

# **TEST REPORT**

**Report Number:** 15605547-E9V2

**Applicant :** SAMSUNG ELECTRONICS CO., LTD.  
129 SAMSUNG-RO, YEONGTONG-GU  
SUWON-SI, GYEONGGI-DO, 16677, KOREA

**Model :** SM-X620

**FCC ID :** A3LSMX620

**IC :** 649E-SMX620

**EUT Description :** BT/BLE Tablet + DTS/UNII a/b/g/n/ac/ax and Digitizer

**Test Standard(s) :** FCC 47 CFR PART 15 SUBPART C  
FCC 47 CFR PART 15 SUBPART E  
ISED RSS-247 ISSUE 3  
ISED RSS-GEN ISSUE 5 + A1 + A2

**Date Of Issue:**

2025-03-03

**Prepared by:**

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## REVISION HISTORY

| Rev. | Issue Date | Revisions                        | Revised By |
|------|------------|----------------------------------|------------|
| V1   | 2025-02-25 | Initial Issue                    | ---        |
| V2   | 2025-03-03 | Cover Page and Section 1 updated | Henry Lau  |

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## 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** SAMSUNG ELECTRONICS CO., LTD.  
129 SAMSUNG-RO, YEONGTONG-GU  
SUWON-SI, GYEONGGI-DO, 16677, KOREA

**EUT DESCRIPTION:** BT/BLE Tablet + DTS/UNII a/b/g/n/ac/ax and Digitizer

**MODEL:** SM-X620

**SERIAL NUMBER:** R32XC0045X8

**SAMPLE RECEIPT DATE:** 2024-12-13

**DATE TESTED:** 2025-02-25

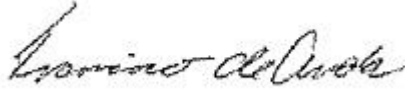
| APPLICABLE STANDARDS           |              |
|--------------------------------|--------------|
| STANDARD                       | TEST RESULTS |
| CFR 47 Part 15 Subpart C       | Complies     |
| CFR 47 Part 15 Subpart E       | Complies     |
| ISED RSS-247 ISSUE 3           | Complies     |
| ISED RSS-GEN ISSUE 5 + A1 + A2 | Complies     |

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise.

This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document.

Approved & Released For  
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## 2. TEST RESULT SUMMARY

This report contains data provided by the customer which can impact the validity of results. UL Verification Services Inc. is only responsible for correctly integrating customer-provided data with measurements performed by Verification Services Inc.

Below is a list of the data provided by the customer:

- 1) Antenna gain and type (see section 6.2)
- 2) Cable Loss (see section 6.2)

| FCC Clause                      | ISED Clause                      | Requirement                                 | Result                  | Comment                        |
|---------------------------------|----------------------------------|---------------------------------------------|-------------------------|--------------------------------|
| See Comment                     |                                  | Duty Cycle                                  | Reporting purposes only | Per ANSI C63.10, Section 12.2. |
| 15.209, 15.205, 15.407 (b)(1-5) | RSS-GEN 8.9, 8.10<br>RSS-247 6.2 | Radiated Emissions<br>Undesirable Emissions | Complies                | None.                          |

## 3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with;

- FCC CFR 47 Part 2
- FCC CFR 47 Part 15C
- FCC CFR 47 Part 15E
- FCC KDB 662911 Measurement of Transmitters with Multiple Output, MIMO
- FCC KDB 905462 D02/D03/D06
- FCC KDB 789033 D02 UNII Test Procedures New Rules
- FCC KDB 291074 D02 EMC Measurement v01 for 5.9GHz Device
- ANSI C63.10-2020
- RSS-GEN Issue 5 + A1 + A2
- RSS-247 Issue 3

## 4. FACILITIES AND ACCREDITATION

UL Verification Services Inc. is accredited by A2LA, Certificate Number 0751.05, for all testing performed within the scope of this report. Testing was performed at the locations noted below.

|                                     | Address                                                  | ISED CABID | ISED Company Number | FCC Registration |
|-------------------------------------|----------------------------------------------------------|------------|---------------------|------------------|
| <input type="checkbox"/>            | Building 1: 47173 Benicia Street, Fremont, CA 94538, USA | US0104     | 2324A               | 550739           |
| <input type="checkbox"/>            | Building 2: 47266 Benicia Street, Fremont, CA 94538, USA |            |                     |                  |
| <input type="checkbox"/>            | Building 3: 843 Auburn Court, Fremont, CA 94538, USA     |            |                     |                  |
| <input checked="" type="checkbox"/> | Building 4: 47658 Kato Rd, Fremont, CA 94538, USA        |            |                     |                  |
| <input type="checkbox"/>            | Building 5: 47670 Kato Rd, Fremont, CA 94538, USA        |            |                     |                  |

