

VARIANT FCC TEST REPORT (15.407)

REPORT NO.: RF150729C24B-1

MODEL NO.: P200 Plus

FCC ID: B32P400PLUS

RECEIVED: Dec. 11, 2015

TESTED: Dec. 18, 2015 ~ Dec. 23, 2015

ISSUED: Dec. 31, 2015

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

LAB ADDRESS: No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist.,

New Taipei City, Taiwan (R.O.C)

TEST LOCATION: No.19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei

Shan Dist., Taoyuan City 33383, Taiwan, R.O.C.

This report should not be used by the client to claim product certification, approval, or endorsement by TAF or any government agencies.





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.



TABLE OF CONTENTS

			NTROL RECORD			
RE	EPOF	RT ISSU	E RECORD OF EUT	4		
			TION			
2.			OF TEST RESULTS			
			JREMENT UNCERTAINTY			
3.	GEN	NERAL I	NFORMATION	7		
	3.1	GENE	RAL DESCRIPTION OF EUT	7		
	3.2	DESC	RIPTION OF TEST MODES			
		3.2.1	TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL	11		
	3.3	DESC	RIPTION OF SUPPORT UNITS	. 12		
		3.3.1	CONFIGURATION OF SYSTEM UNDER TEST	. 12		
			RAL DESCRIPTION OF APPLIED STANDARDS			
4.			S AND RESULTS			
	4.1	RADIA	TED EMISSION AND BANDEDGE MEASUREMENT			
		4.1.1	LIMITS OF RADIATED EMISSION AND BANDEDGE MEASUREMENT			
		4.1.2	LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS	. 13		
		4.1.3	TEST INSTRUMENTS	. 14		
		4.1.4	TEST PROCEDURES			
		4.1.5	DEVIATION FROM TEST STANDARD			
		4.1.6	TEST SETUP	. 16		
		4.1.7	EUT OPERATING CONDITIONS			
		4.1.8	TEST RESULTS			
	4.2	COND	UCTED EMISSION MEASUREMENT			
		4.2.1	LIMITS OF CONDUCTED EMISSION MEASUREMENT	. 25		
		4.2.2	TEST INSTRUMENTS	. 25		
		4.2.3	TEST PROCEDURES			
		4.2.4	DEVIATION FROM TEST STANDARD			
		4.2.5	TEST SETUP	. 27		
		4.2.6	EUT OPERATING CONDITIONS	. 27		
		4.2.7	TEST RESULTS			
	PHOTOGRAPHS OF THE TEST CONFIGURATION					
			ON ON THE TESTING LABORATORIES			
7.	. APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY					
	THE LAB					



RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF150729C24B-1	Original release	Dec. 31, 2015

Report No.: RF150729C24B-1 3 of 32 Report Format Version 5.3.0 Reference No.: 151211C20



REPORT ISSUE RECORD OF EUT

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF150729C24-1	Original release	Aug. 21, 2015
RF150729C24B-1	1. Add series model: P200 Plus. 2. The differences between the original model (P400 Plus) and new adding model (P200 Plus) are: * LCM (Touch Panel and Non-touch Panel). * The matching values of CTLS (RFID). 3. Dongle cable update to "CBL435-044-01-A".	Dec. 31, 2015

Report No.: RF150729C24B-1 4 of 32 Report Format Version 5.3.0 Reference No.: 151211C20



1. CERTIFICATION

PRODUCT: Point of Sale Terminal

MODEL NO.: P200 Plus

BRAND: Verifone

APPLICANT: Verifone, Inc.

TESTED: Dec. 18, 2015 ~ Dec. 23, 2015

TEST SAMPLE: Identical Prototype

STANDARDS: FCC Part 15, Subpart E (Section 15.407)

ANSI C63.10-2013

This report issued as a supplementary report to BV ADT report no.: RF150729C24-1. This report shall be used by combining with its original report.

PREPARED BY

Rona Chen / Specialist

, DATE: De

Dec. 31, 2015

APPROVED BY

Stanley Wu / Assistant Manager

, DATE :

Dec. 31, 2015

Report No.: RF150729C24B-1 Reference No.: 151211C20 5 of 32

Report Format Version 5.3.0



2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART E (SECTION 15.407)					
STANDARD SECTION	TEST TYPE	RESULT	REMARK		
15.407(b)(6)	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -18.71dB at 0.56837MHz.		
15.407(b/1/2/3) (b)(6)	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -1.65dB at 365.62MHz.		
15.407(a/1/2/3)	Max Average Transmit Power	N/A	Refer to Note		
15.407(a/1/2/3)	Peak Power Spectral Density	N/A	Refer to Note		
15.407(e)	6dB bandwidth	N/A	Refer to Note		
15.407(g)	Frequency Stability	N/A	Refer to Note		
15.203	Antenna Requirement	PASS	No antenna connector is used.		

Note:

- 1. "N/A" means Not Applicable.
- 2. Only AC Power Conducted Emission and Radiated Emissions tests were performed for this addendum. Refer to original report for other test data.

