REPORT ON THE CERTIFICATION TESTING OF A STANLEY SECURITY SOLUTIONS Ltd DUAL TECH CLASSIC STANDARD READER WITH RESPECT TO THE FCC RULES CFR 47, PART 15.209 September 2007 INTENTIONAL RADIATOR SPECIFICATION

TEST REPORT NO: RU1420/8388

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FCC ID: OQL-R-DTS

REPORT ON THE CERTIFICATION TESTING OF A
STANLEY SECURITY SOLUTIONS Ltd
DUAL TECH CLASSIC STANDARD READER
WITH RESPECT TO
THE FCC RULES CFR 47, PART 15.209 September 2007
INTENTIONAL RADIATOR SPECIFICATION

TEST DATE: 1st – 5th February 2008

TESTED BY: Daniel Winstanley — Digitally signed by Daniel Winstanley DN: CN = Daniel Winstanley, C = <n Reason: I am the author of this document Date: 2008.02.08 08:52:52 Z — D WINSTANLEY

APPROVED BY: John Charters — Digitally signed by John Charters DN: CN = John Charters, C = GB, O = TRL Compliance Ltd Reason: I am approving this document Date: 2008.02.08 08:55:07 Z — J CHARTERS RADIO SECTION LEADER

DATE: 8th February 2008

Distribution:

Copy Nos:
1. Stanley Security Solutions Ltd
2. FCC EVALUATION LABORATORIES
3. TRL Compliance Ltd

Moss View, Nipe Lane, Up Holland, West Lancashire, WN8 9PY, UK.
T +44 (0)1695 556666
F +44 (0)1695 557077
E test@trlcompliance.com

CONTENTS

Notes:

1. Component failure during test — YES [ ] NO [X]
2. If Yes, details of failure:
3. The facilities used for the testing of the product contain in this report are FCC Listed.
4. The contents of the attached applicants declarations and other supplied information are not covered by the scope of this laboratory's UKAS or FCC accreditations' and is provided in good faith.

TRL Compliance
part of TRAC global

CERTIFICATE OF CONFORMITY & COMPLIANCE

FCC IDENTITY:	OQL-R-DTS
PURPOSE OF TEST:	Certification
TEST SPECIFICATION:	FCC RULES CFR 47, Part 15.209 September 2007
TEST RESULT:	Compliant to Specification
EQUIPMENT UNDER TEST:	Dual Tech Classic Standard Reader
ITU: EMISSION CODE:	3k27A1D
EQUIPMENT TYPE:	Inductive Reader
PRODUCT USE:	Access Control
CARRIER EMISSION:	1.866 µV/m @ 300m
ANTENNA TYPE:	Integral
ALTERNATIVE ANTENNA:	Not Applicable
FREQUENCY OF OPERATION:	133.3 kHz
CHANNEL SPACING:	Not Applicable, Wideband
NUMBER OF CHANNELS:	1
FREQUENCY GENERATION:	SAW Resonator [ ] Crystal [ ] Synthesiser [X]
MODULATION METHOD:	Amplitude [ ] Digital [ ] Angle [X]
POWER SOURCE(s):	+13.6Vdc
TEST DATE(s):	1st – 5th February 2008
ORDER No(s):	4500004693
APPLICANT:	Stanley Security Solutions Ltd
ADDRESS:	1 Park Gate Close Bredbury Stockport SK6 2SZ

TESTED BY: Daniel Winstanley — Digitally signed by Daniel Winstanley DN: CN = Daniel Winstanley, C = <n Reason: I am the author of this document Date: 2008.02.08 08:51:50 Z — D WINSTANLEY

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TRAC testing regulatory and compliance

APPLICANT'S SUMMARY

EQUIPMENT UNDER TEST (EUT):	Dual Tech Classic Standard Reader
EQUIPMENT TYPE:	Inductive Reader
PURPOSE OF TEST:	Certification
TEST SPECIFICATION(s):	FCC RULES CFR 47, Part 15.209 September 2007
TEST RESULT:	COMPLIANT Yes [X] No [ ]
APPLICANT'S CATEGORY:	MANUFACTURER [X] IMPORTER [ ] DISTRIBUTOR [ ] TEST HOUSE [ ] AGENT [ ]
APPLICANT'S ORDER No(s):	4500004693
APPLICANT'S CONTACT PERSON(s):	Mr P Lucas
E-mail address:	PLucas@stanleyworks.com
APPLICANT:	Stanley Security Solutions Ltd
ADDRESS:	1 Park Gate Close Bredbury Stockport SK6 2SZ
TEL:	+44 (0) 161 4063418
FAX:	+44 (0) 161 4069957
EUT(s) COUNTRY OF ORIGIN:	United Kingdom
TEST LABORATORY:	TRL Compliance Ltd
UKAS ACCREDITATION No:	0728
TEST DATE(s):	1st – 5th February 2008
TEST REPORT No:	RU1420/8388

EQUIPMENT TEST / EXAMINATIONS REQUIRED

1.

