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**Report of Measurements
of Electromagnetic Compatibility Testing**

Test Report File No. : **BP7169** Date of issue: April 14, 2000
Applicant : Applied Wireless Identifications Group Inc.
Model / Serial No. : KP-6840
Product Type : Proximity Reader
Power Supply : +5VDC to +12VDC
Manufacturer : Same as Applicant
License holder : Same as Applicant
Address : 382 Route 59 Section 292
: Monsey, NY 10952
Test Result : ☒ **Positive** ☐ **Negative**
Test Project Number : 00ME05283
References(s) FCC ID : OGSKP6840

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File Number: BP7169
Project Number: 00ME05283
Model Number: KP-6840
FCC ID: OGSKP6840

Issued: April 14, 2000

Report Directory

<u>Title</u>	<u>Section</u>
☒ General Product Description	1.0
☒ Device Configuration During Test	1.1
☒ Deviations from ANSI C63.4 Standard Test Set-up	1.1.1
☐ Device Modifications	1.2
☒ Emissions Test Regulations	2.0
☒ Operational Mode	2.1
☐ Conducted Emissions (Voltage and Current)	2.1.1
☐ Conducted Click Emissions	2.1.2
☐ Reserved for Future Use	2.2.1
☒ Radiated Emissions Test (10 Meter Semi-Anechoic Chamber)	2.2.2
☐ RFI Power Measurements	2.2.3
☐ Harmonic Disturbances	2.2.4
☒ Emissions Test Results	2.3
☐ Immunity Test Regulations	3.0
☐ Operational Mode	3.1
☐ Electrostatic Discharge (ESD) Test	3.1.1
☐ Radiated Field (RF) Test	3.1.2
☐ Electrical Fast Transient (EFT)/Burst Test	3.1.3
☐ Surge Transient Tests	3.1.4
☐ Conducted Immunity Tests	3.1.5
☐ Voltage, Dips and Interruptions	3.1.6
☐ Immunity Test Results	3.2
☒ Summary of Test Results	4.0
☒ Emissions Test Data Pages	Appendix A
☒ Photographs and Diagrams	Appendix B

1.0 GENERAL - Product Description

The Radio Frequency Identification (RFID) reader or proximity reader uses radio frequency to identify, locate and track people and objects that carry the appropriate transponders. Proximity can work in none line-of-sight situations and in darkness, bright sun light or through dirt grime and smudges.

File Number: BP7169
Project Number: 00ME05283
Model Number: KP-6840
FCC ID: OGSKP6840

Issued: April 14, 2000

1.1 Device Configuration During Test

The device under test was configured by the manufacturer to continuously transmit. The unit is a standalone device and was connected to a 12Vdc-power supply.

"The results contained in this report reflect the results for this particular model and serial number. It is the responsibility of the manufacturer to ensure that all production models meet the intent of the requirements detailed within this report."

1.1.1 Deviations from ANSI C63.4 Standard Test Set-up

☒ None

☐ As described below:

1.2 Device Modifications Necessary for Compliance

☒ N/A

☐ As described below:

Environmental conditions in the lab:

Temperature:	<u>Range</u> 20-25°C
Relative Humidity	30 - 60 %
Atmospheric pressure	680 - 1060 mbar

File Number: BP7169
Project Number: 00ME05283
Model Number: KP-6840
FCC ID: OGSKP6840

