

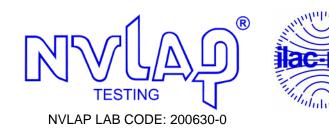
Schweitzer Engineering Laboratories, Inc.

SEL-3031

FCC 15.247:2018 902 – 928 MHz FHSS Transceiver

Report # SCHW0240





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More: https://www.bis.doc.gov/index.php/forms-documents/regulations-docs/14-commerce-country-chart/fileT





Last Date of Test: July 26, 2018 Schweitzer Engineering Laboratories, Inc. Model: SEL-3031

Radio Equipment Testing

Standards

Specification	Method
FCC 15.247:2018	ANSI C63.10:2013

Results

Method Clause	Test Description	Applied	Results	Comments
6.2	Powerline Conducted Emissions	No	N/A	Not required for C2PC to FCC ID: R34SEL-3031 for component changes.
6.5, 6.6	Spurious Radiated Emissions	Yes	Pass	
7.5	Duty Cycle	Yes	Pass	
7.8.2	Carrier Frequency Separation	No	N/A	Not required for C2PC to FCC ID: R34SEL-3031 for component changes.
7.8.3	Number of Hopping Frequencies	No	N/A	Not required for C2PC to FCC ID: R34SEL-3031 for component changes.
7.8.4	Dwell Time	No	N/A	Not required for C2PC to FCC ID: R34SEL-3031 for component changes.
7.8.5	Output Power	Yes	Pass	
7.8.6	Band Edge Compliance	Yes	Pass	
7.8.6	Band Edge Compliance - Hopping Mode	Yes	Pass	
7.8.7	Occupied Bandwidth	Yes	Pass	
7.8.8	Spurious Conducted Emissions	Yes	Pass	
11.10.2	Power Spectral Density	No	N/A	Not required for FHSS devices.

Deviations From Test Standards

None

Approved By:

Kyle Holgate, Operations Manager

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. 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. This report reflects only those tests from the referenced standards shown in the certificate of test. It does not include inspection or verification of labels, identification, marking or user information.

REVISION HISTORY



Revision Number	Description	Date	Page Number
00	None		

ACCREDITATIONS AND AUTHORIZATIONS



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 17065 as a product certifier. This allows Element to certify transmitters to FCC and IC specifications.

NVLAP - Each laboratory is accredited by NVLAP to ISO 17025

Canada

ISED - Recognized by Innovation, Science and Economic Development Canada as a Certification Body (CB). Certification chambers and Open Area Test Sites are filed with ISED.

European Union

European Commission - Within Element, we have a EU Notified Body validated for the EMCD and RED Directives.

Australia/New Zealand

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

Korea

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

Japan

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

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.

Singapore

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

Israel

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

Hong Kong

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

Vietnam

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

SCOPE

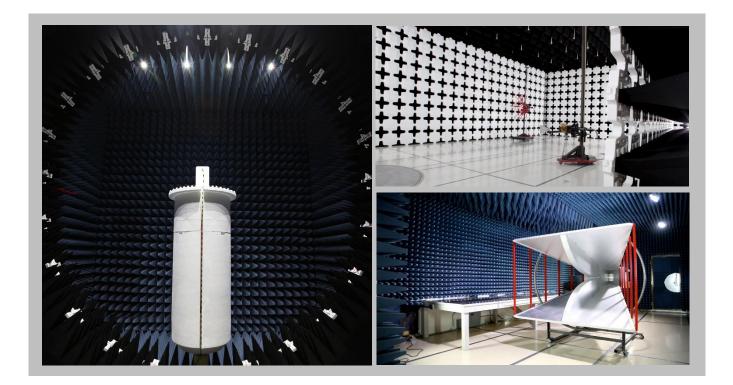
For details on the Scopes of our Accreditations, please visit: <u>http://portlandcustomer.element.com/ts/scope/scope.htm</u> <u>http://gsi.nist.gov/global/docs/cabs/designations.html</u>

FACILITIES





California Labs OC01-17 41 Tesla Irvine, CA 92618 (949) 861-8918	Minnesota Labs MN01-10 9349 W Broadway Ave. Brooklyn Park, MN 55445 (612)-638-5136	New York Labs NY01-04 4939 Jordan Rd. Elbridge, NY 13060 (315) 554-8214	Oregon Labs EV01-12 6775 NE Evergreen Pkwy #400 Hillsboro, OR 97124 (503) 844-4066	Texas Labs TX01-09 3801 E Plano Pkwy Plano, TX 75074 (469) 304-5255	Washington Labs NC01-05 19201 120 th Ave NE Bothell, WA 98011 (425)984-6600	
		NV	LAP			
NVLAP Lab Code: 200676-0	NVLAP Lab Code: 200881-0	NVLAP Lab Code: 200761-0	NVLAP Lab Code: 200630-0	NVLAP Lab Code:201049-0	NVLAP Lab Code: 200629-0	
	Innovation, Science and Economic Development Canada					
2834B-1, 2834B-3	2834E-1, 2834E-3	N/A	2834D-1, 2834D-2	2834G-1	2834F-1	
		BSI	МІ			
SL2-IN-E-1154R	SL2-IN-E-1152R	N/A	SL2-IN-E-1017	SL2-IN-E-1158R	SL2-IN-E-1153R	
		VC	CI			
A-0029	A-0109	N/A	A-0108	A-0201	A-0110	
Recognized Phase I CAB for ACMA, BSMI, IDA, KCC/RRA, MIC, MOC, NCC, OFCA						
US0158	US0175	N/A	US0017	US0191	US0157	



MEASUREMENT UNCERTAINTY



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.

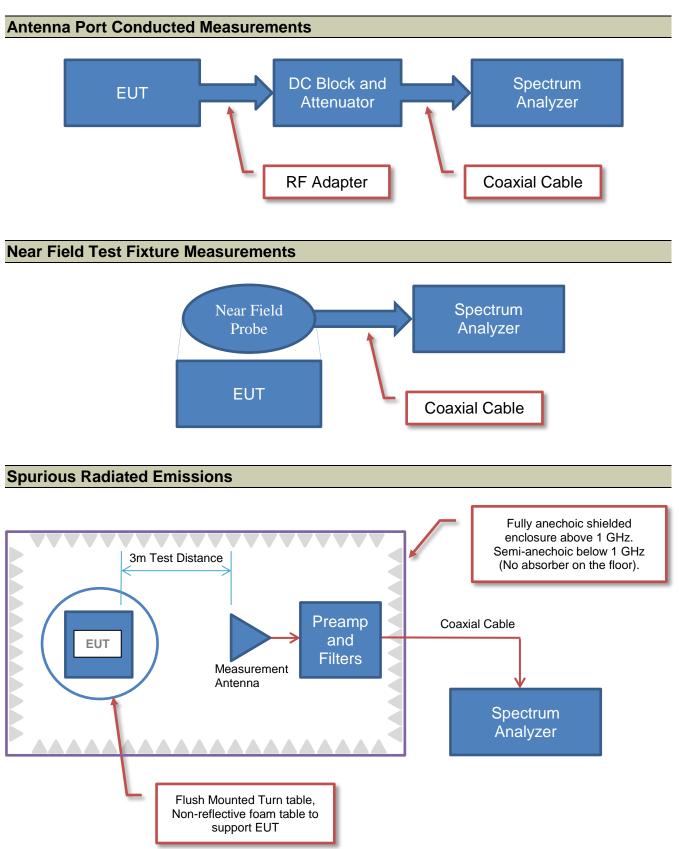
A measurement uncertainty estimation has been performed for each test per our internal quality document QM205.4.6. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty (K=2) can be found included as part of the applicable test description page. 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 16-4-2 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.

Test	+ MU	<u>- MU</u>
Frequency Accuracy (Hz)	0.0007%	-0.0007%
Amplitude Accuracy (dB)	1.2 dB	-1.2 dB
Conducted Power (dB)	0.3 dB	-0.3 dB
Radiated Power via Substitution (dB)	0.7 dB	-0.7 dB
Temperature (degrees C)	0.7°C	-0.7°C
Humidity (% RH)	2.5% RH	-2.5% RH
Voltage (AC)	1.0%	-1.0%
Voltage (DC)	0.7%	-0.7%
Field Strength (dB)	5.2 dB	-5.2 dB
AC Powerline Conducted Emissions (dB)	2.4 dB	-2.4 dB

Test Setup Block Diagrams





PRODUCT DESCRIPTION



Client and Equipment Under Test (EUT) Information

Company Name:	Schweitzer Engineering Laboratories, Inc.
Address:	2350 NE Hopkins Court
City, State, Zip:	Pullman, WA 99163
Test Requested By:	Miralem Cosic
Model:	SEL-3031
First Date of Test:	July 19, 2018
Last Date of Test:	July 26, 2018
Receipt Date of Samples:	July 19, 2018
Equipment Design Stage:	Production
Equipment Condition:	No Damage
Purchase Authorization:	Verified

Information Provided by the Party Requesting the Test

Functional Description of the EUT:

Frequency Hopping radio used in two different enclosures (rack mount and wall mount) with various external antenna options.

Testing Objective:

Seeking to demonstrate continuing compliance under FCC 15.247:2018 for operation in the 902 - 928 MHz Band with a Class II Permissive Change to FCC ID: R34SEL-3031 due to new components in the RF circuitry.



Software/Firmware Running during test			
Description	Version		
Firmware	SEL-3031-R104-V0-Z003001-D20111228		
FPGA	SEL-3031-R101-D20101018		
TeraTerm	4.84		

EUT						
Description	Manufacturer	Model/Part Number	Serial Number			
Wall Mount Radio	Schweitzer Engineering Laboratories, Inc.	SEL-3031/3031W01XXX	1181590420			

Peripherals in test setup boundary					
Description Manufacturer Model/Part Number Serial Number					
Laptop	Dell	Latitude E6540	None		

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
USB	Yes	1.5 m	Yes	Laptop	Wall Mount Radio
DC Power	No	2.0 m	No	AC/DC Supply	Wall Mount Radio



Software/Firmware Running during test				
Description Version				
Firmware	SEL-3031-R104-V0-Z003001-D20111228			
FPGA	SEL-3031-R101-D20101018			
TeraTerm	4.84			

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Rack Mount Radio	Schweitzer Engineering Laboratories, Inc.	SEL-3031/3031r21xxx	1181590363

Peripherals in test setup boundary					
Description Manufacturer Model/Part Number Serial Number					
Laptop	Dell	Latitude E6540	None		
Yagi Antenna	Unknown	None	None		

Remote Equipment Outside of Test Setup Boundary					
Description	Manufacturer Model/Part Number Serial Number				
Linear Power Supply	Schweitzer Engineering Laboratories, Inc.	SEL-LPS/LPS000-110	1111020502		

Cables						
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2	
DC Power	No	2.0 m	No	Radio	DC Power	
DC Power	No	2.0 m	No	DC Power	Linear Power Supply	
Leads	No	4.0 m	No	Radio	Unterminated	
RS232 Cables x3	Yes	1.8 m	No	Radio	Unterminated	
Coax	Yes	0.6 m	No	Rack Mount Radio	Yagi Antenna	



Software/Firmware Running during test				
Description	Version			
Firmware	SEL-3031-R104-V0-Z003001-D20111228			
FPGA	SEL-3031-R101-D20101018			
TeraTerm	4.84			

EUT						
Description	Manufacturer	Model/Part Number	Serial Number			
Wall Mount Radio	Schweitzer Engineering Laboratories, Inc.	SEL-3031/3031W01XXX	1181590420			

Peripherals in test setup boundary					
Description Manufacturer Model/Part Number Serial Number					
Laptop	Dell	Latitude E6540	None		
Monopole	PCTel	MFB9150	None		

Remote Equipment Outside of Test Setup Boundary					
Description	Manufacturer	Model/Part Number	Serial Number		
Linear Power Supply	Schweitzer Engineering Laboratories, Inc.	SEL-LPS/LPS000-110	1111020502		

Cables						
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2	
DC Power	No	2.0 m	No	Radio	DC Power	
DC Power	No	2.0 m	No	DC Power	Linear Power Supply	
Leads	No	4.0 m	No	Radio	Unterminated	
RS232 Cables x3	Yes	1.8 m	No	Radio	Unterminated	
Coax	Yes	1.0 m	No	Wallmount Radio	Monopole	



Software/Firmware Running during test				
Description	Version			
Firmware	SEL-3031-R104-V0-Z003001-D20111228			
FPGA	SEL-3031-R101-D20101018			
TeraTerm	4.84			

EUT						
Description	Manufacturer	Model/Part Number	Serial Number			
Wall Mount Radio	Schweitzer Engineering Laboratories, Inc.	SEL-3031/3031W01XXX	1181590420			

Peripherals in test setup boundary					
Description Manufacturer Model/Part Number Serial Number					
Laptop	Dell	Latitude E6540	None		

Cables							
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2		
USB	Yes	1.5 m	Yes	Laptop	Wall Mount Radio		
DC Power	No	2.0 m	No	AC/DC Supply	Wall Mount Radio		

