



FCC CERTIFICATION TEST REPORT

REPORT NO.: FC130502C07
MODEL NO.: RTC-900R-WBGz-xxxx
(refer to item 3.1 for more details)
FCC ID: OHBRTC900RWBGH
RECEIVED: May 02, 2013
TESTED: Jul. 04, 2013
ISSUED: Jul. 09, 2013

APPLICANT: AAEON Technology Inc.

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ISSUED BY: Bureau Veritas Consumer Products Services (H.K.)
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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
FC130502C07	Original release	Jul. 09, 2013



1 CERTIFICATION

PRODUCT: 10.1" Rugged Tablet Computer
MODEL: RTC-900R-WBGz-xxxx (refer to item 3.1 for more details)
BRAND: AAEON
APPLICANT: AAEON Technology Inc.
TEST SAMPLE: ENGINEERING SAMPLE
TESTED: Jul. 04, 2013
STANDARD: **FCC Part 15, Subpart B, Class B**
ICES-003:2012 Issue 5, Class B
ANSI C63.4:2009

The above equipment (Model: RTC-900R-WBGH-1110) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY : Celine Chow , **DATE** : Jul. 09, 2013
Celine Chow / Specialist

APPROVED BY : David Liu , **DATE** : Jul. 09, 2013
David Liu / Senior Engineer

2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications.

EMISSION			
Standard	Test Type	Result	Remarks
FCC Part 15, Subpart B, Class B	Conducted emission test	PASS	Meet the requirement of limit. Minimum passing margin is -10.77dB at 0.16562MHz.
ICES-003:2012 Issue 5, Class B	Radiated emission test (30MHz~40GHz)	PASS	Meet the requirement of limit. Minimum passing margin is -3.77dB at 384.01MHz.

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:

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

Measurement	Frequency	Uncertainty
Conducted emission	150kHz ~ 30MHz	2.44 dB
Radiated emission	30MHz ~ 1GHz	4.12 dB
	Above 1GHz	2.26 dB

The listed uncertainties are the worst case uncertainty for the entire range of measurement. Please note that the uncertainty values are provided for informational purposes only and are not used in determining the PASS/FAIL results.

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

EUT	10.1" Rugged Tablet Computer
MODEL NO.	RTC-900R-WBGz-xxxx (refer to note for more details)
POWER SUPPLY	12Vdc (Adapter) 7.4Vdc (Battery)
DATA CABLE	1.5m shielded HDMI cable without core 0.2m shielded mini USB cable without core
I/O PORTS	Refer to users' manual
ACCESSORY DEVICES	Refer to Note as below

NOTE:

- The following models are provided to this EUT.

MODEL	DESCRIPTION
RTC-900R-WBGz-xxxx	z is blank or H, blank means without 3G function; H means with 3G function xxxx = SW revision, x: 0~9, ex: 1110 = rev1

* The model of the RTC-900R-WBGH-1110 was chosen for final test.

- The accessories are listed in the table below:

PRODUCT	BRAND	MODEL	DESCRIPTION
Main board	AAEON	RTC-900R	-
CPU	NVIDIA	Tegra 250	-
Flash Memory	ELPIDA	LPDDR2-S4B	-
Graphic Card	NVIDIA	ULP GeForce	-
Adapter	LI TONE ELECTRONICS CO., LTD.	LTE24E-S2-2	I/P: 100-240Vac, 50-60Hz, 1A O/P: 12Vdc, 2A AC: 1.8m non-shielded cable without core DC: 1.9m cable without core attached on adapter
Battery	GLW	ATL-5148D5	7600mAh. 2S2P. 7.4V Li-ion polymer. Battery module
LCD Panel	CHI MEI	EJ1011A-01F	10.1 inch TFT LCD
Camera	LITE ON (5M)	10P2SA511E	5.0M pixel
	LITE ON (1.2M)		1.2M pixel
WLAN / BT Module	AzureWave	AW-NH615-DS	802.11 b/g/n wireless LAN
GPS Module	BROADCOM	BCM4751	-
3G Module	Anydata	DTL718-W-P	PCI-Mini card

- The EUT's highest operating frequency is 3GHz. Therefore the radiated emission is tested up to 40GHz.
- The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 DESCRIPTION OF TEST MODES

The EUT is designed with AC power adapter of rating 100-240Vac, 50-60Hz.

For radiated emission evaluation, 230Vac/50Hz (for EN 55022) & 120Vac/60Hz (for FCC Part 15) had been covered during the pre-test. The worst radiated emission 30MHz~1GHz data was found at **230Vac/50Hz** and recorded in the applied test report.

For conducted emission test, the EUT has been pre-tested under following test modes, and test **mode 2** was found to be the worst case for final test.

Test Mode	Test Condition
1	WiFi Link + BT Link + 3G Band 2 1900 Idle + HDMI + Camera Front
2	WiFi Link + BT Link + 3G Band 5 850 Idle + HDMI + Camera Front
3	WiFi Link + BT Link + NB R/W + Camera Front

For radiated emission below 1GHz test, the EUT has been pre-tested under following test modes, and test **mode 8** was found to be the worst case for final test.

