

TEST REPORT

Reference No..... : WTX21X09092267W-2
FCC ID : S3KG7243A4CB
Applicant : Global Telecom Corp
Address..... : 17901 Von Karman Ave, Suite 600, Irvine, California 92614 United States of America
Product Name : LTE Module
Test Model. : Global-7243A4x4CB
Standards : FCC Part 90
Date of Receipt sample : Sept. 01, 2021
Date of Test..... : Sept. 01, 2021 to Sept. 26, 2021
Date of Issue : Sept. 26, 2021
Test Result..... : **Pass**

Remarks:

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

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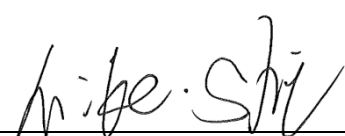
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Report version

| Version No. | Date of issue | Description |
|-------------|----------------|-------------|
| Rev.00 | Sept. 26, 2021 | Original |
| / | / | / |

1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant: Global Telecom Corp
 Address of applicant: 17901 Von Karman Ave, Suite 600, Irvine, California 92614
 United States of America

Manufacturer: Global Telecom Corp
 Address of manufacturer: 17901 Von Karman Ave, Suite 600, Irvine, California 92614
 United States of America

| General Description of EUT: | |
|---|-------------------|
| Product Name: | LTE Module |
| Trade Name: | Global Telecom |
| Model No.: | Global-7243A4x4CB |
| Adding Model(s): | / |
| Rated Voltage: | DC12V |
| Battery: | / |
| Adapter Model: | / |
| <i>Note: The test data is gathered from a production sample provided by the manufacturer.</i> | |

| Technical Characteristics of EUT: | |
|-----------------------------------|-----------------------------------|
| 4G | |
| Support Networks: | FDD-LTE |
| Support Band: | FDD-LTE Band 26 |
| Uplink Frequency: | FDD-LTE Band 26: Tx: 814-824MHz, |
| Downlink Frequency: | FDD-LTE Band 26: Rx: 859-869MHz, |
| RF Output Power: | FDD-LTE Band 26: 23.43dBm, |
| Type of Emission: | FDD-LTE Band 26: 13M3G7D, 13M3W7D |
| Type of Modulation: | QPSK, 16QAM |
| Antenna Type: | PCB Antenna |
| Antenna Gain: | FDD-LTE Band 26: 2dBi, |

1.2 Test Standards

The tests were performed according to following standards:

FCC Rules Part 2: Frequency Allocations and Radio Treaty Matters; General Rules and Regulations.

FCC Rules Part 90: Private Land Mobile Radio Services.

TIA/EIA 603 E March 2016: Land Mobile FM or PM Communications Equipment Measurement and Performance Standards.

ANSI C63.26-2015: American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services.

KDB 971168 D01 Power Measurement License Digital Systems v03r01: Measurement Guidance for Certification of Licensed Digital Transmitters.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product, which result in lowering the emission, should be checked to ensure compliance has been maintained.

1.3 Test Methodology

All measurements contained in this report were conducted with TIA/EIA 603 E/ KDB 971168/ ANSI C63.26

The equipment under test (EUT) was configured to measure its highest possible emission level. The test modes were adapted accordingly in reference to the Operating Instructions.

1.4 Test Facility

FCC – Registration No.: 125990

Waltek Testing Group (Shenzhen) Co., Ltd. Laboratory has been recognized to perform compliance testing on equipment subject to the Commission's Declaration Of Conformity (DOC). The Designation Number is CN5010, and Test Firm Registration Number is 125990.

Industry Canada (IC) Registration No.: 11464A

The 3m Semi-anechoic chamber of Waltek Testing Group (Shenzhen) Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 11464A.

