Test Report

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

Report No	ER3478-1
Client	Signal Fire Telemetry Josh Schadel
Address	43 Broad St, Suite A-403 Hudson, MA 01749
Phone	978-212-2869
Items tested	0129 500mW Radio
FCC ID	W8V-SFTS500
IC	8373A-SFTS500
FRN	0018614347
Equipment Type	Part 15 Spread Spectrum Transmitter
Equipment Code	DSS
FCC/IC Rule Parts	CFR Title 47 FCC 15.247, ISED Canada RSS-247 Issue 2
Test Dates	December 13 thru 20, 2017
Results	As detailed within this report
Prepared by	Zachary Johnson – EMC Engineer
Authorized by	Jason Haley – Sr. EMC Engineer
Issue Date	1/29/2018
Conditions of Issue	This Test Report is issued subject to the conditions stated in the '*Conditions of Testing*' section on page 33 of this report.

Contents

Form Final Report REV 7-20-07 (DW)

Summary

This test report supports an application for certification of a transmitter operating pursuant to: CFR Title 47 FCC 15.247, ISED Canada RSS-247 Issue 2

The 0129 500mW Radio is a frequency hopping transmitter that operates in the frequency range of 905-925MHz. It has two available external SMA antennas noted in the report as white antenna and black antenna with 5 dBi peak gain and 5.8dBi peak gain, respectively. It is powered by 3.6V DC Battery. Details on the two antennas are below:

Black antenna: San Jose Technology, ISM Antenna, Un-detachable Design, Model: EEH-915
White antenna: Signal Fire Telemetry, Outdoor 915 MHz Antenna, Model: SFTS 9-4

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

Release Control Record

Issue No.	Reason for change	Date Issued
1	Original Release	January 29, 2018

Test Methodology

All the testing was performed according to the following rules/procedures/documents;
CFR Title 47 FCC 15.247, ISED Canada RSS-247 Issue 2, RSS-Gen Issue 4 and ANSI C63.10-2013.

Radiated emissions were maximized around 3 orthogonal planes. EUT antenna is integral and therefore could not be maximized separately.

Conducted emissions testing at the antenna port was performed.

AC mains conducted emissions testing was not performed since the device is battery powered only.

3 channels were tested as follows:
Low channel = 905 MHz
Middle channel = 915 MHz
High channel = 925 MHz

When hopping, the product was configured for the transmission to be either in the range of 905-914.8MHz (Low Band), or 915-924.8MHz (High Band) respectively.

Following bandwidths were used during radiated spurious emissions testing.

Frequency	RBW	VBW
30-1000MHz	120kHz	1MHz
1-10GHz	1MHz	3MHz

Product Tested - Configuration Documentation

EUT Configuration			
Work Order:	R3478		
Company:	Signal Fire Telemetry		
Company Address:	43 Broad St, Suite A-403		
	Hudson, MA, 01749		
Contact:	Josh Schadel		
	MN	**PN**	**SN**
EUT:	0129 500mW Radio	--	Sample 1
EUT Description:	SignalFire 500mW Radio Module		
EUT Max Frequency:	925 MHz		
EUT Min Frequency:	905 MHz		

Port Label	Port Type	# ports	# populated	cable type	shielded	ferrites	length (m)	in/out	under test	comment
~								in	yes	

Software Operating Mode Description:
Tx test firmware
Performance Criteria:
Emissions only

Clock Frequencies	
frequencies (MHz)	925, 915, 905

Statement of Conformity

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.
	4		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			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	The antenna for this device is internal PCB chip antenna with 2dBi gain.
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	The unit complies with the requirements of 15.207
			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.

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Test Results

20dB Bandwidth

REQUIREMENT

15.247(a)(1)(i): The maximum allowed 20dB bandwidth of the hopping channel is 500kHz
RSS-247 Issue 2 Section 5.1: The maximum 20 dB bandwidth of the hopping channel shall be 500 kHz.

MEASUREMENTS / RESULTS

20dB Bandwidth

Date: 12/13/2017 **Company:** Signal Fire Telemetry **Work Order:** R3478
Engineer: Zac Johnson **EUT:** 0129 500mW Radio **Operating Voltage/Frequency:** 3.6V DC
Temp: 20.8°C **Humidity:** 30% **Pressure:** 983mBar

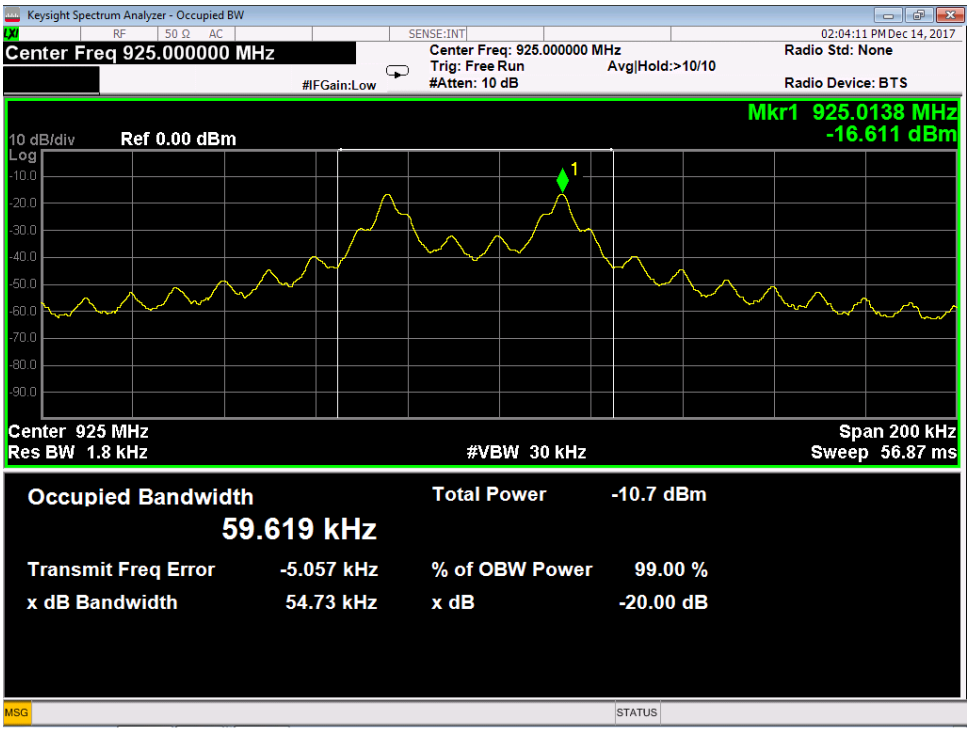
Frequency Range: 905-925 MHz **Measurement Type:** Conducted
Measurement Method: FCC KDB 558074 D01 DTS Meas Guidance V04

Notes:

Frequency (MHz)	Reading (kHz)	20dB Bandwidth Limit (kHz)	Margin (kHz)	Result (Pass/Fail)
905	54.6	≥500	-445	Pass
915	54.7	≥500	-445	Pass
925	54.7	≥500	-445	Pass

Test Site: EMC-3 **Cable:** 2289 Cbl **Attenuator:** 2107 Pad
Analyzer: 118472 SA

PLOTS



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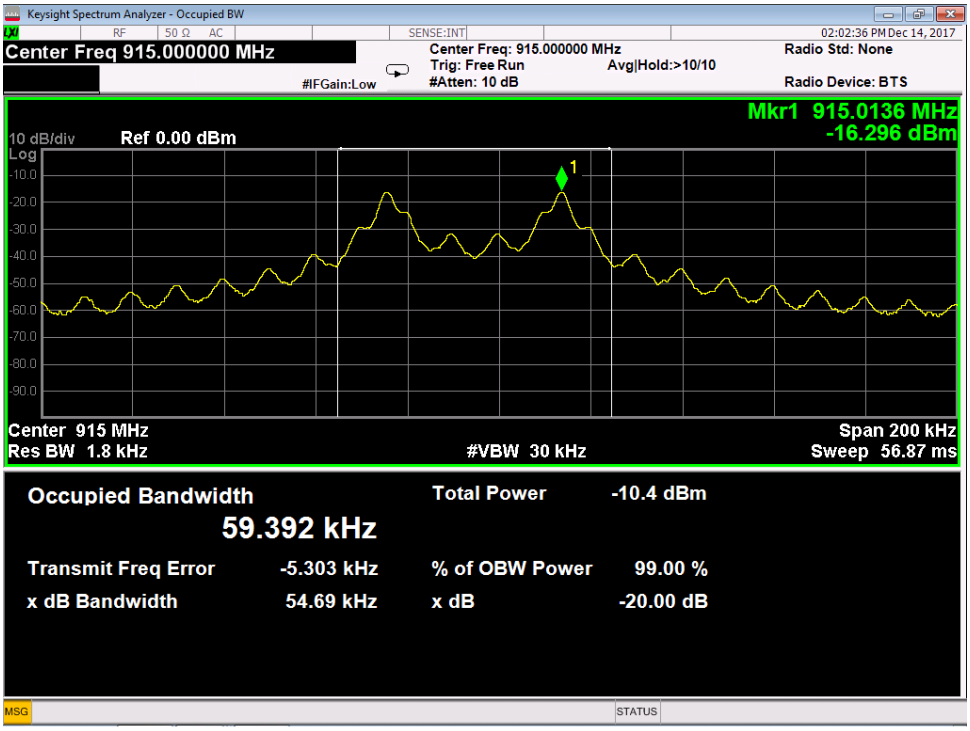
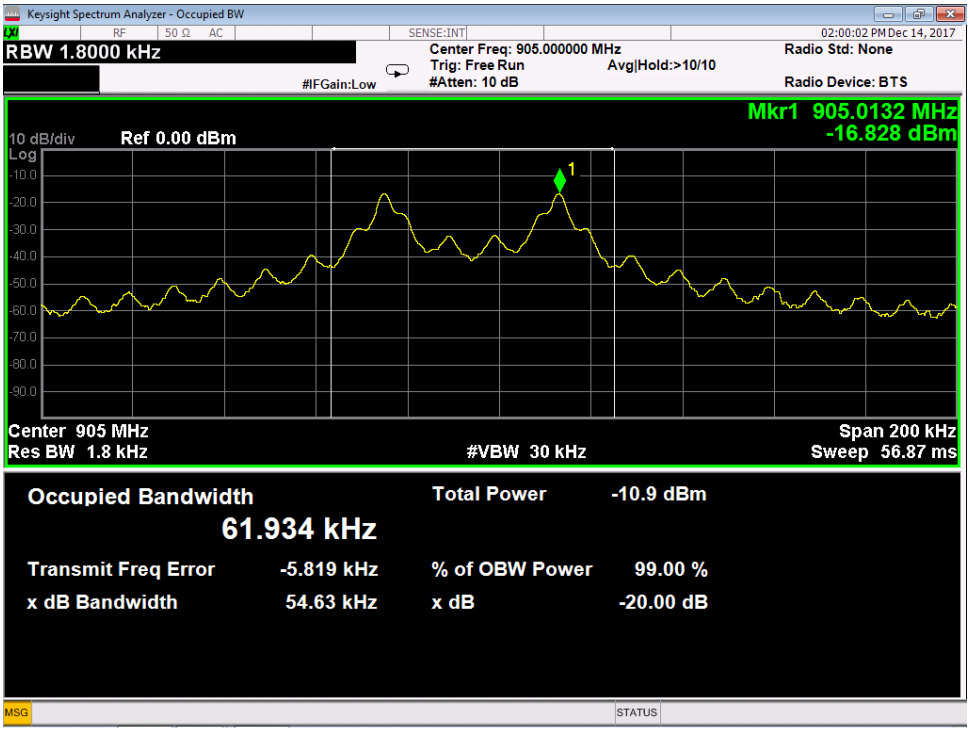
925MHz High Channel



915MHz Mid Channel



905MHz Low Channel

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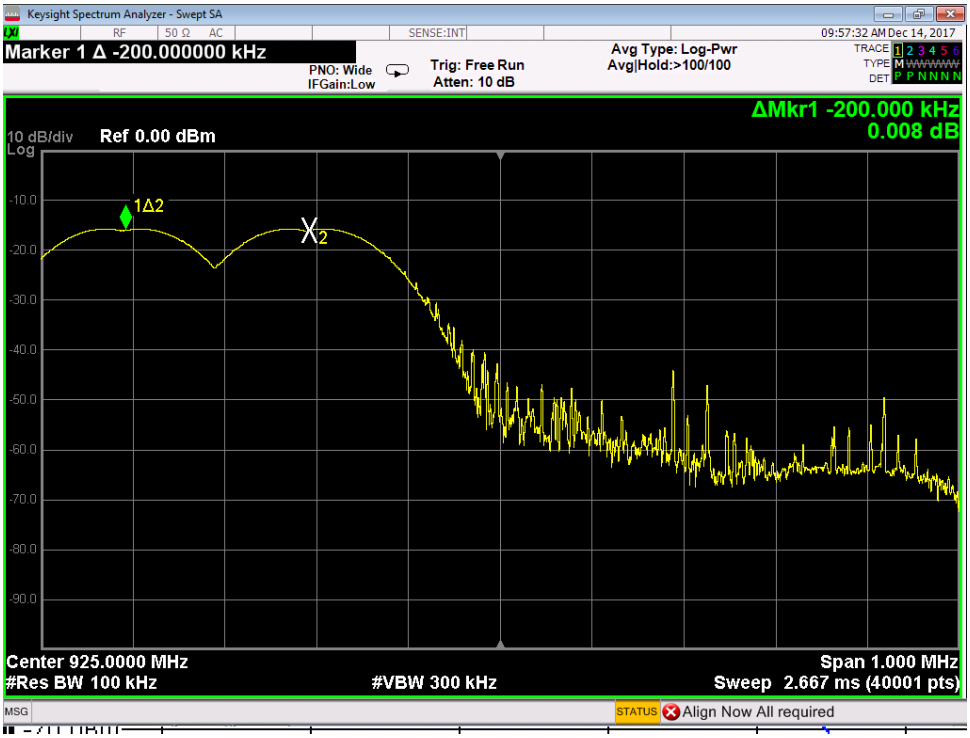
Channel Separation

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20dB bandwidth of the hopping channel, whichever is greater. [15.247 (a) (1)]

MEASUREMENTS / RESULTS

Channels are spaced by 200kHz as seen in the following plots. This is higher than both 25kHz and the 20dB bandwidth of the product.

