



**Spectrum Research
& Testing Lab., Inc.**

No. 101-10, Ling 8,
Shan-Tong Li, Chung-Li
City, Taoyuan, Taiwan,
R.O.C.

TEST REPORT

Reference No.:A09041602
Report No.:FCCA09041602
FCC ID: HV4DTU2231
Page:1 of 21
Date: May 18, 2009

Product Name: LCD TABLET
Model No.: ID422w
Applicant: Wacom Co., Ltd
2-510-1 Toyonodai Otone-machi Kitasaitama-gun Saitama,
349-1148 Japan
Date of Receipt: Apr. 16, 2009
Finished date of Test: Apr. 18, 2009
Applicable Standards: 47 CFR Part 15, Subpart C
ANSI C63.4:2003

We, **Spectrum Research & Testing Laboratory Inc.**, hereby certify that one sample of the above was tested in our laboratory with positive results according to the above-mentioned standards. The records in the report are an accurate account of the results. Details of the results are given in the subsequent pages of this report.

Checked By :

Shun Wang
(Shunm Wang)

Date:

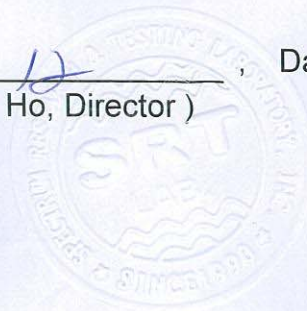
May 18, 2009

Approved By :

Johnson Ho
(Johnson Ho, Director)

Date:

5/18/2009



NVLAQ®

Lab Code: 200099-0



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1. DOCUMENT POLICY AND TEST STATEMENT

1.1 DOCUMENT POLICY

- The report shall not be reproduced except in full, without the written approval of SRT Lab, Inc.
- The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

1.2 TEST STATEMENT

- The test results in the report apply only to the unit tested by SRT Lab.
- There was no deviation from the requirements of test standards during the test.
- AC power source, 120 Vac/60 Hz, was used during the test.

1.3 EUT MODIFICATION

- No modification in SRT Lab.



2. DESCRIPTION OF EUT AND TEST MODE

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT	LCD TABLET
MODEL NO.	ID422w
POWER SUPPLY	DC from external power adapters: Brand: EDAC Model No.: EA1050A-120 Input: 100-240V, 50/60Hz, 1.8A Output: 12V, 5.0A Cable: 1.5m unshielded DC power cable with one ferrite core 1.8m unshielded AC power cord
CABLE	2.0m shielded USB cable 2.0m shielded VGA to DVI cable with two ferrite cores 2.0m shielded DVI to DVI cable with two ferrite cores
FREQUENCY	531.25KHz , 562.5KHz , 593.75KHz
NUMBER OF CHANNEL	3
ANTENNA TYPE	Loop Antenna
TYPE	Sample Type

NOTE:

For more detailed information, please refer to the EUT's specification or user's manual provided by manufacturer.

2.2 DESCRIPTION OF EUT INTERNAL DEVICE

DEVICE	BRAND / MAKER	MODEL #	FCC ID/DOC	REMARK
N/A				

2.3 EUT OPERATING CONDITION

1. Under Windows XP ran "EMI TEST" programs.

PC sent "H" pattern or accessed the following peripherals directly or via EUT:

- Keyboard
- Mouse
- HDD

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



2.4 DESCRIPTION OF TEST MODE

The EUT was tested for emission measurement under the following situations:

Mode	Pixels	Cable	Frequency	Final
1	1920*1080	DVI to DVI	531.25KHz	V
2			562.50KHz	V
3			593.75KHz	V
4	1920*1080	VGA to DVI	531.25KHz	
5			562.50KHz	
6			593.75KHz	
7	1280*1024	DVI to DVI	531.25KHz	
8			562.50KHz	
9			593.75KHz	
10	1280*1024	VGA to DVI	531.25KHz	
11			562.50KHz	
12			593.75KHz	
13	800*600	DVI to DVI	531.25KHz	
14			562.50KHz	
15			593.75KHz	
16	800*600	VGA to DVI	531.25KHz	
17			562.50KHz	
18			593.75KHz	

2.5 DESCRIPTION OF SUPPORT UNIT

The EUT was configured by the requirement of ANSI C63.4:2003 and CISPR22:2006. All interface ports were connected to the appropriate support units via specific cables. The support units and cables are listed below.