Issued: April 14, 2000

2.0 EMISSIONS TEST REGULATIONS:

- | | | |
|--|---|----------------------------------|
| ☐ EN 50081-1 /1992 | | |
| ☐ EN 50081-2 /1993 | | |
| ☐ EN 55011 / 3.1991 | ☐ Group 1 | ☐ Group 2 |
| | ☐ Class A | ☐ Class B |
|
 | | |
| ☐ EN 55011/1998 | ☐ Group 1 | ☐ Group 2 |
| | ☐ Class A | ☐ Class B |
|
 | | |
| ☐ EN 55013 / 6.1990 | | |
| ☐ EN 55013/1997 | | |
| ☐ EN 55014-1: 1997 | ☐ Household appliances and similar | |
| | ☐ Portable tools | |
| | ☐ Semiconductor devices | |
|
 | | |
| ☐ EN 55015 / 1993 | | |
| ☐ EN 55020 / 1995 | | |
| ☐ EN 55022 / 4.1998 | ☐ Class A | ☐ Class B |
| ☐ EN60555-2/1987, EN60555-3/1987 | | |
| ☐ EN60601-1-2: 1993 | | |
| ☐ EN61000-3-2, 1995, EN61000-3-3, 1995 | | |
| ☐ VCCI | ☐ Class 1 | ☐ Class 2 |
| ☐ FCC Part, 15, Subpart B | ☐ Class A | ☐ Class B |
| ☒ FCC Part , 15, Subpart C, Paragraphs 15.109 and 15.209 | | |
| ☐ FCC Part 18 | | |
| ☐ CISPR 11 (1997) | | |
| ☐ CISPR 14-1(1998) | | |
| ☐ CISPR 22 | | |
| ☐ DENTORI | | |
| ☐ AS3548 | | |
| ☐ Bellcore GR-1089-CORE: Issue 2, 12/1997 with Rev. 1, 2/1999 | | |
| ☐ (OTHER) _____ | | |

2.1 EUT OPERATION MODE - EMISSIONS TESTS:

- | |
|--|
| ☐ Standby |
| ☐ Test program (H-Pattern) |
| ☐ Test program (color bar) |
| ☐ Test program (customer specific) |
| ☐ Practice operation |
| ☒ Normal operation Mode: continuous sense for entry badge. |
| ☒ As per manufacturer's instructions |
| ☐ other |

File Number: BP7169
Project Number: 00ME05283
Model Number: KP-6840
FCC ID: OGSKP6840

Issued: April 14, 2000

2.1.1 Conducted Emissions Tests:

☒ Test Applicable ☒ Test Not Applicable

2.1.2 Conducted Click Emissions Tests:

☐ Test Applicable ☒ Test Not Applicable

2.2.1 Reserved for Future Use

File Number: BP7169
Project Number: 00ME05283
Model Number: KP-6840
FCC ID: OGSKP6840

Issued: April 14, 2000

2.2.2 Radiated Emissions Test (10 Meter Semi-Anechoic Chamber):

☒ Test Applicable ☐ Test Not Applicable

All Data Pages located in Appendix A.

120kHz – 30MHz using Magnetic Loop Antenna

The measurement antenna distance ☒ 3 ☐ 10 meters from the EUT.

30MHz – 1000MHz

The measurement antenna distance ☒ 3 ☐ 10 meters from the EUT.

Tests were performed on the transmitter in accordance with the limitation set forth by CFR47 FCC Part 15 Subpart B, Class A, Paragraphs 15.209 and tested in accordance with the test procedures and methodologies in ANSI C63.4:1992.

The EUT was checked throughout the frequency band 120kHz to 1000MHz. The transmitter operated at 120kHz. The allowable field strength limits in accordance with 15.209 were applied to the fundamental frequency. All other emissions were tested in accordance with the general limitations 15.209.

From 120kHz to 30MHz, measurements were made at a distance of 3 meters. The limit was adjusted using the 40dB/decade-limit extrapolation method.

