



CERTIFICATION TEST REPORT

Report Number. : 12132873-E2V2

Applicant : SONY MOBILE COMMUNICATIONS, INC.
4-12-3 HIGASHI-SHINAGAWA,
SHINAGAWA -KU, TOKYO, 140-0002, JAPAN

FCC ID : PY7-34118S

EUT Description : GSM/WCDMA/LTE PHONE with BT, DTS/UNII a/b/g/n/ac & NFC

Test Standard(s) : FCC 47 CFR PART 15 SUBPART C

Date Of Issue:

March 30, 2018

Prepared by:

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Revision History

| <u>Rev.</u> | <u>Issue Date</u> | <u>Revisions</u> | <u>Revised By</u> |
|-------------|-------------------|-------------------------------------|-------------------|
| V1 | 03/21/18 | Initial Review | |
| V2 | 03/30/18 | Added Section 6 & Updated Section 8 | Kiya Kedida |

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SONY MOBILE COMMUNICATIONS, INC.
4-12-3 HIGASHI-SHINAGAWA,
SHINAGAWA -KU, TOKYO, 140-0002, JAPAN

EUT DESCRIPTION: GSM/WCDMA/LTE Phone with BT, DTS/UNII a/b/g/n/ac & NFC

SERIAL NUMBER: BH90005QBJ

DATE TESTED: MARCH 13 - 14, 2018

| APPLICABLE STANDARDS | |
|--------------------------|--------------|
| STANDARD | TEST RESULTS |
| CFR 47 Part 15 Subpart C | Complies |

UL Verification Services Inc. 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 Verification Services Inc. 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 Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document. 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 Verification Services Inc. By

Reviewed By:



Dan Corona
Operations Leader
UL Verification Services Inc.

Kiya Kedida
Project Engineer
UL Verification Services Inc.

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, ANSI C63.10-2013

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 and 47266 Benicia Street, Fremont, California, USA. Line conducted emissions are measured only at the 47173 address. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

| 47173 Benicia Street | 47266 Benicia Street |
|--|---|
| <input checked="" type="checkbox"/> Chamber A(IC: 2324B-1) | <input type="checkbox"/> Chamber D(IC: 22541-1) |
| <input type="checkbox"/> Chamber B(IC: 2324B-2) | <input type="checkbox"/> Chamber E(IC: 22541-2) |
| <input type="checkbox"/> Chamber C(IC: 2324B-3) | <input type="checkbox"/> Chamber F(IC: 22541-3) |
| | <input type="checkbox"/> Chamber G(IC: 22541-4) |
| | <input type="checkbox"/> Chamber H(IC: 22541-5) |

The above test sites and facilities are covered under FCC Test Firm Registration # 208313. UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0.

Chambers A through C are covered under Industry Canada company address code 2324B with site numbers 2324B -1 through 2324B-3, respectively. Chambers D through H are covered under Industry Canada company address code 22541 with site numbers 22541 -1 through 22541-5, respectively.

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:

| Parameter | Uncertainty |
|---|-------------|
| Worst Case Conducted Disturbance, 9KHz to 0.15 MHz | 3.84 dB |
| Worst Case Conducted Disturbance, 0.15 to 30 MHz | 3.65 dB |
| Worst Case Radiated Disturbance, 9KHz to 30 MHz | 3.15 dB |
| Worst Case Radiated Disturbance, 30 to 1000 MHz | 5.36 dB |
| Worst Case Radiated Disturbance, 1000 to 18000 MHz | 4.32 dB |
| Worst Case Radiated Disturbance, 18000 to 26000 MHz | 4.45 dB |
| Worst Case Radiated Disturbance, 26000 to 40000 MHz | 5.24 dB |

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a GSM/WCDMA/LTE PHONE with BT, DTS/UNII a/b/g/n/ac & NFC.

