FCC 47 CFR PART 15 SUBPART B
TEST REPORT

for

Call Center Headsets or Office Headsets or Telephone Headsets
MODEL:
MRD-509C,MRD-509PC,MRD-509DC,MRD-509DPC,MRD-510C,MRD-510PC, MRD-510DC,MRD-510DPC ,MRD-512C,MRD-512PC,MRD-512DC, MRD-512DPC, MRD-308C, MRD-308PC, MRD-308DC, MRD-308DPC

Test Report Number:
SZ100916B02-EF

Issued for

Xiamen Mairdi Electronic Technology Co., Ltd
5/F Siming Guangdian Building, No.55 Qianpu Industrial Park, Siming District, Xiamen, China

Issued By:

Compliance Certification Services Inc.
Linkuo Laboratory
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Issued Date: September 18, 2010

Testing Laboratory
0363

Revision History

Rev.		Issue No.		Revisions	Effect Page	Revised By
00		SZ100916B02-EF		Initial Issue	ALL	David Wang

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1 TEST RESULT CERTIFICATION

Product:	Call Center Headsets or Office Headsets or Telephone Headsets
Model:	MRD-509C, MRD-509PC, MRD-509DC,MRD-509DPC,MRD-510C,MRD-510PC, MRD-510DC,MRD-510DPC, MRD-512C,MRD-512PC, MRD-512DC,MRD-512DPC, MRD-308C, MRD-308PC, MRD-308DC, MRD-308DPC
Brand:	Mairdi
Applicant:	**Xiamen Mairdi Electronic Technology Co., Ltd** 5/F Siming Guangdian Building, No.55 Qianpu Industrial Park, Siming District, Xiamen, China
Manufacturer:	**Xiamen Mairdi Electronic Technology Co., Ltd** 5/F Siming Guangdian Building, No.55 Qianpu Industrial Park, Siming District, Xiamen, China
Tested:	September 14~18, 2010
Test Voltage:	120VAC, 60Hz

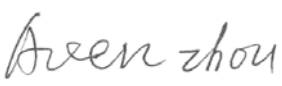
EMISSION			
Standard	**Item**	**Result**	**Remarks**
FCC 47 CFR Part 15 Subpart B ANSI C63.4-2003	Conducted (Power Port)	PASS	Meet Class B limit
	Radiated	PASS	Meet Class B limit

Note: 1. The statements of test result on the above are decided by the request of test standard only; the measurement uncertainties are not factored into this compliance determination.
2. The information of measurement uncertainty is available upon the customer's request.

Deviation from Applicable Standard
None

The above equipment has been tested by Compliance Certification Services Inc., and found compliance with the requirements set forth in the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Approved by: ***Reviewed by:***



David Wang
Manager
Compliance Certification Service Inc.

Aven Zhou
Supervisor of Report Dept.
Compliance Certification Service Inc.

2 EUT DESCRIPTION

Product	Call Center Headsets or Office Headsets or Telephone Headsets
Brand Name	Mairdi
Model	MRD-509C,MRD-509PC,MRD-509DC,MRD-509DPC,MRD-510C,MRD-510PC, MRD-510DC,MRD-510DPC,MRD-512C,MRD-512PC,MRD-512DC, MRD-512DPC,MRD-308C,MRD-308PC,MRD-308DC,MRD-308DPC
Applicant	Xiamen Mairdi Electronic Technology Co., Ltd
Housing material	Plastic+Metal
EUT Type	☐ Engineering Sample, ☒ Product Sample, ☐ Mass Product Sample.
Serial Number	SZ100916B02-EF
Audio Cable	Unshielded 2.5m

