

FCC CFR47 PART 15 SUBPART C INDUSTRY CANADA RSS-210 ISSUE 8

CERTIFICATION TEST REPORT

FOR

2400-2483.5MHZ TRANSCEIVER

MODEL NUMBER: A2541R24A & A2541R24C

FCC ID: X7J-A12062101 IC: 8975A-A12062101

REPORT NUMBER: SR9723856

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Prepared for ANAREN, INC 6635 KIRKVILLE ROAD EAST SYRACUSE NY, 13057, U.S.A

Prepared by UL LLC 1285 WALT WHITMAN RD. MELVILLE, NY 11747, U.S.A. TEL: (631) 271-6200 FAX: (877) 854-3577



Revision History

Rev.	lssue Date	Revisions	Revised By
	5/21/13	Initial Issue	M. Antola

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Pass

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: ANAREN INC 6635 KIRKVILLE ROAD EAST SYRACUSE, NY, 13057, USA		
EUT DESCRIPTION:	2400-2483.5MHZ TRANSCEIVER	
MODEL:	A2541R24A & A2541R24C	
SERIAL NUMBER:	01 & 06	
DATE TESTED:	2013-04-16 to 2013-04-24	
	APPLICABLE STANDARDS	
ST	TEST RESULTS	
CFR 47 Part 15 Subpart C		Pass
INDUSTRY CANAD	A RSS-210 Issue 8 Annex 8	Pass

INDUSTRY CANADA RSS-GEN Issue 3

UL LLC tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL LLC based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL LLC and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL LLC will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Approved & Released For UL LLC By:

Tested By:

Mirtallos

Bob DeLisi WiSE Principal Engineer UL

Mike Antola WiSE Project Lead UL

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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4-2003, FCC CFR 47 Part 2, FCC CFR 47 Part 15, RSS-GEN Issue 3, and RSS-210 Issue 8.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 1285 Walt Whitman Rd. Melville, NY 11747, USA.

UL Melville is accredited by NVLAP, Laboratory Code 100255-0. The full scope of accreditation can be viewed at <u>http://ts.nist.gov/standards/scopes/1002550.htm</u>.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB) 36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	3.52 dB
Radiated Disturbance, 30 to 1000 MHz	4.94 dB
Radiated Emissions, 1-26GHz (worst case, Ground Plane)	± 5.7, k=2 (95%)

Uncertainty figures are valid to a confidence level of 95%.

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5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a 2.4GHz transceiver that is manufactured by Anaren, Inc. with model numbers A2541R24A and A2541R24C. Models are identical except A2541R24A has an integral printed antenna and A2541R24C has a U.FL connector.

5.2. MAXIMUM OUTPUT POWER

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2402 - 2480	GFSK 2Mbps 500kHz	1.87	1.54
2402 - 2480	GFSK 1Mbps 250kHz	2.05	1.60
2402 - 2480	MSK 500kbps	2.12	1.63

The transmitter has a maximum peak conducted output power as follows:

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio of model A2541R24A utilizes an integral PCB antenna, with a maximum gain of 2 dBi.

The radio of model A2541R24C utilizes a monopole antenna, with a maximum gain of 3 dBi.

5.4. SOFTWARE AND FIRMWARE

The EUT driver software installed during testing was rev. 1.0.00.

The test utility software used during testing was CC2541 Certification Test ver. 1.0.

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5.5. WORST-CASE CONFIGURATION AND MODE

Radiated emission and power line conducted emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

The fundamental of the EUT was investigated in three orthogonal orientations X, Y, Z.

It was determined that Y orientation was worst-case orientation for Model A2541R24A; therefore, all final radiated testing was performed with the EUT in Y orientation.

It was determined that Z orientation was worst-case orientation for Model A2541R24C; therefore, all final radiated testing was performed with the EUT in Z orientation.

Based on the baseline scan, the worst-case data rates were:

- GFSK 2Mbps 500kHz
- GFSK 1Mbps 250kHz
- MSK 500kbps

All final testing was performed in each of these modes. Other data rates that are also deemed compliant are:

- GFSK 2Mbps 320kHz
- GFSK 1Mbps 160kHz
- GFSK 250kbps 160kHz

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5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List						
Description Manufacturer Model Serial Number FCC ID						
Test Board	Anaren	A253X/A254X	NA	NA		
Laptop	Laptop IBM Thinkpad T43 00045-636-421-009 DoC					

I/O CABLES

	I/O Cable List						
Cable	Cable Port # of identical Connector Cable Type Cable Length Remarks						
No		ports	Туре		(m)		
1	USB	1	Mini-Usb	Shielded	<3M	Connects to test board	

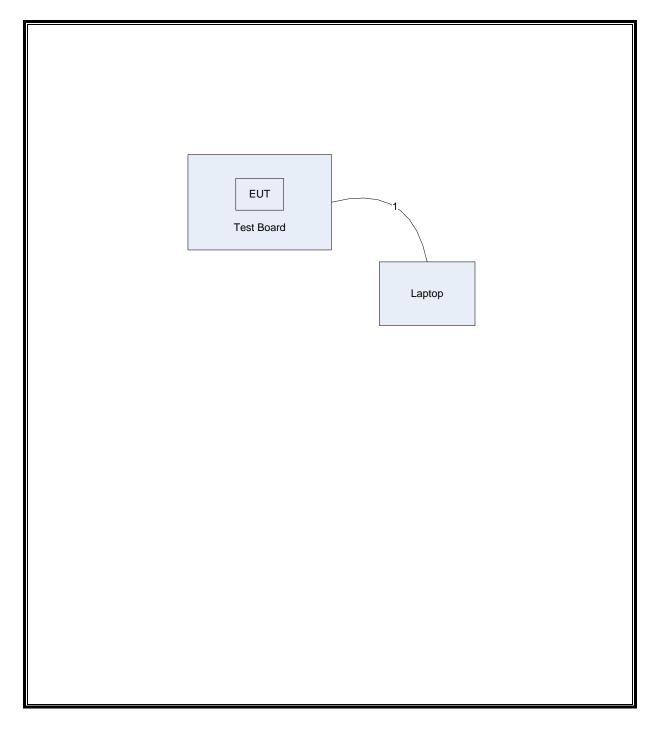
TEST SETUP

The EUT is installed on a test board which is connected to a laptop computer during the tests. Test software exercised the radio module.

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SETUP DIAGRAM FOR TESTS



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6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

Radiated Emissions					
Description	Manufacturer	Model	Identifier	Cal Date	Cal Due Date
30-1000MHz					
EMI Receiver	Rohde & Schwarz	ESIB26	ME5B-081	2013-01-29	2014-01-31
Log-P Antenna	Schaffner	UPA6109	44067	2012-05-16	2013-05-16
Bicon Antenna	Schaffner	VBA6106A	43441	2012-11-12	2013-11-12
Switch Driver	HP	11713A	ME7A-627	N/A	N/A
System Controller	Sunol Sciences	SC99V	44396	N/A	N/A
Camera Controller	Panasonic	WV-CU254	44395	N/A	N/A
RF Switch Box	UL	1	44398	N/A	N/A
Measurement Software	UL	Version 9.5	44740	N/A	N/A
Above 1GHz (Band Optimized Sy					
EMI Receiver	Rohde & Schwarz	ESIB40	34968	2013-01-30	2014-01-31
Horn Antenna (1-2 GHz)	ETS	3161-01 (26°)**	51442	2008-03-28	See * below
Horn Antenna (2-4 GHz)	ETS	3161-02 (22°)**	48107	2007-09-27	See * below
Horn Antenna (4-8 GHz)	ETS	3161-03 (22°)**	48106	2007-09-27	See * below
Horn Antenna (8-12 GHz)	ETS	3160-07 (26°)**	8933	2008-11-24	See * below
Horn Antenna (12-18 GHz)	ETS	3160-08 (26°)**	8932	2007-09-27	See * below
Horn Antenna (18-26.5 GHz)	ETS	3160-09 (27°)**	8947	2007-09-26	See * below
Signal Path Controller	HP	11713A	50250	N/A	N/A
Gain Controller	HP	11713A	50251	N/A	N/A
RF Switch / Preamp Fixture	UL	BOMS1	50249	N/A	N/A
System Controller	UL	BOMS2	50252	N/A	N/A
Measurement Software	UL	Version 9.5	44740	N/A	N/A
Temp/Humidity/Pressure Meter	Cole Parmer	99760-00	4268	2012-12-22	

* - Note: As allowed by the calibration standard ANSI C63.4 Section 4.4.2, standard gain horns need only a one-time calibration. Only if physical damage occurs will the horn antenna require re-calibration.

Gain standard horn antennas (sometimes called standard gain horn antennas) need not be calibrated beyond that which is provided by the manufacturer unless they are damaged or deterioration is suspected, or they are used at a distance closer than $2D^2/\lambda$. Gain standard horn antennas have gains that are fixed by their dimensions and dimensional tolerances.

** - Number in parentheses denotes antenna beam width.

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Bench Tests					
Description Manufacturer Model Identifier Cal Date Cal Due Date					
RF Room 1			•		
Spectrum Analyzer	Agilent	E4446A	72823	2013-01-29	2014-01-31
Power Sensor	Rohde & Schwarz	NRP-Z81	73137	2013-01-30	2014-01-31
Temp/Humidity/Pressure Meter	Cole Parmer	99760-00	4268	2012-12-22	2014-12-22

Conducted Emissions						
Description	Manufacturer	Model	Identifier	Cal Date	Cal Due Date	
Conducted Emissions – GP 1	•		•			
	Rohde &					
EMI Receiver	Schwarz	ESCI 7	75141	2013-01-30	2014-01-31	
LISN	Solar	9252-50-R-24-BNC	ME5A-636	2013-01-31	2014-01-31	
Switch Driver	HP	11713A	44397	N/A	N/A	
RF Switch Box	UL	4	44404	N/A	N/A	
Measurement Software	UL	Version 9.5	44736	N/A	N/A	
Temp/Humidity/Pressure Meter	Cole Parmer	99760-00	43734	2012-03-13	2014-03-13	

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7. ANTENNA PORT TEST RESULTS

7.1. GFSK 2Mbps 500kHz MODE

7.1.1.6 dB BANDWIDTH

<u>LIMITS</u>

FCC §15.247 (a) (2)

IC RSS-210 A8.2 (a)

The minimum 6 dB bandwidth shall be at least 500 kHz.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

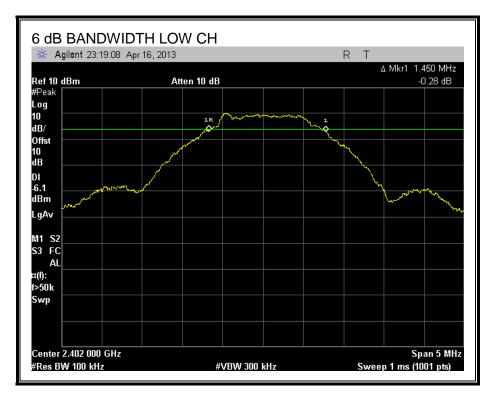
RESULTS

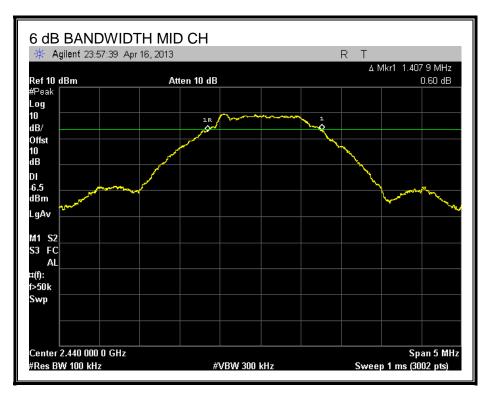
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2402	1.4500	0.5
Middle	2440	1.4100	0.5
High	2480	1.4600	0.5

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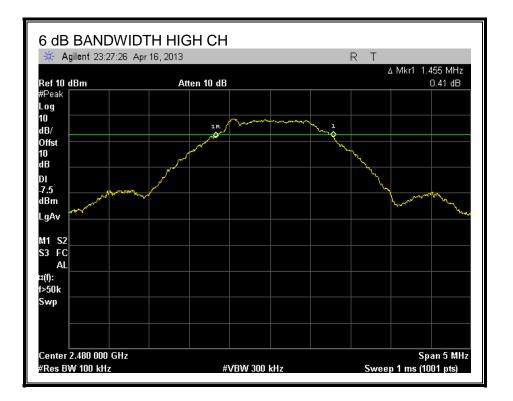
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6 dB BANDWIDTH





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7.1.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

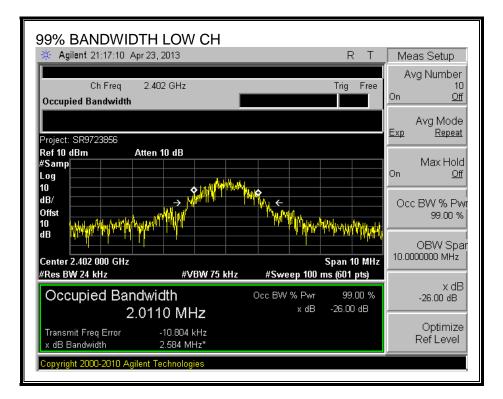
The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth and to 1% of the span. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

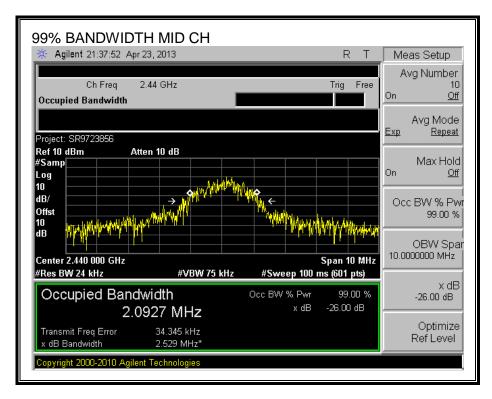
RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2402	2.0000
Middle	2440	2.1000
High	2480	2.2000

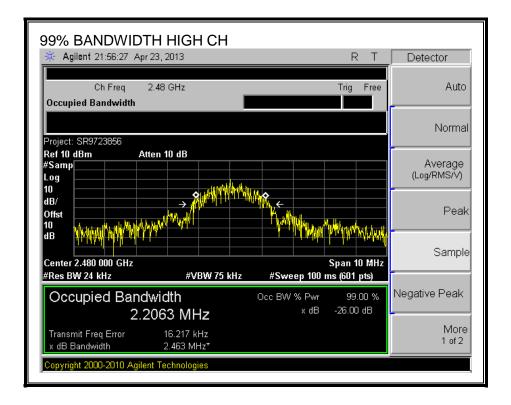
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99% BANDWIDTH





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7.1.3. OUTPUT POWER

LIMITS

FCC §15.247 (b)

IC RSS-210 A8.4

The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 30 dBm.

TEST PROCEDURE

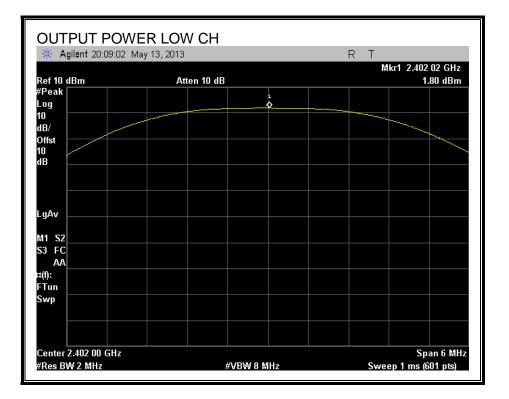
Peak power is measured using the maximum peak conducted output power procedure per section 9.1.1 specified in "558074 D01 DTS Meas Guidance v03" April 8, 2013.

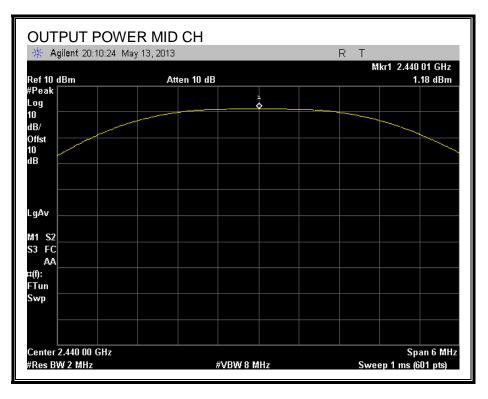
RESULTS

Channel	Frequency	Peak Power Reading	Limit	Margin
	(MHz)	(dBm)	(dBm)	(dB)
Low	2402	1.800	30	-28.200
Middle	2440	1.180	30	-28.820
High	2480	0.440	30	-29.560

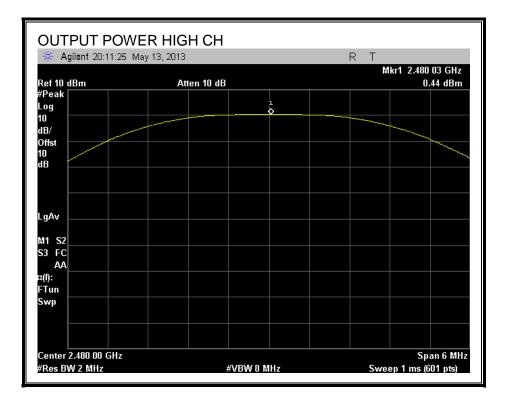
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OUTPUT POWER





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7.1.4. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 10 dB (including 10 dB pad) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency (MHz)	AV power (dBm)
Low	2402	1.9
Middle	2440	1.28
High	2480	0.6

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7.1.5. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

IC RSS-210 A8.2 (b)

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

TEST PROCEDURE

Output power was measured based on the use of a peak measurement, therefore the power spectral density was measured using PSD Option per section 10.2 in accordance with FCC document "Measurement of Digital Transmission Systems Operating under Section 15.247", April 8, 2013.

