

TEST REPORT

ACCORDING TO: FCC CFR 47 PART 15 subpart B

FOR:

Pro4Tech Ltd.

Digital camcorder pen

Brand name: NanoPen

Model: MVC103P

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1 Applicant information

Client name: Pro4Tech Ltd.
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Telephone: +972 4959 0081
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Contact name: Mr. Yaniv Ben Yohana

2 Equipment under test attributes

Product name: Digital camcorder pen
Product type: Transceiver
Band name: NanoPen
Model(s): MVC103P
Serial number: NP-3510
Receipt date 3/5/2009

3 Manufacturer information

Manufacturer name: Pro4Tech Ltd.
Address: Kochav-Yokneam Bldg. 5th fl., P.O.Box 607, Yokneam 20692, Israel
Telephone: +972 4959 0081
Fax: +972 4989 0480
E-Mail: yaniv@pro4tech.com
Contact name: Mr. Yaniv Ben Yohana




4 Test details

Project ID: 19509
Location: Hermon Laboratories Ltd. Harakevet Industrial Zone, Binyamina 30500, Israel
Test started: 3/10/2009
Test completed: 6/25/2009
Test specification(s): FCC Part 15 subpart B, §15.107, §15.109

5 Tests summary

Test	Status
Unintentional emissions	
Section 15.107, Conducted emission	Pass
Section 15.109, Radiated emission	Pass

Testing was completed against all relevant requirements of the test standard. The results obtained indicate that the product under test complies in full with the requirements tested.
The test results relate only to the items tested. Pass/ fail decision was based on nominal values.

	Name and Title	Date	Signature
Tested by:	Mr. V. Shmelkin, test engineer	June 25, 2009	
Reviewed by:	Mrs. M. Cherniavsky, certification engineer	June 28, 2009	
Approved by:	Mr. M. Nikishin, EMC and radio group manager	June 28, 2009	

6 EUT description

6.1 General information

The EUT, Nanopen, is a part of the surveillance product for the private market. The product is a self-contained covert digital camcorder concealed inside a fully functioning standard profile ballpoint pen. It consists of two units - remote control and a pen. The pen can be connected to a PC for video downloading purposes.

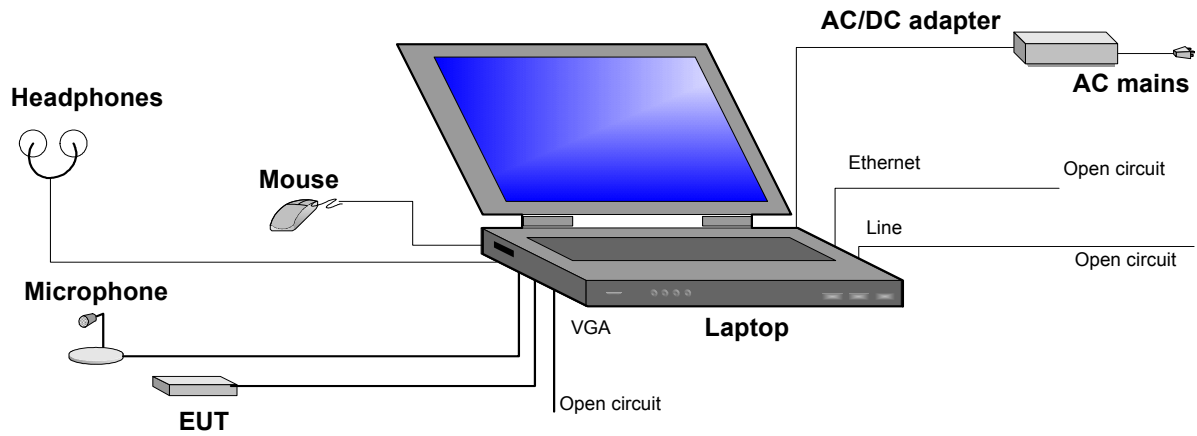
6.2 Ports and lines

Port type	Port description	Conn. from	Conn. to	Qty.	Cable type	Cable length	Indoor / outdoor
Power	AC Power	AC/DC adaptor	AC mains	1	Unshielded	0.9 m	Indoor
Power	DC Power	Laptop	AC/DC adaptor	1	Unshielded	1.9 m	Indoor
Telecom	Line	Laptop	Open circuit	1	Unshielded	1.0 m	Indoor
Telecom	Ethernet	Laptop	Open circuit	1	Shielded	2.5 m	Indoor
Signal	Microphone	Laptop	Microphone	1	Unshielded	1.0 m	Indoor
Signal	Headphones	Laptop	Headphones	1	Unshielded	1.0 m	Indoor
Signal	Mouse	Laptop	Mouse	1	Shielded	1.5 m	Indoor
Signal	VGA	Laptop	Open circuit	1	Shielded	1.5 m	Indoor
Signal	S video	Not in use	NA	1	Not in use		
Signal	USB	EUT	Laptop	1	Shielded	1.0 m	Indoor

6.3 Changes made in EUT

No changes were implemented in the EUT.