NO	DEVICE	BRAND	MODEL #	FCC ID / DOC	CABLE
1	PC	ACER	Aspire SA85	DOC	1.5m unshielded power cord
2	Keyboard	ACER	6311-TW4C/6	N/A	1.5m shielded data cable
3	Mouse	IBM	MU29J	DOC	1.5m shielded data cable
4	Display Card	ASUS	EN8400GS/HT P/256M/A	DOC	N/A

NOTE : For the actual test configuration, please refer to the photos of testing.



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3. DESCRIPTION OF APPLIED STANDARDS

The EUT is a tablet monitor and according to the specifications provided by the applicant, it must comply with the requirements of the following standards:

47 CFR Part 15, Subpart C

ANSI C63.4:2003

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



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4. CONDUCTED EMISSION TEST

4.1 CONDUCTED EMISSION LIMIT

FREQUENCY (MHz)	Class A (dB μ V)		Class B (dB μ V)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	79	66	66 - 56	56 - 46
0.5 - 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.

4.2 TEST EQUIPMENT

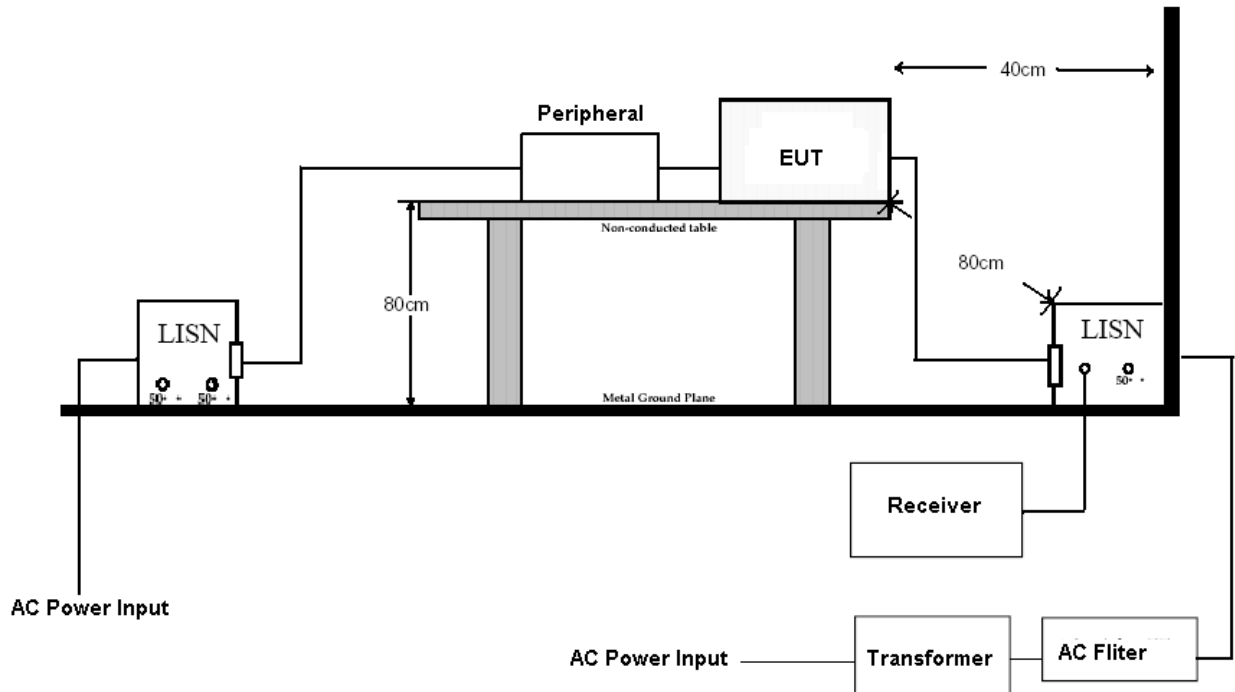
The following test equipment was used for the test:

EQUIPMENT/ FACILITIES	SPECIFICATIONS	MANUFACTURER	MODEL#/ SERIAL#	DUE DATE OF CAL. & CAL. CENTER
EMI TEST RECEIVER	9 kHz TO 30 MHz	ROHDE & SCHWARZ	ESHS30 / 826003/008	SEP. 2009 ETC
LISN	50 μ H, 50 ohm	FCC	FCC-LISN-50-25-2 / 01017	OCT. 2009 ETC
LISN	50 μ H, 50 ohm	FCC	9252-50-R24-BNC / 951315	JUN. 2009 ETC
50 OHM TERMINATOR	50 ohm	HP	11593A / #2	OCT. 2009 ETC
COAXIAL CABLE	5M	TIMES	EQM-0159 / #5-5m	AUG. 2009 SRT
Filter	2 LINE, 30A	FIL.COIL	FC-943 / 771	NCR
GROUND PLANE	2.3M (H) x 2.4M (W)	SRT	N/A	NCR
GROUND PLANE	2.4M (H) x 2.4M (W)	SRT	N/A	NCR

NOTE: The calibration interval of the above test equipment is one year and the calibrations are traceable to NML/ROC and NIST/USA.



4.3 TEST SETUP



NOTE:

1. The EUT was put on a wooden table with 0.8m heights above ground plane, and 0.4m away from reference ground plane (> 2mx2m).
2. For the actual test configuration, please refer to the photos of testing.

4.4 TEST PROCEDURE

The EUT was tested according to the requirement of ANSI C63.4:2003 and CISPR22:2006. The frequency spectrum from 0.15 MHz to 30 MHz was investigated. The LISN used was 50 ohm/50 μ H as specified. All readings were quasi-peak and average values with 10 kHz resolution bandwidth of the test receiver. The EUT system was operated in all typical methods by users. Both lines of the power mains of EUT were measured and the cables connected to EUT and support units were moved to find the maximum emission levels for each frequency. First, find the margin or higher points at least 6 points by software, then use manual to find the maximum data. The procedure is referred on the test procedure of SRT LAB.



4.5 TEST RESULT

Temperature:	<u>27 °C</u>	Humidity:	<u>59 %RH</u>
Ferquency Range:	<u>0.15 – 30 MHz</u>	Test Mode:	<u>Normal Operating</u>
Receiver Detector:	<u>Q.P. and AV.</u>	Tested By:	<u>Shunm Wang</u>
		Tested Date:	<u>Apr. 17, 2009</u>

Power Line Measured : Line

Freq. (MHz)	Correct. Factor (dB)	Reading Value (dB μ V)		Emission Level (dB μ V)		Limit (dB μ V)		Margin (dB)	
		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.168	0.30	58.32	48.48	58.62	48.78	65.04	55.04	-6.42	-6.26
0.171	0.30	55.30	45.11	55.60	45.41	64.89	54.89	-9.29	-9.48
1.992	0.16	39.84	27.88	40.00	28.04	56.00	46.00	-16.00	-17.96
2.774	0.17	32.37	27.09	32.54	27.26	56.00	46.00	-23.46	-18.74
7.253	0.22	32.34	25.10	32.56	25.32	60.00	50.00	-27.44	-24.68
16.640	0.29	29.54	28.67	29.83	28.96	60.00	50.00	-30.17	-21.04

Power Line Measured : Neutral

Freq. (MHz)	Correct. Factor (dB)	Reading Value (dB μ V)		Emission Level (dB μ V)		Limit (dB μ V)		Margin (dB)	
		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.162	0.30	50.99	41.45	51.29	41.75	65.34	55.34	-14.05	-13.59
0.168	0.30	52.02	42.19	52.32	42.49	65.04	55.04	-12.72	-12.55
1.110	0.14	31.97	30.04	32.11	30.18	56.00	46.00	-23.89	-15.82
1.655	0.15	28.71	27.57	28.86	27.72	56.00	46.00	-27.14	-18.28
6.857	0.22	24.95	23.30	25.17	23.52	60.00	50.00	-34.83	-26.48
16.671	0.27	31.32	30.79	31.59	31.06	60.00	50.00	-28.41	-18.94

NOTE :

1. Measurement uncertainty is +/-2dB
2. Emission level = Reading value + Correction factor
3. Correction Factor = Cable loss + Insertion loss of LISN
4. Margin value = Emission level - Limit
5. The emission of other frequencies were very low against the limit.
6. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.