1.5 EUT Setup and Test Mode

The EUT was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements. All testing shall be performed under maximum output power condition, and to measure its highest possible emissions level, more detailed description as follows:

| Test Mode List | | |
|-----------------------|-----------------|----------------------------|
| Test Mode | Description | Remark |
| TM1 | FDD-LTE Band 26 | Low, Middle, High Channels |

| Test Conditions | |
|------------------------|-----------|
| Temperature: | 22~25 °C |
| Relative Humidity: | 50~55 %. |
| ATM Pressure: | 1019 mbar |

| EUT Cable List and Details | | | |
|-----------------------------------|------------|---------------------|------------------------|
| Cable Description | Length (m) | Shielded/Unshielded | With / Without Ferrite |
| / | / | / | / |

| Special Cable List and Details | | | |
|---------------------------------------|------------|---------------------|------------------------|
| Cable Description | Length (m) | Shielded/Unshielded | With / Without Ferrite |
| DC Cable | 1.5 | Unshielded | Without Ferrite |

| Auxiliary Equipment List and Details | | | |
|---|--------------|-------------------|---------------|
| Description | Manufacturer | Model | Serial Number |
| Adapter | / | RD1201500-C55-1MG | / |
| Antenna | / | 33V_ANT_F07F38 | / |

1.6 Measurement Uncertainty

| Measurement uncertainty | | |
|--------------------------------|------------|-------------------------------|
| Parameter | Conditions | Uncertainty |
| RF Output Power | Conducted | $\pm 0.42\text{dB}$ |
| Occupied Bandwidth | Conducted | $\pm 1.5\%$ |
| Frequency Stability | Conducted | 2.3% |
| Transmitter Spurious Emissions | Conducted | $\pm 0.42\text{dB}$ |
| Transmitter Spurious Emissions | Radiated | 30-200MHz $\pm 4.52\text{dB}$ |
| | | 0.2-1GHz $\pm 5.56\text{dB}$ |
| | | 1-6GHz $\pm 3.84\text{dB}$ |
| | | 6-18GHz $\pm 3.92\text{dB}$ |

1.7 Test Equipment List and Details

| No. | Description | Manufacturer | Model | Serial No. | Cal Date | Due. Date |
|-----------|-------------------------|------------------------|-----------------------|-------------|------------|------------|
| SEMT-1075 | Communication Tester | Rohde & Schwarz | CMW500 | 148650 | 2021-03-27 | 2022-03-26 |
| SEMT-1063 | GSM Tester | Rohde & Schwarz | CMU200 | 114403 | 2021-03-27 | 2022-03-26 |
| SEMT-1072 | Spectrum Analyzer | Agilent | E4407B | MY41440400 | 2021-03-27 | 2022-03-26 |
| SEMT-1079 | Spectrum Analyzer | Agilent | N9020A | US47140102 | 2021-03-27 | 2022-03-26 |
| SEMT-1080 | Signal Generator | Agilent | 83752A | 3610A01453 | 2021-03-27 | 2022-03-26 |
| SEMT-1081 | Vector Signal Generator | Agilent | N5182A | MY47070202 | 2021-03-27 | 2022-03-26 |
| SEMT-1028 | Power Divider | Weinschel | 1506A | PM204 | 2021-03-27 | 2022-03-26 |
| SEMT-1082 | Power Divider | RF-Lambda | RFLT4W5M18G | 14110400027 | 2021-03-27 | 2022-03-26 |
| SEMT-1031 | Spectrum Analyzer | Rohde & Schwarz | FSP30 | 836079/035 | 2021-03-27 | 2022-03-26 |
| SEMT-1007 | EMI Test Receiver | Rohde & Schwarz | ESVB | 825471/005 | 2021-03-27 | 2022-03-26 |
| SEMT-1008 | Amplifier | Agilent | 8447F | 3113A06717 | 2021-04-12 | 2022-04-11 |
| SEMT-1043 | Amplifier | C&D | PAP-1G18 | 2002 | 2021-04-12 | 2022-04-11 |
| SEMT-1069 | Loop Antenna | Schwarz beck | FMZB 1516 | 9773 | 2021-03-19 | 2023-03-18 |
| SEMT-1068 | Broadband Antenna | Schwarz beck | VULB9163 | 9163-333 | 2021-03-19 | 2023-03-18 |
| SEMT-1042 | Horn Antenna | ETS | 3117 | 00086197 | 2021-03-19 | 2023-03-18 |
| SEMT-1121 | Horn Antenna | Schwarzbeck | BBHA 9170 | BBHA9170582 | 2021-04-27 | 2023-04-26 |
| SEMT-1169 | Pre-amplifier | Direction Systems Inc. | PAP-2640 | 14145-14153 | 2021-04-27 | 2022-04-26 |
| SEMT-1163 | Spectrum Analyzer | Rohde & Schwarz | FSP40 | 100612 | 2021-03-27 | 2022-03-26 |
| SEMT-1166 | Power Limiter | Agilent | N9356B | MY45450376 | 2021-03-27 | 2022-03-26 |
| SEMT-1076 | RF Switcher | Top Precision | RCS03-A2 | / | 2021-03-19 | 2023-03-18 |
| SEMT-C001 | Cable | Zheng DI | LL142-07-07-10M(A) | / | / | / |
| SEMT-C002 | Cable | Zheng DI | ZT40-2.92J-2.92J-6M | / | / | / |
| SEMT-C003 | Cable | Zheng DI | ZT40-2.92J-2.92J-2.5M | / | / | / |
| SEMT-C004 | Cable | Zheng DI | 2M0RFC | / | / | / |
| SEMT-C005 | Cable | Zheng DI | 1M0RFC | / | / | / |
| SEMT-C006 | Cable | Zheng DI | 1M0RFC | / | / | / |

