



卓時檢測
TIMEWAY TESTING LABORATORY



ISO/IEC17025 Accredited Lab.

Report No:

FCC 0808063

File reference No:

2008-12-26

Applicant:

GaiShan Technology Pte Ltd

Product:

Audio Player with Scanner

Model No:

TM-5801

Trademark:

TellMate

Test Standards:

FCC Part 15 Subpart C, Paragraph 15.225

Test result:

It is herewith confirmed and found to comply with the requirements set up by ANSI C63.4&FCC Part 15 Subpart C, Paragraph 15.225 regulations for the evaluation of electromagnetic compatibility

Approved By

Jack Chung

Jack Chung
Manager

Dated:

Dec 26, 2008

Results appearing herein relate only to the sample tested

The technical reports is issued errors and omissions exempt and is subject to withdrawal at

SHENZHEN TIMEWAY TECHNOLOGY CONSULTING CO LTD

5/F,Block 4, Anhua Industrial Zone.,No.8 TaiRan Rd.CheGongMiao,FuTian District, Shenzhen,CHINA.

Tel (755) 83448688

Fax (755) 83442996



Special Statement:

The testing quality ability of our laboratory meet with "Quality Law of People's Republic of China" Clause 19.

The testing quality system of our laboratory meets with ISO/IEC-17025 requirements, which is approved by CNAS. This approval result is accepted by MRA of APLAC.

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

CNAS-LAB Code: L2292

The EMC Laboratory has been assessed and in compliance with CNAS-CL01 accreditation criteria for testing Laboratories (identical to ISO/IEC 17025:1999 General Requirements) for the Competence of testing Laboratories.

FCC-Registration No.: 899988

The 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.:899988.

IC- Registration No.: IC5205A-01

The EMC Laboratory has been registered and fully described in a report filed with the (IC) Industry Canada. The acceptance letter from the IC is maintained in our files. Registration No.: IC 5205A-01.

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1.0 General Details

1.1 Test Lab Details

Name : SHENZHEN TIMEWAY TECHNOLOGY CONSULTING CO LTD

Address: 5/F,Block 4, Anhua Industrial Zone.,No.8 TaiRan Rd.CheGongMiao,FuTian District,
Shenzhen,CHINA.

Telephone: (755) 83448688

Fax: (755) 83442996

Site on File with the Federal Communications Commission – United States

Registration Number: 899988

For 3m & 10 m OATS

Site Listed with Industry Canada of Ottawa, Canada

Registration Number: IC: 5205A-01

For 3m & 10 m OATS

1.2 Applicant Details

Applicant: GaiShan Technology Pte Ltd

Address: 1 Goldhill Plaza, #03-35

Telephone: 86-755-82970307

Fax: 86-755-82970571

1.3 Description of EUT

Product: Audio Player with scanner

Brand Name: TellMate

Model Number: TM-5801

Additional Model Name: MM-5801

Rating: 3.7V DC

Operation Frequency 13.56MHz

Antenna Designation A permanent fixed antenna, which is built-in, designed as an indispensable part
of the EUT.

1.4 Submitted Sample: 1 Sample

1.5 Test Duration: 2008-11-12 to 2008-12-24

1.6 Test Uncertainty

Conducted Emissions Uncertainty =3.6dB

Radiated Emissions Uncertainty =4.7dB

1.7 Test Engineer

The sample tested by _____

Print Name: Terry Tang

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2.0	Test Equipments				
Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
ESPI Test Receiver	ROHDE&SCHWARZ	ESPI 3	100379	2008-12-06	2009-12-05
Absorbing Clamp	ROHDE&SCHWARZ	MDS-21	100126	2008-12-06	2009-12-05
TWO Line-V-NETW	ROHDE&SCHWARZ	EZH3-Z5	100294	2008-12-06	2009-12-05
TWO Line-V-NETW	ROHDE&SCHWARZ	EZH3-Z5	100253	2008-12-06	2009-12-05
Ultra Broadband ANT	ROHDE&SCHWARZ	HL562	100157	2008-12-06	2009-12-05
ESDV Test Receiver	ROHDE&SCHWARZ	ESDV	100008	2008-04-26	2009-04-25
4-WIRE ISN	ROHDE&SCHWARZ	ENY 41	830663/044	2008-02-18	2009-02-17
GG ENY22 Double 2-Wire ISN	ROHDE&SCHWARZ	ENY22	83066/016	2008-02-18	2009-02-17
Impuls-Begrenzer	ROHDE&SCHWARZ	ESH3-Z2	100281	2008-02-18	2009-02-17
System Controller	CT	SC100	-	2008-02-18	2009-02-17
Printer	EPSON	PHOTO EX3	CFNH234850	2008-02-18	2009-02-17
FM-AM Signal Generator	JUNGJIN	SG-150M	389911177	2008-02-18	2009-02-17
Color TV Pattern Generator	PHILIPS	PM5418	LO621747	2008-02-18	2009-02-17
Computer	IBM	8434	1S8434KCE99BLX LO*	-	-
Oscillator	KENWOOD	AG-203D	3070002	2008-02-18	2009-02-17
Spectrum Analyzer	HAMEG	HM5012	-	2008-04-26	2009-04-25
Power Supply	LW	APS1502	-	-	-
5K VA AC Power Source	California Instruments	5001iX	56060	2008-02-18	2009-02-17
CDN	EM TEST	CDN M2/M3	-	2008-02-18	2009-02-17
Attenuation	EM TEST	ATT6/75	-	2008-02-18	2009-02-17
Resistance	EM TEST	R100	-	2008-02-18	2009-02-17

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Electromagnetic Injection Clamp	LITTHI	EM101	35708	2008-02-18	2009-02-17
Signal Generator	ROHDE&SCHWARZ	SMT03	100029	2008-02-18	2009-02-17
Power Amplifier	AR	150W1000	300999	2008-02-18	2009-02-17
Field probe	Holaday	HI-6005	105152	2008-02-18	2009-02-17
Bilog Antenna	Chase	CBL6111C	2576	2008-02-18	2009-02-17
ESPI Test Receiver	ROHDE&SCHWARZ	ESI26	838786/013	2008-02-18	2009-02-17
3m OATS	--	--	N/A	2008-02-18	2009-02-17
Active Receiving Loop Antenna	EMCO	6507	102615	2008-04-26	2009-04-25
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170265	2008-08-18	2009-08-17
Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-631	2008-04-26	2009-04-25

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3.0 Technical Details

3.1 Summary of test results

The EUT has been tested according to the following specifications:			
Standard	Test Type	Result	Notes
FCC Part 15, Paragraph 15.207	Conducted Emission Test	PASS	Complies
FCC Part 15, Paragraph 15.225 (a)	In Band Radiated Spurious Emission Measurements	PASS	Complies
FCC Part 15, Paragraph 15.225 (d)	Radiated Spurious Emission Measurements, Out of Band	PASS	Complies
FCC Part 15 Paragraph 15.225(e)	Frequency Tolerance of carrier signal	PASS	Complies
FCC Part 15, Paragraph 15.215(c)	20dB Bandwidth Measurement	PASS	Complies

