

Variant FCC Test Report

Report No.: RF200206C08 R1

FCC ID: B32V400MBFF

Test Model: CM5P B-FF

Received Date: Feb. 06, 2020

Test Date: Feb. 19 ~ Feb. 28, 2020

Issued Date: Mar. 31, 2020

Applicant: Verifone, Inc.

Address: 1400 West Stanford Ranch Road Suite 200 Rocklin CA 95765 USA

Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lin Kou Laboratories

Lab Address: No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan

Test Location: No.19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City
33383, Taiwan

FCC Registration /
Designation Number: 788550 / TW0003



This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence, provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents. Unless specific mention, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification. The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any government agencies.

Table of Contents

Release Control Record	3
1 Certificate of Conformity	4
2 Summary of Test Results.....	5
2.1 Measurement Uncertainty.....	5
2.2 Modification Record	5
3 General Information	6
3.1 General Description of EUT	6
3.2 Description of Test Modes.....	7
3.2.1 Test Mode Applicability and Tested Channel Detail.....	7
3.3 Description of Support Units	9
3.3.1 Configuration of System under Test	9
3.4 General Description of Applied Standards and References	10
4 Test Types and Results	11
4.1 Radiated Emission and Bandedge Measurement	11
4.1.1 Limits of Radiated Emission and Bandedge Measurement	11
4.1.2 Test Instruments	12
4.1.3 Test Procedures.....	13
4.1.4 Deviation from Test Standard	13
4.1.5 Test Set Up	14
4.1.6 EUT Operating Conditions.....	15
4.1.7 Test Results	16
4.2 Maximum Output Power	24
4.2.1 Limits of Maximum Output Power Measurement	24
4.2.2 Test Setup.....	24
4.2.3 Test Instruments	24
4.2.4 Test Procedure	24
4.2.5 Deviation from Test Standard	24
4.2.6 EUT Operating Condition	24
4.2.7 Test Results	25
5 Pictures of Test Arrangements.....	26
Appendix – Information of the Testing Laboratories	27

Release Control Record

Issue No.	Description	Date Issued
RF200206C08	Original Release	Mar. 09, 2020
RF200206C08 R1	Change to C2PC	Mar. 31, 2020

1 Certificate of Conformity

Product: Charging Base

Brand: Verifone

Test Model: CM5P B-FF

Sample Status: Identical Prototype

Applicant: Verifone, Inc.

Test Date: Feb. 19 ~ Feb. 28, 2020

Standards: 47 CFR FCC Part 15, Subpart C (Section 15.247)
ANSI C63.10:2013

This report is issued as a supplementary report to BV CPS report no.: RF161118C16C. This report shall be used by combining with its original report

Prepared by : Gina Liu, **Date:** Mar. 31, 2020
Gina Liu / Specialist

Approved by : Dylan Chiou, **Date:** Mar. 31, 2020
Dylan Chiou / Senior Project Engineer

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (Section 15.247)			
FCC Clause	Test Item	Result	Remarks
15.207	AC Power Conducted Emission	N/A	Refer to Note 1
15.247(a)(1)(iii)	Number of Hopping Frequency Used	N/A	Refer to Note 1
15.247(a)(1)(iii)	Dwell Time on Each Channel	N/A	Refer to Note 1
15.247(a)(1)	1. Hopping Channel Separation 2. Spectrum Bandwidth of a Frequency Hopping Sequence Spread Spectrum System	N/A	Refer to Note 1
15.247(a)(1)	Maximum Peak Output Power	Pass	Meet the requirement of limit.
---	Occupied Bandwidth Measurement	N/A	Refer to Note 1
15.205 & 209	Radiated Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -8.11 dB at 2390.00 MHz.
15.247(d)	Band Edge Measurement	N/A	Refer to Note 1
15.247(d)	Antenna Port Emission	N/A	Refer to Note 1
15.203	Antenna Requirement	N/A	Refer to Note 1

Note:

1. Only Radiated emission and output power had been performed and presented in this report. Refer to original report for the other test data.
2. N/A: Not applicable
3. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Expanded Uncertainty (k=2) ($\pm$)
Radiated Emissions up to 1 GHz	9 kHz ~ 30 MHz	3.04 dB
	30 MHz ~ 200 MHz	2.93 dB
	200 MHz ~ 1000 MHz	2.95 dB
Radiated Emissions above 1 GHz	1 GHz ~ 18 GHz	2.26 dB
	18 GHz ~ 40 GHz	1.94 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Charging Base
Brand	Verifone
Test Model	CM5P B-FF
Status of EUT	Identical Prototype
Power Supply Rating	5 Vdc (Adapter)
Modulation Type	GFSK, $\pi/4$ -DQPSK, 8DPSK
Transfer Rate	1/2/3 Mbps
Operating Frequency	2402 ~ 2480 MHz
Number of Channel	79
Output Power	6.516 mW
Antenna Type	Chip antenna with 1.96 dBi gain
Antenna Connector	N/A
Accessory Device	Refer to Note as below
Data Cable Supplied	N/A

Note:

- This report is prepared for FCC class II permissive change. The difference compared with the original report (BV CPS report no.: RF161118C16C) are listed as below. Therefore, only Radiated emission and output power had been performed and presented in this report.
 - POGO PCB (contact to terminal device for charging)
 - Docking FPC (connection of power board, FF charging main board and POGO board)
 - PSTN will be disable
- The EUT contains following accessory devices.

Product	Brand	Model	Description
Adapter	Verifone	AM11A-050A/AM11E-050A	I/P: 100-240 Vac, 50-60 Hz, 500 mA O/P: 5 Vdc, 2.2 A

- The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or User's Manual.

3.2 Description of Test Modes

79 channels are provided to this EUT:

Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
0	2402	20	2422	40	2442	60	2462
1	2403	21	2423	41	2443	61	2463
2	2404	22	2424	42	2444	62	2464
3	2405	23	2425	43	2445	63	2465
4	2406	24	2426	44	2446	64	2466
5	2407	25	2427	45	2447	65	2467
6	2408	26	2428	46	2448	66	2468
7	2409	27	2429	47	2449	67	2469
8	2410	28	2430	48	2450	68	2470
9	2411	29	2431	49	2451	69	2471
10	2412	30	2432	50	2452	70	2472
11	2413	31	2433	51	2453	71	2473
12	2414	32	2434	52	2454	72	2474
13	2415	33	2435	53	2455	73	2475
14	2416	34	2436	54	2456	74	2476
15	2417	35	2437	55	2457	75	2477
16	2418	36	2438	56	2458	76	2478
17	2419	37	2439	57	2459	77	2479
18	2420	38	2440	58	2460	78	2480
19	2421	39	2441	59	2461		

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable To				Description
	RE $\geq$ 1G	RE<1G	PLC	Power	
-	√	√	-	√	-

Where **RE $\geq$ 1G**: Radiated Emission above 1 GHz **RE<1G**: Radiated Emission below 1 GHz
PLC: Power Line Conducted Emission **Power**: Maximum Output Power

Note:

- For Radiated emission test, pre-tested GFSK, $\pi/4$ -DQPSK, 8DPSK modulation type and found GFSK was the worse, therefore chosen for the final test and presented in the test report.
- The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **X-plane**.
- "-" means no effect.

Radiated Emission Test (Above 1 GHz):

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Packet Type
-	0 to 78	0, 39, 78	FHSS	GFSK	DH5
	0 to 78	0, 39, 78	FHSS	8DPSK	3DH5

Radiated Emission Test (Below 1 GHz):

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Packet Type
-	0 to 78	0	FHSS	GFSK	DH5

Maximum Output Power

- ☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Packet Type
-	0 to 78	0, 39, 78	FHSS	GFSK	DH5
-	0 to 78	0, 39, 78	FHSS	8DPSK	3DH5

Test Condition:

Applicable To	Environmental Conditions	Input Power	Tested by
RE $\geq$ 1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Getaz Yang
RE<1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Tim Chen
Power	25 deg. C, 65 % RH	120 Vac, 60 Hz	Gavin Wu

