



Test Report

Product Name	AIS SART
Model No.	PLOMO-500

Applicant	Alltek Marine Electronics Corp.
Address	7F, No.605, Ruei Guang Rd., Neihs, Taipei, Taiwan, 114 R.O.C.

Date of Receipt	July 26, 2011
Issued Date	Aug. 19, 2011
Report No.	118010R-RFCEP71V01
Report Version	V2.0

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.

Test Report Certification

Issued Date : Aug. 19, 2011

Report No. : 118010R-RFCEP71V01

QuieTek

Product Name	AIS SART
Applicant	Alltek Marine Electronics Corp.
Address	7F, No.605, Ruei Guang Rd., Neihu, Taipei, Taiwan, 114 R.O.C.
Manufacturer	Alltek Marine Electronics Corp.
Model No.	PLOMO-500
EUT Rated Voltage	DC 6V (Power by Battery)
EUT Test Voltage	DC 6V (Power by Battery)
Trade Name	AMEC
Applicable Standard	ETSI EN 300 440-1:V1.6.1 (2010-08) ETSI EN 300 440-2:V1.4.1 (2010-08)
Test Result	Complied



The test results relate only to the samples tested.

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Testing Laboratory

0914



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1. General Information

1.1. EUT Description

Product Name	AIS SART
Trade Name	AMEC
Model No.	PLOMO-500
Frequency Range	1575.42MHz
Antenna Type	Right Hand Circular Polarization
Type of Modulation	Phase Modulation
Hardware	M-PCB-SARTV03
Software	SART Ver. 1.1

Working Frequency of Each Channel	
Channel	Frequency
01	1575.42MHz

Note:

The EUT is AIS SART with a built-in GPS receiver at 1575.42MHz (L1).

1.2. Test Mode

QuieTek 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:

Pre-Test Mode	
	Mode 1: Receiver Mode
Final Test Mode	
	Mode 1: Receiver Mode

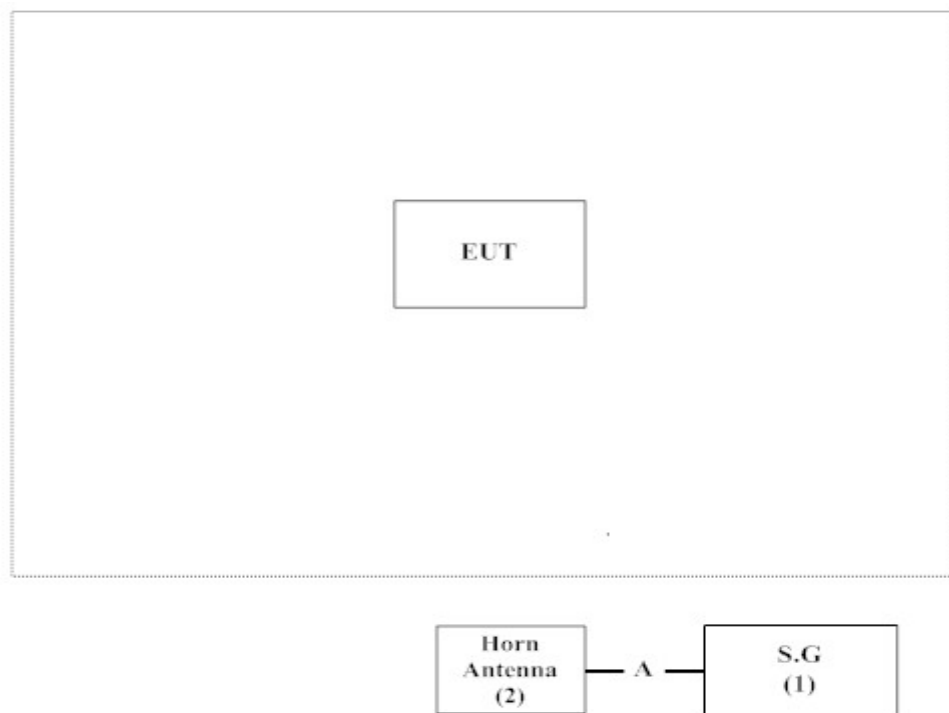
1.3. Tested System Details

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

	Product	Manufacturer	Model No.	Serial No.	Power Cord
(1)	S.G	Agilent	E8257D	MY44320633	Non-Shielded, 1.8m
(2)	Horn Antenna	Schwarzbeck	3115	6348	N/A

	Signal Cable Type	Signal cable Description
A.	Coaxial Cable	Shielded, 1.0m

1.4. Configuration of tested System



1.5. EUT Exercise Software

1	Setup the EUT and simulators as shown on 1.4.
2	Enable the GPS function of the EUT.
3	Configure the test mode
4	Verify that the EUT works properly.

1.6. Test Facility

Ambient conditions in the laboratory:

Items	Required	Actual
Temperature (°C)	15-35	20-35
Humidity (%RH)	25-75	50-65
Barometric pressure (mbar)	860-1060	950-1000

The related certificate for our laboratories about the test site and management system can be downloaded from Quietek Corporation's Web Site: <http://www.quietek.com/tw/ctg/cts/accreditations.htm>

The address and introduction of Quietek Corporation's laboratories can be founded in our Web site: <http://www.quietek.com/>

Site Description:

Accreditation on NVLAP
NVLAP Lab Code: 200533-0



Accreditation on DNV
Statement No. : 413-99-LAB11



Accreditation on Nemko
Certificate No.: ELA 165



Accredited by TUV Rheinland
Certificate No.: 10011438-1-2010

Site Name: Quietek Corporation
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2. Spurious radiation (Receiver)

2.1. Test Equipment

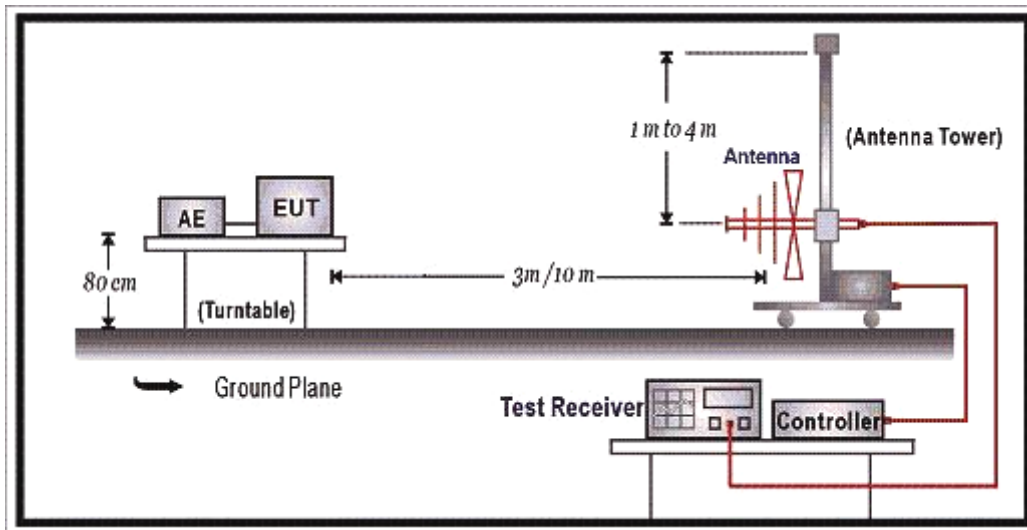
The following test equipment are used during the test:

Item		Equipment	Manufacturer	Model No. / Serial No.	Last Cal.
1	X	Test Receiver	R & S	ESI 26 / 838786/004	May, 2011
2	X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2011
3	X	Bilog Antenna	SCHAFFNER	CBL6112B / 2697	May, 2011
4	X	Horn Antenna	Schwarzbeck	BBHA9120D / 305, 306	July, 2011
5		Horn Antenna	Schwarzbeck	BBHA9170 / 208, 209	July, 2011
6	X	Pre-Amplifier	QTK	QTK-AMP-01 / 0001	July, 2011
7	X	Pre-Amplifier	QTK	AP-180C / CHM_0906076	Sep., 2010
		No.3 OATS			

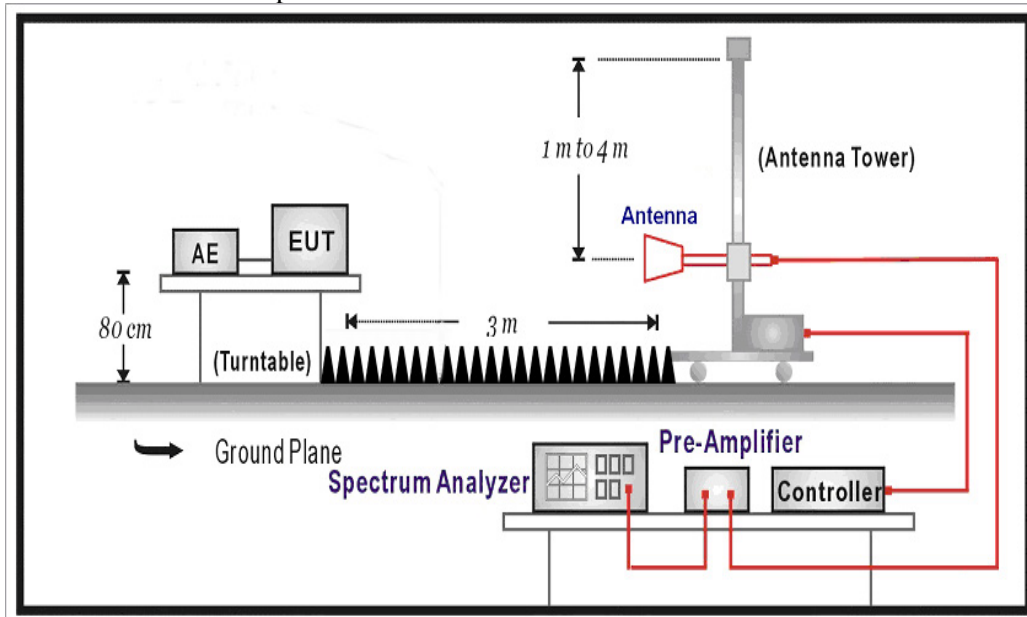
Note: 1. All equipments are calibrated every one year.
2. The test instruments marked by “X” are used to measure the final test results.

2.2. Test Setup

Under 1GHz Test Setup:



Above 1GHz Test Setup:



2.3. Test Condition

Standard Temperature and Humidity, Standard Test Voltage

2.4. Limits

The power of any spurious emission, radiated or conducted, shall not exceed the values given below:

- 2 nW below 1000 MHz
- 20 nW above 1000 MHz

2.5. Test Procedure

The EUT and its simulators are placed on a turn table which is 1.5 meters above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters. The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Broadband antenna (calibrated bi-log and horn antenna) are used as a receiving antenna.

Both horizontal and vertical polarization of the antenna are set on measurement. And a high frequency preamplifier were used increase the sensitivity of the measuring. In order to find the maximum emission, all of the interface cables must be manipulated according to ETSI EN 300 440-1 V1.6.1 (2010-08), ETSI EN 300 440-2 V1.4.1 (2010-08) on radiated measurement.

The additional notch filter below 1GHz was used to measure the level of harmonics radiated emission during field strength of harmonics measurement. The bandwidth setting on the field strength meter is 1 MHz.

2.6. Test Specification

According to ETSI EN 300 440-1 V1.6.1 (2010-08), ETSI EN 300 440-2 V1.4.1 (2010-08)

2.7. Uncertainty

The measurement uncertainty above 1G is defined as ± 3.9 dB
under 1G is defined as ± 3.8 dB


2.8. Test Result

Product	AIS SART		
Test Mode	Mode 1: Receiver Mode		
Test Condition	Spurious emissions		
Date of Test	2011/08/03	Test Site	No.3 OATS

Channel 1

Frequency (MHz)	Emission Level (dBm)	Reading Level (dBm)	Measure Level (dB)	Margin (dB)	Limit (dBm)
Peak Detector (Horizontal)					
82.380	-0.751	-72.525	-73.276	-16.276	-57.000
291.900	3.843	-77.046	-73.203	-16.203	-57.000
499.480	6.907	-79.370	-72.463	-15.463	-57.000
644.980	7.660	-79.316	-71.656	-14.656	-57.000
800.180	8.260	-82.084	-73.824	-16.824	-57.000
920.460	10.076	-81.688	-71.612	-14.612	-57.000
1620.600	7.252	-65.070	-57.818	-10.818	-47.000
3270.000	12.085	-66.760	-54.675	-7.675	-47.000

Note:


1. “  ” means the worst emission level.
2. Emission Level = Reading Level + Correction Factor

Product	AIS SART		
Test Mode	Mode 1: Receiver Mode		
Test Condition	Spurious emissions		
Date of Test	2011/08/03	Test Site	No.3 OATS

