Test Report

Bureau Veritas Consumer Products Services

Report No	ET1953-1
Client	Digi
Address	186 Lincoln St suite 8 Boston, MA 02111
Phone	847-769-1486
Items tested FCC ID IC	Zigbee module (Model: SZ9TM-ZP05X) SZ9TM-ZP05X 10940A-TMZP05X
Equipment Type Equipment Code	Digital Transmission System DTS
FCC/IC Rule Parts	CFR Title 47 FCC Part 15.247, ISED Canada RSS-247 Issue 2
Test Dates	Jul 31 and Aug 7, 2019
Results	As detailed within this report
Prepared by	Anna Vancheva- Test Engineer
Authorized by	Yunus Faziloglu - Sr. Engineer
Issue Date	11/22/2019
Conditions of Issue	This Test Report is issued subject to the conditions stated in the '*Conditions of Testing*' section on page 18 of this report.

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

ACCREDITED Cert No. 1627-01

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Form Final Report REV 12-07-15

Summary

This test report supports an application for a Class II permissive change to add a new antenna to a transmitter operating pursuant to 47 CFR Title 47 FCC Part 15.247, ISED Canada RSS-247 Issue 2.

Equipment under test is the Zigbee Module (Model: SZ9TM-ZP05X). It is a transmitter that operates in the 2405 - 2475 MHz frequency range.
Details of the new antenna:

Manufacturer	Model	Type	Gain(dBi)	Antenna Connector
AVX (Ethertronics)	1001932FT	Isolated magnetic dipole	2.5	u.fl

We found that the product met the above requirements with modification to the power level setting. Power setting was changed from 0 to -1. The test sample was received in good condition.

Release Control Record

Issue No.	Reason for change	Date Issued
1	Original Release	January 28, 2020

Test Methodology

All testing was performed according to the following rules/procedures/documents;
CFR Title 47 FCC Part 15.247, ISED Canada RSS-247 Issue 2, ISED Canada RSS-Gen Issue 5, FCC KDB 558074 D01 15.247 Measurement Guidance v05r01 and ANSI C63.10-2013

Radiated emissions were maximized by rotating the device around three orthogonal axes (X, Y and Z) as well as varying the test antenna's height and polarity. Worst case orientation was found to be in X orientation and all radiated emissions tests were performed in this orientation. EUT is battery powered.

Only radiated spurious emissions tests were performed.
Environmental conditions are shown on the associated data tables.
Following bandwidths were used during radiated spurious emissions tests.

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

EUT Configuration

EUT Configuration			
Work Order:	T1953		
Company:	Digi		
Company Address:	186 Lincoln Street, 9th Floor		
	Boston, MA, 02111		
Contact:	Kyle Gilpin		
	MN	**PN**	**SN**
EUT:	SZ9TM-ZP05X		
EUT Description:	Zigbee module		
Software Operating Mode Description:			
Test firmware supplied by client to allow channel selection and power setting adjustments			

Statement of Conformity

RSS-GEN	RSP-100	RSS 247	Part 15	Comments
6.4			15.15(b)	There are no controls accessible to the user that varies the output power to operate in violation of the regulatory requirements.
	3.1		15.19	The label is shown in the label exhibit.
	3.2		15.21	Information to the user is shown in the instruction manual exhibit.
			15.27	No special accessories are required for compliance.
3.2			15.31	The EUT was tested in accordance with the measurement standards in this section.
6.13.2			15.33	Frequency range was investigated according to this section, unless noted in specific rule section under which the equipment operates.
6.13.1			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.
6.8			15.203	See page 3 of this report.
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

Test Results

Radiated Band-edge

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)]

Client declared the maximum duty-cycle for the product as 10%, therefore duty-cycle correction factor is:
DCCF = 20*log(10/100) = -20dB

Data Table:

Radiated Bandedges

Date: 07-Aug-19 **Work Order:** T1953
Engineer: AV **EUT Operating Voltage/Frequency:** Battery
Temp: 22.7°C **Humidity:** 60% **Pressure:** 1003 mBar
Measurement Distance: 3 m

Notes: Frequencies listed had pulsed emissions, therefore DCCF was used to calculate average. DCCF = -20dB
Ave = Peak - DDCF

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 - Peak Limit (dBµV/m)	FCC 15.209 - Peak Margin (dB)	FCC 15.209 - Peak Result (Pass/Fail)	FCC 15.209 - Average Limit (dBµV/m)	FCC 15.209 - Average Margin (dB)	FCC 15.209 - Average Result (Pass/Fail)
High Channel				---	---	---	---	---	---	---	---	---	---	---
H	2483.5	34.0	14.0	0.0	28.2	3.3	65.5	45.5	74.0	-8.5	Pass	54.0	-8.5	Pass
				---	---	---	---	---	---	---	---	---	---	---
V	2483.5	27.9	7.9	0.0	28.2	3.3	59.4	39.4	74.0	-14.6	Pass	54.0	-14.6	Pass
				---	---	---	---	---	---	---	---	---	---	---
Low Channel				---	---	---	---	---	---	---	---	---	---	---
H	2390.0	22.3	2.3	0.0	28.0	3.2	53.5	33.5	74.0	-20.5	Pass	54.0	-20.5	Pass
				---	---	---	---	---	---	---	---	---	---	---
V	2390.0	21.2	1.2	0.0	28.0	3.2	52.4	32.4	74.0	-21.6	Pass	54.0	-21.6	Pass
				---	---	---	---	---	---	---	---	---	---	---

