



TEST REPORT

Applicant	Yardi Systems Inc.
Address	430 South Fairview Ave Goleata, CA 93117

FCC ID	2BAL9YDITRZB				
ISED IC	30221-YDITRZB				
Product Description	Wireless Gecko Multi-Protocol C	onnectivity Module			
Model/HVIN	YDI210P32				
Additional Models & Model Difference	None				
Date of tests	Jul 7 to Oct 11, 2023	Jul 7 to Oct 11, 2023			
FCC Test Firm DN Canada CABID	DN US1028 US0106				
The tests have been	The tests have been carried out according to the requirements of the following standard:				
 FCC Part 15, Subpart C, Section 15.247 RSS-247 Issue 2 					
CONCLUSION: The submitted sample was found to <u>COMPLY</u> with the test requirement					
Prepared by Ryan M. BrownApproved by Yunus FazilogluSr. EMC/Wireless EngineerWireless Manager					
Rosen m. Brown U.E. July					
Report Issue Date: Nov 21, 2023 Issue Number: 2					
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person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. Measurement uncertainty is only provided upon request for accredited tests. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence or if you require measurement uncertainty; provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute you unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents.





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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
1	Original release	Oct 19, 2023
2	 1-18GHz plots and data tables revised to show peak measurement data passing average limits. In Section 3.2, test mode description revised to remove "Continuous" phrase. In Section 3.2, worst-case orientation determination method clarified. 	Nov 21, 2023





1 SUMMARY OF TEST RESULTS

EUT was tested against the following requirements:

APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.247), RSS-247					
STANDARD SECTION		TEST TYPE AND LIMIT			
47CFR15	RSS			RESOLI	
15.207	Gen 8.8	AC Power Line Conducted Emissions	N/A (Note 1)	N/A	
	247 3.3				
15.205	247 5.5	Radiated Spurious Emissions	V	Pass	
15.209	Gen 8.9	Radiated Spundus Emissions	I	F d S S	
	Gen 8.10				
15.247(d)	247 5.5	Conducted Spurious Emissions	N/A (Note 1)	N/A	
15.247(a)(2)	247 5.2(a)	6dB Bandwidth	N/A (Note 1)	N/A	
	Gen 6.7	99% Occupied Bandwidth	N/A (Note 1)	N/A	
15.247(b)(3)	247 5.4(d)	Conducted Output Power	N/A (Note 1)	N/A	
15.247(e)	247 5.2(b)	Power Spectral Density	N/A (Note 1)	N/A	
15.203	Gen 6.8	Antenna Requirement	N/A (Note 1)	N/A	

Note 1: Class II Permissive change testing to add a new antenna. Testing for Radiated Spurious Emissions and Radiated Band Edges only.





2 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. Values for measurement uncertainty are calculated per ETSI TR 100 028 (2001).

Measurement	Expanded Uncertainty k=2	Maximum allowable uncertainty
Radio frequency (@ 2.4GHz)	3.23 x 10 ⁻⁸	1 x 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		

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k = 2.





3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

NOMINAL VOLTAGE	3VDC
MODULATION TECHNOLOGY	DTS
MODULATION TYPES	O-QPSK
DATA RATES	250kbps (O-QPSK)
OPERATING FREQUENCY	2405 – 2480MHz
EUT Power Setting	CH11 to CH25: 20dBm (Default) CH26: 11dBm (Default)
ANTENNA TYPE	FPC antenna with 2.5dBi peak gain in 2.4GHz band (Customer supplied information)

NOTES:

- 1. For a more detailed description of the EUT, please refer to the manufacturer's specifications or the user's manual.
- 2. For photos of the EUT, please refer to External and Internal Photos exhibits.





3.2 DESCRIPTION OF TEST MODES

EUT can operate	16 channels:
-----------------	--------------

Channel	FREQ. (MHz)	REQ. (MHz) Channel	
11	2405	19	2445
12	2410	20	2450
13	2415	21	2455
14	2420	22	2460
15	2425	23	2465
16	2430	24	2470
17	2435	25	2475
18	2440	26	2480

Module was mounted on an evaluation board during testing. EUT configuration modes:

TEST MODE	DESCRIPTION
Α	Transmit at 250kbps (Duty-cycle: 66%)

Following channels/modes were selected for the applicable tests below.

TEST	TEST MODE	AVAILABLE CHANNELS	TESTED CHANNEL	MODULATION TYPE	DATA RATE (Kbps)	Notes
RSE<1G	А	11 to 26	25	O-QPSK	250	1, 2
RSE≥1G	А	11 to 26	11,18,25,26	O-QPSK	250	2
RBE	A	11 to 26	11,25,26	O-QPSK	250	3

Note 1: Testing below 1GHz was limited to 1 channel only since all emissions detected in this range were related to the evaluation board that the EUT was mounted on.

Note 2: For radiated emissions, worst-case orientation was found when the EUT (module) was positioned on X axis (flat on the table) and external antenna was in X-axis (flat) as shown in the Test Setup Photos exhibit. Worst-case orientation determination is based on maximizing the fundamental on center channel. EUT (module) was maximized on 3 axis (X, Y and Z) and on each EUT axis external antenna was also maximized on 3 axis (X, Y and Z) for a total of 9 combinations.

Note 3: Tested at worst-case EUT (module) orientation as described in Note 2 at 3 axis of the external antenna.

RSE<1G: Radiated Spurious Emissions Below 1GHz RSE≥1G: Radiated Spurious Emissions Above 1GHz RBE: Radiated Band-edge





TEST CONDITIONS:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY	DATE OF TEST
RBE 22.5°C, 46.8% RH, 1012 mbar		3VDC	RMB	Jul 7, 2023
RE<1G	23°C, 46.1% RH, 1010 mbar	3VDC	RMB	Aug 1, 2023
RE≥1G	23°C, 46.1% RH, 1010 mbar 23.5°C, 44.5% RH, 1008 mbar 25.2°C, 51.0% RH, 1002 mbar	3VDC	RMB	Aug 1, 2023 Aug 3, 2023 Oct 11, 2023

3.3 MEASUREMENT PROCEDURES USED

All tests were performed in accordance with the following measurement procedures:

FCC KDB 558074 D01 15.247 Meas Guidance v05r02 ANSI C63.10-2013

3.4 DESCRIPTION OF SUPPORT EQUIPMENT

Customer supplied a laptop computer to setup test modes for the module.





4 TEST RESULTS

4.1 RADIATED EMISSIONS MEASUREMENT

4.1.1 LIMITS OF RADIATED EMISSIONS MEASUREMENT

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emissions limits specified in Section 15.209(a).

