PEP Testing Laboratory
12-3Fl, No. 27-1, Lane 169, Kang-Ning St., Hsi-Chih,
Taipei Hsien, Taiwan, R. O. C.
TEL: 886-2-26922097 FAX: 886-2-26956236

NVLAP LAB CODE: 200097-0

FCC ID TEST REPORT

According to

FCC Part 15 Subpart C, Intentional Radiators

EUT Type **Wireless Care**

Transmitter (TX) **1) Model No.: GA-253**
2) FCC ID: Q8605001

Applicant Name: **MARASST INC.**

Address **See the General Information for details.**

Test Date : 2005/2/16 Issued Date : APR. 13, 2005

Test Engineer : JASON KUNG NVLAP Signature : Peter Kao
Peter Kao / Director

- The test report shall not be reproduced except in full, without the written approval of the "PEP"
- The report must not be used by the client to claim product endorsement by NVLAP or any agency of the United States government.
- This report is applicable only for EUT Model which described in page 4 .
- The testing result in this report are traceable to national or international standard .

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1. General Information

Measurement of electromagnetic emissions (EME) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission under FCC Part 2 and 15.

Applicant Name/Address: **MARASST INC.**
8F, NO. 49, SEC. 3, MIN-SHENG E. RD., 104 TAIPEI, TAIWAN, R. O. C.

Contact Person: **BILLIE HO / MANAGER**

Phone No.: **886-3-2115768** **Fax No.:** **886-3-3978857**

Manufacturer Name/Address: **(1) MARASST INC.**
8F, NO. 49, SEC. 3, MIN-SHENG E. RD., 104 TAIPEI, TAIWAN, R. O. C.
(2) COMRUS ELECTRONIC TECHNOLOGY CO., LTD.
3RD FLOOR, BUILDING E. NO. 50, LANE 2080, LIANHUA RD. SHANGHAI, CHINA

- ✧ Regulation: FCC Part 2 and 15
- ✧ Limitation: Part 15, Section 15.249, 15.207 and 15.209
- ✧ Test Procedure: ANSI C63.4-2001
- ✧ Place of Test: PEP Testing Laboratory
  12-3Fl, No. 27-1, Lane 169, Kang-Ning St., Hsi-Chih,
  Taipei Hsien, Taiwan, R. O. C.
  TEL : 886-2-26922097 FAX : 886-2-26956236

2. Product Information

a.	**EUT Type:**	**Wireless Care**
b.	**Transmitter Model:**	**GA-253**
c.	**TX FCC ID:**	**Q8605001**
d.	**TX Channel No.：**	**4**
e.	**TX Working Freq. :**	**2410 MHz, 2430 MHz, 2450 MHz, 2470 MHz**
f.	**TX Modulation：**	**FM**
g.	**TX Crystal / Osc.：**	**8MHz, 14.318 MHz**
h.	**TX Port(s) ：**	**N/A**
i	**TX Power Supply：**	**AC Adapter ----** **Model No. : RGD35-06005** **Input : AC 120V 60Hz** **Output : DC 6V 500mA**
j.	**TX Case：**	**Plastic**

k. **EUT Condition :** ☐ **Prototype** ☑ **Engineering** ☐ **Production**

l. **EUT Received Date :** **APR. 04, 2005**

3. EUT Description and Test Methods

The equipment under test (EUT) is Wireless Care, FCC ID Q8605001, model GA-253. The EUT that is camera/transmitter and works with a portable monitor/receiver model GA-253 serves function of wireless audio and video monitoring for environment security. AC-DC adaptor supplies EUT DC 6V from AC mains. For more detail specification about the EUT, please to refer the user's manual.

Test method: According to the major function designed, the placement and operational function of EUT and support device: monitor/receiver model GA-253 on testing table were set to proceed with test. The test was carried out on EUT operational condition continuous "Tx-On" mode and the worst-case test result was recorded and provided in this report.

At the frequencies where the peak values of the emission exceeded the quasi-peak limit, the emissions were also measured with the quasi-peak detectors. The average detector also measured the emission either (A) quasi-peak values were under quasi-peak limit but exceeded average limit, or (B) peak values were under quasi-peak limit but exceeded average limit.

4. Modification(s):

N/A

5. Test Software Used

N/A

6. Support Equipment Used

N/A

7. Description Field Strength of Fundamental and Harmonics Test

7.1 Field Strength of Fundamental and Harmonics Test

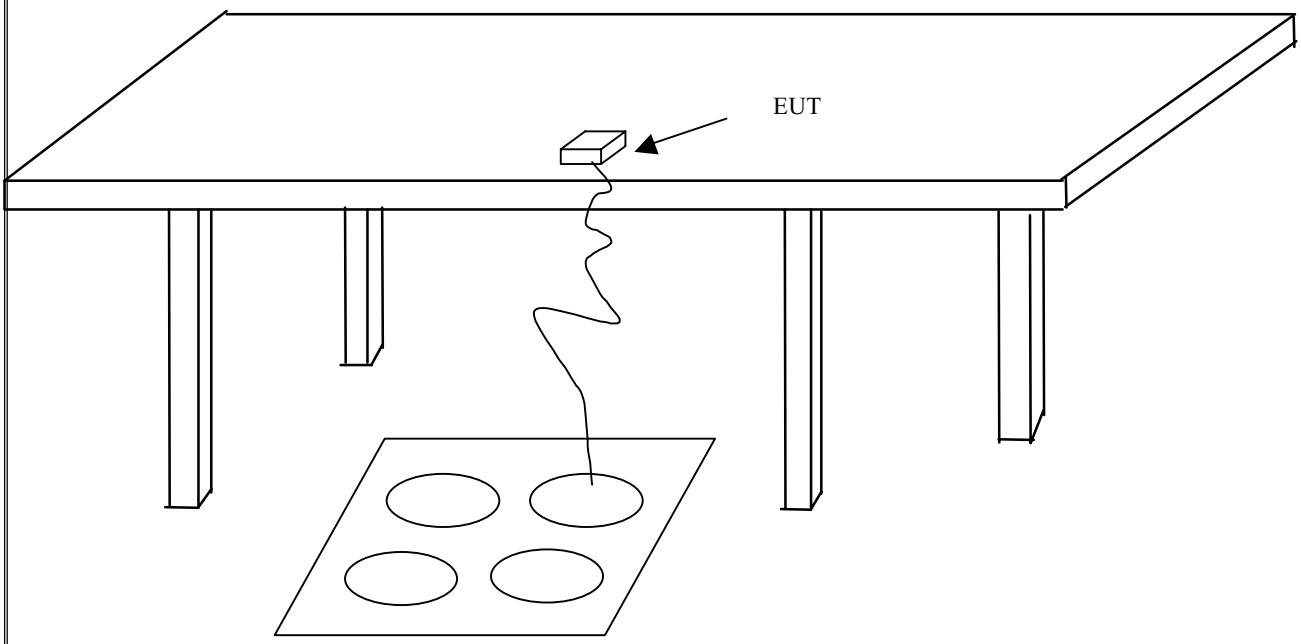
Field Strength of Fundamental and Harmonics Test were made indoors 9m* 6m*6m chamber at 3-meter test range using horn antenna. The test equipment was placed on a wooden bench situated on a 1.5x1 meter area adjacent to the measurement area. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The detector function was set to peak and average value, the bandwidth of the receiver was set to 1MHz.

The turntable containing the system was rotated; the antenna height was varied 1 to 4 meters and stopped at the azimuth or height producing the maximum emission.

7.2 Field Strength of Fundamental and Harmonics Limits

Fundamental Frequency	Fundamental		Harmonics	
	(mV/m)	(dBμV/m)	(μV/m)	(dBμV/m)
902-928MHz	50	94	500	54
2400-2483.5MHz	50	94	500	54
5725-5875MHz	50	94	500	54
24.0-24.25GHz	250	108	2500	68

7.3 Test Configuration



8. Description of Conducted Emissions Test

8.1 Conducted Emissions

A 1m x1.5m wooden table 80 cm high is placed 40cm away from the vertical wall. Two AMN are bonded to the grounding plane. The EUT is powered from the designated AMN and the support equipment is powered from another designated AMN. Powers to the AMN are filtered by a high-current high insertion loss power line filters. All electrical cables are shielded by braided tinned copper zipper tubing with inner diameter of 1/2”. All interconnecting cables more than 1 meter were shortened by non-inductive bundling (serpentine fashion) to a 1-meter length.

Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The RF output of the AMN was connected to the spectrum analyzer to determine the frequency producing the maximum EME from the EUT.

The spectrum was scanned from 150kHz to 30 MHz with1.5 sec sweep time. The frequency producing the maximum level was re-examined using Quasi-Peak adapter. The detector function was set to CISPR quasi-peak mode. The bandwidth of the receiver was set to 10kHz. The EUT, support equipment, and interconnecting cables were re-arranged and manipulated to maximize each EME emission. Each emission was maximized by: switching power lines; varying the mode of operation or resolution; clock or data exchange speed; scrolling H pattern to the EUT and/or support equipment, and powering the monitor from the floor mounted outlet box and the computer aux AC outlet, if applicable; whichever determined the worst-case emission.

