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ELECTROMAGNETIC EMISSIONS TEST REPORT

ACCORDING TO FCC CFR 47 PART 18 SUBPART C

for

EPILADY L.L.C.

EQUIPMENT UNDER TEST:

Electrolysis Tweezers

ME 510-00

Hermon Laboratories Ltd.
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Electrical

Description of equipment under test

Test items	Electrolysis tweezers
Manufacturer	Epilady 2000 L.L.C.
Types (Models)	**ME 510-00**
Receipt date	December 5, 1999

Applicant information

Applicant's responsible person	Mr. Aharon Nechushtan
Company	Epilady 2000 L.L.C.
Address	Kibbutz Hagoshrim, D.N. Upper Galilee
Postal code	12225
Country	Israel
Telephone number	+972 6695 6242
Telefax number	+972 6695 6222

Test performance

Project Number:	13814
Location	Hermon Laboratories
Test started	December 5, 1999
Test completed	January 3, 2000
Purpose of test	Apparatus verification in accordance with FCC part 18 requirements
Test specification(s)	FCC part 18

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1 Summary and signatures

The EUT, electrolysis tweezers, were found to comply with the limits of FCC part 18.

Test performed by:

Mrs. Eleonora Pitt, test engineer _____

Test report prepared by:

Mr. Alex Lik, certification engineer _____

Test report approved by:

Mr. Alex Usoskin, QA manager _____

The A2LA logo endorsement applies only to the test methods and the standards that are listed in the scope of Hermon Laboratories accreditation by A2LA.
Through this report a point is used as the decimal separator, while thousands are counted with a comma.
This report is in conformity with EN 45001 and ISO GUIDE 25.
The test results relate only to the items tested.

2 General information

2.1 Abbreviations and acronyms

The following abbreviations and acronyms are applicable to this test report:

AC	alternating current
cm	centimeter
CE	conducted emissions
dB	decibel
dBm	decibel referred to one milliwatt
dB(μV)	decibel referred to one microvolt
dB(μV/m)	decibel referred to one microvolt per meter
DC	direct current
EMC	electromagnetic compatibility
EUT	equipment under test
GHz	gigahertz
H	height
Hz	hertz
kHz	kilohertz
kV	kilovolt
L	length
LISN	line impedance stabilization network
m	meter
MHz	megahertz
NA	not applicable
NARTE	National Association of Radio and Telecommunications Engineers, Inc.
PC	personal computer
QP	quasi-peak (detector)
RE	radiated emission
RMS	root-mean-square
sec	second
V	volt
W	width

2.2 Specification references

CFR 47, part 18, Subpart C: 10/1998	Industrial Scientific and Medical Equipment, Subpart C.
ANSI C63.2:06/1996	American National Standard for Instrumentation-Electromagnetic Noise and Field Strength, 10 kHz to 40 GHz-Specifications.
ANSI C63.4:1992	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.

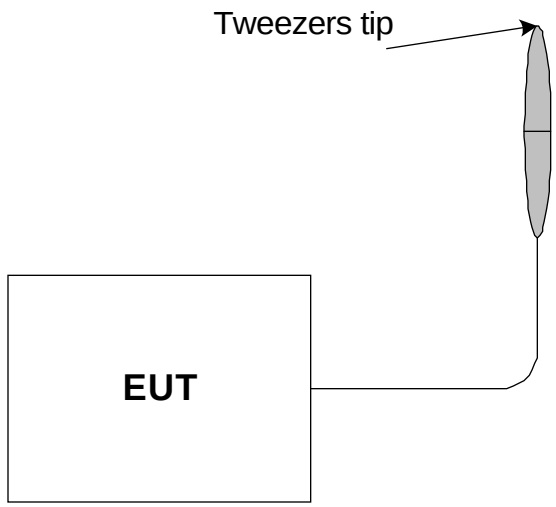
2.3 EUT description

The EUT, TweezEpil, model ME 510-00 is electronic tweezers fed with four 1.5 V batteries and designed for painless and long lasting hair removal by means of transmission of radio waves through the hair to the root, dissolving it by electrolysis and hereby destroying the hair's root.

2.4 EUT test configuration

For full test configuration refer to Figure 2.4.1.

Figure 2.4.1
EUT test configuration



3 Test facility description

3.1 General

Tests were performed at Hermon Laboratories, which is a fully independent, private EMC, Safety and Telecommunication testing facility. Hermon Laboratories is listed by the Federal Communications Commission (USA) for all parts of Code of Federal Regulations 47 (CFR 47) and by Industry Canada for radiated measurements (file numbers IC 2186-1 for OATS and IC 2186-2 for anechoic chamber), certified by VCCI, Japan (the registration numbers are R-808 for OATS, R-809 for anechoic chamber, C-845 for conducted emissions site), assessed by NMi Certin B.V. (Netherlands) for a number of EMC, Telecommunications, Safety standards, and assessed by AMTAC (UK) for safety of Medical Devices. The laboratory is accredited by American Association for Laboratory Accreditation (USA) according to ISO GUIDE 25/EN 45001 for EMC, Telecommunications and Product Safety Information Technology Equipment (Certificate No. 839.01).