Table Result: Pass by -8.5 dB ***Worst Freq:*** 2483.5 MHz

Test Site: EMI Chamber 2 **Cable 1:** Asset #2455 **Cable 2:** Asset #2606 **Cable 3:** ---
Analyzer: Rental NXE EMI Receiver(1170725) **Preamp:** None **Antenna:** Orange Horn **Preselector:** ---
CSsoft Radiated Emissions Calculator v 1.017.215 Copyright Curtis-Straus LLC 2000
Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor

Test Equipment Used:

Rev. 7/30/2019

Radiated Emissions Sites	FCC Code	IC Code	VCCI Code	Range	Asset	Cat	Calibration Due	Calibrated on
EMI Chamber 2	719150	2762A-7	A-0015	30-1000MHz	1686	I	12/7/2020	12/7/2018
EMI Chamber 2	719150	2762A-7	A-0015	1-18GHz	1686	I	12/7/2020	12/7/2018
Antennas	**Range**	**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**	**Calibrated on**
Orange Horn	1-18GHz	3115	EMCO	0004-6123	390	I	11/6/2020	11/6/2018
Cables	**Range**		**Mfr**			**Cat**	**Calibration Due**	**Calibrated on**
Asset #2455	9KHz-18GHz		MegaPhase			II	10/29/2019	10/29/2018
Asset #2606	9KHz-18GHz		MegaPhase			II	4/2/2020	4/2/2019
Spectrum Analyzers / Receivers /Preselectors	**Range**	**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**	**Calibrated on**
Rental MXE EMI Receiver(1170725)	20Hz-26.5GHz	N9038A	Agilent	MY51210151	1170725	I	5/30/2020	5/30/2019
Meteorological Meters/Chambers		**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**	**Calibrated on**
Weather Clock (Pressure Only)		BA928	Oregon Scientific	C3166-1	831	I	5/15/2020	5/15/2018
Asset #2659		1235C97	Control Company	181683830	2659	I	4/3/2020	4/3/2019

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

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)]

Description of Calculations:

Adjusted Reading(dBµV/m) = Raw Reading(dBµV) + Correction Factor(dB/m)
Correction Factor = Antenna Factor(dB/m) + Cable Factor(dB) - Preamp Factor(dB)
Margin(dB) = Adjusted Reading(dBµV/m) - Limit(dBµV/m)

Measurement Software Used:
ETS-LINDGREN TILE!™ 7.3.0.6

MEASUREMENTS / RESULTS

30-1000MHz:

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Electric Field 3m Distance
Top Peaks Vertical 30-1000MHz
Notes:
Low channel.

Work Order - T1953
EUT Power Input - Battery
Test Site - Ch2
Conditions - 22.7°C;59.8 %RH; 1003mBar
Test Engineer - AV
0

Data Taken at 01:17:53 PM, Wednesday, August 07, 2019

Frequency (MHz)	Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Lim1: FCC_pt15_209 (dBµV/m)	Lim1 Margin (dB)	Lim1 Test Results (Pass/Fail)	Worst Margin Lim1 (dB)	Lim2: FCC_pt15_209 (dBµV/m)	Lim2 Margin (dB)	Lim2 Test Results (Pass/Fail)	Worst Margin Lim2 (dB)	Antenna Height (cm)	Turntable Azimuth (degrees)
30.703	29.6	1.3	31	40	-9	PASS	-9	40	-9	PASS	-9	150	270
117.445	29.7	-5.6	24.1	43.5	-19.4	PASS		43.5	-19.4	PASS		200	270
466.403	32.2	-1.6	30.6	46	-15.4	PASS		46	-15.4	PASS		150	180
950.603	29.3	5.6	34.9	46	-11.1	PASS		46	-11.1	PASS		100	135

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Electric Field 3m Distance
Top Peaks Horizontal 30-1000MHz
Notes:
Low channel.

