TEST REPORT

FROM

SIEMIC, INC.
Accessing global markets

FOR

Magna Systems LLC

Wireless Network Access Point

Model: Gateway™

TO

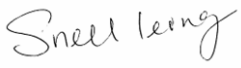
47 CFR 15.249 :2007

Test Report Serial No.:
SL07062101-MSL-001(GateWay)

This report supersedes None

Remarks:	Equipment complied with the specification	[X]
	Equipment did not comply with the specification	[ ]

This Test Report is Issued Under the Authority of:



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Tested by: Snell Leong, Test Engineer

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Reviewed by: Leslie Bai, Reviewer

Issue date: 06 July 2007
Manufacturer: Magna Systems LLC

Registration No. 783147

Industry Canada
Industrie Canada
Registration No. 4842

MIC
Lab Code: KR0032

OFTA
電訊管理局
RTA No. D23/16V

VCCI
Registration No. 2195

Lab Code : U S 0 1 6 0

BSMI Code: SL2-IN-E-1130R

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Executive Summary

The purpose of this test programme was to demonstrate compliance of the Magna Systems LLC, Wireless Network Access Point, model Gateway™ against the current 47 CFR 15.249 :2007. The Wireless Network Access Point demonstrated compliance with the 47 CFR 15.249 :2007.

Magna Systems LLC is the applicant and claimed manufacturer of this tested product. For the detailed description of this product, please refer to the Wireless Network Access Point User Manual.

The equipment under test operating frequency is 915MHz.

The test has demonstrated that this unit complies with stipulated standards.

1 Technical Details

Purpose	Compliance testing of Wireless Network Access Point with 47 CFR 15.249 :2007
Applicant / Client	Magna Systems LLC 450C First Street Los Altos CA
Manufacturer	Magna Systems LLC
Laboratory performing the tests	SIEMIC Labs 2206 Ringwood Avenue San Jose, CA 95131
Test location(s)	SIEMIC Labs 2206 Ringwood Avenue San Jose, CA 95131
Test report reference number	SL07062101-MSL-001(GateWay)
Date EUT received	02 July 2007
Standard applied	47 CFR 15.249 :2007
Dates of test (from – to)	02 July 2007 to 02 July 2007
No of Units:	1
Equipment Category:	DXT
Trade/Product Name:	Magna Systems, L.L.C.
Type/Model Name/No:	Gateway™
Technical Variants:	N/A
FCC ID No.	VGD-MAGNA888
IC ID No.	7231A-MAGNA888

2 Tests Required

The product was tested in accordance with the following specifications.
The test results recorded in this Test Report are exclusively referred to the tested sample(s).

Test Standard		Description	Pass / Fail
47 CFR Part 15.249: 2007	RSS 210 Issue 7: 2007		
15.203	RSS GEN 7.1.4	Antenna Requirement	Pass
15.207(a)	RSS GEN 7.2.2	Conducted Emissions Voltage	Pass
15.249	RSS 210 A.2.9 (a) 7 (b)	Fundamental & Radiated Spurious Emission Limits	Pass
ANSI C63.4: 2003 / RSS-Gen Issue 2: 2007			

Notes: Deviations to above standards are outlined in specific test sections if applicable.
Cable loss and external attenuation are compensated for in the measurement system when applicable.

3 Antenna Requirement

Requirement(s): 47 CFR §15.203 RSS GEN 7.1.4

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

Antenna requirement must meet at least one of the following:

a) Antenna must be permanently attached to the device.

b) Antenna must use a unique type of connector to attach to the device.

c) Device must be professionally installed. Installer shall be responsible for ensuring that the correct antenna is employed with the device.

1) The EUT antenna is attached permanently to the device which meets the requirement.

4 Measurements, Examinations and Derived Results

4.1 General observations

Equipment serial number(s)		
EUT:	Model number:	Serial number:
Wireless Network Access Point	Gateway™	none