3.2 Test Standards

FCC Part 15 Subpart C, Paragraph 15.225

4.0 EUT Modification

No modification by Shenzhen Timeway Technology Consulting Co.,Ltd

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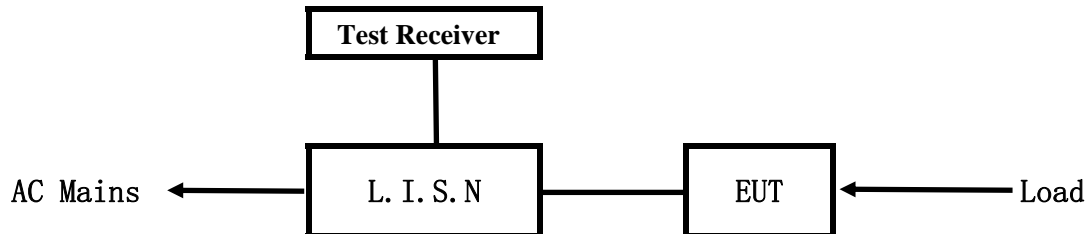
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5. Power Line Conducted Emission Test

5.1 Schematics of the test

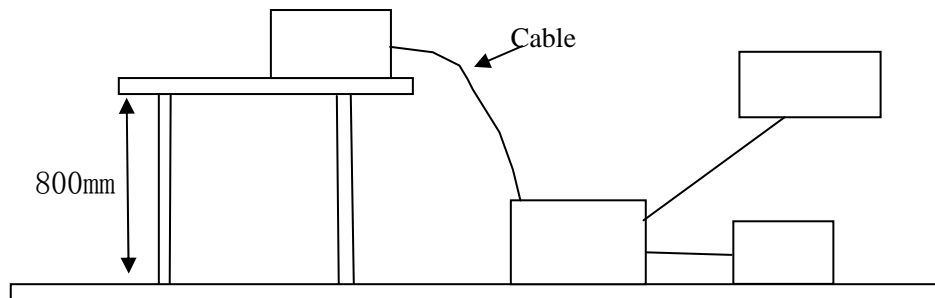


EUT: Equipment Under Test

5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.4-2003. The Frequency spectrum From 0.15MHz to 30MHz was investigated. The LISN used was 50ohm/50uH as specified by section 5.1 of ANSI C63.4 –2003.

Block diagram of Test setup



5.3 Configuration of The EUT

The EUT was configured according to ANSI C63.4-2003. All interface ports were connected to the Appropriate peripherals. All peripherals and cables are listed below.

A. EUT

Device	Manufacturer	Model	FCC ID
Audio Player with scanner	Gajah International (HK) Co., Limited	TM-5801	WNITM-5801

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B. Internal Device

Device	Manufacturer	Model	FCC ID/DOC
N/A			

C. Peripherals

Device	Manufacturer	Model	FCC ID/DOC	Cable
Notebook	Sony	VGN-SZ412N	ID	--

5.4 EUT Operating Condition

Operating condition is according to ANSI C63.4 -2003.

A Setup the EUT and simulators as shown on follow

B Turn on power ,EUT transmitting

5.5 Power line conducted Emission Limit according to Paragraph 15.207

Frequency (MHz)	Class A Limits (dB μ V)		Class B Limits (dB μ V)	
	Quasi-peak Level	Average Level	Quasi-peak Level	Average Level
0.15 ~ 0.50	79.0	66.0	66.0~56.0*	56.0~46.0*
0.50 ~ 5.00	73.0	60.0	56.0	46.0
5.00 ~ 30.00	73.0	60.0	60.0	50.0

- Notes: 1. *Decreasing linearly with logarithm of frequency.
2. The tighter limit shall apply at the transition frequencies

5.6 Test Results

The frequency spectrum from 0.15MHz to 30MHz was investigated. All reading are quasi-peak values with a resolution bandwidth of 9kHz.

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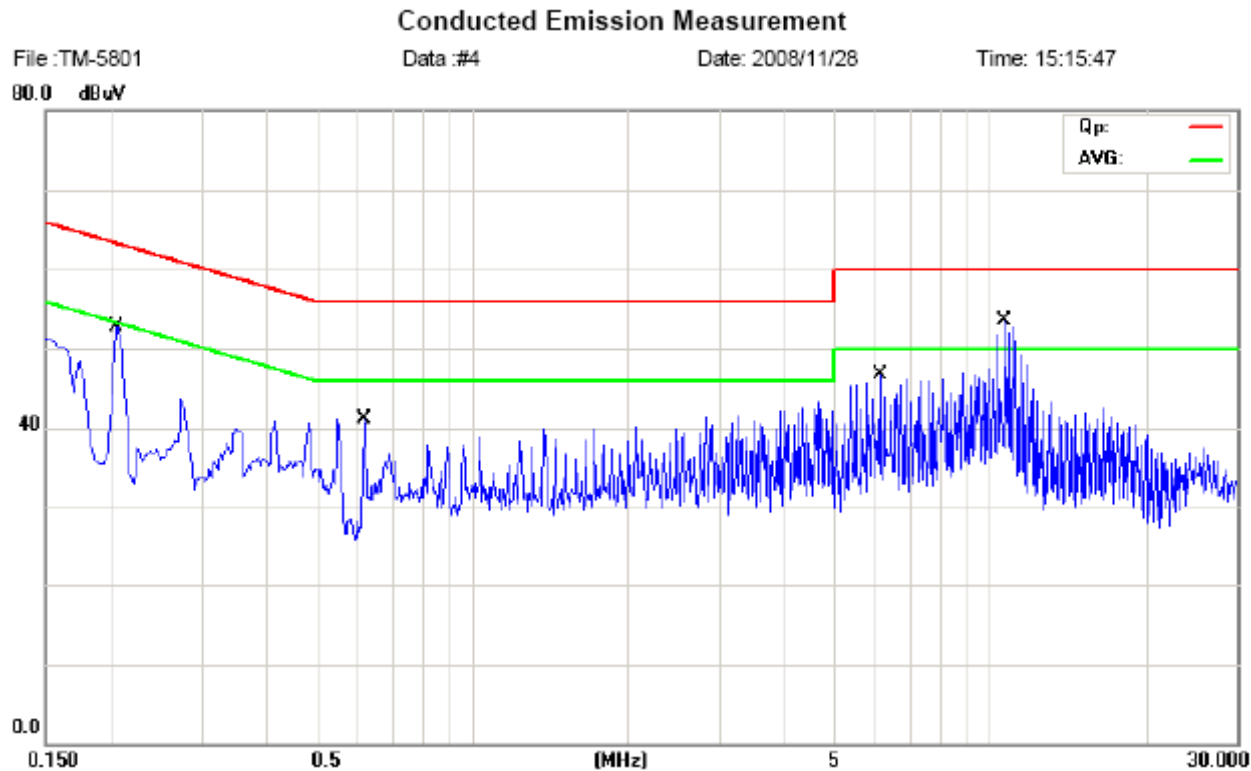
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EUT set Condition: Charging

