

FCC TEST REPORT

Reference No. : WT09113935-E-E-F

Applicant : Matsunichi Communication Holdings R&D (Shenzhen) Co., Ltd.

Address : 43B/F, International Chamber of Commerce Tower,
FuHua RD3 CBD, FuTian District, Shenzhen, China

Equipment Under Test (EUT) :

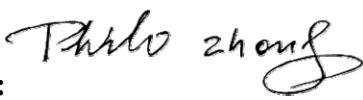
Product Name : Matsunichi Mobile hard disk encryption

Model No. : DM252

Standards : FCC 15 SUBPART B

Date of Test : Nov. 30, 2009

Test Engineer : Olic.huang

Reviewed By : 

Test Result :	PASS *
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Prepared By:

Waltek Services (Shenzhen) Co., Ltd.

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* The sample detailed above has been tested to the requirements of Council Directives ANSI C63.4:2003.
The test results have been reviewed against the Directives above and found to meet their essential requirements.

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1 Test Summary

Test	Test Requirement	Test Method	Class / Severity	Result
Radiated Emission (30MHz to 1GHz)	FCC PART 15, SUBPART B: 2007	ANSI C63.4: 2003	Class B	PASS
Conducted Emission (150KHz to 30MHz)	FCC PART 15, SUBPART B: 2007	ANSI C63.4: 2003	Class B	PASS

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3 General Information

3.1 Client Information

Applicant:	Matsunichi Communication Holdings R&D (Shenzhen) Co., Ltd.
Applicant Address	43B/F, International Chamber of Commerce Tower, FuHua RD3 CBD, FuTian District, Shenzhen, China
Manufacturer:	Goldland Electronics (Shenzhen) Co., Ltd.
Address of manufacturer:	Matsunichi Hi-Tech Bld, South of Chuangjing Street, Lanzhu Road, Longgang Industrial Zone, Shenzhen, China
Product Name:	Matsunichi Mobile hard disk encryption
Model No.:	DM252

3.2 Details of E.U.T.

Power supply :	USB Input
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3.3 Description of Support Units

The EUT has been tested as an independent unit. All the tests were performed in the condition of USB input.

3.4 Standards Applicable for Testing

The customer requested FCC tests for a Matsunichi Mobile hard disk encryption. The standards used was FCC PART 15 SUBPART B.

3.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **FCC – Registration No.:880581**

Waltek Services(Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No.:880581, June 24, 2008.

- **IC – Registration No.: 7760A**

Waltek Services(Shenzhen) Co., Ltd. has been registered and fully described in a report filed with the Industry Canada. The acceptance letter from the Industry Canada is maintained in our files. Registration No.:7760A, July 24, 2008.

3.6 Test Location

All Emission tests were performed at:-

Waltek Services(Shenzhen) Co., Ltd. at 1/F, Fukangtai Building, West Baima Rd.,Songgang Street, Baoan District, Shenzhen, China

4 Equipment Used during Test

Equipment B	rand Name	Model	Related standards	Cal.Intal Months	Last Cal. Date	Cert No	Serial No
3m Anechoic chamber							
EMC Analyzer	Agilent E7405A		ISO9001: 2000	12	Aug-09	1GA09003547-0001	MY45114943
Trilog Broadband Antenne 30-3000 MHz	SCHWARZBECK MESS-ELEKTROM	VULB9163	EN/ISO/IEC 17025 DIN EN ISO9001	12 Aug-09			336
Broad-band Horn Antenna 1-18 GHz	SCHWARZBECK MESS-ELEKTROM	BBHA 9120 D	EN/ISO/IEC 17025 DIN EN ISO9001	12 Aug-09			667
Broadband Preamplifier 0.5-18 GHz	SCHWARZBECK MESS-ELEKTROM	BBV 9718	EN/ISO/IEC 17025 DIN EN ISO9001	12 Aug-09			9718-148
10m Coaxial Cable with N-male Connectors usable up to 18GHz,	SCHWARZBECK MESS-ELEKTROM	AK 9515 H	EN/ISO/IEC 17025 DIN EN ISO9001	12 Aug-09			-
10m 50 Ohm Coaxial Cable with N-plug, individual length, usable up to 3(5)GHz, Connectors	SCHWARZBECK MESS-ELEKTROM	AK 9513	EN/ISO/IEC 17025 DIN EN ISO9001	12 Aug-09			-
Positioning Controller	C&C LAB	CC-C-IF	ISO9001	12	Aug-09		MF7802108
Color Monitor	SUNSP0	SP-14C	ISO9001	12	Aug-09		-
EMI Shielded Room							
Test Receiver	ROHDE&SCHWARZ	ESPI ISO9001		12	Aug-09	1GA09003547-0002	101155
Two-Line V-Network	ROHDE&SCHWARZ	ENV216	ISO9001 EN/ISO/IEC 17025	12 Aug-09		1GA09003547-0005	100115
V—LISN	SCHWARZBECK MESS—ELEKTRONIK	NSLK 8128	CISPR16-1-2 EN55016-1-2: 2004+A1: 2005+A2: 2006	12 Aug-09		1GA09003547-0003	8128-259
Absorbing Clamp	ROHDE&SCHWARZ	MDS-21	ISO9001 EN/ISO/IEC 17025	12 Aug-09		2GB09005546-0002	100205
10m 50 Ohm Coaxial Cable with N-	SCHWARZBECK MESS-ELEKTROM	AK 9514	EN/ISO/IEC 17025 DIN EN	12 Aug-09			-