Address: PO Box 23, Binyamina 30550, Israel
Telephone: +972 6628 8001
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Person for contact: Mr. Alex Usoskin, testing and QA manager.

3.2 Equipment calibration

The test equipment has been calibrated according to its recommended procedures and is within the manufacturer's published limit of error. The standards and instruments used in the calibration system conform to the present requirements of MIL-STD-45662A.
The laboratory standards are calibrated by the third party (traceable to NIST, USA) on a regular basis according to equipment manufacturer requirements.

3.2.1 Expanded uncertainty at 95% confidence in Hermon Labs EMC measurements

Radiated emissions in the anechoic chamber at 3 m measuring distance	Biconilog antenna: ±3.2 dB

3.3 Statement of qualification

The test measurement data supplied in this test measurement report having been received by me, is hereby duly certified. The following is a statement of my qualifications:
I am an engineer, graduated from university in 1974 with an M. Sc. EE degree and certified by NARTE as an EMC accredited test laboratory engineer, the certificate No. is ATL–0006–E.
I have obtained 26 years experience in EMC measurements and have been with Hermon Laboratories since 1991.

Name: Mrs. Eleonora Pitt Signature: _____
Position: test engineer Date: January 6, 2000

I hereby certify that this test measurement report was prepared by me and is hereby duly certified. The following is a statement of my qualifications.
I graduated from college in 1993 and have obtained 7 years' experience in technical documentation processing.
I have been with Hermon Laboratories since 1998

Name: Mr. Alex Lik Signature: _____
Position: certification engineer Date: January 6, 2000

4 Test procedures and results

4.1 Radiated emission measurements

4.1.1 General

The EUT was tested in order to verify the following parameters:

1. Operating frequency: 27.12 MHz ± 163 kHz
2. Field strength of emissions outside the permitted range
3. Field strength of emissions within the permitted range

The tests were performed according to FCC, § 18.301; § 18.305 (a), (b).

4.1.2 Test procedure

The EUT was set up on the wooden turntable as shown in Figure 4.1.1 and Photographs 4.1.1 – 4.1.3. For the EUT test configuration refer to Figure 2.4.1.

The measurements were performed in the anechoic chamber 3-meter test distance.

Frequency range from 9 kHz to 1 GHz was investigated with biconilog and loop antennas.

To find maximum radiation the EUT was rotated 360°, the biconilog antenna height varied from 1 to 4 m, the cable was moved and the biconilog antenna polarization was changed from vertical to horizontal and loop antenna was rotated 360°

The limit for 3 m test distance was calculated as follows:

For frequency range 9 kHz – 30 MHz: $E_{Lim\ @3m} = E_{Lim\ @300m} + 40 Log {}^{300}/_{3}$;

For frequency range 30 MHz – 1 GHz: $E_{Lim\ @3m} = E_{Lim\ @300m} + 20 Log {}^{300}/_{3}$.

$E_{Lim\ @300m}$= 25 V/m = 28 dB(V/m); hence:

$E_{Lim\ @3m}$ = 108 dB(V/m) for frequency range 9 kHz – 30 MHz;

$E_{Lim\ @3m}$ = 68 dB(V/m) for frequency range 30 MHz – 1 GHz.

The test results are shown in plots 4.1.1 – 4.1.4.

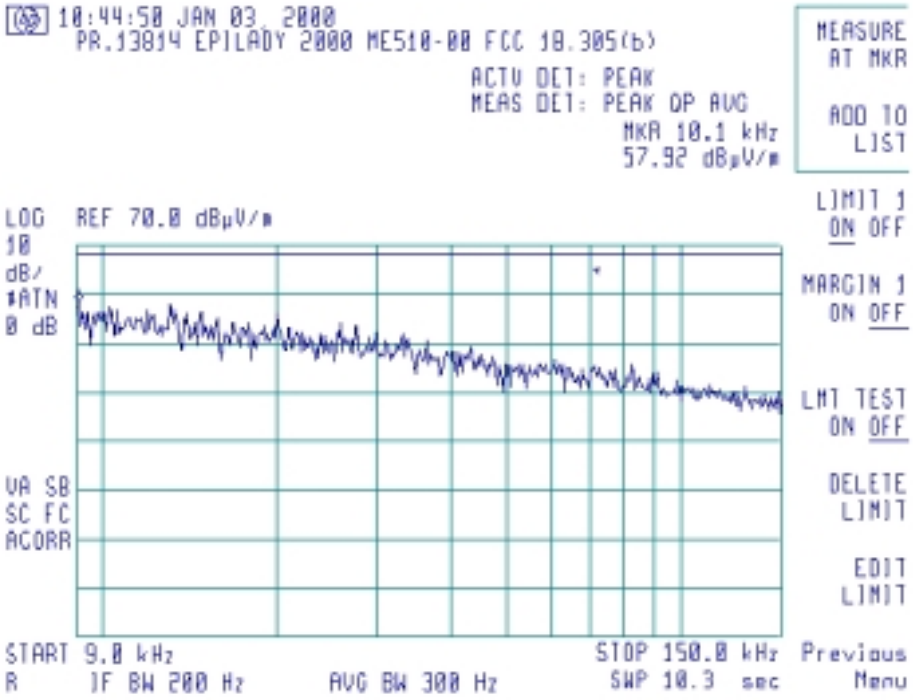
The EUT was found to comply with the standard requirements and successfully passed the test. Upon this the test was completed.