4.2 Test Results

4.2.1 Conducted Emissions Voltage

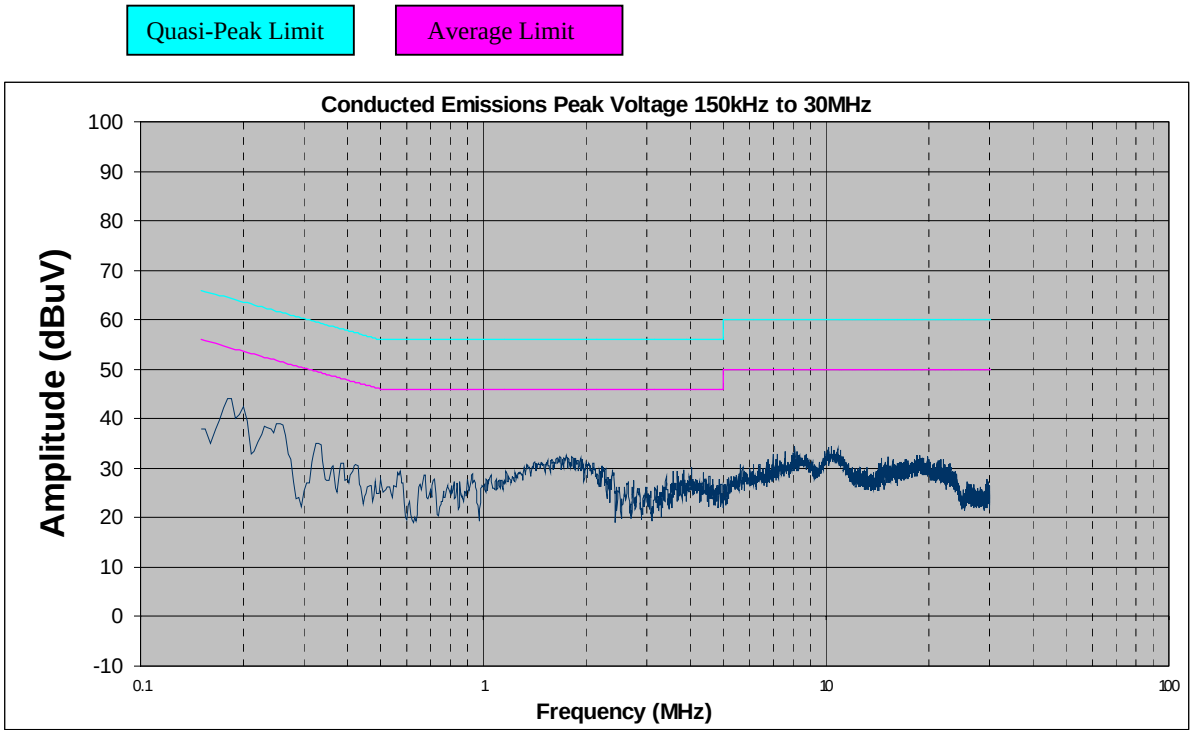
Requirement(s): 47 CFR §15.207 & RSS GEN 7.2.2

Procedures:

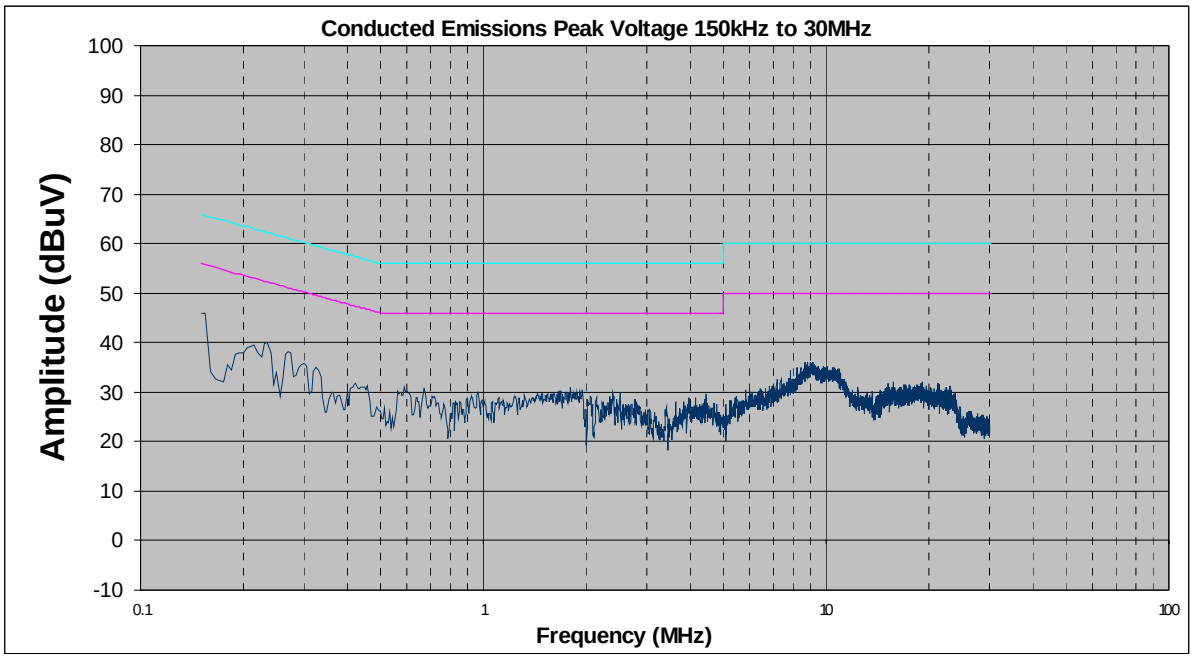
The EUT and supporting equipment were set up in accordance with the requirements of the standard on top of a 1.5m x 1m x 0.8m high, non-metallic table. The power supply for the EUT was fed through a 50Ω/50μH EUT LISN, connected to filtered mains. The RF OUT of the EUT LISN was connected to the EMI test receiver via a low-loss coaxial cable. All other supporting equipment were powered separately from another mains.

