Test Report

Product Name ： GPS TRACKER

Model No. ： GT-95

Applicant ： eNAVI Technology Corp.

Address ： 2F,NO.70,ZIQIANG 5TH RD.,ZHUBEI CITY,HSINCHU COUNTY,TAIWAN

Date of Receipt ： 2009/05/20

Issued Date ： 2009/11/26

Report No. ： 095299R-HPUSP01V01

Report Version ： V1.0

Test Report Certification

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Product Name	：	GPS TRACKER
Applicant	：	eNAVI Technology Corp.
Address	：	2F,NO.70,ZIQIANG 5TH RD.,ZHUBEI CITY,HSINCHU COUNTY,TAIWAN
Manufacturer	：	eNAVI Technology Corp.
Model No.	：	GT-95
FCC ID.	：	XODTCK950910A
EUT Rated Voltage	：	DC 5V
EUT Test Voltage	：	AC 120V/60Hz(by PC)
Trade Name	：	iCAREU
Applicable Standard	：	FCC CFR Title 47 Part 15 Subpart B: 2008 CISPR 22: 2007
Classification	：	B
Test Result	：	Complied

NVLAP Lab Code: 200533-0

The test results relate only to the samples tested.
The test report shall not be reproduced except in full without the written approval of QuieTek Corporation.
This report must not be used to claim product endorsement by NVLAP any agency of the U.S. Government

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(Adm. Assistant / Anny Chou)

Tested By ： wen Lee
(Engineer / Wen Lee)

Approved By ：
(Manager /Vincent Lin)

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1. General Information

1.1. EUT Description

Product Name	GPS TRACKER
Trade Name	iCAREU
Model No.	GT-95
TX Frequency	GSM 850：824 ~ 849MHz PCS 1900：1850 ~ 1910MHz
RX Frequency	GSM 850：869 ~ 894MHz PCS 1900：1930 ~ 1990MHz
Antenna Type	monopople
Hardware version	V1.3
Software version	V1.5.3

1.2. Test mode

QuieTek has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Test Mode	
CE,RE	Mode 1: Normal Operation

