Israel Testing Laboratories

ACCREDITED
Cert. No. 1152.01
Electrical (EMC)

DATE: 09 September 2008

I.T.L. (PRODUCT TESTING) LTD.

FCC Radio Test Report

for

Visonic Technologies (1993) Ltd.

Equipment under test:

Active Identity Badge

PBA

Written by: _____
D. Shidlowsky, Documentation

Approved by: _____
A. Sharabi, Test Engineer

Approved by: For/_____
I. Raz, EMC Laboratory Manager

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This report relates only to items tested.

Cert. No. 1152.01
Electrical (EMC)

Measurement/Technical Report for

Visonic Technologies (1993) Ltd.

Active Identity Badge

PBA

FCC ID: O4X5-PBA00433

09 September 2008

This report concerns: Original Grant: X
Class I change:
Class II change:

Equipment type: Part 15 Security/Remote Control Transceiver
Limits used:
47CFR15 Section 15.231

Measurement procedure used is ANSI C63.4-2003.

Application for Certification
prepared by:
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Applicant for this device:
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1. General Information

1.1 Administrative Information

Manufacturer:	Visonic Technologies (1993) Ltd.
Manufacturer's Address:	30 Habarzel St. Tel-aviv, 69710 Israel Tel: +972-3—768-1400 Fax: +972-3-768-1415
Manufacturer's Representative:	Gaby Shugol
Equipment Under Test (E.U.T):	Active Identity Badge
Equipment Model No.:	PBA
Equipment Serial No.:	Not Designated
Date of Receipt of E.U.T:	02.03.08
Start of Test:	02.03.08
End of Test:	05.06.08
Test Laboratory Location:	I.T.L (Product Testing) Ltd. Kfar Bin Nun, ISRAEL 99780
Test Specifications:	FCC Part 15 Sub-part C

1.2 List of Accreditations

The EMC laboratory of I.T.L. is accredited by the following bodies:

1. The American Association for Laboratory Accreditation (A2LA) (U.S.A.), Certificate No. 1152.01.
2. The Federal Communications Commission (FCC) (U.S.A.), Registration No. 90715.
3. The Israel Ministry of the Environment (Israel), Registration No. 1104/01.
4. The Voluntary Control Council for Interference by Information Technology Equipment (VCCI) (Japan), Registration Numbers: C-1350, R-1285.
5. Industry Canada (Canada), File No. IC 4025.
6. TUV Product Services, England, ASLLAS No. 97201.
7. Nemko (Norway), Authorization No. ELA 207.

I.T.L. Product Testing Ltd. is accredited by the American Association for Laboratory Accreditation (A2LA) and the results shown in this test report have been determined in accordance with I.T.L.'s terms of accreditation unless stated otherwise in the report.

1.3 Product Description

The Elpas Active Identity Badge is an ultra-low power, long-range active Radio Frequency, and Infrared device. Designed to resemble an industry-standard photo ID badge, the device is intended primarily for protecting those staff members and lone workers most at risk from patient violence and aggression in both interior and/or exterior areas. The unique form factor of the badge makes it usable as a clip-on photo ID personnel badge. Or, when inserted into its matching card holder (sold separately) the device may be bundled with any standard credit-card size access control card; and user worn either horizontally (landscape format) or vertically (portrait format).
The badge's, dual technology transmitter continuously emits, low-power UHF (433.92MHz) long-distance beacon type omni-directional radio frequency (RF) transmissions plus optional infra-red (IR) messaging for indoor tracking to sub-room level precision.
The Active Identity Badge features two one-touch fully customizable emergency/duress signaling buttons for ensuring complete, around-the-clock staff and visitor supervision. The badge's onboard magnetic low frequency (LF) receiver (125 KHz) also adds chokepoint type area detection so whenever a badge wearer nears a protected exit/entrance covered by an Elpas LF Exciter any number of user definable alerts or alarms may be triggered. Optionally, the badge is designed for use as an electronic proximity key for doors protected by VisAccess Tag-In-A-Bag, AXS-10, AXS-100/200 systems or other third-party EM 4100 compliant or Wiegand 26-bit compatible access control solutions.

1.4 Test Methodology

Radiated testing was performed according to the procedures in ANSI C63.4: 2003. Radiated testing was performed at an antenna to EUT distance of 3 meters.

1.5 Test Facility

The radiated emissions tests were performed at I.T.L.'s testing facility at Kfar Bin-Nun, Israel. This site is a FCC listed test laboratory (FCC Registration No. 90715, date of listing August 22, 2006).
I.T.L.'s EMC Laboratory is also accredited by A2LA, certificate No. 1152.01.

1.6 Measurement Uncertainty

Radiated Emission

The Open Site complies with the ±4 dB Normalized Site Attenuation requirements of ANSI C63.4-2003. In accordance with Paragraph 5.4.6.1 of this standard, this tolerance includes instrumentation calibration errors, measurement technique errors, and errors due to site anomalies.

2. Product Labeling

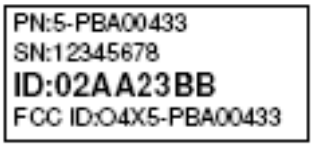

Figure 1. FCC Label

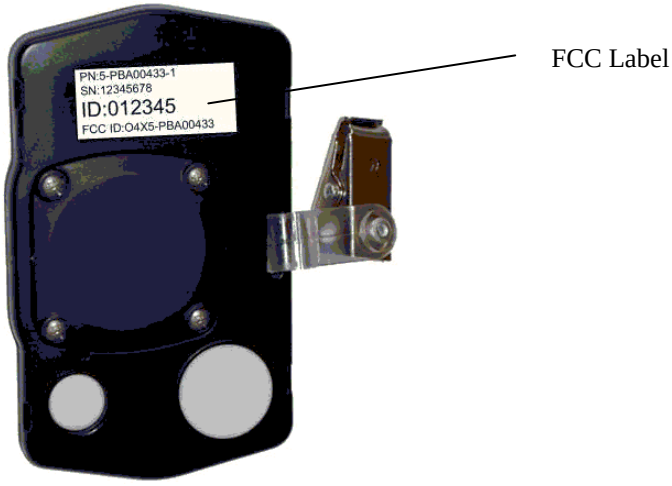

Figure 2. Location of Label on EUT

3. System Test Configuration

3.1 Justification

To determine the E.U.T. antenna orientation for the spurious radiated emissions tests, the product carrier field level was measured with the E.U.T. in 3 orthogonal positions. The E.U.T. was tested in 3 orthogonal positions.

