



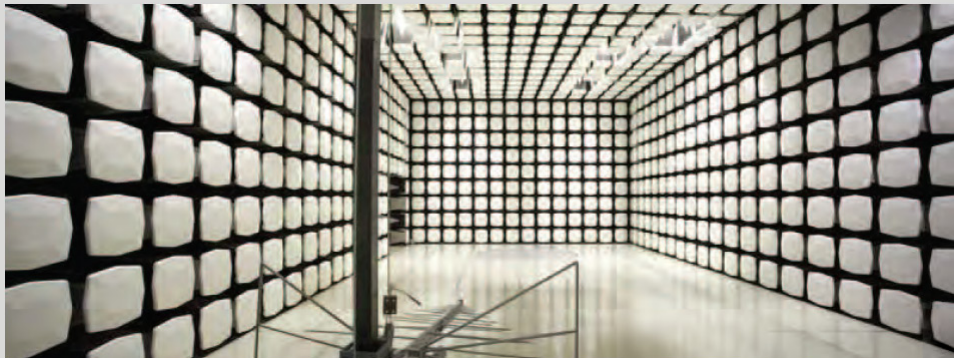
## **Synapse Strategic Product Development LLC**

**xBRv3x2**

**FCC 15.247:2012**

**FCC 15.207:2012**

**Report #: SYNA0103**



Report Prepared By Northwest EMC Inc.

NORTHWEST EMC – (888) 364-2378 – [www.nwemc.com](http://www.nwemc.com)

California – Minnesota – Oregon – New York – Washington

**Last Date of Test: October 01, 2012**  
**Synapse Strategic Product Development LLC**  
**Model: xBRv3x2**

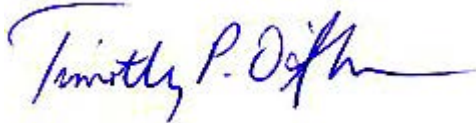
## Emissions

Test Description	Specification	Test Method	Pass/Fail
Occupied Bandwidth	FCC 15.247:2012	ANSI C63.10:2009	Pass
Output Power	FCC 15.247:2012	ANSI C63.10:2009	Pass
Band Edge Compliance	FCC 15.247:2012	ANSI C63.10:2009	Pass
Spurious Conducted Emissions	FCC 15.247:2012	ANSI C63.10:2009	Pass
Power Spectral Density	FCC 15.247:2012	ANSI C63.10:2009	Pass
Spurious Radiated Emissions	FCC 15.247:2012	ANSI C63.10:2009	Pass
AC Powerline Conducted Emissions	FCC 15.207:2012	ANSI C63.10:2009	Pass

## Deviations From Test Standards

None

### Approved By:



Tim O'Shea, Operations Manager



NVLAP Lab Code: 200630-0

### Test Facility

The measurement facility used to collect the data is located at:

Northwest EMC, Inc.  
22975 NW Evergreen Parkway, Suite 400  
Hillsboro, OR 97124

Phone: (503) 844-4066 Fax: 844-3826

This site has been fully described in a report filed with and accepted by the FCC (Federal Communications Commission) and Industry Canada (Site filing #2834D-1).

*This report must not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government of the United States of America.*

*Product compliance is the responsibility of the client, therefore the tests and equipment modes of operation represented in this report were agreed upon by the client, prior to testing. This Report may only be duplicated in its entirety. The results of this test pertain only to the sample(s) tested. The specific description is noted in each of the individual sections of the test report supporting this certificate of test.*

# REVISION HISTORY

Revision Number	Description	Date	Page Number
00	None		

## Barometric Pressure

The recorded barometric pressure has been normalized to sea level.

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## United States

**FCC** - Designated by the FCC as a Telecommunications Certification Body (TCB). Certification chambers, Open Area Test Sites, and conducted measurement facilities are listed with the FCC.

**A2LA** - Accredited by A2LA to ISO / IEC Guide 65 as a product certifier. This allows Northwest EMC to certify transmitters to FCC and IC specifications.

**NVLAP** - Each laboratory is accredited by NVLAP to ISO 17025

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## Canada

**IC** - Recognized by Industry Canada as a Certification Body (CB). Certification chambers and Open Area Test Sites are filed with IC.

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## European Union

**European Commission** – Validated by the European Commission as a Conformity Assessment Body (CAB) under the EMC directive and as a Notified Body under the R&TTE Directive.

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## Australia/New Zealand

**ACMA** - Recognized by ACMA as a CAB for the acceptance of test data.

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## Korea

**KCC / RRA** - Recognized by KCC's RRA as a CAB for the acceptance of test data.

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## Japan

**VCCI** - Associate Member of the VCCI. Conducted and radiated measurement facilities are registered.

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## Taiwan

**BSMI** – Recognized by BSMI as a CAB for the acceptance of test data.

**NCC** - Recognized by NCC as a CAB for the acceptance of test data.

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## Singapore

**IDA** – Recognized by IDA as a CAB for the acceptance of test data.

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## Hong Kong

**OFTA** – Recognized by OFTA as a CAB for the acceptance of test data.

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## Vietnam

**MIC** – Recognized by MIC as a CAB for the acceptance of test data.

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## Russia

**GOST** – Accredited by Certinform VNIINMASH, CERTINFO, SAMTES, and Federal CHEC to perform EMC and Hygienic testing for Information Technology products to GOST standards.

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## SCOPE

For details on the Scopes of our Accreditations, please visit:

<http://www.nwemc.com/accreditations/>

## Measurement Uncertainty

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

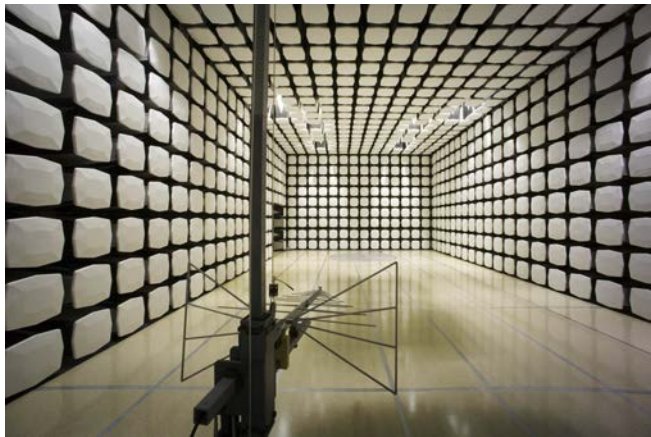
A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty (K=2) for each test is on each data sheet. Our measurement data meets or exceeds the measurement uncertainty requirements of the applicable specification; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for estimating measurement uncertainty are based upon ETSI TR 100 028 (or CISPR 16-4-1 as applicable), and are available upon request.

The following table represents the Measurement Uncertainty (MU) budgets for each of the tests that may be contained in this report.

<b>Test</b>	<b>+ MU</b>	<b>- MU</b>
Frequency Accuracy (Hz)	0.12	-0.01
Amplitude Accuracy (dB)	0.49	-0.49
Conducted Power (dB)	0.41	-0.41
Radiated Power via Substitution (dB)	0.69	-0.68
Temperature (degrees C)	0.81	-0.81
Humidity (% RH)	2.89	-2.89
Field Strength (dB)	4.00	-4.00
AC Powerline Conducted Emissions (dB)	2.70	-2.70



<p><b>Oregon</b> Labs EV01-EV12 22975 NW Evergreen Pkwy, #400 Hillsboro, OR 97124 (503) 844-4066</p>	<p><b>California</b> Labs OC01-OC13 41 Tesla Irvine, CA 92618 (949) 861-8918</p>	<p><b>New York</b> Labs WA01-WA04 4939 Jordan Rd. Elbridge, NY 13060 (315) 685-0796</p>	<p><b>Minnesota</b> Labs MN01-MN08 9349 W Broadway Ave. Brooklyn Park, MN 55445 (763) 425-2281</p>	<p><b>Washington</b> Labs SU01-SU07 14128 339<sup>th</sup> Ave. SE Sultan, WA 98294 (360) 793-8675</p>
<b>VCCI</b>				
A-0108	A-0029		A-0109	A-0110
<b>Industry Canada</b>				
2834D-1, 2834D-2	2834B-1, 2834B-2, 2834B-3		2834E-1	2834C-1





WTD 12.5.23

# PRODUCT DESCRIPTION

## Client and Equipment Under Test (EUT) Information

<b>Company Name:</b>	Synapse Strategic Product Development LLC
<b>Address:</b>	1511 6th Ave. 4th Floor
<b>City, State, Zip:</b>	Seattle, WA 98101
<b>Test Requested By:</b>	Jim Hite
<b>Model:</b>	xBRv3x2
<b>First Date of Test:</b>	October 01, 2012
<b>Last Date of Test:</b>	September 28, 2012
<b>Receipt Date of Samples:</b>	September 27, 2012
<b>Equipment Design Stage:</b>	Production
<b>Equipment Condition:</b>	No Damage

## Information Provided by the Party Requesting the Test

<b>Functional Description of the EUT (Equipment Under Test):</b>
2.4 GHz transmitter with 0 dBm output.
<b>Testing Objective:</b>
To demonstrate compliance to FCC 15.247 requirements.

## Configuration SYNA0103- 1

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Wireless Location Device	Synapse Strategic Product Development LLC	xBRv3x2	00:91:FA:00:02:02 / 00:91:FA:00:02:03

Remote Equipment Outside of Test Setup Boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Switch with PoE	Cisco	SFE2000P	D4D748C223E7

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
CAT-5e Ethernet x2	Yes	8.0m	No	Wireless Location Device	Switch with PoE
AC Power	No	1.8m	No	AC Mains	Switch with PoE

PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.

## Configuration SYNA0103- 2

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Wireless Location Device	Synapse Strategic Product Development LLC	xBRv3x2	00:91:FA:00:02:02 / 00:91:FA:00:02:03

Remote Equipment Outside of Test Setup Boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Switch with PoE	Cisco	SFE2000P	D4D748C223E7

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Power	No	1.8m	No	AC Mains	Switch with PoE
Cat 5 Ethernet	No	1	No	Wireless Location Device	Switch with PoE

PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.



## Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	9/28/2012	Spurious Radiated Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
2	10/1/2012	Spurious Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
3	10/1/2012	Occupied Bandwidth	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
4	10/1/2012	Output Power	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
5	10/1/2012	Power Spectral Density	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
6	10/1/2012	Band Edge Compliance	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
7	10/1/2012	AC Powerline Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

## Duty Cycle

### TEST DESCRIPTION

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The Duty Cycle (x) were measured for each of the EUT operating modes. The measurements were made using a zero span on the spectrum analyzer to see the pulses in the time domain. The transmit power was set to its default maximum. A direct connection was made between the RF output of the EUT and a spectrum analyzer. Attenuation and a DC block were used

The duty cycle was calculated by dividing the transmission pulse duration (T) by the total period of a single on and total off time.

The EUT operates at 100% Duty Cycle.

## Occupied Bandwidth

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

### TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
40GHz DC Block	Miteq	DCB4000	AMD	6/25/2012	12
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	8/2/2012	12
Power Meter	Gigatronics	8651A	SPM	1/9/2012	24
MXG Vector Signal Generator	Agilent	N5182A	TIF	NCR	0
Attenuator, 'Precision N'	S.M. Electronics	SA18N-06/SM4032	REE	12/15/2011	12
Power Sensor	Gigatronics	80701A	SPL	7/8/2011	24
Spectrum Analyzer	Agilent	E4440A	AFD	7/5/2012	12
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0

### TEST DESCRIPTION

The 6dB occupied bandwidth was measured using 100 kHz resolution bandwidth and 300 kHz video bandwidth. The 26 dB (99.9%) emission bandwidth (EBW) was also measured at the same time.

The EUT was set to the single transmit frequency. The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at the modulation type listed in the datasheet.

