

EMC TEST REPORT

COMPANY: **PAXTON ACCESS LTD**

PRODUCT: **NET2 HANDSFREE**

ACCESS CONTROL SYSTEM

REPORT NO. 07024171

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REVIEWED BY: D Feasey

TEST ENGINEER: D A Legge

ISSUE: 2 DATE: May 2007 **TOTAL PAGES: 45**

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1. JOB DESCRIPTION

Equipment: Net2 Handsfree Access Control System

Equipment Model No(s): Equipment under Test

Net2 Hands free interface – 477 – 222 – US Net2 Hands free keyfob - 690 – 222 – US Net2 Hands free keycard – 690 – 333 – US

Support Equipment

Net2 RS 845 Comms Converter - 455-477-US

Net2 Door ACU – 385-527-US Exit Button E50 – 356-310-US

Proximity P200 reader - 323-110-US

12V psu -998-241-US

Laptop running Net2 software

Equipment Serial No: None

Phase: Compliance

Customer: Paxton Access Ltd

Test Plan Reference: -

Test Standards: CFR47 Part 15: 207,209 and 249

Test Location: Intertek ETL Semko

Unit D Randalls Way

Leatherhead

Surrey KT22 7SB

Test Work Started: 5th March 2007

Test Work Completed: 9th March 2007

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2. TEST SUMMARY

PRODUCT REFERENCE STANDARDS

ANSI C63.4-2003,

TEST STANDARD	TEST	COMMENT
CFR 47 Part 15:207	Conducted Emissions	Pass-Note
CFR 47 Part 15:209 and 249	Radiated Emissions	Pass

Note: The Conducted Emissions Test results are below the specification limit by a margin less than the measurement uncertainty; it is therefore not possible to state compliance based on the 95% level of confidence. However, the result indicates that compliance is more probable than non-compliance with the specification limit.

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3. EQUIPMENT UNDER TEST (EUT)

3.1. Description of the EUT

The Net2 Handsfree Access control system testboard is a representation of a single door Paxton Access PC based access control system, known as Net2 Handsfree. The system allows the user to gain access to their premises without the need to present a token to a reader. The system comprises of an active keyfob or Keycard(transponder) which can be carried somewhere on your person and an interface (transceiver) to computer software Net2.

The system was mounted on a wooden board and was tested as received.

3.2. EUT's Modes of Operation

System active, Communicating and standby.

3.3. EUT Configuration Diagram

See photographs in Annex 3

3.4. EUT Support Equipment

The Net2 Handsfree Access control 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
Net2 ACU	10 core	2	Net2 Handsfree Interface
Reader input	10 Core	2	Net2 Handsfree Interface
Net2 ACU	5 Core	1	RS232 Comms Converter
Laptop	9	3	RS232 Comms Converter
AC Mains	2	1	Net2 ACU

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4. CONDUCTED EMISSIONS

4.1. Conducted Emissions Test Method

The testing was performed in accordance with ANSI C63.4-2003.

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. The results for the Net2 Handsfree Access control system testboard and the Keyfob communicating are given in Tables 1 – 2 and Graphs 1 – 2, the results for the Keycard communicating are given in Tables 3 - 4 and Graphs 3 - 4. The test results for the Net2 Handsfree Access control system testboard in standby mode are given in Table 5 and Graph 5.

4.3. Modification Performed During Testing

None

4.4. Conducted Emissions Conclusions

The EUT results are below the specification limit by a margin less than the measurement uncertainty; it is therefore not possible to state compliance based on the 95% level of confidence. However, the result indicates that compliance is more probable than non-compliance with the FCC Part 15:207 specification limit.

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: 207

Test:

Conducted Emissions

Port:

Net2Handsfree Interface testboard - Positive Line

Units of measurement:

Frequency:

MHz

Amplitude:

 $dB\mu V$

Bandwidths:

10kHz

Mode of operation:

Active communicating with Keyfob every second

Comment:

Monitored for functionality by client Software Net2

7024171	Fusioniss								
Conducted									
UT:		Interface system							
/lanuf:		Access Controls							
op Cond:	120vac								
perator:	D A Le								
est Spec:		-Part15:207							
comment:		naking Keyfob							
	Positive	e line	ce system- Handshak	ing koufob - ECC	Dt 15:207				
Result File:	4171j.d	lat : Net2Air interfa	ce system- Handshak	ing keylob - FCC	Ft 15.207				
Scan Settings	(1 Rar				Receiver Set	inas —			7
	- Frequer		p IF BW	Detector	M-Time	Atten	Preamp	OpRge	
Start	Stop	Ste		PK+AV	20msec	Auto	OFF	60dB	
150kHz	30MHz	5kl	HZ TOKHZ	PRIA	2011860	71010			
Transducer	No.	Start	Stop	Name					
1	21	9kHz	30MHz	8157					
	22	9kHz	30MHz	LISN7473					
Final Measurem	ent	Detectors:	X QP / + AV						
rınal Measurem	CIII.	Meas Time:	2sec						
		Subranges:	50						
		Acc Margin:	10 dB						
Final Measurem	ent Results				PE				
Frequency	QP Level	QP Limit	QP Delta	Phase					
MHz	dBµ∨	dBµ∨	dB	-					
0.57	40.62	56.00	15.38	L1	gnd				
0.61	44.88	56.00	11.12	L1	gnd				
0.785	41.43	56.00	14.57	N	gnd				
0.83	46.67	56.00	9.33	N	gnd				
1.095	44.07	56.00	11.93	N	gnd				
1.135	39.03	56.00	16.97	L1	gnd				
1.35	40.51	56.00	15.49	N	gnd				
1.475	43.17	56.00	12.83	N	gnd				
1,705	43.89	56.00	12.11	L1	gnd				
1.9	43.05	56.00	12.95	L1	gnd				
2.085	45.09	56.00	10.91	N	gnd				
2.125	43.65	56.00	12.35	N	gnd				
2.71	43.48	56.00	12.52	L1	gnd				
4.375	41.65	56.00	14.35	N	gnd				
10.875	51.43	60.00	8.57	N	gnd				
Frequency	AV Level	AV Limit	AV Delta	Phase	PE				
MHz	dBµ∨	dΒμV	dB	-	-				
0.21	47.67	53.21	5.54	N	gnd				
0.625	34.69	46.00	11.31	N	gnd				
	30.90	46.00	15.10	L1	gnd				
0.85	43.94	50.00	6.06	N	gnd				
10.375	47.44	50.00	2.56	L1	gnd				
11.125		50.00	7.52	L1	gnd				
11.625	42.48	30.00							

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Final Measurement Results (continued)

Frequency	AV Level	AV Limit	AV Delta	Phase	PE
MHz	dΒμV	dΒμV	dB	-	•
12.875	41.44	50.00	8.56	L1	gnd
15.875	40.41	50.00	9.59	L1	gnd
16.625	41.70	50.00	8.30	L1	gnd
19.5	41.80	50.00	8.20	L1	gnd
20.75	44.12	50.00	5.88	L1	gnd
22.0	42.49	50.00	7.51	L1	gnd

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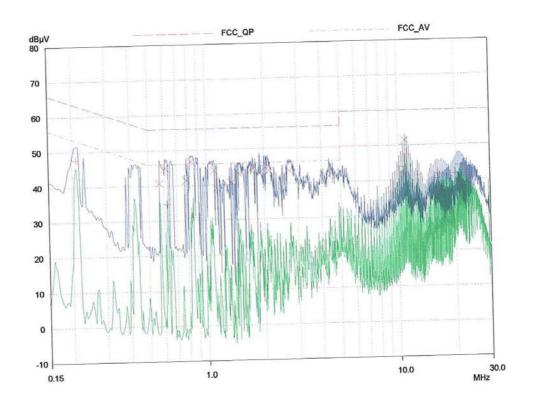
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Graph 1 Conducted Emissions Test Results