TEST/EXAMINATION	RULE PART	DETECTOR	APPLICABILITY
Intentional Emission Frequency:	15.209(a)	Average	Yes
Intentional Emission Field Strength:	15.209(a)	Average	Yes
Intentional Emission Band Occupancy:	15.215(c)	Peak	Yes
Intentional Emission ERP (mW):	-	-	No
Spurious Emissions – Conducted:	15.207	Quasi Peak Average	No
Spurious Emissions – Radiated <1000MHz:	15.209	Quasi Peak Average	Yes
Spurious Emissions – Radiated >1000MHz:	-	-	No
Maximum Frequency of Search:	15.33	-	Yes
Antenna Arrangements Integral:	15.203	-	Yes
Antenna Arrangements External Connector:	15.204	-	Yes
Restricted Bands	15.205	-	Yes
Extrapolation Factor	15.31(f)	-	Yes

2. Product Use: Access Control

3. Emission Designator: 3k27A1D

4. Duty Cycle: <100 %

5. Transmitter bit or pulse rate and level: 4800bps

6. Temperatures: Ambient (Tnom) 11^{o}C

7. Supply Voltages: Vnom 110Vac

Note: Vnom voltages are as stated above unless otherwise shown on the test report page

8. Equipment Category:
   Single channel [X]
   Two channel [ ]
   Multi-channel [ ]

9. Channel spacing:
   Narrowband [ ]
   Wideband [X]

TRANSMITTER TESTS

TRANSMITTER SPURIOUS EMISSIONS – RADIATED – PART 15.209

Ambient temperature	=	11°C(<1GHz)	3m measurements <1GHz	[X]
Relative humidity	=	58% (<1GHz),	3m measurements >1GHz	[X]
Conditions	=	Open Area Test Site (OATS)	3m measurements <30MHz	[X]
Supply voltage	=	+13.6Vdc	300m extrapolated from 3m	[X]
Channel number	=	133.3 kHz		

Bottom Channel	**FREQ. (MHz)**	**MEAS Rx (dBµV)**	**CABLE LOSS (dB)**	**ANT FACT. (dB/m)**	**PRE AMP (dB)**	**FIELD ST'GH (dBµV/m)**	**EXTRAP FACT (dB)**	**FIELD ST'GH (µV/m)**	**LIMIT (µV/m)**
0.009MHz - 0.49MHz	No Significant Emissions Within 20 dB of the Limit								
0.49MHz - 1.705MHz	No Significant Emissions Within 20 dB of the Limit								
1.705MHz - 30MHz	No Significant Emissions Within 20 dB of the Limit								
30MHz - 88MHz	No Significant Emissions Within 20 dB of the Limit								
88MHz - 216MHz	No Significant Emissions Within 20 dB of the Limit								
216MHz - 960MHz	No Significant Emissions Within 20 dB of the Limit								
960MHz - 1GHz	No Significant Emissions Within 20 dB of the Limit								
1GHz - 2GHz	No Significant Emissions Within 20 dB of the Limit								
Limits	0.009 MHz to 0.49 MHz	2400/f(kHz) µV/m @ 300m							
	0.49 MHz to 1.705 MHz	24000/f(kHz) µV/m @ 30m							
	1.705MHz to 30MHz	30µV/m @ 30m							
	30MHz to 88MHz	100µV/m @ 3m							
	88MHz to 216MHz	150µV/m @ 3m							
	216MHz to 960MHz	200µV/m @ 3m							
	960MHz to 1GHz	500µV/m @ 3m							
	1GHz to 2GHz	500µV/m @ 3m							

Notes:
1 Results quoted are extrapolated as indicated
2 Emissions were searched to: (**x**) 1000MHz inclusive, as per Part 15.33a
3 Measurements >1GHz @ 3m as per Part 15.31f(1)
4 Receiver detector >1GHz = CISPR, Quasi-Peak, 120kHz bandwidth
5 Receiver detector >1GHz = Peak Hold, 1MHz resolution bandwidth
6 New batteries used for battery powered products.
7 See Annex F for Emissions Graph(s)
8 All normal operation ports populated and appropriately terminated.

Test Method:
1 As per Radio – Noise Emissions, ANSI C63.4: 2003
2 Measuring distances as Notes 1 to 4 above
3 EUT 0.8 metre above ground plane
4 Emissions maximised by rotation of EUT, on an automatic turntable.
Raising and lowering the receiver antenna between 1m & 4m.
Horizontal and vertical polarisations, of the receive antenna.
EUT orientation in three orthagonal planes.
Maximum results recorded.

The test equipment used for the Transmitter Spurious Emissions – Radiated – Part 15.209 tests is shown below:

TYPE OF EQUIPMENT	MAKER/SUPPLIER	MODEL No	SERIAL No	TRL No	EQUIPMENT USED
LOOP ANTENNA	R & S	HFH2	881058-53	07	**X**
RECEIVER	R & S	ESVS 10	825892/003	UH04	**X**
RANGE 1	TRL	3 METRE	N/A	UH06	**X**
BILOG ANTENNA	CHASE	CBL6112	2129	UH93	**X**
RECEIVER	R & S	ESHS 10	841429/012	UH187	**X**

TRANSMITTER TESTS

TRANSMITTER INTENTIONAL EMISSION – RADIATED – Part 15.209 September 2007

Ambient temperature	=	11°C(<1GHz),	3m measurements @ fc	[X]
Relative humidity	=	58%(<1GHz),	10m measurements @ fc	[X]
Conditions	=	Open Area Test Site (OATS)	300m extrapolated from 3m	[X]
Supply voltage	=	+13.6Vdc	300m extrapolated from 10m	[X]
Channel number	=	1		