Reference numbers of test equipment used

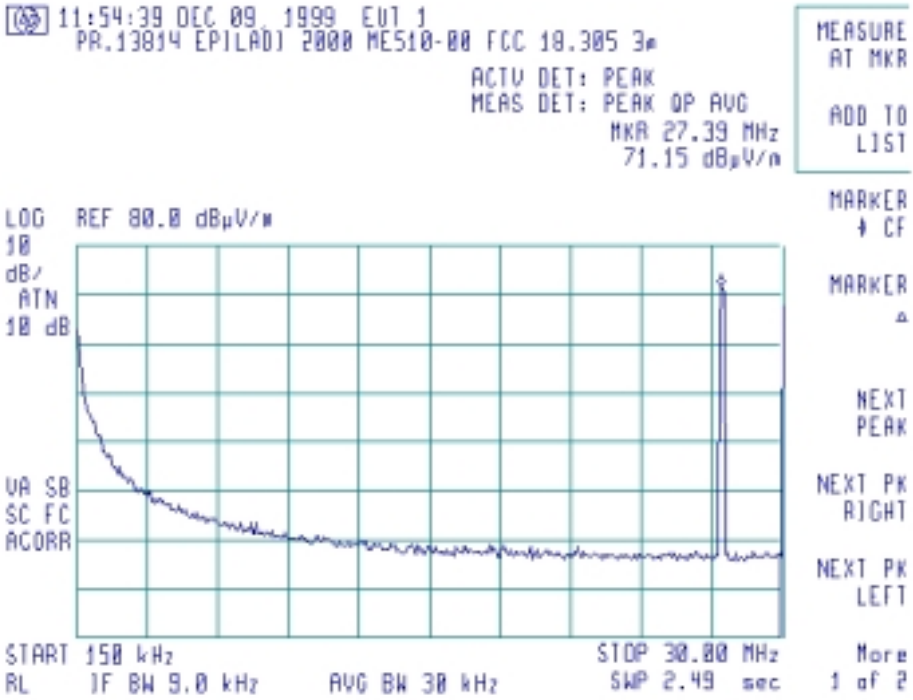
HL 0446	HL 0465	HL 0521	HL 0589	HL 0593	HL 0594	HL 0604

Full description is in Appendix A.

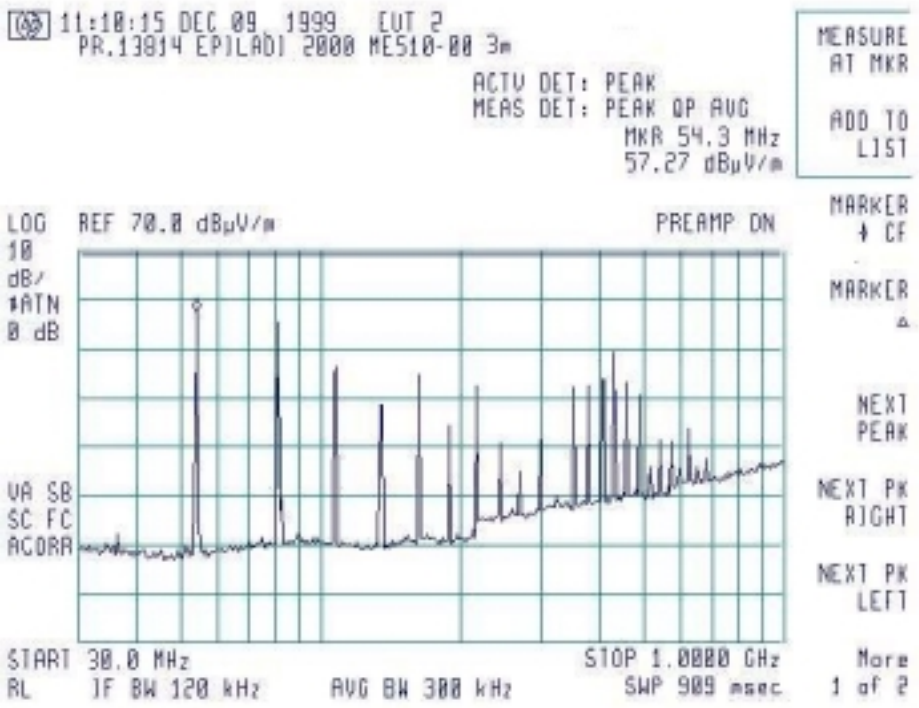
Plot 4.1.1 Radiated emissions at 9 kHz – 150 kHz



