



TTI-P-G150/98-01

香 港 標 準 及 檢 定 中 心
Hong Kong Standards and Testing Centre

Date : 2005-06-07

TEST REPORT

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No. : HM153887

Applicant:

Rapidtrade (H.K.) Co., Ltd.
Flat F, 9/F., Valiant Industrial Centre,
12 Au Pui Wan Street, Fotan, N.T., Hong Kong.

Description of Samples:

Model name: AIR-SCAN®V
Model no.: SP-127
Brand name: Sporty's
FCC ID: R7ERTSP127V2

Date Samples Received:

2005-04-05

Date Tested:

2005-04-27

Investigation Requested:

FCC PART 15 SUBPART B

Conclusions:

The submitted product COMPLIED with the requirements of Federal Communications Commission [FCC] Rules and Regulations Part 15. The tests were performed in accordance with the standards described above and on Section 2.2 in this Test Report.

Remarks:

K C Lee, EMD
DAR Approved Signatory

DAR has accredited this laboratory in accordance with its terms of accreditation. This report shall not be reproduced unless with prior written approval from the Hong Kong Standards and Testing Centre.

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Tel: (852) 2666 1888 Fax: (852) 2664 4353 Homepage: www.hkstc.org E-mail: hkstc@hkstc.org
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Appendix A

List of Measurement Equipment

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Appendix B

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1.0 General Details

1.1 Test Laboratory

The Hong Kong Standards and Testing Centre Ltd.
EMC Laboratory
10 Dai Wang Street, Taipo Industrial Estate
New Territories, Hong Kong

Telephone: 852 2666 1888
Fax: 852 2664 4353

1.2 Applicant Details
Applicant

Rapidtrade (H.K.) Co., Ltd.
Flat F, 9/F., Valiant Industrial Centre,
12 Au Pui Wan Street, Fotan, N.T., Hong Kong.

HKSTC Code Number for Applicant

REH003

Manufacturer

Golden Wealth Industrial Limited.
Flat G, 9/F., Valiant Industrial Centre,
12 Au Pui Wan Street, Fotan, N.T., Hong Kong.

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**1.3 Equipment Under Test [EUT]
Description of Sample**

Model Name: AIR-SCAN®V
Manufacturer: Golden Wealth Industrial Limited.
Brand Name: Sporty's
Model Number: SP-127
Band Combination: FM / Air Band
Input Voltage: 9Vd.c. ("C" size Alkaline battery x 6) with jack
The AC/DC Adaptor used for the tests was provided by the applicant with the following details: Model Number: T3515-09D-300, Input: 120Vd.c. 60Hz 5.3W, Output: 9Vd.c. 300mA

1.3.1 Description of EUT Operation

The Equipment Under Test (EUT) is a Repidtrade (H.K.) Co., Ltd., AIR-SCAN®V.

1.4 Date of Order

2005-04-05

1.5 Submitted Sample(s):

2 samples per model

1.6 Test Duration

2004-04-27

1.7 Country of Origin

China

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1.8 Additional Information of EUT

User Manual
Part List
Circuit Diagram
Printed Circuit Board [PCB] Layout
Block diagram
FCC Label

Submitted

Not Available

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2.0 Technical Details

2.1 Investigations Requested

Perform ElectroMagnetic Interference measurement in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15 and ANSI C63.4: 2003 for FCC Certification.

2.2 Test Standards and Results Summary Tables

EMISSION Results Summary						
Test Condition	Test Requirement	Test Method	Class / Severity	Test Result		
				Pass	Failed	N/A
Radiated Emissions, 30MHz to 1GHz	FCC 47CFR 15.109	ANSI C63.4:2003	Class B	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Conducted Emissions on AC, 0.15MHz to 30MHz	FCC 47CFR 15.107	ANSI C63.4:2003	Class B	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Note: N/A - Not Applicable