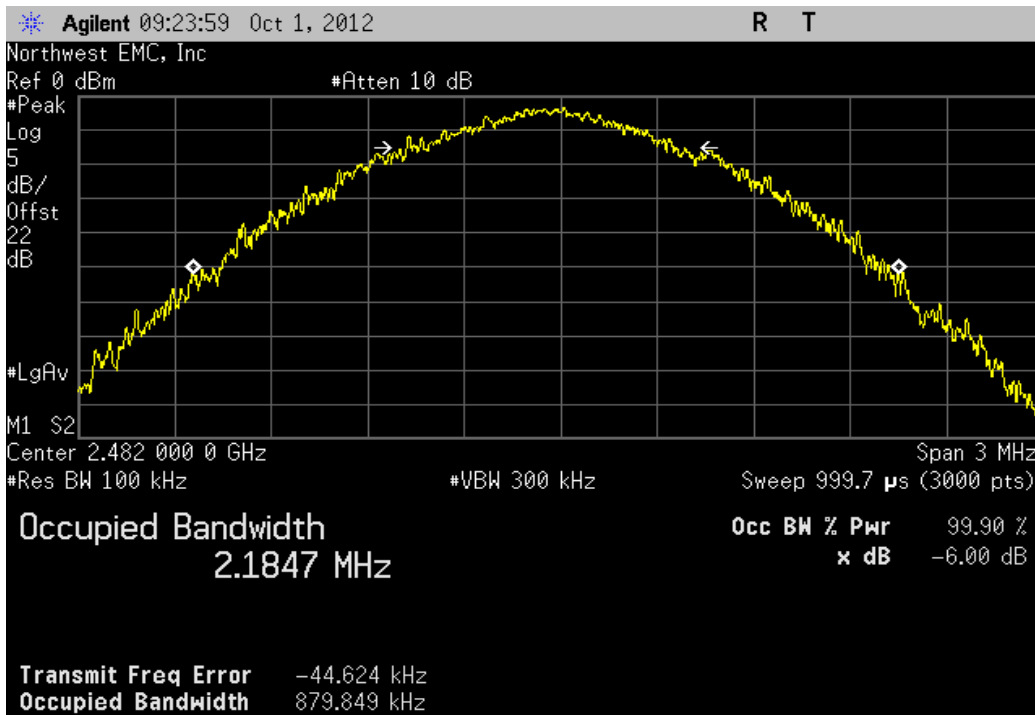


# Occupied Bandwidth

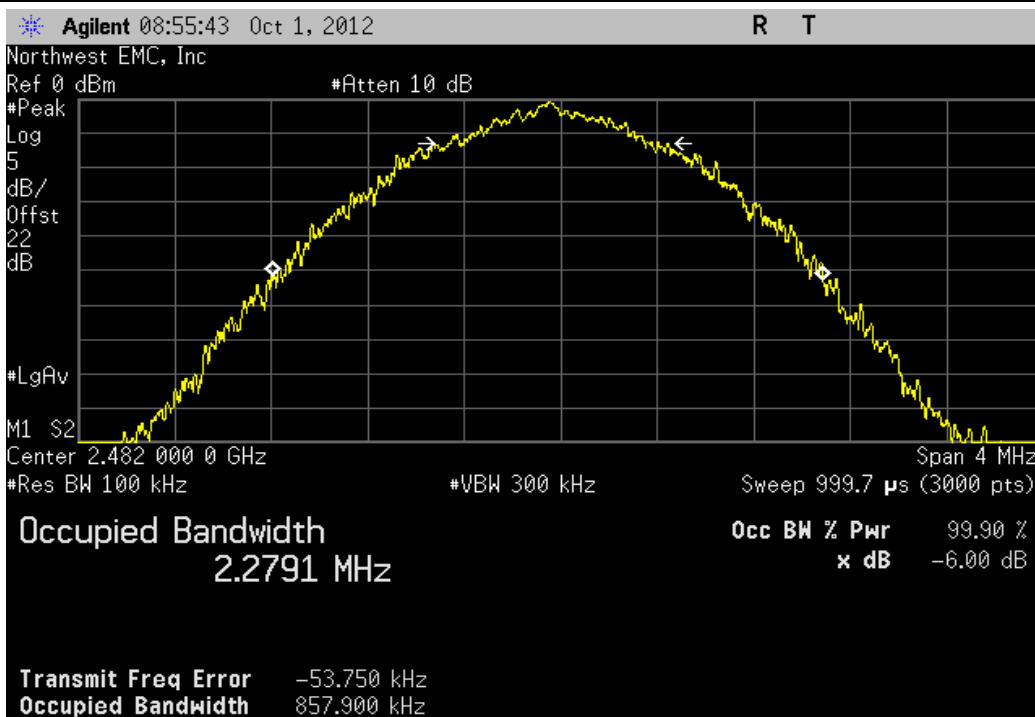
XMit 2012.09.20  
PsaTx 2012.09.10

EUT: xBRv3x2		Work Order: SYNA0103	
Serial Number: 00:91:FA:00:02:02, 00:91:FA:00:02:03		Date: 10/01/12	
Customer: Synapse Strategic Product Development LLC		Temperature: 23.62°C	
Attendees: None		Humidity: 35%	
Project: None		Barometric Pres.: 1025	
Tested by: Brandon Hobbs and Rod Peloquin		Power: PoE	
Job Site: EV06		Job Site: EV06	
TEST SPECIFICATIONS		Test Method	
FCC 15.247:2012		ANSI C63.10:2009	
COMMENTS			
The EUT was transmitting at 100% duty cycle.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature <i>Brandon Hobbs</i>	
		Value	Limit
Antenna Port A	GFSK		
	Channel 2482 MHz	879.849 kHz	> 500 kHz
Antenna Port B	GFSK		
	Channel 2482 MHz	857.9 kHz	> 500 kHz
			Pass

Antenna Port A, GFSK, Channel 2482 MHz			
	Value	Limit	Result
	879.849 kHz	> 500 kHz	Pass



Antenna Port B, GFSK, Channel 2482 MHz			
	Value	Limit	Result
	857.9 kHz	> 500 kHz	Pass



## Output Power

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

### TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
40GHz DC Block	Miteq	DCB4000	AMD	6/25/2012	12
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	8/2/2012	12
Power Meter	Gigatronics	8651A	SPM	1/9/2012	24
MXG Vector Signal Generator	Agilent	N5182A	TIF	NCR	0
Attenuator, 'Precision N'	S.M. Electronics	SA18N-06/SM4032	REE	12/15/2011	12
Power Sensor	Gigatronics	80701A	SPL	7/8/2011	24
Spectrum Analyzer	Agilent	E4440A	AFD	7/5/2012	12
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0

### TEST DESCRIPTION

The transmit frequency was set to the required channel in the band. The transmit power was set to its default maximum. A direct connection was made between the RF output of the EUT and a spectrum analyzer. Attenuation and a DC block were used. The reference level offset on the spectrum analyzer was adjusted to compensate for cable loss and the external attenuation used between the RF output and the spectrum analyzer input.

Prior to measuring peak transmit power; the emission bandwidth (B) and the transmission pulse duration (T) were measured. Both are required to determine the method of measuring Maximum Conducted Output Power. The transmission pulse duration (T) was measured using a zero span on the spectrum analyzer to see the pulses in the time domain.

Method PK1 found in KDB 558074 DTS D01 Measurement Section 5.2.1.1 was used because the Emission Bandwidth was less than the RBW on the analyzer.

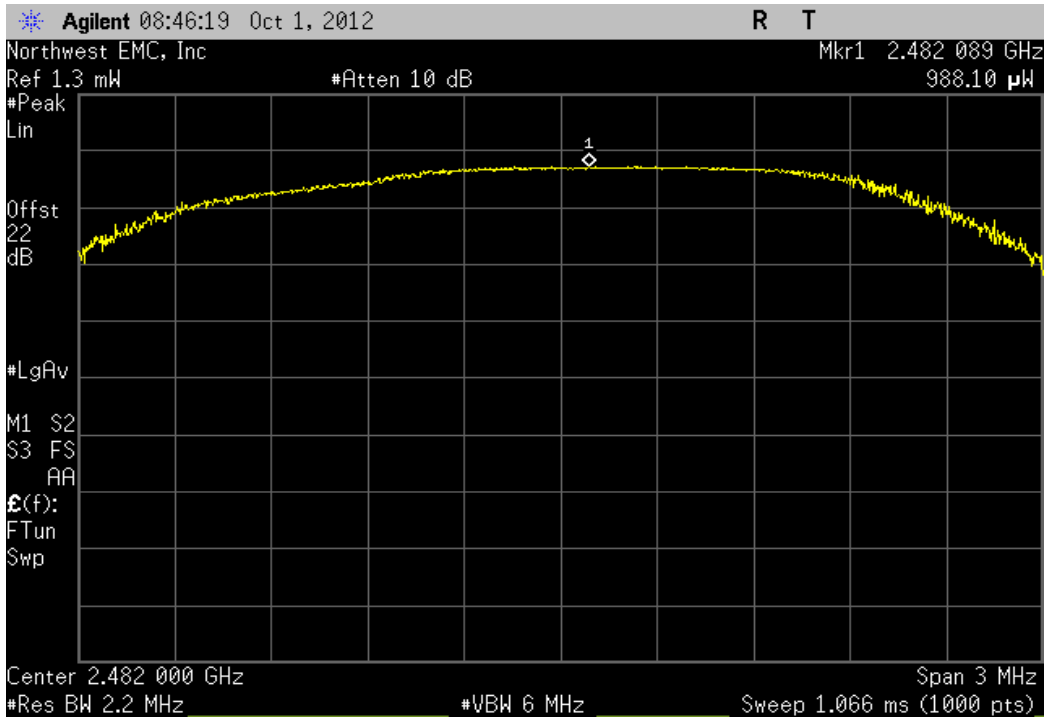


# Output Power

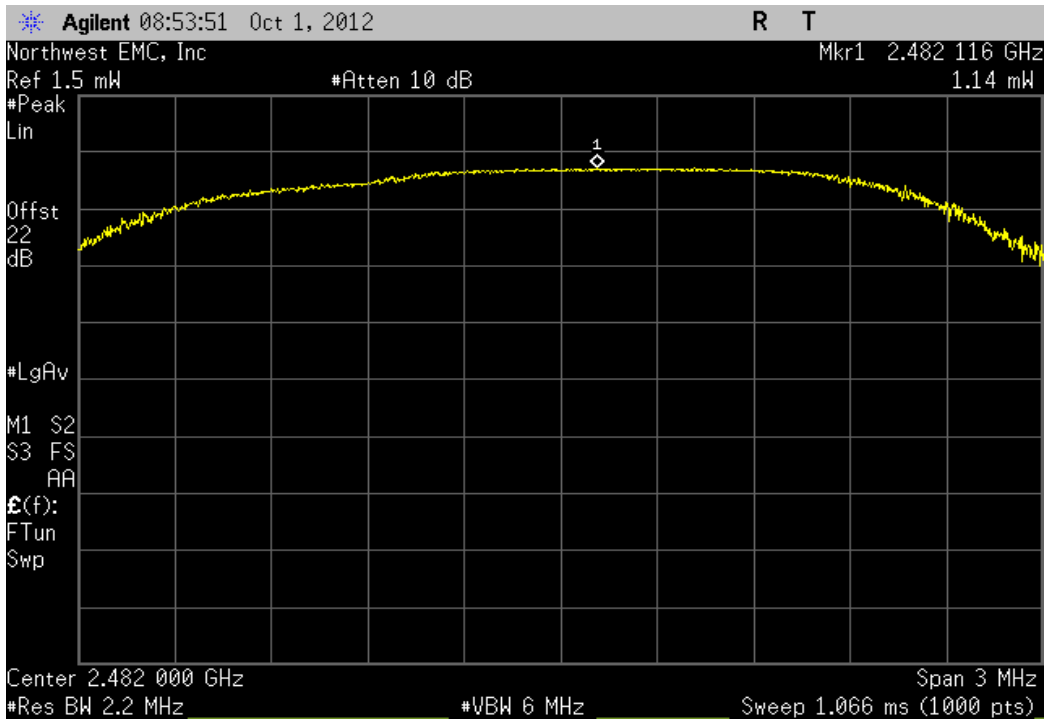
XMit 2012.09.20  
PsaTx 2012.09.10

EUT: xBRv3x2		Work Order: SYNA0103	
Serial Number: 00:91:FA:00:02:02, 00:91:FA:00:02:03		Date: 10/01/12	
Customer: Synapse Strategic Product Development LLC		Temperature: 23.62°C	
Attendees: None		Humidity: 35%	
Project: None		Barometric Pres.: 1025	
Tested by: Brandon Hobbs and Rod Peloquin		Power: PoE	
Job Site: EV06		Test Method	
TEST SPECIFICATIONS		FCC 15.245:2012	
ANSI C63.10:2009			
COMMENTS			
The EUT was transmitting at 100% duty cycle.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature <i>Brandon Hobbs</i>	
		Value	Limit
Antenna Port A	GFSK		
	Channel 2482 MHz	988.098 uW	< 1 W
Antenna Port B	GFSK		
	Channel 2482 MHz	1.14 mW	< 1 W
			Pass

Antenna Port A, GFSK, Channel 2482 MHz			
	Value	Limit	Result
	988.098 uW	< 1 W	Pass



Antenna Port B, GFSK, Channel 2482 MHz			
	Value	Limit	Result
	1.14 mW	< 1 W	Pass





## Band Edge Compliance

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

### TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
40GHz DC Block	Miteq	DCB4000	AMD	6/25/2012	12
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	8/2/2012	12
Power Meter	Gigatronics	8651A	SPM	1/9/2012	24
MXG Vector Signal Generator	Agilent	N5182A	TIF	NCR	0
Attenuator, 'Precision N'	S.M. Electronics	SA18N-06/SM4032	REE	12/15/2011	12
Power Sensor	Gigatronics	80701A	SPL	7/8/2011	24
Spectrum Analyzer	Agilent	E4440A	AFD	7/5/2012	12
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0

### TEST DESCRIPTION

The spurious RF conducted emissions at the edge of the authorized band were measured with the EUT set high transmit frequency in each available band. The channel closest to the band edge was selected. The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at the modulation type listed in the datasheet.