I/O Port EUT

I/O PORT TYPES	Q'TY	TESTED WITH
1. AUDIO Port	2	2

Model Differences

Model Name	Difference		Tested (Checked)
	Connector	Headset materials	
MRD-509C	crystal connector	metal	☐
MRD-509PC	ordinary power connector	metal	☐
MRD-509DC	crystal connector	metal	☐
MRD-509DPC	ordinary power connector	metal	☐
MRD-510C	crystal connector	plastic	☒
MRD-510PC	ordinary power connector	plastic	☐
MRD-510DC	crystal connector	plastic	☐
MRD-510DPC	ordinary power connector	plastic	☐
MRD-512C	crystal connector	metal	☐
MRD-512PC	ordinary power connector	metal	☒
MRD-512DC	crystal connector	metal	☐
MRD-512DPC	ordinary power connector	metal	☐
MRD-308C	crystal connector	plastic	☐
MRD-308PC	ordinary power connector	plastic	☐
MRD-308DC	crystal connector	plastic	☐
MRD-308DPC	ordinary power connector	plastic	☐

3 TEST METHODOLOGY

3.1. DECISION OF FINAL TEST MODE

The EUT was tested together with the above additional components, and a configuration, which produced the worst emission levels, was selected and recorded in this report.

Pre-Test Mode		
Emission	Conducted Emission	**Mode 1:** NORMAL
	Radiated Emission	**Mode 1:** NORMAL

After the preliminary scan, the following test mode was found to produce the highest emission level.

Final Test Mode		
Emission	Conducted Emission	**Mode 1**
	Radiated Emission	**Mode 1**

Then, the above highest emission mode of the configuration of the EUT and cable was chosen for all final test items.

3.2. EUT SYSTEM OPERATION

1 Set up EUT with the auxiliary equipment.
2 Make sure the EUT works normally during the test and other related support units worked as usually.