Plots



High Band

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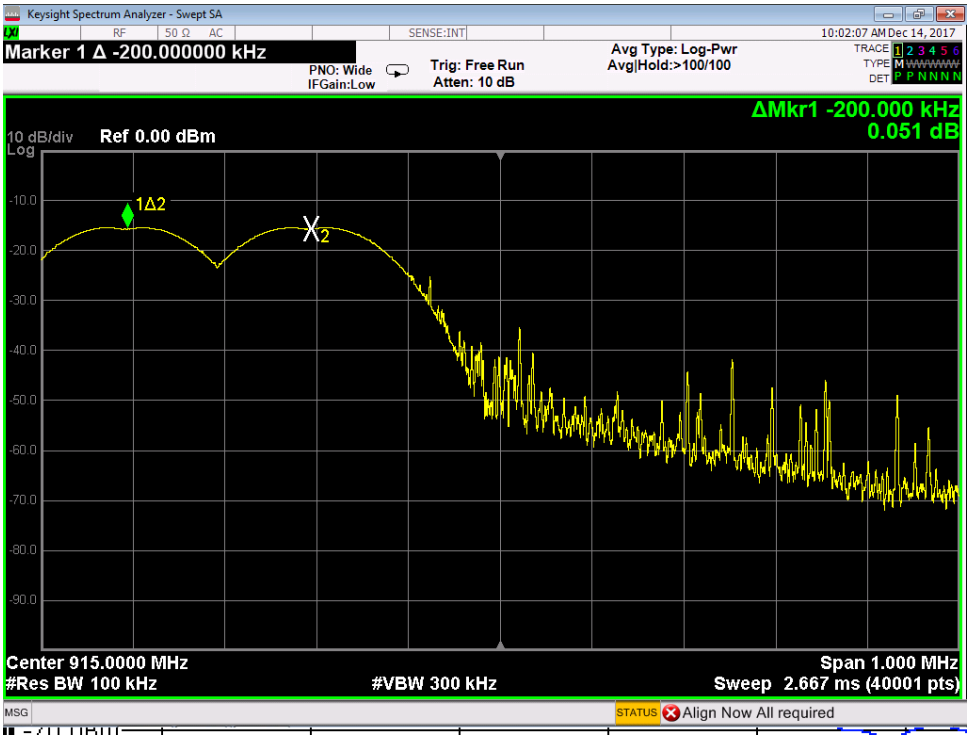
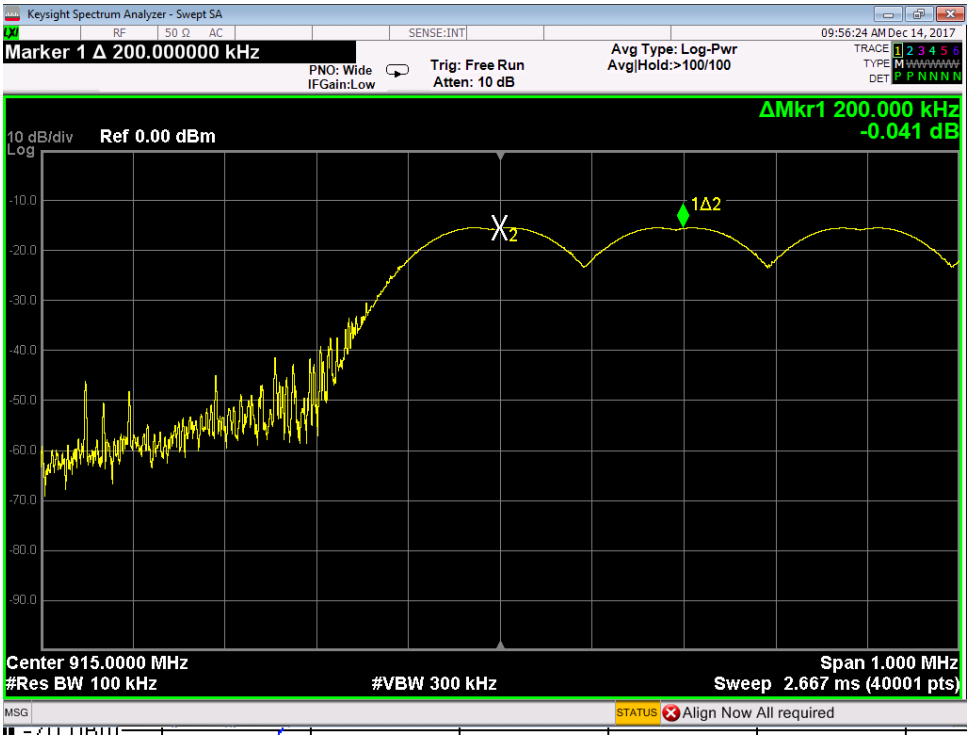


Mid Band I



Mid Band II

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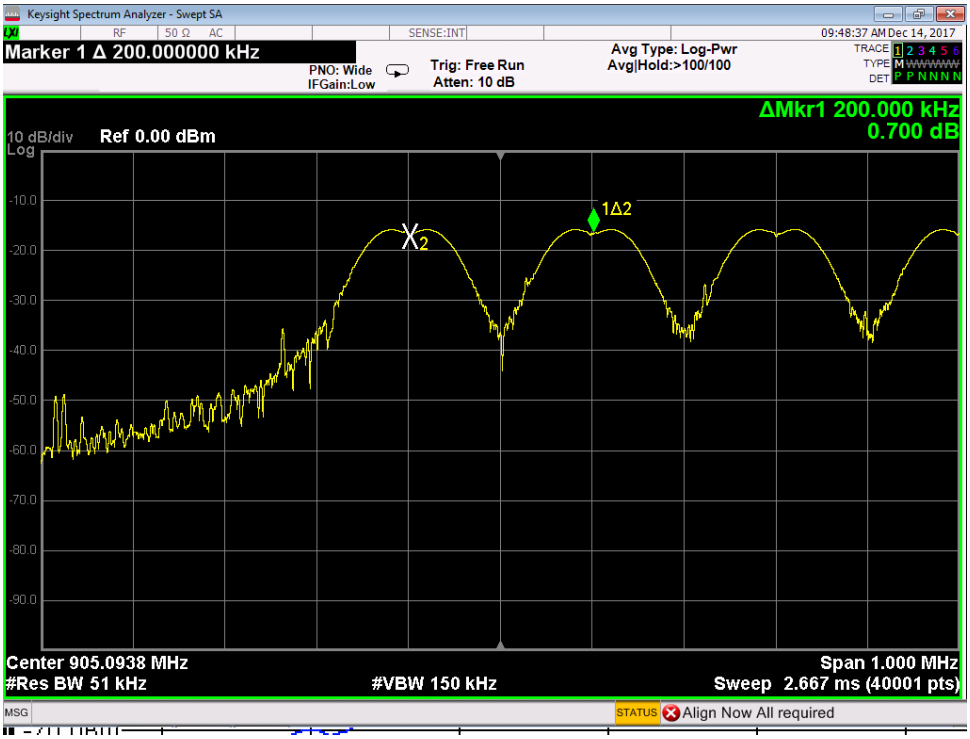

Keysight Spectrum Analyzer - Swept SA
RF 50 Ω AC
SENSE:INT
09:48:37 AM Dec 14, 2017
Marker 1 Δ 200.000000 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
Atten: 10 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
TRACE 1 2 3 4 5 6
TYPE M WWWWW
DET P P N N N N
ΔMkr1 200.000 kHz
0.700 dB
10 dB/div
Log
Ref 0.00 dBm
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-90.0
1Δ2
X2
Center 905.0938 MHz
#Res BW 51 kHz
#VBW 150 kHz
Span 1.000 MHz
Sweep 2.667 ms (40001 pts)
MSG
STATUS
Align Now All required

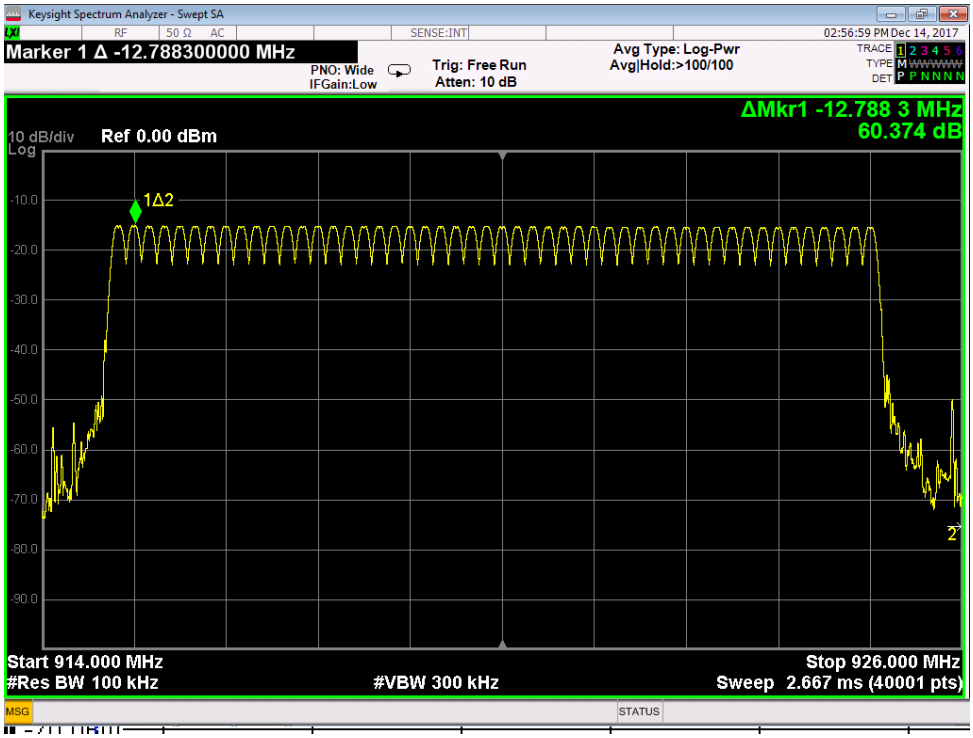
Low Band

Number of Channels

For frequency hopping systems operating in the 902-928MHz band: if the 20dB bandwidth of the hopping channel is less than 250kHz, the system shall use at least 50 hopping frequencies [15.247 (a) (1) (i)]

