FCC PART 15 SUBPART C TEST REPORT

for

Bryton Smart Heart rate sensor

Model No.: DA1702

FCC ID: YDM-DA1702

of

Applicant: Bryton Inc.
Address: 3F-1., No.79-1, Zhouzi St., Neihu Dist., Taipei City 114,
Taiwan

Tested and Prepared

by

Worldwide Testing Services (Taiwan) Co., Ltd.

FCC Registration No.: 930600

Industry Canada filed test laboratory Reg. No. IC 5679A-1, IC 5107A-1

A2LA Accredited No.: 2732.01





Report No.: W6R21703-16708-C-9

6F, NO. 58, LANE 188, RUEY-KUANG RD., NEIHU TAIPEI 114, TAIWAN, R.O.C. TEL: 886-2-66068877 FAX: 886-2-66068879 E-mail: wts@wts-lab.com



Registration number: W6R21703-16708-C-9 FCC ID: YDM-DA1702

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1 General Information

1.1 Notes

The purpose of conformity testing is to increase the probability of adherence to the essential requirements or conformity specifications, as appropriate.

The complexity of the technical specifications, however, means that full and thorough testing is impractical for both technical and economic reasons.

Furthermore, there is no guarantee that a test sample which has passed all the relevant tests conforms to a specification.

Neither is there any guarantee that such a test sample will interwork with other genuinely open systems. The existence of the tests nevertheless provides the confidence that the test sample possesses the qualities as maintained and that is performance generally conforms to representative cases of communications equipment.

The test results of this test report relate exclusively to the item tested as specified in 1.5.

The test report may only be reproduced or published in full.

Reproduction or publication of extracts from the report requires the prior written approval of the Worldwide Testing Services(Taiwan) Co., Ltd.

Tester:

May 05, 2017	Leon Chueh	leon Chueh		
Date	WTS-Lab. Name	Signature		

Technical responsibility for area of testing:

May 05, 2017		Kevin Wang	Kevin Wang
Date	WTS	Name	Signature



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1.2 Testing laboratory

1.2.1 Location

OATS

No.5-1, Lishui, Shuang Sing Village, Wanli Dist., New Taipei City 207,

Taiwan (R.O.C.)

3 meter semi-anechoic chamber

No.35, Aly. 21, Ln. 228, Ankang Rd., Neihu Dist., Taipei City 114, Taiwan (R.O.C.)

TEL:886-2-6613-0228 FAX:886-2-2791-5046

Company

Worldwide Testing Services(Taiwan) Co., Ltd. 6F, NO. 58, LANE 188, RUEY-KUANG RD. NEIHU, TAIPEI 114, TAIWAN R.O.C.

Tel : 886-2-66068877 Fax : 886-2-66068879

1.2.2 Details of accreditation status

Accredited testing laboratory

A2LA accredited number: 2730.01

FCC filed test laboratory Reg. No. 930600

Industry Canada filed test laboratory Reg. No. IC 5679A-1, IC 5107A-1

Test location, where different from Worldwide Testing Services (Taiwan) Co., Ltd.:

Name:	./.
Accredited number:	./.
Street:	./.
Town:	./.
Country:	./.
Telephone:	./.
Fax:	./.



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1.3 Details of approval holder

Name: Bryton Inc.

Street: 3F-1., No.79-1, Zhouzi St., Neihu Dist.,

Town: Taipei City 114,

Country: Taiwan

Telephone: +886-2-2657-9888 Fax: +886-2-2657-1295

1.4 Application details

Date of receipt of test item: April 10, 2017

Date of test: From April 11, 2017 to May 05, 2017

1.5 General information of Test item

Type of test item: Bryton Smart Heart rate sensor

Model Number: DA1702

Multi-listing model number: ./.

Photos:

see Annex

Technical data

Frequency band: 2.400-2.4835 GHz

Operation Frequency: 2457 GHz
Operation modes: Half-Duplex

Modulation Type: GFSK

Antenna type: PCB Antenna

Power supply: Battery 3Vdc(CR 2032)

Manufacturer: (if different from applicant)

Name: ECHOWELL ELECTRONIC CO., LTD. (DONG GUAN)
Street: NO.35-1, SHANG TANG RD.,ZHEN XING TANG XIA

ZHEN,

Town: DONG GUAN CITY, GUANG DONG PROVINCE

Country: CHINA

Additional information: ./.

1.6 Test standards

Technical standard: FCC RULES PART 15 SUBPART C § 15.249 (2015-10)

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2 Technical test

2.1 Summary of test results

No deviations from the technical specification(s) were ascertained in the course of the tests performed.							
or							
The deviations as specified in 2.5 were performed.	e ascertained in the course of the tests						
2.2 Test environment							
Temperature:	23 °C						
Relative humidity content:	20 75 %						
Air pressure:	86 103 kPa						
Details Power supply:	Battery 3Vdc(CR 2032)						
Extreme conditions parameters:	./.						



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2.3 Test Equipment List

No.	Test equipment	Туре	Serial No.	Manufacturer	Cal. Date	Next Cal. Date
ETSTW-CE 001	EMI TEST RECEIVER	ESHS10	842121/013	R&S	2016/5/20	2017/5/19
ETSTW-CE 003	AC POWER SOURCE	APS-9102	D161137	GW	Function	on Test
ETSTW-CE 008	HF-EICHLEITUNG RF STEP ATTENUATOR 139dB DPSP	334.6010.02	844581/024	R&S	Function	on Test
ETSTW-CE 009	TEMP.&HUMIDITY CHAMBER	GTH-225-40-1P-U	MAA0305-009	GIANT FORCE	2016/7/15	2017/7/14
ETSTW-CE 016	TWO-LINE V-NETWORK	ENV216	100050	R&S	2016/9/12	2017/9/11
ETSTW-CE 028	MXE EMI Receiver	N9038A	MY53220110	Agilent	2016/8/26	2017/8/25
ETSTW-RE 003	EMI TEST RECEIVER	ESI 26	831438/001	R&S	2016/5/20	2017/5/19
ETSTW-RE 004	EMI TEST RECEIVER	ESI 40	832427/004	R&S	2016/5/25	2017/5/24
ETSTW-RE 005	EMI TEST RECEIVER	ESVS10	843207/020	R&S	2016/7/4	2017/7/3
ETSTW-RE 012	TUNABLE BANDREJECT FILTER	D.C 0309	146	K&L	Function	on Test
ETSTW-RE 013	TUNABLE BANDREJECT FILTER	D.C 0336	397	K&L	Function	on Test
ETSTW-RE 018	MICROWAVE HORN ANTENNA	AT4560	27212	AR	2016/6/24	2017/6/23
ETSTW-RE 027	Passive Loop Antenna	6512	00034563	ETS-Lindgren	2016/6/29	2017/6/28
ETSTW-RE 030	Double-Ridged Guide Horn Antenna	3117	00035224	ETS-Lindgren	2017/3/22	2018/3/21
ETSTW-RE 042	Biconical Antenna	HK116	100172	R&S	2017/2/7	2018/2/6
ETSTW-RE 043	Log-Periodic Dipole Antenna	HL223	100166	R&S	2017/4/10	2018/4/9
ETSTW-RE 044	Log-Periodic Antenna	HL050	100094	R&S	2017/4/27	2018/4/26
ETSTW-RE 045	ESA-E SERIES SPECTRUM ANALYZER	E4404B	MY45111242	Agilent	Pre-te	st Use
ETSTW-RE 050	Attenuator 10dB	50HF-010-1	None	JFW	2017/3/1	2018/2/28
ETSTW-RE 051	Attenuator 6dB	50HF-006-1	None	JFW	2017/3/1	2018/2/28
ETSTW-RE 053	Attenuator 3dB	50HF-003-1	None	JFW	2017/3/1	2018/2/28
ETSTW-RE 055	SPECTRUM ANALYZER	FSU 26	200074	R&S	2017/3/1	2018/2/28
ETSTW-RE 060	Attenuator 30dB	5015-30	F651012z-01	ATM	2017/3/1	2018/2/28
ETSTW-RE 062	Amplifier Module	CHC 2	None	KMIC	2017/4/12	2018/4/11
ETSTW-RE 064	Bluetooth Test Set	MT8852B-042	6K00005709	Anritsu	Function	on Test
ETSTW-RE 069	Double-Ridged Guide Horn Antenna	3117	00069377	ETS-Lindgren	Function	on Test
ETSTW-RE 072	CELL SITE TEST SET	8921A	3339A00375	HP	2016/9/8	2017/9/7
ETSTW-RE 088	SOLID STATE AMPLIFIER	KMA180265A01	99057	KMIC	2016/9/20	2017/9/19
ETSTW-RE 091	Match Pad	MDCS1500	None	WOKEN	2017/4/6	2018/4/5
ETSTW-RE 099	DC Block	50DB-007-1	None	JFW	2017/3/1	2018/2/28
ETSTW-RE 112	AC POWER SOURCE	TFC-1005	T-0A023536	T-Power	Functi	on test
ETSTW-RE 115	2.4GHz Notch Filter	N0124411	473874	MICROWAVE CIRCUITS	2017/1/12	2018/1/11
ETSTW-RE 120	RF Player	MP9200	MP9210-111022	ADIVIC	Functi	on test
ETSTW-RE 122	SIGNAL GENERATOR	SMF100A	102149	R&S	2016/5/23	2017/5/22



