



FCC RADIO TEST REPORT

FCC ID : B32V240MPLUS
Equipment : Point of sale Terminal
Brand Name : Verifone
Model Name : V240m Plus 3GBWC
Applicant : Verifone, Inc.
1400 West Stanford Ranch Road, Suite 200,
Rocklin CA 95765 USA
Manufacturer : Inventec Applicanes (Pudong) Corp.
789 Pu Xing Road Shanghai 201114 China P.R.C.
Standard : 47 CFR Part 2, 22(H), 24(E), 27(L)

The product was received on May 09, 2018 and testing was started from May 23, 2018 and completed on Jun. 22, 2018. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI / TIA-603-E and has been in compliance with the applicable technical standards.

The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

The test results in this variant report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERTIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Approved by: Jones Tsai

SPORTON INTERTIONAL INC. EMC & Wireless Communications Laboratory

No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)



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History of this test report

Report No.	Version	Description	Issued Date
FG850913	01	Initial issue of report	Jun. 28, 2018

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
-	§2.1046	Conducted Output Power	Not Required	-
	§22.913 (a)(2)	Effective Radiated Power		
	§24.232 (c)	Equivalent Isotropic Radiated Power		
	§27.50 (d)(4)	Equivalent Isotropic Radiated Power		
-	§24.232 (d)	Peak-to-Average Ratio	Not Required	-
-	§2.1049 §22.917 (b) §24.238 (b) §27.53 (g)	Occupied Bandwidth	Not Required	-
-	§2.1051 §22.917 (a) §24.238 (a) §27.53 (g)	Band Edge Measurement	Not Required	-
-	§2.1051 §22.917 (a) §24.238 (a) §27.53 (g)	Conducted Emission	Not Required	-
-	§2.1055 §22.355	Frequency Stability Temperature & Voltage	Not Required	-
	§2.1055 §24.235 §27.54			-
3.4	§2.1053 §22.917 (a) §24.238 (a) §27.53 (h)	Field Strength of Spurious Radiation	Pass	Under limit 34.71 dB at 1672.000 MHz
Remark: 1. Not required means after assessing, test items are not necessary to carry out. 2. This is a variant report by adding camera module. All the test cases were performed on other report. Based on the original report (Report Number.: 11631998-E6V3), only field strength of spurious radiation test cases of WCDMA850 and WCDMA1900 which are following the FCC rule of Part 22(H) and Part 24(E) were verified.				

Reviewed by: Joseph Lin
Report Producer: Maggie Chiang

1 General Description

1.1 Product Feature of Equipment Under Test

GSM/WCDMA, Bluetooth, Wi-Fi 2.4GHz 802.11b/g/n/ac, Wi-Fi 5GHz 802.11a/n, and RFID

Product Specification subjective to this standard	
Antenna Type	WWAN: PIFA Antenna WLAN: FPC Antenna Bluetooth: FPC Antenna RFID: Loop Antenna

Specification of Accessory		
AC Adapter 1	Brand Name	Verifone
	Manufacturer	PHIHONG
	Model Name	AM11A-050A
	Power Rating	Input:100-240Vac, 0.5A Output: 5V/2.2A, 11W
	Power Cord	1.7meter, non-shielded cable, without ferrite core
AC Adapter 2	Brand Name	Verifone
	Manufacturer	Salcomp
	Model Name	VF0402
	Power Rating	Input:100-240Vac, 0.5A Output: 5V/2.2A, 11W
	Power Cord	1.7meter, non-shielded cable, without ferrite core
AC Adapter 3	Brand Name	Verifone
	Manufacturer	Salcomp
	Model Name	SC1402
	Power Rating	Input:100-240Vac, 0.15A Output: 5V/1A, 5W
	Power Cord	1.7meter, non-shielded cable, without ferrite core
AC Adapter 4	Brand Name	Verifone
	Manufacturer	Leader
	Model Name	MU06-E050100-A1
	Power Rating	Input:100-240Vac, 0.18A Output: 5V/1A, 5W
	Power Cord	1.7meter, non-shielded cable, without ferrite core
Battery	Brand Name	Verifone
	Model Name	BPK474-001



1.2 Modification of EUT

No modifications are made to the EUT during all test items.

1.3 Testing Location

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code : 1190) and the FCC designation No. TW1190 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC Test.

Test Site	SPORTON INTERNATIONAL INC.
Test Site Location	No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978
Test Site No.	Sporton Site No. 03CH07-HY

Note: The test site complies with ANSI C63.4 2014 requirement.

1.4 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ ANSI C63.26-2015
- ♦ ANSI / TIA-603-E
- ♦ 47 CFR Part 2, 22(H), 24(E), 27(L)
- ♦ FCC KDB 971168 D01 Power Meas. License Digital Systems v03r01

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

2 Test Configuration of Equipment Under Test

2.1 Test Mode

Antenna port radiated test item was performed according to KDB 971168 D01 Power Meas. License Digital Systems v03r01 with maximum output power.

