

Date: 2004-05-03
No.: HM150337

TEST REPORT

Page 1 of 23

Applicant: REPIDTRADE (HK) CO., LTD.

Description of Samples: Model name: AM/FM/AIR Band Scanner Radio
Model no.: Air-Scan®V
Brand name: Sporty's
FCC ID: R7ERTSP127

Date Samples Received: 2004-03-11

Date Tested: 2004-03-23 to 2004-04-13

Investigation Requested: FCC PART 15 SUBPART B

Conclusions: See the attached sheets for details

Remarks: ----

K C Lee, EMC
for Chief Executive

Date: 2004-05-03
No.: HM150337

TEST REPORT

Page 2 of 23

CONTENT:

Cover	Page 1 of 23	
Content	Page 2-3 of 23	
Conclusions	Page 4 of 23	
<u>1.0</u>	<u>General Details</u>	
1.1	Test Laboratory	Page 5 of 23
1.2	Applicant Details	Page 5 of 23
	Applicant	
	HKSTC Code Number for Applicant	
	Manufacturer	
1.3	Equipment Under Test [EUT]	Page 6 of 23
	Description of EUT operation	
1.4	Date of Order	Page 6 of 23
1.5	Submitted Samples	Page 6 of 23
1.6	Test Duration	Page 6 of 23
1.7	Country of Origin	Page 6 of 23
1.8	Additional Information of EUT	Page 7 of 23
<u>2.0</u>	<u>Technical Details</u>	
2.1	Investigations Requested	Page 8 of 23
2.2	Test Standards and Results Summary	Page 8 of 23
<u>3.0</u>	<u>Test Results</u>	
3.1	Emission	Page 9-15 of 23

Date: 2004-05-03
No.: HM150337

TEST REPORT

Page 3 of 23

Appendix A

List of Measurement Equipment

Page 16 of 23

Appendix B

Photographs

Page 17-23 of 23

Date: 2004-05-03
No.: HM150337

TEST REPORT

Page 4 of 23

CONCLUSIONS

The submitted product was deemed to have 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.

Date: 2004-05-03
No.: HM150337

TEST REPORT

Page 5 of 23

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

REPIDTRADE (HK) CO., LTD.
Flat F, 9/F Valiant Ind. Centre, 12 Au Pui Wan St.,
Fotan, N.T., Hong Kong.

HKSTC Code Number for Applicant

REH002

Manufacturer

GOLDEN WEALTH INDUSTRIAL LIMITED.
Flat G, 9/F Valiant Ind. Centre, 12 Au Pui Wan St.,
Fotan, N.T., Hong Kong.

Date: 2004-05-03
No.: HM150337

TEST REPORT

Page 6 of 23

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

Model Name: AM/FM/AIR Band Scanner Radio
Manufacturer: Golden Wealth Industrial Ltd.
Brand Name: Sporty's
Model Number: Air-Scan®V
Input Voltage: 9Vd.c. ("C" size 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: 120Va.c. 60Hz 5.3W, Output: 9Vd.c. 300mA

1.3.1 Description of EUT Operation

The Equipment Under Test (EUT) is a Repidtrade (HK) Co., Ltd, AM/FM/AIR Band Scanner Radio.

1.4 Date of Order

2004-03-11

1.5 Submitted Sample(s):

4 samples per model

1.6 Test Duration

2004-03-23 to 2004-04-13

1.7 Country of Origin

China

Date: 2004-05-03
No.: HM150337

TEST REPORT

Page 7 of 23

1.8 Additional Information of EUT

	Submitted	Not Available
User Manual	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Part List	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Circuit Diagram	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Printed Circuit Board [PCB] Layout	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Block diagram	<input checked="" type="checkbox"/>	<input type="checkbox"/>
FCC DOC Label	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Date: 2004-05-03
No.: HM150337

