

FCC TEST REPORT

REPORT NO. : FV951115H04B

MODEL NO. : MD15

RECEIVED : Nov. 27, 2006

TESTED : Nov. 27 to Dec. 11, 2006

ISSUED: March 07, 2007

APPLICANT : CTC UNION TECHNOLOGIES CO., LTD.

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ISSUED BY : Advance Data Technology Corporation

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1 CERTIFICATION

PRODUCT : IP DSLAM
BRAND NAME : CTC union
MODEL NO.: MD15
TESTED : Nov. 27 to Dec. 11, 2006
TEST ITEM : R&D SAMPLE
APPLICANT : CTC UNION TECHNOLOGIES CO., LTD.
STANDARDS : FCC Part 15: 2005, Subpart B, Class A
(section 15.31, 15.107 and 15.109)
ANSI C63.4-2003 (section 7 and 8)
ICES-003: 2004, Class A

The above equipment (Model: MD15) has been tested by **Advance Data Technology Corporation**, 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 : Carol Liao , **DATE:** March 07, 2007
(Carol Liao)

TECHNICAL ACCEPTANCE : Mike Hsieh , **DATE:** March 07, 2007
Responsible for EMI (Mike Hsieh)

APPROVED BY : Ivan Peng , **DATE:** March 07, 2007
(Ivan Peng)

2 SUMMARY OF TEST RESULTS

Standard	Test Type	Result	Remarks
FCC Part 15, 2005 Subpart B, Class A	Conducted Test	PASS	Meets Class A Limit Minimum passing margin is -0.44dB at 0.615 MHz
ICES-003:Class A	Radiated Test	PASS	Meets Class A Limit Minimum passing margin is -2.30 dB at 177.40 MHz

Note: The limit for radiated test was performed according to CISPR 22, which was specified in FCC PART 15 Subpart B 15.109(g). Also the limits of ICES-003: 2004 and CISPR 22 are same.

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:

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

Measurement	Value
Conducted emissions	2.53 dB
Radiated emissions (30MHz-1GHz)	3.46 dB

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	IP DSLAM
MODEL NO.	MD15
POWER SUPPLY	Internal power supply (AC input or DC input)
POWER CORD	NA
DATA CABLE SUPPLIED	RJ-45 Cable x1 (10cm/shelded/without core)
I/O PORTS	Line interface x 2, POTS Interface x 2, GBE 1 & GBE 2, SFP 1 & SFP 2, MGMT x 1, FAN x 2, HK x1, COM x 1,

NOTE:

1. The EUT has two samples, one is powered from AC the other is powered from DC.
2. The EUT must be supplied with Internal power supply as following:

AC input power supply information:		
Brand:	SINPRO	
Model No.:	SBU120-246	
Input power :	AC110~240 V 63 Hz 3Pins 2.5m Unshielded w/o core	
Output power :	DC 3.3V 15A 110W & DC 20.5V 3A 110W	
DC input power supply information:		
Brand	Model No.	Spec.
P-DUKE	QBE50-48S3P3	Input: DC-48(-36~-75)V or 48(36~75)V Output: DC 3.3V 15 A 49.5W (Power for System)
ACBEL	SV48-24-100-6	Input: DC-48(-36~-75)V or 48(36~75)V Output: DC 20.5V/ 4A 96W (Power for ADSL line & FAN)

3. The above EUT information was declared by the 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 was tested in following modes:

Test Mode	Description
Mode 1	Sample 1: Powered from AC
Mode 2	Sample 2: Powered from DC



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.

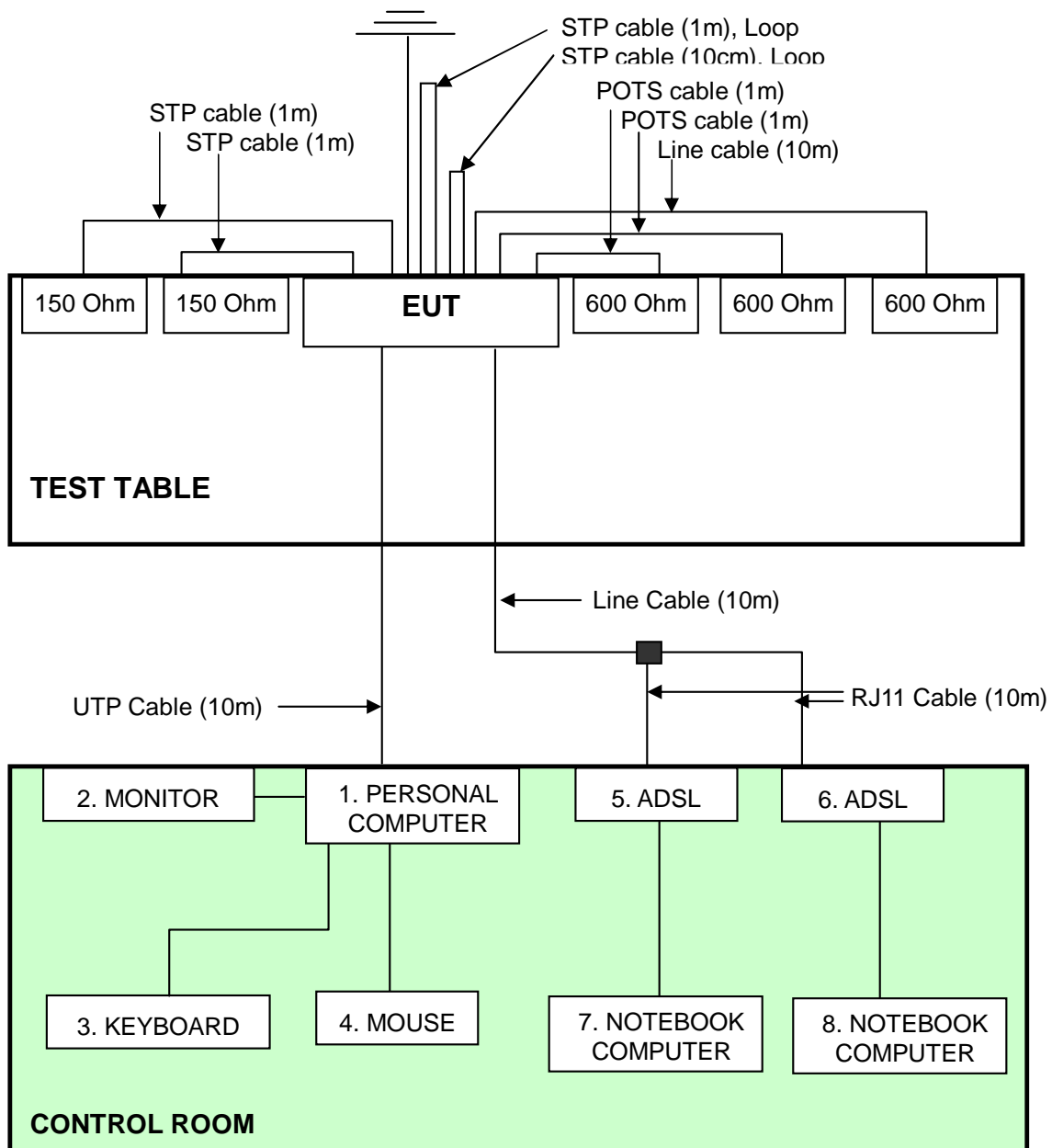
No.	Product	Brand	Model No.	Serial No.	FCC ID
1	PERSONAL COMPUTER	HP	DX6120MT	SG5190992H	DoC
2	MONITOR	DELL	2001FP	CN-0C0647-46633-58 R-2W4L	DoC
3	KEYBOARD	BTC	KB-5200T	F24800406	E5XKB5122WTH0 110
4	MOUSE	BTC	M851	G00347024432	DoC
5	ADSL	Brasi Telecom	GS-R2503	G32RG3-017284	NA
6	ADSL	XAVI	X8121r	A811A4003409	NA
7	NOTEBOOK COMPUTER	DELL	PP01L	TW-0791UH-12800-0C K-3735	DoC
8	NOTEBOOK COMPUTER	DELL	PPT	17044664176	E2K24GBRL
9	DC POWER SUPPLY (only for DC Mode)	GOOD WILL INSTRUMENT CO., LTD.	GPC-3030D	7700087	NA