8.2 Conducted Emissions Limits

Frequency	Maximum RF Line Voltage dB(uV)			
	Class A		Class B	
MHz	QUASI-PEAK	AVERAGE	QUASI-PEAK	AVERAGE
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.

9. Description of Radiated Emissions Test

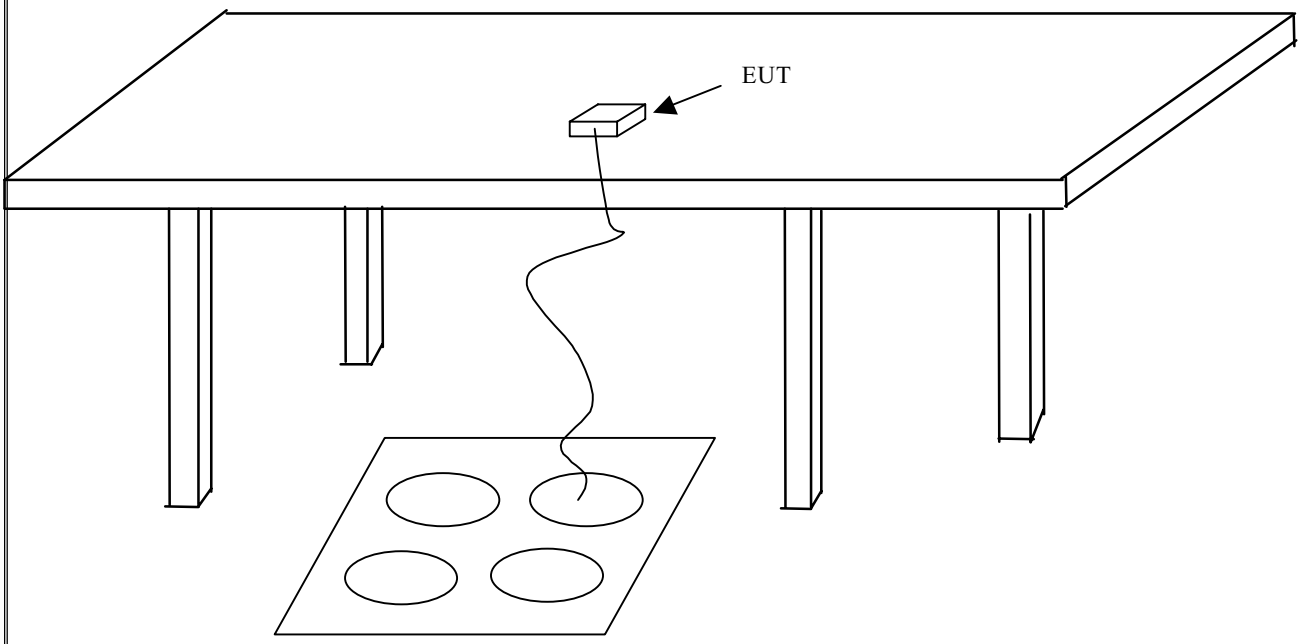
9.1 Radiated Emissions

Preliminary measurements were made indoors chamber at 3 meter using broadband antennas, broadband amplifier, and spectrum analyzer to determine the frequency producing the maximum EME. Appropriate precaution was taken to ensure that all EME from the EUT were maximized and investigated. The system configuration, clock speed, mode of operation or video resolution, turntable azimuth with respect to the antenna were noted for each frequency found. The spectrum was scanned from 30 to 1000 MHz using logbicon antenna. Above 1GHz, linearly polarized double ridge horn antenna was used.

Final measurements were made indoors 9m* 6m*6m chamber at 3-meter test range using logbicon antenna and horn antenna. The test equipment was placed on a wooden bench situated on a 1.5x1 meter area adjacent to the measurement area. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. Each frequency found during pre-scan measurements was re-examined and investigated using Quasi-Peak and Average Adapter. 30MHz-1GHz, the detector function was set to CISPR quasi-peak mode and the bandwidth of the receiver was set to 120kHz. Above 1GHz, the detector function was set to peak and average value, the bandwidth of the receiver was set to 1MHz.

The turntable containing the system was rotated; the antenna height was varied 1 to 4 meters and stopped at the azimuth or height producing the maximum emission. Each emission was maximized by: varying mode of operation or resolution; clock or data exchange speed; scrolling H pattern to the EUT and/or support equipment, and powering the monitor from the floor mounted outlet box and the computer aux AC outlet , if applicable; and changing the polarity of the antenna, whichever determined the worst-case emission. Photographs of the worst-case emission can be seen in radiated emission test photo.

9.2 Test Configuration



9.3 Radiated Emission Limits

Limits for radiated disturbance of
Class B ITE or Intentional Radiator
At a measuring distance of 3 m

Frequency MHz	Field Strength dB μ V/m	or uV/m
30 to 88	40	100
88 to 216	43.5	150
216 to 960	46	200
Above 960	54	500

NOTES
1 The lower limit shall apply at the transition frequency.
2 Additional provisions may be required for cases where interference occurs.

10. Field Strength of Fundamental and Harmonics Test Setup Photos

< FRONT VIEW >

< REAR VIEW >

11. Field Strength of Fundamental and Harmonics Test Data

Model No. : GA-253
Temperature : 28° C Humidity : 54 %
Memo : TX ON MODE (CH1)

Antenna polarization : HORIZONTAL ; Test distance : 3m ;

Freq. (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Detector	Remark
2410.000	81.61	-30.35	114	Peak	Fundamental
2410.000	75.56	-16.41	94	Average	Fundamental
4820.000	43.89	-30.11	74	Peak	Harmonic
4820.000	36.55	-17.45	54	Average	Harmonic

Antenna polarization : VERTICAL ; Test distance : 3m ;

Freq. (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Detector	Remark
2410.000	67.73	-44.26	114	Peak	Fundamental
2410.000	46.44	-25.25	94	Average	Fundamental
4820.000	42.46	-31.54	74	Peak	Harmonic
4820.000	32.18	-21.82	54	Average	Harmonic

Model No. : GA-253
Temperature : 28° C Humidity : 54 %
Memo : TX ON MODE (CH2)

Antenna polarization : HORIZONTAL ; Test distance : 3m ;

Freq. (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Detector	Remark
2430.000	78.80	-33.21	114	Peak	Fundamental
2430.000	77.97	-14.05	94	Average	Fundamental
4860.000	44.96	-29.04	74	Peak	Harmonic
4860.000	34.75	-19.25	54	Average	Harmonic

Antenna polarization : VERTICAL ; Test distance : 3m ;

Freq. (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Detector	Remark
2430.000	69.02	-42.95	114	Peak	Fundamental
2430.000	66.20	-25.77	94	Average	Fundamental

Model No. : GA-253
Temperature : 28° C Humidity : 54 %
Memo : TX ON MODE (CH3)

Antenna polarization : HORIZONTAL ; Test distance : 3m ;

Freq. (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Detector	Remark
2450.000	80.57	-31.44	114	Peak	Fundamental
2450.000	79.08	-12.09	94	Average	Fundamental
4899.000	48.29	-25.71	74	Peak	Harmonic
4899.000	40.90	-13.10	54	Average	Harmonic

Antenna polarization : VERTICAL ; Test distance : 3m ;

Freq. (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Detector	Remark
2450.000	70.13	-41.89	114	Peak	Fundamental
2450.000	68.49	-23.53	94	Average	Fundamental

Model No. : GA-253
Temperature : 28° C Humidity : 54 %
Memo : TX ON MODE (CH4)

Antenna polarization : HORIZONTAL ; Test distance : 3m ;

Freq. (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Detector	Remark
2470.000	83.89	-28.16	114	Peak	Fundamental
2470.000	82.30	- 9.75	94	Average	Fundamental
4940.000	55.52	-18.48	74	Peak	Harmonic
4940.000	49.42	- 4.58	54	Average	Harmonic

Antenna polarization : VERTICAL ; Test distance : 3m ;

Freq. (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Detector	Remark
2470.000	73.52	-38.53	114	Peak	Fundamental
2470.000	72.13	-21.87	94	Average	Fundamental
4940.000	51.10	-22.90	74	Peak	Harmonic
4940.000	44.33	-29.67	54	Average	Harmonic

