HERMON LABORATORIES

ELECTRICAL TESTING
0839.01

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TEST REPORT

ACCORDING TO: FCC 47CFR part 15 subpart C § 15.209 and RSS-210 issue 8 section 2.5.1

FOR:

Visonic Ltd.
RFID tag reader of control panel
Model: PMASTER-33
(PowerMaster 33 G2)
FCC ID:WP3PMASTER20G2
IC:1467C-PMASTER20G2

Table of contents

1 Applicant information

Client name:	Visonic Ltd.
Address:	Habarzel street 24, Tel Aviv 69710, Israel
Telephone:	+972 3645 6714
Fax:	+972 3645 6788
E-mail:	aelshtein@tycoint.com
Contact name:	Mr. Arik Elshtein

2 Equipment under test attributes

Product name:	Control Panel
Product type:	Transceiver
Model(s):	PMASTER-33 (PowerMaster 33 G2)
Serial number:	4512024294
Hardware version:	PM33
Software release:	js123456_M18.023.mot
Receipt date	21-Jan-13

3 Manufacturer information

Manufacturer name:	Visonic Ltd.
Address:	Habarzel street 24, Tel Aviv 69710, Israel
Telephone:	+972 3645 6714
Fax:	+972 3645 6788
E-Mail:	aelshtein@tycoint.com
Contact name:	Mr. Arik Elshtein

4 Test details

Project ID:	23965
Location:	Hermon Laboratories Ltd. Harakevet Industrial Zone, Binyamina 30500, Israel
Test started:	21-Jan-13
Test completed:	26-Dec-13
Test specification(s):	FCC 47CFR part 15, subpart C, §15.209; RSS-210 issue 8 section 2.5.1, RSS-Gen issue 3 Table 6

5 Tests summary

Test	Status
FCC section 15.209, RSS-Gen section 7.2.5, Field strength of emissions	Pass
FCC section 15.203, RSS-Gen section 7.1.2, Antenna requirement	Pass
RSS-Gen, Section 4.6.1, Occupied bandwidth	Tested

According to the applicant declaration the EUT is similar to the product approved under FCC ID:WP3PMASTER20G2 and IC:1467C-PMASTER20G2. The relevant tests were performed to support Application for permissive changes certification.

The test results relate only to the items tested. Pass/ fail decision was based on nominal values.

	Name and Title	Date	Signature
Tested by:	Mrs. E. Pitt, test engineer	December 26, 2013	
Reviewed by:	Mrs. M. Cherniavsky, certification engineer	January 6, 2014	
Approved by:	Mr. M. Nikishin, EMC and radio group manager	April 29, 2014	

6 EUT description

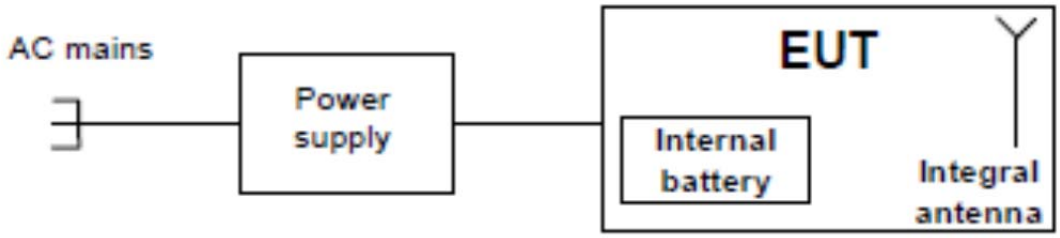
6.1 General information

The EUT, RFID tag reader, operating at 122 kHz with ASK modulation, is included in PowerMaster-33 control panel.

6.2 Ports and lines

Port type	Port description	Connected from	Connected to	Qty.	Cable type	Cable length, m
Power	AC power	AC mains	AC/DC adaptor	1	Unshielded	2.0

6.3 Test configuration



6.4 Changes made in the EUT

No changes were implemented in the EUT during the testing.

Test specification:	Section 15.209 / RSS-210, Tables 2, 3, Field strength of emissions		
Test procedure:	ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date(s):	26-Dec-13		
Temperature: 23 ºC	Air Pressure: 1019 hPa	Relative Humidity: 40 %	Power Supply: 120 VAC
Remarks:			

7 Transmitter tests according to 47CFR part 15 subpart C and RSS-210 requirements

7.1 Field strength of emissions

7.1.1 General

This test was performed to measure field strength of fundamental and spurious emissions from the EUT. Specification test limits are given Table 7.1.1 and Table 7.1.2.