The spectrum was scanned above the higher band edge.

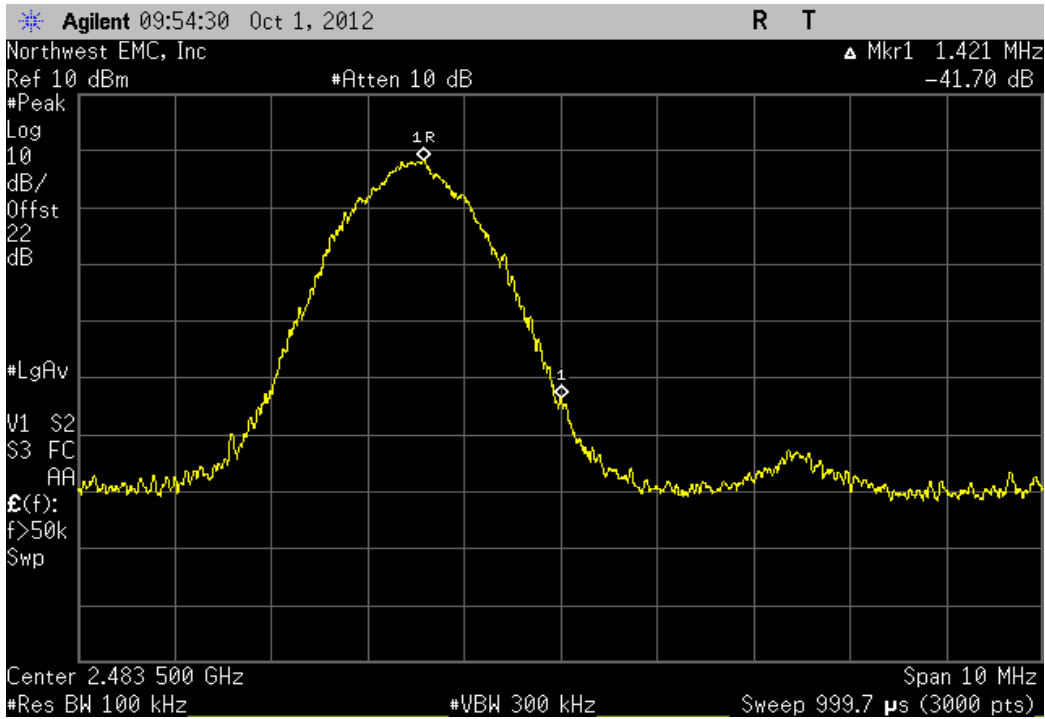


# Band Edge Compliance

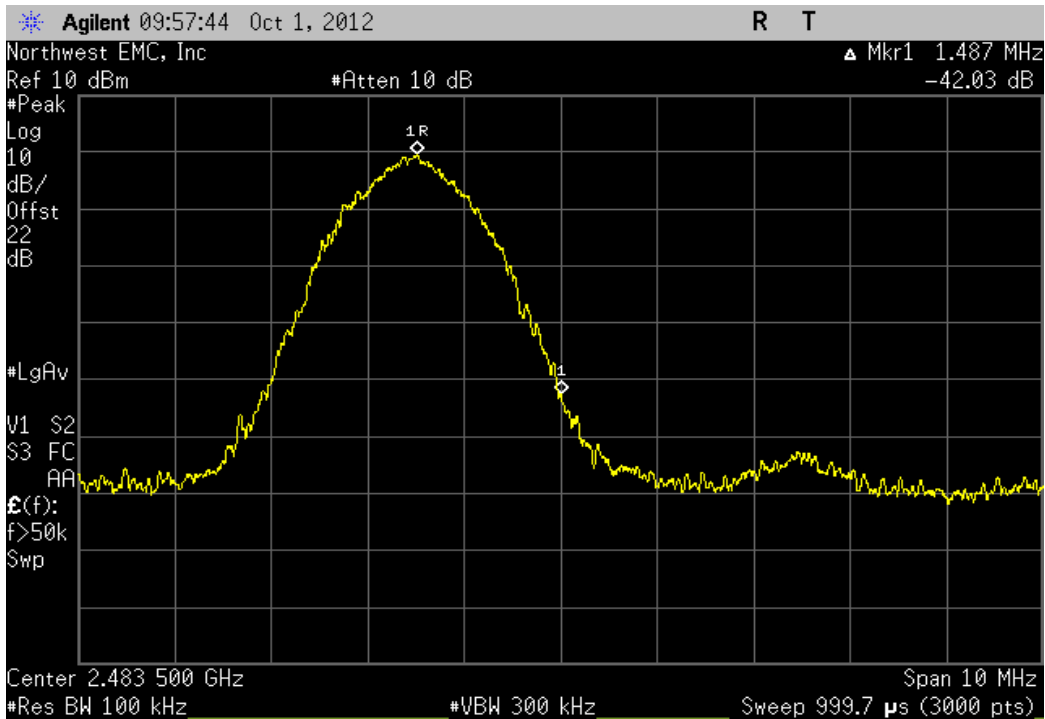
XMit 2012.09.20  
PsaTx 2012.09.10

EUT: xBRv3x2		Work Order: SYNA0103	
Serial Number: 00:91:FA:00:02:02, 00:91:FA:00:02:03		Date: 10/01/12	
Customer: Synapse Strategic Product Development LLC		Temperature: 23.62°C	
Attendees: None		Humidity: 35%	
Project: None		Barometric Pres.: 1025	
Tested by: Brandon Hobbs and Rod Peloquin		Power: PoE	
TEST SPECIFICATIONS		Test Method	
FCC 15.247:2012		ANSI C63.10:2009	
COMMENTS			
The EUT was transmitting at 100% duty cycle.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature <i>Brandon Hobbs</i>	
		Value	Limit
Antenna Port A	GFSK		
	Channel 2482 MHz	-41.7 dBc	≤ -20 dBc
Antenna Port B	GFSK		
	Channel 2482 MHz	-42.04 dBc	≤ -20 dBc
			Pass

Antenna Port A, GFSK, Channel 2482 MHz			
	Value	Limit	Result
	-41.7 dBc	≤ -20 dBc	Pass



Antenna Port B, GFSK, Channel 2482 MHz			
	Value	Limit	Result
	-42.04 dBc	≤ -20 dBc	Pass



## Spurious Conducted Emissions

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

### TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
40GHz DC Block	Miteq	DCB4000	AMD	6/25/2012	12
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	8/2/2012	12
Power Meter	Gigatronics	8651A	SPM	1/9/2012	24
MXG Vector Signal Generator	Agilent	N5182A	TIF	NCR	0
Attenuator, 'Precision N'	S.M. Electronics	SA18N-06/SM4032	REE	12/15/2011	12
Power Sensor	Gigatronics	80701A	SPL	7/8/2011	24
Spectrum Analyzer	Agilent	E4440A	AFD	7/5/2012	12
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0

### TEST DESCRIPTION

The spurious RF conducted emissions were measured with the EUT set the single transmit frequency. The measurements were made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at the modulation type listed in the datasheet. For each transmit frequency, the spectrum was scanned throughout the specified frequency range.

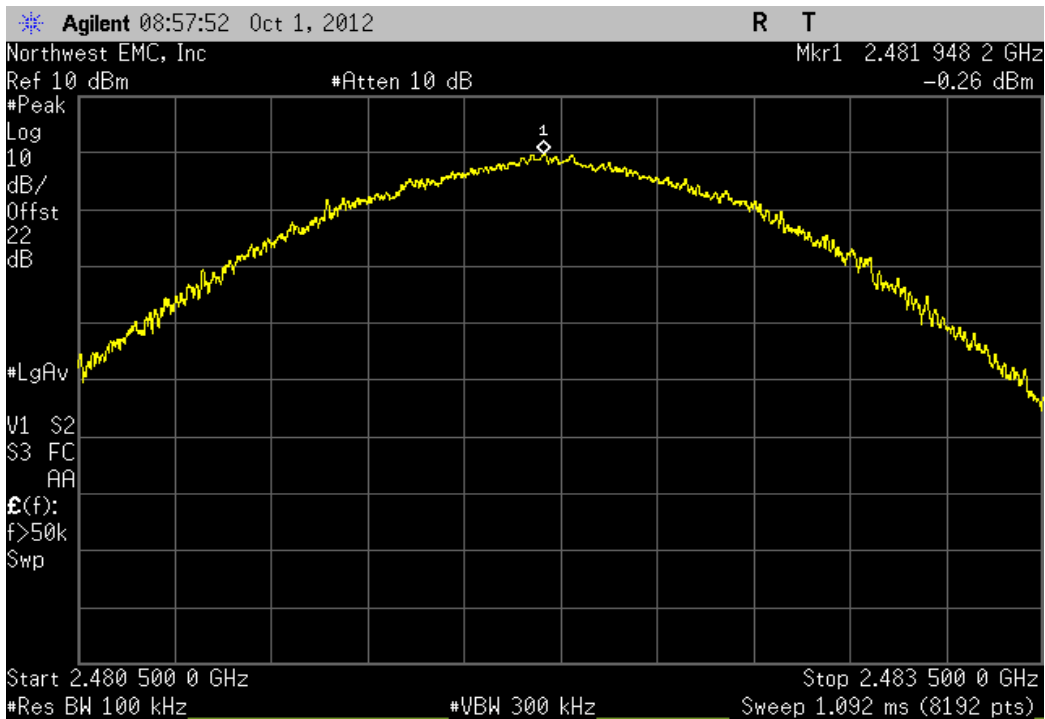


# Spurious Conducted Emissions

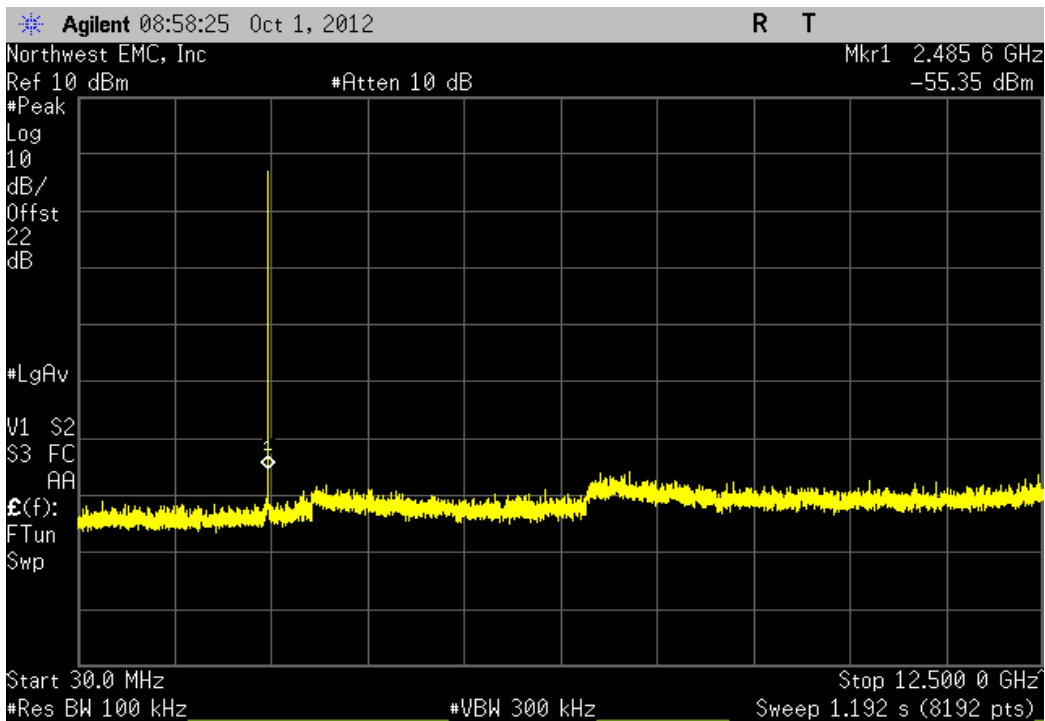
XMit 2012.09.20  
PsaTx 2012.09.10

EUT: xBRV3x2		Work Order: SYNA0103	
Serial Number: 00:91:FA:00:02:02, 00:91:FA:00:02:03		Date: 10/01/12	
Customer: Synapse Strategic Product Development LLC		Temperature: 23.62°C	
Attendees: None		Humidity: 35%	
Project: None		Barometric Pres.: 1025	
Tested by: Brandon Hobbs and Rod Peloquin		Power: PoE	
Job Site: EV06		Test Method	
TEST SPECIFICATIONS		FCC 15.247:2012	
ANSI C63.10:2009			
COMMENTS			
The EUT was transmitting at 100% duty cycle.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature <i>Rodry Le Peloy</i>	
		Frequency Range	Value Limit Result
Antenna Port B	GFSK		
	Channel 2482 MHz	Fundamental	N/A N/A N/A
	Channel 2482 MHz	30 MHz - 12.5 GHz	-55.09 dBc ≤ -20 dBc Pass
	Channel 2482 MHz	12.5 GHz - 25 GHz	-52.37 dBc ≤ -20 dBc Pass