FREQ. (kHz)	**MEASUREMENT DISTANCE (m)**	**MEASUREMENT Rx READING (dBµv)**	**EXTRAP. FACTOR (dB)**	**FIELD STRENGTH (µV/m @ 300m)**
133.3	3	89.2	83.78	1.866
133.3	10	64.5	59.08	1.866
Limit value @ fc		**18.00 µV/m @300m**		
Band occupancy @ 20 dBc		**f lower**	**f higher**	
		131.761538 MHz	**135.030769 MHz**	

Notes:
1 Results quoted are extrapolated as indicated
2 Receiver detector @ fc = Average 10kHz bandwidth
3 When battery powered the EUT was powered with new batteries

Test Method:
1 As per Radio – Noise Emissions, ANSI C63.4: 2003
2 Measuring distances 3m
3 EUT 0.8 metre above ground plane
4 Emissions maximised by rotation of EUT, on an automatic turntable.
Raising and lowering the receiver antenna between 1m & 4m.
Horizontal and vertical polarisations, of the receive antenna.
EUT orientation in three orthagonal planes.
Maximum results recorded

The test equipment used for the Transmitter Intentional Emission – Radiated – Part 15.209 September 2007 tests is shown below:

TYPE OF EQUIPMENT	MAKER/SUPPLIER	MODEL No	SERIAL No	TRL No	EQUIPMENT USED
LOOP ANTENNA	R & S	HFH2	881058-53	07	**X**
RANGE 1	TRL	3 METRE	N/A	UH06	**X**
RANGE 1	TRL	10 METRE	N/A	UH07	**X**
RECEIVER	R & S	ESHS 10	841429/012	UH187	**X**

TRANSMITTER TESTS

TRANSMITTER CONDUCTED EMISSIONS – AC POWER LINE Part 15.207

Ambient temperature = 16^{o}C(<1GHz),
Relative humidity = 68%(<1GHz),
Conditions = Power Line Laboratory
Supply voltage = 110V AC
Supply Frequency = 60Hz

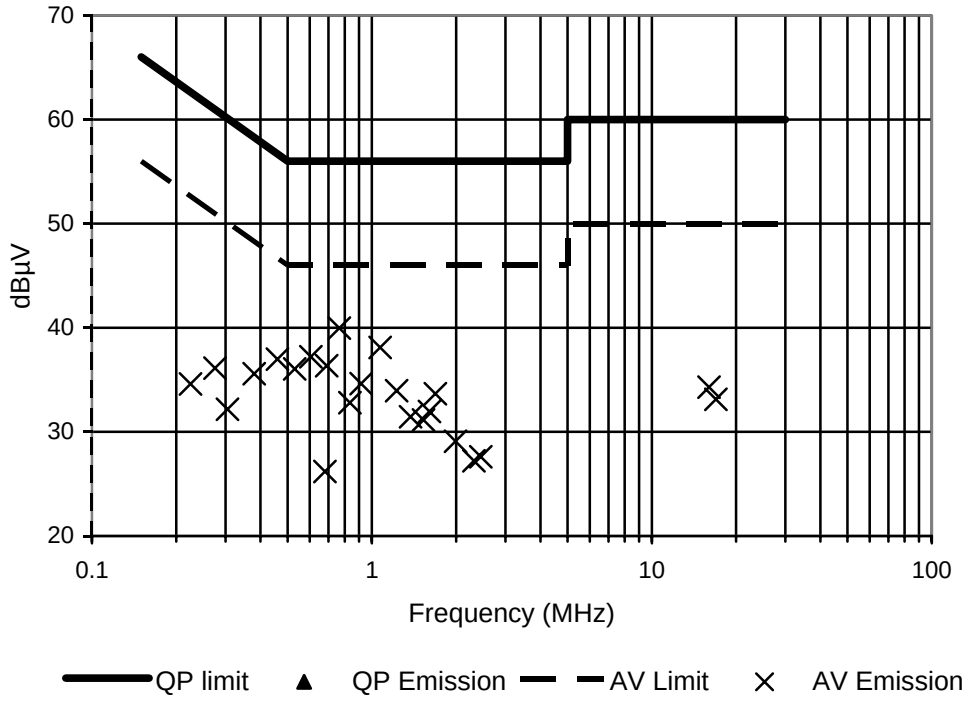
SIGNIFICANT EMISSIONS

FREQUENCY (MHz)	MEASUREMENT RECEIVER READING (dBµV)	DETECTOR	CONDUCTOR (L or N)	LIMIT (dBµV)
0.225	34.60	Average	Live	52.63
0.275	36.12	Average	Neutral	50.97
0.305	32.17	Average	Live	50.11
0.380	35.59	Average	Neutral	48.28
0.460	36.98	Average	Live	46.69
0.530	36.04	Average	Live	46.00
0.605	37.22	Average	Neutral	46.00
0.680	26.20	Average	Neutral	46.00
0.690	36.35	Average	Live	46.00
0.765	39.97	Average	Live	46.00
0.835	32.80	Average	Neutral	46.00
0.915	34.64	Average	Live	46.00
1.070	38.10	Average	Live	46.00
1.225	33.95	Average	Live	46.00
1.375	31.45	Average	Live	46.00
1.530	31.15	Average	Live	46.00
1.605	31.96	Average	Live	46.00
1.685	33.66	Average	Live	46.00
1.990	29.10	Average	Live	46.00
2.315	27.23	Average	Neutral	46.00
2.450	27.61	Average	Live	46.00
16.000	34.30	Average	Live	50.00
16.935	33.13	Average	Neutral	50.00

Notes: 1 See attached plot annex G
2 EUT tested with and without tag in field, Worst case results recorded.