Test equipment used for final radiated emissions tests:

☒ HP 8574A	Hewlett-Packard	EMI Receiver,	Equipment No.: ME5A-461
Consisting of:			
☒ HP - 8566B		Hewlett-Packard	Spectrum Analyzer,
		Resolution BW: 1MHz	
		Video BW: 1MHz	
☒ HP - 85662A		Hewlett-Packard	Analyzer Display
☒ HP - 85650A		Hewlett-Packard	Quasi-Peak Adapter,
		BW: 120kHz	
☒ HP - 85685A		Hewlett-Packard	Preselector
☐ R3261C	Advantest	Spectrum Analyzer	Equipment No.: ME5A-228
		Resolution BW: 1MHz	
		Video BW: 1MHz	
		QP BW: 120kHz	
☐ R3551	Advantest	Pre-Selector	Equipment No.: ME5A-229

For Measurements above 1GHz:

☐ HP - 8566B	Hewlett-Packard	Spectrum Analyzer,	Equipment No.: ME5A-461
	Resolution BW: 1MHz		
	Video BW: 1MHz		
☐ HP - 85662A	Hewlett-Packard	Analyzer Display	Equipment No. ME5A-461

File Number: BP7169
Project Number: 00ME05283
Model Number: KP-6840
FCC ID: OGSKP6840

Issued: April 14, 2000

Test Accessories:

☐	3104C	EMCO	Biconnical Antenna	Equipment No.: ME5-810
☒	94455-1	Ailtech	Biconnical Antenna	Equipment No.: ME5-439
☒	3146	EMCO	Log Periodic Antenna	Equipment No.: ME5-451
☐	3146	EMCO	Log Periodic Antenna	Equipment No.: ME5-811
☐	3142	EMCO	BiconiLog Antenna	Equipment No.: ME5A-131
☐	3142	EMCO	BiconiLog Antenna	Equipment No.: ME5A-261
☒	6502	EMCO	Active Loop Antenna	Equipment No.: ME5-606

2.2.3 RFI Power Measurements:

☐ Test Applicable ☒ Test Not Applicable

2.2.4 Harmonic Disturbances:

☐ Test Applicable ☒ Test Not Applicable

File Number: BP7169
Project Number: 00ME05283
Model Number: KP-6840
FCC ID: OGSKP6840

Issued: April 14, 2000

2.3 EMISSIONS TEST RESULTS

☐ Conducted Emissions

☐ Voltage(Section 2.1.1)	☐ MET	☐ NOT MET
☐ Current(Section 2.1.1)	☐ MET	☐ NOT MET
☐ Clicks(Section 2.1.2)	☐ MET	☐ NOT MET

☒ Radiated Emissions(Section 2.2.2)	☒ MET	☐ NOT MET
---	---	----------------------------------

☐ RFI Power(Section 2.2.3)	☐ MET	☐ NOT MET
---	------------------------------	----------------------------------

☐ Harmonic Disturbances

☐ Steady State(Section 2.2.4)	☐ MET	☐ NOT MET
☐ Fluctuating(Section 2.2.4)	☐ MET	☐ NOT MET

The tractability of the measurements contained in this report is achieved by the use of calibrated equipment which is traceable back to NIST.

File Number: BP7169
Project Number: 00ME05283
Model Number: KP-6840
FCC ID: OGSKP6840

Issued: April 14, 2000

3.0 IMMUNITY TEST REGULATIONS:

- ☒ NOT APPLICABLE
- ☐ EN50082-1: 1992 (Date of Withdrawal: 2001 - 07 - 01)
- ☐ EN50082-1: 1997
- ☐ EN50082-2: 1995
- ☐ EN55014-2: 1997
- ☐ EN55014-2: 1998
- ☐ CISPR 14-2: 1997
- ☐ FDA - Reviewer Guide
- ☐ Bellcore GR-1089-CORE: Issue 2, 12/1997 with Rev. 1, 2/1999
- ☐ EN 60601-1-2: 1993

In accordance with:

- | | | |
|--------------------------------------|--|---------------------------------|
| ☐ IEC 801-2, | ☐ IEC 1000-4-2 | Electrostatic Discharge (ESD) |
| ☐ IEC 801-3, | ☐ ENV50140 | RF Immunity |
| ☐ IEC 801-4, | ☐ IEC 1000-4-4 | Electrical Fast Transient (EFT) |
| ☐ IEC 801-5, | ☐ IEC 1000-4-5 | Surge (Lighting) |
| ☐ IEC 801-6, | ☐ ENV50141 | Conducted Immunity |
| ☐ IEC 801-11, | ☐ IEC 1000-4-11 | Voltage Dips and Interruptions |

