# Report On

# Application for Grant of Equipment Authorization of the Nextivity Inc. Cel-Fi G41 Cellphone Signal Booster

## In accordance with:
## FCC CFR 47 Part 20
## RSS-131 Issue 4

Prepared for:
Nextivity Inc.
16550 West Bernardo Drive, Bldg 5, Suite 550,
San Diego, CA 92127, USA

Issue Date: November 2023
Document Number: 72189913D | Issue: 02

| RESPONSIBLE FOR | NAME | TITLE | DATE | SIGNATURE |
|---|---|---|---|---|
| **Prepared By** | Miguel Rabago | JR EMC/Wireless Engineer | 11/20/2023 |  |
| **Authorized Signatory** | Ferdinand S. Custodio | Senior RADIO Test Engineer / Wireless Team Lead | 11/20/2023 |  |

Signatures in this approval box have checked this document in line with the requirements of TÜV SÜD Product Service document control rules.

**EXECUTIVE SUMMARY**
Report and test data representing the EUT are verified and the EUT itself found to be in compliance with FCC CFR 47 Part 20 and RSS-131 Issue 4 for ISED

A2LA Cert. No. 2955.13

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**ACCREDITATION**
Our A2LA Accreditation does not cover opinions and interpretations and any expressed are outside the scope of our A2LA Accreditation.

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# Contents

# 1 Report Summary

## 1.1 Report Modification Record

Alterations and additions to this report will be issued to the holders of each copy in the form of a complete document.

| Issue | Description of Change | Date of Issue |
|---|---|---|
| 1 | Initial Release | 11/03/2023 |
| 2 | Field Strength Spurious Emissions Added. Section 2.14; Pages 236 to 245. | 11/20/2023 |

## 1.2 Introduction

The information contained in this report is intended to show verification of the Nextivity Inc. Cel-Fi G41 to the requirements of FCC CFR 47 Part 20 and RSS-131.

| | |
|---|---|
| Objective | To perform Radio Testing to determine the Equipment Under Test's (EUT's) compliance with the Test Specification, for the series of tests carried out. |
| Manufacturer | Nextivity Inc.<br>16550 West Bernardo Drive, Bldg 5, Suite 550,<br>San Diego, CA 92127, USA |
| Applicant Contact Information | CK Li<br>Sr. Principal Engineer, Regulatory<br>CLi@NextivityInc.com<br>(858) 485-9442 |
| FCC ID | YETG41-BE |
| ISED Certification Number: | 9298A-G41BE |
| Model Number(s) | G41-BE |
| Test Specification/Issue/Date | • FCC CFR 47 Part 20 (October 1, 2022).<br>• RSS-131 – Zone Enhancers (Issue 4, December 2022). |
| Start of Test | August 02 2023 |
| Finish of Test | October 29 2023 |
| Name of Engineer(s) | Miguel Angel Rabago Garcia, Omar Castillo |
| Related Document(s) | • Product Spec for RFQ_Sapporo G41-BE_US_v1.pdf<br>• KDB935210 (D04 Provider Specific Booster Measurements v02r04) Provider-Specific Consumer Signal Booster Compliance Measurements Guidance. |

## 1.3 Brief Summary of Results

A brief summary of the tests carried out in accordance with FCC CFR 47 Part 20 with cross-reference to the corresponding requirements of KDB935210 D04 and ISED RSS-131 is shown below.
By client request only Band 25 High Channel was tested in some test cases, because it is superset of Band 2

| Section | Spec Clause | | | Test Description | Results |
|---|---|---|---|---|---|
| | FCC Part | KDB935210 D04 | RSS | | |
| 2.1 | 20.21 (e)(3) Frequency Bands | 7.1.1 | - | Authorized Frequency Band Verification | Compliant |
| 2.2 | 20.21 (e)(3) Frequency Bands<br>20.21 (e)(4) Self-Monitoring | 7.1.2 | - | Test Authorized CMRS provider test | Compliant |
| 2.3 | 20.21(e)(9)(i)(D) Power Limits<br>20.21(e)(9)(i)(B) Bidirectional Capability<br>20.21(e)(9)(i)(C)(2) Booster Gain Limits | 7.2<br>7.3 | RSS-131 Clause 6.1.2<br>RSS-131 Clause 8.3 | Maximum Power measurement procedure<br>Maximum Booster Gain Computer | Compliant |
| 2.4 | 20.21(e)(9)(i)(G) Intermodulation Limit | 7.4 | RSS-131 Clause 8.6 | Intermodulation Product | Compliant |
| 2.5 | 20.21(e)(9)(i)(F) Out of Band Emission Limit | 7.5 | RSS-131 Clause 8.5 | Out-of-Band Emissions | Compliant |
| 2.6 | 20.21(e)(9)(i)(F) Out of Band Emission Limit<br>2.1051 Measurements required: Spurious emissions at antenna terminals.<br>22.917 (a) Emission limitations for cellular equipment.<br>24.238 (a) Emission limitations for Broadband PCS equipment. | 7.6 | RSS-13 8.5 | Conducted Spurious Emissions | Compliant |
| 2.7 | 20.21(e)(9)(i)(A) Noise Limits 20.21(e)(9)(i)(I) Transmit Power Off Mode | 7.7 | RSS-131 Clause 8.1<br>RSS-131 Clause 8.7 | Noise Limits | Compliant |
| 2.8 | 20.21(e)(9)(i)(J) Uplink Inactivity | 7.8 | RSS-131 Clause 8.8 | Uplink inactivity | Compliant |
| 2.9 | 20.21(e)(9)(i)(C)(1) Booster Gain Limits<br>20.21(e)(9)(i)(I) Transmit Power Off Mode | 7.9 | RSS-131 Clause 8.2<br>RSS-131 Clause 8.7 | Variable Booster Gain | Compliant |
| 2.10 | 2.1049 Measurements required: Occupied bandwidth.<br>22.917 (b) Emission limitations for cellular equipment.<br>24.238 (b) Emission limitations for Broadband PCS equipment. | 7.10 | RSS-Gen 6.7 | Occupied Bandwidth | Compliant |
| 2.11 | 20.21(e)(9)(ii)(A) Anti-Oscillation | 7.11 | RSS-131 Clause 6.1.1 | Oscillation Detection | Compliant |
| - | 20.21(e)(9)(i)(C)(2)(iii) Automatic Feedback Cancellation | 7.12 | - | Mobile Booster Automatic Feedback Cancellation | N/A;<br>Applicable to Mobile Booster |