08 Mar 2007 14:28 07024171 Conducted Emissions Net2Air Interface system EUT: Paxton Access Controls Manuf: 120vac 60Hz Op Cond: D A Legge CFR47-Part15:207 Operator: Test Spec: Handshaking Keyfob Comment: Positive line 4171j.dat : Net2Air interface system- Handshaking keyfob - FCC Pt 15:207 Result File: (1 Range) Scan Settings Receiver Settings Frequencies OpRge Preamp M-Time Atten IF BW Detector Stop 30MHz Start 60dB OFF 20msec Auto PK+AV 5kHz 10kHz 150kHz Name Start Transducer 30MHz 8157 9kHz 21 1 LISN7473 30MHz 22 9kHz X QP / + AV Final Measurement: Meas Time: 2sec Subranges: 50 Acc Margin: 10 dB



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Table 2 Conducted Emissions Test Results

Standard: FCC Part 15: 207

Test: **Conducted Emissions**

Port: Net2Handsfree Interface testboard - Neutral line

Units of measurement:

MHz Amplitude: $dB\mu V \\$ Frequency:

Bandwidths: 10kHz

Active - communicating with Keyfob every second Mode of operation:

Comment: Monitored for functionality by client Software Net2

Net Zhir Interface system Paton Access Controls 120vae 60Hz	onducted	Emission	9						
Paston Access Controls Paston Access Controls Paston Access Controls 1202xe 60Hz									
D A Legge									
CFR47-Part 15-207 CFR4									
Sean Settings Septiment Step									
Result File: 417*Keda t klet2/Air Interface system- Handshaking keyfob - FCC Pt 15:207 Start Stind Stop Frequencies									
Result File:	comment:								
Start Stop Stop Step		Neutral	line	ace system. Handshak	ing keyfob - FC	C Pt 15:207			
Start Stop Stop SkHz Stop SkHz Detector Pre-Av M-Time Atten Pre-amp OpRge Golds	Result File:	4171K.C	lat : NetzAir interi	ace system- Humasia	,				
Start Stop Stop Stop SkHz Detector DikHz Detector Detectors X QP / + AV Detector Detectors X QP / + AV Detector Detectors Detectors Subranges So Acc Margin Detector Dete	Scan Settings	(1 Ran	ge)						
Start Stop Step		Frequen						Preamp	OpRge
Transducer No. Start Stop Name Start Stop Start Start Stop Start	Start	Stop							
1	150kHz	30MHz	5k	Hz 10kHz	PK+AV	Zomsec	Auto	0	
1 21 9kHz 30MHz 8157	25 100 00 200 000	50000	Start	Ston	Name				
1 21 9κHz 30MHz LISN7473 Final Measurement: Detectors: X QP / + AV Meas Time: 2sec Subranges: 50 Acc Margin: 10 dB Final Measurement Results Frequency QP Level QP Limit dB Phase PE MHz dBμV dB									
Final Measurement: Detectors: X OP / + AV	1								
Measurement		22	SKHZ	SOWITE					
Meas Time: 2sec Subranges: 50 Acc Margin: 10 dB	Final Measurem	ent:	Detectors:	X QP / + AV					
Subranges: 50 Acc Margin: 10 dB				2sec					
Final Measurement Results Frequency				50					
Frequency MHz QP Level dBμV QP Limit dBμV QP Delta dB Phase PE 0.205 52.09 63.41 11.32 L1 gnd 0.225 50.33 62.63 12.30 L1 gnd 0.565 41.47 56.00 14.53 N gnd 0.63 45.62 56.00 10.38 N gnd 0.676 42.14 56.00 13.86 L1 gnd 0.78 41.52 56.00 14.48 L1 gnd 0.84 46.33 56.00 15.54 L1 gnd 0.91 40.46 56.00 15.54 L1 gnd 1.04 45.03 56.00 10.97 N gnd 1.33 40.71 56.00 15.29 N gnd 1.33 40.71 56.00 12.73 N gnd 1.9 42.83 56.00 13.317 L1 gnd 2.13 43.47 <td< td=""><td></td><td></td><td>Acc Margin:</td><td>10 dB</td><td></td><td></td><td></td><td></td><td></td></td<>			Acc Margin:	10 dB					
Frequency QP Level QP Limit QP Data No.	Final Measurem	ent Results							
O.205 S2.09 G3.41 11.32 L1 gnd O.205 S5.09 G3.41 11.32 L1 gnd O.205 S0.33 G2.63 12.30 L1 gnd O.565 41.47 S6.00 14.53 N gnd O.63 45.62 S6.00 10.38 N gnd O.675 42.14 S6.00 13.86 L1 gnd O.78 41.52 S6.00 14.48 L1 gnd O.84 46.33 S6.00 9.67 N gnd O.84 46.33 S6.00 15.54 L1 gnd O.81 40.46 S6.00 15.54 L1 gnd O.81 45.03 S6.00 15.54 L1 gnd O.81 45.03 S6.00 15.29 N gnd O.83 40.71 S6.00 12.73 N gnd O.84 43.27 S6.00 13.17 L1 gnd O.85 44.67 S6.00 13.17 L1 gnd O.865 44.67 S6.00 12.53 N gnd O.87 43.50 S6.00 12.53 N gnd O.78 43.57 S6.00 12.50 N gnd O.79 43.50 S6.00 12.50 N gnd O.79 A3.50 S6.00 12.50 N gnd O.79 A3.50 S6.00 3.99 L1 gnd O.19 21.05 S4.04 32.99 L1 gnd O.19 21.05 S4.04 32.99 L1 gnd O.21 47.58 S3.21 5.63 L1 gnd O.41 31.01 47.65 12.60 L1 gnd O.63 33.40 46.00 12.77 L1 gnd O.63 33.40 46.00 12.77 L1 gnd O.63 O.63 O.65 O.65 O.65 O.65 O.65 O.65 O.63 O.64 O.65 O.65 O.65 O.65 O.65 O.65 O.63 O.64 O.65 O.65 O.65 O.65 O.65 O.65 O.65 O.64 O.65 O.65 O.65 O.65 O.65 O.65 O.65 O.65 O.67 O.67 O.67 O.67 O.65 O.65 O.65 O.65 O.65 O.65 O.68 O.69 O.67 O.65	_	OD Level	OR Limit	OP Delta	Phase	PE			
0.205				dB	-	-			
0.205	MHZ	авич	авру						
0.225 50.33 62.63 12.30 L1 gnd 0.565 41.47 56.00 14.53 N gnd 0.63 45.62 56.00 10.38 N gnd 0.675 42.14 56.00 13.86 L1 gnd 0.78 41.52 56.00 14.48 L1 gnd 0.84 46.53 56.00 15.54 L1 gnd 0.84 46.53 56.00 15.54 L1 gnd 1.04 45.03 56.00 15.54 L1 gnd 1.04 45.03 56.00 15.54 L1 gnd 1.04 45.03 56.00 15.29 N gnd 1.45 43.27 56.00 12.73 N gnd 1.45 43.27 56.00 12.73 N gnd 1.46 59.00 15.54 L1 gnd 1.475 43.50 56.00 12.73 N gnd 1.48 49.74 56.00 12.75 N gnd 1.49 42.83 56.00 12.55 N gnd 1.49 43.50 56.00 12.55 N gnd 1.49 43.50 56.00 12.55 N gnd 1.49 43.50 56.00 12.50 N gnd 1.49 47.66 53.21 5.63 L1 gnd 1.49 47.66 53.21 5.63 L1 gnd 1.49 47.66 53.21 5.63 L1 gnd 1.41 31.01 47.65 16.64 N gnd 1.41 31.01 47.65 16.64 N gnd 1.41 31.01 47.65 16.64 N gnd 1.47 57 57 57 57 57 57 57 57 57 57 57 57 57	0.205	52.09	63.41	11.32					
0.585 41.47 \$6.00 14.53 N gnd 0.63 45.62 \$6.00 10.38 N gnd 0.675 42.14 \$6.00 13.86 L1 gnd 0.78 41.52 \$6.00 14.48 L1 gnd 0.84 46.33 \$6.00 9.67 N gnd 0.91 40.46 \$6.00 15.54 L1 gnd 0.91 45.03 \$6.00 10.97 N gnd 1.04 45.03 \$6.00 15.29 N gnd 1.33 40.71 \$6.00 12.73 N gnd 1.45 43.27 \$6.00 13.17 L1 gnd 1.9 42.83 \$6.00 11.33 L1 gnd 2.13 45.47 \$6.00 12.53 N gnd 2.17 45.50 \$6.00 12.50 N gnd 10.875 \$1.31 60.00 <t< td=""><td></td><td></td><td>62.63</td><td>12.30</td><td></td><td></td><td></td><td></td><td></td></t<>			62.63	12.30					
0.63 45.62 56.00 10.38 N gnd 0.675 42.14 56.00 13.86 L1 gnd 0.78 41.52 56.00 14.48 L1 gnd 0.84 46.33 56.00 15.54 L1 gnd 0.91 40.46 56.00 15.54 L1 gnd 1.04 45.03 56.00 15.52 N gnd 1.04 45.03 56.00 15.29 N gnd 1.45 43.27 56.00 12.73 N gnd 1.45 43.27 56.00 12.73 N gnd 2.085 44.67 56.00 11.33 L1 gnd 2.7 43.50 56.00 12.53 N gnd 10.875 51.31 60.00 12.50 N gnd Prequency AV Level AV Limit AV Delta Phase PE MHz 47.56 53.			56.00	14.53					
0.675			56.00	10.38					
0.78				13.86					
0.84			56.00	14.48					
0.91 40.46 56.00 15.54 L1 gnd 1.04 45.03 56.00 10.97 N gnd 1.33 40.71 56.00 15.29 N gnd 1.45 43.27 56.00 12.73 N gnd 1.9 42.83 56.00 13.17 L1 gnd 2.085 44.67 56.00 11.33 L1 gnd 2.13 43.47 56.00 12.53 N gnd 2.7 43.50 56.00 12.50 N gnd 10.875 51.31 60.00 8.69 L1 gnd MHz dBµV dBµV dB Phase PE 0.19 21.05 54.04 32.99 L1 gnd 0.21 47.58 53.21 5.63 L1 gnd 0.41 31.01 47.65 16.64 N gnd 0.63 33.40 46.00 12.77			56.00	9.67					
1.04			56.00	15.54	L1				
1.33				10.97	N				
1.45				15.29	N				
1.9 42.83 56.00 13.17 L1 gnd 2.085 44.87 56.00 11.33 L1 gnd 2.13 43.47 56.00 12.53 N gnd 2.7 43.50 56.00 12.50 N gnd 10.875 51.31 60.00 6.69 L1 gnd Frequency AV Level AV Limit AV Delta Phase PE MHz dBμV dB 0.19 21.05 54.04 32.99 L1 gnd 0.21 47.58 53.21 5.63 L1 gnd 0.41 31.01 47.65 16.64 N gnd 0.63 33.40 46.00 12.60 L1 gnd 0.63 33.40 46.00 12.60 L1 gnd 0.63 and					N				
1.95					L1	gnd			
2.13					L1				
2.13 43.50 56.00 12.50 N gnd					N	gnd			
Frequency AV Level AV Limit AV Delta Phase PE MHz dBµV dBµV dB					N	gnd			
Frequency MV Level dBµV dB Phase PE					L1	gnd			
Frequency AV Level AV Limit AV Delia 1	10.875	51.31	00.00	2.77					
MH2 dBμV dBμV dB	Erequency	AV Level	AV Limit	AV Delta	Phase	PE			
0.19 21.05 54.04 32.99 L1 gnd 0.21 47.58 53.21 5.63 L1 gnd 0.41 31.01 47.65 16.64 N gnd 0.63 33.40 46.00 12.60 L1 gnd					*	-			
0.19 21.05 54.09 52.55 L1 gnd 0.21 47.58 53.21 5.63 L1 gnd 0.41 31.01 47.65 16.64 N gnd 0.63 33.40 46.00 12.60 L1 gnd	INITIE	aopt			10.07				
0.21 47.68 53.21 56.64 N gnd 0.41 31.01 47.65 16.64 N gnd 0.63 33.40 46.00 12.60 L1 gnd 0.63 and 0.63	0.19								
0.41 31.01 47.65 16.64 N gnd 0.63 33.40 46.00 12.60 L1 gnd	0.21	47.58							
0.63 33.40 46.00 12.60 L1 grid		31.01	47.65						
			46.00						
			46.00	13.77	N	gnd			

