7Layers

for

Smart Modular Technologies

naviPlay iPod Adapter

naviPlay Stereo Remote

December 8, 2004

Report No. 7LAY0028

Report Prepared By

www.nwemc.com
1-888-EMI-CERT

EMC Test Report

NORTHWEST EMC

22975 NW Evergreen Parkway
Suite 400
Hillsboro, Oregon 97124

Certificate of Test

Issue Date: December 8, 2004
Smart Modular Technologies
Model NIA.S10 naviPlay iPod Adapter
Model NSR.H100 naviPlay Stereo Remote

Emissions			
Specification	**Test Method**	**Pass**	**Fail**
FCC 15.247(a) Occupied Bandwidth:2004	ANSI C63.4:2003	☒	☐
FCC 15.247(b) Output Power:2004	ANSI C63.4:2003	☒	☐
FCC 15.247(c) Band Edge Compliance:2004	ANSI C63.4:2003	☒	☐
FCC 15.247(c) Spurious Conducted Emissions:2004	ANSI C63.4:2003	☒	☐
FCC 15.247(c) Spurious Radiated Emissions:2004	ANSI C63.4:2003	☒	☐
FCC 15.247(d) Power Spectral Density:2004	ANSI C63.4:2003	☒	☐
FCC 15.207 AC Power Line Conducted Emissions:2004	ANSI C63.4:2003	☒	☐

Modifications made to the product
See the Modifications section of this report

Test Facility
The measurement facilities used to collect the data is located at:

Northwest EMC, Inc.
22975 NW Evergreen Parkway, Suite 400; Hillsboro, OR 97124
Phone: (503) 844-4066
Fax: 844-3826

Northwest EMC, Inc.
41 Tesla, Irvine, CA 92618
Phone: (949) 861-8918
Fax: 861-8923

The sites have been fully described in a report filed with and accepted by the FCC (Federal Communications Commission) and Industry Canada.

Approved By:

Don Facteau, IS Manager

This report must not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government of the United States of America.

Product compliance is the responsibility of the client, therefore the tests and equipment modes of operation represented in this report were agreed upon by the client, prior to testing. This Report may only be duplicated in its entirety. The results of this test pertain only to the sample(s) tested, the specific description is noted in each of the individual sections of the test report supporting this certificate of test.

Revision Number	Description	Date	Page Number
00	None		

FCC: Accredited by NVLAP for performance of FCC radio, digital, and ISM device testing. Our Open Area Test Sites, certification chambers, and conducted measurement facilities, have been fully described in reports filed with the FCC and accepted by the FCC in letters maintained in our files. Northwest EMC has been accredited by ANSI to ISO / IEC Guide 65 as a product certifier. We have been designated by the FCC as a Telecommunications Certification Body (TCB). This allows Northwest EMC to certify transmitters to FCC specifications in accordance with 47 CFR 2.960 and 2.962.

NVLAP: Northwest EMC, Inc. is recognized under the United States Department of Commerce, National Institute of Standards and Technology, National Voluntary Laboratory Accreditation Program for satisfactory compliance with the requirements of ISO/IEC 17025 for Testing Laboratories. The NVLAP accreditation encompasses Electromagnetic Compatibility Testing in accordance with the European Union EMC Directive 89/336/EEC, ANSI C63.4, MIL-STD 461E, DO-160D and SAE J1113. Additionally, Northwest EMC is accredited by NVLAP to perform radio testing in accordance with the European Union R&TTE Directive 1999/5/EEC, the requirements of FCC, and the RSS radio standards for Industry Canada. Accreditation has been granted to Northwest EMC, Inc. under Certificate Numbers: 200629-0, 200630-0, and 200676-0.

Industry Canada: Accredited by NVLAP for performance of Industry Canada RSS and ICES testing. Our Open Area Test Sites and certification chambers comply with RSS 212, Issue 1 (Provisional) and have been filed with Industry Canada and accepted. Northwest EMC has been accredited by ANSI to ISO / IEC Guide 65 as a product certifier. We have been designated by NIST and recognized by Industry Canada as a Certification Body (CB) per the APEC Mutual Recognition Arrangement (MRA). This allows Northwest EMC to certify transmitters to Industry Canada technical requirements.

CAB: Designated by NIST and validated by the European Commission as a Conformity Assessment Body (CAB) to conduct tests and approve products to the EMC directive and transmitters to the R&TTE directive, as described in the U.S. - EU Mutual Recognition Agreement

TÜV Product Service: Included in TUV Product Service Group's Listing of Recognized Laboratories. It qualifies in connection with the TUV Certification after Recognition of Agent's Testing Program for the product categories and/or standards shown in TUV's current Listing of CARAT Laboratories available from TUV. A certificate was issued to represent that this laboratory continues to meet TUV's CARAT Program requirements. Certificate No. USA0401C

Accreditations and Authorizations

TÜV Rheinland: Authorized to carryout EMC tests by order and under supervision of TÜV Rheinland. This authorization is based on "Conditions for EMC-Subcontractors" of November 1992.

NEMKO: Assessed and accredited by NEMKO (Norwegian testing and certification body) for European emissions and immunity testing. As a result of NEMKO's laboratory assessment, they will accept test results from Northwest EMC, Inc. for product certification (Authorization No. ELA 119).

Technology International: Assessed in accordance with ISO Guide 25 defining the general international requirements for the competence of calibration and testing laboratories and with ITI assessment criteria LACO196. Based upon that assessment Interference Technology International, Ltd., has granted approval for specifications implementing the EU Directive on EMC (89/336/EEC and amendments). The scope of the approval was provided on a Schedule of Assessment supplied with the certificate and is available upon request.

Australia/New Zealand: The National Association of Testing Authorities (NATA), Australia has been appointed by the ACA as an accreditation body to accredit test laboratories and competent bodies for EMC standards. Accredited test reports or assessments by competent bodies must carry the NATA logo. Test reports made by an overseas laboratory that has been accredited for the relevant standards by an overseas accreditation body that has a Mutual Recognition Agreement (MRA) with NATA are also accepted as technical grounds for product conformity. The report should be endorsed with the respective logo of the accreditation body. (NVLAP)

VCCI: Accepted as an Associate Member to the VCCI, Acceptance No. 564. Conducted and radiated measurement facilities have been registered in accordance with Regulations for Voluntary Control Measures, Article 8. *(Registration Nos. - Hillsboro: C-1071 and R-1025, Irvine: C-2094 and R-1943, Newberg: C-1877 and R-1760, Sultan: R-871, C-1784 and R-1761)*

BSMI: Northwest EMC has been designated by NIST and validated by C-Taipei (BSMI) as a CAB to conduct tests as described in the APEC Mutual Recognition Agreement. License No.SL2-IN-E-1017.

GOST: Northwest EMC, Inc. has been assessed and accredited by the Russian Certification bodies Certinform VNIINMASH, CERTINFO, SAMTES, and Federal CHEC, to perform EMC and Hygienic testing for Information Technology Products. As a result of their laboratory assessment, they will accept test results from Northwest EMC, Inc. for product certification

SCOPE

For details on the Scopes of our Accreditations, please visit:
http://www.nwemc.com/scope.asp

Explanation of Northwest EMC Performance Criteria

How important is it to understand performance criteria?

It is the responsibility of the test laboratory to observe the results of the tests that are performed and to accurately report those results. As the responsible party (manufacturer, importer, etc) it is your responsibility to take those results, compare them against the specifications and standards, then, if appropriate make a declaration of conformity. As the responsible party it makes sense that you are fully aware of the requirements, how your device performs when tested to those requirements, and what information is being used to declare conformity.

To better assist you in making those conformity decisions, Northwest EMC has adopted a very simple, yet very clear performance assessment procedure. The following criteria is used when performing immunity or susceptibility tests:

Performance Criteria 1:

- The EUT exhibited no change in performance when operating as specified by the manufacturer. In this case no changes were observed during the test.
- In most cases this would be equivalent to Performance Criteria A. When operating the equipment in the modes or configurations specified by the responsible party, monitoring the parameters specified, no changes were observed. Basically nothing happened.

Performance Criteria 2:

- The EUT exhibited a change in performance when operating as specified by the manufacturer. In this case the equipment recovered without any operator intervention. The data sheets will detail the exact phenomena observed.
- In most cases this would be equivalent to Performance Criteria B. When operating the equipment in the modes or configurations specified by the responsible party, monitoring the parameters specified, changes were observed. The EUT was able to recover from those changes without any operator intervention.

Performance Criteria 3:

- The EUT exhibited a change in performance when operating as specified by the manufacturer. In this case the equipment required some operator intervention in order to recover. This intervention may be in the form of reducing the test levels, changing parameters, or even resetting the system. The data sheets will detail the exact phenomena observed.
- In most cases this would be equivalent to Performance Criteria C. When operating the equipment in the modes or configurations specified by the responsible party, monitoring the parameters specified, changes were observed. The EUT required some sort of operator intervention to recover. There was no permanent damage and the EUT appeared to function normally after completion test.

Performance Criteria 4:

- The EUT exhibited a change in performance when operating as specified by the manufacturer. In this case the equipment was damaged and would not recover. The data sheets will detail the exact phenomena observed.
- In most cases there is no specific criterion to compare this to, it typically ends the test. When operating the equipment in the modes or configurations specified by the responsible party, monitoring the parameters specified, changes were observed. There was no recovery; the equipment would no longer function as intended.

Each of the standards and specifications has unique performance criteria. In order to make an accurate assessment, one must compare the test results provided with the specific performance criteria. **To ensure that a responsible party is compliant with the specifications, one must read and understand those specifications. Provided below is a sample performance criteria, taken from EN 50082-1.**

EN 50082-1 Performance Criteria

Performance Criteria A: *The apparatus shall continue to operate as intended. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation and what the user may reasonably expect from the apparatus if used as intended.*

Performance Criteria B: *The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. The performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is allowed. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation and what the user may reasonably expect from the apparatus if used as intended.*

Performance Criteria C: *Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of controls.*

How should a device perform in order for a declaration of conformity to be made?

As already stated, it is the responsible party that must interpret and understand the results in such a way that a declaration of conformity is made. Having said that, we are often asked to render our opinion as to how a device should perform. Our recommendation simply follows the standards, as can be referenced below. Most of the standards and specifications offer the same performance criterion shown below as their requirements.

Test	Performance Criteria typically specified by the Standard	Equivalent Northwest EMC Performance Criteria
ESD	Performance Criteria B	Performance Criteria 1 or 2
Radiated RF	Performance Criteria A	Performance Criteria 1
EFT/Burst	Performance Criteria B	Performance Criteria 1 or 2
Surge	Performance Criteria B	Performance Criteria 1 or 2
Conducted RF	Performance Criteria A	Performance Criteria 1
Magnetic Field	Performance Criteria A	Performance Criteria 1
Voltage Dips and Variations	Performance Criteria B & C	Performance Criteria 1, 2, or 3

What is measurement uncertainty?

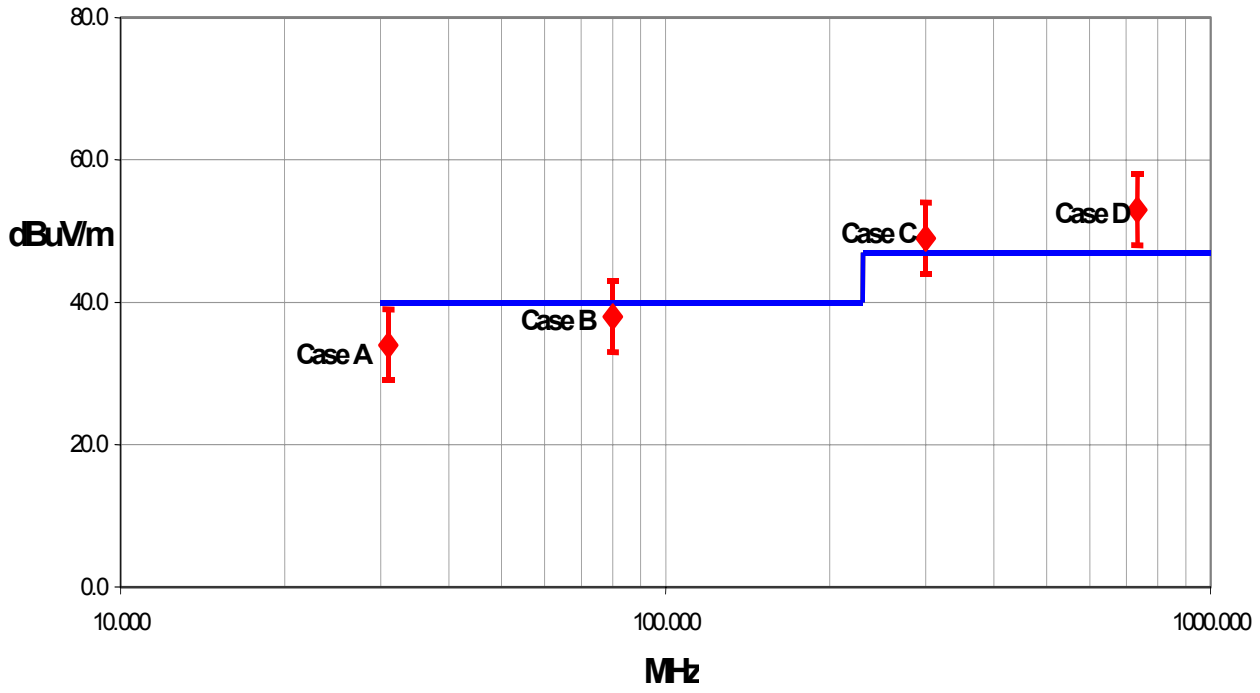
When a measurement is made, the result will be different from the true or theoretically correct value. The difference is the result of tolerances in the measurement system that cannot be completely eliminated. To the extent that technology allows us, it has been our aim to minimize this error. The following statement of measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" value. In the case of transient tests (ESD, EFT, Surge, Voltage Dips and Interruptions), the test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements.

The following documents were the basis for determining the uncertainty levels of our measurements:

- "ISO Guide to the Expression of Uncertainty in Measurements", October 1993
- "NIS81: The Treatment of Uncertainty in EMC Measurements", May 1994
- "IEC CISPR 16-3 A1 f1 Ed.1: Radio-interference measurements and statistical techniques", December 2000

How might measurement uncertainty be applied to test results?

If the diamond marks the measured value for the test and the vertical bars bracket the range of + and – measurement uncertainty, then test results can be interpreted from the diagram below.



Test Result Scenarios:
Case A: Product complies.
Case B: Product conditionally complies. It is not possible to say with 95% confidence that the product complies.
Case C: Product conditionally does not comply. It is not possible to say with 95% confidence that the product does not comply.
Case D: Product does not comply.

Radiated Emissions ≤ 1 GHz		Value (dB)					
	Probability Distribution	Biconical Antenna		Log Periodic Antenna		Dipole Antenna	
Test Distance		3m	10m	3m	10m	3m	10m
Combined standard uncertainty $u_c(y)$	normal	+ 1.86 - 1.88	+ 1.82 - 1.87	+ 2.23 - 1.41	+ 1.29 - 1.26	+ 1.31 - 1.27	+ 1.25 - 1.25
Expanded uncertainty ***U*** (level of confidence ≈ 95%)	normal (k=2)	+ 3.72 - 3.77	+ 3.64 - 3.73	+ 4.46 -2.81	+ 2.59 - 2.52	+ 2.61 - 2.55	+ 2.49 - 2.49

Radiated Emissions > 1 GHz	Value (dB)		
	Probability Distribution	Without High Pass Filter	With High Pass Filter
Combined standard uncertainty $u_c(y)$	normal	+ 1.29 - 1.25	+ 1.38 - 1.35
Expanded uncertainty ***U*** (level of confidence ≈ 95%)	normal (k=2)	+ 2.57 - 2.51	+ 2.76 - -2.70

Conducted Emissions		
	Probability Distribution	Value (+/- dB)
Combined standard uncertainty ***uc(y)***	normal	1.48
Expanded uncertainty ***U*** (level of confidence ≈ 95 %)	normal (k = 2)	2.97

Radiated Immunity		
	Probability Distribution	Value (+/- dB)
Combined standard uncertainty ***uc(y)***	normal	1.05
Expanded uncertainty ***U*** (level of confidence ≈ 95 %)	normal (k = 2)	2.11

Conducted Immunity		
	Probability Distribution	Value (+/- dB)
Combined standard uncertainty ***uc(y)***	normal	1.05
Expanded uncertainty ***U*** (level of confidence ≈ 95 %)	normal (k = 2)	2.10

Legend

$u_c(y)$ = square root of the sum of squares of the individual standard uncertainties

U = combined standard uncertainty multiplied by the coverage factor: **k**. This defines an interval about the measured result that will encompass the true value with a confidence level of approximately 95%. If a higher level of confidence is required, then k=3 (CL of 99.7%) can be used. Please note that with a coverage factor of one, uc(y) yields a confidence level of only 68%.

California

Orange County Facility

41 Tesla Ave.
Irvine, CA 92618
(888) 364-2378
FAX (503) 844-3826

Oregon

Evergreen Facility

22975 NW Evergreen Pkwy.,
Suite 400
Hillsboro, OR 97124
(503) 844-4066
FAX (503) 844-3826

Oregon

Trails End Facility

30475 NE Trails End Lane
Newberg, OR 97132
(503) 844-4066
FAX (503) 537-0735

Washington

Sultan Facility

14128 339th Ave. SE
Sultan, WA 98294
(888) 364-2378
FAX (360) 793-2536

Party Requesting the Test	
Company Name:	7 Layers US
Address:	9361 Irvine Blvd
City, State, Zip:	Irvine, CA 92618
Test Requested By:	Patrick Lomax
Model:	Model NIA.S10 naviPlay iPod Adapter Model NSR.H100 naviPlay Stereo Remote
First Date of Test:	11-14-2004
Last Date of Test:	11-30-2004
Receipt Date of Samples:	11-14-2004
Equipment Design Stage:	Production
Equipment Condition:	No visual damage.

Information Provided by the Party Requesting the Test

Clocks/Oscillators:	Not provided at the time of test
I/O Ports:	Audio, Power

Functional Description of the EUT (Equipment Under Test):

Model NIA.S10 naviPlay iPod Adapter – which connects to an Apple iPod MP3 Player. It then works with the Model NSR.H100 to allow wireless connection to a Stereo Remote.
Model NSR.H100 naviPlay Stereo Remote – provides remote, wireless stereo output from the iPod Adapter.

Both devices emply the same Bluetooth Radio Module, only the antenna is different. The Model NIA.S10 has a 0 dBi gain antenna, the Model NSR.H100 has a 1 dBi gain antenna.

Client Justification for EUT Selection:

Not Provided at the time of test.

Client Justification for Test Selection:

Not Provided at the time of test.

Equipment modifications					
Item	Test	Date	Modification	Note	Disposition of EUT
1	Band Edge Compliance	11/14/2004	No EMI suppression devices were added or modified during this test.	Same configuration as delivered.	EUT remained at Northwest EMC.
2	Occupied Bandwidth	11/14/2004	No EMI suppression devices were added or modified during this test.	Same configuration as delivered.	EUT remained at Northwest EMC.
3	Output Power	11/14/2004	No EMI suppression devices were added or modified during this test.	Same configuration as delivered.	EUT remained at Northwest EMC.
4	Power Spectral Density	11/14/2004	No EMI suppression devices were added or modified during this test.	Same configuration as delivered.	EUT remained at Northwest EMC.
5	Spurious Conducted Emissions	11/14/2004	No EMI suppression devices were added or modified during this test.	Same configuration as delivered.	EUT remained at Northwest EMC.
6	Spurious Radiated Emissions	11/14/2004	No EMI suppression devices were added or modified during this test.	Same configuration as delivered.	EUT remained at Northwest EMC.
7	Conducted Emissions	11/29/2004	No EMI suppression devices were added or modified during this test.	Same configuration as delivered.	EUT remained at Northwest EMC.

Justification

The individuals and/or the organization requesting the test provided the modes, configurations and settings available to evaluate. While scanning the radiated emissions, all of the EUT parameters listed below were investigated. This includes, but may not be limited to, antennas, tuned transmit frequency ranges, operating modes, and data rates.

Channels in Specified Band Investigated:
Low
Mid
High

Operating Modes Investigated:
No Hop

Data Rates Investigated:
Maximum

Power Input Settings Investigated:
120 VAC, 60 Hz

Software\Firmware Applied During Test			
Exercise software	HyperTerminal	**Version**	1.2
Exercise software	Zeevo	**Version**	Release 6.2
Description			
The system was tested using special software developed to test all functions of the device during the test.			

EUT and Peripherals in Test Setup Boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
naviPlay Stereo Remote	Smart Modular Technologies	NSR.H100	4T140B01
naviPlay iPod Adapter	Smart Modular Technologies	NIA.S10	4T130B01
AC/DC Power Supply/Adapter	Sunfone Electronics, Co.	ACDL-04	4T130
Equipment isolated from the EUT so as not to contribute to the measurement result is considered to be outside the test setup boundary.			

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
AC Power	No	0.3	No	AC/DC Power Supply/Adapter	AC Mains
DC Leads	No	2.0	No	Remote Bluetooth Module	AC/DC Power Supply/Adapter
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

AC Powerline Conducted Emissions

Measurement Equipment					
Description	**Manufacturer**	**Model**	**Identifier**	**Last Cal**	**Interval**
LISN	Solar	9252-50-24-BNC	LIA	12/16/2003	13 mo
Spectrum Analyzer	Hewlett Packard	8593E	AAP	03/22/2004	13 mo
Receiver	Schaffner	SCR 3101	ARC	04/28/2003	24 mo

Test Description

Requirement: Per 47 15.207(d), if the EUT is connected to the AC power line indirectly, obtaining its power from another device that is connected to the AC power line, then it should be tested to demonstrate compliance with the conducted limits of 15.207.

Configuration: The EUT will be powered from a device that could be connected to the AC power line. Therefore, the measurements were made on the device used to power the EUT. The AC power line conducted emissions were measured with the EUT operating at the lowest, the highest, and a middle channel in the operational band. The EUT was transmitting at its maximum data rate. For each mode, the spectrum was scanned from 150 kHz to 30 MHz. The test setup and procedures were in accordance with ANSI C63.4-2003.

Measurement Bandwidths			
Frequency Range (MHz)	**Peak Data (kHz)**	**Quasi-Peak Data (kHz)**	**Average Data (kHz)**
0.01 – 0.15	1.0	0.2	0.2
0.15 – 30.0	10.0	9.0	9.0
30.0 - 1000	100.0	120.0	120.0
Above 1000	1000.0	N/A	1000.0
Measurements were made using the bandwidths and detectors specified. No video filter was used.			

Completed by:

NORTHWEST EMC

CONDUCTED EMISSIONS DATA SHEET

REV df4.4 10/22/2004

EUT:	NSR.H100	Work Order:	7LAY0028
Serial Number:	4T140B01	Date:	11/17/04
Customer:	Smart Modular Technologies	Temperature:	72
Attendees:	none	Humidity:	37%
Cust. Ref. No.:		Barometric Pressure	30.14
Tested by:	Jonathan Peng	Power: 120VAC/60Hz	Job Site: OC10

TEST SPECIFICATIONS

Specification:	FCC 15.207 Class B	Year:	2004
Method:	ANSI C63.4	Year:	2003

SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator

COMMENTS

Transmitting Low Frequency - Channel 0

EUT OPERATING MODES

Typical Operating Mode

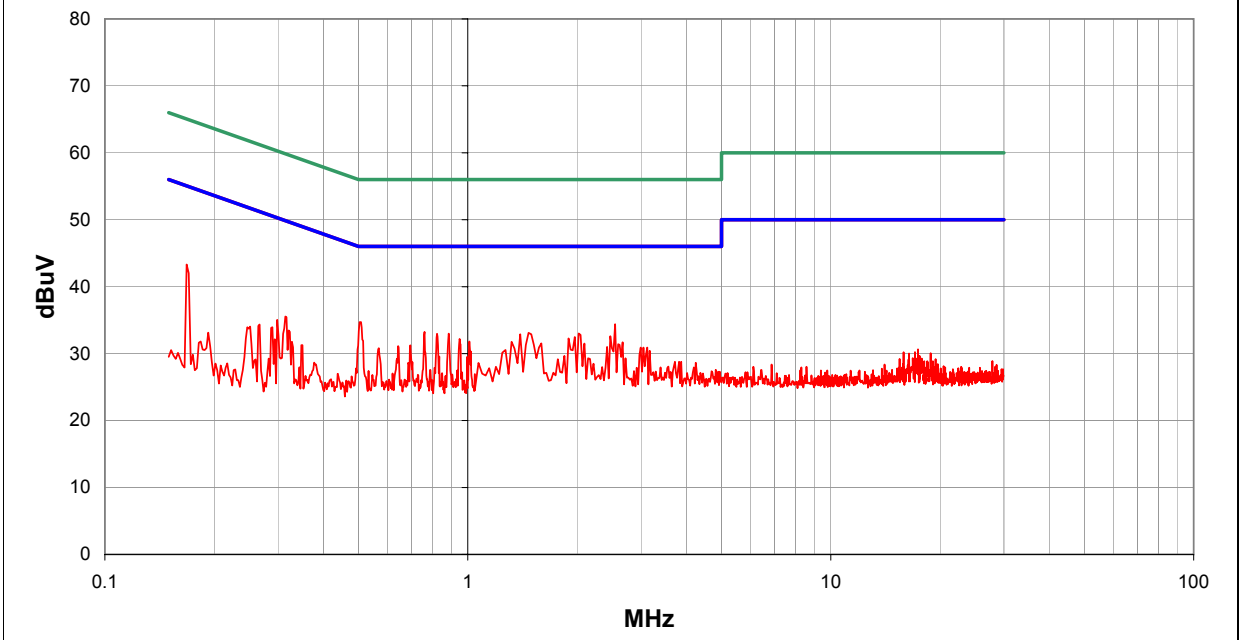
DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS	Line	Run #
Pass	L1	1

Other

Tested By:



Freq (MHz)	Amplitude (dBuV)			Transducer (dB)	Cable (dB)	External Attenuation (dB)		Detector (blank equal peaks [PK] from scan)		Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.508	14.5			0.0	0.2	20.0				34.7	46.0	-11.3
2.546	13.9			0.0	0.5	20.0				34.4	46.0	-11.6
0.168	23.2			0.0	0.1	20.0				43.3	55.1	-11.7
0.760	13.0			0.0	0.3	20.0				33.3	46.0	-12.7
1.470	12.7			0.0	0.4	20.0				33.1	46.0	-12.9
2.021	12.5			0.0	0.5	20.0				33.0	46.0	-13.0
0.886	12.7			0.0	0.3	20.0				33.0	46.0	-13.0
0.823	12.7			0.0	0.3	20.0				33.0	46.0	-13.0
1.395	12.5			0.0	0.4	20.0				32.9	46.0	-13.1
2.471	12.1			0.0	0.5	20.0				32.6	46.0	-13.4
1.970	12.0			0.0	0.5	20.0				32.5	46.0	-13.5
0.949	11.9			0.0	0.3	20.0				32.2	46.0	-13.8
1.010	11.5			0.0	0.3	20.0				31.8	46.0	-14.2
1.320	11.4			0.0	0.4	20.0				31.8	46.0	-14.2
2.671	11.2			0.0	0.5	20.0				31.7	46.0	-14.3
0.314	15.4			0.0	0.2	20.0				35.6	49.9	-14.3
1.595	11.1			0.0	0.4	20.0				31.5	46.0	-14.5
2.096	11.0			0.0	0.5	20.0				31.5	46.0	-14.5
0.694	11.0			0.0	0.2	20.0				31.2	46.0	-14.8

NORTHWEST EMC

CONDUCTED EMISSIONS DATA SHEET

REV df4.4 10/22/2004

EUT:	NSR.H100	Work Order:	7LAY0028
Serial Number:	4T140B01	Date:	11/17/04
Customer:	Smart Modular Technologies	Temperature:	72
Attendees:	none	Humidity:	37%
Cust. Ref. No.:		Barometric Pressure	30.14
Tested by:	Jonathan Peng	Power: 120VAC/60Hz	Job Site: OC10

TEST SPECIFICATIONS

Specification:	FCC 15.207 Class B	Year:	2004
Method:	ANSI C63.4	Year:	2003

SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator

COMMENTS

Transmitting Low Frequency - Channel 0

EUT OPERATING MODES

Typical Operating Mode

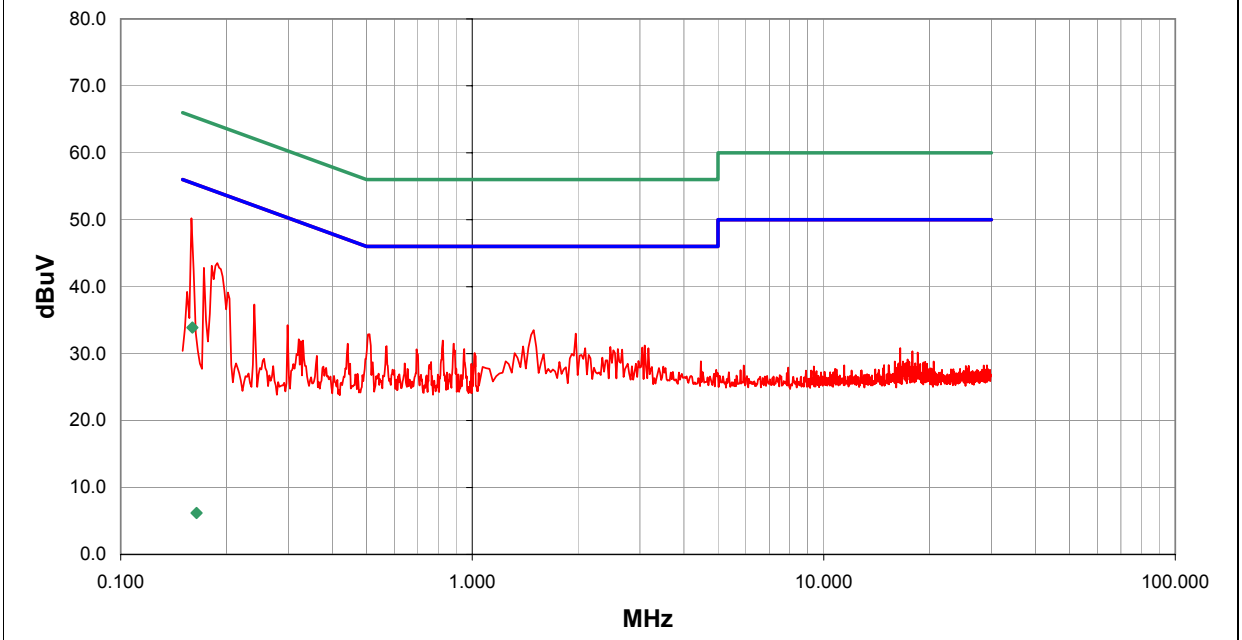
DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS	Line	Run #
Pass	N	2

Other

Tested By:



Freq (MHz)	Amplitude (dBuV)			Transducer (dB)	Cable (dB)	External Attenuation (dB)		Detector (blank equal peaks [PK] from scan)		Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.160	13.9			0.0	0.0	20.0		QP		33.9	65.5	-31.6
0.164	-13.8			0.0	0.0	20.0		AV		6.2	55.2	-49.0
0.159	30.1			0.0	0.1	20.0				50.2	55.5	-5.3
0.188	23.4			0.0	0.1	20.0				43.5	54.1	-10.6
0.173	22.7			0.0	0.1	20.0				42.8	54.8	-12.0
1.495	13.1			0.0	0.4	20.0				33.5	46.0	-12.5
1.970	12.5			0.0	0.5	20.0				33.0	46.0	-13.0
0.510	12.7			0.0	0.2	20.0				32.9	46.0	-13.1
0.825	11.7			0.0	0.3	20.0				32.0	46.0	-14.0
0.202	19.0			0.0	0.1	20.0				39.1	53.5	-14.4
0.886	11.2			0.0	0.3	20.0				31.5	46.0	-14.5
0.240	17.2			0.0	0.1	20.0				37.3	52.1	-14.8
3.096	10.7			0.0	0.5	20.0				31.2	46.0	-14.8
0.571	10.9			0.0	0.2	20.0				31.1	46.0	-14.9
1.395	10.7			0.0	0.4	20.0				31.1	46.0	-14.9
2.471	10.5			0.0	0.5	20.0				31.0	46.0	-15.0
3.046	10.4			0.0	0.5	20.0				30.9	46.0	-15.1
3.171	10.3			0.0	0.5	20.0				30.8	46.0	-15.2
2.096	10.3			0.0	0.5	20.0				30.8	46.0	-15.2

NORTHWEST EMC

CONDUCTED EMISSIONS DATA SHEET

REV df4.4 10/22/2004

EUT:	NSR.H100			Work Order:	7LAY0028
Serial Number:	4T140B01			Date:	11/17/04
Customer:	Smart Modular Technologies			Temperature:	72
Attendees:	none			Humidity:	37%
Cust. Ref. No.:				Barometric Pressure	30.14
Tested by:	Jonathan Peng	Power:	120VAC/60Hz	Job Site:	OC10

TEST SPECIFICATIONS

Specification:	FCC 15.207 Class B	Year:	2004
Method:	ANSI C63.4	Year:	2003

SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator

COMMENTS

Transmitting Mid Frequency - Channel 39

EUT OPERATING MODES

Typical Operating Mode

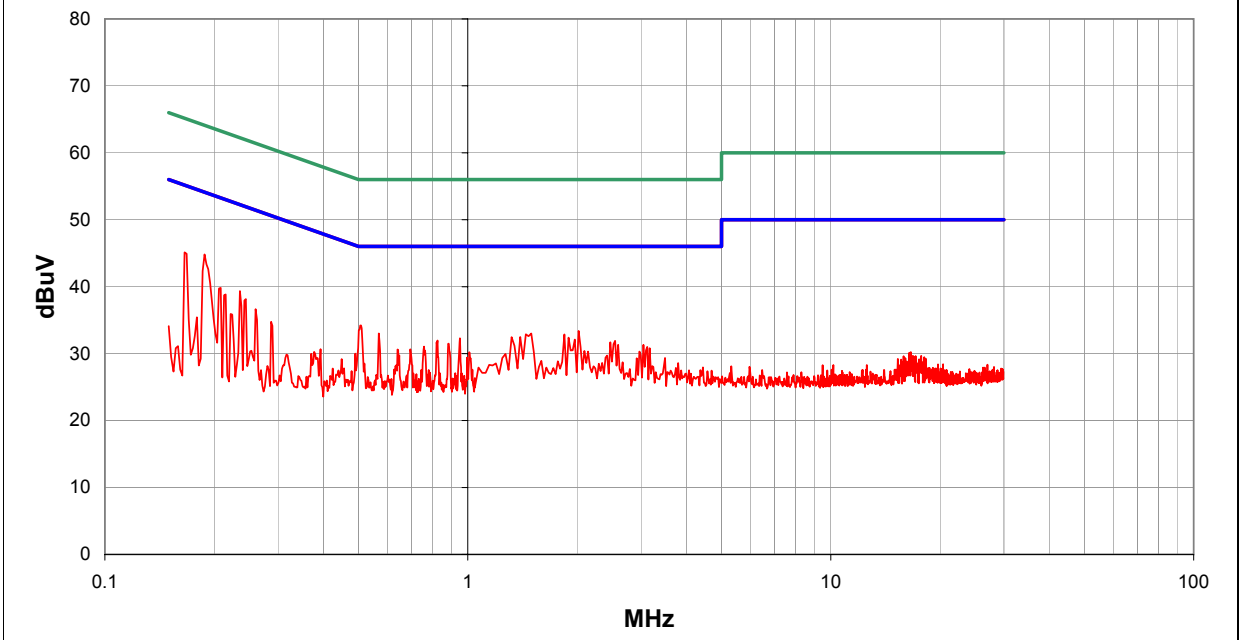
DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS	Line	Run #
Pass	L1	3

Other

Tested By:



Freq (MHz)	Amplitude (dBuV)			Transducer (dB)	Cable (dB)	External Attenuation (dB)		Detector (blank equal peaks [PK] from scan)		Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.188	24.7			0.0	0.1	20.0				44.8	54.1	-9.3
0.166	25.0			0.0	0.1	20.0				45.1	55.2	-10.1
0.508	14.0			0.0	0.2	20.0				34.2	46.0	-11.8
2.021	12.9			0.0	0.5	20.0				33.4	46.0	-12.6
0.236	19.2			0.0	0.1	20.0				39.3	52.3	-12.9
0.568	12.8			0.0	0.2	20.0				33.0	46.0	-13.0
1.495	12.6			0.0	0.4	20.0				33.0	46.0	-13.0
1.845	12.4			0.0	0.5	20.0				32.9	46.0	-13.1
0.209	19.7			0.0	0.1	20.0				39.8	53.3	-13.4
1.395	12.1			0.0	0.4	20.0				32.5	46.0	-13.5
1.320	12.1			0.0	0.4	20.0				32.5	46.0	-13.5
1.895	11.9			0.0	0.5	20.0				32.4	46.0	-13.6
0.951	12.0			0.0	0.3	20.0				32.3	46.0	-13.7
0.245	18.0			0.0	0.1	20.0				38.1	51.9	-13.8
0.825	11.7			0.0	0.3	20.0				32.0	46.0	-14.0
2.546	11.4			0.0	0.5	20.0				31.9	46.0	-14.1
0.215	18.7			0.0	0.1	20.0				38.8	53.0	-14.2
2.471	11.2			0.0	0.5	20.0				31.7	46.0	-14.3
0.886	11.2			0.0	0.3	20.0				31.5	46.0	-14.5

NORTHWEST EMC

CONDUCTED EMISSIONS DATA SHEET

REV df4.4 10/22/2004

EUT:	NSR.H100	Work Order:	7LAY0028
Serial Number:	4T140B01	Date:	11/17/04
Customer:	Smart Modular Technologies	Temperature:	72
Attendees:	none	Humidity:	37%
Cust. Ref. No.:		Barometric Pressure	30.14
Tested by:	Jonathan Peng	Power: 120VAC/60Hz	Job Site: OC10

TEST SPECIFICATIONS

Specification:	FCC 15.207 Class B	Year:	2004
Method:	ANSI C63.4	Year:	2003

SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator

COMMENTS

Transmitting Mid Frequency - Channel 39

EUT OPERATING MODES

Typical Operating Mode

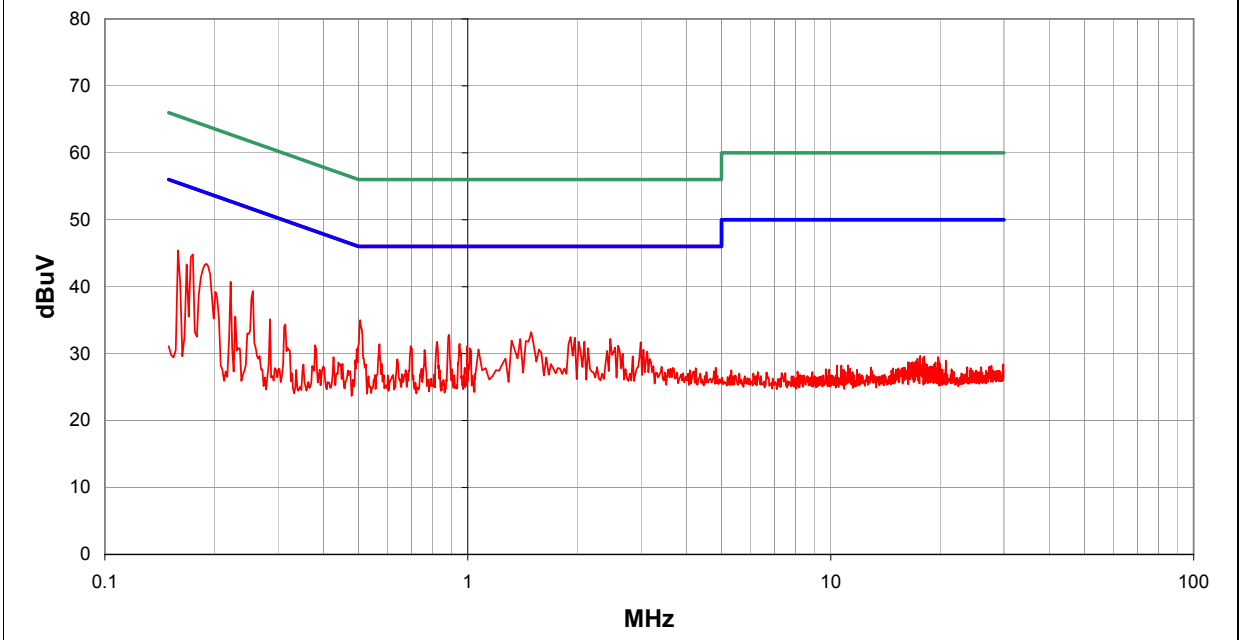
DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS	Line	Run #
Pass	N	4

Other

Tested By:



Freq (MHz)	Amplitude (dBuV)			Transducer (dB)	Cable (dB)	External Attenuation (dB)		Detector (blank equal peaks [PK] from scan)		Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.175	24.7			0.0	0.1	20.0				44.8	54.7	-9.9
0.159	25.3			0.0	0.1	20.0				45.4	55.5	-10.1
0.191	23.3			0.0	0.1	20.0				43.4	54.0	-10.6
0.505	14.8			0.0	0.2	20.0				35.0	46.0	-11.0
0.168	23.2			0.0	0.1	20.0				43.3	55.1	-11.7
0.222	20.6			0.0	0.1	20.0				40.7	52.7	-12.0
0.256	19.2			0.0	0.1	20.0				39.3	51.6	-12.2
1.495	12.8			0.0	0.4	20.0				33.2	46.0	-12.8
0.888	12.5			0.0	0.3	20.0				32.8	46.0	-13.2
1.920	12.0			0.0	0.5	20.0				32.5	46.0	-13.5
1.970	11.9			0.0	0.5	20.0				32.4	46.0	-13.6
2.471	11.7			0.0	0.5	20.0				32.2	46.0	-13.8
1.395	11.8			0.0	0.4	20.0				32.2	46.0	-13.8
1.320	11.6			0.0	0.4	20.0				32.0	46.0	-14.0
2.021	11.3			0.0	0.5	20.0				31.8	46.0	-14.2
2.096	11.3			0.0	0.5	20.0				31.8	46.0	-14.2
0.823	11.5			0.0	0.3	20.0				31.8	46.0	-14.2
2.996	11.2			0.0	0.5	20.0				31.7	46.0	-14.3
0.202	19.1			0.0	0.1	20.0				39.2	53.5	-14.3

NORTHWEST EMC

CONDUCTED EMISSIONS DATA SHEET

REV df4.4 10/22/2004

EUT:	NSR.H100			Work Order:	7LAY0028
Serial Number:	4T140B01			Date:	11/17/04
Customer:	Smart Modular Technologies			Temperature:	72
Attendees:	none			Humidity:	37%
Cust. Ref. No.:				Barometric Pressure	30.14
Tested by:	Jonathan Peng	Power:	120VAC/60Hz	Job Site:	OC10

TEST SPECIFICATIONS

Specification:	FCC 15.207 Class B	Year:	2004
Method:	ANSI C63.4	Year:	2003

SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator

COMMENTS

Transmitting High Frequency - Channel 78

EUT OPERATING MODES

Typical Operating Mode

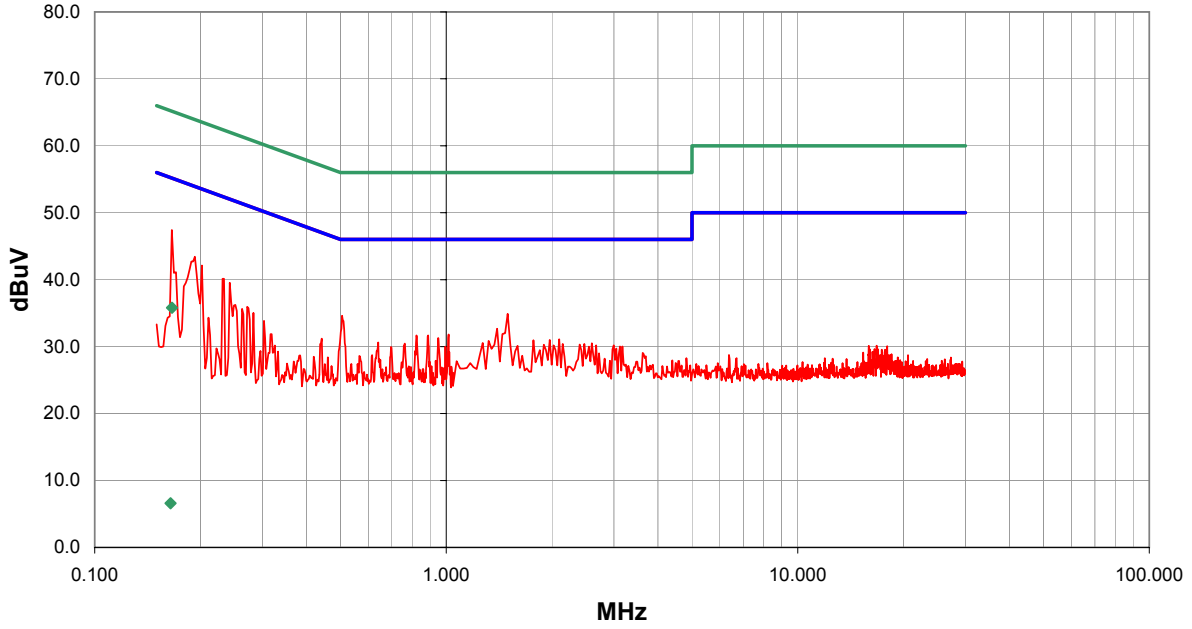
DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS	Line	Run #
Pass	L1	3

Other

Tested By:



Freq (MHz)	Amplitude (dBuV)			Transducer (dB)	Cable (dB)	External Attenuation (dB)		Detector (blank equal peaks [PK] from scan)		Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.166	15.8			0.0	0.0	20.0		QP		35.8	65.2	-29.4
0.164	-13.4			0.0	0.0	20.0		AV		6.6	55.2	-48.6
0.166	27.3			0.0	0.1	20.0				47.4	55.2	-7.8
0.193	23.3			0.0	0.1	20.0				43.4	53.9	-10.5
1.495	14.5			0.0	0.4	20.0				34.9	46.0	-11.1
0.505	14.4			0.0	0.2	20.0				34.6	46.0	-11.4
0.202	22.0			0.0	0.1	20.0				42.1	53.5	-11.4
0.233	20.0			0.0	0.1	20.0				40.1	52.3	-12.2
0.242	19.4			0.0	0.1	20.0				39.5	52.0	-12.5
1.395	12.3			0.0	0.4	20.0				32.7	46.0	-13.3
1.016	11.5			0.0	0.3	20.0				31.8	46.0	-14.2
0.888	11.4			0.0	0.3	20.0				31.7	46.0	-14.3
0.823	11.4			0.0	0.3	20.0				31.7	46.0	-14.3
0.949	11.0			0.0	0.3	20.0				31.3	46.0	-14.7
2.096	10.6			0.0	0.5	20.0				31.1	46.0	-14.9
1.970	10.5			0.0	0.5	20.0				31.0	46.0	-15.0
1.770	10.5			0.0	0.5	20.0				31.0	46.0	-15.0
0.271	15.8			0.0	0.1	20.0				35.9	51.1	-15.1
0.640	10.4			0.0	0.2	20.0				30.6	46.0	-15.4

NORTHWEST EMC

CONDUCTED EMISSIONS DATA SHEET

REV df4.4 10/22/2004

EUT:	NSR.H100			Work Order:	7LAY0028
Serial Number:	4T140B01			Date:	11/17/04
Customer:	Smart Modular Technologies			Temperature:	72
Attendees:	none			Humidity:	37%
Cust. Ref. No.:				Barometric Pressure	30.14
Tested by:	Jonathan Peng	Power:	120VAC/60Hz	Job Site:	OC10

TEST SPECIFICATIONS

Specification:	FCC 15.207 Class B	Year:	2004
Method:	ANSI C63.4	Year:	2003

SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator

COMMENTS

Transmitting High Frequency - Channel 78

EUT OPERATING MODES

Typical Operating Mode

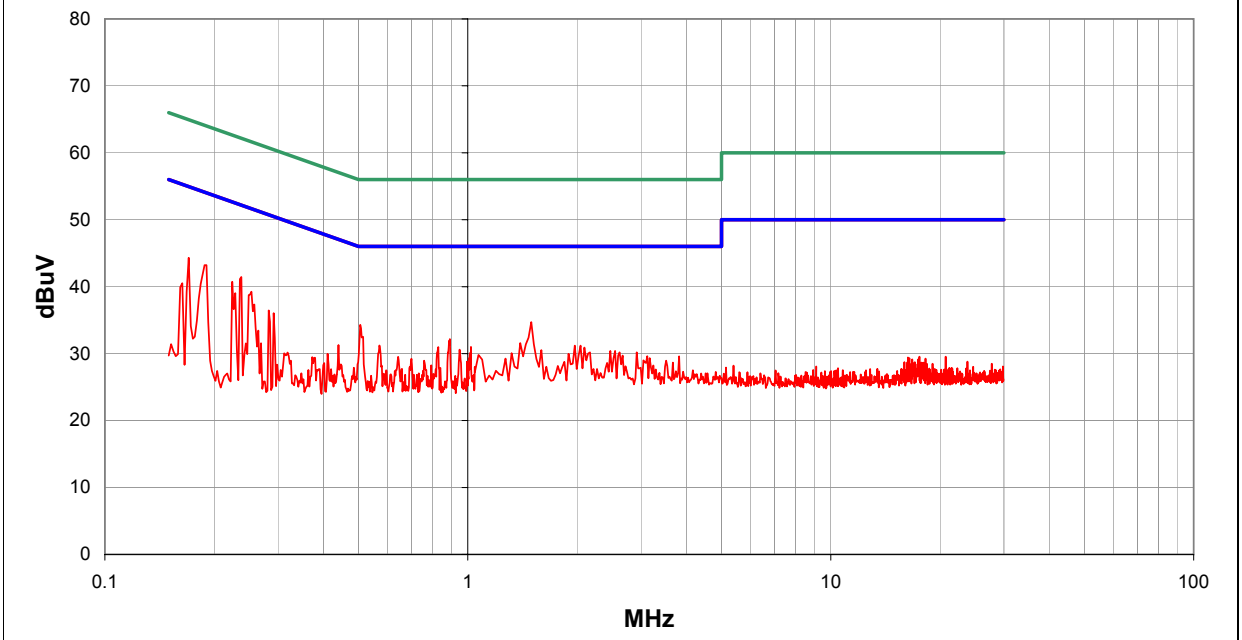
DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS	Line	Run #
Pass	N	6

Other

Tested By:



Freq (MHz)	Amplitude (dBuV)			Transducer (dB)	Cable (dB)	External Attenuation (dB)		Detector (blank equal peaks [PK] from scan)		Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.170	24.2			0.0	0.1	20.0				44.3	54.9	-10.6
0.238	21.3			0.0	0.1	20.0				41.4	52.2	-10.7
0.191	23.1			0.0	0.1	20.0				43.2	54.0	-10.8
1.495	14.3			0.0	0.4	20.0				34.7	46.0	-11.3
0.505	14.1			0.0	0.2	20.0				34.3	46.0	-11.7
0.224	20.6			0.0	0.1	20.0				40.7	52.7	-11.9
0.254	19.1			0.0	0.1	20.0				39.2	51.6	-12.4
0.229	18.9			0.0	0.1	20.0				39.0	52.5	-13.5
0.893	11.9			0.0	0.3	20.0				32.2	46.0	-13.8
0.283	16.3			0.0	0.1	20.0				36.4	50.7	-14.3
0.292	15.9			0.0	0.1	20.0				36.0	50.5	-14.4
0.164	20.4			0.0	0.1	20.0				40.5	55.3	-14.8
0.571	11.0			0.0	0.2	20.0				31.2	46.0	-14.8
2.046	10.7			0.0	0.5	20.0				31.2	46.0	-14.8
1.970	10.7			0.0	0.5	20.0				31.2	46.0	-14.8
1.020	10.7			0.0	0.3	20.0				31.0	46.0	-15.0
0.830	10.7			0.0	0.3	20.0				31.0	46.0	-15.0
2.096	10.4			0.0	0.5	20.0				30.9	46.0	-15.1
0.949	10.3			0.0	0.3	20.0				30.6	46.0	-15.4

NORTHWEST EMC

CONDUCTED EMISSIONS DATA SHEET

REV df4.4 10/22/2004

EUT:	NIA.S10			Work Order:	7LAY0028
Serial Number:	4T130B01			Date:	11/29/04
Customer:	Smart Modular Technologies			Temperature:	72
Attendees:	None			Humidity:	37%
Cust. Ref. No.:	N/A			Barometric Pressure	30.14
Tested by:	Jonathan Peng	Power:	120VAC/60Hz	Job Site:	OC10

TEST SPECIFICATIONS

Specification:	FCC 15.207 Class B	Year:	2004
Method:	ANSI C63.4	Year:	2003

SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator

COMMENTS

Transmitting Low Frequency - Channel 0

EUT OPERATING MODES

Typical Operating Mode

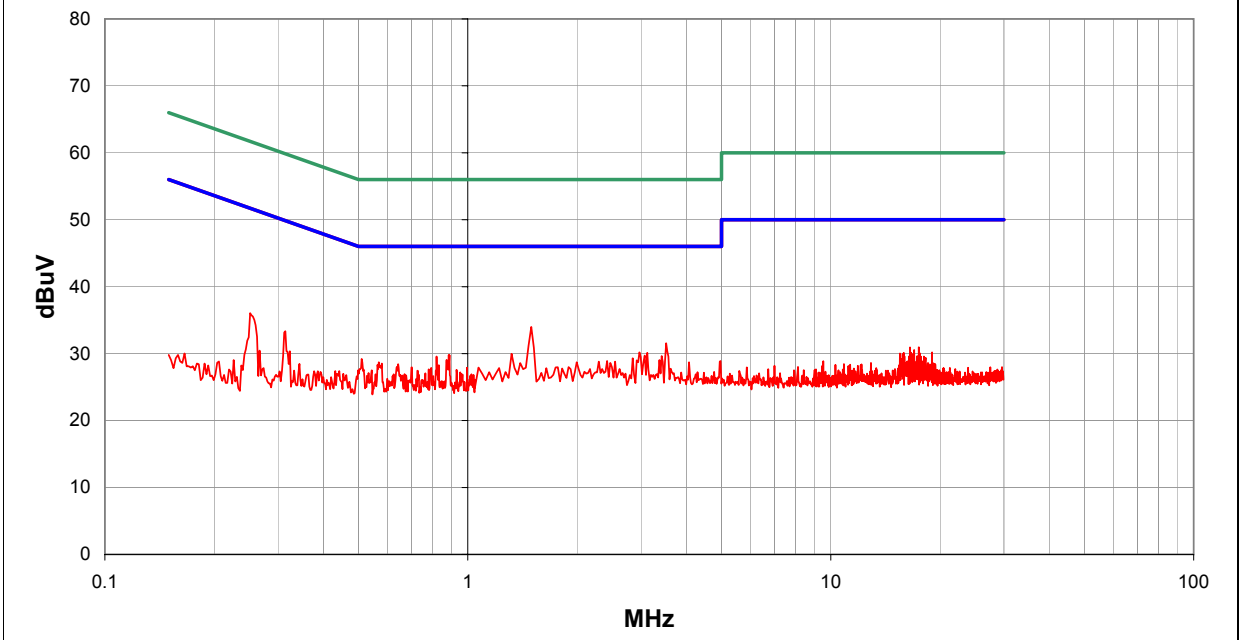
DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS	Line	Run #
Pass	L1	8

Other

Tested By:



Freq (MHz)	Amplitude (dBuV)			Transducer (dB)	Cable (dB)	External Attenuation (dB)		Detector (blank equal peaks [PK] from scan)		Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
1.495	13.6			0.0	0.4	20.0				34.0	46.0	-12.0
3.521	11.0			0.0	0.6	20.0				31.6	46.0	-14.4
0.251	15.9			0.0	0.1	20.0				36.0	51.7	-15.7
2.971	9.7			0.0	0.5	20.0				30.2	46.0	-15.8
3.121	9.6			0.0	0.5	20.0				30.1	46.0	-15.9
1.320	9.6			0.0	0.4	20.0				30.0	46.0	-16.0
0.890	9.5			0.0	0.3	20.0				29.8	46.0	-16.2
3.071	9.2			0.0	0.5	20.0				29.7	46.0	-16.3
3.421	9.1			0.0	0.5	20.0				29.6	46.0	-16.4
0.821	9.3			0.0	0.3	20.0				29.6	46.0	-16.4
0.314	13.2			0.0	0.2	20.0				33.4	49.9	-16.5
2.846	8.8			0.0	0.5	20.0				29.3	46.0	-16.7
0.510	9.0			0.0	0.2	20.0				29.2	46.0	-16.8
2.421	8.4			0.0	0.5	20.0				28.9	46.0	-17.1
4.972	8.2			0.0	0.7	20.0				28.9	46.0	-17.1
2.546	8.3			0.0	0.5	20.0				28.8	46.0	-17.2
0.568	8.5			0.0	0.2	20.0				28.7	46.0	-17.3
4.072	8.1			0.0	0.6	20.0				28.7	46.0	-17.3
1.996	8.2			0.0	0.5	20.0				28.7	46.0	-17.3

NORTHWEST EMC

CONDUCTED EMISSIONS DATA SHEET

REV df4.4 10/22/2004

EUT:	NIA.S10			Work Order:	7LAY0028
Serial Number:	4T130B01			Date:	11/29/04
Customer:	Smart Modular Technologies			Temperature:	72
Attendees:	None			Humidity:	37%
Cust. Ref. No.:	N/A			Barometric Pressure	30.14
Tested by:	Jonathan Peng	Power:	120VAC/60Hz	Job Site:	OC10

TEST SPECIFICATIONS

Specification:	FCC 15.207 Class B	Year:	2004
Method:	ANSI C63.4	Year:	2003

SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator

COMMENTS

Transmitting Low Frequency - Channel 0

EUT OPERATING MODES

Typical Operating Mode

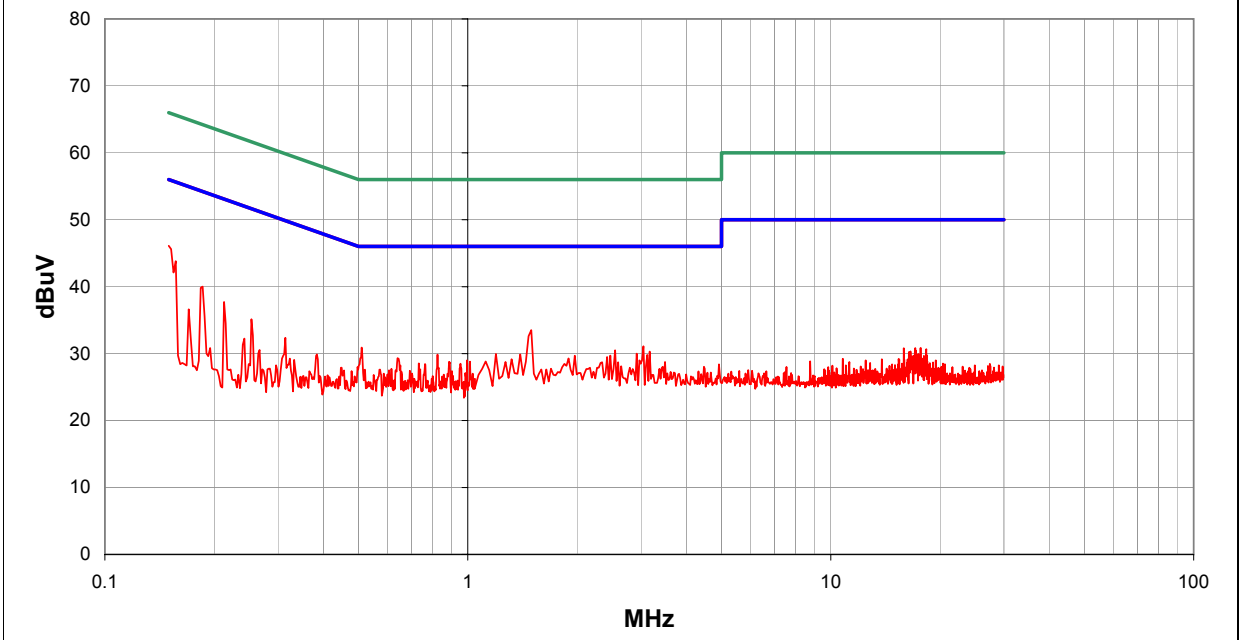
DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS	Line	Run #
Pass	L2	7

Other

Tested By:



Freq (MHz)	Amplitude (dBuV)			Transducer (dB)	Cable (dB)	External Attenuation (dB)		Detector (blank equal peaks [PK] from scan)		Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.150	26.0			0.0	0.1	20.0				46.1	56.0	-9.9
1.495	13.1			0.0	0.4	20.0				33.5	46.0	-12.5
0.186	19.9			0.0	0.1	20.0				40.0	54.2	-14.2
3.046	10.6			0.0	0.5	20.0				31.1	46.0	-14.9
0.510	10.7			0.0	0.2	20.0				30.9	46.0	-15.1
0.213	17.6			0.0	0.1	20.0				37.7	53.1	-15.4
2.546	10.0			0.0	0.5	20.0				30.5	46.0	-15.5
3.171	9.8			0.0	0.5	20.0				30.3	46.0	-15.7
2.921	9.5			0.0	0.5	20.0				30.0	46.0	-16.0
1.195	9.6			0.0	0.3	20.0				29.9	46.0	-16.1
1.395	9.5			0.0	0.4	20.0				29.9	46.0	-16.1
0.825	9.6			0.0	0.3	20.0				29.9	46.0	-16.1
3.121	9.3			0.0	0.5	20.0				29.8	46.0	-16.2
2.471	9.2			0.0	0.5	20.0				29.7	46.0	-16.3
1.970	9.2			0.0	0.5	20.0				29.7	46.0	-16.3
2.421	9.0			0.0	0.5	20.0				29.5	46.0	-16.5
0.254	15.0			0.0	0.1	20.0				35.1	51.6	-16.5
0.640	9.1			0.0	0.2	20.0				29.3	46.0	-16.7
1.895	8.8			0.0	0.5	20.0				29.3	46.0	-16.7

NORTHWEST EMC

CONDUCTED EMISSIONS DATA SHEET

REV df4.4 10/22/2004

EUT:	NIA.S10			Work Order:	7LAY0028
Serial Number:	4T130B01			Date:	11/29/04
Customer:	Smart Modular Technologies			Temperature:	72
Attendees:	None			Humidity:	37%
Cust. Ref. No.:	N/A			Barometric Pressure	30.14
Tested by:	Jonathan Peng	Power:	120VAC/60Hz	Job Site:	OC10

TEST SPECIFICATIONS

Specification:	FCC 15.207 Class B	Year:	2004
Method:	ANSI C63.4	Year:	2003

SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator

COMMENTS

Transmitting Mid Frequency - Channel 39

EUT OPERATING MODES

Typical Operating Mode

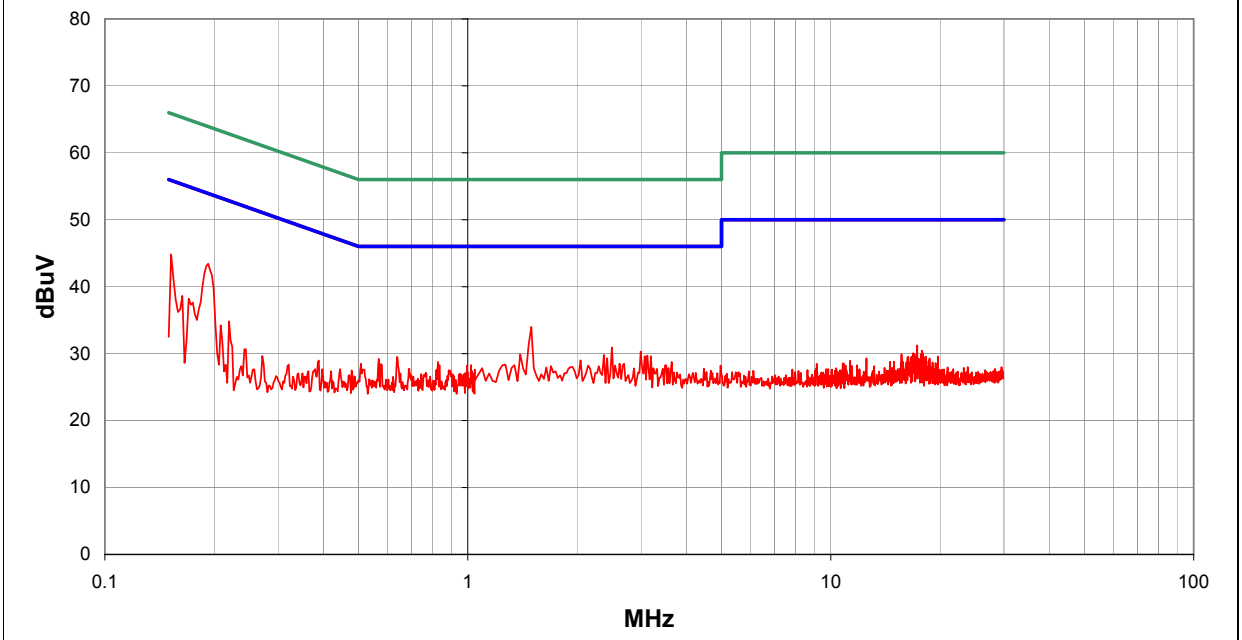
DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS	Line	Run #
Pass	L1	13

Other

Tested By:



Freq (MHz)	Amplitude (dBuV)			Transducer (dB)	Cable (dB)	External Attenuation (dB)		Detector (blank equal peaks [PK] from scan)		Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.193	23.3			0.0	0.1	20.0				43.4	53.9	-10.5
0.152	24.7			0.0	0.1	20.0				44.8	55.9	-11.1
1.495	13.6			0.0	0.4	20.0				34.0	46.0	-12.0
2.496	10.4			0.0	0.5	20.0				30.9	46.0	-15.1
2.996	9.8			0.0	0.5	20.0				30.3	46.0	-15.7
1.395	9.5			0.0	0.4	20.0				29.9	46.0	-16.1
2.371	9.3			0.0	0.5	20.0				29.8	46.0	-16.2
3.121	9.2			0.0	0.5	20.0				29.7	46.0	-16.3
3.196	9.1			0.0	0.5	20.0				29.6	46.0	-16.4
3.071	9.1			0.0	0.5	20.0				29.6	46.0	-16.4
0.638	9.3			0.0	0.2	20.0				29.5	46.0	-16.5
0.164	18.5			0.0	0.1	20.0				38.6	55.3	-16.7
2.421	8.8			0.0	0.5	20.0				29.3	46.0	-16.7
0.170	18.1			0.0	0.1	20.0				38.2	54.9	-16.7
0.568	9.0			0.0	0.2	20.0				29.2	46.0	-16.8
2.046	8.5			0.0	0.5	20.0				29.0	46.0	-17.0
0.827	8.5			0.0	0.3	20.0				28.8	46.0	-17.2
3.646	8.2			0.0	0.6	20.0				28.8	46.0	-17.2
0.508	8.3			0.0	0.2	20.0				28.5	46.0	-17.5

NORTHWEST EMC

CONDUCTED EMISSIONS DATA SHEET

REV df4.4 10/22/2004

EUT:	NIA.S10			Work Order:	7LAY0028
Serial Number:	4T130B01			Date:	11/29/04
Customer:	Smart Modular Technologies			Temperature:	72
Attendees:	None			Humidity:	37%
Cust. Ref. No.:	N/A			Barometric Pressure	30.14
Tested by:	Jonathan Peng	Power:	120VAC/60Hz	Job Site:	OC10

TEST SPECIFICATIONS

Specification:	FCC 15.207 Class B	Year:	2004
Method:	ANSI C63.4	Year:	2003

SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator

COMMENTS

Transmitting Mid Frequency - Channel 39

EUT OPERATING MODES

Typical Operating Mode

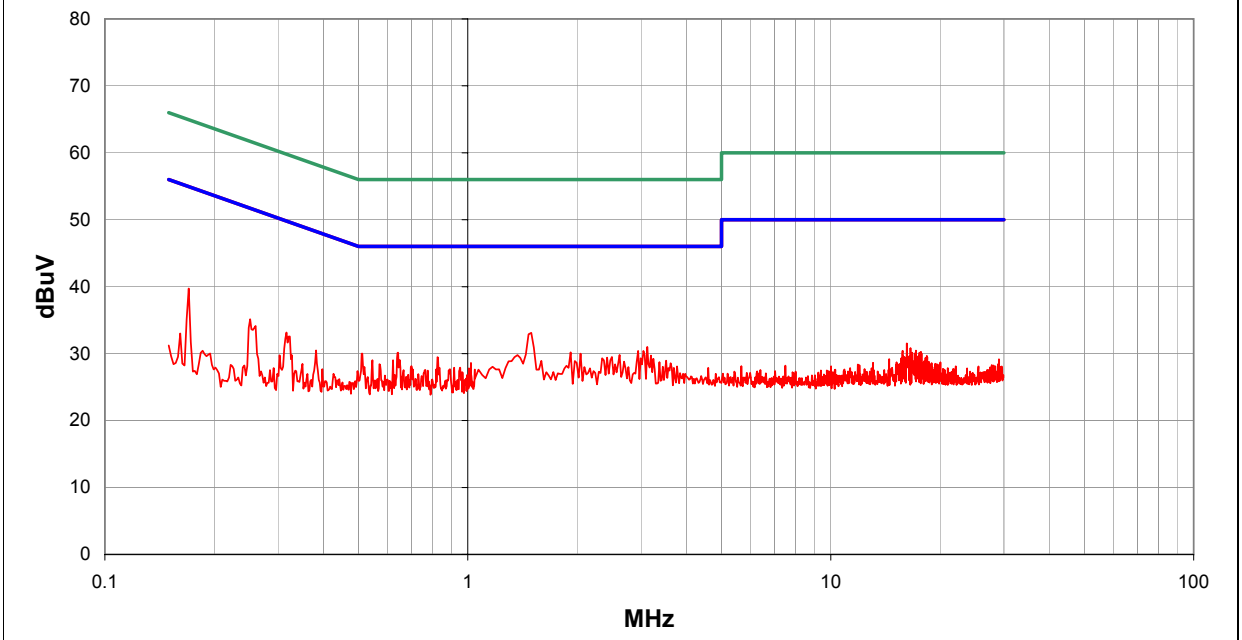
DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS	Line	Run #
Pass	L2	14

Other

Tested By:



Freq (MHz)	Amplitude (dBuV)			Transducer (dB)	Cable (dB)	External Attenuation (dB)		Detector (blank equal peaks [PK] from scan)		Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
1.495	12.7			0.0	0.4	20.0				33.1	46.0	-12.9
3.121	10.5			0.0	0.5	20.0				31.0	46.0	-15.0
0.170	19.6			0.0	0.1	20.0				39.7	54.9	-15.2
3.046	9.9			0.0	0.5	20.0				30.4	46.0	-15.6
2.946	9.9			0.0	0.5	20.0				30.4	46.0	-15.6
1.920	9.7			0.0	0.5	20.0				30.2	46.0	-15.8
0.643	9.9			0.0	0.2	20.0				30.1	46.0	-15.9
0.512	9.8			0.0	0.2	20.0				30.0	46.0	-16.0
2.046	9.5			0.0	0.5	20.0				30.0	46.0	-16.0
2.621	9.3			0.0	0.5	20.0				29.8	46.0	-16.2
2.496	9.0			0.0	0.5	20.0				29.5	46.0	-16.5
0.825	9.2			0.0	0.3	20.0				29.5	46.0	-16.5
0.251	15.0			0.0	0.1	20.0				35.1	51.7	-16.6
2.421	8.9			0.0	0.5	20.0				29.4	46.0	-16.6
0.316	13.0			0.0	0.2	20.0				33.2	49.8	-16.6
2.346	8.8			0.0	0.5	20.0				29.3	46.0	-16.7
3.246	8.7			0.0	0.5	20.0				29.2	46.0	-16.8
0.622	8.8			0.0	0.2	20.0				29.0	46.0	-17.0
0.546	8.8			0.0	0.2	20.0				29.0	46.0	-17.0