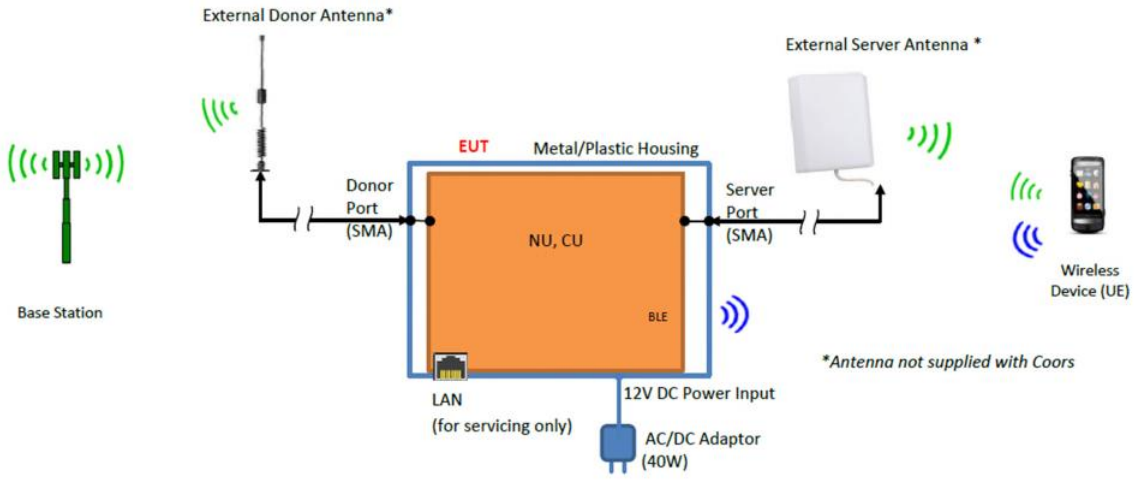
| | | | | | |
|---|---|---|---|---|---|
| - | 20.21(e)(9)(i)(B) Bidirectional Capability<br>20.21(e)(3) Frequency Band | 7.14 | - | Spectrum Block Filtering | N/A*** |
| 2.12 | 20.21(e)(9)(i)(E) Out of Band Gain Limit | 7.15 | RSS-131 Clause 8.4 | Out of Band Gain | Compliant |
| 2.13 | 2.1055 Measurements required: Frequency stability.<br>22.355 Frequency tolerance<br>24.235 Frequency stability.<br>27.54 Frequency stability. | 7.16 | RSS 132 Clause 5.3<br>RSS 133 Clause 6.3<br>RSS 139 Clause 6.4<br>RSS 130 Clause 4.5<br>RSS 195 Clause 5.4 | Frequency Stability | Compliant |
| 2.14 | § 2.1053 Measurements required: Field strength of spurious radiation. | 7.13 | RSS Gen 130 Clause 4.7.1<br>RSS-Gen 132 Clause 5.5<br>RSS-Gen-139 Clause 5.6<br>RSS Gen 140 Clause 4.4 | Field Strength Spurious Emissions | Compliant |

*N/A*** Not Applicable. The EUT does not utilize spectrum block filtering.*

## 1.4 Product Information

### 1.4.1 Technical Description

Cel-Fi G41-BE is a single box LTE Provider Specific Signal Booster to improve voice and data cellular performance in indoor environments. Both Network Unit (NU), and the Coverage Unit (CU) are on a single PCB and installed metal/plastic housing. The NU comprises a transmitter and receiver which communicate with the cell tower. The CU comprises a transmitter and receiver which communicate with the wireless devices.
G41-BE includes Bluetooth LE and LAN connectivity. With the use of Nextivity smartphone application or the LAN, it allows user to register the product, update software, capture/display details metrics of the system.
EUT is powered by external 12VDC Power adaptor.




**Sapporo Block Diagram**

Cell Band Combinations:

| One Cell | Two Cells |
|---|---|
| 4 | 4,2 |
| 2 | 4,5 |
| 5 | 4,13 |
| 13 | 4,12 |
| 12 | 4,14 |
| 14 | 2,5 |
| | 2,13 |
| | 2,12 |
| | 2,14 |
| | 5,13 |
| | 5,12 |
| | 5,14 |

| Mutually Exclusive Bands |
|---|
| Band 12 and 13 |
| Band 13 and 14 |
| Band 12 and 14 |

### 1.4.2 EUT Specification

| | | |
|---|---|---|
| EUT Description | Cellphone Signal Booster | |
| Trade Name | Cel-Fi™ | |
| Model Name | Cel-Fi G41 | |
| Model Number(s) | G41-BE | |
| Rated Voltage | 12V DC via external AC/DC adaptor | |
| Mode Verified | LTE Band 2, 4, 5, 12, 13 and 25 | |
| Frequency Bands | LTE Band 2: | UL: 1850 - 1910MHz |
| | | DL: 1930 - 1990MHz |
| | LTE Band 4: | UL: 1710 - 1755MHz |
| | | DL: 2110 - 2155MHz |
| | LTE Band 5: | UL: 824 - 849MHz |
| | | DL: 869 - 894MHz |
| | LTE Band 12: | UL: 699 - 716MHz |
| | | DL: 729 - 746MHz |
| | LTE Band 13: | UL: 777 - 787MHz |
| | | DL: 746 - 756MHz |
| | LTE Band 25: | UL: 1850 - 1915MHz |
| | | DL: 1930 - 1995MHz |

Rated Power

| Signal Bandwidth (MHz) | LTE Band 2, 4, 25 | | LTE Band 5, 12, 13 | |
|---|---|---|---|---|
| | DL (dBm) | UL (dBm) | DL (dBm) | UL (dBm) |
| 5 | Max. 16 | 22 | Max. 16 | 20 |
| 10 | | | | |
| 15 | | | N/A | |
| 20 | | | N/A | |

| | |
|---|---|
| Capability | LTE Band 2, 4, 5, 12, 13 and 25 |
| Channel Bandwidth | LTE Band 2, 4, 25: 5MHz, 10MHz, 15MHz and 20MHz<br>LTE Band 5, 12, 13: 5MHz and 10MHz |
| Primary Unit (EUT) | ☐ Production |
| | ☐ Pre-Production |
| | ☒ Engineering (same as Production) |

| | |
|---|---|
| Manufacturer Declared Temperature Range | 0°C to 40°C |
| Antenna Type | External (SMA Connectors) |
| Manufacturer | N/A |
| Antenna Model | N/A |
| Input and Output ports Impedance | 50 Ohm |

Gain

| Freq | Max System Gain |
|---|---|
| < 1 GHZ | 95 dB |
| >1 GHz | 100 dB |

Maximum Antenna System
(Antenna + Cable) Gain

| Port | Max System (Antenna & Cable) Gain |
|---|---|
| Server Port | 0.17 dBi for LTE Band 2<br>0.05 dBi for LTE Band 4<br>0.08 dBi for LTE Band 5<br>0.27 dBi for LTE Band 12<br>0.05 dBi for LTE Band 13<br>0.3 dBi for LTE Band 25 |
| Donnor Port | 8.14 dBi for LTE Band 2<br>7.68 dBi for LTE Band 4<br>10.34 dBi for LTE Band 5<br>10.19 dBi for LTE Band 12<br>10.22 dBi for LTE Band 13<br>8.4 dBi for LTE Band 25 |

### 1.4.3 Transmit Frequency Table

| Mode | Signal Bandwidth (MHz) | Tx Frequency (MHz) | Emission Designator | EIRP | |
|---|---|---|---|---|---|
| | | | | Max. Power Avg (dBm) | Max. Power Avg (W) |
| LTE Band 2 Downlink | 5 | 1932.5 – 1987.5 | 4M63F9W | 9.83 | 0.009616123 |
| | 10 | 1935 – 1985 | 8M96F9W | 12.46 | 0.01761976 |
| | 15 | 1937 – 1982.5 | 13M4F9W | 14.46 | 0.027925438 |
| | 20 | 1940 – 1980 | 17M9F9W | 15.87 | 0.038636698 |
| LTE Band 2 Uplink | 5 | 1852.5 – 1907.5 | 4M47F9W | 21.79 | 0.151008015 |
| | 10 | 1855 – 1905 | 8M98F9W | 21.86 | 0.153461698 |
| | 15 | 1857.5 – 1902.5 | 13M4F9W | 21.72 | 0.148593564 |
| | 20 | 1860 - 1900 | 17M9F9W | 21.62 | 0.145211162 |
| LTE Band 4 Downlink | 5 | 2110 - 2155 | 4M72F9W | 9.95 | 0.009885531 |
| | 10 | 2110 - 2155 | 9M31F9W | 12.57 | 0.018071741 |
| | 15 | 2110 - 2155 | 13M6F9W | 14.45 | 0.027861212 |
| | 20 | 2110 - 2155 | 18M4F9W | 15.59 | 0.0362243 |
| LTE Band 4 Uplink | 5 | 1710 - 1755 | 4M64F9W | 22.08 | 0.161435856 |
| | 10 | 1710 - 1755 | 9M26F9W | 22.2 | 0.165958691 |
| | 15 | 1710 - 1755 | 13M6F9W | 22.32 | 0.170608239 |
| | 20 | 1710 - 1755 | 18M4F9W | 22.09 | 0.161808004 |
| LTE Band 5 Downlink | 5 | 871.4 – 891.6 | 4M73F9W | 9.92 | 0.009817479 |
| | 10 | 871.4 – 891.6 | 9M24F9W | 12.1 | 0.016218101 |
| LTE Band 5 Uplink | 5 | 826.4 – 846.6 | 4M73F9W | 19.66 | 0.092469817 |
| | 10 | 826.4 – 846.6 | 9M24F9W | 19.57 | 0.09057326 |
| LTE Band 12 Downlink | 5 | 729 - 746 | 4M73F9W | 9.73 | 0.009397233 |
| | 10 | 729 - 746 | 9M24F9W | 12.7 | 0.018620871 |
| LTE Band 12 Uplink | 5 | 699 - 716 | 4M64F9W | 19.56 | 0.090364947 |
| | 10 | 699 - 716 | 9M25F9W | 19.81 | 0.095719407 |
| LTE Band 13 Downlink | 5 | 746 - 756 | 4M62F9W | 9.95 | 0.009885531 |
| | 10 | 746 - 756 | 9M20F9W | 11.41 | 0.013835664 |
| LTE Band 13 Uplink | 5 | 777 - 787 | 4M72F9W | 19.78 | 0.095060479 |
| | 10 | 777 - 787 | 9M17F9W | 19.49 | 0.088920112 |
| LTE Band 25 Downlink | 5 | 1932.5 – 1992.5 | 4M63F9W | 9.68 | 0.009289664 |
| | 10 | 1935 – 1990 | 8M96F9W | 12.31 | 0.017021585 |

