



CERTIFICATION TEST REPORT

Report Number. : 11992683-E2V4

Applicant : Verifone, Inc.
1400 West Stanford Ranch Road
Rocklin, CA 95765, U.S.A.

Model : V200t 2G/D/E

FCC ID : B32V200T2GDE

IC ID : 787C-V200T2GDE

EUT Description : Point of Sale Terminal

Test Standard(s) : FCC 47 CFR PART 15 SUBPART C
INDUSTRY CANADA RSS-210 ISSUE 9
INDUSTRY CANADA RSS-GEN ISSUE 4

Date Of Issue:

March 05, 2018

Prepared by:

UL Verification Services Inc.
47173 Benicia Street
Fremont, CA 94538, U.S.A.
TEL: (510) 771-1000
FAX: (510) 661-0888



Revision History

Ver.	Issue Date	Revisions	Revised By
V1	12/14/17	Initial Issue	--
V2	01/30/18	Revised Scope of Testing section.	Frank Ibrahim
V3	02/21/18	Revised Scope of Testing section.	Frank Ibrahim
V4	03/05/18	Revised Scope of Testing section.	Frank Ibrahim

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS	4
2. TEST METHODOLOGY	5
3. FACILITIES AND ACCREDITATION	5
4. CALIBRATION AND UNCERTAINTY	6
4.1. MEASURING INSTRUMENT CALIBRATION	6
4.2. SAMPLE CALCULATION	6
4.3. MEASUREMENT UNCERTAINTY	6
5. EQUIPMENT UNDER TEST	7
5.1. DESCRIPTION OF EUT	7
5.2. SCOPE OF TESTING	7
5.3. MAXIMUM FIELD STRENGTH	7
5.4. DESCRIPTION OF AVAILABLE ANTENNAS	7
5.5. SOFTWARE AND FIRMWARE	7
5.6. WORST-CASE CONFIGURATION AND MODE	7
5.7. MODIFICATIONS	7
5.8. DESCRIPTION OF TEST SETUP	8
6. TEST AND MEASUREMENT EQUIPMENT	10
7. RADIATED EMISSION TEST RESULTS	11
7.1. LIMITS AND PROCEDURE	11
7.2. FUNDAMENTAL AND FUNDAMENTAL EMISSION MASK (11.56 – 15.56 MHz)	13
7.3. TX SPURIOUS EMISSIONS (0.09 – 30MHz)	15
7.4. TX SPURIOUS EMISSIONS (30 – 1000MHz)	16
8. SETUP PHOTOS	18

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: Verifone, Inc.
1400 West Stanford Ranch Road Suite 200
Rocklin, CA 95765, U.S.A.

EUT DESCRIPTION: Point of Sale Terminal

MODEL: V200t 2G/D/E

SERIAL NUMBER: 401-431-499

DATE TESTED: November 29, 2017

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 15 SUBPART C	Pass
INDUSTRY CANADA RSS-210 Issue 9, Annex B	Pass
INDUSTRY CANADA RSS-GEN Issue 4	Pass

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:



FRANK IBRAHIM
CONSUMER TECHNOLOGY DIVISION
OPERATIONS LEADER
UL VERIFICATION SERVICES INC

Prepared By:



GLENN ESCANO
CONSUMER TECHNOLOGY DIVISION
TEST ENGINEER
UL VERIFICATION SERVICES INC

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10-2013, FCC CFR 47 Part 2, and FCC CFR 47 Part 15, RSS-GEN Issue 4, and RSS-210 Issue 9.

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
☒ Chamber A (IC:2324B-1)	☐ Chamber D (IC:22541-1)
☐ Chamber B (IC:2324B-2)	☐ Chamber E (IC: 22541-2)
☐ Chamber C (IC:2324B-3)	☐ Chamber F (IC: 22541-3)
	☐ Chamber G (IC: 22541-4)
	☐ 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 and 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 Point of Sale Terminal, which supports the following technologies 850/1900 GSM, and NFC.