MODIFICATIONS



Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	7/19/2018	Spurious Radiated Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
2	7/19/2018	Duty Cycle	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
3	7/19/2018	Occupied Bandwidth	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
4	7/24/2018	Output Power	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
5	7/26/2018	Band Edge Compliance	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
6	7/26/2018	Band Edge Compliance – Hopping Mode	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
7	7/26/2018	Spurious Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

SPURIOUS RADIATED EMISSIONS -RACKMOUNT



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

TX Low Channel = 902.6 MHz, Mid Channel = 915.2 MHz, High Channel = 927.5 MHz, 2FSK Modulation, Software power setting = 21 dBm

POWER SETTINGS INVESTIGATED

24.0 VDC

CONFIGURATIONS INVESTIGATED

SCHW0240 - 2

FREQUENCY RANGE INVESTIGATED

Start Frequency 30 MHz

Stop Frequency 12.4 GHz

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	None	Standard Gain Horns Cable	EVF	30-Nov-2017	12 mo
Amplifier - Pre-Amplifier	L-3 Narda-MITEQ	AMF-6F-08001200-30-10P	PAO	30-Nov-2017	12 mo
Antenna - Standard Gain	ETS Lindgren	3160-07	AHU	NCR	0 mo
Cable	N/A	Double Ridge Horn Cables	EVB	29-Nov-2017	12 mo
Amplifier - Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	PAG	29-Nov-2017	12 mo
Antenna - Double Ridge	ETS Lindgren	3115	AIZ	7-Feb-2018	24 mo
Filter - Band Pass/Notch	K&L Microwave	3TNF-500/1000-N/N	HFT	5-Dec-2017	12 mo
Filter - High Pass	Micro-Tronics	HPM50108	HFV	1-Feb-2018	12 mo
Filter - Low Pass	Micro-Tronics	LPM50003	LFB	28-Feb-2018	12 mo
Attenuator	Coaxicom	3910-20	AXZ	28-Feb-2018	12 mo
Attenuator	Coaxicom	3910-10	AWX	28-Feb-2018	12 mo
Cable	N/A	Bilog Cables	EVA	30-Nov-2017	12 mo
Amplifier - Pre-Amplifier	Miteq	AM-1616-1000	AOL	30-Nov-2017	12 mo
Antenna - Biconilog	EMCO	3141	AXH	NCR	0 mo
Analyzer - Spectrum Analyzer	Agilent	E4446A	AAQ	18-Mar-2018	12 mo

TEST DESCRIPTION

The highest gain antenna of each type to be used with the EUT was tested. The EUT was configured for the required transmit frequencies and the modes as showed in the data sheets.

For each configuration, the spectrum was scanned throughout the specified range as part of the exploratory investigation of the emissions. These "pre-scans" are not included in the report. Final measurements on individual emissions were then made and included in this test report.

The individual emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and EUT antenna in three orthogonal axis if required, and adjusting the measurement antenna height and polarization (per ANSI C63.10). A preamp and high pass filter (and notch filter) were used for this test in order to provide sufficient measurement sensitivity.

Measurements were made with the required detectors and annotated on the data for each individual point using the following annotation:

QP = Quasi-Peak Detector PK = Peak Detector AV = RMS Detector

Measurements were made to satisfy the specific requirements of the test specification for out of band emissions as well as the restricted band requirements.

If there are no detectable emissions above the noise floor, the data included may show noise floor measurements for reference only.

Measurements at the edges of the allowable band may be presented in an alternative method as provided for in the ANSI C63.10 Marker-Delta method. This method involves performing an in-band fundamental measurement followed by a screen capture of the fundamental and out-of-band emission using reduced measurement instrumentation bandwidths. The amplitude delta measured on this screen capture is applied to the fundamental emission value to show the out-of-band emission level as applied to the limit.

SPURIOUS RADIATED EMISSIONS - RACKMOUNT



			-		EmiR5 2018.05.07	PSA-ESCI 2018.05.0
Work Order		_		-2018 -	1	Ma
Project		Ter		7 °C	1004 /	
Job Site				RH	1/ 191	
Serial Number		Barome	etric Pres.: 1026	mbar	Tested by: Jeff Alcoke	
	: SEL-3031					
Configuration	: 2					
Customer	: Schweitzer Engineer	ing Laborate	ories, Inc.			
Attendees	: Miralem Cosic					
EUT Power	: 24.0 VDC					
	TX Low Channel = 9	02.6 MHz. N	/lid Channel = 915.2 M	Hz. High Channel =	927.5 MHz, 2FSK Modula	tion. Software
Operating Mode	power setting = 21 dl	Bm Yaqiar	itenna	, 0		,
	None	,g				
Deviations	: None					
Comments	manufacturer configuent the 10*log(t) where t per FCC 15.35(c) for the equation found in	ured the rad is the duty of FHSS devi- ANSI C63.	io to a 46.1% duty cycl cycle, giving a factor of ces. From FCC Grant	e. The average dat 3.36 dB. The Aver R34SEL-3031, the e additional correcti	on. The test software provi ta was corrected up to 100 rage Data was then downw dwell time in 100 ms windo ion factor is 20*log(0.014)	% Duty Cycle using ardly corrected as ow is 1.4 ms. Using
Test Crestilizations				Teet Methed		
Test Specifications FCC 15.247: 2018				Test Method ANSI C63.10:2013		
Run # 9	Test Distance (m)) 3	Antenna Height(s)	1 to 4(r	m) Results	Pass
Run # 9	Test Distance (m)) 3	Antenna Height(s)	1 to 4(r	n) Results	Pass
Run # 9	Test Distance (m)) 3	Antenna Height(s)	1 to 4(r	n) Results	Pass
	Test Distance (m)) 3	Antenna Height(s)	1 to 4(r	n) Results	Pass
	Test Distance (m)) 3	Antenna Height(s)	1 to 4(r	n) Results	Pass
	Test Distance (m)) 3	Antenna Height(s)	1 to 4(r	n) Results	Pass
80 -	Test Distance (m)) 3	Antenna Height(s)	1 to 4(r	n) Results	Pass
	Test Distance (m)	3	Antenna Height(s)	1 to 4(r	n) Results	Pass
80 -	Test Distance (m)) 3	Antenna Height(s)	1 to 4(r	n) Results	Pass
80 -	Test Distance (m)	3	Antenna Height(s)	1 to 4(r	n) Results	Pass
80 -	Test Distance (m)) 3	Antenna Height(s)	1 to 4(r	n) Results	Pass
60 -	Test Distance (m)) 3	Antenna Height(s)	1 to 4(r	n) Results	Pass
80 -	Test Distance (m)) 3	Antenna Height(s)	1 to 4(r	n) Results	Pass
60 -	Test Distance (m)) 3	Antenna Height(s)	1 to 4(r	n) Results	Pass
60	Test Distance (m)	3	Antenna Height(s)	1 to 4(r	n) Results	Pass
60 -	Test Distance (m)	3	Antenna Height(s)	1 to 4(r	n) Results	Pass
60 -	Test Distance (m)	3	Antenna Height(s)	1 to 4(r	n) Results	Pass
80	Test Distance (m)		Antenna Height(s)	1 to 4(r	n) Results	Pass
80	Test Distance (m)		Antenna Height(s)	1 to 4(r	n) Results	Pass
80	Test Distance (m)	3	Antenna Height(s)	1 to 4(r	n) Results	Pass
80	Test Distance (m)	3	Antenna Height(s)	1 to 4(r	n) Results	Pass
80	Test Distance (m)	3	Antenna Height(s)	1 to 4(r	n) Results	Pass
80	Test Distance (m)		Antenna Height(s)	1 to 4(r	n) Results	Pass
80	Test Distance (m) Image: Constraint of the second		Antenna Height(s)	1 to 4(r	n) Results	Pass
80	Test Distance (m)	3	Antenna Height(s)	1 to 4(r	n) Results	Pass
80	Test Distance (m)	3	Antenna Height(s)	1 to 4(r	n) Results	Pass
80 60 40 20 0 -20	Test Distance (m)		Antenna Height(s)			
80 60 40 20 0	Test Distance (m) Image: Stance (m) <t< td=""><td>3</td><td></td><td>1 to 4(r</td><td></td><td>Pass</td></t<>	3		1 to 4(r		Pass
80 60 40 20 0 -20	Test Distance (m) Image: Constraint of the second		Antenna Height(s)			

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Duty Cycle Correction Factor (dB)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
992.207	30.8	11.9	1.0	349.0	0.0	10.0	Vert	QP	0.0	52.7	54.0	-1.3	Low Ch, EUT Horz, Ant on Side
992.197	29.5	11.9	1.0	351.0	0.0	10.0	Horz	QP	0.0	51.4	54.0	-2.6	Low Ch, EUT Horz, Ant Horz
4512.815	66.7	4.1	1.1	265.0	0.0	0.0	Horz	PK	0.0	70.8	74.0	-3.2	Low Ch, EUT Vert, Ant Vert
979.195	27.1	11.6	1.0	360.0	0.0	10.0	Vert	QP	0.0	48.7	54.0	-5.3	Mid Ch, EUT Horz, Ant on Side
979.185	26.5	11.6	1.0	360.0	0.0	10.0	Horz	QP	0.0	48.1	54.0	-5.9	Mid Ch, EUT Horz, Ant Horz
4512.335	63.3	4.1	2.6	297.0	0.0	0.0	Horz	PK	0.0	67.4	74.0	-6.6	Low Ch, EUT on Side, Ant on Side
991.499	25.3	11.9	1.0	351.0	0.0	10.0	Vert	QP	0.0	47.2	54.0	-6.8	High Ch, EUT Horz, Ant on Side
4512.790	62.3	4.1	1.0	255.0	0.0	0.0	Vert	PK	0.0	66.4	74.0	-7.6	Low Ch, EUT Horz, Ant Horz
4512.625	62.0	4.1	3.1	311.0	0.0	0.0	Horz	PK	0.0	66.1	74.0	-7.9	Low Ch, EUT Horz, Ant Horz
991.506	23.8	11.9	1.0	360.0	0.0	10.0	Horz	QP	0.0	45.7	54.0	-8.3	High Ch, EUT Horz, Ant Horz
4512.715	61.1	4.1	1.1	260.0	0.0	0.0	Vert	PK	0.0	65.2	74.0	-8.8	Low Ch, EUT on Side, Ant on Side
4637.283	59.9	4.3	1.0	129.0	0.0	0.0	Horz	PK	0.0	64.2	74.0	-9.8	High Ch, EUT Vert, Ant Vert
4575.792	59.5	4.3	1.1	123.0	0.0	0.0	Horz	PK	0.0	63.8	74.0	-10.2	Mid Ch, EUT Vert, Ant Vert
4512.895	58.2	4.1	1.0	254.0	0.0	0.0	Vert	PK	0.0	62.3	74.0	-11.7	Low Ch, EUT Vert, Ant Vert
4637.150	57.8	4.3	1.0	74.0	0.0	0.0	Vert	PK	0.0	62.1	74.0	-11.9	High Ch, EUT Horz, Ant Horz
4575.950	55.1	4.3	1.0	71.0	0.0	0.0	Vert	PK	0.0	59.4	74.0	-14.6	Mid Ch, EUT Horz, Ant Horz
1017.805	49.5	-10.3	1.5	135.0	0.0	20.0	Vert	PK	0.0	59.2	74.0	-14.8	Low Ch, EUT Horz, Ant Vert
1043.460	48.9	-9.8	1.7	132.0	0.0	20.0	Vert	PK	0.0	59.1	74.0	-14.9	Low Ch, EUT Horz, Ant Vert