3.3 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

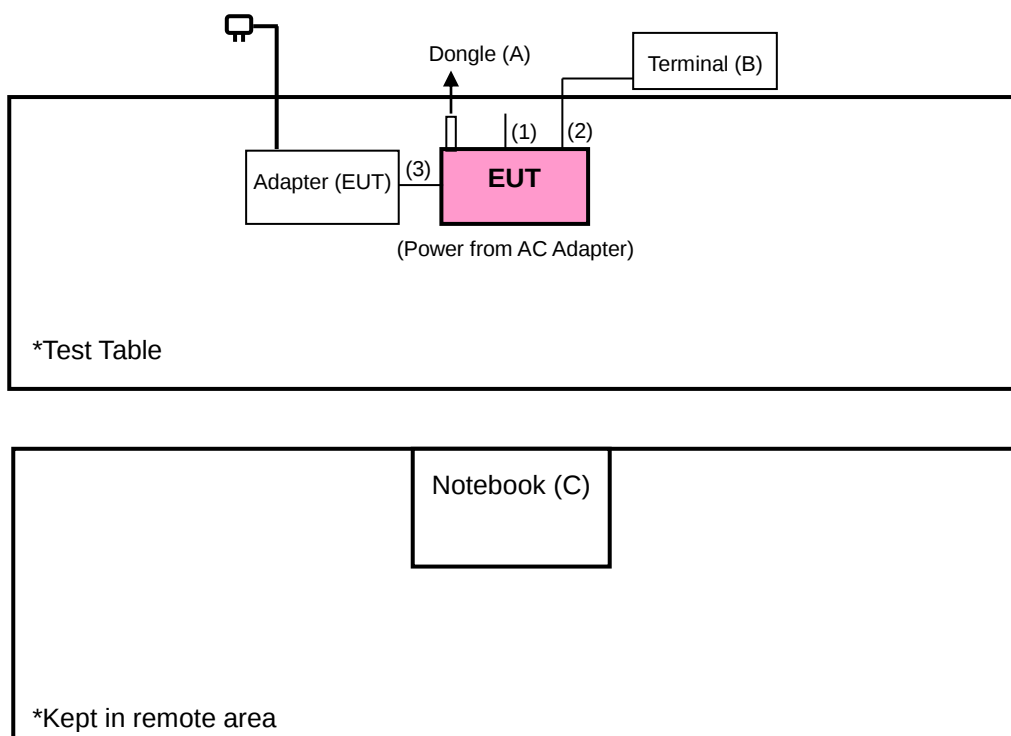
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A	Dongle	HP	v250W	09	N/A	Provided by Lab
B	Terminal	N/A	N/A	N/A	N/A	Provided by Lab
C	Notebook	DELL	Inspiron 14R	8LRKKW1	N/A	Provided by Lab

Note:

1. All power cords of the above support units are non-shielded (1.8m).

ID	Cable Descriptions	Qty.	Length (m)	Cores (Qty.)	Remarks
1.	USB Cable	1	1.2	0	Provided by Lab
2.	RJ45 Cable	2	1.8	0	Provided by Lab
3.	Adapter Cable	1	1.8	0	Accessory of the EUT

3.3.1 Configuration of System under Test



3.4 General Description of Applied Standards and References

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards and references:

Test Standard:

FCC Part 15, Subpart C (15.247)

ANSI C63.10-2013

All test items have been performed and recorded as per the above standards.

References Test Guidance:

KDB 558074 D01 15.247 Meas Guidance v05r02

All test items have been performed as a reference to the above KDB test guidance.

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20 dB below the highest level of the desired power:

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
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

Note:

- The lower limit shall apply at the transition frequencies.
- Emission level (dBuV/m) = 20 log Emission level (uV/m).
- For frequencies above 1000 MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20 dB under any condition of modulation.