Channel 1

Frequency (MHz)	Emission Level (dBm)	Reading Level (dBm)	Measure Level (dB)	Margin (dB)	Limit (dBm)
Peak Detector (Vertical)					
97.900	0.863	-70.984	-70.121	-13.121	-57.000
256.980	-0.604	-74.170	-74.774	-17.774	-57.000
359.800	3.023	-77.253	-74.230	-17.230	-57.000
598.420	7.399	-78.547	-71.148	-14.148	-57.000
809.880	8.503	-78.770	-70.267	-13.267	-57.000
920.460	8.330	-81.489	-73.159	-16.159	-57.000
1536.000	7.604	-63.950	-56.346	-9.346	-47.000
3510.000	13.441	-66.760	-53.319	-6.319	-47.000

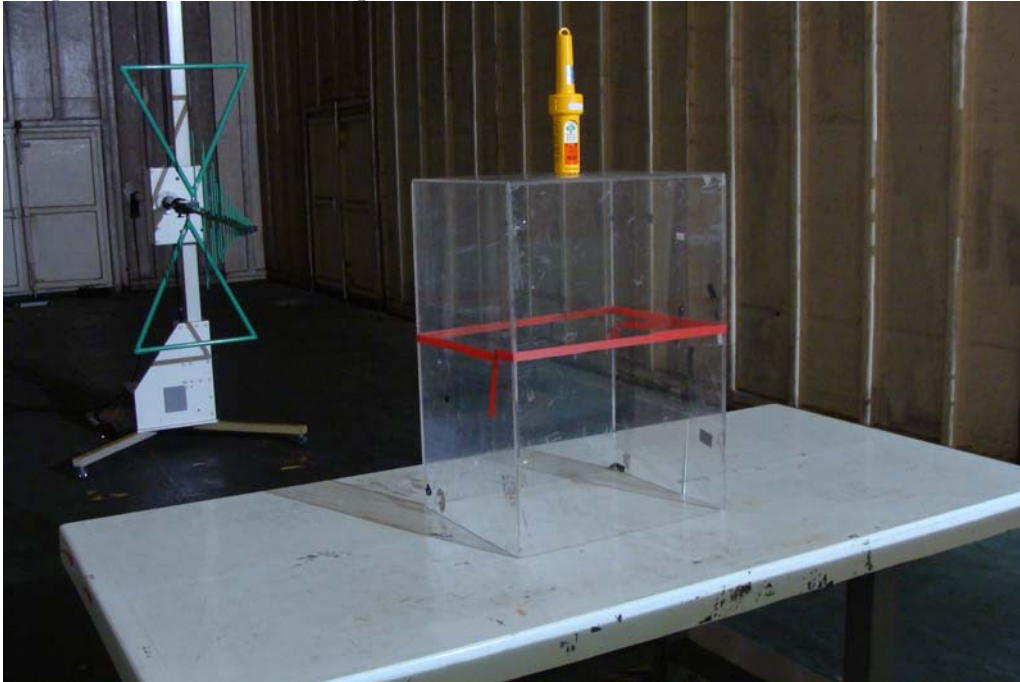
Note:

1. “  ” means the worst emission level.
2. Emission Level = Reading Level + Correction Factor