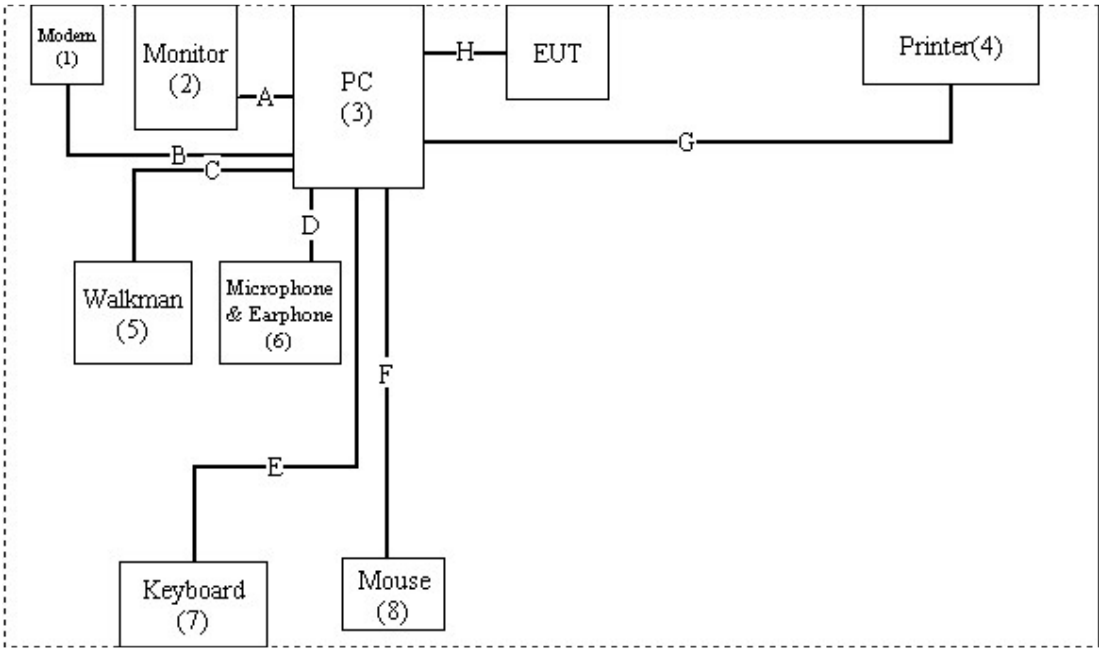
1.3. Tested System Details

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Modem	ACEEX	DM-1414	0102027550	Non-Shielded, 1.8m
2	Monitor	Dell	2407WFPb	CN-0YY528-46633-796-12RS	Non-Shielded, 1.8m
3	PC	HP	DM204P#ABO	SGH3410357	Non-Shielded, 1.8m
4	Printer	EPSON	StyLus C63	FAPY094331	Non-Shielded, 1.9m
5	Walkman	AIWA	HS-TA164	N/A	N/A
6	Microphone & Earphone	PCHOME	N/A	N/A	N/A
7	Keyboard	Logitech	Y-SM46	867404-0121	N/A
8	Mouse	HP	M-S69	N/A	N/A

1.4. Configuration of tested System

Connection Diagram



Signal Cable Type		Signal cable Description
A	D-SUB Cable	Shielded, 1.8m, with two ferrite cores bonded
B	RS-232 Cable	Shielded, 1.5m
C	Audio Cable	Non-Shielded, 1.6m
D	Earphone & Microphone Cable	Non-Shielded, 1.6m
E	Keyboard Cable	Shielded, 1.8m
F	Mouse Cable	Shielded, 1.8m
G	Printer Cable	Shielded, 1.2m
H	USB Cable	Shielded, 2m, with one ferrite core bonded

1.5. EUT Exercise Software

1	Setup the EUT and simulators as shown on 1.4.
2	Turn on the power of all equipment.
3	The EUT will start to operate and scan the video figure into PC.
4	PC will display “video figure” on monitor.
5	Modulate voltage and current value of EUT up to specification.

1.6. Test Facility

Ambient conditions in the laboratory:

Items	Test Item	Required (IEC 68-1)	Actual
Temperature (°C)	ANSI C63.4 CE	15-35	23
Humidity (%RH)		30-60	52
Barometric pressure (mbar)		860-1060	950-1000
Temperature (°C)	ANSI C63.4 RE	15-35	21
Humidity (%RH)		30-60	56
Barometric pressure (mbar)		860-1060	950-1000

Site Description: June 22, 2001 File on
Federal Communications Commission
FCC Engineering Laboratory
7435 Oakland Mills Road
Columbia, MD 21046
Reference 31040/SIT1300F2
July 3, 2001 Accreditation on NVLAP
NVLAP Lab Code: 200533-0

NVLAP Lab Code: 200533-0

Site Name: Quietek Corporation

Site Address: No. 5-22, Ruei-Shu Valley, Ruei-Ping Tsuen,
Lin Kou Shiang, Taipei 244 Taiwan, R.O.C.
TEL : 886-2-8601-3788 / FAX : 886-2-8601-3789
E-Mail : service@quietek.com

