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Job Number:	989447
Project Number:	09CA07063
File Number:	MC16111
Date:	2009-05-06
Model:	PRMc
FCC ID:	XCWPRMC233081104

Electromagnetic Compatibility Test Report

For

A. R. Hungary Inc

Test Report Details

Tests Performed By:	**Underwriters Laboratories Inc.** **333 Pfingsten Rd.** **Northbrook, IL 60062**
Tests Performed For:	**A. R. Hungary Inc** **Kiralyhago Ter 8-9** **Budapest, 1126**
Applicant Contact: Phone: E-mail:	**Andras Talas** **36-00-361-201-9650** **andras.talas@arhungary.hu**
Test Report Date:	**2009-05-06**
Product Type:	**Compact Multireader with RFID**
Product standards	**FCC Part 15, Subpart C, 15.225**
Model Number: FCC ID	**PRMc** **XCWPRMC233081104**
Sample Serial Number:	**N/A**
EUT Category:	**Low Power RFID 13.56MHz**
Testing Start Date:	**2008-12-09**
Date Testing Complete:	**2009-05-05**
Overall Results:	**Compliant**

Underwriters Laboratories Inc. reports apply only to the specific samples tested under stated test conditions. All samples tested were in good operating condition throughout the entire test program. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. Underwriters Laboratories Inc. shall have no liability for any deductions, inferences or generalizations drawn by the client or others from Underwriters Laboratories Inc. issued reports. This report shall not be used to claim, constitute or imply product certification, approval, or endorsement by NVLAP, NIST, A2LA, or any agency of the US government.

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Report Directory

Report Revision History

Revision Date	Description	Revised By	Revision Reviewed By
None			

1.0 G E N E R A L - Product Description

1.1 Equipment Description

Equipment under test (EUT) is a Compact Multireader with RFID. It is used to read the RFID chip located in passports. The EUT is connected to a PC via USB. The program used to read the data is Passport Reader.

1.2 Equipment Marking Plate

See Label exhibit

1.3 Device Configuration During Test

1.3.1 Equipment Used During Test:

Use	Product Type	Manufacturer	Model	Comments
EUT	Compact Multireader with RFID	A. R. Hungary	PRMc	None
AE	Power Supply	UE	UE60-120500SPA	None
AE	Laptop	Lenovo	X61	None

Note: **EUT** - Equipment Under Test, **AE** - Auxiliary/Associated Equipment, or **SIM** - Simulator (Not Subjected to Test)

1.3.2 Input/Output Ports:

Port #	Name	Type*	Cable Max. >3m (Y/N)	Cable Shielded (Y/N)	Comments
0	Enclosure	N/E	—	—	None
1	Mains	DC	N	N	EUT uses external power supply
2	USB	IO	N	Y	None

Note:
AC = AC Power Port DC = DC Power Port N/E = Non-Electrical
I/O = Signal Input or Output Port (Not Involved in Process Control)
TP = Telecommunication Ports

1.3.3 EUT Internal Operating Frequencies:

Frequency (MHz)	Description
50	SX Controller
48	CMOS Sensor
30	USB
27	DSP Controller
13.56	RFID
0.052	SW power supply
0.030	UV inverter

1.3.4 Power Interface:

Mode # /Rated	Voltage (V)	Current (A)	Power (W)	Frequency (DC/AC-Hz)	Phases (#)	Comments
1	120Vac	1.5	60	60Hz	Single Phase	None

1.4 EUT Configurations

Mode #	Description
1	PC communicated with EUT via USB. Passport was placed on EUT during testing. EUT operating normal.
2	PC communicated with EUT via USB. Passport was placed on EUT during testing. Antenna port loaded with 330 ohm resistor.[BM2]

1.5 EUT Operation Modes

Mode #	Description
1	Program on, but in idle mode. Transmitter on
2	Program was started, and then closed. Transmitter off
3	Program on and scanning continuously. Transmitter on

2.0 Summary

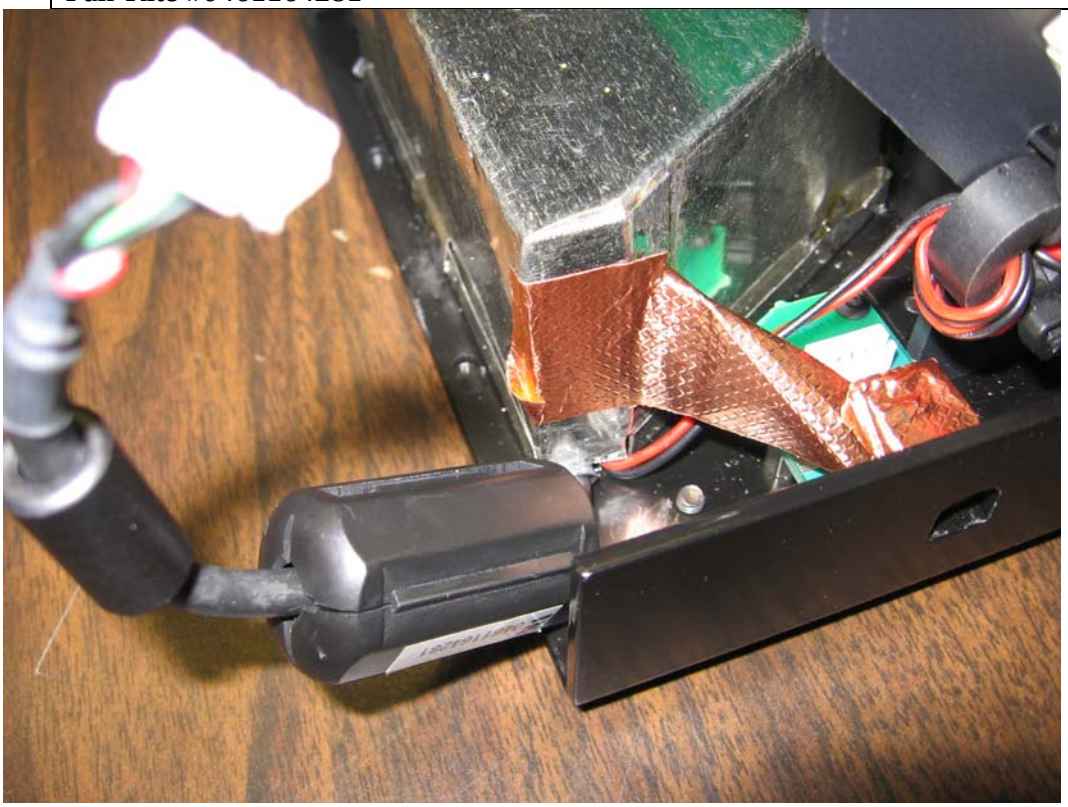
The tests listed in the Summary of Testing section of this report have been performed and the results recorded by Underwriters Laboratories Inc. in accordance with the procedures stated in each test requirement and specification. The applicant determined the list of tests performed were applicable to the Equipment Under Test. As a result, the subject product has been verified to comply or not comply as noted in the Summary of Testing with each test specification. The test results relate only to the items tested.

2.1 Deviations from standard test methods

None

2.2 Device Modifications Necessary for Compliance

Added ferrite and copper tape Copper tape from metal case to USB case internally Fair Rite #0461164281



2.3 Reference Standards

Standard Number	Standard Name	Standard Date
47 CFR Part 15	Radio Frequency Devices, Part 15.225	2008

2.4 Results Summary

This digital portion of the EUT is considered Class A

Requirement – Test	Result (Compliant / Non-Compliant)*
Conducted Emissions - Mains	**Compliant**
Frequency Stability	**Compliant**
20dB BW	**Compliant**
Fundamental, Harmonics, Bandedge	**Compliant**
Spurious Radiated Emissions	**Compliant**

Test Engineer:

Michael Ferrer (Ext.41312)
Project Engineer
International EMC Services
Conformity Assessment Services-

Reviewer:

Bartlomiej Mucha(Ext.41216)
Senior Project Engineer
International EMC Services
Conformity Assessment Services

Any information and documentation involving UL Mark services are provided on behalf of Underwriters Laboratories Inc. (UL) or any authorized licensee of UL.

3.0 Calibration of Equipment Used for Measurement

All test equipment and test accessories are calibrated on a regular basis. The maximum time between calibrations is one year or the manufacturers' recommendation, whichever is less.

All test equipment calibrations are traceable to the National Institute of Standards and Technology (NIST); therefore, all test data recorded in this report is traceable to NIST.

4.0 EMISSIONS TEST RESULTS

The emissions tests were performed according to following regulations:

---------- United States ----------

Code of Federal Regulations Title 47	Part 15, Subpart B, Radio Frequency Devices

Unless specified otherwise in the individual Methods, the tests shall be conducted under the following ambient conditions. Confirmation of these conditions shall be verified at the time the test is conducted.

Ambient Temperature, °C	22.5 ± 2.5	Relative Humidity, %	45 ± 15	Barometric Pressure, mBar	950 ± 150

Measurement Uncertainty

Test	Uncertainty
Conducted Emissions	0.6
Radiated Emissions	1.2

4.1 Test Conditions and Results – MAINS TERMINAL – CONDUCTED EMISSIONS

Test Description	Measurements were made on a ground plane. All power was connected to the system through Artificial Mains Network (AMN). Conducted voltage measurements on mains lines were made at the output of the AMN.		
Basic Standard		FCC Part 15	
UL LPG		80-EM-S0026	
		Frequency range on each side of line	Measurement Point
Fully configured sample scanned over the following frequency range		150kHz to 30MHz	Mains

Limits - Class A		
Frequency (MHz)	Limit (dBµV)	
	Quasi-Peak	Average
0.15-0.5	79	66
0.5-30	73	60

Limits - Class B		
Frequency (MHz)	Limit (dBµV)	
	Quasi-Peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

Supplementary information: None

Table 1 Conducted Emissions EUT Configuration Settings

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #
1	1,2	3
Supplementary information: FCC Publication # 174176 requires 2 scans. One with antenna connected and one with resistor to be used at antenna port.		

Table 2 Conducted Emissions Test Equipment

Description	Manufacturer	Model	Identifier
Spectrum Analyzer	Agilent	E7405A	EMC4242
Transient Limiter	Electro-Metrics	EM7600-2	EMC4224
HighPass Filter	Solar Electronics	2803-150	885551
Attenuator	HP	8494B	2831A00838
LISN - L1	Solar	8602-50-TS-50-N	EMC4052
LISN - L2	Solar	8602-50-TS-50-N	EMC4064
FILE USED FOR TESTING			
File: CISPR 22_11W_Dongle Line 1 and Line 2.TST			

