.45 | -15.54 |
| | | | | 1 | 49 | 22.27 | 22.27 | 38.45 | -16.18 |
| | 20000 | | | 25 | 12 | 22.47 | 22.47 | 38.45 | -15.98 |
| 10 | | | | 50 | 0 | 22.27 | 22.27 | 38.45 | -16.18 |
| 10 | | | | 1 | 0 | 22.30 | 22.30 | 38.45 | -16.15 |
| | 20450 | 829 | 16QAM | 1 | 49 | 22.34 | 22.34 | 38.45 | -16.11 |
| | 20430 | 027 | TUQAIN | 25 | 12 | 21.53 | 21.53 | 38.45 | -16.92 |
| | | | | 50 | 0 | 21.06 | 21.06 | 38.45 | -17.39 |
| | | | | 1 | 0 | 22.35 | 22.35 | 38.45 | -16.1 |
| | 20525 | 836.5 | 16QAM | 1 | 49 | 22.36 | 22.36 | 38.45 | -16.09 |
| | 20323 | 030.3 | | 25 | 12 | 21.29 | 21.29 | 38.45 | -17.16 |
| | | | | 50 | 0 | 21.40 | 21.40 | 38.45 | -17.05 |
| | | | | 1 | 0 | 22.23 | 22.23 | 38.45 | -16.22 |
| | 20600 | 811 | 16QAM | 1 | 49 | 21.83 | 21.83 | 38.45 | -16.62 |
| | 20000 | 844 | | 25 | 12 | 21.29 | 21.29 | 38.45 | -17.16 |
| | | | | 50 | 0 | 21.36 | 21.36 | 38.45 | -17.09 |



FDD Band 12

| Antenna gain (dBi) 0 | | | | | | | | | |
|----------------------|---------------|--------------------|----------------|------------|--------------|-------------------------------|--------------------------|------------------------|----------------|
| | | LTE Band | l 12_Uplink fi | requer | icy band | l : 699 to 716 | MHz | | |
| BW (MHz) | UL Channel | Frequency (MHz) | Modulation | RB Size | RB Offset | Conducted Average (dBm) | EIRP Average (dBm) | EIRP Limit (dBm) | Margin (dB) |
| | | | | 1 | 0 | 22.70 | 22.70 | 34.77 | -12.07 |
| | 23017 | 699.7 | QPSK | 1 | 5 | 22.70 | 22.70 | 34.77 | -12.07 |
| | 23017 | 077.7 | UI SK | 3 | 2 | 22.76 | 22.76 | 34.77 | -12.01 |
| | | | | 6 | 0 | 21.99 | 21.99 | 34.77 | -12.78 |
| | | | QPSK | 1 | 0 | 23.11 | 23.11 | 34.77 | -11.66 |
| | 23095 | 707.5 | | 1 | 5 | 22.86 | 22.86 | 34.77 | -11.91 |
| | | 101.5 | | 3 | 2 | 22.99 | 22.99 | 34.77 | -11.78 |
| | | | | 6 | 0 | 22.02 | 22.02 | 34.77 | -12.75 |
| | | 715.5 | QPSK | 1 | 0 | 22.83 | 22.83 | 34.77 | -11.94 |
| | 23173 | | | 1 | 5 | 22.70 | 22.70 | 34.77 | -12.07 |
| | | | | 3 | 2 | 23.27 | 23.27 | 34.77 | -11.5 |
| 1.4 | | | | 6 | 0 | 21.94 | 21.94 | 34.77 | -12.83 |
| 1.7 | | | | 1 | 0 | 21.63 | 21.63 | 34.77 | -13.14 |
| | 23017 | 699.7 | 16QAM | 1 | 5 | 21.68 | 21.68 | 34.77 | -13.09 |
| | 23017 | 077.7 | 100/10 | 3 | 2 | 21.87 | 21.87 | 34.77 | -12.9 |
| | | | | 6 | 0 | 20.47 | 20.47 | 34.77 | -14.3 |
| | | | | 1 | 0 | 22.27 | 22.27 | 34.77 | -12.5 |
| | 23095 | 707.5 | 16QAM | 1 | 5 | 21.82 | 21.82 | 34.77 | -12.95 |
| | 23073 | 101.5 | TOQAIN | 3 | 2 | 22.03 | 22.03 | 34.77 | -12.74 |
| | | | | 6 | 0 | 20.88 | 20.88 | 34.77 | -13.89 |
| | | | | 1 | 0 | 21.73 | 21.73 | 34.77 | -13.04 |
| | 23173 | 715.5 | 16OAM | 1 | 5 | 21.85 | 21.85 | 34.77 | -12.92 |
| | 2J1/J | 110.0 | 16QAM | 3 | 2 | 21.97 | 21.97 | 34.77 | -12.8 |
| | | | | 6 | 0 | 20.69 | 20.69 | 34.77 | -14.08 |



| Antenna | gain (dBi) | 0 | | | | | | | |
|-------------|---------------|--------------------|----------------|------------|--------------|-------------------------------|--------------------------|------------------------|----------------|
| | | LTE Band | l 12_Uplink fi | requer | ncy band | d : 699 to 716 | MHz | | |
| BW (MHz) | UL Channel | Frequency (MHz) | Modulation | RB Size | RB Offset | Conducted Average (dBm) | EIRP Average (dBm) | EIRP Limit (dBm) | Margin (dB) |
| | | | | 1 | 0 | 22.49 | 22.49 | 34.77 | -12.28 |
| | 23025 | 700.5 | QPSK | 1 | 14 | 22.58 | 22.58 | 34.77 | -12.19 |
| | 23023 | 700.5 | ULDV | 8 | 4 | 21.90 | 21.90 | 34.77 | -12.87 |
| | | | | 15 | 0 | 21.84 | 21.84 | 34.77 | -12.93 |
| | | | | 1 | 0 | 22.99 | 22.99 | 34.77 | -11.78 |
| | 23095 | 707.5 | QPSK | 1 | 14 | 22.65 | 22.65 | 34.77 | -12.12 |
| | 23090 | 707.5 | UF SK | 8 | 4 | 22.16 | 22.16 | 34.77 | -12.61 |
| | | | | 15 | 0 | 22.12 | 22.12 | 34.77 | -12.65 |
| | | 714.5 | QPSK | 1 | 0 | 22.63 | 22.63 | 34.77 | -12.14 |
| | 23165 | | | 1 | 14 | 22.92 | 22.92 | 34.77 | -11.85 |
| | 23100 | | | 8 | 4 | 22.09 | 22.09 | 34.77 | -12.68 |
| 3 | | | | 15 | 0 | 21.92 | 21.92 | 34.77 | -12.85 |
| 5 | | | | 1 | 0 | 21.99 | 21.99 | 34.77 | -12.78 |
| | 23025 | 700.5 | 16QAM | 1 | 14 | 22.12 | 22.12 | 34.77 | -12.65 |
| | 23025 | 700.5 | TOQAIN | 8 | 4 | 20.94 | 20.94 | 34.77 | -13.83 |
| | | | | 15 | 0 | 20.93 | 20.93 | 34.77 | -13.84 |
| | | | | 1 | 0 | 22.26 | 22.26 | 34.77 | -12.51 |
| | 23095 | 707.5 | 16QAM | 1 | 14 | 22.07 | 22.07 | 34.77 | -12.7 |
| | 23073 | 101.5 | TUQAIN | 8 | 4 | 21.07 | 21.07 | 34.77 | -13.7 |
| | | | | 15 | 0 | 20.89 | 20.89 | 34.77 | -13.88 |
| | | | | 1 | 0 | 21.88 | 21.88 | 34.77 | -12.89 |
| | 23165 | 714.5 | 16QAM | 1 | 14 | 22.00 | 22.00 | 34.77 | -12.77 |
| | 23103 | / 14.0 | TUCAIN | 8 | 4 | 20.86 | 20.86 | 34.77 | -13.91 |
| | | | | 15 | 0 | 20.60 | 20.60 | 34.77 | -14.17 |



| Antenna | gain (dBi) | 0 | | | | | | | |
|-------------|---------------|--------------------|----------------|------------|--------------|-------------------------------|--------------------------|------------------------|----------------|
| | | LTE Band | l 12_Uplink fi | requer | ncy band | d : 699 to 716 | MHz | | |
| BW (MHz) | UL Channel | Frequency (MHz) | Modulation | RB Size | RB Offset | Conducted Average (dBm) | EIRP Average (dBm) | EIRP Limit (dBm) | Margin (dB) |
| | | | | 1 | 0 | 22.72 | 22.72 | 34.77 | -12.05 |
| | 23035 | 701.5 | QPSK | 1 | 24 | 22.89 | 22.89 | 34.77 | -11.88 |
| | 23030 | 701.5 | ULDV | 12 | 6 | 22.09 | 22.09 | 34.77 | -12.68 |
| | | | | 25 | 0 | 21.87 | 21.87 | 34.77 | -12.9 |
| | | | | 1 | 0 | 22.92 | 22.92 | 34.77 | -11.85 |
| | 23095 | 707.5 | QPSK | 1 | 24 | 22.55 | 22.55 | 34.77 | -12.22 |
| | 23073 | 101.5 | QLOK | 12 | 6 | 22.09 | 22.09 | 34.77 | -12.68 |
| | | | | 25 | 0 | 22.10 | 22.10 | 34.77 | -12.67 |
| | 23155 | 713.5 | QPSK | 1 | 0 | 22.49 | 22.49 | 34.77 | -12.28 |
| | | | | 1 | 24 | 22.89 | 22.89 | 34.77 | -11.88 |
| | 20100 | | | 12 | 6 | 22.02 | 22.02 | 34.77 | -12.75 |
| 5 | | | | 25 | 0 | 22.03 | 22.03 | 34.77 | -12.74 |
| Ũ | | | | 1 | 0 | 21.47 | 21.47 | 34.77 | -13.3 |
| | 23035 | 701.5 | 16QAM | 1 | 24 | 22.05 | 22.05 | 34.77 | -12.72 |
| | 20000 | 701.0 | 100/101 | 12 | 6 | 20.98 | 20.98 | 34.77 | -13.79 |
| | | | | 25 | 0 | 20.93 | 20.93 | 34.77 | -13.84 |
| | | | | 1 | 0 | 22.25 | 22.25 | 34.77 | -12.52 |
| | 23095 | 707.5 | 16QAM | 1 | 24 | 21.85 | 21.85 | 34.77 | -12.92 |
| | 20070 | 10110 | 10 27 111 | 12 | 6 | 21.03 | 21.03 | 34.77 | -13.74 |
| | | | | 25 | 0 | 21.09 | 21.09 | 34.77 | -13.68 |
| | | | | 1 | 0 | 21.95 | 21.95 | 34.77 | -12.82 |
| | 23155 | 713.5 | 16QAM | 1 | 24 | 21.59 | 21.59 | 34.77 | -13.18 |
| | 23155 | 23155 /13.5 | | 12 | 6 | 21.02 | 21.02 | 34.77 | -13.75 |
| | | | | 25 | 0 | 21.11 | 21.11 | 34.77 | -13.66 |



| Antenna | Antenna gain (dBi) 0 | | | | | | | | |
|-------------|----------------------|--------------------|----------------|------------|--------------|-------------------------------|--------------------------|------------------------|----------------|
| | | LTE Band | l 12_Uplink fi | requer | icy band | d : 699 to 716 | MHz | | |
| BW (MHz) | UL Channel | Frequency (MHz) | Modulation | RB Size | RB Offset | Conducted Average (dBm) | EIRP Average (dBm) | EIRP Limit (dBm) | Margin (dB) |
| | | | | 1 | 0 | 23.21 | 23.21 | 34.77 | -11.56 |
| | 23060 | 704 | QPSK | 1 | 49 | 23.52 | 23.52 | 34.77 | -11.25 |
| | 23000 | 704 | ULDV | 25 | 12 | 22.10 | 22.10 | 34.77 | -12.67 |
| | | | | 50 | 0 | 22.04 | 22.04 | 34.77 | -12.73 |
| | | | | 1 | 0 | 23.04 | 23.04 | 34.77 | -11.73 |
| | 23095 | 707.5 | QPSK | 1 | 49 | 23.31 | 23.31 | 34.77 | -11.46 |
| | 23073 | 101.5 | UPSK | 25 | 12 | 22.14 | 22.14 | 34.77 | -12.63 |
| | | | | 50 | 0 | 21.95 | 21.95 | 34.77 | -12.82 |
| | 23130 | 711 | | 1 | 0 | 23.11 | 23.11 | 34.77 | -11.66 |
| | | | QPSK | 1 | 49 | 23.25 | 23.25 | 34.77 | -11.52 |
| | | | QF3K | 25 | 12 | 22.10 | 22.10 | 34.77 | -12.67 |
| 10 | | | | 50 | 0 | 22.05 | 22.05 | 34.77 | -12.72 |
| 10 | | | | 1 | 0 | 21.98 | 21.98 | 34.77 | -12.79 |
| | 23060 | 704 | 16QAM | 1 | 49 | 22.08 | 22.08 | 34.77 | -12.69 |
| | 23000 | 704 | TOQAIVI | 25 | 12 | 21.09 | 21.09 | 34.77 | -13.68 |
| | | | | 50 | 0 | 21.03 | 21.03 | 34.77 | -13.74 |
| | | | | 1 | 0 | 21.91 | 21.91 | 34.77 | -12.86 |
| | 23095 | 707.5 | 16QAM | 1 | 49 | 21.91 | 21.91 | 34.77 | -12.86 |
| | 23090 | 707.5 | TOQAIVI | 25 | 12 | 21.25 | 21.25 | 34.77 | -13.52 |
| | | | | 50 | 0 | 21.14 | 21.14 | 34.77 | -13.63 |
| | | | | 1 | 0 | 22.06 | 22.06 | 34.77 | -12.71 |
| | 22120 | 711 | 140 4 14 | 1 | 49 | 22.04 | 22.04 | 34.77 | -12.73 |
| | 23130 | 711 | 16QAM | 25 | 12 | 21.32 | 21.32 | 34.77 | -13.45 |
| | | | | 50 | 0 | 21.17 | 21.17 | 34.77 | -13.6 |



FDD Band 17

| Antenna | gain (dBi) | 0 | | | | | | | |
|-------------|---------------|--------------------|----------------|------------|--------------|-------------------------------|--------------------------|------------------------|----------------|
| | | LTE Band | l 17_Uplink fi | requer | icy band | d : 704 to 716 | MHz | | |
| BW (MHz) | UL Channel | Frequency (MHz) | Modulation | RB Size | RB Offset | Conducted Average (dBm) | EIRP Average (dBm) | EIRP Limit (dBm) | Margin (dB) |
| | | | | 1 | 0 | 22.78 | 22.78 | 34.77 | -11.99 |
| | 23755 | 706.5 | QPSK | 1 | 24 | 22.37 | 22.37 | 34.77 | -12.4 |
| | 23700 | 700.5 | ULDU | 12 | 6 | 21.66 | 21.66 | 34.77 | -13.11 |
| | | | | 25 | 0 | 21.65 | 21.65 | 34.77 | -13.12 |
| | | | | 1 | 0 | 22.21 | 22.21 | 34.77 | -12.56 |
| | 23790 | 710 | QPSK | 1 | 24 | 22.43 | 22.43 | 34.77 | -12.34 |
| | 23770 | 710 | | 12 | 6 | 21.69 | 21.69 | 34.77 | -13.08 |
| | | | | 25 | 0 | 21.61 | 21.61 | 34.77 | -13.16 |
| | | | | 1 | 0 | 22.14 | 22.14 | 34.77 | -12.63 |
| | 23825 | 713.5 | QPSK | 1 | 24 | 23.20 | 23.20 | 34.77 | -11.57 |
| | 20020 | 710.0 | QI SIX | 12 | 6 | 21.71 | 21.71 | 34.77 | -13.06 |
| 5 | | | | 25 | 0 | 21.61 | 21.61 | 34.77 | -13.16 |
| Ũ | | | | 1 | 0 | 22.20 | 22.20 | 34.77 | -12.57 |
| | 23755 | 706.5 | 16QAM | 1 | 24 | 21.51 | 21.51 | 34.77 | -13.26 |
| | 20700 | | | 12 | 6 | 20.99 | 20.99 | 34.77 | -13.78 |
| | | | | 25 | 0 | 21.06 | 21.06 | 34.77 | -13.71 |
| | | | | 1 | 0 | 21.61 | 21.61 | 34.77 | -13.16 |
| | 23790 | 710 | 16QAM | 1 | 24 | 21.64 | 21.64 | 34.77 | -13.13 |
| | | | | 12 | 6 | 21.09 | 21.09 | 34.77 | -13.68 |
| | | | | 25 | 0 | 20.87 | 20.87 | 34.77 | -13.9 |
| | | | | 1 | 0 | 21.66 | 21.66 | 34.77 | -13.11 |
| | 23825 | 713.5 | 16QAM | 1 | 24 | 22.47 | 22.47 | 34.77 | -12.3 |
| | ' | | | 12 | 6 | 20.96 | 20.96 | 34.77 | -13.81 |
| | | | | 25 | 0 | 21.35 | 21.35 | 34.77 | -13.42 |

| Antenna | gain (dBi) | 0 | | | | | | | |
|-------------|---------------|--------------------|----------------|------------|--------------|-------------------------------|--------------------------|------------------------|----------------|
| | | LTE Band | l 17_Uplink fi | requer | icy band | d : 704 to 716 | MHz | | |
| BW (MHz) | UL Channel | Frequency (MHz) | Modulation | RB Size | RB Offset | Conducted Average (dBm) | EIRP Average (dBm) | EIRP Limit (dBm) | Margin (dB) |
| | | | | 1 | 0 | 22.80 | 22.80 | 34.77 | -11.97 |
| | 23780 | 709 | QPSK | 1 | 49 | 23.29 | 23.29 | 34.77 | -11.48 |
| | 23780 | 709 | UPSK | 25 | 12 | 21.74 | 21.74 | 34.77 | -13.03 |
| | | | | 50 | 0 | 21.68 | 21.68 | 34.77 | -13.09 |
| | | | | 1 | 0 | 22.69 | 22.69 | 34.77 | -12.08 |
| | 23790 | 710 | QPSK | 1 | 49 | 23.11 | 23.11 | 34.77 | -11.66 |
| | 23790 | 710 | UFJK | 25 | 12 | 21.56 | 21.56 | 34.77 | -13.21 |
| | | | | 50 | 0 | 21.62 | 21.62 | 34.77 | -13.15 |
| | | 711 | QPSK | 1 | 0 | 22.34 | 22.34 | 34.77 | -12.43 |
| | 23800 | | | 1 | 49 | 23.21 | 23.21 | 34.77 | -11.56 |
| | 23000 | | | 25 | 12 | 21.48 | 21.48 | 34.77 | -13.29 |
| 10 | | | | 50 | 0 | 21.87 | 21.87 | 34.77 | -12.9 |
| 10 | | | | 1 | 0 | 22.15 | 22.15 | 34.77 | -12.62 |
| | 23780 | 709 | 16QAM | 1 | 49 | 22.75 | 22.75 | 34.77 | -12.02 |
| | 20700 | | 10 21 111 | 25 | 12 | 21.10 | 21.10 | 34.77 | -13.67 |
| | | | | 50 | 0 | 21.31 | 21.31 | 34.77 | -13.46 |
| | | | | 1 | 0 | 21.96 | 21.96 | 34.77 | -12.81 |
| | 23790 | 710 | 16QAM | 1 | 49 | 22.15 | 22.15 | 34.77 | -12.62 |
| | 20170 | | | 25 | 12 | 20.98 | 20.98 | 34.77 | -13.79 |
| | | | | 50 | 0 | 21.13 | 21.13 | 34.77 | -13.64 |
| | | | | 1 | 0 | 21.44 | 21.44 | 34.77 | -13.33 |
| | 23800 | 711 | 16QAM | 1 | 49 | 22.63 | 22.63 | 34.77 | -12.14 |
| | | | | 25 | 12 | 20.92 | 20.92 | 34.77 | -13.85 |
| | | | | 50 | 0 | 20.99 | 20.99 | 34.77 | -13.78 |



HSDPA Release 6 MODE:

The following 4 Sub-Tests were completed according to the test requirements outlined in section 5.2A of the 3GPP TS34.121-1 V8.4.0 specification. All TX RMS power requirements for Power Class 3 were met according to table 5.2AA.5 and 5.2B.5 All UE channels and power ratio's are set according to table C10.1.4 & C11.1.3 in the 3GPP TS34.121-1 V8.4.0. RMC 12.2kps is used for this testing.

