EMC TEST REPORT

COMPANY: PAXTON ACCESS LTD

PRODUCT: PROXIMITY P50 READER

REPORT NO. 06022772a

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1. JOB DESCRIPTION

Equipment:	Proximity P50 Reader
Equipment Model No.:	353-110-US
Equipment Serial No.:	None
Phase:	Compliance
Customer:	Paxton Access Ltd
Test Plan Reference:	-
Test Standards:	CFR47 Part 15: 209
Test Location:	Intertek ETL Semko Unit D Randalls Way Leatherhead Surrey KT22 7SB
Test Work Started:	7th November 2006
Test Work Completed:	13th November 2006

2. TEST SUMMARY

PRODUCT REFERENCE STANDARDS

ANSI C63.4-2003, ETSI EN300 330-1: Annex A:A1.2.1

TEST STANDARD	TEST	COMMENT
CFR 47 Part 15:107	Conducted Emissions	Pass
CFR 47 Part 15:209	Radiated Emissions	Pass

3. EQUIPMENT UNDER TEST (EUT)

3.1. Description of the EUT

The purpose of the Proximity P50 reader is to receive a radio signal from a passive proximity token (Card or Keyfob) in order to provide a digital output for access control. The power was derived from a 120VAC 60Hz power supply which delivered 12VDC to and Access Control Unit. The P50 reader (remote unit) was in turn connected to the Access Control Unit. The key component of the Paxton Access Proximity P50 reader is the Philips HTRC110 Hitag reader Chip.

The EUT was tested as received with no external visible signs of damage and was of production quality.

3.2. EUT's Modes of Operation

Standby and active

3.3. EUT Configuration Diagram

See photographs in Annex A

3.4. EUT Support Equipment

The reader system was monitored for functionality using the client software "Net2". Also used was the RS232/485 comms converter to provide the connection back to the PC/Software

3.5. Cables Associated With the EUT

EUT PORT	TYPE	LENGTH (m)	TERMINATION/LOAD
DC	Twin core	3<	Access control unit
DC	8 Core	3<	Reader
AC Mains	2 Core	3<	Comms Converter

4. CONDUCTED EMISSIONS

4.1. Conducted Emissions Test Method

The testing was performed in accordance with FCC Part 15.33, and Part15.109.

The test was performed in a screened room using a Line Impedance Stabilising Network (LISN).

4.2. Conducted Emissions Test Results

Any measurements within 10dB below the average and quasi-peak limit lines are measured with the average and quasi-peak detectors respectively are given in Tables 1 - 2. The emissions signatures ares given in Graphs 1 - 2.

4.3. Modification Performed During Testing

None

4.4. Conducted Emissions Conclusions

The EUT complied with FCC Part 15:33 and 15:109, Class A and B

4.5. Measurement Uncertainty

150kHz to 30MHz ± 2.9 dB

The measurement uncertainties have been determined at a confidence level of not less than 95%.

Table 1 Conducted Emissions Test Results

Standard: FCC Part 15:109 Class A and B

Test: Conducted Emissions

Port: 120vac 60Hz

Units of measurement:

Frequency: MHz Amplitude: dBµV

Bandwidths: 10kHz

Mode of operation: Active Reading Card

Comment: Running client Software

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Conducted Emissions

EUT: P50 Proximity Reader
Manuf: Paxton Access
Op Cond: 120vac 60Hz
Operator: D Legge
Test Spec: CFR47 Part 15:107
Comment: Active - Reading Card
Positive Line
Result File: 2772u.dat : P50 Proximity Card Reader - Paxton Access - Conducted Emissions

Scan Settings (1 Range)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150kHz	30MHz	5kHz	10kHz	PK+AV	20msec	Auto	ON	60dB

Transducer	No.	Start	Stop	Name
1	20	9kHz	30MHz	LISN7474
	21	9kHz	30MHz	8157

Prescan Measurement: Detectors: X PK / + AV
Meas Time: see scan settings
Subranges: 25
Acc Margin: 10 dB

Peak Search Results

Frequency MHz	PK Level dBµV	PK Limit dBµV	PK Delta dB	Phase -	PE -

No results

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Phase -	PE -

No results

* limit exceeded

Indicated Phase/PE shows Configuration of max. Emission

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Graph 1 Conducted Emissions Test Results

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Conducted Emissions

EUT:	P50 Proximity Reader
Manuf:	Paxton Access
Op Cond:	120vac 60Hz
Operator:	D Legge
Test Spec:	CFR47 Part 15:107
Comment:	Active - Reading Card
	Positive Line
Result File:	2772u.dat : P50 Proximity Card Reader - Paxton Access - Conducted Emissions

