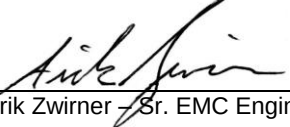




Test Report

Bureau Veritas Consumer Products Services Inc.

Report No	ES1904-1
Client	SmartSense by Digi Kyle Gilpin
Address	186 Lincoln St, Suite 8 Boston, MA 02111
Phone	(866) 806-2653
Items tested	SCMB100
FCC ID	2ATZ3-SCMB100
IC	25306-SCMB100
FRN	0028136455
Equipment Type	Digital Transmission System
Equipment Code	DTS
Emission Designator	1M07F1D
FCC/IC Rule Parts	CFR Title 47 FCC Part 15.247, ISED Canada RSS-247 Issue 2
Test Dates	9/4/2018 to 9/18/2018
Results	As detailed within this report
Prepared by	 Anna Vancheva – EMC Engineer
Authorized by	 Arik Zwirner – Sr. EMC Engineer
Issue Date	<u>January 10, 2020</u>
Conditions of Issue	This Test Report is issued subject to the conditions stated in the 'Conditions of Testing' section on page 35 of this report.

Bureau Veritas Consumer Products Services Inc. is accredited by the American Association for Laboratory Accreditation for the specific scope of accreditation under Certificate Number 1627-01. This report may contain data which is not covered by the A2LA accreditation.



Bureau Veritas Consumer Products Services Inc.
One Distribution Center Circle, #1 • Littleton, MA • TEL (978) 486-8880 • FAX (978) 486-8828

Contents

Contents.....	2
Summary.....	3
Test Methodology.....	4
Product Tested - Configuration Documentation	5
Statement of Conformity	6
Modifications Required for Compliance	6
Test Results	7
<i>Bandwidth</i>	7
<i>Peak Power</i>	9
<i>Band Edge Measurements</i>	11
<i>Radiated Spurious Emissions</i>	13
<i>Conducted Spurious Emissions</i>	27
<i>Power Spectral Density</i>	29
<i>Occupied Bandwidth</i>	31
Measurement Uncertainty.....	34
Conditions of Testing.....	35

Form Final Report REV 12-07-15



Summary

This test report supports an application for certification of a transmitter operating pursuant to: CFR Title 47 FCC Part 15.247, ISED Canada RSS-247 Issue 2. This report covers the 1Mbps Bluetooth Low Energy mode of the device.

The SCMB100 operates in the 2402-2480MHz frequency range and has both an onboard antenna and an external antenna. It is powered by 3V DC battery.

Details of the antennas are as follows,

	Type	Gain (dBi)	Manufacturer	Model
On Board	PCB Trace	3.7	-	-
External	Dipole	2.5	Ethertronics	1001932

We found that the product met the above requirements without modification. The test sample was received in good condition.

Test Methodology

All testing was performed according to the following rules/procedures/documents;
CFR Title 47 FCC Part 15.247, RSS-247 Issue 2, RSS-Gen Issue 5, FCC KDB 558074 D01
Measurement Guidance v05 and ANSI C63.10-2013.

Radiated emissions were maximized by rotating the device around 3 orthogonal planes (X, Y and Z) as well as varying the test antenna's height and polarity. Worst case results were:

On board antenna: Upright position

External antenna: EUT on its side and antenna in vertical position

Radiated emissions testing was done in these respective orientations.

RF measurements were performed at the antenna port on 3 channels as follows:

- 2402MHz: Low Channel
- 2440MHz: Mid Channel
- 2480MHz: High Channel

AC line conducted emissions testing was not performed since the unit is battery powered only.

The following bandwidths were used during radiated spurious emissions testing.

Frequency	RBW	VBW
30-1000MHz	120kHz	1MHz
1-25GHz	1MHz	3MHz

Product Tested - Configuration Documentation

EUT Configuration										
Work Order:	S1904									
Company:	Smart Sense by Digi									
Company Address:	108 Lincoln Street, Suite BA									
	Boston, MA, 02111									
Contact:	Kyle Gilpin									
	MN			PN			SN			
EUT:	SCMB100									
EUT Description:	Transmitter Module									
EUT Max Frequency:	2480 MHz									
EUT Min Frequency:	2402 MHz									
Port Label	Port Type	# ports	# populated	cable type	shielded	ferrites	length (m)	in/out	under test	comment
USB	USB	1	0					in	yes	Debug / setup only
20 Pin	other	1	0					in	yes	Debug / setup only
Software Operating Mode Description:										
Test firmware										
Performance Criteria:										
No immunity testing										

Clock Frequencies	
frequencies (MHz)	2480, 2440, 2402

Statement of Conformity

The device was found to conform to the following parts of 47 CFR and RSS 247 as detailed below:

RSS-GEN	RSP-100	RSS 247	Part 15	Comments
6.3			15.15(b)	There are no controls accessible to the user that varies the output power to operate in violation of the regulatory requirements.
	3.1		15.19	The label is shown in the label exhibit.
	3.2		15.21	Information to the user is shown in the instruction manual exhibit.
			15.27	No special accessories are required for compliance.
3, 6.1, 6.5			15.31	The EUT was tested in accordance with the measurement standards in this section.
6.13			15.33	Frequency range was investigated according to this section, unless noted in specific rule section under which the equipment operates.
8.1			15.35	The EUT emissions were measured using the measurement detector and bandwidth specified in this section, unless noted in specific rule section under which the equipment operates.
8.3			15.203	EUT has internal and external antenna
8.10			15.205 15.209	The fundamental is not in a Restricted band and the spurious and harmonic emissions in the Restricted bands comply with the general emission limits of 15.209 or RSS-Gen as applicable
8.8			15.207	N/A. Battery powered only.
			15.247	The unit complies with the requirements of 15.247
		RSS 247		The unit complies with the requirements of RSS-247
6.6				Occupied Bandwidth measurements were made.

Modifications Required for Compliance

None

Test Results

Bandwidth

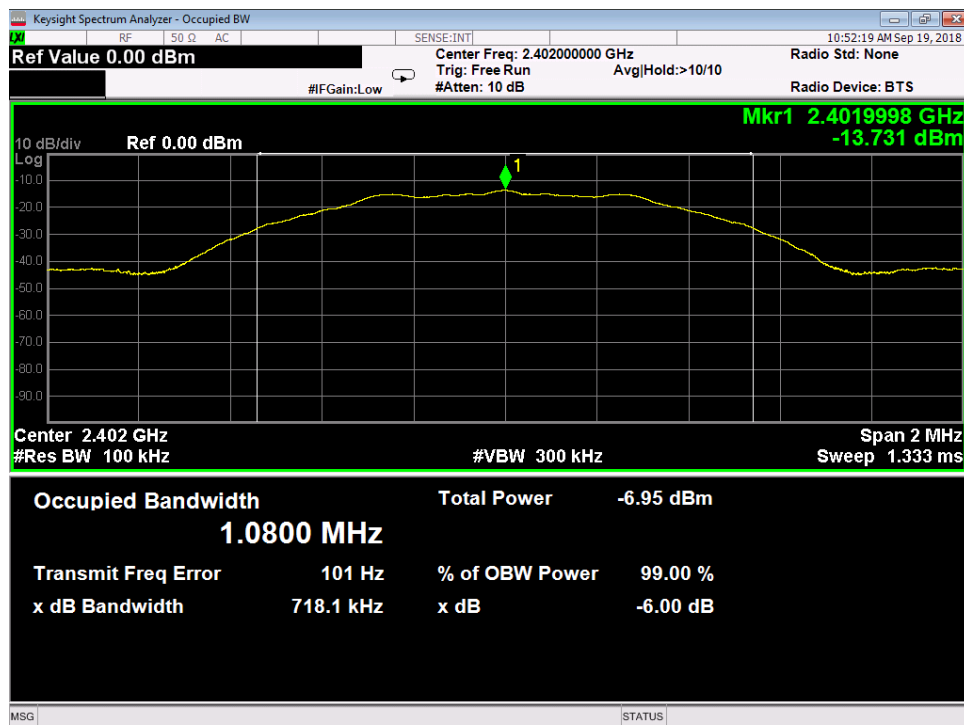
Limit: The minimum 6 dB bandwidth shall be at least 500 kHz.

[15.247(a) (2)]

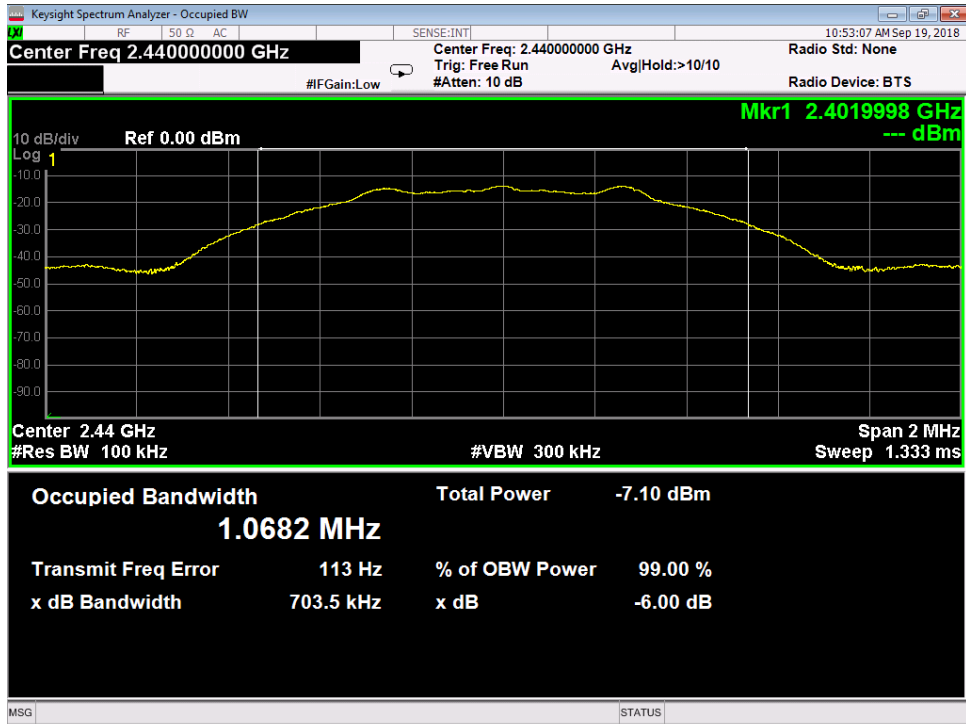
MEASUREMENTS / RESULTS

6dB Bandwidth				
Date: 9/17/2018		Company: Temperature Alert		Work Order: S1904
Engineer: Zac Johnson		EUT: SCMB100		Operating Voltage/Frequency: 3V DC
Temp: 23°C		Humidity: 57%		Pressure: 1013mBar
Frequency Range: 2402-2480 MHz		Measurement Type: Conducted		
Measurement Method: FCC KDB 558074 D01 15.247 Meas Guidance v05				
Notes: 1MBPS Data Rate				
Frequency (MHz)	Reading (kHz)	6dB Bandwidth		
		Limit (kHz)	Margin (kHz)	Result (Pass/Fail)
2402	718.1	≥500	218	Pass
2440	703.5	≥500	204	Pass
2480	712.5	≥500	213	Pass
Test Site: EMC-5		Cable: 2289 Cbl		Attenuator: 2121 30dB Pad
Analyzer: 118472 SA				
Copyright Curtis-Straus LLC 2000				

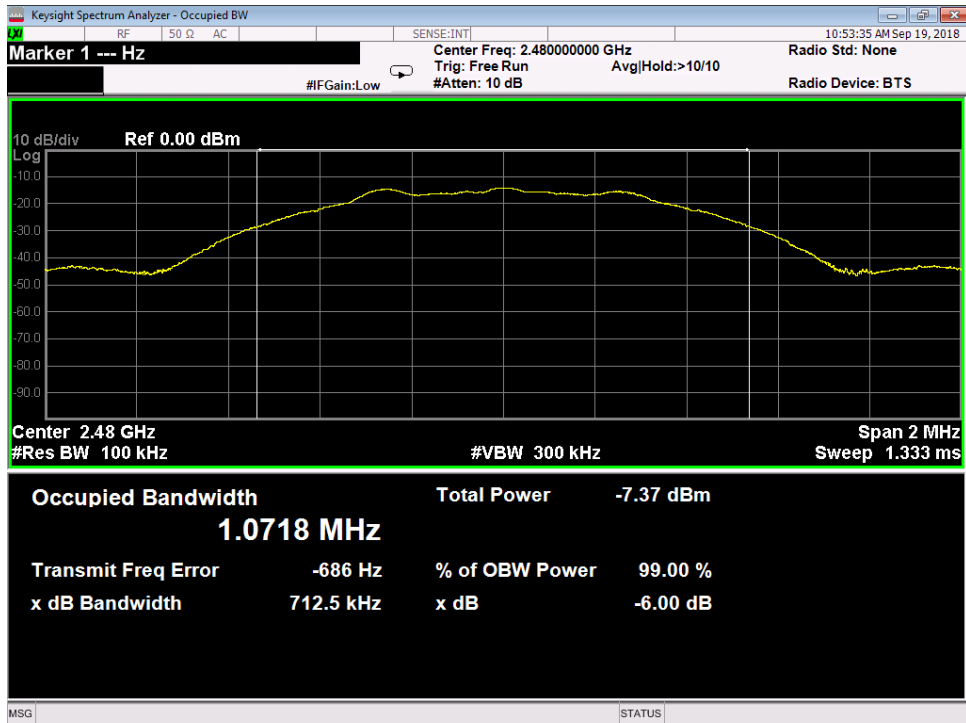
PLOTS



Low Channel DTS Bandwidth



Middle Channel DTS Bandwidth



High Channel DTS Bandwidth

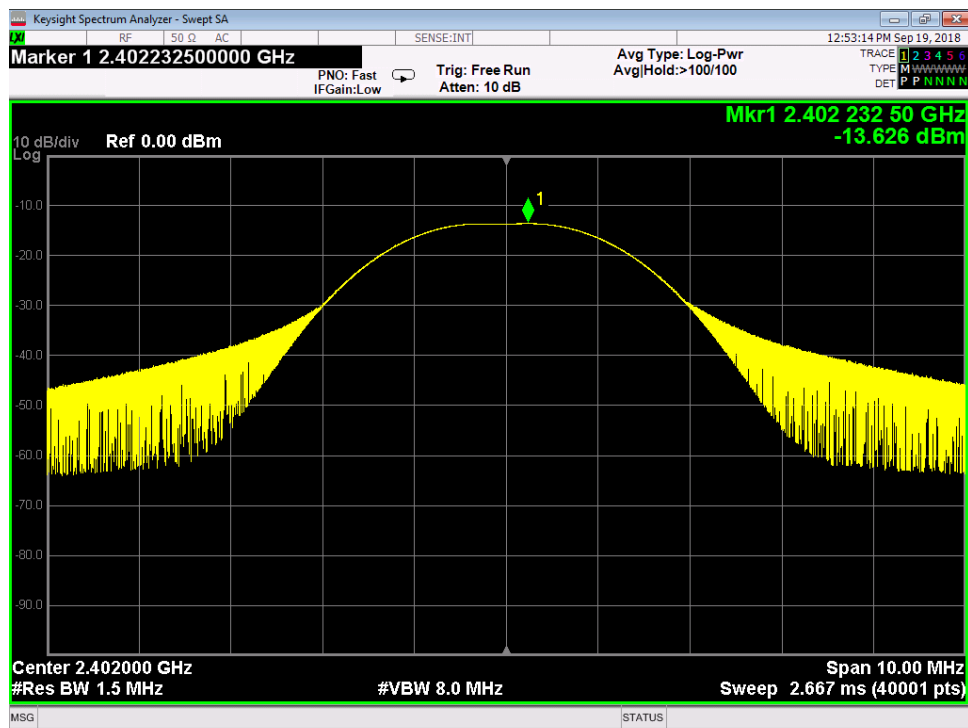
Peak Power

LIMIT: 1 Watt Conducted Output Power
[15.247(b) (3)]

