Radioframe Networks, Inc.

MC Series System

January 27, 2006

Report No. RAFN0059, Rev 01

Report Prepared By



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

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22975 NW Evergreen Parkway Suite 400 Hillsboro, Oregon 97124

Certificate of Test

Issue Date: January 27, 2006 Radioframe Networks, Inc. Model: MC Series System

Emissions					
Test Description Specification Test Method Pass Fail					
Output Power	47 CFR 2.1046 & 90.217	TIA / EIA - 603	\boxtimes		
Spurious Conducted Emissions	47 CFR 2.1051 & 90.691	TIA / EIA - 603	\boxtimes		
Emission Mask	47 CFR 90.691	TIA / EIA - 603	\square		

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

Test Facility

The measurements were made in-situ at the client's facility:

Approved By:
ADU.K.P
Grea Kiemel Director of Engineering

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 History

Revision 05/05/03

Revision Number	Description	Date	Page Number
01	Update output power test data	1/27/06	13 - 21

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, 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 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.



200629-0 200630-0 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.



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 Numbers. - 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

What is measurement uncertainty?

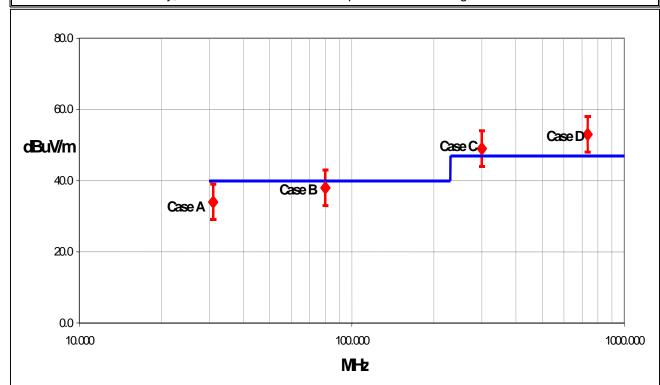
When a measurement is made, the result will be different from the true or theoretically correct value. The difference is the result of tolerances in the measurement system that cannot be completely eliminated. To the extent that technology allows us, it has been our aim to minimize this error. The following 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.

Measurement Uncertainty

Radiated Emissions ≤ 1 GHz		Value (dB)				
	Probability	Bico	nical	Log Pe	eriodic	D	ipole
	Distribution	Antenna		Antenna		Antenna	
Test Distance		3m	10m	3m	10m	3m	10m
Combined standard	normal	+ 1.86	+ 1.82	+ 2.23	+ 1.29	+ 1.31	+ 1.25
uncertainty u _c (y)		- 1.88	- 1.87	- 1.41	- 1.26	- 1.27	- 1.25
Expanded uncertainty <i>U</i>	normal (k=2)	+ 3.72	+ 3.64	+ 4.46	+ 2.59	+ 2.61	+ 2.49
(level of confidence ≈ 95%)		- 3.77	- 3.73	-2.81	- 2.52	- 2.55	- 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 <i>U</i> (level of confidence ≈ 95%)	normal (k=2)	+ 2.57 - 2.51	+ 2.76 2.70

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

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

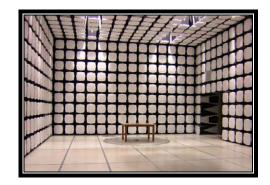
Conducted Immunity					
	Probability	Value			
	Distribution	(+/- dB)			
Combined standard uncertainty <i>uc(y</i>)	normal	1.05			
Expanded uncertainty U	normal (k = 2)	2.10			
(level of confidence ≈ 95 %)	Horriai (K = 2)	2.10			

Legend

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

 $\it U$ = combined standard uncertainty multiplied by the coverage factor: $\it k$. 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 $\it k$ =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 Labs OC01 – OC13

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





Oregon – Evergreen Facility Labs EV01 – EV10

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

Product Description

Revision 10/3/03

Party Requesting the Test	
Company Name:	Radioframe Networks, Inc.
Address:	1120 112th Ave NE, Suite 600
City, State, Zip:	Bellevue, WA 98004
Test Requested By:	Dean Busch
Model:	MC Series System
First Date of Test:	October 13, 2005
Last Date of Test:	January 27, 2006
Receipt Date of Samples:	Tested in-situ at Radioframe Networks
Equipment Design Stage:	Production
Equipment Condition:	No visual damage.

Information Provided by the Party Requesting the Test

Clocks/Oscillators:	Not provided.
I/O Ports:	Not Provided.

Functional Description of the EUT (Equipment Under Test):

Microcell cellular base station for iDEN radio.

Client Justification for EUT Selection:

The product is an engineering sample, representative of the final product.

Client Justification for Test Selection:

These tests satisfy the requirements for a Class 2 Permissive Change under FCC Part 90.

EUT Photo





Revision 4/28/03

	Equipment modifications					
Item	Date	Test	Modification	Note	Disposition of EUT	
1	10/14/2005	Occupied Bandwidth / Emission Mask	Configuration remained unchanged	No EMI suppression devices were added or modified during this test.	EUT remained at client facility following the test.	
2	10/14/2005	Conducted Spurious Emissions	Configuration remained unchanged	No EMI suppression devices were added or modified during this test.	EUT remained at client facility following the test.	
3	01/27/2006	Output Power	Configuration remained unchanged.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.	



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 (851.0125 MHz)
Mid (859.1625 MHz)
High (869.9875 MHz)

Output Power Setting(s) Investigated:
Lowest
Middle
Highest

Software\Firmware Applied During Test							
Exercise software Standard Production Software Version Unknown							
Description							
The system was tested using standard operating production software to exercise the functions of the							
device during the testing.							

EUT and Peripherals							
Description	Manufacturer	Model/Part Number	Serial Number				
iDEN Radio Base Station	Radio Frame	MC Series System	Engineering Production				
System	Networks, Inc.	INIC Ochics System	Unit #1				

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Power	No	2.0	No	EUT	AC Mains

Measurement Equipment								
Description	Manufacturer	Model	Identifier	Last Cal	Interval			
Spectrum Analyzer	Hewlett-Packard	8593E	AAN	12/15/2004	12 mo			
Power Meter	Hewlett Packard	E4418A	SPA	07/23/2004	24 mo			
Power Sensor	Hewlett-Packard	8481H	SPB	07/23/2004	24 mo			
Signal Generator	Agilent	8648B	TGI	07/19/2005	13 mo			
30 dB 100W attenuator	Bird Electronic Corp.	100-SA-MFN-30	N/A	NCR	N/A			

Test Description

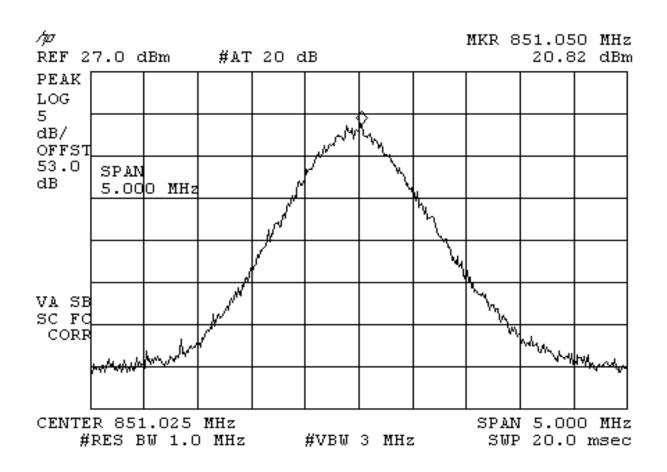
Requirement: Per 47 CFR 2.1046 and 90.205, the conducted power output was measured at the RF output terminals after the tune-up procedure. The measured value, the value stated in the manual, and the value on Form 731 must agree.

Configuration: The peak measurement was made using a directional coupler between the RF output of the EUT and a spectrum analyzer. Prior to making the measurement, the test setup (including attenuator, spectrum analyzer and coaxial cable) was calibrated using the power meter and signal source.

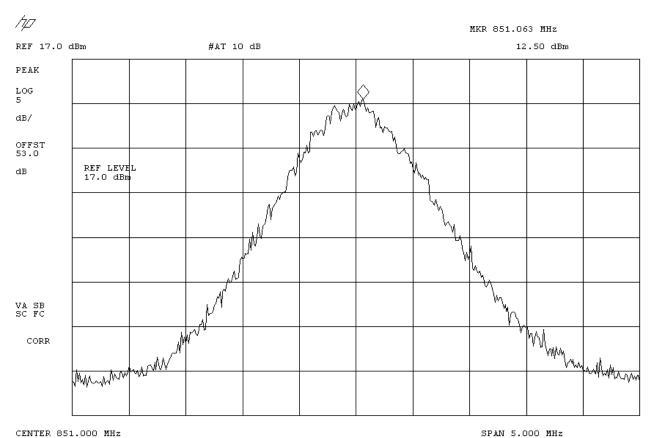
The peak output power was measured with the EUT set to low, medium, and high transmit frequencies. The lowest output power, the middle output power, and the highest output power was measured at each channel. The output power was varied by changing the TX Attenuator setting on the EUT's amplifier to the following settings: High Power 11 db, Mid power 29 dB, and Low Power 49 dB. Did not test total power in the band with all 20 blades transmitting or with 8 blades per sector. Rather, it was confirmed that the output power per channel is level across the band (+/- 1.5 dB). Therefore, for MPE estimates, a simple summation of the power in each channel will be sufficient.

Completed by:
Porly by Relenge

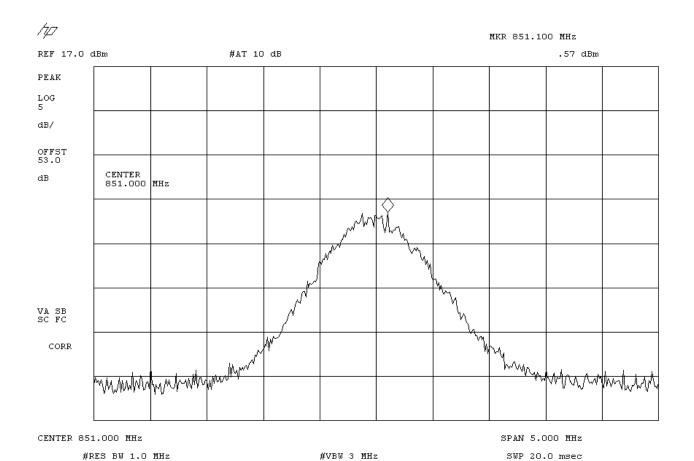
EMC Output Power						
EUT: MC Series System				Work Order:	RAFN0054	
Serial Number: Engineering Production Unit #1				Date:	01/27/06	
Customer: Radioframe Networks, Inc.				Temperature:	23° C	
Attendees: Dean Bush			Ethan Schoonover	Humidity:		
Customer Ref. No.: None		Power:	-48 Vdc	Job Site:	Off-site	
TEST SPECIFICATIONS						
Specification: 47 CFR 2.1046 & 90.217	Year: Most Current	Method:	TIA/EIA-603	Year:	Most Current	
COMMENTS Tested in System configuration EUT OPERATING MODES With modulation DEVIATIONS FROM TEST STANDARD None REQUIREMENTS						
RESULTS		AMPLITUDE				
Pass 20.82 dBm SIGNATURE						
Tested By:						
DESCRIPTION OF TEST						
	utput Power - Low	Channel, Hig	h Power			



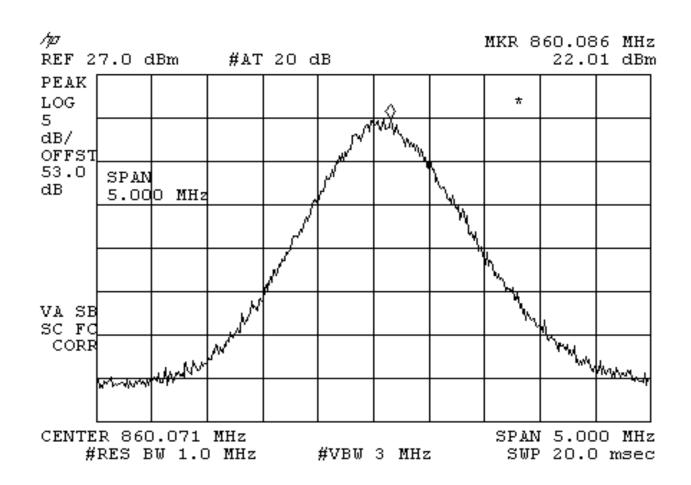
NORTHWEST EMC		Output	Power		Rev BETA 01/30/01			
EUT:	MC Series System			Work Order:	RAFN0054			
Serial Number:	Engineering Production Unit #1			Date:	01/27/06			
Customer:	Radioframe Networks, Inc.			Temperature:	23° C			
Attendees:	Dean Bush		Tested by: Ethan Schoonover	Humidity:	40%			
Customer Ref. No.:	None		Power: -48 Vdc	Job Site:	Off-site			
TEST SPECIFICATION								
Specification:	47 CFR 2.1046 & 90.217	Year: Most Current	Method: TIA/EIA-603	Year:	Most Current			
COMMENTS Tested in System confector OPERATING MODE With modulation DEVIATIONS FROM TI	DES							
None REQUIREMENTS								
RESULTS			AMPLITUDE					
Pass			12.5 dBm					
Tested By:	The State	-						
DESCRIPTION OF TES	Output Power - Low Channel, Medium Power							



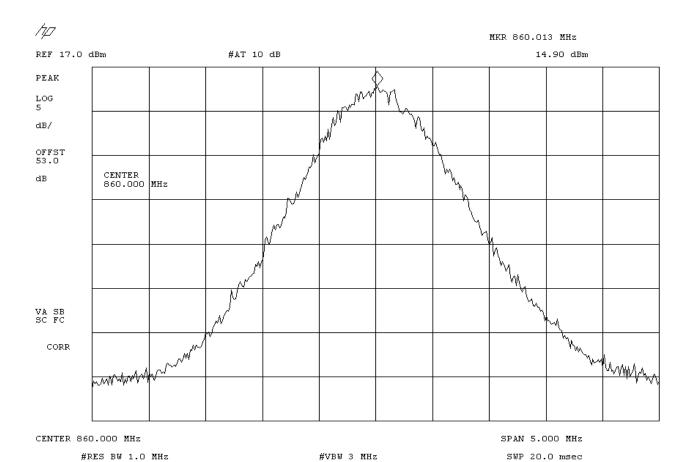
EUT OPERATING MODES With modulation DEVIATIONS FROM TEST STANDARD	NORTHWEST EMC	Output	Power			Rev BETA 01/30/01
Customer: Radioframe Networks, Inc. Attendees: Dean Bush Customer Ref. No.: None Power: 48 Vdc Job Site: Off-site TEST SPECIFICATIONS Specification: 47 CFR 2.1046 & 90.217 Year: Most Current Method: TIA/EIA-603 Year: Most Current SAMPLE CALCULATIONS COMMENTS Tested in System configuration EUT OPERATING MODES With modulation DEVIATIONS FROM TEST STANDARD None REQUIREMENTS RESULTS AMPLITUDE Pass 0.57 dBm SIGNATURE DESCRIPTION OF TEST	EUT: MC Series System				Work Order:	RAFN0054
Attendees: Dean Bush Tested by: Ethan Schoonover Humidity: 40% Customer Ref. No.; None Power: 48 Vdc Job Site: Off-site TEST SPECIFICATIONS Specification: 47 CFR 2.1046 & 90.217 Year: Most Current Method: TIA/EIA-603 Year: Most Current SAMPLE CALCULATIONS COMMENTS Tested in System configuration EUT OPERATING MODES With modulation DEVIATIONS FROM TEST STANDARD None REGUIREMENTS RESULTS AMPLITUDE Pass 0.57 dBm SIGNATURE DESCRIPTION OF TEST	Serial Number: Engineering Production Unit #1				Date:	01/27/06
CUSTOMER REF. No.: None TEST SPECIFICATIONS Specification: 47 CFR 2.1046 & 90.217 Year: Most Current Method: TIA/EIA-603 Year: Most Current SAMPLE CALCULATIONS COMMENTS Tested in System configuration EUVIATIONS FROM TEST STANDARD None REQUIREMENTS RESULTS AMPLITUDE Pass 0.57 dBm SIGNATURE DESCRIPTION OF TEST	Customer: Radioframe Networks, Inc.				Temperature:	23° C
TEST SPECIFICATIONS Specifications: 47 CFR 2.1046 & 90.217 Year: Most Current Method: TIA/EIA-603 Year: Most Current SAMPLE CALCULATIONS COMMENTS Tested in System configuration EUT OPERATING MODES With modulation DEVIATIONS FROM TEST STANDARD None REQUIREMENTS RESULTS AMPLITUDE Pass SIGNATURE DESCRIPTION OF TEST	Attendees: Dean Bush		Tested by:	Ethan Schoonover	Humidity:	40%
Specification: 47 CFR 2.1046 & 90.217	Customer Ref. No.: None		Power:	-48 Vdc	Job Site:	Off-site
SAMPLE CALCULATIONS COMMENTS Tested in System configuration EUT OPERATING MODES With modulation DEVIATIONS FROM TEST STANDARD None REQUIREMENTS RESULTS AMPLITUDE Pass 0.57 dBm SIGNATURE DESCRIPTION OF TEST	TEST SPECIFICATIONS					
COMMENTS Tested in System configuration EUT OPERATING MODES With modulation DEVIATIONS FROM TEST STANDARD None REQUIREMENTS RESULTS AMPLITUDE Pass 0.57 dBm SIGNATURE DESCRIPTION OF TEST	Specification: 47 CFR 2.1046 & 90.217	Year: Most Current	Method:	TIA/EIA-603	Year:	Most Current
RESULTS AMPLITUDE Pass 0.57 dBm SIGNATURE Tested By: T	Tested in System configuration EUT OPERATING MODES With modulation					
Pass 0.57 dBm SIGNATURE Tested By: DESCRIPTION OF TEST	None REQUIREMENTS					
SIGNATURE Tested By: DESCRIPTION OF TEST	RESULTS		AMPLITUDE			
Tested By: DESCRIPTION OF TEST	Pass 0.57 dBm					
	Tested By:					
		utput Power - I ow	Channel, Lov	v Power		