4 SETUP OF EQUIPMENT UNDER TEST

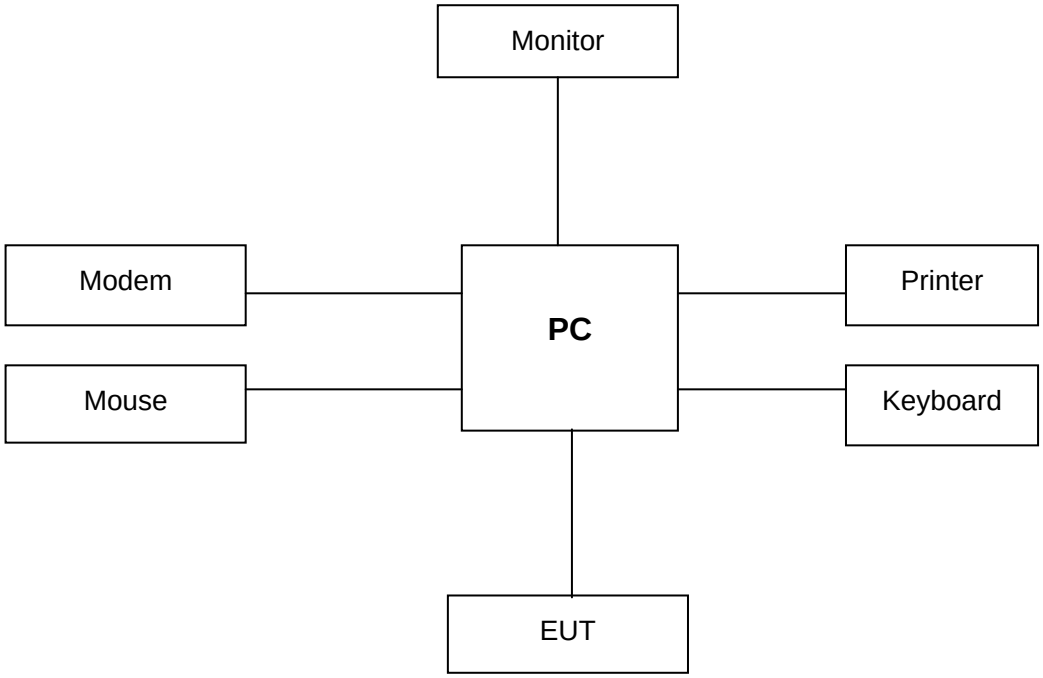
4.1. DESCRIPTION OF SUPPORT UNITS

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.	Equipment	Model No.	Serial No.	FCC ID	Trade Name	Data Cable	Power Cord
1	Modem	MODEM-1414	9013592	N/A	ACEEX	Shielded 1.2m	Unshielded 2.0m
2	Keyboard	KU-0316	BBAUVJJGA212GE	N/A	HP	Shielded 2.0m	N/A
3	Printer	P310B	DLRE217030	N/A	EPSON	Shielded 1.2m	Unshielded 2.0m
4	PC	A4680N	N/A	N/A	LENOVO	N/A	Unshielded 1.8m
5	Mouse	N18R0U	N12213	N/A	HP	Shielded 2.0m	N/A
6	Monitor	2408WFpb	CN-OG-293H-74261	N/A	DELL	Shielded 1.8m	Unshielded 1.8m

Note: Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

4.2. CONFIGURATION OF SYSTEM UNDER TEST



5 FACILITIES AND ACCREDITATIONS

5.1. FACILITIES

All measurement facilities used to collect the measurement data are located at **No. 81-1, Lane 210, Bade 2nd Rd., Lujhu Township Taoyuan County, Taiwan**

The sites are constructed in conformance with the requirements of ANSI C63.4 and CISPR 22. All receiving equipment conforms to CISPR 16-1-1, CISPR 16-1-2, CISPR 16-1-3, CISPR 16-1-4, CISPR 16-1-5.

5.2. ACCREDITATIONS

Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

Taiwan	TAF
USA	A2LA

The measuring facility of laboratories has been authorized or registered by the following approval agencies.

Canada	Industry Canada
Norway	Nemko
Japan	VCCI
Taiwan	BSMI
USA	FCC

5.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Uncertainty
Conducted emissions	9kHz~30MHz	+/- 3.18dB
Radiated emissions	30MHz ~ 200MHz	+/- 3.79dB
	200MHz ~1000MHz	+/- 3.62dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.
Consistent with industry standard (e.g. CISPR 22: 2006, clause 11, Measurement Uncertainty) determining compliance with the limits shall be base on the results of the compliance measurement. Consequently the measure emissions being less than the maximum allowed emission result in this be a compliant test or passing test.
The acceptable measurement uncertainty value without requiring revision of the compliance statement is base on conducted and radiated emissions being less than U_{CISPR} which is 3.6dB and 5.2dB respectively. CCS values (called U_{Lab} in CISPR 16-4-2) is less than U_{CISPR} as shown in the table above. Therefore, MU need not be considered for compliance.

6 CONDUCTED EMISSION MEASUREMENT

6.1. LIMITS OF CONDUCTED EMISSION MEASUREMENT

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 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.

6.2. TEST INSTRUMENTS

Conducted Emission Test Site					
Name of Equipment	**Manufacturer**	**Model Number**	**Serial Number**	**Last Calibration**	**Due Calibration**
ESCI EMI TEST RECEIVE.ESCI	ROHDE&SCHWARZ	ESCI	100783	03/21/2010	03/21/2011
Attenuator	SCHAFFNER	CFL9206	1711	07/14/2010	07/14/2011
LISN	SCHAFFNER	NNB42	2001/001	05/26/2010	05/26/2011
LISN	EMCO	3825/2	8901-1459	03/21/2010	03/21/2011
ISN	FCC	FCC-TILISN-T4	20182	03/21/2010	03/21/2011
ISN	FCC	FCC-TLISN-T8-02	20183	03/21/2010	03/21/2011
ISN	FCC	FCC-TLISN-T4-02	20382	03/21/2010	03/21/2011
ISN	FCC	FCC-TLISN-T4-02	20383	03/21/2010	03/21/2011
ISN	FCC	FCC-801-T8-RJ45	04030	03/21/2010	03/21/2011
Current Probe	STODDART AIRCRAFT	91550-1	345-73	03/21/2010	03/21/2011
Temp. / Humidity Meter	VICTOR	VC230	N/A	03/30/2010	03/30/2011

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. N.C.R = No Calibration Request.

