Test Report

Curtis-Straus LLC, *a wholly owned subsidiary of BV CPS*

Report No	EQ1522-1
Client	Schechter Tech LLC DBA Temperature Alert
Address	108 Lincoln Street, Suite BA Boston MA, 02111 USA
Phone	(617) 326-7300
Items tested	TM-ZP200-SWC
FCC ID	SZ9ZPOINT
IC ID	10940A-ZPOINT
FRN	0022436158
Equipment Type	Digital Transmission System
Equipment Code	DTS
Emission Designator	2M43F1D
FCC/IC Rule Parts	CFR Title 47 FCC Part 15.247, ISED Canada RSS-247 Issue 1
Test Dates	November 10 and 11, 2016 and January 11, 2017
Results	As detailed within this report
Prepared by	Zachary Johnson – Test Engineer
Authorized by	Yunus Faziloglu – Sr. EMC Engineer
Issue Date	6/20/2017
Conditions of Issue	This Test Report is issued subject to the conditions stated in the '*Conditions of Testing*' section on page 20 of this report.

Contents

Form Final Report REV 12-07-15

Summary

This test report supports a Class II permissive change application for StarWatch Connect (Model: TM-ZP200-SWC) (FCC ID: SZ9ZPOINT and IC ID: 10940A-ZPOINT) due to following modification made to the product:

- New antenna Model: WAN07RSP to be used with the device with reduction in RF output power setting to -5
- Non-RF (peripheral) circuitry changes

6dB bandwidth, peak output power, radiated band edge and radiated spurious emissions tests were performed and the product was found compliant with:
CFR Title 47 FCC Part 15.247, ISED Canada RSS-247 Issue 1

EUT is a DTS transmitter operating in the 2405MHz-2470MHz frequency range. Test sample were received in good condition.

Issue No.	Reason for change	Date Issued
1	Original Release	June 20, 2017

Test Methodology

All testing was performed according to the following rules/procedures/documents; FCC Part 15.247, RSS-247 Issue 1, RSS-Gen Issue 4, FCC KDB 558074 D01 DTS Measurement Guidance v03r05 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. The device antenna cannot be maximized separately.

The EUT operating voltage is 3.0 VDC from battery.

Low operating channel frequency = 2405MHz
Mid operating channel frequency = 2440MHz
High operating channel frequency = 2470MHz

The environmental conditions are shown on the associated data tables.

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:	Q1522									
Company:	Schechter Tech LLC DBA Temperature Alert									
Company Address:	108 Lincoln Street, Suite BA									
	Boston MA 02111									
Contact:	Nathan Reimensnyder									
	MN			**PN**			**SN**			
EUT:	TM-ZP200-SWC						S70041			
EUT Description:	StarWatch Connect									
EUT TX Frequency:	2405 - 2470 MHz									
Port Label	**Port Type**	**# ports**	**# populated**	**cable type**	**shielded**	**ferrites**	**length (m)**	**in/out**	**under test**	**comment**
RS485 Data Connector	RS485	1	1	RS485	No	No	1	in	Yes	
Software Operating Mode Description:										
EUT is battery powered. EUT is set to transmit on a single channel; Low (2405 MHz), Mid (2440 MHz) and High (2470 MHz) respectively.										

Test Results

Bandwidth

LIMIT: The minimum 6 dB bandwidth shall be at least 500 kHz.
[15.247(a) (2)]

MEASUREMENTS / RESULTS

6dB Bandwidth

Date: 10-Nov-16 **Company:** Schechter Tech LLC DBA Temperature Alert **Work Order:** Q1522
Engineer: Yunus Faziloglu **EUT Desc:** Node Starwatch Connect **EUT Operating Voltage/Frequency:** 3.0V DC
Temp: 23.4°C **Humidity:** 25% **Pressure:** 1015mBar Battery
Frequency Range: 2405-2470 MHz **Measurement Type:** Conducted
Measurement Method: FCC KDB 558074 D01 DTS Meas Guidance v03r05 Section 8.1
Notes:

Frequency (MHz)	Reading (kHz)	6dB Bandwidth Limit (kHz)	Margin (kHz)	Result (Pass/Fail)
2405	1607	≥500	1107	Pass
2440	1610	≥500	1110	Pass
2470	1614	≥500	1114	Pass

Test Site: Chamber 2 bench **Attenuator** A2121
Analyzer: A2093 **Cable** 16021029

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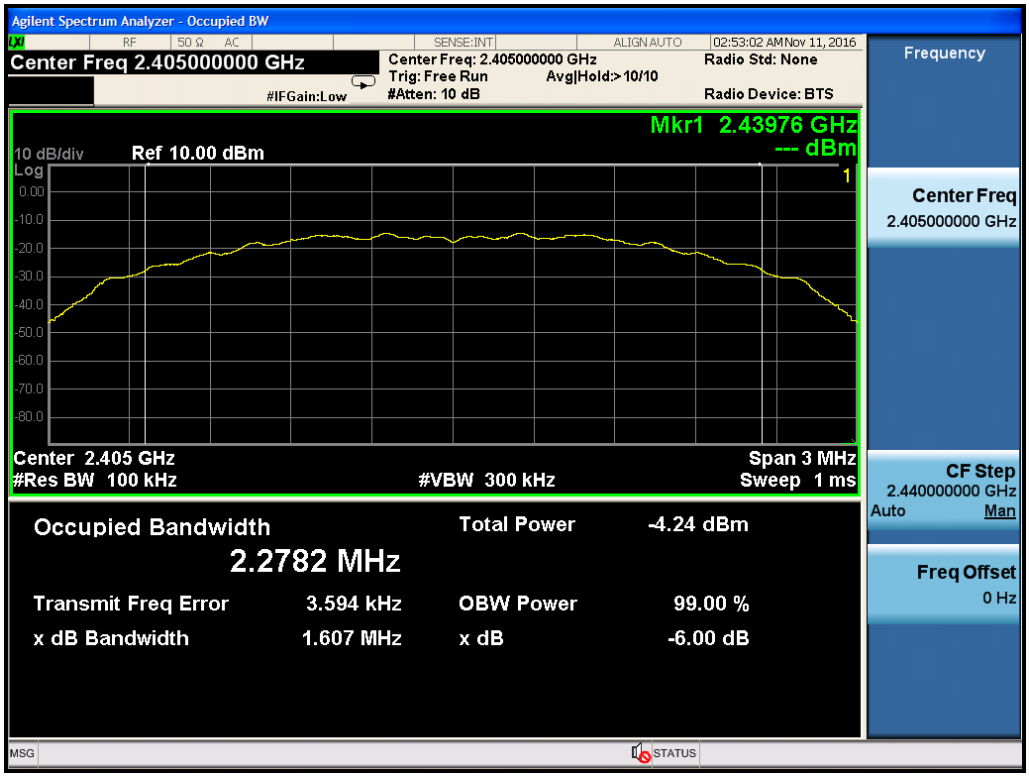
Rev. 10/30/2016

