

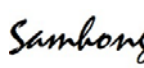


Test Report

Report No.: GTE13112602

Product: Headset connecting cord/QD cord
Client: Xiamen Mairdi Electronic Technology Co., Ltd
Standard: EN 55024:2010,
EN 55022:2010/AC:2011,
EN 61000-3-2:2006+A1:2009+A2:2009,
EN 61000-3-3:2008

Greatek Testing and Certification Co., Ltd.

TEST REPORT	
EN 55024	
Information technology equipment - Immunity characteristics - Limits and methods of measurement	
EN 55022	
Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement	
EN 61000-3-2	
Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions	
EN 61000-3-3	
Electromagnetic compatibility (EMC) - Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems	
1. Report	
Report Reference No.	: GTE13112602
Complied by	: Abel Hu 
Approved by	: Sam Hong 
Date of issue	: 2013-11-26
Contents	: 19 pages
2. Test institution	
Name	: Greatek Testing and Certification Co., Ltd.
Address.....	: Hagley Road,Edgbaston,Birmingham,B169PF,UK
Tel.....	: +44 (0) 121 456 3500
Fax.....	: +44 (0) 121 456 3511
Web site.....	: http://www.greatek.co.uk
E-mail.....	: info@greatek.co.uk
3. Applicant/Client	
Name	: Xiamen Mairdi Electronic Technology Co., Ltd
Address.....	: 5/F Xinke Building, No.30 Xiangming Road, Torch (Xiang An) Hi-Tech Industrial Zone, Xiamen, China
4. Manufacturer	
Name	: Xiamen Mairdi Electronic Technology Co., Ltd
Address.....	: 5/F Xinke Building, No.30 Xiangming Road, Torch (Xiang An) Hi-Tech Industrial Zone, Xiamen, China
5. Test specification:	
Standard	: EN 55024:2010, EN 55022:2010/AC:2011, EN 61000-3-2:2006+A1:2009+A2:2009, EN 61000-3-3:2008

6. Test item description

Product : Headset connecting cord/QD cord

Trade mark : Mairdi

Model/Type reference : MRD-QD002(P),MRD-QD002(A), MRD-QD002(C),
MRD-QD004(A), MRD-QD004(C), MRD-QD006,
MRD-QD009,MRD-QD010, MRD-QD011,
MRD-QD012,MRD-QD013,MRD-QD014,MRD-QD015,M
RD-QD016,MRD-QD017,MRD-QD018,MRD-QD019,MR
D-QD020,MRD-QD021,MRD-QD022,MRD-QD023,MRD-
QD024,MRD-QD025

Ratings(Class) : /

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1. TEST RESULT SUMMARY

EMISSION (EN 55022: 2010/AC:2011,EN 61000-3-2: :2006+A1:2009+A2:2009 &EN 61000-3-3:2008)			
Standard	Item	Result	Remarks
EN 55022 2010/AC:2011	Conducted Emission	N	Note 1
	Radiated Emission	P	Meets the Class B requirement
EN 61000-3-2: :2006+A1:20 09+A2:2009	Harmonics Current	N	Note 1
EN 61000-3-3:2008	Voltage Fluctuation and Flicks	N	Note 1

IMMUNITY (EN 55024: 2010)			
Standard	Item	Result	Remarks
IEC 61000-4-2	ESD	P	Meets the requirements of Performance Criterion A
IEC 61000-4-3	RS	P	Meets the requirements of Performance Criterion A
IEC 61000-4-4	EFT	N	Note 1
IEC 61000-4-5	Surge	N	Note 1
IEC 61000-4-6	CS	N	Note 1
IEC 61000-4-11	Voltage Dips & Short Interruptions	N	Note 1

Note 1: Owing to DC 5V operating supplied by PC, the EUT was not directly connected to the AC mains; these tests were not applicable for EUT.

2. EMISSION TEST

2.1 RADIATED EMISSION MEASUREMENT

2.1.1 LIMITS

Frequency (MHz)	Quasi-peak(dB μ V/m)
30~230	40
230~1000	47

NOTE: (1) The lower limit shall apply at the transition frequencies.