Test Method: 1 As per Radio – Noise Emissions, ANSI C63.4: 2003

POWER LINE CONDUCTION EMISSIONS



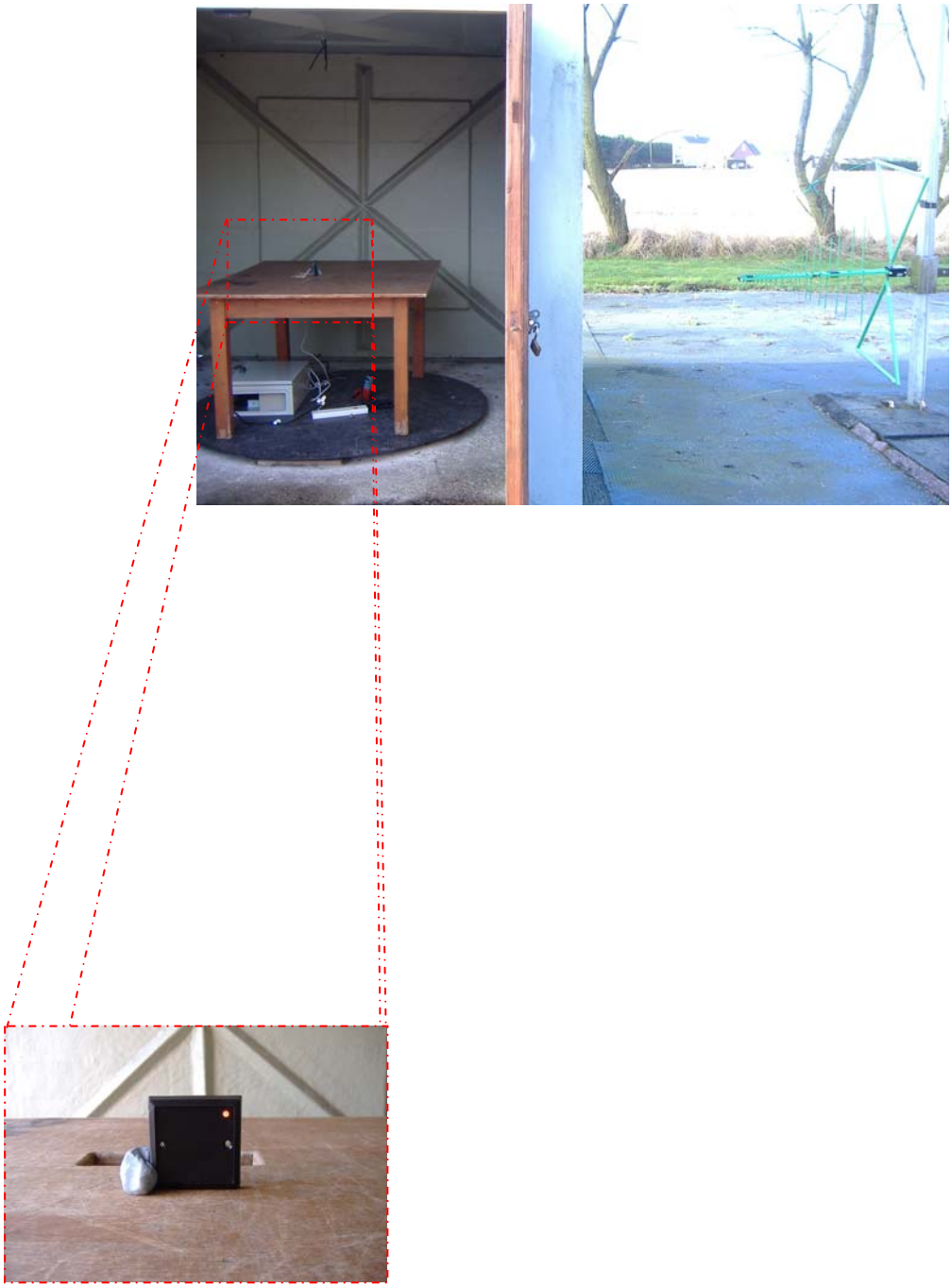
The test equipment used for the Transmitter Conducted Emissions – AC Power Line Part 15.207 test was:

TYPE OF EQUIPMENT	MAKER/ SUPPLIER	MODEL No	SERIAL No	TRL No	ACTUAL EQUIPMENT USED
LISN/AMN	SCHAFFNER	NSLK 8128	164	UH76	**X**
RECEIVER	ROHDE & SCHWARZ	ESHS 10	841429/012	UH187	**X**
LISN/AMN	ROHDE & SCHWARZ	ESH3-Z5	8407 31/015	UH195	**X**