HSDPA SUB-TEST Setting

Table C.10.1.4: β values for transmitter characteristics tests with HS-DPCCH(FOR HSDPA)

| Sub-test | βc | βd | β₀ (SF) | βc/βd | βнs (Note1, Note 2) | CM (dB) (Note 3) | MPR (dB) (Note 3) | RMC (Kbps) |
|----------|----------------------|----------------------|---------------------|-------------------|---------------------------|---------------------|-------------------------|---------------|
| 1 | 2/15 | 15/15 | 64 | 2/15 | 4/15 | 0.0 | 0.0 | 12.2 |
| 2 | 12/15 (Note 4) | 15/15 (Note 4) | 64 | 12/15 (Note 4) | 24/15 | 1.0 | 0.0 | 12.2 |
| 3 | 15/15 | 8/15 | 64 | 15/8 | 30/15 | 1.5 | 0.5 | 12.2 |
| 4 | 15/15 | 4/15 | 64 | 15/4 | 30/15 | 1.5 | 0.5 | 12.2 |

Note: The recommended HSDPA MPRs are implemented as per following sub-tests.

Results:

| Mode | Sub test | Av | g. Power (dE Channel | 3m) | Power Class 3 Limitation (dBm) | Comments |
|---------|-------------|---------|-------------------------|---------|-----------------------------------|----------|
| | 1051 | 4132.00 | 4183.00 | 4233.00 | | |
| | 1 | 22.27 | 22.22 | 22.38 | 20.3dBm – 25.7dBm | Pass |
| HSDPA V | 2 | 21.79 | 21.75 | 21.98 | 20.3dBm – 25.7dBm | Pass |
| | 3 | 21.79 | 21.78 | 21.98 | 19.8dBm – 25.7dBm | Pass |
| | 4 | 21.78 | 21.75 | 21.97 | 19.8dBm – 25.7dBm | Pass |

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.



HSPA (HSDPA & HSUPA) Release 6 MODE

The following 5 Sub-Tests were completed according to the test requirements outlined in section 5.2A of the 3GPP TS34.121-1 V8.4.0 specification. All TX RMS power requirements for Power Class 3 were met according to table 5.2AA.5 and 5.2B.5 All UE channels and power ratio's are set according to table C11.1.3 in the 3GPP TS34.121-1 V8.4.0. RMC 12.2kps is used for this testing **HSPA SUB-TEST Setting**

Table C.11.1.3: β values for transmitter characteristics tests with HS-DPCCH and E-DCH(FOR HSUPA)

| Sub- test | βc | βa | β _d (SF) | βσ/βα | βнs | ßec | βed | β _{ed} (SF) | β _{ed} (Code s) | CM (dB) | MPR (dB) | AG Index | E-TFCI | RMC (Kbps) |
|--------------|-------------------|-------------------|------------------------|-------------------|-------|-------------|------------------------------------------------------|-------------------------|--------------------------------|------------|-------------|-------------|--------|-------------------|
| 1 | 11/15 (Note 3) | 15/15 (Note 3) | 64 | 11/15 (Note 3) | 22/15 | 209/22 5 | 1309/225 | 4 | 1 | 1.0 | 0.0 | 20 | 75 | 12.2 |
| 2 | 6/15 | 15/15 | 64 | 6/15 | 12/15 | 12/15 | 94/75 | 4 | 1 | 3.0 | 2.0 | 12 | 67 | 12.2 |
| 3 | 15/15 | 9/15 | 64 | 15/9 | 30/15 | 30/15 | β _{ed} 1: 47/15 β _{ed} 2: 47/15 | | 2 | 2.0 | 1.0 | 15 | 92 | 12.2 |
| 4 | 2/15 | 15/15 | 64 | 2/15 | 4/15 | 2/15 | 56/75 | 4 | 1 | 3.0 | 2.0 | 17 | 71 | 12.2 |
| 5 | 15/15 (Note 4) | 15/15 (Note 4) | 64 | 15/15 (Note 4) | 30/15 | 24/15 | 134/15 | 4 | 1 | 1.0 | 0.0 | 21 | 81 | 12.2 |

Note: The recommended HSUPA MPRs are implemented as per following sub-tests.

Results:

| Mode | Sub test | Av | vg. Power (dB Channel | m) | Power Class 3 Limitation (dBm) | Comments |
|---------|-------------|---------|--------------------------|---------|-----------------------------------|----------|
| | 1051 | 4132.00 | 4183.00 | 4233.00 | | |
| | 1 | 22.35 | 22.31 | 22.35 | 18.8dBm – 25.7dBm | Pass |
| | 2 | 20.38 | 20.21 | 20.31 | 16.8dBm – 25.7dBm | Pass |
| HSUPA V | 3 | 21.32 | 21.32 | 21.32 | 17.8dBm – 25.7dBm | Pass |
| | 4 | 20.40 | 20.28 | 20.30 | 16.8dBm – 25.7dBm | Pass |
| | 5 | 22.20 | 22.19 | 22.23 | 18.8dBm – 25.7dBm | Pass |

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.



Minimum Communications Power Measurement

PCS 1900 band

| PCL | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|-----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Output power (dBm) | 29.17 | 27.25 | 25.34 | 23.74 | 21.62 | 19.87 | 17.34 | 15.28 | 13.22 |
| | | | | | | | | _ | |
| PCL | 9 | 10 | 11 | 12 | 13 | 14 | 15 | | |
| Output power (dBm) | 11.19 | 9.83 | 7.51 | 5.22 | 3.71 | 1.52 | -1.29 | | |

Note: The EUT output power was controlled by simulator. Set Communication Tester MT8820C PCL as above, and get the mobile phone output power reading.

WCDMA/HSDPA/HSUPA band V

The EUT output power was controlled by simulator. Set Communication Tester MT8820C function key "UE Power Control" and enter max rated power 24dBm. The EUT is going to be set to max output power to 24dBm. Then record the read (see page 15 for measurement data). The min. power was measures by a function key "minimum power" then record the read. It is -52.3dBm. The power variation can be 0.1dB step by setting.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.



7. EFFECTIVE RADIATED POWER AND EQUIVALENT ISOTROPIC RADIATED POWER MEASUREMENT

7.1. Standard Applicable

According to FCC §2.1046

FCC 22.913(a) Mobile station is limited to 7W ERP.

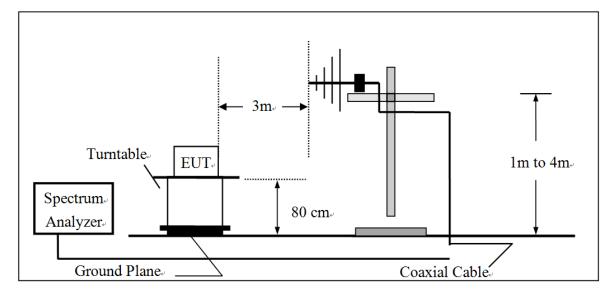
FCC 24.232(b) Mobile and portable stations are limited to 2W EIRP.

FCC 27.50(c)(10) Portable stations (hand-held devices) are limited to 3W ERP.

FCC 27, 50(h)(2) Mobile and other user stations. Mobile stations are limited to 2W EIRP

7.2. Test SET-UP

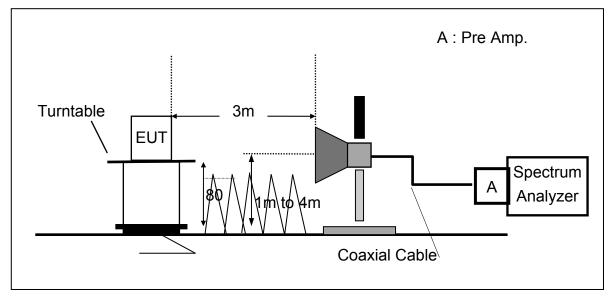
(A) Radiated Power Test Set-Up, Frequency Below1000MHz



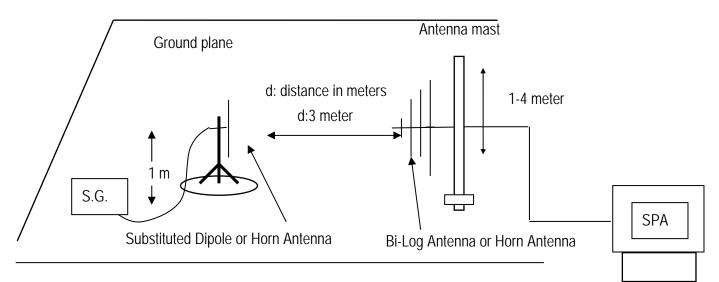
Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only



Radiated Power Test Set-UP Frequency Over 1 GHz (B)



(C) Substituted Method Test Set-UP



Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.



7.3. Measurement Procedure

- The testing follows the Measurement Procedure of FCC KDB 971168 D01
- 2. The EUT was placed on a non-conductive turntable using a non-conductive support. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer.
- 3. During the measurement, the EUT was communication with the station. The highest emission was recorded with the rotation of the turntable and the lowering of the test antenna from 4m to 1m. The reading was recorded and the field strength (E in dBuV/m) was calculated
- 4. The testing follows the Measurement Procedure of FCC KDB 971168 D01
- 5. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a tx cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value" of step b. Record the power level of S.G.
- 6. ERP = S.G. output (dBm) + Antenna Gain (dBd) Cable Loss (dB)
- 7. EIRP = S.G. output (dBm) + Antenna Gain (dBi) Cable Loss (dB)
- 8. Spectrum setting:

(1) Detector = Peak, marker the highest value of the detector by maximum hold, set RBW wide enough to capture the entire signal of emission, and VBW > =3xRBW.

(2) KDB 971168 D01 is adopted, and the procedure as lists under item 4, Measurement of the Average Power over the Fundamental Signal Bandwidth, is followed to set correspondingly for the acquisition of proper measurement data.

Set frequency = nominal signal center frequency;

Set span = 2 X occupied BW;

Set RBW ≈ 1~5% of the span, not to exceed 1 MHz

Set VBW = $3 \times RBW$;

Select average power (RMS) detector

Set sweep time and number of measurement points to achieve a minimum of 1 millisecond/pt integration time (ex. Point = 601 points, then sweet time = $601*10^{-3}$ = 6s.

Activate trace averaging routine over a minimum of 10 sweeps;

Activate marker/span pair and set span = signal or channel bandwidth;

Activate the band/interval power marker function;

Record the band power level;

Record adjusted value as the average signal power level. Then activate the occupied bandwidth measurement function.

The proper adjustment due to limitation of spectrum capability is given compensated to spectrum with conversion factor of 10*log (TBW/RBW), where TBW is the transmission of UE exceeding the maximum BW UE can extends, and RBW is the resolution BW in UE.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only

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7.4. Measurement Equipment Used

| EQUIPMENT TYPE | MFR | MODEL NUMBER | SERIAL NUMBER | LAST CAL. | CAL DUE. |
|--------------------------|----------------------|-----------------|------------------|--------------|------------|
| Bi-log Antenna | SCHWAZBECK | VULB9168 | 378 | 2017/12/29 | 2018/12/28 |
| Horn Antenna | Schwarzbeck | BBHA9120D | 1441 | 2017/08/04 | 2019/08/03 |
| Horn Antenna | Schwarzbeck | BBHA9170 | 184 | 2017/12/12 | 2018/12/11 |
| Loop Antenna | ETS.LINDGREN | 6502 | 148045 | 2017/09/26 | 2018/09/25 |
| Loop Antenna | ETS.LINDGREN | 6502 | 148045 | 2018/09/26 | 2019/09/25 |
| 3m Site NSA | SGS | 966 chamber | N/A | 2018/01/02 | 2019/01/01 |
| Spectrum Analyzer | Agilent | E4446A | MY51100003 | 2018/05/15 | 2019/05/14 |
| EMI Test Receiver | R&S | ESCI7 | 100335 | 2018/02/02 | 2019/02/01 |
| Pre-Amplifier | HP | 8449B | 3008A00578 | 2018/01/02 | 2019/01/01 |
| Pre-Amplifier | HP | 8447D | 2944A07676 | 2018/01/02 | 2019/01/01 |
| Pre-Amplifier | EMC Instru- ments | EMC184045B | 980135 | 2017/10/27 | 2018/10/26 |
| Attenuator | Mini-Circuit | BW-S10W2+ | 2 | 2018/01/02 | 2019/01/01 |
| 2GHz High Pass Filter | Micro-Tronics | HPM50110 | 36 | 2018/01/02 | 2019/01/01 |
| Filter 5150-5350 MHz | Micro-Tronics | BRM50703 | 1 | 2018/01/02 | 2019/01/01 |
| Low Loss Cable | Huber Suhner | 966_RX | 9 | 2018/01/02 | 2019/01/01 |



| | EUT | | _ | _ | Measur | ement | le ssERPLimit3dBmdBm3.1118.7838.453.1117.638.453.3215.6238.453.3221.1738.453.3221.1738.453.1723.6638.453.1720.6838.453.1120.8438.453.1120.1638.45 | | | | |
|-------------------|--------------------------|-----|-----------------|----------------|-----------------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------|-------|--|--|--|
| Operation Band | Fundamental Frequency | СН | Antenna Pol. | S.G. Output | Antenna Gain | Cable Loss | ERP | Limit | | | |
| | MHz | | V/H | dBm | dBd | dB | dBm | dBm | | | |
| | 824.2 | 128 | V | 18.44 | 3.45 | -3.11 | 18.78 | 38.45 | | | |
| GSM 850 | 024.2 | 120 | Н | 17.26 | 3.45 | -3.11 | 17.6 | 38.45 | | | |
| | 836.6 1 | 190 | V | 15.49 | 3.45 | -3.32 | 15.62 | 38.45 | | | |
| | | 190 | Н | 21.04 | 3.45 | -3.32 | 21.17 | 38.45 | | | |
| | 848.8 | 251 | V | 23.37 | 3.46 | -3.17 | 23.66 | 38.45 | | | |
| | 040.0 | 201 | Н | 20.39 | 3.46 | -3.17 | 20.68 | 38.45 | | | |
| | 824.2 | 128 | V | 20.5 | 3.45 | -3.11 | 20.84 | 38.45 | | | |
| | 024.2 | 120 | Н | 19.82 | 3.45 | -3.11 | 20.16 | 38.45 | | | |
| GPRS | 836.6 | 190 | V | 20.52 | 3.45 | -3.32 | 20.65 | 38.45 | | | |
| 850 | 030.0 | 190 | Н | 23.93 | 3.45 | -3.32 | 24.06 | 38.45 | | | |
| | 848.8 | 251 | V | 24.53 | 3.46 | -3.16 | 24.83 | 38.45 | | | |
| | 040.0 | 201 | Н | 22.83 | 3.46 | -3.16 | 23.13 | 38.45 | | | |

7.5. Measurement Result: (Peak) –using option of peak measurement

Remark: (1)The RBW,VBW of SPA for frequency RBW=300 KHz, VBW=1MHz

| | EUT | | | | Measur | ement | | |
|-------------------|--------------------------|-----|-----------------|----------------|-----------------|---------------|-------|-------|
| Operation Band | Fundamental Frequency | СН | Antenna Pol. | S.G. Output | Antenna Gain | Cable Loss | EIRP | Limit |
| | MHz | | V/H | dBm | dBi | dB | dBm | dBm |
| | 1850.2 | 512 | V | 16.33 | 9.77 | -4.66 | 21.44 | 33.00 |
| GSM 1900 | 1000.2 | 512 | Н | 16.62 | 9.77 | -4.66 | 21.73 | 33.00 |
| | 1880.0 | 661 | V | 14.8 | 9.86 | -4.7 | 19.96 | 33.00 |
| | | 001 | Н | 19.26 | 9.86 | -4.7 | 24.42 | 33.00 |
| | 1000.9 | 810 | V | 17.3 | 9.94 | -4.72 | 22.52 | 33.00 |
| | 1909.8 | 010 | Н | 19.11 | 9.94 | -4.72 | 24.33 | 33.00 |
| | 1950 0 | 512 | V | 20.38 | 9.77 | -4.66 | 25.49 | 33.00 |
| | 1850.2 | 512 | Н | 21.07 | 9.77 | -4.66 | 26.18 | 33.00 |
| GPRS | 1990.0 | 661 | V | 18.4 | 9.86 | -4.7 | 23.56 | 33.00 |
| 1900 | 1880.0 | 661 | Н | 19.79 | 9.86 | -4.7 | 24.95 | 33.00 |
| | 1909.8 8 | 010 | V | 19.5 | 9.94 | -4.72 | 24.72 | 33.00 |
| | | 810 | Н | 20.97 | 9.94 | -4.72 | 26.19 | 33.00 |