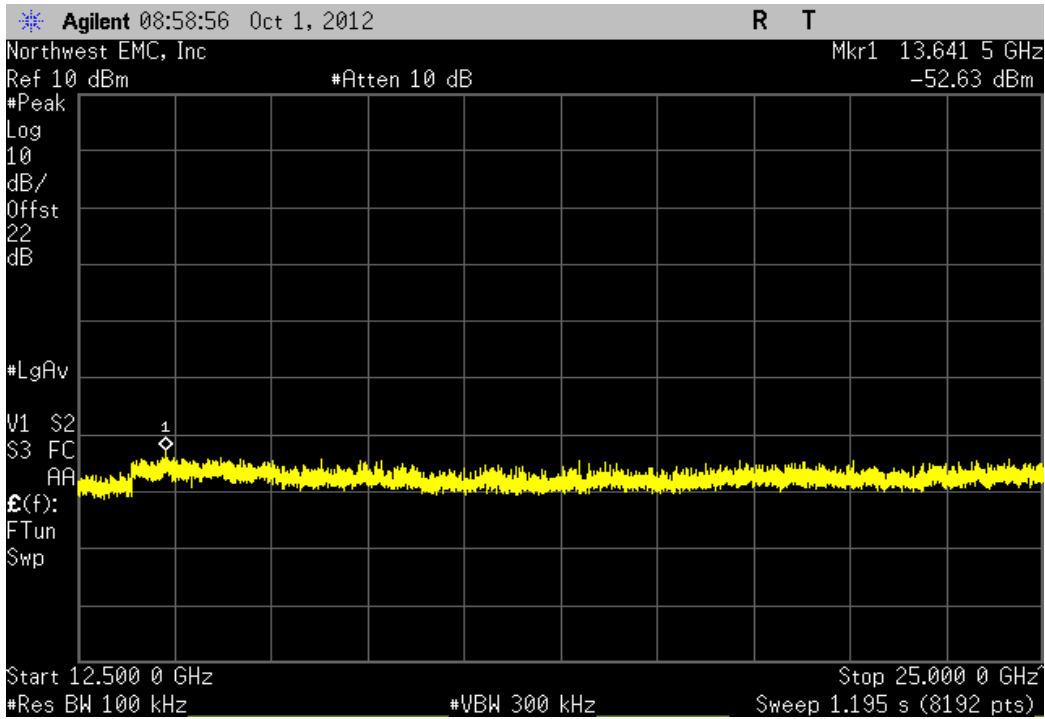
Antenna Port B, GFSK, Channel 2482 MHz				
Frequency Range	Value	Limit	Result	
Fundamental	N/A	N/A	N/A	



Antenna Port B, GFSK, Channel 2482 MHz				
Frequency Range	Value	Limit	Result	
30 MHz - 12.5 GHz	-55.09 dBc	≤ -20 dBc	Pass	



Antenna Port B, GFSK, Channel 2482 MHz			
Frequency Range	Value	Limit	Result
12.5 GHz - 25 GHz	-52.37 dBc	≤ -20 dBc	Pass



# Power Spectral Density

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

## TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
40GHz DC Block	Miteq	DCB4000	AMD	6/25/2012	12
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	8/2/2012	12
Power Meter	Gigatronics	8651A	SPM	1/9/2012	24
MXG Vector Signal Generator	Agilent	N5182A	TIF	NCR	0
Attenuator, 'Precision N'	S.M. Electronics	SA18N-06/SM4032	REE	12/15/2011	12
Power Sensor	Gigatronics	80701A	SPL	7/8/2011	24
Spectrum Analyzer	Agilent	E4440A	AFD	7/5/2012	12
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0

## TEST DESCRIPTION

The maximum power spectral density measurements were measured with the EUT set to the required transmit frequency in the band. The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at the GFSK modulation type.

Per the procedure outlined in FCC KDB 558074 D01 DTS Measurement Section 5.3.1, the spectrum analyzer was used as follows:

- RBW = 100 kHz
- VBW = 300 kHz
- Detector = Peak (to match method used for power measurement)
- Trace = Max hold

The observed power level is then scaled to an equivalent value in 3 kHz by adding a Bandwidth Correction Factor (BWCF) where:

$$BWCF = 10 \cdot \text{LOG} (3 \text{ kHz} / 100 \text{ kHz}) = -15.2 \text{ dB}$$



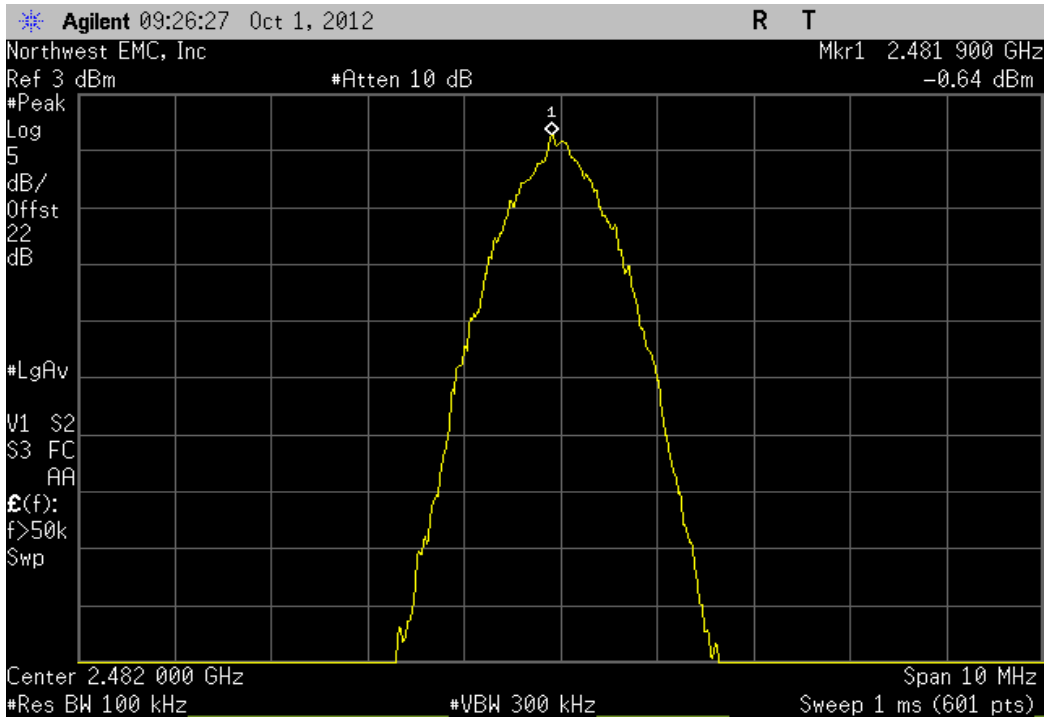


Power Spectral Density

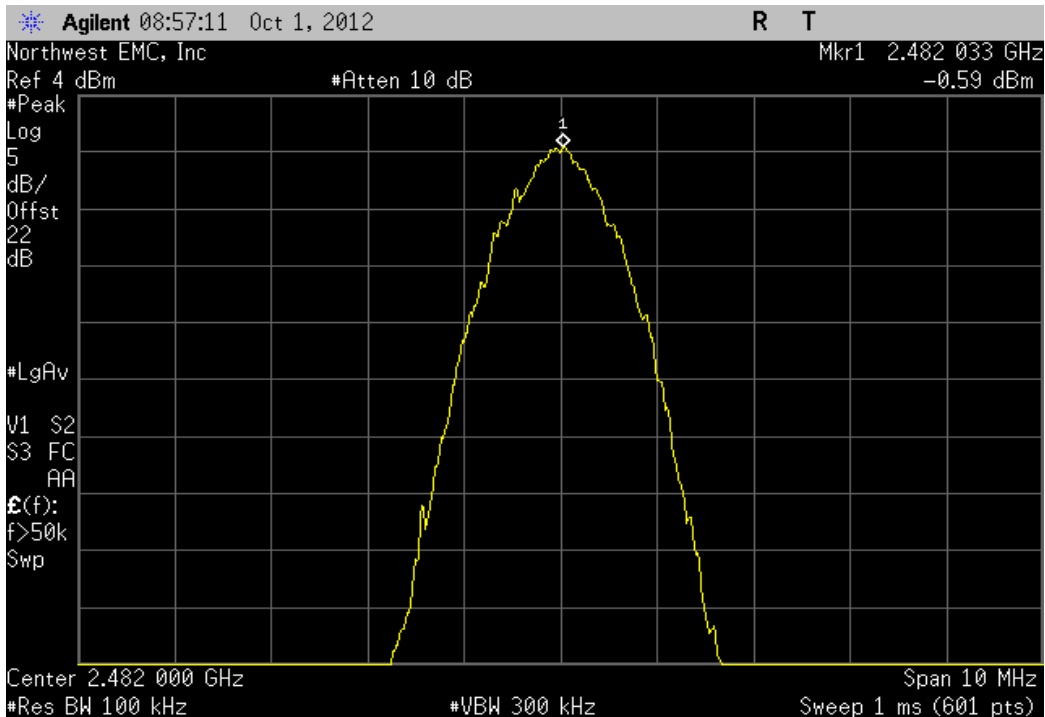
XMit 2012.09.20  
PsaTx 2012.09.10

EUT: xBRV3x2		Work Order: SYNA0103	
Serial Number: 00:91:FA:00:02:02, 00:91:FA:00:02:03		Date: 10/01/12	
Customer: Synapse Strategic Product Development LLC		Temperature: 23.62°C	
Attendees: None		Humidity: 35%	
Project: None		Barometric Pres.: 1025	
Tested by: Brandon Hobbs and Rod Peloquin		Power: PoE	
TEST SPECIFICATIONS		Job Site: EV06	
FCC 15.247:2012		Test Method	
		ANSI C63.10:2009	
COMMENTS			
The EUT was transmitting at 100% duty cycle.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature <i>Rodry Le Pellego</i>	
		Value	Limit
		dBm/100kHz	dBm/3kHz
		To dBm/3kHz	
Antenna Port A	GFSK		
	Channel 2482 MHz	-0.643	-15.843
		-15.2	8
Antenna Port B	GFSK		
	Channel 2482 MHz	-0.591	-15.791
		-15.2	8
			Result
			Pass
			Pass

Antenna Port A, GFSK, Channel 2482 MHz					
Value	dBm/100kHz	Value	Limit		
dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz	Result	
-0.643	-15.2	-15.843	8	Pass	



Antenna Port B, GFSK, Channel 2482 MHz					
Value	dBm/100kHz	Value	Limit		
dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz	Result	
-0.591	-15.2	-15.791	8	Pass	



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

## MODES OF OPERATION

Transmitting GFSK at 2482 Mhz, 100% duty cycle

## POWER SETTINGS INVESTIGATED

PoE

## CONFIGURATIONS INVESTIGATED

SYNA0103 - 1

## FREQUENCY RANGE INVESTIGATED

Start Frequency	30 MHz	Stop Frequency	26.5 GHz
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## SAMPLE CALCULATIONS

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

## TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Cable	ESM Cable Corp.	KMKM-72	EVY	9/11/2012	12 mo
Pre-Amplifier	Miteq	AMF-6F-18002650-25-10P	AVU	9/11/2012	12 mo
Antenna, Horn	ETS Lindgren	3160-09	AIV	NCR	0 mo
Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AVD	2/28/2012	12 mo
Antenna, Horn	ETS	3160-08	AHV	NCR	0 mo
EV01 Cables	N/A	Standard Gain Horns Cables	EVF	2/28/2012	12 mo
Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVC	2/28/2012	12 mo
Antenna, Horn	ETS	3160-07	AHU	NCR	0 mo
EV01 Cables	N/A	Bilog Cables	EVA	6/26/2012	12 mo
Pre-Amplifier	Miteq	AM-1616-1000	AOL	6/26/2012	12 mo
Antenna, Horn	ETS	3115	AIZ	1/24/2011	24 mo
EV01 Cables	N/A	Double Ridge Horn Cables	EVB	6/27/2012	12 mo
Pre-Amplifier	Miteq	AMF-4D-010100-24-10P	APW	6/27/2012	12 mo
Antenna, Biconilog	EMCO	3141	AXG	4/10/2012	12 mo
Spectrum Analyzer	Agilent	E4446A	AAQ	2/7/2012	12 mo

## MEASUREMENT BANDWIDTHS

Frequency Range (MHz)	Peak Data (kHz)	Quasi-Peak Data (kHz)	Average Data (kHz)
0.01 - 0.15	1.0	0.2	0.2
0.15 - 30.0	10.0	9.0	9.0
30.0 - 1000	100.0	120.0	120.0
Above 1000	1000.0	N/A	1000.0

## TEST DESCRIPTION

The highest gain of each type of antenna to be used with the EUT was tested. The EUT was configured for a single band transmit frequency. For each configuration, the spectrum was scanned throughout the specified range. In addition, measurements were made in the restricted bands to verify compliance. While scanning, emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and the EUT antenna in three orthogonal axis, and adjusting measurement antenna height and polarization. A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.