3.1 EUT OPERATION MODE - IMMUNITY TESTS:

- ☐ Standby
- ☐ Test program (H-Pattern)
- ☐ Test program (color bar)
- ☐ Test program (customer specific)
- ☐ Practice operation
- ☐ Normal operating Mode:
- ☐ As per manufacture's instructions

File Number: BP7169
Project Number: 00ME05283
Model Number: KP-6840
FCC ID: OGSKP6840

Issued: April 14, 2000

3.1.1 Electrostatic Discharge (ESD) Test:

☐ Test Applicable ☒ Test Not Applicable

3.1.2 Radiated Field (RF Immunity) Test:

☐ Test Applicable ☒ Test Not Applicable

3.1.3 Electrical Fast Transient (EFT)/Burst test:

☐ Test Applicable ☒ Test Not Applicable

3.1.4 Voltage Surge Test:

☐ Test Applicable ☒ Test Not Applicable

3.1.5 Conducted Immunity Test:

☐ Test Applicable ☒ Test Not Applicable

3.1.6 Voltage Dips and Interruptions:

☐ Test Applicable ☒ Test Not Applicable

File Number: BP7169
Project Number: 00ME05283
Model Number: KP-6840
FCC ID: OGSKP6840

Issued: April 14, 2000

4.0 SUMMARY:

The equipment under test has

☒ met the technical requirements as defined under section(s) ☒ 2.0 and ☐ 3.0

☐ not met the technical requirements as defined under section(s) ☐ 2.0 and ☐ 3.0.

Test Start Date: 2/25/00

Test Completion Date: 2/26/00

- UNDERWRITERS LABORATORIES, INC. -

Project Engineer

Reviewer



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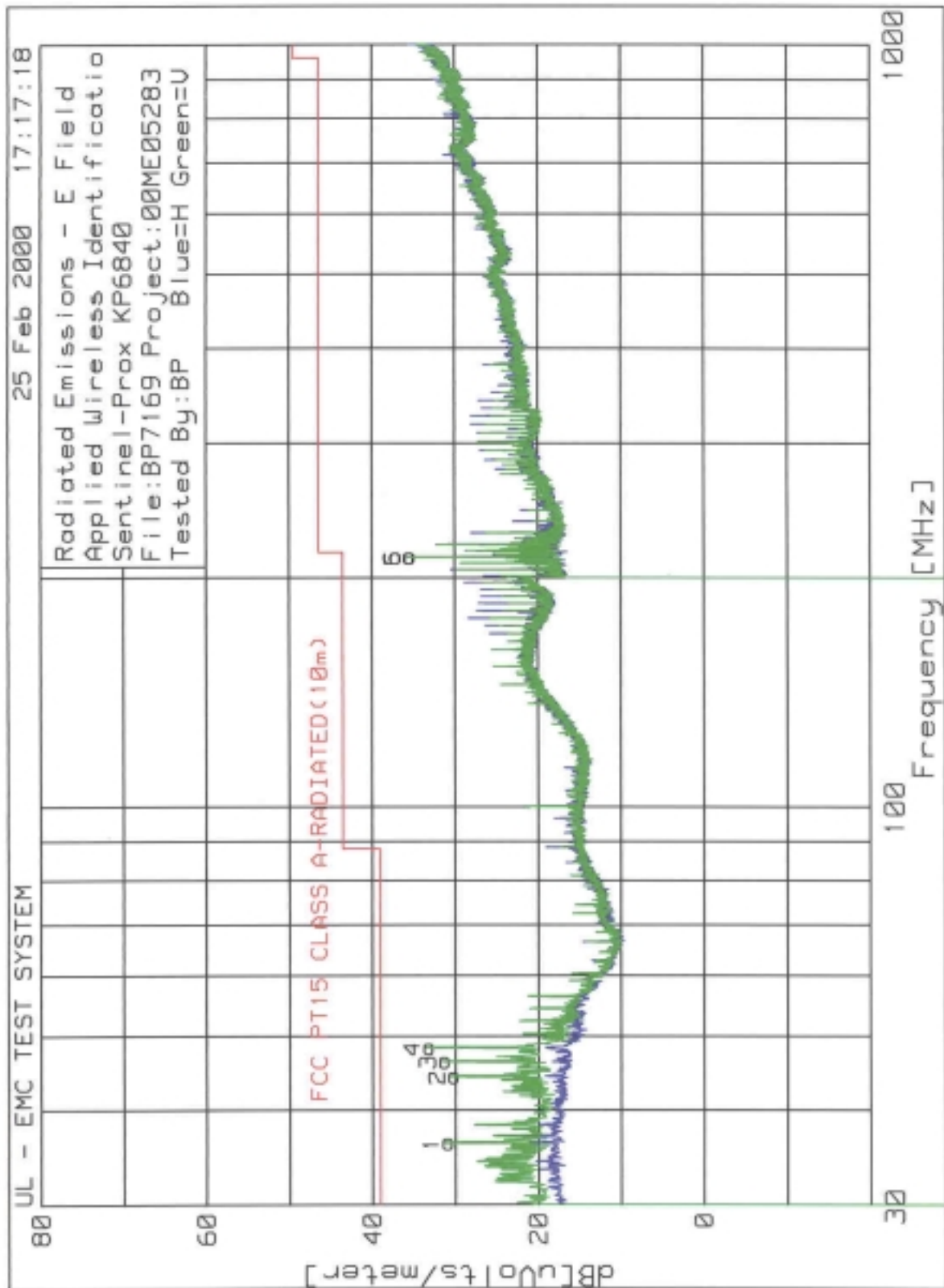
APPENDIX A