## 5. DECISION RULES AND MEASUREMENT UNCERTAINTY

### 5.1. METROLOGICAL TRACEABILITY

All test and measuring equipment utilized to perform the tests documented in this report are calibrated on a regular basis, with a maximum time between calibrations of one year or the manufacturers' recommendation, whichever is less, and where applicable is traceable to recognized national standards.

### 5.2. DECISION RULES

The Decision Rule is based on Simple Acceptance in accordance with ISO Guide 98-4:2012 Clause 8.2. (Measurement uncertainty is not taken into account when stating conformity with a specified requirement.)

### 5.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

| PARAMETER                                            | U <sub>Lab</sub>           |
|------------------------------------------------------|----------------------------|
| Radio Frequency (Spectrum Analyzer)                  | 141.16 Hz                  |
| Occupied Bandwidth                                   | 1.22%                      |
| Power Spectral Density                               | 2.47 dB                    |
| RF Power Measurement Direct Method Using Power Meter | 1.3 dB (PK) / 0.45 dB (AV) |
| Unwanted Emissions, Conducted                        | 1.94 dB                    |
| Worst Case Conducted Disturbance, 9kHz to 0.15 MHz   | 3.78 dB                    |
| Worst Case Conducted Disturbance, 0.15 to 30 MHz     | 3.40 dB                    |
| Worst Case Radiated Disturbance, 9kHz to 30 MHz      | 2.87 dB                    |
| Worst Case Radiated Disturbance, 30 to 1000 MHz      | 6.01 dB                    |
| Worst Case Radiated Disturbance, 1000 to 18000 MHz   | 4.73 dB                    |
| Worst Case Radiated Disturbance, 18000 to 26000 MHz  | 4.51 dB                    |
| Worst Case Radiated Disturbance, 26000 to 40000 MHz  | 5.29 dB                    |
| Time Domain Measurements                             | 3.39%                      |
| Temperature                                          | 0.57°C                     |
| Relative Humidity                                    | 3.39%                      |
| DC Supply Voltages                                   | 0.57%                      |

Uncertainty figures are valid to a confidence level of 95%.

## 5.4. SAMPLE CALCULATION

### **RADIATED EMISSIONS**

Where relevant, the following sample calculation is provided:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable  
Loss (dB) – Preamp Gain (dB)

36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

## 6. EQUIPMENT UNDER TEST

### 6.1. EUT DESCRIPTION

The EUT is a BT/BLE Tablet + DTS/UNII a/b/g/n/ac/ax and Digitizer.

This report covers simultaneous Tx of the Radios.

### 6.2. MAXIMUM OUTPUT POWER & DESCRIPTION OF AVAILABLE ANTENNAS AND CABLE LOSS

Refer to reports 15605547-E1 to E6 for output power, antenna gain and type information.

### 6.3. WORST-CASE CONFIGURATION AND MODE

Simultaneous TX table and test cases provided by manufacturer;

| Test Case # | Antenna    | Mode           | Frequency (MHz) |
|-------------|------------|----------------|-----------------|
| 1           | BT Ant     | BT GFSK        | 2480            |
|             | UNII Ant 2 | WLAN 5 GHz 11a | 5180            |

Investigation has been performed, and no noticeable new emission were found.