6.3. TEST PROCEDURES (please refer to measurement standard or CCS SOP PA-031)

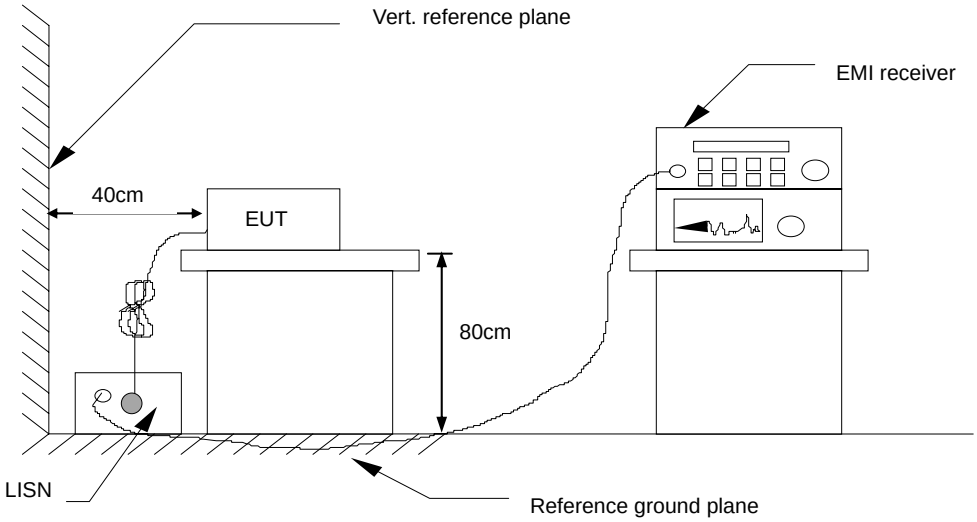
Procedure of Preliminary Test

- The EUT and support equipment, if needed, were set up as per the test configuration to simulate typical usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.4 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor standing equipment, it is placed on the ground plane, which has a 12 mm non-conductive covering to insulate the EUT from the ground plane.
- All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.
- The test equipment EUT received 120VAC/60Hz main power, through a Line Impedance Stabilization Network (LISN), which was supplied power source and was grounded to the ground plane.
- The test program of the EUT was started. Emissions were measured on each current carrying line of the EUT using an EMI Test Receiver connected to the LISN powering the EUT.
- The Receiver scanned from 150kHz to 30MHz for emissions in each of the test modes.
- During the above scans, the emissions were maximized by cable manipulation.
- The test mode(s) described in Item 3.1 were scanned during the preliminary test.
- After the preliminary scan, we found the test mode described in Item 3.1 producing the highest emission level.
- The worst configuration of EUT and cable of the above highest emission level were recorded for reference of the final test.

Procedure of Final Test

- EUT and support equipment were set up on the test bench as per the configuration with highest emission level in the preliminary test.
- A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit.
- The test data of the worst-case condition(s) was recorded.

6.4. TEST SETUP



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

6.5. DATA SAMPLE:

Freq. (MHz)	Q.P. Level (dBuV)	AVG Level (dBuV)	Cor. Factor (dB)	Q.P. Result (dBuV)	AVG Result (dBuV)	Q.P. Limit (dBuV)	AVG Limit (dBuV)	Q.P. Margin (dB)	AVG Margin (dB)	Line (L1/L2)
xx.xx	37.86	32.92	11.52	49.38	44.44	60.41	50.41	-11.03	-5.97	L1

Freq. = Emission frequency in MHz
Level = Uncorrected Analyzer/Receiver reading
Factor = Insertion loss of LISN + Cable Loss
Result = Level+ Factor
Limit = Limit stated in standard
Margin = Reading in reference to limit
P = Peak Reading
Q.P = Quasi-peak Reading
AVG = Average Reading
L1 = Hot side
L2 = Neutral side

Calculation Formula

Margin (dB) = Result (dBuV) – Limit (dBuV)

6.6. TEST RESULTS

Model No.	MRD-510C	Test Mode	Mode 1
Environmental Conditions	22°C, 40% RH	RBW,VBW	9KHz
Tested by	Jimmy		

(The chart below shows the highest readings taken from the final data.)

