



FCC RF Test Report

APPLICANT : HTC Corporation
EQUIPMENT : PDA Phone
MODEL NAME : PD15100
FCC ID : NM8PD15100
STANDARD : FCC Part 15 Subpart C §15.239

The product was received on Jul. 16, 2010 and completely tested on Sep. 21, 2010. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.4-2003 and shown the compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by:

Anderson Chiu

Anderson Chiu / Deputy Manager



SPORTON INTERNATIONAL INC.

No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.



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SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.239 (a)	200 kHz Bandwidth of Frequency Band Edges	200 kHz	Pass	-
3.2	15.239 (b)	Field Strength	48 dBuV/m	Pass	-
3.3	15.239 (c)	Radiated Emission Measurement	15.209 (a)	Pass	The worst is under limit 3.50 dB at 30.54 MHz
3.4	15.207	AC Conducted Emission	15.207(a)	Pass	The worst is under limit 9.3 dB at 0.670 MHz
3.5	15.203	Antenna Requirement	N/A	Pass	-



1 General Description

1.1 Applicant

HTC Corporation

No. 23, Xinghua Rd., Taoyuan City, Taiwan

1.2 Manufacturer

HTC Corporation

No. 23, Xinghua Rd., Taoyuan City, Taiwan

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	PDA Phone
Model Name	PD15100
FCC ID	NM8PD15100
Sample 1	EUT with LCM-Main, Camera-Main and PA-Main
Sample 2	EUT with LCM-2 nd , Camera-2 nd and PA-Main
Sample 3	EUT with LCM-Main, Camera-Main and PA-2 nd
Frequency Range	88.1 MHz ~ 107.9 MHz
Number of Channels	200
Carrier Frequency of each channel	88.1 + n * 200 kHz, n = 0~99
Channel Spacing	100 kHz
Maximum Fundamental Field Strength	47.66 dBuV/m at 3m (Peak) 45.23 dBuV/m at 3m (Average)
Antenna Type	External Antenna
Type of Modulation	FSK
EUT Stage	Production Unit

Remark:

1. For other wireless features of this EUT, test report will be issued separately.
2. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
3. This product has two kinds of PAs, PA-Main and PA-2nd. The difference does not relate RF (FM) effect, so only Sample 1 and Sample 2 are used for tests.



1.4 Testing Site

Test Site	SPORTON INTERNATIONAL INC.	
Test Site Location	No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-3273456 / FAX: +886-3-3284978	
Test Site No.	Sporton Site No.	FCC/IC Registration No.
	03CH07-HY	TW1022/4086B-1

1.5 Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ FCC Part 15 Subpart C §15.239
- ♦ ANSI C63.4-2003

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B (DoC), recorded in a separate test report.



2 Test Configuration of Equipment Under Test

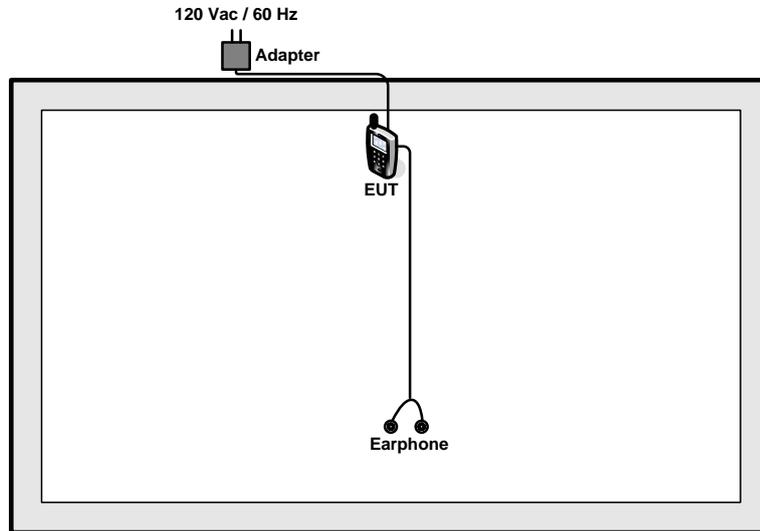
2.1 Test Mode

The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction (150 kHz to 30 MHz), radiated emission ((9 kHz to the 10th harmonic).

The following tables are showing the test modes as the worst cases and recorded in this report.

Test Cases	
Radiated TCs	Mode 1 : FM Tx Mode for 88.1MHz + TC for Sample 1 Mode 2 : FM Tx Mode for 98.0MHz + TC for Sample 1 Mode 3 : FM Tx Mode for 107.9MHz + TC for Sample 1 Mode 4 : FM Tx Mode for 88.1MHz + TC for Sample 2
AC Conducted Emission	Mode 1: FM Tx Mode for 98.0MHz + Earphone + Battery 1 + USB Cable 1 (Charging from Adapter 1) for Sample 1 Mode 2: FM Tx Mode for 98.0MHz + Earphone + Battery 2 + USB Cable 2 (Charging from Adapter 2) for Sample 2
Remark: 1. TC stands for Test Configuration, and consists of Battery 1, Earphone, USB Cable 1, and Adapter 3. 2. The worst case of AC is mode 1; only the test data of this mode was reported.	

2.2 Connection Diagram of Test System



2.3 RF Utility

The programmed RF utility "FM Radio" is installed in EUT to provide channel selection and the application type by playing MP3 files from EUT. RF Utility can send transmitting signal for all testing.

The RF utility and MP3 player are as the following figures.



<MP3 Player>



<FM Radio>

3 Test Result

3.1 200 kHz Bandwidth of Frequency Band Edges

3.1.1 Limit of 200 kHz Bandwidth

The 200 kHz band shall lie wholly within the frequency range of 88-108 MHz.

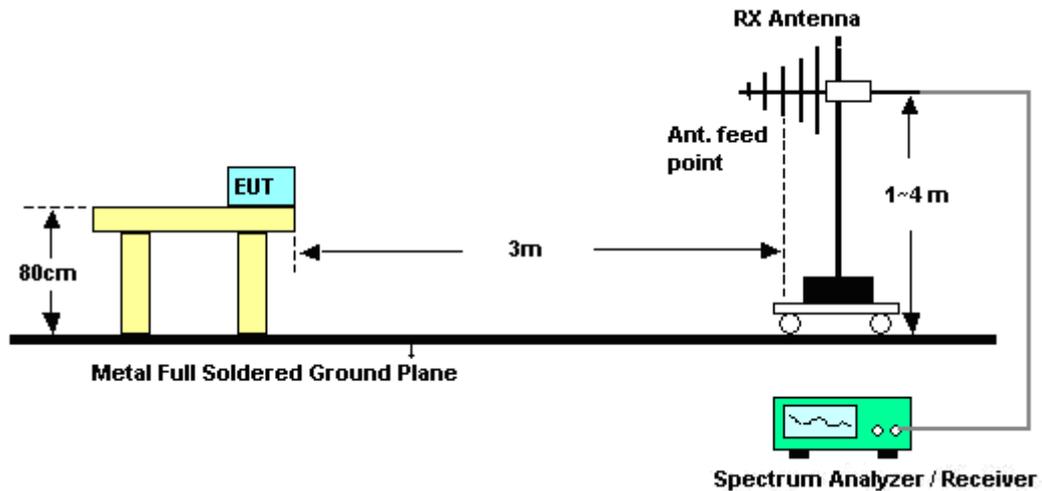
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

