HERMON LABORATORIES

ELECTRICAL TESTING
0839.01

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# TEST REPORT

**ACCORDING TO: FCC 47CFR part 27**

**FOR:**

## Airspan Networks Inc.
## LTE Base Station
## Model: AirHarmony 1000D 2.49-2.69 GHz (B38, B41)
## FCC ID:PIDH1KD25F

# Table of contents

# 1 Applicant information

| | |
|---|---|
| **Client name:** | Airspan Networks Inc. |
| **Address:** | 777 Yamato, Road Suite 310 Boca Raton, FL 33431, USA |
| **Telephone:** | +1 561 893 8670 |
| **Fax:** | +1 561 893 8671 |
| **E-mail:** | zlevi@airspan.com |
| **Contact name:** | Mr. Zion Levi |

# 2 Equipment under test attributes

| | |
|---|---|
| **Product name:** | LTE Base Station |
| **Product type:** | Transceiver |
| **Model(s):** | AirHarmony 1000D 2.49-2.69 GHz (B38, B41) |
| **Serial number:** | 0CEFFACCB208 |
| **Hardware version:** | C0 |
| **Software release:** | 14.14.50.116 |
| **Receipt date** | 08-May-16 |

# 3 Manufacturer information

| | |
|---|---|
| **Manufacturer name:** | Airspan Networks Inc. |
| **Address:** | 777 Yamato, Road Suite 310 Boca Raton, FL 33431, USA |
| **Telephone:** | +1 561 893 8670 |
| **Fax:** | +1 561 893 8671 |
| **E-Mail:** | zlevi@airspan.com |
| **Contact name:** | Mr. Zion Levi |

# 4 Test details

| | |
|---|---|
| **Project ID:** | 28365 |
| **Location:** | Hermon Laboratories Ltd. Harakevet Industrial Zone, Binyamina 30500, Israel |
| **Test started:** | 08-May-16 |
| **Test completed:** | 10-May-16 |
| **Test specification(s):** | FCC 47CFR part 27 |

# 5 Tests summary

| Test | Status |
|---|---|
| **Transmitter characteristics** | |
| Section 27.50(h), Peak output power at RF antenna connector | Pass |
| Section 27.50(h)(4), Spectral power density | Pass |
| Section 27.53(m)(2), Band edge emissions at RF antenna connector | Pass |
| Section 2.1049, Occupied bandwidth | Pass |

The product was approved under FCC ID:PIDH1KD25F for operation in 2496.0 – 2690.0 MHz band with 5 MHz, 10 MHz and 20 MHz channel bandwidth. The relevant tests to support 40 MHz channel bandwidth and submit Application for Class II permissive changes certification were done.

The bandwidth change is software controlled, no hardware change was made. The same units were used for the 40 MHz CBW testing. The RF circuitry remained exactly the same including the RF filter (no hardware change was done) therefore there is no any impact from the amplifier stages.

The output power of the device remained the same while the bandwidth is twice wider. That results in the reduction of power spectral density by approximately 3 dB [10log(BWs ratio)]. Taking into account that the hardware is the same and the power spectral density is lower, the narrower bandwidth represents the worst case scenario for spurious emissions as it is measured within RBW narrower than the emission BW - the higher PSD yields higher results. Band edge emissions were retested for the wider BW.

Testing was completed against all relevant requirements of the test standard. The results obtained indicate that the product under test complies in full with the requirements tested.
The test results relate only to the items tested. Pass/ fail decision was based on nominal values.

This test report supersedes the previously issued test report identified by Doc ID:AIRRAD_FCC.28365_FB.

| | Name and Title | Date | Signature |
|---|---|---|---|
| **Tested by:** | Mr. K. Zushchyk, test engineer | May 10, 2016 |  |
| **Reviewed by:** | Mrs. M. Cherniavsky, certification engineer | June 16, 2016 |  |
| **Approved by:** | Mr. M. Nikishin, EMC and radio group leader | June 16, 2016 |  |

# 6 EUT description

## 6.1 General information

The EUT, Base station radio, AirHarmony 1000D 2.49-2.69 GHz (B38, B41), is part of a LTE broadband fixed cellular wireless access system. The system provides a radio link between an end-user (a subscriber) and a network to give high-speed data access. The AirHarmony's transceiver/receiver (Up to 64 QAM modulation, data rate up to 190 Mbps) uses OFDM and operating in TDD mode, equipped with a 18 dBi external antenna. The maximum total RF output power (not including antenna gain) is 40.31 dBm for 18 dBi antenna and it can be reduced by software.
The AirHarmony is installed outdoors and typically is mounted on a pole. The Subscriber transmits and receives traffic to and from the base station respectively. The transceiver provides subscribers with "always-on" Internet, high speed data only, or data and voice (VoIP) services and is configured with a unique base station reference number, preventing the LTE UE from relocating to another subscriber premises without authorization.

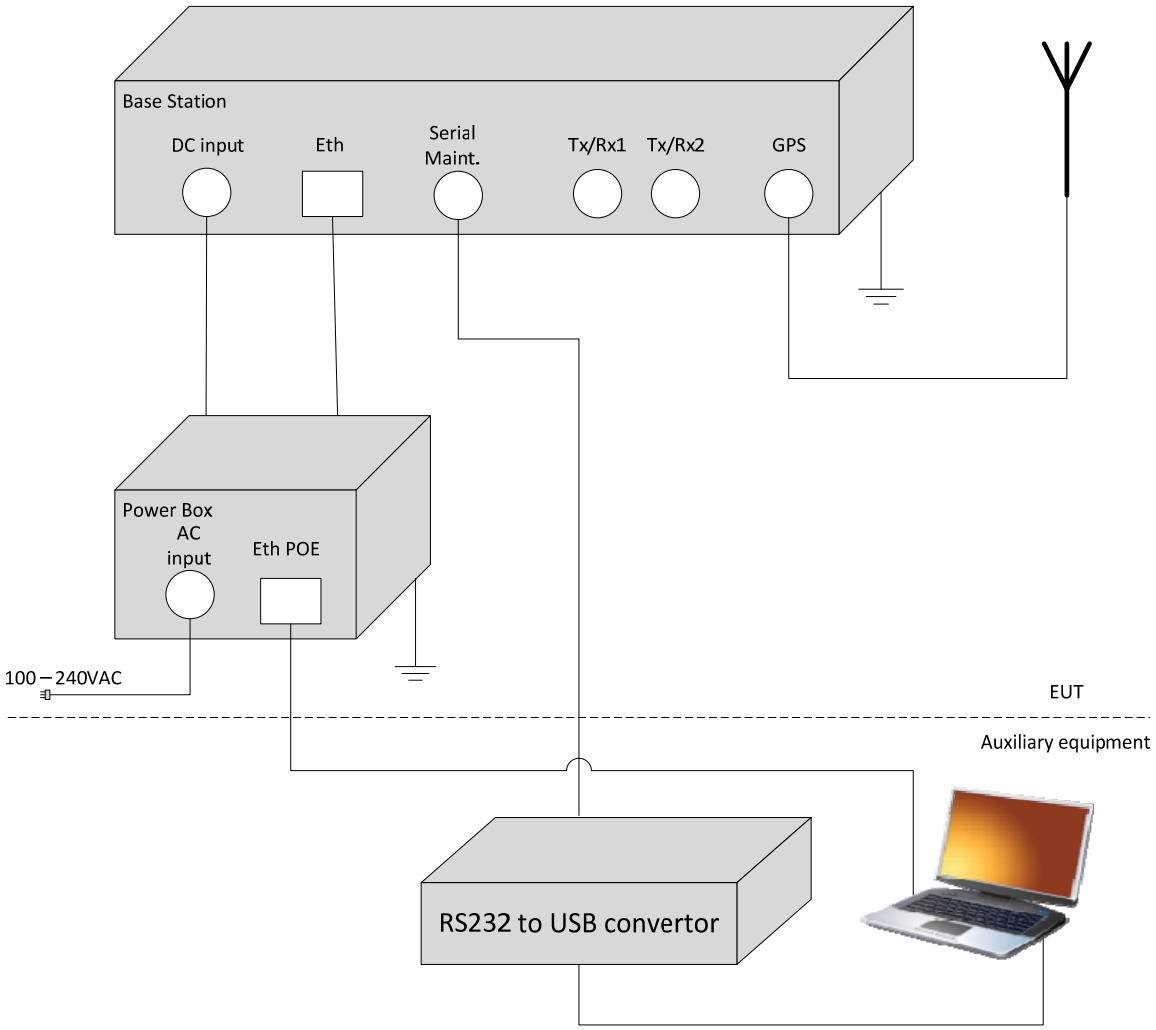
## 6.2 Ports and lines

| Port type | Port description | Connected from | Connected to | Qty. | Cable type | Cable length, m |
|---|---|---|---|---|---|---|
| Power | AC power | AC mains | Power Box | 1 | Unshielded | 3 |
| Power | DC power | Power Box | EUT | 1 | Unshielded | 3 |
| Signal | GPS | EUT | GPS external antenna | 1 | Coax | 3 |
| Signal | Ethernet | EUT | Power Box | 1 | FTP | 3 |
| Signal | Ethernet | Power Box | Laptop | 1 | NA | NA |
| RF | RF Link (Tx/Rx | EUT | Anntena | 2 | Coax | 0.5 |
| Signal* | Serial* | Not connected | Not connected | 1 | NA | NA |

## 6.3 Support and test equipment

| Description | Manufacturer | Model number | Serial number |
|---|---|---|---|
| Laptop | DELL | Latitude E7440 | DWW5M12 |

