

FCC TEST REPORT

for

GPS Navigator (FM Transmitter mode)

Model No. : KW-GM7001

FCC ID : WNHKW-GM7001

Operating Frequency : 88.1-91.9MHz (200kHz step)

Applicant : Kinwei Technologies (Shenzhen) Co., Ltd
22th Building, Chentian Industrial Zone, Bao'an District,
Shenzhen, 518102, China

Regulation : **FCC Part 15.239 Subpart C**

Prepared by : AOV Testing Technology Co., Ltd
AOV Building, Xueyuan Road East, University City, Shenzhen
(Tanglang Village, Xili Town, Nanshan District), China

Test Date : February 19-24, 2008

Date of Report : February 25, 2009

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TEST REPORT DECLARATION

Applicant : Kinwei Technologies (Shenzhen) Co., Ltd
Manufacturer : Kinwei Technologies (Shenzhen) Co., Ltd
EUT Description : GPS Navigator

Test Procedure Used:
FCC Part 15.239 Subpart C

The E. U. T. listed below has been completed RFI testing by Shenzhen AOV Testing Technology Co., Ltd at the test site of Bontek Compliance Testing Laboratory Ltd. And the Interference emissions can pass **FCC CLASS B** limitations.

The test configurations and the facility comply with the radiated and AC line conducted test site criteria in **ANSI C63.4-2003**.

Date of Test:

February 19-24, 2008

Prepared by:



Project Engineer

Reviewer :



Project Manager

1. GENERAL INFORMATION

1.1 General Information

Applicant : Kinwei Technologies (Shenzhen) Co., Ltd
22th Building, Chentian Industrial Zone, Bao'an District,
Shenzhen, 518102, China

Manufacturer : Kinwei Technologies (Shenzhen) Co., Ltd
22th Building, Chentian Industrial Zone, Bao'an District,
Shenzhen, 518102, China

1.2 Test Facility

Test Firm : Bontek Compliance Testing Laboratory Ltd.
Certificated by FCC, Registration No.: 338263
Address : FL.1, Building H-3, Hua Qiao Cheng East Industrial Area
Qiaocheng East Road, Nanshan, Shenzhen, P.R.China
Tel : 86-755-86337020
Fax : 86-755-86337028

1.3 Test Instrument Used

No.	Equipment	Manufacturer	Model No.	S/N	Calculator date
1.	EMI Test Receiver	R&S	ESCI	100687	2009-2-22
2.	EMI Test Receiver	R&S	ESPI	100097	2009-2-22
3.	Amplifier	HP	8447D	1937A02492	2009-2-22
4.	TRILOG Broadband Test-Antenna	SCHWARZBECK	VULB9163	9163-324	2009-2-22
5.	Horn Antenna	SCHWARZBECK	BBHA9120A	B08000991-0001	2009-2-22
6.	High Field Biconical Antenna	ELECTRO-METRICS	EM-6913	166	2009-2-22
7.	Log Periodic Antenna	ELECTRO-METRICS	EM-6950	811	2009-2-22
8.	Remote Active Vertical Antenna	ELECTRO-METRICS	EM-6892	304	2009-2-22
9.	Teo Line Single Phase Module	SCHWARZBECK	NSLK8128	D-69250	2009-2-22
10.	Positioning Controller	C&C	CC-C-1F	MF7802113	2009-2-22
11.	Triple-Loop Antenna	EVERFINE	LLA-2	607004	2009-2-22
12.	10dB attenuator	SCHWARZBECK	MTAIMP-136	R65.90.0001#06	2009-2-22

2. POWERLINE CONDUCTED EMISSION TEST

2.1. Test Standard

15.207

2.2. Limits

Frequency MHz	Limits (dB μ V)	
	Quasi-peak Level	Average Level
0.15 ~ 0.50	66 ~ 56*	56 ~ 46*
0.50 ~ 5.00	56	46
5.00 ~ 30.00	60	50

Notes:

1. *Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

2.3. Test Procedure

The EUT is put on the table that is 0.8m high above the ground and at least away from other Metallic surface 0.4m. The EUT is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohms coupling impedance for the testing equipment; and the peripheral equipment powers form other L.I.S.N. Please refer to the block diagram of the test setup and photographs. Both sides of AC line (Line & Neutral) are checked for maximum conducted interference. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables must be changed according to FCC part 15 B.

