

#### **EMC TEST REPORT**

COMPANY: PAXTON ACCESS LTD

PRODUCT: PROXIMITY P50 READER

REPORT NO. 06022772a

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ISSUE: 2

WRITTEN BY:

**REVIEWED BY:** 

**TEST ENGINEER:** 

DATE: November 2006

**TOTAL PAGES: 12** 

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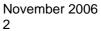
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### **GRAPHS**



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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:	7 <sup>th</sup> November 2006
Test Work Completed:	13 <sup>th</sup> November 2006

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#### 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

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# 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	

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### 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 guasi-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  $\pm$  2.9 dB

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

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#### **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				

Paxton A 120vac 6 D Legge CFR47 P Active - F Positive L 2772u.da (1 Range Frequencie Stop 30MHz	imity Reader ccess 0Hz art 15:107 Reading Card Line tt : P50 Proximi		Detector PK+AV Name LISN7474 8157	nducted Emir Receiver Se M-Time 20msec		Preamp ON	OpRge 60dB	
Paxton A 120vac 6 D Legge CFR47 P Active - R Positive L 2772u.da (1 Range Frequencie Stop 30MHz	ccess OHz art 15:107 Reading Card .ine tt : P50 Proximi op ss Ste 5kl start 9kHz	Pp IF BW Hz 10kHz Stop 30MHz	Detector PK+AV Name LISN7474	Receiver Se M-Time	ttings Atten			
120vac 6 D Legge CFR47 P Active - R Positive L 2772u.da (1 Range Frequencie Stop 30MHz S	OHz art 15:107 Reading Card Line t : P50 Proximi b) Ste Ski Ski ski	Pp IF BW Hz 10kHz Stop 30MHz	Detector PK+AV Name LISN7474	Receiver Se M-Time	ttings Atten			
D Legge CFR47 P Active - R Positive L 2772u.da (1 Range Frequencie Stop 30MHz S	aart 15:107 Reading Card Line tit : P50 Proximi e) Ste Ste Start 9kHz	Pp IF BW Hz 10kHz Stop 30MHz	Detector PK+AV Name LISN7474	Receiver Se M-Time	ttings Atten			
CFR47 P Active - R Positive L 2772u.da (1 Range Frequencie Stop 30MHz S	Reading Card Line tt : P50 Proximi a) Ste Start 9kHz	Pp IF BW Hz 10kHz Stop 30MHz	Detector PK+AV Name LISN7474	Receiver Se M-Time	ttings Atten			
Active - F Positive L 2772u.da (1 Range Frequencie Stop 30MHz S	Reading Card Line tt : P50 Proximi a) Ste Start 9kHz	Pp IF BW Hz 10kHz Stop 30MHz	Detector PK+AV Name LISN7474	Receiver Se M-Time	ttings Atten			
Positive L 2772u.da (1 Range Frequencie Stop 30MHz S	Line Line Line PO Solution Step Start SkHz	Pp IF BW Hz 10kHz Stop 30MHz	Detector PK+AV Name LISN7474	Receiver Se M-Time	ttings Atten			
2772u.da (1 Range Frequencie Stop 30MHz S	it : P50 Proximi e) Ste Ste Ski Start 9kHz	Pp IF BW Hz 10kHz Stop 30MHz	Detector PK+AV Name LISN7474	Receiver Se M-Time	ttings Atten			
(1 Range Frequencie Stop 30MHz S	e) Ste Ski Start 9kHz	Pp IF BW Hz 10kHz Stop 30MHz	Detector PK+AV Name LISN7474	Receiver Se M-Time	ttings Atten			
Frequencie Stop 30MHz S	s Ste 5ki start 9kHz	Hz 10kHz Stop 30MHz	PK+AV Name LISN7474	M-Time	Atten			
Stop 30MHz S	Ste 5kl itart 9kHz	Hz 10kHz Stop 30MHz	PK+AV Name LISN7474	M-Time	Atten			
30MHz S	5kl itart 9kHz	Hz 10kHz Stop 30MHz	PK+AV Name LISN7474					
s	itart 9kHz	Stop 30MHz	Name LISN7474	20msec	Auto	ON	60dB	
	9kHz	30MHz	LISN7474					
	9kHz	30MHz	9167					
			0107					
nt: D	etectors:	X PK / + AV						
N	leas Time:	see scan settings						
S	ubranges:	25						
A	cc Margin:	10 dB						
Level	PK Limit	PK Delta	Phase	PE				
μV	dBµV	dB	-	-				
Level	AV Limit	AV Delta	Phase	PE				
JV	dBµV	dB	-	-				
	Level JV Level	Subranges: Acc Margin: Level PK Limit JV dBµV	Subranges: 25 Acc Margin: 10 dB Level PK Limit PK Delta JV dBµV dB	Subranges: 25 Acc Margin: 10 dB Level PK Limit PK Delta Phase IV dBµV dB -	Subranges: 25 Acc Margin: 10 dB Level PK Limit PK Delta Phase PE JV dBµV dB	Subranges: 25 Acc Margin: 10 dB Level PK Limit PK Delta Phase PE IV dBµV dB	Subranges: 25 Acc Margin: 10 dB Level PK Limit PK Delta Phase PE JV dBµV dB	Subranges: 25 Acc Margin: 10 dB Level PK Limit PK Delta Phase PE IV dBµV dB