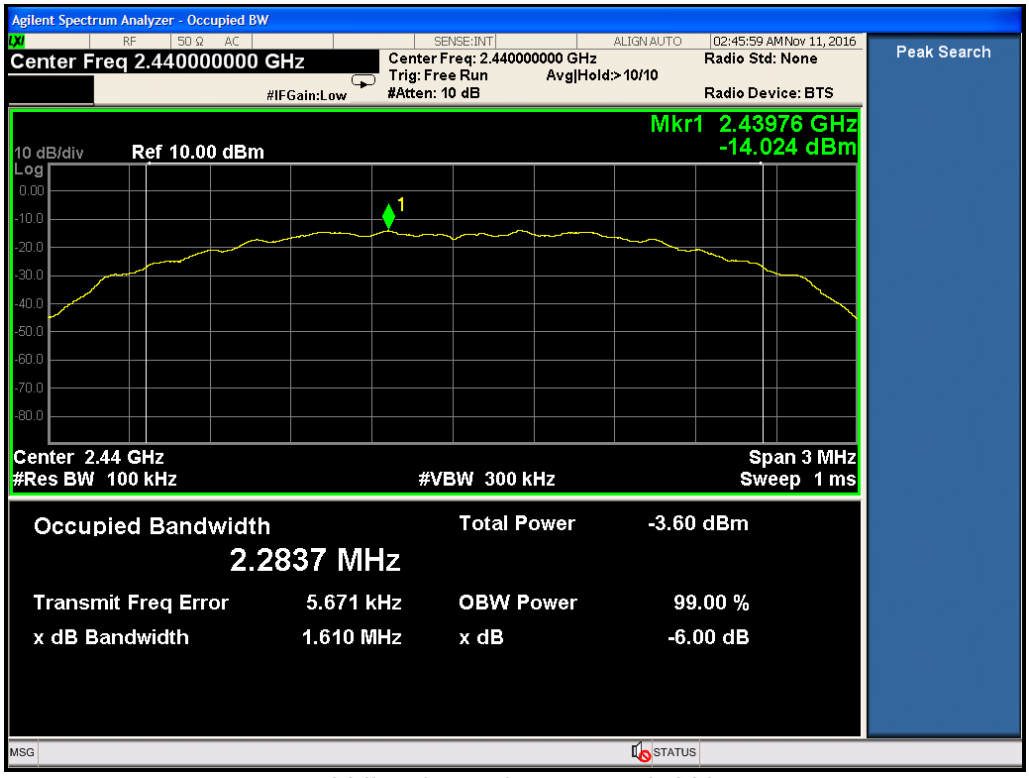
Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
MXE EMI Receiver	20Hz-26.5GHz	N9038A	Agilent	MY51210181	2093	I	8/9/2017	8/9/2016
Radiated Emissions Sites	**FCC Code**	**IC Code**	**VCCI Code**	**Range**		**Cat**	**Calibration Due**	**Calibrated on**
EMI Chamber 2	719150	2762A-7	A-0015	1-18GHz		I	4/29/2017	4/29/2015
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	2/10/2017	2/10/2016
Meteorological Meters		**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**	**Calibrated on**
Weather Clock (Pressure Only)		BA928	Oregon Scientific	C3166-1	831	I	4/28/2018	4/28/2016
TH A#2080		HTC-1	HDE		2080	II	4/5/2017	4/5/2016