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FCC ID: YDM		5NSL11-		WOLLY.	2016/0/10	2017/0/0
ETSTW-RE 125	5GHz Notch filter	5200/E221.3-O/O 5NSL12-	1	K&L Microwave	2016/8/10	2017/8/9
ETSTW-RE 126	5GHz Notch filter	5800/E221.3-O/O RFS-01	1	K&L Microwave	2016/8/10	2017/8/9
ETSTW-RE 127	ETSTW-RE 127 RF Switch Box		None	WTS	2017/3/1	2018/2/28
ETSTW-RE 128	5.3GHz Notch filter	N0153001	SN487233	Microwave Circuits	2016/8/10	2017/8/9
ETSTW-RE 129	5.5GHz Notch filter	N0555984	SN487234	Microwave Circuits	2016/8/10	2017/8/9
ETSTW-RE 130	Handheld RF Spectrum Analyzer	N9340A	CN0147000204	Agilent	Pre-te	st Use
ETSTW-RE 142	Amplifier	8447D	2805A03378	Agilent	2017/4/12	2018/4/11
ETSTW-RE 143	Humidity Temperature Meter	TES-1260	110104623	TES	2016/8/19	2017/8/18
ETSTW-RE 147	Bi-log Hybrid Antenna	MCTD 2786B	BLB16M04005	ETC	2017/3/22	2018/3/21
ETSTW-EMI 011	USB Compact Modulator	SFC-U	101689	R&S	2017/5/3	2018/5/2
ETSTW-GSM 002	Universal Radio Communication Tester	CMU 200	109439	R&S	2017/2/24	2018/2/23
ETSTW-GSM 003	Radio Communication Analyzer	MT8820C	6201342073	Anritsu	2017/2/10	2018/2/9
ETSTW-GSM 004	Wideband Radio Communication Tester	CMW500	128092	R&S	2016/12/15	2017/12/14
ETSTW-GSM 019	Band Reject Filter	WRCTF824/849- 822/851-40 /12+9SS	3	WI	2017/1/12	2018/1/11
ETSTW-GSM 020	Band Reject Filter	WRCD1747/1748- 1743/1752-32/5SS	1	WI	2017/1/12	2018/1/11
ETSTW-GSM 021	Band Reject Filter	WRCD1879.5/1880.5 -1875.5/1884.5- 32/5SS	3	WI	2017/1/12	2018/1/11
ETSTW-GSM 022	Band Reject Filter	WRCT901.9/903.1- 904.25-50/8SS	1	WI	2017/1/12	2018/1/11
ETSTW-GSM 023	Power Divider	4901.19.A	None	SUHNER	2016/9/14	2017/9/13
ETSTW-Cable 010	BNC Cable	RGS-142	None	THERMAX	2016/9/12	2017/9/11
ETSTW-Cable 011	SMA to N type Cable	RGU-400	None	THERMAX	Pre-test U	Use NCR
ETSTW-Cable 012	BNC Cable	RGS-400	None	THERMAX	2016/9/12	2017/9/11
ETSTW-Cable 016	BNC Cable	Switch Box	B Cable 1	Schwarz beck	2017/2/23	2018/2/22
ETSTW-Cable 017	BNC Cable	X Cable	B Cable 2	Schwarz beck	2017/2/23	2018/2/22
ETSTW-Cable 018	BNC Cable	Y Cable	B Cable 3	Schwarz beck	2017/2/23	2018/2/22
ETSTW-Cable 019	BNC Cable	Z Cable	B Cable 4	Schwarz beck	2017/2/23	2018/2/22
ETSTW-Cable 020	N TYPE Cable	OATS Cable 1	N30N30-L335-15M	JYE BAO CO.,LTD.	2017/4/21	2018/4/20
ETSTW-Cable 022	N TYPE Cable	5006	0002	JYE BAO CO.,LTD.	2017/4/6	2018/4/5
ETSTW-Cable 026	Microwave Cable	SUCOFLEX 104	279075	HUBER+SUHNER	2017/3/1	2018/2/28
ETSTW-Cable 027	Microwave Cable	SUCOFLEX 104	279083	HUBER+SUHNER	2017/5/3	2018/5/2
ETSTW-Cable 028	Microwave Cable	FA147A0015M2020	30064-2	UTIFLEX	2016/9/20	2017/9/19
ETSTW-Cable 029	Microwave Cable	FA147A0015M2020	30064-3	UTIFLEX	2016/9/20	2017/9/19
ETSTW-Cable 030	Microwave Cable	SUCOFLEX 104 (S_Cable 9)	279067	HUBER+SUHNER	2017/3/1	2018/2/28
ETSTW-Cable 031	Microwave Cable	SUCOFLEX 104 (S_Cable 10)	238092	HUBER+SUHNER	2017/4/12	2018/4/11
ETSTW-Cable 043	Microwave Cable	SUCOFLEX 104	317576	HUBER+SUHNER	2017/4/12	2018/4/11
ETSTW-Cable 048	Microwave Cable	SUCOFLEX 104	325519	HUBER+SUHNER	2017/4/12	2018/4/11
ETSTW-Cable 058	Microwave Cable	SUCOFLEX 104	none	HUBER+SUHNER	2017/2/20	2018/2/19
ETSTW-Cable 064	Microwave Cable	SUCOFLEX 104	MY28891	HUBER+SUHNER	2017/4/12	2018/4/11



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ETSTW-Cable 066	TSTW-Cable 066 SMA type cable		None	ASTROLAB	2016/9/12	2017/9/11
ETSTW-Cable 071 N TYPE CABLE		EMCCFD400-NM- NM-25000	170239	EMCI	2017/2/20	2018/2/19
WTSTW-SW 002	EMI TEST SOFTWARE	EZ_EMC	None	Farad	Version ETS-03A1	
WTSTW-SW 006	EMI TEST SOFTWARE	e3	None	AUDIX	Version 9.161014	
WTSTW-SW 008	TSTW-SW 008 Signal studio		None	AUDIX	Version	2.0.0.1

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2.4 General Test Procedure

POWER LINE CONDUCTED INTERFERENCE: The procedure used was ANSI STANDARD C63.10-2013 6.2 using a LISN (if necessary). Both lines were observed. The bandwidth of the spectrum analyzer was 10 kHz with an appropriate sweep speed.

RADIATION INTERFERENCE: The test procedure used was according to ANSI STANDARD C63.10-2013 6.3 employing a spectrum analyzer. For investigated frequency is equal to or below 1GHz, the RBW and VBW of the spectrum analyzer was 100 kHz and 100kHz respectively with an appropriate sweep speed. For investigated frequency is above 1GHz, both of RBW and VBW of the spectrum analyzer were 1 MHz with an appropriate sweep speed. The analyzer was calibrated in dB above a microvolt at the output of the antenna.