12. Conducted Emissions Test Setup Photos

< FRONT VIEW >

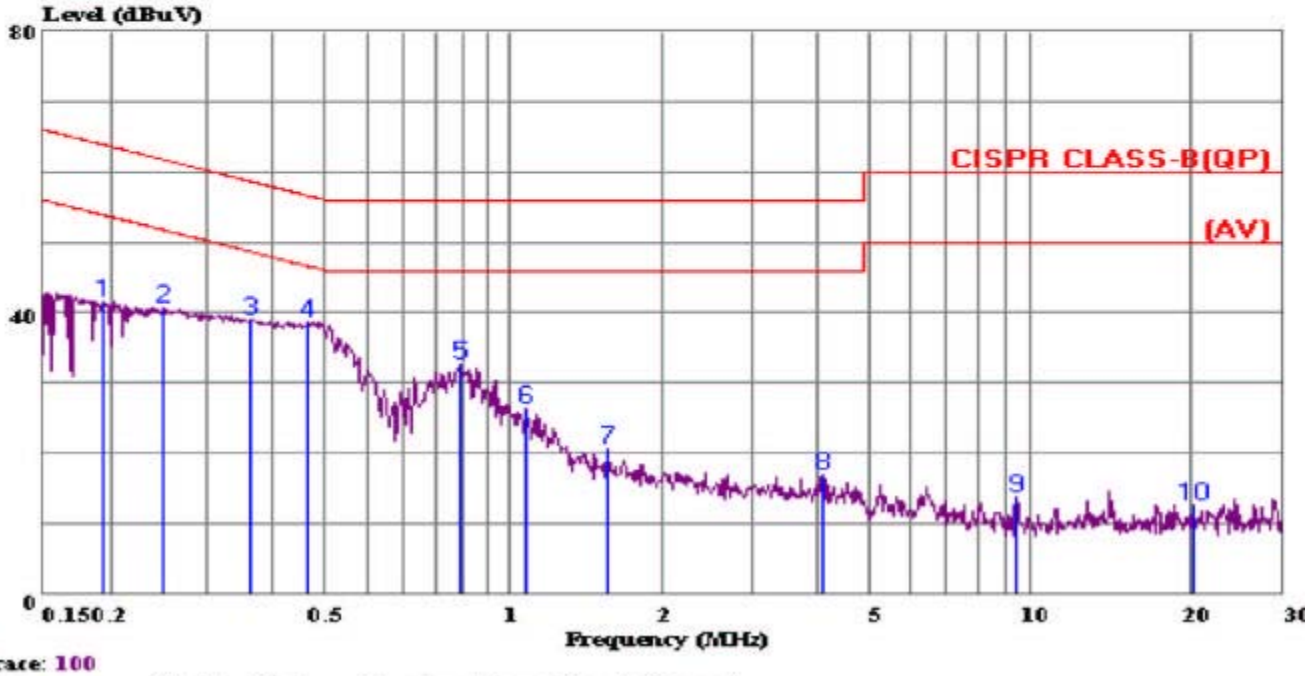
13. Conducted Emissions Test Data

Model No. : **GA-253**
Frequency range : **150KHz to 30MHz**
Detector : **Peak Value**
Temperature : **21 ℃**
Humidity : **52 %**
Memo : **CH1**

Test Data : # **101** < LINE >
103 < NEUTRAL >

Note 1. Level = Read Level + Cable Loss + Probe (LISN)
2. Over Limit = Level – Limit = Margin

Data#: 101 File#: EN55022-B(QP).EMI Date: 2005-02-16 Time: 10:06:31



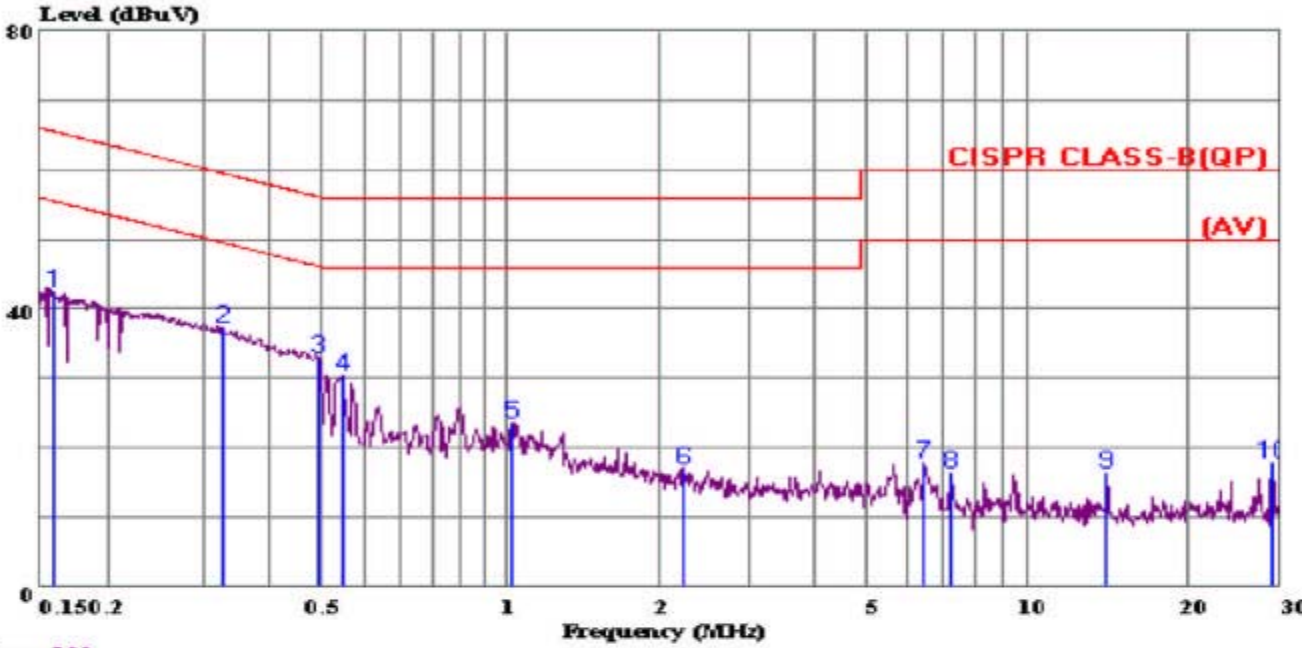
Trace: 100

Site : Shih-Chi : Conduction No.1(Gene)
Condition: CISPR CLASS-B(QP) LISN.L(16A) LINE
eut : E930846
power : AC 120V 60Hz
memo : Peak Value
: Final Test
: TX-CH1

Page: 1

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.193	41.65	-22.24	63.89	41.35	0.20	0.10	
2	0.251	40.69	-21.04	61.73	40.29	0.20	0.20	
3	0.363	39.02	-19.63	58.65	38.72	0.20	0.10	
4	0.464	38.70	-17.93	56.63	38.37	0.20	0.13	
5	0.890	32.55	-23.45	56.00	32.16	0.20	0.19	
6	1.184	26.39	-29.61	56.00	25.99	0.20	0.20	
7	1.671	20.66	-35.34	56.00	20.26	0.20	0.20	
8	4.202	17.00	-39.00	56.00	16.50	0.20	0.30	
9	9.603	13.90	-46.10	60.00	13.31	0.29	0.30	
10	20.377	12.73	-47.27	60.00	11.71	0.62	0.40	

Data#: 103 File#: EN55022-B(QP).EMI Date: 2005-02-16 Time: 10:07:17



Trace: 102

Site : Shih-Chi : Conduction No.1(Gene)
Condition: CISPR CLASS-B(QP) LISN.N(16A) NEUTRAL
eut : E930846
power : AC 120V 60Hz
memo : Peak Value
: Final Test
: TX-CH1

Page: 1

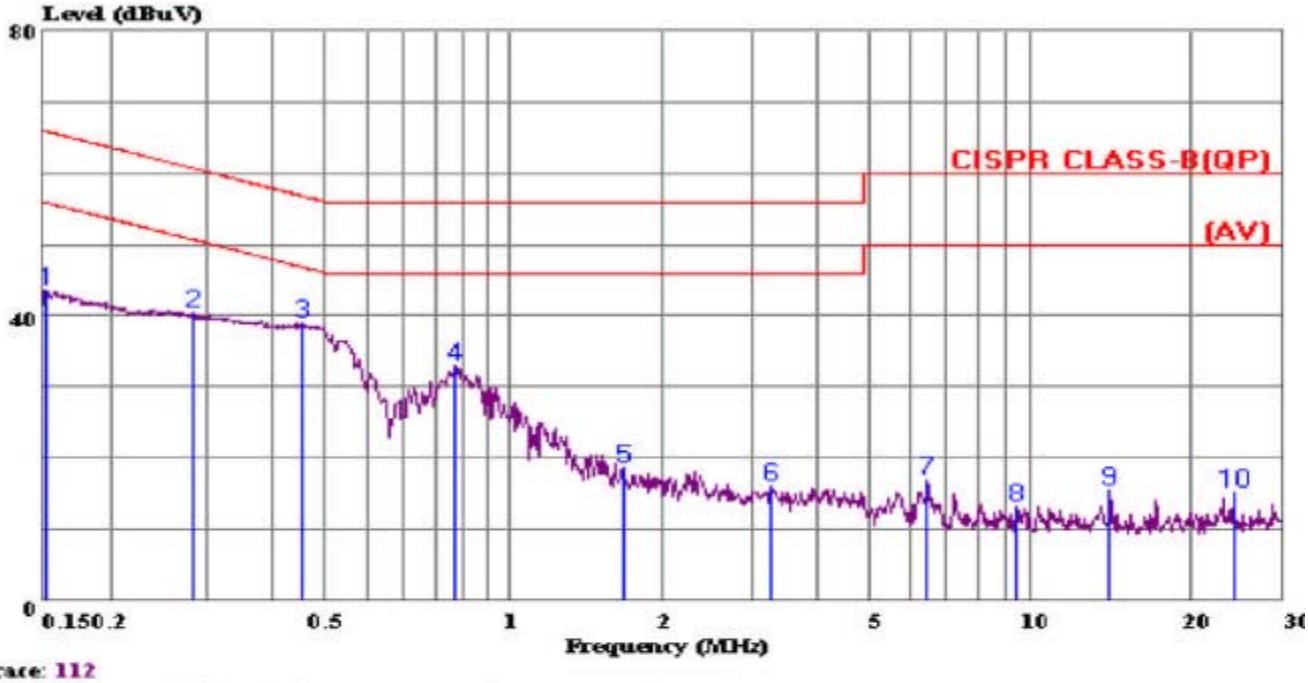
	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.159	42.32	-23.20	65.52	42.02	0.20	0.10	
2	0.327	37.18	-22.35	59.53	36.88	0.20	0.10	
3	0.494	32.99	-23.11	56.10	32.60	0.20	0.19	
4	0.546	30.39	-25.61	56.00	30.04	0.20	0.15	
5	1.123	23.60	-32.40	56.00	23.20	0.20	0.20	
6	2.346	16.88	-39.12	56.00	16.48	0.20	0.20	
7	6.557	17.74	-42.26	60.00	17.23	0.25	0.26	
8	7.290	16.43	-43.57	60.00	15.87	0.26	0.30	
9	14.288	16.26	-43.74	60.00	15.41	0.48	0.37	
10	29.061	17.79	-42.21	60.00	16.49	0.80	0.50	