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3.0 Test Results

3.1 Emission

3.1.1 Radiated Emissions (30 – 1000MHz)

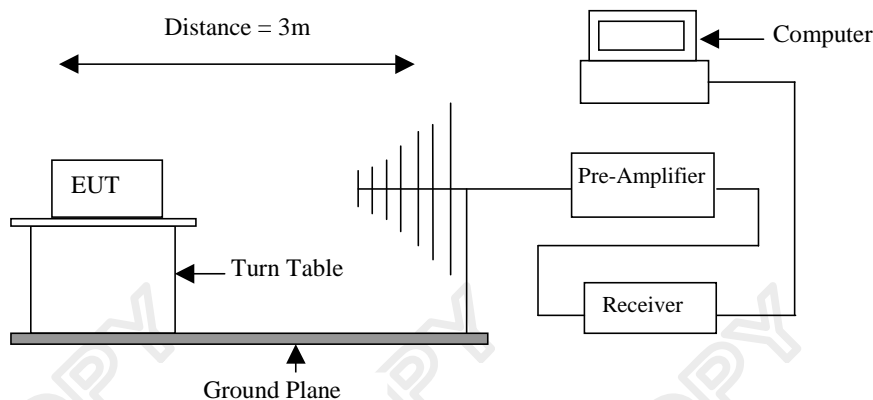
Test Requirement:	FCC 47CFR 15.109
Test Method:	ANSI C63.4:2003
Test Date:	2004-04-27
Mode of Operation:	FM Band & Air Band

Test Method:

The sample was placed 0.8m above the ground plane on the OATS *. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.

*: OATS [Open Area Test Site] located at HKSTC with a metal ground plane filled with the FCC pursuant to section 2.948 of the FCC rules, with Registration Number: 607756.

Test Setup:



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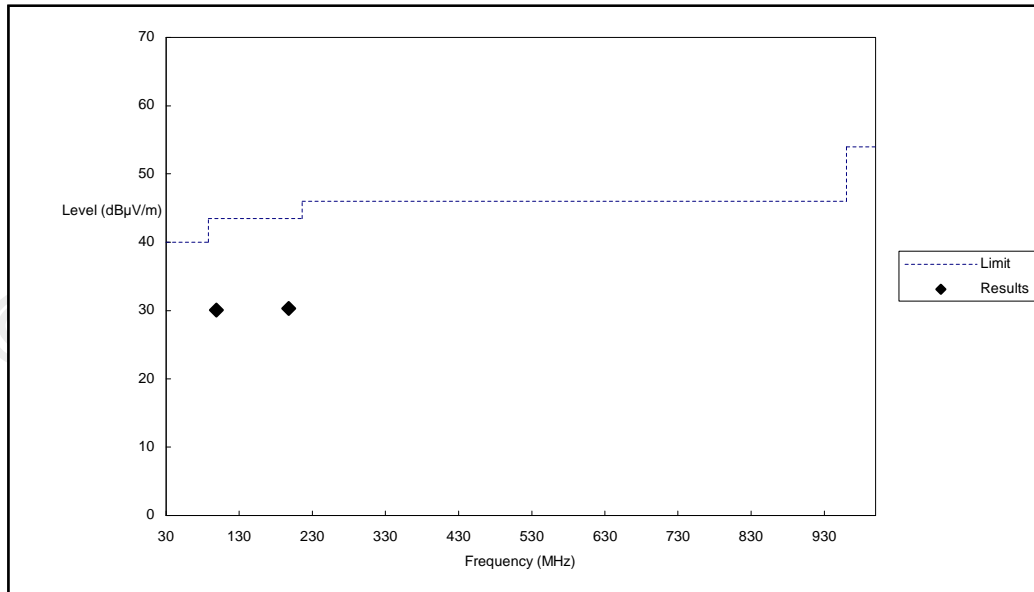
No. : HM153887

Limits for Radiated Emissions [FCC 47 CFR 15.109 Class B]:

Frequency Range [MHz]	Quasi-Peak Limits [$\mu\text{V/m}$]
30-88	100
88-216	150
216-960	200
Above 960	500

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Results of FM Band: PASS



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Results of FM Band: PASS

Radiated Emissions Quasi-Peak						
Turned Frequency MHz	Emission Frequency MHz	Measured Level @3m dB μ V/m	Limit @3m dB μ V/m	Measured Level @3m μ V/m	Limit @3m μ V/m	E-Field Polarity
88.1	98.8	20.4	43.5	10.5	150	Horizontal
	197.6	18.5	43.5	8.4	150	Horizontal
88.1	98.8	18.7	43.5	8.6	150	Vertical
	197.6	13.6	43.5	4.8	150	Vertical