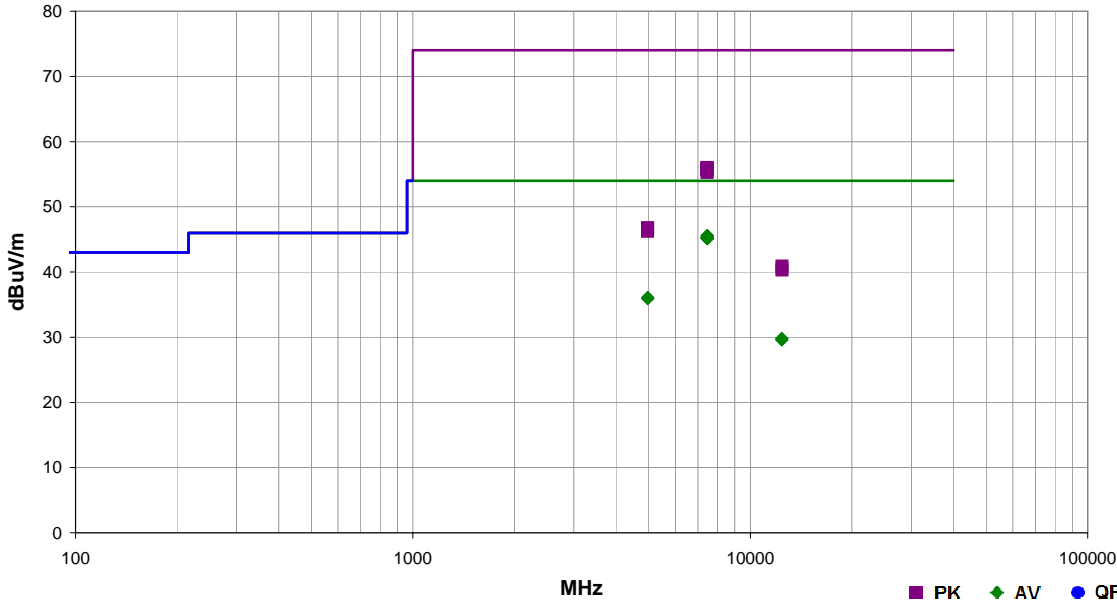
# SPURIOUS RADIATED EMISSIONS

PSA-ESCI 2012.09.10  
PSA-ESCI Version 2011.12.21

Work Order:	SYNA0103	Date:	09/28/12	<i>Carl Engholm</i>
Project:	None	Temperature:	23.8 °C	
Job Site:	EV01	Humidity:	43% RH	
Serial Number:	00:91:FA:00:02:02, 00:91:FA:00:02:03	Barometric Pres.:	1015.3 mbar	Tested by: Carl Engholm
EUT:	xBRv3x2			
Configuration:	1			
Customer:	Synapse Strategic Product Development LLC			
Attendees:	None			
EUT Power:	PoE			
Operating Mode:	Transmitting GFSK at 2482 MHz, 100% duty cycle			
Deviations:	None			
Comments:	None			

Test Specifications	FCC 15.247:2012	Test Method	ANSI C63.10:2009
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Run #	8	Test Distance (m)	3	Antenna Height(s)	1-4m	Results	Pass
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Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
7445.713	26.1	19.5	1.3	212.0	3.0	0.0	Vert	AV	0.0	45.6	54.0	-8.4	EUT Horizontal, Tx #03
7445.840	26.0	19.5	1.4	190.0	3.0	0.0	Horz	AV	0.0	45.5	54.0	-8.5	EUT Vertical, Tx #03
7446.020	25.8	19.5	1.1	71.0	3.0	0.0	Vert	AV	0.0	45.3	54.0	-8.7	EUT Horizontal, Tx #02
7445.900	25.8	19.5	1.0	325.0	3.0	0.0	Horz	AV	0.0	45.3	54.0	-8.7	EUT Vertical, Tx #02
7444.620	25.7	19.5	1.0	2.0	3.0	0.0	Horz	AV	0.0	45.2	54.0	-8.8	EUT Horizontal, Tx #02
7444.387	25.7	19.5	2.0	180.0	3.0	0.0	Horz	AV	0.0	45.2	54.0	-8.8	EUT On Side, Tx #02
7444.193	25.7	19.5	1.0	332.0	3.0	0.0	Vert	AV	0.0	45.2	54.0	-8.8	EUT On Side, Tx #02
7444.153	25.7	19.5	1.9	206.0	3.0	0.0	Vert	AV	0.0	45.2	54.0	-8.8	EUT Vertical, Tx #02
4963.893	25.3	10.8	1.0	356.0	3.0	0.0	Vert	AV	0.0	36.1	54.0	-17.9	EUT Horizontal, Tx #03
7445.727	36.5	19.5	1.4	190.0	3.0	0.0	Horz	PK	0.0	56.0	74.0	-18.0	EUT Vertical, Tx #03
7445.147	36.5	19.5	1.0	2.0	3.0	0.0	Horz	PK	0.0	56.0	74.0	-18.0	EUT Horizontal, Tx #02
4962.313	25.2	10.7	1.0	25.0	3.0	0.0	Horz	AV	0.0	35.9	54.0	-18.1	EUT Vertical, Tx #03
7444.020	36.3	19.5	2.0	180.0	3.0	0.0	Horz	PK	0.0	55.8	74.0	-18.2	EUT On Side, Tx #02
7447.600	36.2	19.5	1.9	206.0	3.0	0.0	Vert	PK	0.0	55.7	74.0	-18.3	EUT Vertical, Tx #02
7446.527	36.2	19.5	1.1	71.0	3.0	0.0	Vert	PK	0.0	55.7	74.0	-18.3	EUT Horizontal, Tx #02
7446.373	36.2	19.5	1.0	325.0	3.0	0.0	Horz	PK	0.0	55.7	74.0	-18.3	EUT Vertical, Tx #02
7445.053	36.2	19.5	1.3	212.0	3.0	0.0	Vert	PK	0.0	55.7	74.0	-18.3	EUT Horizontal, Tx #03
7444.780	35.8	19.5	1.0	332.0	3.0	0.0	Vert	PK	0.0	55.3	74.0	-18.7	EUT On Side, Tx #02
12408.100	32.6	-2.8	1.0	131.0	3.0	0.0	Vert	AV	0.0	29.8	54.0	-24.2	EUT Horizontal, Tx #03
12408.630	32.4	-2.8	1.0	25.0	3.0	0.0	Horz	AV	0.0	29.6	54.0	-24.4	EUT Vertical, Tx #03
4965.553	36.0	10.8	1.0	356.0	3.0	0.0	Vert	PK	0.0	46.8	74.0	-27.2	EUT Horizontal, Tx #03
4962.833	35.5	10.8	1.0	25.0	3.0	0.0	Horz	PK	0.0	46.3	74.0	-27.7	EUT Vertical, Tx #03
12409.810	43.7	-2.8	1.0	131.0	3.0	0.0	Vert	PK	0.0	40.9	74.0	-33.1	EUT Horizontal, Tx #03
12411.950	43.1	-2.8	1.0	25.0	3.0	0.0	Horz	PK	0.0	40.3	74.0	-33.7	EUT Vertical, Tx #03