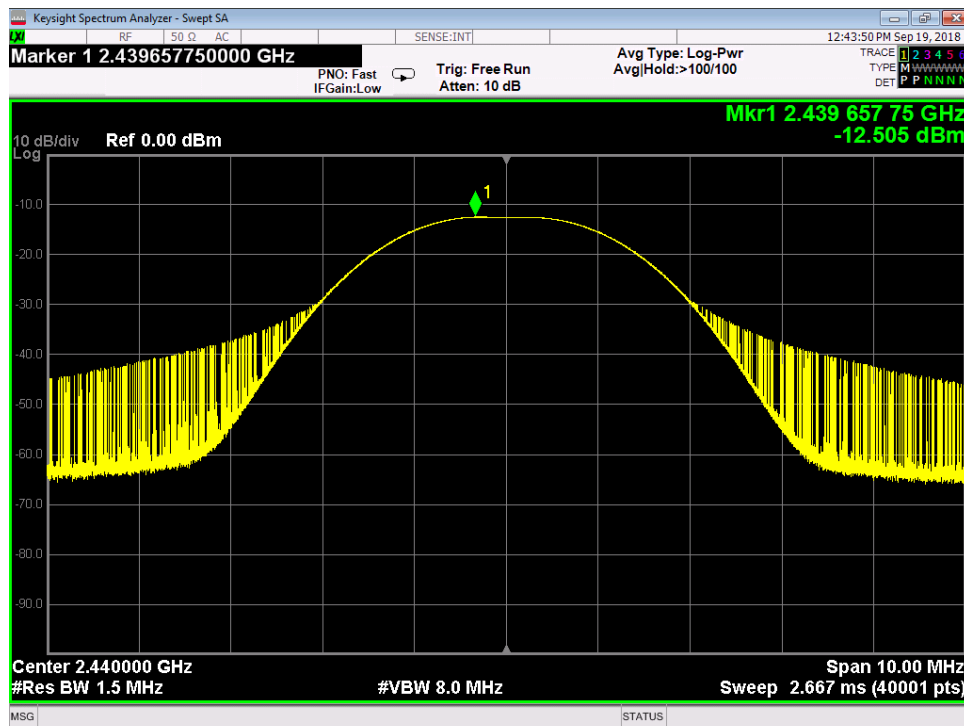
MEASUREMENTS / RESULTS

Peak Output Power							
Date: 9/17/2018		Company: Temperature Alert			Work Order: S1904		
Engineer: Zac Johnson		EUT: SCMB100			Operating Voltage/Frequency: 3V DC		
Temp: 23°C		Humidity: 57%		Pressure: 1013mBar			
Frequency Range: 2402-2480 MHz				Measurement Type: Conducted			
Notes: 1MBPS Data Rate							
Frequency	Peak Reading	Cable Loss	Attenuator Loss	Peak Output Power	Limit	Margin	Result
(MHz)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dB)	(Pass/Fail)
2402	-13.63	0.57	29.60	16.54	30.0	-13.46	Pass
2440	-12.51	0.57	29.60	17.67	30.0	-12.34	Pass
2480	-13.35	0.57	29.60	16.82	30.0	-13.18	Pass
Test Site: EMC-5		Cable: 2289 Cbl			Attenuator: 2121 30dB Pad		
Analyzer: 118472 SA							
Peak Output Power (dBm)= Peak Reading (dBm) + Cable Loss (dB) + Attenuator Loss (dB)							

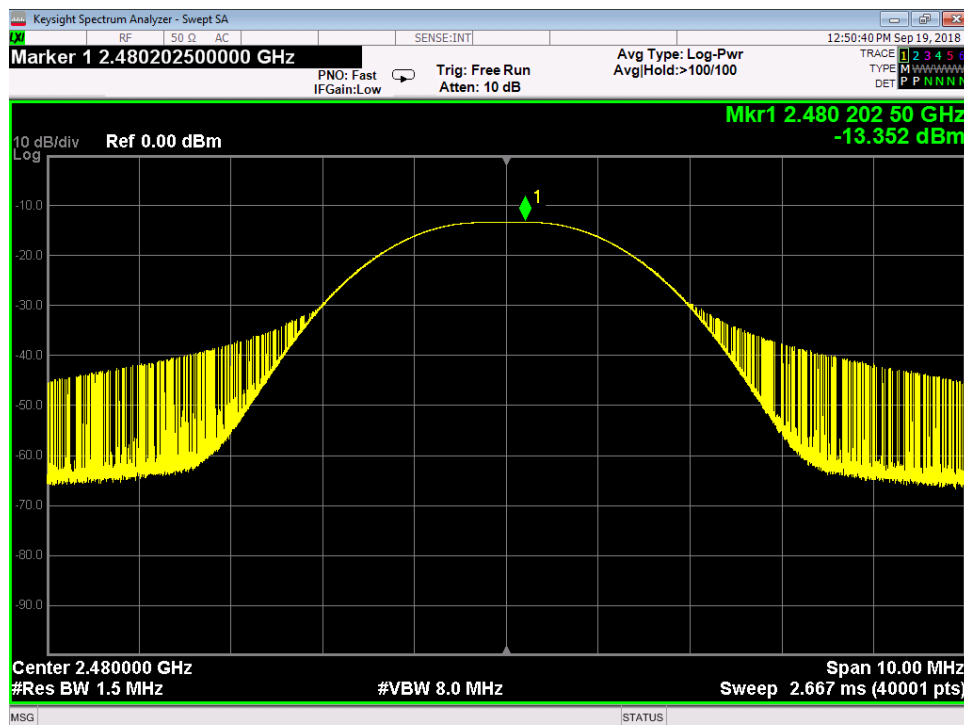
PLOTS



Low Channel Peak Output Power



Middle Channel Peak Output Power



High Channel Peak Output Power

Band Edge Measurements

Limits: Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).
[15.247(d)]

MEASUREMENTS / RESULTS

Radiated Bandedge														
Date: 12-Sep-18			Company: Temperature Alert						Work Order: S1904					
Engineer: Zac Johnson			EUT Desc: SCMB100						EUT Operating Voltage/Frequency: 3V DC					
Temp: 23.6°C			Humidity: 64%						Pressure: 1014mBar					
Frequency Range: 2390-2483.5MHz									Measurement Distance: 3 m					
Notes: 1MBPS Onboard Antenna 2402-2480MHz EUT Setting														
Antenna Polarization (H / V)	Frequency (MHz)	Peak Reading (dBμV)	Average Reading (dBμV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Peak Reading (dBμV/m)	Adjusted Avg Reading (dBμV/m)	FCC 15.247 Peak			FCC 15.247 Average		
									Limit (dBμV/m)	Margin (dB)	Result (Pass/Fail)	Limit (dBμV/m)	Margin (dB)	Result (Pass/Fail)
V	2390	20.4	11.2	0.0	32.2	4.1	56.7	47.5	74.0	-17.3	Pass	54.0	-6.5	Pass
V	2483.5	29.1	11.8	0.0	32.4	4.1	65.6	48.3	74.0	-8.4	Pass	54.0	-5.7	Pass
Table Result:			Pass		by		-5.7 dB		Worst Freq:			2483.5 MHz		
Test Site: EMI Chamber 1			Cable 1: Asset #2456						Cable 2: Asset #2480			Cable 3: ---		
Analyzer: 1170725 SA			Preamp: None						Antenna: Blue Horn					
CSsoft Radiated Emissions Calculator v 1.017.207														
Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor														
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Onboard Antenna

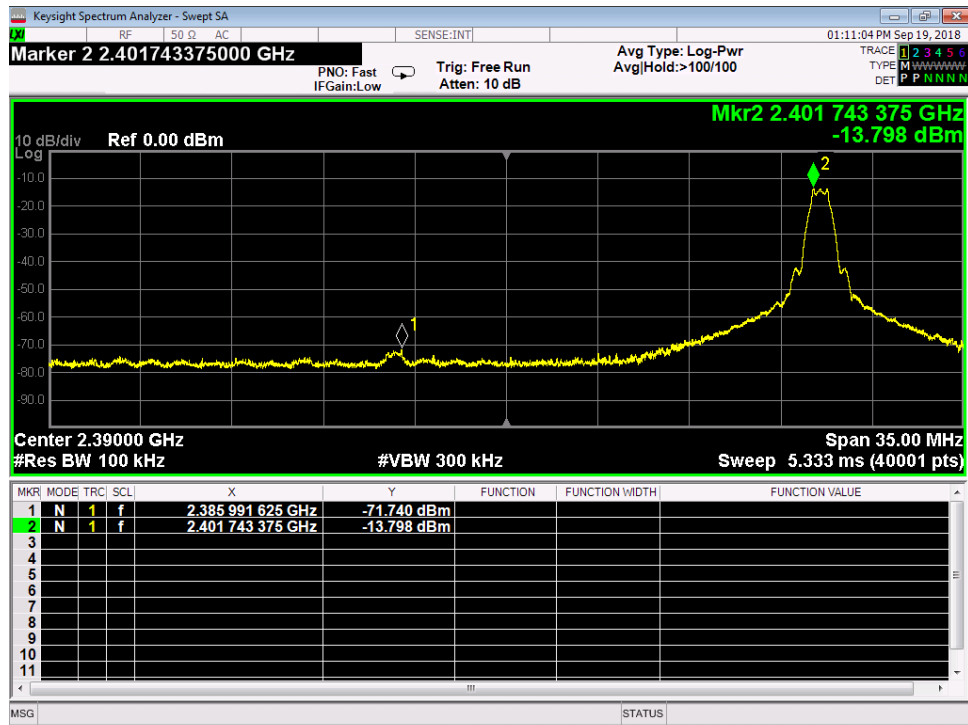
Radiated Bandedges														
Date: 12-Sep-18			Company: Temperature Alert						Work Order: S1904					
Engineer: Zac Johnson			EUT Desc: SCMB100						EUT Operating Voltage/Frequency: 3V DC					
Temp: 23.6°C			Humidity: 64%						Pressure: 1014mBar					
Frequency Range: 2390-2483.5MHz									Measurement Distance: 3 m					
Notes: 1MBPS External Antenna 2402-2480MHz EUT setting														
Antenna Polarization (H / V)	Frequency (MHz)	Peak Reading (dBμV)	Average Reading (dBμV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Peak Reading (dBμV/m)	Adjusted Avg Reading (dBμV/m)	FCC 15.247 Peak			FCC 15.247 Average		
									Limit (dBμV/m)	Margin (dB)	Result (Pass/Fail)	Limit (dBμV/m)	Margin (dB)	Result (Pass/Fail)
V	2390	20.1	10.3	0.0	32.2	3.2	55.5	45.7	74.0	-53.9	Pass	54.0	-8.3	Pass
V	2483.5	26.8	11.6	0.0	32.4	3.1	62.3	47.1	74.0	-11.7	Pass	54.0	-6.9	Pass
Table Result:		Pass		by		-6.9 dB				Worst Freq:		2483.5 MHz		
Test Site: EMI Chamber 1			Cable 1: Asset #2456						Cable 2: Asset #2054			Cable 3: ---		
Analyzer: 1170725 SA			Preamp: None						Antenna: Blue Horn					
CSsoft Radiated Emissions Calculator v 1.017.207														
Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor														
Copyright Curtis-Straus LLC 200														

External Antenna

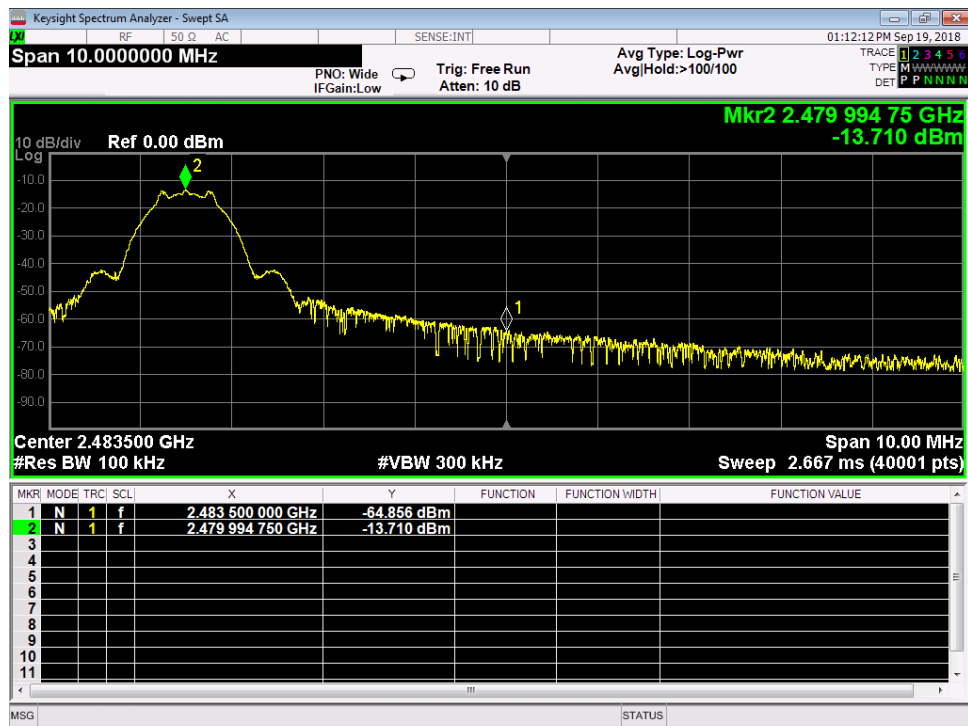
Conducted Bandedge					
Date: 9/17/2018		Company: Temperature Alert		Work Order: S1904	
Engineer: Zac Johnson		EUT: SCMB100		Operating Voltage/Frequency: 3V DC	
Temp: 23°C		Humidity: 57%		Pressure: 1013mBar	
Frequency Range: 2402-2480 MHz			Measurement Type: Conducted		
			Measurement Method: FCC KDB 558074 D01 15.247 Meas Guidance v05		
Notes: 1MBPS Data Rate					
	Bandedge (dBm)	Fundamental (dBm)	Delta to Peak (dB)	Limit	
				(dB)	(Pass/Fail)
Low Bandedge	-71.74	-13.798	57.942	≥ 20	Pass
High Bandedge	-64.856	-13.71	51.146	≥ 20	Pass
Test Site: EMC-5		Cable: 2289 Cbl		Attenuator: 2121 30dB Pad	
Analyzer: 118472 SA					
Copyright Curtis-Straus LLC 2004					



PLOTS



Low Band Edge - Conducted



High Band Edge – Conducted

Radiated Spurious Emissions

Limits: Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).[15.247(d)] High, low, and center channels were tested for both of the antennas.