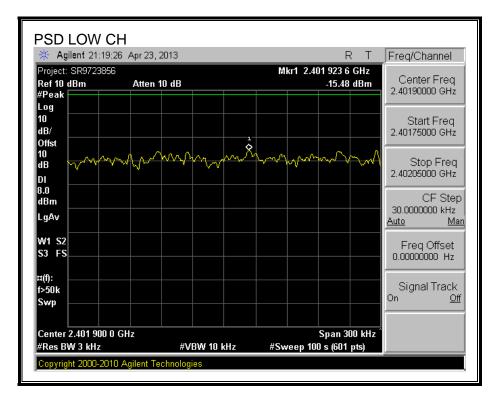
RESULTS

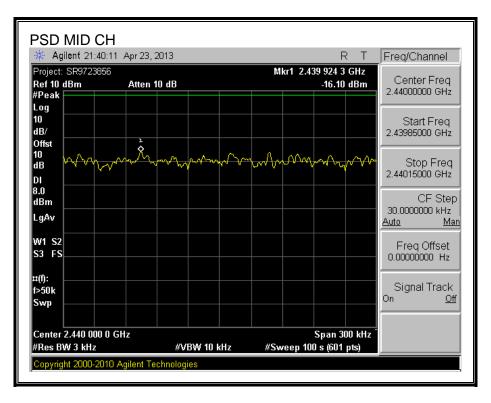
Channel	Frequency	PSD	Limit	Margin
	(MHz)	(dBm)	(dBm)	(dB)
Low	2402	-15.48	8	-23.48
Middle	2440	-16.10	8	-24.10
High	2480	-17.10	8	-25.10

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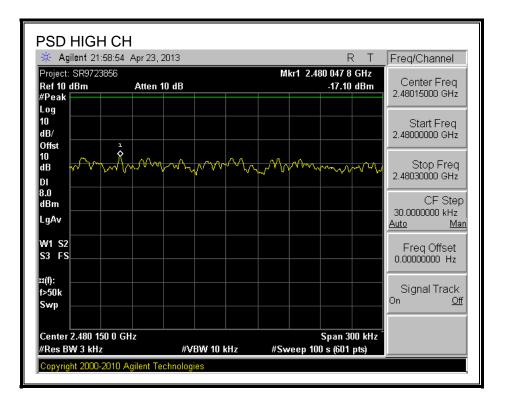
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POWER SPECTRAL DENSITY





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7.1.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

Output power was measured based on the use of a peak measurement, therefore the required attenuation is 20 dB.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

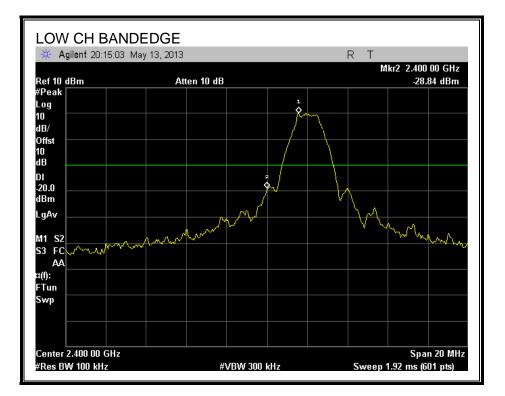
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

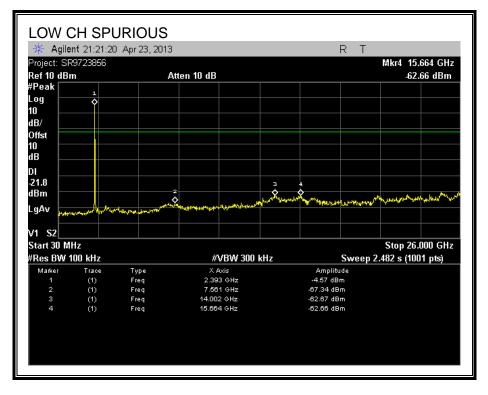
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RESULTS

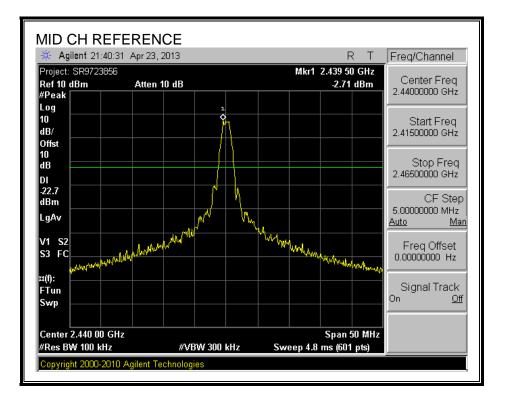
SPURIOUS EMISSIONS, LOW CHANNEL

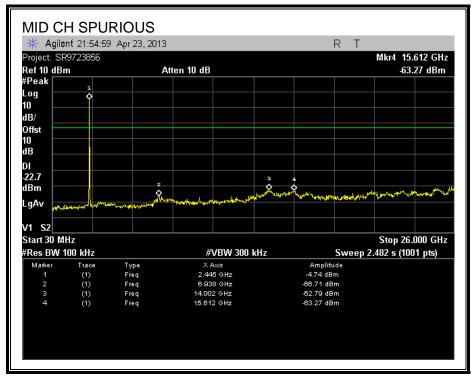




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SPURIOUS EMISSIONS, MID CHANNEL

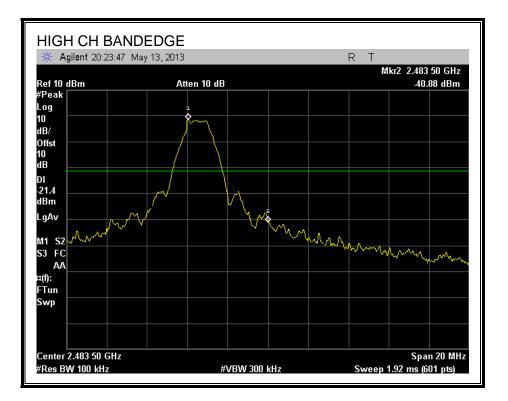


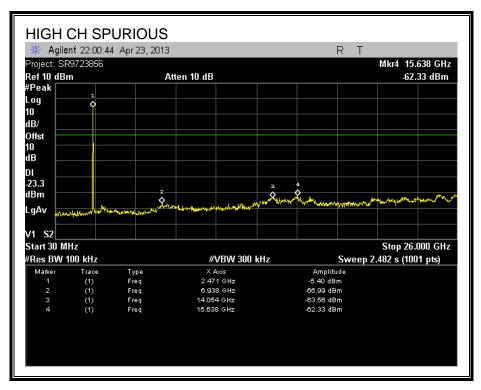


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SPURIOUS EMISSIONS, HIGH CHANNEL





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7.2. GFSK 1Mbps 250kHz MODE

7.2.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

IC RSS-210 A8.2 (a)

The minimum 6 dB bandwidth shall be at least 500 kHz.

TEST PROCEDURE

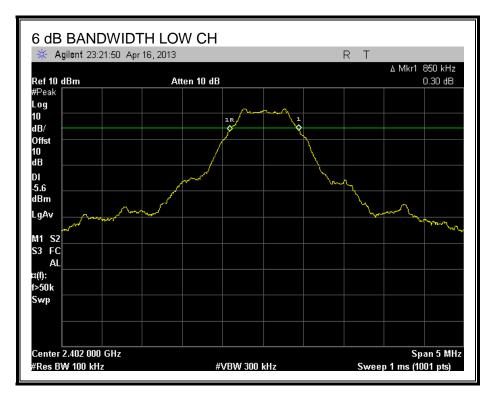
The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

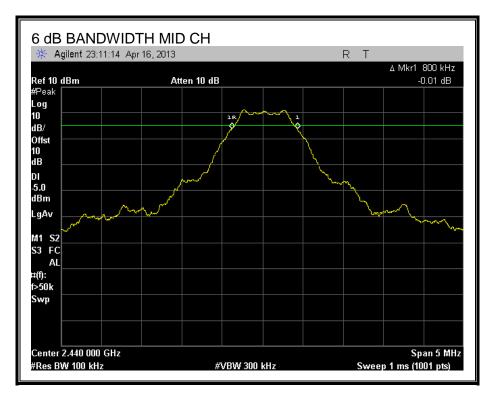
RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2402	0.8500	0.5
Middle	2440	0.8000	0.5
High	2480	0.8150	0.5

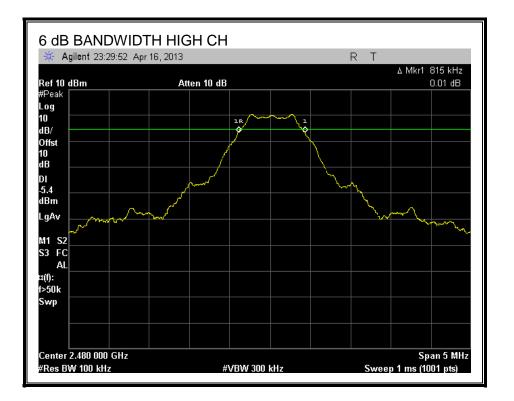
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6 dB BANDWIDTH





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7.2.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

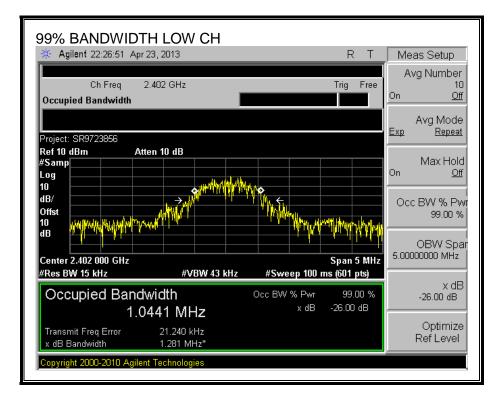
The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth and to 1% of the span. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

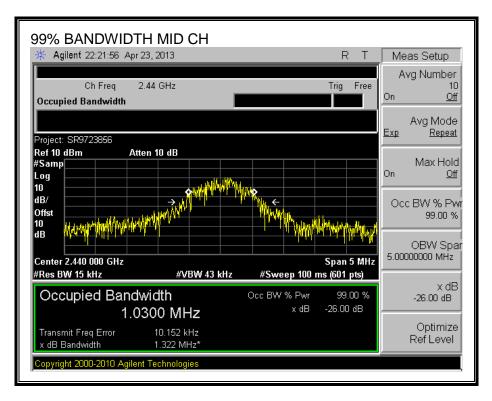
RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2402	1.0400
Middle	2440	1.0300
High	2480	1.0800

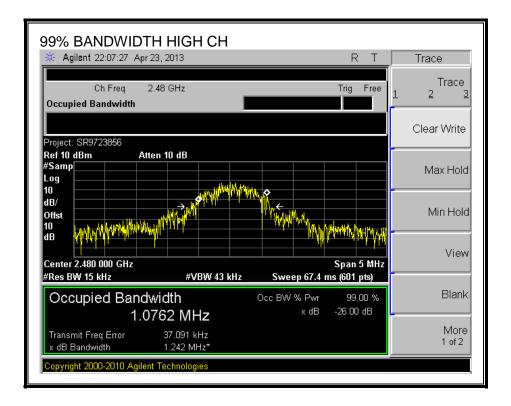
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99% BANDWIDTH





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7.2.3. OUTPUT POWER

LIMITS

FCC §15.247 (b)

IC RSS-210 A8.4

The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 30 dBm.

TEST PROCEDURE

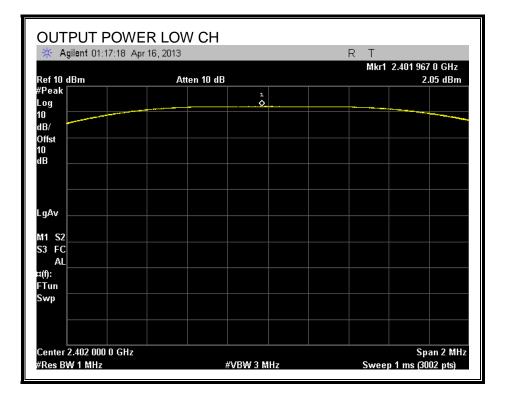
Peak power is measured using the maximum peak conducted output power procedure per section 9.1.1 specified in "558074 D01 DTS Meas Guidance v03" April 8, 2013.

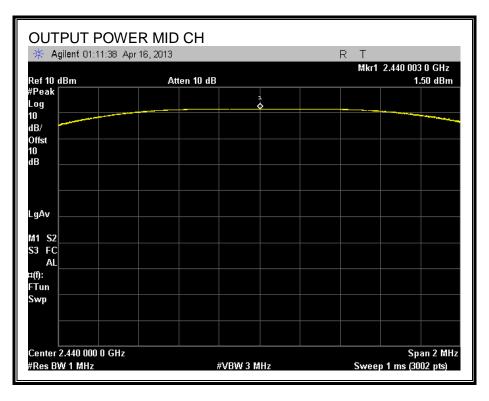
RESULTS

Channel	Frequency	Peak Power Reading	Limit	Margin
	(MHz)	(dBm)	(dBm)	(dB)
Low	2402	2.050	30	-27.950
Middle	2440	1.500	30	-28.500
High	2480	0.780	30	-29.220

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OUTPUT POWER





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	VER HIGH CH	
🔆 Agilent 01:06:07	Apr 16, 2013	R T Mkr1 2.480 023 7 GHz
Ref 10 dBm	Atten 10 dB	0.78 dBm
#Peak Log		
10 dB/		
Offst 10		
dB		
LgAv		
M1 S2 S3 FC		
AL		
FTun		
Swp		
Center 2.480 000 0 GH #Res BW 1 MHz	z #VBW 3 MHz	Span 2 MHz Sweep 1 ms (3002 pts)

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7.2.4. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 10 dB (including 10 dB pad) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency (MHz)	AV power (dBm)
Low	2402	1.91
Middle	2440	1.3
High	2480	0.62

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7.2.5. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

IC RSS-210 A8.2 (b)

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

TEST PROCEDURE

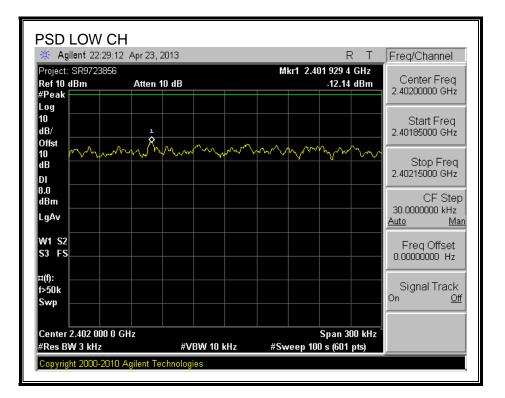
Output power was measured based on the use of a peak measurement, therefore the power spectral density was measured using PSD Option per section 10.2 in accordance with FCC document "Measurement of Digital Transmission Systems Operating under Section 15.247", April 8, 2013.

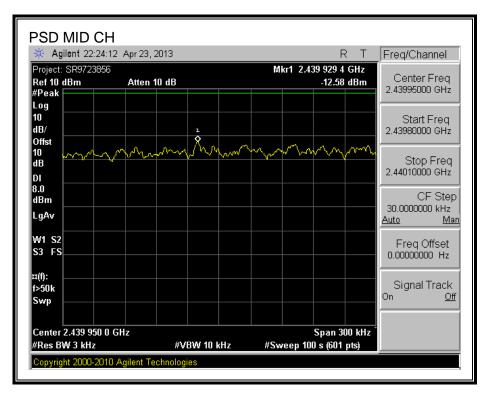
RESULTS

Channel	Frequency	PSD	Limit	Margin
	(MHz)	(dBm)	(dBm)	(dB)
Low	2402	-12.14	8	-20.14
Middle	2440	-12.58	8	-20.58
High	2480	-14.61	8	-22.61

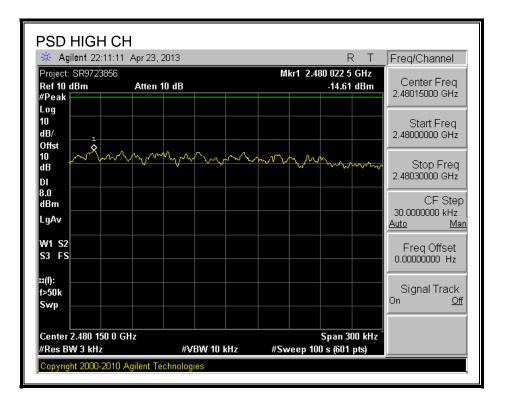
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POWER SPECTRAL DENSITY





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7.2.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

Output power was measured based on the use of a peak measurement, therefore the required attenuation is 20 dB.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

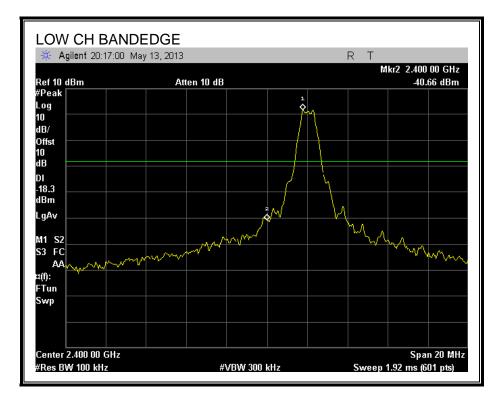
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

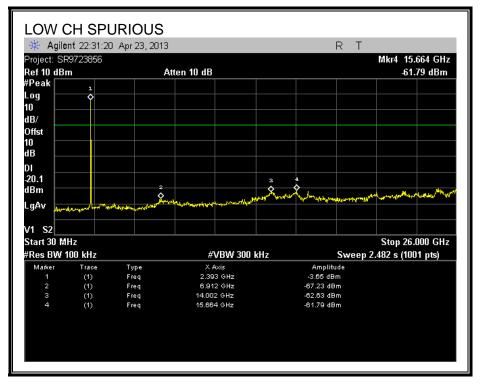
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RESULTS

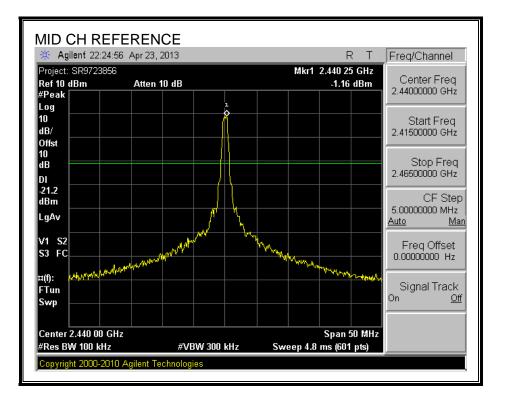
SPURIOUS EMISSIONS, LOW CHANNEL

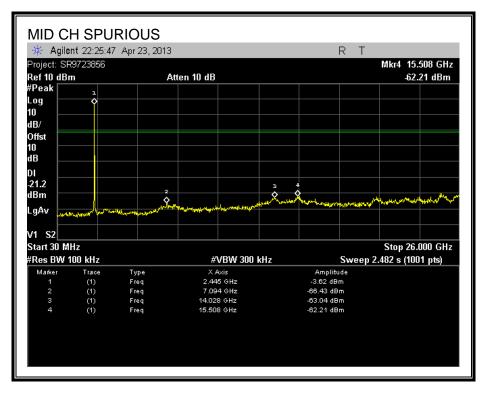




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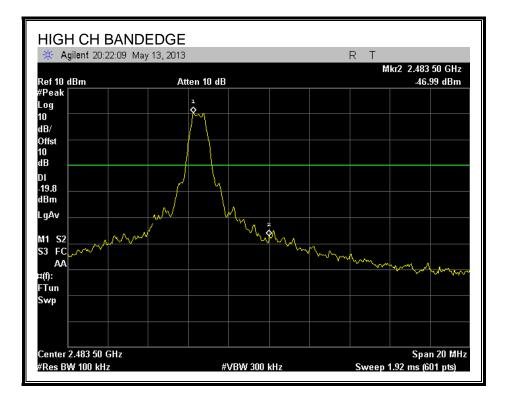
SPURIOUS EMISSIONS, MID CHANNEL