6. TEST AND MEASUREMENT EQUIPMENT

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

| TEST EQUIPMENT LIST | | | | | |
|--------------------------------------|---------------------------------|------------------------|--------|------------|------------|
| Description | Manufacturer | Model | ID Num | Cal Due | Last Cal |
| Amplifier, 1 - 18GHz | Miteq | AFS42-00101800-25-S-42 | T1165 | 06/24/2018 | 06/24/2017 |
| Antenna, Horn 1-18GHz | ETS-Lindgren | 3117 | T862 | 07/10/2018 | 07/10/2017 |
| Spectrum Analyzer, PXA, 3Hz to 44GHz | Agilent (Keysight) Technologies | N9030A | T1466 | 04/11/2018 | 04/11/2017 |

| Test Software List | | | |
|--------------------|--------------|--------|----------------------|
| Description | Manufacturer | Model | Version |
| Radiated Software | UL | UL EMC | Ver 9.5, Dec 1, 2016 |

NOTE: *testing is completed before equipment calibration expiration

7. REUSE OF TEST DATA

7.1. INTRODUCTION

According to the manufacturer, FCC ID: PY7-11821Y and FCC ID: PY7-34118S unlicensed radios (WLAN/BT/BLE/NFC) are electrically identical. The FCC ID: PY7-11821Y test data shall remain representative of FCC ID: PY7-34118S so, FCC ID: PY7-34118S leverages test data from FCC ID: PY7-11821Y.

The applicant takes full responsibility that the test data as referenced in this section represents compliance for this FCC ID.

7.2. DEVICES DIFFERENCES

Difference between PY7-11821Y and PY7-34118S:

Sony Mobile Communications Inc. hereby declares that the difference between PY7-11821Y and PY7-34118S is related only to the cellular part and no change is non-cellular (WLAN/Bluetooth/NFC) parts. The non-cellular parts which are electrically identical, and therefore the following report/data of PY7-11821Y may represent for PY7-34118S.

7.3. SPOT CHECK VERIFICATION RESULTS SUMMARY

Spot check verification has been done on device PY7-34118S for radiated harmonic spurious. The data from the application has been verified through appropriate spot checks to demonstrate compliance for this device as shown in the summary and appendix A.

7.4. REFERENCE DETAIL

| Equipment Class | Reference FCC ID | Report Title/Section |
|-----------------|------------------|-----------------------------|
| DSS (BT) | PY7-11821Y | 12132671-E2V3 FCC Report BT |

8. SPOT CHECK DATA

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 |
|-----------------------|------------------------------------|--------------------------------------|
| 0.009-0.490 | 2400/F(kHz) @ 300 m | - |
| 0.490-1.705 | 24000/F(kHz) @ 30 m | - |
| 1.705 - 30 | 30 @ 30m | - |
| 30 - 88 | 100 | 40 |
| 88 - 216 | 150 | 43.5 |
| 216 - 960 | 200 | 46 |
| Above 960 | 500 | 54 |