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver Agilent	N9038A	MY51210203	Mar. 18, 2019	Mar. 17, 2020
Spectrum Analyzer Agilent	N9010A	MY52220314	Dec. 12, 2019	Dec. 11, 2020
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Apr. 15, 2019	Apr. 14, 2020
Broadband Horn Antenna SCHWARZBECK	BBHA 9170	148	Nov. 24, 2019	Nov. 23, 2020
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-969	Nov. 24, 2019	Nov. 23, 2020
BILOG Antenna SCHWARZBECK	VULB 9168	9168-472	Nov. 08, 2019	Nov. 07, 2020
Fixed Attenuator WORKEN	MDCS18N-10	MDCS18N-10-01	Apr. 15, 2019	Apr. 14, 2020
Loop Antenna	EM-6879	269	Sep. 16, 2019	Sep. 15, 2020
Preamplifier EMCI	EMC001340	980201	Oct. 14, 2019	Oct. 13, 2020
Bluetooth Tester	CBT	100946	Aug. 09, 2018	Aug. 08, 2020
Preamplifier EMCI	EMC 012645	980115	Oct. 08, 2019	Oct. 07, 2020
Preamplifier EMCI	EMC 184045	980116	Oct. 08, 2019	Oct. 07, 2020
Preamplifier EMCI	EMC 330H	980112	Oct. 08, 2019	Oct. 07, 2020
Power Meter Anritsu	ML2495A	1012010	Sep. 04, 2019	Sep. 03, 2020
Power Sensor Anritsu	MA2411B	1315050	Sep. 04, 2019	Sep. 03, 2020
RF Coaxial Cable HUBER+SUHNNER	EMC104-SM-SM-8 000&3000	140811+170717	Oct. 08, 2019	Oct. 07, 2020
RF Coaxial Cable HUBER+SUHNNER	SUCOFLEX 104	EMC104-SM-SM-1 000(140807)	Oct. 08, 2019	Oct. 07, 2020
RF Coaxial Cable WOKEN	8D-FB	Cable-Ch10-01	Oct. 08, 2019	Oct. 07, 2020
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
Software BV ADT	E3 6.120103	NA	NA	NA
Antenna Tower MF	MFA-440H	NA	NA	NA
Turn Table MF	MFT-201SS	NA	NA	NA
Antenna Tower & Turn Table Controller MF	MF-7802	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 / 24 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The test was performed in HwaYa Chamber 10.

4.1.3 Test Procedures

For Radiated Emission below 30 MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9 kHz at frequency below 30 MHz.

For Radiated Emission above 30 MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters (for 30 MHz ~ 1 GHz) / 1.5 meters (for above 1 GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detected function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

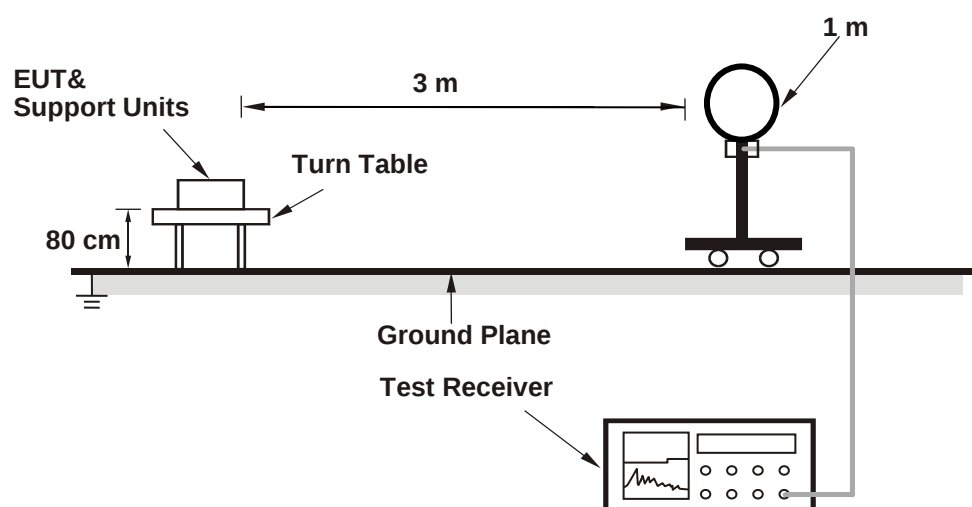
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) or Peak detection (PK) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1 GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is $\geq 1/T$ (Duty cycle $< 98\%$) or 10 Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1 GHz. (RBW = 1 MHz, VBW = 1 kHz)
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