Remark: (1)The RBW,VBW of SPA for frequency RBW=300 KHz, VBW=1MHz

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.



| | EUT | | | | Measur | ement | | |
|-------------------|--------------------------|-------------|-----------------|----------------|-----------------|---------------|-------|-------|
| Operation Band | Fundamental Frequency | СН | Antenna Pol. | S.G. Output | Antenna Gain | Cable Loss | ERP | Limit |
| | MHz | | V/H | dBm | dBd | dB | dBm | dBm |
| | 926 4 | 4120 | V | 20.86 | 3.45 | -3.17 | 21.14 | 38.45 |
| | 826.4 | 4132 | Н | 19.7 | 3.45 | -3.19 | 19.96 | 38.45 |
| WCDMA | 836.6 | 4183 | V | 20.31 | 3.45 | -3.31 | 20.45 | 38.45 |
| Band V | 030.0 | 4105 | Н | 18.63 | 3.45 | -3.31 | 18.77 | 38.45 |
| | 846.6 | 4233 | V | 18.68 | 3.46 | -3.34 | 18.8 | 38.45 |
| | | 7200 | Н | 18.07 | 3.46 | -3.34 | 18.19 | 38.45 |
| | 826.4 | 4132 | V | 22.17 | 3.45 | -3.17 | 22.45 | 38.45 |
| | 020.4 | 4152 | Н | 20.61 | 3.45 | -3.19 | 20.87 | 38.45 |
| HSDPA | 000 0 | 1100 | V | 21.99 | 3.45 | -3.31 | 22.13 | 38.45 |
| Band V | 836.6 | 4183 | Н | 19.86 | 3.45 | -3.31 | 20 | 38.45 |
| | 846.6 | 4233 | V | 19.67 | 3.46 | -3.34 | 19.79 | 38.45 |
| | 040.0 | 4233 | Н | 18.48 | 3.46 | -3.34 | 18.6 | 38.45 |
| | 826.4 | 4132 | V | 21.94 | 3.45 | -3.17 | 22.22 | 38.45 |
| | 020.4 | 4152 | Н | 19.88 | 3.45 | -3.19 | 20.14 | 38.45 |
| HSUPA | 926.6 | 1100 | V | 21.76 | 3.45 | -3.31 | 21.9 | 38.45 |
| Band V | 836.6 | 4183 | Н | 19.86 | 3.45 | -3.31 | 20 | 38.45 |
| | 946.6 | 1000 | V | 19.31 | 3.46 | -3.34 | 19.43 | 38.45 |
| | 040.0 | 46.6 4233 - | Н | 17.69 | 3.46 | -3.34 | 17.81 | 38.45 |

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.



| | EUT | | | | Measur | ement | | |
|--------------------------------|--------------------------|-------|-----------------|----------------|-----------------|---------------|-------|-------|
| Operation Band | Fundamental Frequency | СН | Antenna Pol. | S.G. Output | Antenna Gain | Cable Loss | ERP | Limit |
| | MHz | | V/H | dBm | dBd | dB | dBm | dBm |
| | 824.7 | 20407 | V | 19.2 | 3.45 | -3.17 | 19.48 | 38.45 |
| LTE | 024.7 | 20407 | Н | 15.4 | 3.45 | -3.17 | 15.68 | 38.45 |
| BAND 5 BW: 1.4M | 836.5 | 20525 | V | 20.21 | 3.45 | -3.29 | 20.37 | 38.45 |
| QPSK | 050.5 | 20525 | Н | 15.76 | 3.45 | -3.28 | 15.93 | 38.45 |
| RB: 1,0 | 848.3 | 20643 | V | 18.64 | 3.46 | -3.35 | 18.75 | 38.45 |
| | 0+0.0 | 20043 | Н | 15.49 | 3.46 | -3.36 | 15.59 | 38.45 |
| | 824.7 | 20407 | V | 18.3 | 3.45 | -3.11 | 18.64 | 38.45 |
| LTE | 024.7 | 20407 | Н | 14.63 | 3.45 | -3.11 | 14.97 | 38.45 |
| BAND 5 BW: 1.4M QPSK | 836.5 | 20525 | V | 19.09 | 3.45 | -3.3 | 19.24 | 38.45 |
| | 000.0 | 20020 | Н | 15.84 | 3.45 | -3.29 | 16 | 38.45 |
| RB: 1,5 | 848.3 | 20643 | V | 18.7 | 3.46 | -3.3 | 18.86 | 38.45 |
| | | 20043 | Н | 16.95 | 3.46 | -3.3 | 17.11 | 38.45 |
| | 824.7 | 20407 | V | 19.33 | 3.45 | -3.17 | 19.61 | 38.45 |
| | 024.7 | 20407 | Н | 15.91 | 3.45 | -3.17 | 16.19 | 38.45 |
| BAND 5 BW: 1.4M | 836.5 | 20525 | V | 19.72 | 3.45 | -3.29 | 19.88 | 38.45 |
| 16QAM | 000.0 | 20020 | Н | 17.47 | 3.45 | -3.29 | 17.63 | 38.45 |
| RB: 1,0 | 848.3 | 20643 | V | 19.41 | 3.46 | -3.35 | 19.52 | 38.45 |
| | 0+0.0 | 20040 | Н | 15.85 | 3.46 | -3.35 | 15.96 | 38.45 |
| | 824.7 | 20407 | V | 18.83 | 3.45 | -3.1 | 19.18 | 38.45 |
| | 027.7 | 20707 | Н | 14.39 | 3.45 | -3.1 | 14.74 | 38.45 |
| BAND 5 BW [.] 1 4M | 836.5 | 20525 | V | 20.87 | 3.45 | -3.3 | 21.02 | 38.45 |
| BW: 1.4M 16QAM RB: 1,5 | 000.0 | 20020 | Н | 17.15 | 3.45 | -3.3 | 17.3 | 38.45 |
| | 848.3 2 | 20643 | V | 19.82 | 3.46 | -3.27 | 20.01 | 38.45 |
| Dements | 0-10.0 | 20070 | Н | 16.88 | 3.46 | -3.28 | 17.06 | 38.45 |

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| | EUT | | | | Measur | ement | | |
|---------------------------------------|--------------------------|--------|-----------------|----------------|-----------------|---------------|-------|-------|
| Operation Band | Fundamental Frequency | СН | Antenna Pol. | S.G. Output | Antenna Gain | Cable Loss | ERP | Limit |
| | MHz | | V/H | dBm | dBd | dB | dBm | dBm |
| | 825.5 | 20415 | V | 19.97 | 3.45 | -3.17 | 20.25 | 38.45 |
| LTE | 025.5 | 20415 | Н | 14.48 | 3.45 | -3.17 | 14.76 | 38.45 |
| BAND 5 BW: 3M | 836.5 | 20525 | V | 19.22 | 3.45 | -3.28 | 19.39 | 38.45 |
| QPSK | 030.5 | 20525 | Н | 17.03 | 3.45 | -3.28 | 17.2 | 38.45 |
| RB: 1,0 | 847.5 | 20635 | V | 18.29 | 3.46 | -3.42 | 18.33 | 38.45 |
| | | 20055 | Н | 17.33 | 3.46 | -3.42 | 17.37 | 38.45 |
| | 825.5 | 20415 | V | 18.99 | 3.45 | -3.16 | 19.28 | 38.45 |
| LTE | 025.5 | 20415 | Н | 15.19 | 3.45 | -3.16 | 15.48 | 38.45 |
| BAND 5 BW: 3M QPSK | 836.5 | 20525 | V | 19.49 | 3.45 | -3.31 | 19.63 | 38.45 |
| | 050.5 | 20525 | Н | 16.78 | 3.45 | -3.31 | 16.92 | 38.45 |
| RB: 1,14 | 847.5 | 20635 | V | 18.43 | 3.46 | -3.29 | 18.6 | 38.45 |
| | | 20035 | Н | 16.22 | 3.46 | -3.3 | 16.38 | 38.45 |
| | 825.5 | 20415 | V | 20.08 | 3.45 | -3.17 | 20.36 | 38.45 |
| LTE | 025.5 | 20413 | Н | 15.91 | 3.45 | -3.17 | 16.19 | 38.45 |
| BAND 5 BW: 3M | 836.5 | 20525 | V | 21.34 | 3.45 | -3.28 | 21.51 | 38.45 |
| 16QAM | 050.5 | 20323 | Н | 17.26 | 3.45 | -3.28 | 17.43 | 38.45 |
| RB: 1,0 | 847.5 | 20635 | V | 19.04 | 3.46 | -3.43 | 19.07 | 38.45 |
| | 0-7.5 | 20000 | Н | 17.12 | 3.46 | -3.42 | 17.16 | 38.45 |
| | 825.5 | 20415 | V | 19.12 | 3.45 | -3.15 | 19.42 | 38.45 |
| | 023.5 | 20413 | Н | 15.07 | 3.45 | -3.16 | 15.36 | 38.45 |
| BAND 5 BW: 3M 16QAM RB: 1,14 | 836.5 | 20525 | V | 20.78 | 3.45 | -3.31 | 20.92 | 38.45 |
| | 000.0 | 20525- | Н | 18.13 | 3.45 | -3.31 | 18.27 | 38.45 |
| | 847.5 2 | 20635- | V | 20.08 | 3.46 | -3.3 | 20.24 | 38.45 |
| Demonstration | 0.170 | 20000 | Н | 17.83 | 3.46 | -3.29 | 18 | 38.45 |

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| | EUT | | | | Measur | ement | | |
|---------------------------------------|--------------------------|--------|-----------------|----------------|-----------------|---------------|-------|-------|
| Operation Band | Fundamental Frequency | СН | Antenna Pol. | S.G. Output | Antenna Gain | Cable Loss | ERP | Limit |
| | MHz | | V/H | dBm | dBd | dB | dBm | dBm |
| | 826.5 | 20425 | V | 19.5 | 3.45 | -3.18 | 19.77 | 38.45 |
| LTE | 020.5 | 20420 | Н | 15.25 | 3.45 | -3.18 | 15.52 | 38.45 |
| BAND 5 BW: 5M | 926 E | 20525 | V | 20.19 | 3.45 | -3.26 | 20.38 | 38.45 |
| QPSK | 836.5 | 20525 | Н | 16.24 | 3.45 | -3.27 | 16.42 | 38.45 |
| RB: 1,0 | 846.5 | 20625 | V | 18.85 | 3.46 | -3.4 | 18.91 | 38.45 |
| | 040.5 | 20625 | Н | 17.32 | 3.46 | -3.4 | 17.38 | 38.45 |
| | 826.5 | 20425 | V | 18.31 | 3.45 | -3.19 | 18.57 | 38.45 |
| LTE | 020.5 | 20423 | Н | 16.22 | 3.45 | -3.18 | 16.49 | 38.45 |
| BAND 5 BW: 5M QPSK | 836.5 | 20525 | V | 18.87 | 3.45 | -3.32 | 19 | 38.45 |
| | 050.5 | 20525 | Н | 16.5 | 3.45 | -3.32 | 16.63 | 38.45 |
| RB: 1,24 | 846.5 | 20625 | V | 19.29 | 3.46 | -3.28 | 19.47 | 38.45 |
| | | 20025 | Н | 16.59 | 3.46 | -3.3 | 16.75 | 38.45 |
| | 826.5 | 20425 | V | 20.39 | 3.45 | -3.17 | 20.67 | 38.45 |
| LTE | 020.0 | 20723 | Н | 16.62 | 3.45 | -3.17 | 16.9 | 38.45 |
| BAND 5 BW: 5M | 836.5 | 20525 | V | 20.62 | 3.45 | -3.27 | 20.8 | 38.45 |
| 16QAM | 000.0 | 20020 | Н | 16.98 | 3.45 | -3.26 | 17.17 | 38.45 |
| RB: 1,0 | 846.5 | 20625 | V | 18.85 | 3.46 | -3.4 | 18.91 | 38.45 |
| | 0+0.0 | 20020 | Н | 17.3 | 3.46 | -3.4 | 17.36 | 38.45 |
| | 826.5 | 20425 | V | 19.22 | 3.45 | -3.18 | 19.49 | 38.45 |
| | 020.0 | 20720 | Н | 14.61 | 3.45 | -3.18 | 14.88 | 38.45 |
| BAND 5 BW: 5M 16QAM RB: 1,24 | 836.5 | 20525 | V | 20.51 | 3.45 | -3.32 | 20.64 | 38.45 |
| | | 20020 | Н | 18.03 | 3.45 | -3.32 | 18.16 | 38.45 |
| | 846.5 2 | 20625- | V | 19.71 | 3.46 | -3.29 | 19.88 | 38.45 |
| Demonstration 1 | 0+0.0 | 20020 | Н | 17.08 | 3.46 | -3.29 | 17.25 | 38.45 |

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| | EUT | | | | Measur | ement | | |
|----------------------------------------|--------------------------|--------|-----------------|----------------|-----------------|---------------|-------|-------|
| Operation Band | Fundamental Frequency | СН | Antenna Pol. | S.G. Output | Antenna Gain | Cable Loss | ERP | Limit |
| | MHz | | V/H | dBm | dBd | dB | dBm | dBm |
| | 829.0 | 20450 | V | 19.44 | 3.45 | -3.18 | 19.71 | 38.45 |
| LTE | 029.0 | 20450 | Н | -5.8 | 3.45 | -3.18 | -5.53 | 38.45 |
| BAND 5 BW: 10M | 836.5 | 20525 | V | 19.99 | 3.45 | -3.23 | 20.21 | 38.45 |
| QPSK | 030.5 | 20525 | Н | 16.18 | 3.45 | -3.24 | 16.39 | 38.45 |
| RB: 1,0 | 844.0 | 20600 | V | 19.05 | 3.46 | -3.33 | 19.18 | 38.45 |
| | 044.0 | 20000 | Н | 16.33 | 3.46 | -3.33 | 16.46 | 38.45 |
| | 829.0 | 20450 | V | 19.02 | 3.45 | -3.25 | 19.22 | 38.45 |
| LTE | 029.0 | 20400 | Н | 16.68 | 3.45 | -3.25 | 16.88 | 38.45 |
| BAND 5 BW: 10M QPSK | 836.5 | 20525 | V | 18.68 | 3.46 | -3.35 | 18.79 | 38.45 |
| | 030.5 | 20525 | Н | 15.69 | 3.46 | -3.35 | 15.8 | 38.45 |
| RB: 1,49 | 844.0 | 20600 | V | 17.27 | 3.46 | -3.33 | 17.4 | 38.45 |
| | | 20000 | Н | 16.64 | 3.46 | -3.32 | 16.78 | 38.45 |
| | 829.0 | 20450 | V | 19.76 | 3.45 | -3.18 | 20.03 | 38.45 |
| | 023.0 | 20430 | Н | 16.69 | 3.45 | -3.18 | 16.96 | 38.45 |
| BAND 5 BW: 10M | 836.5 | 20525 | V | 15.06 | 3.45 | -3.23 | 15.28 | 38.45 |
| 16QAM | 000.0 | 20020 | Н | 17.25 | 3.45 | -3.23 | 17.47 | 38.45 |
| RB: 1,0 | 844.0 | 20600 | V | 20.7 | 3.46 | -3.33 | 20.83 | 38.45 |
| | | 20000 | Н | 17.58 | 3.46 | -3.34 | 17.7 | 38.45 |
| | 829.0 | 20450 | V | 20.2 | 3.45 | -3.25 | 20.4 | 38.45 |
| | 020.0 | 20100 | Н | 16.77 | 3.45 | -3.25 | 16.97 | 38.45 |
| BAND 5 BW: 10M 16QAM RB: 1,49 | 836.5 | 20525 | V | 20.42 | 3.46 | -3.35 | 20.53 | 38.45 |
| | 000.0 | 20525 | Н | 16.79 | 3.46 | -3.35 | 16.9 | 38.45 |
| | 844.0 2 | 20600- | V | 17.67 | 3.46 | -3.28 | 17.85 | 38.45 |
| Demerk : | 011.0 | | Н | 17.15 | 3.46 | -3.31 | 17.3 | 38.45 |



| | EUT | | | | Measur | ement | | |
|------------------------------|--------------------------|--------|-----------------|----------------|-----------------|---------------|-------|-------|
| Operation Band | Fundamental Frequency | СН | Antenna Pol. | S.G. Output | Antenna Gain | Cable Loss | ERP | Limit |
| | MHz | | V/H | dBm | dBd | dB | dBm | dBm |
| | 699.7 | 23017 | V | 19.82 | 3.67 | -2.1 | 21.39 | 24.77 |
| LTE | 099.7 | 23017 | Н | 13.13 | 3.67 | -2.09 | 14.71 | 24.77 |
| BAND 12 BW: 1.4M | 707 5 | 23095 | V | 19.89 | 3.65 | -1.82 | 21.72 | 24.77 |
| QPSK | 707.5 | 23095 | Н | 14.97 | 3.65 | -1.83 | 16.79 | 24.77 |
| RB: 1,0 | 715.3 | 22172 | V | 20.12 | 3.62 | -2.3 | 21.44 | 24.77 |
| | 715.5 | 23173 | Н | 14.96 | 3.62 | -2.31 | 16.27 | 24.77 |
| | 699.7 | 23017 | V | 19.43 | 3.68 | -2.26 | 20.85 | 24.77 |
| LTE | 099.7 | 23017 | Н | 14.32 | 3.67 | -2.03 | 15.96 | 24.77 |
| BAND 12 BW: 1.4M QPSK | 707.5 | 23095 | V | 20.43 | 3.65 | -1.88 | 22.2 | 24.77 |
| | 707.5 | 23095 | Н | 15.21 | 3.65 | -1.87 | 16.99 | 24.77 |
| RB: 1,5 | 715.3 | 23173 | V | 20.43 | 3.62 | -2.36 | 21.69 | 24.77 |
| | | 23173 | Н | 14.78 | 3.62 | -2.37 | 16.03 | 24.77 |
| | 699.7 | 23017 | V | 19.67 | 3.67 | -2.11 | 21.23 | 24.77 |
| LTE | 099.7 | 23017 | Н | 14.24 | 3.67 | -2.09 | 15.82 | 24.77 |
| BAND 12 BW: 1.4M | 707.5 | 23095 | V | 21.26 | 3.65 | -1.81 | 23.1 | 24.77 |
| 16QAM | 707.5 | 20090 | Н | 16.65 | 3.65 | -1.81 | 18.49 | 24.77 |
| RB: 1,0 | 715.3 | 23173 | V | 21.31 | 3.62 | -2.31 | 22.62 | 24.77 |
| | 715.5 | 20170 | Н | 15.35 | 3.62 | -2.3 | 16.67 | 24.77 |
| | 699.7 | 23017 | V | 20.26 | 3.68 | -2.26 | 21.68 | 24.77 |
| | 033.1 | 23017 | Н | 14.48 | 3.67 | -2.04 | 16.11 | 24.77 |
| BAND 12 | 707.5 | 23005 | V | 21.04 | 3.65 | -1.87 | 22.82 | 24.77 |
| BW: 1.4M 16QAM RB: 1,5 | 101.5 | 23095- | Н | 15.26 | 3.65 | -1.89 | 17.02 | 24.77 |
| | 715.3 2 | 23173- | V | 20.67 | 3.62 | -2.36 | 21.93 | 24.77 |
| | 710.0 | | Н | 14.83 | 3.62 | -2.37 | 16.08 | 24.77 |

