

FCC TEST REPORT

REPORT NO.: FC120130D13

MODEL NO.: HiPKI SafGuard 1200

FCC ID: RPXTLHSM1200

RECEIVED: Jan. 30, 2012

TESTED: Feb. 7 ~ 8, 2012

ISSUED: Apr. 2, 2012

APPLICANT: CHUNGHWA TELECOM RESEARCH INSTITUTE

ADDRESS: 12, Lane 551, Min-Tsu Road Sec. 5 Yang-Mei,
Taoyuan, Taiwan 32617, R.O.C.

ISSUED BY: Bureau Veritas Consumer Products Services (H.K.)
Ltd., Taoyuan Branch

LAB LOCATION: No. 47, 14th Ling, Chia Pau Vil., Lin Kou Dist., New
Taipei City, Taiwan (R.O.C.)

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A D T

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
FC120130D13	Original release	Apr. 2, 2012

1 CERTIFICATION

PRODUCT: Hardware Secure Module
MODEL NO: HiPKI SafGuard 1200
APPLICANT: CHUNGHWA TELECOM RESEARCH INSTITUTE
TEST ITEM: ENGINEERING SAMPLE
TESTED: Feb. 7 ~ 8, 2012
STANDARDS: FCC Part 15, Subpart B, Class B
ANSI C63.4-2003

The above equipment 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 : Annie Chang , DATE: Apr. 2, 2012
(Annie Chang / Senior Specialist)

APPROVED BY : Kenny Meng , DATE: Apr. 2, 2012
(Kenny Meng / Assistant Manager)

2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

Standard	Test Type	Result	Remarks
FCC Part 15, Subpart B, Class B	Conducted Test	PASS	Meets Class B Limit Minimum passing margin is -10.12 dB at 0.439 MHz
	Radiated Test (30MHz ~ 2GHz)	PASS	Meets Class B Limit Minimum passing margin is -2.46 dB at 800.00 MHz

Note: The EUT highest frequency generated **300MHz** and according to client's requests the test frequency range was performed up to 2GHz for radiated emission test.

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 emissions	150kHz ~ 30MHz	3.43 dB
Radiated emissions	30MHz ~ 1GHz	3.65 dB
	Above 1GHz	3.36 dB

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Hardware Secure Module
MODEL NO.	HiPKI SafGuard 1200
POWER SUPPLY	Switching Power Supply Rating: refer to note below Power Cord AC 2 Pin. Non-shielded DC cable (1.5 m) with one ferrite core.
DATA CABLE SUPPLIED	Shielded USB cable (1.73m).

NOTE:

1. The EUT is a Hardware Secure Module with USB interface.
2. The EUT consumes power from a switching power, as the following:

Brand	Model No.	Specification
ADAPTER TECH	STD-05030U	AC I/P: 100-240V, 47-63Hz, 0.48A MAX DC O/P: 5V, 3A, 15 W MAX

3. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

3.2 DESCRIPTION OF SUPPORT UNITS

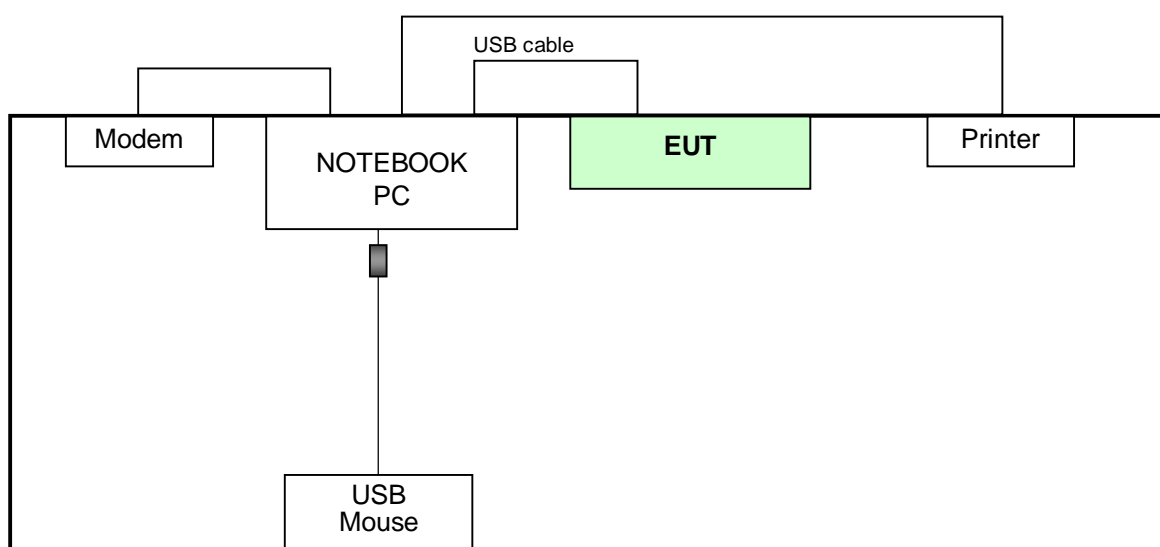
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP04X	JV9ZZ1S	FCC DoC Approved
2	PRINTER	LEXMARK	Z33	03331651418	FCC DoC Approved
3	MODEM	ACEEX	1414	980020501	IFAXDM1414
4	MOUSE	MICROSOFT	X800898	9241642-30608	FCC DoC Approved

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	1.73m Shielded USB cable (Provided by client)
2	2.0 m foil shielded wire, terminated with USB connector via metallic frame, w/o core.
3	1.2 m braid shielded wire, terminated with DB25 and DB9 connector via metallic frame, w/o core.
4	1.8 m foil shielded wire, terminated with USB connector via drain wire, with 1 core.

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

TEST CONFIGURATION



4 EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

TEST STANDARD: FCC Part 15, Subpart B (Section: 15.107)

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	79	66	66 - 56	56 - 46
0.50 - 5.0	73	60	56	46
5.0 - 30.0	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.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Test Receiver	ESCS 30	100290	Dec. 29, 2011	Dec. 28, 2012
ROHDE & SCHWARZ Artificial Mains Network (for EUT)	ESH3-Z5	839135/006	Sep. 26, 2011	Sep. 25, 2012
LISN With Adapter (for EUT)	AD10	C00Ada-001	Sep. 27, 2011	Sep. 26, 2012
EMCO-L.I.S.N. (for peripheral)	3825/2	9204-1964	May 26, 2011	May 25, 2012
Software	ADT_Cond_V7.3.7	NA	NA	NA
Software	ADT_ISN_V7.3.7	NA	NA	NA
RF cable (JYEBAO)	5D-FB	Cable-C02.01	Jan. 08, 2012	Jan. 07, 2013
LYNICS Terminator (For EMCO LISN)	0900510	E1-01-298	Jan. 30, 2012	Jan. 29, 2013
LYNICS Terminator (For EMCO LISN)	0900510	E1-01-299	Jan. 30, 2012	Jan. 29, 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 Shielded Room No. 2.
 3. The VCCI Site Registration No. C-240.