EMISSIONS TEST DATA

1. ☐ Conducted Emissions ☐ voltage ☐ current
 - ☐ Peak traces, Data Pages A___ and/through A___
 - ☐ Quasi-Peak traces, Data Pages A___ and/through A___
 - ☐ Average traces, Data Pages A___ and/through A___
☐ Discontinuous Interference (Clicks)
 - ☐ No clicks exceeded the steady state quasi-peak limit
 - ☐ Clicks exceeded the steady state quasi-peak limit. The limit was adjusted to _____dB and no clicks exceeded the adjusted limit.
 - ☐ Clicks exceeded the adjusted limit. See Data Page A___ for details.
2. ☒ Radiated Emissions
 - ☒ Peak traces, Data Pages A1 and A4
Data Page A1 Horizontal and Vertical
Data Page A3 varied over 360 degrees.
 - ☒ Peak Data, Data Pages A2 and A3
 - ☒ Average Data, Data Page A5
3. ☐ RFI Power Measurements
 - ☐ Peak traces, Data Pages A___ and/through A___
 - ☐ Quasi-Peak traces, Data Pages A___ and/through A___
 - ☐ Average Traces, Data Pages A___ and/through A___
4. ☐ Harmonic Disturbances
 - ☐ Steady State Harmonics, Data Pages A___ and/through A___
 - ☐ Fluctuating Harmonics, Data Pages A___ and/through A___
 - ☐ Changing Voltage, Data Pages A___ and/through A___

File Number: BP7169
 Project Number: 00ME05283
 Model Number: KP-6840
 FCC ID: OGSKP6840

Issued: April 14, 2000



File Number: BP7169
Project Number: 00ME05283
Model Number: KP-6840
FCC ID: OGSKP6840

Issued: April 14, 2000

UL - EMC TEST SYSTEM

Date Tested: 25 Feb 20
17:17:18

Applied Wireless Identificatio
Sentinel-Prox KP6840
File: BP7169 Project: 00ME05283
Tested By: BP Blue=H Green=V