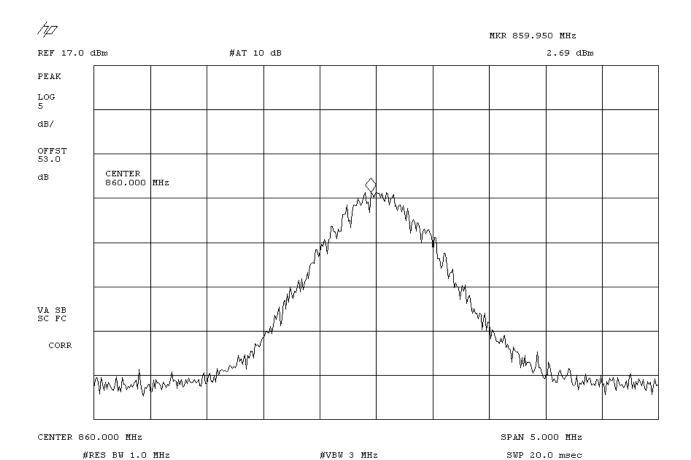
NORTHWEST EMC				Rev BETA 01/30/01				
	MC Series System				Work Order:			
	Engineering Production Unit #1					01/27/06		
	Radioframe Networks, Inc.				Temperature:			
Attendees:				Ethan Schoonover	Humidity:			
Customer Ref. No.:			Power:	-48 Vdc	Job Site:	Off-site		
TEST SPECIFICATION								
	47 CFR 2.1046 & 90.217	Year: Most Current	Method:	TIA/EIA-603	Year:	Most Current		
SAMPLE CALCULATION	DNS							
COMMENTS								
Tested in System con	-							
EUT OPERATING MOD	DES							
With modulation								
DEVIATIONS FROM T	EST STANDARD							
None								
REQUIREMENTS								
RESULTS			AMPLITUDE					
	Pass 22.01 dBm							
SIGNATURE								
Tested By:	Tested By:							
DESCRIPTION OF TES	DESCRIPTION OF TEST							
	Out	out Power - Mediur	n Channel, H	igh Power				



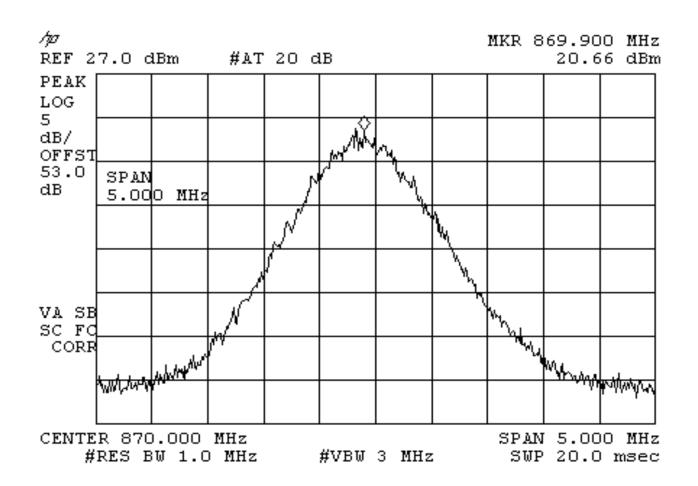
NORTHWEST EMC		Output	Power			Rev BETA 01/30/01
EUT:	MC Series System				Work Order:	RAFN0054
	Engineering Production Unit #1				Date:	01/27/06
Customer:	Radioframe Networks, Inc.				Temperature:	23° C
Attendees:				Ethan Schoonover	Humidity:	
Customer Ref. No.:			Power:	-48 Vdc	Job Site:	Off-site
TEST SPECIFICATION						
Specification: SAMPLE CALCULATION	47 CFR 2.1046 & 90.217	Year: Most Current	Method:	TIA/EIA-603	Year:	Most Current
COMMENTS Tested in System conf EUT OPERATING MOI With modulation DEVIATIONS FROM TI None REQUIREMENTS	DES					
RESULTS			AMPLITUDE			
Pass SIGNATURE			14.9 dBm			
Tested By:	The State					
Output Power - Medium Channel, Medium Power						



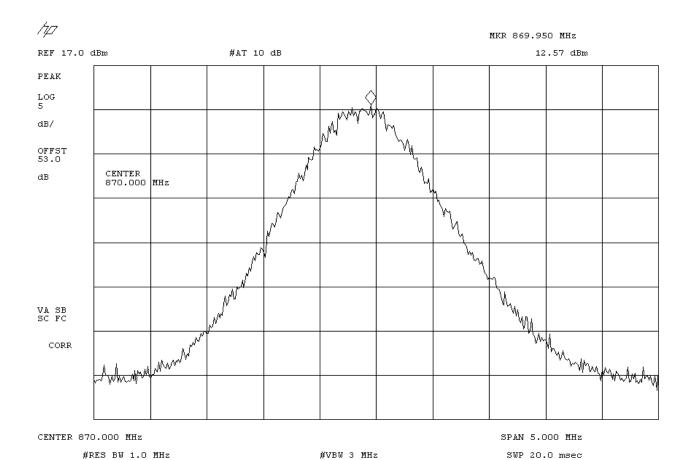
NORTHWEST EMC		Output	Power			Rev BETA 01/30/01
EUT:	MC Series System				Work Order:	RAFN0054
Serial Number:	Engineering Production Unit #1				Date:	01/27/06
Customer:	Radioframe Networks, Inc.				Temperature:	23° C
Attendees: I	Dean Bush		Tested by:	Ethan Schoonover	Humidity:	40%
Customer Ref. No.:	None		Power:	-48 Vdc	Job Site:	Off-site
TEST SPECIFICATIONS	6					
Specification: 4	47 CFR 2.1046 & 90.217	Year: Most Current	Method:	TIA/EIA-603	Year:	Most Current
COMMENTS Tested in System configure Operating MoD With modulation DEVIATIONS FROM TE None REQUIREMENTS	ES					
RESULTS Pass SIGNATURE	RESULTS AMPLITUDE Pass 2.69 dBm					
Tested By: Tested By: DESCRIPTION OF TEST						
DESCRIPTION OF TES	Output Power - Medium Channel, Low Power					



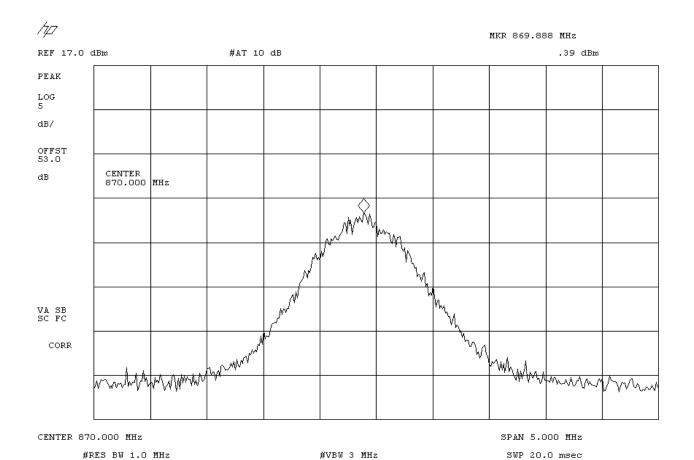
EMC Output Power					
EUT: MC Series System				Work Order:	RAFN0054
Serial Number: Engineering Production Unit #1				Date:	01/27/06
Customer: Radioframe Networks, Inc.				Temperature:	23° C
Attendees: Dean Bush		Tested by:	Ethan Schoonover	Humidity:	
Customer Ref. No.: None		Power:	-48 Vdc	Job Site:	Off-site
TEST SPECIFICATIONS					
Specification: 47 CFR 2.1046 & 90.217	Year: Most Current	Method:	TIA/EIA-603	Year:	Most Current
COMMENTS Tested in System configuration EUT OPERATING MODES With modulation DEVIATIONS FROM TEST STANDARD None REQUIREMENTS					
RESULTS		AMPLITUDE			
Pass SIGNATURE		20.66 dBm			
Tested By:					
DESCRIPTION OF TEST	itnut Dower High	Channal His	h Dower		
U. O.	ıtput Power - High	Channel, Hig	in Power		



NORTHWEST EMC		Output	Power			Rev BETA 01/30/01
EUT:	MC Series System				Work Order:	RAFN0054
Serial Number:	Engineering Production Unit #1				Date:	01/27/06
Customer:	Radioframe Networks, Inc.				Temperature:	23° C
Attendees:			Tested by:	Ethan Schoonover	Humidity:	
Customer Ref. No.:	None		Power:	-48 Vdc	Job Site:	Off-site
TEST SPECIFICATION						
Specification:	47 CFR 2.1046 & 90.217	Year: Most Current	Method:	TIA/EIA-603	Year:	Most Current
COMMENTS Tested in System conf EUT OPERATING MOD With modulation DEVIATIONS FROM TE None	DES					
REQUIREMENTS						
RESULTS			AMPLITUDE			
Pass	Pass 12.57 dBm					
Tested By:	The State of the S	<u> </u>				
PESSIGN PION OF TES		put Power - High C	hannel, Medi	ium Power		



NORTHWEST EMC		Output	Power			Rev BETA 01/30/01
EUT:	MC Series System				Work Order:	RAFN0054
Serial Number:	Engineering Production Unit #1				Date:	01/27/06
Customer:	Radioframe Networks, Inc.				Temperature:	23° C
Attendees:	Dean Bush		Tested by:	Ethan Schoonover	Humidity:	40%
Customer Ref. No.:	None		Power:	-48 Vdc	Job Site:	Off-site
TEST SPECIFICATION	S					
Specification:	47 CFR 2.1046 & 90.217	Year: Most Current	Method:	TIA/EIA-603	Year:	Most Current
COMMENTS Tested in System conf EUT OPERATING MOD With modulation DEVIATIONS FROM TO	DES					
RESULTS Pass						
Tested By: DESCRIPTION OF TES	Then I					
	Ot	utput Power - High	Channel, Lo	w Power		











Spurious Conducted Emissions

Revision 10/1/03

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 (851.0125 MHz)	
Mid (859.1625 MHz)	
High (869.9875 MHz)	

Data Rates Investigated:

Typical

Output Power Setting(s) Investigated:	
Highest	
Middle	
Lowest	

Power Input Settings Investigated:

120 VAC, 60 Hz.

Frequency Range Investigated				
Start Frequency	30 MHz	Stop Frequency	10 GHz	

Software\Firmware Applied During Test						
Exercise software Standard Production Version Unknown						
Description						
The system was tested using standard operating production software to exercise the functions of the device during the testing.						

EUT and Peripherals			
Description	Manufacturer	Model/Part Number	Serial Number
iDEN Radio Base Station	Radio Frame	MC Series System	Engineering Production
System	Networks, Inc.	NIC Series System	Unit #1

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Power	No	2.0	No	EUT	AC Mains

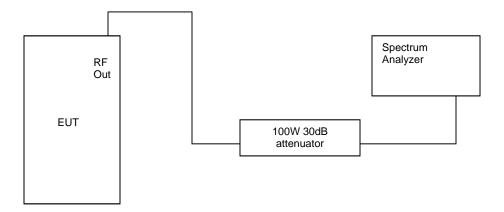
Measurement Equipment						
Description	Manufacturer	Model	Identifier	Last Cal	Interval	
Spectrum Analyzer	Hewlett-Packard	8593E	AAN	12/15/2004	12 mo	
30 dB 100W attenuator	Bird Electronic Corp.	100-SA-MFN-30	N/A	NCR	N/A	

Test Description

Requirement: Per 47 CFR 90.217(b), any emission appearing on a frequency 25 kHz or more removed from the assigned frequency must be attenuated at least 30 dB below the un-modulated carrier. Per 47 CFR 2.1051, the spurious emissions were measured at the RF output terminals with analyzer plots made for each modulation type.

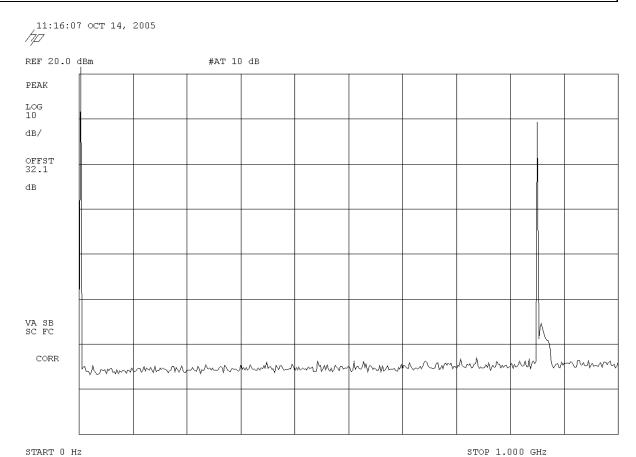
Configuration: A spectrum analyzer was used to scan from 0 to 2 GHz. A 10kHz resolution bandwidth was used below 1GHz and 1MHz above 1GHz. No video filtering was employed. A 20dB external attenuator was used on the RF input of the spectrum analyzer.

Test Setup Diagram



Completed by:

EMC Antenna Conducted Spurious Emissions						
	MC Series System			Work Order:	RAFN0054	
Serial Number:	Engineering Production Unit #1			Date:	10/14/05	
Customer:	Radioframe Networks, Inc.			Temperature:	23° C	
Attendees:	Neil Ross		Tested by: Rod Peloquin	Humidity:	40%	
Customer Ref. No.:	None		Power: -48 Vdc	Job Site:	Off-site	
TEST SPECIFICATION	IS					
Specification:	47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	2001	
SAMPLE CALCULATION	ONS					
COMMENTS Tested in System Conf	•					
With modulation at hig	ghest output power level (approx.	13 dBm)				
DEVIATIONS FROM TE	EST STANDARD					
None						
REQUIREMENTS						
Maximum level of any	out of band spurious emission m	ust be attenuated below the limit of	of -13 dBm.			
RESULTS						
Pass						
SIGNATURE Tested By:	Roely la Releng					
DESCRIPTION OF TES	ST					
	Antenna Cond	ducted Spurious Em	nissions - Low Channel 0M	Hz-1GHz		



NORTHWEST _						
EMC An	tenna Conducted	Spurious Em	nissions	Rev BETA		
EUT: MC Series System			Work Order:	01/30/01 DAENO0E4		
Serial Number: Engineering Production	. Unit #1			10/14/05		
Customer: Radioframe Networks,			Temperature:			
Attendees: Neil Ross	,					
Customer Ref. No.: None		Power: -48 Vdc	oquin Humidity: Job Site:			
TEST SPECIFICATIONS		Power: -48 vdc	Job Site:	Off-site		
The second secon	V N 10	Method: TIA / EIA	200	0004		
Specification: 47 CFR 2.1051 & 90.691	Year: Most Current	Method: IIA / EIA	- 603 Year:	2001		
SAMPLE CALCULATIONS						
COMMENTS						
Tested in System Configuration						
EUT OPERATING MODES						
With modulation at highest output power leve	I (approx. 13 dBm)					
DEVIATIONS FROM TEST STANDARD						
None						
REQUIREMENTS						
Maximum level of any out of band spurious e	mission must be attenuated below the limit of	of -13 dBm.				
RESULTS						
Pass						
SIGNATURE						
ρ						
Rochy la Reley						
Tested By:						
DESCRIPTION OF TEST						
Antenna	Conducted Spurious Emi	ssions - Low Char	nnel 1GHz-2.8GHz	•		
	The state of the s					

11:17:03 OCT 14, 2005

EMC Antenna Conducted Spurious Emissions Rev BETA (1/300)1					
EUT: MC Series System Work Orc					
Serial Number: Engineering Production Unit #1			Date:	10/14/05	
Customer: Radioframe Networks, Inc.			Temperature:	23° C	
Attendees: Neil Ross		Tested by: Rod Peloquin	Humidity:	40%	
Customer Ref. No.: None		Power: -48 Vdc	Job Site:	Off-site	
TEST SPECIFICATIONS					
Specification: 47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	2001	
COMMENTS Tested in System Configuration					
EUT OPERATING MODES					
With modulation at highest output power level (approx. 13 d	IRm)				
DEVIATIONS FROM TEST STANDARD					
None					
REQUIREMENTS					
Maximum level of any out of band spurious emission must	be attenuated below the limit of	of -13 dBm.			
RESULTS					
Pass					
SIGNATURE					
Rochy le Releng					
DESCRIPTION OF TEST					
Antenna Conducted Spurious Emissions - Low Channel 2.8GHz-4GHz					

TI: 18: 10 OCT 14, 2005

PEAK
LOG
10
dB/
OFFST
32: 1
dB

VA SB
SC FC
CORR

EMC Antenna Conducted Spurious Emissions Rev BETA 01/2001					
EUT: MC Series System			Work Order: RAFN0054		
Serial Number: Engineering Production Unit #1			Date: 10/14/05		
Customer: Radioframe Networks, Inc.			Temperature: 23° C		
Attendees: Neil Ross		Tested by: Rod Peloquin	Humidity: 40%		
Customer Ref. No.: None		Power: -48 Vdc	Job Site: Off-site		
TEST SPECIFICATIONS					
Specification: 47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year: 2001		
SAMPLE CALCULATIONS					
Tested in System Configuration EUT OPERATING MODES With modulation at highest output power level (approx DEVIATIONS FROM TEST STANDARD None REQUIREMENTS Maximum level of any out of band spurious emission n		4.43 dDm			
Maximum level of any out of band spurious emission in	nust be attenuated below the limit of	1-13 UBIII.			
Pass		<u> </u>			
SIGNATURE					
Pooling be Roling. Tested By:					
DESCRIPTION OF TEST					
Antenna Cond	lucted Spurious Emis	ssions - Low Channel 4GH	Iz-6.5GHz		

11:19:14 OCT 14, 2005

REF 20.0 dBm #AT 10 dB

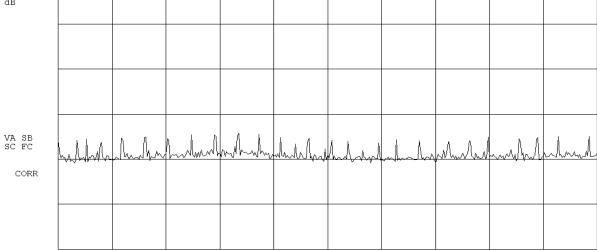
PEAK

LOG
10

dB/

OFFST
32.1

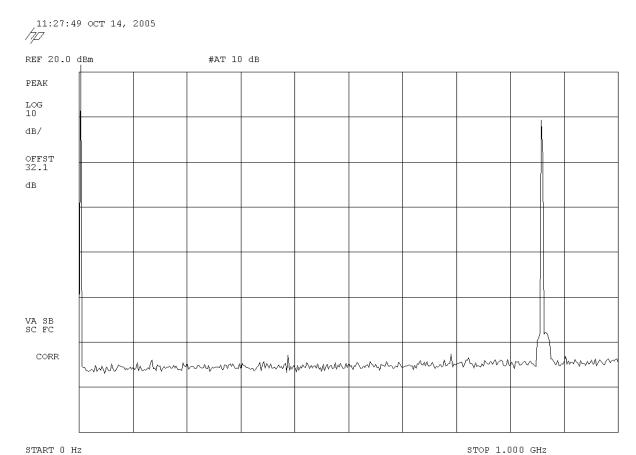
dB



EMC Antenna Conducted Spurious Emissions Rev BETA (1/300)1					
EUT: MC Series System	Work Order:	RAFN0054			
Serial Number: Engineering Production Unit #1			Date:	10/14/05	
Customer: Radioframe Networks, Inc.			Temperature:	23° C	
Attendees: Neil Ross		Tested by: Rod Peloquin	Humidity:		
Customer Ref. No.: None		Power: -48 Vdc	Job Site:	Off-site	
TEST SPECIFICATIONS					
Specification: 47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	2001	
COMMENTS					
Tested in System Configuration					
EUT OPERATING MODES					
With modulation at highest output power level (approx. 13 dB	m)				
DEVIATIONS FROM TEST STANDARD	,				
None					
REQUIREMENTS					
Maximum level of any out of band spurious emission must be	attenuated below the limit	of -13 dBm.			
RESULTS					
Pass					
SIGNATURE Porly le Preling Tested By:					
DESCRIPTION OF TEST					
Antenna Conducted Spurious Emissions - Low Channel 6.5GHz - 9GHz					