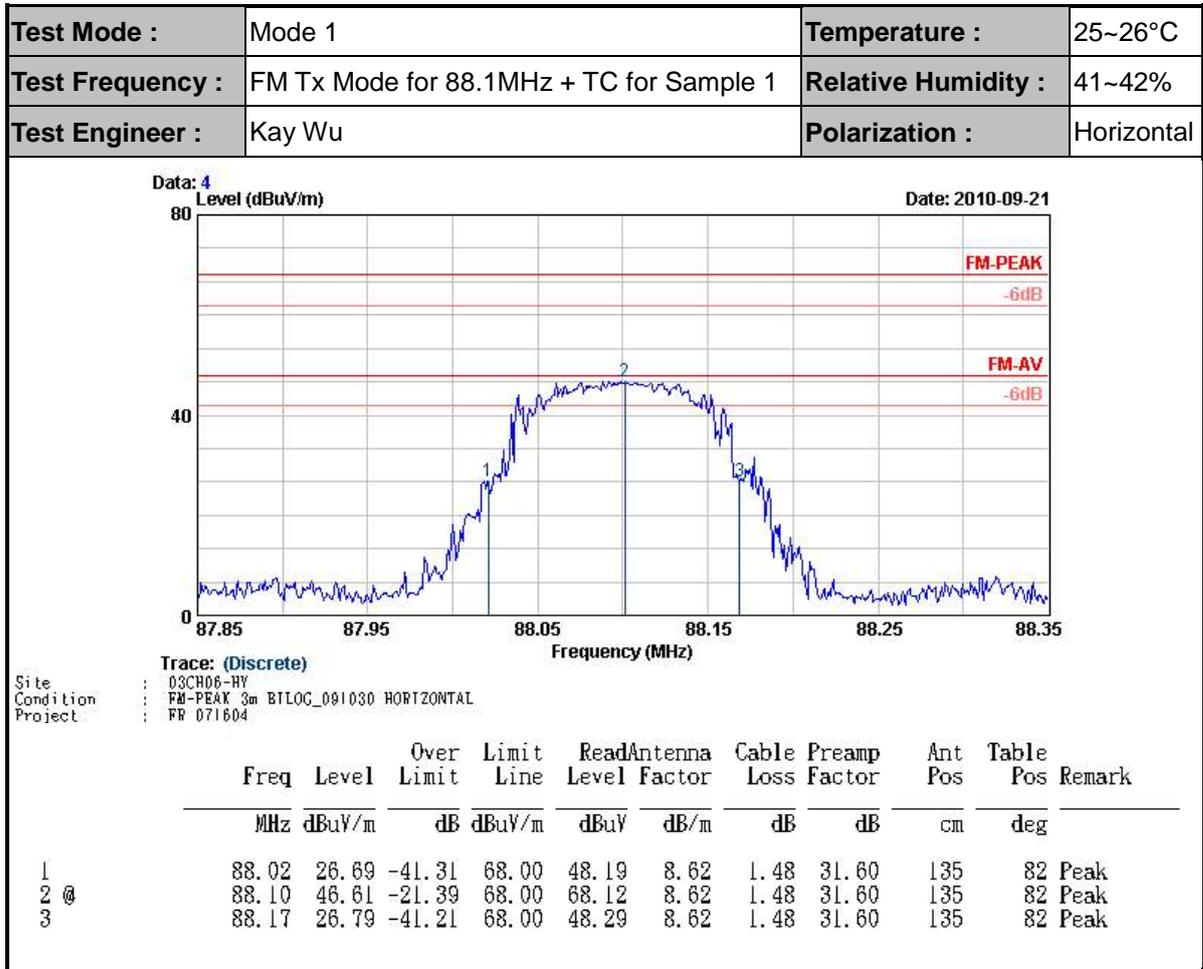
1. Set both RBW/VBW=3 kHz/10 kHz for peak measurement in the radiated measurement.
2. The band edges was measured and recorded.

3.1.4 Test Setup



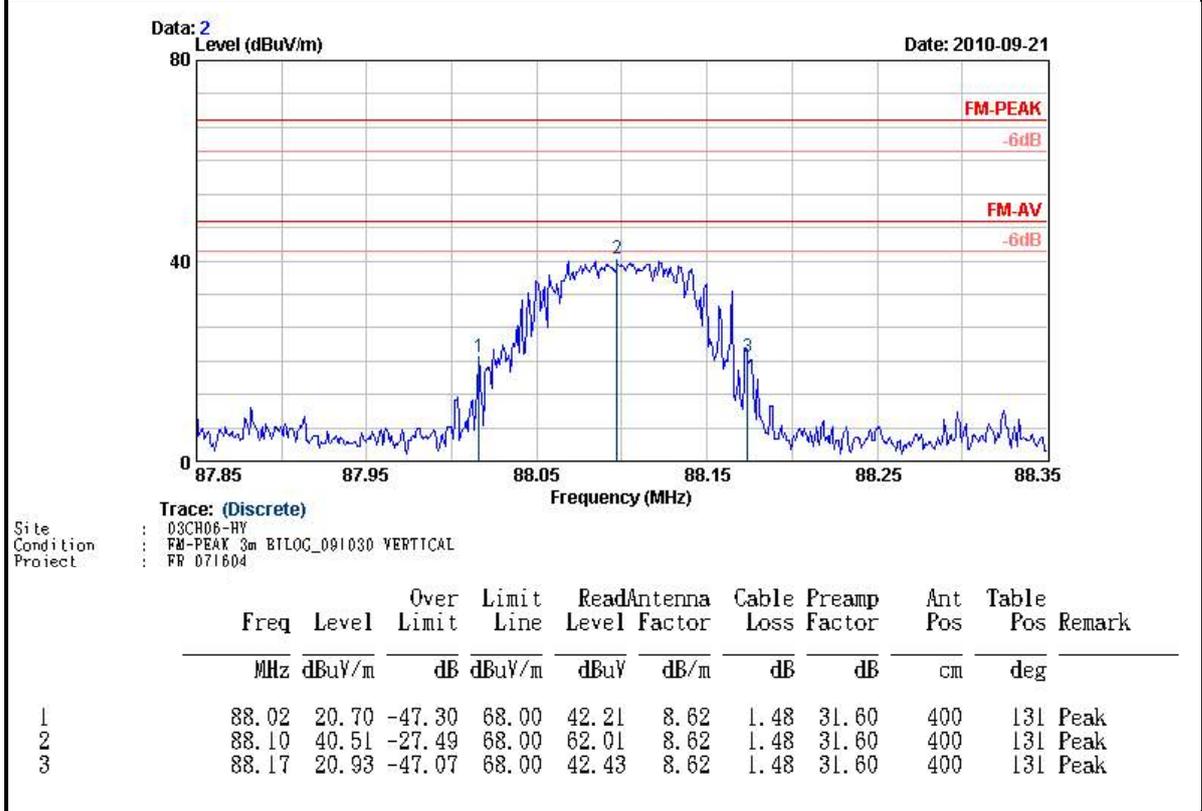


3.1.5 Test Result of 200 kHz Bandwidth of Frequency Band Edges



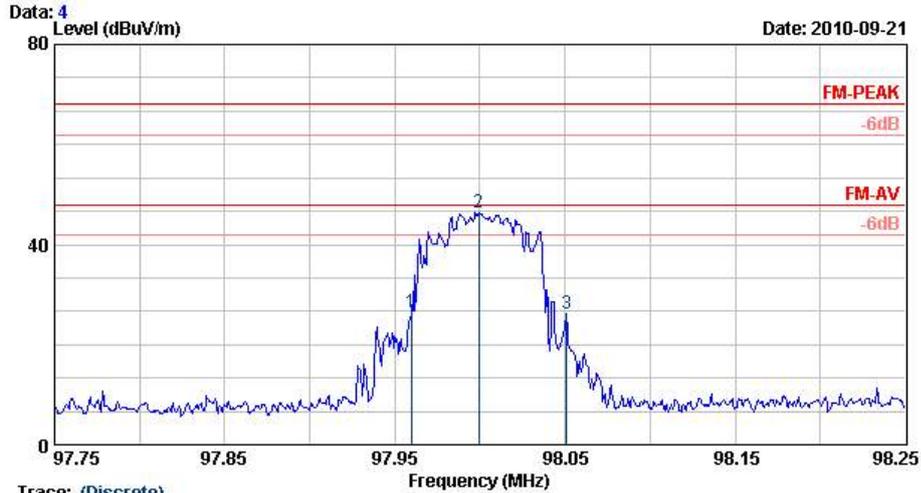


Test Mode :	Mode 1	Temperature :	25~26°C
Test Frequency :	FM Tx Mode for 88.1MHz + TC for Sample 1	Relative Humidity :	41~42%
Test Engineer :	Kay Wu	Polarization :	Vertical





Test Mode :	Mode 2	Temperature :	25~26°C
Test Frequency :	FM Tx Mode for 98.0MHz + TC for Sample 1	Relative Humidity :	41~42%
Test Engineer :	Kay Wu	Polarization :	Horizontal

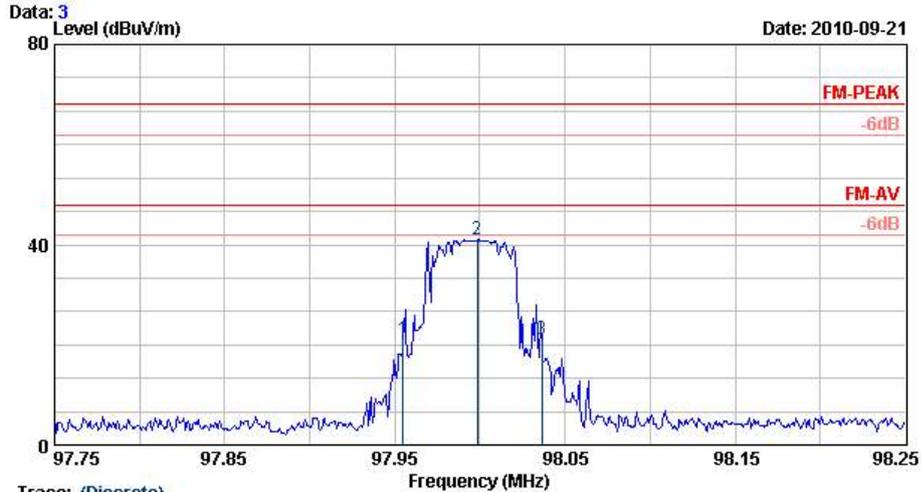


Trace: (Discrete)
 Site : 03CH06-HY
 Condition : FM-PEAK 3m BILOG_091030 HORIZONTAL
 Project : FR 071604
 Memo : Mode 2