5.2. SCOPE OF TESTING

This report covers radiated emissions portion. For antenna port data refer to report number 11756319-E1V5 (FCC ID: B32V205CCTLS, IC: 787C-V205CCTLS) that covered model V205c CTLS as the NFC radio module covered by this report is identical to the NFC radio module of model V205c CTLS with same output power values.

5.3. MAXIMUM FIELD STRENGTH

The testing was performed at 3 meter. The transmitter maximum E-field at 30 meter distance was 38.37 dBuV/m which was converted from the 3 meter data.

5.4. DESCRIPTION OF AVAILABLE ANTENNAS

The radio used a two turn, inductive loop antenna.
Refer to "Gemalto M2M GmbH report: ES_GT_303989 and tested by CETECOM GmbH".

5.5. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was Low level firmware and higher level operating system software. VOS -30640xxx were installed in the EUT during testing.

5.6. WORST-CASE CONFIGURATION AND MODE

The fundamental of the EUT was investigated in three orthogonal orientations X, Y, Z, it was determined that X-Axis orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in X-Axis orientation.

5.7. MODIFICATIONS

No modifications were made during testing.

5.8. DESCRIPTION OF TEST SETUP

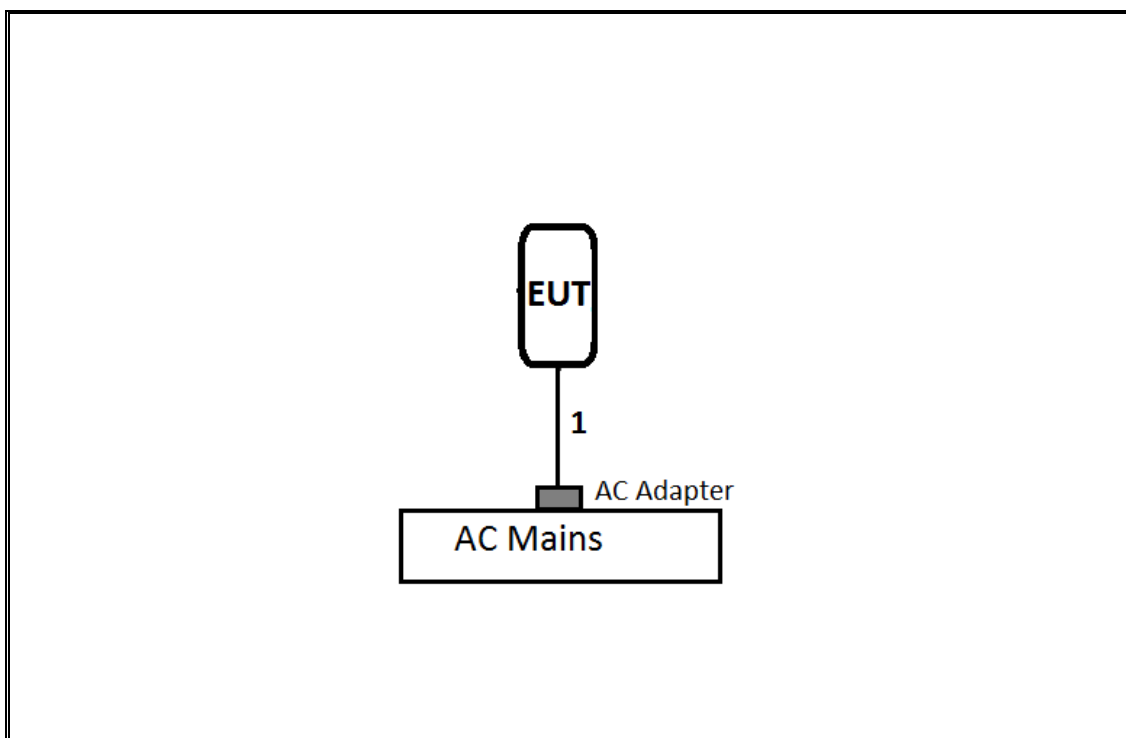
SUPPORT EQUIPMENT

Support Equipment List			
Description	Manufacturer	Model	Serial Number
AC Adapter	Verifone	PSA18A-082A	5A00170801381