Work Order - T1953
EUT Power Input - Battery
Test Site - Ch2
Conditions - 22.7°C;59.8 %RH; 1003mBar
Test Engineer - AV
0

Data Taken at 01:27:24 PM, Wednesday, August 07, 2019

Frequency (MHz)	Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Lim1: FCC_pt15_209 (dBµV/m)	Lim1 Margin (dB)	Lim1 Test Results (Pass/Fail)	Worst Margin Lim1 (dB)	Lim2: FCC_pt15_209 (dBµV/m)	Lim2 Margin (dB)	Lim2 Test Results (Pass/Fail)	Worst Margin Lim2 (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
30.436	30	1.5	31.5	40	-8.5	PASS	-8.5	40	-8.5	PASS	-8.5	150	225
74.256	30	-11	19	40	-21	PASS		40	-21	PASS		150	0
119.216	29.6	-5.4	24.2	43.5	-19.3	PASS		43.5	-19.3	PASS		100	270
466.306	34.3	-1.6	32.6	46	-13.4	PASS		46	-13.4	PASS		100	135
702.841	33.4	1.8	35.2	46	-10.8	PASS		46	-10.8	PASS		250	180
924.461	29.6	5.2	34.8	46	-11.2	PASS		46	-11.2	PASS		100	315

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Electric Field 3m Distance
Top Peaks Vertical 30-1000MHz
Notes:
Mid channel.

Work Order - T1953
EUT Power Input - Battery
Test Site - Ch2
Conditions - 22.7°C;59.8 %RH; 1003mBar
Test Engineer - AV
0

Data Taken at 01:40:41 PM, Wednesday, August 07, 2019

Frequency (MHz)	Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Lim1: FCC_pt15_209 (dBµV/m)	Lim1 Margin (dB)	Lim1 Test Results (Pass/Fail)	Worst Margin Lim1 (dB)	Lim2: FCC_pt15_209 (dBµV/m)	Lim2 Margin (dB)	Lim2 Test Results (Pass/Fail)	Worst Margin Lim2 (dB)	Antenna Height (cm)	Turntable Azimuth (degrees)
30.097	30.2	1.7	31.8	40	-8.2	PASS	-8.2	40	-8.2	PASS	-8.2	100	225
78.16	30.8	-11.2	19.6	40	-20.4	PASS		40	-20.4	PASS		200	225
133.814	28.8	-5.4	23.4	43.5	-20.1	PASS		43.5	-20.1	PASS		200	90
202.345	29.2	-6.1	23.1	43.5	-20.4	PASS		43.5	-20.4	PASS		200	0
466.354	31.8	-1.6	30.2	46	-15.8	PASS		46	-15.8	PASS		150	45
952.834	29.8	5.7	35.5	46	-10.5	PASS		46	-10.5	PASS		150	315

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Electric Field 3m Distance
Top Peaks Horizontal 30-1000MHz
Notes:
Mid channel.

Work Order - T1953
EUT Power Input - Battery
Test Site - Ch2
Conditions - 22.7°C;59.8 %RH; 1003mBar
Test Engineer - AV

Data Taken at 01:49:38 PM, Wednesday, August 07, 2019

Frequency (MHz)	Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Lim1: FCC_pt15_209 (dBµV/m)	Lim1 Margin (dB)	Lim1 Test Results (Pass/Fail)	Worst Margin Lim1 (dB)	Lim2: FCC_pt15_209 (dBµV/m)	Lim2 Margin (dB)	Lim2 Test Results (Pass/Fail)	Worst Margin Lim2 (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
30.873	29.2	1.2	30.4	40	-9.6	PASS		40	-9.6	PASS		250	180
122.95	29.4	-5.2	24.3	43.5	-19.2	PASS		43.5	-19.2	PASS		200	225
466.379	34.5	-1.6	32.9	46	-13.1	PASS		46	-13.1	PASS		100	135
703.156	37.4	1.8	39.2	46	-6.8	PASS	-6.8	46	-6.8	PASS	-6.8	150	45
951.039	28.8	5.6	34.4	46	-11.6	PASS		46	-11.6	PASS		250	45

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Electric Field 3m Distance
Top Peaks Vertical 30-1000MHz
Notes:
High channel.

Work Order - T1953
EUT Power Input - Battery
Test Site - Ch2
Conditions - 22.7°C;59.8 %RH; 1003mBar
Test Engineer - AV
0

Data Taken at 02:04:03 PM, Wednesday, August 07, 2019

Frequency (MHz)	Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Lim1: FCC_pt15_209 (dBµV/m)	Lim1 Margin (dB)	Lim1 Test Results (Pass/Fail)	Worst Margin Lim1 (dB)	Lim2: FCC_pt15_209 (dBµV/m)	Lim2 Margin (dB)	Lim2 Test Results (Pass/Fail)	Worst Margin Lim2 (dB)	Antenna Height (cm)	Turntable Azimuth (degrees)
30.024	29.4	1.7	31.1	40	-8.9	PASS	-8.9	40	-8.9	PASS	-8.9	150	0
71.589	29.8	-11.1	18.6	40	-21.4	PASS		40	-21.4	PASS		150	180
128.649	29.7	-5.1	24.5	43.5	-19	PASS		43.5	-19	PASS		200	270
207.631	30.8	-7.7	23.1	43.5	-20.4	PASS		43.5	-20.4	PASS		100	270
466.354	32.7	-1.6	31.1	46	-14.9	PASS		46	-14.9	PASS		200	180
957.15	29	5.8	34.7	46	-11.3	PASS		46	-11.3	PASS		200	315

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Electric Field 3m Distance
Top Peaks Horizontal 30-1000MHz
Notes:
High channel.