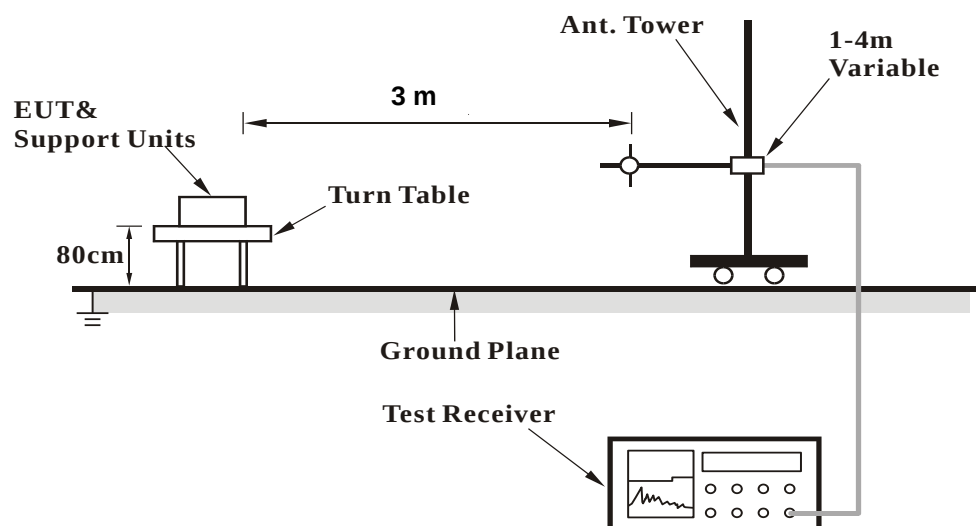
No deviation.

4.1.5 Test Set Up

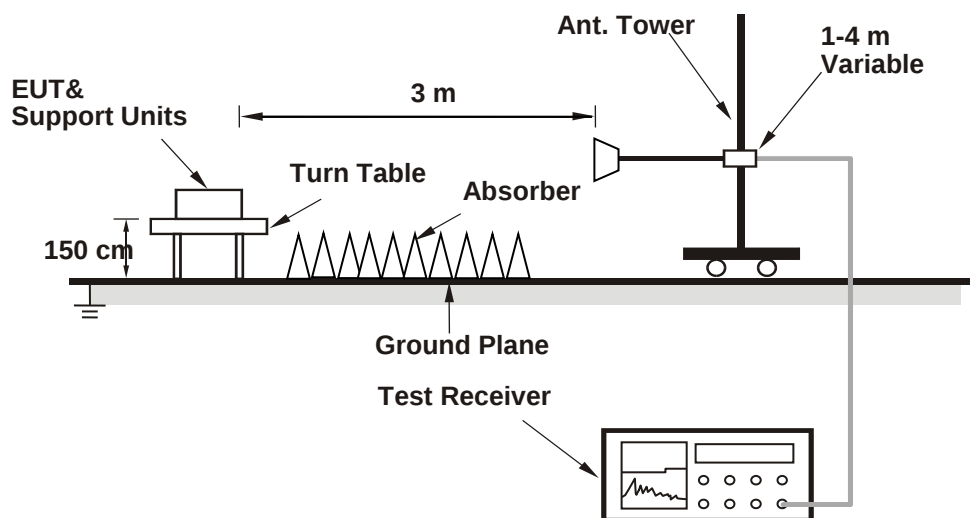
<Radiated Emission below 30 MHz>



<Radiated Emission 30 MHz to 1 GHz>



<Radiated Emission above 1 GHz>



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.1.6 EUT Operating Conditions

Set the EUT under transmission condition continuously at specific channel frequency.

4.1.7 Test Results

Above 1 GHz Data: GFSK

EUT Test Condition		Measurement Detail	
Channel	Channel 0	Frequency Range	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Getaz Yang

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2390	45.89	51.42	-5.53	54	-8.11	190	43	Average
2390	50.23	55.76	-5.53	74	-23.77	190	43	Peak
2402	102.07	107.64	-5.57	-----	-----	190	43	Average
2402	102.5	108.07	-5.57	-----	-----	190	43	Peak
4804	34.01	49.03	-15.02	54	-19.99	177	25	Average
4804	41.69	56.71	-15.02	74	-32.31	177	25	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2390	42.86	48.39	-5.53	54	-11.14	272	0	Average
2390	49.95	55.48	-5.53	74	-24.05	272	0	Peak
2402	99.16	104.73	-5.57	-----	-----	272	0	Average
2402	99.58	105.15	-5.57	-----	-----	272	0	Peak
4804	34.03	49.05	-15.02	54	-19.97	255	336	Average
4804	42.29	57.31	-15.02	74	-31.71	255	336	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 2402 MHz: Fundamental frequency.
- The emission levels of other frequencies were very low against the limit.