FCC Accreditation Number: TW1014

Testing Laboratory
0914

2. Conducted Emission

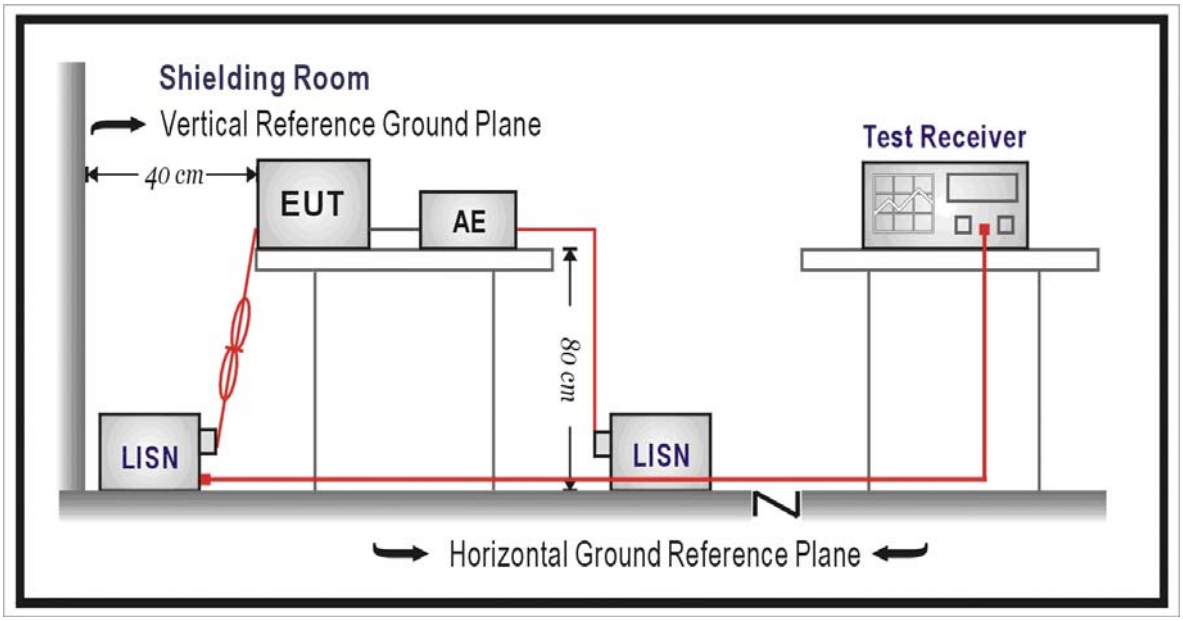
2.1. Test Equipment List

The following test equipment are used during the conducted emission test:

Item	Instrument	Manufacturer	Type No./ Serial No	Last Cal.	Remark
1	Test Receiver	R & S	ESCS 30/100367	Aug., 2009	
2	L.I.S.N.	R & S	ESH3-Z5/836679/023	Jul., 2009	EUT
3	L.I.S.N.	R & S	ESH3-Z5/836679/017	Feb., 2009	Peripherals
4	Pulse Limiter	R & S	ESH3-Z2/357.8810.52	Sep., 2009	
5	No. 1 Shielded Room			N/A	

Note: All equipment upon which need to be calibrated are with calibration period of 1 year.

2.2. Test Setup



2.3. Limits

FCC Part 15 Subpart B Limits (dBuV)				
Frequency MHz	Class A		Class B	
	QP	AV	QP	AV
0.15 - 0.50	79	66	66-56	56-46
0.50-5.0	73	60	56	46
5.0 - 30	73	60	60	50

Remarks: In the above table, the tighter limit applies at the band edges

2.4. Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed on conducted measurement.

Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

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2.5. Uncertainty

The measurement uncertainty is defined as ± 2.02 dB

2.6. Test Result

Product	GPS TRACKER		
Test Mode	Mode 1: Normal Operation		
Date of Test	2009/11/25	Test Site	No.1 Shielded Room
Test Condition	Conducted Emission	Test Range	0.15-30MHz

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
LINE 1					
Quasi-Peak					
0.212	9.828	40.080	49.908	-14.321	64.229
0.357	9.824	29.710	39.534	-20.552	60.086
0.709	9.830	24.440	34.270	-21.730	56.000
1.564	9.840	29.450	39.290	-16.710	56.000
5.045	9.870	22.220	32.090	-27.910	60.000
16.767	10.190	16.920	27.110	-32.890	60.000
Average					
0.212	9.828	35.540	45.368	-8.861	54.229
0.357	9.824	28.680	38.504	-11.582	50.086
0.709	9.830	22.120	31.950	-14.050	46.000
1.564	9.840	27.480	37.320	-8.680	46.000
5.045	9.870	16.830	26.700	-23.300	50.000
16.767	10.190	13.810	24.000	-26.000	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product	GPS TRACKER		
Test Mode	Mode 1: Normal Operation		
Date of Test	2009/11/25	Test Site	No.1 Shielded Room
Test Condition	Conducted Emission	Test Range	0.15-30MHz

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
LINE 2					
Quasi-Peak					
0.212	9.860	39.980	49.840	-14.389	64.229
0.357	9.844	30.030	39.874	-20.212	60.086
0.923	9.830	26.910	36.740	-19.260	56.000
1.705	9.840	28.000	37.840	-18.160	56.000
3.623	9.860	22.990	32.850	-23.150	56.000
23.412	10.150	11.400	21.550	-38.450	60.000
Average					
0.212	9.860	35.350	45.210	-9.019	54.229
0.357	9.844	28.360	38.204	-11.882	50.086
0.923	9.830	23.640	33.470	-12.530	46.000
1.705	9.840	26.340	36.180	-9.820	46.000
3.623	9.860	18.230	28.090	-17.910	46.000
23.412	10.150	4.180	14.330	-35.670	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