Prog. (06:0) Prog. (06:0) Prog. (06:0) Prog. (06:0) Prog. (06:0) Descent (06:0) Adjustion (06:0) Adjus						-	-			-				
URD Description Description Description Description Description Description 1052.01 44.4 -9.8 1.1 113.0 0.0 20.0 Hore PK 0.0 55.0 74.0 -15.4 Low CD, LUP Horz, Are Hore 1052.05 0.7 -4.8 1.1 113.0 0.0 20.0 Hore PK 0.0 55.7 74.0 -15.4 Low CD, LUP Horz, Are Mark 1052.00 0.7 1.4 1.4 1.4 0.0 20.0 Hore PK 0.0 57.7 74.0 -16.0 Hore, Are Mark Hore PK 0.0 57.7 74.0 -16.0 Hore, Are Mark Hore Hore, Are Mark Hore						Correction		Transducer						
Unit Unit <thunit< th=""> Unit Unit <thu< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th>Туре</th><th>Detector</th><th></th><th></th><th></th><th></th><th></th></thu<></thunit<>								Туре	Detector					
1914.35 4.4 4.8 1.1 13.0 0.0 20.0 Horz PK 0.0 56.8 7.40 -1.5 Low Ch, EUT Horz, An Horz 1012.02 4.7.4 4.80 1.2 13.0 0.0 20.0 Veri PK 0.0 57.8 7.40 -1.64 Horz, An Horz 1012.02 4.7.1 -1.00 1.0 1.0 0.0 20.0 Veri PK 0.0 57.8 7.40 -1.64 Horz, An Horz Northey Horz, An Horz 1012.00 4.0 -1.1 1.30 0.0 20.0 Horz PK 0.0 66.7 7.40 -1.64 Horz, An Horz 1000.08 4.3 1.3 130.0 0.0 20.0 Horz PK 0.0 65.2 7.40 -1.78 MdG, EUT Horz, An Horz 1000.88 4.5 -0.4 1.0 1.00 0.0 20.0 Horz PK 0.0 65.1 7.40 -1.0 MdG, EUT Horz, An Horz	(11112)	()	(/	((9)	()	(/			(/	(,	()	()	
1969.15 47.4 -0.6 1.7 125.0 0.0 20.0 Vert PK 0.0 57.8 77.40 -1.62 Low Ch, EUT MOZ, AH Yon 1038.10 64.71 -1.00 1.1 1134.0 0.0 20.0 Vert PK 0.0 57.1 77.40 -1.69 MIOA, EUT Hez, AH Yon 1038.10 64.71 -1.00 1.1 1134.0 0.0 20.0 Hort PK 0.0 57.1 77.40 -1.69 MIOA, EUT Hez, AH Yon Sin MOA, EUT HEZ, AH YON														
10162.00 4/3 4.6 1.0 120.0 0.0 20.0 Horz PK 0.0 0.7.7 7.4.0 -1.6.3 Lunc D, EUT Hez, Antherz 1024.280 4.7.1 4.8.1 1.1 11.0 0.0 20.0 Horz PK 0.0 0.7.7 7.4.0 -1.6.9 Hip/D, EUT Hez, Antherz 1017.200 4.7.2 -1.0.3 1.3 1.3.0 0.0 20.0 Horz PK 0.0 5.7.1 7.4.0 -1.6.9 Hip/D, EUT Hez, Antherz 1017.200 4.6.1 -1.0.3 1.3 1.3.0 0.0 20.0 Horr PK 0.0 5.6.5 7.4.0 -1.6.2 MinD, EUT Hez, Antherz 1017.00 4.6.1 -1.0 1.0.0 0.0 20.0 Horr PK 0.0 5.5.8 7.4.0 -1.6.2 MinD, EUT Hez, Antherz 10163.00 4.0 -1.0 1.0.0 20.0 Horr PK 0.0 5.5.1 7.4.0 -1.0.1 HinD, EUT Hez, Anthez <t< 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></t<>														
1942.80 47.4 48. 1.2 13.4.0 0.0 20.0 Vert PK 0.0 57.8 7.4.0 4.6.4 HeinCh, EUTHER, Ann Sabe 1017.00 47.2 -10.3 1.1 135.0 0.0 20.0 Heinz PK 0.0 56.8 7.40 -1.7 HeinCh, EUTHER, Ann Sabe 1017.00 46.3 -10.3 1.3 133.0 0.0 20.0 Heinz PK 0.0 56.8 7.40 -1.7.1 HeinCh, EUTHER, Ann Sabe 103.80 46.3 -10.3 1.3 133.0 0.0 20.0 Heinz PK 0.0 55.8 7.40 -1.8 Mellon, EUTHER, Ann Sabe 103.80 46.5 -0.4 1.0 1.00 0.0 20.0 Heinz PK 0.0 55.1 7.40 -1.88 Mellon, EUTHER, Ann Sabe 103.80 46.4 -7.1 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7 <td></td>														
1942.650 46.9 4.8 1.1 1310 0.0 20.0 Horz PK 0.0 67.7 74.0 1490 Ch. EUT Horz, Ant Horz 1030.007 44.2 -10.3 1.3 158.0 0.0 20.0 Horz PK 0.0 65.0 7.4.0 -17.8 MpC h, EUT Horz, Ant Horz 1030.007 44.2 -10.3 1.3 14.0 0.0 20.0 Vert PK 0.0 65.0 7.4.0 -17.8 MpC h, EUT Horz, Ant Horz 1061.800 45.1 4.3 1.4 12.0 0.0 20.0 Vert PK 0.0 56.1 7.4.0 -18.0 MdD h, EUT Horz, Ant Horz 1083.757 44.7 4.6 1.3 1.4 0.0 20.0 Horz PK 0.0 56.0 7.4.0 -18.0 MdD h, EUT Horz, Ant Horz 1083.757 4.47 1.3 1.40 0.0 20.0 Horz PK 0.0 56.0 7.4.0 -18.0 MdD h, EUT Horz, An														
1011 200 47.2 -11.3 11 135.0 0.0 20.0 Horz PK 0.0 56.8 74.0 -17.1 High Ch, EUT Horz, Ant Horz 100200 46.5 -10.1 13 120.0 0.0 20.0 Hvar PK 0.0 56.8 74.0 -17.1 High Ch, EUT Horz, Ant Horz 1002000 46.5 -10.4 1.0 140.0 0.0 20.0 Hvar PK 0.0 55.1 74.0 -11.8 Mid Ch, EUT Horz, Ant Horz 1004580 44.5 -0.1 1.0 140.0 0.0 20.0 Horz PK 0.0 55.1 74.0 -18.9 Mid Ch, EUT Horz, Ant Horz 100580 44.3 -0.3 1.1 143.0 0.0 20.0 Hvar PK 0.0 55.1 74.0 -18.1 Mid Ch, EUT Horz, Ant Horz 10056177 42.7 -0.7 1.0 28.0 0.0 20.0 Hvar PK 0.0 53.0 74.0 -18.1	1030.108	47.1	-10.0	1.1	134.0	0.0	20.0	Vert	PK	0.0	57.1	74.0	-16.9	Mid Ch, EUT Horz, Ant on Side
1017/07 469 -10.3 1.3 1280 0.0 20.0 Vert PK 0.0 56.3 74.0 -17.4 Might Chi LUT Horz, And Ios Sau 1088.260 45.1 -43.3 1.4 198.2 0.0 20.0 Vert PK 0.0 55.1 74.0 -11.6 Might Chi EUT Horz, And Horz 1088.260 45.4 -43.7 1.2 128.0 0.0 20.0 Vert PK 0.0 55.1 74.0 -18.9 Might Chi EUT Horz, And Horz 1086.276 44.8 47.7 1.2 128.0 0.0 20.0 Vert PK 0.0 55.1 74.0 -18.9 Might Chi EUT Horz, And Horz 1085.776 44.6 -0.7 1.7 17.2 0.0 0.0 20.0 Vert PK 0.0 54.9 74.0 -18.1 Midt Chi EUT Horz, And Horz 1095.757 47.2 1.0 13.30 0.0 20.0 Vert PK 0.0 53.0 74.0 <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></td></td<>														
1303.007 44.2 -10.0 1.3 136.0 0.0 20.0 Herz PK 0.0 65.2 74.0 -17.8 Mid Ch, EUT Horz, Ant Hose 1081.800 45.1 -1.3 14.0 0.00 20.0 Vert PK 0.0 55.9 74.0 -18.2 Mid Ch, EUT Horz, Ant Hose 1081.800 45.1 -1.4 1.4 1.2 2.0 0.0 2.00 Horz PK 0.0 55.0 74.0 -18.9 Mid Ch, EUT Horz, Ant Hose 1095.875 44.7 -0.6 1.2 1.27.0 0.0 2.00 Horz PK 0.0 55.0 74.0 -18.9 Mid Ch, EUT Horz, Ant Hose 1095.877 44.3 -1.7 1.0 1.27.0 0.0 2.00 Vert PK 0.0 55.0 74.0 -18.1 Mid Ch, EUT Horz, Ant Hose 1095.868 -4.7 -7.7 1.0 1.28.0 0.0 2.00 Vert PK 0.0 53.0 74.0 -71.0 Line Mid Ch, EUT Horz, Ant Hose 1095.862 -4.7 -7.7 1.2														
1068.200 45.5 -0.6 1.3 1.4 7.80 0.0 2.00 Vert PK 0.0 65.8 7.40 -1.8 MdD, EUT Hoz, Art on Sile 108.480 4.5 -0.0.4 1.0 1.00 2.00 Vert PK 0.0 55.8 7.40 -1.85 MdD, EUT Hoz, Art on Sile 108.480 4.5 -0.0.4 1.0 1.00 2.00 Hozz PK 0.0 55.1 7.40 -1.85 MdD, EUT Hoz, Art Hozz 108.67.75 4.64 -0.7 1.7 1.27 0.0 2.00 Hozz PK 0.0 56.0 7.40 -1.80 MdCh, EUT Hoz, Art Hozz 1095.694 4.4.5 -0.7 1.0 1.83.0 0.0 2.00 Vert PK 0.0 56.0 7.40 -11.8 MdCh, EUT Hoz, Art Hoz 1095.750 4.27 -9.7 1.0 1.80.0 0.0 2.00 Vert PK 0.0 53.0 7.40 -11.8 MdCh, EUT Hoz, Art Ho														
Idel Boo 4:1 10.2 10.2 10.2 Vert PK 0.0 55.1 74.0 -18.2 Md Ch, EUT Horz, Anthors Size 1056 57 44.8 -0.7 1.2 130.0 0.0 20.0 Horz PK 0.0 55.1 74.0 -18.8 Md Ch, EUT Horz, Anthorz 1056 77.5 44.6 -0.7 1.2 120.0 0.0 20.0 Horz PK 0.0 55.0 74.0 -19.8 Md Ch, EUT Horz, Anthors Size 1055 77.5 44.6 -0.7 1.0 13.0 0.0 20.0 Vert<														
1060.175 44.8 -0.7 1.2 127.0 0.0 200 Horz PK 0.0 65.1 74.0 -18.8 Mid Ch, EUT Horz, AntHorz 1088.376 44.3 -3.3 1.1 143.0 0.0 20.0 Horz PK 0.0 55.1 74.0 -10.0 MaCh, EUT Horz, AntHorz 1088.376 44.3 -3.3 1.1 143.0 0.0 20.0 Wert PK 0.0 55.0 74.0 -18.1 MaCh, EUT Horz, AntHorz 1055.68 42.7 -9.7 1.0 128.0 0.0 20.0 Wert PK 0.0 53.0 74.0 -21.0 MaCh, EUT Horz, AntHorz 1057.570 42.7 -9.7 1.0 128.0 0.0 0.0 Vert PK 0.0 53.0 74.0 -21.0 MaCh, EUT Horz, AntHorz 1057.570 42.7 -9.7 1.0 28.0 0.0 0.0 Vert PK 0.0 45.0 74.0 -28.0 MaCh														
1068.375 44.7 -9.6 1.2 1.2 1.20 0.0 20.0 Horz PK 0.0 55.1 7.40 -18.9 High Che, EUT Horz, Ant Horz 1095.775 44.6 -0.7 1.7 122.0 0.0 20.0 Vert PK 0.0 55.0 7.40 -15.0 Mad Ch, EUT Horz, Ant Horz 1095.675 44.6 -0.7 1.0 126.0 0.0 20.0 Vert PK 0.0 53.0 7.40 -15.0 Mad Ch, EUT Horz, Ant Morz 1057.575 42.5 -9.7 2.1 0.0 0.0 20.0 Horz PK 0.0 52.8 7.40 -21.0 Mad Ch, EUT Horz, Ant Morz 1057.575 42.5 -9.7 2.3 1.0 0.0 20.0 Vert PK 0.0 52.8 7.40 -21.0 Mad Ch, EUT Horz, Ant Horz 2725.577 42.5 -9.7 2.3 1.0 30.5 0.0 0.0 Vert PK 0.0 4.50		45.5	-10.4	1.0	140.0	0.0		Horz		0.0	55.1	74.0	-18.9	
10816.08 44.3 0.3 1.1 143.0 0.0 20.0 Horz PK 0.0 54.9 74.0 -19.0 Mid Ch, EUT Horz, Antion Side 1004.817 45.3 -10.4 10.4														
1655.775 44.6 9.7 1.7 12.0 0.0 20.0 Vert PK 0.00 54.9 74.0 -19.1 Mid Ch, EUT Horz, Anton Sike 1056.842 44.5 -0.7 10 133.0 0.0 20.0 Vert PK 0.0 54.9 74.0 -19.2 Mid Ch, EUT Horz, Anton Sike 1057.576 42.5 -0.7 2.1 0.0 0.00 20.0 Wert PK 0.0 52.8 74.0 -21.2 Mid Ch, EUT Horz, Ant Nishe 1057.757 42.3 -9.7 2.9 16.0 0.0 20.0 Wert PK 0.0 52.8 74.0 -21.4 Mid Ch, EUT Horz, Ant Nishe 2776.260 48.8 -3.2 1.0 235.0 0.0 0.0 Vert PK 0.0 44.5 74.0 -23.1 High Ch, EUT Horz, Ant Nishe 2776.260 48.7 -3.2 1.0 330.0 0.0 0.0 Horz PK 0.0 44.5 74.0 -23.1 Mid Ch, EUT Horz, Ant Nishe 2776.260 48.7 -3.2 1.0 <														
1006.017 45.3 -10.4 10.0 13.0 0.0 20.0 Vert PK 0.0 54.3 74.0 -19.1 Mid Ch. EUT Horz, Ant on Sile 1056.568 4.2.7 4.7 1.0 126.0 0.0 20.0 Vert PK 0.0 53.0 74.0 21.0 Mid Ch. EUT Horz, Ant on Sile 1057.500 4.2.7 4.7 1.0 126.0 0.0 20.0 Vert PK 0.0 53.0 74.0 21.0 Mid Ch. EUT Horz, Ant Vert Net Size 1057.500 42.3 4.7 2.8 1.0 256.0 0.0 Vert PK 0.0 45.6 74.0 2.8 High Ch. EUT Horz, Ant Horz 2776.567 48.8 -3.3 1.0 28.50 0.0 0.0 Vert PK 0.0 45.6 74.0 2.8 High Ch. EUT Horz, Ant Horz 2776.520 47.3 3.0 1.0 30.3 0.0 0.0 High Ch. EUT Horz, Ant Vert 1043.364 3.3														
1055.52 4.45 -9.7 1.0 13.0 0.0 20.0 Vert PK 0.0 53.0 74.0 -19.2 Mid Ch, EUT Horz, Anton Side 1057.57 4.27 -9.7 1.0 256.0 0.0 20.0 Horz PK 0.0 53.0 74.0 -21.0 Mid Ch, EUT Horz, Anton Side 1057.57 4.27 -9.7 1.0 256.0 0.0 20.0 Horz PK 0.0 53.0 74.0 -21.1 Mid Ch, EUT Horz, Anton Side 1075.57 4.27 -9.7 0.0 0.0 Vert PK 0.0 47.0 -24.1 High Ch, EUT Horz, Ant Horz 2745.576 48.0 -3.0 1.3 352.0 0.0 0.0 Vert PK 0.0 44.5 74.0 -28.1 Mid Ch, EUT Horz, Ant Horz 2745.576 47.7 -3.2 1.0 30.0 0.0 0.0 Horz PK 0.0 44.5 74.0 -28.3 Mid Ch, EUT Horz, Ant Horz 2745.576 47.7 -3.2 1.0 30.6 0.0 0.0 Horz														
1057.759 427 -9.7 1.0 256.0 -100 20.0 Horz PK 0.0 52.0 74.0 -21.0 Mid Ch, EUT Horz, An Vert 1057.757 42.3 -9.7 2.9 16.0 0.0 20.0 Vert PK 0.0 52.6 74.0 -21.4 Mid Ch, EUT Horz, An Vert 2725.317 60.7 -2.8 1.0 35.0 0.0 0.0 Vert PK 0.0 42.0 74.0 -2.1 Mid Ch, EUT Horz, An IVert 2726.528 74.0 -3.0 1.0 350.0 0.0 Vert PK 0.0 44.0 74.0 -2.0 Mid Ch, EUT Horz, An IVert 2726.208 7.4 -3.8 1.0 350.0 0.0 Horz PK 0.0 44.0 74.0 -2.0 Mid Ch, EUT Horz, An IVert 1043.864 43.7 -9.8 1.7 132.0 33.7 20.0 Vert AV 0.0 18.0 -3.0 Low Ch, EUT Horz, An IVert <t< 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></t<>														
1067.757 4.25 -9.7 2.1 0.0 0.0 20.0 Horz PK 0.0 52.8 74.0 -2.1 Mid Ch, EUT Horz, Ant On Side 1057.700 4.83 -3.2 1.0 356.0 0.0 0.0 Vert PK 0.0 47.9 74.0 -2.4 High Ch, EUT Horz, Ant Horz 2717.650 48.1 -3.0 1.3 352.0 0.0 0.0 Vert PK 0.0 45.0 74.0 -2.41 Mid Ch, EUT Horz, Ant Horz 2717.650 48.7 -3.2 1.0 280.0 0.0 0.0 Horz PK 0.0 44.5 74.0 -2.83 High Ch, EUT Horz, Ant Horz 2707.620 46.7 -3.2 1.0 280.0 0.0 Uert AV 0.0 43.5 74.0 -3.8 Low Ch, EUT Horz, Ant Horz 1043.366 43.3 -9.8 1.1 13.10 -3.37 2.00 Vert AV 0.0 19.8 54.0 -3.6 Low Ch, EU	1056.508	42.7	-9.7	1.0	126.0	0.0	20.0	Vert	PK	0.0	53.0	74.0	-21.0	
1067.700 42.3 -9.7 2.8 16.0 0.0 Vert PK 0.0 52.6 7.4.0 -21.4 Mid Ch, EUT Horz, Ant Horz 2772.517 68.8 -3.2 1.0 288.0 0.0 0.0 Vert PK 0.0 45.6 7.4.0 -28.1 High Ch, EUT Horz, Ant Horz 2774.167 48.8 -3.0 1.0 303.0 0.0 0.0 Vert PK 0.0 44.9 7.4.0 -28.1 Mid Ch, EUT Horz, Ant Horz 2774.167 48.8 1.1 303.0 0.0 0.0 Horz PK 0.0 44.9 7.4.0 -28.1 Mid Ch, EUT Vier, Ant Vert 1043.369 43.7 -8.8 1.1 13.0 -3.3.7 20.0 Vert PK 0.0 19.8 5.40 -3.44 Low Ch, EUT Horz, Ant Vert 1043.369 43.1 -10.3 1.2 13.0 -3.37 20.0 Vert AV 0.0 19.6 5.40 -3.44 Low Ch, EUT Horz, Ant Ver														
2727.507 60.7 -2.8 1.0 355.0 0.0 0.0 Vert PK 0.0 47.9 74.0 -28.1 High Ch, EUT Horz, Ant Horz 2774.508 47.9 -3.0 1.3 352.0 0.0 0.0 Vert PK 0.0 45.6 74.0 -28.1 Marc h, EUT Horz, Ant Horz 2774.508 47.9 -3.0 1.0 306.0 0.0 0.0 Horz PK 0.0 44.7 74.0 -28.1 Marc h, EUT Vert, Ant Vert 2777.620 46.7 -3.2 1.0 208.0 0.0 0.0 Horz PK 0.0 44.7 74.0 -28.1 Marc h, EUT Vert, Ant Vert 1043880 43.7 -8.8 1.7 132.0 -33.7 20.0 Vert AV 0.0 18.1 54.0 -33.4 Low Ch, EUT Horz, Ant Morz 1077820 43.1 1.0 12.1 128.0 -33.7 20.0 Vert AV 0.0 18.1 54.0 -33.4 Low Ch, EUT Horz, Ant Horz 1070200 42.0 -6.6 1.7 12														
2777.650 48.8 -3.2 1.0 288.0 0.0 0.0 Vert PK 0.0 45.6 74.0 -28.4 Low Ch, EUT horz, Ant Horz 2745.167 48.0 -3.0 1.0 303.0 0.0 0.0 Horz PK 0.0 44.9 74.0 -28.1 MaC h, EUT Horz, Ant Horz 2745.271 47.4 1.0 303.0 0.0 0.0 Horz PK 0.0 44.7 74.0 -28.1 MaC h, EUT Horz, Ant Vert 1017.820 46.7 -3.2 1.0 288.0 0.0 0.0 Horz PK 0.0 43.5 74.0 -38.1 Low Ch, EUT Horz, Ant Vert 1017.820 43.6 -10.3 1.5 150 -33.7 20.0 Vert AV 0.0 19.1 54.0 -34.4 Low Ch, EUT Horz, Ant Vert 10188.05 42.0 -9.6 1.0 125.0 -33.7 20.0 Vert AV 0.0 19.1 54.0 -34.4 Low Ch, EUT Horz, Ant Norz 1017.004 40.2 -9.8 1.2 134.0 -3														
2745.677 48.0 -3.0 1.3 352.0 0.0 0.0 Vert PK 0.0 45.0 74.0 -28.0 MdC h, EUT Horz, Ant Horz 2745.208 47.4 -7.5 -2.8 1.0 305.0 0.0 0.0 Horz PK 0.0 44.7 74.0 -28.1 MdC h, EUT Vert, Ant Vert 2770.620 46.7 -3.2 1.0 236.0 0.0 0.0 Horz PK 0.0 44.7 74.0 -28.1 MdC h, EUT Vert, Ant Vert 1043.860 43.7 -8.8 1.1 113.0 -3.3.7 20.0 Vert AV 0.0 18.8 54.0 -3.4.2 Low Ch, EUT Horz, Ant Vert 1017.800 44.1 -16.3 17.2 125.0 -3.3.7 20.0 Vert AV 0.0 18.7 54.0 -3.4.2 Low Ch, EUT Horz, Ant Horz 1086.400 44.2 -6.6 1.7 125.0 -3.3.7 20.0 Vert AV 0.0 18.7 56.0 -3.5.3 Low Ch, EUT Horz, Ant Horz 1042.206 40.9 1.3														
2727 47.5 -2.8 1.0 306.0 0.0 Horz PK 0.0 43.5 74.0 -32.3 High Ch, EUT Vert, Ant Vert 1043.365 43.7 -9.8 1.1 132.0 -33.7 20.0 Vert AV 0.0 19.8 54.0 -33.8 Low Ch, EUT Horz, Ant Vert 1017.820 43.6 -10.3 1.5 135.0 -33.7 20.0 Vert AV 0.0 19.6 54.0 -34.4 Low Ch, EUT Horz, Ant Vert 1017.800 43.1 -10.3 1.2 12.9 -33.7 20.0 Vert AV 0.0 19.1 54.0 -34.4 Low Ch, EUT Horz, Ant Vert 1069.035 42.4 -9.6 1.0 12.80 -33.7 20.0 Vert AV 0.0 18.7 54.0 -34.8 Low Ch, EUT Horz, Ant on Side 104.2708 40.9 -8.8 1.1 13.0 -33.7 20.0 Vert AV 0.0 17.2 54.0 -36.8 High Ch, EUT Horz, Ant on Side 104.2708 45.3 -40.0 11.1 13.0														
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2101.125 54.4 -5.2 1.0 200.0 -55.7 0.0 Ven AV 0.0 -2.5 54.0 -56.5 LOWON, EUTHOIZ, AND HOIZ														
	2101.123	34.4	-3.2	1.0	200.0	-33.7	0.0	VEIL	~ ~	0.0	-2.5	54.0	-30.5	