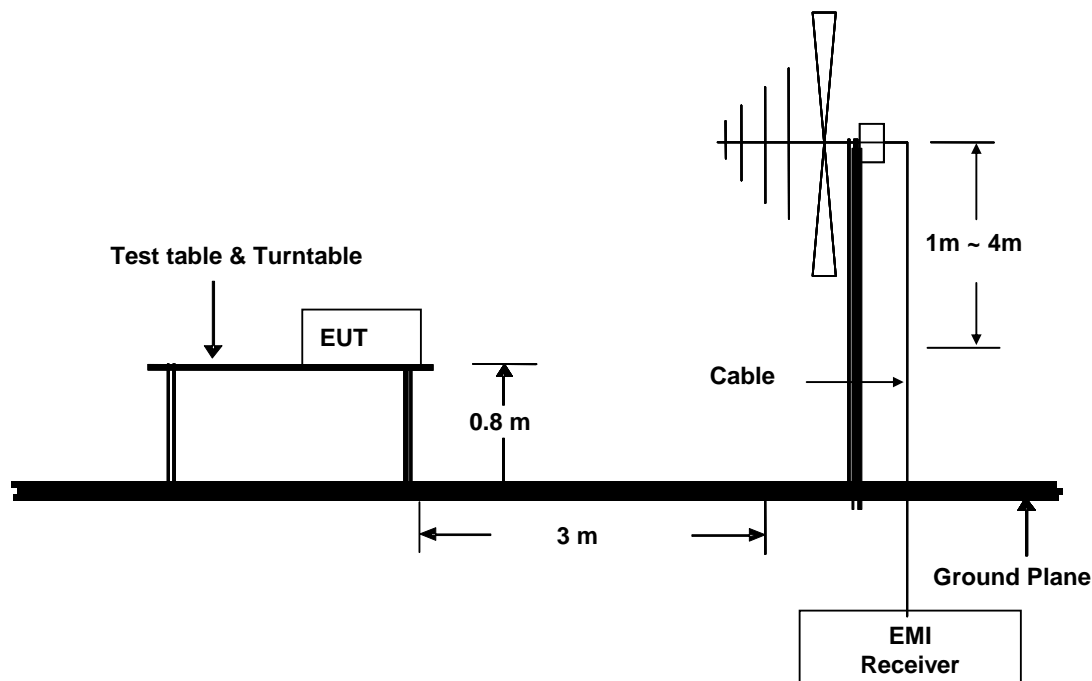
(2) The limit above is the 3m method. However, the limit of the standard is the 10m method, for 3m, an inverse proportionality factor of 20 dB per decade should be used to normalize the measured data to the specified distance for determining compliance.

2.1.2 TEST INSTRUMENTS

Name of equipment	Manufacturer	Model	Serial number	Calibration due
Biconical log-periodic antenna	ETS.LINDGREN	3142C	00075971	2014-07-30
Receiver	R&S	ESU40	100106	2014-05-25

NOTE: The calibration interval of the above test instruments is 12 months.