Scan Settings (1 Range)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150kHz	30MHz	5kHz	10kHz	PK+AV	20msec	Auto	ON	60dB

Transducer	No.	Start	Stop	Name
1	20	9kHz	30MHz	LISN7474
	21	9kHz	30MHz	8157

Prescan Measurement:	Detectors:	X PK / + AV
	Meas Time:	see scan settings
	Subranges:	25
	Acc Margin:	10 dB

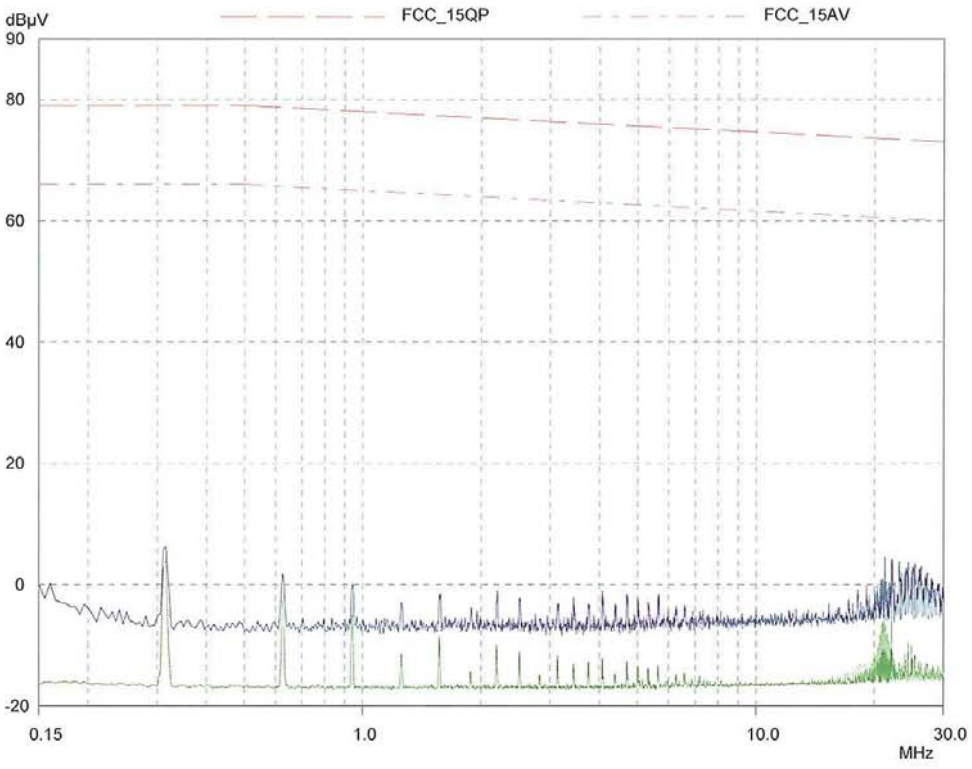

Table 2 Conducted Emissions Test Results

Standard: FCC Part 15:109 Class A and B

Test: Conducted Emissions

Port: 120vac 60Hz

Units of measurement:

Frequency: MHz Amplitude: dBμV

Bandwidths: 10kHz
Mode of operation: Active reading Card
Comment: Running Client Software

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Conducted Emissions

EUT: P50 Proximity Reader
Manuf: Paxton Access
Op Cond: 120vac 60Hz
Operator: D Legge
Test Spec: CFR47 Part15:107
Comment: Active - Reading Card
Neutral Line
Result File: 2772v.dat : P50 Card Reader - Paxton Access - Conducted Emissions

Scan Settings (1 Range)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150kHz	30MHz	5kHz	10kHz	PK+AV	20msec	Auto	ON	60dB

Transducer	No.	Start	Stop	Name
1	20	9kHz	30MHz	LISN7474
	21	9kHz	30MHz	8157

Prescan Measurement: Detectors: X PK / + AV
Meas Time: see scan settings
Subranges: 25
Acc Margin: 10 dB