MKR NO.	TEST FREQUENCY [MHz]	METER READING [dB(uV)]	GAIN/LOSS FACTOR [dB]	TRANSDUCER FACTOR [dB]	LEVEL	LIMIT:1	2	3	4
						dB[uVolts/meter]			
1	36.22	17.5 pk	.3	13.5	31.3	39	N/A	N/A	N/A
2	44.2445	17.7 pk	.3	12.6	30.6	39	N/A	N/A	N/A
3	46.3249	19.1 pk	.4	12.2	31.7	39	N/A	N/A	N/A
4	48.2567	21.5 pk	.4	11.7	33.6	39	N/A	N/A	N/A
5	212.987	23.9 pk	.9	11	35.8	43.5	N/A	N/A	N/A
6	212.987	24 pk	.9	11	35.9	43.5	N/A	N/A	N/A

pk - Peak detector
qp - Quasi-peak detector
av - Average detector
tm - Trace Math Result

LIMIT 1 : FCC PT15 CLASS A-RADIATED(10m)
LIMIT 2 : NONE
LIMIT 3 : NONE
LIMIT 4 : NONE

File Number: BP7169
Project Number: 00ME05283
Model Number: KP-6840
FCC ID: OGSKP6840

Issued: April 14, 2000

UL - EMC TEST SYSTEM

Date Tested: 25 Feb 20
17:17:18

Applied Wireless Identificatio
Sentinel-Prox KP6840
File: BP7169 Project: 00ME05283
Tested By: BP Blue=H Green=V

MARK TRACE - POSITIONS

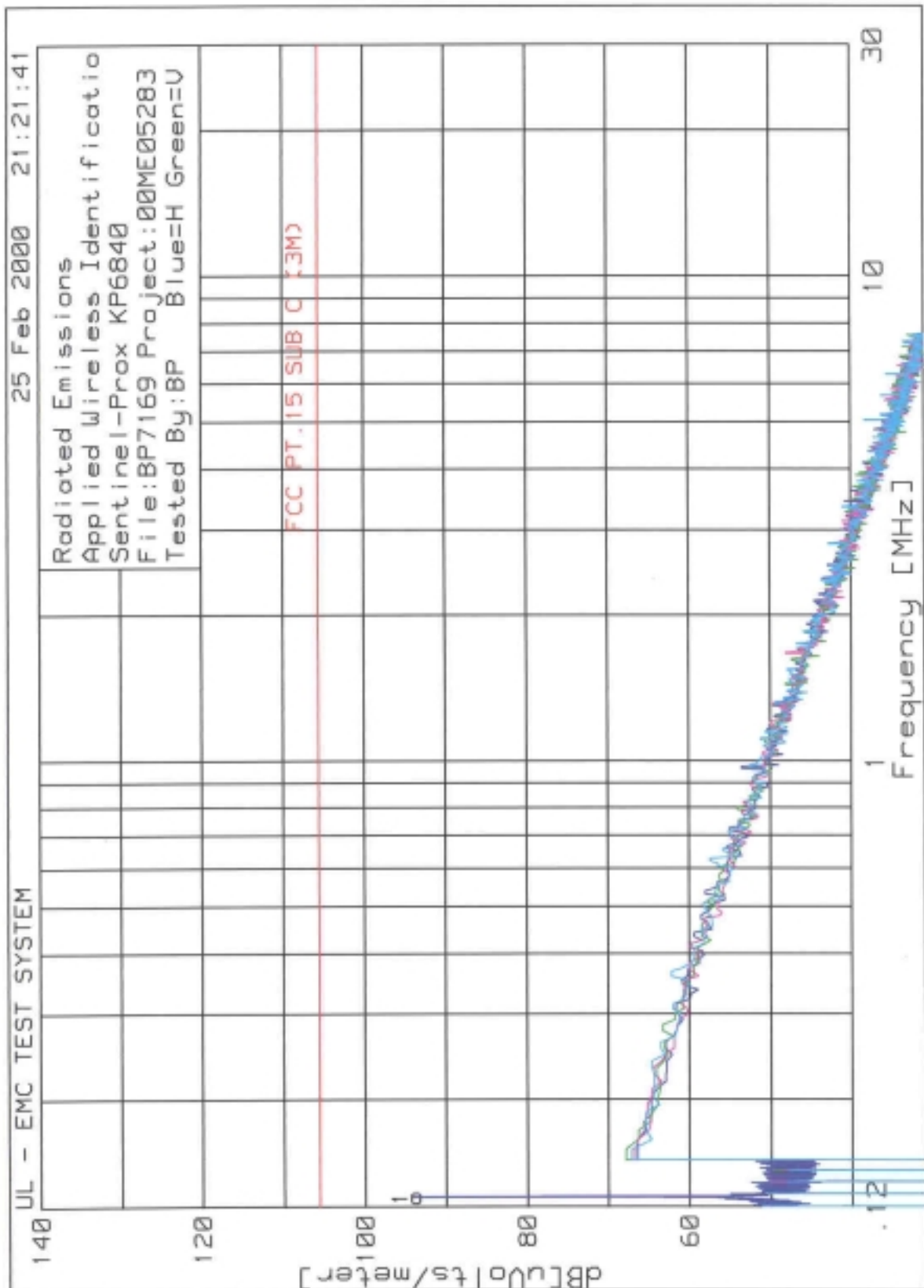
MARKER NO.	TEST FREQUENCY	LEVEL	LIMIT:1 dB[uVolts/meter]	2	3	4	TABLE AZIMUTH(deg)	TOWER HEIGHT
1	36.22	31.3 pk	39	N/A	N/A	N/A	124	99 V
2	44.2445	30.6 pk	39	N/A	N/A	N/A	44	99 V
3	46.3249	31.7 pk	39	N/A	N/A	N/A	104	99 V
4	48.2567	33.6 pk	39	N/A	N/A	N/A	44	99 V
5	212.987	35.8 pk	43.5	N/A	N/A	N/A	138	100 V
6	212.987	35.9 pk	43.5	N/A	N/A	N/A	136	301 H