MEASUREMENTS / RESULTS

Onboard Antenna

Curtis Straus - a Bureau Veritas Company

Radiated Emissions Electric Field 3m Distance

Top Peaks Vertical 30-1000MHz

Operator: ZJ

Notes:

2402MHz 1MBPS

Work Order - S1904

EUT Power Input - 3V DC

Test Site - CH-2

Conditions - 22.7°C; 51%RH; 1015mBar

Data Taken at 10:39:12 AM, Wednesday, September 05, 2018

Frequency (MHz)	Peak Reading (dBμV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBμV/m)	Lim1: FCC_pt15_1 09_Class_B (dBμV/m)	Lim1 Margin (dB)	Lim1 Test Results (Pass/Fail)	Worst Margin Lim1 (dB)	Lim2: FCC_pt15_1 09_Class_B (dBμV/m)	Lim2 Margin (dB)	Lim2 Test Results (Pass/Fail)	Worst Margin Lim2 (dB)	Antenna Height (cm)	Turntable Azimuth (degrees)
35.99	45.4	-11.2	34.2	40	-5.8	PASS		40	-5.8	PASS		100	225
48.018	57.2	-19.2	37.9	40	-2.1	PASS	-2.1	40	-2.1	PASS	-2.1	100	45
168.007	52	-15.7	36.3	43.5	-7.2	PASS		43.5	-7.2	PASS		100	315
169.098	47.9	-15.8	32.1	43.5	-11.4	PASS		43.5	-11.4	PASS		100	0
192.378	48.2	-15.5	32.7	43.5	-10.9	PASS		43.5	-10.9	PASS		100	315
240.029	49.9	-15.4	34.5	46	-11.6	PASS		46	-11.6	PASS		100	225

Curtis Straus - a Bureau Veritas Company

Radiated Emissions Electric Field 3m Distance

Top Peaks Horizontal 30-1000MHz

Operator: ZJ

Notes:

2402MHz 1MBPS

Work Order - S1904

EUT Power Input - 3V DC

Test Site - CH-2

Conditions - 22.7°C; 51%RH; 1015mBar

Data Taken at 10:39:12 AM, Wednesday, September 05, 2018

Frequency (MHz)	Peak Reading (dBμV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBμV/m)	Lim1: FCC_pt15_1 09_Class_B (dBμV/m)	Lim1 Margin (dB)	Lim1 Test Results (Pass/Fail)	Worst Margin Lim1 (dB)	Lim2: FCC_pt15_1 09_Class_B (dBμV/m)	Lim2 Margin (dB)	Lim2 Test Results (Pass/Fail)	Worst Margin Lim2 (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
104.448	47.5	-16.2	31.3	43.5	-12.2	PASS		43.5	-12.2	PASS		200	270
120.016	44.6	-14.3	30.4	43.5	-13.2	PASS		43.5	-13.2	PASS		250	270
168.177	46.9	-15.7	31.2	43.5	-12.3	PASS		43.5	-12.3	PASS		150	315
192.79	47	-15.4	31.6	43.5	-12	PASS		43.5	-12	PASS		200	135
204.042	47.7	-15.7	32	43.5	-11.5	PASS	-11.5	43.5	-11.5	PASS	-11.5	150	135
240.029	49.4	-15.4	33.9	46	-12.1	PASS		46	-12.1	PASS		100	135

30-1000MHz Low Channel



Curtis Straus - a Bureau Veritas Company
Radiated Emissions Electric Field 3m Distance
Top Peaks Vertical 30-1000MHz
Operator: ZJ
Notes:
2440MHz 1MBPS

Work Order - S1904
EUT Power Input - 3V DC
Test Site - CH-2
Conditions - 22.7°C; 51%RH; 1015mBar
0
EUT Maximum Frequency - 2480MHz

Data Taken at 11:48:59 AM, Wednesday, September 05, 2018

Frequency (MHz)	Peak Reading (dBμV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBμV/m)	Lim1: FCC_pt15_1 09_Class_B (dBμV/m)	Lim1 Margin (dB)	Lim1 Test Results (Pass/Fail)	Worst Margin Lim1 (dB)	Lim2: FCC_pt15_1 09_Class_B (dBμV/m)	Lim2 Margin (dB)	Lim2 Test Results (Pass/Fail)	Worst Margin Lim2 (dB)	Antenna Height (cm)	Turntable Azimuth (degrees)
35.99	44.7	-11.2	33.5	40	-6.5	PASS		40	-6.5	PASS		100	0
48.018	57.4	-19.2	38.1	40	-1.9	PASS	-1.9	40	-1.9	PASS	-1.9	100	90
59.997	48.3	-20.7	27.6	40	-12.4	PASS		40	-12.4	PASS		100	0
168.007	52.6	-15.7	37	43.5	-6.6	PASS		43.5	-6.6	PASS		100	270
192.475	46.4	-15.5	30.9	43.5	-12.6	PASS		43.5	-12.6	PASS		100	270
240.029	51.4	-15.4	36	46	-10	PASS		46	-10	PASS		100	225

Curtis Straus - a Bureau Veritas Company
Radiated Emissions Electric Field 3m Distance
Top Peaks Horizontal 30-1000MHz
Operator: ZJ
Notes:
2440MHz 1MBPS

Work Order - S1904
EUT Power Input - 3V DC
Test Site - CH-2
Conditions - 22.7°C; 51%RH; 1015mBar
0
EUT Maximum Frequency - 2480MHz

Data Taken at 11:48:59 AM, Wednesday, September 05, 2018

Frequency (MHz)	Peak Reading (dBμV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBμV/m)	Lim1: FCC_pt15_1 09_Class_B (dBμV/m)	Lim1 Margin (dB)	Lim1 Test Results (Pass/Fail)	Worst Margin Lim1 (dB)	Lim2: FCC_pt15_1 09_Class_B (dBμV/m)	Lim2 Margin (dB)	Lim2 Test Results (Pass/Fail)	Worst Margin Lim2 (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
104.472	46.9	-16.2	30.7	43.5	-12.8	PASS		43.5	-12.8	PASS		250	270
120.04	45.7	-14.3	31.4	43.5	-12.1	PASS	-12.1	43.5	-12.1	PASS	-12.1	250	315
168.419	47.1	-15.7	31.4	43.5	-12.1	PASS		43.5	-12.1	PASS		200	315
192.499	46.5	-15.5	31	43.5	-12.5	PASS		43.5	-12.5	PASS		200	135
204.018	46.5	-15.7	30.8	43.5	-12.7	PASS		43.5	-12.7	PASS		100	135
240.029	49	-15.4	33.6	46	-12.5	PASS		46	-12.5	PASS		100	135

30-1000MHz Mid Channel

Curtis Straus - a Bureau Veritas Company
Radiated Emissions Electric Field 3m Distance
Top Peaks Vertical 30-1000MHz
Operator: ZJ
Notes:
2480MHz 1MBPS

Work Order - S1904
EUT Power Input - 3V DC
Test Site - CH-2
Conditions - 22.7°C; 51%RH; 1015mBar

Data Taken at 11:30:06 AM, Wednesday, September 05, 2018

Frequency (MHz)	Peak Reading (dBμV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBμV/m)	Lim1: FCC_pt15_1 09_Class_B (dBμV/m)	Lim1 Margin (dB)	Lim1 Test Results (Pass/Fail)	Worst Margin Lim1 (dB)	Lim2: FCC_pt15_1 09_Class_B (dBμV/m)	Lim2 Margin (dB)	Lim2 Test Results (Pass/Fail)	Worst Margin Lim2 (dB)	Antenna Height (cm)	Turntable Azimuth (degrees)
35.99	44.8	-11.2	33.6	40	-6.4	PASS		40	-6.4	PASS		100	180
37.614	40.5	-12.4	28.1	40	-11.9	PASS		40	-11.9	PASS		100	90
48.018	57.1	-19.2	37.8	40	-2.2	PASS	-2.2	40	-2.2	PASS	-2.2	100	0
168.177	50.6	-15.7	34.9	43.5	-8.6	PASS		43.5	-8.6	PASS		100	270
192.329	47.9	-15.5	32.3	43.5	-11.2	PASS		43.5	-11.2	PASS		100	315
240.029	51	-15.4	35.6	46	-10.5	PASS		46	-10.5	PASS		100	225



Curtis Straus - a Bureau Veritas Company
 Radiated Emissions Electric Field 3m Distance
 Top Peaks Horizontal 30-1000MHz
 Operator: ZJ
 Notes:
 2480MHz 1MBPS

Work Order - S1904
 EUT Power Input - 3V DC
 Test Site - CH-2
 Conditions - 22.7°C; 51%RH; 1015mBar

Data Taken at 11:30:07 AM, Wednesday, September 05, 2018

Frequency (MHz)	Peak Reading (dBμV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBμV/m)	Lim1: FCC_pt15_109_Class_B (dBμV/m)	Lim1 Margin (dB)	Lim1 Test Results (Pass/Fail)	Worst Margin Lim1 (dB)	Lim2: FCC_pt15_109_Class_B (dBμV/m)	Lim2 Margin (dB)	Lim2 Test Results (Pass/Fail)	Worst Margin Lim2 (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
104.496	46.3	-16.2	30.2	43.5	-13.3	PASS		43.5	-13.3	PASS		150	270
120.016	45.7	-14.3	31.4	43.5	-12.1	PASS		43.5	-12.1	PASS		250	270
168.079	47.8	-15.7	32.1	43.5	-11.5	PASS		43.5	-11.5	PASS		200	315
192.742	47	-15.5	31.5	43.5	-12	PASS		43.5	-12	PASS		200	135
204.018	48.3	-15.7	32.6	43.5	-10.9	PASS	-10.9	43.5	-10.9	PASS	-10.9	150	135
240.005	49.2	-15.4	33.8	46	-12.2	PASS		46	-12.2	PASS		100	135

30-1000MHz High Channel

Rev. 8/30/2018

Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
2093 MXE EMI Receiver	20Hz-26.5GHz	N9038A	Agilent	MY51210181	2093	I	11/16/2018	11/16/2017
Radiated Emissions Sites	FCC Code	IC Code	VCCI Code	Range	Asset	Cat	Calibration Due	Calibrated on
EMI Chamber 2	719150	2762A-7	A-0015	30-1000MHz	1686	I	12/21/2018	12/21/2016
Preamps /Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
2311 PA	1-1000MHz	PAM-103	COM-POWER	441174	2311	II	10/29/2018	10/29/2017
2116 BRF	0.009-18000MHz	BRM50702	Micro-Tronics	G226	2116	II	11/8/2018	11/8/2017
Antennas	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Red-White Bilog	30-2000MHz	JB1	Sunol	A091604-1	1105	I	8/21/2019	8/21/2017
Meteorological Meters/Chambers		MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Weather Clock (Pressure Only)		BA928	Oregon Scientific	C3166-1	831	I	5/15/2020	5/15/2018
TH A#2080		HTC-1	HDE		2080	II	3/22/2019	3/22/2018
Cables	Range		Mfr			Cat	Calibration Due	Calibrated on
Asset #2051	9kHz - 18GHz		Florida RF			II	3/7/2019	3/7/2018
Asset #2054	9kHz - 18GHz		Florida RF			II	10/31/2018	10/31/2017
Asset #2467	9KHz-18GHz		MegaPhase			II	10/29/2018	10/29/2017

All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.

Test Equipment Used

Curtis Straus - a Bureau Veritas Company
 Radiated Emissions Electric Field 3m Distance
 1-6GHz Vertical Data
 Operator: ZJ
 Notes:
 2402MHz 1MBPS

Work Order - S1904
 EUT Power Input - 3V DC
 Test Site - CH-2
 Conditions - 22.9°C; 49%RH; 1014mBar
 0
 EUT Maximum Frequency - 2480MHz

Data Taken at 02:06:41 PM, Wednesday, September 05, 2018

Frequency (MHz)	Raw Peak Reading (dBμV)	Raw Avg Reading (dBμV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBμV/m)	Pk Lim: FCC_pt15_109_ClassB_Peak (dBμV/m)	Peak Margin (dB)	Peak Results (Pass/Fail)	Worst Peak Margin (dB)	Adjusted Avg Amplitude (dBμV/m)	Av Lim: FCC_pt15_109_ClassB_AVG (dBμV/m)	Avg Margin (dB)	Avg Results (Pass/Fail)	Worst Avg Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
5279	39.9	31	5.1	45	74	-29	PASS	-29	36.1	54	-17.9	PASS	-17.9	363	351



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Curtis Straus - a Bureau Veritas Company
 Radiated Emissions Electric Field 3m Distance
 1-6GHz Horizontal Data
 Operator: ZJ
 Notes:
 2402MHz 1MBPS

Work Order - S1904
 EUT Power Input - 3V DC
 Test Site - CH-2
 Conditions - 22.9°C; 49%RH; 1014mBar
 0
 EUT Maximum Frequency - 2480MHz

Data Taken at 02:06:41 PM, Wednesday, September 05, 2018

Frequency (MHz)	Raw Peak Reading (dBμV)	Raw Avg Reading (dBμV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBμV/m)	Pk Lim: FCC_pt15_109_C lassB_Peak (dBμV/m)	Peak Margin (dB)	Peak Results (Pass/Fail)	Worst Peak Margin (dB)	Adjusted Avg Amplitude (dBμV/m)	Av Lim: FCC_pt15_109_C lassB_AVG (dBμV/m)	Avg Margin (dB)	Avg Results (Pass/Fail)	Worst Average Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
5252.9	40.2	30.9	4.9	45.1	74	-28.9	PASS	-28.9	35.8	54	-18.2	PASS	-18.2	307	202

1-6GHz Low Channel

Curtis Straus - a Bureau Veritas Company
 Radiated Emissions Electric Field 3m Distance
 1-6GHz Vertical Data
 Operator: ZJ
 Notes:
 2440MHz 1MBPS

Work Order - S1904
 EUT Power Input - 3V DC
 Test Site - CH-2
 Conditions - 22.9°C; 49%RH; 1014mBar
 EUT Maximum Frequency - 2480MHz

Data Taken at 01:31:02 PM, Wednesday, September 05, 2018

Frequency (MHz)	Raw Peak Reading (dBμV)	Raw Avg Reading (dBμV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBμV/m)	Pk Lim: FCC_pt15_109_ ClassB_Peak (dBμV/m)	Peak Margin (dB)	Peak Results (Pass/Fail)	Worst Peak Margin (dB)	Adjusted Avg Amplitude (dBμV/m)	Av Lim: FCC_pt15_109_ ClassB_AVG (dBμV/m)	Avg Margin (dB)	Avg Results (Pass/Fail)	Worst Avg Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
5270.4	39.9	30.9	5	44.9	74	-29.1	PASS	-29.1	35.9	54	-18	PASS	-18	287	125

Curtis Straus - a Bureau Veritas Company
 Radiated Emissions Electric Field 3m Distance
 Top Peaks Horizontal 1-6GHz
 Operator: ZJ
 Notes:
 2440MHz 1MBPS

Work Order - S1904
 EUT Power Input - 3V DC
 Test Site - CH-2
 Conditions - 22.9°C; 49%RH; 1014mBar
 EUT Maximum Frequency - 2480MHz

Data Taken at 01:31:02 PM, Wednesday, September 05, 2018

Frequency (MHz)	Raw Peak Reading (dBμV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBμV/m)	Pk Lim: FCC_pt15_109_Cla ssB_Peak (dBμV/m)	Margin to Peak Limit (dB)	Peak Limit Test Results (Pass/Fail)	Peak Limit Worst Margin (dB)	Av Lim: FCC_pt15_109_Cl assB_AVG (dBμV/m)	Margin to Avg Limit (dB)	Avg Limit Results (Pass/Fail)	Avg Limit Worst Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
2138.88	44.7	1.6	46.3	74	-27.7	PASS		54	-7.7	PASS		300	111
3492.25	45.6	2.1	47.8	74	-26.2	PASS		54	-6.2	PASS		200	282
5806.5	42.7	6.3	49	74	-25	PASS	-25	54	-5	PASS	-5	200	9

1-6GHz Mid Channel

Curtis Straus - a Bureau Veritas Company
 Radiated Emissions Electric Field 3m Distance
 Top Peaks Vertical 1-6GHz
 Operator: ZJ
 Notes:
 2480MHz 1MBPS

Work Order - S1904
 EUT Power Input - 3V DC
 Test Site - CH-2
 Conditions - 22.9°C; 49%RH; 1014mBar
 EUT Maximum Frequency - 2480MHz

Data Taken at 01:50:25 PM, Wednesday, September 05, 2018

Frequency (MHz)	Raw Peak Reading (dBμV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBμV/m)	Pk Lim: FCC_pt15_109_Cl assB_Peak (dBμV/m)	Margin to Peak Limit (dB)	Peak Limit Test Results (Pass/Fail)	Peak Limit Worst Margin (dB)	Av Lim: FCC_pt15_109_Cla ssB_AVG (dBμV/m)	Margin to Average Limit (dB)	Average Limit Test Result (Pass/Fail)	Average Limit Worst Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
2182.88	44.2	2	46.2	74	-27.8	PASS		54	-7.8	PASS		100	305
3195.63	45.6	2.6	48.1	74	-25.8	PASS		54	-5.8	PASS		300	266
5993.13	43.4	6.2	49.6	74	-24.4	PASS	-24.4	54	-4.4	PASS	-4.4	200	282



Curtis Straus - a Bureau Veritas Company
 Radiated Emissions Electric Field 3m Distance
 1-6GHz Horizontal Data
 Operator: ZJ
 Notes:
 2480MHz 1MBPS

Work Order - S1904
 EUT Power Input - 3V DC
 Test Site - CH-2
 Conditions - 22.9°C; 49%RH; 1014mBar
 0
 EUT Maximum Frequency - 2480MHz

Data Taken at 01:50:25 PM, Wednesday, September 05, 2018

Frequency (MHz)	Raw Peak Reading (dBμV)	Raw Avg Reading (dBμV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBμV/m)	Pk Lim: FCC_pt15_109_ClassB_Peak (dBμV/m)	Peak Margin (dB)	Peak Results (Pass/Fail)	Worst Peak Margin (dB)	Adjusted Avg Amplitude (dBμV/m)	Av Lim: FCC_pt15_109_ClassB_AVG (dBμV/m)	Avg Margin (dB)	Avg Results (Pass/Fail)	Worst Average Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
5252.9	40.2	30.9	4.9	45.1	74	-28.9	PASS	-28.9	35.8	54	-18.2	PASS	-18.2	307	202