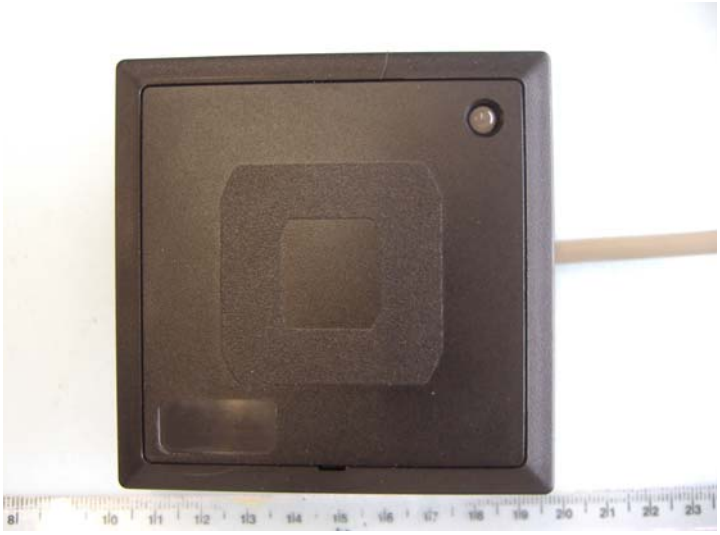
ANNEX A

PHOTOGRAPHS

PHOTOGRAPH No. 1 **TEST SETUP**



PHOTOGRAPH No. 2 **EUT FRONT OVERVIEW**



PHOTOGRAPH No. 3 **EUT REAR OVERVIEW**

ANNEX B

APPLICANT'S SUBMISSION OF DOCUMENTATION LIST

APPLICANT'S SUBMISSION OF DOCUMENTATION LIST

a.	TCB	-	APPLICATION	[X]
		-	FEE	[X]
b.	AGENT'S LETTER OF AUTHORISATION	-		[X]
c.	MODEL(s) vs IDENTITY	-		[X]
d.	ALTERNATIVE TRADE NAME DECLARATION(s)	-		[ ]
e.	LABELLING	-	PHOTOGRAPHS	[X]
		-	DECLARATION	[ ]
		-	DRAWINGS	[ ]
f.	TECHNICAL DESCRIPTION	-		[X]
g.	BLOCK DIAGRAMS	-	Tx	[X]
		-	Rx	[ ]
		-	PSU	[ ]
		-	AUX	[ ]
h.	CIRCUIT DIAGRAMS	-	Tx	[X]
		-	Rx	[ ]
		-	PSU	[ ]
		-	AUX	[ ]
i.	COMPONENT LOCATION	-	Tx	[X]
		-	Rx	[ ]
		-	PSU	[ ]
		-	AUX	[ ]
j.	PCB TRACK LAYOUT	-	Tx	[X]
		-	Rx	[ ]
		-	PSU	[ ]
		-	AUX	[ ]
k.	BILL OF MATERIALS	-	Tx	[X]
		-	Rx	[ ]
		-	PSU	[ ]
		-	AUX	[ ]
l.	USER INSTALLATION / OPERATING INSTRUCTIONS	-		[X]

ANNEX C

MEASUREMENT UNCERTAINTY

Radio Testing – General Uncertainty Schedule

All statements of uncertainty are expanded standard uncertainty using a coverage factor of 1.96 to give a 95% confidence where no required test level exists.

[1] Adjacent Channel Power

Uncertainty in test result = **1.86dB**

[2] Carrier Power

Uncertainty in test result (Equipment - TRLUH120) = **2.18dB**
Uncertainty in test result (Equipment – TRL05) = **1.08dB**
Uncertainty in test result (Equipment – TRL479) = **2.48dB**

[3] Effective Radiated Power

Uncertainty in test result = **4.71dB**

[4] Spurious Emissions

Uncertainty in test result = **4.75dB**

[5] Maximum frequency error

Uncertainty in test result (Equipment - TRLUH120) = **119ppm**
Uncertainty in test result (Equipment – TRL05) = **0.113ppm**
Uncertainty in test result (Equipment – TRL479) = **0.265ppm**

[6] Radiated Emissions, field strength OATS 14kHz-18GHz Electric Field

Uncertainty in test result (14kHz – 30MHz) = **4.8dB**, Uncertainty in test result (30MHz – 1GHz) = **4.6dB**, Uncertainty in test result (1GHz-18GHz) = **4.7dB**

[7] Frequency deviation

Uncertainty in test result = **3.2%**

[8] Magnetic Field Emissions

Uncertainty in test result = **2.3dB**

[9] Conducted Spurious

Uncertainty in test result (Equipment TRL479) Up to 8.1GHz = **3.31dB**
Uncertainty in test result (Equipment TRL479) 8.1GHz – 15.3GHz = **4.43dB**
Uncertainty in test result (Equipment TRL479) 15.3GHz – 21GHz = **5.34dB**
Uncertainty in test result (Equipment TRLUH120) Up to 26GHz = **3.14dB**

[10] Channel Bandwidth

Uncertainty in test result = **15.5%**

[11] Amplitude and Time Measurement – Oscilloscope

Uncertainty in overall test level = **2.1dB**, Uncertainty in time measurement = **0.59%,** Uncertainty in Amplitude measurement = **0.82%**

[11] Power Line Conduction

Uncertainty in test result = **3.4dB**

[12] Spectrum Mask Measurements

Uncertainty in test result = **2.59% (frequency)**
Uncertainty in test result = **1.32dB (amplitude)**