2.7. Test Photo

Test Mode： Mode 1: Normal Operation

Description： Front View of Conducted Test

Description：Back View of Conducted Test

3. Radiated Emission

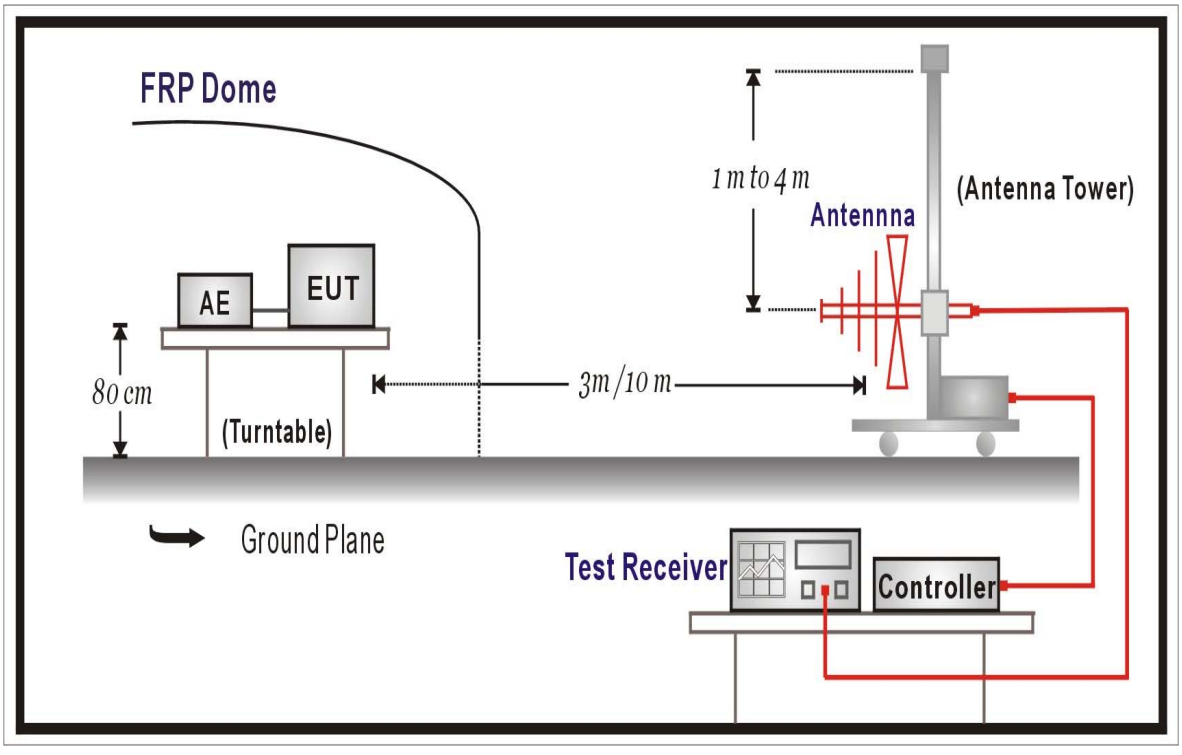
3.1. Test Equipment List

The following test equipment are used during the radiated emission test:

Test Site	Equipment	Manufacturer	Model No./ Serial No.	Last Cal.
☒OATS 5	Bilog Antenna	Schaffner Chase	CBL6112B/2198	Sep., 2009
	Broadband Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2009
	EMI Test Receiver	R&S	ESCS 30/100122	Feb., 2009
	Horn Antenna	Schwarzbeck	BBHA9120D/305	Aug., 2009
	Pre-Amplifier	QTK	N/A	Jan., 2009
	Spectrum Analyzer	Advantest	R3162/100803470	Nov., 2009

Note: 1. All equipments that need to be calibrate are with calibration period of 1 year.

3.2. Test Setup



3.3. Limits

Under 1GHz test shall not exceed the following value:

CISPR 22 Limits (dBuV/m)				
Frequency MHz	Class A		Class B	
	Distance (m)	dBuV/m	Distance (m)	dBuV/m
30 – 230	10	40	10	30
230 – 1000	10	47	10	37

Remark: 1. The tighter limit shall apply at the edge between two frequency bands.

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. RF Voltage (dBuV/m) = 20 log RF Voltage (uV/m)

Above 1GHz test shall not exceed the following value:

FCC Part 15 Subpart B Paragraph 15.109 Limits (dBuV/m)				
Frequency MHz	Class A		Class B	
	Distance (m)	dBuV/m	Distance (m)	dBuV/m
30-88	10	39	3	40
88-216	10	43.5	3	43.5
216-960	10	46.4	3	46
Above 960	10	49.5	3	54

Remarks : 1. RF Voltage (dBuV) = 20 log 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 closed point of any part of the device or system.