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	97.96	26.33	-41.67	68.00	45.83	10.46	1.62	31.57	400	270 Peak
2 @	98.00	46.42	-21.58	68.00	65.92	10.46	1.62	31.57	400	270 Peak
3	98.05	26.14	-41.86	68.00	45.63	10.46	1.62	31.57	400	270 Peak



Test Mode :	Mode 2	Temperature :	25~26°C
Test Frequency :	FM Tx Mode for 98.0MHz + TC for Sample 1	Relative Humidity :	41~42%
Test Engineer :	Kay Wu	Polarization :	Vertical

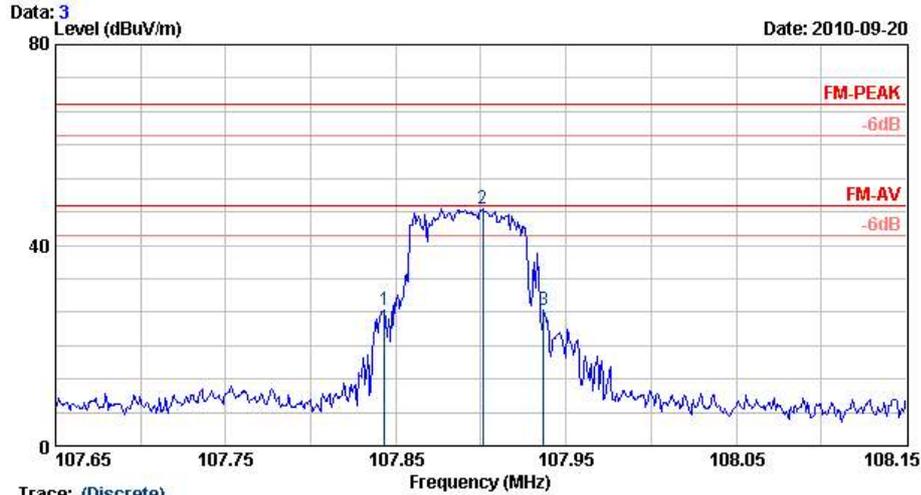


Site : D3CH08-HY
Condition : FM-PEAK 3m BILOG_091030 VERTICAL
Project : FR 071604
Memo : Mode 2

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	97.96	20.97	-47.03	68.00	40.46	10.46	1.62	31.57	400	358	Peak
2 @	98.00	40.93	-27.07	68.00	60.42	10.46	1.62	31.57	400	358	Peak
3	98.04	21.15	-46.85	68.00	40.64	10.46	1.62	31.57	400	358	Peak



Test Mode :	Mode 3	Temperature :	25~26°C
Test Frequency :	FM Tx Mode for 107.9MHz + TC for Sample 1	Relative Humidity :	41~42%
Test Engineer :	Kay Wu	Polarization :	Horizontal

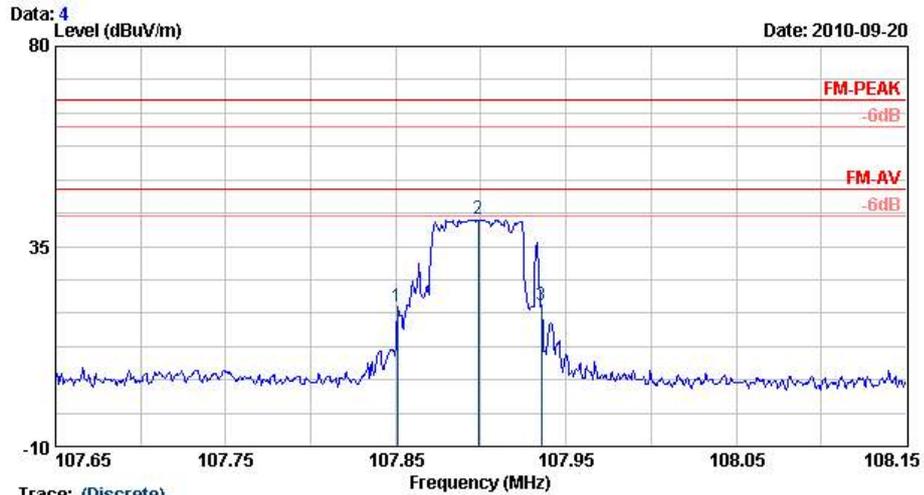


Site : 03CH06-HY
 Condition : FM-PEAK 3m BILOG_091030 HORIZONTAL
 Project : FR 071604
 Memo : Mode 3

	Freq	Level	Over Limit	Limit Line	ReadAntenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	cm	deg	
1	107.84	27.03	-40.97	68.00	45.78	11.10	1.70	31.54	268	283 Peak
2 @	107.90	47.20	-20.80	68.00	65.95	11.10	1.70	31.54	268	283 Peak
3	107.94	26.94	-41.06	68.00	45.68	11.10	1.70	31.54	268	283 Peak



Test Mode :	Mode 3	Temperature :	25~26°C
Test Frequency :	FM Tx Mode for 107.9MHz + TC for Sample 1	Relative Humidity :	41~42%
Test Engineer :	Kay Wu	Polarization :	Vertical



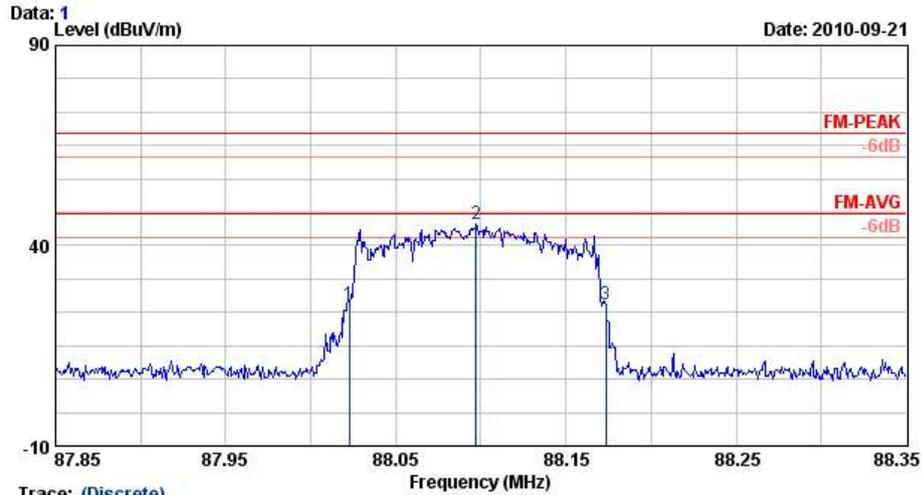
Site : D3CH06-HY
Condition : FM-PEAK 3m BILOG_001030 VERTICAL
Project : FR 071604
Memo :

Site : D3CH06-HY
Condition : FM-PEAK 3m BILOG_001030 VERTICAL
Project : FR 071604
Memo : Mode 3

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBUV/m	dB	dBUV/m	dBuV	dB/m	dB	dB	cm	deg	
1	107.85	21.51	-46.49	68.00	40.25	11.10	1.70	31.54	400	360	Peak
2 @	107.90	41.24	-26.76	68.00	59.98	11.10	1.70	31.54	400	360	Peak
3	107.94	21.70	-46.30	68.00	40.44	11.10	1.70	31.54	400	360	Peak



Test Mode :	Mode 4	Temperature :	25~26°C
Test Frequency :	FM Tx Mode for 88.1MHz + TC for Sample 2	Relative Humidity :	41~42%
Test Engineer :	Kay Wu	Polarization :	Horizontal

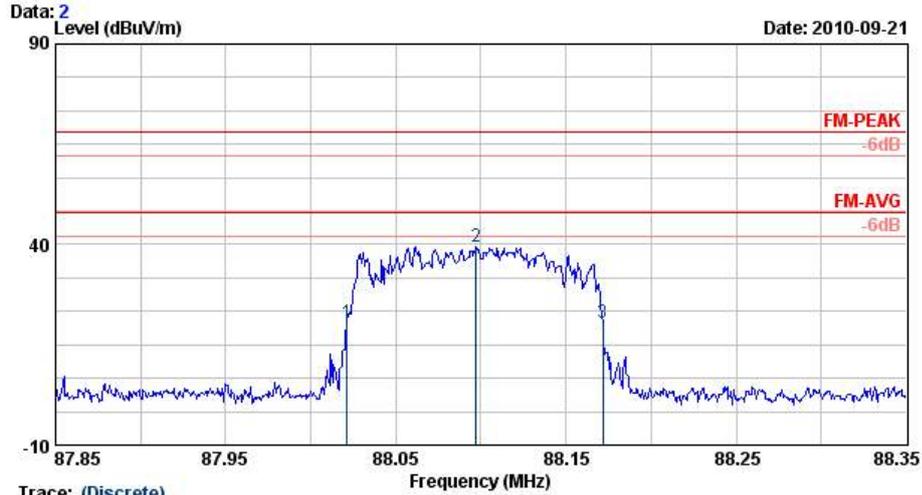


Site : 03CH07-HY
Condition : FM-PEAK LF-ANT(091103) HORIZONTAL
Project : FR 071604
Mode : Mode 4

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	88.02	25.38	-42.62	68.00	47.36	8.62	0.93	31.53	---	---	Peak
2 @	88.10	45.23	-22.77	68.00	67.21	8.62	0.93	31.53	---	---	Peak
3	88.17	25.45	-42.55	68.00	47.43	8.62	0.93	31.53	---	---	Peak



Test Mode :	Mode 4	Temperature :	25~26°C
Test Frequency :	FM Tx Mode for 88.1MHz + TC for Sample 2	Relative Humidity :	41~42%
Test Engineer :	Kay Wu	Polarization :	Vertical



Trace: (Discrete)
 Site : 03CH07-HY
 Condition : FM-PEAK LP-ANT(091103) VERTICAL
 Project : FR 071604
 Mode : Mode 4

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	88.02	20.35	-47.65	68.00	42.33	8.62	0.93	31.53	---	---	Peak
2	88.10	39.48	-28.52	68.00	61.46	8.62	0.93	31.53	---	---	Peak
3	88.17	20.32	-47.68	68.00	42.30	8.62	0.93	31.53	---	---	Peak

3.2 Field Strength

3.2.1 Limit of Field Strength

The field strength of any emissions within the permitted 200 kHz shall not exceed 48 dBuV/m at 3 meters. The emission limit in this paragraph is based on measurement instrumentation employing an average detector.