| Software List | | | |
|---|---------------------|--------------|----------------|
| Description | Manufacturer | Model | Version |
| EMI Test Software (Radiated Emission)* | Farad | EZ-EMC | RA-03A1 |
| LTE Test System* | Tonscend | JS1120-1 | V2.5 |

*Remark: indicates software version used in the compliance certification testing.

2. SUMMARY OF TEST RESULTS

| FCC Rules | Description of Test Item | Result |
|---------------------|--|---------------|
| §1.1307, §2.1093 | RF Exposure | Compliant |
| § 90.635 | RF Output Power | Compliant |
| - | Peak-to-average Ratio (PAR) of Transmitter | Compliant |
| § 90.691 | Emission Bandwidth | Compliant |
| § 90.691 | Spurious Emissions at Antenna Terminal | Compliant |
| § 90.691 | Spurious Radiation Emissions | Compliant |
| §2.917(a), § 90.691 | Out of Band Emissions | Compliant |
| § 90.213 | Frequency Stability | Compliant |

N/A: Not applicable.

3. RF Exposure

3.1 Standard Applicable

According to §1.1307 and §2.1093, the portable transmitter must comply the RF exposure requirements.

3.2 Test Result

This product complied with the requirement of the RF exposure, please see the SAR report.

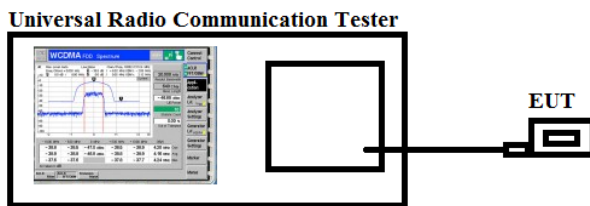
4. RF Output Power

4.1 Standard Applicable

According to §90.635, Limitations on power and antenna height.

4.2 Test Procedure

- Conducted output power test method:



- Radiated power test method:

1. The setup of EUT is according with per ANSI/TIA Standard 603E and ANSI C63.26 measurement procedure.
2. The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.
3. The frequency range up to tenth harmonic of the fundamental frequency was investigated.
4. Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

4.3 Summary of Test Results/Plots

Max. Radiated Power:

| Channel Bandwidth: 1.4MHz | | | |
|---------------------------|---------|-------------|---------|
| Modulation | Channel | E.r.p [dBm] | Verdict |
| QPSK | LCH | 21.79 | PASS |
| | MCH | 21.46 | PASS |
| | HCH | 21.87 | PASS |
| 16QAM | LCH | 21.83 | PASS |
| | MCH | 21.47 | PASS |
| | HCH | 21.69 | PASS |
| Channel Bandwidth: 3MHz | | | |
| Modulation | Channel | E.r.p [dBm] | Verdict |
| QPSK | LCH | 21.39 | PASS |
| | MCH | 21.72 | PASS |
| | HCH | 21.56 | PASS |
| 16QAM | LCH | 21.79 | PASS |
| | MCH | 21.75 | PASS |
| | HCH | 21.45 | PASS |
| Channel Bandwidth: 5MHz | | | |
| Modulation | Channel | E.r.p [dBm] | Verdict |
| QPSK | LCH | 21.73 | PASS |
| | MCH | 21.74 | PASS |
| | HCH | 21.36 | PASS |
| 16QAM | LCH | 21.75 | PASS |
| | MCH | 21.65 | PASS |
| | HCH | 21.87 | PASS |
| Channel Bandwidth: 10MHz | | | |
| Modulation | Channel | E.r.p [dBm] | Verdict |
| QPSK | MCH | 22.02 | PASS |
| 16QAM | MCH | 22.16 | PASS |