3.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground.
The turn table can rotate 360 degrees to determine the position of the maximum emission level and the antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.
Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated on radiated measurement.
For an unintentional radiator, including a digital device, the spectrum shall be investigated from the lowest radio frequency signal generated or used in the device, without going below the lowest frequency for which a radiated emission limit is specified, up to the frequency shown in the folowing table:

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30
1.705 – 108	1000
108 – 500	2000
500 – 1000	5000
Above 1000	5^{th} harmonic of the highest frequency or 40 GHz, whichever is lower

On any frequency or frequencies below or equal to 1000 MHz, the radiated limits shown are based on measuring equipment employing a quasi-peak detector function and above 1000 MHz, the radiated limits shown are based measuring equipment employing an average detector function.

When average radiated emission measurement are included emission measurement Above 1000 MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit.

For class A, the measurement distance between the EUT and antenna is 10 meters for under 1GHz and above 1GHz.

For class B, the measurement distance between the EUT and antenna is 10 meters for under 1GHz and 3 meters for above 1GHz.

The bandwidth below 1GHz setting on the field strength meter (R&S Test Receiver ESCS 30) is 120 kHz and above 1GHz is 1MHz.

3.5. Uncertainty

The measurement uncertainty is defined as ± 3.8 dB

3.6. Test Result

Product	GPS TRACKER		
Test Mode	Mode 1: Normal Operation		
Date of Test	2009/11/25	Test Site	OATS 5
Test Condition	Radiated Emission	Test Range	30-1000MHz

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
38.195	14.953	7.497	22.450	-7.550	30.000
165.285	12.212	3.081	15.293	-14.707	30.000
235.150	13.233	11.363	24.596	-12.404	37.000
386.185	20.160	7.985	28.145	-8.855	37.000
497.150	23.001	6.174	29.175	-7.825	37.000
632.150	25.251	1.989	27.240	-9.760	37.000

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Vertical					
119.500	13.880	6.470	20.350	-9.650	30.000
202.150	11.943	12.893	24.835	-5.165	30.000
241.295	14.552	15.563	30.115	-6.885	37.000
348.250	18.819	8.731	27.550	-9.450	37.000
465.150	22.256	8.019	30.275	-6.725	37.000
629.155	25.208	2.147	27.355	-9.645	37.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

3.7. Test Photo

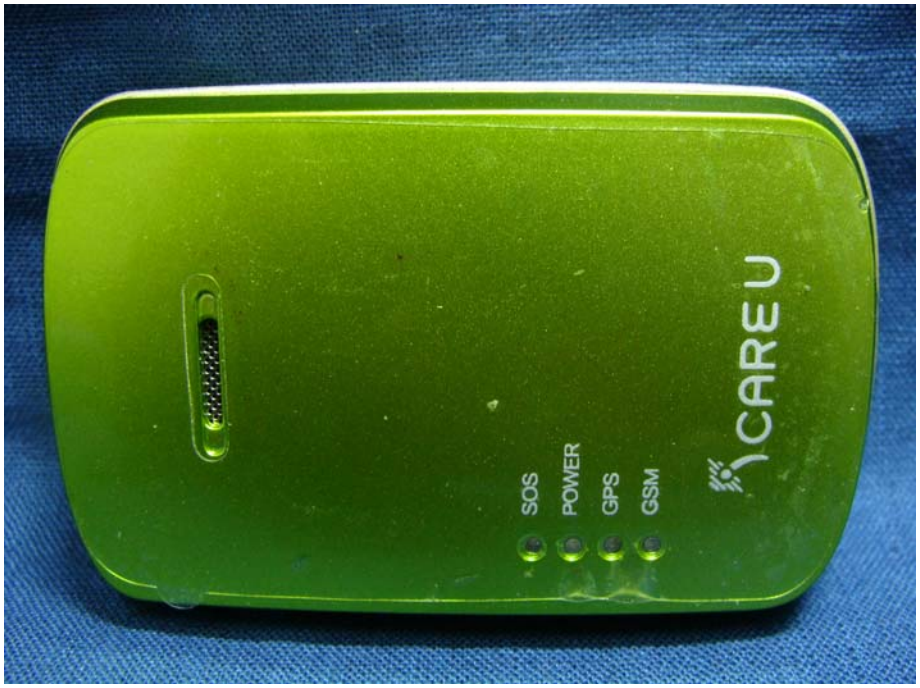
Test Mode: Mode 1: Normal Operation
Description: Front View of Radiated Test