Table 7.1.1 Radiated fundamental emission limits

Fundamental frequency, kHz	Field strength at 3 m, dB(μV/m)
	Average
122.460	105.9

Table 7.1.2 Radiated spurious emissions limits

Frequency, MHz	Field strength at 3 m, dB(μV/m)		
	Within restricted bands		
	Peak	Quasi Peak	Average
0.009 – 0.090	148.5 – 128.5	NA	128.5 – 108.5**
0.090 – 0.110	NA	108.5 – 106.8**	NA
0.110 – 0.490	126.8 – 113.8	NA	106.8 – 93.8**
0.490 – 1.705	NA	73.8 – 63.0**	NA
1.705 – 30.0*		69.5	
30 – 88		40.0	
88 – 216		43.5	
216 – 960		46.0	
960 - 1000		54.0	
1000 – 10th harmonic	74.0	NA	54.0

*- The limit for 3 m test distance was calculated using the inverse square distance extrapolation factor as follows:

$$Lim_{S2} = Lim_{S1} + 40 \log (S_1/S_2),$$

where S_1 and S_2 – standard defined and test distance respectively in meters.

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

7.1.2 Test procedure for fundamental and spurious emission field strength measurements in 9 kHz to 30 MHz

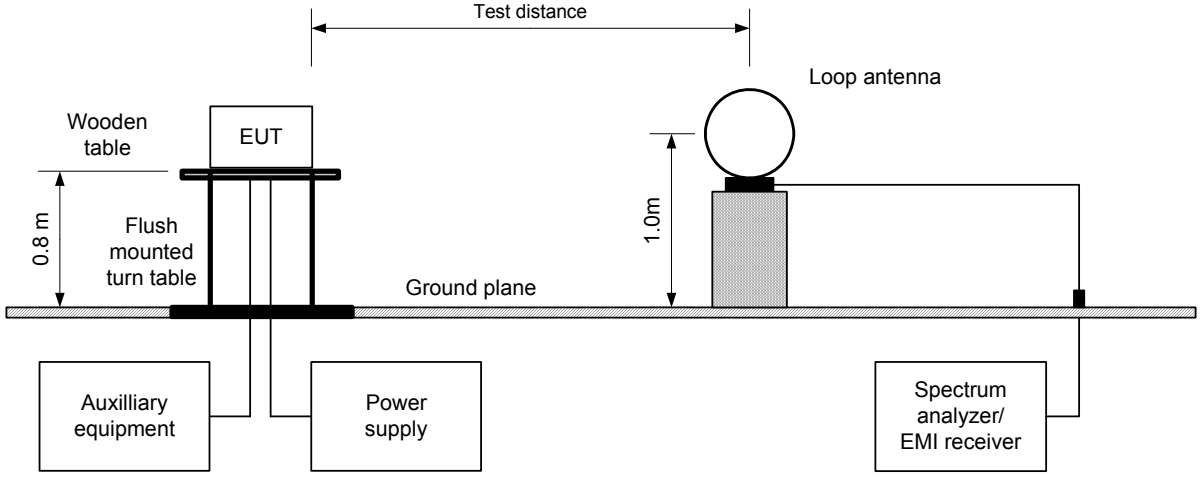
7.1.2.1 The EUT was set up as shown in Figure 7.1.1, energized and the performance check was conducted.

7.1.2.2 The specified frequency range was investigated with a loop antenna connected to spectrum analyzer/ EMI receiver. To find maximum radiation the turntable was rotated 360^0, the measuring antenna was rotated around its vertical axis. The measuring antenna polarization was switched from vertical to horizontal.

7.1.2.3 The worst test results (the lowest margins) were recorded in Table 7.1.3 and shown in the associated plots.

Test specification:	Section 15.209 / RSS-210, Tables 2, 3, Field strength of emissions		
Test procedure:	ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date(s):	26-Dec-13		
Temperature: 23 ºC	Air Pressure: 1019 hPa	Relative Humidity: 40 %	Power Supply: 120 VAC
Remarks:			

Figure 7.1.1 Setup for spurious emission field strength measurements below 30 MHz



Test specification:	**Section 15.209 / RSS-210, Tables 2, 3, Field strength of emissions**		
Test procedure:	ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date(s):	26-Dec-13		
Temperature: 23 ºC	**Air Pressure:** 1019 hPa	**Relative Humidity:** 40 %	**Power Supply:** 120 VAC
Remarks:			

