InFocus Corporation

PBP

Report No. INFO0377.1

Report Prepared By



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

© 2009Northwest EMC, Inc





Certificate of Test Last Date of Test: May 05, 2009 InFocus Corporation Model: PBP

Emissions						
Test Description	Specification	Test Method	Pass/Fail			
Radiated Emissions	FCC 15.109(g) (CISPR 22:1997):2009 Class B	ANSI C63.4:2003	Pass			
Field Strength of Fundamental	FCC 15.249:2009	ANSI C63.4:2003	Pass			
Field Strength of Harmonics	FCC 15.249:2009	ANSI C63.4:2003	Pass			
AC Powerline Conducted Emissions	FCC 15.207:2009 Class B	ANSI C63.4:2003	Pass			
Receiver Spurious Emissions	RSS-Gen:2007	RSS-Gen:2007	Pass			
Occupied Bandwidth	RSS-Gen:2007	RSS-Gen:2007	Pass			
AC Powerline Conducted Emissions	RSS-Gen:2007	RSS-Gen:2007	Pass			

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

Test Facility

The measurement facility 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

This site has been fully described in a report filed with and accepted by the FCC (Federal

Communications Commission) and Industry Canada (Site filing #2834D-2).

Approved By:
Don 12 monton
Don Facteau, IS Manager



NVLAP Lab Code: 200630-0

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 accredited under the United States Department of Commerce, National Institute of Standards and Technology, and 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 2004/108/EC, and ANSI C63.4. 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.

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-Gen, Issue 2 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. (*Site Filing Numbers - Hillsboro: 2834D-1, 2834D-2, Sultan: 2834C-1, Irvine: 2834B-1, 2834B-2*)

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.



NVLAP LAB CODE 200629-0 NVLAP LAB CODE 200630-0 NVLAP LAB CODE 200676-0 NVLAP LAB CODE 200761-0



ſF



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).

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 Numbers. - Hillsboro: C-1071, R-1025, C-2687, T-289, and R-2318, Irvine: R-1943, C-2766, and T-298, Sultan: R-871, C-1784, and T-294*).

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 (US0017). 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

KCC: Northwest EMC, Inc is a CAB designated by MRA partners and recognized by Korea. (*Assigned Lab Numbers: Hillsboro: US0017, Irvine: US0158, Sultan: US0157*)

SCOPE For details on the Scopes of our Accreditations, please visit: <u>http://www.nwemc.com/accreditations/</u>











Revision 03/18/05





California – Orange County Facility Labs OC01 – OC13

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





Oregon – Evergreen Facility Labs EV01 – EV11

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





Washington – Sultan Facility Labs SU01 – SU07

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



Rev 11/17/06

Party Requesting the Test

Company Name:	InFocus Corporation
Address:	27500 SW Parkway Ave.
City, State, Zip:	Wilsonville, OR 97070-9215
Test Requested By:	Cindy Wong
Model:	PBP
First Date of Test:	April 29, 2009
Last Date of Test:	May 6, 2009
Receipt Date of Samples:	April 27, 2009
Equipment Design Stage:	Production
Equipment Condition:	No Damage

Information Provided by the Party Requesting the Test

Functional Description of the EUT (Equipment Under Test): 2.4 GHz radio pen used with wireless-enabled projector.

Testing Objective:

Seeking approval under FCC 15.249 and RSS-Gen.

EUT Photo



CONFIGURATION 2 INFO0377

EUT					
Description	Manufacturer	Model/Part Number	Serial Number		
LiteBoard Optical Pen	InFocus Corporation	PBP	None		
Power Adapter	ElemenTech	AU10505040	J08111908R 2008 Nov		

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
USB	Yes	1.8m	Yes	LiteBoard Optical Pen	Power Adapter
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

CONFIGURATION 3 INFO0377

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
LiteBoard Optical Pen	InFocus Corporation	PBP	None
Power Adapter	ElemenTech	AU10505040	J08111908R 2008 Nov

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
USB	Yes	1.8m	Yes	LiteBoard Optical Pen	Power Adapter
AC Mains	No	1.0m	No	Power Adapter	AC Mains
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

CONFIGURATION 4 INFO0377

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
LiteBoard Optical Pen	InFocus Corporation	PBP	None



Modifications

	Equipment modifications							
Item	Date	Test	Modification	Note	Disposition of EUT			
1	4/30/2009	Radiated Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.			
2	5/5/2009	Field Strength of Fundamental	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.			
3	5/5/2009	Field Strength of Harmonics	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.			
4	5/6/2009	Occupied Bandwidth	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.			
5	5/6/2009	AC Powerline Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.			