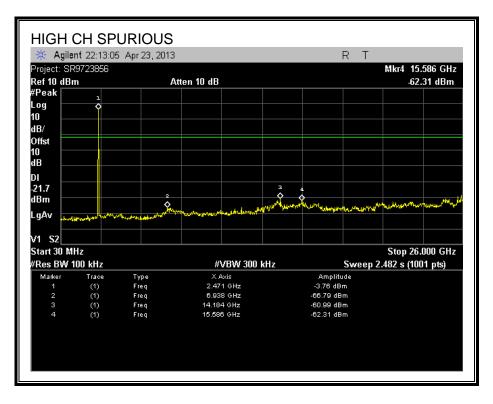




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SPURIOUS EMISSIONS, HIGH CHANNEL





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7.3. MSK 500kbps MODE

7.3.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

IC RSS-210 A8.2 (a)

The minimum 6 dB bandwidth shall be at least 500 kHz.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

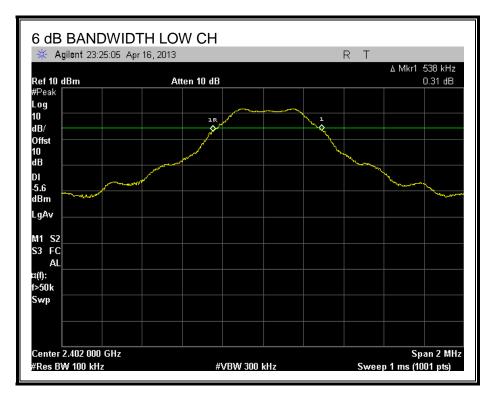
RESULTS

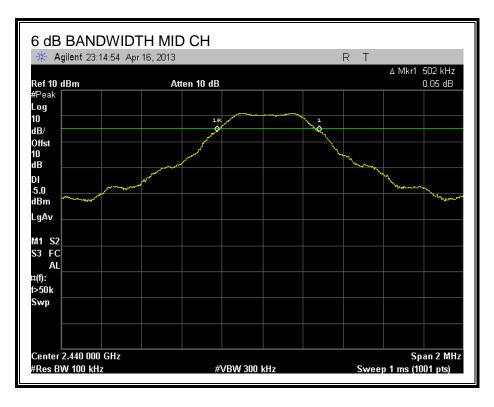
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2402	0.5380	0.5
Middle	2440	0.5020	0.5
High	2480	0.5070	0.5

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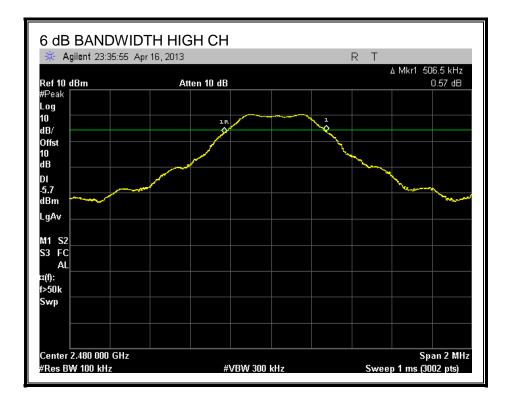
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6 dB BANDWIDTH





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7.3.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

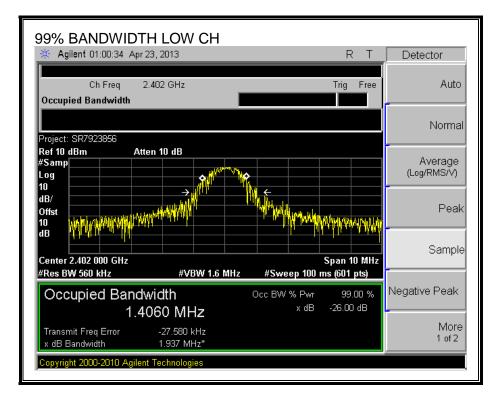
The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth and to 1% of the span. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

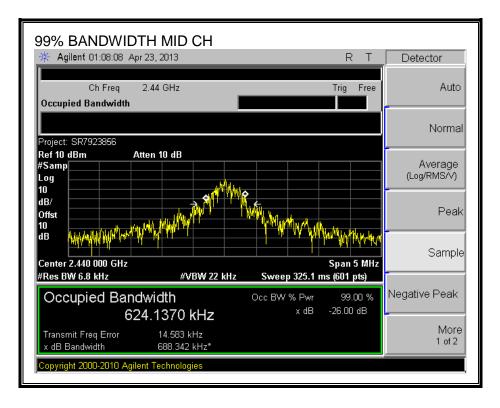
RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2402	1.4000
Middle	2440	0.6240
High	2480	0.5820

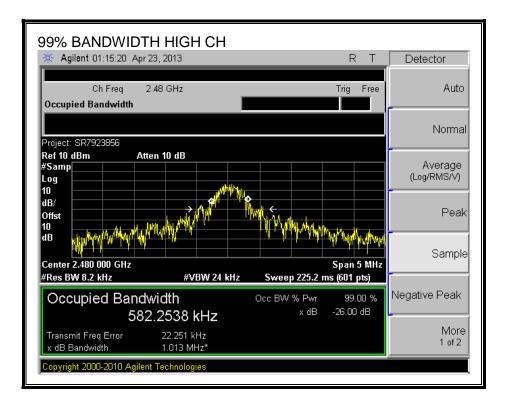
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99% BANDWIDTH





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7.3.3. OUTPUT POWER

LIMITS

FCC §15.247 (b)

IC RSS-210 A8.4

The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 30 dBm.

TEST PROCEDURE

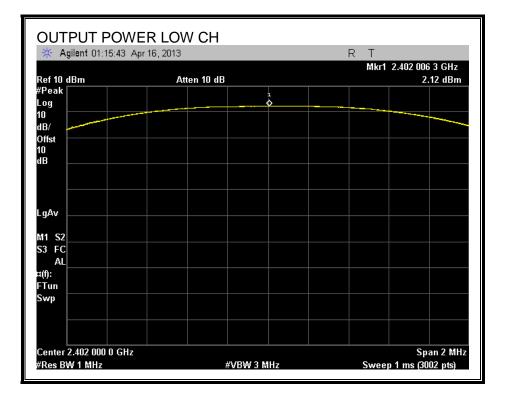
Peak power is measured using the maximum peak conducted output power procedure per section 9.1.1 specified in "558074 D01 DTS Meas Guidance v03" April 8, 2013.

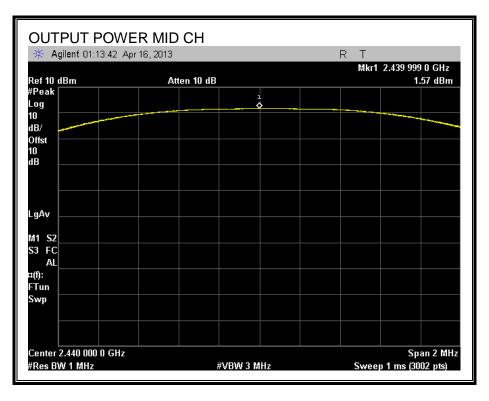
RESULTS

Channel	Frequency	Peak Power Reading	Limit	Margin
	(MHz)	(dBm)	(dBm)	(dB)
Low	2402	2.120	30	-27.880
Middle	2440	1.570	30	-28.430
High	2480	0.860	30	-29.140

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OUTPUT POWER





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OUTPUT POW	/ER HIGH CH		
🔆 🔆 Agilent 01:08:08 /	Apr 16, 2013	RT	
Ref 10 dBm	Atten 10 dB	M	kr1 2.479 953 0 GHz 0.86 dBm
#Peak Log 10	1 		
dB/ Offst			
dB			
LgAv			
M1 S2			
S3 FC AL			
¤(f): FTun			
Swp			
Center 2.480 000 0 GHz #Res BW 1 MHz	#VBW 3 MI	Hz Sw	Span 2 MHz reep 1 ms (3002 pts)

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7.3.4. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 10 dB (including 10 dB pad) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency (MHz)	AV power (dBm)
Low	2402	1.91
Middle	2440	1.3
High	2480	0.62

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7.3.5. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

IC RSS-210 A8.2 (b)

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

TEST PROCEDURE

Output power was measured based on the use of a peak measurement, therefore the power spectral density was measured using PSD Option per section 10.2 in accordance with FCC document "Measurement of Digital Transmission Systems Operating under Section 15.247", April 8, 2013.

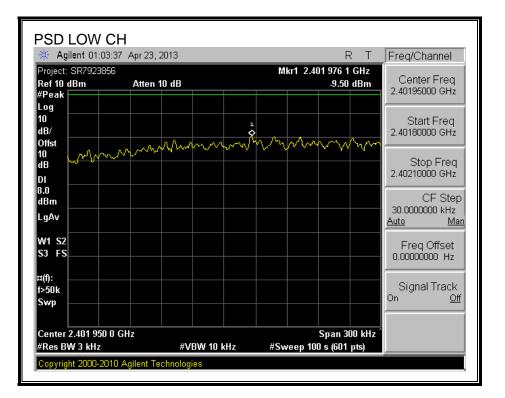
RESULTS

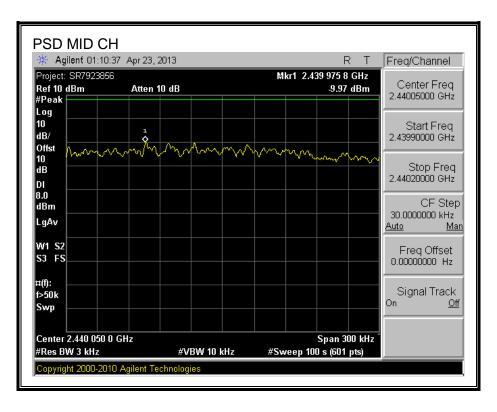
Channel	Frequency	PSD	Limit	Margin
	(MHz)	(dBm)	(dBm)	(dB)
Low	2402	-9.50	8	-17.50
Middle	2440	-9.97	8	-17.97
High	2480	-10.80	8	-18.80

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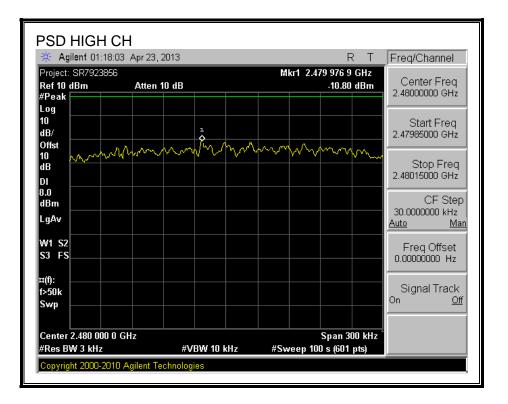
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POWER SPECTRAL DENSITY





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7.3.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

Output power was measured based on the use of a peak measurement, therefore the required attenuation is 20 dB.

TEST PROCEDURE

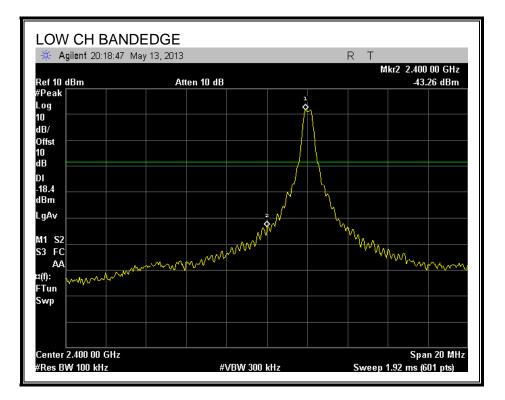
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

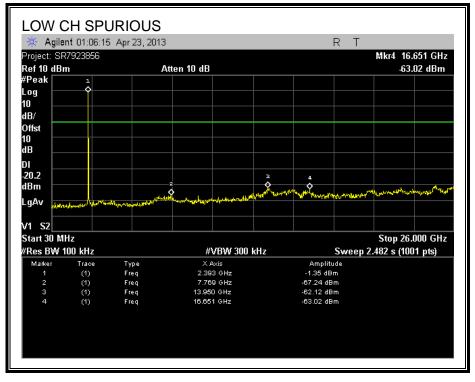
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

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RESULTS

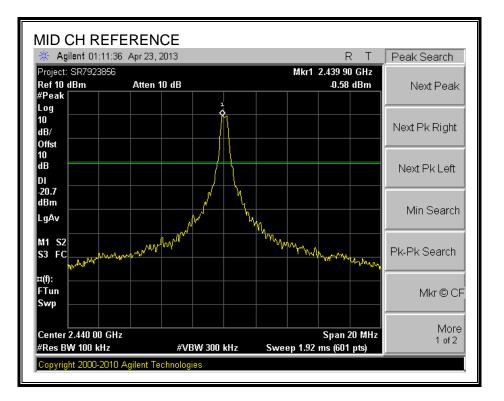
SPURIOUS EMISSIONS, LOW CHANNEL

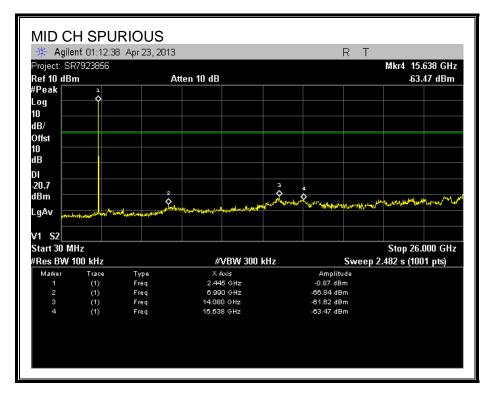




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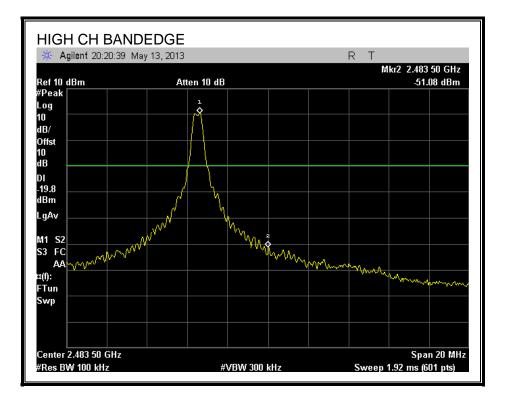
SPURIOUS EMISSIONS, MID CHANNEL

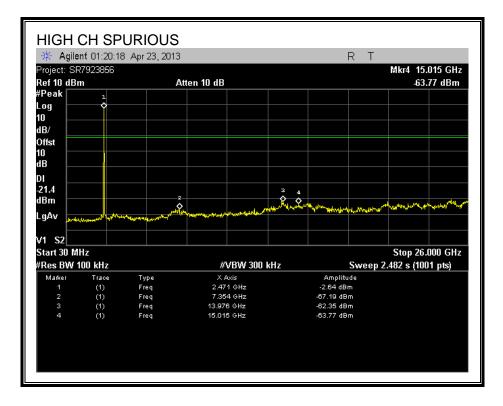




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SPURIOUS EMISSIONS, HIGH CHANNEL





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8. RADIATED TEST RESULTS

8.1. LIMITS AND PROCEDURE

<u>LIMITS</u>

FCC §15.205 and §15.209

IC RSS-210 Clause 2.6 (Transmitter)

IC RSS-GEN Clause 6 (Receiver)

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.4. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

The EUT operates as a duty cycle of greater than 98%, thus a 10Hz VBW was utilized for all final measurements.

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8.2. TRANSMITTER ABOVE 1 GHz – MODEL: A2541R24A

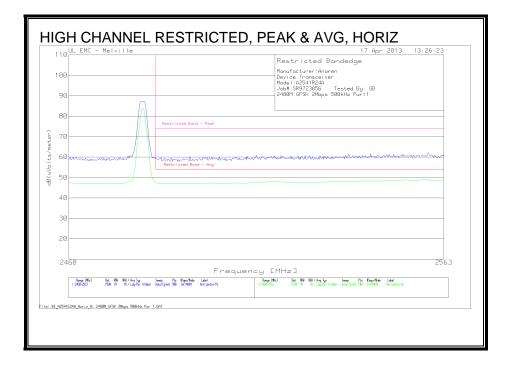
8.2.1. TX ABOVE 1 GHz FOR GFSK 2Mbps 500kHz MODE IN THE 2.4 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

O <mark>UL EMC - Melville</mark>	17 Apr 2013 13:05:44
	Restricted Bandedge Manufacturer:Anaren
3	Device:Transceiven Model:A2541R24A Job#:SR9723856 Tested Bu: GB
3	2402M GFSK 2Mbps 500kHz Pwr=1
a	
Restricted Band - Peak	
3	
Restricted Band - Avg	motor and have been and the second a
3	
3	
_	
3	
3	
-	
310	241
	Frequency [MHz]
Ronge DHz2 Det 894 1687 / Ang Tup Samop Pta KSapa/Ro 1:2318-2415 PERK IN IN / Log-Par (Video) .85sec 598 Inf/M081	iada Label Ronga (1962) Det RBU (Ang Tga Samp Pts Kiapu/Nada Label M Norizantal-Ph 2:23167415 PCAK IN IB / Lag-Ne (11dae) .Kisec 588 Cnl/MADI Nanizantal-An
11E24A Horiz Lo 2402M GESK 2Mbps 500kHz Pwr 1.DAT	

10 <mark>UL EMC -</mark>	Melville			tricted Bandec acturer:Angren	17 Apr 201 Jge	3 13:13:15
00			Devic Model Job#:	e:Transceiver :A2541R24A SR9723856 Tester	d By: GB (~
90			2482	1 GFSK 2Mbps 500kHz	Pwr=1	Λ
	l Band - Peak					
70					J	
	Mand - Avg		himdenter	mmmmmm	un and a second	June
50						
40						
30						
20						
2310		Fre	equency EMHz			24
Range (1942) 1:2318-2415	Det RBN VEN / Avg Tup Sam PEAK IN TH / Log-Par (Video) . 85a			Det REAL UBA / Avg Typ Somep PEAK TH TA / Log-Far (11 dec) . (Esse	Pts Kieps/Mode Label 588 Enf/MX01 Vantico	Hav
A2541E24A_Vent_Lo 2480	M_GESK 2Mbps 588kHz Pwr 1.DAT					

RESTRICTED BANDEDGE (HIGH CHANNEL)



110 UL EMC -	Melville	17 Apr 2013 13:18:56
90		Restricted Bandedge Manufacturer:Manren Device:Tomsceiver Madel:A25418244 Jobt:S79723956 Tested By; 68 2488M GFSK 2Nbps 588kHz Pur=1
80	Restricted Bond - Peok	
60 	Restricted Bond - Avg	www.www.www.www.www.autoration.com
40		
30 20		
2460	F	requency [MHz]
Range 19423 1:2468-2563	Det 550 WEM / Ang Tag. Samop Pho Kingan Rada Label PER 18 18 / Lag-Par (Videa) Αυλαγορία 556 Inf/9685 Vertical-Ph	Revertified det RN URB / http://www.com/nchi.forum/http://det.lotal 2.366/202 FDE IN IF/Log/ne UBad Aut/plat 386 Ed/MEN Unticol-Iv
A2541E24A_Vent_Hi 244	8801_GFSK_2Mops_588kHz_Pwr_1.DAT	