## 6.4 Test configuration



## 6.5 Transmitter characteristics

| **Type of equipment** | |
|---|---|
| **V** | Stand-alone (Equipment with or without its own control provisions) |
| | Combined equipment (Equipment where the radio part is fully integrated within another type of equipment) |
| | Plug-in card (Equipment intended for a variety of host systems) |

| **Intended use** | | **Condition of use** |
|---|---|---|
| **V** | fixed | Always at a distance more than 2 m from all people |
| | mobile | Always at a distance more than 20 cm from all people |
| | portable | May operate at a distance closer than 20 cm to human body |

| | |
|---|---|
| **Assigned frequency range** | 2496.0 – 2690.0 MHz |
| **Operating frequency** | 2516.0 – 2670.0 MHz for 40 MHz OBW |
| **RF channel spacing** | 40 MHz |
| **Maximum rated output power** | At transmitter 50 Ω RF output connector (aggregate power of both RF chains) 40.31 dBm |

| **Is transmitter output power variable?** | | | | |
|---|---|---|---|---|
| | No | | | |
| **V** | Yes | | continuous variable | |
| | | V | stepped variable with step size | 0.25 dB |
| | | minimum RF power | | -30 dBm |
| | | maximum RF power at antenna connector | | 37.00 dBm |

| **Antenna connection** | | | | | |
|---|---|---|---|---|---|
| unique coupling | **V** | standard connector | Integral | **V** | with temporary RF connector |
| | | | | | without temporary RF connector |

| **Antenna/s technical characteristics** | | | |
|---|---|---|---|
| Type | Manufacturer | Model number | Gain |
| External | ALPHA Wireless Ltd | AW3007 | 18 dBi |
| External | ALPHA Wireless Ltd | AW3008 | 17 dBi |
| External sector | Cobham Antenna Systems | SA12-2.5-DS/1915 | 11 dBi |

| **Transmitter aggregate data rate/s, MBps** | | | |
|---|---|---|---|
| Transmitter 26dBc power bandwidth | Type of modulation | | |
| | QPSK | 16QAM | 64QAM |
| 40 MHz | 46.8 MBps | 90.8 MBps | 190 MBps |

| | |
|---|---|
| **Type of multiplexing** | TDD |
| **Modulating test signal (baseband)** | PRBS |
| **Maximum transmitter duty cycle in normal use** | 75% |

| **Transmitter power source** | | | | | |
|---|---|---|---|---|---|
| | | **Nominal rated voltage** | | Battery type | |
| | DC | **Nominal rated voltage** | | | |
| **V** | AC mains | **Nominal rated voltage** | 120VAC | Frequency | |

| | | | |
|---|---|---|---|
| **Common power source for transmitter and receiver** | **V** | yes | no |

| Test specification: | Section 2.1049, Occupied bandwidth | | |
|---|---|---|---|
| Test procedure: | 47 CFR, Section 2.1049 | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date(s): | 08-May-16 | | |
| Temperature: 23 ºC | Air Pressure: 1015 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

# 7 Transmitter tests according to 47CFR part 27

## 7.1 Occupied bandwidth test

### 7.1.1 General

This test was performed to measure transmitter occupied bandwidth. Specification test limits are given in Table 7.1.1.

**Table 7.1.1 Occupied bandwidth limits**

| Assigned frequency, MHz | Modulation envelope reference points*, dBc | Maximum allowed bandwidth, kHz |
|---|---|---|
| 2496.0 – 2690.0 MHz | 26 | NA |

* - Modulation envelope reference points are provided in terms of attenuation below the unmodulated carrier.

### 7.1.2 Test procedure

**7.1.2.1** The EUT was set up as shown in Figure 7.1.1, energized and its proper operation was checked.

**7.1.2.2** The EUT was set to transmit the normal modulated signal and actual channel width was measured at the 26 dBc modulation envelope reference points.

**7.1.2.3** The transmitter occupied bandwidth was measured with spectrum analyzer as a frequency delta between the reference points on modulation envelope and provided in Table 7.1.2 and the associated plots.

**Figure 7.1.1 Occupied bandwidth test setup**

| **Test specification:** | **Section 2.1049, Occupied bandwidth** | | |
|---|---|---|---|
| **Test procedure:** | 47 CFR, Section 2.1049 | | |
| **Test mode:** | Compliance | **Verdict:** | PASS |
| **Date(s):** | 08-May-16 | | |
| **Temperature:** 23 ºC | **Air Pressure:** 1015 hPa | **Relative Humidity:** 45 % | **Power Supply:** 120 VAC |
| **Remarks:** | | | |

**Table 7.1.2 Occupied bandwidth test results**

DETECTOR USED: Peak
RESOLUTION BANDWIDTH: 430 kHz
MODULATION ENVELOPE REFERENCE POINTS: 26 dBc
EBW: 40 MHz

| Carrier frequency, MHz | OBW 26 dBc, MHz | OBW 99%. MHz | Limit, kHz | Verdict |
|---|---|---|---|---|
| **QPSK** | | | | |
| 2516 | 38.343 | 36.850 | NA | Pass |
| 2594 | 38.792 | 36.806 | NA | Pass |
| 2670 | 38.794 | 36.797 | NA | Pass |
| **64QAM** | | | | |
| 2516 | 38.859 | 36.912 | NA | Pass |
| 2594 | 38.831 | 36.860 | NA | Pass |
| 2670 | 38.815 | 36.819 | NA | Pass |

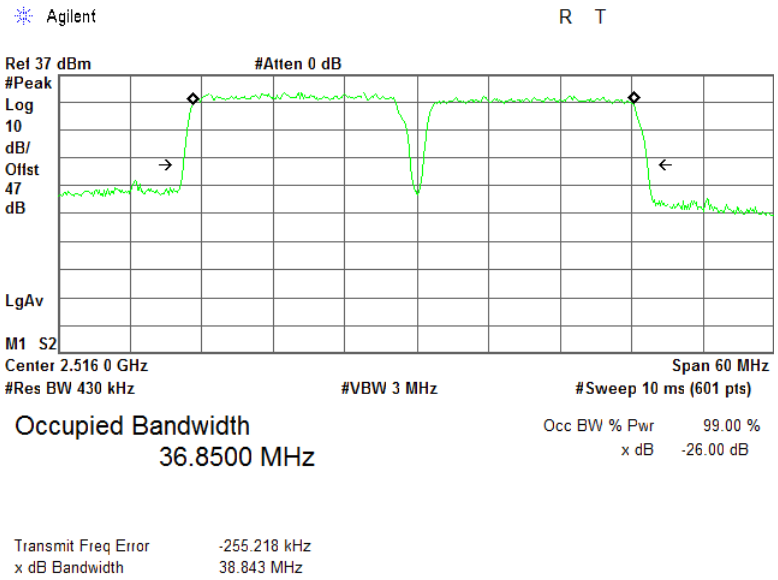
**Reference numbers of test equipment used**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| HL 2214 | HL 3301 | HL 3302 | HL 3818 | HL 3903 | | | |

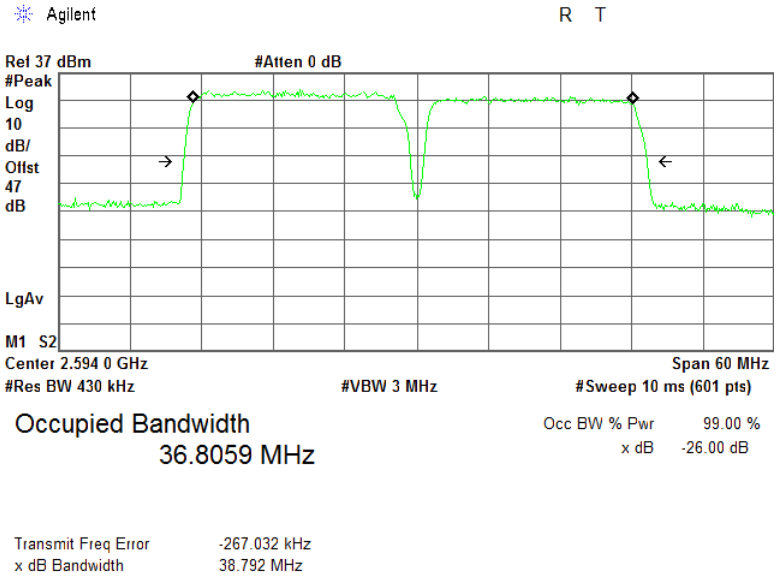
Full description is given in Appendix A.

| Test specification: | Section 2.1049, Occupied bandwidth | | |
|---|---|---|---|
| Test procedure: | 47 CFR, Section 2.1049 | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date(s): | 08-May-16 | | |
| Temperature: 23 ºC | Air Pressure: 1015 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

**Plot 7.1.1 Occupied bandwidth test results at low frequency, 40 MHz EBW, QPSK**

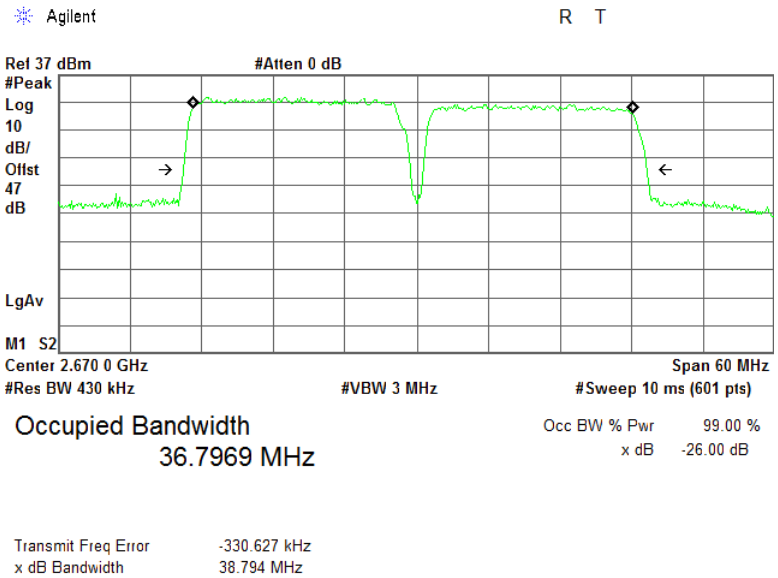



**Plot 7.1.2 Occupied bandwidth test results at mid frequency, 40 MHz EBW, QPSK**

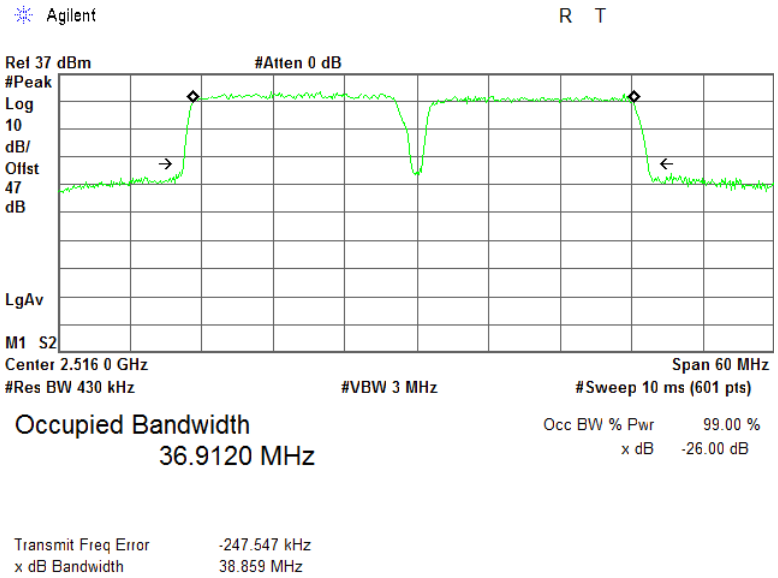


| Test specification: | Section 2.1049, Occupied bandwidth | | |
|---|---|---|---|
| Test procedure: | 47 CFR, Section 2.1049 | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date(s): | 08-May-16 | | |
| Temperature: 23 ºC | Air Pressure: 1015 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