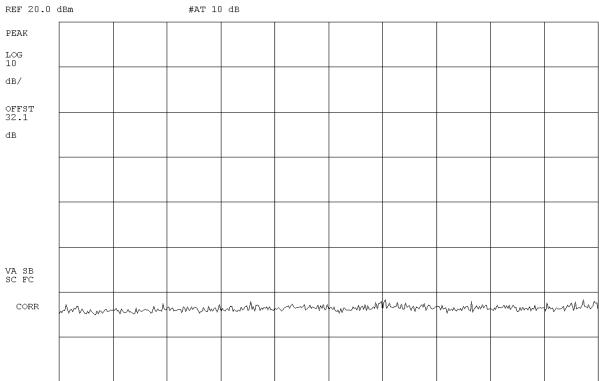
11:20:19 OCT 14, 2005

EMC Antenna Conducted Spurious Emissions						
	MC Series System			Work Order: I	RAFN0054	
Serial Number:	Engineering Production Unit #1			Date: 1	10/14/05	
Customer:	Radioframe Networks, Inc.			Temperature: 2	23° C	
Attendees:	Neil Ross		Tested by: Rod Peloquin	Humidity:	40%	
Customer Ref. No.:	None		Power: -48 Vdc	Job Site:	Off-site	
TEST SPECIFICATION	S					
Specification:	47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year: 2	2001	
SAMPLE CALCULATION	ONS					
COMMENTS Tested in System Configuration EUT OPERATING MODES With modulation at highest output power level (approx. 13 dBm) DEVIATIONS FROM TEST STANDARD None REQUIREMENTS						
	out of band spurious emission m	ust be attenuated below the limit o	f -13 dBm.			
RESULTS Pass	•	<u> </u>	<u>'</u>			
SIGNATURE						
Poelry la Felings Tested By:						
DESCRIPTION OF TEST						
Antenna Conducted Spurious Emissions - Mid Channel 0MHz-1GHz						



EMC Antenna Conducted Spurious Emissions Rev BETA 01/2001					
EUT:	MC Series System			Work Order:	RAFN0054
Serial Number:	Engineering Production Unit #1			Date:	10/14/05
Customer:	Radioframe Networks, Inc.			Temperature:	23° C
Attendees:	Neil Ross		Tested by: Rod Peloquin	Humidity:	40%
Customer Ref. No.:	None		Power: -48 Vdc	Job Site:	Off-site
TEST SPECIFICATION	S				
Specification:	47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	2001
COMMENTS					
COMMENTS Tested in System Cont	iguration				
EUT OPERATING MOD					
	hest output power level (approx	. 13 dBm)			
DEVIATIONS FROM TE	ST STANDARD				
None					
REQUIREMENTS					
Maximum level of any	out of band spurious emission r	nust be attenuated below the limit	of -13 dBm.		
RESULTS					
Pass					
SIGNATURE Tested By:	Rody le Reley	<u> </u>			
DESCRIPTION OF TES	т				
	Antenna Cond	ducted Spurious Em	issions - Mid Channel 1GH	z-2.8GHz	·

11:28:37 OCT 14, 2005



EMC Antenna Conducted Spurious Emissions Rev BETA 01/30/01					
EUT:	MC Series System			Work Order:	RAFN0054
Serial Number:	Engineering Production Unit #1			Date:	10/14/05
Customer:	Radioframe Networks, Inc.			Temperature:	23° C
Attendees:	Neil Ross		Tested by: Rod Peloquin	Humidity:	40%
Customer Ref. No.:	None		Power: -48 Vdc	Job Site:	Off-site
TEST SPECIFICATION	S				
Specification:	47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	2001
00445470					
COMMENTS Tested in System Cont	iguration				
EUT OPERATING MOD					
	hest output power level (approx	. 13 dBm)			
DEVIATIONS FROM TE		,			
None					
REQUIREMENTS					
Maximum level of any	out of band spurious emission r	nust be attenuated below the limit	of -13 dBm.		
RESULTS					
Pass				•	•
SIGNATURE Tested By:	Roly le Feley	·			
DESCRIPTION OF TES	т				
	Antenna Cond	ducted Spurious Em	issions - Mid Channel 2.80	Hz-4GHz	

11:29:54 OCT 14, 2005

PEAK
LOG
10
dB/
OFFST
32.1
dB

VA SB
SC FC
CORR

EMC Antenna Conducted Spurious Emissions Rev BETA (1/300)1					
EUT: MC Series System	Work Order:	RAFN0054			
Serial Number: Engineering Production Unit #1			Date:	10/14/05	
Customer: Radioframe Networks, Inc.			Temperature:	23° C	
Attendees: Neil Ross		Tested by: Rod Peloquin	Humidity:		
Customer Ref. No.: None		Power: -48 Vdc	Job Site:	Off-site	
TEST SPECIFICATIONS					
Specification: 47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	2001	
COMMENTS					
Tested in System Configuration					
EUT OPERATING MODES	- :				
With modulation at highest output power level (approx. 13 d	Bm)				
DEVIATIONS FROM TEST STANDARD None					
REQUIREMENTS					
Maximum level of any out of band spurious emission must be	e attenuated below the limit	of -13 dBm			
RESULTS	e attenuated below the limit t	51 - 13 dBill.			
RESULTS PASS					
rdss SIGNATURE					
Rochy la Feleng					
DESCRIPTION OF TEST					
Antenna Conducted Spurious Emissions - Mid Channel 4GHz - 6.5GHz					

EMC Antenna Conducted Spurious Emissions							
EUT:	MC Series System			Work Order:	RAFN0054		
Serial Number:	Engineering Production Unit #1			Date:	10/14/05		
Customer:	Radioframe Networks, Inc.			Temperature:	23° C		
Attendees:	Neil Ross		Tested by: Rod Peloquin	Humidity:	40%		
Customer Ref. No.:	None		Power: -48 Vdc	Job Site:	Off-site		
TEST SPECIFICATION	S						
Specification:	47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	2001		
00445470							
COMMENTS Tested in System Cont	figuration						
EUT OPERATING MOD							
	hest output power level (approx	. 13 dBm)					
DEVIATIONS FROM TE		,					
None							
REQUIREMENTS							
Maximum level of any	out of band spurious emission r	nust be attenuated below the limit	of -13 dBm.				
RESULTS							
Pass							
SIGNATURE Tested By:	Roly le Reley)					
DESCRIPTION OF TES	T						
	Antenna Cond	ducted Spurious Em	issions - Mid Channel 6.50	Hz-9GHz			

11:31:45 OCT 14, 2005

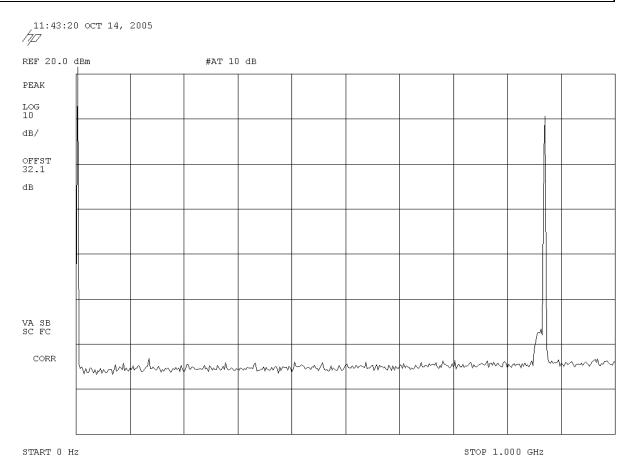
REF 20.0 dBm #AT 10 dB

PEAK
LOG
10
dB/
OFFST
32.1
dB

VA SB SC FC

CORR

NORTHWEST EMC								
EUT:	MC Series System			Work Order:	RAFN0054			
Serial Number:	Engineering Production Unit #1				10/14/05			
Customer:	Radioframe Networks, Inc.			Temperature:	23° C			
Attendees:			Tested by: Rod Peloquin	Humidity:				
Customer Ref. No.:			Power: -48 Vdc	Job Site:	Off-site			
TEST SPECIFICATION								
Specification: SAMPLE CALCULATION	47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	2001			
COMMENTS								
Tested in System Con	figuration							
EUT OPERATING MOI	•							
With modulation at high	ghest output power level (approx.	13 dBm)						
DEVIATIONS FROM T	EST STANDARD							
None								
REQUIREMENTS								
	out of band spurious emission m	ust be attenuated below the limit of	of -13 dBm.					
RESULTS								
Pass								
Rocky le Relenge Tested By:								
DESCRIPTION OF TES	ST							
	Antenna Conducted Spurious Emissions - High Channel 0MHz-1GHz							



EMC	Antenr	na Conducted	Spurious Emission	ıs	Rev BETA 01/30/01	
	MC Series System			Work Order:	RAFN0054	
Serial Number:	Engineering Production Unit #1			Date:	10/14/05	
Customer:	Radioframe Networks, Inc.			Temperature:	23° C	
Attendees:	Neil Ross		Tested by: Rod Peloquin	Humidity:	40%	
Customer Ref. No.:	None		Power: -48 Vdc	Job Site:	Off-site	
TEST SPECIFICATION	S					
Specification:	47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	2001	
SAMPLE CALCULATION	ONS					
DEVIATIONS FROM TE None REQUIREMENTS	DES phest output power level (approx. EST STANDARD	, 				
Maximum level of any	out of band spurious emission m	ust be attenuated below the limit o	of -13 dBm.			
RESULTS						
Pass						
SIGNATURE						
Tested By:	Rolly le Reley					
DESCRIPTION OF TES	T					
	Antenna Conducted Spurious Emissions - High Channel 1GHz-2.8GHz					

11:44:48 OCT 14, 2005

NORTHWEST EMC	Automos Constructed Countains Emissions							
EUT:	MC Series System			Work Order:	RAFN0054			
Serial Number:	Engineering Production Unit #1			Date:	10/14/05			
Customer:	Radioframe Networks, Inc.			Temperature:	23° C			
Attendees:	Neil Ross		Tested by: Rod Peloquin	Humidity:	40%			
Customer Ref. No.:			Power: -48 Vdc	Job Site:	Off-site			
TEST SPECIFICATION	S							
Specification:	47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	2001			
COMMENTS								
COMMENTS	:							
Tested in System Conf	-							
	hest output power level (approx	13 dBm)						
DEVIATIONS FROM TE		To ability						
None	OT STANDARD							
REQUIREMENTS								
Maximum level of any	out of band spurious emission n	nust be attenuated below the limit of	of -13 dBm.					
RESULTS								
Pass								
SIGNATURE Tested By:	Porly le Reley	, <u> </u>						
DESCRIPTION OF TES	T							
	Antenna Conducted Spurious Emissions - High Channel 2.8GHz-4GHz							

11:45:33 OCT 14, 2005

PEAR LOG 10 dBm #AT 10 dB

PEAR LOG 10 dBb/
OFFST 32.11 dB

VA SB SC FC CORR

EMC Antenna Conducted Spurious Emissions							
EUT:	MC Series System			Work Order:	RAFN0054		
Serial Number:	Engineering Production Unit #1			Date:	10/14/05		
Customer:	Radioframe Networks, Inc.			Temperature:	23° C		
Attendees:	Neil Ross		Tested by: Rod Peloquin	Humidity:	40%		
Customer Ref. No.:	None		Power: -48 Vdc	Job Site:	Off-site		
TEST SPECIFICATION	S						
Specification:	47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	2001		
COMMENTS							
Tested in System Con	figuration						
EUT OPERATING MOD							
With modulation at hig	hest output power level (approx	. 13 dBm)					
DEVIATIONS FROM TE	ST STANDARD						
None							
REQUIREMENTS							
	out of band spurious emission i	nust be attenuated below the limit	of -13 dBm.				
RESULTS							
Pass							
SIGNATURE Tested By:	Rochy la Feling	>					
DESCRIPTION OF TES	T						
	Antenna Cond	lucted Spurious Emi	issions - High Channel 4Gh	Iz-6.5GHz			

11:46:11 OCT 14, 2005

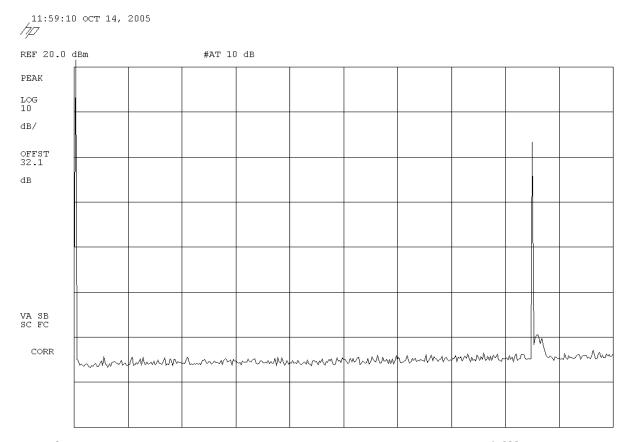
CORR

PEAK
LOG
10
dB/
OFFST
32.1
dB

VA SB
SC FC

EMC Antenna Conducted Spurious Emissions Rev BETA (1/3001)							
EUT: MC Series System			Work Order:	RAFN0054			
Serial Number: Engineering Production Unit #1			Date:	10/14/05			
Customer: Radioframe Networks, Inc.			Temperature:	23° C			
Attendees: Neil Ross		Tested by: Rod Peloquin	Humidity:	40%			
Customer Ref. No.: None		Power: -48 Vdc	Job Site:	Off-site			
TEST SPECIFICATIONS							
Specification: 47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	2001			
COMMENTS							
Tested in System Configuration							
EUT OPERATING MODES							
With modulation at highest output power level (approx. 13	dBm)						
DEVIATIONS FROM TEST STANDARD	,						
None							
REQUIREMENTS							
Maximum level of any out of band spurious emission must	t be attenuated below the limit of	of -13 dBm.					
RESULTS							
Pass	·						
SIGNATURE							
Rolly be Fieley							
DESCRIPTION OF TEST							
Antenna Conducted Spurious Emissions - High Channel 6.5GHz-9GHz							

NORTHWEST EMC	Antenr	na Conducted	Spurious Emission	าร	Rev BETA 01/30/01
EUT:	MC Series System			Work Order:	RAFN0054
Serial Number:	Engineering Production Unit #1			Date:	10/14/05
Customer:	Radioframe Networks, Inc.			Temperature:	23° C
Attendees:	Neil Ross		Tested by: Rod Peloquin	Humidity:	40%
Customer Ref. No.:	None		Power: -48 Vdc	Job Site:	Off-site
TEST SPECIFICATION	S				
Specification:	47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	2001
SAMPLE CALCULATION	DNS				
COMMENTS Tested in System Confection System Conf	DES vest output power level (approx. 9	dBm)			
	out of band spurious emission m	ust be attenuated below the limit of	of -13 dBm.		
RESULTS					
Pass					
SIGNATURE Tested By:	Rolly le Feling				
DESCRIPTION OF TES	ST.				
	Antenna Cond	ducted Spurious Em	issions - Low Channel 0MI	Hz-1GHz	



EMC	Antenr	na Conducted	Spurious Emission	าร	Rev BETA 01/30/01	
	MC Series System		_	Work Order:	RAFN0054	
Serial Number:	Engineering Production Unit #1			Date:	10/14/05	
Customer:	Radioframe Networks, Inc.			Temperature:	23° C	
Attendees:	Neil Ross		Tested by: Rod Peloquin	Humidity:	40%	
Customer Ref. No.:	None		Power: -48 Vdc	Job Site:	Off-site	
TEST SPECIFICATION	S					
Specification:	47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	2001	
SAMPLE CALCULATION	ONS					
DEVIATIONS FROM TE None REQUIREMENTS	DES vest output power level (approx. S EST STANDARD	dBm) ust be attenuated below the limit o	√ -13 dRm			
RESULTS	out of band spanous chilosion in	ust be attenuated below the mint o	i io delin.			
Pass						
SIGNATURE						
Tested By:	Rolly le Feling					
DESCRIPTION OF TES	ST .					
	Antenna Conducted Spurious Emissions - Low Channel 1GHz-2.8GHz					

12:00:11 OCT 14, 2005

NORTHWEST EMC	Anteni	na Conducted	Spurious Emission	ns	Rev BETA 01/30/01
EUT:	MC Series System			Work Order:	RAFN0054
Serial Number:	Engineering Production Unit #1			Date:	10/14/05
Customer:	Radioframe Networks, Inc.			Temperature:	23° C
Attendees:	Neil Ross		Tested by: Rod Peloquin	Humidity:	40%
Customer Ref. No.:	None		Power: -48 Vdc	Job Site:	Off-site
TEST SPECIFICATION	S				
Specification:	47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	2001
COMPLE					
COMMENTS Tested in System Cont	liguration				
EUT OPERATING MOD					
	vest output power level (approx.	9 dBm)			
DEVIATIONS FROM TE		o ubiii)			
None	OT OTANDARD				
REQUIREMENTS					
	out of band spurious emission m	nust be attenuated below the limit	of -13 dBm.		
RESULTS	·				
Pass					
SIGNATURE Tested By:	Poely le Feling	·			
DESCRIPTION OF TES					
	Antenna Cond	lucted Spurious Em	issions - Low Channel 2.80	SHz-4GHz	