NORTHWEST EMC

CONDUCTED EMISSIONS DATA SHEET

REV df4.4 10/22/2004

EUT:	NIA.S10	Work Order:	7LAY0028
Serial Number:	4T130B01	Date:	11/29/04
Customer:	Smart Modular Technologies	Temperature:	72
Attendees:	None	Humidity:	37%
Cust. Ref. No.:	N/A	Barometric Pressure	30.14
Tested by:	Jonathan Peng	Power: 120VAC/60Hz	Job Site: OC10

TEST SPECIFICATIONS

Specification:	FCC 15.207 Class B	Year:	2004
Method:	ANSI C63.4	Year:	2003

SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator

COMMENTS

Transmitting High Frequency - Channel 78

EUT OPERATING MODES

Typical Operating Mode

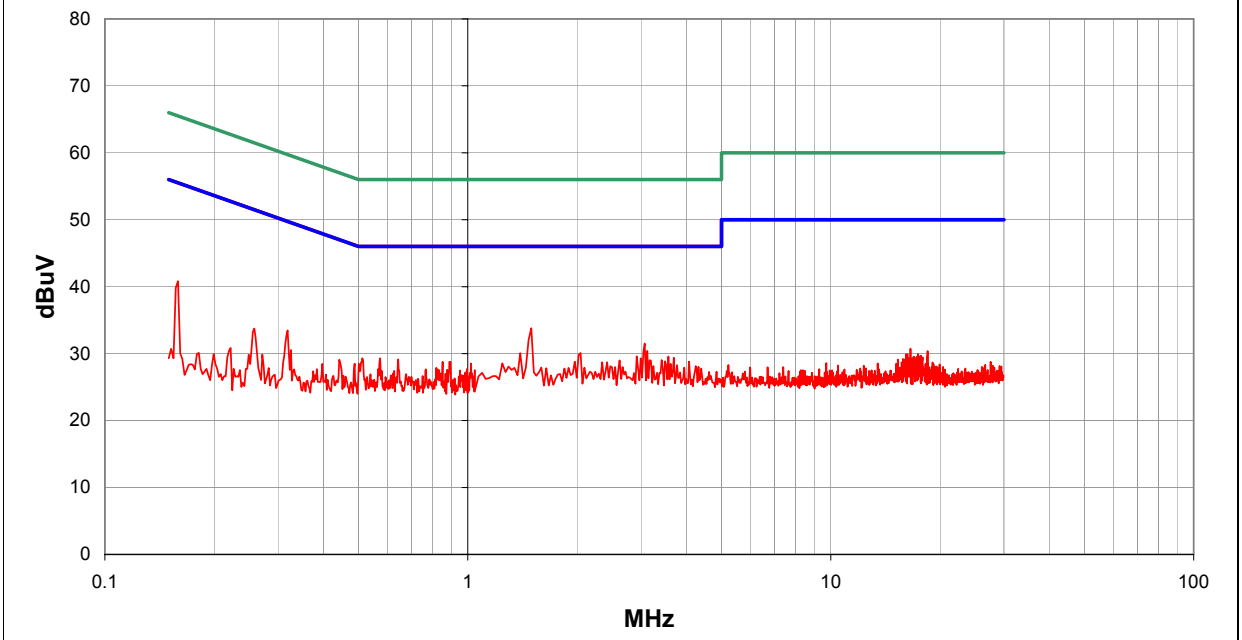
DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS	Line	Run #
Pass	L1	15

Other

Tested By:



Freq (MHz)	Amplitude (dBuV)			Transducer (dB)	Cable (dB)	External Attenuation (dB)		Detector (blank equal peaks [PK] from scan)		Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
1.495	13.4			0.0	0.4	20.0				33.8	46.0	-12.2
3.071	11.0			0.0	0.5	20.0				31.5	46.0	-14.5
0.159	20.7			0.0	0.1	20.0				40.8	55.5	-14.7
3.121	9.9			0.0	0.5	20.0				30.4	46.0	-15.6
2.046	9.6			0.0	0.5	20.0				30.1	46.0	-15.9
1.395	9.7			0.0	0.4	20.0				30.1	46.0	-15.9
0.319	13.3			0.0	0.2	20.0				33.5	49.7	-16.3
2.921	9.1			0.0	0.5	20.0				29.6	46.0	-16.4
3.571	9.0			0.0	0.6	20.0				29.6	46.0	-16.4
3.696	8.8			0.0	0.6	20.0				29.4	46.0	-16.6
0.573	9.1			0.0	0.2	20.0				29.3	46.0	-16.7
0.512	9.1			0.0	0.2	20.0				29.3	46.0	-16.7
2.996	8.8			0.0	0.5	20.0				29.3	46.0	-16.7
0.643	8.9			0.0	0.2	20.0				29.1	46.0	-16.9
3.421	8.5			0.0	0.5	20.0				29.0	46.0	-17.0
3.171	8.5			0.0	0.5	20.0				29.0	46.0	-17.0
2.621	8.5			0.0	0.5	20.0				29.0	46.0	-17.0
3.496	8.3			0.0	0.5	20.0				28.8	46.0	-17.2
4.072	8.2			0.0	0.6	20.0				28.8	46.0	-17.2

NORTHWEST EMC

CONDUCTED EMISSIONS DATA SHEET

REV df4.4 10/22/2004

EUT:	NIA.S10	Work Order:	7LAY0028
Serial Number:	4T130B01	Date:	11/29/04
Customer:	Smart Modular Technologies	Temperature:	72
Attendees:	None	Humidity:	37%
Cust. Ref. No.:	N/A	Barometric Pressure	30.14
Tested by:	Jonathan Peng	Power: 120VAC/60Hz	Job Site: OC10

TEST SPECIFICATIONS

Specification:	FCC 15.207 Class B	Year:	2004
Method:	ANSI C63.4	Year:	2003

SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator

COMMENTS

Transmitting High Frequency - Channel 78

EUT OPERATING MODES

Typical Operating Mode

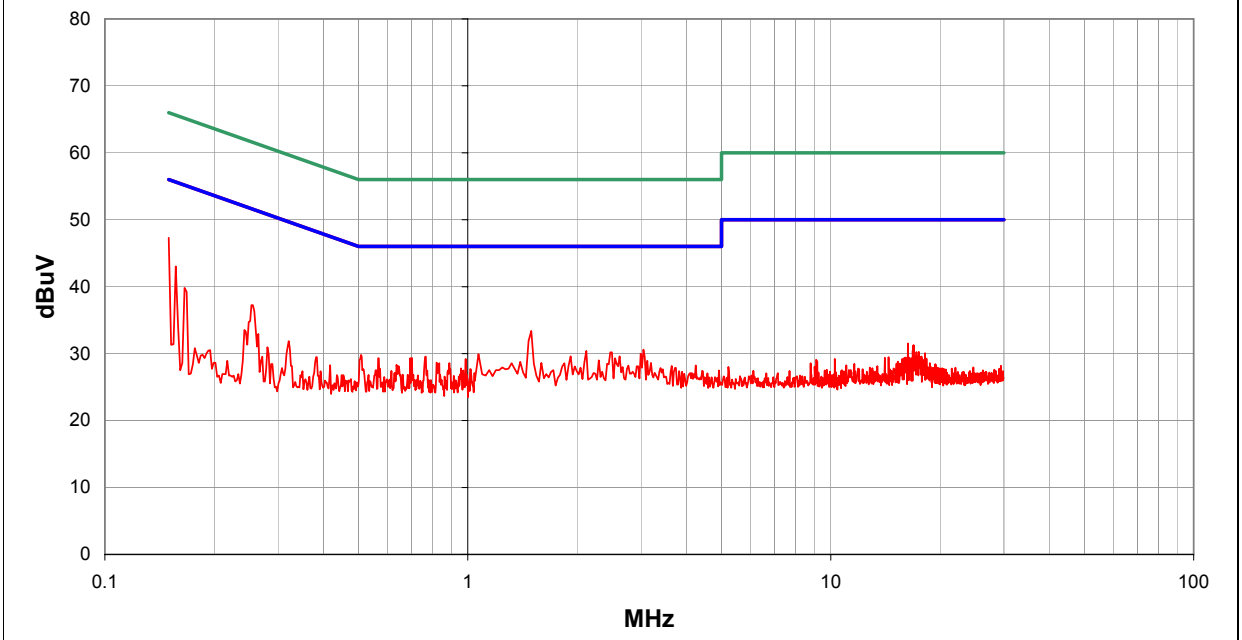
DEVIATIONS FROM TEST STANDARD

No deviations.

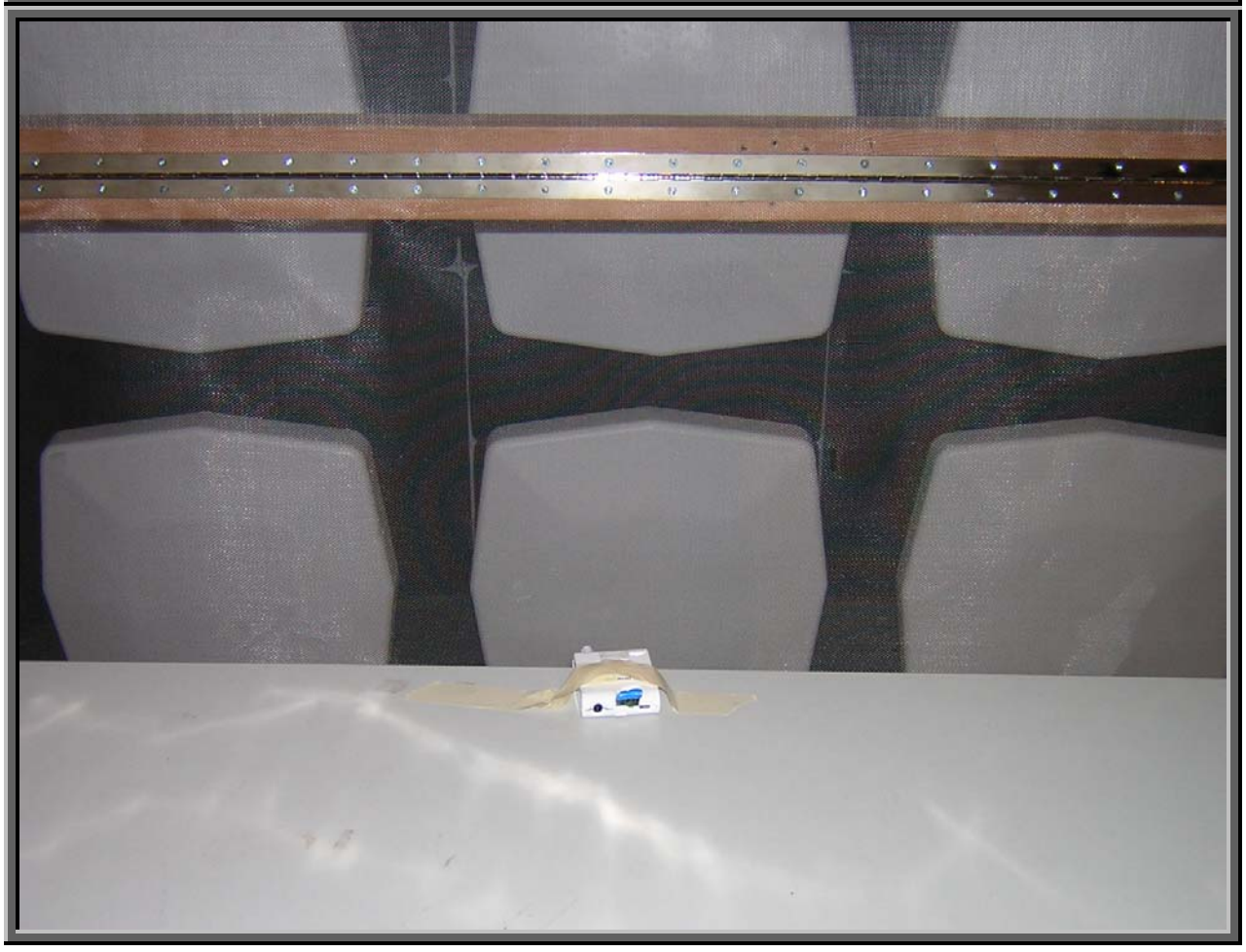
RESULTS	Line	Run #
Pass	L2	16

Other

Tested By:



Freq (MHz)	Amplitude (dBuV)			Transducer (dB)	Cable (dB)	External Attenuation (dB)		Detector (blank equal peaks [PK] from scan)		Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.150	27.2			0.0	0.1	20.0				47.3	56.0	-8.7
1.495	13.0			0.0	0.4	20.0				33.4	46.0	-12.6
0.157	22.9			0.0	0.1	20.0				43.0	55.6	-12.6
0.256	17.1			0.0	0.1	20.0				37.2	51.6	-14.3
0.166	19.7			0.0	0.1	20.0				39.8	55.2	-15.4
3.046	10.1			0.0	0.5	20.0				30.6	46.0	-15.4
2.121	9.9			0.0	0.5	20.0				30.4	46.0	-15.6
2.471	9.7			0.0	0.5	20.0				30.2	46.0	-15.8
2.996	9.5			0.0	0.5	20.0				30.0	46.0	-16.0
1.070	9.6			0.0	0.3	20.0				29.9	46.0	-16.1
0.508	9.6			0.0	0.2	20.0				29.8	46.0	-16.2
2.621	9.1			0.0	0.5	20.0				29.6	46.0	-16.4
1.920	9.1			0.0	0.5	20.0				29.6	46.0	-16.4
0.767	9.3			0.0	0.3	20.0				29.6	46.0	-16.4
0.701	9.1			0.0	0.2	20.0				29.3	46.0	-16.7
0.694	9.1			0.0	0.2	20.0				29.3	46.0	-16.7
0.568	9.1			0.0	0.2	20.0				29.3	46.0	-16.7
0.987	8.9			0.0	0.3	20.0				29.2	46.0	-16.8
2.296	8.5			0.0	0.5	20.0				29.0	46.0	-17.0



Justification

The individuals and/or the organization requesting the test provided the modes, configurations and settings available to evaluate. While scanning the radiated emissions, all of the EUT parameters listed below were investigated. This includes, but may not be limited to, antennas, tuned transmit frequency ranges, operating modes, and data rates.

Channels in Specified Band Investigated:
Low
Mid
High

Operating Modes Investigated:
No Hop

Data Rates Investigated:
Maximum

Output Power Setting(s) Investigated:
Maximum

Power Input Settings Investigated:
120 VAC, 60 Hz.

Software\Firmware Applied During Test			
Exercise software	HyperTerminal	**Version**	1.2
Exercise software	Zeevo	**Version**	Release 6.2
Description			
The system was tested using special software developed to test all functions of the device during the test.			

EUT and Peripherals			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
naviPlay Stereo Remote	Smart Modular Technologies	NSR.H100	4T140B01
EUT AC Adapter	Sunfone	ACDL-04	4T130
Notebook PC	Gateway	Solo 2500	BC699085606
Notebook AC Adapter	Gateway	ADP-50FB	AC299065953

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
Serial	Yes	2.0	No	EUT	Notebook PC
DC Leads	PA	2.0	PA	EUT AC Adapter	EUT
AC Power	PA	0.5	PA	EUT AC Adapter	AC Mains
AC Power	No	2.0	No	Notebook AC Adapter	AC Mains
DC Leads	PA	2.0	PA	Notebook AC Adapter	Notebook PC
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

Measurement Equipment					
Description	**Manufacturer**	**Model**	**Identifier**	**Last Cal**	**Interval**
Spectrum Analyzer	Tektronix	2784	AAO	02/26/2003	24 mo

Test Description

Requirement: Per an FCC Interpretation # 20021209-001, "Bluetooth devices may apply under the rules in 15.247 as either a Digital Transmission System (DTS), a Frequency Hopping System (FHSS), or a Hybrid System whichever provides an advantage to the grantee as long as all the requirements are met… The hopping function (*of a hybrid*) must be a true hopping system, as described in Section 15.247(a)(1)."

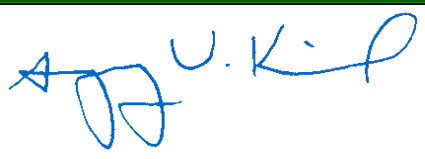
As a DTS system, the minimum 6 dB bandwidth is 500 kHz.

As a FHSS, the maximum 20dB bandwidth of the hopping channel is equal to 1.5 times the channel separation (see 47 CFR 15.247(a)(1)). For example, channel separation for Bluetooth is 1 MHz, therefore the maximum 20 dB bandwidth is 1.5 MHz.

As a Hybrid, it must meet the FHSS requirement as described above.

Configuration: The occupied bandwidth was measured with the EUT set to low, medium, and high transmit frequencies. The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at its maximum data rate in a no hop mode.

Completed by:



NORTHWEST EMC

EMISSIONS DATA SHEET

Rev BETA 01/30/01

EUT:	NSR.H100			Work Order:	7LAY0028
Serial Number:	4T140B01			Date:	11/14/04
Customer:	Smart Modular Technologies			Temperature:	70 °F
Attendees:	None	Tested by:	Greg Kiemel	Humidity:	47% RH
Customer Ref. No.:	N/A	Power:	120VAC/60Hz	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 15.247(a)	Year:	2004	Method:	DA 00-705, ANSI C63.4	Year:	2003

SAMPLE CALCULATIONS

COMMENTS

Measured with a direct connection between the RF output and a spectrum analyzer.

EUT OPERATING MODES

Modulated by PRBS at maximum data rate

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

Bluetooth can be authorized as either a Frequency Hopping System (FHSS), a Digital Transmission System (DTS), or a Hybrid System.

As a FHSS, the maximum 20dB bandwidth of the hopping channel is equal to 1.5 times the channel separation. For example, channel separation for Bluetooth is 1 MHz, therefore the maximum 20 dB bandwidth is 1.5 MHz.

As a DTS system, the minimum 6 dB bandwidth is 500 kHz. As a Hybrid, it must meet the FHSS requirement as described above.

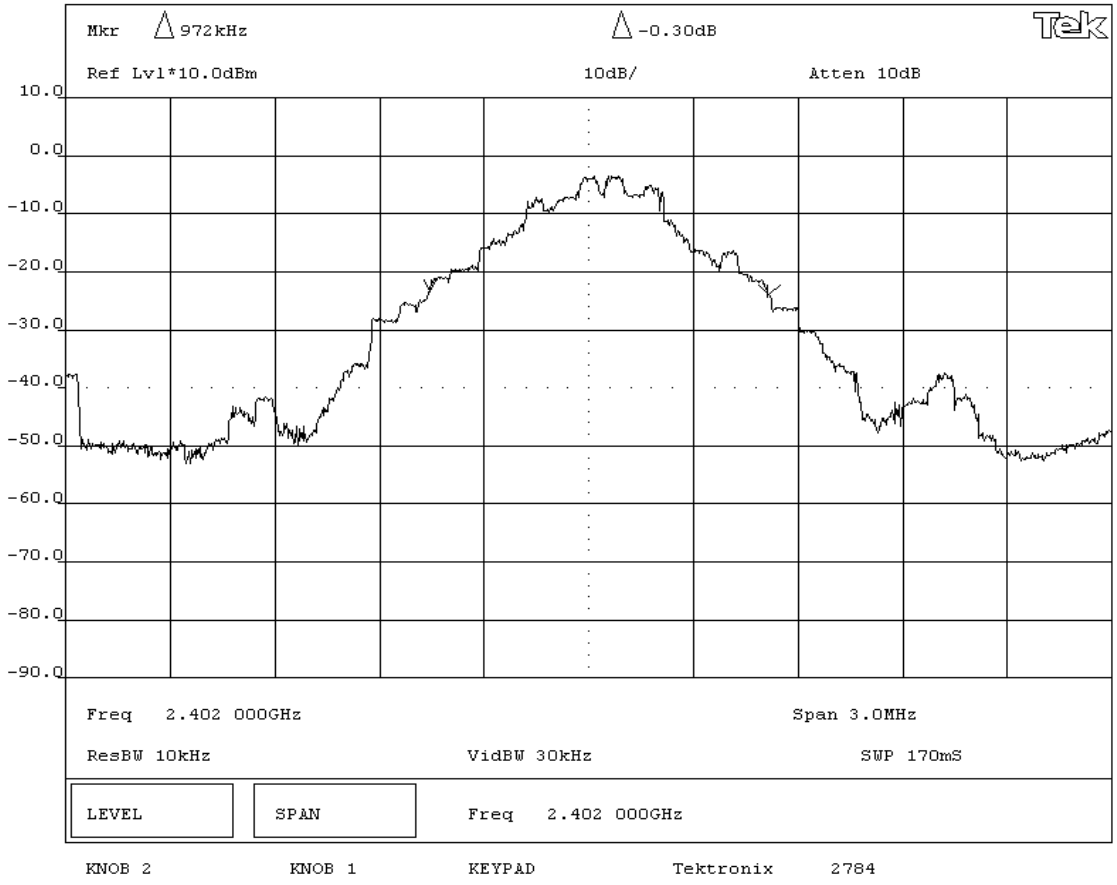
RESULTS	BANDWIDTH
Pass	0.972 MHz

SIGNATURE

Tested By: A.J. Kiel

DESCRIPTION OF TEST

20dB Bandwidth - Low Channel



NORTHWEST EMC

EMISSIONS DATA SHEET

Rev BETA 01/30/01

EUT:	NSR.H100			Work Order:	7LAY0028
Serial Number:	4T140B01			Date:	11/14/04
Customer:	Smart Modular Technologies			Temperature:	70 °F
Attendees:	None	Tested by:	Greg Kiemel	Humidity:	47% RH
Customer Ref. No.:	N/A	Power:	120VAC/60Hz	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 15.247(a)	Year:	2004	Method:	DA 00-705, ANSI C63.4	Year:	2003

SAMPLE CALCULATIONS

COMMENTS

Measured with a direct connection between the RF output and a spectrum analyzer.

EUT OPERATING MODES

Modulated by PRBS at maximum data rate

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

Bluetooth can be authorized as either a Frequency Hopping System (FHSS), a Digital Transmission System (DTS), or a Hybrid System.
As a FHSS, the maximum 20dB bandwidth of the hopping channel is equal to 1.5 times the channel separation. For example, channel separation for Bluetooth is 1 MHz, therefore the maximum 20 dB bandwidth is 1.5 MHz.
As a DTS system, the minimum 6 dB bandwidth is 500 kHz. As a Hybrid, it must meet the FHSS requirement as described above.

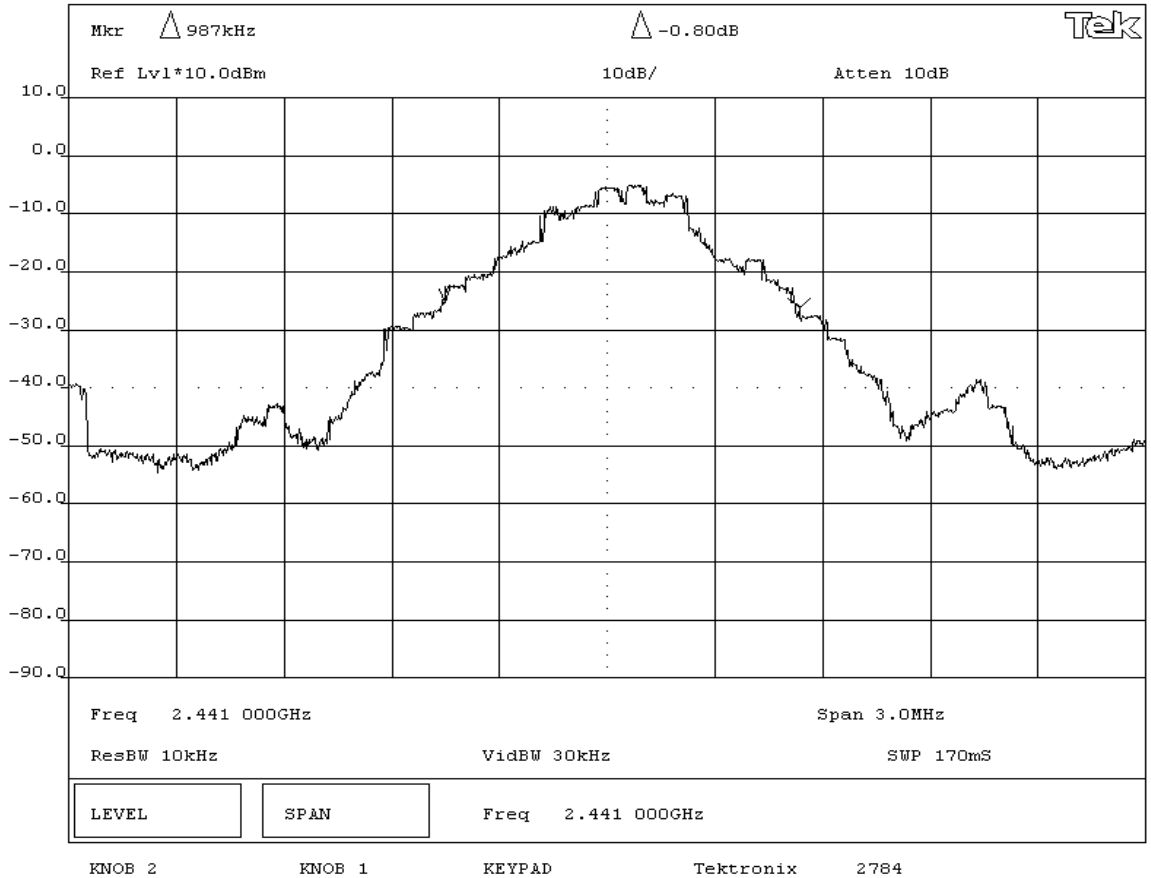
RESULTS	BANDWIDTH
Pass	0.987 MHz

SIGNATURE

Tested By: _____

DESCRIPTION OF TEST

20dB Bandwidth - Mid Channel



NORTHWEST EMC

EMISSIONS DATA SHEET

Rev BETA 01/30/01

EUT:	NSR.H100			Work Order:	7LAY0028
Serial Number:	4T140B01			Date:	11/14/04
Customer:	Smart Modular Technologies			Temperature:	70 °F
Attendees:	None	Tested by:	Greg Kiemel	Humidity:	47% RH
Customer Ref. No.:	N/A	Power:	120VAC/60Hz	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 15.247(a)	Year:	2004	Method:	DA 00-705, ANSI C63.4	Year:	2003

SAMPLE CALCULATIONS

COMMENTS

Measured with a direct connection between the RF output and a spectrum analyzer.

EUT OPERATING MODES

Modulated by PRBS at maximum data rate

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

Bluetooth can be authorized as either a Frequency Hopping System (FHSS), a Digital Transmission System (DTS), or a Hybrid System.
As a FHSS, the maximum 20dB bandwidth of the hopping channel is equal to 1.5 times the channel separation. For example, channel separation for Bluetooth is 1 MHz, therefore the maximum 20 dB bandwidth is 1.5 MHz.
As a DTS system, the minimum 6 dB bandwidth is 500 kHz. As a Hybrid, it must meet the FHSS requirement as described above.

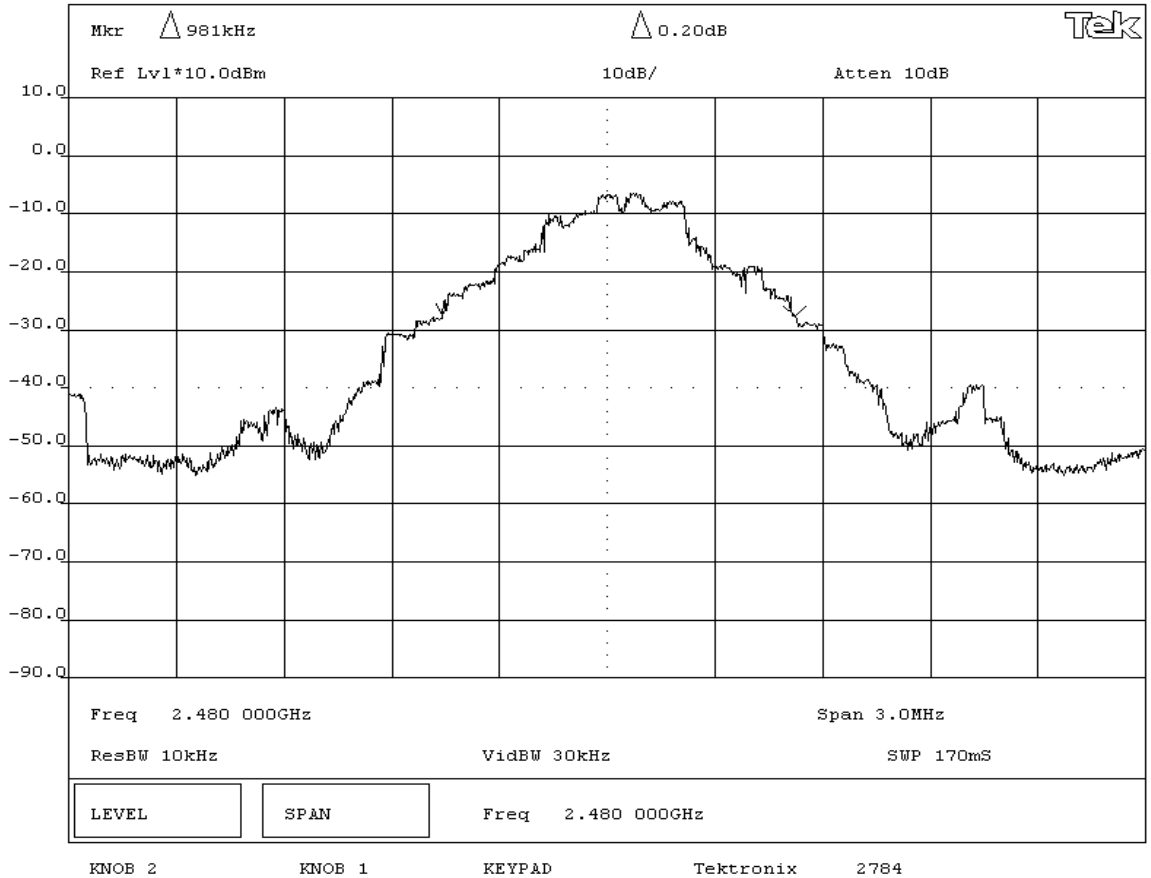
RESULTS	BANDWIDTH
Pass	0.981 MHz

SIGNATURE

Tested By: A.J. U. Kiemel

DESCRIPTION OF TEST

20dB Bandwidth - High Channel



Justification

The individuals and/or the organization requesting the test provided the modes, configurations and settings available to evaluate. While scanning the radiated emissions, all of the EUT parameters listed below were investigated. This includes, but may not be limited to, antennas, tuned transmit frequency ranges, operating modes, and data rates.

Channels in Specified Band Investigated:
Low
Mid
High

Operating Modes Investigated:
No Hop

Data Rates Investigated:
Maximum

Output Power Setting(s) Investigated:
Maximum

Power Input Settings Investigated:
120 VAC, 60 Hz.

Software\Firmware Applied During Test			
Exercise software	HyperTerminal	**Version**	1.2
Exercise software	Zeevo	**Version**	Release 6.2
Description			
The system was tested using special software developed to test all functions of the device during the test.			

EUT and Peripherals			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
naviPlay Stereo Remote	Smart Modular Technologies	NSR.H100	4T140B01
EUT AC Adapter	Sunfone	ACDL-04	4T130
Notebook PC	Gateway	Solo 2500	BC699085606
Notebook AC Adapter	Gateway	ADP-50FB	AC299065953

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
Serial	Yes	2.0	No	EUT	Notebook PC
DC Leads	PA	2.0	PA	EUT AC Adapter	EUT
AC Power	PA	0.5	PA	EUT AC Adapter	AC Mains
AC Power	No	2.0	No	Notebook AC Adapter	AC Mains
DC Leads	PA	2.0	PA	Notebook AC Adapter	Notebook PC
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

Measurement Equipment					
Description	**Manufacturer**	**Model**	**Identifier**	**Last Cal**	**Interval**
Power Meter	Hewlett Packard	E4418A	SPA	07/23/2004	24 mo
Power Sensor	Hewlett-Packard	8481H	SPB	07/23/2004	24 mo
RF Detector	RLC Electronics	CR-133-R	ZZA	NCR	NA
Oscilloscope	Tektronix	TDS 3052	TOF	07/21/2004	12 mo
Signal Generator	Hewlett Packard	8341B	TGN	01/23/2004	13 mo

Test Description

Requirement: Per 47 CFR 15.247(b), the maximum peak output power must not exceed 1 Watt.

Configuration: The peak output power was measured with the EUT set to low, medium, and high transmit frequencies. The EUT was transmitting at its maximum output power. The data rate of the radio was varied to determine the level that produced the highest output power.

The measurement was made using a direct connection between the RF output of the EUT and a RF detector diode. The DC output of the diode was measured with the oscilloscope. The signal generator, tuned to the transmit frequency, was then substituted for the EUT. The CW output of the signal generator was adjusted until the DC output of the RF detector diode match the peak level produced when connected to the EUT. To further reduce measurement error, the power meter and sensor were then used to measure the output power level of the signal generator.

De Facto EIRP Limit: Per 47 CFR 15.247 (b)(1-3), the EUT meets the de facto EIRP limit of +36dBm.

Completed by:

NORTHWEST
EMC

EMISSIONS DATA SHEET

Rev BETA
01/30/01

EUT:	NSR.H100			Work Order:	7LAY0028
Serial Number:	4T140B01			Date:	11/14/04
Customer:	Smart Modular Technologies			Temperature:	70 °F
Attendees:	None	Tested by:	Greg Kiemel	Humidity:	47% RH
Customer Ref. No.:	N/A	Power:	120VAC/60Hz	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 15.247(b)	Year:	2004	Method:	DA 00-705, ANSI C63.4	Year:	2003

SAMPLE CALCULATIONS

COMMENTS

EUT OPERATING MODES

Modulated by PRBS at maximum data rate

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

Maximum peak conducted output power does not exceed 1 Watt

RESULTS	AMPLITUDE
Pass	1.94 mW

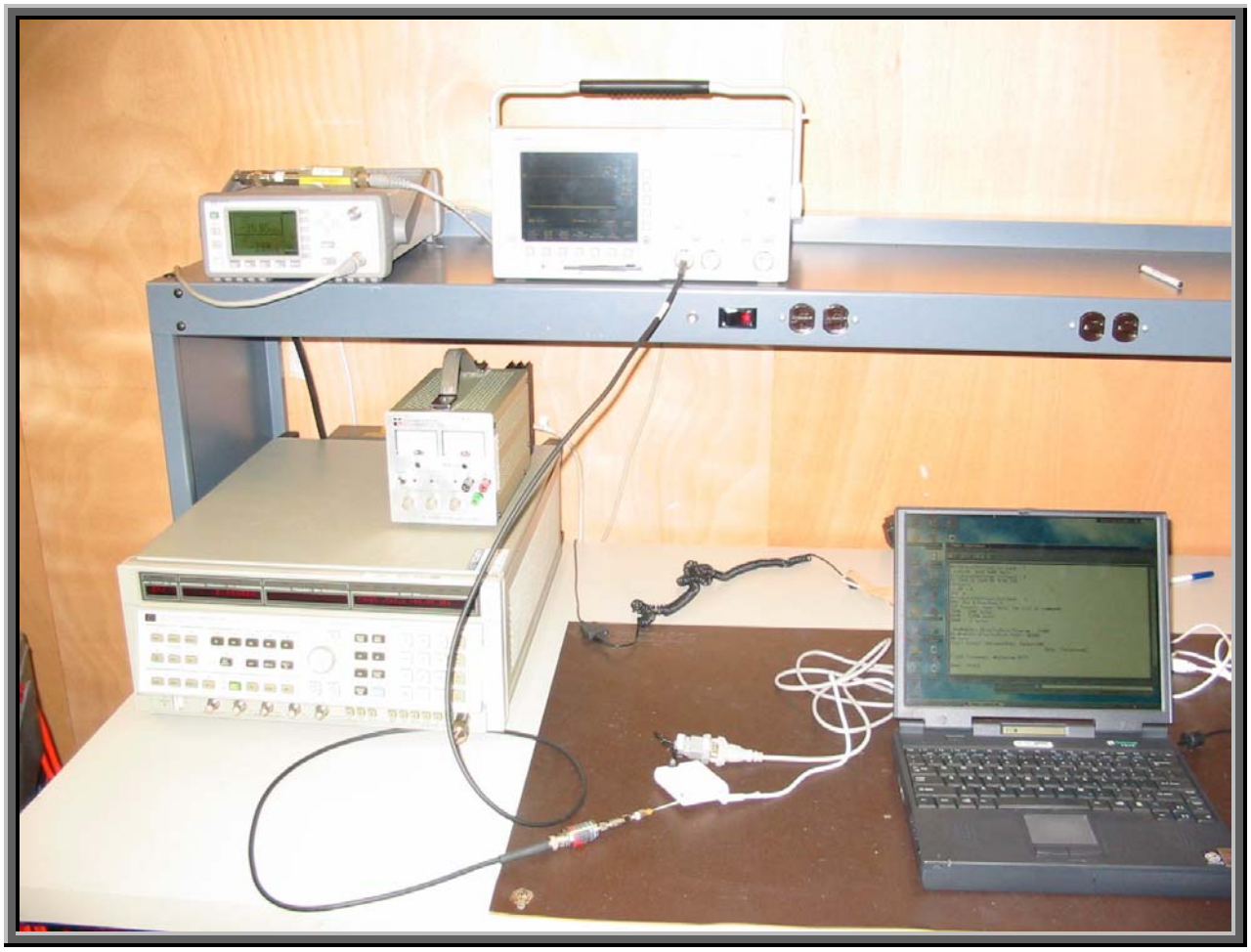
SIGNATURE

Tested By: _____

DESCRIPTION OF TEST

Output Power

Frequency (MHz)	Peak Power Measured w/ Diode Detector (dBm)	Peak Power (mW)	Spec (mW)
2402.0	2.88	1.94	1000.0
2441.0	1.52	1.42	1000.0
2480.0	0.04	1.01	1000.0



Justification

The individuals and/or the organization requesting the test provided the modes, configurations and settings available to evaluate. While scanning the radiated emissions, all of the EUT parameters listed below were investigated. This includes, but may not be limited to, antennas, tuned transmit frequency ranges, operating modes, and data rates.

