

CTC Laboratories, Inc.

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IE31 KEFUKI					
Report No. ·····:	CTC20220276E10				
FCC ID:	PADWF144				
Applicant:	Wahoo Fitness L.L.C.				
Address	90 W. Wieuca Road #110, Atlanta, GA	30342, United States			
Manufacturer	Wahoo Fitness L.L.C.				
Address	90 W. Wieuca Road #110, Atlanta, GA	30342, United States			
Product Name······:	ELEMNT ROAM V2				
Trade Mark······	WAHOO FITNESS				
Model/Type reference······:	WF144				
Listed Model(s) ······	/				
Standard:	FCC CFR Title 47 Part 15 Subpart C	Section 15.249			
Date of receipt of test sample:	Jan. 13, 2022				
Date of testing	Jan. 14, 2022 ~ Mar. 29, 2022				
Date of issue	Mar. 30, 2022				
Result:	PASS				
Compiled by:		Tanne Su			
(Printed name+signature)	Terry Su	Jerry Ju			
Supervised by:		Trac shang			
(Printed name+signature)	Eric Zhang				
Approved by:		1 mas			
(Printed name+signature)	Totti Zhao	10000			
Testing Laboratory Name:	CTC Laboratories, Inc.				
Address	1-2/F., Building 2, Jiaquan Building, Guanlan High-Tech Park, Shenzhen, Guangdong, China				
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1. TEST SUMMARY

1.1. Test Standards

The tests were performed according to following standards:

FCC Rules Part 15.249: Operation within the bands 902-928 MHz, 2400-2483.5 MHz, 5725-5875 MHz, and 24.0-24.25 GHz.

RSS-210: Licence-Exempt Radio Apparatus: Category I Equipment

ANSI C63.10-2013: American National Standard for Testing Unlicensed Wireless Devices.

1.2. Report version

Revised No.	Date of issue	Description
01	Mar. 30, 2022	Original



1.3. Test Description

Test Item	Section in CFR 47	RSS-210	Result	Test Engineer
AC Power Line Conducted Emissions	15.207	RSS-Gen 8.8	PASS	Eva Feng
20dB Occupied Bandwidth	15.215/15.249	/	PASS	Alicia Liu
Field strength of the Fundamental signal	15.249(a)	RSS-210 F.1.a	PASS	Alicia Liu
Spurious Emissions	15.209/15.249(a)	RSS-210 F.1.e	PASS	Alicia Liu
Band edge Emissions	15.205/15.249(d)	/	PASS	Alicia Liu
Antenna requirement	15.203	/	PASS	Alicia Liu

Note: The measurement uncertainty is not included in the test result.

"N/A" This device is only powered battery, no need for part 15.207.



1.4. Test Facility

Address of the report laboratory

CTC Laboratories, Inc.

Add: 1-2/F., Building 2, Jiaquan Building, Guanlan High-Tech Park, Shenzhen, Guangdong, China

Laboratory accreditation

The test facility is recognized, certified, or accredited by the following organizations:

A2LA-Lab Cert. No.: 4340.01

CTC Laboratories, Inc. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in th e identified field of testing.

Industry Canada (Registration No.: 9783A, CAB Identifier: CN0029)

CTC Laboratories, Inc. EMC Laboratory has been registered by Certification and Engineer Bureau of Indus try Canada for the performance of with Registration NO.: 9783A on Jan, 2016.

FCC (Registration No.: 951311, Designation Number CN1208)

CTC Laboratories, Inc. EMC Laboratory has been registered and fully described in a report filed with the (F CC) Federal Communications Commission. The acceptance letter from the FCC is maintained inour files. Registration 951311, Aug 26, 2017.

1.5. Measurement Uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to TR-100028-01" Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics; Part 1" and TR-100028-02 "Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement characteristics; Part 2" and is documented in the CTC Laboratories, Inc.quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Below is the best measurement capability for CTC Laboratories, Inc.

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Test Items	Measurement Uncertainty	Notes
Transmitter power conducted	0.42 dB	(1)
Transmitter power Radiated	2.14 dB	(1)
Conducted spurious emissions 9kHz~40GHz	1.60 dB	(1)
Radiated spurious emissions 9kHz~40GHz	2.20 dB	(1)
Conducted Emissions 9kHz~30MHz	3.20 dB	(1)
Radiated Emissions 30~1000MHz	4.70 dB	(1)
Radiated Emissions 1~18GHz	5.00 dB	(1)
Radiated Emissions 18~40GHz	5.54 dB	(1)
Occupied Bandwidth		(1)

Note (1): This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=1.96.