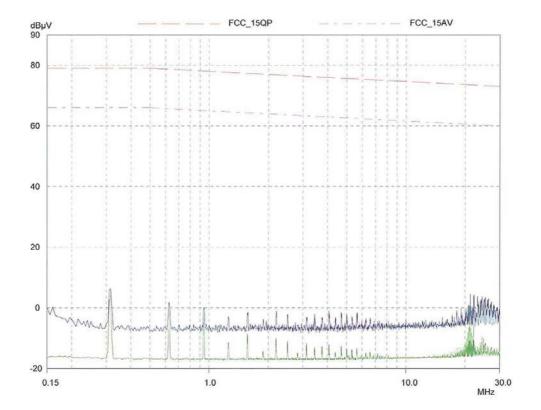
\* limit exceeded

Indicated Phase/PE shows Configuration of max. Emission

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## Graph 1 Conducted Emissions Test Results

EM060227	772							16	Nov 2006
Conducted	d Emissio	ns							
EUT:	P50 P	Proximity Read	er						
Manuf:	Paxto	n Access							
Op Cond:	120va	c 60Hz							
Operator:	D Leg	ige							
Test Spec:	CFR4	7 Part 15:107							
Comment:		e - Reading Ca ve Line	rd						
Result File:	2772u	.dat : P50 Pro	ximity Card I	Reader - Pax	ton Access - Co	nducted Emi	ssions		
Scan Settings	(1 Ra	inge)							
	Frequer	ncies		1		Receiver Se	ttings -		
Start	Stop		Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150kHz	30MHz	2	5kHz	10kHz	PK+AV	20msec	Auto	ON	60dB
ransducer	No.	Start	Stop		Name				
1	20	9kHz	3	30MHz	LISN7474				
	21	9kHz	3	BOMHz	8157				
	irement:	Detectors:	XP	K / + AV					
Prescan Measu		Meas Time:	see	scan settings	6				
Prescan Measu		weas time.							
Prescan Measu		Subranges:	25						





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#### **Table 2 Conducted Emissions Test Results**

Standard:	FCC Part 15:109 Class A and B				
Test:	Conducted Emis				
Port:	120vac 60Hz				
Units of measuremen	nt:				
Frequency:	MHz	Amplitude:	dBμV		
Bandwidths: Mode of operation: Comment:	10kHz Active reading C Running Client S				