12:00:44 OCT 14, 2005

PEAK
LOG
10
dB/
OFFST
32.1
dB

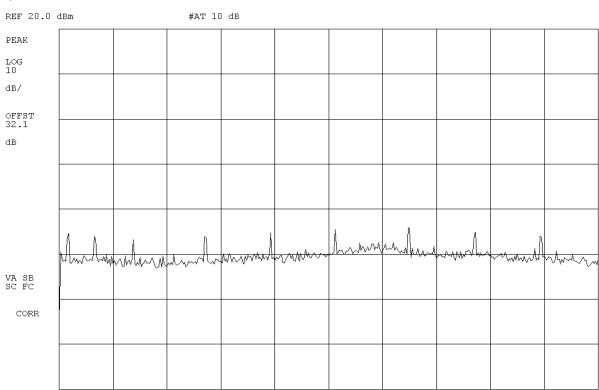
VA SB
SC FC
CORR

EMC Antenna Conducted Spurious Emissions Rev BETA 013001							
EUT:	MC Series System			Work Order:	RAFN0054		
Serial Number:	Engineering Production Unit #1			Date:	10/14/05		
Customer:	Radioframe Networks, Inc.			Temperature:	23° C		
Attendees:	Neil Ross		Tested by: Rod Peloquin	Humidity:	40%		
Customer Ref. No.:			Power: -48 Vdc	Job Site:	Off-site		
TEST SPECIFICATION	S						
Specification:	47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	2001		
COMMENTS							
COMMENTS	f:						
Tested in System Conf	-						
	vest output power level (approx.	0 dBm)					
DEVIATIONS FROM TE		o dBilly					
None	EST STANDARD						
REQUIREMENTS							
Maximum level of any	out of band spurious emission m	nust be attenuated below the limit of	of -13 dBm.				
RESULTS	·						
Pass							
SIGNATURE Tested By:	Porly le Reley						
DESCRIPTION OF TES	T						
	Antenna Conducted Spurious Emissions - Low Channel 4GHz-6.5GHz						

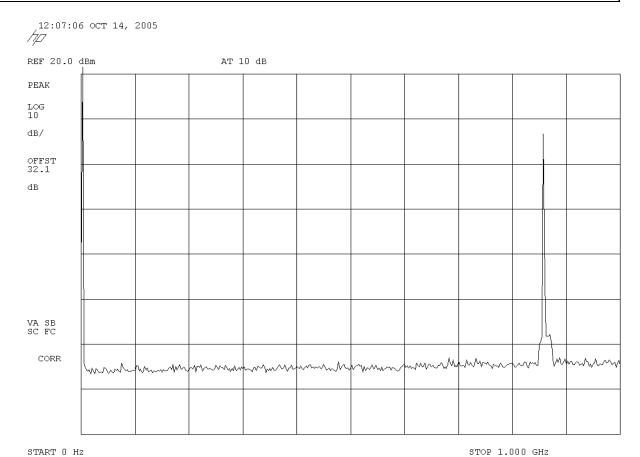
12:01:23 OCT 14, 2005

NORTHWEST EMC								
EUT:	MC Series System			Work Order:	RAFN0054			
Serial Number:	Engineering Production Unit #1			Date:	10/14/05			
Customer:	Radioframe Networks, Inc.			Temperature:	23° C			
Attendees:	Neil Ross		Tested by: Rod Peloquin	Humidity:	40%			
Customer Ref. No.:			Power: -48 Vdc	Job Site:	Off-site			
TEST SPECIFICATION	S							
Specification:	47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	2001			
COMMENTS								
Tested in System Con	-							
EUT OPERATING MOD		0 -ID\						
DEVIATIONS FROM TE	vest output power level (approx.	9 dBm)						
None	EST STANDARD							
REQUIREMENTS								
	out of hand spurious emission m	nust be attenuated below the limit of	of -13 dBm					
RESULTS	out of Suite operious chilosion in	and the attendance below the limit						
Pass								
SIGNATURE								
Tested By:	Rolly le Feling							
DESCRIPTION OF TES	ST							
	Antenna Conducted Spurious Emissions - Low Channel 6.5GHz - 9GHz							

12:02:14 OCT 14, 2005



EMC	Antenr	na Conducted	Spurious Emission	าร	Rev BETA 01/30/01	
	MC Series System		-	Work Order:	RAFN0054	
Serial Number:	Engineering Production Unit #1			Date:	10/14/05	
Customer:	Radioframe Networks, Inc.			Temperature:	23° C	
Attendees:	Neil Ross		Tested by: Rod Peloquin	Humidity:	40%	
Customer Ref. No.:	None		Power: -48 Vdc	Job Site:	Off-site	
TEST SPECIFICATION	S					
Specification:	47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	2001	
SAMPLE CALCULATION	ONS					
DEVIATIONS FROM TE None REQUIREMENTS	DES vest output power level (approx. S EST STANDARD	dBm) ust be attenuated below the limit o	of -13 dRm			
RESULTS	out of Build opulious simosion in		. 10 42			
Pass						
SIGNATURE						
Tested By:	Rody le Feling					
DESCRIPTION OF TES	ST					
	Antenna Conducted Spurious Emissions - Mid Channel 0MHz-1GHz					



EMC									
	MC Series System		_	Work Order: I	RAFN0054				
Serial Number:	Engineering Production Unit #1			Date:	10/14/05				
Customer:	Radioframe Networks, Inc.			Temperature: 2	23° C				
Attendees:	Neil Ross		Tested by: Rod Peloquin	Humidity:	40%				
Customer Ref. No.:	None		Power: -48 Vdc	Job Site:	Off-site				
TEST SPECIFICATION	S								
Specification:	47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year: 2	2001				
SAMPLE CALCULATION	ONS								
DEVIATIONS FROM TE None REQUIREMENTS	DES vest output power level (approx. 9 EST STANDARD	adBm) ust be attenuated below the limit o	of ±13 dRm						
RESULTS	out of build spurious compositor in	ast be attendated below the mint of	i io delin.						
Pass									
SIGNATURE									
Tested By:	Rody le Feling								
DESCRIPTION OF TES	ST .								
	Antenna Conducted Spurious Emissions - Mid Channel 1GHz-2.8GHz								

12:08:06 CCT 14, 2005

REF 20.0 dBm AT 10 dB

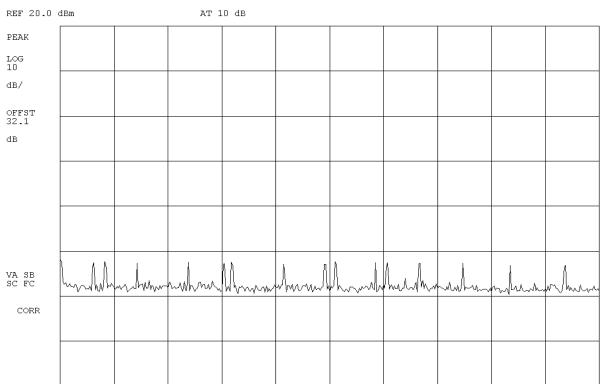
PEAK
LOG
10
dB/
CPFST
32.1
dB

VA SB
SC FC

CORR

NORTHWEST EMC										
EUT:	MC Series System			Work Order:	RAFN0054					
Serial Number:	Engineering Production Unit #1			Date:	10/14/05					
Customer:	Radioframe Networks, Inc.			Temperature:	23° C					
Attendees:	Neil Ross		Tested by: Rod Peloquin	Humidity:	40%					
Customer Ref. No.:			Power: -48 Vdc	Job Site:	Off-site					
TEST SPECIFICATION	S									
Specification:	47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	2001					
O O MIENTO										
COMMENTS	:									
Tested in System Conf	-									
	vest output power level (approx.	0 dBm)								
DEVIATIONS FROM TE		o dBilly								
None	EST STANDARD									
REQUIREMENTS										
Maximum level of any	out of band spurious emission m	nust be attenuated below the limit of	of -13 dBm.							
RESULTS	·									
Pass										
SIGNATURE Tested By:	Poely le Reley	· · · · · · · · · · · · · · · · · · ·								
DESCRIPTION OF TES	DESCRIPTION OF TEST									
	Antenna Conducted Spurious Emissions - Mid Channel 2.8GHz-4GHz									

12:08:40 OCT 14, 2005



EMC Antenna Conducted Spurious Emissions								
EUT: MC Series System			Work Order:	RAFN0054				
Serial Number: Engineering Production Unit #1			Date:	10/14/05				
Customer: Radioframe Networks, Inc.			Temperature:	23° C				
Attendees: Neil Ross		Tested by: Rod Peloquin	Humidity:	40%				
Customer Ref. No.: None		Power: -48 Vdc	Job Site:	Off-site				
TEST SPECIFICATIONS								
Specification: 47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	2001				
SAMPLE CALCULATIONS								
COMMENTS Tested in System Configuration EUT OPERATING MODES With modulation at lowest output power level (approx. DEVIATIONS FROM TEST STANDARD None REQUIREMENTS		14.40 dBm						
Maximum level of any out of band spurious emission	nust be attenuated below the limit of	or -13 aBm.						
RESULTS Pass								
SIGNATURE								
Poeling le Reling)							
DESCRIPTION OF TEST								
Antenna Conducted Spurious Emissions - Mid Channel 4GHz - 6.5GHz								

12:10:02 OCT 14, 2005

REF 20.0 dBm AT 10 dB

PEAK
LOG
10
dB/
OFFST
32.1
dB

VA SB
SC FC
CORR

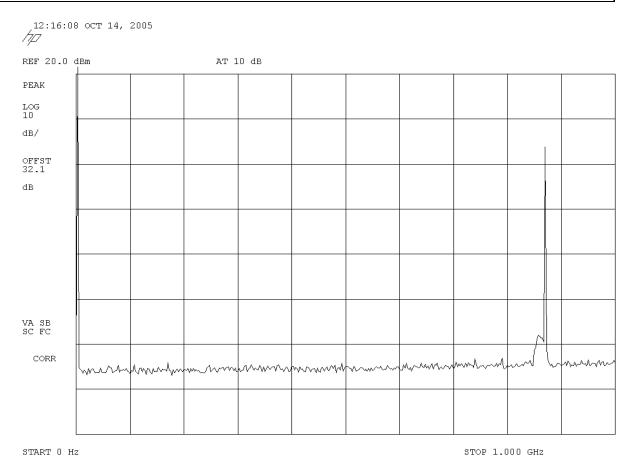
EMC Anten	na Conducted	Spurious Emissio	ns 🖁	Rev BETA 01/30/01
EUT: MC Series System			Work Order: RAFN0054	
Serial Number: Engineering Production Unit #1			Date: 10/14/05	
Customer: Radioframe Networks, Inc.			Temperature: 23° C	
Attendees: Neil Ross		Tested by: Rod Peloquin	Humidity: 40%	
Customer Ref. No.: None		Power: -48 Vdc	Job Site: Off-site	
TEST SPECIFICATIONS				
Specification: 47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year: 2001	
SAMPLE CALCULATIONS				
Tested in System Configuration EUT OPERATING MODES With modulation at lowest output power level (approx DEVIATIONS FROM TEST STANDARD None REQUIREMENTS Maximum level of any out of band spurious emission		-13 dBm		
RESULTS	must be attendated below the mint of	TO GENT.		
Pass		· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	
SIGNATURE				
Rocky le Reley	>			
DESCRIPTION OF TEST				
Antenna Con	ducted Spurious Emi	ssions - Mid Channel 6.50	Hz-9GHz	

12:10:45 CCT 14, 2005

PERK
LOG
10
dB/
OFFST
32:.1
dB

VA SB
SC FC
CORR

NORTHWEST EMC	Antenr	na Conducted	Spurious Emission	าร	Rev BETA 01/30/01	
EUT:	MC Series System			Work Order:	RAFN0054	
Serial Number:	Engineering Production Unit #1			Date:	10/14/05	
Customer:	Radioframe Networks, Inc.			Temperature:	23° C	
Attendees:	Neil Ross		Tested by: Rod Peloquin	Humidity:	40%	
Customer Ref. No.:	None		Power: -48 Vdc	Job Site:	Off-site	
TEST SPECIFICATION	S					
Specification:	47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	2001	
SAMPLE CALCULATION	ONS					
COMMENTS Tested in System Confection For System For System For	DES vest output power level (approx. §	∂ dBm)				
Maximum level of any	out of band spurious emission m	ust be attenuated below the limit	of -13 dBm.			
RESULTS						
Pass	<u> </u>					
SIGNATURE Tested By:	Rolly Le Freling					
DESCRIPTION OF TES	т					
	Antenna Conducted Spurious Emissions - High Channel 0MHz-1GHz					

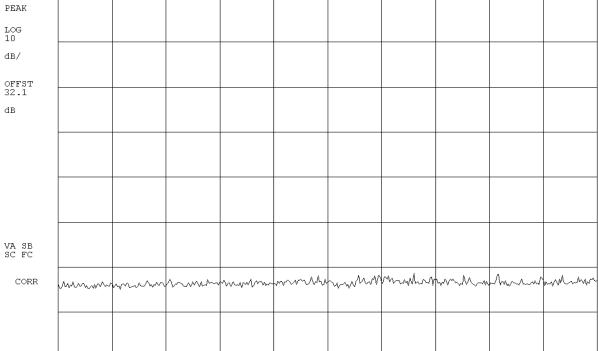


EMC Series System Work Order: RAFN0054 Serial Number: Engineering Production Unit #1 Customer: Radiorfame Networks, Inc. Customer: Radiorfame Networks, Inc. Attendess: Neil Ross Attendess: Neil Ross Customer Red. No.: None Power: 48 Vdc Job Site: Off-site TEST SPECIFICATIONS Specification: 47 CFR 2.1051 & 90.691 SAMPLE CALCULATIONS COMMENTS Tested in System Configuration EUT OPERATING MODES With modulation at lowest output power level (approx. 9 dBm) DEVIATIONS FROM TEST STANDARD None RECOUREMENTS Maximum level of any out of band spurious emission must be attenuated below the limit of -13 dBm. RESULTS Pass SIGNATURE Antenna Conducted Spurious Emissions - High Channel 1GHz-2.8GHz	NORTHWEST							
EUT: MC Series System Serial Number: Engineering Production Unit #1 Customer: Radioframe Networks, Inc. Attendees: No: Work Order: Radioframe Networks, Inc. Attendees: No: Work Order: Radioframe Networks, Inc. Attendees: No: Work Order: Radioframe Networks, Inc. Temperature: 23° C Attendees: No: Work Order: Radioframe Networks, Inc. Temperature: 23° C Attendees: Radioframe Networks, Inc. Temperature: 23° C Temperature: 24° V6 Temp		Anteni	na Conducted	Spurious	Emissio	ns	Rev BETA	
Serial Number: Engineering Production Unit #1 Customers: Radioframe Networks, Inc. Attendess: Neil Ross Customer Ref. No.: None Power: 48 Vdc Job Site: Off-site TEST SPECIFICATIONS Specification: 47 CFR 2.1051 & 90.691 Year: Most Current Method: TIA / EIA - 603 Year: 2001 SAMPLE CALCULATIONS COMMENTS Tested in System Configuration EUT OPERATING MODES With modulation at lowest output power level (approx. 9 dBm) DeviATIONS FROM TEST STANDARD None REQUIREMENTS RESULTS Pass SIGMATURE August Augus				ораново				
Customer: Radioframe Networks, Inc. Attendees: Neil Ross Attendees: Neil Ross Tested by: Rod Peloquin Humidity: 40% Customer Ref. No.: None Power: -48 Vdc Job Site: Off-site TEST SPECIFICATIONS Specification: [47 CFR 2.1051 & 90.691] SAMPLE CALCULATIONS COMMENTS Tested in System Configuration EUT OPERATING MODES With modulation at lowest output power level (approx. 9 dBm) DEVIATIONS FROM TEST STANDARD None REQUIREMENTS Maximum level of any out of band spurious emission must be attenuated below the limit of -13 dBm. RESSULTS Pass SIGNATURE DESCRIPTION OF TEST								
Attendees: Neil Ross Tested by: Rod Peloquin Humidity: 40% Customer Ref. No.; None Power: 48 Vdc Job Site: Off-site TEST SPECIFICATIONS Specification: 47 CFR 2.1051 & 90.691 Year: Most Current Method: TIA / EIA - 603 Year: 2001 SAMPLE CALCULATIONS COMMENTS Tested in System Configuration EUT OPERATING MODES With modulation at lowest output power level (approx. 9 dBm) DEVIATIONS FROM TEST STANDARD None REQUIREMENTS Maximum level of any out of band spurious emission must be attenuated below the limit of -13 dBm. RESULTS Pass SIGNATURE ABAM ARABAM Tested By: Tested By: DESCRIPTION OF TEST								
Customer Ref. No.: None TEST SPECIFICATIONS Specification: 47 CFR 2.1051 & 90.691 Year: Most Current Method: TIA / EIA - 603 Year: 2001 SAMPLE CALCULATIONS COMMENTS Tested By: Teste		·						
Specification: 47 CFR 2:1051 & 90.691 Year: Most Current Method: TIA / EIA - 603 Year: 2001 SAMPLE CALCULATIONS COMMENTS Tested in System Configuration EUT OPERATING MODES With modulation at lowest output power level (approx. 9 dBm) DEVIATIONS FROM TEST STANDARD None REQUIREMENTS Maximum level of any out of band spurious emission must be attenuated below the limit of -13 dBm. RESULTS Pass SIGNATURE ABAM A Refug. Tested By: Tested By: DESCRIPTION OF TEST					•			
Specification: 47 CFR 2.1051 & 90.691 Year: Most Current Method: TIA / EIA - 603 Year: 2001 SAMPLE CALCULATIONS COMMENTS Tested in System Configuration EUT OPERATING MODES With modulation at lowest output power level (approx. 9 dBm) DEVIATIONS FROM TEST STANDARD None REQUIREMENTS Maximum level of any out of band spurious emission must be attenuated below the limit of -13 dBm. RESULTS Pass SIGNATURE Abdy La Tellus Tested By: DESCRIPTION OF TEST				Power:	-48 Vdc	Job Site:	Off-site	
COMMENTS Tested in System Configuration EUT OPERATING MODES With modulation at lowest output power level (approx. 9 dBm) DEVIATIONS FROM TEST STANDARD None REQUIREMENTS Maximum level of any out of band spurious emission must be attenuated below the limit of -13 dBm. RESULTS Pass SIGNATURE AGAG WAR FROM Tested By: DESCRIPTION OF TEST								
COMMENTS Tested in System Configuration EUT OPERATING MODES With modulation at lowest output power level (approx. 9 dBm) DEVIATIONS FROM TEST STANDARD None REQUIREMENTS Maximum level of any out of band spurious emission must be attenuated below the limit of -13 dBm. RESULTS Pass SIGNATURE About Tested By: DESCRIPTION OF TEST	_		Year: Most Current	Method:	TIA / EIA - 603	Year:	2001	
Tested in System Configuration EUT OPERATING MODES With modulation at lowest output power level (approx. 9 dBm) DEVIATIONS FROM TEST STANDARD None REQUIREMENTS Maximum level of any out of band spurious emission must be attenuated below the limit of -13 dBm. RESULTS Pass SIGNATURE About A Felicon Tested By: DESCRIPTION OF TEST	SAMPLE CALCULATION	ONS						
Tested in System Configuration EUT OPERATING MODES With modulation at lowest output power level (approx. 9 dBm) DEVIATIONS FROM TEST STANDARD None REQUIREMENTS Maximum level of any out of band spurious emission must be attenuated below the limit of -13 dBm. RESULTS Pass SIGNATURE About A Felicon Tested By: DESCRIPTION OF TEST								
Tested in System Configuration EUT OPERATING MODES With modulation at lowest output power level (approx. 9 dBm) DEVIATIONS FROM TEST STANDARD None REQUIREMENTS Maximum level of any out of band spurious emission must be attenuated below the limit of -13 dBm. RESULTS Pass SIGNATURE About A Felicon Tested By: DESCRIPTION OF TEST								
Tested in System Configuration EUT OPERATING MODES With modulation at lowest output power level (approx. 9 dBm) DEVIATIONS FROM TEST STANDARD None REQUIREMENTS Maximum level of any out of band spurious emission must be attenuated below the limit of -13 dBm. RESULTS Pass SIGNATURE About A Felicon Tested By: DESCRIPTION OF TEST	00111151170							
EUT OPERATING MODES With modulation at lowest output power level (approx. 9 dBm) DEVIATIONS FROM TEST STANDARD None REQUIREMENTS Maximum level of any out of band spurious emission must be attenuated below the limit of -13 dBm. RESULTS Pass SIGNATURE Lested By: DESCRIPTION OF TEST		figuration						
With modulation at lowest output power level (approx. 9 dBm) DEVIATIONS FROM TEST STANDARD None REQUIREMENTS Maximum level of any out of band spurious emission must be attenuated below the limit of -13 dBm. RESULTS Pass SIGNATURE Tested By: DESCRIPTION OF TEST		-						
DEVIATIONS FROM TEST STANDARD None REQUIREMENTS Maximum level of any out of band spurious emission must be attenuated below the limit of -13 dBm. RESULTS Pass SIGNATURE Avoly Le Release Tested By: DESCRIPTION OF TEST			0 dPm)					
None REQUIREMENTS Maximum level of any out of band spurious emission must be attenuated below the limit of -13 dBm. RESULTS Pass SIGNATURE Tested By: DESCRIPTION OF TEST			э иын)					
REQUIREMENTS Maximum level of any out of band spurious emission must be attenuated below the limit of -13 dBm. RESULTS Pass SIGNATURE Tested By: DESCRIPTION OF TEST		EST STANDARD						
Maximum level of any out of band spurious emission must be attenuated below the limit of -13 dBm. RESULTS Pass SIGNATURE **Tested By:** DESCRIPTION OF TEST								
RESULTS Pass SIGNATURE Norly le Reling Tested By: DESCRIPTION OF TEST		out of hand enurious emission m	aust be attenuated below the limit	of 12 dDm				
Pass SIGNATURE Rocky be Releng Tested By: DESCRIPTION OF TEST	_	out of band spurious emission in	idst be attendated below the limit	71 - 13 abiii.				
SIGNATURE Rocky la Feling Tested By: DESCRIPTION OF TEST								
Norty to Felans Tested By: DESCRIPTION OF TEST								
Tested By: DESCRIPTION OF TEST		10.00						
Tested By: DESCRIPTION OF TEST		Rockin la Kelenan						
Tested By: DESCRIPTION OF TEST			•					
	Tested By:	Tested By:						
	DESCRIPTION OF TES	FOODING OF TEST						
Antenna Conducted Spurious Emissions - High Channel 1GHz-2.8GHz	DESCRIPTION OF TES			! 11' '	01140	II- 0 00II-	·	
		Antenna Conducted Spurious Emissions - High Channel 1GHz-2.8GHz						