#### 6.4. DESCRIPTION OF TEST SETUP

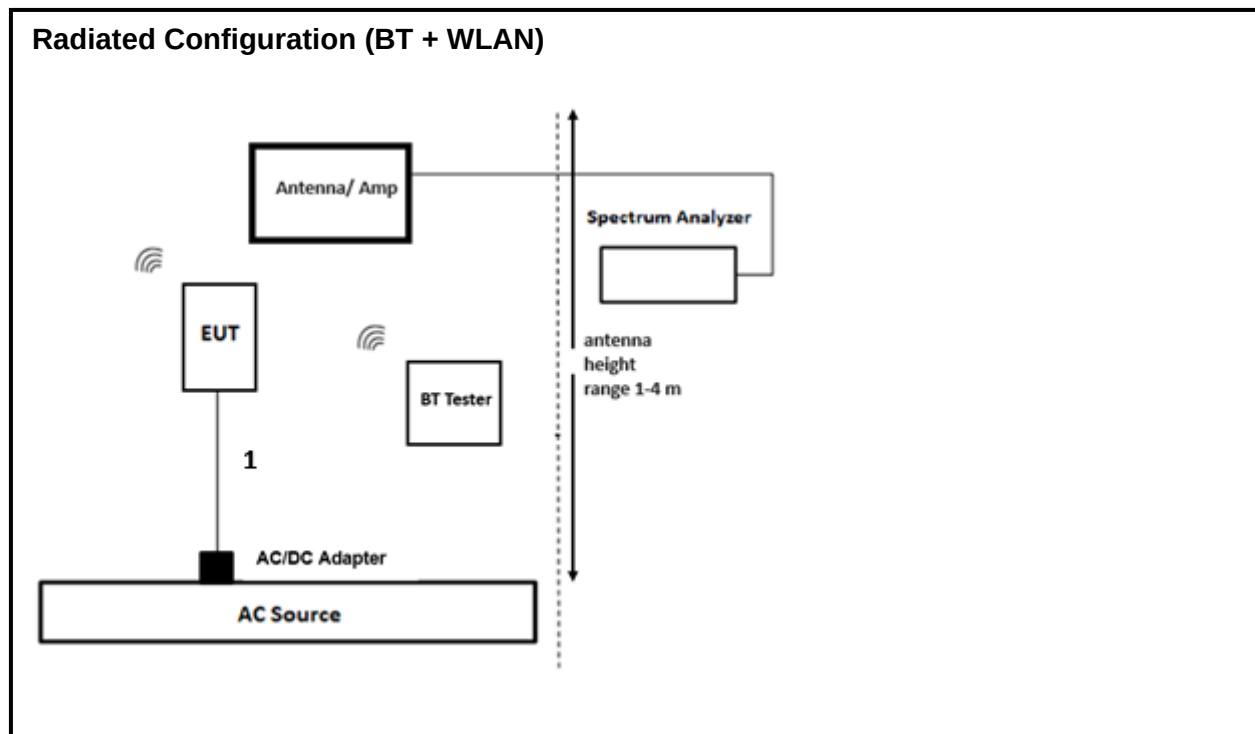
| SUPPORT TEST EQUIPMENT |              |          |                |             |
|------------------------|--------------|----------|----------------|-------------|
| Description            | Manufacturer | Model    | Serial Number  | FCC ID/ DoC |
| AC Adapter             | Samsung      | EP-TA800 | R37WBAA004BDKA | N/A         |
| S-Pen                  | Samsung      | N/A      | N/A            | N/A         |
| Keyboard               | Samsung      | DX625    | N/A            | N/A         |

| I/O CABLES (RF RADIATED) |       |                      |                |            |                  |         |
|--------------------------|-------|----------------------|----------------|------------|------------------|---------|
| Cable No.                | Port  | # of Identical Ports | Connector Type | Cable Type | Cable Length (m) | Remarks |
| 1                        | USB-C | 1                    | USB-C          | Shielded   | 1                | N/A     |

#### TEST SETUP

The EUT is a stand-alone device configured and tested in a worst-case setup.  
Worst case is using Y orientation with AC charger attached to the EUT.  
Test software exercised the radio card.

**SETUP DIAGRAMS**



## 7. MEASUREMENT METHOD

Radiated emissions non-restricted frequency bands: ANSI C63.10 Subclause -11.11 & Clause 13

Radiated emissions restricted frequency bands: ANSI C63.10 Subclause -11.12.1 & Clause 13

Unwanted emissions in restricted bands: KDB 789033 D02, Sections G.3, G.4, G.5, and G.6.

Unwanted emissions in non-restricted bands: KDB 789033 D02, Sections G.3, G.4, and G.5.