The vertical position of the E.U.T. was selected as the worst case final orientation position.

3.2 EUT Exercise Software

The tag firmware was modified so that the tag transmits a message 20 times per second. Released product transmits one message every 10 seconds when the badge is in motion.

3.3 Special Accessories

A test jig was used to support the E.U.T.

3.4 Equipment Modifications

No modifications were needed in order to achieve compliance

3.5 Configuration of Tested System

Figure 3. Configuration of Tested System

4. Periodic Operation

4.1 Specification

F.C.C., Part 15, Subpart C, Section 15.231(a)

4.2 Requirements

Requirement	Rationale	Verdict
Continuous transmissions are not permitted.	See information in User Manual.	Complies
A manually operated transmitter shall be deactivated within not more than 5 seconds after releasing the switch.	See plots in Figure 4 to Figure 5	Complies
An automatically operated transmitter shall cease operation within 5 seconds after activation.	See plots in Figure 4 to Figure 5	Complies
Periodic transmissions at regular predetermined intervals are not permitted.	See information in User Manual.	Complies
Polling or supervised transmissions to determine system integrity of transmitter used in security or safety applications shall not exceed more than 2 seconds per hour.	See plots in Figure 6 to Figure 7	Complies

4.3 Results

JUDGEMENT: Passed

The EUT met the FCC Part 15, Subpart C, Section 15.231(a) specification requirements.

TEST PERSONNEL:

Tester Signature: _____ Date: 10.09.08

Typed/Printed Name: A. Sharabi

Periodic Operation

E.U.T Description	Active Identity Badge
Type	PBA
Serial Number:	Not Designated

Specification: F.C.C., Part 15, Subpart C, 15.231(a)

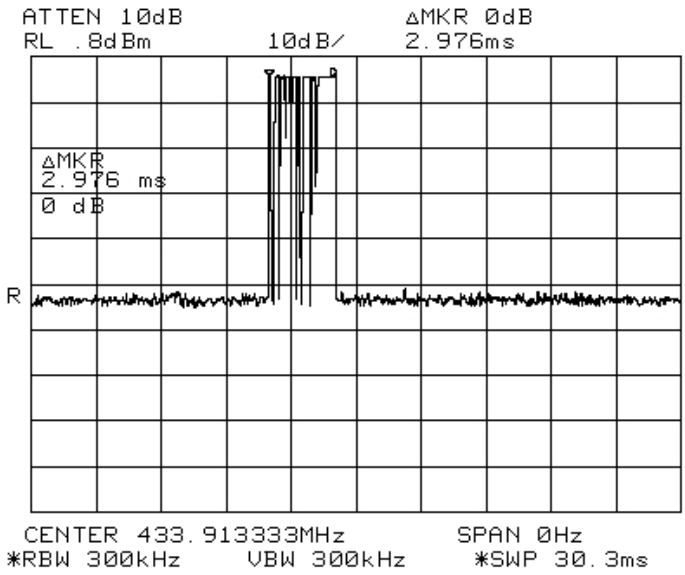

Figure 4. Manual and Automatic Transmission Pulse Width

Periodic Operation

E.U.T Description	Active Identity Badge
Type	PBA
Serial Number:	Not Designated

Specification: F.C.C., Part 15, Subpart C, 15.231(a)

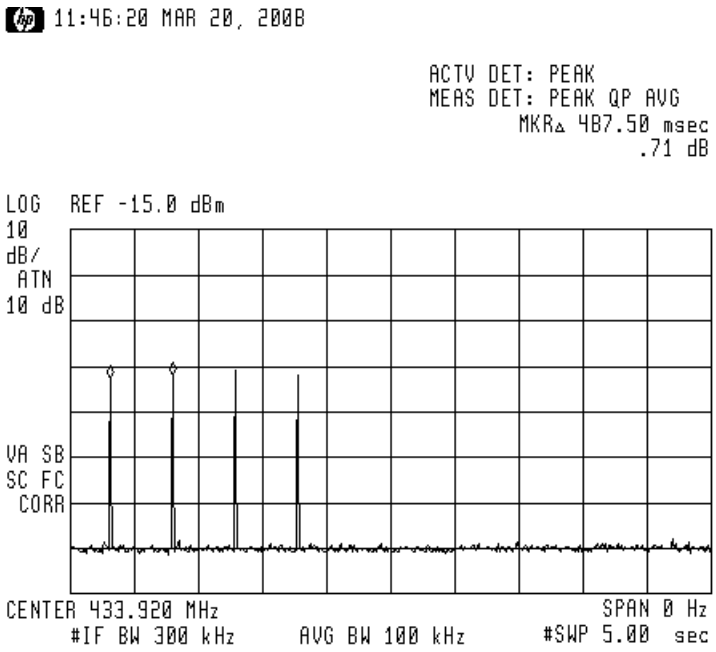

Figure 5. Manual and Automatic Transmission in 5 Seconds

Periodic Operation

E.U.T Description	Active Identity Badge
Type	PBA
Serial Number:	Not Designated

Specification: F.C.C., Part 15, Subpart C, 15.231(a)