Max. Conducted Output Power

Please refer to Appendix A: Average Power Output Data

Test result: Pass

5. Peak-to-average Ratio (PAR) of Transmitter

5.1 Standard Applicable

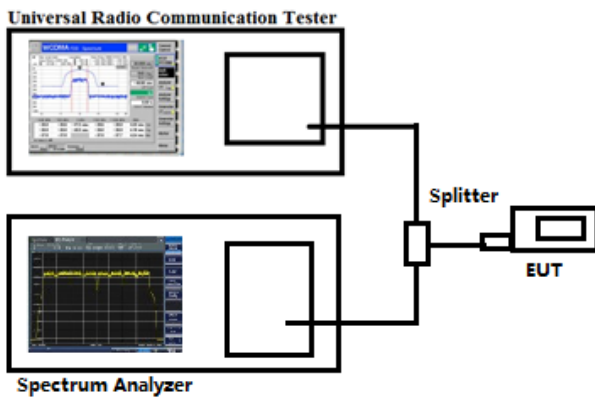
N/A

5.2 Test Procedure

According with KDB 971168

1. The signal analyzer's CCDF measurement profile is enabled.
2. Frequency = carrier center frequency.
3. Measurement BW > Emission bandwidth of signal.
4. The signal analyzer was set to collect one million samples to generate the CCDF curve.
5. The measurement interval was set depending on the type of signal analyzed. For continuous signals (>98% duty cycle), the measurement interval was set to 1ms. For burst transmissions, the spectrum analyzer is set to use an internal "RF Burst" trigger that is synced with an incoming pulse and the measurement interval is set to less than the duration of the "on time" of one burst to ensure that energy is only captured during a time in which the transmitter is operating at maximum power.

Test Configuration for the emission bandwidth testing:



5.3 Summary of Test Results

Please refer to Appendix B: Peak-to-Average Ratio

Test result: Pass

6. Emission Bandwidth

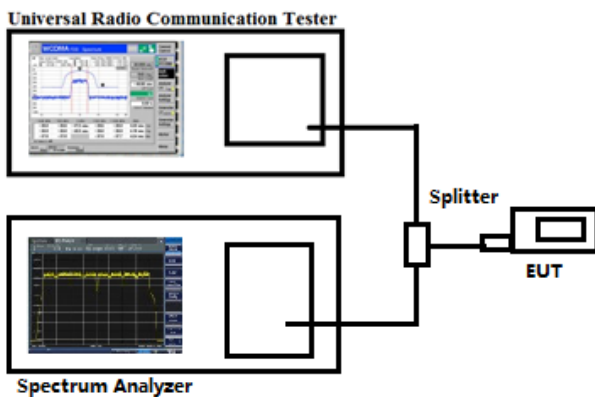
6.1 Standard Applicable

According to §90.691, Emission mask requirements for EA-based systems.

6.2 Test Procedure

According to §22.917(b), 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 26dB below the transmitter power.

Test Configuration for the emission bandwidth testing:



6.3 Summary of Test Results/Plots

Please refer to Appendix C: 26dB Bandwidth and Occupied Bandwidth

Test result: Pass

7. Out of Band Emissions at Antenna Terminal

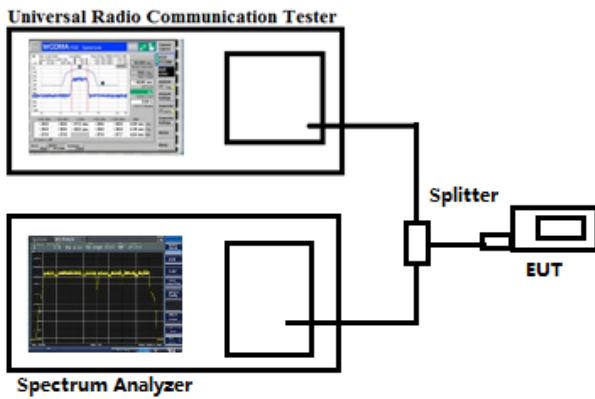
7.1 Standard Applicable

According to §90.691, Emission mask requirements for EA-based systems.