Peak Search Results

Frequency MHz	PK Level dBμV	PK Limit dBμV	PK Delta dB	Phase -	PE -

No results

Frequency MHz	AV Level dBμV	AV Limit dBμV	AV Delta dB	Phase -	PE -

No results

* limit exceeded

Indicated Phase/PE shows Configuration of max. Emission

PAGE 2

Graph 2 Conducted Emissions Test Results

EM06022772 16 Nov 2006 11:58

Conducted Emissions

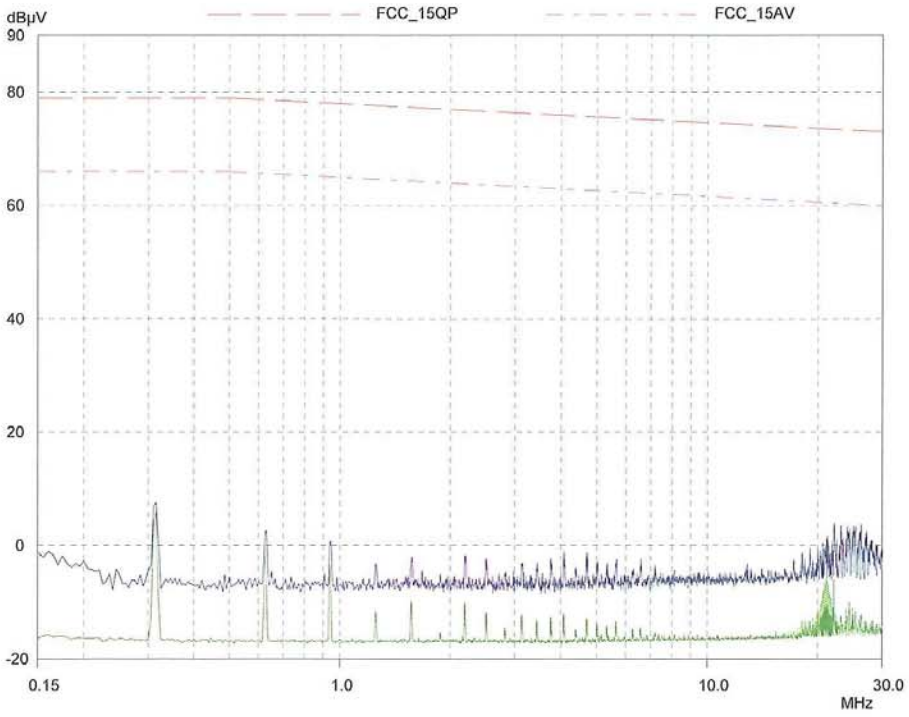
EUT:	P50 Proximity Reader
Manuf:	Paxton Access
Op Cond:	120vac 60Hz
Operator:	D Legge
Test Spec:	CFR47 Part15:107
Comment:	Active - Reading Card
	Neutral Line
Result File:	2772v.dat : P50 Card Reader - Paxton Access - Conducted Emissions

Scan Settings (1 Range)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150kHz	30MHz	5kHz	10kHz	PK+AV	20msec	Auto	ON	60dB

Transducer	No.	Start	Stop	Name
1	20	9kHz	30MHz	LISN7474
	21	9kHz	30MHz	8157

Prescan Measurement:		
	Detectors:	X PK / + AV
	Meas Time:	see scan settings
	Subranges:	25
	Acc Margin:	10 dB



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5. EMISSIONS RADIATED

5.1. Radiated Emissions Test Method

The testing was performed in accordance with ANSI C63.4-2003 and ETSI 300 330-2 V1.3.1:2006. Annex A1

The testing was carried out over a grassed area(OATS) which was free of external objects which might cause parasitic reflections. The test distance was three metres due to the low transmitter power of the EUT.

Prior to testing on the OATS tests were carried out in a screened chamber to determine any frequencies of interest.

5.2. Radiated H Field Test Results

E [dBµV/m] = dBµV + K(antenna correction) +51.5

Frequency kHz	Set Rdg dBµV	Distance Corr dB	Antenna Corr dB	Correction E field	Total dBµv/m	Limit 10m
125.01	54.52	-10	-28.8	+51.5	67.22	85.1

5.3. Radiated Spurious Emissions

Frequency kHz	Set Rdg dBµV	Distance Corr dB	Antenna Corr dB	Correction E field	Total dBµv/m	Limit 10m
375.553	26.23	-10	-32.5	+51.5	35.23	85.1

The EUT complied with FCC Part 15:209, Class A and B.

5.4. Measurement Uncertainty

0.09 MHz to 30MHz ± 3.3 dB

The measurement uncertainties have been determined at a confidence level of not less than 95%.

6. TEST EQUIPMENT

Equipment	Type	ID
Advantest R3271 Spectrum	Analyser	7770
Rohde & Schwarz HFH Z2	Loop Antenna	7480
Rohde & Schwarz ESHS10	Receiver	7463
Rohde & Schwarz ESHS-Z5	Lisn	7473
02m N to N	Cable	8157
OATS	Environment	-
GSM A	Environment	7286
Test Bay 5	Environment	7404
High Accuracy TH	Environment Monitor	7516

Annex A

OATS Test Site Set up

3m Test Site