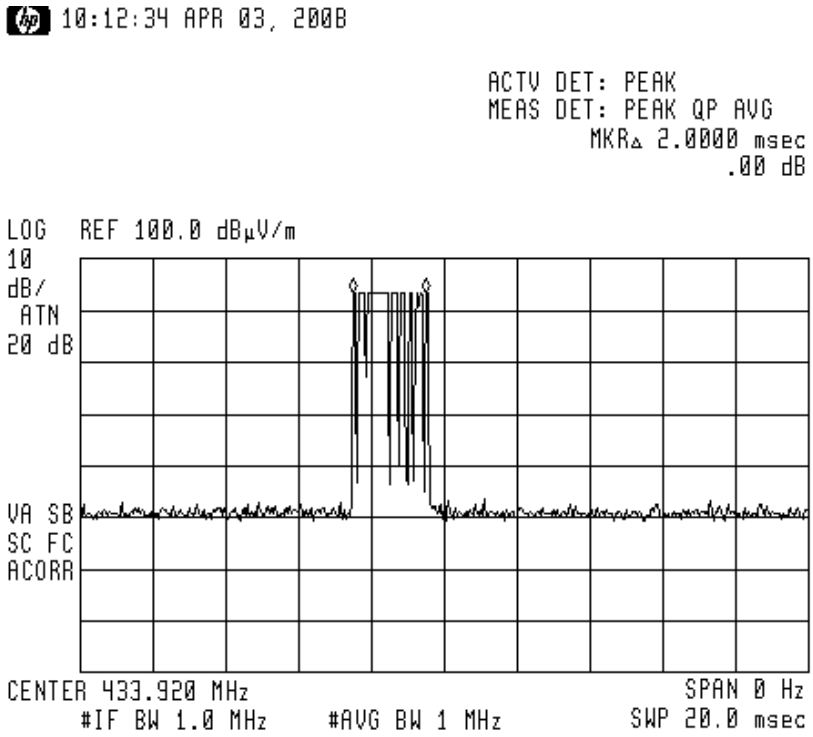

Figure 6. System Integrity Pulse Width

Periodic Operation

E.U.T Description	Active Identity Badge
Type	PBA
Serial Number:	Not Designated

Specification: F.C.C., Part 15, Subpart C, 15.231(a)

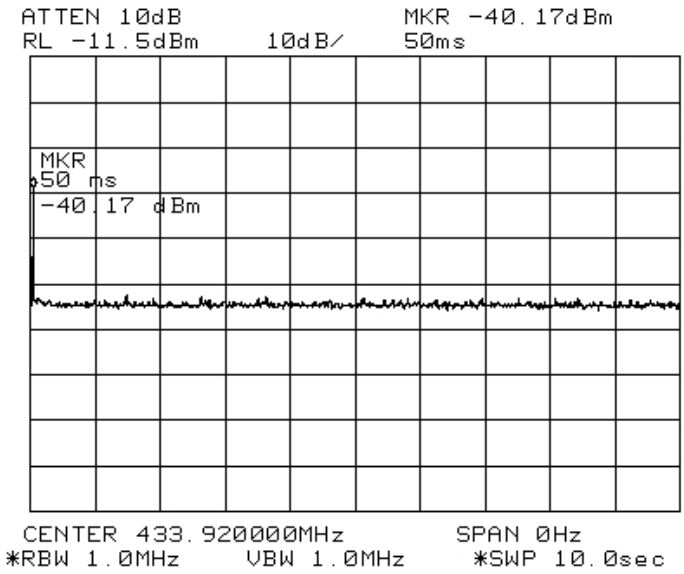

Figure 7. System Integrity Within 1 Hour

(2 milliseconds X 360 = 720 milliseconds)

5. Field Strength of Fundamental

5.1 Test Specification

F.C.C., Part 15, Subpart C, Section 15.231(b)

5.2 Test Procedure

The E.U.T. operation mode and test set-up are as described in Section 3.

The E.U.T. was placed on a non-conductive table, 0.8 meters above the O.A.T.S. ground plane.
The EMI receiver was set to the E.U.T. Fundamental Frequency (433.92MHz) and Peak Detection.
The turntable and antenna mast were adjusted for maximum level reading on the EMI receiver.
The measurement was performed for vertical and horizontal polarizations of the test antenna.

The average result is:

Peak Level(dBµV/m) + E.U.T. Duty Cycle Factor, in 100msec time window (dB)

5.3 Measured Data

JUDGEMENT: Passed by 17.38 dB

The EUT met the FCC Part 15, Subpart C, Section 15.231(b) specification requirements.

The details of the highest emissions are given in Figure 8 to Figure 12.

TEST PERSONNEL:

Tester Signature: _____ Date: 10.09.08

Typed/Printed Name: A. Sharabi

Field Strength of Fundamental

E.U.T Description	Active Identity Badge
Type	PBA
Serial Number:	Not Designated

Specification: F.C.C., Part 15, Subpart C, 15.231(b)

Antenna Polarization: Horizontal/Vertical

Test Distance: 3 meters Detector: Peak

Freq.	Pol.	Peak Amp	Average Factor	AVG Result	AVG Specification	Margin
(MHz)	V/H	(dBµV/m)	(dB)	(dBµV/m)	(dBµV/m)	(dB)
433.915	H	61.13	-30.45	30.68	80.8	-50.12
433.915	V	93.87	-30.45	63.42	80.8	-17.38

Figure 8. Field Strength of Fundamental. Antenna Polarization: HORIZONTAL/VERTICAL. Detector: Peak

Notes:

1. Margin refers to the test results obtained minus specified requirement; thus a positive number indicates failure, and a negative result indicates that the product passes the test.
2. “Peak Amp.” (dBµV/m) included the “Correction Factors”.
3. “Correction Factors” (dB) = Test Antenna Correction Factor(dB) + Cable Loss.
4. “Average Factor = 20 log [(burst duration/100msec)*Num of burst within 100msec)]= 20 log [(3/100)*1)]= -30.45
5. “Average Result” (dBµV/m)=Peak Amp. (dBµV/m)+D.C.F. (dB)

Field Strength of Fundamental

E.U.T Description	Active Identity Badge
Type	PBA
Serial Number:	Not Designated

Specification: F.C.C., Part 15, Subpart C, 15.231(b)