Model No. : **GA-253**
Frequency range : **150KHz to 30MHz**
Detector : **Peak Value**
Temperature : **21 ℃**
Humidity : **52 %**
Memo : **CH2**

Test Data : # **113** < LINE >
111 < NEUTRAL >

Note 1. Level = Read Level + Cable Loss + Probe (LISN)
2. Over Limit = Level – Limit = Margin

Data#: 113 File#: EN55022-B(QP).EMI Date: 2005-02-16 Time: 10:11:09



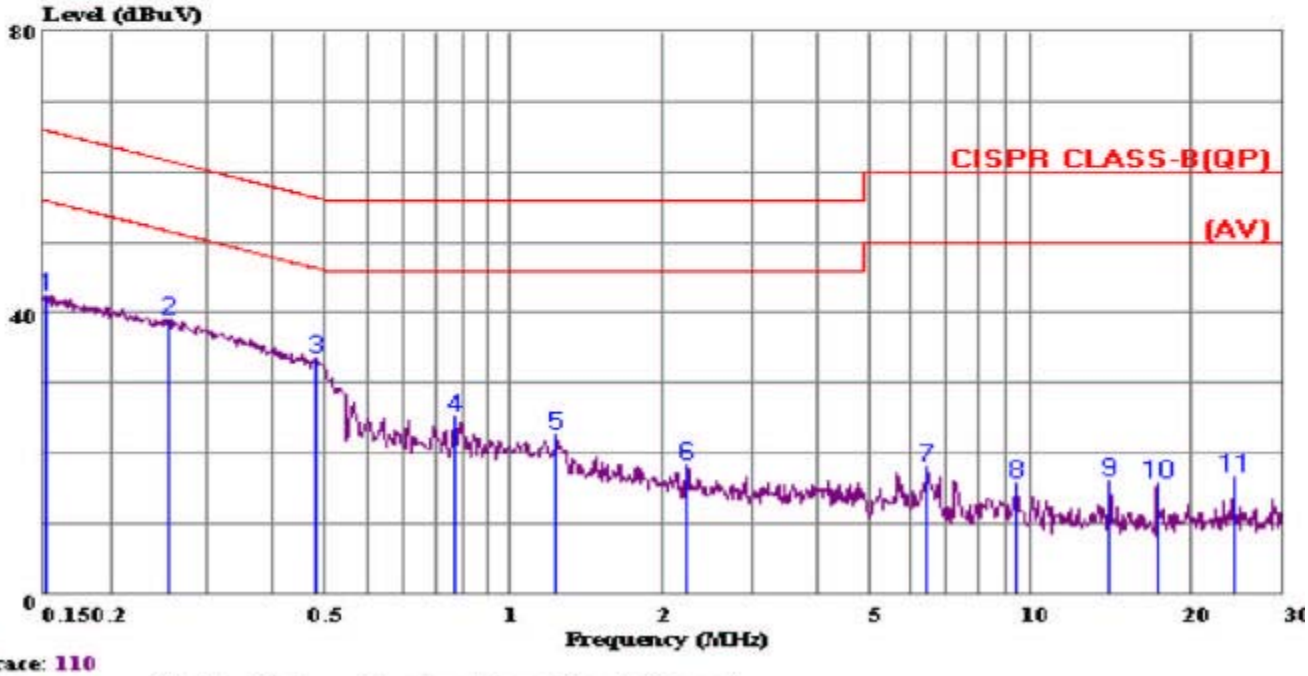
Trace: 112

Site : Shih-Chi : Conduction No.1(Gene)
Condition: CISPR CLASS-B(QP) LISN.L(16A) LINE
eut : E930846
power : AC 120V 60Hz
memo : Peak Value
: Final Test
: TX-CH2

Page: 1

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.152	43.47	-22.40	65.87	43.17	0.20	0.10	
2	0.283	40.35	-20.37	60.72	40.02	0.20	0.13	
3	0.454	39.03	-17.77	56.80	38.72	0.20	0.11	
4	0.871	32.85	-23.15	56.00	32.48	0.20	0.17	
5	1.790	18.58	-37.42	56.00	18.18	0.20	0.20	
6	3.364	15.92	-40.08	56.00	15.48	0.20	0.24	
7	6.557	16.92	-43.08	60.00	16.41	0.25	0.26	
8	9.603	13.33	-46.67	60.00	12.74	0.29	0.30	
9	14.288	15.60	-44.40	60.00	14.75	0.48	0.37	
10	24.271	15.12	-44.88	60.00	13.95	0.77	0.40	

Data#: 111 File#: EN55022-B(QP).EMI Date: 2005-02-16 Time: 10:10:21



Trace: 110

Site : Shih-Chi : Conduction No.1(Gene)
Condition: CISPR CLASS-B(QP) LISN.N(16A) NEUTRAL
eut : E930846
power : AC 120V 60Hz
memo : Peak Value
: Final Test
: TX-CH2

Page: 1

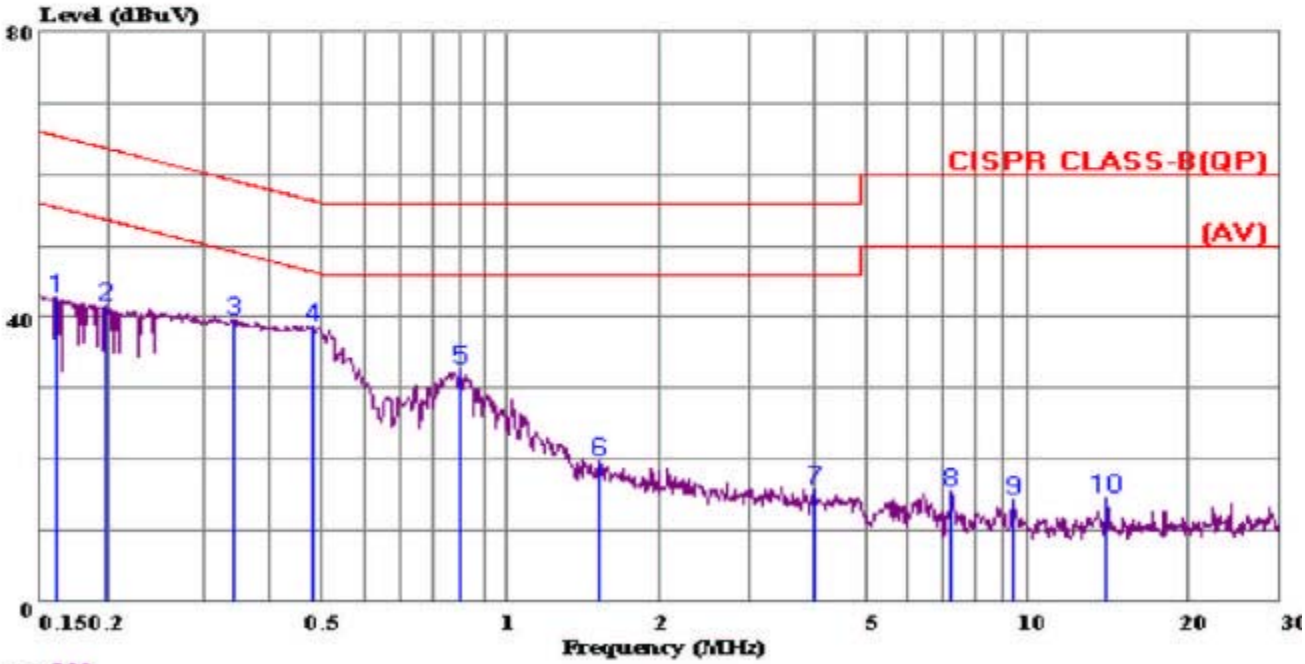
	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.152	42.46	-23.41	65.87	42.16	0.20	0.10	
2	0.256	39.02	-22.54	61.56	38.63	0.20	0.19	
3	0.479	33.58	-22.78	56.36	33.22	0.20	0.16	
4	0.871	25.31	-30.69	56.00	24.94	0.20	0.17	
5	1.345	22.52	-33.48	56.00	22.12	0.20	0.20	
6	2.346	18.22	-37.78	56.00	17.82	0.20	0.20	
7	6.557	18.16	-41.84	60.00	17.65	0.25	0.26	
8	9.603	15.89	-44.11	60.00	15.30	0.29	0.30	
9	14.288	16.16	-43.84	60.00	15.31	0.48	0.37	
10	17.475	15.85	-44.15	60.00	15.00	0.55	0.30	
11	24.271	16.62	-43.38	60.00	15.45	0.77	0.40	

