TEST REPORT
FROM
RFI GLOBAL SERVICES LTD

Test of: Net2 PaxLock

FCC ID: USE901172

IC Certification Number: 10217A-901172

To: FCC Parts 15.209 and 15.215, Industry Canada RSS-Gen Sections 4.6 and 4.9

Test Report Serial No.:
RFI-RPT-RP86275JD03A V2.0

Version 2.0 Supersedes All Previous Versions

This Test Report Is Issued Under The Authority Of Chris Guy, Head of Global Approvals:	pp 
Checked By:	Ian Watch
Signature:	
Date of Issue:	26 March 2012

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RFI Global Services Ltd
Pavilion A, Ashwood Park, Ashwood Way, Basingstoke, Hampshire RG23 8BG
Telephone: +44 (0)1256 312000 Facsimile: +44 (0)1256 312001
Email: info@rfi-global.com Website: www.rfi-global.com

Registered in England and Wales. Company number:2117901

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1. Customer Information

Company Name:	Paxton Ltd.
Address:	Paxton House Home Farm Brighton Sussex BN1 9HU United Kingdom

2. Summary of Testing

2.1. General Information

Specification Reference:	47CFR15.209 & 47CFR15.215
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications) 2011: Part 15 Subpart C (Intentional Radiators) - Sections 15.209 and 15.215
Specification Reference:	RSS-Gen Issue 3 December 2010
Specification Title:	General Requirements and Information for the Certification of Radio Apparatus
Site Registration:	FCC: 209735; Industry Canada: 3245B-2
Location of Testing:	RFI Global Services Ltd, Wade Road, Basingstoke, Hampshire, RG24 8AH.
Test Date:	05 March 2012

2.2. Summary of Test Results

FCC Reference (47CFR)	IC Reference	Measurement	Result
Part 15.209	RSS-Gen 4.9/7.2.5	Transmitter Radiated Emissions	✓
Part 15.215	RSS-Gen 4.6.1/4.6.3	Transmitter 20 dB Bandwidth	✓

Key to Results

✓ = Complied ✗ = Did not comply

2.3. Methods and Procedures

Reference:	ANSI C63.4 (2009)
Title:	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
Reference:	ANSI C63.10 (2009)
Title:	American National Standard for Testing Unlicensed Devices

2.4. Deviations from the Test Specification

For the measurements contained within this test report, there were no deviations from, additions to, or exclusions from the test specification identified above.

3. Equipment Under Test (EUT)

3.1. Identification of Equipment Under Test (EUT)

Brand Name:	Net2 PaxLock
Model Name or Number:	901–172
Serial Number:	385875970
Hardware Version:	z-pl01 rev 6, ppc-pl01 rev E
FCC ID:	USE901172
IC Certification Number:	10217A-901172

3.2. Description of EUT

The equipment under test was a door lock with intelligent access control using an integrated 125 kHz proximity reader and IEEE 802.15.4, 2.4 GHz RF communications. The unit is powered by four AA batteries

3.3. Modifications Incorporated in the EUT

No modifications were applied to the EUT during testing.

3.4. Additional Information Related to Testing

Technology Tested:	RFID	
Power Supply Requirement(s):	Nominal	6 VDC
Type of Unit:	Transmitter	
Transmit Frequency:	125 kHz	

3.5. Support Equipment

The following support equipment was used to exercise the EUT during testing:

Description:	Net2Air USB Bridge
Brand Name:	Net2Air
Model Name or Number:	477 - 268

Description:	RFID tag
Brand Name:	Net2Air
Model Name or Number:	User4

4. Operation and Monitoring of the EUT during Testing

4.1. Operating Modes

The EUT was tested in the following operating mode(s):

- Continuously transmitting at maximum power at 125 kHz.

4.2. Configuration and Peripherals

The EUT was tested in the following configuration(s):

- The EUT was powered by four AA type batteries. New batteries were fitted before testing commenced and the voltage levels were monitored during testing.
- The required configuration was selected on the EUT using a laptop PC provided by the Customer together with the NetAir bridge, USB cable and RFID card. When the EUT was in the correct mode the support equipment was removed from the test site.

