



FCC 47 CFR PART 15 SUBPART C
MANUFACTURER'S TEST REPORT
FOR
WIRELESS KEYPAD
MODEL NUMBER: LKP500

FCC ID: CFS8DLLKP500

REPORT NUMBER: R10806473-E1A

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Prepared for
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Revision History

| Rev. | Issue Date | Revisions | Revised By |
|------|------------|--|------------|
| -- | 2015-06-23 | Initial Issue | Jeff Moser |
| 1 | 2015-06-25 | Revised Duty Cycle statement regarding documentation on page 11. | Jeff Moser |
| 2 | 2015-10-12 | Added QP data for 240 MHz measurement, pg. 35. | Jeff Moser |

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: HONEYWELL SECURITY
2 CORPORATE CENTER DR
SUITE 100 PO BOX 9040
MELVILLE, NY, 11747, USA

EUT DESCRIPTION: WIRELESS KEYPAD

MODEL: LKP500

SERIAL NUMBER: LM15 (Unit #1)

DATE TESTED: June 03-09, 2015

| APPLICABLE STANDARDS | | TEST RESULTS |
|--|--|--------------|
| STANDARD | | |
| CFR 47 Part 15 Subpart C (Radiated emissions only) | | PASS |

UL LLC tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL LLC based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL LLC and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL LLC will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Approved & Released
For UL LLC By:



Bob DeLisi
Certification Engineer
UL – Consumer Technology Division

Prepared By:



Jeff Moser
EMC Program Manager
UL – Consumer Technology Division

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10-2009, FCC CFR 47 Part 2 and FCC CFR 47 Part 15. This report is a manufacturer's specification report that includes radiated emissions, only.

Note – Radiated testing above 1GHz was performed on a 1.5m table height, per ANSI C63.10: 2013. All other testing was performed per ANSI C63.10: 2009.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 12 Laboratory Dr., Research Triangle Park, NC 27709, USA.

| |
|---|
| 12 Laboratory Dr., RTP, NC 27709 |
| <input type="checkbox"/> Chamber A |
| <input checked="" type="checkbox"/> Chamber C |

UL LLC (RTP) is accredited by NVLAP, Laboratory Code 200246-0. The full scope of accreditation can be viewed at <http://ts.nist.gov/standards/scopes/2002460.htm>.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

$$\begin{aligned} \text{Field Strength (dBuV/m)} &= \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \\ &\text{Cable Loss (dB)} - \text{Preamp Gain (dB)} \\ 36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} &= 28.9 \text{ dBuV/m} \end{aligned}$$

4.3. MEASUREMENT UNCERTAINTY

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

| Test | Uncertainty |
|----------------------------------|------------------|
| Radiated Emissions (30-1000 MHz) | +/- 6.04 dB (3m) |
| Radiated Emissions (1-6 GHz) | +/- 5.96 dB |
| Radiated Emissions (6-18 GHz) | +/- 6.10 dB |
| Radiated Emissions (18-26 GHz) | +/- 6.81 dB |

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a wireless keypad used in security systems. The device contains an 802.15.4 Zigbee transceiver.

5.2. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a printed PCB F antenna and a printed PCB T antenna, connected one at a time, with a maximum gain of 3.6dBi each.

5.3. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was 500-02374, rev. A..

The test utility software used during testing was RF6KP_JN5168.bin, rev. 0.5.8.

5.4. WORST-CASE CONFIGURATION AND MODE

Radiated emission was performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

The fundamental of the EUT was investigated in three orthogonal orientations X,Y,Z, for each antenna. It was determined that the X orientation was the worst-case orientation for ANT1 and the Y orientation the worst-case for ANT2. Therefore, all final radiated testing was performed with the EUT in X orientation for ANT1 and the Y orientation for ANT2.

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

| Description | Manufacturer | Model | Serial Number | FCC ID |
|----------------|--------------|-------------|---------------|--------|
| EUT AC adapter | Honeywell | 300-04705V1 | 886618145834 | - |

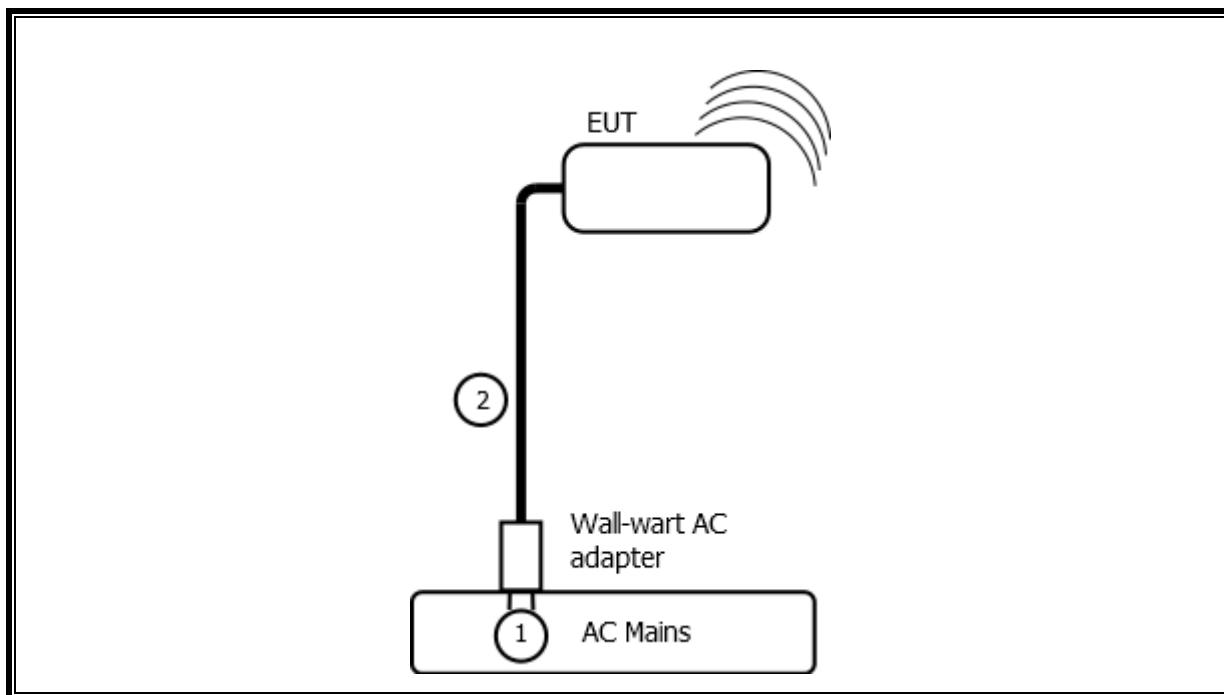
I/O CABLES

| I/O Cable List | | | | | | |
|----------------|---------|----------------------|----------------|------------|------------------|--|
| Cable No | Port | # of identical ports | Connector Type | Cable Type | Cable Length (m) | Remarks |
| 1 | AC | 1 | 2C AC | N/A | 0 | Wall-wart AC adapter's AC input. |
| 2 | DC (9V) | 1 | Screw terminal | Unshielded | 1.6 | Wall-wart AC adapter DC output to EUT. Detachable. |

TEST SETUP

The EUT is installed as a table top device. Test software exercised the radio card.

SETUP DIAGRAM FOR TESTS



6. TEST AND MEASUREMENT EQUIPMENT

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

Radiated Emission Measurement Equipment

| Equip. ID | Description | Manufacturer | Model Number | Last Cal. | Next Cal. |
|----------------|---|----------------------|---------------------|------------|------------|
| AT0066 | Hybrid Broadband Antenna | Sunol Sciences Corp. | JB1 | 2014-07-10 | 2015-07-31 |
| AT0062 | Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz | ETS Lindgren | 3117 | 2014-07-22 | 2015-07-31 |
| AT0063 | Horn Antenna, 18-26.5GHz | ARA | MWH-1826/B | 2014-07-23 | 2015-07-31 |
| SAC_G (Hybrid) | Gain-Loss string for Hyrbid antenna at 3m | Various | Various | 2015-02-01 | 2016-02-29 |
| SAC_G (3117) | Gain-Loss string for 3117 antenna at 3m | Various | Various | 2015-02-01 | 2016-02-29 |
| AMP012 | 18-40GHz preamp | Miteq | JS44-18004000-33-8P | 2014-07-18 | 2015-07-31 |
| CBL252980-001 | SF104A/11PC35/PC35/6706mm (22-ft.) DC-26.5GHz | Huber & Suhner | SUCOFLEX 104PEA | 2014-07-21 | 2015-07-31 |
| CBL252981-001 | SF104A/11PC35/11PC3 5/1219mm (4-ft.) DC-26.5GHz | Huber & Suhner | SUCOFLEX 104PEA | 2014-07-21 | 2015-07-31 |
| SA0018 | Spectrum Analyzer | Agilent | N9030A | 2014-06-26 | 2015-06-30 |
| SOFTEMI | EMI Software | UL | Version 9.5 | NA | NA |
| HI0069 | Temp/Humid/Pressure Meter | Cole-Parmer | 99760-00 | 2014-06-27 | 2015-06-27 |

7. ON TIME AND DUTY CYCLE RESULTS

LIMITS

None; for reporting purposes only.

ON TIME AND DUTY CYCLE

The manufacturer stated that the device will be limited to a worst-case duty cycle (DC) of 6.976%. Hence a duty-cycle correction factor as described in FCC Part 15, Section 15.35(c) (RSS-Gen 6.10) was used to calculate an average value as follow:

$$\text{Average Value [dBuV/m]} = \text{Peak Value [dBuV/m]} + 20 * \log(\text{DC}/100)$$

$$\text{Average Value [dBuV/m]} = \text{Peak Value [dBuV/m]} + 20 * \log(6.976/100)$$

$$\text{Average Value [dBuV/m]} = \text{Peak Value [dBuV/m]} - 23.1\text{dB}$$

Justification for use of 15.35(c) and measurements of worst case duty cycle to be supplied, in a separate document, by Honeywell.

8. RADIATED TEST RESULTS

8.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

| Frequency Range (MHz) | Field Strength Limit (uV/m) at 3 m | Field Strength Limit (dBuV/m) at 3 m |
|-----------------------|------------------------------------|--------------------------------------|
| 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 below 1GHz measurements and 1.5 m above the ground plane for above 1GHz measurements. The antenna to EUT distance is 3 meters.

For measurements below 1 GHz the resolution bandwidth is set to 120 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

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

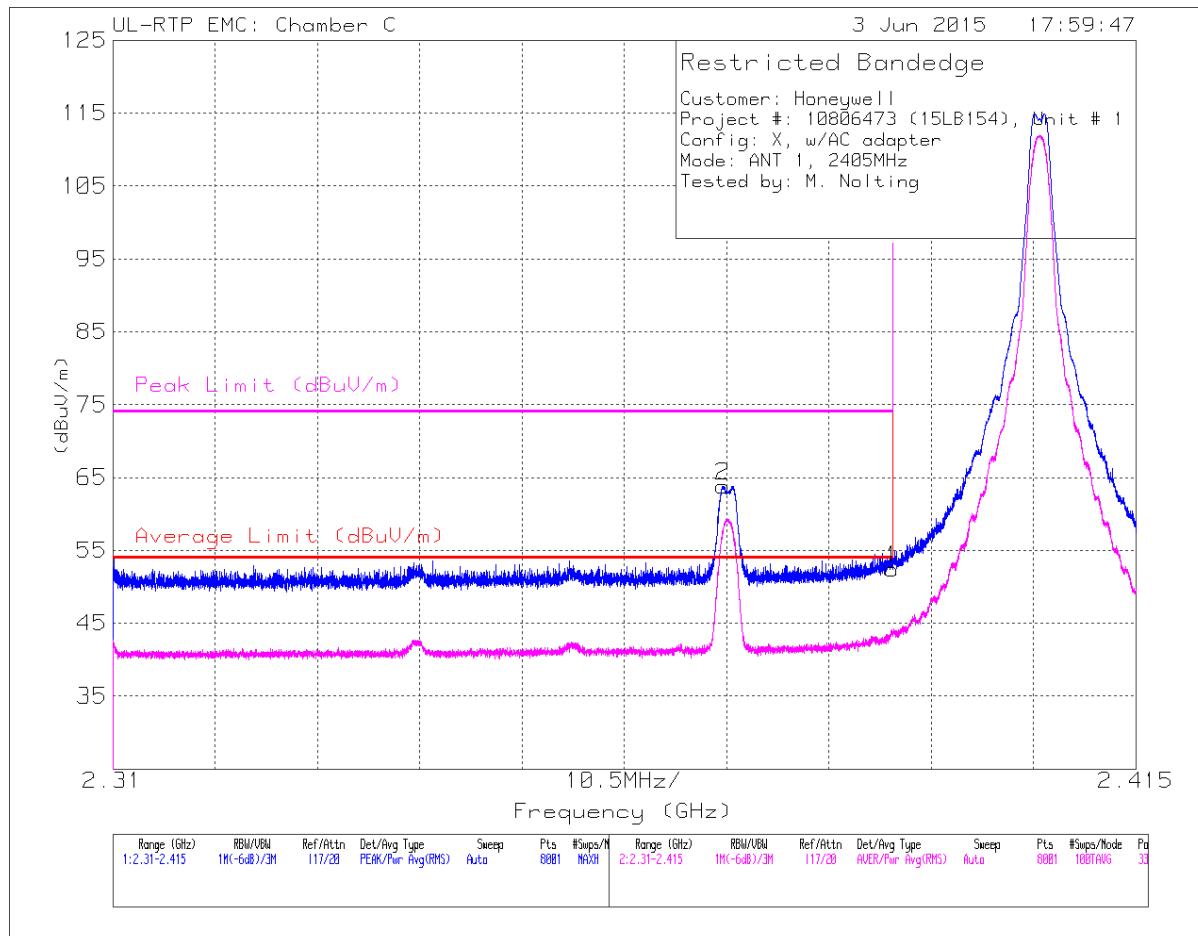
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.

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.

8.2. TRANSMITTER ABOVE 1 GHz

8.2.1. TX ABOVE 1 GHz FOR 802.15.4 MODE IN THE 2.4 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL) – ANT1



Note - Average measurements were made to show that there were no other emissions hidden in the peak noise floor.

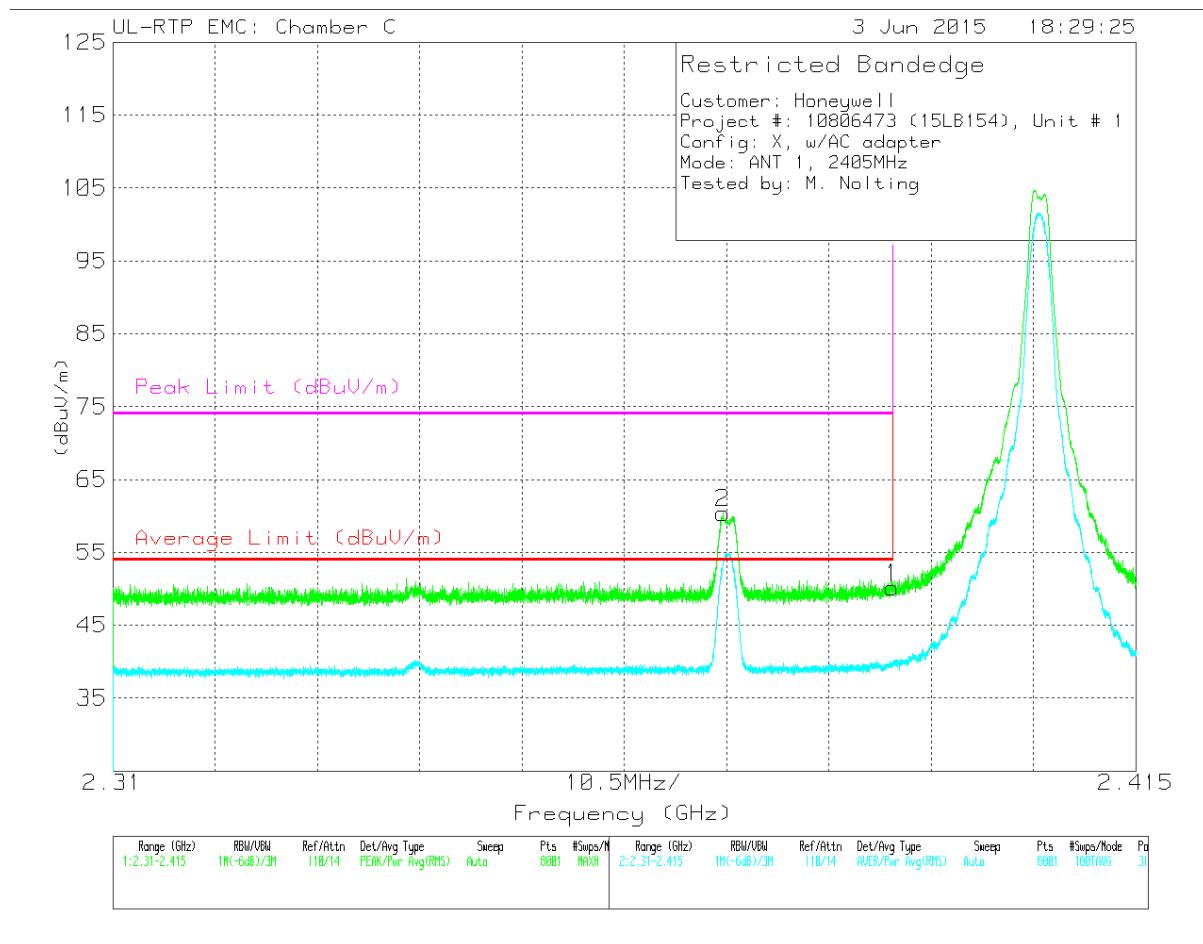
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0062 (dB/m) | Amp/Cbl/Fltr/Pad | DCF (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|---------------|------------------|----------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1 | * 2.39 | 47.02 | Pk | 32.1 | -26.7 | 0 | 52.42 | - | - | 74 | -21.58 | 335 | 102 | H |
| | * 2.39 | 47.02 | AV | 32.1 | -26.7 | -23.1 | 29.32 | 54 | -24.68 | - | - | 335 | 102 | H |
| 2 | * 2.373 | 58.52 | Pk | 32 | -26.7 | 0 | 63.82 | - | - | 74 | -10.18 | 335 | 102 | H |
| | * 2.373 | 58.52 | AV | 32 | -26.7 | -23.1 | 40.72 | 54 | -13.28 | - | - | 335 | 102 | H |

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

AV – Average calculated using AV = PK + 20Log(DC). Where DC = 0.06976.

RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL) – ANT1



Note - Average measurements were made to show that there were no other emissions hidden in the peak noise floor.