6.4 Test configurations





Test specification:		Section 15.107 Class B, AC power lines conducted emissions	
Test procedure:		ANSI C63.4, Section 11.5	
Test mode:		Compliance	Verdict: PASS
Date & Time:		6/25/2009 3:55:40 PM	
Temperature: 25.6 °C	Air Pressure: 1009 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

7 Emissions tests according to FCC 47CFR part 15 subpart B requirements

7.1 Conducted emissions

7.1.1 General

This test was performed to measure the common mode conducted emissions at the EUT power port. The specification test limits are given in Table 7.1.1.

Table 7.1.1 Limits for conducted emissions

Frequency, MHz	Class B limit, dB(μV)		Class A limit, dB(μV)	
	QP	AVRG	QP	AVRG
0.15 - 0.5	66 - 56*	56 - 46*	79	66
0.5 - 5.0	56	46	73	60
5.0 - 30	60	50	73	60

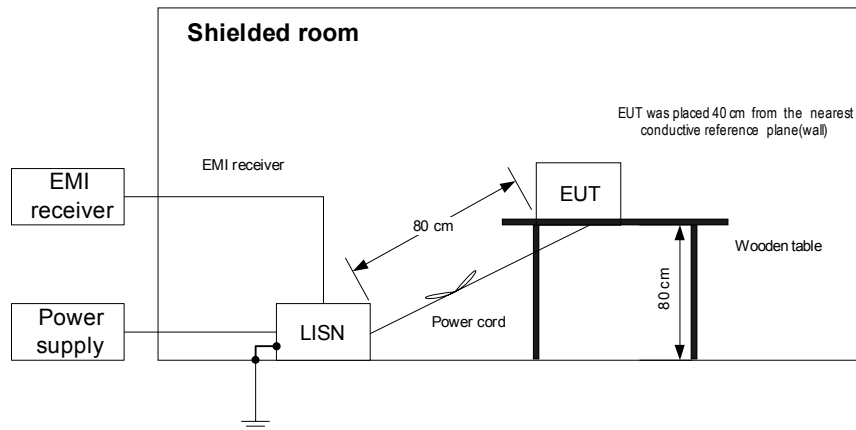
* - The limit decreases linearly with the logarithm of frequency.

7.1.2 Test procedure

- 7.1.2.1 The EUT was set up as shown in Figure 7.1.1 and the associated photograph, energized and the EUT performance was checked.
- 7.1.2.2 The measurements were performed at the EUT power terminals with the LISN connected to the EMI receiver in the frequency range referred to in Table 7.1.2. The unused coaxial connector of the LISN was terminated with 50 Ohm.
- 7.1.2.3 The position of the EUT cables was varied to find the highest emission.
- 7.1.2.4 The worst test results with respect to the limits were recorded in Table 7.1.2 and shown in the associated plots.

Test specification:		Section 15.107 Class B, AC power lines conducted emissions	
Test procedure:		ANSI C63.4, Section 11.5	
Test mode:		Compliance	Verdict: PASS
Date & Time:		6/25/2009 3:55:40 PM	
Temperature: 25.6 °C	Air Pressure: 1009 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Figure 7.1.1 Setup for conducted emission measurements, table-top EUT



Photograph 7.1.1 Setup for conducted emission measurements





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Test specification:		Section 15.107 Class B, AC power lines conducted emissions			
Test procedure:		ANSI C63.4, Section 11.5			
Test mode:		Compliance		Verdict: PASS	
Date & Time:		6/25/2009 3:55:40 PM			
Temperature: 25.6 °C	Air Pressure: 1009 hPa	Relative Humidity: 46 %		Power Supply: 120 VAC	
Remarks:					

Table 7.1.2 Conducted emission test results

LINE: AC mains
 EUT SET UP: TABLE-TOP
 TEST SITE: SHIELDED ROOM
 DETECTORS USED: PEAK / QUASI-PEAK / AVERAGE
 FREQUENCY RANGE: 150 kHz - 30 MHz
 RESOLUTION BANDWIDTH: 9 kHz

Frequency, MHz	Peak emission, dB(μV)	Quasi-peak			Average			Line ID	Verdict
		Measured emission, dB(μV)	Limit, dB(μV)	Margin, dB*	Measured emission, dB(μV)	Limit, dB(μV)	Margin, dB*		
0.150000	52.51	42.05	66.00	-23.95	15.65	56.00	-40.35	L1	Pass
0.174017	53.85	52.05	64.83	-12.78	41.00	54.83	-13.83		
0.227216	45.83	42.38	62.61	-20.23	24.82	52.61	-27.79		
3.894141	39.55	33.98	56.00	-22.02	19.45	46.00	-26.55		
4.053262	37.28	31.90	56.00	-24.10	16.47	46.00	-29.53		
0.150000	52.52	41.83	66.00	-24.17	14.77	56.00	-41.23	L2	Pass
0.172044	52.57	49.75	64.92	-15.17	39.29	54.92	-15.63		
0.228067	45.77	42.22	62.57	-20.35	30.01	52.57	-22.56		
1.974255	33.80	31.23	56.00	-24.77	19.69	46.00	-26.31		
3.701010	36.73	32.46	56.00	-23.54	17.26	46.00	-28.74		

*- Margin = Measured emission - specification limit.