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plug,individual length,usable up to 3(5)GHz, Connectors			ISO9001				
Harmonic & Flicker Test							
Digital Power Analyzer	Em Test AG/Switzerland	DPA 500	EN/IEC JIS C 61000-3-2 EN/IEC 61000- 3-3	12	Aug-09	1GA09003554 -0005	V07451030 95
Power Source	Em Test AG/Switzerland	ACS 500	IEC 61000-3-3 IEC61000-3-2	12		1GA09003554 -0004	V07451030 96
Electrostatic Discharge Test							
Electrostatic Discharge Simulator	Em Test AG/Switzerland	DITO	IEC 61000-4-2 ISO 10605	12 Aug-09		2GB09005546 -0001	V07451030 94
Radio-Frequency Conducted Immunity Test							
RF Generator	TESEQ GmbH	NSG4070	IEC61000-4-6	12	Aug-09	1GA09003554 -0003	25781
CDN M-Type	TESEQ GmbH	CDN M016	IEC61000-4-6 12		Aug-09		25112
EM-Clamp TESEQ	GmbH	KEMZ 801	IEC61000-4-6 12		Aug-09		25453
Attenuator 6dB	TESEQ GmbH ATN	6050	IEC61000-4-6 12		Aug-09	1GA09003547 -0004	25365
Calibrated Equipment	TESEQ GmbH	CAL 801	IEC61000-4-6	12	Aug-09		70348
Calibrated Equipment	TESEQ GmbH	CAL U100A	IEC61000-4-6 12		Aug-09		25018
Calibrated Equipment	TESEQ GmbH	TRA U150	IEC61000-4-6	12	Aug-09		25299
Fast Transient/Surges/Voltage Dips Short Interruptions and Voltage Variations Immunity Tests							
All Modules Generator	SCHAFFNER 6150		IEC61000-4-4 IEC61000-4-5 IEC61000-4-11	12 Aug-09		1GA09003554 -0001	34579
Capacitive Coupling Clamp	SCHAFFNER C	DN 8014	IEC61000-4-4	12	Aug-09		25311
Signal and Data Line Coupling Network	SCHAFFNER C	DN 117	IEC61000-4-5	12	Aug-09		25627
AC Power Supply	TONGYUN DTD	GC-4		12	Aug-09	1GA09003554 -0002	-
Electromagnetic Fields Radiation Exposure Test							
Exposure Level Tester ELT-400	Narda Safety TEST Solutions	2304/03	ISO 9001 ISO 10012-1	12 M	Aug-09		-0155
Magnetic Field Probe 100cm²	Narda Safety TEST Solutions	2300/90.10	ISO 9001 ISO 10012-1	12			M-1070
Low Frequency Radiation Test							

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Active Loop Antenna Charger 9kHz- 30MHz	Beijing Dazhi	ZN30900A	ISO 9001	12 Aug-09			-
Large loop antenna	Laplace RF300			12	Aug-09		9057
Other							
computer	accor	AG1720					

5 Emissions Test Results

5.1 Conducted Emission Data

Test Requirement:	FCC Part15 B 15.107
Test Method:	ANSI C63.4:2003.
Test Date:	Nov. 30, 2009
Frequency Range:	150kHz to 30MHz
Class:	Class B
Limit:	66-56 dB μ V between 0.15MHz & 0.5MHz 56 dB μ V between 0.5MHz & 5MHz 60 dB μ V between 5MHz & 30MHz
Detector:	Peak for pre-scan (9kHz Resolution Bandwidth) Quasi-Peak & Average if maximised peak within 6dB of Average Limit

5.1.1 E.U.T. Operation

Operating Environment:	
Temperature:	25.5 °C
Humidity:	51 % RH
Atmospheric Pressure:	1012 mbar

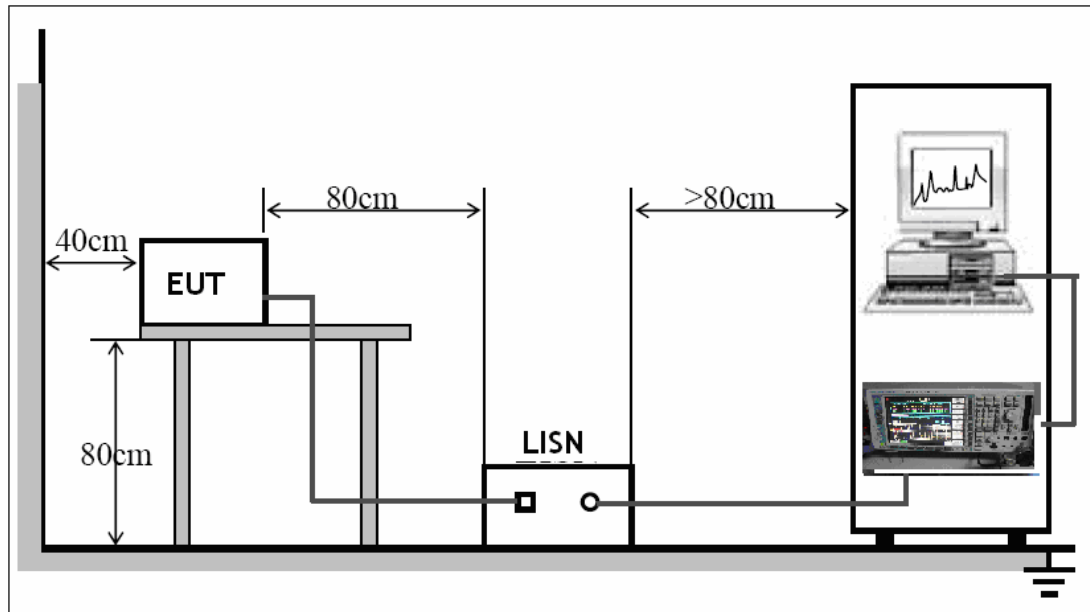
EUT Operation :

The EUT was tested according to ANSI C63.4 :2003. The frequency spectrum from 150kHz to 30MHz was investigated.