Figure 1 Test Setup for Conducted Emissions

Figure 2 Conducted Emissions Graph

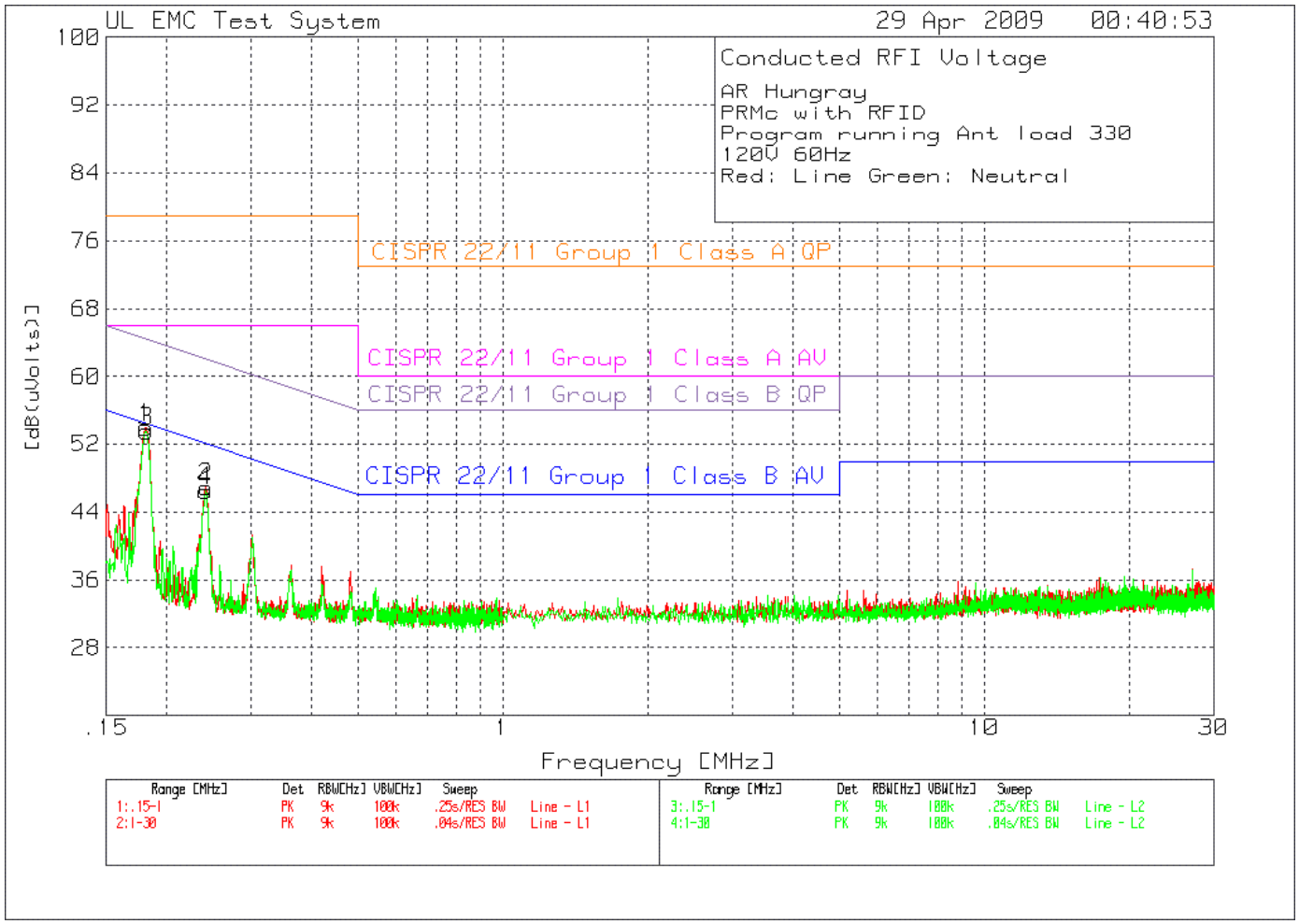


Table 3 Conducted Emissions Data Points

AR Hungray
PRMc with RFID
Program running Ant load 330
120V 60Hz
Red: Line Green: Neutral

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB(uVolts)]	Limit:1	2	3	4	5	6
Line - L1 .15 - 1MHz											
1	.18182	40.56 pk	12	1.4	53.96	79	66	64.4	54.4	-	-
				Margin [dB]		-25.04	-12.04	-10.44	-.44	-	-
2	.24227	34.84 pk	11.2	.9	46.94	79	66	62	52	-	-
				Margin [dB]		-32.06	-19.06	-15.06	-5.06	-	-
Line - L2 .15 - 1MHz											
3	.18235	40.24 pk	11.9	1.4	53.54	79	66	64.4	54.4	-	-
				Margin [dB]		-25.46	-12.46	-10.86	-.86	-	-
4	.24173	34.38 pk	11.2	.9	46.48	79	66	62	52	-	-
				Margin [dB]		-32.52	-19.52	-15.52	-5.52	-	-

LIMIT 1: CISPR 22/11 Group 1 Class A QP
LIMIT 2: CISPR 22/11 Group 1 Class A AV
LIMIT 3: CISPR 22/11 Group 1 Class B QP
LIMIT 4: CISPR 22/11 Group 1 Class B AV

pk - Peak detector

AR Hungray
PRMc with RFID
Program running Ant load 330
120V 60Hz
Red: Line Green: Neutral

Frequency [MHz]	Test Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB(uVolts)]	Limit:1	2	3	4	5	6
Line - L1 .15 - 1MHz										
.18182	27.09 ave	12	1.4	40.49	79	66	64.4	54.4	-	-
			Margin [dB]:		-38.51	-25.51	-23.91	-13.91	-	-
.24227	22.1 ave	11.2	.9	34.2	79	66	62	52	-	-
			Margin [dB]:		-44.8	-31.8	-27.8	-17.8	-	-
Line - L2 .15 - 1MHz										
.18235	27 ave	11.9	1.4	40.3	79	66	64.4	54.4	-	-
			Margin [dB]:		-38.7	-25.7	-24.1	-14.1	-	-
.24173	22.02 ave	11.2	.9	34.12	79	66	62	52	-	-
			Margin [dB]:		-44.88	-31.88	-27.88	-17.88	-	-

NOTE: "+" - Indicates an emission level in excess of the applicable limit (s).

ave - denotes average detection

LIMIT 1: CISPR 22/11 Group 1 Class A QP
LIMIT 2: CISPR 22/11 Group 1 Class A AV
LIMIT 3: CISPR 22/11 Group 1 Class B QP
LIMIT 4: CISPR 22/11 Group 1 Class B AV

Figure 3 Conducted Emissions Graph

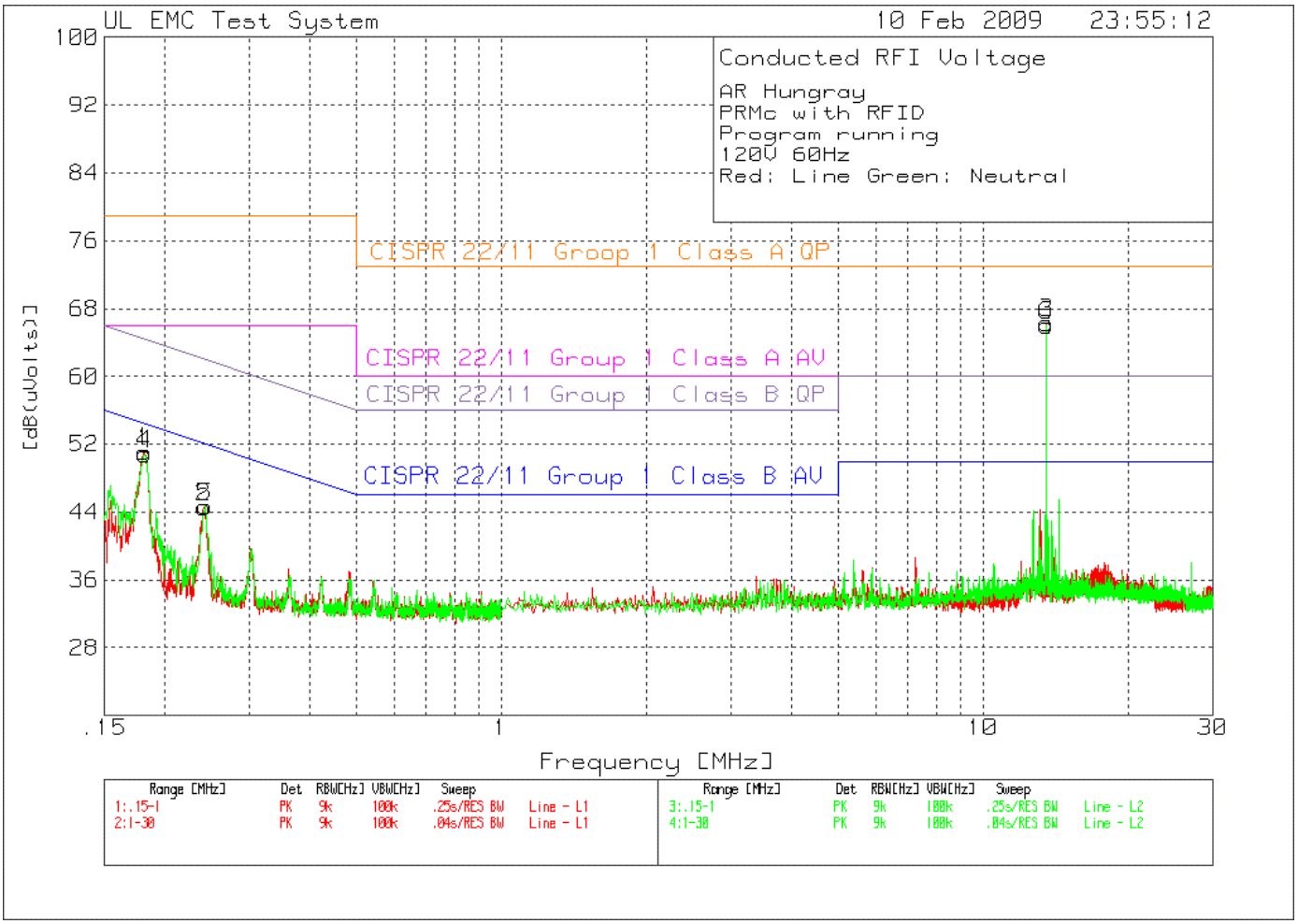


Table 4 Conducted Emissions Data Points

AR Hungray
PRMc with RFID
Program running
120V 60Hz
Red: Line Green: Neutral

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB(uVolts)]	Limit:1	2	3	4	5	6
Line - L1 .15 - 1MHz											
1	.18182	37.7 pk	12	1.4	51.1	79	66	64.4	54.4	-	-
				Margin [dB]		-27.9	-14.9	-13.3	-3.3	-	-
2	.24173	32.49 pk	11.2	.9	44.59	79	66	62	52	-	-
				Margin [dB]		-34.41	-21.41	-17.41	-7.41	-	-
Line - L1 1 - 30MHz											
3	13.56034	54.93 pk	11.1	.3	66.33	73	60	60	50	-	-
				Margin [dB]		-6.67	6.33	6.33	16.33	-	-
Fundamental Transmitter Frequency											
Line - L2 .15 - 1MHz											
4	.18235	37.55 pk	11.9	1.4	50.85	79	66	64.4	54.4	-	-
				Margin [dB]		-28.15	-15.15	-13.55	-3.55	-	-
5	.24333	32.57 pk	11.2	.9	44.67	79	66	62	52	-	-
				Margin [dB]		-34.33	-21.33	-17.33	-7.33	-	-
Line - L2 1 - 30MHz											
6	13.56034	54.64 pk	11.1	.3	66.04	73	60	60	50	-	-
				Margin [dB]		-6.96	6.04	6.04	16.04	-	-
Fundamental Transmitter Frequency											

LIMIT 1: CISPR 22/11 Groop 1 Class A QP
LIMIT 2: CISPR 22/11 Group 1 Class A AV
LIMIT 3: CISPR 22/11 Group 1 Class B QP
LIMIT 4: CISPR 22/11 Group 1 Class B AV

4.2 Test Conditions and Results – Frequency Stability

Test Description	For Temperature Frequency Stability, measurements were made with the product placed in an environmental chamber and the temperature varied from –20C to +50C at the normal supply voltage. The frequency drift of the fundamental frequency was measured with a spectrum analyzer. For Power Supply Frequency Stability, measurements were made in a laboratory environment and the supply voltage varied from 85% to 115%. The ambient temperature was 20C.
Basic Standard	15.225(e)
Frequency Stability Limits	
+/- 0.01% of the Operating Frequency (13.56MHz)	

Table 5 Frequency Stability Configuration Settings

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #
1	1	1
Supplementary information: None		

Table 6 Frequency Stability Test Equipment

Test Equipment Used			
Description	Manufacturer	Model	Identifier
Thermal Chamber	Thermotron	SM-32-7800	EMC4232
Frequency Counter	HP	5386A	EMC4087
Antenna	EMCO	7405-902	-

Figure 4 Test Setup for Frequency Stability

Table 7 Frequency Stability Data – Frequency vs. Temperature

Time (min)	Frequency (MHz)	Temperature (°C)	Within 0.01% (range below)
0	13.559291	22	NA
90	13.559409	-20	Yes
70	13.559418	-10	Yes
67	13.559399	0	Yes
73	13.559389	10	Yes
45	13.559369	20	Yes
45	13.559328	30	Yes
49	13.559284	40	Yes
44	13.559249	50	Yes

13.559291 * 0.0001=0.00135592

Range = 13.55793507 – 13.56064693

Table 8 Frequency Stability Data – Frequency vs. Input Voltage

AC Power supply is rated from 100V – 240V AC. Therefore Power supply will deliver the same output power at rated voltages. This will not affect transmit frequency.