Reference numbers of test equipment used

HL 0787	HL 1205	HL 1430	HL 1513	HL 2888	HL 3612		
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Full description is given in Appendix A.



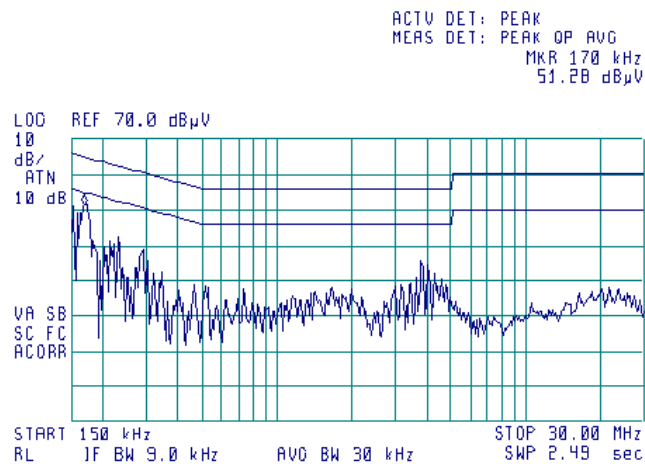
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Test specification:	Section 15.107 Class B, AC power lines conducted emissions		
Test procedure:	ANSI C63.4, Section 11.5		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	6/25/2009 3:55:40 PM		
Temperature: 25.6 °C	Air Pressure: 1009 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Plot 7.1.1 Conducted emission measurements

LINE: L1
LIMIT: QUASI-PEAK, AVERAGE
DETECTOR: PEAK

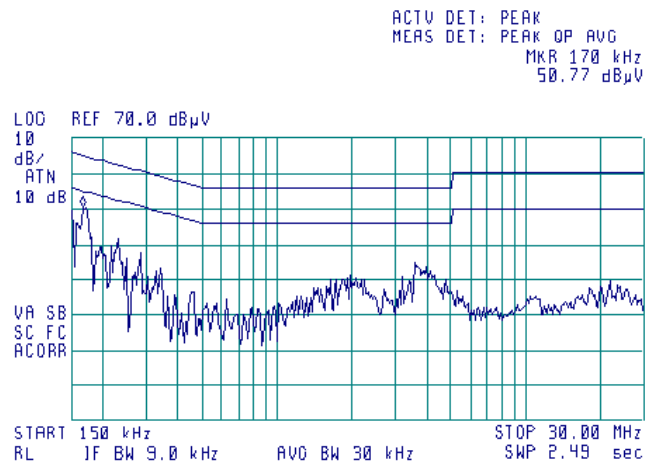
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Plot 7.1.2 Conducted emission measurements

LINE: L2
LIMIT: QUASI-PEAK, AVERAGE
DETECTOR: PEAK

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Test specification:		Section 15.109 Class B, Radiated emissions	
Test procedure:		ANSI C63.4, Section 11.6	
Test mode:		Compliance	Verdict: PASS
Date & Time:		6/25/2009 8:36:28 AM	
Temperature: 25.6 °C	Air Pressure: 1009 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

7.2 Radiated emission measurements

7.2.1 General

This test was performed to measure radiated emissions from the EUT enclosure. Specification test limits are given in Table 7.2.1.

Table 7.2.1 Radiated emission test limits

Frequency, MHz	Class B limit, dB(μV/m)		Class A limit, dB(μV/m)	
	10 m distance	3 m distance	10 m distance	3 m distance
30 - 88	29.5*	40.0	39.0	49.5*
88 - 216	33.0*	43.5	43.5	54.0*
216 - 960	35.5*	46.0	46.4	56.9*
Above 960	43.5*	54.0	49.5	60.0*

* The limit for test distance other than specified was calculated using the inverse linear distance extrapolation factor as follows: $\text{Lim}_{S_2} = \text{Lim}_{S_1} + 20 \log(S_1/S_2)$, where S_1 and S_2 – standard defined and test distance respectively in meters.