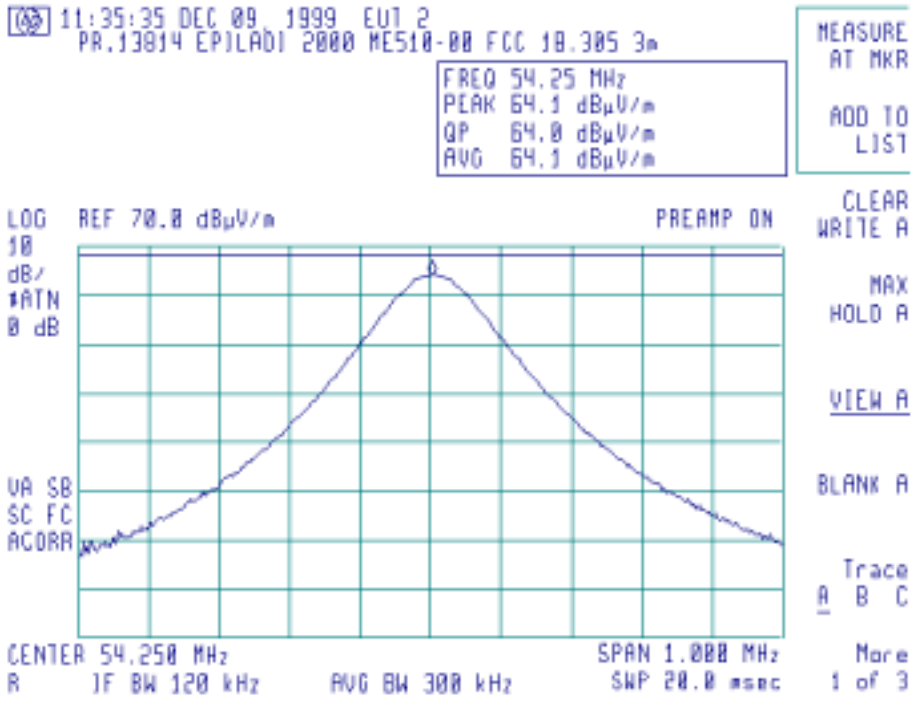
Plot 4.1.2 Radiated emissions at 150 kHz – 30 MHz