Work Order - T1953
EUT Power Input - Battery
Test Site - Ch2
Conditions - 22.7°C;59.8 %RH; 1003mBar
Test Engineer - AV
0

Data Taken at 02:23:23 PM, Wednesday, August 07, 2019

Frequency (MHz)	Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Lim1: FCC_pt15_209 (dBµV/m)	Lim1 Margin (dB)	Lim1 Test Results (Pass/Fail)	Worst Margin Lim1 (dB)	Lim2: FCC_pt15_209 (dBµV/m)	Lim2 Margin (dB)	Lim2 Test Results (Pass/Fail)	Worst Margin Lim2 (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
30.049	29.7	1.7	31.4	40	-8.6	PASS	-8.6	40	-8.6	PASS	-8.6	100	135
171.79	31.7	-7.6	24.1	43.5	-19.4	PASS		43.5	-19.4	PASS		150	180
466.379	34.6	-1.6	33	46	-13	PASS		46	-13	PASS		100	0
940.078	28.6	5.4	34	46	-12	PASS		46	-12	PASS		150	0

1-6GHz:

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Electric Field 3m Distance
Top Peaks Vertical 1-6GHz
Notes:
Low channel.

Work Order - T1953
EUT Power Input - Battery
Test Site - Ch2
Conditions - 22.7°C;59.8 %RH; 1003mBar
Test Engineer - AV

Data Taken at 09:43:03 AM, Wednesday, August 07, 2019

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Pk Lim: FCC_pt15_209_Peak (dBµV/m)	Margin to Peak Limit (dB)	Peak Limit Test Results (Pass/Fail)	Peak Limit Worst Margin (dB)	Av Lim: FCC_pt15_209_Average (dBµV/m)	Margin to Average Limit (dB)	Average Limit Test Result (Pass/Fail)	Average Limit Worst Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
2137	46.7	-5.2	41.5	74	-32.5	PASS		54	-12.5	PASS		200	283
4222.13	46.2	-1.2	45	74	-29	PASS		54	-9	PASS		300	145
5918.13	45.3	1.6	46.8	74	-27.2	PASS	-27.2	54	-7.2	PASS	-7.2	200	246

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Electric Field 3m Distance
Top Peaks Horizontal 1-6GHz
Notes:
Low channel.

Work Order - T1953
EUT Power Input - Battery
Test Site - Ch2
Conditions - 22.7°C;59.8 %RH; 1003mBar
Test Engineer - AV

Data Taken at 09:43:03 AM, Wednesday, August 07, 2019

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Pk Lim: FCC_pt15_209_Peak (dBµV/m)	Margin to Peak Limit (dB)	Peak Limit Results (Pass/Fail)	Peak Limit Worst Margin (dB)	Av Lim: FCC_pt15_209_Average (dBµV/m)	Margin to Avg Limit (dB)	Avg Limit Results (Pass/Fail)	Avg Limit Worst Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
2137.13	46.5	-5.2	41.3	74	-32.7	PASS		54	-12.7	PASS		300	32
5575.75	45.6	1.4	47.1	74	-26.9	PASS	-26.9	54	-6.9	PASS	-6.9	300	220

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Electric Field 3m Distance
Top Peaks Vertical 1-6GHz
Notes:
Mid channel.

Work Order - T1953
EUT Power Input - Battery
Test Site - Ch2
Conditions - 22.7°C;59.8 %RH; 1003mBar
Test Engineer - AV

Duty Cycle: 10%. Duty Cycle Correction Factor (DCCF): -20dB applied to harmonics only

Data Taken at 09:55:12 AM, Wednesday, August 07, 2019

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Pk Lim: FCC_pt15_209_Peak (dBµV/m)	Margin to Peak Limit (dB)	Peak Limit Test Results (Pass/Fail)	Peak Limit Worst Margin (dB)	Duty Cycle Correction Factor (dB)	Adjusted Average Amplitude (dBµV/m)	Av Lim: FCC_pt15_209_Average (dBµV/m)	Margin to Average Limit (dB)	Average Limit Test Result (Pass/Fail)	Average Limit Worst Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
2181.5	47.4	-5	42.4	74	-31.6	PASS				54	-11.6	PASS		200	169
4889.13	60.8	0.1	60.9	74	-13.1	PASS	-13.1	-20	40.9	54	-13.1	PASS		300	0
5784	47.5	1.2	48.7	74	-25.3	PASS				54	-5.3	PASS	-5.3	200	95