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

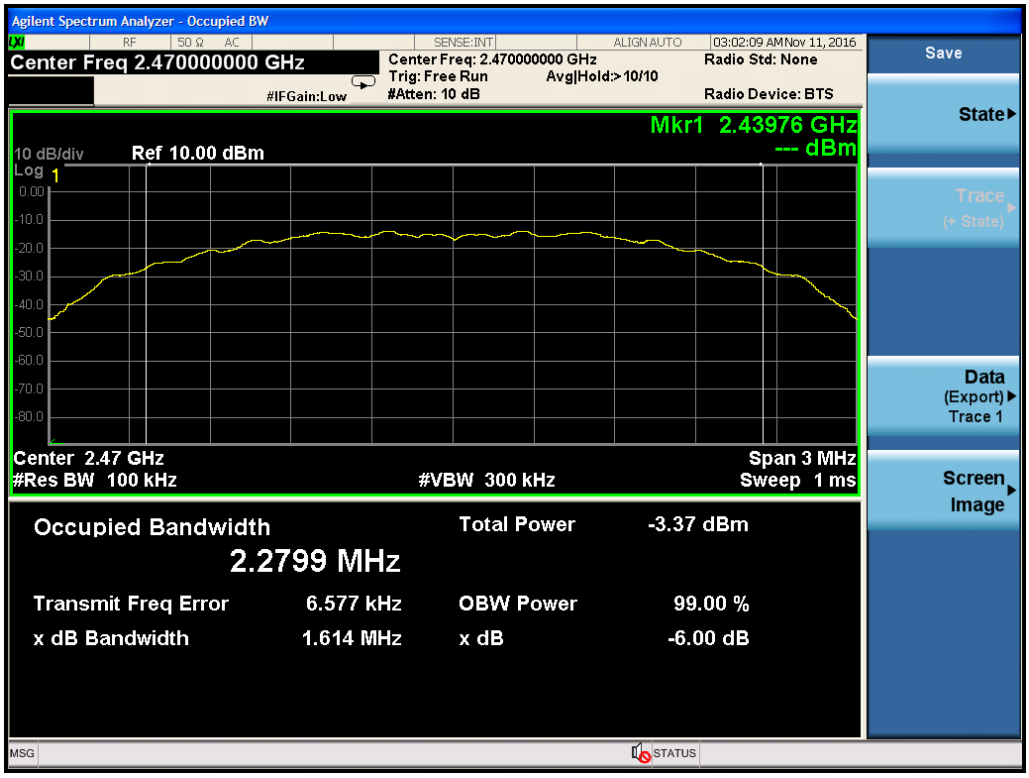
PLOTS



Low Channel DTS Bandwidth



Middle Channel DTS Bandwidth



High Channel DTS Bandwidth

Peak Power

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

MEASUREMENTS / RESULTS

Peak Output Power

Date: 10-Nov-16 **Company:** Schechter Tech LLC DBA Temperature Alert **Work Order:** Q1522
Engineer: Yunus Faziloglu **EUT Desc:** Node Starwatch Connect **EUT Operating Voltage/Frequency:** 3.0V DC
Temp: 23.4°C **Humidity:** 25% **Pressure:** 1015mBar Battery
Frequency Range: 2405-2470 MHz **Measurement Type:** Conducted
Measurement Method: FCC KDB 558074 D01 DTS Meas Guidance v03r05 Section 9.1.2
Notes:

Frequency (MHz)	Peak Reading (dBm)	Cable Loss (dB)	Attenuator Loss (dB)	Peak Output Power (dBm)	Limit (dBm)	Margin (dB)	Result (Pass/Fail)
2405.0	-11.48	0.4	29.44	18.36	30.0	-11.64	Pass
2440.0	-10.74	0.4	29.44	19.10	30.0	-10.90	Pass
2470.0	-10.69	0.4	29.44	19.15	30.0	-10.85	Pass

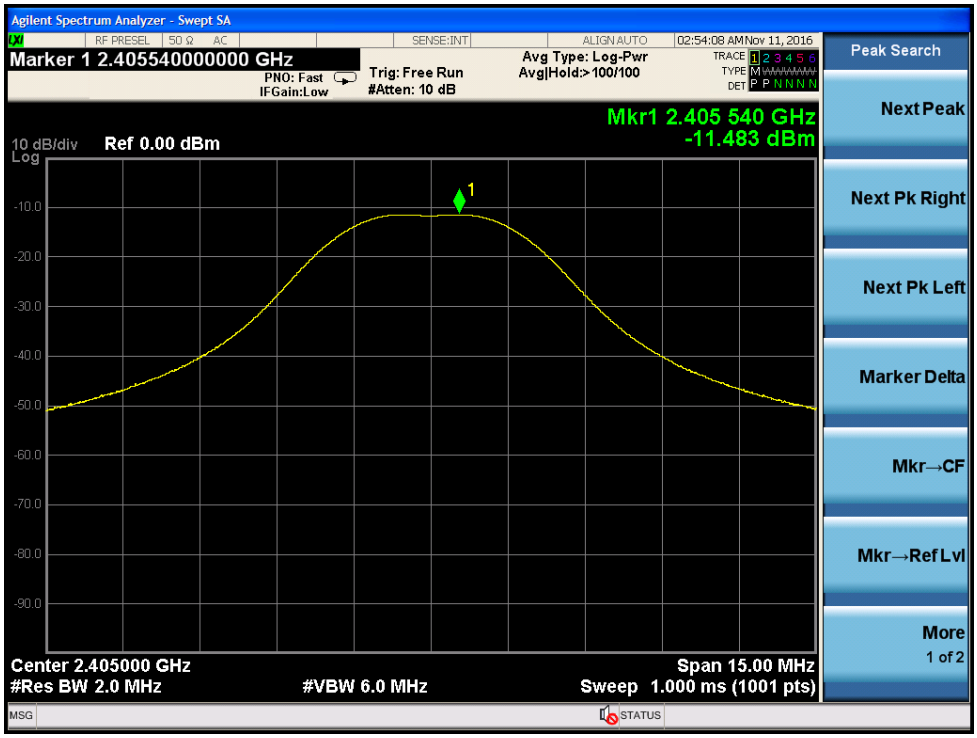
Test Site: Chamber 2 bench **Analyzer** A2093
Peak Output Power (dBm)= Peak Reading (dBm) + Cable Loss (dB) + Attenuator Loss (dB) **Attenuato** A2121 **Cable** 16021029