pk - Peak detector
qp - Quasi-peak detector

LIMIT 1 : FCC PT15 CLASS A-RADIATED(10m)
LIMIT 2 : NONE
LIMIT 3 : NONE
LIMIT 4 : NONE

File Number: BP7169
Project Number: 00ME05283
Model Number: KP-6840
FCC ID: OGSKP6840

Issued: April 14, 2000



File Number: BP7169
Project Number: 00ME05283
Model Number: KP-6840
FCC ID: OGSKP6840

Issued: April 14, 2000

UL - EMC TEST SYSTEM

Date Tested: 25 Feb 20
21:21:41

Applied Wireless Identificatio
Sentinel-Prox KP6840
File: BP7169 Project: 00ME05283
Tested By: BP Blue=H Green=V

DATA	TEST	METER	GAIN/LOSS	TRANSDUCER	LEVEL	LIMITS:	1	2	3	4
POINT	FREQUENCY	READING	FACTOR	FACTOR		dB[uVolts/meter]				
[No.]	[MHz]	[dB(uV)]	[dB]	[dB]						
1	.12546	83.3	.3	14.8	98.4	105.6	0.0	0.0	0.0	
Azimuth : 20		Height : 0 H		Margin [dB]		-7.2	---	---	---	

H - indicates horizontal antenna polarization.
V - indicates vertical antenna polarization.