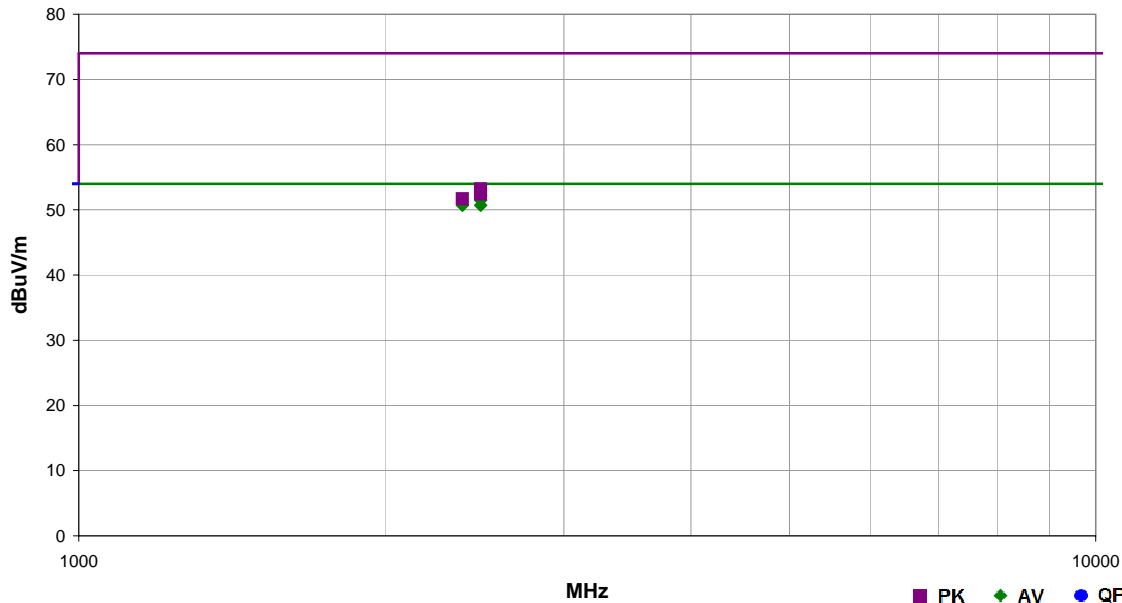


# SPURIOUS RADIATED EMISSIONS

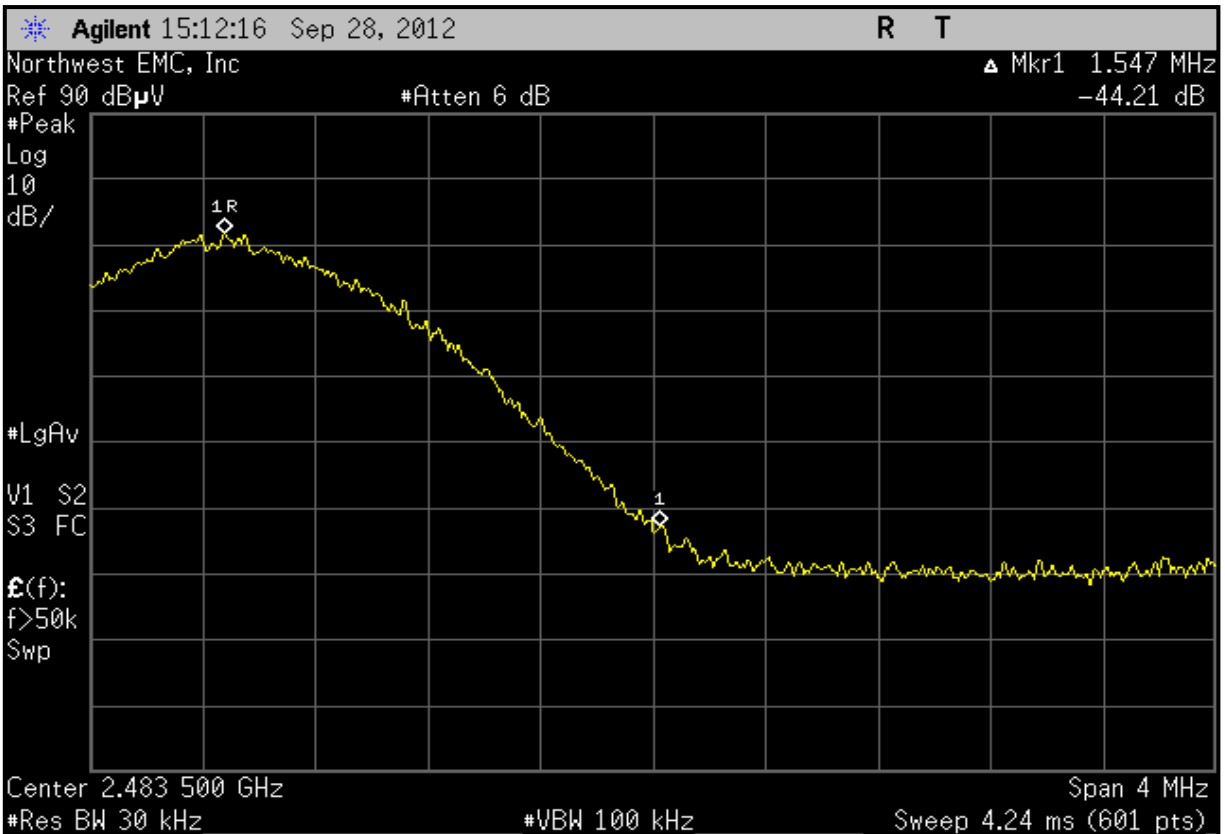
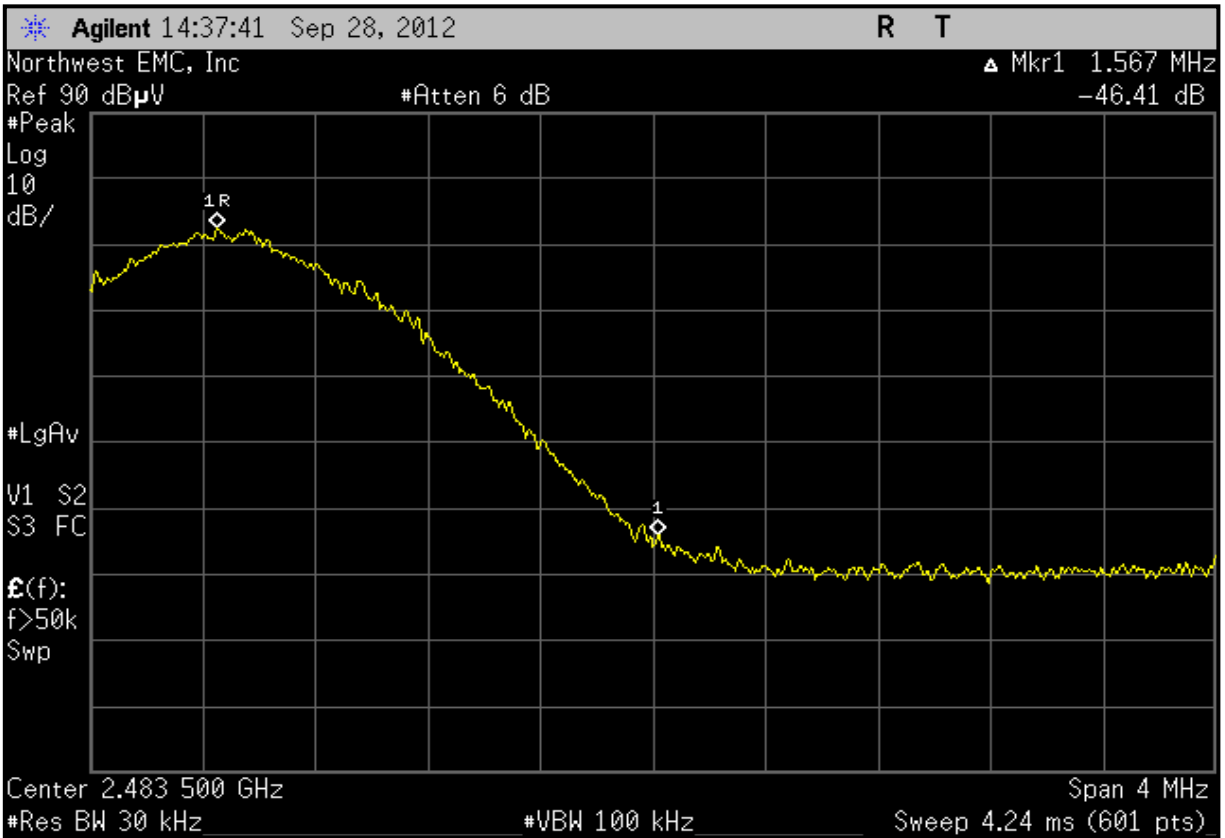
Work Order:	SYNA0103	Date:	09/28/12	<i>Carl Engholm</i>
Project:	None	Temperature:	23.8 °C	
Job Site:	EV01	Humidity:	43% RH	
Serial Number:	00:91:FA:00:02:02, 00:91:FA:00:02:03	Barometric Pres.:	1015.3 mbar	
EUT:	xBRV3x2			
Configuration:	1			
Customer:	Synapse Strategic Product Development LLC			
Attendees:	None			
EUT Power:	PoE			
Operating Mode:	Transmitting GFSK at 2482 Mhz, 100% duty cycle			
Deviations:	None			
Comments:	None			

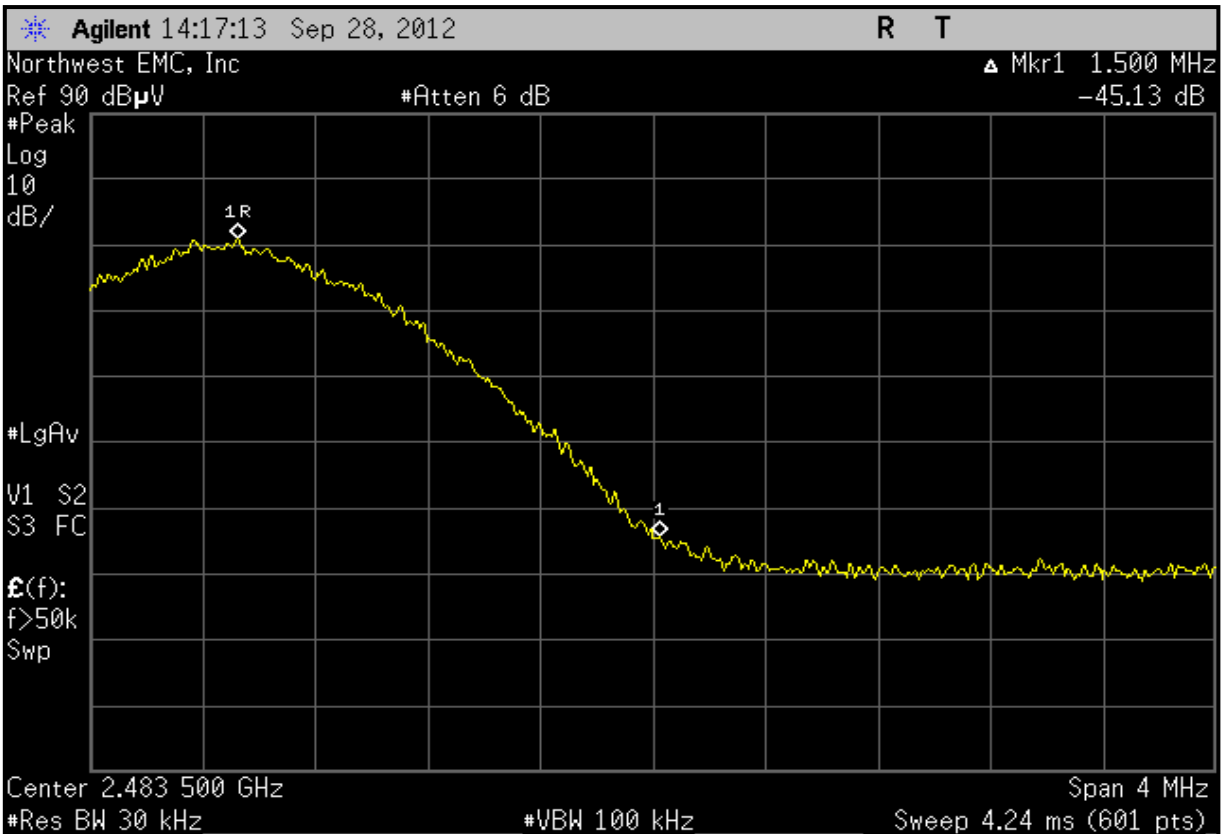
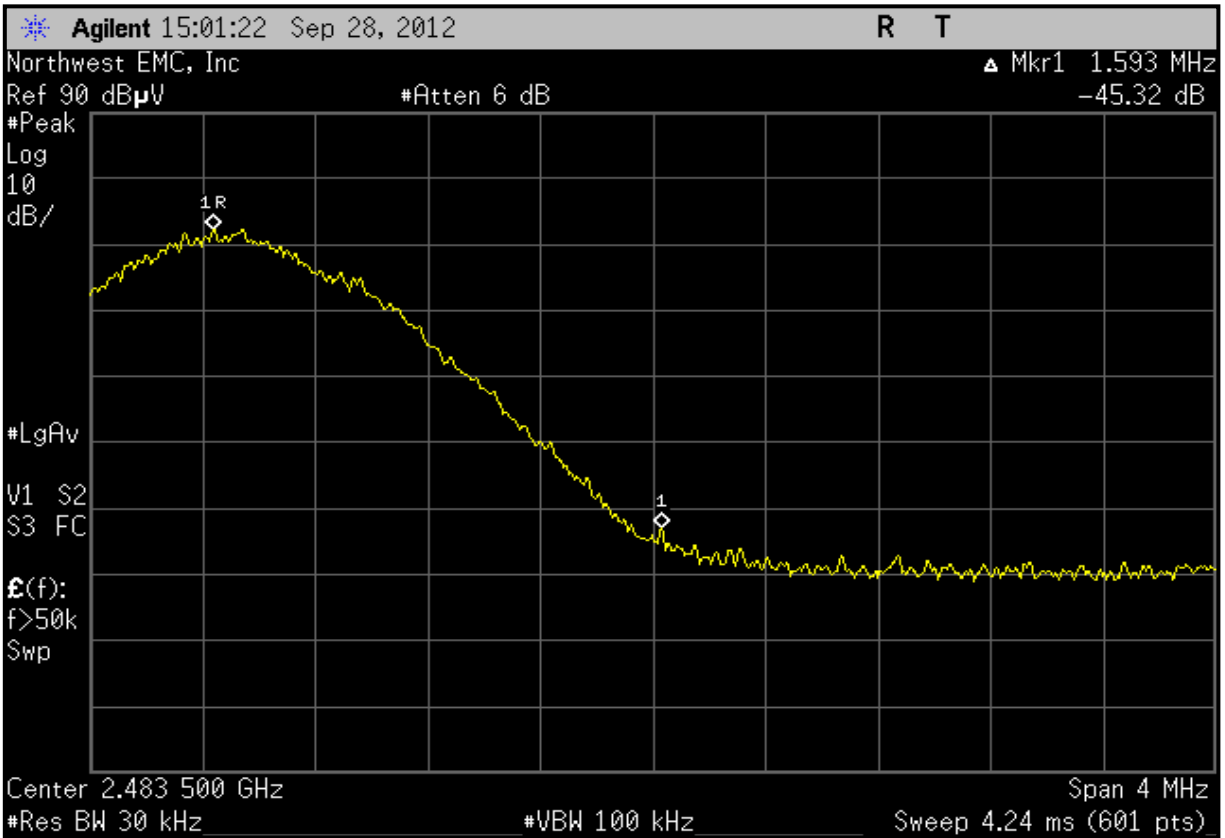
Test Specifications	FCC 15.247:2012	Test Method	ANSI C63.10:2009
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Run #	5	Test Distance (m)	3	Antenna Height(s)	1-4m	Results	Pass
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Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
2481.967	75.2	1.9	1.0	207.0	3.0	20.0	Vert	AV	0.0	97.1			Fundamental, EUT Horizontal, Tx #03 Marker-Delta Method: AV 97.1 + (-46.4 dBc) = 50.7
2383.520			1.0	207.0	3.0	20.0	Vert	AV	0.0	50.7	54.0	-3.3	
2481.987	74.9	1.9	1.0	89.0	3.0	20.0	Horz	AV	0.0	96.8			Fundamental, EUT Vertical, Tx #03 Marker-Delta Method: AV 96.8 + (-45.3 dBc) = 51.5
2483.533			1.0	89.0	3.0	20.0	Horz	AV	0.0	51.5	54.0	-2.5	
2481.977	74.4	1.9	1.3	65.0	3.0	20.0	Horz	AV	0.0	96.3			Fundamental, EUT Vertical, Tx #02 Marker-Delta Method: AV 96.3 + (-44.2 dBc) = 52.1
2483.527			1.3	65.0	3.0	20.0	Horz	AV	0.0	52.1	54.0	-1.9	
2481.947	73.9	1.9	1.0	222.0	3.0	20.0	Vert	AV	0.0	95.8			Fundamental, EUT Horizontal, Tx #02 Marker-Delta Method: AV 95.8 + (-45.1 dBc) = 50.7
2483.527			1.0	222.0	3.0	20.0	Vert	AV	0.0	50.7	54.0	-3.3	
2481.923	76.2	1.9	1.0	207.0	3.0	20.0	Vert	PK	0.0	98.1			Fundamental, EUT Horizontal, Tx #03 Marker-Delta Method: PK 98.1 + (-46.4 dBc) = 51.7
2383.520			1.0	207.0	3.0	20.0	Vert	PK	0.0	51.7	74.0	-22.3	
2482.133	75.8	1.9	1.0	89.0	3.0	20.0	Horz	PK	0.0	97.7			Fundamental, EUT Vertical, Tx #03 Marker-Delta Method: PK 97.7 + (-45.3 dBc) = 52.4
2483.533			1.0	89.0	3.0	20.0	Horz	PK	0.0	52.4	74.0	-21.6	
2482.470	75.5	1.9	1.3	65.0	3.0	20.0	Horz	PK	0.0	97.4			Fundamental, EUT Vertical, Tx #02 Marker-Delta Method: PK 97.4 + (-44.2 dBc) = 53.2
2483.527			1.3	65.0	3.0	20.0	Horz	PK	0.0	53.2	74.0	-20.8	
2481.830	74.9	1.9	1.0	222.0	3.0	20.0	Vert	PK	0.0	96.8			Fundamental, EUT Horizontal, Tx #02 Marker-Delta Method: PK 96.8 + (-45.1 dBc) = 51.7
2483.527			1.0	222.0	3.0	20.0	Vert	PK	0.0	51.7	74.0	-22.3	