Rev. 10/30/2016

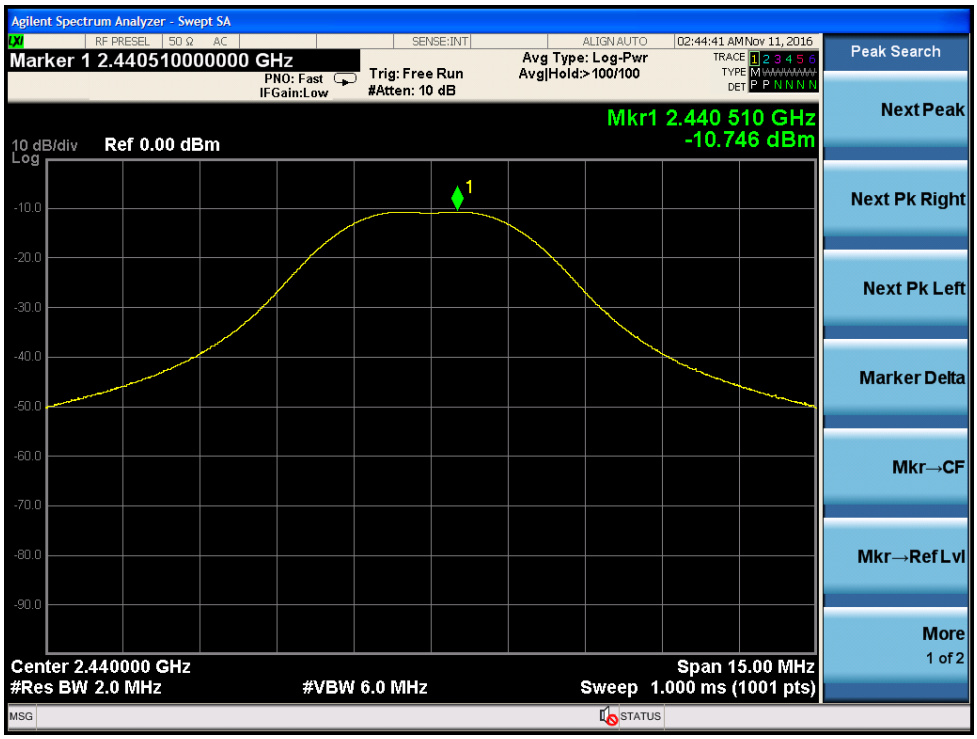
Spectrum Analyzers / Receivers /Preselectors	**Range**	**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**	**Calibrated on**
MXE EMI Receiver	20Hz-26.5GHz	N9038A	Agilent	MY51210181	2093	I	8/9/2017	8/9/2016
Radiated Emissions Sites	**FCC Code**	**IC Code**	**VCCI Code**	**Range**		**Cat**	**Calibration Due**	**Calibrated on**
EMI Chamber 2	719150	2762A-7	A-0015	1-18GHz		I	4/29/2017	4/29/2015
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	2/10/2017	2/10/2016
Meteorological Meters		**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**	**Calibrated on**
Weather Clock (Pressure Only)		BA928	Oregon Scientific	C3166-1	831	I	4/28/2018	4/28/2016
TH A#2080		HTC-1	HDE		2080	II	4/5/2017	4/5/2016

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

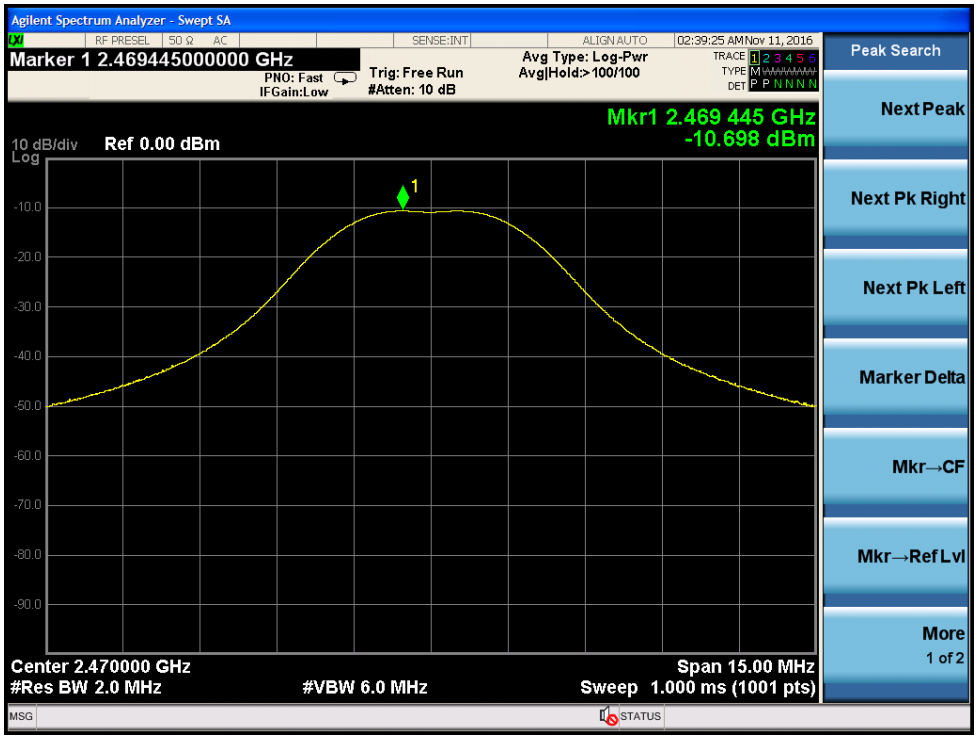
PLOTS



Low Channel Peak Output Power



Middle Channel Peak Output Power



High Channel Peak Output Power

Duty Cycle Correction Factor

Limits:

Unless otherwise specified, e.g., §§15.255(b), and 15.256(l)(5), when the radiated emission limits are expressed in terms of the average value of the emission, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value. The exact method of calculating the average field strength shall be submitted with any application for certification or shall be retained in the measurement data file for equipment subject to notification or verification.
[15.35(c)]

MEASUREMENTS / RESULTS

Duty Cycle Correction Factor

Date: 10-Nov-16 **Company:** Schechter Tech LLC DBA Temperature Alert **Work Order:** Q1522
Engineer: Yunus Faziloglu **EUT Desc:** Node Starwatch Connect **EUT Operating Voltage/Frequency:** 3.0V DC
Temp: 23.4°C **Humidity:** 25% **Pressure:** 1015mBar Battery
Frequency Range: 2402 MHz **Measurement Type:** Conducted Antenna Port

Notes: 3 pulses of 1.233ms each in 100ms window for a total ON Time of 3.7ms

Frequency (MHz)	On Time (millisecond)	Period (millisecond)	Duty Cycle Correction Factor (DCCF) DCCF = 20*log (ON TIME / 100millisecond)
2480.0	3.7	100.00	-28.6

Test Site: Chamber 2 bench **Analyzer:** A2093
Attenuator: A2121 **Cable:** 16021029