I/O CABLES (RADIATED EMISSIONS)

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	DC	1	AC	Un-shielded	2	N/A

RADIATED EMISSIONS SETUP DIAGRAM



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	T Number	Cal Date	Cal Due
Amplifier, 10KHz to 1GHz, 32dB	HP	8447D	T15	08/14/17	08/14/18
Antenna, Broadband Hybrid, 30MHz to 2000MHz	Sunol Sciences	JB3	T899	06/09/17	06/09/18
Antenna, Active Loop 9kHz-30MHz	Com-Power Corp.	AL-130R	T1866	10/10/17	10/10/18
Spectrum Analyzer, PXA 3Hz to 26.5GHz	Keysight	N9030A	T1466	04/11/17	04/11/18

NOTE: *testing is completed before equipment calibration expiration date.

Description	Manufacturer	Model	Version
Radiated Software	UL	UL EMC	Ver 9.5, Dec 01, 2016

7. RADIATED EMISSION TEST RESULTS

7.1. LIMITS AND PROCEDURE

LIMIT

§15.225, 15.209

IC RSS-210, Annex B.6 (Transmitter)

IC RSS-GEN, Section 7.1.2 (Receiver)

(a) The field strength of any emissions within the band 13.553–13.567 MHz shall not exceed 15,848 microvolts/ meter at 30 meters.

(b) Within the bands 13.410–13.553 MHz and 13.567–13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.

(c) Within the bands 13.110–13.410 MHz and 13.710–14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters.

(d) The field strength of any emissions appearing outside of the 13.110– 14.010 MHz and shall not exceed the general radiated emission limits in § 15.209 as follows:

§15.209 (a) Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Limits for radiated disturbance of an intentional radiator		
Frequency range (MHz)	Limits (µV/m)	Measurement Distance (m)
0.009 – 0.490	2400 / F (kHz)	300
0.490 – 1.705	24000 / F (kHz)	30
1.705 – 30.0	30	30
30 – 88	100**	3
88 - 216	150**	3
216 – 960	200**	3
Above 960	500	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g. §§ 15.231 and 15.241.

§15.209 (b) In the emission table above, the tighter limit applies at the band edges.

Formula for converting the field strength from µV/m to dBµV/m is:

Limit (dBµV/m) = 20 log limit (µV/m)

§15.209 (d) The emission limits shown at the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emissions limits in these three bands are based on measurements employing an average detector.

§15.209 (d) The provisions in §§ 15.225, measuring emissions at distances other than the distances specified in the above table, determining the frequency range over which radiated emissions are to be measured, and limiting peak emissions apply to all devices operated under this part.

TEST PROCEDURE

ANSI C63.10-2013

The EUT is an intentional radiator that incorporates a digital device. The highest fundamental frequency generated or used in the device is 13.56 MHz. The frequency range was investigated from 0.15 MHz to the 10th harmonic of the highest fundamental frequency, or 1000 MHz, whichever is greater (1000MHz)

