



FCC Permissive Class 2 Test Report
For the
Mueller Systems
RFDC Radio Module
FCC ID: SM6-RFDC

WLL JOB# 11709-01 Rev 1
July 8, 2011
Re-issued August 1, 2011

Prepared for:

Mueller Systems
48 Leona Drive
Middleboro, MA, 02346 USA

Prepared By:

Washington Laboratories, Ltd.
7560 Lindbergh Drive
Gaithersburg, Maryland 20879



Testing Certificate AT-1448

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Prepared by:

James Ritter
EMC Compliance Engineer



Reviewed by:

Michael F. Violette
President

Abstract

This report has been prepared on behalf of Mueller Systems to support the attached Class 2 permissive change. The Permissive Class 2 Test Report for a modular Frequency Hopping Spread Spectrum Transmitter operating under Part 15.247 (10/2009) of the FCC Rules. This Certification Permissive Class 2 Test Report documents the test configuration and test results for a Mueller Systems RFDC Radio Module.

Testing was performed on an Open Area Test Site (OATS) of Washington Laboratories, Ltd, 7560 Lindbergh Drive, Gaithersburg, MD 20879. Site description and site attenuation data have been placed on file with the FCC's Sampling and Measurements Branch at the FCC laboratory in Columbia, MD. The Industry Canada OATS numbers are 3035A-1 and 3035A-2 for Washington Laboratories, Ltd. Site 1 and Site 2, respectively. Washington Laboratories, Ltd. has been accepted by the FCC and approved by ACLASS under Certificate AT-1448 as an independent FCC test laboratory.

The Mueller Systems RFDC Radio Module remains in compliance with the limits for a Frequency Hopping Spread Spectrum Transmitter device under FCC Part 15.247.

Revision History	Description of Change	Date
Rev 0	Initial Release	July 8, 2011
Rev 1	Removed measurement uncertainty info	August 1, 2011

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1 Introduction

1.1 Reason for Class 2 Permissive Change

This class 2 permissive change is being generated to allow this transceiver module to operate with its antenna within 20cm of a Zigbee transceiver located on the MiBridge product line. The Zigbee module operates in the 2405 – 2475MHz and has been modular certified under FCC ID: TFB-PROFLEX1.

1.2 Transceiver Co-location Attestation

The RFDC transceiver module antenna may be located within 20cm of a Zigbee transceiver module antenna, which in the MiBridge product will be enclosed in the same housing. Testing was performed to measure any potential spurious interactions between these 2 devices. This testing was performed in a radiated fashion with both transceivers continuously transmitting on a stationary frequency. The module was then scanned up to 25GHz verifying that all spurious products that fall within the restricted bands remain under class B limits. This device complied with this requirement. Plots of this data are held at Washington laboratories

1.3 Test Scope

Tests for emissions were performed in the host device.

1.4 Contract Information

Customer:	Mueller Systems 48 Leona Drive Middleboro, MA, 02346 USA
Purchase Order Number:	724240
Quotation Number:	65835

1.5 Test Dates

Testing was performed on the following date(s):	10/28/2010
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1.6 Test and Support Personnel

Washington Laboratories, LTD	John Repella
Client Representative	David Splitz

1.7 Abbreviations

A	Ampere
ac	alternating current
AM	Amplitude Modulation
Amps	Amperes
b/s	bits per second
BW	BandWidth
CE	Conducted Emission
cm	centimeter
CW	Continuous Wave
dB	deciBel
dc	direct current
EMI	Electromagnetic Interference
EUT	Equipment Under Test
FM	Frequency Modulation
G	giga - prefix for 10⁹ multiplier
Hz	Hertz
IF	Intermediate Frequency
k	kilo - prefix for 10³ multiplier
LISN	Line Impedance Stabilization Network
M	Mega - prefix for 10⁶ multiplier
m	meter
μ	micro - prefix for 10⁻⁶ multiplier
NB	Narrowband
QP	Quasi-Peak
RE	Radiated Emissions
RF	Radio Frequency
rms	root-mean-square
SN	Serial Number
S/A	Spectrum Analyzer
V	Volt

1.8 Test Location

All measurements herein were performed at Washington Laboratories, Ltd. test center in Gaithersburg, MD. Site description and site attenuation data have been placed on file with the FCC's Sampling and Measurements Branch at the FCC laboratory in Columbia, MD. The Industry Canada OATS numbers are 3035A-1 and 3035A-2 for Washington Laboratories, Ltd. Site 1 and Site 2, respectively. Washington Laboratories, Ltd. has been accepted by the FCC and approved by ACLASS under Certificate AT-1448 as an independent FCC test laboratory.

1.9 Measurements

1.9.1 References

ANSI C63.2 Specifications for Electromagnetic Noise and Field Strength Instrumentation