2.1.3 TEST SETUP AND PROCEDURES

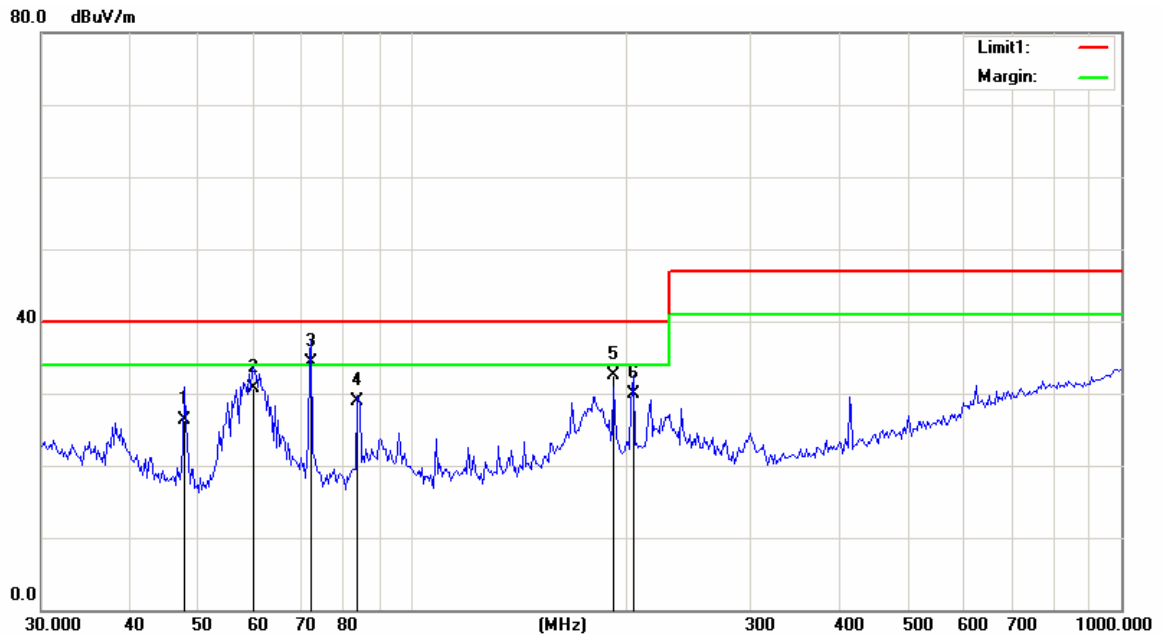


The EUT was placed on a wooden turntable which could rotate from 0° to 360°, 0.8m high above the ground, the distance between the EUT and the antenna is 3m.

When the test was carried out, the EUT should be rotate from 0° to 360°, and the antenna should be moved from 1m to 4m for maximum meter reading at each test frequency.

2.1.4 TEST RESULTS

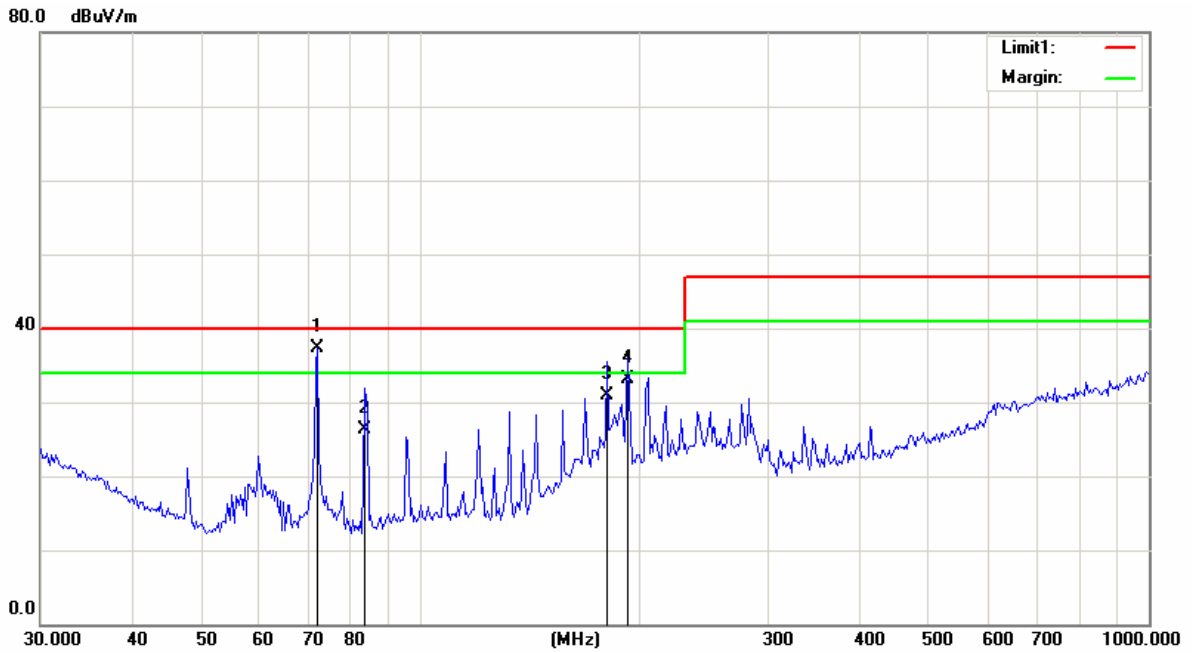
Model No.	MRD-QD006	Test Mode	Working mode connected with PC
Environmental Conditions	22°C 55%RH 101kPa	Antenna Distance	3m
Antenna Pole	Vertical	Tested by	Ben Lan



Detected Peaks:

No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	47.8800	15.90	10.50	26.40	40.00	-13.60	QP
2	60.1000	22.78	8.02	30.80	40.00	-9.20	QP
3	72.0000	26.48	7.82	34.30	40.00	-5.70	QP
4	84.1679	19.89	9.01	28.90	40.00	-11.10	QP
5	192.3110	21.16	11.44	32.60	40.00	-7.40	QP
6	204.3750	18.37	11.63	30.00	40.00	-10.00	QP