5. RADIATED EMISSION TEST

5.1 RADIATED EMISSION LIMIT

FCC Part 15, Subpart C Section 15.209.

FREQUENCY (MHz)	DISTANCE (m)	FIELD STRENGTH (μ V/m)
0.009 - 0.490	300	2400/F(kHz)
0.490 -1.705	300	24000/F(kHz)
1.705 - 30.0	30	30
30 - 88	3	100
88 - 216	3	150
216 - 960	3	200
ABOVE 960	3	500

NOTE :

1. In the emission tables above, the tighter limit applies at the band edges.
2. Distance refers to the distance between measuring instrument, antenna, and the closest point of any part of the device or system.

FCC Part15, Subpart C Section 15.209 limit of radiated emission for frequency below1000MHz. The emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

FREQUENCY (MHz)	DISTANCE (m)	FIELD STRENGTH (dB μ V/m)
30 - 88	3	40.0
88 - 216	3	43.5
216 - 960	3	46.0
Above 960	3	54.0

NOTE :

1. In the emission tables above , the tighter limit applies at the band edges.
2. Distance refers to the distance between measuring instrument, antenna, and the closest point of any part of the device or system.

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Date: May 18, 2009**5.2 TEST EQUIPMENT**

The following test equipment was used during the radiated emission test:

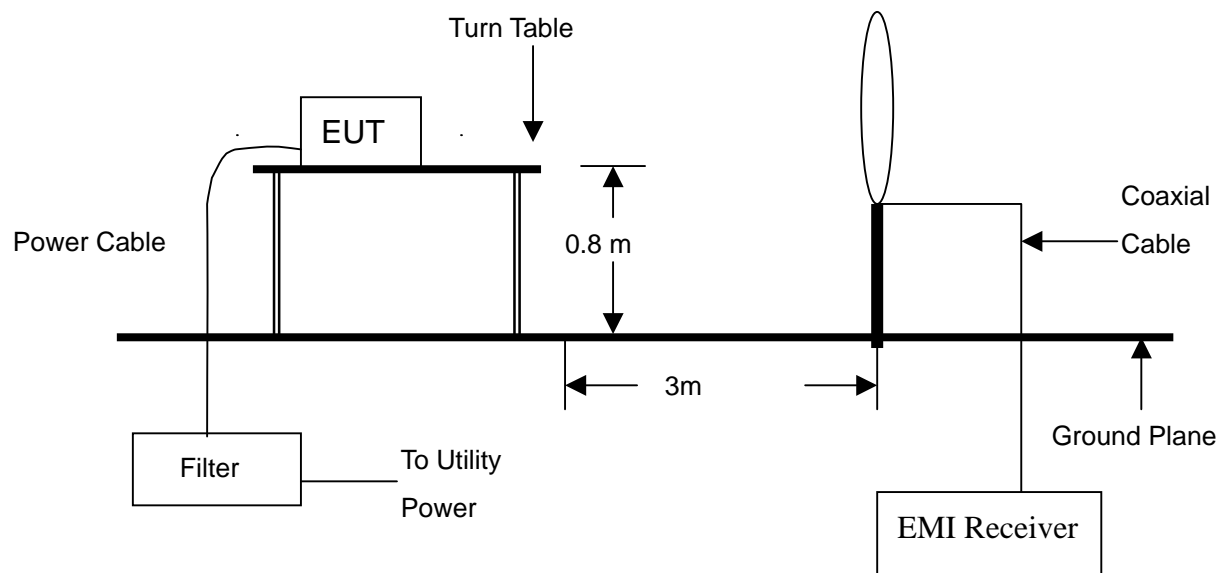
EQUIPMENT/ FACILITIES	SPECIFICATIONS	MANUFACTURER	MODEL#/ SERIAL#	DUE DATE OF CAL. & CAL. CENTER
EMI TEST RECEIVER	9 kHz TO 2750 MHz	ROHDE & SCHWARZ	ESVS30/ 841977/003	OCT. 2009 ETC
BI-LOG ANTENNA	26 MHz TO 2 GHz	EMCO	3142B / 0005-1534	NOV. 2009 ETC
OATS	3 – 10 M MEASUREMENT	SRT	SRT-1	NOV. 2009 SRT
COAXIAL CABLE	30M	TIMES	LMR-400 #30M	FEB. 2010 SRT
FILTER	2 LINE, 30A	FIL.COIL	FC-943 / 869	NCR
FREQUENCY CONVERTER	N/A	APC	AFC-2KBB/ F100030031	AUG. 2009 SRT
LOOP ANTENNA	9 kHz TO 30 MHz	SCHWARZ	HFH-Z2/ 1162 1/2	JUN. 2009 R&S