TEST PROCEDURE

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

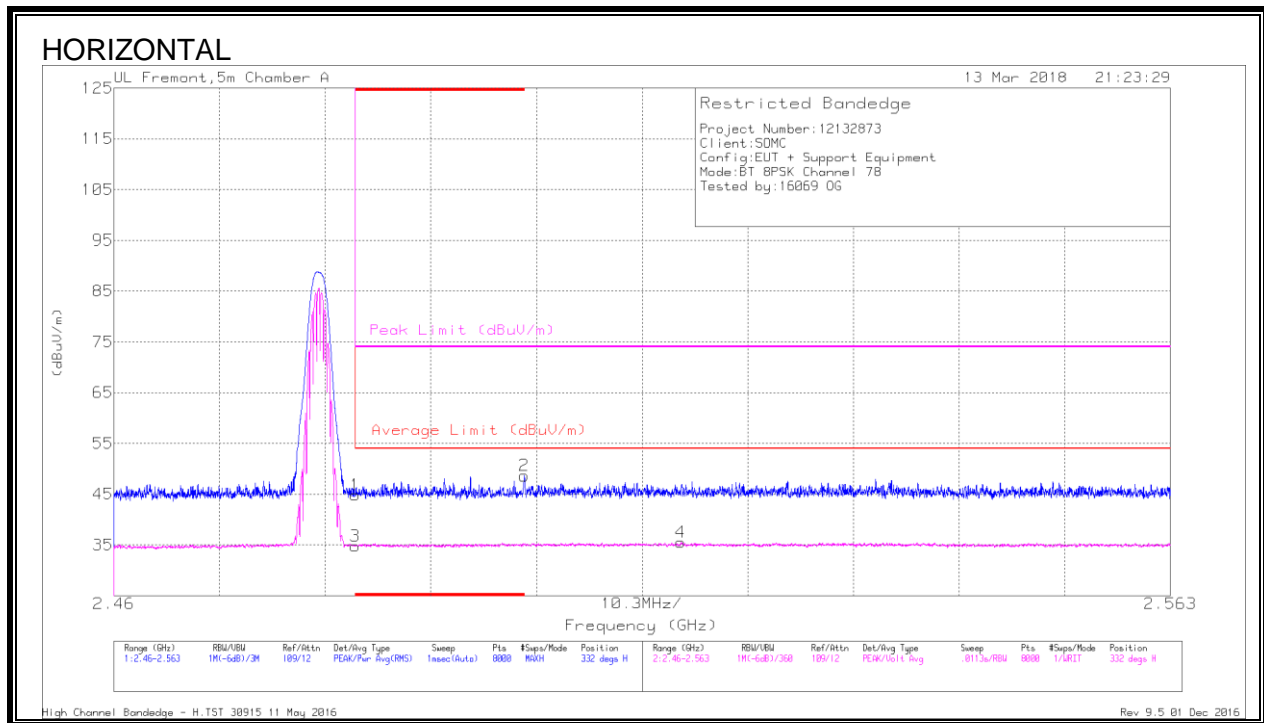
For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for peak measurements and 1 MHz resolution bandwidth with 1/T(360 Hz) video bandwidth with peak detector for average measurements.

The spectrum from 1 GHz to 18 GHz is investigated with the transmitter set to worst case mode (8PSK).