12:17:01 OCT 14, 2005 REF 20.0 dBm

PEAK

AT 10 dB



START 999 MHz STOP 2.800 GHz SWP 540 msec #RES BW 100 kHz #VBW 300 kHz

NORTHWEST EMC	Anten	na Conducted	Spurious Emission	ns	Rev BETA 01/30/01
EUT:	MC Series System			Work Order:	RAFN0054
Serial Number:	Engineering Production Unit #1			Date:	10/14/05
Customer:	Radioframe Networks, Inc.			Temperature:	23° C
Attendees:	Neil Ross		Tested by: Rod Peloquin	Humidity:	40%
Customer Ref. No.:	None		Power: -48 Vdc	Job Site:	Off-site
TEST SPECIFICATION	S				
Specification:	47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	2001
COMMENTS					
Tested in System Cont EUT OPERATING MOD					
	vest output power level (approx.	0 dBm)			
DEVIATIONS FROM TE		9 (15111)			
DEVIATIONS FROM TE None	EST STANDARD				
REQUIREMENTS					
	out of hand sourious emission i	nust be attenuated below the limit of	of -13 dRm		
RESULTS	out of build sparious critission i	nast be attendated below the finite	or to abili.		
Pass	<u> </u>				
SIGNATURE					
	Rolly be Feling)			
DESCRIPTION OF TES	T				
	Antenna Cond	lucted Spurious Emi	ssions - High Channel 2.80	GHz-4GHz	

12:18:13 OCT 14, 2005

PEAK
LOG
10

dB/

OFFST
32:11

dB

VA SB
SC FC

CORR

NORTHWEST EMC	Anten	na Conducted	Spurious Emission	ns	Rev BETA 01/30/01
EUT:	MC Series System			Work Order:	RAFN0054
Serial Number:	Engineering Production Unit #1			Date:	10/14/05
Customer:	Radioframe Networks, Inc.			Temperature:	23° C
Attendees:	Neil Ross		Tested by: Rod Peloquin	Humidity:	40%
Customer Ref. No.:	None		Power: -48 Vdc	Job Site:	Off-site
TEST SPECIFICATION	S				
Specification:	47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	2001
COMMENTS Tested in System Conf	Securation				
EUT OPERATING MOD					
	vest output power level (approx	9 dBm)			
DEVIATIONS FROM TE		o deliny			
None	OT OTANDARD				
REQUIREMENTS					
	out of band spurious emission	must be attenuated below the limit of	of -13 dBm.		
RESULTS					
Pass					
SIGNATURE					
Tested By:	Rolly be Relenge	<u> </u>			
DESCRIPTION OF TES	T				
	Antenna Cond	lucted Spurious Emi	ssions - High Channel 4GI	Hz-6.5GHz	

12:19:08 OCT 14, 2005

REF 20.0 dBm AT 10 dB

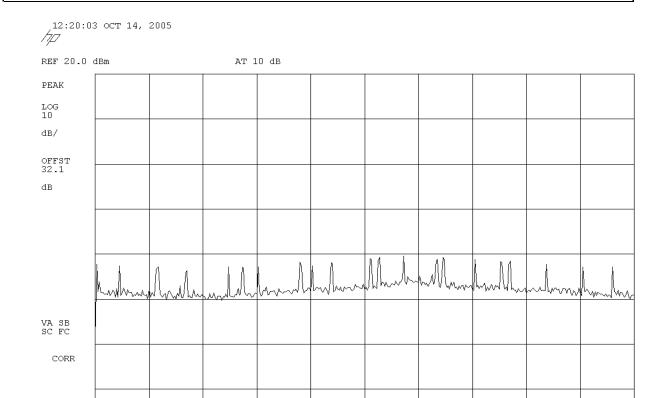
PEAK
LOG
10

OFFST
32.1

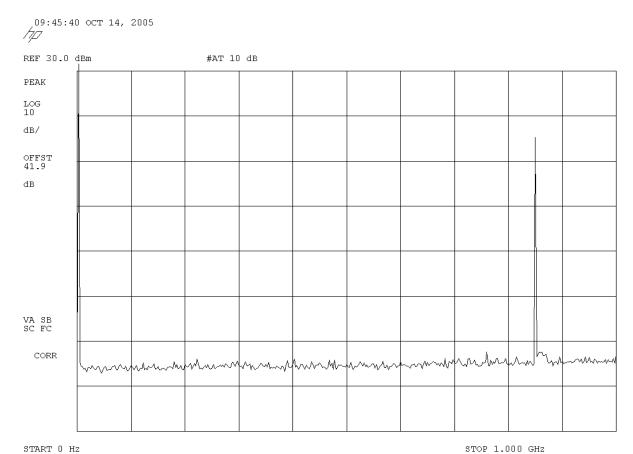
dB

VA SB
SC PC
CORR

NORTHWEST EMC	Antenr	na Conducted	Spurious Emission	าร	Rev BETA 01/30/01					
EUT:	MC Series System			Work Order:	RAFN0054					
Serial Number:	Engineering Production Unit #1			Date:	10/14/05					
Customer:	Radioframe Networks, Inc.			Temperature:	23° C					
Attendees:	Neil Ross		Tested by: Rod Peloquin	Humidity:	40%					
Customer Ref. No.:	None		Power: -48 Vdc	Job Site:	Off-site					
TEST SPECIFICATION	S									
Specification:	47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	2001					
SAMPLE CALCULATION	DNS									
EUT OPERATING MODE With modulation at low DEVIATIONS FROM TENONE REQUIREMENTS	Tested in System Configuration EUT OPERATING MODES With modulation at lowest output power level (approx. 9 dBm) DEVIATIONS FROM TEST STANDARD None									
RESULTS	out or band spurious emission in	ust be attenuated below the limit of	51 - 13 dBill.							
Pass										
SIGNATURE										
	Rocky be Felengs Tested By:									
DESCRIPTION OF TES	DESCRIPTION OF TEST									
	Antenna Conducted Spurious Emissions - High Channel 6.5GHz-9GHz									



EMC								
	MC Series System			Work Order:	RAFN0054			
Serial Number:	Engineering Production Unit #1			Date:	10/14/05			
Customer:	Radioframe Networks, Inc.			Temperature:	23° C			
Attendees:	Neil Ross		Tested by: Rod Peloquin	Humidity:	40%			
Customer Ref. No.:	None		Power: -48 Vdc	Job Site:	Off-site			
TEST SPECIFICATION	S							
Specification:	47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	2001			
SAMPLE CALCULATION	ONS							
DEVIATIONS FROM TE None REQUIREMENTS	DES ghest output power level (approx. EST STANDARD	20 dBm) ust be attenuated below the limit o	4.42 dBm					
RESULTS	out or band spurious emission in	ust be attenuated below the limit o	ii - 13 dBiii.					
Pass			<u> </u>	·	·			
SIGNATURE								
	Pooling be Felings							
DESCRIPTION OF TES	ST .							
	Antenna Conducted Spurious Emissions - Low Channel 0MHz-1GHz							



EMC	Antenr	na Conducted	Spurious	s Emissic	ons	Rev BETA 01/30/01
EUT:	MC Series System				Work Order:	RAFN0054
Serial Number:	Engineering Production Unit #1				Date:	10/14/05
Customer:	Radioframe Networks, Inc.				Temperature:	23° C
Attendees:	Neil Ross		Tested by:	Rod Peloquin	Humidity:	40%
Customer Ref. No.:	None		Power:	-48 Vdc	Job Site:	Off-site
TEST SPECIFICATION	S					
Specification:	47 CFR 2.1051 & 90.691	Year: Most Current	Method:	TIA / EIA - 603	Year:	2001
SAMPLE CALCULATION	ONS					
COMMENTS						
Tested in System Con	<u> </u>					
EUT OPERATING MOD						
	ghest output power level (approx.	20 dBm)				
DEVIATIONS FROM T	EST STANDARD					
None						
REQUIREMENTS						
	out of band spurious emission m	ust be attenuated below the limit	of -13 dBm.			
RESULTS	<u> </u>					
Pass						
SIGNATURE Tested By:	Poeling la Frelings					
DESCRIPTION OF TES						
	Antenna Conducted Spurious Emissions - Low Channel 1GHz-2.8GHz					

09:46:23 OCT 14, 2005

NORTHWEST

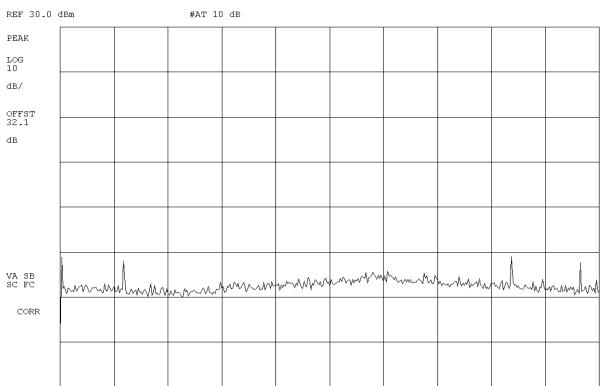
NORTHWEST EMC	Antenr	na Conducted	Spurious Emission	ns	Rev BETA 01/30/01					
EUT:	MC Series System			Work Order:	RAFN0054					
Serial Number:	Engineering Production Unit #1			Date:	10/14/05					
Customer:	Radioframe Networks, Inc.			Temperature:	23° C					
Attendees:	Neil Ross		Tested by: Rod Peloquin	Humidity:	40%					
Customer Ref. No.:			Power: -48 Vdc	Job Site:	Off-site					
TEST SPECIFICATION	S									
	47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	2001					
SAMPLE CALCULATION	ONS									
EUT OPERATING MODE With modulation at high	Tested in System Configuration EUT OPERATING MODES With modulation at highest output power level (approx. 20 dBm) DEVIATIONS FROM TEST STANDARD None									
RESULTS	out of band spanous chilosion in	ust be utteriuated below the limit	i to abili.							
Pass										
SIGNATURE										
	Rocky la Roling									
DESCRIPTION OF TES	ST .									
	Antenna Conducted Spurious Emissions - Low Channel 2.8GHz-4GHz									

EMC Antenna Conducted Spurious Emissions Rev BETA 01/2001							
EUT:	MC Series System			Work Order:	RAFN0054		
Serial Number:	Engineering Production Unit #1			Date:	10/14/05		
Customer:	Radioframe Networks, Inc.			Temperature:	23° C		
Attendees:	Neil Ross		Tested by: Rod Peloquin	Humidity:	40%		
Customer Ref. No.:			Power: -48 Vdc	Job Site:	Off-site		
TEST SPECIFICATION	S						
Specification:	47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	2001		
COMMENTS							
Tested in System Conf	Secretion						
EUT OPERATING MOD	-						
	hest output power level (approx.	20 dBm)					
DEVIATIONS FROM TE		20 45111)					
None	OT OTANDARD						
REQUIREMENTS							
Maximum level of any	out of band spurious emission m	nust be attenuated below the limit of	of -13 dBm.				
RESULTS							
Pass							
SIGNATURE Tested By:	Roely le Feling						
DESCRIPTION OF TES	T						
	Antenna Conducted Spurious Emissions - Low Channel 4GHz-6.5GHz						

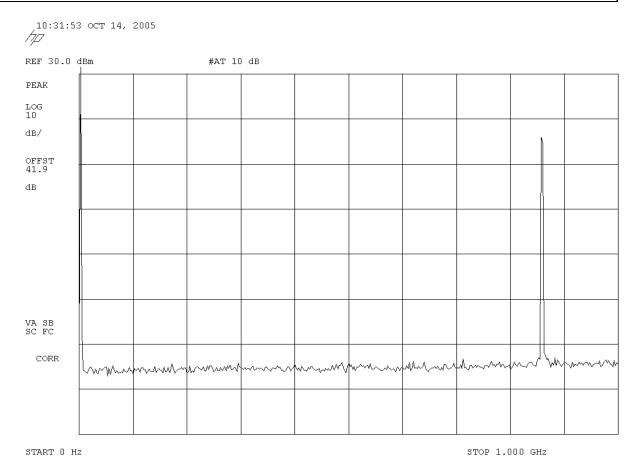
09:48:35 OCT 14, 2005

EMC Antenna Conducted Spurious Emissions						
	MC Series System			Work Order: R	AFN0054	
Serial Number:	Engineering Production Unit #1			Date: 1	0/14/05	
Customer:	Radioframe Networks, Inc.			Temperature: 2	3° C	
Attendees:	Neil Ross		Tested by: Rod Peloquin	Humidity: 4	0%	
Customer Ref. No.:	None		Power: -48 Vdc	Job Site: O	off-site	
TEST SPECIFICATION	S					
Specification:	47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year: 2	001	
SAMPLE CALCULATION	ONS					
COMMENTS						
Tested in System Conf	•					
EUT OPERATING MOD						
	hest output power level (approx.	20 dBm)				
DEVIATIONS FROM TE	EST STANDARD					
None						
REQUIREMENTS			-f 40 dD			
RESULTS	out or band spurious emission in	ust be attenuated below the limit of	or -13 dBm.			
Pass						
SIGNATURE						
Rocky be Relings Tested By:						
DESCRIPTION OF TES	ST .					
	Antenna Conducted Spurious Emissions - Low Channel 6.5GHz - 9GHz					

09:49:12 OCT 14, 2005

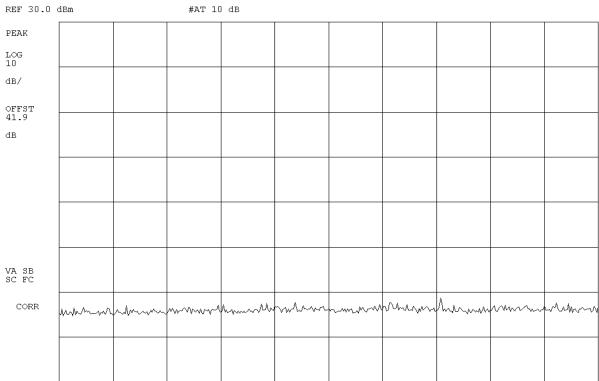


EMC Antenna Conducted Spurious Emissions							
	MC Series System		_	Work Order:			
Serial Number:	Engineering Production Unit #1			Date:	10/14/05		
Customer:	Radioframe Networks, Inc.			Temperature:	23° C		
Attendees:	Neil Ross		Tested by: Rod Peloquin	Humidity:	40%		
Customer Ref. No.:	None		Power: -48 Vdc	Job Site:	Off-site		
TEST SPECIFICATION	S						
Specification:	47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	2001		
SAMPLE CALCULATION	ONS						
COMMENTS Tested in System Con EUT OPERATING MOD With modulation at hig DEVIATIONS FROM TE None REQUIREMENTS	DES ghest output power level (approx	. 20 dBm)					
	out of band spurious emission n	nust be attenuated below the limit of	-13 dBm				
RESULTS							
Pass							
SIGNATURE							
Tested By:	Rolly be Feleng	<u> </u>					
DESCRIPTION OF TES	ST .						
	Antenna Con	ducted Spurious Em	issions - Mid Channel 0Ml	Hz-1GHz			