RESULTS

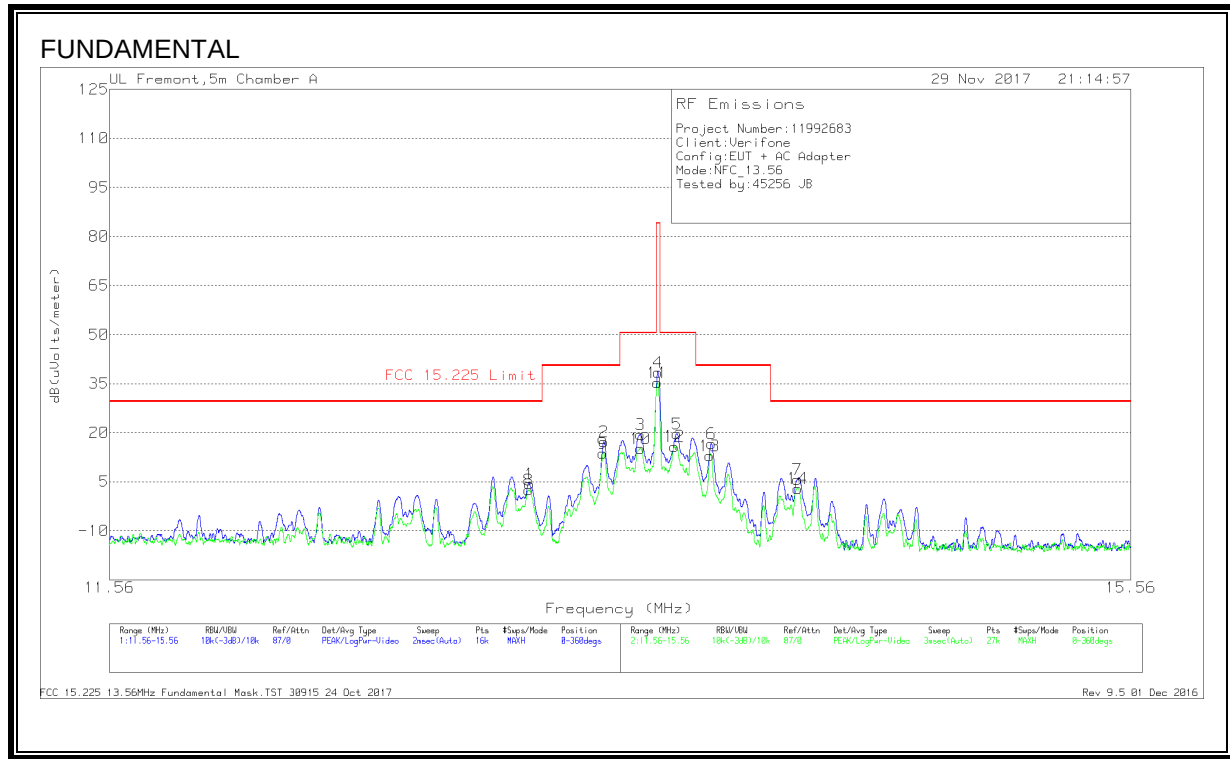
No non-compliance noted.

KDB 414788 OATS and Chamber Correlation Justification

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

OATs and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

7.2. FUNDAMENTAL AND FUNDAMENTAL EMISSION MASK (11.56 – 15.56 MHz)



Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dB/m)	Cbl (dB)	Dist Corr 30m	Corrected Reading dB(uVolts/meter)	FCC 15.225 Limit	PK Margin (dB)	Azimuth (Degs)	Polarity
8	13.06005	27.24	Pk	14.6	.6	-40	2.44	29.54	-27.1	0-360	Face-Off
1	13.06275	29.2	Pk	14.6	.6	-40	4.4	29.54	-25.14	0-360	Face-On
9	13.34473	38.42	Pk	14.6	.6	-40	13.62	40.51	-26.89	0-360	Face-Off
2	13.34975	41.97	Pk	14.6	.6	-40	17.17	40.51	-23.34	0-360	Face-On
3	13.49013	44.18	Pk	14.6	.6	-40	19.38	50.5	-31.12	0-360	Face-On
10	13.49147	40.04	Pk	14.6	.6	-40	15.24	50.5	-35.26	0-360	Face-Off
11	*13.55807	60.25	Pk	14.5	.6	-40	35.35	84	-48.65	0-360	Face-Off
4	*13.5615	63.27	Pk	14.5	.6	-40	38.37	84	-45.63	0-360	Face-On
12	13.62482	40.72	Pk	14.5	.6	-40	15.82	50.5	-34.68	0-360	Face-Off
5	13.63438	44.62	Pk	14.5	.6	-40	19.72	50.5	-30.78	0-360	Face-On
13	13.76638	37.96	Pk	14.5	.5	-40	12.96	40.51	-27.55	0-360	Face-Off
6	13.77188	41.7	Pk	14.5	.5	-40	16.7	40.51	-23.81	0-360	Face-On
7	14.12175	30.66	Pk	14.5	.5	-40	5.66	29.54	-23.88	0-360	Face-On
14	14.12255	27.97	Pk	14.5	.5	-40	2.97	29.54	-26.57	0-360	Face-Off

