Electromagnetic Compatibility Test Report

Prepared in accordance with

FCC Part 15 , RSS-210

On

Biometric Smart Card Reader

DSVII-PA

Prepared for:

Datastrip Products, **Inc.**

1 Waterview **Drive**

Shelton, CT **06484**

Prepared by:

TUV Rheinland of North America, Inc.

***Auftraggeber**: Client:*	Datastrip Products, **Inc.** 1 Waterview **Drive** Shelton, CT **06484**	Martin Doyle (203)922-9222 / (203) 922-9334 mdoyle@datastrip.net	
Bezeichnung: *Identification:*	Biometric Smart Card Reader	**Serien-Nr.:** *Serial No.*	DSVIISCBK061100657
***Gegenstand der Prüfung**: Test item:*	DSVII-PA	**Prüfdatum:** *Date tested:*	August 11th -14th 2008
Prüfort: *Testing location:*	TUV Rheinland of North America 12 Commerce Road Newtown, CT 06470-1607 U.S.A.		
Prüfgrundlage: *Test specification:*	Emissions: FCC Part 15.225 FCC Part 15.207, FCC Part 15.205, Part 15.209 and Part 15.215 b), FCC part 15.215 c), RSS-210		
Prüfergebnis: *Test Result*	**Der vorstehend beschriebene Prüfgegenstand wurde geprüft und entspricht oben genannter Prüfgrundlage. The above product was found to be Compliant to the above test standard(s)**		

geprüft / *tested by:* Dieter Baldamus	**kontrolliert** / *reviewed by:* Bruce Fagley
19 August 2008 **Datum** *Date* / **Name** *Name* / **Unterschrift** *Signature*	19 August 2008 **Datum** *Date* / **Name** *Name* / **Unterschrift** *Signature*
Sonstiges : *Other Aspects:*	**None**

Abkürzungen: OK, Pass, Compliant, Complies = entspricht Prüfgrundlage Fail, Not Compliant, Does not Comply = entspricht nicht Prüfgrundlage N/A = nicht anwendbar	Abbreviations: OK, Pass, Compliant, Complies = passed Fail, Not Compliant, Does Not Comply = failed N/A = not applicable

FC	NVLAP	**Industry Canada**
US5112	**200111-0**	**3466D-1**

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1 General Information

1.1 Scope

This report is intended to document the status of conformance with the requirements of the FCC Part 15 , RSS-210 based on the results of testing performed on August 11th -14th 2008 on the Biometric Smart Card Reader, Model No. DSVII-PA, manufactured by Datastrip Products, **Inc.**. This report only applies to the specific samples tested under the stated test conditions. It is the responsibility of the manufacturer to assure that additional production units of this model are manufactured with identical or EMI equivalent electrical and mechanical components. This report is further intended to document changes and modifications to the EUT throughout its life cycle. All documentation will be included as a supplement.

1.2 Purpose

Testing was performed to evaluate the EMC performance of the EUT (Equipment Under Test) in accordance with the applicable requirements, procedures, and criteria defined in the application of regulations and application of standards listed in this report.

1.3 *Summary of Test Results*

Applicant	Datastrip Products, Inc. 1 Waterview Drive Shelton, CT 06484	**Tel**	(203)922-9222	**Contact**	Martin Doyle
		Fax	(203) 922-9334	**e-mail**	mdoyle@datastrip.net

Description	Biometric Smart Card Reader	**Model Number**	DSVII-PA
Serial Number	DSVIISCBK061100657	**Test Voltage/Freq.**	120V/60Hz
Test Date Completed:	August 11th -14th 2008	**Test Engineer**	Dieter Baldamus

Standards	Description	Severity Level or Limit	Criteria	Test Result
FCC Part 15 Subpart C Standard	Radio Frequency Devices – Subpart C: Intentional radiators	See called out basic standards below	See Below	Complies
RSS-210 Standard	Low-power Licence-exempt Radiocommunication Devices Category I Equipment	See called out basic standards below	See Below	Complies
FCC Part 15.225	Operation within the band 13.110-14.010 MHz.	See called out basic standards below	See Below	Complies
FCC Part 15.225 a)	Field Strength Emissions within 13.553-13.567MHz	15,848 microvolts/meter at 30m	Below Limit	Complies
FCC Part 15.225 b)	Field Strength Emissions between 13.410 - 15.553MHz and 13.567 - 13.710 MHz	334 microvolts/meter at 30m	Below Limit	Complies
FCC Part 15.225 c)	Field Strength Emissions between 13.110-13.410 MHz and 13.710 - 14.010 MHz	106 microvolts/meter at 30m	Below Limit	Complies
FCC Part 15.225 d)	Field Strength Outside the 13.110-14.010MHz	Shall not exceed limits of FCC Part 15.209	Below Limit	Complies
FCC Part 15.225 e)	Frequency tolerance over -20 - +50 C at normal power supply and for 85% and 115% of rated supply voltage	0.01% of operating frequency	Within Limit	Complies
FCC Part 15.225 f)	Frequency Powered tags	NA. Tags are not powered	NA	Complies
FCC Part 15.207	Conducted Emissions	Below limit of section 15.207 a)	Below Limit	Complies
FCC Part 15.205, Part 15.209 and Part 15.215 b)	Radiated Emissions	Below limit of section 15.205, 15.209 a), 15.215b)	Below Limit	Complies
FCC part 15.215 c), RSS-210	20dB Bandwith	20dB Contained within the Frequency Band	Within Limit	Complies

2 Laboratory Information

2.1 Accreditations & Endorsements

2.1.1 US Federal Communications Commission

TUV Rheinland of North America located at 12 Commerce Road, Newtown CT is accredited by the commission for performing testing services for the general public on a fee basis. This laboratory test facilities have been fully described in reports submitted to and accepted by the FCC (Registration No US5112). The laboratory scope of accreditation includes: Title 47 CFR Part 15, and 18. The accreditation is updated every 3 years.

2.1.2 NIST / NVLAP

Program, which is administered under the auspices of the National Institute of Standards and Technology. The laboratory has been assessed and accredited in accordance with ISO Standard 17025:2005 (Lab code: 200111-0). The scope of laboratory accreditation includes emission and immunity testing. The accreditation is updated annually.

2.1.3 Industry Canada

Registration No.: 3466D-1. The OATS has been accepted by Industry Canada to perform testing to 3 and to 10m, based on the test procedures described in ANSI C63.4-2003.

2.2 Measurement Uncertainty

The estimated combined standard uncertainty for radiated emissions measurements is ± 1.6 dB.
The estimated combined standard uncertainty for conducted emissions measurements is ± 1.2dB.

2.3 Calibration Traceability

All measurement instrumentation is traceable to the National Institute of Standards and Technology (NIST). Measurement method complies with ANSI/NCSL Z540-1-1994 and ISO Standard 17025:2005. Equipment calibration records are kept on file at the test facility.

2.4 Measurement Equipment Used

Equipment	Manufacturer	Model #	Serial/Inst #	Last Cal dd/mm/yy	Next Cal dd/mm/yy	Test
Power Supply	California Instruments	5001iX	HK53766	08/04/08	08/04/09	All
Antenna Horn	Emco	3115	9402-4227	03/17/08	03/17/10	RE, RI
Antenna, Log. Periodic	Emco	3146	9309-3691	06/26/08	06/26/10	RE, RI
Antenna, Bicon	Emco	3108	2234	06/26/08	06/26/10	RE, RI
Receiver	Hewlett Packard	HP 8546A, 85460A	3330A00125, 3325A00134	03/14/08	03/14/09	CE, DP, CE
Antenna, Bilog	Schaffner	CBL6112D	22238	04/04/08	04/04/10	RE
LISN	Schwarzbeck	NSLK 8126A (4 x 25A)	8126277	03/13/08	03/13/10	CE
LISN	Schwarzbeck	NSLK 8126A (4 x 25A)	8126278	08/26/08	08/26/10	CE
Spectrum Analyzer	Hewlett Packard	HP 8593E	3649A00194	06/26/08	06/26/09	RE,
Antenna	Sunol Sciences	JB3	A022707	03/08/07	03/08/09	RE,RI

Note: CE = Conducted Emissions, CI= Conducted Immunity, DP=Disturbance Power, EFT=Electrical Fast Transients, ESD = Electrostatic Discharge, FLI=Flicker, HAR=Harmonics, MF=Magnetic Field Immunity, RE=Radiated Emissions, RI=Radiated Immunity, SI=Surge Immunity, VDSI=Voltage Dips and Short Interruptions

3 Product Information

3.1 Product Description

See Section 6.4.

3.2 Equipment Modifications

No modifications were needed to bring product into compliance.

3.3 Test Plan

The EUT product information, test configuration, mode of operation, test types, test procedures, test levels, pass/failure criteria, in this report were carried out per the product test plan located in appendix A of this report

Figure 1 – External Photo of EUT

Figure 2 – Photo of EUT Power Supply

4 Measurements

4.1 Radiated Field Strength Emissions Section 15.225 a) b) c)

(a) The field strength of any emissions within the band 13.553-13.567 MHz shall not exceed 15,848 microvolts/meter at 30 meters.