Results: Pass

Please refer to following diagram for individual



Frequency (MHz)	Reading(dB μ V)				Limit (dB μ V)	
	Line		Neutral			
	Quasi-peak	Average	Quasi-peak	Average	Quasi-peak	Average
0.2055	47.46	45.86	--	--	63.39	53.39
0.6181	37.20	36.40	--	--	56.00	46.00
6.1361	34.82	23.62	--	--	60.00	50.00
10.7014	52.09	47.99	--	--	60.00	50.00

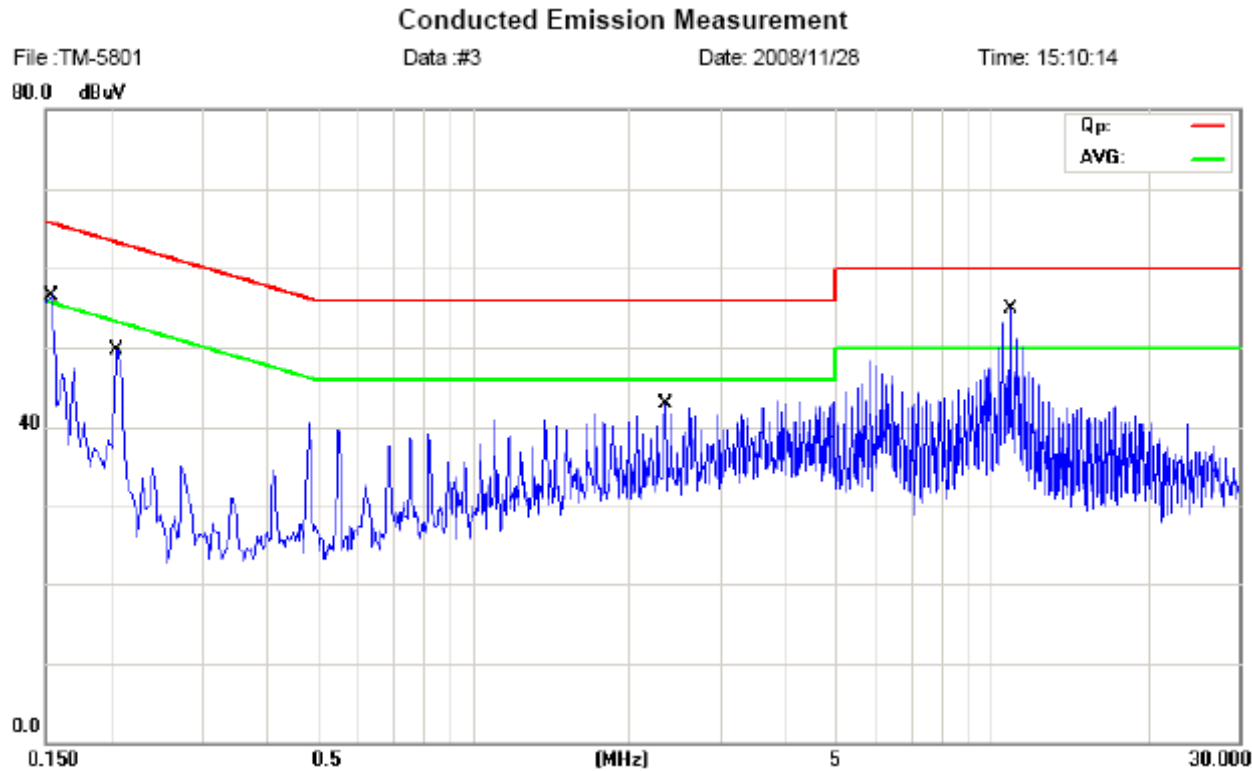
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EUT set Condition: Charging

Results: Pass

Please refer to following diagram for individual



Frequency (MHz)	Reading(dB μ V)				Limit (dB μ V)	
	Line		Neutral			
	Quasi-peak	Average	Quasi-peak	Average	Quasi-peak	Average
0.1533	49.00	43.50	--	--	65.82	55.82
0.2054	46.36	44.16	--	--	63.39	53.39
2.3488	37.04	35.44	--	--	56.00	46.00
10.8833	45.88	37.28	--	--	60.00	50.00

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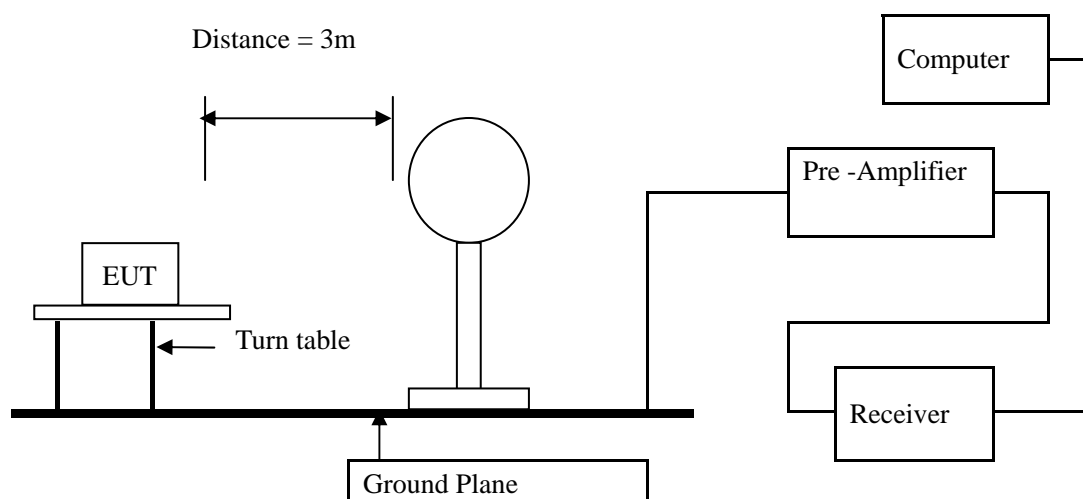


6 In Band Radiated Spurious Emission Measurements

6.1 Test Method and test Procedure:

- (1) The EUT was tested according to ANSI C63.4 –2003. The radiated test was performed at Timeway Laboratory. This site is on file with the FCC laboratory division, Registration No.899988
- (2) The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.4-2003.
- (3) The frequency spectrum from 9kHz to 30MHz was investigated. All readings from 9kHz to 30MHz are peak values with a resolution bandwidth of 10 kHz. VBW 10KHz

Block diagram of Test setup for frequency below 30MHz



6.2 Configuration of The EUT

Same as section 5.3 of this report

6.3 EUT Operating Condition

Same as section 5.4 of this report.