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

MODES OF OPERATION	
Ping test	
POWER SETTINGS INVESTIGATED	
230V/50Hz	
120V/60Hz	

CONFIGURATIONS INVESTIGATED

INFO0377 - 3

FREQUENCY RANGE INVESTIGATED				
Start Frequency	30 MHz	Stop Frequency	1000 MHz	

CLOCKS AND OSCILLATORS

None Provided

SAMPLE CALCULATIONS

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

TEST EQUIPMENT					
Description	Manufacturer	Model	ID	Last Cal.	Interval
Spectrum Analyzer	Agilent	E4443A	AAS	12/12/2008	13 mo
Pre-Amplifier	Miteq	AM-1551	AOY	5/22/2008	13 mo
EV11 Cables		10m Test Distance Cables	EVL	5/24/2008	13 mo
Antenna, Biconilog	EMCO	3142	AXB	1/15/2008	24 mo

MEASUREMENT BANDWIDTHS

	Frequency Range	Peak Data	Quasi-Peak Data	Average Data				
	(MHz)	(kHz)	(kHz)	(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 us	sing the bandwidths and deter	ctors specified No video filte	r was used				

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4-2. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

Using the mode of operation and configuration noted within this report, a final radiated emissions test was performed. The frequency range investigated (scanned), is also noted in this report. Radiated emissions measurements were made at the EUT azimuth and antenna height such that the maximum radiated emissions level will be detected. This requires the use of a turntable and an antenna positioner. The preferred method of a continuous azimuth search is utilized for frequency scans of the EUT field strength with both polarities of the measuring antenna. A calibrated, linearly polarized antenna was positioned at the specified distance from the periphery of the EUT.

Tests were made with the antenna positioned in both the horizontal and vertical planes of polarization. The antenna was varied in height above the conducting ground plane to obtain the maximum signal strength. Though specified in the report, the measurement distance shall be 3 meters or 10 meters. At any measurement distance, the antenna height was varied from 1 meter to 4 meters. These height scans apply for both horizontal and vertical polarization, except that for vertical polarization the minimum height of the center of the antenna shall be increased so that the lowest point of the bottom of the antenna clears the ground surface by at least 25 cm.





Radiated Emissions





Radiated Emissions



RECEIVER SPURIOUS EMISSIONS

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

MODES OF OPERATION			
Rx mid channel			
MODE USED FOR FINAL	_ DATA		
Rx mid channel			
POWER SETTINGS INVE	STIGATED		
Battery			
120VAC/60Hz			
POWER SETTINGS USE	D FOR FINAL DATA		
120VAC/60Hz			
FREQUENCY RANGE IN	VESTIGATED		
Start Frequency	30MHz	Stop Frequency	10000MHz
SAMPLE CALCULATION	IS		

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

TEST EQUIPMENT					
Description	Manufacturer	Model	ID	Last Cal.	Interval
EV01 Cables		18-26GHz Standard Gain Horn Cable	EVD	12/2/2008	13
Pre-Amplifier	Miteq	JSD4-18002600-26-8P	APU	12/2/2008	13
Antenna, Horn	ETS	3160-09	AHG	NCR	0
EV12 Cables		Standard Gain Horn Cables	EVU	5/14/2008	13
Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AVI	5/14/2008	13
Antenna, Horn	ETS	3160-08	AIA	NCR	0
EV12 Cables		Standard Gain Horn Cables	EVU	5/14/2008	13
Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVH	5/14/2008	13
Antenna, Horn	ETS	3160.07	AHZ	10/14/2008	24
Attenuator	Pasternack	PE7005-20	AUN	5/10/2008	13
High Pass Filter	Micro-Tronics	50111	HGE	5/14/2008	13
EV12 Cables		Double Ridge Horn Cables	EVT	6/17/2008	13
Pre-Amplifier	Miteq	AMF-3D00100800-32-13P	AVF	6/17/2008	13
Antenna, Horn	ETS	3115	AIB	8/25/2008	24
Spectrum Analyzer	Agilent	E44440A	AFA	11/14/2008	12
EV12 Cables		Bilog Cables	EVS	6/17/2008	13
Pre-Amplifier	Miteq	AM-1616-1000	AVM	6/17/2008	13
Antenna, Biconilog	EMCO	3141	AXG	11/4/2008	13

MEASUREMEN	T BANDWIDTHS			
	Frequency Range	Peak Data	Quasi-Peak Data	Average Data
	(MHz)	(kHz)	(kHz)	(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
М	easurements were made usi	ng the bandwidths and deter	ctors specified. No video filt	er was used.