SPURIOUS RADIATED EMISSIONS -WALLMOUNT



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

TX Low Channel = 902.6 MHz, Mid Channel = 915.2 MHz, High Channel = 927.5 MHz, 2FSK Modulation, Software power setting = 28 dBm.

POWER SETTINGS INVESTIGATED

24.0 VDC

CONFIGURATIONS INVESTIGATED

SCHW0240 - 3

FREQUENCY RANGE INVESTIGATED

Start Frequency 30 MHz

Stop Frequency 12400 MHz

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
Analyzer - Spectrum Analyzer	Agilent	E4446A	AAQ	18-Mar-2018	12 mo
Antenna - Biconilog	EMCO	3141	AXH	NCR	0 mo
Amplifier - Pre-Amplifier	Miteq	AM-1616-1000	AOL	30-Nov-2017	12 mo
Cable	N/A	Bilog Cables	EVA	30-Nov-2017	12 mo
Attenuator	Coaxicom	3910-10	AWX	28-Feb-2018	12 mo
Attenuator	Coaxicom	3910-20	AXZ	28-Feb-2018	12 mo
Filter - Low Pass	Micro-Tronics	LPM50003	LFB	28-Feb-2018	12 mo
Filter - High Pass	Micro-Tronics	HPM50108	HFV	1-Feb-2018	12 mo
Filter - Band Pass/Notch	K&L Microwave	3TNF-500/1000-N/N	HFT	5-Dec-2017	12 mo
Antenna - Double Ridge	ETS Lindgren	3115	AIZ	7-Feb-2018	24 mo
Amplifier - Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	PAG	29-Nov-2017	12 mo
Cable	N/A	Double Ridge Horn Cables	EVB	29-Nov-2017	12 mo
Antenna - Standard Gain	ETS Lindgren	3160-07	AHU	NCR	0 mo
Amplifier - Pre-Amplifier	L-3 Narda-MITEQ	AMF-6F-08001200-30-10P	PAO	30-Nov-2017	12 mo
Cable	None	Standard Gain Horns Cable	EVF	30-Nov-2017	12 mo

TEST DESCRIPTION

The highest gain antenna of each type to be used with the EUT was tested. The EUT was configured for the required transmit frequencies and the modes as showed in the data sheets.

For each configuration, the spectrum was scanned throughout the specified range as part of the exploratory investigation of the emissions. These "pre-scans" are not included in the report. Final measurements on individual emissions were then made and included in this test report.

The individual emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and EUT antenna in three orthogonal axis if required, and adjusting the measurement antenna height and polarization (per ANSI C63.10). A preamp and high pass filter (and notch filter) were used for this test in order to provide sufficient measurement sensitivity.