1-6GHz High Channel

Curtis Straus - a Bureau Veritas Company
 Radiated Emissions Electric Field 1m Distance
 6-18GHz Vertical Data
 Operator: ZJ
 Notes:
 2402MHz 1MBPS

Work Order - S1904
 EUT Power Input - 3V DC
 Test Site - CH-2
 Conditions - 22.9°C; 49%RH; 1014mBar
 EUT Maximum Frequency - 2480MHz

Data Taken at 02:52:16 PM, Wednesday, September 05, 2018

Frequency (MHz)	Raw Peak Reading (dBμV)	Raw Avg Reading (dBμV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBμV/m)	Pk Lim: FCC_pt15_109_ClassB_Peak (dBμV/m)	Peak Margin (dB)	Peak Results (Pass/Fail)	Worst Peak Margin (dB)	Adjusted Avg Amplitude (dBμV/m)	Av Lim: FCC_pt15_109_ClassB_AVG (dBμV/m)	Avg Margin (dB)	Avg Results (Pass/Fail)	Worst Avg Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
17849.1	39.5	30.5	20.2	59.6	83.5	-23.9	PASS	-23.9	50.6	63.5	-12.9	PASS	-12.9	200	246

Curtis Straus - a Bureau Veritas Company
 Radiated Emissions Electric Field 1m Distance
 6-18GHz Horizontal Data
 Operator: ZJ
 Notes:
 2402MHz 1MBPS

Work Order - S1904
 EUT Power Input - 3V DC
 Test Site - CH-2
 Conditions - 22.9°C; 49%RH; 1014mBar
 EUT Maximum Frequency - 2480MHz

Data Taken at 02:52:16 PM, Wednesday, September 05, 2018

Frequency (MHz)	Raw Peak Reading (dBμV)	Raw Avg Reading (dBμV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBμV/m)	Pk Lim: FCC_pt15_109_ClassB_Peak (dBμV/m)	Peak Margin (dB)	Peak Test Results (Pass/Fail)	Worst Peak Margin (dB)	Adjusted Avg Amplitude (dBμV/m)	Av Lim: FCC_pt15_109_ClassB_AVG (dBμV/m)	Avg Margin (dB)	Avg Test Results (Pass/Fail)	Worst Avg Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
7514.5	40.8	31	7.8	48.6	83.5	-34.9	PASS		38.8	63.5	-24.7	PASS		121	171
12979.2	39.2	30	16.1	55.3	83.5	-28.2	PASS		46.1	63.5	-17.4	PASS		307	126
14399.2	46	37.5	14.9	60.9	83.5	-22.6	PASS		52.4	63.5	-11.1	PASS		353	304
17976.4	39.4	30.5	21.2	60.6	83.5	-22.9	PASS		51.7	63.5	-11.8	PASS		137	34

6-18GHz Low Channel

Curtis Straus - a Bureau Veritas Company
 Radiated Emissions Electric Field 1m Distance
 6-18GHz Vertical Data
 Operator: ZJ
 Notes:
 2440MHz 1MBPS

Work Order - S1904
 EUT Power Input - 3V DC
 Test Site - CH-2
 Conditions - 22.9°C; 49%RH; 1014mBar
 EUT Maximum Frequency - 2480MHz

Data Taken at 04:05:22 PM, Wednesday, September 05, 2018

Frequency (MHz)	Raw Peak Reading (dBμV)	Raw Avg Reading (dBμV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBμV/m)	Pk Lim: FCC_pt15_109_ClassB_Peak (dBμV/m)	Peak Margin (dB)	Peak Results (Pass/Fail)	Worst Peak Margin (dB)	Adjusted Avg Amplitude (dBμV/m)	Av Lim: FCC_pt15_109_ClassB_AVG (dBμV/m)	Avg Margin (dB)	Avg Results (Pass/Fail)	Worst Avg Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
8981.5	39.8	30.4	8.6	48.4	83.5	-35.1	PASS		39	63.5	-24.5	PASS		138	174
13408.4	40.8	30.4	15.8	56.6	83.5	-26.9	PASS		46.2	63.5	-17.3	PASS		353	369
17099.8	41.9	32.3	19	60.9	83.5	-22.6	PASS	-22.6	51.3	63.5	-12.2	PASS		352	397
17936.6	39.1	30.8	20.6	59.7	83.5	-23.8	PASS		51.5	63.5	-12	PASS	-12	200	221



Curtis Straus - a Bureau Veritas Company
 Radiated Emissions Electric Field 1m Distance
 6-18GHz Horizontal Data
 Operator: ZJ
 Notes:
 2440MHz 1MBPS

Work Order - S1904
 EUT Power Input - 3V DC
 Test Site - CH-2
 Conditions - 22.9°C; 49%RH; 1014mBar
 EUT Maximum Frequency - 2480MHz

Data Taken at 04:05:22 PM, Wednesday, September 05, 2018

Frequency (MHz)	Raw Peak Reading (dBμV)	Raw Avg Reading (dBμV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBμV/m)	Pk Lim: FCC_pt15_109_ClassB_Peak (dBμV/m)	Peak Margin (dB)	Peak Test Results (Pass/Fail)	Worst Peak Margin (dB)	Adjusted Avg Amplitude (dBμV/m)	Av Lim: FCC_pt15_109_ClassB_AVG (dBμV/m)	Avg Margin (dB)	Avg Test Results (Pass/Fail)	Worst Avg Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
17081.2	45.9	36.5	19.1	65	83.5	-18.5	PASS		55.6	63.5	-7.9	PASS		385	5
17968.1	39.8	30.6	21.1	60.9	83.5	-22.6	PASS		51.7	63.5	-11.8	PASS		178	229

6-18GHz Mid Channel

Curtis Straus - a Bureau Veritas Company
 Radiated Emissions Electric Field 1m Distance
 6-18GHz Vertical Data
 Operator: ZJ
 Notes:
 2480MHz 1MBPS

Work Order - S1904
 EUT Power Input - 3V DC
 Test Site - CH-2
 Conditions - 22.9°C; 49%RH; 1014mBar
 EUT Maximum Frequency - 2480MHz

Data Taken at 04:50:06 PM, Wednesday, September 05, 2018

Frequency (MHz)	Raw Peak Reading (dBμV)	Raw Avg Reading (dBμV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBμV/m)	Pk Lim: FCC_pt15_109_ClassB_Peak (dBμV/m)	Peak Margin (dB)	Peak Test Results (Pass/Fail)	Worst Peak Margin (dB)	Adjusted Avg Amplitude (dBμV/m)	Av Lim: FCC_pt15_109_ClassB_AVG (dBμV/m)	Avg Margin (dB)	Avg Test Results (Pass/Fail)	Worst Avg Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
17105.1	40.2	31.8	19	59.2	83.5	-24.3	PASS		50.8	63.5	-12.7	PASS		136	138
17976.5	38.2	30.5	21.2	59.4	83.5	-24.1	PASS	-24.1	51.7	63.5	-11.8	PASS	-11.8	300	97

Curtis Straus - a Bureau Veritas Company
 Radiated Emissions Electric Field 1m Distance
 6-18GHz Horizontal Data
 Operator: ZJ
 Notes:
 2480MHz 1MBPS

Work Order - S1904
 EUT Power Input - 3V DC
 Test Site - CH-2
 Conditions - 22.9°C; 49%RH; 1014mBar
 EUT Maximum Frequency - 2480MHz

Data Taken at 04:50:06 PM, Wednesday, September 05, 2018

Frequency (MHz)	Raw Peak Reading (dBμV)	Raw Avg Reading (dBμV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBμV/m)	Pk Lim: FCC_pt15_109_ClassB_Peak (dBμV/m)	Peak Margin (dB)	Peak Test Results (Pass/Fail)	Worst Peak Margin (dB)	Adjusted Avg Amplitude (dBμV/m)	Av Lim: FCC_pt15_109_ClassB_AVG (dBμV/m)	Avg Margin (dB)	Avg Test Results (Pass/Fail)	Worst Avg Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
12966	38.1	30.1	16.1	54.2	83.5	-29.3	PASS		46.3	63.5	-17.2	PASS		393	241
17967.6	40	30.6	21.1	61	83.5	-22.5	PASS		51.6	63.5	-11.9	PASS		393	128

6-18GHz High Channel



Rev. 8/30/2018

Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
2093 MXE EMI Receiver	20Hz-26.5GHz	N9038A	Agilent	MY51210181	2093	I	11/16/2018	11/16/2017
Radiated Emissions Sites	FCC Code	IC Code	VCCI Code	Range	Asset	Cat	Calibration Due	Calibrated on
EMI Chamber 2	719150	2762A-7	A-0015	1-18GHz	1686	I	12/21/2018	12/21/2016
Preamps /Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
2111 HF Preamp	0.5-18GHz	PAM-118A	COM-POWER	551063	2111	II	11/19/2018	11/19/2017
2116 BRF	0.009-18000MHz	BRM50702	Micro-Tronics	G226	2116	II	11/8/2018	11/8/2017
Antennas	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Blue Horn	1-18Ghz	3117	ETS	157647	1861	I	2/14/2019	2/14/2017
Meteorological Meters/Chambers		MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Weather Clock (Pressure Only)		BA928	Oregon Scientific	C3166-1	831	I	5/15/2020	5/15/2018
TH A#2080		HTC-1	HDE		2080	II	3/22/2019	3/22/2018
Cables	Range		Mfr			Cat	Calibration Due	Calibrated on
Asset #2051	9kHz - 18GHz		Florida RF			II	3/7/2019	3/7/2018
Asset #2054	9kHz - 18GHz		Florida RF			II	10/31/2018	10/31/2017
Asset #2467	9KHz-18GHz		MegaPhase			II	10/29/2018	10/29/2017

All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.

Test Equipment Used

Radiated Emissions Table														
Date: 05-Sep-18					Company: Temperature Alert					Work Order: S1904				
Engineer: Zac Johnson					EUT Desc: SCM8100					EUT Operating Voltage/Frequency: 3V DC				
Temp: 22.9°C					Humidity: 49%					Pressure: 1014mBar				
Frequency Range: 18-26.5GHz										Measurement Distance: 0.1 m				
Notes:										EUT Max Freq: 2480MHz				
Antenna Polarization (H / V)	Frequency (MHz)	Peak Reading (dBμV)	Average Reading (dBμV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Peak Reading (dBμV/m)	Adjusted Avg Reading (dBμV/m)	FCC Class B High Frequency - Peak			FCC Class B High Frequency - Average		
									Limit (dBμV/m)	Margin (dB)	Result (Pass/Fail)	Limit (dBμV/m)	Margin (dB)	Result (Pass/Fail)
2402MHz H / V	19225.0	70.2	70.2	40.8	40.3	7.1	76.8	76.8	103.5	-26.7	Pass	83.5	-6.7	Pass
2440MHz H / V	19519.4	67.7	67.7	40.7	40.3	7.3	74.6	74.6	103.5	-28.9	Pass	83.5	-8.9	Pass
2480MHz H / V	19837.5	61.5	61.5	40.9	40.3	7.3	68.2	68.2	103.5	-35.3	Pass	83.5	-15.3	Pass
Table Result: Pass by -6.7 dB Worst Freq: 19225.0 MHz														
Test Site: EMI Chamber 2					Cable 1: Asset #2324					Cable 2: ---				
Analyzer: Gold					Preamp: 18-26.5GHz					Cable 3: ---				
Antenna: 18-26.5GHz Horn					Preselector: ---									
CSsoft Radiated Emissions Calculator v 1.017.207														
Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor														
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18-26.5GHz 3 Channels

Rev. 8/30/2018

Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Gold	100Hz-26.5 GHz	E4407B	Agilent	MY45113816	1284	I	3/19/2019	3/19/2018
Preamps /Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
HF (Yellow)	18-26.5GHz	AFS4-18002650-60-8P-4	CS	467559	1266	II	10/16/2018	10/16/2017
Antennas	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
HF (White) Horn	18-26.5GHz	801-WLM	Waveline	758	758	III	Verify before Use	date of test
Meteorological Meters/Chambers		MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Weather Clock (Pressure Only)		BA928	Oregon Scientific	C3166-1	831	I	5/15/2020	5/15/2018
TH A#2080		HTC-1	HDE		2080	II	3/22/2019	3/22/2018
Cables	Range		Mfr			Cat	Calibration Due	Calibrated on
Asset #2324	1-26.5GHz	TM26-S1S1-120	MEGAPHASE	17139101 001	2324	II	8/9/2019	8/9/2018

All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.

Test Equipment Used



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External Antenna

Curtis Straus - a Bureau Veritas Company	Work Order - S1904
Radiated Emissions Electric Field 3m Distance	EUT Power Input - 3V DC
30-1000MHz Vertical Data	Test Site - CH-1
Operator: ZJ	Conditions - 23.6°C; 64%RH; 1020mBar
Notes:	0
1MBPS External Low Channel	EUT Maximum Frequency - 2480MHz

Data Taken at 09:25:30 PM, Wednesday, September 12, 2018

Frequency (MHz)	Raw QP Reading (dBμV)	Correction Factor (dB/m)	Adjusted QP Amplitude (dBμV/m)	Lim1: FCC_pt15_1 09_Class_B (dBμV/m)	Margin to Lim1 (dB)	Test Results Lim1 (Pass/Fail)	Worst Margin Lim1 (dB)	Lim2: FCC_pt15_1 09_Class_B (dBμV/m)	Margin to Lim2 (dB)	Test Results Lim2 (Pass/Fail)	Worst Margin Lim2 (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
33.933	32	-10.6	21.4	40	-18.6	PASS		40	-18.6	PASS		175	115
36.024	49.6	-12.3	37.3	40	-2.7	PASS	-2.7	40	-2.7	PASS	-2.7	101	326
38.365	30.7	-14	16.7	40	-23.3	PASS		40	-23.3	PASS		175	203
43.052	33.8	-17.4	16.3	40	-23.7	PASS		40	-23.7	PASS		100	25
45.76	34	-19.1	14.8	40	-25.2	PASS		40	-25.2	PASS		125	241
822.667	25	-3	22	46	-24	PASS		46	-24	PASS		152	250

Curtis Straus - a Bureau Veritas Company	Work Order - S1904
Radiated Emissions Electric Field 3m Distance	EUT Power Input - 3V DC
30-1000MHz Horizontal Data	Test Site - CH-1
Operator: ZJ	Conditions - 23.6°C; 64%RH; 1020mBar
Notes:	0
1MBPS External Low Channel	EUT Maximum Frequency - 2480MHz

Data Taken at 09:47:44 PM, Wednesday, September 12, 2018

Frequency (MHz)	Raw QP Reading (dBμV)	Correction Factor (dB/m)	Adjusted QP Amplitude (dBμV/m)	Lim1: FCC_pt15_1 09_Class_B (dBμV/m)	Margin to Lim1 (dB)	Test Results Lim1 (Pass/Fail)	Worst Margin Lim1 (dB)	Lim2: FCC_pt15_1 09_Class_B (dBμV/m)	Margin to Lim2 (dB)	Test Results Lim2 (Pass/Fail)	Worst Margin Lim2 (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
168.23	49.6	-16.9	32.7	43.5	-10.9	PASS		43.5	-10.9	PASS		205	169
192.175	47.7	-17.1	30.6	43.5	-12.9	PASS		43.5	-12.9	PASS		155	250
240.045	52.6	-16.8	35.8	46	-10.2	PASS	-10.2	46	-10.2	PASS	-10.2	145	70
433.007	37	-11.1	25.8	46	-20.2	PASS		46	-20.2	PASS		175	25
432.434	40.9	-11.1	29.8	46	-16.3	PASS		46	-16.3	PASS		175	211
823.787	25	-3	22.1	46	-24	PASS		46	-24	PASS		103	184

30-1000MHz Low Channel

Curtis Straus - a Bureau Veritas Company	Work Order - S1904
Radiated Emissions Electric Field 3m Distance	EUT Power Input - 3V DC
30-1000MHz Vertical Data	Test Site - CH-1
Operator: ZJ	Conditions - 23.6°C; 64%RH; 1020mBar
Notes:	
1MBPS External Mid Channel	EUT Maximum Frequency - 2480MHz