MEASUREMENTS / RESULTS

PLOTS



50 Channels – High Band

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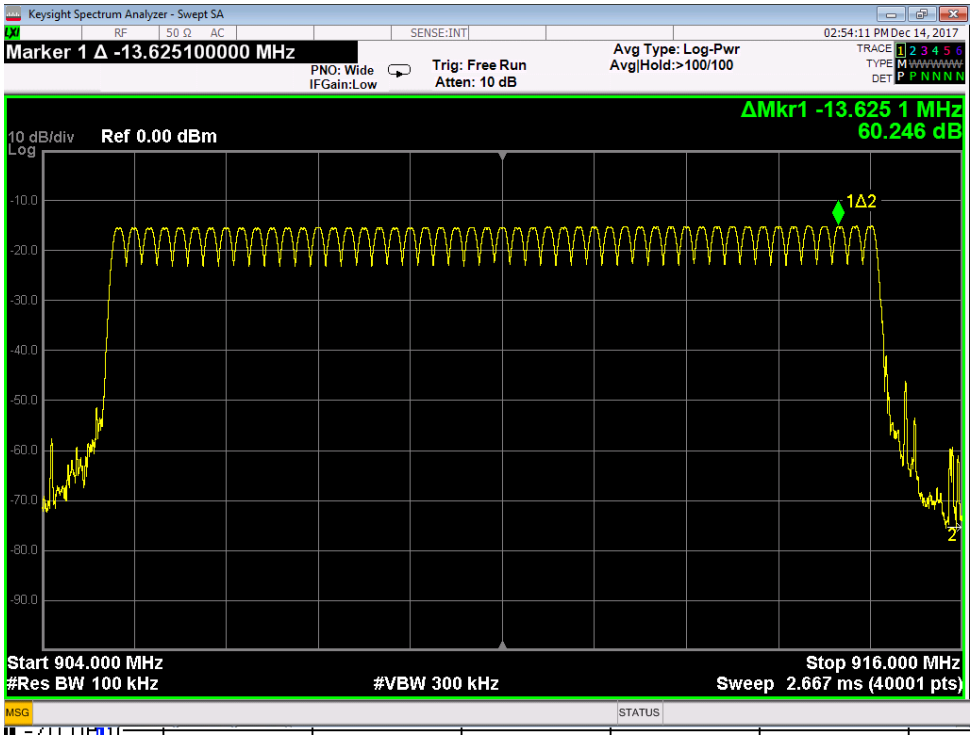


50 Channels – Low Band

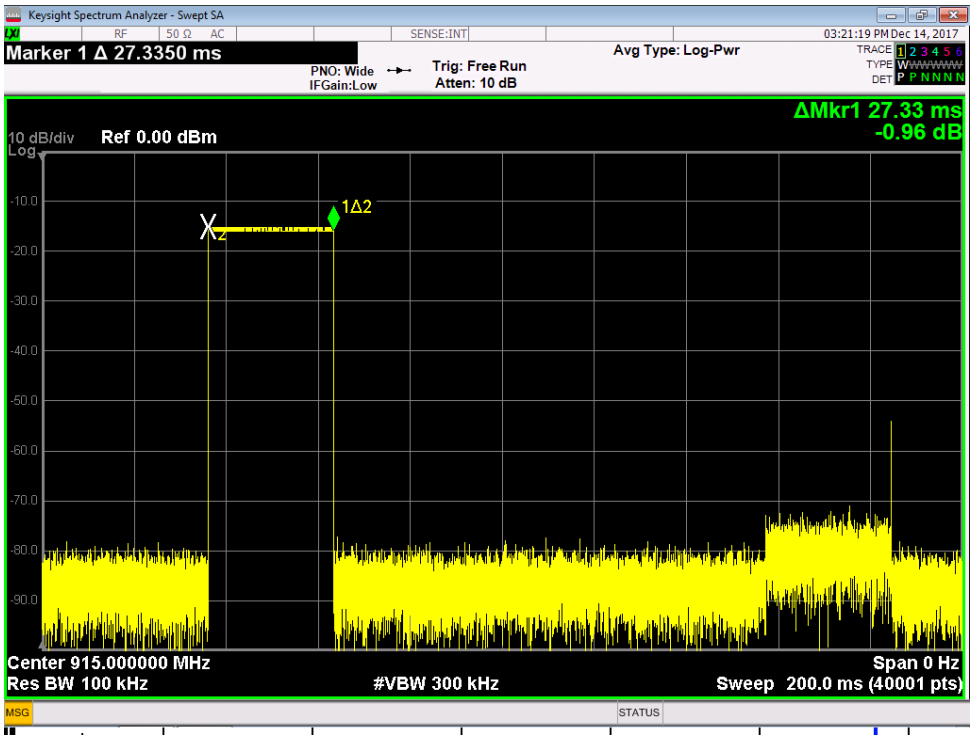
Dwell Time

For frequency hopping systems operating in the 902-928MHz band: if the 20dB bandwidth of the hopping channel is less than 250 kHz …the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period;

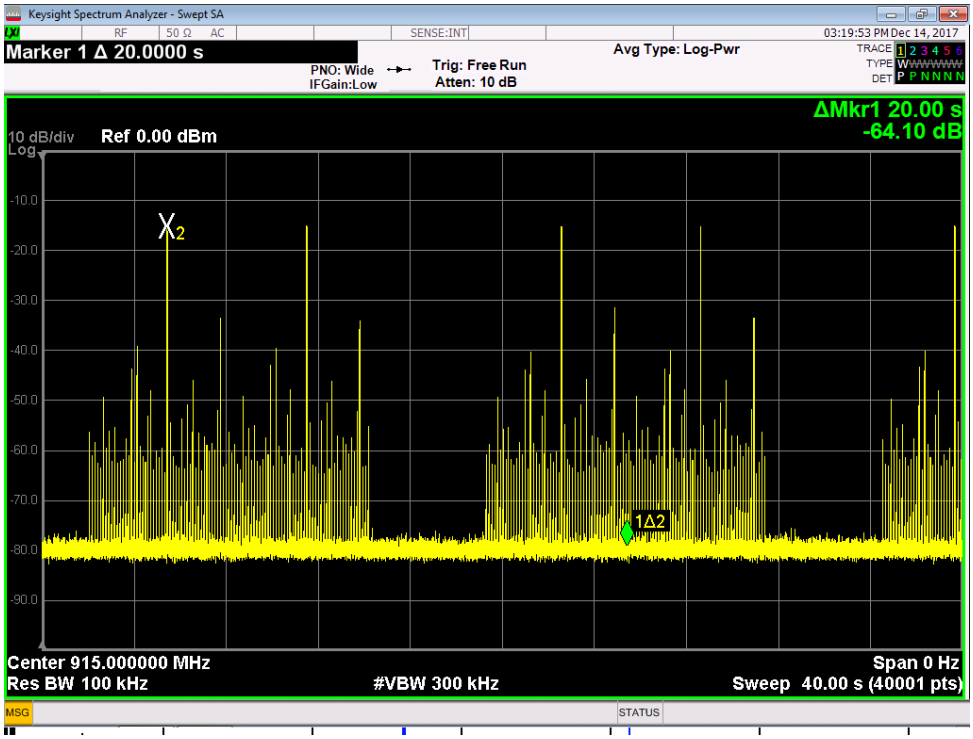
[15.247 (a) (1) (i)]

MEASUREMENTS / RESULTS

Plots



Single Hop = 27.3ms



20 Seconds

*Dwell time in a 20sec period = 5*27.3ms = 136.5ms. Limit (maximum) = 400ms*

Peak Output Power

LIMIT

Conducted Output Power: 1 Watt [15.247(b) (2)]

MEASUREMENTS / RESULTS

Peak Output Power

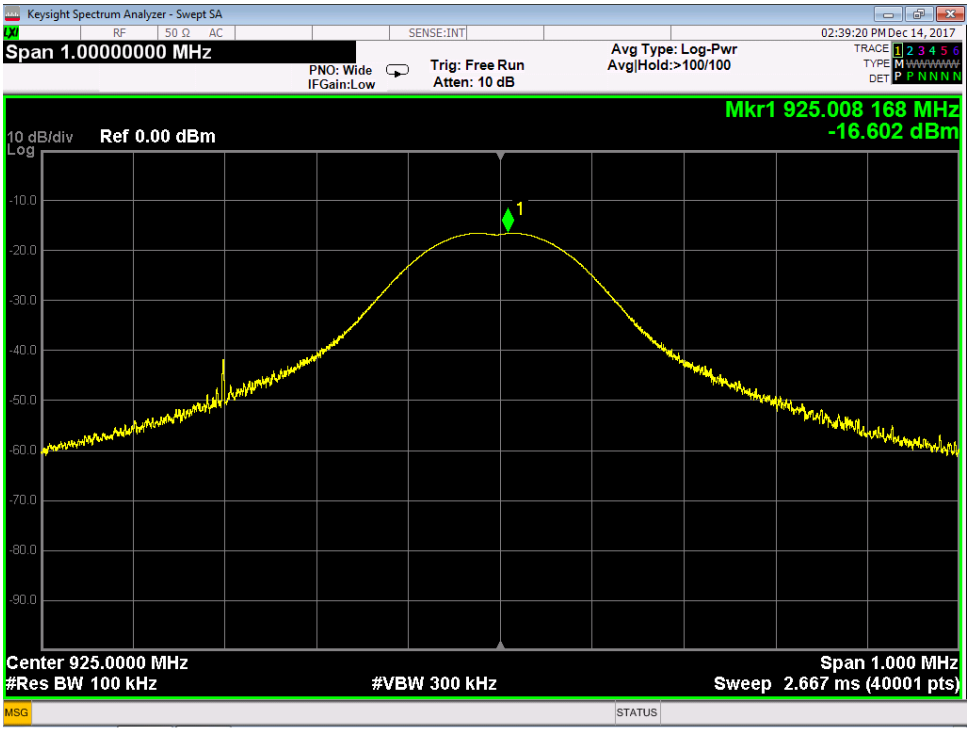
Date: 12/13/2017 **Company:** Signal Fire Telemetry **Work Order:** R3478
Engineer: Zac Johnson **EUT:** 0129 500mW Radio **Operating Voltage/Frequency:** 3.6V DC
Temp: 20.8°C **Humidity:** 30% **Pressure:** 983mBar
Frequency Range: 905-925 MHz **Measurement Type:** Conducted

Notes:

Frequency (MHz)	Peak Reading (dBm)	Cable Loss (dB)	Attenuator Loss (dB)	Peak Output Power (dBm)	Limit (dBm)	Margin (dB)	Result (Pass/Fail)
905	-16.7	0.28	40.0	23.58	30.0	-6.42	Pass
915	-16.3	0.28	40.0	23.98	30.0	-6.02	Pass
925	-16.6	0.28	40.0	23.68	30.0	-6.32	Pass

Test Site: EMC-3 **Cable:** 2289 Cbl **Attenuator:** 2107 Pad
Analyzer: 118472 SA
Peak Output Power (dBm)= Peak Reading (dBm) + Cable Loss (dB) + Attenuator Loss (dB)