Model No. : **GA-253**
Frequency range : **150KHz to 30MHz**
Detector : **Peak Value**
Temperature : **21 ℃**
Humidity : **52 %**
Memo : **CH3**

Test Data : # **121** < LINE >
123 < NEUTRAL >

Note 1. Level = Read Level + Cable Loss + Probe (LISN)
2. Over Limit = Level – Limit = Margin

Data#: 121 File#: EN55022-B(QP).EMI Date: 2005-02-16 Time: 10:13:53



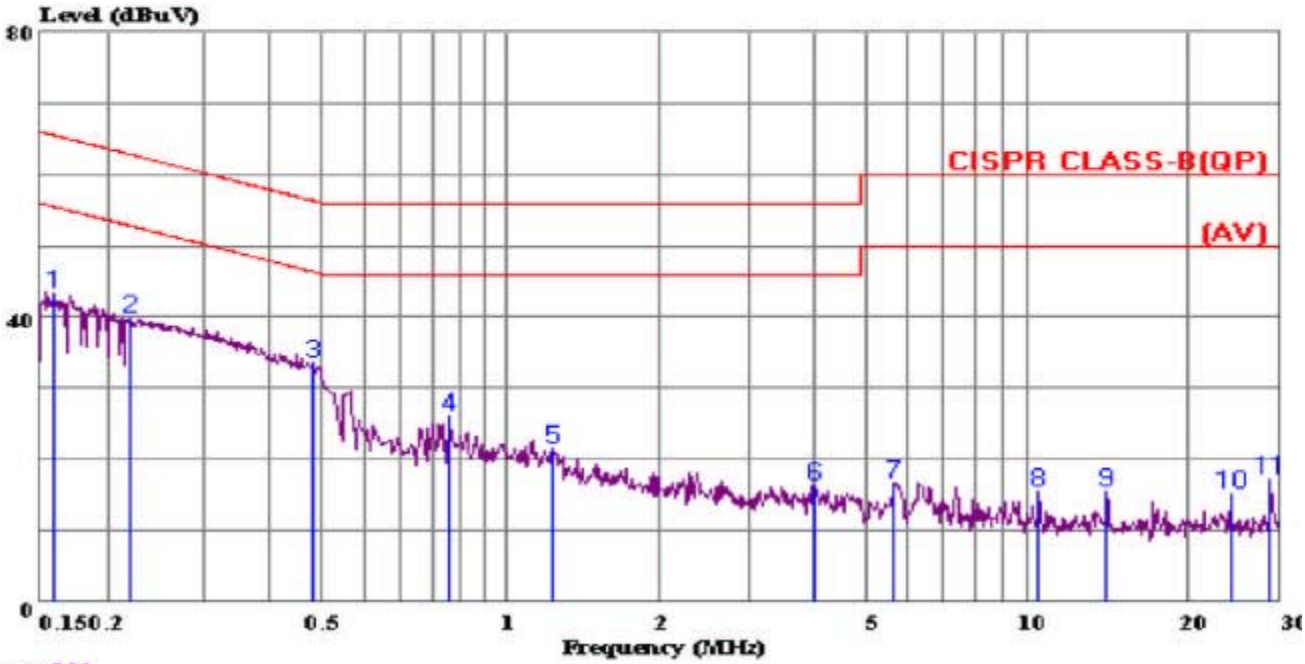
Trace: 120

Site : Shih-Chi : Conduction No.1(Gene)
Condition: CISPR CLASS-B(QP) LISN.L(16A) LINE
eut : E930846
power : AC 120V 60Hz
memo : Peak Value
: Final Test
: TX-CH3

Page: 1

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.161	42.76	-22.67	65.43	42.46	0.20	0.10	
2	0.198	41.72	-21.99	63.71	41.42	0.20	0.10	
3	0.343	39.50	-19.63	59.13	39.20	0.20	0.10	
4	0.479	38.69	-17.67	56.36	38.33	0.20	0.16	
5	0.904	32.66	-23.34	56.00	32.26	0.20	0.20	
6	1.636	19.81	-36.19	56.00	19.41	0.20	0.20	
7	4.092	15.77	-40.23	56.00	15.27	0.20	0.30	
8	7.368	15.49	-44.51	60.00	14.92	0.27	0.30	
9	9.603	14.31	-45.69	60.00	13.72	0.29	0.30	
10	14.288	14.61	-45.39	60.00	13.76	0.48	0.37	

Data#: 123 File#: EN55022-B(QP).EMI Date: 2005-02-16 Time: 10:14:52



Trace: 122

Site : Shih-Chi : Conduction No.1(Gene)
Condition: CISPR CLASS-B(QP) LISN.N(16A) NEUTRAL
eut : E930846
power : AC 120V 60Hz
memo : Peak Value
: Final Test
: TX-CH3

Page: 1

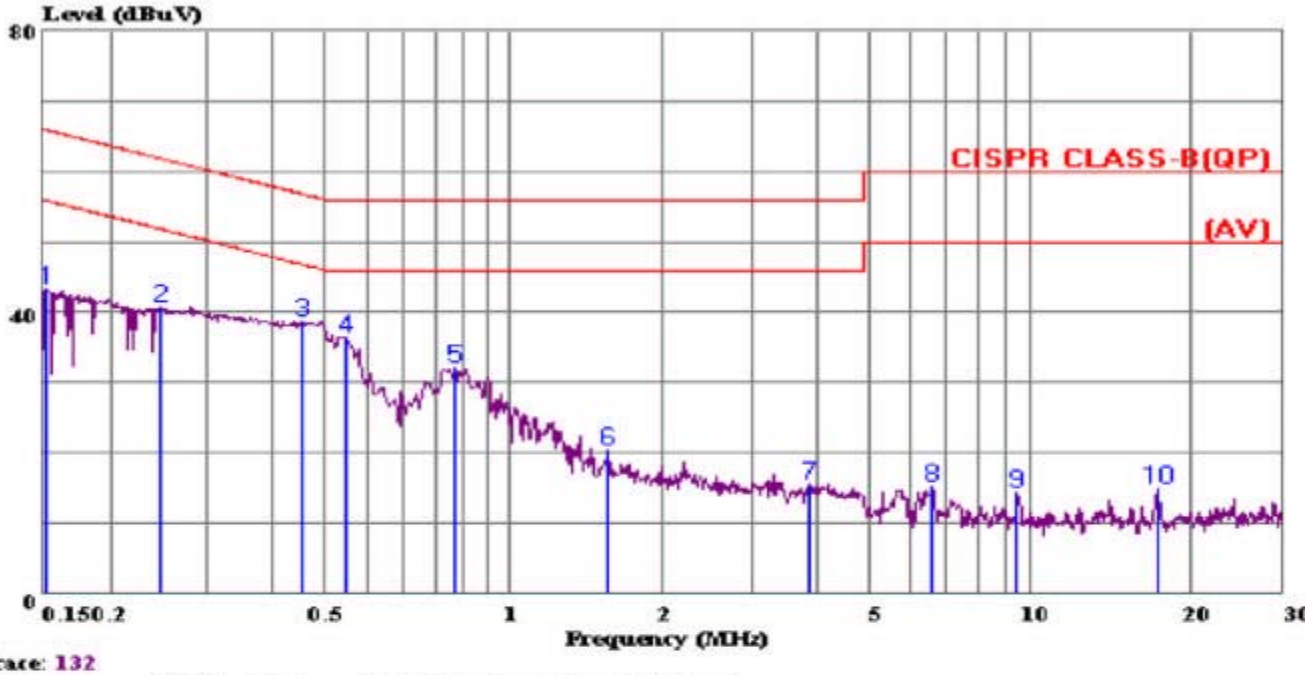
	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.158	43.20	-22.36	65.56	42.90	0.20	0.10	
2	0.220	39.72	-23.11	62.83	39.38	0.20	0.14	
3	0.481	33.55	-22.77	56.32	33.18	0.20	0.17	
4	0.857	26.10	-29.90	56.00	25.75	0.20	0.15	
5	1.345	21.53	-34.47	56.00	21.13	0.20	0.20	
6	4.114	16.32	-39.68	56.00	15.82	0.20	0.30	
7	5.774	16.62	-43.38	60.00	16.16	0.24	0.22	
8	10.676	15.60	-44.40	60.00	14.97	0.33	0.30	
9	14.288	15.48	-44.52	60.00	14.63	0.48	0.37	
10	24.271	15.25	-44.75	60.00	14.08	0.77	0.40	
11	28.755	17.14	-42.86	60.00	15.84	0.80	0.50	