**Plot 7.1.3 Occupied bandwidth test results at high frequency, 40 MHz EBW, QPSK**

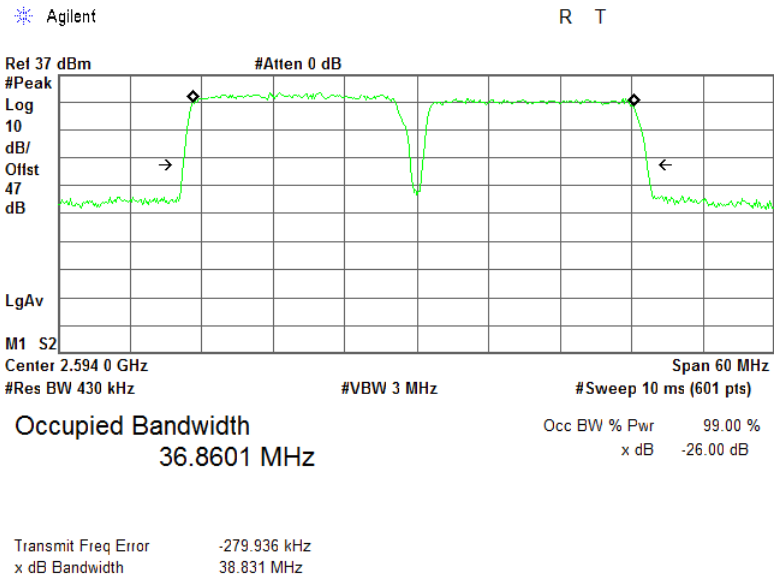



**Plot 7.1.4 Occupied bandwidth test results at low frequency, 40 MHz EBW, 64QAM**

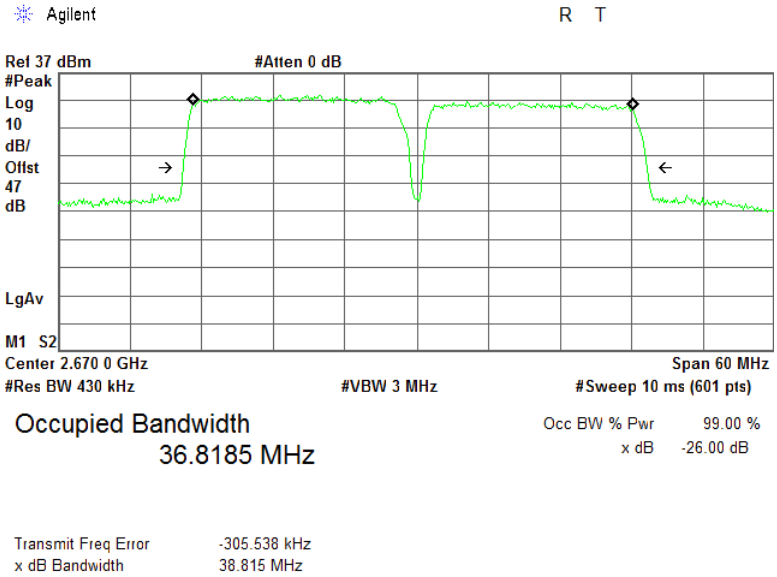


| Test specification: | Section 2.1049, Occupied bandwidth | | |
|---|---|---|---|
| Test procedure: | 47 CFR, Section 2.1049 | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date(s): | 08-May-16 | | |
| Temperature: 23 ºC | Air Pressure: 1015 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

**Plot 7.1.5 Occupied bandwidth test results at mid frequency, 40 MHz EBW, 64QAM**




**Plot 7.1.6 Occupied bandwidth test results at high frequency, 40 MHz EBW, 64QAM**



| Test specification: | Section 27.50, Peak output power | | |
|---|---|---|---|
| Test procedure: | 47 CFR, Section 2.1046; TIA/EIA-603-D, Section 2.2.1 | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date(s): | 09-May-16 | | |
| Temperature: 24 ºC | Air Pressure: 1014 hPa | Relative Humidity: 50 % | Power Supply: 120 VAC |
| Remarks: | | | |

## 7.2 Peak output power test

### 7.2.1 General

This test was performed to measure the peak output power at RF antenna connector. Specification test limits are given in Table 7.2.1.

**Table 7.2.1 Peak output power limits**

| Transmitter type | Assigned frequency range, MHz | Maximum peak output power dBm |
|---|---|---|
| Main, booster and base stations | 2496 – 2690 | 63+10log(X/Y)+10log(360/beamwidth) |
| | | **Maximum peak power density dBm/100 kHz** |
| | | EIRP+10log(0.1/Y) |

X is the actual channel width in MHz (occupied bandwidth)

Y is either Frequency assignment for the BRS/EBS band

Beamwidth is the total horizontal plane beam width of the individual transmitting antenna for the station or any sector measured at the half-power points.

### 7.2.2 Test procedure

**7.2.2.1** The EUT was set up as shown in Figure 7.2.1, energized and its proper operation was checked.

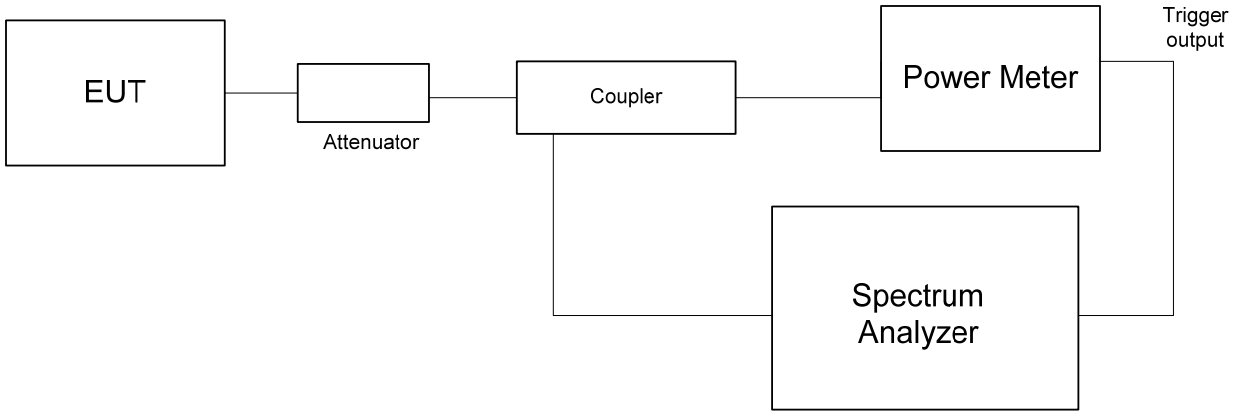
**7.2.2.2** The EUT was adjusted to produce maximum available to the end user RF output power.

**7.2.2.3** The average output power was measured with power meter as provided in Table 7.2.2.

**7.2.2.4** The power spectral density was measured with spectrum analyzer as provided in Table 7.2.3 and the associated plots.

**7.2.2.5** The test results are provided in the tables below and associated plots.

**Figure 7.2.1 Peak output power test setup**



| **Test specification:** | **Section 27.50, Peak output power** | | |
|---|---|---|---|
| **Test procedure:** | 47 CFR, Section 2.1046; TIA/EIA-603-D, Section 2.2.1 | | |
| **Test mode:** | Compliance | **Verdict:** | PASS |
| **Date(s):** | 09-May-16 | | |
| **Temperature:** 24 ºC | **Air Pressure:** 1014 hPa | **Relative Humidity:** 50 % | **Power Supply:** 120 VAC |
| **Remarks:** | | | |

**Table 7.2.2 Peak output power test results**

DETECTOR USED: Average within Tx burst
DUTY CYCLE: 75%
EBW: 40 MHz

| Carrier frequency, MHz | Power Meter reading RF#1, dBm | Power Meter reading RF#2, dBm | Total RF power**, dBm | Antenna gain, dBi | Total EIRP*, dBm | Limit***, dBm | Margin, dB | Verdict |
|---|---|---|---|---|---|---|---|---|
| **QPSK** | | | | | | | | |
| 2516 | 37.05 | 37.05 | 40.05 | 18.00 | 58.05 | 69.79 | -11.74 | Pass |
| 2594 | 37.05 | 37.10 | 40.10 | 18.00 | 58.10 | 69.89 | -11.79 | Pass |
| 2670 | 37.15 | 37.01 | 40.15 | 18.00 | 58.15 | 69.89 | -11.74 | Pass |
| **64QAM** | | | | | | | | |
| 2516 | 37.00 | 37.07 | 40.07 | 18.00 | 58.07 | 69.85 | -11.78 | Pass |
| 2594 | 37.05 | 37.10 | 40.10 | 18.00 | 58.10 | 69.89 | -11.79 | Pass |
| 2670 | 37.10 | 37.00 | 40.10 | 18.00 | 58.10 | 69.89 | -11.79 | Pass |
| **QPSK** | | | | | | | | |
| 2516 | 37.05 | 37.05 | 40.05 | 17.00 | 57.05 | 68.37 | -11.32 | Pass |
| 2594 | 37.05 | 37.10 | 40.10 | 17.00 | 57.10 | 68.47 | -11.37 | Pass |
| 2670 | 37.15 | 37.01 | 40.15 | 17.00 | 57.15 | 68.47 | -11.32 | Pass |
| **64QAM** | | | | | | | | |
| 2516 | 37.00 | 37.07 | 40.07 | 17.00 | 57.07 | 68.43 | -11.36 | Pass |
| 2594 | 37.05 | 37.10 | 40.10 | 17.00 | 57.10 | 68.48 | -11.38 | Pass |
| 2670 | 37.10 | 37.00 | 40.10 | 17.00 | 57.10 | 68.48 | -11.38 | Pass |

* - EIRP total, dBm = Total RF power**, dBm + Antenna Gain, dBi
** - Total RF power , dBm =P(dBm, RFmax of #1 or #2) + 3 dB
*** - See Table 7.2.5

**Reference numbers of test equipment used**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| HL 2214 | HL 3301 | HL 3302 | HL 3818 | HL 3903 | HL 4756 | | |

Full description is given in Appendix A.

| **Test specification:** | **Section 27.50, Peak output power** | | |
|---|---|---|---|
| **Test procedure:** | 47 CFR, Section 2.1046; TIA/EIA-603-D, Section 2.2.1 | | |
| **Test mode:** | Compliance | **Verdict:** | PASS |
| **Date(s):** | 09-May-16 | | |
| **Temperature:** 24 ºC | **Air Pressure:** 1014 hPa | **Relative Humidity:** 50 % | **Power Supply:** 120 VAC |
| **Remarks:** | | | |