(b) Within the bands 13.410-13.553 MHz and 13.567-13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.

(c) Within the bands 13.110-13.410 MHz and 13.710-14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters.

4.1.1 Over View of Test

Results	**Complies** (as tested per this report)				**Date**	08/13//2008	
Standard	FCC Part 15.225 a) b) c)						
Product Model	DSVII-PA			**Serial#**	DSVIISCBK061100657		
Configuration	See test plan for details						
Test Set-up	Tested on 10m O.A.T.S. placed on turn-table, see test plans for details						
EUT Powered By	120V/60Hz	**Temp**	22ºC	**Humidity**	45%	**Pressure**	1001mbar
Frequency Range	13.110-14.010MHz						
Perf. Criteria	Below Limit		**Perf. Verification**		Readings Under Limit		
Mod. to EUT	None		**Test Performed By**		Dieter Baldamus		

4.1.2 Test Procedure

Radiated field strength emissions tests were performed using the procedures of ANSI C63.4 including methods for signal maximizations and EUT configuration. The photos included with the report show the EUT in its maximized configuration. Testing was performed at a distance of 10 meters on the OATS and the reading levels were adjusted to 30m. The frequency range from 13.110 to 14.010MHz was investigated for radiated field strength emissions.

4.1.3 Deviations

There were no deviations from the test methodology listed in the test plan for the radiated field strength emission test.

4.1.4 Final Test

All final radiated emissions measurements were below (in compliance) the limits.

4.1.5 Final Tabulated Data

Radiated Emissions Measurements											
Standard:	47 CFR FCC Part 15.225			PRESCAN or FINAL:		Final				Date:	8/13/2008
Device Tested:	Datastrip - DSVII-PA				Distance:	10m				File Name:	08081301 Fundamental.xls
Mode:	Normal Operation										
Mount:	Table Top										
Modifications:	NA										
		Measured Level									
Meas #	Frequency Range (MHz)	Measured Freq (MHz)	Measured Peak (dBµV/m)	Measured QuasiPeak (dBµV/m)	Antenna + Cable Correction Factor (dB) (Included in measured QP)	30m Adjusted Measured QuasiPeak (dBµV/m)	QuasiPeak Limit (dBµV/m)	QuaiPeak Δ	Result	Final QP(dBµV/m)	Comments
RBW = 9kHz VBW=30kHz											
FCC Part 15.225 (a)											
1	13.553-13.567	13.5608	20.80	17.30	18.70	-1.78	84.00	-85.78	Complied	X Orientation	
2	13.553-13.567	13.5608	23.40	20.70	18.70	1.62	84.00	-82.38	Complied	Y Orientaiton	Maximum Emissions
3	13.553-13.567	13.5604	22.00	18.00	18.70	-1.08	84.00	-85.08	Complied	Z Orientation	
FCC Part 15.225 (b)											
4	13.410-13.553	13.5300	15.30	7.90	18.70	-11.18	50.47	-61.66	Complied	X Orientation	
5	13.567-13.710	13.6200	15.40	7.90	18.70	-11.18	50.47	-61.66	Complied	X Orientation	
6	13.410-13.553	13.5200	15.50	8.10	18.70	-10.98	50.47	-61.46	Complied	Y Orientaiton	Maximum Emissions
7	13.567-13.710	13.6900	17.60	12.10	18.70	-6.98	50.47	-57.46	Complied	Y Orientaiton	Maximum Emissions
8	13.410-13.553	13.4600	15.70	7.80	18.70	-11.28	50.47	-61.76	Complied	Z Orientation	
9	13.567-13.710	13.6600	15.20	8.20	18.70	-10.88	50.47	-61.36	Complied	Z Orientation	
FCC Part 15.225 (c)											
10	13.110-13.410	13.2880	15.00	8.00	18.70	-11.08	40.51	-51.59	Complied	X Orientation	
11	13.710-14.010	13.9700	14.50	7.80	18.70	-11.28	40.51	-51.79	Complied	X Orientation	
12	13.110-13.410	13.2500	15.50	8.00	18.70	-11.08	40.51	-51.59	Complied	Y Orientaiton	Maximum Emissions
13	13.710-14.010	13.8400	15.10	9.40	18.70	-9.68	40.51	-50.19	Complied	Y Orientaiton	Maximum Emissions
14	13.110-13.410	13.3000	15.10	8.20	18.70	-10.88	40.51	-51.39	Complied	Z Orientation	
15	13.710-14.010	13.9100	15.50	8.00	18.70	-11.08	40.51	-51.59	Complied	Z Orientation	
Tested by:	Dieter Baldamus										
TUV Rheinland of North America, Inc. 12 Commerce Road Newtown, CT 06470 Tel:(203) 426-0888 Fax: (203) 426-4009											
	Measured QP = QP Reading +Antenna Factor + Cable Loss.										
		(factors are already included in the measured peak)									
	30m Adjusted QP = Measured QP - 40*LOG(30/10), as per FCC Part 15.31 (f)(2)										
	Example:										
	Freq:										
	13.5616MHz	32.76 = 51.84-19.08									

4.1.6 Photos

Figure 3 - Radiated Field Strength Emissions Test Setup O.A.T.S.

4.2 Radiated Field Strength Emissions Section 15.225 d)

(d) The field strength of any emissions appearing outside of the 13.110-14.010 MHz band shall not exceed the general radiated emission in section 15.209

4.2.1 View of Test

Results	**Complies** (as tested per this report)				**Date**	06/04/2008	
Standard	FCC Part 15.225 d)						
Product Model	DSVII-PA			**Serial#**	DSVIISCBK061100657		
Configuration	See test plan for details						
Test Set-up	Tested on 10m O.A.T.S. placed on turn-table, see test plans for details						
EUT Powered By	230 VAC 50Hz	**Temp**	22ºC	**Humidity**	34%	**Pressure**	1000mbar
Frequency Range	13.56MHz-1.0GHz @ 10m						
Perf. Criteria	Below Limit o		**Perf. Verification**		Readings Under Limit		
Mod. To EUT	None		**Test Performed By**		Dieter Baldamus		

4.2.2 Test Procedure

Radiated field strength emissions tests were performed using the procedures of ANSI C63.4 including methods for signal maximizations and EUT configuration. The photos included with the report show the EUT in its maximized configuration.

The frequency range from 9kHz to 30MHz was investigated with a loop antenna and then from 30MHz-1000MHz was investigated with Bilog antenna.

A preliminary emissions test was first performed at a distance of 3 meters in the semi-anechoic chamber in order to identify the specific frequencies for which these measurements will be made on the 10 m OATS.

All spurious emissions between this frequency ranges were investigated and compared to the limits stated in section 15.209. Restricted bands of operation were also investigated as stated in section 15.205. Additional provisions stated in section 15.215 b) were also considered during this test.

4.2.3 Deviations

There were no deviations from the test methodology listed in the test plan for the radiated field strength emission test.

4.2.4 Final Test

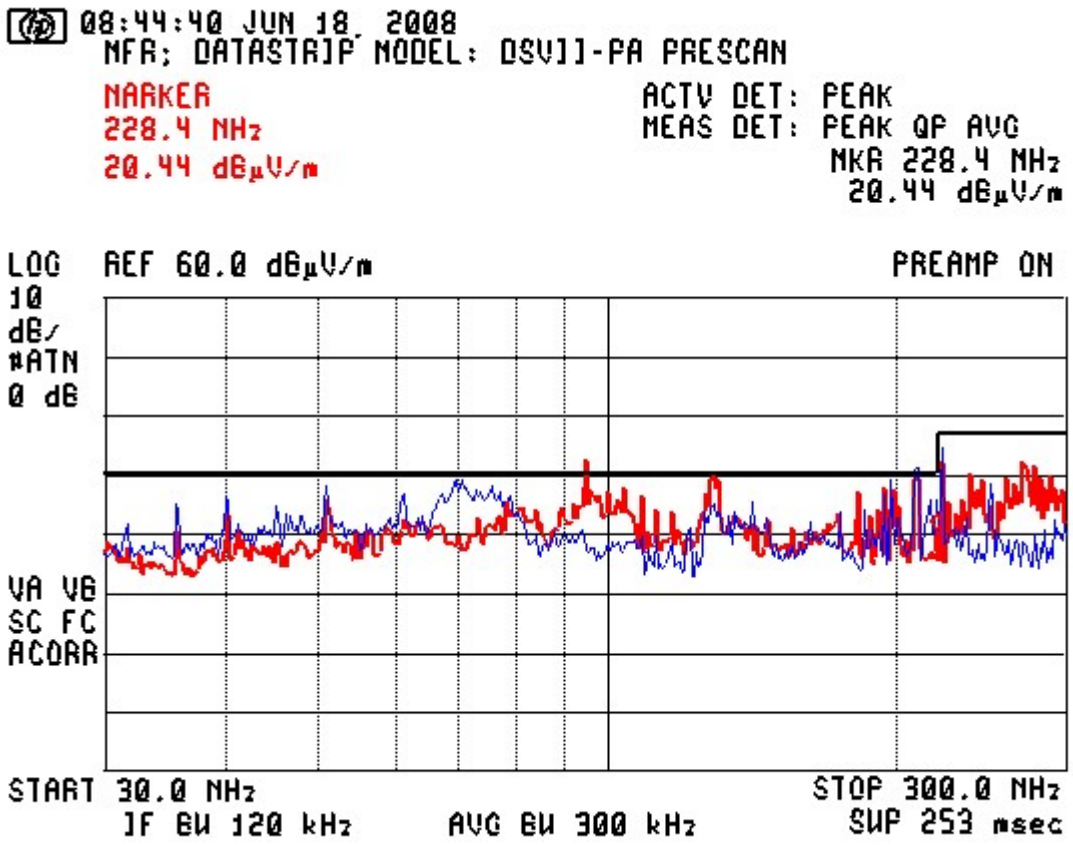
All final radiated field strength emissions measurements were below (in compliance) the limits. No radiated field strength emissions were found within the restricted bands stated in section 15.205.