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4-2. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

EMC

The EUT was configured for mid channel receive frequency. The spectrum was scanned through out the range specified in RSS-Gen. RSS GEN defines the start frequency for receiver spurious emissions as 30MHz and the stop frequency the 3rd harmonic of the highest tuneable receive frequency. Unwanted emissions were measured to demonstrate compliance. While scanning, emissions from the EUT were maximized by rotating the EUT 360 degrees, measuring the EUT in three orthogonal axis, and adjusting the measurement antenna height and polarization between 1 and 4 meters. A preamp was used for this test in order to provide sufficient measurement sensitivity.



NORTHWEST

RECEIVER SPURIOUS EMISSIONS

PSA 2007.05.07



NORTHWEST

RECEIVER SPURIOUS EMISSIONS

PSA 2007.05.07



EMC

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

MODES OF OPERATION Tx, Mid Channel Tx, Low Channel Tx, High Channel

POWER SETTINGS INVESTIGATED

120V/60Hz

CONFIGURATIONS INVESTIGATED

INFO0377 - 2

SAMPLE CALCULATIONS

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

TEST EQUIPMENT					
Description	Manufacturer	Model	ID	Last Cal.	Interval
Receiver	Rohde & Schwarz	ESCI	ARH	8/28/2008	24 mo
EV07 Cables		Conducted Cables	EVG	5/2/2008	13 mo
High Pass Filter	T.T.E.	7766	HFG	2/23/2009	13 mo
Attenuator	Coaxicom	66702 2910-20	ATO	6/30/2008	13 mo
LISN	Solar	9252-50-R-24-BNC	LIR	2/4/2009	13 mo

MEASUREMENT BANDWIDTHS								
	Frequency Range	Peak Data	Quasi-Peak Data	Average Data				
	(MHz)	(kHz)	(kHz)	(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 us	sing the bandwidths and dete	ctors specified. No video filte	r was used.				

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4-2. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

The EUT will be powered either directly or indirectly from the AC power line. Therefore, conducted emissions measurements were made on the AC input of the EUT, or on the AC input of 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.













NORTHWEST EMC

AC POWERLINE CONDUCTED EMISSIONS



NORTHWEST

AC POWERLINE CONDUCTED EMISSIONS



NORTHWEST

AC POWERLINE CONDUCTED EMISSIONS

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

MODES OF OPERATION

Rx, Mid Channel

POWER SETTINGS INVESTIGATED

120V/60Hz

CONFIGURATIONS INVESTIGATED

INFO0377 - 3

SAMPLE CALCULATIONS

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

TEST EQUIPMENT					
Description	Manufacturer	Model	ID	Last Cal.	Interval
Receiver	Rohde & Schwarz	ESCI	ARH	8/28/2008	24 mo
High Pass Filter	T.T.E.	7766	HFG	2/23/2009	13 mo
Attenuator	Coaxicom	66702 2910-20	ATO	6/30/2008	13 mo
EV07 Cables		Conducted Cables	EVG	5/2/2008	13 mo
LISN	Solar	9252-50-R-24-BNC	LIR	2/4/2009	13 mo

MEASUREMENT BANDWIDTHS							
	Frequency Range	Peak Data	Quasi-Peak Data	Average Data			
	(MHz)	(kHz)	(kHz)	(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 us	ing the handwidths and deter	ctors specified. No video filte	r was used			

Measurements were made using the bandwidths and detectors specified. No video filter was

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4-2. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

The EUT will be powered either directly or indirectly from the AC power line. Therefore, conducted emissions measurements were made on the AC input of the EUT, or on the AC input of the device used to power the EUT. The AC power line conducted emissions were measured with the EUT operating at the middle channel in the operational band in a receive mode of operation. 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.





NORTHWEST EMC

AC POWERLINE CONDUCTED EMISSIONS



NORTHWEST

AC POWERLINE CONDUCTED EMISSIONS



Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT					
Description	Manufacturer	Model	ID	Last Cal.	Interval
Near Field Probe	EMCO	7405	IPD	NCR	0
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	6/27/2008	13
Spectrum Analyzer	Agilent	E4407B	AAU	12/12/2008	13

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4-2. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

The 99% occupied bandwidth was measured with the EUT configured for continuous modulated operation at its middle transmit frequency. The spectrum analyzer's resolution bandwidth was >= 1% of the 20dB bandwidth and the video bandwidth was at least 3 times the resolution bandwidth.