7.2.2 Test procedure

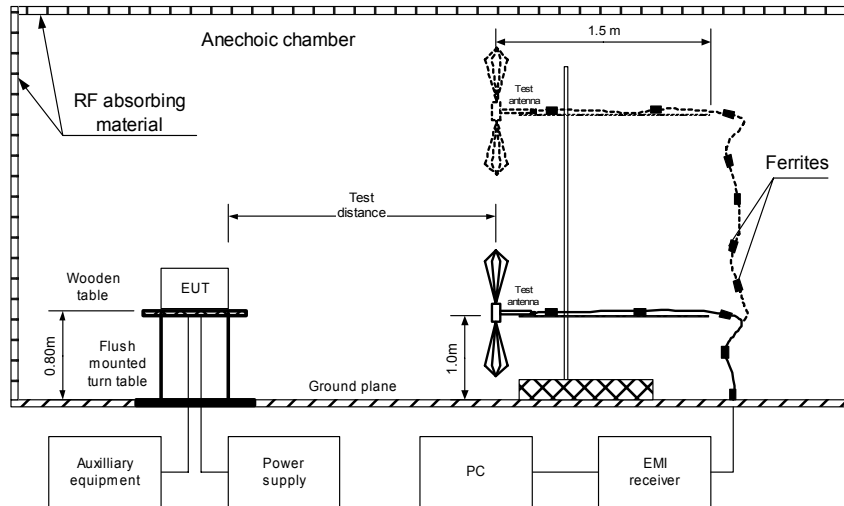
7.2.2.1 The EUT was set up as shown in Figure 7.2.1, energized and the performance check was conducted.

7.2.2.2 The specified frequency range was investigated with biconilog antenna connected to EMI receiver. To find maximum radiation the turntable was rotated 360°, the measuring antenna height was changed from 1 to 4 m, its polarization was switched from vertical to horizontal and the EUT cables position was varied.

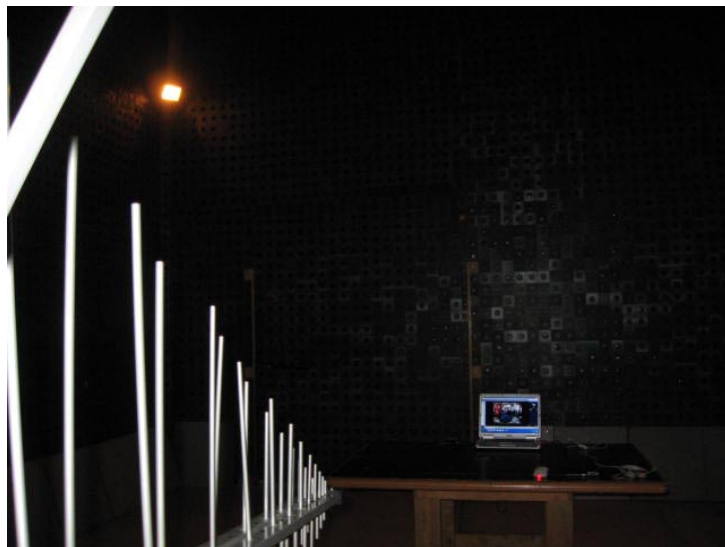
7.2.2.3 The worst test results (the lowest margins) were recorded in Table 7.2.2 and shown in the associated plots.

Test specification:		Section 15.109 Class B, Radiated emissions	
Test procedure:		ANSI C63.4, Section 11.6	
Test mode:		Compliance	Verdict: PASS
Date & Time:		6/25/2009 8:36:28 AM	
Temperature: 25.6 °C	Air Pressure: 1009 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Figure 7.2.1 Setup for radiated emission measurements in anechoic chamber, table-top equipment

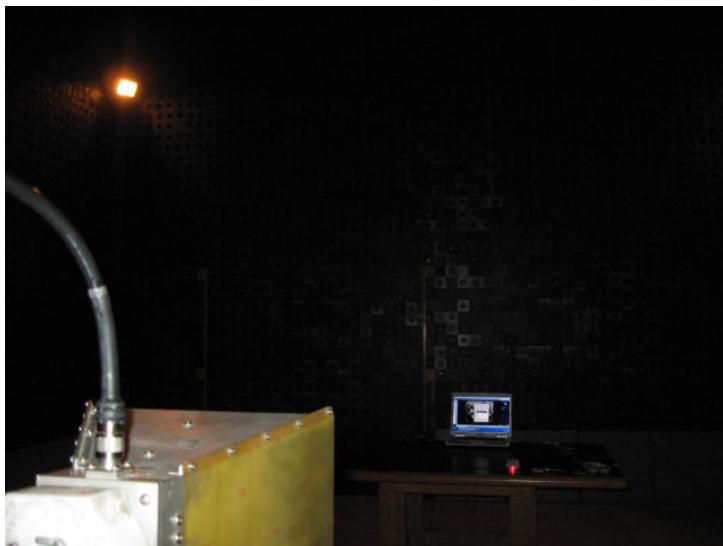


Photograph 7.2.1 Setup for radiated emission measurements in 30-1000 MHz



Test specification:		Section 15.109 Class B, Radiated emissions	
Test procedure:		ANSI C63.4, Section 11.6	
Test mode:		Compliance	Verdict: PASS
Date & Time:		6/25/2009 8:36:28 AM	
Temperature: 25.6 °C	Air Pressure: 1009 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Photograph 7.2.2 Setup for radiated emission measurements above 1 GHz