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	UNCERTAINTY
Conducted emissions	9kHz~30MHz	2.44 dB
	30MHz ~ 200MHz	2.93 dB
Dedicted emissions	200MHz ~1000MHz	2.95 dB
Radiated emissions	1GHz ~ 18GHz	2.26 dB
	18GHz ~ 40GHz	1.94 dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k = 2.



3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

EUT	Point of Sale Terminal	
MODEL NO.	P200 Plus	
POWER SUPPLY	9.0Vdc (adapter)	
MODULATION TYPE	64QAM, 16QAM, QPSK, BPSK	
MODULATION TECHNOLOGY	OFDM	
TRANSFER RATE	802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to MCS7	
OPERATING FREQUENCY	5180 ~ 5240MHz, 5260 ~ 5320MHz, 5500 ~ 5700MHz, 5745 ~ 5825MHz	
NUMBER OF CHANNEL	5180 ~ 5240MHz: 4 for 802.11a, 802.11n (20MHz) 2 for 802.11n (40MHz) 5260 ~ 5320MHz: 4 for 802.11a, 802.11n (20MHz) 2 for 802.11n (40MHz) 5500 ~ 5700MHz: 11 for 802.11a, 802.11n (20MHz) 5 for 802.11n (40MHz) 5745 ~ 5825MHz: 5 for 802.11a, 802.11n (20MHz) 2 for 802.11n (40MHz)	
ANTENNA TYPE	PIFA antenna with 1.43dBi gain (5180 ~ 5240MHz) PIFA antenna with 1.80dBi gain (5260 ~ 5320MHz) PIFA antenna with 1.77dBi gain (5500 ~ 5700MHz) PIFA antenna with 1.88dBi gain (5745 ~ 5825MHz)	
ANTENNA CONNECTOR	NA	
DATA CABLE	Refer to Note as below	
I/O PORTS	Refer to user's manual	
ACCESSORY DEVICES	Refer to Note as below	

NOTE:

- 1. This report is issued as a supplementary report to BV ADT report no.: RF150729C24-1. The difference compared with original report is listed as below. Therefore, only AC Power Conducted Emission and Radiated Emissions tests were verified.
 - > Add series model: P200 Plus.
 - > The differences between the original model (P400 Plus) and new adding model (P200 Plus) are:
 - LCM (Touch Panel and Non-touch Panel)
 - The matching values of CTLS (RFID).
 - Dongle cable update to "CBL435-044-01-A".



2. The EUT contains following accessory devices.

ITEM	BRAND	MODEL	SPECIFICATION
Adapter 1	Verifone	A109-1090103U	I/P: 100-240Vac, 50/60Hz, 0.25A O/P: 9Vdc, 1A 1.75m shielded cable w/o core
Adapter 2	Verifone	2ACA009E UL	I/P: 100-240Vac, 50/60Hz, 0.5A O/P: 9Vdc, 1A 1.7m shielded cable with 1 core
Dongle	Verifone	CBL435-044-01-A	1.0 meter with one core with shielding

3. Physically, the EUT provides 1 completed transmitter and 1 receiver.

MODULATION MODE	TX FUNCTION
802.11a	1TX
802.11n (20MHz)	1TX
802.11n (40MHz)	1TX

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

Report No.: RF150729C24B-1 Reference No.: 151211C20 8 of 32 Report Format Version 5.3.0



3.2 DESCRIPTION OF TEST MODES

WLAN 5180 ~ 5240MHz

4 channels are provided for 802.11a, 802.11n (20MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
36	5180 MHz	44	5220 MHz
40	5200 MHz	48	5240 MHz

2 channels are provided for 802.11n (40MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
38	5190 MHz	46	5230 MHz

FOR 5260 ~ 5320MHz

4 channels are provided for 802.11a, 802.11n (20MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
52	5260 MHz	60	5300 MHz
56	5280 MHz	64	5320 MHz

2 channels are provided for 802.11n (40MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
54	5270 MHz	62	5310 MHz

WLAN 5500 ~ 5700MHz

11 channels are provided for 802.11a, 802.11n (20MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
100	5500MHz	124	5620MHz
104	5520MHz	128	5640MHz
108	5540MHz	132	5660MHz
112	5560MHz	136	5680MHz
116	5580MHz	140	5700MHz
120	5600MHz		

5 channels are provided for 802.11n (40MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
102	5510MHz	126	5630MHz
110	5550MHz	134	5670MHz
118	5590MHz		

Report No.: RF150729C24B-1 9 of 32 Report Format Version 5.3.0 Reference No.: 151211C20



FOR 5.0GHz (5745 ~ 5825MHz):

5 channels are provided for 802.11a, 802.11n (20MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
149	5745MHz	161	5805MHz
153	5765MHz	165	5825MHz
157	5785MHz		

2 channels are provided for 802.11n (40MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
151	5755MHz	159	5795MHz

Report No.: RF150729C24B-1 Reference No.: 151211C20 10 of 32 Report Format Version 5.3.0