Indicated Phase/PE shows Configuration of max. Emission

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Final Measurement Results (continued)

Fraguency	AV Level	AV Limit	AV Delta	Phase	PE
Frequency MHz	dBµV	dΒμV	dB	(**)	<u></u>
10.375	43.81	50.00	6.19	L1	gnd
	47.70	50.00	2.30	L1	gnd
10.875		50.00	7.71	L1	gnd
11.625	42.29	50.00	8.54	L1	gnd
12.875	41.46			L1	gnd
16.875	41.43	50.00	8.57		
19.5	41.35	50.00	8.65	L1	gnd
	43.13	50.00	6.87	L1	gnd
21.25			9.00	L1	gnd
22.25	41.00	50.00	9.00		•

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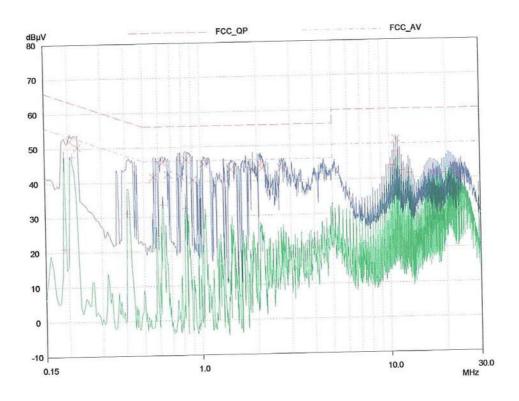
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Graph 2 Conducted Emissions Test Results

08 Mar 2007 14:53 07024171 Conducted Emissions Net2Air Interface system EUT: Paxton Access Controls Manuf: 120vac 60Hz Op Cond: D A Legge CFR47-Part15:207 Operator: Test Spec: Handshaking Keyfob Comment: Neutral line 4171k.dat : Net2Air interface system- Handshaking keyfob - FCC Pt 15:207 Result File: Scan Settings (1 Range) Receiver Settings Frequencies OpRge Atten Preamp IF BW Detector M-Time Step 5kHz Start Stop OFF 60dB Auto 20msec 10kHz 30MHz 150kHz Name No. Transducer 8157 30MHz 9kHz 21 1 LISN7473 30MHz 22 9kHz X QP / + AV Detectors: Final Measurement: 2sec Meas Time: 50 Subranges: 10 dB Acc Margin:



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Table 3 Conducted Emissions Test Results

Standard: FCC Part 15: 207

Test: Conducted Emissions

Port: Net2Handsfree Interface testboard - Positive Line

Units of measurement:

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Frequency: MHz Amplitude: $dB\mu V$

Bandwidths: 10kHz

Mode of operation: Active communicating with Keycard every second

Comment: Monitored for functionality by client Software Net2

Conducted					
EUT:		Interface system			
Manuf:	Paxton /	Access Controls			
Op Cond:	120vac	60Hz			
Operator:	D A Leg				
Test Spec:	CFR47-	Part15:207			
Comment:		aking Keycard			
	Positive	line	e system- Handshak	na keycard - FC	C Pt 15:207
Result File:			e system- Handshak	ing Reycura - 1 o	
Scan Settings	(1 Ran Frequen	cles -			Receiver Settings M-Time Atte
Start	Stop	Step		Detector	
150kHz	30MHz	5kH	z 10kHz	PK+AV	20msec Auto
	No.	Start	Stop	Name	
Transducer		9kHz	30MHz	8157	
1	21	9kHz	30MHz	LISN7473	
	100				
Final Measurem	ent:	Detectors:	X QP / + AV		
		Meas Time:	2sec		
		Subranges:	50		
		Acc Margin:	10 dB		
Final Measuren	nent Results				
Frequency	QP Level	QP Limit	QP Delta	Phase	PE
MHz	dBµV	dBµ∨	dB	-	-
			14.03	L1	gnd
0.575	41.97	56.00	11.22	L1	gnd
0.61	44.78	56.00		N	gnd
0.665	42.64	56.00	13.36	L1	gnd
0.815	45.26	56.00	10.74	N	gnd
0.85	45.95	56.00	10.05	N	gnd
1.095	44.07	56.00	11.93	L1	gnd
1.13	40.69	56.00	15.31	N	gnd
1.71	43.75	56.00	12.25		
1.81	37.73	56.00	18.27	N	gnd
2.075	44.63	56.00	11.37	N	gnd
2.745	42.25	56.00	13.75	L1	gnd
4.375	39.94	56.00	16.06	L1	gnd
10.875	51.45	60.00	8.55	N	gnd
	F 100-00-00-00-00-00-00-00-00-00-00-00-00-		AV Delta	Phase	PE
Frequency	AV Level	AV Limit	dB	- 11030	-
MHz	дВμ∨	авру			
0.21	46.97	53.21	6.24	N	gnd gnd
0.62	32.06	46.00	13.94		gnd
10.375	43.99	50.00	6.01	N	
10,875	47.89	50.00	2.11	L1	gnd
11,625	42.49	50.00	7,51	L1	gnd
12.875	41.46	50.00	8.54	L1	gnd
17.125	41.83	50.00	8.17	L1	gnd
			8.67	L1	gnd