No.	Signal cable description
1	NA
2	1.8 m braid shielded wire, terminated with VGA connector via metallic frame, w/o core
3	1.7 m foil shielded wire, terminal by frame, PS2 Connector, w/o core.
4	1.5 m foil shielded wire, terminated with PS2 connector via drain wire, w/o core.
5	NA
6	NA
7	NA
8	NA
9	NA

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

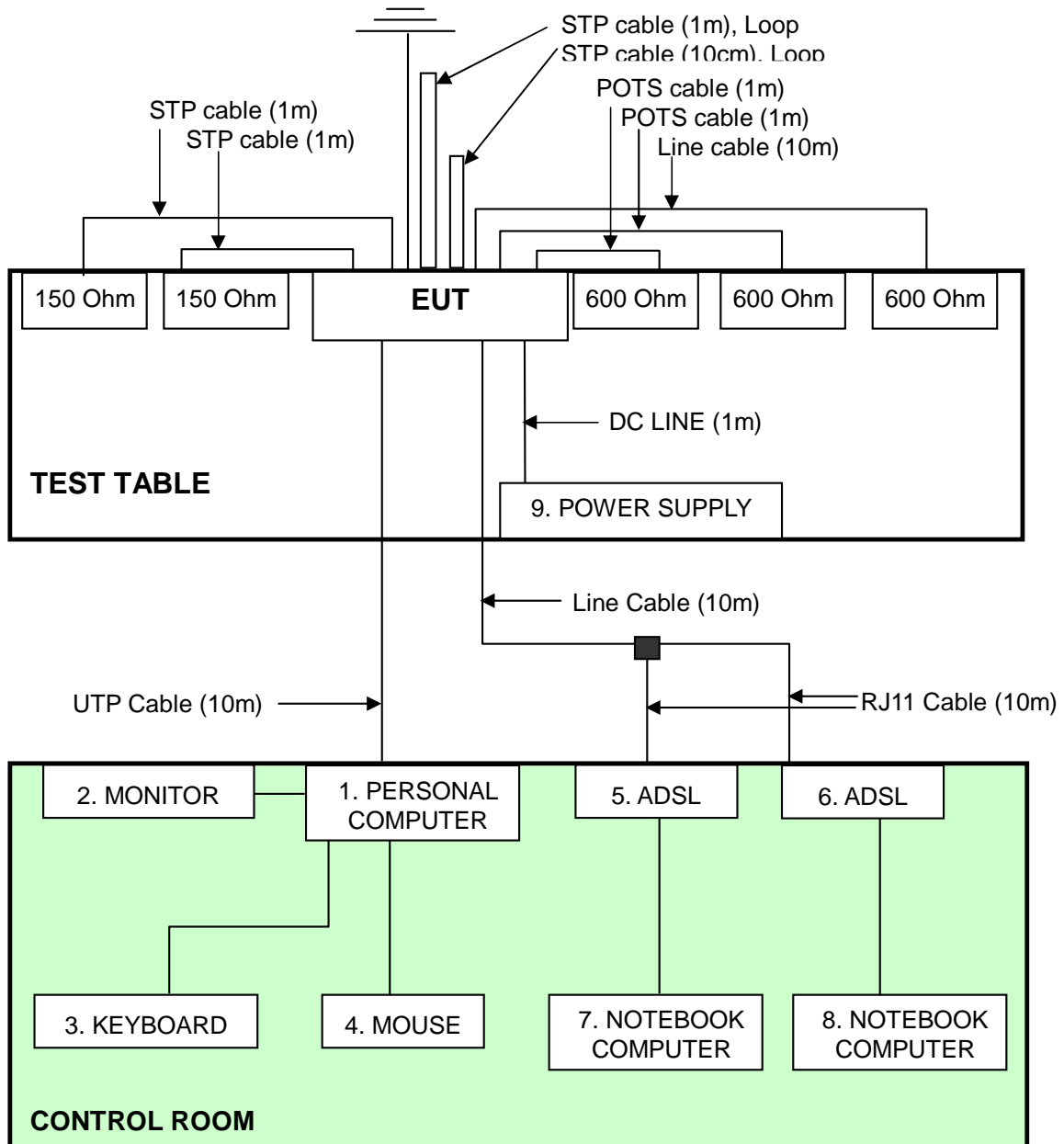
3.4 CONFIGURATION OF SYSTEM UNDER TEST

For AC Mode:



NOTE: 1. Support units 1-8 were kept in the control room during the test.
2. Please refer to the photos of test configuration in Item 5 also.

For DC Mode:



NOTE: 1. Support units 1-8 were kept in the control room during the test.
 2. Please refer to the photos of test configuration in Item 5 also.

4 EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

TEST STANDARD:

FCC Part 15: 2005, Subpart B (Section: 15.107)

**ICES-003: 2004 (Class A: section 5.2)
(Class B: section 5.3)**

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 linearly with the logarithm of the frequency in the range 0.15 to 0.50 MHz

(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.