The maximised peak emissions from the EUT was scanned and measured for both the Live and Neutral Lines. Quasi-peak & average measurements were performed if peak emissions were within 6dB of the average limit line.

5.1.2 EUT Setup

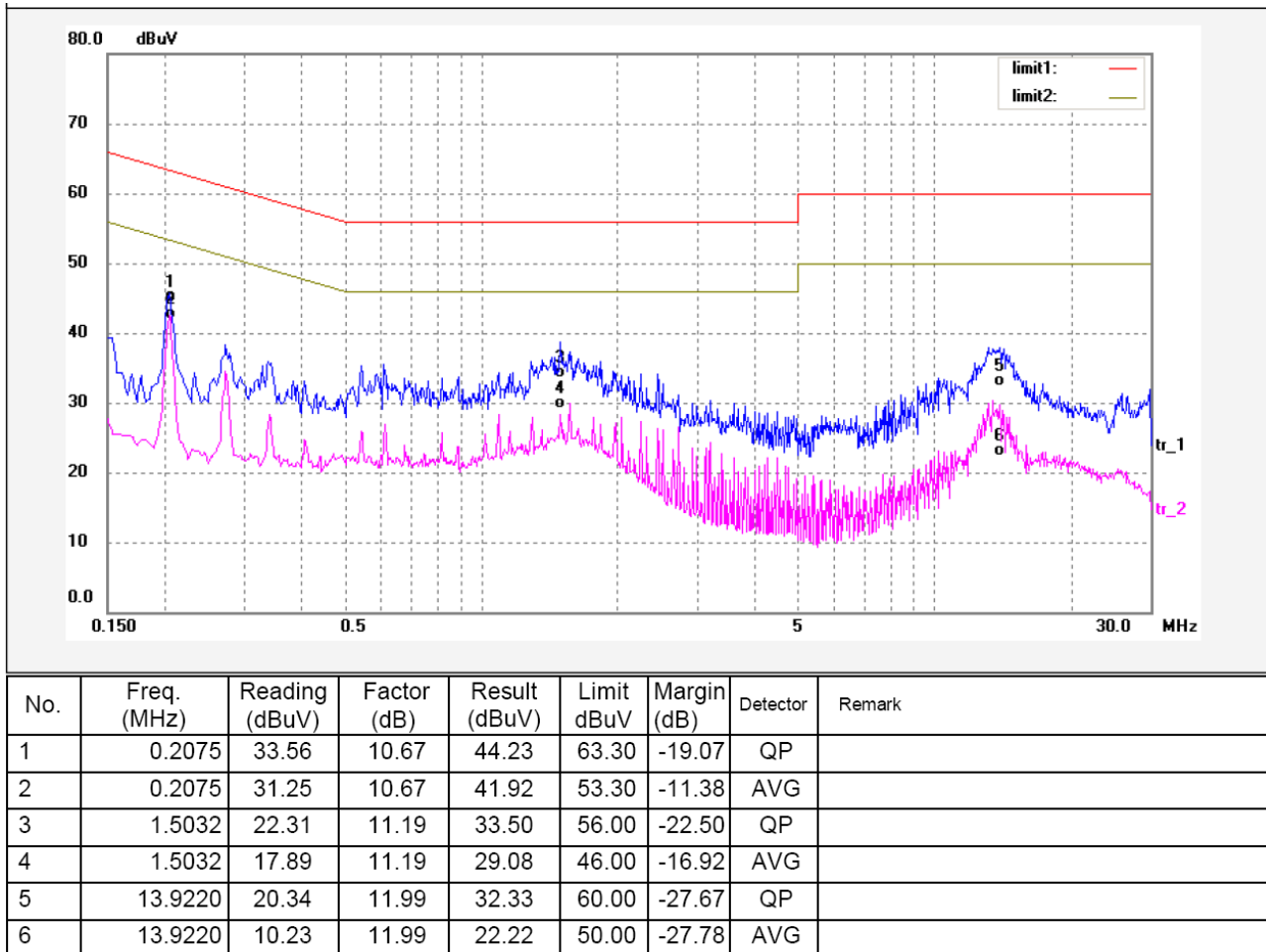
The conducted em ission tests were perform ed using the setup accordance with the ANSI C63.4:2003, The specification used in this report was the FCC Part15 B 15.107 limits.