FORMULA OF CONVERSION FACTORS: The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of $dB\mu V$) to the antenna correction factor supplied by the antenna manufacturer. The antenna correction factors are stated in terms of dB.

Example:

Freq (MHz) METER READING + ACF + CABLE LOSS (to the receiver) = FS

ANSI STANDARD C63.10-2013 6.2.2 MEASUREMENT PROCEDURES: The EUT was placed on a table 80 cm height and with dimensions of 1m by 1.5m (non metallic table). The EUT was placed in the centre of the table. The table used for radiated measurements is capable of continuous rotation. The spectrum was scanned from 30 MHz to 10th harmonic of the fundamental.

Peak readings were taken in three (3) orthogonal planes and the highest readings. Measurements were made by Worldwide Testing Services(Taiwan) Co., Ltd. at the registered open field test site located at No.5-1, Lishui, Shuang Sing Village, Wanli Dist., New Taipei City 207, Taiwan (R.O.C.). The Registration Number: 930600.

When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes.

ANSI STANDARD C63.10-2013 B.2.7: Any measurements that utilize special test software shall be indicated and referenced in the test report. During testing, test software 'EZ EMC' was used for setting up different operation modes.

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3 Test results (enclosure)

Test case	Para. Number	Required	Test passed	Test failed
Peak Output Power	15.249 (a)	×	×	
Spurious Emissions radiated – Transmitter operating	15.249 (e)	×	×	
Spurious Emissions conducted – Transmitter operating	15.249 (e)			
Radiated Emission from Receiver Part	15.109	×	×	
Out of Band Spurious Emission, Band edge-Transmitter operating	15.249 (e)	×	×	
Power Line Conducted Emission	15.207			

The following is intentionally left blank.



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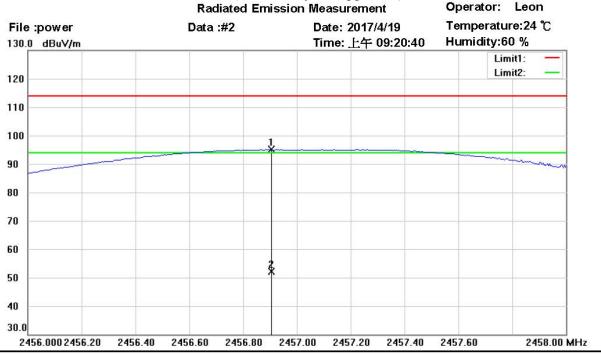
FCC ID: YDM-DA1702

3.1 Peak Output Power (transmitter)

FCC Rule: 15.249 (b)

This measurement applies to equipment with an integral antenna and to equipment with an antenna connector and equipped with an antenna as declared by the applicant.

The power was measured with modulation (declared by the applicant).



Site: Chamber

Condition: FCC 15.249 power_PK Polarization: Horizontal

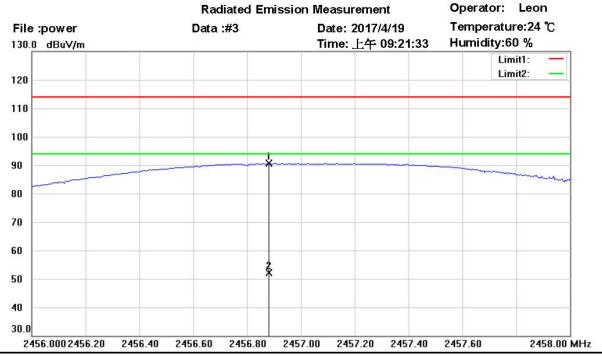
Test Mode: TX 2457MHz

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	2456.902	56.83	peak	38.26	95.09	114.00	100	165	-18.91	
	2456.902	13.78	AVG	38.26	52.04	94.00	100	165	-41.96	



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Site: Chamber

Condition: FCC 15.249 power_PK Polarization: Vertical

Test Mode: TX 2457MHz

Note:

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	2456.878	52.33	peak	38.26	90.59	114.00	100	317	-23.41	
4	2456.878	13.90	AVG	38.26	52.16	94.00	100	317	-41.84	

Test equipment used: ETSTW-RE 004, ETSTW-RE 030, ETSTW-RE 062, ETSTW-RE 142, ETSTW-RE 147

3.2 Equivalent isotropic radiated power

Because using an permanent antenna there are no deviations from the radiated test results according 3.1.

3.3 RF Exposure Compliance Requirements

Not applicable for this EUT for the low power level.

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3.4 Out of Band Radiated Emissions

FCC Rule: 15.249 (d)(e), 15.35(b)

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

For frequency above 1000 MHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For point-to-point operation, the peak field strength shall not exceed 2500 millivolts/meter at 3 meters along the antenna azimuth.

Limits:

Frequency of Emission	Field strength	Field Strength
(MHz)	(microvolts/meter)	(dB microvolts/meter)
30 - 88	100	40.0
88 - 216	150	43.5
216 – 960	200	46.5
Above 960	500	54.0

For frequencies above 1 GHz (Peak measurements).

Limit + 20 dB $54.0 \text{ dB}\mu\text{V/m} + 20 \text{ dB} = 74 \text{dB}\mu\text{V/m}$

Or

Must be attenuated at least 50dB below the level of fundament

Test equipment used: ETSTW-RE 004, ETSTW-RE 062, ETSTW-RE 142, ETSTW-RE 147, ETSTW-RE 030

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3.5 Spurious emission (tx)

Spurious emission was measured with modulation (declared by manufacturer).

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

For frequencies above 1000 MHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For point-to-point operation, the peak field strength shall not exceed 2500 millivolts/meter at 3 meters along the antenna azimuth.

SAMPLE CALCULATION OF LIMIT. ALL results will be updated by an automatic measuring system in accordance with point 2.3.

The peak and average spurious emission plots was measured with the average limits. The critical peak value listed in the table agree with the above calculated limits.

Summary table with radiated data of the test plots

Model:		DA1702		Date:				
Mode:				Temperature:		°C	Engineer:	
Polarization:				Humidity:		%		
Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
			1			1		

Frequency	Reading (dBuV)		Factor (dB)	Result @3m (dBuV/m)		Limit @3m (dBuV/m)		Margin	Table Degree	Ant. High
(MHz)	Peak	Ave.	Corr.	Peak	Ave.	Peak	Ave.	(dB)	(Deg.)	(cm)

Note

- 1. Correction Factor = Antenna factor + Cable loss Preamplifier
- 2. The formula of measured value as: Test Result = Reading + Correction Factor
- 3. Detector function in the form: PK = Peak, QP = Quasi Peak, AV = Average
- 4. All not in the table noted test results are more than 20 dB below the relevant limits.
- 5. Measurement uncertainty for 3m measurement: 30-1000 MHz = \pm 3.30 dB, 1-18 GHz = \pm 2.28dB, 18-40 GHz= \pm 2.19 dB; Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.
- 6. Up Line: PK Limit Line, Down Line: Ave Limit Line.
- 7. See attached diagrams in appendix.

TEST RESULT (Transmitter): The unit DOES meet the FCC requirements.

Test equipment used: ETSTW-RE 004, ETSTW-RE 062, ETSTW-RE 142, ETSTW-RE 147, ETSTW-RE 030, ETSTW-RE 088, ETSTW-RE 018



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3.6 Radiated Emissions from Receiver Part

FCC Rule: 15.109

Model: DA1702 Date: --

Mode: -- Temperature: -- °C Engineer: --

Polarization: -- Humidity: -- %

Frequency	Reading		Factor	Result	Limit	Margin	Table	Ant.
(MHz)	(dBuV)	Detector	(dB)		(dBuV/m)	_	Degree (Deg.)	High (cm)

Frequency	Reading (dBuV)		Factor (dB)	Result @3m (dBuV/m)		Limit @3m (dBuV/m)		Margin	Table Degree	Ant. High
(MHz)	Peak	Ave.	Corr.	Peak	Ave.	Peak	Ave.	(dB)	(Deg.)	(cm)

- 1. Correction Factor = Antenna factor + Cable loss Preamplifier
- 2. The formula of measured value as: Test Result = Reading + Correction Factor
- 3. Detector function in the form: PK = Peak, QP = Quasi Peak, AV = Average
- 4. All not in the table noted test results are more than 20 dB below the relevant limits.
- 5. Measurement uncertainty for 3m measurement : $30-1000 \text{ MHz} = \pm 3.30 \text{ dB}$, $1-18 \text{ GHz} = \pm 2.28 \text{ dB}$, $18-40 \text{ GHz} = \pm 2.19 \text{ dB}$; Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k=2.
- 6. See attached diagrams in appendix.