2.9. Test Photo

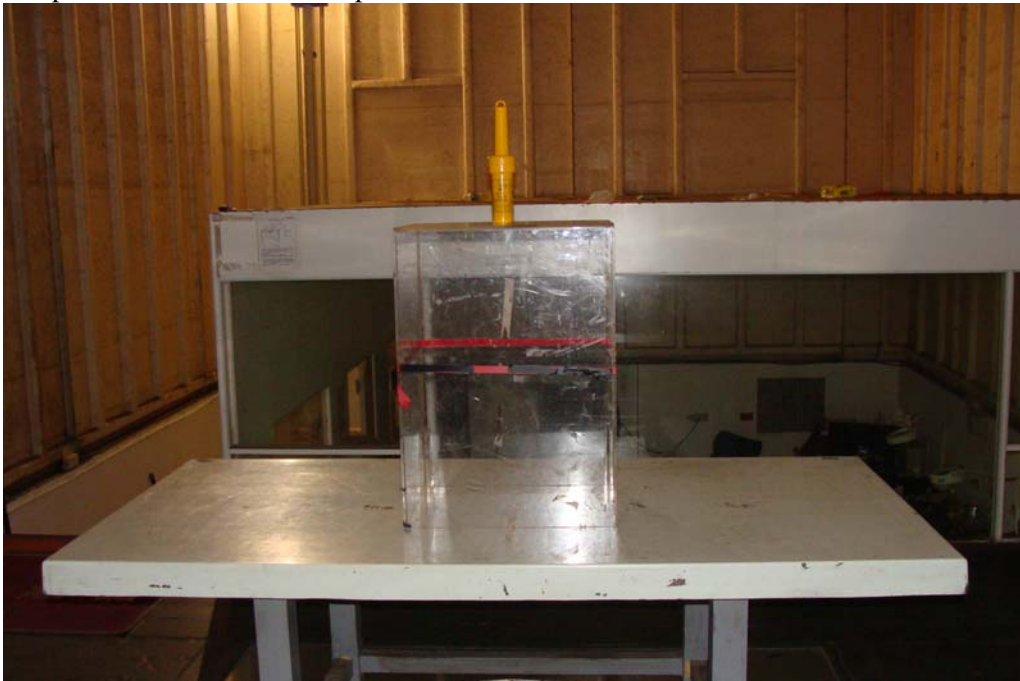
Test Mode : Mode 1: Receiver Mode

Description : Front View of Spurious emissions Test



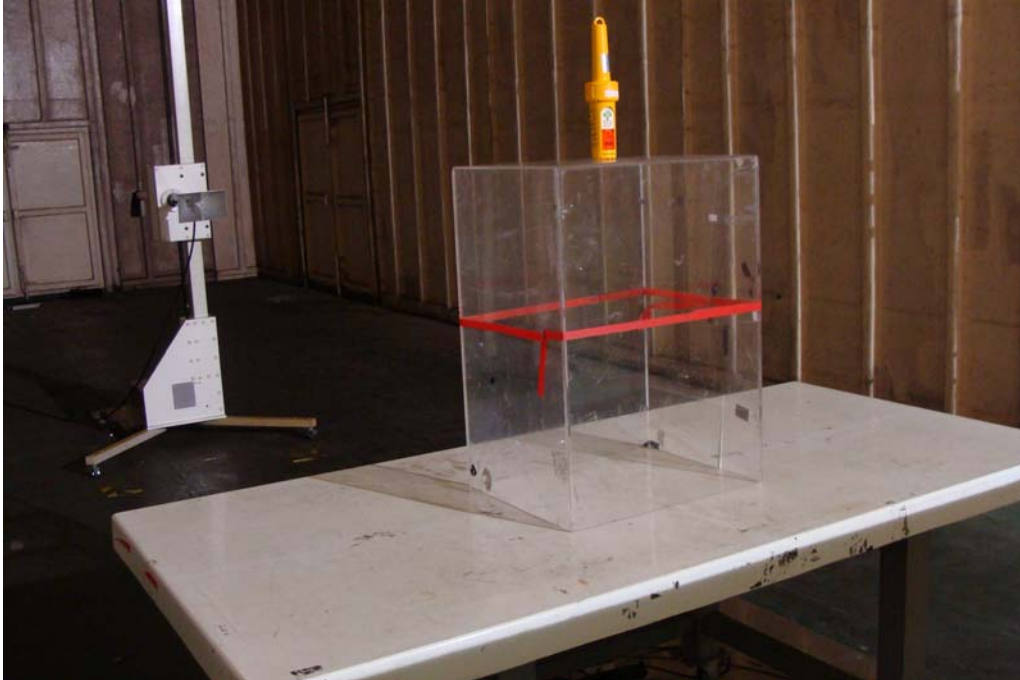
Test Mode : Mode 1: Receiver Mode

Description : Back View of Spurious emissions Test



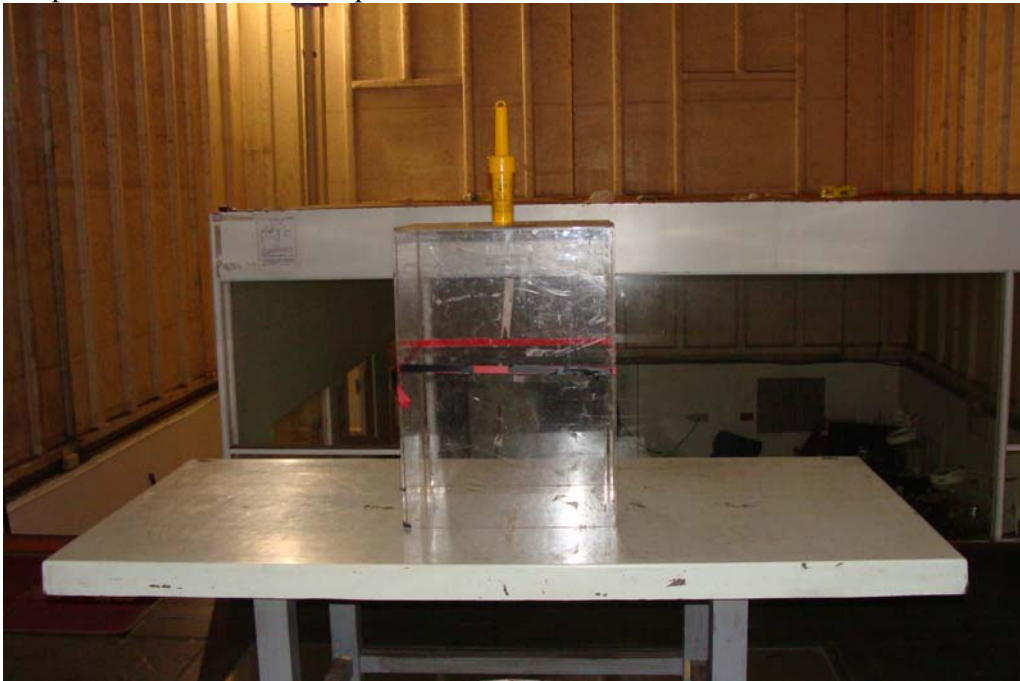
Test Mode : Mode 1: Receiver Mode

Description : Front View of Spurious emissions Test-Horn