Data Taken at 10:29:08 PM, Wednesday, September 12, 2018

Frequency (MHz)	Raw QP Reading (dBμV)	Correction Factor (dB/m)	Adjusted QP Amplitude (dBμV/m)	Lim1: FCC_pt15_1 09_Class_B (dBμV/m)	Margin to Lim1 (dB)	Test Results Lim1 (Pass/Fail)	Worst Margin Lim1 (dB)	Lim2: FCC_pt15_1 09_Class_B (dBμV/m)	Margin to Lim2 (dB)	Test Results Lim2 (Pass/Fail)	Worst Margin Lim2 (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
33.275	37.8	-10.2	27.6	40	-12.4	PASS		40	-12.4	PASS		102	295
36	50.5	-12.3	38.2	40	-1.8	PASS	-1.8	40	-1.8	PASS	-1.8	102	166
48.024	51.8	-20.3	31.5	40	-8.5	PASS		40	-8.5	PASS		115	65
60.015	49.7	-21.5	28.2	40	-11.8	PASS		40	-11.8	PASS		125	20
168.367	43.1	-16.9	26.2	43.5	-17.3	PASS		43.5	-17.3	PASS		216	250
240.033	52.3	-16.8	35.5	46	-10.5	PASS		46	-10.5	PASS		101	115



Curtis Straus - a Bureau Veritas Company
 Radiated Emissions Electric Field 3m Distance
 30-1000MHz Horizontal Data
 Operator: ZJ
 Notes:
 1MBPS External Mid Channel

Work Order - S1904
 EUT Power Input - 3V DC
 Test Site - CH-1
 Conditions - 23.6°C; 64%RH; 1020mBar
 EUT Maximum Frequency - 2480MHz

Data Taken at 10:29:08 PM, Wednesday, September 12, 2018

Frequency (MHz)	Raw QP Reading (dBμV)	Correction Factor (dB/m)	Adjusted QP Amplitude (dBμV/m)	Lim1: FCC_pt15_1 09_Class_B (dBμV/m)	Margin to Lim1 (dB)	Test Results Lim1 (Pass/Fail)	Worst Margin Lim1 (dB)	Lim2: FCC_pt15_1 09_Class_B (dBμV/m)	Margin to Lim2 (dB)	Test Results Lim2 (Pass/Fail)	Worst Margin Lim2 (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
168.012	47.4	-16.9	30.5	43.5	-13	PASS		43.5	-13	PASS		170	290
192.768	47.5	-17	30.5	43.5	-13	PASS		43.5	-13	PASS		125	226
204.031	43.8	-16.9	26.9	43.5	-16.6	PASS		43.5	-16.6	PASS		142	2
240.026	51.7	-16.8	34.9	46	-11.1	PASS	-11.1	46	-11.1	PASS	-11.1	125	65
432.437	41.4	-11.1	30.2	46	-15.8	PASS		46	-15.8	PASS		175	225
433.75	39.3	-11.1	28.1	46	-17.9	PASS		46	-17.9	PASS		105	42

30-1000MHz Mid Channel

Curtis Straus - a Bureau Veritas Company
 Radiated Emissions Electric Field 3m Distance
 30-1000MHz Vertical Data
 Operator: ZJ
 Notes:
 2480MHz 1MBPS External Antenna

Work Order - S1904
 EUT Power Input - 3V DC
 Test Site - CH-2
 Conditions - 21.7°C; 60%RH; 1020mBar
 EUT Maximum Frequency - 2480MHz

Data Taken at 03:10:18 PM, Tuesday, September 11, 2018

Frequency (MHz)	Raw QP Reading (dBμV)	Correction Factor (dB/m)	Adjusted QP Amplitude (dBμV/m)	Lim1: FCC_pt15_1 09_Class_B (dBμV/m)	Margin to Lim1 (dB)	Test Results Lim1 (Pass/Fail)	Worst Margin Lim1 (dB)	Lim2: FCC_pt15_1 09_Class_B (dBμV/m)	Margin to Lim2 (dB)	Test Results Lim2 (Pass/Fail)	Worst Margin Lim2 (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
50.669	33.6	-20.1	13.6	40	-26.4	PASS	-26.4	40	-26.4	PASS	-26.4	153	70
52.949	33.8	-20.6	13.2	40	-26.8	PASS		40	-26.8	PASS		107	29
54.282	32.8	-20.8	12.1	40	-27.9	PASS		40	-27.9	PASS		112	91
57.393	32.3	-20.8	11.5	40	-28.5	PASS		40	-28.5	PASS		158	115
75.06	30	-20	10	40	-30	PASS		40	-30	PASS		142	162
78.031	29	-20.2	8.8	40	-31.2	PASS		40	-31.2	PASS		216	202

Curtis Straus - a Bureau Veritas Company
 Radiated Emissions Electric Field 3m Distance
 30-1000MHz Horizontal Data
 Operator: ZJ
 Notes:
 2480MHz 1MBPS External Antenna

Work Order - S1904
 EUT Power Input - 3V DC
 Test Site - CH-2
 Conditions - 21.7°C; 60%RH; 1020mBar
 EUT Maximum Frequency - 2480MHz

Data Taken at 03:10:18 PM, Tuesday, September 11, 2018

Frequency (MHz)	Raw QP Reading (dBμV)	Correction Factor (dB/m)	Adjusted QP Amplitude (dBμV/m)	Lim1: FCC_pt15_1 09_Class_B (dBμV/m)	Margin to Lim1 (dB)	Test Results Lim1 (Pass/Fail)	Worst Margin Lim1 (dB)	Lim2: FCC_pt15_1 09_Class_B (dBμV/m)	Margin to Lim2 (dB)	Test Results Lim2 (Pass/Fail)	Worst Margin Lim2 (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
30.148	28.1	-6.5	21.6	40	-18.4	PASS		40	-18.4	PASS		203	293
192.231	45.9	-15.6	30.3	43.5	-13.2	PASS		43.5	-13.2	PASS		175	290
192.375	44.6	-15.5	29	43.5	-14.5	PASS		43.5	-14.5	PASS		159	168
204.026	46.3	-15.7	30.6	43.5	-13	PASS		43.5	-13	PASS		144	153
240.014	53.3	-15.4	37.9	46	-8.2	PASS	-8.2	46	-8.2	PASS	-8.2	115	138
960.112	41.5	-1.5	40	54	-13.9	PASS		54	-13.9	PASS		100	4



30-1000MHz High Channel

Rev. 8/30/2018

Spectrum Analyzers / Receivers / Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
2093 MXE EMI Receiver	20Hz-26.5GHz	N9038A	Agilent	MY51210181	2093	I	11/16/2018	11/16/2017
Radiated Emissions Sites	FCC Code	IC Code	VCCI Code	Range	Asset	Cat	Calibration Due	Calibrated on
EMI Chamber 2	719150	2762A-7	A-0015	30-1000MHz	1686	I	12/21/2018	12/21/2016
Preamps / Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
2311 PA	1-1000MHz	PAM-103	COM-POWER	441174	2311	II	10/29/2018	10/29/2017
2116 BRF	0.009-18000MHz	BRM50702	Micro-Tronics	G226	2116	II	11/8/2018	11/8/2017
Antennas	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Red-White Bilog	30-2000MHz	JB1	Sunol	A091604-1	1105	I	8/21/2019	8/21/2017
Meteorological Meters/Chambers		MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Weather Clock (Pressure Only)		BA928	Oregon Scientific	C3166-1	831	I	5/15/2020	5/15/2018
TH A#2080		HTC-1	HDE		2080	II	3/22/2019	3/22/2018
Cables	Range		Mfr			Cat	Calibration Due	Calibrated on
Asset #2051	9kHz - 18GHz		Florida RF			II	3/7/2019	3/7/2018
Asset #2054	9kHz - 18GHz		Florida RF			II	10/31/2018	10/31/2017
Asset #2467	9KHz-18GHz		MegaPhase			II	10/29/2018	10/29/2017

All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.

Test Equipment Used

Curtis Straus - a Bureau Veritas Company Radiated Emissions Electric Field 3m Distance 1-6GHz Vertical Data Operator: ZJ Notes: 2402MHz 1MBPS External Antenna															
Work Order - S1904 EUT Power Input - 3V DC Test Site - CH-2 Conditions - 22.9°C; 49%RH; 1014mBar EUT Maximum Frequency - 2480MHz															
Data Taken at 03:32:13 PM, Monday, September 10, 2018															
Frequency (MHz)	Raw Peak Reading (dBμV)	Raw Avg Reading (dBμV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBμV/m)	Pk Lim: FCC_pt15_109_ClassB_Peak (dBμV/m)	Peak Margin (dB)	Peak Results (Pass/Fail)	Worst Peak Margin (dB)	Adjusted Avg Amplitude (dBμV/m)	Av Lim: FCC_pt15_109_ClassB_AVG (dBμV/m)	Avg Margin (dB)	Avg Results (Pass/Fail)	Worst Avg Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
2175.4	44.6	32.5	1.9	46.6	74	-27.4	PASS	-27.4	34.4	54	-19.6	PASS		386	64
3020	41.3	32.7	2.3	43.6	74	-30.4	PASS		35	54	-19	PASS		300	95
5880.9	40	30.9	6.3	46.2	74	-27.8	PASS		37.1	54	-16.9	PASS	-16.9	203	396

Curtis Straus - a Bureau Veritas Company Radiated Emissions Electric Field 3m Distance 1-6GHz Horizontal Data Operator: ZJ Notes: 2402MHz 1MBPS External Antenna															
Work Order - S1904 EUT Power Input - 3V DC Test Site - CH-2 Conditions - 22.9°C; 49%RH; 1014mBar EUT Maximum Frequency - 2480MHz															
Data Taken at 03:32:13 PM, Monday, September 10, 2018															
Frequency (MHz)	Raw Peak Reading (dBμV)	Raw Avg Reading (dBμV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBμV/m)	Pk Lim: FCC_pt15_109_ClassB_Peak (dBμV/m)	Peak Margin (dB)	Peak Results (Pass/Fail)	Worst Peak Margin (dB)	Adjusted Avg Amplitude (dBμV/m)	Av Lim: FCC_pt15_109_ClassB_AVG (dBμV/m)	Avg Margin (dB)	Avg Results (Pass/Fail)	Worst Avg Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
1410.2	41.3	32.4	-3.6	37.7	74	-36.3	PASS		28.8	54	-25.2	PASS		325	386
2126.2	41	32.6	1.4	42.4	74	-31.6	PASS		34	54	-19.9	PASS		325	25
3073.5	42.3	32.7	2.3	44.5	74	-29.4	PASS	-29.4	35	54	-19	PASS		307	46
5177.1	40	31	4.5	44.5	74	-29.5	PASS		35.5	54	-18.5	PASS		307	135
5256.6	39.3	31	4.9	44.2	74	-29.8	PASS		36	54	-18	PASS	-18	225	257

1-6GHz Low Channel



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Curtis Straus - a Bureau Veritas Company Radiated Emissions Electric Field 3m Distance 1-6GHz Vertical Data Operator: ZJ Notes: 2440MHz 1MBPS External Antenna	Work Order - S1904 EUT Power Input - 3V DC Test Site - CH-2 Conditions - 22.9°C; 49%RH; 1014mBar EUT Maximum Frequency - 2480MHz
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Data Taken at 04:08:55 PM, Monday, September 10, 2018

Frequency (MHz)	Raw Peak Reading (dBμV)	Raw Avg Reading (dBμV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBμV/m)	Pk Lim: FCC_pt15_109_ClassB_Peak (dBμV/m)	Peak Margin (dB)	Peak Results (Pass/Fail)	Worst Peak Margin (dB)	Adjusted Avg Amplitude (dBμV/m)	Av Lim: FCC_pt15_109_ClassB_AVG (dBμV/m)	Avg Margin (dB)	Avg Results (Pass/Fail)	Worst Avg Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
2176.9	42.6	32.5	1.9	44.5	74	-29.5	PASS		34.4	54	-19.6	PASS		384	217
3021.3	42.7	32.7	2.3	44.9	74	-29	PASS		35	54	-19	PASS		202	252
5804.1	40.1	30.7	6.3	46.4	74	-27.6	PASS	-27.6	37	54	-17	PASS	-17	300	238

Curtis Straus - a Bureau Veritas Company Radiated Emissions Electric Field 3m Distance 1-6GHz Horizontal Data Operator: ZJ Notes: 2440MHz 1MBPS External Antenna	Work Order - S1904 EUT Power Input - 3V DC Test Site - CH-2 Conditions - 22.9°C; 49%RH; 1014mBar EUT Maximum Frequency - 2480MHz
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Data Taken at 04:08:55 PM, Monday, September 10, 2018

Frequency (MHz)	Raw Peak Reading (dBμV)	Raw Avg Reading (dBμV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBμV/m)	Pk Lim: FCC_pt15_109_ClassB_Peak (dBμV/m)	Peak Margin (dB)	Peak Results (Pass/Fail)	Worst Peak Margin (dB)	Adjusted Avg Amplitude (dBμV/m)	Av Lim: FCC_pt15_109_ClassB_AVG (dBμV/m)	Avg Margin (dB)	Avg Results (Pass/Fail)	Worst Average Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
2146.4	42.4	32.5	1.6	44	74	-30	PASS		34.2	54	-19.8	PASS		301	201
3174.6	40.7	32.8	2.6	43.3	74	-30.7	PASS		35.4	54	-18.6	PASS		275	64
5905.5	41.4	30.8	6.3	47.7	74	-26.3	PASS	-26.3	37.1	54	-16.8	PASS	-16.8	300	35

1-6GHz Mid Channel

Curtis Straus - a Bureau Veritas Company Radiated Emissions Electric Field 3m Distance 1-6GHz Vertical Data Operator: ZJ Notes: 2480MHz 1MBPS External Antenna	Work Order - S1904 EUT Power Input - 3V DC Test Site - CH-2 Conditions - 22.9°C; 49%RH; 1014mBar 0 EUT Maximum Frequency - 2480MHz
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Data Taken at 04:51:29 PM, Monday, September 10, 2018

Frequency (MHz)	Raw Peak Reading (dBμV)	Raw Avg Reading (dBμV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBμV/m)	Pk Lim: FCC_pt15_109_ClassB_Peak (dBμV/m)	Peak Margin (dB)	Peak Results (Pass/Fail)	Worst Peak Margin (dB)	Adjusted Avg Amplitude (dBμV/m)	Av Lim: FCC_pt15_109_ClassB_AVG (dBμV/m)	Avg Margin (dB)	Avg Results (Pass/Fail)	Worst Avg Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
2124	41.9	32.6	1.4	43.4	74	-30.6	PASS		34	54	-20	PASS		399	340
3172.3	41.1	32.9	2.6	43.7	74	-30.3	PASS		35.4	54	-18.5	PASS		275	203
5788.5	40.2	30.8	6.3	46.4	74	-27.5	PASS	-27.5	37	54	-16.9	PASS	-16.9	209	346

Curtis Straus - a Bureau Veritas Company Radiated Emissions Electric Field 3m Distance 1-6GHz Horizontal Data Operator: ZJ Notes: 2480MHz 1MBPS External Antenna	Work Order - S1904 EUT Power Input - 3V DC Test Site - CH-2 Conditions - 22.9°C; 49%RH; 1014mBar 0 EUT Maximum Frequency - 2480MHz
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Data Taken at 04:51:29 PM, Monday, September 10, 2018

Frequency (MHz)	Raw Peak Reading (dBμV)	Raw Avg Reading (dBμV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBμV/m)	Pk Lim: FCC_pt15_109_ClassB_Peak (dBμV/m)	Peak Margin (dB)	Peak Results (Pass/Fail)	Worst Peak Margin (dB)	Adjusted Avg Amplitude (dBμV/m)	Av Lim: FCC_pt15_109_ClassB_AVG (dBμV/m)	Avg Margin (dB)	Avg Results (Pass/Fail)	Worst Average Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
1324.5	42.5	32.4	-3.5	39	74	-35	PASS		29	54	-25	PASS		208	347
2141.7	41.6	32.6	1.6	43.2	74	-30.8	PASS		34.1	54	-19.8	PASS		285	375
3251.8	42.2	32.7	2.2	44.4	74	-29.6	PASS		34.9	54	-19.1	PASS		292	334
5211.5	39.7	30.8	4.8	44.5	74	-29.5	PASS		35.6	54	-18.4	PASS		290	358
5274.4	39.8	30.9	5	44.8	74	-29.1	PASS		35.9	54	-18.1	PASS		275	268
5735	39.6	30.9	6.1	45.7	74	-28.3	PASS	-28.3	37	54	-16.9	PASS	-16.9	287	354