1.6. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	21°C ~ 27°C
Relative Humidity:	40% ~ 60%
Air Pressure:	101kPa



2. GENERAL INFORMATION

2.1. Client Information

Applicant:	Wahoo Fitness L.L.C.
Address:	90 W. Wieuca Road #110, Atlanta, GA 30342, United States
Manufacturer:	Wahoo Fitness L.L.C.
Address:	90 W. Wieuca Road #110, Atlanta, GA 30342, United States
Factory	Universal Global Scientific Industrial Co., Ltd.
Address:	No. 330, Gongye Rd., Nantou City, Nantou County 540, Taiwan

2.2. General Description of EUT

Product Name:	ELEMNT ROAM V2	
Trade Mark:	WAHOO FITNESS	
Model/Type reference:	WF144	
Listed Model(s):	1	
Power supply:	5Vdc from USB Cable 3.85Vdc from 2000mAh Li-ion Battery	
Hardware version:	/	
Software version:	/	
ANT+ Specification		
Modulation:	GFSK	
Bit Rate of Transmitter:	1Mbps	
Operation frequency:	2457MHz	
Antenna type:	Internal Antenna	
Antenna gain:	1.9dBi Max	

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2.3. Description of Test Modes

The EUT has been tested under test mode condition. The Applicant provides software to control the EUT for staying in continuous transmitting and receiving mode for testing.

Operation Frequency List:

Channel	Frequency (MHz)	
01	2457	

Test Mode:

For RF test items The engineering test program was provided and enabled to make EUT continuous transmit. (duty cycle>98%).

For AC power line conducted emissions:

The EUT was set to connect with large package sizes transmission.

For Radiated spurious emissions test item:

The engineering test program was provided and enabled to make EUT continuous transmit. The EUT in each of three orthogonal axis emissions had been tested, but only the worst case (X axis) data recorded in the report.

2.4. Accessory Equipment Information

Equipment Information						
Name	Model	S/N	Manufacturer			
Notebook	X220	R9-NCMYL 12/04	Lenovo			
Туре-С	With	Without	0.38M			
Cable Information	Cable Information					
Name	Shielded Type	Ferrite Core	Length			
Туре-С	With	Without	0.8M			
Туре-С	With	Without	0.38M			
Test Software Information						
Name	Software version	1	1			
1	1	1	1			

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2.5. Measurement Instruments List

Tonscend JS0806-2 Test system					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
1	Spectrum Analyzer	Rohde & Schwarz	FSU26	100105	Dec. 23, 2022
2	Spectrum Analyzer	Rohde & Schwarz	FUV40-N	101331	Mar. 15, 2022 Mar. 14, 2023
3	MXG Vector Signal Generator	Agilent	N5182A	MY47420864	Dec. 23, 2022
4	Signal Generator	Agilent	E8257D	MY46521908	Dec. 23, 2022
5	Power Sensor	Agilent	U2021XA	MY5365004	Mar. 15, 2022 Mar. 14, 2023
6	Power Sensor	Agilent	U2021XA	MY5365006	Mar. 15, 2022 Mar. 14, 2023
7	High and low temperature box	ESPEC	MT3035	N/A	Dec. 23, 2022
8	Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	102414	Dec. 23, 2022
9	300328 v2.2.2 test system	TONSCEND	v2.6	/	/

Radiated emission(3m chamber 2)					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibrated Until
1	Trilog-Broadband Antenna	Schwarzbeck	VULB 9168	9168-1013	Jan. 12, 2023
2	Horn Antenna	Schwarzbeck	BBHA 9120D	9120D-647	Dec. 23, 2022
3	Spectrum Analyzer	R&S	FSU26	100105	Dec. 23, 2022
4	Spectrum Analyzer	R&S	FSV40-N	101331	Mar. 15, 2022 Mar. 14, 2023
5	Pre-Amplifier	SONOMA	310	186194	Dec. 23, 2022
6	Low Noise Pre-Amplifier	EMCI	EMC051835	980075	Dec. 23, 2022
7	Loop Antenna	ETS	6507	1446	Dec. 23, 2022
8	Test Receiver	R&S	ESCI7	100967	Dec. 23, 2022