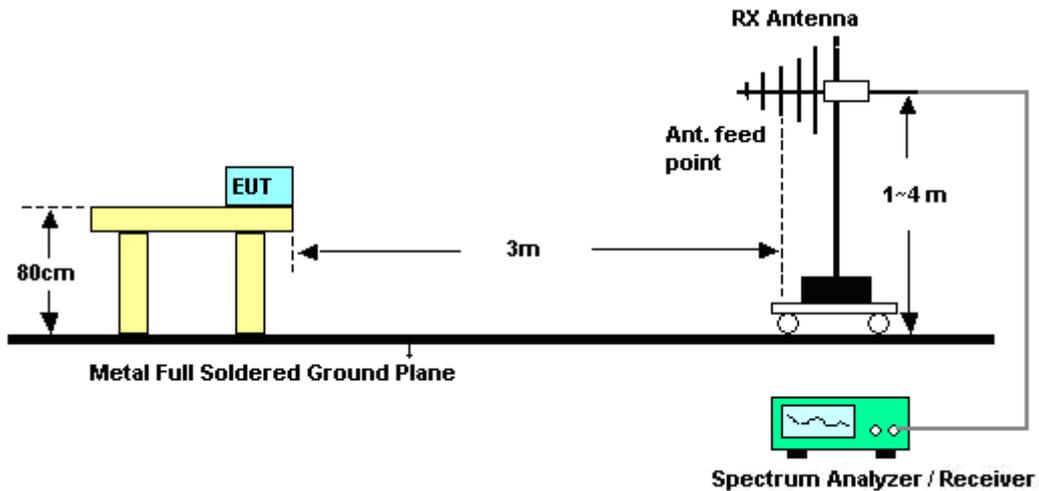
3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

3.2.3 Test Procedures

1. Set both RBW/VBW=3 kHz/10 kHz for peak and average measurement in the radiated measurement.
2. The field strength was measured and recorded.

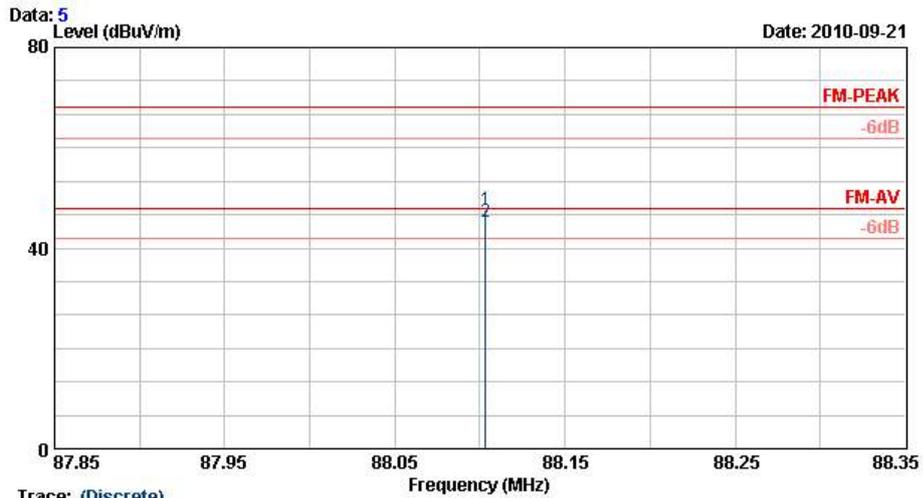
3.2.4 Test Setup





3.2.5 Test Result of Field Strength

Test Mode :	Mode 1	Temperature :	25~26°C
Test Frequency :	FM Tx Mode for 88.1MHz + TC for Sample 1	Relative Humidity :	41~42%
Test Engineer :	Kay Wu	Polarization :	Horizontal

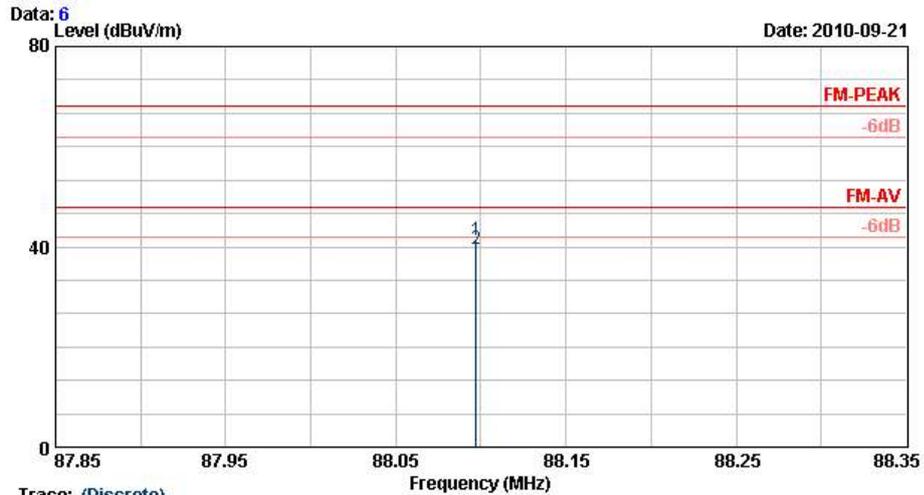


Trace: (Discrete)
 Site : 03CH06-HY
 Condition : FM-PEAK 3m BILOC_091030 HORIZONTAL
 Project : FR 071604
 Memo : Mode 1

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	88.10	47.66	-20.34	68.00	69.16	8.62	1.48	31.60	135	82	Peak
2 @	88.10	45.23	-2.77	48.00	66.73	8.62	1.48	31.60	135	82	Average



Test Mode :	Mode 1	Temperature :	25~26°C
Test Frequency :	FM Tx Mode for 88.1MHz + TC for Sample 1	Relative Humidity :	41~42%
Test Engineer :	Kay Wu	Polarization :	Vertical

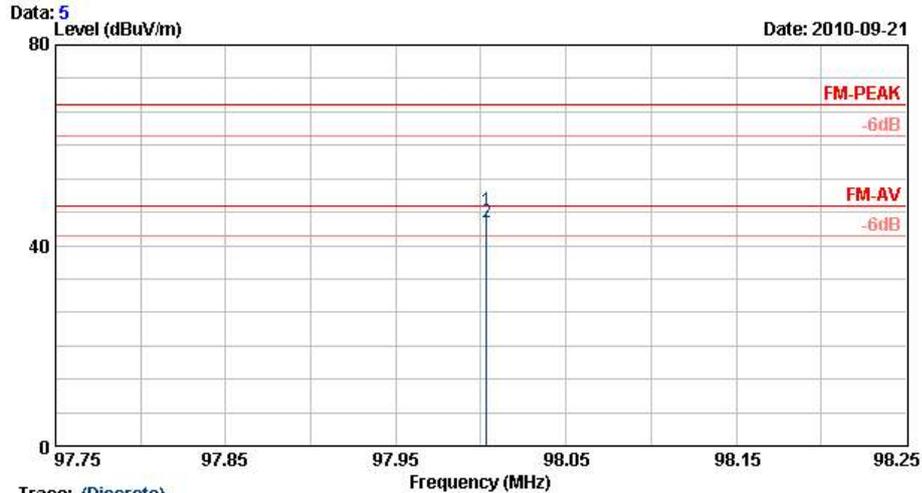


Trace: (Discrete)
 Site : D3CH08-HY
 Condition : FM-PEAK 3m BILOG_091030 VERTICAL
 Project : FR 071604
 Memo : Mode 1

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	88.10	41.27	-26.73	68.00	62.77	8.62	1.48	31.60	400	131	Peak
2	88.10	39.69	-8.31	48.00	61.19	8.62	1.48	31.60	400	131	Average



Test Mode :	Mode 2	Temperature :	25~26°C
Test Frequency :	FM Tx Mode for 98.0MHz + TC for Sample 1	Relative Humidity :	41~42%
Test Engineer :	Kay Wu	Polarization :	Horizontal