FREQUENCIES (MHz)	FIELD STRENGTH (microvolts/meter)	MEASUREMENT DISTANCE (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

NOTE:

- 1. The lower limit shall apply at the transition frequencies.
- 2. Emission level $(dBuV/m) = 20 \log Emission level (uV/m)$.
- 3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.
- Limit conversion below 30MHz is done by using the square of an inverse linear distance extrapolation factor (40 dB/decade) as allowed in FCC 15.31(f)(2).
 Limit(3m) = Limit(30m) + 40*log(30/3) = Limit(30m) + 40

Limit (3m) = Limit (300m) + 40*log(300/3) = Limit (300m) + 80

5. RSS-GEN Table 6 H-field limits are 51.5dB lower than FCC 15.209(a) E-field limits. Measurements are performed in terms of magnetic field and converted to electric field using the free space impedance of 377Ω (E-field = H-field +51.5). Therefore resulting pass/fail margin would be the same if an E-field reading is compared to an E-field limit or an H-field reading is compared to an H-field limit.





4.1.2 TEST INSTRUMENTS

0.009KHz - 18000MHz: Jul 7 to Aug 3, 2023

Rev. 6/27/2023								
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.	2/21/2024	2/21/2023
Radiated Emissions Sites	FCC Code	IC Code	VCCI Code	Range	Asset	Cat	Calibration Due	Calibrated on
EMI Chamber 1	719150	2762A-6	A-0015	30-1000MHz	1685	1	11/29/2024	11/29/2022
EMI Chamber 1	719150	2762A-6	A-0015	1-18GHz	1685	I.	12/29/2024	12/29/2022
Preamps /Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
8447F Rental PA	9KHz-1.3GHz	84477F	HP	3113A05395		Ш	10/17/2023	10/17/2022
8449B HF Preamp	1-18GHz	8449B	Agilent	1149055		Ш	11/1/2023	11/1/2022
2116 BRF	0.009-18000MHz	BRM50702	Micro-Tronics	G226	2116	Ш	11/16/2023	11/16/2022
Antennas	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Small Loop	10kHz-30MHz	PLA-130/A	ARA	1024	755	1	9/12/2024	9/12/2022
Large Loop	20Hz-5MHz	6511	EMCO	9704-1154	67	1	8/22/2024	8/22/2022
Red-White Bilog	30-2000MHz	JB1	Sunol	A091604-1	1105	1	10/25/2023	10/25/2021
Blue Horn	1-18Ghz	3117	ETS	157647	1861	1	3/27/2025	3/27/2023
Meteorological Meters/Chambers		MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Asset 2707		SD700	EXTECH	A.115171	2707	I	1/13/2025	1/13/2023
Cables	Range		Mfr			Cat	Calibration Due	Calibrated on
Asset #2474	9KHz-18GHz		MegaPhase			Ш	11/1/2023	11/1/2022
Asset #2610	9KHz-18GHz		Pasternack			Ш	3/3/2024	3/3/2023
Asset #2681	9KHz-18GHz		Pasternack			Ш	12/13/2023	12/13/2022
Asset #2466	9KHz-18GHz		MegaPhase			Ш	11/1/2023	11/1/2022

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

18-25GHz: October 11, 2023

Rev. 10/4/2023 Spectrum Analyzers / Receivers /Preselectors 2093 MXE EMI Receiver	Range 20Hz-26.5GHz	MN N9038A	Mfr Agilent	SN MY51210181	Asset 2093	Cat I	Calibration Due 3/30/2024	Calibrated on 3/30/2023
Radiated Emissions Sites EMI Chamber 1	FCC Code 719150	IC Code 2762A-6	VCCI Code A-0015	Range 1-18GHz	Asset 1685	Cat I	Calibration Due 12/29/2024	Calibrated on 12/29/2022
Antennas 3116C Horn / PA	Range 18-40GHz	MN 3116C	Mfr ETS	SN 258845	Asset 2709	Cat I	Calibration Due 3/7/2024	Calibrated on 3/7/2023
Meteorological Meters/Chambers Asset 2707		MN SD700	Mfr EXTECH	SN A.115171	Asset 2707	Cat I	Calibration Due 1/13/2025	Calibrated on 1/13/2023
Cables Asset #2690	Range 1-40GHz		Mfr Pasternack			Cat II	Calibration Due 8/22/2024	Calibrated on 8/22/2023

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

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4.1.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 1.5 meters (above 1GHz) and 0.8 meters (below 1GHz) above the ground at a 3 meters semi-anechoic chamber.
- b. For below 30MHz, a loop antenna with its lowest point 1m above the ground was placed 3m away from the EUT and it was rotated 0 and 90 degrees around its vertical axis.
- c. In 30MHz-1GHz range, a biconilog antenna was mounted on a variable-height antenna tower and placed 3m away from the EUT. Antenna height was varied from 1 meter to 4 meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna were investigated. The table was rotated 360 degrees to determine the position of the highest radiation.
- d. In 1GHz-6GHz range, a horn antenna was mounted on a variable-height antenna tower and placed 3m away from the EUT. Antenna height was varied from 1 meter to 4 meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna were investigated. The table was rotated 360 degrees to determine the position of the highest radiation. Using the same antenna, the measurement distance was reduced to 1m in 6-18GHz range.
- e. In 18-25GHz a smaller horn antenna was used to make measurements at 1m away from the EUT.

				<u> </u>
Freq. (MHz)	RBW	VBW	Pre-scan	Final
0.009-0.15	200Hz	1kHz	Peak	Quasi Peak and RMS Power Avg (Trace Avg)
0.15-30	9kHz	30kHz	Peak	Quasi Peak and RMS Power Avg (Trace Avg)
30-1000	120kHz	300kHz	Peak	Quasi Peak
>1000	1MHz	3MHz	Peak	Peak Max Hold and RMS Power Avg (Trace Avg)

f. Following bandwidths were used during emissions testing:

Per FCC §15.209(d), limits §15.209(a) are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector. If peak measurements in these frequency bands were below the applicable limits, QPk and RMS measurements were not performed.





4.1.4 DEVIATION FROM TEST STANDARD

No deviation.

4.1.5 TEST SETUP

Below 30MHz test setup



30MHz - 1GHz Test Setup



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1GHz – 6GHz Test Setup



Note: For the actual test configuration, please refer to the Test Setup Photos exhibit.

4.1.6 EUT OPERATING CONDITIONS

EUT was operated according to the manufacturer's specifications.

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4.1.7 TEST RESULTS

Emissions below 1GHz

Results for Channel 25

No emissions within 10dB of the limit were identified in 9kHz-30MHz range. Only plots shown below.