Frequency Range Investigated (150 kHz to 30 MHz)										
Freq. (MHz)	Q.P. Level (dBuV)	AVG Level (dBuV)	Cor. Factor (dB)	Q.P. Result (dBuV)	AVG Result (dBuV)	Q.P. Limit (dBuV)	AVG Limit (dBuV)	Q.P. Margin (dB)	AVG Margin (dB)	Line (L1/L2)
0.210	22.14	16.90	11.52	33.66	28.42	63.21	53.21	-29.55	-24.79	L1
0.458	18.14	9.88	11.51	29.65	21.39	56.73	46.73	-27.08	-25.34	L1
0.810	16.52	11.39	11.52	28.04	22.91	56.00	46.00	-27.96	-23.09	L1
2.106	22.07	17.71	11.56	33.63	29.27	56.00	46.00	-22.37	-16.73	L1
15.090	16.15	7.84	12.39	28.54	20.23	60.00	50.00	-31.46	-29.77	L1
24.022	18.05	13.29	12.73	30.78	26.02	60.00	50.00	-29.22	-23.98	L1
0.246	22.33	12.69	11.53	33.86	24.22	61.89	51.89	-28.03	-27.67	L2
0.458	18.57	9.33	11.54	30.11	20.87	56.73	46.73	-26.62	-25.86	L2
0.814	16.26	13.15	11.52	27.78	24.67	56.00	46.00	-28.22	-21.33	L2
2.106	23.52	19.40	11.56	35.08	30.96	56.00	46.00	-20.92	-15.04	L2
15.090	17.35	8.62	12.29	29.64	20.91	60.00	50.00	-30.36	-29.09	L2
24.022	18.78	14.39	12.72	31.50	27.11	60.00	50.00	-28.50	-22.89	L2

Note:

1. *L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).*
2. *The emission level was or more than 2dB below the Average limit, so no re-check anymore.*

7 RADIATED EMISSION MEASUREMENT

7.1. LIMITS OF RADIATED EMISSION MEASUREMENT

FREQUENCY (MHz)	dBuV/m (At 10m)	dBuV/m (At 3m)
	Class A	Class B
30 ~ 88	39.00	40.00
88 ~ 216	43.50	43.50
216 ~ 960	46.40	46.00
960 ~ 1000	49.50	54.00

NOTE: (1) The lower limit shall apply at the transition frequencies.
(2) Emission level (dBuV/m) = 20 log Emission level (uV/m).

7.2. TEST INSTRUMENTS

Radiated Emission Test Site 966(1)					
Name of Equipment	**Manufacturer**	**Model Number**	**Serial Number**	**Last Calibration**	**Due Calibration**
EMC Analyzer	Aglient	E7402A	MY42000139	03/21/2010	03/21/2011
Amplifier	Mini-Circuits	ZFL-1000LN	SF696200343	03/21/2010	03/21/2011
Controller	CT	N/A	N/A	N.C.R	N.C.R
Antenna	EMCO	3142B	9910-11436	03/19/2010	03/19/2011
Turn Table	EMCO	2081-1.21	N/A	N.C.R	N.C.R
Absorbing clamp	SCHAFFNER	MDS21	3350	06/22/2010	06/22/2011

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. N.C.R = No Calibration Request.