NORTHWEST EMC		OCCU	PIED	BAND	WIDTH				XMit 2008.12.29
EUT	: PBP						Work O	rder: INFO037	7
Serial Number:	None							Date: 05/06/09	
Customer	InFocus Corporation						Tempera	ture: 21	
Attendees	None						Hum	idity: 33%	
Project	None						Barometric F	res.: 1023	
Tested by	Ethan Schoonover			Power:	Battery		Job	Site: EV06	
TEST SPECIFICAT	TIONS				Test Method				
RSS-Gen:2007					RSS-Gen :200)7			
COMMENTS									
None									
DEVIATIONS FRO	M TEST STANDARD								
No Deviations									
Configuration #	4	Signature	<u> II.</u>	l					
						Value		Limit	Results
Low Channel					1	.332MHz	N/A		Pass
Mid Channel					1	.190MHz	N/A		Pass
High Channel					1	1.178MHz	N/A		Pass

OCCUPIED BANDWIDTH

	Low Channel		
Result: Pass	Value: 1.332MHz	Limit: N/A	



	Mid Channel		
Result: Pass	Value: 1.190MHz	Limit: N/A	



OCCUPIED BANDWIDTH

	High Cha	nnel	
Result: Pass	Value: 1.178M	Hz Limit:	N/A





OCCUPIED BANDWIDTH



Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

MODES OF OPERATION		
Tx		

MODE USED FOR FINAL DATA

Тх

POV 120\

POWER SETTINGS INVESTIGATED

120VAC/60Hz

VER SETTINGS USED FOR FINAL DATA	
/AC/60Hz	

rrequence range investigated									
Start Frequency	2400MHz	Stop Frequency	2483.5MHz						

SAMPLE CALCULATIONS

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

TEST EQUIPMENT					
Description	Manufacturer	Model	ID	Last Cal.	Interval
Spectrum Analyzer	Agilent	E44440A	AFA	11/14/2008	12
EV12 Cables		Double Ridge Horn Cables	EVT	6/17/2008	13
Antenna, Horn	ETS	3115	AIB	8/25/2008	24

MEASUREMENT BANDWIDTHS								
	Frequency Range	Peak Data	Quasi-Peak Data	Average Data				
	(MHz)	(kHz)	(kHz)	(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 us	ing the bandwidths and dete	ctors specified. No video filte	r was used.				

modulumente were made deing the bandwidthe and detectore operined. He vide

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4-2. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

The antennas to be used with the EUT were tested. The EUT was transmitting and/or receiving while set at the lowest channel, a middle channel, and the highest channel available. While scanning, emissions from the EUT were maximized by rotating the EUT, adjusting the measurement antenna height and polarization, and manipulating the EUT antenna in 3 orthogonal planes (per ANSI C63.4:2003).



2478.258

2478.075

37.3

35.3

34.6

344.0

192.0

1.0

1.0

3.0

3.0

0.0

0.0

V-Horn

V-Horn

ΡK

71.9

69.9

0.0

0.0

114.0

114.0

-42.1

-44.1

High Channel, EUT on side High Channel, EUT vertical Mid Channel, EUT horizontal

High Channel, EUT vertical High Channel, EUT on side



Field Strength of Fundamental





Field Strength of Fundamental





Field Strength of Fundamental



NORTHWEST EMC

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

MODES OF OPERATION	
Тх	

MODE USED FOR FINAL DATA

Тx

POWER SETTINGS INVESTIGATED 120VAC/60Hz

POWER SETTINGS USED FOR FINAL DATA

120VAC/60Hz

FREQUENCY RANGE INVESTIGATED							
Start Frequency	30 MHz	Stop Frequency	12500 MHz				