Test equipment used: ETSTW-RE 004, ETSTW-RE 111, ETSTW-RE 030,

ETSTW-RE 044

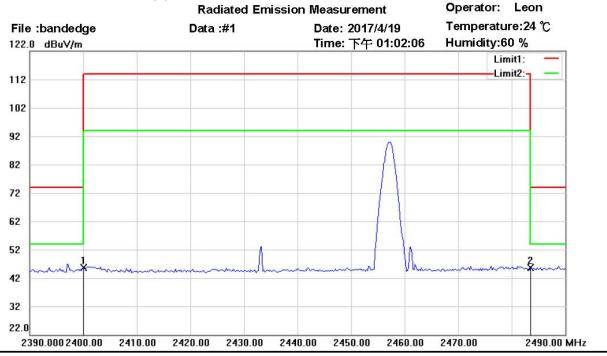


Registration number: W6R21703-16708-C-9

FCC ID: YDM-DA1702

3.7 Radiated Emission on the band edge

From the following plots, they show that the fundamental emissions are confined in the specified band and hey at least 50 dB below the carrier level at band edge (2400 and 2483.5 MHz). It meets the requirement of section 15.249(d).



Site: Chamber

Condition: FCC 15.249 PK (Bandedge) Polarization: Horizontal

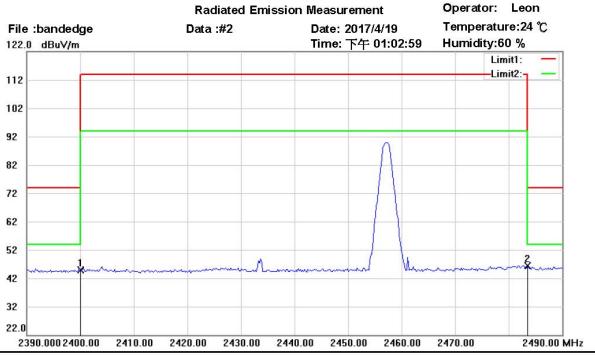
Test Mode: TX 2457MHz

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	2400.000	7.39	peak	38.14	45.53	74.00	100	165	-28.47	
*	2483.500	7.32	peak	38.32	45.64	74.00	100	165	-28.36	



Registration number: W6R21703-16708-C-9

FCC ID: YDM-DA1702



Site: Chamber

Condition: FCC 15.249 PK (Bandedge) Polarization: Vertical

Test Mode: TX 2457MHz

Note:

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	2400.000	6.76	peak	38.14	44.90	74.00	100	317	-29.10	
*	2483.500	8.01	peak	38.32	46.33	74.00	100	317	-27.67	

Limit:

Fraguency Panga (MHz)	Limit ($dB\mu V/m$)				
Frequency Range (MHz)	Peak	Average			
902 - 928	114	94			
2400 - 2483.5	74	54			
5725 – 5875	74	54			

Test equipment used: ETSTW-RE 004, ETSTW-RE 030, ETSTW-RE 062, ETSTW-RE 142, ETSTW-RE 147



Registration number: W6R21703-16708-C-9

FCC ID: YDM-DA1702

3.8 Power Line Conducted Emission

For an intentional radiator which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the table bellows with this provision shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminals.

This measurement was transact first with instrumentation using an average and peak detector and a 10 kHz bandwidth. If the peak detector achieves a calculated level, the measurement is repeated by an instrumentation using a quasi-peak detector.

Model: DA1702 Date: -
Mode: -- Temperature: -- °C Engineer: -
Polarization: -- Humidity: -- %

r otalization.		110	mmunty.		/0			
Frequency	Reading (dBuV)		Factor (dB)			Limit (dBuV)		Margin
(MHz)	QP	Ave.	Corr.	QP	Ave.	QP	Ave.	(dB)
							-	
							1	
							-	
							-	
							ŀ	
							1	

Polarization: --

T Oldfization.								
Frequency	Reading (dBuV)		Factor (dB)	Result (dBuV)		Limit (dBuV)		Margin
(MHz)	QP	Ave.	Corr.	QP Ave.		QP Ave.		(dB)
					-		ı	
					ŀ		ŀ	
					ŀ		ŀ	
					-		-	

Note: 1. The formula of measured value as: Test Result = Reading + Correction Factor

- 2. The Correction Factor = Cable Loss + LISN Insertion Loss
- 3. Detector function in the form: PK = Peak, QP = Qusai Peak, AV = Average
- 4. All not in the table noted test results are more than 20 dB below the relevant limits.
- 5. Measurement uncertainty = ± 0.74 dB; Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.
- 6. Up Line: QP Limit Line, Down Line: Ave Limit Line.
- 7. This test is not required because the EUT is battery-used.

Limits:

Frequency of Emission (MHz)	Conducted Limit (dBuV)				
	Quasi Peak	Average			
0.15-0.5	66 to 56	56 to 46			
0.5-5	56	46			
5-30	60	50			

Test equipment used: ETSTW-CE 001, ETSTW-CE 016, ETSTW-CE 028

Registration number: W6R21703-16708-C-9

FCC ID: YDM-DA1702

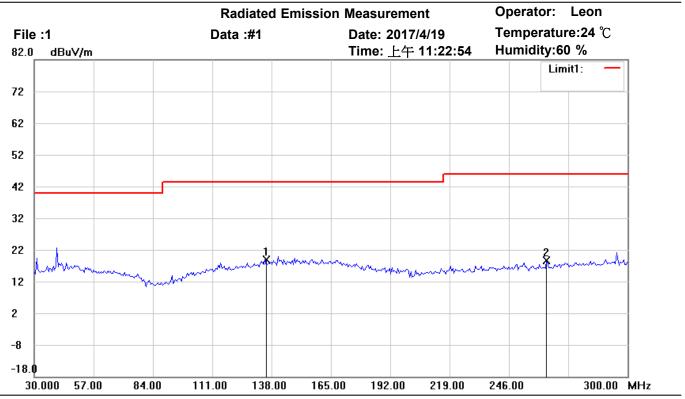
Appendix

Measurement diagrams

Spurious Emissions radiated



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Site: Chamber

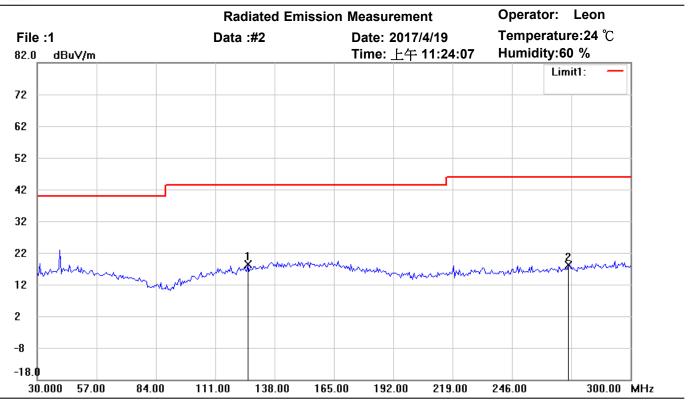
Condition: FCC_part 15 RE-Class C_30-1000MHz Polarization: Horizontal

Test Mode: TX 2457MHz

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	134.9700	3.85	peak	15.09	18.94	43.50	100	135	-24.56	
	263.2064	3.76	peak	14.75	18.51	46.00	100	210	-27.49	



