TEST REPORT

of

FCC Part 15 Subpart C §15.249

FCC ID: V2E-MG-NET280A

Equipment Under Test	:	Wireless Endoscope
Model Name	:	NET-280A
Serial No.	:	N/A
Applicant	:	MEGA MEDICAL Co., Ltd.
Manufacturer	:	MEGA MEDICAL Co., Ltd.
Date of Test(s)	:	2008-02-18 ~ 2008-03-24
Date of Issue	:	2008-03-27

In the configuration tested, the EUT complied with the standards specified above.

Tested By: **Date** **2008-03-27**

Feel Jeong

Approved By **Date** **2008-03-27**

Jim Kim

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1. General Information

1.1. Testing Laboratory

SGS Testing Korea Co., Ltd.
Wireless Div. 2FL, 18-34, Sanbon-dong, Gunpo-Si, Gyeonggi-do, Korea 435-040
www.electrolab.kr.sgs.com
Telephone : +82 +31 428 5700
FAX : +82 +31 427 2371

1.2. Details of Applicant

Applicant : MEGA MEDICAL Co., Ltd.
Address : 223-612, Sounknam-dong, Seo-gu, Incheon, 404-220, Korea
Contact Person : Jang-Sik Yoon
Phone No. : +82 +02 3662 4493
Fax No. : +82 +02 3661 0120

1.3. Description of EUT

Kind of Product	Wireless Endoscope
Model Name	NET-280A
Serial Number	N/A
Power Supply	DC 7.4 V
Frequency Range	2411 ~ 2473 MHz
Modulation Technique	FM
Number of Channels	4 channel
Operating Conditions	-10 ~ 50 ℃
Antenna Type	Integral Type

* The field strength of spurious emission was measured in three orthogonal EUT positions (X-axis, Y-axis and Z-axis). Worst case is Z-axis

1.4. Details of modification

-N/A

1.5. Test Equipment List

EQUIPMENT	MANUFACTURER	MODEL	CAL DUE.
Spectrum Analyzer	R&S	FPS40	Dec. 2008
Pre amplifier	Agilent	8449B	May 2008
High Pass Filter	Wainwright Instrument GmbH	WHK 3.0 /18.G-10SS	Dec. 2008
Test Receiver	Rohde & Schwarz	ESVS10	Sep. 2008
Ultra-Broadband Antenna	Rohde & Schwarz	HL562	Oct. 2009
Horn Antenna	Electro-Metrics	RGA-60	Jul. 2009
Horn Antenna	Schwarzbeck Mess-Elektronik	BBHA9170	May 2008
Anechoic Chamber	SY Corporation	L x W x H 6.5 x 3.5 x 3.5	Aug. 2008

1.6. Version of Report

Version Number	Date	Revision
00	2008-03-10	Initial issue
01	2008-03-27	Revision 1

1.7. Summary of Test Results

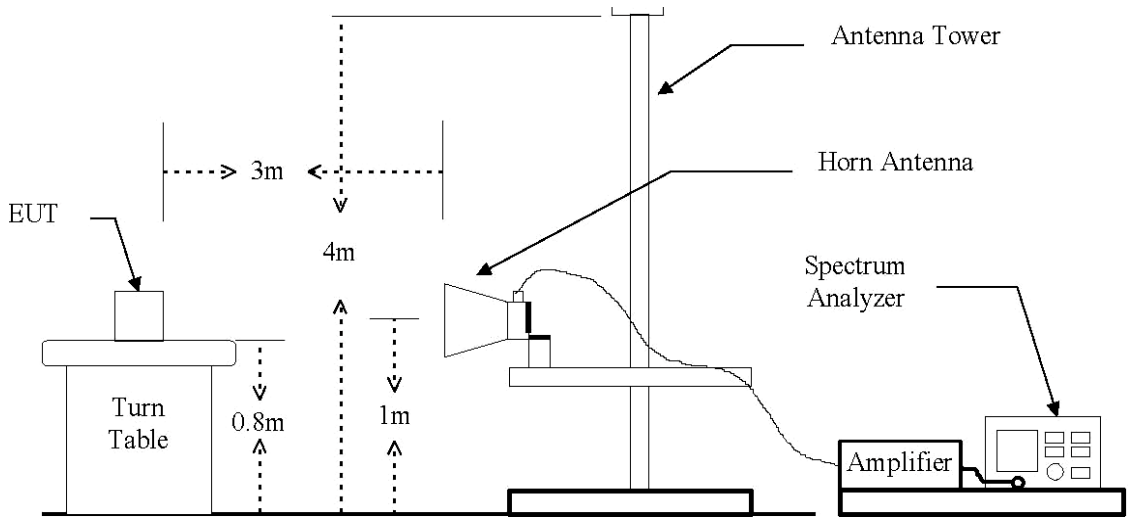
The EUT has been tested according to the following specifications:

APPLIED STANDARD:FCC Part15, Subpart C		
Standard Section	**Test Item**	**Result**
15.209(a) 15.249(a) 15.205	Fundamental ,Harmonics and Band Edge Radiated Emission	Complied
15.249(d)	General Radiated Emission	Complied

2. Fundamental, Harmonics and Band Edge Radiated Emission

2.1. Test Setup

The diagram below shows the test setup that is utilized to make the measurements for emission from 1 GHz to 40 GHz Emissions.



2.2. Limit

Operation within the bands 902 ~ 928 MHz, 2400 ~ 2483.5 MHz, 5725 ~ 5875 MHz and 24.0 ~ 24.25 GHz.

Fundamental Frequency (㎒)	Field Strength of Fundamental (㎷/m)	Field Strength of Harmonics (㎶/m)
902 ~ 928	50	500
2400 ~ 2483.5	50	500
5725 ~ 5875	50	500
24.0 ~ 24.25	250	2500

2.3. Test Procedures

Radiated emissions from the EUT were measured according to the dictates of ANSI C63.4:2003

1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter anechoic Chamber The table was rotated 360 degrees to determine the position of the highest radiation.
2. During performing radiated emission above 1 GHz, the EUT was set 3 meter away from the interference-receiving antenna.
3. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarization of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

NOTE：

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz for Peak detection and frequency above 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10 Hz for Average detection (AV) at frequency above 1 GHz.

2.4. Test Result

Fundamental Radiated Emission

Ambient temperature : 23 ℃ Relative humidity : 49 %

The following table shows the highest levels of radiated emissions on between polarizations of horizontal and vertical

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (MHz)	Reading (dBuV)	Detect Mode	Pol.	A/F (dB/m)	C/L (dB)	Actual (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)
Low Channel								
2411.00	48.70	Peak	H	27.73	6.75	83.18	94.00	10.82
Middle Channel								
2433.00	49.11	Peak	H	27.78	6.80	83.69	94.00	10.31
High Channel								
2473.00	50.84	Peak	H	27.88	6.88	85.60	94.00	8.40

Note:
1. A Peak limit is 20 dB above the average limit.

Harmonic and Band Edge Radiated Emission

Low Channel (2411 MHz)

The following table shows the highest levels of radiated emissions on between polarizations of horizontal and vertical

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (MHz)	Reading (dBuV)	Detect Mode	Pol.	A/F (dB/m)	Amp+C/L (dB)	Actual (dBuV/m)	Limit (dBuV/m)	Margin (dB)
2390.00*	45.56	Peak	H	28.05	-28.19	45.42	74.00	28.58
4820.13	52.36	Peak	H	32.63	-24.84	60.16	74.00	13.85
4820.13	43.64	Average	H	32.63	-24.84	51.43	54.00	2.57
Above 4900.00	Not Detected	-	-	-	-	-	-	-

Middle Channel (2433 MHz)

The following table shows the highest levels of radiated emissions on between polarizations of horizontal and vertical

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (MHz)	Reading (dBuV)	Detect Mode	Pol.	A/F (dB/m)	Amp+C/L (dB)	Actual (dBuV/m)	Limit (dBuV/m)	Margin (dB)
4860.40	53.53	Peak	H	32.72	-24.99	61.26	74.00	12.74
4860.40	44.03	Average	H	32.72	-24.99	51.76	54.00	2.24
Above 4900.00	Not Detected	-	-	-	-	-	-	-

High Channel (2473 MHz)

The following table shows the highest levels of radiated emissions on between polarizations of horizontal and vertical

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (MHz)	**Reading (dBuV)**	**Detect Mode**	**Pol.**	**A/F (dB/m)**	**Amp+C/L (dB)**	**Actual (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**
2483.50*	48.23	Peak	H	28.18	-28.14	48.27	74.00	25.73
4940.25	53.24	Peak	H	32.88	-25.01	61.11	74.00	12.89
4940.25	43.66	Average	H	32.88	-25.01	51.53	54.00	2.47
Above 5000.00	Not Detected	-	-	-	-	-	-	-