TEST REPORT

Page 8 of 23

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

Date: 2004-05-03
No.: HM150337

TEST REPORT

Page 9 of 23

3.0 Test Results

3.1 Emission

3.1.1 Radiated Emissions (30 – 1000MHz)

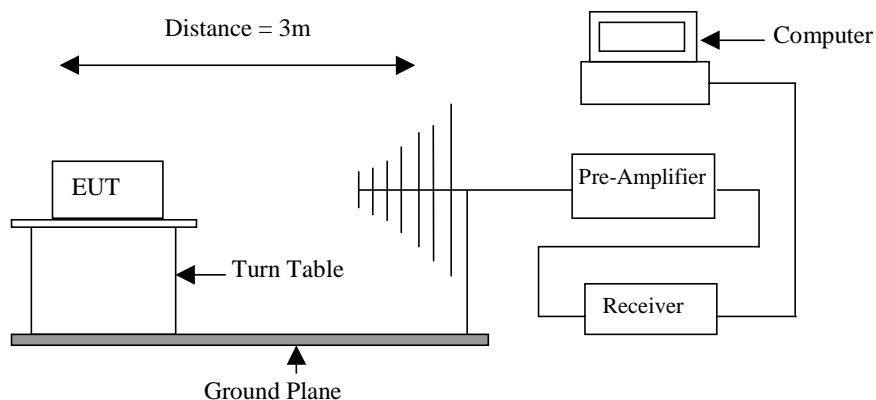
Test Requirement:	FCC 47CFR 15.109
Test Method:	ANSI C63.4:2003
Test Date:	2004-03-26
Mode of Operation:	On Mode

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 filed with the FCC pursuant to section 2.948 of the FCC rules, with Registration Number: 90657.

Test Setup:



Date: 2004-05-03
No.: HM150337

TEST REPORT

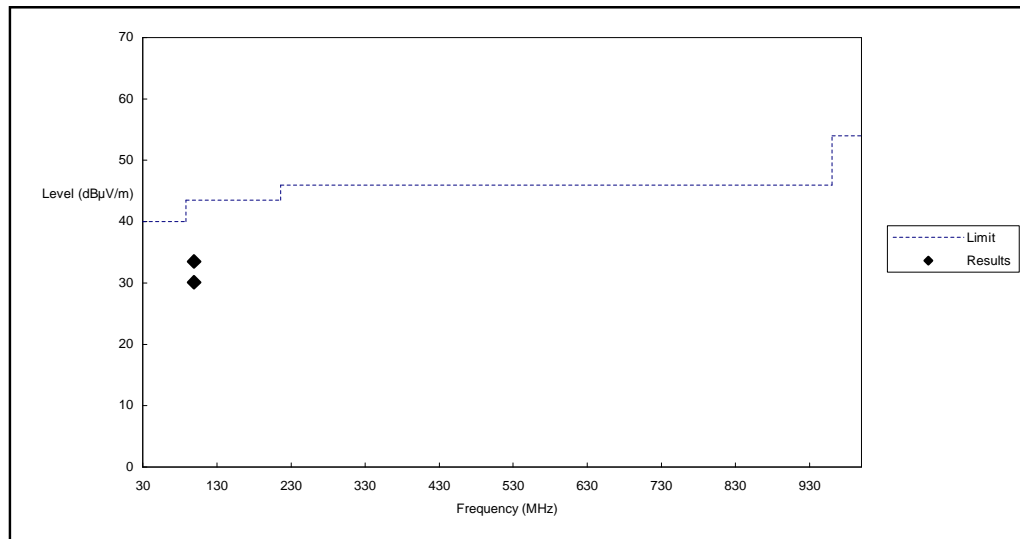
Page 10 of 23

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

Frequency Range [MHz]	Quasi-Peak Limits [$\mu\text{V}/\text{m}$]
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: On Mode (FM Radio)