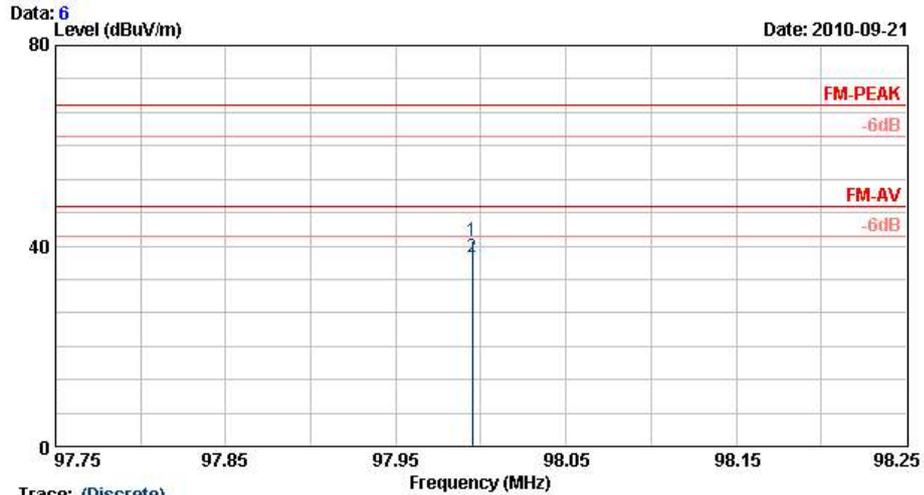


Trace: (Discrete)
 Site : 03CH06-HY
 Condition : FM-PEAK 3m BILOG_091030 HORIZONTAL
 Project : FR 071604
 Memo : Mode 2

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	98.00	46.95	-21.05	68.00	66.45	10.46	1.62	31.57	400	270	Peak
2 @	98.00	44.53	-3.47	48.00	64.02	10.46	1.62	31.57	400	270	Average



Test Mode :	Mode 2	Temperature :	25~26°C
Test Frequency :	FM Tx Mode for 88.1MHz + TC for Sample 1	Relative Humidity :	41~42%
Test Engineer :	Kay Wu	Polarization :	Vertical

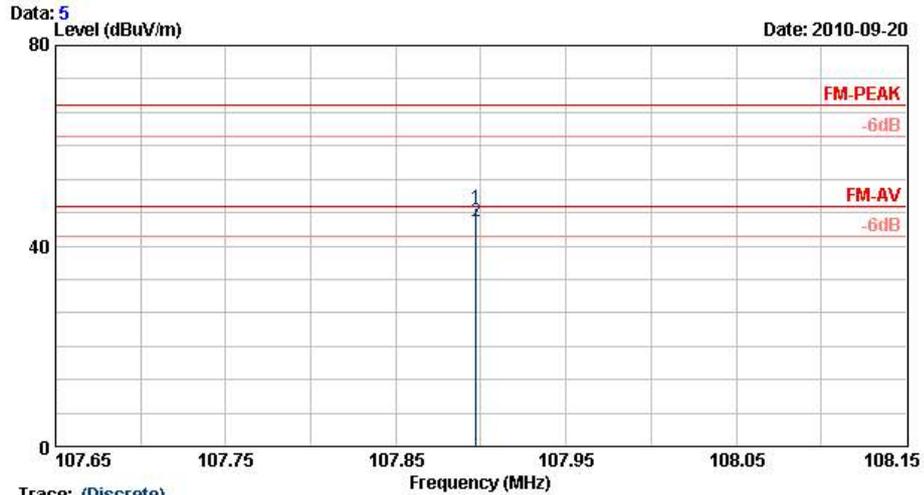


Site : D3CH06-HY
Condition : FM-PEAK 3m BILOG_001030 VERTICAL
Project : FR 071604
Memo : Mode 2

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	98.00	40.98	-27.02	68.00	60.48	10.46	1.62	31.57	400	358	Peak
2 @	98.00	37.90	-10.10	48.00	57.39	10.46	1.62	31.57	400	358	Average



Test Mode :	Mode 3	Temperature :	25~26°C
Test Frequency :	FM Tx Mode for 107.9MHz + TC for Sample 1	Relative Humidity :	41~42%
Test Engineer :	Kay Wu	Polarization :	Horizontal

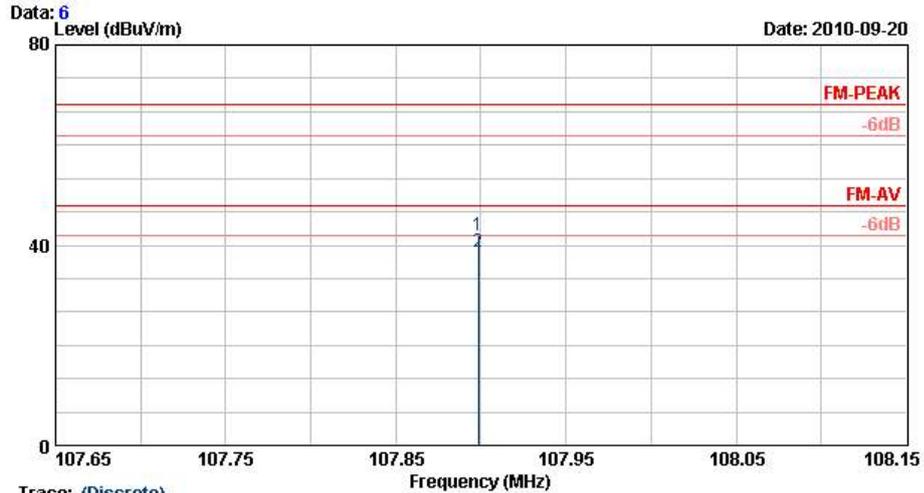


Trace: (Discrete)
Site : D3CH06-HY
Condition : FM-PEAK 3m BILOG_001030 HORIZONTAL
Project : FR 071604
Memo : Mode 3

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	107.90	47.48	-20.52	68.00	66.22	11.10	1.70	31.54	268	283	Peak
2 @	107.90	45.05	-2.95	48.00	63.79	11.10	1.70	31.54	268	283	Average



Test Mode :	Mode 3	Temperature :	25~26°C
Test Frequency :	FM Tx Mode for 107.9MHz + TC for Sample 1	Relative Humidity :	41~42%
Test Engineer :	Kay Wu	Polarization :	Vertical

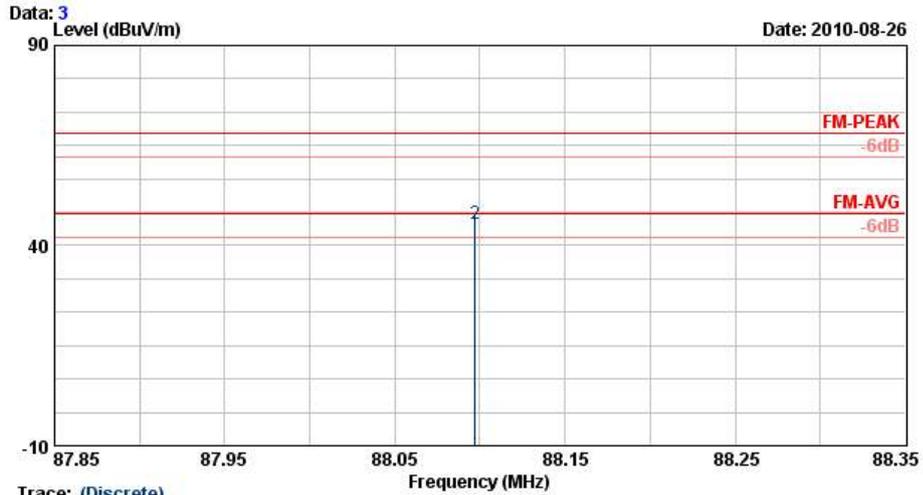


Trace: (Discrete)
 Site : 03CH06-HY
 Condition : FM-PEAK 3m BILOG_091030 VERTICAL
 Project : FR 071604
 Memo : Mode 3

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	107.90	41.92	-26.08	68.00	60.66	11.10	1.70	31.54	400	360	Peak
2 @	107.90	38.74	-9.26	48.00	57.48	11.10	1.70	31.54	400	360	Average



Test Mode :	Mode 4	Temperature :	25~26°C
Test Frequency :	FM Tx Mode for 88.1MHz + TC for Sample 2	Relative Humidity :	41~42%
Test Engineer :	Kay Wu	Polarization :	Horizontal