Test Mode	Test Condition
1	WiFi Link + BT Link + 3G Band 1 2100 Link + HDMI Play MP4 (Micro SD), 230Vac / 50Hz
2	WiFi Link + BT Link + 3G Band 1 2100 Link + HDMI + Camera Front, 230Vac / 50Hz
3	WiFi Link + BT Link + 3G Band 1 2100 Link + HDMI + Camera Black, 230Vac / 50Hz
4	WiFi Link + BT Link + 3G Band 1 2100 Idle + HDMI + GPS, 230Vac / 50Hz
5	WiFi Link + BT Link + 3G Band 2 1900 Idle + HDMI + Camera Front, 120Vac / 60Hz
6	WiFi Link + BT Link + 3G Band 5 850 Idle + HDMI + Camera Front, 120Vac / 60Hz
7	WiFi Link + BT Link + NB R/W + Camera Front, 120Vac / 60Hz
8	WiFi Link + BT Link + NB R/W + Camera Front, 230Vac / 50Hz

Test results are presented in the report as below.

Test Result	Test Condition
Conducted emission test	
-	WiFi Link + BT Link + 3G Band 5 850 Idle + HDMI + Camera Front
Radiated emissions below 1GHz test	
-	WiFi Link + BT Link + NB R/W + Camera Front
Radiated emissions above 1GHz test	
-	WiFi Link + BT Link + NB R/W + Camera Front

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.

FOR CONDUCTED EMISSION TEST

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	LED TV MONITOR	Panasonic	TH-L32E30W	12500043	FCC DoC Approved
2	USB Mouse	DELL	MS-111T	CN-0KW2YH-716 16-28H-0L30	FCC DoC Approved
3	EARPHONE	HTC	NA	NA	NA
4	BLUETOOTH EARPHONE	ELECOM	LBT-MPHS400	N/A	NA
5	WIRELESS N ROUTER	D-LINK	DIR-815	PVK21B5000399	KA21R815A1
6	UNIVERSAL RADIO COMMUNICATION TESTER	R&S	CMU200	123121	NA

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	1.5m HDMI cable without core
2	1.8m USB cable without core
3	1.8m earphone cable without core
4	NA
5	NA
6	NA

NOTE:

1. All power cords of the above support units are non-shielded (1.8m).
2. Items 4-6 acted as communication partners to transfer data.



FOR RADIATED EMISSION TEST

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	LED TV MONITOR	Panasonic	TH-L32E30W	12500043	FCC DoC Approved
2	PC	DELL	optiplex 390	74QKYBX	FCC DoC Approved
3	24" LCD MONITOR	DELL	U2410	CN-0J257M-7287 2-0A6-02YL	FCC DoC Approved
4	USB PRINTER	EPSON	T22	MEEZ070220	FCC DoC Approved
5	EARPHONE	HTC	NA	NA	NA
6	USB KEYBOARD	DELL	KB4021	CN-05V23T-7158 1-1AK-01Q2-A01	FCC DoC Approved
7	USB MOUSE	DELL	MS-111T	CN-0KW2YH-716 16-28H-0L30	FCC DoC Approved
8	BLUETOOTH EARPHONE	ELECOM	LBT-MPHS400	N/A	NA
9	WIRELESS N ROUTER	D-LINK	DIR-815	PVK21B5000399	KA21R815A1

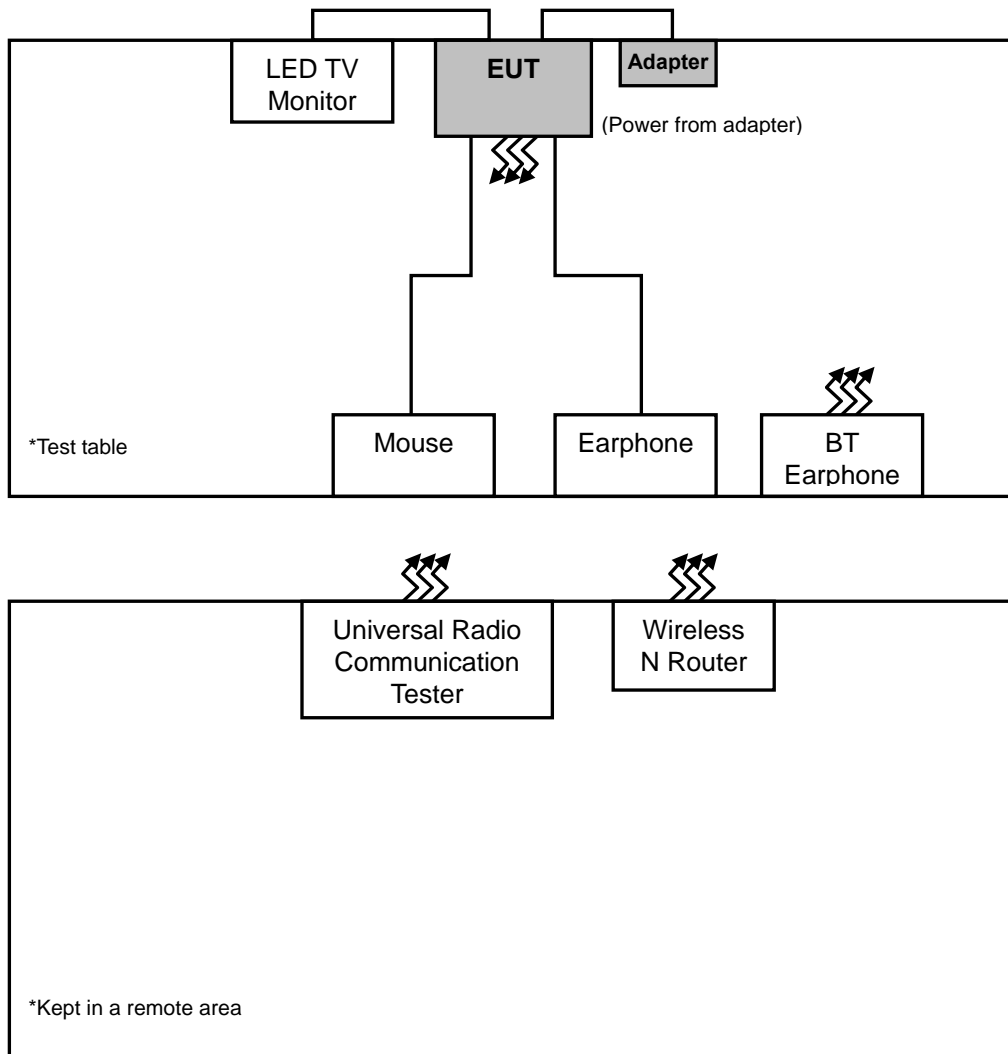
NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	1.5m HDMI cable without core
2	0.4m USB cable without core
3	1.8m D-sub cable with two cores
4	1.8m USB cable without core
5	1.8m earphone cable without core
6	1.8m USB cable without core
7	1.8m USB cable without core
8	NA
9	NA