## 8. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

| TEST EQUIPMENT LIST    |                 |                     |                                     |            |            |
|------------------------|-----------------|---------------------|-------------------------------------|------------|------------|
| Description            | Manufacturer    | Model               | ID Num                              | Cal Due    | Last Cal   |
| Antenna, Horn 1-18GHz  | ETS-Lindgren    | 3117                | 206808                              | 2025-04-30 | 2024-04-23 |
| RF Filter Box, 1-18GHz | UL-FR1          | SAC 8 port rf box 1 | 197920                              | 2025-03-31 | 2024-03-30 |
| EMI TEST RECEIVER      | Rohde & Schwarz | ESW44               | 225688                              | 2025-02-28 | 2024-02-11 |
| Bluetooth Tester       | Rohde & Schwarz | CBT                 | 81929                               | 2025-03-31 | 2024-03-01 |
| UL TEST SOFTWARE LIST  |                 |                     |                                     |            |            |
| Radiated Software      | UL              | UL EMC              | Ver 2024-08-15, 2023-03, 2023-05-01 |            |            |

## 9. SIMULTANEOUS TRANSMISSION TEST RESULTS

### 9.1. ON TIME AND DUTY CYCLE

Note – The following duty cycle data is re-used from the UL Verification services Inc. report numbers 15605547-E5:

#### ON TIME AND DUTY CYCLE RESULTS

5GHz Band

| Mode    | ON Time<br>T<br>(msec) | Period<br>(msec) | Duty Cycle<br>x<br>(linear) | Duty<br>Cycle<br>(%) | Duty Cycle<br>Correction Factor<br>(dB) | 1/T<br>Minimum VBW<br>(kHz) |
|---------|------------------------|------------------|-----------------------------|----------------------|-----------------------------------------|-----------------------------|
| 802.11a | 1.430                  | 1.527            | 0.936                       | 93.65                | 0.29                                    | 0.699                       |

## 9.2. LIMITS AND PROCEDURE

FCC §15.205 and §15.209 -Restricted bands  
FCC §15.407(b): 1-4, 5(ii) -Un-Restricted bands

RSS-GEN, Section 8.9 and 8.10  
RSS 247 Issue 3 Sections  
6.2.1.2 (for 5150-5250 MHz band)  
6.2.2.2 (for 5250-5350 MHz band)  
6.2.3.2 (for 5470-5600 MHz and 5650-5725 MHz bands)  
6.2.4.3 (for 5725-5850 MHz band)  
6.2.5.3 (for 5850-5895 MHz band)

| Frequency Range (MHz) | Field Strength Limit (uV/m) at 3 m | Field Strength Limit (dBuV/m) at 3 m |
|-----------------------|------------------------------------|--------------------------------------|
| 0.009-0.490           | 2400/F(kHz) @ 300 m                | -                                    |
| 0.490-1.705           | 24000/F(kHz) @ 30 m                | -                                    |
| 1.705 - 30            | 30 @ 30m                           | -                                    |
| 30 - 88               | 100                                | 40                                   |
| 88 - 216              | 150                                | 43.5                                 |
| 216 - 960             | 200                                | 46                                   |
| Above 960             | 500                                | 54                                   |

### TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane for measurement below 1GHz; 1.5 m above the ground plane for measurement above 1GHz. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.10. The EUT is set to transmit in a continuous mode.

For pre-scans above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 30 KHz for peak measurements.

For final measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements and as applicable for average measurements.

The spectrum from 1GHz to 18GHz was set to the worst case channel in the respective 2.4GHz and 5GHz bands.