Table 7.1.3 Field strength of fundamental emission

TEST DISTANCE: 3 m
TEST SITE: Semi-anechoic chamber
EUT POSITION: Typical (Vertical)
TRANSMITTER OUTPUT POWER SETTINGS: Maximum
INVESTIGATED FREQUENCY RANGE: 0.009 – 30 MHz
DETECTOR USED: Peak
RESOLUTION BANDWIDTH: 1 kHz (9 kHz – 150 kHz)
9.0 kHz (150 kHz – 30 MHz)
VIDEO BANDWIDTH: ≥ Resolution bandwidth
TEST ANTENNA TYPE: Active loop (9 kHz – 30 MHz)
TEST DISTANCE: 3 m
TEST SITE: Semi-anechoic chamber

F, kHz	Antenna		Azimuth, degrees*	Peak field strength			Average field strength			Verdict
	Pol.	Height, m		Measured, dB(μV/m)	Limit, dB(μV/m)	Margin, dB**	Measured, dB(μV/m)	Limit, dB(μV/m)	Margin, dB**	
122.460	V	1.0	48	66.4	125.9	-59.4	66.4	105.9	-39.4	Pass

The fundamental emission results at U nom-15% are shown in Plot 7.1.3.

*****- EUT front panel refers to 0 degrees position of turntable.
******- Margin (dB) = measured result - specification limit.

Reference numbers of test equipment used

HL 0446	HL 0521	HL 0604	HL 1205	HL 3521	HL 4352	HL 4353	

Full description is given in Appendix A.

Test specification:	**Section 15.209 / RSS-210, Tables 2, 3, Field strength of emissions**		
Test procedure:	ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date(s):	26-Dec-13		
Temperature: 23 ºC	**Air Pressure:** 1019 hPa	**Relative Humidity:** 40 %	**Power Supply:** 120 VAC
Remarks:			

Table 7.1.4 Field strength of spurious emissions

TEST DISTANCE:	3 m
TEST SITE:	Semi-anechoic chamber
EUT POSITION:	Typical (Vertical)
TRANSMITTER OUTPUT POWER SETTINGS:	Maximum
INVESTIGATED FREQUENCY RANGE:	0.009 – 1000 MHz
DETECTOR USED:	Peak
RESOLUTION BANDWIDTH:	1 kHz (9 kHz – 150 kHz) 9.0 kHz (150 kHz – 30 MHz) 120 kHz (30 MHz – 1000 MHz)
VIDEO BANDWIDTH:	≥ Resolution bandwidth
TEST ANTENNA TYPE:	Active loop (9 kHz – 30 MHz) Biconilog (30 MHz – 1000 MHz)

F, MHz	Antenna		Azimuth, degrees*	Peak field strength			Average field strength			Verdict
	Pol.	Height, m		Measured, dB(μV/m)	Limit, dB(μV/m)	Margin, dB**	Measured, dB(μV/m)	Limit, dB(μV/m)	Margin, dB**	
No emissions were found										Pass

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

******- Margin = Measured emission - specification limit.

Table 7.1.5 Restricted bands

MHz	MHz	MHz	MHz	MHz	GHz
0.09 - 0.11	8.37625 - 8.38675	73 - 74.6	399.9 - 410	2690 - 2900	10.6 - 12.7
0.495 - 0.505	8.41425 - 8.41475	74.8 - 75.2	608 - 614	3260 - 3267	13.25 - 13.4
2.1735 - 2.1905	12.29 - 12.293	108 - 121.94	960 - 1240	3332 - 3339	14.47 - 14.5
4.125 - 4.128	12.51975 - 12.52025	123 - 138	1300 - 1427	3345.8 - 3358	15.35 - 16.2
4.17725 - 4.17775	12.57675 - 12.57725	149.9 - 150.05	1435 - 1626.5	3600 - 4400	17.7 - 21.4
4.20725 - 4.20775	13.36 - 13.41	156.52475 - 156.52525	1645.5 - 1646.5	4500 - 5150	22.01 - 23.12
6.215 - 6.218	16.42 - 16.423	156.7 - 156.9	1660 - 1710	5350 – 5460	23.6 - 24
6.26775 - 6.26825	16.69475 - 16.69525	162.0125 - 167.17	1718.8 - 1722.2	7250 - 7750	31.2 - 31.8
6.31175 - 6.31225	16.80425 - 16.80475	167.72 - 173.2	2200 - 2300	8025 – 8500	36.43 - 36.5
8.291 - 8.294	25.5 - 25.67	240 - 285	2310 - 2390	9000 - 9200	Above 38.6
8.362 - 8.366	37.5 - 38.25	322 - 335.4	2483.5 - 2500	9300 - 9500	