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Final Measurement Results (continued)

Frequency	AV Level	AV Limit	AV Delta	Phase	PE
MHz	dΒμV	dΒμV	dB	5.7	-
20.5	43.93	50.00	6.07	L1	gnd
20.5	42.53	50.00	7.47	L1	gnd

EM07024171

Product: N

Net2 Handsfree Access Control

system

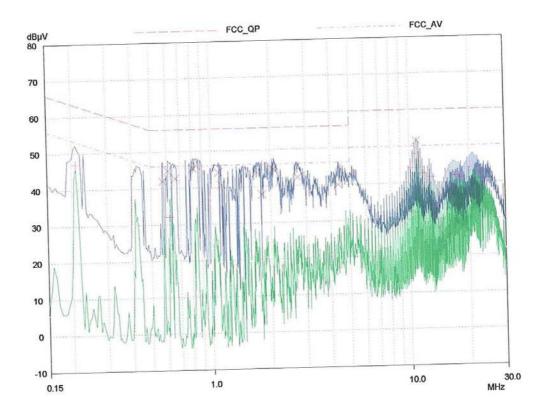
Model No.: As page 3

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Graph 3 Conducted Emissions Test Results

08 Mar 2007 15:25 07024171 Conducted Emissions Net2Air Interface system EUT: Paxton Access Controls Manuf: 120vac 60Hz Op Cond: D A Legge CFR47-Part15:207 Operator: Test Spec: Handshaking Keycard Comment: Positive line 41711.dat : Net2Air interface system- Handshaking keycard - FCC Pt 15:207 Result File: Scan Settings (1 Range) Receiver Settings Frequencies OpRge Atten Preamp M-Time IF BW Detector Step Stop Start OFF 60dB Auto PK+AV 20msec 10kHz 30MHz 5kHz 150kHz Name Transducer No. 30MHz 8157 21 9kHz LISN7473 30MHz 22 9kHz X QP / + AV Detectors: Final Measurement: 2sec Meas Time: 50 Subranges: 10 dB Acc Margin:



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Table 4 Conducted Emissions Test Results

Standard: FCC Part 15: 207

Test: Conducted Emissions

Port: Net2Handsfree Interface testboard - Neutral Line

Units of measurement:

Mode of operation:

Frequency: MHz

Amplitude:

 $dB\mu V$

Bandwidths: 10kHz

Active communicating with Keycard every second

Comment: Monitored for functionality by client Software Net2

07024171							08	Mar 2007	15:43
Conducted	d Emissio	ns							
EUT:		ir Interface system							
/lanuf:		Access Controls							
Op Cond:		c 60Hz							
Operator:	DAL								
est Spec:		7-Part15:207							
Comment:		haking Keycard							
	Neutra								
Result File:	4171n	n.dat : Net2Air inter	face system- Hands	haking keycard	FCC Pt 15:2	207			
Scan Settings	(1 Ra				Deschier Co	Wass			
Start	Frequer	ncies Ste	p IF BW	Detector	Receiver Se M-Time	Atten	Preamp	OpRge	
150kHz	Stop 30MHz			PK+AV	20msec	Auto	OFF	60dB	
TOURHZ	SOME	DKF	12 10KHZ	PK+AV	Zomsec	Auto	OFF	GUGB	
Fransducer	No.	Start	Stop	Name					
1	21	9kHz	30MHz	8157					
	22	9kHz	30MHz	LISN7473					
		SALIZ	STIMING	2.0.4/4/3					
inal Measurer	ment:	Detectors:	X QP / + AV						
	e concentral	Meas Time:	2sec						
		Subranges:	50						
		Acc Margin:	10 dB						
inal Measurer	ment Results								
requency	QP Level	QP Limit	QP Delta	Phase	PE				
VIHZ	dBµV	dBµV	dB	-	-				
	100000000000000000000000000000000000000								
0.225	50.63	62.63	12.00	N	gnd				
0.455	40.52	56.78	16.26	N	gnd				
0.565	39.60	56.00	16.40	L1	gnd				
0.62	45.04	56.00	10.96	N	gnd				
0.8	40.72	56.00	15.28	L1	gnd				
0.85	45.99	56.00	10.01	N	gnd				
1.07	44.81	56.00	11.19	L1	gnd				
1.125	41.70	56.00	14.30	N	gnd				
1.345	40.71	56.00	15.29	L1	gnd				
1.75	42.91	56.00	13.09	L1	gnd				
2.085	44.37	56.00	11.63	L1	gnd				
2.125	43.30	56.00	12.70	N	gnd				
1.57	36.83	56.00	19.17	N	gnd				
10.875	51.31	60.00	8.69	L1	gnd				
Frequency	AV Level	AV Limit	AV Delta	Phase	PE				
MHz	dBµV	dBµ∨	dB	- maso	-				
*** ***	achv	orth A	u.	T1					
0.21	46.93	53.21	6.28	L1	gnd				
0.615	29.07	46.00	16.93	L1	gnd				
10.375	43.84	50.00	6.16	L1	gnd				
10.875	47.71	50.00	2.29	L1	gnd				
2.625	42.08	50.00	7.92	L1	gnd				
12.875	41.35	50.00	8.65	L1	gnd				
16.625	41.30	50.00	8.70	L1	gnd				
18.125	40.29	50.00	9.71	L1	gnd				
20.7	16.73	50.00	33.27	L1	gnd				
7550			1275.225	STAR.					

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Final Measurement Results (continued)

08 Mar 2007 15:43

Frequency	AV Level	AV Limit	AV Delta	Phase	PE
MHz	dΒμV	dΒμV	dB		
21.95	17.15	50.00	32.85	L1	gnd

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Net2 Handsfree Access Control

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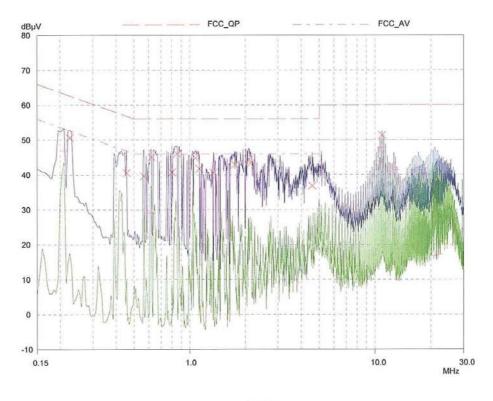
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system As page 3

Issue No.:

Graph 4 Conducted Emissions Test Results

07024171 08 Mar 2007 15:43 Conducted Emissions Net2Air Interface system EUT: Manuf: Paxton Access Controls 120vac 60Hz Op Cond: D A Legge CFR47-Part15:207 Operator: Test Spec: Handshaking Keycard Comment: Neutral line 4171m.dat : Net2Air interface system- Handshaking keycard - FCC Pt 15:207 Result File: Scan Settings (1 Range) Receiver Settings Frequencies Start IF BW M-Time Preamp OpRge Stop Step Detector Atten 60dB OFF 150kHz 30MHz 5kHz 10kHz PK+AV 20msec Auto Name Transducer No. Start 9kHz 30MHz 21 8157 LISN7473 22 9kHz 30MHz X QP / + AV Final Measurement: Detectors: Meas Time: 2sec Subranges: 50 Acc Margin: 10 dB