**Table 7.2.3 Power spectral density test results**

DETECTOR USED: Average (gated)
RESOLUTION BANDWIDTH: 100 kHz
VIDEO BANDWIDTH: 300 kHz
CHANNEL BANDWIDTH: 40 MHz
DUTY CYCLE: 75%

| Carrier frequency, MHz | SA reading, RF #1 dBm/100kHz | SA reading, RF #2 dBm/100kHz | Antenna gain, dBi | Total PSD*, dBm/100kHz | Limit**, dBm | Margin, dB | Verdict |
|---|---|---|---|---|---|---|---|
| **QPSK** | | | | | | | |
| 2516 | 15.24 | 16.50 | 18.00 | 37.50 | 43.30 | -5.80 | Pass |
| 2594 | 15.47 | 16.61 | 18.00 | 37.61 | 43.45 | -5.84 | Pass |
| 2670 | 14.30 | 14.59 | 18.00 | 35.59 | 43.45 | -7.86 | Pass |
| **64QAM** | | | | | | | |
| 2516 | 16.48 | 16.51 | 18.00 | 37.51 | 43.36 | -5.85 | Pass |
| 2594 | 16.49 | 16.38 | 18.00 | 37.49 | 43.46 | -5.97 | Pass |
| 2670 | 15.71 | 16.32 | 18.00 | 37.32 | 43.45 | -6.13 | Pass |
| **QPSK** | | | | | | | |
| 2516 | 15.24 | 16.50 | 17.00 | 36.50 | 41.89 | -5.39 | Pass |
| 2594 | 15.47 | 16.61 | 17.00 | 36.61 | 42.04 | -5.43 | Pass |
| 2670 | 14.30 | 14.59 | 17.00 | 34.59 | 42.04 | -7.45 | Pass |
| **64QAM** | | | | | | | |
| 2516 | 16.48 | 16.51 | 17.00 | 36.51 | 41.95 | -5.44 | Pass |
| 2594 | 16.49 | 16.38 | 17.00 | 36.49 | 42.04 | -5.55 | Pass |
| 2670 | 15.71 | 16.32 | 17.00 | 36.32 | 42.04 | -5.72 | Pass |

* Total PSD, dBm/100kHz = PSD(dBm/100kHz,RFmax of #1 or #2)+ 3 dB + Antenna Gain, dBi
** - See Table 7.2.6

| Test specification: | Section 27.50, Peak output power | | |
|---|---|---|---|
| Test procedure: | 47 CFR, Section 2.1046; TIA/EIA-603-D, Section 2.2.1 | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date(s): | 09-May-16 | | |
| Temperature: 24 ºC | Air Pressure: 1014 hPa | Relative Humidity: 50 % | Power Supply: 120 VAC |
| Remarks: | | | |

**Table 7.2.4 Pre- transition frequency channels assignment**

| Channel | OBW, MHz | Peak power limit, dBm | Power density limit, dBm/100kHz |
|---|---|---|---|
| **40 MHz 4 Channels QPSK 46.8 Mbps** | | | |
| **2516.0 MHz** Ch.1 ,2 ,2A ,A1, B1, A2, B2, A1, B3 | 38.343 | 63+10log(OBW/44.5)+10log(360/beamwidth) | EIRP+10log(0.1/44.5) |
| **2594.0 MHz** C3 ,D3 ,C4 ,D4 ,E1 ,F1 ,E2 | 38.792 | 63+10log(OBW/42.0)+10log(360/beamwidth) | EIRP+10log(0.1/42.0) |
| **2670.0 MHz** H1 ,G2 ,H2 ,G3 ,H3 ,G4 ,1Ch | 38.794 | 63+10log(OBW/44.0)+10log(360/beamwidth) | EIRP+10log(0.1/44.0) |
| **40 MHz 4 Channels 64QAM 190 Mbps** | | | |
| **2516.0 MHz** Ch.1 ,2 ,2A ,A1, B1, A2, B2, A1, B3 | 38.859 | 63+10log(OBW/44.5)+10log(360/beamwidth) | EIRP+10log(0.1/44.5) |
| **2594.0 MHz** C3 ,D3 ,C4 ,D4 ,E1 ,F1 ,E2 | 38.831 | 63+10log(OBW/42.0)+10log(360/beamwidth) | EIRP+10log(0.1/42.0) |
| **2670.0 MHz** H1 ,G2 ,H2 ,G3 ,H3 ,G4 ,1Ch | 38.815 | 63+10log(OBW/44.0)+10log(360/beamwidth) | EIRP+10log(0.1/44.0) |

| Test specification: | Section 27.50, Peak output power | | |
|---|---|---|---|
| Test procedure: | 47 CFR, Section 2.1046; TIA/EIA-603-D, Section 2.2.1 | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date(s): | 09-May-16 | | |
| Temperature: 24 ºC | Air Pressure: 1014 hPa | Relative Humidity: 50 % | Power Supply: 120 VAC |
| Remarks: | | | |

**Table 7.2.5 EIRP limits**

| Channel | Channel BW, MHz | Peak power limit, dBm | |
|---|---|---|---|
| | | 17 dBi, 90º beamwidth | 18 dBi, 65ºbeamwidth |
| **40 MHz Dual Channel QPSK** | | | |
| **2516.0 MHz** Ch.1 ,2 ,2A ,A1, B1, A2, B2, A1, B3 | 44.5 | 68.37 | 69.79 |
| **2594.0 MHz** C3 ,D3 ,C4 ,D4 ,E1 ,F1 ,E2 | 44.0 | 68.47 | 69.89 |
| **2670.0 MHz** H1 ,G2 ,H2 ,G3 ,H3 ,G4 ,1Ch | 44.0 | 68.47 | 69.89 |
| **40 MHz Dual Channel 64 QAM** | | | |
| **2516.0 MHz** Ch.1 ,2 ,2A ,A1, B1, A2, B2, A1, B3 | 44.5 | 68.43 | 69.85 |
| **2594.0 MHz** C3 ,D3 ,C4 ,D4 ,E1 ,F1 ,E2 | 44.0 | 68.48 | 69.89 |
| **2670.0 MHz** H1 ,G2 ,H2 ,G3 ,H3 ,G4 ,1Ch | 44.0 | 68.48 | 69.89 |

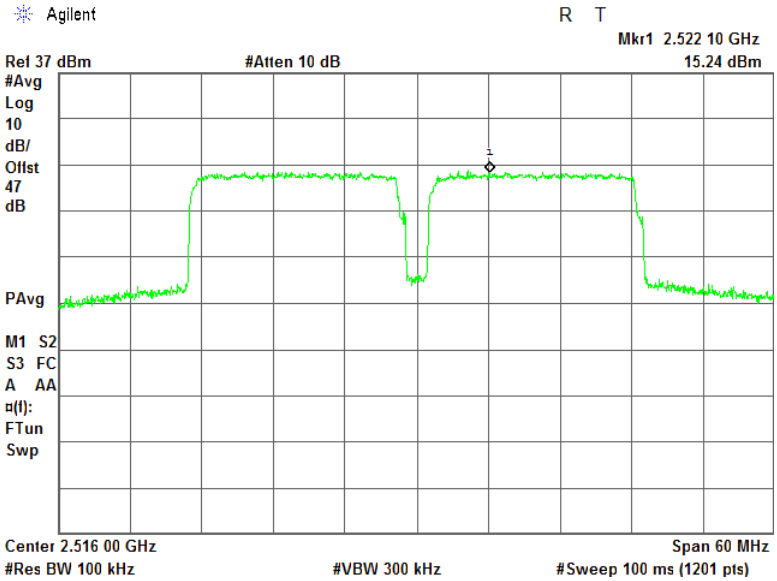
| Test specification: | Section 27.50, Peak output power | | |
|---|---|---|---|
| Test procedure: | 47 CFR, Section 2.1046; TIA/EIA-603-D, Section 2.2.1 | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date(s): | 09-May-16 | | |
| Temperature: 24 ºC | Air Pressure: 1014 hPa | Relative Humidity: 50 % | Power Supply: 120 VAC |
| Remarks: | | | |

**Table 7.2.6 Peak power density limits**

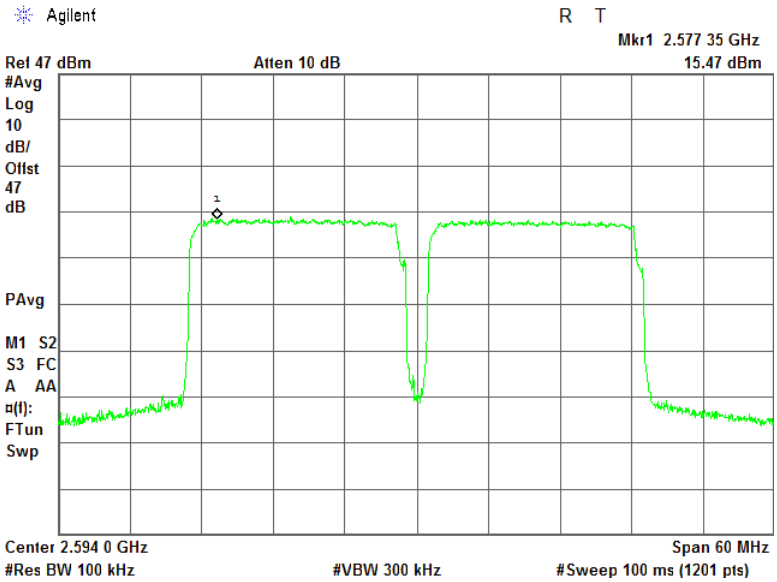
| Channel | Channel BW, MHz | Peak power density, dBm/100kHz | |
|---|---|---|---|
| | | 17 dBi, 90º beamwidth | 18 dBi, 65ºbeamwidth |
| **40 MHz Dual Channel QPSK** | | | |
| **2516.0 MHz** Ch.1 ,2 ,2A ,A1, B1, A2, B2, A1, B3 | 44.50 | 41.89 | 43.30 |
| **2594.0 MHz** C3 ,D3 ,C4 ,D4 ,E1 ,F1 ,E2 | 44.00 | 42.04 | 43.45 |
| **2670.0 MHz** H1 ,G2 ,H2 ,G3 ,H3 ,G4 ,1Ch | 44.00 | 42.04 | 43.45 |
| **40 MHz Dual Channel 64 QAM** | | | |
| **2516.0 MHz** Ch.1 ,2 ,2A ,A1, B1, A2, B2, A1, B3 | 44.50 | 41.95 | 43.36 |
| **2594.0 MHz** C3 ,D3 ,C4 ,D4 ,E1 ,F1 ,E2 | 44.00 | 42.04 | 43.46 |
| **2670.0 MHz** H1 ,G2 ,H2 ,G3 ,H3 ,G4 ,1Ch | 44.00 | 42.04 | 43.45 |

| Test specification: | Section 27.50, Peak output power | | |
|---|---|---|---|
| Test procedure: | 47 CFR, Section 2.1046; TIA/EIA-603-D, Section 2.2.1 | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date(s): | 09-May-16 | | |
| Temperature: 24 ºC | Air Pressure: 1014 hPa | Relative Humidity: 50 % | Power Supply: 120 VAC |
| Remarks: | | | |