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
ROHDE & SCHWARZ Test Receiver	ESCS 30	100287	Feb. 20, 2007
Line-Impedance Stabilization Network(for EUT)	ESH3-Z5	848773/004	Oct. 26, 2007
Line-Impedance Stabilization Network(for Peripheral)	ENV-216	100072	Oct. 26, 2007
RF Cable (JETBAO)	RG233/U	Cable_CA_01	Jul. 19, 2007
Terminator	50	1	Oct. 30, 2007
Software	ADT_Cond_V7.3.2	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 ADT Shielded Room No. A.

3. The VCCI Con A Registration No. is C-817.

4.1.3 TEST PROCEDURE

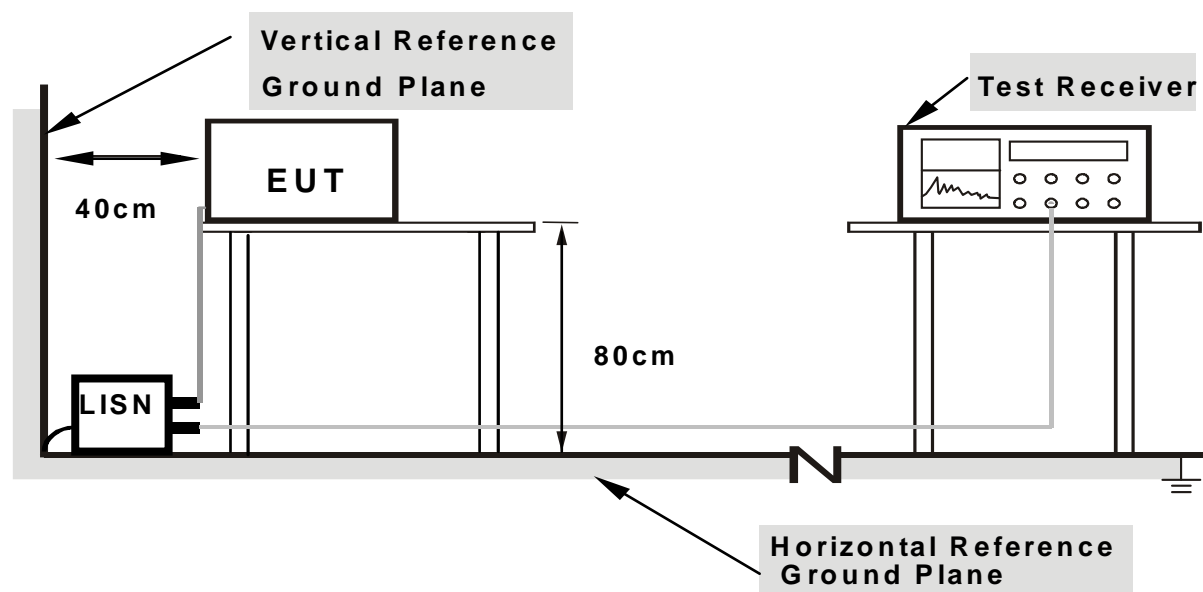
The basic test procedure was in accordance with ANSI C63.4-2003 (section 7), CISPR 22 (section 9) and ICES-003: 2004 (section 4).

- 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 over 10dB under the prescribed limits could not be reported.

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 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

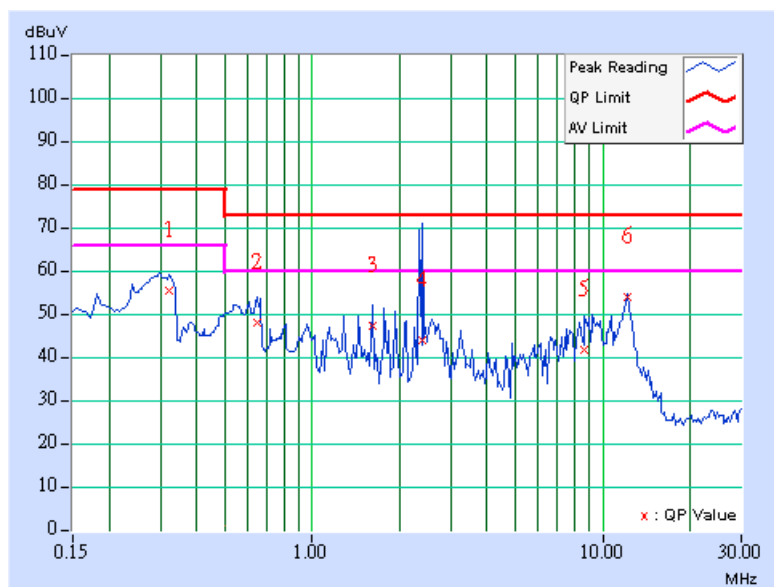
- a. Turn on the power of all equipment.
- b. Prepared other computer systems (support units 1-8) to act as communication partners and placed them outside of testing area.
- c. The computer systems (support units 7 and 8) run “ping.exe” and “TfGen” test program to enable EUT under transmission/receiving condition continuously via line cable and RJ11 cables.

4.1.7 TEST RESULTS

INPUT POWER (SYSTEM)	120Vac, 60 Hz	TEST MODE	Mode 1
PHASE	Line (L)	6dB BANDWIDTH	9 kHz
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 965hPa	TESTED BY	Eason Chang

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	0.320	9.80	45.35	-	55.15	-	79.00	66.00	-23.85
2	0.646	9.84	38.21	-	48.05	-	73.00	60.00	-24.95	-
3	1.611	9.90	37.30	-	47.20	-	73.00	60.00	-25.80	-
4	2.395	9.90	33.90	-	43.80	-	73.00	60.00	-29.20	-
5	8.641	9.98	31.82	-	41.80	-	73.00	60.00	-31.20	-
6	12.194	10.09	43.81	-	53.90	-	73.00	60.00	-19.10	-