Bureau Veritas Consumer Product Services Inc. Work Order - T1953
Radiated Emissions Electric Field 3m Distance EUT Power Input - Battery
Top Peaks Horizontal 1-6GHz Test Site - Ch2
Notes: Conditions - 22.7°C;59.8 %RH; 1003mBar
Mid channel. Test Engineer - AV

Duty Cycle: 10%. Duty Cycle Correction Factor (DCCF): -20dB applied to harmonics only

Data Taken at 09:55:12 AM, Wednesday, August 07, 2019

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Pk Lim: FCC_pt15_209_Peak (dBµV/m)	Margin to Peak Limit (dB)	Peak Limit Results (Pass/Fail)	Peak Limit Worst Margin (dB)	Duty Cycle Correction Factor (dB)	Adjusted Average Amplitude (dBµV/m)	Av Lim: FCC_pt15_209_Average (dBµV/m)	Margin to Avg Limit (dB)	Avg Limit Results (Pass/Fail)	Avg Limit Worst Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
2181.88	47.1	-5	42	74	-32	PASS				54	-12	PASS		100	297
4622.38	47.2	-1.1	46.2	74	-27.8	PASS				54	-7.8	PASS		100	0
4891	62.7	0.1	62.8	74	-11.2	PASS	-11.2	-20	42.8	54	-11.2	PASS		200	22
5408.5	45.4	1.2	46.6	74	-27.4	PASS				54	-7.4	PASS	-7.4	200	209

Bureau Veritas Consumer Product Services Inc. Work Order - T1953
Radiated Emissions Electric Field 3m Distance EUT Power Input - Battery
Top Peaks Vertical 1-6GHz Test Site - Ch2
Notes: Conditions - 22.7°C;59.8 %RH; 1003mBar
High channel. Test Engineer - AV

Duty Cycle: 10%. Duty Cycle Correction Factor (DCCF): -20dB applied to harmonics only

Data Taken at 10:14:25 AM, Wednesday, August 07, 2019

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Pk Lim: FCC_pt15_209_Peak (dBµV/m)	Margin to Peak Limit (dB)	Peak Limit Test Results (Pass/Fail)	Peak Limit Worst Margin (dB)	Duty Cycle Correction Factor (dB)	Adjusted Average Amplitude (dBµV/m)	Av Lim: FCC_pt15_209_Average (dBµV/m)	Margin to Average Limit (dB)	Average Limit Test Result (Pass/Fail)	Average Limit Worst Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
2144.88	46.8	-5.2	41.6	74	-32.4	PASS				54	-12.4	PASS		200	20
4019.25	46.3	-1.5	44.9	74	-29.1	PASS				54	-9.1	PASS		300	70
4961	59.1	0.2	59.3	74	-14.7	PASS	-14.7	-20	39.3	54	-14.7	PASS		300	0
5559.75	45.3	1.4	46.8	74	-27.2	PASS				54	-7.2	PASS	-7.2	300	0

Bureau Veritas Consumer Product Services Inc. Work Order - T1953
Radiated Emissions Electric Field 3m Distance EUT Power Input - Battery
Top Peaks Horizontal 1-6GHz Test Site - Ch2
Notes: Conditions - 22.7°C;59.8 %RH; 1003mBar
High channel. Test Engineer - AV

Duty Cycle: 10%. Duty Cycle Correction Factor (DCCF): -20dB applied to harmonics only

Data Taken at 10:17:46 AM, Wednesday, August 07, 2019

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Pk Lim: FCC_pt15_209_Peak (dBµV/m)	Margin to Peak Limit (dB)	Peak Limit Results (Pass/Fail)	Peak Limit Worst Margin (dB)	Duty Cycle Correction Factor (dB)	Adjusted Average Amplitude (dBµV/m)	Av Lim: FCC_pt15_209_Average (dBµV/m)	Margin to Avg Limit (dB)	Avg Limit Results (Pass/Fail)	Avg Limit Worst Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
2146.88	46.7	-5.2	41.5	74	-32.5	PASS				54	-12.5	PASS		300	264
4961	62.5	0.2	62.6	74	-11.4	PASS	-11.4	-20	42.6	54	-11.4	PASS		200	57
5666.5	45.4	1.3	46.7	74	-27.3	PASS				54	-7.3	PASS	-7.3	200	170

6-18GHz:

Bureau Veritas Consumer Product Services Inc. Work Order - T1953
Radiated Emissions Electric Field 1m Distance EUT Power Input - Battery
Top Peaks Vertical 6-18GHz Test Site - Ch2
Notes: Conditions - 22°C;60.1 %RH; 1007mBar
Low channel Test Engineer - AV