* - indicates fundamental frequency

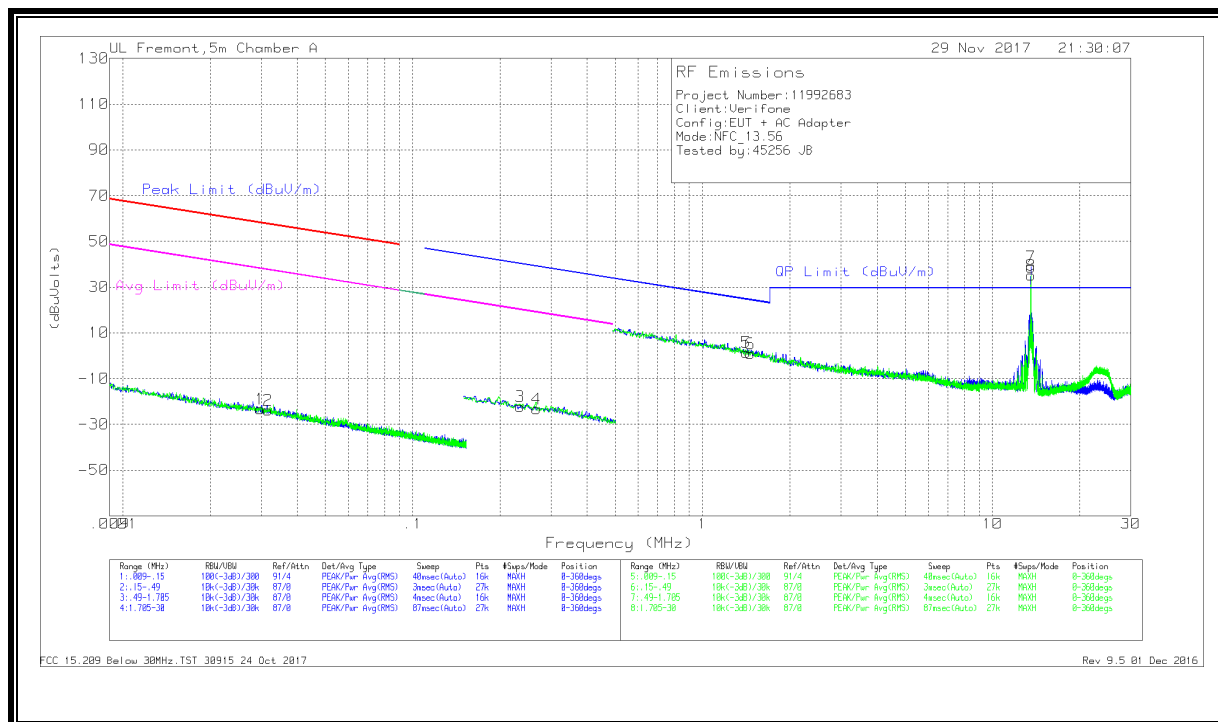
Pk - Peak detector

Fundamental Frequency

Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dB/m)	Cbl (dB)	Dist Corr 30m	Corrected Reading dB(uVolts/meter)	FCC 15.225 Limit	PK Margin (dB)	Azimuth (Degs)	Antenna Position
*13.55807	60.25	Pk	14.5	.6	-40	35.35	84	-48.65	0-360	Face-Off
*13.5615	63.27	Pk	14.5	.6	-40	38.37	84	-45.63	0-360	Face-On