2.4. Test Result

PASS

Detailed information, Please refer to the following page.

FM Transmitter mode, adapter for charging**Line:**

Frequency (MHz)	AV Read Level (dBuV)	AV Limit (dBuV)	AV Margin (dBuV)
0.1905	43.20	54	10.80
5.8695	40.20	50	9.80
15.3915	36.10	50	13.90

Frequency (MHz)	QP Read Level (dBuV)	QP Limit (dBuV)	QP Margin (dBuV)
0.1860	61.00	64	3.00
0.1905	60.20	64	3.80
0.2445	56.30	62	5.70

Neutral:

Frequency (MHz)	AV Read Level (dBuV)	AV Limit (dBuV)	AV Margin (dBuV)
0.1905	43.40	54	10.60
0.1995	41.50	54	12.50
5.8830	38.90	50	11.10

Frequency (MHz)	QP Read Level (dBuV)	QP Limit (dBuV)	QP Margin (dBuV)
0.1860	60.80	64	3.20
0.2040	60.20	63	2.80

3. RADIATION INTERFERENCE

3.1.Rules Part No.

15.239

3.2.Limits

The field strength of any emissions within the permitted 200 kHz band shall not exceed 250 microvolts/meter (48 dBuV/m) at 3 meters. The emission limit in this paragraph is based on measurement instrumentation employing an average detector. The provisions in Section 15.35 for limiting peak emissions apply.

The field strength of any emissions radiated on any frequency outside of the specified 200 kHz band shall not exceed the general radiated emission limits in Section 15.209.

Frequency of (MHz)	Emission Field Strength (microvolts/meter)
30 - 88	100 (40)
88 - 216	150 (43.5)
216 - 960	200 (46.0)
Above 960	500 (54.0)

3.3.Test Procedure

ANSI STANDARD C63.4-2003 10.1.7 MEASUREMENT PROCEDURES:

The EUT is placed on a turned table that is 0.8 meter above the ground. The turned table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna that is mounted on the antenna tower. The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level. Broadband antenna (log periodical antenna and horn antenna) is used as receiving antenna. Both horizontal and vertical polarization of the antenna is set on test.

The resolution bandwidth was 100 kHz and the video bandwidth was 300 kHz.

The spectrum was scanned from 30 MHz to 10th harmonic of the fundamental.

3.4.Test Result

PASS

Low Channel: 88.1MHz

Field Strength of Fundamental:

Horizontal:

Frequency (MHz)	PK (dBuV/m)	Read Level (dBuV/m)	Limit (dBuV/m)	(AV)Margin (dBuV/m)
88.100	44.70	43.50	48.0	4.50

Vertical:

Frequency (MHz)	PK (dBuV/m)	Read Level (dBuV/m)	Limit (dBuV/m)	(AV)Margin (dBuV/m)
88.100	45.90	44.70	48.0	3.30

Field Strength of Spurious Emission:

Horizontal:

Frequency (MHz)	PK (dBuV/m)	Read Level (dBuV/m)	Limit (dBuV/m)	(QP)Margin (dBuV/m)
31.940	34.20	29.90	40.0	10.10
55.220	30.80	30.10	40.0	9.90
175.500	35.00	33.20	43.5	10.30
266.680	40.10	39.40	46.0	6.60
939.860	37.20	36.60	46.0	9.40

Vertical:

Frequency (MHz)	PK (dBuV/m)	Read Level (dBuV/m)	Limit (dBuV/m)	(QP)Margin (dBuV/m)
31.940	39.50	34.90	40.0	5.10
55.220	34.20	30.60	40.0	9.40
66.860	36.60	32.30	40.0	7.70
74.620	37.50	33.10	40.0	6.90
895.240	43.10	35.60	46.0	10.40

Middle Channel: 90.1MHz

Field Strength of Fundamental:

Horizontal:

Frequency (MHz)	PK (dBuV/m)	Read Level (dBuV/m)	Limit (dBuV/m)	(AV)Margin (dBuV/m)
90.100	44.20	43.70	48.0	4.30

Vertical:

Frequency (MHz)	PK (dBuV/m)	Read Level (dBuV/m)	Limit (dBuV/m)	(AV)Margin (dBuV/m)
90.100	45.50	45.00	48.0	3.00