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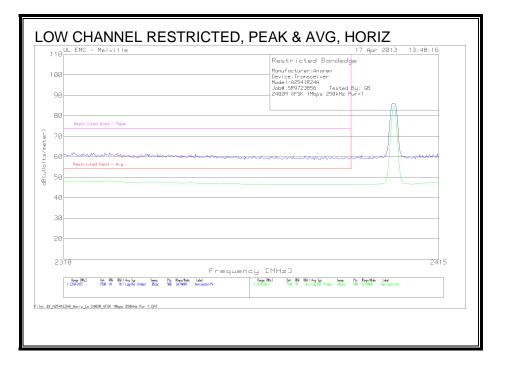
HARMONICS AND SPURIOUS EMISSIONS

	Detector 5 PK	AF-48106 [dB/m] 27.1 27.1 27.1 27.1	Factor [dB] -53.31 -53.31 -53.31	45.51 37.91	-	(dB) -		_	332	[cm]	Polarity Horz
Job#:SR9723856 Tested By: GB GFSK 2Mbps 500kHz Pwr=1 Low Channel - 2402MHz Test Frequency 4804 68.76 4804 71.72 4804 64.12 4804 68.24 Mid Channel - 2440MHz	Detector 5 PK 2 PK 2 LnAv	[dB/m] 27.1 27.1 27.1	Factor [dB] -53.31 -53.31 -53.31	42.55 45.51 37.91	Subpart C 15.209 - -	(dB) -	Subpart C Peak 74	(dB) -31.45	[Degs] 332	[cm]	
GFSK 2Mbps 500kHz Pwr=1 Low Channel - 2402MHz Test Frequency Meter Reading 4804 68.76 4804 71.72 4804 64.12 4804 68.24 Mid Channel - 2440MHz	Detector 5 PK 2 PK 2 LnAv	[dB/m] 27.1 27.1 27.1	Factor [dB] -53.31 -53.31 -53.31	42.55 45.51 37.91	Subpart C 15.209 - -	(dB) -	Subpart C Peak 74	(dB) -31.45	[Degs] 332	[cm]	
Low Channel - 2402MHz Test Frequency Meter Reading 4804 68.76 4804 71.72 4804 64.12 4804 68.24 Mid Channel - 2440MHz	5 PK 2 PK 2 LnAv	[dB/m] 27.1 27.1 27.1	Factor [dB] -53.31 -53.31 -53.31	42.55 45.51 37.91	Subpart C 15.209 - -	(dB) -	Subpart C Peak 74	(dB) -31.45	[Degs] 332	[cm]	
Test Frequency Meter Reading 4804 68.76 4804 71.72 4804 64.12 4804 68.24 Mid Channel - 2440MHz	5 PK 2 PK 2 LnAv	[dB/m] 27.1 27.1 27.1	Factor [dB] -53.31 -53.31 -53.31	42.55 45.51 37.91	Subpart C 15.209 - -	(dB) -	Subpart C Peak 74	(dB) -31.45	[Degs] 332	[cm]	
Test Frequency Meter Reading 4804 68.76 4804 71.72 4804 64.12 4804 68.24 Mid Channel - 2440MHz	5 PK 2 PK 2 LnAv	[dB/m] 27.1 27.1 27.1	Factor [dB] -53.31 -53.31 -53.31	42.55 45.51 37.91	Subpart C 15.209 - -	(dB) -	Subpart C Peak 74	(dB) -31.45	[Degs] 332	[cm]	
4804 68.76 4804 71.72 4804 64.12 4804 68.24 Mid Channel - 2440MHz	5 PK 2 PK 2 LnAv	[dB/m] 27.1 27.1 27.1	Factor [dB] -53.31 -53.31 -53.31	42.55 45.51 37.91	Subpart C 15.209 - -	(dB) -	Subpart C Peak 74	(dB) -31.45	[Degs] 332	[cm]	
4804 68.76 4804 71.72 4804 64.12 4804 68.24 Mid Channel - 2440MHz	5 PK 2 PK 2 LnAv	[dB/m] 27.1 27.1 27.1	Factor [dB] -53.31 -53.31 -53.31	42.55 45.51 37.91	Subpart C 15.209 - -	(dB) -	Subpart C Peak 74	(dB) -31.45	[Degs] 332	[cm]	
4804 68.76 4804 71.72 4804 64.12 4804 68.24 Vid Channel - 2440MHz	5 PK 2 PK 2 LnAv	27.1 27.1 27.1	-53.31 -53.31 -53.31	42.55 45.51 37.91	-	-	74	-31.45	332		
4804 71.72 4804 64.12 4804 68.24 Vid Channel - 2440MHz	2 PK 2 LnAv	27.1 27.1	-53.31 -53.31	45.51 37.91	-					530	
4804 64.12 4804 68.24 Vid Channel - 2440MHz	2 LnAv	27.1	-53.31	37.91			/4			272	Vert
4804 68.24 Vid Channel - 2440MHz					54						
Vid Channel - 2440MHz		27.1	-55.51			-16.09 -11.97	-	-	332 307		Horz Vert
				42.03	54	-11.57	-	-	507	2/5	vert
est Frequency Meter Reading											
est Frequency Meter Reading											
est Frequency Meter Reading	_	AF-48106			FCC Part 15		FCC Part 15		Azimuth		
				dB(uVolts/meter)		(dB)	Subpart C Peak			[cm]	Polarity
4880.1303 71.5		27.2				-		-28.58			Vert
4880.1303 68.64	4 PK	27.2	-53.28	42.56	-	-	74	-31.44	292	341	Horz
4880.1303 68.39	9 LnAv	27.2	-53.28	42.31	54	-11.69	-	-	317	340	Vert
4880.1303 63.93	3 LnAv	27.2	-53.28	37.85	54	-16.15	-	-	292	341	Horz
igh Channel - 2480MHz											
ign channel - 2460Winz											
		AF-48106	BOMS		FCC Part 15	Margin	FCC Part 15	Margin	Azimuth	Height	
est Frequency Meter Reading	Detector			dB(uVolts/meter)		-	Subpart C Peak			[cm]	Polarity
4960.1002 67.04		27.3				(00)		-32.78			Vert
4960.1002 69.74		27.3						-30.08			Horz
	9 LnAv	27.3				-20.83		-50.06			Vert
	1 LnAv	27.3				-20.83	-		204		Horz
			55.22	55.02					201		
K - Peak detector											
nAv - Linear Average detector											
IOTE: No other emissions deter	cted above	ine system no	ise noor								

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8.2.2. TX ABOVE 1 GHz FOR GFSK 1Mbps 250kHz MODE IN THE 2.4 GHz BAND

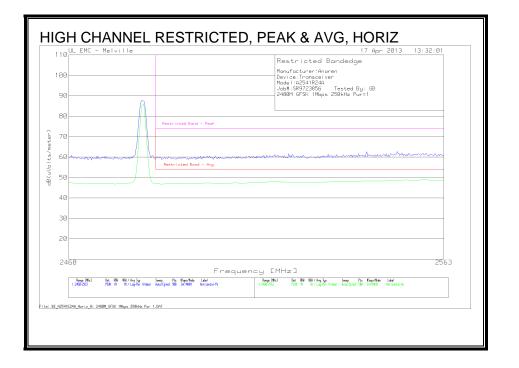
RESTRICTED BANDEDGE (LOW CHANNEL)



0 UL EMC - Melville		3:43:2
Ø	Restricted Bandedge Monfacturer: increase Model: Ar25418240 Model: Ar25418240 Jobb: SR9723856 Tested By: 66 248247 GSK: 1Mbp. 258Mtb. Pur=1	
Restricted Band - Peak		
0		
Restricted Bord - Avg	man have the spectra and the s	
0		
2310	Frequency [MHz]	24
Reage 19642 Det 1984 / Ray Tup Sump 1 1:2218-2455 PERK 19 19 / Log-Ther (Vision)BSacc :	Po Sepretade Latel Service Det 1981 1897 (http://www.service.com//www.service/-// 986 Johnson Martinel-Ph 2236-5455 PSS 11 87/Log-file Seale Seale 386 Johnson Martinel-Ar-	
41E24A_Vent_Lo_2402M_GFSK_1Nops_258kHz_Pwn_I.DAT		

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RESTRICTED BANDEDGE (HIGH CHANNEL)



10 UL EMC -	Melville	17 Apr 2013 13:37:42
		Restricted Bandedge Monufacturer:Anaren
30		Device:Transceiver Model:A2541R24A Job#:SR9723856 Tested By: GB
90	<u>A</u>	2488M GFSK 1Mbps 250kHz Pwr=1
30		
	Restricted Bond - Peak	
70		
50		and an and a second
	Restricted Bond - Avg	
50		
10		
30		
20		
2460		2563
5 5413		quency EMHz] RevertMtz] Det 189 U91/Ang Tao Sees Pta Kines/Made Lakel
Range DHz] 1:2468-2563	Det RBN UBN/AvgTupe Sweep Pis HSwes/Node Label FEAK IN TH/Log-Par-(Video) Auto/Cpisal 508 Inf/MADI Verticel-Pk	Perger(1961) Det 858 UBI/Neg 1ge Seep Pts Hige/Nobe Lobel 2.2458/253 P504 H i8 / Log-Ner Widee betor/piel 588 fm//NKH Uarticol-kv
E415340 U. J. U. 2409	3M GFSK 1Мырь 250kHz Риг I.DAT	
DHIEZHH Vent Hi 2480	полок перь слекта тип понн	

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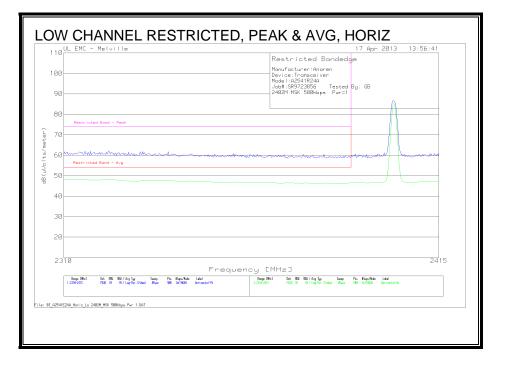
HARMONICS AND SPURIOUS EMISSIONS

4804.0501 69.54 PK 27.1 -53.3 43.34 - - 74 -30.66 287 398 Horz 4804.0621 71.38 PK 27.1 -53.3 45.18 - - 74 -28.82 336 344 Vert 4804.0501 64.6 LnAv 27.1 -53.3 38.4 54 -15.6 - - 287 398 Horz 4804.0501 64.6 LnAv 27.1 -53.3 38.4 54 -15.6 - - 287 398 Horz 4804.0521 67.01 LnAv 27.1 -53.3 40.81 54 -13.19 - - 336 344 Vert Mid Channel - 2440MHz		en											
Job#S872385 Tested By: GB Image: CC Part IS Image: CC Part IS Margin Acc PC Part IS	Device:Transciever												
2440M GFSK 1Mbps 250kHz Pwr=1 Image: Second se	Model:A2541R24A												
Low Channel - 2402MHz AF-48106 BOMS FCC Part 15 Margin FCC Part 15 Margin Adminuth Height 4804.0501 69.54 PK 27.1 -53.3 43.3 45.18 - -74 20.66 287 398 Hord 4804.0521 71.38 PK 27.1 -53.3 43.84 54 -15.6 - - 287 398 Hord 4804.0521 67.01 LnAv 27.1 -53.3 43.84 54 -15.6 - - 287 398 Hord 4804.0621 67.01 LnAv 27.1 -53.3 40.81 54 -15.6 - - 287 398 Hord 4804.0621 67.01 LnAv 27.1 -53.3 40.81 54 -15.6 - - 287 398 Hord Mid Channel - 240MHz 7.1 -53.38 42.94 - - 74 31.06 203 101	Job#:SR9723856 Te	ested By: GB											
AF-48106 BOMS Factor [dB/m] BOMS Factor [dB/m] BOMS Factor [dB/m] FCC Part 15 bubpart C Pask (dB) Margin (dB/m) FCC Part 15 bubpart C Pask (dB) Margin (dB/m) Azimut (dB/m) Height Pola 4804.0501 69.54 PK 27.1 -53.3 43.34 - - 74 -30.62 336 944 Vert 4804.0501 4804.0501 64.6 LnAv 27.1 -53.3 38.4 54 - - 28.82 336 944 Vert 4804.0621 4804.0621 67.01 LnAv 27.1 -53.3 38.4 54 -13.19 - - 28.82 336 344 Vert 4804.0621 67.01 LnAv 27.1 -53.3 40.81 54 -13.19 - - 336 344 Vert Mid Channel - 2440MLz LnAv 27.1 -53.3 40.81 54 -13.19 Margin Margin Margin Margin Margin Margin Margin Margin Margin Marg	2440M GFSK 1Mbps	s 250kHz Pwr=	1										
AF-48106 BOMS Factor [dB/m] BOMS Factor [dB/m] BOMS Factor [dB/m] FCC Part 15 bubpart C Pask (dB) Margin (dB/m) FCC Part 15 bubpart C Pask (dB) Margin (dB/m) Azimut (dB/m) Height Pola 4804.0501 69.54 PK 27.1 -53.3 43.34 - - 74 -30.62 336 944 Vert 4804.0501 4804.0501 64.6 LnAv 27.1 -53.3 38.4 54 - - 28.82 336 944 Vert 4804.0621 4804.0621 67.01 LnAv 27.1 -53.3 38.4 54 -13.19 - - 28.82 336 344 Vert 4804.0621 67.01 LnAv 27.1 -53.3 40.81 54 -13.19 - - 336 344 Vert Mid Channel - 2440MLz LnAv 27.1 -53.3 40.81 54 -13.19 Margin Margin Margin Margin Margin Margin Margin Margin Margin Marg	Law Channel 2402	NAU-											
Test Frequency Meter Reading Detector [dB/m] Factor [dB] dB(uVolts/meter) Subpart C 15.209 (dB) Subpart C Peak (dB) [Degs] [cm] Pola 4804.0621 71.38 PK 27.1 -53.3 43.34 - - 74 -30.66 287 398 Horz 4804.0621 71.38 PK 27.1 -53.3 45.18 - - 74 -28.82 336 344 Vert 4804.0621 67.01 InAv 27.1 -53.3 38.4 54 -13.19 - - 336 344 Vert Mid Channel - 2440MHz AF-48106 BOMS FCC Part 15 Margin FCC Part 15 Margin Azimuth Height Pola 4880.0762 69.02 PK 27.2 -53.28 42.94 - - 74 -31.06 209 110 Horz 4880.0762 63.52 InAv 27.2 -53.28 42.96 -	Low Channel - 2402	IVITZ											
4804.0501 69.54 PK 27.1 -53.3 43.34 - - 74 -30.66 287 398 Horz 4804.0621 71.38 PK 27.1 -53.3 45.18 - -74 -28.82 336 344 Vert 4804.0621 67.01 LAAv 27.1 -53.3 38.4 54 -15.6 - 287 398 Horz 4804.0621 67.01 LAAv 27.1 -53.3 40.81 54 -13.19 - 336 344 Vert Mid Channel - 2440MHz - - - - 386 More - - 386 M4 Vert Mid Channel - 2440MHz - - - - Margin Kaimuth Height -<				AF-48106	BOMS		FCC Part 15	Margin	FCC Part 15	Margin	Azimuth	Height	
4804.0501 69.54 PK 27.1 -53.3 43.34 - - 74 -30.66 287 398 Horz 4804.0621 71.38 PK 27.1 -53.3 45.18 - 74 -28.82 336 344 Vert 4804.0621 67.01 LnAv 27.1 -53.3 38.4 54 -15.6 - 287 398 Horz 4804.0621 67.01 LnAv 27.1 -53.3 40.81 54 -13.19 - 336 344 Vert Mid Channel - 2440MHz - - - - 336 344 Vert Mid Channel - 2440MHz -	Test Frequency Me	eter Reading	Detector	[dB/m]	Factor [dB]	dB(uVolts/meter)	Subpart C 15.209	(dB)	Subpart C Peak	(dB)	[Degs]	[cm]	Polarity
4804.0621 71.38 PK 27.1 -53.3 45.18 74 -28.82 336 344 Vert 4804.0501 64.6 LnAv 27.1 -53.3 38.4 54 -15.6 28.7 398 Horz 4804.0621 67.01 LnAv 27.1 -53.3 40.81 54 -13.19 - 336 344 Vert 4804.0621 67.01 LnAv 27.1 -53.3 40.81 54 -13.19 - 336 344 Vert Mid Channel - 240MHz		-											
4804.0501 64.6 LnAv 27.1 -53.3 38.4 54 -15.6 - 287 398 Horz 4804.0621 67.01 LnAv 27.1 -53.3 40.81 54 -13.19 336 344 Vert Mid Channel - 2400Hz	4804.0621	71.38	PK	27.1	-53.3	45.18	-	-	74	-28.82	336	344	Vert
4804.0621 67.01 InAv 27.1 -53.3 40.81 54 -13.19 - - 336 344 Vert Mid Channel - 2440MHz Image: Constraint of the		64.6	LnAv	27.1	-53.3	38.4	54	-15.6	-		287	398	Horz
Meter Reading Detector AF-48106 [dB/m] BOMS Factor [dB] dB(uVolts/meter) FCC Part 15 Subpart C 15.209 Margin (dB) FCC Part 15 Subpart C Peak Margin (dB) Arimuth (dB) Heigh (dB) Aimuth (dB) Aimuth (dB) Heigh (dB) Aimuth (dB) Aimuth (dB) Heigh (dB) Aimut										-			
Meter Reading Detector AF-48106 [dB/m] BOMS Factor [dB] dB(uVolts/meter) FCC Part 15 Subpart C 15.209 Margin (dB) FCC Part 15 Subpart C Peak Margin (dB) FCC Part 15 Subpart C Peak Margin (dB) Aimuth Pola Heigh Pola 4880.0782 69.02 PK 27.2 -53.28 42.94 - - 74 -31.06 209 110 Horz 4880.0782 63.52 LnAv 27.2 -53.28 46.04 - - 74 -31.06 209 110 Horz 4880.0762 68.74 LnAv 27.2 -53.28 42.66 544 -11.34 - - 317 384 Vert 4880.0762 68.74 LnAv 27.2 -53.28 42.66 544 -11.34 - - 317 384 Vert High Channel-Z LnAv 27.2 -53.28 42.66 544 -11.34 - - 317 348 Vert High Channel-Z Detector <													
Test Frequency Meter Reading Detector [dB/m] Factor [dB] dB(uVolts/meter) Subpart C 15.209 (dB) Subpart C Peak (dB) [Degs] [cm] Pola 4880.0782 69.02 PK 27.2 -53.28 42.94 - - 74 -31.06 209 110 Horz 4880.0782 63.52 LnAv 27.2 -53.28 46.04 - - 74 -31.07 384 Vert 4880.0782 63.52 LnAv 27.2 -53.28 37.44 54 -16.56 - - 209 110 Horz 4880.0782 68.74 LnAv 27.2 -53.28 37.44 54 -16.56 - - 317 384 Vert High Channel - 2480MHz LnAv 27.2 -53.28 42.66 54 -11.34 - - 317 384 Vert High Channel - 2480MHz Exter reading Detector [dB/m] Factor [dB] dB[Mid Channel - 2440	MHz											
Test Frequency Meter Reading Detector [dB/m] Factor [dB] dB[u/Uolts/meter) Subpart C 15.209 (dB) Subpart C Peak (dB) [Degs] [cm] Pola 4880.0782 69.02 PK 27.2 -53.28 42.94 - - -74 -31.06 209 110 Horz 4880.0762 72.12 PK 27.2 -53.28 46.04 - - 74 -31.06 209 110 Horz 4880.0762 63.52 LnAv 27.2 -53.28 37.44 54 -16.56 - - 209 110 Horz 4880.0762 68.74 LnAv 27.2 -53.28 42.66 54 -11.34 - 317 384 Vert High Channel - 2480MHz LnAv 27.2 -53.28 42.66 54.13 -10.34 LnAv 42.94 - - - 47.94 - - - - - - - -				AF-48106	BOMS		FCC Part 15	Margin	FCC Part 15	Margin	Azimuth	Height	
4880.0782 69.02 PK 27.2 -53.28 42.94 - - 74 -31.06 209 110 Horz 4880.0762 72.12 PK 27.2 -53.28 46.04 - - 74 -27.96 31.7 384 Vert 4880.0762 63.52 LnAv 27.2 -53.28 37.44 54 -16.56 - 209 110 Horz 4880.0762 68.74 LnAv 27.2 -53.28 37.44 54 -16.56 - 209 110 Horz 4880.0762 68.74 LnAv 27.2 -53.28 37.44 54 -16.56 - 317 384 Vert High Channel - 2480MHz LnAv 27.2 -53.28 42.66 54 -11.34 - - 317 384 Vert High Channel - 2480MHz Detector [dB/m] Factor [dB] dB(uVolts/meter) Subpart C 15.209 Margin Kzimuth Height [cm] Pola 4959.9915 63.82 PK 27.3 -53.13	Test Frequency Me	eter Reading	Detector	[dB/m]	Factor [dB]	dB(uVolts/meter)	Subpart C 15.209	(dB)	Subpart C Peak				Polarity
4880.0782 63.52 LnAv 27.2 -53.28 37.44 54 -16.56 - 209 110 Hor 4880.0762 68.74 LnAv 27.2 -53.28 42.66 54 -11.34 - - 317 384 Vert High Channel - Z480MHz AF-48106 BOMS FCC Part 15 Margin Kargin Azimuth Height Image: Constraint of the constrai		-						-					
4880.0782 63.52 LnAv 27.2 -53.28 37.44 54 -16.56 - 209 110 Hor 4880.0762 68.74 LnAv 27.2 -53.28 42.66 54 -11.34 - - 317 384 Vert High Channel - 2480MHz AF-48106 BOMS FCC Part 15 Margin Comparison of the second o		72.12	PK				-	-					
4880.0762 68.74 LnAv 27.2 -53.28 42.66 54 -11.34 - - 317 384 Vert High Channel - 2480MHz Image: Constraint of the state of								-16.56					
AF-48106 BOMS FCC Part 15 Margin FCC Part 15 Margin FCC Part 15 Margin Af-48106 BOMS FOC Part 15 Margin FCC Part 15 Margin Af-48106 BOMS Foch Margin Foch Margin Af-48106 BOMS Foch Margin Foch Margin Af-48106 BOMS Foch Margin Foch Margin Af-48106 BOMS Foch Margin Af-48106 Margin Af-48100 Margin Af-4810										-			
AF-48106 BOMS FCC Part 15 Margin FCC Part 15 Margin FCC Part 15 Margin Af-48106 BOMS FOC Part 15 Margin FCC Part 15 Margin Af-48106 BOMS Foch Margin Foch Margin Af-48106 BOMS Foch Margin Foch Margin Af-48106 BOMS Foch Margin Foch Margin Af-48106 BOMS Foch Margin Af-48106 Margin Af-48100 Margin Af-4810													
Test Frequency Meter Reading Detector [dB/m] Factor [dB] dB(uVolts/meter) Subpart C 15.209 (dB) Subpart C Peak (dB) [Degs] [cm] Pola 4959.9915 68.82 PK 27.3 -53.13 42.99 - - 74 -31.01 229 260 Horz 4959.9915 72.82 PK 27.3 -53.13 46.99 - - 74 -27.01 311 373 Vert 4959.9915 63.84 LnAv 27.3 -53.13 38.01 54 -15.99 - - 229 260 Horz 4959.9915 69.16 LnAv 27.3 -53.13 38.01 54 -10.67 - 229 260 Horz 4959.9915 69.16 LnAv 27.3 -53.13 43.33 54 -10.67 - - 311 373 Vert PK - Peak detector - - 311	High Channel - 2480	OMHz											
Test Frequency Meter Reading Detector [dB/m] Factor [dB] dB(uVolts/meter) Subpart C 15.209 (dB) Subpart C Peak (dB) [Degs] [cm] Pola 4959.9915 68.82 PK 27.3 -53.13 42.99 - - 74 -31.01 229 260 Horz 4959.9915 72.82 PK 27.3 -53.13 46.99 - - 74 -27.01 311 373 Vert 4959.9915 63.84 LnAv 27.3 -53.13 38.01 54 -15.99 - - 229 260 Horz 4959.9915 69.16 LnAv 27.3 -53.13 38.01 54 -10.67 - 229 260 Horz 4959.9915 69.16 LnAv 27.3 -53.13 43.33 54 -10.67 - - 311 373 Vert PK - Peak detector - - 311				AE-48106	BOMS		ECC Part 15	Margin	ECC Part 15	Margin	Azimuth	Haight	
4959.9915 68.82 PK 27.3 -53.13 42.99 - - 74 -31.01 229 260 Horz 4959.9915 72.82 PK 27.3 -53.13 46.99 - - 74 -27.01 311 373 Vert 4959.9915 63.84 LnAv 27.3 -53.13 38.01 54 -15.99 - - 229 260 Horz 4959.9915 69.16 LnAv 27.3 -53.13 38.01 54 -10.67 - 229 260 Horz 4959.9915 69.16 LnAv 27.3 -53.13 38.01 54 -10.67 - 311 373 Vert PK - Peak detector		the Deedler	D					-		-		-	Delevier
4959.9915 72.82 PK 27.3 -53.13 46.99 - -74 -27.01 311 373 Vert 4959.9915 63.84 LnAv 27.3 -53.13 38.01 54 -15.99 - - 229 260 Horz 4959.9915 69.16 LnAv 27.3 -53.13 43.33 54 -10.67 - 311 373 Vert PK-Peak detector PK - - - 311 373 Vert													
4959.9915 63.84 LnAv 27.3 -53.13 38.01 54 -15.99 - - 229 260 Horz 4959.9915 69.16 LnAv 27.3 -53.13 43.33 54 -10.67 - 311 373 Vert PK-Peak detector V													
4959.9915 69.16 LnAv 27.3 -53.13 43.33 54 -10.67 - 311 373 Vert													
PK - Peak detector													
	4959.9915	63.16	LNAV	27.5	-55.15	45.55	54	-10.67	-	-	511	5/5	vert
I nêv - Linear Average detector	PK - Peak detector												
Link - Linear Average detector	LnAv - Linear Averag	ge detector											
NOTE: No other emissions detected above the system noise floor													