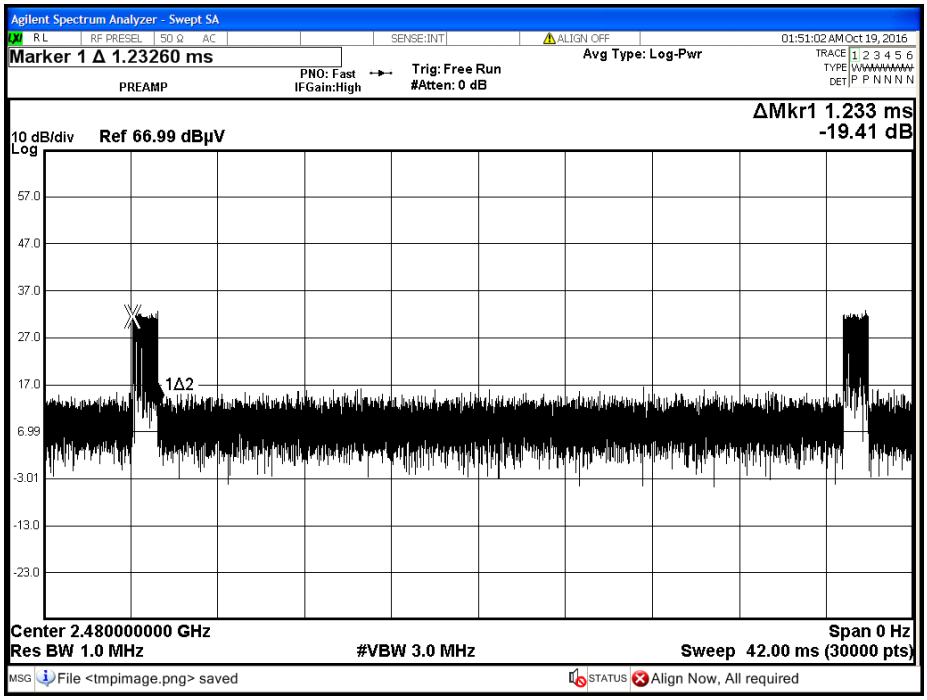
Note: a 20dB DCCF is used throughout this report

Rev. 10/30/2016

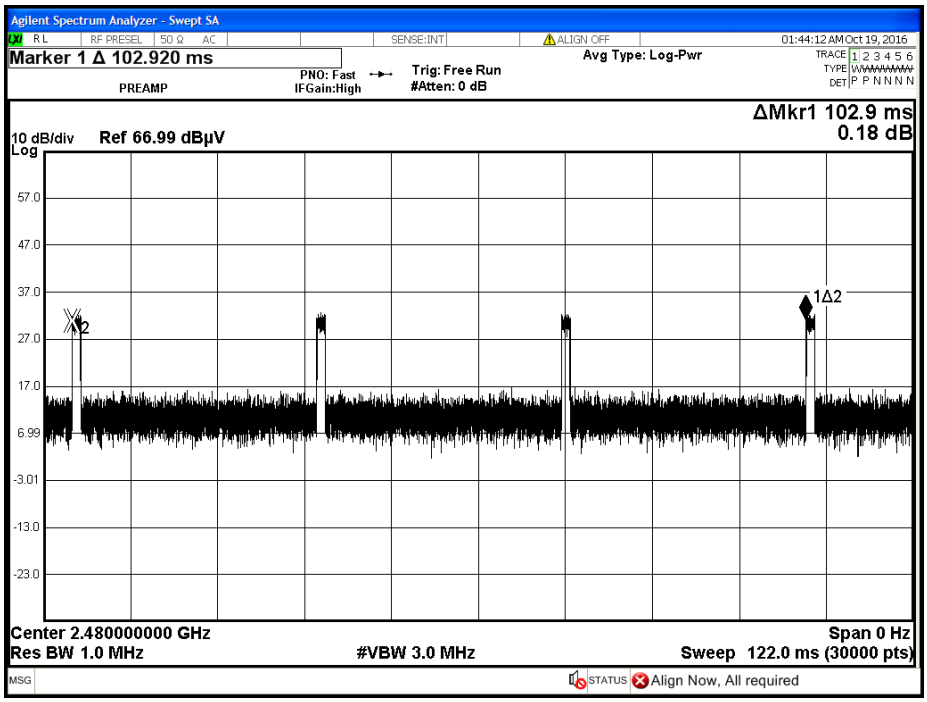
Spectrum Analyzers / Receivers /Preselectors	**Range**	**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**	**Calibrated on**
MXE EMI Receiver	20Hz-26.5GHz	N9038A	Agilent	MY51210181	2093	I	8/9/2017	8/9/2016
Radiated Emissions Sites	**FCC Code**	**IC Code**	**VCCI Code**	**Range**		**Cat**	**Calibration Due**	**Calibrated on**
EMI Chamber 2	719150	2762A-7	A-0015	1-18GHz		I	4/29/2017	4/29/2015
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	2/10/2017	2/10/2016
Meteorological Meters		**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**	**Calibrated on**
Weather Clock (Pressure Only)		BA928	Oregon Scientific	C3166-1	831	I	4/28/2018	4/28/2016
TH A#2080		HTC-1	HDE		2080	II	4/5/2017	4/5/2016

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

PLOTS



Individual Pulse



Transmission Period (100millisecond)

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

Rev. 1/7/2017

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	8/9/2017	8/9/2016
Antennas	**Range**	**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**	**Calibrated on**
Blue Horn	1-18Ghz	3117	ETS	157647	1861	I	2/8/2017	2/8/2015
Cables	**Range**		**Mfr**			**Cat**	**Calibration Due**	**Calibrated on**
Asset #2052	9kHz - 18GHz		Florida RF			II	3/2/2017	3/2/2016
Asset #2053	9kHz - 18GHz		Florida RF			II	10/1/3017	10/30/2016
Meteorological Meters		**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**	**Calibrated on**
Weather Clock (Pressure Only)		BA928	Oregon Scientific	C3166-1	831	I	4/28/2018	4/28/2016
TH A#2081		HTC-1	HDE		2081	II	4/5/2017	4/5/2016
Chambers and Stripline		**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**	**Calibrated on**
EMI Chamber 2		DRS2014X8LH	ETS	J1173 - 0002B	1686	II	See RFI Systems	See RFI Systems