4.3 Test Conditions and Results – 20dB Bandwidth

Test Description	Measurements were made in the laboratory environment. A Dipole (or equivalent) antenna tuned to the transmit frequency was attached to the input of a spectrum analyzer. The device was operated and the spectrum analyzer resolution bandwidth set per the appropriate standard.
Basic Standard	15.215(c)
20dB Bandwidth Limits	
-	

Table 9 20dB Bandwidth Configuration Settings

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #
1	1	1
Supplementary information: None		

Table 10 20dB Bandwidth Spectrum Analyzer Settings

Resolution Bandwidth (MHz)	Occupied Bandwidth Requirements
	dBc
1k	-20
Supplementary information: None	

Table 11 20dB Bandwidth Test Equipment

Test Equipment Used			
Description	Manufacturer	Model	Identifier
Spectrum Analyzer	Rhode & Schwarz	ESU	EMC4323
Antenna	EMCO	6502/1	EMC4026

Figure 5 Test Setup for 20dB Bandwidth

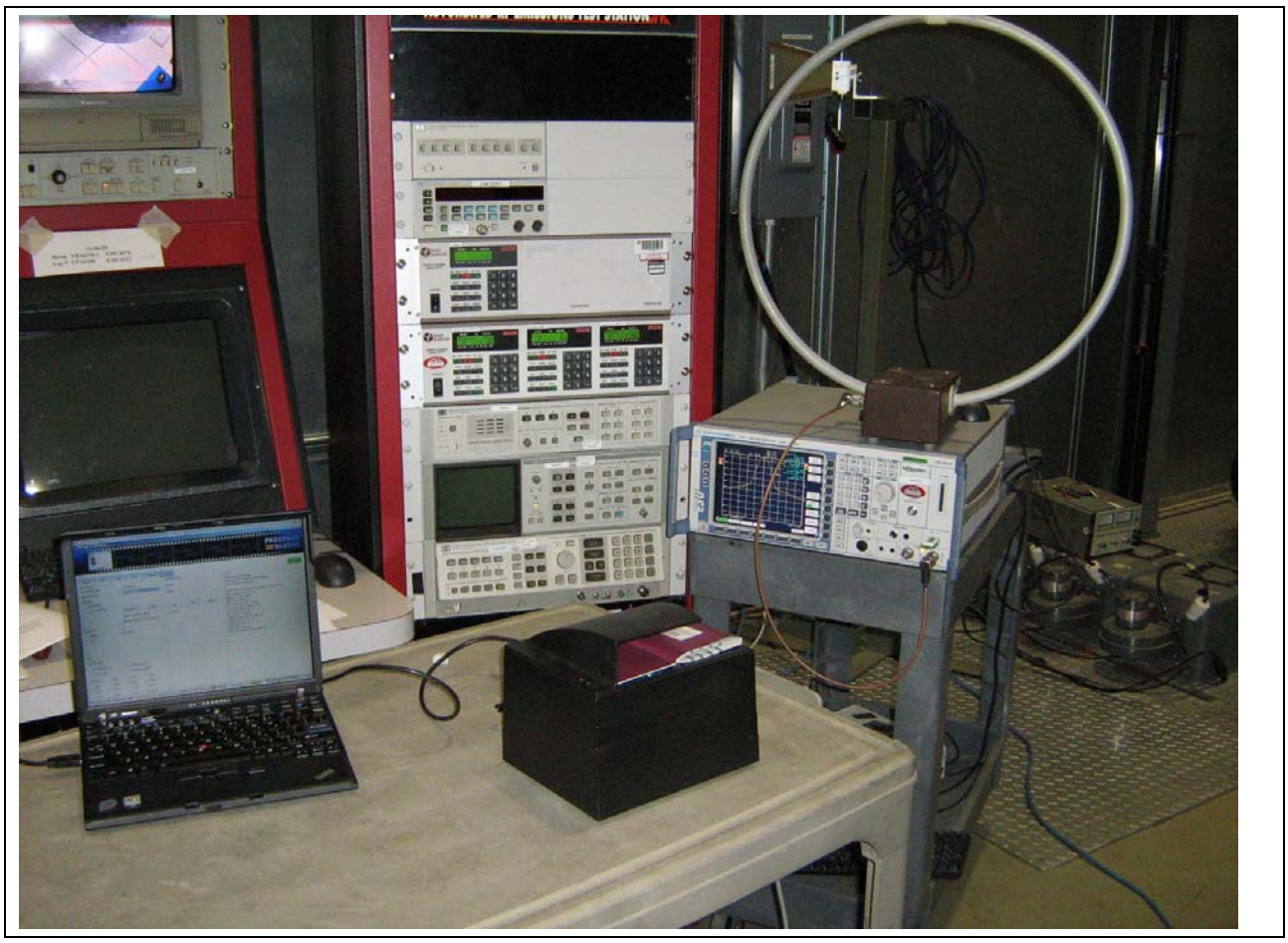
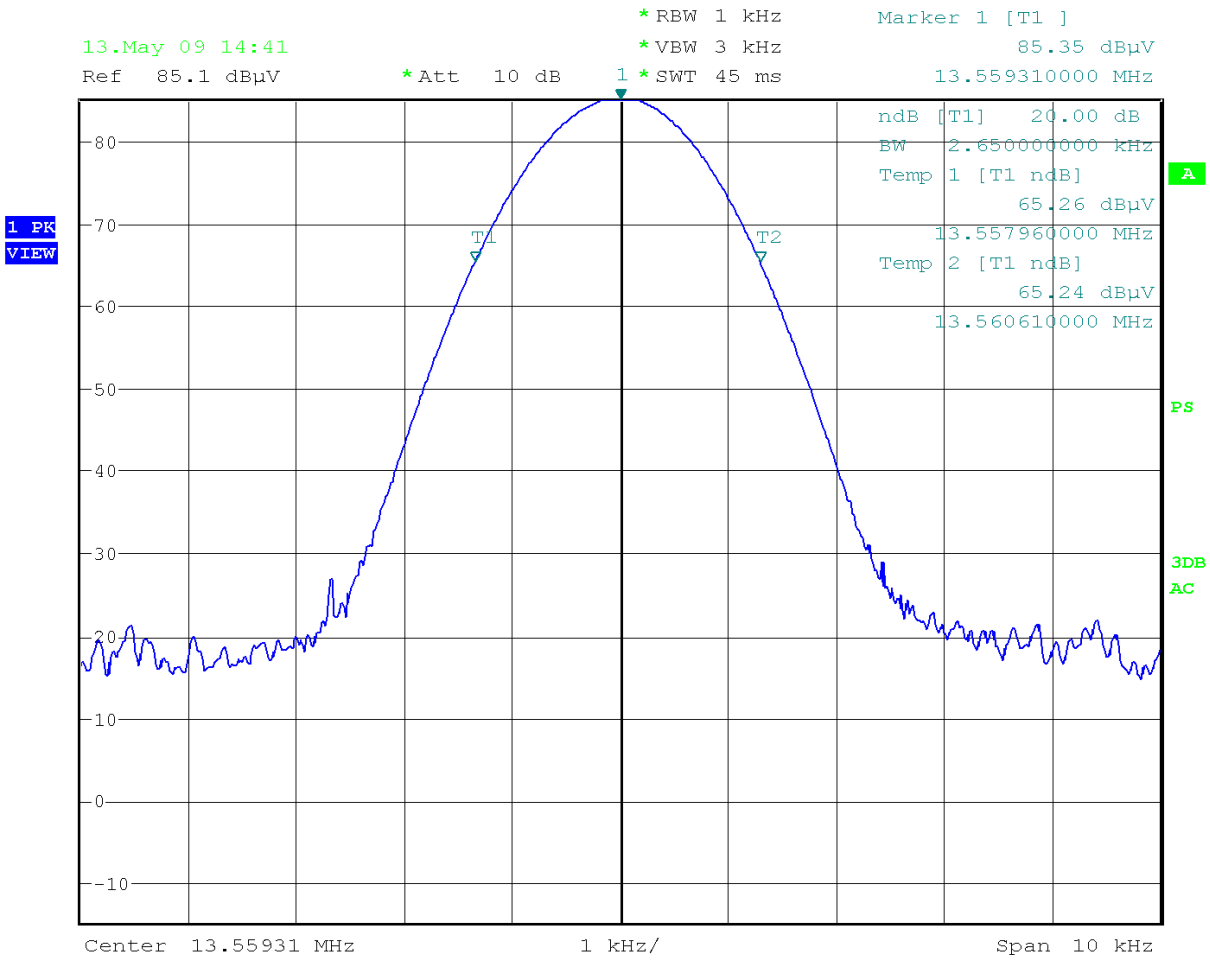


Figure 6 20dB Bandwidth Graph



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20dB BW = 1.87kHz

4.4 Test Conditions and Results – RADIATED EMISSIONS – Fundamental, Harmonics, and Bandedge

Test Description	Measurements were made in a 10-meter semi-anechoic chamber that complies to CISPR 16/ANSI C63.4. Preliminary (peak) measurements were performed at an antenna to EUT separation distance of 3 and 10-meter. The EUT was rotated 360° about its azimuth with the receive antenna located at various heights in both horizontal and vertical polarities. Final measurements (quasi-peak or average as noted) were then performed by rotating the EUT 360° and adjusting the receive antenna height from 1 to 4-meters. All frequencies were investigated in both horizontal and vertical antenna polarity, where applicable.

Basic Standard	FCC Part 15.225	
UL LPG	80-EM-S0029	
	Frequency range	Measurement Point
Fully configured sample scanned over the following frequency range	9kHz – 30MHz	(3 meter measurement distance)
Fully configured sample scanned over the following frequency range	30MHz – 1GHz	(10 meter measurement distance)

Limits

Frequency (MHz)	Limit (dBµV/m)
	General Emissions
0.009 – 0.490	128.5 – 93.8
0.490 – 1.705	73.8 – 63
1.705 – 30	69.5
30 – 88	29.6
88 – 216	33.1
216-960	35.6
960-1000	43.53
	Fundamental
13.110 – 13.410 13.710 – 14.010	80.506
13.410 – 13.553 13.567 – 13.710	90.47
13.553 – 13.567	124

Supplementary information: Use Avg. detector for frequencies 9-90kHz, 110-490kHz, all others use Quasi-peak detector

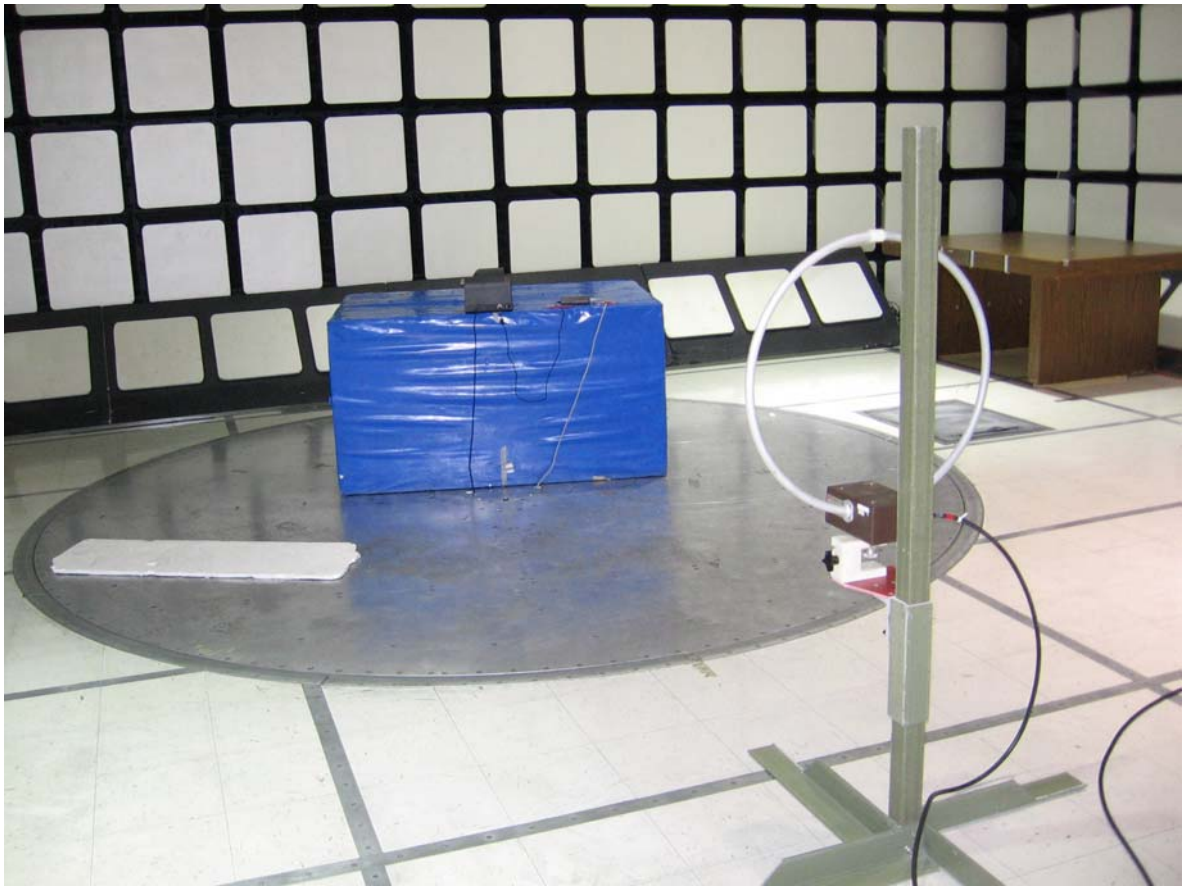
Table 12 Radiated Emissions EUT Configuration Settings