Test Mode : Mode 1: Receiver Mode

Description : Back View of Spurious emissions Test-Horn



3. Attachement

➤ EUT Photograph

(1) EUT Photo



(2) EUT Photo



(3) EUT Photo



(4) EUT Photo



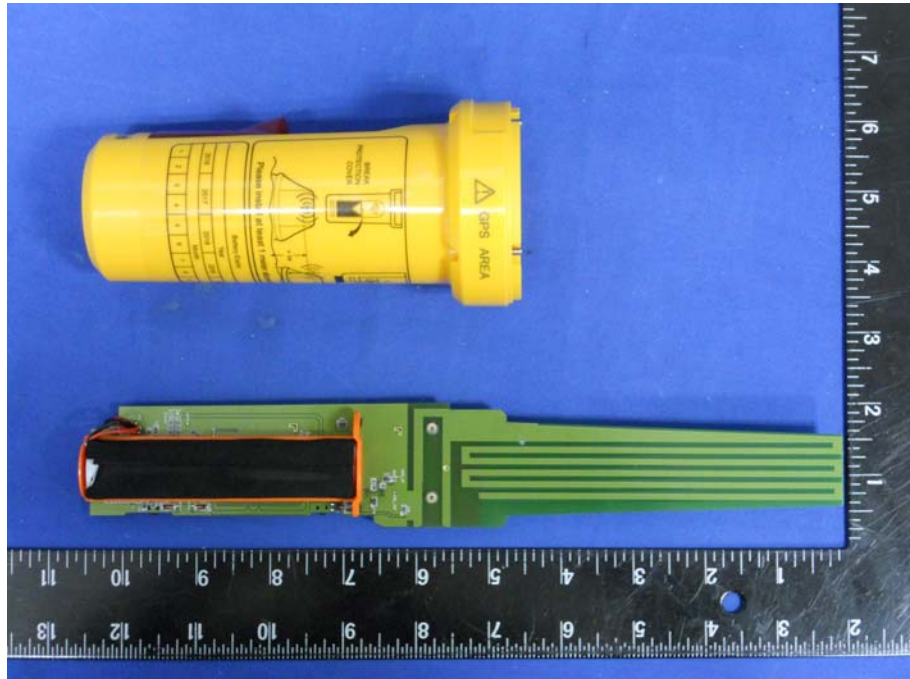
(5) EUT Photo



(6) EUT Photo



(7) EUT Photo



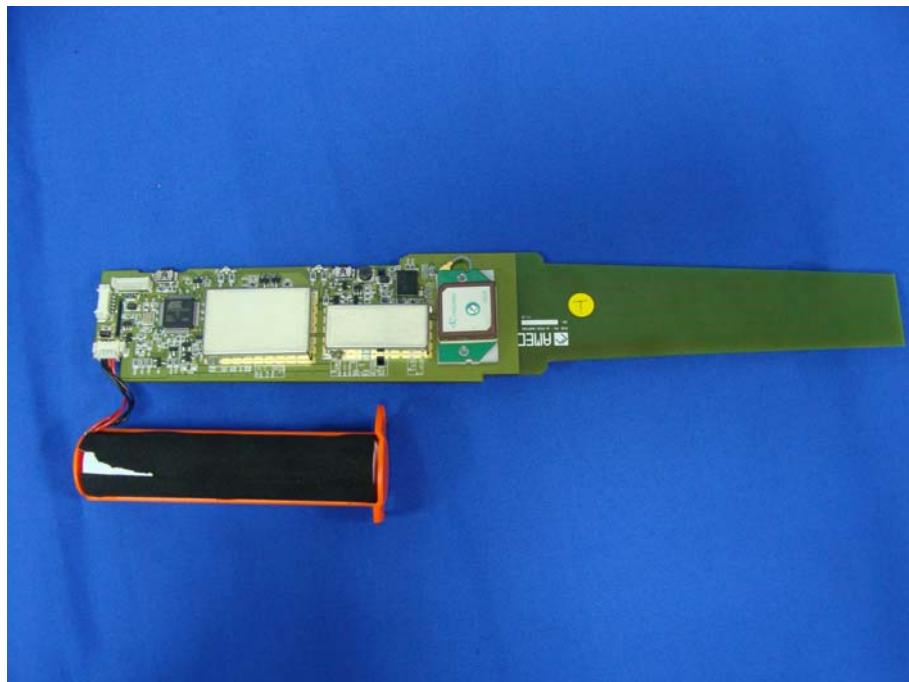
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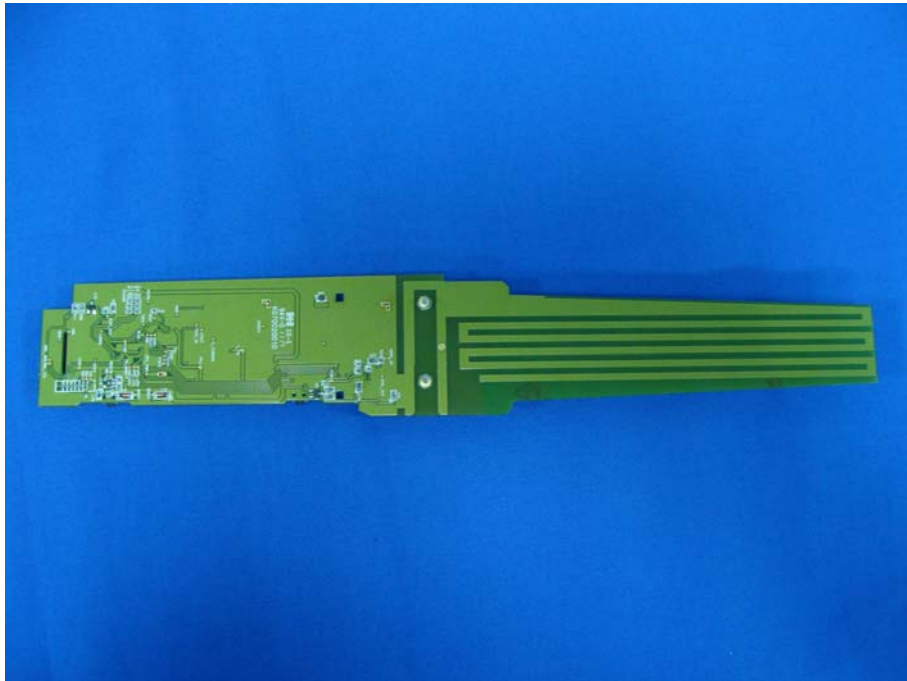