0.009-0.15MHz Perpendicular



0.15-1MHz Parallel

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0.15-1MHz Perpendicular



1-30MHz Parallel

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1-30MHz Perpendicular

30-1000MHz Vertical Data Notes: High Ch -1 X-Axis Evaluation Board Wrapped in Aluminum Foil and added a Ferrite with 3 loops on the power supply Test Site - Ch1 Conditions - 46.1°C; 23%RH; 1010mBar Test Engineer - Ryan M Brown Date of Test - 8/1/2023

Frequency (MHz)	Raw QP Reading (dBµV)	Correction Factor (dB/m)	Adjusted QP Amplitude (dBµV/m)	Lim1: FCC_pt15_20 9 (dBµV/m)	Margin to Lim1 (dB)	Test Results Lim1 (Pass/Fail)	Worst Margin Lim1 (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
47.731	47.7	-11.6	36.1	40	-3.9	PASS		104	115
64.723	53.6	-13.7	39.9	40	-0.1	PASS	-0.1	125	167
147.009	49.2	-7.9	41.3	43.5	-2.2	PASS		100	10
149.65	48.9	-8	40.9	43.5	-2.6	PASS		108	1
151.631	47.8	-8	39.7	43.5	-3.8	PASS		125	4
157.326	43.8	-8.3	35.4	43.5	-8.1	PASS		100	41

30-1000MHz Vertical







30-1000MHz Vertical

Bureau Veritas Consumer Product Services Inc. Radiated Emissions Electric Field 3m Distance Top Peaks Horizontal 30-1000MHz Notes: High Ch -1 X-Axis Evaluation Board Wrapped in Aluminum Foil and added a Ferrite with 3 loops on the power supply Work Order - X0275 EUT Power Input - 3VDC Test Site - Ch1 Conditions - 46.1°C; 23%RH; 1010mBar Test Engineer - Ryan M Brown Date of Test - 8/1/2023

Frequency (MHz)	Реаk Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBμV/m)	Lim1: FCC_pt15_20 9 (dBµV/m)	Lim1 Margin (dB)	Lim1 Test Results (Pass/Fail)	Worst Margin Lim1 (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
34.413	36.9	-2.7	34.2	40	-5.8	PASS	-5.8	250	135
149.528	40.4	-8	32.4	43.5	-11.1	PASS		150	45
151.42	40.3	-8	32.3	43.5	-11.2	PASS		200	225
300.024	39.8	-6.4	33.4	46	-12.6	PASS		100	270
420.013	41.5	-4.3	37.2	46	-8.8	PASS		100	90
900.042	30.7	3.5	34.1	46	-11.9	PASS		100	270

30-1000MHz Horizontal







30-1000MHz Horizontal

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Emissions above 1GHz

Results for Channel 11

Bureau Veritas Consumer Product Services Inc. Radiated Emissions Electric Field 3m Distance Top Peaks Vertical 1-6GHz Notes: Iow Ch X-Axis Evaluation Board Wrapped in Aluminum Foil and added a Ferrite with 3 loops on the power supply Work Order - X0275 EUT Power Input - 3VDC Test Site - Ch1 Conditions - 46.1°C; 23%RH; 1010mBar Test Engineer - Ryan M Brown Date of Test - 8/1/2023

			Adjusted	Pk Lim:			Peak Limit	Av Lim:	Margin to	Average	Average		
	Raw Peak	Correction	Peak	FCC_pt15_2	Margin to	Peak Limit	Worst	FCC_pt15_2	Average	Limit Test	Limit Worst	Antenna	EUT
Frequency	Reading	Factor	Amplitude	09_Peak	Peak Limit	Test Results	Margin	09_Average	Limit	Result	Margin	Height	Azimuth
(MHz)	(dBµV)	(dB/m)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(cm)	(degrees)
1400	48.9	-7	41.9	74	-32.1	PASS		54	-12.1	PASS		200	91
2134.5	Not in the F	Restricted Ba	nd	•									
2405	Fundament	al											
2802.5	47.4	3.9	51.4	74	-22.6	PASS	-22.6	54	-2.6	PASS	-2.6	100	109
4051.88	46.7	0.9	47.6	74	-26.4	PASS		54	-6.4	PASS		300	223
5624.75	Not in the F	Restricted Ba	nd										

1-6GHz Vertical



1-6GHz Vertical

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2404.38

2800.13

Fundamental

47.1 5586.5 Not in the Restricted Band

4.1

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74

-22.8



Avg Limit

Worst

Margin

(dB)

-2.8

Antenna

Height

(cm)

100

200

EUT Azimut

(degrees)

0

206

Bureau Veritas Consumer Product Services Inc. Work Order - X0275 EUT Power Input - 3VDC Radiated Emissions Electric Field 3m Distance Top Peaks Horizontal 1-6GHz Test Site - Ch1 Notes: Conditions - 46.1°C; 23%RH; 1010mBar low Ch X-Axis Test Engineer - Ryan M Brown Evaluation Board Wrapped in Aluminum Foil and Date of Test - 8/1/2023 added a Ferrite with 3 loops on the power supply Pk Lim: Adjusted Correction FCC_pt15_20 Raw Peak Margin to Peak Limit Peak Reading Factor Amplitude 9_Peak Peak Limit Results Frequency (MHz) (dBµV) (dB/m) (dBµV/m) (dBµV/m) (dB) (Pass/Fail) 1357 13 48 2 -6.8 414 74 -32.6 PASS 2195.88 Not in the Restricted Band

51.2

PASS

Peak Limit

Worst

Margin

(dB)

-22.8

Av Lim:

FCC_pt15_20

9_Average

(dBµV/m)

54

54

Margin to

Avg Limit

(dB)

-12.6

-2.8

Avg Limit

Results

(Pass/Fail)

PASS

PASS

1-6GHz Horizontal



1-6GHz Horizontal





Bureau Veritas Consumer Product Services Inc. Radiated Emissions Electric Field 1m Distance Top Peaks Vertical 6-18GHz Notes: Iow Ch X-Axis Evaluation Board Wrapped in Aluminum Foil and added a Ferrite with 3 loops on the power supply Work Order - X0275 EUT Power Input - 3VDC Test Site - Ch1 Conditions - 23.5°C; 44.5%RH; 1008mBar Test Engineer - Ryan M Brown Date of Test - 8/3/2023

			Adjusted	Pk Lim:			Peak Limit	Av Lim:			Avg Limit		
	Raw Peak	Correction	Peak	FCC_pt15_20	Margin to	Peak Limit	Worst	FCC_pt15_20	Margin to	Avg Limit	Worst	Antenna	
Frequency	Reading	Factor	Amplitude	9_Peak	Peak Limit	Test Results	Margin	9_Average	Avg Limit	Test Results	Margin	Height	EUT Azimuth
(MHz)	(dBµV)	(dB/m)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(cm)	(degrees)
7213.5	Not in the	Restricted B	and										
11970.9	47.4	9.5	56.9	83.5	-26.6	PASS		63.5	-6.6	PASS		175	168
16109.7	47.8	12.2	60	83.5	-23.5	PASS		63.5	-3.5	PASS		200	71
16835.7	Not in the	Restricted B	and										
17857.2	47.8	15.3	63.1	83.5	-20.4	PASS	-20.4	63.5	-0.4	PASS	-0.4	150	70

6-18GHz Vertical



6-18GHz Vertical





Bureau Veritas Consumer Product Services Inc. Radiated Emissions Electric Field 1m Distance Top Peaks Horizontal 6-18GHz Notes: Iow Ch X-Axis Evaluation Board Wrapped in Aluminum Foil and added a Ferrite with 3 loops on the power supply Work Order - X0275 EUT Power Input - 3VDC Test Site - Ch1 Conditions - 23.5°C; 44.5%RH; 1008mBar Test Engineer - Ryan M Brown Date of Test - 8/3/2023