1-6GHz High Channel



Curtis Straus - a Bureau Veritas Company

Radiated Emissions Electric Field 1m Distance

6-18GHz Vertical Data

Operator: ZJ

Notes:

2402MHz 1MBPS External Antenna

Work Order - S1904

EUT Power Input - 3V DC

Test Site - CH-2

Conditions - 20.9°C; 39%RH; 1020mBar

EUT Maximum Frequency - 2480MHz

Data Taken at 10:20:10 AM, Monday, September 10, 2018

Frequency (MHz)	Raw Peak Reading (dBμV)	Raw Avg Reading (dBμV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBμV/m)	Pk Lim: FCC_pt15_109_ ClassB_Peak (dBμV/m)	Peak Margin (dB)	Peak Results (Pass/Fail)	Worst Peak Margin (dB)	Adjusted Avg Amplitude (dBμV/m)	Av Lim: FCC_pt15_109_Cl assB_AVG (dBμV/m)	Avg Margin (dB)	Avg Results (Pass/Fail)	Worst Avg Margin (dB)	Antenna Height (cm)	EUT Azimut (degrees)
7206	42.4	33.7	8	50.5	83.5	-33	PASS		41.7	63.5	-21.8	PASS		200	25
17968.8	39.5	30.6	21.1	60.6	83.5	-22.9	PASS	-22.9	51.7	63.5	-11.8	PASS	-11.8	200	230

Curtis Straus - a Bureau Veritas Company

Radiated Emissions Electric Field 1m Distance

6-18GHz Horizontal Data

Operator: ZJ

Notes:

2402MHz 1MBPS External Antenna

Work Order - S1904

EUT Power Input - 3V DC

Test Site - CH-2

Conditions - 20.9°C; 39%RH; 1020mBar

EUT Maximum Frequency - 2480MHz

Data Taken at 10:20:10 AM, Monday, September 10, 2018

Frequency (MHz)	Raw Peak Reading (dBμV)	Raw Avg Reading (dBμV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBμV/m)	Pk Lim: FCC_pt15_109_Cl assB_Peak (dBμV/m)	Peak Margin (dB)	Peak Test Results (Pass/Fail)	Worst Peak Margin (dB)	Adjusted Avg Amplitude (dBμV/m)	Av Lim: FCC_pt15_109_Clas sB_AVG (dBμV/m)	Avg Margin (dB)	Avg Test Results (Pass/Fail)	Worst Avg Margin (dB)	Antenna Height (cm)	EUT Azimut (degrees)
17006.3	40.7	31.6	18.8	59.6	83.5	-23.9	PASS		50.5	63.5	-13	PASS		225	38
17950.3	39.4	30.6	20.8	60.2	83.5	-23.3	PASS	-23.3	51.5	63.5	-12	PASS	-12	200	0

6-18GHz Low Channel

Curtis Straus - a Bureau Veritas Company

Radiated Emissions Electric Field 1m Distance

6-18GHz Vertical Data

Operator: ZJ

Notes:

2440MHz 1MBPS External Antenna

Work Order - S1904

EUT Power Input - 3V DC

Test Site - CH-2

Conditions - 22.9°C; 49%RH; 1014mBar

EUT Maximum Frequency - 2480MHz

Data Taken at 04:21:12 PM, Thursday, September 06, 2018

Frequency (MHz)	Raw Peak Reading (dBμV)	Raw Avg Reading (dBμV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBμV/m)	Pk Lim: FCC_pt15_109_C lassB_Peak (dBμV/m)	Peak Margin (dB)	Peak Results (Pass/Fail)	Worst Peak Margin (dB)	Adjusted Avg Amplitude (dBμV/m)	Av Lim: FCC_pt15_109_C lassB_AVG (dBμV/m)	Avg Margin (dB)	Avg Results (Pass/Fail)	Worst Avg Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
16500.6	41.4	31.2	18.2	59.6	83.5	-23.9	PASS		49.4	63.5	-14.1	PASS		200	247
17972	39.6	30.5	21.1	60.8	83.5	-22.7	PASS	-22.7	51.6	63.5	-11.9	PASS	-11.9	200	283

Curtis Straus - a Bureau Veritas Company

Radiated Emissions Electric Field 1m Distance

6-18GHz Horizontal Data

Operator: ZJ

Notes:

2440MHz 1MBPS External Antenna

Work Order - S1904

EUT Power Input - 3V DC

Test Site - CH-2

Conditions - 22.9°C; 49%RH; 1014mBar

EUT Maximum Frequency - 2480MHz

Data Taken at 04:28:43 PM, Thursday, September 06, 2018

Frequency (MHz)	Raw Peak Reading (dBμV)	Raw Avg Reading (dBμV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBμV/m)	Pk Lim: FCC_pt15_109_Cla ssB_Peak (dBμV/m)	Peak Margin (dB)	Peak Test Results (Pass/Fail)	Worst Peak Margin (dB)	Adjusted Avg Amplitude (dBμV/m)	Av Lim: FCC_pt15_109_Cl assB_AVG (dBμV/m)	Avg Margin (dB)	Avg Test Results (Pass/Fail)	Worst Avg Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
17942.4	40.6	30.7	20.7	61.3	83.5	-22.2	PASS	-22.2	51.4	63.5	-12.1	PASS	-12.1	225	222

6-18GHz Mid Channel



Curtis Straus - a Bureau Veritas Company
 Radiated Emissions Electric Field 1m Distance
 6-18GHz Vertical Data
 Operator: ZJ
 Notes:
 2480MHz 1MBPS External Antenna

Work Order - S1904
 EUT Power Input - 3V DC
 Test Site - CH-2
 Conditions - 20.9°C; 39%RH; 1020mBar
 EUT Maximum Frequency - 2480MHz

Data Taken at 09:55:03 AM, Monday, September 10, 2018

Frequency (MHz)	Raw Peak Reading (dBμV)	Raw Avg Reading (dBμV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBμV/m)	Pk Lim: FCC_pt15_109_ClassB_Peak (dBμV/m)	Peak Margin (dB)	Peak Results (Pass/Fail)	Worst Peak Margin (dB)	Adjusted Avg Amplitude (dBμV/m)	Av Lim: FCC_pt15_109_ClassB_AVG (dBμV/m)	Avg Margin (dB)	Avg Results (Pass/Fail)	Worst Avg Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
17102.4	40.9	31.8	19	59.9	83.5	-23.6	PASS		50.8	63.5	-12.7	PASS		200	306
17981.9	39.8	30.4	21.3	61	83.5	-22.5	PASS	-22.5	51.7	63.5	-11.8	PASS	-11.8	300	13

Curtis Straus - a Bureau Veritas Company
 Radiated Emissions Electric Field 1m Distance
 6-18GHz Horizontal Data
 Operator: ZJ
 Notes:
 2480MHz 1MBPS External Antenna

Work Order - S1904
 EUT Power Input - 3V DC
 Test Site - CH-2
 Conditions - 20.9°C; 39%RH; 1020mBar
 EUT Maximum Frequency - 2480MHz

Data Taken at 09:55:03 AM, Monday, September 10, 2018

Frequency (MHz)	Raw Peak Reading (dBμV)	Raw Avg Reading (dBμV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBμV/m)	Pk Lim: FCC_pt15_109_ClassB_Peak (dBμV/m)	Peak Margin (dB)	Peak Test Results (Pass/Fail)	Worst Peak Margin (dB)	Adjusted Avg Amplitude (dBμV/m)	Av Lim: FCC_pt15_109_ClassB_AVG (dBμV/m)	Avg Margin (dB)	Avg Test Results (Pass/Fail)	Worst Avg Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
17744.1	39.6	30.3	20.4	60	83.5	-23.5	PASS	-23.5	50.7	63.5	-12.8	PASS	-12.8	350	34

6-18GHz High Channel

Rev. 8/30/2018

Spectrum Analyzers / Receivers / Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
2093 MXE EMI Receiver	20Hz-26.5GHz	N9038A	Agilent	MY 51210181	2093	I	11/16/2018	11/16/2017
Radiated Emissions Sites	FCC Code	IC Code	VCCI Code	Range	Asset	Cat	Calibration Due	Calibrated on
EMI Chamber 2	719150	2762A-7	A-0015	1-18GHz	1686	I	12/21/2018	12/21/2016
Preamps / Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
2111 HF Preamp	0.5-18GHz	PAM-118A	COM-POWER	551063	2111	II	11/19/2018	11/19/2017
2116 BRF	0.009-18000MHz	BRM50702	Micro-Tronics	G226	2116	II	11/8/2018	11/8/2017
Antennas	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Blue Horn	1-18GHz	3117	ETS	157647	1861	I	2/14/2019	2/14/2017
Meteorological Meters/Chambers		MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Weather Clock (Pressure Only)		BA928	Oregon Scientific	C3166-1	831	I	5/15/2020	5/15/2018
THA#2080		HTC-1	HDE		2080	II	3/22/2019	3/22/2018
Cables	Range		Mfr			Cat	Calibration Due	Calibrated on
Asset #2051	9kHz - 18GHz		Florida RF			II	3/7/2019	3/7/2018
Asset #2054	9kHz - 18GHz		Florida RF			II	10/31/2018	10/31/2017
Asset #2467	9KHz-18GHz		MegaPhase			II	10/29/2018	10/29/2017

All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.

Test Equipment Used



Bureau Veritas Consumer Products Services Inc.
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Radiated Emissions Table																			
Date: 05-Sep-18					Company: Temperature Alert					Work Order: S1904									
Engineer: Zac Johnson					EUT Desc: SCMB100					EUT Operating Voltage/Frequency: 3V DC									
Temp: 22.9°C					Humidity: 49%					Pressure: 1014mBar									
Frequency Range: 18-26.5GHz										Measurement Distance: 0.1 m									
Notes:										EUT Max Freq: 2480MHz									
Antenna Polarization (H / V)	Frequency (MHz)	Peak Reading (dBµV)	Average Reading (dBµV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Peak Reading (dBµV/m)	Adjusted Avg Reading (dBµV/m)	FCC Class B High Frequency - Peak			FCC Class B High Frequency - Average							
									Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)	Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)					
2402MHz H / V	19225.0	51.0	51.0	---	---	---	---	---	103.5	-27.1	Pass	---	---	---					
				40.8	40.3	7.1	76.4	76.4	---	83.5	-7.1	Pass							
				---	---	---	---	---	---	---	---	---							
2440MHz H / V	19522.5	50.0	50.0	40.7	40.3	7.3	74.6	74.6	103.5	-28.9	Pass	83.5	-8.9	Pass					
				---	---	---	---	---	---	---	---	---	---						
				---	---	---	---	---	---	---	---	---							
2480MHz H / V	19855.5	55.1	55.1	40.9	40.3	7.3	76.5	76.5	103.5	-27.0	Pass	83.5	-7.0	Pass					
				---	---	---	---	---	---	---	---	---	---						
				---	---	---	---	---	---	---	---	---	---						
Table Result:				Pass	by	-7.0 dB			Worst Freq:			19838.1 MHz							
Test Site: EMI Chamber 2					Cable 1: Asset #2324					Cable 2: ---					Cable 3: ---				
Analyzer: Gold					Preamp: 18-26.5GHz					Antenna: 18-26.5GHz Horn					Preselector: ---				
CSsoft Radiated Emissions Calculator v 1.017.207																			
Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor																			
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18-26.5GHz 3 Channels

Rev. 8/30/2018

Spectrum Analyzers / Receivers / Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Gold	100Hz-26.5 GHz	E4407B	Agilent	MY45113816	1284	I	3/19/2019	3/19/2018
Preamps / Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
HF (Yellow)	18-26.5GHz	AFS4-18002650-60-8P-4	CS	467559	1266	II	10/16/2018	10/16/2017
Antennas	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
HF (White) Horn	18-26.5GHz	801-WLM	Waveline	758	758	III	Verify before Use	date of test
Meteorological Meters/Chambers		MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Weather Clock (Pressure Only)		BA928	Oregon Scientific	C3166-1	831	I	5/15/2020	5/15/2018
TH A#2080		HTC-1	HDE		2080	II	3/22/2019	3/22/2018
Cables	Range		Mfr			Cat	Calibration Due	Calibrated on
Asset #2324	1-26.5GHz	TM26-S1S1-120	MEGAPHASE	17139101 001	2324	II	8/9/2019	8/9/2018

All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.

Test Equipment Used



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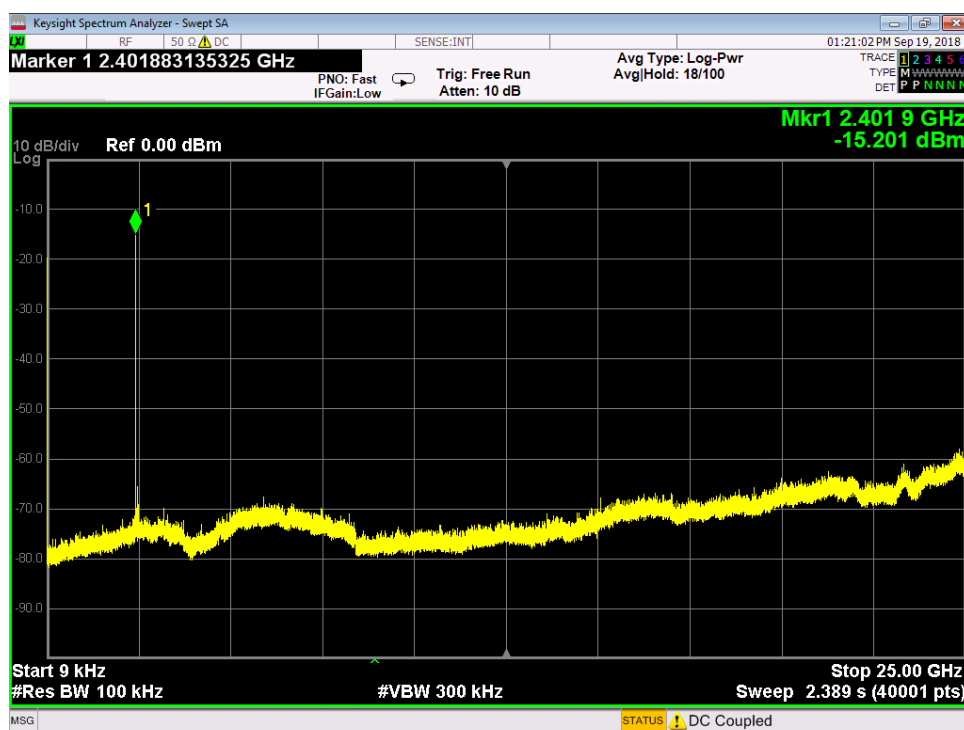
Conducted Spurious Emissions

Limits: In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth that contains the highest level of desired power.