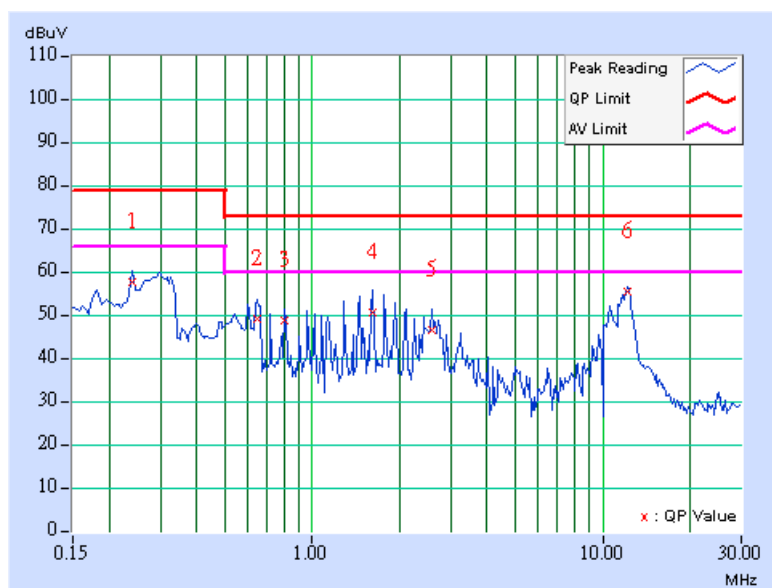
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



INPUT POWER (SYSTEM)	120Vac, 60 Hz	TEST MODE	Mode 1
PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 965hPa	TESTED BY	Eason Chang

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	0.241	9.80	47.52	-	57.32	-	79.00	66.00	-21.68	-
2	0.646	9.84	38.96	-	48.80	-	73.00	60.00	-24.20	-
3	0.806	9.87	38.85	-	48.72	-	73.00	60.00	-24.28	-
4	1.611	9.96	40.70	-	50.66	-	73.00	60.00	-22.34	-
5	2.580	10.00	36.44	-	46.44	-	73.00	60.00	-26.56	-
6	12.193	10.19	45.29	-	55.48	-	73.00	60.00	-17.52	-

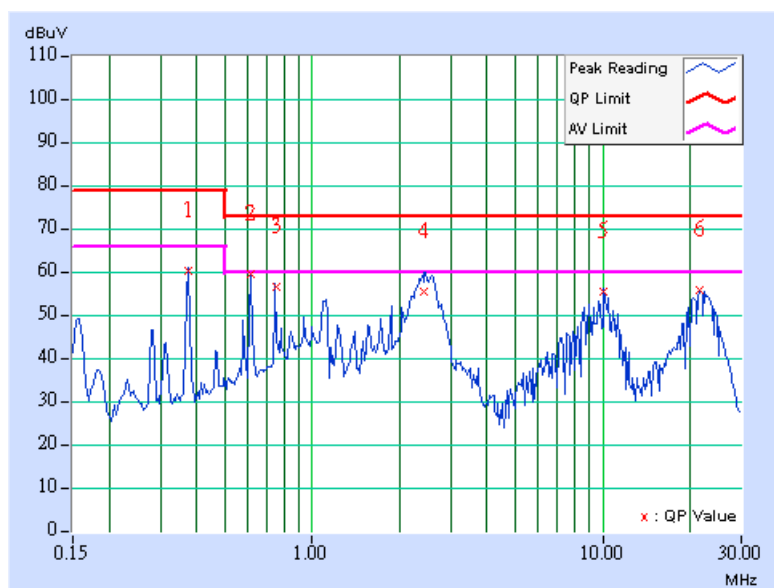
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



INPUT POWER (SYSTEM)	DC 48V	TEST MODE	Mode 2
PHASE	Positive	6dB BANDWIDTH	9 kHz
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 965hPa	TESTED BY	Timmy Hu

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	0.374	9.80	50.41	-	60.21	-	79.00	66.00	-18.79	-
2	0.614	9.84	49.62	-	59.46	-	73.00	60.00	-13.54	-
3	0.749	9.86	46.71	-	56.57	-	73.00	60.00	-16.43	-
4	2.420	9.90	45.41	-	55.31	-	73.00	60.00	-17.69	-
5	10.096	10.00	45.43	-	55.43	-	73.00	60.00	-17.57	-
6	21.683	10.13	45.64	-	55.77	-	73.00	60.00	-17.23	-

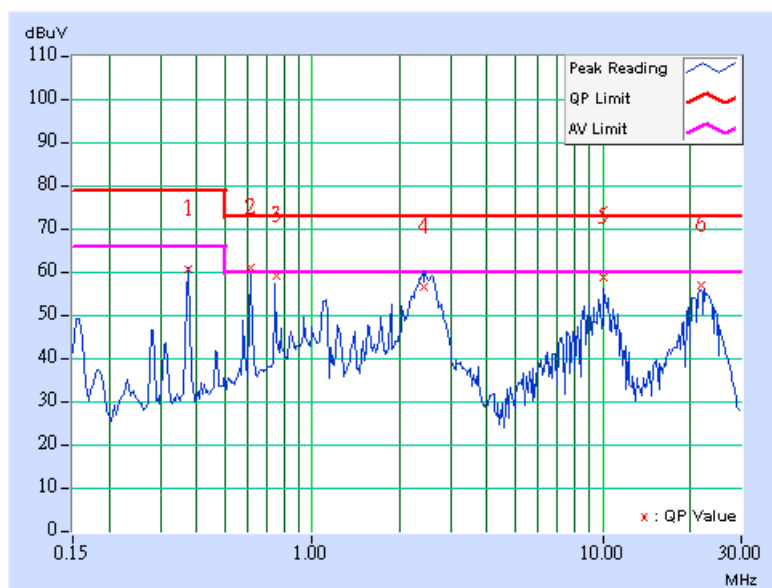
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



INPUT POWER (SYSTEM)	DC 48V	TEST MODE	Mode 2
PHASE	Negative	6dB BANDWIDTH	9 kHz
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 965hPa	TESTED BY	Timmy Hu

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	0.374	9.80	50.41	-	60.21	-	79.00	66.00	-18.79	-
2	0.615	9.84	50.62	49.72	60.46	59.56	73.00	60.00	-12.54	-0.44
3	0.752	9.86	48.81	-	58.67	-	73.00	60.00	-14.33	-
4	2.420	10.00	46.41	-	56.41	-	73.00	60.00	-16.59	-
5	10.096	10.10	48.43	-	58.53	-	73.00	60.00	-14.47	-
6	21.723	10.43	46.64	-	57.07	-	73.00	60.00	-15.93	-

- 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: 2005, Subpart B (Section: 15.109)

ICES-003: 2004 (Class A: Section 5.4)

(Class B: Section 5.5)

FOR FREQUENCY BELOW 1000 MHz (47 CFR Part 15 Subpart B)

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
Above 960	300	49.5	500	54.0

FOR FREQUENCY BELOW 1000 MHz (CISPR 22)

FREQUENCY (MHz)	Class A (at 10m)	Class B (at 10m)
	dBuV/m	dBuV/m
30 – 230	40	30
230 - 1000	47	37

Note: The limit for radiated test was performed according to CISPR 22, which was specified in FCC PART 15 Subpart B 15.109(g) and ICES-003 clause 7. Also the limits of ICES-003: 2004 and CISPR 22 are same.