4.2.5 Final Graphs

NOTES:

Radiated Emissions Prescan

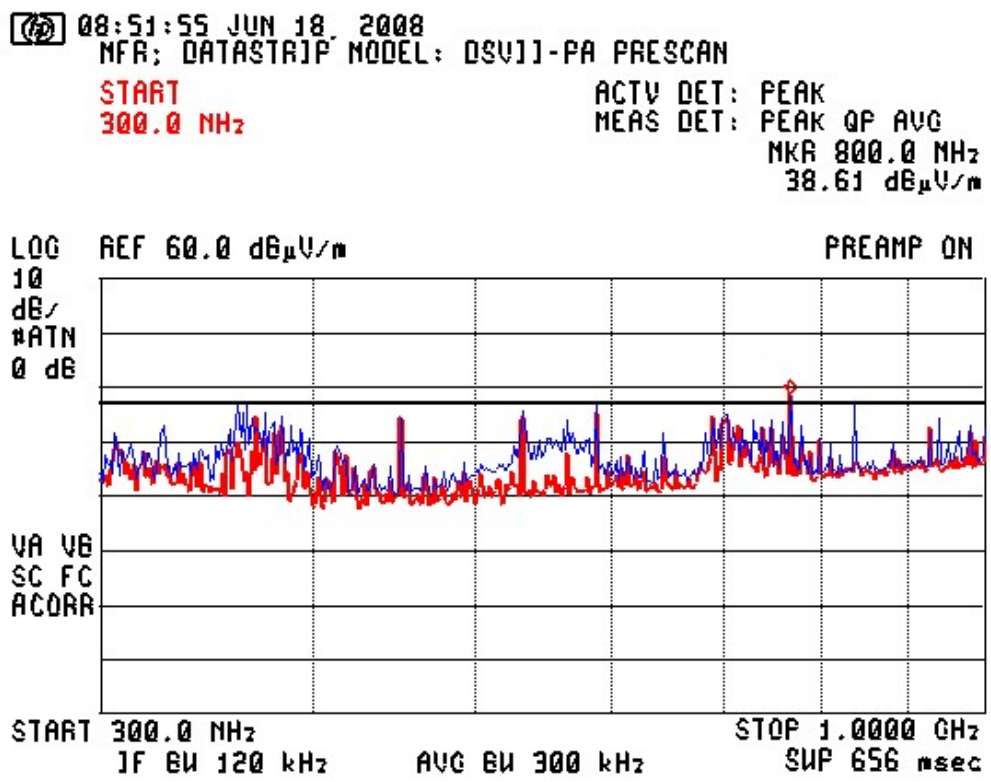
Vertical / Horizontal



NOTES:

Radiated Emissions Prescan

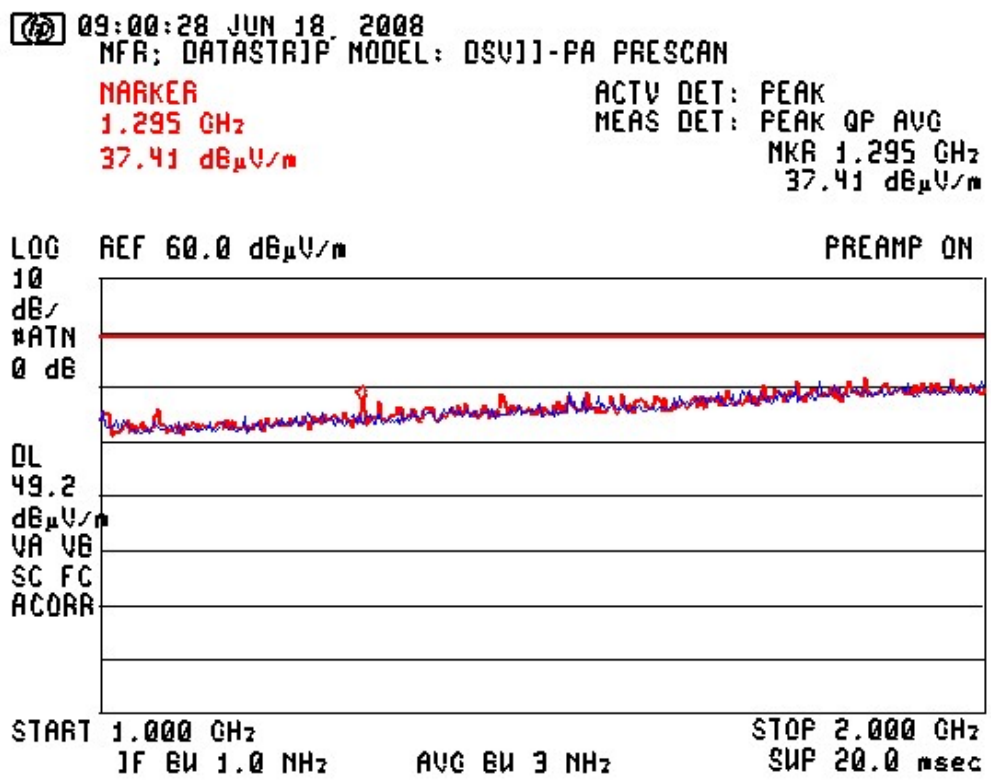
Vertical / Horizontal



NOTES:

Radiated Emissions Prescan

Vertical / Horizontal



4.2.6 Final Tabulated Data<30MHz

Radiated Emissions Measurements										
Standard:	47 CFR FCC Part 15.225(d) and FCC Part 15.209				***PRESCAN or FINAL:***		Final	***Date:***		
Device Tested:	Datastrip - DSVII-PA					***Distance:***	10m	***File Name:***	8/13/2008	
Mode:	Normal Operation								08081301 Fundamental.xls	
Mount:	Table Top									
Modifications:	NA									
Harmonics < 30MHz										
RBW = 9kHz VBW=30kHz										
Meas #	**Freq (MHz)**	**Measured Peak (dBµV/m)**	**Quasi-Peak**	**Average**	**Antenna + Cable Correction Factor (included in measurement)**	**QuaiPeak Limit**	**Quasi Peak D**	**Result**	**Orientation**	**Comments**
1	27.1216	17.5000	10.10	3.90	19.00	49.54	-39.44	**Complied**	X Orientation	
2	27.1217	16.2000	10.10	4.00	19.00	49.54	-39.44	**Complied**	Y Orientation	
3	27.1208	16.3000	10.00	3.90	19.00	49.54	-39.54	**Complied**	Z Orientation	
Tested by:	Dieter Baldamus									
TUV Rheinland of North America, Inc. 12 Commerce Road Newtown, CT 06470 Tel:(203) 426-0888 Fax: (203) 426-4009										
	Measured QP = QP Reading +Antenna Factor + Cable Loss Factors.									
		(factors are already included in the measured peak)								

4.2.7 Prescan Tabulated Data >30MHz

4.2.8 Final Tabulated Data>30MHz

Radiated Emissions Measurements												
Standard:	FCC Part 15.209					***PRESCAN or FINAL:***		Final	***Date:***	6/18/2009		
Device Tested:	Datastrip - DSVII-PA						***Distance:***	10m	***File .xls:***	08061801 Re Final		
		Measured Level										
Meas #	Freq (MHz)	Peak	Quasi-Peak	Average	Quasi-Peak Limit	Quasi-Peak Ξ	Antenna + Cable Correction Factor (included in measured levels)	Result	Antenna Polarization	Angle (degrees)	Antenna Height (meters)	Comment
1	94.6922	29.65	23.79	16.82	30.00	-6.21	9.47	Complied	Vertical	148	1.00	
2	203.4142	31.42	26.16	23.06	30.00	-3.84	11.66	Complied	Vertical	257	1.00	
3	216.9692	34.21	27.03	21.62	30.00	-2.97	12.07	Complied	Vertical	209	1.00	
4	230.5298	30.85	28.41	26.61	37.00	-8.59	12.91	Complied	Vertical	216	1.00	
5	299.9753	23.99	18.37	11.28	37.00	-18.63	13.40	Complied	Horizontal	177	2.12	
6	366.6443	29.22	24.83	20.88	37.00	-12.17	14.80	Complied	Horizontal	184	2.12	
7	399.9800	36.64	33.79	26.74	37.00	-3.21	16.09	Complied	Horizontal	124	2.54	
8	466.5448	20.01	14.58	7.70	37.00	-22.42	17.13	Complied	Horizontal	24	2.66	
9	**600.0000**	**40.14**	**34.62**	**27.84**	**37.00**	**-2.38**	**21.84**	**Complied**	**Horizontal**	**53**	**4.00**	**Maximum Emissions**
10	800.0600	32.05	27.09	21.63	37.00	-9.91	23.48	Complied	Horizontal	80	2.34	
Tested by:	Dieter Baldamus											
TUV Rheinland of North America, Inc. 12 Commerce Road Newtown, CT 06470 Tel:(203) 426-0888 Fax: (203) 426-4009												RE22_B.xlt Revised 21OCT05
		Measured QP = QP Reading +Antenna Factor + Cable Loss Factors.										
			(factors are already included in the measured peak)									

4.2.9 Photos

Figure 4 – Prescan Radiated Field Strength Emissions Test Setup (Semi-Anechoic Chamber)

Figure 5 – Final Radiated Field Strength Emissions Test Setup (O.A.T.S.)