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system

Model No.: As page 3 Issue No.: 2

Table 5 Conducted Emissions Test Results

Standard: FCC Part 15: 207

Test: Conducted Emissions

Port: Net2Handsfree Interface testboard - Positive and Neutral

Lines

Units of measurement:

Frequency: MHz Amplitude: $dB_{\mu}V$

Bandwidths: 10kHz

Mode of operation: Net2Handsfree interface system testboard – Standby

mode

Comment: Monitored for functionality by client Software Net2

Conducted	Emissio	ns						
EUT:	Net2A	ir Interface system	n					
Manuf:		n Access Controls						
Op Cond:		c 60Hz						
Operator:	DAL							
Fest Spec:		7-Part15:207						
Comment:		by mode						
Jomment.		ve and Neutral line	-					
Result File:			rs rface system- Standl	ov Mode - FCC F	Pt 15:207			
Scan Settings	(1 Ra — Frequer				Receiver Se	ttings		
Start	Stop	Ste	ep IF BW	Detector	M-Time	Atten	Preamp	OpRge
150kHz	30MHz	5k	Hz 10kHz	PK+AV	20msec	Auto	OFF	60dB
ransducer	No.	Start	Stop	Name				
1	21	9kHz	30MHz	8157				
12)	22	9kHz	30MHz	LISN7473				
Final Measurem	ent:	Detectors:	X QP / + AV					
		Meas Time:	2sec					
		Subranges:	50					
		Acc Margin:	10 dB					
Final Measurem	ent Results							
requency	QP Level	QP Limit	QP Delta	Phase	PE			
MHz	dBµ∨	dBµ∨	dB	-	-			
0.61	45.78	56.00	10.22	N	gnd			
0.815	46.25	56.00	9.75	N	gnd			
0.85	45.30	56.00	10.70	N	gnd			
.05	44.05	56.00	11.95	N	gnd			
.66	44.03	56.00	11.97	L1	gnd			
.735	41.85	56.00	14.15	N	gnd			
2.075	45.89	56.00	10.11	N	gnd			
2.7	44.14	56.00	11.86	L1	gnd			
10.875	51.39	60.00	8.61	L1	gnd			
	770-4770-4 APPECADE				10000			
Frequency ViHz	AV Level dBμV	AV Limit dΒμV	AV Delta dB	Phase	PE -			
0.205	48.97	53.41	4.44	N	and			
0.205	48.32	53.21	4.44	2	gnd gnd			
0.415	39.19	47.55	8.36	2				
0.415	39.19	46.00	7.86	22	gnd			
0.83	38.14	46.00	8.24	2 2	gnd			
0.83 10.375	43.93	50.00	6.07	2 2	gnd			
					gnd			
0.875	47.82	50.00	2.18	N	gnd			
1.625	42.61	50.00	7.39	L1	gnd			
2.875	41.51	50.00	8.49	N	gnd			
5.875	40.46	50.00	9.54	L1	gnd			
7.125	41.85	50.00	8.15	L1	gnd			
9.5	41.93	50.00	8.07	L1	gnd			
20.5	43.99	50.00	6.01	L1	gnd			
22.25	41.87	50.00	8.13	L1	gnd			

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Net2 Handsfree Access Control

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Result File:

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Graph 5 Conducted Emissions Test Results

07024171 08 Mar 2007 16:00 Conducted Emissions EUT: Net2Air Interface system Paxton Access Controls Manuf:

120vac 60Hz Op Cond: D A Legge Operator: CFR47-Part15:207 Test Spec: Standby mode Comment: Positive and Neutral lines

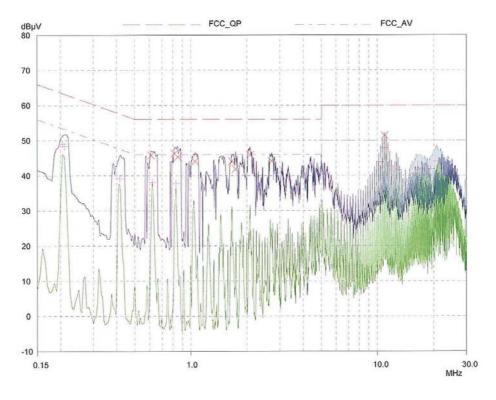
4171n.dat : Net2Air interface system- Standby Mode - FCC Pt 15:207

Scan Settings (1 Range) Frequencies Receiver Settings Start IF BW Atten Preamp OpRge Step Detector M-Time Stop 60dB 5kHz 10kHz 20msec Auto OFF 150kHz 30MHz PK+AV No. Name

Transducer 9kHz 30MHz 21 8157 LISN7473 22 9kHz 30MHz

X QP / + AV Final Measurement: Detectors: Meas Time: 2sec Subranges: 50

Acc Margin: 10 dB



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5. RADIATED EMISSIONS

5.1. Radiated Emissions Test Method

The testing was performed in accordance with ANSI C63.4-2003.

The testing was carried out in a fully lined anechoic chamber, with the limit line at 10m distance for adjusted for a 3m test site. The limit line was also lowered by 6dB to give worst case conditions(the test site being fixed and unable to maximise signal levels).

The Intentional radiated field strengths are tabulated in Table 6 and the 6dB bandwidths in table 7. The plots are shown in Annex 1

5.2. **Unintentional Radiated Emissions Test Results**

The radiated emissions from 30 to 1000MHz were measured using a quasi-peak detector. Measurements above 1000MHz were measured using average and peak detectors.

The results for the frequency range 30 to 1000MHz for Net2Handsfree interface system communicating with the Keyfob are given in Table 8 and Graph 6 and for the keycard communicating, Table 9 and Graph 7. The test results for the Net2Handsfree interface system in standby mode are given in Table 10 and Graph 8.

The results for frequencies above 1000MHz are tabulated and shown in Table 11.

5.3. Modifications Performed During Testing

None.

5.4. Radiated Emissions Conclusions

The intentional radiated field strengths complied with CFR47 Part15:249.

The non intentional radiated emissions complied with CFR47 Part15:209 for the Net2Handsfree Access control system communicating with the Keyfob.

The non intentional radiated emissions complied with CFR47 Part15:209 for the Net2Handsfree Access control system communicating with the keycard.

5.5. Measurement Uncertainty

30MHz to 1000MHz ±3.3dB

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

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5.6. Radiated Field Strength

Table 6 Intentional Radiated Field strengths – 3m

Peak Detector

Exciter	Polarity	Analyser dBµV	ACF dB	Cables dB	PeakTotal dBµV/m	Peak Limit dBµV/m
Keyfob	V	55.0	28.5	2.0	85.5	114.0
Keyfob	I	52.0	28.5	2.0	82.5	114.0
Keycard	V	57.1	28.5	2.0	87.6	114.0
Keycard	Н	42.8	28.5	2.0	73.3	114.0

Note: ACF = Antenna correction dB

Average Detector

Exciter	Polarity	Analyser dBµV	ACF dB	Cables dB	Average Total	Average Limit
					dBµV/m	dBµV/m
Keyfob	V	54.0	28.5	2.0	84.5	94.0
Keyfob	Н	50.0	28.5	2.0	80.5	94.0
Keycard	V	55.5	28.5	2.0	86.0	94.0
Keycard	Н	50.8	28.5	2.0	81.3	94.0

Analyser dBµv + ACF + Cables - dBµv/m @ 3m

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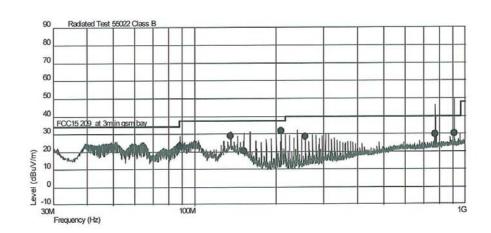
Table 7 - Graph 6 Non Intentional Radiated Emissions Test Results Keyfob

Intertek-Lhd - Final Report - Handshaking Keyfob

Job Number07024171CustomerPaxton GlassModelNetair2 interfaceEngineerD A LeggeStandardCFR47 Part 15:209