**Plot 7.2.1 Power spectral density test results at low frequency, QPSK, 40 MHz EBW RF # 1**

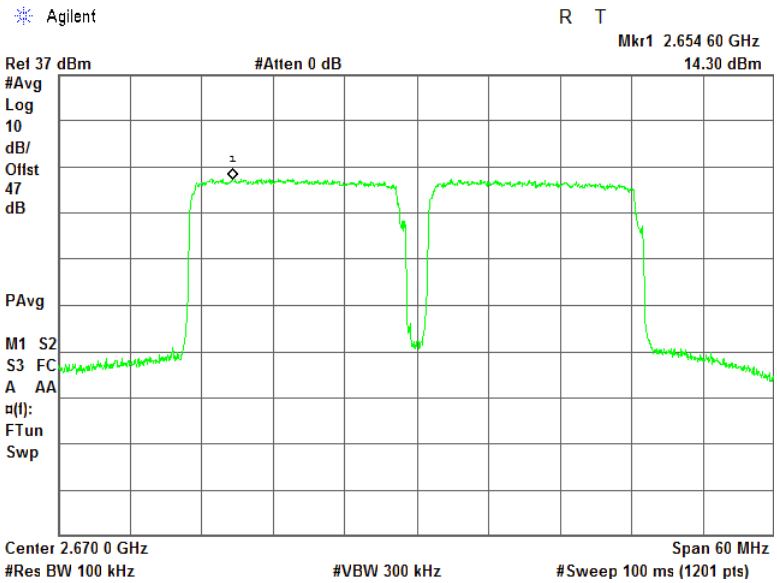



**Plot 7.2.2 Power spectral density test results at mid frequency, QPSK, 40 MHz EBW RF # 1**

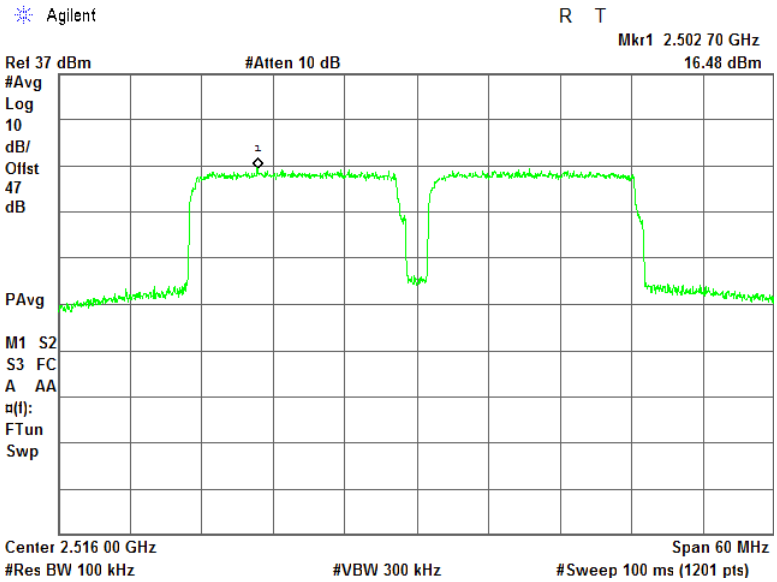


| Test specification: | Section 27.50, Peak output power | | |
|---|---|---|---|
| Test procedure: | 47 CFR, Section 2.1046; TIA/EIA-603-D, Section 2.2.1 | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date(s): | 09-May-16 | | |
| Temperature: 24 ºC | Air Pressure: 1014 hPa | Relative Humidity: 50 % | Power Supply: 120 VAC |
| Remarks: | | | |

**Plot 7.2.3 Power spectral density test results at high frequency, QPSK, 40 MHz EBW RF # 1**

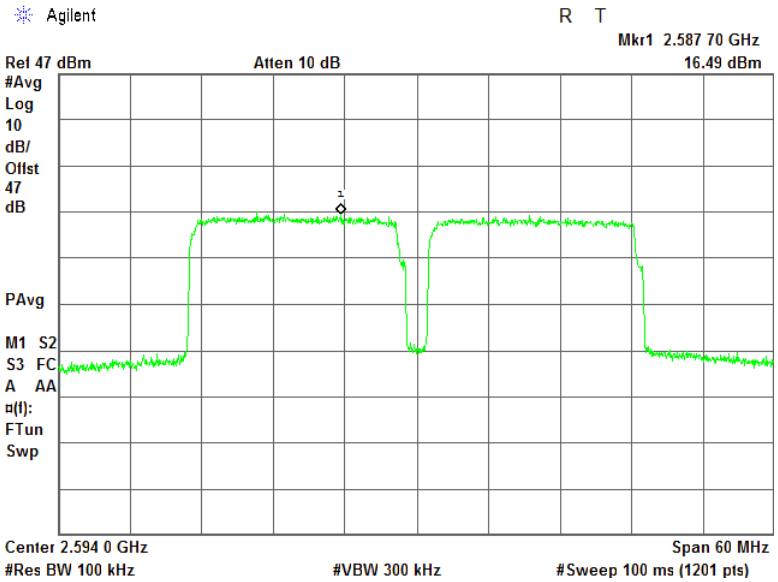



**Plot 7.2.4 Power spectral density test results at low frequency, 64QAM, 40 MHz EBW RF # 1**

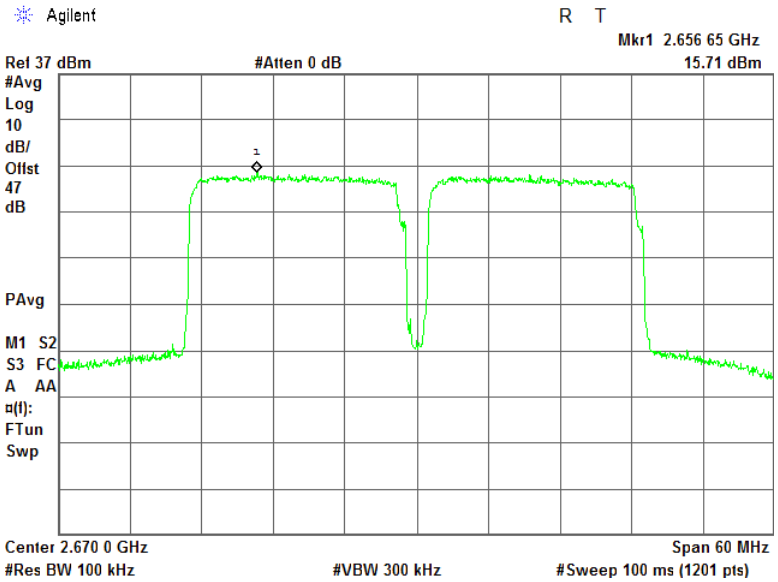


| Test specification: | Section 27.50, Peak output power | | |
|---|---|---|---|
| Test procedure: | 47 CFR, Section 2.1046; TIA/EIA-603-D, Section 2.2.1 | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date(s): | 09-May-16 | | |
| Temperature: 24 ºC | Air Pressure: 1014 hPa | Relative Humidity: 50 % | Power Supply: 120 VAC |
| Remarks: | | | |

**Plot 7.2.5 Power spectral density test results at mid frequency, 64QAM, 40 MHz EBW RF # 1**

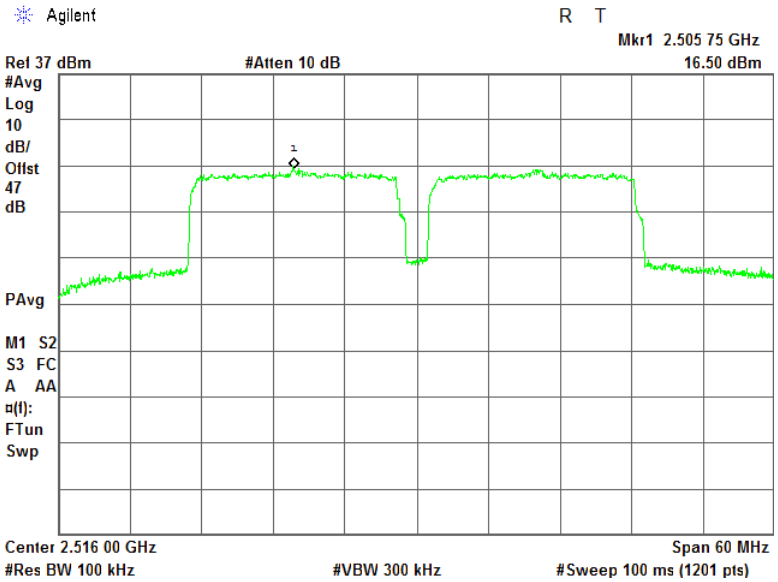



**Plot 7.2.6 Power spectral density test results at high frequency, 64QAM, 40 MHz EBW RF # 1**

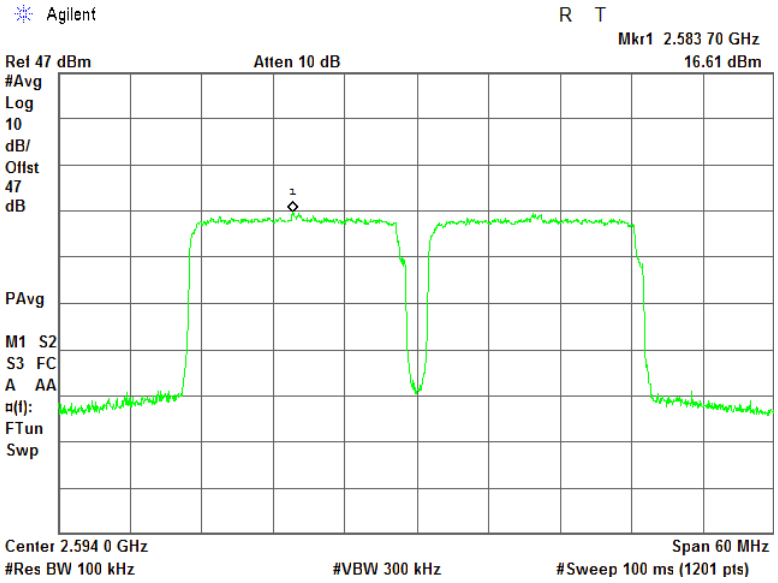


| Test specification: | Section 27.50, Peak output power | | |
|---|---|---|---|
| Test procedure: | 47 CFR, Section 2.1046; TIA/EIA-603-D, Section 2.2.1 | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date(s): | 09-May-16 | | |
| Temperature: 24 ºC | Air Pressure: 1014 hPa | Relative Humidity: 50 % | Power Supply: 120 VAC |
| Remarks: | | | |