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8.2.3. TX ABOVE 1 GHz FOR MSK 500kbps MODE IN THE 2.4 GHz BAND

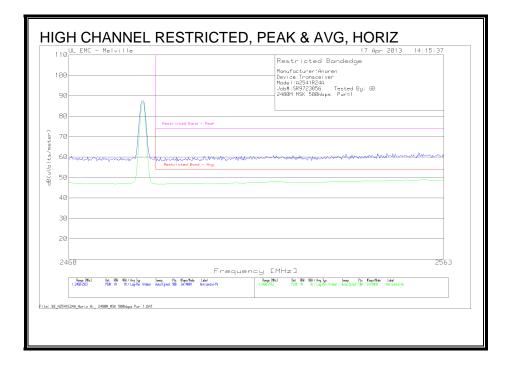
RESTRICTED BANDEDGE (LOW CHANNEL)



0	.EMC - Melville	17 Apr 2013 14:03:59
10-		Restricted Bandedge Manufacturer:Anaren Device:Transceiver Model:A2541R244 Johf:SR922365 Tested By: 68 _2482M MSK 588kbps Pwr=1
10-	Restricted Bord - Peak	
70		
40-		
20-		
231) Frequency	24 EMHz D
	Repp: (Hk1) (k4: 590 / Bit/ / Ang Tag. Sweep, Fit. Kippe/Atuka Lakel Parge 22016-2015 / FER: 10 / / Log-file (Mass) .ESuic 598 Inf/9980 (kertical-Fit. 221)/F2	1963 Det 989 (98) / Arg Sp. Swep Pis Kieps/Node Label 45 PCAK M IB / Lag-Bir (15dae) /Biase SBB (n1/MCM Vartical-Av

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RESTRICTED BANDEDGE (HIGH CHANNEL)



10 UL EMC - Meis	ville	17 Apr 2013 14:10:5
90		Restricted Bandedge Manufacturer:Anaren Device:Transceiven Model:A2541R24A Jobb:SR9723856 Tested By: GB 2488M MSK 508kbps Pur=1
80	Restricted Bond - Peck	
70		
60	Restricted Band - Ava	water a second and the
50	Restricted Band - Hvg	
40		
30		
20		
20		
2460	Facau	ency [MHz]
Range DHb3 Det R 1:2468-2563 FEIK I	11 CCC 1911 Well / Avg Type Sweep Pts #Sapes/Rode Label 1911 111 / Log-Phir (Video) Auto/Optical 598 Inf/M00Pt Vertical-Ph	Ronge (Mitz) Det 1884 (Mit / Ang Tap Seese Pits Kings/Mode Label 2.2689/2523 FCMX IN 18 / Lag-For Widel bat//Glad 588 [ut/MX04] Vartical-by
OF ALCONA U. L. U. MARCH NOV. 8	SOBkbps Pwr 1.DAT	

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Device:Transciever Image: Construction	Model:A2541824A Image: Model:A254182A	:A2541R24A R9723856 Tested By: GB O0kbps Pwr=1 hannel - 2402MHz		
lob#:S8723855 Tested By: GB Index	Iob#\$R972385 Tested By: GB MSK 500kbps Pwr=1 Image: Comparison of the comparison	R9723856 Tested By: GB 00kbps Pwr=1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
MSK 500kbps Pwr-1 Image: state s	MSK 500kbps Pur-1 Image: state s	00kbps Pwr=1		
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AF-48106 BOMS FCC Part 15 Margin CC Part 15 Margin Azimuth Height Polar 4959.99 72.12 PK 27.3 -53.13 46.29 - - 74 -27.71 295 379 Vert 4959.99 68.55 PK 27.3 -53.13 42.72 - - 74 -27.71 295 379 Vert 4959.99 68.55 PK 27.3 -53.13 42.72 - - 74 -27.88 304 320 Horz 4959.99 63.32 LnAv 27.3 -53.13 43.29 54 -10.71 - - 295 379 Vert 4959.99 63.32 LnAv 27.3 -53.13 43.29 54 -10.71 - 295 379 Vert 4959.99 63.32 LnAv 27.3 -53.13 37.49 54 -10.51 - - 304 320 Horz	AF-48106 BOMS FCC Part 15 Margin FCC Part 15 <td>hannel 2490MU-</td> <td></td> <td></td>	hannel 2490MU-		
Test Frequency Meter Reading Detector [dB/m] Factor [dB] dB(uVolts/meter) Subpart C15.209 (dB) Subpart C Peak (dB) [Degs] [cm] Polar 4959.99 72.12 PK 27.3 -53.13 46.29 - - 74 -27.71 295 379 Vert 4959.99 68.55 PK 27.3 -53.13 42.72 - - 74 -31.28 304 320 Horz 4959.99 69.12 LnAv 27.3 -53.13 43.29 54 -10.71 - - 295 379 Vert 4959.99 63.32 LnAv 27.3 -53.13 37.49 54 -10.51 - - 304 320 Horz PK - Peak detettor	Test Frequency Meter Reading Detector [dB/m] Factor [dB] dB(uVolts/meter) Subpart C 15.209 (dB) Subpart C Peak (dB) [Degs] [cm] 4959.99 72.12 PK 27.3 -53.13 46.29 - - 74 -27.71 295 379 4959.99 68.55 PK 27.3 -53.13 42.72 - - 74 -12.8 304 320 4959.99 69.12 LnAv 27.3 -53.13 43.29 54 -10.71 - - 295 379 4959.99 63.32 LnAv 27.3 -53.13 43.29 54 -10.71 - - 295 379 9 63.32 LnAv 27.3 -53.13 37.49 -16.51 - - 304 320 PK - Peak detector - - 304 320			
Test Frequency Meter Reading Detector [dB/m] Factor [dB] dB{uVolts/meter} Subpart C15.209 (dB) Subpart C Peak (dB) [Degs] [cm] Polar 4959.99 72.12 PK 27.3 -53.13 46.29 - - 74 -27.71 295 379 Vert 4959.99 68.55 PK 27.3 -53.13 42.72 - - 74 -31.28 304 320 Horz 4959.99 69.12 LnAv 27.3 -53.13 43.29 54 -10.71 - - 295 379 Vert 4959.99 63.32 LnAv 27.3 -53.13 37.49 54 -10.51 - - 304 320 Horz PK - Peak detector InAv 27.3 -53.13 37.49 54 -10.51 - - 304 320 Horz PK - Peak detector InAv 27.3 -53.13 37.49 54 <td< td=""><td>Test Frequency Meter Reading Detector [dB/m] Factor [dB] dB(uVolts/meter) Subpart C 15.209 (dB) Subpart C Peak (dB) [Degs] [cm] 4959.99 72.12 PK 27.3 -53.13 46.29 - - 74 -27.71 295 379 4959.99 68.55 PK 27.3 -53.13 42.72 - - 774 -12.8 304 320 4959.99 69.12 LnAv 27.3 -53.13 43.29 54 -10.71 - - 295 379 4959.99 63.32 LnAv 27.3 -53.13 37.49 -16.51 - - 304 320 PK - Peak detector - - 320 - - 304 320</td><td>AF-48106 BOMS FCC Part 15 Margin FCC Part 15 Margin Azimu</td><td>h Height</td><td></td></td<>	Test Frequency Meter Reading Detector [dB/m] Factor [dB] dB(uVolts/meter) Subpart C 15.209 (dB) Subpart C Peak (dB) [Degs] [cm] 4959.99 72.12 PK 27.3 -53.13 46.29 - - 74 -27.71 295 379 4959.99 68.55 PK 27.3 -53.13 42.72 - - 774 -12.8 304 320 4959.99 69.12 LnAv 27.3 -53.13 43.29 54 -10.71 - - 295 379 4959.99 63.32 LnAv 27.3 -53.13 37.49 -16.51 - - 304 320 PK - Peak detector - - 320 - - 304 320	AF-48106 BOMS FCC Part 15 Margin FCC Part 15 Margin Azimu	h Height	
4959.99 72.12 PK 27.3 -53.13 46.29 - 74 -27.71 295 379 Vert 4959.99 68.55 PK 27.3 -53.13 42.72 - - 74 -31.28 304 320 Horz 4959.99 69.12 LnAv 27.3 -53.13 43.29 54 -10.71 - - 295 379 Vert 4959.99 63.32 LnAv 27.3 -53.13 43.29 54 -10.71 - - 295 379 Vert 4959.99 63.32 LnAv 27.3 -53.13 37.49 54 -16.51 - - 304 320 Horz PK - Peak detector	4959.99 72.12 PK 27.3 -53.13 46.29 - - 74 -27.71 295 379 4959.99 68.55 PK 27.3 -53.13 42.72 - - 774 -31.28 304 320 4959.99 69.12 LnAv 27.3 -53.13 43.29 54 -10.71 - - 295 379 4959.99 63.32 LnAv 27.3 -53.13 37.49 54 -16.51 - - 304 320 PK - Peak detector - 304 320			Polarity
4959.99 68.55 PK 27.3 -53.13 42.72 - -74 -31.28 304 320 Horz 4959.99 69.12 LnAv 27.3 -53.13 43.29 54 -10.71 - - 295 379 Vert 4959.99 63.32 LnAv 27.3 -53.13 37.49 54 -16.51 - - 304 320 Horz PK - Peak detector	4959.99 68.55 PK 27.3 -53.13 42.72 - - 74 -31.28 304 320 4959.99 69.12 LnAv 27.3 -53.13 43.29 54 -10.71 - 295 379 4959.99 63.32 LnAv 27.3 -53.13 37.49 54 -16.51 - 304 320 PK - Peak detector PK 100 <			
4959.99 69.12 LnAv 27.3 -53.13 43.29 54 -10.71 - 295 379 Vert 4959.99 63.32 LnAv 27.3 -53.13 37.49 54 -16.51 - - 304 320 Horz PK-Peak detector LnAv 27.3 -53.13 37.49 54 -16.51 - - 304 320 Horz PK-Peak detector LnAv	4959.99 69.12 LnAv 27.3 -53.13 43.29 54 -10.71 - 295 379 4959.99 63.32 LnAv 27.3 -53.13 37.49 54 -16.51 - 304 320 PK-Peak detector PK - Peak detector			
4959.99 63.32 LnAv 27.3 -53.13 37.49 54 -16.51 - - 304 320 Horz PK - Peak detector Image: American Amer	4959.99 63.32 LnAv 27.3 -53.13 37.49 54 -16.51 - 304 320 PK - Peak detector			
LnAv - Linear Average detector				
LnAv - Linear Average detector				
	LnAv - Linear Average detector			
NOTE: No other emissions detected above the system noise floor		Linear Average detector		
NOTE: No other emissions detected above the system noise floor				
	NOTE: No other emissions detected above the system noise floor	No other emissions detected above the system noise floor		

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8.3. TRANSMITTER ABOVE 1 GHz – MODEL: A2541R24C

8.3.1. TX ABOVE 1 GHz FOR GFSK 2Mbps 500kHz MODE IN THE 2.4 GHz BAND

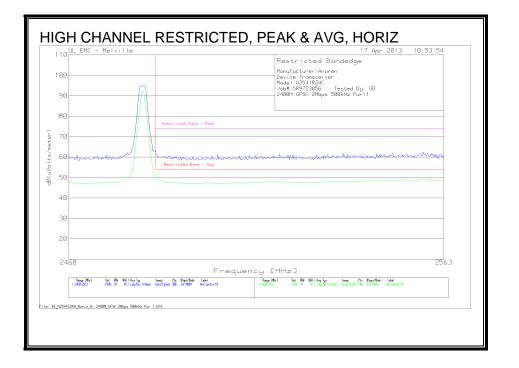
RESTRICTED BANDEDGE (LOW CHANNEL)

	17 Apr 2013 10:36:39 Restricted Bandedge
0	Manufacture: Manuen Device: Transet ver Madel: J2541824C Job#:SR9723856 Tested By: GB 248241658C 2Mbps 508kHz Rur=1
n	
Restricted Band - Peak	
Restricted Band - Ava	when the second was a second with the second was a second with the second s
0	
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310 Record (Mc) Det 680 1897 And Tag Samo Pis 1	Frequency [MHz] Frequency [MHz]