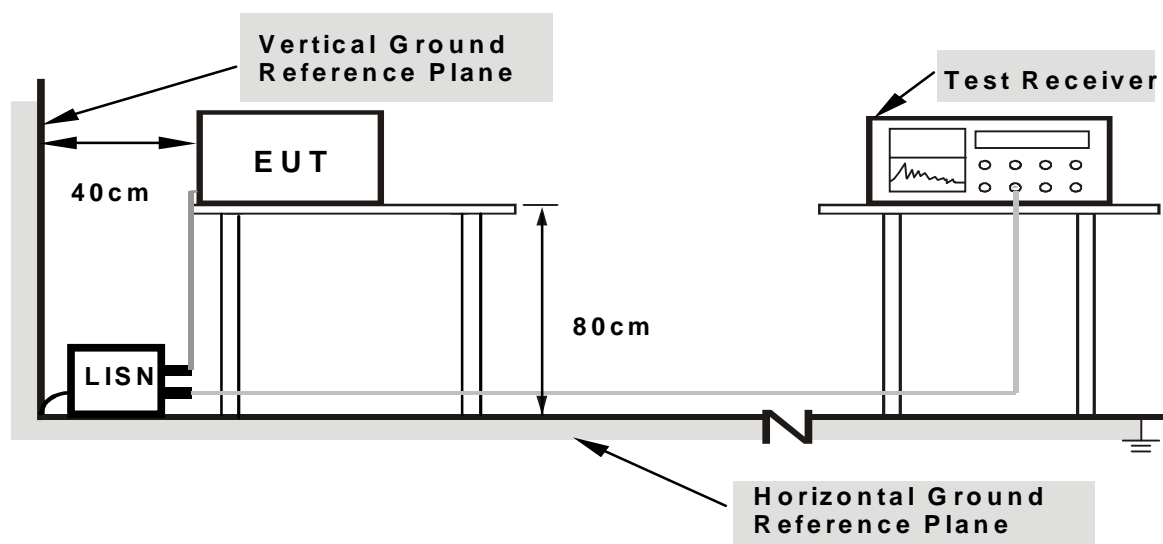
4.1.3 TEST PROCEDURE

- 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 80cm from EUT and at least 80cm from other units and other metal planes support units.

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

4.1.6 EUT OPERATING CONDITIONS

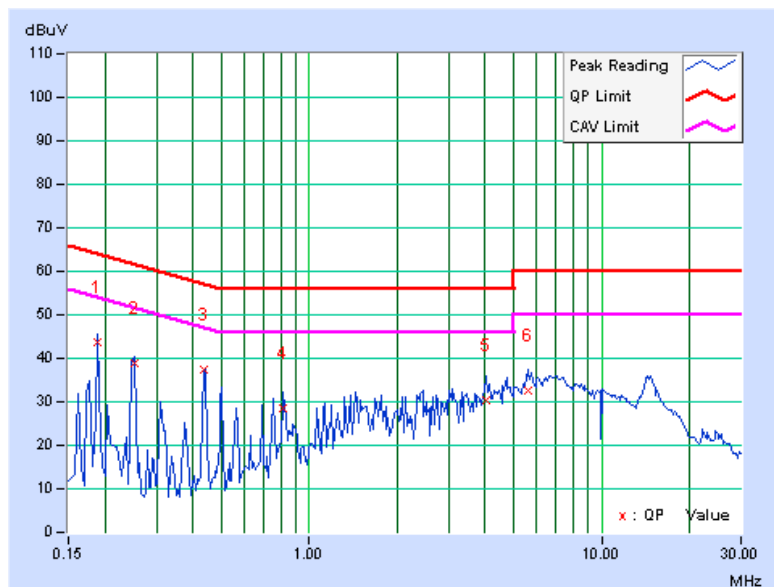
- Turned on the power of all equipment.
- Notebook PC ran a test program to enable all functions.
- Notebook PC read and wrote messages from HDD and EUT.
- Notebook PC sent “H” messages to panel, and then it displayed them on its screen.
- Notebook PC sent messages to printer and printer printed them out.
- Notebook PC sent messages to modem.
- Steps c-g were repeated.

4.1.7 TEST RESULTS

TEST MODE	Operating	6DB BANDWIDTH	9 kHz
INPUT POWER	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	13deg. C, 71% RH	TESTED BY: T.H. Tseng	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.189	0.19	43.64	33.01	43.83	33.20	64.10	54.10	-20.27	-20.90
2	0.252	0.21	38.50	31.40	38.71	31.61	61.71	51.71	-22.99	-20.09
3	0.439	0.28	36.97	36.69	37.25	36.97	57.09	47.09	-19.84	-10.12
4	0.815	0.39	28.22	26.17	28.61	26.56	56.00	46.00	-27.39	-19.44
5	4.016	0.84	29.51	23.87	30.35	24.71	56.00	46.00	-25.65	-21.29
6	5.578	0.97	31.66	26.38	32.63	27.35	60.00	50.00	-27.37	-22.65