Measurements were made with the required detectors and annotated on the data for each individual point using the following annotation:

QP = Quasi-Peak Detector PK = Peak Detector AV = RMS Detector

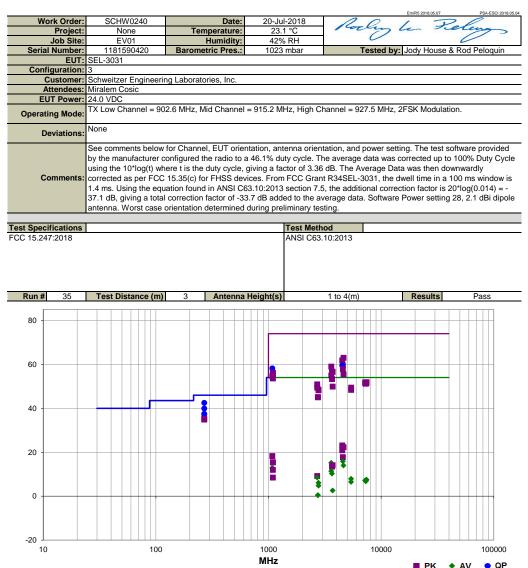
Measurements were made to satisfy the specific requirements of the test specification for out of band emissions as well as the restricted band requirements.

If there are no detectable emissions above the noise floor, the data included may show noise floor measurements for reference only.

Measurements at the edges of the allowable band may be presented in an alternative method as provided for in the ANSI C63.10 Marker-Delta method. This method involves performing an in-band fundamental measurement followed by a screen capture of the fundamental and out-of-band emission using reduced measurement instrumentation bandwidths. The amplitude delta measured on this screen capture is applied to the fundamental emission value to show the out-of-band emission level as applied to the limit.

SPURIOUS RADIATED EMISSIONS - WALLMOUNT





										Ph Ph	AV		
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Duty Cycle Correction Factor (dB)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
268.806	45.6	-3.1	1.1	179.0	3.0	0.0	Horz	QP	0.0	42.5	46.0	-3.5	Low Channel, EUT Vertical, Ant. Horizontal, Power 28
268.806	43.0	-3.1	1.5	26.0	3.0	0.0	Horz	QP	0.0	39.9	46.0	-6.1	Mid Channel, EUT Vertical, Antenna Horizontal, Power 28
268.802	40.6	-3.1	1.0	94.0	3.0	0.0	Horz	QP	0.0	37.5	46.0	-8.5	High Channel, EUT Vertical, Antenna Horizontal, Power 28
268.804	40.3	-3.1	1.3	49.0	3.0	0.0	Vert	QP	0.0	37.2	46.0	-8.8	Low Channel, EUT Horizontal, Ant. Horizontal, Power 28
268.802	38.4	-3.1	1.5	72.0	3.0	0.0	Vert	QP	0.0	35.3	46.0	-10.7	High Channel, EUT Horizontal, Antenna Horizontal, Power 28
4637.160	58.7	4.3	1.0	11.0	0.0	0.0	Vert	PK	0.0	63.0	74.0	-11.0	High Channel, EUT Horizontal, Antenna Horizontal, Power 28
268.804	38.0	-3.1	1.9	40.0	3.0	0.0	Vert	QP	0.0	34.9	46.0	-11.1	Mid Channel, EUT Horizontal, Antenna Horizontal, Power 28
4512.633	57.7	4.1	1.0	334.0	0.0	0.0	Horz	PK	0.0	61.8	74.0	-12.2	Low Channel, EUT Vertical, Antenna Horizontal, Power 28
4575.765	55.3	4.3	1.2	351.0	0.0	0.0	Horz	PK	0.0	59.6	74.0	-14.4	Mid Channel, EUT Vertical, Antenna Horizontal, Power 28
4512.600	55.4	4.1	3.9	357.0	0.0	0.0	Vert	PK	0.0	59.5	74.0	-14.5	Low Channel, EUT Horizontal, Antenna Horizontal, Power 28
3609.700	57.1	1.9	1.2	326.0	0.0	0.0	Horz	PK	0.0	59.0	74.0	-15.0	Low Channel, EUT Vertical, Antenna Horizontal, Power 28
1081.565	47.5	-9.3	1.5	299.0	0.0	20.0	Horz	PK	0.0	58.2	74.0	-15.8	Mid Channel, EUT Vertical, Antenna Horizontal, Power 28
4575.758	53.5	4.3	1.1	9.0	0.0	0.0	Vert	PK	0.0	57.8	74.0	-16.2	Mid Channel, EUT Horizontal, Antenna Horizontal, Power 28
3660.920	54.6	2.1	1.0	353.0	0.0	0.0	Horz	PK	0.0	56.7	74.0	-17.3	Mid Channel, EUT Vertical, Antenna Horizontal, Power 28
3709.665	54.2	2.4	1.1	346.0	0.0	0.0	Horz	PK	0.0	56.6	74.0	-17.4	High Channel, EUT Vertical, Antenna Horizontal, Power 28
1093.792	45.4	-9.3	1.0	300.0	0.0	20.0	Horz	PK	0.0	56.1	74.0	-17.9	High Channel, EUT Vertical, Antenna Horizontal, Power 28
1094.517	45.4	-9.3	1.0	281.0	0.0	20.0	Horz	PK	0.0	56.1	74.0	-17.9	Low Channel, EUT Vertical, Antenna Horizontal, Power 28
4637.260	51.2	4.3	1.0	351.0	0.0	0.0	Horz	PK	0.0	55.5	74.0	-18.5	High Channel, EUT Vertical, Antenna Horizontal, Power 28
1094.508	44.3	-9.3	3.5	355.0	0.0	20.0	Vert	PK	0.0	55.0	74.0	-19.0	Low Channel, EUT Horizontal, Antenna Horizontal, Power 28
3610.033	53.0	1.9	3.6	343.0	0.0	0.0	Vert	PK	0.0	54.9	74.0	-19.1	Low Channel, EUT Horizontal, Antenna Horizontal, Power 28
1081.557	43.9	-9.3	3.5	12.0	0.0	20.0	Vert	PK	0.0	54.6	74.0	-19.4	Mid Channel, EUT Horizontal, Antenna Horizontal, Power 28
1094.175	42.9	-9.3	1.0	321.0	0.0	20.0	Vert	PK	0.0	53.6	74.0	-20.4	High Channel, EUT Horizontal, Antenna Horizontal, Power 28
3660.467	51.2	2.1	3.9	360.0	0.0	0.0	Vert	PK	0.0	53.3	74.0	-20.7	Mid Channel, EUT Horizontal, Antenna Horizontal, Power 28
7420.430	38.9	13.0	3.5	353.0	0.0	0.0	Vert	PK	0.0	51.9	74.0	-22.1	High Channel, EUT Horizontal, Antenna Horizontal, Power 28
7219.875	39.8	12.0	1.0	121.0	0.0	0.0	Horz	PK	0.0	51.8	74.0	-22.2	Low Channel, EUT Vertical, Antenna Horizontal, Power 28
7419.575	38.6	13.0	1.0	243.0	0.0	0.0	Horz	PK	0.0	51.6	74.0	-22.4	High Channel, EUT Vertical, Antenna Horizontal, Power 28
7220.700	39.4	12.0	1.0	298.0	0.0	0.0	Vert	PK	0.0	51.4	74.0	-22.6	Low Channel, EUT Horizontal, Antenna Horizontal, Power 28
7320,120	39.1	12.2	3.4	360.0	0.0	0.0	Horz	PK	0.0	51.3	74.0	-22.7	Mid Channel, EUT Vertical, Antenna Horizontal, Power 28
7318.067	39.0	12.2	1.0	141.0	0.0	0.0	Vert	PK	0.0	51.2	74.0	-22.8	Mid Channel, EUT Horizontal, Antenna Horizontal, Power 28
2707.425	54.1	-3.2	1.1	186.0	0.0	0.0	Vert	PK	0.0	50.9	74.0	-23.1	Low Channel, EUT Horizontal, Antenna Horizontal, Power 28
3709.595	47.5	2.4	1.3	210.0	0.0	0.0	Vert	PK	0.0	49.9	74.0	-24.1	High Channel, EUT Horizontal, Antenna Horizontal, Power 28

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Duty Cycle Correction Factor (dB)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	
													Comments
2707.508	52.6	-3.2	1.0	227.0	0.0	0.0	Horz	PK	0.0	49.4	74.0	-24.6	Low Channel, EUT Vertical, Antenna Horizontal, Power 28
5415.500	43.1	6.3	1.2	18.0	0.0	0.0	Horz	PK	0.0	49.4	74.0	-24.6	Low Channel, EUT Vertical, Antenna Horizontal, Power 28
2782.295	51.3	-2.8	1.0	105.0	0.0	0.0	Horz	PK	0.0	48.5	74.0	-25.5	High Channel, EUT Vertical, Antenna Horizontal, Power 28
5415.025	42.1	6.3	1.9	156.0	0.0	0.0	Vert	PK	0.0	48.4	74.0	-25.6	Low Channel, EUT Horizontal, Antenna Horizontal, Power 28
2782.305	51.0	-2.8	1.0	85.0	0.0	0.0	Vert	PK	0.0	48.2	74.0	-25.8	High Channel, EUT Horizontal, Antenna Horizontal, Power 28
2745.430	48.1	-3.0	2.7	145.0	0.0	0.0	Horz	PK	0.0	45.1	74.0	-28.9	Mid Channel, EUT Vertical, Antenna Horizontal, Power 28
2745.467	48.0	-3.0	1.0	243.0	0.0	0.0	Vert	PK	0.0	45.0	74.0	-29.0	Mid Channel, EUT Horizontal, Antenna Horizontal, Power 28
4512.950	52.7	4.1	1.0	334.0	-33.7	0.0	Horz	AV	0.0	23.1	54.0	-30.9	Low Channel, EUT Vertical, Antenna Horizontal, Power 28
4637.525	51.7	4.3	1.0	11.0	-33.7	0.0	Vert	AV	0.0	22.3	54.0	-31.7	High Channel, EUT Horizontal, Antenna Horizontal, Power 28
4512.967	50.5	4.1	3.9	357.0	-33.7	0.0	Vert	AV	0.0	20.9	54.0	-33.1	Low Channel, EUT Horizontal, Antenna Horizontal, Power 28
1081.648	41.3	-9.3	1.5	299.0	-33.7	20.0	Horz	AV	0.0	18.3	54.0	-35.7	Mid Channel, EUT Vertical, Antenna Horizontal, Power 28
4575.950	47.2	4.3	1.2	351.0	-33.7	0.0	Horz	AV	0.0	17.8	54.0	-36.2	Mid Channel, EUT Vertical, Antenna Horizontal, Power 28
4575.875	45.3	4.3	1.1	9.0	-33.7	0.0	Vert	AV	0.0	15.9	54.0	-38.1	Mid Channel, EUT Horizontal, Antenna Horizontal, Power 28
1093.917	38.5	-9.3	1.0	300.0	-33.7	20.0	Horz	AV	0.0	15.5	54.0	-38.5	High Channel, EUT Vertical, Antenna Horizontal, Power 28
1094.567	38.4	-9.3	1.0	281.0	-33.7	20.0	Horz	AV	0.0	15.4	54.0	-38.6	Low Channel, EUT Vertical, Antenna Horizontal, Power 28
3610.392	47.0	1.9	1.2	326.0	-33.7	0.0	Horz	AV	0.0	15.2	54.0	-38.8	Low Channel, EUT Vertical, Antenna Horizontal, Power 28
3710.000	45.4	2.4	1.1	346.0	-33.7	0.0	Horz	AV	0.0	14.1	54.0	-39.9	High Channel, EUT Vertical, Antenna Horizontal, Power 28
4637.510	43.4	4.3	1.0	351.0	-33.7	0.0	Horz	AV	0.0	14.0	54.0	-40.0	High Channel, EUT Vertical, Antenna Horizontal, Power 28
3660.765	45.1	2.1	1.0	353.0	-33.7	0.0	Horz	AV	0.0	13.5	54.0	-40.5	Mid Channel, EUT Vertical, Antenna Horizontal, Power 28
1081.565	35.9	-9.3	3.5	12.0	-33.7	20.0	Vert	AV	0.0	12.9	54.0	-41.1	Mid Channel, EUT Horizontal, Antenna Horizontal, Power 28
1094.633	35.0	-9.3	3.5	355.0	-33.7	20.0	Vert	AV	0.0	12.0	54.0	-42.0	Low Channel, EUT Horizontal, Antenna Horizontal, Power 28
3610.408	43.2	1.9	3.6	343.0	-33.7	0.0	Vert	AV	0.0	11.4	54.0	-42.6	Low Channel, EUT Horizontal, Antenna Horizontal, Power 28
3660.775	41.9	2.1	3.9	360.0	-33.7	0.0	Vert	AV	0.0	10.3	54.0	-43.7	Mid Channel, EUT Horizontal, Antenna Horizontal, Power 28
2707.750	46.1	-3.2	1.1	186.0	-33.7	0.0	Vert	AV	0.0	9.2	54.0	-44.8	Low Channel, EUT Horizontal, Antenna Horizontal, Power 28
1093.833	31.5	-9.3	1.0	321.0	-33.7	20.0	Vert	AV	0.0	8.5	54.0	-45.5	High Channel, EUT Horizontal, Antenna Horizontal, Power 28
2707.733	45.4	-3.2	1.0	227.0	-33.7	0.0	Horz	AV	0.0	8.5	54.0	-45.5	Low Channel, EUT Horizontal, Antenna Horizontal, Power 28
5415.600	35.3	6.3	1.2	18.0	-33.7	0.0	Horz	AV	0.0	7.9	54.0	-46.1	Low Channel, EUT Horizontal, Antenna Horizontal, Power 28
7418.825	28.2	13.0	3.5	353.0	-33.7	0.0	Vert	AV	0.0	7.5	54.0	-46.5	High Channel, EUT Horizontal, Antenna Horizontal, Power 28
7418.505	28.1	13.0	1.0	243.0	-33.7	0.0	Horz	AV	0.0	7.4	54.0	-46.6	High Channel, EUT Vertical, Antenna Horizontal, Power 28
7220.617	28.9	12.0	1.0	121.0	-33.7	0.0	Horz	AV	0.0	7.2	54.0	-46.8	Low Channel, EUT Horizontal, Antenna Horizontal, Power 28
7218.825	28.8	12.0	1.0	298.0	-33.7	0.0	Vert	AV	0.0	7.1	54.0	-46.9	Low Channel, EUT Horizontal, Antenna Horizontal, Power 28
7322.442	28.6	12.2	1.0	141.0	-33.7	0.0	Vert	AV	0.0	7.1	54.0	-46.9	Mid Channel, EUT Horizontal, Antenna Horizontal, Power 28
7320.945	28.3	12.2	3.4	360.0	-33.7	0.0	Horz	AV	0.0	6.8	54.0	-47.2	Mid Channel, EUT Vertical, Antenna Horizontal, Power 28
5415.600	33.9	6.3	1.9	156.0	-33.7	0.0	Vert	AV	0.0	6.5	54.0	-47.5	Low Channel, EUT Horizontal, Antenna Horizontal, Power 28
2782.555	42.6	-2.8	1.0	105.0	-33.7	0.0	Horz	AV	0.0	6.1	54.0	-47.9	High Channel, EUT Vertical, Antenna Horizontal, Power 28
2782.415	41.3	-2.8	1.0	85.0	-33.7	0.0	Vert	AV	0.0	4.8	54.0	-49.2	High Channel, EUT Horizontal, Antenna Horizontal, Power 28
3709.940	33.9	2.4	1.3	210.0	-33.7	0.0	Vert	AV	0.0	2.6	54.0	-51.4	High Channel, EUT Horizontal, Antenna Horizontal, Power 28
2745.583	37.2	-3.0	1.0	243.0	-33.7	0.0	Vert	AV	0.0	0.5	54.0	-53.5	Mid Channel, EUT Horizontal, Antenna Horizontal, Power 28
2745.600	37.1	-3.0	2.7	145.0	-33.7	0.0	Horz	AV	0.0	0.4	54.0	-53.6	Mid Channel, EUT Vertical, Antenna Horizontal, Power 28