4.3 Conducted Emissions

This test measures the electromagnet levels of spurious signals generated by the EUT on the AC power line that may affect the performance of other near by electronic equipment.

4.3.1 Over View of Test

Results	**Complies** (as tested per this report)					**Date**	08/10/2008
Standard	FCC Part 15.207						
Product Model	DSVII-PA			**Serial#**	DSVIISCBK061100657		
Configuration	See test plan for details						
Test Set-up	Tested in shielded room EUT placed on table see test plans for details						
EUT Powered By	120V/60Hz	**Temp**	22º C	**Humidity**	45%	**Pressure**	1004mbar
Frequency Range	150kHz – 30MHz						
Perf. Criteria	Below Limit			**Perf. Verification**	Readings Under Limit for L1 and L2		
Mod. to EUT	None			**Test Performed By**	Dieter Baldamus		

4.3.2 Test Procedure

Conducted emissions tests were performed using the procedures of ANSI C63.4 including methods for signal maximizations and EUT configuration. The photos included with the report show the EUT in its maximized configuration.

The frequency range from 150kHz to 30MHz was investigated for conducted emissions.

Conducted Emissions measurements were performed in the shielded room using procedures specified in the test plan and standard.

4.3.3 Deviations

There were no deviations from the test methodology listed in the test plan for the conducted emission test.

4.3.4 Final Test

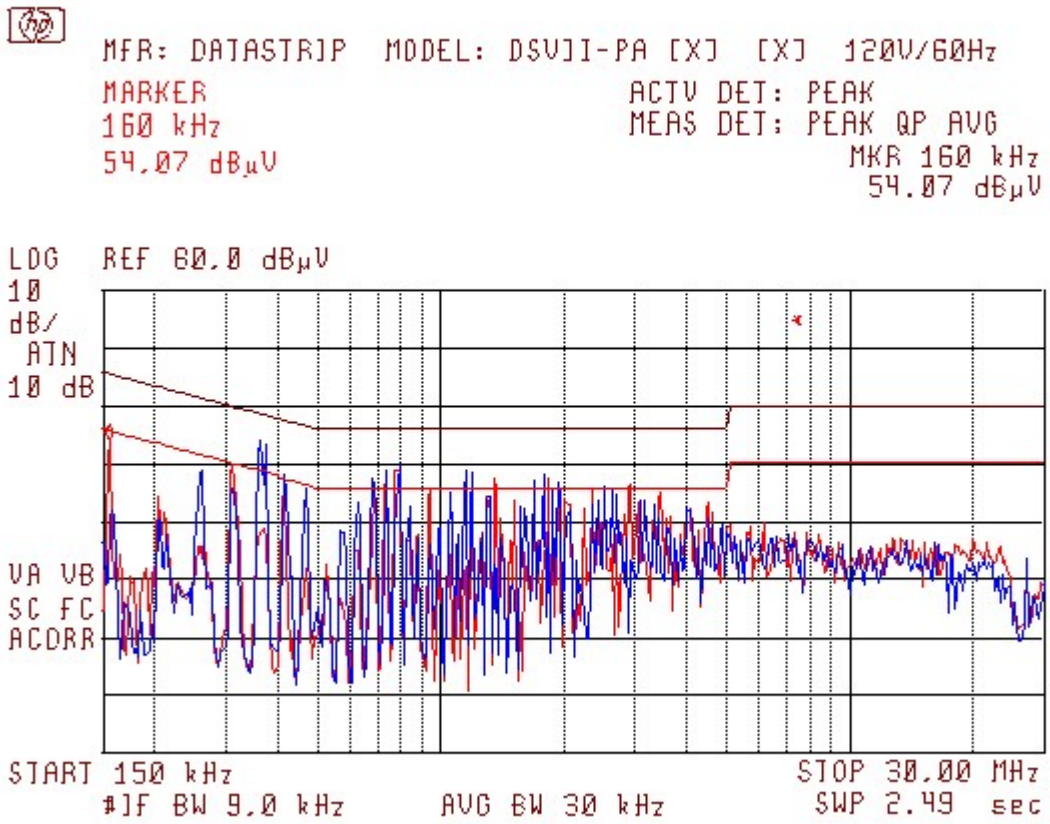
All final conducted emissions measurements were below (in compliance) the limits.

4.3.5 Final Graphs

NOTES:

Conducted Emissions @ 120V/60Hz

Line / Neutral



4.3.6 Final Tabulated Data at 120V/60Hz

Conducted Emissions Measurements												
Standard:	EN55022:1998, Class B/FCC Part 15.107 (a)									***Date:***	6/20/2008	
Device Tested:	Datastrip DSVII-PA									***File: .xls***	08062001 CE 120V.xls	
Voltage:	120V/60Hz											
Signal Num	Freq	Peak Amp	QP Amp	Avg Amp	QP Limit	Avg Limit	Conductor	QP H	QP Result	Avg H	Average Result	Mode
	MHz	dBuV	dBuV	dBuV	dBuV	dBuV		dB		dB		
1	0.1585	53.56	52.56	40.35	65.54	55.54	Line	-12.98	Complied	-15.19	Complied	
2	0.2650	52.78	51.85	46.75	61.27	51.27	Line	-9.42	Complied	-4.52	Complied	
3	0.6867	46.40	45.49	41.55	56.00	46.00	Line	-10.51	Complied	-4.45	Complied	
4	**1.1102**	**46.83**	**46.06**	**42.07**	**56.00**	**46.00**	**Line**	**-9.94**	**Complied**	**-3.93**	**Complied**	**Maximum Emissions**
5	2.0084	45.21	44.28	40.18	56.00	46.00	Line	-11.72	Complied	-5.82	Complied	
6	13.6377	43.61	41.33	35.86	60.00	50.00	Line	-18.67	Complied	-14.14	Complied	
7	0.1592	53.24	52.44	41.57	65.51	55.51	Neutral	-13.07	Complied	-13.94	Complied	
8	0.2655	52.06	51.10	45.98	61.26	51.26	Neutral	-10.16	Complied	-5.28	Complied	
9	0.6882	45.97	45.28	41.73	56.00	46.00	Neutral	-10.72	Complied	-4.27	Complied	
10	1.0584	45.48	44.26	40.47	56.00	46.00	Neutral	-11.74	Complied	-5.53	Complied	
11	2.0106	44.57	43.63	39.71	56.00	46.00	Neutral	-12.37	Complied	-6.29	Complied	
12	13.4927	44.16	41.74	36.52	60.00	50.00	Neutral	-18.26	Complied	-13.48	Complied	
Tested by:	Dieter Baldamus											
TUV Rheinland of North America, Inc. 12 Commerce Road Newtown, CT 06470 Tel:(203) 426-0888 Fax: (203) 426-4009												CE22_B.xlt Revised 21OCT2005

4.3.7 Photos

Figure 6 –Conducted Emissions Test Setup (front)

4.4 Frequency Tolerance over Temperature and Voltage Variations

The frequency tolerance of the carrier signal shall be maintained within +/- .01% of the operating frequency over a temperature variation of -20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

4.4.1 Test Over View

Results	**Complies** (as tested per this report)				**Date**	06/11/2008	
Standard	FCC Part 15.225 e)						
Product Model	DSVII-PA			**Serial#**	DSVIISCBK061100657		
Configuration	See test plan for details						
Test Set-up	Tested in shielded room						
EUT Powered By	102VAC-138VAC	**Temp**	22º C	**Humidity**	45%	**Pressure**	1001mbar
Perf. Criteria	0.01% of operating frequency		**Perf. Verification**		Readings within Limit		
Mod to EUT	None		**Test Performed By**		Dieter Baldamus		

4.4.2 Test Procedure

The EUT was placed in a temperature chamber for the temperature variation test. Reading were made as per ANSI C63.4

Voltage variations tests were performed connecting the AC/DC adapter to a variable power supply. The EUT has also a battery so the set-up included a new battery. Readings were made as per ANSI C63.4.