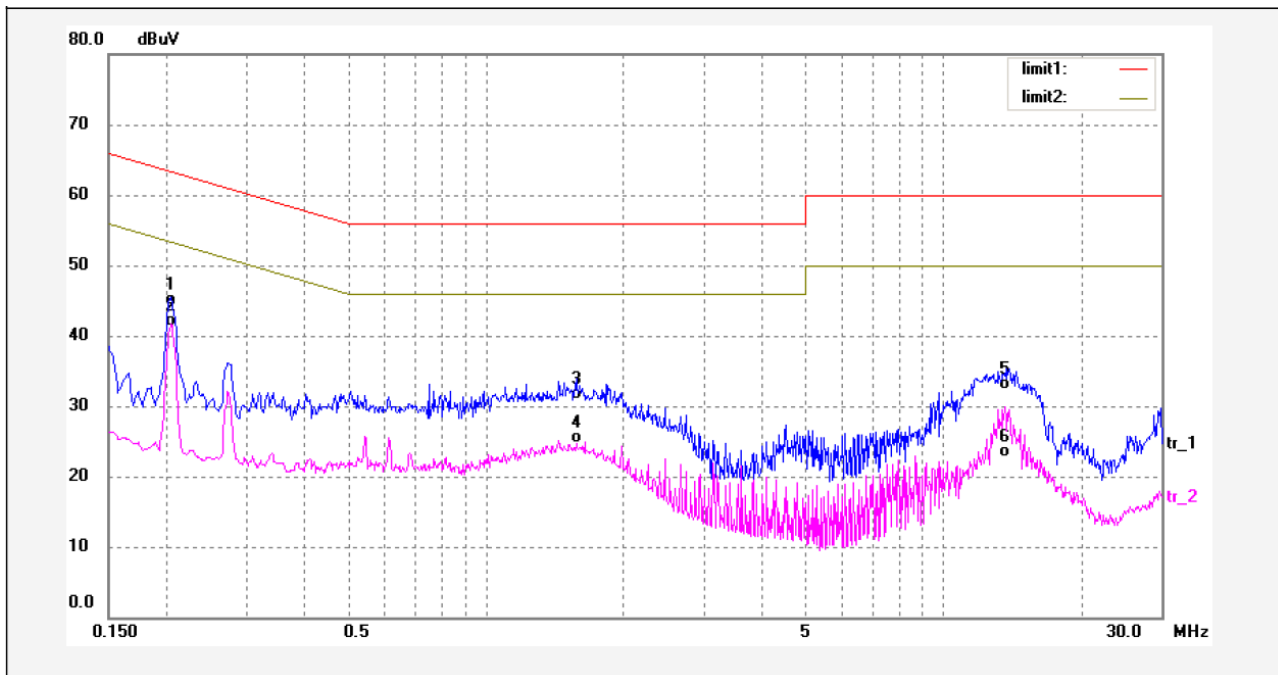


5.1.3 Conducted Emission Test Result

The test data as following:

Live Line



Neutral Line

No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.2054	33.56	10.67	44.23	63.39	-19.16	QP	
2	0.2054	30.54	10.67	41.21	53.39	-12.18	AVG	
3	1.5788	19.64	11.20	30.84	56.00	-25.16	QP	
4	1.5788	13.56	11.20	24.76	46.00	-21.24	AVG	
5	13.6987	20.34	11.98	32.32	60.00	-27.68	QP	
6	13.6987	10.78	11.98	22.76	50.00	-27.24	AVG	

5.1.4 Conducted Emission Test Setup View



5.2 Radiation Emission Data

Test Requirement:	FCC Part15 B 15.109
Test Method:	ANSI C63.4:2003
Test Date:	Nov. 30, 2009
Frequency Range:	30MHz to 1GHz
Measurement Distance:	3m
Class:	Class B
Limit:	40.0 dB μ V/m between 30MHz & 88MHz 43.5 dB μ V/m between 88MHz & 216MHz 46.0 dB μ V/m between 216MHz & 960MHz 54.0 dB μ V/m above 960MHz
Detector:	Peak for pre-scan (120kHz resolution bandwidth) Quasi-Peak if maximised peak within 6dB of limit

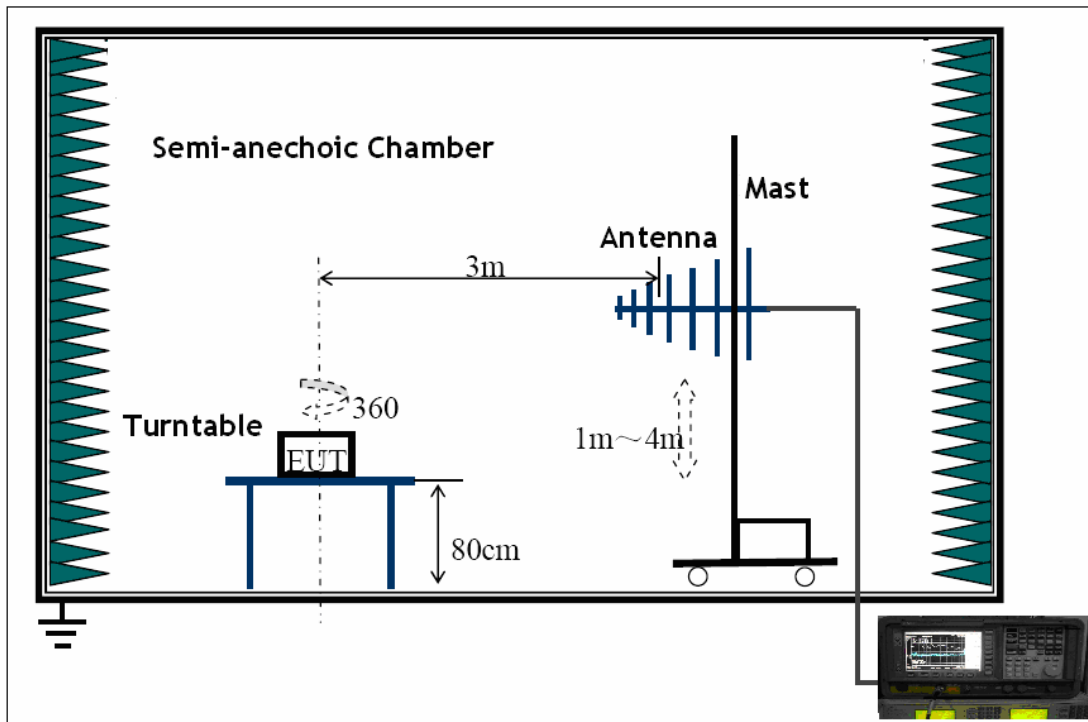
5.2.1 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in the field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at Waltek EMC Lab is ± 5.03 dB.