				Adjusted	Pk Lim:			Peak Limit	Av Lim:			Avg Limit		
		Raw Peak	Correction	Peak	FCC_pt15_20	Margin to	Peak Limit	Worst	FCC_pt15_20	Margin to	Avg Limit	Worst	Antenna	
Fre	quency	Reading	Factor	Amplitude	9_Peak	Peak Limit	Test Results	Margin	9_Average	Avg Limit	Test Results	Margin	Height	EUT Azimuth
(1	MHz)	(dBµV)	(dB/m)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(cm)	(degrees)
72	216.5	Not in the F	Restricted Ba	and										
17	749.5	46.6	15.2	61.9	83.5	-21.6	PASS	-21.6	63.5	-1.6	PASS	-1.6	175	245

6-18GHz Horizontal



6-18GHz Horizontal





Radiated	d Emissions	Table												
Date:	11-Oct-23			Company:	Yardi							٧	Vork Order:	X0275
Engineer:	Ryan M. Brown			EUT Desc:	Zigbee Mo	odual					EUT Opera	ting Voltage	/Frequency:	
Temp:	25.2			Humidity:	51%			Pressure:	1002					
		Freque	ency Range:	18-25GHz							Measureme	nt Distance:	1 m	
Notes:	Notes: CH 11 Power Setting 20dBm EUT Max Freq: 2480													
Antenna	Antenna Peak Average Preamp Antenna Cable Adjusted Adjusted Peak Peak Average													
Polarization	Frequency	Reading	Reading	Factor	Factor	Factor	Peak Reading	Avg Reading	Limit	Margin	Result	Limit	Margin	Result
(H / V)	(MHz)	(dBµV)	(dBµV)	(dB)	(dB/m)	(dB)	(dBµV/m)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dBµV/m)	(dB)	(Pass/Fail)
н	24139.0	43.2	43.2	0.0	5.2	11.6	60.0	60.0	83.5	-23.5	Pass	63.5	-3.5	Pass
	Table Result: Pass by -3.5 dB Worst Freq: 24139.0 MHz													
Test Site:	Test Site: EMI Chamber 1 Cable 1: Asset #2690 Cable 2: Cable 3:													
Analyzer:				Antenna:	2709		Preselector:							
CSsoft Radiate Adjusted Readi	oft Radiated Emissions Calculator v 1.017.225 Copyright Curtis-Straus LLC 2000 Isted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor													

18-25GHz



18-25GHz





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Results for Channel 18

Rurosu Vo	ritas Consur	ner Product	Services In	c		Work Orde	r - X0275						
Badiated F	missions Els	netric Field 2	m Dictanco			FUT Power	1 /02/3						
			Distance			EUTPOWE	111put - 5vi						
Top Peaks	Vertical 1-6	GHz				Test Site - 0	_h1						
Notes:						Conditions	- 46.1°C; 2	3%RH; 1010	mBar				
Mid Ch X-	Axis					Test Engine	er - Ryan N	/I Brown					
Evaluation	Board Wra	pped in Alun	ninum Foil a	and		Date of Tes	st - 8/1/202	23					
added a F	errite with 3	loons on th	ne nower su	nnlv									
added a r			ie potrei su	·PP-)									
			Adjusted	Dklim			Book Limit	Avilia	Margin to	Average	Average		1
	Raw Peak	Correction	Adjusted	Pk Lim:	Margin to	Peak Limit	Peak Limit	Av Lim:	Margin to	Average	Average	Antenna	
Frequency	Raw Peak Reading	Correction Factor	Adjusted Peak Amplitude	Pk Lim: FCC_pt15_20 9 Peak	Margin to Peak Limit	Peak Limit Test Results	Peak Limit Worst Margin	Av Lim: FCC_pt15_20 9 Average	Margin to Average Limit	Average Limit Test Result	Average Limit Worst Margin	Antenna Height	EUT Azim
Frequency	Raw Peak Reading	Correction Factor	Adjusted Peak Amplitude	Pk Lim: FCC_pt15_20 9_Peak	Margin to Peak Limit	Peak Limit Test Results	Peak Limit Worst Margin	Av Lim: FCC_pt15_20 9_Average	Margin to Average Limit	Average Limit Test Result	Average Limit Worst Margin	Antenna Height	EUT Azim
Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Pk Lim: FCC_pt15_20 9_Peak (dBµV/m)	Margin to Peak Limit (dB)	Peak Limit Test Results (Pass/Fail)	Peak Limit Worst Margin (dB)	Av Lim: FCC_pt15_20 9_Average (dBµV/m)	Margin to Average Limit (dB)	Average Limit Test Result (Pass/Fail)	Average Limit Worst Margin (dB)	Antenna Height (cm)	EUT Azim (degree
Frequency (MHz) 1327.88	Raw Peak Reading (dBµV) 48.9	Correction Factor (dB/m) -6.7	Adjusted Peak Amplitude (dBµV/m) 42.2	Pk Lim: FCC_pt15_20 9_Peak (dBμV/m) 74	Margin to Peak Limit (dB) -31.8	Peak Limit Test Results (Pass/Fail) PASS	Peak Limit Worst Margin (dB)	Av Lim: FCC_pt15_20 9_Average (dBµV/m) 54	Margin to Average Limit (dB) -11.8	Average Limit Test Result (Pass/Fail) PASS	Average Limit Worst Margin (dB)	Antenna Height (cm) 100	EUT Azim (degree 0
Frequency (MHz) 1327.88 2188.75	Raw Peak Reading (dBµV) 48.9 Not in the F	Correction Factor (dB/m) -6.7 Restricted Ba	Adjusted Peak Amplitude (dBµV/m) 42.2 and	Pk Lim: FCC_pt15_20 9_Peak (dBµV/m) 74	Margin to Peak Limit (dB) -31.8	Peak Limit Test Results (Pass/Fail) PASS	Peak Limit Worst Margin (dB)	Av Lim: FCC_pt15_20 9_Average (dBµV/m) 54	Margin to Average Limit (dB) -11.8	Average Limit Test Result (Pass/Fail) PASS	Average Limit Worst Margin (dB)	Antenna Height (cm) 100	EUT Azim (degree 0
Frequency (MHz) 1327.88 2188.75 2445.25	Raw Peak Reading (dBµV) 48.9 Not in the F Fundament	Correction Factor (dB/m) -6.7 Restricted Ba	Adjusted Peak Amplitude (dBµV/m) 42.2 and	Pk Lim: FCC_pt15_20 9_Peak (dBµV/m) 74	Margin to Peak Limit (dB) -31.8	Peak Limit Test Results (Pass/Fail) PASS	Peak Limit Worst Margin (dB)	Av Lim: FCC_pt15_20 9_Average (dBµV/m) 54	Margin to Average Limit (dB) -11.8	Average Limit Test Result (Pass/Fail) PASS	Average Limit Worst Margin (dB)	Antenna Height (cm) 100	EUT Azim (degree 0
Frequency (MHz) 1327.88 2188.75 2445.25 2800.13	Raw Peak Reading (dBµV) 48.9 Not in the F Fundament 46.3	Correction Factor (dB/m) -6.7 Restricted Ba	Adjusted Peak Amplitude (dBµV/m) 42.2 and 50.4	Pk Lim: FCC_pt15_20 9_Peak (dBμV/m) 74	Margin to Peak Limit (dB) -31.8	Peak Limit Test Results (Pass/Fail) PASS	Peak Limit Worst Margin (dB) -23.6	Av Lim: FCC_pt15_20 9_Average (dBμV/m) 54	Margin to Average Limit (dB) -11.8	Average Limit Test Result (Pass/Fail) PASS	Average Limit Worst Margin (dB) -3.6	Antenna Height (cm) 100 200	EUT Azim (degree 0

1-6GHz Vertical



1-6GHz Vertical

Bureau Veritas Consumer Product Services Inc.