| | | | | | |
|---|---|---|---|---|---|
| | 15 | 1937.5 – 1987.5 | 13M4F9W | 13.6 | 0.022908677 |
| | 20 | 1940 – 1985 | 17M9F9W | 13.89 | 0.024490632 |
| LTE Band 25 Uplink | 5 | 1852.5 – 1912.5 | 4M47F9W | 20.84 | 0.121338885 |
| | 10 | 1855 – 1910 | 8M98F9W | 20.79 | 0.11994993 |
| | 15 | 1857.5 – 1907.5 | 13M4F9W | 20.95 | 0.124451461 |
| | 20 | 1860 – 1905 | 17M9F9W | 21.6 | 0.144543977 |

Note: EIRP was computed with power output results on section 2.3.9 and maximum system gain from table 1.4.2

### 1.4.4 Test Configuration

| Configuration Number | Description |
|---|---|
| A | Test Mode - Downlink (CU TX). Input signal is applied to antenna port of NU. Output is monitored from antenna port of CU.<br>(refer to 1.4.4 Figure 3) |
| B | Test Mode - Uplink (NU TX). Input signal is applied to antenna port of CU. Output is monitored from antenna port of NU.<br>(refer to 1.4.4 Figure 2) |
| C | Normal Mode - Downlink (CU TX). Base Station Simulator is employed to send a modulated signal to antenna port of NU. Antenna port of CU is terminated with a 50Ω load.<br>(refer to 1.4.4 Figure 1) |
| D | Normal Mode - Uplink (NU TX). Base Station Simulator is employed to send a modulated signal to antenna port of NU. Input signal is applied to antenna port of CU.<br>(refer to 1.4.4 Figure 1) |
| E | Inter-modulation. Test setup identical to Test Configuration A and B above with the addition of another signal applied to the input of the EUT. A coupler was used in the setup to ensure that the additional signal is directed to the EUT input port.<br>(refer to 1.4.4 Figure 5) |
| F | Max Downlink noise limit testing - A 50 Ohm Termination is connected to the NU antenna port and Measure the Noise Limit at the CU antenna port.<br>(refer to 1.4.4 Figure 6) |
| G | Max Uplink RSSI-dependent noise limit testing - A 50 Ohm Termination is connected to the CU antenna port. A signal is connected to a step attenuator and then applied to the NU antenna port. Output is monitored from antenna port of NU.<br>(refer to 1.4.4 Figure 7) |
| H | Max Downlink RSSI-dependent noise limit testing - A 50 Ohm Termination is connected to the CU antenna port. A signal is connected to a step attenuator and then applied to the NU antenna port. Output is monitored from antenna port of CU.<br>(refer to 1.4.4 Figure 8) |
| I | Radiated test setup. Downlink. Input signal is applied to the antenna port of Donor (NU). The antenna port of Server (CU) is terminated with a 50Ω load or Signal Generator. |
| J | Radiated test setup. Uplink. Input signal is applied to the antenna port of Server (CU). The antenna port of Donor (NU) is terminated with a 50Ω load or Signal Generator. |

FCC ID: YETG41-BE
IC: 9298A-G41BE

### 1.4.5 EUT Exercise Software

Manufacturer Provided a Nextivity Chart Interface v2.0.0.16

### 1.4.6 Support Equipment and I/O cables

| Manufacturer | Equipment/Cable | Description |
|---|---|---|
| Lenovo | Support Laptop | M/N: 20AR-S4250S, S/N: PC-03DGHKK 125/02 |
| Lenovo | Support Laptop AC Adapter | M/N: ADLX90NLC2A S/N: 11S45N0247Z1ZS9B6926Z5 |
| Nextivity | Support USB cable x 1 | Custom 1.0 meter shielded USB Type A to Micro B cable |
| SIMSUKIAN | AC/DC Adapter | M/N: SK03T1-1200250V S/N: 22080308000658<br>IP: 100-240VAC 50/60Hz 0.6A; OP: 12VDC 2.5A 30.0W |
| Rohde & Schwarz | Vector Signal Generator | M/N: SMBV100A, S/N: 259021 |
| Agilent | ESG Vectot Signal Generator | S/N: MY47271206 M/N:E4438C |
| Aeroflex | Signal Generator | M/N: 3005, S/N: 3005A/09L |