3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE		APPLICA	ABLE TO	DESCRIPTION			
MODE	RE≥1G	RE<1G	PLC	APCM	DESCRIPTION		
-	\checkmark	V	\checkmark	-	-		

Where RE≥1G: Radiated Emission above 1GHz RE<1G: Radiated Emission below 1GHz

PLC: Power Line Conducted Emission APCM: Antenna Port Conducted Measurement

NOTE: The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Z-plane.**

RADIATED EMISSION TEST (ABOVE 1GHz):

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	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11n (40MHz)	5180-5240	38 to 46	38	OFDM	BPSK	MCS0
-	802.11n (40MHz)	5260-5320	54 to 62	62	OFDM	BPSK	MCS0
-	802.11n (40MHz)	5500-5700	100 to 140	102	OFDM	BPSK	MCS0
-	802.11a	5745-5825	149 to 165	149	OFDM	BPSK	6.0

RADIATED EMISSION TEST (BELOW 1GHz):

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	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	_	MODULATION TECHNOLOGY		DATA RATE (Mbps)
-	802.11n (40MHz)	5180-5240	38 to 46	38	OFDM	BPSK	MCS0
-	802.11n (40MHz)	5260-5320	54 to 62	62	OFDM	BPSK	MCS0
-	802.11n (40MHz)	5500-5700	100 to 140	102	OFDM	BPSK	MCS0
-	802.11a	5745-5825	149 to 165	149	OFDM	BPSK	6.0

POWER LINE CONDUCTED EMISSION TEST:

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL		MODULATION TECHNOLOGY		DATA RATE (Mbps)
-	802.11n (40MHz)	5500-5700	100 to 140	102	OFDM	BPSK	MCS0

Report No.: RF150729C24B-1 11 of 32 Report Format Version 5.3.0

Reference No.: 151211C20



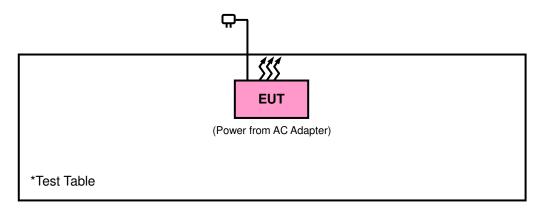
TEST CONDITION:

APPLICABLE TO ENVIRONMENTAL CONDITIONS		INPUT POWER	TESTED BY
RE≥1G	25deg. C, 65%RH	120Vac, 60Hz	Gavin Wu
RE<1G	25deg. C, 65%RH	120Vac, 60Hz	Gavin Wu
PLC	25deg. C, 65%RH	120Vac, 60Hz	Toby Tian

3.3 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units.

3.3.1 CONFIGURATION OF SYSTEM UNDER TEST



3.4 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

FCC Part 15, Subpart E (15.407)

789033 D02 General UNII Test Procedures New Rules v01

ANSI C63.10-2013

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

NOTE: The EUT has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

Report No.: RF150729C24B-1 Reference No.: 151211C20 12 of 32

Report Format Version 5.3.0



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:

specified as below table.		
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	30 ~ 88 100 3	
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

NOTE:

- 1. The lower limit shall apply at the transition frequencies.
- 2. Emission level $(dBuV/m) = 20 \log Emission level (uV/m)$.
- 3. For frequencies above 1000MHz, 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 20dB under any condition of modulation.

4.1.2 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

APPLICABLE TO	LIMIT		
789033 D02 General UNII Test	FIELD STRENGTH AT 3m		
Procedures New Rules v01	PK: 74 (dBμV/m)	AV: 54 (dBμV/m)	
APPLICABLE TO	EIRP LIMIT	EQUIVALENT FIELD STRENGTH AT 3m	
15.407(b)(1)			
15.407(b)(2)	PK: -27 (dBm/MHz)	PK: 68.2 (dBμV/m)	
15.407(b)(3)			
15.407(b)(4)	PK: -27 (dBm/MHz) *1 PK: -17 (dBm/MHz) *2	PK: 68.2 (dBμV/m) ^{*1} PK: 78.2 (dBμV/m) ^{*2}	

NOTE: *1 beyond 10MHz of the band edge *2 within 10 MHz of band edge

The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

 $E = \frac{1000000\sqrt{30P}}{3}$ µV/m, where P is the eirp (Watts).

Report No.: RF150729C24B-1 13 of 32 Report Format Version 5.3.0 Reference No.: 151211C20