EUT Test Condition		Measurement Detail	
Channel	Channel 39	Frequency Range	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Getaz Yang

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2390	36.62	42.15	-5.53	54	-17.38	190	40	Average
2390	47.35	52.88	-5.53	74	-26.65	190	40	Peak
2441	102.98	108.38	-5.4	-----	-----	190	40	Average
2441	103.23	108.63	-5.4	-----	-----	190	40	Peak
2483.5	40.56	45.8	-5.24	54	-13.44	190	40	Average
2483.5	48.19	53.43	-5.24	74	-25.81	190	40	Peak
4882	33.96	48.86	-14.9	54	-20.04	172	33	Average
4882	42.63	57.53	-14.9	74	-31.37	172	33	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2390	39.87	45.4	-5.53	54	-14.13	264	0	Average
2390	47.93	53.46	-5.53	74	-26.07	264	0	Peak
2441	100.29	105.69	-5.4	-----	-----	264	0	Average
2441	100.5	105.9	-5.4	-----	-----	264	0	Peak
2483.5	38.97	44.21	-5.24	54	-15.03	264	0	Average
2483.5	47.11	52.35	-5.24	74	-26.89	264	0	Peak
4882	34.1	49	-14.9	54	-19.9	251	2	Average
4882	41.35	56.25	-14.9	74	-32.65	251	2	Peak

Remarks:

1. Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
2. 2441 MHz: Fundamental frequency.
3. The emission levels of other frequencies were very low against the limit.

EUT Test Condition		Measurement Detail	
Channel	Channel 78	Frequency Range	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Getaz Yang

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2480	102.66	107.91	-5.25	-----	-----	192	20	Average
2480	103.03	108.28	-5.25	-----	-----	192	20	Peak
2483.5	40.24	45.48	-5.24	54	-13.76	192	20	Average
2483.5	50.12	55.36	-5.24	74	-23.88	192	20	Peak
4960	34.16	49.02	-14.86	54	-19.84	172	21	Average
4960	41.89	56.75	-14.86	74	-32.11	172	21	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2480	100.33	105.58	-5.25	-----	-----	265	0	Average
2480	100.76	106.01	-5.25	-----	-----	265	0	Peak
2483.5	38.86	44.1	-5.24	54	-15.14	265	0	Average
2483.5	48.85	54.09	-5.24	74	-25.15	265	0	Peak
4960	34.22	49.08	-14.86	54	-19.78	249	355	Average
4960	41.77	56.63	-14.86	74	-32.23	249	355	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 2480 MHz: Fundamental frequency.
- The emission levels of other frequencies were very low against the limit.

8DPSK

EUT Test Condition		Measurement Detail	
Channel	Channel 0	Frequency Range	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Getaz Yang

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2390	45.82	51.35	-5.53	54	-8.18	144	48	Average
2390	51.58	57.11	-5.53	74	-22.42	144	48	Peak
2402	100.62	106.19	-5.57	-----	-----	144	48	Average
2402	103.69	109.26	-5.57	-----	-----	144	48	Peak
4804	34.09	49.11	-15.02	54	-19.91	253	1	Average
4804	42.74	57.76	-15.02	74	-31.26	253	1	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2390	43.25	48.78	-5.53	54	-10.75	273	0	Average
2390	50.1	55.63	-5.53	74	-23.9	273	0	Peak
2402	98.57	104.14	-5.57	-----	-----	273	0	Average
2402	101.33	106.9	-5.57	-----	-----	273	0	Peak
4804	33.83	48.85	-15.02	54	-20.17	176	28	Average
4804	42	57.02	-15.02	74	-32	176	28	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 2402 MHz: Fundamental frequency.
- The emission levels of other frequencies were very low against the limit.