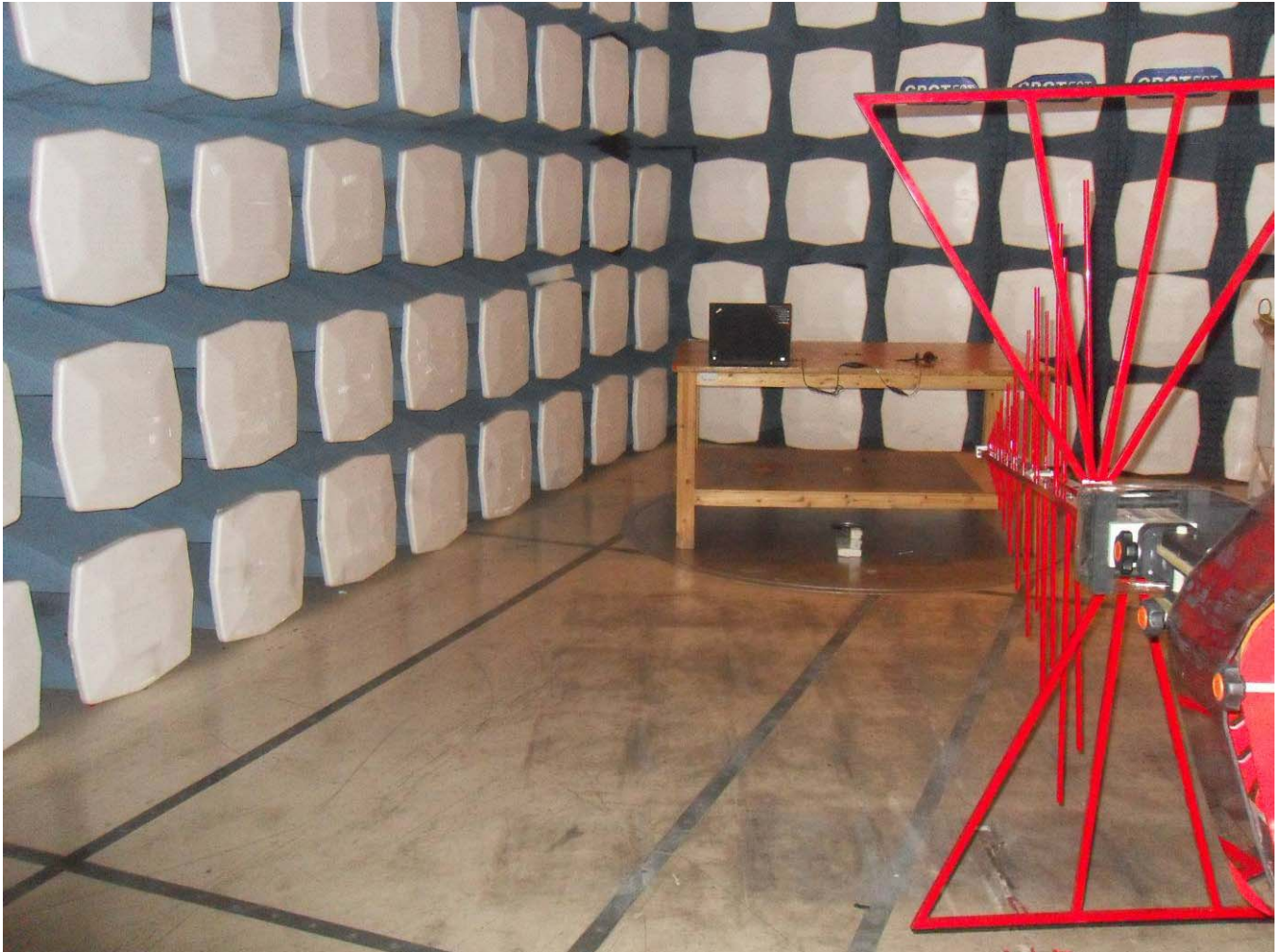
Model No.	MRD-QD006	Test Mode	Working mode connected with PC
Environmental Conditions	22°C 55%RH 101kPa	Antenna Distance	3m
Antenna Pole	Horizontal	Tested by	Ben Lan



Detected Peaks:

No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	72.0000	29.48	7.82	37.30	40.00	-2.70	QP
2	84.1630	17.30	9.00	26.30	40.00	-13.70	QP
3	180.3350	19.92	11.08	31.00	40.00	-9.00	QP
4	192.3420	21.76	11.44	33.20	40.00	-6.80	QP