SAMPLE CALCULATIONS

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

TEST EQUIPMENT					
Description	Manufacturer	Model	ID	Last Cal.	Interval
EV01 Cables		18-26GHz Standard Gain Horn Cable	EVD	12/2/2008	13
Pre-Amplifier	Miteq	JSD4-18002600-26-8P	APU	12/2/2008	13
Antenna, Horn	ETS	3160-09	AHG	NCR	0
EV12 Cables		Standard Gain Horn Cables	EVU	5/14/2008	13
Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AVI	5/14/2008	13
Antenna, Horn	ETS	3160-08	AIA	NCR	0
EV12 Cables		Standard Gain Horn Cables	EVU	5/14/2008	13
Pre-Amplifier Miteq		AMF-6F-08001200-30-10P	AVH	5/14/2008	13
Antenna, Horn	ntenna, Horn ETS		AHZ	10/14/2008	24
Attenuator	Pasternack	PE7005-20	AUN	5/10/2008	13
High Pass Filter	Micro-Tronics	50111	HGE	5/14/2008	13
EV12 Cables		Double Ridge Horn Cables	EVT	6/17/2008	13
Pre-Amplifier	Miteq	AMF-3D00100800-32-13P	AVF	6/17/2008	13
Antenna, Horn	ETS	3115	AIB	8/25/2008	24
Spectrum Analyzer	Agilent	E44440A	AFA	11/14/2008	12
EV12 Cables		Bilog Cables	EVS	6/17/2008	13
Pre-Amplifier	Miteq	AM-1616-1000	AVM	6/17/2008	13
Antenna, Biconilog	EMCO	3141	AXG	11/4/2008	13

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4-2. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

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.

NC				Fie	ld <u>Str</u>	ength	n of Ha	armor	ics			P	SA 2007.05.07 EMI 2008.1.9
		PBP				- J-				W	ork Order:	INE00377	
Ser	rial Number:	None									Date:	05/04/09	
	Customer:	InFocus Co	orporation							Ter	nperature:	21	
	Attendees:	None									Humidity:	33%	
	Project:	None					_			Barome	etric Pres.:	30.03	
TECT	Tested by:	Ethan Scho	onover				Power:	120VAC/60)Hz d		Job Site:	EV12	
TEST S		UNS						ANSI C62	0				
	5.249.2009							ANSI C63.4	4.2003				
TEST P	PARAMETER	S					Test Dista	m e e (m)					
Antenn	Ta Height(S) ((m)	1 - 4				Test Dista	nce (m)	3				
None	ENTS												
EUT O	PERATING N	IODES											
Тх													
DEVIA No dev	TIONS FROM	I TEST STA	NDARD										
Run #	nations.	8								100200	- De		
Confia	uration #	2	1	1						51	11		
Results	S	Pa	SS						Signature	Ilber	A		
									Č.				
	80.0												
	70.0												
	60.0												
	50.0												
_	50.0												
<u>ع</u>													
2	40.0												
ы Б													
р													••
	30.0												
											•		· ·
								٠					
	20.0				•			•			•		
								•					
	10.0												
	10.0												
	0.0												
	10.000						100.000					10	000.000
							MH7						
							1411 12						
						1	External			Distance			Compared to
	Freq	Amplitude	Factor	Azimuth	Height	Distance	Attenuation	Polarity	Detector	Adjustment	Adjusted	Spec. Limit	Spec.
	(MHz)	(dBuV)	(dB)	(degrees)	(meters)	(meters)	(dB)		DV	(dB)	dBuV/m	dBuV/m	(dB)
9 Q	25.798	21.0 21.0	13.3	205.0 199.0	1.2	3.0	0.0	H-Bilog	PK	0.0	34.3 34.2	40.0 46 0	-11.7
9	26.477	15.5	13.2	199.0	1.7	3.0	0.0	H-Bilog	QP	0.0	28.7	46.0	-17.3
9	54.406	15.4	13.3	205.0	1.2	3.0	0.0	H-Bilog	QP	0.0	28.7	46.0	-17.3
4	69.821	21.6	5.3	118.0	1.7	3.0	0.0	H-Bilog	PK	0.0	26.9	46.0	-19.1
1	55.983	27.8	-5.0	112.0	1.7	3.0	0.0	H-Bilog	PK	0.0	22.8	43.0	-20.2
4	43.094	22.9	-4.0	320.0	1.7	3.0	0.0	H-Bilog	PK	0.0	18.9	40.0	-21.1
1	30.008	25.2	-5.U	112.0	1.7	3.0	0.0	H-Bilog	QP OP	0.0	20.2	43.U 12 0	-22.8
4	69.297	20.3 15.8	5.3	118.0	1.7	3.0	0.0	H-Biloa	QP	0.0	19.∠ 21.1	46 0	-23.0
1	29.728	24.2	-7.1	151.0	1.7	3.0	0.0	H-Bilog	PK	0.0	17.1	43.0	-25.9
2	43.238	17.4	-3.9	320.0	1.7	3.0	0.0	H-Bilog	QP	0.0	13.5	40.0	-26.5









Field Strength of Harmonics





Field Strength of Harmonics



Field Strength of Harmonics