4.1.3 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver Agilent	N9038A	MY51210203	Jan.21, 2015	Jan.21, 2016
Spectrum Analyzer Agilent	N9010A	MY52220314	Sep.03, 2015	Sep.02, 2016
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Dec. 17, 2015	Dec. 16, 2016
BILOG Antenna SCHWARZBECK	VULB9168	9168-472	Feb. 04, 2015	Feb. 04, 2016
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-969	Feb. 09, 2015	Feb. 09, 2016
HORN Antenna SCHWARZBECK	BBHA 9170	9170-480	Feb. 04, 2015	Feb. 04, 2016
Loop Antenna	EM-6879	269	Jul. 31, 2015	Jul. 30, 2016
Preamplifier Agilent	8449B	3008A01962	Oct. 15, 2015	Oct. 14, 2016
Preamplifier EMCI	EMC 184045	980116	Jan. 09, 2015	Jan. 08, 2016
Preamplifier EMCI	EMC 330H	980112	Dec. 27, 2014	Dec. 26, 2015
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	309219/4 2950114	Oct. 12, 2015	Oct. 11, 2016
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	250130/4	Oct. 12, 2015	Oct. 11, 2016
RF Coaxial Cable Worken	8D-FB	Cable-Ch10-01	Oct. 12, 2015	Oct. 11, 2016
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 months and the calibrations are traceable to NML/ROC and NIST/USA.
 - 2. The calibration interval of the loop antenna is 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
 - 3. The test was performed in HwaYa Chamber 10.
 - 4. The horn antenna and HP preamplifier (model: EMC 184045) are used only for the measurement of emission frequency above 1GHz if tested.
 - 5. The FCC Site Registration No. is 690701.
 - 6. The IC Site Registration No. is IC 7450F-10.



4.1.4 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters (for below 1GHz) / 1.5 meters (for above 1GHz) 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 antenna is a broadband antenna, and its height 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 Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

NOTE:

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

4.1.5 DEVIATION FROM TEST STANDARD

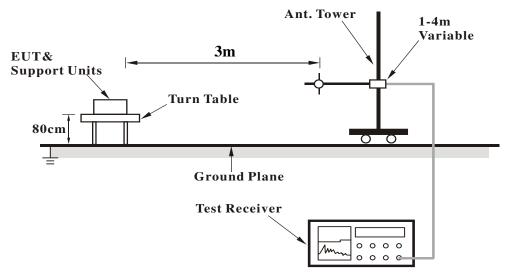
No deviation.

Report No.: RF150729C24B-1 15 of 32 Report Format Version 5.3.0 Reference No.: 151211C20

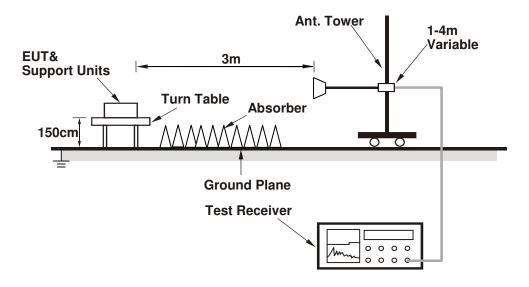


4.1.6 TEST SETUP

<Frequency Range 30MHz ~ 1GHz>



<Frequency Range above 1GHz>



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

4.1.7 EUT OPERATING CONDITIONS

- a. Placed the EUT on a testing table.
- b. Use the software to control the EUT under transmission condition continuously at specific channel frequency.



4.1.8 TEST RESULTS

ABOVE 1GHz WORST-CASE DATA

Band I

802.11n (40MHz)

(
EUT TEST CONDITION		MEASUREMENT DETAIL				
CHANNEL	Channel 38	FREQUENCY RANGE	1GHz ~ 40GHz			
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)			
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Gavin Wu			

	A	NTENN	<u>A POLARI</u>	TY & TE	ST DISTAN	NCE: HO	RIZONTA	L AT 3 M		
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	45.86	45.66	54	-8.14	31.32	6.2	37.32	187	135	Average
5150	60.4	60.2	74	-13.6	31.32	6.2	37.32	187	135	Peak
5190	90.02	89.79			31.35	6.22	37.34	187	135	Average
5190	99.28	99.05			31.35	6.22	37.34	187	135	Peak
5442	39.02	38.26	54	-14.98	31.55	6.34	37.13	187	135	Average
5442	59.99	59.23	74	-14.01	31.55	6.34	37.13	187	135	Peak
		ANTEN	NA POLA	RITY & T	EST DIST	ANCE: V	ERTICAL	AT 3 M		
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5130	43.24	43.03	54	-10.76	31.31	6.2	37.3	106	113	Average
5130	59.68	59.47	74	-14.32	31.31	6.2	37.3	106	113	Peak
5190	89.4	89.17			31.35	6.22	37.34	106	113	Average
5190	98.47	98.24			31.35	6.22	37.34	106	113	Peak
0.00										
5382	38.19	37.55	54	-15.81	31.51	6.31	37.18	106	113	Average

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss Preamp Factor Margin value = Emission level – Limit value
- 2. 5190MHz: Fundamental frequency.