PLOTS



924.8MHz High Channel

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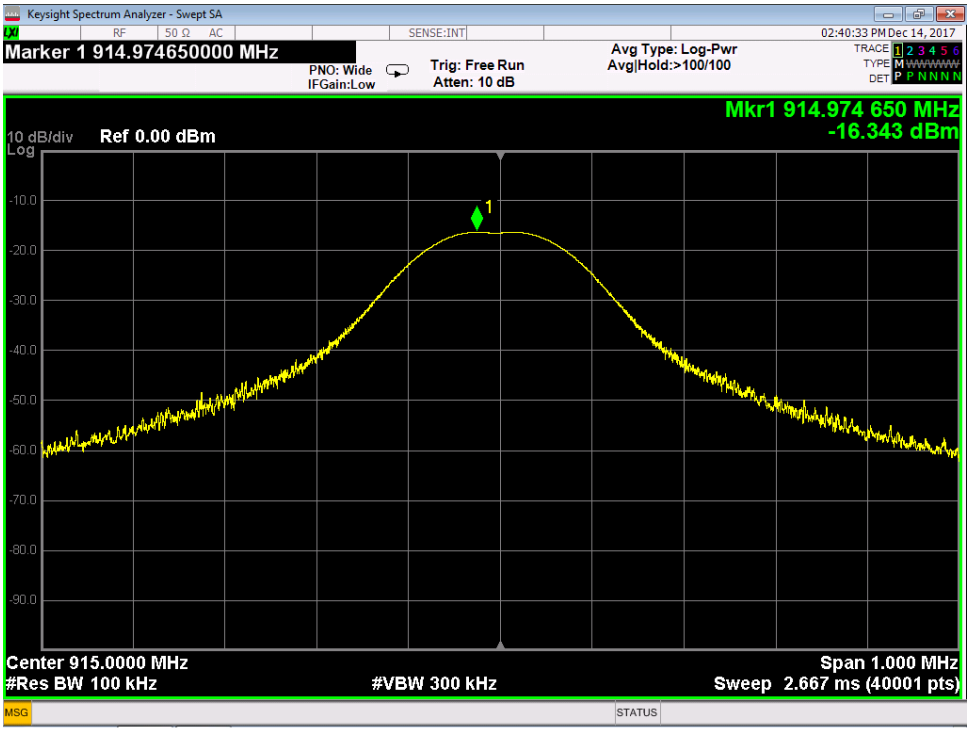
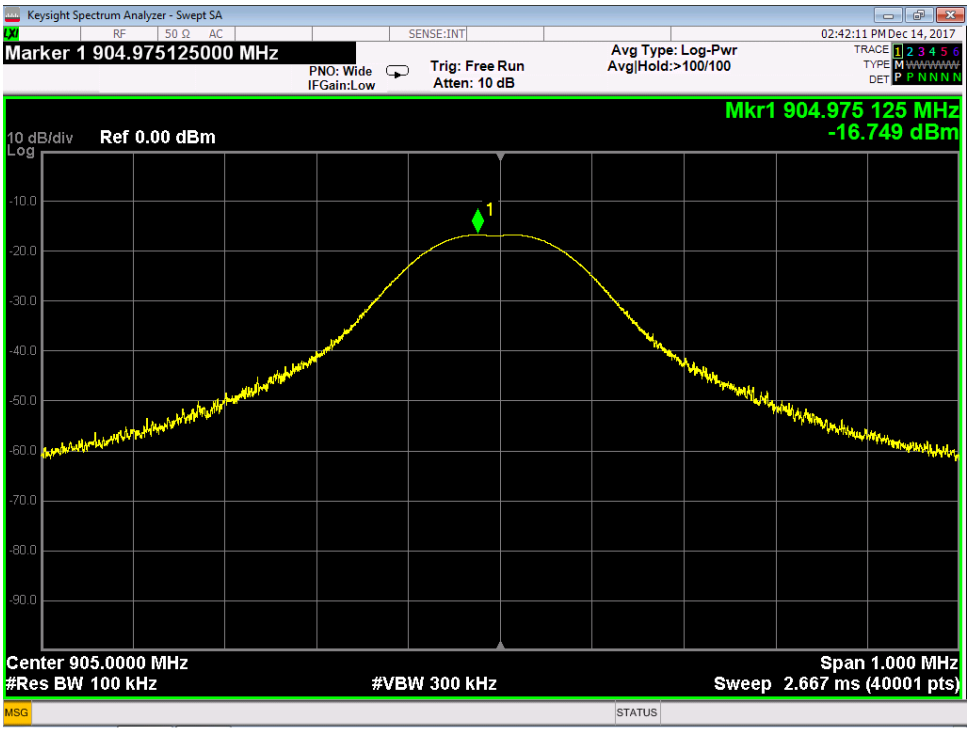


915MHz Mid Channel



905MHz Low Channel

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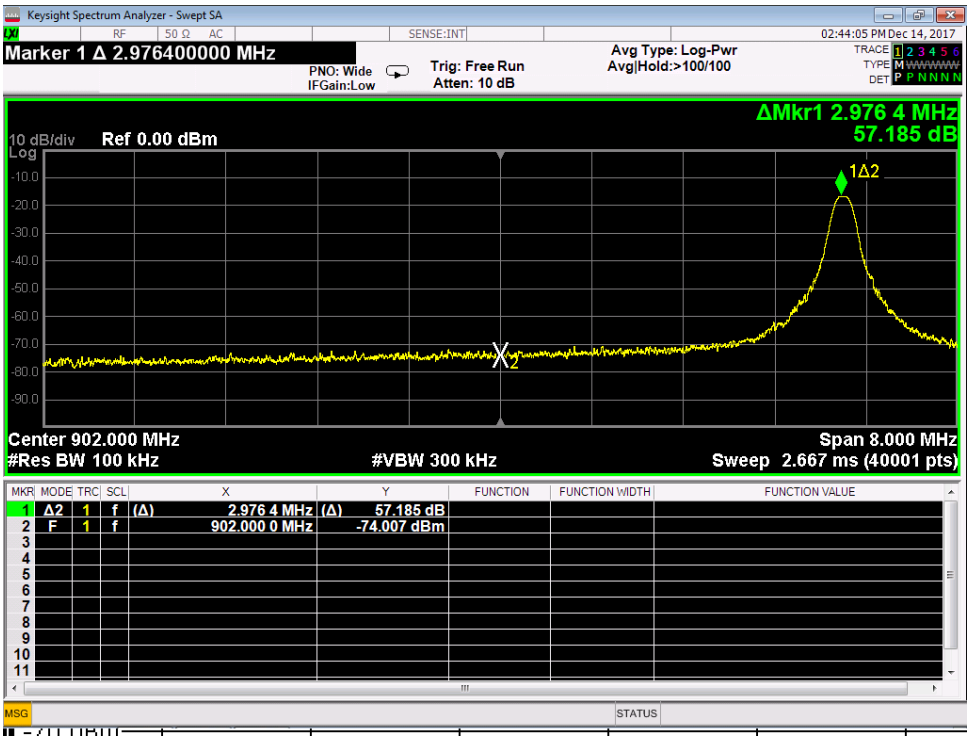
Conducted Bandedges

All band edges over 20dB from peak

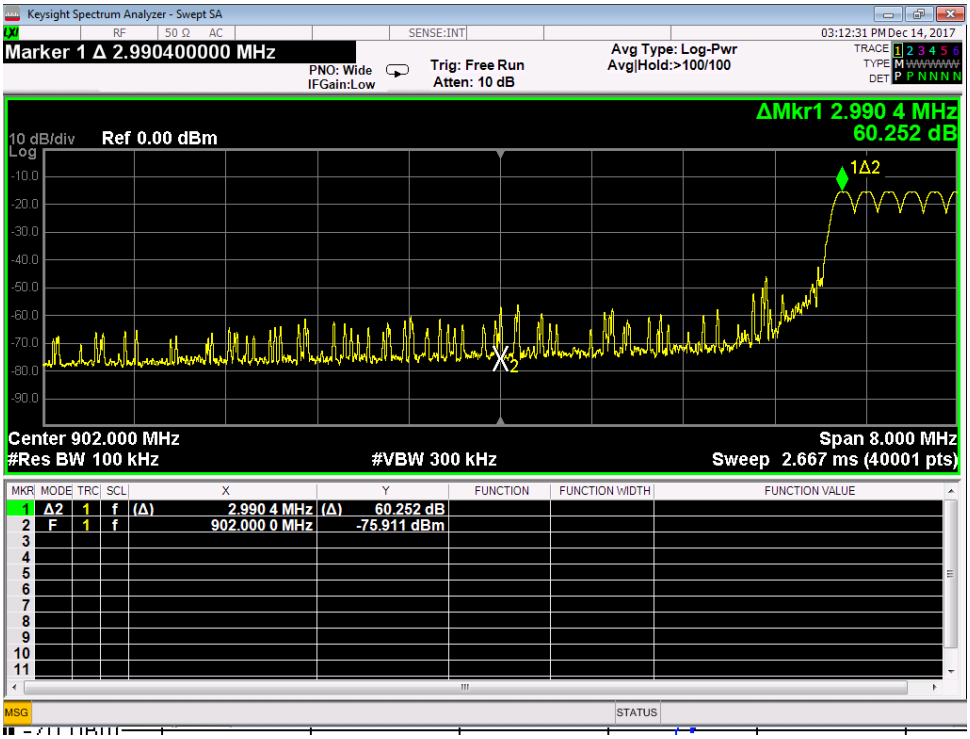
Conducted Bandedge			
Date: 12/13/2017	**Company:** Signal Fire Telemetry		**Work Order:** R3478
Engineer: Zac Johnson	**EUT:** 0129 500mW Radio		**Operating Voltage/Frequency:** 3.6V DC
Temp: 20.8°C	**Humidity:** 30%	**Pressure:** 983mBar	
Frequency Range: 905-925 MHz		**Measurement Type:** Conducted	
		Measurement Method: FCC KDB 558074 D01 DTS Meas Guidance V04	
Notes:			

	Delta to Peak (dBm)	Limit (dB)	Limit (Pass/Fail)
Low Bandedge	57.19	≥ 20	Pass
High Bandedge	58.20	≥ 20	Pass
Low Bandedge Hopping	60.25	≥ 20	Pass
High Bandedge Hopping	61.70	≥ 20	Pass

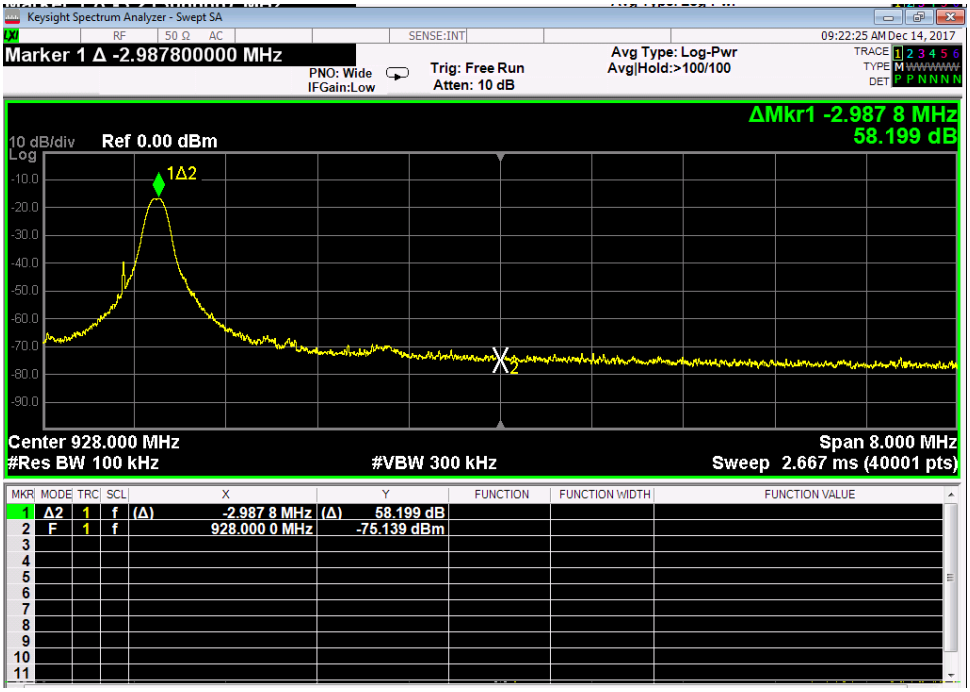
Test Site: EMC-3 **Cable:** 2289 Cbl **Attenuator:** 2107 Pad
Analyzer: 118472 SA



Low Bandedge Non-hopping



Low Bandedge Hopping



High Bandedge Non-hopping

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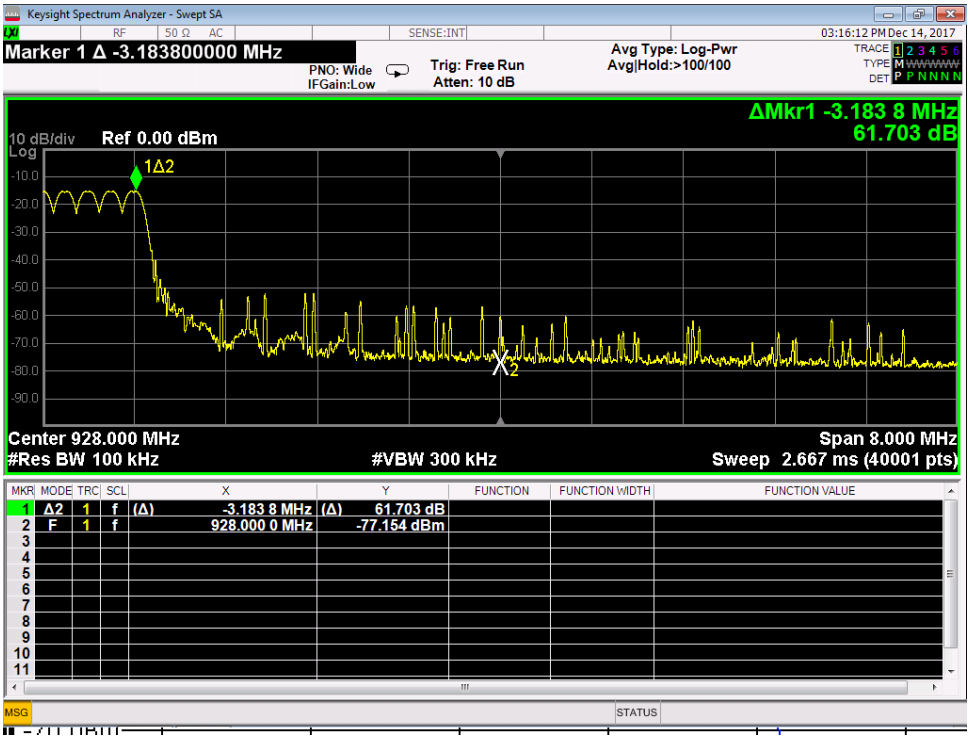