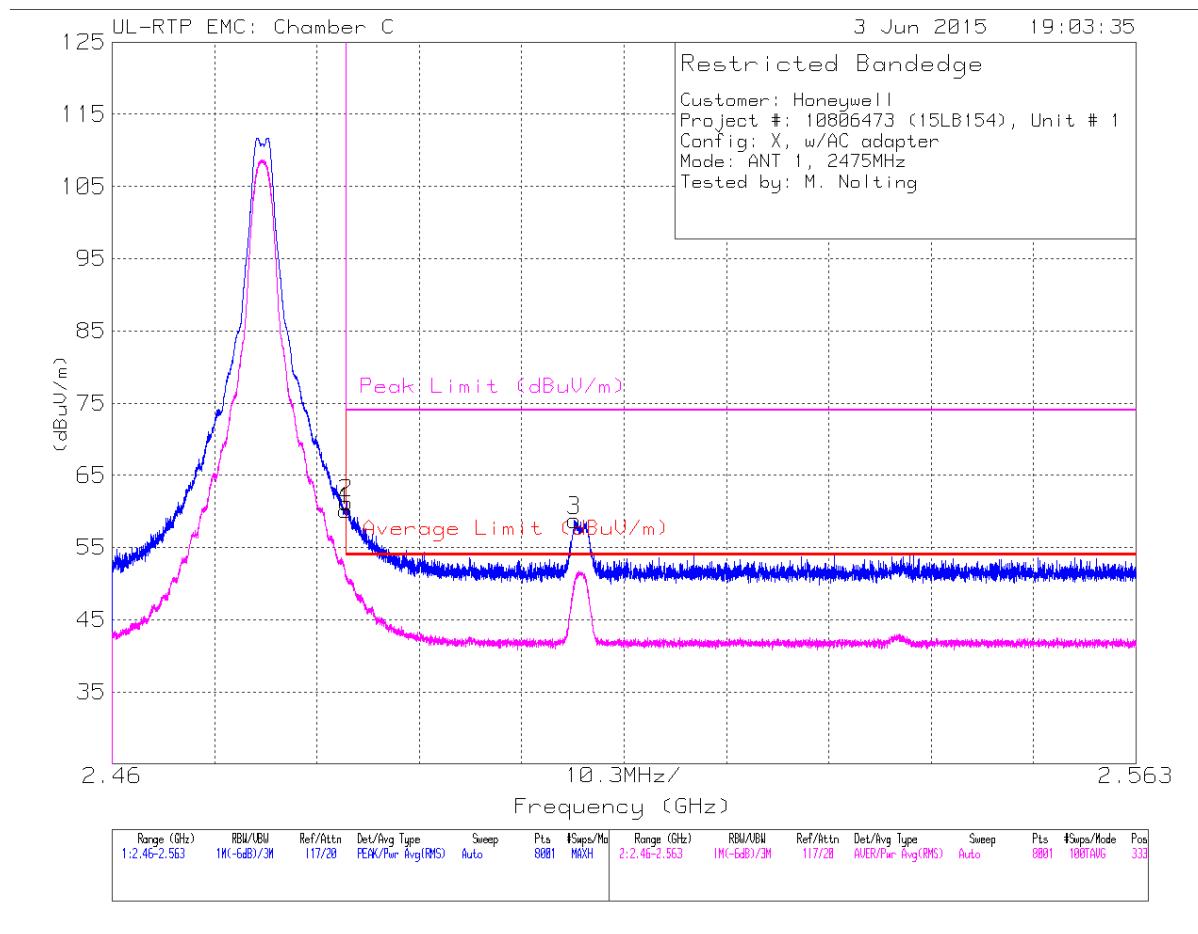
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0062 (dB/m) | Amp/Cbl/Fltr/Pad | DCF (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|---------------|------------------|----------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1 | * 2.39 | 44.74 | Pk | 32.1 | -26.7 | 0 | 50.14 | - | - | 74 | -23.86 | 315 | 396 | V |
| | * 2.39 | 44.74 | AV | 32.1 | -26.7 | -23.1 | 27.04 | 54 | -26.96 | - | - | 315 | 396 | V |
| 2 | * 2.373 | 55.1 | Pk | 32 | -26.7 | 0 | 60.4 | - | - | 74 | -13.6 | 315 | 396 | V |
| | * 2.373 | 55.1 | AV | 32 | -26.7 | -23.1 | 37.3 | 54 | -16.7 | - | - | 315 | 396 | V |

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

AV – Average calculated using AV = PK + 20Log(DC). Where DC = 0.06976.

RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL) – ANT1



Note - Average measurements were made to show that there were no other emissions hidden in the peak noise floor.

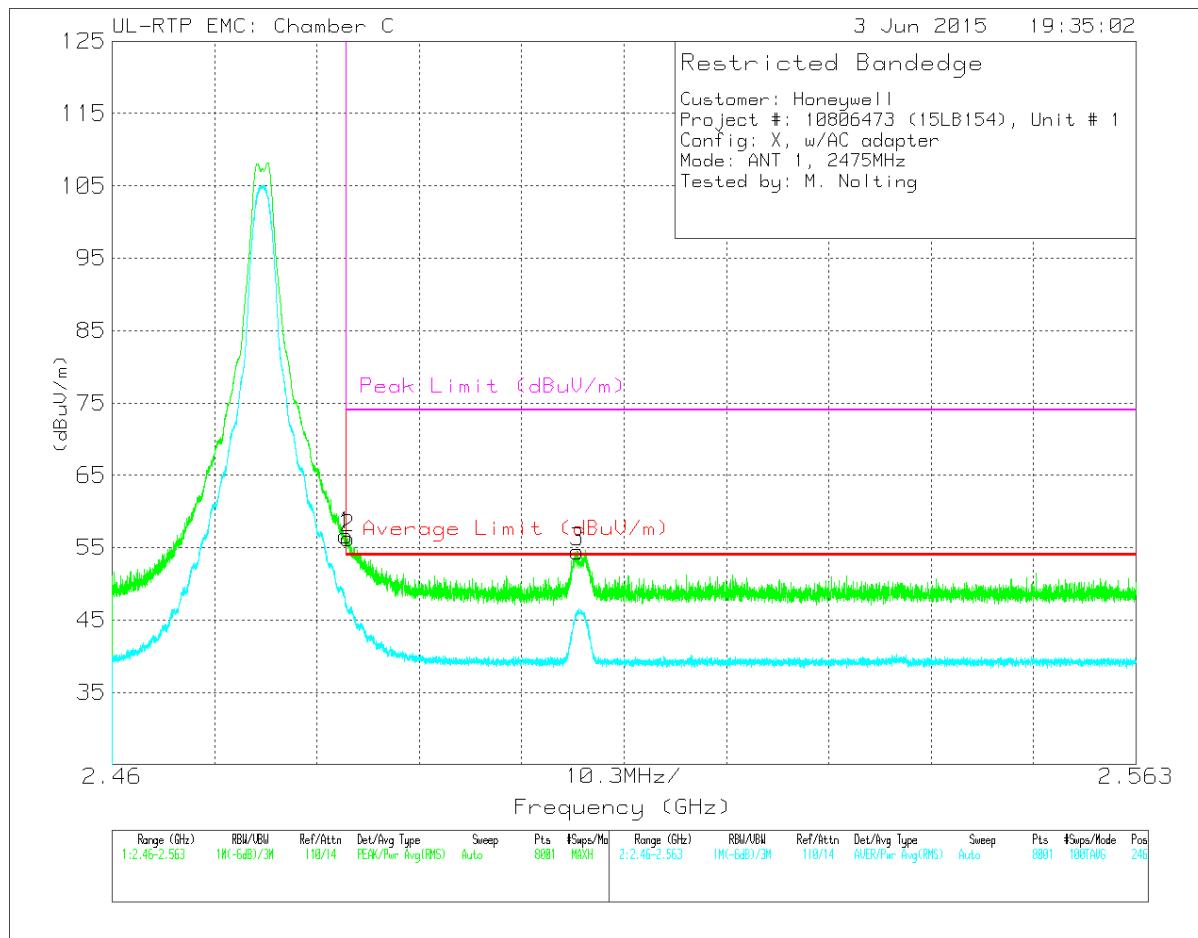
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0062 (dB/m) | Amp/Cbl/F ltr/Pad | DCF (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|---------------|-------------------|----------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1 | * 2.484 | 54.34 | Pk | 32.3 | -26.5 | 0 | 60.14 | - | - | 74 | -13.86 | 333 | 101 | H |
| | * 2.484 | 54.34 | AV | 32.3 | -26.5 | -23.1 | 37.04 | 54 | -16.96 | - | - | 333 | 101 | H |
| 2 | * 2.484 | 55.41 | Pk | 32.3 | -26.5 | 0 | 61.21 | - | - | 74 | -12.79 | 333 | 101 | H |
| | * 2.484 | 55.41 | AV | 32.3 | -26.5 | -23.1 | 38.11 | 54 | -15.89 | - | - | 333 | 101 | H |
| 3 | 2.507 | 52.75 | Pk | 32.4 | -26.4 | 0 | 58.75 | - | - | 74 | -15.25 | 333 | 101 | H |

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

AV – Average calculated using AV = PK + 20Log(DC). Where DC = 0.06976.

RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL) – ANT1



Note - Average measurements were made to show that there were no other emissions hidden in the peak noise floor.

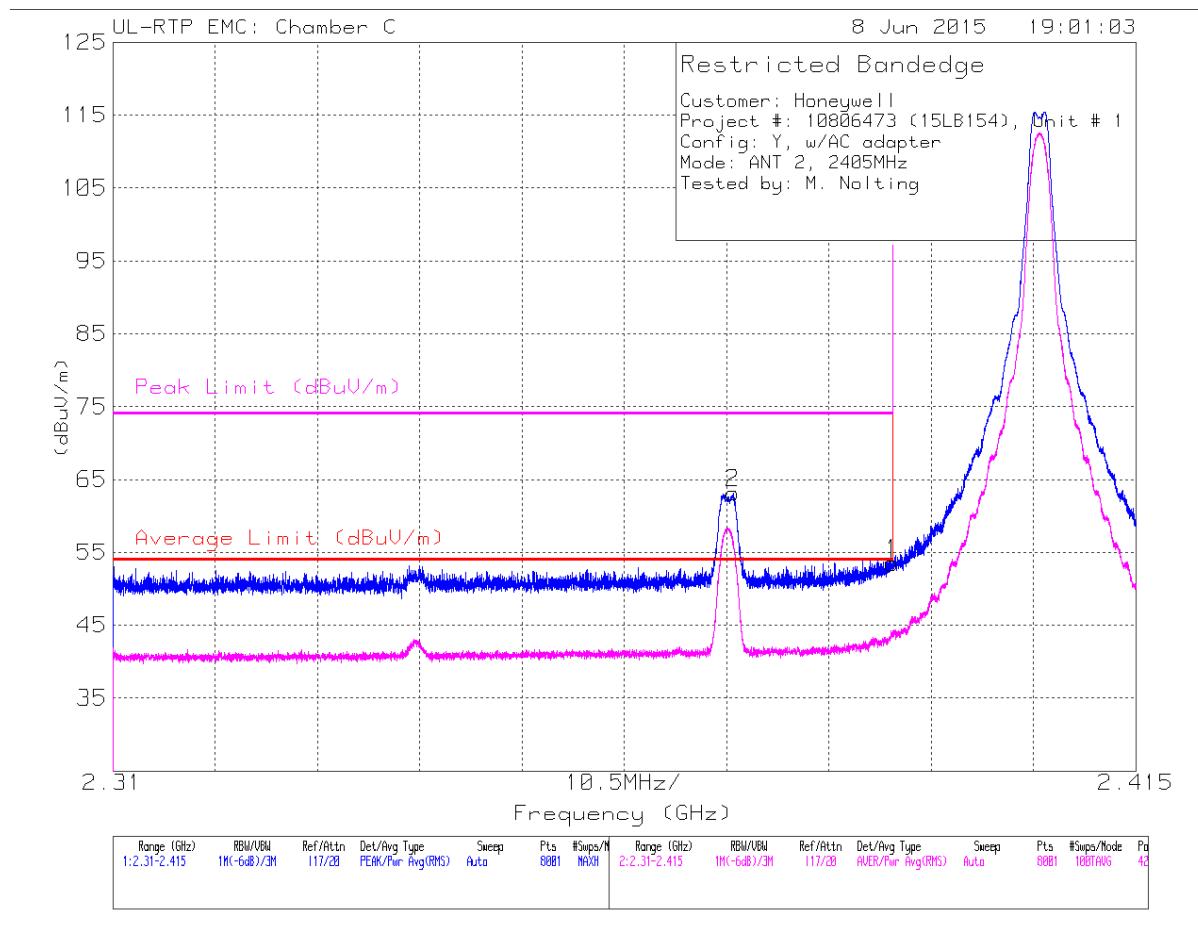
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0062 (dB/m) | Amp/Cbl/F ltr/Pad | DCF (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|---------------|-------------------|----------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1 | * 2.484 | 50.9 | Pk | 32.3 | -26.5 | 0 | 56.7 | - | - | 74 | -17.3 | 246 | 398 | V |
| | * 2.484 | 50.9 | AV | 32.3 | -26.5 | -23.1 | 33.6 | 54 | -20.4 | - | - | 246 | 398 | V |
| 2 | * 2.484 | 50.53 | Pk | 32.3 | -26.5 | 0 | 56.33 | - | - | 74 | -17.67 | 246 | 398 | V |
| | * 2.484 | 50.53 | AV | 32.3 | -26.5 | -23.1 | 33.23 | 54 | -20.77 | - | - | 246 | 398 | V |
| 3 | 2.507 | 48.45 | Pk | 32.4 | -26.4 | 0 | 54.45 | - | - | 74 | -19.55 | 246 | 398 | V |

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

AV – Average calculated using AV = PK + 20Log(DC). Where DC = 0.06976.

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL) – ANT2



Note - Average measurements were made to show that there were no other emissions hidden in the peak noise floor.

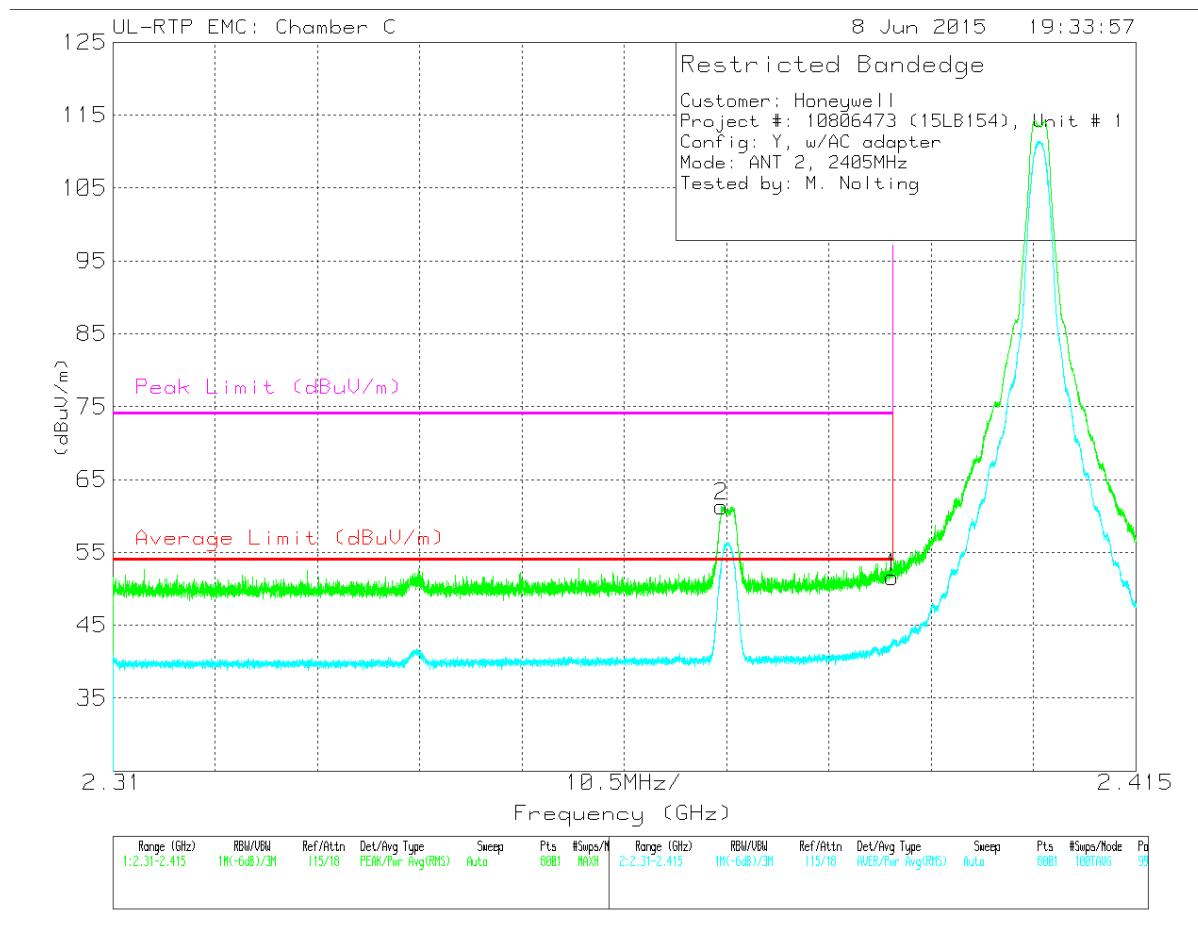
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0062 (dB/m) | Amp/Cbl/F ltr/Pad | DCF (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|---------------|-------------------|----------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1 | * 2.39 | 48.12 | Pk | 32.1 | -26.7 | 0 | 53.52 | - | - | 74 | -20.48 | 42 | 169 | H |
| | * 2.39 | 48.12 | AV | 32.1 | -26.7 | -23.1 | 30.42 | 54 | -23.58 | - | - | - | 169 | H |
| 2 | * 2.374 | 57.87 | Pk | 32 | -26.7 | 0 | 63.17 | - | - | 74 | -10.83 | 42 | 169 | H |
| | * 2.374 | 57.87 | AV | 32 | -26.7 | -23.1 | 40.07 | 54 | -13.93 | - | - | - | 169 | H |

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

AV – Average calculated using AV = PK + 20Log(DC). Where DC = 0.06976.

RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL) – ANT2



Note - Average measurements were made to show that there were no other emissions hidden in the peak noise floor.

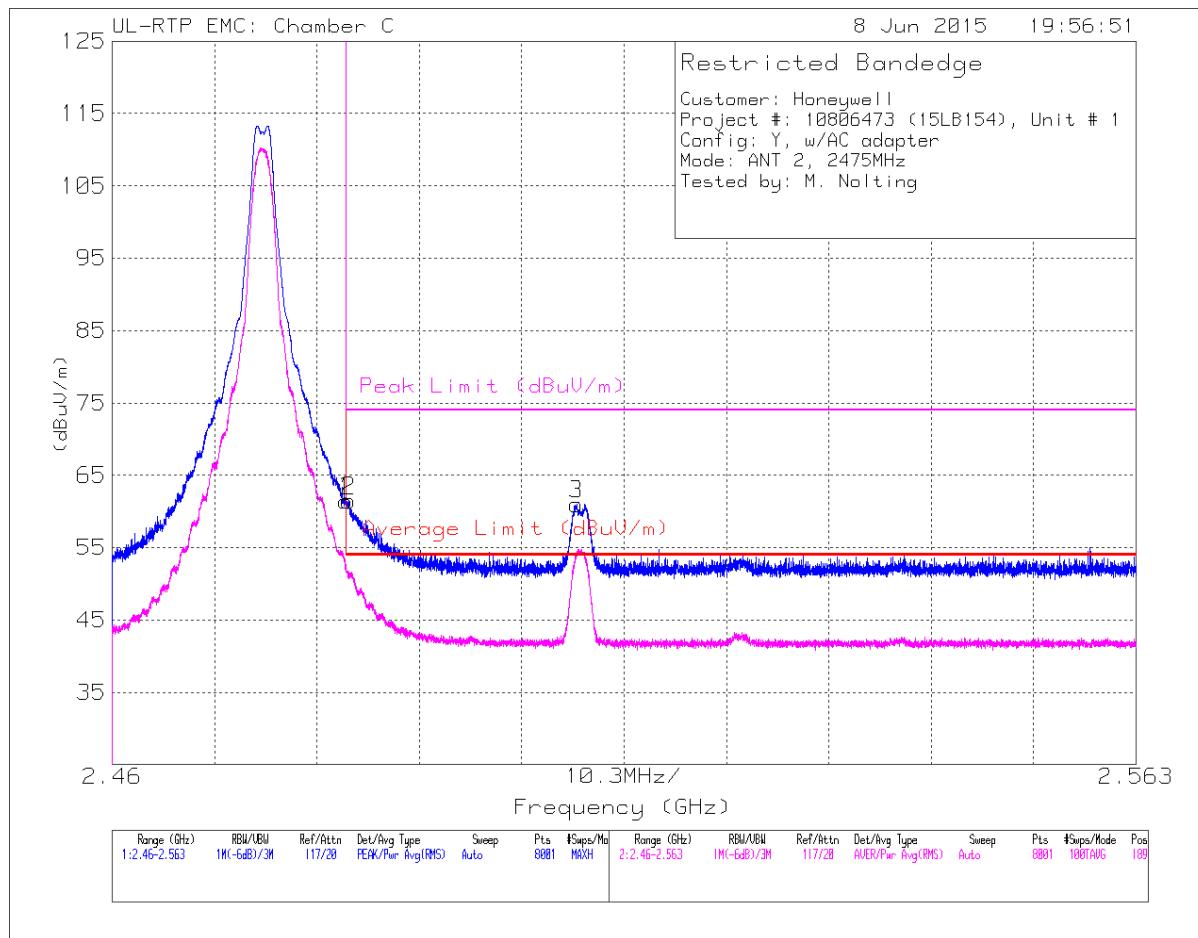
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0062 (dB/m) | Amp/Cbl/F Itr/Pad | | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|---------------|-------------------|-------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1 | * 2.39 | 46.18 | Pk | 32.1 | -26.7 | 0 | 51.58 | - | - | 74 | -22.42 | 99 | 103 | V |
| | * 2.39 | 46.18 | AV | 32.1 | -26.7 | -23.1 | 28.48 | 54 | -25.52 | - | - | 99 | 103 | V |
| 2 | * 2.372 | 56.01 | Pk | 32 | -26.7 | 0 | 61.31 | - | - | 74 | -12.69 | 99 | 103 | V |
| | * 2.372 | 56.01 | AV | 32 | -26.7 | -23.1 | 38.21 | 54 | -15.79 | - | - | 99 | 103 | V |

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

AV – Average calculated using AV = PK + 20Log(DC). Where DC = 0.06976.

RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL) – ANT2



Note - Average measurements were made to show that there were no other emissions hidden in the peak noise floor.

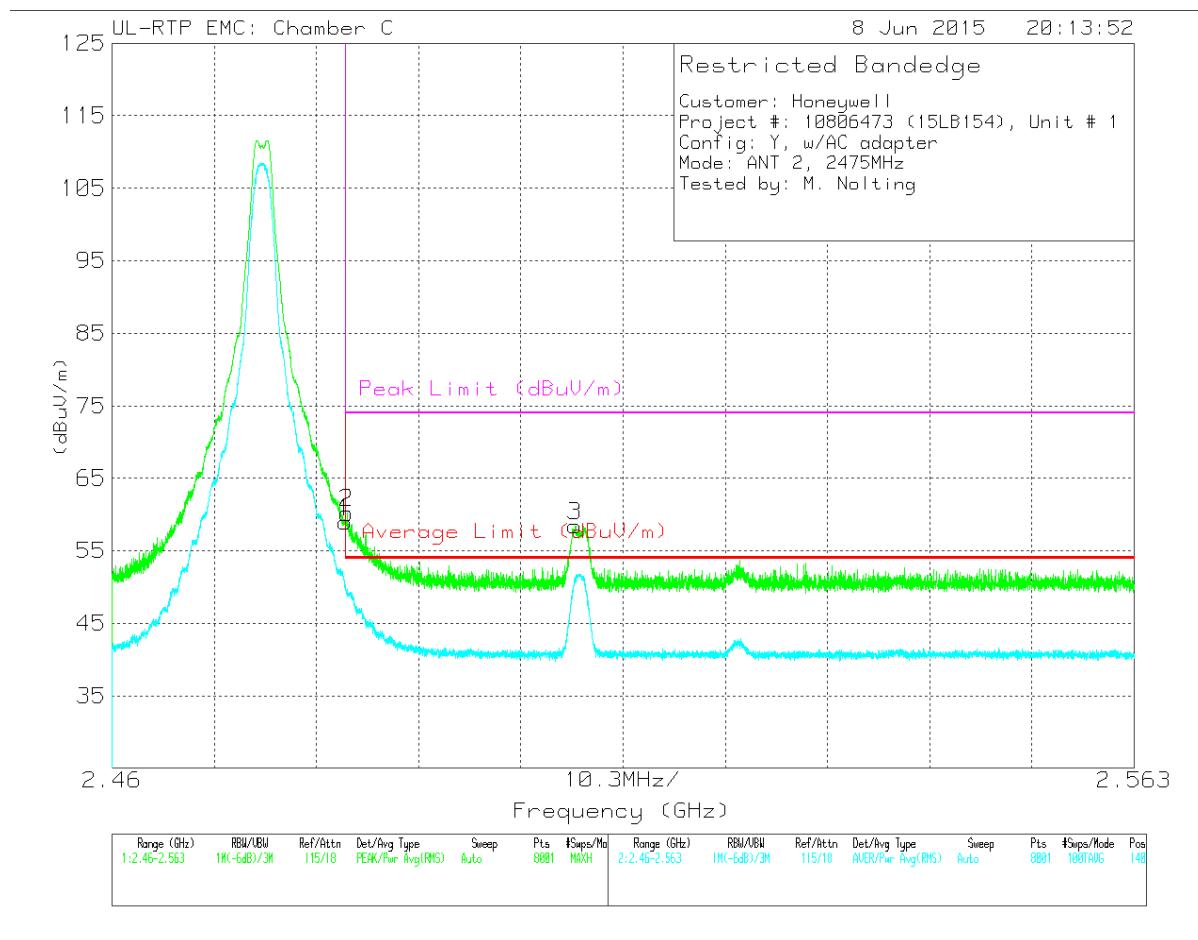
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0062 (dB/m) | Amp/Cbl/F ltr/Pad | DCF (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|---------------|-------------------|----------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1 | * 2.484 | 55.64 | Pk | 32.3 | -26.5 | 0 | 61.44 | - | - | 74 | -12.56 | 189 | 136 | H |
| | * 2.484 | 55.64 | AV | 32.3 | -26.5 | -23.1 | 38.34 | 54 | -15.66 | - | - | 189 | 136 | H |
| 2 | * 2.484 | 55.69 | Pk | 32.3 | -26.5 | 0 | 61.49 | - | - | 74 | -12.51 | 189 | 136 | H |
| | * 2.484 | 55.69 | AV | 32.3 | -26.5 | -23.1 | 38.39 | 54 | -15.61 | - | - | 189 | 136 | H |
| 3 | 2.507 | 54.99 | Pk | 32.4 | -26.4 | 0 | 60.99 | - | - | 74 | -13.01 | 189 | 136 | H |

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

AV – Average calculated using AV = PK + 20Log(DC). Where DC = 0.06976.tion

RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL) – ANT2



Note - Average measurements were made to show that there were no other emissions hidden in the peak noise floor.

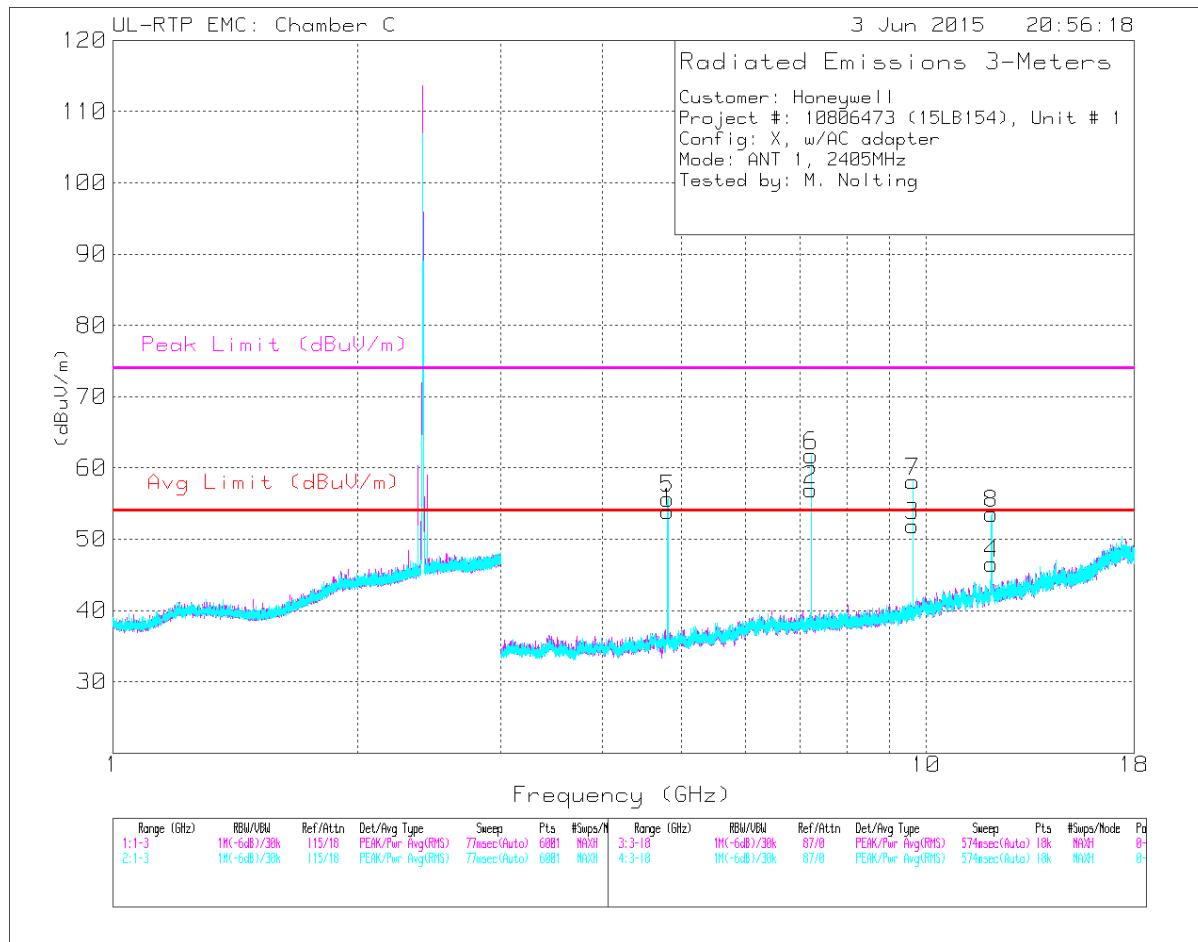
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0062 (dB/m) | Amp/Cbl/F Itr/Pad | | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|---------------|-------------------|-------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1 | * 2.484 | 53.19 | Pk | 32.3 | -26.5 | 0 | 58.99 | - | - | 74 | -15.01 | 140 | 111 | V |
| | * 2.484 | 53.19 | AV | 32.3 | -26.5 | -23.1 | 35.89 | 54 | -18.11 | - | - | 140 | 111 | V |
| 2 | * 2.484 | 54.41 | Pk | 32.3 | -26.5 | 0 | 60.21 | - | - | 74 | -13.79 | 140 | 111 | V |
| | * 2.484 | 54.41 | AV | 32.3 | -26.5 | -23.1 | 37.11 | 54 | -16.89 | - | - | 140 | 111 | V |
| 3 | 2.507 | 52.44 | Pk | 32.4 | -26.4 | 0 | 58.44 | - | - | 74 | -15.56 | 140 | 111 | V |

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

AV – Average calculated using AV = PK + 20Log(DC). Where DC = 0.06976.

HARMONICS AND SPURIOUS EMISSIONS - LOW CHANNEL (ANT1)

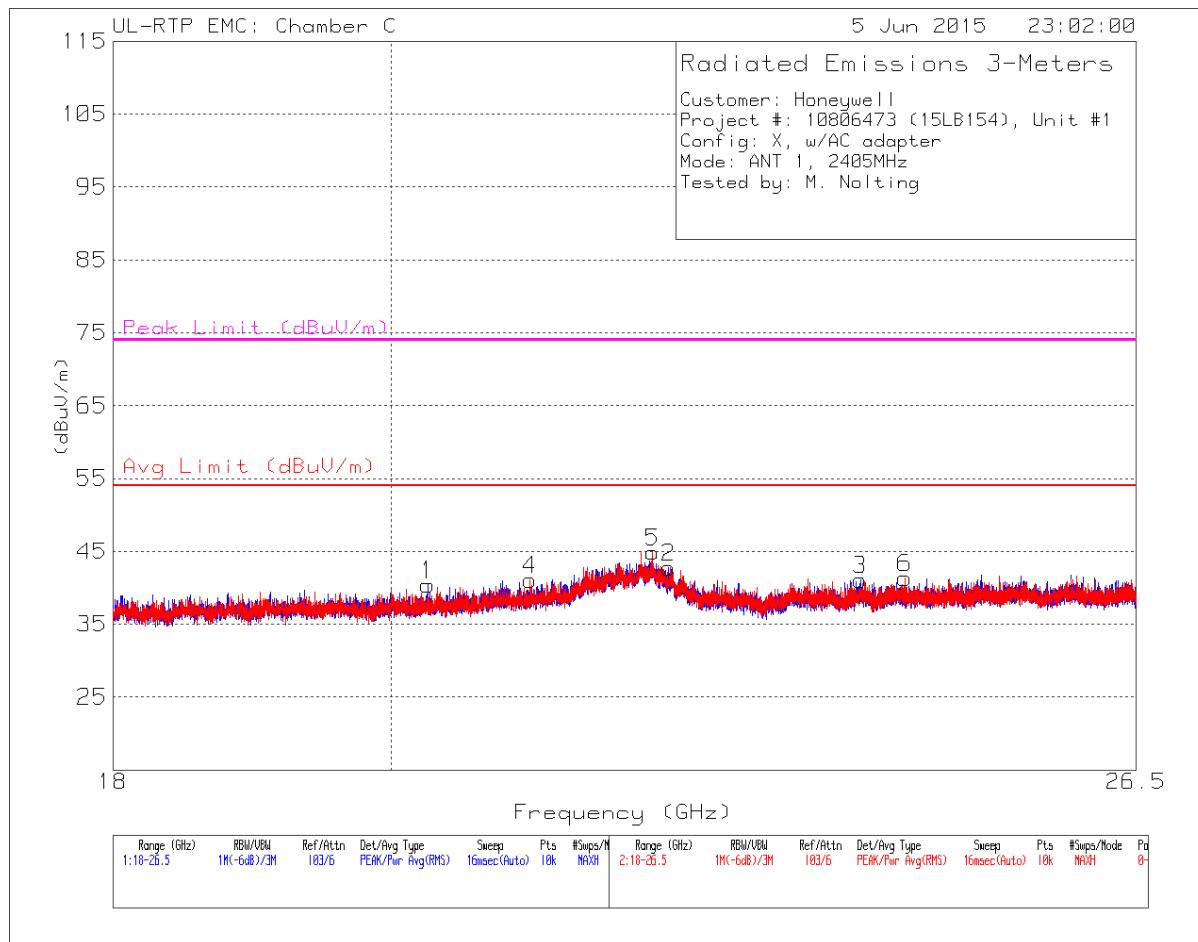


| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0062 (dB/m) | Amp/Cbl/Fitr/Pad | DCF (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|---------------|------------------|----------|----------------------------|--------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1 | * 4.809 | 57.78 | Pk | 34.1 | -32.8 | 0 | 59.08 | - | - | 74 | -14.92 | 66 | 104 | H |
| | * 4.809 | 57.78 | AV | 34.1 | -32.8 | -23.1 | 35.98 | 54 | -18.02 | - | - | 66 | 104 | H |
| 4 | * 12.023 | 42.06 | Pk | 38.7 | -25 | 0 | 55.76 | - | - | 74 | -18.24 | 348 | 268 | H |
| | * 12.023 | 42.06 | AV | 38.7 | -25 | -23.1 | 32.66 | 54 | -21.34 | - | - | 348 | 268 | H |
| 5 | * 4.809 | 60.52 | Pk | 34.1 | -32.8 | 0 | 61.82 | - | - | 74 | -12.18 | 263 | 101 | V |
| | * 4.809 | 60.52 | AV | 34.1 | -32.8 | -23.1 | 38.72 | 54 | -15.28 | - | - | 263 | 101 | V |
| 8 | * 12.028 | 47.44 | Pk | 38.7 | -24.9 | 0 | 61.24 | - | - | 74 | -12.76 | 240 | 108 | V |
| | * 12.028 | 47.44 | AV | 38.7 | -24.9 | -23.1 | 38.14 | 54 | -15.86 | - | - | 240 | 108 | V |
| 2 | 7.214 | 50.14 | Pk | 35.6 | -28.8 | 0 | 56.94 | - | - | 74 | -17.06 | 0-360 | 151 | H |
| 6 | 7.216 | 54.93 | Pk | 35.6 | -28.8 | 0 | 61.73 | - | - | 74 | -12.27 | 0-360 | 151 | V |
| 3 | 9.618 | 42.9 | Pk | 36.8 | -27.8 | 0 | 51.9 | - | - | 74 | -22.1 | 0-360 | 151 | H |
| 7 | 9.622 | 49.09 | Pk | 36.8 | -27.8 | 0 | 58.09 | - | - | 74 | -15.91 | 0-360 | 250 | V |

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

AV – Average calculated using AV = PK + 20Log(DC). Where DC = 0.06976.

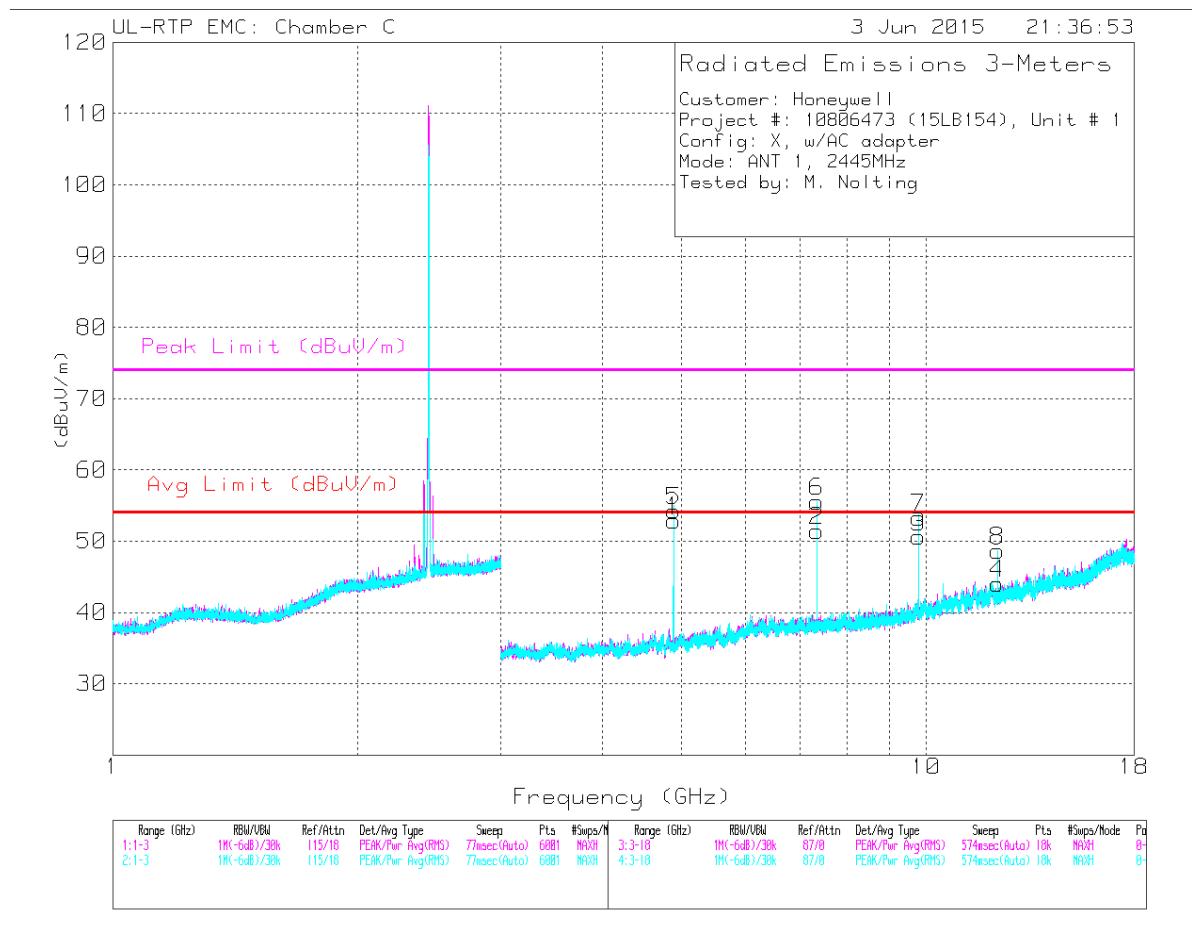


| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | Horn AT0063 (dB/m) | Amp/Cbl (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|--------------------|--------------|----------------------------|--------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1 | * 20.279 | 53.78 | Pk | 32.8 | -46.2 | 40.38 | 54 | -13.62 | 74 | -33.62 | 0-360 | 200 | H |
| 2 | * 22.21 | 52.38 | Pk | 36.2 | -45.8 | 42.78 | 54 | -11.22 | 74 | -31.22 | 0-360 | 200 | H |
| 3 | * 23.878 | 53 | Pk | 33.7 | -45.6 | 41.1 | 54 | -12.9 | 74 | -32.9 | 0-360 | 200 | H |
| 4 | * 21.076 | 53.47 | Pk | 33.5 | -45.9 | 41.07 | 54 | -12.93 | 74 | -32.93 | 0-360 | 225 | V |
| 5 | * 22.076 | 53.78 | Pk | 36.9 | -45.8 | 44.88 | 54 | -9.12 | 74 | -29.12 | 0-360 | 175 | V |
| 6 | 24.283 | 52.97 | Pk | 33.6 | -45.2 | 41.37 | - | - | 74 | -32.63 | 0-360 | 151 | V |

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

HARMONICS AND SPURIOUS EMISSIONS - MID CHANNEL (ANT1)