**Plot 7.2.7 Power spectral density test results at low frequency, QPSK, 40 MHz EBW RF # 2**

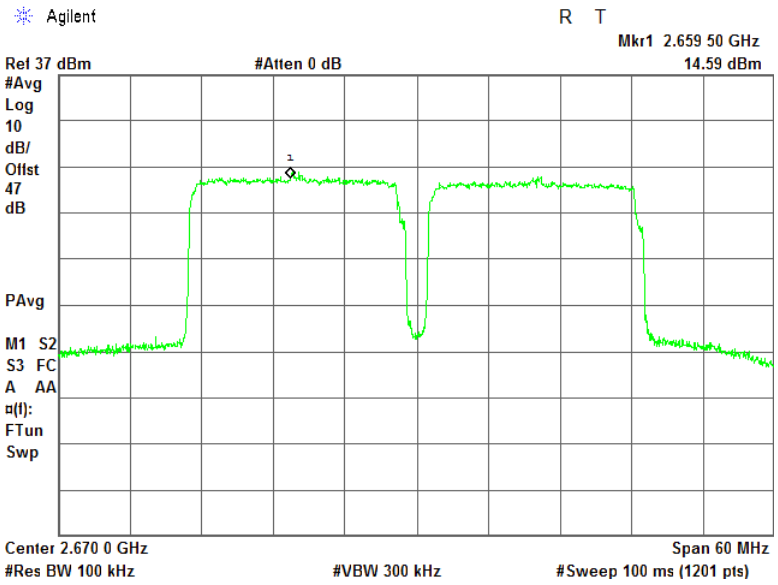



**Plot 7.2.8 Power spectral density test results at mid frequency, QPSK, 40 MHz EBW RF # 2**

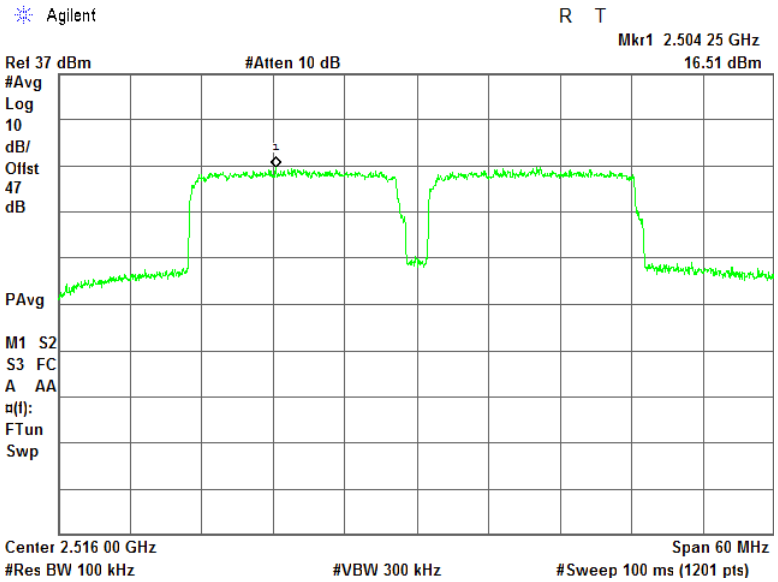


| Test specification: | Section 27.50, Peak output power | | |
|---|---|---|---|
| Test procedure: | 47 CFR, Section 2.1046; TIA/EIA-603-D, Section 2.2.1 | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date(s): | 09-May-16 | | |
| Temperature: 24 ºC | Air Pressure: 1014 hPa | Relative Humidity: 50 % | Power Supply: 120 VAC |
| Remarks: | | | |

**Plot 7.2.9 Power spectral density test results at high frequency, QPSK, 40 MHz EBW RF # 2**

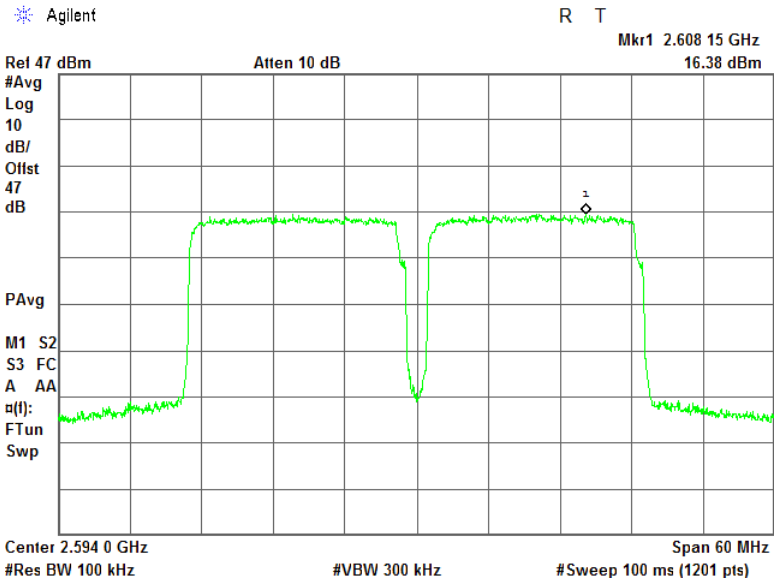



**Plot 7.2.10 Power spectral density test results at low frequency, 64QAM, 40 MHz EBW RF # 2**

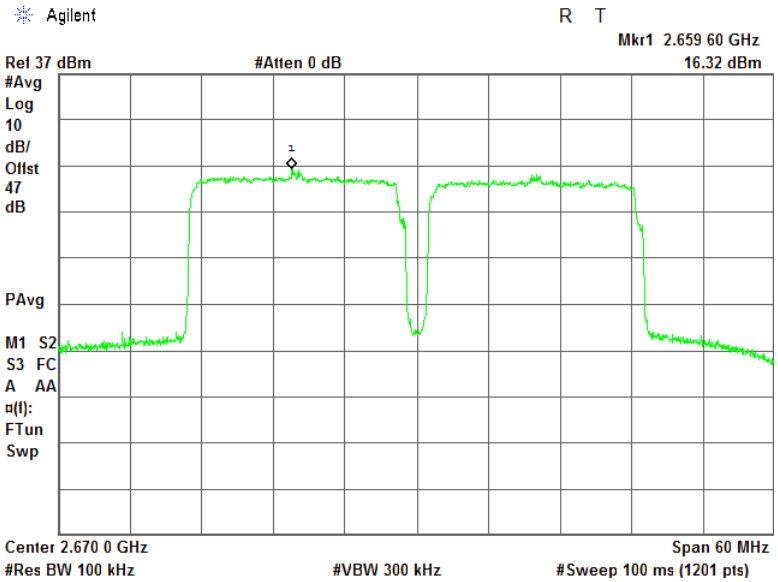


| Test specification: | Section 27.50, Peak output power | | |
|---|---|---|---|
| Test procedure: | 47 CFR, Section 2.1046; TIA/EIA-603-D, Section 2.2.1 | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date(s): | 09-May-16 | | |
| Temperature: 24 ºC | Air Pressure: 1014 hPa | Relative Humidity: 50 % | Power Supply: 120 VAC |
| Remarks: | | | |

**Plot 7.2.11 Power spectral density test results at mid frequency, 64QAM, 40 MHz EBW RF # 2**




**Plot 7.2.12 Power spectral density test results at high frequency, 64QAM, 40 MHz EBW RF # 2**



| Test specification: | Section 27.53, Band edge emissions | | |
|---|---|---|---|
| Test procedure: | 47 CFR, Sections 2.1051, 27.53; TIA/EIA-603-D, Section 2.2.13 | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date(s): | 10-May-16 | | |
| Temperature: 25 ºC | Air Pressure: 1011 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

## 7.3 Band edge emissions at RF connector test

### 7.3.1 General

This test was performed to measure spurious emissions at the channel edge at the RF antenna connector. Specification test limits are given in Table 7.3.1.

**Table 7.3.1 Spurious emission limits at band edges**

| Channel | Frequency range | Attenuation below carrier, dBc | Limit, dBm |
|---|---|---|---|
| **Channel bandwidth 40 MHz** | | | |
| 2516 | 2496.0 - 2502.0<br>2502.0 - 2507.5<br>2507.5 - 2513.0<br>2513.0 - 2518.5<br>2518.5 - 2524.0<br>2524.0 - 2529.5<br>2529.5 - 2535.0<br>2535.0 - 2540.5 | 43+ 10*Log (P*) | -13.0 |
| 2594 | 2572.0 – 2578.0<br>2578.0 – 2584.0<br>2584.0 - 2590.0<br>2590.0 - 2596.0<br>2596.0 - 2602.0<br>2602.0 - 2608.0<br>2608.0 - 2614.0 | 43+ 10*Log (P*) | -13.0 |
| 2670 | 2646.0 – 2651.5<br>2651.5 - 2657.0<br>2657.0 – 2662.5<br>2662.5 – 2668.0<br>2668.0 - 2673.5<br>2673.5 - 2679.0<br>2679.0 - 2684.5<br>2684.5 - 2690.0 | 43+ 10*Log (P*) | -13.0 |

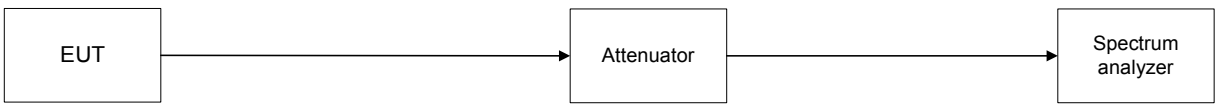
* - P is transmitter output power in Watts

### 7.3.2 Test procedure

**7.3.2.1** The EUT was set up as shown in Figure 7.3.1, energized and its proper operation was checked.

**7.3.2.2** The spurious emission was measured with spectrum analyzer as provided in Table 7.3.2, Table 7.3.3 and the associated plots.