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| | EUT | | | | Measur | ement | | |
|-----------------------------|--------------------------|-------|-----------------|----------------|-----------------|---------------|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operation Band | Fundamental Frequency | СН | Antenna Pol. | S.G. Output | Antenna Gain | Cable Loss | ERP | Limit |
| | MHz | | V/H | dBm | dBd | dB | dBm | dBm |
| | 700.5 | 22025 | V | 18.82 | 3.67 | -2.12 | 20.37 | 24.77 |
| LTE | 700.5 | 23025 | Н | 14.27 | 3.67 | -2.11 | 15.83 | 24.77 |
| BAND 12 BW: 3M | 707.5 | 23095 | V | 20.76 | 3.66 | -1.83 | 22.59 | 24.77 |
| QPSK | 707.5 | 23095 | Н | 15.08 | 3.66 | -1.83 | 16.91 | 24.77 |
| RB: 1,0 | 714.5 | 23165 | V | 20.57 | 3.63 | -2.21 | 21.99 | 24.77 |
| | 714.5 | 23105 | Н | 14.57 | 3.63 | -2.23 | 15.97 | 24.77 |
| | 700.5 | 23025 | V | 19.4 | 3.68 | -2.19 | 20.89 | 24.77 |
| LTE | 700.5 | 23023 | Н | 14.34 | 3.67 | -2.16 | 15.85 | 24.77 |
| BAND 12 BW: 3M QPSK | 707.5 | 23095 | V | 20.54 | 3.65 | -1.92 | 22.27 | 24.77 |
| | 707.5 | 20000 | Н | 14.54 | 3.65 | -1.94 | 16.25 | 24.77 |
| RB: 1,14 | 714.5 | 23165 | V | 19.74 | 3.62 | -2.35 | 21.01 | 24.77 |
| | | 23103 | Н | 13.67 | 3.62 | -2.35 | 14.94 | 24.77 |
| | 700.5 | 23025 | V | 20.1 | 3.67 | -2.11 | 21.66 | 24.77 |
| | 700.5 | 23023 | Н | 14.68 | 3.67 | -2.11 | 16.24 | 24.77 |
| BAND 12 BW: 3M | 707.5 | 23095 | V | 21.4 | 3.66 | -1.82 | 23.24 | 24.77 |
| 16QAM | 101.5 | 20090 | Н | 14.58 | 3.66 | -1.83 | 16.41 | 24.77 |
| RB: 1,0 | 714.5 | 23165 | V | 20.07 | 3.63 | -2.21 | 21.49 | 24.77 |
| | 714.0 | 20100 | Н | 15.51 | 3.63 | -2.21 | 16.93 | 24.77 |
| | 700.5 | 23025 | V | 20.84 | 3.67 | -2.18 | 22.33 | 24.77 |
| | 700.0 | 20020 | Н | 15.19 | 3.67 | -2.17 | 16.69 | dBm 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 |
| BAND 12 | 707.5 | 23095 | V | 20.91 | 3.65 | -1.93 | 22.63 | 24.77 |
| BW: 3M 16QAM RB: 1,14 | 101.0 | 20000 | Н | 15.29 | 3.65 | -1.93 | 17.01 | 24.77 |
| | 714.5 2 | 23165 | V | 19.9 | 3.62 | -2.37 | 21.15 | 24.77 |
| Demonstration 1 | 7 17.5 | 20100 | Н | 15.65 | 3.62 | -2.37 | 16.9 | 24.77 |

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| | EUT | | | | Measur | ement | | |
|-----------------------------|--------------------------|-------|-----------------|----------------|-----------------|---------------|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operation Band | Fundamental Frequency | СН | Antenna Pol. | S.G. Output | Antenna Gain | Cable Loss | ERP | Limit |
| | MHz | | V/H | dBm | dBd | dB | dBm | dBm |
| | 701.5 | 23035 | V | 19.24 | 3.67 | -2.11 | 20.8 | 24.77 |
| LTE | 701.5 | 23035 | Н | 13.95 | 3.67 | -2.08 | 15.54 | 24.77 |
| BAND 12 BW: 5M QPSK | 707 5 | 23095 | V | 20.41 | 3.66 | -1.89 | 22.18 | 24.77 |
| | 707.5 | 23095 | Н | 14.56 | 3.66 | -1.89 | 16.33 | 24.77 |
| RB: 1,0 | 713.5 | 23155 | V | 20.03 | 3.64 | -2.08 | 21.59 | 24.77 |
| | 715.5 | 23133 | Н | 14.43 | 3.63 | -2.1 | 15.96 | 24.77 |
| | 701.5 | 23035 | V | 20.14 | 3.67 | -2.03 | 21.78 | 24.77 |
| LTE | 701.5 | 23033 | Н | 14.02 | 3.67 | -2.05 | 15.64 | 24.77 |
| BAND 12 BW: 5M QPSK | 707.5 | 23095 | V | 19.43 | 3.64 | -1.97 | 21.1 | 24.77 |
| | 101.5 | 20030 | Н | 14.66 | 3.64 | -2 | 16.3 | 24.77 |
| RB: 1,24 | 713.5 | 23155 | V | 19.78 | 3.62 | -2.35 | 21.05 | 24.77 |
| | | 20100 | Н | 14.7 | 3.62 | -2.36 | 15.96 | 24.77 |
| | 701.5 | 23035 | V | 19.83 | 3.67 | -2.1 | 21.4 | 24.77 |
| | 701.5 | 20000 | Н | 13.92 | 3.67 | -2.09 | 15.5 | 24.77 |
| BAND 12 BW: 5M | 707.5 | 23095 | V | 20.77 | 3.66 | -1.9 | 22.53 | 24.77 |
| 16QAM | 101.5 | 20030 | Н | 15.45 | 3.66 | -1.9 | 17.21 | 24.77 |
| RB: 1,0 | 713.5 | 23155 | V | 19.97 | 3.64 | -2.09 | 21.52 | 24.77 |
| | 713.5 | 20100 | Н | 14.81 | 3.64 | -2.09 | 16.36 | 24.77 |
| | 701.5 | 23035 | V | 20.84 | 3.67 | -2.02 | 22.49 | 24.77 |
| | 701.0 | 20000 | Н | 14.55 | 3.65 | -1.82 | 16.38 | dBm 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 24.77 |
| BAND 12 BW: 5M | 707.5 | 23095 | V | 20.22 | 3.64 | -1.99 | 21.87 | 24.77 |
| BW: 5M 16QAM RB: 1,24 | 101.0 | 20000 | Н | 14.67 | 3.64 | -1.99 | 16.32 | 24.77 |
| | 713.5 2 | 23155 | V | 20.76 | 3.62 | -2.36 | 22.02 | 24.77 |
| D | 110.0 | 20100 | Н | 15.65 | 3.62 | -2.37 | 16.9 | 24.77 |

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| | EUT | | | | Measur | ement | | |
|-----------------------------------------|--------------------------|--------|-----------------|----------------|-----------------|---------------|-------|-------|
| Operation Band | Fundamental Frequency | СН | Antenna Pol. | S.G. Output | Antenna Gain | Cable Loss | ERP | Limit |
| | MHz | | V/H | dBm | dBd | dB | dBm | dBm |
| | 704.0 | 23060 | V | 18.86 | 3.67 | -2.09 | 20.44 | 24.77 |
| LTE | 704.0 | 23000 | Н | 13.9 | 3.67 | -2.07 | 15.5 | 24.77 |
| BAND 12 BW: 10M | 707.5 | 23095 | V | 19.03 | 3.67 | -2.09 | 20.61 | 24.77 |
| QPSK | 707.5 | 20090 | Н | 13.04 | 3.65 | -1.8 | 14.89 | 24.77 |
| RB: 1,0 | 711.0 | 23130 | V | 19.39 | 3.65 | -1.8 | 21.24 | 24.77 |
| | 711.0 | 20100 | Н | 13.27 | 3.65 | -1.8 | 15.12 | 24.77 |
| | 704.0 | 23060 | V | 19.65 | 3.65 | -1.9 | 21.4 | 24.77 |
| LTE BAND 12 BW: 10M QPSK | 704.0 | 20000 | H | 13.67 | 3.65 | -1.9 | 15.42 | 24.77 |
| | 707.5 | 23095 | V | 20.04 | 3.63 | -2.12 | 21.55 | 24.77 |
| | 101.0 | 20000 | Н | 14.38 | 3.63 | -2.13 | 15.88 | 24.77 |
| RB: 1,49 | 711.0 | 23130 | V | 18.4 | 3.62 | -2.34 | 19.68 | 24.77 |
| | | | H | 12.95 | 3.62 | -2.37 | 14.2 | 24.77 |
| | 704.0 | 23060 | V | 20.1 | 3.67 | -2.08 | 21.69 | 24.77 |
| LTE BAND 12 | | | Н | 13.57 | 3.67 | -2.07 | 15.17 | 24.77 |
| BAND 12 BW: 10M | 707.5 | 23095 | V | 20.42 | 3.67 | -2.07 | 22.02 | 24.77 |
| 16QAM | | | Н | 14.09 | 3.65 | -1.82 | 15.92 | 24.77 |
| RB: 1,0 | 711.0 | 23130 | V | 21.19 | 3.66 | -1.83 | 23.02 | 24.77 |
| | | | Н | 15.02 | 3.66 | -1.83 | 16.85 | 24.77 |
| | 704.0 | 23060 | V | 19.76 | 3.65 | -1.91 | 21.5 | 24.77 |
| LTE BAND 12 | | | Н | 15.38 | 3.65 | -1.9 | 17.13 | 24.77 |
| BAND 12 BW: 10M 16QAM RB: 1,49 | 707.5 | 23095 | V | 19.82 | 3.63 | -2.12 | 21.33 | 24.77 |
| | 707.5 2 | 23095 | H | 15.3 | 3.63 | -2.13 | 16.8 | 24.77 |
| | 711.0 2 | 23130- | V | 19.42 | 3.62 | -2.34 | 20.7 | 24.77 |
| Demerk : | • | _0.00 | Н | 13.83 | 3.62 | -2.34 | 15.11 | 24.77 |



| | EUT | | | | Measur | ement | | |
|-----------------------------|--------------------------|-------|-----------------|----------------|-----------------|---------------|-------|-------|
| Operation Band | Fundamental Frequency | СН | Antenna Pol. | S.G. Output | Antenna Gain | Cable Loss | ERP | Limit |
| | MHz | | V/H | dBm | dBd | dB | dBm | dBm |
| | 706.5 | 22755 | V | 18.79 | 3.65 | -1.86 | 20.58 | 34.77 |
| LTE | 700.5 | 23755 | Н | 14.05 | 3.65 | -1.86 | 15.84 | dBm |
| BAND 17 BW: 5M | 710.0 | 23790 | V | 19.67 | 3.65 | -1.87 | 21.45 | 34.77 |
| QPSK | 710.0 | 23790 | Н | 14.03 | 3.65 | -1.88 | 15.8 | 34.77 |
| RB: 1,0 | 713.5 | 23825 | V | 19.23 | 3.64 | -2.09 | 20.78 | 34.77 |
| | | 20020 | Н | 14.09 | 3.64 | -2.08 | 15.65 | 34.77 |
| | 706.5 | 23755 | V | 19.37 | 3.65 | -1.92 | 21.1 | 34.77 |
| LTE | 700.5 | 23700 | Н | 13.68 | 3.65 | -1.94 | 15.39 | 34.77 |
| BAND 17 BW: 5M QPSK | 710.0 | 23790 | V | 19.67 | 3.63 | -2.14 | 21.16 | 34.77 |
| | 710.0 | 23790 | Н | 13.82 | 3.63 | -2.15 | 15.3 | 34.77 |
| RB: 1,24 | 713.5 | 23825 | V | 19.73 | 3.62 | -2.36 | 20.99 | 34.77 |
| | | 23025 | Н | 14.24 | 3.62 | -2.36 | 15.5 | 34.77 |
| | 706.5 | 23755 | V | 20.3 | 3.65 | -1.85 | 22.1 | 34.77 |
| LTE | 700.5 | 23733 | Н | 15.1 | 3.65 | -1.87 | 16.88 | 34.77 |
| BAND 17 BW: 5M | 710.0 | 23790 | V | 20.22 | 3.65 | -1.87 | 22 | 34.77 |
| 16QAM | 710.0 | 23790 | Н | 14.34 | 3.65 | -1.87 | 16.12 | 34.77 |
| RB: 1,0 | 713.5 | 23825 | V | 20.02 | 3.64 | -2.09 | 21.57 | 34.77 |
| | 710.0 | 20020 | Н | 15.04 | 3.64 | -2.09 | 16.59 | 34.77 |
| | 706.5 | 23755 | V | 19.58 | 3.65 | -1.93 | 21.3 | 34.77 |
| | 700.5 | 20100 | Н | 15.18 | 3.65 | -1.92 | 16.91 | 34.77 |
| BAND 17 | 710.0 | 23790 | V | 19.77 | 3.63 | -2.14 | 21.26 | 34.77 |
| BW: 5M 16QAM RB: 1,24 | 710.0 | 20130 | Н | 14.94 | 3.63 | -2.15 | 16.42 | 34.77 |
| | 713.5 2 | 23825 | V | 20.12 | 3.62 | -2.35 | 21.39 | 34.77 |
| Demonstration 1 | 110.0 | 20020 | Н | 14.74 | 3.62 | -2.37 | 15.99 | 34.77 |

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.



| | EUT | | | | Measur | ement | | |
|--------------------|-----------------------------------------|-------|-----------------|----------------|-----------------|---------------|-------|-------|
| Operation Band | Fundamental Frequency | СН | Antenna Pol. | S.G. Output | Antenna Gain | Cable Loss | ERP | Limit |
| | MHz | | V/H | dBm | dBd | dB | dBm | dBm |
| | 709.0 | 23780 | V | 1.11 | 3.65 | -1.88 | 2.88 | 34.77 |
| LTE | 709.0 | 23/00 | Н | 14.59 | 3.65 | -1.87 | 16.37 | 34.77 |
| BAND 17 BW: 10M | 710.0 | 23790 | V | 19.42 | 3.66 | -1.87 | 21.21 | 34.77 |
| QPSK | 710.0 | | Н | 13.46 | 3.66 | -1.86 | 15.26 | 34.77 |
| RB: 1,0 | 711.0 | 23800 | V | 19.68 | 3.65 | -1.81 | 21.52 | 34.77 |
| | | | Н | 13.79 | 3.66 | -1.81 | 15.64 | 34.77 |
| | 709.0 | 23780 | V | 19.83 | 3.63 | -2.21 | 21.25 | 34.77 |
| LTE | 709.0 | | Н | 14.9 | 3.63 | -2.22 | 16.31 | 34.77 |
| BAND 17 BW: 10M | 710.0 | 23790 | V | 20.58 | 3.62 | -2.27 | 21.93 | 34.77 |
| QPSK | 710.0 | | Н | 13.81 | 3.62 | -2.29 | 15.14 | 34.77 |
| RB: 1,49 | 711.0 | 23800 | V | 19.5 | 3.62 | -2.34 | 20.78 | 34.77 |
| | | | Н | 13.66 | 3.62 | -2.35 | 14.93 | 34.77 |
| | 709.0 | 23780 | V | 15.06 | 3.65 | -1.86 | 16.85 | 34.77 |
| LTE | 709.0 | 23700 | Н | 14.91 | 3.65 | -1.9 | 16.66 | 34.77 |
| BAND 17 BW: 10M | 710.0 | 23790 | V | 20.98 | 3.66 | -1.88 | 22.76 | 34.77 |
| 16QAM | 710.0 | 23730 | Н | 15.37 | 3.66 | -1.87 | 17.16 | 34.77 |
| RB: 1,0 | 711.0 | 23800 | V | 21.55 | 3.66 | -1.83 | 23.38 | 34.77 |
| | 711.0 | 20000 | Н | 15.6 | 3.65 | -1.8 | 17.45 | 34.77 |
| | 709.0 | 23780 | V | 21.65 | 3.63 | -2.2 | 23.08 | 34.77 |
| | 100.0 | 20100 | Н | 13.71 | 3.62 | -2.25 | 15.08 | 34.77 |
| BAND 17 BW: 10M | 710.0 | 23790 | V | 21.47 | 3.62 | -2.27 | 22.82 | 34.77 |
| 16QAM | / 10.0 | 20100 | Н | 15.44 | 3.62 | -2.29 | 16.77 | 34.77 |
| RB: 1,49 | 711.0 | 23800 | V | 19.88 | 3.62 | -2.35 | 21.15 | 34.77 |
| Bomork : | , , , , , , , , , , , , , , , , , , , , | _0000 | Н | 14.37 | 3.62 | -2.34 | 15.65 | 34.77 |

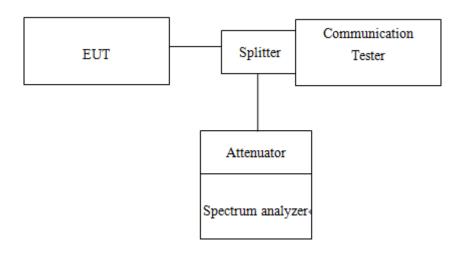


8. OCCUPIED BANDWIDTH MEASUREMENT

8.1. Standard Applicable

The occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power.