Band II

802.11n (40MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL			
CHANNEL	Channel 62	FREQUENCY RANGE	1GHz ~ 40GHz		
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)		
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Gavin Wu		

	Α	NTENN	A POLAR	TY & TE	ST DISTAN	NCE: HO	RIZONTA	L AT 3 M		
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5106	38.59	38.39	54	-15.41	31.29	6.19	37.28	148	143	Average
5106	60.33	60.13	74	-13.67	31.29	6.19	37.28	148	143	Peak
5310	91.38	90.85			31.45	6.27	37.19	148	143	Average
5310	101.19	100.66			31.45	6.27	37.19	148	143	Peak
5350	42.73	42.14	54	-11.27	31.48	6.29	37.18	148	143	Average
5350	65.83	65.24	74	-8.17	31.48	6.29	37.18	148	143	Peak
		ANTEN	NA POLA	RITY & T	EST DIST	ANCE: V	ERTICAL	AT 3 M		
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
	LEVEL	LEVEL			FACTOR	LOSS	FACTOR	HEIGHT	ANGLE	REMARK Average
(MHz)	LEVEL (dBuV/m)	LEVEL (dBuV)	(dBuV/m)	(dB)	FACTOR (dB/m)	LOSS (dB)	FACTOR (dB)	HEIGHT (cm)	ANGLE (Degree)	
(MHz) 5112	LEVEL (dBuV/m) 38.66	LEVEL (dBuV) 38.46	(dBuV / m)	(dB)	FACTOR (dB/m) 31.29	LOSS (dB)	FACTOR (dB) 37.28	HEIGHT (cm)	ANGLE (Degree)	Average
(MHz) 5112 5112	LEVEL (dBuV/m) 38.66 60.36	LEVEL (dBuV) 38.46 60.16	(dBuV / m)	(dB)	FACTOR (dB/m) 31.29 31.29	LOSS (dB) 6.19	FACTOR (dB) 37.28 37.28	HEIGHT (cm) 124 124	ANGLE (Degree) 100 100	Average Peak
(MHz) 5112 5112 5310	LEVEL (dBuV/m) 38.66 60.36 88.29	LEVEL (dBuV) 38.46 60.16 87.76	(dBuV / m)	(dB)	FACTOR (dB/m) 31.29 31.45	LOSS (dB) 6.19 6.19 6.27	FACTOR (dB) 37.28 37.28 37.19	HEIGHT (cm) 124 124 124	100 100 100	Average Peak Average

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss Preamp Factor Margin value = Emission level – Limit value
- 2. 5310MHz: Fundamental frequency.



Band III

802.11n (40MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL			
CHANNEL	Channel 102	FREQUENCY RANGE	1GHz ~ 40GHz		
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)		
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Gavin Wu		

	А	NTENN	A POLARI	TY & TE	ST DISTAN	NCE: HO	RIZONTA	L AT 3 M		
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5460	42.92	42.1	54	-11.08	31.56	6.34	37.08	162	135	Average
5460	61.85	61.03	74	-12.15	31.56	6.34	37.08	162	135	Peak
5470	63.39	62.56	68.2	-4.81	31.57	6.34	37.08	162	135	Peak
5510	91.61	90.71			31.6	6.36	37.06	162	135	Average
5510	537.96	537.06			31.6	6.36	37.06	162	135	Peak
5725	60.25	58.97	68.2	-7.95	31.96	6.75	37.43	162	135	Peak
		ANTEN	NA POLA	RITY & T	EST DIST	ANCE: V	ERTICAL	AT 3 M		
FREQ.	EMISSION	READ	LIMIT	MARONI	ANTENNA	CABLE	PREAMP	ANTENNA	TABLE	
(MHz)	LEVEL (dBuV/m)	LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	FACTOR (dB/m)	LOSS (dB)	FACTOR (dB)	HEIGHT (cm)	ANGLE (Degree)	REMARK
(MHz) 5348						LOSS		-	ANGLE	REMARK Average
` ′	(dBuV/m)	(dBuV)	(dBuV/m)	(dB)	(dB/m)	LOSS (dB)	(dB)	(cm)	ANGLE (Degree)	
5348	(dBuV/m) 40.29	(dBuV)	(dBuV/m) 54	(dB)	(dB/m) 31.48	LOSS (dB) 6.29	(dB) 37.18	(cm)	ANGLE (Degree)	Average
5348 5348	(dBuV/m) 40.29 60.62	(dBuV) 39.7 60.03	(dBuV/m) 54 74	(dB) -13.71 -13.38	(dB/m) 31.48 31.48	LOSS (dB) 6.29 6.29	(dB) 37.18 37.18	(cm) 106 106	ANGLE (Degree) 112 112	Average Peak
5348 5348 5470	(dBuV/m) 40.29 60.62 63.04	(dBuV) 39.7 60.03 62.21	(dBuV/m) 54 74	(dB) -13.71 -13.38	(dB/m) 31.48 31.48 31.57	LOSS (dB) 6.29 6.29 6.34	(dB) 37.18 37.18 37.08	(cm) 106 106 106	ANGLE (Degree) 112 112 112	Average Peak Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss Preamp Factor Margin value = Emission level – Limit value
- 2. 5510MHz: Fundamental frequency.
- 3. 5470MHz & 5725MHz: Out of restricted band



Band IV

802.11a

EUT TEST CONDITION		MEASUREMENT DETAIL			
CHANNEL	Channel 165	FREQUENCY RANGE	1GHz ~ 40GHz		
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)		
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Gavin Wu		