Plot 4.1.3 Radiated emissions at 30 MHz – 1 GHz



Plot 4.1.4 The worst case harmonic



Photograph 4.1.5 Operating frequency

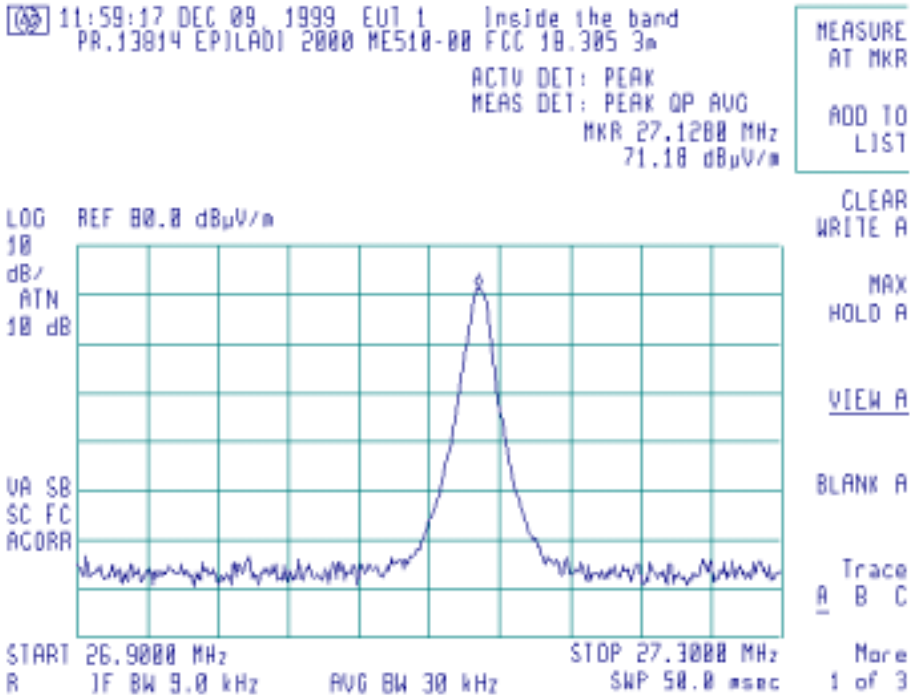
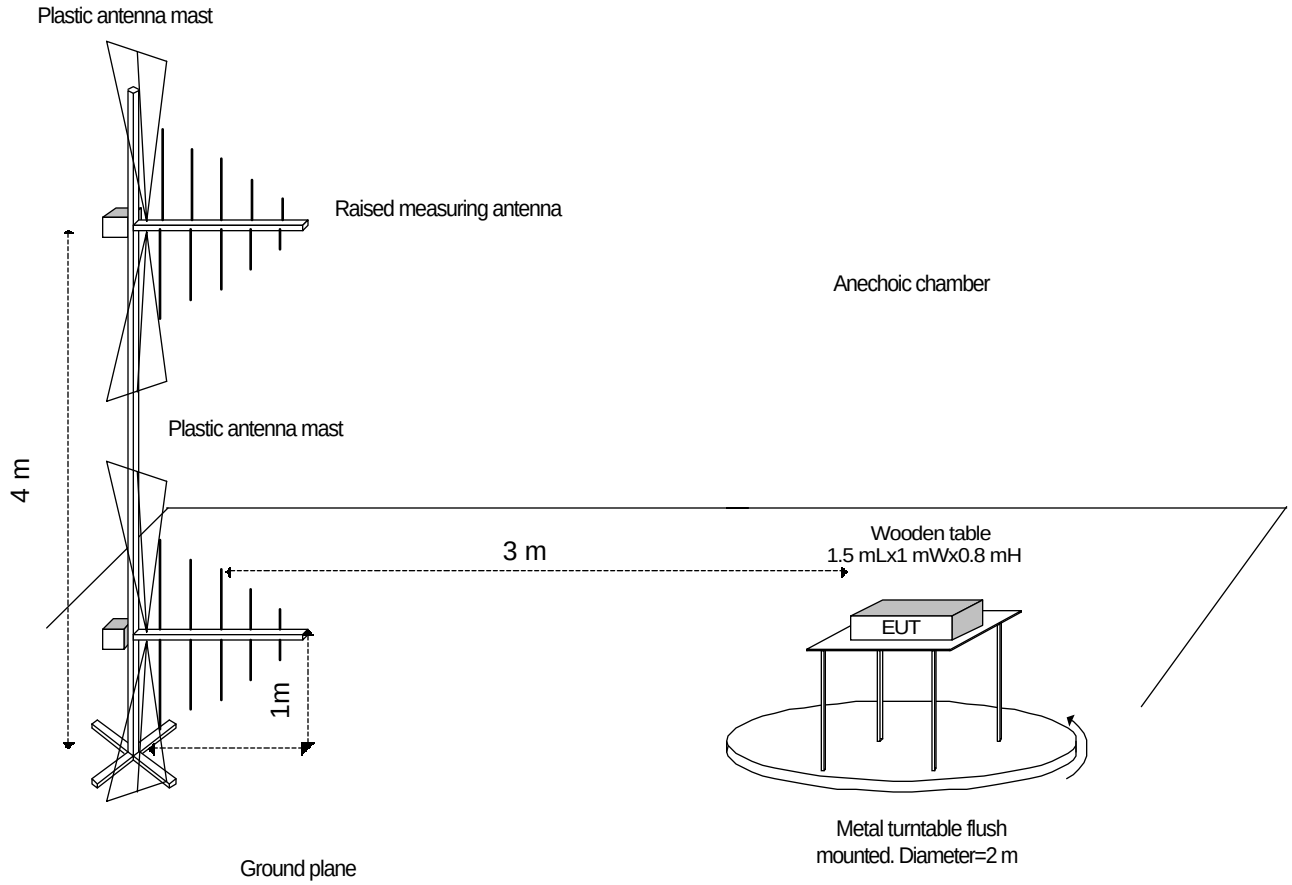
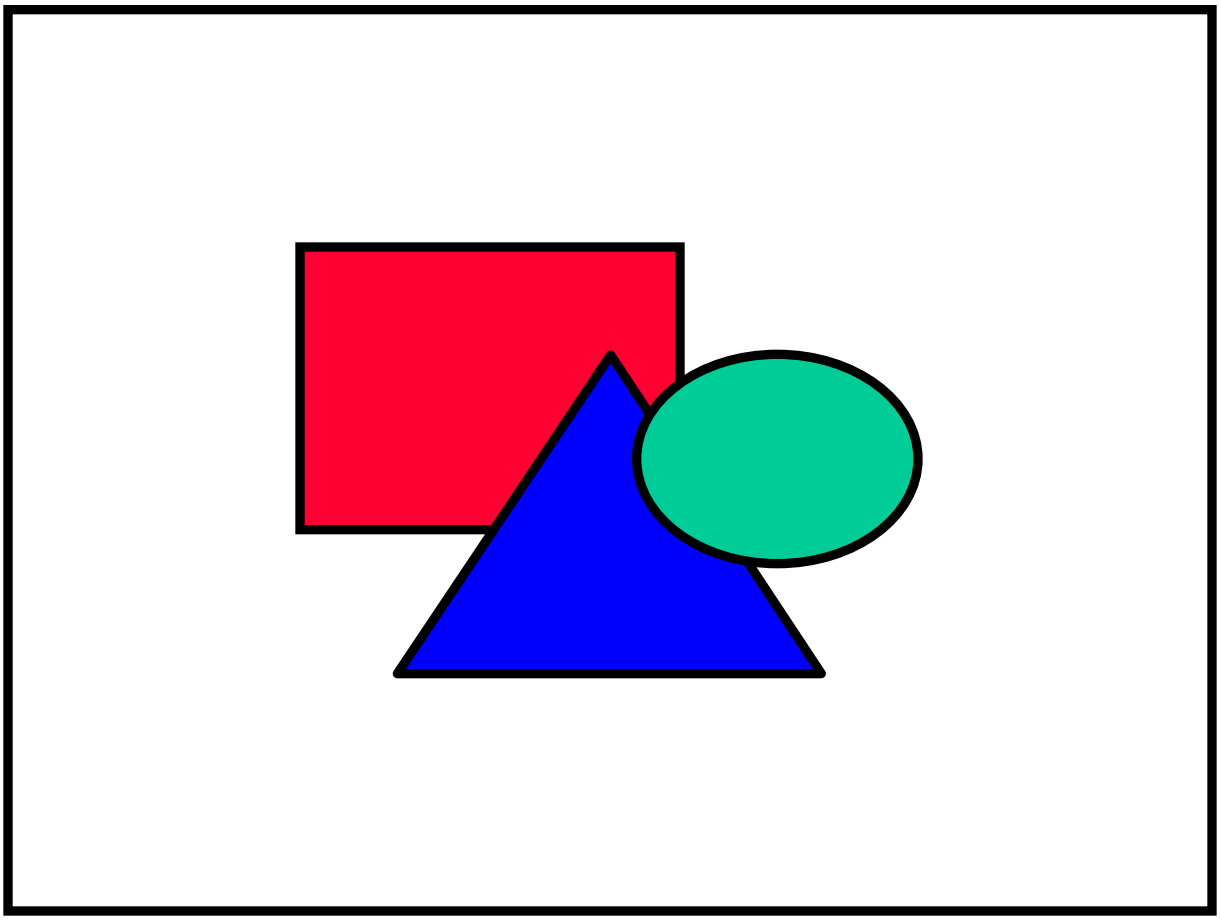