100	UL EMC - Melville	17 Apr 2013 10:42:13
00 90		Restricted Bandedge Manufacturer:Anaren Device:Transceiver Madel:#5291R24C Jobel:\$8922056 Tested By: GB 24024 GFSK 2Mbps 500kHz Purs1
80	Restricted Bond - Peak	
70 60	an and a local section of the sectio	
50	Restricted Band - Avg	
40		
30		
20		
23		24 24 EMHz]
[Renne 1942 Det RSM VBM / Any Tup Samop Pts. KSaps/Node Labol 1:2214-2415 PEAK IN IN / Log-Yar Video J.ESoic 568 Jnf/MARN Vertical-Ph.	Ronge (1942) Det 1950 (1937 / Ang Tga Samep Pts Kingen/Adak Lakel 2.2316-2415 PERK 191 (1877 Lag-Fan Otdea) (Kines S88 Enf/1903) Unitical-Av

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RESTRICTED BANDEDGE (HIGH CHANNEL)



10 UL EMC - Me	lville	17 Apr 2013 10:48:47
90		Restricted Bandedge Manufacturer:Anaren Device:Trongelver John:SP722856 Trated By: 68 2488M (FSK 2Mbos 588Hz Pur=1
80	Restricted Band - Pesk	
70		
50 	Restricted Band - Avg	www.hallow
40		
30		
20		
2460	Frequ	ency EMHz]
Range DMt2 Del 1:2468-2563 PEX	: 550 UBM / Ang Ege Sweep Pts Kings/Kods Label K 18 18 / LageFer (Vidao) Autor/Epiled 588 Ter/19885 Sertical-Pts	Rong (1962) bet 1880 1893 / Ang 1ap Seap Phs Deprive Letel 2.3897-253 PSR 191 / Lagner Kitideal Acadigated 388 Ent/MRH Nertical-Iv
2541E24A_Vert_Hi 2480M_GP	SK 2Mbps 588kHz Pwr I.DAT	

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4804.0902 67.24 PK 27.1 -53.3 41.04 - - 74 -32.96 245 157 Ver 4804 68.76 PK 27.1 -53.31 42.55 - - 74 -31.45 332 396 Hot 4804.0902 66.18 LnAv 27.1 -53.3 35.31 54 -18.69 - - 245 157 Ver 4804.0902 66.18 LnAv 27.1 -53.3 35.31 54 -18.69 - - 245 157 Ver 4804.0902 66.18 LnAv 27.1 -53.3 39.98 54 -14.02 - - 245 157 Ver Mid Channel - 2440MHz - - 245 157 Ver - - 246 160.5 - - 247 250 Hot Test Frequency Meter Reading Detector [dB/m] Factor [dB] dB(uVolts/meter) Subart C 15.209 Margin KdB) - 74 -25.12 238 238	Device:Transcieve	aren											
Job#SR972385 Tested By: GB Image: Comparison of the comparison		er											
GFSK 2Mbps 500+Hz Pwr=1 India India <thindia< th=""> India India</thindia<>	Model:A2541R240	с											
GFSK 2Mbps 50×Hz Pwr=1 India India <thindia< th=""> India India<</thindia<>	Job#:SR9723856	Tested By: GB											
Area Area Boms Boms FCC Part 15 Margin FCC Part 15 Subpart C 15.209 Gas Arimuth Height 4804.0902 67.24 PK 27.1 -53.3 41.04 - - 74 32.95 245 50.9 74 32.95 245 332 39.9 4804.0902 66.18 LnAv 27.1 -53.3 33.91 54 -18.69 - - 245 157 Ver 4804.0902 66.18 LnAv 27.1 -53.3 39.98 54 -14.02 - - 245 157 Ver 4804.0902 66.18 LnAv 27.1 -53.3 39.98 54 -14.02 - - 247 250 Hot Mid Channel - 2440MHz Inva Ar-48106 BOMS BOMS BOMS BOMS BOMS Margin Subpart C 15.209 Margin FCC Part 15 Margin Arimuth Height Pol 4880.0501													
AF-48106 BOMS (aB/m) AF-48106 (aB/m) BOMS Factor [dB] BOMS bubpart C15.209 Margin (dB) FCC Part 15 Subpart C15.209 Margin (dB) </td <td>Low Channel 240</td> <td>200</td> <td></td>	Low Channel 240	200											
Test Frequency Meter Reading Detector [GB/m] Factor [GB] dB(UVOIts/meter) Subpart C15.209 (GB) Subpart CPeak (GB) Detector (GB) Detactor	Low channel - 240	2141112											
Test Frequency Meter Reading Detector [db/m] Factor [db] db/uvolts/meter) Subpart C 15.209 (db) Subpart C Peak (db) [Degs] [cm] Pol 4804.0902 67.24 PK 27.1 -53.3 41.04 - - 74 -32.96 245 157 Ver 4804.0902 66.18 LnAv 27.1 -53.3 42.05 - - 74 -32.96 245 157 Ver 4804.0902 66.18 LnAv 27.1 -53.3 35.31 -14.02 - - 247 250 Hot 4804.0902 66.18 LnAv 27.1 -53.3 39.98 54 -14.02 - - 247 250 Hot Mid Channel - 2440MHz - - - - - - 74 -32.53 238 274 250 107 Pd 4880.0501 67.55 PK 27.2 -53.28 41.47 - - 74 -23.12 238 272 Ver 4880.050				AF-48106	BOMS		FCC Part 15	Margin	FCC Part 15	Margin	Azimuth	Height	
4804.0902 67.24 PK 27.1 -53.3 41.04 - - 74 -32.96 245 157 Ver 4804 68.76 PK 27.1 -53.31 42.55 - - 74 -31.45 332 396 Hot 4804.0902 61.51 LnAv 27.1 -53.3 35.31 54 -18.69 - 245 157 Ver 4804.0902 66.18 LnAv 27.1 -53.3 39.98 54 -14.02 - 247 250 Hot Mid Channel - 2440MHz - - - 74 -22.53 238 272 Ver Mid Channel - 2440MHz - - - 74 -25.32 238 272 Ver 4880.0501 67.55 PK 27.2 -53.28 41.47 - - 74 -29.12 238 272 Ver 4880.0501 67.55 PK 27.2 -53.28 41.67 - - 74 -29.12 238 272 Ver	Test Frequency M	Aeter Reading	Detector	[dB/m]	Factor [dB]	dB(uVolts/meter)	Subpart C 15.209			-		-	Polarity
4804 68.76 PK 27.1 -53.31 42.55 - - 74 -31.45 332 396 Hot 4804.0902 65.151 LnAv 27.1 -53.3 33.31 54 -18.69 - - 245 157 Ver 4804.0902 66.18 LnAv 27.1 -53.3 39.98 54 -14.02 - - 247 250 Hot Mid Channel - 2440MHz - - - AF-48106 BOMS Factor [dB] dBuVolts/meter) Subpart C15.209 Margin FCC Part 15 Margin Aimuth Height Detector [dB/m] Factor [dB] dBuVolts/meter) Subpart C15.209 (dB) Subpart C Peak (dB) 22.53 238 272 Ver 4880.0501 67.55 PK 27.2 -53.28 44.88 - - - 238 272 Ver 4880.0501 67.1 LnAv 27.2 -53.28 41.02 - - 238 272 Ver 4880.0501 67.1 LnAv		-											
4804.0902 61.51 LnAv 27.1 -53.3 35.31 54 18.69 245 157 Ver 4804.0902 66.18 LnAv 27.1 -53.3 39.98 54 -14.02 247 250 Hot Mid Channel - 2400Hz InAv 27.1 -53.3 39.98 54 -14.02 InAv 247 250 Hot Mid Channel - 2400Hz InAv 27.1 -53.3 39.98 54 -14.02 InAv 247 250 Hot Test Frequency Meter Reading Detector [dB/m] Factor [dB] dB(uVolts/meter) Subpart C 15.209 Margin Ker 238 272 Ver 4880.0501 61.64 InAv 27.2 -53.28 44.88 - - 74 -23.8 228 249 Hot 4880.0501 61.64 InAv 27.2 -53.28 44.02 -12.98 - - 238 249 Hot High Channel - 2480/Hz InAv 27.2 -53.28	4804	68.76	PK			42.55	-	-				396	Horz
4804.0902 66.18 LnAv 27.1 -53.3 39.98 54 -14.02 - - 247 250 Hot Mid Channel - 2440MHz Image: Constraint of the		61.51	LnAv					-18.69					
AF-48106 AF-48106 BOMS FCC Part 15 Margin CC Part 15 Subpart C 15.209 (dB) FCC Part 15 Margin CC Part 15 Margin Composition 10										-			
Meter Reading Detector AF-48106 [dB/m] BOMS Factor [dB] GB(UVOIts/meter) FCC Part 15 Subpart C 15.209 Margin (dB) FCC Part 15 Subpart C 15.209 Margin (dB) Marg													
Test Frequency Meter Reading Detector [dB/m] Factor [dB] dB(uVolts/meter) Subpart C 15.209 (dB) Subpart C Peak (dB) [Degs] [cm] Pol 4880.0501 67.55 PK 27.2 -53.28 41.47 - - 74 -32.53 238 272 Ver 4880.0501 70.96 PK 27.2 -53.28 44.88 - - 74 -29.12 238 249 Hot 4880.0501 61.64 LnAv 27.2 -53.28 35.56 554 -18.44 - - 238 249 Hot 4880.0501 67.1 LnAv 27.2 -53.28 35.56 554 -18.44 - - 238 249 Hot High Channel - 2480MHz - - 238 249 Hot - - 238 272 Ver High Channel - 2480MHz Detector [dB/m] Factor [dB] dB(uVolts/meter) Su	Mid Channel - 244	OMHz											
4880.0501 67.55 PK 27.2 -53.28 41.47 - - 74 -32.53 238 272 Ver 4880.0501 70.96 PK 27.2 -53.28 44.88 - - 74 -29.12 238 272 Ver 4880.0501 61.64 LnAv 27.2 -53.28 35.56 554 -18.44 - - 238 272 Ver 4880.0501 61.64 LnAv 27.2 -53.28 35.56 554 -18.44 - - 238 249 Hot 4880.0501 67.1 LnAv 27.2 -53.28 41.02 54 -12.98 - - 238 249 Hot High Channel - 2480MHz InAv 27.2 -53.28 41.02 54 - - 238 272 Ver High Channel - 2480MHz InAv 27.2 -53.28 48 680/S FCC Part 15 Margin Keimeth Ineight - - 74 -32.6 272 373 Ver -				AF-48106	BOMS		FCC Part 15	Margin	FCC Part 15	Margin	Azimuth	Height	
4880.0501 67.55 PK 27.2 -53.28 41.47 - - 74 -32.53 238 272 Ver 4880.0501 70.96 PK 27.2 -53.28 44.88 - - 74 -29.12 238 272 Ver 4880.0501 61.64 LnAv 27.2 -53.28 35.56 554 -18.44 - - 238 272 Ver 4880.0501 61.64 LnAv 27.2 -53.28 35.56 554 -18.44 - - 238 272 Ver 4880.0501 67.1 LnAv 27.2 -53.28 35.56 554 -18.44 - - 238 249 Hot High Channel - 2480MHz LnAv 27.2 -53.28 41.02 54 -12.98 - - 238 279 Ver Test Frequency Meter Reading Detector [dB/m] Factor [dB] dB(uVolts/meter) Subpart C15.209 (dB) Subpart CPeak (dB) [Detest] [cm] Pol 4960<	Test Frequency M	Aeter Reading	Detector	[dB/m]	Factor [dB]	dB(uVolts/meter)	Subpart C 15.209	-		-		-	Polarity
4880.0501 70.96 PK 27.2 -53.28 44.88 - - 74 -29.12 238 249 Hot 4880.0501 61.64 LnAv 27.2 -53.28 35.56 54 -18.44 - - 238 249 Hot 4880.0501 67.1 LnAv 27.2 -53.28 35.56 54 -18.44 - - 238 249 Hot 4880.0501 67.1 LnAv 27.2 -53.28 41.02 54 -12.98 - - 238 249 Hot High Channel - 2480MHz L L - - - 238 249 Hot Fest Frequency Meter Reading Detector IdB/m Factor [dB] dB(uVolts/meter) Subpart C15.209 (dB) Nargin Azimuth Height [cm] Pol 4960 66.23 PK 27.3 -53.13 40.49 - - - 74 -33.6 272 373 Ver 4960 66.25 InAv 27.3		_						-					
4880.0501 61.64 LnAv 27.2 -53.28 35.56 54 -18.44 - - 238 272 Ver 4880.0501 67.1 LnAv 27.2 -53.28 41.02 54 -12.98 - - 238 249 Hot High Channel - 2480MHz AF-48106 BOMS FCC Part 15 Margin FCC Part 15 Margin Azimuth Height Icon Pol 4960 66.23 PK 27.3 -53.13 40.4 - - -74 -33.6 272 373 Ver 4960 66.25 PK 27.3 -53.13 40.4 - - -74 -33.6 272 373 Ver 4960 66.115 LnAv 27.3 -53.13 40.42 - - - 74 -33.6 272 373 Ver 4960 66.25 LnAv 27.3 -53.13 40.42 - - 74 -29.31 245 275 Hot 4960 66.25								-					
4880.0501 67.1 LnAv 27.2 -53.28 41.02 54 -12.98													
AF-48106 BOMS FCC Part 15 Margin FCC Part 15 Margin FCC Part 15 Margin FCC Part 15 Margin Azimuth Height Pol 4960 66.23 PK 27.3 -53.13 40.4 - - 74 -33.6 272 373 Ver 4960 70.52 PK 27.3 -53.13 40.4 - - 74 -33.6 272 373 Ver 4960 66.25 PK 27.3 -53.13 40.4 - - 74 -33.6 272 373 Ver 4960 66.25 InAv 27.3 -53.13 40.42 - - 74 -29.31 245 275 Hot 4960 66.25 InAv 27.3 -53.13 40.42 54 -13.58 - - 245 275 Hot 4960 66.25 InAv 27.3 -53.13 40.42 54 -13.58 -										-			
AF-48106 BOMS FCC Part 15 Margin FCC Part 15 Margin FCC Part 15 Margin FCC Part 15 Margin Azimuth Height Pol 4960 66.23 PK 27.3 -53.13 40.4 - - 74 -33.6 272 373 Ver 4960 70.52 PK 27.3 -53.13 40.4 - - 74 -33.6 272 373 Ver 4960 66.25 PK 27.3 -53.13 40.4 - - 74 -33.6 272 373 Ver 4960 66.25 InAv 27.3 -53.13 40.42 - - 74 -29.31 245 275 Hot 4960 66.25 InAv 27.3 -53.13 40.42 54 -13.58 - - 245 275 Hot 4960 66.25 InAv 27.3 -53.13 40.42 54 -13.58 -													
Test Frequency Meter Reading Detector [dB/m] Factor [dB] dB(uVolts/meter) Subpart C15.209 (dB) Subpart CPeak (dB) [Degs] [cm] Pol 4960 66.23 PK 27.3 -53.13 40.4 - - 74 -33.6 272 373 Ver 4960 70.52 PK 27.3 -53.13 44.69 - - 74 -33.6 272 373 Ver 4960 61.15 LnAv 27.3 -53.13 35.32 54 -18.68 - - 272 373 Ver 4960 66.25 LnAv 27.3 -53.13 40.42 54 -13.58 - - 225 Hot 4960 66.25 LnAv 27.3 -53.13 40.42 54 -13.58 - - 245 275 Hot PK - Peak detector - 245 - -	High Channel - 248	30MHz											
Test Frequency Meter Reading Detector [dB/m] Factor [dB] dB(uVolts/meter) Subpart C15.209 (dB) Subpart CPeak (dB) [Degs] [cm] Pol 4960 66.23 PK 27.3 -53.13 40.4 - - 74 -33.6 272 373 Ver 4960 70.52 PK 27.3 -53.13 44.69 - - 74 -33.6 272 373 Ver 4960 661.15 LnAv 27.3 -53.13 35.32 54 -18.68 - - 272 373 Ver 4960 661.25 LnAv 27.3 -53.13 340.42 54 -13.58 - - 225 Hot 4960 662.55 LnAv 27.3 -53.13 40.42 54 -13.58 - - 245 275 Hot PK - Peak detector - 245 - -				AF-48106	BOMS		ECC Part 15	Margin	ECC Part 15	Margin	Azimuth	Height	
4960 66.23 PK 27.3 -53.13 40.4 - - 74 -33.6 272 373 Ver 4960 70.52 PK 27.3 -53.13 44.69 - - 74 -29.31 245 275 Hot 4960 61.15 LnAv 27.3 -53.13 35.32 54 -18.68 - - 272 373 Ver 4960 66.25 LnAv 27.3 -53.13 40.42 54 -13.58 - - 245 275 Hot PK - Peak detector		Antor Panding	Detector			dB(u)(olts/mater)						-	Polarity
4960 70.52 PK 27.3 -53.13 44.69 - -74 -29.31 245 275 Horizania 4960 61.15 LnAv 27.3 -53.13 35.32 54 -18.68 - - 272 373 Ver 4960 66.25 LnAv 27.3 -53.13 40.42 54 -13.58 - - 245 275 Horizania PK-Peak detector PK - Peak detector - <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>•</td><td></td><td></td><td></td><td></td></td<>									•				
4960 61.15 LnAv 27.3 -53.13 35.32 54 -18.68 - - 272 373 Ver 4960 66.25 LnAv 27.3 -53.13 40.42 54 -13.58 - - 245 275 Hot PK-Peak detector								-					
4960 66.25 LnAv 27.3 -53.13 40.42 54 -13.58 - - 245 275 Hor PK-Peak detector <								10.00		-29.51			
PK - Peak detector										-			
LnAv - Linear Average detector													
	LnAv - Linear Avera	age detector											
NOTE: No other emissions detected above the system noise floor	NOTE: No other en	nissions detect	ted above t	he system no	oise floor								

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8.3.2. TX ABOVE 1 GHz FOR GFSK 1Mbps 250kHz MODE IN THE 2.4 GHz BAND

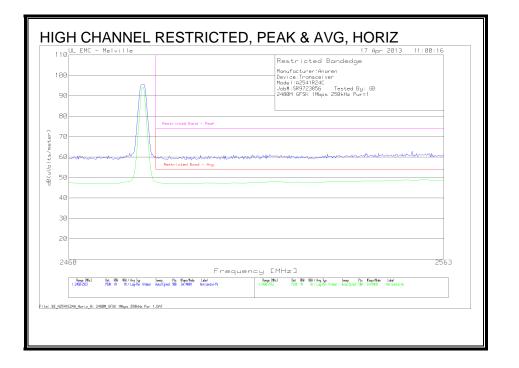
RESTRICTED BANDEDGE (LOW CHANNEL)