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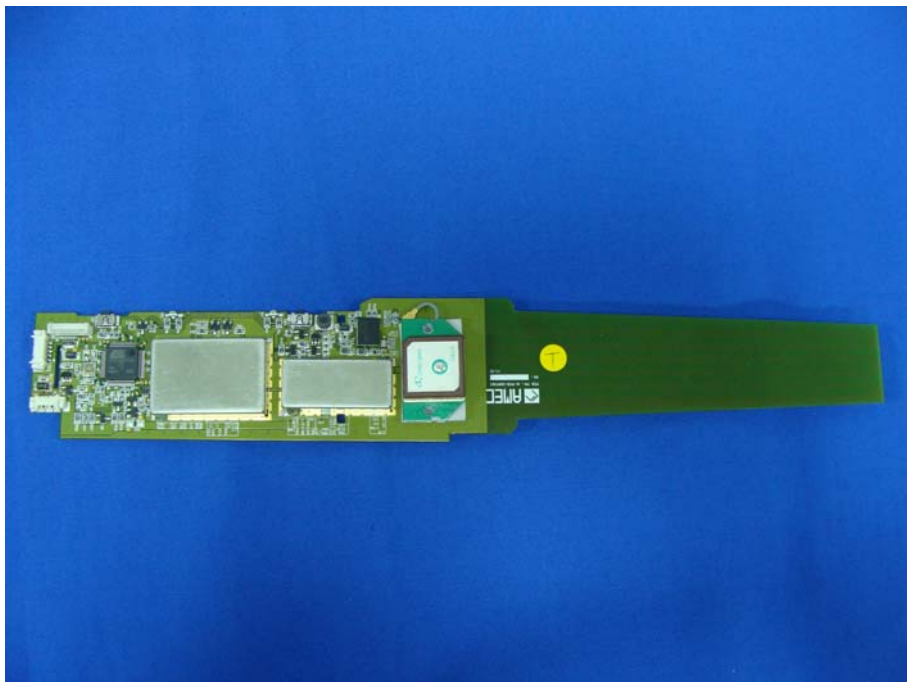
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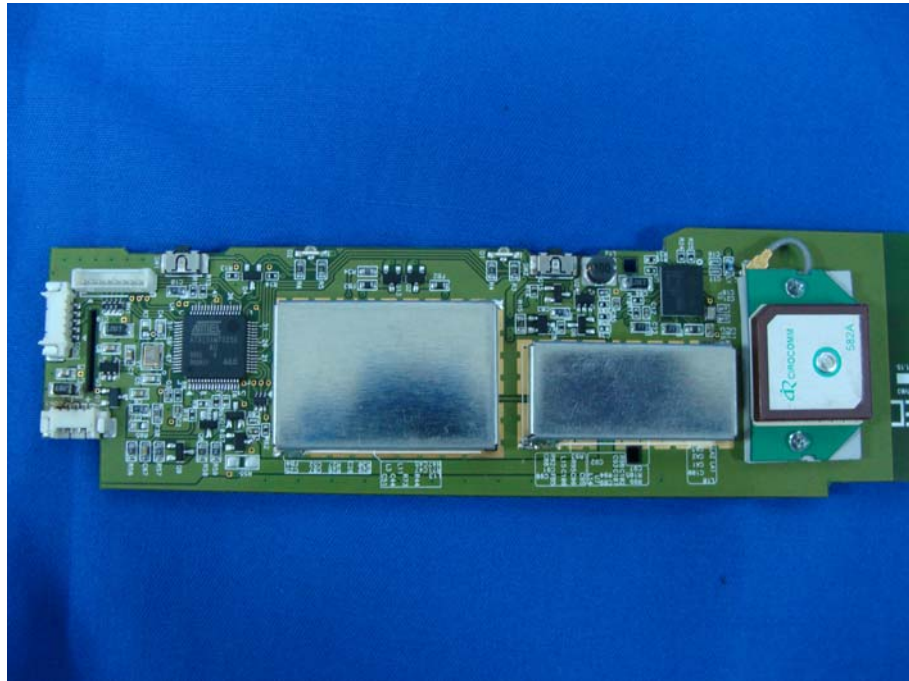
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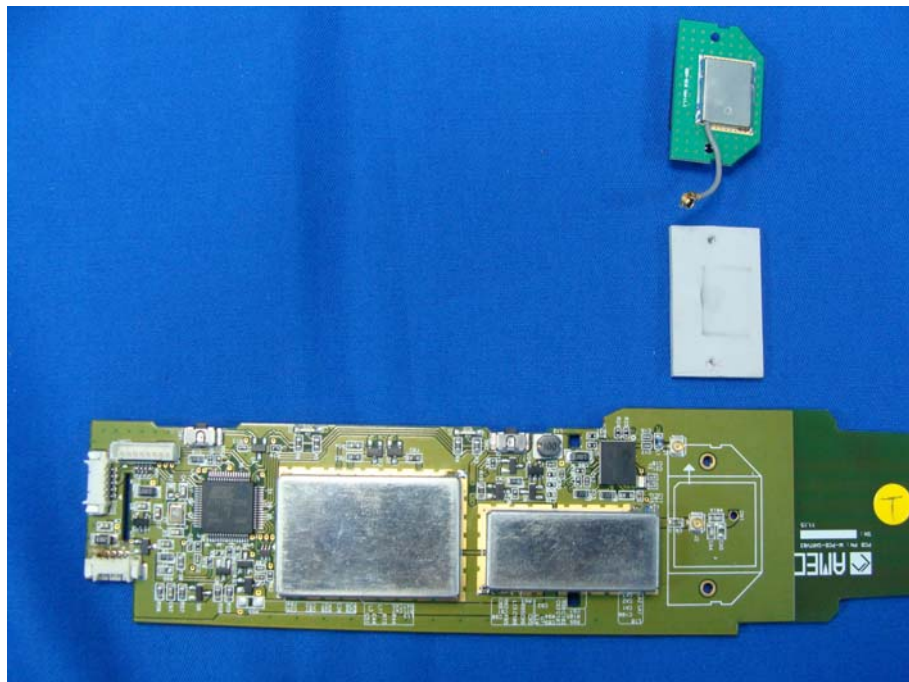
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(13) EUT Photo