High Bandedge Hopping

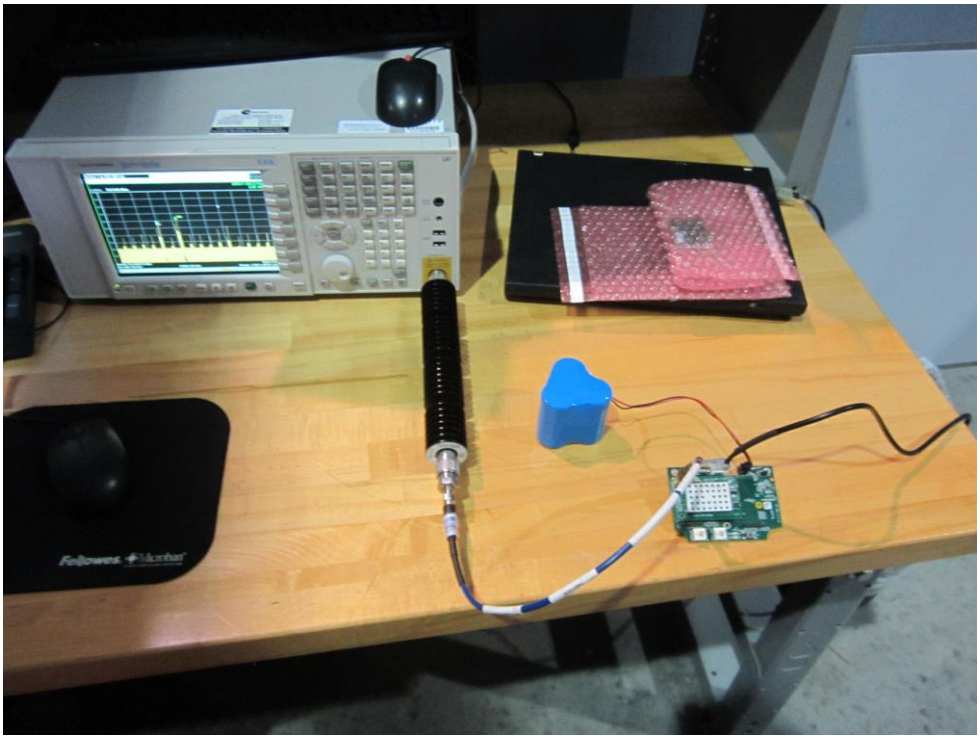
Rev. 12/10/2017

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	7/25/2018	7/25/2017
Preamps /Couplers Attenuators / Filters	**Range**	**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**	**Calibrated on**
API - 40dB 100W Attenuator	0.009-18GHz	48-40-34	API Weinschel	CG7990	2107	II	10/4/2018	10/4/2017
Cables	**Range**		**Mfr**			**Cat**	**Calibration Due**	**Calibrated on**
Asset #2289	9KHz-26.5GHz	FLC-1.5FT-SMSM+	Mini-Circuits	16021039		II	1/27/2018	1/27/2017
Meteorological Meters/Chambers		**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#2077		HTC-1	HDE		2077	II	3/23/2018	3/23/2017

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

Equipment used for the following tests:

20dB Bandwidth
Channel Separation
Number of Hopping Channels
Dwell Time
Peak Output Power
Conducted Bandedges



Conducted Test Setup Photo

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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)]

***Two antenna setups were used for radiated emissions, and are noted with either a 'black antenna' label or a 'white antenna' label where applicable*

Radiated Emissions Table

Date: 13-Dec-17 **Company:** Signal Fire Telemetry **Work Order:** R3478
Engineer: Zac Johnson **EUT Desc:** 0129 500mW Radio **EUT Operating Voltage/Frequency:** 3.6V DC
Temp: 20.8°C **Humidity:** 30% **Pressure:** 983mBar Battery
Frequency Range: 915MHz **Measurement Distance:** 3 m
Notes: X: Laying Flat Y: Straight Up

Antenna Polarization (H / V)	EUT Antenna Orientation (X / Y / Z)	Frequency (MHz)	Reading (dBµV)	Attenuator Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Reading (dBµV/m)	--- Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)
White Antenna				---	---	---	---	---	---	---
H	**X**	**915.0**	**96.3**	**6.1**	**22.6**	**1.9**	**114.7**	---	---	---
V	X	915.0	82.5	6.1	22.6	1.9	100.9	---	---	---
H	Y	915.0	77.4	6.1	22.6	1.9	95.8	---	---	---
V	Y	915.0	94.4	6.1	22.6	1.9	112.8	---	---	---
				---	---	---	---	---	---	---
Black Antenna				---	---	---	---	---	---	---
H	**X**	**915.0**	**94.7**	**6.1**	**22.6**	**1.9**	**113.1**	---	---	---
V	X	915.0	91.7	6.1	22.6	1.9	110.1	---	---	---
H	Y	915.0	87.6	6.1	22.6	1.9	106.0	---	---	---
V	Y	915.0	90.9	6.1	22.6	1.9	109.3	---	---	---

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

Test Site: EMI Chamber 2 **Cable 1:** 2458 Cbl **Cable 2:** 2459 Cbl **Cable 3:** ---
Analyzer: 2093 SA **Preamp:** none **Antenna:** Red-Brown **Preselector:** ---
CSsoft Radiated Emissions Calculator v 1.017.190 **Attenuator:** 2490 6dB
Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor

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MEASUREMENTS / RESULTS

White Antenna:

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Radiated Emissions Electric Field 3m Distance
Top Peaks Horizontal 30-1000MHz
Operator: AKZ
Notes:

Work Order - R3478
EUT Power Input - battery
Test Site - CH-1
Conditions - 22°C; 31%RH; 1010mBar

EUT Maximum Frequency - 915MHz

Data Taken at 03:39:09 PM, Thursday, December 14, 2017

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)	Antenna Height (cm)	EUT Azimuth (degrees)
116.766	57.1	-15.5	41.6	43.5	-1.9	PASS	-1.9	100	0
141.041	52.4	-15.5	36.9	43.5	-6.6	PASS		200	45
146.812	56.6	-16	40.6	43.5	-3	PASS		150	45
152.778	54	-16.1	37.9	43.5	-5.7	PASS		100	45
705.193	36.8	-4.9	31.9	46	-14.1	PASS		150	45
784.903	36.8	-2.5	34.3	46	-11.8	PASS		200	180

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

Work Order - R3478
EUT Power Input - battery
Test Site - CH-1
Conditions - 22°C; 31%RH; 1010mBar

EUT Maximum Frequency - 915MHz

Data Taken at 03:39:09 PM, Thursday, December 14, 2017

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)	Antenna Height (cm)	Turntable Azimuth (degrees)
123.678	44.5	-14.5	30	43.5	-13.5	PASS	-13.5	200	135
711.425	33.4	-4.7	28.7	46	-17.3	PASS		100	135
816.816	31.6	-1.7	29.9	46	-16.1	PASS		200	135
819.095	37	-8.6	28.3	46	-17.7	PASS		100	90
820.38	37.8	-12.5	25.3	46	-20.7	PASS		200	45
999.952	30.7	1	31.8	54	-22.2	PASS		200	180

30-1000MHz

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

Work Order - R3478
EUT Power Input - 3.6V DC
Test Site - CH-2
Conditions - 20.8°C; 30.4%RH; 983mBar

EUT Maximum Frequency - 925MHz

1850MHz not in restricted band; 20dB down from fundamental limit was used

Frequency	Raw Peak Reading	Raw Avg Reading	Correction Factor	Adjusted Peak Amplitude	Pk Lim: FCC_pt15_109 _ClassB_Peak	Peak Margin	Peak Results	Worst Peak Margin	Adjusted Avg Amplitude	Av Lim: FCC_pt15_109 _ClassB_AVG	Avg Margin	Avg Results	Worst Avg Margin	Antenna Height	EUT Azimuth
(MHz)	(dBµV)	(dBµV)	(dB/m)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(cm)	(degrees)
1850	65.7	65	-10.3	55.3	94.7	-39.4	PASS		54.7	94.7	-40	PASS		292	166
2774.8	53.7	50.5	-8.9	44.7	74	-29.2	PASS		41.5	54	-12.5	PASS	-12.5	196	185
2956.3	47.8	38.4	-7.9	39.9	74	-34.1	PASS		30.5	54	-23.5	PASS		294	102
3706.1	45.5	36.8	-4.8	40.6	74	-33.3	PASS		32	54	-22	PASS		100	91
4624.9	49.8	43.1	-3.5	46.3	74	-27.7	PASS	-27.7	39.6	54	-14.4	PASS		188	33
5309.9	44.6	35.3	-1.6	43	74	-30.9	PASS		33.7	54	-20.3	PASS		115	59

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

Work Order - R3478
EUT Power Input - 3.6V DC
Test Site - CH-2
Conditions - 20.8°C; 30.4%RH; 983mBar

EUT Maximum Frequency - 925MHz

1850MHz not in restricted band; 20dB down from fundamental limit was used

Frequency	Raw Peak Reading	Raw Avg Reading	Correction Factor	Adjusted Peak Amplitude	Pk Lim: FCC_pt15_109_ ClassB_Peak	Peak Margin	Peak Results	Worst Peak Margin	Adjusted Avg Amplitude	Av Lim: FCC_pt15_109 _ClassB_AVG	Avg Margin	Avg Results	Worst Average Margin	Antenna Height	EUT Azimuth
(MHz)	(dBµV)	(dBµV)	(dB/m)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(cm)	(degrees)
1850	70.7	70.4	-10.3	60.3	94.7	-34.4	PASS		60.1	94.7	-34.6	PASS		207	141
2265.6	49.3	39	-10.2	39	74	-34.9	PASS		28.8	54	-25.2	PASS		175	141
2774.9	57.1	54.4	-8.9	48.1	74	-25.8	PASS	-25.8	45.4	54	-8.5	PASS	-8.5	175	271
3055.1	47.5	38.6	-7.3	40.2	74	-33.8	PASS		31.2	54	-22.8	PASS		188	129
3703.6	44.3	36.8	-4.8	39.5	74	-34.5	PASS		32	54	-21.9	PASS		300	109
5494.2	43.3	34.2	-1.1	42.2	74	-31.8	PASS		33.1	54	-20.9	PASS		125	48

1GHz-6GHz - 924.8MHz High Channel

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

Work Order - R3478
EUT Power Input - 3.6V DC
Test Site - CH-2
Conditions - 20.8°C; 30.4%RH; 983mBar
White antenna, center channel
EUT Maximum Frequency - 925MHz

1830MHz not in restricted band; 20dB down from fundamental limit was used

Frequency	Raw Peak Reading	Raw Avg Reading	Correction Factor	Adjusted Peak Amplitude	Pk Lim: FCC_pt15_109_ ClassB_Peak	Peak Margin	Peak Results	Worst Peak Margin	Adjusted Avg Amplitude	Av Lim: FCC_pt15_109 _ClassB_AVG	Avg Margin	Avg Results	Worst Avg Margin	Antenna Height	EUT Azimuth
(MHz)	(dBµV)	(dBµV)	(dB/m)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(cm)	(degrees)
1830	67.1	66.6	-10.4	56.6	94.7	-38.1	PASS		56.2	94.7	-38.5	PASS		100	216
2195.8	47.9	38.3	-9.9	38	74	-36	PASS		28.4	54	-25.6	PASS		197	214
2745	55.6	53.4	-9.1	46.5	74	-27.5	PASS	-27.5	44.3	54	-9.7	PASS	-9.7	182	243
4032.6	45.4	35.5	-4.4	41	74	-33	PASS		31.1	54	-22.9	PASS		285	182
4575.3	49.6	44.2	-3.7	45.9	74	-28.1	PASS		40.5	54	-13.5	PASS		103	14
5490.1	46.8	41.1	-1.1	45.7	74	-28.2	PASS		40.1	54	-13.9	PASS		186	111

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

Work Order - R3478
EUT Power Input - 3.6V DC
Test Site - CH-2
Conditions - 20.8°C; 30.4%RH; 983mBar
White Antenna, center channel
EUT Maximum Frequency - 925MHz