5.2.2 EUT Setup

The radiated emission tests were performed in the 3m Semi-Anechoic Chamber test site, using the setup accordance with the ANSI C63.4:2003, The specification used in this report was the FCC Part15 B 15.109 limits.



5.2.3 Spectrum Analyzer Setup

According to FCC Part15 B Rules, the system was tested 30 to 1000MHz.

Start Frequency	30 MHz
Stop Frequency	1000 MHz
Sweep Speed	Auto
IF Bandwidth	120 kHz
Video Bandwidth	100KHz
Quasi-Peak Adapter Bandwidth	120 kHz
Quasi-Peak Adapter Mode	Normal
Resolution Bandwidth	100KHz

5.2.4 Test Procedure

For the radiated emissions test.

Maximizing procedure was performed on the six (6) highest emissions to ensure EUT is compliant with all installation combinations.

All data was recorded in the peak detection mode. Quasi-peak readings were performed only when an emission was found to be marginal (within -4 dB μ V of specification limits), and are distinguished with a "Qp" in the data table. But any frequency above 1000 MHz, the limit is based on average detector.

The EUT was under normal mode during the final qualification test and the configuration was used to represent the worst case results.

5.2.5 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

$$\text{Corr. Ampl.} = \text{Indicated Reading} + \text{Antenna Factor} + \text{Cable Factor} - \text{Amplifier Gain}$$

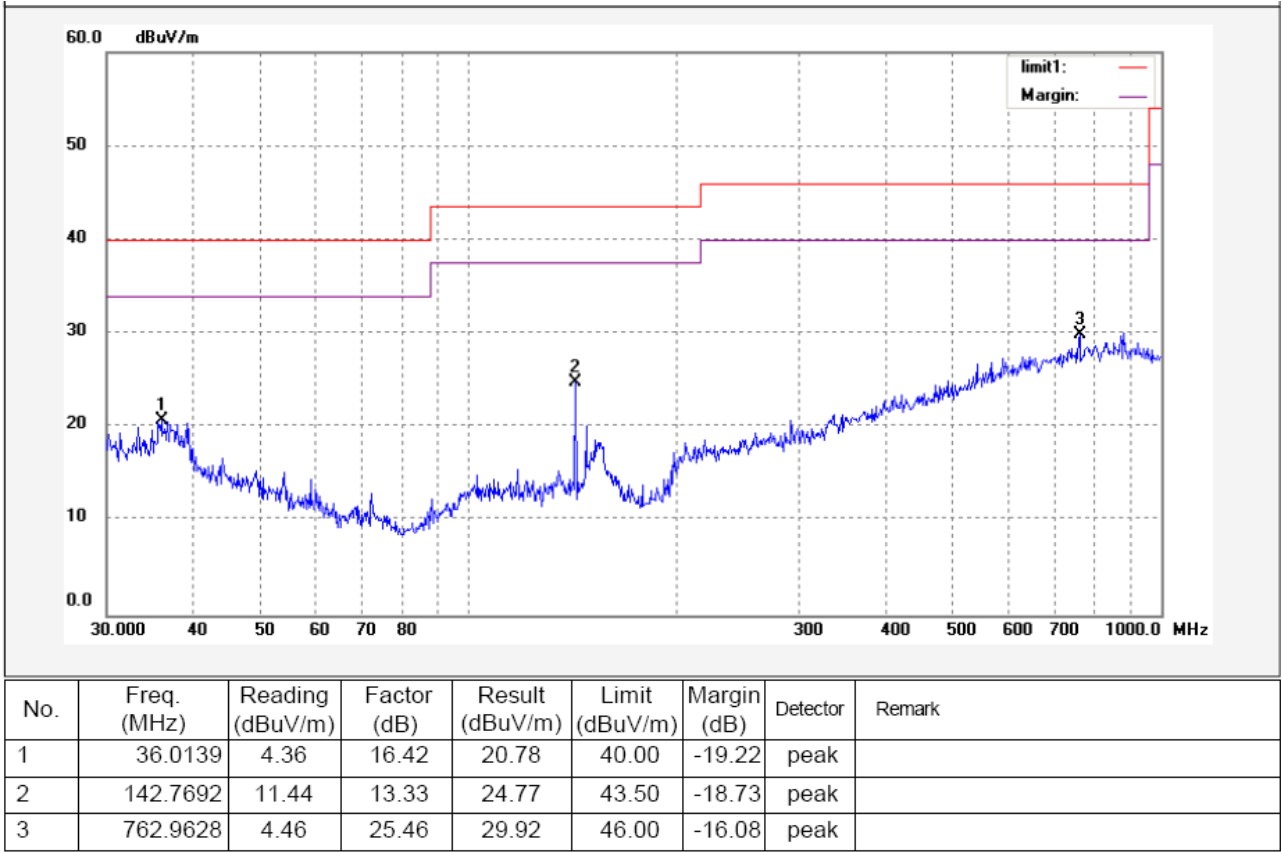
The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dB μ V means the emission is 7dB μ V below the maximum limit for Class B. The equation for margin calculation is as follows:

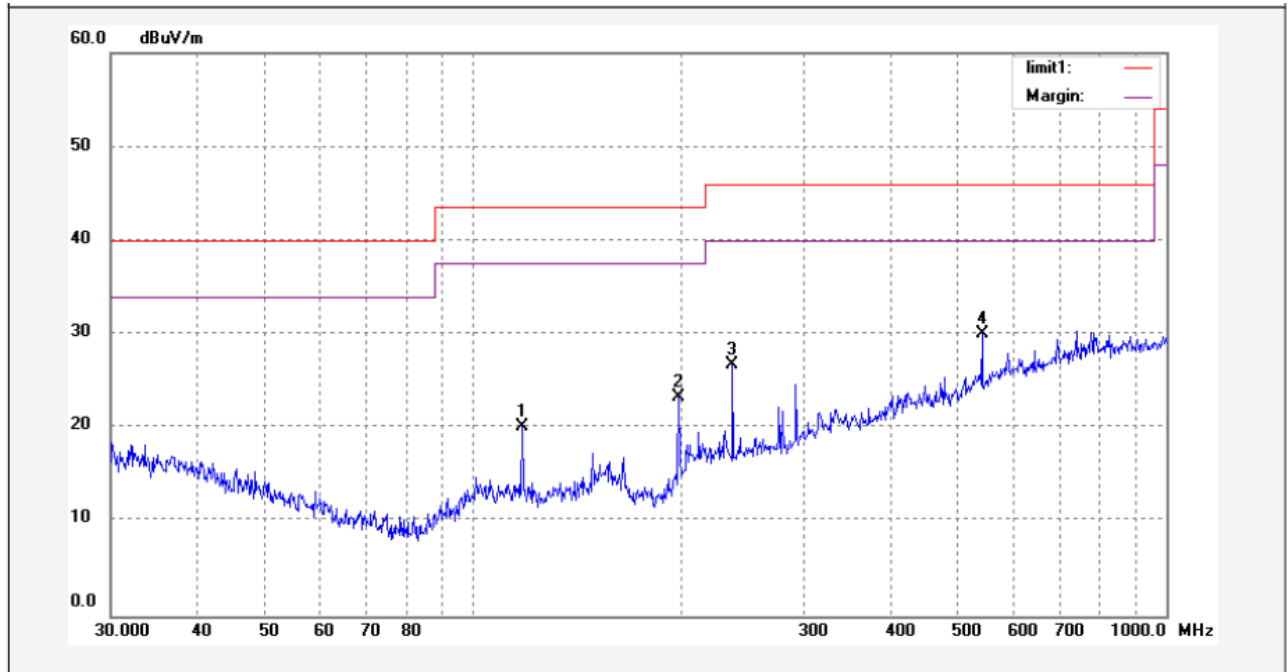
$$\text{Margin} = \text{Corr. Ampl.} - \text{Class B Limit}$$

5.2.6 Summary of Test Results

According to the data in this section, the EUT complied with the FCC Part15 B standards.

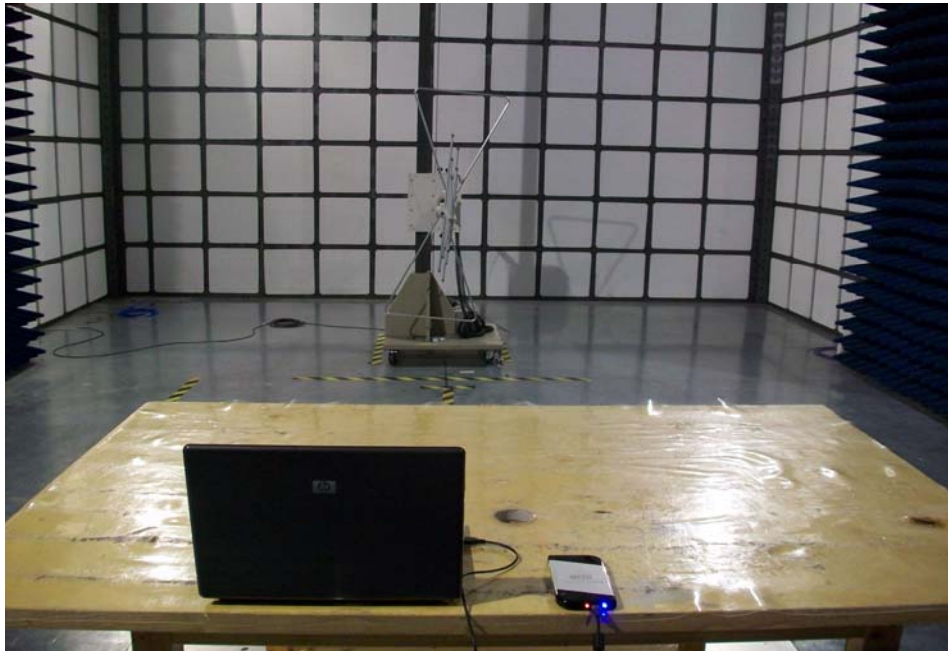
Test Antenna Polarization: **Horizontal**