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 Upper frequency of measurement used in the device or on which the device operates or tunes (MHz)	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

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
*ADVANTEST Spectrum Analyzer	R3271A	85060311	July 03, 2007
*HP Pre_Amplifier	8449B	3008A01922	Sep. 18, 2007
*ROHDE & SCHWARZ Test Receiver	ESVS 30	841977/002	Oct. 30, 2007
*CHASE Broadband Antenna	CBL6111C	2730	Jun. 08, 2007
*Schwarzbeck Horn_Antenna	BBHA9120-D1	D123	Sep. 25, 2007
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 05, 2007
SCHWARZBECK Biconical Antenna	VHBA9123	459	Jun. 08, 2009
SCHWARZBECK Periodic Antenna	UPA6108	1148	Jun. 08, 2009
*RF Switches	MP59B	6100175593	Jul. 17, 2007
*RF Cable(CHASE)	9913-30M N-N Cable	STBCAB-30M-1 GHz	Jul. 17, 2007
*Software	ADT_Radiated_V 5.14	NA	NA
*CHANCE MOST Antenna Tower	AT-100	CM-A007	NA
*CHANCE MOST Turn Table	TC-008	CM-T007	NA
*CORCOM AC Filter	MRI2030	024/019	NA

- Note: 1. The calibration interval of the above test instruments is 12 months (36 months for Periodic Antenna) and the calibrations are traceable to NML/ROC and NIST/USA.
2. * = These equipment are used for the final measurement.
3. The horn antenna, HP preamplifier (model: 8449B) and Spectrum Analyzer (model: R3271A) are used only for the measurement of emission frequency above 1GHz if tested.
4. The test was performed in ADT Open Site No. B.
5. The VCCI Site Registration No. is R-847.
6. The FCC Site Registration No. is 92753.
7. The CANADA Site Registration No. is IC 4824A-2.

4.2.3 TEST PROCEDURE

The basic test procedure was in accordance with ANSI C63.4-2003 (section 8), CISPR 22 (section 10).

- 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 10 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 quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

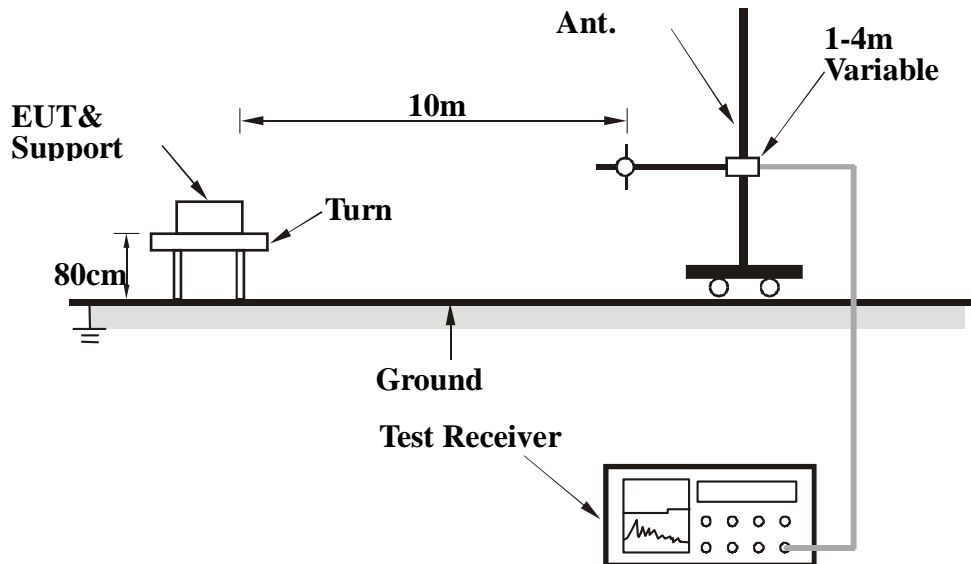
NOTE:

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

4.2.4 DEVIATION FROM TEST STANDARD

No deviation

4.2.5 TEST SETUP



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

4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6

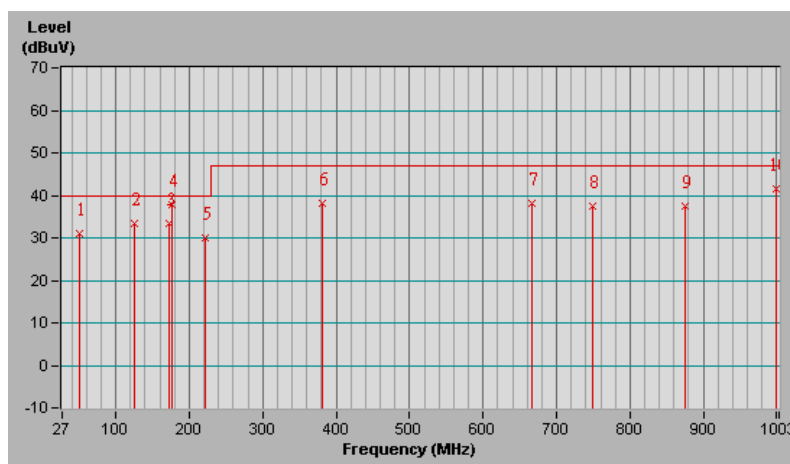
4.2.7 TEST RESULTS

INPUT POWER	120Vac, 60 Hz	TEST MODE	Mode 1
ENVIRONMENTAL CONDITIONS	24 deg. C, 60%RH, 965 hPa	DETECTOR FUNCTION & BANDWIDTH	Quasi-Peak, 120kHz
TESTED BY	Max Tseng		

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	50.80	31.20 QP	40.00	-8.80	4.00 H	109	20.80	10.40
2	125.00	33.50 QP	40.00	-6.50	4.00 H	267	20.90	12.60
3	172.63	33.50 QP	40.00	-6.50	4.00 H	85	22.40	11.10
4	177.40	37.70 QP	40.00	-2.30	4.00 H	153	26.90	10.80
5	221.94	30.10 QP	40.00	-9.90	4.00 H	316	17.40	12.70
6	380.80	38.10 QP	47.00	-8.90	1.88 H	0	18.90	19.10
7	666.66	38.10 QP	47.00	-8.90	1.33 H	306	13.00	25.20
8	750.00	37.50 QP	47.00	-9.50	1.17 H	124	10.10	27.40
9	875.00	37.50 QP	47.00	-9.50	1.00 H	216	8.50	29.00
10	999.99	41.70 QP	47.00	-5.30	1.00 H	308	12.10	29.50