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #
1	1	1
Supplementary information: None		

Table 13 Radiated Emissions Test Equipment

Description	Manufacturer	Model	Identifier
EMI Test Receiver	Rohde & Schwarz	ESU	EMC4323
Bicon Antenna	Chase	VBA6106A	EMC4078
Log-P Antenna	Chase	UPA6109	EMC4258
Loop Antenna	EMCO	6502/1	EMC4026
FILE USED FOR TESTING			
RE 30-1000MHz.tst RE 9kHz-30MHz 3m E-field loop.tst			

Figure 7 Test setup for Radiated Emissions



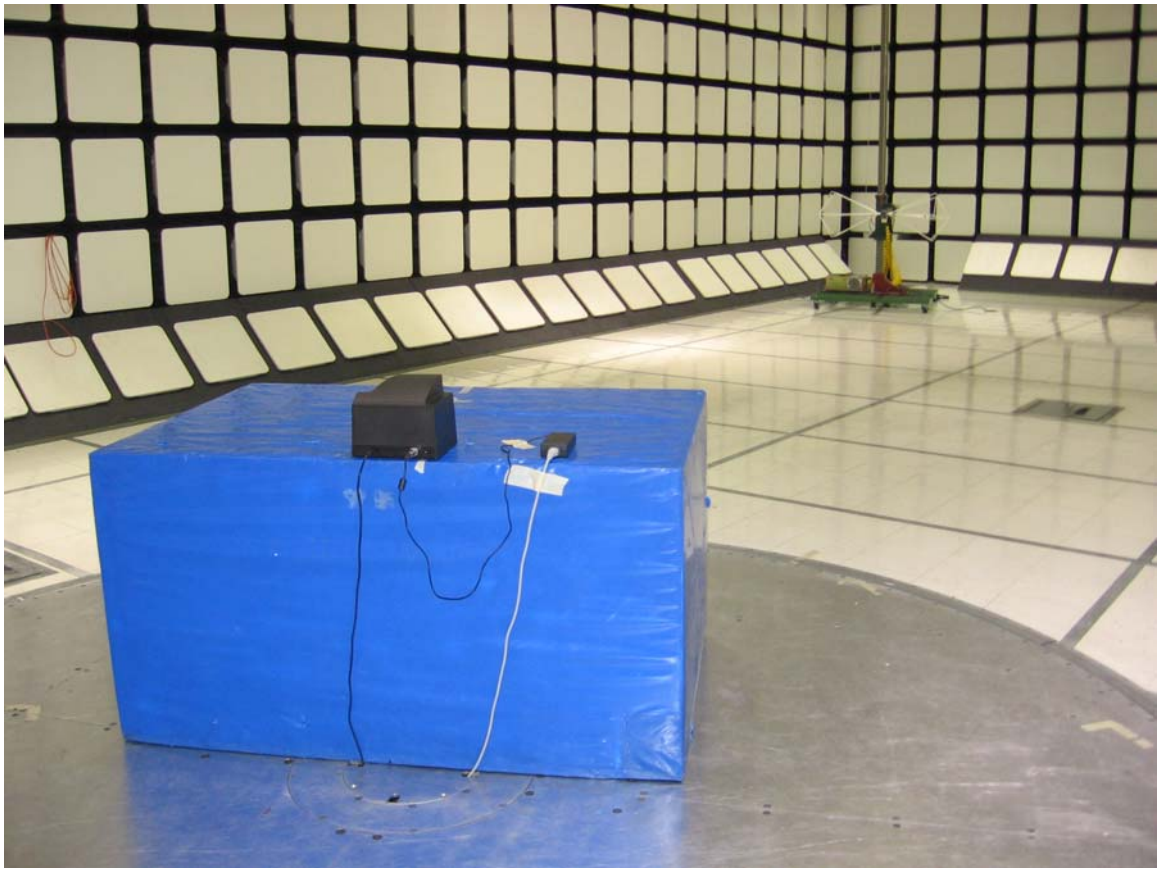


Figure 8 Radiated Emissions Graph

Bandedge

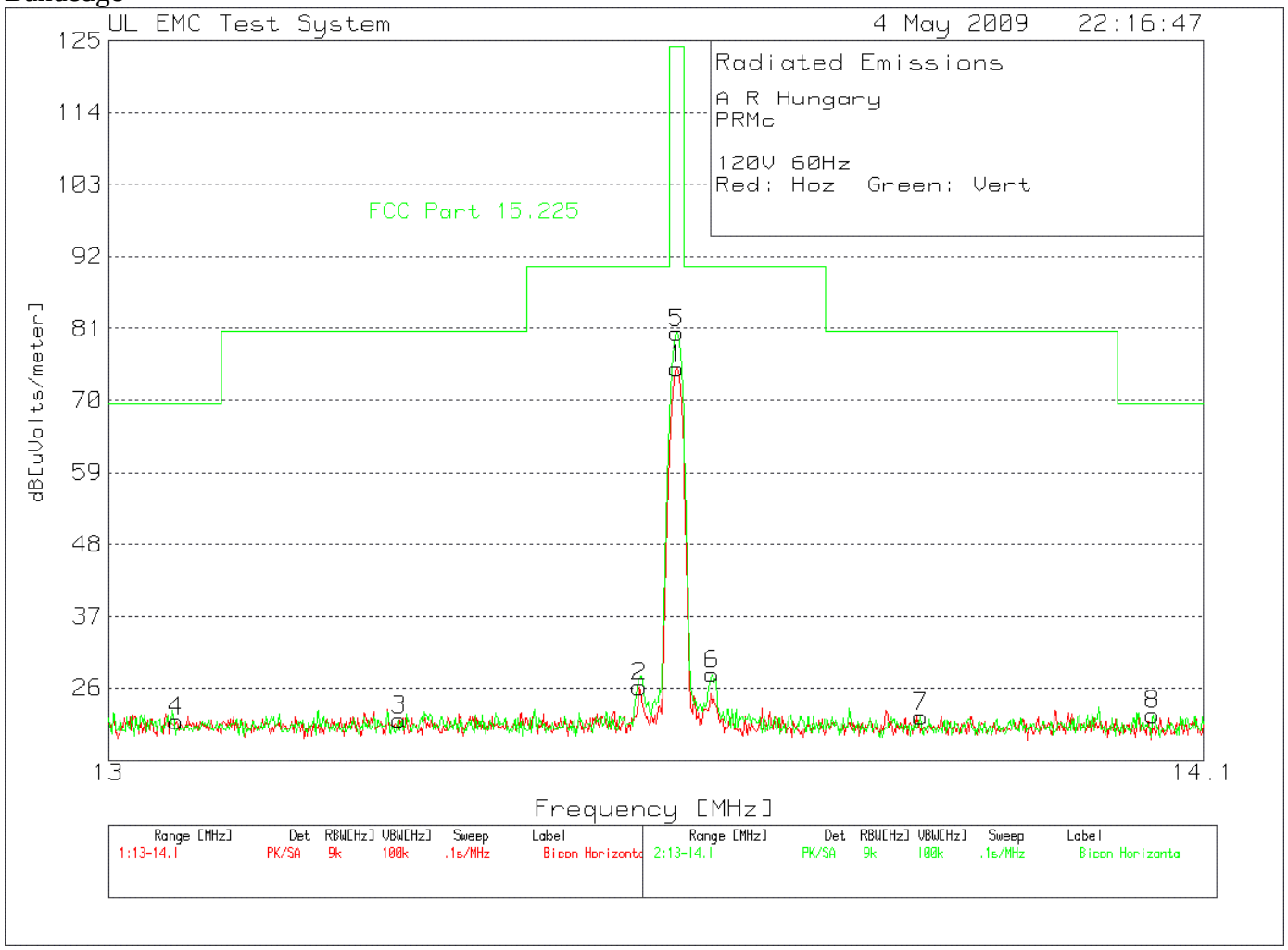


Table 14 Radiated Emissions Data Points

A R Hungary
PRMc
120V 60Hz
Red: Hoz Green: Vert

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit:1	2	3	4	5	6
Bicon Horizonta 13 - 14.1MHz											
1	13.5599	63.36 pk	.4	11.1	74.86	124	-	-	-	-	-
		Height:100 Horz		Margin [dB]		-49.14	-	-	-	-	-
2	13.5225	14.65 pk	.4	11.1	26.15	90.5	-	-	-	-	-
		Height:100 Horz		Margin [dB]		-64.35	-	-	-	-	-
3	13.2838	9.63 pk	.4	11.1	21.13	80.5	-	-	-	-	-
		Height:100 Horz		Margin [dB]		-59.37	-	-	-	-	-
4	13.066	9.43 pk	.4	11.1	20.93	69.5	-	-	-	-	-
		Height:100 Horz		Margin [dB]		-48.57	-	-	-	-	-
Bicon Horizonta 13 - 14.1MHz											
5	13.5599	68.83 pk	.4	11.1	80.33	124	-	-	-	-	-
		Height:100 Horz		Margin [dB]		-43.67	-	-	-	-	-
6	13.59565	16.6 pk	.4	11.1	28.1	90.5	-	-	-	-	-
		Height:100 Horz		Margin [dB]		-62.4	-	-	-	-	-
7	13.8074	10.22 pk	.4	11	21.62	80.5	-	-	-	-	-
		Height:100 Horz		Margin [dB]		-58.88	-	-	-	-	-
8	14.0472	10.55 pk	.4	11	21.95	69.5	-	-	-	-	-
		Height:100 Horz		Margin [dB]		-47.55	-	-	-	-	-

LIMIT 1: FCC Part 15.225

PK - Peak detector

Table 15 Radiated Emissions Data Points

Fundamental and Harmonics[BM7]

A R Hungary
PRMc
120V 60Hz

Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit:1	2	3	4	5	6
Loop Antenna 150k - 30MHz										
13.5593	68.44 QP	.4	11.1	79.94	-	-	-	124	-	-
Azimuth: 164	Height:100	Perpind	Margin [dB]:		-	-	-	-44.06	-	-
27.1184	39.15 QP	.5	9.2	48.85	-	-	-	69.5	-	-
Azimuth: 293	Height:100	Perpind	Margin [dB]:		-	-	-	-20.65	-	-
27.1184	29.88 QP	.5	9.2	39.58	-	-	-	69.5	-	-
Azimuth: 255	Height:100	Parallel	Margin [dB]:		-	-	-	-29.92	-	-
13.5593	63.26 QP	.4	11.1	74.76	-	-	-	124	-	-
Azimuth: 160	Height:100	Parallel	Margin [dB]:		-	-	-	-49.27	-	-
Bicon Antenna 30 - 200MHz										
40.678	41.24 QP	-30.4	13.8	24.64	-	-	39.1	29.6	-	-
Azimuth: 248	Height:400	Horz	Margin [dB]:		-	-	-14.46	-4.96	-	-
40.678	40.34 QP	-30.4	13.8	23.74	-	-	39.1	29.6	-	-
Azimuth: 201	Height:100	Vert	Margin [dB]:		-	-	-15.36	-5.86	-	-
54.2408	34.05 QP	-30.3	8.4	12.15	-	-	39.1	29.6	-	-
Azimuth: 123	Height:389	Horz	Margin [dB]:		-	-	-26.95	-17.45	-	-
54.2408	42.02 QP	-30.3	8.4	20.12	-	-	39.1	29.6	-	-
Azimuth: 345	Height:252	Vert	Margin [dB]:		-	-	-18.98	-9.48	-	-
67.8028	43.88 QP	-30.3	6.2	19.78	-	-	39.1	29.6	-	-
Azimuth: 72	Height:216	Vert	Margin [dB]:		-	-	-19.32	-9.82	-	-
67.8028	42.37 QP	-30.3	6.2	18.27	-	-	39.1	29.6	-	-
Azimuth: 101	Height:398	Horz	Margin [dB]:		-	-	-20.83	-11.33	-	-
81.36	34.51 QP	-30.3	7.4	11.61	-	-	39.1	29.6	-	-
Azimuth: 12	Height:188	Horz	Margin [dB]:		-	-	-27.49	-17.99	-	-
81.36	50.43 QP	-30.3	7.4	27.53	-	-	39.1	29.6	-	-
Azimuth: 264	Height:164	Vert	Margin [dB]:		-	-	-11.57	-2.07	-	-
94.9192	42.5 QP	-30.2	9.8	22.1	-	-	43.5	33.1	-	-
Azimuth: 247	Height:144	Vert	Margin [dB]:		-	-	-21.4	-11	-	-
94.9192	40.05 QP	-30.2	9.8	19.65	-	-	43.5	33.1	-	-
Azimuth: 188	Height:335	Horz	Margin [dB]:		-	-	-23.85	-13.45	-	-
108.4744	36.16 QP	-30.1	11.7	17.76	-	-	43.5	33.1	-	-
Azimuth: 359	Height:316	Horz	Margin [dB]:		-	-	-25.74	-15.34	-	-
108.4744	38.93 QP	-30.1	11.7	20.53	-	-	43.5	33.1	-	-
Azimuth: 348	Height:101	Vert	Margin [dB]:		-	-	-22.97	-12.57	-	-