Remark:

IF = 10.70MHz

Calculated measurement uncertainty : 30MHz to 1GHz ± 4.1 dB

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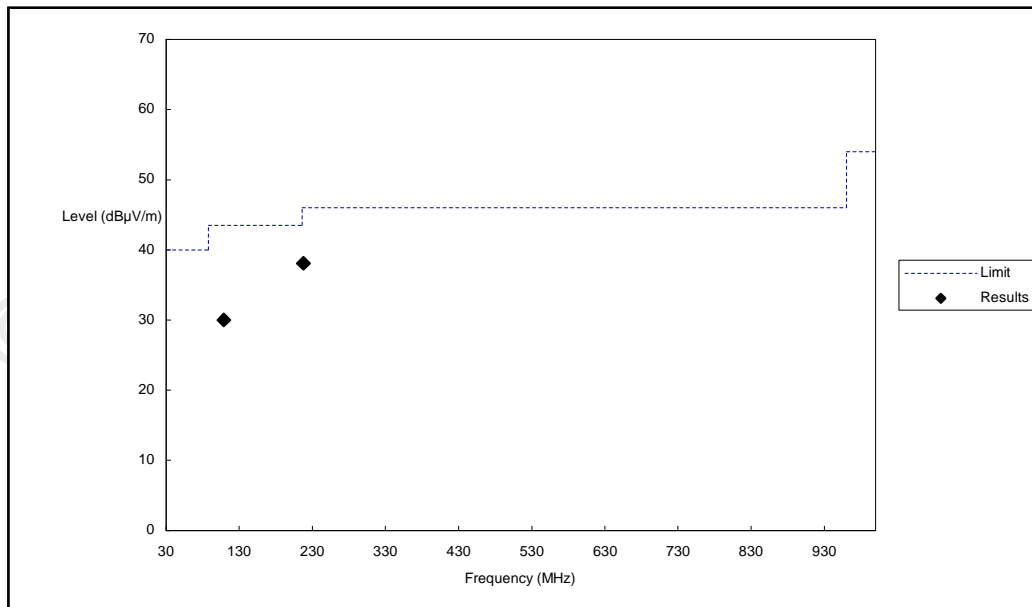
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Results of FM Band: PASS

Radiated Emissions Quasi-Peak						
Turned Frequency MHz	Emission Frequency MHz	Measured Level @3m dB μ V/m	Limit @3m dB μ V/m	Measured Level @3m μ V/m	Limit @3m μ V/m	E-Field Polarity
98.3	109.2	30.0	43.5	31.6	150	Horizontal
	218.0	38.1	46.0	80.4	200	Horizontal
98.3	109.2	29.1	43.5	28.5	150	Vertical
	218.0	27.4	46.0	23.4	200	Vertical

Remark:

Calculated measurement uncertainty : 30MHz to 1GHz ± 4.1 dB

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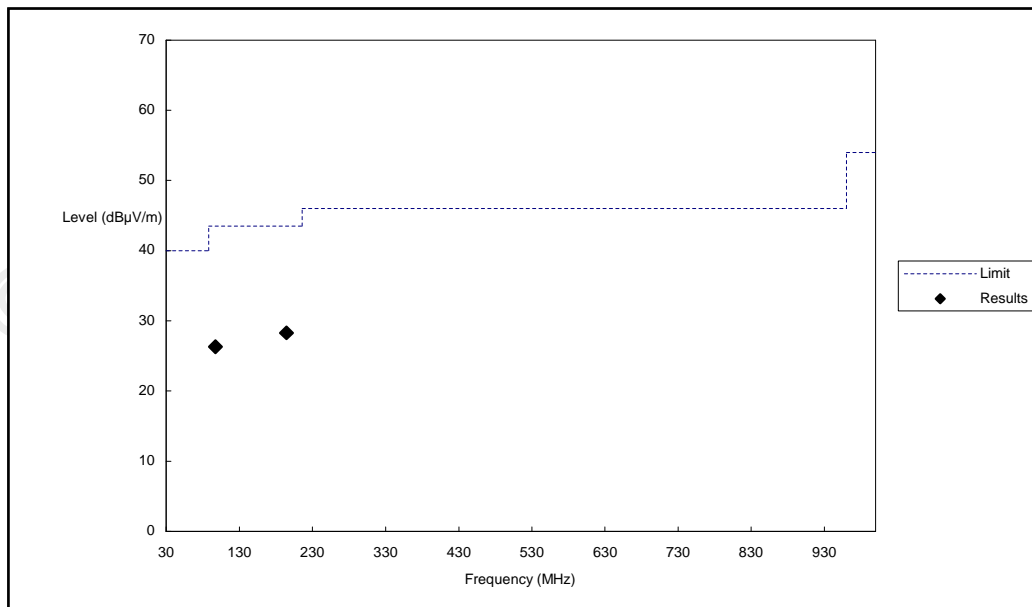
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Results of FM Band: PASS