**Figure 7.3.1 Spurious emission test setup for single output**



| Test specification: | Section 27.53, Band edge emissions | | |
|---|---|---|---|
| Test procedure: | 47 CFR, Sections 2.1051, 27.53; TIA/EIA-603-D, Section 2.2.13 | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date(s): | 10-May-16 | | |
| Temperature: 25 ºC | Air Pressure: 1011 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

**Table 7.3.2 Spurious emission at the low band edge test results**

ASSIGNED FREQUENCY RANGE: 2496.0 – 2690.0 MHz
DETECTOR USED: Average
VIDEO BANDWIDTH: ≥ Resolution bandwidth
EBW: 40 MHz

| Frequency, MHz | Frequency offset, ± MHz | Low band edge, dBm | RBW, kHz | Integration BW, kHz | Limit, dBm | Margin, dBm | Verdict |
|---|---|---|---|---|---|---|---|
| **QPSK** | | | | | | | |
| 2516.0 | 20.5 | -22.55 | 1000 | 1000 | -13.0 | -9.55 | Pass |
| | 21.5 | -23.01 | 1000 | 1000 | -13.0 | -10.01 | |
| 2594.0 | 20.5 | -18.19 | 1000 | 1000 | -13.0 | -5.19 | Pass |
| | 21.5 | -18.09 | 1000 | 1000 | -13.0 | -5.09 | |
| 2670.0 | 20.5 | -17.34 | 1000 | 1000 | -13.0 | -4.34 | Pass |
| | 21.5 | -18.13 | 1000 | 1000 | -13.0 | -5.13 | |
| **64QAM** | | | | | | | |
| 2516.0 | 20.5 | -21.04 | 1000 | 1000 | -13.0 | -8.04 | Pass |
| | 22.5 | -21.42 | 1000 | 1000 | -13.0 | -8.42 | |
| 2594.0 | 20.5 | -19.38 | 1000 | 1000 | -13.0 | -6.38 | Pass |
| | 21.5 | -19.31 | 1000 | 1000 | -13.0 | -6.31 | |
| 2670.0 | 20.5 | -17.72 | 1000 | 1000 | -13.0 | -4.72 | Pass |
| | 21.5 | -18.79 | 1000 | 1000 | -13.0 | -5.79 | |

**Table 7.3.3 Spurious emission at the high band edge test results**

ASSIGNED FREQUENCY RANGE: 2496.0 – 2690.0 MHz
DETECTOR USED: Average
VIDEO BANDWIDTH: ≥ Resolution bandwidth
EBW: 40 MHz

| Frequency MHz | Frequency offset, ± MHz | High band edge, dBm | RBW, kHz | Integration BW, kHz | Limit, dBm | Margin, dBm | Verdict |
|---|---|---|---|---|---|---|---|
| **QPSK** | | | | | | | |
| 2516.0 | 20.5 | -21.05 | 1000 | 1000 | -13.0 | -8.05 | Pass |
| | 21.5 | -21.45 | 1000 | 1000 | -13.0 | -8.45 | |
| 2594.0 | 20.5 | -17.08 | 1000 | 1000 | -13.0 | -4.08 | Pass |
| | 21.5 | -17.51 | 1000 | 1000 | -13.0 | -4.51 | |
| 2670.0 | 20.5 | -18.10 | 1000 | 1000 | -13.0 | -5.10 | Pass |
| | 21.5 | -18.28 | 1000 | 1000 | -13.0 | -5.28 | |
| **64QAM** | | | | | | | |
| 2516.0 | 20.5 | -19.24 | 1000 | 1000 | -13.0 | -6.24 | Pass |
| | 21.5 | -19.72 | 1000 | 1000 | -13.0 | -6.72 | |
| 2594.0 | 20.5 | -19.08 | 1000 | 1000 | -13.0 | -6.08 | Pass |
| | 21.5 | -19.49 | 1000 | 1000 | -13.0 | -6.49 | |
| 2670.0 | 20.5 | -17.77 | 1000 | 1000 | -13.0 | -4.77 | Pass |
| | 21.5 | -18.04 | 1000 | 1000 | -13.0 | -5.04 | |

**Reference numbers of test equipment used**

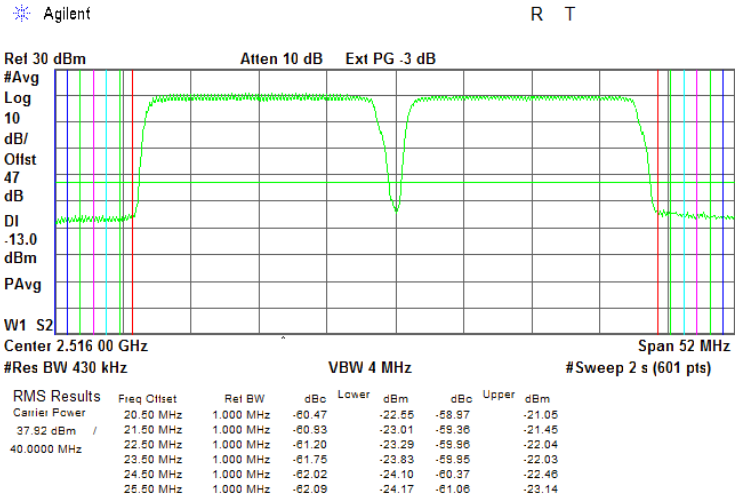
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| HL 2214 | HL 3301 | HL 3302 | HL 3818 | HL 3903 | | | |

Full description is given in Appendix A.

| Test specification: | Section 27.53, Band edge emissions | | |
|---|---|---|---|
| Test procedure: | 47 CFR, Sections 2.1051, 27.53; TIA/EIA-603-D, Section 2.2.13 | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date(s): | 10-May-16 | | |
| Temperature: 25 ºC | Air Pressure: 1011 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

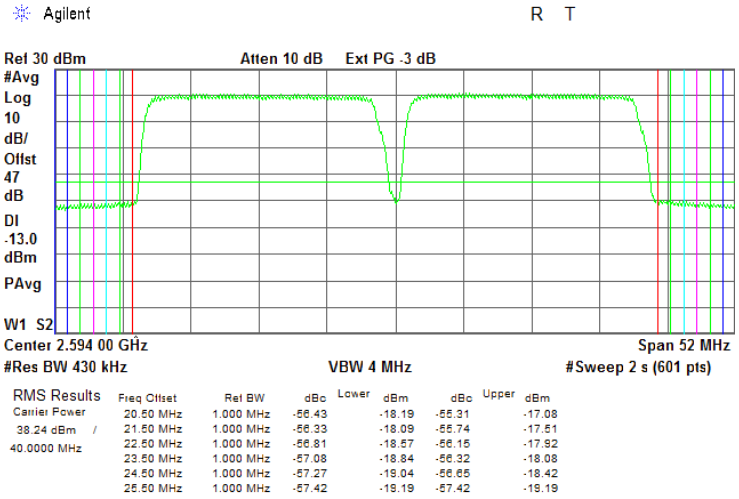
**Plot 7.3.1 Spurious emission at band edges test results at low carrier frequency, 40 MHz EBW**

| | |
|---|---|
| DETECTOR USED: | Average |
| MODULATION: | QPSK |
| MODULATING SIGNAL: | PRBS |
| BIT RATE: | 46.8 Mbps |




**Plot 7.3.2 Spurious emission at band edges test results at mid carrier frequency, 40 MHz EBW**

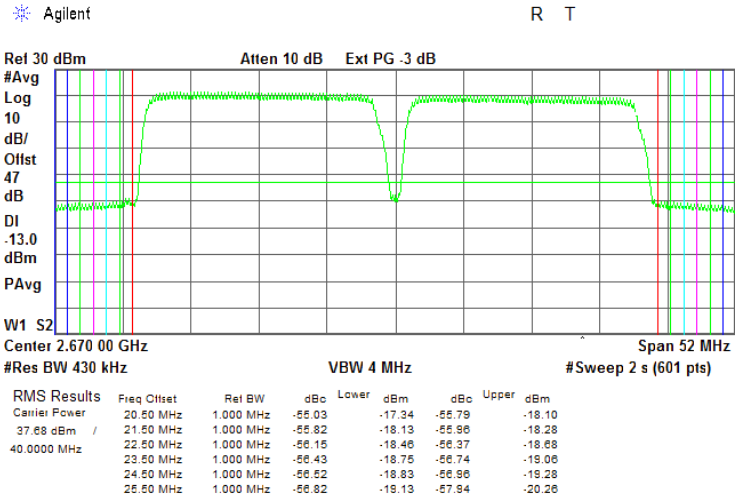
| | |
|---|---|
| DETECTOR USED: | Average |
| MODULATION: | QPSK |
| MODULATING SIGNAL: | PRBS |
| BIT RATE: | 46.8 Mbps |



| Test specification: | Section 27.53, Band edge emissions | | |
|---|---|---|---|
| Test procedure: | 47 CFR, Sections 2.1051, 27.53; TIA/EIA-603-D, Section 2.2.13 | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date(s): | 10-May-16 | | |
| Temperature: 25 ºC | Air Pressure: 1011 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

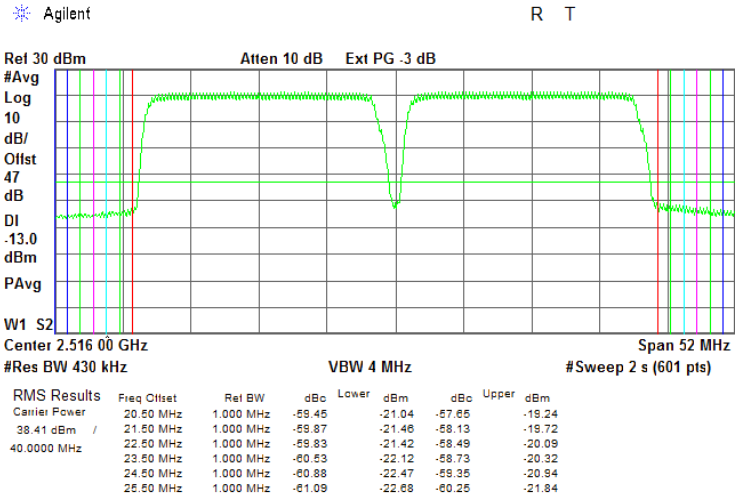
**Plot 7.3.3 Spurious emission at band edges test results at high carrier frequency, 40 MHz EBW**

| | |
|---|---|
| DETECTOR USED: | Average |
| MODULATION: | QPSK |
| MODULATING SIGNAL: | PRBS |
| BIT RATE: | 46.8 Mbps |




**Plot 7.3.4 Spurious emission at band edges test results at low carrier frequency, 40 MHz EBW**

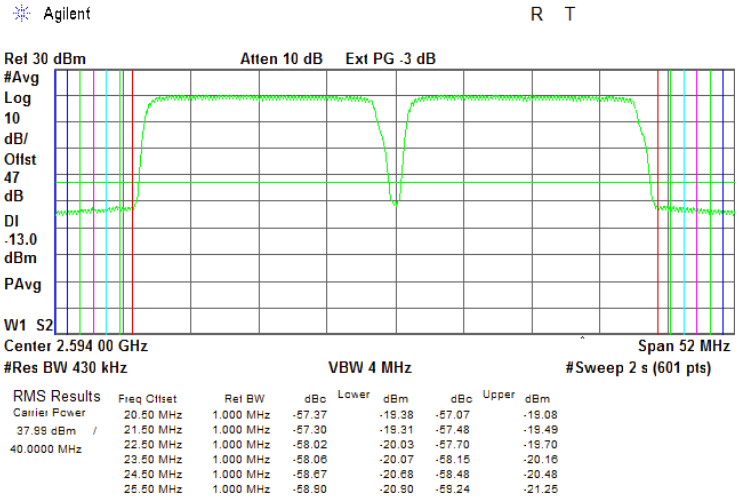
| | |
|---|---|
| DETECTOR USED: | Average |
| MODULATION: | 64QAM |
| MODULATING SIGNAL: | PRBS |
| BIT RATE: | 190 Mbps |



| Test specification: | Section 27.53, Band edge emissions | | |
|---|---|---|---|
| Test procedure: | 47 CFR, Sections 2.1051, 27.53; TIA/EIA-603-D, Section 2.2.13 | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date(s): | 10-May-16 | | |
| Temperature: 25 ºC | Air Pressure: 1011 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