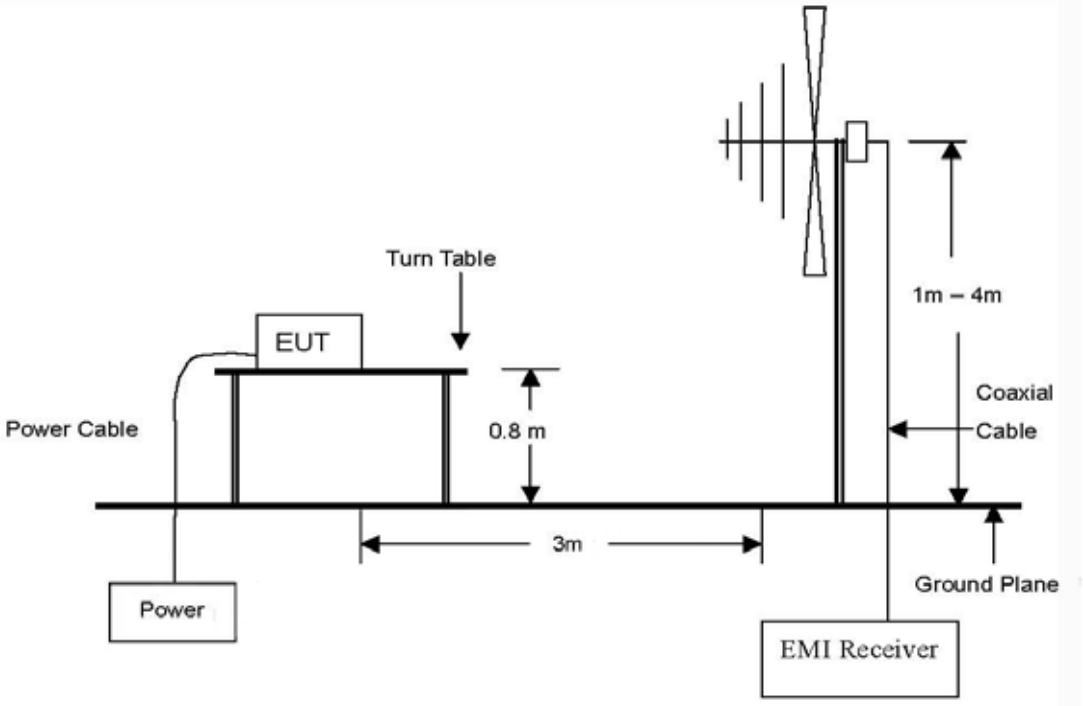
Remarks;

1. "*" means the restricted band.

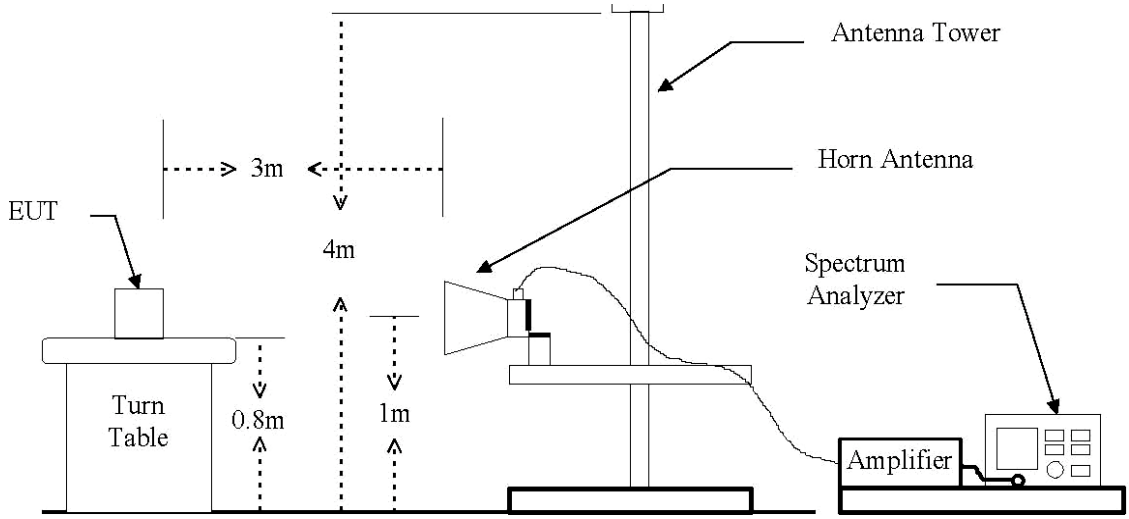
3. General Radiated Emission

3.1. Test Setup

The diagram below shows the test setup that is utilized to make the measurements for emission from 30 MHz to 1 GHz Emissions.