NOTE:

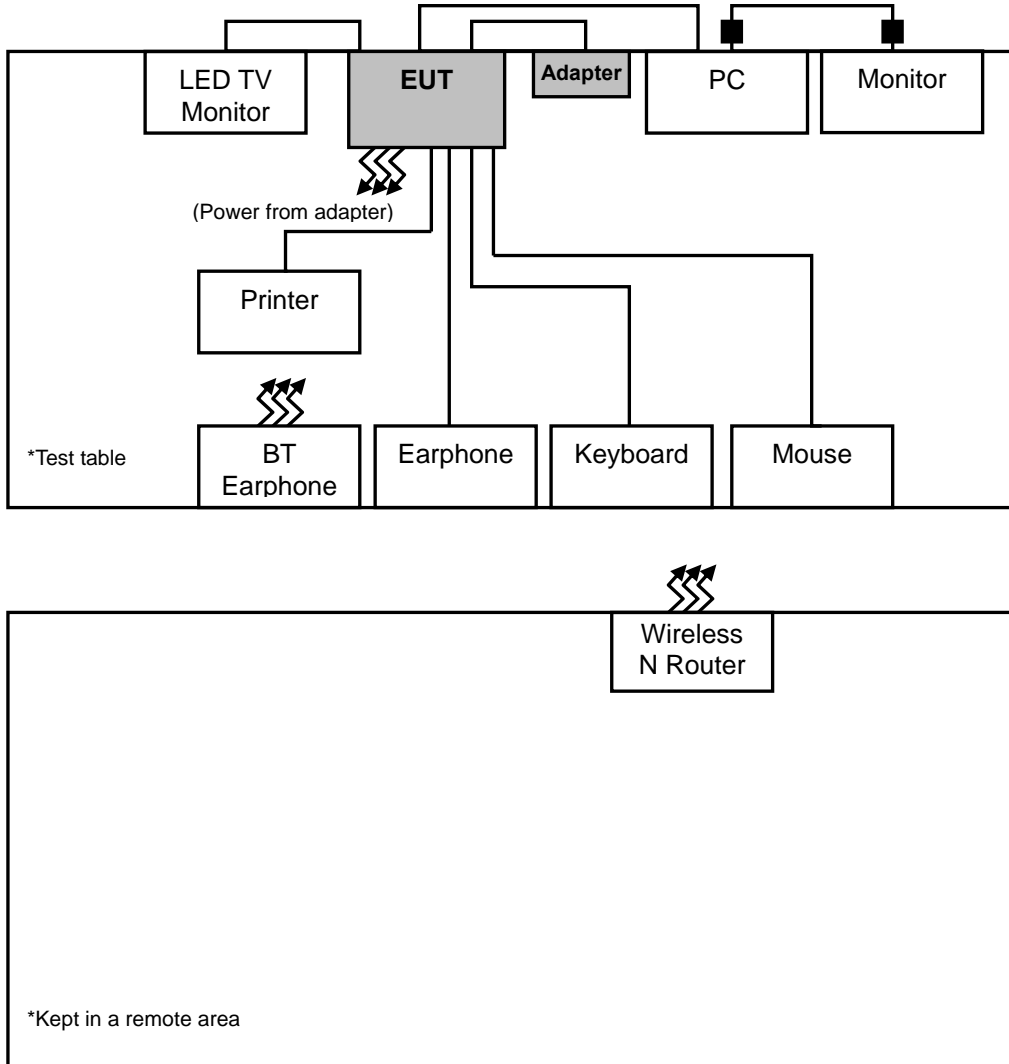
1. All power cords of the above support units are non-shielded (1.8m).
2. Items 8-9 acted as communication partners to transfer data.

3.4 CONFIGURATION OF SYSTEM UNDER TEST

FOR CONDUCTED EMISSION TEST



FOR RADIATED EMISSION TEST



4 TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

TEST STANDARD:

FCC Part 15, Subpart B (section: 15.107)

ICES-003:2012 Issue 5 (section: 6.1)

Frequency (MHz)	Class A (dBUV)		Class B (dBUV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15-0.5	79	66	66-56	56-46
0.5-5	73	60	56	46
5-30	73	60	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 0.50 MHz.
 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.

