



TEST REPORT FROM RFI GLOBAL SERVICES LTD

Test of: Easyprox Nano

To: FCC Part 15.209: 2008 and Part 15.215: 2008

Test Report Serial No:
RFI/RPT2/RP49344JD10A

Supersedes Test Report Serial No:
RFI/RPT1/RP49344JD01A

This Test Report Is Issued Under The Authority Of Brian Watson, Operations Director:	
 pp	
Checked By:	Nigel Davison
Signature:	 pp
Date of Issue:	14 September 2009

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1. Customer Information






Company Name:	Paxton Access Ltd
Address:	Paxton House Home Farm Brighton Sussex BN1 9HU

2. Summary of Testing

2.1. General Information

Specification Reference:	47CFR15.209 & 47CFR15.215
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications) 2008: Part 15 Subpart C (Radio Frequency Devices) - Sections 15.209 & 15.215
Site Registration:	FCC: 209735
Location of Testing:	RFI Global Services Ltd, Wade Road, Basingstoke, Hampshire, RG24 8AH.
Test Dates:	17 April 2009 to 13 May 2009

2.2. Summary of Test Results

FCC Reference (47CFR)	Measurement	Port Type	Result
Part 15.215(a)(b)(c)	Transmitter Fundamental Field Strength	Antenna	
Part 15.209(a)	Transmitter Radiated Spurious Emissions	Enclosure	
Part 15.215(c)	Transmitter 20 dB Bandwidth	Antenna	
Key to Results  = Complied  = Did not comply			

2.3. Methods and Procedures

Reference:	ANSI C63.4 (2003)
Title:	American National Standard Methods of Measurement of Electromagnetic Emissions from Low Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.

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:	Easyprox nano
Model Name or Number:	746-284
Serial Number:	967341
Hardware Version Number:	z-ep01 Rev. 12, ppc-esy Rev. H
Software Version Number:	None stated
FCC ID Number:	USE746284

3.2. Description of EUT

The equipment under test was a door lock, with intelligent access control, using an integrated proximity reader operating at 125 kHz and IEEE 802.15.4 2.4 GHz RF communications.

3.3. Modifications Incorporated in the EUT

It was not possible to test the EUT using the normal duty cycle as the transmitter on period is too small, therefore for the purposes of testing only, the EUT was configured by the customer to transmit continuously.

3.4. Additional Information Related to Testing

Tested Technology:	RFID	
Modulation Type:	Amplitude Modulation	
Transmit Frequency Range:	N/A (single frequency operation)	
Transmit Channels Tested:	Channel ID	Frequency (MHz)
	Single Channel	0.125

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
Serial Number:	879806

Description:	Laptop PC
Model Name or Number:	Dell Inspiron 510m
Serial Number:	Not marked or stated

4. Operation and Monitoring of the EUT during Testing

4.1. Operating Modes

The EUT was tested in the following operating modes, unless otherwise stated:

- Continuously transmitting a modulated carrier.

4.2. Configuration and Peripherals

The EUT was tested in the following configuration:

- The EUT had a permanently active 125 kHz transmitter active with a modulated carrier at maximum power awaiting a signal from a token.

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 for details.

5.2. Test Results

5.2.1. Transmitter Fundamental Field Strength

Test Summary:

FCC Part:	15.215 (a)(b)(c), 15.209 (a)
Test Method Used:	As detailed in ANSI C63.4 Section 8 and relevant annexes

Environmental Conditions:

Temperature Range (°C):	22
Relative Humidity Range (%):	35

Results:

Frequency (MHz)	Antenna Polarity	Q-P Level (dBμV/m)	Limit at 300 m (dBμV/m)	Margin (dB)	Result
0.125	90° to EUT	-13.4	19.2 (at 300m)	32.6	Complied

5.2.2. Transmitter Radiated Spurious Emissions**Test Summary:**

FCC Part:	15.209 (a)
Test Method Used:	As detailed in ANSI C63.4 Section 8 and relevant annexes
Frequency Range:	9 kHz to 1000 MHz

Environmental Conditions:

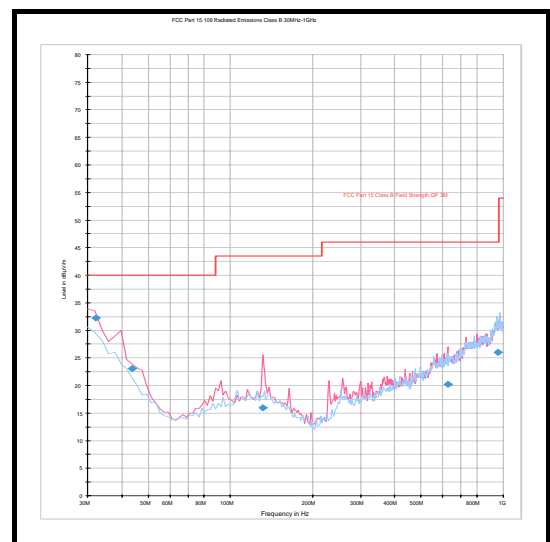
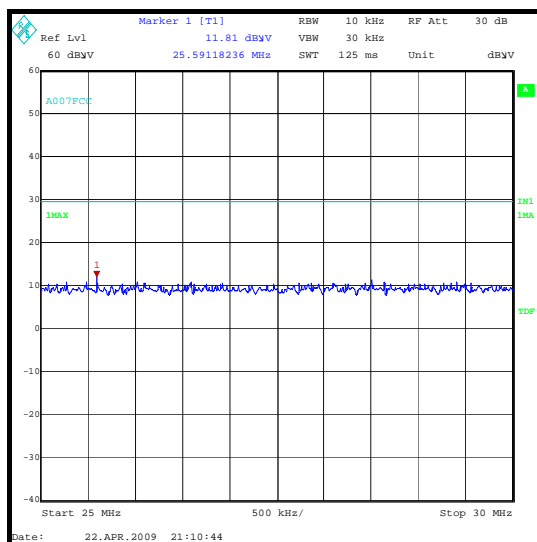
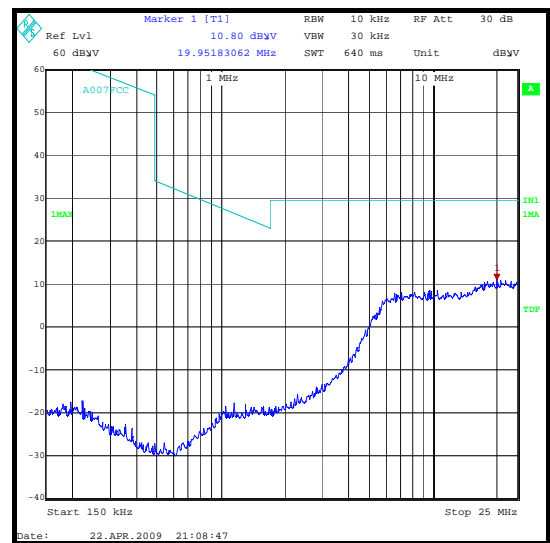
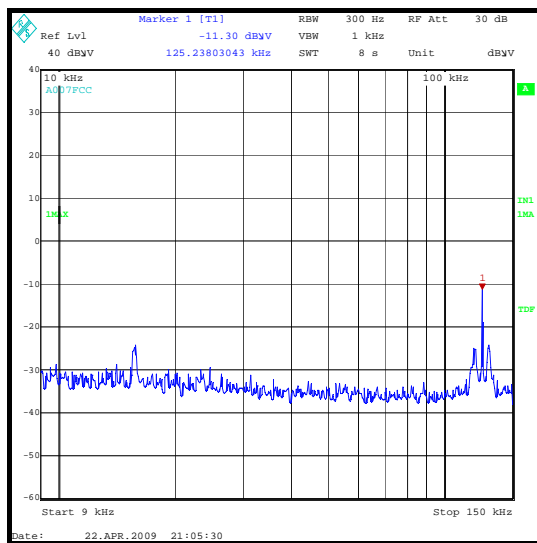
Temperature (°C):	22
Relative Humidity (%):	35

Results:

Frequency (MHz)	Antenna Polarity	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
0.125	Loop Antenna	-11.3	105.7	117.0	Complied
32.229	Vertical	32.2	40.0	7.8	Complied