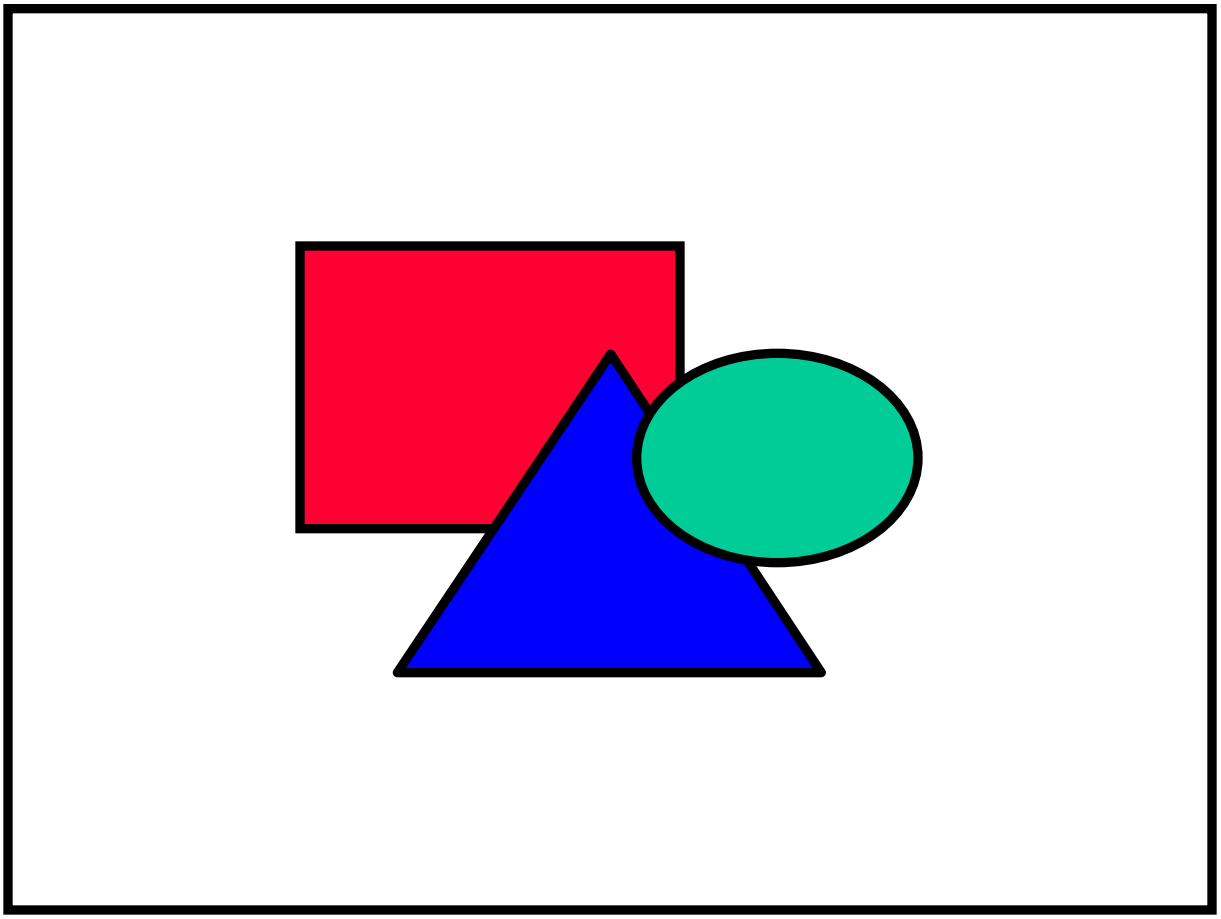
Figure 4.1.1
Radiated emissions test setup for table-top equipment in the anechoic chamber