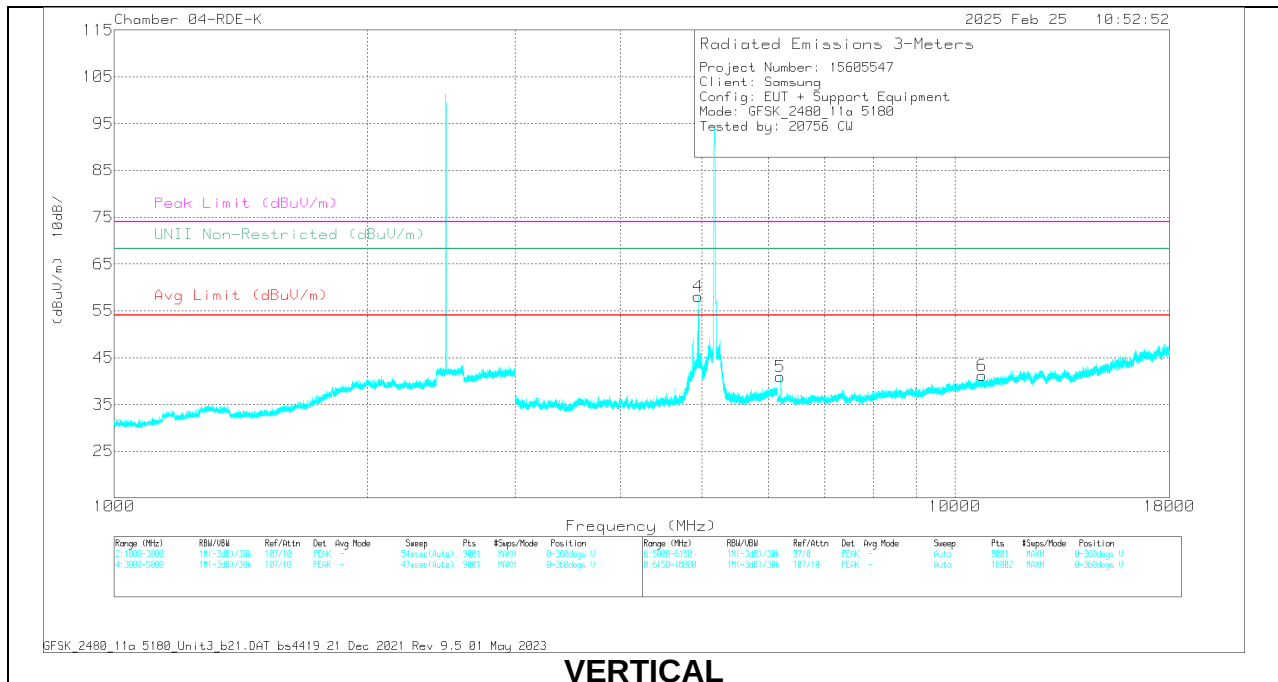
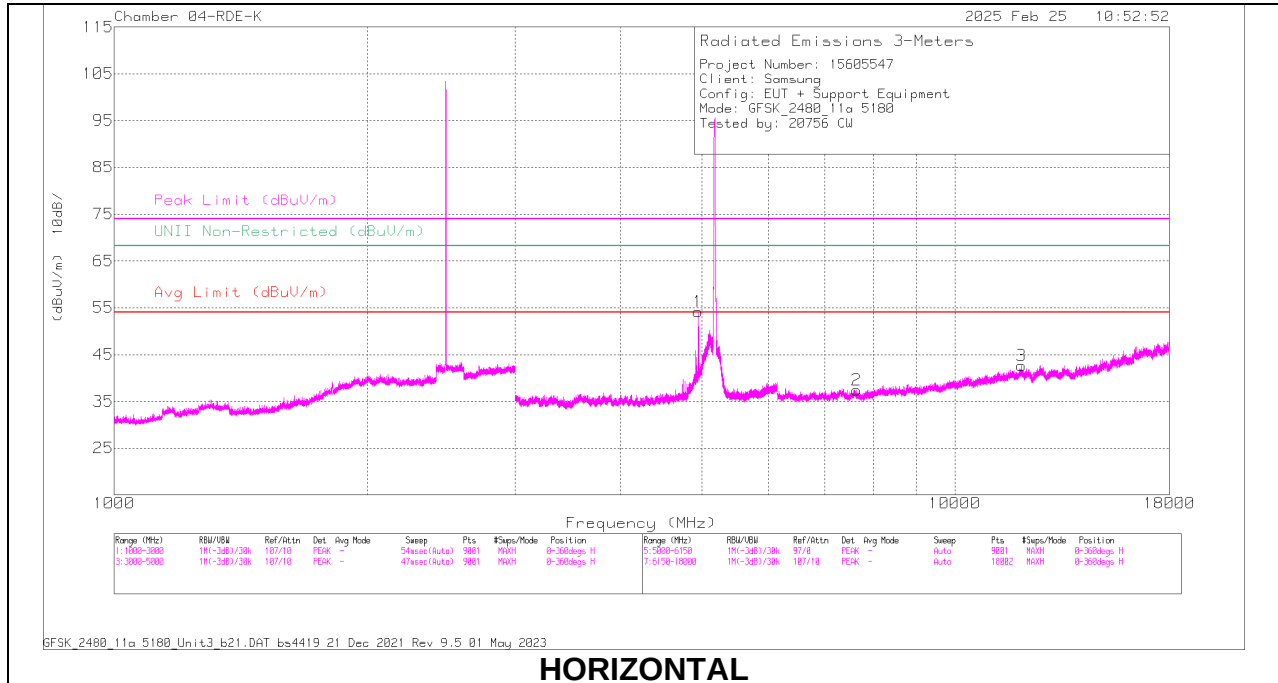
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

Base on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.