8.2. Test Set-up



8.3. Measurement Procedure

99% &26dB Bandwidth with detector peak

The EUT's output RF connector was connected with a short cable to the spectrum analyzer, RBW was set to about 1% of emission BW, VBW= 3 times RBW, -26dBc display line was placed on the screen (or 26dB bandwidth), the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace. Then set RBW to 99% bandwidth, RBW= 1%, VBW= 3 RBW, with span > 2 * Signal BW, set % Power = 99%.

99% Bandwidth with detector sample

The EUT's output RF connector was connected with a short cable to the spectrum analyzer, RBW was set to about 1% ~ 5% of emission BW, VBW= 3 times RBW, -20dBc display line was placed on the screen (or 20dB bandwidth). Set RBW to 99% bandwidth, RBW= 1% ~ 5%, VBW= 3 RBW, with span > 2 * Signal BW, set % Power = 99%.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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8.4. Measurement Equipment Used

| EQUIPMENT TYPE | MFR | MODEL NUM- BER | SERIAL NUM- BER | LAST CAL. | CAL DUE. |
|--------------------------------|-------------------|--------------------|--------------------|------------|------------|
| EXA Spectrum Ana- lyzer | Agilent | N9010A | MY57120290 | 2018/02/14 | 2019/02/13 |
| Radio Communication Analyer | Anritsu | MT8815B | 6200711454 | 2018/04/05 | 2019/04/04 |
| Radio Communication Analyer | Anritsu | MT8820C | 6200995019 | 2018/04/05 | 2019/04/04 |
| DC Power Supply | Anritsu | E3640A | MY52410006 | 2017/11/28 | 2018/11/27 |
| Temperature Cham- ber | TERCHY | MHG-120LF | 911009 | 2018/05/18 | 2019/05/17 |
| Attenuator | Mini-Circuit | BW-S10W2+ | 2 | 2018/01/02 | 2019/01/01 |
| DC Block | Mini-Circuits | BLK-18-S+ | 1 | 2018/01/02 | 2019/01/01 |
| Splitter | RF-LAMBAD | RFLT2W1G18G | 11-JSPF412-018 | 2018/01/02 | 2019/01/01 |
| Coaxial Cable | Huber Su- hner | SUCOFLEX 102EPA | MY2616/2 | 2018/01/02 | 2019/01/01 |

8.5. Measurement Result

| Freq. (MHz) | | 99% BV | V (MHz) | 26 dB BW (MHz) | | |
|----------------|-----|---------|---------|----------------|---------|--|
| | СН | GSM | GPRS | GSM | GPRS | |
| | | 850 | 850 | 850 | 850 | |
| 824.2 | 128 | 0.24143 | 0.24282 | 0.30617 | 0.31427 | |
| 836.6 | 190 | 0.24044 | 0.24270 | 0.30539 | 0.32576 | |
| 848.8 | 251 | 0.24314 | 0.24134 | 0.30568 | 0.31634 | |

| Freq. (MHz) | | 99% BV | V (MHz) | 26 dB BW (MHz) | | |
|----------------|-----|---------|---------|----------------|---------|--|
| | СН | GSM | GPRS | GSM | GPRS | |
| | | 1900 | 1900 | 1900 | 1900 | |
| 1850.2 | 512 | 0.24108 | 0.24286 | 0.31160 | 0.31392 | |
| 1880.0 | 661 | 0.24084 | 0.24424 | 0.31016 | 0.31651 | |
| 1909.8 | 810 | 0.24087 | 0.24382 | 0.30644 | 0.32098 | |



| Freq | | 99 9 | % BW (MH | z) | 26 dB BW (MHz) | | | |
|----------------|------|-------------|----------|---------|----------------|---------|---------|--|
| Freq. (MHz) | СН | WCDMA | HSDPA | HSUPA | WCDMA | HSDPA | HSUPA | |
| | | V | V | V | V | V | V | |
| 826.40 | 4132 | 4.13300 | 4.11570 | 4.13030 | 4.67670 | 4.67040 | 4.69690 | |
| 836.60 | 4183 | 4.10190 | 4.11040 | 4.11400 | 4.67590 | 4.68440 | 4.67000 | |
| 846.60 | 4233 | 4.06570 | 4.07020 | 4.06510 | 4.62680 | 4.64430 | 4.63350 | |

| L | LTE BAND 5 Channel bandwidth: 1.4MHz | | | | | | | | |
|-------|--------------------------------------|------------|---------|----------------|--------|--|--|--|--|
| Freq. | СН | 99% B\ | N (MHz) | 26 dB BW (MHz) | | | | | |
| (MHz) | CIT | QPSK 16QAM | | QPSK | 16QAM | | | | |
| 824.7 | 20407 | 1.0977 | 1.0997 | 1.2763 | 1.2908 | | | | |
| 836.5 | 20525 | 1.0987 | 1.1005 | 1.2923 | 1.2877 | | | | |
| 848.3 | 20643 | 1.0983 | 1.1029 | 1.2764 | 1.3043 | | | | |

| | LTE BAND 5 Channel bandwidth: 5MHz | | | | | | | | | |
|-------|------------------------------------|------------|------------|----------------|--------|--|--|--|--|--|
| Freq. | СН | 99% B\ | N (MHz) | 26 dB BW (MHz) | | | | | | |
| (MHz) | CIT | QPSK 16QAM | | QPSK | 16QAM | | | | | |
| 826.5 | 20425 | 4.5011 | 4.5047 | 5.0157 | 5.0306 | | | | | |
| 836.5 | 20525 | 4.4986 | 4.4984 | 4.9908 | 5.0020 | | | | | |
| 846.5 | 20625 | 4.4756 | 4.4688 | 4.9694 | 4.9619 | | | | | |
| Ľ | te bani | D 12 Chan | inel bandw | idth: 1.4M | Hz | | | | | |
| Freq. | СН | 99% B\ | N (MHz) | 26 dB BW (MHz) | | | | | | |
| (MHz) | СП | QPSK | 16QAM | QPSK | 16QAM | | | | | |
| 699.7 | 23017 | 1.0965 | 1.1039 | 1.2922 | 1.2931 | | | | | |
| 707.5 | 23095 | 1.0980 | 1.0990 | 1.2827 | 1.2587 | | | | | |
| 715.3 | 23173 | 1.0950 | 1.1085 | 1.2585 | 1.2571 | | | | | |

| LTE BAND 5 Channel bandwidth: 3MHz | | | | | | | | |
|------------------------------------|-------|--------|---------|----------------|--------|--|--|--|
| Freq. | СН | 99% BV | V (MHz) | 26 dB BW (MHz) | | | | |
| (MHz) | СП | QPSK 1 | | QPSK | 16QAM | | | |
| 825.5 | 20415 | 2.7051 | 2.7016 | 2.9857 | 3.0045 | | | |
| 836.5 | 20525 | 2.6975 | 2.7010 | 2.9899 | 2.9826 | | | |
| 847.5 | 20635 | 2.6986 | 2.6975 | 2.9837 | 2.9676 | | | |

| | LTE BAND 5 Channel bandwidth: 10MHz | | | | | | | | | |
|-------------------------------------|-------------------------------------|----------------|-----------------------|-----------------|------------------|--|--|--|--|--|
| Freq. | CLL | 99% BV | V (MHz) | 26 dB BW (MHz) | | | | | | |
| (MHz) | СН | QPSK 16QAM | | QPSK | 16QAM | | | | | |
| 829.0 | 20450 | 8.9885 | 8.9407 | 9.834 | 9.744 | | | | | |
| 836.5 | 20525 | 8.9587 | 8.9277 | 9.843 | 9.740 | | | | | |
| 844.0 | 20600 | 8.9215 | 8.8777 | 9.753 | 9.710 | | | | | |
| LTE BAND 12 Channel bandwidth: 3MHz | | | | | | | | | | |
| | LTE BAN | VD 12 Chai | nnel bandw | idth: 3MH | Z | | | | | |
| Freq. | | | nnel bandw V (MHz) | | z W (MHz) | | | | | |
| Freq. (MHz) | LTE BAN | | | | | | | | | |
| | | 99% BV | V (MHz) | 26 dB B | W (MHz) | | | | | |
| (MHz) | СН | 99% BV QPSK | V (MHz) 16QAM | 26 dB B QPSK | W (MHz) 16QAM | | | | | |

| l | LTE BAND 12 Channel bandwidth: 5MHz | | | | | | | | | |
|-------|-------------------------------------|--------|---------|----------------|--------|--|--|--|--|--|
| Freq. | СН | 99% B\ | N (MHz) | 26 dB BW (MHz) | | | | | | |
| (MHz) | CIT | QPSK | 16QAM | QPSK | 16QAM | | | | | |
| 701.5 | 23035 | 4.5049 | 4.5004 | 5.0173 | 5.0303 | | | | | |
| 707.5 | 23095 | 4.4750 | 4.4911 | 4.9849 | 4.9994 | | | | | |
| 713.5 | 23155 | 4.5055 | 4.5073 | 5.0488 | 5.0221 | | | | | |

| | LTE BAND 12 Channel bandwidth: 10MHz | | | | | | | | | |
|-------|--------------------------------------|--------|---------|----------------|-------|--|--|--|--|--|
| Freq. | СН | 99% BV | V (MHz) | 26 dB BW (MHz) | | | | | | |
| (MHz) | MHz) | QPSK | 16QAM | QPSK | 16QAM | | | | | |
| 704.0 | 23060 | 8.9924 | 8.9492 | 9.841 | 9.741 | | | | | |
| 707.5 | 23095 | 8.9380 | 8.8759 | 9.748 | 9.711 | | | | | |
| 711.0 | 23130 | 9.0050 | 9.818 | | | | | | | |



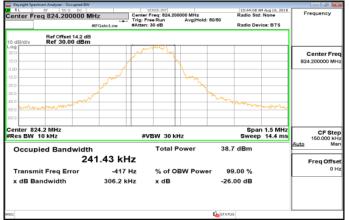
| l | LTE BAND 17 Channel bandwidth: 5MHz | | | | | LTE BAND 17 Channel bandwidth: 10MHz | | | | | łz |
|----------|-------------------------------------|---------|----------------|--------|--------|--------------------------------------|--------------|--------|----------------|-------|-------|
| Freq. CH | 99% B\ | N (MHz) | 26 dB BW (MHz) | | Freq. | СН | 99% BW (MHz) | | 26 dB BW (MHz) | | |
| (MHz) | СП | QPSK | 16QAM | QPSK | 16QAM | (MHz) | СП | QPSK | 16QAM | QPSK | 16QAM |
| 706.5 | 23755 | 4.4775 | 4.4721 | 4.9887 | 4.8196 | 709.0 | 23780 | 8.9473 | 8.8942 | 9.790 | 9.742 |
| 710.0 | 23790 | 4.4912 | 4.4926 | 4.9999 | 4.9841 | 710.0 | 23790 | 8.9694 | 8.9164 | 9.785 | 9.780 |
| 713.5 | 23825 | 4.5144 | 4.5170 | 5.0540 | 5.0504 | 711.0 | 23800 | 8.9953 | 8.9577 | 9.863 | 9.824 |

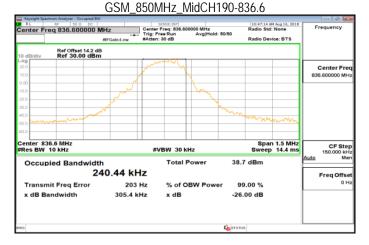
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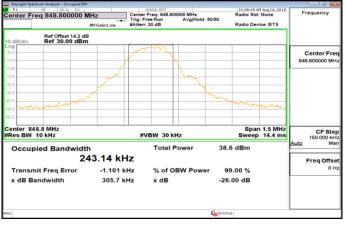
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GSM_850MHz_LowCH128-824.2

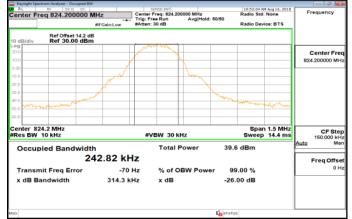


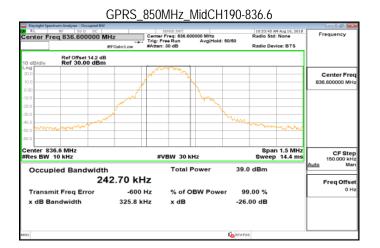


GSM 850MHz HighCH251-848.8

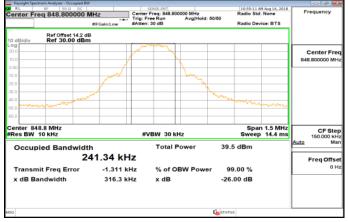


GPRS_850MHz_LowCH128-824.2





GPRS 850MHz HighCH251-848.8



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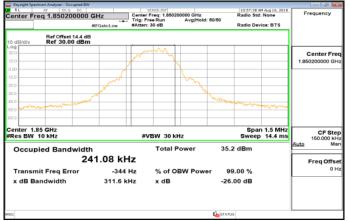
| 台 | 灣檢驗科技股份有限公司 |
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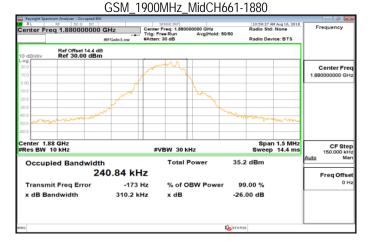
f (886-2) 2298-0488



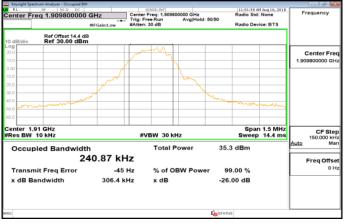
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GSM_1900MHz_LowCH512-1850.2

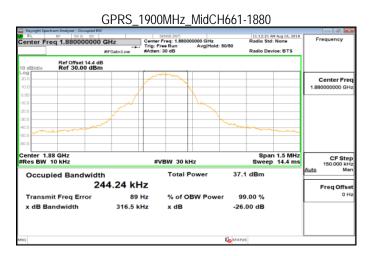




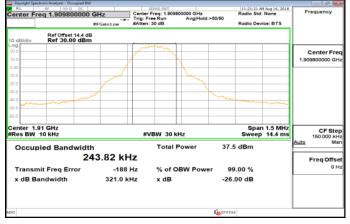
GSM 1900MHz HighCH810-1909.8



GPRS_1900MHz_LowCH512-1850.2 11:05:54 AM Aug 16, Radio Std: None enter Freq 1.850200000 GHz Center Freq: 1.8 00 GHz Radio Device: BTS Ref Offset 14.4 dB Ref 30.00 dBm Center Fre 1.85 GHz W 10 kHz Span 1.5 MH weep 14.4 m CF Step #VBW 30 kHz Occupied Bandwidth Total Power 36.5 dBm 242.86 kHz Freq Offs Transmit Freg Error -210 Hz % of OBW Power 99.00 % x dB Bandwidth 313.9 kHz x dB -26.00 dB



GPRS 1900MHz HighCH810-1909.8



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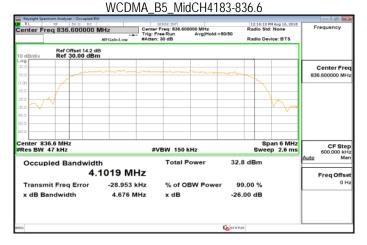
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Report No.: ER/2018/80112 Page 55 of 158

WCDMA_B5_LowCH4132-826.4

| | | | _ | | |
|------------|-------------------------------------|------------|-------------------------|-------------------------------------------|----------------|
| | rum Analyzer - Occupied BV | | | | |
| RL | RF 50 Ω DC | | er Freg: 826,400000 MHz | 12:14:26 PM Aug 16, 20 Radio Std: None | Frequency |
| Senter Fre | eq 826.400000 I | AHZ Cent | Free Run Avg Hold: | | |
| | | | en: 30 dB | Radio Device: BTS | |
| | | | | | |
| 0 dB/div | Ref Offset 14.2 dl Ref 30.00 dBn | | | | |
| o dB/div | Ref 30.00 dBh | 1 | | | - |
| 20.0 | | | | | Center Fre |
| 0.0 | | mon | mannen | m | 826.400000 MH |
| | 1 | | | ~~~ | 020.400000 mir |
| | | | | | |
| 3.0 | 1 | | | | |
| 0.0 | J | | | | |
| 0.0 | V V | | | | <u> </u> |
| 0.0 | | | | | |
| 3.0 | | | | | |
| | | | | | |
| 3.0 | | | | | |
| enter 826 | 5.4 MHz | | | Span 6 MH | 17 |
| Res BW 4 | | | VBW 150 kHz | Sweep 2.6 m | |
| | | | | | Auto Ma |
| Occupi | ied Bandwidt | h | Total Power | 32.5 dBm | |
| | 4 | 1330 MHz | | | |
| | | 1330 MINZ | | | Freq Offse |
| Transmi | it Freg Error | 18.053 kHz | % of OBW Power | r 99.00 % | 01 |
| | ndwidth | 4.677 MHz | x dB | -26.00 dB | |
| хавва | nawiath | 4.0// MHZ | xab | -26.00 dB | |
| | | | | | |
| | | | | | |
| | | | | | |
| 6 | | | | 5 STATUS | |
| - | | | | O | |