	Α	NTENN	A POLARI	TY & TE	ST DISTAN	NCE: HC	RIZONTA	AL AT 3 M		
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5714	60.31	59.12	68.2	-7.89	31.93	6.69	37.43	132	154	Peak
5725	68.88	67.6	78.2	-9.32	31.96	6.75	37.43	132	154	Peak
5745	94.84	93.57			31.99	6.75	37.47	132	154	Average
5745	104.09	102.82			31.99	6.75	37.47	132	154	Peak
5850	60.48	58.96	78.2	-17.72	32.15	6.88	37.51	132	154	Peak
5861	60.04	58.41	68.2	-8.16	32.18	6.95	37.5	132	154	Peak
		ANTENI	NA POLA	RITY & T	EST DIST	ANCE: V	'ERTICAL	. AT 3 M		
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5714	59.66	58.47	68.2	0.54	21.02	6.69	37.43	102	117	Peak
3717	00.00	50.47	00.2	-8.54	31.93	6.09	37.43	102	117	i can
5725	64.46	63.18	78.2	-8.54	31.96	6.75	37.43	102	117	Peak
5725	64.46	63.18			31.96	6.75	37.43	102	117	Peak
5725 5745	64.46 91.63	63.18 90.36			31.96 31.99	6.75 6.75	37.43 37.47	102 102	117 117	Peak Average

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss Preamp Factor Margin value = Emission level - Limit value
- 2. 5825MHz: Fundamental frequency.
- 3. 5714, 5725MHz, 5850 & 5861MHz: Out of restricted band



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:

Band I

802.11n (40MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL			
CHANNEL	Channel 38	FREQUENCY RANGE	30MHz ~ 1GHz		
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Quasi-peak (QP)		
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Gavin Wu		

	Α	NTENN	A POLAR	ITY & TE	ST DISTAN	NCE: HO	RIZONTA	L AT 3 M		
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
227.88	39.59	59.47	46	-6.41	10.54	1.41	31.83	140	233	Peak
276.38	37.19	55.27	46	-8.81	12.25	1.57	31.9	116	209	Peak
348.16	42.4	58.38	46	-3.6	14.1	1.76	31.84	120	165	Peak
431.58	29.41	43.5	46	-16.59	15.96	1.96	32.01	132	56	Peak
497.54	27.07	39.38	46	-18.93	17.27	2.08	31.66	119	20	Peak
805.03	32.45	38.98	46	-13.55	22.29	2.62	31.44	100	267	Peak
		ANTEN	NA POLA	RITY & T	EST DIST	ANCE: V	ERTICAL	AT 3 M		
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
41.64	34.1	50.93	40	-5.9	13.56	0.66	31.05	129	161	Peak
189.08	28.81	49.13	43.5	-14.69	10.12	1.25	31.69	109	34	Peak
227.88	33.21	53.09	46	-12.79	10.54	1.41	31.83	101	188	Peak
221.00	0	55.05	7							
337.49	42.84	59.09	46	-3.16	13.84	1.73	31.82	138	116	Peak
							31.82 31.61	138 136	116 196	

REMARKS: Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor Margin value = Emission level – Limit value



Band II

802.11n (40MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL			
CHANNEL	Channel 62	FREQUENCY RANGE	30MHz ~ 1GHz		
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK)		
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Gavin Wu		

	A	NTENN	A POLARI	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK				
179.38	28.68	48.48	43.5	-14.82	10.83	1.2	31.83	115	70	Peak				
228.85	37.2	57.06	46	-8.8	10.58	1.41	31.85	118	268	Peak				
274.44	37.75	55.92	46	-8.25	12.2	1.56	31.93	127	45	Peak				
326.82	43.16	59.7	46	-2.84	13.59	1.7	31.83	129	55	Peak				
364.65	41.03	56.68	46	-4.97	14.49	1.81	31.95	117	151	Peak				
745.86	29.33	36.71	46	-16.67	21.46	2.53	31.37	131	55	Peak				
		ANTEN	NA POLA	RITY & T	EST DIST	ANCE: V	ERTICAL	AT 3 M						
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK				
41.64	33.96	E0.70	4.0							-				
41.04	33.90	50.79	40	-6.04	13.56	0.66	31.05	108	138	Peak				
228.85	31.46	51.32	40 46	-6.04 -14.54	13.56 10.58	0.66 1.41	31.05 31.85	108 107	138 345	Peak Peak				
228.85	31.46	51.32	46	-14.54	10.58	1.41	31.85	107	345	Peak				
228.85 269.59	31.46 31.48	51.32 49.91	46 46	-14.54 -14.52	10.58 12.05	1.41 1.55	31.85 32.03	107 102	345 106	Peak Peak				

REMARKS: Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor Margin value = Emission level – Limit value



Band III

802.11n (40MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL			
CHANNEL	Channel 102	FREQUENCY RANGE	30MHz ~ 1GHz		
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Quasi-peak (QP)		
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Gavin Wu		