Test Antenna Polarization: **Vertical**

No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	117.6815	7.21	12.90	20.11	43.50	-23.39	peak	
2	197.9457	9.19	14.12	23.31	43.50	-20.19	peak	
3	236.7928	9.96	16.84	26.80	46.00	-19.20	peak	
4	542.6104	6.72	23.34	30.06	46.00	-15.94	peak	

5.2.7 Photograph-Test Setup



6 Photographs - Constructional Details

6.1 EUT - Component View



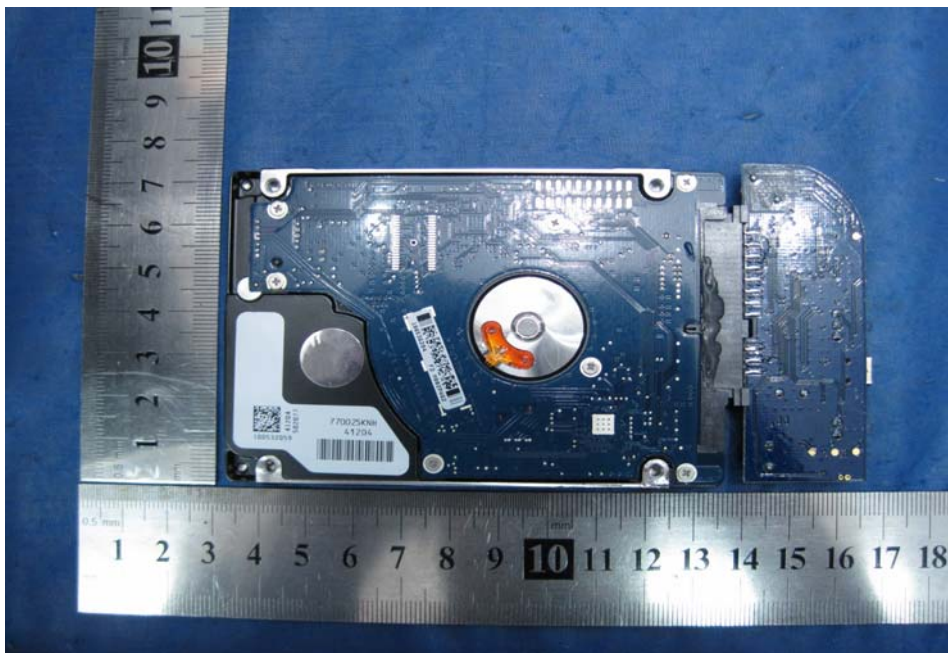
6.2 EUT - Front View



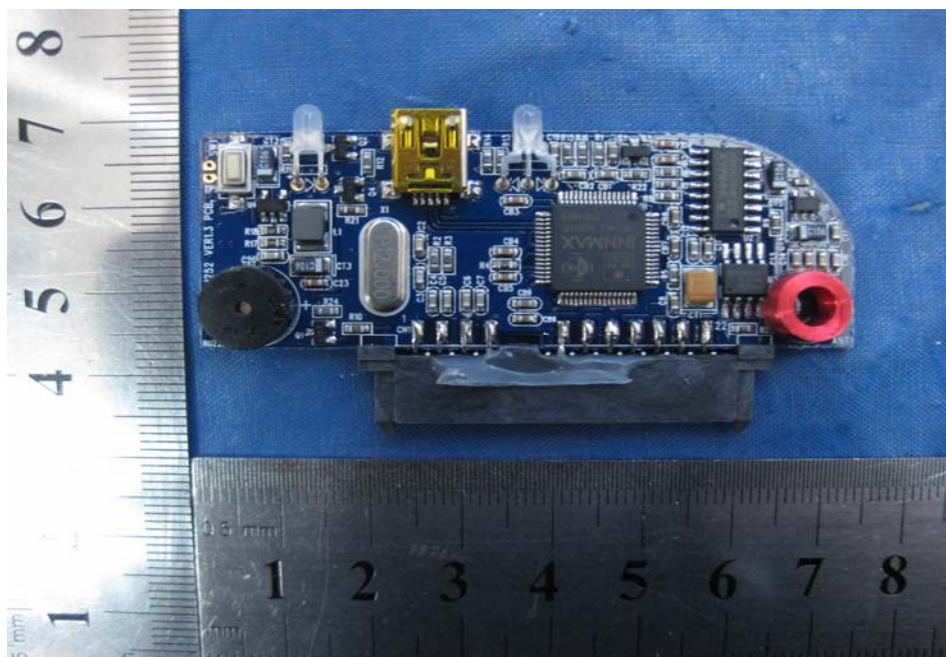
6.3 EUT - Back View



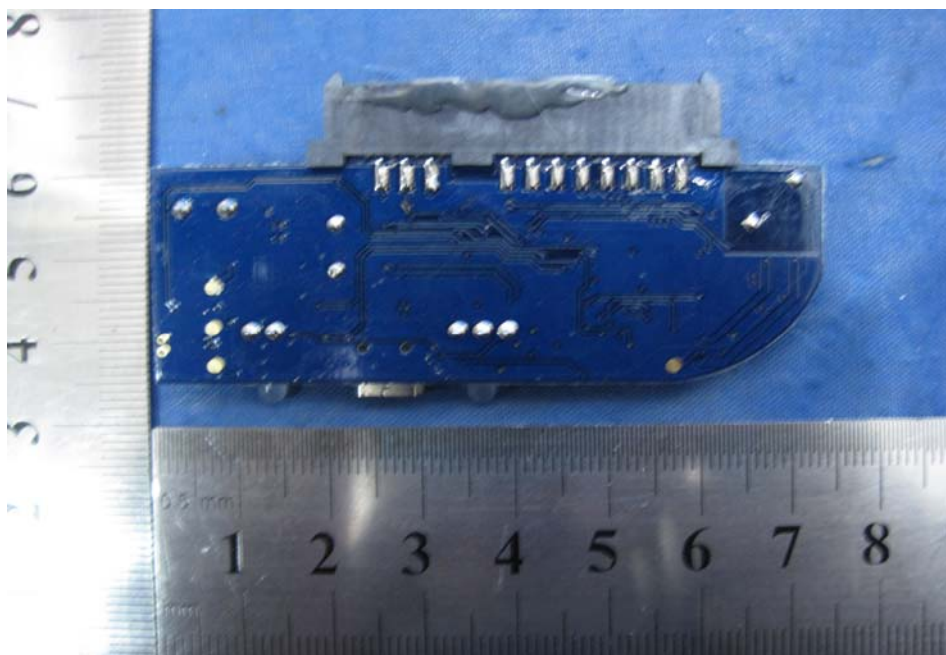