122.0404	40.97 QP	-30.1	13.4	24.27	-	-	43.5	33.1	-	-
Azimuth: 355	Height:111 Vert		Margin [dB]:		-	-	-19.23	-8.83	-	-
122.0404	40.82 QP	-30.1	13.4	24.12	-	-	43.5	33.1	-	-
Azimuth: 204	Height:394 Horz		Margin [dB]:		-	-	-19.38	-8.98	-	-
135.6004	36.72 QP	-30.1	14.3	20.92	-	-	43.5	33.1	-	-
Azimuth: 203	Height:224 Horz		Margin [dB]:		-	-	-22.58	-12.18	-	-
135.6004	38.82 QP	-30.1	14.3	23.02	-	-	43.5	33.1	-	-
Azimuth: 74	Height:103 Vert		Margin [dB]:		-	-	-20.48	-10.08	-	-

LIMIT 1: NONE
LIMIT 2: NONE
LIMIT 3: CFR 47 Part 15 Class A 10m
LIMIT 4: CFR 47 Part 15 Class B 10m
LIMIT 5: NONE
LIMIT 6: NONE

QP - Quasi-Peak detector

4.5 Test Conditions and Results – SPURIOUS RADIATED EMISSIONS

Test Description	Measurements were made in a 10-meter semi-anechoic chamber that complies to CISPR 16/ANSI C63.4. Preliminary (peak) measurements were performed at an antenna to EUT separation distance of 10-meter. The EUT was rotated 360° about its azimuth with the receive antenna located at various heights in both horizontal and vertical polarities. Final measurements (quasi-peak or average as noted) were then performed by rotating the EUT 360° and adjusting the receive antenna height from 1 to 4-meters. All frequencies were investigated in both horizontal and vertical antenna polarity, where applicable.

Basic Standard	FCC Part 15, Subpart C, 15.225	
UL LPG	80-EM-S0029	
	Frequency range	Measurement Point
Fully configured sample scanned over the following frequency range	30MHz – 1GHz	(10 meter measurement distance)

Limits

Frequency (MHz)	Limit (dBµV/m)
0.009 – 0.490	128.5 – 93.8
0.490 – 1.705	73.8 – 63
1.705 – 30	69.5
30 – 88	39.1
88 – 216	43.5
216-960	46.4
960 - 1000	49.54

Supplementary information: Use Avg. detector for frequencies 9-90kHz, 110-490kHz, all others use Quasi-peak detector

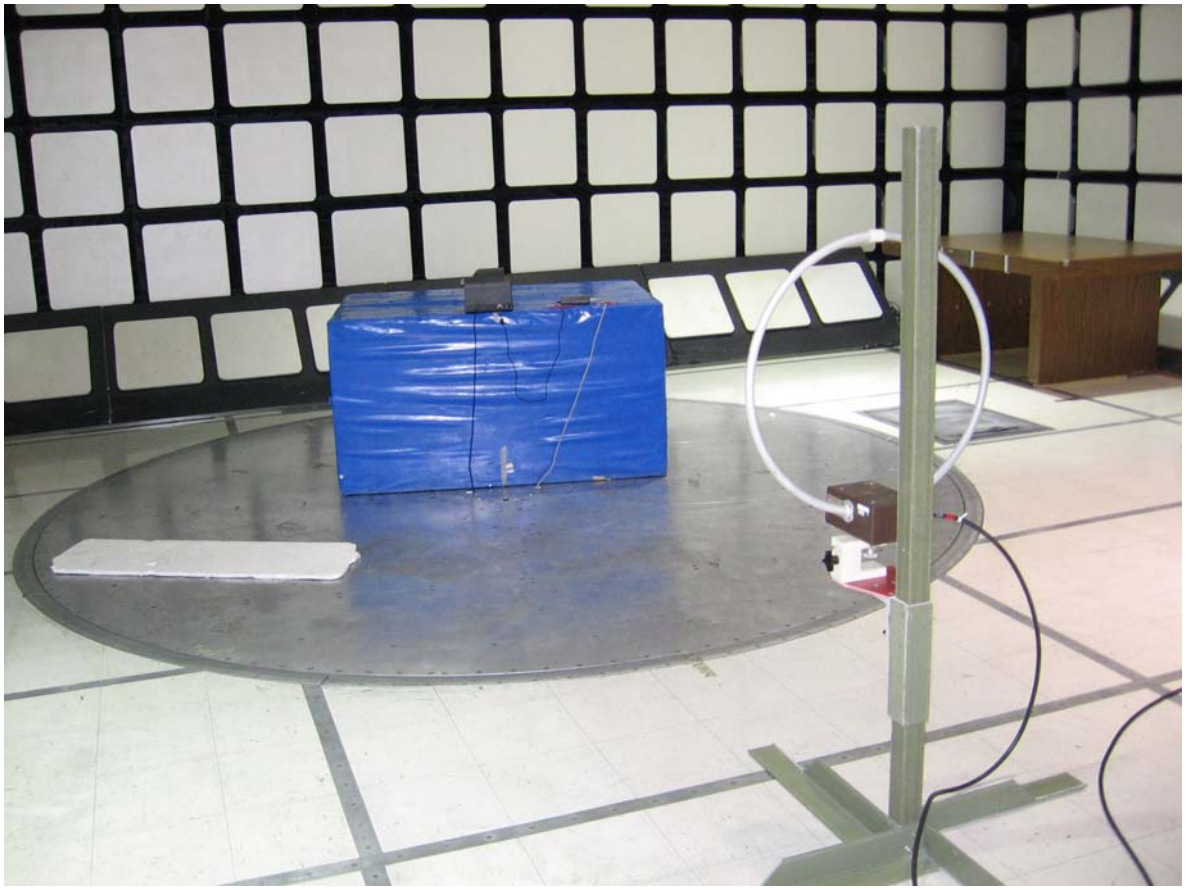
Table 16 Radiated Emissions EUT Configuration Settings

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #
1	1	1,2,3
Supplementary information: Figure 10,11: (1) Program on, but in idle mode. Transmitter on Figure 12: (2) Program was started, and then closed. Transmitter off Figure 13: (3) Program on and running. Transmitter on Figure 10,11 will follow 15.209, Figures 12, 13 will follow 15.109		

Table 17 Radiated Emissions Test Equipment

Description	Manufacturer	Model	Identifier
Spectrum Analyzer	HP	8566B	EMC4085
Quasi-Peak Detector	HP	85650A	EMC4016
EMI Test Receiver	Rohde & Schwarz	ESU	EMC4323
Bicon Antenna	Chase	VBA6106A	EMC4078
Log-P Antenna	Chase	UPA6109	EMC4258
Log-P Antenna	Chase	UPA6109	EMC4313
Loop Antenna	EMCO	6502/1	EMC4026
FILE USED FOR TESTING			
RE 30-1000MHz.tst RE 9kHz-30MHz 3m E-field loop.tst			