5. Measurements, Examinations and Derived Results

5.1. General Comments

Measurement uncertainties are evaluated in accordance with current best practice. Our reported expanded uncertainties are based on standard uncertainties, which are multiplied by an appropriate coverage factor to provide a statistical confidence level of approximately 95%. Please refer to Section 6 Measurement Uncertainty for details.

5.2. Test Results

5.2.1. Transmitter Radiated Spurious Emissions

Test Summary:

Test Engineer:	David Doyle	**Test Date:**	05 March 2012
Test Sample Serial Number	385875970		

FCC Part:	15.209
Test Method Used:	As detailed in ANSI C63.10 Section 6.3 and 6.5 referencing ANSI C63.4
Frequency Range:	9 kHz to 1000 MHz

Environmental Conditions:

Temperature (°C):	21
Relative Humidity (%):	32

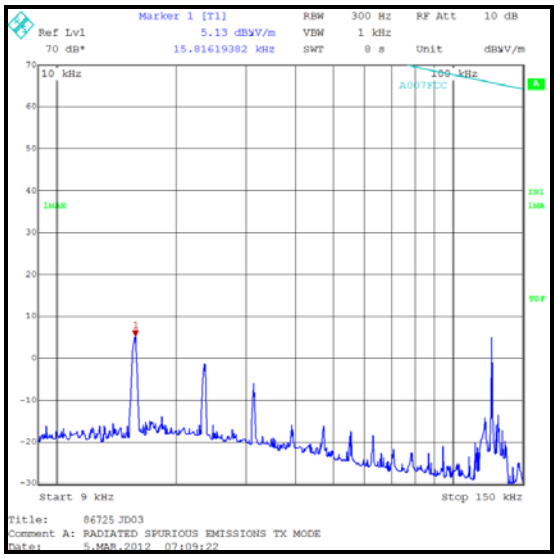
Results: Quasi Peak

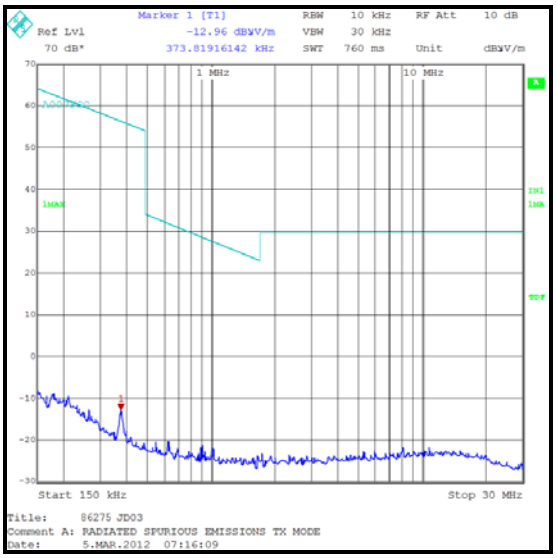
Frequency (MHz)	Antenna Polarity	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
125.794	Vertical	16.7	43.5	26.8	Complied
256.006	Horizontal	12.9	46.0	33.1	Complied

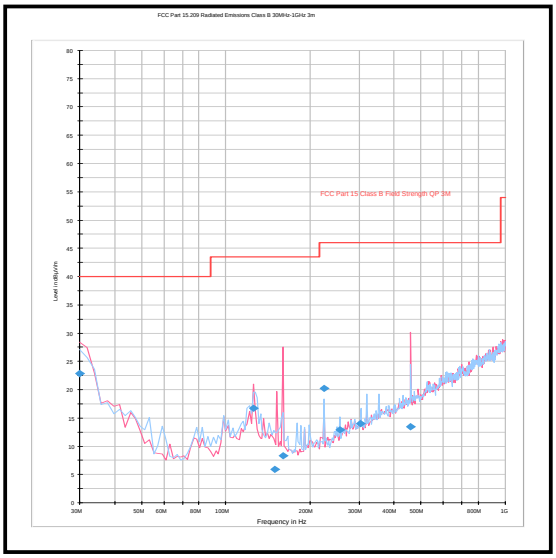
Note(s):