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

Radiated Emissions Table

Date: 11-Jan-17 **Company:** Schechter Tech LLC DBA Temperature Alert **Work Order:** Q1522
Engineer: Yunus Faziloglu **EUT Desc:** Node Starwatch Connect **EUT Operating Voltage/Frequency:** 3.0V DC Battery
Temp: 22.9˚C **Humidity:** 25% **Pressure:** 1015mbar
Frequency Range: Bandedges **Measurement Distance:** 3 m
Notes: Low channel: 2405MHz, High channel: 2470MHz **EUT Max Freq:** 2470MHz
Antenna: WAN07RSP Power Setting:-5, All readings are noise floor
All 3 orientations of EUT were investigated and only the worst case recorded.

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 15.209 High Frequency - Peak			FCC 15.209 High Frequency - Average		
									Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)	Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)
V	2390.0	26.9	14.3	0.0	32.3	3.2	62.4	49.8	74.0	-11.6	Pass	54.0	-4.2	Pass
V	2483.5	27.2	14.7	0.0	32.4	3.3	62.9	50.4	74.0	-11.1	Pass	54.0	-3.6	Pass

Table Result: Pass by -3.6 dB ***Worst Freq:*** 2483.5 MHz

Test Site: EMI Chamber 2 **Cable 1:** Asset #2052 **Cable 2:** Asset #2053 **Cable 3:** ---
Analyzer: A2093 **Preamp:** none **Antenna:** Blue Horn **Preselector:** ---
CSsoft Radiated Emissions Calculator v 1.017.180 Copyright Curtis-Straus LLC 2000
Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor

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)]

Radiated emissions were maximized by rotating the device around 3 orthogonal planes (X, Y and Z) and worst case emissions observed in Z orientation. All results below are for the worst case orientation.

MEASUREMENTS / RESULTS

Radiated Emissions Table

Date: 11-Nov-16 **Company:** Schechter Tech LLC DBA Temperature Alert **Work Order:** Q1522
Engineer: Zac Johnson **EUT Desc:** Node Starwatch Connect **EUT Operating Voltage/Frequency:** 3.0V DC
Temp: 23.1˚C **Humidity:** 25% **Pressure:** 991mbar Battery
Frequency Range: 30-1000MHz **Measurement Distance:** 3 m
Notes: All 3 channels were investigaged; only the worst case recorded (Peak Readings) - Antenna: WAN07RSP Power Setting:-5 Z orientation (worst case) **EUT Max Freq:** 2470MHz

							---			FCC 15.209		
Antenna Polarization (H / V)	Frequency (MHz)	Reading (dBµV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Reading (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)	Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)
V	48.4	36.7	22.5	8.4	0.4	23.0	---	---	---	40.0	-17.0	Pass
H	50.4	31.9	22.5	7.8	0.4	17.6	---	---	---	40.0	-22.4	Pass
V	85.3	31.5	22.5	7.7	0.5	17.2	---	---	---	40.0	-22.8	Pass
V	95.0	33.5	22.5	9.0	0.5	20.5	---	---	---	43.5	-23.0	Pass
H	111.5	27.9	22.4	13.1	0.6	19.2	---	---	---	43.5	-24.3	Pass
H	146.0	47.0	22.4	12.9	0.8	38.3	---	---	---	43.5	-5.2	Pass
V	150.3	31.3	22.4	12.6	0.8	22.3	---	---	---	43.5	-21.2	Pass
V	401.5	28.1	22.4	15.7	1.4	22.8	---	---	---	46.0	-23.2	Pass
H	423.8	30.0	22.4	16.4	1.5	25.5	---	---	---	46.0	-20.5	Pass
H	784.7	27.4	22.5	21.0	1.8	27.7	---	---	---	46.0	-18.3	Pass

Table Result: Pass by -5.2 dB ***Worst Freq:*** 146.0 MHz

Test Site: EMI Chamber 2 **Cable 1:** Asset #2052 **Cable 2:** Asset #2053 **Cable 3:** ---
Analyzer: MXE Receiver **Preamp:** Blue **Antenna:** Red-White **Preselector:** ---
CSsoft Radiated Emissions Calculator v 1.017.177 Copyright Curtis-Straus LLC 2000
Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor

Rev. 11/2/2016

Spectrum Analyzers / Receivers /Preselectors	**Range**	**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**	**Calibrated on**
MXE EMI Receiver	20Hz-26.5GHz	N9038A	Agilent	MY51210181	2093	I	8/9/2017	8/9/2016
Radiated Emissions Sites	**FCC Code**	**IC Code**	**VCCI Code**	**Range**		**Cat**	**Calibration Due**	**Calibrated on**
EMI Chamber 2	719150	2762A-7	A-0015	1-18GHz		I	4/29/2017	4/29/2015
Preamps /Couplers Attenuators / Filters	**Range**	**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**	**Calibrated on**
Blue	0.009-2000MHz	ZFL-1000-LN	CS	N/A	759	II	5/13/2017	5/13/2016
Antennas	**Range**	**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**	**Calibrated on**
Red-White Bilog	30-2000MHz	JB1	Sunol	A091604-1	1105	I	8/12/2017	8/12/2015
Meteorological Meters		**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**	**Calibrated on**
Weather Clock (Pressure Only)		BA928	Oregon Scientific	C3166-1	831	I	4/28/2018	4/28/2016
TH A#2081		HTC-1	HDE		2081	II	4/5/2017	4/5/2016
Cables	**Range**		**Mfr**			**Cat**	**Calibration Due**	**Calibrated on**
Asset #2052	9kHz - 18GHz		Florida RF			II	3/2/2017	3/2/2016
Asset #2053	9kHz - 18GHz		Florida RF			II	10/1/3017	10/30/2016

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

Radiated Emissions Table - Spurious

Date: 11-Nov-16 **Company:** Schechter Tech LLC DBA Temperature Alert **Work Order:** Q1522
Engineer: Yunus Faziloglu **EUT Desc:** Node Starwatch Connect **EUT Operating Voltage/Frequency:** 3.0V DC
Temp: 23.1˚C **Humidity:** 25% **Pressure:** 991mbar Battery
Frequency Range: 1-8GHz Spurious **Measurement Distance:** 3m
Notes: Antenna: WAN07RSP Power Setting:-5 **EUT Max Freq:** 2470MHz
All readings are noise floor.