[13] Adjacent Sub Band Selectivity

Uncertainty in test result = **1.24dB**

[14] Receiver Blocking – Listen Mode, Radiated

Uncertainty in test result = **3.42dB**

[15] Receiver Blocking – Talk Mode, Radiated

Uncertainty in test result = **3.36dB**

[16] Receiver Blocking – Talk Mode, Conducted

Uncertainty in test result = **1.24dB**

[17] Receiver Threshold

Uncertainty in test result = **3.23dB**

[18] Transmission Time Measurement

Uncertainty in test result = **7.98%**

ANNEX D

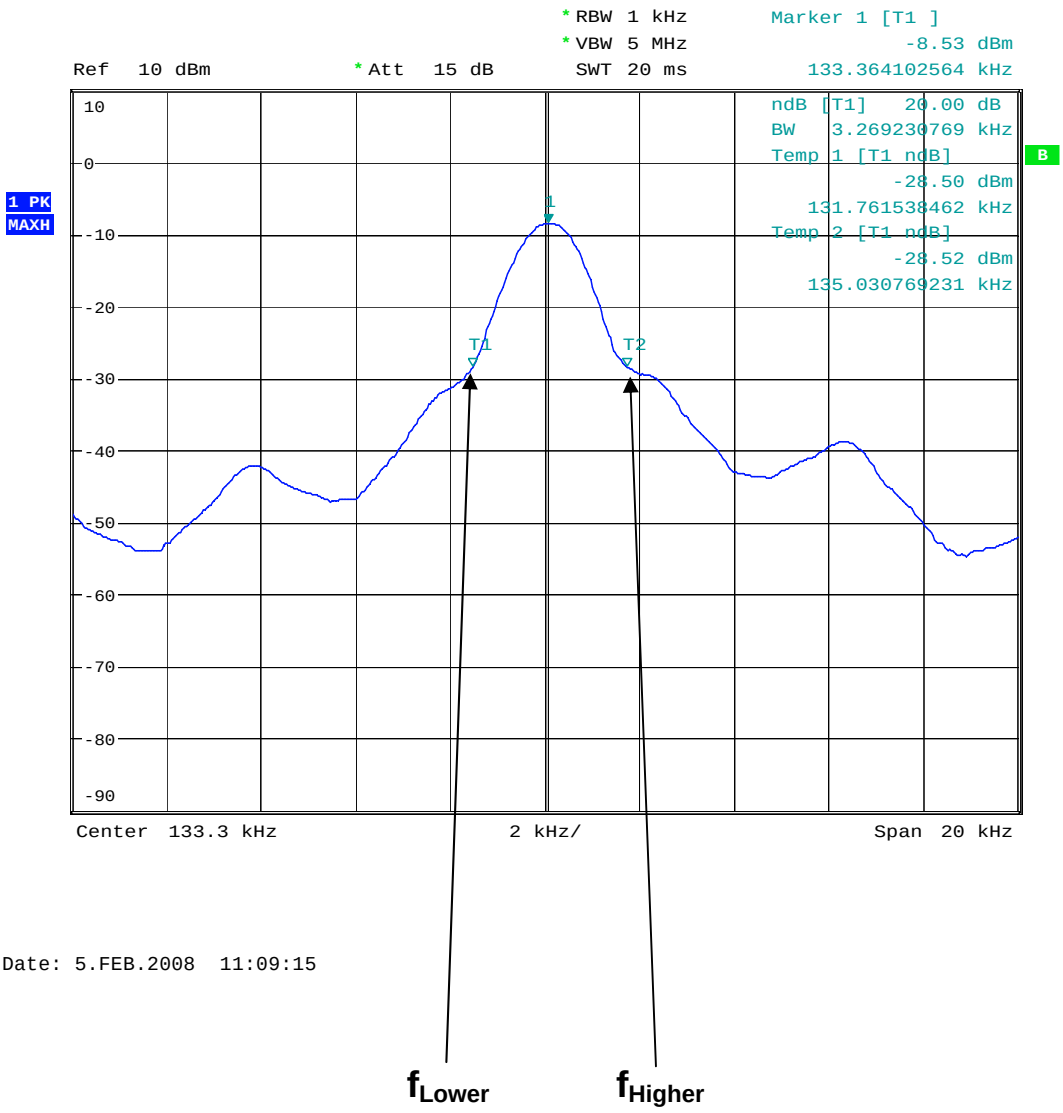
TEST EQUIPMENT CALIBRATION

TRL Number	Equipment Type	Manufacturer	Last Cal Calibration	Calibration Period	Due For Calibration
UH004	Receiver	R&S	06/11/2007	12	06/11/2008
UH06/07	NSA Cal	TRL	17/12/2007	12	17/12/2008
UH06/07	IC OATS Submission	TRL	01/06/2007	24	01/06/2009
UH006	3m Range ERP CAL	TRL	08/12/2006	12	08/12/2007
UH028	Log Periodic Ant	Schwarbeck	30/05/2007	24	30/05/2009
UH029	Bicone Antenna	Schwarbeck	22/05/2007	24	22/05/2009
UH041	Multimeter	AVOmeter	04/01/2007	12	04/01/2008
UH093	Antenna	Chase	21/05/2007	24	21/05/2009
UH076	LISN	Schaffner	10/01/2007	24	10/01/2009
UH122	Oscilloscope	Tektronix	07/06/2005	24	07/06/2007
UH132	Power meter	Marconi	10/01/2007	12	10/01/2008
UH162	ERP Cable Cal	TRL	02/01/2007	12	02/01/2008
UH187	Receiver	R&S	12/12/2007	12	12/12/2008
UH191	Bilog Antenna	York	11/08/2006	24	11/08/2008
UH195	LISN	R&S	09/01/2007	12	09/01/2008
UH228	Power Sensor	Marconi	15/01/2007	12	15/01/2008
UH253	1m Cable N type	TRL	07/12/2006	12	07/12/2007
UH254	1m Cable N type	TRL	07/12/2006	12	07/12/2007
UH265	Notch filer	Telonic	11/01/2006	24	11/01/2008
UH269	1m Cable N type	TRL	07/12/2006	12	07/12/2007
UH270	1m Cable N type	TRL	07/12/2006	12	07/12/2007