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100289	Nov. 16, 2012	Nov. 15, 2013
RF signal cable Woken	5D-FB	Cable-HYC01-01	Dec. 28, 2012	Dec. 27, 2013
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100312	Jul. 02, 2013	Jul. 01, 2014
LISN ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Feb. 04, 2013	Feb. 03, 2014
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.

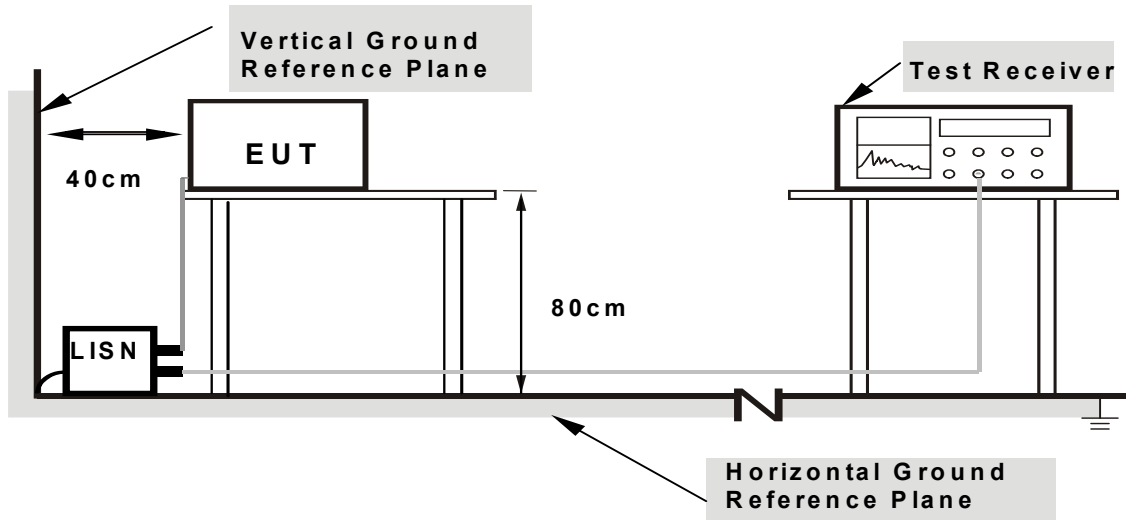
4.1.3 TEST PROCEDURES

- 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 150 kHz to 30 MHz was searched. Emission levels under Limit - 20dB was not recorded.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation.

4.1.5 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 cm from other units and other metal planes

For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

4.1.6 EUT OPERATING CONDITIONS

- a. Placed the EUT on the testing table.
- b. The EUT sent audio signal to earphone.
- c. The EUT ran CCD camera and displayed video signal on the TV Monitor.
- d. Prepared a Universal Radio Communication Tester, Wireless N Router and BT earphone, which acted as communication partners and link with EUT.
- e. Set the EUT under 3G idle and WiFi link condition.

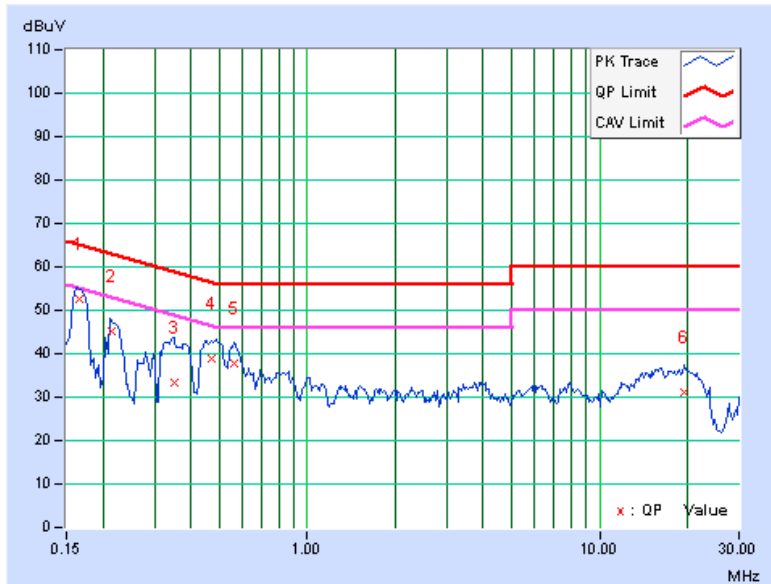
4.1.7 TEST RESULTS

INPUT POWER	120 Vac, 60 Hz	6dB BANDWIDTH	9 kHz
ENVIRONMENTAL CONDITIONS	21 deg. C, 57% RH	PHASE	Line 1
TESTED BY	Pon Tsai		

No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
	[MHz]	Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16562	0.16	52.56	44.25	52.72	44.41	65.18	55.18	-12.46	-10.77
2	0.21505	0.17	44.86	35.37	45.03	35.54	63.01	53.01	-17.98	-17.47
3	0.34922	0.21	33.12	21.53	33.33	21.74	58.98	48.98	-25.65	-27.24
4	0.47031	0.23	38.70	28.20	38.93	28.43	56.51	46.51	-17.58	-18.08
5	0.56016	0.24	37.60	31.86	37.84	32.10	56.00	46.00	-18.16	-13.90
6	19.50781	1.20	30.01	24.91	31.21	26.11	60.00	50.00	-28.79	-23.89