EMC Antenna Conducted Spurious Emissions						
	MC Series System			Work Order:	RAFN0054	
Serial Number:	Engineering Production Unit #1			Date:	10/14/05	
Customer:	Radioframe Networks, Inc.			Temperature:	23° C	
Attendees:	Neil Ross		Tested by: Rod Peloquin	Humidity:	40%	
Customer Ref. No.:	None		Power: -48 Vdc	Job Site:	Off-site	
TEST SPECIFICATION	S					
Specification:	47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	2001	
SAMPLE CALCULATION	ONS					
COMMENTS						
Tested in System Conf	•					
EUT OPERATING MOD						
	hest output power level (approx.	20 dBm)				
DEVIATIONS FROM TE	EST STANDARD					
None						
REQUIREMENTS			(40 ID			
	out of band spurious emission m	ust be attenuated below the limit of	or -13 aBm.			
RESULTS Pass	•	<u> </u>				
SIGNATURE						
Rocky be Reling						
DESCRIPTION OF TES	Т					
	Antenna Conducted Spurious Emissions - Mid Channel 1GHz-2.8GHz					

10:32:58 OCT 14, 2005



START 999 MHz STOP 2.800 GHz #RES BW 100 kHz #VBW 300 kHz SWP 540 msec

NORTHWEST EMC	Anten	na Conducted	Spurious Emission	ns	Rev BETA 01/30/01
EUT:	MC Series System			Work Order:	RAFN0054
Serial Number:	Engineering Production Unit #1			Date:	10/14/05
Customer:	Radioframe Networks, Inc.			Temperature:	23° C
Attendees:	Neil Ross		Tested by: Rod Peloquin	Humidity:	40%
Customer Ref. No.:	None		Power: -48 Vdc	Job Site:	Off-site
TEST SPECIFICATION	S				
Specification:	47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	2001
COMMENTS					
Tested in System Conf EUT OPERATING MOD					
	nest output power level (approx	20 dBm/			
DEVIATIONS FROM TE		t. 20 dBiii)			
None	EST STANDARD				
REQUIREMENTS					
	out of band spurious emission	must be attenuated below the limit of	of -13 dBm		
RESULTS	out of build oparious simosion.				
Pass					
SIGNATURE					
	Rolly be Feling))			
DESCRIPTION OF TES	T				
	Antenna Con	ducted Spurious Em	issions - Mid Channel 2.80	Hz-4GHz	

10:35:01 OCT 14, 2005

PEAK
LOG
10
dB/
OFFST
32.1
dB

VA SB
SC FC
CORR

EMC Antenr	na Conducted	Spurious Emission	าร	Rev BETA 01/30/01
EUT: MC Series System			Work Order: I	RAFN0054
Serial Number: Engineering Production Unit #1			Date:	10/14/05
Customer: Radioframe Networks, Inc.			Temperature: 2	23° C
Attendees: Neil Ross		Tested by: Rod Peloquin	Humidity:	10%
Customer Ref. No.: None		Power: -48 Vdc	Job Site:	Off-site
TEST SPECIFICATIONS				
Specification: 47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year: 2	2001
SAMPLE CALCULATIONS				
Tested in System Configuration EUT OPERATING MODES With modulation at highest output power level (approx. DEVIATIONS FROM TEST STANDARD None REQUIREMENTS Maximum level of any out of band spurious emission m	,	-f -13 dBm.		
RESULTS	add be attendated below the mint o	10 05111.		
Pass		·		
SIGNATURE				
Pooling la Freling				
DESCRIPTION OF TEST				
Antenna Cond	ucted Spurious Emis	ssions - Mid Channel 4GHz	2 - 6.5GHz	

10:36:26 OCT 14, 2005

PERF 30.0 dBm #AT 10 dB

PEAK
LOG
10
dB/
OFFST
32.1
dB

VA SB
SC FC
CORR

EMC Antenna Conducted Spurious Emissions							
EUT:	MC Series System			Work Order:	RAFN0054		
Serial Number:	Engineering Production Unit #1			Date:	10/14/05		
Customer:	Radioframe Networks, Inc.			Temperature:	23° C		
Attendees:	Neil Ross		Tested by: Rod Peloquin	Humidity:	40%		
Customer Ref. No.:	None		Power: -48 Vdc	Job Site:	Off-site		
TEST SPECIFICATION	S						
Specification:	47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	2001		
COMMENTS							
Tested in System Conf EUT OPERATING MOD							
	lest output power level (approx	20 dPm\					
DEVIATIONS FROM TE		. 20 dBiii)					
None	STSTANDARD						
REQUIREMENTS							
	out of hand spurious emission r	nust be attenuated below the limit	of -13 dBm.				
RESULTS	out of parious simesion .	nucl 20 allonautoa 2010 II ilio iliini					
Pass			<u> </u>				
SIGNATURE							
Tested By:	Roely le Reley	·					
DESCRIPTION OF TES	т						
	Antenna Cond	ducted Spurious Em	issions - Mid Channel 6.50	Hz-9GHz			

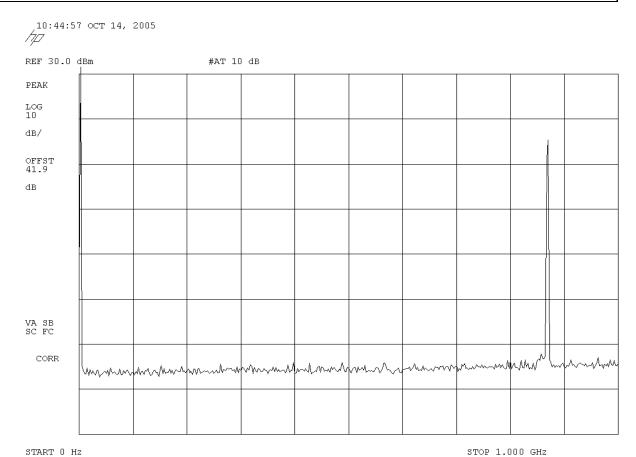
10:37:20 OCT 14, 2005

REF 30.0 dBm #AT 10 dB

PEAK
LOG
10
dB/
OFFST
32.1
dB

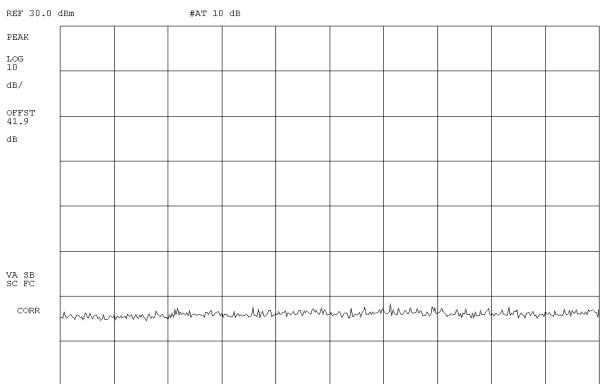
VA SB
SC FC
CORR

EMC Antenna Conducted Spurious Emissions						
	MC Series System			Work Order:	RAFN0054	
Serial Number:	Engineering Production Unit #1			Date:	10/14/05	
Customer:	Radioframe Networks, Inc.			Temperature:	23° C	
Attendees:	Neil Ross		Tested by: Rod Peloquin	Humidity:	40%	
Customer Ref. No.:	None		Power: -48 Vdc	Job Site:	Off-site	
TEST SPECIFICATION	S					
Specification:	47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	2001	
SAMPLE CALCULATION	ONS					
DEVIATIONS FROM TE None REQUIREMENTS	DES jhest output power level (approx. EST STANDARD	20 dBm) ust be attenuated below the limit o	4.42.4Dm			
RESULTS	out of band spurious emission in	ust be attenuated below the limit o	1 - 13 UBIII.			
Pass						
SIGNATURE						
	Pooling be Felings					
DESCRIPTION OF TES	ST .					
	Antenna Conducted Spurious Emissions - High Channel 0MHz-1GHz					



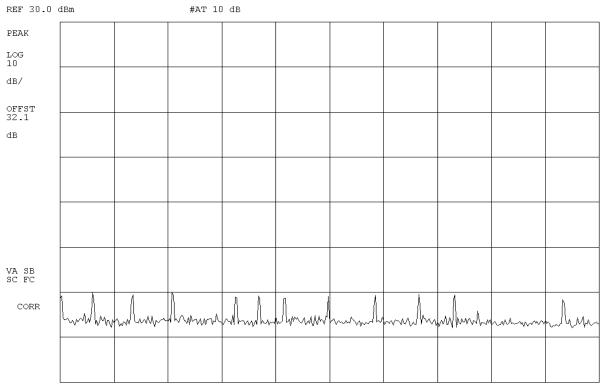
EMC Antenna Conducted Spurious Emissions							
	MC Series System			Work Order:	RAFN0054		
Serial Number:	Engineering Production Unit #1			Date:	10/14/05		
Customer:	Radioframe Networks, Inc.			Temperature:	23° C		
Attendees:	Neil Ross		Tested by: Rod Peloquin	Humidity:	40%		
Customer Ref. No.:	None		Power: -48 Vdc	Job Site:	Off-site		
TEST SPECIFICATION	S						
Specification:	47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	2001		
SAMPLE CALCULATION	ONS						
COMMENTS							
Tested in System Conf	•						
EUT OPERATING MOD							
	hest output power level (approx.	20 dBm)					
DEVIATIONS FROM TE	EST STANDARD						
None							
REQUIREMENTS			-f 40 dD				
RESULTS	out or band spurious emission in	ust be attenuated below the limit of	or -13 aBm.				
Pass	-						
SIGNATURE							
	Poely la Religy						
DESCRIPTION OF TES	T						
	Antenna Conducted Spurious Emissions - High Channel 1GHz-2.8GHz						

10:45:37 OCT 14, 2005



NORTHWEST EMC	Antenr	na Conducted	Spurious Emission	าร	Rev BETA 01/30/01
EUT:	MC Series System			Work Order:	RAFN0054
Serial Number:	Engineering Production Unit #1			Date:	10/14/05
Customer:	Radioframe Networks, Inc.			Temperature:	23° C
Attendees:	Neil Ross		Tested by: Rod Peloquin	Humidity:	40%
Customer Ref. No.:	None		Power: -48 Vdc	Job Site:	Off-site
TEST SPECIFICATION	S				
Specification:	47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	2001
SAMPLE CALCULATION	ONS				
COMMENTS Tested in System Confection Confec	DES hest output power level (approx.	20 dBm)			
	out of band spurious emission m	ust be attenuated below the limit	of -13 dBm.		
RESULTS	The second secon				
Pass					
SIGNATURE Tested By:	Rolly Le Feling				
DESCRIPTION OF TES	т				
	Antenna Cond	ucted Spurious Emi	ssions - High Channel 2.80	Hz-4GHz	

10:47:38 OCT 14, 2005



EMC Antenna	Conducted	Spurious Emission	IS	Rev BETA 01/30/01
EUT: MC Series System			Work Order:	RAFN0054
Serial Number: Engineering Production Unit #1			Date:	10/14/05
Customer: Radioframe Networks, Inc.			Temperature:	23° C
Attendees: Neil Ross		Tested by: Rod Peloquin	Humidity:	40%
Customer Ref. No.: None		Power: -48 Vdc	Job Site:	Off-site
EST SPECIFICATIONS				
Specification: 47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	2001
SAMPLE CALCULATIONS				
COMMENTS				
ested in System Configuration				
UT OPERATING MODES				
Vith modulation at highest output power level (approx. 20 c	IBm)			
DEVIATIONS FROM TEST STANDARD				
lone				
REQUIREMENTS				
Maximum level of any out of band spurious emission must	be attenuated below the limit	of -13 dBm.		
RESULTS				
Pass				
SIGNATURE				
Rolly be Feling				
DESCRIPTION OF TEST				
	O	issions - High Channel 4GH	- 6 FCU-	

PEAK
LOG
10
dB/
OFFST
32.1
dB

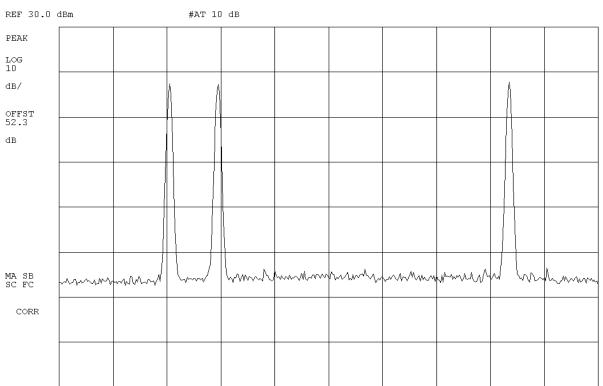
VA SB
SC FC
CORR

#AT 10 dB

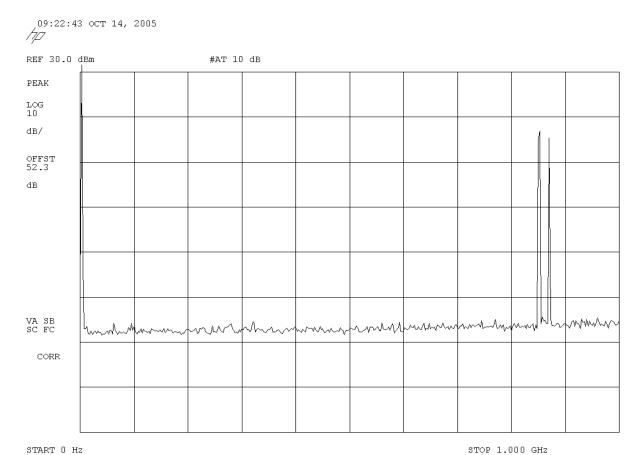
NORTHWEST EMC	Antenr	na Conducted	Spurious Emission	าร	Rev BETA 01/30/01
EUT:	MC Series System			Work Order:	RAFN0054
Serial Number:	Engineering Production Unit #1			Date:	10/14/05
Customer:	Radioframe Networks, Inc.			Temperature:	23° C
Attendees:	Neil Ross		Tested by: Rod Peloquin	Humidity:	40%
Customer Ref. No.:	None		Power: -48 Vdc	Job Site:	Off-site
TEST SPECIFICATION	S				
Specification:	47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	2001
SAMPLE CALCULATION	DNS				
COMMENTS Tested in System Contested in System Contested in System Moderation at high DEVIATIONS FROM TENONE REQUIREMENTS	DES ghest output power level (approx.	20 dBm)			
	out of hand enurious emission m	ust be attenuated below the limit of	of -13 dBm		
RESULTS	out of build spurious emission in	act be attendated below the limit	or to dom.		
Pass	<u> </u>				
SIGNATURE Tested By:	Rolly le Reley				
DESCRIPTION OF TES					
	Antenna Cond	ucted Spurious Emi	ssions - High Channel 6.50	SHz-9GHz	

EMC Antenna Conducted Spurious Emissions Rev BETA (1/2001)								
EUT:	MC Series System			Work Order:	RAFN0054			
Serial Number:	Engineering Production Unit #1			Date:	10/14/05			
Customer:	Radioframe Networks, Inc.			Temperature:	23° C			
Attendees:			Tested by: Rod Peloquin	Humidity:				
Customer Ref. No.:			Power: -48 Vdc	Job Site:	Off-site			
TEST SPECIFICATION								
Specification:	47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	2001			
COMMENTS	figuration							
Tested in System Con	figuration							
EUT OPERATING MOD	DES							
With modulation at hig	ghest output power level (approx.	20 dBm)						
DEVIATIONS FROM TI	EST STANDARD							
None								
REQUIREMENTS								
	out of band spurious emission m	nust be attenuated below the limit	of -13 dBm.					
RESULTS								
Pass SIGNATURE								
Tested By:	Poely le Reling							
DESCRIPTION OF TES	ST							
·	Antenna Condu	cted Spurious Emis	sions - Three Signal IM Te	st, In Band	·			

09:21:50 OCT 14, 2005



EMC Antenna Conducted Spurious Emissions						
	MC Series System		_	Work Order:	RAFN0054	
Serial Number:	Engineering Production Unit #1			Date:	10/14/05	
Customer:	Radioframe Networks, Inc.			Temperature:	23° C	
Attendees:	Neil Ross		Tested by: Rod Peloquin	Humidity:	40%	
Customer Ref. No.:	None		Power: -48 Vdc	Job Site:	Off-site	
TEST SPECIFICATION	S					
Specification:	47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	2001	
SAMPLE CALCULATION	ONS					
DEVIATIONS FROM TE None REQUIREMENTS	DES phest output power level (approx. EST STANDARD	20 dBm) ust be attenuated below the limit o	vf. 13 dBm			
RESULTS	out of band spurious emission in	ust be attenuated below the limit of	11-13 UBIII.			
Pass						
SIGNATURE						
	Rolly le Feling					
DESCRIPTION OF TES						
	Antenna Conducted Spurious Emissions - Three Signal IM Test, 0MHz-1GHz					



EMC	Antenr	na Conducted	Spurious Emission	IS	Rev BETA 01/30/01
	MC Series System			Work Order:	RAFN0054
Serial Number:	Engineering Production Unit #1			Date:	10/14/05
Customer:	Radioframe Networks, Inc.			Temperature:	23° C
Attendees:	Neil Ross		Tested by: Rod Peloquin	Humidity:	40%
Customer Ref. No.:	None		Power: -48 Vdc	Job Site:	Off-site
TEST SPECIFICATION	S				
Specification:	47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	2001
SAMPLE CALCULATION	ONS				
DEVIATIONS FROM TE None REQUIREMENTS	DES phest output power level (approx. EST STANDARD	20 dBm) ust be attenuated below the limit o	of -13 dRm		
RESULTS	out of Build opulious simosion in				
Pass		<u> </u>			
SIGNATURE					
Tested By:	Rody le Reling				
DESCRIPTION OF TES					
	Antenna Conducte	ed Spurious Emission	ons - Three Signal IM Test, 1	IGHz-2.8GHz	2

09:25:09 OCT 14, 2005

REF 30.0 dBm #AT 10 dB

PEAK
LOG
10
dB/
OFFST
52.3
dB

VA SB
SC FC
CORR

EMC								
	MC Series System			Work Order:	RAFN0054			
Serial Number:	Engineering Production Unit #1			Date:	10/14/05			
Customer:	Radioframe Networks, Inc.			Temperature:	23° C			
Attendees:	Neil Ross		Tested by: Rod Peloquin	Humidity:	40%			
Customer Ref. No.:	None		Power: -48 Vdc	Job Site:	Off-site			
TEST SPECIFICATION	S							
Specification:	47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	2001			
SAMPLE CALCULATION	ONS							
COMMENTS								
Tested in System Con								
EUT OPERATING MOD								
•	hest output power level (approx.	20 dBm)						
DEVIATIONS FROM TE	EST STANDARD							
None								
REQUIREMENTS								
	out of band spurious emission m	ust be attenuated below the limit of	of -13 dBm.					
RESULTS								
Pass								
SIGNATURE Tested By:	Roeling la Relings							
DESCRIPTION OF TES	DESCRIPTION OF TEST							
	Antenna Conducted Spurious Emissions - Three Signal IM Test, 2.8GHz-4GHz							