147

296

Bureau Veritas Consumer Product Services Inc. Work Order - X0275 Radiated Emissions Electric Field 3m Distance EUT Power Input - 3VDC Top Peaks Horizontal 1-6GHz Test Site - Ch1 Notes: Conditions - 46.1°C; 23%RH; 1010mBar Test Engineer - Ryan M Brown Mid Ch X-Axis Evaluation Board Wrapped in Aluminum Foil and Date of Test - 8/1/2023 added a Ferrite with 3 loops on the power supply Adjusted Pk Lim: Peak Limit Av Lim: Avg Limit Raw Peak Correction FCC pt15 20 Margin to Peak Limit FCC_pt15_20 Margin to Avg Limit Peak Worst Worst Antenna Reading Amplitude Peak Limit Avg Limit Results Margin Height EUT Azimut Frequency Factor 9 Peak Results Margin 9 Average (MHz) (dBµV) (dB/m) (dBµV/m) (dBµV/m) (dB) (Pass/Fail) (dB) (dBµV/m) (dB) (Pass/Fail) (dB) (cm) (degrees) 1326.25 48.5 -6.8 41.8 74 -32.2 PASS 54 -12.2 PASS 100 2188.63 Not in the Restricted Band 2445.5 Fundamental 2804.63 47.3 3.8 51.1 74 -22.9 PASS -22.9 54 -2.9 PASS -2.9 100 3237.13 Not in the Restricted Band 5628.88 Not in the Restricted Band

1-6GHz Horizontal



1-6GHz Horizontal

One Distribution Center Circle, #1 Littleton, MA

Tel.: (978) 486-8880 Fax: (978) 486-8828





Bureau Veritas Consumer Product Services Inc. Radiated Emissions Electric Field 1m Distance Top Peaks Vertical 6-18GHz Notes: Mid Ch X-Axis Evaluation Board Wrapped in Aluminum Foil and added a Ferrite with 3 loops on the power supply Work Order - X0275 EUT Power Input - 3VDC Test Site - Ch1 Conditions - 23.5°C; 44.5%RH; 1008mBar Test Engineer - Ryan M Brown Date of Test - 8/3/2023

Frequency	Raw Peak Reading	Correction Factor	Adjusted Peak Amplitude	Pk Lim: FCC_pt15_20 9_Peak	Margin to Peak Limit	Peak Limit Test Results	Peak Limit Worst Margin	Av Lim: FCC_pt15_20 9_Average	Margin to Avg Limit	Avg Limit Test Results	Avg Limit Worst Margin	Antenna Height	EUT Azimuth
(MHz)	(dBµV)	(dB/m)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(cm)	(degrees)
7336.5	50.3	5.3	55.7	83.5	-27.8	PASS		63.5	-7.8	PASS		200	183
12134.4	46.9	9.7	56.6	83.5	-26.9	PASS		63.5	-6.9	PASS		200	183
17853.3	46.6	15.3	62	83.5	-21.5	PASS	-21.5	63.5	-1.5	PASS	-1.5	200	0

6-18GHz Vertical



6-18GHz Vertical





Bureau Veritas Consumer Product Services Inc. Radiated Emissions Electric Field 1m Distance Top Peaks Horizontal 6-18GHz Notes: Mid Ch X-Axis Evaluation Board Wrapped in Aluminum Foil and added a Ferrite with 3 loops on the power supply Work Order - X0275 EUT Power Input - 3VDC Test Site - Ch1 Conditions - 23.5°C; 44.5%RH; 1008mBar Test Engineer - Ryan M Brown Date of Test - 8/3/2023

h				Adjusted	Pk Lim:			Peak Limit	Av Lim:			Avg Limit		
		Raw Peak	Correction	Peak	FCC_pt15_20	Margin to	Peak Limit	Worst	FCC_pt15_20	Margin to	Avg Limit	Worst	Antenna	
L	Frequency	Reading	Factor	Amplitude	9_Peak	Peak Limit	Test Results	Margin	9_Average	Avg Limit	Test Results	Margin	Height	EUT Azimuth
L	(MHz)	(dBµV)	(dB/m)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(cm)	(degrees)
L	7336.8	50.6	5.3	56	83.5	-27.5	PASS		63.5	-7.5	PASS		175	17
	10531.5	Not in the F	Restricted Ba	ind										
	17992.8	46.9	16.1	63	83.5	-20.5	PASS	-20.5	63.5	-0.5	PASS	-0.5	150	145

6-18GHz Horizontal



6-18GHz Horizontal





Radiated	d Emissi	ions Ta	ble											
Date:	11-Oct-23			Company:	Yardi							1	Nork Order:	X0275
Engineer:	Ryan M. Brov	vn		EUT Desc:	Zigbee Mo	dual					EUT Opera	ting Voltage	/Frequency:	
Temp:	25.2			Humidity:	51%			Pressure:	1002					
		Freque	ency Range:	18-25GHz							Measureme	nt Distance:	1 m	
Notes:	CH 19 Power	Setting 20d	Зm								EU	T Max Freq:	2480	
									FCC Clas	s B High Fr	equency -	FCC Cla	iss B High Fi	requency -
Antenna		Peak	Average	Preamp	Antenna	Cable	Adjusted	Adjusted		Peak			Average	
Polarization	Frequency	Reading	Reading	Factor	Factor	Factor	Peak Reading	Avg Reading	Limit	Margin	Result	Limit	Margin	Result
(H / V)	(MHz)	(dBµV)	(dBµV)	(dB)	(dB/m)	(dB)	(dBµV/m)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dBµV/m)	(dB)	(Pass/Fail)
Н	24825.0	42.27	42.3	0.0	4.7	11.8	58.8	58.8	83.5	-24.7	Pass	63.5	-4.7	Pass
Tab	le Result:		Pass	by	-4.7	dB					W	orst Freq:	24825.0	MHz
Test Site:	EMI Chamber	r 1		Cable 1:	Asset #26	90				Cable 2:			Cable 3:	
Analyzer:	2093			Preamp:	None					Antenna	2709		Preselector:	
CSsoft Radiate Adjusted Readi	d Emissions C ng = Reading	alculator - Preamp Fa	v 1.017.225 actor + Anten	na Factor +	Cable Fact	tor							Copyright Curtis	-Straus LLC 2000