Field Strength of Spurious Emission:

Horizontal:

Frequency (MHz)	PK (dBuV/m)	Read Level (dBuV/m)	Limit (dBuV/m)	(QP)Margin (dBuV/m)
31.940	34.60	30.30	40.0	9.70
55.220	30.20	28.50	40.0	11.50
74.620	31.10	30.50	40.0	9.50
179.380	35.50	32.10	43.5	11.40
908.820	36.50	36.30	46.0	9.70

Vertical:

Frequency (MHz)	PK (dBuV/m)	Read Level (dBuV/m)	Limit (dBuV/m)	(QP)Margin (dBuV/m)
31.940	38.90	35.20	40.0	4.80
55.220	34.30	31.50	40.0	8.50
66.860	36.80	33.70	40.0	6.30
74.620	37.10	35.60	40.0	4.40
179.380	38.50	36.30	43.5	7.20

High Channel: 91.9MHz

Field Strength of Fundamental:

Horizontal:

Frequency (MHz)	PK (dBuV/m)	Read Level (dBuV/m)	Limit (dBuV/m)	(AV)Margin (dBuV/m)
91.900	43.80	42.50	48.0	5.50

Vertical:

Frequency (MHz)	PK (dBuV/m)	Read Level (dBuV/m)	Limit (dBuV/m)	(AV)Margin (dBuV/m)
91.900	45.30	44.80	48.0	3.20

Field Strength of Spurious Emission:

Horizontal:

Frequency (MHz)	PK (dBuV/m)	Read Level (dBuV/m)	Limit (dBuV/m)	(QP)Margin (dBuV/m)
30.000	35.50	29.70	40.0	10.30
55.220	29.40	29.00	40.0	11.00
74.620	31.00	30.80	40.0	9.20
183.260	35.70	33.70	43.5	9.80
959.260	37.10	36.00	46.0	10.00

Vertical:

Frequency (MHz)	PK (dBuV/m)	Read Level (dBuV/m)	Limit (dBuV/m)	(QP)Margin (dBuV/m)
31.940	39.10	34.60	40.0	5.40
55.220	34.50	34.10	40.0	5.90
66.860	36.60	33.70	40.0	6.30
74.620	36.90	34.50	40.0	5.50
183.260	37.30	36.40	43.5	7.10

4. BANDWIDTH

4.1. Test Standard

15.239

4.2. Limits

Emissions from the intentional radiator shall be confined within a band 200 kHz wide centered on the operating frequency. The 200 kHz band shall lie wholly within the frequency range of 88-108 MHz.

4.3. Test Procedure

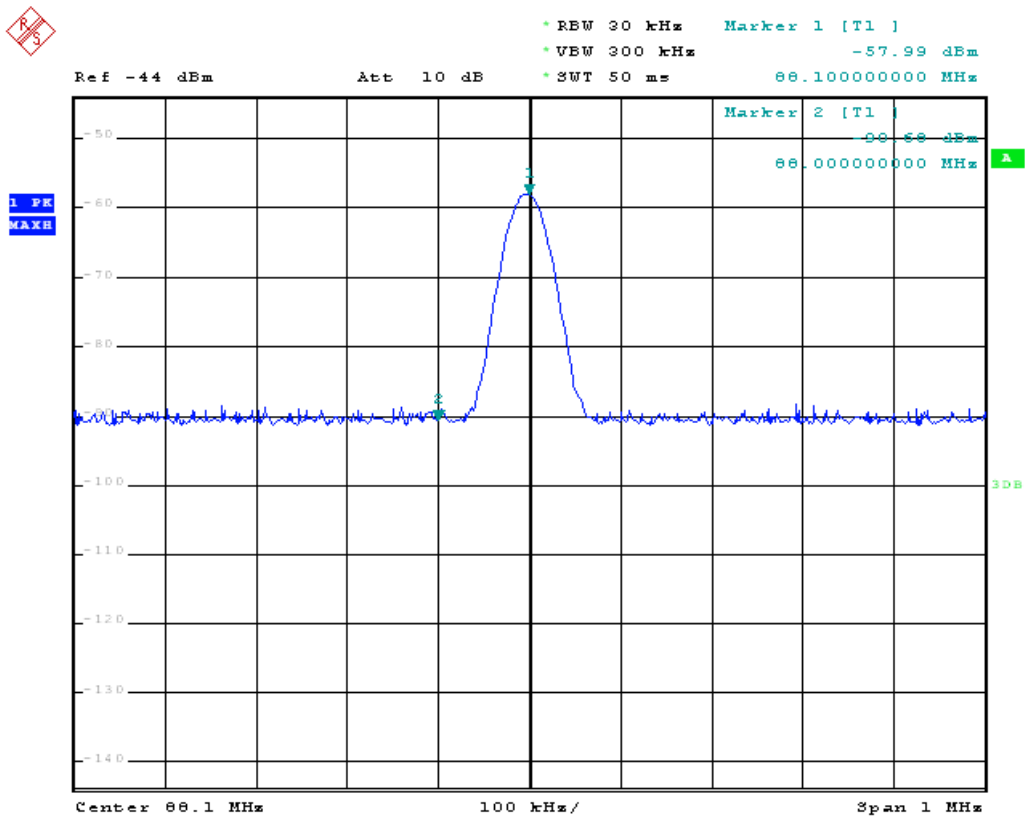
Record the response of frequency waveform when the EUT was working by a spectrum analyzer or EMI Receiver.