The diagram below shows the test setup that is utilized to make the measurements for emission from 1 GHz to 40 GHz Emissions.



3.2. Limit

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, Which ever is the lesser attenuation.

Frequency (MHz)	50 dB below of Fundamental (dBuV/m)	15.209 Limits (dBuV/m)	General Radiated Limits (dBuV/m)
30 ~ 88	40	40	40
88 ~ 216	43.5	43.5	43.5
216 ~ 960	44	46	46
Above 960	44	54	54

3.3. Test Procedures

Radiated emissions from the EUT were measured according to the dictates of ANSI C63.4:2003

1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter anechoic chamber test site. The table was rotated 360 degrees to determine the position of the highest radiation.
2. During performing radiated emission below 1 GHz, the EUT was set 3 meters away from the interference receiving antenna, which was mounted on the top of a variable-height antenna tower. During performing radiated emission above 1 GHz, the EUT was set 1 meter away from the interference-receiving antenna.
3. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

NOTE：

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1 GHz.
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz for Peak detection and frequency above 1 GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10 Hz for Average detection (AV) at frequency above 1 GHz.

3.4. Test Result

Ambient temperature : 23 ℃ Relative humidity : 49 %

Low Channel (2411 MHz)

The following table shows the highest levels of radiated emissions on between polarizations of horizontal and vertical

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (MHz)	Reading (dBuV)	Detect Mode	Pol.	AF (dB/m)	Amp+C/L (dB)	Actual (dBuV/m)	Limit (dBuV/m)	Margin (dB)
42.125	44.41	Q.P.	H	12.73	-27.04	30.10	40.00	9.90
388.900	50.21	Q.P.	V	13.23	-24.96	38.48	46.00	7.52
403.450	47.39	Q.P.	V	13.64	-25.03	36.00	46.00	10.00
587.750	43.20	Q.P.	V	16.73	-25.20	34.73	46.00	11.27
602.300	41.23	Q.P.	V	16.95	-25.16	33.02	46.00	12.98
Above 610.000	Not Detected	-	-	-	-	-	-	-

Note:
1. A Peak limit is 20 dB above the average limit.

Middle Channel (2433 MHz)

The following table shows the highest levels of radiated emissions on between polarizations of horizontal and vertical

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (MHz)	**Reading (dBuV)**	**Detect Mode**	**Pol.**	**AF (dB/m)**	**Amp+C/L (dB)**	**Actual (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**
90.625	45.56	Q.P.	V	8.53	-26.50	27.58	43.50	15.92
359.800	43.78	Q.P.	V	12.54	-24.84	31.47	46.00	14.53
374.350	43.89	Q.P.	V	12.88	-24.90	31.87	46.00	14.13
388.900	48.70	Q.P.	V	13.23	-24.96	36.97	46.00	9.03
418.000	42.12	Q.P.	V	14.22	-25.09	31.25	46.00	14.75
587.750	40.58	Q.P.	V	16.73	-25.20	32.11	46.00	13.89
602.300	38.87	Q.P.	V	16.95	-25.16	30.66	46.00	15.34
Above 610.000	Not Detected	-	-	-	-	-	-	-

Note:
1. A Peak limit is 20 dB above the average limit.

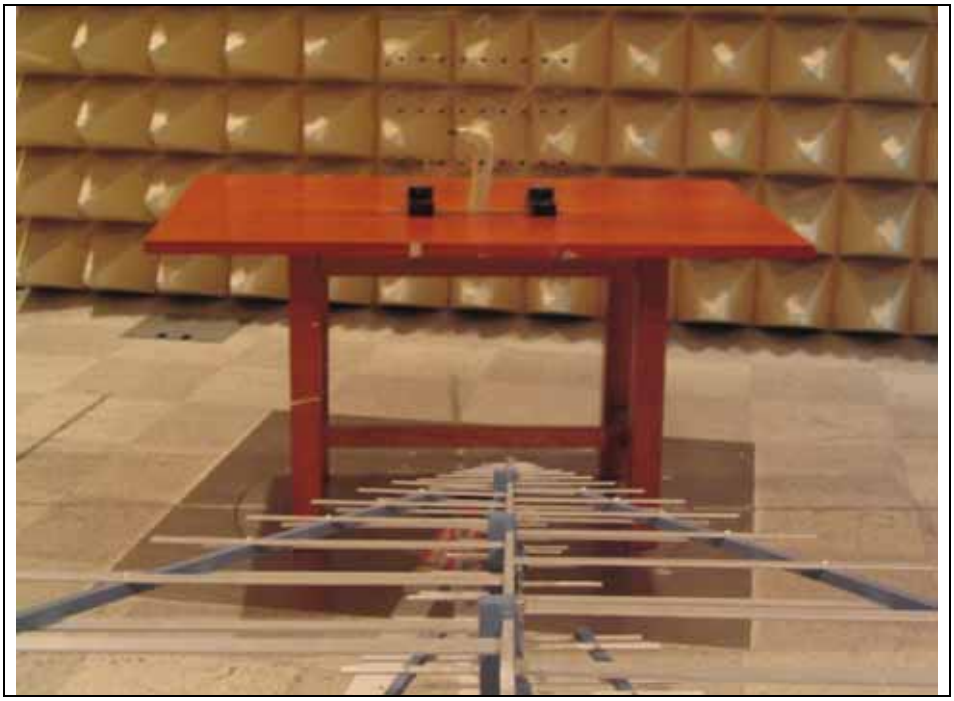
High Channel (2473 MHz)