### 1.4.7 Simplified Test Configuration Diagram

**Figure 1 – Test configuration in EUT normal operational mode**

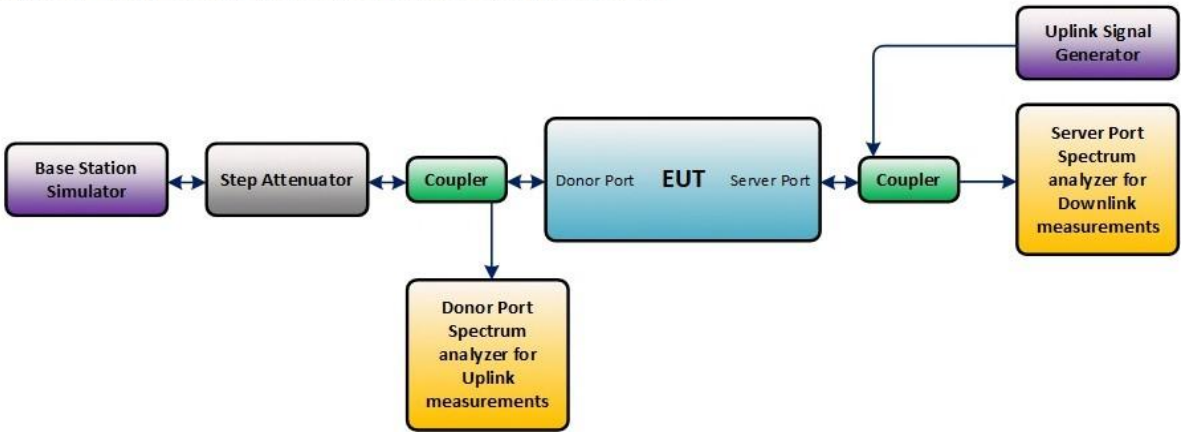


**Figure 2 – Uplink test configuration in EUT test mode**


**Figure 3 – Downlink test configuration in EUT test mode**


**Figure 5 – Intermodulation product instrumentation test setup**

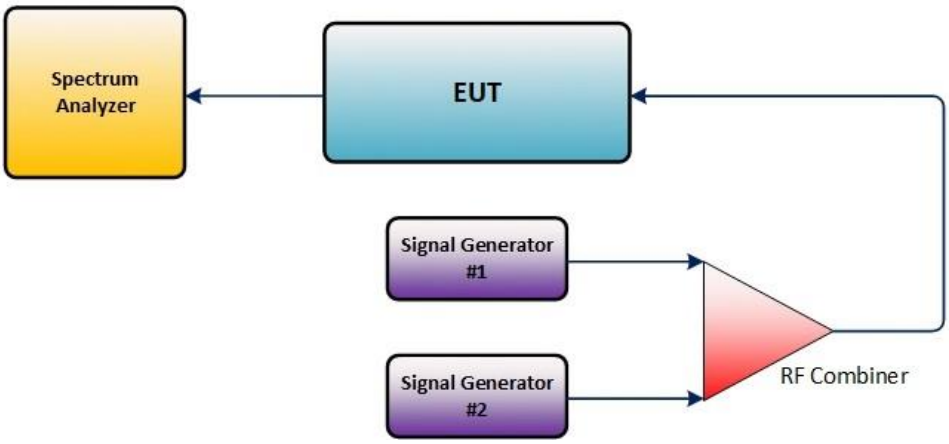



**Figure 6 – Maximum downlink noise limit test configuration**

**Figure 7 – Uplink RSSI-dependent noise limit test configuration**

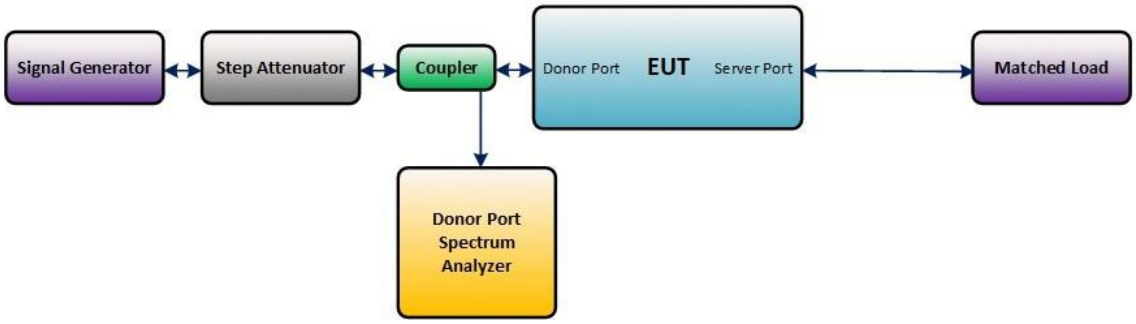
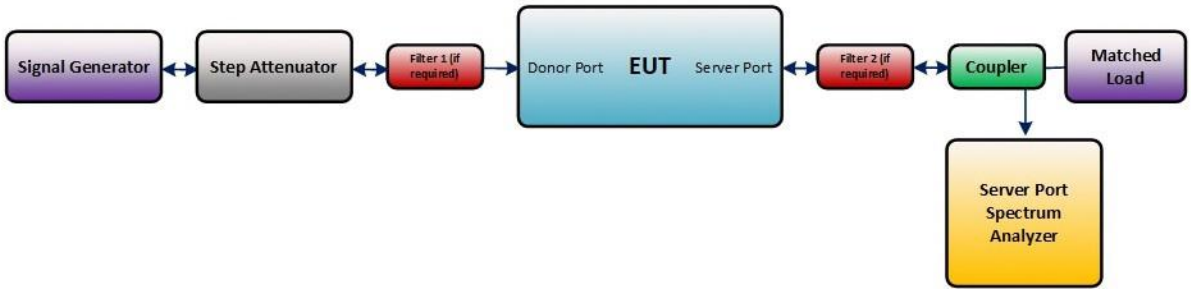



**Figure 8 –Downlink RSSI-dependent noise limit test configuration**




## 1.5 Deviations from the Standard

There were no deviations made during testing from the applicable test standard or test plan.

## 1.6 EUT Modification Record

The table below details modifications made to the EUT during the test program. The modifications incorporated during each test are recorded on the appropriate test pages.

| Modification State | Description of Modification still fitted to EUT | Modification Fitted By | Date Modification Fitted |
|---|---|---|---|
| 0 | As supplied by the manufacturer | - | - |

## 1.7 Test Methods

All measurements contained in this report were conducted as per KDB935210 D04 Provider-Specific Consumer Signal Boosters Compliance Measurements Guidance (April 03, 2020).

### 1.8 Test Location

TÜV SÜD America conducted the following tests at our San Diego CA, Test Laboratory's.

Office Address:

**TÜV SÜD America Inc. (Mira Mesa)**

10040 Mesa Rim Road, San Diego, CA 92121-2912 (32.901268,-117.177681).
Phone: (858) 678 1400 Fax: (858) 546 0364.

**TÜV SÜD America Inc. (Rancho Bernardo)**

16936 Via Del Campo, San Diego, CA 92127-1708 (33.018644,-117.092409).
Phone: (858) 678 1400 Fax: (858) 546 0364.

### 1.9 Test Facility Registration

#### 1.9.1 FCC – Designation No.: US1146

TÜV SÜD America Inc. (San Diego), is an accredited test facility with the site description report on file and has met all the requirements specified in §2.948 of the FCC rules. The acceptance letter from the FCC is maintained in our files and the Designation is US1146.

#### 1.9.2 Innovation, Science and Economic Development Canada (ISED) Registration No.: 3067A-1 & 22806-1

The 10m Semi-anechoic chamber of TÜV SÜD America Inc. (San Diego Rancho Bernardo) has been registered by Certification and Engineering Bureau of Innovation, Science and Economic Development Canada for radio equipment testing with Registration No. 3067A-1.

The 3m Semi-anechoic chamber of TÜV SÜD America Inc. (San Diego Mira Mesa) has been registered by Certification and Engineering Bureau of Innovation, Science and Economic Development Canada for radio equipment testing with Registration No. 22806-1.

#### 1.9.3 BSMI – Laboratory Code: SL2-IN-E-028R (US0102)

TÜV Product Service Inc. (San Diego) is a recognized RADIO testing laboratory by the BSMI under the MRA (Mutual Recognition Arrangement) with the United States. Accreditation includes CNS 13438 up to 6GHz.

#### 1.9.4 NCC (National Communications Commission - US0102)

TÜV SÜD America Inc. (San Diego) is listed as a Foreign Recognized Telecommunication Equipment Testing Laboratory and is accredited to ISO/IEC 17025 (A2LA Certificate No.2955.13) which under APEC TEL MRA Phase 1 was designated as a Conformity Assessment Body competent to perform testing of equipment subject to the Technical Regulations covered under its scope of accreditation including RTTE01, PLMN01 and PLMN08 for TTE type of testing and LP0002 for Low-Power RF Device type of testing.

### 1.9.5 VCCI – Registration No. A-0280 and A-0281

TÜV SÜD America Inc. (San Diego) is a VCCI registered measurement facility which includes radiated field strength measurement, radiated field strength measurement above 1GHz, mains port interference measurement and telecommunication port interference measurement.

### 1.9.6 RRA – Identification No. US0102

TÜV SÜD America Inc. (San Diego) is National Radio Research Agency (RRA) recognized laboratory under Phase I of the APEC Tel MRA.

### 1.9.7 OFCA – U.S. Identification No. US0102

TÜV SÜD America Inc. (San Diego) is recognized by Office of the Communications Authority (OFCA) under Appendix B, Phase I of the APEC Tel MRA.