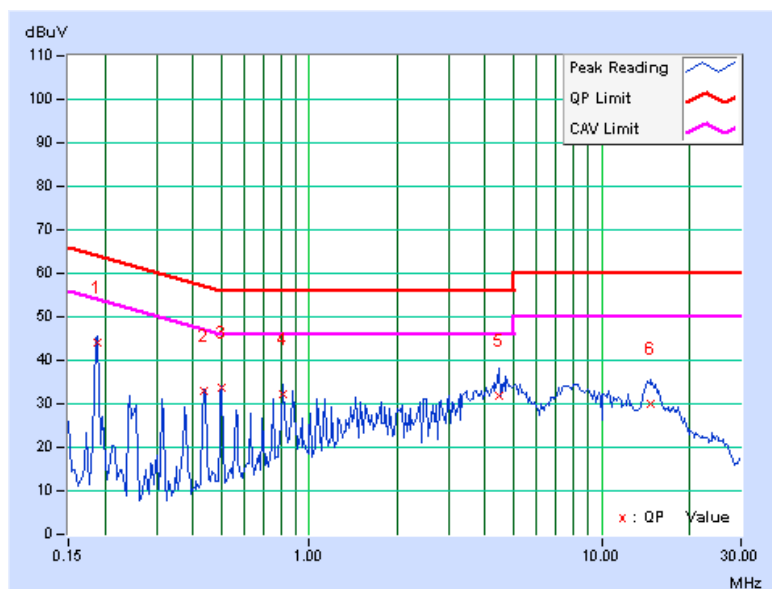
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



TEST MODE	Operating	6dB BANDWIDTH	9 kHz
INPUT POWER	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	13deg. C, 71% RH	TESTED BY: T.H. Tseng	

No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.189	0.20	43.91	32.59	44.11	32.79	64.08	54.08	-19.97	-21.29
2	0.438	0.29	32.58	31.98	32.87	32.27	57.10	47.10	-24.23	-14.83
3	0.502	0.31	33.48	33.10	33.79	33.41	56.00	46.00	-22.21	-12.59
4	0.816	0.41	31.98	31.07	32.39	31.48	56.00	46.00	-23.61	-14.52
5	4.453	0.98	30.96	24.37	31.94	25.35	56.00	46.00	-24.06	-20.65
6	14.806	1.69	28.49	18.86	30.18	20.55	60.00	50.00	-29.82	-29.45

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. 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)

FREQUENCY (MHz)	Class A (at 10m)		Class B (at 3m)	
	uV/m	dBuV/m	uV/m	dBuV/m
30 – 88	90	39.1	100	40.0
88 – 216	150	43.5	150	43.5
216 – 960	210	46.4	200	46.0
960 – 1000	300	49.5	500	54.0

LIMIT OF RADIATED EMISSION OF FCC PART 15, SUBPART B FOR FREQUENCY ABOVE 1000 MHz

FREQUENCY (MHz)	Class A (dBuV/m) (at 3m)		Class B (dBuV/m) (at 3m)	
	PEAK	AVERAGE	PEAK	AVERAGE
Above 1000	80.0	60.0	74.0	54.0

- Note:** (1) The lower limit shall apply at the transition frequencies.
 (2) Emission level (dBuV/m) = 20 log Emission level (uV/m).
 (3) All emanation 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.

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	5 th 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.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ TEST RECEIVER	ESVS 10	840241/010	Nov. 16, 2011	Nov. 15, 2012
Schaffner BILOG Antenna	CBL6111D	22261	Apr. 14, 2011	Apr. 13, 2012
CT Turn Table	TT100	CT-080	NA	NA
CT Tower	AT100	CT-080	NA	NA
Software	ADT_Radiated_V7.6.15.9.2	NA	NA	NA
ANRITSU RF Switches	MP59B	6100259081	Sep. 16, 2011	Sep. 15, 2012
WOKEN RF cable	8D	CABLE-ST3-01	Sep. 16, 2011	Sep. 15, 2012

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 Open Site No. 3.
 3. The VCCI Site Registration No. is R-269.
 4. The FCC Site Registration No. 90424.