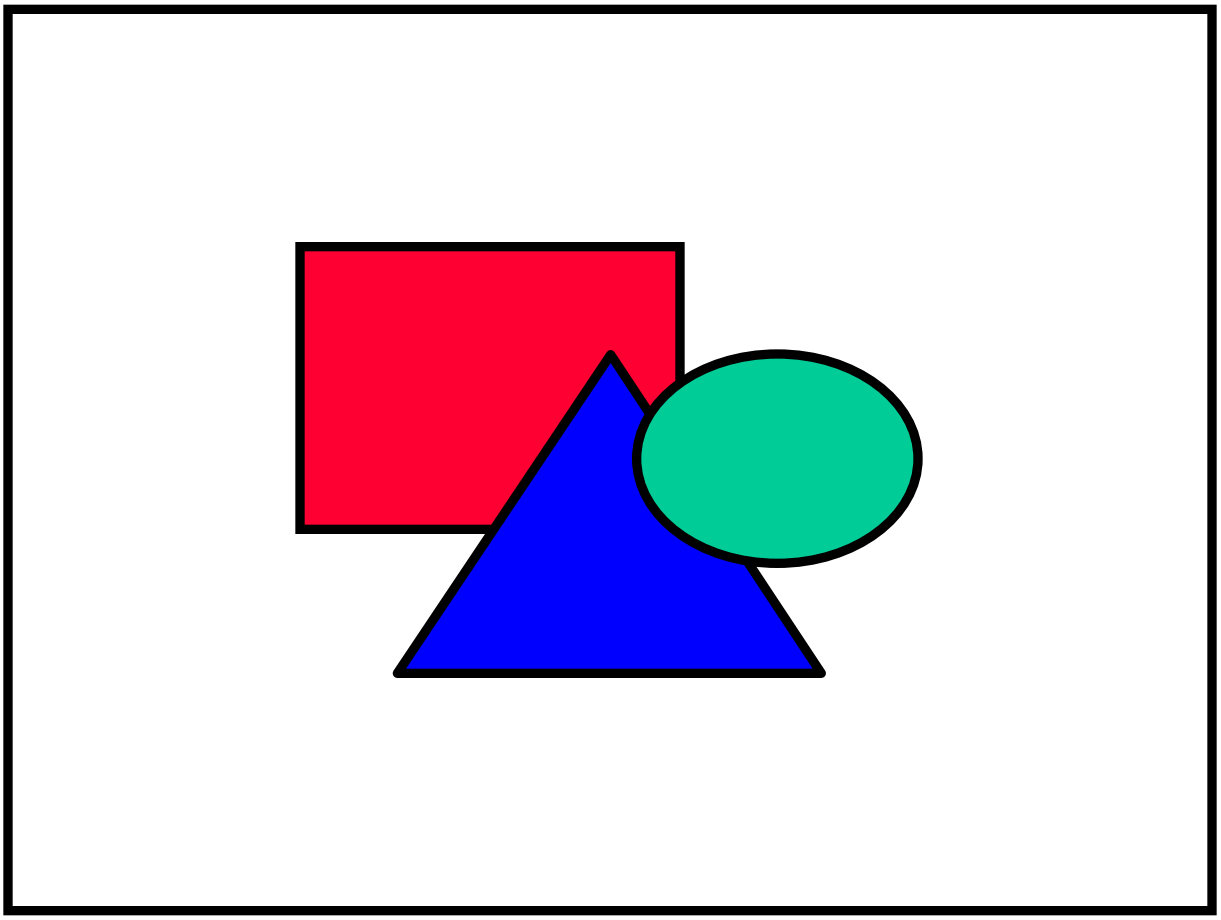
Photograph 4.1.1
Setup for radiated emission measurements at 9 kHz – 30 MHz