09:26:34 OCT 14, 2005

REF 30.0 dBm #AT 10 dB

PEAK
LOG
10
dB/
OFFST
32.1
dB

VA SB
SC FC
CORR

EMC	Antenr	na Conducted	Spurious Emission	าร	Rev BETA 01/30/01
	MC Series System			Work Order:	RAFN0054
Serial Number:	Engineering Production Unit #1			Date:	10/14/05
Customer:	Radioframe Networks, Inc.			Temperature:	23° C
Attendees:	Neil Ross		Tested by: Rod Peloquin	Humidity:	40%
Customer Ref. No.:	None		Power: -48 Vdc	Job Site:	Off-site
TEST SPECIFICATION	S				
Specification:	47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	2001
SAMPLE CALCULATION	ONS				
DEVIATIONS FROM TE None REQUIREMENTS	DES phest output power level (approx. EST STANDARD	20 dBm) ust be attenuated below the limit o	of -13 dRm		
RESULTS	out of build spurious compositor in	ast be attendated below the mint of	i to defin.		
Pass					
SIGNATURE					
Tested By:	Rody le Feling				
DESCRIPTION OF TES	T				
	Antenna Conducte	ed Spurious Emission	ons - Three Signal IM Test, 4	4GHz-6.5GHz	2

09:31:07 OCT 14, 2005

REF 30.0 dBm #AT 10 dB

PEAK
LOG
10

dB/

OFFST
32.1

dB

VA SB SC FC
CORR

EMC	Antenr	na Conducted	Spurious Emission	ıs	Rev BETA 01/30/01
	MC Series System			Work Order:	RAFN0054
Serial Number:	Engineering Production Unit #1			Date:	10/14/05
Customer:	Radioframe Networks, Inc.			Temperature:	23° C
Attendees:	Neil Ross		Tested by: Rod Peloquin	Humidity:	40%
Customer Ref. No.:	None		Power: -48 Vdc	Job Site:	Off-site
TEST SPECIFICATION	S				
Specification:	47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	2001
SAMPLE CALCULATION	ONS				
DEVIATIONS FROM TE None REQUIREMENTS	DES hest output power level (approx. EST STANDARD	20 dBm) ust be attenuated below the limit o	√ -13 dRm		
RESULTS	out of Build opulious simosion in		. 10 42		
Pass		<u> </u>			
SIGNATURE					
Tested By:	Rody le Reling				
DESCRIPTION OF TES					
	Antenna Conducte	ed Spurious Emission	ons - Three Signal IM Test, 6	6.5GHz-9GHz	2

09:31:43 OCT 14, 2005

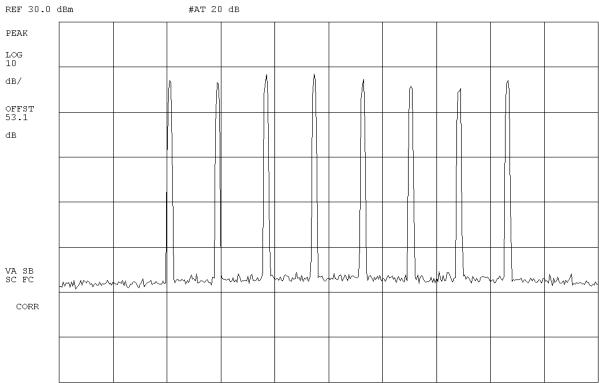
REF 30.0 dBm #AT 10 dB

PEAK
LOG
10
dB/
OFFST
32.1
dB

VA SB
SC FC
CORR

EMC Antenna Conducted Spurious Emissions Rev BETA 07,0001								
EUT: MC Series System			Work Order:	RAFN0054				
Serial Number: Engineering Production Unit #1			Date:	10/13/05				
Customer: Radioframe Networks, Inc.			Temperature:	23 C				
Attendees: Neil Ross		Tested by: Rod Peloquin	Humidity:	40%				
Customer Ref. No.: None		Power: -48 Vdc	Job Site:	Off-site				
TEST SPECIFICATIONS								
Specification: 47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	2001				
COMMENTS								
Tested in System Configuration								
EUT OPERATING MODES								
With modulation at highest output power level (approx. 20	dBm)							
DEVIATIONS FROM TEST STANDARD								
None								
REQUIREMENTS								
Maximum level of any out of band spurious emission mus	t be attenuated below the limit o	f -13 dBm.						
RESULTS								
Pass								
Rocky le Peleng Tested By:								
DESCRIPTION OF TEST								
Antenna Conducted Spurious Emissions - 20 Signal IM Test, In Band								

17:19:36 OCT 13, 2005



NORTHWEST EMC	Antenr	na Conducted	Spurious Emission	าร	Rev BETA 01/30/01
EUT:	MC Series System			Work Order:	RAFN0054
Serial Number:	Engineering Production Unit #1			Date:	10/13/05
Customer:	Radioframe Networks, Inc.			Temperature:	23 C
Attendees:	Neil Ross		Tested by: Rod Peloquin	Humidity:	40%
Customer Ref. No.:			Power: -48 Vdc	Job Site:	Off-site
TEST SPECIFICATION	S				
Specification:	47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	2001
SAMPLE CALCULATION	ONS				
DEVIATIONS FROM TE	DES ghest output power level (approx.	20 dBm)			
REQUIREMENTS					
	out of band spurious emission m	ust be attenuated below the limit of	ot -13 dBm.		
RESULTS					
Pass SIGNATURE					
Tested By:	Poeling la Prelings				
DESCRIPTION OF TES	ST				
	Antenna Condu	cted Spurious Emis	sions - 20 Signal IM Test, 0	MHz-1GHz	

17:21:32 OCT 13, 2005

REF 30.0 dBm #AT 10 dB

PEAK
LOG
10
dB/
OFFST
53.1
dB

VA 3B
SC FC
CORR

EMC Antenna Conducted Spurious Emissions						
	MC Series System			Work Order: I	RAFN0054	
Serial Number:	Engineering Production Unit #1			Date: 1	10/14/05	
Customer:	Radioframe Networks, Inc.			Temperature: 2	23 C	
Attendees:	Neil Ross		Tested by: Rod Peloquin	Humidity:	40%	
Customer Ref. No.:	None		Power: -48 Vdc	Job Site:	Off-site	
TEST SPECIFICATION	S					
Specification:	47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year: 2	2001	
SAMPLE CALCULATION	ONS					
DEVIATIONS FROM TE None REQUIREMENTS	DES hest output power level (approx. EST STANDARD	,	4.40 Abra			
RESULTS	out or band spurious emission m	ust be attenuated below the limit of	r -13 dBm.			
Pass		<u> </u>	·			
SIGNATURE						
	Pooling la Reling					
DESCRIPTION OF TES	ST					
	Antenna Conducted Spurious Emissions - 20 Signal IM Test, 1GHz-2.8GHz					

08:56:01 CCT 14, 2005

REF 30.0 dBm #AT 10 dB

PEAK
LOG
10

dB/

OFFST
52.3

dB

MA SB
SC FC
CORR

NORTHWEST EMC	Antenr	na Conducted	Spurious Emission	ns	Rev BETA 01/30/01	
EUT:	MC Series System			Work Order:	RAFN0054	
Serial Number:	Engineering Production Unit #1			Date:	10/14/05	
Customer:	Radioframe Networks, Inc.			Temperature:	23 C	
Attendees:	Neil Ross		Tested by: Rod Peloquin	Humidity:	40%	
Customer Ref. No.:			Power: -48 Vdc	Job Site:	Off-site	
TEST SPECIFICATION	S					
	47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	2001	
SAMPLE CALCULATION	ONS					
DEVIATIONS FROM TE None REQUIREMENTS	DES ghest output power level (approx. EST STANDARD	20 dBm) ust be attenuated below the limit of	of -13 dBm.			
RESULTS	out of Build opulious simosion in	and the attendance below the mine				
Pass						
SIGNATURE						
Tested By:	Rolly le Feling					
DESCRIPTION OF TES	T					
	Antenna Conducted Spurious Emissions - 20 Signal IM Test, 2.8GHz-4GHz					

08:52:59 OCT 14, 2005

REF 30.0 dBm #AT 10 dB

PEAK
LOG
10
dB/
OFFST
32.1
dB

VA SB
SC FC
CORR

EMC Antenna Conducted Spurious Emissions						
	MC Series System			Work Order: R	RAFN0054	
Serial Number:	Engineering Production Unit #1			Date: 1	0/14/05	
Customer:	Radioframe Networks, Inc.			Temperature: 2	3 C	
Attendees:	Neil Ross		Tested by: Rod Peloquin	Humidity: 4	0%	
Customer Ref. No.:	None		Power: -48 Vdc	Job Site: C	Off-site	
TEST SPECIFICATION	S					
Specification:	47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year: 2	001	
SAMPLE CALCULATION	ONS					
DEVIATIONS FROM TE None REQUIREMENTS	DES ghest output power level (approx. EST STANDARD	, 				
	out of band spurious emission m	ust be attenuated below the limit o	t -13 dBm.			
RESULTS Pass			<u>'</u>			
SIGNATURE						
	Poeling la Relings					
DESCRIPTION OF TES	T					
	Antenna Conducted Spurious Emissions - 20 Signal IM Test, 4GHz-6.5GHz					

08:51:14 OCT 14, 2005

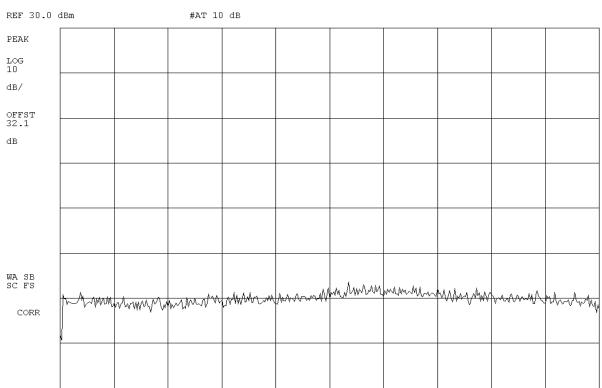
REF 30.0 dBm #AT 10 dB

PEAK
LOG
10
dB/
OFFST
32.1
dB

VA SB
SC FC
CORR

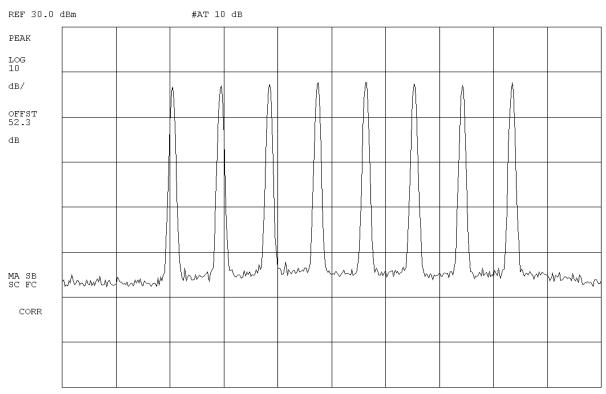
NORTHWEST EMC	Antenr	na Conducted	Spurious Emission	ns	Rev BETA 01/30/01	
EUT:	MC Series System			Work Order:	RAFN0054	
Serial Number:	Engineering Production Unit #1			Date:	10/14/05	
Customer:	Radioframe Networks, Inc.			Temperature:	23 C	
Attendees:	Neil Ross		Tested by: Rod Peloquin	Humidity:	40%	
Customer Ref. No.:			Power: -48 Vdc	Job Site:	Off-site	
TEST SPECIFICATION	S					
	47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	2001	
SAMPLE CALCULATION	ONS					
DEVIATIONS FROM TE None REQUIREMENTS	DES ghest output power level (approx. EST STANDARD	20 dBm) ust be attenuated below the limit of	of -13 dRm			
RESULTS	out of Build opulious simosion in					
Pass		<u> </u>	<u> </u>			
SIGNATURE						
Tested By:	Poeling le Felings					
DESCRIPTION OF TES	ST .					
	Antenna Conducted Spurious Emissions - 20 Signal IM Test, 6.5GHz-9GHz					

08:48:11 OCT 14, 2005

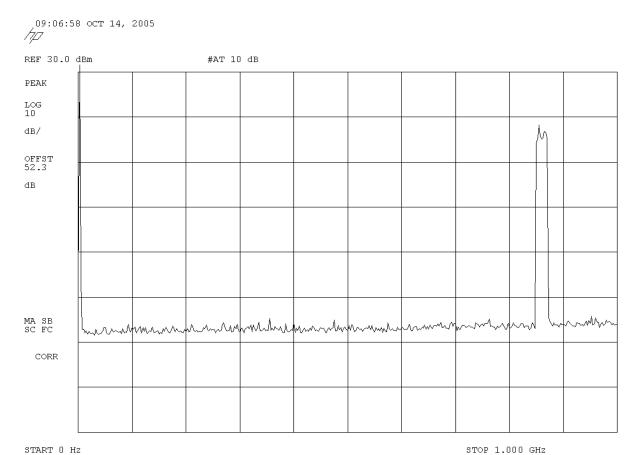


EMC Antei	nna Conducted S	Spurious Emissio	ns Rev BE' 01/30/0'
EUT: MC Series System			Work Order: RAFN0054
Serial Number: Engineering Production Unit	#1		Date: 10/14/05
Customer: Radioframe Networks, Inc.			Temperature: 23 C
Attendees: Neil Ross	Attendees: Neil Ross Tested by: Rod Peloquin		
Customer Ref. No.: None		Power: -48 Vdc	Job Site: Off-site
EST SPECIFICATIONS			
Specification: 47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year: 2001
SAMPLE CALCULATIONS			
UT OPERATING MODES Vith modulation at highest output power level (app SEVIATIONS FROM TEST STANDARD IONE	rox. 20 dBm)		
REQUIREMENTS		40.40	
Maximum level of any out of band spurious emission	on must be attenuated below the limit of	-13 dBm.	
RESULIS Pass		<u>.</u>	
SIGNATURE			
Rody la Rely Tested By:	را		
DESCRIPTION OF TEST			
Antenna Co	onducted Spurious Emi	issions - 8 Signal IM Test,	In Band

09:05:28 OCT 14, 2005



EMC Antenna Conducted Spurious Emissions Rev BETA O1/300f1						
	MC Series System			Work Order: RA	FN0054	
Serial Number:	Engineering Production Unit #1			Date: 10/	14/05	
Customer:	Customer: Radioframe Networks, Inc.			Temperature: 23	С	
Attendees:	Neil Ross		Tested by: Rod Peloquin	Humidity: 40°	%	
Customer Ref. No.:	None		Power: -48 Vdc	Job Site: Off	-site	
TEST SPECIFICATION	IS					
Specification:	47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year: 200	01	
SAMPLE CALCULATION	ONS					
DEVIATIONS FROM TE None REQUIREMENTS	DES ghest output power level (approx. EST STANDARD	20 dBm) ust be attenuated below the limit o	4.42.4Dm			
RESULTS	out or band spurious emission in	ust be attenuated below the limit o	1-13 UBIII.			
Pass					<u> </u>	
SIGNATURE						
	Pooling be Felings					
DESCRIPTION OF TES	ST					
Antenna Conducted Spurious Emissions - 8 Signal IM Test, 0MHz-1GHz						



EMC Antenna Conducted Spurious Emissions Rev BETA O1/3001						
	MC Series System		_	Work Order: RA	AFN0054	
Serial Number:	Engineering Production Unit #1			Date: 10	/14/05	
Customer:	Customer: Radioframe Networks, Inc.			Temperature: 23	C	
Attendees:	Neil Ross		Tested by: Rod Peloquin	Humidity: 40	1%	
Customer Ref. No.:	None		Power: -48 Vdc	Job Site: Of	f-site	
TEST SPECIFICATION	S					
Specification:	47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year: 20	01	
SAMPLE CALCULATION	ONS					
DEVIATIONS FROM TE None REQUIREMENTS	DES ghest output power level (approx. EST STANDARD	20 dBm) ust be attenuated below the limit o	vf. 13 dBm			
RESULTS	out of band spurious emission in	ust be attenuated below the mint o	1-13 UDIII.			
Pass						
SIGNATURE						
	Poeling be Felings					
DESCRIPTION OF TES	ST .					
Antenna Conducted Spurious Emissions - 8 Signal IM Test, 1GHz-2.8GHz						

09:08:44 OCT 14, 2005

REF 30.0 dBm #AT 10 dB

PEAK
LOG
10
dB/
OFFST
52.3
dB

MA. SB
SC FC
CORR

EMC							
	MC Series System		-	Work Order: R	RAFN0054		
Serial Number:	Engineering Production Unit #1			Date: 1	0/14/05		
Customer:	Customer: Radioframe Networks, Inc.			Temperature: 2	3 C		
Attendees:	Neil Ross		Tested by: Rod Peloquin	Humidity: 4	-0%		
Customer Ref. No.:	None		Power: -48 Vdc	Job Site: C	Off-site		
TEST SPECIFICATION	S						
Specification:	47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year: 2	001		
SAMPLE CALCULATION	ONS						
DEVIATIONS FROM TE None REQUIREMENTS	DES ghest output power level (approx. EST STANDARD	20 dBm) ust be attenuated below the limit o	vf .13 dBm				
RESULTS	out or band spurious emission in	ust be attenuated below the mint o	11-13 dBill.				
Pass							
SIGNATURE							
	Poeling le Felings						
DESCRIPTION OF TES	ST						
Antenna Conducted Spurious Emissions - 8 Signal IM Test, 2.8GHz-4GHz							

EMC Antenna Conducted Spurious Emissions Rev BETA 01/20/01							
EUT:	MC Series System			Work Order:	RAFN0054		
Serial Number:	Serial Number: Engineering Production Unit #1			Date:	10/14/05		
Customer:	Radioframe Networks, Inc.			Temperature:	23 C		
Attendees:	Neil Ross		Tested by: Rod Peloquin	Humidity:	40%		
Customer Ref. No.:	None		Power: -48 Vdc	Job Site:	Off-site		
TEST SPECIFICATION	S						
Specification:	47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	2001		
SAMPLE CALCULATION	DNS						
COMMENTS Tested in System Confector OPERATING MOD With modulation at hig DEVIATIONS FROM TE None REQUIREMENTS	DES ghest output power level (approx.	20 dBm)					
	out of band spurious emission m	ust be attenuated below the limit of	of -13 dBm.				
RESULTS	•						
Pass	•						
SIGNATURE Porly le Reley Tested By:							
DESCRIPTION OF TES	ST.						
	Antenna Conduc	cted Spurious Emis	sions - 8 Signal IM Test, 4G	Hz-6.5GHz			

09:17:19 OCT 14, 2005

REF 30.0 dBm #AT 10 dB

PEAK
LOG
10
dB/
OFFST
32.1
dB

VA SB
SC FC
CORR

EMC							
	MC Series System			Work Order: RAF	N0054		
Serial Number:	Engineering Production Unit #1			Date: 10/1	4/05		
Customer:	Customer: Radioframe Networks, Inc.			Temperature: 23 C	;		
Attendees:	Neil Ross		Tested by: Rod Peloquin	Humidity: 40%)		
Customer Ref. No.:	None		Power: -48 Vdc	Job Site: Off-	site		
TEST SPECIFICATION	S						
Specification:	47 CFR 2.1051 & 90.691	Year: Most Current	Method: TIA / EIA - 603	Year: 200	1		
SAMPLE CALCULATION	ONS						
DEVIATIONS FROM TE None REQUIREMENTS	DES ghest output power level (approx. EST STANDARD	20 dBm) ust be attenuated below the limit o	f .13 dBm				
RESULTS	out of band spurious emission in	ust be attenuated below the innit o	1 - 13 dBin.				
Pass							
SIGNATURE							
	Poeling be Felings						
DESCRIPTION OF TES	ST						
Antenna Conducted Spurious Emissions - 8 Signal IM Test, 6.5GHz-9GHz							

09:15:58 OCT 14, 2005

REF 30.0 dBm #AT 10 dB

PEAK
LGG
10

OFFST
32.1

dB

VA SB
SC FC
CORR











Emission Mask

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 (851.0125 MHz)
Mid (859.1625 MHz)
High (869.9875 MHz)

Data Rates Investigated:

Typical

Output Power Setting(s) Investigated:

Highest

Power Input Settings Investigated:

120 VAC, 60 Hz.

Software\Firmware Applied During Test						
Exercise software	Standard Production Software	Version	Unknown			
Description						
The system was tested using standard operating production software to exercise the functions of the						
device during the testing.						