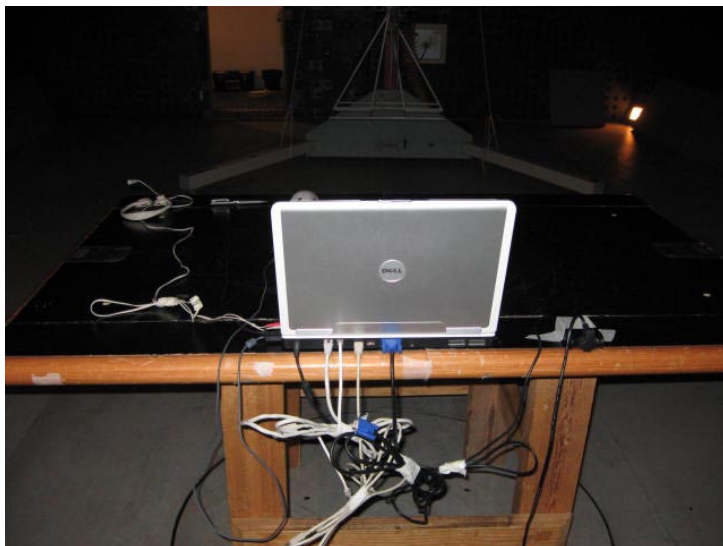


Photograph 7.2.3 Setup for final radiated emission measurements, EUT close view



Test specification:		Section 15.109 Class B, Radiated emissions	
Test procedure:		ANSI C63.4, Section 11.6	
Test mode:		Compliance	Verdict: PASS
Date & Time:		6/25/2009 8:36:28 AM	
Temperature: 25.6 °C	Air Pressure: 1009 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Photograph 7.2.4 Setup for final radiated emission measurements, EUT cabling





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Test specification:		Section 15.109 Class B, Radiated emissions			
Test procedure:		ANSI C63.4, Section 11.6			
Test mode:		Compliance		Verdict: PASS	
Date & Time:		6/25/2009 8:36:28 AM			
Temperature: 25.6 °C		Air Pressure: 1009 hPa		Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:					

Table 7.2.2 Radiated emission test results

EUT SET UP: TABLE-TOP
TEST SITE: SEMI ANECHOIC CHAMBER
TEST DISTANCE: 3 m
DETECTORS USED: PEAK / QUASI-PEAK
FREQUENCY RANGE: 30 MHz – 1000 MHz
RESOLUTION BANDWIDTH: 120 kHz

Frequency, MHz	Peak emission, dB(μV/m)	Measured emission, dB(μV/m)	Quasi-peak Limit, dB(μV/m)	Margin, dB*	Antenna polarization	Antenna height, m	Turn-table position**, degrees	Verdict
62.616750	41.33	38.38	40.00	-1.62	H	2.5	110	Pass
143.063750	39.91	36.54	43.50	-6.96	H	2.0	0	
170.082500	47.58	41.38	43.50	-2.12	H	1.8	260	
215.997500	44.52	40.79	43.50	-2.71	H	1.0	180	
239.995500	44.89	40.53	46.00	-5.47	H	1.0	175	
410.465000	38.57	35.73	46.00	-10.27	V	1.0	195	
829.567500	40.43	37.50	46.00	-8.50	V	1.1	90	

TEST SITE: SEMI ANECHOIC CHAMBER
TEST DISTANCE: 3 m
DETECTORS USED: PEAK / AVERAGE
FREQUENCY RANGE: 1000 MHz - 5000 MHz
RESOLUTION BANDWIDTH: 1000 kHz

Frequency, MHz	Peak			Average			Antenna polariz.	Antenna height, m	Turn-table position**, degrees	Verdict
	Measured emission, dB(μV/m)	Limit, dB(μV/m)	Margin, dB*	Measured emission, dB(μV/m)	Limit, dB(μV/m)	Margin, dB*				
1066.305000	54.31	74.00	-19.69	29.26	54.00	-24.74	V	1.5	195	Pass
1332.155000	55.22	74.00	-18.78	39.66	54.00	-14.34	V	1.2	270	
1592.475000	56.44	74.00	-17.56	30.50	54.00	-23.50	V	1.5	180	
2128.937500	52.73	74.00	-21.27	34.99	54.00	-19.01	V	1.7	265	

*- Margin = Measured emission - specification limit.

**- EUT front panel refers to 0 degrees position of turntable.

Reference numbers of test equipment used

HL 0521	HL 0604	HL 1205	HL 1984	HL 3121	HL 3509	HL 3616	
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Full description is given in Appendix A.



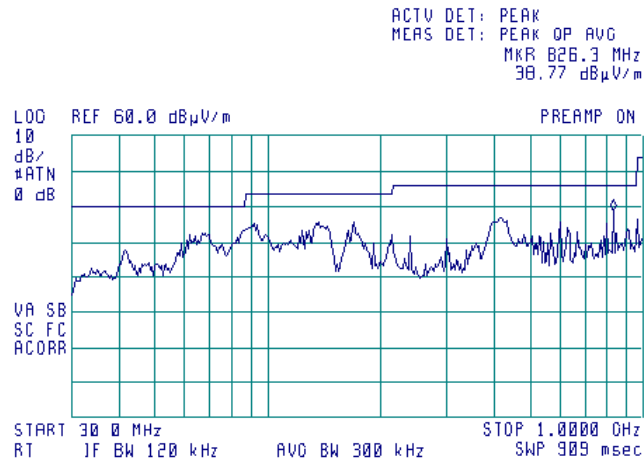
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Test specification:		Section 15.109 Class B, Radiated emissions	
Test procedure:		ANSI C63.4, Section 11.6	
Test mode:	Compliance	Verdict:	PASS
Date & Time:	6/25/2009 8:36:28 AM		
Temperature: 25.6 °C	Air Pressure: 1009 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Plot 7.2.1 Radiated emission measurements in 30 - 1000 MHz range, vertical antenna polarization

TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m

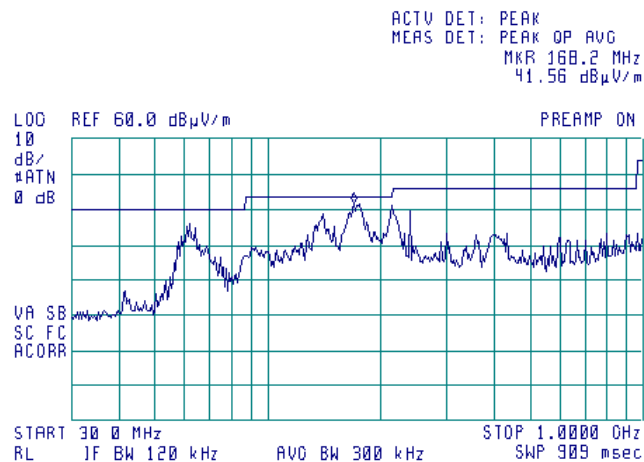
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Plot 7.2.2 Radiated emission measurements in 30 - 1000 MHz range, horizontal antenna polarization

TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m

12:25:44 JUN 25, 2009





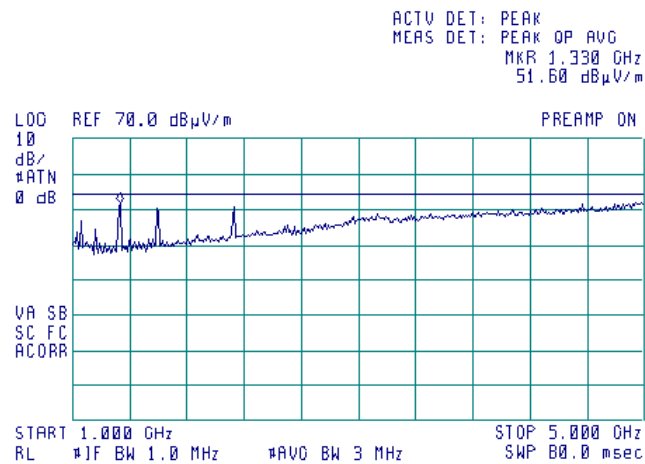
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Test specification:		Section 15.109 Class B, Radiated emissions	
Test procedure:		ANSI C63.4, Section 11.6	
Test mode:		Compliance	Verdict: PASS
Date & Time:		6/25/2009 8:36:28 AM	
Temperature: 25.6 °C	Air Pressure: 1009 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Plot 7.2.3 Radiated emission measurements in 1000 - 5000 MHz range, vertical antenna polarization

TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m

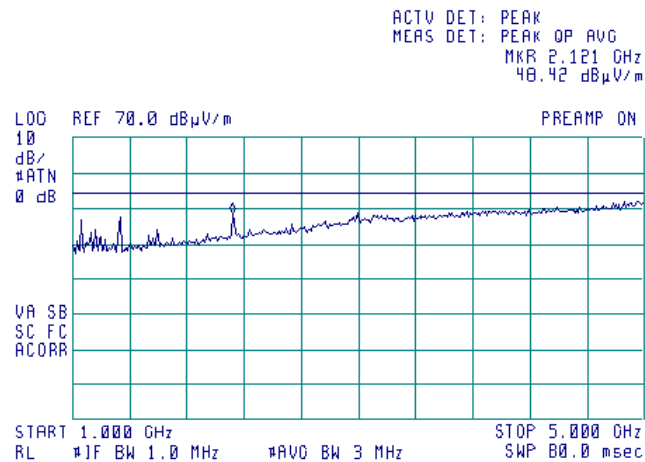
13:06:56 JUN 25, 2009



Plot 7.2.4 Radiated emission measurements in 1000 - 5000 MHz range, horizontal antenna polarization

TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m

13:09:04 JUN 25, 2009



8 APPENDIX A Test equipment and ancillaries used for tests

HL No	Description	Manufacturer	Model	Ser. No.	Last Cal.	Due Cal.
0521	EMI Receiver (Spectrum Analyzer) with RF filter section 9 kHz-6.5 GHz	Hewlett Packard Co	8546A	3617A 00319, 3448A002 53	29-Aug-08	29-Aug-09
0604	Antenna BiconiLog Log-Periodic/T Bow-TIE, 26 - 2000 MHz	EMCO	3141	9611-1011	11-Jan-09	11-Jan-10
0787	Transient Limiter 9 kHz-200 MHz	Hewlett Packard Co	11947A	3107A018 77	16-Oct-08	16-Oct-09
1205	One phase voltage regulator, 2kVA, 0-250V	Hermon Laboratories	TDGC-2	109	05-Aug-08	05-Aug-09
1430	EMI Receiver, 9 kHz - 2.9 GHz, System: HL1431, HL1432	Agilent Technologies	8542E	3807A002 62,3705A0 0217	31-Aug-08	31-Aug-09
1513	Cable RF, 8 m, BNC/BNC	Belden	M17/167 MIL-C-17	1513	03-Sep-08	03-Sep-09
1984	Antenna, Double-Ridged Waveguide Horn, 1-18 GHz, 300 W	EMC Test Systems	3115	9911-5964	23-Jan-09	23-Jan-10
2888	LISN Two-line V-Network 50 Ohm / 50 uH + 5 Ohm, 16A, MIL STD 461E, CISPR 16-1	Rolf Heine	NNB-2/16Z	02/10018	09-Jul-08	09-Jul-09
3121	Microwave Cable Assembly, 18 GHz, 6.4 m, SMA - SMA	Huber-Suhner	198-9155-00	3121	07-Dec-08	07-Dec-09
3612	Cable RF, 17.5 m, N type-N type	Teldor	RG-214/U	NA	17-Nov-08	17-Nov-09
3616	Cable RF, 6.5 m, N type-N type, DC-6.5 GHz	Suhner Switzerland	Rg 214/U	NA	07-Dec-08	07-Dec-09

9 APPENDIX B Measurement uncertainties

Expanded uncertainty at 95% confidence in Hermon Labs EMC measurements

Test description	Expanded uncertainty
Radiated emissions at 10 m measuring distance Horizontal polarization Vertical polarization	Biconilog antenna: ± 5.0 dB Biconical antenna: ± 5.0 dB Log periodic antenna: ± 5.1 dB Double ridged horn antenna: ± 5.3 dB Biconilog antenna: ± 5.5 dB Biconical antenna: ± 5.5 dB Log periodic antenna: ± 5.6 dB Double ridged horn antenna: ± 5.8 dB
Radiated emissions at 3 m measuring distance Horizontal polarization Vertical polarization	Biconilog antenna: ± 5.3 dB Biconical antenna: ± 5.0 dB Log periodic antenna: ± 5.3 dB Double ridged horn antenna: ± 5.3 dB Biconilog antenna: ± 6.0 dB Biconical antenna: ± 5.7 dB Log periodic antenna: ± 6.0 dB Double ridged horn antenna: ± 6.0 dB
Conducted emissions at RF antenna connector	9 kHz to 2.9 GHz: ± 2.6 dB 2.9 GHz to 6.46 GHz: ± 3.5 dB 6.46 GHz to 13.2 GHz: ± 4.3 dB 13.2 GHz to 22.0 GHz: ± 5.0 dB 22.0 GHz to 26.8 GHz: ± 5.5 dB 26.8 GHz to 40.0 GHz: ± 4.8 dB
Duty cycle, timing (Tx ON / OFF) and average factor measurements	± 1.0 %
Occupied bandwidth	± 8.0 %

Hermon Laboratories is accredited by A2LA for calibration according to present requirements of ISO/IEC 17025 and NCSL Z540-1. The accreditation is granted to perform calibration of parameters that are listed in the Scope of Hermon Laboratories Accreditation.

Hermon Laboratories calibrates its reference and transfer standards by calibration laboratories accredited to ISO/IEC 17025 by a mutually recognized Accreditation Body or by a recognized national metrology institute. All reference and transfer standards used in the calibration system are traceable to national or international standards.

In-house calibration of all test and measurement equipment is performed on a regular basis according to Hermon Laboratories calibration procedures, manufacturer calibration/verification procedures or procedures defined in the relevant standards. The Hermon Laboratories test and measurement equipment is calibrated within the tolerances specified by the manufacturers and/or by the relevant standards.

10 APPENDIX C Test laboratory description

Tests were performed at Hermon Laboratories Ltd., which is a fully independent, private, EMC, safety, environmental 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), Registration Numbers 90624 for OATS and 90623 for the anechoic chamber; by Industry Canada for electromagnetic emissions (file numbers IC 2186A-1 for OATS and IC 2186A-2 for anechoic chamber), certified by VCCI, Japan (the registration numbers are R-808 for OATS, R-1082 for anechoic chamber, C-845 for conducted emissions site), has a status of a Telefication - Listed Testing Laboratory, Certificate No. L138/00. The laboratory is accredited by American Association for Laboratory Accreditation (USA) according to ISO/IEC 17025 for electromagnetic compatibility, product safety, telecommunications testing and environmental simulation (for exact scope please refer to Certificate No. 839.01).

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Person for contact: Mr. Alex Usoskin, CEO.