18-25GHz





Results for Channel 25

Bureau Veritas Consumer Product Services Inc. Radiated Emissions Electric Field 3m Distance Top Peaks Vertical 1-6GHz Notes: High Ch - 1 X-Axis Evaluation Board Wrapped in Aluminum Foil and added a Ferrite with 3 loops on the power supply Raw Peak Correction Peak FCC Work Order - X0275 EUT Power Input - 3VDC Test Site - Ch1 Conditions - 46.1°C; 23%RH; 1010mBar Test Engineer - Ryan M Brown Date of Test - 8/1/2023

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Pk Lim: FCC_pt15_20 9_Peak (dBµV/m)	Margin to Peak Limit (dB)	Peak Limit Test Results (Pass/Fail)	Peak Limit Worst Margin (dB)	Av Lim: FCC_pt15_20 9_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)
1880.88	48.8	-3.9	44.9	74	-29.1	PASS	. ,	54	-9.1	PASS	. ,	300	33
2195.38	Not in the l	Restricted Ba	and										
2801.25	47.7	4	51.7	74	-22.3	PASS	-22.3	54	-2.3	PASS	-2.3	300	147
4105.63	46.1	1	47.1	74	-26.9	PASS		54	-6.9	PASS		100	260
4948.63	46.9	1.7	48.6	74	-25.4	PASS		54	-5.4	PASS		200	206
5598.75	Not in the l	Restricted Ba	and										

1-6GHz Vertical



1-6GHz Vertical

Bureau Veritas Consumer Product Services Inc.

One Distribution Center Circle, #1 Littleton, MA Tel.: (978) 486-8880 Fax: (978) 486-8828





Bureau Veritas Consumer Product Services Inc. Radiated Emissions Electric Field 3m Distance Top Peaks Horizontal 1-6GHz Notes: High Ch -1 X-Axis Evaluation Board Wrapped in Aluminum Foil and added a Ferrite with 3 loops on the power supply Work Order - X0275 EUT Power Input - 3VDC Test Site - Ch1 Conditions - 46.1°C; 23%RH; 1010mBar Test Engineer - Ryan M Brown Date of Test - 8/1/2023

			Adjusted	Pk Lim:			Peak Limit	Av Lim:			Avg Limit		
	Raw Peak	Correction	Peak	FCC_pt15_20	Margin to	Peak Limit	Worst	FCC_pt15_20	Margin to	Avg Limit	Worst	Antenna	
Frequency	Reading	Factor	Amplitude	9_Peak	Peak Limit	Results	Margin	9_Average	Avg Limit	Results	Margin	Height	EUT Azimuth
(MHz)	(dBµV)	(dB/m)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(cm)	(degrees)
1423.75	48.2	-6.8	41.5	74	-32.5	PASS		54	-12.5	PASS		200	282
2178.25	Not in the F	Restricted Ba	ind										
2803.38	47.1	3.9	51	74	-23	PASS	-23	54	-3	PASS	-3	100	147
4254.63	46.3	1.1	47.4	74	-26.6	PASS		54	-6.6	PASS		200	315
4951	47.2	1.6	48.9	74	-25.1	PASS		54	-5.1	PASS		200	15
5596.38	Not in the F	Restricted Ba	ind										

1-6GHz Horizontal



1-6GHz Horizontal





Bureau Veritas Consumer Product Services Inc. Radiated Emissions Electric Field 1m Distance Top Peaks Vertical 6-18GHz Notes: High Ch - 1 X-Axis Evaluation Board Wrapped in Aluminum Foil and added a Ferrite with 3 loops on the power supply Work Order - X0275 EUT Power Input - 3VDC Test Site - Ch1 Conditions - 23.5°C; 44.5%RH; 1008mBar Test Engineer - Ryan M Brown Date of Test - 8/3/2023

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Pk Lim: FCC_pt15_20 9_Peak (dBµV/m)	Margin to Peak Limit (dB)	Peak Limit Test Results (Pass/Fail)	Peak Limit Worst Margin (dB)	Av Lim: FCC_pt15_20 9_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)
7426.5	50.9	5.2	56.1	83.5	-27.4	PASS		63.5	-7.4	PASS		175	245
17985.9	46.9	16.1	62.9	83.5	-20.6	PASS	-20.6	63.5	-0.6	PASS	-0.6	100	70

6-18GHz Vertical



6-18GHz Vertical





Bureau Veritas Consumer Product Services Inc. Radiated Emissions Electric Field 1m Distance Top Peaks Horizontal 6-18GHz Notes: High Ch -1 X-Axis Evaluation Board Wrapped in Aluminum Foil and added a Ferrite with 3 loops on the power supply Work Order - X0275 EUT Power Input - 3VDC Test Site - Ch1 Conditions - 23.5°C; 44.5%RH; 1008mBar Test Engineer - Ryan M Brown Date of Test - 8/3/2023

			Adjusted	Pk Lim:			Peak Limit	Av Lim:			Avg Limit		
	Raw Peak	Correction	Peak	FCC_pt15_20	Margin to	Peak Limit	Worst	FCC_pt15_20	Margin to	Avg Limit	Worst	Antenna	
Frequency	Reading	Factor	Amplitude	9_Peak	Peak Limit	Test Results	Margin	9_Average	Avg Limit	Test Results	Margin	Height	EUT Azimuth
(MHz)	(dBµV)	(dB/m)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(cm)	(degrees)
7423.5	48.1	5.2	53.3	83.5	-30.2	PASS		63.5	-10.2	PASS		150	185
10253.1	Not in the F	Restricted Ba	ind										
12711.6	47.1	10	57.1	83.5	-26.4	PASS		63.5	-6.4	PASS		150	147
17978.7	47.3	16	63.4	83.5	-20.1	PASS	-20.1	63.5	-0.1	PASS	-0.1	175	131
17978.7	47.3	16	63.4	83.5	-20.1	PASS	-20.1	63.5	-0.1	PASS	-0.1	175	131

6-18GHz Horizontal



6-18GHz Horizontal





Radiated	d Emissi	ons Ta	ble											
Date:	11-Oct-23			Company:	Yardi							1	Nork Order:	X0275
Engineer:	Ryan M. Brov	vn		EUT Desc:	Zigbee Mo	dual					EUT Opera	ting Voltage	/Frequency:	
Temp:	25.2			Humidity:	51%			Pressure:	1002					
		Freque	ency Range:	18-25GHz							Measureme	nt Distance:	1 m	
Notes:	CH 25 Power	Setting 20d	Зm								EU	T Max Freq:	2480	
									FCC Clas	s B High Fr	equency -	FCC Cla	iss B High Fi	requency -
Antenna		Peak	Average	Preamp	Antenna	Cable	Adjusted	Adjusted		Peak			Average	
Polarization	Frequency	Reading	Reading	Factor	Factor	Factor	Peak Reading	Avg Reading	Limit	Margin	Result	Limit	Margin	Result
(H / V)	(MHz)	(dBµV)	(dBµV)	(dB)	(dB/m)	(dB)	(dBµV/m)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dBµV/m)	(dB)	(Pass/Fail)
Н	24811.0	42.48	42.5	0.0	4.6	11.8	58.9	58.9	83.5	-24.6	Pass	63.5	-4.6	Pass
Tab	le Result:		Pass	by	-4.6	dB					W	orst Freq:	24811.0	MHz
Test Site:	EMI Chamber	1		Cable 1:	Asset #26	90				Cable 2:			Cable 3:	
Analyzer:	2093			Preamp:	None					Antenna	2709		Preselector:	
CSsoft Radiate Adjusted Readi	d Emissions C ng = Reading	alculator - Preamp Fa	v 1.017.225 actor + Anten	na Factor +	Cable Fact	tor							Copyright Curtis	s-Straus LLC 2000





18-25GHz

Bureau Veritas Consumer Product Services Inc.