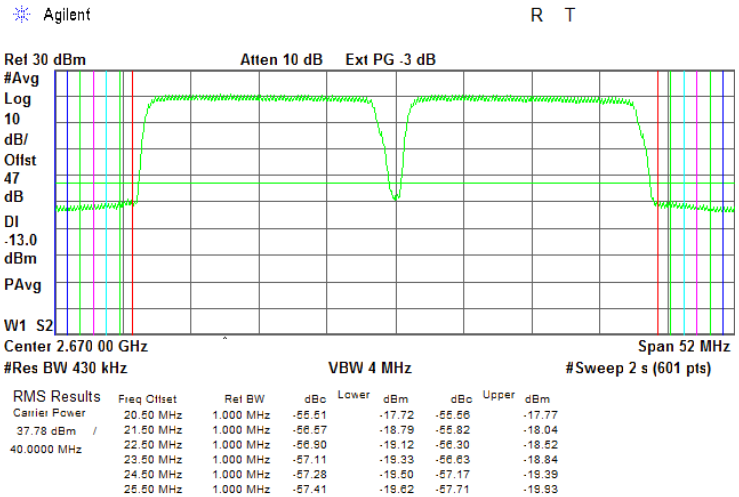
**Plot 7.3.5 Spurious emission at band edges test results at mid carrier frequency, 40 MHz EBW**

| | |
|---|---|
| DETECTOR USED: | Average |
| MODULATION: | 64QAM |
| MODULATING SIGNAL: | PRBS |
| BIT RATE: | 190 Mbps |




**Plot 7.3.6 Spurious emission at band edges test results at high carrier frequency, 40 MHz EBW**

| | |
|---|---|
| DETECTOR USED: | Average |
| MODULATION: | 64QAM |
| MODULATING SIGNAL: | PRBS |
| BIT RATE: | 190 Mbps |



# 8 APPENDIX A Test equipment and ancillaries used for tests

| HL No | Description | Manufacturer | Model | Ser. No. | Last Cal./ Check | Due Cal./ Check |
|---|---|---|---|---|---|---|
| 2214 | Directional Coupler 1.7-26.5 GHz | Krytar | 2616 | 31354 | 16-Sep-15 | 16-Sep-17 |
| 3301 | Power Meter, P-series, 50 MHz to 40 GHz | Agilent Technologies | N1911A | MY45101057 | 26-Apr-16 | 26-Jul-17 |
| 3302 | Power sensor, P-Series, 50 MHz to 40 GHz, -35/30 to 20 dBm | Agilent Technologies | N1922A | MY45240586 | 30-Jan-15 | 30-Apr-16 |
| 3818 | PSA Series Spectrum Analyzer, 3 Hz- 44 GHz | Agilent Technologies | E4446A | MY48250288 | 03-May-16 | 03-May-17 |
| 3903 | Microwave Cable Assembly, 40.0 GHz, 1.5 m, SMA/SMA | Huber-Suhner | SUCOFLEX 102A | 1226/2A | 15-Feb-16 | 15-Feb-17 |

# 9 APPENDIX B Measurement uncertainties

**Expanded uncertainty at 95% confidence in Hermon Labs EMC measurements**

| Test description | Expanded uncertainty |
|---|---|
| **Transmitter tests** | |
| Carrier power conducted at antenna connector | ± 1.7 dB |
| Carrier power radiated (substitution method) | ± 4.5 dB |
| Occupied bandwidth | ±8% |
| Conducted emissions at RF antenna connector | 9 kHz to 2.9 GHz: ± 2.6 dB<br>2.9 GHz to 6.46 GHz: ± 3.5 dB<br>6.46 GHz to 13.2 GHz: ± 4.3 dB<br>13.2 GHz to 22.0 GHz: ± 5.0 dB<br>22.0 GHz to 26.8 GHz: ± 5.5 dB<br>26.8 GHz to 40.0 GHz: ± 4.8 dB |
| Spurious emissions radiated 30 MHz – 40 GHz (substitution method) | ± 4.5 dB |
| Frequency error | 30 – 300 MHz: ± 50.5 Hz (1.68 ppm)<br>300 – 1000 MHz: ± 168 Hz (0.56 ppm) |
| Transient frequency behaviour | 187 Hz<br>± 13.9 % |
| Duty cycle, timing (Tx ON / OFF) and average factor measurements | ± 1.0 % |

Hermon Laboratories is accredited by A2LA for calibration according to present requirements of ISO/IEC 17025 and NCSL Z540-1. The accreditation is granted to perform calibration of parameters that are listed in the Scope of Hermon Laboratories Accreditation.

Hermon Laboratories calibrates its reference and transfer standards by calibration laboratories accredited to ISO/IEC 17025 by a mutually recognized Accreditation Body or by a recognized national metrology institute. All reference and transfer standards used in the calibration system are traceable to national or international standards.

In-house calibration of all test and measurement equipment is performed on a regular basis according to Hermon Laboratories calibration procedures, manufacturer calibration/verification procedures or procedures defined in the relevant standards. The Hermon Laboratories test and measurement equipment is calibrated within the tolerances specified by the manufacturers and/or by the relevant standards.

# 10 APPENDIX C Test facility description

Tests were performed at Hermon Laboratories Ltd., which is a fully independent, private, EMC, safety, environmental and telecommunication testing facility.
Hermon Laboratories is listed by the Federal Communications Commission (USA) for all parts of Code of Federal Regulations 47 (CFR 47), Registration Numbers 90624 for OATS and 90623 for the anechoic chamber; by Industry Canada for electromagnetic emissions (file number IC 2186A-1 for OATS), certified by VCCI, Japan (the registration numbers are R-808 for OATS, R-1082 for anechoic chamber, G-27 for full-anechoic chamber for RE measurements above 1 GHz, C-845 for conducted emissions site, T-1606 for conducted emissions at telecommunication ports), has a status of a Telefication - Listed Testing Laboratory, Certificate No. L138/00. The laboratory is accredited by American Association for Laboratory Accreditation (USA) according to ISO/IEC 17025 for electromagnetic compatibility, product safety, telecommunications testing and environmental simulation (for exact scope please refer to Certificate No. 839.01). The FCC Designation Number is IL1001

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# 11 APPENDIX D Specification references

| | |
|---|---|
| 47CFR part 27: 2015 | Private land mobile radio services |
| 47CFR part 1: 2015 | Practice and procedure |
| 47CFR part 2: 2015 | Frequency allocations and radio treaty matters; general rules and regulations |
| ANSI C63.2: 1996 | American National Standard for Instrumentation-Electromagnetic Noise and Field Strength, 10 kHz to 40 GHz-Specifications. |
| ANSI C63.4: 2009 | American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz. |
| ANSI/TIA/EIA-603-D:2010 | Land Mobile FM or PM Communications Equipment Measurement and Performance Standards |

# 13 APPENDIX E Test equipment correction factors

**Cable loss**
**Microwave Cable Assembly, Huber-Suhner, 40 GHz, 1.5 m, SMA-SMA, S/N 1226/2A**
**HL 3903**

| Frequency, MHz | Cable loss, dB | Frequency, MHz | Cable loss, dB | Frequency, MHz | Cable loss, dB |
|---|---|---|---|---|---|
| 10 | -0.02 | 9500 | 1.84 | 21000 | 2.98 |
| 100 | 0.15 | 10000 | 1.86 | 22000 | 3.07 |
| 500 | 0.38 | 10500 | 1.93 | 23000 | 3.13 |
| 1000 | 0.56 | 11000 | 1.99 | 24000 | 3.21 |
| 1500 | 0.69 | 11500 | 2.04 | 25000 | 3.26 |
| 2000 | 0.82 | 12000 | 2.10 | 26000 | 3.48 |
| 2500 | 0.90 | 12500 | 2.15 | 27000 | 3.44 |
| 3000 | 0.98 | 13000 | 2.21 | 28000 | 3.53 |
| 3500 | 1.06 | 13500 | 2.25 | 29000 | 3.59 |
| 4000 | 1.11 | 14000 | 2.29 | 30000 | 3.66 |
| 4500 | 1.17 | 14500 | 2.34 | 31000 | 3.70 |
| 5000 | 1.24 | 15000 | 2.36 | 32000 | 3.79 |
| 5500 | 1.32 | 15500 | 2.40 | 33000 | 3.88 |
| 6000 | 1.40 | 16000 | 2.45 | 34000 | 3.94 |
| 6500 | 1.50 | 16500 | 2.48 | 35000 | 3.91 |
| 7000 | 1.56 | 17000 | 2.56 | 36000 | 4.05 |
| 7500 | 1.62 | 17500 | 2.58 | 37000 | 4.22 |
| 8000 | 1.68 | 18000 | 2.60 | 38000 | 4.25 |
| 8500 | 1.74 | 19000 | 2.84 | 39000 | 4.27 |
| 9000 | 1.78 | 20000 | 2.88 | 40000 | 4.33 |

# 14 APPENDIX F Abbreviations and acronyms

| | |
|---|---|
| A | ampere |
| AC | alternating current |
| A/m | ampere per meter |
| AM | amplitude modulation |
| AVRG | average (detector) |
| BB | broad band |
| cm | centimeter |
| dB | decibel |
| dBm | decibel referred to one milliwatt |
| dB(μV) | decibel referred to one microvolt |
| dB(μV/m) | decibel referred to one microvolt per meter |
| dB(μA) | decibel referred to one microampere |
| dBΩ | decibel referred to one Ohm |
| DC | direct current |
| EIRP | equivalent isotropically radiated power |
| ERP | effective radiated power |
| EUT | equipment under test |
| F | frequency |
| GHz | gigahertz |
| GND | ground |
| H | height |
| HL | Hermon laboratories |
| Hz | hertz |
| ITE | information technology equipment |
| k | kilo |
| kHz | kilohertz |
| LISN | line impedance stabilization network |
| LO | local oscillator |
| m | meter |
| MHz | megahertz |
| min | minute |
| mm | millimeter |
| ms | millisecond |
| μs | microsecond |
| NA | not applicable |
| NB | narrow band |
| NT | not tested |
| OATS | open area test site |
| Ω | Ohm |
| QP | quasi-peak |
| PM | pulse modulation |
| PS | power supply |
| RE | radiated emission |
| RF | radio frequency |
| rms | root mean square |
| Rx | receive |
| s | second |
| T | temperature |
| Tx | transmit |
| V | volt |
| VA | volt-ampere |

END OF DOCUMENT