Model No. : **GA-253**
Frequency range : **150KHz to 30MHz**
Detector : **Peak Value**
Temperature : **21 ℃**
Humidity : **52 %**
Memo : **CH4**

Test Data : # **133** < LINE >
131 < NEUTRAL >

Note 1. Level = Read Level + Cable Loss + Probe (LISN)
2. Over Limit = Level – Limit = Margin

Data#: 133 File#: EN55022-B(QP).EMI Date: 2005-02-16 Time: 10:18:41



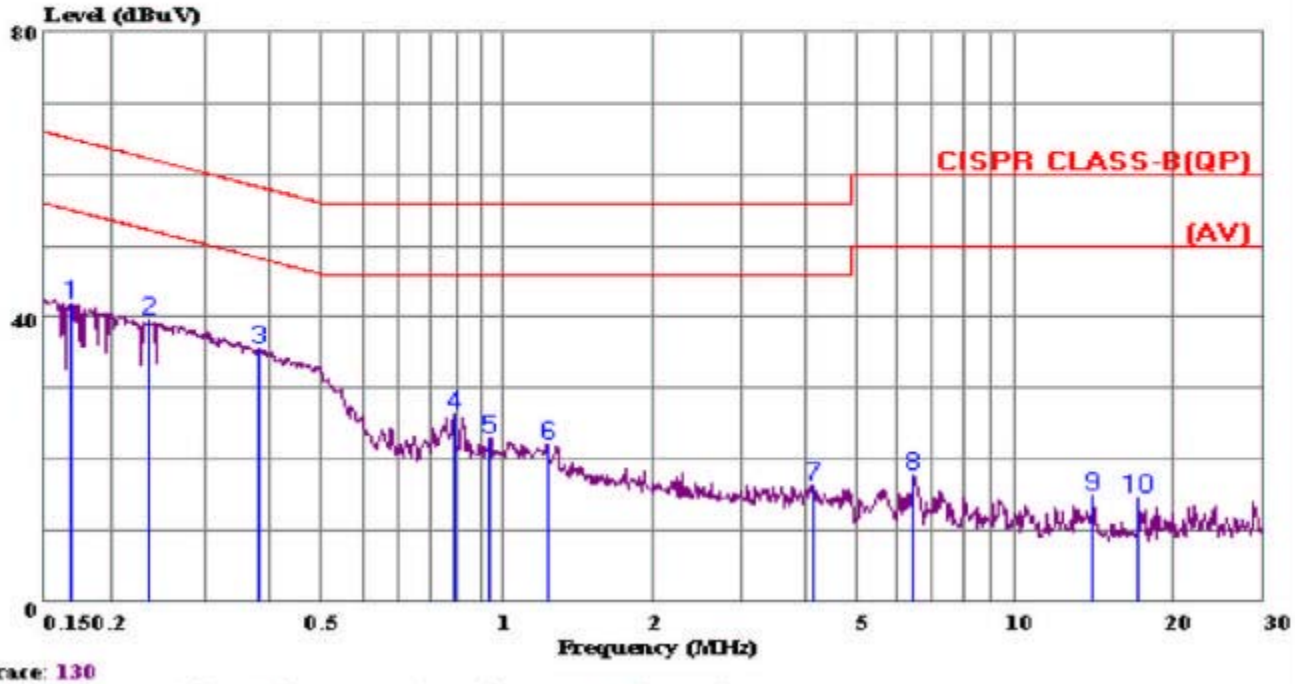
Trace: 132

Site : Shih-Chi : Conduction No.1(Gene)
Condition: CISPR CLASS-B(QP) LISN.L(16A) LINE
eut : E930846
power : AC 120V 60Hz
memo : Peak Value
: Final Test
: TX-CH4

Page: 1

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.152	43.28	-22.63	65.91	42.98	0.20	0.10	
2	0.247	40.78	-21.08	61.86	40.39	0.20	0.19	
3	0.454	38.80	-18.00	56.80	38.49	0.20	0.11	
4	0.546	36.53	-19.47	56.00	36.18	0.20	0.15	
5	0.871	32.11	-23.89	56.00	31.74	0.20	0.17	
6	1.680	20.22	-35.78	56.00	19.82	0.20	0.20	
7	3.964	15.63	-40.37	56.00	15.14	0.20	0.29	
8	6.698	15.06	-44.94	60.00	14.53	0.26	0.27	
9	9.603	14.37	-45.63	60.00	13.78	0.29	0.30	
10	17.475	14.95	-45.05	60.00	14.10	0.55	0.30	

Data#: 131 File#: EN55022-B(QP).EMI Date: 2005-02-16 Time: 10:17:26



Trace: 130

Site : Shih-Chi : Conduction No.1(Gene)
Condition: CISPR CLASS-B(QP) LISN.N(16A) NEUTRAL
eut : E930846
power : AC 120V 60Hz
memo : Peak Value
: Final Test
: TX-CH4

Page: 1

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.169	41.72	-23.27	64.99	41.42	0.20	0.10	
2	0.235	39.50	-22.76	62.26	39.13	0.20	0.17	
3	0.379	35.49	-22.81	58.30	35.19	0.20	0.10	
4	0.890	26.51	-29.49	56.00	26.12	0.20	0.19	
5	1.037	22.98	-33.02	56.00	22.58	0.20	0.20	
6	1.338	22.10	-33.90	56.00	21.70	0.20	0.20	
7	4.224	16.41	-39.59	56.00	15.90	0.21	0.30	
8	6.557	17.78	-42.22	60.00	17.27	0.25	0.26	
9	14.288	14.92	-45.08	60.00	14.07	0.48	0.37	
10	17.383	14.63	-45.37	60.00	13.78	0.55	0.30	

14. Radiated Emissions Test Setup Photos

< FRONT VIEW >

< REAR VIEW >

15. Radiated Emissions Test Data

15.1 Field Strength of Fundamental and Harmonics Test Data

Model No. : GA-253
Frequency range : 30MHz to 1GHz Detector : Quasi-Peak Value
Temperature : 28° C Humidity : 55 %
Memo : TX ON MODE

Antenna polarization : HORIZONTAL ; Test distance : 3m ;

Freq. (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Azimuth (°angle)	Antenna High(m)
74.010	26.68	-13.32	40.00	28.02	5.98	1.11	8.43	132.0	4.0
210.090	25.47	-18.03	43.50	29.28	7.87	2.01	13.69	170.0	4.0
260.850	26.65	-19.35	46.00	27.87	13.13	2.29	16.64	199.0	4.0
559.000	36.34	- 9.66	46.00	32.30	18.80	3.24	18.00	220.0	1.3
699.700	37.35	- 3.65	46.00	28.82	19.31	3.96	14.74	273.0	1.5
950.300	36.30	- 9.70	46.00	26.57	20.76	4.47	15.50	249.0	1.5

Note :

1. Level = Read Level + Probe Factor + Cable Loss – Preamp Factor
2. Over Limit = Level – Limit Line

Model No. : GA-253
Frequency range : 30MHz to 1GHz **Detector : Quasi-Peak Value**
Temperature : 28° C **Humidity : 55 %**
Memo : TX ON MODE

Antenna polarization : VERTICAL ; Test distance : 3m ;

Freq. (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Azimuth (°angle)	Antenna High(m)
71.850	29.47	-10.53	40.00	27.77	5.65	1.09	5.04	90.0	1.0
129.900	32.79	-10.71	43.50	32.30	11.28	1.45	12.24	150.0	1.0
196.050	27.87	-15.63	43.50	27.29	8.87	1.88	10.17	192.0	1.0
694.100	34.98	-11.02	46.00	27.91	19.00	3.93	15.86	270.0	1.5
750.100	35.19	-10.81	46.00	27.58	19.90	3.91	16.20	290.0	1.5
827.800	36.26	- 9.74	46.00	27.32	20.34	4.08	15.48	310.0	1.5

Note :

1. Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor
2. Over Limit = Level – Limit Line