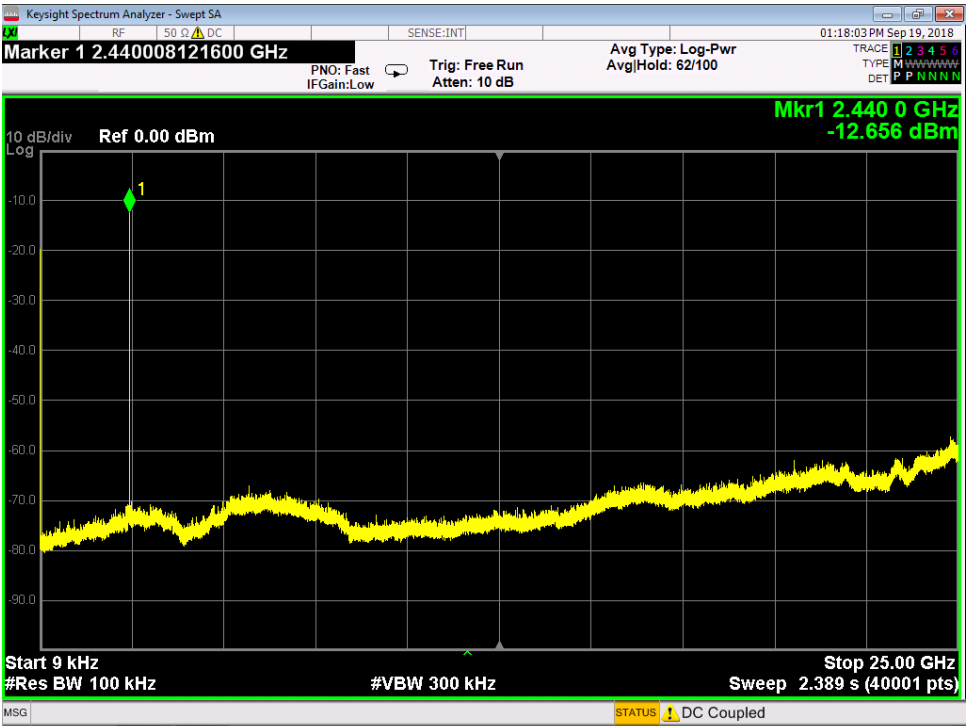
[15.247(d)]

MEASUREMENTS / RESULTS

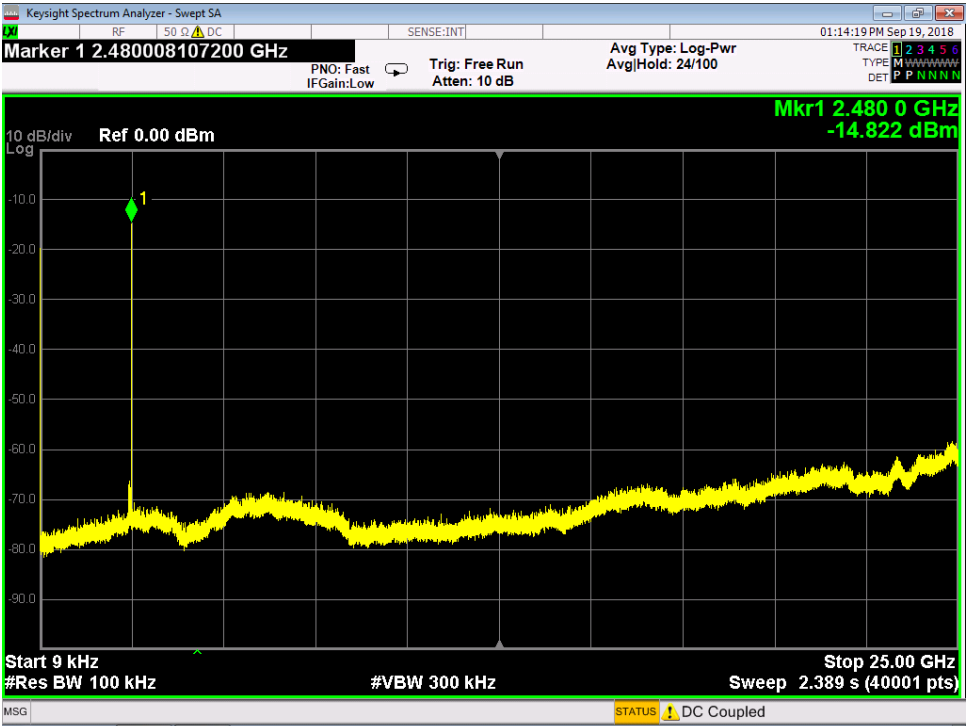
9kHz to 25GHz frequency range was investigated for 3 channels (low, middle and high) and no emissions within 20dB of their corresponding fundamentals were observed.



9kHz-25GHz Conducted Spurious (Low channel)



9kHz-25GHz Conducted Spurious (Mid channel)



9kHz-25GHz Conducted Spurious (High channel)

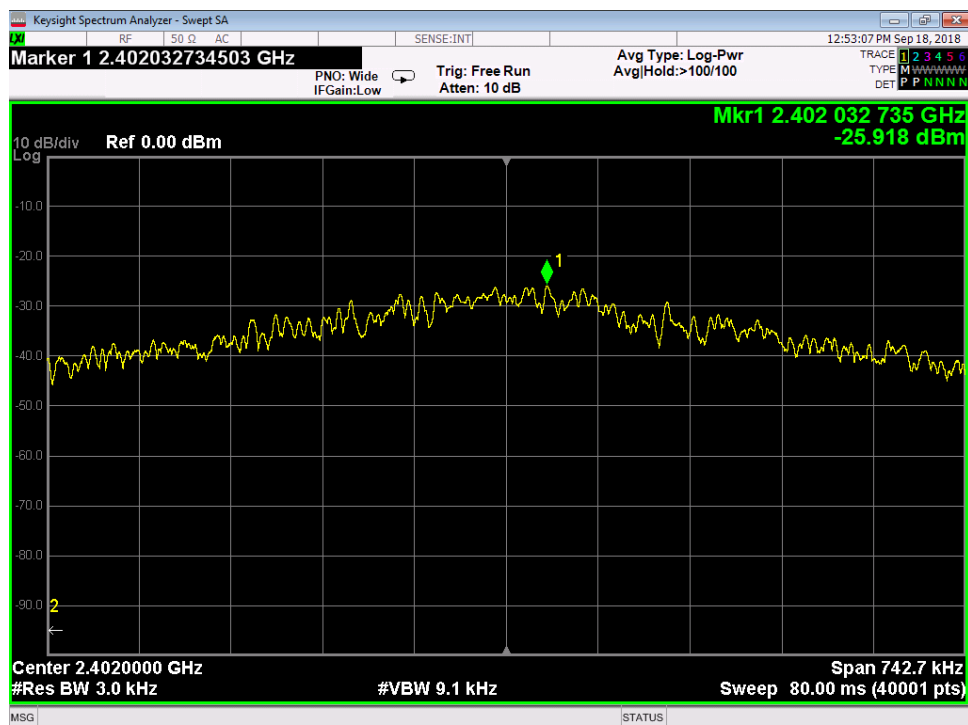
Power Spectral Density

Limit: The power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band during any time interval of continuous transmission. [15.247(e)]

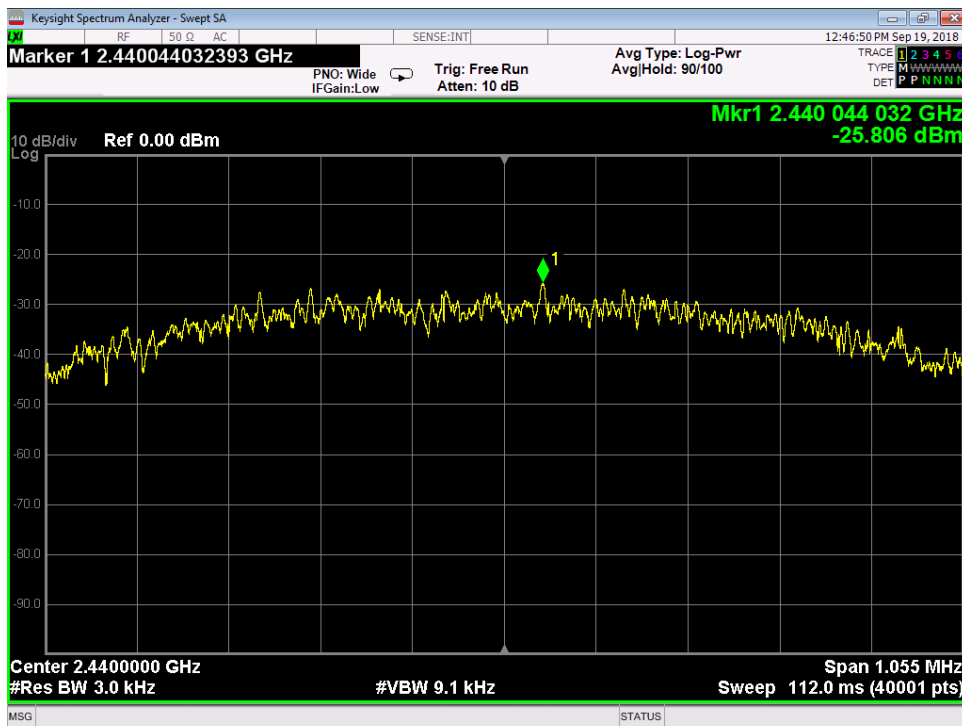
MEASUREMENTS / RESULTS

Peak Power Spectral Density							
Date: 9/17/2018		Company: Temperature Alert			Work Order: S1904		
Engineer: Zac Johnson		EUT: SCMB100			Operating Voltage/Frequency: 3V DC		
Temp: 23°C		Humidity: 57%		Pressure: 1013mBar			
Frequency Range: 2402-2480 MHz			Measurement Type: Conducted				
Notes: 1MBPS Data Rate							
Frequency	Peak Reading	Cable Loss	Attenuator Loss	Peak PSD	Limit	Margin	Result
(MHz)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dB)	
2402	-25.92	0.57	29.6	4.25	8.0	-3.75	Pass
2440	-25.81	0.57	29.6	4.36	8.0	-3.64	Pass
2480	-27.93	0.57	29.6	2.25	8.0	-5.76	Pass
Test Site: EMC-5		Cable: 2289 Cbl		Attenuator: 2121 30dB Pad			
Analyzer: 118472 SA							
PSD(dBm) = Reading (dBm) + Cable Loss (dB) + Attenuator Loss (dBm)							

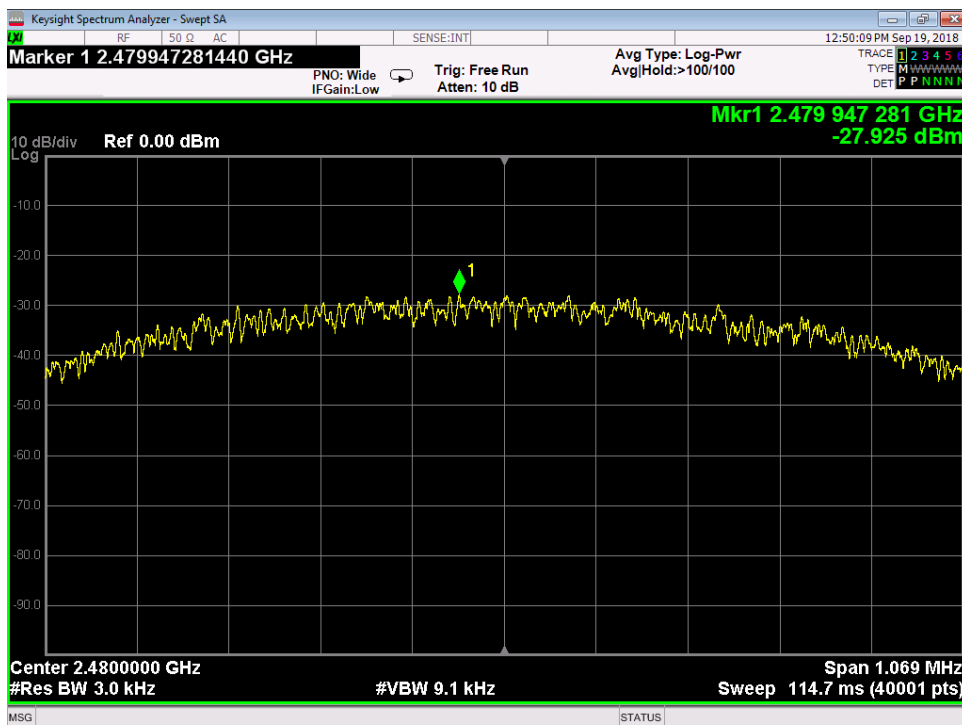
PLOTS



Low Channel PSD



Middle Channel PSD



High Channel PSD

Occupied Bandwidth

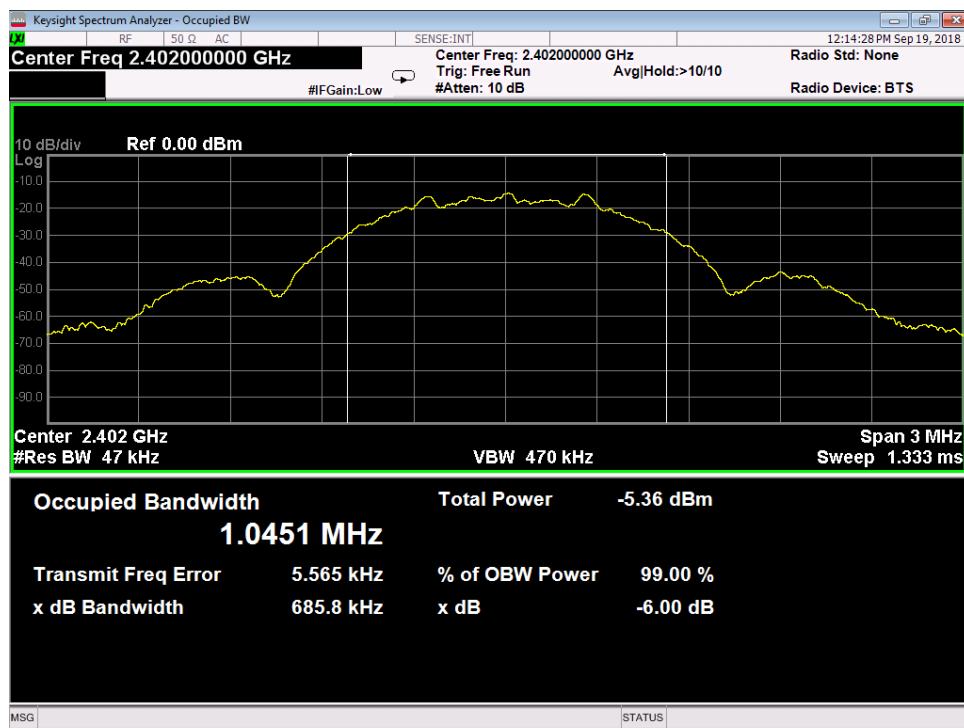
Requirement: When an occupied bandwidth is not specified in the applicable RSS, the transmitted signal bandwidth to be reported is its 99% emission bandwidth, as calculated or measured.