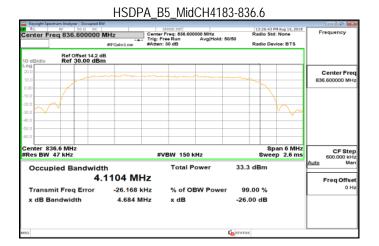


WCDMA_B5_HighCH4233-846.6

| R L | rum Analyzer - Occupied BV IV 50 Ω DC | v | SENSE:INT | | 1 | 2:18:01 PM A | 16.2018 | |
|-----------------------|------------------------------------------|-------------|---------------------------------|--------------|---------|---------------|-----------------|----------------------|
| enter Fre | g 846.600000 I | MHz | Center Freq: 846.6 | | Ra | dio Std: N | | Frequency |
| | | #IFGain:Low | Trig: Free Run #Atten: 30 dB | Avg Hold: 50 | | dio Device | BTS | |
| 0 dB/div | Ref Offset 14.2 d Ref 30.00 dBn | | | | | | | |
| 0.0 | | | | | | | | Center Fre |
| 1.0 | - m | ~~~~~~ | - marine - | - marine | nnen | | | 846.600000 MH |
| | | | | | | ~ | _ | |
| .0 | | | | | | | _ | |
| u n | √ _ | | | | | | ~ | |
| | | | | | | · · · · | M | |
| | | | | | | | | |
| 1.0 | | | | | | | | |
| 3.0 | | | | | | | | |
| enter 846 Res BW 4 | | | #VBW 150 | kHz | | Span Sweep | 6 MHz 2.6 ms | CF Ste 600.000 kH |
| Occupi | ied Bandwidt | h | Total | Power | 32.7 di | 32.7 dBm | | <u>Auto</u> Ma |
| | 4. | 0657 MH | z | | | | | Freq Offs |
| Transmi | it Freg Error | -39.855 kl | Hz % of C | BW Power | 99.00 | % | | 01 |
| x dB Ba | ndwidth | 4.627 M | lz xdB | | -26.00 | dB | | |
| | | | | | | | | |
| | | | | | | | | |
| 5 | | | | | STATUS | | | L |
| <u> </u> | | | | | • | | | |

HSDPA_B5_LowCH4132-826.4

| | trum Analyzer - Occupied BW | | | | | | | |
|-------------|-------------------------------------|------------|------------------------------|---------------|---------------------------|--------------|----------|----------|
| RL Enter En | eq 826.400000 N | LH Cente | Freq: 826,400000 MHz | | 12:20:39 PF Radio Std: | Aug 16, 2018 | Frequ | Jency |
| enter I I | 64 020.400000 h | Trig: | FreeRun Avg Hold n: 30 dB | 1:>50/50 | Radio Devi | ce: BTS | | |
| 0 dB/div | Ref Offset 14.2 dB Ref 30.00 dBm | | | | | | | |
| og | Rel 30.00 dBill | | | | | | <u> </u> | |
| 0.0 | | | | mamman | | | | nter Fre |
| 0.0 | - | | | | | | 826.40 | 0000 M |
| .00 | | | | | ~ | | <u> </u> | |
| 0.0 | | | | | | | | |
| 0.0 | \checkmark | | | | | m | | |
| 0.0 K V | Y | | | | | | | |
| 0.0 | | | | | | | | |
| 0.0 | | | | | | | | |
| 0.0 | | | | | | | | |
| enter 82 | 6.4 MHz | | | | Spa | an 6 MHz | <u> </u> | CF Ste |
| Res BW | 47 kHz | 4 | VBW 150 kHz | | Sweep | o 2.6 ms | 60 | 0.000 k |
| Occup | ied Bandwidth | , | Total Power | 32.8 | dBm | | Auto | м |
| Occup | | 157 MHz | | | | | <u> </u> | |
| | 4. | | | | | | Fre | eq Offs |
| Transm | nit Freq Error | 20.682 kHz | % of OBW Pow | er 99. | 00 % | | I | 01 |
| x dB Ba | andwidth | 4.670 MHz | x dB | -26.0 | 0 dB | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| 0 | | | | STATUS | | | | |



HSDPA B5 HighCH4233-846.6

| Keysight Spect | trum Analyzer - Occupied | BW | | | | | | Aug 16, 2018 | | S 23 |
|----------------|---------------------------------|------------|-------|----------------|------------------------|--------|--------------|----------------------|----------|---------|
| | q 846.60000 | | | Freq: 846.6000 | 00 MHz Avg Hold: 50 | R | adio Std: | | Freque | ency |
| | | #FGain:Low | | : 30 dB | Avginoid: 50 | | adio Devi | ce: BTS | | |
| 10 dB/div | Ref Offset 14.2 Ref 30.00 dE | | | | | | | | | |
| 20.0 | | | | _ | | | | | Cent | er Fred |
| 10.0 | - And And | | | | mm | m | - | | 846.600 | 000 MH |
| 0.00 | | | | | | | \mathbf{n} | | | |
| 20.0 | | | | | | | | | | |
| a.a 🔨 | V | | | _ | | | | M- | | |
| 40.0 | | | | | | | | | | |
| 50.0 | | | - | | | | | | | |
| 60.0 | | | | | | | | | | |
| Center 84 | | | # | VBW 150 k | Hz | | | an 6 MHz 5 2.6 ms | 600 | CF Ste |
| Occup | ied Bandwid | ith | | Total Po | ower | 32.5 d | IBm | | Auto | Ma |
| | 4 | .0702 | /Hz | | | | | | Free | Offse |
| Transm | it Freg Error | -42.62 | 3 kHz | % of OE | W Power | 99.0 | 0 % | | | 0 H |
| x dB Ba | ndwidth | 4.644 | MHz | x dB | | -26.00 | dB | | <u> </u> | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | 1 | | | | |
| 83 | | | | | | STATUS | | | | |

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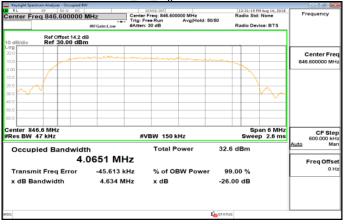
HSUPA B5 LowCH4132-826.4

| | rum Analyzer - Occupied BW | | | | | |
|------------------------|-------------------------------------|---------------|--------------|-----------|---------------------------------------------|-----------------------|
| Center Fre | N 50 Ω DC Q 826.400000 N | | | ld:>50/50 | 12:22:28 PM Aug 16, 2018 Radio Std: None | Frequency |
| | | #IFGain:Low # | Atten: 30 dB | | Radio Device: BTS | |
| 10 dB/div | Ref Offset 14.2 dE Ref 30.00 dBm | | | | | |
| 20.0 | | | | | | Center Freq |
| 0.00 | | | | | | 826.400000 MH |
| 10.0 | 1 | | | | | |
| 20.0 | | | | | - Mm | |
| 40.0 | Y | | | | | |
| 60.0 | | | | | | |
| 60.0 | | | | | | |
| Center 826 Res BW 4 | | | #VBW 150 kHz | | Span 6 MHz Sweep 2.6 ms | CF Step 600.000 kH |
| Occupi | ied Bandwidtl | h | Total Power | 32.6 | dBm | Auto Mar |
| | | 1303 MHz | 2 | | | Freq Offse |
| Transm | it Freq Error | 19.444 kH | % of OBW Pov | ver 99 | .00 % | 0 H |
| x dB Ba | ndwidth | 4.697 MH | z xdB | -26. | 00 dB | |
| | | | | | | |
| | | | | | | |
| 49G | | | | | | |

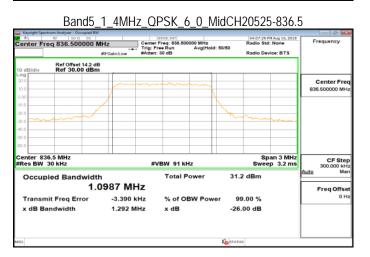


HSUPA_B5_MidCH4183-836.6

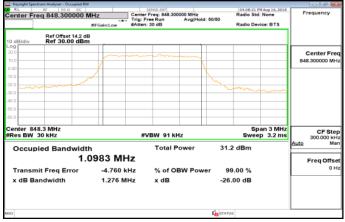
HSUPA B5 HighCH4233-846.6



Band5_1_4MHz_QPSK_6_0_LowCH20407-824.7 04:06:27 PM Aug 16 Radio Std: None enter Freq 824.700000 MHz Center Freq: 824.70 00 MHz Avg|Hold:>50/50 Frequency Radio Device: BTS Ref Offset 14.2 dB Ref 30.00 dBm Center Fre 824.700000 MH r 824.7 MHz BW 30 kHz Span 3 MH CF Step #VBW 91 kHz Occupied Bandwidth Total Power 31.3 dBm 1.0977 MHz Freq Offs Transmit Freg Error -1.654 kHz % of OBW Power 99.00 % x dB Bandwidth 1.276 MHz -26.00 dB x dB



Band5 1 4MHz QPSK 6 0 HighCH20643-848.3



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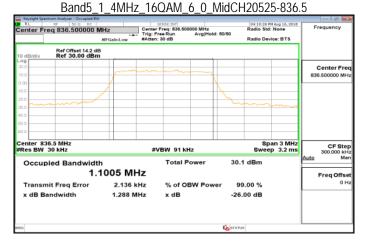
| 台 | 灣檢驗科技股份有限公司 |
|---|--------------------|
| | |



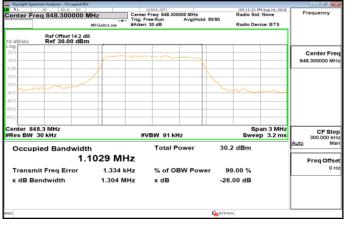
Report No.: ER/2018/80112 Page 57 of 158

Band5_1_4MHz_16QAM_6_0_LowCH20407-824.7

| | Analyzer - Occupied BW | | | | | |
|----------------------------|-------------------------------------|-----------|--------------------------------------------------------------|-------------|-------------------------------|------------------------|
| Center Freq | 824.700000 MH | | sense: INT ter Freq: 824.700000 MHz : Free Run AvgiHol | Radio S | 9 PM Aug 16, 2018 td: None | Frequency |
| | a1 | | ten: 30 dB | | evice: BTS | |
| 10 dB/div | Ref Offset 14.2 dB Ref 30.00 dBm | | | | | |
| 20.0 | | | | | | Center Free |
| 10.0 | | - manuar | | | | 824.700000 MHz |
| 0.00 | | / | | 1 | | |
| 20.0 | | | | <u>∧</u> | | |
| 30.0 | mont | | | mon | | |
| 40.0 | | | | | | |
| -50.0 | | | | | | |
| 60.0 | | | | | | |
| Center 824.7 #Res BW 30 | | | #VBW 91 kHz | | ipan 3 MHz ep 3.2 ms | CF Step 300.000 kHz |
| Occupie | d Bandwidth | | Total Power | 29.9 dBm | | Auto Mar |
| | | 97 MHz | | | | Freq Offset |
| Transmit | Freq Error | 4.828 kHz | % of OBW Pov | ver 99.00 % | | 0 Ha |
| x dB Band | dwidth | 1.291 MHz | x dB | -26.00 dB | | |
| | | | | | | |
| 15G | | | | STATUS | | |

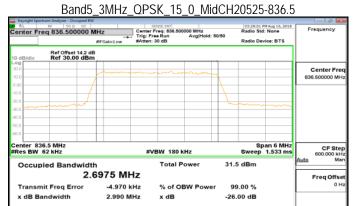


Band5 1 4MHz 16QAM 6 0 HighCH20643-848.3

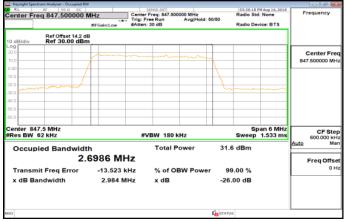


:27:48 PM Aug 16 tio Std: None enter Freq 825.500000 MHz Center Freq: 825. Trig: Free Run 00 MHz Avg|Hold: 50/5 Frequency Radio Device: BTS Ref Offset 14.2 dB Ref 30.00 dBm Center Fre 25.500000 MH r 825.5 MHz BW 62 kHz Span 6 MH CF Step #VBW 180 kHz Occupied Bandwidth Total Power 31.5 dBm 2.7051 MHz Freq Offs Transmit Freg Error 5.901 kHz % of OBW Power 99.00 % x dB Bandwidth 2.986 MHz -26.00 dB x dB

Band5_3MHz_QPSK_15_0_LowCH20415-825.5



Band5 3MHz QPSK 15 0 HighCH20635-847.5



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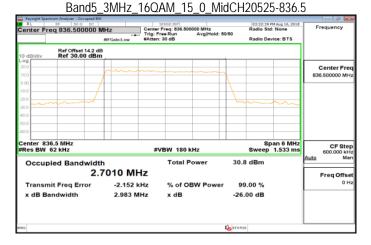
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Band5_3MHz_16QAM_15_0_LowCH20415-825.5

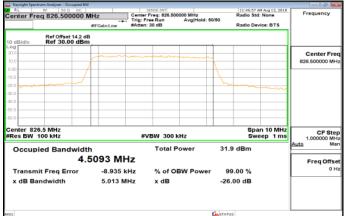
| Keynight Spectrum Analyzer - Occupied BW RL RF 50 Ω DC Center Freq 825.500000 M | Hz Cent | sense:ant er Freq: 825.500000 MHz | Radio St | PM Aug 16, 2018 d: None | Frequency |
|---------------------------------------------------------------------------------------|-----------|--------------------------------------|-------------------|----------------------------|----------------------|
| | Trig: | FreeRun Avg Hold: t n: 30 dB | 50/50 Radio De | vice: BTS | |
| Ref Offset 14.2 dE 0 dB/div Ref 30.00 dBm | | | | | |
| 0 g 20.0 | | | | | Center Fre |
| .0 | | | | | 825.500000 MH |
| 0.0 | | | | | |
| 0.0 | | | how | mm | |
| 0.0 | | | | | |
| 0.0 | | | | | |
| 0.0 | | | | | |
| enter 825.5 MHz Res BW 62 kHz | | VBW 180 kHz | | pan 6 MHz 1.533 ms | CF Ste 600.000 kH |
| Occupied Bandwidt | h | Total Power | 30.6 dBm | 4 | uto Ma |
| | 7016 MHz | | | Ē | Freq Offse |
| Transmit Freq Error | 6.771 kHz | % of OBW Power | r 99.00 % | | 0 H |
| x dB Bandwidth | 3.005 MHz | x dB | -26.00 dB | | |
| | | | | | |
| | | | | | |
| 83 | | | to status | | |



Band5_3MHz_16QAM_15_0_HighCH20635-847.5

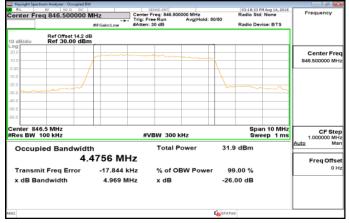
| Keysight Spect | trum Analyzer - Occupied BW | | SENSE:IN | | | 02.24.12 | PM Aug 16, 2018 | |
|----------------|-------------------------------------|------------|-----------------------------------------|---------------|----------|----------|-----------------|----------------------|
| | eq 847.500000 N | MHz | Center Freq: 8 | 47.500000 MHz | | Radio St | d: None | Frequency |
| | | #FGain:Low | Trig: Free Run #Atten: 30 dB | Avg Hol | d: 50/50 | Radio De | vice: BTS | |
|) dB/div | Ref Offset 14.2 dE Ref 30.00 dBm | | | | | | | |
| 10 | | - | | | | _ | | Center Fre |
| | | (Trans | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | | m - | _ | | 847.500000 MH |
| | | / | | | | _ | | |
| | | | | | | | | |
| .0 | | | | | | | | |
| | | | | | | m | m | |
| | | | | | | | | |
| .0 | | | | | | | | |
| .0 | | | | | | | | |
| nter 84 | 7.5 MHz | | | | | S | oan 6 MHz | |
| es BW | | | #VBW | 180 kHz | | | 1.533 ms | CF Ste 600.000 ki |
| Occup | ied Bandwidt | h | Total Power 3 | | | .5 dBm | Auto Ma | |
| | | 6975 MH | Iz | | | | | Freq Offs |
| Transm | nit Freg Error | -8.871 k | Hz % d | of OBW Pov | ver 9 | 99.00 % | | 0 |
| | andwidth | 2.968 M | | | | 6.00 dB | | |
| | | 2.000 m | | - | -2. | | | |
| | | | | | 1 STAT | | | |
| | | | | | NO DIAL | | | |

Band5_5MHz_QPSK_25_0_LowCH20425-826.5



Band5_5MHz_QPSK_25_0_MidCH20525-836.5 03:16:42 PM Aug nter Freq 836.500 Radio Device: BTS Ref Offset 14.2 dB Ref 30.00 dBm Center Fre 36.500000 MH er 836.5 MHz BW 100 kHz Span 10 MH Sweep 1 m CF Step 1.000000 MH #VBW 300 kHz Occupied Bandwidth Total Power 31.6 dBm 4.4986 MHz Freq Offs Transmit Freg Error -13.851 kHz % of OBW Power 99.00 % x dB Bandwidth 4.991 MHz -26.00 dB x dB

Band5 5MHz QPSK 25 0 HighCH20625-846.5



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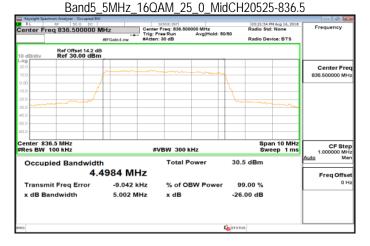
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Band5_5MHz_16QAM_25_0_LowCH20425-826.5

| Keysight Spectro | um Analyzer - Occupied BW | | | | | | | | |
|-------------------------|-------------------------------------|-------------|-----------|---------------|-----------|----------------|---------|--------------------------------|----------------|
| | g 826.500000 M | Hz | Center Fr | req: 826.500 | | | Radio S | 0 PM Aug 16, 2018 itd: None | Frequency |
| | | #IFGain:Low | #Atten: 3 | e Run 0 dB | Avg Hold: | 50/50 | Radio D | evice: BTS | |
| 10 dB/div | Ref Offset 14.2 dB Ref 30.00 dBm | | | | | | | | |
| 20.0 | | | | | | | | | Center Freq |
| 10.0 | | | | | | | - | | 826.500000 MHz |
| 0.00 | | | | | | 1 | | | |
| 20.0 | 1 | | | | | | | | |
| 30.0 | m | | | | | | | | |
| 40.0 | | | | | | _ | _ | | |
| 60.0 | | | | | | - | - | _ | |
| 60.0 | | | | | | - | | | |
| Center 826 #Res BW 1 | | | #VE | 300 k | Hz | | | oan 10 MHz weep 1 ms | |
| Occupi | ed Bandwidth | 1 | | Total P | ower | 30. | .5 dBm | | Auto Mar |
| | 4.5 | 5047 M⊦ | lz | | | | | | Freq Offse |
| Transmi | t Freq Error | 17.304 k | Hz | % of OE | W Powe | r 9 | 9.00 % | | 0 H |
| x dB Bar | ndwidth | 5.031 M | Hz | x dB | | -26 | 5.00 dB | | |
| | | | | | | | | | 1 |
| | | | | | | | | | |
| 193 | | | | | | Co STAT | us | | |