1830MHz not in restricted band; 20dB down from fundamental limit was used

Frequency	Raw Peak Reading	Raw Avg Reading	Correction Factor	Adjusted Peak Amplitude	Pk Lim: FCC_pt15_109 _ClassB_Peak	Peak Margin	Peak Results	Worst Peak Margin	Adjusted Avg Amplitude	Av Lim: FCC_pt15_109 _ClassB_AVG	Avg Margin	Avg Results	Worst Average Margin	Antenna Height	EUT Azimuth
(MHz)	(dBµV)	(dBµV)	(dB/m)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(cm)	(degrees)
1830	72.1	71.8	-10.4	61.7	94.7	-33	PASS		61.4	94.7	-33.3	PASS		225	134
2745	56	53.7	-9.1	46.9	74	-27.1	PASS	-27.3	44.7	54	-9.3	PASS	-9.3	275	272
3057.1	47.6	38.5	-7.3	40.3	74	-33.7	PASS		31.2	54	-22.8	PASS		275	239
3968.5	47.6	36.3	-4.5	43.1	74	-30.9	PASS		31.8	54	-22.2	PASS		282	131
4595.7	45	36.1	-3.6	41.4	74	-32.6	PASS		32.5	54	-21.5	PASS		224	147
5975.6	43.5	34.1	-0.6	42.8	74	-31.2	PASS		33.4	54	-20.6	PASS		125	216

1GHz-6GHz – 915MHz Mid Channel

Curtis-Straus LLC, a wholly owned subsidiary of BV CPS
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Curtis Straus - a Bureau Veritas Company						Work Order - R3478									
Radiated Emissions Electric Field 3m Distance						EUT Power Input - 3.6V DC									
1-6GHz Vertical Data						Test Site - CH-2									
Operator: ZJ						Conditions - 20.8°C; 30.4%RH; 983mBar									
						Low Channel, White antenna									
						EUT Maximum Frequency - 925MHz									
1810MHz not in restricted band; 20dB down from fundamental limit was used															
Frequency	Raw Peak Reading	Raw Avg Reading	Correction Factor	Adjusted Peak Amplitude	Pk Lim: FCC_pt15_109 _ClassB_Peak	Peak Margin	Peak Results	Worst Peak Margin	Adjusted Avg Amplitude	Av Lim: FCC_pt15_109 _ClassB_AVG	Avg Margin	Avg Results	Worst Avg Margin	Antenna Height	EUT Azimuth
(MHz)	(dBµV)	(dBµV)	(dB/m)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(cm)	(degrees)
1810	64.9	64.1	-10.6	54.4	94.7	-40.3	PASS		53.6	94.7	-41.1	PASS		284	168
2715	51.3	47	-9.2	42.1	74	-31.9	PASS		37.8	54	-16.1	PASS	-16.1	127	292
3045.6	47.6	38.6	-7.4	40.2	74	-33.8	PASS		31.1	54	-22.8	PASS		193	195
3741.4	45.5	36.5	-5	40.5	74	-33.5	PASS		31.5	54	-22.5	PASS		275	25
4714.3	43.7	35.2	-3.1	40.7	74	-33.3	PASS		32.1	54	-21.9	PASS		127	49
5403.5	43.4	34.6	-1.2	42.2	74	-31.8	PASS	-31.8	33.4	54	-20.6	PASS		286	267

Curtis Straus - a Bureau Veritas Company						Work Order - R3478									
Radiated Emissions Electric Field 3m Distance						EUT Power Input - 3.6V DC									
1-6GHz Horizontal Data						Test Site - CH-2									
Operator: ZJ						Conditions - 20.8°C; 30.4%RH; 983mBar									
						White antenna, low channel									
						EUT Maximum Frequency - 925MHz									
1810MHz not in restricted band; 20dB down from fundamental limit was used															
Frequency	Raw Peak Reading	Raw Avg Reading	Correction Factor	Adjusted Peak Amplitude	Pk Lim: FCC_pt15_109 _ClassB_Peak	Peak Margin	Peak Results	Worst Peak Margin	Adjusted Avg Amplitude	Av Lim: FCC_pt15_109 _ClassB_AVG	Avg Margin	Avg Results	Worst Average Margin	Antenna Height	EUT Azimuth
(MHz)	(dBµV)	(dBµV)	(dB/m)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(cm)	(degrees)
1810	82.1	65.4	-10.6	71.6	94.7	-23.1	PASS	-23.1	54.9	94.7	-39.8	PASS		100	288
2715	53	50.6	-9.2	43.8	74	-30.2	PASS		41.4	54	-12.6	PASS	-12.6	225	312
3052.5	47.4	38.5	-7.4	40.1	74	-33.9	PASS		31.1	54	-22.9	PASS		299	339
3702.4	45.4	36.2	-4.8	40.6	74	-33.4	PASS		31.4	54	-22.5	PASS		116	204
4600.8	45.3	36	-3.6	41.7	74	-32.2	PASS		32.4	54	-21.6	PASS		205	141
5402.7	46.8	34.2	-1.2	45.6	74	-28.4	PASS		33	54	-21	PASS		117	70

1GHz-6GHz – 905MHz Low Channel

Curtis Straus - a Bureau Veritas Company						Work Order - R3478									
Radiated Emissions Electric Field 1m Distance						EUT Power Input - 3.6V DC									
6-18GHz Vertical Data						Test Site - CH-2									
Operator: ZJ						Conditions - 20.8°C; 30.4%RH; 983mBar									
High Channel	White Antenna														
11:56:24 PM	Wednesday	December 2	2017			EUT Maximum Frequency - 925MHz									
Frequency	Raw Peak Reading	Raw Avg Reading	Correction Factor	Adjusted Peak Amplitude	Pk Lim: FCC_pt15_109 _ClassB_Peak	Peak Margin	Peak Results	Worst Peak Margin	Adjusted Avg Amplitude	Av Lim: FCC_pt15_109 _ClassB_AVG	Avg Margin	Avg Results	Worst Avg Margin	Antenna Height	EUT Azimuth
(MHz)	(dBµV)	(dBµV)	(dB/m)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(cm)	(degrees)
6475.3	28.1	18.7	23.2	51.3	83.5	-32.2	PASS		41.9	63.5	-21.6	PASS		100	32
7117.3	26	16.3	24	50	83.5	-33.5	PASS		40.3	63.5	-23.2	PASS		146	120
7400	31.7	27	24.7	56.4	83.5	-27.1	PASS	-27.1	51.7	63.5	-11.8	PASS	-11.8	164	128
8225.9	26.1	16	24.8	50.9	83.5	-32.6	PASS		40.8	63.5	-22.7	PASS		100	71
9589.8	25.1	16.1	26.5	51.6	83.5	-31.9	PASS		42.6	63.5	-20.9	PASS		100	25

Curtis Straus - a Bureau Veritas Company						Work Order - R3478									
Radiated Emissions Electric Field 1m Distance						EUT Power Input - 3.6V DC									
6-18GHz Horizontal Data						Test Site - CH-2									
Operator: ZJ						Conditions - 20.8°C; 30.4%RH; 983mBar									
High Channel	White Antenna														
11:56:24 PM	Wednesday	December 20	2017			EUT Maximum Frequency - 925MHz									
Frequency	Raw Peak Reading	Raw Avg Reading	Correction Factor	Adjusted Peak Amplitude	Pk Lim: FCC_pt15_109_ ClassB_Peak	Peak Margin	Peak Test Results	Worst Peak Margin	Adjusted Avg Amplitude	Av Lim: FCC_pt15_109_ ClassB_AVG	Avg Margin	Avg Test Results	Worst Avg Margin	Antenna Height	EUT Azimuth
(MHz)	(dBµV)	(dBµV)	(dB/m)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(cm)	(degrees)
6475	30.1	24.3	23.2	53.3	83.5	-30.2	PASS		47.5	63.5	-16	PASS		150	43
7103	26.1	16.3	24.1	50.2	83.5	-33.3	PASS		40.4	63.5	-23.1	PASS		122	120
7399.8	31.1	27.9	24.7	55.8	83.5	-27.7	PASS	-27.7	52.6	63.5	-10.9	PASS	-10.9	167	118
9608.4	24.5	16	26.5	51	83.5	-32.5	PASS		42.5	63.5	-21	PASS		100	53

6GHz-10GHz - 924.8MHz High Channel

Curtis Straus - a Bureau Veritas Company					Work Order - R3478										
Radiated Emissions Electric Field 1m Distance					EUT Power Input - 3.6V DC										
6-18GHz Vertical Data					Test Site - CH-2										
Operator: ZJ					Conditions - 20.8°C; 30.4%RH; 983mBar										
Mid Channel	White Antenna														
11:38:17 PM	Wednesday	December 2	2017		EUT Maximum Frequency - 925MHz										
Frequency	Raw Peak Reading	Raw Avg Reading	Correction Factor	Adjusted Peak Amplitude	Pk Lim: FCC_pt15_109 _ClassB_Peak	Peak Margin	Peak Results	Worst Peak Margin	Adjusted Avg Amplitude	Av Lim: FCC_pt15_109 _ClassB_AVG	Avg Margin	Avg Results	Worst Avg Margin	Antenna Height	EUT Azimuth
(MHz)	(dBµV)	(dBµV)	(dB/m)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(cm)	(degrees)
7319.8	29.5	23.5	24	53.5	83.5	-30	PASS	-30	47.5	63.5	-16	PASS	-16	100	60
8235.1	25.9	16	24.7	50.6	83.5	-32.9	PASS		40.7	63.5	-22.8	PASS		100	42
9578.2	24.7	16.1	26.5	51.2	83.5	-32.3	PASS		42.6	63.5	-20.9	PASS		200	266

Curtis Straus - a Bureau Veritas Company					Work Order - R3478										
Radiated Emissions Electric Field 1m Distance					EUT Power Input - 3.6V DC										
6-18GHz Horizontal Data					Test Site - CH-2										
Operator: ZJ					Conditions - 20.8°C; 30.4%RH; 983mBar										
Mid Channel	White Antenna														
11:38:17 PM	Wednesday	December 2	2017		EUT Maximum Frequency - 925MHz										
Frequency	Raw Peak Reading	Raw Avg Reading	Correction Factor	Adjusted Peak Amplitude	Pk Lim: FCC_pt15_109 _ClassB_Peak	Peak Margin	Peak Test Results	Worst Peak Margin	Adjusted Avg Amplitude	Av Lim: FCC_pt15_109 _ClassB_AVG	Avg Margin	Avg Test Results	Worst Avg Margin	Antenna Height	EUT Azimuth
(MHz)	(dBµV)	(dBµV)	(dB/m)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(cm)	(degrees)
7076.7	25.1	16.3	24	49.1	83.5	-34.4	PASS		40.3	63.5	-23.2	PASS		200	309
7319.9	33.1	30	24	57.1	83.5	-26.4	PASS	-26.4	54	63.5	-9.5	PASS	-9.5	148	81
7641.2	25.1	16.1	24.6	49.7	83.5	-33.8	PASS		40.7	63.5	-22.8	PASS		172	164
8235.3	24.5	16	24.7	49.2	83.5	-34.3	PASS		40.7	63.5	-22.8	PASS		148	269
9541.2	23.1	16	26.4	49.5	83.5	-34	PASS		42.4	63.5	-21.1	PASS		156	7

6GHz-10GHz - 915MHz Mid Channel

Curtis Straus - a Bureau Veritas Company					Work Order - R3478										
Radiated Emissions Electric Field 1m Distance					EUT Power Input - 3.6V DC										
6-18GHz Vertical Data					Test Site - CH-2										
Operator: ZJ					Conditions - 20.8°C; 30.4%RH; 983mBar										
					White antenna, Low channel										
					EUT Maximum Frequency - 925MHz										
Frequency	Raw Peak Reading	Raw Avg Reading	Correction Factor	Adjusted Peak Amplitude	Pk Lim: FCC_pt15_109 _ClassB_Peak	Peak Margin	Peak Results	Worst Peak Margin	Adjusted Avg Amplitude	Av Lim: FCC_pt15_109 _ClassB_AVG	Avg Margin	Avg Results	Worst Avg Margin	Antenna Height	EUT Azimuth
(MHz)	(dBµV)	(dBµV)	(dB/m)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(cm)	(degrees)
7239.9	50.3	46.9	1	51.3	83.5	-32.2	PASS	-32.2	47.9	63.5	-15.6	PASS	-15.6	157	140
7713.5	41.9	33.9	1.7	43.6	83.5	-39.9	PASS		35.6	63.5	-27.9	PASS		194	227
8144.9	48	41.6	2.8	50.8	83.5	-32.7	PASS		44.4	63.5	-19.1	PASS		132	157
9326.6	41.9	33.6	3.3	45.2	83.5	-38.3	PASS		36.9	63.5	-26.6	PASS		200	339
9955.2	45	36.1	3.4	48.4	83.5	-35.1	PASS		39.5	63.5	-24	PASS		169	169