Frequency Range above 1GHz

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Agilent Spectrum	E4446A	MY51100009	Jul. 28, 2011	Jul. 27, 2012
EMCI Preamplifier	EMC0126545	980076	Mar. 04, 2011	Mar. 03, 2012
MITEQ Preamplifier	AMF-6F-26040 0-33-8P	892164	Mar. 04, 2011	Mar. 03, 2012
Schwarzbeck Horn Antenna	BBHA-9170	BBHA9170190	Oct. 07, 2011	Oct. 06, 2012
EMCO Horn Antenna	3115	6714	Oct. 24, 2011	Oct. 23, 2012
Max Full. Turn Table	MF7802	MF780208216	NA	NA
Software	ADT_Radiated_V8.7.05	NA	NA	NA
SUHNER RF cable	SF106-18	Cable-CH10	Aug. 20, 2011	Aug. 19, 2012

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 Chamber No. 10.
 3. The Industry Canada Reference No. IC 7450E-11.
 4. The VCCI Site Registration No. G427
 5. The FCC Site Registration No. 367016

4.2.3 TEST PROCEDURE

<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 open area test site. 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 turn 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.

NOTE: The resolution bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) 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 directional antenna, which was pointed towards the source of the emission within the EUT. This could be done by either pointing the antenna at an angle towards the source of the emission, or by rotating the EUT, in both height and polarization, to maximize the measured emission.
- c. The height of antenna can be varied from one meter-to four 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 1 GHz.

NOTE:

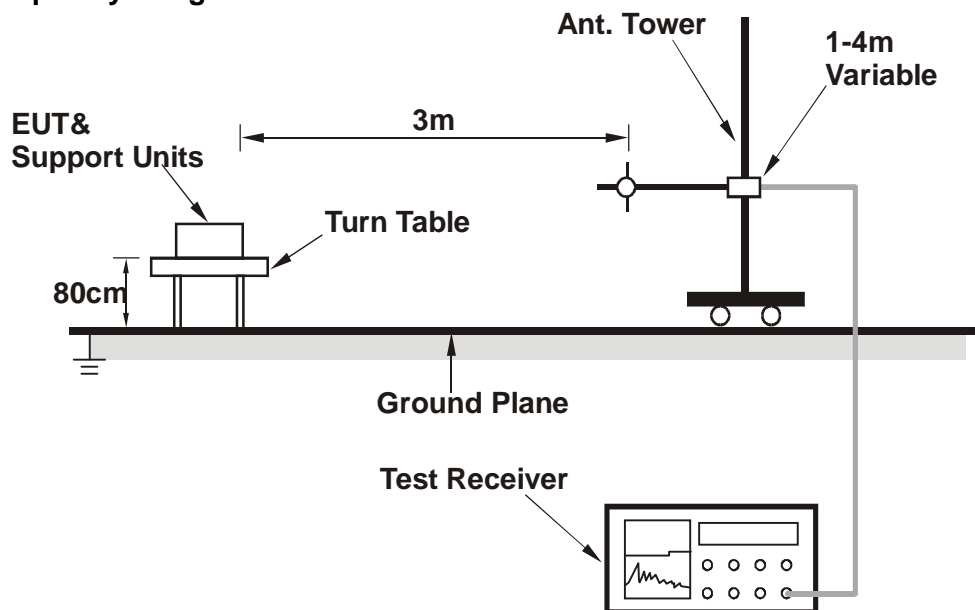
1. The resolution bandwidth is 1MHz and video bandwidth of test receiver/spectrum analyzer is 3MHz for Peak detection at frequency above 1GHz. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz for Average detection (AV) at frequency above 1GHz.
2. For measurement of frequency above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