XMit 2017.12.13

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.	Cal. Due
Generator - Signal	Keysight	N5182B	TFU	27-Oct-15	27-Oct-18
Cable	Micro-Coax	UFD150A-1-0720-200200	EVH	23-Apr-18	23-Apr-19
Attenuator	Fairview Microwave	18B5W-26	RFZ	6-Sep-17	6-Sep-18
Attenuator	Fairview Microwave	SA26B-10	TWH	16-Apr-18	16-Apr-19
Block - DC	Fairview Microwave	SD3379	AMW	23-Apr-18	23-Apr-19
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFI	12-Jan-18	12-Jan-19

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The Duty Cycle (x) of the single channel operation of the radio as controlled by the provided test software was measured for each of the EUT operating modes.

There is no compliance requirement to be met by this test, so therefore no Pass / Fail criteria.

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.

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

If the transmit duty cycle < 98 percent, burst gating may have been used during some of the other tests in this report to only take the measurement during the burst duration.



							TbtTx 2017.12.14	XMit 2017.12.
	T: SEL-3031					Work Order:	SCHW0240	
	er: 1181590420						19-Jul-18	
Custome	er: Schweitzer Engineering L	aboratories, Inc.				Temperature:	22.7 °C	
	s: Miralem Cosic						43.7% RH	
	t: None					Barometric Pres.:		
	y: Jeff Alcoke		Power: 15.0 VDC			Job Site:	EV06	
TEST SPECIFICA			Test Method					
FCC 15.247:2018			ANSI C63.10:2013					
COMMENTS								
None	DM TEST STANDARD							
Configuration #	· ·	Signature	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
High Power Mode								
	Low Channel, 902.6 MHz		1.43 ms	3.095 ms	1	46.2	N/A	
								N/A
	Low Channel, 902.6 MHz		N/A	N/A	5	N/A	N/A	N/A
	Mid Channel, 915.2 MHz		1.43 ms	3.101 ms	1	46.1	N/A	N/A N/A
	Mid Channel, 915.2 MHz Mid Channel, 915.2 MHz		1.43 ms N/A	3.101 ms N/A	1	46.1 N/A	N/A N/A	N/A N/A N/A
	Mid Channel, 915.2 MHz		1.43 ms	3.101 ms	1 5 1 5	46.1	N/A	N/A N/A



High Power Mode, Low Channel, 902.6 MHz Number of Value Limit Pulse Width **(%)** 46.2 **(%)** N/A Period Pulses Results 1.43 ms 3.095 ms 1 N/A gilent Spectrum Analyzer - Element Materials Technology 08:42:58 AM Jul 19, 2018 TRACE **1 2 3 4 5 6** TYPE WHATHAN DET P P P P P RL NSE:INT ALIGN OFF Trig Delay-1.000 ms #Avg Type: Log-Pwr Trig: Video #Atten: 10 dB DC 50 Ω PNO: Fast 🔸 Mkr3 4.082 ms 12.10 dBm Ref Offset 37.92 dB Ref 34.00 dBm 5 dB/div Log 1 3 2 Center 902.600000 MHz Res BW 1.0 MHz Span 0 Hz Sweep 5.000 ms (8192 pts) #VBW 30 kHz FUNCTION WIDTH FUNCTION 19.39 dBm -4.50 dBm 12.10 dBm 1 t 1 t 1 t 986.9 µs 2.417 ms 4.082 ms NN STATUS

High Power Mode, Low Channel, 902.6 MHz								
			Number of	Value	Limit			
	Pulse Width	Period	Pulses	(%)	(%)	Results		
	N/A	N/A	5	N/A	N/A	N/A		

RL RF 50Ω DC	S	ENSE:INT	ALIGN OFF	08:43:09 AM Jul 19, 2018
	PNO: Fast 🔸	Trig: Video #Atten: 10 dB	#Avg Type: Log-Pwr	TRACE 12349 TYPE WWWWW DET PPPP
Ref Offset 37.92 dB B/div Ref 34.00 dBm				
I.0				
.0				
0				
.0				TRIGL
enter 902.600000 MHz s BW 1.0 MHz	#\/B\	V 30 kHz		Span 0 F veep 14.20 ms (8192 pt
	#VDV	V 30 KHZ	STATUS	reep 14.20 ms (8192 pt



XMit 2017.12.13

High Power Mode, Mid Channel, 915.2 MHz Number of Value Limit Pulse Width **(%)** 46.1 **(%)** N/A Period Pulses Results 1.43 ms 3.101 ms 1 N/A gilent Spectrum Analyzer - Element Materials Technology 08:45:40 AM Jul 19, 2018 TRACE **1 2 3 4 5 6** TYPE WHATHAN DET P P P P P RL NSE:INT ALIGN OFF Trig Delay-1.000 ms #Avg Type: Log-Pwr Trig: Video #Atten: 10 dB DC 50 Ω PNO: Fast 🔸 Mkr3 4.081 ms 11.21 dBm Ref Offset 37.92 dB Ref 34.00 dBm 5 dB/di Log **2** 3 Center 915.200000 MHz Res BW 1.0 MHz Span 0 Hz Sweep 5.000 ms (8192 pts) #VBW 30 kHz FUNCTION WIDTH FUNCTION 1 t 1 t 1 t 980.0 µs 2.410 ms 4.081 ms 8.98 dBm 21.30 dBm 11.21 dBm NN STATUS 202

High Power Mode, Mid Channel, 915.2 MHz							
			Number of	Value	Limit		
	Pulse Width	Period	Pulses	(%)	(%)	Results	
	N/A	N/A	5	N/A	N/A	N/A	

RL RF	50 Ω DC		SENSE:INT	Al 🔥	IGN OFF		08:45:56 AM Jul 19, 2018
		PNO: Fast 🔸 IFGain:Low	. Trig: Video #Atten: 10 dE		#Avg Type:	Log-Pwr	TRACE 12345 TYPE WWWWW DET PPPP
dB/div Ref	Offset 37.92 dB 34.00 dBm						
9.0							
4.0			,				
9.0							
4.0							
.00							
.00							
00							
00							
							TRIG
enter 915.200 es BW 1.0 MI	0000 MHz Hz	#VE	W 30 kHz			Sweep	Span 0 H 14.20 ms (8192 pt
				and the second	STATUS	- usep	ning the forter by



		High Power Mo	de, High Channe			
			Number of	Value	Limit	
	Pulse Width	Period	Pulses	(%)	(%)	Results
	1.43 ms	3.099 ms	1	46.2	N/A	N/A
Agilent Spectrum Analyze	F	SENS	≊E:INT Trig Delay-1.000 ms Trig: Video ¥Atten: 10 dB	ALIGN OFF #Avg Type		08:54:30 AM Jul 19, 2018 TRACE 12 3 4 5 TYPE WWWWE
RefOffs 5 dB/div Ref 34	set 37.92 dB .00 dBm	Gam.eow				Mkr3 4.079 ms 9.01 dBm
29.0						(
24.0			²			
19.0	1					3
9.00	¥)
4.00						
-1.00						
-11.0						TRIG LVL
Center 927.50000 Res BW 1.0 MHz	00 MHz	#VBW	30 kHz		Sweep	Span 0 Hz 5.000 ms (8192 pts)
MKR MODE TRC SCL	× 980.0 µs	Y 10.99 dB		UNCTION WIDTH	FUNC	TION VALUE
2 N 1 t	2.410 ms 4.079 ms	22.16 dB 9.01 dB	m			
4 5						
6						
8 9 10						
						~
MSG				STATUS		

High Power Mode, High Channel, 927.5 MHz						
			Number of	Value	Limit	
	Pulse Width	Period	Pulses	(%)	(%)	Results
	N/A	N/A	5	N/A	N/A	N/A

RL RF 50Ω DC		SI	ENSE:INT	Â	ALIGN OFF			08:54:39 A	M Jul 19, 2018
		10: Fast ↔ Gain:Low	Trig: Video #Atten: 10		#Avg	Type: Log-Pw	r	TRA T\ [CE 1 2 3 4 5 PE WUWWWW DET P P P P P
Ref Offset 37.92 dE	3								
a.o									
.0									
.0									
10									
0									
10									
									TRIGL
.0									
enter 927.500000 MHz es BW 1.0 MHz		#VBV	V 30 kHz			s	weep 14	.20 ms	Span 0 H (8192 pt
					STATU				



XMit 2017.12.13

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.	Cal. Due
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFI	12-Jan-18	12-Jan-19
Generator - Signal	Keysight	N5182B	TFU	27-Oct-15	27-Oct-18
Cable	Micro-Coax	UFD150A-1-0720-200200	EVH	23-Apr-18	23-Apr-19
Block - DC	Fairview Microwave	SD3379	AMW	23-Apr-18	23-Apr-19
Attenuator	Fairview Microwave	SA26B-10	TWH	16-Apr-18	16-Apr-19
Attenuator	Fairview Microwave	18B5W-26	RFZ	6-Sep-17	6-Sep-18

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The peak output power was measured with the EUT set to low, medium and high transmit frequencies. The EUT was transmitting in a no hop mode at the data rate(s) listed in the datasheet.

The method found in ANSI C63.10:2013 Section 7.8.5 was used for a FHSS radio.