6.4 EUT - Open View



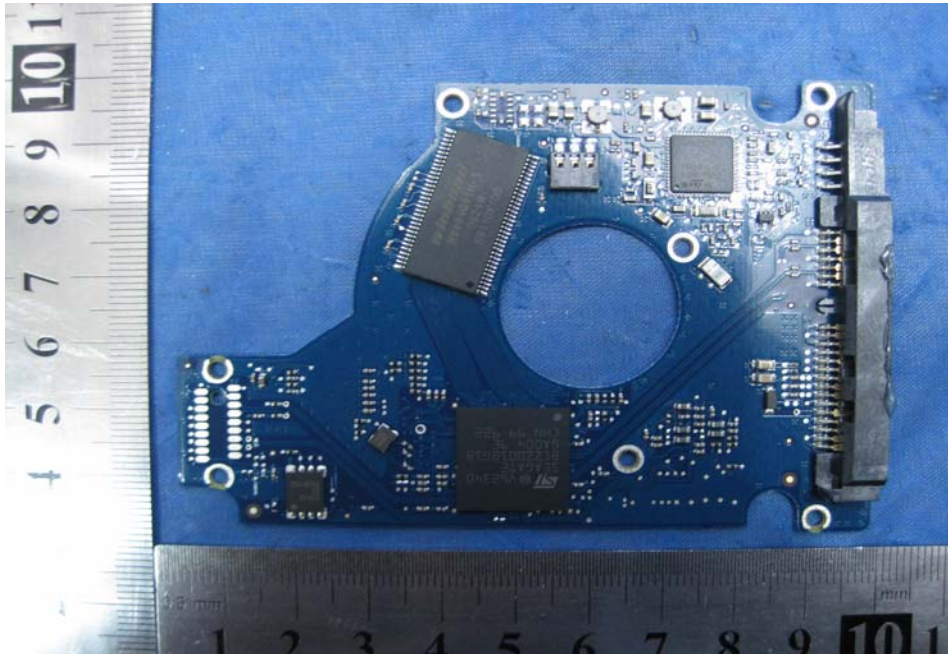
6.5 PCB1 - Front View



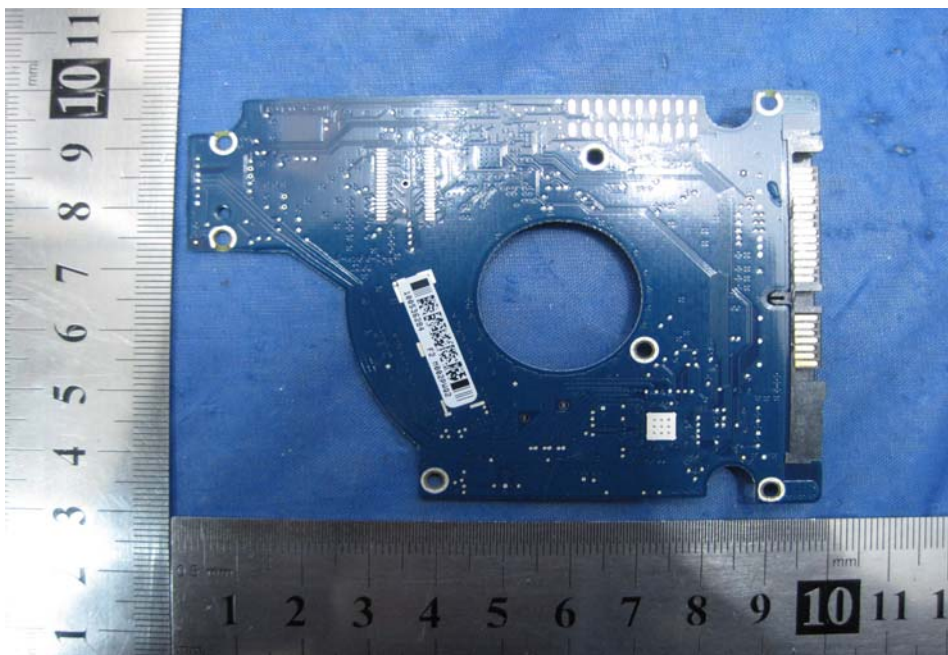
6.6 PCB1 - Back View



6.7 PCB2 - Front View



6.8 PCB2 - Back View



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FCC ID Label

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:(1)this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The Label must not be a stick-on paper. The Label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

Proposed Label Location on EUT
EUT Top View/ proposed FCC Label Location