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Results of FM Band: PASS

Radiated Emissions Quasi-Peak						
Turned Frequency MHz	Emission Frequency MHz	Measured Level @3m dB μ V/m	Limit @3m dB μ V/m	Measured Level @3m μ V/m	Limit @3m μ V/m	E-Field Polarity
108.0	97.3	26	43.5	20.0	150	Horizontal
	194.6	28.3	43.5	26.0	150	Horizontal
108.0	97.3	26.3	43.5	20.7	150	Vertical
	194.6	23.9	43.5	15.7	150	Vertical

Remark:

Calculated measurement uncertainty : 30MHz to 1GHz ± 4.1 dB

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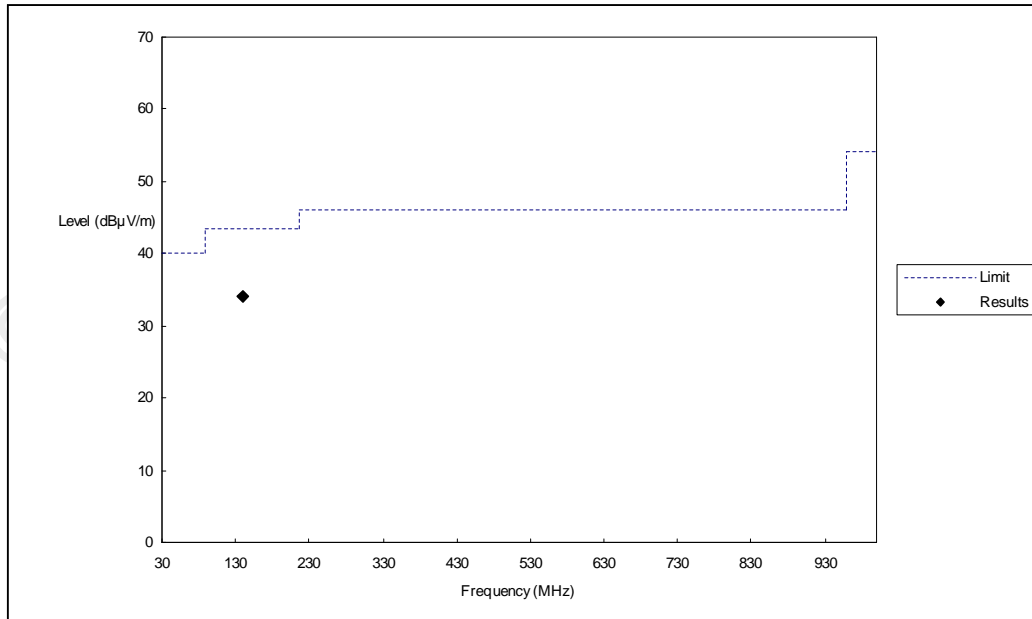
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30-88	100
88-216	150
216-960	200
Above 960	500

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Results of Air Band: PASS



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Results of Air Band: PASS

Radiated Emissions Quasi-Peak						
Turned Frequency MHz	Emission Frequency MHz	Measured Level @3m dB μ V/m	Limit @3m dB μ V/m	Measured Level @3m μ V/m	Limit @3m μ V/m	E-Field Polarity
118	139.4	34.1	43.5	50.7	150	Horizontal
	139.4	33.7	43.5	48.4	150	Vertical