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Site: Chamber

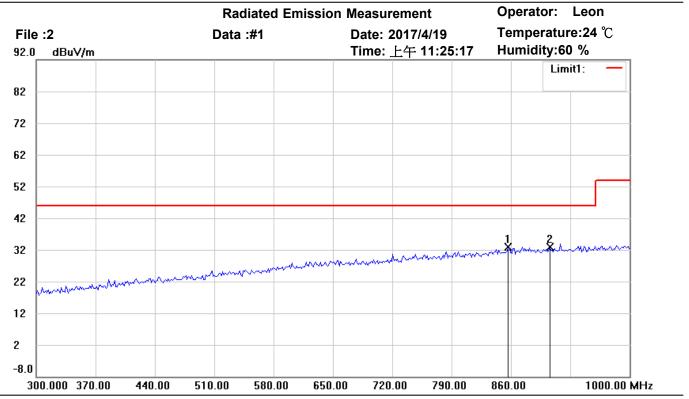
Condition: FCC_part 15 RE-Class C_30-1000MHz Polarization: Vertical

Test Mode: TX 2457MHz

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	125.7715	4.05	peak	14.45	18.50	43.50	100	80	-25.00	
	271.8637	2.89	peak	15.18	18.07	46.00	100	145	-27.93	



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Site: Chamber

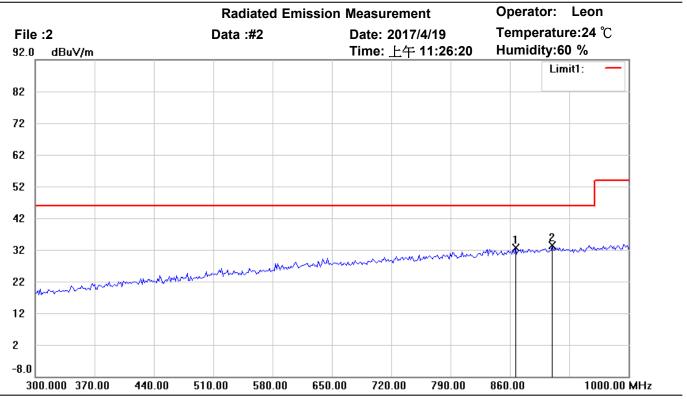
Condition: FCC_part 15 RE-Class C_30-1000MHz Polarization: Horizontal

Test Mode: TX 2457MHz

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	856.9138	5.27	peak	27.66	32.93	46.00	100	20	-13.07	
	906.0120	4.52	peak	28.38	32.90	46.00	100	155	-13.10	



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Site: Chamber

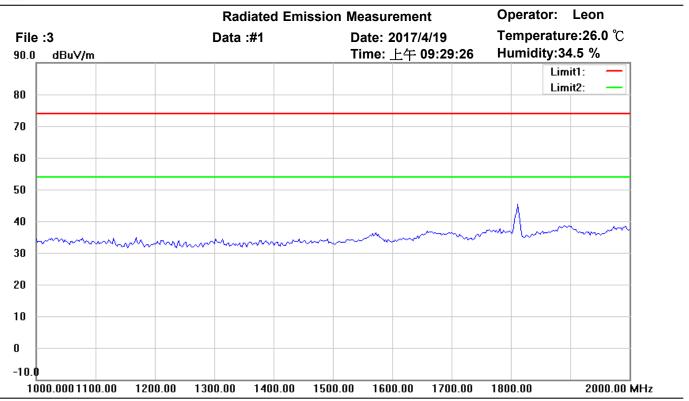
Condition: FCC_part 15 RE-Class C_30-1000MHz Polarization: Vertical

Test Mode: TX 2457MHz

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	866.7335	4.82	peak	27.82	32.64	46.00	100	145	-13.36	
*	910.2204	4.98	peak	28.38	33.36	46.00	100	60	-12.64	



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Site: Chamber

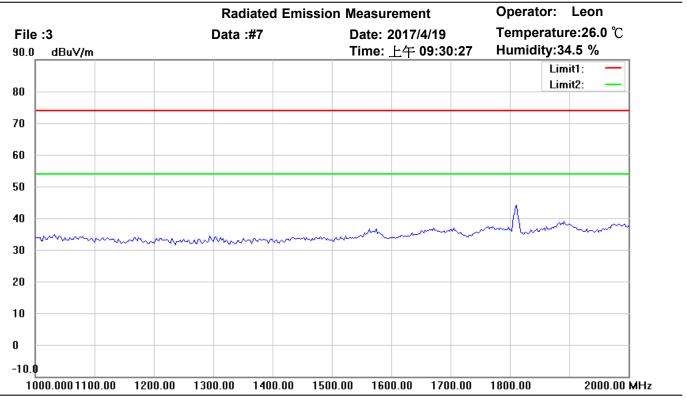
Condition: FCC_part 15 RE-Class C_Above 1GHz_PK Polarization: Horizontal

Test Mode: TX 2457MHz

	Frequency	Reading	Detector	Corr. factor	Result	Limit	Ant.Pos	Tab.Pos	Margin	Comment
Mk.	(MHz)	(dBuV)		(dB/m)	(dBuV/m)	(dBuV/m)	(cm)	(deg.)	(dB)	



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Site: Chamber

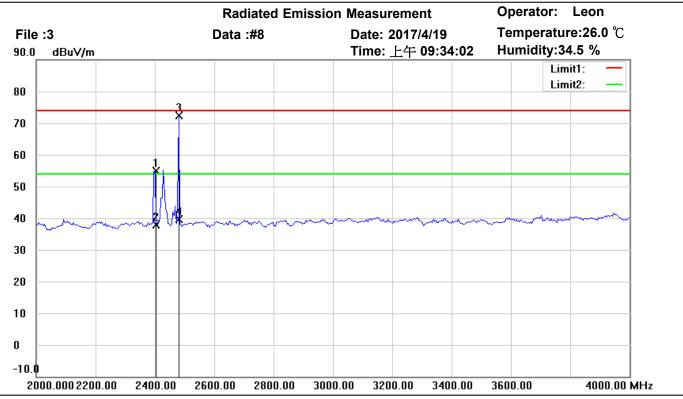
Condition: FCC_part 15 RE-Class C_Above 1GHz_PK Polarization: Vertical

Test Mode: TX 2457MHz

	Frequency	Reading	Detector	Corr. factor	Result	Limit	Ant.Pos	Tab.Pos	Margin	Comment
Mk.	(MHz)	(dBuV)		(dB/m)	(dBuV/m)	(dBuV/m)	(cm)	(deg.)	(dB)	



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Site: Chamber

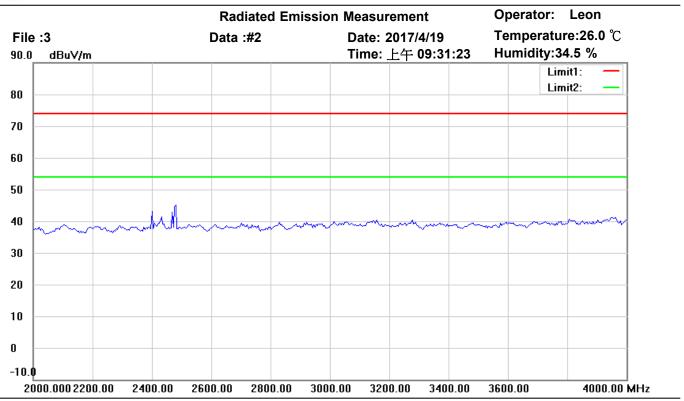
Condition: FCC_part 15 RE-Class C_Above 1GHz_PK Polarization: Vertical

Test Mode: TX 2457MHz

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	2402.059	59.46	peak	-4.65	54.81	74.00	100	155	-19.19	
	2402.059	42.59	AVG	-4.65	37.94	54.00	100	155	-16.06	
*	2480.026	76.66	peak	-4.38	72.28	74.00	100	175	-1.72	
	2480.026	44.09	AVG	-4.38	39.71	54.00	100	175	-14.29	