7.3. TEST PROCEDURES (please refer to measurement standard or CCS SOP PA-031)

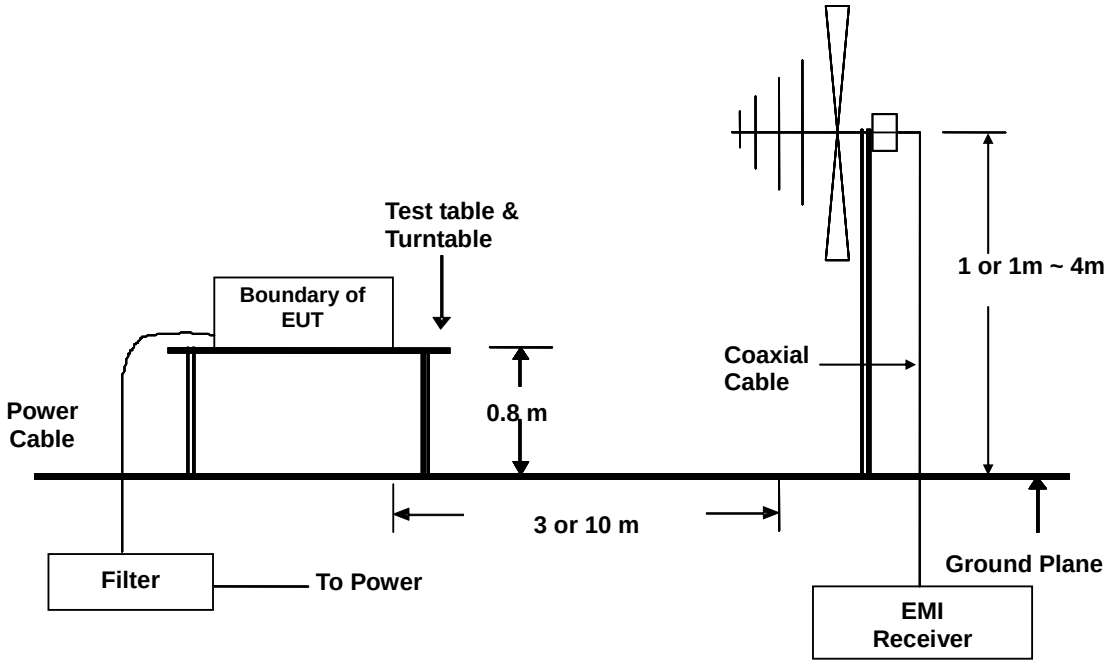
Procedure of Preliminary Test

- The equipment was set up as per the test configuration to simulate typical usage per the user's manual. When the EUT is a tabletop system, a wooden turntable with a height of 0.8 meters is used which is placed on the ground plane. When the EUT is a floor standing equipment, it is placed on the ground plane which has a non-conductive covering to insulate the EUT from the ground plane.
- Support equipment, if needed, was placed as per ANSI C63.4.
- All I/O cables were positioned to simulate typical usage as per ANSI C63.4.
- The test equipment EUT received 120VAC/60Hz power source from the outlet socket under the turntable. All support equipment power received from another socket under the turntable.
- The antenna was placed at 3 meter away from the EUT as stated in ANSI C63.4. The antenna connected to the Spectrum Analyzer via a cable and at times a pre-amplifier would be used.
- The Analyzer / Receiver quickly scanned from 30MHz to 40GHz. The EUT test program was started. Emissions were scanned and measured rotating the EUT to 360 degrees and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.
- The test mode(s) described in Item 3.1 were scanned during the preliminary test:
- After the preliminary scan, we found the test mode described in Item 3.1 producing the highest emission level.
- The worst configuration of EUT and cable of the above highest emission level were recorded for reference of the final test.

Procedure of Final Test

- EUT and support equipment were set up on the turntable as per the configuration with highest emission level in the preliminary test.
- The Analyzer / Receiver scanned from 30MHz to 40GHz. Emissions were scanned and measured rotating the EUT to 360 degrees, varying cable placement and positioning the antenna 1 or 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.
- Recording at least the six highest emissions. Emission frequency, amplitude, antenna position, polarization and turntable position were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit and only Q.P. reading is presented.
- The test data of the worst-case condition(s) was recorded.