Reference numbers of test equipment used

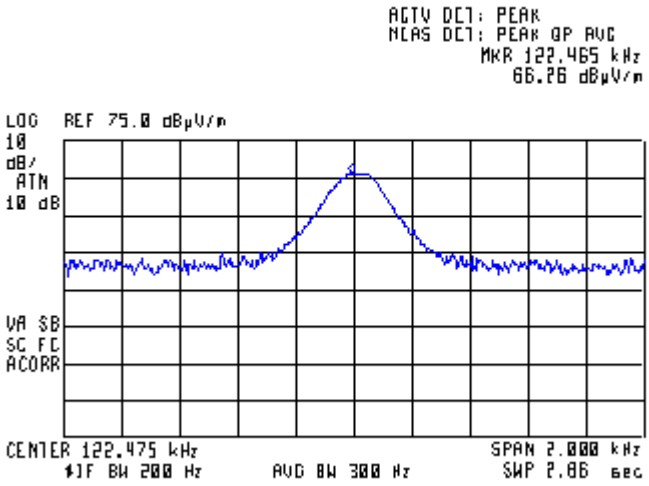
HL 0446	HL 0521	HL 0604	HL 1205	HL 3521	HL 4352	HL 4353	

Full description is given in Appendix A.

Test specification:	Section 15.209 / RSS-210, Tables 2, 3, Field strength of emissions		
Test procedure:	ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date(s):	26-Dec-13		
Temperature: 23 ºC	Air Pressure: 1019 hPa	Relative Humidity: 40 %	Power Supply: 120 VAC
Remarks:			

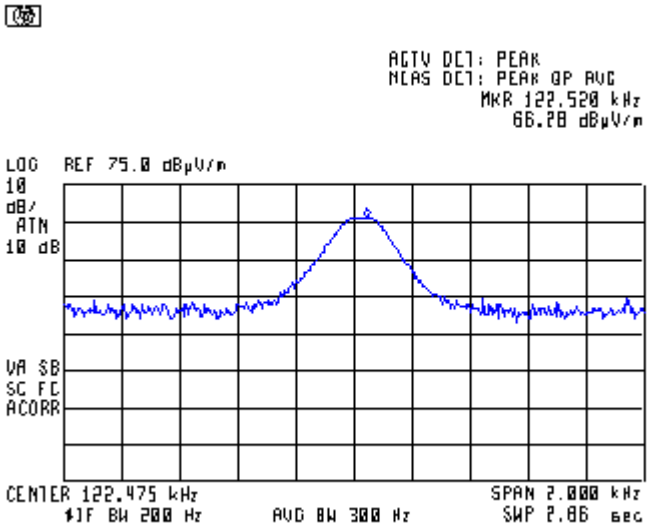
Plot 7.1.1 Radiated emission measurements at the fundamental frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
EUT POSITION: Typical (Vertical)
Unom



Plot 7.1.2 Radiated emission measurements at the fundamental frequency

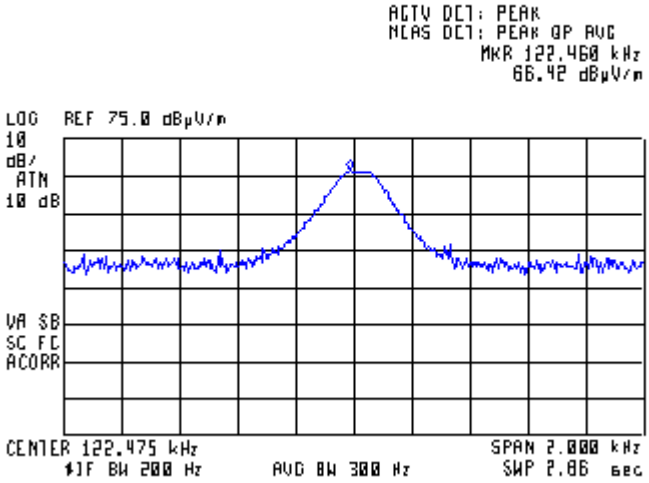
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
EUT POSITION: Typical (Vertical)
VOLTAGE: 115%Unom