4.4.3 Deviations

There were no deviations from the test methodology listed in the test plan for the frequency tolerance test.

4.4.4 Final Test

The Frequency Tolerance Test was within the limits (in compliance) specified in the standard.

4.4.5 Final Data

Frequency Stability Test - Temperature Variations						
Standard:	FCC Part 15.225 e)			***Date:***	6/11/2008	
Device Tested:	DSV-PA			***File:***	08061101 FreqVar.xls	
Customer:	Datastrip					
Temperature	**Start-up**	**2min**	**5min**	**10min**	**Permitted Band Edge in MHz (+/-0.01%)**	**Results**
-20°C	13.56088	13.56075	13.56088	13.56100	13.5586-13.5614MHz	**Complied**
0° C	13.56130	13.56130	13.56110	13.56130	13.5586-13.5614MHz	**Complied**
55° C	13.56088	13.56088	13.56075	13.56088	13.5586-13.5614MHz	**Complied**
Tested by:	Dieter Baldamus					
TUV Rheinland of North America, Inc. 12 Commerce Road Newtown, CT 06470 Tel:(203) 426-0888 Fax: (203) 426-4009						
FCC TempStab.xlt Revised 24APR08						

Frequency Stability Test - Voltage Variations						
Standard:	FCC Part 15.225 e)			***Date:***	6/11/2008	
Device Tested:	DSVII-PA			***File:***	08061101 FreqVar.xls	
Customer:	Datastrip					
Temperature	**Start-up**	**2min**	**5min**	**10min**	**Permitted Band Edge in MHz (+/-0.01%)**	**Results**
102 V(85%)	13.56130	13.56130	13.56110	13.56130	13.5586-13.5614MHz	**Complied**
120V (100%)	13.56130	13.56130	13.56110	13.56130	13.5586-13.5614MHz	**Complied**
138V (115%)	13.56130	13.56110	13.56130	13.56080	13.5586-13.5614MHz	**Complied**
Tested by:	Dieter Baldamus					
TUV Rheinland of North America, Inc. 12 Commerce Road Newtown, CT 06470 Tel:(203) 426-0888 Fax: (203) 426-4009						
FCC TempStab.xlt Revised 24APR08						

4.4.6 Photos

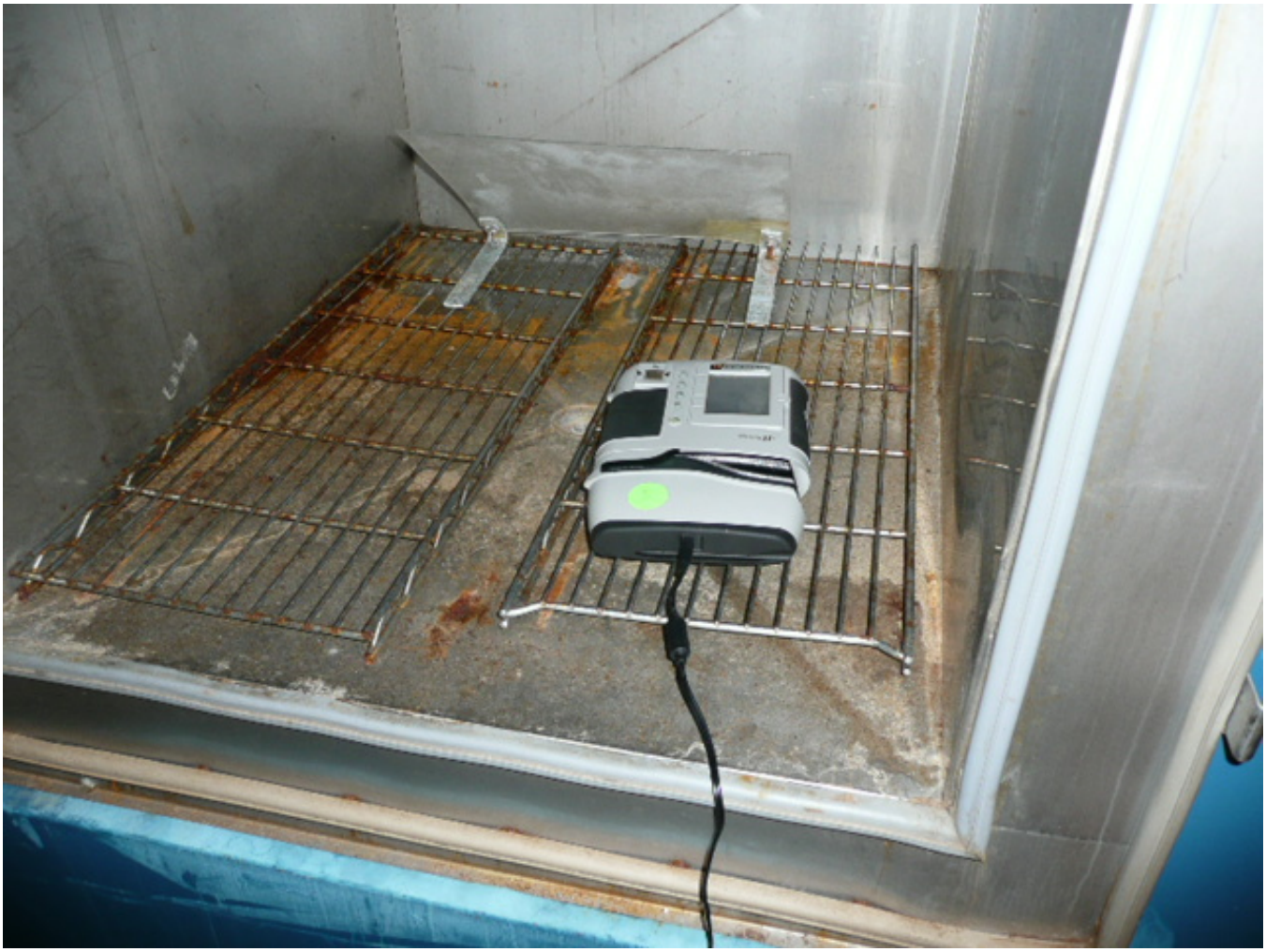


Figure 7 –-20°C Temperature Test Setup

Figure 8 –+50°C Temperature Test Setup

Figure 9 –Voltage Variation Test Setup

4.5 Band Edge Measurement

This test evaluates the potential for the EUT to cause voltage fluctuation and flicker impressed on the public AC low-voltage system.

4.5.1 Test Over View

Results	**Complies** (as tested per this report)				**Date**	08/12/2008	
Standard	FCC Part 215 c)/RSS-210						
Product Model	DSVII-PA			**Serial#**	DSVIISCBK061100657		
Configuration	See test plan for details						
Test Set-up	Tested in OATS EUT placed on table See test plan for details						
EUT Powered By	120V/60Hz	**Temp**	22º C	**Humidity**	45%	**Pressure**	1001mbar
Perf. Criteria	6dB and 99% Band Edge		**Perf. Verification**		Readings within Limit		
Mod to EUT	None		**Test Performed By**		Dieter Baldamus		

4.5.2 Test Procedure

Radiated field strength emissions tests were performed using the procedures of ANSI C63.4 including methods for signal maximizations and EUT configuration. The photos included with the report show the EUT in its maximized configuration. Testing was performed at a distance of 10 meters on the OATS Deviations. Reading were made at 6dB and 99% of the fundamental signal.

4.5.3 Deviations

There were no deviations from the test methodology listed in the test plan for the band edge measurement test.