								TbtTx 2017, 12, 14	4 XMit 20
FUT	SEL-3031					Worl	k Order	SCHW0240	
Serial Number								24-Jul-18	
	: Schweitzer Engineering Labora	tories. Inc.				Temp	erature:		
Attendees								43% RH	
Project	: None					Barometri	ic Pres.:	1022 mbar	
Tested by	Jody House & Rod Peloquin			Pow	er: 24.0 VDC	J	lob Site:	EV06	
EST SPECIFICAT	TIONS				Test Method				
CC 15.247:2018					ANSI C63.10:2013				
COMMENTS									
ow power mode	= 21 setting. High power mode =	28 setting.							
en pener meae	- 1. coming: ingli perior mode -	zo oottinigi							
DEVIATIONS FRO	M TEST STANDARD								
DEVIATIONS FRO	M TEST STANDARD								
	M TEST STANDARD	Signature	Ro	chy te	Relegy				
lone		Signature	Ro	chy le	Peleog			Limit	
lone		Signature	Pa	dy h	Release	Valu	ue	Limit (<)	Result
lone Configuration #		Signature	Ro	ely te	. Peleng	Valu	ue		Result
lone		Signature	Por	chy te	Roling	Valu 608.92			Result
lone	5	Signature	Po	eling le	Release		2 mW	(<)	
lone	5 Low Channel, 902.6 MHz	Signature	Ro	chay be	. Peling	 608.92	2 mW 4 mW	(<) 1 W	Pass
tone Configuration # High Power Mode	5 Low Channel, 902.6 MHz Mid Channel, 915.2 MHz	Signature	Ro	ching be	Rolings	 608.92 563.34	2 mW 4 mW	(<) 1 W 1 W	Pass Pass
tone Configuration # High Power Mode	5 Low Channel, 902.6 MHz Mid Channel, 915.2 MHz	Signature	Po	elay le	Reling	608.92 563.34	2 mW 4 mW 8 mW	(<) 1 W 1 W	Pass Pass
None	5 Low Channel, 902.6 MHz Mid Channel, 915.2 MHz High Channel, 927.5 MHz	Signature	Ra	chog le	. Pelay	 608.92 563.34 565.98	2 mW mW 3 mW 2 mW	(<) 1 W 1 W 1 W	Pass Pass Pass



TbtTx 2017.12.14 XMit 2017.12.13 High Power Mode, Low Channel, 902.6 MHz Limit **(<)** 1 W Value Result 608.92 mW Pass gilent Spectrum Analyzer - Element Materials Technology ALIGN OFF #Avg Type: Log-Pwr h Avg|Hold:>100/100 08:14:54 AM Jul 24, 2018 TRACE 1 2 3 4 5 6 TYPE M WAAAAAAA DET P P P P P RL DC SENSE:INT 50 \Q PNO: Fast Trig: Free Run IFGain:Low #Atten: 10 dB Mkr1 902.512 2 MHz 608.92 mW Ref Offset 37.92 dB Ref 2.500 W 5 dB/div Log I V Span 1.500 MHz #Sweep 73.39 ms (1000 pts) Center 902.6000 MHz #Res BW 1.0 MHz #VBW 3.0 MHz STATUS High Power Mode, Mid Channel, 915.2 MHz Limit **(<)** 1 W Value Result 563.34 mW Pass

RL	RF 50 Ω DC	SI	ENSE:INT	ALIGN OFF	08:39:13 AM Jul 24, 2018
		PNO: Fast 🖵 IFGain:Low	Trig: Free Run #Atten: 10 dB	#Avg Type: Log-Pwr Avg Hold:>100/100	TRACE 12345 TYPE M MANANA DET PPPP
dB/div	Ref Offset 37.92 dB Ref 2.500 W			Mk	r1 915.194 7 MH: 563.34 mV
'91 mW			1		
50 mW					
3.1 mW					
5.0 mW —					
91 mW					
50 mW					
'91 µW —					
250 μVV					
9.1 µW					
	15.2000 MHz / 1.0 MHz	#VBW	3.0 MHz	#Sweej	Span 1.500 MH 5 73.39 ms (1000 pts
G				STATUS	



TbtTx 2017.12.14 XMit 2017.12.13 High Power Mode, High Channel, 927.5 MHz Limit **(<)** 1 W Value Result 565.98 mW Pass gilent Spectrum Analyzer - Element Materials Technology ALIGN OFF #Avg Type: Log-Pwr Avg|Hold:>100/100 08:21:42 AM Jul 24, 2018 TRACE 1 2 3 4 5 6 TYPE M WWWW DET P P P P P RL DC SENSE:INT 50 Ω PNO: Fast Trig: Free Run IFGain:Low #Atten: 10 dB Mkr1 927.443 7 MHz 565.98 mW Ref Offset 37.92 dB Ref 2.500 W 5 dB/div Log I **P** Span 1.500 MHz #Sweep 73.39 ms (1000 pts) Center 927.5000 MHz #Res BW 1.0 MHz #VBW 3.0 MHz STATUS Low Power Mode, Low Channel, 902.6 MHz Limit **(<)** 1 W Value Result 124.92 mW Pass

Agilent Spect	rum Analyzer - Element Mater RF 50 Ω DC		NSE:INT	ALIGN OFF	08:23:47 AM Jul 24, 2018
U RL	KF [30 32 DC]	PNO: Fast IFGain:Low	Trig: Free Run #Atten: 10 dB	#Aug Type: Log-Pwr Avg Hold:>100/100	123:47 AM Jul 24, 2018 TRACE 12:3:45 6 TYPE MWWWW DET PPPPP
og	Ref Offset 37.92 dB Ref 449.8 mW			М	kr1 902.543 7 MHz 124.92 mW
142 mW			↓ 1		
5.0 mW					
4.2 mW					
.50 mW					
.42 m₩ —					
450 μW					
142 μW					
15.0 μW					
Res BW	02.6000 MHz 1.0 MHz	#VBW	3.0 MHz		Span 1.500 MHz p 73.39 ms (1000 pts
sg				STATUS	



TbtTx 2017.12.14 XMit 2017.12.13 Low Power Mode, Mid Channel, 915.2 MHz Limit **(<)** 1 W Value Result 120.16 mW Pass gilent Spectrum Analyzer - Element Materials Technology 08:34:28 AM Jul 24, 2018 TRACE 1 2 3 4 5 6 TYPE M WWWW DET P P P P P RL ALIGN OFF #Avg Type: Log-Pwr Avg|Hold:>100/100 DC SENSE:INT 50 Ω PNO: Fast Trig: Free Run IFGain:Low #Atten: 10 dB Mkr1 915.143 7 MHz 120.16 mW Ref Offset 37.92 dB Ref 3.499 W 5 dB/div Log I ♦1 Center 915.2000 MHz #Res BW 1.0 MHz Span 1.500 MHz #Sweep 73.39 ms (1000 pts) #VBW 3.0 MHz STATUS Low Power Mode, High Channel, 927.5 MHz Limit Value **(<)** 1 W Result 118.91 mW Pass

XIRL RF 50Ω DC	PNO: Fast	Trig: Free Run #Atten: 10 dB	▲ ALIGN OFF #Avg Type: Log-Pwr Avg Hold: 100/100	08:35:58 AM Jul 24, 2018 TRACE 1 2 3 4 5 6 TYPE M WWWW DET P P P P P
Ref Offset 37.92 dB dB/div Ref 449.8 mW			Mk	r1 927.491 7 MHz 118.91 mW
42 mW		1		
5.0 mW				
4.2 mW				
50 mVV				
42 mW				
450 μVV				
142 μW				
4.2 µW				
Center 927.5000 MHz				Span 1.500 MHz
Res BW 1.0 MHz	#VBW	3.0 MHz	#Sweep	73.39 ms (1000 pts

BAND EDGE COMPLIANCE



XMit 2017.12.13

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.	Cal. Due
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFI	12-Jan-18	12-Jan-19
Block - DC	Fairview Microwave	SD3379	AMW	23-Apr-18	23-Apr-19
Attenuator	Fairview Microwave	SA26B-10	TWH	16-Apr-18	16-Apr-19
Attenuator	Fairview Microwave	18B5W-26	RFZ	6-Sep-17	6-Sep-18
Cable	Micro-Coax	UFD150A-1-0720-200200	EVH	23-Apr-18	23-Apr-19
Generator - Signal	Keysight	N5182B	TFU	27-Oct-15	27-Oct-18

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The spurious RF conducted emissions at the edges of the authorized band were measured with the EUT set to low and high transmit frequencies. The EUT was transmitting at the data rate(s) listed in the datasheet in a no hop mode. The channels closest to the band edges were selected.

The spectrum was scanned below the lower band edge and above the higher band edge.

BAND EDGE COMPLIANCE



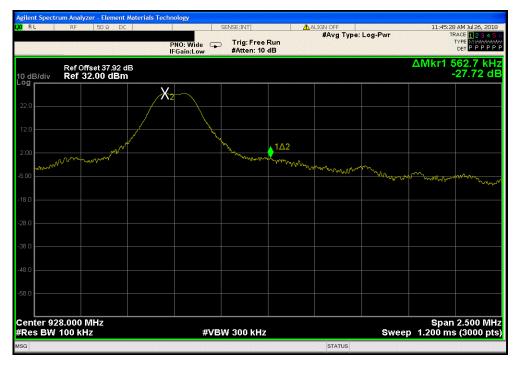
			TbtTx 2017.12.14	XMit 2017.12.13
EUT:	SEL-3031	Work Order:	SCHW0240	
Serial Number:	1181590420	Date:	26-Jul-18	
Customer:	Schweitzer Engineering Laboratories, Inc.	Temperature:	23 °C	
Attendees:	None	Humidity: 43.8% RH		
Project:	None	Barometric Pres.:	1021 mbar	
Tested by:	Jody House & Rod Peloquin Power: 24.0 VDC	Job Site:	EV06	
TEST SPECIFICATI	ONS Test Method			
FCC 15.247:2018	ANSI C63.10:2013			
COMMENTS	•			
Transmitting with 2	FSK Modulation at a software power setting of 28.			
None				
Configuration #	1 Rocky Le Relenge			
		Value (dBc)	Limit ≤ (dBc)	Result
High Power Mode				
	Low Channel, 902.6 MHz	-24.32	-20	Pass
	High Channel, 927.5 MHz	-27.72	-20	Pass

BAND EDGE COMPLIANCE



TbtTx 2017.12.14 XMit 2017.12.13 High Power Mode, Low Channel, 902.6 MHz Value Limit (dBc) ≤ (dBc) Result -24.32 -20 Pass gilent Spectrum Analyzer - Element Materials Technology RL 11:27:08 AM Jul 26, 201 TRACE 1 2 3 4 5 ALIGN OFF #Avg Type: Log-Pwr DC SENSE:INT PNO: Wide Trig: Free Run IFGain:Low #Atten: 10 dB -562.5 kHz -24.32 dB ΔMkr1 Ref Offset 37.92 dB Ref 33.00 dBm 10 dB/div Log Xz ų. mont man m Center 902.000 MHz #Res BW 100 kHz Span 3.500 MHz Sweep 1.200 ms (3000 pts) #VBW 300 kHz STATUS OOT E MILL 1.12.1

	riight ower it	ioue, riigii Chailii	Value	Limit	
			(dBc)	≤ (dBc)	Result
			-27.72	-20	Pass



BAND EDGE COMPLIANCE - HOPPING MODE



XMit 2017.12.13

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.	Cal. Due
Generator - Signal	Keysight	N5182B	TFU	27-Oct-15	27-Oct-18
Block - DC	Fairview Microwave	SD3379	AMW	23-Apr-18	23-Apr-19
Attenuator	Fairview Microwave	SA26B-10	TWH	16-Apr-18	16-Apr-19
Attenuator	Fairview Microwave	18B5W-26	RFZ	6-Sep-17	6-Sep-18
Cable	Micro-Coax	UFD150A-1-0720-200200	EVH	23-Apr-18	23-Apr-19
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFI	12-Jan-18	12-Jan-19

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The spurious RF conducted emissions at the edges of the authorized band were measured with the EUT set to its normal pseudo-random hopping sequence. The EUT was transmitting at the data rate(s) listed in the datasheet.

The spectrum was scanned below the lower band edge and above the higher band edge.