Test specification:	Section 15.209 / RSS-210, Tables 2, 3, Field strength of emissions		
Test procedure:	ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date(s):	26-Dec-13		
Temperature: 23 ºC	Air Pressure: 1019 hPa	Relative Humidity: 40 %	Power Supply: 120 VAC
Remarks:			

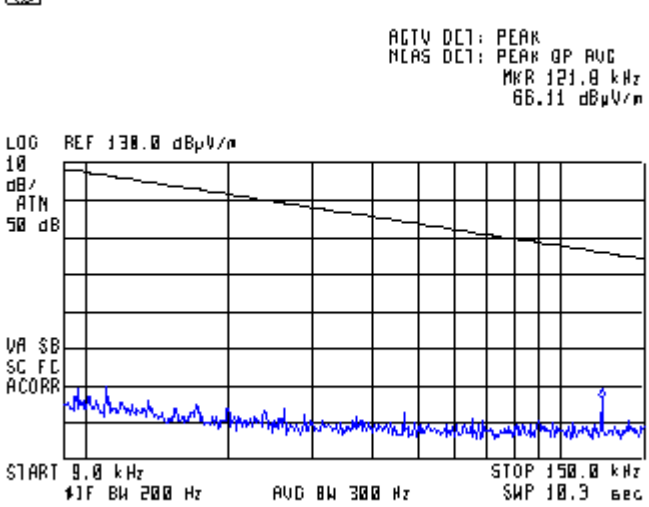
Plot 7.1.3 Radiated emission measurements at the fundamental frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
EUT POSITION: Typical (Vertical)
VOLTAGE: 85%Unom



Plot 7.1.4 Radiated emission measurements from 9 to 150 kHz

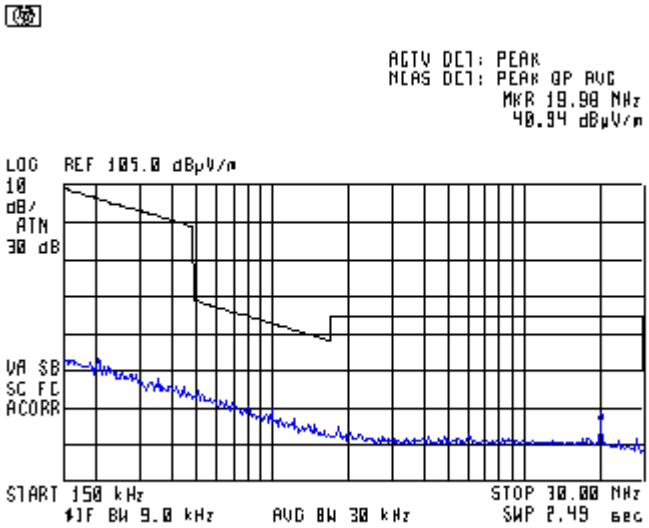
TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
EUT POSITION: Typical (Vertical)



Test specification:	Section 15.209 / RSS-210, Tables 2, 3, Field strength of emissions		
Test procedure:	ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date(s):	26-Dec-13		
Temperature: 23 ºC	Air Pressure: 1019 hPa	Relative Humidity: 40 %	Power Supply: 120 VAC
Remarks:			

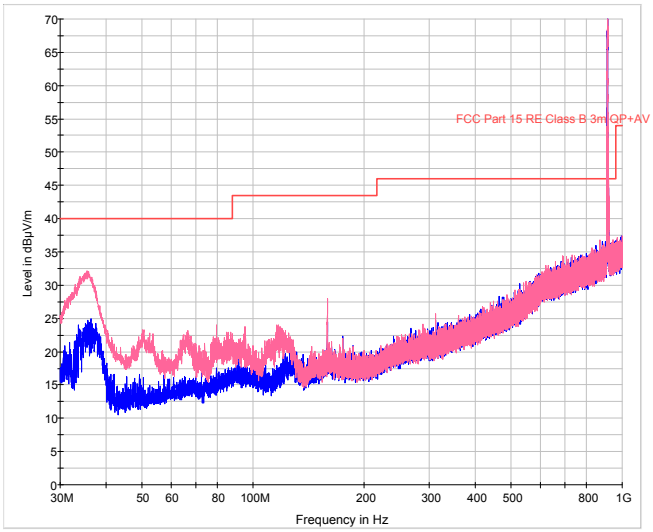
Plot 7.1.5 Radiated emission measurements from 0.15 to 30 MHz

TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
EUT POSITION: Typical (Vertical)



Plot 7.1.6 Radiated emission measurements from 30 to 1000 MHz

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
EUT POSITION: Typical (Vertical)



A red trace is vertical antenna polarization, a blue trace is vertical antenna polarization

Test specification:	**Section 15.203, RSS-Gen section 7.1.2, Antenna requirement**		
Test procedure:	Visual inspection / supplier declaration		
Test mode:	Compliance	**Verdict:**	PASS
Date(s):	26-Dec-13		
Temperature: 23 ºC	**Air Pressure:** 1019 hPa	**Relative Humidity:** 40 %	**Power Supply:** 120 VAC
Remarks:			

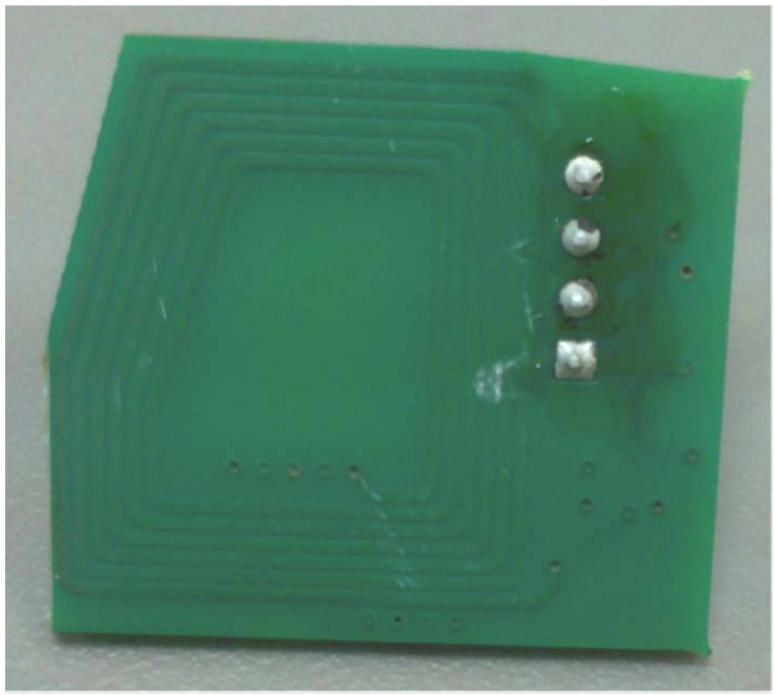
7.2 Antenna requirements

The EUT was verified for compliance with antenna requirements. A transmitter shall be designed to ensure that no antenna other than that furnished by the responsible party will be used with the device. It may be either permanently attached or employs a unique antenna connector for every antenna proposed for use with the EUT. This requirement does not apply to professionally installed transmitters.
The rationale for compliance with the above requirements was either visual inspection results or supplier declaration. The summary of results is provided in Table 7.2.1.

Table 7.2.1 Antenna requirements

Requirement	Rationale	Verdict
The transmitter antenna is permanently attached	Visual inspection	Comply
The transmitter employs a unique antenna connector	NA	
The transmitter requires professional installation	NA	

Photograph 7.2.1 Antenna assembly



Test specification:	RSS-Gen, Section 4.6.1, Occupied bandwidth		
Test procedure:	ANSI C63.4, Section 13.1.7		
Test mode:	Compliance	Verdict:	PASS
Date(s):	26-Dec-13		
Temperature: 23 ºC	Air Pressure: 1019 hPa	Relative Humidity: 40 %	Power Supply: 120 VAC
Remarks:			

7.3 Occupied bandwidth test

7.3.1 General

This test was performed to measure transmitter occupied bandwidth not specified by the standard.

7.3.2 Test procedure

7.3.2.1 The EUT was set up as shown in Figure 7.3.1, energized and its proper operation was checked.
7.3.2.2 The EUT was set to transmit modulated carrier at maximum data rate.
7.3.2.3 The transmitter bandwidth was measured with spectrum analyzer as frequency delta between reference points on modulation envelope and provided in Table 7.3.1 and the associated plot.