Radiated emission(3m chamber 3)									
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibrated Until				
1	Trilog-Broadband Antenna	Schwarzbeck	VULB 9168	9168-759	Nov. 09, 2022				
2	Horn Antenna	Schwarzbeck	BBHA 9120D	9120D-647	Dec. 23, 2022				
3	Test Receiver	Keysight	N9038A	MY56400071	Dec. 23, 2022				
4	Broadband Premplifier	SCHWARZBECK	BBV9743B	259	Dec. 23, 2022				
5	Mirowave Broadband Amplifier	SCHWARZBECK	BBV9718C	111	Dec. 23, 2022				
6	Pre-Amplifier	R&S	SCU-26	10033	Dec. 23, 2022				
7	Pre-Amplifier	R&S	SCU-40	10030	Dec. 23, 2022				
8	Board-Band Horn Antenna	Schwarzbeck	BBHA 9170	BBHA 9170-497	Dec. 23, 2022				

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Conducted Emission									
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibrated until				
1	LISN	R&S	ENV216	101112	Dec. 23, 2022				
2	LISN	R&S	ENV216	101113	Dec. 23, 2022				
3	EMI Test Receiver	R&S	ESCS30	100353	Dec. 23, 2022				

Note: 1. The Cal. Interval was one year.

2. The Cal. Interval was three year of the chamber

3. The cable loss has calculated in test result which connection between each test instruments.

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3. TEST ITEM AND RESULTS

3.1. AC Power Line Conducted Emissions

<u>Limit</u>

Fraguanay	Maximum RF Line Voltage (dBµV)						
Frequency	Quasi-peak Level	Average Level					
150kHz~500kHz	66 ~ 56 *	56 ~ 46 *					
500kHz~5MHz	56	46					
5MHz~30MHz	60	50					

Notes:

(1) *Decreasing linearly with logarithm of the frequency.

(2) The lower limit shall apply at the transition frequencies.

(3) The limit decrease in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

Test Configuration



Test Procedure

- 1. The EUT was setup according to ANSI C63.10:2013 requirements.
- 2. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface.
- The EUT and simulators are connected to the main power through a line impedances stabilization network (LISN). The LISN provides a 50ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs)
- 4. Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.
- 5. The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.
- 6. Conducted Emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.
- 7. During the above scans, the emissions were maximized by cable manipulation.

Test Mode

Please refer to the clause 2.3

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Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dBµ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµ V)	Comment
0.180960	49.5	1000.00	9.000	On	L1	9.7	14.9	64.4	
0.270820	44.6	1000.00	9.000	On	L1	9.7	16.5	61.1	
0.359560	40.2	1000.00	9.000	On	L1	9.7	18.5	58.7	

Final Measurement Detector 2

Frequency (MHz)	Average (dBµ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµ V)	Comment
0.180960	43.7	1000.00	9.000	On	L1	9.7	10.7	54.4	
0.270820	40.9	1000.00	9.000	On	L1	9.7	10.2	51.1	
0.362440	37.1	1000.00	9.000	On	L1	9.7	11.6	48.7	

Emission Level= Read Level+ Correct Factor

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Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dBµ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµ V)	Comment
0.180960	46.7	1000.00	9.000	On	Ν	10.0	17.7	64.4	
0.271900	44.4	1000.00	9.000	On	Ν	10.0	16.7	61.1	
0.907810	34.1	1000.00	9.000	On	Ν	10.0	11.9	56.0	

Final Measurement Detector 2

Frequency (MHz)	Average (dBµ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµ V)	Comment	
0.180960	40.5	1000.00	9.000	On	N	10.0	14.0	54.4		
0.272990	40.8	1000.00	9.000	On	N	10.0	10.2	51.0		
0.904200	37.2	1000.00	9.000	On	N	10.0	8.8	46.0		
Emission Leve	Emission Level= Read Level+ Correct Factor									

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3.2. 20 dB Occupied Bandwidth

<u>Limit</u>

Operation frequency range 2400MHz~2483.5MHz.

Test Configuration



Ground Reference Plane +

Test Procedure

- 1. The transmitter output was connected to the spectrum analyzer through an attenuator, the path loss was compensated to the results for each measurement.
- 2. Set to the maximum power setting and enable the EUT transmit continuously
- Use the following spectrum analyzer settings: Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a test channel RBW ≥ 1% of the 20 dB bandwidth, VBW ≥ RBW Sweep = auto, Detector function = peak, Trace = max hold
- 4. Measure and record the results in the test report.