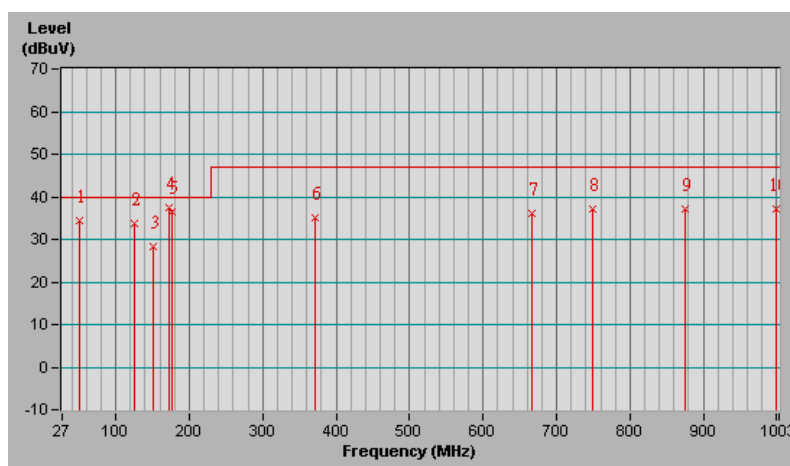
- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.



INPUT POWER	120Vac, 60 Hz	TEST MODE	Mode 1
ENVIRONMENTAL CONDITIONS	24 deg. C, 60%RH, 965 hPa	DETECTOR FUNCTION & BANDWIDTH	Quasi-Peak, 120kHz
TESTED BY	Max Tseng		

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	50.00	34.50 QP	40.00	-5.50	1.01 V	216	23.90	10.60
2	125.00	33.80 QP	40.00	-6.20	1.01 V	291	21.20	12.60
3	150.00	28.40 QP	40.00	-11.60	1.01 V	267	15.70	12.70
4	172.63	37.50 QP	40.00	-2.50	1.01 V	27	26.40	11.10
5	177.36	36.50 QP	40.00	-3.50	1.01 V	29	25.70	10.80
6	371.30	35.20 QP	47.00	-11.80	1.01 V	91	16.50	18.70
7	666.66	36.10 QP	47.00	-10.90	2.22 V	4	11.00	25.20
8	750.00	37.20 QP	47.00	-9.80	2.10 V	144	9.80	27.40
9	875.00	37.10 QP	47.00	-9.90	2.00 V	197	8.20	29.00
10	999.99	37.10 QP	47.00	-9.90	1.90 V	0	7.60	29.50

- 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.



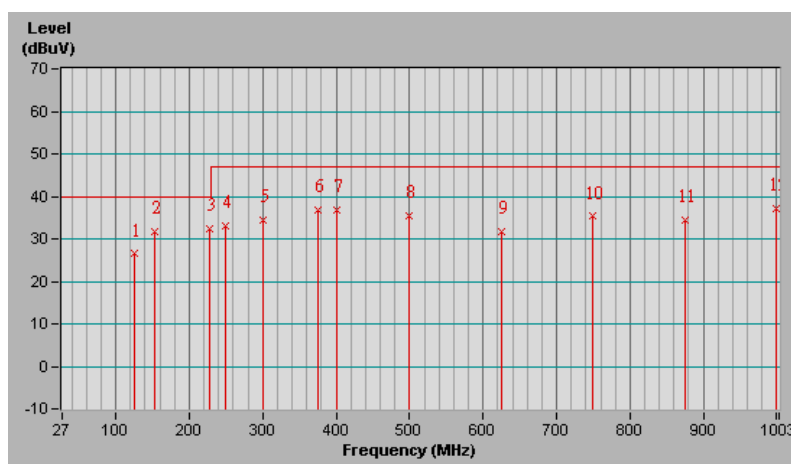


INPUT POWER	DC -48V	TEST MODE	Mode 2
ENVIRONMENTAL CONDITIONS	26 deg. C, 60%RH, 965 hPa	DETECTOR FUNCTION & BANDWIDTH	Quasi-Peak, 120kHz
TESTED BY	Jerry Fan		

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	125.00	26.50 QP	40.00	-13.50	4.00 H	1	13.90	12.60
2	151.98	31.80 QP	40.00	-8.20	4.00 H	289	19.30	12.50
3	228.13	32.40 QP	40.00	-7.60	4.00 H	237	19.20	13.10
4	250.00	33.10 QP	47.00	-13.90	2.08 H	49	18.50	14.60
5	300.00	34.40 QP	47.00	-12.60	2.17 H	167	17.80	16.70
6	375.00	36.80 QP	47.00	-10.20	1.93 H	326	17.90	18.90
7	399.99	36.90 QP	47.00	-10.10	1.95 H	16	16.90	20.00
8	500.00	35.40 QP	47.00	-11.60	1.70 H	238	12.80	22.60
9	624.99	31.80 QP	47.00	-15.20	1.59 H	224	7.00	24.80
10	749.99	35.30 QP	47.00	-11.70	1.00 H	200	7.90	27.40
11	874.99	34.40 QP	47.00	-12.60	1.00 H	309	5.40	29.00
12	999.99	37.10 QP	47.00	-9.90	1.00 H	201	7.50	29.50

- 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.