6.4 Radiated Emission Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below:

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**A FCC Part 15 Subpart C Paragraph 15.225 Limit**

Fundamental Frequency (MHz)	Field Strength of Fundamental (30m)	
	uV/m	dBuV/m
13.533 to 13.567	15848	84
13.410-13.553 MHz and 13.567-13.710 MHz	334	50.5
13.110-13.410 MHz and 13.710-14.010 MHz	106	40.5

- Note:
1. RF Field Strength (dBuV) = 20 log RF Voltage (uV)
 2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.
 3. The emission limit in this paragraph is based on measurement instrumentation employing an average detector.

6.5 Test result**A In Band Radiated Spurious Emission Measurements**

Product:	Audio Player with Scanner	Test Mode:	Transmitting
Test Item:	Radiated Emission Data	Temperature:	25°C
Test Voltage:	3.7V	Humidity:	56%
Test Result:	Pass		

Frequency (MHz)	Emission (dBuV/m) (3m)	Emission (dBuV/m) (30m)	Limits (dBuV/m) (30m)	Margin (dB)
13.56	81.52	41.52	84	42.48

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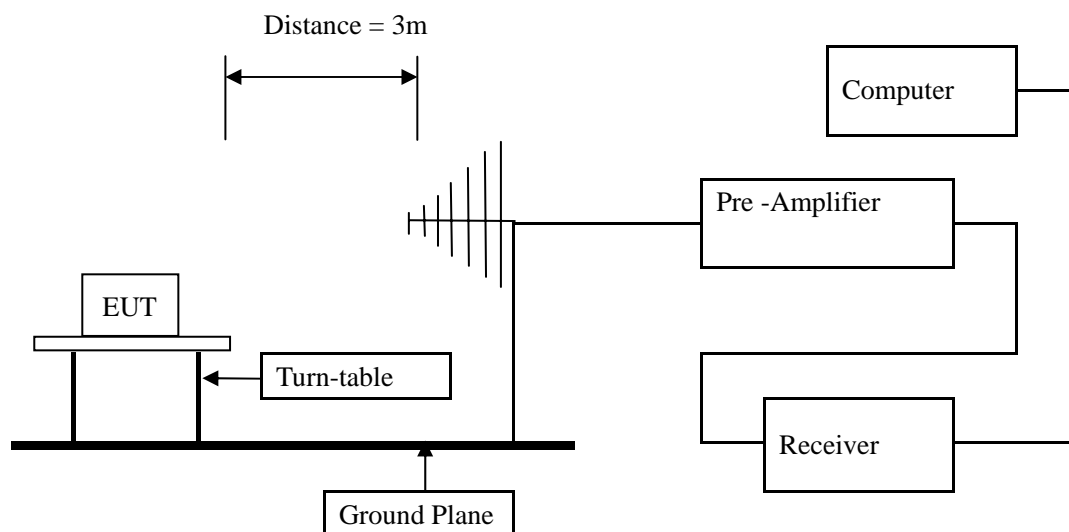


7 Radiated Spurious Emission Measurements, Out of Band

7.1 Test Method and test Procedure:

- (1) The EUT was tested according to ANSI C63.4 –2003. The radiated test was performed at Timeway Laboratory. This site is on file with the FCC laboratory division, Registration No.899988
- (2) The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.4-2003.
- (3) The frequency spectrum from 30 MHz to 1 GHz was investigated. ,All readings from 30 MHz to 1 GHz are quasi-peak values with a resolution bandwidth of 120 kHz. VBW 300KHz .All readings are above 1 GHz, peak values with a resolution bandwidth of 1MHz. VBW 3MHz with a resolution bandwidth of 1 MHz . Measurements were made at 3 meters.
- (4) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
- (5) Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with all installation combinations. All data was recorded in the peak detection mode. Quasi-peak readings was performed only when an emission was found to be marginal (within -4 dB of specification limit), and are distinguished with a "QP" in the data table.
- (6) The antenna polarization : Vertical polarization and Horizontal polarization.

Block diagram of Test setup for frequency 30-1000MHz



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Frequencies in restricted band are complied to limit on Paragraph 15.209.

Frequency Range (MHz)	Distance (m)	Field strength (dB μ V/m)
0.009 – 0.490	3	$20\log 2400/F \text{ (kHz)} + 80$
0.490 – 1.705	3	$20\log 24000/F \text{ (kHz)} + 40$
1.705 – 30.00	3	$20\log 30 + 40$
30-88	3	40.0
88-216	3	43.5
216-960	3	46.0
Above 960	3	54.0

- Note:
1. RF Voltage (dBuV) = $20 \log \text{ RF Voltage (uV)}$
 2. In the Above Table, the tighter limit applies at the band edges.
 3. Distance refers to the distance in meters between the measuring instrument antenna and the EUT
 4. If measurement is made at 3m distance, then F.S Limitation at 3m distance is adjusted by using the formula $Ld1 = Ld2 * (d2/d1)$
 5. This is a handheld device. The radiated emissions should be tested under 3-axes position (Lying, Side, and Stand), After pre-test. It was found that the worse radiated emission was get at the lying position.