Figure 7.3.1 Occupied bandwidth test setup

Test specification:	**RSS-Gen, Section 4.6.1, Occupied bandwidth**		
Test procedure:	ANSI C63.4, Section 13.1.7		
Test mode:	Compliance	**Verdict:**	PASS
Date(s):	26-Dec-13		
Temperature: 23 ºC	**Air Pressure:** 1019 hPa	**Relative Humidity:** 40 %	**Power Supply:** 120 VAC
Remarks:			

Table 7.3.1 Occupied bandwidth test results

DETECTOR USED:	Peak
SWEEP TIME:	Auto
RESOLUTION BANDWIDTH:	≥ 1% of the 20 dB bandwidth
VIDEO BANDWIDTH:	≥ RBW
MODULATION ENVELOPE REFERENCE POINTS:	20.0 dBc

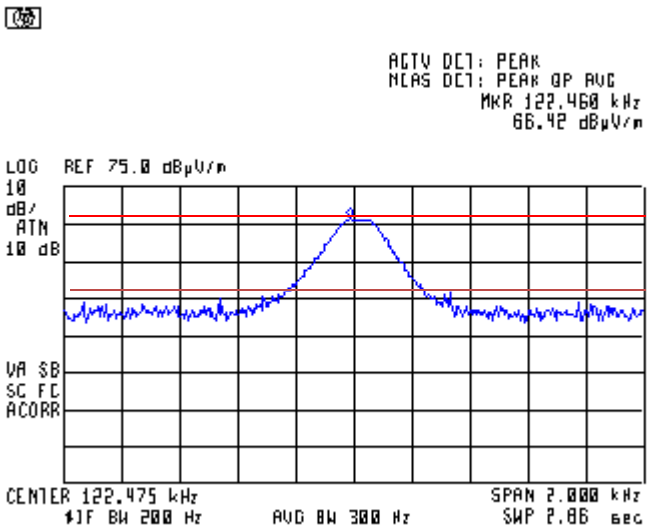
Carrier frequency, kHz	Occupied bandwidth, kHz	Limit, kHz	Margin, kHz	Verdict
122.46	0.45	NA	NA	Tested

Reference numbers of test equipment used

HL 0446	HL 0521	HL 2871	HL 3623					

Full description is given in Appendix A.

Plot 7.3.1 Occupied bandwidth test result



8 APPENDIX A Test equipment and ancillaries used for tests

HL No	Description	Manufacturer	Model	Ser. No.	Last Cal./ Check	Due Cal./ Check
0446	Antenna, Loop, Active, 10 kHz - 30 MHz	EMCO	6502	2857	03-Jul-12	03-Jul-14
0521	EMI Receiver (Spectrum Analyzer) with RF filter section 9 kHz-6.5 GHz	Hewlett Packard	8546A	3617A 00319, 3448A002 53	28-Oct-13	28-Oct-14
0604	Antenna BiconiLog Log-Periodic/T Bow-TIE, 26 - 2000 MHz	EMCO	3141	9611-1011	04-Jun-13	04-Jun-14
1205	One phase voltage regulator, 2kVA, 0-250V	Hermon Laboratories	TDGC-2	109	17-Dec-12	17-Dec-13
3521	Multimeter	Fluke	115	94771103	11-Jul-13	11-Jul-14
4352	Low Loss Armored Test Cable, DC - 18 GHz, 6.2 m, N type-M/N type-M	MegaPhase	NC29-N1N1-244	12025101 002	30-Dec-99	30-Dec-00
4353	Low Loss Armored Test Cable, DC - 18 GHz, 6.2 m, N type-M/N type-M	MegaPhase	NC29-N1N1-244	12025101 003	06-Mar-13	06-Mar-14

9 APPENDIX B Measurement uncertainties

Expanded uncertainty at 95% confidence in Hermon Labs EMC measurements

Test description	Expanded uncertainty
Radiated emissions at 3 m measuring distance	
Horizontal polarization	Biconilog antenna: ± 5.3 dB Biconical antenna: ± 5.0 dB Log periodic antenna: ± 5.3 dB Double ridged horn antenna: ± 5.3 dB
Vertical polarization	Biconilog antenna: ± 6.0 dB Biconical antenna: ± 5.7 dB Log periodic antenna: ± 6.0 dB Double ridged horn antenna: ± 6.0 dB

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, IC 2186A-2 for anechoic chamber, IC 2186A-3 for full-anechoic chamber for RE measurements above 1 GHz), certified by VCCI, Japan (the registration numbers are R-808 for OATS, R-1082 for anechoic chamber, G-27 for full-anechoic chamber for RE measurements above 1 GHz, C-845 for conducted emissions site, T-1606 for conducted emissions at telecommunication ports), 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). The FCC Designation Number is US1003.