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Site: Chamber

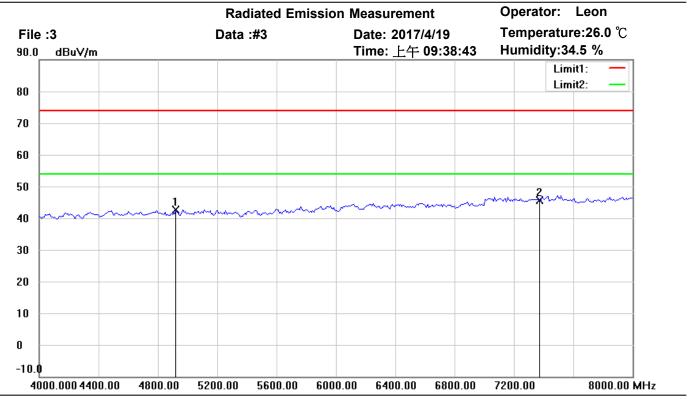
Condition: FCC_part 15 RE-Class C_Above 1GHz_PK Polarization: Horizontal

Test Mode: TX 2457MHz

	Frequency	Reading	Detector	Corr. factor	Result	Limit	Ant.Pos	Tab.Pos	Margin	Comment
Mk.	(MHz)	(dBuV)		(dB/m)	(dBuV/m)	(dBuV/m)	(cm)	(deg.)	(dB)	



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Site: Chamber

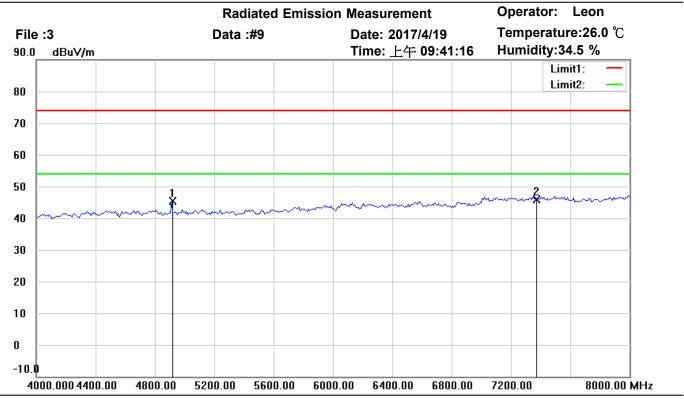
Condition: FCC_part 15 RE-Class C_Above 1GHz_PK Polarization: Horizontal

Test Mode: TX 2457MHz

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	4914.000	42.63	peak	-0.04	42.59	74.00	100	155	-31.41	
*	7371.000	40.37	peak	5.15	45.52	74.00	100	30	-28.48	



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Site: Chamber

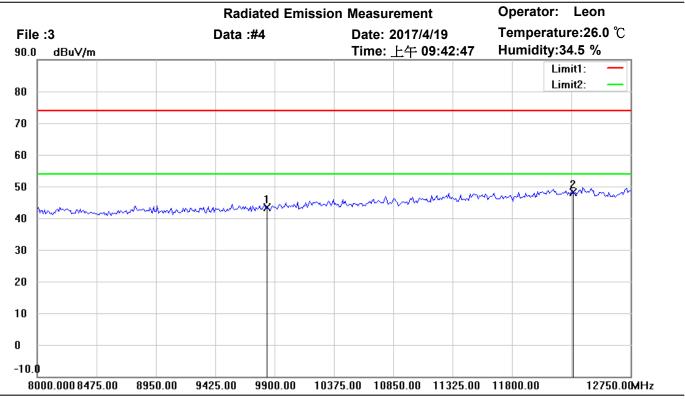
Condition: FCC_part 15 RE-Class C_Above 1GHz_PK Polarization: Vertical

Test Mode: TX 2457MHz

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	4913.828	45.30	peak	-0.04	45.26	74.00	100	85	-28.74	
*	7371.000	40.75	peak	5.15	45.90	74.00	100	120	-28.10	



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Site: Chamber

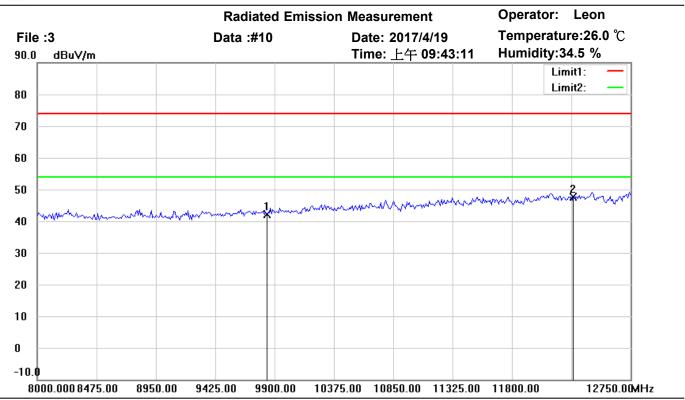
Condition: FCC_part 15 RE-Class C_Above 1GHz_PK Polarization: Horizontal

Test Mode: TX 2457MHz

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	9828.000	35.40	peak	7.93	43.33	74.00	100	145	-30.67	
*	12285.000	34.32	peak	13.71	48.03	74.00	100	70	-25.97	



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Site: Chamber

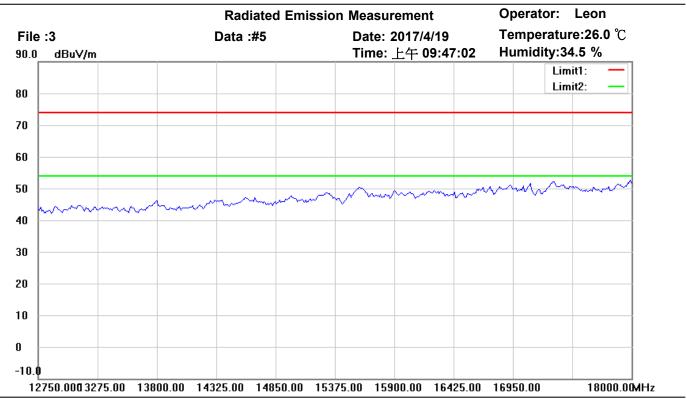
Condition: FCC_part 15 RE-Class C_Above 1GHz_PK Polarization: Vertical

Test Mode: TX 2457MHz

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	9828.000	34.09	peak	7.93	42.02	74.00	100	140	-31.98	
*	12285.000	33.88	peak	13.71	47.59	74.00	100	60	-26.41	



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Site: Chamber

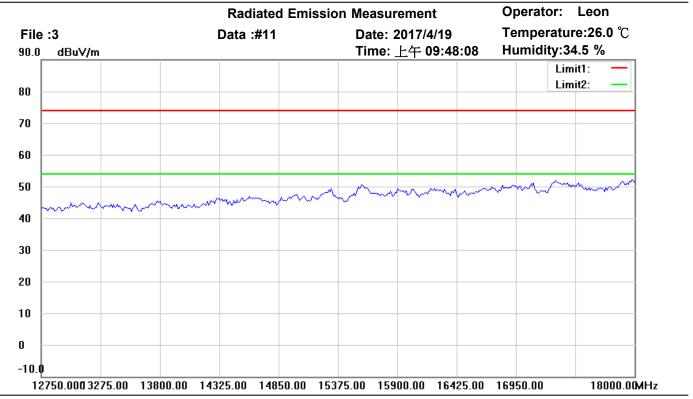
Condition: FCC_part 15 RE-Class C_Above 1GHz_PK Polarization: Horizontal

Test Mode: TX 2457MHz

	Frequency	Reading	Detector	Corr. factor	Result	Limit	Ant.Pos	Tab.Pos	Margin	Comment
Mk.	(MHz)	(dBuV)		(dB/m)	(dBuV/m)	(dBuV/m)	(cm)	(deg.)	(dB)	



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Site: Chamber

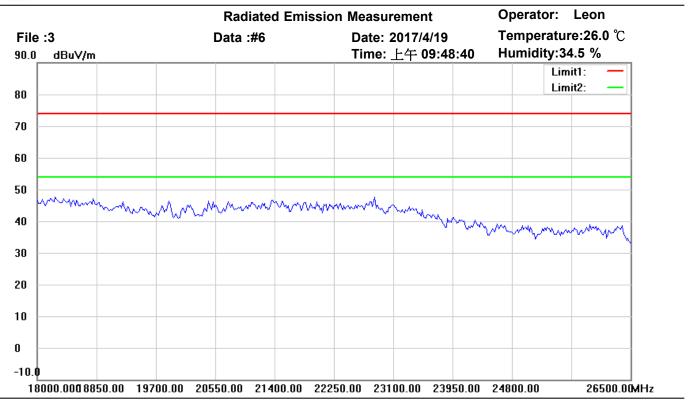
Condition: FCC_part 15 RE-Class C_Above 1GHz_PK Polarization: Vertical