Description： Back View of Radiated Test

Attachement

➢ EUT Photograph

(1) EUT Photo



(2) EUT Photo

(3) EUT Photo

(4) EUT Photo

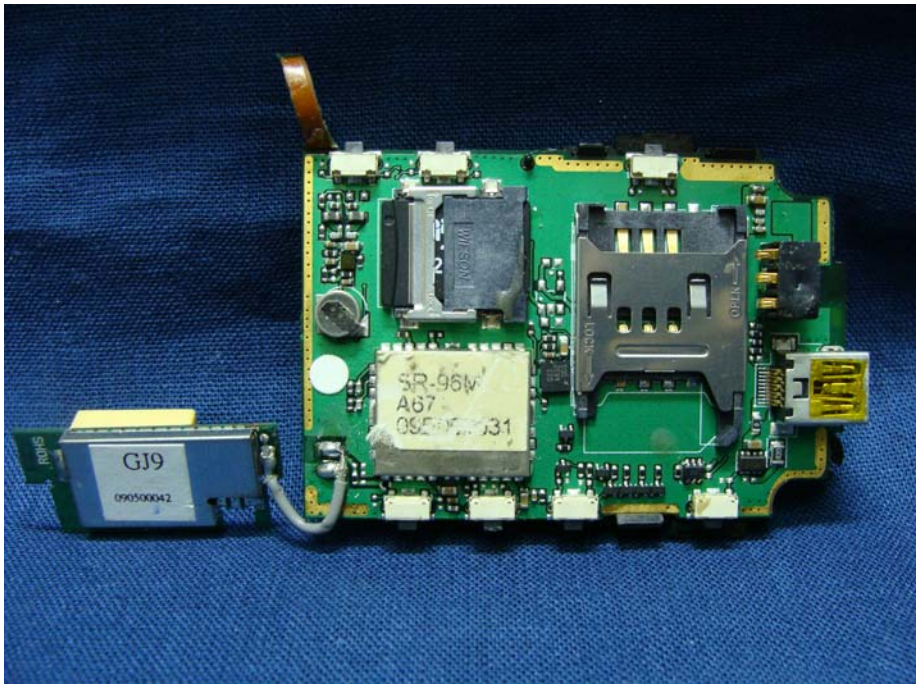
(5) EUT Photo

(6) EUT Photo

(7) EUT Photo

(8) EUT Photo

(9) EUT Photo



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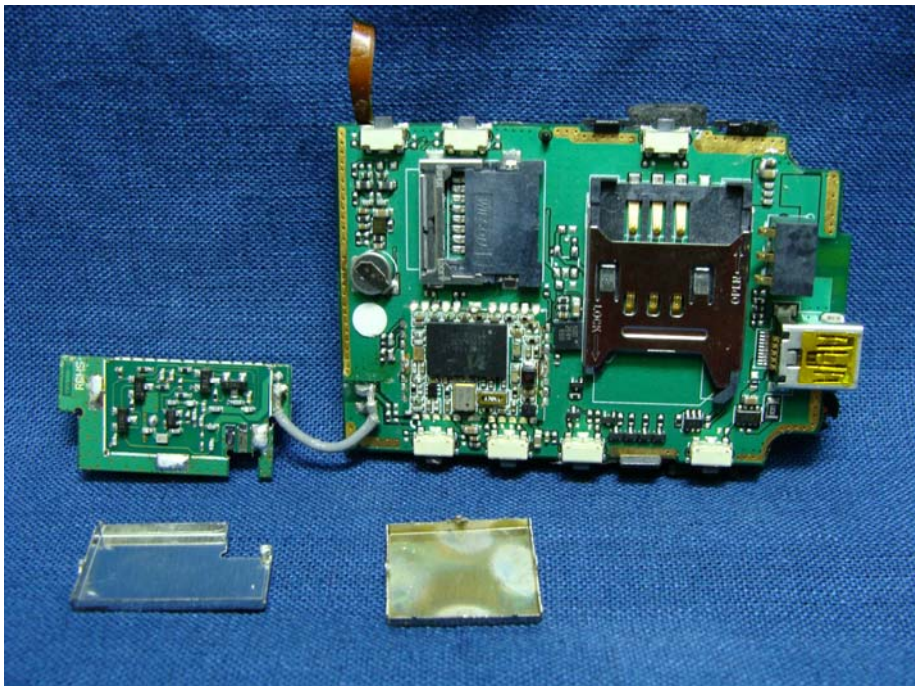