Pk - Peak detector

7.3. TX SPURIOUS EMISSIONS (0.09 – 30MHz)



Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dB/m)	Cbl (dB)	Dist Corr 300m	Corrected Reading (dBuVolts)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
1	.02973	41.01	Pk	15.5	.1	-80	-23.39	58.12	-81.51	38.12	-61.51	-	-	-	-	0-360
2	.03168	40.81	Pk	15.4	.1	-80	-23.69	57.57	-81.26	37.57	-61.26	-	-	-	-	0-360
3	.23488	43.82	Pk	13.9	.1	-80	-22.18	-	-	-	-	40.2	-62.38	20.2	-42.38	0-360
4	.26755	42.78	Pk	13.8	.1	-80	-23.32	-	-	-	-	39.07	-62.39	19.07	-42.39	0-360

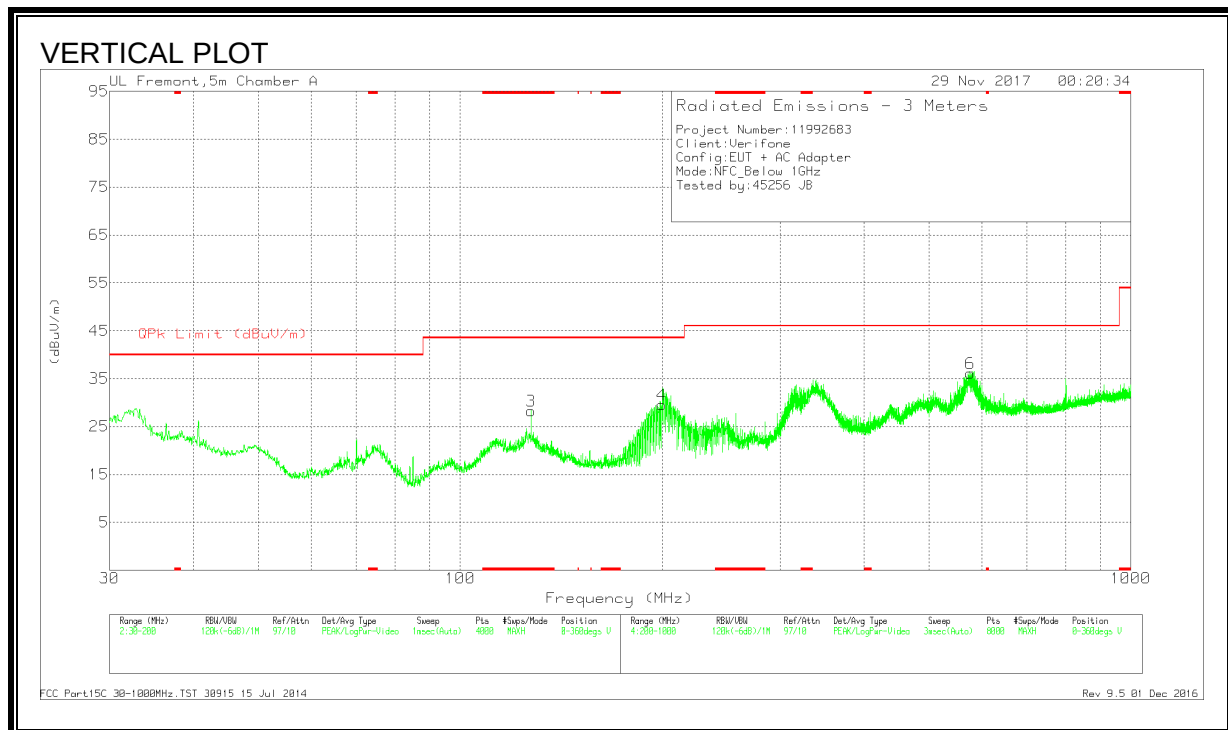
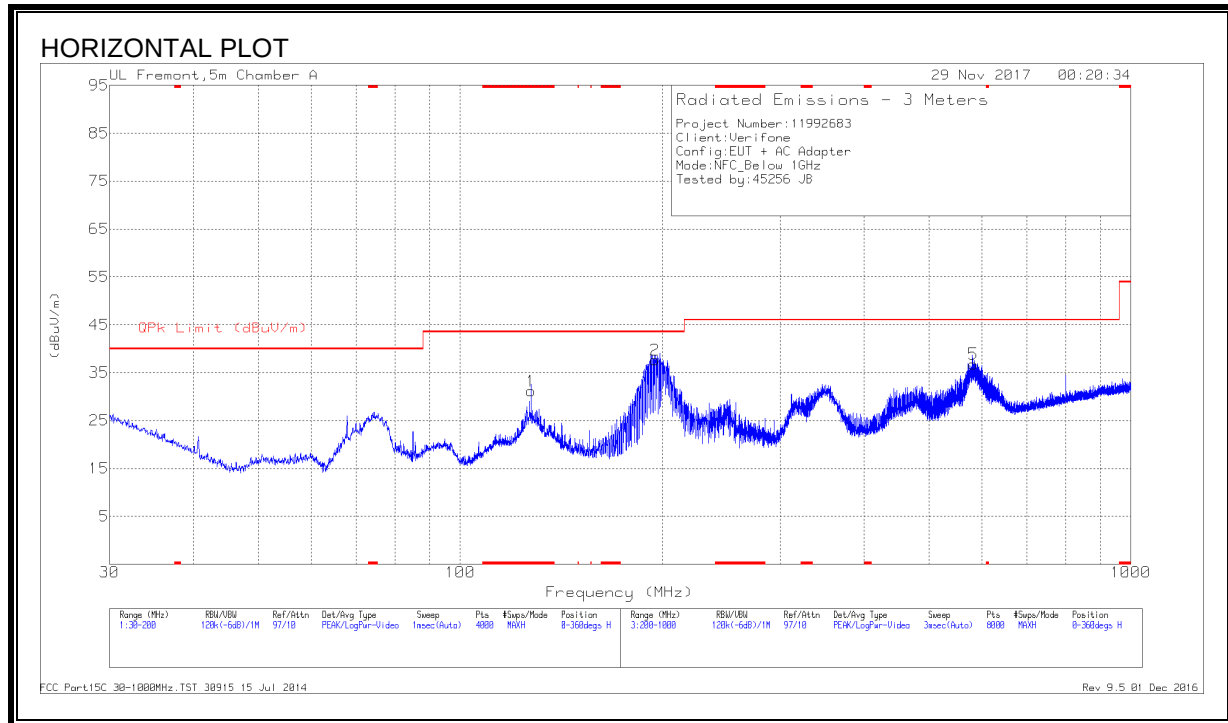
Pk - Peak detector