Test Mode: TX 2457MHz

	Frequency	Reading	Detector	Corr. factor	Result	Limit	Ant.Pos	Tab.Pos	Margin	Comment
Mk.	(MHz)	(dBuV)		(dB/m)	(dBuV/m)	(dBuV/m)	(cm)	(deg.)	(dB)	



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Site: Chamber

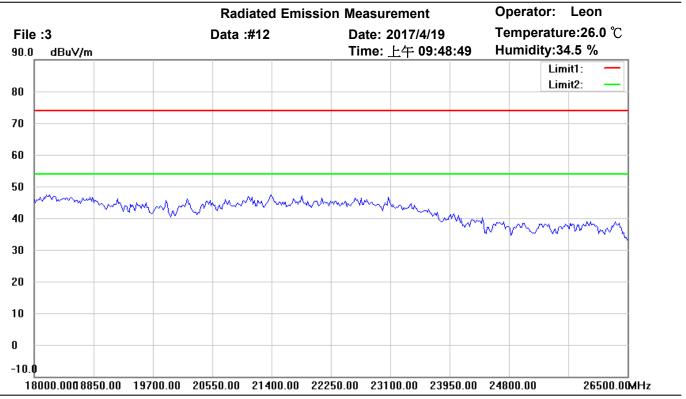
Condition: FCC_part 15 RE-Class C_Above 1GHz_PK Polarization: Horizontal

Test Mode: TX 2457MHz

	Frequency	Reading	Detector	Corr. factor	Result	Limit	Ant.Pos	Tab.Pos	Margin	Comment
Mk.	(MHz)	(dBuV)		(dB/m)	(dBuV/m)	(dBuV/m)	(cm)	(deg.)	(dB)	



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Site: Chamber

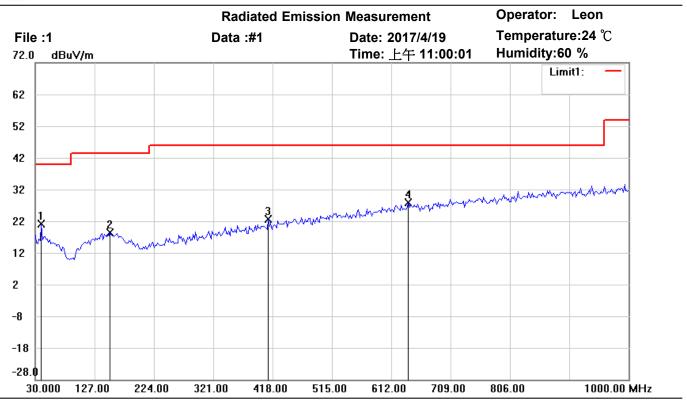
Condition: FCC_part 15 RE-Class C_Above 1GHz_PK Polarization: Vertical

Test Mode: TX 2457MHz

	Frequency	Reading	Detector	Corr. factor	Result	Limit	Ant.Pos	Tab.Pos	Margin	Comment
Mk.	(MHz)	(dBuV)		(dB/m)	(dBuV/m)	(dBuV/m)	(cm)	(deg.)	(dB)	



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Site: Chamber

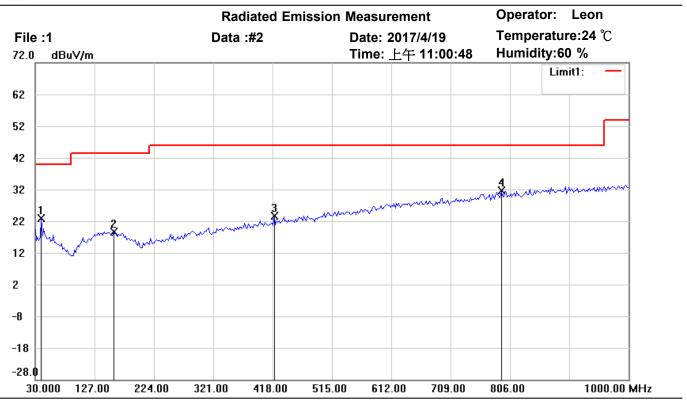
Condition: FCC_part 15 RE-Class B_30-1000MHz Polarization: Horizontal

Test Mode: RX 2457MHz

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	39.7194	6.63	peak	14.56	21.19	40.00	100	95	-18.81	
	152.4648	2.82	peak	15.50	18.32	43.50	100	130	-25.18	
	411.0020	3.51	peak	19.07	22.58	46.00	100	60	-23.42	
*	640.3808	3.52	peak	24.34	27.86	46.00	100	145	-18.14	



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Site: Chamber

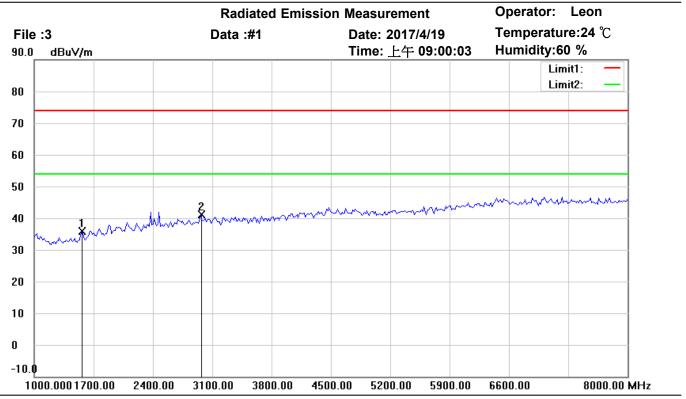
Condition: FCC_part 15 RE-Class B_30-1000MHz Polarization: Vertical

Test Mode: RX 2457MHz

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	39.7194	8.42	peak	14.56	22.98	40.00	100	120	-17.02	
	158.2966	3.19	peak	15.49	18.68	43.50	100	95	-24.82	
	420.7214	4.25	peak	19.28	23.53	46.00	100	10	-22.47	
*	792.0040	5.03	peak	26.49	31.52	46.00	100	145	-14.48	



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Site: Chamber

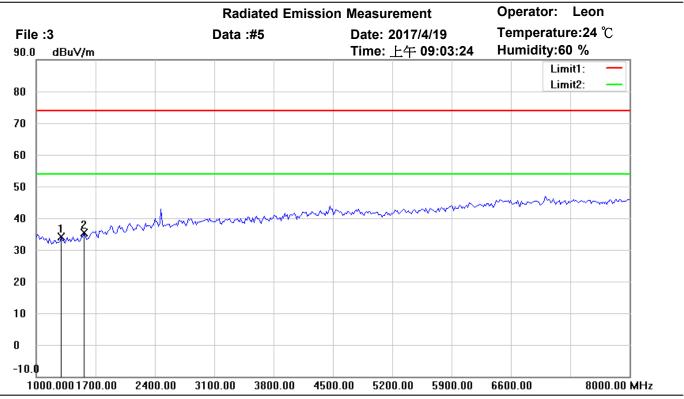
Condition: FCC_part 15 RE-Class B_Above 1GHz_PK Polarization: Horizontal

Test Mode: RX 2457MHz

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1561.122	44.08	peak	-8.22	35.86	74.00	100	155	-38.14	
*	2963.928	43.72	peak	-2.70	41.02	74.00	100	60	-32.98	