Antenna Polarization: Horizontal

Test Distance: 3 meters Detectors: Peak, Quasi-peak, Average

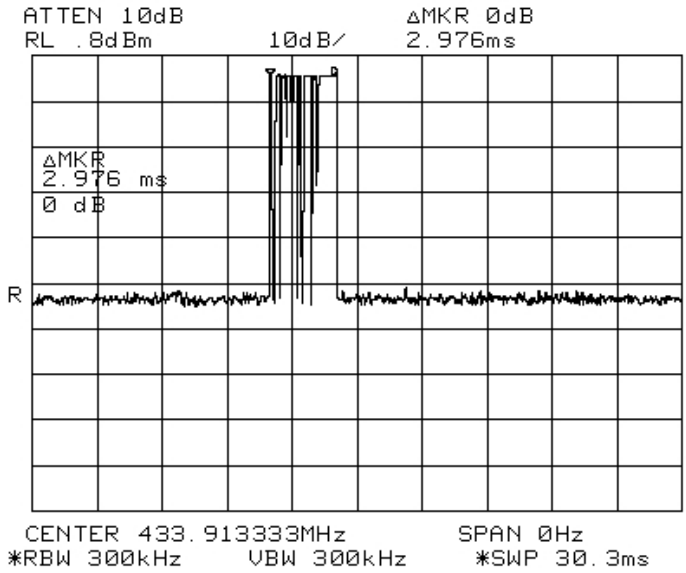

Figure 9. Average Factor Calculation

"Average Factor = 20 log [(burst duration/100msec)*Num of burst within 100msec)]= 20 log [(3/100)*1)]= -30.45

Field Strength of Fundamental

E.U.T Description	Active Identity Badge
Type	PBA
Serial Number:	Not Designated

Specification: F.C.C., Part 15, Subpart C, 15.231(b)

Antenna Polarization: Horizontal

Test Distance: 3 meters Detectors: Peak, Quasi-peak, Average

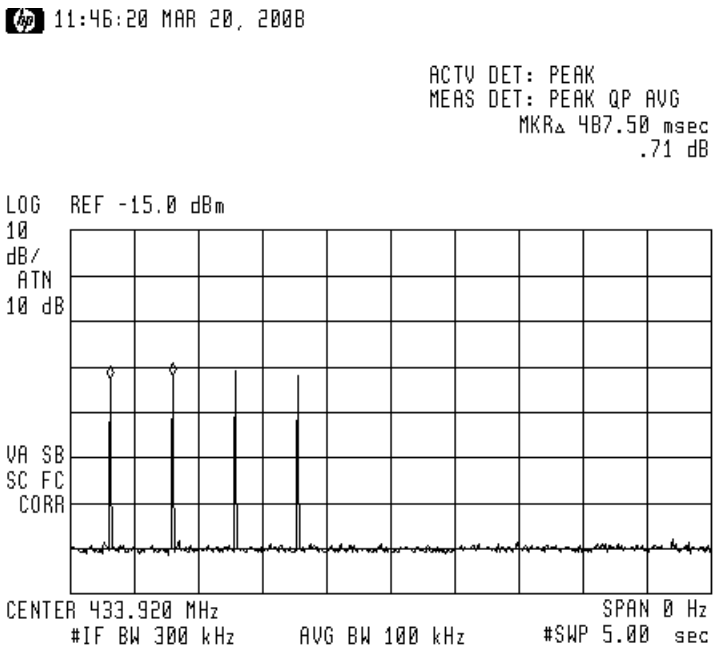

Figure 10. Average Factor Calculation

Note: The above plot represents the worst case transmission period within 100 milliseconds.

Field Strength of Fundamental

E.U.T Description	Active Identity Badge
Type	PBA
Serial Number:	Not Designated

Specification: F.C.C., Part 15, Subpart C, 15.231(b)

Antenna Polarization: Horizontal

Test Distance: 3 meters Detectors: Peak, Quasi-peak, Average

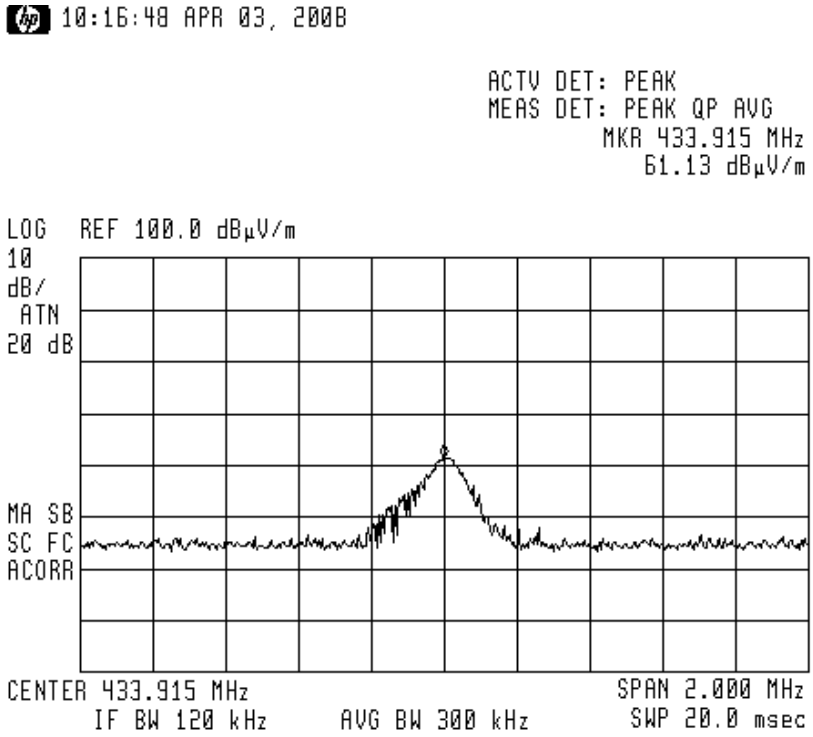

Figure 11. Field Strength of Fundamental. Antenna Polarization: HORIZONTAL. Detectors: Peak, Quasi-peak, Average

Field Strength of Fundamental

E.U.T Description	Active Identity Badge
Type	PBA
Serial Number:	Not Designated

Specification: F.C.C., Part 15, Subpart C, 15.231(b)