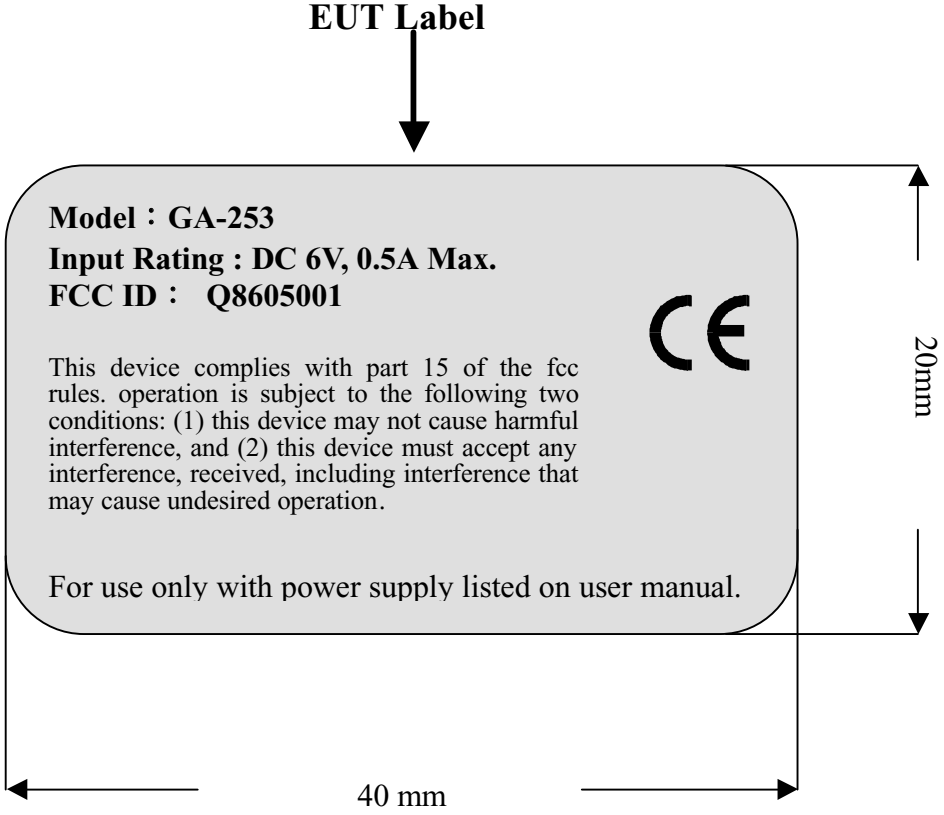
16. List of Measured Instruments

Test Mode	Instrument	Model No.	Serial No.	Next Cal. Date	Cal. Interval
Conduction (No.1)	R & S Receiver	ESHS10	830223/008	May 22, 2005	1Year
	Rolf Heine LISN	NNB-4/63TL	98008	May 01, 2005	1Year
	R & S LISN	ESH3-Z5	844982/039	Aug. 06, 2005	1Year
	Spectrum Analyzer	R3261A	91720076	June 08, 2005	1Year
	RF Cable	Rg400	N/A	May 12, 2005	1Year
	Schaffner ISN	T411	N/A	June 29, 2005	1Year
Radiation (OP No.3)	R & S Receiver	ESBI	845658/003	July 27, 2005	1Year
	Schaffner Pre-Amp.	CPA-9232	1012	Aug. 19, 2005	1Year
	SCJWARZBECL Antenna	VULB9161	D-69250	May 19, 2005	1Year
	COM-Power Horn Ant.	AH-118 (1GHz~18GHz)	10095	May 25, 2005	1Year
	RF Cable	No.2	N/A	Feb. 19, 2006	1Year
	SCHWARZBECK Precision Dipole Ant.	VHAP (30MHz~1GHz)	970+971 953+954	June 26, 2006	3Year
	R & S Signal Generator	SMY01	829846/038	Feb. 16, 2007	2Year
Radiation	R & S Receiver	ESVS30	863342/012	May 20, 2005	1Year
	R&S Spectrum	FSP7 (9K-7GHz)	830180/006	June 28, 2005	1Year
	R&S Spectrum	FSP30 (9K-30GHz)	100157	Aug, 27, 2005	1Year
	COM-Power Horn Ant.	AH-118 (1G-18GHz)	10056	May. 21, 2005	2Year
	EMCO ANTENNA	3142B (26M-2GHz)	9904-1307	Aug. 25, 2005	1Year
	Schaffner Antenna	CBL6112B (30M-2GHz)	2655	July 27, 2005	1Year
	Anritsu Pre-Amp.	MH648A	M15080	Apr. 10, 2006	1Year
	MITEQ Pre-amplifier	JS4-00101800 (1G-18GHz)	513015	Nov. 26, 2007	3 Year
	Schmidt DC Power	EPS-3030SD (DC 0-30V)	E010001	Sep. 05, 2005	2 year
	Giant Force Humidity Chamber	GTH-225-20-S	MAB0103 -001	Feb. 28, 2006	1 year

17. FCC ID Label Sample

The sample label shown below shall be permanently affixed at a conspicuous location on the device, instruction manual or pamphlet supplied to the user and be readily visible to the purchaser at the time of purchase. However, when the device is so small wherein placement of the label with specified statement is not practicable, only the trade name, model number, and the FCC logo must be displayed on the device per Section §15.19 (b)(2).

EUT Label



18. Information To The User

For a Class B digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

Federal Communications Commission (FCC) Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures :

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver .
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected .
- Consult the dealer or an experienced radio / TV technician for help .