Radiated Emissions Quasi-Peak						
Tuned Frequency MHz	Emission Frequency MHz	Measured Level@3m dB $\mu\text{V}/\text{m}$	Limit @3m dB $\mu\text{V}/\text{m}$	Measured Level@3m $\mu\text{V}/\text{m}$	Limit @3m $\mu\text{V}/\text{m}$	E-Field Polarity
88.3	99	33.5	43.5	47.3	150	Horizontal
88.3	99	30.1	43.5	32.0	150	Vertical

Remarks:

IF = 10.70MHz

Calculated measurement uncertainty: $\pm 4.1\text{dB}$

Date: 2004-05-03
No.: HM150337

TEST REPORT

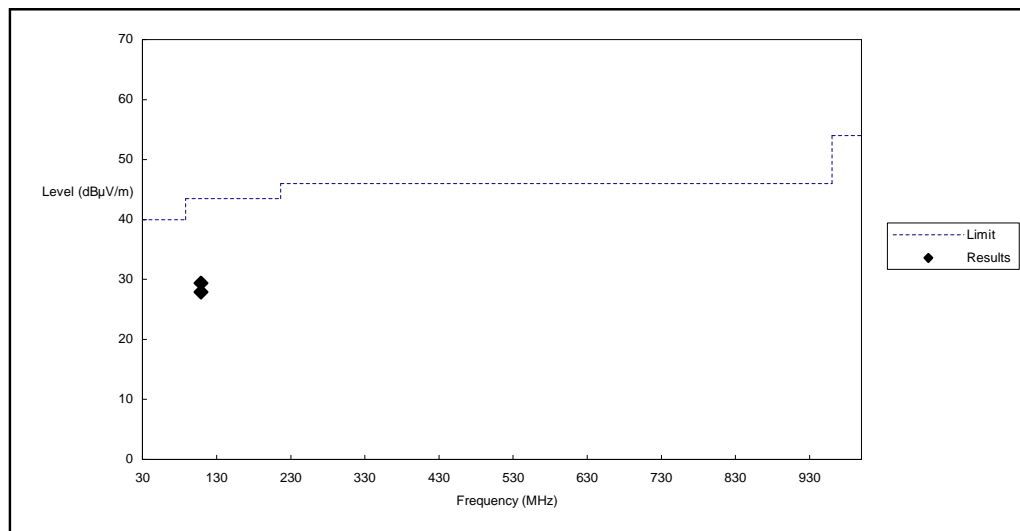
Page 11 of 23

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

Frequency Range [MHz]	Quasi-Peak Limits [$\mu\text{V}/\text{m}$]
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: On Mode (FM Radio)



Radiated Emissions Quasi-Peak						
Tuned Frequency MHz	Emission Frequency MHz	Measured Level@3m dB $\mu\text{V}/\text{m}$	Limit @3m dB $\mu\text{V}/\text{m}$	Measured Level@3m $\mu\text{V}/\text{m}$	Limit @3m $\mu\text{V}/\text{m}$	E-Field Polarity
98.3	109	29.4	43.5	29.5	150	Horizontal
98.3	109	27.9	43.5	24.8	150	Vertical

Remarks:

IF = 10.70MHz

Calculated measurement uncertainty: $\pm 4.1\text{dB}$

Date: 2004-05-03
No.: HM150337

TEST REPORT

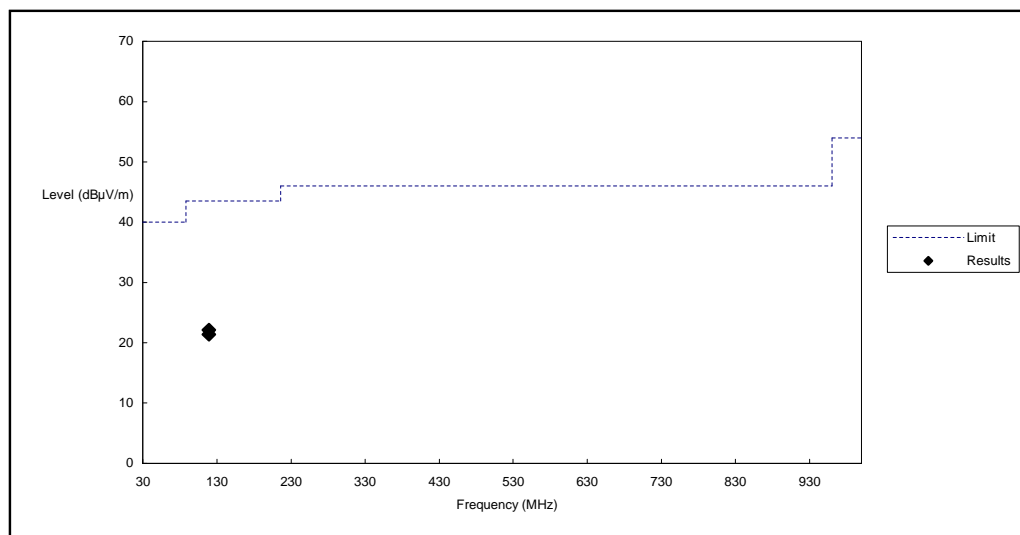
Page 12 of 23

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

Frequency Range [MHz]	Quasi-Peak Limits [$\mu\text{V}/\text{m}$]
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: On Mode (FM Radio)



Radiated Emissions Quasi-Peak						
Tuned Frequency MHz	Emission Frequency MHz	Measured Level@3m dB $\mu\text{V}/\text{m}$	Limit @3m dB $\mu\text{V}/\text{m}$	Measured Level@3m $\mu\text{V}/\text{m}$	Limit @3m $\mu\text{V}/\text{m}$	E-Field Polarity
108.3	119	22.1	43.5	12.7	150	Horizontal
108.3	119	21.4	43.5	11.7	150	Vertical

Remarks:

IF = 10.70MHz

Calculated measurement uncertainty: $\pm 4.1\text{dB}$

Date: 2004-05-03
No.: HM150337

TEST REPORT

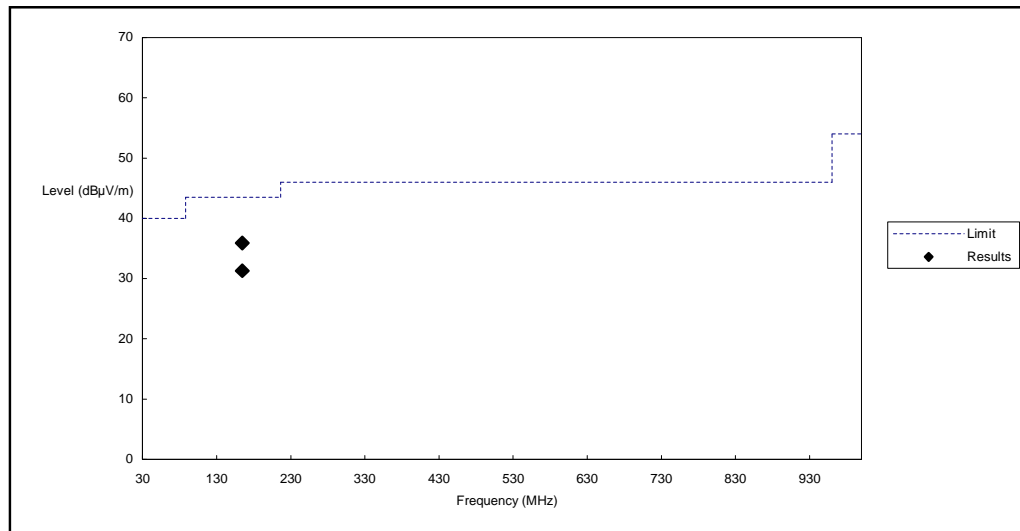
Page 13 of 23

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: On Mode (Air Band)



