



Test Report

Prepared for: G-Way Microwave

Model: FORAM-AWSF-5/44-65-R3U15

Description: Rack Mount Remote Unit

Serial Number: N/A

FCC ID: Q8KAW54465R

To

FCC Part 1.1310

Date of Issue: January 21, 2015

On the behalf of the applicant:

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Attention of:

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Test Report Revision History

Revision	Date	Revised By	Reason for Revision
1.0	August 19, 2015	Alex Macon	Original Document
2.0	January 21, 2016	Alex Macon	Corrected conducted power and corresponding calculations for the 2.1 GHz band



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Non-accredited tests contained in this report:

N/A

EUT Description

Model: FORAM-AWSF-5/44-65-R3U15

Description: Rack Mount Remote Unit

Firmware: N/A

Software: N/A

S/N: N/A

Additional Information:

The EUT is a Part 20 dual band industrial bi-directional amplifier.

The manufacturer specified 2 different antennas for this device.

The antenna with the highest gain was used in the RF Exposure calculations.

Antenna Type	Frequency Range (MHz)	Gain (dBi)
Directional Wall Mount	698 - 960	8.5
	1700 - 2700	10
Wide Band High Gain Ceiling	698 - 960	2
	1700 - 2700	5



Source Based Time Averaged Power Calculation

Average Power calculations

Average Power = Peak Power * duty-cycle%

Tuned Frequency (MHz)	Conducted Peak Output Power (mW)	20% increase	Average Power (mW)
1727.25	3.53	20%	4.236
2132.69	35600	20%	42720



MPE Evaluation

This is a fixed device used in Uncontrolled Exposure environment.

Limits Uncontrolled Exposure
47 CFR 1.1310
Table 1, (B)

0.3-1.234 MHz:	Limit [mW/cm ²] = 100
1.34-30 MHz:	Limit [mW/cm ²] = (180/f ²)
30-300 MHz:	Limit [mW/cm ²] = 0.2
300-1500 MHz:	Limit [mW/cm ²] = f/1500
1500-100,000 MHz	Limit [mW/cm ²] = 1.0

Test Data for 1727.25 MHz

Test Frequency, MHz	1727.25
Power, Conducted, mW (P)	4.236
Antenna Gain Isotropic	10 dBi
Antenna Gain Numeric (G)	10
Antenna Type	Directional
Distance (R)	20 cm

$S = \frac{P * G}{4\pi r^2}$			
Power Density (S) mw/cm ²	Power mW (P)	Numeric Gain (G)	Distance (r ²) cm
0.0084275028	4.236	10	20

Power Density (S) = 0.008
Limit =(from above table) = 1.0

Test Data for 2132.69 MHz

Test Frequency, MHz	2132.69
Power, Conducted, mW (P)	42720
Antenna Gain Isotropic	10 dBi
Antenna Gain Numeric (G)	10
Antenna Type	Directional
Distance (R)	20 cm

$S = \frac{P * G}{4\pi r^2}$			
Power Density (S) mw/cm ²	Power mW (P)	Numeric Gain (G)	Distance (r ²) cm
84.9912462200	42720	10	20

Power Density (S) = 85
Limit =(from above table) = 1.0

The EUT does not meet the power spectral density requirements at 20 cm with the directional wall mount antenna, so the minimum safe distance was calculated on the next page.



Minimum Safe Distance Evaluation for 2132.69 MHz

This is a Fixed device evaluated to general population (Uncontrolled Exposure) environment.

Limits Uncontrolled Exposure
47 CFR 1.1310
Table 1, (B)

0.3-1.234 MHz:	Limit [mW/cm ²] = 100
1.34-30 MHz:	Limit [mW/cm ²] = (180/f ²)
30-300 MHz:	Limit [mW/cm ²] = 0.2
300-1500 MHz:	Limit [mW/cm ²] = f/1500
1500-100,000 MHz	Limit [mW/cm ²] = 1.0

Test Data

Test Data for Yagi Antenna

Test Frequency, MHz	2132.69
Power, Conducted, mW (P)	42720
Antenna Gain Isotropic	10 dBi
Antenna Gain Numeric (G)	10
Limit (L)	1.0

R=√(PG/4πL)	Distance (R) cm	Power mW (P)	Numeric Gain (G)	Limit (L)
	184.425429	42720	10	1

The minimum safe distance with the directional wall mount antenna is 184.42cm

END OF TEST REPORT