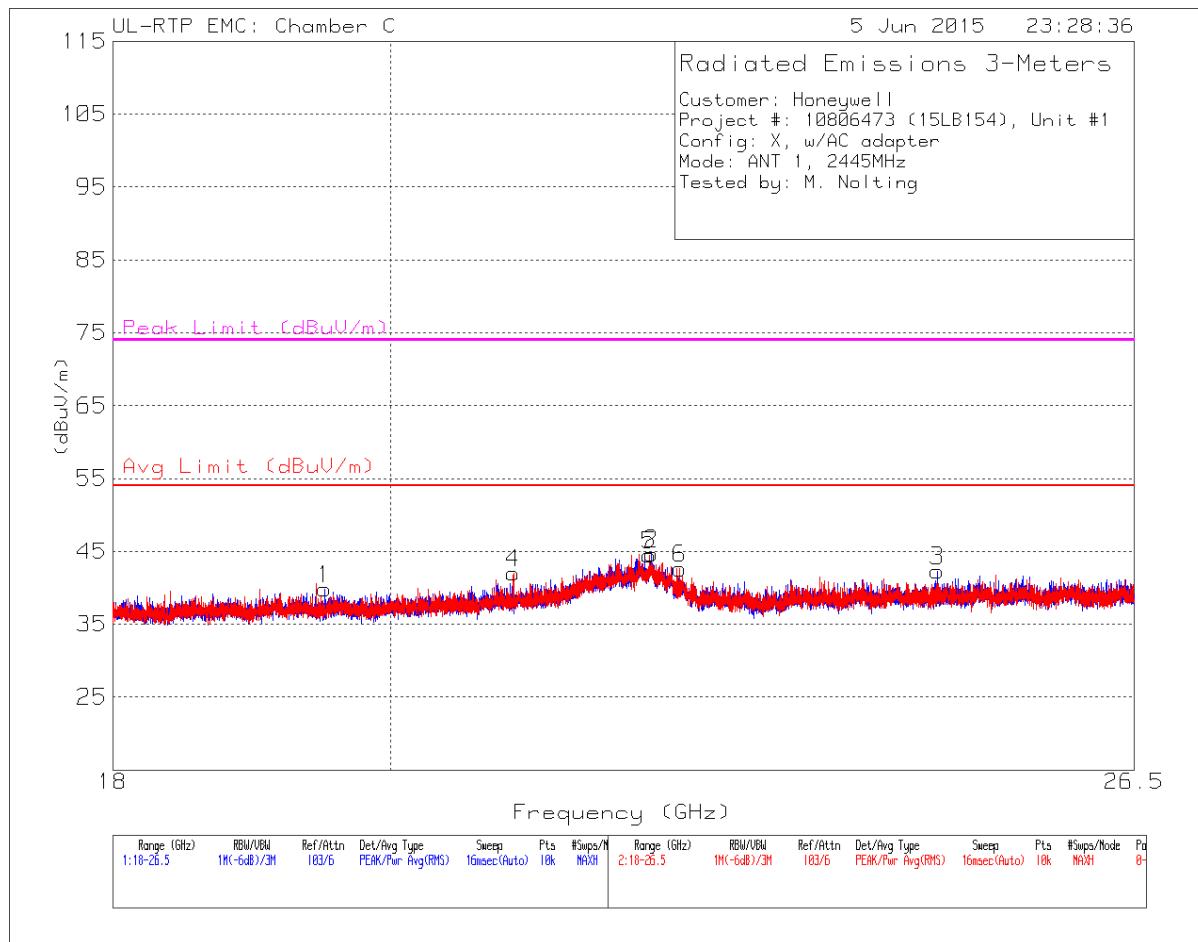


| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0062 (dB/m) | Amp/Cbl/F ltr/Pad | DCF (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|---------------|-------------------|----------|----------------------------|--------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 9 | * 2.349 | 51.24 | Pk | 32 | -26.7 | 0 | 56.54 | - | - | 74 | -17.46 | 333 | 117 | H |
| | * 2.349 | 51.24 | AV | 32 | -26.7 | -23.1 | 33.44 | 54 | -20.56 | - | - | 333 | 117 | H |
| 10 | * 2.381 | 50.38 | Pk | 32.1 | -26.7 | 0 | 55.78 | - | - | 74 | -18.22 | 334 | 140 | H |
| | * 2.381 | 50.38 | AV | 32.1 | -26.7 | -23.1 | 32.68 | 54 | -21.32 | - | - | 334 | 140 | H |
| 1 | * 4.889 | 58.03 | Pk | 34 | -33 | 0 | 59.03 | - | - | 74 | -14.97 | 64 | 101 | H |
| | * 4.889 | 58.03 | AV | 34 | -33 | -23.1 | 35.93 | 54 | -18.07 | - | - | 64 | 101 | H |
| 2 | * 7.334 | 52.4 | Pk | 35.7 | -28.9 | 0 | 59.2 | - | - | 74 | -14.8 | 278 | 101 | H |
| | * 7.334 | 52.4 | AV | 35.7 | -28.9 | -23.1 | 36.1 | 54 | -17.9 | - | - | 278 | 101 | H |
| 4 | * 12.223 | 41.46 | Pk | 38.9 | -26.7 | 0 | 53.66 | - | - | 74 | -20.34 | 149 | 292 | H |
| | * 12.223 | 41.46 | AV | 38.9 | -26.7 | -23.1 | 30.56 | 54 | -23.44 | - | - | 149 | 292 | H |
| 5 | * 4.889 | 59.65 | Pk | 34 | -33 | 0 | 60.65 | - | - | 74 | -13.35 | 263 | 101 | V |
| | * 4.889 | 59.65 | AV | 34 | -33 | -23.1 | 37.55 | 54 | -16.45 | - | - | 263 | 101 | V |
| 6 | * 7.334 | 54.65 | Pk | 35.7 | -28.9 | 0 | 61.45 | - | - | 74 | -12.55 | 103 | 113 | V |
| | * 7.334 | 54.65 | AV | 35.7 | -28.9 | -23.1 | 38.35 | 54 | -15.65 | - | - | 103 | 113 | V |
| 8 | * 12.228 | 44.66 | Pk | 38.9 | -26.8 | 0 | 56.76 | - | - | 74 | -17.24 | 231 | 235 | V |
| | * 12.228 | 44.66 | AV | 38.9 | -26.8 | -23.1 | 33.66 | 54 | -20.34 | - | - | 231 | 235 | V |
| 3 | 9.782 | 40.52 | Pk | 37 | -26.9 | 0 | 50.62 | - | - | 74 | -23.38 | 0-360 | 151 | H |
| 7 | 9.782 | 43.18 | Pk | 37 | -26.9 | 0 | 53.28 | - | - | 74 | -20.72 | 0-360 | 250 | V |

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

AV – Average calculated using AV = PK + 20Log(DC). Where DC = 0.06976.

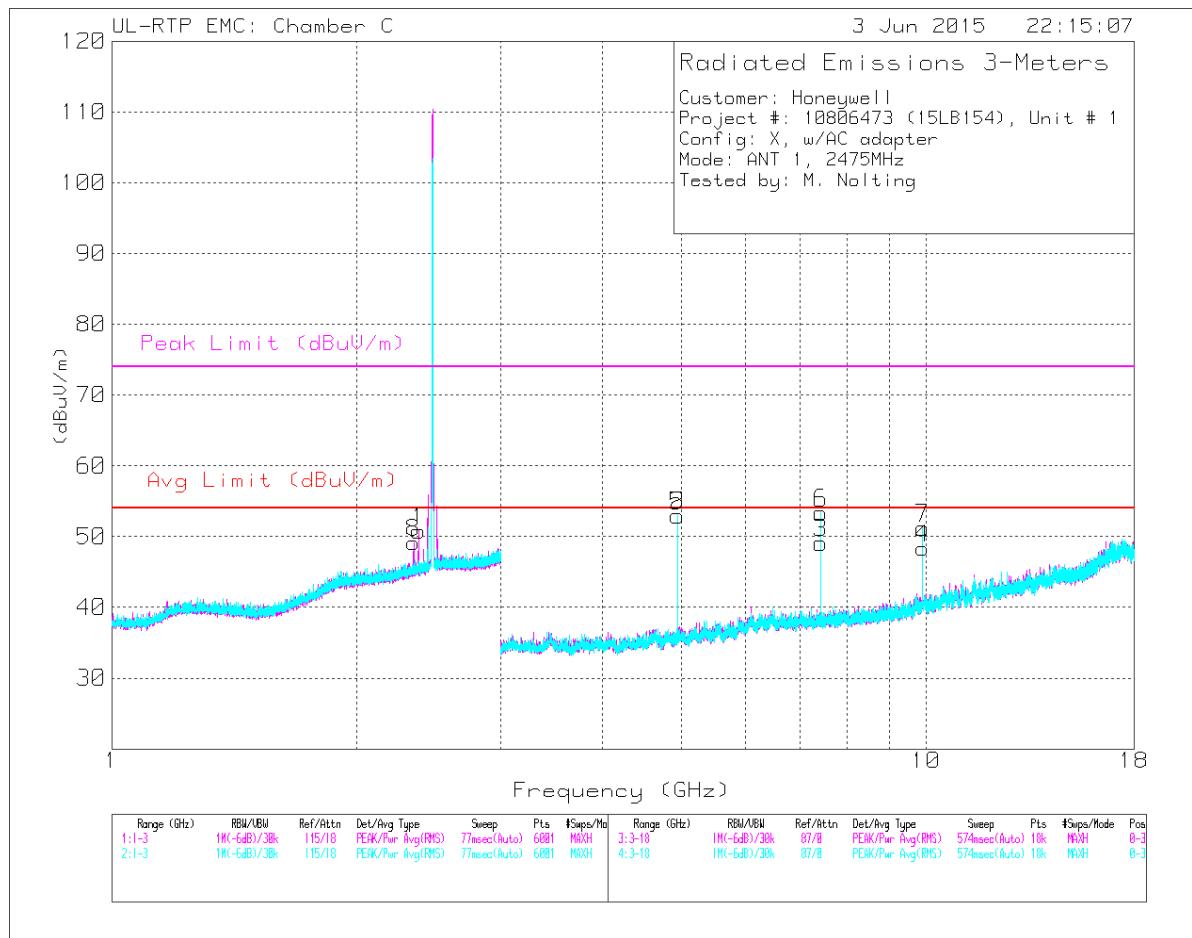


| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | Horn AT0063 (dB/m) | Amp/Cbl (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|--------------------|--------------|----------------------------|--------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1 | * 19.505 | 53.54 | Pk | 32.6 | -46.3 | 39.84 | 54 | -14.16 | 74 | -34.16 | 0-360 | 175 | H |
| 4 | * 20.95 | 54.43 | Pk | 33.5 | -45.9 | 42.03 | 54 | -11.97 | 74 | -31.97 | 0-360 | 151 | V |
| 5 | * 22.057 | 53.49 | Pk | 36.9 | -45.9 | 44.49 | 54 | -9.51 | 74 | -29.51 | 0-360 | 175 | V |
| 2 | * 22.075 | 53.55 | Pk | 36.9 | -45.8 | 44.65 | 54 | -9.35 | 74 | -29.35 | 0-360 | 175 | H |
| 6 | * 22.312 | 52.85 | Pk | 35.7 | -45.9 | 42.65 | 54 | -11.35 | 74 | -31.35 | 0-360 | 225 | V |
| 3 | 24.6 | 53.32 | Pk | 33.8 | -44.8 | 42.32 | - | - | 74 | -31.68 | 0-360 | 225 | H |

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

HARMONICS AND SPURIOUS EMISSIONS - HIGH CHANNEL (ANT1)

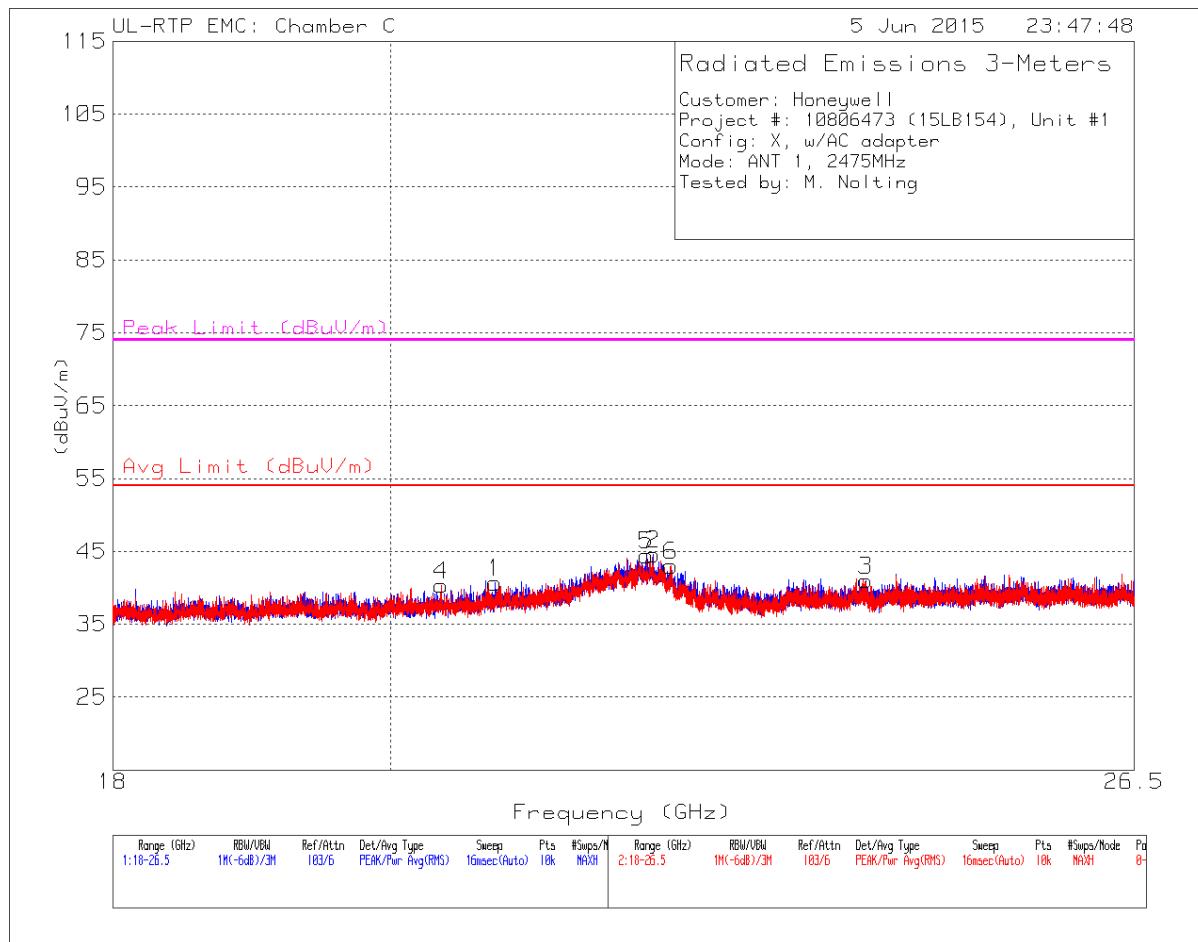


| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0062 (dB/m) | Amp/Cbl/F Itr/Pad | DCF (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|---------------|-------------------|----------|----------------------------|--------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1 | * 2.38 | 52.41 | Pk | 32.1 | -26.7 | 0 | 57.81 | - | - | 74 | -16.19 | 333 | 101 | H |
| | * 2.38 | 52.41 | AV | 32.1 | -26.7 | -23.1 | 34.71 | 54 | -19.29 | - | - | 333 | 101 | H |
| 8 | * 2.346 | 51.16 | Pk | 32 | -26.8 | 0 | 56.36 | - | - | 74 | -17.64 | 337 | 117 | H |
| | * 2.346 | 51.16 | AV | 32 | -26.8 | -23.1 | 33.26 | 54 | -20.74 | - | - | 337 | 117 | H |
| 2 | * 4.951 | 57.91 | Pk | 34.1 | -32.8 | 0 | 59.21 | - | - | 74 | -14.79 | 64 | 116 | H |
| | * 4.951 | 57.91 | AV | 34.1 | -32.8 | -23.1 | 36.11 | 54 | -17.89 | - | - | 64 | 116 | H |
| 3 | * 7.424 | 49.34 | Pk | 35.7 | -28.6 | 0 | 56.44 | - | - | 74 | -17.56 | 279 | 109 | H |
| | * 7.424 | 49.34 | AV | 35.7 | -28.6 | -23.1 | 33.34 | 54 | -20.66 | - | - | 279 | 109 | H |
| 5 | * 4.949 | 56.75 | Pk | 34.1 | -32.8 | 0 | 58.05 | - | - | 74 | -15.95 | 261 | 106 | V |
| | * 4.949 | 56.75 | AV | 34.1 | -32.8 | -23.1 | 34.95 | 54 | -19.05 | - | - | 261 | 106 | V |
| 6 | * 7.427 | 52.14 | Pk | 35.7 | -28.6 | 0 | 59.24 | - | - | 74 | -14.76 | 110 | 102 | V |
| | * 7.427 | 52.14 | AV | 35.7 | -28.6 | -23.1 | 36.14 | 54 | -17.86 | - | - | 110 | 102 | V |
| 4 | 9.898 | 37.56 | Pk | 37.1 | -26.3 | 0 | 48.36 | - | - | 74 | -25.64 | 0-360 | 151 | H |
| 7 | 9.902 | 40.41 | Pk | 37.1 | -26.3 | 0 | 51.21 | - | - | 74 | -22.79 | 0-360 | 250 | V |

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

AV – Average calculated using AV = PK + 20Log(DC). Where DC = 0.06976.

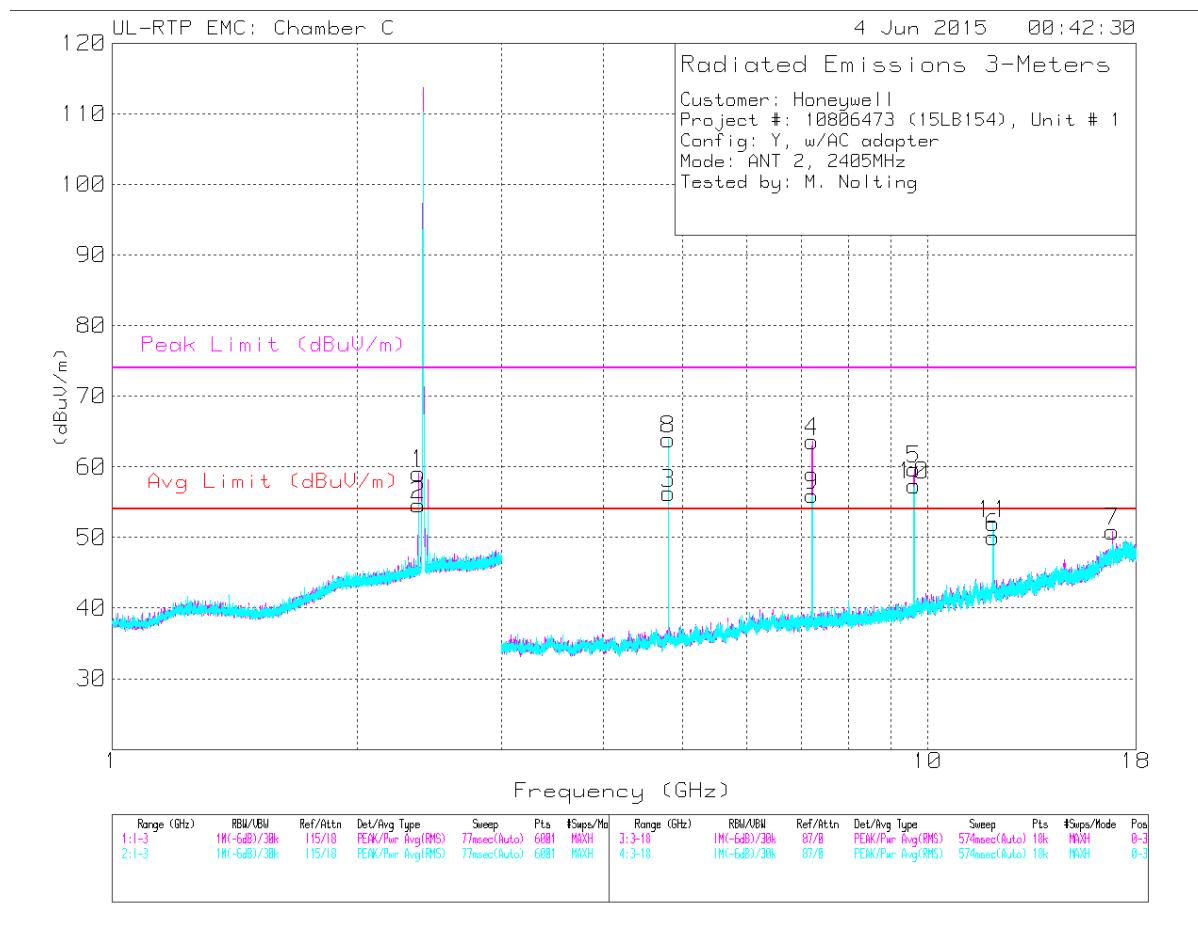


| Marker | Frequency (GHz) | Meter Reading (dB _{UV}) | Det | Horn AT0063 (dB/m) | Amp/Cbl (dB) | Corrected Reading (dB _{UV} /m) | Avg Limit (dB _{UV} /m) | Margin (dB) | Peak Limit (dB _{UV} /m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|-----------------------------------|-----|--------------------|--------------|---|---------------------------------|-------------|----------------------------------|----------------|----------------|-------------|----------|
| 4 | * 20.387 | 53.35 | Pk | 33.1 | -46.1 | 40.35 | 54 | -13.65 | 74 | -33.65 | 0-360 | 175 | V |
| 1 | * 20.804 | 53.52 | Pk | 33.2 | -46 | 40.72 | 54 | -13.28 | 74 | -33.28 | 0-360 | 225 | H |
| 5 | * 22.032 | 53.37 | Pk | 36.9 | -45.8 | 44.47 | 54 | -9.53 | 74 | -29.53 | 0-360 | 151 | V |
| 2 | * 22.091 | 53.61 | Pk | 36.8 | -45.8 | 44.61 | 54 | -9.39 | 74 | -29.39 | 0-360 | 200 | H |
| 6 | * 22.237 | 52.83 | Pk | 36 | -45.8 | 43.03 | 54 | -10.97 | 74 | -30.97 | 0-360 | 200 | V |
| 3 | * 23.939 | 52.81 | Pk | 33.7 | -45.5 | 41.01 | 54 | -12.99 | 74 | -32.99 | 0-360 | 175 | H |