The following table shows the highest levels of radiated emissions on between polarizations of horizontal and vertical

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (MHz)	Reading (dBuV)	Detect Mode	Pol.	AF (dB/m)	Amp+C/L (dB)	Actual (dBuV/m)	Limit (dBuV/m)	Margin (dB)
42.125	42.41	Q.P.	H	12.73	-27.04	28.10	40.00	11.90
173.075	52.34	Q.P.	V	7.60	-25.67	34.26	46.00	11.74
359.800	42.89	Q.P.	V	12.54	-24.84	30.58	46.00	15.42
374.350	50.16	Q.P.	V	12.88	-24.90	38.14	46.00	7.86
388.900	49.57	Q.P.	V	13.23	-24.96	37.84	46.00	8.16
403.450	44.87	Q.P.	V	13.64	-25.03	33.48	46.00	12.52
418.000	41.00	Q.P.	V	14.22	-25.09	30.13	46.00	15.87
587.750	40.66	Q.P.	V	16.73	-25.20	32.19	46.00	13.81
602.300	40.43	Q.P.	V	16.95	-25.16	32.22	46.00	13.78
Above 610.000	Not Detected	-	-	-	-	-	-	-

Note:
1. A Peak limit is 20 dB above the average limit.

Appendix A. Photos of Fundamental, Harmonics, General Radiated Emission Test



Appendix B. Photos of the EUT

Front View of EUT

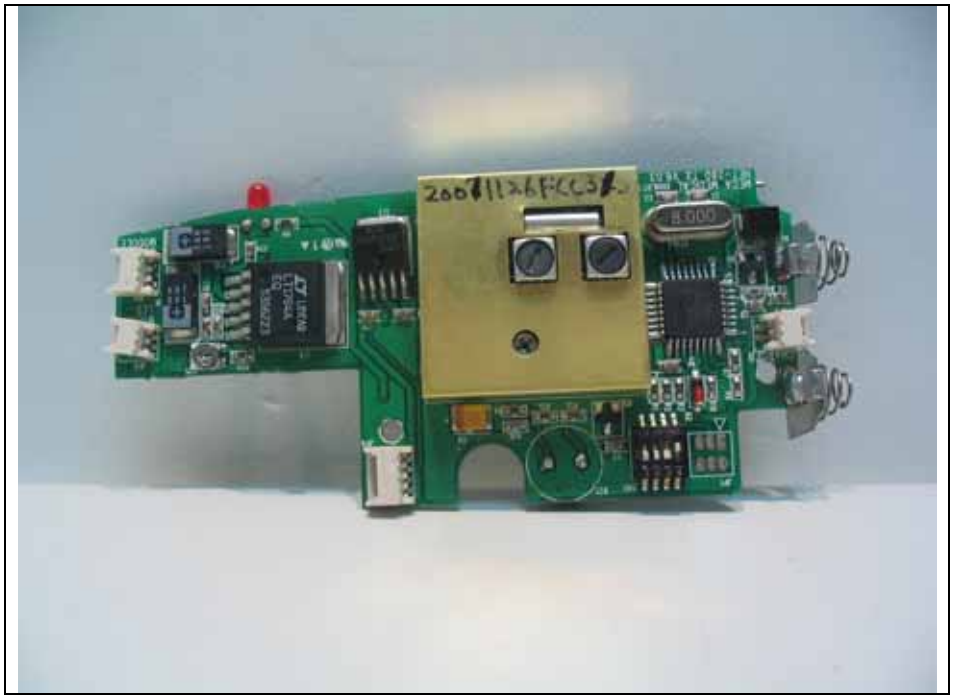
Rear View of EUT

Right View of EUT

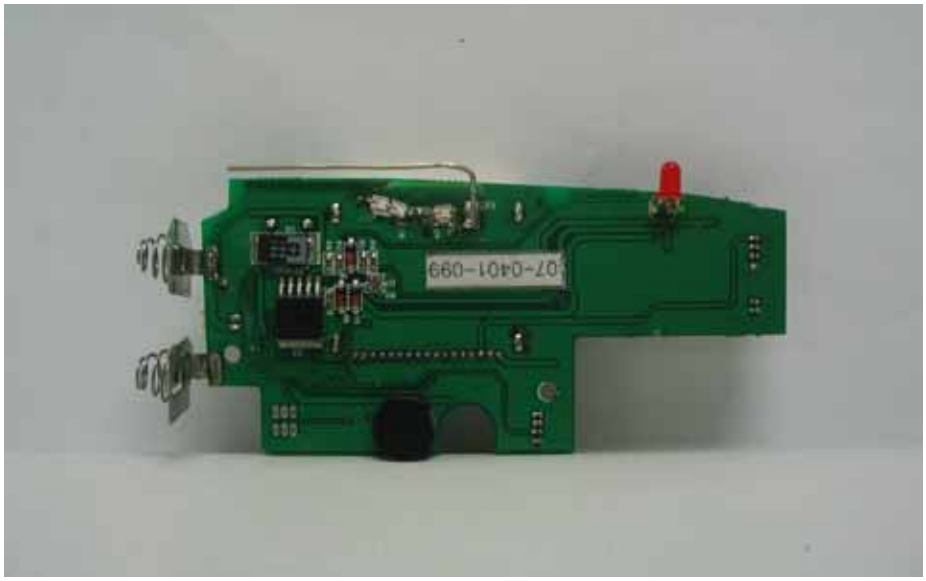
Left View of EUT

Inner of EUT

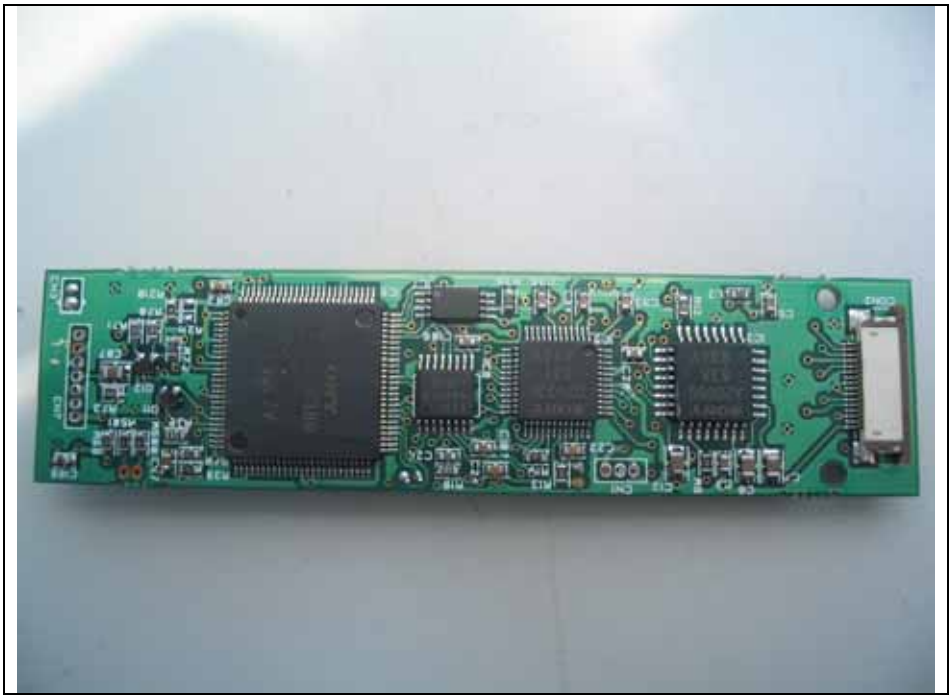
Top View of Main-board (Can't remove Shield Cap)