6	L EMC - Melville	Restricted Banded	17 Apr 20 ge	13 12:27:37
10-		Manufacturer:Anaren Device:Transceiver Model:A2541R24C Job#:SR9723856 Tested	ĺ	A
90-		2402M GFSK 1Mbps 250kHz 1	Pwr=1	
30-	Restricted Band - Peak			
70				
50 - 10 - 30 - 20 -	Retricted Bord - frg			
231				2415
_	Frequency I Resp. 1962 Det. 1989 - 1989 / Ang Tag. Senso . Pits: Kisges/Nade Labert		N K NI 111	
	Barge 1942 bet 690 BBJ Aleg Sage The Kape/Nade Label Regard 1/2016-245 FERK 10 10 / Lagrine Wideo J.Boac 598 Inf/1968t Nortautol-Ph 2:2016-34	(Mic) Det RBN UBI/Ang Sgo Seep 15 PEAK M HB/Log-Rim Wildee) (Esiac	Pts Keps/Mode Lobel 588 Ent/MX01 Harizon	tal-6v

10	EMC - Melville 17 Apr 2013 11:14:34
00-	Restricted Bandedge Moufacture:Anaren Device:Transceiven Model:12241R24C Job#:589723865 Tested By: 68
90	2482M GFSK IMbps 258kHz Pur=1
80	Restricted Sand - Pauk
70	
50 40 30 20	
20	
2318	 241 Frequency [MHz]
	nove[Mb] bet 394 897/69.1gs Seeg Pas SepaPole Lobel Programmed Linn ZJ Linn ZJ Market Bala 29765 151X 11 197/Lan/er/183a) See 38 1//248 Market A
	איראיר וואי אין איראיאין איראיאין איראיזער איראין איראיזער איראין איראיזער איראין איראיזער איראין איראיזער אירא געראיזער געראין געראיז געראיזער געראין גער

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RESTRICTED BANDEDGE (HIGH CHANNEL)



10 <mark>UL EMC - Melvi</mark>		17 Apr 2013 11:06:06
90		Restricted Bandedge Navifacturer Anamen Devia:Transceiver Madel:12254R24C Jobi:589723856 Tested By: 68 2488M 65K:Uhipp:238Hz Pur=1
80	Restricted Band - Pedk	
70 60	Restricted Bard - Arg	n
40		
20		
2460	Free	quency EMHz]
Range DHb2 Det RSN 1:2468-2563 PEak IN	1894 / Ang Tage Sanag Pis Kisper/Rada Labol I 197 / Lag-Fair (Vidao) Auto/Cpilad 508 Int/Waldi Vertical-Pis	Received and the test of the second s
	es 258kHz Pwr I.DAT	

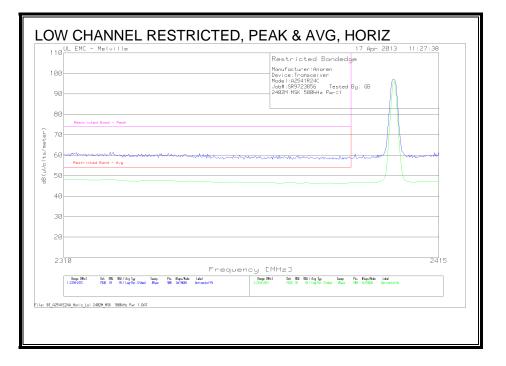
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4804 69.64 PK 27.1 -53.31 43.43 -74 -30.57 346 367 4804 65.41 LnAv 27.1 -53.31 39.2 54 -14.8 244 292 4804 64.63 LnAv 27.1 -53.31 38.42 54 -15.58 346 367 Mid Channel-240MHz LnAv 27.1 -53.31 38.42 54 -15.58 346 367 Mid Channel-240MHz LnAv 27.1 -53.31 38.42 54 -15.58		[cm] 292 367	[Degs]	Margin								naren	
Job#:SR9723856 Tested By: GB Image: Constraint of the sector of the sec	Polarity 92 Horz 57 Vert 92 Horz	[cm] 292 367	[Degs]	Margin								ever	Device:Transcie
GFSK 1Mbps 250Hz Pwrs1 Image: Simple state s	Polarity 92 Horz 57 Vert 92 Horz	[cm] 292 367	[Degs]	Margin								24C	Model:A2541R2
Low Channel - 2402MHz Image: Comparison of the comparison of t	Polarity 92 Horz 57 Vert 92 Horz	[cm] 292 367	[Degs]	Margin								6 Tested By: GB	Job#:SR9723856
Test Frequency Meter Reading Detector AF-48106 [dB/m] BOMS Factor [dB] dB(uVolts/meter) FCC Part 15 Subpart C 15.209 Margin (dB) FCC Part 15 Subpart C 15.209 Margin (dB) Azimuth (dB) Azi	Polarity 92 Horz 57 Vert 92 Horz	[cm] 292 367	[Degs]	Margin								0kHz Pwr=1	GFSK 1Mbps 250
Mater Reading Detector AF-48106 [dB/m] BOMS Factor [dB] dB(uVolts/meter) FCC Part 15 Subpart C 15.209 Margin (dB) FCC Part 15 Subpart C 15.209 Margin (dB) Aimuth (dB) Aimu	Polarity 92 Horz 57 Vert 92 Horz	[cm] 292 367	[Degs]	Margin									
Test Frequency Meter Reading Detector [dB/m] Factor [dB] dB(uVolts/meter) Subpart C 15.209 (dB) Subpart C Peak (dB) [Degs] [cm] 4804 70.45 PK 27.1 -53.31 44.24 - - 774 -29.76 244 292 4804 65.64 PK 27.1 -53.31 43.43 - - 774 -29.76 244 292 4804 65.61 LnAv 27.1 -53.31 39.2 54 -14.8 - - 244 292 4804 64.63 LnAv 27.1 -53.31 39.2 54 -14.8 - - 244 292 4804 64.63 LnAv 27.1 -53.31 38.42 -54 -15.8 - - 244 292 Mid Channel - 2440MHz - - -53.28 Metor Margin Kimuth Height Test Frequency Meter Reading Detec	Polarity 92 Horz 57 Vert 92 Horz	[cm] 292 367	[Degs]	Margin								402MHz	Low Channel - 24
Test Frequency Meter Reading Detector [dB/m] Factor [dB] dB(uVolts/meter) Subpart C 15.209 (dB) Subpart C Peak (dB) [Degs] [cm] 4804 70.45 PK 27.1 -53.31 44.24 - - 774 -29.76 244 292 4804 65.64 PK 27.1 -53.31 43.43 - - 774 -29.76 244 292 4804 65.61 LnAv 27.1 -53.31 39.2 54 -14.8 - - 244 292 4804 64.63 LnAv 27.1 -53.31 39.2 54 -14.8 - - 244 292 4804 64.63 LnAv 27.1 -53.31 38.42 -54 -15.8 - - 244 292 Mid Channel - 2440MHz - - -53.28 Metor Margin Kimuth Height Test Frequency Meter Reading Detec	Polarity 92 Horz 57 Vert 92 Horz	[cm] 292 367	[Degs]	IVIAISIII	ECC Part 15	Margin	ECC Part 1E		POMS	AE 49106			
4804 70.45 PK 27.1 -53.31 44.24 - - 74 -29.76 244 292 4804 69.64 PK 27.1 -53.31 43.43 - - 774 -30.57 346 367 4804 65.41 LAAv 27.1 -53.31 39.2 54 -14.8 - - 244 292 4804 64.63 LAAv 27.1 -53.31 39.2 54 -14.8 - - 346 367 4804 64.63 LAAv 27.1 -53.31 38.42 54 -15.58 - - 346 367 Mid Channel - 2440MHz	92 Horz 57 Vert 92 Horz	292 367				-		dD(u)(alta (matas)			Detector	Mater Pending	
4804 69.64 PK 27.1 -53.31 43.43 -74 -30.57 346 367 4804 65.41 LnAv 27.1 -53.31 39.2 54 -14.8 244 292 4804 64.63 LnAv 27.1 -53.31 38.42 54 -15.58 346 367 Mid Channel - 240MHz LnAv 27.1 -53.31 38.42 54 -15.58 346 367 Mid Channel - 240MHz LnAv 27.1 -53.31 38.42 54 -15.58	57 Vert 92 Horz	367										-	
Hote Hote <th< td=""><td>92 Horz</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>	92 Horz												
4804 64.63 LnAv 27.1 -53.31 38.42 54 -15.58 346 367 Mid Channel - ∠↓UMHz Image: State of the state of				-30.57									
Mid Channel - 2440MHz AF-48106 BOMS FCC Part 15 Margin FCC Part 15 Margin Subpart C Part 15 Margin Additional (dB) Addit Additional (dB) <th< td=""><td>vert</td><td></td><td></td><td>-</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>	vert			-									
Image: Problem in the sector of the		367	346	-	-	-15.58	54	38.42	-53.31	27.1	LnAv	64.63	4804
Test Frequency Meter Reading Detector [dB/m] Factor [dB] dB(uVolts/meter) Subpart C 15.209 (dB) Subpart C Peak (dB) [Degs] [cm] 4880 66.43 PK 27.2 -53.28 40.35 - - 74 -33.65 187 143 4880 70.76 PK 27.2 -53.28 44.68 - - 774 -29.32 242 245 4880 58.96 LnAv 27.2 -53.28 32.88 54 -21.12 - - 187 143 4880 66.65 LnAv 27.2 -53.28 32.88 54 -21.12 - - 187 143 4880 66.65 LnAv 27.2 -53.28 40.57 54 -13.43 - - 242 245 41gh Channel - 2480MHz Index												440MHz	Mid Channel - 24
Test Frequency Meter Reading Detector [dB/m] Factor [dB] dB(uVolts/meter) Subpart C 15.209 (dB) Subpart C Peak (dB) [Degs] [cm] 4880 66.43 PK 27.2 -53.28 40.35 - - 74 -33.65 187 143 4880 70.76 PK 27.2 -53.28 44.68 - - 774 -29.32 242 245 4880 58.96 LnAv 27.2 -53.28 32.88 54 -21.12 - - 187 143 4880 66.65 LnAv 27.2 -53.28 32.88 54 -21.12 - - 187 143 4880 66.65 LnAv 27.2 -53.28 40.57 54 -13.43 - - 242 245 4180 High Channel - 2480MHz - - - 54 -13.43 - - 242 245 4181													
4880 66.43 PK 27.2 -53.28 40.35 - - 74 -33.65 187 143 4880 70.76 PK 27.2 -53.28 44.68 - - 774 -29.32 242 245 4880 58.96 LnAv 27.2 -53.28 32.88 54 -21.12 - 187 142 4880 66.65 LnAv 27.2 -53.28 32.88 54 -21.12 - 242 245 4880 66.65 LnAv 27.2 -53.28 40.57 54 -13.43 - - 242 245 High Channel - 2480MHz		-				-							
4880 70.76 PK 27.2 -53.28 44.68 - - 77 -29.32 242 245 4880 58.96 LnAv 27.2 -53.28 32.88 54 -21.12 - - 187 143 4880 66.65 LnAv 27.2 -53.28 40.57 54 -13.43 - 242 245 High Channel - 2480MHz						(dB)	Subpart C 15.209			[dB/m]			Fest Frequency
4880 58.96 LnAv 27.2 -53.28 32.88 54 -21.12 - 187 143 4880 66.65 LnAv 27.2 -53.28 32.88 54 -21.12 - - 187 143 High Channel - 2480MHz - - - - 242 245 High Channel - 2480MHz - - - - - - 147 - - 242 245	43 Vert	143	187	-33.65	74	-	-	40.35	-53.28	27.2			4880
4880 66.65 LnAv 27.2 -53.28 40.57 54 -13.43	19 Horz	249	242	-29.32	74	-	-	44.68	-53.28	27.2	PK	70.76	4880
High Channel - 2480MHz AF-48106 BOMS FCC Part 15 Margin FCC Part 15 Margin Azimuth Height	13 Vert	143	187	-	-	-21.12	54	32.88	-53.28	27.2	LnAv	58.96	4880
AF-48106 BOMS FCC Part 15 Margin FCC Part 15 Margin Azimuth Height	19 Horz	249	242	-	-	-13.43	54	40.57	-53.28	27.2	LnAv	66.65	4880
AF-48106 BOMS FCC Part 15 Margin FCC Part 15 Margin Azimuth Height													
												480MHz	High Channel - 2
	+	Haight	Azimuth	Margin	ECC Part 15	Margin	ECC Part 15		BOMS	AE-48106			
Fest Frequency Meter Reading Detector [dB/m] Factor [dB] dB(uVolts/meter) Subpart C 15.209 (dB) Subpart C Peak (dB) [Degs] [cm]		-		-		-					Detector	Mator Ponding	Test Ereauansy
	90 Vert					(06)						-	
	32 Horz					-							
	32 Horz 90 Vert			-28.95									
	30 Vert 32 Horz			-									
4360.0301 67.15 LNAV 27.3 -55.12 41.31 54 -12.65 255 554	2 Horz	552	255	-	-	-12.69	54	41.51	-55.12	27.5	LNAV	67.15	4960.0501
PK - Peak detector												tor	PK - Peak detect
LnAv - Linear Average detector												erage detector	LnAv - Linear Ave
NOTE: No other emissions detected above the system noise floor									oise floor	the system no	ted above t	emissions detec	NOTE: No other
IOTE: No other emissions detected above the system noise floor									oise floor	the system no	ted above t	emissions detec	IOTE: No other

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8.3.3. TX ABOVE 1 GHz FOR MSK 500kbps MODE IN THE 2.4 GHz BAND

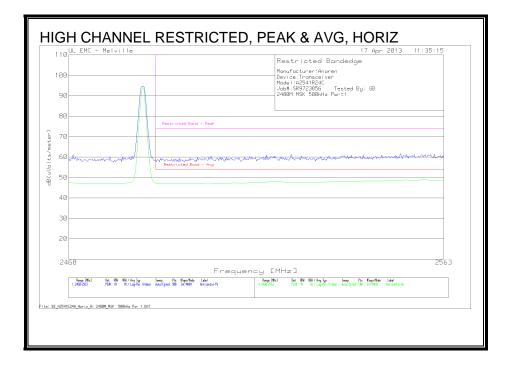
RESTRICTED BANDEDGE (LOW CHANNEL)



0 UL EMC - Melville	17 Apr 2013 11:21:11 Restricted Bandedge
о п	Manufacturer:Anaren Device:Transceiver Model:A2541R24C Jobet:SR9723856 2482M MS:SB0Hz,Bur=1
Bestricted Bond - Peak	
70	
B man a contract and a	
Restricted Band - Avg	man when the second and the second
50	
10	
20	
2310	24
Range DMtc1 Det RBN WEN / Avg Tup Seeap Pts B	Frequency EMHz] Kapañola Laki Reget1961 0et 881 081/0eg1ge Seep Pis Kapañole Laki
Rooge DH-b2 Det BN IBU / Avg Typ Sweep Pts 8 1:2218-2415 PEAK IN 1H / Log-Per (Video) .85sec 568 1	Regen Yorke Lakel Program (1942) Det 1884 UBI / Ang Tao Sango Pas Bagn/Made Lakel Inf/MBR Unrtical=Ms 2210F/NBS PTGR III 18 / Lag/Mr III.dad J.Base SBI En/MBRI Unrtical=Av
541E248 Vent Loi 2402M MSK 500kHz Pwn 1.DAT	

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RESTRICTED BANDEDGE (HIGH CHANNEL)



10 UL EMC -	Melville		17 Apr 2013 11:40:15
30 			Restricted Bandedge Manfacture-Maran Device:Transceiver Madel (#2541R24c Jobe):989723856 Tested By: 68 248M MS: 980Hz Per-1
30			
70		estricted Bond - Peak	
10			
50 mm mm mm		Restricted Band - Avg	with the second s
50			
10			
30			
20			
2460		Fred	quency [MHz]
Range DHtz3 1:2468-2563	Det RBN WBN / Avg Typ Sweep FEIK IM 1H / Log-Par (Video) Auto/1	Pts #Seps/Wode Label plad 588 Inf/WARH Vertical-Ph	Torge (He) Det RBD UBB / Ang 1pp Searcy Pix Elsephilde Lakel 2.3405-553 FEGK IN 18 / Log-Fer Kitdes Auto-Quiel 368 Latinticity Uprice-Fey
2541E24A_Vert_Hi 2480	M MSK S00kHz Pwr 1.DAT		I