Results for Channel 26

Bureau Ver	ritas Consun	ner Product	Services Ind	3.		Work Orde	r - X0275						
Radiated E	missions Ele	ctric Field 3	m Distance			EUT Power	Input - 3VI	DC					
Top Peaks	Vertical 1-6	GHz				Test Site - 0	Ch1						
Notes:						Conditions	- 46.1°C; 2	3%RH; 1010	mBar				
High Ch X-	Axis					Test Engine	er - Ryan N	/I Brown					
Evaluation	Board Wrap	ped in Alun	ninum Foil a	ind		Date of Tes	st - 8/1/202	3					
added a Fe	errite with 3	loops on th	e power su	pply									
			Adjusted	Pk Lim:			Peak Limit	Av Lim:	Margin to	Average	Average		
	Raw Peak	Correction	Peak	FCC_pt15_20	Margin to	Peak Limit	Worst	FCC_pt15_20	Average	Limit Test	Limit Worst	Antenna	
Frequency	Reading	Factor	Amplitude	9_Peak	Peak Limit	Test Results	Margin	9_Average	Limit	Result	Margin	Height	EUT Azimuth
(MHz)	(dBµV)	(dB/m)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(cm)	(degrees)
1339	48.1	-6.7	41.4	74	-32.6	PASS		54	-12.6	PASS		100	262
2141.75	Not in the F	Restricted Ba	ind										
2479.63	Fundament	al											
2804.63	46.3	3.8	50.1	74	-23.9	PASS	-23.9	54	-3.9	PASS	-3.9	100	300
5611.88	Not in the F	Restricted Ba	ind										

1-6GHz Vertical



1-6GHz Vertical





Bureau Veritas Consumer Product Services Inc. Radiated Emissions Electric Field 3m Distance Top Peaks Horizontal 1-6GHz Notes: High Ch X-Axis Evaluation Board Wrapped in Aluminum Foil and added a Ferrite with 3 loops on the power supply Work Order - X0275 EUT Power Input - 3VDC Test Site - Ch1 Conditions - 46.1°C; 23%RH; 1010mBar Test Engineer - Ryan M Brown Date of Test - 8/1/2023

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Pk Lim: FCC_pt15_20 9_Peak (dBµV/m)	Margin to Peak Limit (dB)	Peak Limit Results (Pass/Fail)	Peak Limit Worst Margin (dB)	Av Lim: FCC_pt15_20 9_Average (dBµV/m)	Margin to Avg Limit (dB)	Avg Limit Results (Pass/Fail)	Avg Limit Worst Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
1349.25	48.1	-6.7	41.4	74	-32.6	PASS		54	-12.6	PASS		200	167
2131.13	Not in the F	Restricted Ba	and										
2800.75	46.5	4	50.6	74	-23.4	PASS	-23.4	54	-3.4	PASS	-3.4	100	186
3211.5	Not in the F	Restricted Ba	and										
4214	45.6	1.3	46.9	74	-27.1	PASS		54	-7.1	PASS		300	146
5629	Not in the F	Restricted Ba	and										

1-6GHz Horizontal



1-6GHz Horizontal





Bureau Veritas Consumer Product Services Inc. Radiated Emissions Electric Field 1m Distance Top Peaks Vertical 6-18GHz Notes: High Ch X-Axis Evaluation Board Wrapped in Aluminum Foil and added a Ferrite with 3 loops on the power supply Work Order - X0275 EUT Power Input - 3VDC Test Site - Ch1 Conditions - 23.5°C; 44.5%RH; 1008mBar Test Engineer - Ryan M Brown Date of Test - 8/3/2023

I				Adjusted	Pk Lim:			Peak Limit	Av Lim:			Avg Limit		
I		Raw Peak	Correction	Peak	FCC_pt15_20	Margin to	Peak Limit	Worst	FCC_pt15_20	Margin to	Avg Limit	Worst	Antenna	
I	Frequency	Reading	Factor	Amplitude	9_Peak	Peak Limit	Test Results	Margin	9_Average	Avg Limit	Test Results	Margin	Height	EUT Azimuth
	(MHz)	(dBµV)	(dB/m)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(dBµV/m)	(dB)	(Pass/Fail)	(dB)	(cm)	(degrees)
I	7530.9	47.5	5.3	52.8	83.5	-30.7	PASS		63.5	-10.7	PASS		100	147
I	12090.6	47.5	9.6	57.1	83.5	-26.4	PASS		63.5	-6.4	PASS		100	0
I	16508.1	Not in the F	Restricted Ba	ind										
I	17748.6	47.6	15.2	62.9	83.5	-20.6	PASS	-20.6	63.5	-0.6	PASS	-0.6	200	109

6-18GHz Vertical



6-18GHz Vertical





Bureau Veritas Consumer Product Services Inc. Radiated Emissions Electric Field 1m Distance Top Peaks Horizontal 6-18GHz Notes: High Ch X-Axis Evaluation Board Wrapped in Aluminum Foil and added a Ferrite with 3 loops on the power supply Work Order - X0275 EUT Power Input - 3VDC Test Site - Ch1 Conditions - 23.5°C; 44.5%RH; 1008mBar Test Engineer - Ryan M Brown Date of Test - 8/3/2023

I														
	Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Pk Lim: FCC_pt15_20 9_Peak (dBμV/m)	Margin to Peak Limit (dB)	Peak Limit Test Results (Pass/Fail)	Peak Limit Worst Margin (dB)	Av Lim: FCC_pt15_20 9_Average (dBμV/m)	Margin to Avg Limit (dB)	Avg Limit Test Results (Pass/Fail)	Avg Limit Worst Margin (dB)	Antenna Height (cm)	EUT Azimutł (degrees)
	12062.7	47.1	9.5	56.7	83.5	-26.8	PASS		63.5	-6.8	PASS		150	261
	17931.3	46.9	15.6	62.6	83.5	-20.9	PASS	-20.9	63.5	-0.9	PASS	-0.9	150	108

6-18GHz Horizontal Work Order - X0275 EUT Power Input - 3VDC Test Site - Ch1 Conditions - 23.5°C; 44.5%RH; 1008mBar Test Engineer - Ryan M Brown Date of Test - 81/32023 EUT Maximum Frequency - 2480 Peak Scan Data, 1MHz RBW, 3MHz VBW Bureau Veritas Consumer Product Services Inc. + Top Peaks Radiated Emissions, Electric Field, 1m Test Distance Peak Limit: FCC_pt15_209_Peak Average Limit: FCC_pt15_209_Average Peak Data 6-18GHz Horizontal Antenna Polarity Marginal Level TE Used: EMI Chamber 1, MXE 1170725, 1861, 2681, 2610, 2474, 8449, 2116, None, None 90 80 Amplitude (dBµV/m) 70 60 50 20 60 10G 186 High Ch X-Axis Evaluation Board Wrapped in Aluminum Foil and added a Ferrite with 3 loops on the power supply Frequency (Hz) Corr Factor = Ant + Cab + Filter + Presel + Atten - Preamp Adjusted Amplitude = Raw Reading + Corr Factor. Tile Version: 7.4.4.16, Profile Version 05 April, 2023.