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

8.1. BASIC DATA RATE 8PSK MODULATION

8.1.1. RESTRICTED BANDEGE (HIGH CHANNEL)



DATA

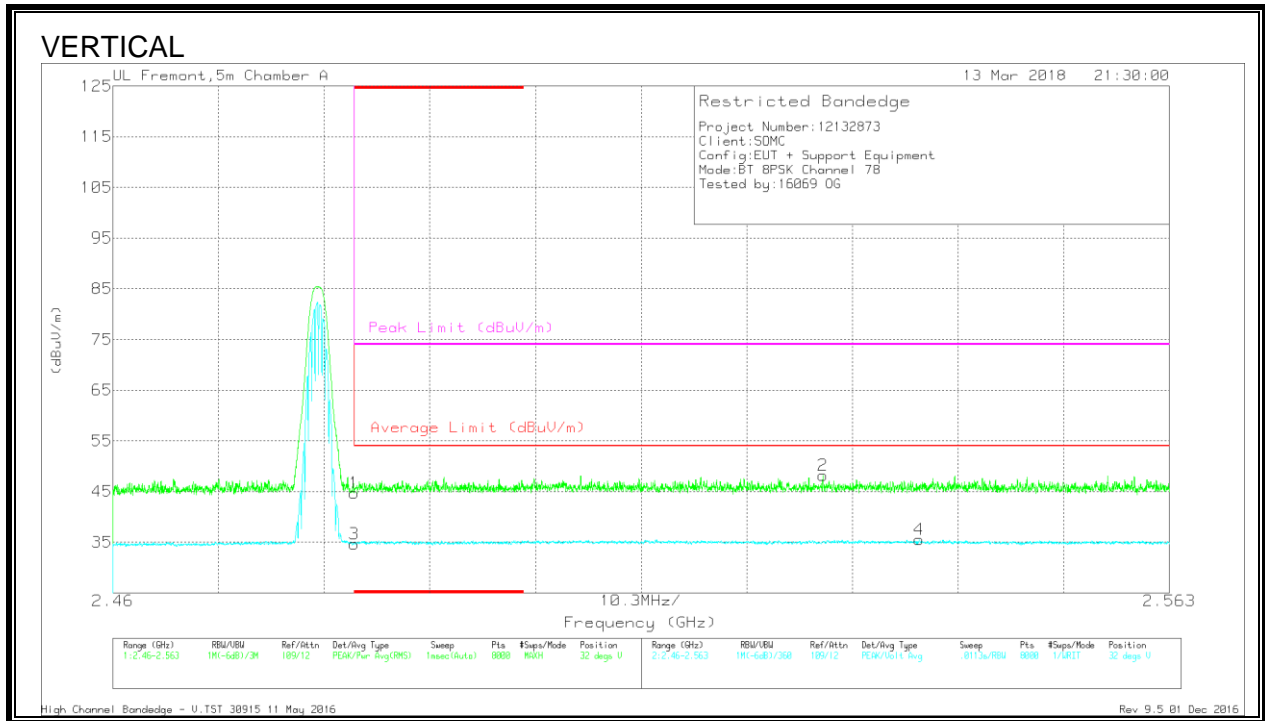
Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T862 (dB/m) | Amp/Cb/Filtr/Pad (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 | 35.96 | Pk | 32.3 | -23.4 | 44.86 | - | - | 74 | -29.14 | 332 | 248 | H |
| 3 | * 2.484 | 25.9 | VA1T | 32.3 | -23.4 | 34.8 | 54 | -19.2 | - | - | 332 | 248 | H |
| 2 | 2.5 | 39.62 | PK | 32.4 | -23.4 | 48.62 | - | - | 74 | -25.38 | 332 | 248 | H |
| 4 | 2.515 | 26.46 | VA1T | 32.4 | -23.4 | 35.46 | 54 | -18.54 | - | - | 332 | 248 | H |