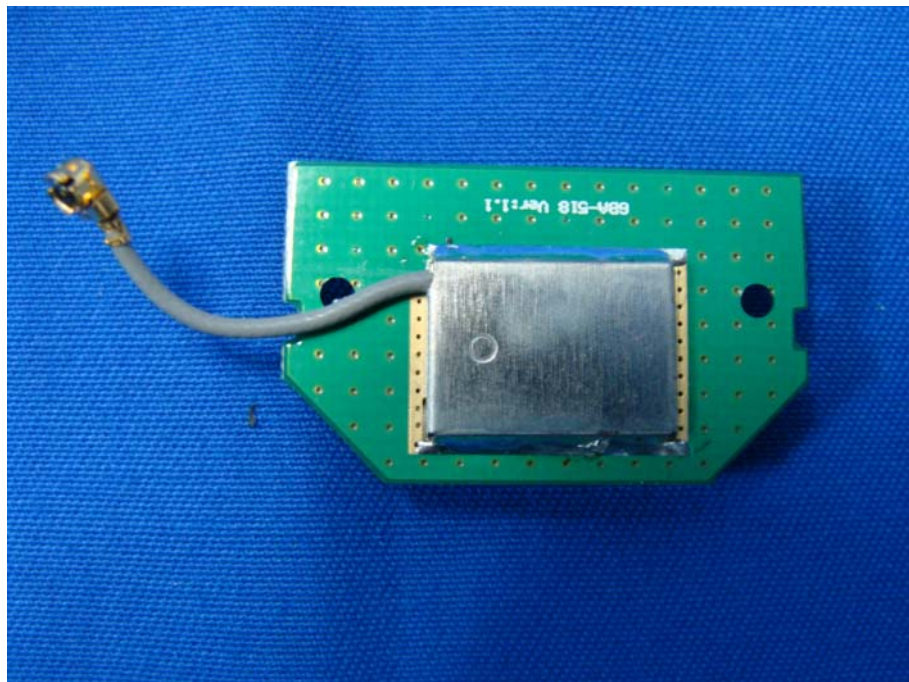
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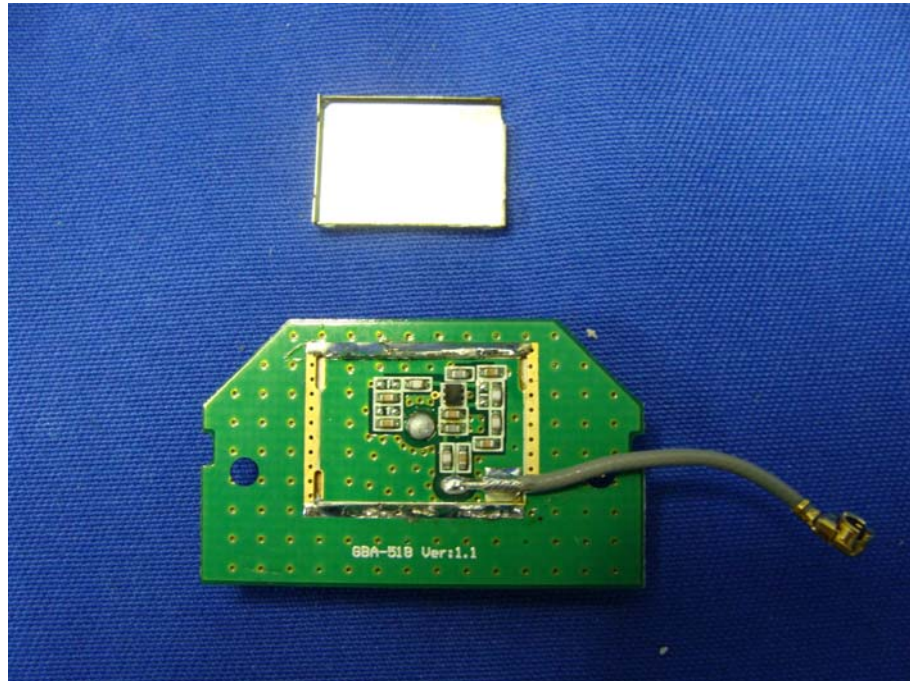
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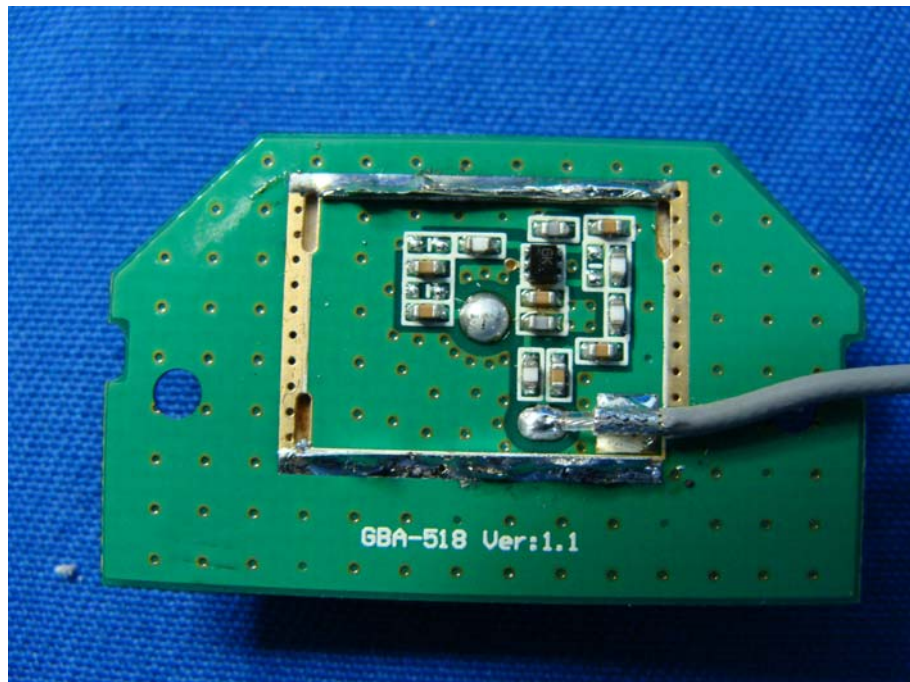
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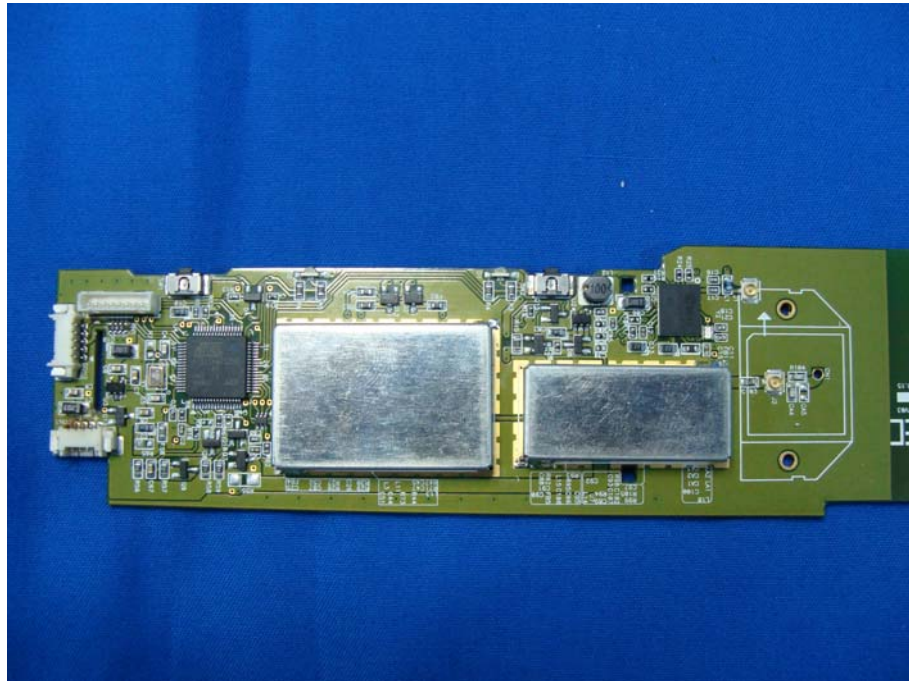
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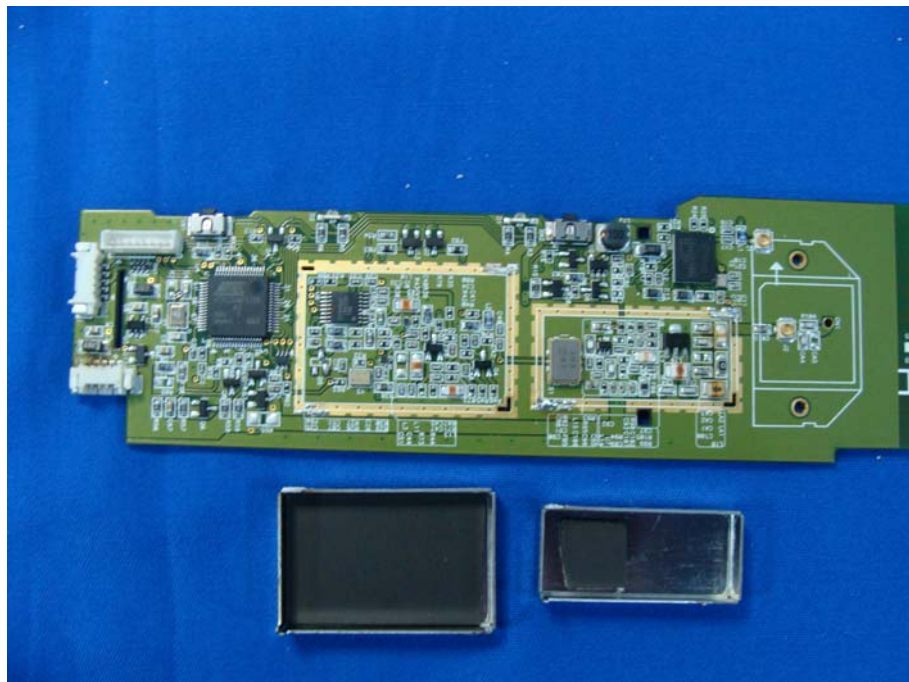