NOTE:

The calibration interval of the above test equipment is one year and the calibrations are traceable to NML/ROC and NIST/USA.



5.3.1 TEST SET-UP (9KHz ~ 30MHz)

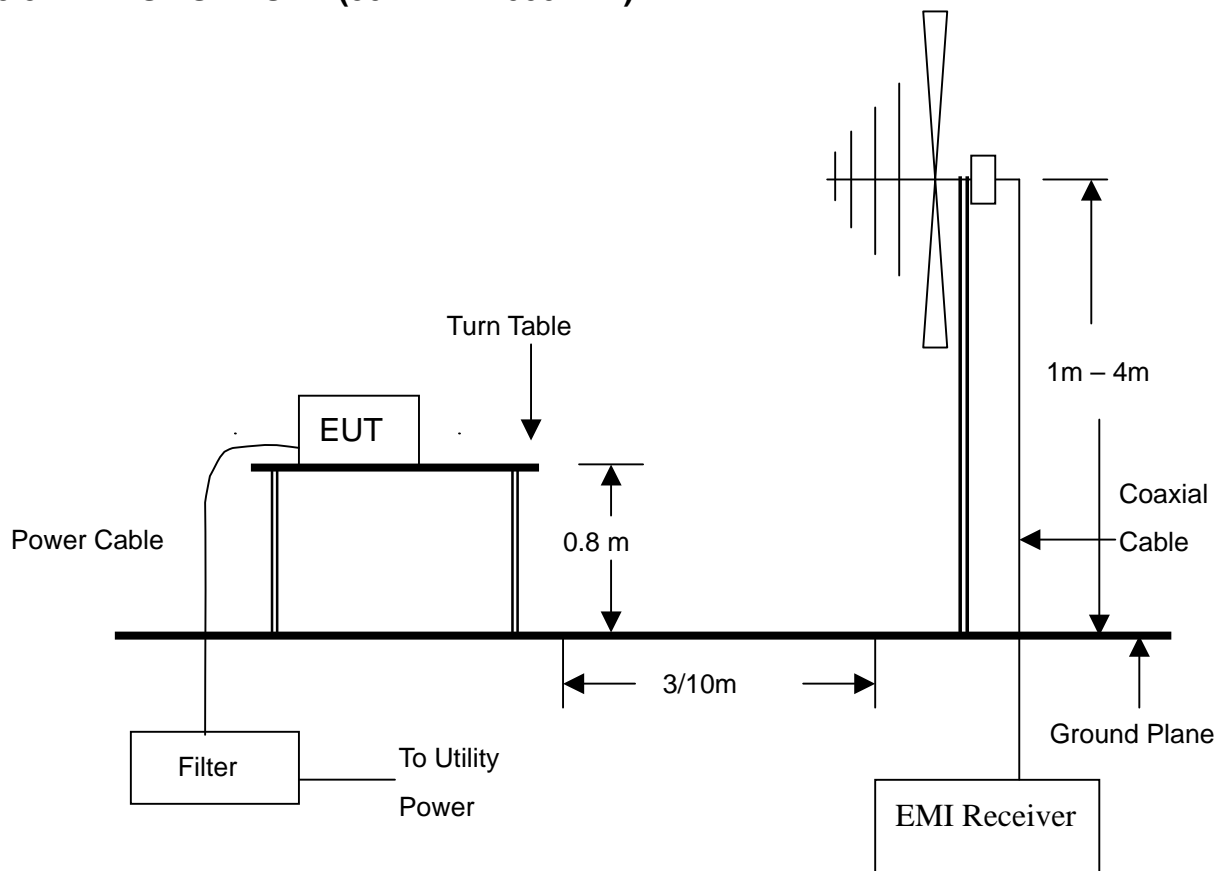


NOTE :

1. The EUT system was put on a wooden table with 0.8m heights above a ground plane.
2. For the actual test configuration, please refer to the photos of testing.



5.3.2 TEST SET-UP (30MHz ~ 1000MHz)



NOTE :

1. The EUT system was put on a wooden table with 0.8m heights above a ground plane.
2. For the actual test configuration, please refer to the photos of testing.

5.4 TEST PROCEDURE

The EUT was tested according to the requirement of ANSI C63.4 and CISPR 22. The measurements were made at an open area test site with 3 meter measurement distance under 1 GHz and with 3m distance above 1GHz. The frequency spectrum measured started from 30 MHz. Under 1 GHz. All readings were quasi-peak values with 120 kHz resolution bandwidth of the test receiver. Above 1 GHz, the measurements were made at an open area test site with 3 meter measurement distance and all readings were peak and average values with 1 MHz resolution bandwidth of the test receiver. The EUT system was operated in all typical methods by users. The cables connected to EUT and support units were moved to find the maximum emission levels for each frequency.



5.5 RADIATED EMISSION TEST RESULT

Temperature:	28 °C	Humidity:	60 %RH
Frequency:	531.25kHz	Measured Distance:	3m
Receiver Detector:	Q.P.	Tested Mode:	1
Frequency Range	9KHz – 30MHz	Tested Date:	Apr. 18, 2009
Tested By:	Shunm Wang		

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Reading Data (dB μ V)	Emission Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