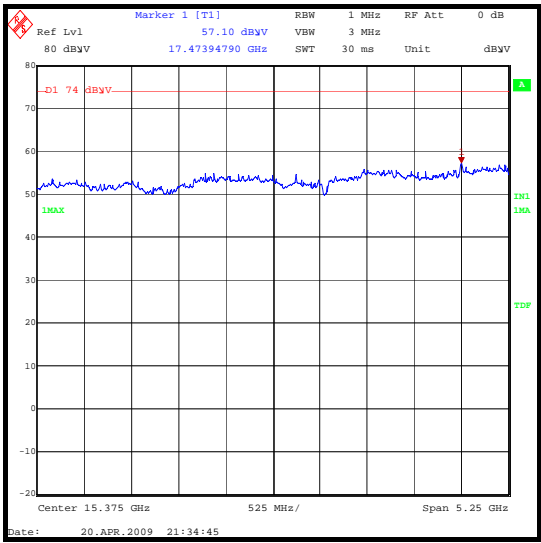
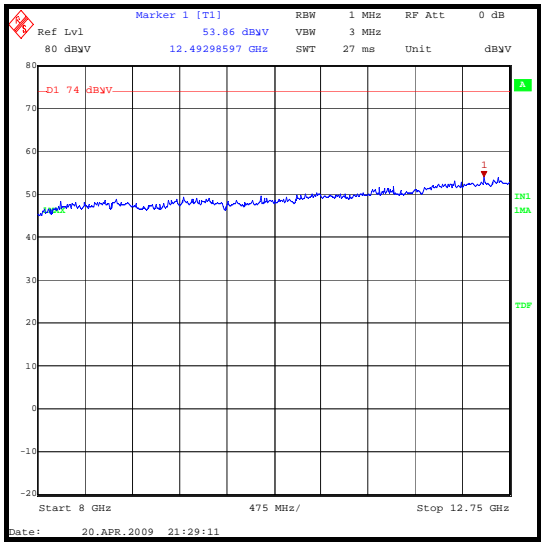
Note(s):

1. All other emissions were at least 20 dB below the limit
2. Limits below 30 MHz are specified at test distance of 30 metres, whilst below 0.49 MHz they are specified at a test distance of 300 metres. However as specified by 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 (40 dB/decade).
3. The measurement distance was 3 metres for all emissions in the range 9 kHz to 30 MHz in addition to 3 metres for the range 30 MHz to 1000 MHz. The limits below 30 MHz were extrapolated to the 3 metre test distance.

Transmitter Radiated Spurious Emissions (continued)

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

Transmitter Radiated Spurious Emissions (continued)



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

5.2.3. Transmitter 20 dB Bandwidth

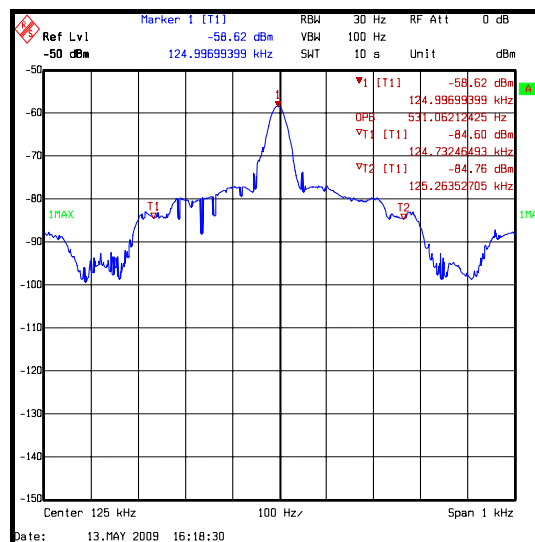
FCC Part:	15.215(c)
Test Method Used:	As detailed in ANSI C63.4 Section 13.1.7 and relevant annexes (see note below)

Results:

Transmitter 20 dB Bandwidth (Hz)
531

Note(s):

1. In lieu of the test method detailed in ANSI C63.4 Section 13.1.7 the 20 dB bandwidth was measured using the Occupied Bandwidth function of the spectrum analyser.



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	N/A	95%	±0.92 ppm
Radiated Spurious Emissions	9 kHz to 30 MHz	95%	±3.53 dB
Radiated Spurious Emissions	30 MHz to 1000 MHz	95%	±2.94 dB
Transmitter Fundamental Field Strength	30 MHz to 1000 MHz	95%	±4.64 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 Last Calibrated	Cal. Interval (Months)
A007	Antenna	Schaffner	HFH2-Z2	880 458/020	29 Mar 2009	12
A1037	Antenna	Chase	CBL6112B	2413	29 May 2008	12
A1792	Pre Amplifier	A.H.Systems	PAM-0118	182	28 Nov 2008	12
K0001	5m SA Chamber	Rainford EMC	N/A	N/A	04 May 2009	12
M127	Spectrum Analyser	Rohde & Schwarz	FSEB30	842 659/016	21 Aug 2008	12
M1273	Spectrum Analyser	Rohde & Schwarz	ESIB26	100275	01 Apr 2009	12

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