For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (X plane) were recorded in this report.

Radiated emissions were investigated as following frequency range:

1. 30 MHz to 9000 MHz for WCDMA Band V.
2. 30 MHz to 19100 MHz for WCDMA Band II.

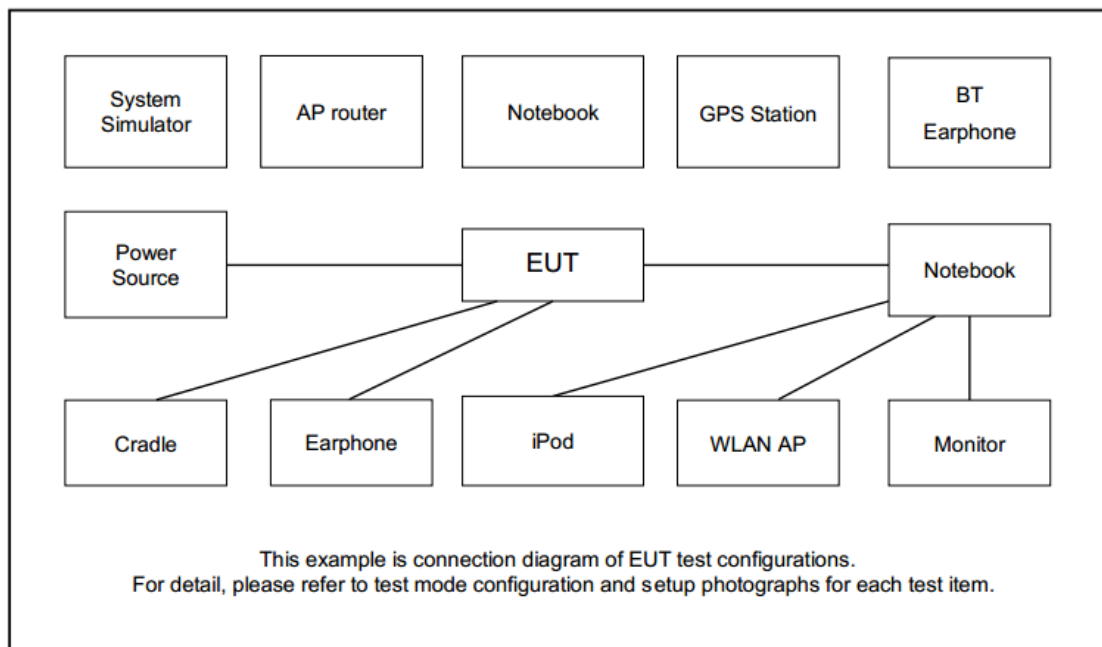
All modes and data rates and positions were investigated.

Test modes are chosen to be reported as the worst case configuration below:

Test Modes	
Band	Radiated TCs
WCDMA Band V	RMC 12.2Kbps Link
WCDMA Band II	RMC 12.2Kbps Link

Remark: All the radiated test cases were performed with Adapter 3.

2.2 Connection Diagram of Test System





2.3 Support Unit used in test configuration

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m

2.4 Frequency List of Low/Middle/High Channels

Frequency List				
Band	Channel/Frequency(MHz)	Lowest	Middle	Highest
WCDMA Band V	Channel	4132	4182	4233
	Frequency	826.4	836.4	846.6
WCDMA Band II	Channel	9262	9400	9538
	Frequency	1852.4	1880.0	1907.6