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M									
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
227.88	37.51	57.39	46	-8.49	10.54	1.41	31.83	129	335	Peak
275.41	34.15	52.29	46	-11.85	12.22	1.56	31.92	124	218	Peak
364.65	40.3	55.95	46	-5.7	14.49	1.81	31.95	132	308	Peak
405.39	28.2	42.88	46	-17.8	15.45	1.92	32.05	111	29	Peak
525.67	21.43	33.02	46	-24.57	17.91	2.14	31.64	113	183	Peak
774.96	30.68	37.6	46	-15.32	21.87	2.57	31.36	122	213	Peak
		ANTEN	NA POLA	RITY & T	EST DIST	ANCE: V	ERTICAL	AT 3 M		
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
42.61	31.17	48.01	40	-8.83	13.58	0.66	31.08	117	190	Peak
226.91	29.54	49.46	46	-16.46	10.5	1.4	31.82	125	136	Peak
343.31	36.55	52.65	46	-9.45	13.98	1.75	31.83	136	340	Peak
375.32	34.64	49.99	46	-11.36	14.75	1.84	31.94	122	110	Peak
513.06	28.91	40.75	46	-17.09	17.62	2.12	31.58	132	205	Peak
805.03	26.6	33.13	46	-19.4	22.29	2.62	31.44	100	127	Peak

REMARKS: Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor Margin value = Emission level – Limit value



Band IV

802.11a

EUT TEST CONDITION		MEASUREMENT DETAIL			
CHANNEL	Channel 149	FREQUENCY RANGE	30MHz ~ 1GHz		
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK)		
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Gavin Wu		

	Α	NTENN	A POLAR	TY & TE	ST DISTAN	NCE: HO	RIZONTA	L AT 3 M		
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
181.32	26.37	46.3	43.5	-17.13	10.67	1.22	31.82	120	285	Peak
231.76	37.3	57.01	46	-8.7	10.71	1.42	31.84	111	129	Peak
278.32	40.9	58.87	46	-5.1	12.31	1.58	31.86	100	192	Peak
365.62	44.35	59.96	46	-1.65	14.52	1.81	31.94	134	144	Peak
611.03	24.36	34.43	46	-21.64	19.74	2.28	32.09	110	359	Peak
805.03	32.64	39.17	46	-13.36	22.29	2.62	31.44	133	222	Peak
		ANTEN	NA POLA	RITY & T	EST DIST	ANCE: V	ERTICAL	AT 3 M		
FREQ.	EMISSION	READ			ANTENNA	CABLE	PREAMP	ANTENNA	TABLE	
(MHz)	LEVEL (dBuV/m)	LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	FACTOR (dB/m)	LOSS (dB)	FACTOR (dB)	HEIGHT (cm)	ANGLE (Degree)	REMARK
(MHz) 41.64					FACTOR	LOSS	FACTOR	HEIGHT	ANGLE	REMARK Peak
` ′	(dBuV/m)	(dBuV)	(dBuV/m)	(dB)	FACTOR (dB/m)	LOSS (dB)	FACTOR (dB)	HEIGHT (cm)	ANGLE (Degree)	
41.64	(dBuV/m) 33.59	(dBuV) 50.42	(dBuV/m) 40	(dB)	FACTOR (dB/m) 13.56	LOSS (dB)	FACTOR (dB) 31.05	HEIGHT (cm)	ANGLE (Degree)	Peak
41.64 227.88	(dBuV/m) 33.59 30.59	(dBuV) 50.42 50.47	(dBuV/m) 40 46	(dB) -6.41 -15.41	FACTOR (dB/m) 13.56 10.54	(dB) 0.66 1.41	FACTOR (dB) 31.05 31.83	HEIGHT (cm) 112 120	ANGLE (Degree) 89 56	Peak Peak
41.64 227.88 343.31	(dBuV/m) 33.59 30.59 40.18	(dBuV) 50.42 50.47 56.28	(dBuV/m) 40 46 46	-6.41 -15.41 -5.82	FACTOR (dB/m) 13.56 10.54 13.98	LOSS (dB) 0.66 1.41 1.75	FACTOR (dB) 31.05 31.83 31.83	HEIGHT (cm) 112 120 105	ANGLE (Degree) 89 56 325	Peak Peak Peak

REMARKS: Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor Margin value = Emission level – Limit value



4.2 CONDUCTED EMISSION MEASUREMENT

4.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBμV)				
	Quasi-peak	Average			
0.15 ~ 0.5	66 to 56	56 to 46			
0.5 ~ 5	56	46			
5 ~ 30	60	50			

NOTE:

- 1. The lower limit shall apply at the transition frequencies.
- 2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.
- 3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCI	100613	Nov. 16, 2015	Nov. 15, 2016
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond1-01	Dec. 26, 2014	Dec. 25, 2015
LISN ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Feb. 26, 2015	Feb. 25, 2016
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Jul. 24, 2015	Jul. 23, 2016
Software ADT	BV ADT_Cond_ V7.3.7.3	NA	NA	NA

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

- 2. The test was performed in HwaYa Shielded Room 1.
- 3. The VCCI Site Registration No. is C-2040.



4.2.3 TEST PROCEDURES

- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/50uH of coupling impedance for the measuring instrument.
- b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit 20dB) was not recorded.

NOTE: All modes of operation were investigated and the worst-case emissions are reported.