Channels in Specified Band Investigated:
Low
High

Operating Modes Investigated:
No Hop

Data Rates Investigated:
Maximum

Output Power Setting(s) Investigated:
Maximum

Power Input Settings Investigated:
120 VAC, 60 Hz.

Software\Firmware Applied During Test			
Exercise software	HyperTerminal	**Version**	1.2
Exercise software	Zeevo	**Version**	Release 6.2
Description			
The system was tested using special software developed to test all functions of the device during the test.			

EUT and Peripherals			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
naviPlay Stereo Remote	Smart Modular Technologies	NSR.H100	4T140B01
EUT AC Adapter	Sunfone	ACDL-04	4T130
Notebook PC	Gateway	Solo 2500	BC699085606
Notebook AC Adapter	Gateway	ADP-50FB	AC299065953

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
Serial	Yes	2.0	No	EUT	Notebook PC
DC Leads	PA	2.0	PA	EUT AC Adapter	EUT
AC Power	PA	0.5	PA	EUT AC Adapter	AC Mains
AC Power	No	2.0	No	Notebook AC Adapter	AC Mains
DC Leads	PA	2.0	PA	Notebook AC Adapter	Notebook PC
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

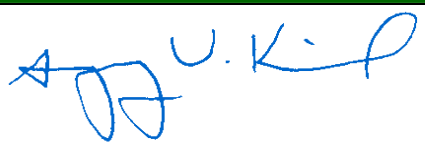
Measurement Equipment					
Description	**Manufacturer**	**Model**	**Identifier**	**Last Cal**	**Interval**
Spectrum Analyzer	Tektronix	2784	AAO	02/26/2003	24 mo

Test Description

Requirement: Per 47 CFR 15.247(d), in any 100 kHz bandwidth outside the authorized band, the maximum level of radio frequency power must be at least 20dB down from the highest emission level within the authorized band. The measurement is made with the spectrum analyzer's resolution bandwidth set to 100 kHz, and the video bandwidth set to greater than or equal to the resolution bandwidth.

Configuration: The spurious RF conducted emissions at the edges of the authorized band were measured with the EUT set to low and high transmit frequencies. The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at its maximum data rate in a no hop mode. The channels closest to the band edges were selected. The spectrum was scanned across each band edge from 5 MHz below the band edge to 5 MHz above the band edge.

Completed by:



NORTHWEST EMC

EMISSIONS DATA SHEET

Rev BETA 01/30/01

EUT:	NSR.H100			Work Order:	7LAY0028
Serial Number:	4T140B01			Date:	11/14/04
Customer:	Smart Modular Technologies			Temperature:	70 °F
Attendees:	None	Tested by:	Greg Kiemel	Humidity:	47% RH
Customer Ref. No.:	N/A	Power:	120VAC/60Hz	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 15.247(d)	Year:	2004	Method:	DA 00-705, ANSI C63.4	Year:	2003

SAMPLE CALCULATIONS

COMMENTS

EUT OPERATING MODES

Modulated by PRBS at maximum data rate

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

Maximum level of any spurious emission at the edge of the authorized band is 20 dB down from the fundamental

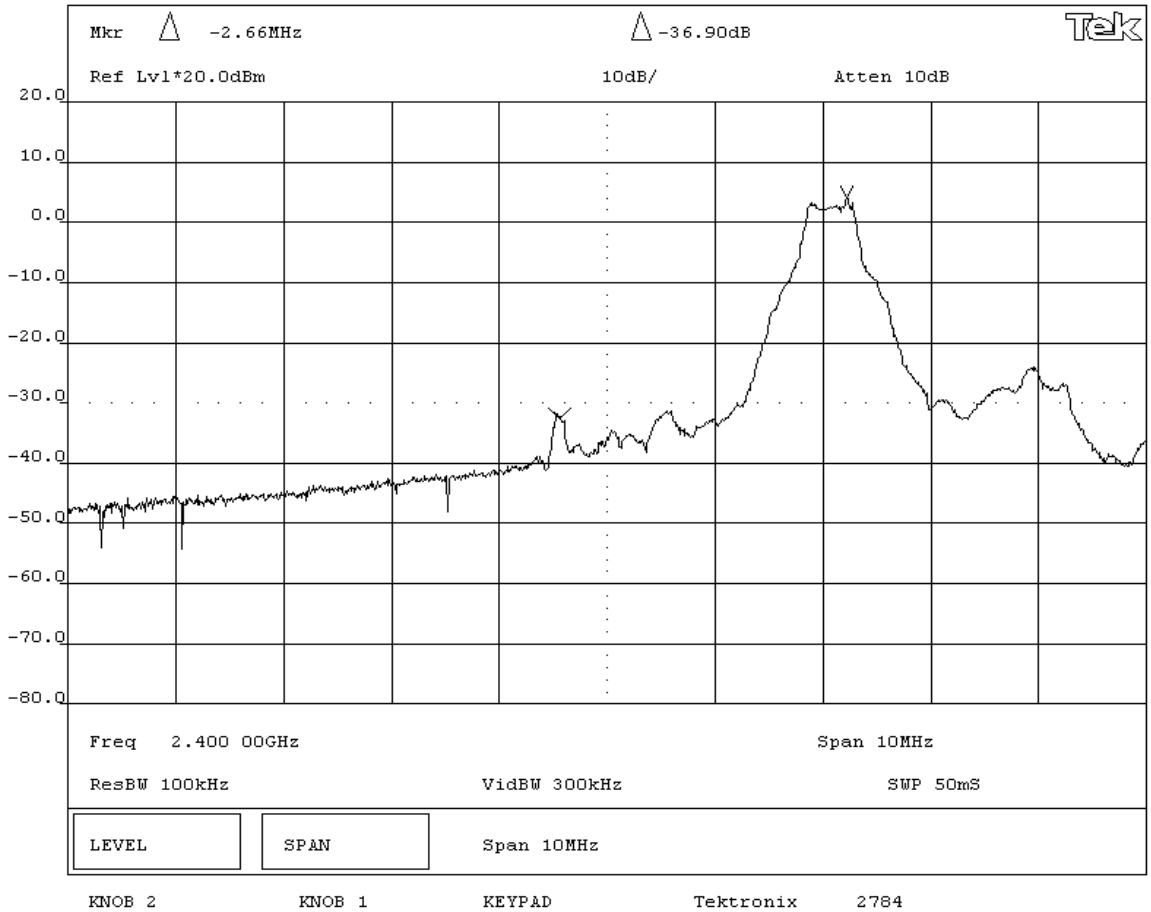
RESULTS	AMPLITUDE
Pass	-36.9 dB

SIGNATURE

Tested By: _____

DESCRIPTION OF TEST

Band Edge Compliance - Low Channel



NORTHWEST EMC

EMISSIONS DATA SHEET

Rev BETA 01/30/01

EUT:	NSR.H100			Work Order:	7LAY0028
Serial Number:	4T140B01			Date:	11/14/04
Customer:	7 Layers			Temperature:	70 °F
Attendees:	None	Tested by:	Greg Kiemel	Humidity:	47% RH
Customer Ref. No.:	N/A	Power:	120VAC/60Hz	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 15.247(d)	Year: 2004	Method:	DA 00-705, ANSI C63.4	Year: 2003

SAMPLE CALCULATIONS

COMMENTS

EUT OPERATING MODES

Modulated by PRBS at maximum data rate

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

Maximum level of any spurious emission at the edge of the authorized band is 20 dB down from the fundamental

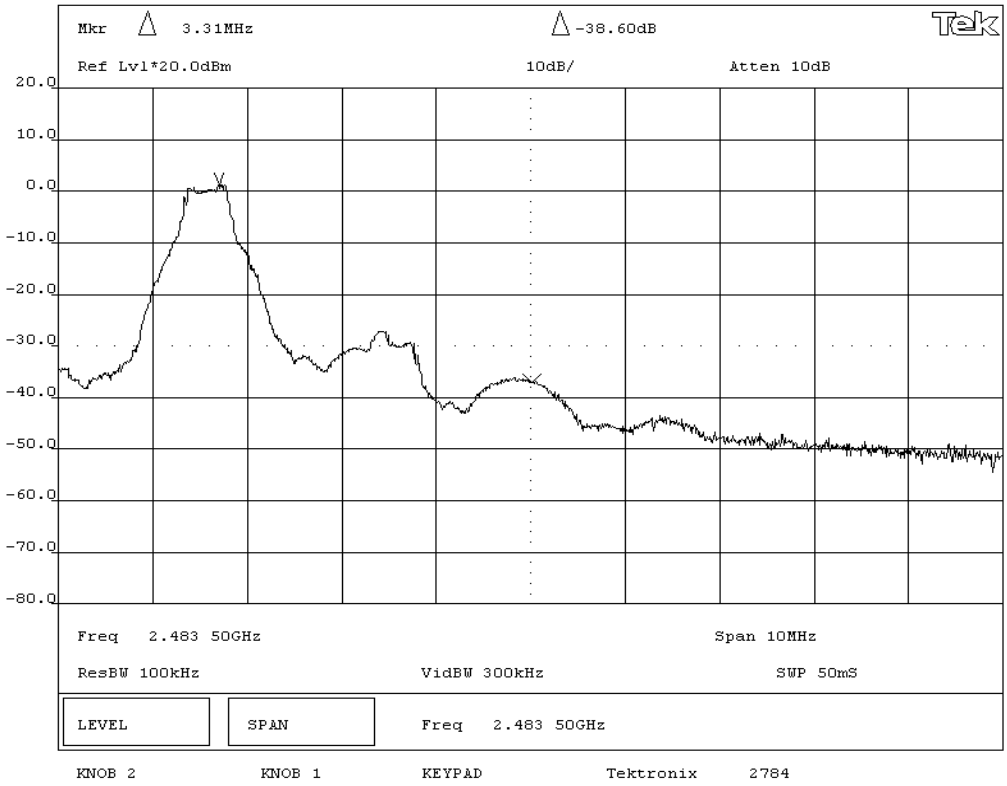
RESULTS	AMPLITUDE
Pass	-38.6 dB

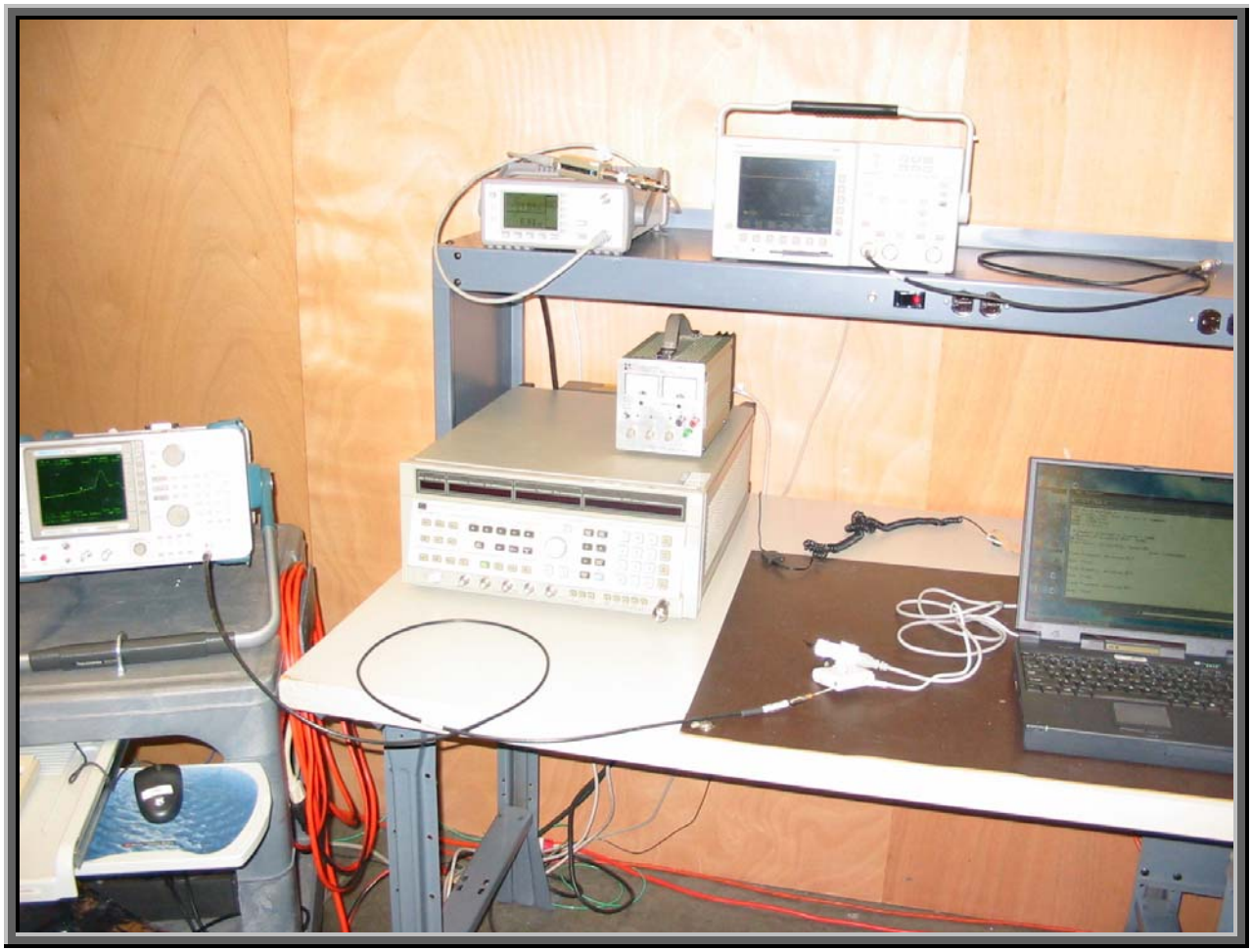
SIGNATURE

Tested By: _____

DESCRIPTION OF TEST

Band Edge Compliance - High Channel





Justification

The individuals and/or the organization requesting the test provided the modes, configurations and settings available to evaluate. While scanning the radiated emissions, all of the EUT parameters listed below were investigated. This includes, but may not be limited to, antennas, tuned transmit frequency ranges, operating modes, and data rates.

Channels in Specified Band Investigated:
Low
Mid
High

Operating Modes Investigated:
No Hop

Data Rates Investigated:
Maximum

Output Power Setting(s) Investigated:
Maximum

Power Input Settings Investigated:
120 VAC, 60 Hz.

Software\Firmware Applied During Test			
Exercise software	HyperTerminal	**Version**	1.2
Exercise software	Zeevo	**Version**	Release 6.2
Description			
The system was tested using special software developed to test all functions of the device during the test.			

EUT and Peripherals			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
naviPlay Stereo Remote	Smart Modular Technologies	NSR.H100	4T140B01
EUT AC Adapter	Sunfone	ACDL-04	4T130
Notebook PC	Gateway	Solo 2500	BC699085606
Notebook AC Adapter	Gateway	ADP-50FB	AC299065953

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
Serial	Yes	2.0	No	EUT	Notebook PC
DC Leads	PA	2.0	PA	EUT AC Adapter	EUT
AC Power	PA	0.5	PA	EUT AC Adapter	AC Mains
AC Power	No	2.0	No	Notebook AC Adapter	AC Mains
DC Leads	PA	2.0	PA	Notebook AC Adapter	Notebook PC
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

Measurement Equipment					
Description	**Manufacturer**	**Model**	**Identifier**	**Last Cal**	**Interval**
Spectrum Analyzer	Tektronix	2784	AAO	02/26/2003	24 mo

Test Description

Requirement: Per 47 CFR 15.247(d), in any 100 kHz bandwidth outside the authorized band, the maximum level of radio frequency power must be at least 20dB down from the highest emission level within the authorized band. The measurement is made with the spectrum analyzer's resolution bandwidth set to 100 kHz, and the video bandwidth set to greater than or equal to the resolution bandwidth.

Configuration: The spurious RF conducted emissions were measured with the EUT set to low, medium, and high transmit frequencies. The measurements were made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at its maximum data rate in a no hop mode. For each transmit frequency, the spectrum was scanned throughout the specified frequency.

Completed by:

NORTHWEST EMC

EMISSIONS DATA SHEET

Rev BETA 01/30/01

EUT:	NSR.H100			Work Order:	7LAY0028
Serial Number:	4T140B01			Date:	11/14/04
Customer:	Smart Modular Technologies			Temperature:	70 °F
Attendees:	None	Tested by:	Greg Kiemel	Humidity:	47% RH
Customer Ref. No.:	N/A	Power:	120VAC/60Hz	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 15.247(d)	Year: 2004	Method:	DA 00-705, ANSI C63.4	Year: 2003

SAMPLE CALCULATIONS

COMMENTS

EUT OPERATING MODES

Modulated by PRBS at maximum data rate

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

Maximum level of any spurious emission outside of the authorized band is 20 dB down from the fundamental

RESULTS

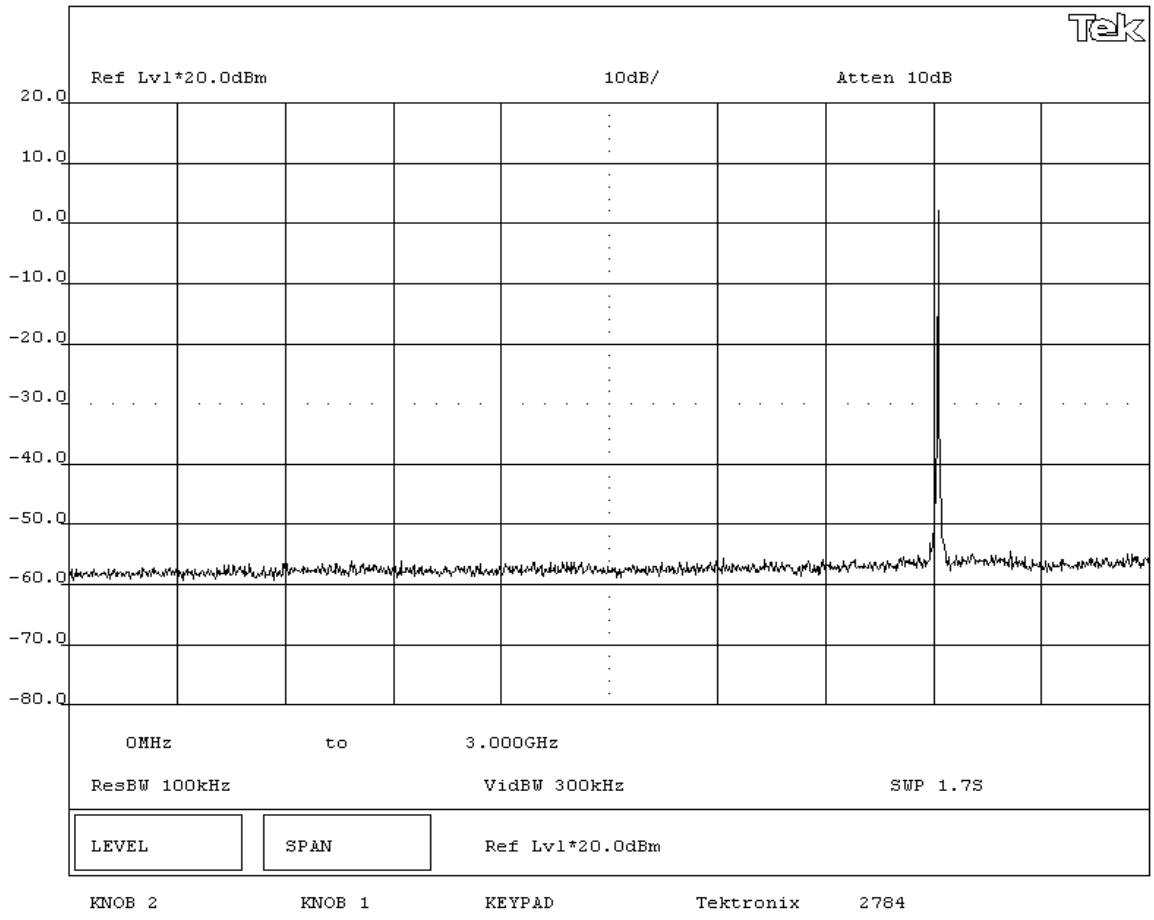
Pass

SIGNATURE

Tested By: _____

DESCRIPTION OF TEST

Antenna Conducted Spurious Emissions - Low Channel 0MHz-3GHz



NORTHWEST EMC

EMISSIONS DATA SHEET

Rev BETA 01/30/01

EUT:	NSR.H100			Work Order:	7LAY0028
Serial Number:	4T140B01			Date:	11/14/04
Customer:	Smart Modular Technologies			Temperature:	70 °F
Attendees:	None	Tested by:	Greg Kiemel	Humidity:	47% RH
Customer Ref. No.:	N/A	Power:	120VAC/60Hz	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 15.247(d)	Year:	2004	Method:	DA 00-705, ANSI C63.4	Year:	2003

SAMPLE CALCULATIONS

COMMENTS

EUT OPERATING MODES

Modulated by PRBS at maximum data rate

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

Maximum level of any spurious emission outside of the authorized band is 20 dB down from the fundamental

RESULTS

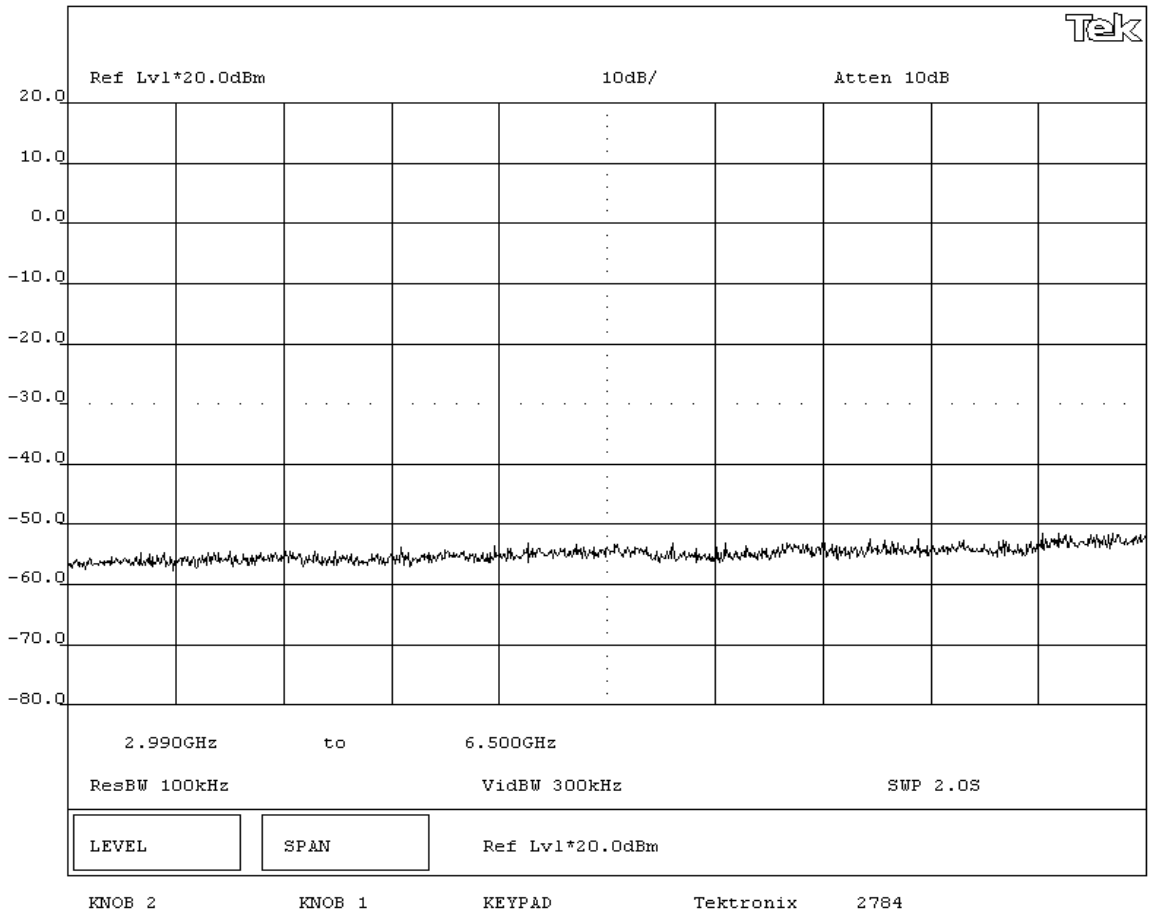
Pass

SIGNATURE

Tested By: _____

DESCRIPTION OF TEST

Antenna Conducted Spurious Emissions - Low Channel 3GHz-6.5GHz



NORTHWEST EMC

EMISSIONS DATA SHEET

Rev BETA 01/30/01

EUT:	NSR.H100			Work Order:	7LAY0028
Serial Number:	4T140B01			Date:	11/14/04
Customer:	Smart Modular Technologies			Temperature:	70 °F
Attendees:	None	Tested by:	Greg Kiemel	Humidity:	47% RH
Customer Ref. No.:	N/A	Power:	120VAC/60Hz	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 15.247(d)	Year:	2004	Method:	DA 00-705, ANSI C63.4	Year:	2003

SAMPLE CALCULATIONS

COMMENTS

EUT OPERATING MODES

Modulated by PRBS at maximum data rate

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

Maximum level of any spurious emission outside of the authorized band is 20 dB down from the fundamental

RESULTS

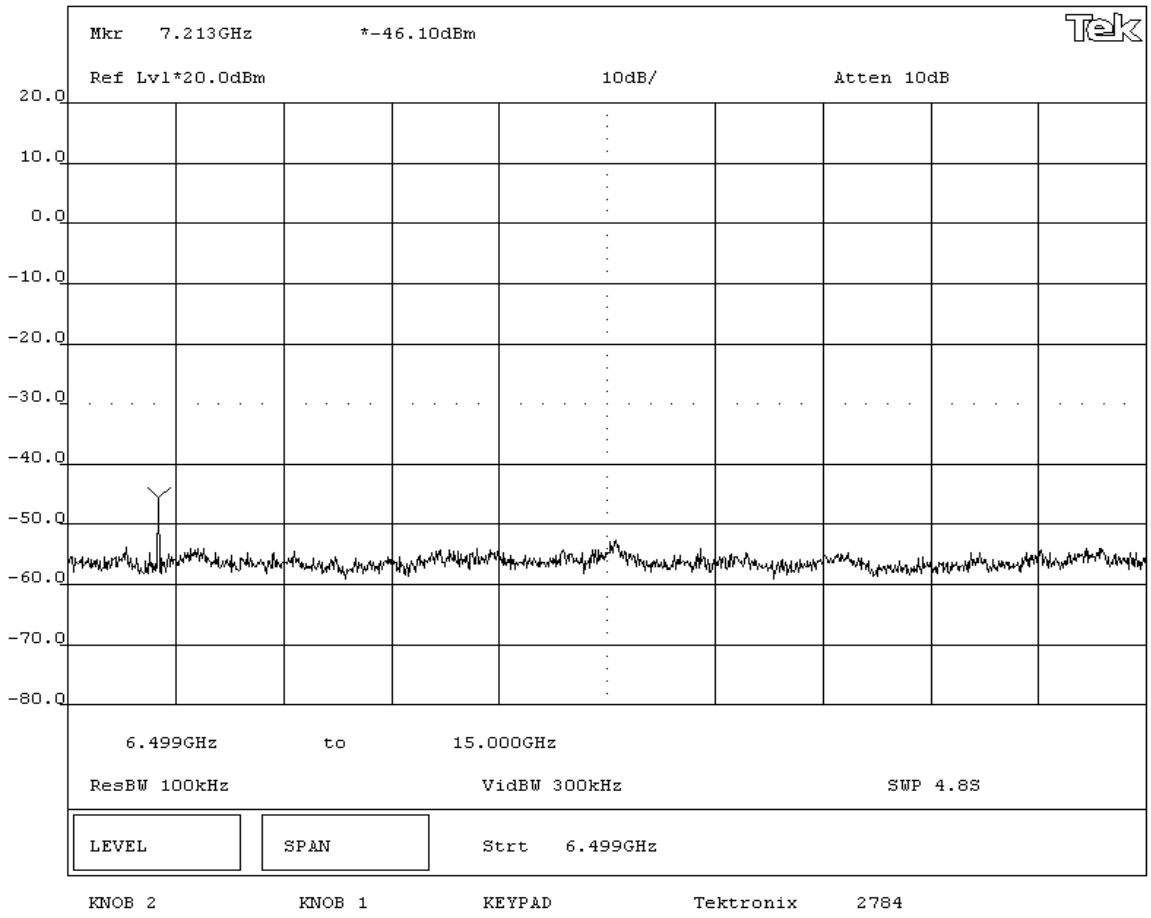
Pass

SIGNATURE

Tested By: _____

DESCRIPTION OF TEST

Antenna Conducted Spurious Emissions - Low Channel 6.5GHz-15GHz



NORTHWEST EMC

EMISSIONS DATA SHEET

Rev BETA 01/30/01

EUT:	NSR.H100			Work Order:	7LAY0028
Serial Number:	4T140B01			Date:	11/14/04
Customer:	Smart Modular Technologies			Temperature:	70 °F
Attendees:	None	Tested by:	Greg Kiemel	Humidity:	47% RH
Customer Ref. No.:	N/A	Power:	120VAC/60Hz	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 15.247(d)	Year:	2004	Method:	DA 00-705, ANSI C63.4	Year:	2003

SAMPLE CALCULATIONS

COMMENTS

EUT OPERATING MODES

Modulated by PRBS at maximum data rate

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

Maximum level of any spurious emission outside of the authorized band is 20 dB down from the fundamental

RESULTS

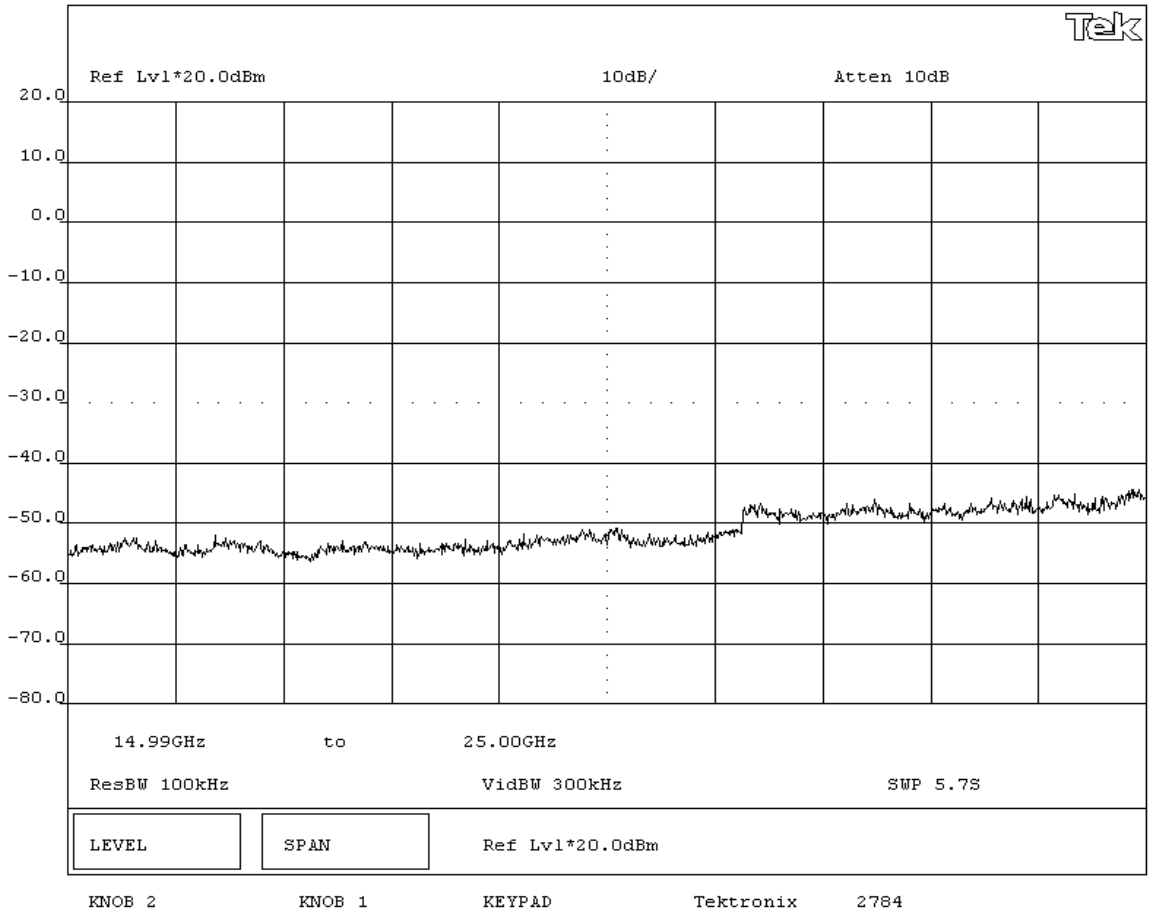
Pass

SIGNATURE

Tested By: _____

DESCRIPTION OF TEST

Antenna Conducted Spurious Emissions - Low Channel 15GHz - 25GHz



NORTHWEST EMC

EMISSIONS DATA SHEET

Rev BETA 01/30/01

EUT:	NSR.H100			Work Order:	7LAY0028
Serial Number:	4T140B01			Date:	11/14/04
Customer:	Smart Modular Technologies			Temperature:	70 °F
Attendees:	None	Tested by:	Greg Kiemel	Humidity:	47% RH
Customer Ref. No.:	N/A	Power:	120VAC/60Hz	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 15.247(d)	Year:	2004	Method:	DA 00-705, ANSI C63.4	Year:	2003

SAMPLE CALCULATIONS

COMMENTS

EUT OPERATING MODES

Modulated by PRBS at maximum data rate

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

Maximum level of any spurious emission outside of the authorized band is 20 dB down from the fundamental