Test Mode:

Please refer to the clause 2.3

Test Results

Channel	Channel 20dB Bandwidth (KHz)		Result
01	952.10	913.55	Pass

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3.3. Radiated field strength of the fundamental signal

Limit

Fundamental frequency	Field strength of fundamental (millivolts/meter/ AVG)	Field strength of harmonics (microvolts/meter/ AVG)			
902-928 MHz	50 (94dBuV/m @3m)	500 (54dBuV/m @3m)			
2400-2483.5 MHz	50 (94dBuV/m @3m)	500 (54dBuV/m @3m)			
5725-5875 MHz	50 (94dBuV/m @3m)	500 (54dBuV/m @3m)			
24.0-24.25 GHz	250 (108dBuV/m @3m)	2500 (68dBuV/m @3m)			

Frequencies above 1000 MHz, the field strength limits are based on average limits

Test Configuration



Test Procedure

- 1. The EUT was setup and tested according to ANSI C63.10:2013 requirements.
- 2. The EUT is placed on a turn table which is 1.5 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
- 3. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.
- 4. The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10:2013 on radiated measurement.
- 5. The receiver set as follow: RBW=1MHz, VBW=3MHz Peak detector for Peak value.

Test Mode

Please refer to the clause 2.3

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Test Results

Ant. Pol.	Horizo	ntal						
Test Mode:	TX AN	T+ Mode	2457MHz					
130.0 dBuV/m								
120						1140	(BuV/m	
110						Mar	gin -6 dB	
100								
90			*	_				
80								
70			(
60		مستعملهما والعلال		WK MI				
50 Margarafelaman	WILLING	WWMPIN		W	Newserthalestation	Ambalan	when when	
40								
40								
30								
20								
2452.000 2453.00	2454.00 2	2455.00 24	56.00 (MHz)	2458.00 2	459.00 2460.0)0 2461.0	0 2462.00	
Freque		Pooding	Factor	Lovel	Limit	Margin		
No. (MH	ricy r z)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector	
4 * 2450	-/		24.40	(02.20	444.00		neels	
1 2456.8	313	61.24	31.12	92.36	114.00	-21.64	реак	
Remarks:								
1.Factor (dB/m) =	Antenna	a Factor (c	lB/m)+Cabl	e Factor (dE	3)-Pre-amplif	fier Facto	or	

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Ant	t. Po	I.	Vert	ical									
Tes	st Mo	de:	TXA	NT-	+ Mode	2457N	lHz						
130.	0 dBu	IV/m											
120												114	dBu∀/m
110												Mar	gin -6 dB
100			_										
90							1			_			
80							*	\searrow					
70													
60					mark				Maria				
50	and does not	a dependence of the sector	whenover	Wilhoph	WARAN				And Alex	Martin Martin	ihan Maa	Million when when the	montano
30													
40													
30													
20 10 0													
24	452.00C	2453.00 2	454.00	245	5.00 24	156.00	(MHz)	245	8.00 2	2459.00	2460.	.00 2461.0	0 2462.00
N	lo.	Frequer	су	Re	ading	Fac	tor	Le	vel	Limi	t	Margin	Detector
		(IVIHZ)	(a	Buv)	(aB)	m)	(ави	iv/m)	(aBuv)	(m)	(aB)	
1	*	2457.1	17	5	6.70	31.1	12	87	.82	114.0	00	-26.18	peak
Ror	Pemarke:												
1.F	кетагкs: 1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor												

2.Margin value = Level -Limit value

EN

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3.4. Radiated Spurious Emissions and Bandedge Emission

<u>Limit</u>

FCC CFR Title 47 Part 15 Subpart C Section 15.209

Frequency	Limit (dBuV/m @3m)	Value		
30MHz~88MHz	40.00	Quasi-peak		
88MHz~216MHz	43.50	Quasi-peak		
216MHz~960MHz	46.00	Quasi-peak		
960MHz~1GHz	54.00	Quasi-peak		
	54.00	Average		
	74.00	Peak		

Test Configuration

• 9 kHz ~ 30 MHz



• 30 MHz ~ 1 GHz



Above 1 GHz

2





Test Procedure

- 1. The EUT was setup and tested according to ANSI C63.10:2013 requirements.
- 2. The EUT is placed on a turn table which is 0.8 meter above ground for below 1 GHz, and 1.5 m for above 1 GHz. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
- 3. The EUT was set 3 meters from the receiving antenna, which was mounted on the top of a variable height antenna tower. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.
- 4. Set to the maximum power setting and enable the EUT transmit continuously.
- 5. Use the following spectrum analyzer settings

Span shall wide enough to fully capture the emission being measured; (1)Below 1 GHz:

RBW=120 kHz, VBW=300 kHz, Sweep=auto, Detector function=peak, Trace=max hold;

If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the guasi-peak detector and reported.