Peak Result 31

Frequency(Hz) | Level(dBuV/m) | Height(m) | Polar | Angle(Deg) | Limit(dBuV/m) | Margin(dBuV/m) | Comment | Detector | RBW(Hz)



Peak Result 0

Frequency(Hz)	Level(dBuV/m)	Height(m)	Polar	Angle(Deg)	Limit(dBuV/m)	Margin(dBuV/m)	Comment	Detector	RBW(Hz)
88.44 M	22.96	1.10		355.00	37.50	-14.54		QP	120.0 k
135.9 M	28.73	1.10	122	120.00	37.50	-8.77		QP	120.0 k
151.74 M	20.22	1.10		175.00	37.50	-17.28		QP	120.0 k
208.02 M	31.75	1.10		335.00	37.50	-5.75		QP	120.0 k
255,96 M	28.59	1.10		120.00	40.00	-11.41		QP	120.0 k
773.64 M	29.50	1.10	-1	190.00	40.00	-10.50		QP	120.0 k
908 16 M	30.02	1.10		305.00	40.00	-9.98		QP	120.0 k

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Table 8 and Graph 7 Non Intentional Radiated Emissions Test Results **Keycard**

Intertek-Lhd - Final Report - Handshaking Keycard

Job Number

07024171

Customer

Paxton Access

Model

Net2air interface with Keycard

Engineer

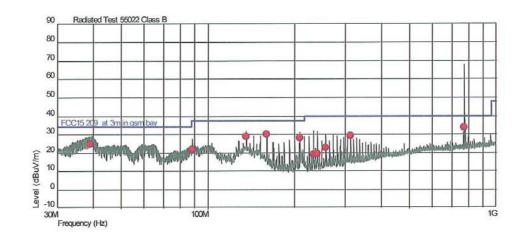
D A Legge

Standard

CFR47 Part 15::209

Peak Result 31

Frequency(Hz) | Level(dBuV/m) | Height(m) | Polar | Angle(Deg) | Limit(dBuV/m) | Margin(dBuV/m) | Comment | Detector | RBW(Hz)



Peak Result 0

Frequency(Hz)	Level(dBuV/m)	Height(m)	Polar	Angle(Deg)	Limit(dBuV/m)	Margin(dBuV/m)	Comment	Detector	RBW(Hz)
39.0 M	24.80	1.10		125.00	34.00	-9.20		QP	120.0 k
88.44 M	22.02	1.10		195.00	37.50	-15.48	J	QP	120.0 k
135.9 M	28.79	1.10		120.00	37.50	-8.71		QP	120.0 k
160.02 M	29.97	1.10		175.00	37.50	-7.53		QP	120.0 k
207.96 M	27.83	1.10	- 12	345.00	37.50	-9.67		QP	120.0 k
232.74 M	19.12	1.10		145.00	40.00	-20.88		QP	120.0 k
239.76 M	19.50	1.10		205.00	40.00	-20.50		QP	120.0 k
255.9 M	22.82	1.10		40.00	40.00	-17.18		QP	120.0 k
312.0 M	29.16	1.10		255.00	40.00	-10.84		QP	120.0 k
774.66 M	33.55	1.10		30.00	40.00	-6.45		QP	120.0 k

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Net2 Handsfree Access Control

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Radiated Emissions Test Results Table 9 and Graph 8 Standby mode

Intertek-Lhd - Prescan Report - Net2air interface system in standby mode

Job Number

07024171

Customer

Paxton Glass

Model

Net2air Interface system

Engineer

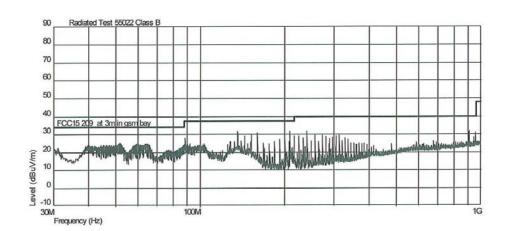
D A Legge

Standard

CFR47 Part15:209

Peak Result 31

Frequency(Hz) | Level(dBuV/m) | Height(m) | Polar | Angle(Deg) | Limit(dBuV/m) | Margin(dBuV/m) | Comment | Detector | RBW(Hz)



Peak Result 0

Frequency(Hz) Level(dBuV/m) | Height(m) | Polar | Angle(Deg) | Limit(dBuV/m) | Margin(dBuV/m) | Comment | Detector | RBW(Hz)

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system

Model No.: As page 3 Issue No.: 2

Table 10 Radiated Emissions Test Result 1 to 24GHz Keyfob Communicating with Net2Handsfree system

Frequency	Analyser	Antenna	Cables	Preamp	Total	Limit	Detector
GHz	dΒμV	dB	dB	dB	dBµV/m	dBµV/m	
1 – 2.4	< 31.0	26.1	1.6	29.0	< 29.7	54.0	Average
1 – 2.4	< 36.0	26.1	1.6	29.0	< 34.7	74.0	Peak
2 – 4	< 27.0	30.5	2.4	28.0	< 31.9	54.0	Average
2 - 4	< 35.0	30.5	2.4	28.0	< 39.9	74.0	Peak
4.8	40.9	27.5	3.2	29.0	42.6	54.0	Average
5.59	33.6	27.5	3.46	28.0	32.96	54.0	Average
7.23	35.0	28.7	3.9	29.5	38.1	54.0	Average
4.8	45.7	27.5	3.2	29.0	47.4	74.0	Peak
5.59	42.0	27.5	3.46	28.0	44.6	74.0	Peak
7.23	45.19	28.7	3.9	29.5	48.3	74.0	Peak
8 - 12	< 31.0	33.4	4.5	27.0	< 41.9	54.0	Average
12 - 18	< 32.0	31.7	6.8	27.3	< 43.2	54.0	Average
18 - 24	< 30.0	33.8	9.2	26.0	< 47.0	54.0	Average
8 – 12	< 41.0	33.4	4.5	27.0	< 51.9	74.0	Peak
12 – 18	< 41.0	31.7	6.8	27.3	< 52.2	74.0	Peak
18 - 24	< 40.0	32.8	8.2	28.0	< 53.0	74.0	Peak

Note: < equates to measuring system noise

Keycard communicating with Net2Handsfree system

Frequency	Analyser	Antenna	Cables	Preamp	Total	Limit	Detector
GHz	dΒμV	dB	dB	dB	dBµV/m	dBµV/m	
1 – 2.4	< 31.0	26.1	1.6	29.0	< 29.7	54.0	Average
1 – 2.4	< 36.0	26.1	1.6	29.0	< 34.7	74.0	Peak
2 – 4	< 27.0	30.5	2.4	28.0	< 31.9	54.0	Average
2 - 4	< 35.0	30.5	2.4	28.0	< 39.9	74.0	Peak
4.8	< 28.2	27.5	3.2	29.0	< 29.9	54.0	Average
5.59	< 29.0	27.5	3.46	28.0	< 31.96	54.0	Average
7.23	< 31.0	28.7	3.9	29.5	< 34.1	54.0	Average
4.8	44.1	27.5	3.2	29.0	45.8	74.0	Peak
5.59	< 40.0	27.5	3.46	28.0	< 42.96	74.0	Peak
7.23	< 42.0	28.7	3.9	29.5	< 45.1	74.0	Peak
8 - 12	< 31.0	33.4	4.5	27.0	< 41.9	54.0	Average
12 - 18	< 32.0	31.7	6.8	27.3	< 43.2	54.0	Average
18 - 24	< 30.0	33.8	9.2	26.0	< 47.0	54.0	Average
8 – 12	< 41.0	33.4	4.5	27.0	< 51.9	74.0	Peak
12 – 18	< 41.0	31.7	6.8	27.3	< 52.2	74.0	Peak
18 - 24	< 40.0	32.8	8.2	28.0	< 53.0	74.0	Peak

Note: < Equates to measuring system noise

Model No.:

5.7.