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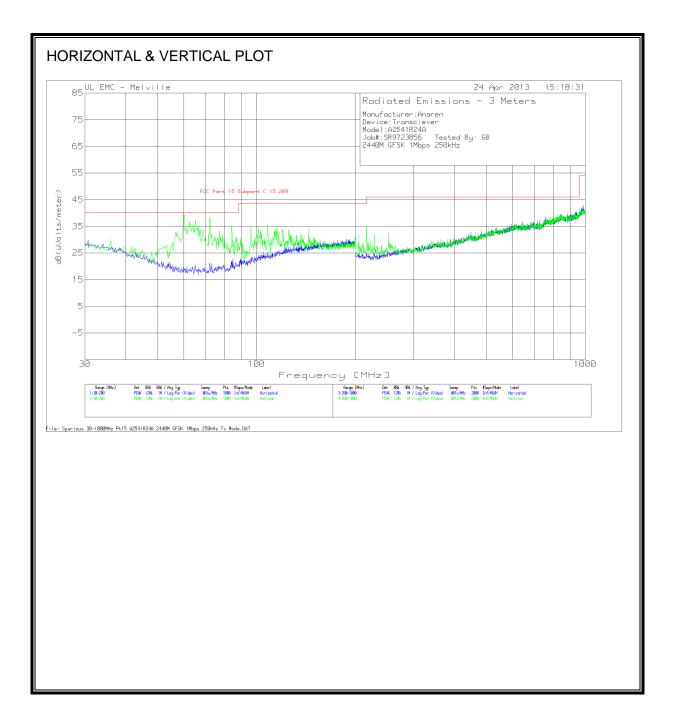
4803.99 70.76 PK 27.1 -53.31 44.55 - - 74 -29.45 213 331 Hor. 4803.99 69.53 PK 27.1 -53.31 43.32 - - 74 -29.45 213 331 Hor. 4803.99 66.56 LnAv 27.1 -53.31 40.35 54 -13.65 - - 213 331 Hor. 4803.99 64.5 LnAv 27.1 -53.31 40.35 54 -15.71 - - 213 331 Hor. 4803.99 64.5 LnAv 27.1 -53.31 38.29 54 -15.71 - - 213 331 Hor. Ald Channel - 2440MHz InAv 27.2 -53.28 dB(uVolts/meter) Subpart C15.209 Margin FC Part 15 Margin Margin Polz 227 140 Vert 4880 61.27 InAv 27.2 -53.28 35.19 54 -13.53 - - 227 140 Vert 4880<		naren											
obs::R9723856 Tested By: GB Image: CB	Device:Transcie	ver											
MSK 500kbps Purel Interpret in the section of the sectio	Model:A2541R2	4C											
ow cm cm<	Job#:SR9723856	Tested By: GB											
Arrow Ar-48106 BOMS BoMS FCC Part 15 Margin FCC Part 15 Margin Argin Argin </th <td>MSK 500kbps Pw</td> <td>vr=1</td> <td></td>	MSK 500kbps Pw	vr=1											
Arrow Ar-48106 BOMS BoMS FCC Part 15 Margin FCC Part 15 Margin Argin Argin </th <td>low Channel - 24</td> <td>102MHz</td> <td></td>	low Channel - 24	102MHz											
est Frequency Meter Reading Detector [dB/m] Factor [dB] dB(uVolts/meter) Subpart C 15.209 (dB) Subpart C Peak (dB) [Degs] [cm] Pola 4803.99 70.76 PK 27.1 -53.31 44.55 - - 774 -29.45 213 331 Hor 4803.99 66.56 LnAv 27.1 -53.31 40.35 54 -13.65 - - 213 331 Hor 4803.99 66.5 LnAv 27.1 -53.31 40.35 54 -13.65 - - 213 331 Hor 4803.99 64.5 LnAv 27.1 -53.31 38.29 Pola - - 335 363 Vert 4803.99 Meter Reading Detector AF-48106 BOMS FCC Part 15 Margin Subpart C 15.209 Margin Subpart C 15.209 Margin Subpart C 15.209 Margin -22.17 22.1 140 Vert 4880													
est Frequency Meter Reading Detector [dB/m] Factor [dB] dB(uVolts/meter) Subpart C 15.209 (dB) Subpart C Peak (dB) [Degs] [cm] Pola 4803.99 70.76 PK 27.1 -53.31 44.55 - - 774 -29.45 213 331 Hor 4803.99 66.56 LnAv 27.1 -53.31 40.35 54 -13.65 - - 213 331 Hor 4803.99 66.5 LnAv 27.1 -53.31 40.35 54 -13.65 - - 213 331 Hor 4803.99 64.5 LnAv 27.1 -53.31 38.29 -15.71 - - 213 331 Hor A800 PG.5 LnAv 27.7 -53.31 38.29 PG.21 -15.71 Mort Mort Pola				AF-48106	BOMS		FCC Part 15	Margin	FCC Part 15	Margin	Azimuth	Height	
4803.99 70.76 PK 27.1 -53.31 44.55 - - 74 -29.45 213 331 Hor. 4803.99 69.53 PK 27.1 -53.31 43.32 - - 74 -30.68 335 363 Vert 4803.99 66.55 LnAv 27.1 -53.31 40.35 54 -13.65 - - 213 331 Hor. 4803.99 64.5 LnAv 27.1 -53.31 40.35 54 -13.65 - - 213 331 Hor. 4803.99 64.5 LnAv 27.1 -53.31 38.29 54 -15.71 - - 213 331 Hor. 4803.99 64.5 LnAv 27.2 -53.28 dB(uVolts/meter) Subpart C15.209 Margin Kargin Arr.4 10.48 10.92 140 Vert 140 Vert 22.7 140 Vert 4880 61.27 LnAv 27.2 -53.28 41.25 - - 22.7 140 Ver	Test Frequency	Meter Reading	Detector	[dB/m]	Factor [dB]	dB(uVolts/meter)	Subpart C 15.209						Polarity
4803.99 69.53 PK 27.1 -53.31 43.32 <td></td> <td>-</td> <td></td>		-											
4803.99 66.56 LnAv 27.1 -53.31 40.35 54 -13.65 213 333 Hor. 4803.99 66.5 LnAv 27.1 -53.31 382.9 54 -15.71 335 363 Vert Alid Channel - 240MHz Indo													
4803.99 64.5 LnAv 27.1 -53.31 38.29 54 -15.71 335 363 Vert Aid Channel - 2440MHz Indiana in the sector of the s										20.00			
AF-48106 BOMS FCC Part 15 Margin FCC Part 15 Margin FCC Part 15 Margin Arimuth Height										-			
AF-48106 BOMS FCC Part 15 Margin FCC Part 15 Margin FCC Part 15 Margin Arimuth Height													
est Frequency Meter Reading Detector [dB/m] Factor [dB] dB{uVOIts/meter} Subpart C 15.209 (dB) Subpart C C Peak (dB) [Degs] [cm] Pola 4880 67.33 PK 27.2 -53.28 41.25 - - -774 -32.75 22.7 140 Vert 4880 70.91 PK 27.2 -53.28 44.83 - - -774 -32.75 22.7 140 Vert 4880 61.27 InAv 27.2 -53.28 35.19 54 -18.81 - - 22.7 140 Vert 4880 66.55 InAv 27.2 -53.28 35.19 -13.53 -13.53 - - 22.7 140 Vert 4880 66.55 InAv 27.2 -53.28 36.04 -13.53 -13.53 -14.53 - - 22.7 140 Vert 4960 Meter Reading Detector RF-48106 BO	Mid Channel - 24	40MHz											
4880 67.33 PK 27.2 -53.28 41.25 - - -74 -32.75 227 140 Vert 4880 70.91 PK 27.2 -53.28 44.83 - - -74 -32.75 227 140 Vert 4880 61.27 LnAv 27.2 -53.28 35.19 54 -18.81 - - 227 140 Vert 4880 661.27 LnAv 27.2 -53.28 35.19 54 -18.81 - - 227 140 Vert 4880 661.27 LnAv 27.2 -53.28 35.19 -54.4 -13.53 - - 227 140 Vert 4880 661.27 LnAv 27.2 -53.28 36.07 -13.53 -13.53 -13.53 -13.53 -14.16 - - 227 140 Vert tight Channel - 2480MHz LnAv 27.2 -53.28 40.47 50.48 -13.53 Margin Scienter 16 Scienter 16 Sciener 16 Scienter 16 <				AF-48106							Azimuth	Height	
4880 70.91 PK 27.2 -53.28 44.83 -29.17 241 248 Hor. 4880 61.27 LnAv 27.2 -53.28 35.19 54 -18.81 227 140 Vert 4880 66.55 LnAv 27.2 -53.28 35.19 -54.26 -13.53 227 140 Vert 4880 66.55 LnAv 27.2 -53.28 40.07 241 248 Hor. igh Channel - 2480MHz InAv 27.2 -53.28 40.07 241 248 Hor. igh Channel - 2480MHz InAv 27.2 -53.28 40.07 InAv 241 248 Hor. est Frequency Meter Reading Detector [dB/m] Factor [dB] dB(uVolts/meter) Subpart C15.209 (dB) Subpart C Peak (dB) [Degs] [cm] Pole 4960 72.12 PK 27.3 -53.13 39.82	Test Frequency	Meter Reading	Detector	[dB/m]	Factor [dB]	dB(uVolts/meter)	Subpart C 15.209	(dB)	Subpart C Peak	(dB)	[Degs]	[cm]	Polarity
4880 61.27 LnAv 27.2 -53.28 35.19 54 -18.81	4880	67.33	PK	27.2	-53.28	41.25	-	-	74	-32.75	227	140	Vert
4880 66.55 LnAv 27.2 -53.28 40.47 54 -13.53	4880	70.91	PK	27.2	-53.28	44.83	-	-	74	-29.17	241	248	Horz
4880 66.55 LnAv 27.2 -53.28 40.47 54 -13.53	4880	61.27	LnAv	27.2	-53.28	35.19	54	-18.81	-	-	227	140	Vert
AF-48106 BOMS FCC Part 15 Margin FCC Part 15 Margin FCC Part 15 Margin Arimuth Height 4960 65.65 PK 27.3 -53.13 39.82 - - 74 -34.18 147 308 Horr 4960 72.12 PK 27.3 -53.13 31.42 54 -22.58 - - 147 308 Horr	4880	66.55	LnAv	27.2	-53.28	40.47	54	-13.53	-	-	241	248	Horz
AF-48106 BOMS FCC Part 15 Margin FCC Part 15 Margin FCC Part 15 Margin Arimuth Height 4960 65.65 PK 27.3 -53.13 39.82 - - 74 -34.18 147 308 Horr 4960 72.12 PK 27.3 -53.13 31.42 54 -22.58 - - 147 308 Horr	High Channel - 2/	480MHz											
est Frequency Meter Reading Detector [dB/m] Factor [dB] dB[uVolts/meter) Subpart C 15.209 (dB) Subpart C Peak (dB) [Degs] [cm] Polz 4960 65.65 PK 27.3 -53.13 39.82 - - 74 -34.18 147 308 Hor. 4960 72.12 PK 27.3 -53.13 46.29 - - 74 -21.71 295 379 Vert 4960 57.25 LnAv 27.3 -53.13 31.42 54 -22.58 - - 147 308 Hor.	ingir chainer 2												
4960 65.65 PK 27.3 -53.13 39.82 - 74 -34.18 147 308 Hor. 4960 72.12 PK 27.3 -53.13 46.29 - - 74 -27.71 295 379 Vert 4960 57.25 LnAv 27.3 -53.13 31.42 54 -22.58 - 147 308 Hor.				AF-48106	BOMS		FCC Part 15	Margin	FCC Part 15	Margin	Azimuth	Height	
4960 72.12 PK 27.3 -53.13 46.29 - - 74 -27.71 295 379 Vert 4960 57.25 LnAv 27.3 -53.13 31.42 54 -22.58 - - 147 308 Hor.	Fest Frequency	Meter Reading	Detector	[dB/m]	Factor [dB]	dB(uVolts/meter)	Subpart C 15.209	(dB)	Subpart C Peak	(dB)	[Degs]	[cm]	Polarity
4960 57.25 LnAv 27.3 -53.13 31.42 54 -22.58 147 308 Hor	4960	65.65	PK	27.3	-53.13	39.82	-	-	74	-34.18	147	308	Horz
	4960	72.12	PK	27.3	-53.13	46.29	-	-	74	-27.71	295	379	Vert
	4960	57.25	LnAv	27.3	-53.13	31.42	54	-22.58	-	-	147	308	Horz
4960 64.11 LnAv 27.3 -53.13 38.28 54 -15.72 348 390 Vert	4960	64.11	LnAv	27.3	-53.13	38.28	54	-15.72	-	-	348	390	Vert
K-Peak detector	PK - Peak detect	or											
nAv - Linear Average detector													
IOTE: No other emissions detected above the system noise floor	NOTE: No other e	amissions detect	ted above t	he system no	ise floor								

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8.4. WORST-CASE BELOW 1 GHz

8.4.1. WORST-CASE BELOW 1 GHz - MODEL: A2541R24A

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION)



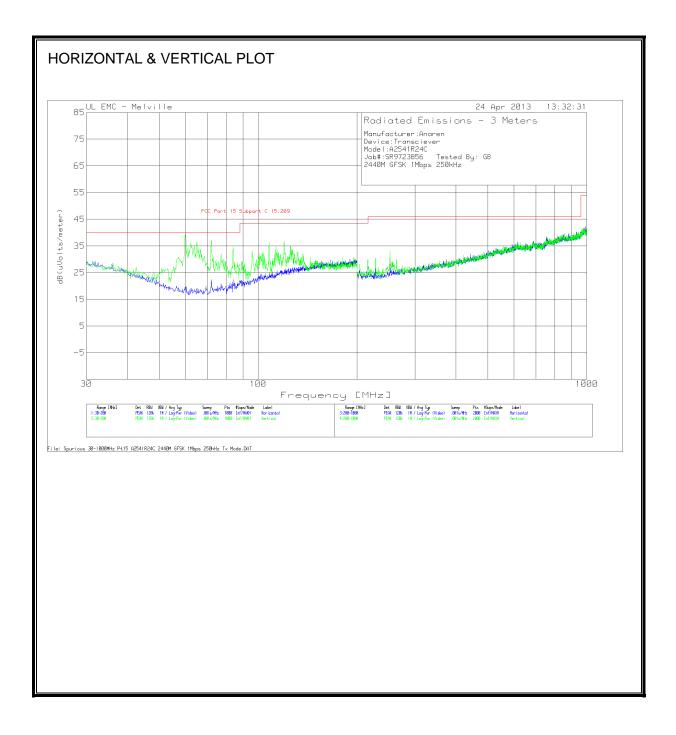
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Manufacturer:A									
Device:Transcie	ever								
Model:A2541R2									
ob#:SR9723856	5 Tested By: GB								
2440M GFSK 1N	lbps 250kHz								
/ertical 30 - 200	DMHz								
F	Meter Reading	Determent		GL-3M [dB]	FCC Part 15 Subpart C 15.209	Manaia (dD)	Azimuth	-	Polarity
59.995	-		[0B/m] 6.5						Vert
62.8797		-	6.5						Vert
65.205			5.8		 				Vert
72.015			6.3						Vert
84.0251			8.4		 				Vert
108.015			11.8		 				Vert
QP - Quasi-Peak	detector								

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8.4.2. WORST-CASE BELOW 1 GHz - MODEL: A2541R24C

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION)



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Anufacturer:A	naren									
evice:Transcie	ver									
lodel:A2541R2	24A									
ob#:SR972385	6 Tested By: GB									
440M GFSK 1N	lbps 250kHz									
ertical 30 - 200	DMHz									
est Frequency	Meter Reading	Detector	AF-43441 [dB/m]	GL-3M [dB]	dB(uVolts/meter)	FCC Part 15 Subpart C 15.209	Margin (dB)	Azimuth [Degs]	-	Polarit
59.99			6.5	0.1						Vert
62.4177			6.1	0.3	33.68	40	-6.32	41	112	Vert
65.1649			5.8	0.2	34.46	40	-5.54	259	101	Vert
72.005			6.3	0.4	36.06	40	-3.94	5	136	Vert
107.9975	21.68	QP	11.8	0.4	33.88	43.5	-9.62	19	105	Vert
119.995	18.95	QP	13.1	0.4	32.45	43.5	-11.05	26	132	Vert

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9. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

RSS-Gen 7.2.2

Frequency of Emission (MHz)	Conducted Limit (dBuV)				
	Quasi-peak	Average			
0.15-0.5	66 to 56 "	56 to 46 "			
0.5-5	56	46			
5-30	60	50			

Decreases with the logarithm of the frequency.

TEST PROCEDURE

ANSI C63.4

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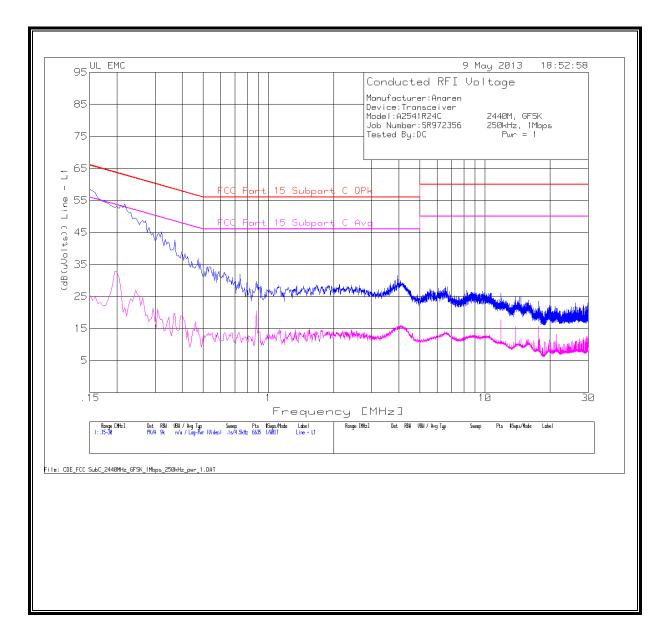
RESULTS

<u>6 WORST EMISSIONS</u>

Manufacturer:A	naren							
Device:Transcei	ver							
Model:A2541R2	4C 2440M, G	FSK						
Job Number:SR9	72356 250kHz	, 1Mbps						
Tested By:DC	Pwr = 1							
Line - L1 .15 - 30	MHz							
Test Frequency [MHz]	Meter Reading [dBuV]	Detector	5A636 L1	(dP(u)(alta))	FCC Part 15 Subpart C QPk	Margin (dP)	FCC Part 15	Margia (dP)
0.159	• •		10	57.42	65.52	-8.1	Subpart CAvg	Margin (ub)
0.135	43.83		10	53.83	62.91	-0.1	-	
0.2175	45.65		10	48.78		-9.08	-	
	38.78		10	48.78	61.35		-	
0.321	21.37		10.2	45.21	59.68	-14.47	-	
3.9525	16.67		10.2	27.07	50	-24.43	-	
0.159	16.67		10.4	27.07	65.52	-32.93	55.52	-30.58
0.159	14.94		10	24.94	65.52	-40.58	55.52	-30.58
0.2625	11.56		10	21.50	61.35	-41.55	51.35	-26.67
0.2823	8.08		10	18.08	59.68	-50.07	49.68	-20.0
3.9525	5.07		10.2	15.00	55.66	-40.73	45.66	
5.9525	2.11		10.2	15.27	50		50	-30.73
8.25	2.11	AV	10.4	12.51	60	-47.49	50	-37.45
Neutral .15 - 30	MHz							
	Meter Reading		5A636 L4Neut		FCC Part 15		FCC Part 15	
[MHz]	[dBuV]	Detector	[dB]		Subpart C QPk	Margin (dB)	Subpart C Avg	Margin (dB)
0.1545	50.24		10.1	60.34	65.75	-5.41	-	
0.177	43.84		10	53.84	64.63	-10.79	-	
0.2175	40.8		10	50.8	62.91	-12.11	-	
4.047		PK	10.2	27.2	56	-28.8	-	
5.568	18.53		10.3	28.83	60	-31.17	-	
14.316	15.39		10.9	26.29	60	-33.71	-	
0.15	38.41	•	10.1	48.51	66	-17.49	56	
0.1545	24.14		10.1	34.24	65.75	-31.51	55.75	-21.51
0.177	10.73		10	20.73	64.63	-43.9	54.63	-33.9
0.2175	18.6		10	28.6	62.91	-34.31	52.91	-24.3
4.047	2.8		10.2	13	56	-43	46	-33
5.568	1.17		10.3	11.47	60	-48.53	50	-38.53
14.316	4.06	Av	10.9	14.96	60	-45.04	50	-35.04
PK - Peak detect	or							
QP - Quasi-Peak	detector							

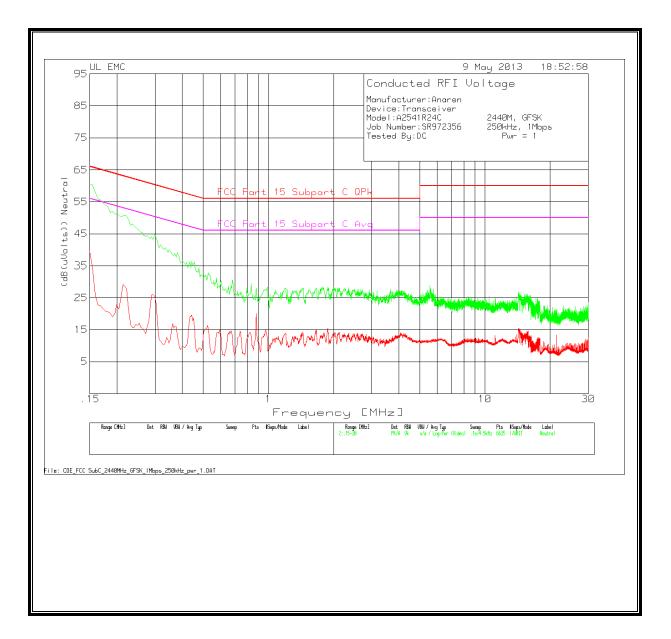
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LINE 1 RESULTS



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LINE 2 RESULTS



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