The EUT was switched on and allowed to warm up to its normal operating condition. A scan was made on the NEUTRAL line over the required frequency range using an EMI test receiver. High peaks, relative to the limit line, were then selected. The EMI test receiver was then tuned to the selected frequencies and the necessary measurements made with a receiver bandwidth setting of 10kHz. Quasi-peak and Average measurements were made. The procedure was then repeated for the PHASE line.

Results:



Neutral Line Plot at 120Vac, 60Hz



Phase Line Plot at 120Vac, 60Hz

LINE	FREQ (MHz)	Corrected Amplitude (dBµV) PK	Class B Limit (dBµV) QP	Margin (dB) QP	Corrected Amplitude (dBµV) PK	Class B Limit (dBµV) AVG	Margin (dB) AVG
Neutral	0.19	44.20	64.04	PASS	-19.84	41.50	54.04
Neutral	1.85	32.10	56.00	PASS	-23.90	30.20	46.00
Neutral	10.14	34.20	60.00	PASS	-25.80	31.50	50.00
Phase	0.16	46.00	65.46	PASS	-19.46	42.30	55.46
Phase	1.80	30.90	56.00	PASS	-25.10	28.80	46.00
Phase	9.28	35.20	60.00	PASS	-24.80	33.60	50.00

Conducted Emission Table

Note: PK = peak; QP = quasi-peak; AVG = average detector.

Tested By: Snell Leong
Date Tested: 06 July 2007

4.2.2 Radiated Fundamental & Spurious Emissions

Requirement(s): 47 CFR §15.209; 47 CFR §15.249 (a) & (d) & RSS A.2.9 (a) + (b)

Procedures: Radiated emissions were measured according to ANSI C63.4. The EUT was set to transmit at the highest output power. The EUT was set 3 meter away from the measuring antenna. The loop antenna was positioned 1 meter above the ground from the center of the loop. The measuring bandwidth was set to 10 kHz.

The limit is converted from microvolts/meter to decibel microvolts/meter.

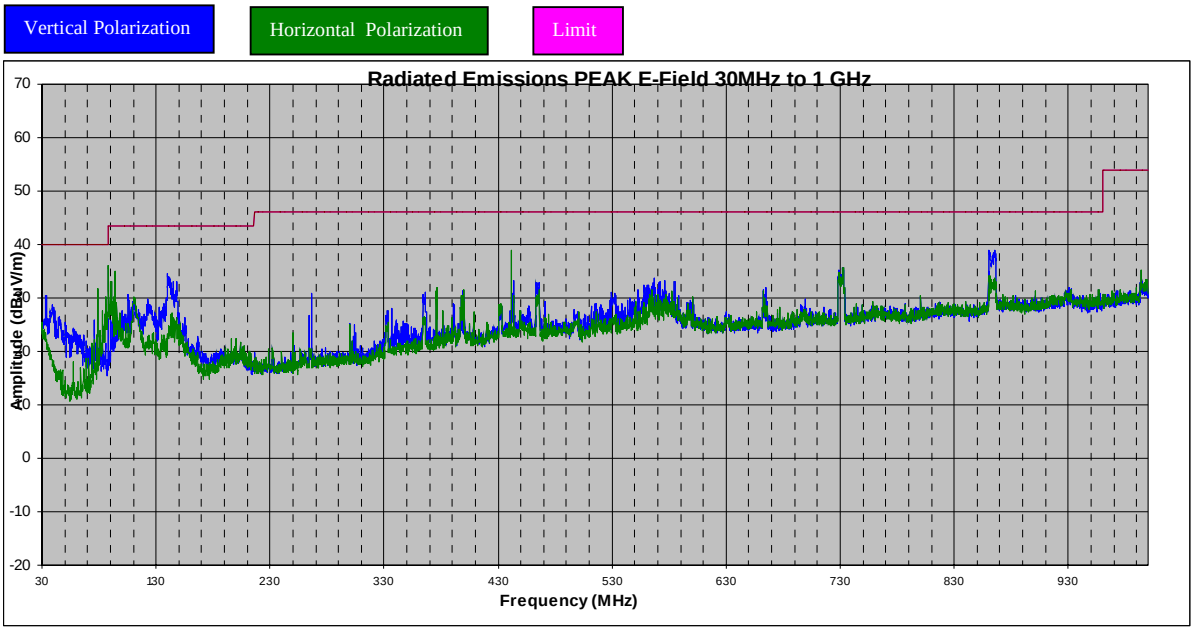
Sample Calculation: Corrected Amplitude = Raw Amplitude(dBµV/m) + ACF(dB) + Cable Loss(dB) – Distance Correction Factor