Figure 9 Test setup for Radiated Emissions



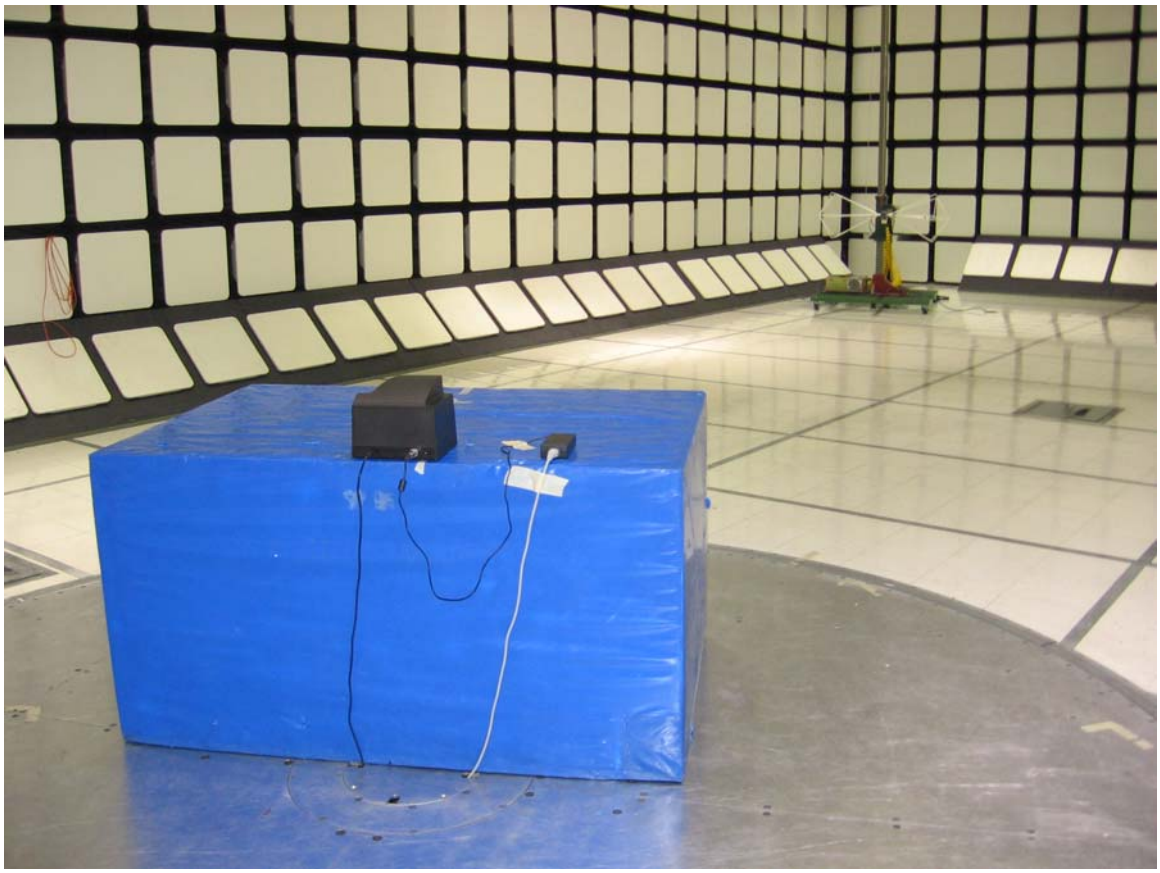


Figure 10 Radiated Emissions Graph

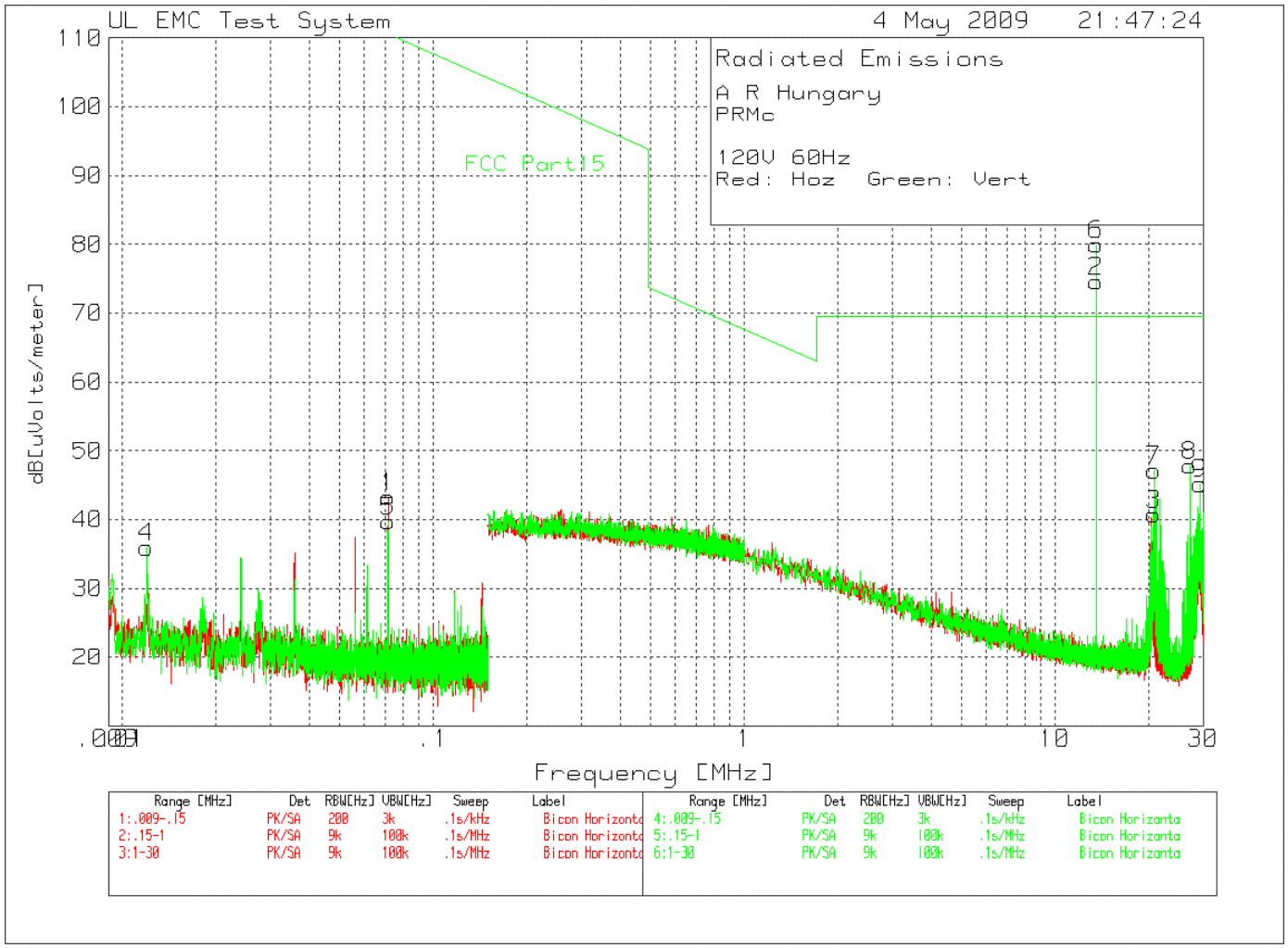


Table 18 Radiated Emissions Data Points

A R Hungary
PRMc
120V 60Hz
Red: Hoz Green: Vert

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit:1	2	3	4	5	6
Bicon Horizonta .009 - .15MHz											
1	.07156	30.22 pk	.1	13	43.32	110.5	-	-	-	-	-
		Height:100 Horz		Margin [dB]		-67.18	-	-	-	-	-
Bicon Horizonta 1 - 30MHz											
2	13.55855	63.12 pk	.4	11.1	74.62	69.5	-	-	-	-	-
		Height:100 Horz		Margin [dB]		5.12	-	-	-	-	-
*Fundamental Frequency											
3	20.80855	30.05 pk	.5	10.2	40.75	69.5	-	-	-	-	-
		Height:100 Horz		Margin [dB]		-28.75	-	-	-	-	-
Bicon Horizonta .009 - .15MHz											
4	.01194	14.47 pk	.1	21.4	35.97	126.1	-	-	-	-	-
		Height:100 Horz		Margin [dB]		-90.13	-	-	-	-	-
5	.07155	26.63 pk	.1	13	39.73	110.5	-	-	-	-	-
		Height:100 Horz		Margin [dB]		-70.77	-	-	-	-	-
Bicon Horizonta 1 - 30MHz											
6	13.55855	68.48 pk	.4	11.1	79.98	69.5	-	-	-	-	-
		Height:100 Horz		Margin [dB]		10.48	-	-	-	-	-
*Fundamental Frequency											
7	20.80855	36.42 pk	.5	10.2	47.12	69.5	-	-	-	-	-
		Height:100 Horz		Margin [dB]		-22.38	-	-	-	-	-
8	27.1197	38.13 pk	.5	9.2	47.83	69.5	-	-	-	-	-
		Height:100 Horz		Margin [dB]		-21.67	-	-	-	-	-
9	29.24081	35.57 pk	.6	9	45.17	69.5	-	-	-	-	-
		Height:100 Horz		Margin [dB]		-24.33	-	-	-	-	-

LIMIT 1: FCC Part15
LIMIT 2: NONE
LIMIT 3: NONE
LIMIT 4: NONE
LIMIT 5: NONE
LIMIT 6: NONE

PK - Peak detector

Figure 11 Radiated Emissions Graph

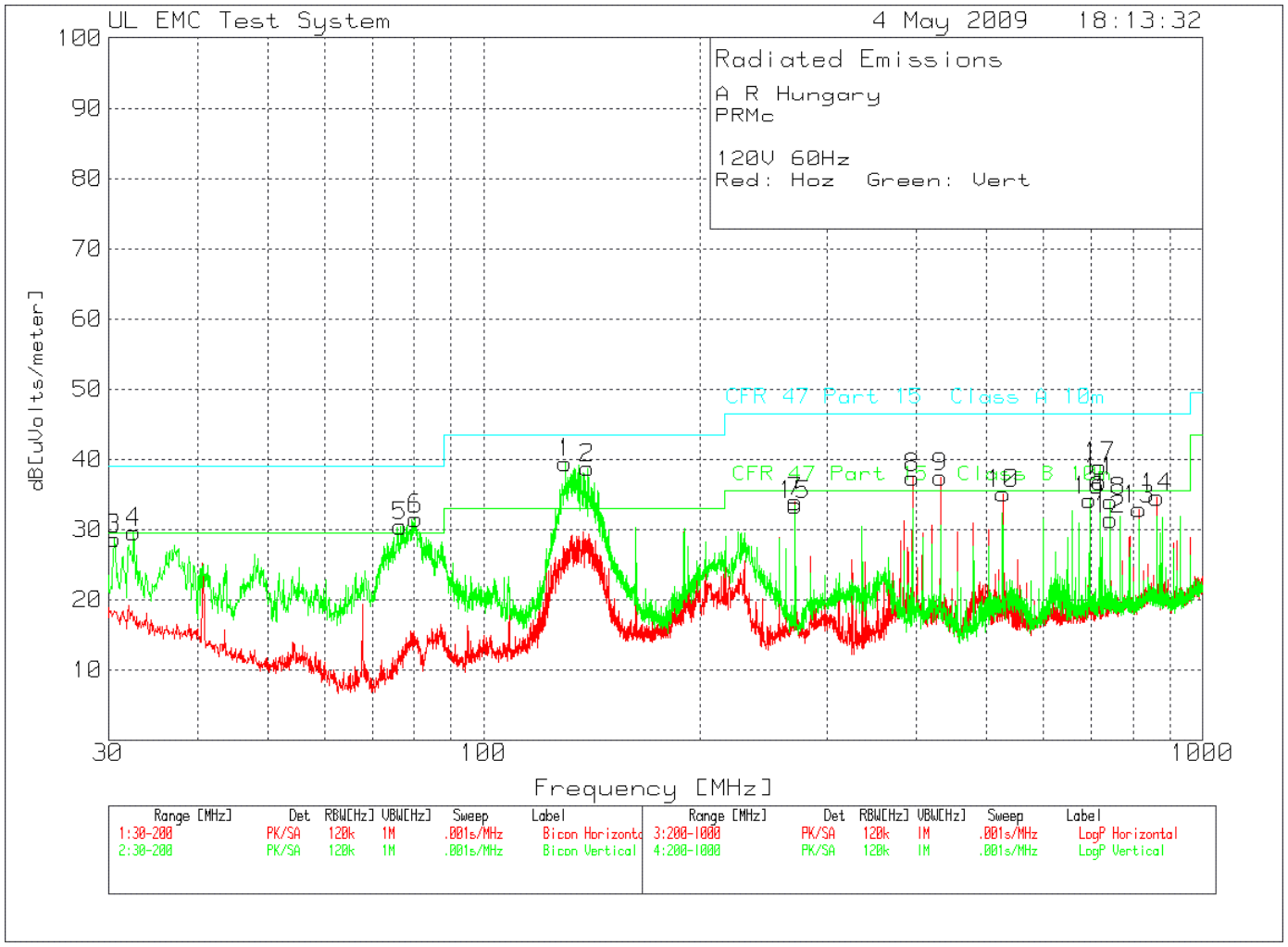


Table 19 Radiated Emissions Data Points

A R Hungary
PRMc
120V 60Hz
Red: Hoz Green: Vert

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit:1	2	3	4	5	6
Bicon Vertical 30 - 200MHz											
1	129.8251	55.58 pk	-30.2	14.1	39.48	-	-	43.5	33.1	-	-
		Height:100 Vert		Margin [dB]		-	-	-4.02	6.38	-	-
2	139.4253	54.69 pk	-30.2	14.3	38.79	-	-	43.5	33.1	-	-
		Height:100 Vert		Margin [dB]		-	-	-4.71	5.69	-	-
3	30.5947	41.39 pk	-30.4	17.7	28.69	-	-	39.1	29.6	-	-
		Height:100 Vert		Margin [dB]		-	-	-10.41	-.91	-	-
4	32.5487	43.13 pk	-30.4	16.9	29.63	-	-	39.1	29.6	-	-
		Height:100 Vert		Margin [dB]		-	-	-9.47	.03	-	-
5	76.5567	54.05 pk	-30.3	6.7	30.45	-	-	39.1	29.6	-	-
		Height:100 Vert		Margin [dB]		-	-	-8.65	.85	-	-
6	80.2949	54.63 pk	-30.3	7.2	31.53	-	-	39.1	29.6	-	-
		Height:100 Vert		Margin [dB]		-	-	-7.57	1.93	-	-
LogP Horizontal 200 - 1000MHz											
7	271.1526	54.65 pk	-33.1	12.4	33.95	-	-	46.4	35.6	-	-
		Height:300 Horz		Margin [dB]		-	-	-12.45	-1.65	-	-
8	394.8035	54.51 pk	-32.6	15.5	37.41	-	-	46.4	35.6	-	-
		Height:203 Horz		Margin [dB]		-	-	-8.99	1.81	-	-
9	431.8454	53.18 pk	-32.1	16.4	37.48	-	-	46.4	35.6	-	-
		Height:203 Horz		Margin [dB]		-	-	-8.92	1.88	-	-
10	528.048	48.43 pk	-31.8	18.5	35.13	-	-	46.4	35.6	-	-
		Height:203 Horz		Margin [dB]		-	-	-11.27	-.47	-	-
11	720.1865	47.91 pk	-31.4	20.3	36.81	-	-	46.4	35.6	-	-
		Height:101 Horz		Margin [dB]		-	-	-9.59	1.21	-	-
12	744.1706	42.42 pk	-31.5	20.5	31.42	-	-	46.4	35.6	-	-
		Height:101 Horz		Margin [dB]		-	-	-14.98	-4.18	-	-
13	816.1226	42.72 pk	-31.8	22	32.92	-	-	46.4	35.6	-	-
		Height:101 Horz		Margin [dB]		-	-	-13.48	-2.68	-	-
14	864.0906	43.97 pk	-31.8	22.4	34.57	-	-	46.4	35.6	-	-
		Height:101 Horz		Margin [dB]		-	-	-11.83	-1.03	-	-
LogP Vertical 200 - 1000MHz											
15	271.1526	54.19 pk	-33.1	12.4	33.49	-	-	46.4	35.6	-	-
		Height:100 Vert		Margin [dB]		-	-	-12.91	-2.11	-	-
16	695.936	45.02 pk	-31.4	20.6	34.22	-	-	46.4	35.6	-	-
		Height:202 Vert		Margin [dB]		-	-	-12.18	-1.38	-	-
17	720.1865	50.08 pk	-31.4	20.3	38.98	-	-	46.4	35.6	-	-
		Height:202 Vert		Margin [dB]		-	-	-7.42	3.38	-	-
18	744.1706	45.04 pk	-31.5	20.5	34.04	-	-	46.4	35.6	-	-
		Height:202 Vert		Margin [dB]		-	-	-12.36	-1.56	-	-

LIMIT 1: NONE
LIMIT 2: NONE
LIMIT 3: CFR 47 Part 15 Class A 10m
LIMIT 4: CFR 47 Part 15 Class B 10m
LIMIT 5: NONE
LIMIT 6: NONE