Radiated Emissions Quasi-Peak						
Tuned Frequency MHz	Emission Frequency MHz	Measured Level@3m dB $\mu\text{V/m}$	Limit @3m dB $\mu\text{V/m}$	Measured Level@3m $\mu\text{V/m}$	Limit @3m $\mu\text{V/m}$	E-Field Polarity
142.9	164.4	35.9	43.5	62.4	150	Horizontal
142.9	164.4	31.3	43.5	36.7	150	Vertical

Remarks:

Calculated measurement uncertainty: $\pm 4.1\text{dB}$

Date: 2004-05-03
No.: HM150337

TEST REPORT

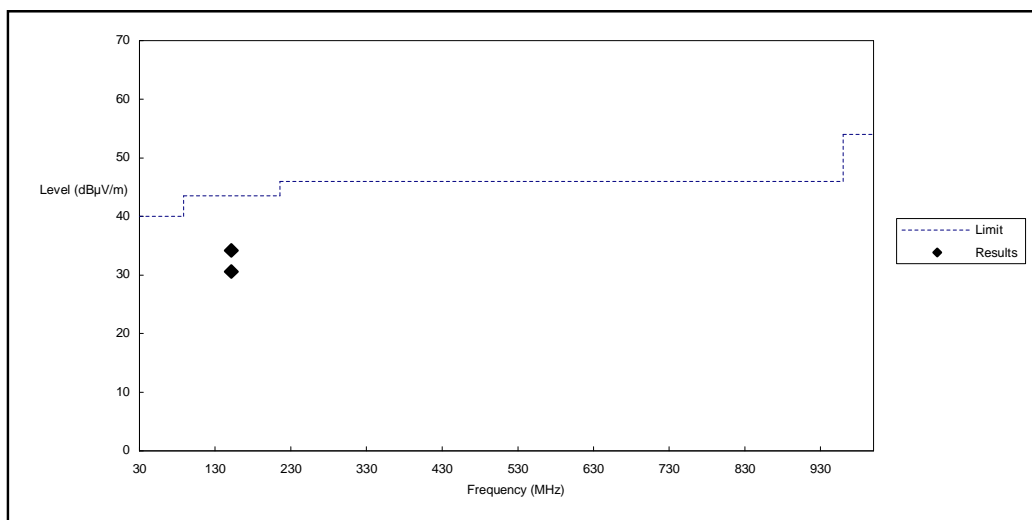
Page 14 of 23

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

Frequency Range [MHz]	Quasi-Peak Limits [μV/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: On Mode (Air Band)



Radiated Emissions Quasi-Peak						
Tuned Frequency MHz	Emission Frequency MHz	Measured Level@3m dBμV/m	Limit @3m dBμV/m	Measured Level@3m μV/m	Limit @3m μV/m	E-Field Polarity
130.4	151.4	34.2	43.5	51.3	150	Horizontal
130.4	151.4	30.6	43.5	33.9	150	Vertical

Remarks:

Calculated measurement uncertainty: ±4.1dB

Date: 2004-05-03
No.: HM150337

TEST REPORT

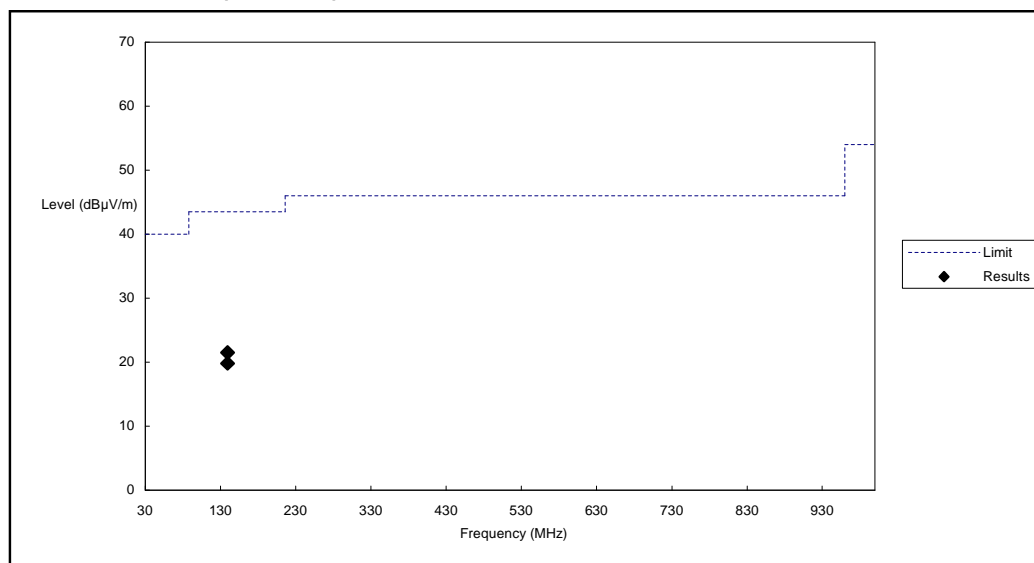
Page 15 of 23

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

Frequency Range [MHz]	Quasi-Peak Limits [μV/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: On Mode (Air Band)



Radiated Emissions Quasi-Peak						
Tuned Frequency MHz	Emission Frequency MHz	Measured Level@3m dBμV/m	Limit @3m dBμV/m	Measured Level@3m μV/m	Limit @3m μV/m	E-Field Polarity
118	139.4	21.5	43.5	11.9	150	Horizontal
118	139.4	19.8	43.5	9.8	150	Vertical

Remarks:

Calculated measurement uncertainty: ±4.1dB

Date: 2004-05-03
No.: HM150337

TEST REPORT

Page 16 of 23

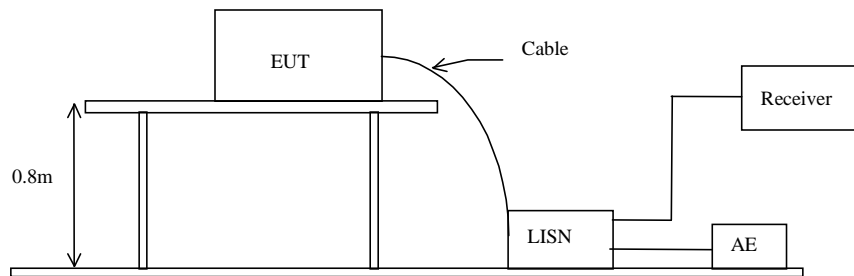
3.1.1 Conducted Emissions (0.15MHz to 30MHz)

Test Requirement:	FCC 47CFR 15.107
Test Method:	ANSI C63.4:2003
Test Date:	2004-03-23
Mode of Operation:	On mode

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:



Date: 2004-05-03
No.: HM150337

TEST REPORT

Page 17 of 23

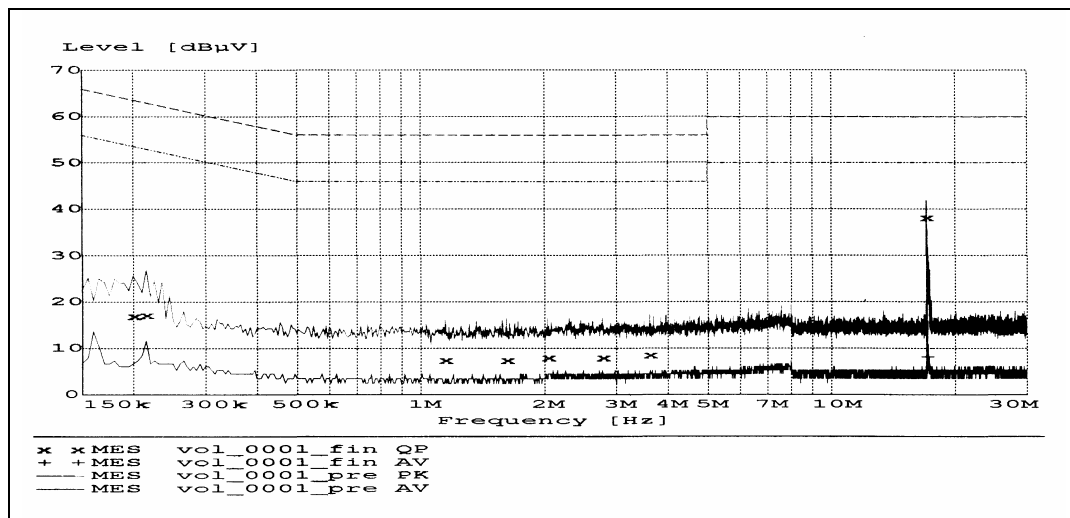
Limits for Conducted Emissions (FCC 47 CFR 15.107):