# 2 Test Details

## 2.1 Authorized Frequency Band Verification

### 2.1.1 Specification Reference

FCC 47 CFR Part 20, Clause 20.21 (e)(3)
KDB935210 D04, Clause 7.1

### 2.1.2 Standard Applicable

FCC 47 CFR Part 20, Clause 20.21 (e)(3) Frequency Bands:
Consumer Signal Boosters must be designed and manufactured such that they only operate on the frequencies used for the provision of subscriber-based services under parts 22 (Cellular), 24 (Broadband PCS), 27 (AWS–1, 700 MHz Lower A–E Blocks, and 700 MHz Upper C Block), and 90 (Specialized Mobile Radio) of this chapter. The Commission will not certificate any Consumer Signal Boosters for operation on part 90 of this chapter (Specialized Mobile Radio) frequencies until the Commission releases a public notice announcing the date Consumer Signal Boosters may be used in the band.

### 2.1.3 Equipment Under Test and Modification State

Serial No: 560311000026 / Test Configuration A and B

### 2.1.4 Date of Test/Initial of test personnel who performed the test

August 02, 2023 /MARG

### 2.1.5 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

### 2.1.6 Environmental Conditions

Test performed at TÜV SÜD America Inc. Rancho Bernardo facility.

| | |
|---|---|
| Ambient Temperature | 27.0°C |
| Relative Humidity | 51.5% |
| ATM Pressure | 99.0kPa |

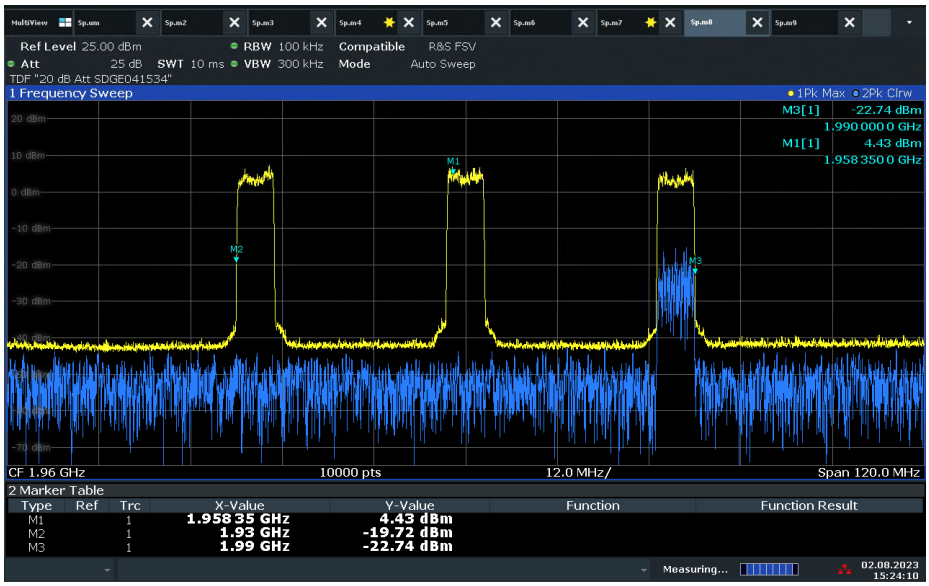
### 2.1.7 Additional Observations

- This is conducted Test. Test procedure is per Section 7.1.1 of KDB935210 (D04 Provider Specific Booster Measurements v02r03). Appropriate offset (line losses) applied.
- The EUT operated in Test Mode, with the gain set to the maximum gain and a minimum bandwidth setting (5MHz).
- Setup the EUT according to Figure 2 or 3 of Section 6.3.3 of KDB935210 as appropriate.
- Both downlink and uplink bands for LTE Band 2, 4, 5, 12, 13, were tested.
- The signal generator was set to transmit a 5MHz LTE signal.
- The transducer factor (TDF) used is from the external attenuators and cables used.
- Frequency Range:

| Technology | Band | DL Frequency Range (MHz) | UL Frequency Range (MHz) |
|---|---|---|---|
| LTE | 2 | 1930-1990 | 1850-1910 |
| LTE | 4 | 2110 - 2155 | 1710 - 1755 |
| LTE | 5 | 869 - 894 | 824 - 849 |
| LTE | 12 | 729 – 746 | 699 – 716 |
| LTE | 13 | 746 - 756 | 777 - 787 |
| LTE | 25 | 1930 - 1995 | 1850 - 1915 |