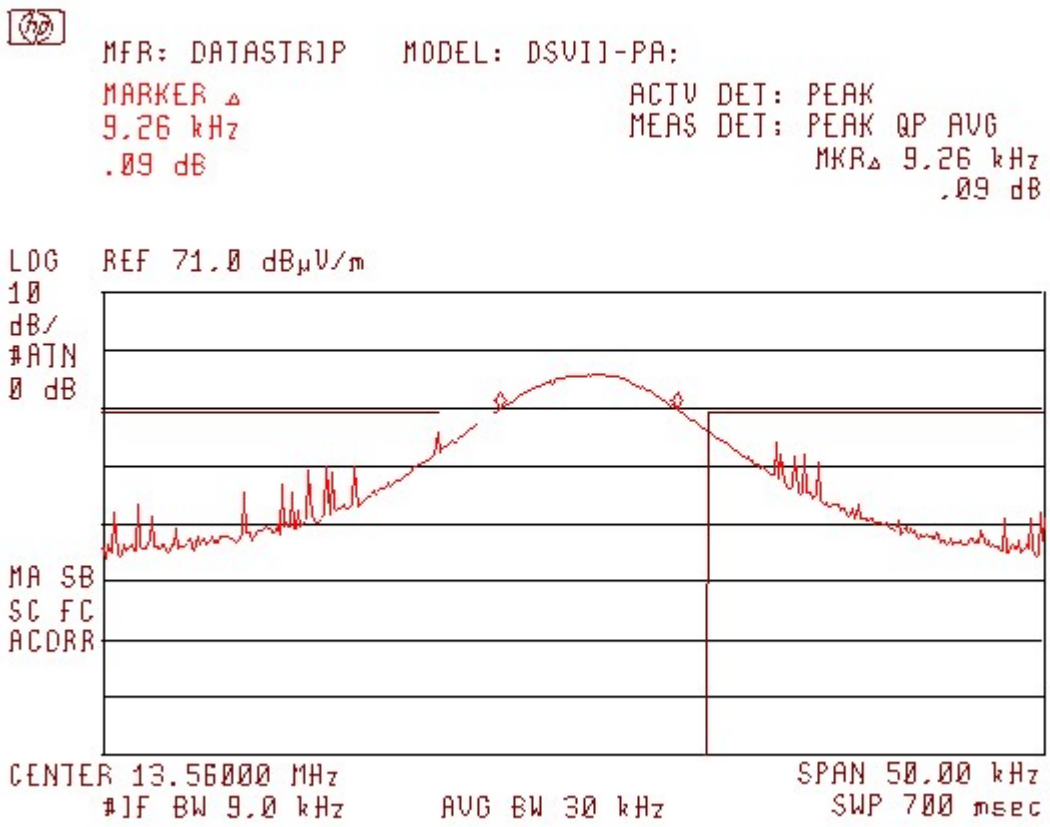
4.5.4 Final Test

The Band Edge Measurements were within the limits specified in the standard.

4.5.5 Final Graphs

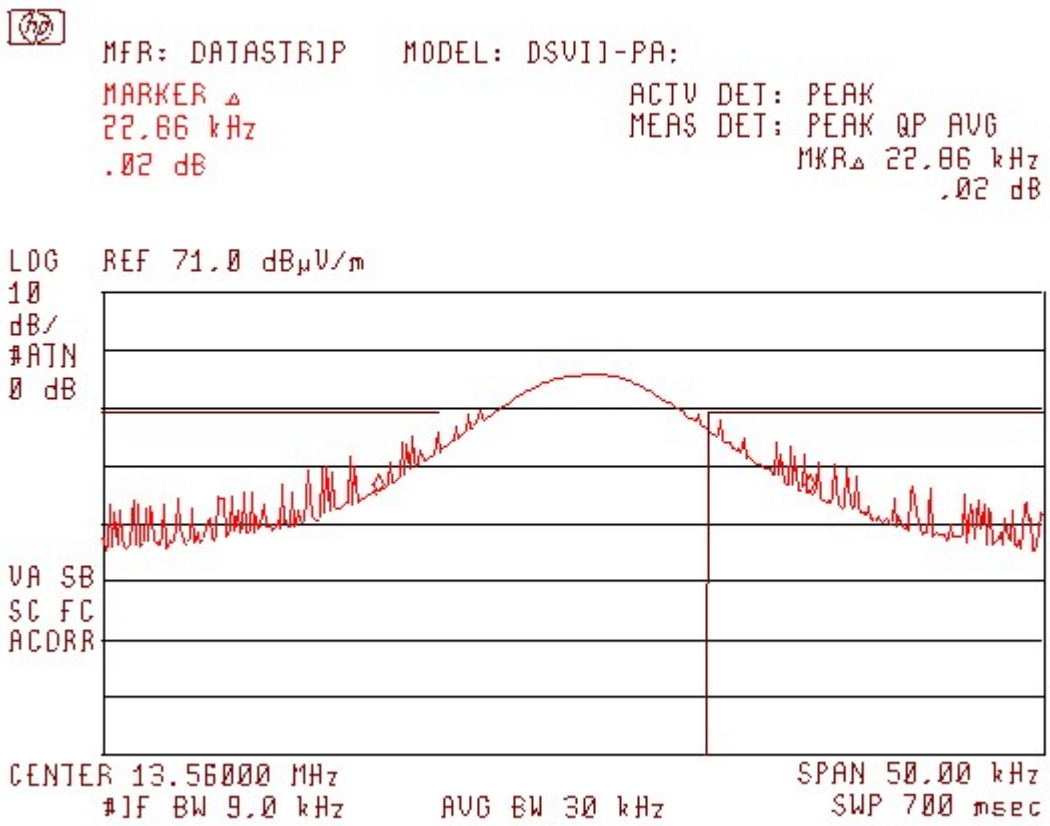
NOTES:

Emission Bandwidth
6dB Measurement
Y-Orientation



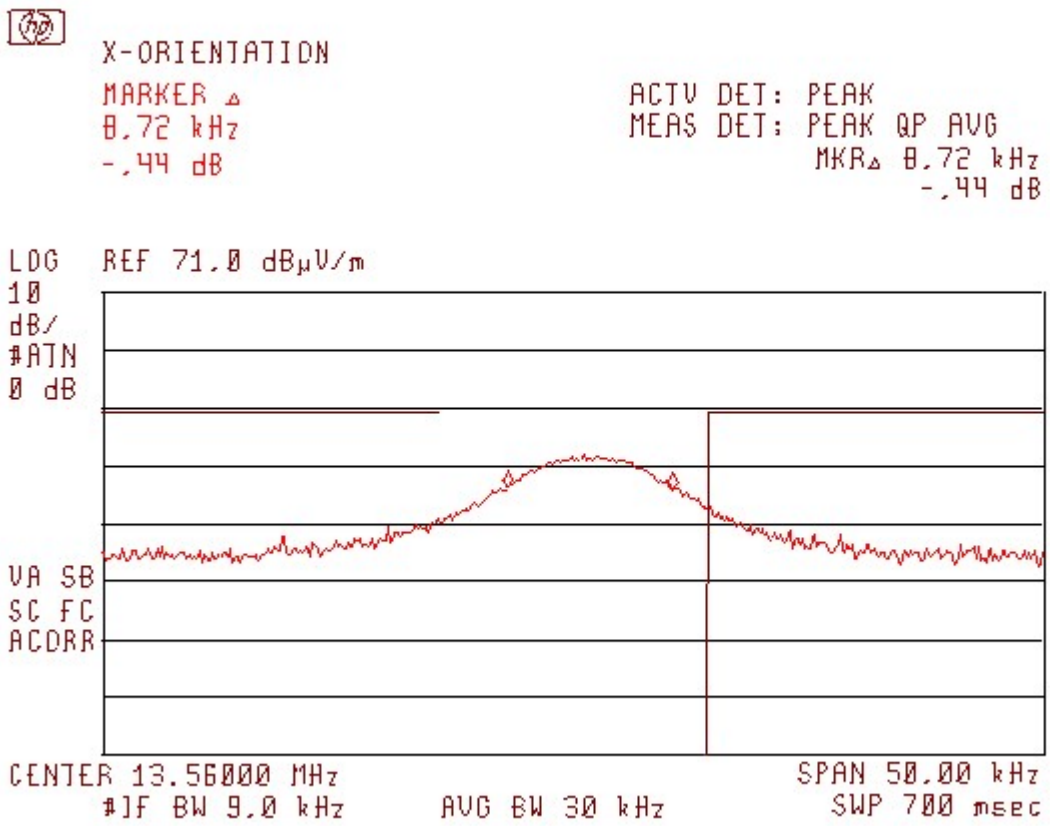
NOTES:

Emission Bandwidth
99%dB Measurement
Y-Orientation/Horizontal Mount



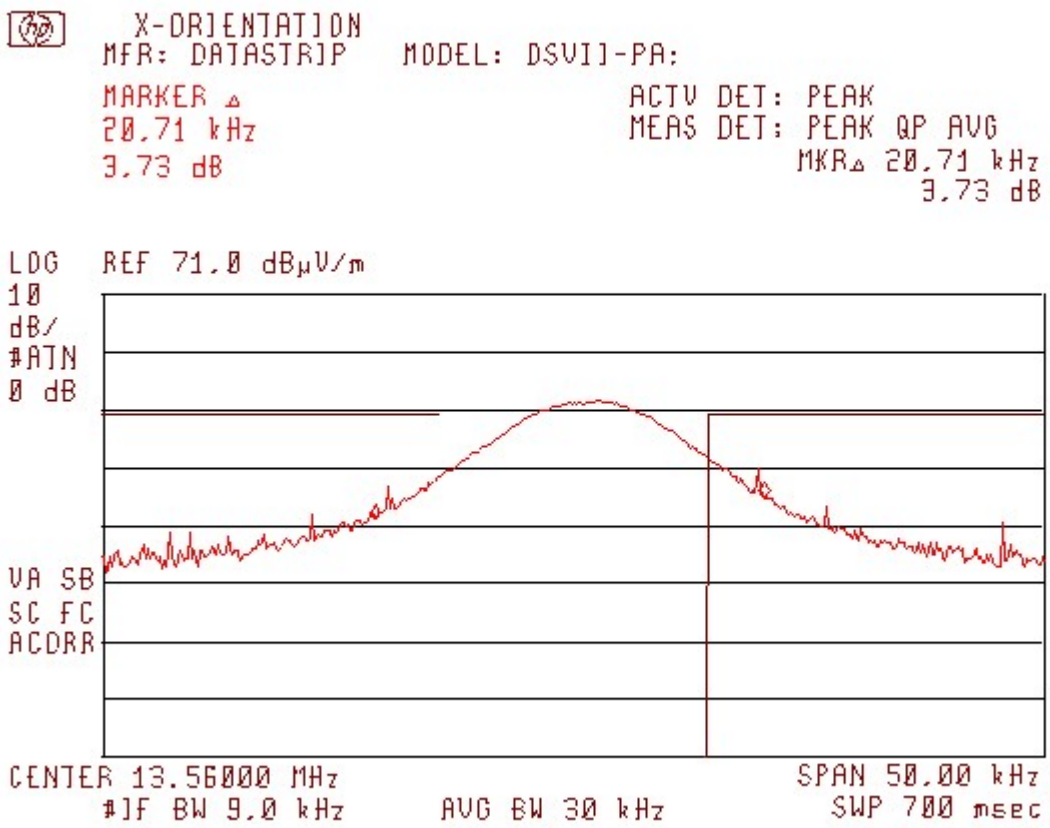
NOTES:

Emission Bandwidth
6dB Measurement
X-Orientation



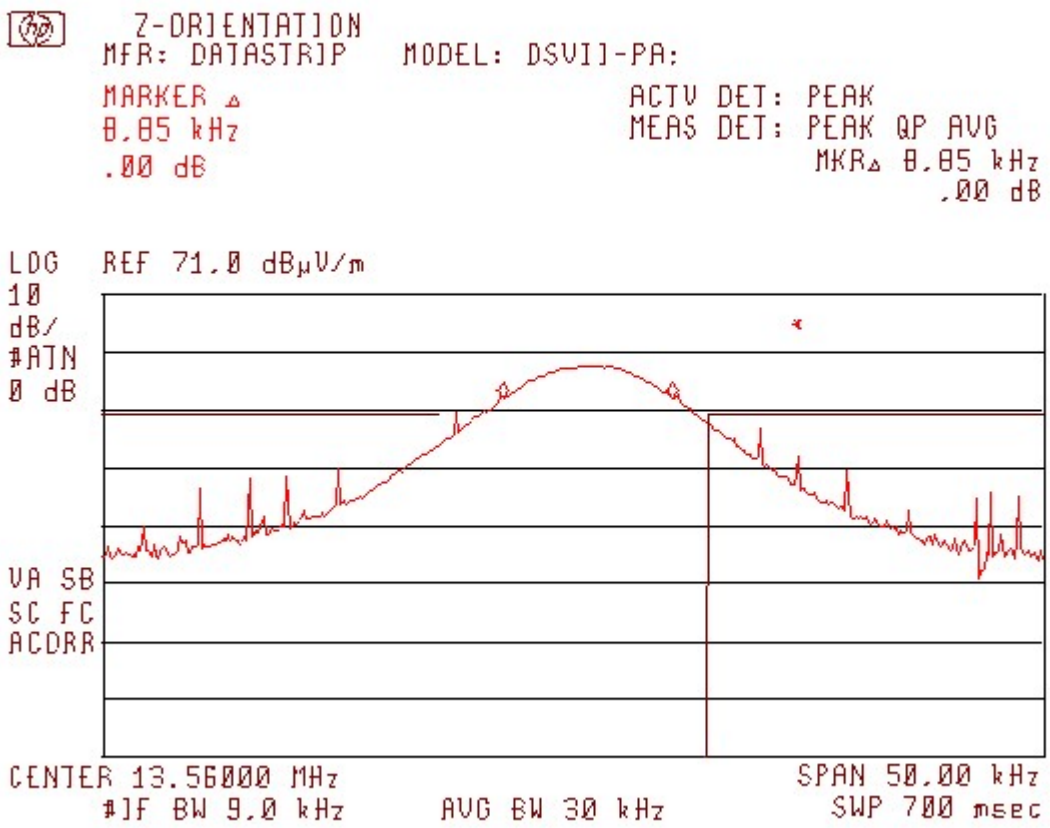
NOTES:

Emission Bandwidth
99% Measurement
X-Orientation



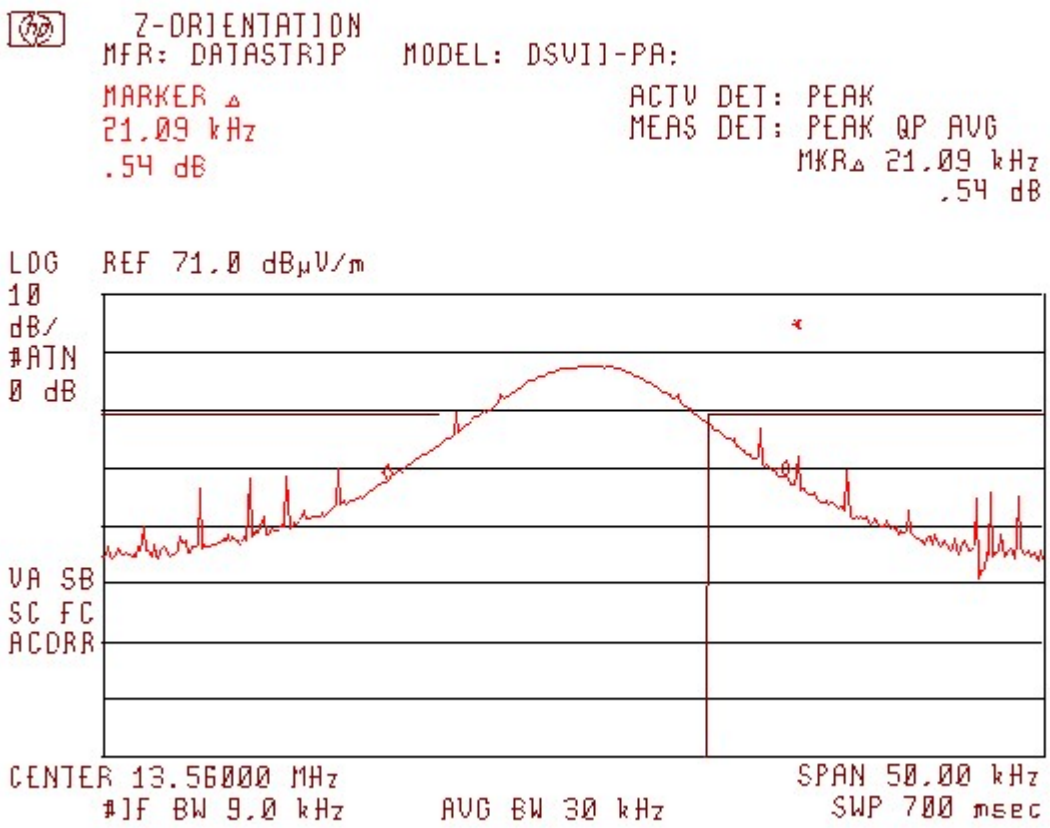
NOTES:

Emission Bandwidth
6dB Measurement
Z-Orientation



NOTES:

Emission Bandwidth
99% Measurement
Z-Orientation



4.5.6 Final Tabulated Data

Radiated Emissions Measurements											
Standard:	47 CFR FCC Part 15.215 c)/RSS-210					***PRESCAN or FINAL:***		Final		***Date:***	5/13/2008
Device Tested:	Datastrip - DSVII+ Turbo						***Distance:***	10m		***File Name:***	08061301Bandedge.xls
Mode:	Normal Operation										
Mount:	Table Top										
Modifications:	NA										
		Measured Level									
Meas #	TX Band	Peak Measurement (dBµV/m)	-6dB Low End (MHz)	-6dB High End (MHz)	6dB Measured Bandwith (kHz)	-20dB High End (MHz)	+20dB High End (MHz)	99% Measured Bandwith (kHz)	Result	Orientation (X,Y,Z)	Comment
RBW = 9kHz VBW=30kHz											
1	13.5608	48.31	13.5561	13.5655	9.4200	13.5491	13.5729	23.8000	**Complied**	X Orientation	
2	13.5618	52.20	13.5563	13.5655	9.2600	13.5423	13.5799	37.6000	**Complied**	Y Orientation	
3	13.5608	49.06	13.5559	13.5655	9.5300	13.5470	13.5752	28.1700	**Complied**	Z Orientation	
Tested by:	Dieter Baldamus										
TUV Rheinland of North America, Inc. 12 Commerce Road Newtown, CT 06470 Tel:(203) 426-0888 Fax: (203) 426-4009											