4.2.4 DEVIATION FROM TEST STANDARD

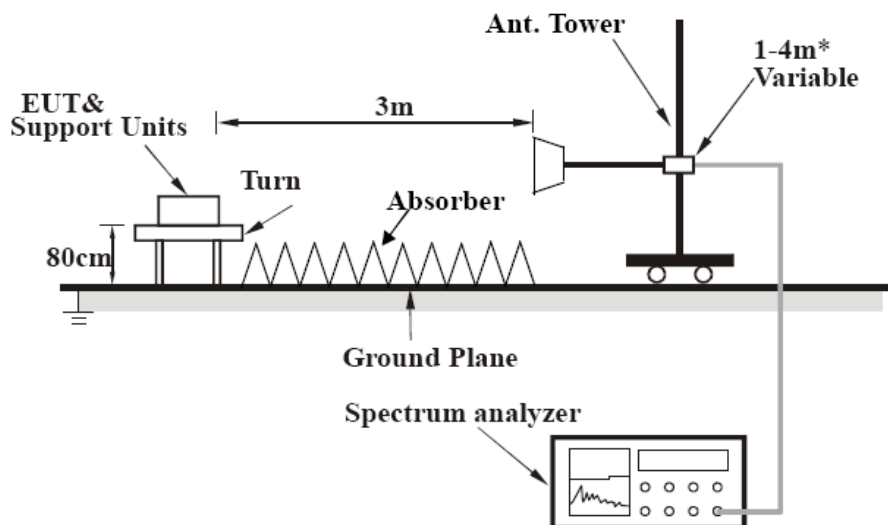
No deviation

4.2.5 TEST SETUP

<Frequency Range 30MHz ~ 1GHz >



<Frequency Range above 1GHz>



* : depends on the EUT height and the antenna 3dB beamwidth both, refer to section 8.3.1.2 of ANSI C63.4: 2003.

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

4.2.6 EUT OPERATING CONDITIONS

Same as item 4.1.6

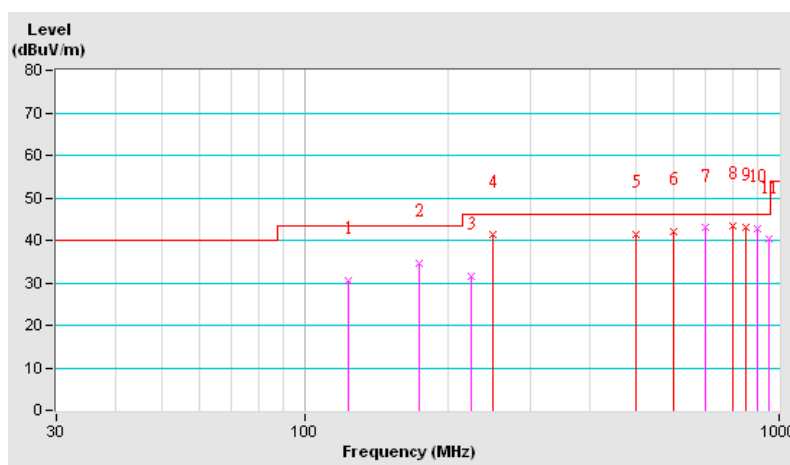
4.2.7 TEST RESULTS

TEST MODE	Operating	FREQUENCY RANGE	30-1000 MHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION & RESOLUTION BANDWIDTH	Quasi-Peak, 120 kHz
ENVIRONMENTAL CONDITIONS	18deg. C, 81% RH	TESTED BY: Gary CC Lee	

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	124.02	30.62 QP	43.50	-12.88	4.00 H	97	17.62	13.00
2	174.72	34.73 QP	43.50	-8.77	4.00 H	335	23.63	11.10
3	224.62	31.70 QP	46.00	-14.30	4.00 H	25	18.83	12.87
4	250.00	41.32 QP	46.00	-4.68	2.87 H	103	26.55	14.77
5	500.00	41.49 QP	46.00	-4.51	2.45 H	310	19.51	21.98
6	600.00	42.18 QP	46.00	-3.82	1.93 H	344	17.59	24.59
7	700.00	42.92 QP	46.00	-3.08	1.00 H	333	18.22	24.70
8	800.00	43.54 QP	46.00	-2.46	1.27 H	58	16.24	27.30
9	850.00	42.98 QP	46.00	-3.02	1.09 H	43	14.72	28.26
10	900.01	42.66 QP	46.00	-3.34	1.00 H	102	13.53	29.13
11	949.99	40.18 QP	46.00	-5.82	1.00 H	309	10.21	29.97

- 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)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.