1. The final measured value, for the given emission, in the table above incorporates the calibrated antenna factor and cable loss.
2. Measurements below 1 GHz were performed in a semi-anechoic chamber (RFI Asset Number K0001) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.
3. Limits below 30 MHz are specified at a test distance of 30 metres, whilst below 0.49 MHz they are specified at a test distance of 300 metres. However, as specified by FCC Section 15.31 (f)(2), measurements may be performed at a closer distance and the measured level corrected to the specified measurement distance by using the square of an inverse linear distance extrapolation factor (40dB/decade).
4. A transducer factor on the measuring instrument was used to extrapolate the results at 3 metres to a distance of 30 metres where required. A distance extrapolation factor of 40 dB was used.
5. The emission shown at approximately 115 kHz is the fundamental.
6. All emissions on the 9 kHz to 150 kHz plot were investigated and found to be radiating from the test site turntable.
7. All other emissions shown on the pre-scan plots were investigated and found to be >20 dB below the applicable limit or below the measurement system noise floor.

Transmitter Radiated Spurious Emissions (continued)







Note: These plots are pre-scans and for indication purposes only. For final measurements, see accompanying table.

5.2.2. Transmitter 20 dB Bandwidth

Test Summary:

Test Engineer:	David Doyle	**Test Date:**	05 March 2012
Test Sample Serial No:	385875970		

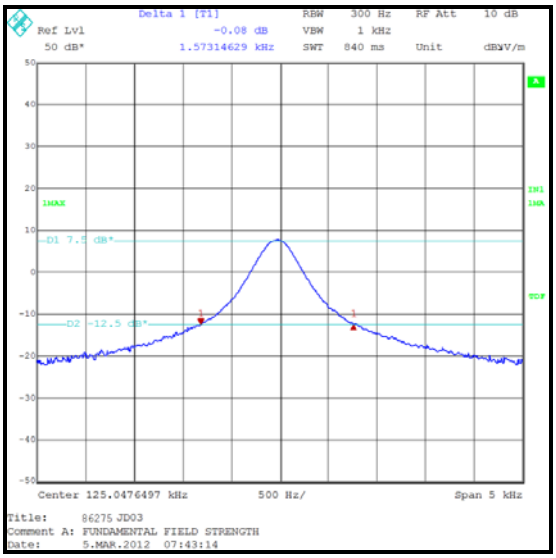
FCC Part:	15.215(c)
Test Method Used:	As detailed in ANSI C63.10 Section 6.9.1

Environmental Conditions:

Temperature (°C):	21
Relative Humidity (%):	32

Results:

20 dB Bandwidth (kHz)
1.573



Note(s):

1. As can be seen from the above plot, the 20 dB bandwidth of the emission remains within the non-restricted band of operation between 0.110 MHz and 0.495 MHz.

6. Measurement Uncertainty

No measurement or test can ever be perfect and the imperfections give rise to error of measurement in the results. Consequently the result of a measurement is only an approximation to the value of the measurand (the specific quantity subject to measurement) and is only complete when accompanied by a statement of the uncertainty of the approximation.

The expression of uncertainty of a measurement result allows realistic comparison of results with reference values and limits given in specifications and standards.

The uncertainty of the result may need to be taken into account when interpreting the measurement results.

The reported expanded uncertainties below are based on a standard uncertainty multiplied by an appropriate coverage factor such that a confidence level of approximately 95% is maintained. For the purposes of this document “approximately” is interpreted as meaning “effectively” or “for most practical purposes”.

Measurement Type	Range	Confidence Level (%)	Calculated Uncertainty
20 dB Bandwidth	125 kHz	95%	±0.92 ppm
Radiated Spurious Emissions	30 MHz to 1 GHz	95%	±2.94 dB

The methods used to calculate the above uncertainties are in line with those recommended within the various measurement specifications. Where measurement specifications do not include guidelines for the evaluation of measurement uncertainty the published guidance of the appropriate accreditation body is followed.

Appendix 1. Test Equipment Used

RFI No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval
A553	Antenna	Chase	CBL6111A	1593	15 Feb 2013	12
K0001	5m RSE Chamber	Rainford EMC	N/A	N/A	29 May 2012	12
M1273	Test Receiver	Rohde & Schwarz	ESIB 26	100275	03 Feb 2013	12
M1568	Magnetic Loop	Rohde & Schwarz	HFH2-Z2	879284/2	08 Feb 2013	12

NB In accordance with UKAS requirements all the measurement equipment is on a calibration schedule.