* - indicates frequency in CFR47 Pt 15 Restricted Band

Pk - Peak detector

VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration



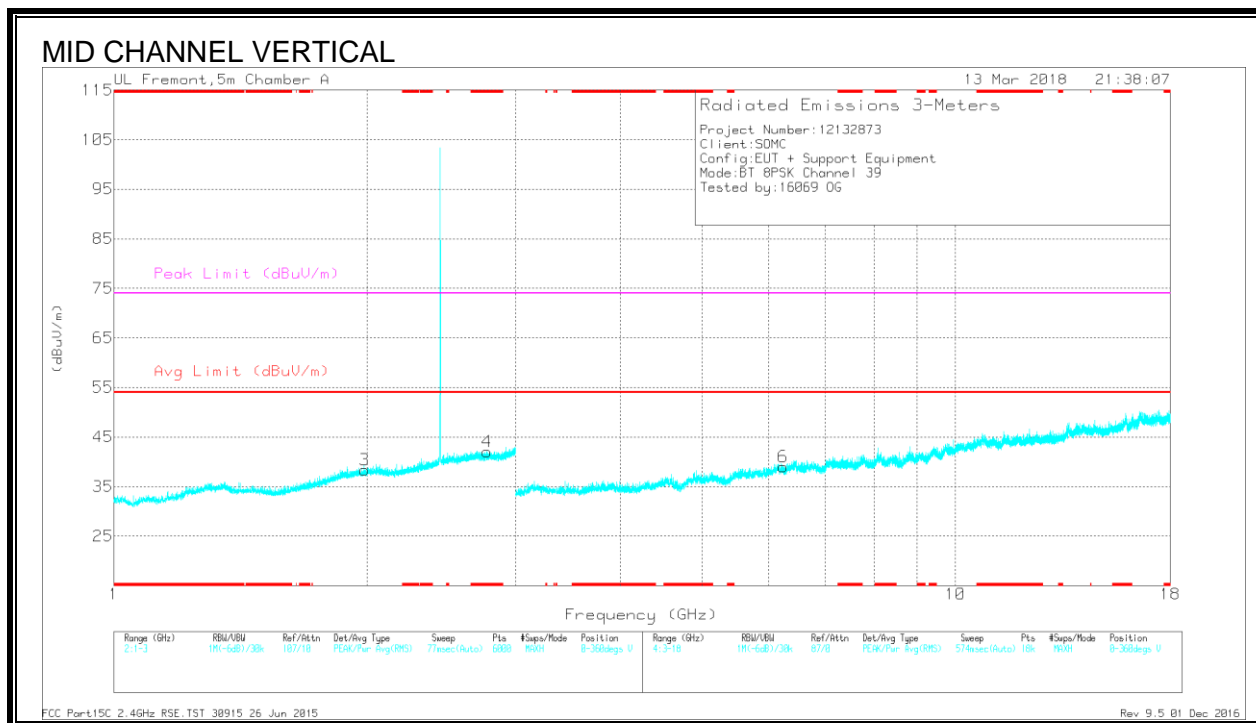
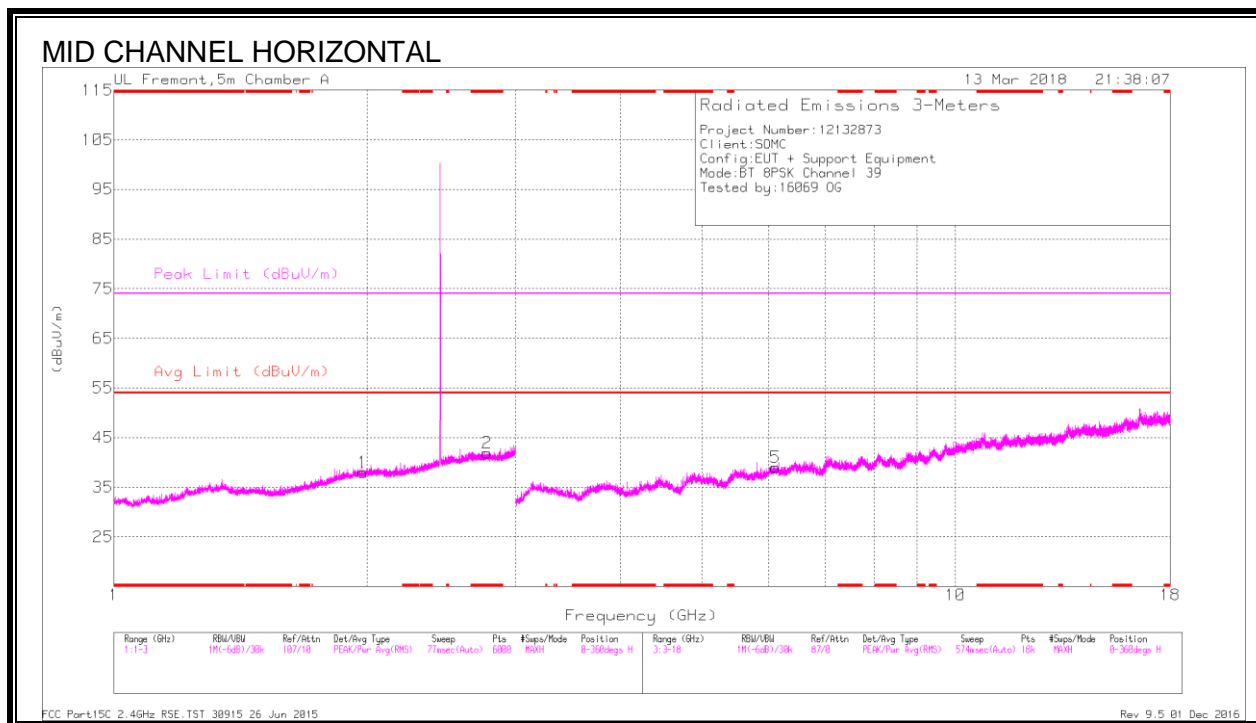
DATA

Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T862 (dB/m) | Amp/Cbl/Filtr/Pad (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 | 35.83 | Pk | 32.3 | -23.4 | 44.73 | - | - | 74 | -29.27 | 32 | 301 | V |
| 3 | * 2.484 | 25.77 | VA1T | 32.3 | -23.4 | 34.67 | 54 | -19.33 | - | - | 32 | 301 | V |
| 2 | 2.529 | 39.03 | Pk | 32.4 | -23.3 | 48.13 | - | - | 74 | -25.87 | 32 | 301 | V |
| 4 | 2.539 | 26.43 | VA1T | 32.4 | -23.3 | 35.53 | 54 | -18.47 | - | - | 32 | 301 | V |

* - indicates frequency in CFR47 Pt 15 Restricted Band
 Pk - Peak detector
 ADV - U-NII AD primary method, Linear Voltage Average

8.1.2. HARMONICS AND SPURIOUS EMISSIONS



Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T862 (dB/m) | Amp/Cbl/Filtr/Pad (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|----------------|------------------------|----------------------------|--------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 2 | * 2.775 | 32.16 | Pk | 32.3 | -22.5 | 41.96 | - | - | 74 | -32.04 | 0-360 | 101 | H |
| 4 | * 2.774 | 32.26 | Pk | 32.3 | -22.5 | 42.06 | - | - | 74 | -31.94 | 0-360 | 101 | V |
| 1 | 1.974 | 30.18 | Pk | 31.4 | -23.6 | 37.98 | - | - | - | - | 0-360 | 199 | H |
| 3 | 1.986 | 30.45 | Pk | 31.4 | -23.5 | 38.35 | - | - | - | - | 0-360 | 101 | V |
| 5 | 6.114 | 28.76 | Pk | 35.5 | -25.3 | 38.96 | - | - | - | - | 0-360 | 101 | H |
| 6 | 6.239 | 28.69 | Pk | 35.6 | -25.3 | 38.99 | - | - | - | - | 0-360 | 101 | V |

* - indicates frequency in CFR47 Pt 15 Restricted Band
 Pk - Peak detector

Radiated Emissions

| Frequency (GHz) | Meter Reading (dBuV) | Det | AF T862 (dB/m) | Amp/Cbl/Filtr/Pad (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|-----------------|----------------------|------|----------------|------------------------|----------------------------|--------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| * 2.773 | 35.37 | PKFH | 32.3 | -22.6 | 45.07 | - | - | 74 | -28.93 | 291 | 283 | H |
| * 2.776 | 24.62 | VA1T | 32.3 | -22.5 | 34.42 | 54 | -19.58 | - | - | 291 | 283 | H |
| * 2.776 | 36.1 | PKFH | 32.3 | -22.5 | 45.9 | - | - | 74 | -28.1 | 38 | 222 | V |
| * 2.774 | 24.56 | VA1T | 32.3 | -22.5 | 34.36 | 54 | -19.64 | - | - | 38 | 222 | V |

* - indicates frequency in CFR47 Pt 15 Restricted Band
 PKFH - FHSS: RB=100k/1MHz VB=3 x RB, Peak
 VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

APPENDIX A

| PY7-34118S SPOT CHECK RESULTS | | | | | | | | | |
|-------------------------------|-----------|---------|--------------------|------------|-------|------------|-------|------------|-------|
| Technology | Test Item | Channel | Measured Frequency | PY7-11821Y | | PY7-34118S | | Delta (dB) | |
| | | | | Peak | Ave | Peak | Peak | Ave | Peak |
| BT | RBE | 78 | 2484MHz | 51.73 | 38.24 | 48.62 | 35.46 | -3.11 | -2.78 |
| | RSE | 39 | 2775MHz | 46.42 | 35.23 | 45.9 | 34.36 | -0.52 | -0.87 |

Note: 8PSK is the worst mode

END OF REPORT