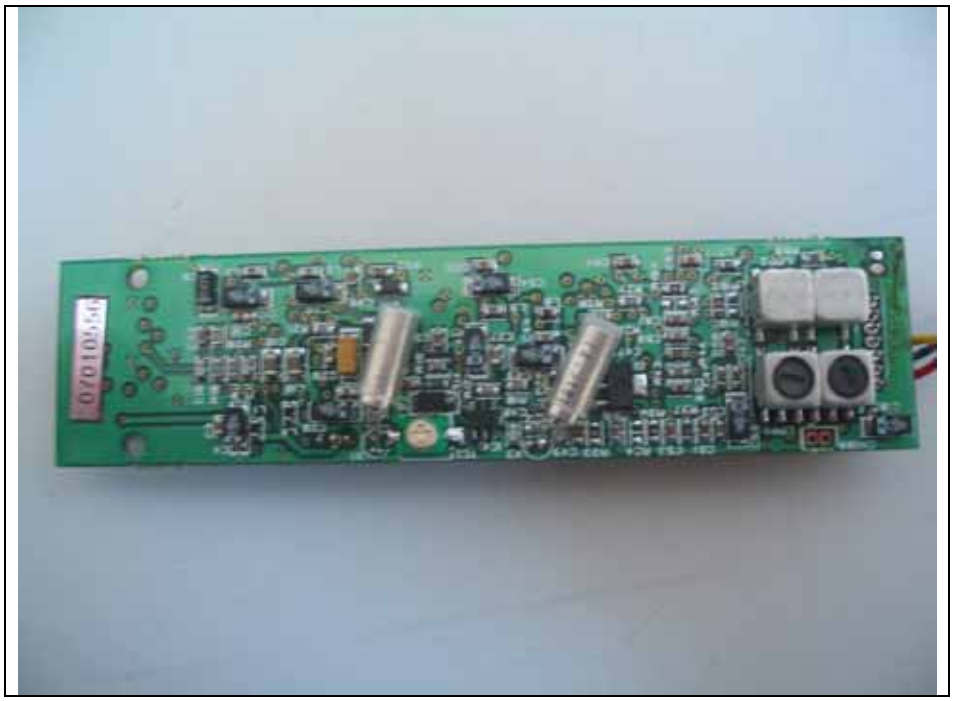
Bottom View of Main-board



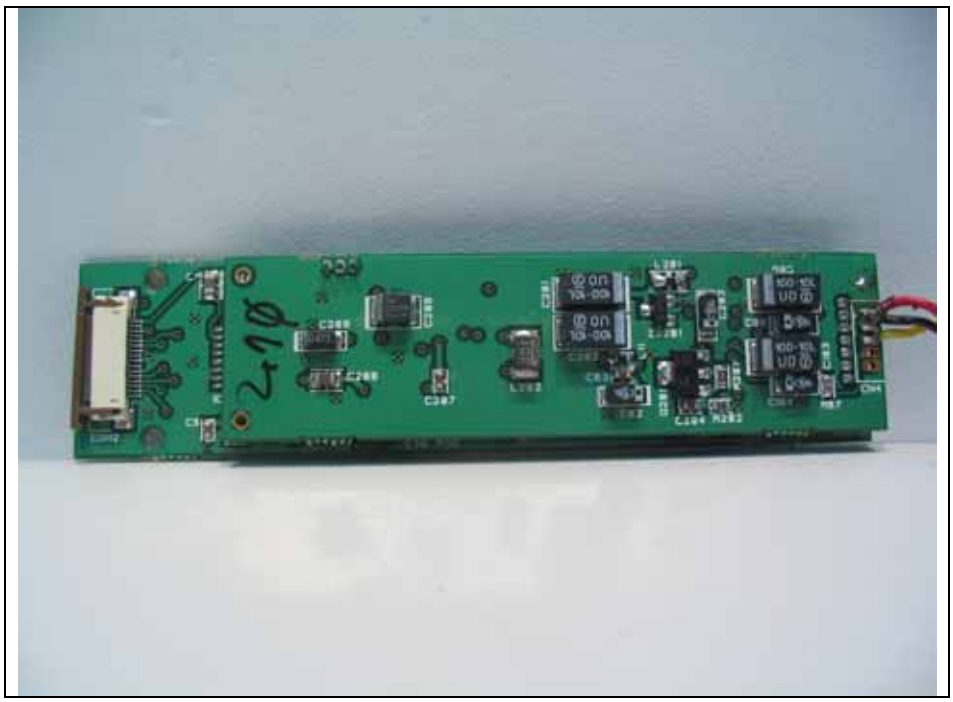
Top View of Sub-board



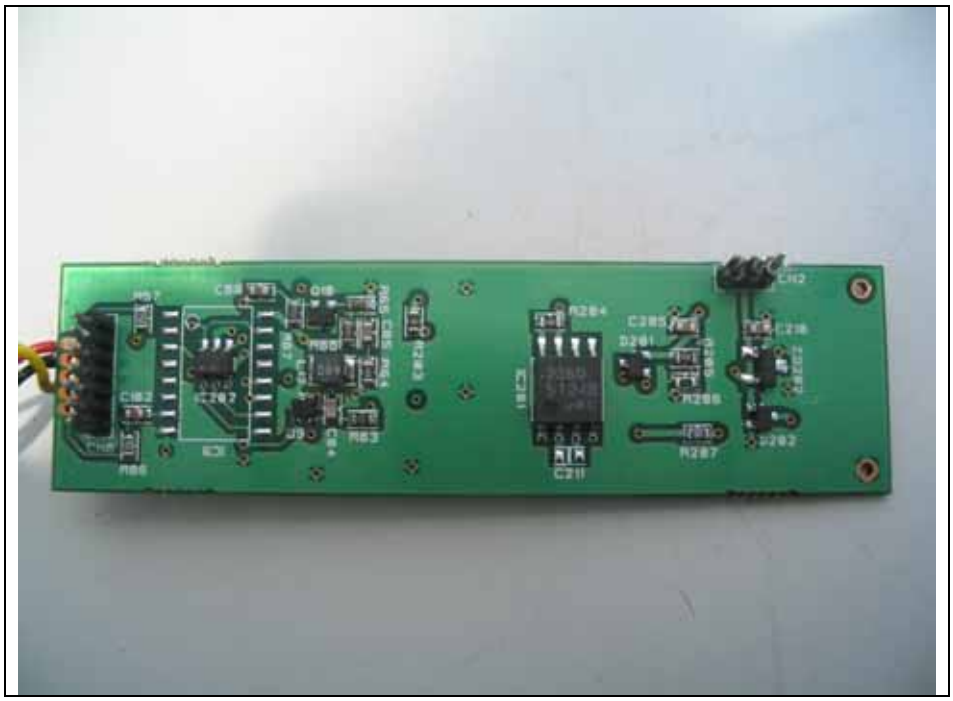