0.5312(F)	0.198	20.3	24.4	44.90	73.10	-28.20
1.0625	0.295	20.2	10.3	30.80	67.08	-36.28
1.5937	0.341	20.2	4.7	25.24	63.56	-38.32
2.1250	0.391	20.2	10.1	30.69	61.06	-30.37
2.6562	0.446	20.2	4.5	25.15	59.12	-33.97
3.1875	0.457	20.18	10.2	30.84	57.54	-26.70

- NOTE :**
1. Measurement uncertainty is less than +/- 3.7dB
 2. "": Measurement does not apply for this frequency.
 3. Emission Level = Reading Value + Ant. Factor + Cable Loss
 4. Limit(dBuV/m)=20log{24000/F(kHz)}(The measurement distance at 30m)
+40log(30/3)(The measurement distance at 3m)
 5. The field strength of other emission frequencies were very low against the limit.
 6. (F) : Fundamental frequency of transmitter.

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Temperature:	28 °C	Humidity:	60 %RH
Frequency:	562.50kHz	Measured Distance:	3m
Receiver Detector:	Q.P.	Tested Mode:	2
Frequency Range	9KHz – 30MHz	Tested Date:	Apr. 18, 2009
Tested By:	Shunm Wang		

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Reading Data (dB μ V)	Emission Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
0.5625(F)	0.204	20.3	28.4	48.90	72.60	-23.70
1.1250	0.295	20.2	17.6	38.10	66.58	-28.49
1.6875	0.341	20.2	14.2	34.74	63.06	-28.32
2.2500	0.391	20.2	17.5	38.09	60.56	-22.47
2.8125	0.446	20.2	15.7	36.35	58.62	-22.28
3.3750	0.457	20.18	17.4	38.04	57.04	-19.00

- NOTE :**
1. Measurement uncertainty is less than +/- 3.7dB
 2. "": Measurement does not apply for this frequency.
 3. Emission Level = Reading Value + Ant. Factor + Cable Loss
 4. $Limit(dBuV/m)=20\log\{24000/F(kHz)\}$ (The measurement distance at 30m)
 $+40\log(30/3)$ (The measurement distance at 3m)
 5. The field strength of other emission frequencies were very low against the limit.
 6. (F) : Fundamental frequency of transmitter.