19. EUT External Photos

PHOTO. 1. EUT (TX and RX) FRONT VIEW

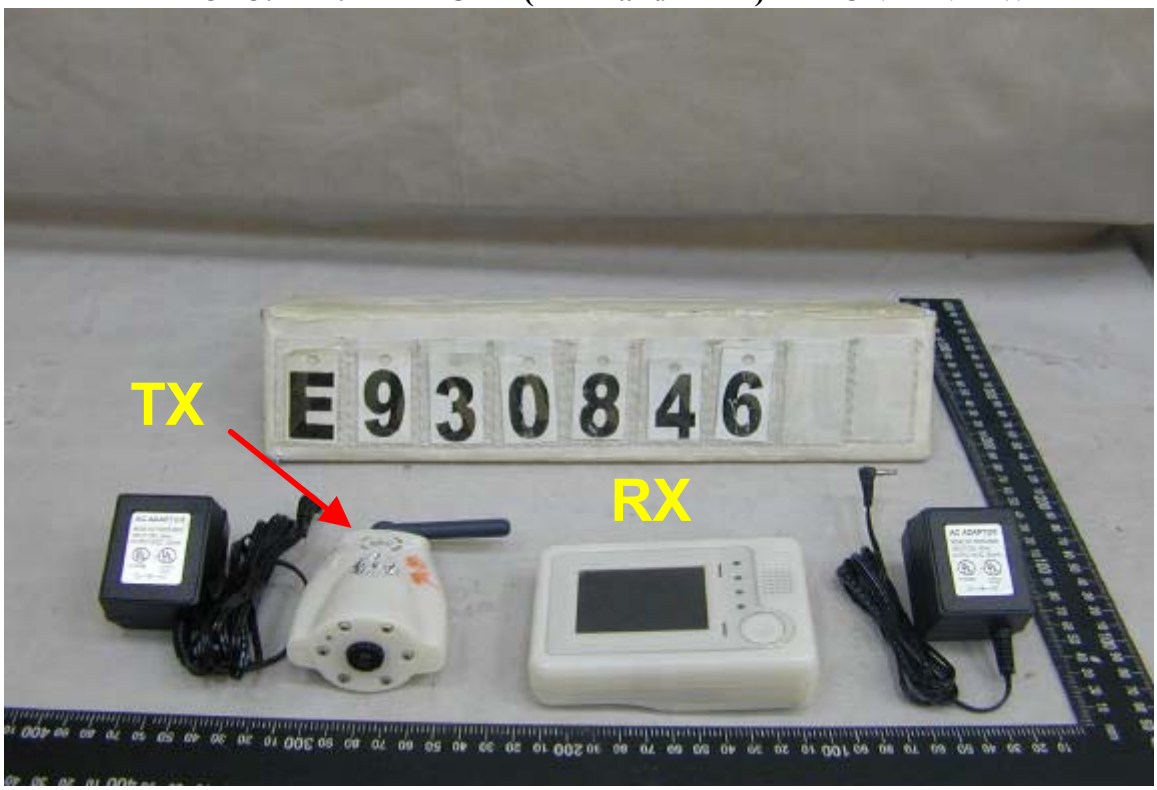


PHOTO. 2. EUT (TX and RX) REAR VIEW

PHOTO. 3. **EUT (TX) FRONT VIEW**

PHOTO. 4. **EUT (TX) REAR VIEW**

20. EUT Internal Photos

PHOTO. 5. EUT (TX) INSIDE VIEW

PHOTO. 6. EUT (TX) COMPONENT SIDE VIEW

PHOTO. 7. **EUT (TX) SOLDERING SIDE VIEW**

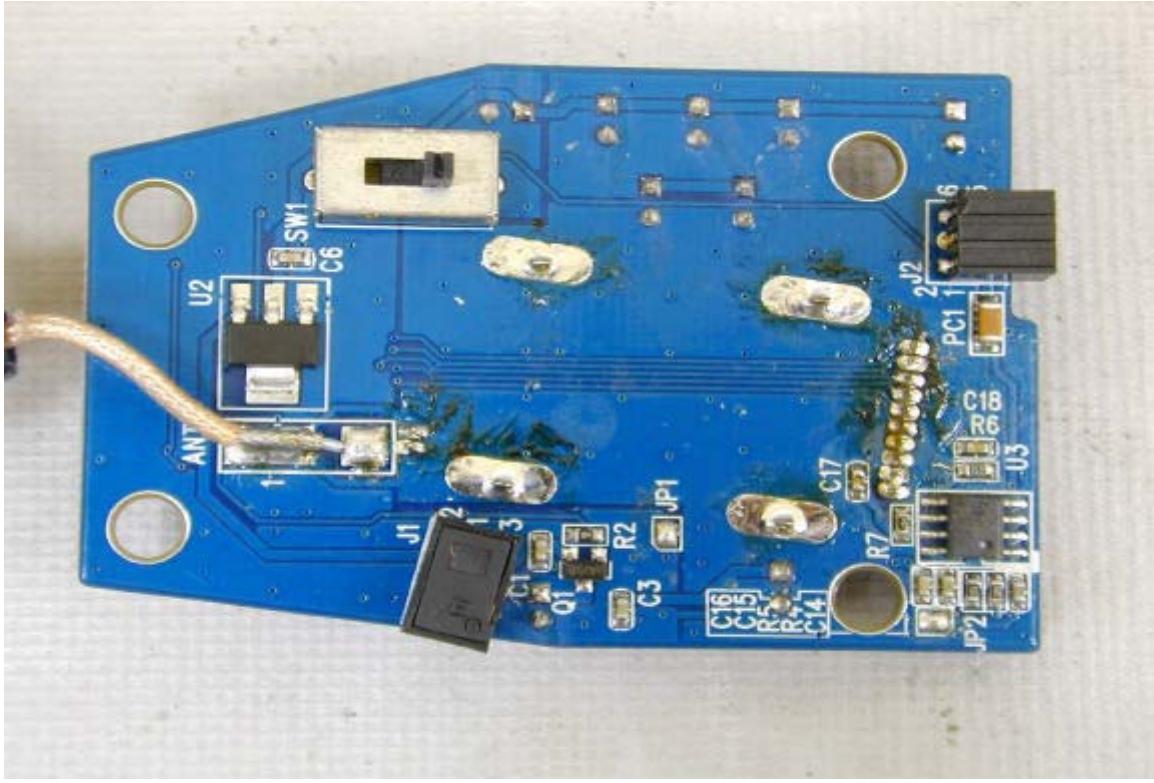


PHOTO. 8. **EUT (TX) COMPONENT SIDE VIEW**

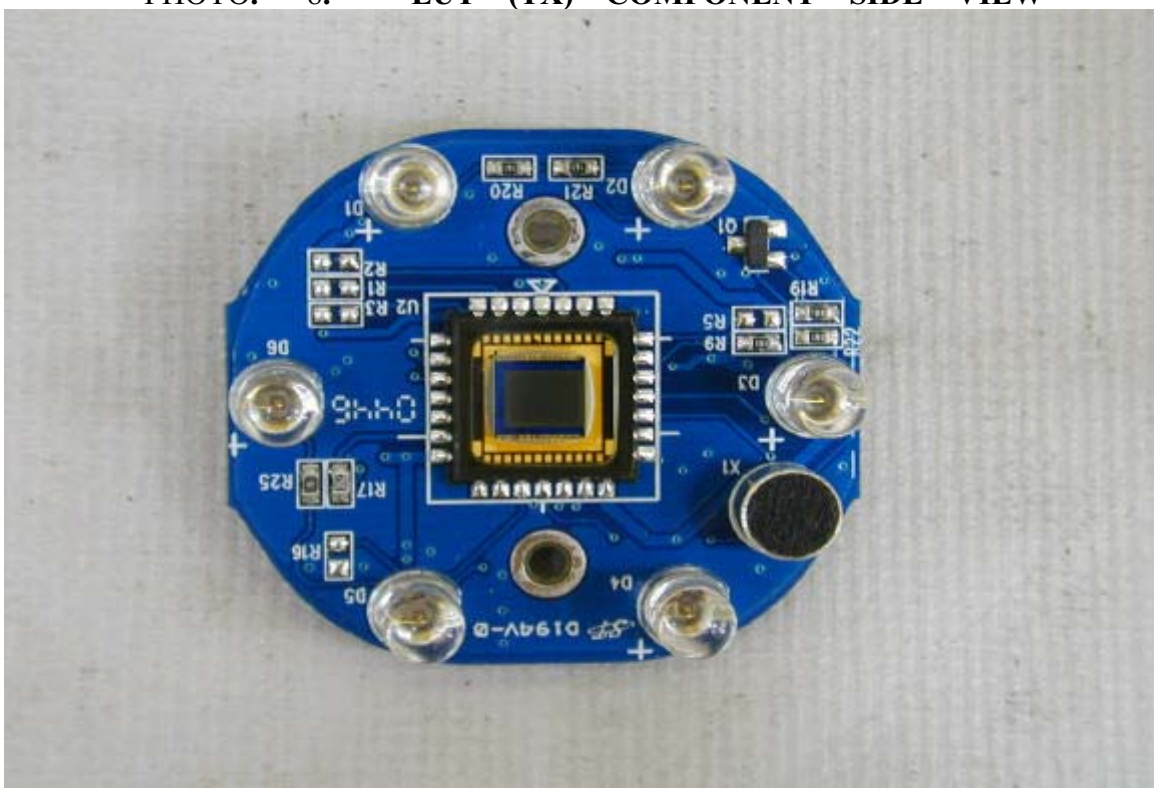
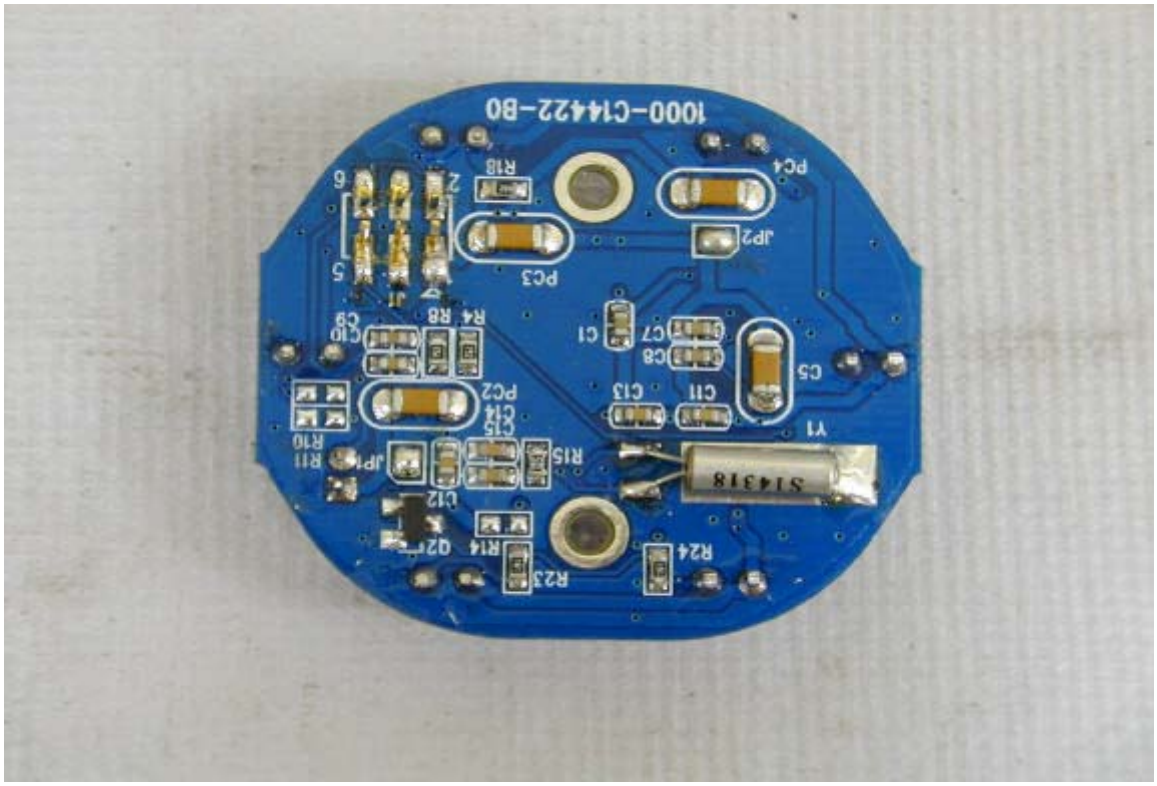



PHOTO. 9. **EUT (TX) COMPONENT SIDE VIEW**