Test Uncertainly:4.7dB

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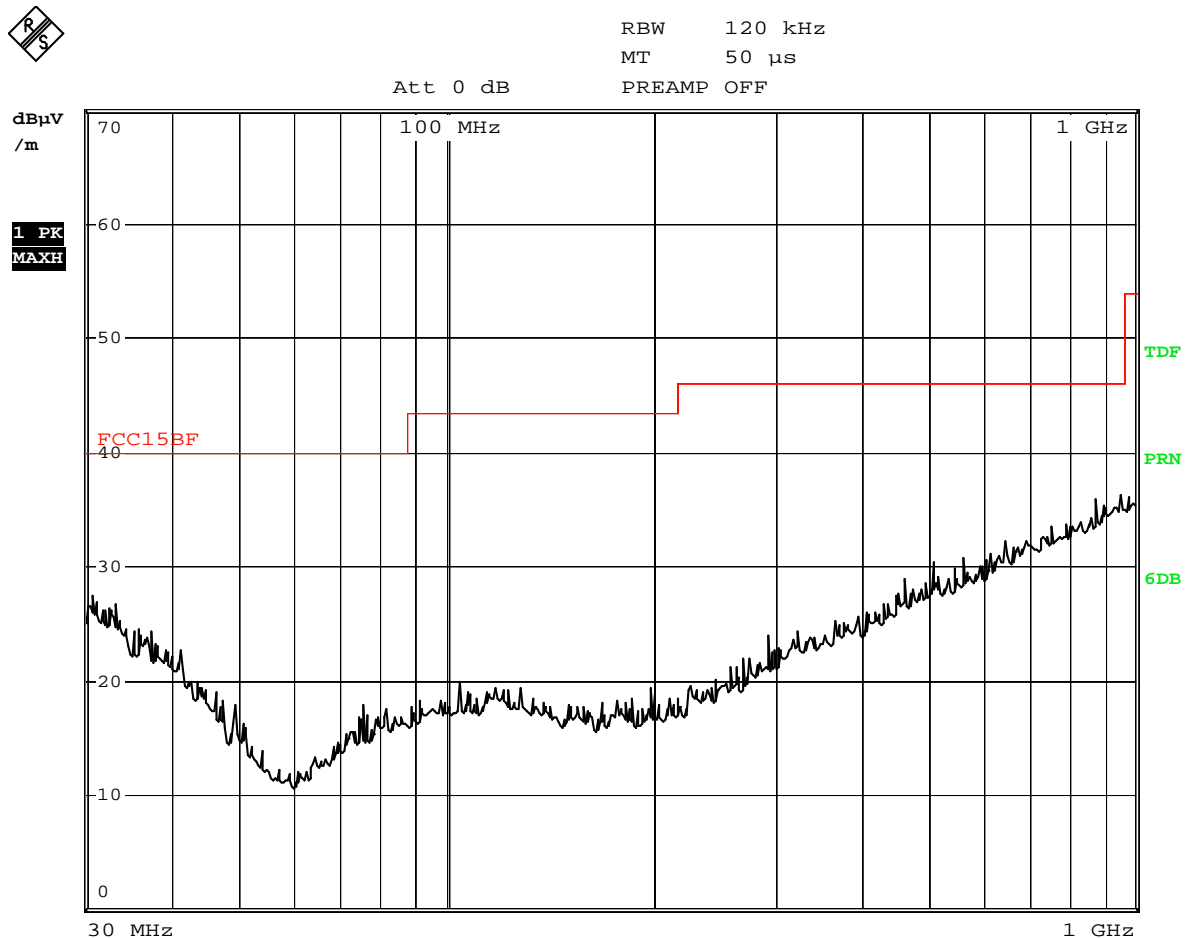
B. Radiated Spurious Emission Measurements, Out of Band

Radiated Emission In Horizontal (30MHz----1000MHz)

EUT set Condition: Transmitting

Results: Pass

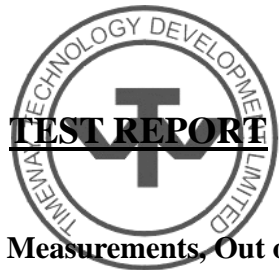
Please refer to following diagram for individual



Date: 2.DEC.2008 15:40:54

Frequency (MHz)	Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB μ V/m)
--	--	H	--

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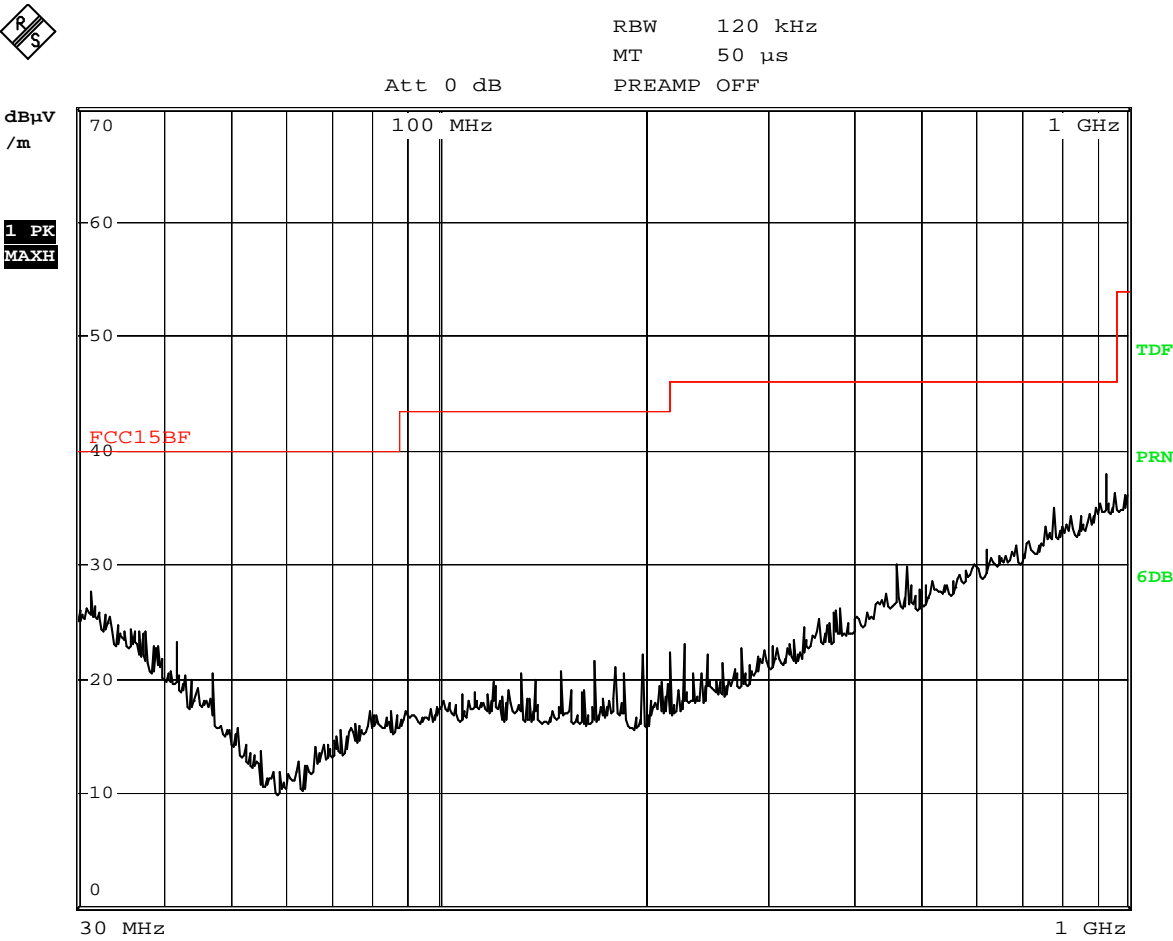
B. Radiated Spurious Emission Measurements, Out of Band

Radiated Emission In Vertical (30MHz----1000MHz)

EUT set Condition: Transmitting

Results: Pass

Please refer to following diagram for individual



Date: 2.DEC.2008 15:41:20

Frequency (MHz)	Level@3m (dB µ V/m)	Antenna Polarity	Limit@3m (dB µ V/m)
--	--	V	--

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8. Frequency Tolerance

8.1 Test Method and test Procedure:

Frequency Stability vs. Temperature: the equipment under test was connected to an external DC Power supply and The RF output was connected to a spectrum analyzer via feed-through attenuators. The EUT was placed inside The temperature chamber. The DC leads and RF output cable exit the chamber through an opening made for the purpose

After the temperature stabilized for approximately 20 minutes, the frequency output was recorded from the Spectrum analyzer

Frequency Stability vs. Voltage: An external variable DC power supply source. The voltage was set to 115% of The nominal value and was the decreased until the transmitter light no longer illuminated; i.e., the end point. The output frequency was recorded for each voltage.