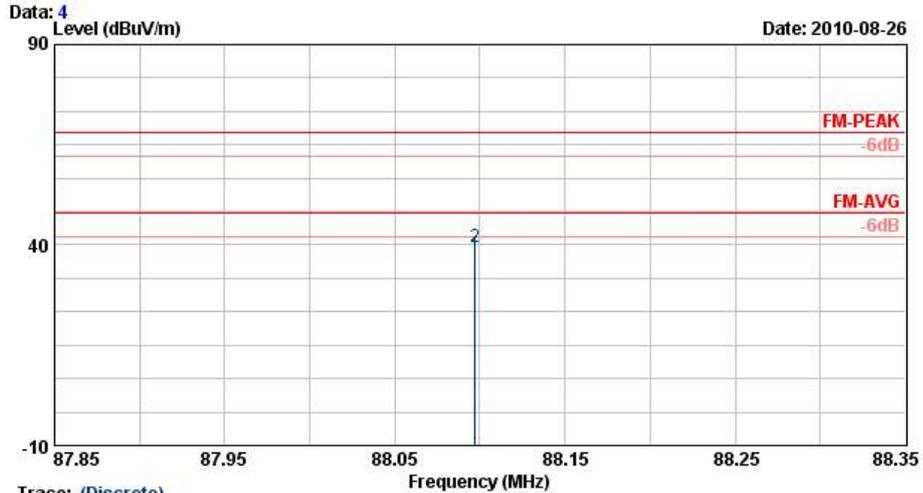


Trace: (Discrete)
 Site : 03CH07-HY
 Condition : FM-PEAK LF-ANT(091103) HORIZONTAL
 Project : FR 071604
 Mode : Mode 4

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	88.10	43.13	-24.87	68.00	65.11	8.62	0.93	31.53	---	---	Average
2 @	88.10	45.23	-22.77	68.00	67.21	8.62	0.93	31.53	---	---	Peak



Test Mode :	Mode 4	Temperature :	25~26°C
Test Frequency :	FM Tx Mode for 88.1MHz + TC for Sample 2	Relative Humidity :	41~42%
Test Engineer :	Kay Wu	Polarization :	Vertical



Trace: (Discrete)
Site : 03CH07-HY
Condition : FM-PEAK LP-ANT(091103) VERTICAL
Project : FR 071604
Mode : Mode 4

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	88.10	37.61	-30.39	68.00	59.59	8.62	0.93	31.53	---	---	Average
2 @	88.10	39.48	-28.52	68.00	61.46	8.62	0.93	31.53	---	---	Peak



3.3 Radiated Emission Measurement

3.3.1 Limit of Radiated Emission

Radiated emissions shall not exceed the field strength levels specified in the FCC section 15.209 limits as below.

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

3.3.2 Measuring Instruments

See list of measuring instruments of this test report.

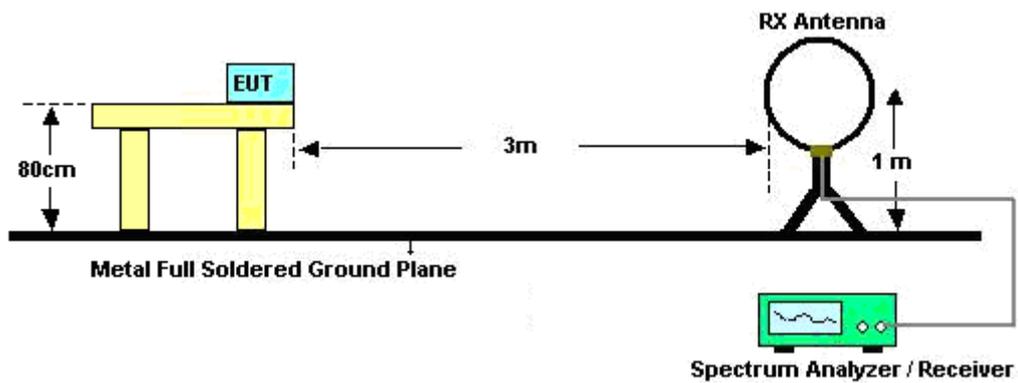
3.3.3 Test Procedures

1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna is a broadband antenna and its height is varied between one meter and four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
5. For each suspected emission, the EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
6. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function and specified bandwidth with Maximum Hold Mode.
7. For testing below 1GHz, If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the quasi-peak method and reported.

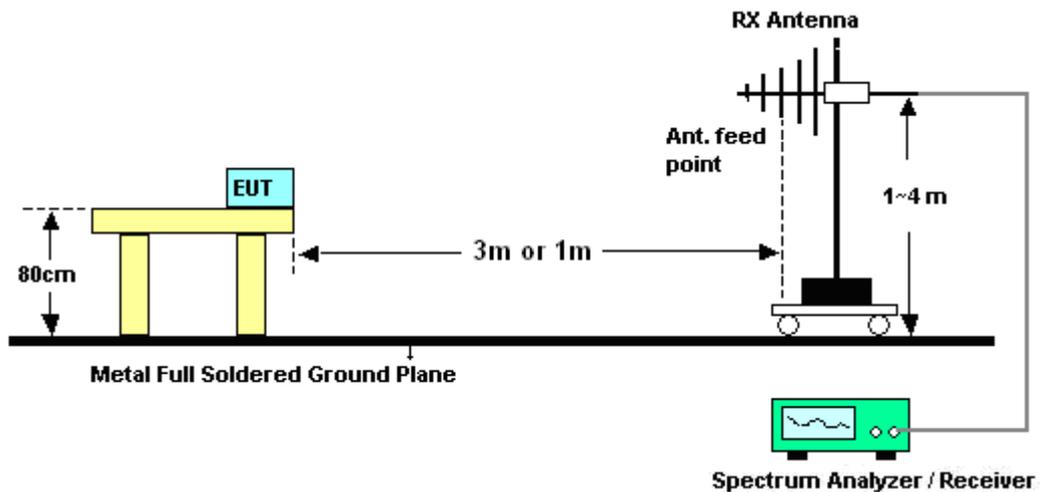
8. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in average mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

3.3.4 Test Setup

For radiated emissions below 30MHz



For radiated emissions above 30MHz





3.3.5 Test Results of Radiated Emissions (9 kHz ~ 30 MHz)

Test Engineer :	Kay Wu	Temperature :	25~26°C
		Relative Humidity :	41~42%

Frequency (MHz)	Level (dBuV)	Over Limit (dB)	Limit Line (dBuV)	Remark
-	-	-	-	See Note

Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor = $40 \log(\text{specific distance} / \text{test distance})$ (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor.



3.3.6 Test Result of Radiated Emission (30 MHz ~10th Harmonic)

Test Mode :	Mode 1	Temperature :	25~26°C
Test Frequency :	FM Tx Mode for 88.1MHz + TC for Sample 1	Relative Humidity :	41~42%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	87.78 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	26.87	-13.13	40	38.29	19.51	0.53	31.46	-	-	Peak
87.78	46.24	-	-	68.22	8.62	0.93	31.53	-	-	Peak
130.98	26.08	-17.42	43.5	44.73	11.77	1.15	31.57	-	-	Peak
176.34	23.35	-20.15	43.5	44.41	9.23	1.24	31.53	-	-	Peak
343.4	20.93	-25.07	46	35.69	14.62	1.92	31.3	-	-	Peak
553.4	21.34	-24.66	46	30.57	19.19	2.56	30.98	-	-	Peak
738.2	24.01	-21.99	46	30.35	21.36	3.03	30.73	-	-	Peak



Test Mode :	Mode 1	Temperature :	25~26°C
Test Frequency :	FM Tx Mode for 88.1MHz + TC for Sample 1	Relative Humidity :	41~42%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	87.51 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.54	36.5	-3.5	40	48.47	18.95	0.54	31.46	-	-	Peak
44.85	30.08	-9.92	40	50.01	10.92	0.65	31.5	-	-	Peak
87.51	41.96	-	-	64.08	8.49	0.92	31.53	-	-	Peak
184.17	25.19	-18.31	43.5	46.46	8.99	1.26	31.52	-	-	Peak
344.1	19.74	-26.26	46	34.47	14.64	1.92	31.29	-	-	Peak
598.9	22.3	-23.7	46	30.51	20.03	2.68	30.92	-	-	Peak
816.6	25.01	-20.99	46	30.15	22.38	3.18	30.7	-	-	Peak



Test Mode :	Mode 2	Temperature :	25~26°C
Test Frequency :	FM Tx Mode for 98.0MHz + TC for Sample 1	Relative Humidity :	41~42%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	97.77 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	27.18	-12.82	40	38.6	19.51	0.53	31.46	-	-	Peak
87.78	26.15	-13.85	40	48.13	8.62	0.93	31.53	-	-	Peak
97.77	46.25	-	-	66.75	10.05	0.99	31.54	-	-	Peak
294.06	30.42	-15.58	46	46.64	13.38	1.72	31.32	-	-	Peak
343.4	19.44	-26.56	46	34.2	14.62	1.92	31.3	-	-	Peak
441.4	21.22	-24.78	46	33.09	16.97	2.28	31.12	-	-	Peak
738.2	25.44	-20.56	46	31.78	21.36	3.03	30.73	-	-	Peak