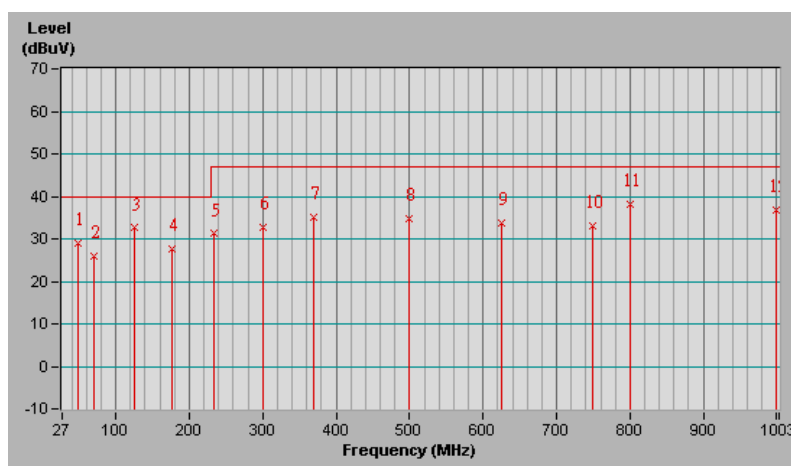




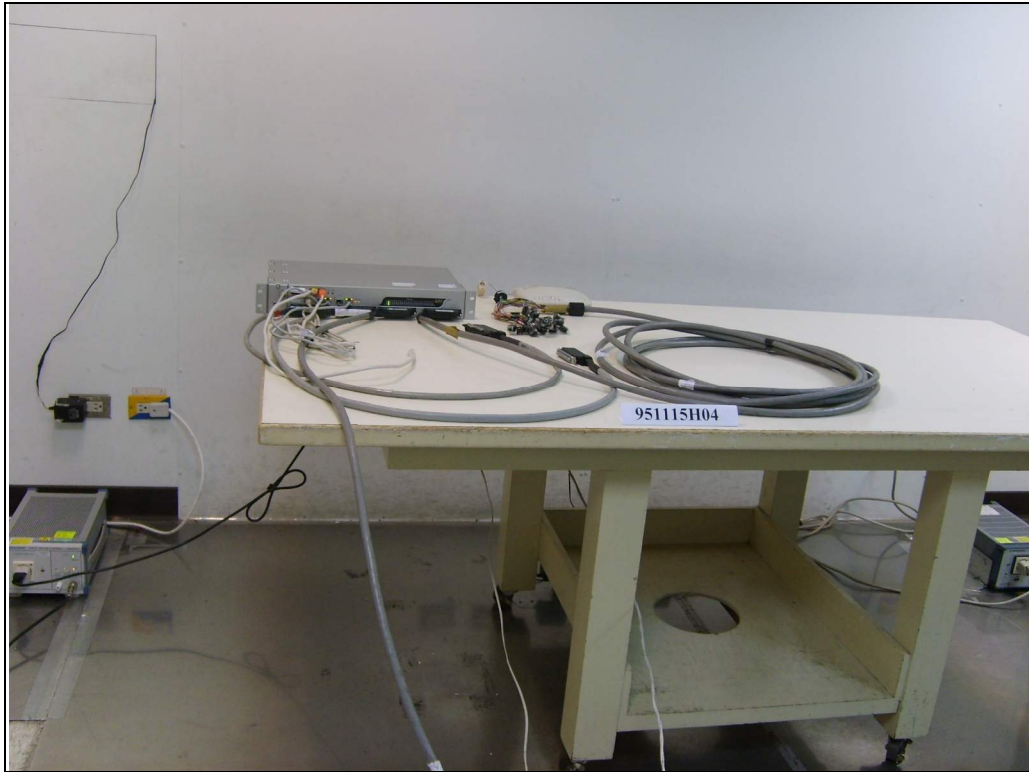
INPUT POWER	DC -48V	TEST MODE	Mode 2
ENVIRONMENTAL CONDITIONS	26 deg. C, 60%RH, 965 hPa	DETECTOR FUNCTION & BANDWIDTH	Quasi-Peak, 120kHz
TESTED BY	Jerry Fan		

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	49.58	29.00 QP	40.00	-11.00	1.00 V	93	18.20	10.80
2	70.65	26.10 QP	40.00	-13.90	1.00 V	336	18.20	7.90
3	124.90	32.60 QP	40.00	-7.40	1.00 V	270	20.00	12.60
4	177.36	27.80 QP	40.00	-12.20	1.00 V	196	16.90	10.80
5	234.00	31.20 QP	47.00	-15.80	1.00 V	264	17.70	13.50
6	300.00	32.80 QP	47.00	-14.20	1.00 V	277	16.10	16.70
7	370.30	35.20 QP	47.00	-11.80	1.00 V	205	16.60	18.70
8	499.80	34.80 QP	47.00	-12.20	1.00 V	63	12.20	22.60
9	624.99	33.80 QP	47.00	-13.20	2.98 V	233	9.00	24.80
10	749.99	33.10 QP	47.00	-13.90	2.38 V	85	5.70	27.40
11	799.99	38.20 QP	47.00	-8.80	1.94 V	301	10.90	27.30
12	999.99	36.80 QP	47.00	-10.20	1.87 V	25	7.30	29.50