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





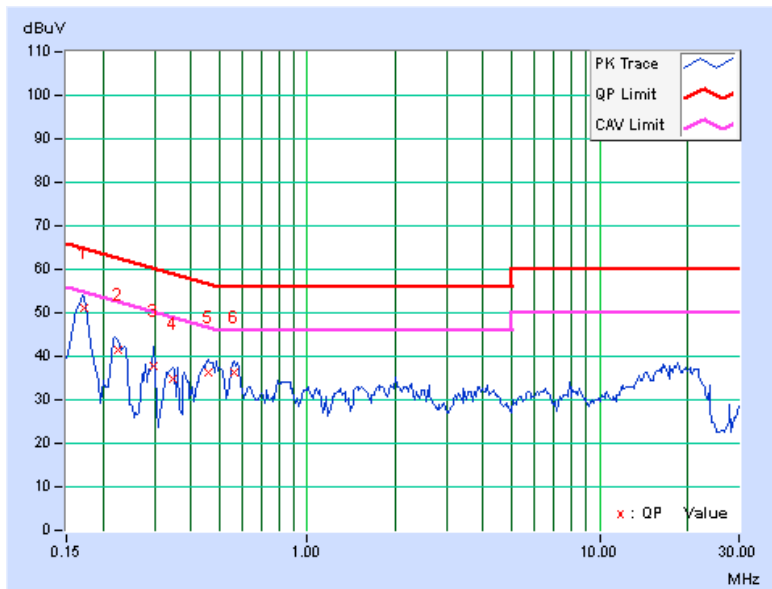
A D T

INPUT POWER	120 Vac, 60 Hz	6dB BANDWIDTH	9 kHz
ENVIRONMENTAL CONDITIONS	21 deg. C, 57% RH	PHASE	Line 2
TESTED BY	Pon Tsai		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.17344	0.17	50.85	40.87	51.02	41.04	64.79	54.79	-13.78	-13.76
2	0.22413	0.18	41.34	32.79	41.52	32.97	62.66	52.66	-21.15	-19.70
3	0.29844	0.20	37.75	36.83	37.95	37.03	60.29	50.29	-22.33	-13.25
4	0.34531	0.22	34.62	28.19	34.84	28.41	59.07	49.07	-24.23	-20.66
5	0.45859	0.24	36.13	30.51	36.37	30.75	56.72	46.72	-20.35	-15.97
6	0.56406	0.24	35.91	30.17	36.15	30.41	56.00	46.00	-19.85	-15.59

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



4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

TEST STANDARD:

FCC Part 15, Subpart B (section: 15.109)

ICES-003:2012 Issue 5 (section: 6.2)

Emissions radiated outside of the specified bands, shall be according to the general radiated limits as following:

Radiated Emissions Limits at 10 meters (dB μ V/m)				
Frequencies (MHz)	FCC 15B/ ICES-003, Class A	FCC 15B / ICES-003, Class B	CISPR 22, Class A	CISPR 22, Class B
30-88	39	29.5	40	30
88-216	43.5	33.1		
216-230	46.4	35.6		
230-960			47	37
960-1000	49.5	43.5	Not defined	Not defined
1000-3000	Avg: 49.5	Avg: 43.5		
Above 3000	Peak: 69.5	Peak: 63.5	Not defined	Not defined

Radiated Emissions Limits at 3 meters (dB μ V/m)				
Frequencies (MHz)	FCC 15B / ICES-003, Class A	FCC 15B / ICES-003, Class B	CISPR 22, Class A	CISPR 22, Class B
30-88	49.5	40	50.5	40.5
88-216	54	43.5		
216-230	56.9	46		
230-960			57.5	47.5
960-1000	60	54	Avg: 56 Peak: 76	Avg: 50 Peak: 70
1000-3000	Avg: 60	Avg: 54		
Above 3000	Peak: 80	Peak: 74	Avg: 60 Peak: 80	Avg: 54 Peak: 74

- NOTE:**
1. The lower limit shall apply at the transition frequencies.
 2. Emission level (dB μ V/m) = 20 log Emission level (μ V/m).
 3. As shown in 15.35(b), 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. QP detector shall be applied if not specified.

FREQUENCY RANGE OF RADIATED MEASUREMENT (For unintentional radiators)

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30
1.705-108	1000
108-500	2000
500-1000	5000
Above 1000	5th harmonic of the highest frequency or 40 GHz, whichever is lower

4.2.2 TEST INSTRUMENTS

Frequency range 30MHz~1GHz

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ (V)	ESIB7	100187	Dec. 27, 2012	Dec. 26, 2013
Test Receiver ROHDE & SCHWARZ (H)	ESIB7	100186	Nov. 28, 2012	Nov. 27, 2013
BILOG Antenna SCHWARZBECK (V)	VULB9168	9168-148	Mar. 19, 2013	Mar. 18, 2014
BILOG Antenna SCHWARZBECK (H)	VULB9168	9168-149	Mar. 19, 2013	Mar. 19, 2014
Preamplifier Agilent (V)	8447D	2944A10636	Oct. 20, 2012	Oct. 19, 2013
Preamplifier Agilent (H)	8447D	2944A10637	Oct. 20, 2012	Oct. 19, 2013
Preamplifier Agilent	8449B	3008A01959	Oct. 25, 2012	Oct. 24, 2013
RF signal cable Woken (V)	8D-FB	Cable-Hych1-01	Oct. 26, 2012	Oct. 25, 2013
RF signal cable Woken (H)	8D-FB	Cable-Hych1-02	Oct. 26, 2012	Oct. 25, 2013
Software BV ADT	BV ADT_Radiated_ V 7.7.03.8	NA	NA	NA
Antenna Tower (V)	MFA-440	9707	NA	NA
Antenna Tower (H)	MFA-440	970705	NA	NA
Turn Table	DS430	50303	NA	NA
Controller (V)	MF7802	074	NA	NA
Controller (H)	MF7802	08093	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 Chamber 1.
 3. The FCC Site Registration No. is 477732.
 4. The IC Site Registration No. is IC 7450F-1.
 5. The VCCI Site Registration No. is R-1893, G-113.