Antenna Polarization: Vertical

Test Distance: 3 meters Detectors: Peak, Quasi-peak, Average

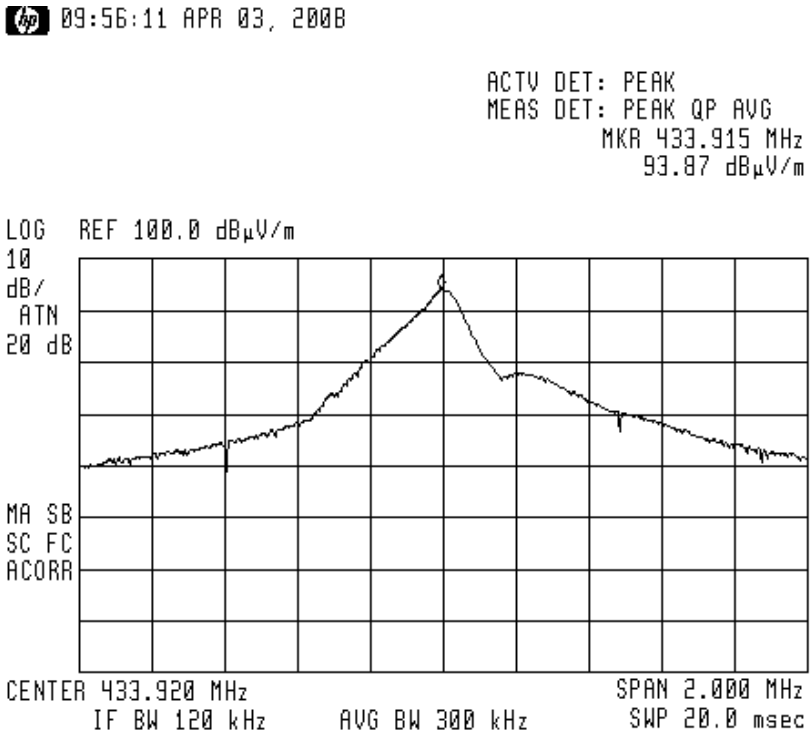

Figure 12. Field Strength of Fundamental. Antenna Polarization: VERTICAL. Detectors: Peak, Quasi-peak, Average

5.4 Test Instrumentation Used, Field Strength of Fundamental

Instrument	Manufacturer	Model	Serial Number	Calibration	Period
EMI Receiver	HP	85422E	3906A00276	November 12, 2007	1 year
RF Section	HP	85420E	3705A00248	November 12, 2007	1 year
Antenna Log Periodic	ARA	LPD-2010/A	1038	November 22, 2007	1 year
Antenna Mast	ARA	AAM-4A	1001	N/A	N/A
Turntable	ARA	ART-1001/4	1001	N/A	N/A
Mast & Table Controller	ARA	ACU-2/5	1001	N/A	N/A
Printer	HP	LaserJet 2200	JPKGC19982	N/A	N/A

6. Radiated Measurement Test Set-up Photo

Figure 13. Radiated Emission Test

7. Spurious Radiated Emission

7.1 Test Specification

9 kHz - 4500 MHz, F.C.C., Part 15, Subpart C

7.2 Test Procedure

The E.U.T. operation mode and test set-up are as described in Section 3.
See Section 3.1 Justification of the System Test Configuration concerning the E.U.T. orientation for this test.
A preliminary measurement to characterize the E.U.T was performed inside the shielded room at a distance of 3 meters, using peak detection mode and broadband antennas. The preliminary measurements produced a list of the highest emissions. The E.U.T was then transferred to the open site, and placed on a remote-controlled turntable. The E.U.T was placed on a non-metallic table, 0.8 meters above the ground. The configuration tested is shown in Figure 3.
The signals from the list of the highest emissions were verified and the list was updated accordingly.
The levels of the emissions within the frequency ranges of the restricted bands (Section 15.205 of FCC Part 15) were compared to the limits of the table in Section 15.209 (a), General Requirements.

The frequency range 9 kHz-4500 MHz was scanned.

The emissions were measured using a computerized EMI receiver complying to CISPR 16 requirements. The specification limits and applicable correction factors are loaded to the receiver via a 3.5" floppy disk.

In the frequency range 9 kHz-30MHz, the loop antenna was rotated on its vertical axis. The antenna height (center of loop) was 1 meter at a distance of 3 meters.

In the frequency range 2.9-4.5 GHz, a spectrum analyzer including a low noise amplifier was used. During peak measurements, the I.F. bandwidth was 1 MHz, and video bandwidth 3 MHz. During average measurements, the I.F. bandwidth was 1 MHz and video bandwidth was 100 Hz.

The readings were maximized by adjusting the antenna height between 1-4 meters, the turntable azimuth between 0-360°, and the antenna polarization. Verification of the E.U.T emissions was based on the following methods: turning the E.U.T on and off; using a frequency span less than 10 MHz; observation of the signal level during turntable rotation. (Background noise is not affected by the rotation of the E.U.T.)

The emissions were measured at a distance of 3 meters.

7.3 Test Data

JUDGEMENT: Passed by 5.8 dB

The EUT met the requirements of the F.C.C. Part 15, Subpart C, specification.

The margin between the emission level and the specification limit is 5.8 dB in the worst case at the frequency of 867.68 MHz, vertical polarization.

No signals were found in the frequency range of 1.0 – 4.5 GHz.

TEST PERSONNEL:

Tester Signature: _____ Date: 10.09.08

Typed/Printed Name: A. Sharabi

Radiated Emission

E.U.T Description	Active Identity Badge
Type	PBA
Serial Number:	Not Designated

Specification: FCC Part 15, Subpart C

Antenna Polarization: Horizontal
Antenna: 3 meters distance

Frequency range: 30 MHz to 1000 MHz
Detectors: Peak, Quasi-peak

Signal Number	Frequency (MHz)	Peak dBuV/m	QP dBuV/m	QP Delta L 1 (dB)	Avg dBuV/m	Av Delta L 2 (dB)	Corr (dB)
1	176.945800	27.7	22.2	-21.3			12.9
2	197.948250	38.4	31.9	-11.6			16.6
3	867.007200	43.4	37.2	-8.8			26.8

Figure 14. Radiated Emission. Antenna Polarization: HORIZONTAL. Detectors: Peak, Quasi-peak

Note: QP Delta refers to the test results obtained minus specified requirement; thus a positive number indicates failure, and a negative result indicates that the product passes the test.