Bottom View of Sub-board



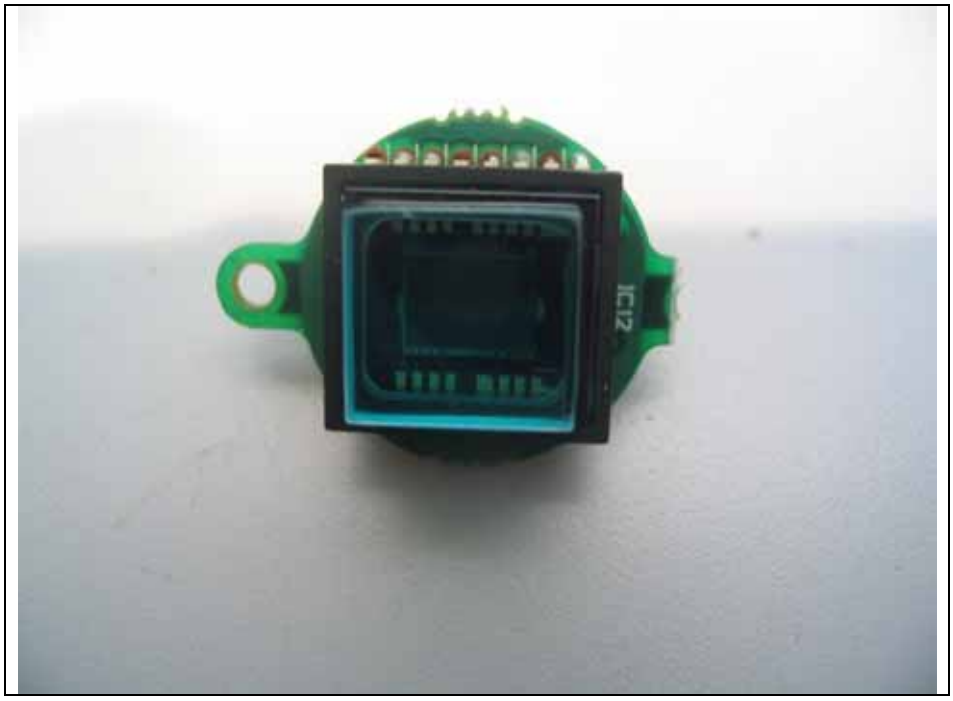
Top View of Sub-board



Bottom View of Sub-board



Top View of Board-Lens



Bottom of Board-Lens