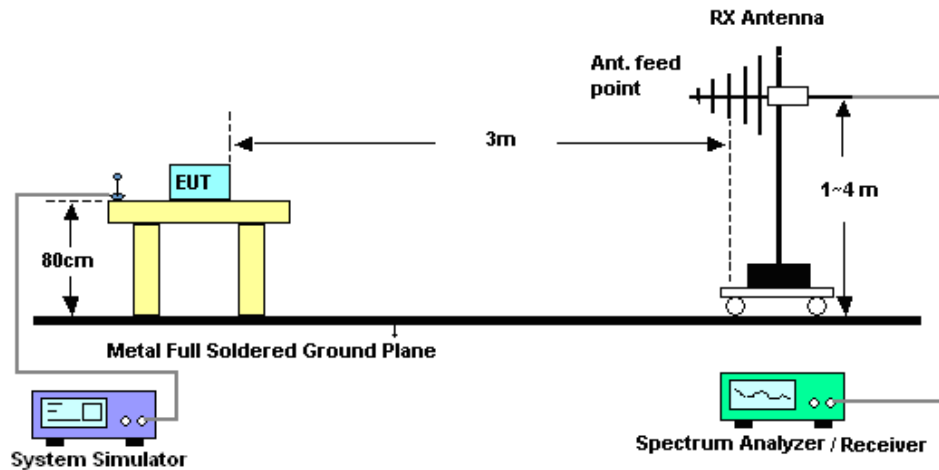
3 Radiated Test Items

3.1 Measuring Instruments

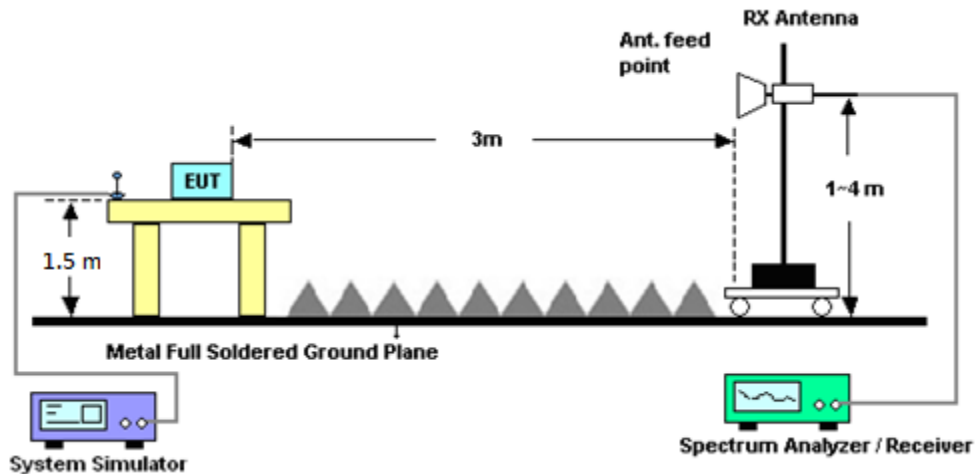
See list of measuring instruments of this test report.

3.2 Test Setup

For radiated test from 30MHz to 1GHz



For radiated test above 1GHz



3.3 Test Result of Radiated Test

Please refer to Appendix A.



3.4 Field Strength of Spurious Radiation Measurement

3.4.1 Description of Field Strength of Spurious Radiated Measurement

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least $43 + 10 \log (P)$ dB. The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

3.4.2 Test Procedures

The testing follows FCC KDB 971168 D01 v03r01 Section 5.8 and ANSI / TIA-603-E Section 2.2.12.

1. The EUT was placed on a rotatable wooden table 0.8 meters for frequency below 1GHz and 1.5 meter for frequency above 1GHz above the ground.
2. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest spurious emission.
4. The height of the receiving antenna is varied between one meter and four meters to search for the maximum spurious emission for both horizontal and vertical polarizations.
5. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking record of maximum spurious emission.
6. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
7. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
8. Taking the record of output power at antenna port.
9. Repeat step 7 to step 8 for another polarization.
10. $EIRP \text{ (dBm)} = S.G. \text{ Power} - Tx \text{ Cable Loss} + Tx \text{ Antenna Gain}$
11. $ERP \text{ (dBm)} = EIRP - 2.15$
12. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
13. The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power P(Watts)



4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Bilog Antenna	TESEQ	CBL 6111D&00800 N1D01N-06	35419&03	30MHz to 1GHz	Dec. 18, 2017	May 23, 2018~ Jun. 22, 2018	Dec. 17, 2018	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Aug. 23, 2017	May 23, 2018~ Jun. 22, 2018	Aug. 22, 2018	Radiation (03CH07-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100315	9 kHz~30 MHz	Nov. 10, 2017	May 23, 2018~ Jun. 22, 2018	Nov. 09, 2018	Radiation (03CH07-HY)
Preamplifier	Agilent	8449B	3008A02362	1GHz~ 26.5GHz	Oct. 30, 2017	May 23, 2018~ Jun. 22, 2018	Oct. 29, 2018	Radiation (03CH07-HY)
Spectrum Analyzer	Agilent	N9010A	MY53470118	10Hz~44GHz	Apr. 17, 2018	May 23, 2018~ Jun. 22, 2018	Apr. 16, 2019	Radiation (03CH07-HY)
Antenna Mast	Max-Full	MFA520BS	N/A	1m~4m	N/A	May 23, 2018~ Jun. 22, 2018	N/A	Radiation (03CH07-HY)
Turn Table	ChainTek	Chaintek 3000	N/A	0~360 Degree	N/A	May 23, 2018~ Jun. 22, 2018	N/A	Radiation (03CH07-HY)
Horn Antenna	ESCO	3117	00066584	1GHz~18GHz	Sep. 06, 2017	May 23, 2018~ Jun. 22, 2018	Sep. 05, 2018	Radiation (03CH07-HY)
EMI Test Receiver	Agilent	N9038A(MXE)	MY53290053	20Hz to 26.5GHz	Jan. 16, 2018	May 23, 2018~ Jun. 22, 2018	Jan. 15, 2019	Radiation (03CH07-HY)
Signal Generator	Anritsu	MG3694C	163401	0.1Hz~40GHz	Jan. 15, 2018	May 23, 2018~ Jun. 22, 2018	Jan. 14, 2019	Radiation (03CH07-HY)
Amplifier	SONOMA	310N	187231	9kHz~1GHz	Jan. 08, 2018	May 23, 2018~ Jun. 22, 2018	Jan. 07, 2019	Radiation (03CH07-HY)