LIMIT 1 : FCC PT.15 SUB C (3M)
LIMIT 2 : NONE
LIMIT 3 : NONE
LIMIT 4 : NONE

File Number: BP7169
Project Number: 00ME05283
Model Number: KP-6840
FCC ID: OGSKP6840

Issued: April 14, 2000

APPENDIX B

PHOTOGRAPHS AND DIAGRAMS

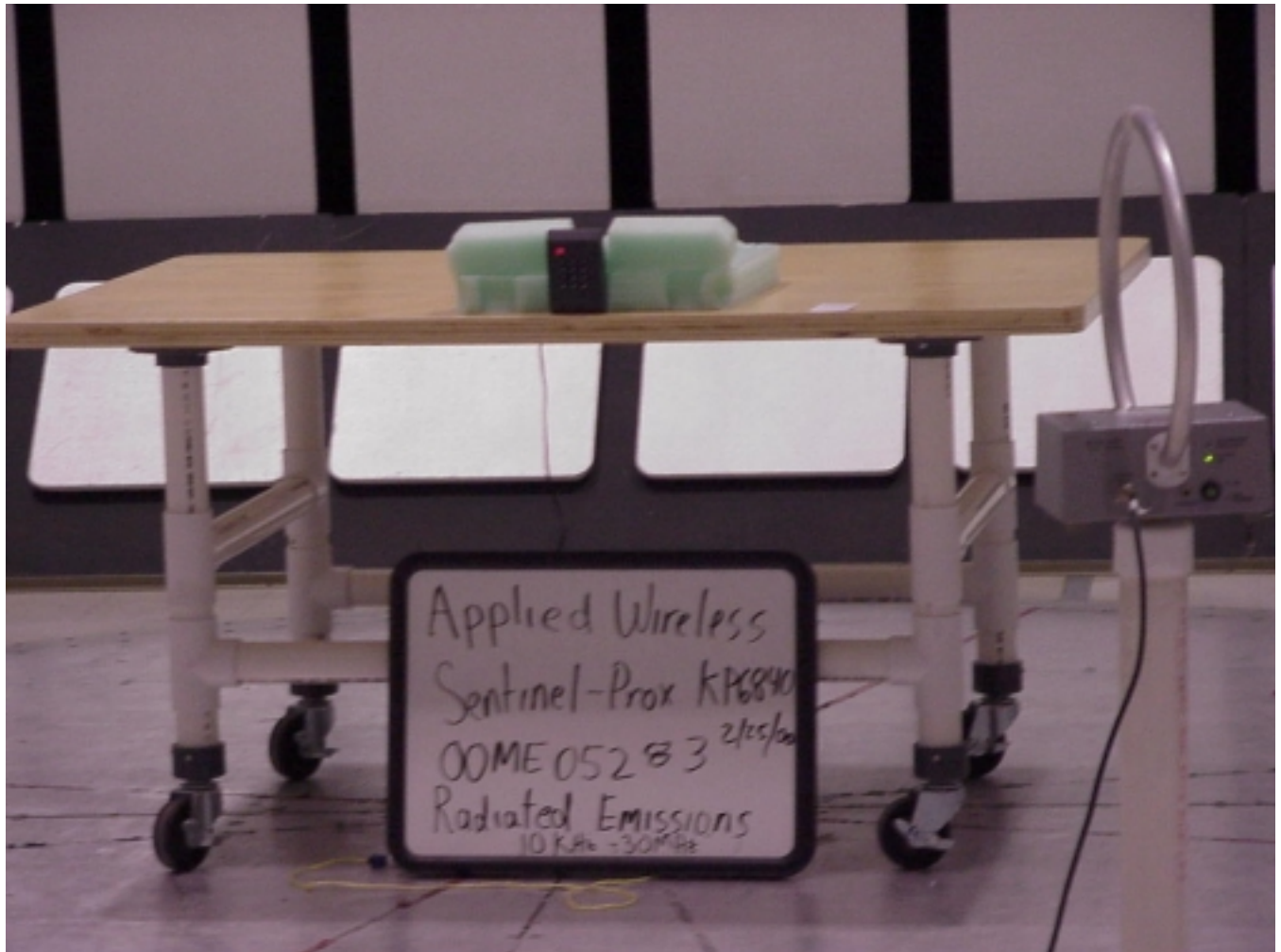
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Project Number: 00ME05283
Model Number: KP-6840
FCC ID: OGSKP6840

Issued: April 14, 2000



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