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Site: Chamber

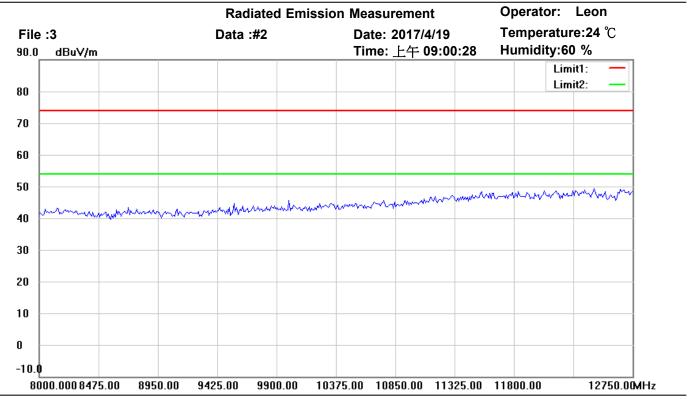
Condition: FCC_part 15 RE-Class B_Above 1GHz_PK Polarization: Vertical

Test Mode: RX 2457MHz

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1294.589	42.86	peak	-8.69	34.17	74.00	100	210	-39.83	
*	1561.122	43.52	peak	-8.22	35.30	74.00	100	130	-38.70	



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Site: Chamber

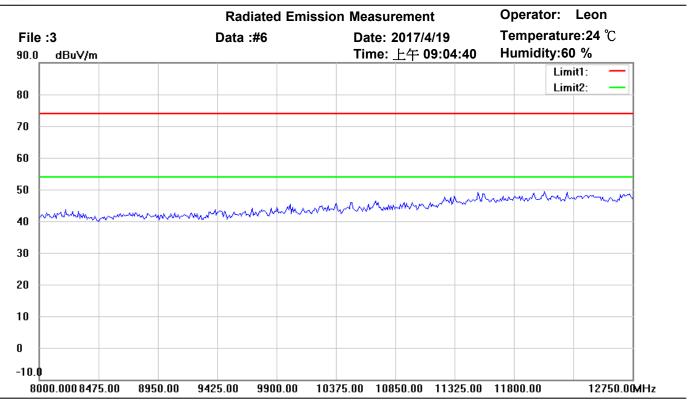
Condition: FCC_part 15 RE-Class B_Above 1GHz_PK Polarization: Horizontal

Test Mode: RX 2457MHz

	Frequency	Reading	Detector	Corr. factor	Result	Limit	Ant.Pos	Tab.Pos	Margin	Comment
Mk.	(MHz)	(dBuV)		(dB/m)	(dBuV/m)	(dBuV/m)	(cm)	(deg.)	(dB)	



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Site: Chamber

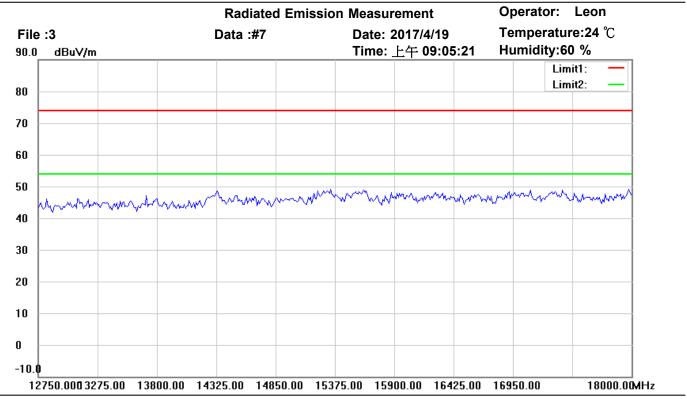
Condition: FCC_part 15 RE-Class B_Above 1GHz_PK Polarization: Vertical

Test Mode: RX 2457MHz

	Frequency	Reading	Detector	Corr. factor	Result	Limit	Ant.Pos	Tab.Pos	Margin	Comment
Mk.	(MHz)	(dBuV)		(dB/m)	(dBuV/m)	(dBuV/m)	(cm)	(deg.)	(dB)	



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Site: Chamber

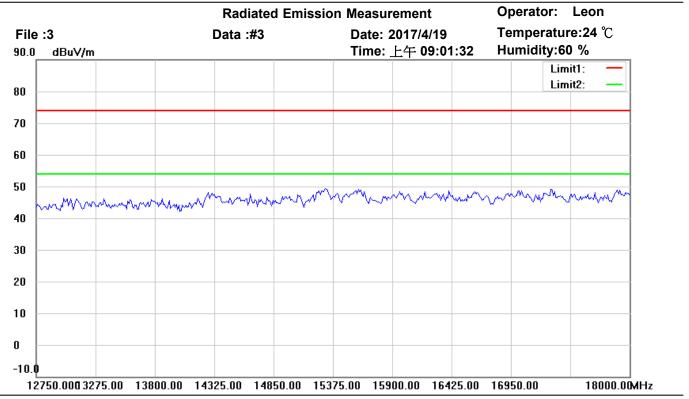
Condition: FCC_part 15 RE-Class B_Above 1GHz_PK Polarization: Vertical

Test Mode: RX 2457MHz

	Frequency	Reading	Detector	Corr. factor	Result	Limit	Ant.Pos	Tab.Pos	Margin	Comment	l
Mk.	(MHz)	(dBuV)		(dB/m)	(dBuV/m)	(dBuV/m)	(cm)	(deg.)	(dB)		



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Site: Chamber

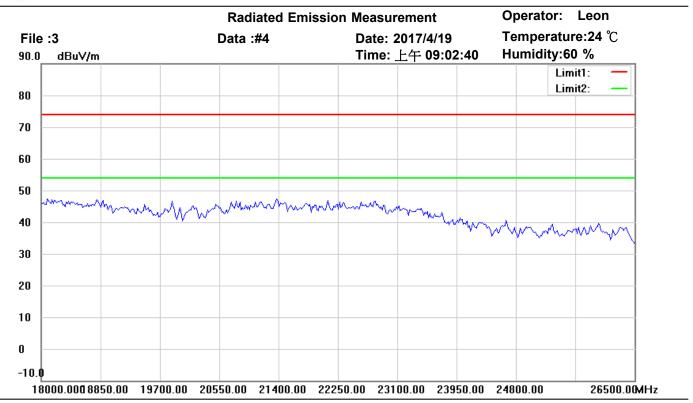
Condition: FCC_part 15 RE-Class B_Above 1GHz_PK Polarization: Horizontal

Test Mode: RX 2457MHz

	Frequency	Reading	Detector	Corr. factor	Result	Limit	Ant.Pos	Tab.Pos	Margin	Comment	l
Mk.	(MHz)	(dBuV)		(dB/m)	(dBuV/m)	(dBuV/m)	(cm)	(deg.)	(dB)		



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Site: Chamber

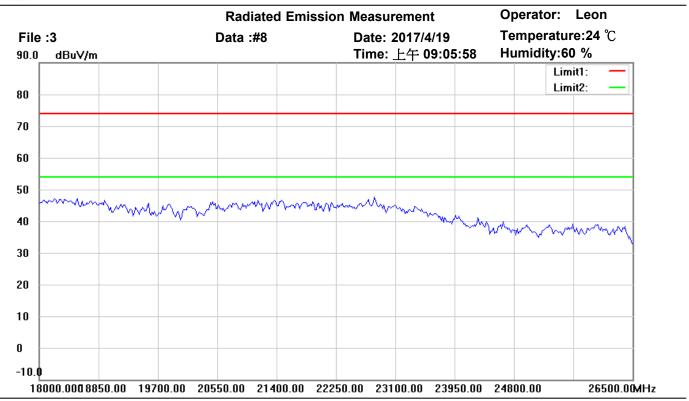
Condition: FCC_part 15 RE-Class B_Above 1GHz_PK Polarization: Horizontal

Test Mode: RX 2457MHz

	Frequency	Reading	Detector	Corr. factor	Result	Limit	Ant.Pos	Tab.Pos	Margin	Comment	l
Mk.	(MHz)	(dBuV)		(dB/m)	(dBuV/m)	(dBuV/m)	(cm)	(deg.)	(dB)		



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Site: Chamber

Condition: FCC_part 15 RE-Class B_Above 1GHz_PK Polarization: Vertical

Test Mode: RX 2457MHz

	Frequency	Reading	Detector	Corr. factor	Result	Limit	Ant.Pos	Tab.Pos	Margin	Comment
Mk.	(MHz)	(dBuV)		(dB/m)	(dBuV/m)	(dBuV/m)	(cm)	(deg.)	(dB)	