Test Mode :	Mode 2	Temperature :	25~26°C
Test Frequency :	FM Tx Mode for 98.0MHz + TC for Sample 1	Relative Humidity :	41~42%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	97.77 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	35.01	-4.99	40	46.43	19.51	0.53	31.46	-	-	Peak
53.76	27.07	-12.93	40	50.54	7.36	0.72	31.55	-	-	Peak
97.77	40.82	-	-	61.32	10.05	0.99	31.54	-	-	Peak
182.01	19.85	-23.65	43.5	41.1	9.02	1.26	31.53	-	-	Peak
352.5	19.3	-26.7	46	33.74	14.85	1.99	31.28	-	-	Peak
534.5	20.55	-25.45	46	30.22	18.82	2.52	31.01	-	-	Peak
741	24.39	-21.61	46	30.67	21.4	3.04	30.72	-	-	Peak



Test Mode :	Mode 3	Temperature :	25~26°C
Test Frequency :	FM Tx Mode for 107.9MHz + TC for Sample 1	Relative Humidity :	41~42%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	107.49 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	27.09	-12.91	40	38.51	19.51	0.53	31.46	-	-	Peak
107.49	47.08	-	-	66.53	11.06	1.04	31.55	-	-	Peak
135.57	25.36	-18.14	43.5	44.01	11.73	1.18	31.56	-	-	Peak
171.21	25.28	-18.22	43.5	46.04	9.53	1.23	31.52	-	-	Peak
357.4	22.79	-23.21	46	37.02	15	2.04	31.27	-	-	Peak
561.8	21.21	-24.79	46	30.26	19.34	2.58	30.97	-	-	Peak
780.2	24.26	-21.74	46	29.9	21.94	3.11	30.69	-	-	Peak



Test Mode :	Mode 3	Temperature :	25~26°C
Test Frequency :	FM Tx Mode for 107.9MHz + TC for Sample 1	Relative Humidity :	41~42%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	107.49 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.62	35.4	-4.6	40	47.91	18.4	0.55	31.46	-	-	Peak
44.85	30.98	-9.02	40	50.91	10.92	0.65	31.5	-	-	Peak
107.49	40.96	-	-	60.41	11.06	1.04	31.55	-	-	Peak
124.77	30.52	-12.98	43.5	49.15	11.81	1.12	31.56	-	-	Peak
346.2	18.91	-27.09	46	33.57	14.69	1.94	31.29	-	-	Peak
610.1	22.32	-23.68	46	30.37	20.14	2.72	30.91	-	-	Peak
785.8	24.79	-21.21	46	30.34	22.02	3.12	30.69	-	-	Peak



Test Mode :	Mode 4	Temperature :	25~26°C
Test Frequency :	FM Tx Mode for 88.1MHz + TC for Sample 2	Relative Humidity :	41~42%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	87.78 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
48.9	32.01	-7.99	40	53.9	8.96	0.68	31.53	-	-	Peak
87.78	45.5	-	-	67.48	8.62	0.93	31.53	-	-	Peak
125.85	30.7	-12.8	43.5	49.34	11.8	1.13	31.57	-	-	Peak
135.3	28.19	-15.31	43.5	46.84	11.73	1.18	31.56	-	-	Peak
500.9	20.05	-25.95	46	30.49	18.18	2.45	31.07	-	-	Peak
654.9	22.38	-23.62	46	29.91	20.49	2.85	30.87	-	-	Peak
831.3	24.92	-21.08	46	29.89	22.52	3.22	30.71	-	-	Peak



Test Mode :	Mode 4	Temperature :	25~26°C
Test Frequency :	FM Tx Mode for 88.1MHz + TC for Sample 2	Relative Humidity :	41~42%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	87.78 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.81	34.15	-5.85	40	46.12	18.95	0.54	31.46	-	-	Peak
48.63	33.9	-6.1	40	55.79	8.96	0.68	31.53	-	-	Peak
87.78	40.03	-	-	62.01	8.62	0.93	31.53	-	-	Peak
184.98	26.67	-16.83	43.5	47.95	8.98	1.26	31.52	-	-	Peak
430.9	19.66	-26.34	46	31.79	16.75	2.25	31.13	-	-	Peak
629.7	22.99	-23.01	46	30.81	20.29	2.78	30.89	-	-	Peak
889.4	26.68	-19.32	46	30.98	23.08	3.33	30.71	-	-	Peak



3.4 AC Conducted Emission Measurement

3.4.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of emission (MHz)	Conducted limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

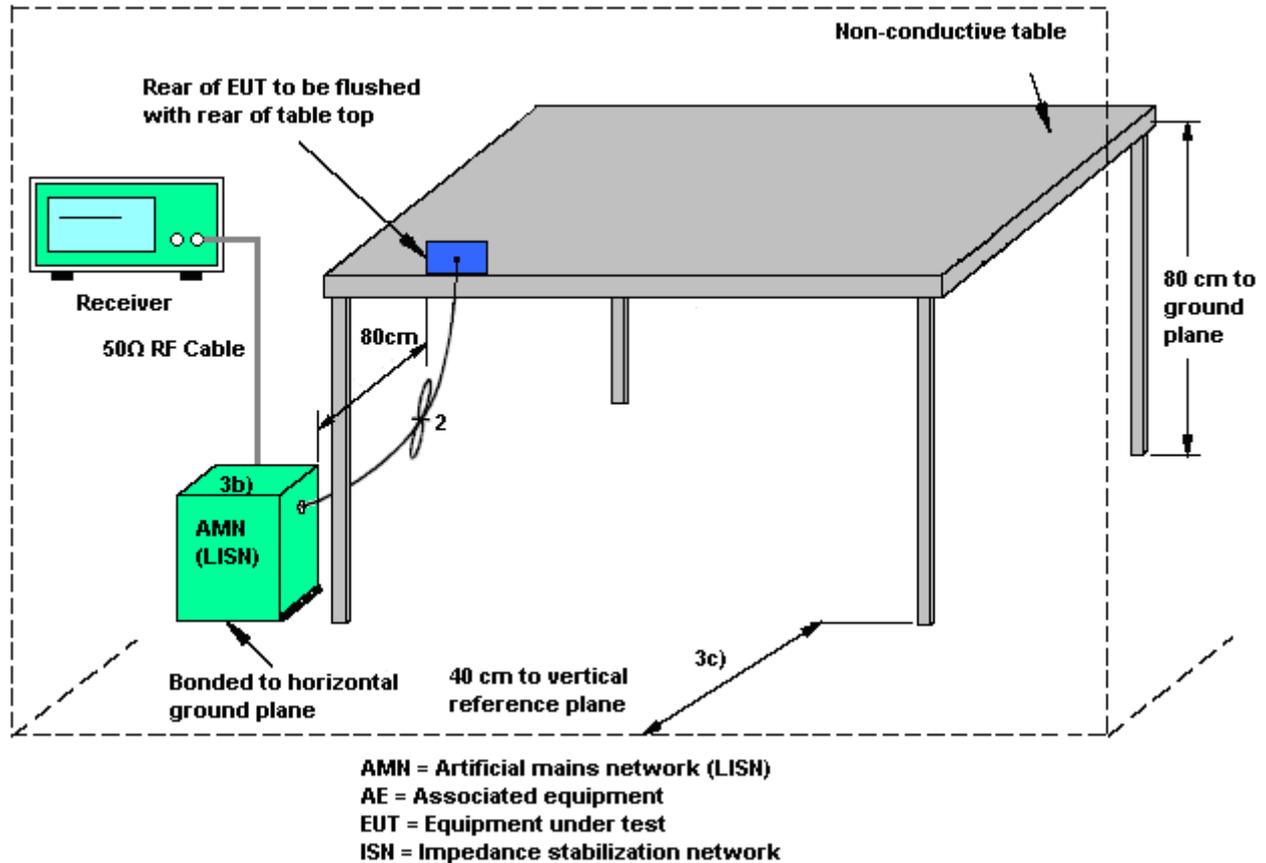
3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

3.4.3 Test Procedures

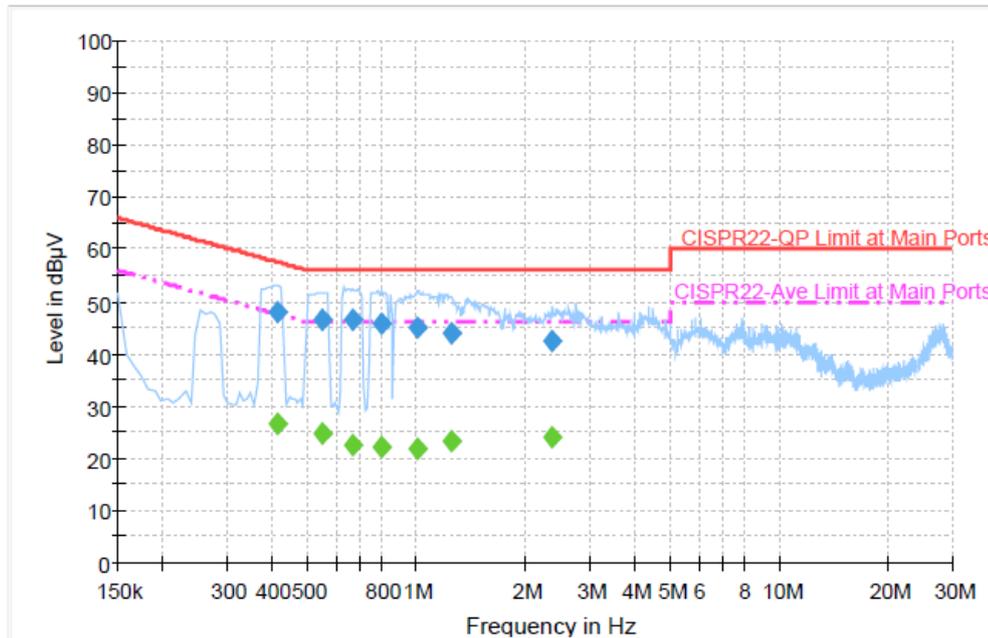
1. Please follow the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN).
4. All the support units are connecting to the other LISN.
5. The LISN provides 50 ohm coupling impedance for the measuring instrument.
6. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
7. Both sides of AC line were checked for maximum conducted interference.
8. The frequency range from 150 kHz to 30 MHz was searched.
9. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