Remark:

Calculated measurement uncertainty : 30MHz to 1GHz ± 4.1 dB

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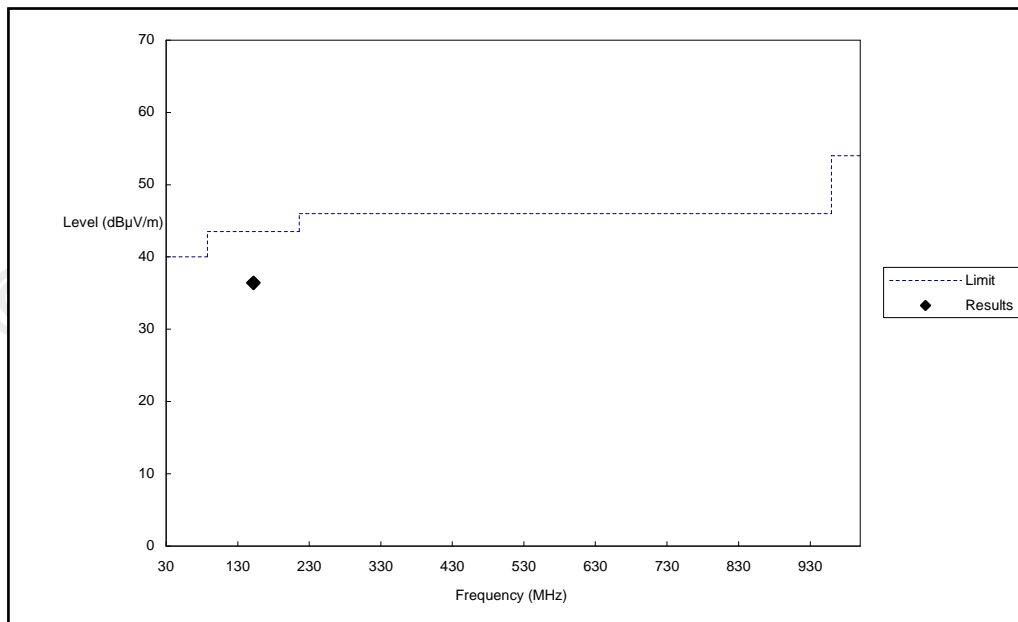
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Results of Air Band: PASS

Radiated Emissions Quasi-Peak						
Turned Frequency MHz	Emission Frequency MHz	Measured Level @3m dB μ V/m	Limit @3m dB μ V/m	Measured Level @3m μ V/m	Limit @3m μ V/m	E-Field Polarity
130.5	151.9	36.4	43.5	66.1	150	Horizontal
	151.9	35.8	43.5	61.7	150	Vertical

Remark:

Calculated measurement uncertainty : 30MHz to 1GHz ± 4.1 dB

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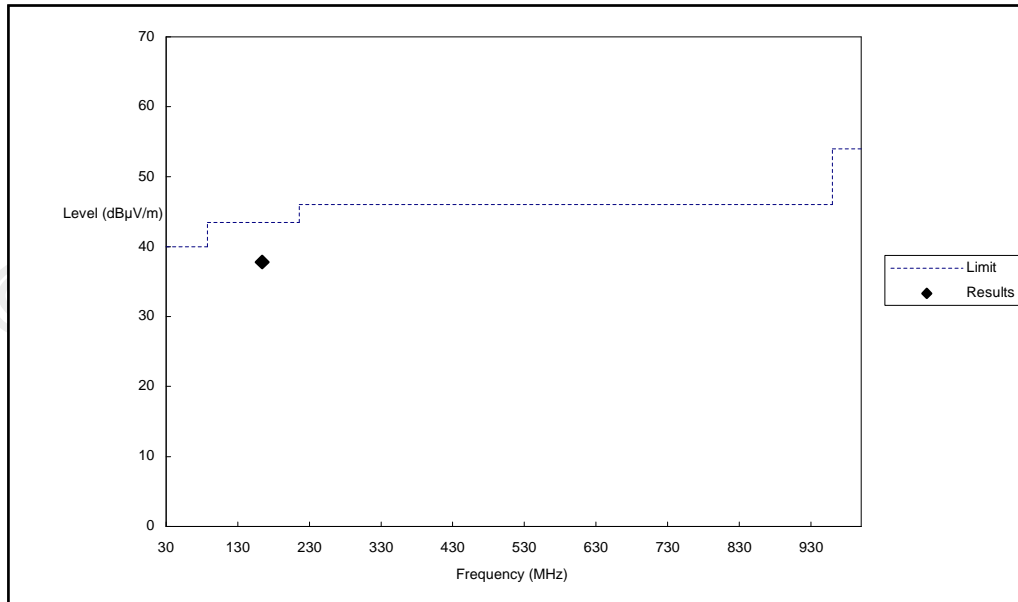
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Results of Air Band: PASS