PK - Peak detector

A R Hungary
PRMc
120V 60Hz
Red: Hoz Green: Vert

Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit:1	2	3	4	5	6
Bicon Vertical 30 - 200MHz										
133.263	46.69 QP	-30.1	14.1	30.69	-	-	43.5	33.1	-	-
Azimuth: 213	Height:104 Vert			Margin [dB]:	-	-	-12.81	-2.41	-	-
79.015	49.45 QP	-30.2	6.9	26.15	-	-	39.1	29.6	-	-
Azimuth: 228	Height:189 Vert			Margin [dB]:	-	-	-12.95	-3.45	-	-
30.6255	37.78 QP	-30.5	17.6	24.88	-	-	39.1	29.6	-	-
Azimuth: 214	Height:102 Vert			Margin [dB]:	-	-	-14.22	-4.72	-	-
32.5967	37.1 QP	-30.4	16.9	23.6	-	-	39.1	29.6	-	-
Azimuth: 122	Height:100 Vert			Margin [dB]:	-	-	-15.5	-6	-	-
LogP Horizontal 200 - 1000MHz										
271.1861	53.28 QP	-33.1	12.4	32.58	-	-	46.4	35.6	-	-
Azimuth: 100	Height:103 Vert			Margin [dB]:	-	-	-13.82	-3.02	-	-
696.0138	39.43 QP	-31.4	20.6	28.63	-	-	46.4	35.6	-	-
Azimuth: 188	Height:227 Vert			Margin [dB]:	-	-	-17.77	-6.97	-	-
LogP Vertical 200 - 1000MHz										
959.97	42.61 QP	-31.7	23.4	34.31	-	-	46.4	35.6	-	-
Azimuth: 213	Height:101 Vert			Margin [dB]:	-	-	-12.09	-1.29	-	-
720.0015	44.75 QP	-31.4	20.3	33.65	-	-	46.4	35.6	-	-
Azimuth: 175	Height:225 Vert			Margin [dB]:	-	-	-12.75	-1.95	-	-
720.0015	43.75 QP	-31.4	20.3	32.65	-	-	46.4	35.6	-	-
Azimuth: 321	Height:124 Horz			Margin [dB]:	-	-	-13.75	-2.95	-	-
431.9985	52.64 QP	-32.1	16.4	36.94	-	-	46.4	35.6	-	-
Azimuth: 3	Height:201 Horz			Margin [dB]:	-	-	-9.46	1.34	-	-
***See Note below Table 20.**										
394.873	49.83 QP	-32.6	15.5	32.73	-	-	46.4	35.6	-	-
Azimuth: 102	Height:242 Horz			Margin [dB]:	-	-	-13.67	-2.87	-	-
528.0008	47.87 QP	-31.8	18.5	34.57	-	-	46.4	35.6	-	-
Azimuth: 261	Height:162 Horz			Margin [dB]:	-	-	-11.83	-1.03	-	-
271.1831	54.42 QP	-33.1	12.4	33.72	-	-	46.4	35.6	-	-
Azimuth: 167	Height:321 Horz			Margin [dB]:	-	-	-12.68	-1.88	-	-
863.9989	41.21 QP	-31.8	22.4	31.81	-	-	46.4	35.6	-	-
Azimuth: 209	Height:100 Horz			Margin [dB]:	-	-	-14.59	-3.79	-	-
816.002	41.32 QP	-31.8	22	31.52	-	-	46.4	35.6	-	-
Azimuth: 140	Height:102 Horz			Margin [dB]:	-	-	-14.88	-4.08	-	-
743.999	41.69 QP	-31.5	20.4	30.59	-	-	46.4	35.6	-	-
Azimuth: 166	Height:143 Horz			Margin [dB]:	-	-	-15.81	-5.01	-	-
743.999	42.1 QP	-31.5	20.4	31	-	-	46.4	35.6	-	-
Azimuth: 140	Height:199 Vert			Margin [dB]:	-	-	-15.4	-4.6	-	-

LIMIT 3: CFR 47 Part 15 Class A 10m
LIMIT 4: CFR 47 Part 15 Class B 10m
QP - Quasi-Peak detector

Figure 12 Radiated Emissions Graph

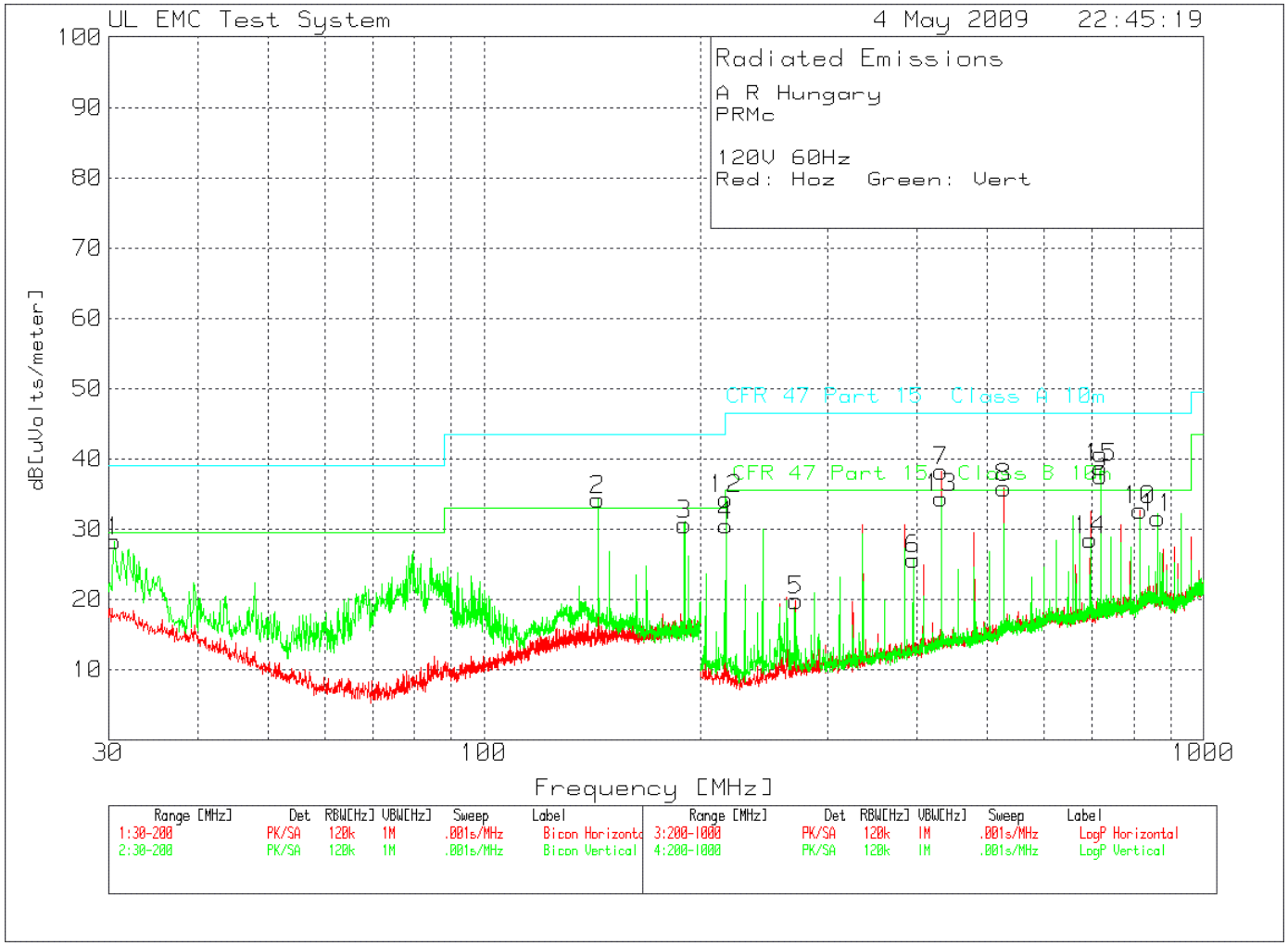


Table 20 Radiated Emissions Data Points

A R Hungary
PRMc
120V 60Hz
Red: Hoz Green: Vert

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit:1	2	3	4	5	6
Bicon Vertical 30 - 200MHz											
1	30.5947	41.01 pk	-30.4	17.7	28.31	-	-	39.1	29.6	-	-
		Height:100 Vert		Margin [dB]		-	-	-10.79	-1.29	-	-
2	144.013	49.71 pk	-30.1	14.6	34.21	-	-	43.5	33.1	-	-
		Height:100 Vert		Margin [dB]		-	-	-9.29	1.11	-	-
3	189.8051	44.82 pk	-30	15.8	30.62	-	-	43.5	33.1	-	-
		Height:100 Vert		Margin [dB]		-	-	-12.88	-2.48	-	-
LogP Horizontal 200 - 1000MHz											
4	216.7888	53.13 pk	-33.5	10.9	30.53	-	-	46.4	35.6	-	-
		Height:402 Horz		Margin [dB]		-	-	-15.87	-5.07	-	-
5	271.1526	40.56 pk	-33.1	12.4	19.86	-	-	46.4	35.6	-	-
		Height:200 Horz		Margin [dB]		-	-	-26.54	-15.74	-	-
6	394.8035	42.79 pk	-32.6	15.5	25.69	-	-	46.4	35.6	-	-
		Height:200 Horz		Margin [dB]		-	-	-20.71	-9.91	-	-
7	431.8454	53.97 pk	-32.1	16.4	38.27	-	-	46.4	35.6	-	-
		Height:200 Horz		Margin [dB]		-	-	-8.13	2.67	-	-
8	528.048	49.16 pk	-31.8	18.5	35.86	-	-	46.4	35.6	-	-
		Height:200 Horz		Margin [dB]		-	-	-10.54	.26	-	-
9	720.1865	48.64 pk	-31.4	20.3	37.54	-	-	46.4	35.6	-	-
		Height:100 Horz		Margin [dB]		-	-	-8.86	1.94	-	-
10	816.1226	42.52 pk	-31.8	22	32.72	-	-	46.4	35.6	-	-
		Height:300 Horz		Margin [dB]		-	-	-13.68	-2.88	-	-
11	864.0906	40.99 pk	-31.8	22.4	31.59	-	-	46.4	35.6	-	-
		Height:100 Horz		Margin [dB]		-	-	-14.81	-4.01	-	-
LogP Vertical 200 - 1000MHz											
12	216.7888	56.89 pk	-33.5	10.9	34.29	-	-	46.4	35.6	-	-
		Height:99 Vert		Margin [dB]		-	-	-12.11	-1.31	-	-
13	431.8454	50.11 pk	-32.1	16.4	34.41	-	-	46.4	35.6	-	-
		Height:99 Vert		Margin [dB]		-	-	-11.99	-1.19	-	-
14	695.936	39.31 pk	-31.4	20.6	28.51	-	-	46.4	35.6	-	-
		Height:300 Vert		Margin [dB]		-	-	-17.89	-7.09	-	-
15	720.1865	49.88 pk	-31.4	20.3	38.78	-	-	46.4	35.6	-	-
		Height:199 Vert		Margin [dB]		-	-	-7.62	3.18	-	-

```
A R Hungary
 PRMc
 120V 60Hz
 Red: Hoz  Green: Vert
  Test     Meter     Gain/Loss  Transducer  Level  Limit:1      2       3       4       5       6
Frequency  Reading    Factor     Factor  dB[uVolts/meter]
 [MHz]     [dB(uV)]     [dB]      [dB]
=============================================================================================================
LogP Horizontal 200 - 1000MHz
431.9985   52.85 QP      -32.1     16.4      37.15     -        -     46.4    35.6      -       -
Azimuth: 360  Height:200 Horz         Margin [dB]:     -        -     -9.25   1.55      -       -
Program closed transmitter got turn off since prog closed

LIMIT 1: NONE
LIMIT 2: NONE
LIMIT 3: CFR 47 Part 15  Class A 10m
LIMIT 4: CFR 47 Part 15  Class B 10m
LIMIT 5: NONE
LIMIT 6: NONE

QP - Quasi-Peak detector
```

*Reference table 16 for operation modes. Based on data in tables 19 and 20, the emissions level at 431MHz is nearly the same whether the transmitter is on or off. Therefore this frequency will not be considered part of the transmitter and Class A digital device limits will be used.