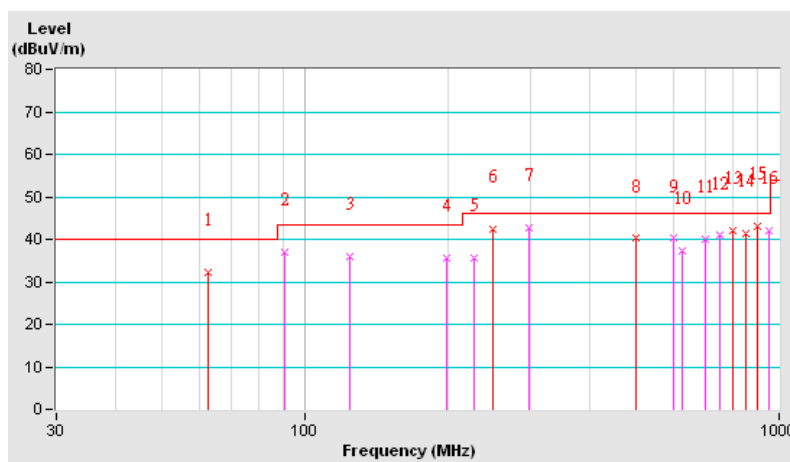


TEST MODE	Operating	FREQUENCY RANGE	30-1000 MHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION & RESOLUTION BANDWIDTH	Quasi-Peak, 120 kHz
ENVIRONMENTAL CONDITIONS	18deg. C, 81% RH	TESTED BY: Gary CC Lee	

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	62.48	32.15 QP	40.00	-7.85	1.00 V	138	25.06	7.09
2	91.00	37.06 QP	43.50	-6.44	1.00 V	302	27.04	10.02
3	124.50	35.85 QP	43.50	-7.65	1.00 V	15	22.87	12.98
4	199.97	35.71 QP	43.50	-7.79	1.00 V	9	24.70	11.01
5	227.87	35.55 QP	46.00	-10.45	1.00 V	92	22.44	13.11
6	250.00	42.38 QP	46.00	-3.62	1.00 V	19	27.61	14.77
7	298.25	42.84 QP	46.00	-3.16	1.00 V	13	26.59	16.25
8	500.00	40.22 QP	46.00	-5.78	3.81 V	157	18.24	21.98
9	599.99	40.22 QP	46.00	-5.78	1.52 V	141	15.63	24.59
10	625.07	37.36 QP	46.00	-8.64	2.48 V	354	12.72	24.64
11	701.24	40.05 QP	46.00	-5.95	1.90 V	299	15.31	24.74
12	749.98	40.90 QP	46.00	-5.10	1.76 V	32	14.96	25.94
13	800.00	42.10 QP	46.00	-3.90	3.43 V	189	14.80	27.30
14	850.01	41.31 QP	46.00	-4.69	1.42 V	25	13.04	28.27
15	900.00	43.00 QP	46.00	-3.00	1.71 V	358	13.88	29.12
16	950.00	42.05 QP	46.00	-3.95	2.23 V	165	12.08	29.97

- 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)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.