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).

Result: FM Mode



Date: 2004-05-03
No.: HM150337

TEST REPORT

Page 18 of 23

Results: FM Mode

Conductor Live or Neutral	Frequency MHz	Quasi-peak		Average	
		Level dB _μ V	Limit dB _μ V	Level dB _μ V	Limit dB _μ V
Live	0.215	17.1	63	-*-	-*-
Live	1.620	7.4	56	-*-	-*-
Live	2.040	8.0	56	-*-	-*-
Live	2.775	8.0	56	-*-	-*-
Live	4.636	-*-	-*-	4.6	46
Neutral	0.200	16.9	64	-*-	-*-
Neutral	1.150	7.4	56	-*-	-*-
Neutral	3.620	8.5	56	-*-	-*-
Neutral	17.080	-*-	-*-	8.1	50
Neutral	17.095	38.1	60	-*-	-*-

Remarks:

Calculated measurement uncertainty: ± 2.8 dB
-*- Emission greater than 30dB below limit line.

Date: 2004-05-03
No.: HM150337

TEST REPORT

Page 19 of 23

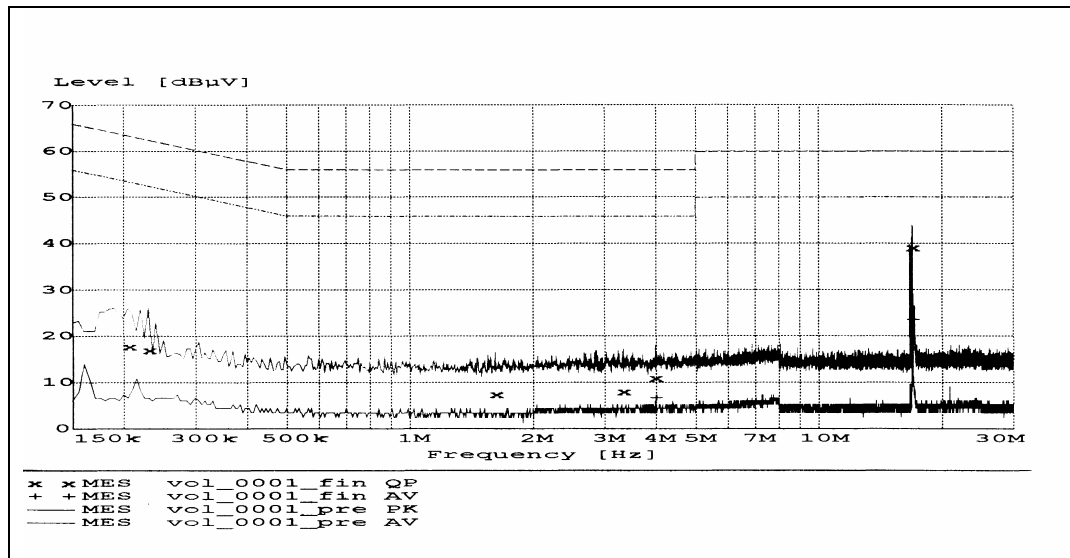
Limits for Conducted Emissions (FCC 47 CFR 15.107):