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

HARMONICS AND SPURIOUS EMISSIONS - LOW CHANNEL (ANT2)

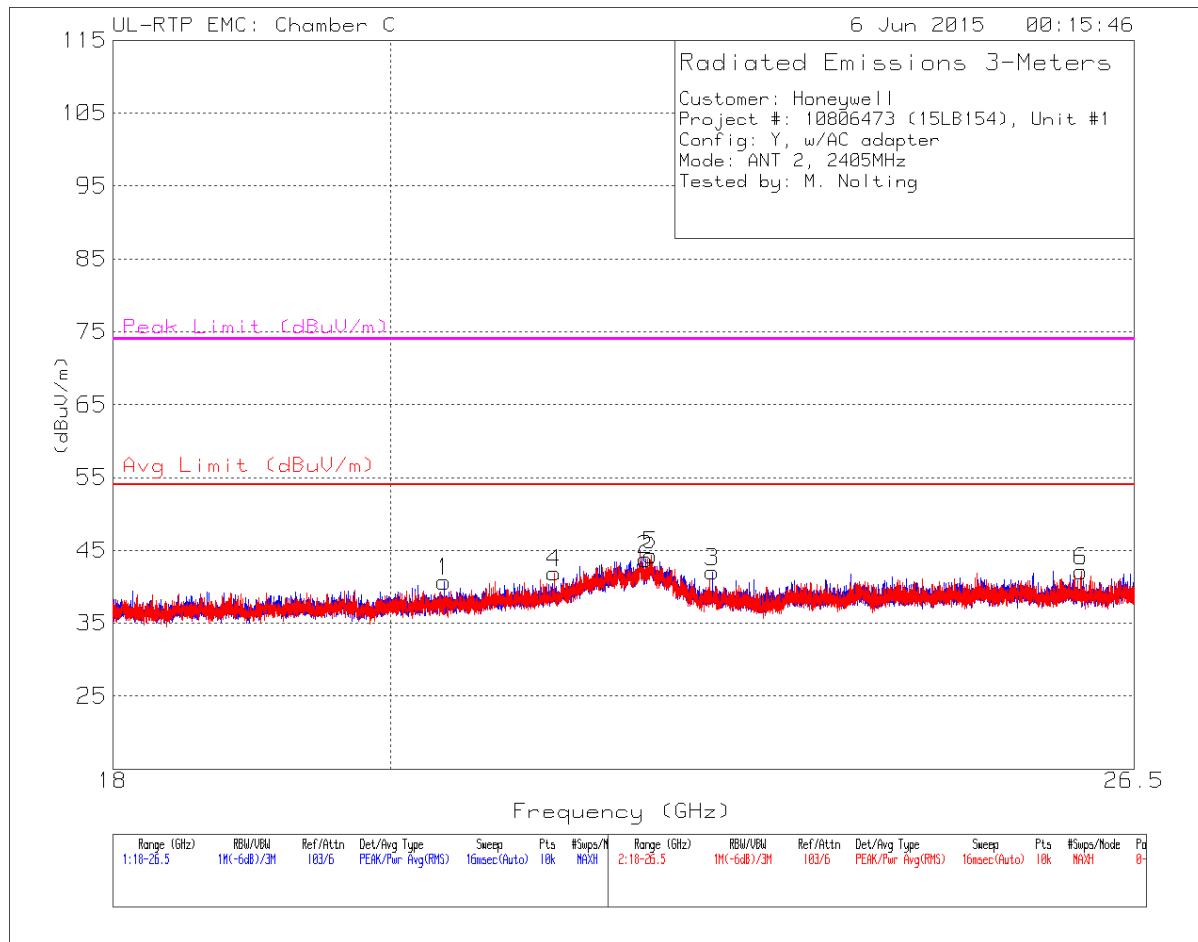


| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0062 (dB/m) | Amp/Cbl/Fltr/Pad | DCF (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|---------------|------------------|----------|----------------------------|--------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1 | * 2.374 | 57.87 | Pk | 32 | -26.7 | 0 | 63.17 | - | - | 74 | -10.83 | 42 | 169 | H |
| | * 2.374 | 57.87 | AV | 32 | -26.7 | -23.1 | 40.07 | 54 | -13.93 | - | - | 42 | 169 | H |
| 2 | * 2.372 | 56.01 | Pk | 32 | -26.7 | 0 | 61.31 | - | - | 74 | -12.69 | 99 | 103 | V |
| | * 2.372 | 56.01 | AV | 32 | -26.7 | -23.1 | 38.21 | 54 | -15.79 | - | - | 99 | 103 | V |
| 3 | * 4.809 | 58.12 | Pk | 34.1 | -32.8 | 0 | 59.42 | - | - | 74 | -14.58 | 222 | 235 | H |
| | * 4.809 | 58.12 | AV | 34.1 | -32.8 | -23.1 | 36.32 | 54 | -17.68 | - | - | 222 | 235 | H |
| 6 | * 12.023 | 44.82 | Pk | 38.7 | -25 | 0 | 58.52 | - | - | 74 | -15.48 | 177 | 238 | H |
| | * 12.023 | 44.82 | AV | 38.7 | -25 | -23.1 | 35.42 | 54 | -18.58 | - | - | 177 | 238 | H |
| 8 | * 4.809 | 65.81 | Pk | 34.1 | -32.8 | 0 | 67.11 | - | - | 74 | -6.89 | 200 | 122 | V |
| | * 4.809 | 65.81 | AV | 34.1 | -32.8 | -23.1 | 44.01 | 54 | -9.99 | - | - | 200 | 122 | V |
| 11 | * 12.028 | 47.5 | Pk | 38.7 | -24.9 | 0 | 61.3 | - | - | 74 | -12.7 | 200 | 311 | V |
| | * 12.028 | 47.5 | AV | 38.7 | -24.9 | -23.1 | 38.2 | 54 | -15.8 | - | - | 200 | 311 | V |
| 4 | 7.216 | 56.79 | Pk | 35.6 | -28.8 | 0 | 63.59 | - | - | 74 | -10.41 | 0-360 | 250 | H |
| 9 | 7.216 | 49.17 | Pk | 35.6 | -28.8 | 0 | 55.97 | - | - | 74 | -18.03 | 0-360 | 151 | V |
| 5 | 9.622 | 50.66 | Pk | 36.8 | -27.8 | 0 | 59.66 | - | - | 74 | -14.34 | 0-360 | 250 | H |
| 10 | 9.622 | 48.36 | Pk | 36.8 | -27.8 | 0 | 57.36 | - | - | 74 | -16.64 | 0-360 | 250 | V |
| 7 | 16.839 | 29.94 | Pk | 41.6 | -20.7 | 0 | 50.84 | - | - | 74 | -23.16 | 0-360 | 250 | H |

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

AV - Average calculated using AV = PK + 20Log(DC). Where DC = 0.06976.

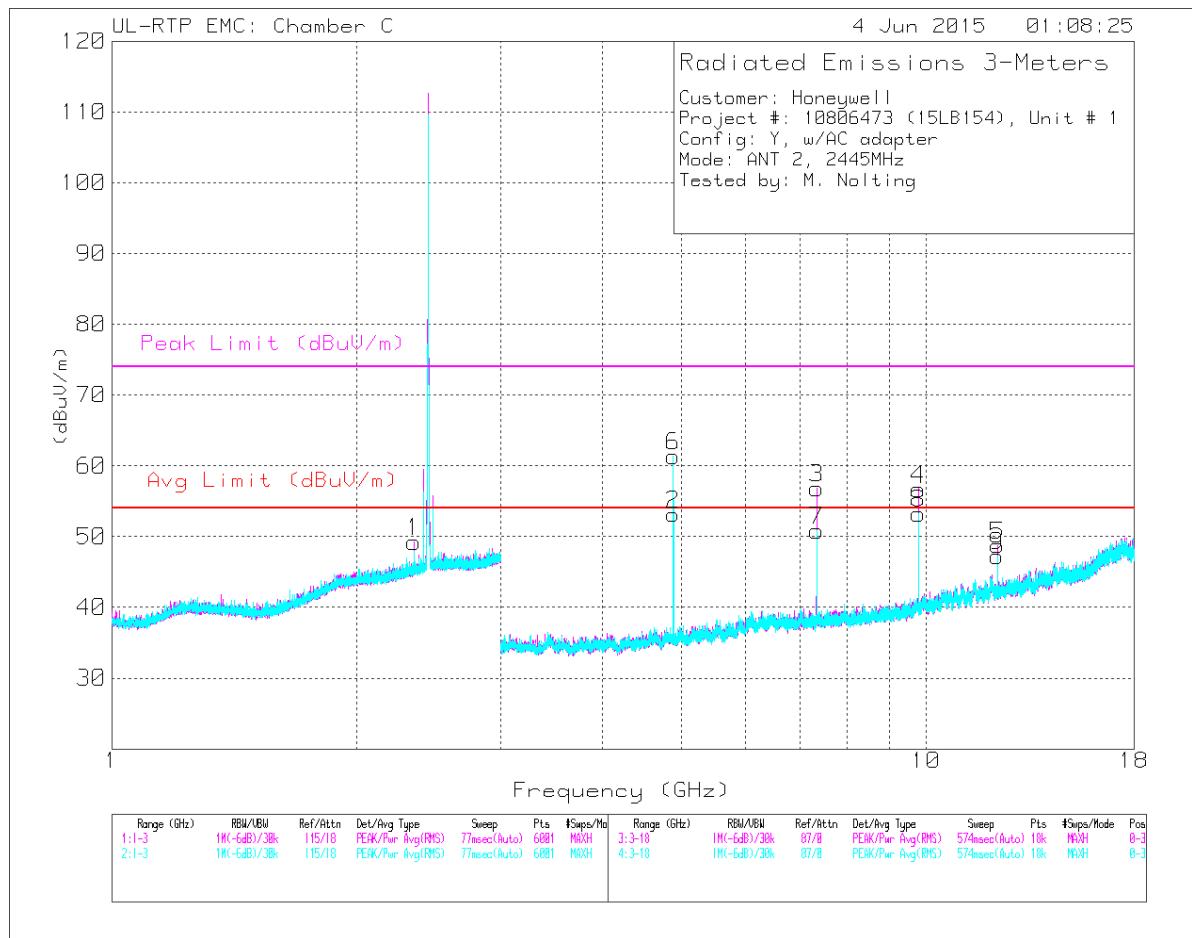


| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | Horn AT0063 (dB/m) | Amp/Cbl (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|--------------------|--------------|----------------------------|--------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1 | * 20.409 | 53.59 | Pk | 33.2 | -46.1 | 40.69 | 54 | -13.31 | 74 | -33.31 | 0-360 | 175 | H |
| 4 | * 21.278 | 53.8 | Pk | 33.9 | -45.8 | 41.9 | 54 | -12.1 | 74 | -32.1 | 0-360 | 200 | V |
| 2 | * 22.027 | 52.66 | Pk | 36.9 | -45.8 | 43.76 | 54 | -10.24 | 74 | -30.24 | 0-360 | 175 | H |
| 5 | * 22.069 | 53.22 | Pk | 36.9 | -45.8 | 44.32 | 54 | -9.68 | 74 | -29.68 | 0-360 | 175 | V |
| 3 | * 22.591 | 53.74 | Pk | 34.2 | -45.9 | 42.04 | 54 | -11.96 | 74 | -31.96 | 0-360 | 200 | H |
| 6 | 25.973 | 51.94 | Pk | 34 | -43.8 | 42.14 | - | - | 74 | -31.86 | 0-360 | 175 | V |

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

HARMONICS AND SPURIOUS EMISSIONS - MID CHANNEL (ANT2)

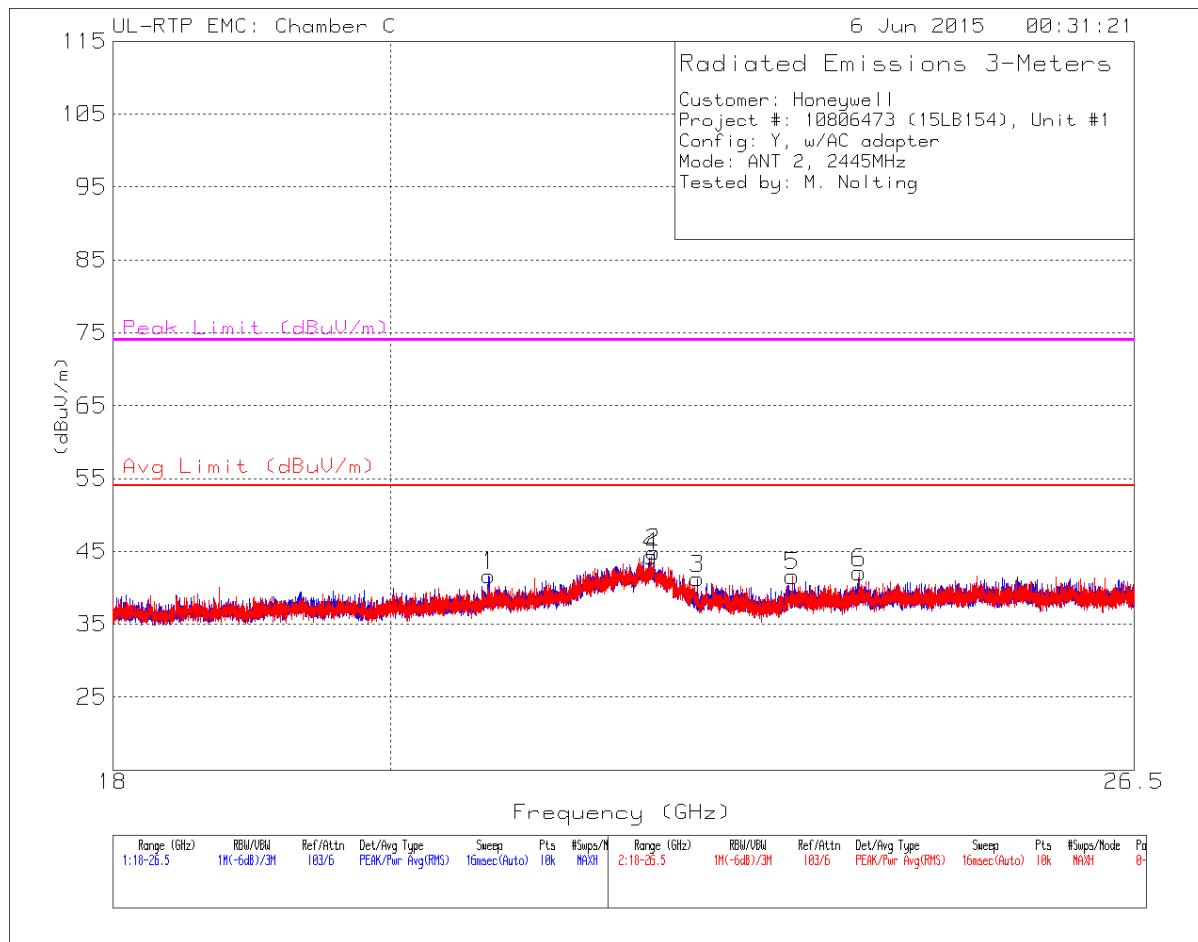


| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0062 (dB/m) | Amp/Cbl/F Itr/Pad | DCF (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|---------------|-------------------|----------|----------------------------|--------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1 | * 2.349 | 51.44 | Pk | 32 | -26.7 | 0 | 56.74 | - | - | 74 | -17.26 | 39 | 149 | H |
| | * 2.349 | 51.44 | AV | 32 | -26.7 | -23.1 | 33.64 | 54 | -20.36 | - | - | 39 | 149 | H |
| 2 | * 4.891 | 59.03 | Pk | 34 | -33 | 0 | 60.03 | - | - | 74 | -13.97 | 262 | 195 | H |
| | * 4.891 | 59.03 | AV | 34 | -33 | -23.1 | 36.93 | 54 | -17.07 | - | - | 262 | 195 | H |
| 3 | * 7.334 | 55.61 | Pk | 35.7 | -28.9 | 0 | 62.41 | - | - | 74 | -11.59 | 233 | 235 | H |
| | * 7.334 | 55.61 | AV | 35.7 | -28.9 | -23.1 | 39.31 | 54 | -14.69 | - | - | 233 | 235 | H |
| 5 | * 12.223 | 44.73 | Pk | 38.9 | -26.7 | 0 | 56.93 | - | - | 74 | -17.07 | 178 | 277 | H |
| | * 12.223 | 44.73 | AV | 38.9 | -26.7 | -23.1 | 33.83 | 54 | -20.17 | - | - | 178 | 277 | H |
| 6 | * 4.889 | 64.25 | Pk | 34 | -33 | 0 | 65.25 | - | - | 74 | -8.75 | 198 | 124 | V |
| | * 4.889 | 64.25 | AV | 34 | -33 | -23.1 | 42.15 | 54 | -11.85 | - | - | 198 | 124 | V |
| 7 | * 7.334 | 50.94 | Pk | 35.7 | -28.9 | 0 | 57.74 | - | - | 74 | -16.26 | 68 | 141 | V |
| | * 7.334 | 50.94 | AV | 35.7 | -28.9 | -23.1 | 34.64 | 54 | -19.36 | - | - | 68 | 141 | V |
| 9 | * 12.223 | 43.76 | Pk | 38.9 | -26.7 | 0 | 55.96 | - | - | 74 | -18.04 | 171 | 238 | V |
| | * 12.223 | 43.76 | AV | 38.9 | -26.7 | -23.1 | 32.86 | 54 | -21.14 | - | - | 171 | 238 | V |
| 8 | 9.778 | 43.16 | Pk | 37 | -26.9 | 0 | 53.26 | - | - | 74 | -20.74 | 0-360 | 250 | V |
| 4 | 9.782 | 46.57 | Pk | 37 | -26.9 | 0 | 56.67 | - | - | 74 | -17.33 | 0-360 | 250 | H |

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

AV – Average calculated using AV = PK + 20Log(DC). Where DC = 0.06976.