4.2.4 DEVIATION FROM TEST STANDARD

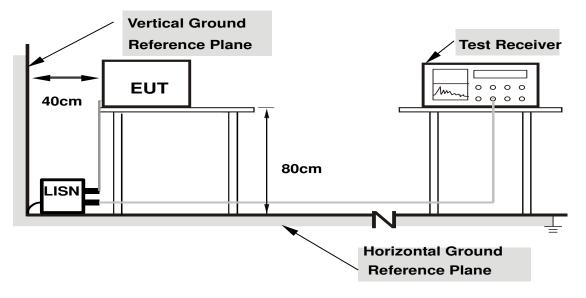
No deviation.

Report No.: RF150729C24B-1 26 of 32 Report Format Version 5.3.0

Reference No.: 151211C20



4.2.5 TEST SETUP



Note: 1.Support units were connected to second LISN.

2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

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

4.2.6 EUT OPERATING CONDITIONS

Same as section 4.1.6.



4.2.7 TEST RESULTS

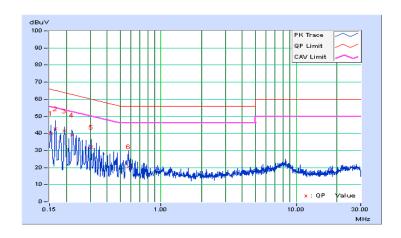
CONDUCTED WORST-CASE DATA:

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25℃, 65%RH
Tested by	Toby Tian	Test Date	2015/12/18

			P	hase Of F	Power : Li	ine (L)				
No	Frequency	Correction Factor		g Value uV)		n Level uV)		nit uV)		rgin
INO	(NALI_)		`		,		,		,	B)
	(MHz)	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	9.82	30.39	22.68	40.21	32.50	65.79	55.79	-25.57	-23.28
2	0.16564	9.83	32.82	15.91	42.65	25.74	65.18	55.18	-22.53	-29.44
3	0.19305	9.84	31.70	18.15	41.54	27.99	63.90	53.90	-22.37	-25.92
4	0.22038	9.84	29.26	14.35	39.10	24.19	62.80	52.80	-23.70	-28.61
5	0.30640	9.86	22.07	8.12	31.93	17.98	60.07	50.07	-28.14	-32.09
6	0.57620	9.89	10.78	2.17	20.67	12.06	56.00	46.00	-35.33	-33.94

Remarks:

- 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
- 2. The emission levels of other frequencies were very low against the limit.
- 3. Margin value = Emission level Limit value
- 4. Correction factor = Insertion loss + Cable loss
- 5. Emission Level = Correction Factor + Reading Value



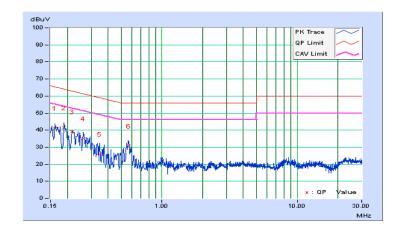


Frequency Range	150kHz ~ 30MHz		Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25℃, 65%RH
Tested by	Toby Tian	Test Date	2015/12/18

			Pha	ase Of Po	wer : Ne	utral (N)				
	Frequency	Correction	Readin	g Value	Emissio	n Level	Lir	nit	Mai	rgin
No		Factor	(dB	uV)	(dB	uV)	(dB	uV)	(d	B)
	(MHz)	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16181	9.82	31.17	16.54	40.99	26.36	65.37	55.37	-24.38	-29.01
2	0.18903	9.83	31.75	18.20	41.58	28.03	64.08	54.08	-22.50	-26.05
3	0.21679	9.83	29.06	18.17	38.89	28.00	62.94	52.94	-24.05	-24.94
4	0.26346	9.85	25.31	13.31	35.16	23.16	61.32	51.32	-26.17	-28.17
5	0.34550	9.87	16.10	5.99	25.97	15.86	59.07	49.07	-33.10	-33.21
6	0.56837	9.89	20.83	17.40	30.72	27.29	56.00	46.00	-25.28	-18.71

Remarks:

- 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
- 2. The emission levels of other frequencies were very low against the limit.
- 3. Margin value = Emission level Limit value
- 4. Correction factor = Insertion loss + Cable loss
- 5. Emission Level = Correction Factor + Reading Value





5. PHOTOGRAPHS OF THE TEST CONFIGURATION
Please refer to the attached file (Test Setup Photo).



6. INFORMATION ON 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 accredited and approved according to ISO/IEC 17025.

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

Linko EMC/RF Lab: Hsin Chu EMC/RF/Telecom Lab:

Tel: 886-2-26052180 Tel: 886-3-5935343 Fax: 886-2-26051924 Fax: 886-3-5935342

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.

Report No.: RF150729C24B-1 31 of 32 Report Format Version 5.3.0 Reference No.: 151211C20



7. APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications are made to the EUT by the lab during the test.

---END---

Report No.: RF150729C24B-1 Reference No.: 151211C20 32 of 32

Report Format Version 5.3.0