Radiated Emissions Quasi-Peak						
Turned Frequency MHz	Emission Frequency MHz	Measured Level @3m dB μ V/m	Limit @3m dB μ V/m	Measured Level @3m μ V/m	Limit @3m μ V/m	E-Field Polarity
143.0	164.3	37.8	43.5	77.6	150	Horizontal
143.0	164.3	36.1	43.5	63.8	150	Vertical

Remark:

Calculated measurement uncertainty : 30MHz to 1GHz ± 4.1 dB

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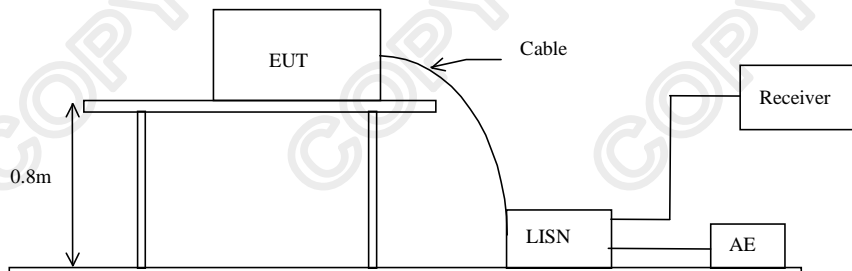
3.1.1 Conducted Emissions (0.15MHz to 30MHz)

Test Requirement:	FCC 47CFR 15.107
Test Method:	ANSI C63.4:2003
Test Date:	2005-04-27
Mode of Operation:	FM Band & Air Band

Test Method:

The test was performed in accordance with ANSI C63.4: 2003, with the following: an initial measurement was performed in peak and average detection mode on the live line. Any emissions recorded within 30dB of the relevant limit line were re-measured using quasi-peak and average detection on the live and neutral lines with the worst case recorded in the table of results.

Test Setup:



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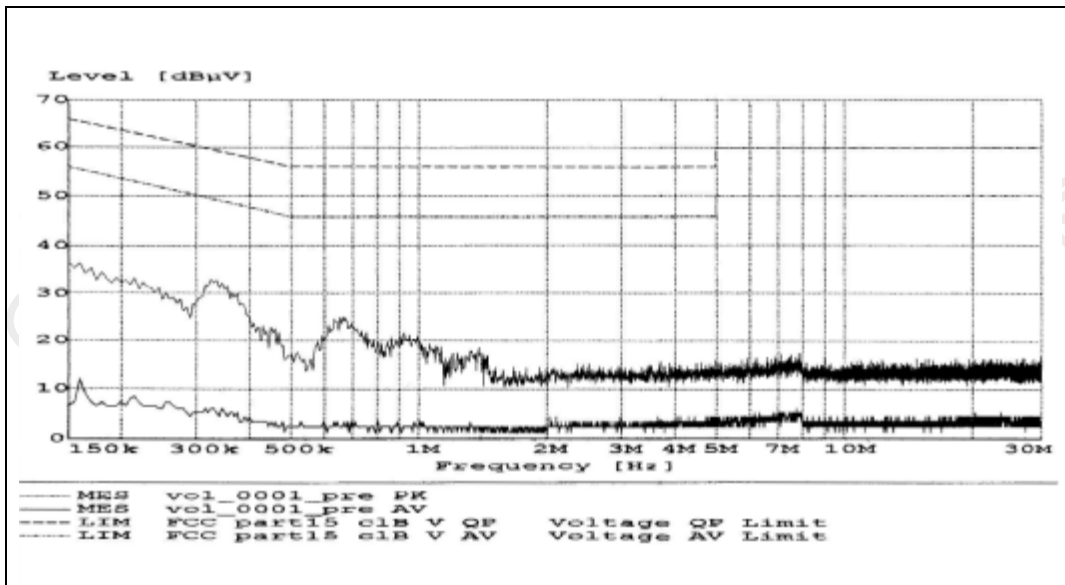
Limits for Conducted Emissions (FCC 47 CFR 15.107):