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website: www.hermonlabs.com

Person for contact: Mr. Alex Usoskin, CEO.

11 APPENDIX D Specification references

FCC 47CFR part 15: 2012	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
RSS-210 Issue 8: 2010	Low Power Licence- Exempt Radiocommunication Devices
RSS-Gen Issue 3: 2010	General Requirements and Information for the Certification of Radiocommunication Equipment

12 APPENDIX E Test equipment correction factors

Active loop antenna
Model 6502, S/N 2857, HL 0446

Frequency, MHz	Magnetic antenna factor, dB	Electric antenna factor, dB
0.009	-32.8	18.7
0.010	-33.8	17.7
0.020	-38.3	13.2
0.050	-41.1	10.4
0.075	-41.3	10.2
0.100	-41.6	9.9
0.150	-41.7	9.8
0.250	-41.6	9.9
0.500	-41.8	9.8
0.750	-41.9	9.7
1.000	-41.4	10.1
2.000	-41.5	10.0
3.000	-41.4	10.2
4.000	-41.4	10.1
5.000	-41.5	10.1
10.000	-41.9	9.6
15.000	-41.9	9.6
20.000	-42.2	9.3
25.000	-42.8	8.7
30.000	-44.0	7.5

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

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

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

Cable loss
Low Loss Armored Test Cable, MegaPhase, 18 GHz, 6.2 m, N type-M/N type-M,
NC29-N1N1-244S/N 12025101 002,
HL 4352

Frequency, MHz	Cable loss, dB	Frequency, MHz	Cable loss, dB
50	0.20	9000	2.81
100	0.28	9500	2.89
300	0.49	10000	3.00
500	0.63	10500	3.07
1000	0.90	11000	3.15
1500	1.10	11500	3.23
2000	1.28	12000	3.30
2500	1.44	12500	3.38
3000	1.57	13000	3.47
3500	1.71	13500	3.55
4000	1.85	14000	3.61
4500	1.95	14500	3.68
5000	2.05	15000	3.76
5500	2.14	15500	3.86
6000	2.27	16000	3.92
6500	2.38	16500	3.97
7000	2.47	17000	4.03
7500	2.58	17500	4.10
8000	2.65	18000	4.18
8500	2.74		

`

Cable loss
Low Loss Armored Test Cable, MegaPhase, 18 GHz, 6.2 m, N type-M/N type-M, NC29-N1N1-244S/N 12025101 003,
HL 4353

Frequency, MHz	Cable loss, dB	Frequency, MHz	Cable loss, dB
50	0.20	9000	2.71
100	0.27	9500	2.81
300	0.47	10000	2.90
500	0.61	10500	2.97
1000	0.87	11000	3.06
1500	1.07	11500	3.13
2000	1.24	12000	3.20
2500	1.39	12500	3.26
3000	1.53	13000	3.34
3500	1.65	13500	3.39
4000	1.77	14000	3.47
4500	1.89	14500	3.54
5000	1.99	15000	3.62
5500	2.07	15500	3.69
6000	2.20	16000	3.76
6500	2.30	16500	3.83
7000	2.39	17000	3.86
7500	2.51	17500	3.94
8000	2.58	18000	4.02
8500	2.65		

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
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

14 APPENDIX G Manufacturer declaration

Visonic
A Tyco International Company

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Fax: +972 3 645 6788 *www.visonic.com*

Attention
Hermon labs
Binyamina
Israel

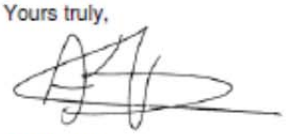
December 2013

Declaration of Similarity

We, ***Visonic Ltd.***, having a business address at 24 Habarzel St., Tel-Aviv 69710, Israel, Telephone number:+972 36456789, Fax number:+972 36456788 , declare under our sole responsibility that The Control panel PowerMaster 33 G2 is similar to Control panel PowerMaster 30 G2 and has the same PCB, except of the following variations.

Its housing does not include a display and keyboard, "instead" the PCB has 5 LEDs and an ENROLL push button..
Its RF ID (PROX) is different, but similar to the one in KP141 PG2
It does not have and internal sounder.

Yours truly,



31/12/2013
Arick Elshtein,
Certification Engineer

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