Frequency range above 1GHz

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESIB7	100188	May 20, 2013	May 19, 2014
Spectrum Analyzer Agilent	E4446A	MY48250266	Aug. 29, 2012	Aug. 28, 2013
BILOG Antenna SCHWARZBECK	VULB9168	9168-157	Mar. 20, 2013	Mar. 19, 2014
RF signal cable Woken	8D-FB	NA	Mar. 23, 2013	Mar. 22, 2014
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-404	Dec. 22, 2012	Dec. 21, 2013
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170243	Dec. 25, 2012	Dec. 24, 2013
Preamplifier Agilent (Below 1GHz)	8447D	2944A10629	Oct. 26, 2012	Oct. 25, 2013
Preamplifier Agilent (Above 1GHz)	8449B	3008A01959	Oct. 25, 2012	Oct. 24, 2013
RF signal cable HUBER+SUHNER	SUCOFLEX 104	230132/4	Oct. 26, 2012	Oct. 25, 2013
RF signal cable HUBER+SUHNER	SUCOFLEX 104	309223/4+309 218/4	Oct. 26, 2012	Oct. 25, 2013
Software BV ADT	BV ADT_Radiated_ V7.6.15.9.4	NA	NA	NA
Antenna Tower BV ADT	AT100	AT93021702	NA	NA
Turn Table BV ADT	TT100	TT93021702	NA	NA
Controller BV ADT	SC100	SC93021702	NA	NA
RF signal cable HUBER+SUHNER	SUCOFLEX 102	38218/2+ 37433/2	Oct. 26, 2012	Oct. 25, 2013
Fix tool for Boresight antenna tower	BAF-01	2	NA	NA
26GHz ~ 40GHz Amplifier	EM26400	815221	Oct. 25, 2012	Oct. 24, 2013

- 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 Chamber 2.
 3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
 4. The FCC Site Registration No. is 686814.
 5. The IC Site Registration No. is IC 7450F-2.
 6. The VCCI Site Registration No. is G-18.

4.2.3 TEST PROCEDURES

Frequency range 30MHz~1GHz

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meter semi-anechoic chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 10 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 1 meter to 4 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 1GHz.

NOTE: The resolution bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-Peak (QP) detection at frequency below 1GHz.

Frequency range above 1GHz

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic 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. The height of antenna can be varied from 1 meter to 4 meters, the height of adjustment depends on the EUT height and the antenna 3dB beamwidth both, to detect 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 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 and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1GHz.

NOTE:

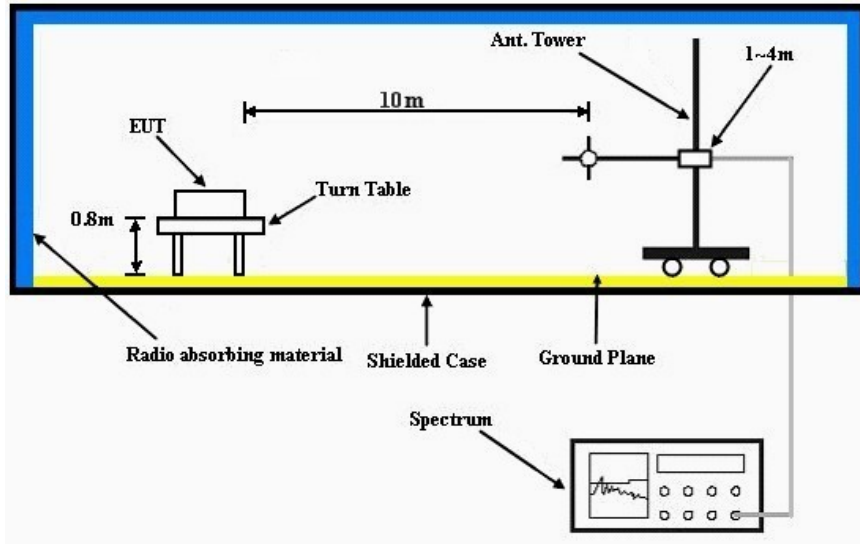
1. The resolution bandwidth is 1MHz and video bandwidth of test receiver/spectrum analyzer is 3MHz for Peak (PK) detection at frequency above 1GHz. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz for Average (AV) detection at frequency above 1GHz.
2. For measurement of frequency above 1000MHz, the EUT was set 3 meters away from the receiver antenna.