Frequency Range [MHz]	Quasi-Peak Limits [dB μ V]	Average [dB μ V]
0.15-0.5	66 to 56*	56 to 46*
0.5-5.0	56	46
5.0-30.0	60	50

* Decreases with the logarithm of the frequency.

Limits for Conducted Emissions Test, please refer to limit lines (Quasi-Peak and Average) in the following diagram labelled as (QP and AV).

Results of FM Band: PASS



Conductor Live or Neutral	Frequency MHz	Quasi-peak		Average	
		Level dBµV/m	Limit dBµV/m	Level dBµV/m	Limit dBµV/m
NO EMISSION DETECTED WITHIN 20dB OF THE FCC LIMITS					

Remark:

Calculated measurement uncertainty : ± 2.8 dB

-*- Emission greater than 30dB below limit line.

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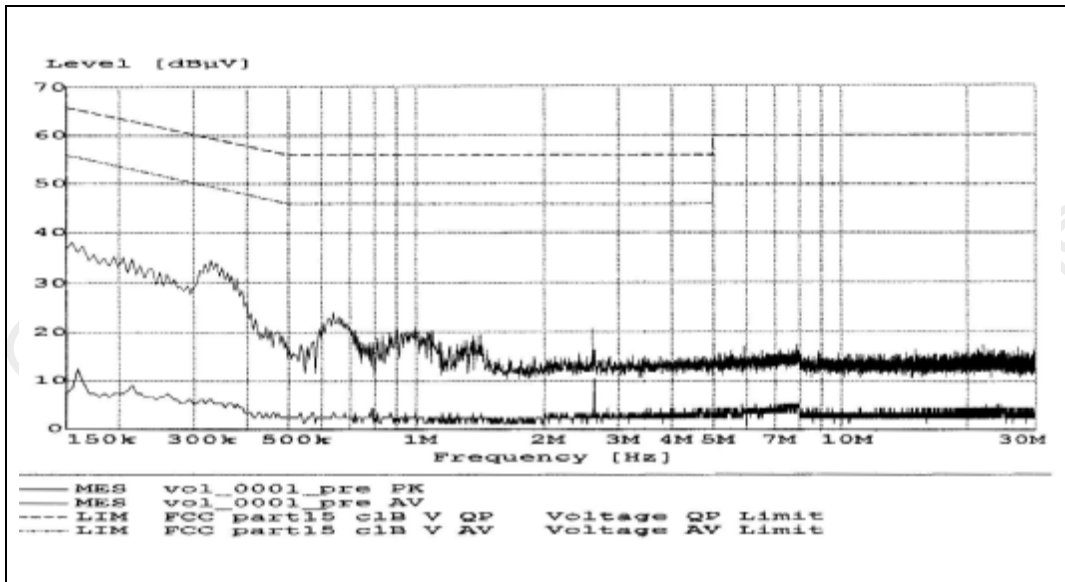
Limits for Conducted Emissions (FCC 47 CFR 15.107):

Frequency Range [MHz]	Quasi-Peak Limits [dB μ V]	Average [dB μ V]
0.15-0.5	66 to 56*	56 to 46*
0.5-5.0	56	46
5.0-30.0	60	50

* Decreases with the logarithm of the frequency.

Limits for Conducted Emissions Test, please refer to limit lines (Quasi-Peak and Average) in the following diagram labelled as (QP and AV).