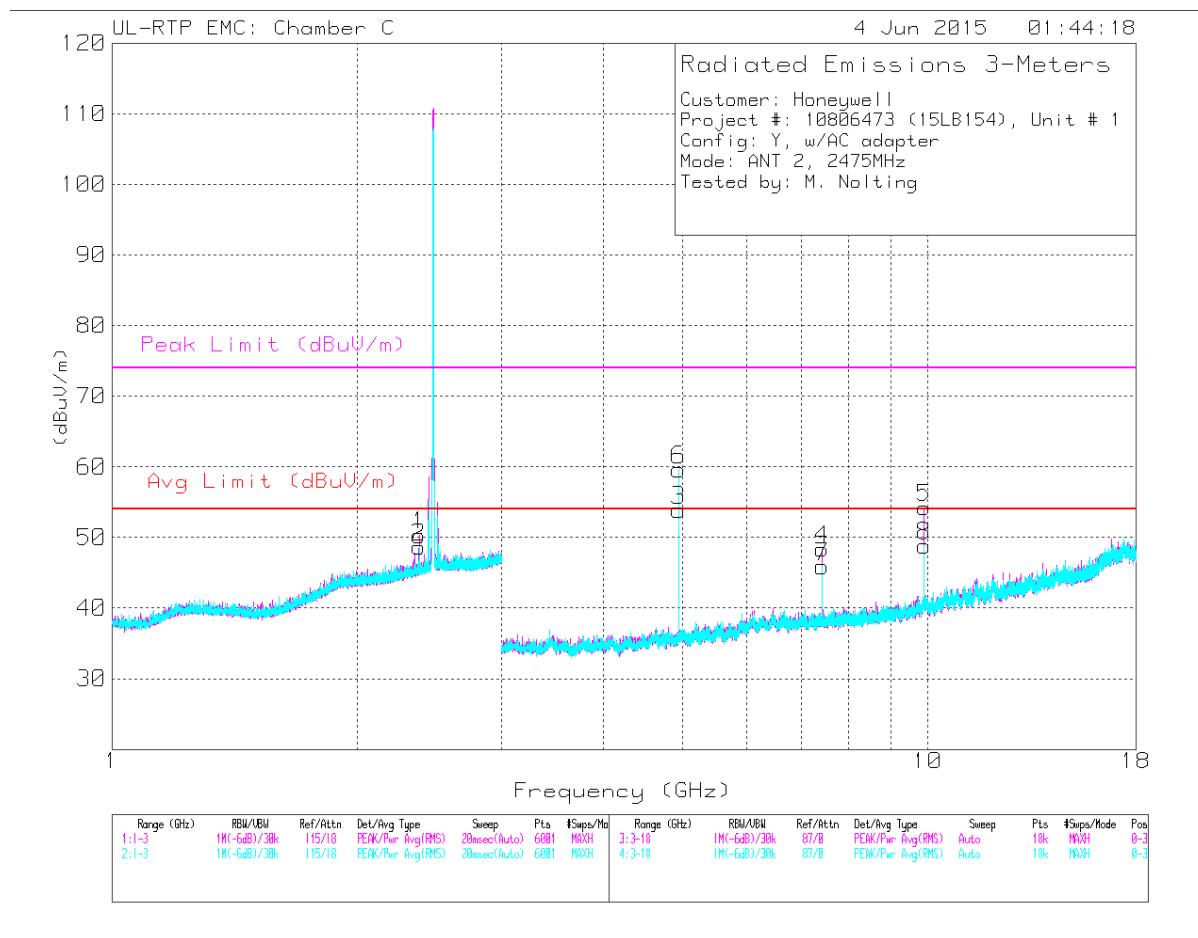


| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | Horn AT0063 (dB/m) | Amp/Cbl (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|--------------------|--------------|----------------------------|--------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1 | * 20.756 | 54.57 | Pk | 33.1 | -46 | 41.67 | 54 | -12.33 | 74 | -32.33 | 0-360 | 225 | H |
| 4 | * 22.069 | 53.25 | Pk | 36.9 | -45.8 | 44.35 | 54 | -9.65 | 74 | -29.65 | 0-360 | 200 | V |
| 2 | * 22.093 | 53.89 | Pk | 36.8 | -45.8 | 44.89 | 54 | -9.11 | 74 | -29.11 | 0-360 | 175 | H |
| 3 | * 22.46 | 52.37 | Pk | 34.8 | -45.9 | 41.27 | 54 | -12.73 | 74 | -32.73 | 0-360 | 225 | H |
| 6 | * 23.88 | 53.98 | Pk | 33.7 | -45.6 | 42.08 | 54 | -11.92 | 74 | -31.92 | 0-360 | 225 | V |
| 5 | 23.282 | 54.02 | Pk | 33.5 | -45.9 | 41.62 | - | - | 74 | -32.38 | 0-360 | 225 | V |

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

HARMONICS AND SPURIOUS EMISSIONS - HIGH CHANNEL (ANT2)

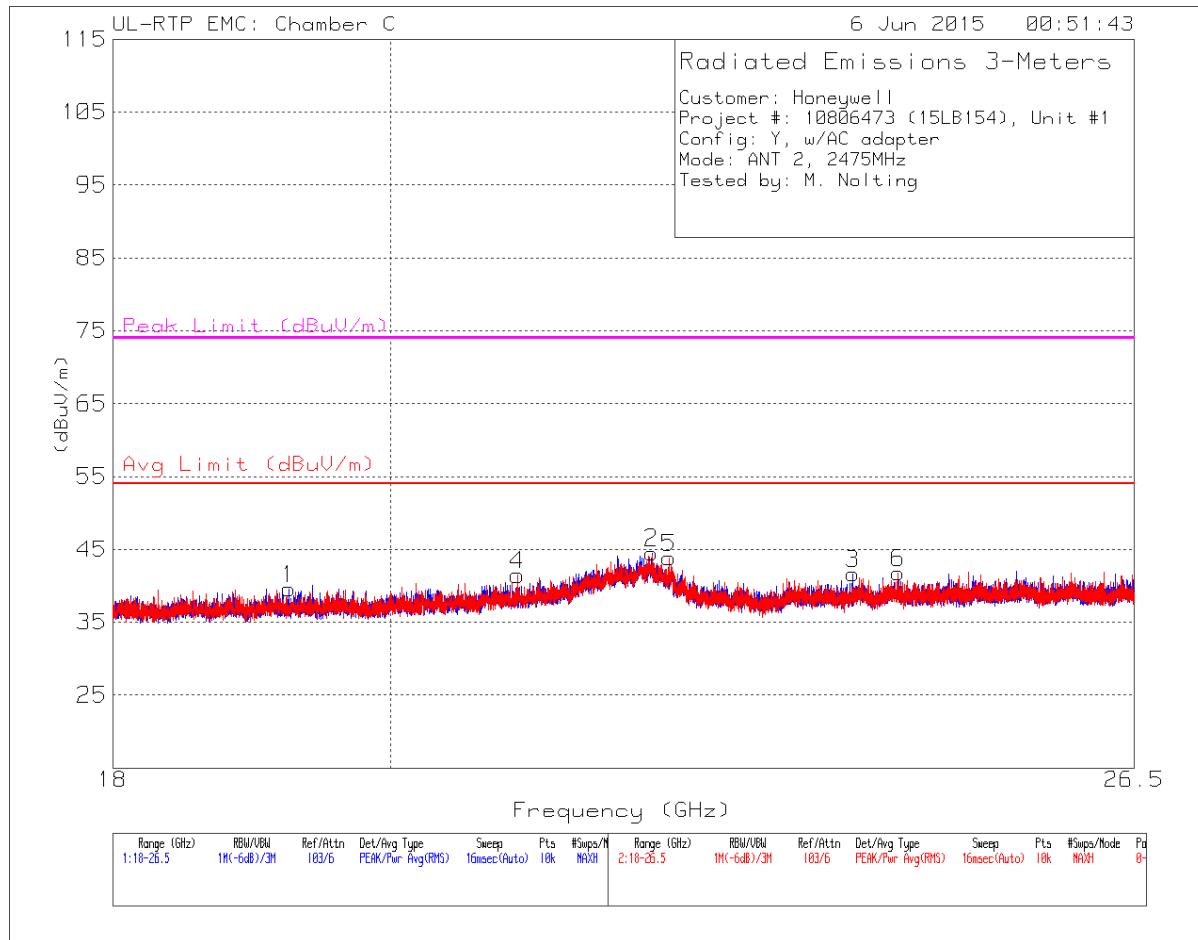


| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AT0062 (dB/m) | Amp/Cbl/F ltr/Pad | DCF (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|---------------|-------------------|----------|----------------------------|--------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1 | * 2.38 | 52.23 | PK2 | 32.1 | -26.7 | 0 | 57.63 | - | - | 74 | -16.37 | 48 | 173 | H |
| | * 2.38 | 52.23 | AV | 32.1 | -26.7 | -23.1 | 34.53 | 54 | -19.47 | - | - | 48 | 173 | H |
| 2 | * 2.379 | 51.8 | PK2 | 32.1 | -26.7 | 0 | 57.2 | - | - | 74 | -16.8 | 99 | 132 | V |
| | * 2.379 | 51.8 | AV | 32.1 | -26.7 | -23.1 | 34.1 | 54 | -19.9 | - | - | 99 | 132 | V |
| 3 | * 4.949 | 60.35 | PK2 | 34.1 | -32.8 | 0 | 61.65 | - | - | 74 | -12.35 | 261 | 191 | H |
| | * 4.949 | 60.35 | AV | 34.1 | -32.8 | -23.1 | 38.55 | 54 | -15.45 | - | - | 261 | 191 | H |
| 4 | * 7.424 | 51.76 | PK2 | 35.7 | -28.6 | 0 | 58.86 | - | - | 74 | -15.14 | 233 | 220 | H |
| | * 7.424 | 51.76 | AV | 35.7 | -28.6 | -23.1 | 35.76 | 54 | -18.24 | - | - | 233 | 220 | H |
| 6 | * 4.949 | 62.87 | PK2 | 34.1 | -32.8 | 0 | 64.17 | - | - | 74 | -9.83 | 199 | 132 | V |
| | * 4.949 | 62.87 | AV | 34.1 | -32.8 | -23.1 | 41.07 | 54 | -12.93 | - | - | 198 | 132 | V |
| 7 | * 7.424 | 45.86 | PK2 | 35.7 | -28.6 | 0 | 52.96 | - | - | 74 | -21.04 | 64 | 145 | V |
| | * 7.424 | 45.86 | AV | 35.7 | -28.6 | -23.1 | 29.86 | 54 | -24.14 | - | - | 64 | 145 | V |
| 5 | 9.902 | 43.44 | Pk | 37.1 | -26.3 | 0 | 54.24 | - | - | 74 | -19.76 | 0-360 | 151 | H |
| 8 | 9.902 | 38 | Pk | 37.1 | -26.3 | 0 | 48.8 | - | - | 74 | -25.2 | 0-360 | 151 | V |

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

AV – Average calculated using AV = PK + 20Log(DC). Where DC = 0.06976.



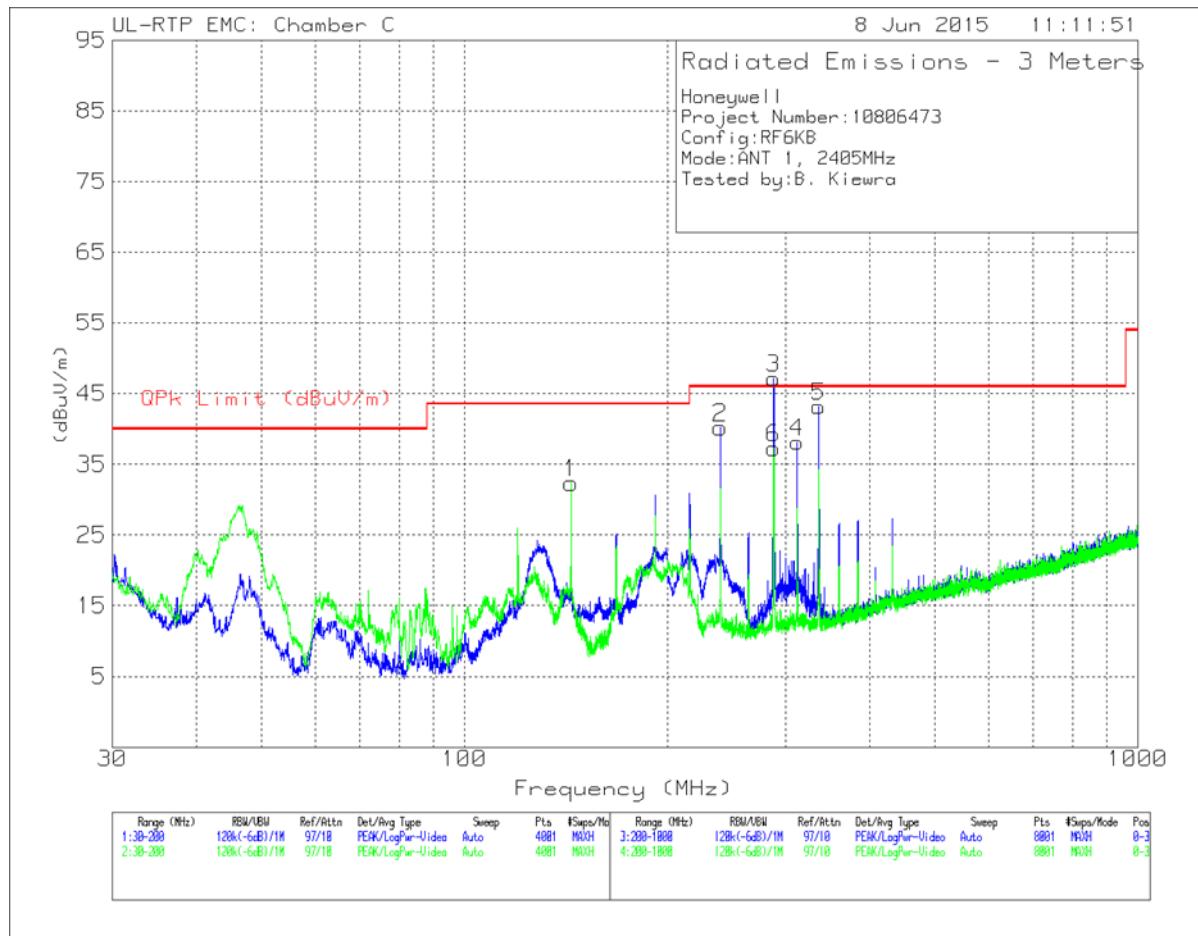
| Marker | Frequency (GHz) | Meter Reading (dB _{UV}) | Det | Horn AT0063 (dB/m) | Amp/Cbl (dB) | Corrected Reading (dB _{UV} /m) | Avg Limit (dB _{UV} /m) | Margin (dB) | Peak Limit (dB _{UV} /m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|-----------------------------------|-----|--------------------|--------------|---|---------------------------------|-------------|----------------------------------|----------------|----------------|-------------|----------|
| 1 | * 19.244 | 53.18 | Pk | 32.6 | -46.2 | 39.58 | 54 | -14.42 | 74 | -34.42 | 0-360 | 200 | H |
| 4 | * 20.982 | 53.88 | Pk | 33.5 | -45.9 | 41.48 | 54 | -12.52 | 74 | -32.52 | 0-360 | 175 | V |
| 2 | * 22.077 | 53.52 | Pk | 36.8 | -45.8 | 44.52 | 54 | -9.48 | 74 | -29.48 | 0-360 | 225 | H |
| 5 | * 22.22 | 53.55 | Pk | 36.1 | -45.8 | 43.85 | 54 | -10.15 | 74 | -30.15 | 0-360 | 200 | V |
| 3 | * 23.825 | 53.75 | Pk | 33.6 | -45.7 | 41.65 | 54 | -12.35 | 74 | -32.35 | 0-360 | 149 | H |
| 6 | 24.236 | 53.49 | Pk | 33.5 | -45.2 | 41.79 | - | - | 74 | -32.21 | 0-360 | 151 | V |

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

8.3. TX SPURIOUS BELOW 1 GHz

SPURIOUS EMISSIONS 30 TO 1000 MHz (ANT1, LOW CHANNEL)



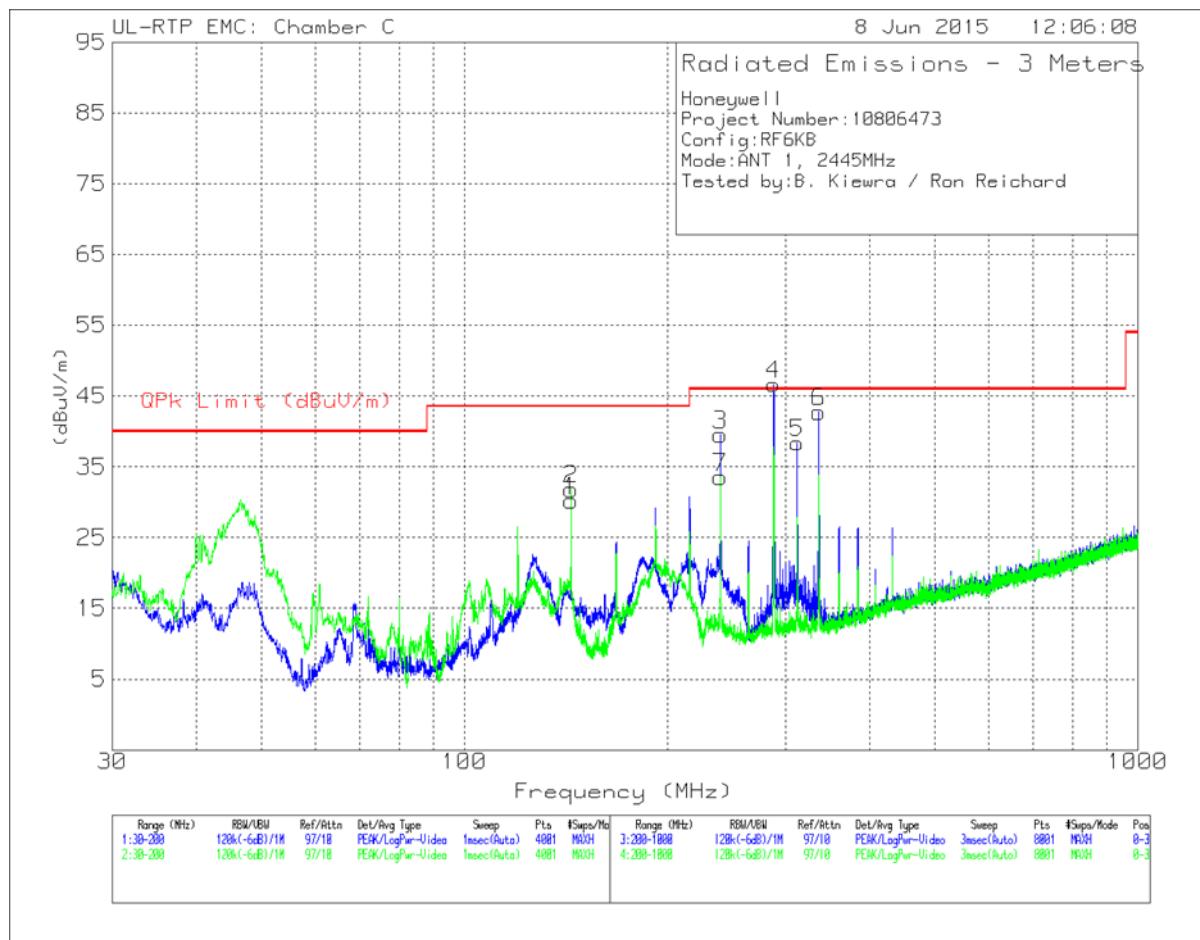
| Marker | Frequency (MHz) | Meter Reading (dB _{UV}) | Det | AT0066 (dB/m) | Amp/Cbl (dB) | Corrected Reading (dB _{UV} /m) | QPk Limit (dB _{UV} /m) | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|-----------------------------------|-----|---------------|--------------|---|---------------------------------|-------------|----------------|-------------|----------|
| 2 | *240 | 58.62 | Qp | 11.5 | -30 | 40.12 | 46.02 | -5.9 | 27 | 129 | H |
| 1 | 143.985 | 49.77 | Pk | 13.1 | -30.5 | 32.37 | 43.52 | -11.15 | 0-360 | 100 | V |
| 3 | 288 | 63.78 | Pk | 13.3 | -29.9 | 47.18 | - | - | 0-360 | 100 | H |
| 6 | 288 | 53.9 | Pk | 13.3 | -29.9 | 37.3 | - | - | 0-360 | 200 | V |
| 4 | 312 | 54.05 | Pk | 13.8 | -29.7 | 38.15 | - | - | 0-360 | 100 | H |
| 5 | 336 | 58.98 | Pk | 13.9 | -29.7 | 43.18 | - | - | 0-360 | 100 | H |

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

Qp - Quasi-Peak detector

SPURIOUS EMISSIONS 30 TO 1000 MHz (ANT1, MID CHANNEL)