RESULTS

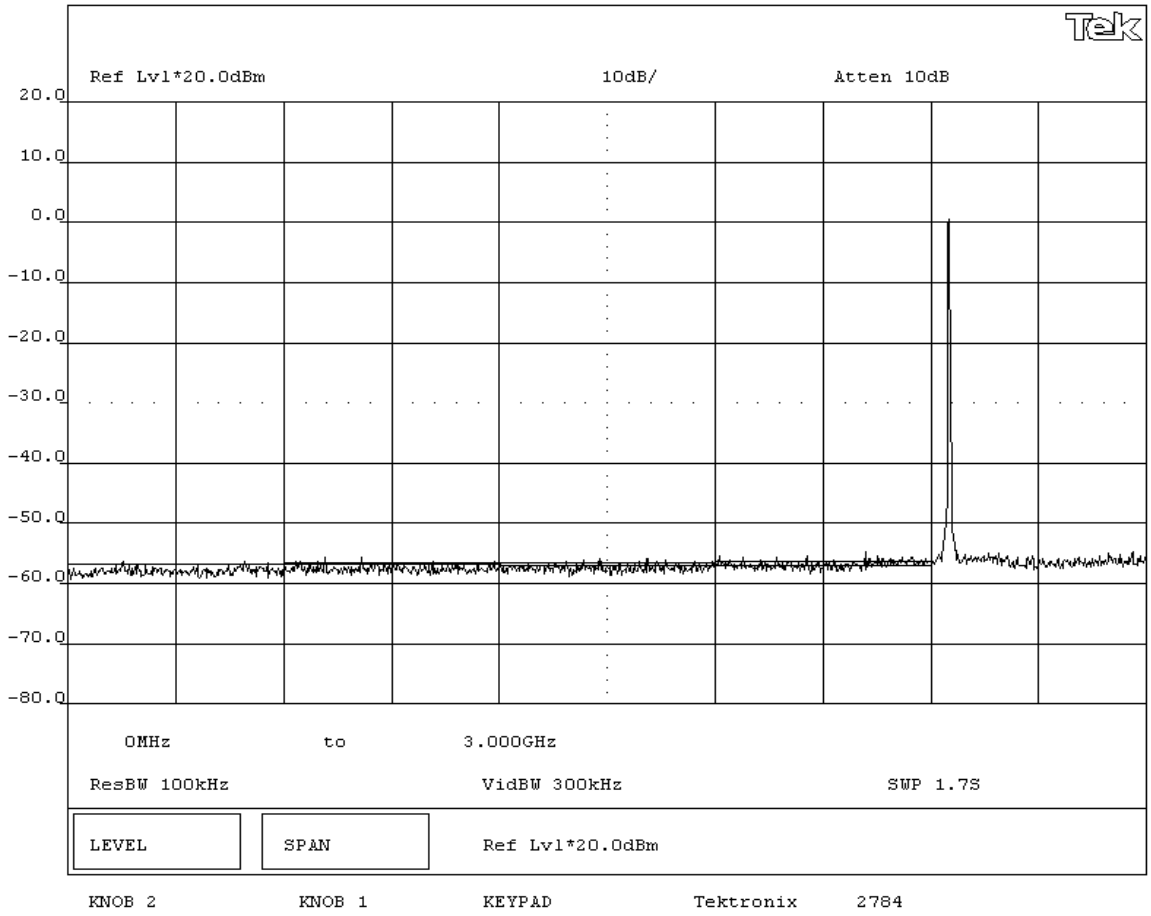
Pass

SIGNATURE

Tested By: _____

DESCRIPTION OF TEST

Antenna Conducted Spurious Emissions - Mid Channel 0MHz-3GHz



NORTHWEST EMC

EMISSIONS DATA SHEET

Rev BETA 01/30/01

EUT:	NSR.H100			Work Order:	7LAY0028
Serial Number:	4T140B01			Date:	11/14/04
Customer:	Smart Modular Technologies			Temperature:	70 °F
Attendees:	None	Tested by:	Greg Kiemel	Humidity:	47% RH
Customer Ref. No.:	N/A	Power:	120VAC/60Hz	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 15.247(d)	Year:	2004	Method:	DA 00-705, ANSI C63.4	Year:	2003

SAMPLE CALCULATIONS

COMMENTS

EUT OPERATING MODES

Modulated by PRBS at maximum data rate

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

Maximum level of any spurious emission outside of the authorized band is 20 dB down from the fundamental

RESULTS

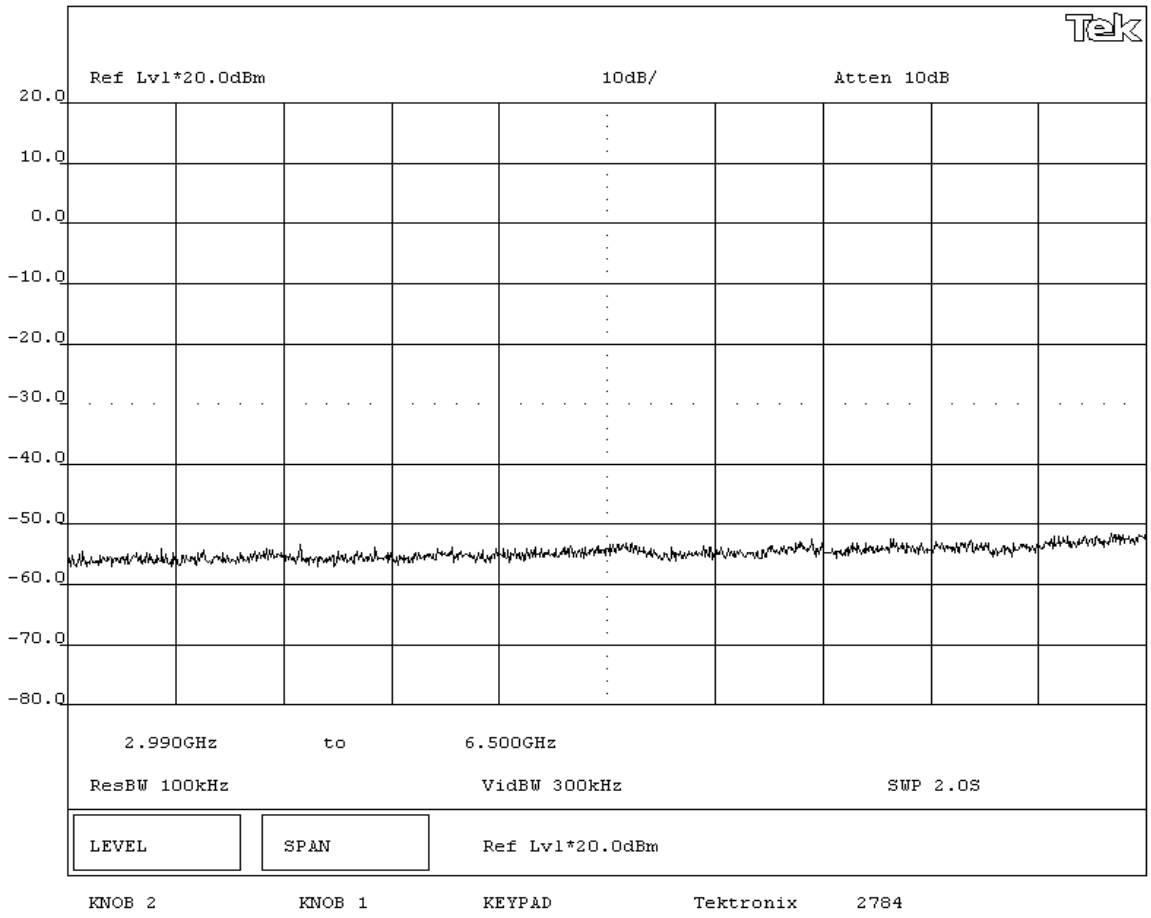
Pass

SIGNATURE

Tested By: _____

DESCRIPTION OF TEST

Antenna Conducted Spurious Emissions - Mid Channel 3GHz-6.5GHz



NORTHWEST EMC

EMISSIONS DATA SHEET

Rev BETA 01/30/01

EUT:	NSR.H100			Work Order:	7LAY0028
Serial Number:	4T140B01			Date:	11/14/04
Customer:	Smart Modular Technologies			Temperature:	70 °F
Attendees:	None	Tested by:	Greg Kiemel	Humidity:	47% RH
Customer Ref. No.:	N/A	Power:	120VAC/60Hz	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 15.247(d)	Year:	2004	Method:	DA 00-705, ANSI C63.4	Year:	2003

SAMPLE CALCULATIONS

COMMENTS

EUT OPERATING MODES

Modulated by PRBS at maximum data rate

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

Maximum level of any spurious emission outside of the authorized band is 20 dB down from the fundamental

RESULTS

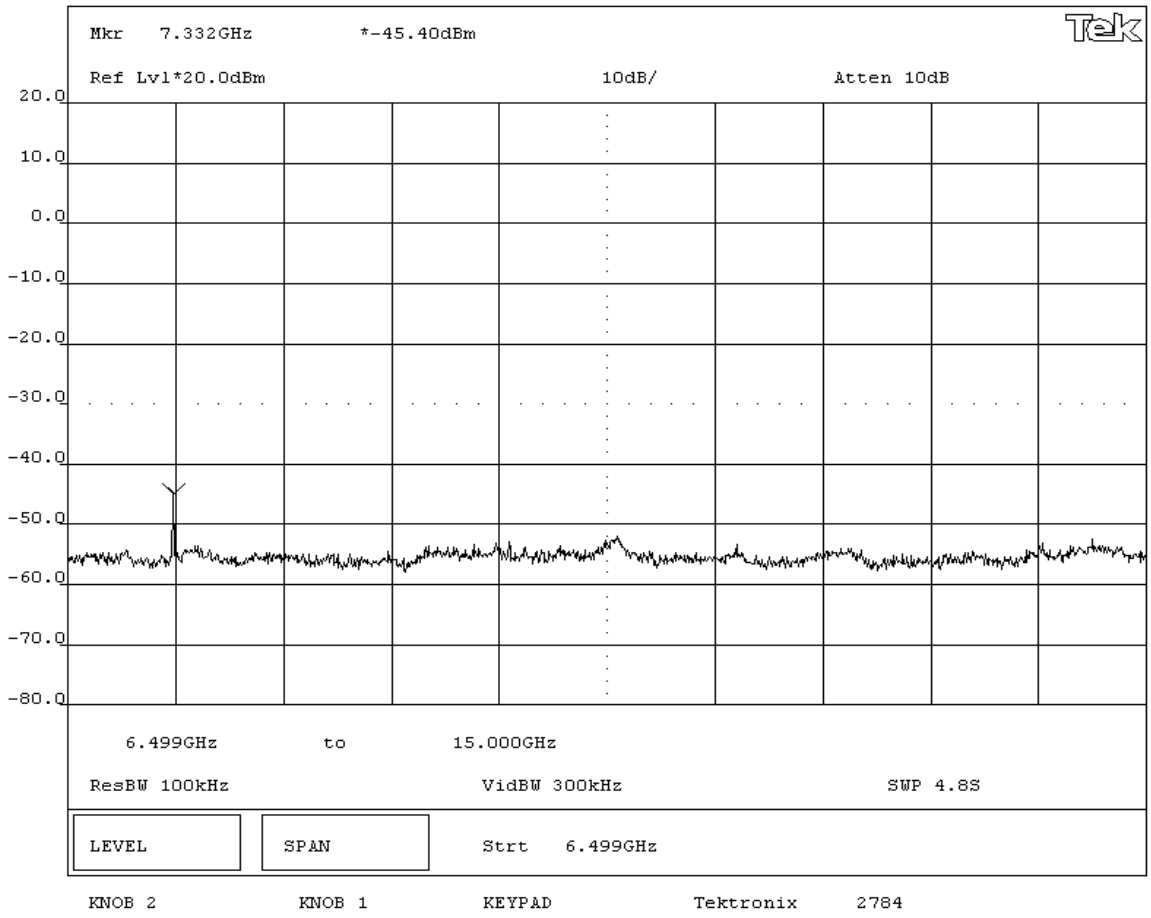
Pass

SIGNATURE

Tested By: _____

DESCRIPTION OF TEST

Antenna Conducted Spurious Emissions - Mid Channel 6.5GHz-15GHz



NORTHWEST
EMC

EMISSIONS DATA SHEET

Rev BETA
01/30/01

EUT:	NSR.H100			Work Order:	7LAY0028
Serial Number:	4T140B01			Date:	11/14/04
Customer:	Smart Modular Technologies			Temperature:	70 °F
Attendees:	None	Tested by:	Greg Kiemel	Humidity:	47% RH
Customer Ref. No.:	N/A	Power:	120VAC/60Hz	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 15.247(d)	Year:	2004	Method:	DA 00-705, ANSI C63.4	Year:	2003

SAMPLE CALCULATIONS

COMMENTS

EUT OPERATING MODES

Modulated by PRBS at maximum data rate

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

Maximum level of any spurious emission outside of the authorized band is 20 dB down from the fundamental

RESULTS

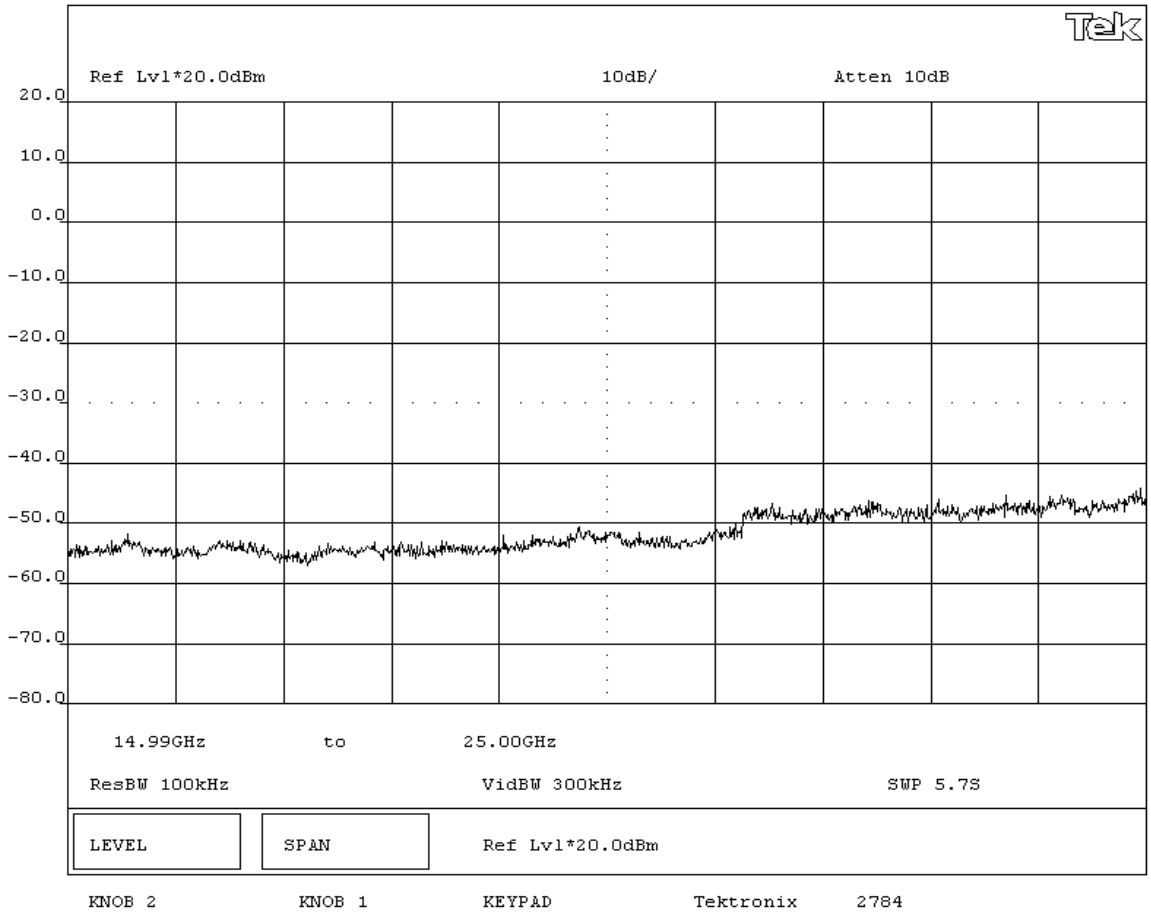
Pass

SIGNATURE

Tested By: _____

DESCRIPTION OF TEST

Antenna Conducted Spurious Emissions - Mid Channel 15GHz-25GHz



NORTHWEST EMC

EMISSIONS DATA SHEET

Rev BETA 01/30/01

EUT:	NSR.H100			Work Order:	7LAY0028
Serial Number:	4T140B01			Date:	11/14/04
Customer:	Smart Modular Technologies			Temperature:	70 °F
Attendees:	None	Tested by:	Greg Kiemel	Humidity:	47% RH
Customer Ref. No.:	N/A	Power:	120VAC/60Hz	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 15.247(d)	Year:	2004	Method:	DA 00-705, ANSI C63.4	Year:	2003

SAMPLE CALCULATIONS

COMMENTS

EUT OPERATING MODES

Modulated by PRBS at maximum data rate

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

Maximum level of any spurious emission outside of the authorized band is 20 dB down from the fundamental

RESULTS

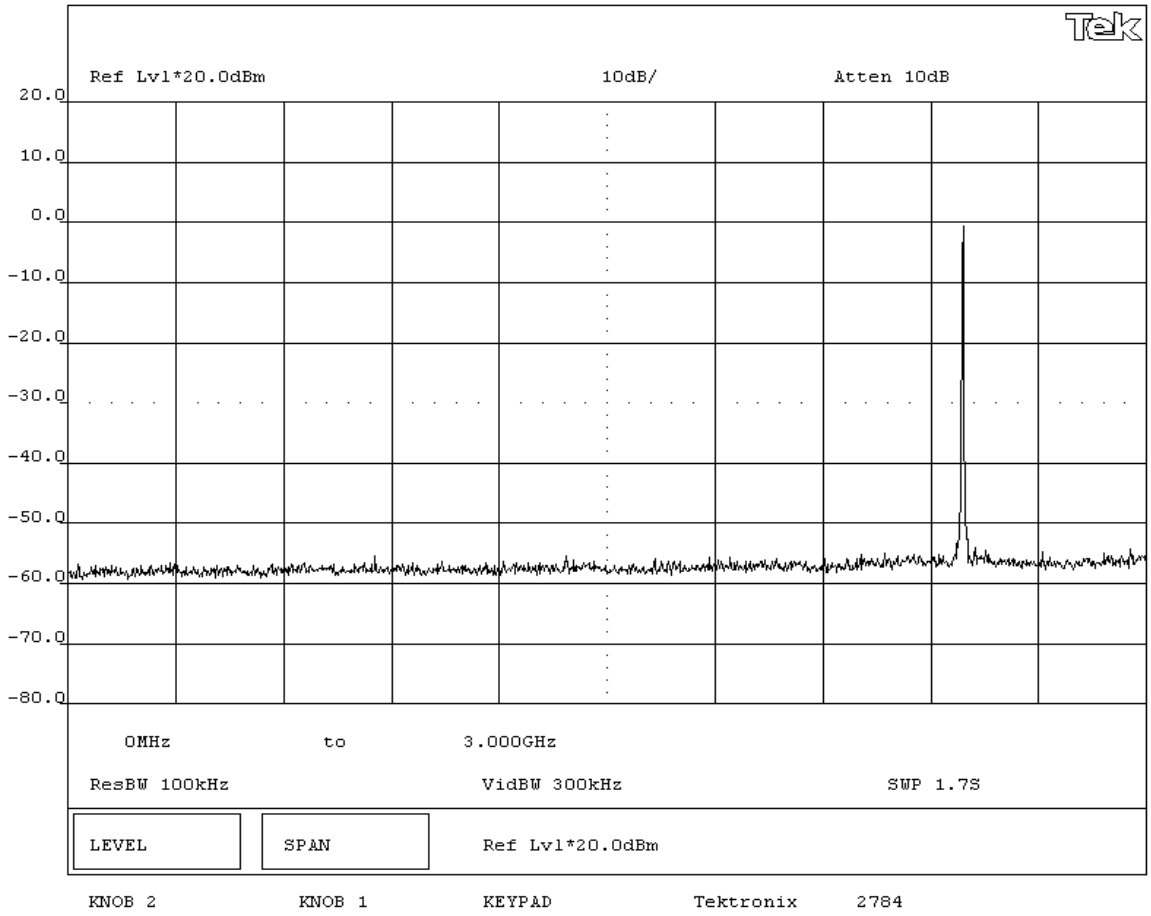
Pass

SIGNATURE

Tested By: _____

DESCRIPTION OF TEST

Antenna Conducted Spurious Emissions - High Channel 0MHz-3GHz



NORTHWEST EMC

EMISSIONS DATA SHEET

Rev BETA 01/30/01

EUT:	NSR.H100			Work Order:	7LAY0028
Serial Number:	4T140B01			Date:	11/14/04
Customer:	Smart Modular Technologies			Temperature:	70 °F
Attendees:	None	Tested by:	Greg Kiemel	Humidity:	47% RH
Customer Ref. No.:	N/A	Power:	120VAC/60Hz	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 15.247(d)	Year:	2004	Method:	DA 00-705, ANSI C63.4	Year:	2003

SAMPLE CALCULATIONS

COMMENTS

EUT OPERATING MODES

Modulated by PRBS at maximum data rate

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

Maximum level of any spurious emission outside of the authorized band is 20 dB down from the fundamental

RESULTS

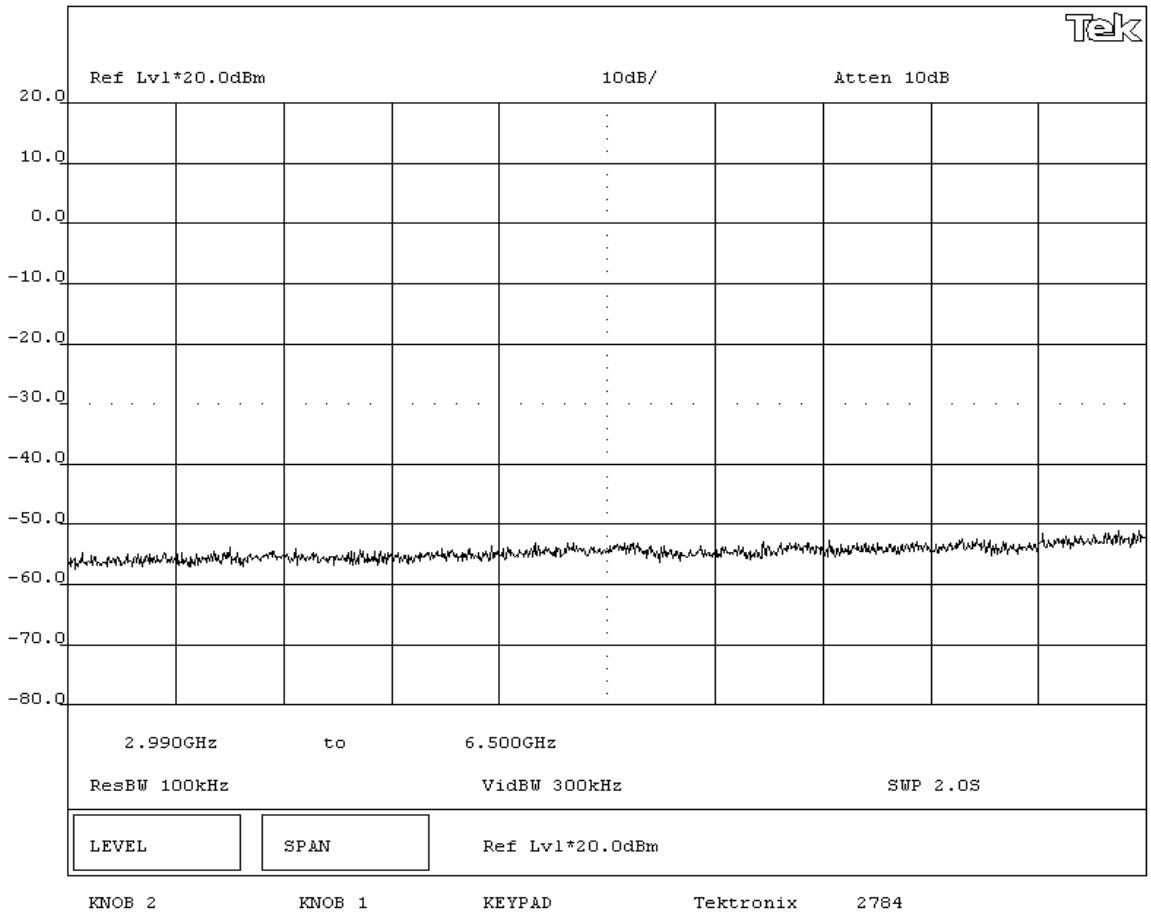
Pass

SIGNATURE

Tested By: _____

DESCRIPTION OF TEST

Antenna Conducted Spurious Emissions - High Channel 3GHz-6.5GHz



NORTHWEST EMC

EMISSIONS DATA SHEET

Rev BETA 01/30/01

EUT:	NSR.H100			Work Order:	7LAY0028
Serial Number:	4T140B01			Date:	11/14/04
Customer:	Smart Modular Technologies			Temperature:	70 °F
Attendees:	None	Tested by:	Greg Kiemel	Humidity:	47% RH
Customer Ref. No.:	N/A	Power:	120VAC/60Hz	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 15.247(d)	Year:	2004	Method:	DA 00-705, ANSI C63.4	Year:	2003

SAMPLE CALCULATIONS

COMMENTS

EUT OPERATING MODES

Modulated by PRBS at maximum data rate

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

Maximum level of any spurious emission outside of the authorized band is 20 dB down from the fundamental

RESULTS

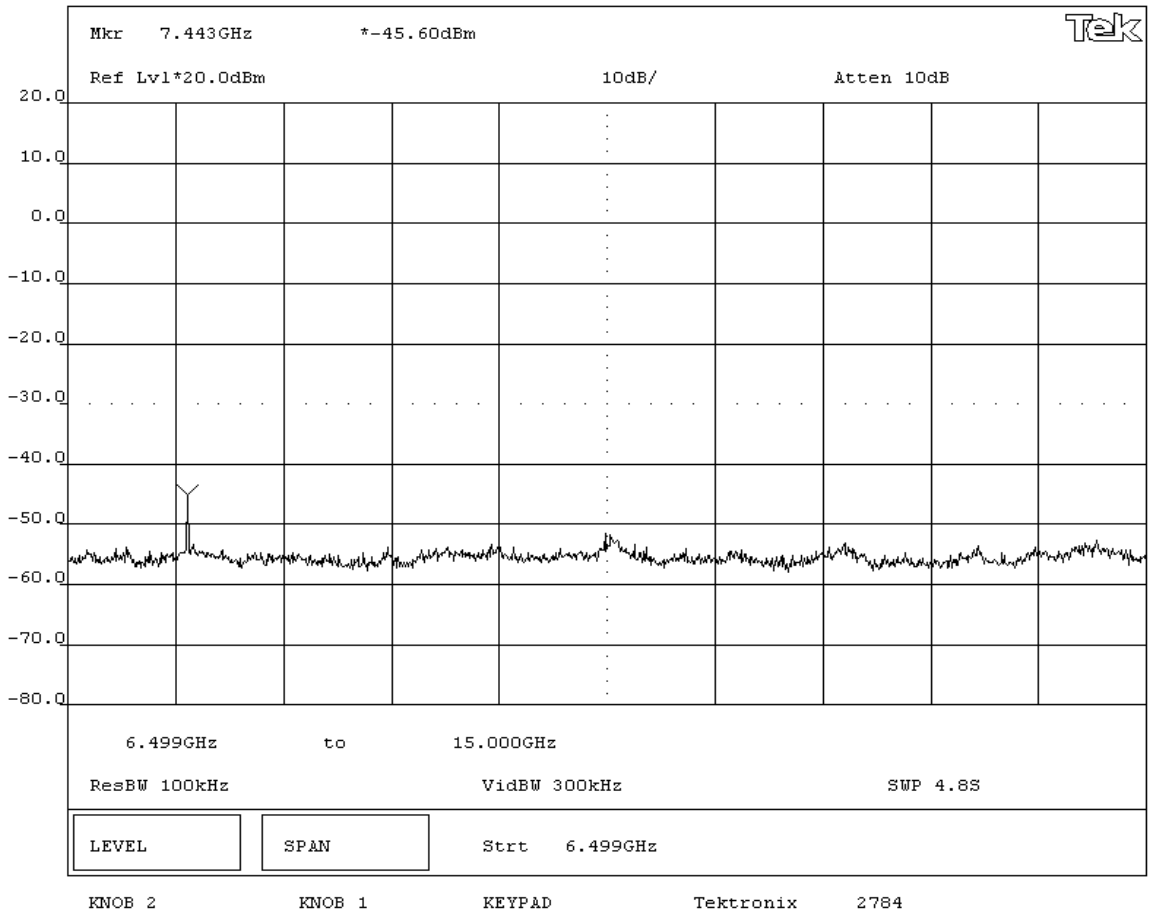
Pass

SIGNATURE

Tested By: _____

DESCRIPTION OF TEST

Antenna Conducted Spurious Emissions - High Channel 6.5GHz-15GHz



NORTHWEST EMC

EMISSIONS DATA SHEET

Rev BETA 01/30/01

EUT:	NSR.H100			Work Order:	7LAY0028
Serial Number:	4T140B01			Date:	11/14/04
Customer:	Smart Modular Technologies			Temperature:	70 °F
Attendees:	None	Tested by:	Greg Kiemel	Humidity:	47% RH
Customer Ref. No.:	N/A	Power:	120VAC/60Hz	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 15.247(d)	Year:	2004	Method:	DA 00-705, ANSI C63.4	Year:	2003

SAMPLE CALCULATIONS

COMMENTS

EUT OPERATING MODES

Modulated by PRBS at maximum data rate

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

Maximum level of any spurious emission outside of the authorized band is 20 dB down from the fundamental

RESULTS

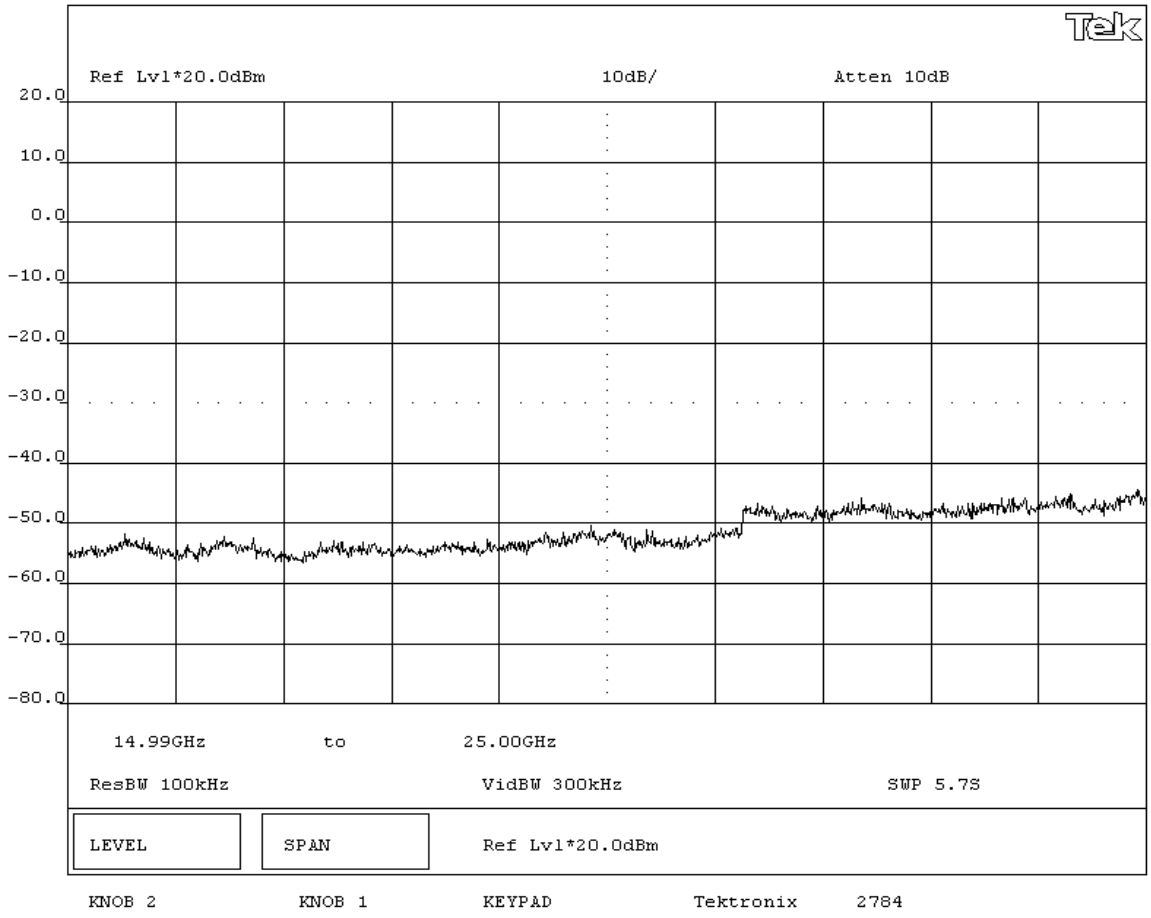
Pass

SIGNATURE

Tested By: _____

DESCRIPTION OF TEST

Antenna Conducted Spurious Emissions - High Channel 15GHz-25GHz



Justification

The individuals and/or the organization requesting the test provided the modes, configurations and settings available to evaluate. While scanning the radiated emissions, all of the EUT parameters listed below were investigated. This includes, but may not be limited to, antennas, tuned transmit frequency ranges, operating modes, and data rates.

Channels in Specified Band Investigated:
Low
Mid
High

Operating Modes Investigated:
No Hop

Data Rates Investigated:
Maximum

Output Power Setting(s) Investigated:
Maximum

Power Input Settings Investigated:
120 VAC, 60 Hz.

Software\Firmware Applied During Test			
Exercise software	HyperTerminal	**Version**	1.2
Exercise software	Zeevo	**Version**	Release 6.2
Description			
The system was tested using special software developed to test all functions of the device during the test.			

EUT and Peripherals			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
naviPlay Stereo Remote	Smart Modular Technologies	NSR.H100	4T140B01
EUT AC Adapter	Sunfone	ACDL-04	4T130
Notebook PC	Gateway	Solo 2500	BC699085606
Notebook AC Adapter	Gateway	ADP-50FB	AC299065953

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
Serial	Yes	2.0	No	EUT	Notebook PC
DC Leads	PA	2.0	PA	EUT AC Adapter	EUT
AC Power	PA	0.5	PA	EUT AC Adapter	AC Mains
AC Power	No	2.0	No	Notebook AC Adapter	AC Mains
DC Leads	PA	2.0	PA	Notebook AC Adapter	Notebook PC
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

Measurement Equipment					
Description	**Manufacturer**	**Model**	**Identifier**	**Last Cal**	**Interval**
Spectrum Analyzer	Tektronix	2784	AAO	02/26/2003	24 mo

Test Description

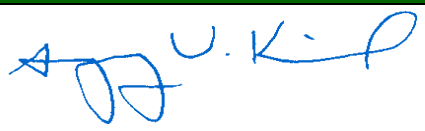
Requirement: Per 47 CFR 15.247(e), the peak power spectral density conducted from the antenna port of a direct sequence transmitter must not be greater than +8 dBm in any 3 kHz band during any time interval of continuous transmission.

Configuration: The peak power spectral density measurements were measured with the EUT set to low, mid, and high transmit frequencies. The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at its maximum data rate using direct sequence modulation. Per the procedure outlined in FCC 97-114, the spectrum analyzer was used as follows:

> The emission peak(s) were located and zoom in on within the passband. The resolution bandwidth was set to 3 kHz, the video bandwidth was set to greater than or equal to the resolution bandwidth. The sweep speed was set equal to the span divided by 3 kHz (sweep = (SPAN/3 kHz)). For example, given a span of 1.5 MHz, the sweep should be 1.5 x 106 ÷ 3 x 103 = 500 seconds. External attenuation was used and added to the reading. The following FCC procedure was used for modifying the power spectral density measurements:

"If the spectrum line spacing cannot be resolved on the available spectrum analyzer, the noise density function on most modern conventional spectrum analyzers will directly measure the noise power density normalized to a 1 Hz noise power bandwidth. Add 34.8 dB for correction to 3 kHz."