Radiated Emission

E.U.T Description	Active Identity Badge
Type	PBA
Serial Number:	Not Designated

Specification: FCC Part 15, Subpart C

Antenna Polarization: Horizontal
Antenna: 3 meters distance

Frequency range: 30 MHz to 1000 MHz
Detectors: Peak, Quasi-peak

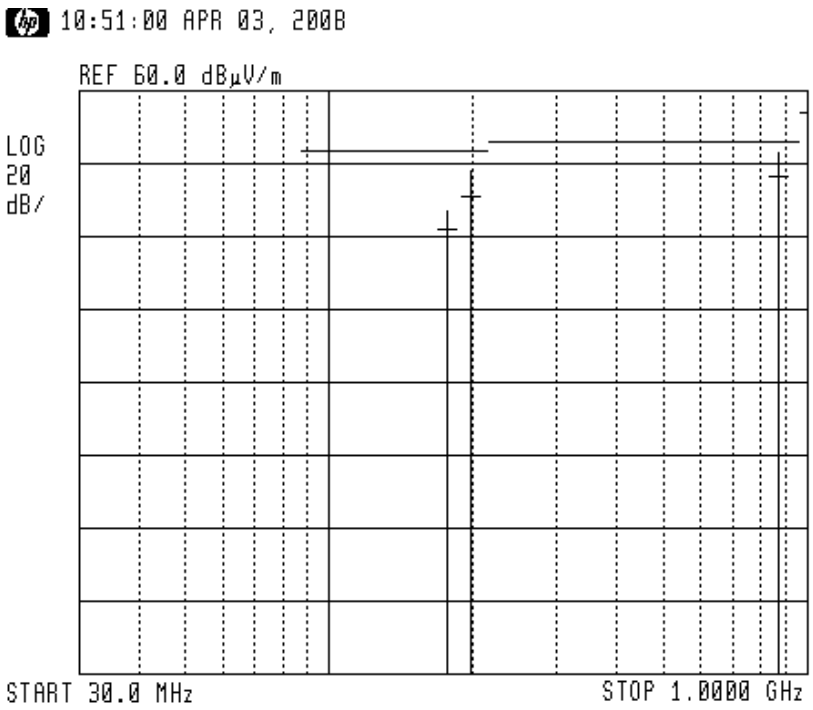

Figure 15. Radiated Emission. Antenna Polarization: HORIZONTAL Detectors: Peak, Quasi-peak

Note:

1. *Horizontal axis shows logarithmic frequency scale.*
2. *The vertical axis shows amplitude (in dB µV/m).*
3. *Peak detection is designated by the top of each vertical line.*
4. *Quasi-peak detection is designated by the first dash mark (from the top) of each vertical line.*

Radiated Emission

E.U.T Description Active Identity Badge
Type PBA
Serial Number: Not Designated

Specification: FCC Part 15, Subpart C

Antenna Polarization: Vertical
Antenna: 3 meters distance

Frequency range: 30 MHz to 1000 MHz
Detectors: Peak, Quasi-peak

Signal Number	Frequency (MHz)	Peak dBuV/m	QP dBuV/m	QP Delta L 1 (dB)	Avg dBuV/m	Av Delta L 2 (dB)	Corr (dB)
1	177.035500	28.5	22.3	-21.2			12.9
2	197.978400	33.3	26.2	-17.3			16.6
3	867.681850	48.8	40.2	-5.8			26.8

Figure 16. Radiated Emission. Antenna Polarization: VERTICAL. Detectors: Peak, Quasi-peak

Note: QP Delta refers to the test results obtained minus specified requirement; thus a positive number indicates failure, and a negative result indicates that the product passes the test.

Radiated Emission

E.U.T Description	Active Identity Badge
Type	PBA
Serial Number:	Not Designated

Specification: FCC Part 15, Subpart C

Antenna Polarization: Vertical
Antenna: 3 meters distance

Frequency range: 30 MHz to 1000 MHz
Detectors: Peak, Quasi-peak

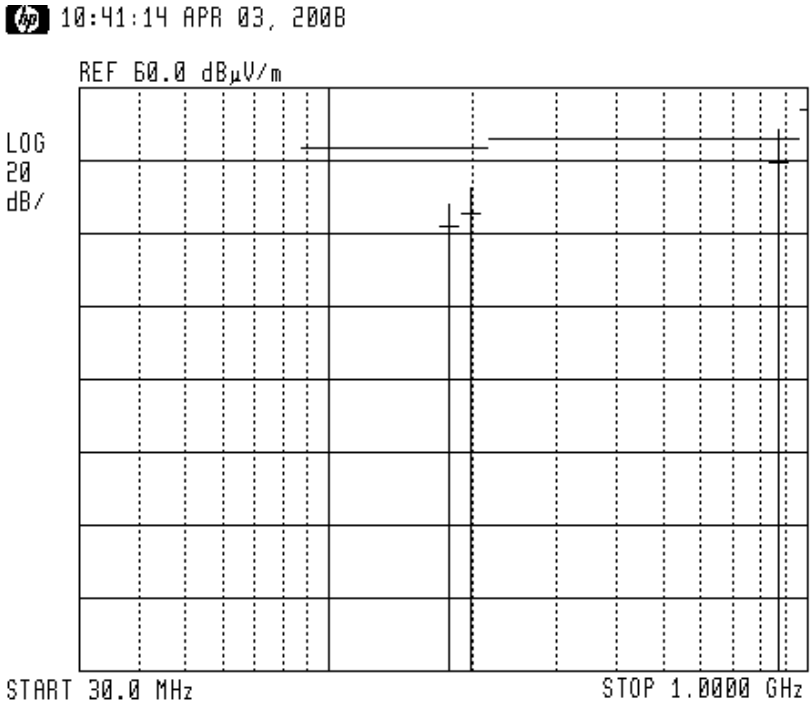

Figure 17. Radiated Emission. Antenna Polarization: VERTICAL. Detectors: Peak, Quasi-peak

Note:

1. *Horizontal axis shows logarithmic frequency scale.*
2. *The vertical axis shows amplitude (in dB µV/m).*
3. *Peak detection is designated by the top of each vertical line.*
4. *Quasi-peak detection is designated by the first dash mark (from the top) of each vertical line.*