8.2 Frequency Tolerance Limit

The frequency tolerance of the carrier signal shall be maintained within $\pm 0.01\%$ (100PPM) of the operating frequency over a temperature variation of -20 degrees to $+50$ degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

Assigned Frequency	13.56MHz	
Temperature (0°C)	Measured Frequency	PPM
-20	13.564320	31.86
-10	13.564315	31.82
0	13.564219	31.11
10	13.564225	31.16
20	13.564186	30.87
30	13.564136	30.50
40	13.564088	30.47
50	13.564023	29.67
85% End-point at 20°C	13.564207	31.02
115% End-point at 20°C	13.564216	31.91

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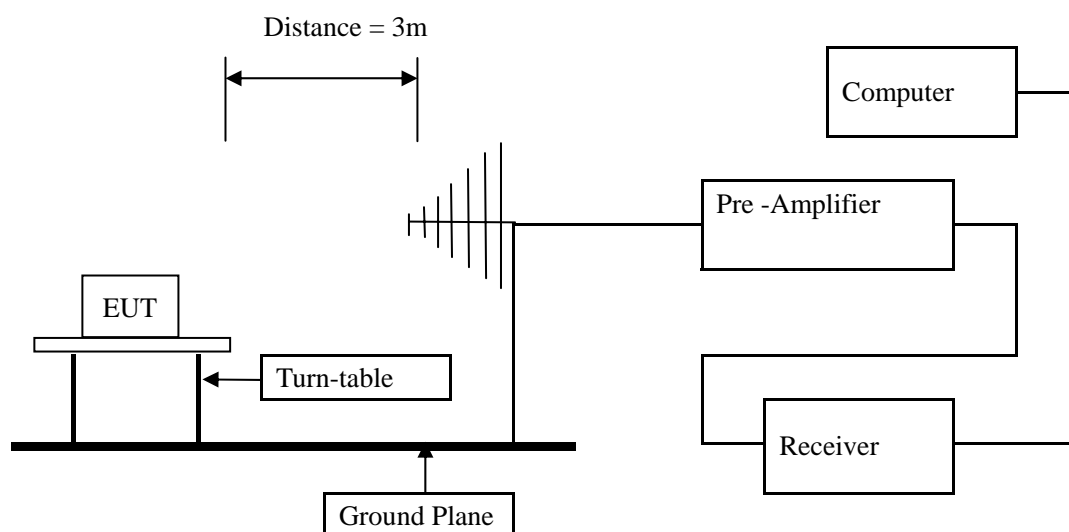


9. 20 dB Bandwidth

9.1 Test Method and test Procedure:

- (1) The EUT was tested according to ANSI C63.4 –2003. The radiated test was performed at Timeway Laboratory. This site is on file with the FCC laboratory division, Registration No.899988

9.2 Radiated Test Setup



For the actual test configuration , please refer to the related items – Photos of Testing

9.3 Configuration of The EUT

Same as section 5.3 of this report

9.4 EUT Operating Condition

Same as section 5.3 of this report.

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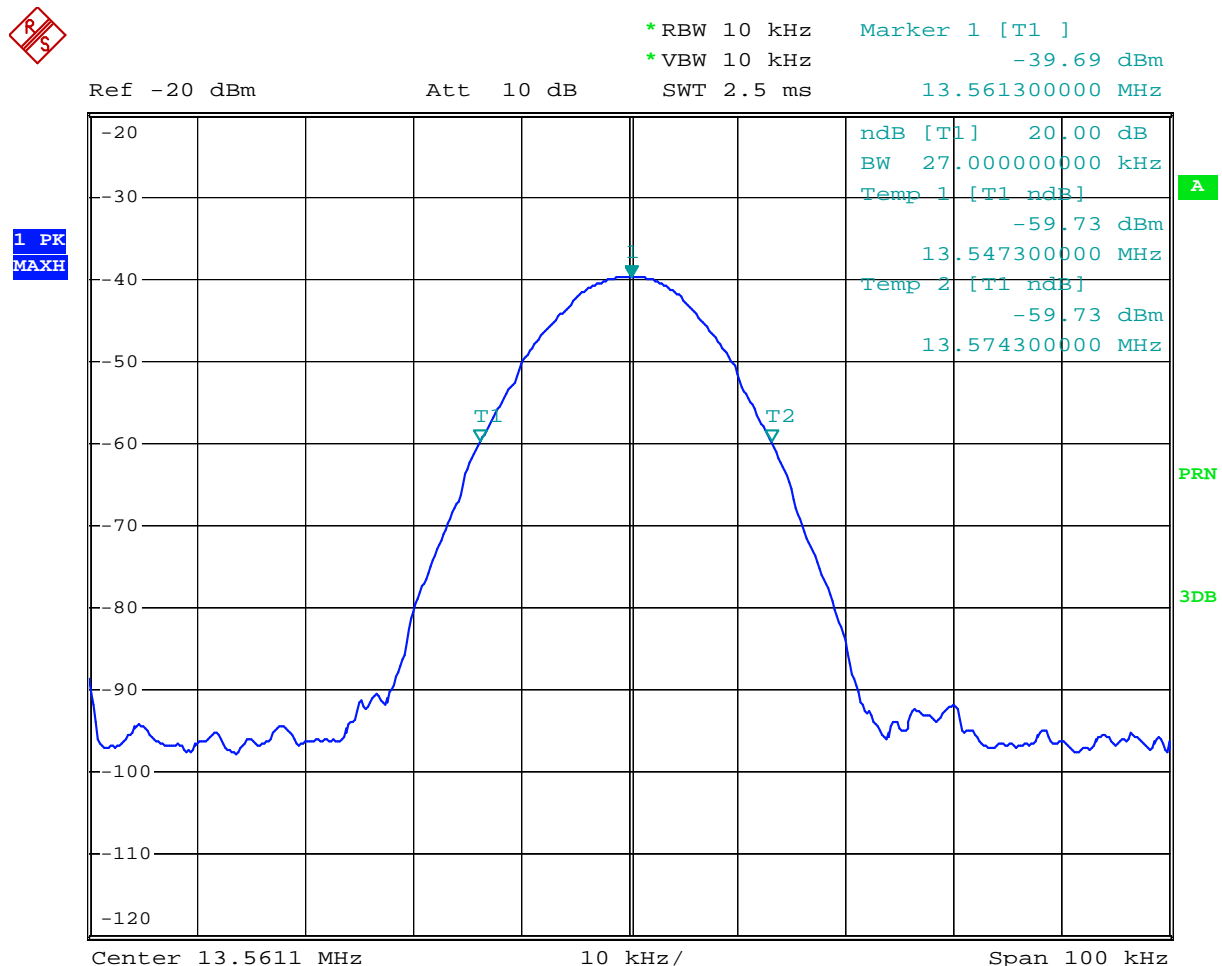
9.5 20dB Bandwidth Requirement