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 15.209 High Frequency - Peak			FCC 15.209 High Frequency - Average		
									Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)	Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)
V	1202.0	23.9	9.1	0.0	28.9	2.2	55.0	40.2	74.0	-19.0	Pass	54.0	-13.8	Pass
H	1905.0	22.0	8.0	0.0	31.2	2.8	56.0	42.0	74.0	-18.0	Pass	54.0	-12.0	Pass
V	2220.0	18.7	4.8	0.0	32.2	3.0	53.9	40.0	74.0	-20.1	Pass	54.0	-14.0	Pass
H	3090.0	22.0	7.4	0.0	33.1	3.5	58.6	44.0	74.0	-15.4	Pass	54.0	-10.0	Pass
V	4420.0	14.5	0.9	0.0	34.1	4.3	52.9	39.3	74.0	-21.1	Pass	54.0	-14.7	Pass
H	5160.0	13.8	-0.3	0.0	34.6	4.7	53.1	39.0	74.0	-20.9	Pass	54.0	-15.0	Pass

Table Result: Pass by -12.0 dB ***Worst Freq:*** 1905.0 MHz

Test Site: EMI Chamber 2 **Cable 1:** Asset #2052 **Cable 2:** Asset #2053 **Cable 3:** ---
Analyzer: A2093 **Preamp:** none **Antenna:** Blue Horn **Preselector:** ---
CSsoft Radiated Emissions Calculator v 1.017.177
Copyright Curtis-Straus LLC 2000
Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor

Radiated Emissions Table - HARMONICS

Date: 11-Nov-16 **Company:** Schechter Tech LLC DBA Temperature Alert **Work Order:** Q1522
Engineer: Yunus Faziloglu **EUT Desc:** Node Starwatch Connect **EUT Operating Voltage/Frequency:** 3.0V DC
Temp: 23.1C **Humidity:** 25% **Pressure:** 991mbar Battery
Frequency Range: 1-8GHz Spurious **Measurement Distance:** 3m
Notes: Antenna: WAN07RSP, Power Setting:-5 **EUT Max Freq:** 2470MHz
DCCF = -20dB
TX on Low Channel

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 15.209 High Frequency - Peak			FCC 15.209 High Frequency - Average		
									Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)	Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)
Low Ch				---	---	---	---	---	---	---	---	---	---	---
H - X	4815.0	19.2	-0.8	0.0	34.4	4.7	58.3	38.3	74.0	-15.7	Pass	54.0	-15.7	Pass
V - X	4815.0	22.4	2.4	0.0	34.4	4.7	61.5	41.5	74.0	-12.5	Pass	54.0	-12.5	Pass
H - Z	7215.0	24.9	4.9	0.0	35.9	6.2	67.0	47.0	74.0	-7.0	Pass	54.0	-7.0	Pass
V - Z	7215.0	24.5	4.5	0.0	35.9	6.2	66.6	46.6	74.0	-7.4	Pass	54.0	-7.4	Pass

Table Result: Pass by -7.0 dB ***Worst Freq:*** 7215.0 MHz

Test Site: EMI Chamber 2 **Cable 1:** Asset #2052 **Cable 2:** Asset #2053 **Cable 3:** ---
Analyzer: A2093 **Preamp:** none **Antenna:** Blue Horn **Preselector:** ---
CSsoft Radiated Emissions Calculator v 1.017.177
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Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor

Radiated Emissions Table - HARMONICS

Date: 11-Nov-16 **Company:** Schechter Tech LLC DBA Temperature Alert **Work Order:** Q1522
Engineer: Yunus Faziloglu **EUT Desc:** Node Starwatch Connect **EUT Operating Voltage/Frequency:** 3.0V DC
Temp: 23.1C **Humidity:** 25% **Pressure:** 991mbar Battery
Frequency Range: 1-8GHz Spurious **Measurement Distance:** 3m
Notes: Antenna: WAN07RSP, Power Setting:-5 **EUT Max Freq:** 2470MHz
DCCF = -20dB
TX on Mid Channel

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 15.209 High Frequency - Peak			FCC 15.209 High Frequency - Average		
									Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)	Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)
H - X	4880.0	18.3	-1.7	0.0	34.4	4.5	57.2	37.2	74.0	-16.8	Pass	54.0	-16.8	Pass
V - X	4880.0	21.6	1.6	0.0	34.4	4.5	60.5	40.5	74.0	-13.5	Pass	54.0	-13.5	Pass
H - Z	7320.0	26.7	6.7	0.0	35.9	6.2	68.8	48.8	74.0	-5.2	Pass	54.0	-5.2	Pass
V - Z	7320.0	29.2	9.2	0.0	35.9	6.2	71.3	51.3	74.0	-2.7	Pass	54.0	-2.7	Pass

Table Result: Pass by -2.7 dB ***Worst Freq:*** 7320.0 MHz

Test Site: EMI Chamber 2 **Cable 1:** Asset #2052 **Cable 2:** Asset #2053 **Cable 3:** ---
Analyzer: A2093 **Preamp:** none **Antenna:** Blue Horn **Preselector:** ---
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Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor

Radiated Emissions Table - HARMONICS

Date: 11-Nov-16 **Company:** Schechter Tech LLC DBA Temperature Alert **Work Order:** Q1522
Engineer: Yunus Faziloglu **EUT Desc:** Node Starwatch Connect **EUT Operating Voltage/Frequency:** 3.0V DC
Temp: 23.1C **Humidity:** 25% **Pressure:** 991mbar Battery
Frequency Range: 1-8GHz Spurious **Measurement Distance:** 3m
Notes: Antenna: WAN07RSP, Power Setting:-5 **EUT Max Freq:** 2470MHz
DCCF = -20dB
TX on High Channel

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 15.209 High Frequency - Peak			FCC 15.209 High Frequency - Average		
									Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)	Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)
H - X	4940.0	19.2	-0.8	0.0	34.4	4.5	58.1	38.1	74.0	-15.9	Pass	54.0	-15.9	Pass
V - X	4940.0	22.0	2.0	0.0	34.4	4.5	60.9	40.9	74.0	-13.1	Pass	54.0	-13.1	Pass
H - Z	7410.0	30.1	10.1	0.0	36.0	6.2	72.3	52.3	74.0	-1.7	Pass	54.0	-1.7	Pass
V - Z	7410.0	29.5	9.5	0.0	36.0	6.2	71.7	51.7	74.0	-2.3	Pass	54.0	-2.3	Pass

Table Result: Pass by -1.7 dB ***Worst Freq:*** 7410.0 MHz

Test Site: EMI Chamber 2 **Cable 1:** Asset #2052 **Cable 2:** Asset #2053 **Cable 3:** ---
Analyzer: A2093 **Preamp:** none **Antenna:** Blue Horn **Preselector:** ---
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Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor

Radiated Emissions Table - Spurious

Date: 11-Nov-16 **Company:** Schechter Tech LLC DBA Temperature Alert **Work Order:** Q1522
Engineer: Yunus Faziloglu **EUT Desc:** Node Starwatch Connect **EUT Operating Voltage/Frequency:** 3.0V DC
Temp: 23.1C **Humidity:** 25% **Pressure:** 991mbar Battery
Frequency Range: 8-18GHz Spurious **Measurement Distance:** 1m
Notes: Antenna: WAN07RSP Power Setting:-5 **EUT Max Freq:** 2470MHz
All readings are noise floor.

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 15.209 High Frequency - Peak			FCC 15.209 High Frequency - Average		
									Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)	Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)
V	8100.0	13.4	-0.4	0.0	36.1	6.1	55.6	41.8	83.5	-27.9	Pass	63.5	-21.7	Pass
H	9580.0	14.7	0.4	0.0	37.2	6.4	58.3	44.0	83.5	-25.2	Pass	63.5	-19.5	Pass
H	11080.0	15.8	1.7	0.0	38.6	7.1	61.5	47.4	83.5	-22.0	Pass	63.5	-16.1	Pass
V	11800.0	15.8	2.1	0.0	39.1	7.4	62.3	48.6	83.5	-21.2	Pass	63.5	-14.9	Pass
V	15200.0	17.1	3.3	0.0	40.2	8.3	65.6	51.8	83.5	-17.9	Pass	63.5	-11.7	Pass
H	17120.0	18.3	4.1	0.0	41.7	9.1	69.1	54.9	83.5	-14.4	Pass	63.5	-8.6	Pass

Table Result: Pass by -8.6 dB ***Worst Freq:*** 17120.0 MHz

Test Site: EMI Chamber 2 **Cable 1:** Asset #2052 **Cable 2:** Asset #2053 **Cable 3:** ---
Analyzer: A2093 **Preamp:** none **Antenna:** Blue Horn **Preselector:** ---
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Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor

Radiated Emissions Table - HARMONICS

Date: 11-Nov-16 **Company:** Schechter Tech LLC DBA Temperature Alert **Work Order:** Q1522
Engineer: Yunus Faziloglu **EUT Desc:** Node Starwatch Connect **EUT Operating Voltage/Frequency:** 3.0V DC
Temp: 23.1C **Humidity:** 25% **Pressure:** 991mbar Battery
Frequency Range: 8-18GHz Harmonics **Measurement Distance:** 1m
Notes: Antenna: WAN07RSP, Power Setting:-5 **EUT Max Freq:** 2470MHz
DCCF = -20dB

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 15.209 High Frequency - Peak			FCC 15.209 High Frequency - Average		
									Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)	Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)

All 3 channels were investigated / No harmonic emissions found in this range

Table Result: --- by --- dB ***Worst Freq:*** --- MHz

Test Site: EMI Chamber 2 **Cable 1:** Asset #2052 **Cable 2:** Asset #2053 **Cable 3:** ---
Analyzer: A2093 **Preamp:** none **Antenna:** Blue Horn **Preselector:** ---
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Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor

Rev. 11/2/2016

Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Gold	100Hz-26.5 GHz	E4407B	Agilent	MY45113816	1284	I	1/13/2017	1/13/2016
Radiated Emissions Sites	**FCC Code**	**IC Code**	**VCCI Code**	**Range**		**Cat**	**Calibration Due**	**Calibrated on**
EMI Chamber 2	719150	2762A-7	A-0015	1-18GHz		I	4/29/2017	4/29/2015
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	9/16/2017	9/16/2016
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		**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**	**Calibrated on**
Weather Clock (Pressure Only)		BA928	Oregon Scientific	C3166-1	831	I	4/28/2018	4/28/2016
TH A#2081		HTC-1	HDE		2081	II	4/5/2017	4/5/2016
Cables	**Range**		**Mfr**			**Cat**	**Calibration Due**	**Calibrated on**
REMI-High-06	1 - 26.5GHz	TRU-21B0707-120	TRU			II	8/14/2017	8/14/2016

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

No spurious or harmonic emissions were observed in 18GHz to 25GHz range

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 CISPR	 5.6dB 4.6dB	 N/A 5.2dB (Ucispr)
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 CISPR	 3.9dB 3.6dB	 N/A 3.6dB (Ucispr)
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," "BVCPS", "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 were 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.
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