7.4 Test Instrumentation Used, Radiated Measurements

Instrument	Manufacturer	Model	Serial Number	Calibration	Period
EMI Receiver	HP	85422E	3906A00276	November 12, 2007	1 year
RF Section	HP	85420E	3705A00248	November 12, 2007	1 year
Low Noise Amplifier	DBS MICROWAVE	LNA-DBS-0411N313	013	November 2, 2007	1 Year
Spectrum Analyzer	HP	8592L	3826A01204	March 5, 2008	1 Year
Active Loop Antenna	EMCO	6502	9506-2950	October 15, 2007	1 year
Antenna Bioconical	ARA	BCD 235/B	1041	March 23, 2008	1 year
Antenna Log Periodic	ARA	LPD-2010/A	1038	November 22, 2007	1 year
Antenna-Log Periodic	A.H.System	SAS-200/511	253	February 4, 2007	2 year
Antenna Mast	ARA	AAM-4A	1001	N/A	N/A
Turntable	ARA	ART-1001/4	1001	N/A	N/A
Mast & Table Controller	ARA	ACU-2/5	1001	N/A	N/A
Printer	HP	LaserJet 2200	JPKGC19982	N/A	N/A

8. Bandwidth

8.1 Test procedure

The transmitter unit operated with normal modulation. The spectrum analyzer was set to 120 kHz resolution BW and center frequency of the transmitter fundamental. The spectrum bandwidth of the transmitter unit was measured and recorded.

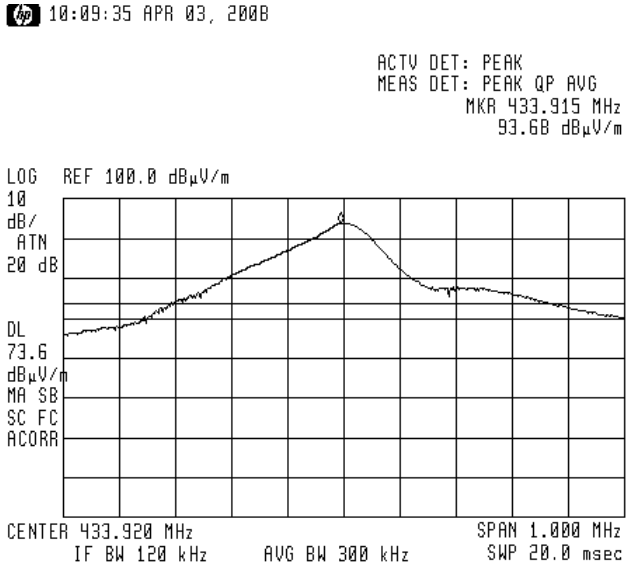

Figure 18

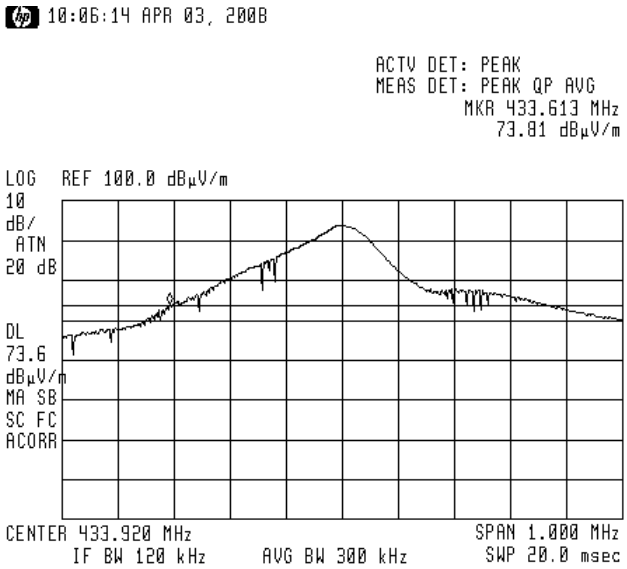

Figure 19 F_{Low}

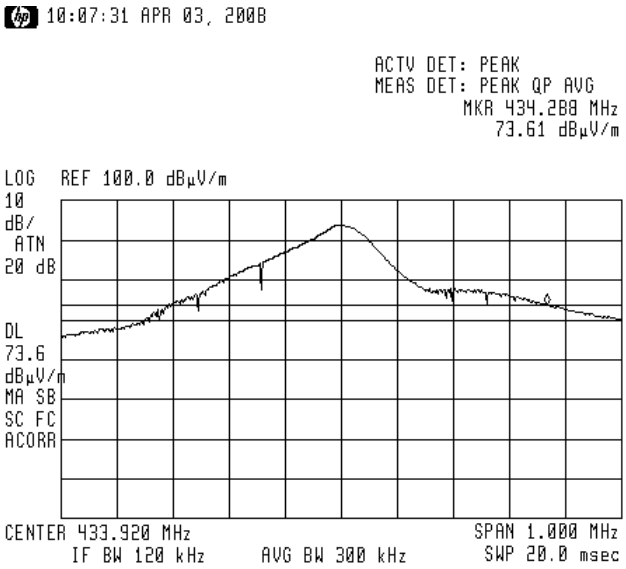

Figure 20 F_{High}

8.2 Results table

E.U.T Description: Active Identity Badge
Model: PBA
Serial Number: Not Designated
Specification: F.C.C. Part 15, Subpart C: (15.231(c))

Bandwidth Reading (kHz)	Specification (1) (kHz)	Margin (kHz)
675	1084.8	-409.8

Figure 21 Bandwidth

JUDGEMENT: Passed by 409.8 kHz

TEST PERSONNEL:
Tester Signature: _____ Date: 10.09.08
Typed/Printed Name: A. Sharabi

(1) 0.25% of the E.U.T. fundamental frequency, Section 15.231(c).

8.3 Test Equipment Used.

Bandwidth

Instrument	Manufacturer	Model	Serial Number	Calibration	Period
EMI Receiver	HP	85422E	3906A00276	November 12, 2007	1 year
RF Section	HP	85420E	3705A00248	November 12, 2007	1 year
Antenna Log Periodic	ARA	LPD-2010/A	1038	November 22, 2007	1 year
Antenna Mast	ARA	AAM-4A	1001	N/A	N/A
Turntable	ARA	ART-1001/4	1001	N/A	N/A
Mast & Table Controller	ARA	ACU-2/5	1001	N/A	N/A
Printer	HP	LaserJet 2200	JPKGC19982	N/A	N/A

Figure 22 Test Equipment Used

9. 11. APPENDIX A - CORRECTION FACTORS

9.1 Correction factors for CABLE

from EMI receiver to test antenna at 3 meter range.