7.4. TEST SETUP



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

7.5. DATA SAMPLE:

Freq. (MHz)	Reading (dBuV)	Corr.Factor (dB)	Measured (dBuV/m)	Limits (dBuV/m)	Safe Margins (dBuV/m)	Ant. H/V	Mark
xx.xx	47.48	-10.31	37.17	40.00	-2.83	V	Q

Freq. = Emission frequency in MHz
Reading (dBuV) = Receiver reading
Corr. Factor (dB/m) = Antenna factor + Cable loss – Amplifier gain
Measured (dBuV/m) = Reading (dBuV) + Corr. Factor (dB/m)
Limit (dBuV/m) = Limit stated in standard
Margin (dB) = Measured (dBuV/m) – Limits (dBuV/m)
Ant. H/V = Current carrying line of reading
Mark = Mark Peak Reading or Quasi-peak Reading

7.6. TEST RESULTS

Model No.	MRD-510C	**Test Mode**	Mode 1
Environmental Conditions	22°C, 40% RH	**RBW,VBW**	120 kHz
Antenna Pole	Vertical / Horizontal	**Antenna Distance**	3m
Detector Function:	Peak/Quasi-peak	**Tested by**	Jimmy

(The chart below shows the highest readings taken from the final data.)

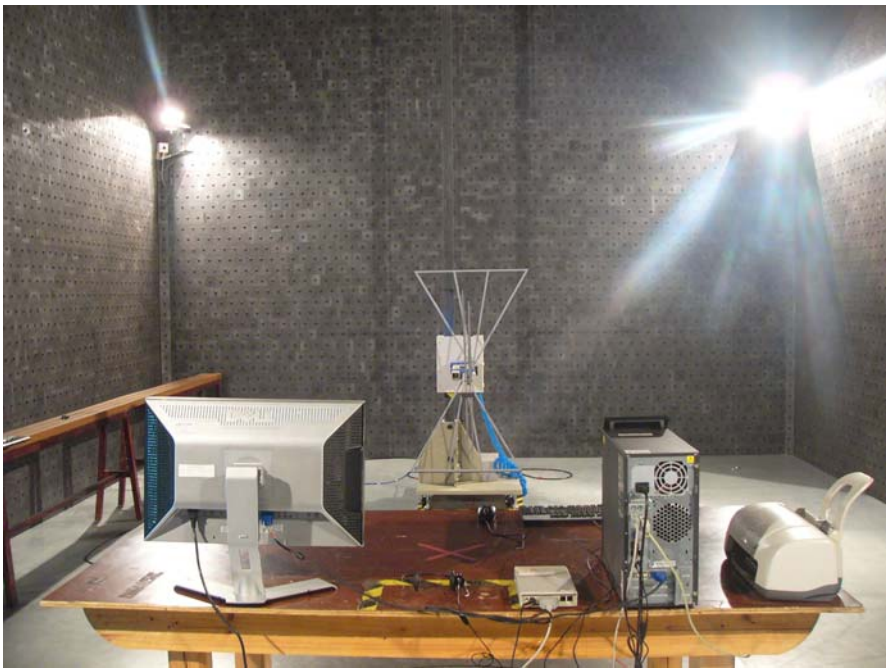
Frequency Range Investigated (30 MHz To 1000 MHz)							
Freq. (MHz)	**Reading (dBuV/m)**	**Factor (dB)**	**Result (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Detector (P/Q)**	**Pol (H/V)**
233.700	40.93	-14.13	26.80	46.00	-19.20	P	V
337.975	43.67	-10.52	33.15	46.00	-12.85	P	V
367.075	38.91	-9.81	29.10	46.00	-16.90	P	V
432.550	44.37	-8.91	35.46	46.00	-10.54	P	V
624.125	36.00	-6.03	29.97	46.00	-16.03	P	V
910.275	31.75	-2.22	29.53	46.00	-16.47	P	V
233.700	42.91	-14.13	28.78	46.00	-17.22	P	H
337.975	42.81	-10.52	32.29	46.00	-13.71	P	H
367.075	34.78	-9.81	24.97	46.00	-21.03	P	H
432.550	44.92	-8.91	36.01	46.00	-9.99	P	H
522.275	35.35	-7.76	27.59	46.00	-18.41	P	H
624.125	34.48	-6.03	28.45	46.00	-17.55	P	H

REMARKS: *1. P= Peak Reading; Q= Quasi-peak Reading*
2. The other emission levels were very low against the limit.

8 PHOTOGRAPHS OF THE TEST CONFIGURATION

CONDUCTED EMISSION TEST

RADIATED EMISSION TEST



9 PHOTOGRAPHS OF EUT