Curtis Straus - a Bureau Veritas Company					Work Order - R3478										
Radiated Emissions Electric Field 1m Distance					EUT Power Input - 3.6V DC										
6-18GHz Horizontal Data					Test Site - CH-2										
Operator: ZJ					Conditions - 20.8°C; 30.4%RH; 983mBar										
					White antenna, Low channel										
					EUT Maximum Frequency - 925MHz										
Frequency	Raw Peak Reading	Raw Avg Reading	Correction Factor	Adjusted Peak Amplitude	Pk Lim: FCC_pt15_109 _ClassB_Peak	Peak Margin	Peak Test Results	Worst Peak Margin	Adjusted Avg Amplitude	Av Lim: FCC_pt15_109 _ClassB_AVG	Avg Margin	Avg Test Results	Worst Avg Margin	Antenna Height	EUT Azimuth
(MHz)	(dBµV)	(dBµV)	(dB/m)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(cm)	(degrees)
7239.9	48.4	42.6	1	49.3	83.5	-34.2	PASS	-34.2	43.5	63.5	-20	PASS	-20	125	52
7654.4	43.4	34.1	1.7	45.1	83.5	-38.4	PASS		35.8	63.5	-27.7	PASS		114	25
8523.7	42.6	34	2.8	45.4	83.5	-38.1	PASS		36.8	63.5	-26.7	PASS		150	51
9329.5	43.8	33.7	3.2	47.1	83.5	-36.4	PASS		37	63.5	-26.5	PASS		100	225
9986.1	41.2	33	3.7	44.9	83.5	-38.6	PASS		36.8	63.5	-26.7	PASS		140	330

6GHz-10GHz – 905MHz Low Channel

Black Antenna:

Curtis Straus - a Bureau Veritas Company	Work Order - R3478
Radiated Emissions Electric Field 3m Distance	EUT Power Input - Battery
Top Peaks Horizontal 30-1000MHz	Test Site - CH-1
Operator: AKZ	Conditions - 22°C; 25%RH; 1010mBar
Notes:	
Mid Channel	

Data Taken at 03:26:18 PM, Friday, December 15, 2017

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)
30.679	32.7	-8.3	24.3	40	-15.7	PASS		40	-15.7	PASS		250	135
155.833	39.2	-16.1	23.1	43.5	-20.5	PASS		43.5	-20.5	PASS		100	0
193.615	39.7	-17.1	22.7	43.5	-20.9	PASS		43.5	-20.9	PASS		100	225
194.657	40	-17.1	22.9	43.5	-20.7	PASS		43.5	-20.7	PASS		100	225
195.846	37.9	-16.7	21.2	43.5	-22.3	PASS		43.5	-22.3	PASS		100	225
815.361	32.6	-1.7	30.9	46	-15.1	PASS	-15.1	46	-15.1	PASS	-15.1	200	315

Curtis Straus - a Bureau Veritas Company	Work Order - R3478
Radiated Emissions Electric Field 3m Distance	EUT Power Input - Battery
Top Peaks Vertical 30-1000MHz	Test Site - CH-1
Operator: AKZ	Conditions - 22°C; 25%RH; 1010mBar
Notes:	
Mid Channel	

Data Taken at 03:26:18 PM, Friday, December 15, 2017

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)	Turntable Azimuth (degrees)
30.024	31.4	-7.7	23.8	40	-16.2	PASS		40	-16.2	PASS		200	45
120.258	38.3	-15	23.3	43.5	-20.2	PASS		43.5	-20.2	PASS		100	90
126.466	37.6	-14.5	23.1	43.5	-20.5	PASS		43.5	-20.5	PASS		150	90
132.917	38.8	-14.5	24.3	43.5	-19.2	PASS		43.5	-19.2	PASS		200	90
143.878	39.2	-15.8	23.4	43.5	-20.1	PASS		43.5	-20.1	PASS		150	135
815.167	31.5	-1.7	29.8	46	-16.2	PASS	-16.2	46	-16.2	PASS	-16.2	150	315

30-1000MHz

Curtis Straus - a Bureau Veritas Company	Work Order - R3478
Radiated Emissions Electric Field 3m Distance	EUT Power Input - 3.6V DC
1-6GHz Vertical Data	Test Site - CH-2
Operator: ZJ	Conditions - 20.8°C; 30.4%RH; 983mBar
	Black antenna, High channel
	EUT Maximum Frequency - 925MHz

1850MHz not in restricted band; 20dB down from fundamental limit was used

Frequency	Raw Peak Reading	Raw Avg Reading	Correction Factor	Adjusted Peak Amplitude	Pk Lim: FCC_pt15_109_ClassB_Peak	Peak Margin	Peak Results	Worst Peak Margin	Adjusted Avg Amplitude	Av Lim: FCC_pt15_109_ClassB_AVG	Avg Margin	Avg Results	Worst Avg Margin	Antenna Height	EUT Azimuth
(MHz)	(dBµV)	(dBµV)	(dB/m)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(cm)	(degrees)
1850	42.3	78.8	-10.3	32	93.1	-61.1	PASS		68.5	93.1	-24.6	PASS		206	16
2774.8	53.3	51.5	-8.9	44.3	74	-29.6	PASS		42.6	54	-11.4	PASS		102	54
3055.6	47.7	38.4	-7.3	40.3	74	-33.6	PASS		31	54	-22.9	PASS		117	204
3700.1	50.4	43.1	-4.8	45.6	74	-28.4	PASS		38.3	54	-15.7	PASS		205	34
4625	51.7	46.9	-3.5	48.2	74	-25.7	PASS	-25.7	43.4	54	-10.6	PASS	-10.6	187	48
5431.2	44.6	34.6	-1.2	43.4	74	-30.5	PASS		33.5	54	-20.5	PASS		116	190

Curtis Straus - a Bureau Veritas Company					Work Order - R3478										
Radiated Emissions Electric Field 3m Distance					EUT Power Input - 3.6V DC										
1-6GHz Horizontal Data					Test Site - CH-2										
Operator: ZJ					Conditions - 20.8°C; 30.4%RH; 983mBar										
					Black antenna, High channel										
					EUT Maximum Frequency - 925MHz										
1850MHz not in restricted band; 20dB down from fundamental limit was used															
Frequency	Raw Peak Reading	Raw Avg Reading	Correction Factor	Adjusted Peak Amplitude	Pk Lim: FCC_pt15_109 _ClassB_Peak	Peak Margin	Peak Results	Worst Peak Margin	Adjusted Avg Amplitude	Av Lim: FCC_pt15_109 _ClassB_AVG	Avg Margin	Avg Results	Worst Average Margin	Antenna Height	EUT Azimuth
(MHz)	(dBµV)	(dBµV)	(dB/m)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(cm)	(degrees)
1463.4	48.9	39	-12.1	36.8	74	-37.2	PASS		26.8	54	-27.1	PASS		184	44
1850	81.6	58	-10.3	71.3	93.1	-21.8	PASS	-21.8	47.6	93.1	-45.5	PASS		211	240
2241.2	50.7	38.9	-10.1	40.6	74	-33.4	PASS		28.7	54	-25.2	PASS		225	86
2775	53.9	51.3	-8.9	45	74	-29	PASS		42.4	54	-11.6	PASS	-11.6	275	0
2973.3	47.3	38.6	-7.8	39.5	74	-34.5	PASS		30.8	54	-23.2	PASS		114	24
5211.4	43.2	34.6	-1.4	41.8	74	-32.2	PASS		33.2	54	-20.8	PASS		217	137

1GHz-6GHz - 924.8MHz High Channel

Curtis Straus - a Bureau Veritas Company					Work Order - R3478										
Radiated Emissions Electric Field 3m Distance					EUT Power Input - 3.6V DC										
1-6GHz Vertical Data					Test Site - CH-2										
Operator: ZJ					Conditions - 20.8°C; 30.4%RH; 983mBar										
					Black antenna, Mid channel										
					EUT Maximum Frequency - 925MHz										
1830MHz not in restricted band; 20dB down from fundamental limit was used															
Frequency	Raw Peak Reading	Raw Avg Reading	Correction Factor	Adjusted Peak Amplitude	Pk Lim: FCC_pt15_109 _ClassB_Peak	Peak Margin	Peak Results	Worst Peak Margin	Adjusted Avg Amplitude	Av Lim: FCC_pt15_109 _ClassB_AVG	Avg Margin	Avg Results	Worst Avg Margin	Antenna Height	EUT Azimuth
(MHz)	(dBµV)	(dBµV)	(dB/m)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(cm)	(degrees)
1830	75.9	75.8	-10.4	65.5	93.1	-27.6	PASS	-27.6	65.3	93.1	-27.8	PASS		275	170
2220.8	48.3	38.8	-10	38.3	74	-35.7	PASS		28.8	54	-25.2	PASS		225	266
2745	58.4	36.3	-9.1	49.3	74	-24.7	PASS		27.2	54	-26.8	PASS		225	328
3090.2	47.6	37.9	-7.1	40.5	74	-33.5	PASS		30.8	54	-23.2	PASS		102	29
4574.9	46.1	48	-3.7	42.4	74	-31.6	PASS		44.4	54	-9.6	PASS	-9.6	175	24
5489.9	44.9	42.4	-1.1	43.9	74	-30.1	PASS		41.3	54	-12.7	PASS		202	51

Curtis Straus - a Bureau Veritas Company					Work Order - R3478										
Radiated Emissions Electric Field 3m Distance					EUT Power Input - 3.6V DC										
1-6GHz Horizontal Data					Test Site - CH-2										
Operator: ZJ					Conditions - 20.8°C; 30.4%RH; 983mBar										
					Black antenna, Mid channel										
					EUT Maximum Frequency - 925MHz										
1830MHz not in restricted band; 20dB down from fundamental limit was used															
Frequency	Raw Peak Reading	Raw Avg Reading	Correction Factor	Adjusted Peak Amplitude	Pk Lim: FCC_pt15_109 _ClassB_Peak	Peak Margin	Peak Results	Worst Peak Margin	Adjusted Avg Amplitude	Av Lim: FCC_pt15_109_ ClassB_AVG	Avg Margin	Avg Results	Worst Average Margin	Antenna Height	EUT Azimuth
(MHz)	(dBµV)	(dBµV)	(dB/m)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(cm)	(degrees)
1830	82.4	82.3	-10.4	72	93.1	-21.1	PASS	-21.1	71.8	93.1	-21.3	PASS		104	260
2744.8	52.7	50.5	-9.1	43.6	74	-30.4	PASS		41.4	54	-12.6	PASS	-12.6	175	321
3025.7	47.3	38.6	-7.6	39.8	74	-34.2	PASS		31.1	54	-22.9	PASS		100	154
3931.8	44.8	36.1	-4.6	40.2	74	-33.8	PASS		31.5	54	-22.5	PASS		275	286
4575	47.9	40.2	-3.7	44.2	74	-29.8	PASS		36.5	54	-17.4	PASS		225	100
5330.8	43.8	34.8	-1.5	42.3	74	-31.7	PASS		33.3	54	-20.6	PASS		125	286

1GHz-6GHz – 915MHz Mid Channel

Curtis Straus - a Bureau Veritas Company
Radiated Emissions Electric Field 3m Distance
1-6GHz Vertical Data
Operator: ZJ
Work Order - R3478
EUT Power Input - 3.6V DC
Test Site - CH-2
Conditions - 20.8°C; 30.4%RH; 983mBar
Black antenna, Low channel
EUT Maximum Frequency - 925MHz
1810MHz not in restricted band; 20dB down from fundamental limit was used

Frequency	Raw Peak Reading	Raw Avg Reading	Correction Factor	Adjusted Peak Amplitude	Pk Lim: FCC_pt15_109 _ClassB_Peak	Peak Margin	Peak Results	Worst Peak Margin	Adjusted Avg Amplitude	Av Lim: FCC_pt15_109 _ClassB_AVG	Avg Margin	Avg Results	Worst Avg Margin	Antenna Height	EUT Azimuth
(MHz)	(dBµV)	(dBµV)	(dB/m)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(cm)	(degrees)
1810	79.6	79.5	-10.6	69.1	93.1	-24	PASS	-24	68.9	93.1	-24.2	PASS		225	25
2715	52.9	50.2	-9.2	43.7	74	-30.2	PASS		41	54	-13	PASS	-13	205	78
2999.4	48.1	38.4	-7.8	40.4	74	-33.6	PASS		30.7	54	-23.3	PASS		190	147
4604.2	44.9	35.7	-3.6	41.3	74	-32.7	PASS		32.1	54	-21.9	PASS		297	11
5430	47.3	41.3	-1.2	46.1	74	-27.8	PASS		40.2	54	-13.8	PASS		275	24
5998.7	43.7	33.9	-0.6	43.1	74	-30.9	PASS		33.3	54	-20.7	PASS		102	130