EM07024171

Net2 Handsfree Access Control

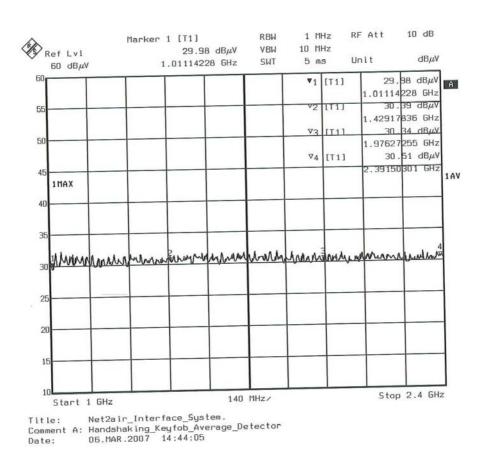
system

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Keyfob 1 – 2.4GHz – Average Detector



Restricted Frequency Band Emissions

Model No.:

EM07024171

Net2 Handsfree Access Control

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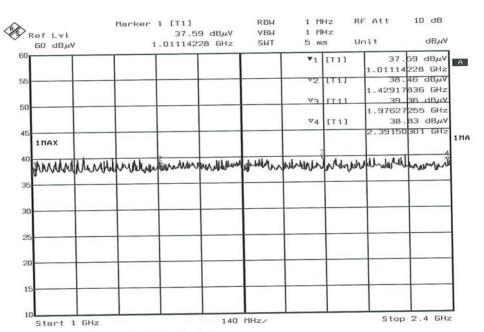
2

system

As page 3

Issue No.:

Keyfob 1 – 2.4GHz – Peak Detector



Title: Net2air_Interface_System.

Comment A: Handshaking_Keyfob_Peak_Detector
Date: 06.MAR.2007 15:31:47

Model No.:

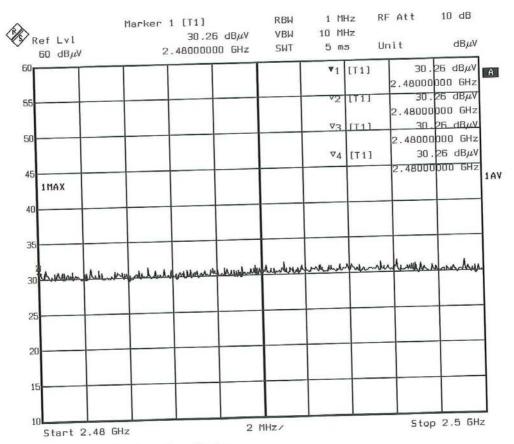
EM07024171

Net2 Handsfree Access Control

system As page 3 Page: Issue Date: 30 of 45 May 2007

2 Issue No.:

Keyfob 2.48 - 2.5GHz - Average Detector



Net2air_Interface_System.

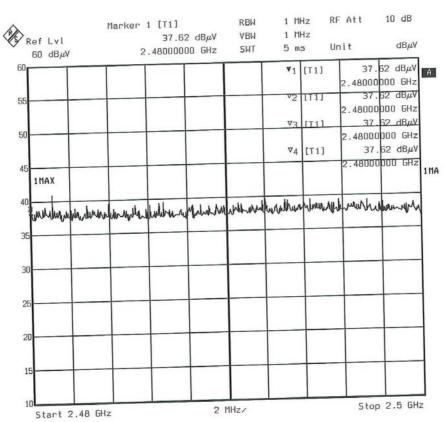
Comment A: Handshaking_Keyfob_Average_Detector Date: 06.MAR.2007 15:49:02

Report No.: EM07024171 Page: 31 of 45 Product: Net2 Handsfree Access Control Issue Date: May 2007

system

Model No.: Issue No.: 2 As page 3

Keyfob 1 – 2.4GHz – Peak Detector



Title: Net2air_Interface_System.
Comment A: Handshaking_Keyfob_Peak_Detector
Date: 06.MAR.2007 15:39:52

EM07024171

system

Net2 Handsfree Access Control

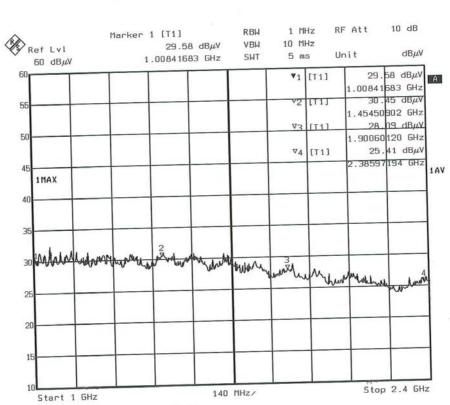
Page: Issue Date: 32 of 45 May 2007

Model No.:

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Issue No.: 2

Key card 1 – 2.4GHz – Average Detector



Title: Net2air_Interface_System.

Comment A: Handshaking_Keycard_Average_Detector
Date: 07.MAR.2007 12:39:44

EM07024171

Net2 Handsfree Access Control

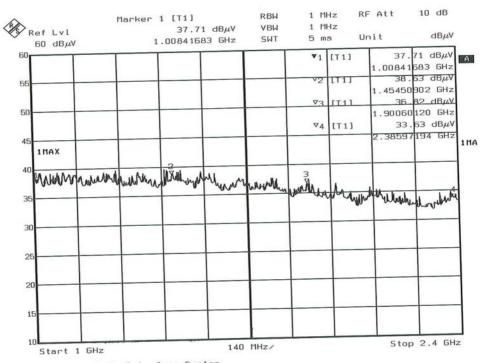
system

Model No.: As page 3 Page: Issue Date: 33 of 45 May 2007

2

Issue No.:

Key card 1 – 2.4GHz Peak Detector



Title: Net2air_Interface_System.
Comment A: Handshaking_Keycard_Peak_Detector
Date: 07.MAR.2007 12:28:35

EM07024171

Net2 Handsfree Access Control

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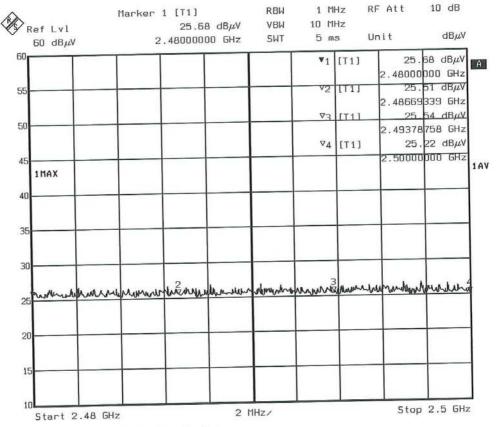
2

system Model No.:

As page 3

Issue No.:

Keycard 2.48 -2.5GHz - Average Detector



Net2air_Interface_System.

Comment A: Handshaking Keycard Average Detector Date: 07.MAR.2007 12:44:04

Model No.:

EM07024171

Net2 Handsfree Access Control

system

As page 3

Page:

Issue No.:

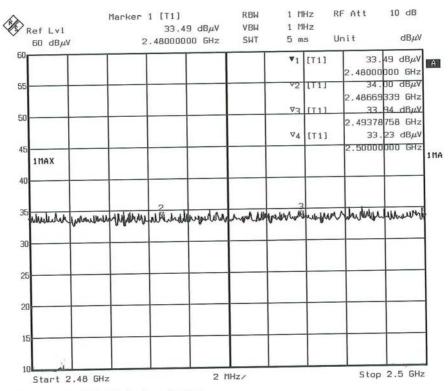
35 of 45

Issue Date:

May 2007

2

Keycard 2.48 2.5GHz Peak Detector



Title: Net2air_Interface_System.