# AC POWERLINE CONDUCTED EMISSIONS

## TEST DESCRIPTION

Using the mode of operation and configuration noted within this report, conducted emissions tests were performed. The frequency range investigated (scanned), is also noted in this report. Conducted power line measurements are made, unless otherwise specified, over the frequency range from 150 kHz to 30 MHz to determine the line-to-ground radio-noise voltage that is conducted from the EUT power-input terminals that are directly (or indirectly via separate transformer or power supplies) connected to a public power network. Equipment is tested with power cords that are normally used or that have electrical or shielding characteristics that are the same as those cords normally used. Typically those measurements are made using a LISN (Line Impedance Stabilization Network), the 50 Ω measuring port is terminated by a 50 Ω EMI meter or a 50 Ω resistive load. All 50 Ω measuring ports of the LISN are terminated by 50Ω.

## TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
EV07 Cables	N/A	Conducted Cables	EVG	04/27/2012	12 mo
Attenuator	Coaxicom	66702 2910-20	RBR	08/07/2012	12 mo
High Pass Filter	TTE	H97-100K-50-720B	HHD	02/01/2012	24 mo
Receiver	Rohde & Schwarz	ESCI	ARH	03/29/2012	12 mo
LISN	Solar	9252-50-R-24-BNC	LIR	11/04/2011	12 mo
LISN	Solar	9252-50-R-24-BNC	LIN	04/16/2012	12 mo

## MEASUREMENT UNCERTAINTY

Description		
Expanded k=2	2.94 dB	-2.94 dB

## CONFIGURATIONS INVESTIGATED

SYNA0103-1  
SYNA0103-2

## MODES INVESTIGATED

On Standby, Not Transmitting  
Transmitting GFSK at 2482 MHz, 100% duty cycle



EUT:	xBRv3x2	Work Order:	SYNA0103
Serial Number:	00:91:FA:00:02:02, 00:91:FA:00:02:03	Date:	10/01/2012
Customer:	Synapse Strategic Product Development LLC	Temperature:	23.9°C
Attendees:	None	Relative Humidity:	34%
Customer Project:	None	Bar. Pressure:	1024.7 mb
Tested By:	Carl Engholm, Brandon Hobbs, and Kyle Holgate	Job Site:	EV03
Power:	PoE	Configuration:	SYNA0103-1

**TEST SPECIFICATIONS**

Specification:	Method:
FCC 15.207:2012	ANSI C63.10:2009

**TEST PARAMETERS**

Run #:	10	Line:	Neutral	Ext. Attenuation (dB):	20
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**COMMENTS**

shielded Cat 5 eight meter bundled

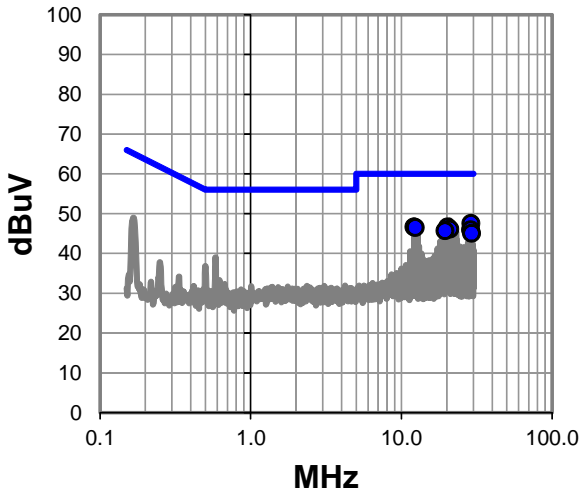
**EUT OPERATING MODES**

Transmitting GFSK at 2482 MHz, 100% duty cycle

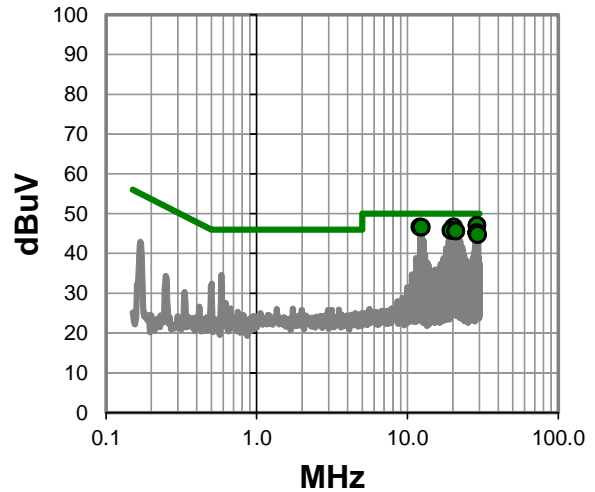
**DEVIATIONS FROM TEST STANDARD**

None

**Quasi Peak Data - vs - Quasi Peak Limit**



**Average Data - vs - Average Limit**



# AC POWERLINE CONDUCTED EMISSIONS

## RESULTS - Run #10

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
29.020	25.4	22.1	47.5	60.0	-12.5
20.220	25.1	21.6	46.7	60.0	-13.3
12.130	25.6	21.1	46.7	60.0	-13.3
12.370	25.4	21.1	46.5	60.0	-13.5
20.934	24.5	21.6	46.1	60.0	-13.9
28.784	23.8	22.1	45.9	60.0	-14.1
19.506	24.1	21.6	45.7	60.0	-14.3
29.260	22.9	22.1	45.0	60.0	-15.0

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
29.020	24.9	22.1	47.0	50.0	-3.0
20.220	25.1	21.6	46.7	50.0	-3.3
12.130	25.6	21.1	46.7	50.0	-3.3
12.370	25.5	21.1	46.6	50.0	-3.4
19.506	24.2	21.6	45.8	50.0	-4.2
20.934	24.0	21.6	45.6	50.0	-4.4
28.784	23.1	22.1	45.2	50.0	-4.8
29.260	22.6	22.1	44.7	50.0	-5.3

## CONCLUSION

Pass



Tested By

EUT:	xBRv3x2	Work Order:	SYNA0103
Serial Number:	00:91:FA:00:02:02, 00:91:FA:00:02:03	Date:	10/01/2012
Customer:	Synapse Strategic Product Development LLC	Temperature:	23.9°C
Attendees:	None	Relative Humidity:	34%
Customer Project:	None	Bar. Pressure:	1024.7 mb
Tested By:	Carl Engholm, Brandon Hobbs, and Kyle Holgate	Job Site:	EV03
Power:	PoE	Configuration:	SYNA0103-1

**TEST SPECIFICATIONS**

Specification:	Method:
FCC 15.207:2012	ANSI C63.10:2009

**TEST PARAMETERS**

Run #:	11	Line:	High line	Ext. Attenuation (dB):	20
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**COMMENTS**

shielded Cat 5 eight meter bundled

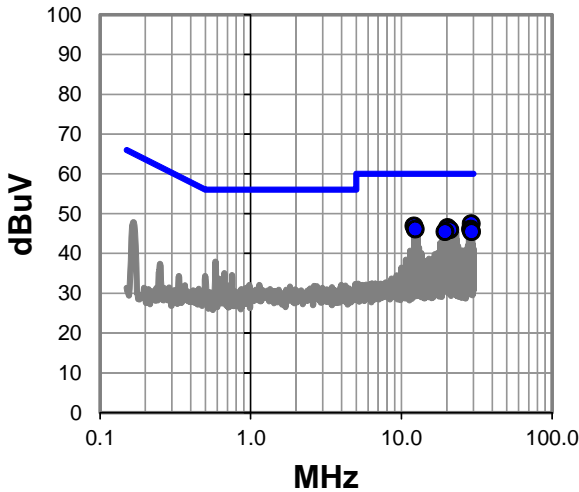
**EUT OPERATING MODES**

Transmitting GFSK at 2482 MHz, 100% duty cycle

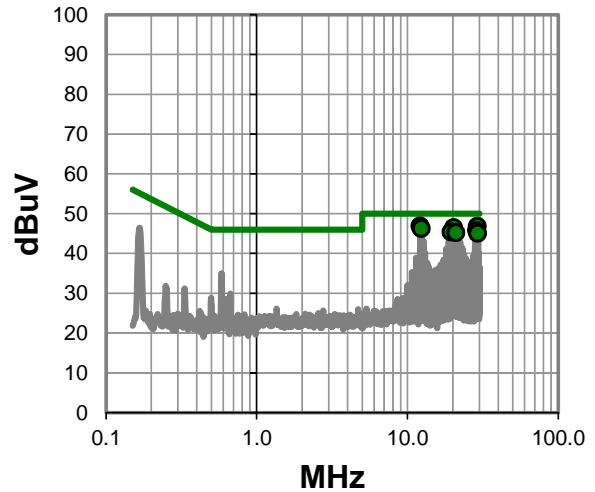
**DEVIATIONS FROM TEST STANDARD**

None

**Quasi Peak Data - vs - Quasi Peak Limit**



**Average Data - vs - Average Limit**



# AC POWERLINE CONDUCTED EMISSIONS

## RESULTS - Run #11

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
29.024	25.3	22.1	47.4	60.0	-12.6
12.134	25.8	21.1	46.9	60.0	-13.1
20.220	24.9	21.6	46.5	60.0	-13.5
28.784	24.0	22.1	46.1	60.0	-13.9
12.370	25.0	21.1	46.1	60.0	-13.9
20.934	24.3	21.6	45.9	60.0	-14.1
19.506	23.9	21.6	45.5	60.0	-14.5
29.258	23.3	22.1	45.4	60.0	-14.6

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
12.134	25.8	21.1	46.9	50.0	-3.1
29.024	24.7	22.1	46.8	50.0	-3.2
20.220	24.9	21.6	46.5	50.0	-3.5
12.370	25.2	21.1	46.3	50.0	-3.7
28.784	23.7	22.1	45.8	50.0	-4.2
19.506	23.8	21.6	45.4	50.0	-4.6
20.934	23.6	21.6	45.2	50.0	-4.8
29.258	22.9	22.1	45.0	50.0	-5.0