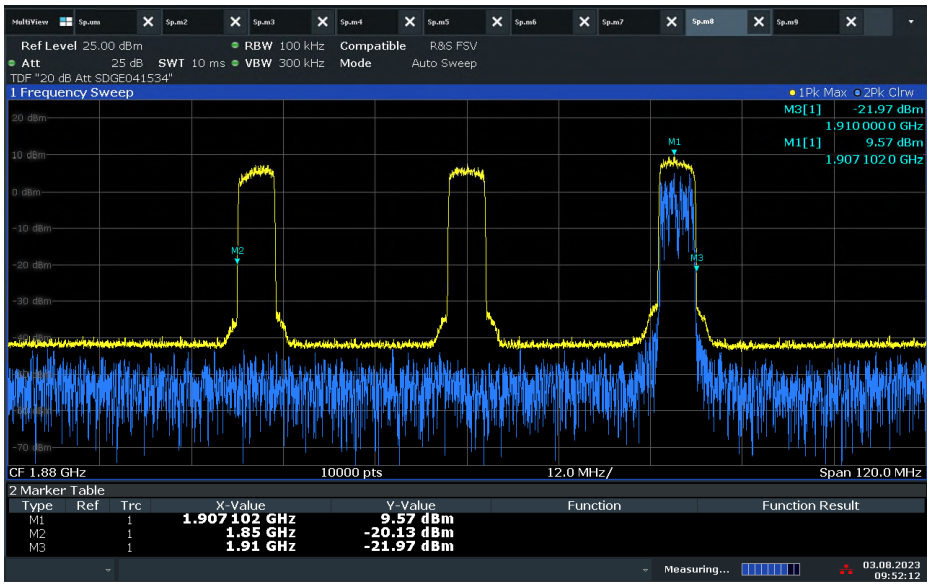
### 2.1.8 Test Results

**LTE Band 2 Downlink Authorized Frequency Range (1930-1990MHz)**



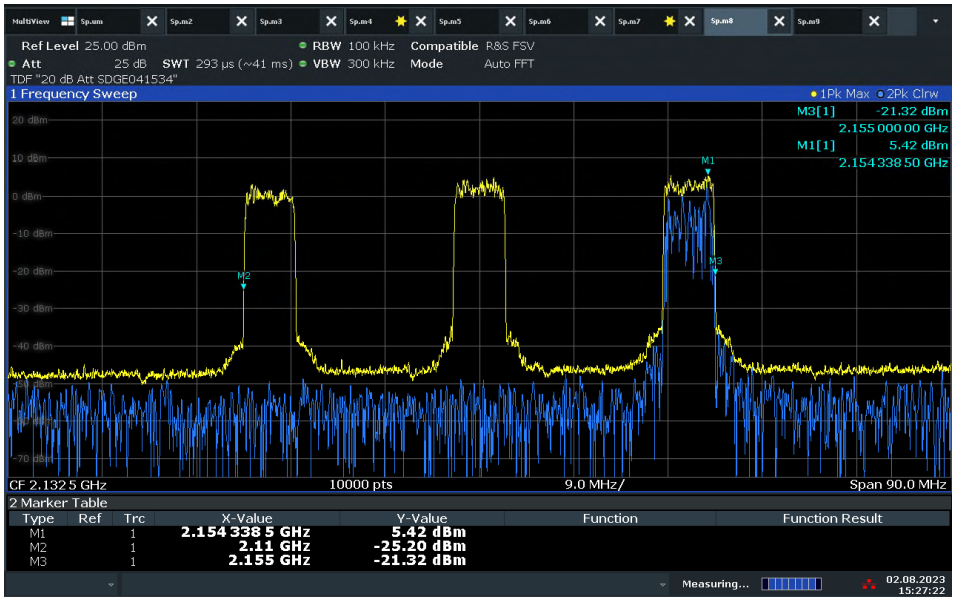

15:24:10 02.08.2023

**LTE Band 2 Uplink Authorized Frequency Range (1850-1910MHz)**



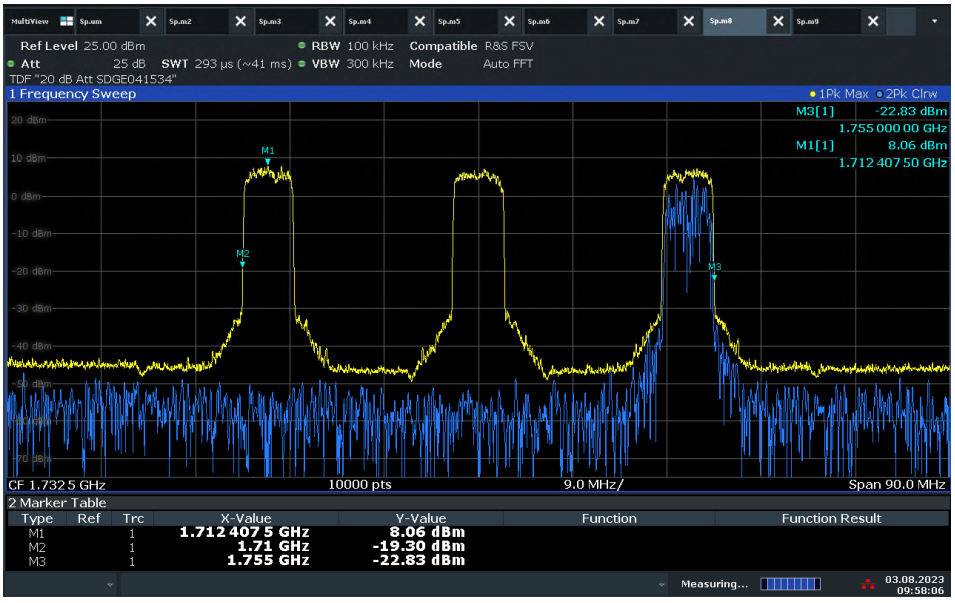

09:52:13 03.08.2023

| LTE Band 4 Downlink Authorized Frequency Range (2110 – 2155 MHz) |
|---|



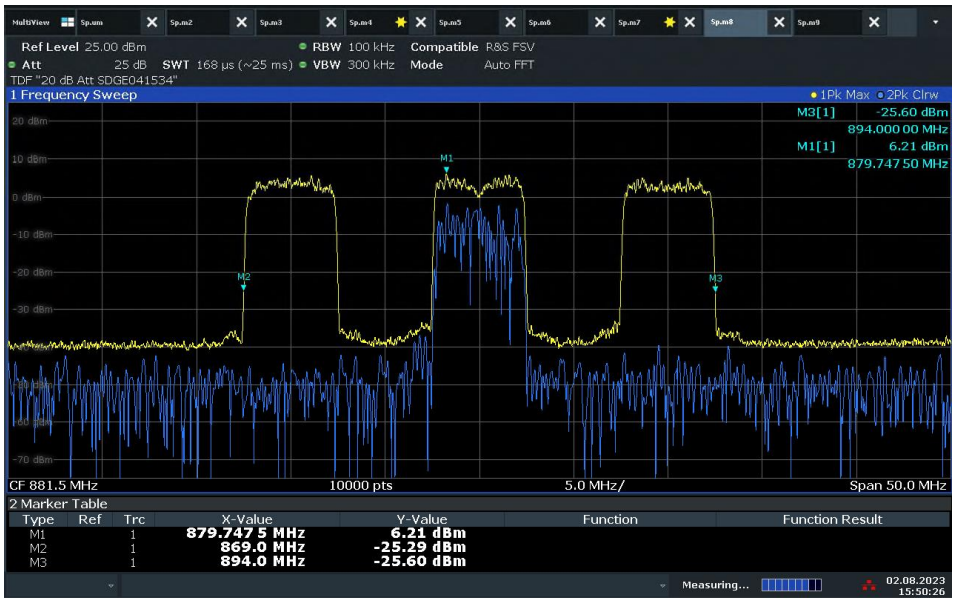

15:27:23 02.08.2023

| LTE Band 4 Uplink Authorized Frequency Range (1710 – 1755 MHz) |
|---|



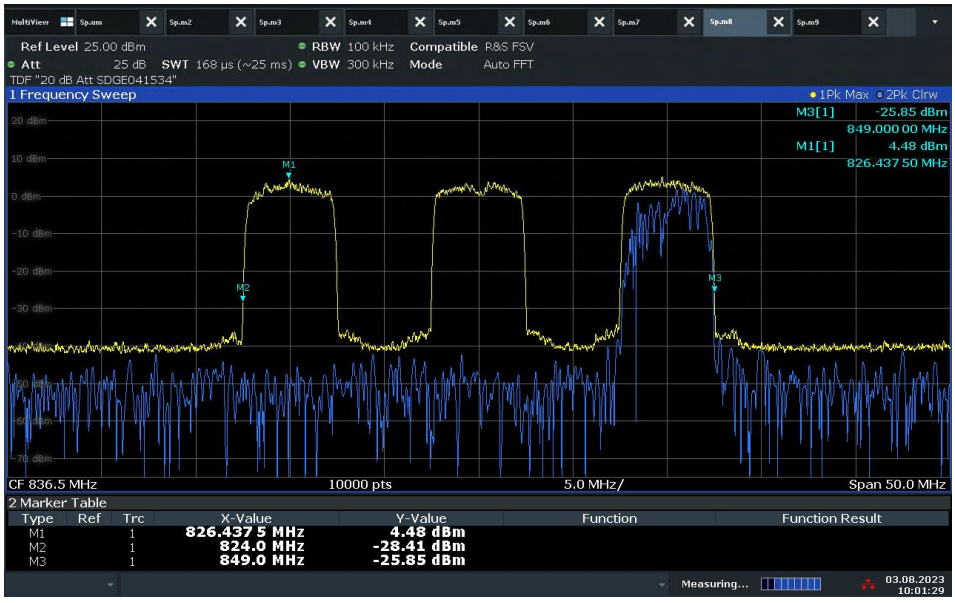

09:58:07 03.08.2023

| LTE Band 5 Downlink Authorized Frequency Range (869 - 894MHz) |
|---|




15:50:27 02.08.2023

| LTE Band 5 Uplink Authorized Frequency Range (824 - 849MHz) |
|---|

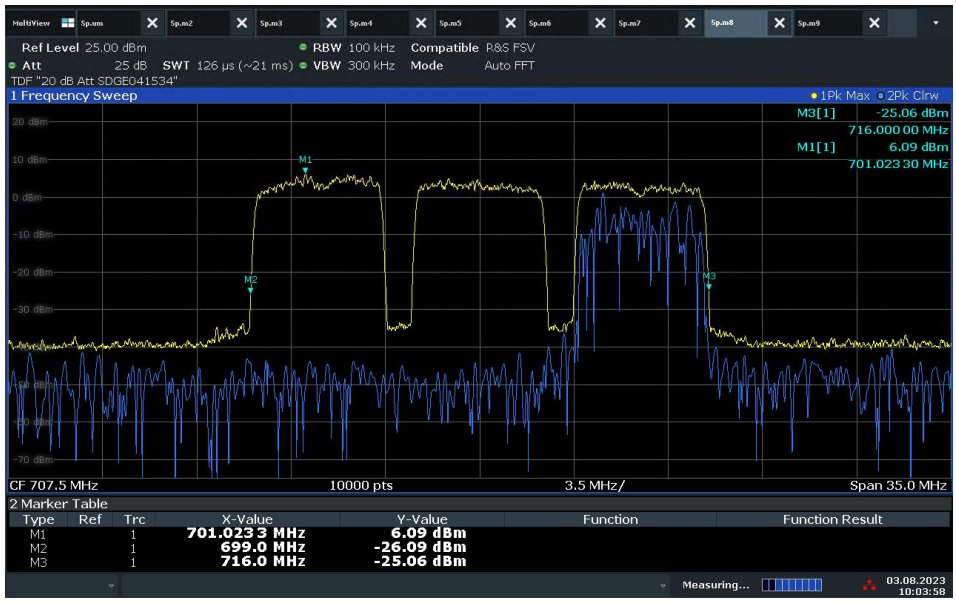



10:01:30 03.08.2023

| LTE Band 12 Downlink Authorized Frequency Range (729 – 746 MHz) |
|---|

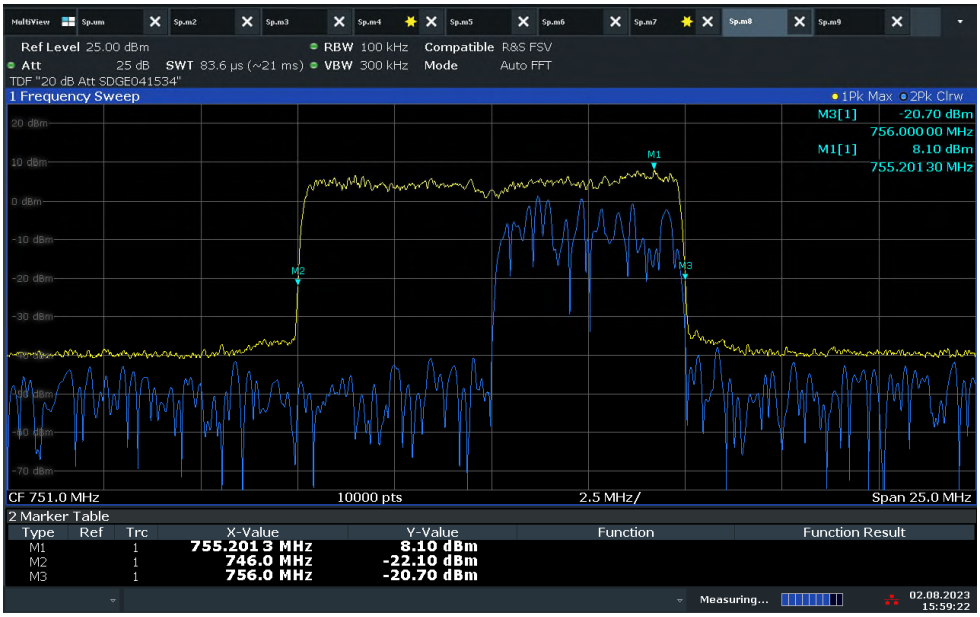

15:55:11 02.08.2023

| LTE Band 12 Uplink Authorized Frequency Range (699 – 716 MHz) |
|---|



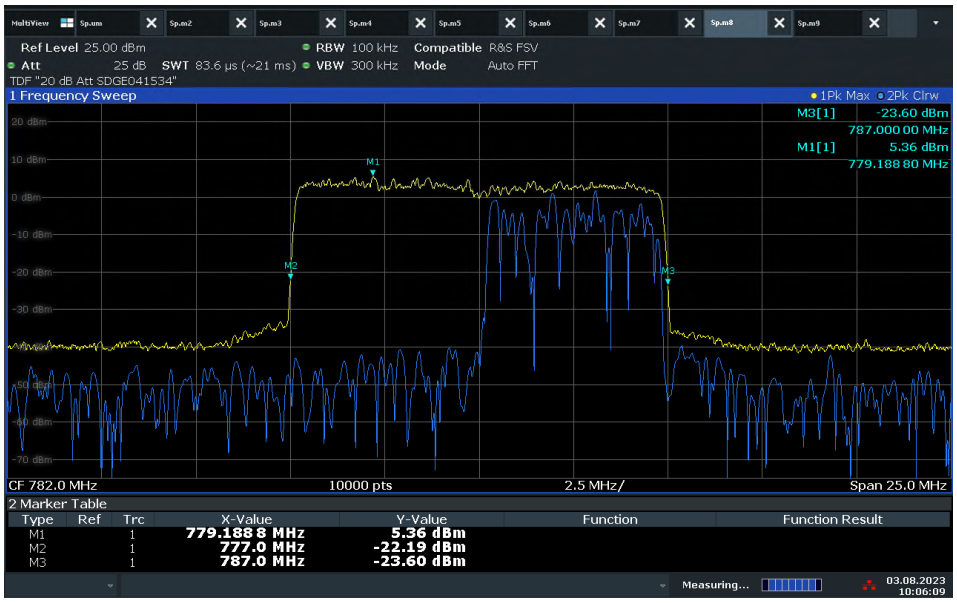

10:03:59 03.08.2023

| LTE Band 13 Downlink Authorized Frequency Range (746 – 756 MHz) |
|---|



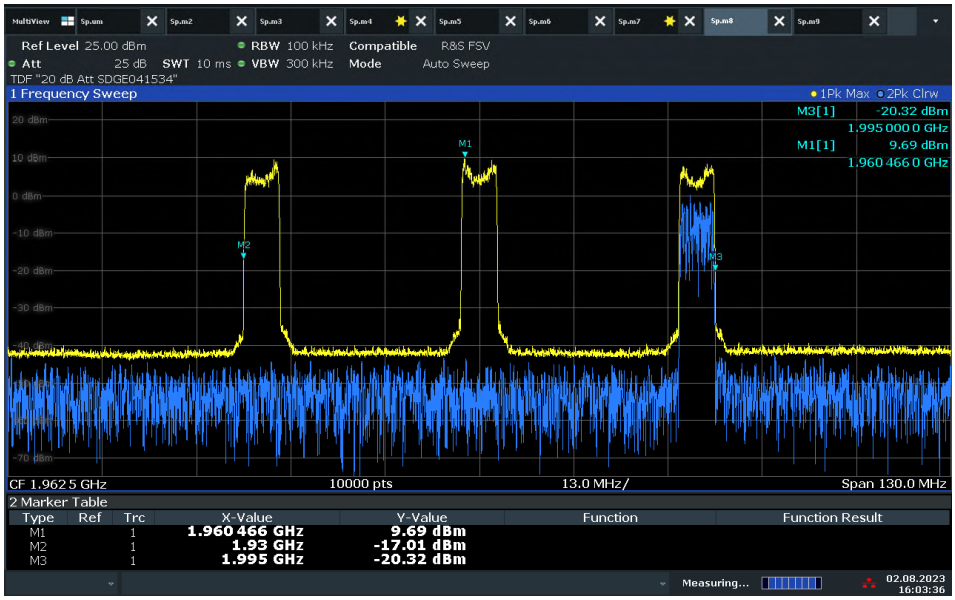

15:59:22 02.08.2023

| LTE Band 13 Uplink Authorized Frequency Range (777 – 787 MHz) |
|---|



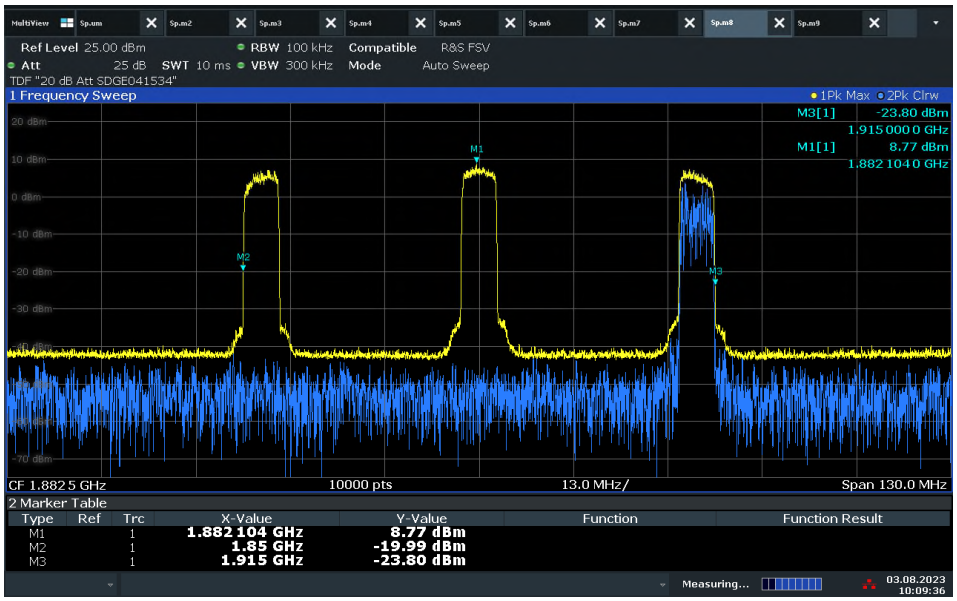

10:06:10 03.08.2023

| LTE Band 25 Downlink Authorized Frequency Range (1930 – 1995 MHz) |
|---|




16:03:36 02.08.2023

| LTE Band 25 Uplink Authorized Frequency Range (1850 – 1915 MHz) |
|---|




10:09:36 03.08.2023