Completed by:



NORTHWEST EMC

EMISSIONS DATA SHEET

Rev BETA 01/30/01

EUT:	NSR.H100			Work Order:	7LAY0028
Serial Number:	4T140B01			Date:	11/14/04
Customer:	Smart Modular Technologies			Temperature:	70 °F
Attendees:	None	Tested by:	Greg Kiemel	Humidity:	47% RH
Customer Ref. No.:	N/A	Power:	120VAC/60Hz	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 15.247(e)	Year:	2004	Method:	FCC 97-114, ANSI C63.4	Year:	2003

SAMPLE CALCULATIONS

Meter reading on spectrum analyzer is internally compensated for cable loss and external attenuation.
Power Spectral Density per 3kHz bandwidth = Power Spectral Density per 1 Hz bandwidth + Bandwidth Correction Factor.
Bandwidth Correction Factor = 10*log(3kHz/1Hz) = 34.8 dB

COMMENTS

EUT OPERATING MODES

Modulated by PRBS at maximum data rate

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

Maximum peak power spectral density conducted from a DSSS transmitter does not exceed 8 dBm in any 3 kHz band

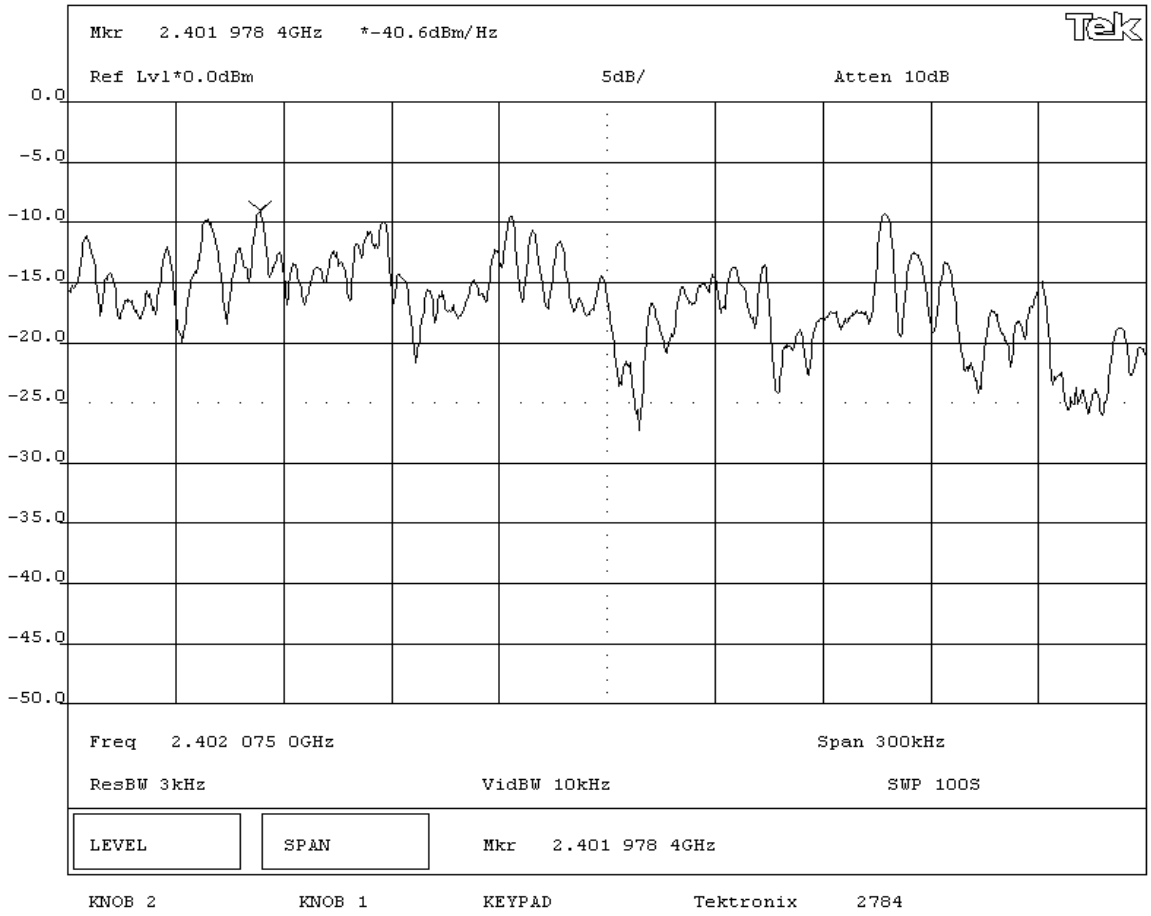
RESULTS	AMPLITUDE
Pass	Power Spectral Density = -5.8 dBm / 3kHz

SIGNATURE

Tested By: A.J.U.K.P

DESCRIPTION OF TEST

Power Spectral Density - Low Channel



NORTHWEST EMC

EMISSIONS DATA SHEET

Rev BETA 01/30/01

EUT:	NSR.H100			Work Order:	7LAY0028
Serial Number:	4T140B01			Date:	11/14/04
Customer:	Smart Modular Technologies			Temperature:	70 °F
Attendees:	None	Tested by:	Greg Kiemel	Humidity:	47% RH
Customer Ref. No.:	N/A	Power:	120VAC/60Hz	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 15.247(e)	Year:	2004	Method:	FCC 97-114, ANSI C63.4	Year:	2003

SAMPLE CALCULATIONS

Meter reading on spectrum analyzer is internally compensated for cable loss and external attenuation

Power Spectral Density per 3kHz bandwidth = Power Spectral Density per 1 Hz bandwidth + Bandwidth Correction Factor.

Bandwidth Correction Factor = 10*log(3kHz/1Hz) = 34.8 dB

COMMENTS

EUT OPERATING MODES

Modulated by PRBS at maximum data rate

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

Maximum peak power spectral density conducted from a DSSS transmitter does not exceed 8 dBm in any 3 kHz band

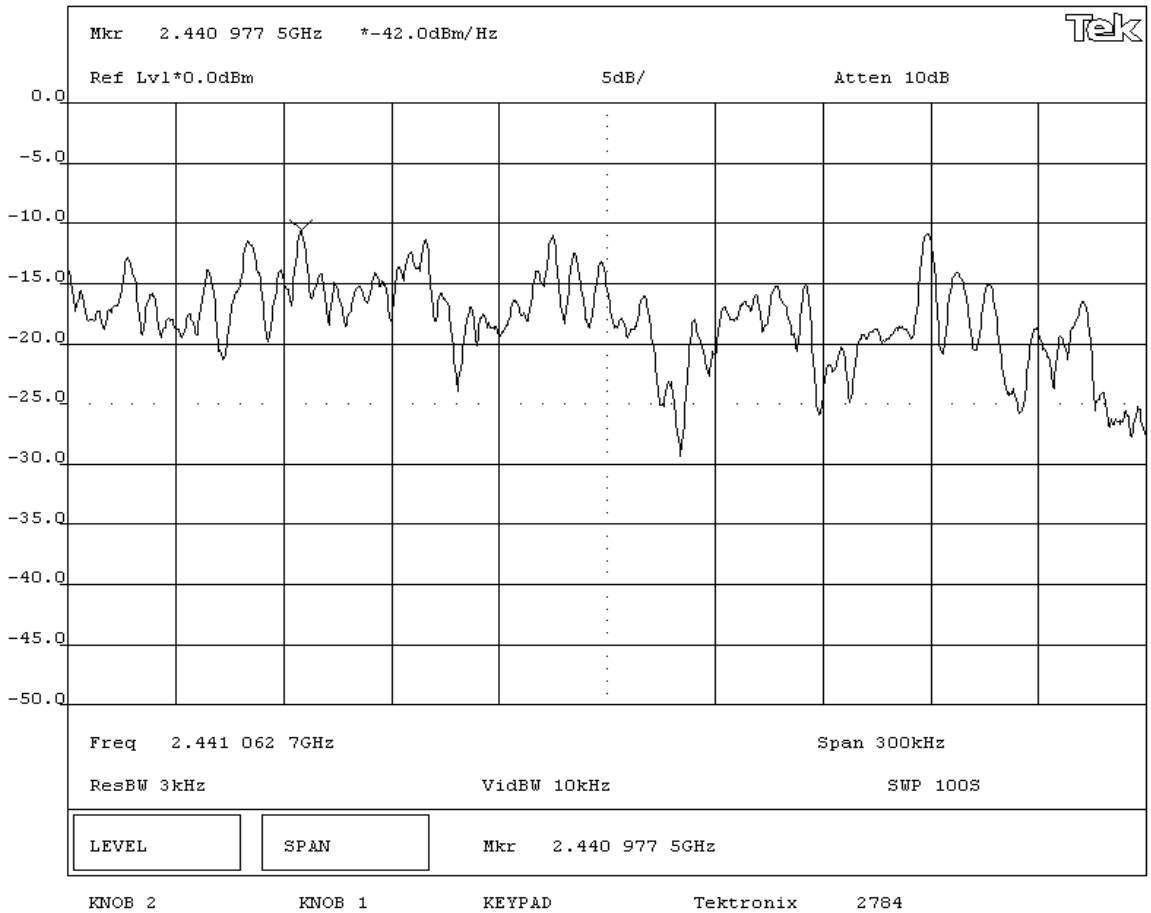
RESULTS	AMPLITUDE
Pass	Power Spectral Density = -7.2 dBm / 3kHz

SIGNATURE

Tested By: _____

DESCRIPTION OF TEST

Power Spectral Density - Mid Channel



NORTHWEST EMC

EMISSIONS DATA SHEET

Rev BETA 01/30/01

EUT:	NSR.H100			Work Order:	7LAY0028
Serial Number:	4T140B01			Date:	11/14/04
Customer:	Smart Modular Technologies			Temperature:	70 °F
Attendees:	None	Tested by:	Greg Kiemel	Humidity:	47% RH
Customer Ref. No.:	N/A	Power:	120VAC/60Hz	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 15.247(e)	Year:	2004	Method:	FCC 97-114, ANSI C63.4	Year:	2003

SAMPLE CALCULATIONS

Meter reading on spectrum analyzer is internally compensated for cable loss and external attenuation

Power Spectral Density per 3kHz bandwidth = Power Spectral Density per 1 Hz bandwidth + Bandwidth Correction Factor.

Bandwidth Correction Factor = 10*log(3kHz/1Hz) = 34.8 dB

COMMENTS

EUT OPERATING MODES

Modulated by PRBS at maximum data rate

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

Maximum peak power spectral density conducted from a DSSS transmitter does not exceed 8 dBm in any 3 kHz band

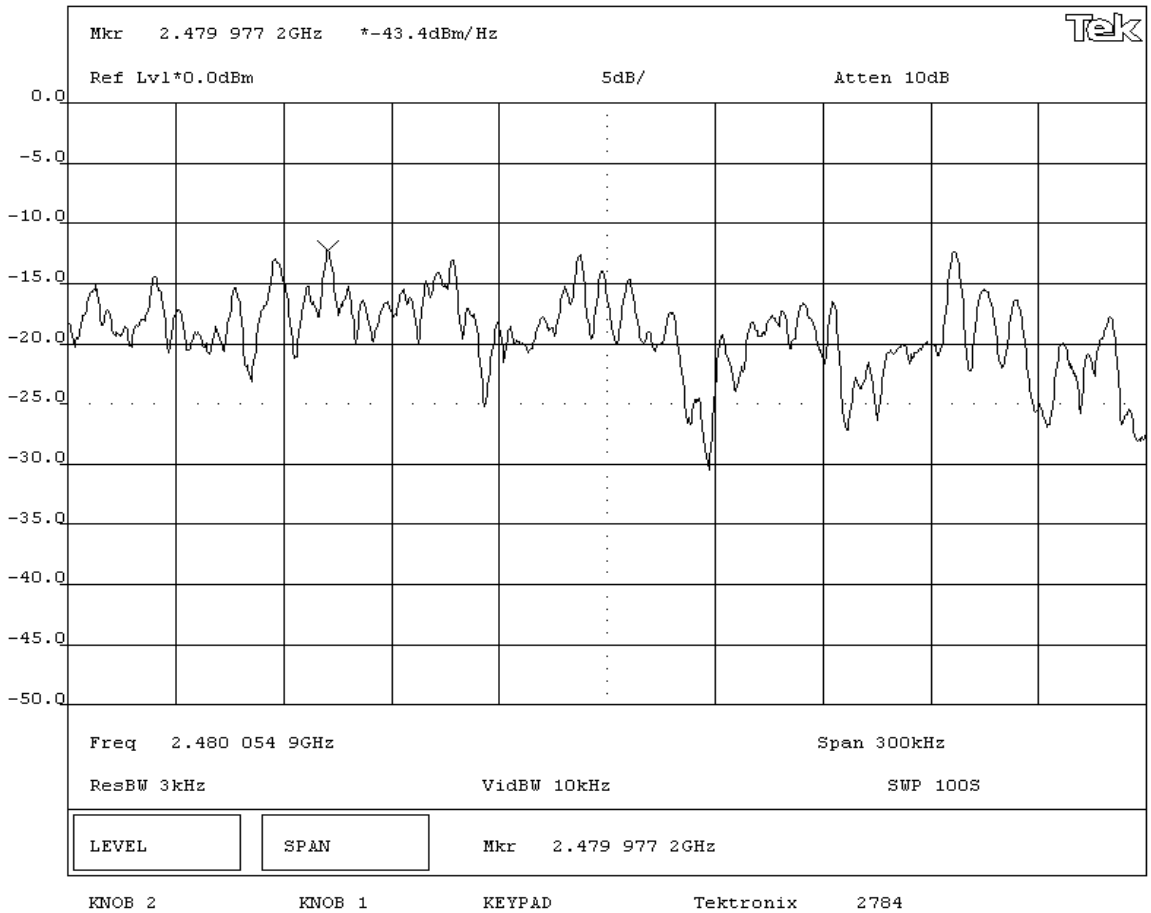
RESULTS	AMPLITUDE
Pass	Power Spectral Density = -8.6 dBm / 3kHz

SIGNATURE

Tested By: _____

DESCRIPTION OF TEST

Power Spectral Density - High Channel



Justification

The individuals and/or the organization requesting the test provided the modes, configurations and settings available to evaluate. While scanning the radiated emissions, all of the EUT parameters listed below were investigated. This includes, but may not be limited to, antennas, tuned transmit frequency ranges, operating modes, and data rates.

Channels in Specified Band Investigated:
Low
Mid
High

Operating Modes Investigated:
No Hop

Data Rates Investigated:
Maximum

Output Power Setting(s) Investigated:
Maximum

Power Input Settings Investigated:
120 VAC, 60 Hz.

Frequency Range Investigated			
Start Frequency	30 MHz	**Stop Frequency**	26 GHz

Software\Firmware Applied During Test			
Exercise software	HyperTerminal	**Version**	1.2
Exercise software	Zeevo	**Version**	Release 6.2
Description			
The system was tested using special software developed to test all functions of the device during the test.			

EUT and Peripherals			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
EUT AC Adapter	Sunfone	ACDL-04	4T130
Headphones	Apple	ipod	None
naviPlay Stereo Remote	Smart Modular Technologies	NSR.H100	4T140A01
naviPlay iPod Adapter	Smart Modular Technologies	NIA.S10	4T130B01
iPod	Apple Computer, Inc.	A1040	JQ4239FJQQF

Remote Equipment Outside of Test Setup Boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Notebook PC	Gateway	Solo 2500	BC699085606
Notebook AC Adapter	Gateway	ADP-50FB	AC299065953
Equipment isolated from the EUT so as not to contribute to the measurement result is considered to be outside the test setup boundary			

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
Serial	Yes	2.0	No	EUT	Notebook PC
DC Leads	PA	2.0	PA	EUT AC Adapter	EUT
AC Power	PA	0.5	PA	EUT AC Adapter	AC Mains
AC Power	No	2.0	No	Notebook AC Adapter	AC Mains
DC Leads	PA	2.0	PA	Notebook AC Adapter	Notebook PC
Audio	PA	1.0	PA	Bluetooth Remote (EUT)	Headphones
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

Measurement Equipment					
Description	**Manufacturer**	**Model**	**Identifier**	**Last Cal**	**Interval**
Quasi-Peak Adapter	Hewlett-Packard	85650A	AQF	12/23/2003	13 mo
Spectrum Analyzer	Hewlett-Packard	8566B	AAL	12/23/2003	13 mo
Antenna, Horn	EMCO	3115	AHC	09/07/2004	12 mo
Antenna, Biconilog	EMCO	3141	AXE	12/03/2003	24 mo
Pre-Amplifier	Amplifier Research	LN1000A	APS	02/05/2004	13 mo
Pre-Amplifier	Miteq	AMF-4D-005180-24-10P	APJ	01/05/2004	13 mo
Antenna, Horn	EMCO	3160-08	AHK	NCR	NA
High Pass Filter	Micro-Tronics	HPM50111	HFO	04/13/2004	13 mo
Pre-Amplifier	Miteq	JSD4-18002600-26-8P	APU	10/08/2004	13 mo
Spectrum Analyzer	Tektronix	2784	AAO	02/26/2003	24 mo

Test Description

Requirement: The field strength of any spurious emissions or modulation products that fall in a restricted band, as defined in 47 CFR 15.205, is measured. The peak level must comply with the limits specified in 47 CFR 15.35(b). The average level (taken with a 10Hz VBW) must comply with the limits specified in 15.209.

Configuration: The highest gain of each type of antenna to be used with the EUT was tested. The EUT was configured for low, mid, and high band transmit frequencies. For each configuration, the spectrum was scanned throughout the specified range. In addition, measurements were made in the restricted bands to verify compliance. While scanning, emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and the EUT antenna in three orthogonal axis, and adjusting measurement antenna height and polarization, and manipulating the EUT antenna in 3 orthogonal planes (per ANSI C63.4:2003). A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

Bandwidths Used for Measurements			
Frequency Range (MHz)	**Peak Data (kHz)**	**Quasi-Peak Data (kHz)**	**Average Data (kHz)**
0.01 – 0.15	1.0	0.2	0.2
0.15 – 30.0	10.0	9.0	9.0
30.0 – 1000	100.0	120.0	120.0
Above 1000	1000.0	N/A	1000.0
Measurements were made using the bandwidths and detectors specified. No video filter was used.			

Completed by:

NORTHWEST EMC

RADIATED EMISSIONS DATA SHEET

REV df4.4 10/22/2004

EUT:	NSR.H100			Work Order:	7LAY0028
Serial Number:	4T140A01			Date:	11/16/04
Customer:	Smart Modular Technologies			Temperature:	72
Attendees:	none			Humidity:	37%
Cust. Ref. No.:	N/A			Barometric Pressure	30.14
Tested by:	Jonathan Peng	Power:	120VAC/60Hz	Job Site:	OC10

TEST SPECIFICATIONS

Specification:	FCC 15.209	Year:	2004
Method:	ANSI C63.4	Year:	2003

SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator

COMMENTS

Transmitting High Frequency - Channel 78

EUT OPERATING MODES

Typical Operating Mode

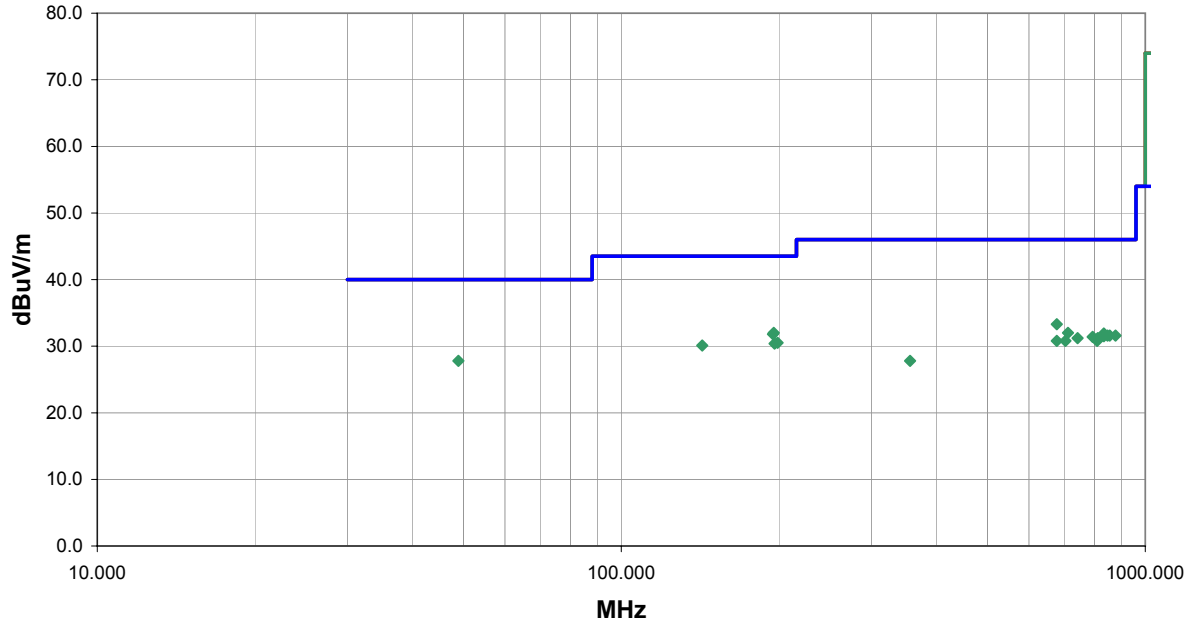
DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS	Run #
Pass	2

Other

Tested By:



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)
195.376	36.2	-4.2	334.0	1.0	3.0	0.0	V-Bilog	PK	0.0	32.0	43.5	-11.5
194.701	36.1	-4.3	72.0	2.2	3.0	0.0	H-Bilog	PK	0.0	31.8	43.5	-11.7
48.900	33.2	-5.4	119.0	1.0	3.0	0.0	V-Bilog	PK	0.0	27.8	40.0	-12.2
677.908	24.9	8.4	202.0	1.2	3.0	0.0	H-Bilog	PK	0.0	33.3	46.0	-12.7
198.751	34.7	-4.2	87.0	2.2	3.0	0.0	H-Bilog	PK	0.0	30.5	43.5	-13.0
196.051	34.6	-4.2	43.0	2.2	3.0	0.0	H-Bilog	PK	0.0	30.4	43.5	-13.1
142.725	36.5	-6.4	271.0	3.0	3.0	0.0	H-Bilog	PK	0.0	30.1	43.5	-13.4
712.042	23.3	8.7	177.0	1.2	3.0	0.0	H-Bilog	PK	0.0	32.0	46.0	-14.0
833.701	22.9	9.0	358.0	3.6	3.0	0.0	V-Bilog	PK	0.0	31.9	46.0	-14.1
877.464	22.2	9.4	13.0	1.2	3.0	0.0	V-Bilog	PK	0.0	31.6	46.0	-14.4
846.830	22.6	9.0	298.0	1.2	3.0	0.0	V-Bilog	PK	0.0	31.6	46.0	-14.4
855.582	22.4	9.2	8.0	1.0	3.0	0.0	H-Bilog	PK	0.0	31.6	46.0	-14.4
833.701	22.5	9.0	287.0	3.2	3.0	0.0	H-Bilog	PK	0.0	31.5	46.0	-14.5
793.440	22.6	8.8	329.0	1.7	3.0	0.0	V-Bilog	PK	0.0	31.4	46.0	-14.6
811.820	22.2	9.0	229.0	1.5	3.0	0.0	H-Bilog	PK	0.0	31.2	46.0	-14.8
742.676	22.6	8.6	97.0	1.7	3.0	0.0	V-Bilog	PK	0.0	31.2	46.0	-14.8
809.195	21.8	9.0	332.0	1.2	3.0	0.0	V-Bilog	PK	0.0	30.8	46.0	-15.2
677.908	22.4	8.4	164.0	3.5	3.0	0.0	V-Bilog	PK	0.0	30.8	46.0	-15.2
704.165	22.1	8.7	355.0	1.7	3.0	0.0	V-Bilog	PK	0.0	30.8	46.0	-15.2
355.811	26.2	1.6	310.0	1.0	3.0	0.0	H-Bilog	PK	0.0	27.8	46.0	-18.2

NORTHWEST EMC

RADIATED EMISSIONS DATA SHEET

REV df4.4 10/22/2004

EUT:	NSR.H100			Work Order:	7LAY0028
Serial Number:	4T140A01			Date:	11/16/04
Customer:	Smart Modular Technologies			Temperature:	72
Attendees:	none			Humidity:	37%
Cust. Ref. No.:	N/A			Barometric Pressure	30.14
Tested by:	Jonathan Peng	Power:	120VAC/60Hz	Job Site:	OC10

TEST SPECIFICATIONS

Specification:	FCC 15.209	Year:	2004
Method:	ANSI C63.4	Year:	2003

SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator

COMMENTS

Transmitting Mid Frequency - Channel 39

EUT OPERATING MODES

Typical Operating Mode

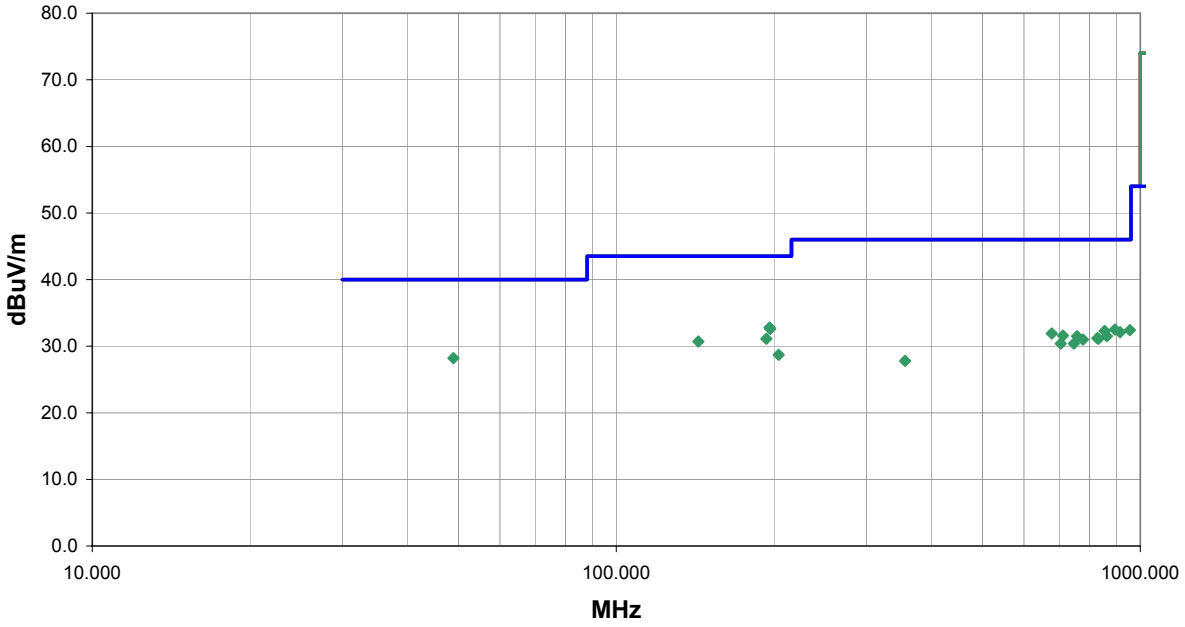
DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS	Run #
Pass	3

Other

Tested By:



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)
196.051	37.0	-4.2	95.0	2.2	3.0	0.0	H-Bilog	PK	0.0	32.8	43.5	-10.7
196.726	36.8	-4.2	31.0	1.0	3.0	0.0	V-Bilog	PK	0.0	32.6	43.5	-10.9
48.900	33.6	-5.4	278.0	1.0	3.0	0.0	V-Bilog	PK	0.0	28.2	40.0	-11.8
193.351	35.4	-4.3	252.0	1.0	3.0	0.0	V-Bilog	PK	0.0	31.1	43.5	-12.4
143.400	37.0	-6.3	264.0	3.1	3.0	0.0	H-Bilog	PK	0.0	30.7	43.5	-12.8
894.968	22.7	9.8	208.0	2.7	3.0	0.0	H-Bilog	PK	0.0	32.5	46.0	-13.5
955.360	22.3	10.1	122.0	1.4	3.0	0.0	H-Bilog	PK	0.0	32.4	46.0	-13.6
854.707	23.1	9.2	241.0	1.9	3.0	0.0	H-Bilog	PK	0.0	32.3	46.0	-13.7
915.099	22.1	10.0	192.0	3.3	3.0	0.0	H-Bilog	PK	0.0	32.1	46.0	-13.9
677.908	23.5	8.4	206.0	1.2	3.0	0.0	H-Bilog	PK	0.0	31.9	46.0	-14.1
712.042	22.9	8.7	171.0	1.2	3.0	0.0	H-Bilog	PK	0.0	31.6	46.0	-14.4
863.460	22.2	9.3	278.0	1.2	3.0	0.0	V-Bilog	PK	0.0	31.5	46.0	-14.5
757.555	22.9	8.6	278.0	2.1	3.0	0.0	V-Bilog	PK	0.0	31.5	46.0	-14.5
204.151	32.7	-4.0	66.0	2.2	3.0	0.0	H-Bilog	PK	0.0	28.7	43.5	-14.8
828.450	22.2	9.0	354.0	1.0	3.0	0.0	H-Bilog	PK	0.0	31.2	46.0	-14.8
831.951	22.1	9.0	293.0	2.3	3.0	0.0	V-Bilog	PK	0.0	31.1	46.0	-14.9
777.686	22.3	8.7	296.0	2.8	3.0	0.0	V-Bilog	PK	0.0	31.0	46.0	-15.0
705.040	21.7	8.7	205.0	1.7	3.0	0.0	V-Bilog	PK	0.0	30.4	46.0	-15.6
747.052	21.8	8.6	184.0	1.2	3.0	0.0	H-Bilog	PK	0.0	30.4	46.0	-15.6
355.811	26.2	1.6	332.0	1.0	3.0	0.0	H-Bilog	PK	0.0	27.8	46.0	-18.2

NORTHWEST EMC

RADIATED EMISSIONS DATA SHEET

REV df4.4 10/22/2004

EUT:	NSR.H100			Work Order:	7LAY0028
Serial Number:	4T140A01			Date:	11/16/04
Customer:	Smart Modular Technologies			Temperature:	72
Attendees:	none			Humidity:	37%
Cust. Ref. No.:	N/A			Barometric Pressure	30.14
Tested by:	Jonathan Peng	Power:	120VAC/60Hz	Job Site:	OC10

TEST SPECIFICATIONS

Specification:	FCC 15.209	Year:	2004
Method:	ANSI C63.4	Year:	2003

SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator

COMMENTS

Transmitting Low Frequency - Channel 0

EUT OPERATING MODES

Typical Operating Mode

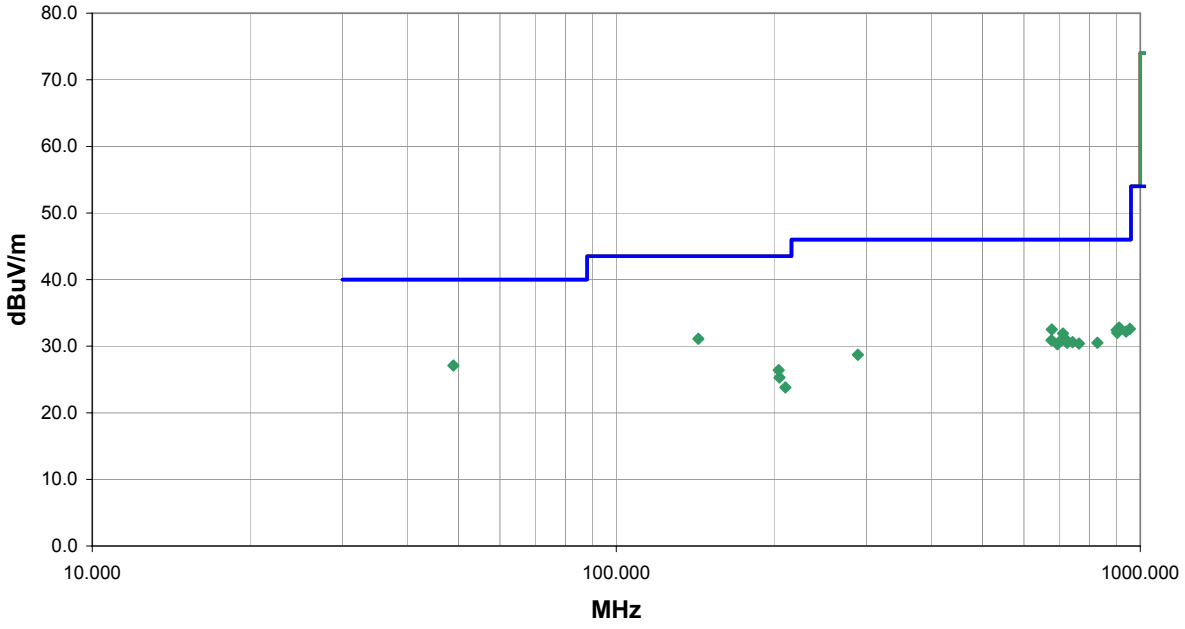
DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS	Run #
Pass	4

Other

Tested By:



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)
143.400	37.4	-6.3	267.0	2.9	3.0	0.0	H-Bilog	PK	0.0	31.1	43.5	-12.4
48.900	32.5	-5.4	51.0	1.0	3.0	0.0	V-Bilog	PK	0.0	27.1	40.0	-12.9
911.598	22.9	9.9	153.0	1.0	3.0	0.0	H-Bilog	PK	0.0	32.8	46.0	-13.2
955.360	22.5	10.1	357.0	1.0	3.0	0.0	H-Bilog	PK	0.0	32.6	46.0	-13.4
677.908	24.1	8.4	201.0	1.2	3.0	0.0	H-Bilog	PK	0.0	32.5	46.0	-13.5
901.095	22.5	9.9	328.0	3.5	3.0	0.0	H-Bilog	PK	0.0	32.4	46.0	-13.6
939.606	22.3	9.9	265.0	3.0	3.0	0.0	H-Bilog	PK	0.0	32.2	46.0	-13.8
903.721	22.1	9.9	217.0	2.1	3.0	0.0	V-Bilog	PK	0.0	32.0	46.0	-14.0
712.042	23.2	8.7	193.0	1.2	3.0	0.0	H-Bilog	PK	0.0	31.9	46.0	-14.1
677.033	22.5	8.4	9.0	2.4	3.0	0.0	V-Bilog	PK	0.0	30.9	46.0	-15.1
705.916	22.2	8.7	57.0	1.2	3.0	0.0	H-Bilog	PK	0.0	30.9	46.0	-15.1
725.171	22.2	8.6	193.0	1.7	3.0	0.0	V-Bilog	PK	0.0	30.8	46.0	-15.2
742.676	22.0	8.6	176.0	1.2	3.0	0.0	H-Bilog	PK	0.0	30.6	46.0	-15.4
725.171	21.9	8.6	97.0	2.0	3.0	0.0	H-Bilog	PK	0.0	30.5	46.0	-15.5
828.450	21.5	9.0	2.0	1.2	3.0	0.0	V-Bilog	PK	0.0	30.5	46.0	-15.5
763.682	21.8	8.6	355.0	1.7	3.0	0.0	V-Bilog	PK	0.0	30.4	46.0	-15.6
694.538	21.7	8.6	25.0	3.2	3.0	0.0	V-Bilog	PK	0.0	30.3	46.0	-15.7
204.151	30.4	-4.0	273.0	1.0	3.0	0.0	V-Bilog	PK	0.0	26.4	43.5	-17.1
289.200	29.4	-0.7	356.0	1.0	3.0	0.0	H-Bilog	PK	0.0	28.7	46.0	-17.3
204.826	29.2	-3.9	242.0	2.2	3.0	0.0	H-Bilog	PK	0.0	25.3	43.5	-18.2
210.226	27.5	-3.7	85.0	2.2	3.0	0.0	H-Bilog	PK	0.0	23.8	43.5	-19.7

NORTHWEST EMC

RADIATED EMISSIONS DATA SHEET

REV df4.4 10/22/2004

EUT:	NSR.H100			Work Order:	7LAY0028
Serial Number:	4T140A01			Date:	11/14/04
Customer:	Smart Modular Technologies			Temperature:	68
Attendees:	none			Humidity:	43%
Cust. Ref. No.:	N/A			Barometric Pressure	30.05
Tested by:	Dean Ghizzone	Power:	120 VAC/60 Hz	Job Site:	EV01