2.1.5 PHOTOGRAPH OF THE TEST CONFIGURATION



3. IMMUNITY TEST

3.1 GENERAL DESCRIPTION

Product Standard	EN 55024: 2010	
	Test set-up	Test specification
EN 55024: 2010	IEC 61000-4-2	Electrostatic Discharge – ESD: 8kV air discharge, 4kV Contact discharge Performance Criterion B
	IEC 61000-4-3	Radio-Frequency Electromagnetic Field Susceptibility Test – RS: 80 ~1000 MHz, 3V/m, 80% AM(1kHz), Performance Criterion A

3.2 GENERAL PERFORMANCE CRITERIA DESCRIPTION

Criteria A	The apparatus shall continue to operate as intended during the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and from what the user may reasonably expect from the apparatus if used as intended.
Criteria B	The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. During the test, degradation of performance is allowed, however, no change of actual operating state or stored data is allowed. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and from what the user may reasonably expect from the apparatus if used as intended.
Criteria C	Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls, or by any operation specified in the instructions for use. Not all functions of the apparatus need to be tested. The selection, the specification of functions, and the permissible degradation is left to the responsibility of the manufacturer.

3.3 ELECTROSTATIC DISCHARGE (ESD)

3.3.1 TEST SPECIFICATION

Basic Standard	IEC 61000-4-2
Discharge Impedance	330 ohm / 150 pF
Discharge Voltage	Air Discharge : 8 kV; Contact Discharge: 4 kV
Polarity	Positive & Negative
Number of Discharge	Minimum 10 times at each test point
Discharge Mode	Single Discharge 1 second minimum

3.3.2 TEST INSTRUMENT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
ESD Tester	EMPEK	ESD-2030A	0230916N	2014-08-08

NOTE: The calibration interval of the above test instruments is 12 months.

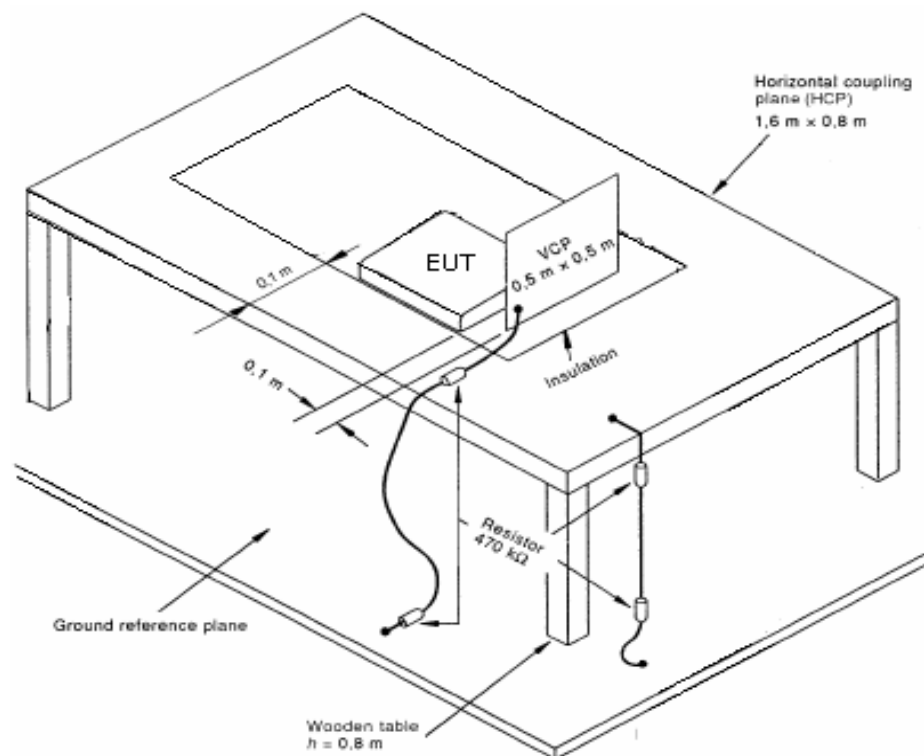
3.3.3 TEST PROCEDURE

The basic test procedure was in accordance with IEC 61000-4-2:

- The EUT was located 0.1 m minimum from all side of the **HCP** (dimensions 1.6m * 0.8m).
- The support units were located another table 30 cm away from the EUT, but direct support unit was/were located at same location as EUT on the **HCP** and keep at a distance of 10 cm with EUT.
- The time interval between two successive single discharges was at least 1 second.
- Contact discharges were applied to the non-insulating coating, with the pointed tip of the generator penetrating the coating and contacting the conducting substrate.
- Air discharges were applied with the round discharge tip of the discharge electrode approaching the EUT as fast as possible (without causing mechanical damage) to touch the EUT. After each discharge, the ESD generator was removed from the EUT and re-triggered for a new single discharge. The test was repeated until all discharges were complete.
- At least ten single discharges (in the most sensitive polarity) were applied at the front edge of each **HCP** opposite the center point of each unit of the EUT and 0.1 meters from the front of the EUT. The long axis of the discharge electrode was in the plane of the **HCP** and perpendicular to its front edge during the discharge.

g) At least ten single discharges (in the most sensitive polarity) were applied to the center of one vertical edge of the Vertical Coupling Plane (VCP) in sufficiently different positions that the four faces of the EUT were completely illuminated. The VCP (dimensions 0.5m * 0.5m) was placed vertically to and 0.1 meters from the EUT.

3.3.4 TEST SET-UP



3.3.5 TEST RESULTS

Model No.	MRD-QD006	Test Mode	Working mode connected with PC
Temperature	23°C	Humidity	50% RH
Pressure	101kPa	Tested By	Ben Lan
Test Date	2013-11-21		

Discharge point	Discharge voltage	C-Conduct A-Air	Required Passing Performance	Actual performance	Result
Nonmetallic exposed surface	±8 kV	A	Criterion B	Criterion A*	PASS
Vertical coupling plane	±4 kV	C	Criterion B	Criterion A *	PASS
Horizontal coupling plane	±4 kV	C	Criterion B	Criterion A *	PASS

*: There was no change compared with the initial operation during the test.

3.3.6 PHOTOGRAPH OF THE TEST CONFIGURATION



3.4 RADIATED, RADIO-FREQUENCY, ELECTROMAGNETIC FIELD (RS)

3.4.1 TEST SPECIFICATION

Basic Standard	IEC 61000-4-3
Frequency Range	80 MHz ~1000 MHz
Field Strength	3 V/m
Modulation	1kHz Sine Wave, 80%, AM Modulation
Frequency Step	1 % of preceding frequency value
Polarity of Antenna	Horizontal and Vertical
Test Distance	3 m
Antenna Height	1.5m

3.4.2 TEST INSTRUMENT

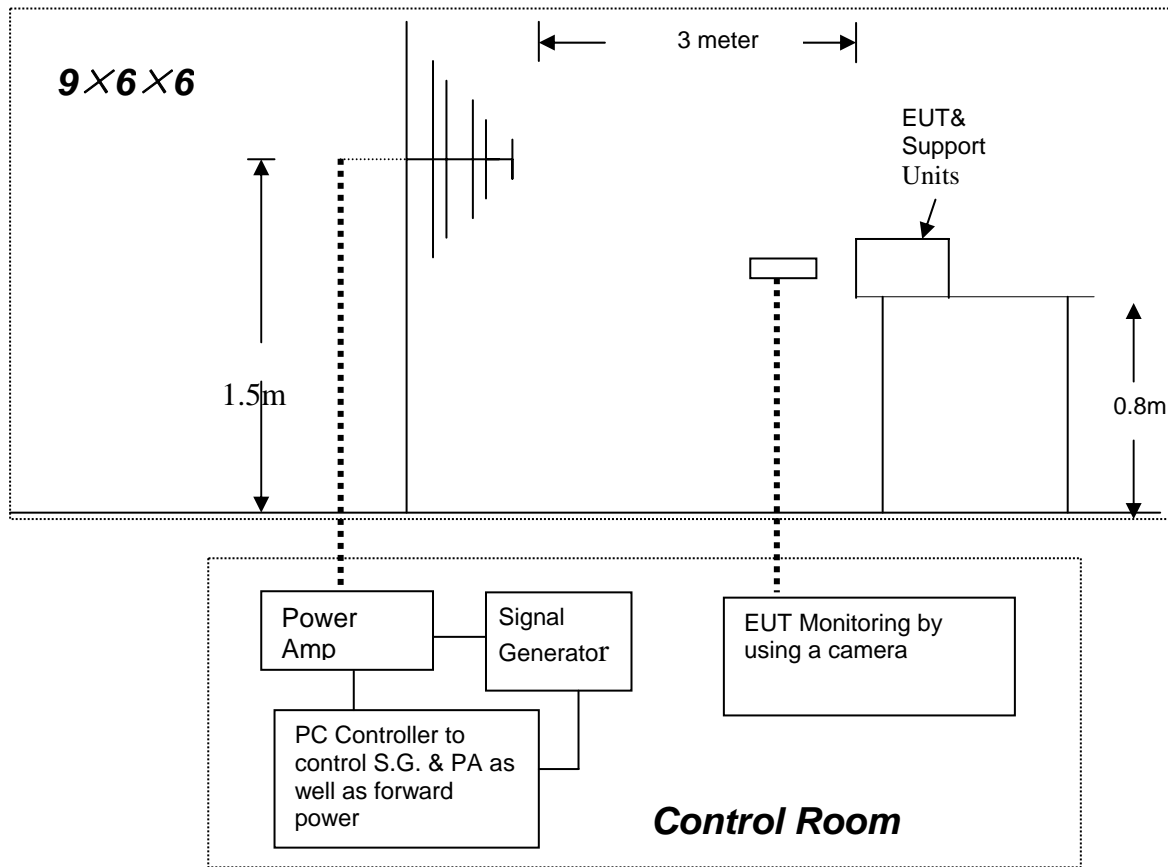
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Signal generator	R&S	SML03	103002	2014-06-06
Antenna	SCHWARZBECK	STLP 9128 E	9128E-029	2014-08-02
Power amplifier	PRANA R&D	AP32 DT214	0611-768	2014-07-01
Power meter	BOOTON	4232A	10543	2014-09-02

