RHEIN TECH
LABORATORIES, INC.

Engineering Solutions & Electromagnetic Compatibility Services

FCC Test Data

for

Model: Keypad 345 MHz
(RTL barcode: 20737)

for

Resolution Engineering

RTL Project Number 2012209

Test Engineer: Bryan Sarles, Daniel Baltzell

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These tests are accredited and meet the requirements of ISO/IEC 17025 as verified by ANSI-ASQ National Accreditation Board/ACLASS. Refer to certificate and scope of accreditation AT-1445.

Rhein Tech Laboratories, Inc.
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Client: Resolution Engineering
Model: Keypad 345 MHz
FCC ID: N/A
Standards: FCC Part 2, 15
Report #: 2012209

Testing presented in this test report

15.231
The data and limits presented in this report are for peak emissions limiting per 15.231(b)(2) which references 15.35(b), and peak limiting for restricted bands per 15.209(e) which again references 15.35(b)(2), as procured by Resolution Engineering. No average data is presented in this report.

15.231 Radiated Emissions Test Data – FCC Limits / 3m Distance

Mode: EUT Antenna - Horizontal

Emission Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pass/ Fail
345.0	Peak	H	60.6	28.0	88.6	97.3	-8.7	Pass
690.0	Peak	H	71.2	-5.3	65.9	77.3	-11.4	Pass
1,035.0	Peak	H	56.0	-0.2	55.9	74.0	-18.1	Pass
1,380.0	Peak	H	56.0	4.9	60.9	74.0	-13.1	Pass
1,725.0	Peak	H	42.8	8.0	50.8	77.3	-26.5	Pass
2,070.0	Peak	H	72.1	-14.6	57.5	77.3	-19.7	Pass
2,415.0	Peak	H	87.8	-18.9	68.9	77.3	-8.3	Pass
2,760.0	Peak	H	73.5	-18.6	54.9	74.0	-19.0	Pass
3,105.0	Peak	H	69.4	-18.1	51.5	77.3	-25.7	Pass
3,450.0	Peak	H	70.0	-17.5	52.5	77.3	-24.8	Pass

Test Procedure
Radiated emissions of the harmonics were tested at three meters. The EUT was tested in the three orthogonal planes with the receive antenna in both polarities. The emissions were maximized per ANSI C63.4:2003 8.3.1.2; that is, the measurement antenna height was varied between 1 and 4 m, and the EUT was rotated through 360° on a rotating turntable until the maximum emissions were found. Both horizontal and vertical measurement antenna polarizations were used. A resolution bandwidth of 100 kHz was used for frequencies less than 1000 MHz, and a resolution bandwidth of 1 MHz was used for frequencies greater than or equal to 1000 MHz. The video bandwidth was set to a value at least three times greater than the resolution bandwidth.
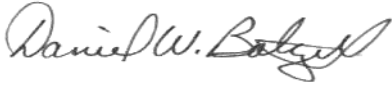
EUT Disposition
The EUT was adapted to continuously transmit for testing purposes.

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Radiated Emissions Test Equipment