4.5.7 Photos

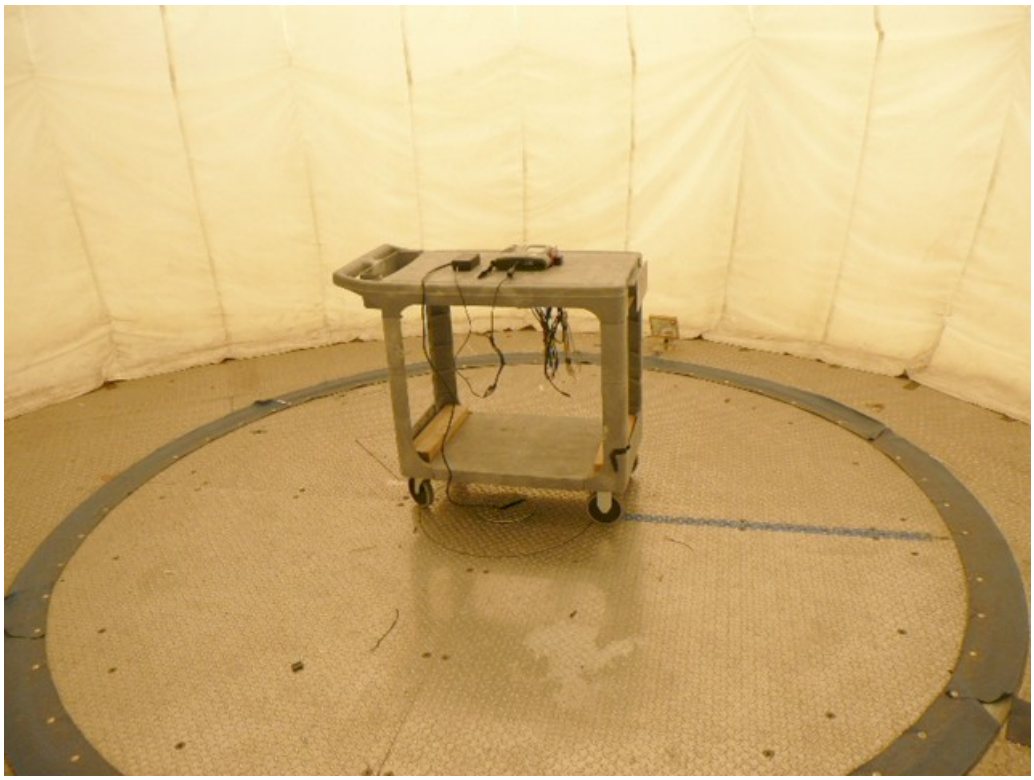


Figure 10 –Band Edge Measurement

Appendix A

5 Test Plan

This test report is intended to follow this test plan outlined here in unless other wise stated in this here report. The following test plan will give details on product information, standards to be used, test set ups and refer to TUV test procedures. The test procedures will give the steps to be taken when performing the stated test. The product information below came via client, product manual, product itself and or the internet.

5.1 General Information

Client	Datastrip Products, Inc.
Address	1 Waterview Drive
Address	Shelton, CT 06484
Contact Person	Martin Doyle
Telephone	(203)922-9222
Fax	(203) 922-9334
e-mail	mdoyle@datastrip.net

5.2 Model(s) Name

DSVII-PA

5.3 Type of Product

Biometric Smart Card Reader

5.4 Equipment Under Test (EUT) Description

The DSVII-SC® is a portable, handheld computer specifically designed for security, law enforcement, border control and positive I.D. verification applications. It features the ability to interface with both contact and Contactless Smart Cards. An integrated fingerprint sensor enables biometric verification of identity.

Contactless Smart Cards conforming to ISO 14443A are read by means of a 13.56 MHz data transceiver. The transceiver antenna is integral to the device and is not end-user accessible. Contactless Smart Cards derive the power required to operate their internal circuitry and transmit responses from the received 13.56 MHz data carrier.

The data transceiver system utilizes the same printed circuit antenna for transmission and reception. The antenna is composed of two counter-wound printed coils with one end of each made common. The transceiver integrated circuit drives the antenna, a closed-loop magnetically coupled circuit, differentially. The received signal is coupled into the receive section of the transceiver IC by means of a resistive divider network.

Data from or to the transceiver IC is passed to a Smart Card Controller IC, which in turn connects to the general system via an internal USB bus. Operating DC power for the entire Smart card subsystem is received from the internal USB bus.

5.5 Modifications

No modifications were needed to bring product into compliance.

5.6 Product Environment

☐	**Residential**	☐	**Hospital**
☒	**Light Industrial**	☐	**Small Clinic**
☐	**Industrial**	☐	**Doctor's office**
☐	**Other**		

*Check all that apply

5.7 Countries

☒	**USA**
☐	**Taiwan**
☐	**Japan**
☐	**Europe**

*Check all that apply

5.8 Applicable Documents

Standards	Description
FCC Part 15 C	Radio Frequency Devices – Subpart C: Intentional radiators
FCC Part 15.225	Operation within the band 13.110-14.010 MHz.
FCC Part 15.225 a)	Field Strength Emissions within 13.553-13.567MHz
FCC Part 15.225 b)	Field Strength Emissions between 13.410 - 15.553MHz and 13.567 -13.710 MHz
FCC Part 15.225 c)	Field Strength Emissions between 13.110-13.410 MHz and 13.710 -14.010 MHz
FCC Part 15.225 d)	Field Strength Outside the 13.110-14.010MHz
FCC Part 15.225 e)	Frequency tolerance over -20 - +50 C at normal power supply and for 85% and 115% of rated supply voltage
FCC Part 15.225 f)	Frequency Powered tags
FCC Part 15.207	Conducted Emissions
FCC Part 15.205, Part 15.209 and Part 15.215 b)	Radiated Emissions
FCC part 15.215 c)	20dB Bandwith

5.9 General Product Information

Size	**H**	7.3”	**W**	7.3”	**L**	2.0”	
Weight	2.1lbs		**Fork-Lift Needed**		No		
Notes	None						

5.10 EUT Electrical Powered Information

5.10.1 Electrical Power Type

☐	**AC**	☒	**DC**	☐	**Batteries**	☐	**Host -**

5.10.2 Electrical Power Information

Name	**Type**	**Voltage**		**Frequency**	**Current**	**Notes**
		min	**max**			
AC/Dc Adapter	DC	12	19	NA	2.0	NA
Notes	None					

5.11 EUT Modes of Operation

To set the EUT up for testing, the file dslogo_film.wmv should be copied to a Compact Flash storage card. From the desktop, double tap the touchscreen icon “My Computer”. Double tap the “Storage Card 2” icon. Double tap the file dslogo_film.wmv Windows media Player 9 will start and the spinning Datastrip logo will be displayed. Pull down the Playback menu and select Repeat. The animation should run indefinitely.

5.12 EUT Clock/Oscillator Frequencies

☒	**Less than 108MHz**	**FCC – scan up to 1GHz**
☐	**Less than 500MHz**	**FCC – scan up to 2GHz**
☐	**Less than 1000MHz**	**FCC – scan up to 5GHz**
☐	**Greater then 1000MHz**	**FCC – scan up to 5th Harmonic or 40GHz**

5.13 Electrical Support Equipment

Type	Manufacture	Model	Connected To
None			

5.14 Non - Electrical Support Equipment

Item	Notes
None	

5.15 EUT Equipment/Cabling Information

EUT Port	Connected To	Location	Cable Type		
			Length	Shielded	Bead
DC Input	AC/DC Adapter	Bottom	1.5m	No	No
USB port (2)	None	Top	1.5m	No	No
USB Port 1.0	None	Top	1.5m	No	No
LAN	None	Top	1.5m	No	No

5.16 EUT Test Program

Typical operating condition for the EUT would be power on, operating system loaded and desktop visible on the display. For RF Immunity testing, a moving video animation (such as dslogo_film.wmv) can be displayed on the screen. Continued motion of the animation indicates that the system is functioning normally. The animation should run continually for an indefinite period of time.

5.17 Monitoring of EUT during Testing

Visual observation of the EUT's display.

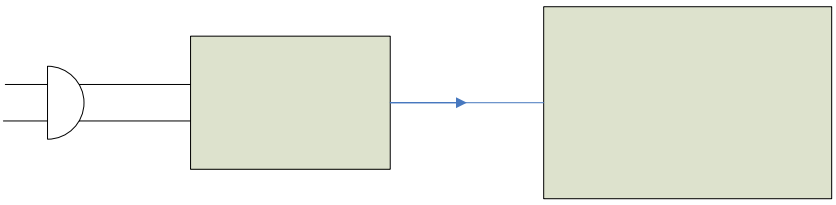
5.18 EUT Configuration

5.18.1 Description

The EUT is a handheld portable device. It can be operated while being held in the hand or lying flat on a desk or table top. The AC Adapter may or may not be used in either operating mode.

Configuration	Description
Configuration 1	Continuous Reading of ID Card
Notes	All configurations are the same except as noted above

5.18.2 Block Diagram



5.19 Constructional Data Form

TUV Rheinland of North America, Inc. 12 Commerce Road Newtown CT, 06470 U.S.A.	EMC Constructional Data Form		
	Certificate	Document Number 30871757.001 Datastrip - DSVII-PA (Radio).doc	Pages 1 of 1

Item Listing No. & Location in EUT	Component / Sub-Assembly	Part No. & Description	Freq.; Rated ERP/Atten.
1	Datastrip, Inc.	2011-00001	6.00 MHz, 9.8304MHz, 12.00MHz, 13.56MHz, 32.768MHz
2	Datastrip, Inc.	3090-01120-03	NA