5 Uncertainty of Evaluation

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	3.05
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Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	3.44
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Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	3.95
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Appendix A. Test Results of Radiated Test

Test Engineer :	Stan Hsieh	Temperature :	22~24°C
		Relative Humidity :	51~53%

**Radiated Spurious Emission****WCDMA 850**

WCDMA 850									
Channel	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	1656	-51.28	-13	-38.28	-63.71	-53.01	0.98	4.86	H
	2480	-60.33	-13	-47.33	-77.77	-62.24	1.28	5.34	H
	3304	-59.45	-13	-46.45	-79.1	-62.89	1.54	7.14	H
									H
									H
									H
	1656	-52.09	-13	-39.09	-65.05	-53.82	0.98	4.86	V
	2480	-60.40	-13	-47.40	-78.27	-62.31	1.28	5.34	V
	3304	-59.38	-13	-46.38	-79.34	-62.82	1.54	7.14	V
									V
									V
									V
Middle	1672	-47.71	-13	-34.71	-60.33	-49.39	0.99	4.82	H
	2504	-60.86	-13	-47.86	-78.4	-62.82	1.29	5.40	H
	3344	-59.70	-13	-46.70	-79.53	-63.31	1.56	7.31	H
									H
									H
									H
	1672	-50.09	-13	-37.09	-63.11	-51.77	0.99	4.82	V
	2504	-60.36	-13	-47.36	-78.37	-62.32	1.29	5.40	V
	3344	-59.57	-13	-46.57	-79.65	-63.18	1.56	7.31	V
									V
									V
									V



Highest	1696	-52.42	-13	-39.42	-65.1	-54.02	1.00	4.75	H
	2536	-60.59	-13	-47.59	-78.19	-62.57	1.30	5.43	H
	3384	-59.06	-13	-46.06	-79.07	-62.83	1.57	7.49	H
									H
									H
									H
									H
	1696	-52.89	-13	-39.89	-66.19	-54.49	1.00	4.75	V
	2536	-60.05	-13	-47.05	-78.16	-62.03	1.30	5.43	V
	3384	-59.01	-13	-46.01	-79.27	-62.78	1.57	7.49	V
									V
									V
									V
									V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

**WCDMA 1900**

WCDMA 1900									
Channel	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	3702	-49.64	-13	-36.64	-70.57	-56.21	1.67	8.24	H
	5556	-53.62	-13	-40.62	-79.21	-60.69	2.66	9.72	H
	7404	-52.59	-13	-39.59	-79.58	-61.74	2.46	11.61	H
									H
									H
									H
									H
	3702	-48.16	-13	-35.16	-69.02	-54.73	1.67	8.24	V
	5556	-53.75	-13	-40.75	-79.37	-60.82	2.66	9.72	V
	7404	-52.24	-13	-39.24	-79.58	-61.39	2.46	11.61	V
									V
									V
									V
									V
Middle	3762	-57.05	-13	-44.05	-77.99	-63.68	1.69	8.31	H
	5640	-52.98	-13	-39.98	-78.74	-60.03	2.71	9.76	H
	7518	-51.85	-13	-38.85	-79	-61.24	2.42	11.81	H
									H
									H
									H
									H
	3762	-56.89	-13	-43.89	-77.74	-63.52	1.69	8.31	V
	5640	-52.96	-13	-39.96	-78.66	-60.01	2.71	9.76	V
	7518	-51.83	-13	-38.83	-79.23	-61.22	2.42	11.81	V
									V
									V
									V
									V



Highest	3816	-50.89	-13	-37.89	-71.79	-57.57	1.70	8.38	H
	5724	-52.64	-13	-39.64	-78.59	-59.68	2.75	9.79	H
	7632	-50.62	-13	-37.62	-78.08	-60.11	2.39	11.88	H
									H
									H
									H
									H
	3816	-50.86	-13	-37.86	-71.77	-57.54	1.70	8.38	V
	5724	-52.84	-13	-39.84	-78.73	-59.88	2.75	9.79	V
	7632	-50.24	-13	-37.24	-77.96	-59.73	2.39	11.88	V
									V
									V
									V
									V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.