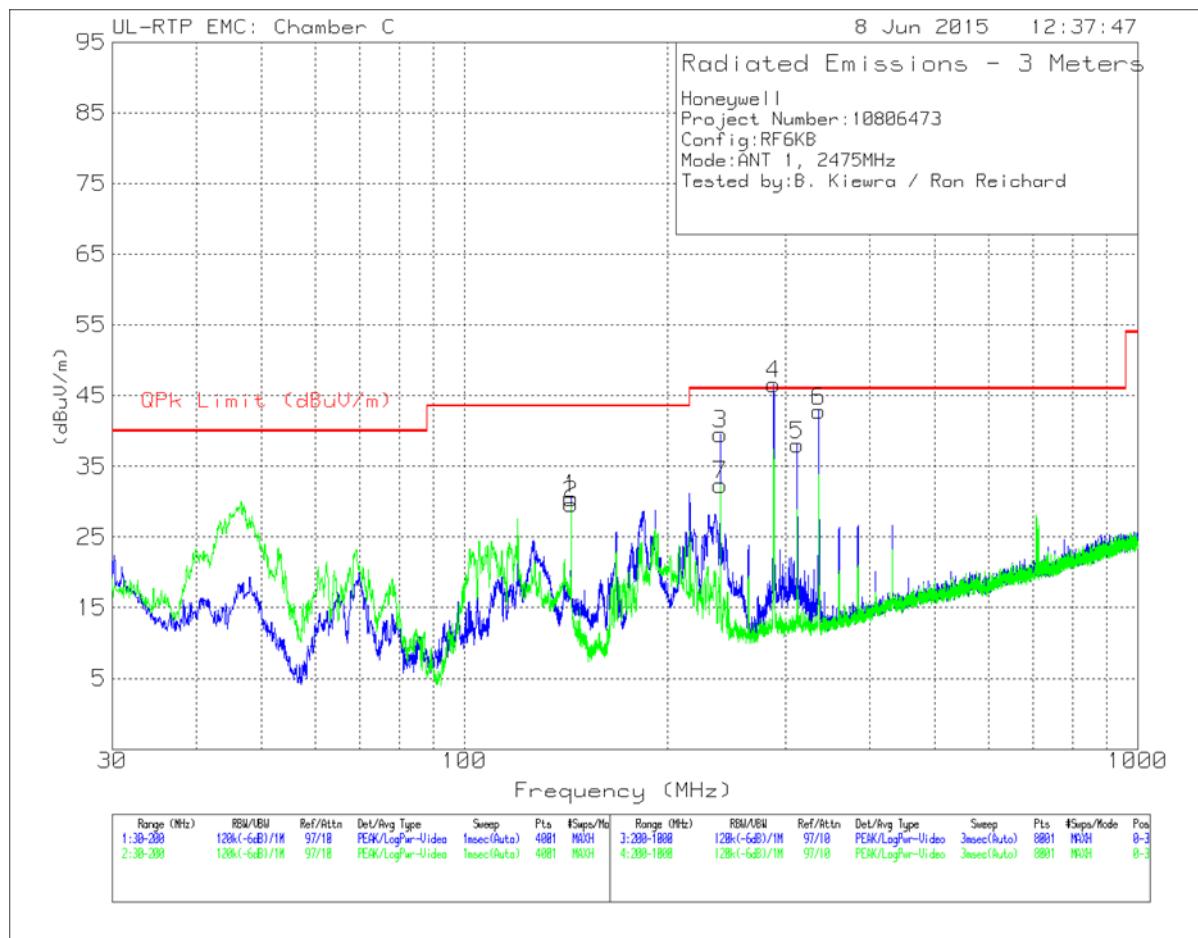
| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | AT0066 (dB/m) | Amp/Cbl (dB) | Corrected Reading (dBuV/m) | QPk Limit (dBuV/m) | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|---------------|--------------|----------------------------|--------------------|-------------|----------------|-------------|----------|
| 3 | *240 | 51.64 | Qp | 11.5 | -30 | 33.14 | 46.02 | -12.88 | 243 | 170 | V |
| 7 | *240 | 58.48 | Qp | 11.5 | -30 | 39.98 | 46.02 | -6.04 | 19 | 128 | H |
| 1 | 143.985 | 47.61 | Pk | 13.1 | -30.5 | 30.21 | - | - | 0-360 | 200 | H |
| 2 | 143.985 | 49.26 | Pk | 13.1 | -30.5 | 31.86 | - | - | 0-360 | 101 | V |
| 4 | 288 | 63.28 | Pk | 13.3 | -29.9 | 46.68 | - | - | 0-360 | 101 | H |
| 5 | 312 | 54.29 | Pk | 13.8 | -29.7 | 38.39 | - | - | 0-360 | 101 | H |
| 6 | 336 | 58.54 | Pk | 13.9 | -29.7 | 42.74 | - | - | 0-360 | 101 | H |

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

Qp - Quasi-Peak detector

SPURIOUS EMISSIONS 30 TO 1000 MHz (ANT1, HIGH CHANNEL)



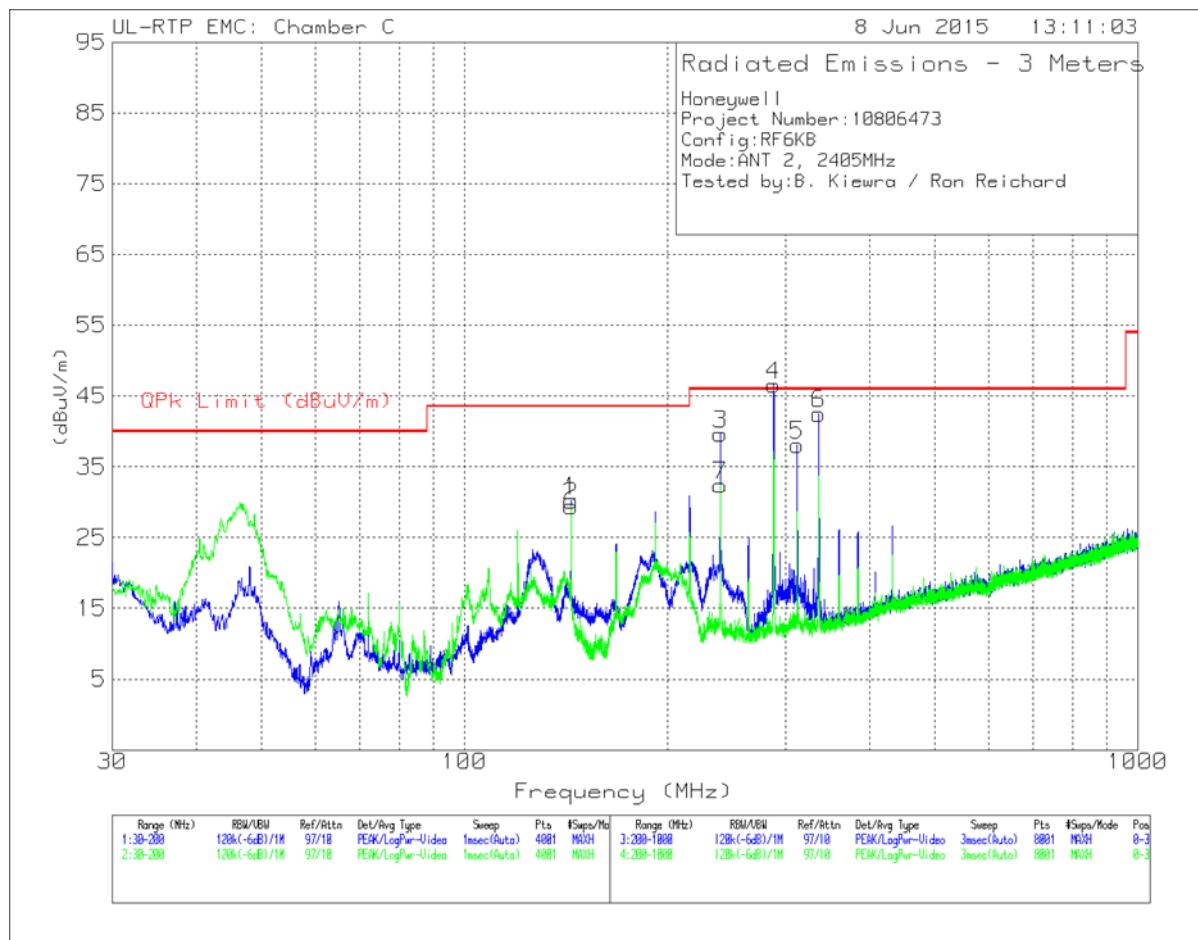
| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | AT0066 (dB/m) | Amp/Cbl (dB) | Corrected Reading (dBuV/m) | QPk Limit (dBuV/m) | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|---------------|--------------|----------------------------|--------------------|-------------|----------------|-------------|----------|
| 3 | * 240.005 | 52.41 | Qp | 11.5 | -30 | 33.91 | 46.02 | -12.11 | 237 | 159 | V |
| 7 | *240 | 58.37 | Qp | 11.5 | -30 | 39.87 | 46.02 | -6.15 | 357 | 129 | H |
| 1 | 143.985 | 47.86 | Pk | 13.1 | -30.5 | 30.46 | - | - | 0-360 | 200 | H |
| 2 | 143.985 | 47.02 | Pk | 13.1 | -30.5 | 29.62 | - | - | 0-360 | 100 | V |
| 4 | 288 | 63.21 | Pk | 13.3 | -29.9 | 46.61 | - | - | 0-360 | 100 | H |
| 5 | 312 | 53.94 | Pk | 13.8 | -29.7 | 38.04 | - | - | 0-360 | 100 | H |
| 6 | 336 | 58.63 | Pk | 13.9 | -29.7 | 42.83 | - | - | 0-360 | 100 | H |

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

Qp - Quasi-Peak detector

SPURIOUS EMISSIONS 30 TO 1000 MHz (ANT2, LOW CHANNEL)



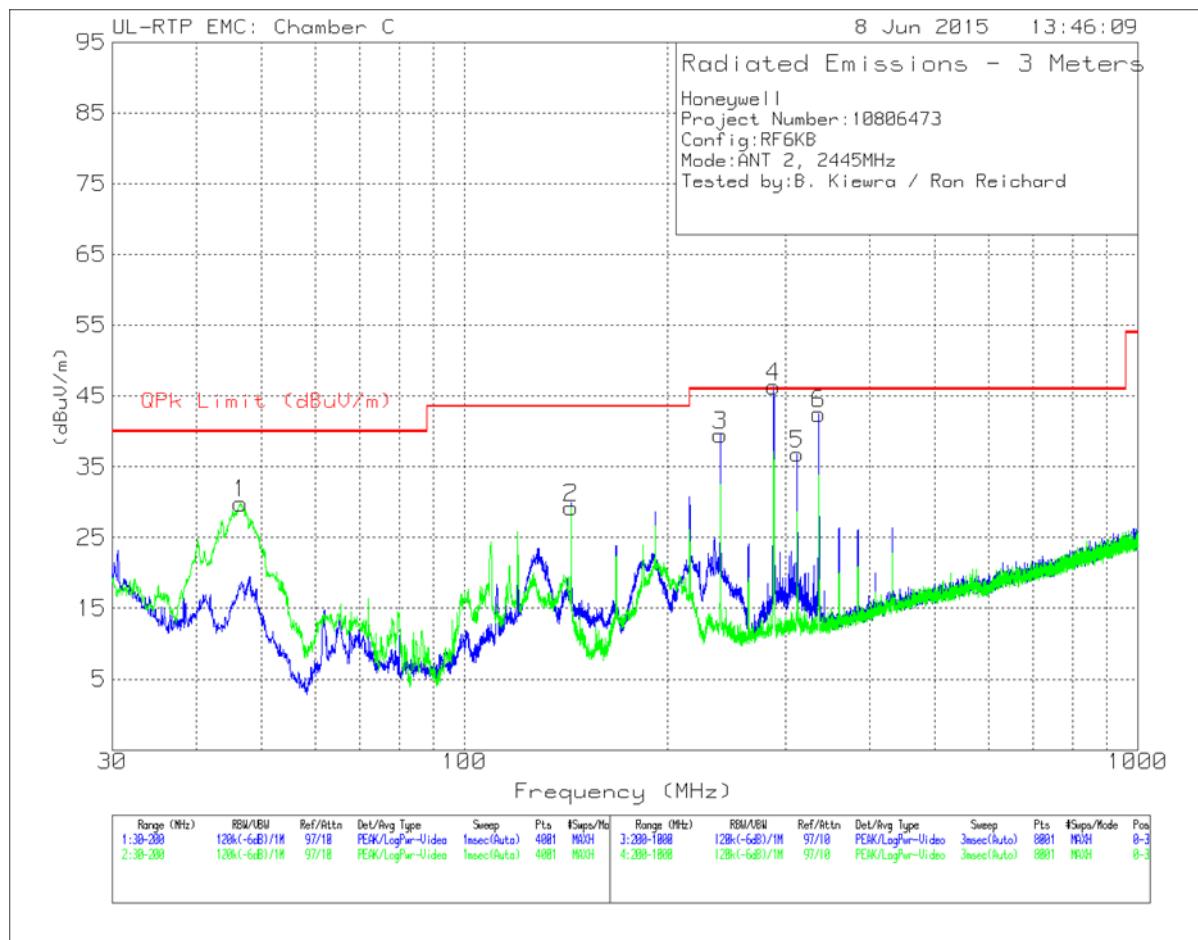
| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | AT0066 (dB/m) | Amp/Cbl (dB) | Corrected Reading (dBuV/m) | QPk Limit (dBuV/m) | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|---------------|--------------|----------------------------|--------------------|-------------|----------------|-------------|----------|
| 3 | *240 | 58.12 | Qp | 11.5 | -30 | 39.62 | 46.02 | -6.4 | 359 | 117 | H |
| 7 | *240 | 52.44 | Qp | 11.5 | -30 | 33.94 | 46.02 | -12.08 | 239 | 180 | V |
| 1 | 143.985 | 47.6 | Pk | 13.1 | -30.5 | 30.2 | - | - | 0-360 | 200 | H |
| 2 | 143.985 | 46.84 | Pk | 13.1 | -30.5 | 29.44 | - | - | 0-360 | 100 | V |
| 4 | 288 | 63.16 | Pk | 13.3 | -29.9 | 46.56 | - | - | 0-360 | 100 | H |
| 5 | 312 | 53.97 | Pk | 13.8 | -29.7 | 38.07 | - | - | 0-360 | 100 | H |
| 6 | 336 | 58.3 | Pk | 13.9 | -29.7 | 42.5 | - | - | 0-360 | 100 | H |

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

Qp - Quasi-Peak detector

SPURIOUS EMISSIONS 30 TO 1000 MHz (ANT2, MID CHANNEL)



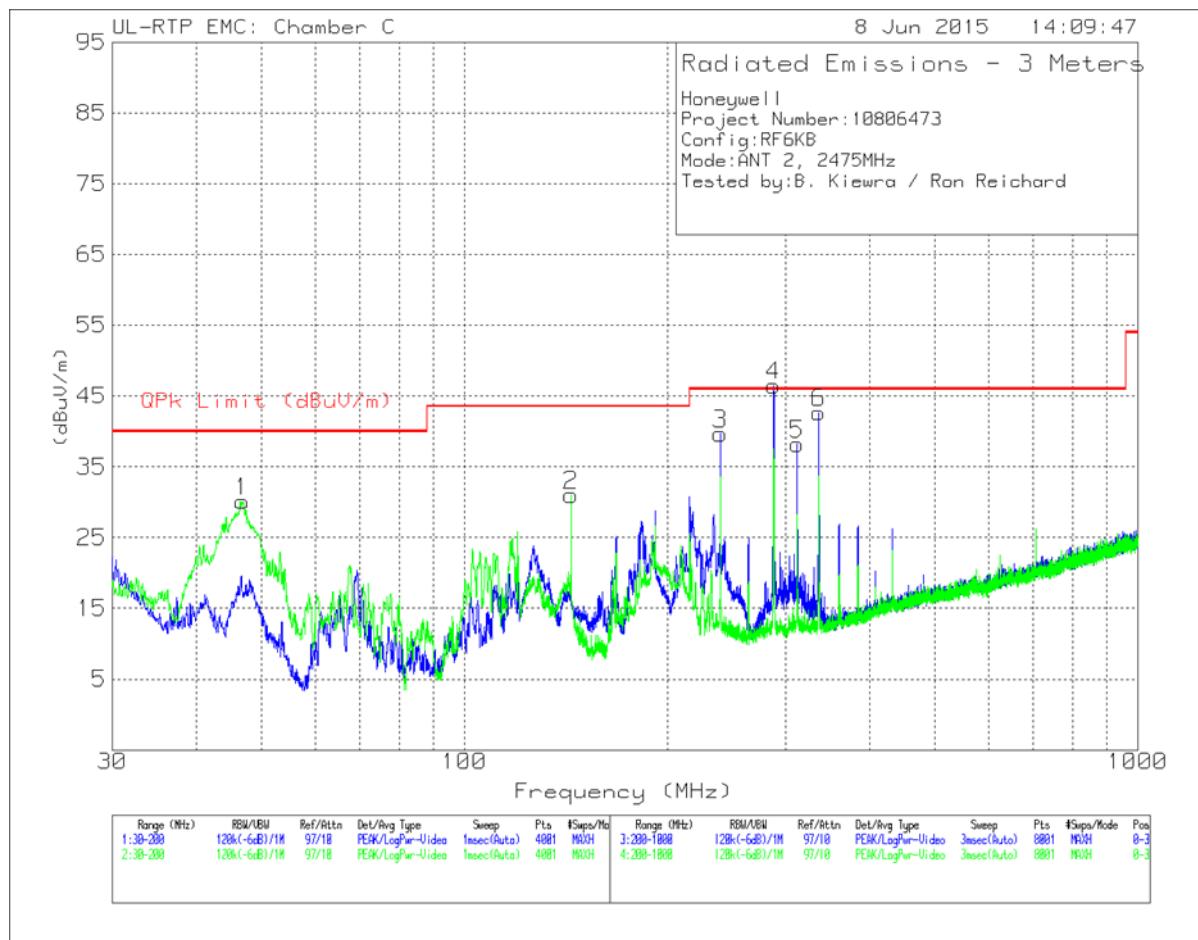
| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | AT0066 (dB/m) | Amp/Cbl (dB) | Corrected Reading (dBuV/m) | QPk Limit (dBuV/m) | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|---------------|--------------|----------------------------|--------------------|-------------|----------------|-------------|----------|
| 3 | *240 | 58.5 | Qp | 11.5 | -30 | 40 | 46.02 | -6.02 | 18 | 128 | H |
| 1 | 46.49 | 51.56 | Pk | 9.7 | -31.4 | 29.86 | - | - | 0-360 | 101 | V |
| 2 | 143.985 | 46.65 | Pk | 13.1 | -30.5 | 29.25 | - | - | 0-360 | 101 | V |
| 4 | 288 | 62.92 | Pk | 13.3 | -29.9 | 46.32 | - | - | 0-360 | 101 | H |
| 5 | 312 | 52.71 | Pk | 13.8 | -29.7 | 36.81 | - | - | 0-360 | 101 | H |
| 6 | 336 | 58.29 | Pk | 13.9 | -29.7 | 42.49 | - | - | 0-360 | 101 | H |

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

Qp - Quasi-Peak detector

SPURIOUS EMISSIONS 30 TO 1000 MHz (ANT2, HIGH CHANNEL)



| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | AT0066 (dB/m) | Amp/Cbl (dB) | Corrected Reading (dBuV/m) | QPk Limit (dBuV/m) | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|---------------|--------------|----------------------------|--------------------|-------------|----------------|-------------|----------|
| 3 | *240 | 58.35 | Qp | 11.5 | -30 | 39.85 | 46.02 | -6.17 | 8 | 127 | H |
| 1 | 46.83 | 52.14 | Pk | 9.4 | -31.4 | 30.14 | - | - | 0-360 | 101 | V |
| 2 | 143.985 | 48.41 | Pk | 13.1 | -30.5 | 31.01 | - | - | 0-360 | 101 | V |
| 4 | 288 | 63.07 | Pk | 13.3 | -29.9 | 46.47 | - | - | 0-360 | 101 | H |
| 5 | 312 | 54.09 | Pk | 13.8 | -29.7 | 38.19 | - | - | 0-360 | 101 | H |
| 6 | 336 | 58.49 | Pk | 13.9 | -29.7 | 42.69 | - | - | 0-360 | 101 | H |

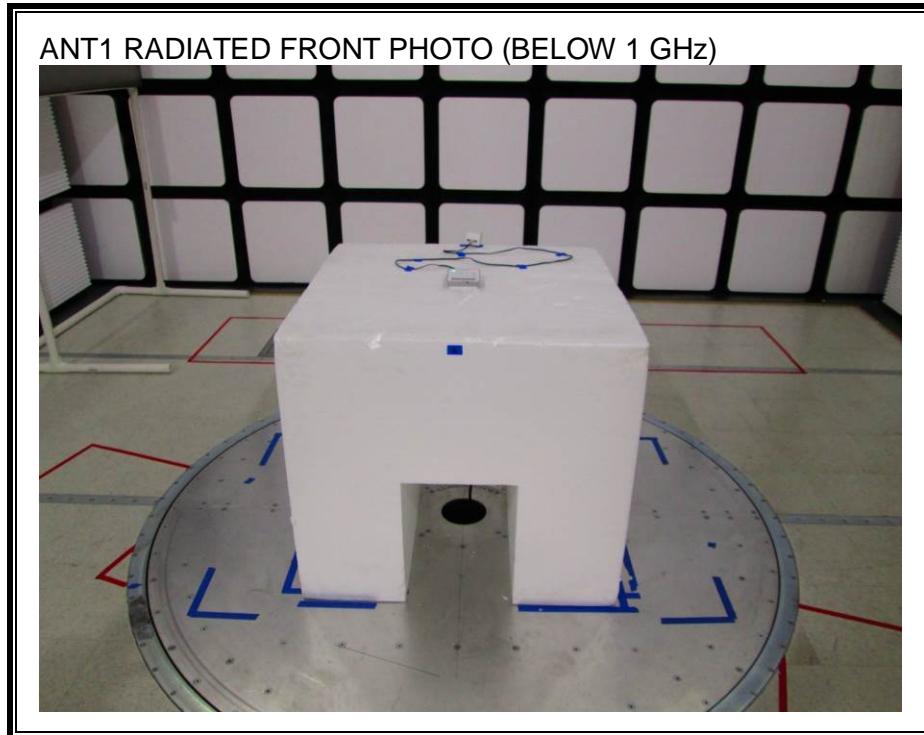
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