## CONCLUSION

Pass



Tested By

EUT:	xBRv3x2	Work Order:	SYNA0103
Serial Number:	00:91:FA:00:02:02, 00:91:FA:00:02:03	Date:	10/01/2012
Customer:	Synapse Strategic Product Development LLC	Temperature:	23.9°C
Attendees:	None	Relative Humidity:	34%
Customer Project:	None	Bar. Pressure:	1024.7 mb
Tested By:	Carl Engholm, Brandon Hobbs, and Kyle Holgate	Job Site:	EV03
Power:	PoE	Configuration:	SYNA0103-2

**TEST SPECIFICATIONS**

Specification:	Method:
FCC 15.207:2012	ANSI C63.10:2009

**TEST PARAMETERS**

Run #:	12	Line:	High Line	Ext. Attenuation (dB):	20
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**COMMENTS**

unshielded Cat 5 cable 1 meter

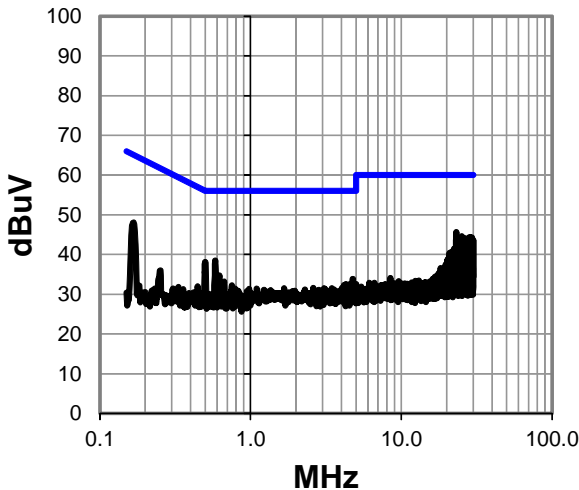
**EUT OPERATING MODES**

Transmitting GFSK at 2482 MHz, 100% duty cycle

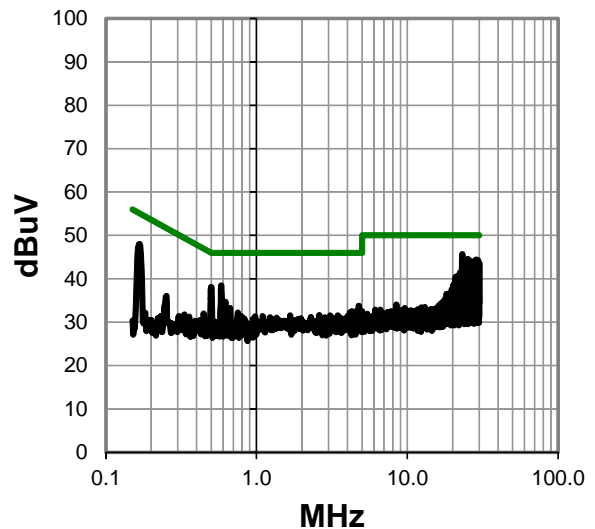
**DEVIATIONS FROM TEST STANDARD**

None

**Peak Data - vs - Quasi Peak Limit**



**Peak Data - vs - Average Limit**



## RESULTS - Run #12

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
23.130	23.9	21.8	45.7	60.0	-14.3
25.220	22.7	21.9	44.6	60.0	-15.4
28.790	22.3	22.1	44.4	60.0	-15.6
29.510	22.1	22.2	44.3	60.0	-15.7
28.080	22.2	22.1	44.3	60.0	-15.7
25.930	22.3	21.9	44.2	60.0	-15.8
28.320	22.1	22.1	44.2	60.0	-15.8
26.650	22.0	22.0	44.0	60.0	-16.0
25.690	21.9	21.9	43.8	60.0	-16.2
27.360	21.8	22.0	43.8	60.0	-16.2
23.080	22.0	21.8	43.8	60.0	-16.2
29.980	21.4	22.2	43.6	60.0	-16.4
26.610	21.6	22.0	43.6	60.0	-16.4
24.510	21.6	21.8	43.4	60.0	-16.6
29.030	21.2	22.1	43.3	60.0	-16.7
27.840	21.0	22.0	43.0	60.0	-17.0
27.120	21.0	22.0	43.0	60.0	-17.0
29.740	20.8	22.2	43.0	60.0	-17.0
0.167	27.7	20.4	48.1	65.1	-17.1
27.600	20.9	22.0	42.9	60.0	-17.1
23.790	21.0	21.8	42.8	60.0	-17.2
29.270	20.5	22.1	42.6	60.0	-17.4
26.160	20.7	21.9	42.6	60.0	-17.4
26.890	20.6	22.0	42.6	60.0	-17.4
0.584	18.2	20.3	38.5	56.0	-17.5
26.490	20.4	22.0	42.4	60.0	-17.6

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
23.130	23.9	21.8	45.7	50.0	-4.3
25.220	22.7	21.9	44.6	50.0	-5.4
28.790	22.3	22.1	44.4	50.0	-5.6
29.510	22.1	22.2	44.3	50.0	-5.7
28.080	22.2	22.1	44.3	50.0	-5.7
25.930	22.3	21.9	44.2	50.0	-5.8
28.320	22.1	22.1	44.2	50.0	-5.8
26.650	22.0	22.0	44.0	50.0	-6.0
25.690	21.9	21.9	43.8	50.0	-6.2
27.360	21.8	22.0	43.8	50.0	-6.2
23.080	22.0	21.8	43.8	50.0	-6.2
29.980	21.4	22.2	43.6	50.0	-6.4
26.610	21.6	22.0	43.6	50.0	-6.4
24.510	21.6	21.8	43.4	50.0	-6.6
29.030	21.2	22.1	43.3	50.0	-6.7
27.840	21.0	22.0	43.0	50.0	-7.0
27.120	21.0	22.0	43.0	50.0	-7.0
29.740	20.8	22.2	43.0	50.0	-7.0
0.167	27.7	20.4	48.1	55.1	-7.1
27.600	20.9	22.0	42.9	50.0	-7.1
23.790	21.0	21.8	42.8	50.0	-7.2
29.270	20.5	22.1	42.6	50.0	-7.4
26.160	20.7	21.9	42.6	50.0	-7.4
26.890	20.6	22.0	42.6	50.0	-7.4
0.584	18.2	20.3	38.5	46.0	-7.5
26.490	20.4	22.0	42.4	50.0	-7.6

## CONCLUSION

Pass



Tested By

EUT:	xBRv3x2	Work Order:	SYNA0103
Serial Number:	00:91:FA:00:02:02, 00:91:FA:00:02:03	Date:	10/01/2012
Customer:	Synapse Strategic Product Development LLC	Temperature:	23.9°C
Attendees:	None	Relative Humidity:	34%
Customer Project:	None	Bar. Pressure:	1024.7 mb
Tested By:	Carl Engholm, Brandon Hobbs, and Kyle Holgate	Job Site:	EV03
Power:	PoE	Configuration:	SYNA0103-2

**TEST SPECIFICATIONS**

Specification:	Method:
FCC 15.207:2012	ANSI C63.10:2009

**TEST PARAMETERS**

Run #:	13	Line:	Neutral	Ext. Attenuation (dB):	20
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**COMMENTS**

unshielded Cat 5 cable 1 meter

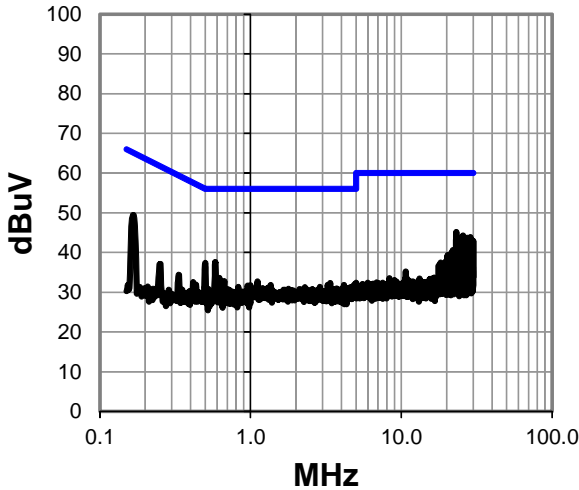
**EUT OPERATING MODES**

Transmitting GFSK at 2482 MHz, 100% duty cycle

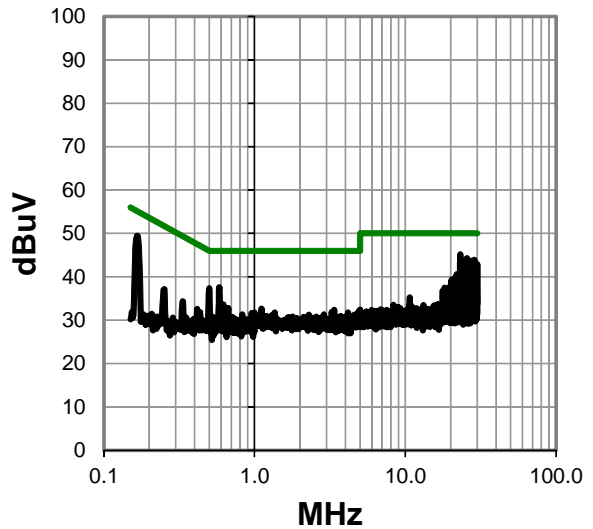
**DEVIATIONS FROM TEST STANDARD**

None

**Peak Data - vs - Quasi Peak Limit**



**Peak Data - vs - Average Limit**



## RESULTS - Run #13

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
23.130	23.4	21.8	45.2	60.0	-14.8
25.690	22.4	21.9	44.3	60.0	-15.7
0.165	29.1	20.4	49.5	65.2	-15.7
25.210	22.1	21.9	44.0	60.0	-16.0
28.790	21.8	22.1	43.9	60.0	-16.1
27.360	21.7	22.0	43.7	60.0	-16.3
26.650	21.5	22.0	43.5	60.0	-16.5
28.080	21.4	22.1	43.5	60.0	-16.5
23.070	21.5	21.8	43.3	60.0	-16.7
25.930	21.3	21.9	43.2	60.0	-16.8
26.890	21.2	22.0	43.2	60.0	-16.8
24.510	21.3	21.8	43.1	60.0	-16.9
29.510	20.9	22.2	43.1	60.0	-16.9
26.610	21.0	22.0	43.0	60.0	-17.0
27.600	20.9	22.0	42.9	60.0	-17.1
29.980	20.7	22.2	42.9	60.0	-17.1
28.320	20.8	22.1	42.9	60.0	-17.1
27.120	20.7	22.0	42.7	60.0	-17.3
23.800	20.7	21.8	42.5	60.0	-17.5
27.160	20.5	22.0	42.5	60.0	-17.5
29.270	20.3	22.1	42.4	60.0	-17.6
29.030	20.3	22.1	42.4	60.0	-17.6
28.550	20.3	22.1	42.4	60.0	-17.6
29.750	20.1	22.2	42.3	60.0	-17.7
26.490	20.3	22.0	42.3	60.0	-17.7
27.840	20.1	22.0	42.1	60.0	-17.9

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
23.130	23.4	21.8	45.2	50.0	-4.8
25.690	22.4	21.9	44.3	50.0	-5.7
0.165	29.1	20.4	49.5	55.2	-5.7
25.210	22.1	21.9	44.0	50.0	-6.0
28.790	21.8	22.1	43.9	50.0	-6.1
27.360	21.7	22.0	43.7	50.0	-6.3
26.650	21.5	22.0	43.5	50.0	-6.5
28.080	21.4	22.1	43.5	50.0	-6.5
23.070	21.5	21.8	43.3	50.0	-6.7
25.930	21.3	21.9	43.2	50.0	-6.8
26.890	21.2	22.0	43.2	50.0	-6.8
24.510	21.3	21.8	43.1	50.0	-6.9
29.510	20.9	22.2	43.1	50.0	-6.9
26.610	21.0	22.0	43.0	50.0	-7.0
27.600	20.9	22.0	42.9	50.0	-7.1
29.980	20.7	22.2	42.9	50.0	-7.1
28.320	20.8	22.1	42.9	50.0	-7.1
27.120	20.7	22.0	42.7	50.0	-7.3
23.800	20.7	21.8	42.5	50.0	-7.5
27.160	20.5	22.0	42.5	50.0	-7.5
29.270	20.3	22.1	42.4	50.0	-7.6
29.030	20.3	22.1	42.4	50.0	-7.6
28.550	20.3	22.1	42.4	50.0	-7.6
29.750	20.1	22.2	42.3	50.0	-7.7
26.490	20.3	22.0	42.3	50.0	-7.7
27.840	20.1	22.0	42.1	50.0	-7.9

## CONCLUSION

Pass



Tested By