Duty Cycle: 10%. Duty Cycle Correction Factor (DCCF): -20dB applied to harmonics

Data Taken at 02:39:04 PM, Wednesday, July 31, 2019

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Pk Lim: FCC_pt15_209_Peak (dBµV/m)	Margin to Peak Limit (dB)	Peak Limit Test Results (Pass/Fail)	Peak Limit Worst Margin (dB)	Duty Cycle Correction Factor (dB)	Adjusted Average Amplitude (dBµV/m)	Av Lim: FCC_pt15_209_Average (dBµV/m)	Margin to Avg Limit (dB)	Avg Limit Test Results (Pass/Fail)	Avg Limit Worst Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
7216.5	62.9	3.7	66.6	83.5	-16.9	PASS		-20	46.6	63.5	-16.9	PASS		125	127
9618	55.4	6.1	61.5	83.5	-22	PASS		-20	41.5	63.5	-22	PASS		150	236
12022.2	57.7	9.4	67.1	83.5	-16.4	PASS	-16.4	-20	47.1	63.5	-16.4	PASS	-16.4	175	32

Bureau Veritas Consumer Product Services Inc. Work Order - T1953
Radiated Emissions Electric Field 1m Distance EUT Power Input - Battery
Top Peaks Horizontal 6-18GHz Test Site - Ch2
Notes: Conditions - 22°C;60.1 %RH; 1007mBar
Low channel Test Engineer - AV

Duty Cycle: 10%. Duty Cycle Correction Factor (DCCF): -20dB applied to harmonics

Data Taken at 02:39:04 PM, Wednesday, July 31, 2019

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Pk Lim: FCC_pt15_209_Peak (dBµV/m)	Margin to Peak Limit (dB)	Peak Limit Test Results (Pass/Fail)	Peak Limit Worst Margin (dB)	Duty Cycle Correction Factor (dB)	Adjusted Average Amplitude (dBµV/m)	Av Lim: FCC_pt15_209_Average (dBµV/m)	Margin to Avg Limit (dB)	Avg Limit Test Results (Pass/Fail)	Avg Limit Worst Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
7216.5	65.1	3.7	68.8	83.5	-14.7	PASS	-14.7	-20	48.8	63.5	-14.7	PASS	-14.7	125	221
9618	57.3	6.1	63.4	83.5	-20.1	PASS		-20	43.4	63.5	-20.1	PASS		175	33
12027.6	55.3	9.4	64.7	83.5	-18.8	PASS		-20	44.7	63.5	-18.8	PASS		175	9

Bureau Veritas Consumer Product Services Inc. Work Order - T1953
Radiated Emissions Electric Field 1m Distance EUT Power Input - Battery
Top Peaks Vertical 6-18GHz Test Site - Ch2
Notes: Conditions - 22°C;60.1 %RH; 1007mBar
Mid channel. Test Engineer - AV

Duty Cycle: 10%. Duty Cycle Correction Factor (DCCF): -20dB applied to harmonics

Data Taken at 01:54:30 PM, Wednesday, July 31, 2019

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Pk Lim: FCC_pt15_209_Peak (dBµV/m)	Margin to Peak Limit (dB)	Peak Limit Test Results (Pass/Fail)	Peak Limit Worst Margin (dB)	Duty Cycle Correction Factor (dB)	Adjusted Average Amplitude (dBµV/m)	Av Lim: FCC_pt15_209_Average (dBµV/m)	Margin to Avg Limit (dB)	Avg Limit Test Results (Pass/Fail)	Avg Limit Worst Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
7336.5	73.5	3.3	76.8	83.5	-6.7	PASS	-6.7	-20	56.8	63.5	-6.7	PASS	-6.7	150	117
9777.9	49.3	6.5	55.7	83.5	-27.8	PASS		-20	35.7	63.5	-27.8	PASS		150	259
12227.4	63.2	9.5	72.8	83.5	-10.7	PASS		-20	52.8	63.5	-10.7	PASS		175	31
17118.3	48.9	13.6	62.6	83.5	-20.9	PASS		-20	42.6	63.5	-20.9	PASS		175	198

Bureau Veritas Consumer Product Services Inc. Work Order - T1953
Radiated Emissions Electric Field 1m Distance EUT Power Input - Battery
Top Peaks Horizontal 6-18GHz Test Site - Ch2
Notes: Conditions - 22°C;60.1 %RH; 1007mBar
Mid channel. Test Engineer - AV

Duty Cycle: 10%. Duty Cycle Correction Factor (DCCF): -20dB applied to harmonics

Data Taken at 01:54:30 PM, Wednesday, July 31, 2019

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Pk Lim: FCC_pt15_209_Peak (dBµV/m)	Margin to Peak Limit (dB)	Peak Limit Test Results (Pass/Fail)	Peak Limit Worst Margin (dB)	Duty Cycle Correction Factor (dB)	Adjusted Average Amplitude (dBµV/m)	Av Lim: FCC_pt15_209_Average (dBµV/m)	Margin to Avg Limit (dB)	Avg Limit Test Results (Pass/Fail)	Avg Limit Worst Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
7336.5	74.2	3.3	77.5	83.5	-6	PASS	-6	-20	57.5	63.5	-6	PASS	-6	125	33
9777.6	51.9	6.5	58.4	83.5	-25.1	PASS		-20	38.4	63.5	-25.1	PASS		175	32
12227.4	60.7	9.5	70.2	83.5	-13.3	PASS		-20	50.2	63.5	-13.3	PASS		175	199
17118.6	51.1	13.6	64.7	83.5	-18.8	PASS		-20	44.7	63.5	-18.8	PASS		175	127