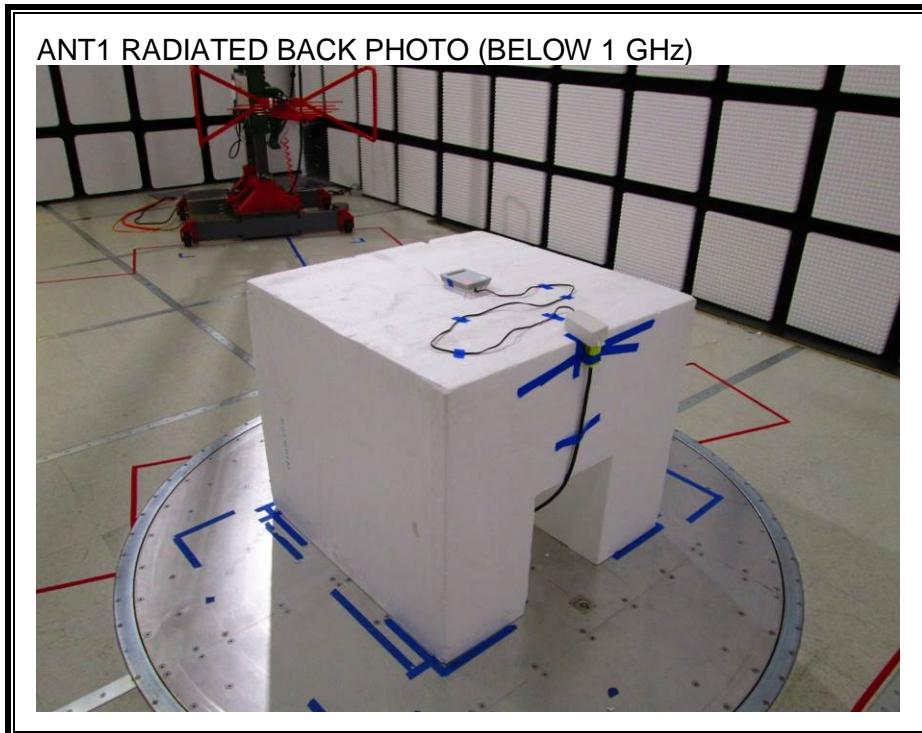
Pk - Peak detector

Qp - Quasi-Peak detector

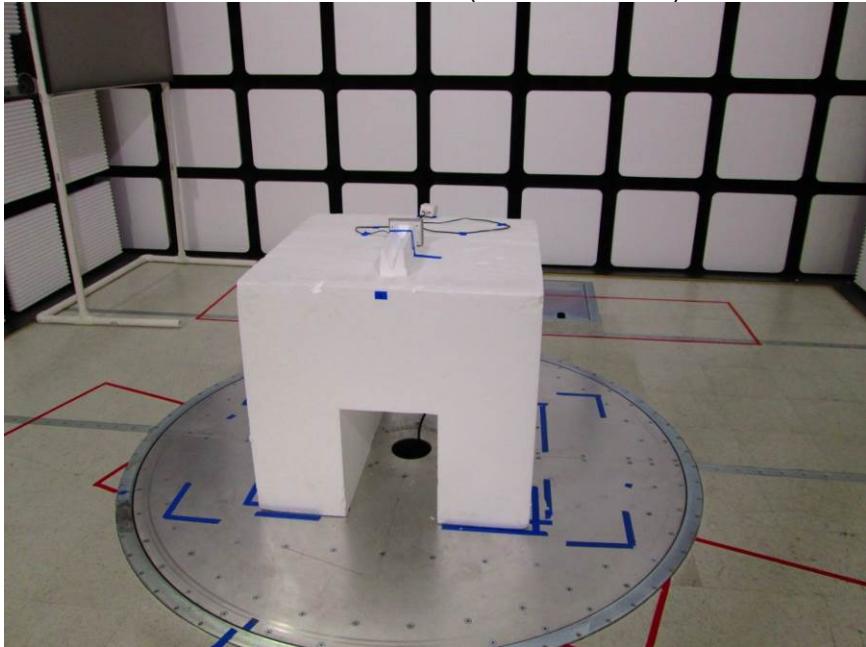
9. SETUP PHOTOS

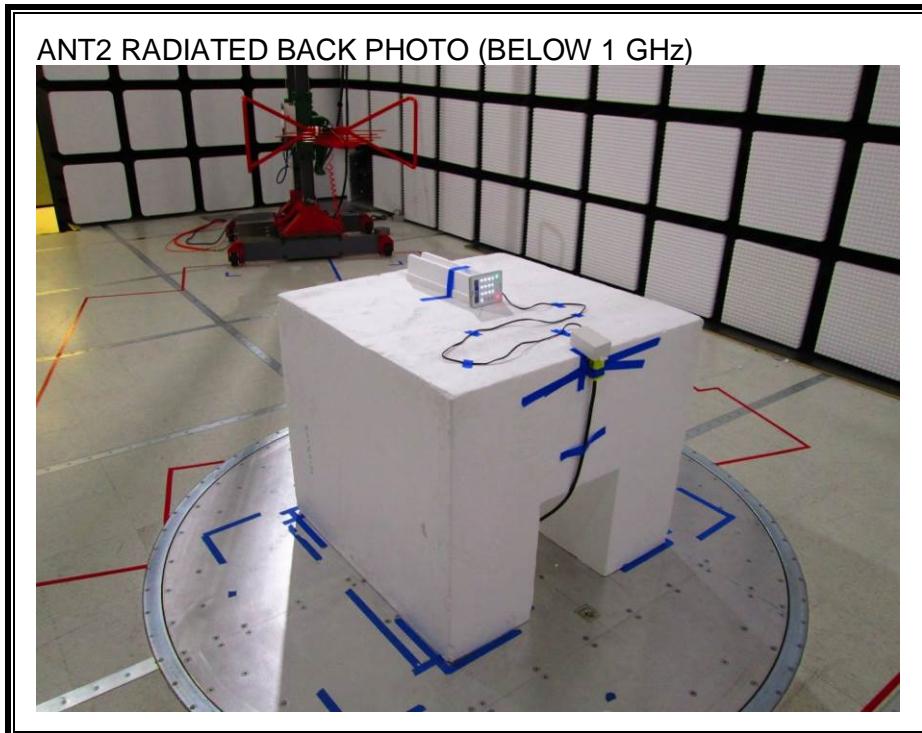
RADIATED RF MEASUREMENT SETUP (BELOW 1 GHz)





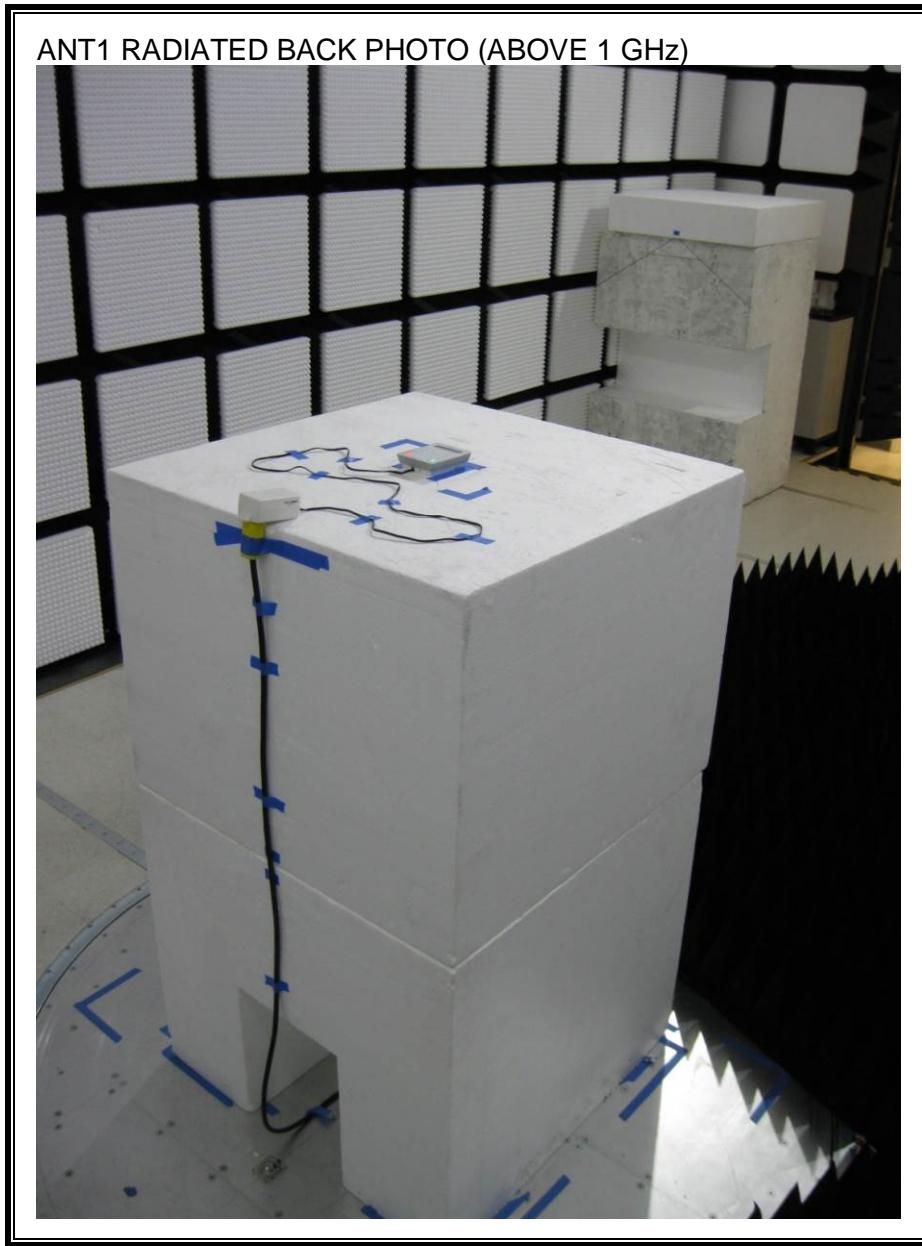
ANT2 RADIATED FRONT PHOTO (BELOW 1 GHz)



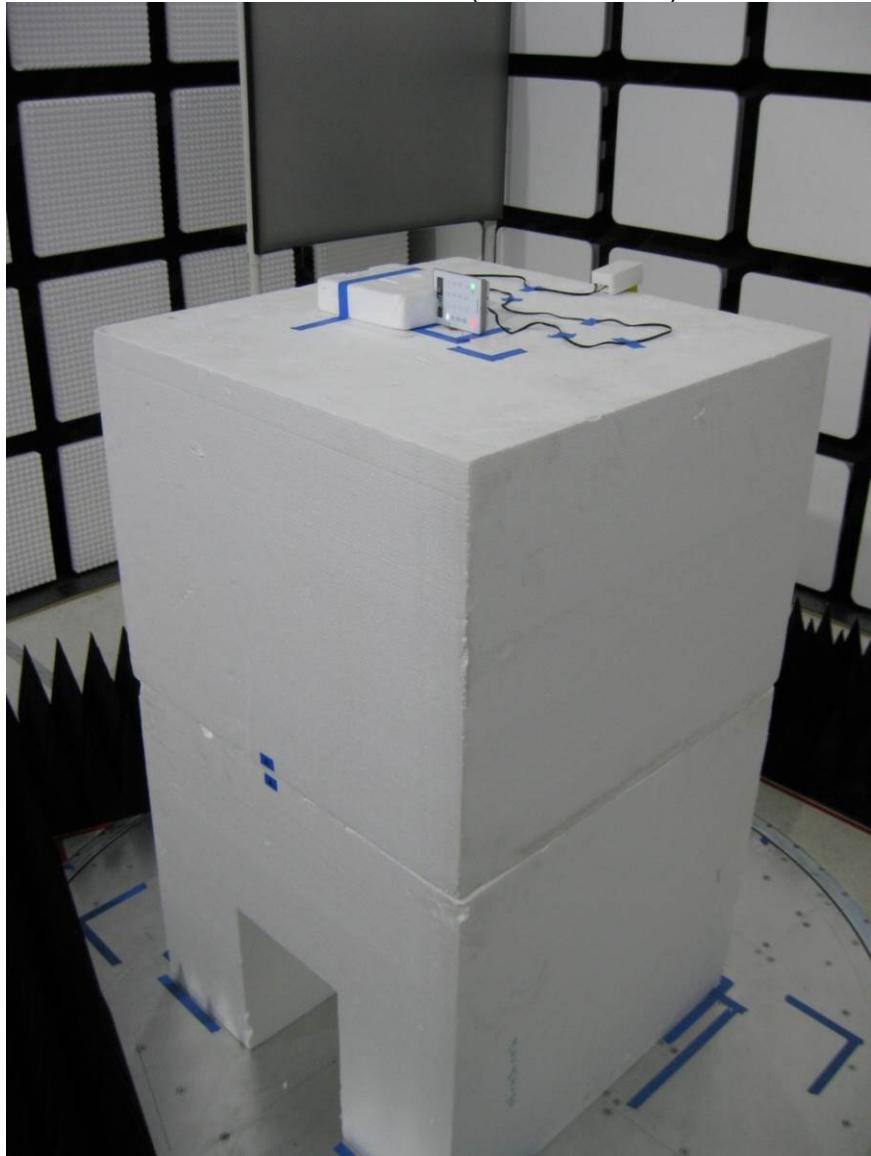


RADIATED RF MEASUREMENT SETUP (ABOVE 1 GHz)



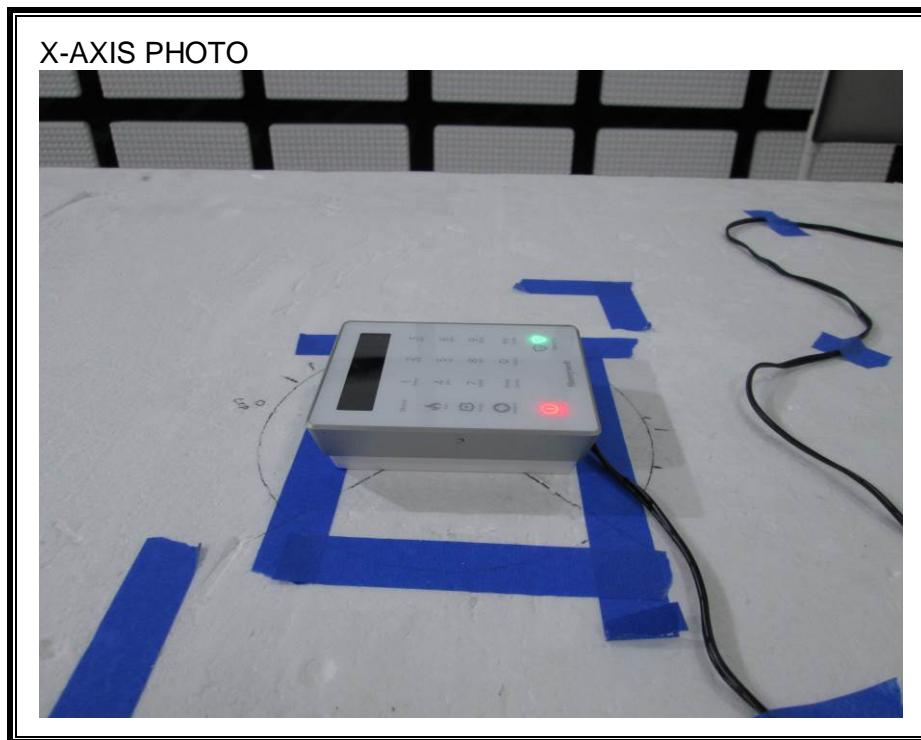


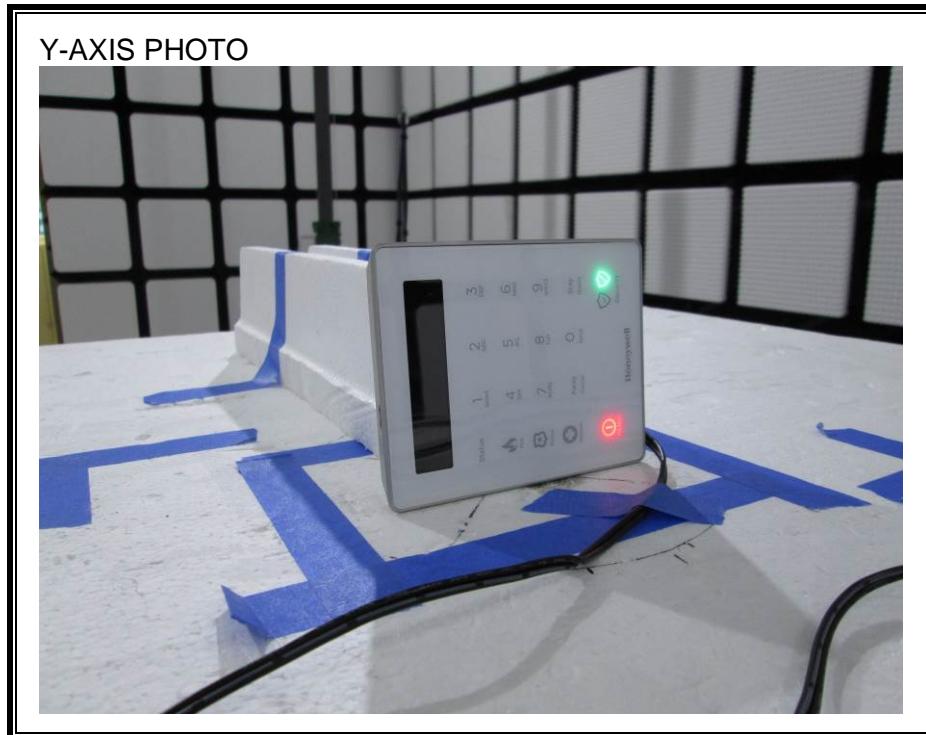
ANT2 RADIATED FRONT PHOTO (ABOVE 1 GHz)

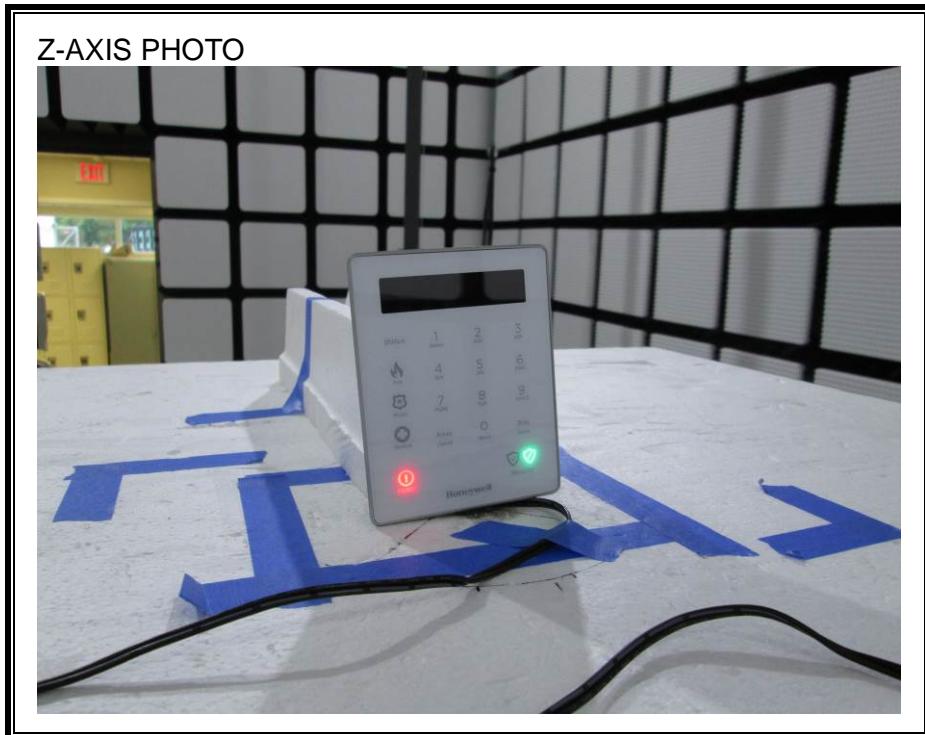




X,Y,Z ORIENTATION SETUP







END OF REPORT