EM060227	72						16	Nov 2006	2
Conducted	Emissio	ns							
EUT:	P50 P	roximity Reader							
Manuf:		Access							
Op Cond:	120va	c 60Hz							
Operator:	D Lege	ae							
Test Spec:	CFR4	7 Part15:107							
Comment:	Active	- Reading Card							
Result File:	2772v	dat : P50 Card Re	ader - Paxton Acces	s - Conducted I	Emissions				
Scan Settings	(1 Ra	nge)							
1223	- Frequer	icies	1		Receiver Se	ttings —			
Start	Stop	Ste		Detector	M-Time	Atten	Preamp	OpRge	
150kHz	30MHz	5kl	Hz 10kHz	PK+AV	20msec	Auto	ON	60dB	
Transducer	No.	Start	Stop	Name					
1	20	9kHz	30MHz	LISN7474					
	21	9kHz	30MHz	8157					
Prescan Measure	ement:	Detectors:	X PK / + AV						
		Meas Time:	see scan setting	8					
		Subranges:	25						
		Acc Margin:	10 dB						
Peak Search Res	sults								
Frequency	PK Level	PK Limit	PK Delta	Phase	PE				
MHz	dBµV	dBµV	dB	-	-				
No results									
Frequency	AV Level	AV Limit	AV Delta	Phase	PE				
MHz	dBµV	dBµV	dB	-	-				

\* limit exceeded

Indicated Phase/PE shows Configuration of max. Emission

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### Graph 2 Conducted Emissions Test Results

EM06022								16	Nov 2006
	d Emissior								
EUT:		oximity Reade	r						
Manuf:		Access							
Op Cond:	120vac	: 60Hz							
Operator:	D Legg								
fest Spec:		Part15:107							
Comment:		<ul> <li>Reading Care</li> </ul>	d						
	Neutra								
Result File:	2772v.	dat : P50 Card	Reader - Pa	axton Access	- Conducted	Emissions			
Scan Settings	(1 Rar	nge)							
	Frequen			1		Receiver Se			1
Start	Stop		Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150kHz	30MHz		5kHz	10kHz	PK+AV	20msec	Auto	ON	60dB
Fransducer	No.	Start	Stop		Name				
1	20	9kHz		OMHz	LISN7474				
	21	9kHz		OMHz	8157				
Prescan Measu	urement:	Detectors:	X PK	( / + AV					
		Meas Time:		scan settings					
		Subranges: Acc Margin:	25 10 d						
		1.27							
ВµV 0	-		— — FCC	_15QP	=		FCC_1	I5AV	
вµV 0	-		— — FCC	C_15QP			FCC_1	I5AV	
0	-		— — FCC	2_15QP			FCC_1	15AV	
0	-		FCC	2_15QP			FCC_1	15AV	
0			– – FCC	2_15QP			FCC_1	15AV	
0			FCC	C_15QP			FCC_1	15AV	
0			FCC	5_15QP			FCC_1	15AV	
0			FCC	5_15QP			FCC_1	15AV	
0			FCC	0_15QP			FCC_1	15AV	
0			FCC	D_15QP			FCC_1	15AV	
0			FCC	D_15QP			FCC_1	15AV	
0			FCC	C_15QP			FCC_1	15AV	
0			FCC	2_15QP			FCC_1	15AV	
0			- FCC	2_15QP			FCC_1	15AV	
0			FCC	)_15QP			FCC_1	15AV	
0			FCC	2_15QP			FCC_1	15AV	
0			FCC	2_15QP			FCC_1	15AV	
0			FCC	2_15QP			FCC_1	15AV	
0			FCC	C_15QP			FCC_1	15AV	
0			FCC	2_15QP			FCC_1	15AV	
ВµV 0 0 0 0			FCC	)_15QP			FCC_1	15AV	
0			FCC	2_15QP			FCC_1	I5AV	
0			FCC	2_15QP			FCC_1	15AV	
			- FCC	2_15QP			FCC_1		
			- FCC	2_15QP	sipilariydydatado		FCC_1		
) ) 			- FCC	2_15QP			FCC_1		
μ <b>ν</b>		unn haum	- FCC	2_15QP			FCC_1		

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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

 $E [dB\mu V/m] = dB\mu V + K(antenna correction) +51.5$ 

Frequency kHz	Set Rdg dBµV	Distance 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		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%.

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## 6. TEST EQUIPMENT

Equipment	Туре	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

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#### Annex A

# OATS Test Site Set up





3m Test Site