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission,

9.6 20dB Bandwidth Test Result

Product:	Audio Player with Scanner	Test Mode:	Transmitting
Test Item:	20dB Bandwidth	Temperature:	25°C
Test Voltage:	DC3.7V	Humidity:	56%
Bandwidth	27kHz	Test Result:	Pass

Test Figure:



Date: 4.DEC.2008 09:57:44

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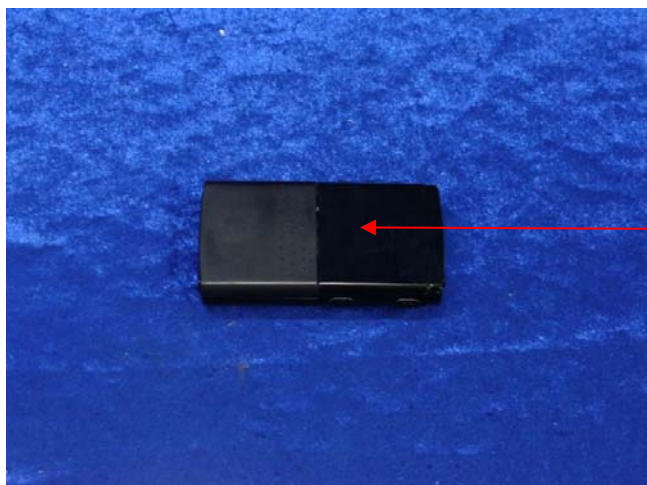
10.0 FCC ID Label

FCC ID: WNITM-5801

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 label. 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.

Mark Location:



FCC ID Label

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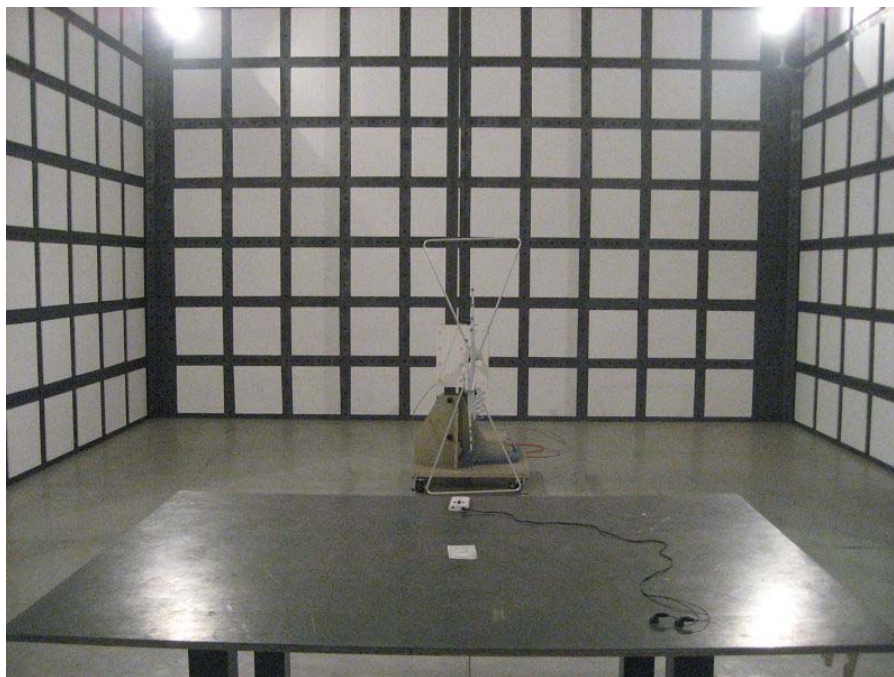


11.0 Photo of testing

11.1 Conducted test View



11.2 Radiated emission test view



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11.3 Photo for the EUT

Front View1



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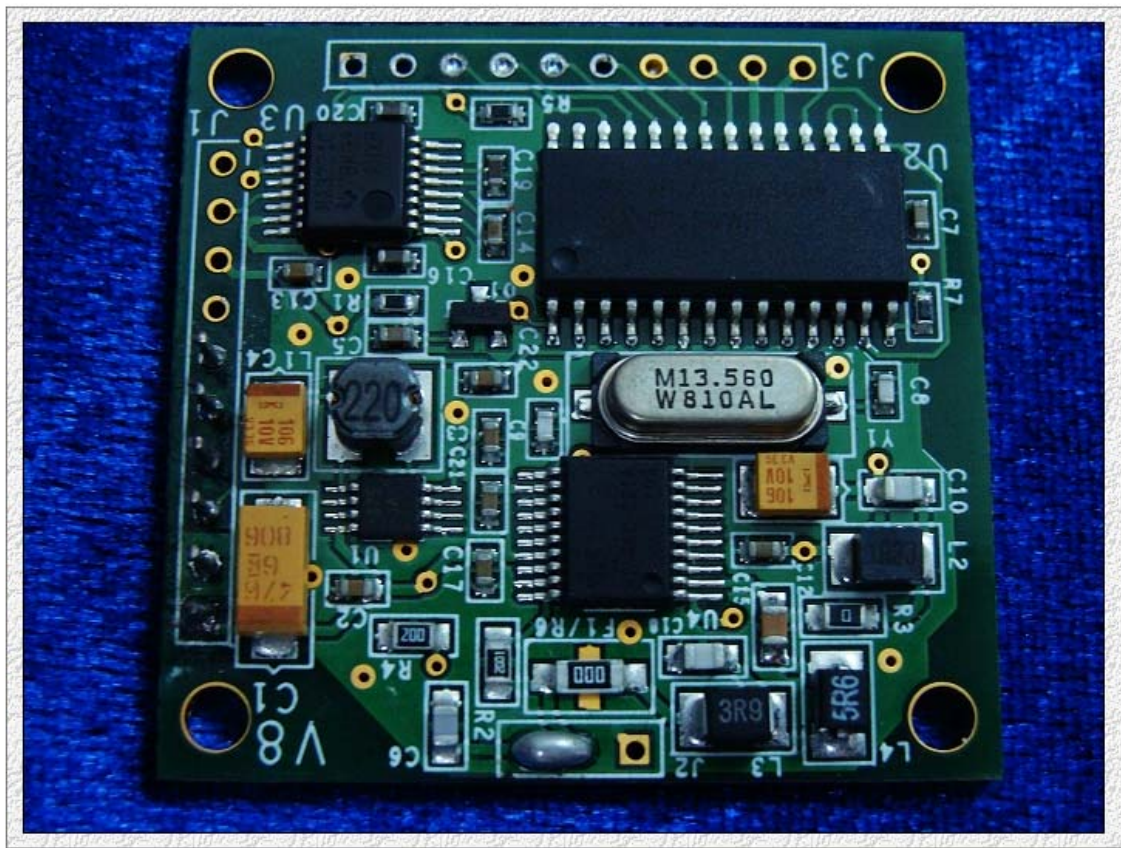