EUT Test Condition		Measurement Detail	
Channel	Channel 39	Frequency Range	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Getaz Yang

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2390	36.83	42.36	-5.53	54	-17.17	165	43	Average
2390	46.74	52.27	-5.53	74	-27.26	165	43	Peak
2441	102.64	108.04	-5.4	-----	-----	165	43	Average
2441	105.69	111.09	-5.4	-----	-----	165	43	Peak
2483.5	40.07	45.31	-5.24	54	-13.93	165	43	Average
2483.5	48.43	53.67	-5.24	74	-25.57	165	43	Peak
4882	33.77	48.67	-14.9	54	-20.23	169	31	Average
4882	42.44	57.34	-14.9	74	-31.56	169	31	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2390	37.53	43.06	-5.53	54	-16.47	269	0	Average
2390	49.19	54.72	-5.53	74	-24.81	269	0	Peak
2441	99.62	105.02	-5.4	-----	-----	269	0	Average
2441	102.68	108.08	-5.4	-----	-----	269	0	Peak
2483.5	38.2	43.44	-5.24	54	-15.8	269	0	Average
2483.5	47.02	52.26	-5.24	74	-26.98	269	0	Peak
4882	34.07	48.97	-14.9	54	-19.93	229	0	Average
4882	42.86	57.76	-14.9	74	-31.14	229	0	Peak

Remarks:

1. Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
2. 2441 MHz: Fundamental frequency.
3. The emission levels of other frequencies were very low against the limit.

EUT Test Condition		Measurement Detail	
Channel	Channel 78	Frequency Range	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Getaz Yang

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2480	101.5	106.75	-5.25	-----	-----	165	43	Average
2480	104.68	109.93	-5.25	-----	-----	165	43	Peak
2483.5	39.64	44.88	-5.24	54	-14.36	165	43	Average
2483.5	50.46	55.7	-5.24	74	-23.54	165	43	Peak
4960	34.23	49.09	-14.86	54	-19.77	177	28	Average
4960	41.5	56.36	-14.86	74	-32.5	177	28	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2480	98.48	103.73	-5.25	-----	-----	259	0	Average
2480	101.43	106.68	-5.25	-----	-----	259	0	Peak
2483.5	38.28	43.52	-5.24	54	-15.72	259	0	Average
2483.5	48.34	53.58	-5.24	74	-25.66	259	0	Peak
4960	34.15	49.01	-14.86	54	-19.85	251	358	Average
4960	41.64	56.5	-14.86	74	-32.36	251	358	Peak

Remarks:

- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- 2480 MHz: Fundamental frequency.
- The emission levels of other frequencies were very low against the limit.

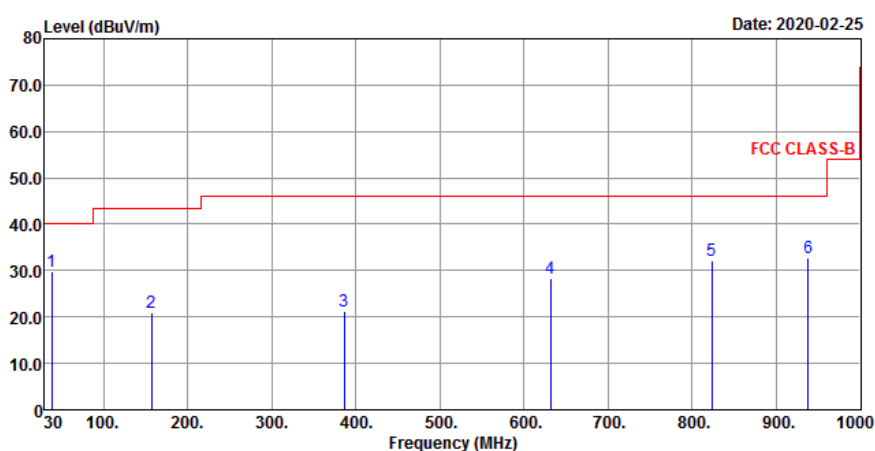
9 kHz ~ 30 MHz Data:

The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

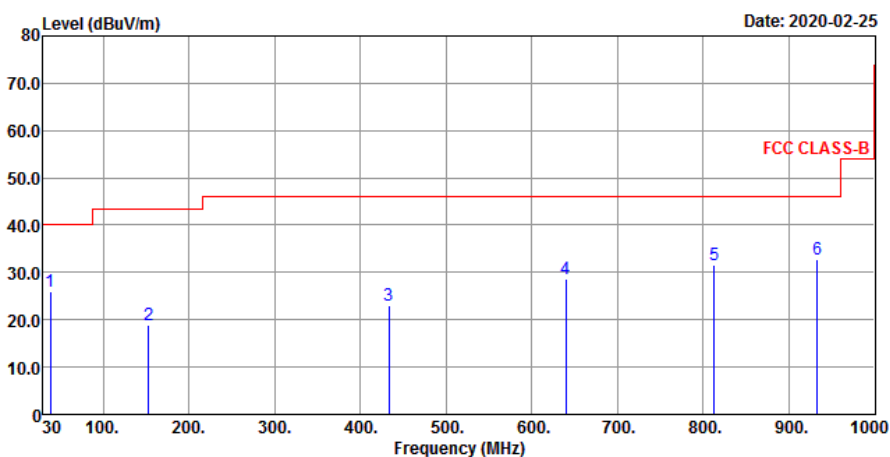
30 MHz ~ 1 GHz Worst-Case Data:

EUT Test Condition		Measurement Detail	
Channel	Channel 0	Frequency Range	30 MHz ~ 1 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Quasi-peak (QP)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Tim Chen

Horizontal



Vertical



Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
38.73	29.89	42.26	-12.37	40	-10.11	103	229	Peak
157.07	21.08	32.68	-11.6	43.5	-22.42	122	295	Peak
385.99	21.32	29.95	-8.63	46	-24.68	127	57	Peak
631.4	28.47	30.25	-1.78	46	-17.53	115	315	Peak
823.46	32.12	29.9	2.22	46	-13.88	109	29	Peak
937.92	32.9	29.44	3.46	46	-13.1	154	44	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
38.73	25.99	38.36	-12.37	40	-14.01	191	99	Peak
153.19	18.81	30.5	-11.69	43.5	-24.69	126	110	Peak
433.52	23.14	30.07	-6.93	46	-22.86	107	206	Peak
640.13	28.59	30.29	-1.7	46	-17.41	137	244	Peak
812.79	31.61	29.63	1.98	46	-14.39	271	162	Peak
933.07	32.86	29.43	3.43	46	-13.14	184	193	Peak

Remarks:

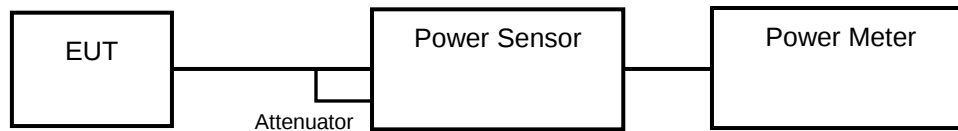
- Emission Level = Read Level + Factor
Margin value = Emission level – Limit value
- The emission levels of other frequencies were very low against the limit.

4.2 Maximum Output Power

4.2.1 Limits of Maximum Output Power Measurement

Refer to Regulation 15.247 (a)(1), the Maximum Output Power Measurement is 125 mW.

4.2.2 Test Setup



4.2.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.2.4 Test Procedure

A peak power sensor was used on the output port of the EUT. A power meter was used to read the response of the peak power sensor. Record the power level.

4.2.5 Deviation from Test Standard

No deviation.

4.2.6 EUT Operating Condition

The software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel frequencies individually.

4.2.7 Test Results

<GFSK>

Channel	Freq. (MHz)	Peak Power		Average Power		Power Limit (mW)	Pass / Fail
		(mW)	(dBm)	(mW)	(dBm)		
0	2402	6.516	8.14	3.304	5.19	125	Pass
39	2441	5.395	7.32	2.884	4.60	125	Pass
78	2480	3.404	5.32	1.679	2.25	125	Pass

<8DPSK>

Channel	Freq. (MHz)	Peak Power		Average Power		Power Limit (mW)	Pass / Fail
		(mW)	(dBm)	(mW)	(dBm)		
0	2402	3.954	5.97	3.819	5.82	125	Pass
39	2441	3.243	5.11	3.119	4.94	125	Pass
78	2480	2.133	3.29	2	3.01	125	Pass

5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

Appendix – Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

Lin Kou EMC/RF Lab

Tel: 886-2-26052180

Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab

Tel: 886-3-6668565

Fax: 886-3-6668323

Hwa Ya EMC/RF/Safety Lab

Tel: 886-3-3183232

Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

The address and road map of all our labs can be found in our web site also.

--- END ---