Figure 13 Radiated Emissions Graph

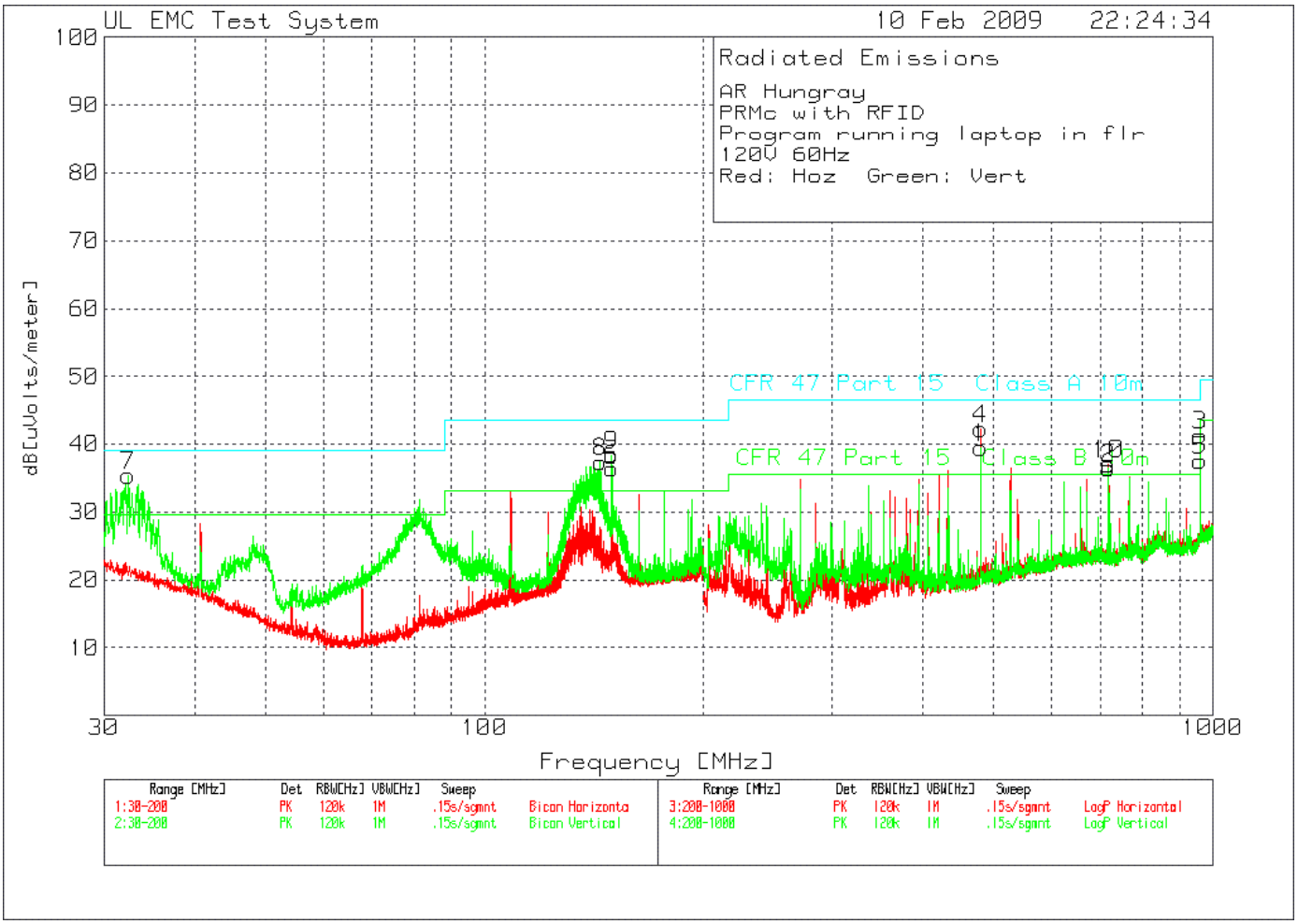


Table 21 Radiated Emissions Data Points

AR Hungray
PRMc with RFID
Program running laptop in flr
120V 60Hz
Red: Hoz Green: Vert

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit:1	2	3	4	5	6
Bicon Horizonta 30 - 200MHz											
6	149.4629	51.4 pk	-30.2	15.2	36.4	-	-	43.5	33.1	-	-
	Azimuth:70	Height:400 Horz		Margin [dB]		-	-	-7.1	3.3	-	-
Bicon Vertical 30 - 200MHz											
7	32.3782	48.7 pk	-30.4	17.1	35.4	-	-	39.1	29.6	-	-
	Azimuth:140	Height:100 Vert		Margin [dB]		-	-	-3.7	5.8	-	-
8	144.2393	52.4 pk	-30.1	15.1	37.4	-	-	43.5	33.1	-	-
	Azimuth:121	Height:100 Vert		Margin [dB]		-	-	-6.1	4.3	-	-
9	149.4629	53.4 pk	-30.2	15.2	38.4	-	-	43.5	33.1	-	-
	Azimuth:139	Height:100 Vert		Margin [dB]		-	-	-5.1	5.3	-	-
LogP Horizontal 200 - 1000MHz											
4	479.99	57.2 pk	-32	17.1	42.3	-	-	46.4	35.6	-	-
	Azimuth:148	Height:100 Horz		Margin [dB]		-	-	-4.1	6.7	-	-
5	959.8301	45.6 pk	-31.7	23.7	37.6	-	-	46.4	35.6	-	-
	Azimuth:218	Height:100 Horz		Margin [dB]		-	-	-8.8	2	-	-
10	719.6103	48.3 pk	-31.4	20.2	37.1	-	-	46.4	35.6	-	-
	Azimuth:43	Height:100 Horz		Margin [dB]		-	-	-9.3	1.5	-	-
LogP Vertical 200 - 1000MHz											
1	479.99	54.4 pk	-32	17.1	39.5	-	-	46.4	35.6	-	-
	Azimuth:341	Height:99 Vert		Margin [dB]		-	-	-6.9	3.9	-	-
2	719.6103	47.7 pk	-31.4	20.2	36.5	-	-	46.4	35.6	-	-
	Azimuth:42	Height:200 Vert		Margin [dB]		-	-	-9.9	.9	-	-
3	959.8301	49.3 pk	-31.7	23.7	41.3	-	-	46.4	35.6	-	-
	Azimuth:352	Height:200 Vert		Margin [dB]		-	-	-5.1	5.7	-	-

LIMIT 3: CFR 47 Part 15 Class A 10m
LIMIT 4: CFR 47 Part 15 Class B 10m

AR Hungray
PRMc with RFID
Program running laptop in flr
120V 60Hz
Red: Hoz Green: Vert

Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit:1	2	3	4	5	6
Bicon Horizonta 30 - 200MHz										
149.1102	51.22 qp	-30.2	15.2	36.22	-	-	43.5	33.1	-	-
Azimuth: 89	Height:284 Horz			Margin [dB]:	-	-	-7.28	3.12	-	-
Bicon Vertical 30 - 200MHz										
149.1135	52.66 qp	-30.2	15.2	37.66	-	-	43.5	33.1	-	-
Azimuth: 122	Height:122 Vert			Margin [dB]:	-	-	-5.84	4.56	-	-
143.9614	48.1 qp	-30.1	15.1	33.1	-	-	43.5	33.1	-	-
Azimuth: 94	Height:114 Vert			Margin [dB]:	-	-	-10.4	0	-	-
33.8523	41.81 qp	-30.4	16.4	27.81	-	-	39.1	29.6	-	-
Azimuth: 153	Height:101 Vert			Margin [dB]:	-	-	-11.29	-1.79	-	-
LogP Horizontal 200 - 1000MHz										
479.9594	57.45 qp	-32	17.1	42.55	-	-	46.4	35.6	-	-
Azimuth: 341	Height:196 Horz			Margin [dB]:	-	-	-3.85	6.95	-	-
959.961	47.65 qp	-31.7	23.7	39.65	-	-	46.4	35.6	-	-
Azimuth: 78	Height:104 Horz			Margin [dB]:	-	-	-6.75	4.05	-	-
LogP Vertical 200 - 1000MHz										
479.961	55.15 qp	-32	17.1	40.25	-	-	46.4	35.6	-	-
Azimuth: 299	Height:378 Vert			Margin [dB]:	-	-	-6.15	4.65	-	-
959.9637	48.53 qp	-31.7	23.7	40.53	-	-	46.4	35.6	-	-
Azimuth: 334	Height:174 Vert			Margin [dB]:	-	-	-5.87	4.93	-	-

LIMIT 1: NONE
LIMIT 2: NONE
LIMIT 3: CFR 47 Part 15 Class A 10m
LIMIT 4: CFR 47 Part 15 Class B 10m
LIMIT 5: NONE
LIMIT 6: NONE

qp - Quasi-Peak detector

5.0 IMMUNITY TEST RESULTS

Immunity test not required per standard.

Appendix A

Accreditations and Authorizations

NVLAP Lab code: 100414-0

NVLAP: The National Institute of Standards and Technology (NIST) administers the National Voluntary Laboratory Accreditation Program (NVLAP). NVLAP is comprised of laboratory accreditation programs (LAPs) which are established on the basis of requests and demonstrated need. Each LAP includes specific calibration and/or test standards and related methods and protocols assembled to satisfy the unique needs for accreditation in a field of testing or calibration. NVLAP accredits public and private laboratories based on evaluation of their technical qualifications and competence to carry out specific calibrations or tests. Accreditation criteria are established in accordance with the U.S. Code of Federal Regulations (CFR, Title 15, Part 285), NVLAP Procedures and General Requirements, and encompass the requirements of ISO/IEC 17025. For a full scope listing see http://ts.nist.gov/ts/htdocs/210/214/scopes/1004140.htm

FCC: Details of the measurement facilities used for these tests have been filed with the Federal Communications Commission's Laboratory in Columbia, Maryland (Ref. No. 91044).

Industry Canada Industrie Canada

Industry of Canada: Accredited by Industry Canada for performance of radiated measurements. Our test site complies with RSP 100, Issue 7, Section 3.3. File #: IC 2180

VCCI: Accepted as an Associate Member to the VCCI. The measurement facilities detailed in this test report have been registered in accordance with Regulations for Voluntary Control Measures, Article 8. Registration Nos.: Radiated Emissions R-621, Conducted Emissions C-642.

ICASA: ICASA (Independent Communications Authority of South Africa) has appointed UL as a Designated Test Laboratory to test Telecommunications equipment for type approval in compliance with CISPR 22 to assist in fulfilling its mandate under section 54(1) of the Telecommunications Act, 1996 (Act 103 of 1996).

NIST/CAB: Validated by the European Commission as a U.S. Conformity Assessment Body (CAB) of the U.S.-EU Mutual Recognition Agreement (MRA) for the Electromagnetic Compatibility - Council Directive 89/336/EEC, Article 10 (2). Also validated for the Telecommunication Equipment-Council Directive 99/5/EC, Annex III and IV, Identification Number: 0983.
NIST/CAB: Provisioned to act as a U.S. Conformity Assessment Body (CAB) under Appendix B, Phase I Procedures, of the Asia Pacific Economic Cooperation (APEC) MRA between the American Institute in Taiwan (AIT) and the United States. Our laboratory is considered qualified to test equipment subject to the applicable EMC regulations of the Chinese Taipei Bureau of Standards, Metrology and Inspection (BSMI) which require testing to CNS 13438 (CISPR 22).
NIST/CAB: Recognized by the Infocomm Development Authority of Singapore (IDA) under the Asia Pacific Economic Cooperation Mutual Recognition Agreement (APEC MRA). Our laboratory is provisionally designated to act as a Conformity Assessment Body (CAB) under Appendix B, Phase I Procedures, of the APEC MRA. Our scope of designation includes IDA TS EMC (CISPR 22), IEC 61000-4-2, -4-3, -4-4, -4-5, and -4-6

Compliance Certificate

Company Name and Location: A. R. Hungary Inc
Kiralyhago Ter 8-9 Budapest, 1126

File Number: MC16111 ***Date of Report: 2009-05-01***

Product Description: Compact Multireader with RFID

Investigated in accordance with FCC Part 15, Subpart C, 15.225

Model Designation: PRMc ***Serial Number: N/A***

Job Number: 989447

Project Number: 09CA07063

A sample of the product described above has been investigated by Underwriters Laboratories Inc. in accordance with the requirements indicated above and has been found in compliance with those requirements as shown in the Test Report Ref. No. 989447 which forms part of this Certificate. It is the responsibility of the company shown above that the products it produces are in compliance with the applicable requirements.

The name of Underwriters Laboratories (UL), any abbreviation thereof, or any symbol shall not be used on or in connection with the product unless and until specifically authorized by UL.

Tested by: *Reviewed by:*

UL EMC INTERNATIONAL SERVICES

Any information and documentation involving UL Mark services are provided on behalf of Underwriters Laboratories (UL) or any authorized licensee of UL.