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: Air Mode



Date: 2004-05-03
No.: HM150337

TEST REPORT

Page 20 of 23

Results: Air Mode

Conductor Live or Neutral	Frequency MHz	Quasi-peak		Average	
		Level dB _μ V	Limit dB _μ V	Level dB _μ V	Limit dB _μ V
Live	0.230	16.9	62.0	-*-	-*-
Neutral	0.205	17.7	63.0	-*-	-*-
Neutral	1.620	7.4	56.0	-*-	-*-
Neutral	3.335	8.0	56.0	-*-	-*-
Neutral	3.985	10.9	56.0	6.7	46.0
Neutral	16.985	-*-	-*-	23.5	50.0
Neutral	16.995	39.1	60.0	-*-	-*-

Remarks:

Calculated measurement uncertainty: ± 2.8 dB
-*- Emission greater than 30dB below limit line.

Date: 2004-05-03
No.: HM150337

TEST REPORT

Page 21 of 23

Appendix A

Test Equipment Audit

Radiated Emission

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL
EM007	SPECTRUM ANALYZER	HEWLETT PACKARD	HP85660B	3144A21192	14/03/03
EM008	SPECTRUM ANALYZER DISPLAY	HEWLETT PACKARD	HP85662A	3144A20514	14/03/03
EM009	QUASI PEAK ADAPTOR	HEWLETT PACKARD	HP85650A	3303A01702	14/03/03
EM010	RF PRESELECTOR	HEWLETT PACKARD	HP85685A	3221A01410	14/03/03
EM011	ATTENUATOR/SWITCH	HEWLETT PACKARD	HP11713A	2508A10595	14/03/03
EM012	PRE-AMPLIFIER	HEWLETT PACKARD	HP8449B	3008A00262	14/03/03
EM013	CONTROLLER (COMPUTER), COLOR MONITOR, KEYBOARD & MOUSE FLOPPY DRIVE	HEWLETT PACKARD HEWLETT PACKARD HEWLETT PACKARD	HP9000 HP A1097C HP9133L	6226A60314 3151J39517 2623A02468	CM
EM020	HORN ANTENNA	EMCO	3115	4032	19/07/00
EM022	LOOP ANTENNA	EMCO	6502	1189-2424	04/08/00
EM072	SIGNAL GENERATOR	HEWLETT PACKARD	8640B	1948A11892	N/A
EM083	HKSTC OPEN AREA TEST SITE	HKSTC	N/A	N/A	08/11/02
EM131	PORTABLE SPECTRUM ANALYSER	HEWLETT PACKARD	8595EM	3710A00155	18/12/01
EM145	EMI TEST RECEIVER	R & S	ESCS 30	830245/021	02/08/03
EM194	BICONILOG ANTENNA	EMCO	3142B	1795	14/05/02
EM195	ANTENNA POSITIONING MAST	EMCO	2075	2368	N/A
EM196	MULTI-DEVICE CONTROLLER	EMCO	2090	1662	N/A

Conducted Emission

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	04/10/01
EM119	LISN	R & S	ESH3-Z5	0831.5518.52	31/08/00
EM127	ISOLATION TRANSFORMER 220 TO 300	WING SUN	N/A	N/A	CM
EM142	PULSES LIMITER	R & S	ESH3Z2	357.8810.52	04/07/01
EM181	EMI TEST RECEIVER	R & S	ESIB7	100072	28/11/01
EM154	SHIELDING ROOM	SIEMENA MATSUSHITA COMPONENTS	N/A	803-740-057- 99A	02/01/02
EM197	LISN	EMCO	4825/2	1193	08/04/03

Remarks:

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

Date: 2004-05-03
No.: HM150337

TEST REPORT

Page 22 of 23

Appendix B

Photographs of EUT

Front View of the product



Rear View of the product



Inner Circuit Top View



Inner Circuit Bottom View



Date: 2004-05-03
No.: HM150337

TEST REPORT

Page 23 of 23

Photographs of EUT

Measurement of Radiated Emission Test Set Up



Measurement of Conducted Emission Test Set Up



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