TEST SPECIFICATIONS

Specification:	FCC 15.247(d) Spurious Radiated Emissions	Year:	2004
Method:	ANSI C63.4	Year:	2003

SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator

COMMENTS

AC Power, Maximum Position, All Cables Attached

EUT OPERATING MODES

No hop mode, modulated carrier, High channel

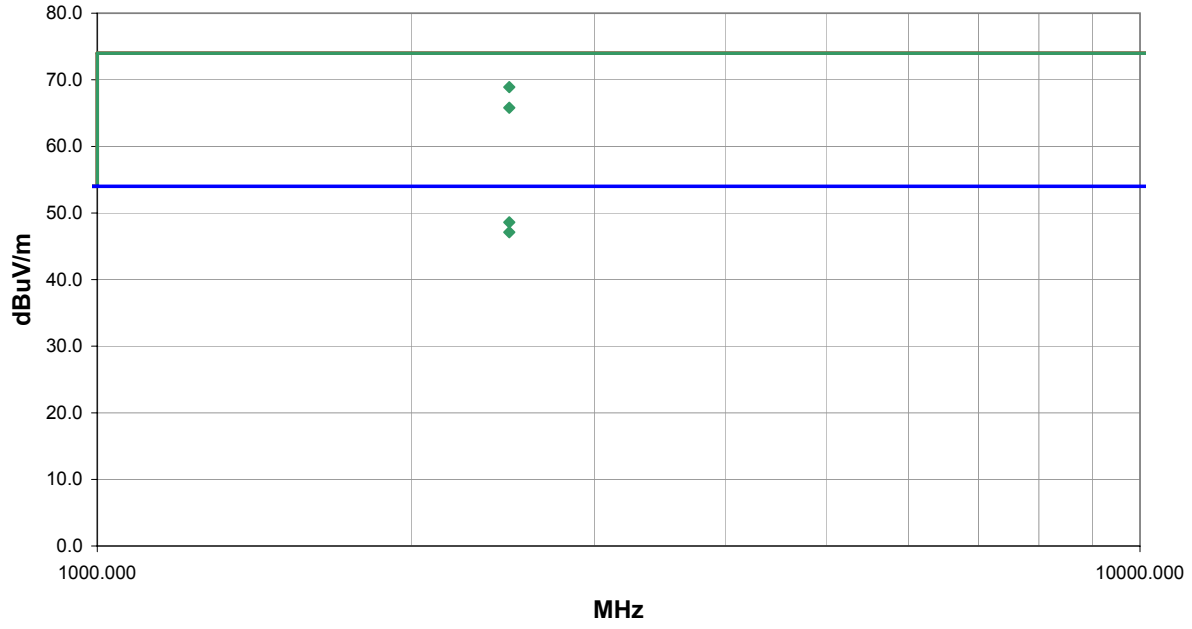
DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS	Run #
Pass	2

Other

Tested By:



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)
2483.500	51.1	-2.2	211.0	1.1	3.0	20.0	V-Horn	PK	0.0	68.9	74.0	-5.1
2483.500	30.8	-2.2	211.0	1.1	3.0	20.0	V-Horn	AV	0.0	48.6	54.0	-5.4
2483.500	29.3	-2.2	191.0	1.3	3.0	20.0	H-Horn	AV	0.0	47.1	54.0	-6.9
2483.500	48.0	-2.2	191.0	1.3	3.0	20.0	H-Horn	PK	0.0	65.8	74.0	-8.2

NORTHWEST EMC

RADIATED EMISSIONS DATA SHEET

REV df4.4 10/22/2004

EUT:	NSR.H100			Work Order:	7LAY0028
Serial Number:	4T140A01			Date:	11/14/04
Customer:	Smart Modular Technologies			Temperature:	68
Attendees:	none			Humidity:	43%
Cust. Ref. No.:	N/A			Barometric Pressure	30.05
Tested by:	Dean Ghizzone	Power:	120 VAC/60 Hz	Job Site:	EV01

TEST SPECIFICATIONS

Specification:	FCC 15.247(d) Spurious Radiated Emissions	Year:	2004
Method:	ANSI C63.4	Year:	2003

SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator

COMMENTS

AC Power, Maximum Position, All Cables Attached

EUT OPERATING MODES

No hop mode, modulated carrier, High channel

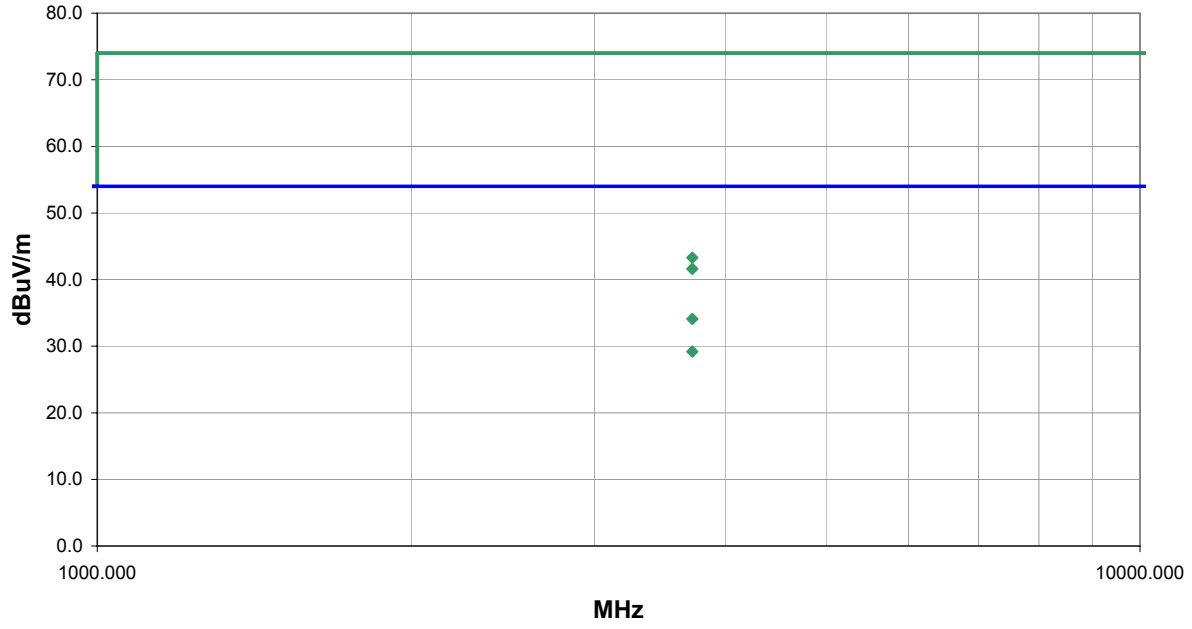
DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS	Run #
Pass	3

Other

Tested By:



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)
3720.567	32.9	1.2	23.0	1.2	3.0	0.0	H-Horn	AV	0.0	34.1	54.0	-19.9
3720.567	28.0	1.2	65.0	1.2	3.0	0.0	V-Horn	AV	0.0	29.2	54.0	-24.8
3720.567	42.1	1.2	23.0	1.2	3.0	0.0	H-Horn	PK	0.0	43.3	74.0	-30.7
3720.567	40.4	1.2	65.0	1.2	3.0	0.0	V-Horn	PK	0.0	41.6	74.0	-32.4

NORTHWEST EMC

RADIATED EMISSIONS DATA SHEET

REV df4.4 10/22/2004

EUT:	NSR.H100			Work Order:	7LAY0028
Serial Number:	4T140A01			Date:	11/14/04
Customer:	Smart Modular Technologies			Temperature:	68
Attendees:	none			Humidity:	43%
Cust. Ref. No.:	N/A			Barometric Pressure	30.05
Tested by:	Dean Ghizzone	Power:	120 VAC/60 Hz	Job Site:	EV01

TEST SPECIFICATIONS

Specification:	FCC 15.247(d) Spurious Radiated Emissions	Year:	2004
Method:	ANSI C63.4	Year:	2003

SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator

COMMENTS

AC Power, Maximum Position, All Cables Attached

EUT OPERATING MODES

No hop mode, modulated carrier, Mid channel

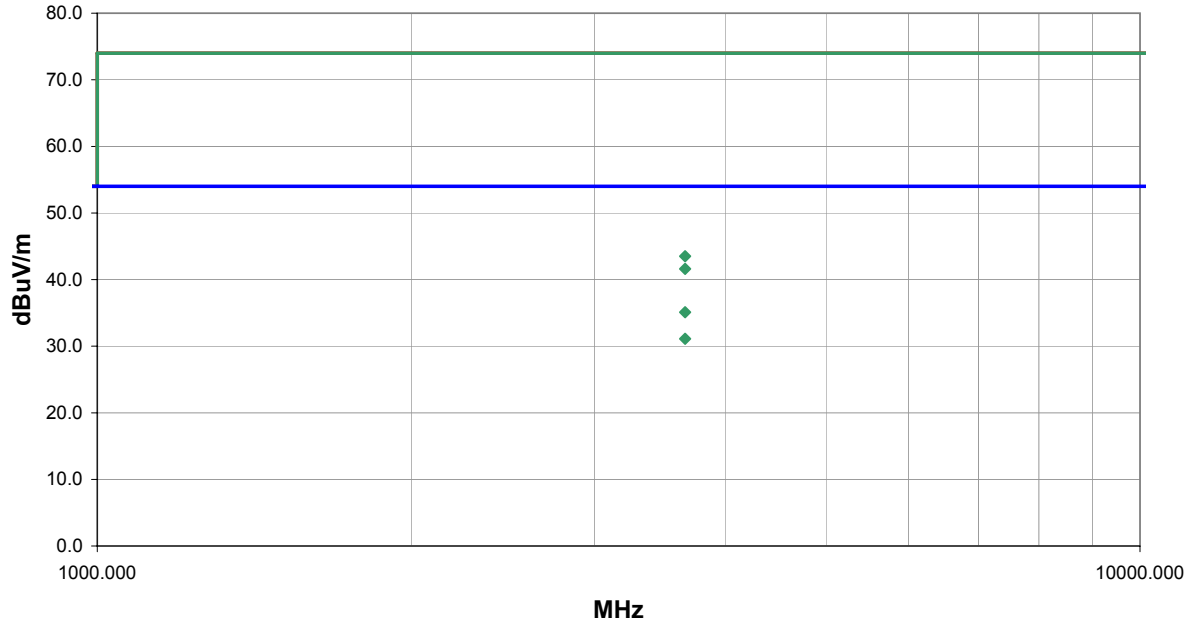
DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS	Run #
Pass	4

Other

Tested By:



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)
3662.085	34.1	1.0	14.0	1.2	3.0	0.0	H-Horn	AV	0.0	35.1	54.0	-18.9
3662.085	30.1	1.0	16.0	1.2	3.0	0.0	V-Horn	AV	0.0	31.1	54.0	-22.9
3662.085	42.5	1.0	14.0	1.2	3.0	0.0	H-Horn	PK	0.0	43.5	74.0	-30.5
3662.085	40.6	1.0	16.0	1.2	3.0	0.0	V-Horn	PK	0.0	41.6	74.0	-32.4

NORTHWEST EMC

RADIATED EMISSIONS DATA SHEET

REV df4.4 10/22/2004

EUT:	NSR.H100			Work Order:	7LAY0028
Serial Number:	4T140A01			Date:	11/14/04
Customer:	Smart Modular Technologies			Temperature:	68
Attendees:	none			Humidity:	43%
Cust. Ref. No.:	N/A			Barometric Pressure	30.05
Tested by:	Dean Ghizzone	Power:	120 VAC/60 Hz	Job Site:	EV01

TEST SPECIFICATIONS

Specification:	FCC 15.247(d) Spurious Radiated Emissions	Year:	2004
Method:	ANSI C63.4	Year:	2003

SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator

COMMENTS

AC Power, Maximum Position, All Cables Attached

EUT OPERATING MODES

No hop mode, modulated carrier, Low channel

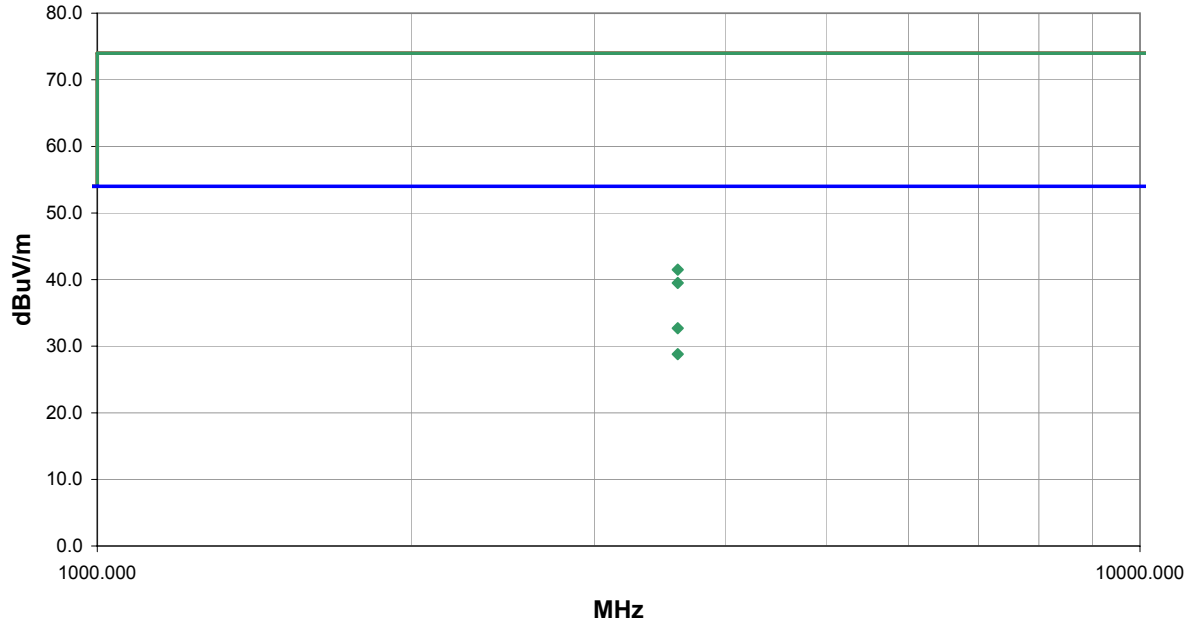
DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS	Run #
Pass	5

Other

Tested By:



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)
3603.420	32.0	0.7	11.0	1.4	3.0	0.0	H-Horn	AV	0.0	32.7	54.0	-21.3
3603.420	28.1	0.7	323.0	1.2	3.0	0.0	V-Horn	AV	0.0	28.8	54.0	-25.2
3603.420	40.8	0.7	11.0	1.4	3.0	0.0	H-Horn	PK	0.0	41.5	74.0	-32.5
3603.420	38.8	0.7	323.0	1.2	3.0	0.0	V-Horn	PK	0.0	39.5	74.0	-34.5

NORTHWEST EMC

RADIATED EMISSIONS DATA SHEET

REV df4.4 10/22/2004

EUT:	NIA.S10			Work Order:	7LAY0028
Serial Number:	4T130B01			Date:	11/29/04
Customer:	Smart Modular Technologies			Temperature:	72
Attendees:	none			Humidity:	29%
Cust. Ref. No.:	N/A			Barometric Pressure	30.08
Tested by:	Jonathan Peng	Power:	120VAC/60Hz	Job Site:	OC10

TEST SPECIFICATIONS

Specification:	FCC 15.209	Year:	2004
Method:	ANSI C63.4	Year:	2003

SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator

COMMENTS

Transmitting Low Frequency - Channel 0

EUT OPERATING MODES

Typical Operating Mode

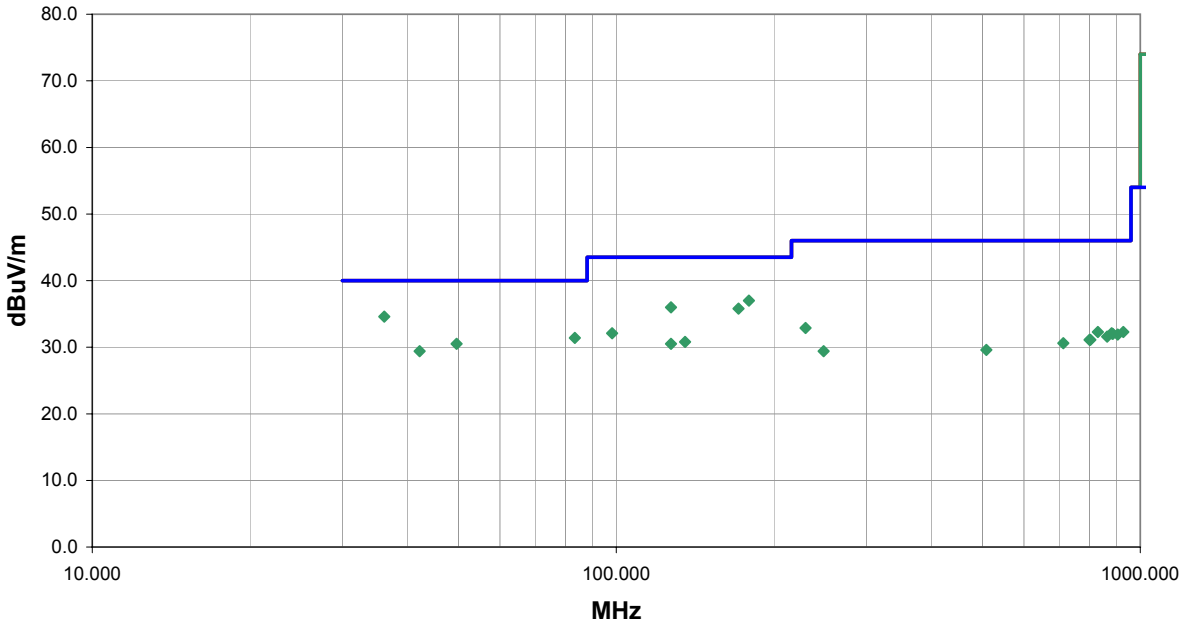
DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS	Run #
Pass	6

Other

Tested By:



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)
36.075	34.2	0.4	178.0	1.0	3.0	0.0	V-Bilog	QP	0.0	34.6	40.0	-5.4
179.176	41.6	-4.6	260.0	2.2	3.0	0.0	H-Bilog	QP	0.0	37.0	43.5	-6.5
127.200	43.0	-7.0	133.0	1.0	3.0	0.0	V-Bilog	PK	0.0	36.0	43.5	-7.5
171.075	40.9	-5.1	143.0	1.0	3.0	0.0	V-Bilog	QP	0.0	35.8	43.5	-7.7
83.325	38.3	-6.9	196.0	1.2	3.0	0.0	V-Bilog	PK	0.0	31.4	40.0	-8.6
49.575	36.1	-5.6	58.0	1.0	3.0	0.0	V-Bilog	QP	0.0	30.5	40.0	-9.5
42.150	32.2	-2.8	249.0	1.0	3.0	0.0	V-Bilog	QP	0.0	29.4	40.0	-10.6
98.175	38.0	-5.9	239.0	1.0	3.0	0.0	V-Bilog	PK	0.0	32.1	43.5	-11.4
135.300	37.7	-6.9	155.0	1.0	3.0	0.0	V-Bilog	PK	0.0	30.8	43.5	-12.7
127.200	37.5	-7.0	88.0	2.6	3.0	0.0	H-Bilog	PK	0.0	30.5	43.5	-13.0
229.801	35.5	-2.6	71.0	2.2	3.0	0.0	H-Bilog	PK	0.0	32.9	46.0	-13.1
830.200	23.3	9.0	205.0	1.0	3.0	0.0	H-Bilog	PK	0.0	32.3	46.0	-13.7
928.228	22.3	10.0	183.0	1.0	3.0	0.0	H-Bilog	PK	0.0	32.3	46.0	-13.7
881.840	22.6	9.5	352.0	1.0	3.0	0.0	H-Bilog	PK	0.0	32.1	46.0	-13.9
886.216	22.4	9.6	229.0	1.2	3.0	0.0	V-Bilog	PK	0.0	32.0	46.0	-14.0
905.471	22.0	9.9	98.0	1.2	3.0	0.0	V-Bilog	PK	0.0	31.9	46.0	-14.1
864.335	22.3	9.3	104.0	1.2	3.0	0.0	V-Bilog	PK	0.0	31.6	46.0	-14.4
800.442	22.2	8.9	14.0	1.6	3.0	0.0	V-Bilog	PK	0.0	31.1	46.0	-14.9
803.068	22.2	8.9	354.0	3.2	3.0	0.0	H-Bilog	PK	0.0	31.1	46.0	-14.9
712.918	22.0	8.6	308.0	1.2	3.0	0.0	H-Bilog	PK	0.0	30.6	46.0	-15.4
508.429	25.3	4.3	108.0	1.8	3.0	0.0	H-Bilog	PK	0.0	29.6	46.0	-16.4
248.701	31.4	-2.0	200.0	1.6	3.0	0.0	V-Bilog	PK	0.0	29.4	46.0	-16.6

NORTHWEST EMC

RADIATED EMISSIONS DATA SHEET

REV df4.4 10/22/2004

EUT:	NIA.S10			Work Order:	7LAY0028
Serial Number:	4T130B01			Date:	11/29/04
Customer:	Smart Modular Technologies			Temperature:	72
Attendees:	none			Humidity:	29%
Cust. Ref. No.:	N/A			Barometric Pressure	30.08
Tested by:	Jonathan Peng	Power:	120VAC/60Hz	Job Site:	OC10

TEST SPECIFICATIONS

Specification:	FCC 15.209	Year:	2004
Method:	ANSI C63.4	Year:	2003

SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator

COMMENTS

Transmitting Mid Frequency - Channel 39

EUT OPERATING MODES

Typical Operating Mode

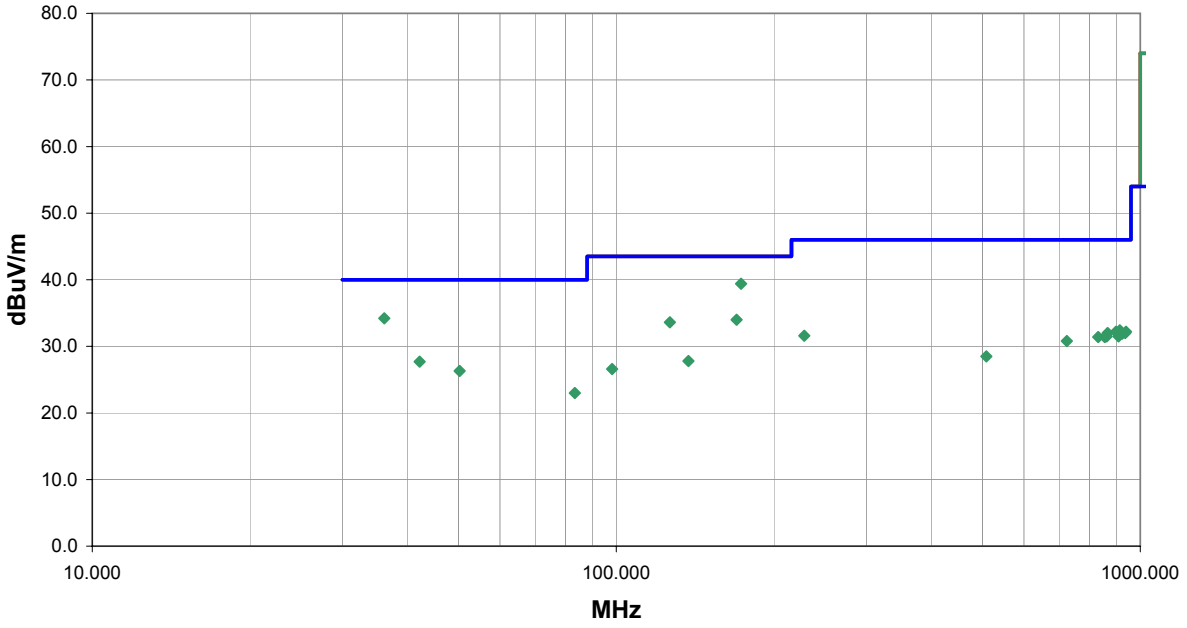
DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS	Run #
Pass	7

Other

Tested By:



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)
173.100	44.4	-5.0	249.0	2.2	3.0	0.0	H-Bilog	QP	0.0	39.4	43.5	-4.1
36.075	33.8	0.4	220.0	1.0	3.0	0.0	V-Bilog	QP	0.0	34.2	40.0	-5.8
169.725	39.1	-5.1	190.0	1.0	3.0	0.0	V-Bilog	QP	0.0	34.0	43.5	-9.5
126.525	40.6	-7.0	28.0	1.0	3.0	0.0	V-Bilog	PK	0.0	33.6	43.5	-9.9
42.150	30.5	-2.8	324.0	1.0	3.0	0.0	V-Bilog	PK	0.0	27.7	40.0	-12.3
914.224	22.4	10.0	240.0	1.2	3.0	0.0	V-Bilog	PK	0.0	32.4	46.0	-13.6
50.250	32.0	-5.7	113.0	1.0	3.0	0.0	V-Bilog	QP	0.0	26.3	40.0	-13.7
898.469	22.3	9.9	137.0	1.0	3.0	0.0	H-Bilog	PK	0.0	32.2	46.0	-13.8
939.606	22.3	9.9	355.0	1.0	3.0	0.0	H-Bilog	PK	0.0	32.2	46.0	-13.8
866.085	22.6	9.4	131.0	1.2	3.0	0.0	V-Bilog	PK	0.0	32.0	46.0	-14.0
936.105	22.0	10.0	203.0	2.1	3.0	0.0	V-Bilog	PK	0.0	32.0	46.0	-14.0
923.851	21.9	10.0	352.0	1.2	3.0	0.0	V-Bilog	PK	0.0	31.9	46.0	-14.1
228.451	34.3	-2.7	65.0	2.2	3.0	0.0	H-Bilog	PK	0.0	31.6	46.0	-14.4
862.584	22.2	9.3	114.0	1.0	3.0	0.0	H-Bilog	PK	0.0	31.5	46.0	-14.5
908.972	21.6	9.9	1.0	1.0	3.0	0.0	H-Bilog	PK	0.0	31.5	46.0	-14.5
855.582	22.2	9.2	41.0	1.0	3.0	0.0	H-Bilog	PK	0.0	31.4	46.0	-14.6
831.076	22.4	9.0	210.0	1.2	3.0	0.0	V-Bilog	PK	0.0	31.4	46.0	-14.6
724.296	22.2	8.6	209.0	3.0	3.0	0.0	V-Bilog	PK	0.0	30.8	46.0	-15.2
137.325	34.6	-6.8	125.0	1.0	3.0	0.0	V-Bilog	PK	0.0	27.8	43.5	-15.7
98.175	32.5	-5.9	144.0	1.0	3.0	0.0	V-Bilog	PK	0.0	26.6	43.5	-16.9
83.325	29.9	-6.9	167.0	1.0	3.0	0.0	V-Bilog	PK	0.0	23.0	40.0	-17.0
508.429	24.2	4.3	109.0	1.0	3.0	0.0	V-Bilog	PK	0.0	28.5	46.0	-17.5

NORTHWEST EMC

RADIATED EMISSIONS DATA SHEET

REV df4.4 10/22/2004

EUT:	NIA.S10			Work Order:	7LAY0028
Serial Number:	4T130B01			Date:	11/29/04
Customer:	Smart Modular Technologies			Temperature:	72
Attendees:	none			Humidity:	29%
Cust. Ref. No.:	N/A			Barometric Pressure	30.08
Tested by:	Jonathan Peng	Power:	120VAC/60Hz	Job Site:	OC10

TEST SPECIFICATIONS

Specification:	FCC 15.209	Year:	2004
Method:	ANSI C63.4	Year:	2003

SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator

COMMENTS

Transmitting High Frequency - Channel 78

EUT OPERATING MODES

Typical Operating Mode

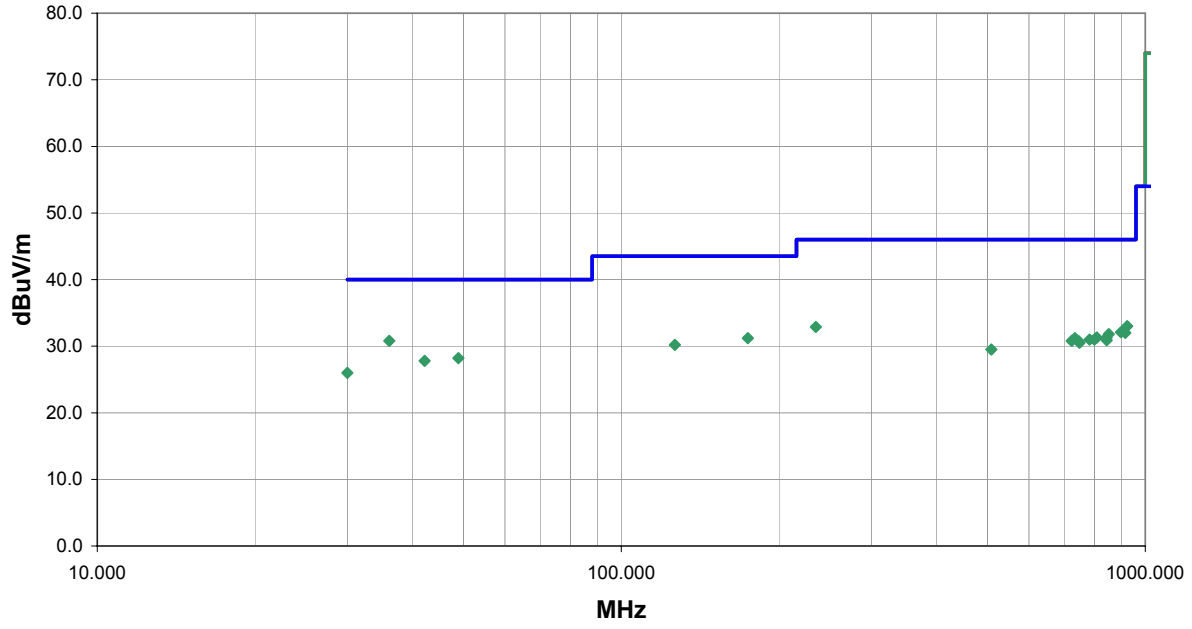
DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS	Run #
Pass	8

Other

Tested By:



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)
36.075	30.4	0.4	180.0	1.0	3.0	0.0	V-Bilog	PK	0.0	30.8	40.0	-9.2
48.900	33.6	-5.4	341.0	1.0	3.0	0.0	V-Bilog	PK	0.0	28.2	40.0	-11.8
42.150	30.6	-2.8	230.0	1.0	3.0	0.0	V-Bilog	PK	0.0	27.8	40.0	-12.2
174.451	36.1	-4.9	253.0	2.2	3.0	0.0	H-Bilog	PK	0.0	31.2	43.5	-12.3
923.851	23.0	10.0	279.0	1.0	3.0	0.0	H-Bilog	PK	0.0	33.0	46.0	-13.0
235.201	35.4	-2.5	258.0	1.0	3.0	0.0	H-Bilog	PK	0.0	32.9	46.0	-13.1
126.525	37.2	-7.0	73.0	1.0	3.0	0.0	V-Bilog	PK	0.0	30.2	43.5	-13.3
898.469	22.2	9.9	241.0	1.0	3.0	0.0	H-Bilog	PK	0.0	32.1	46.0	-13.9
915.974	22.0	10.0	298.0	1.2	3.0	0.0	V-Bilog	PK	0.0	32.0	46.0	-14.0
30.000	21.9	4.1	279.0	2.8	3.0	0.0	V-Bilog	PK	0.0	26.0	40.0	-14.0
852.081	22.7	9.1	117.0	1.6	3.0	0.0	H-Bilog	PK	0.0	31.8	46.0	-14.2
808.319	22.3	9.0	246.0	1.0	3.0	0.0	H-Bilog	PK	0.0	31.3	46.0	-14.7
843.329	22.3	9.0	81.0	1.0	3.0	0.0	H-Bilog	PK	0.0	31.3	46.0	-14.7
733.924	22.6	8.6	110.0	1.2	3.0	0.0	H-Bilog	PK	0.0	31.2	46.0	-14.8
782.937	22.2	8.8	322.0	2.5	3.0	0.0	V-Bilog	PK	0.0	31.0	46.0	-15.0
799.567	22.1	8.9	262.0	1.7	3.0	0.0	V-Bilog	PK	0.0	31.0	46.0	-15.0
844.204	21.9	9.0	12.0	1.2	3.0	0.0	V-Bilog	PK	0.0	30.9	46.0	-15.1
723.421	22.2	8.6	308.0	2.8	3.0	0.0	V-Bilog	PK	0.0	30.8	46.0	-15.2
745.302	22.2	8.6	129.0	2.8	3.0	0.0	H-Bilog	PK	0.0	30.8	46.0	-15.2
748.803	21.9	8.6	337.0	1.7	3.0	0.0	V-Bilog	PK	0.0	30.5	46.0	-15.5
508.429	25.2	4.3	106.0	1.8	3.0	0.0	H-Bilog	PK	0.0	29.5	46.0	-16.5

NORTHWEST EMC

RADIATED EMISSIONS DATA SHEET

REV df4.4 10/22/2004

EUT:	NIA.S10			Work Order:	7LAY0028
Serial Number:	4T130B01			Date:	11/21/04
Customer:	Smart Modular Technologies			Temperature:	18
Attendees:	none			Humidity:	35%
Cust. Ref. No.:	N/A			Barometric Pressure	30.41
Tested by:	Dean Ghizzone	Power:	120 VAC/60 Hz	Job Site:	EV01

TEST SPECIFICATIONS

Specification:	FCC 15.247(d) Spurious Radiated Emissions	Year:	2004
Method:	ANSI C63.4	Year:	2003

SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator

COMMENTS

AC Power, Fully Configured in Normal Position, All Cables Attached

EUT OPERATING MODES

No hop mode, Transmit, High channel

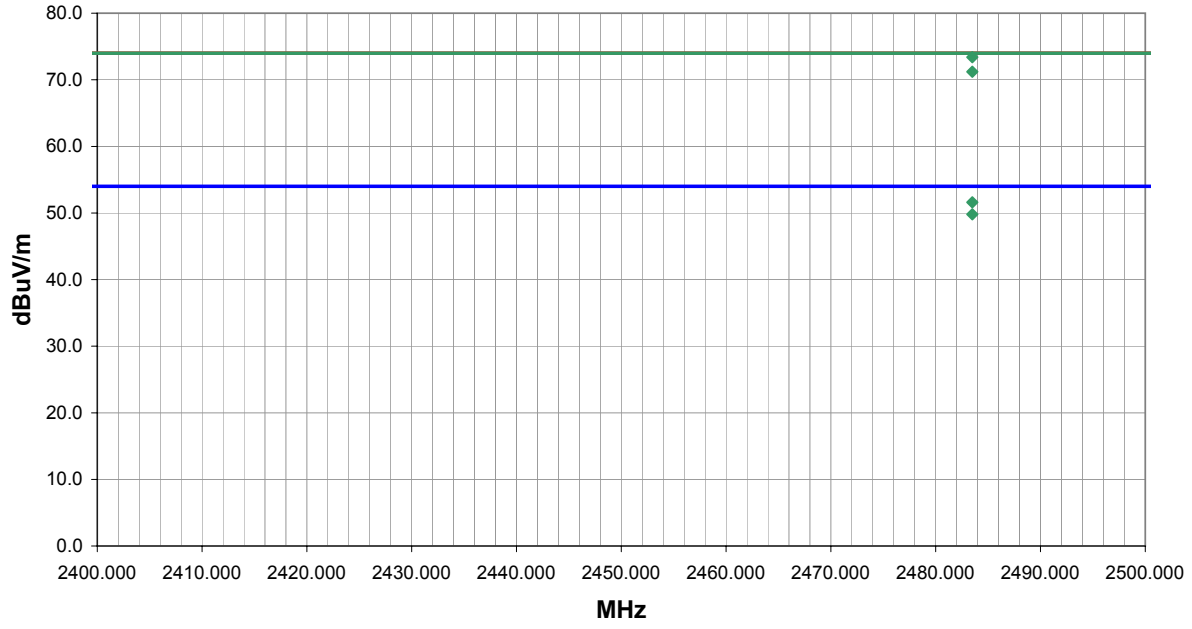
DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS	Run #
Pass	6

Other

Tested By:



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)
2483.500	55.6	-2.2	317.0	1.2	3.0	20.0	H-Horn	PK	0.0	73.4	74.0	-0.6
2483.500	33.8	-2.2	317.0	1.2	3.0	20.0	H-Horn	AV	0.0	51.6	54.0	-2.4
2483.500	53.4	-2.2	198.0	1.2	3.0	20.0	V-Horn	PK	0.0	71.2	74.0	-2.8
2483.500	32.0	-2.2	198.0	1.2	3.0	20.0	V-Horn	AV	0.0	49.8	54.0	-4.2

NORTHWEST EMC

RADIATED EMISSIONS DATA SHEET

REV df4.4 10/22/2004

EUT:	NIA.S10			Work Order:	7LAY0028
Serial Number:	4T130B01			Date:	11/21/04
Customer:	Smart Modular Technologies			Temperature:	18
Attendees:	none			Humidity:	35%
Cust. Ref. No.:	N/A			Barometric Pressure	30.41
Tested by:	Dean Ghizzone	Power:	120 VAC/60 Hz	Job Site:	EV01

TEST SPECIFICATIONS

Specification:	FCC 15.247(d) Spurious Radiated Emissions	Year:	2004
Method:	ANSI C63.4	Year:	2003

SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator

COMMENTS

AC Power, Fully Configured in Normal Position, All Cables Attached

EUT OPERATING MODES

No hop mode, Transmit, High channel

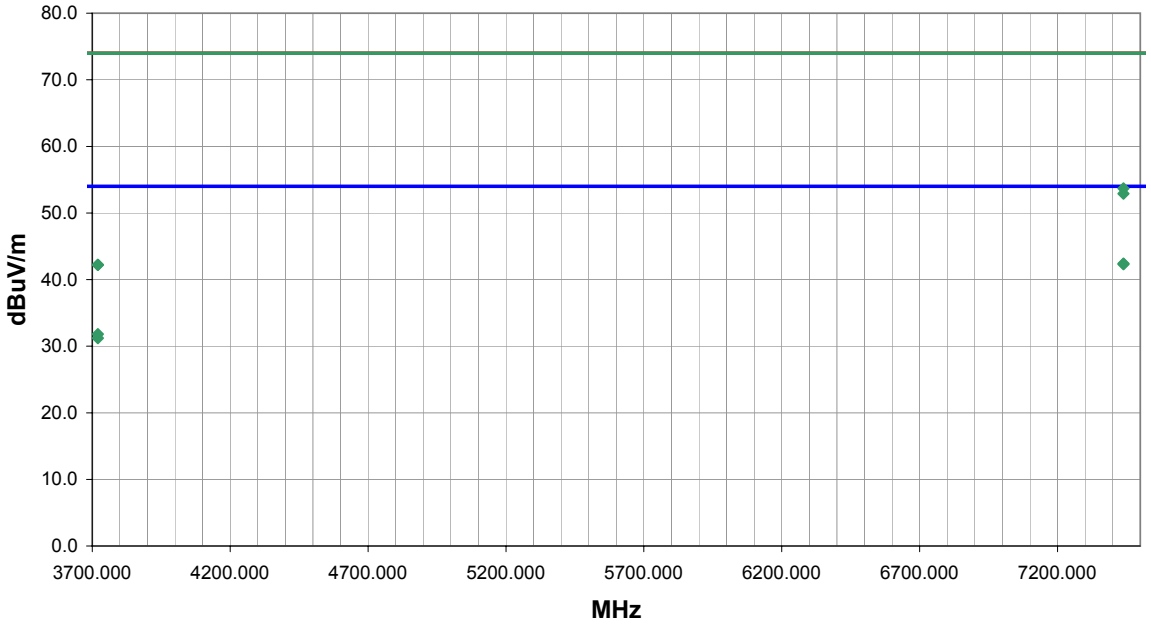
DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS	Run #
Pass	7

Other

Tested By:



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)
7439.355	31.3	11.1	227.0	1.3	3.0	0.0	H-Horn	AV	0.0	42.4	54.0	-11.6
7439.355	31.2	11.1	289.0	1.2	3.0	0.0	V-Horn	AV	0.0	42.3	54.0	-11.7
7439.355	42.6	11.1	289.0	1.2	3.0	0.0	V-Horn	PK	0.0	53.7	74.0	-20.3
7439.355	41.8	11.1	227.0	1.3	3.0	0.0	H-Horn	PK	0.0	52.9	74.0	-21.1
3720.453	30.6	1.2	220.0	1.2	3.0	0.0	H-Horn	AV	0.0	31.8	54.0	-22.2
3720.453	30.0	1.2	180.0	1.4	3.0	0.0	V-Horn	AV	0.0	31.2	54.0	-22.8
3720.453	41.0	1.2	220.0	1.2	3.0	0.0	H-Horn	PK	0.0	42.2	74.0	-31.8
3720.453	41.0	1.2	180.0	1.4	3.0	0.0	V-Horn	PK	0.0	42.2	74.0	-31.8

NORTHWEST EMC

RADIATED EMISSIONS DATA SHEET

REV df4.4 10/22/2004

EUT:	NIA.S10			Work Order:	7LAY0028
Serial Number:	4T130B01			Date:	11/21/04
Customer:	Smart Modular Technologies			Temperature:	18
Attendees:	none			Humidity:	35%
Cust. Ref. No.:	N/A			Barometric Pressure	30.41
Tested by:	Dean Ghizzone	Power:	120 VAC/60 Hz	Job Site:	EV01

TEST SPECIFICATIONS

Specification:	FCC 15.247(d) Spurious Radiated Emissions	Year:	2004
Method:	ANSI C63.4	Year:	2003

SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator

COMMENTS

AC Power, Fully Configured in Normal Position, All Cables Attached

EUT OPERATING MODES

No hop mode, Transmit, Mid channel

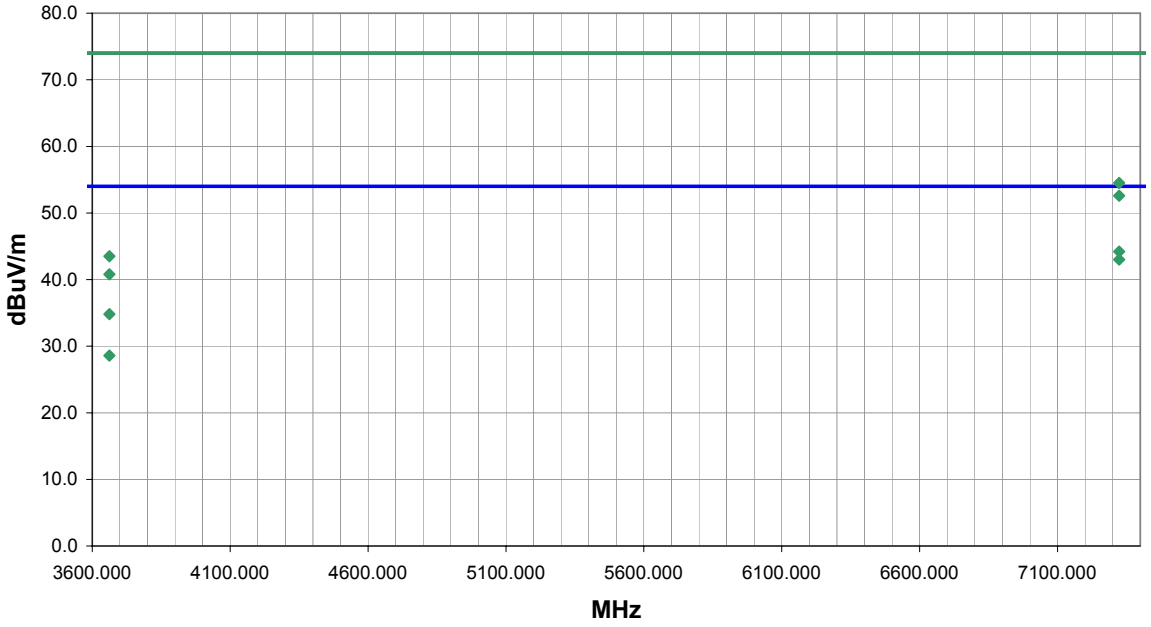
DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS	Run #
Pass	8

Other

Tested By:



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)
7323.352	33.7	10.5	278.0	1.5	3.0	0.0	V-Horn	AV	0.0	44.2	54.0	-9.8
7323.352	32.5	10.5	93.0	1.3	3.0	0.0	H-Horn	AV	0.0	43.0	54.0	-11.0
3661.996	33.8	1.0	154.0	1.2	3.0	0.0	H-Horn	AV	0.0	34.8	54.0	-19.2
7323.352	44.0	10.5	278.0	1.5	3.0	0.0	V-Horn	PK	0.0	54.5	74.0	-19.5
7323.352	42.1	10.5	93.0	1.3	3.0	0.0	H-Horn	PK	0.0	52.6	74.0	-21.4
3661.996	27.6	1.0	226.0	1.2	3.0	0.0	V-Horn	AV	0.0	28.6	54.0	-25.4
3661.996	42.5	1.0	154.0	1.2	3.0	0.0	H-Horn	PK	0.0	43.5	74.0	-30.5
3661.996	39.8	1.0	226.0	1.2	3.0	0.0	V-Horn	PK	0.0	40.8	74.0	-33.2

NORTHWEST EMC

RADIATED EMISSIONS DATA SHEET

REV df4.4 10/22/2004

EUT:	NIA.S10			Work Order:	7LAY0028
Serial Number:	4T130B01			Date:	11/21/04
Customer:	Smart Modular Technologies			Temperature:	18
Attendees:	none			Humidity:	35%
Cust. Ref. No.:	N/A			Barometric Pressure	30.41
Tested by:	Dean Ghizzone	Power:	120 VAC/60 Hz	Job Site:	EV01

TEST SPECIFICATIONS

Specification:	FCC 15.247(d) Spurious Radiated Emissions	Year:	2004
Method:	ANSI C63.4	Year:	2003

SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator

COMMENTS

AC Power, Fully Configured in Normal Position, All Cables Attached

EUT OPERATING MODES

No hop mode, Transmit, Low channel

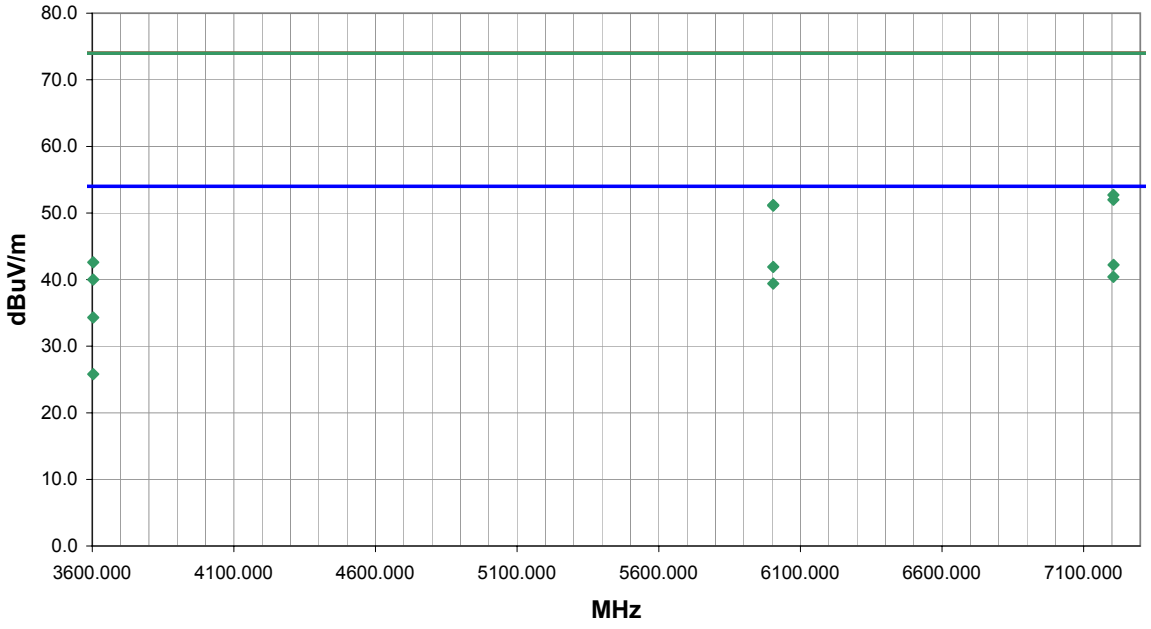
DEVIATIONS FROM TEST STANDARD

No deviations.

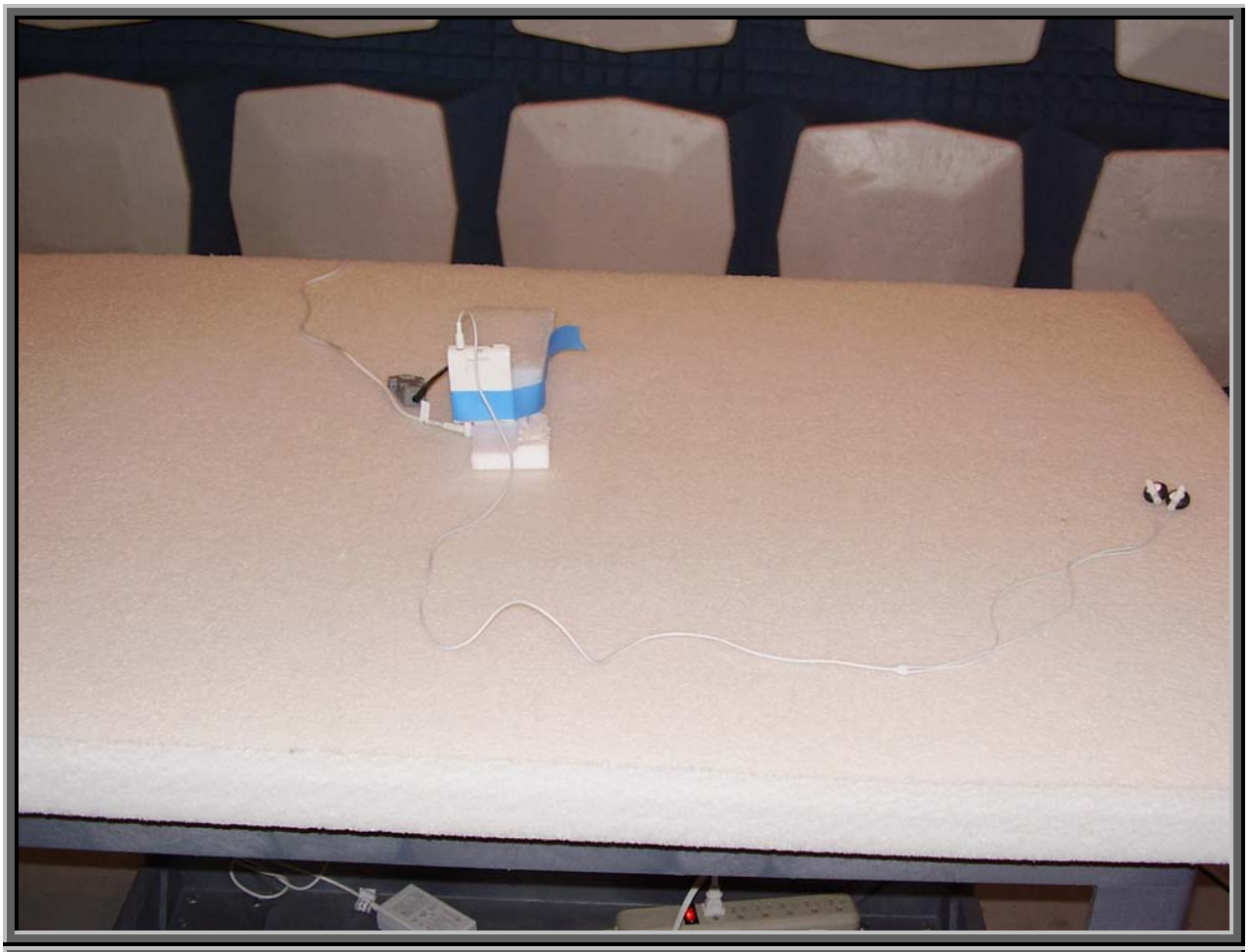
RESULTS	Run #
Pass	9

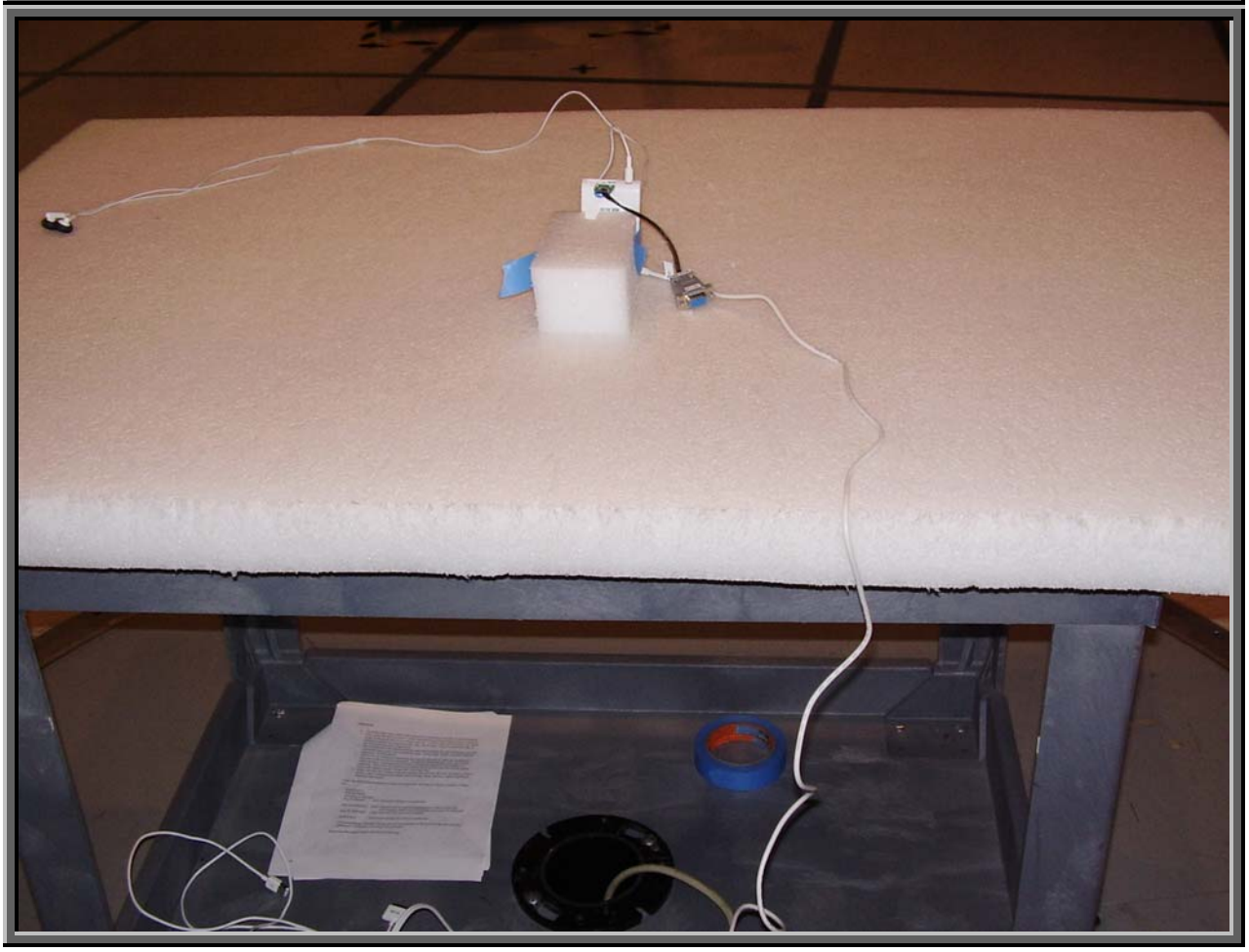
Other

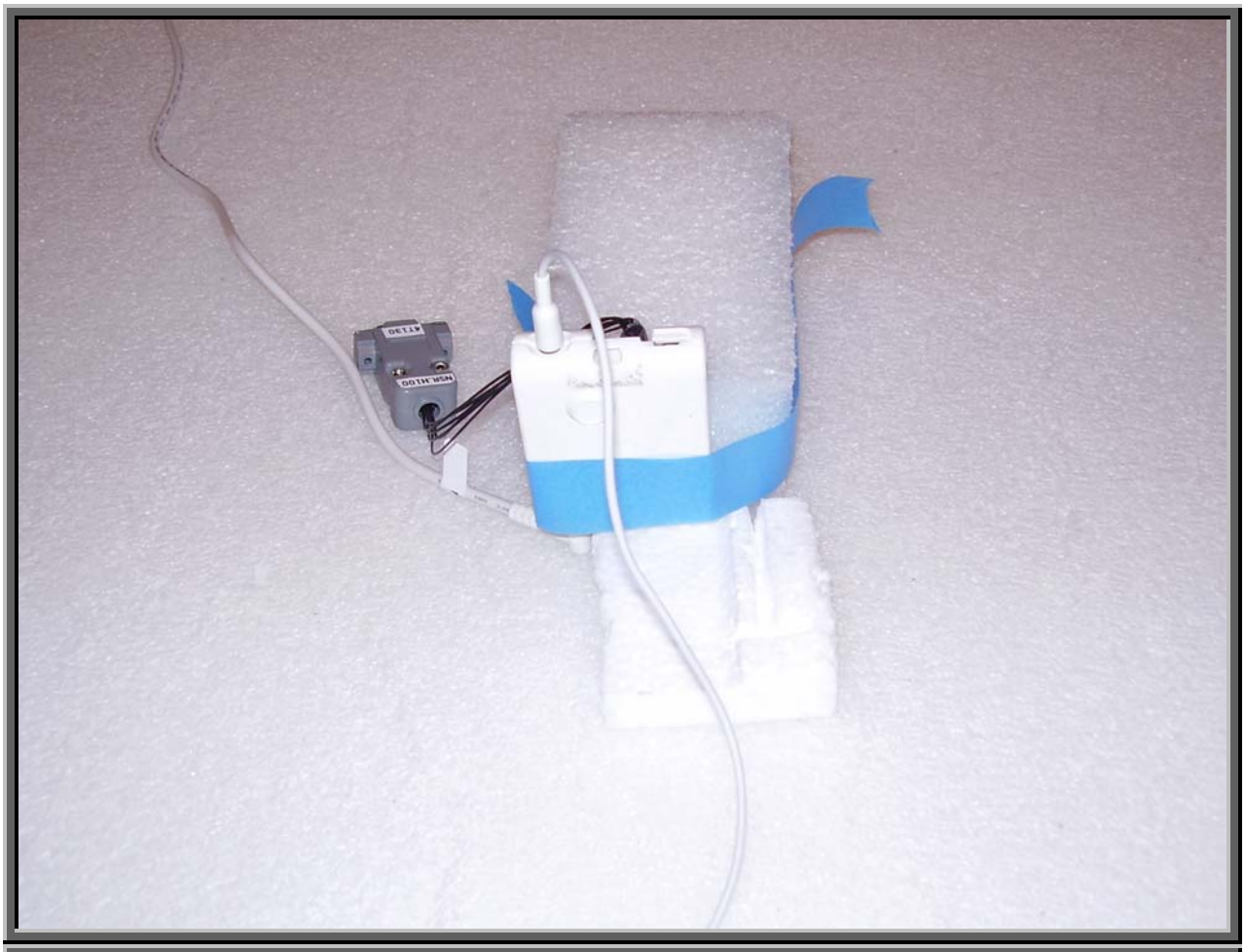
Tested By:

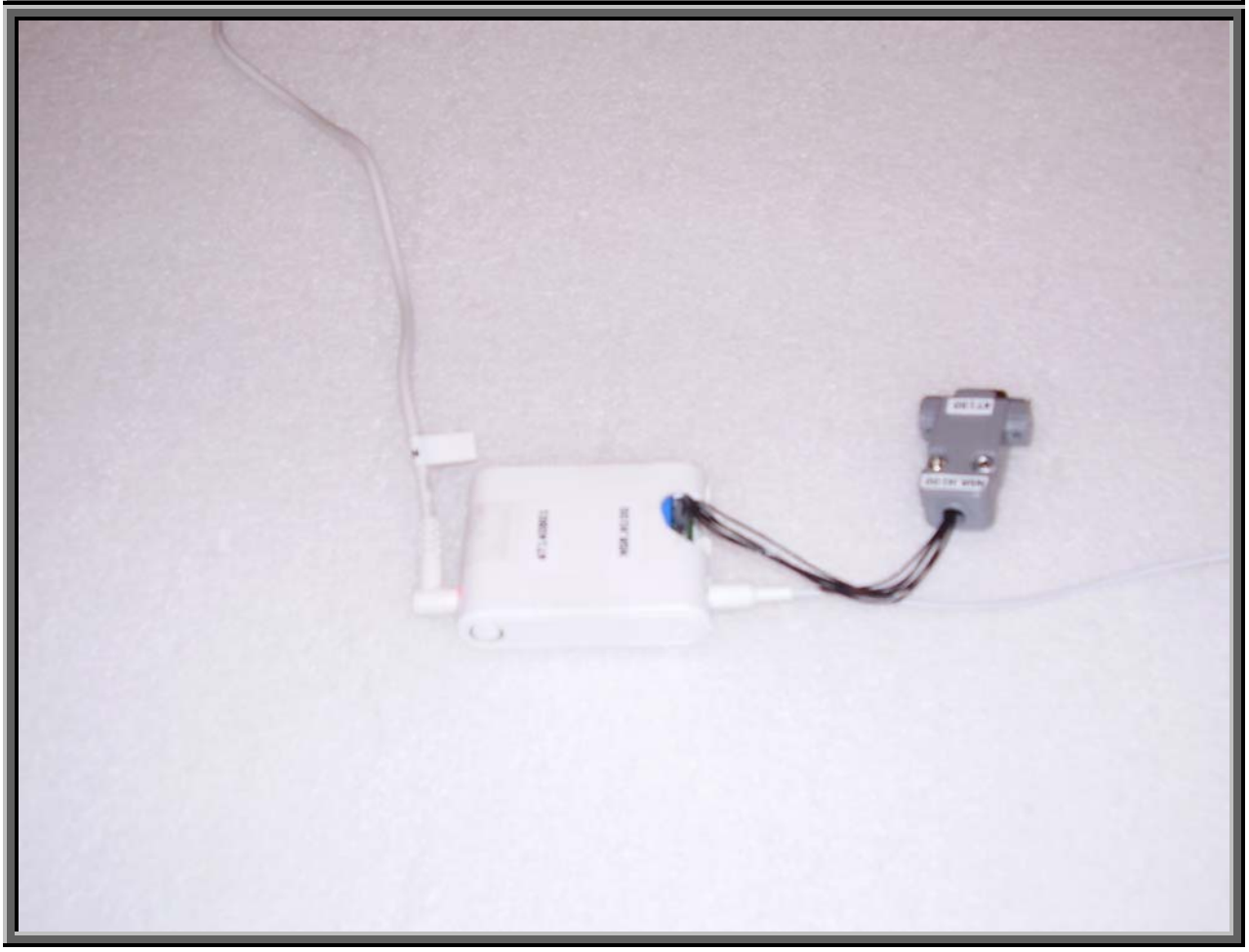


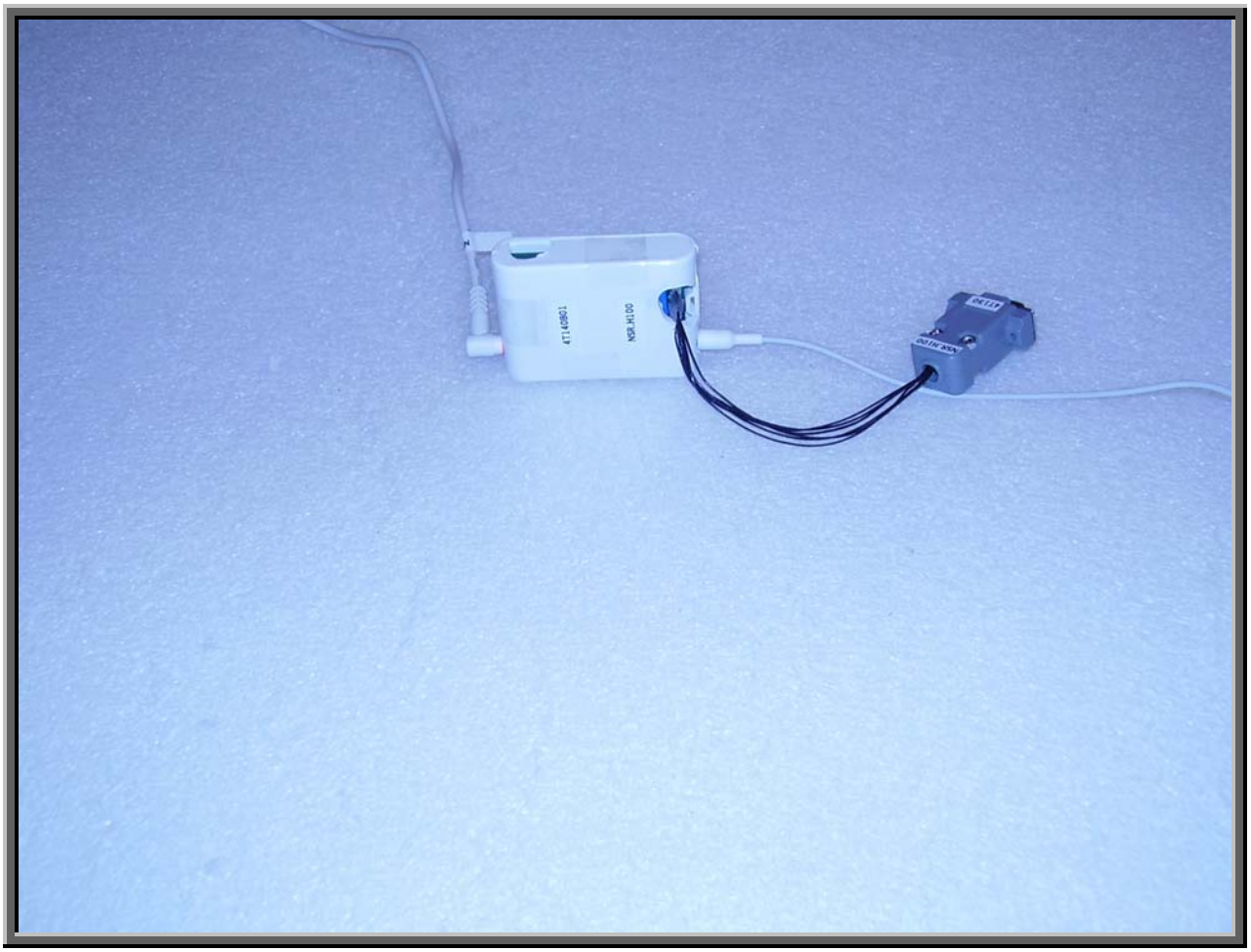
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)
7205.879	32.3	9.9	7.0	1.1	3.0	0.0	H-Horn	AV	0.0	42.2	54.0	-11.8
6003.894	35.1	6.8	28.0	1.3	3.0	0.0	H-Horn	AV	0.0	41.9	54.0	-12.1
7205.375	30.5	9.9	259.0	1.2	3.0	0.0	V-Horn	AV	0.0	40.4	54.0	-13.6
6003.894	32.6	6.8	239.0	1.5	3.0	0.0	V-Horn	AV	0.0	39.4	54.0	-14.6
3603.490	33.6	0.7	156.0	1.2	3.0	0.0	H-Horn	AV	0.0	34.3	54.0	-19.7
7205.375	42.8	9.9	259.0	1.2	3.0	0.0	V-Horn	PK	0.0	52.7	74.0	-21.3
7205.375	42.1	9.9	7.0	1.1	3.0	0.0	H-Horn	PK	0.0	52.0	74.0	-22.0
6003.894	44.4	6.8	239.0	1.5	3.0	0.0	V-Horn	PK	0.0	51.2	74.0	-22.8
6003.894	44.3	6.8	28.0	1.3	3.0	0.0	H-Horn	PK	0.0	51.1	74.0	-22.9
3603.490	25.1	0.7	103.0	2.8	3.0	0.0	V-Horn	AV	0.0	25.8	54.0	-28.2
3603.490	41.9	0.7	156.0	1.2	3.0	0.0	H-Horn	PK	0.0	42.6	74.0	-31.4
3603.490	39.3	0.7	103.0	2.8	3.0	0.0	V-Horn	PK	0.0	40.0	74.0	-34.0

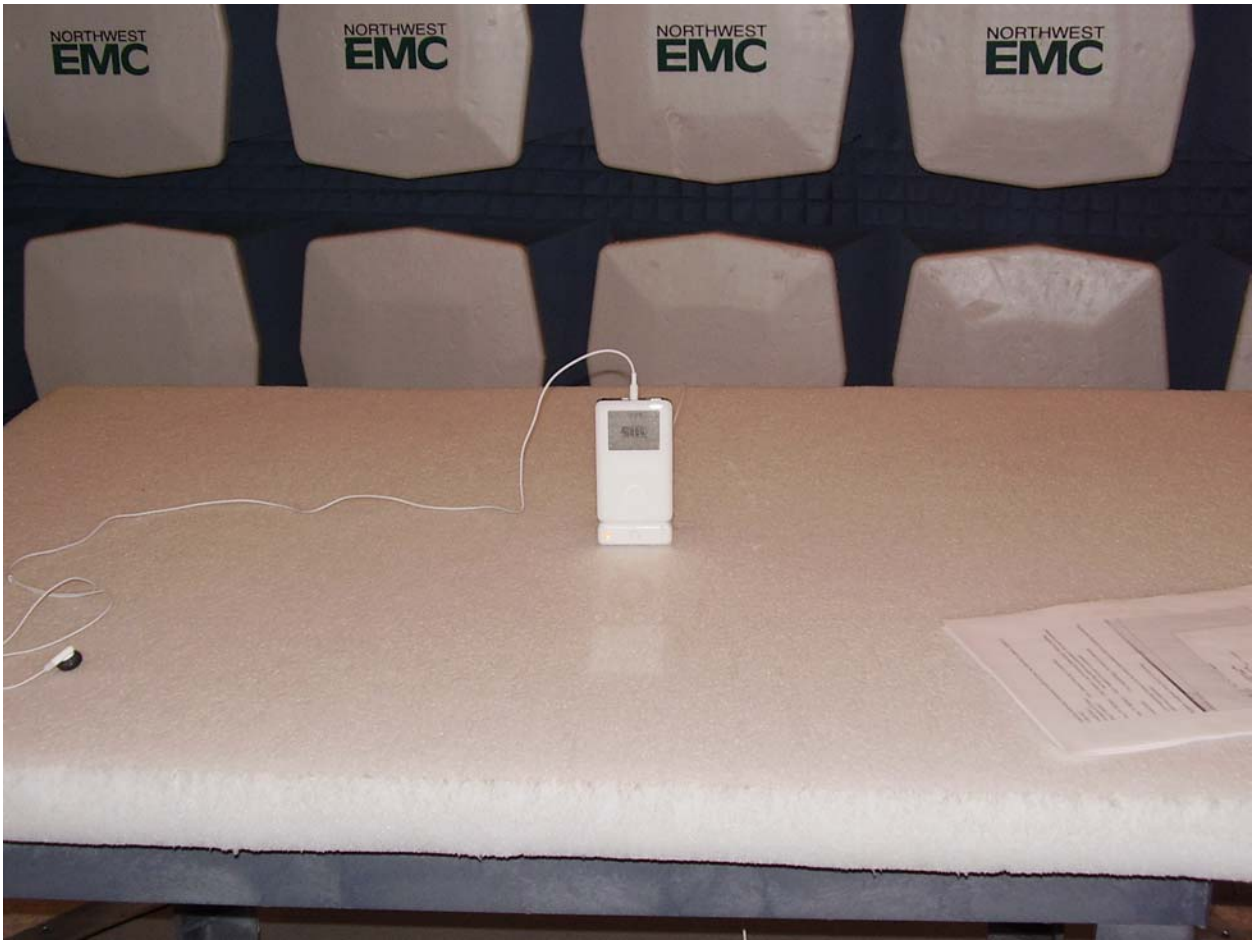








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