Bureau Veritas Consumer Product Services Inc. Work Order - T1953
Radiated Emissions Electric Field 1m Distance EUT Power Input - Battery
Top Peaks Vertical 6-18GHz Test Site - Ch2
Notes: Conditions - 22°C;60.1 %RH; 1007mBar
High channel Test Engineer - AV
Power reduced to -1.
Duty Cycle: 10%. Duty Cycle Correction Factor (DCCF): -20dB applied to harmonics

Data Taken at 03:36:43 PM, Wednesday, July 31, 2019

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Pk Lim: FCC_pt15_209_Peak (dBµV/m)	Margin to Peak Limit (dB)	Peak Limit Test Results (Pass/Fail)	Peak Limit Worst Margin (dB)	Duty Cycle Correction Factor (dB)	Adjusted Average Amplitude (dBµV/m)	Av Lim: FCC_pt15_209_Average (dBµV/m)	Margin to Avg Limit (dB)	Avg Limit Test Results (Pass/Fail)	Avg Limit Worst Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
7441.5	77.3	3.8	81.1	83.5	-2.4	PASS	-2.4	-20	61.1	63.5	-2.4	PASS	-2.4	175	104
9921.9	65	7	72	83.5	-11.5	PASS		-20	52	63.5	-11.5	PASS		175	127
12402.3	62.7	9.9	72.7	83.5	-10.8	PASS		-20	52.7	63.5	-10.8	PASS		150	21
14882.7	54.2	11.7	65.9	83.5	-17.6	PASS		-20	45.9	63.5	-17.6	PASS		150	306
17355.9	49.8	13.4	63.2	83.5	-20.3	PASS		-20	43.2	63.5	-20.3	PASS		150	93

Bureau Veritas Consumer Product Services Inc. Work Order - T1953
Radiated Emissions Electric Field 1m Distance EUT Power Input - Battery
Top Peaks Horizontal 6-18GHz Test Site - Ch2
Notes: Conditions - 22°C;60.1 %RH; 1007mBar
High channel Test Engineer - AV
Power reduced to -1.
Duty Cycle: 10%. Duty Cycle Correction Factor (DCCF): -20dB applied to harmonics

Data Taken at 03:48:18 PM, Wednesday, July 31, 2019

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Pk Lim: FCC_pt15_209_Peak (dBµV/m)	Margin to Peak Limit (dB)	Peak Limit Test Results (Pass/Fail)	Peak Limit Worst Margin (dB)	Duty Cycle Correction Factor (dB)	Adjusted Average Amplitude (dBµV/m)	Av Lim: FCC_pt15_209_Average (dBµV/m)	Margin to Avg Limit (dB)	Avg Limit Test Results (Pass/Fail)	Avg Limit Worst Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
7441.5	79.3	3.8	83.1	83.5	-0.4	PASS	-0.4	-20	63.1	63.5	-0.4	PASS	-0.4	150	46
9921.6	62.5	7	69.5	83.5	-14	PASS		-20	49.5	63.5	-14	PASS		125	175
12402.3	67.3	9.9	77.3	83.5	-6.2	PASS		-20	57.3	63.5	-6.2	PASS		175	9
14882.7	56.2	11.7	67.8	83.5	-15.7	PASS		-20	47.8	63.5	-15.7	PASS		150	0
17363.1	51.1	13.4	64.5	83.5	-19	PASS		-20	44.5	63.5	-19	PASS		150	69

18-25GHz:

Radiated Emissions Table

Date: 07-Aug-19 **Work Order:** T1953
Engineer: AV
Temp: 22.7°C **Humidity:** 60% **Pressure:** 1003 mbar
Frequency Range: 18-25GHz **Measurement Distance:** 0.1 m
Notes:

Antenna Polarization (H / V)	Frequency (MHz)	Peak Reading (dBµV)		Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Peak Reading (dBµV/m)		FCC 15.209 - Peak Limit (dBµV/m)	FCC 15.209 - Peak Margin (dB)	FCC 15.209 - Peak Result (Pass/Fail)	FCC 15.209 - Average Limit (dBµV/m)	FCC 15.209 - Average Margin (dB)	FCC 15.209 - Average Result (Pass/Fail)
High Channel				---	---	---	---		---	---	---	---	---	---
H	19835.7	71.9		41.5	40.3	7.3	78.0		103.5	-25.5	Pass	83.5	-5.5	Pass
H	22314.0	71.6		42.4	40.5	8.1	77.8		103.5	-25.7	Pass	83.5	-5.7	Pass
H	24794.9	66.5		41.4	40.2	8.5	73.8		103.5	-29.7	Pass	83.5	-9.7	Pass
Low Channel				---	---	---	---		---	---	---	---	---	---
H	19244.3	53.53		41.5	40.3	7.2	59.5		103.5	-44.0	Pass	83.5	-24.0	Pass
H	21640.6	58.3		42.7	40.4	7.8	63.8		103.5	-39.7	Pass	83.5	-19.7	Pass
H	24054.8	46.44		40.8	40.4	8.4	54.4		103.5	-49.1	Pass	83.5	-29.1	Pass
Mid Channel				---	---	---	---		---	---	---	---	---	---
H	19563.9	66.56		41.2	40.3	7.3	73.0		103.5	-30.5	Pass	83.5	-10.5	Pass
H	22000.4	56.6		42.3	40.5	8.1	62.9		103.5	-40.6	Pass	83.5	-20.6	Pass
H	24444.5	60.27		41.1	40.2	8.5	67.9		103.5	-35.6	Pass	83.5	-15.6	Pass

Table Result: Pass by -5.5 dB ***Worst Freq:*** 19835.7 MHz

Test Site: EMI Chamber 2 **Cable 1:** Asset #2324 **Cable 2:** --- **Cable 3:** ---
Analyzer: Gold **Preamp:** 18-26.5GHz **Antenna:** 18-26.5GHz Horn **Preselector:** ---
CSsoft Radiated Emissions Calculator v 1.017.215
Copyright Curtis-Straus LLC 2000
Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor

Test Equipment Used:

30MHz -18GHz

Rev. 7/30/2019

Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Rental MXE EMI Receiver(1170725)	20Hz-26.5GHz	N9038A	Agilent	MY51210151	1170725	I	5/30/2020	5/30/2019

Radiated Emissions Sites	FCC Code	IC Code	VCCI Code	Range	Asset	Cat	Calibration Due	Calibrated on
EMI Chamber 2	719150	2762A-7	A-0015	30-1000MHz	1686	I	12/7/2020	12/7/2018
EMI Chamber 2	719150	2762A-7	A-0015	1-18GHz	1686	I	12/7/2020	12/7/2018

Preamps /Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
8449B HF Preamp	1-18GHz	8449B	Agilent	1149055		II	11/26/2019	11/26/2018
2116 BRF	0.009-18000MHz	BRM50702	Micro-Tronics	G226	2116	II	11/8/2019	11/8/2018
8447F Rental PA	9KHz-1.3GHz	84477F	HP	3113A05395		II	6/18/2020	6/18/2019

Antennas	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Blue Horn	1-18Ghz	3117	ETS	157647	1861	I	3/9/2021	3/9/2019
Orange Horn	1-18GHz	3115	EMCO	0004-6123	390	I	11/6/2020	11/6/2018

Meteorological Meters/Chambers		MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Weather Clock (Pressure Only)		BA928	Oregon Scientific	C3166-1	831	I	5/15/2020	5/15/2018
Asset #2659		1235C97	Control Company	181683830	2659	I	4/3/2020	4/3/2019

Cables	Range	Mfr	Cat	Calibration Due	Calibrated on
Asset #2455	9KHz-18GHz	MegaPhase	II	10/29/2019	10/29/2018
Asset #2466	9KHz-18GHz	MegaPhase	II	10/31/2019	10/31/2018
Asset #2606	9KHz-18GHz	MegaPhase	II	4/2/2020	4/2/2019

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

18-25GHz

Rev. 7/30/2019

Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Gold	100Hz-26.5 GHz	E4407B	Agilent	MY45113816	1284	I	5/20/2020	5/20/2019

Radiated Emissions Sites	FCC Code	IC Code	VCCI Code	Range	Asset	Cat	Calibration Due	Calibrated on
EMI Chamber 1	719150	2762A-6	A-0015	1-18GHz	1685	I	12/7/2020	12/7/2018

Preamps /Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
HF (Yellow)	18-26.5GHz	AFS4-18002650-60-8P-4	CS	467559	1266	II	10/24/2019	10/24/2018

Antennas	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
HF (White) Horn	18-26.5GHz	801-WLM	Waveline	758	758	III	Verify before Use	date of test

Meteorological Meters/Chambers		MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Asset #2659		1235C97	Control Company	181683830	2659	I	4/3/2020	4/3/2019
Weather Clock (Pressure Only)		BA928	Oregon Scientific	C3166-1	831	I	5/15/2020	5/15/2018

Cables	Range		Mfr			Cat	Calibration Due	Calibrated on
Asset #2324	1-26.5GHz	TM26-S1S1-120	MEGAPHASE	17139101 001	2324	II	7/24/2020	7/24/2019

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

Measurement Uncertainty

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

Measurement	Expanded Uncertainty k=2	Maximum allowable uncertainty
Radiated Emissions (30-1000MHz) NIST 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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