6-18GHz Horizontal





Radiated	d Emissi	ons Ta	ble											
Date:	11-Oct-23			Company:	Yardi							١	Work Order:	X0275
Engineer:	Ryan M. Brow	'n		EUT Desc:	Zigbee Mo	dual					EUT Opera	ting Voltage	/Frequency:	
Temp:	25.2			Humidity:	51%			Pressure:	1002					
		Freque	ency Range:	18-25GHz							Measureme	nt Distance:	1 m	
Notes:	CH 26 Power	Setting 11d	3m								EU	T Max Freq:	2480	
						[FCC Clas	s B High Fr	equency -	FCC Cla	iss B High Fi	requency -
Antenna		Peak	Average	Preamp	Antenna	Cable	Adjusted	Adjusted		Peak			Average	
Polarization	Frequency	Reading	Reading	Factor	Factor	Factor	Peak Reading	Avg Reading	Limit	Margin	Result	Limit	Margin	Result
(H / V)	(MHz)	(dBµV)	(dBµV)	(dB)	(dB/m)	(dB)	(dBµV/m)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dBµV/m)	(dB)	(Pass/Fail)
н	24853.0	41.77	41.8	0.0	4.7	11.8	58.3	58.3	83.5	-25.2	Pass	63.5	-5.2	Pass
Tab	le Result:		Pass	by	-5.2	dB					W	orst Freq:	24853.0	MHz
Test Site:	EMI Chamber			Cable 1:	Asset #15	07				Cable 2:			Cable 3:	
Analyzer:	Gold			Preamp:	None					Antenna:	18-26.5GHz	Horn	Preselector:	
CSsoft Radiate	d Emissions C	alculator	v 1.017.225										Copyright Curtis	-Straus LLC 2000
Adjusted Readi	ng = Reading	 Preamp Fa 	ictor + Anteni	na Factor +	Cable Fact	tor								

18-25GHz



18-25GHz





Radiated Band-edge:

Date: 07-Jul-23 Company: Yardi											1	Nork Order:	X0275	
Engineer: Ryan M. Brown EUT Desc: Zigbee Module										EUT Opera	ating Voltage	/Frequency:		
Temp: 22.5C Humidity: 47%							Pressure: 1012							
		Freque	ancy Range	Band Edge				Measurement Distance: 1 m						
Notos		Sotting 20dE	m		or Cotting	11dBm								
CH 25 Power Setting 20dBm							EUT max freq: 2480							
	Duty-Cycle: 66	6%. DCCF =	10*log(1/0.6	6) = 1.8dB.	Average re	adings be	low are RMS (po	ower averaged) o	ver 200 trace	s with trace	averaging.			
	1.8dB DCCF a	added to the	RMS reading	s (already r	eflected in	the readir	ngs below).							
									FCC 15.209 - Peak			FCC 15.209 - Average		
Antenna		Peak	Average	Preamp	Antenna	Cable	Adjusted	Adjusted						
Polarization	Frequency	Reading	Reading	Factor	Factor	Factor	Peak Reading	Avg Reading	Limit	Margin	Result	Limit	Margin	Result
(H/V)	(MHz)	(dBµV)	(dBµV)	(dB)	(dB/m)	(dB)	(dBµV/m)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dBµV/m)	(dB)	(Pass/Fail)
X- Axis Band Ed	ige Low	04.5	00.5											
V L	2390.0	31.5	23.5	0.0	32.6	3.2	67.3	59.3	83.5	-16.2	Pass	63.5	-4.2	Pass
н	2390.0	33.Z	23.3	0.0	32.0	3.2	69.0	59.1	63.5	-14.5	Pass	63.5	-4.4	Pass
X- Avis Band Edge High														
V ANS Danu Lu	2483.5	31.6	24.9	0.0	32.8	3.0	67.4	60.7	83.5	-16.1	Pass	63.5	-2.8	Pass
н	2483.5	33.0	27.5	0.0	32.8	3.0	68.8	63.3	83.5	-14.7	Pass	63.5	-0.2	Pass
	2100.0	00.0	21.0											
Y- Axis Band Ed	lae Low													
V	2390.0	31.1	23.8	0.0	32.6	3.2	66.9	59.6	83.5	-16.6	Pass	63.5	-3.9	Pass
н	2390.0	32.0	23.2	0.0	32.6	3.2	67.8	59.0	83.5	-15.7	Pass	63.5	-4.5	Pass
Y- Axis Band Edge High														
V	2483.5	32.1	24.9	0.0	32.8	3.0	67.9	60.7	83.5	-15.6	Pass	63.5	-2.8	Pass
н	2483.5	33.4	26.4	0.0	32.8	3.0	69.2	62.2	83.5	-14.3	Pass	63.5	-1.3	Pass
Z- Axis Band Ed	lç													
V	2390.0	31.6	23.6	0.0	32.6	3.2	67.4	59.4	83.5	-16.1	Pass	63.5	-4.1	Pass
н	2390.0	31.2	23.5	0.0	32.6	3.2	67.0	59.3	83.5	-16.5	Pass	63.5	-4.2	Pass
Z- Axis Band Ed	ige High	00.0	07.5											
v	2463.5	30.2	27.5	0.0	32.0	3.0	72.0	61.2	03.0 02.5	-11.5	Pass	63.5	-0.2	Pass
н	2403.3	31.5	23.4	0.0	32.0	3.0	07.5	01.2	03.5	-10.2	FdSS	03.5	-2.3	FdSS
X- Axis Band Ed	lae Hiah -1													
V	2483.5	31.3	23.3	0.0	32.8	3.0	67.1	59.1	83.5	-16.4	Pass	63.5	-4.4	Pass
H	2483.5	32.6	24.7	0.0	32.8	3.0	68.4	60.5	83.5	-15.1	Pass	63.5	-3.0	Pass
Table Result: Pass			by -0.2 dB							W	orst Freq:	2483.5	MHz	
Test Site: EMI Chamber 1			Cable 1	Asset #26	81				Cable 2	Asset #2610	_	Cable 3:		
Analyzer: MXE 1170725				Preamp: None						Antenna: Blue Horn Preselector:				

Notch filter range: 2.2GHz to 2.8GHz notch filter range was checked for emissions and no emissions were found. No differences observed between horizontal or vertical antenna polarizations.





4 PHOTOGRAPHS OF THE TEST CONFIGURATION

Please refer to the Test Setup Photos exhibit.





5 APPENDIX A – MODIFICATIONS

No modifications were made to the EUT during testing.

---END OF REPORT----