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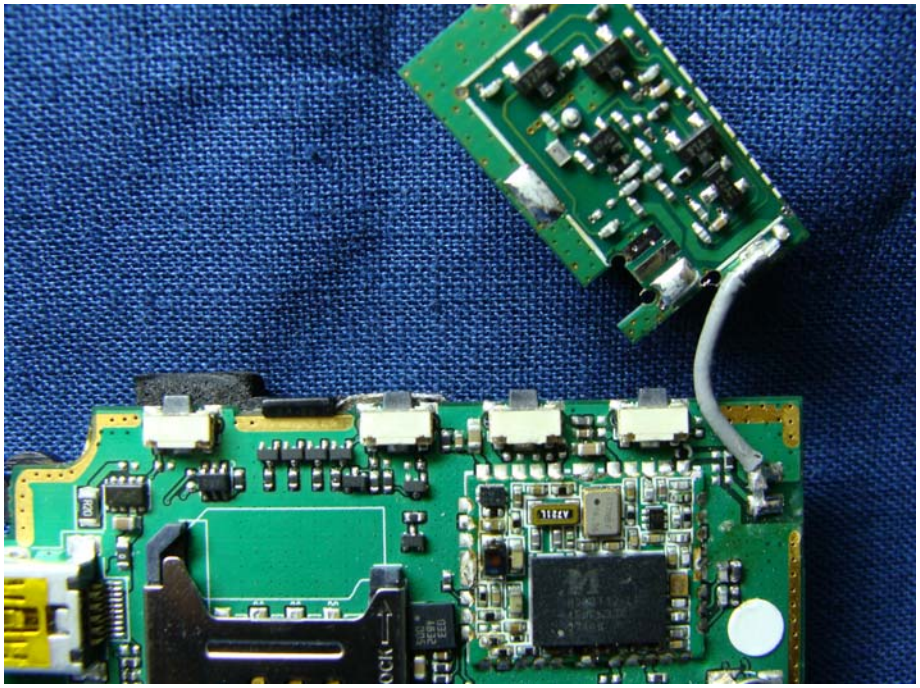
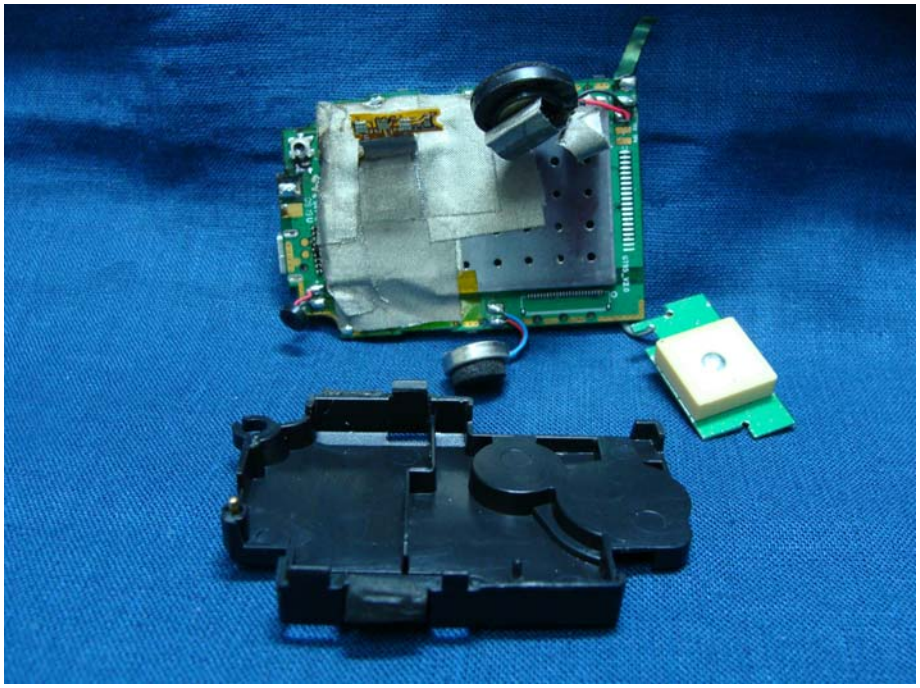