7.2 Test Procedure

The RF output terminal of the transmitter was connected to the input of the spectrum analyzer via a suitable attenuation. The RBW of the spectrum analyzer was set to 100kHz and 1MHz for the scan frequency from 30MHz to 1GHz and the scan frequency from 1GHz to up to 10th harmonic.

Test Configuration for the out of band emissions testing:



7.3 Summary of Test Results/Plots

Please refer to Appendix D & E: Band Edge & Conducted Spurious Emission

Test result: Pass

8. Spurious Radiated Emissions

8.1 Standard Applicable

According to §90.691, Emission mask requirements for EA-based systems.

8.2 Test Procedure

1. The setup of EUT is according with per ANSI/TIA-603-E and ANSI C63.4-2014 measurement procedure.
2. The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.
3. The frequency range up to tenth harmonic of the fundamental frequency was investigated.
4. Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

$$\text{Spurious attenuation limit in dB} = 43 + 10 \log_{10}(\text{power out in Watts})$$

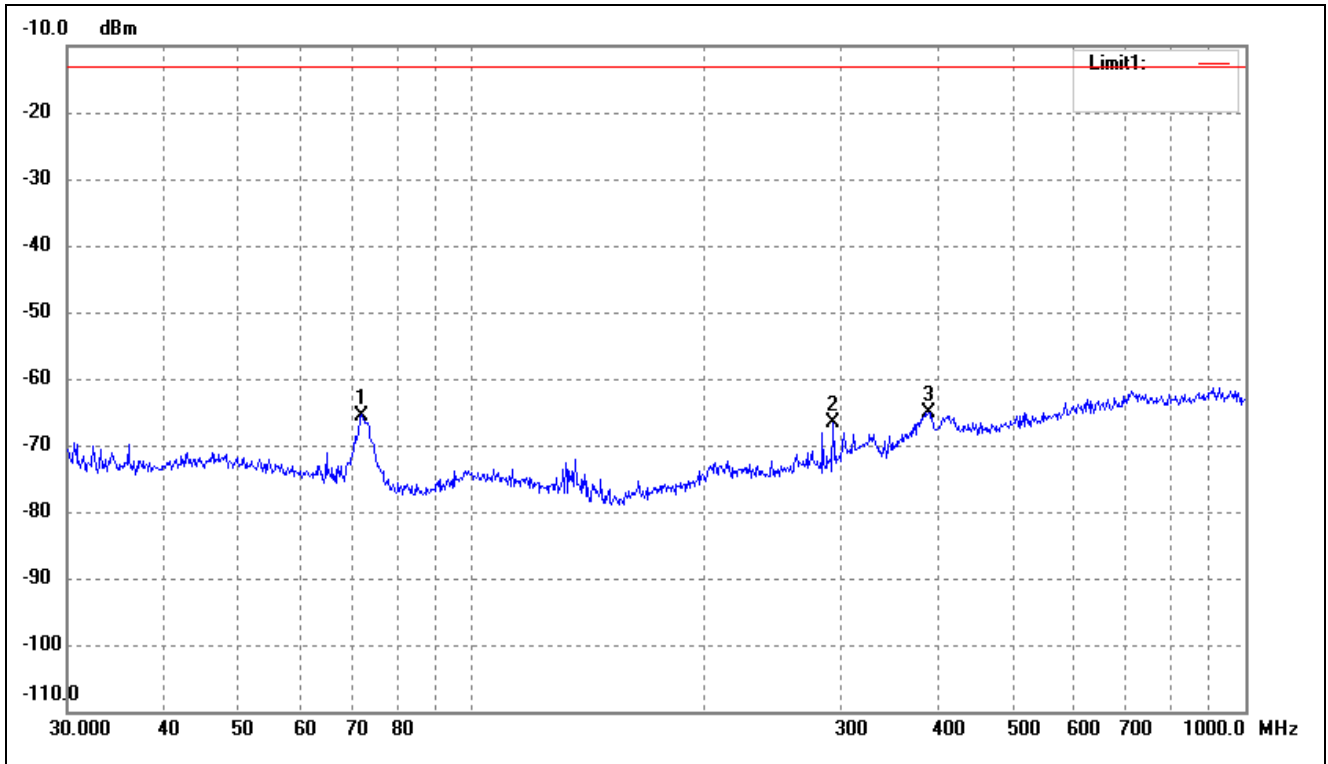
8.3 Summary of Test Results/Plots

Note: 1. this EUT was tested in 3 orthogonal positions and the worst case position data was reported.

2. All test modes (different bandwidth and different modulation) are performed, but only the worst case is recorded in this report.

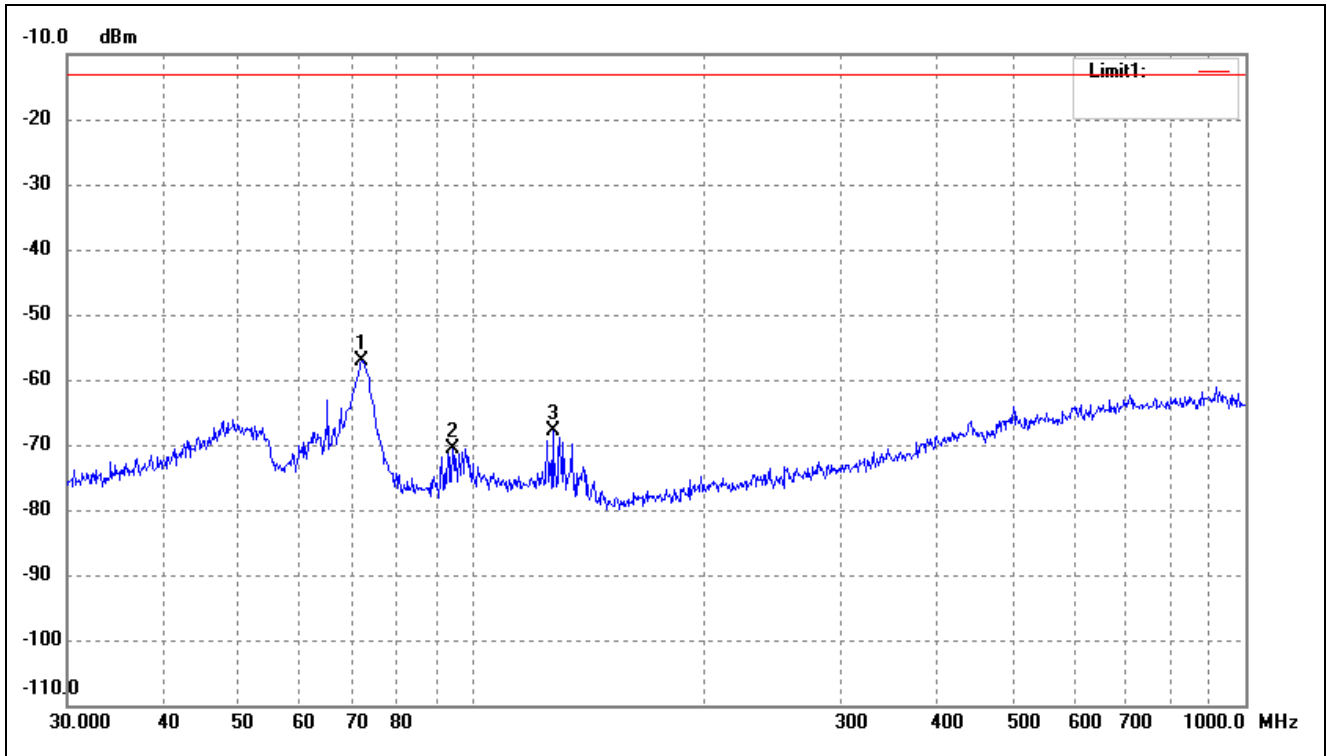
➤ Spurious Emissions Below 1GHz

| | | | |
|-----------|-----------------|-----------|------------|
| Test Mode | FDD_LTE Band 26 | Polarity: | Horizontal |
|-----------|-----------------|-----------|------------|