UH271	1.5m Cable N type	TRL	07/12/2006	12	07/12/2007
UH272	1.5m Cable N type	TRL	07/12/2006	12	07/12/2007
UH273	2m Cable N type	TRL	07/12/2006	12	07/12/2007
UH274	2m Cable N type	TRL	07/12/2006	12	07/12/2007
UH281	Spectrum Analyser	R&S	24/07/2006	12	24/07/2007
UH340	Signal Generator	HP	29/06/2006	12	29/06/2007
L005	CMTA	R&S	10/01/2007	12	10/01/2008
L007	Loop Antenna	R&S	22/05/2007	24	22/05/2009
L138	1-18GHz Horn	EMCO	23/05/2007	24	23/05/2009
L139	1-18GHz Horn	EMCO	23/05/2007	24	23/05/2009
L176	Signal Generator	Marconi	01/03/2007	12	01/03/2008
L193	Bicone Antenna	Chase	12/10/2003	24	12/10/2005
L203	Log Periodic Ant	Chase	21/10/2003	24	21/10/2005
L343	CCIR Noise Filter	TRL	20/09/2006	12	20/09/2007
L426	Temperature Indicator	Fluke	09/01/2007	12	09/01/2008
L479	Analyser	Anritsu	09/01/2007	12	09/01/2008
L552	Signal Generator	Agilent	24/07/2006	12	24/07/2007
L572	Pre Amplifier	Agilent		Calibrate in use	

ANNEX E

BANDWIDTH PLOT

BANDWIDTH PLOT



f_{Lower}	=	**131.761538462 kHz**
f_{Higher}	=	**135.030769231 kHz**
Occupied Bandwidth	=	**3.269 kHz**

ANNEX F

EMISSIONS GRAPH(s)

TRL Compliance Ltd

01 Feb 2008 14:13

E-Field Radiation (30MHz-1GHz)

EUT:	Dualtech classic standard reader
Manuf:	Stanley security solutions
Op Cond:	Prescan 30MHz - 1000MHz
Operator:	S Hodgkinson
Test Spec:	Part15
Comment:	Support equipment placed outside room, reader only, pwr supply fitted with battery for load.load fitted to simulate lock load Rx antenna Horizontal, unit facing Rx antenna, no tag in field.

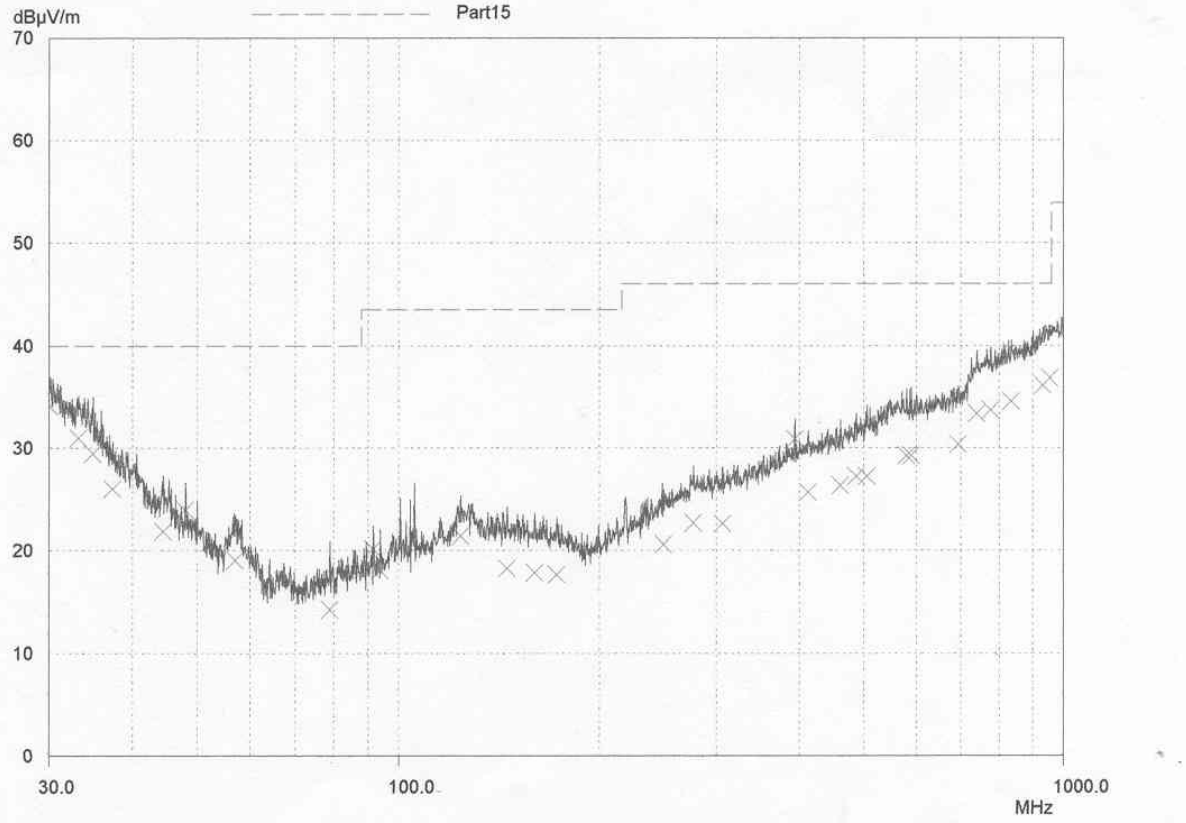
Scan Settings (1 Range)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
30MHz	1000MHz	50kHz	120kHz	PK	1msec	Auto	ON	60dB