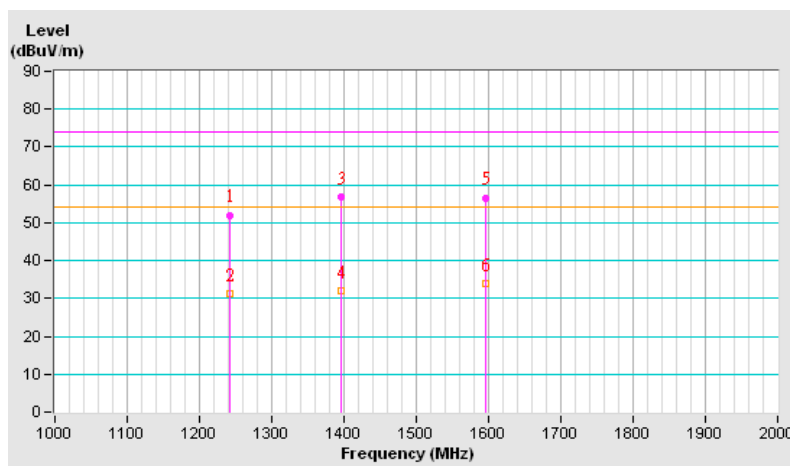


TEST MODE	Operating	FREQUENCY RANGE	1-2 GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION & RESOLUTION BANDWIDTH	Peak/Average, 1MHz
ENVIRONMENTAL CONDITIONS	18deg. C, 83% RH	TESTED BY: Paul Chen	

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	1241.05	52.04 PK	74.00	-21.96	1.92 H	302	25.00	27.04
2	1241.05	31.30 AV	54.00	-22.70	1.92 H	302	4.26	27.04
3	1396.13	56.78 PK	74.00	-17.22	1.00 H	282	29.16	27.62
4	1396.13	31.90 AV	54.00	-22.10	1.00 H	282	4.28	27.62
5	1596.68	56.62 PK	74.00	-17.38	1.89 H	266	28.10	28.52
6	1596.68	33.75 AV	54.00	-20.25	1.89 H	266	5.23	28.52

- 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)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.

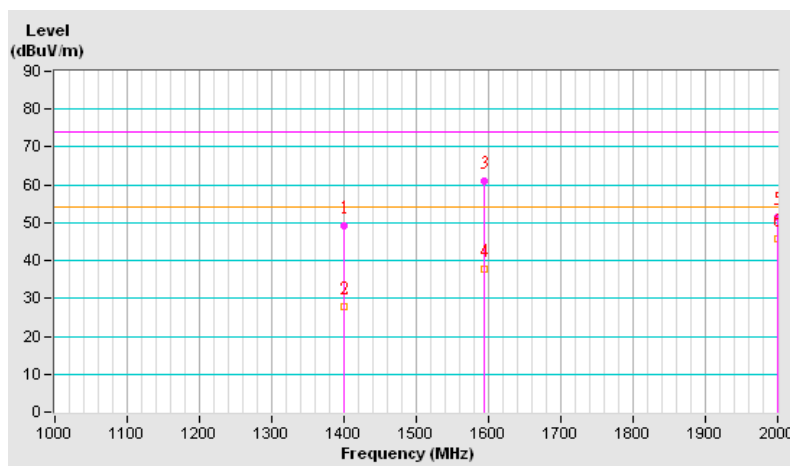


TEST MODE	Operating	FREQUENCY RANGE	1-2 GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION & RESOLUTION BANDWIDTH	Peak/Average, 1MHz
ENVIRONMENTAL CONDITIONS	18deg. C, 83% RH	TESTED BY: Paul Chen	

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	1399.26	49.30 PK	74.00	-24.70	1.94 V	360	21.67	27.63
2	1399.26	27.65 AV	54.00	-26.35	1.94 V	360	0.02	27.63
3	1594.15	60.95 PK	74.00	-13.05	1.53 V	150	32.44	28.51
4	1594.15	37.63 AV	54.00	-16.37	1.53 V	150	9.12	28.51
5	1999.57	51.58 PK	74.00	-22.42	1.04 V	294	20.88	30.70
6	1999.57	45.61 AV	54.00	-8.39	1.04 V	294	14.91	30.70

- 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)
 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.

Copies of accreditation and authorization certificates of our laboratories obtained from approval agencies can be downloaded from our web site:

www.adt.com.tw/index.5.phtml. If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab:

Tel: 886-2-26052180

Fax: 886-2-26051924

Hsin Chu EMC/RF Lab:

Tel: 886-3-5935343

Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety/Telecom Lab:

Tel: 886-3-3183232

Fax: 886-3-3185050

Email: service.adt@tw.bureauveritas.com

Web Site: www.adt.com.tw

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

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

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

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