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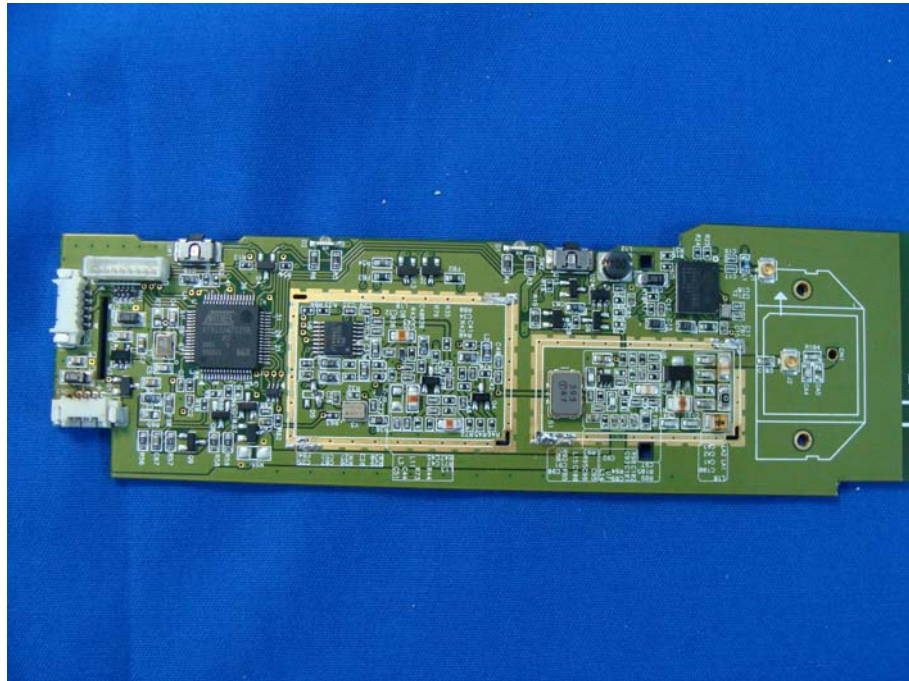
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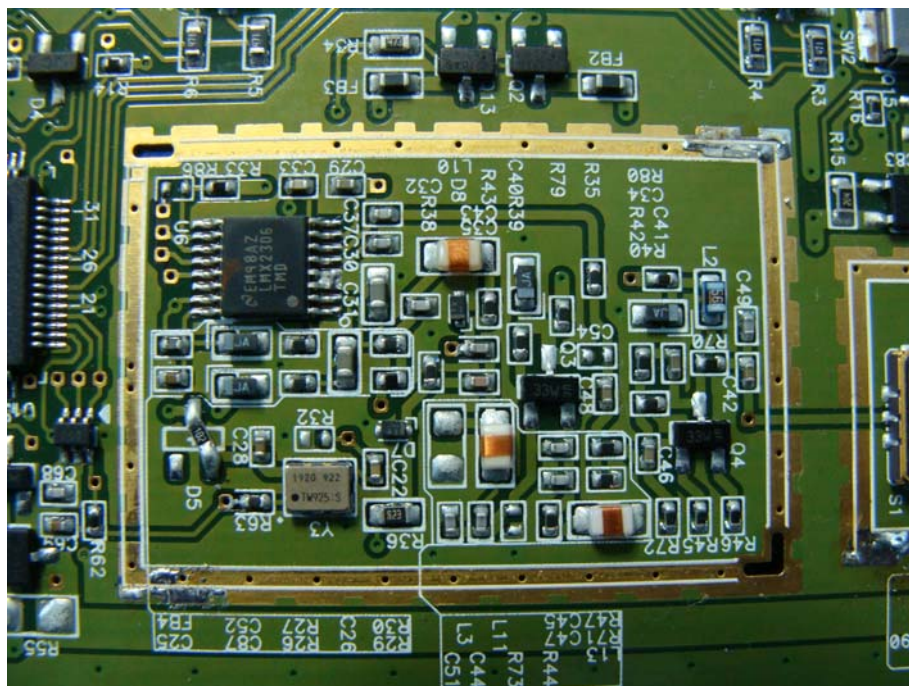
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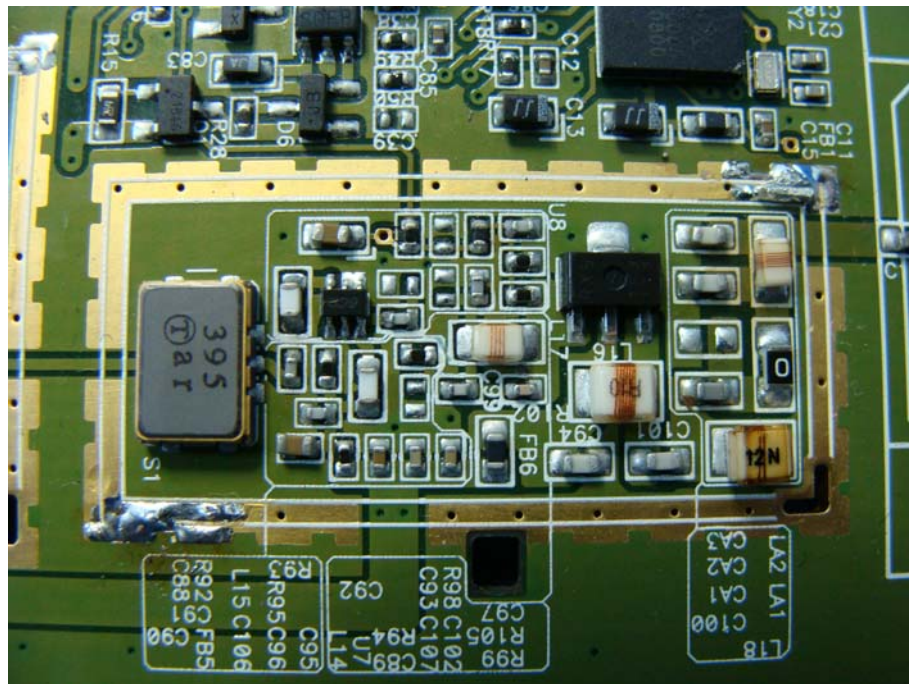
(21) EUT Photo



(22) EUT Photo



(23) EUT Photo



(24) EUT Photo