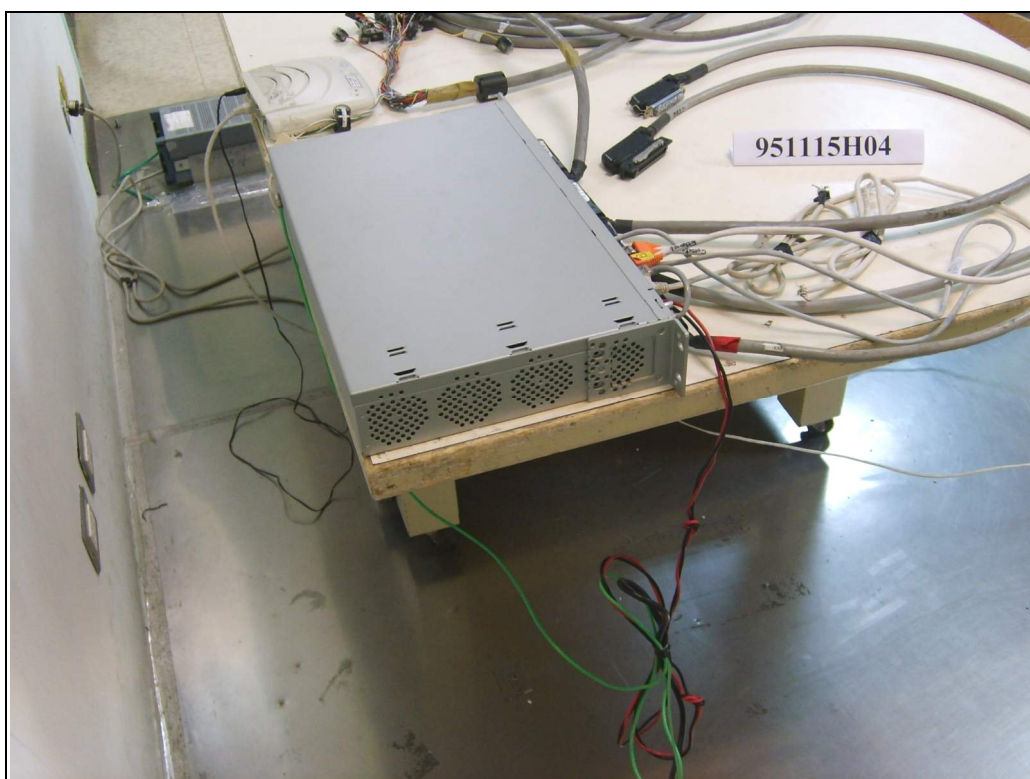
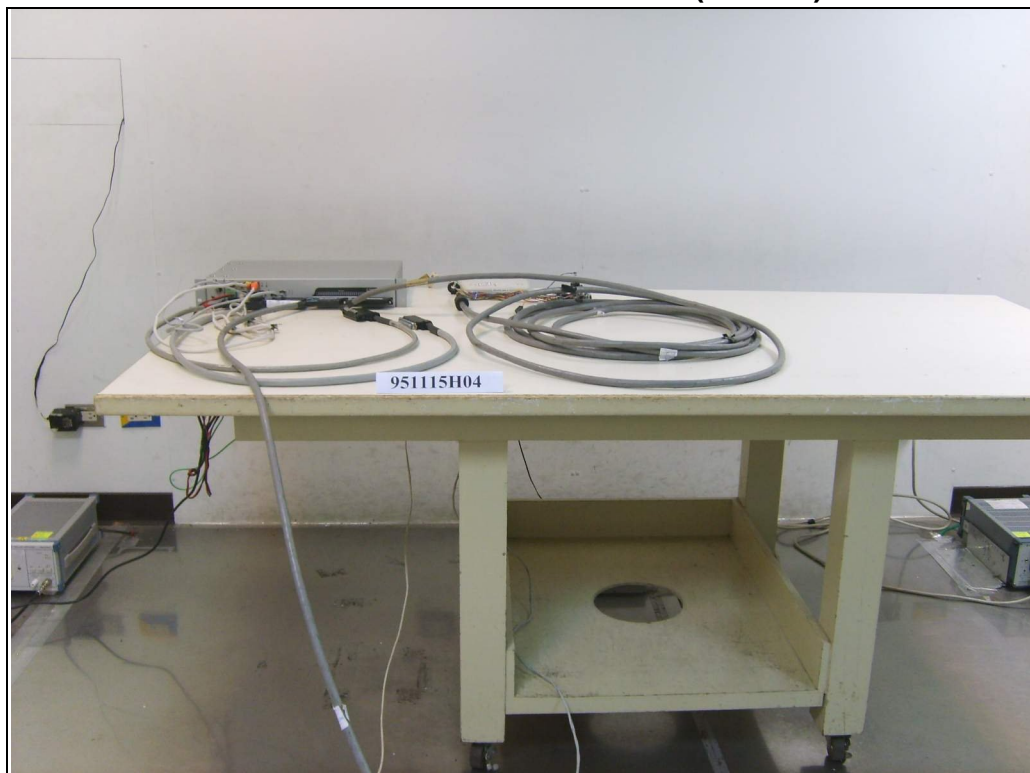
- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.



5 PHOTOGRAPHS OF THE TEST CONFIGURATION CONDUCTED EMISSION TEST (Mode 1)



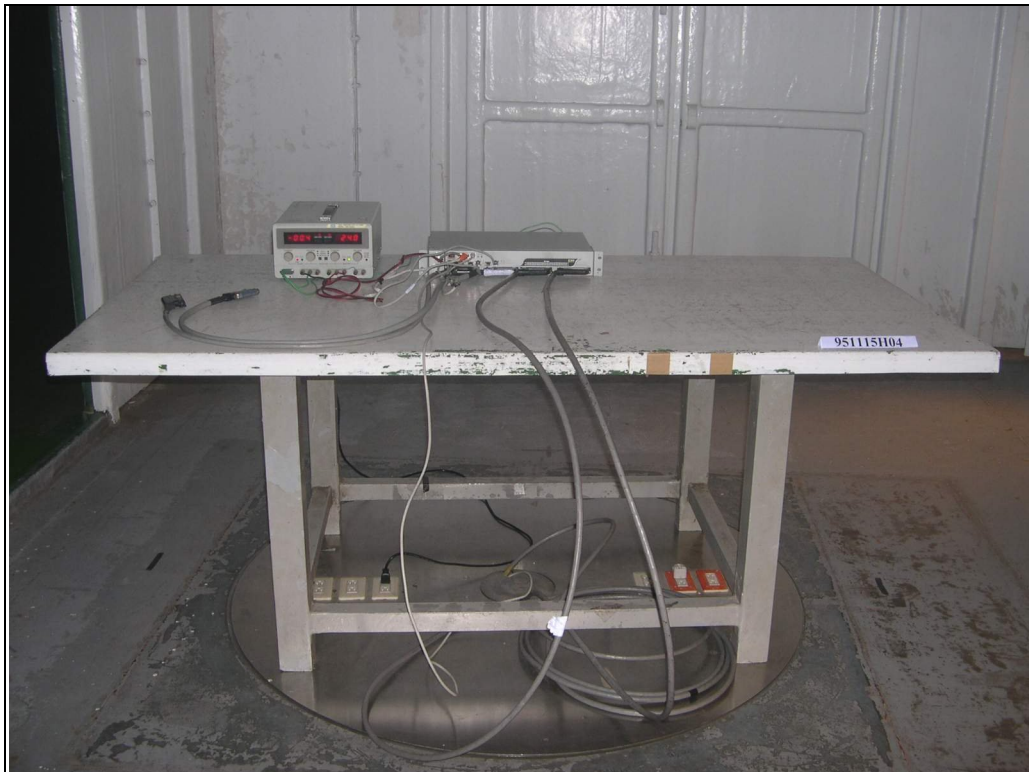
CONDUCTED EMISSION TEST (Mode 2)



RADIATED EMISSION TEST (Mode 1)



RADIATED EMISSION TEST (Mode 2)





6 APPENDIX - INFORMATION ON THE TESTING LABORATORIES

We, ADT Corp., were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025:

USA	FCC, UL, A2LA
Germany	TUV Rheinland
Japan	VCCI
Norway	NEMKO
Canada	INDUSTRY CANADA, CSA
R.O.C.	CNLA, BSMI, NCC
Netherlands	Telefication
Singapore	PSB, GOST-ASIA (MOU)
Russia	CERTIS (MOU)

Copies of accreditation 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:

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Tel: 886-2-26052180

Fax: 886-2-26052943

Hsin Chu EMC/RF Lab:

Tel: 886-3-5935343

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Hwa Ya EMC/RF/Safety/Telecom Lab:

Tel: 886-3-3183232

Fax: 886-3-3185050

Email: service@adt.com.tw

Web Site: www.adt.com.tw

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



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.