4.2.4 DEVIATION FROM TEST STANDARD

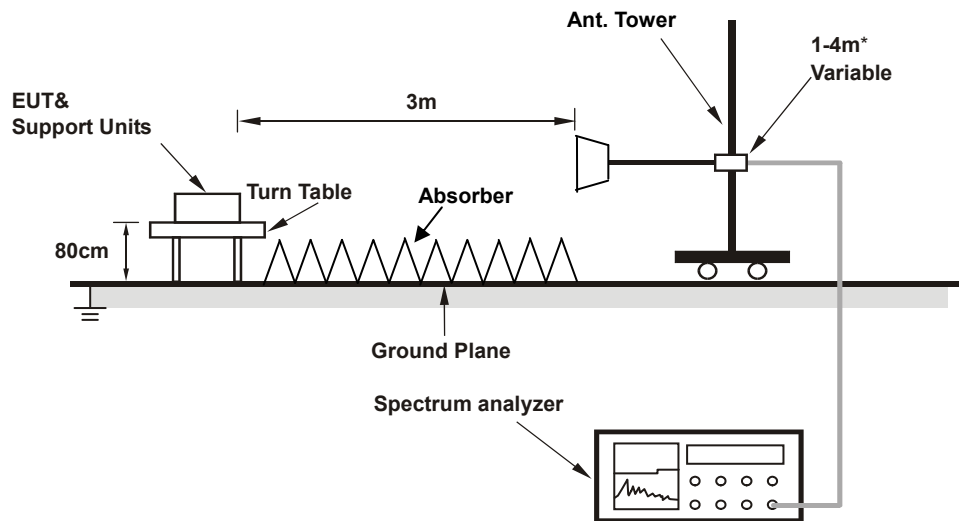
No deviation.

4.2.5 TEST SETUP

Frequency range 30MHz~1GHz



Frequency range above 1GHz



* : depends on the EUT height and the antenna 3dB beamwidth both.

For the actual test configuration, please refer to the related Item – Photographs of the Test Configuration.

4.2.6 EUT OPERATING CONDITIONS

- a. Placed the EUT on the testing table.
- b. The EUT sent audio signal to earphone.
- c. The EUT sent “H” patterns to the printer, and the printer printed them.
- d. The EUT was connected to the PC via USB cable.
- e. The PC sent “H” patterns to the monitor, and the monitor displayed them.
- f. Prepared a Wireless N Router and BT earphone, which acted as communication partners and link with EUT.

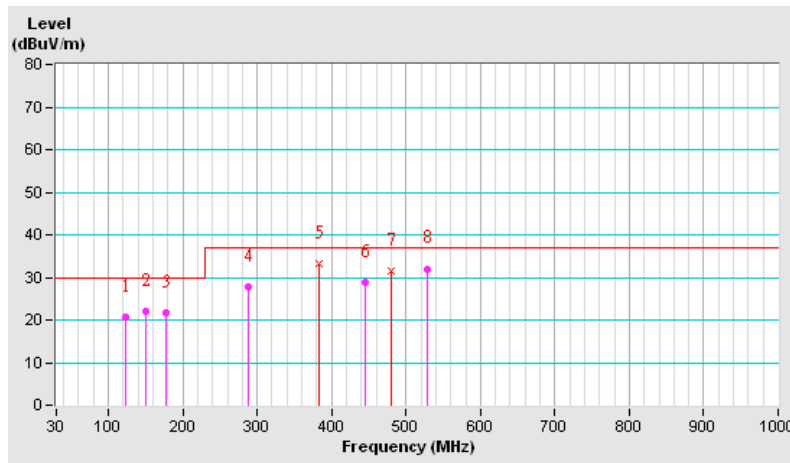
4.2.7 TEST RESULTS

FREQUENCY RANGE	30-1000 MHz	DETECTOR FUNCTION & BANDWIDTH	Quasi-Peak, 120 kHz
ENVIRONMENTAL CONDITIONS	20deg. C, 58% RH	TESTED BY	Rolan Zheng

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 10 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	123.31	20.78 QP	30.00	-9.22	2.00 H	360	36.69	-15.91
2	150.52	22.11 QP	30.00	-7.89	3.00 H	360	35.56	-13.45
3	177.74	21.59 QP	30.00	-8.41	2.00 H	360	35.78	-14.19
4	288.54	27.90 QP	37.00	-9.10	2.50 H	83	39.82	-11.92
5	384.01	33.23 QP	37.00	-3.77	2.00 H	245	43.12	-9.89
6	445.99	28.71 QP	37.00	-8.29	2.00 H	0	36.96	-8.25
7	480.02	31.63 QP	37.00	-5.37	2.00 H	213	39.46	-7.83
8	527.64	32.04 QP	37.00	-4.96	1.50 H	236	39.03	-6.99

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

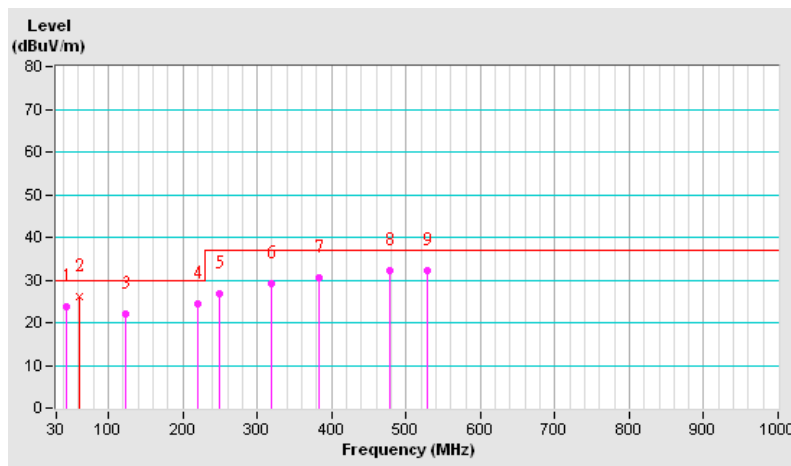


FREQUENCY RANGE	30-1000 MHz	DETECTOR FUNCTION & BANDWIDTH	Quasi-Peak, 120 kHz
ENVIRONMENTAL CONDITIONS	20deg. C, 58% RH	TESTED BY	Rolan Zheng