Transducer	No.	Start	Stop	Name
1	21	30MHz	1000MHz	UH72
	22	30MHz	1000MHz	UH191

Final Measurement:

Detector:	X QP
Meas Time:	2sec
Subranges:	50
Acc Margin:	10 dB



PAGE 1

ANNEX G

AC POWERLINE CONDUCTION GRAPH(s)

Powerline Conduction

05 Feb 2008 08:58

150kHz - 30MHz

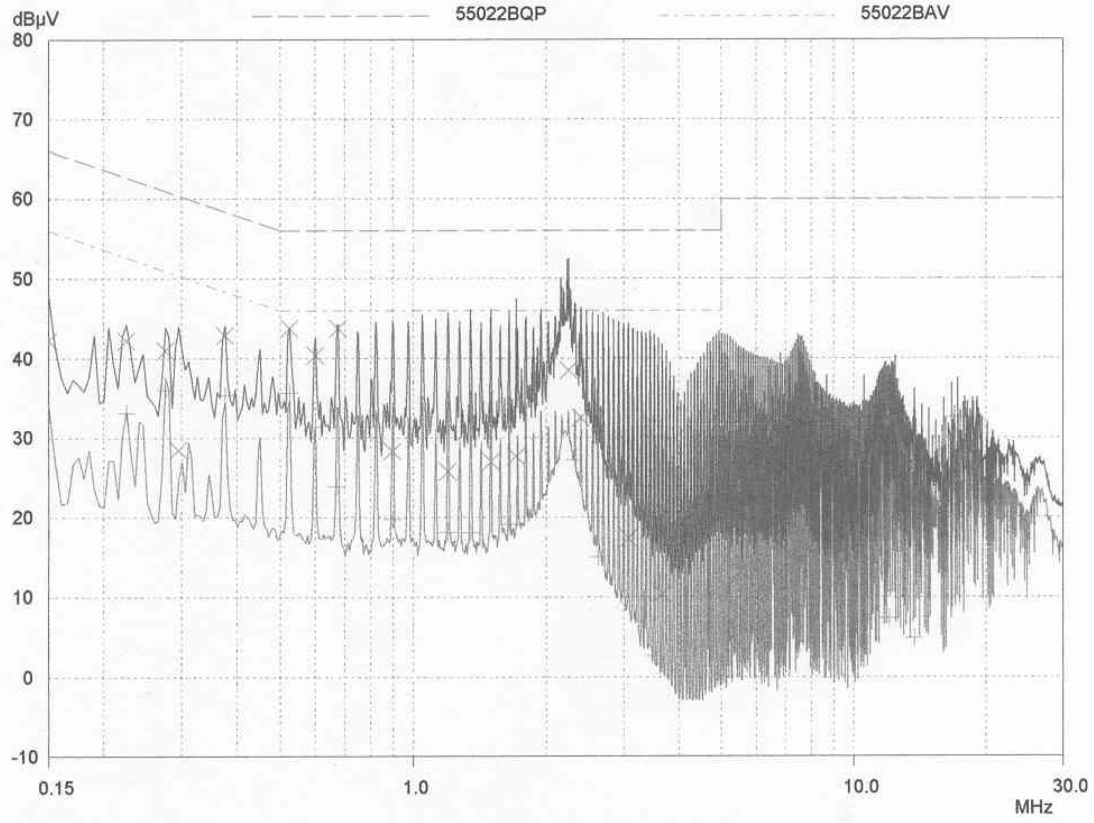
EUT:	Dualtech classic standard reader
Manuf:	Stanley Security Solutions
Op Cond:	LISN UH76, cable UH21 & Receiver UH187
Operator:	D winstanley
Test Spec:	Part15
Comment:	Neutral Line, 110V, 60Hz
	No Tag In Field
Result File:	dtntn.dat : New Measurement

Scan Settings (1 Range)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150kHz	30MHz	5kHz	10kHz	PK+AV	50msec	Auto	OFF	60dB

Transducer	No.	Start	Stop	Name
2	1	10kHz	30MHz	UH21
	3	150kHz	30MHz	UH76

Final Measurement:		
	Detectors:	X QP / + AV
	Meas Time:	2sec
	Subranges:	25
	Acc Margin:	20 dB



PAGE 1