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Temperature:	28 °C	Humidity:	60 %RH
Frequency:	593.75kHz	Measured Distance:	3m
Receiver Detector:	Q.P.	Tested Mode:	3
Frequency Range	9KHz – 30MHz	Tested Date:	Apr. 18, 2009
Tested By:	Shunm Wang		

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Reading Data (dB μ V)	Emission Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
0.5938(F)	0.204	20.3	20.2	40.70	72.13	-31.43
1.1875	0.295	20.2	7.5	28.00	66.11	-38.12
1.7812	0.341	20.2	4.6	25.14	62.59	-37.45
2.3750	0.391	20.2	7	27.59	60.09	-32.50
2.9687	0.446	20.2	4.2	24.85	58.15	-33.31
3.5625	0.488	20.18	7.3	27.97	56.57	-28.60

- NOTE :**
1. Measurement uncertainty is less than +/- 3.7dB
 2. "": Measurement does not apply for this frequency.
 3. Emission Level = Reading Value + Ant. Factor + Cable Loss
 4. $\text{Limit(dBuV/m)} = 20\log\{24000/F(\text{kHz})\}$ (The measurement distance at 30m)
 $+40\log(30/3)$ (The measurement distance at 3m)
 5. The field strength of other emission frequencies were very low against the limit.
 6. (F) : Fundamental frequency of transmitter.

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Temperature:	28 °C	Humidity:	60%RH
Frequency Range:	30 – 1000 MHz	Measured Distance:	3m
Receiver Detector:	Q.P.	Tested Mode:	Normal Operating
Tested By:	Shunm Wang	Tested Date:	Apr. 18, 2009

Antenna Polarization: Horizontal

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Reading Data (dB μ V)	Emission Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	AZ(°)	EL(m)
56.9440	1.01	9.54	23.1	33.7	40.0	-6.3	219	2.6
160.3350	1.65	9.20	20.0	30.9	43.5	-12.7	164	2.5
184.0650	1.78	9.96	18.5	30.2	43.5	-13.3	315	2.3
200.1160	1.84	10.50	20.7	33.0	43.5	-10.5	124	2.4
480.0360	2.99	17.70	17.3	38.0	46.0	-8.0	90	1.8
510.0780	3.13	18.25	14.2	35.6	46.0	-10.4	31	1.6

Antenna Polarization: Vertical

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Reading Data (dB μ V)	Emission Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	AZ(°)	EL(m)
70.2640	1.11	8.00	22.6	31.7	40.0	-8.3	101	1.1
219.4760	1.92	11.26	20.4	33.6	46.0	-12.4	22	1.3
290.3500	2.22	14.30	21.7	38.2	46.0	-7.8	269	1.2
512.2000	3.14	18.30	16.9	38.3	46.0	-7.7	30	1.2
900.0153	4.18	23.60	12.4	40.2	46.0	-5.8	166	1.1
960.0072	4.33	23.60	12.2	40.1	54.0	-13.9	241	1.1

NOTE :

1. Measurement uncertainty is +/-3.7dB.
2. "": Measurement does not apply for this frequency.
3. Emission Level = Reading Value + Ant. Factor + Cable Loss.
4. The field strength of other emission frequencies were very low against the limit.

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7. TERMS OF ABBREVIATION

AV.	Average detection
AZ(°)	Turn table azimuth
Correct.	Correction
EL(m)	Antenna height (meter)
EUT	Equipment Under Test
Horiz.	Horizontal direction
LISN	Line Impedance Stabilization Network
NSA	Normalized Site Attenuation
Q.P.	Quasi-peak detection
SRT Lab	Spectrum Research & Testing Laboratory, Inc.
Vert.	Vertical direction