FREQUENCY (MHz)	CORRECTION FACTOR (dB)
10.0	0.3
20.0	0.6
30.0	0.8
40.0	0.9
50.0	1.1
60.0	1.2
70.0	1.3
80.0	1.4
90.0	1.6
100.0	1.7
150.0	2.0
200.0	2.3
250.0	2.7
300.0	3.1
350.0	3.4
400.0	3.7
450.0	4.0
500.0	4.3
600.0	4.7
700.0	5.3
800.0	5.9
900.0	6.3
1000.0	6.7

FREQUENCY (MHz)	CORRECTION FACTOR (dB)
1200.0	7.3
1400.0	7.8
1600.0	8.4
1800.0	9.1
2000.0	9.9
2300.0	11.2
2600.0	12.2
2900.0	13.0

NOTES:

1. The cable type is RG-214.

2. The overall length of the cable is 27 meters.

3. The above data is located in file 27MO3MO.CBL on the disk marked "Radiated Emission Tests EMI Receiver".

9.2 Correction factors for CABLE

from EMI receiver to test antenna at 3 meter range.

FREQUENCY (GHz)	CORRECTION FACTOR (dB)
1.0	1.2
2.0	1.6
3.0	2.0
4.0	2.4
5.0	3.0
6.0	3.4
7.0	3.8
8.0	4.2
9.0	4.6
10.0	5.0
12.0	5.8

NOTES:

1. The cable type is RG-8.

2. The overall length of the cable is 10 meters.

9.3 Correction factors for CABLE

from spectrum analyzer
to test antenna above 2.9 GHz

FREQUENCY (GHz)	CORRECTION FACTOR (dB)	FREQUENCY (GHz)	CORRECTION FACTOR (dB)
1.0	1.9	14.0	9.1
2.0	2.7	15.0	9.5
3.0	3.5	16.0	9.9
4.0	4.2	17.0	10.2
5.0	4.9	18.0	10.4
6.0	5.5	19.0	10.7
7.0	6.0	20.0	10.9
8.0	6.5	21.0	11.2
9.0	7.0	22.0	11.6
10.0	7.5	23.0	11.9
11.0	7.9	24.0	12.3
12.0	8.3	25.0	12.6
13.0	8.7	26.0	13.0

NOTES:

1. The cable type is SUCOFLEX 104 E manufactured by SUHNER.

2. The cable is used for measurements above 2.9 GHz.

3. The overall length of the cable is 10 meters.

9.4 Correction factors for Log Periodic Antenna

Type LPD 2010/A

at 3 and 10 meter ranges.

Distance of 3 meters

FREQUENCY (MHz)	AFE (dB/m)
200.0	9.1
250.0	10.2
300.0	12.5
400.0	15.4
500.0	16.1
600.0	19.2
700.0	19.4
800.0	19.9
900.0	21.2
1000.0	23.5

Distance of 10 meters

FREQUENCY (MHz)	AFE (dB/m)
200.0	9.0
250.0	10.1
300.0	11.8
400.0	15.3
500.0	15.6
600.0	18.7
700.0	19.1
800.0	20.2
900.0	21.1
1000.0	23.2

NOTES:

1. *Antenna serial number is 1038.*
2. *The above lists are located in file number 38M3O.ANT for a 3 meter range, and file number 38M100.ANT for a 10 meter range.*
3. *The files mentioned above are located on the disk marked "Radiated Emission Test EMI Receiver".*

9.5 Correction factors for BICONICAL ANTENNA

Type BCD-235/B, at 3 meter range

FREQUENCY (MHz)	AFE (dB/m)
20.0	19.4
30.0	14.8
40.0	11.9
50.0	10.2
60.0	9.1
70.0	8.5
80.0	8.9
90.0	9.6
100.0	10.3
110.0	11.0
120.0	11.5
130.0	11.7
140.0	12.1
150.0	12.6
160.0	12.8
170.0	13.0
180.0	13.5
190.0	14.0
200.0	14.8
210.0	15.3
220.0	15.8
230.0	16.2
240.0	16.6
250.0	17.6
260.0	18.2
270.0	18.4
280.0	18.7
290.0	19.2
300.0	19.9
310	20.7
320	21.9
330	23.4
340	25.1
350	27.0

NOTES:

1. Antenna serial number is 1041.

2. The above list is located in file 19BC10M1.ANT on the disk marked "Radiated Emissions Tests EMI Receiver".

9.6 Correction factors for LOG PERIODIC ANTENNA

Type SAS-200/511
at 3 meter range.

FREQUENCY (GHz)	ANTENNA FACTOR (dB)
1.0	24.9
1.5	27.8
2.0	29.9
2.5	31.2
3.0	32.8
3.5	33.6
4.0	34.3
4.5	35.2
5.0	36.2
5.5	36.7
6.0	37.2
6.5	38.1

FREQUENCY (GHz)	ANTENNA FACTOR (dB)
7.0	38.6
7.5	39.2
8.0	39.9
8.5	40.4
9.0	40.8
9.5	41.1
10.0	41.7
10.5	42.4
11.0	42.5
11.5	43.1
12.0	43.4
12.5	44.4
13.0	44.6

NOTES:

1. *Antenna serial number is 253.*
2. *The above lists are located in file number SAS3M0.ANT for a 3 meter range.*
3. *The files mentioned above are located on the disk marked "Antenna Factors".*

9.7 Correction factors for ACTIVE LOOP ANTENNA

Model 6502
S/N 9506-2950

FREQUENCY	Magnetic Antenna Factor	Electric Antenna Factor
(MHz)	(dB)	(dB)
.009	-35.1	16.4
.010	-35.7	15.8
.020	-38.5	13.0
.050	-39.6	11.9
.075	-39.8	11.8
.100	-40.0	11.6
.150	-40.0	11.5
.250	-40.0	11.6
.500	-40.0	11.5
.750	-40.1	11.5
1.000	-39.9	11.7
2.000	-39.5	12.0
3.000	-39.4	12.1
4.000	-39.7	11.9
5.000	-39.7	11.8
10.000	40.2	11.3
15.000	-40.7	10.8
20.000	-40.5	11.0
25.000	-41.3	10.2
30.000	42.3	9.2