## 2.2 Authorized CMRS Provider

### 2.2.1 Specification Reference

FCC 47 CFR Part 27, Clause 27.50 (h)(1)
FCC 47 CFR Part 27, Clause 27.50 (a((1)
RSS-139, Clause 6.5
RSS-195, Clause 5.5

### 2.2.2 Standard Applicable

FCC 47 CFR Part 20, Clause 20.21 (e)(3) Frequency Bands:
Consumer Signal Boosters must be designed and manufactured such that they only operate on the frequencies used for the provision of subscriber-based services under parts 22 (Cellular), 24 (Broadband PCS), 27 (AWS–1, 700 MHz Lower A–E Blocks, and 700 MHz Upper C Block), and 90 (Specialized Mobile Radio) of this chapter. The Commission will not certificate any Consumer Signal Boosters for operation on part 90 of this chapter (Specialized Mobile Radio) frequencies until the Commission releases a public notice announcing the date Consumer Signal Boosters may be used in the band.

FCC 47 CFR Part 20, Clause 20.21(e)(4) Self Monitoring:
Consumer Signal Boosters must automatically self-monitor their operation to ensure compliance with applicable noise and gain limits and either self-correct or shut down automatically if their operation exceeds those parameters.

### 2.2.1 Equipment Under Test and Modification State

Serial No: 560311000026/ Test Configuration C and D

### 2.2.2 Date of Test/Initial of test personnel who performed the test.

August 31 and October 9, 2023/ MARG

### 2.2.3 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

### 2.2.4 Environmental Conditions

Test performed at TÜV SÜD America Inc. Rancho Bernardo facility.

| | |
|---|---|
| Ambient Temperature | 24.5 - 26.3°C |
| Relative Humidity | 45.0 - 53.3% |
| ATM Pressure | 98.8 - 99.0kPa |