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dB/m)	Cbl (dB)	Dist Corr 30m	Corrected Reading (dBuVolts)	QP Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
5	1.41302	26.95	Pk	14.3	.2	-40	1.45	24.63	-23.18	-	-	-	-	0-360
6	1.46234	26.42	Pk	14.3	.2	-40	.92	24.33	-23.41	-	-	-	-	0-360
7	*13.55945	63.69	Pk	14.5	.6	-40	38.79	-	-	-	-	-	-	0-360
8	*13.55945	60.18	Pk	14.5	.6	-40	35.28	-	-	-	-	-	-	0-360

* - indicates fundamental frequency

Pk - Peak detector

7.4. TX SPURIOUS EMISSIONS (30 – 1000MHz)



Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T130 (dB/m)	Amp/Cbl (dB/m)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 127.6053	39.17	Pk	18.1	-26.1	31.17	43.52	-12.35	0-360	100	H
3	* 127.5202	36.29	Pk	18.1	-26.1	28.29	43.52	-15.23	0-360	100	V
2	195.4103	47.11	Pk	15.9	-25.4	37.61	43.52	-5.91	0-360	100	H
4	199.6189	38.37	Pk	16.5	-25.3	29.57	43.52	-13.95	0-360	100	V
6	576.2489	38.49	Pk	22.7	-25.1	36.09	46.02	-9.93	0-360	100	V
5	582.9498	39.33	Pk	22.6	-25.1	36.83	46.02	-9.19	0-360	200	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

Qp - Quasi-Peak detector