3.4.4 Test Setup



3.4.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Novic Jiang	Relative Humidity :	42~44%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	FM Tx Mode for 98.0MHz + Earphone + Battery 1 + USB Cable 1 (Charging from Adapter 1) for Sample 1		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result 1

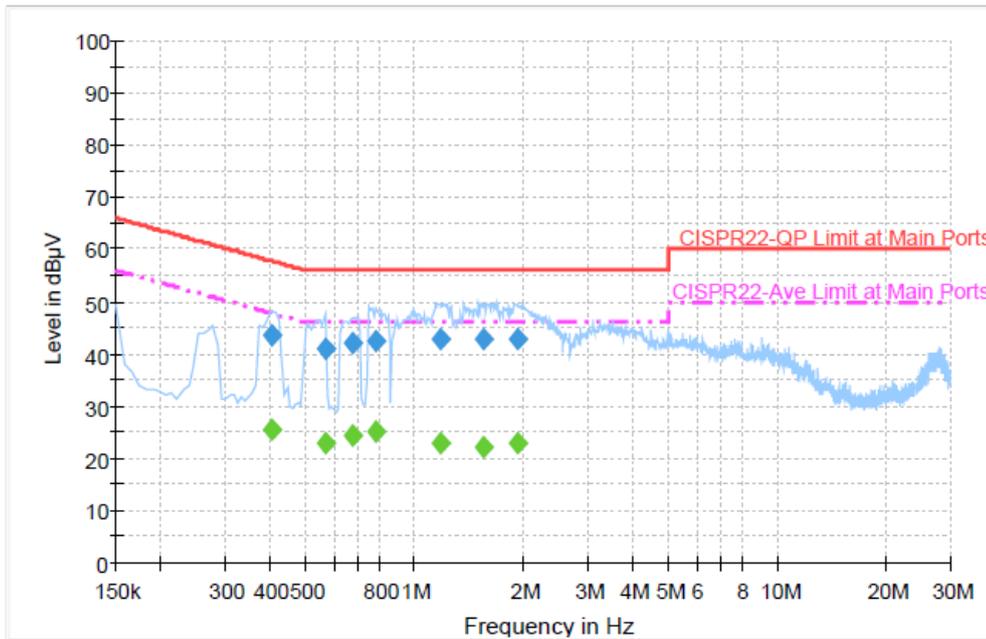
Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.414000	48.1	Off	L1	19.4	9.5	57.6
0.550000	46.5	Off	L1	19.3	9.5	56.0
0.670000	46.7	Off	L1	19.4	9.3	56.0
0.798000	45.7	Off	L1	19.4	10.3	56.0
1.006000	45.2	Off	L1	19.4	10.8	56.0
1.254000	43.8	Off	L1	19.4	12.2	56.0
2.374000	42.5	Off	L1	19.5	13.5	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.414000	26.6	Off	L1	19.4	21.0	47.6
0.550000	24.9	Off	L1	19.3	21.1	46.0
0.670000	22.7	Off	L1	19.4	23.3	46.0
0.798000	22.3	Off	L1	19.4	23.7	46.0
1.006000	21.9	Off	L1	19.4	24.1	46.0
1.254000	23.3	Off	L1	19.4	22.7	46.0
2.374000	24.1	Off	L1	19.5	21.9	46.0



Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Novic Jiang	Relative Humidity :	42~44%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	FM Tx Mode for 98.0MHz + Earphone + Battery 1 + USB Cable 1 (Charging from Adapter 1) for Sample 1		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.406000	43.6	Off	N	19.4	14.1	57.7
0.566000	41.0	Off	N	19.3	15.0	56.0
0.678000	42.1	Off	N	19.5	13.9	56.0
0.782000	42.6	Off	N	19.4	13.4	56.0
1.174000	42.7	Off	N	19.5	13.3	56.0
1.558000	42.7	Off	N	19.4	13.3	56.0
1.926000	42.9	Off	N	19.5	13.1	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.406000	25.4	Off	N	19.4	22.3	47.7
0.566000	22.7	Off	N	19.3	23.3	46.0
0.678000	24.4	Off	N	19.5	21.6	46.0
0.782000	24.9	Off	N	19.4	21.1	46.0
1.174000	22.8	Off	N	19.5	23.2	46.0
1.558000	22.3	Off	N	19.4	23.7	46.0
1.926000	22.9	Off	N	19.5	23.1	46.0



3.5 Antenna Requirements

3.5.1 Standard Applicable

The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the FCC rule.

3.5.2 Antenna Connected Construction

The antennas type used in this product is External Antenna and it is considered to meet antenna requirement.



4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
Bilog Antenna	SCHAFFNER	CBL6111C	2726	30MHz ~ 1GHz	Oct. 31, 2009	Oct. 30, 2010	Radiation (03CH07-HY)
Spectrum Analyzer	R&S	FSP	101067	9KHz ~ 30GHz	Dec. 04, 2009	Dec. 03, 2010	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Aug. 19, 2010	Aug. 18, 2011	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA91702 51	15GHz- 40GHz	Oct. 14, 2009	Oct. 13, 2010	Radiation (03CH07-HY)
Pre Amplifier	Agilent	8449B	3008A02362	1GHz~ 26.5GHz	Dec.09,2009	Dec. 08, 2010	Radiation (03CH07-HY)
Pre Amplifier	COM-POWER	PA-103A	161241	10-1000MHz.32dB GAIN	Mar. 27, 2010	Mar. 26, 2011	Radiation (03CH07-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9 kHz~30 MHz	Jul. 29, 2010	Jul. 28, 2011	Radiation (03CH07-HY)
EMI Test Receive	R&S	ESU	100211	9KHz – 2.75GHz	May 28, 2010	May 27, 2011	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9kHz~30MHz	Nov. 30, 2009	Nov. 29, 2010	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9kHz~30MHz	Nov. 23, 2009	Nov. 22, 2010	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	N/A	Conduction (CO05-HY)



5 Uncertainty of Evaluation

Uncertainty of Conducted Emission Measurement (150kHz ~ 30MHz)

Contribution	Uncertainty of X_i		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.10	Normal (k=2)	0.05
Cable Loss	0.10	Normal (k=2)	0.05
AMN Insertion Loss	2.50	Rectangular	0.63
Receiver Specification	1.50	Rectangular	0.43
Site Imperfection	1.39	Rectangular	0.80
Mismatch	+0.34 / -0.35	U-Shape	0.24
Combined Standard Uncertainty $U_c(y)$	1.13		
Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	2.26		

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Contribution	Uncertainty of X_i		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.41	Normal (k=2)	0.21
Antenna Factor Calibration	0.83	Normal (k=2)	0.42
Cable Loss Calibration	0.25	Normal (k=2)	0.13
Pre-Amplifier Gain Calibration	0.27	Normal (k=2)	0.14
RCV/SPA Specification	2.50	Rectangular	0.72
Antenna Factor Interpolation for Frequency	1.00	Rectangular	0.29
Site Imperfection	1.43	Rectangular	0.83
Mismatch	+0.39 / -0.41	U-Shape	0.28
Combined Standard Uncertainty $U_c(y)$	1.27		
Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	2.54		



Uncertainty of Radiated Emission Measurement (1 GHz ~ 40 GHz)

Contribution	Uncertainty of X_i		$u(X_i)$	C_i	$C_i * u(X_i)$
	dB	Probability Distribution			
Receiver Reading	±0.10	Normal (k=2)	0.10	1	0.10
Antenna Factor Calibration	±1.70	Normal (k=2)	0.85	1	0.85
Cable Loss Calibration	±0.50	Normal (k=2)	0.25	1	0.25
Receiver Correction	±2.00	Rectangular	1.15	1	1.15
Antenna Factor Directional	±1.50	Rectangular	0.87	1	0.87
Site Imperfection	±2.80	Triangular	1.14	1	1.14
Mismatch Receiver VSWR $\Gamma_1 = 0.197$ Antenna VSWR $\Gamma_2 = 0.194$ Uncertainty = $20\text{Log}(1-\Gamma_1*\Gamma_2)$	+0.34 / -0.35	U-Shape	0.244	1	0.244
Combined Standard Uncertainty $U_c(y)$	2.36				
Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	4.72				