Photograph 4.1.2
Setup for radiated emission measurements at 30 MHz – 1 GHz



Photograph 4.1.3
Setup for radiated emission measurements at 150 kHz – 1 GHz



APPENDIX A – Test equipment and ancillaries used for tests

HL Serial No.	Serial No.	Description	Manufacturer	Model No.	Due Calibration
0446	2857	Active Loop Antenna 10 kHz-30 MHz	Electro-Mechanics	6502	11/00
0465	023	Anechoic Chamber 9 (L) x 6.5 (W) x 5.5 (H) m	Hermon Labs	AC-1	3/00
0521	0319	Spectrum Analyzer with RF filter section (EMI Receiver 9 kHz – 6.5 GHz)	Hewlett Packard	8546A	7/00
0589	589	Cable Coaxial, GORE A2POL118.2, 3m	Hermon Labs	GORE-3	11/00
0593	101	Antenna Mast, 1-4 m/ 1-6 m Pneumatic	Hermon Labs	AM-F1	2/00
0594	102	Turntable for Anechoic Chamber, flush mounted, d=1.2 m, pneumatic	Hermon Labs	WDC1	11/00
0604	9611-1011	Antenna Biconilog Log-Periodic/T Bow-Tie, 26 – 2000 MHz	EMCO	3141	7/00

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APPENDIX B-Test equipment correction factors

Antenna factor
Biconilog antenna EMCO, model 3141
Ser.No.1011

Frequency, MHz	Antenna Factor, dB(1/m)	Frequency, MHz	Antenna Factor, dB(1/m)
26	7.8	940	24.0
28	7.8	960	24.1
30	7.8	980	24.5
40	7.2	1000	24.9
60	7.1	1020	25.0
70	8.5	1040	25.2
80	9.4	1060	25.4
90	9.8	1080	25.6
100	9.7	1100	25.7
110	9.3	1120	26.0
120	8.8	1140	26.4
130	8.7	1160	27.0
140	9.2	1180	27.0
150	9.8	1200	26.7
160	10.2	1220	26.5
170	10.4	1240	26.5
180	10.4	1260	26.5
190	10.3	1280	26.6
200	10.6	1300	27.0
220	11.6	1320	27.8
240	12.4	1340	28.3
260	12.8	1360	28.2
280	13.7	1380	27.9
300	14.7	1400	27.9
320	15.2	1420	27.9
340	15.4	1440	27.8
360	16.1	1460	27.8
380	16.4	1480	28.0
400	16.6	1500	28.5
420	16.7	1520	28.9
440	17.0	1540	29.6
460	17.7	1560	29.8
480	18.1	1580	29.6
500	18.5	1600	29.5
520	19.1	1620	29.3
540	19.5	1640	29.2
560	19.8	1660	29.4
580	20.6	1680	29.6
600	21.3	1700	29.8
620	21.5	1720	30.3
640	21.2	1740	30.8
660	21.4	1760	31.1
680	21.9	1780	31.0
700	22.2	1800	30.9
720	22.2	1820	30.7
740	22.1	1840	30.6
760	22.3	1860	30.6
780	22.6	1880	30.6
800	22.7	1900	30.6
820	22.9	1920	30.7
840	23.1	1940	30.9
860	23.4	1960	31.2
880	23.8	1980	31.6
900	24.1	2000	32.0
920	24.1		

Antenna factor is to be added to receiver meter reading in dB(μV) to convert to field intensity in dB(μV/meter).

Antenna factor
Active loop antenna
Electro-Mechanics, s/n 2857