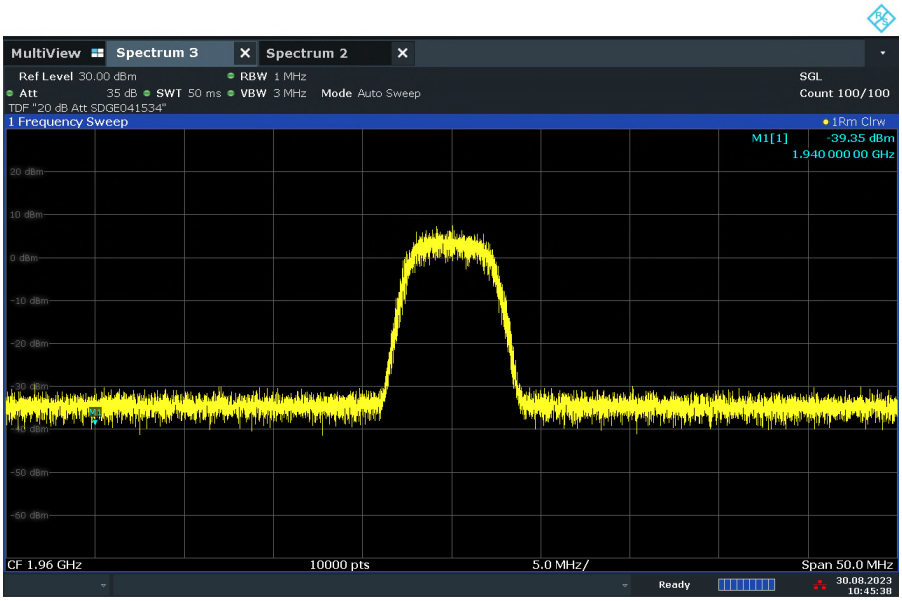
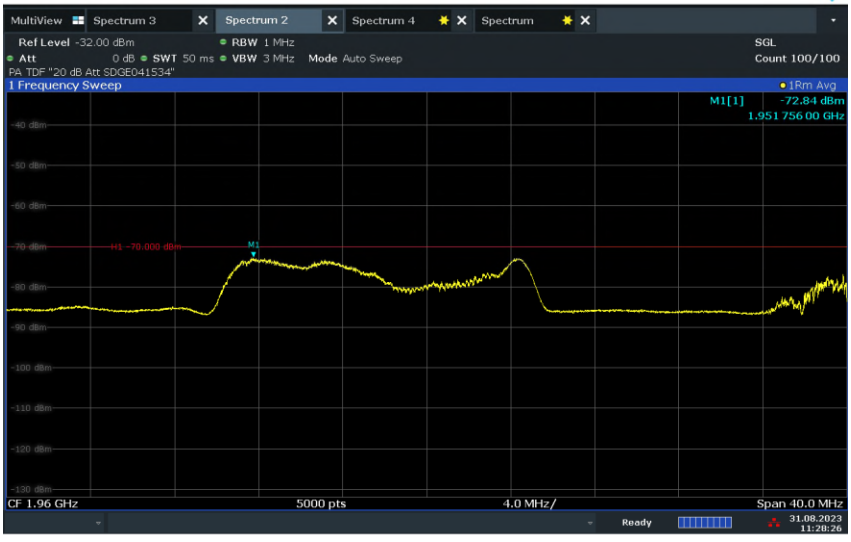
### 2.2.5 Additional Observations

- This is conducted Test. Test procedure is per Section 7.1.2 of KDB935210 (D04 Provider Specific Booster Measurements v02r03). Appropriate offset (line loses) applied.

- The EUT operated in Normal Mode, with the gain set to the maximum gain and a minimum bandwidth setting (5MHz).
- Setup the EUT according to Figure 1 of Section 6.3.2 of KDB935210 with the Base Station Simulator transmitting an authorized CMRS provider signal to the booster.
- Evaluations are conducted.
- The transducer factor (TDF) used is from the external attenuators and cables used.
- Per Client request only High Channel for Band 25 was tested.
- Operational uplink and downlink bands for LTE Band 2, 4, 5, 12, and 13 were tested.
- The Base Station Simulator was set to transmit a 5MHz LTE signal.
- The authorized CMRS Provider ID is: 123-456
- Two Non- authorized CMRS Provider signals for each band were verified.
- Frequency Range:

| Technology | Band | DL Frequency Range (MHz) | UL Frequency Range (MHz) |
|---|---|---|---|
| LTE | 2 | 1930-1990 | 1850-1910 |
| LTE | 4 | 2110 - 2155 | 1710 - 1755 |
| LTE | 5 | 869 - 894 | 824 - 849 |
| LTE | 12 | 729 – 746 | 699 – 716 |
| LTE | 13 | 746 - 756 | 777 - 787 |
| LTE | 25 | 1930 - 1995 | 1850 - 1915 |

### 2.2.6 Test Results

| LTE Band 2 Downlink Authorized Frequency Range (1930-1990MHz)<br>(MCC/MNC: 123-456) |
|---|
|  <br>10:45:39 30.08.2023 |
| **LTE Band 2 Downlink Authorized Frequency Range (1930-1990MHz)<br>(MCC/MNC: 123-619)** |
|  <br>11:28:27 31.08.2023 |