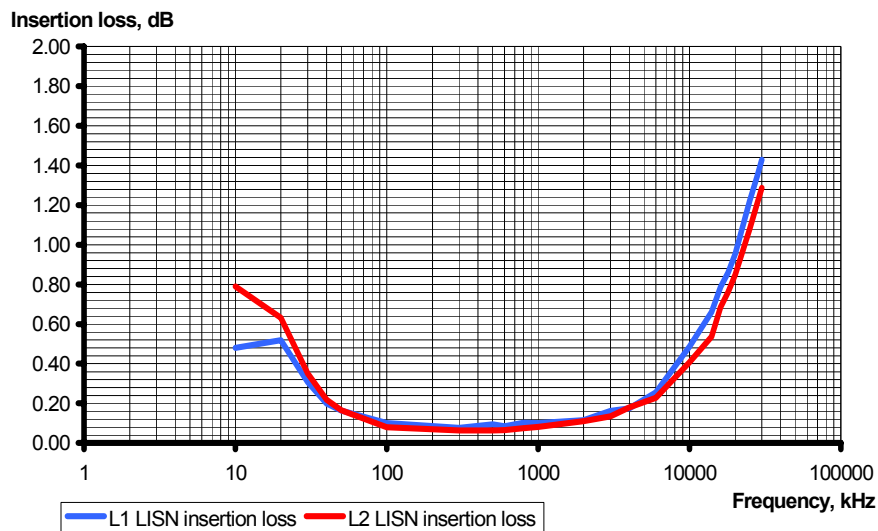
11 APPENDIX D Specification references

47CFR part 15: 2008	Radio Frequency Devices.
ANSI C63.2: 1996	American National Standard for Instrumentation-Electromagnetic Noise and Field Strength, 10 kHz to 40 GHz-Specifications.
ANSI C63.4: 2003	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.

12 APPENDIX E Test equipment correction factors

Correction factor Line impedance stabilization network Model NNB-2/16Z, Rolf Heine, HL 2888

Frequency, kHz	Insertion loss,dB		Measurement Uncertainty, dB
	L1	N	
10	0.48	0.79	±0.6
20	0.52	0.63	
30	0.31	0.35	
40	0.20	0.22	
50	0.16	0.17	
100	0.10	0.08	
300	0.08	0.06	
500	0.10	0.06	
600	0.09	0.07	
800	0.10	0.07	
1000	0.10	0.08	
2000	0.12	0.11	
3000	0.16	0.14	
4000	0.17	0.18	
6000	0.26	0.23	
10000	0.49	0.41	
14000	0.66	0.54	
16000	0.79	0.69	
18000	0.86	0.76	
20000	0.96	0.85	
25000	1.22	1.08	
28000	1.35	1.21	
30000	1.43	1.29	



Antenna factor
Biconilog antenna EMCO Model 3141
Ser.No.1011, HL 0604

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 in dB(1/m) is to be added to receiver meter reading in dB(μ V) to convert it into field intensity in dB(μ V/m).

Antenna factor
Double-ridged wave guide horn antenna
Model 3115, S/N 9911-5964, HL1984

Frequency, MHz	Antenna factor, dB(1/m)
1000.0	24.7
1500.0	25.7
2000.0	27.6
2500.0	28.9
3000.0	31.2
3500.0	32.0
4000.0	32.5
4500.0	32.7
5000.0	33.6
5500.0	35.1
6000.0	35.4
6500.0	34.9
7000.0	36.1
7500.0	37.8
8000.0	38.0
8500.0	38.1
9000.0	39.1
9500.0	38.3
10000.0	38.6
10500.0	38.2
11000.0	38.7
11500.0	39.5
12000.0	40.0
12500.0	40.4
13000.0	40.5
13500.0	41.1
14000.0	41.6
14500.0	41.7
15000.0	38.7
15500.0	38.2
16000.0	38.8
16500.0	40.5
17000.0	42.5
17500.0	45.9
18000.0	49.4

Antenna factor in dB(1/m) is to be added to receiver meter reading in dB(μ V) to convert it into field intensity in dB(μ V/m).

13 APPENDIX F Abbreviations and acronyms

A	ampere
AC	alternating current
A/m	ampere per meter
AM	amplitude modulation
AVRG	average (detector)
cm	centimeter
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
dB(μA)	decibel referred to one microampere
DC	direct current
EIRP	equivalent isotropically radiated power
ERP	effective radiated power
EUT	equipment under test
F	frequency
GHz	gigahertz
GND	ground
H	height
HL	Hermon laboratories
Hz	hertz
k	kilo
kHz	kilohertz
LO	local oscillator
m	meter
MHz	megahertz
min	minute
mm	millimeter
ms	millisecond
μs	microsecond
NA	not applicable
NB	narrow band
NT	not tested
OATS	open area test site
Ω	Ohm
PM	pulse modulation
PS	power supply
ppm	part per million (10 ⁻⁶)
QP	quasi-peak
RE	radiated emission
RF	radio frequency
rms	root mean square
Rx	receive
s	second
T	temperature
Tx	transmit
V	volt
WB	wideband

END OF DOCUMENT