NOTE: The calibration interval of the above test instruments is 12 months.

3.4.3 TEST PROCEDURE

- a) The testing was performed in a fully anechoic chamber. The transmit antenna was located at a distance of 3 meters from the EUT.
- b) The frequency range is swept from 80 MHz to 1000 MHz, with the signal 80% amplitude modulated with a 1 kHz sine-wave. The rate of sweep did not exceed 1.5×10^{-3} decade/s, where the frequency range is swept incrementally; the step size was 1% of preceding frequency value.
- c) The dwell time at each frequency shall be not less than the time necessary for the EUT to be able to respond.
- e) The test was performed with the EUT exposed to both vertically and horizontally polarized fields on each of the four sides.

3.4.4 TEST SET-UP



3.4.5 TEST RESULTS

Model No.	MRD-QD006	Test Mode	Working mode connected with PC
Environmental Conditions	23°C 50%RH 101.5kPa	Tested by	Ben Lan
Dwell Time	2s	Test date	2013-11-21

Frequency (MHz)	Polarity	Azimuth	Field Strength (V/m)	Required Passing Performance	Actual performance	Result
80 ~ 1000	V&H	Front	3	Criterion A	Criterion A*	PASS
80 ~ 1000	V&H	Rear	3	Criterion A	Criterion A*	PASS
80 ~ 1000	V&H	Right	3	Criterion A	Criterion A*	PASS
80 ~ 1000	V&H	Left	3	Criterion A	Criterion A*	PASS

*: There was no change compared with the initial operation during the test.

3.4.6 PHOTOGRAPH OF THE TEST ARRANGEMENT



4. PHOTOGRAPHS OF EUT



Remarks:

1. The instructions specified by the standard have to be in official language of each country, however, only English is checked for this report. It is the applicant responsibility to provide instruction in each official language of the EU.
2. This report is submitted for the exclusive use of the client to whom it is addressed. Its significance is subject to the adequacy and representative character of the sample(s) and to the comprehensiveness of the tests, examinations or surveys made.
3. The CE marking may only be used if all relevant and effective EC directives are complied with.
4. The test sample was pre-production samples without serial numbers.
5. The test results are responsible for the tested samples only.
6. A part of this report or certificate should not be duplicated in any way; however, the duplication of the whole document is allowed.
7. Objections to the test report must be submitted to GRT within 15 days.
8. The test report is invalid if altered.

===== End of Test Report =====



Greatek Testing and Certification Co., Ltd.

Add : Hagley Road,Edgbaston,Birmingham,B169PF,UK

Tel: 0044 (0) 12 1456 3500

Fax: 0044 (0) 12 1456 3511

Email: info@greatek.co.uk

Website: <http://www.greatek.co.uk>