EUT and Peripherals			
Description	Manufacturer	Model/Part Number	Serial Number
iDEN Radio Base Station	Radio Frame	MC Sorios System	Engineering Production
System	Networks, Inc.	MC Series System	Unit #1

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Power	No	2.0	No	EUT	AC Mains

Measurement Equipment							
Description	Manufacturer	Model	Identifier	Last Cal	Interval		
Spectrum Analyzer	Hewlett-Packard	8593E	AAN	12/15/2004	12 mo		
30 dB 100W attenuator	Bird Electronic Corp.	100-SA-MFN-30	N/A	NCR	N/A		

Test Description

Requirement: Per 47 CFR 90.691, "The emission limits are as follows: (1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 116 Log₁₀(f/6.1) decibels or 50 + 10 Log₁₀(P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz. (2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 43 + 10Log10(P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz."

FCC Interpretation Regarding Emission Mask and 90.691

----Original Message----

From: Andrew Leimer [mailto:ALEIMER@fcc.gov] Sent: Wednesday, May 14, 2003

12:21 PM

To: rwacs@att.net

Subject: Re: Part 90 rules

Hello Dean,

How are you doing? I have not heard from you in a while! The following explanation is from the archives. The basic question was if emissions mask g would ever be used. I hope it answers your question:

I found that footnote 3 was added to Section 90.210 as a result of the First R&O, Eighth R&O and 2nd FNPRM in PR Docket 93-144 (FCC 95-501), adopted 12/15/95. Footnote 3 initially said "Equipment in this band licensed to EA systems shall comply with the emission mask provisions of Section 90.691." Note here that this R&O dealt principally with the upper 200 MHz SMR channels which were auctioned in contiguous segments/blocks. Consequently, providing more flexibility in the emission mask that required protection of the "outer" channels in those blocks and to any interior channels in those blocks used by incumbents made sense.

When the Commission subsequently dealt with auctioning the lower 80 channels (non-contiguous channels in each block) and the General Category channels (contiguously allocated channels by block for auction purposes but originally allocated on a single channel basis for site-specific licensing purposes), the consideration of emission mask caused footnote 3 to be modified as it exists today. Specifically, the Second R&O in PR Docket 93-144 (FCC 97-223), adopted 6/23/97 @ para 80 reasons that applying the same emission mask standards to the lower 230 channels (lower 80 channels and 150 General Category channels) as to the upper 200 channels facilitates the use of common equipment and the combining of all such channels. It further states that Section 90.691 (the emission mask) would apply to "outer" channels used by a licensee "that create out-of-band emissions that affect another licensee".

Emission Mask

Revision 10/1/03

The MO&O on reconsideration of the 800 MHz 1st R&O (FCC 97-224, adopted 6/23/97) at para 76 agreed with Erricson's recommendation to expand the emission mask provision of Section 90.691 to "non-EA 800 MHz Part 90 CMRS systems". The decision was based ostensibly on extending the flexibility of the 90.691 emission mask to incumbent licensees (non-EA licensees or non-auction winners) and to those non-SMR channels used by CMRS operators. The paragraph closes by stating that neither Ericsson or Motorola believe that such relaxation will increase the amount of interference to adjacent channel licensees.

You'll note that there is some similarity between emission mask G (applicable to equipment without audio low pass filters) under Section 90.210 and the emission mask required by Section 90.691. It is my interpretation that footnote 3 under Section 90.210 (the applicability of the emission mask under Section 90.691) was intended principally for Part 90 CMRS systems in the 800 MHz band to provide flexibility and consistency to those operators. As Section 90.210 is written, however, I don't see how we could legally prevent any 800 MHz licensee from using the more flexible emission mask under Section 90.691.

Bottom line: As the rule is written, it is possible that the "G" mask would never be used by 800 MHz licensees.

>>> Dean Busch 05/14/03 01:22PM >>> Andy;

I hope you can help me with this or at least point me in the right direction.

I have a client that has an EA based radio system that is currently using licensed transmitters with an output of 100mW in the 851 - 866 MHz range. The system is approved under 90.691. If the manufacturer raises the power level to 5 watts per channel output will they need to meet the emissions mask of 90.210 (g) or do they still fall under 90.691.

Thanks

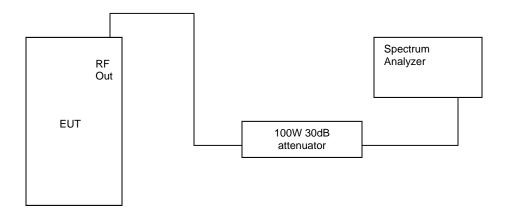
Dean Busch
Radiowave Compliance Services, Inc.

Configuration: The peak measurement was made using a directional coupler between the RF output of the EUT and a spectrum analyzer. The occupied bandwidth / emission mask was measured with the EUT set to low, medium, and high transmit frequencies. At each channel, measurements were made at the highest output settings. The output power is varied by changing the TX Attenuator setting on the EUT's amplifier to the following settings: High Power 11 db, Mid power 29 dB, and Low Power 49 dB.

See emission mask table below. It was concluded that testing at lower power levels was unnecessary since the general limit is -13 dBm. Clearly the high power configuration is worse case.

Channel	Output Power	Power (P)	In-band	In-band Attenuation		
	(dBm)	Watts	(0	dBc)		(dBc)
			50 + (10*log P)			
Low	20.49	1.12E-01	40.49	36.14	80	33.49
	0.14	1.03E-03	20.14	36.14	80	13.14
	-19.96	1.01E-05	0.04	36.14	80	-6.96
Mid	22.2	1.66E-01	42.2	36.14	80	35.2
	3.05	2.02E-03	23.05	36.14	80	16.05
	-18.3	1.48E-05	1.7	36.14	80	-5.3
High	20.65	1.16E-01	40.65	36.14	80	33.65
	0.85	1.22E-03	20.85	36.14	80	13.85
	-19.15	1.22E-05	0.85	36.14	80	-6.15

Test Setup Diagram



Completed by:

NORTHWEST EMC	EMISSIONS D	DATA SHEET		Rev BETA 01/30/01	
EUT: MC Series System	Work Order:	RAFN0054			
Serial Number: Engineering Production U			Date:	10/14/05	
Customer: Radioframe Networks, Inc	•		Temperature:	23° C	
Attendees: Neil Ross		Tested by: Rod Peloquin	Humidity:	40%	
Customer Ref. No.: None		Power: 120VAC/60Hz	Job Site:	Off-site	
TEST SPECIFICATIONS					
Specification: 47 CFR 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	Most Current	
SAMPLE CALCULATIONS					
EUT OPERATING MODES Modulated by 16 QAM. DEVIATIONS FROM TEST STANDARD None REQUIREMENTS Maximum level of any spurious emission must b	a stanguard below the considered emission	maki 0 dB referense is 40 27 dBm			
RESULTS	·	AMPLITUDE			
Pass		AMPLITUDE			
SIGNATURE					
Pooling be Rele Tested By:	and the second second				
DESCRIPTION OF TEST					
Emission Mask for EA-based Systems: Lowest Channel @ Highest Output Power					

10:12:08 OCT 14, 2005

REF 19.4 dBm #AT 20 dB PEAK LOG 10 dB/ OFFST 41.9 dB VA SB SC FC CORR Land Market Mark AMMMM Mumman

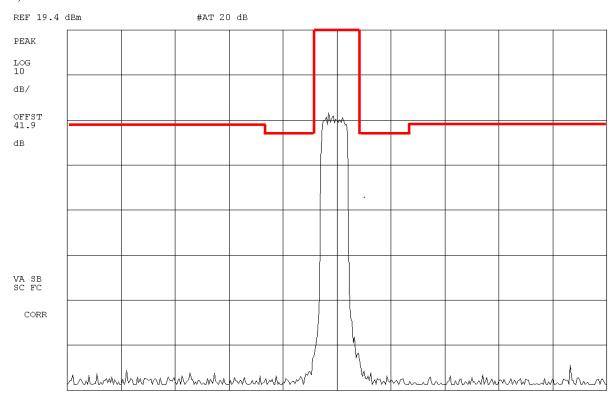
CENTER 851.01250 MHz

SPAN 63.00 kHz SWP 2.10 sec

#RES BW 300 Hz #VBW 1 kHz

EMISSIONS DATA SHEET					Rev BETA			
EMC		LIMISSICIAS	DATA SHEET		01/30/01			
EUT: MC	T: MC Series System				RAFN0054			
Serial Number: Eng	gineering Production Unit #1			Date:	10/14/05			
Customer: Rad	dioframe Networks, Inc.			Temperature:	23° C			
Attendees: Nei	il Ross		Tested by: Rod Peloquin	Humidity:	40%			
Customer Ref. No.: No.	ne		Power: 120VAC/60Hz	Job Site:	Off-site			
TEST SPECIFICATIONS								
Specification: 47	CFR 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	Most Current			
SAMPLE CALCULATIONS	;							
COMMENTS								
EUT OPERATING MODES								
	Modulated by 16 QAM.							
DEVIATIONS FROM TEST	STANDARD							
	None							
	REQUIREMENTS							
	irious emission must be attena	uted below the specified emission	n mask. 0 dB reference is 19.37 dBm					
RESULTS			AMPLITUDE					
Pass								
SIGNATURE								
/	orly be Feling							
Tested By:	0 0							
DESCRIPTION OF TEST								
Emission Mask for EA-based Systems: Lowest Channel @ Highest Output Power								





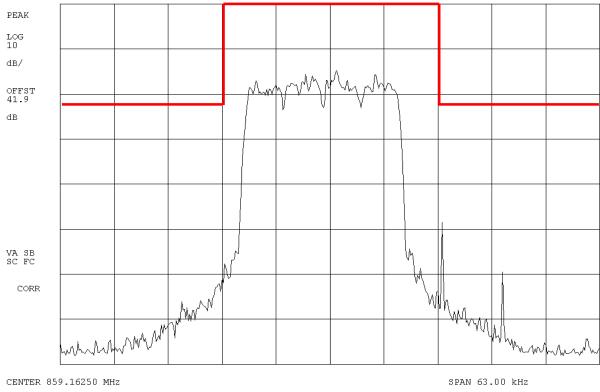
#RES BW 300 Hz

SWP 12.3 sec

EMISSIONS DATA SHEET					Rev BETA			
EMC		Limbolotto	DATA OTTELL		01/30/01			
EUT:	MC Series System	Work Order:						
	Engineering Production Unit #1				10/14/05			
	Radioframe Networks, Inc.			Temperature:				
Attendees:	Neil Ross		Tested by: Rod Peloquin	Humidity:				
Customer Ref. No.:			Power: 120VAC/60Hz	Job Site:	Off-site			
TEST SPECIFICATION	s							
Specification:	47 CFR 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	Most Current			
SAMPLE CALCULATION	ONS							
COMMENTS								
EUT OPERATING MOI								
Modulated by 16 QAM								
DEVIATIONS FROM T	EST STANDARD							
None								
REQUIREMENTS			1 0 ID (: 1000 ID					
	spurious emission must be attended	iutea below the specified emissio	n mask. 0 dB reference is 19.33 dBm					
	RESULTS AMPLITUDE							
Pass								
SIGNATURE	10120							
	Rocky le Relengs							
Tested By:								
DESCRIPTION OF TES	ST							
		A-based Systems:	Middle Channel @ Highes	t Output Pow	er			

10:25:23 OCT 14, 2005

REF 19.3 dBm #AT 20 dB

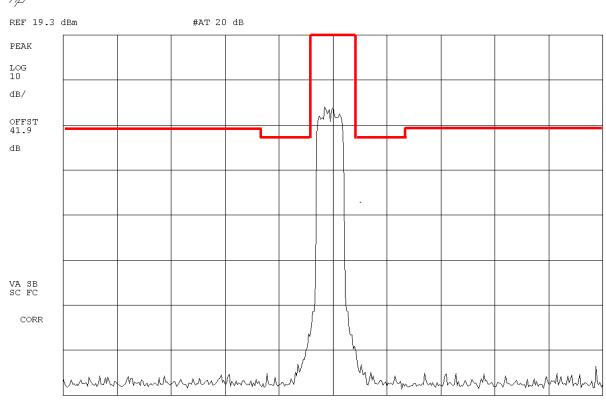


SWP 2.10 sec

EMC EMISSIONS DATA SHEET					
EUT: MC Series System				Work Order:	01/30/01 RAFN0054
Serial Number: Engineering Production Unit #1					10/14/05
Customer: Radioframe Networks, Inc.				Temperature:	
Attendees: Neil Ross		Tested by:	Rod Peloquin	Humidity:	
Customer Ref. No.: None			120VAC/60Hz	Job Site:	
TEST SPECIFICATIONS					
Specification: 47 CFR 90.691	Year: Most Current	Method:	TIA / EIA - 603	Year:	Most Current
SAMPLE CALCULATIONS					
EUT OPERATING MODES Modulated by 16 QAM. DEVIATIONS FROM TEST STANDARD None REQUIREMENTS					
Maximum level of any spurious emission must be atter	nauted below the specified emission		is 19.33 dBm		
RESULTS Pass		AMPLITUDE			
SIGNATURE Pooling be Reling					
Tested By:	<u> </u>				
Emission Mask for	EA-based Systems:	Middle Chanr	nel @ Highes	t Output Pow	er

10:29:37 OCT 14, 2005

#RES BW 300 Hz



#VBW 1 kHz

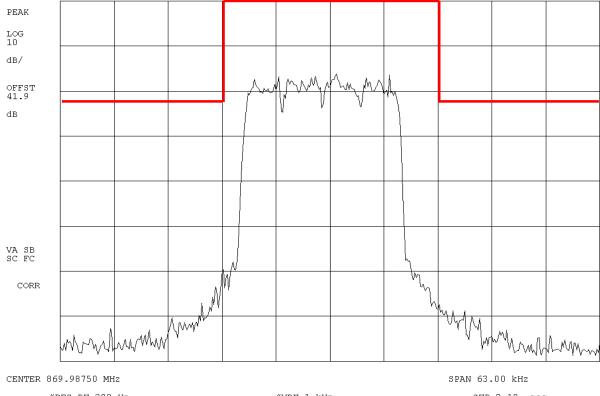
SPAN 370.0 kHz

SWP 12.3 sec

EMISSIONS DATA SHEET							
EMC		EMISSIONS I	DATA SHEET		Rev BETA 01/30/01		
	MC Series System			Work Order:	RAFN0054		
Serial Number:	Engineering Production Unit #1			Date:	10/14/05		
Customer:	Radioframe Networks, Inc.			Temperature:	23° C		
Attendees:	Neil Ross		Tested by: Rod Peloquin	Humidity:	40%		
Customer Ref. No.:	None		Power: 120VAC/60Hz	Job Site:	Off-site		
TEST SPECIFICATION	IS						
Specification:	47 CFR 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	Most Current		
SAMPLE CALCULATION	ONS						
COMMENTS							
EUT OPERATING MOI							
Modulated by 16 QAM							
DEVIATIONS FROM T	EST STANDARD						
None							
REQUIREMENTS							
	spurious emission must be attena	uted below the specified emission	n mask. 0 dB reference is 18.5 dBm				
	RESULTS AMPLITUDE						
Pass							
SIGNATURE			<u> </u>				
Role 1. Police							
Rochy le Releng							
Tested By:							
	_						
DESCRIPTION OF TEST							
Emission Mask for EA-based Systems: Highest Channel @ Highest Output Power							

10:56:31 OCT 14, 2005

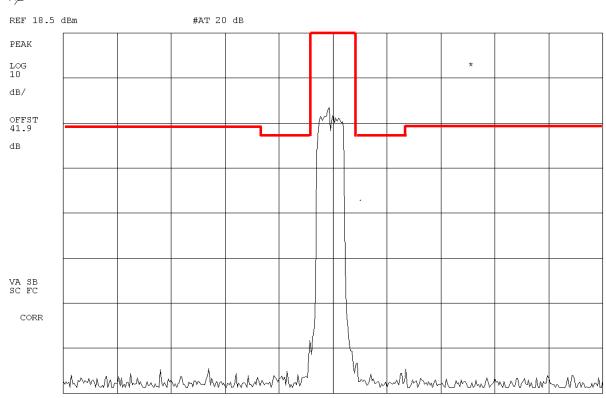
REF 18.5 dBm #AT 20 dB



SWP 2.10 sec

EMC EMISSIONS DATA SHEET					
		Limitotione	DATA CHEET		01/30/01
	MC Series System	Work Order:			
	Engineering Production Unit #1				10/14/05
	Radioframe Networks, Inc.			Temperature:	
Attendees:	Neil Ross		Tested by: Rod Peloquin	Humidity:	40%
Customer Ref. No.:			Power: 120VAC/60Hz	Job Site:	Off-site
TEST SPECIFICATION	s				
Specification:	47 CFR 90.691	Year: Most Current	Method: TIA / EIA - 603	Year:	Most Current
SAMPLE CALCULATION	ONS				
COMMENTS EUT OPERATING MOI Modulated by 16 QAM DEVIATIONS FROM TI None REQUIREMENTS					
	spurious emission must be attena	auted below the specified emission	on mask. 0 dB reference is 18.5 dBm		
RESULTS			AMPLITUDE		
Pass					
SIGNATURE Tested By:	Roeling la Felings				
DESCRIPTION OF TES	ST				
E	mission Mask for E	A-based Systems:	Highest Channel @ Highes	t Output Pov	ver

10:58:47 OCT 14, 2005



SWP 12.4 sec