Results: **30MHz ~ 10GHz @ 1 Meter (TX Spurious Emission)**

3 Meter (TX Fundamental)

Frequency (GHz)	Azimuth (Degrees)	Antenna Polarity (H/V)	Height (m)	Raw Amp. @ 3m (dBuV)	Pre Amp. (dB)	Ant.Corr. Factor (dB)	Cable Loss (dB)	Distance Factor dB	Corrected Field Strength (dBuV/m)	Limit @ 3m (dBuV/m)	Delta (dBuV/m)	Detector (pk/avg)	Remark
0.915	180	V	1	66.20	0	22.2	2.4	0	90.8	94	-3.20	QP	Fund
0.915	180	H	1	65.90	0	22.3	2.4	0	90.6	94	-3.40	QP	Fund
1.83	0	H	1	63.7	32.02	27.96	2.02	10.00	51.67	74	-22.33	PK	2nd
1.83	0	H	1	61.7	32.02	27.96	2.02	10.00	49.67	54	-4.33	AVG	2nd
1.83	90	V	1.5	63.3	32.02	27.59	2.02	10.00	50.90	74	-23.10	PK	2nd
1.83	90	V	1.5	61.2	32.02	27.59	2.02	10.00	48.80	54	-5.20	AVG	2nd
2.745	0	H	1.4	49.6	32.21	30.69	2.53	10.00	40.62	74	-33.38	PK	3rd
2.745	0	H	1.4	47.8	32.21	30.69	2.53	10.00	38.82	54	-15.18	AVG	3rd
2.745	0	V	1	47.6	32.21	30.26	2.53	10.00	38.19	74	-35.81	PK	3rd
2.745	0	V	1	43.6	32.21	30.26	2.53	10.00	34.19	54	-19.81	AVG	3rd
3.66	90	H	1	54	32.37	32.83	3.01	10.00	47.47	74	-26.53	PK	3rd
3.66	312	H	1	52.7	32.37	32.83	3.01	10.00	46.17	54	-7.83	AVG	3rd
3.66	0	V	1	47.6	32.37	32.03	3.01	10.00	40.27	74	-33.73	PK	3rd
3.66	170	V	1	45.5	32.37	32.03	3.01	10.00	38.17	54	-15.83	AVG	3rd
0.902	180	H	1.2	1.10	0	22.3	2.4	0	25.8	46	-20.20	QP	Bandedge
0.902	180	V	1.2	0.80	0	22.3	2.4	0	25.5	46	-20.50	QP	Bandedge
0.928	180	H	1.1	1.20	0	22.5	2.4	0	26.1	46	-19.90	QP	Bandedge
0.928	180	V	1.1	0.70	0	22.5	2.4	0	25.6	46	-20.40	QP	Bandedge

30MHz ~ 1000MHz @ 3 Meter (RX Spurious Emission)



Frequency	Azimuth	Measure	Antenna Polarity	Antenna Height	Raw Amplitude @ 3m	ACF	CBL loss	Corrected Amplitude @ 3m	Limit @3m	Delta
(MHz)	(degrees)	(Avg/QP)	(H/V)	(m)	(dBuV/m)	(dBm)	(dBm)	(dBuV/m)	(dBuV/m)	(dBuV/m)
33.80	180	QP	V	1	8.50	19.9	0.7	29.1	40	-10.90
94.10	200	QP	H	1	26.90	7.3	0.7	34.9	43.5	-8.60
145.10	0	QP	V	1	18.90	13.3	0.9	33.1	43.5	-10.40
441.30	0	QP	V	1	20.50	16.7	1.6	38.8	46	-7.20
733.20	180	QP	H	1	12.30	20.3	2	34.6	46	-11.40
866.00	0	QP	V	1	14.50	21.6	2.2	38.3	46	-7.70