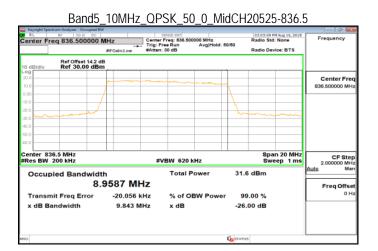


Band5_5MHz_16QAM_25_0_HighCH20625-846.5

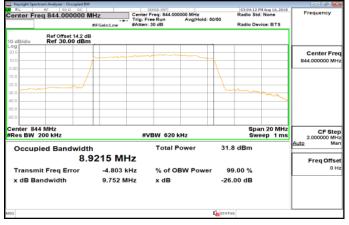
| Keysight Spectr | rum Analyzer - Occupied BW | | | | | | | |
|-----------------------|-------------------------------------|-------------|--------------------------------|----------------------------------------|--------------|----------|----------------------------|-----------------------|
| | g 846.500000 N | IHz | | 846.500000 MH | | Radio St | PM Aug 16, 2018 d: None | Frequency |
| | | #IFGain:Low | Trig: Free Ru #Atten: 30 dB | | lold: 50/50 | Radio De | vice: BTS | |
| dB/div | Ref Offset 14.2 dB Ref 30.00 dBm | | | | | | | |
| 9 9 | | | | | | | | Center Fre |
| | | | | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | | _ | | 846.500000 MH |
| | / | | | | | _ | | |
| 0 | / | | | | | | | |
| .0 | | | | | | | - | |
| | | | | | | | m | |
| | | | | | | _ | | |
| 0 | | | | | | _ | | |
| .0 | | | | | | | | |
| enter 846 tes BW 1 | | | #VBW | 300 kHz | | | an 10 MHz /eep 1 ms | CF Ste 1.000000 MH |
| Occupi | ied Bandwidth | ı | то | tal Power | 3 | 0.8 dBm | | Auto Ma |
| | 4.4 | 1688 MH | z | | | | | Freq Offs |
| Transmi | it Freg Error | -15.978 k | Hz % | of OBW Po | wer | 99.00 % | | 01 |
| | ndwidth | 4.962 M | Hz v | dB | - | 26.00 dB | | |
| | | 1002 | | | - | | | |
| 5 | | | | | L ast | ATUS | | |

Band5_10MHz_QPSK_50_0_LowCH20450-829





Band5 10MHz QPSK 50 0 HighCH20600-844



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|--|---|-------------|--|

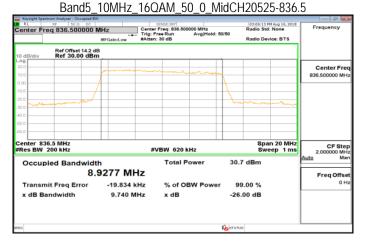
f (886-2) 2298-0488



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Band5 10MHz 16QAM 50 0 LowCH20450-829

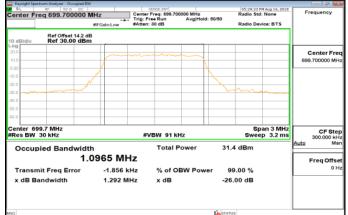
| | trum Analyzer - Occupied BW | | | | | | | | |
|------------|-------------------------------------|------------|--------------|----------|------------------------------------------------------------------------------------------------------------------|--------------|---------------------------------|------------|-----------------------------|
| RL | U 50 Ω DC | | Center Fre | | | | 03:05:22 PM Au Radio Std: No | g 16, 2018 | Frequency |
| Senter Fre | eq 829.000000 N | /HZ | Trig: Free I | Run | Avg Hold:>6 | 50/50 | Raulo atu, Re | ALL C. | |
| | | #FGain:Low | #Atten: 30 | dB | | | Radio Device | BTS | |
| 10 dB/div | Ref Offset 14.2 dB Ref 30.00 dBm | | | | | | | | |
| 20.0 | | | | | | 1 | | | |
| 10.0 | | man | | m | and the second | | | | Center Fre 829.000000 MH |
| | | 1 | | | | N. | | | 829.000000 MH |
| 0.00 | | / | | | | N | | | |
| -10.0 | | | | | | 1 | | | |
| -20.0 | mannet | | | | | 100 | - marine | | |
| -30.0 | | | | | | - | and the second second | mon | |
| 40.0 | | | | | | - | | | |
| -60.0 | | | | | | - | | | |
| -60.0 | | | | | | - | | | |
| Center 82 | | | #VBI | V 620 kł | 47 | | | 0 MHz | CF Ste |
| | | | | | | | | | 2.000000 MH Auto Ma |
| Occup | ied Bandwidt | h | | Total Po | ower | 30.5 | 5 dBm | | |
| | 8.9 | 9407 MI | Ηz | | | | | | Freq Offse |
| Transm | it Freq Error | 57.049 k | (Hz 9 | % of OB | W Power | 99 | 9.00 % | | 0 H |
| x dB Ba | ndwidth | 9.744 N | Hz : | k dB | | -26. | 00 dB | | |
| | | | | | | | | | |
| 190 | | | | | | STATU | 5 | | |

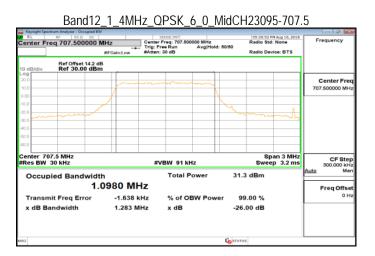


Band5_10MHz_16QAM_50_0_HighCH20600-844

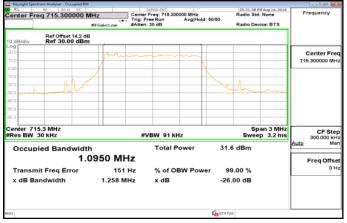
| RL IV S0 O DC enter Freq 844.00000 644.00000 644.00000 644.00000 644.00000 644.00000 644.00000 644.00000 644.00000 644.00000 644.00000 644.00000 644.00000 644.00000 644.00000 644.00000 644.00000 644.00000 644.00000 644.00000 644.00000 644.00000 644.00000 644.00000 644.00000 644.00000 644.00000 644.00000 644.00000 644.00000 644.00000 644.00000 644.00000 644.00000 644.00000 644.00000 644.00000 644.00000 644.00000 644.00000 644.000000 644.000000 644.000000 644.000000 644.000000 644.000000 644.000000 644.000000 644.000000 644.000000 644.000000 644.0000000 644.000000 644.000000 644.000000 644.000000 644.000000 644.000000 644.000000 644.000000 644.000000 644.000000 644.000000 644.0000000 644.0000000 644.0000000 644.0000000 644.00000000 644.000000000 644.00000 | | sense:int ter Freg: 844.000000 MHz | 03:07:11 PM Aug 16, 3 | 2018 Frequency |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|---------------------------------------|-----------------------|-----------------------------|
| enter Freq 844.0000 | Trig | : Free Run Avg Hold: 50 en: 30 dB | | |
| Ref Offset 14.3 dB/div Ref 30.00 d | | | | |
| 9 | | | | Center Fre |
| 0 | | | | 844.000000 Mi |
| 0 | | | | |
| 0 | / | | | |
| m | / | | hours | |
| 0 | | | | ~ |
| 0 | | | | |
| 0 | | | | |
| nter 844 MHz es BW 200 kHz | | #VBW 620 kHz | Span 20 M Sweep 1 | IHz CF Ste ms 2.000000 M |
| Occupied Bandwidth | | Total Power | 30.5 dBm | Auto Ma |
| 1 | B.8777 MHz | | | Freq Offs |
| Transmit Freg Error | -3.447 kHz | % of OBW Power | 99.00 % | 01 |
| x dB Bandwidth | 9.710 MHz | x dB | -26.00 dB | |
| | | | | |
| | | | | |
| | | | STATUS | |

Band12_1_4MHz_QPSK_6_0_LowCH23017-699.7





Band12 1 4MHz QPSK 6 0 HighCH23173-715.3



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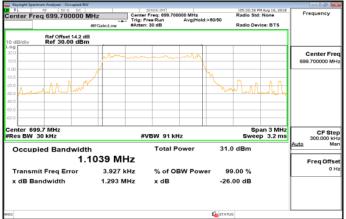
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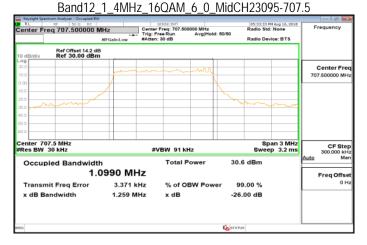
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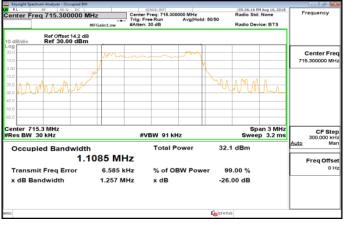
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Band12_1_4MHz_16QAM_6_0_LowCH23017-699.7



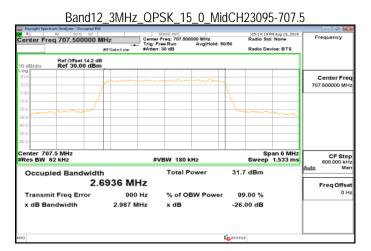


Band12_1_4MHz_16QAM_6_0_HighCH23173-715.3

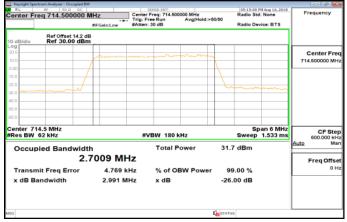


05:13:14 PM Aug 16 Radio Std: None enter Freq 700.500000 MHz Center Freq: 700 Trig: Free Run 00 MHz Avg|Hold:>50/50 Frequency Radio Device: BTS Ref Offset 14.2 dB Ref 30.00 dBm Center Fre 00.500000 MH 700.5 MHz W 62 kHz Span 6 MH CF Step #VBW 180 kHz Occupied Bandwidth Total Power 31.6 dBm 2.7002 MHz Freq Offs Transmit Freg Error -110 Hz % of OBW Power 99.00 % x dB Bandwidth 2.981 MHz -26.00 dB x dB

Band12_3MHz_QPSK_15_0_LowCH23025-700.5



Band12 3MHz QPSK 15 0 HighCH23165-714.5



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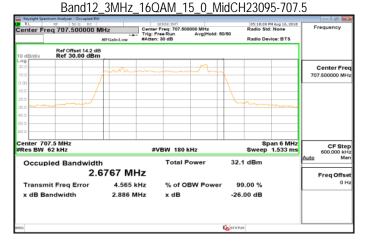
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Band12_3MHz_16QAM_15_0_LowCH23025-700.5

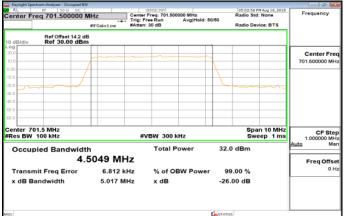
| RL | trum Analyzer - Occupied BW 10 50 Ω DC Eq 700.500000 N | Il In Capita | SENSE:INT | | 13 PM Aug 16, 2018 Std: None | Frequency |
|------------|--------------------------------------------------------------|------------------|----------------------|-----------|---------------------------------|-----------------------|
| senter Fre | eq 700.500000 W | Trig: | Free Run Avg Hold: 1 | 50/50 | Device: BTS | |
| | | mFGain:Low #Atte | n. 30 ub | Raulo | Device. B13 | |
| 10 dB/div | Ref Offset 14.2 dB Ref 30.00 dBm | | | | | |
| og | Ref 00.00 dBm | | | | | |
| 20.0 | | m | | ~ | | Center Free |
| 10.0 | | | | | | 700.500000 MH |
| 10.0 | / | | | | | |
| 20.0 | | | | | | |
| 10.0 | man | | | h | | |
| 40.0 | | | | | | |
| 0.0 | | | | - | | |
| 60.0 | | | | | | |
| Center 70 | 0.5 MHz | | | | Span 6 MHz | |
| Res BW | | # | VBW 180 kHz | | p 1.533 ms | CF Stej 600.000 kH |
| 0 | | | Total Power | 31.1 dBm | | Auto Ma |
| Occup | ied Bandwidth | | rotal Power | 31.1 dBm | | |
| | 2.1 | 7018 MHz | | | | Freq Offse |
| Transm | it Freq Error | 3.588 kHz | % of OBW Power | r 99.00 % | | 0 H |
| x dB Ba | ndwidth | 3.003 MHz | x dB | -26.00 dB | | |
| | | | | | | |
| so | | | | STATUS | | |

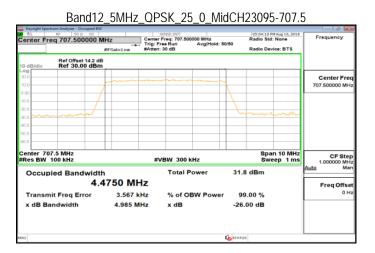


Band12 3MHz 16QAM 15 0 HighCH23165-714.5

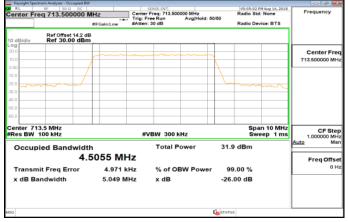
| RL RL | trum Analyzer - Occupied BW IU 50 Ω DC | | SENSE | | | | | PM Aug 16, 2018 | |
|--------------------|-------------------------------------------|-----------------------------|-----------------------------------------|-----------|-----------|-------------|----------|----------------------|----------------------|
| enter Fre | eq 714.500000 M | Center Freq Trig: Free R | 714.5000 | Avg Hold: | 50/60 | Radio Sto | I: None | Frequency | |
| | | #IFGain:Low | #Atten: 30 d | | Avginoid. | ~~~~ | Radio De | vice: BTS | |
| 0 dB/div | Ref Offset 14.2 dB Ref 30.00 dBm | | | | | | | | |
| 20 0.0 | | | | | | | | | Center Fre |
| | | | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | | | 1 | | | 714.500000 MH |
| | / | | | | | A. | | | |
| .0 | - / | | | | | | - | | |
| .0 | | | | | | $+ \lambda$ | | | |
| | | | | | | - | | | |
| .0 | | | | | | - | | | |
| .0 | | | | | | - | | | |
| 1.0 | | | | | | - | - | | |
| enter 71 Res BW | | | #VBW | 180 ki | Hz | | | an 6 MHz 1.533 ms | CF Ste 600.000 kH |
| Occupied Bandwidth | | 1 | Total Power | | | 30 | 30.6 dBm | | Auto Ma |
| | 2.7 | ′037 M⊦ | Iz | | | | | | Freq Offs |
| Transm | it Freq Error | 9.174 k | Hz % | of OB | W Powe | r 9 | 9.00 % | | 01 |
| x dB Ba | ndwidth | 2.998 M | Hz x | dB | | -26 | 5.00 dB | | |
| | | | | | | | | | |
| 5 | | | | | | 5 STAT | us | | |

Band12_5MHz_QPSK_25_0_LowCH23035-701.5





Band12 5MHz QPSK 25 0 HighCH23155-713.5



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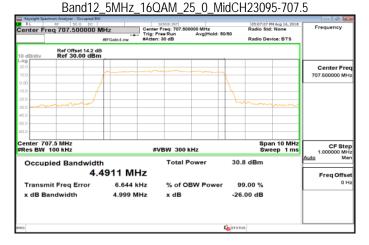
| 4 | 灣檢驗科技服 | 19份有限 | 公司 |
|---|-------------|----------|-------|
| | 19124241124 | CM 73 10 | CA -1 |



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Band12_5MHz_16QAM_25_0_LowCH23035-701.5

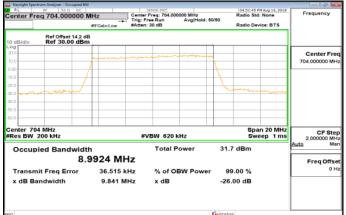
| | rum Analyzer - Occupied BW | | | | - 2 - |
|------------------------|-------------------------------------|-------------------|--------------------------------|----------------------------------------|------------------------------|
| RL Center Fre | Q 701.500000 M | | Freq: 701,500000 MHz | 05:06:12 PM Aug 16, Radio Std: None | Frequency |
| o orikor 110 | • | Trig: | Free Run Avg Hold: n: 30 dB | 50/50 Radio Device: BT | . |
| | | ir Gain Low write | | | <u> </u> |
| 10 dB/div | Ref Offset 14.2 dB Ref 30.00 dBm | | | | |
| 20.0 | | | | | |
| 10.0 | | | | ~ | Center Free 701.500000 MH |
| 1000 | 1 | | | | 701.500000 MH |
| 10.0 | / | | | | |
| | | | | | |
| 30.0 | m | | | mener | ~ |
| 40.0 | | | | | |
| 10.0 | | | | | |
| 60.0 | | | | | |
| | | | | | |
| Center 701 Res BW 1 | | * | VBW 300 kHz | Span 10 M Sweep 1 | |
| Occupi | ed Bandwidth | | Total Power | 30.8 dBm | Auto Mar |
| | 4.5 | 004 MHz | | | Freq Offse |
| Transmi | it Freq Error | 8.917 kHz | % of OBW Powe | r 99.00 % | 0 H |
| x dB Bar | ndwidth | 5.030 MHz | x dB | -26.00 dB | |
| | | | | | |
| sa | | | | STATUS | |