(2)From 1 GHz to 10th harmonic:

RBW=1MHz, VBW=3MHz Peak detector for Peak value.

RBW=1MHz, VBW=3MHz RMS detector for Average value.

Test Mode:

Please refer to the clause 2.3

Test Results

Radiated Spurious Emissions

9 kHz ~ 30 MHz

The EUT was pre-scanned the frequency band (9 kHz ~ 30 MHz), found the radiated level lower than the limit, so don't show on the report.

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■ 30 MHz ~ 1 GHz



Remarks:

1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor 2.Margin value = Level -Limit value

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Ant. Pol.	Vertical	
Test Mode:	TX ANT+ Mode 2457MHz	
90.0 dBuV/m		
80		
70		
60		FCC Part15 RE-Class C 30-1000M
50		Margin -6 dB
40		
30		- Warding and Andrews
	3	1. A market Market and Market Market Market Market
10	a superior and the superior of	
0		
-10		
30.000	60.00 (MHz)	300.00 1000.00

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	38.7300	31.64	-15.06	16.58	40.00	-23.42	QP
2 *	53.6033	32.52	-14.88	17.64	40.00	-22.36	QP
3	158.3633	34.07	-19.28	14.79	43.50	-28.71	QP
4	206.8633	33.25	-15.88	17.37	43.50	-26.13	QP
5	220.4433	33.45	-15.49	17.96	46.00	-28.04	QP
6	261.8299	32.75	-14.37	18.38	46.00	-27.62	QP

Remarks:

EN

1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor 2.Margin value = Level -Limit value

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Above 1 GHz

Ant. Pol.	Hori	Horizontal									
Test Mode:	TXA	TX ANT+ Mode 2457MHz									
Remark:	No r	No report for the emission which more than 10 dB below the prescribed limit									
120.0 dBuV/m	prea										
110											
100											
90											
80					500 D . 11 F	<u> </u>	0.01				
70					FCC Part15	C - Above I	GPK				
60											
50					FCC Part15	C - Above 1	<u>G AV</u>				
40	ş										
30	1×										
20											
10											
0.0	6000.00	9500.00 11	000.00 (MH-)	16000.00	10500.00 2100	0.00 22500	00 2000 0				
·											
No. Freq	uency IHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector				
1 * 491	4.182	26.54	2.38	28.92	54.00	-25.08	AVG				
2 491	4.611	37.61	2.38	39.99	74.00	-34.01	peak				
							<u> </u>				
Remarks:	\					fion East					
2.Margin value) = Anten = Level ·	ina ⊢actor (d -Limit value	iB/m)+Cabl	e Factor (dE	s)-Pre-ampli	Tier Facto	TC				

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Ant	. Po	-	Ver	Vertical									
Tes	t Mo	de:	ТХ	TX ANT+ Mode 2457MHz									
Ren	nark	:	No pres	To report for the emission which more than 10 dB below the prescribed limit.									
120.0) dBu	V/m	ĺ										
110							_						
100													
90													
80													
70										FCC Part1	C-Above 1	G PK	
60													
50										FCC Part1	C - Above 1	G AV	
50		1.											
40		×											
30		×											
20							-						
10													
0.0 10	00.000	3500.00	6000.00	850)0.00 11	000.00 (N	(Hz)	160	00.00	18500.00 210	0.00 23500	.00 260	00.0
<u>.</u>								1					
N	o.	Freque (MH:	ncy z)	Re (d	ading BuV)	Facto (dB/m	or 1)	Le (dBu	vel IV/m)	Limit (dBuV/m)	Margin (dB)	Detect	or
1		4913.1	75	3	7.94	2.38		40	.32	74.00	-33.68	pea	k
2	*	4914.8	375	2	6.36	2.38		28	.74	54.00	-25.26	AVG	3
	1											-	<u> </u>