| No. | Frequency (MHz) | Reading (dBm) | Correct (dB) | Result (dBm) | Limit (dBm) | Margin (dB) | Remark |
|-----|-----------------|---------------|--------------|--------------|-------------|-------------|--------|
| 1 | 72.0843 | -67.01 | 1.51 | -65.50 | -13.00 | -52.50 | ERP |
| 2 | 293.0842 | -71.16 | 4.66 | -66.50 | -13.00 | -53.50 | ERP |
| 3 | 389.3549 | -72.72 | 7.60 | -65.12 | -13.00 | -52.12 | ERP |

| | | | |
|-----------|-----------------|-----------|----------|
| Test Mode | FDD_LTE Band 26 | Polarity: | Vertical |
|-----------|-----------------|-----------|----------|



| No. | Frequency (MHz) | Reading (dBm) | Correct (dB) | Result (dBm) | Limit (dBm) | Margin (dB) | Remark |
|-----|-----------------|---------------|--------------|--------------|-------------|-------------|--------|
| 1 | 72.0843 | -58.56 | 1.51 | -57.05 | -13.00 | -44.05 | ERP |
| 2 | 94.4284 | -72.67 | 2.03 | -70.64 | -13.00 | -57.64 | ERP |
| 3 | 127.2176 | -68.83 | 0.87 | -67.96 | -13.00 | -54.96 | ERP |

Note: Margin= (Reading+ Correct)- Limit

➤ Spurious Emissions Above 1GHz

For FDD_LTE Band 26 Mode

| Frequency | Reading | Correct | Result | Limit | Margin | Polar |
|---------------------------|---------|---------|--------|-------|--------|-------|
| (MHz) | (dBm) | dB | (dBm) | (dBm) | (dB) | H/V |
| Low Channel (814.7MHz) | | | | | | |
| 1629.40 | -36.45 | 4.83 | -31.62 | -13 | -18.62 | H |
| 2444.10 | -41.94 | 8.32 | -33.62 | -13 | -20.62 | H |
| 1629.40 | -36.8 | 4.83 | -31.97 | -13 | -18.97 | V |
| 2444.10 | -42.16 | 8.32 | -33.84 | -13 | -20.84 | V |
| Middle Channel (819.0MHz) | | | | | | |
| 1638.00 | -37.32 | 5.01 | -32.31 | -13 | -19.31 | H |
| 2457.00 | -43.61 | 8.34 | -35.27 | -13 | -22.27 | H |
| 1638.00 | -37.86 | 5.01 | -32.85 | -13 | -19.85 | V |
| 2457.00 | -43.32 | 8.34 | -34.98 | -13 | -21.98 | V |
| High Channel (823.3MHz) | | | | | | |
| 1696.60 | -37.29 | 5.11 | -32.18 | -13 | -19.18 | H |
| 2469.90 | -41.97 | 8.27 | -33.7 | -13 | -20.7 | H |
| 1696.60 | -36.64 | 5.11 | -31.53 | -13 | -18.53 | V |
| 2469.90 | -42.92 | 8.27 | -34.65 | -13 | -21.65 | V |

*Note: Result=Reading+ Correct, Margin= Result- Limit**Note: Testing is carried out with frequency rang 9kHz to the tenth harmonics, other than listed in the table above are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*

9. Frequency Stability

9.1 Standard Applicable

According to §90.213, Frequency stability.

9.2 Test Procedure

According to §2.1055, the following test procedure was performed.

The Frequency Stability is measured directly with a Frequency Domain Analyzer. Frequency Deviation in ppm is calculated from the measured peak to peak value.

The Carrier Frequency Stability over Power Supply Voltage and over Temperature is measured with a Frequency Domain Analyzer in histogram mode.

9.3 Summary of Test Results/Plots

Note: 1.Normal Voltage NV=DC3.85V; Low Voltage LV=DC3.5V; High Voltage HV=DC4.35V

Please refer to Appendix F: Frequency Stability

Test result: Pass

APPENDIX PHOTOGRAPHS

Please refer to “ANNEX”

******* END OF REPORT *******