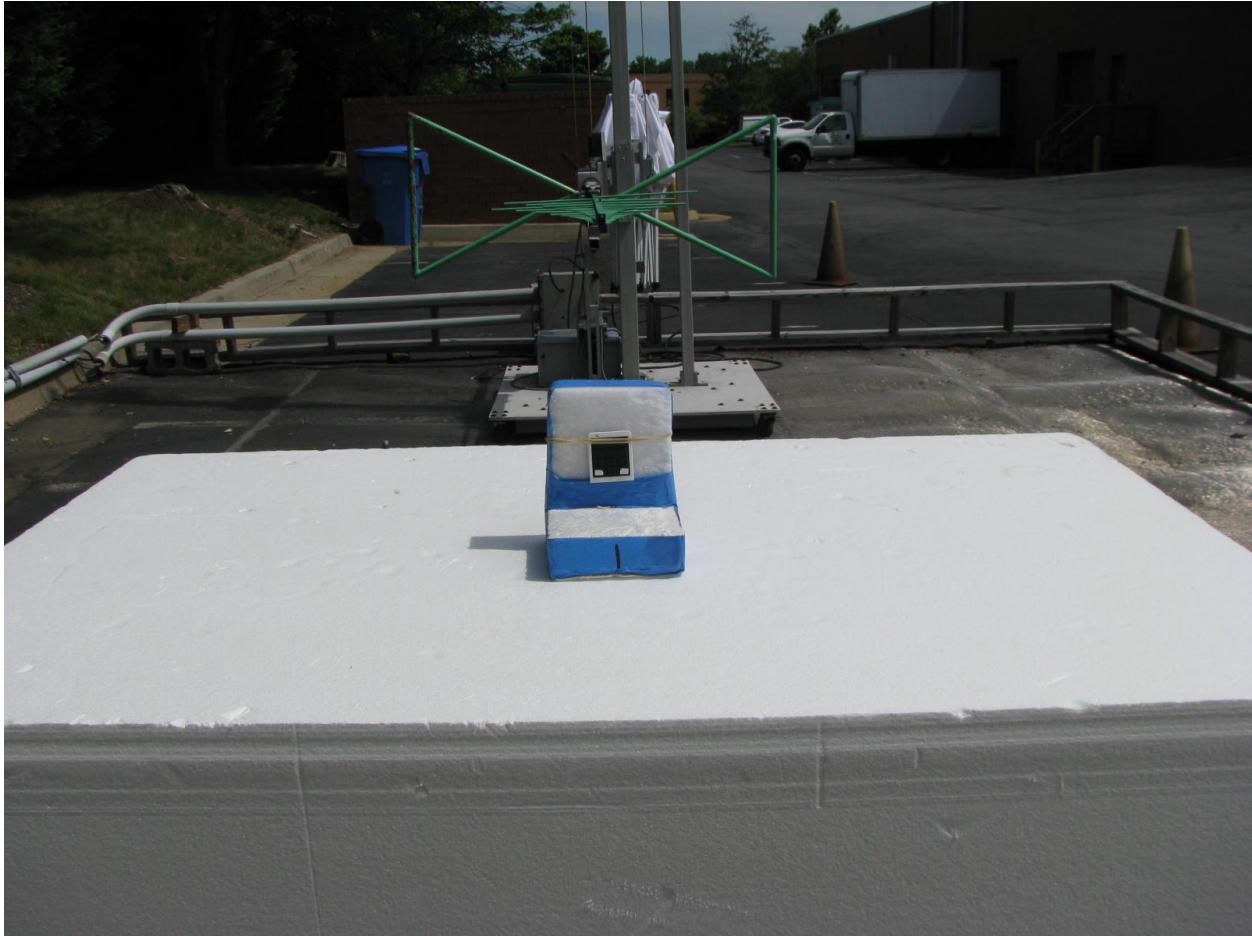| Part	Manufacturer	Model	Serial Number	RTL Bar Code	Calibration Due Date
Amplifier (20 MHz-2 GHz)	Rhein Tech Laboratories, Inc.	PR-1040	900905	900905	7/14/12
Bilog Periodic Antenna (25 MHz-2 GHz)	Schaffner Chase	CBL6112	2099	900791	12/12/12
EMI Receiver RF Section (9 KHz-6.5 GHz)	Hewlett Packard	85462A	3325A00159	900913	8/17/12
RF Filter Section (100 KHz-6.5 GHz)	Hewlett Packard	85460A	3330A00107	900914	8/17/12
Amplifier (1 GHz–26.0 GHz)	Rhein Tech Laboratories, Inc.	PR-1042	N/A	901364	7/14/12
Horn Antenna (2.0-4.0 GHz)	EMCO	3161-02	9804-1044	900772	4/20/15
Horn Antenna (4.0-8.2 GHz)	EMCO	3161-03	9508-1020	900321	4/20/15
Horn Antenna (8.2-12.4) GHz	EMCO	3161-07	9605-1054	900323	4/20/15
Emissions Testing Software	Rhein Tech Laboratories, Inc.	Automated Emission Tester	Rev. 14.0.2	N/A	N/A

Test Personnel:

Bryan Sarles		June 13, 2012
Test Engineer	Signature	Date of Test

Daniel Baltzell		June 21, 2012
Test Engineer	Signature	Date of Test

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Test Configuration Photographs

Radiated Emissions - Front

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EUT Photograph