Remarks:

1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor 2.Margin value = Level -Limit value

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Bandedge Emission

Ant	t. Pol		Hori	zont	al								
Tes	st Mo	de:	TX A	NT-	+ Mode	2457MHz							
120	0 dBu	ıV/m											
110													
100													
90													
80									FCC Part	15.0 - 4	bovo 1		
70										130-7			
60											. 7.		
50	×					X			FCC Part	<u>15 (5- A</u>	bove 1	GAV	
40	2	1		uk ald a	a. A. M. u.	4	-t-look Add	فر ور د دار در ساره	All humans		8	handle the Bok	
30	A. 24 Your . 364.	Authoritic addation of a former	A.C	and a No.	At Dan as in A	ter a construction	11 - 41 13 4 - 7 F	100					
20													
10													
0.0													
2	300.000	2322.00	2344.00	236	6.00 2	388.00 (MH	z) 24	32.00 2	2454.00 24	176.00	2498.0	0 252	0.00
N	lo.	Freque (MHz	ncy :)	Re (d	ading BuV)	Factor (dB/m)	Le (dB	evel uV/m)	Limit (dBuV/r	Ma n) (∉	argin dB)	Detect	tor
	1	2310.0	00	2	2.13	30.49	52	2.62	74.00	-2	1.38	pea	k
	2	2310.0	00	6	6.45	30.49	36	6.94	54.00	-1	7.06	AVC	3
	3	2390.0	00	2	1.50	30.84	52	2.34	74.00	-2	1.66	pea	k
	4	2390.0	00	7	7.40	30.84	38	3.24	54.00	-1	5.76	AVC	3
	5	2483.5	00	2	1.95	31.24	53	3.19	74.00	-2	0.81	pea	k
	6	2483.5	00	6	6.24	31.24	37	7.48	54.00	-1	6.52	AVC	3
	7	2500.0	00	2	3.06	31.31	54	4.37	74.00	-1	9.63	pea	k
8	8 *	2500.0	00	7	7.09	31.31	38	3.40	54.00	-1	5.60	AVC	3
Rer	mark:												-

1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor 2.Margin value = Level -Limit value

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Ant. Pol.		Verti	cal					
Test Mod	e:	TX A	NT+ Mode	2457MHz				
120.0 dBuV/	/m							
110								
100								
90								
80						FCC Part15 (C - Above 1	3 PK
70						i cor aiti s		
60				3			7.	
50 *				×		FCC Part15	Above I	
40 2	ومد ولد و مارو	a season by a se	women have a half the	4	waa maanii waa maa maa maa maa maa maa maa maa maa	and formation man	Same Bar	an Astronophil
30	an Alle Inc. 5 Mont And 4							
20								
10								
0.0	222200 22	44.00	2266 00 22	99.00 (1411-)	2422.00 2	464.00 2476	00 2409 0	0 2520.00
2300.000 2	2322.00 23	944.00	2300.00 23	00.00 (MF12)	2432.00 2	494.00 2478.	00 2436.0	JU 2520.00
No.	Frequer	icy	Reading	Factor		Limit	Margin	Detector
	(IVIHZ)	(dBuv)	(aB/m)	(aBuv/m)	(aBuv/m)	(aB)	
1	2310.00	00	23.28	30.49	53.77	74.00	-20.23	peak
2	2310.00	00	6.60	30.49	37.09	54.00	-16.91	AVG
3	2390.00	00	23.76	30.84	54.60	74.00	-19.40	peak
4	2390.00	00	7.47	30.84	38.31	54.00	-15.69	AVG
5	2483.50	00	22.03	31.24	53.27	74.00	-20.73	peak
6 *	2483.50	00	7.76	31.24	39.00	54.00	-15.00	AVG
7	2500.00	00	23.06	31.31	54.37	74.00	-19.63	peak
8	2500.00	00	7.28	31.31	38.59	54.00	-15.41	AVG
Remark:					1		1	

1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor 2.Margin value = Level -Limit value

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3.5. Antenna requirement

Requirement

FCC CFR Title 47 Part 15 Subpart C Section 15.203:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of anantenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

(i) Systems operating in the 2400~2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.

Test Result

The directional gain of the antenna less than 6dBi, please refer to the EUT internal photographs antenna photo.