BAND EDGE COMPLIANCE - HOPPING MODE

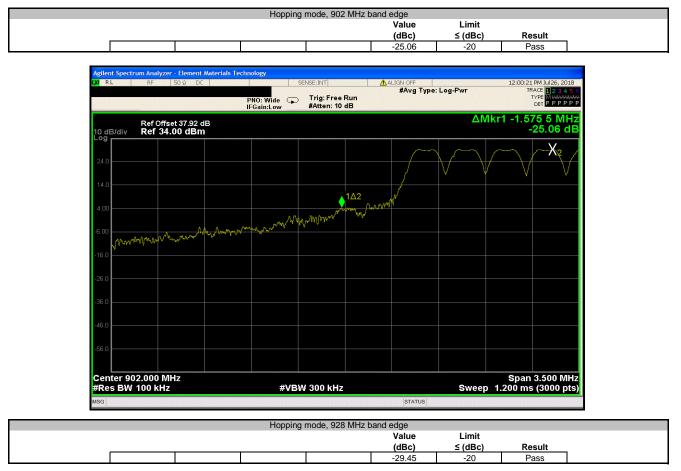


	TbiTx 2017.12.14 XMit 2017.
EUT: SEL-3031	Work Order: SCHW0240
Serial Number: 1181590420	Date: 26-Jul-18
Customer: Schweitzer Engineering Laboratories, Inc.	Temperature: 23 °C
Attendees: None	Humidity: 43.7% RH
Project: None	Barometric Pres.: 1021 mbar
Tested by: Jody House & Rod Peloquin Power: 24.0 VDC	Job Site: EV06
TEST SPECIFICATIONS Test Method	
FCC 15.247:2018 ANSI C63.10:2013	
COMMENTS	
Transmitting with 2FSK modulation at a software power setting of 28.	
DEVIATIONS FROM TEST STANDARD	
None	
Configuration # 1 Rocky to Rolling	
	Value Limit (dBc) ≤ (dBc) Result
High Power Mode	
Hopping mode, 902 MHz band edge	-25.06 -20 Pass
Hopping mode, 928 MHz band edge	-29.45 -20 Pass

BAND EDGE COMPLIANCE - HOPPING MODE



TbtTx 2017.12.14 XMit 2017.12.13







XMit 2017.12.13

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.	Cal. Due
Generator - Signal	Keysight	N5182B	TFU	27-Oct-15	27-Oct-18
Cable	Micro-Coax	UFD150A-1-0720-200200	EVH	23-Apr-18	23-Apr-19
Attenuator	Fairview Microwave	18B5W-26	RFZ	6-Sep-17	6-Sep-18
Attenuator	Fairview Microwave	SA26B-10	TWH	16-Apr-18	16-Apr-19
Block - DC	Fairview Microwave	SD3379	AMW	23-Apr-18	23-Apr-19
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFI	12-Jan-18	12-Jan-19

TEST DESCRIPTION

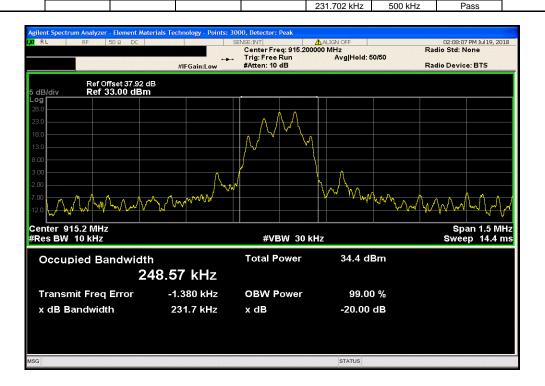
The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The 20 dB occupied bandwidth was measured with the EUT set to low, medium and high transmit frequencies in the band. The EUT was transmitting at the data rate(s) listed in the datasheet in a no-hop mode.



					TbtTx 2017.12.14	XMit 2017.
FUT	SEL-3031			Work Order:		Amit 2017.
Serial Number					19-Jul-18	
	Schweitzer Engineering Laboratories, Inc.			Temperature:		
	Miralem Cosic			Humidity:	42.7% RH	
Project				Barometric Pres.:		
	: Jeff Alcoke		Power: 15.0 VDC	Job Site:	EV06	
EST SPECIFICAT	TONS		Test Method			
CC 15.247:2018			ANSI C63.10:2013			
OMMENTS						
DEVIATIONS FRO	M TEST STANDARD					
None			-			
lone	1 Signature	Ū	A-M_			
	1	Ū	A M		Limit	
	1	Ū	A M	Value	Limit (≤)	Result
configuration #	1	Ċ	TA //			Result
Configuration #	1	Ċ	A.M.	Value 231.192 kHz		Result Pass
	1 Signature	Ċ	A //		(≤)	



TbtTx 2017.12.14 XMit 2017.12.13 High Power Mode, Low Channel, 902.6 MHz Limit Value (≤) Result 231.192 kHz 500 kHz Pass ectrum Analyzer - Element Materials Technology - Points: 3000, Detector: Peal ilent Sp 02:25:32 PM Jul 19, 2018 Radio Std: None ALIGN C Center Freq: 902.600000 MHz Trig: Free Run Av: #Atten: 10 dB Avg|Hold: 50/50 Radio Device: BTS #IFGain:Low Ref Offset 37.92 dB Ref 33.00 dBm dB/di oa MAMM mmm Center 902.6 MHz #Res BW 10 kHz Span 1.5 MHz Sweep 14.4 ms #VBW 30 kHz Total Power 34.5 dBm **Occupied Bandwidth** 616.70 kHz -3.155 kHz **Transmit Freq Error OBW Power** 99.00 % x dB Bandwidth 231.2 kHz x dB -20.00 dB STATUS High Power Mode, Mid Channel, 915.2 MHz Limit Value (≤) Result





XMit 2017.12.13

TbtTx 2017.12.14

High Power Mode, High Channel, 927.5 MHz Limit **(≤)** 500 kHz Value Result 231.674 kHz Pass ilent Spectrum Analyzer - Element Materials Technology - Points: 3000, Detector: Peak NSE:INT ALIGN OFF Center Freq: 927.500000 MHz Trig: Free Run Avg|Hold: 50/50 #Atten: 10 dB 02:11:45 PM Jul 19, 2018 Radio Std: None RL Radio Device: BTS #IFGain:Low Ref Offset 37.92 dB Ref 32.00 dBm 5 dB/div .og M hha ኪ/ ነ Span 1.5 MHz Sweep 14.4 ms Center 927.5 MHz #Res BW 10 kHz #VBW 30 kHz Total Power 34.4 dBm **Occupied Bandwidth** 341.40 kHz 7.865 kHz **OBW Power** 99.00 % **Transmit Freq Error** x dB Bandwidth 231.7 kHz x dB -20.00 dB STATUS



XMit 2017.12.13

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

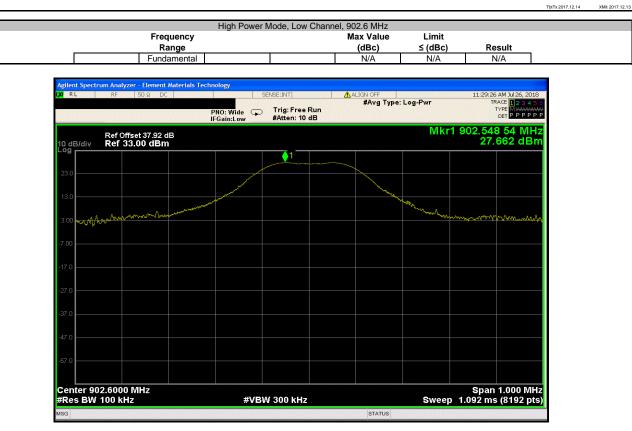
Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFI	12-Jan-18	12-Jan-19
Block - DC	Fairview Microwave	SD3379	AMW	23-Apr-18	23-Apr-19
Attenuator	Fairview Microwave	SA26B-10	TWH	16-Apr-18	16-Apr-19
Attenuator	Fairview Microwave	18B5W-26	RFZ	6-Sep-17	6-Sep-18
Cable	Micro-Coax	UFD150A-1-0720-200200	EVH	23-Apr-18	23-Apr-19
Generator - Signal	Keysight	N5182B	TFU	27-Oct-15	27-Oct-18

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The spurious RF conducted emissions were measured with the EUT set to low, medium and high transmit frequencies. The EUT was transmitting at the data rate(s) listed in the datasheet in a no-hop mode. For each transmit frequency, the spectrum was scanned throughout the specified frequency range.



						TbtTx 2017.12.14	XMit 2017.12.1
	T: SEL-3031				Work Order:		
	r: 1181590420					26-Jul-18	
Custome	r: Schweitzer Engineering La	aboratories, Inc.			Temperature:	23 °C	
Attendees	s: None				Humidity:	43.9% RH	
Projec	t: None				Barometric Pres.:	1021 mbar	
	y: Jody House & Rod Peloqu	in	Power: 2	4.0 VDC	Job Site:	EV06	
TEST SPECIFICA	TIONS		т	est Method			
FCC 15.247:2018			F	NSI C63.10:2013			
COMMENTS							
Transmitting with	2FSK Modulation at a software	are nower setting of 28					
in an shinting with		are power setting of 20.					
DEVIATIONS FRO	OM TEST STANDARD						
None							
			101.	PP			
Configuration #	1		Rocky le	Letings			
		Signature	\mathcal{C}	0			
				Frequency	Max Value	Limit	
				Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result
High Power Mode							Result
High Power Mode	Low Channel, 902.6 MHz						Result N/A
High Power Mode				Range	(dBc)	≤ (dBc)	
High Power Mode	Low Channel, 902.6 MHz			Range Fundamental	(dBc) N/A	≤ (dBc) N/A	N/A
High Power Mode	Low Channel, 902.6 MHz Low Channel, 902.6 MHz Mid Channel, 915.2 MHz			Range Fundamental 30 MHz - 12 GHz	(dBc) N/A -50.83	≤ (dBc) N/A -20	N/A Pass
High Power Mode	Low Channel, 902.6 MHz Low Channel, 902.6 MHz Mid Channel, 915.2 MHz Mid Channel, 915.2 MHz			Range Fundamental 30 MHz - 12 GHz Fundamental	(dBc) N/A -50.83 N/A	≤ (dBc) N/A -20 N/A	N/A Pass N/A
High Power Mode	Low Channel, 902.6 MHz Low Channel, 902.6 MHz Mid Channel, 915.2 MHz			Range Fundamental 30 MHz - 12 GHz Fundamental 30 MHz - 12 GHz	(dBc) N/A -50.83 N/A -50.74	≤ (dBc) N/A -20 N/A -20	N/A Pass N/A Pass



High Power	Mode, Low Channe	el, 902.6 MHz		
Frequency		Max Value	Limit	
Range		(dBc)	≤ (dBc)	Result
30 MHz - 12 GHz		-50.83	-20	Pass

RL	RF	50 Ω D0		La seconda de la	S	ENSE:INT	A	LIGN OFF		11:34:4	5 AM Jul 26, 201
				PNO: Fast FGain:Low	Ģ	Trig: Free F #Atten: 10 d	Run dB	#Avg Type:	Log-Pwr		RACE 12345 TYPE MWWWW DET PPPP
dB/div	Ref Offs Ref 33	et 37.92 (.00 dBn	iB 1							Mkr1 1.8 -2	305 6 GF 3.17 dB
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art 30 M	IHz 100 kHz			+		V 300 kHz			Sw	Stop eep 1.144	12.000 GF
σ ο D₩	100 102			#	- V D V	4 300 KHZ			SW	eep 1.144	s (o raz hr



Frequency

Range

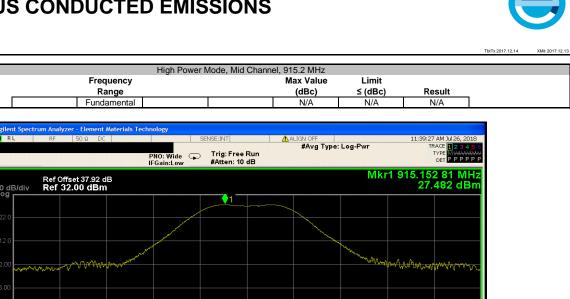
Fundamental

DC

Ref Offset 37.92 dB Ref 32.00 dBm

RL

10 dB/div Log



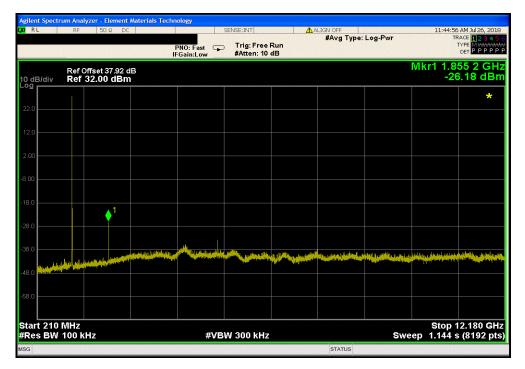
Center 91: #Res BW	5.2000 MHz 100 kHz	#VB	W 300 kHz		Sweep	Span 1.092 ms	1.000 MH 6 (8192 pt
-58.0							
-48.0							
-38.0							
-28.0							
-18.0							
-8.00							
A 8	Marina					mar Ward Marker and	

High Pow	er Mode, Mid Chann	el, 915.2 MHz					
Frequency	Frequency Max Value Limit						
Range		(dBc)	≤ (dBc)	Result			
30 MHz - 12 GHz		-50.74	-20	Pass			

RL	RF 50	Ω DC			SENSE:INT	A A	LIGN OFF		11:40:2	3 AM Jul 26, 201
				0:Fast 🖵 ain:Low	Trig: Free I #Atten: 10	Run dB	#Avg Type:	Log-Pwr	Т	RACE 12345 TYPE MWWW DET PPPP
dB/div	Ref Offset 3 Ref 32.00	87.92 dB d Bm							Mkr1 1.8 -2	30 4 GF 3.26 dB
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art 30 M tes BW	/IHz 100 kHz			#VB	W 300 kHz			Swe	Stop * ep 1.144 *	12.000 GH s (8192 pi
3	and the second second second	and the second second second	on a state of the state	up so the contract of the		and the second second second	STATUS			



High Power Mode, High Channel, 927.5 MHz					
	Frequency	Max Value	Limit		
	Range	(dBc)	≤ (dBc)	Result	
	30 MHz - 12 GHz	-53.62	-20	Pass	





TbtTx 2017.12.14 XMit 2017.12.13