### 9.3. SPURIOUS EMISSIONS FOR COLLOCATION

#### 9.3.1. TEST CASE 1

##### Ant 1 BT GFSK + Ant 2 WLAN 5GHz 11a



## RADIATED EMISSIONS

| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det  | 206808 ACF (dB/m) | Amp/ Cbl /Fitr (dB) | DCCF (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | UNII Non-Restricted (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|------|-------------------|---------------------|-----------|----------------------------|--------------------|-------------|---------------------|----------------|------------------------------|----------------|----------------|-------------|----------|
| 4      | * 4951.296      | 66.42                | PK-U | 34.1              | -41                 | 0         | 59.52                      | -                  | -           | 74                  | -14.48         | -                            | -              | 268            | 175         | V        |
|        | * 4951.237      | 53.92                | ADR  | 34.1              | -41                 | 0.29      | 47.31                      | 54                 | -6.69       | -                   | -              | -                            | -              | 268            | 175         | V        |
|        | * 4950.536      | 55.35                | VA1T | 34.1              | -41                 | 0         | 48.45                      | 54                 | -5.55       | -                   | -              | -                            | -              | 268            | 175         | V        |
| 1      | * 4951.511      | 62.22                | PK-U | 34.1              | -41                 | 0         | 55.32                      | -                  | -           | 74                  | -18.68         | -                            | -              | 167            | 337         | H        |
|        | * 4951.4        | 50.45                | ADR  | 34.1              | -41                 | 0.29      | 43.84                      | 54                 | -10.16      | -                   | -              | -                            | -              | 167            | 337         | H        |
|        | * 4949.751      | 42.58                | VA1T | 34.1              | -41                 | 0         | 35.68                      | 54                 | -18.32      | -                   | -              | -                            | -              | 167            | 337         | H        |
| 5      | 6200.064        | 52.44                | PK-U | 35.5              | -39.2               | 0         | 48.74                      | -                  | -           | -                   | -              | 68.2                         | -19.46         | 354            | 370         | V        |
| 2      | *7646.947       | 49.01                | PK-U | 35.7              | -38.7               | 0         | 46.01                      | -                  | -           | 74                  | -27.99         | -                            | -              | 203            | 151         | H        |
|        | *7646.943       | 34.86                | VA1T | 35.7              | -38.7               | 0         | 31.86                      | 54                 | -22.14      | -                   | -              | -                            | -              | 203            | 151         | H        |
|        | *7644.567       | 37.55                | ADR  | 35.7              | -38.7               | 0.29      | 34.84                      | 54                 | -19.16      | -                   | -              | -                            | -              | 203            | 151         | H        |
| 6      | *10781.797      | 49.13                | PK-U | 37.7              | -37.6               | 0         | 49.23                      | -                  | -           | 74                  | -24.77         | -                            | -              | 215            | 263         | V        |
|        | *10782.784      | 37.51                | ADR  | 37.7              | -37.6               | 0.29      | 37.9                       | 54                 | -16.1       | -                   | -              | -                            | -              | 215            | 263         | V        |
|        | *10783.169      | 34.67                | VA1T | 37.7              | -37.6               | 0         | 34.77                      | 54                 | -19.23      | -                   | -              | -                            | -              | 215            | 263         | V        |
| 3      | *11999.369      | 47.23                | PK-U | 38.7              | -35.2               | 0         | 50.73                      | -                  | -           | 74                  | -23.27         | -                            | -              | 56             | 237         | H        |
|        | *12001.005      | 35.9                 | ADR  | 38.7              | -35.2               | 0.29      | 39.69                      | 54                 | -14.31      | -                   | -              | -                            | -              | 56             | 237         | H        |
|        | *12000.368      | 33.23                | VA1T | 38.7              | -35.2               | 0         | 36.73                      | 54                 | -17.27      | -                   | -              | -                            | -              | 56             | 237         | H        |

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
PK-U - U-NII: Maximum Peak  
ADR - U-NII AD primary method, RMS average  
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

## **10. SETUP PHOTOS**

Please refer to 15605547-EP1 for setup photos

**END OF TEST REPORT**