[RSS-GEN 6.6]

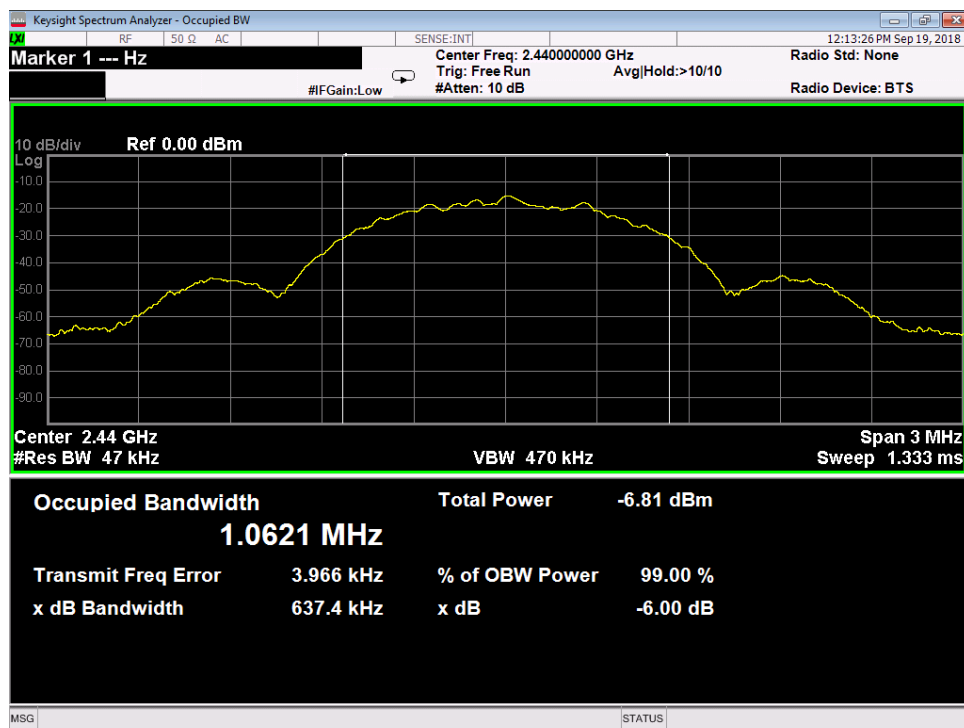
MEASUREMENTS / RESULTS

99% Occupied Bandwidth			
Date: 9/17/2018		Company: Temperature Alert	
Engineer: Zac Johnson		EUT: SCMB100	
Temp: 23°C		Humidity: 57%	
		Pressure: 1013mBar	
Frequency Range: 2402-2480 MHz		Measurement Type: Conducted	
Notes: 1MBPS Data Rate			
Frequency (MHz)	99% OBW (MHz)		
2402	1.0451		
2440	1.0621		
2480	1.0669		
Test Site: EMC-5		Cable: 2289 Cbl	
Analyzer: 118472 SA		Attenuator: 2121 30dB Pad	
Copyright Curtis-Straus LLC 2000			

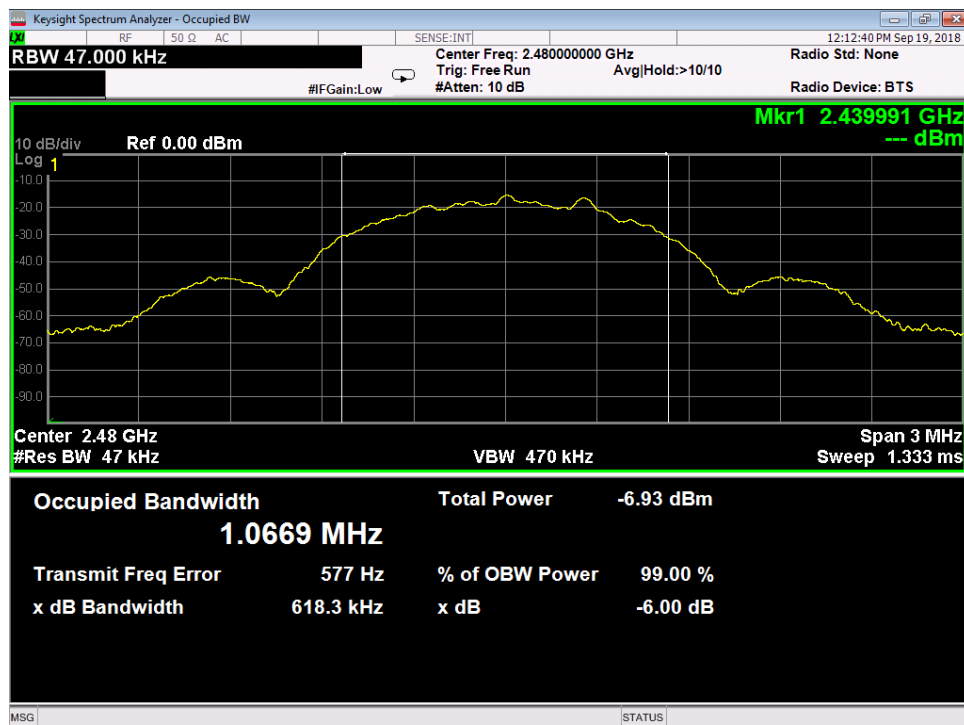
PLOTS



99% Occupied Bandwidth Low Channel



99% Occupied Bandwidth Middle Channel



99% Occupied Bandwidth High Channel

Test equipment below used for all conducted antenna port measurement tests within this report

Rev. 9/12/2018

Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Rental EXA Signal Analyzer(1118472)	9KHz-26.5GHz	N9010A-526;K	AT	MY51170010	1118472	I	8/10/2019	8/10/2018
Preamps /Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
API - 30dB 20W Attenuator	9KHz-40GHz	89-30-11	API Weinschel	703	2121	I	3/23/2019	3/23/2018
Meteorological Meters/Chambers		MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Weather Clock (Pressure Only)		BA928	Oregon Scientific	C3166-1	831	I	5/15/2020	5/15/2018
TH A#2077		HTC-1	HDE		2077	II	3/22/2019	3/22/2018
Cables	Range		Mfr			Cat	Calibration Due	Calibrated on
Asset #2289	9KHz-26.5GHz	FLC-1.5FT-SMSM+	Mini-Circuits	16021039		II	1/29/2019	1/29/2018

All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.



Measurement Uncertainty

The listed uncertainties are the worst case uncertainty for the entire range of measurement. Please note that the uncertainty values are provided for informational purposes only and are not used in determining the PASS/FAIL results.

Measurement	Expanded Uncertainty k=2	Maximum allowable uncertainty
Radiated Emissions (30-1000MHz)		
NIST	5.6dB	N/A
CISPR	4.6dB	5.2dB (Ucisprr)
Radiated Emissions (1-26.5GHz)	4.6dB	N/A
Radiated Emissions (above 26.5GHz)	4.9dB	N/A
Magnetic Radiated Emissions	5.6dB	N/A
Conducted Emissions		
NIST	3.9dB	N/A
CISPR	3.6dB	3.6dB (Ucisprr)
Telco Conducted Emissions (Current)	2.9dB	N/A
Telco Conducted Emissions (Voltage)	4.4dB	N/A
Electrostatic Discharge	11.5%	N/A
Radiated RF Immunity (Uniform Field)	1.6dB	N/A
Electrical Fast Transients	23.1%	N/A
Surge	23.1%	N/A
Conducted RF Immunity	3dB	N/A
Magnetic Immunity	12.8%	N/A
Dips and Interrupts	2.3V	N/A
Harmonics	3.5%	N/A
Flicker	3.5%	N/A
Radio frequency (@ 2.4GHz)	3.23×10^{-8}	1×10^{-7}
RF power, conducted	0.40dB	0.75dB
Maximum frequency deviation:		
• Within 300Hz and 6kHz of audio frequency / Within 6kHz and 25kHz of audio frequency	3.4% 0.3dB	5% 3dB
Adjacent channel power	1.9dB	3dB
Conducted spurious emission of transmitter, valid up to 12.75GHz	2.39dB	3dB
Conducted emission of receivers	1.3dB	3dB
Radiated emission of transmitter, valid up to 26.5GHz	3.9dB	6dB
Radiated emission of transmitter, valid up to 80GHz	3.3dB	6dB
Radiated emission of receiver, valid up to 26.5GHz	3.9dB	6dB
Radiated emission of receiver, valid up to 80GHz	3.3dB	6dB
Humidity	2.37%	5%
Temperature	0.7°C	1.0°C
Time	4.1%	10%
RF Power Density, Conducted	0.4dB	3dB
DC and low frequency voltages	1.3%	3%
Voltage (AC, <10kHz)	1.3%	2%
Voltage (DC)	0.62%	1%
The above reflects a 95% confidence level		



Conditions of Testing

[Bureau Veritas Consumer Products Services, Inc., a Massachusetts corporation], and/or its affiliates (collectively, the "Company") will conduct, at the request of the Submitter ("Client"), the tests specified on the submitted Test Request Form or equivalent in accordance with, and subject to, the following terms and conditions (collectively, "Conditions"):

1. All orders for tests are subject to acceptance by the Company, and no order will constitute a binding commitment of the Company unless and until such order is accepted by it, as evidenced by the issuance of a written report ("Test Report") by the Company. The Test Report is issued solely by the Company, is intended for the exclusive use of Client and shall not be published, used for advertising purposes, copied or replicated for distribution to any other person or entity or otherwise publicly disclosed without the prior written consent of the Company. By submitting a request for services to the Company, Client consents to the disclosure to accreditation bodies of those records of Client relevant to the accreditation body's assessment of the Company's competence and compliance with relevant accreditation criteria. The Company shall not be liable for any loss or damage whatsoever resulting from the failure of the Company to provide its services within any time period for completion estimated by the Company. If Client anticipates using the Test Report in any legal proceeding, arbitration, dispute resolution forum or other proceeding, it shall so notify the Company prior to submitting the Test Report in such proceeding. The Company has no obligation to provide a fact or expert witness at such proceeding unless the Company agrees in advance to do so for a separate and additional fee.
2. The Test Report will set forth the findings of the Company solely with respect to the test samples identified therein. Unless specifically and expressly indicated in the Test Report, the results set forth in such Test Report are not intended to be indicative or representative of the quality or characteristics of the lot from which a test sample is taken, and Client shall not rely upon the Test Report as being so indicative or representative of the lot or of the tested product in general. The Test Report will reflect the findings of the Company at the time of testing only, and the Company shall have no obligation to update the Test Report after its issuance. The Test Report will set forth the results of the tests performed by the Company based upon the written information provided to the Company. The Test Report will be based solely on the samples and written information submitted to the Company by Client, and the Company shall not be obligated to conduct any independent investigation or inquiry with respect thereto.
3. The Company may, in its sole discretion, destroy samples which have been furnished to the Company for testing and which have not been destroyed in the course of testing. The Company may delegate the performance of all or a portion of the services contemplated hereunder to an affiliate, agent or subcontractor of the Company, and Client consents to such delegation.
4. These Conditions and the Test Report represent the entire understanding of the parties hereto with respect to the subject matter hereof and of the Test Report, and no modification, variance or extrapolation with respect thereto shall be permitted without the prior written consent of the Company.
5. The names, service marks, trademarks and copyrights of the Company and its affiliates, including the names "BUREAU VERITAS," "BUREAU VERITAS CONSUMER PRODUCTS SERVICES," "BVCPSP," "MTL," "ACTS," "MTL-ACTS" and CURTIS-STRAUS (collectively, the "Marks") are and shall remain the sole property of the Company or its affiliates and shall not be used by Client except solely to the extent that Client obtains the prior written approval of the Company and then only in the manner prescribed by the Company. Client shall not contest the validity of the Marks or take any action that might impair the value or goodwill associated with the Marks or the image or reputation of the Company or its affiliates.
6. Payment in full shall be due 30 days after the date of invoice. Interest shall be due on overdue amounts from the due date until paid at an interest rate of 1.5% per month or, if less, the maximum rate permitted by law. The Company reserves the right, at any time and from time to time, to revoke any credit extended to Client. Client shall reimburse the Company for any costs it incurs in collecting past due amounts, including court costs and fees and expenses of attorneys and collection agencies. The Test Report may not be used or relied upon by Client if and for so long as Client fails to pay when due any invoice issued by the Company or any affiliate of it to Client or any affiliate or subsidiary of Client together with interest and penalties, if any, accrued thereon.
7. The Company disclaims any and all responsibility or liability arising out of or in connection with e-mail transmissions of such information.
8. Client understands and agrees that the Company is neither an insurer nor a guarantor, that the Company does not take the place of Client or any designer, manufacturer, agent, buyer, distributor or transportation or shipping company, and that the Company disclaims all liability in such capacities. Client further understands that if it seeks assurance against loss or damage, it should obtain appropriate insurance.
9. Client agrees that the Company, by providing the services, does not take the place of Client nor any third party, nor does the Company release them from any of their obligations, nor does the Company otherwise assume, abridge, abrogate or undertake to discharge any duty of any third party to Client or any duty of Client or any third party to any other third party, and Client will not release any third party from its obligations and duties with respect to the tested goods.
10. Client shall, on a timely basis, (a) provide adequate instructions to the Company in order to enable the Company to perform properly its services, (b) provide, or cause Client's suppliers and contractors to provide, the Company with all documents necessary to enable the Company to perform its services, (c) furnish the Company with all relevant information regarding Client's intended use and purposes of the tested goods, (d) advise the Company of essential dates and deadlines relevant to the tested goods and (e) fully exercise all rights and remedies available to Client against third parties in respect of the tested goods.
11. The Company shall undertake due care and ordinary skill in the performance of its services to Client, and the Company shall accept responsibility only where such skill has not been exercised and, even in such event, only to the extent of the limitation of liability set forth herein.
12. If Client desires to assert a claim arising from or relating to (i) the performance, purported performance or non-performance of any services by the Company or (ii) the sale, resale, manufacture, distribution or use of any tested goods, it must submit that claim to the Company in a writing that sets forth with particularity the basis for such claim within 60 days from discovery of the potential claim and not more than six months after the date of issuance of the Test Report to Client. Client waives any and all such claims including, without limitation, claims that the Test Report is inaccurate, incomplete or misleading or that additional or different testing is required, unless and then only to the extent that Client submits a written claim to the Company within both such time periods.
13. CLIENT SHALL, EXCEPT TO THE EXTENT OF COMPANY'S LIABILITY TO CLIENT HEREUNDER (WHICH IN NO EVENT SHALL EXCEED THE LIMITATION OF LIABILITY HEREIN), HOLD HARMLESS AND INDEMNIFY THE COMPANY, ITS AFFILIATES AND THEIR RESPECTIVE DIRECTORS, OFFICERS, EMPLOYEES, AGENTS AND SUBCONTRACTORS AGAINST ALL ACTUAL OR ALLEGED THIRD PARTY CLAIMS FOR LOSS, DAMAGE OR EXPENSE OF WHATSOEVER NATURE AND HOWSOEVER ARISING FROM OR RELATING TO (i) THE PERFORMANCE, PURPORTED PERFORMANCE OR NON-PERFORMANCE OF ANY SERVICES BY THE COMPANY OR (ii) THE SALE, RESALE, MANUFACTURE, DISTRIBUTION OR USE OF ANY TESTED GOODS.
14. EXCEPT AS MAY OTHERWISE BE EXPRESSLY AGREED TO IN WRITING BY THE COMPANY AND NOTWITHSTANDING ANY PROVISION TO THE CONTRARY CONTAINED HEREIN OR IN ANY TEST REPORT, NO WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE, IS MADE.



15. (A) IN NO EVENT WHATSOEVER SHALL THE COMPANY BE LIABLE FOR ANY CONSEQUENTIAL, SPECIAL, INCIDENTAL, EXEMPLARY OR PUNITIVE DAMAGES IN CONNECTION WITH, RELATING TO OR ARISING OUT OF THE TEST REPORT OR THE SERVICES PROVIDED BY THE COMPANY HEREUNDER, INCLUDING WITHOUT LIMITATION LOSS OF OR DAMAGE TO PROPERTY; LOSS OF INCOME, PROFIT OR USE; OR ANY CLAIMS OR DEMANDS MADE AGAINST CLIENT OR ANY OTHER PERSON BY ANY THIRD PARTY IN CONNECTION WITH, RELATING TO OR ARISING OUT OF THE SERVICES PROVIDED BY THE COMPANY HEREUNDER.

(B) NOTWITHSTANDING ANY PROVISION TO THE CONTRARY CONTAINED HEREIN, AND IN RECOGNITION OF THE RELATIVE RISKS AND BENEFITS TO CLIENT AND THE COMPANY ASSOCIATED WITH THE TESTING SERVICES CONTEMPLATED HEREBY, THE RISKS HAVE BEEN ALLOCATED SUCH THAT UNDER NO CIRCUMSTANCES WHATSOEVER SHALL THE LIABILITY OF THE COMPANY TO CLIENT OR ANY THIRD PARTY IN RESPECT OF ANY CLAIM FOR LOSS, DAMAGE OR EXPENSE, OF WHATSOEVER NATURE OR MAGNITUDE, AND HOWSOEVER ARISING, EXCEED AN AMOUNT EQUAL TO FIVE (5) TIMES THE AMOUNT OF THE FEES PAID TO THE COMPANY FOR THE SPECIFIC SERVICES WHICH GAVE RISE TO SUCH CLAIM OR U.S.\$10,000, WHICHEVER IS THE LESSER AMOUNT.

16. The Company shall not be liable for any loss or damage resulting from any delay or failure in performance of its obligations hereunder resulting directly or indirectly from any event of force majeure or any event outside the control of the Company. If any such event occurs, the Company may immediately cancel or suspend its performance hereunder without incurring any liability whatsoever to Client.

17. Company's services, including these Conditions, shall be governed by, and construed in accordance with, the local laws of the country where the Company performs the tests or, in the case of tests performed in the United States of America, the laws of Massachusetts without regard to conflicts of laws principles. If any aspect(s) of these Conditions is found to be illegal or unenforceable, the validity, legality and enforceability of all remaining aspects of these Conditions shall not in any way be affected or impaired thereby. Any proceeding related to the subject matter hereof shall be brought, if at all, in the courts of the country where the Company performs the tests or, in the case of tests performed in the United States of America, in the courts of Massachusetts. Client waives the right to interpose any counterclaim or setoffs of any nature in any litigation arising hereunder.

The complete list of the Approved Subcontractors Curtis-Straus may use to delegate the performance of work can be provided upon request.
Rev.160009121(2)_#684340 v14CS