4.4. Test Result

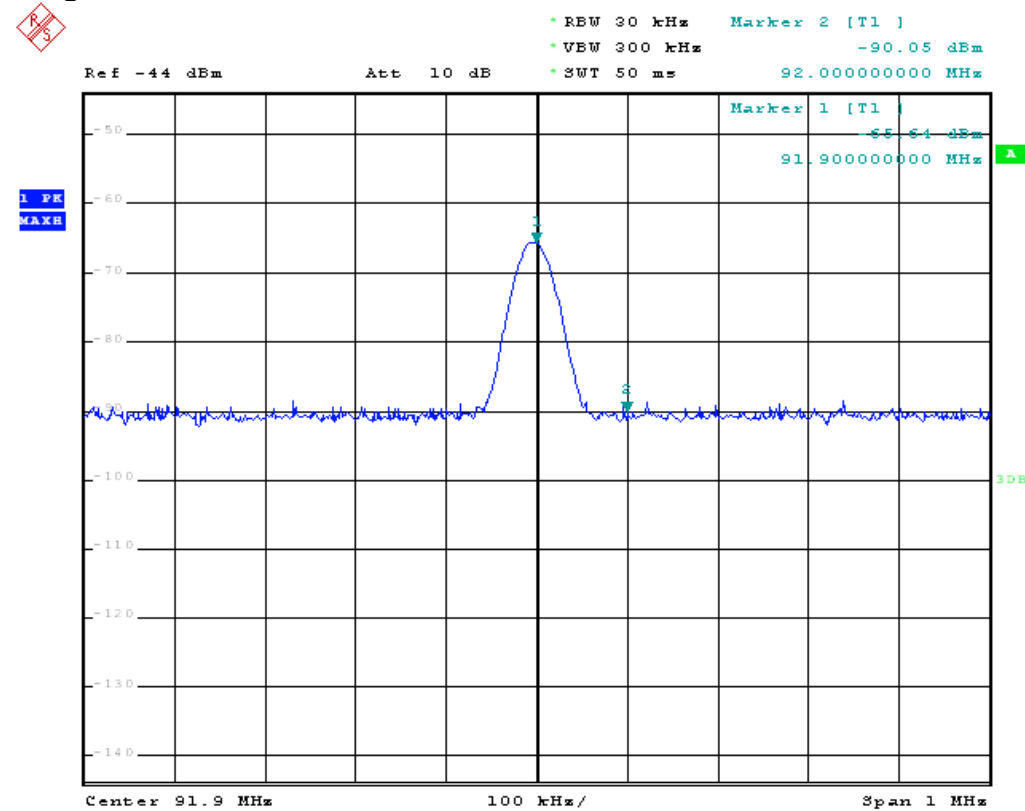
PASS

Detailed information, Please refer to the following page.

Low channel : 88.1MHz



High channel : 91.9MHz



5. PHOTOGRAPH OF TEST

Conducted Emission:

Front



Rear



Radiated Emission:

Front



Rear