Comment A: Handshaking_Keycard_Peak_Detector
Date: 07.MAR.2007 12:51:31

EM07024171

system

Net2 Handsfree Access Control

Page: Issue Date: 36 of 45 May 2007

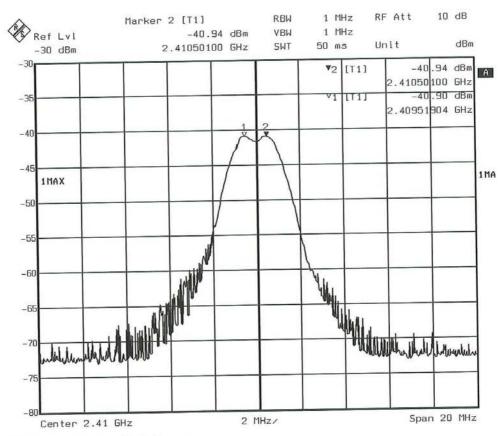
Model No.:

As page 3

Issue No.: 2

ANNEX 1

Peak Power Plots - Keyfob



Title: Keyfob-Peak-Power Comment A: Handshaking-Net2Air Date: 09.MAR.1907 14:12:32

Model No.:

EM07024171

uct: Net2 Handsfree Access Control

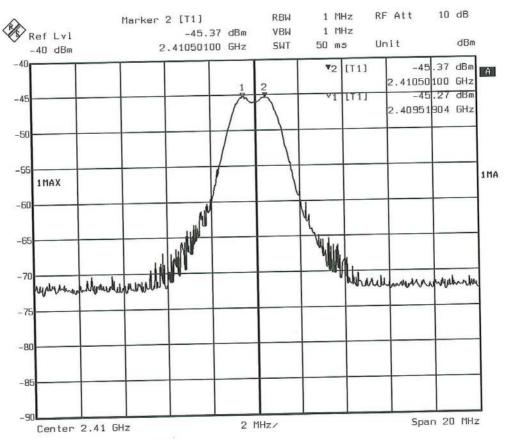
system

As page 3

Page: Issue Date: 37 of 45 May 2007

Issue No.: 2

Peak Power Plot - Keycard



Title: Keycard-Peak-Power Comment A: Handshaking-Net2Air Date: 09.MAR.1907 13:39:45

EM07024171

Net2 Handsfree Access Control

system

Model No.:

As page 3

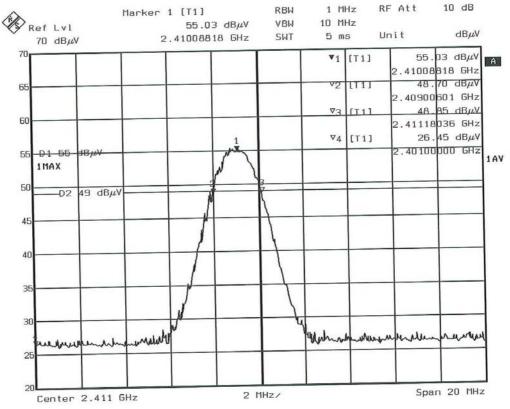
Page: Issue Date: 38 of 45 May 2007

Issue No.:

2

ANNEX 2 - 6dBandwidths

Keyfob – Average Detector



Title:

Net2air_Interface_System.

Comment A: Handshaking_Keyfob_Average_Detector Date: 06.MAR.2007 14:29:48

EM07024171

Product:

Net2 Handsfree Access Control

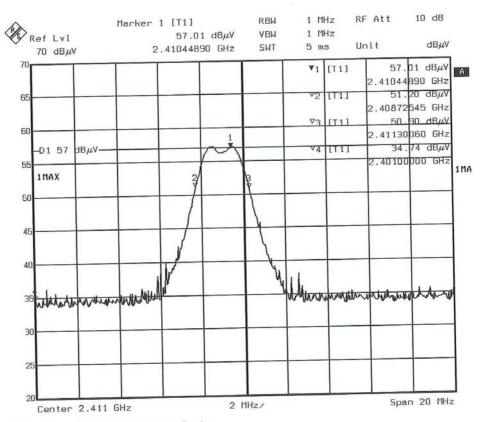
system

Model No.: As page 3 Page: Issue Date: 39 of 45 May 2007

Issue No.:

2

Keyfob - Peak Detector



Title: Net2air_Interface_System.

Comment A: Handshaking_Keyfob_Peak_Detector
Date: 06.MAR.2007 13:56:01

EM07024171

Net2 Handsfree Access Control

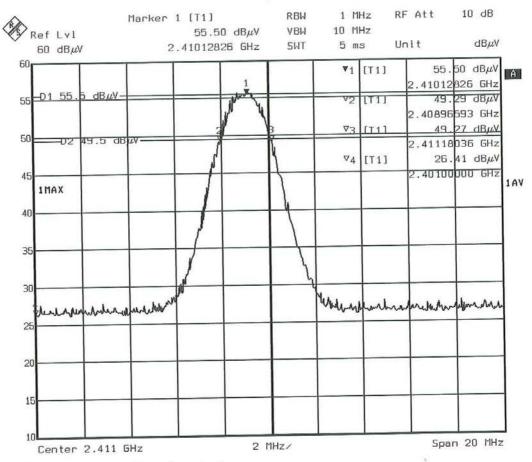
system

Model No.: As page 3 Page: Issue Date:

40 of 45 May 2007

2 Issue No.:

Keycard – Average Detector



Net2air_Interface_System.

Comment A: Handshaking_Keycard_Average_Detector Date: 06.MAR.2007 12:09:56

EM07024171

Product:

Model No.:

Net2 Handsfree Access Control

system

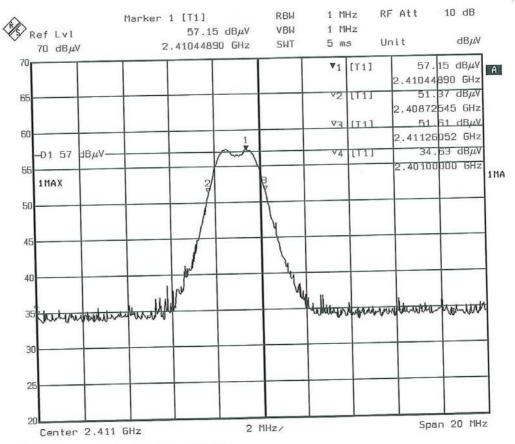
As page 3

Page: Issue Date: 41 of 45 May 2007

Issue No.:

2

Keycard – Peak Detector



Title: Net2air Interface System.
Comment A: Handshaking_Keycard_Peak_Detector_
Date: 06.MAR.2007 12:37:00

Report No.: EM07024171
Product: Net2 Handsfree Access Control

system

Model No.: As page 3

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Issue No.: 2

Annex 3 Test Set ups



Radiated Emissions



Radiated Emissions

Report No.: EM07024171 Page: 43 of 45 Product: Net2 Handsfree Access Control Issue Date: May 2007

system

Model No.: As page 3 Issue No.: 2



Keyfob Field Strength



Keycard Field Strengths

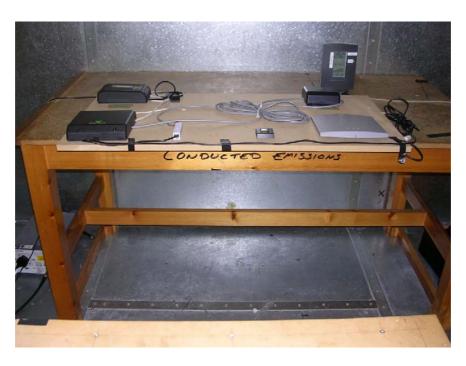
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system

Model No.: As page 3 Issue No.: 2



Conducted Emissions



Conducted Emissions

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system

Model No.: As page 3 Issue No.: 2

6. TEST EQUIPMENT

Equipment	Туре	ID
Rohde & Schwarz FSEK	Analyser	1088
Rohde & Schwarz ESHS10	Receiver	7463
Rohde & Schwarz ESHS10	Receiver	4761
Rohde & Schwarz ESHS-Z5	Lisn	7473
Chase Antenna	Bilog	
2m N to N	Cable	8157
2m N to N	Cable	7258
3m N to N	Cable	7529
4m N to N	Cable	7177
2m K to K	Cable	7532
3m Kto K	Cable	7531
Emco Horn Antenna	1 to 18GHz	7512
Emco Horn Antenna	4 to 8GHz	7617
Emco Horn Antenna	8 to 12GHz	7614
Scientific Atlanta	12 to 18GHz	7615
Scientific Atlanta	18 to 26GHz	7513
ERA Wideband Amplifier	1 to 18GHz	7534
GSM A	Environment	7286
Test Bay 5	Environment	7404
High Accuracy THP	Environment Monitor	7519
High Accuracy THP	Environment Monitor	7516
Continuous Power International	115Vac 60Hz Generator	7497