Curtis Straus - a Bureau Veritas Company
Radiated Emissions Electric Field 3m Distance
1-6GHz Horizontal Data
Operator: ZJ
Work Order - R3478
EUT Power Input - 3.6V DC
Test Site - CH-2
Conditions - 20.8°C; 30.4%RH; 983mBar
Black antenna, Low channel
EUT Maximum Frequency - 925MHz
1810MHz not in restricted band; 20dB down from fundamental limit was used

Frequency	Raw Peak Reading	Raw Avg Reading	Correction Factor	Adjusted Peak Amplitude	Pk Lim: FCC_pt15_109 _ClassB_Peak	Peak Margin	Peak Results	Worst Peak Margin	Adjusted Avg Amplitude	Av Lim: FCC_pt15_109_ ClassB_AVG	Avg Margin	Avg Results	Worst Average Margin	Antenna Height	EUT Azimuth
(MHz)	(dBµV)	(dBµV)	(dB/m)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(cm)	(degrees)
1810	82.1	65.4	-10.6	71.6	93.1	-21.5	PASS	-21.5	54.9	93.1	-38.2	PASS		100	288
2715	53	50.6	-9.2	43.8	74	-30.2	PASS		41.4	54	-12.6	PASS	-12.6	225	312
3052.5	47.4	38.5	-7.4	40.1	74	-33.9	PASS		31.1	54	-22.9	PASS		299	339
3702.4	45.4	36.2	-4.8	40.6	74	-33.4	PASS		31.4	54	-22.5	PASS		116	204
4600.8	45.3	36	-3.6	41.7	74	-32.2	PASS		32.4	54	-21.6	PASS		205	141
5402.7	46.8	34.2	-1.2	45.6	74	-28.4	PASS		33	54	-21	PASS		117	70

1GHz-6GHz – 905MHz Low Channel

Curtis Straus - a Bureau Veritas Company
Radiated Emissions Electric Field 1m Distance
6-18GHz Vertical Data
Operator: ZJ
High Channel Black Antenna
11:47:18 PM Wednesday December 2 2017
Work Order - R3478
EUT Power Input - 3.6V DC
Test Site - CH-2
Conditions - 20.8°C; 30.4%RH; 983mBar
EUT Maximum Frequency - 925MHz

Frequency	Raw Peak Reading	Raw Avg Reading	Correction Factor	Adjusted Peak Amplitude	Pk Lim: FCC_pt15_109 _ClassB_Peak	Peak Margin	Peak Results	Worst Peak Margin	Adjusted Avg Amplitude	Av Lim: FCC_pt15_109 _ClassB_AVG	Avg Margin	Avg Results	Worst Avg Margin	Antenna Height	EUT Azimuth
(MHz)	(dBµV)	(dBµV)	(dB/m)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(cm)	(degrees)
6474.6	25.4	17.7	23.2	48.6	83.5	-34.9	PASS		40.9	63.5	-22.6	PASS		100	37
7113.5	25.2	16.3	24.1	49.3	83.5	-34.2	PASS		40.4	63.5	-23.1	PASS		200	245
7399.8	27.9	21.4	24.7	52.6	83.5	-30.9	PASS	-30.9	46.1	63.5	-17.4	PASS	-17.4	200	254
9402.5	25	15.8	25.8	50.8	83.5	-32.7	PASS		41.6	63.5	-21.9	PASS		102	71

Curtis Straus - a Bureau Veritas Company
Radiated Emissions Electric Field 1m Distance
6-18GHz Horizontal Data
Operator: ZJ
High Channel Black Antenna
11:47:18 PM Wednesday December 2 2017
Work Order - R3478
EUT Power Input - 3.6V DC
Test Site - CH-2
Conditions - 20.8°C; 30.4%RH; 983mBar
EUT Maximum Frequency - 925MHz

Frequency	Raw Peak Reading	Raw Avg Reading	Correction Factor	Adjusted Peak Amplitude	Pk Lim: FCC_pt15_109 _ClassB_Peak	Peak Margin	Peak Test Results	Worst Peak Margin	Adjusted Avg Amplitude	Av Lim: FCC_pt15_109 _ClassB_AVG	Avg Margin	Avg Test Results	Worst Avg Margin	Antenna Height	EUT Azimuth
(MHz)	(dBµV)	(dBµV)	(dB/m)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(cm)	(degrees)
7319.8	35.3	32.1	24	59.3	83.5	-24.2	PASS	-24.2	56.1	63.5	-7.4	PASS	-7.4	175	50
8208.3	24.8	16.1	25.1	49.9	83.5	-33.6	PASS		41.2	63.5	-22.3	PASS		146	195
9581.6	23.8	16.1	26.5	50.3	83.5	-33.2	PASS		42.6	63.5	-20.9	PASS		156	37

6GHz-10GHz - 924.8MHz High Channel

Curtis Straus - a Bureau Veritas Company					Work Order - R3478										
Radiated Emissions Electric Field 1m Distance					EUT Power Input - 3.6V DC										
6-18GHz Vertical Data					Test Site - CH-2										
Operator: ZJ					Conditions - 20.8°C; 30.4%RH; 983mBar										
Mid Channel	Black Antenna														
11:31:42 PM	Wednesday	December 2	2017		EUT Maximum Frequency - 925MHz										
Frequency	Raw Peak Reading	Raw Avg Reading	Correction Factor	Adjusted Peak Amplitude	Pk Lim: FCC_pt15_109 _ClassB_Peak	Peak Margin	Peak Results	Worst Peak Margin	Adjusted Avg Amplitude	Av Lim: FCC_pt15_109 _ClassB_AVG	Avg Margin	Avg Results	Worst Avg Margin	Antenna Height	EUT Azimuth
(MHz)	(dBµV)	(dBµV)	(dB/m)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(cm)	(degrees)
7319.8	29.5	23.5	24	53.5	83.5	-30	PASS	-30	47.5	63.5	-16	PASS	-16	100	60
8235.1	25.9	16	24.7	50.6	83.5	-32.9	PASS		40.7	63.5	-22.8	PASS		100	42
9578.2	24.7	16.1	26.5	51.2	83.5	-32.3	PASS		42.6	63.5	-20.9	PASS		200	266

Curtis Straus - a Bureau Veritas Company					Work Order - R3478										
Radiated Emissions Electric Field 1m Distance					EUT Power Input - 3.6V DC										
6-18GHz Horizontal Data					Test Site - CH-2										
Operator: ZJ					Conditions - 20.8°C; 30.4%RH; 983mBar										
Mid Channel	Black Antenna														
11:31:42 PM	Wednesday	December 2	2017		EUT Maximum Frequency - 925MHz										
Frequency	Raw Peak Reading	Raw Avg Reading	Correction Factor	Adjusted Peak Amplitude	Pk Lim: FCC_pt15_109 _ClassB_Peak	Peak Margin	Peak Test Results	Worst Peak Margin	Adjusted Avg Amplitude	Av Lim: FCC_pt15_109 _ClassB_AVG	Avg Margin	Avg Test Results	Worst Avg Margin	Antenna Height	EUT Azimuth
(MHz)	(dBµV)	(dBµV)	(dB/m)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(cm)	(degrees)
7319.8	35.3	32.1	24	59.3	83.5	-24.2	PASS	-24.2	56.1	63.5	-7.4	PASS	-7.4	175	50
8208.3	24.8	16.1	25.1	49.9	83.5	-33.6	PASS		41.2	63.5	-22.3	PASS		146	195
9581.6	23.8	16.1	26.5	50.3	83.5	-33.2	PASS		42.6	63.5	-20.9	PASS		156	37

6GHz-10GHz - 915MHz Mid Channel

Curtis Straus - a Bureau Veritas Company					Work Order - R3478										
Radiated Emissions Electric Field 1m Distance					EUT Power Input - 3.6V DC										
6-18GHz Vertical Data					Test Site - CH-2										
Operator: ZJ					Conditions - 20.8°C; 30.4%RH; 983mBar										
Low Channel	Black Antenna														
5:37:19 PM	Wednesday	December 2	2017		EUT Maximum Frequency - 925MHz										
Frequency	Raw Peak Reading	Raw Avg Reading	Correction Factor	Adjusted Peak Amplitude	Pk Lim: FCC_pt15_109 _ClassB_Peak	Peak Margin	Peak Results	Worst Peak Margin	Adjusted Avg Amplitude	Av Lim: FCC_pt15_109 _ClassB_AVG	Avg Margin	Avg Results	Worst Avg Margin	Antenna Height	EUT Azimuth
(MHz)	(dBµV)	(dBµV)	(dB/m)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(cm)	(degrees)
7082.7	25.5	16.3	24.1	49.6	83.5	-33.9	PASS		40.4	63.5	-23.1	PASS		100	96
7239.8	27	22	23.7	50.7	83.5	-32.8	PASS		45.7	63.5	-17.8	PASS	-17.8	100	35
8188.1	25.7	16.1	25	50.7	83.5	-32.8	PASS		41.1	63.5	-22.4	PASS		169	169
9290.8	25	16	25.9	50.9	83.5	-32.6	PASS		41.9	63.5	-21.6	PASS		152	120
9806.1	24.8	15.2	26.7	51.5	83.5	-32	PASS	-32	41.9	63.5	-21.6	PASS		161	143

Curtis Straus - a Bureau Veritas Company							Work Order - R3478								
Radiated Emissions Electric Field 1m Distance							EUT Power Input - 3.6V DC								
6-18GHz Horizontal Data							Test Site - CH-2								
Operator: ZJ							Conditions - 20.8°C; 30.4%RH; 983mBar								
Low Channel Black Antenna															
	Monday	20-Dec	2017				EUT Maximum Frequency - 925MHz								
Frequency	Raw Peak Reading	Raw Avg Reading	Correction Factor	Adjusted Peak Amplitude	Pk Lim: FCC_pt15 _109_Cla ssB_Peak	Peak Margin	Peak Test Results	Worst Peak Margin	Adjusted Avg Amplitude	Av Lim: FCC_pt15 _109_Cla ssB_AVG	Avg Margin	Avg Test Results	Worst Avg Margin	Antenna Height	EUT Azimuth
(MHz)	(dBµV)	(dBµV)	(dB/m)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail	(dB)	(cm)	(degrees)
7240.1	50.8	47.8	6.8	57.6	83.5	-25.9	PASS	-25.9	54.6	63.5	-8.9	PASS	-8.9	159	41
9331.1	43.2	34	9.5	52.7	83.5	-30.8	PASS		43.5	63.5	-20	PASS		168	212
9980.9	43.1	33.3	11.7	54.8	83.5	-28.7	PASS		45	63.5	-18.5	PASS		100	71

6GHz-10GHz – 905MHz Low Channel

***Different Preamps used for Horizontal and Vertical on this scan*

Test Equipment Used for 30-1000MHz:

Rev. 1/3/2018

Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Rental MXE EMI Receiver(1168255)	20Hz-8.4GHz	N9038A	Agilent	MY53290009	1168255	I	8/15/2018	8/15/2017
Preamps /Couplers Attenuators / Filters	**Range**	**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**	**Calibrated on**
2310 PA	1-1000MHz	PAM-103	COM-POWER	441175	2310	II	10/29/2018	10/29/2017
Antennas	**Range**	**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**	**Calibrated on**
Red-Brown Bilog	30-2000MHz	JB1	Sunol	A0032406	1218	I	1/13/2019	1/13/2017
Meteorological Meters/Chambers		**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#2084		HTC-1	HDE		2084	II	3/23/2018	3/23/2017
Cables	**Range**		**Mfr**			**Cat**	**Calibration Due**	**Calibrated on**
Asset #2456	9KHz-18GHz		MegaPhase			II	10/29/2018	10/29/2017
Asset #2457	9KHz-18GHz		MegaPhase			II	10/29/2018	10/29/2017
Asset #2465	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 for 1-18GHz:

Rev. 1/3/2018

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
Rental MXE EMI Receiver(1168255)	20Hz-8.4GHz	N9038A	Agilent	MY53290009	1168255	I	8/15/2018	8/15/2017
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
Brown	1-10GHz	CS	CS	N/A	1523	II	10/18/2018	10/18/2017
Antennas	**Range**	**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**	**Calibrated on**
Orange Horn	1-18GHz	3115	EMCO	0004-6123	390	I	10/13/2018	10/13/2016
Meteorological Meters/Chambers		**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#2084		HTC-1	HDE		2084	II	3/23/2018	3/23/2017
Cables	**Range**		**Mfr**			**Cat**	**Calibration Due**	**Calibrated on**
Asset #2458	9KHz-18GHz		MegaPhase			II	10/29/2018	10/29/2017
Asset #2459	9KHz-18GHz		MegaPhase			II	10/29/2018	10/29/2017
Asset #2464	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.

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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		

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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

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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.

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