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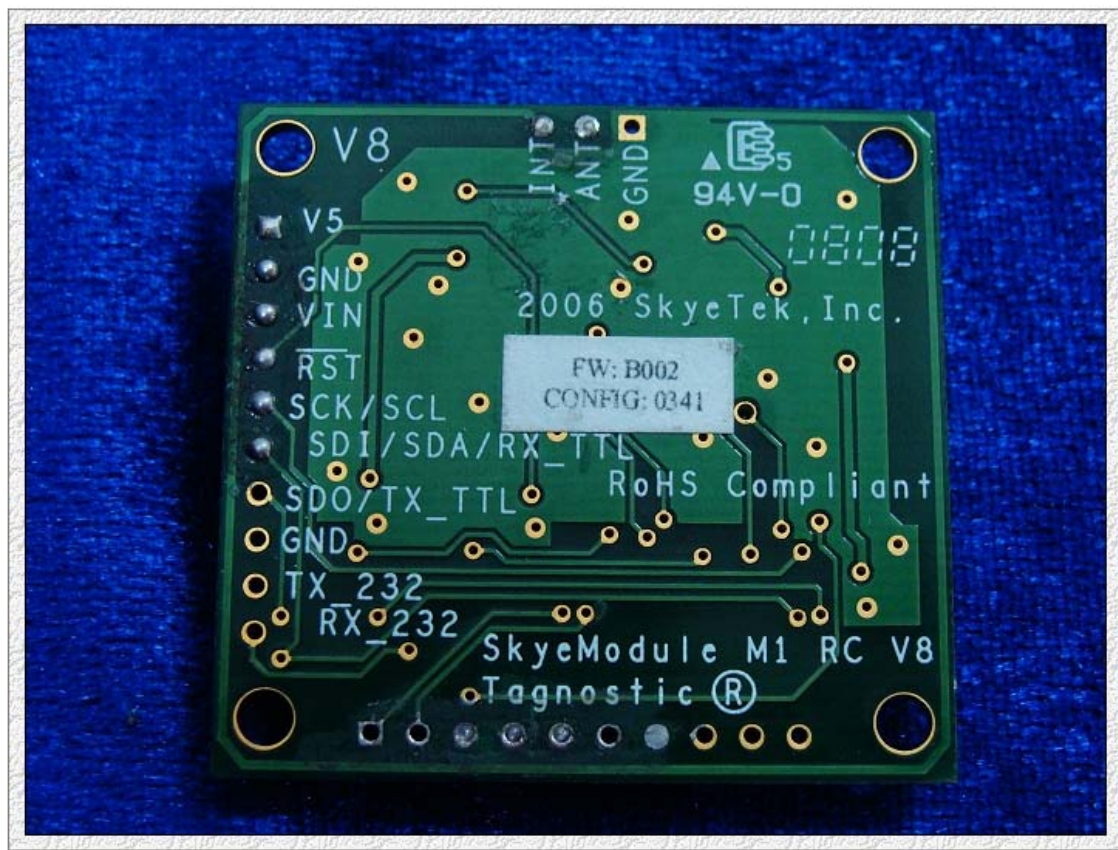


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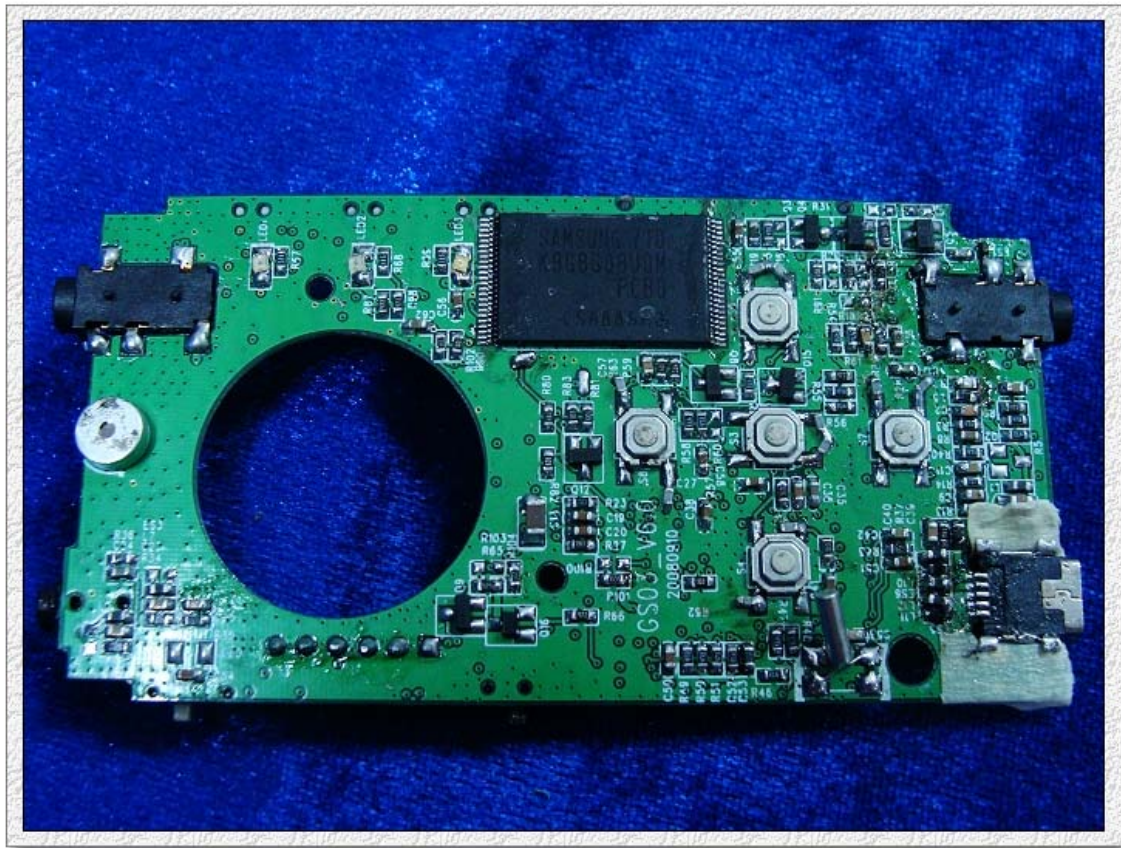


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