Tested By: Snell Leong
Date Tested: 06 July 2007

5 TEST INSTRUMENTATION

5.1 TEST INSTRUMENTATION

Instrument	Manufacturer	Model	CAL Due Date
Spectrum Analyzer	HP	8568B	04/26/2008
Quasi-Peak Adapter	HP	85650A	04/26/2008
RF Pre-Selector	HP	85685A	04/26/2008
Spectrum Analyzer	HP	8564E	05/01/2008
Power Meter	HP	437B	04/26/2008
Power Sensor	HP	8485A	04/26/2008
Antenna	EMCO	JB1	09/11/2007
Pre-Amplifier	HP(1G~26.5G)	8449	05/01/2008
Horn Antenna	COM Power(18G~40G)	AH-840	03/19/2010
Horn Antenna	EMCO(1G~18G)	3115	08/17/2007
DMM	Fluke	73III	05/01/2008
Variac	KRM	AEEC-2090	See Note
DMM	Fluke	51II	See Note
LISN (9k-30MHz)	Chase	MN2050B	4/26/2008

Note: Functional Verification

APPENDIX A: EUT TEST CONDITIONS

The following is the description of supporting equipment and details of cables used with the EUT.

Equipment Description (Including Brand Name)	Cable Description
Wireless Network Access Point	1. AC Cord

EUT Description	:	Wireless Network Access Point
Model No	:	Magna Systems, L.L.C.
Serial No	:	none

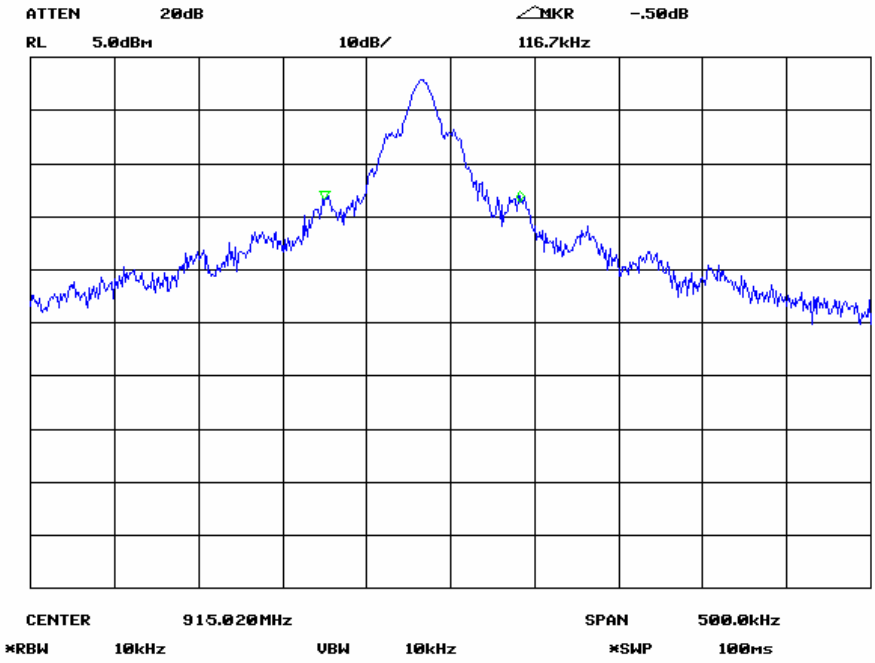
The following is the description of how the EUT is exercised during testing.

Test	Description Of Operation
All testing	The EUT was set to enter CW mode automatically when powered.

APPENDIX B: EXTERNAL PHOTOS

See Attachment

APPENDIX C: 99% Bandwidth and Emission Designator



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APPENDIX D: INTERNAL PHOTOS

See Attachment

APPENDIX E: PRODUCT DESCRIPTION

Detail description of this product is shown in the User's Guide.

APPENDIX F: FCC LABEL LOCATION

See Attachment

APPENDIX G: USER MANUAL

See Attachment

APPENDIX H: Circuit / Block Diagram

END OF REPORT