Results of Air Band: PASS



Conductor Live or Neutral	Frequency MHz	Quasi-peak		Average	
		Level dB μ V/m	Limit dB μ V/m	Level dB μ V/m	Limit dB μ V/m
NO EMISSION DETECTED WITHIN 20dB OF THE FCC LIMITS					

Remark:

Calculated measurement uncertainty : ± 2.8 dB

-*- Emission greater than 30dB below limit line.

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Appendix A

List of Measurement Equipment

Radiated Emission

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL
EM007	SPECTRUM ANALYZER	HEWLETT PACKARD	HP85660B	3144A21192	15/06/04
EM008	SPECTRUM ANALYZER DISPLAY	HEWLETT PACKARD	HP85662A	3144A20514	15/06/04
EM009	QUASI PEAK ADAPTOR	HEWLETT PACKARD	HP85650A	3303A01702	15/06/04
EM010	RF PRESELECTOR	HEWLETT PACKARD	HP85685A	3221A01410	15/06/04
EM011	ATTENUATOR/SWITCH	HEWLETT PACKARD	HP11713A	2508A10595	15/06/04
EM012	PRE-AMPLIFIER	HEWLETT PACKARD	HP8449B	3008A00262	15/06/04
EM020	HORN ANTENNA	ETS-Linggren	3115	4032	30/07/03
EM022	LOOP ANTENNA	ETS-Linggren	6502	1189-2424	19/09/03
EM072	SIGNAL GENERATOR	HEWLETT PACKARD	8640B	1948A11892	N/A
EM083	OPEN AREA TEST SITE	HKSTC	N/A	N/A	08/02/03
EM131	EMC ANALYZER	HEWLETT PACKARD	8595EM	3710A00155	13/01/04
EM145	EMI TEST RECEIVER	ROHDE & SCHWARZ	ESCS 30	830245/021	04/10/04
EM195	ANTENNA POSITIONING MAST	ETS-Linggren	2075	2368	N/A
EM196	MULTI-DEVICE CONTROLLER	ETS-Linggren	2090	1662	N/A
EM215	MULTIDEVICE CONTROLER	ETS-Linggren	2090	00024676	N/A
EM216	MINI MAST SYSTEM	ETS-Linggren	2075	00026842	N/A
EM217	ELECTRIC POWERED TURNTABLE	ETS-Linggren	2088	00029144	N/A
EM218	ANECHOIC CHAMBER	ETS-Linggren	FACT-3	--	19/03/04
EM219	BICONILOG ANTENNA	ETS-Linggren	3142C	00029071	28/10/03
EM218	ETS ANECHOIC CHAMBER	EMCO	Fact-3	N/A	15/03/04
EM215	MULTI-DEVICE CONTROLLER	EMCO	2090	00024676	N/A
EM216	ANTENNA POSITIONING MAST	EMCO	2070	00024727	N/A

Line Conducted

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL
EM078	VARIAC	SHANGHAI VOLTAGE	TDGC-3/0.5	N/A	CM
EM081	SMALL SCREENED ROOM	MIKO INST HK	N/A	N/A	27/01/05
EM119	LISN	ROHDE & SCHWARZ	ESH3-Z5	0831.5518.52	14/10/04
EM127	ISOLATION TRANSFORMER 220 TO 300V	WING SUN	N/A	N/A	CM
EM142	PULSE LIMITER	ROHDE & SCHWARZ	ESH3Z2	357.8810.52	04/08/04
EM181	EMI TEST RECEIVER	ROHDE & SCHWARZ	ESIB7	100072	06/01/04
EM154	SHIELDING ROOM	SIEMENA MATSUSHITA COMPONENTS	N/A	803-740-057-99A	27/01/05
EM197	LISN	ETS-Linggren	4825/2	1193	05/06/04
EM213	DIGITAL POWER METER	VICNOBL	VIP120	00277	14/09/04

Remarks:-

CM Corrective Maintenance
N/A Not Applicable or Not Available
TBD To Be Determined

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Appendix B

Photographs of EUT

Front View of the product



Rear View of the product



Inner Circuit Top View



Inner Circuit Bottom View



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Photographs of EUT

Measurement of Radiated Emission Test Set Up



Measurement of Conducted Emission Test Set Up



***** End of Test Report *****

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