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 10 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	43.61	23.69 QP	30.00	-6.31	2.50 V	203	37.83	-14.14
2	61.95	26.20 QP	30.00	-3.80	2.00 V	246	40.62	-14.42
3	123.31	22.01 QP	30.00	-7.99	2.00 V	196	37.63	-15.62
4	220.50	24.44 QP	30.00	-5.56	1.00 V	330	39.95	-15.51
5	249.66	26.76 QP	37.00	-10.24	1.00 V	316	40.02	-13.26
6	319.64	29.23 QP	37.00	-7.77	1.00 V	337	39.76	-10.53
7	383.79	30.67 QP	37.00	-6.33	3.00 V	359	40.07	-9.40
8	479.04	32.25 QP	37.00	-4.75	3.00 V	360	39.68	-7.43
9	527.64	32.16 QP	37.00	-4.84	3.00 V	204	38.53	-6.37

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

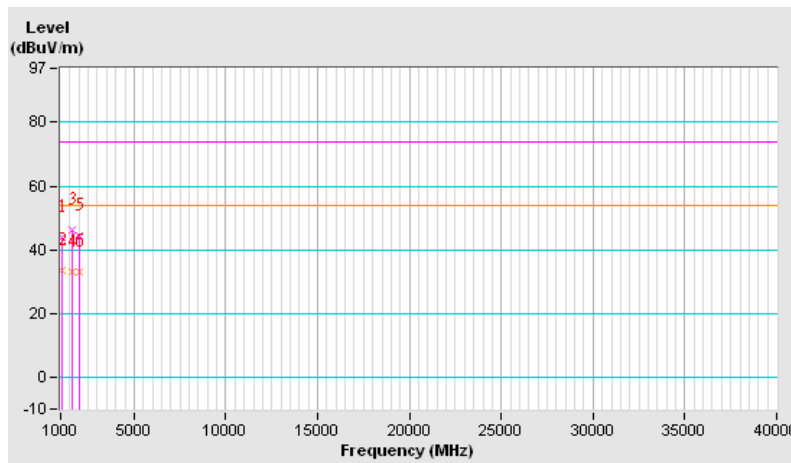


INPUT POWER	120 Vac, 60 Hz	FREQUENCY RANGE	1-40GHz
ENVIRONMENTAL CONDITIONS	21 deg. C, 75% RH	DETECTOR FUNCTION & BANDWIDTH	Peak/Average, 1 MHz
TESTED BY	Fox Chang		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1050.22	44.11 PK	74.00	-29.89	1.55 H	250	51.66	-7.55
2	1050.22	33.71 AV	54.00	-20.29	1.55 H	250	41.26	-7.55
3	1666.33	46.29 PK	74.00	-27.71	1.00 H	79	50.30	-4.01
4	1666.33	33.23 AV	54.00	-20.77	1.00 H	79	37.24	-4.01
5	1994.14	44.56 PK	74.00	-29.44	1.26 H	100	47.17	-2.61
6	1994.14	33.17 AV	54.00	-20.83	1.26 H	100	35.78	-2.61

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

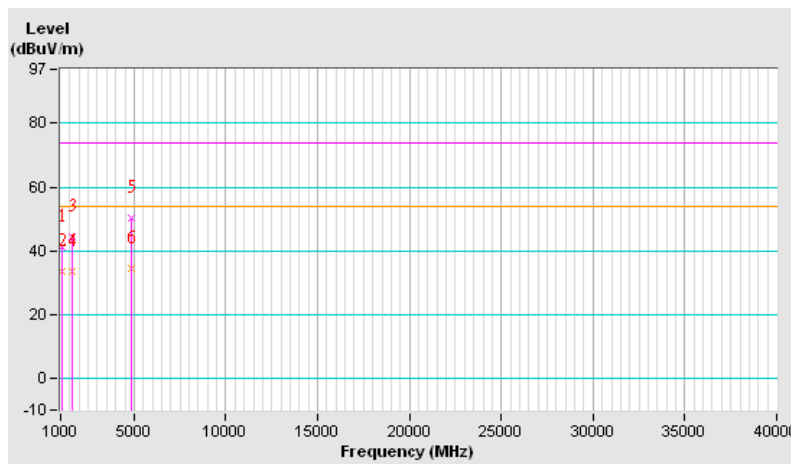


INPUT POWER	120 Vac, 60 Hz	FREQUENCY RANGE	1-40GHz
ENVIRONMENTAL CONDITIONS	21 deg. C, 75% RH	DETECTOR FUNCTION & BANDWIDTH	Peak/Average, 1 MHz
TESTED BY	Fox Chang		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1090.67	41.38 PK	74.00	-32.62	1.00 V	199	48.60	-7.22
2	1090.67	33.73 AV	54.00	-20.27	1.00 V	199	40.95	-7.22
3	1666.12	44.55 PK	74.00	-29.45	1.50 V	318	48.56	-4.01
4	1666.12	33.65 AV	54.00	-20.35	1.50 V	318	37.66	-4.01
5	4825.37	50.24 PK	74.00	-23.76	1.64 V	355	43.03	7.21
6	4825.37	34.59 AV	54.00	-19.41	1.64 V	355	27.38	7.21

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit 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:

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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.

7 APPENDIX A – MODIFICATION RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

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

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