(12) EUT Photo

(13) EUT Photo



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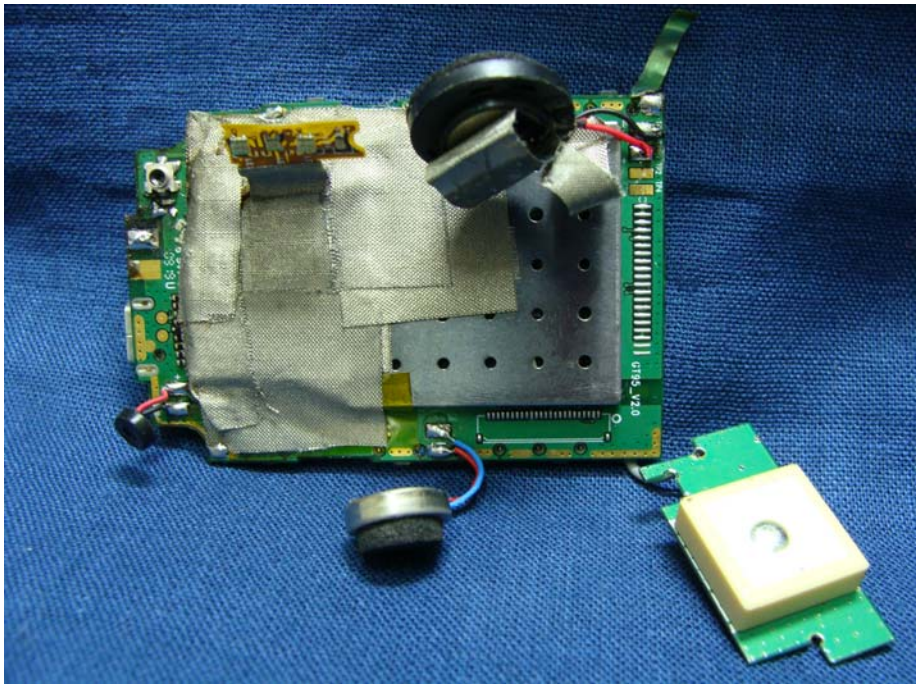

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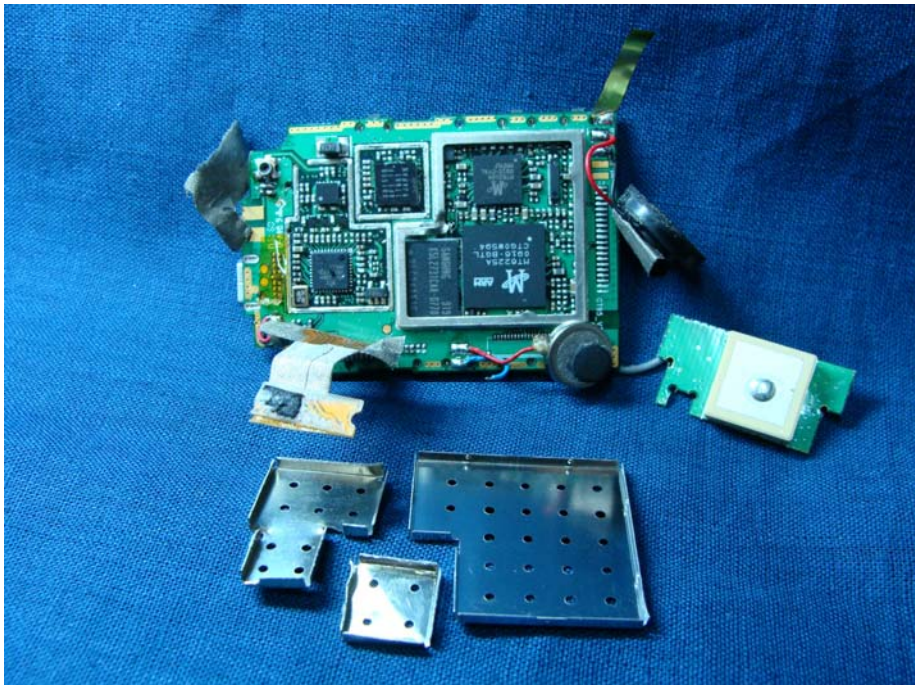

(16) EUT Photo