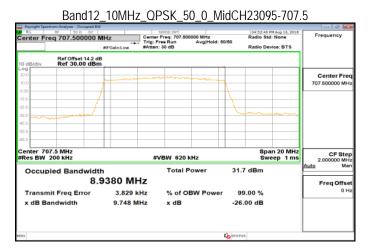


Band12 5MHz 16QAM 25 0 HighCH23155-713.5

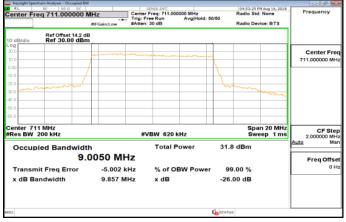
| RL RL | trum Analyzer - Occupied BW | , | SEN | SECONT | | | 05:07:54 | PM Aug 16, 2018 | - 2 2 |
|--------------------------------|-------------------------------------|------------|------------|-------------------|----------------------|---------------|----------|------------------------|-----------------------|
| enter Fre | eq 713.500000 M | ИНz | Center Fre | q: 713.500 | 000 MHz Avg Hold: | 50/50 | Radio St | d: None | Frequency |
| | | #FGain:Low | #Atten: 30 | | Avginoid. | 00/00 | Radio D | evice: BTS | |
|) dB/div | Ref Offset 14.2 dl Ref 30.00 dBn | | | | | | | | |
| 10 | | | - | | | _ | | | Center Fre |
| .0 | | | | | | | - | | 713.500000 MH |
| | | / | | | | X | - | | |
| .0 | - / | | | | | 15 | | | |
| 0 | mont | | | | | 1 | m | manun | |
| .0 | | | | | | - | | | |
| 0 | | | | | | - | | | |
| 0 | | | | | | - | | | |
| | | | | | | | | | |
| enter 71 tes BW | | | #VB | W 300 k | Hz | | | an 10 MHz /eep 1 ms | CF Ste 1.000000 MH |
| Occup | ied Bandwidt | h | | Total Power 30 | | | 30.8 dBm | | Auto Ma |
| | 4. | 5073 MH | Ιz | | | | | | Freq Offs |
| Transmit Freg Error 11.320 kHz | | | Hz | % of OBW Power 99 | | | 9.00 % | | 01 |
| x dB Ba | andwidth | 5.022 M | Hz | x dB | | -26 | 5.00 dB | | |
| | | | | | | | | | |
| | | | | | | C STAT | us | | |

Band12_10MHz_QPSK_50_0_LowCH23060-704





Band12 10MHz QPSK 50 0 HighCH23130-711



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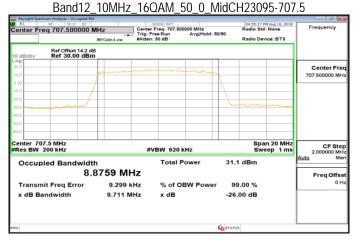
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Band12 10MHz 16QAM 50 0 LowCH23060-704

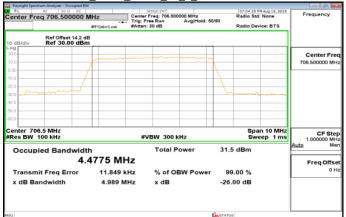
| Keysight Spectrum Analyz | | | | | | | | | |
|----------------------------------|-----------------------------|-----------|-----------|-------------|-------------|---------------|---------|-----------------------------|-----------------|
| Center Freq 704 | 50 Ω DC | lz | Center Fr | eq: 704.000 | | | Radio S | PM Aug 16, 2018 td: None | Frequency |
| | | FGain:Low | #Atten: 3 | | Avg Hold: 8 | 0/50 | Radio D | evice: BTS | |
| 10 dB/div Ref |)ffset 14.2 dB 30.00 dBm | | | | | | | | |
| 20.0 | | | | | -un man | | | | Center Freq |
| 0.00 | | | | | | | | | 704.000000 MHz |
| -10.0 | - / | | | | | | | | |
| -20.0 | ma | | | | | 1 | mm | monu | |
| -30.0 | | | | | | | | | |
| -60.0 | | | | | | - | | | |
| -60.0 | | | | | | - | - | | |
| Center 704 MHz #Res BW 200 kH | z | | #VB | W 620 k | Hz | | | an 20 MHz veep 1 ms | |
| Occupied Ba | andwidth | | | Total P | ower | 31. | 0 dBm | | <u>Auto</u> Man |
| | 8.9 | 492 MH | lz | | | | | | Freq Offset |
| Transmit Freq | Error | 40.756 k | Hz | % of OE | BW Power | 9 | 9.00 % | | 0 Hz |
| x dB Bandwid | lth | 9.741 M | Hz | x dB | | -26 | .00 dB | | |
| | | | | | | | | | |
| | | | | | | -1 | | | |
| MSG | | | | | | K STAT | US | | |



Band12 10MHz 16QAM 50 0 HighCH23130-711

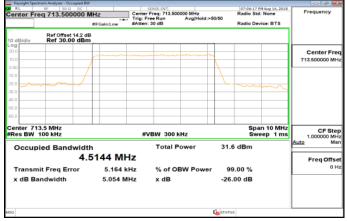
| Keysight Spectrum Analyzer - Occupied BV RL BF 50.0 DC | / | | | | | | |
|-----------------------------------------------------------|------------|--------------|----------|--------------|----------------------------------|-----------------------|--|
| enter Freq 711.000000 I | Tr | | | | :15 PM Aug 16, 2018 Std: None | Frequency | |
| Ref Offset 14.2 d | в | itten: 30 dB | | Radio | Device: BTS | | |
| dB/div Ref 30.00 dBn | n | | | | | | |
| 0 | | | | | | Center Fre | |
| 0 | 1 | | - many | | | 711.000000 Mi | |
| 0 | / | | | | | | |
| | | | | \mathbf{X} | | | |
| monum | | | | mon | ~ . | | |
| | | | | | manne | | |
| | | | | | | | |
| , | | | | | | | |
| | | | | | | | |
| nter 711 MHz es BW 200 kHz | | #VBW 620 | kHz | | Span 20 MHz Sweep 1 ms | CF Ste 2.000000 MI | |
| Occupied Bandwidt | h | Total F | Power | 30.8 dBn | 1 | Auto Ma | |
| | 9513 MHz | | | | | Freq Offs | |
| Transmit Freg Error | -6.196 kHz | % of O | BW Power | 99.00 % | 6 | 0 | |
| x dB Bandwidth | 9.818 MHz | x dB | | -26.00 dE | 3 | | |
| | | | | | | | |
| | | | | STATUS | | | |
| | | | 4 | O STATUS | | | |

Band17_5MHz_QPSK_25_0_LowCH23755-706.5



Band17_5MHz_QPSK_25_0_MidCH23790-710 :05:20 PM Aug 1 nter Freq 710.00 Radio Device: BTS Ref Offset 14.2 dB Ref 30.00 dBm Center Fre 10.000000 MH er 710 MHz BW 100 kHz Span 10 MH Sweep 1 m CF Step 1.000000 MH #VBW 300 kHz Occupied Bandwidth Total Power 31.6 dBm 4.4912 MHz Freq Offs Transmit Freg Error -11.550 kHz % of OBW Power 99.00 % x dB Bandwidth 5.000 MHz -26.00 dB x dB

Band17 5MHz QPSK 25 0 HighCH23825-713.5



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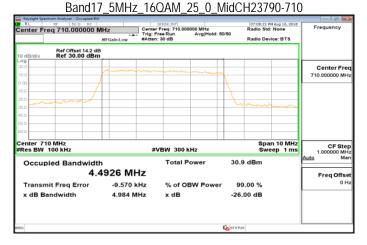
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Band17_5MHz_16QAM_25_0_LowCH23755-706.5

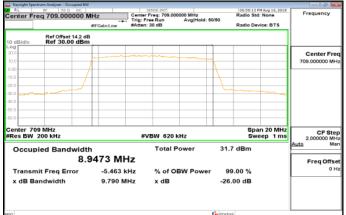
| Keysight Spectrum Analyzer - Occupi | | SENSE:INT | 07:07:35 PM Aug 16, 2 | |
|-------------------------------------|-------------|-------------------------------------------|----------------------------|---------------|
| Center Freq 706.5000 | 00 MHz | Center Freq: 706,500000 MHz | Radio Std: None | Frequency |
| | #IFGain:Low | Trig: Free Run Avg Hold: #Atten: 30 dB | 80/50 Radio Device: BTS | |
| Ref Offset 14 | | | | |
| 20.0 | | A | | Center Fre |
| 10.0 | | | ~ | 706.500000 MH |
| 1.00 | | | | _ |
| 0.0 | / | | | -11 |
| 0.0 | | | human | |
| 0.0 | | | | ~ |
| 0.0 | | | | |
| 50.0 | | | | |
| | | | | |
| enter 706.5 MHz Res BW 100 kHz | | #VBW 300 kHz | Span 10 M Sweep 1 r | |
| Occupied Bandw | idth | Total Power | 31.8 dBm | Auto Ma |
| | 4.4721 MH | z | | Freq Offse |
| Transmit Freq Erro | 12.692 kł | Iz % of OBW Powe | er 99.00 % | 0 H |
| x dB Bandwidth | 4.820 MI | lz xdB | -26.00 dB | |
| | | | | |
| o | | | STATUS | |

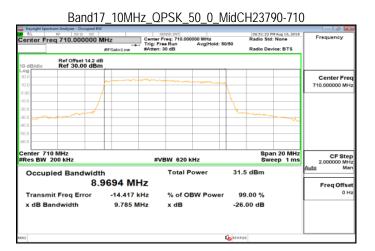


Band17_5MHz_16QAM_25_0_HighCH23825-713.5

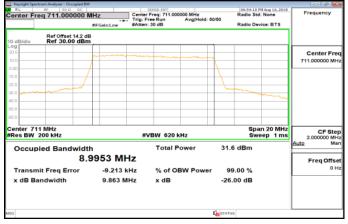
| Keysight Spect | trum Analyzer - Occupied BW | | SENSE:INT | | | 7:09:06 PM Aug 16, 2018 | |
|--------------------------------------------------|-------------------------------------|----------|--------------------------------|--------------|---------|---------------------------|-----------------------|
| | eq 713.500000 M | IHz | dio Std: None | Frequency | | | |
| #FGain:Low | | | Trig: Free Run Atten: 30 dB | Avg Hold: 50 | Ra | dio Device: BTS | |
| 0 dB/div | Ref Offset 14.2 dB Ref 30.00 dBm | | | | | | |
| 200 | | | | | | | Center Fre |
| | | | | | | | 713.500000 MH |
| | | | | | 1 | | - |
| .0 | | | | | | | |
| 0 | man | | | | have | min | |
| .0 | | | | | | | |
| .0 | | | | | | | |
| .0 | | | | | | | |
| .0 | | | | | | | |
| Center 713.5 MHz #Res BW 100 kHz #VBW 300 kHz | | | | | | Span 10 MHz Sweep 1 ms | CF Ste 1.000000 MH |
| Occup | ied Bandwidth | 1 | Total | Power | 30.9 di | 3m | Auto Ma |
| | 4.5 | 5170 MH | z | | | | Freq Offs |
| Transm | it Freg Error | 5.893 kH | z % of C | BW Power | 99.00 | % | 0 |
| | ndwidth | 5.050 MH | z xdB | | -26.00 | dB | |
| | | | | | | | |
| 5 | | | | l | STATUS | | |

Band17_10MHz_QPSK_50_0_LowCH23780-709





Band17 10MHz QPSK 50 0 HighCH23800-711



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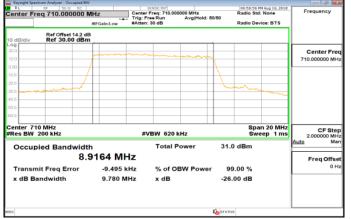
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Band17_10MHz_16QAM_50_0_LowCH23780-709

| Keysight Spectrum Anal | yzer - Occupied BW | | | | 6:10 PM Aug 16, 2018 | |
|-------------------------------|-----------------------------|------------|------------------------------------------------------------------------------------------------------------------|------------------|---------------------------|-------------------------|
| Center Freq 709.000000 MHz | | | Center Freq: 709.000000 MHz Radio Std: Non | | | Frequency |
| | | | rig: Free Run Avg Hold Atten: 30 dB | I: 50/50 Radi | o Device: BTS | |
| | Offset 14.2 dB 30.00 dBm | | | | | |
| 20.0 | | | | | | Center Free |
| 0.0 | | man | and a star and a star and a star a start | - L | | 709.000000 MHz |
| | / | | | | | |
| 0.0 | / | | | | | |
| 0.0 | | | | | | |
| 0.0 | man | | | | man | |
| 0.0 | | | | | | |
| 0.0 | | | | | _ | |
| 0.0 | | | | | _ | |
| enter 709 MHz Res BW 200 k | | | #VBW 620 kHz | | Span 20 MHz Sweep 1 ms | CF Step 2.000000 MHz |
| Occupied E | Bandwidth | | Total Power | 31.1 dBr | n | Auto Mar |
| | 8.8 | 942 MHz | | | | Freq Offse |
| Transmit Fre | q Error | -4.337 kHz | % of OBW Pow | er 99.00 | % | 0 Ha |
| x dB Bandwi | dth | 9.742 MHz | x dB | -26.00 d | в | |
| | | | | | | |
| G | | | | STATUS | | |



Band17_10MHz_16QAM_50_0_MidCH23790-710

Band17_10MHz_16QAM_50_0_HighCH23800-711

| RL RL | rum Analyzer - Occupied BW IU ¹ 50 Ω DC | | | SE:INT | | | | PM Aug 16, 2018 | |
|-------------------------------|-------------------------------------------------------|-------------|-----------|----------------|-----------------------------|---------------|----------|-----------------|---------------|
| enter Fre | q 711.000000 M | ИНz | | eq: 711.000 | Avg Hold: 5 | 0/60 | Radio St | d: None | Frequency |
| | | #IFGain:Low | #Atten: 3 | | Avginoid. a | 0.00 | Radio De | vice: BTS | |
|) dB/div | Ref Offset 14.2 di Ref 30.00 dBn | | | | | | | | |
| 1.0 | | | | | | | _ | | Center Fre |
| .0 | | 1 | | | we have a second | \ | | | 711.000000 MH |
| | | | | | | X | | | |
| 0 | | | | | | 1 | | | |
| 0 | manna | | | | | 1 | m | | |
| | - martin | | | | | | - Ularla | - mark | |
| .0 | | | | | | | | | |
| .0 | | | | | | - | | | |
| | | | | | | | | | |
| enter 711 tes BW 2 | | | #VB | W 620 k | Span 20 MH kHz Sweep 1 m | | | | |
| Occupi | ied Bandwidt | h | | Total Power 30 | | | 30.8 dBm | | |
| | 8. | 9577 MH | lz | | | | | | Freq Offs |
| Transmit Freg Error -5.852 kH | | Hz | % of OE | W Power | 9 | 9.00 % | | 01 | |
| x dB Ba | ndwidth | 9.824 M | Hz | x dB | | -26 | .00 dB | | |
| | | | | | | 20 | | | |
| | | | | | | | | | |
| 5 | | | | | | K STAT | 35 | | |

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|--------------|---------------------|---------------------|
|--------------|---------------------|---------------------|



9. OUT OF BAND EMISSION AT ANTENNA TERMINALS

9.1. Standard Applicable

FCC §22.917(a), §24.238(a), Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

FCC §27.53(g)

Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

FCC §27.53(h) (3)

Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

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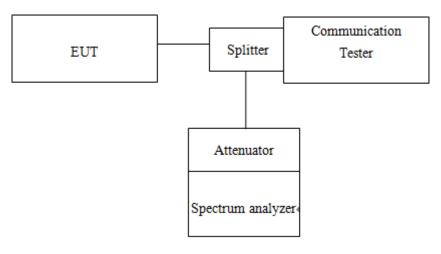


FCC §27.53(m) (4)

For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all freguencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

Measurement procedure. Compliance with these rules is based on the use of measurement nstrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed; for mobile digital stations, in the 1 megahertz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least two percent may be employed, except when the 1 megahertz band is 2495-2496 MHz, in which case a resolution bandwidth of at least one percent may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 megahertz or 1 percent of emission bandwidth, as specified; or 1 megahertz or 2 percent for mobile digital stations, except in the band 2495-2496 MHz). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power. With respect to television operations, measurements must be made of the separate visual and aural operating powers at sufficiently frequent intervals to ensure compliance with the rules.

9.2. Test SET-UP



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9.3. Measurement Procedure **Conducted Emission**

The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation The resolution bandwidth of the spectrum analyzer was set at 1MHz, sufficient scans were taken to show the out of band Emissions if any up to 10th harmonic.

- To connect Antenna Port of EUT to Spectrum.
- Set RBW = 1MHz & VBW = 1MHz on Spectrum.
- Allow trace to fully stabilize
- 4. Repeat above procedures until all default test channel measured were complete.

Band Edge

- To connect Antenna Port of EUT to Spectrum.
- The band edge of low and high channels for the highest RF powers was measured. Setting RBW \geq 1% EBW.
- 3. Allow trace to fully stabilize
- 4. Repeat above procedures until all default test channel measured were complete.

| EQUIPMENT TYPE | MFR | MODEL NUMBER | SERIAL NUM- BER | LAST CAL. | CAL DUE. |
|--------------------------------|---------------|-----------------|--------------------|------------|------------|
| EXA Spectrum Analyz- er | Agilent | N9010A | MY57120290 | 2018/02/14 | 2019/02/13 |
| Radio Communication Analyer | Anritsu | MT8815B | 6200711454 | 2018/04/05 | 2019/04/04 |
| Radio Communication Analyer | Anritsu | MT8820C | 6200995019 | 2018/04/05 | 2019/04/04 |
| DC Power Supply | Anritsu | E3640A | MY52410006 | 2017/11/28 | 2018/11/27 |
| Temperature Chamber | TERCHY | MHG-120LF | 911009 | 2018/05/18 | 2019/05/17 |
| Attenuator | Mini-Circuit | BW-S10W2+ | 2 | 2018/01/02 | 2019/01/01 |
| DC Block | Mini-Circuits | BLK-18-S+ | 1 | 2018/01/02 | 2019/01/01 |
| Splitter | RF-LAMBAD | RFLT2W1G18G | 11-JSPF412-018 | 2018/01/02 | 2019/01/01 |
| Coaxial Cable | Huber Suhner | SUCOFLEX 102EPA | MY2616/2 | 2018/01/02 | 2019/01/01 |

9.4. Measurement Equipment Used

9.5. Measurement Result:

Refer to next pages.

NOTE: The occurrence of the spike on the conducted emission is the signal of the fundamental emission.

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