



FCC ID:WNG-TXP-02

AUDIX Technology (Shenzhen) Co., Ltd.

FCC PART 15C TEST REPORT FOR CERTIFICATION

On Behalf of

Rondish Company Limited

Wristband Transmitter

TXP-02

FCC ID: WNG-TXP-02

Prepared for : Rondish Company Limited
Unit G&H, 4/F, Block 1, Kwai Tak Ind. Ctr. 15-33 Kwai
Tak St., Kwai Chung, N.T., HongKong

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Date of Test : May.16~Jun.01,2017
Date of Report : Jun.08,2017

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TEST REPORT CERTIFICATION

Applicant : Rondish Company Limited
Manufacturer : Rondish Company Limited
Product : Wristband Transmitter
FCC ID : WNG-TXP-02
(A) Model No. : TXP-02
(B) Power Supply : DC 3V
(C) Test Voltage : DC 3V

Tested for comply with:
FCC CFR 47 Part 15 Subpart C

Test procedure used:
ANSI C63.10: 2013

The device described above is tested by AUDIX TECHNOLOGY (SHENZHEN) CO., LTD. to confirm comply with all the FCC Part 15 Subpart C requirements.

The test results are contained in this test report and AUDIX TECHNOLOGY (SHENZHEN) CO., LTD. is assumed full responsibility for the accuracy and completeness of these tests. This report contains data that are not covered by the NVLAP accreditation. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of AUDIX TECHNOLOGY (SHENZHEN) CO., LTD.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

Date of Test : May.16~Jun.01,2017 Report of date: Jun.08,2017

Prepared by : Brave Zhang Reviewed by : Sunny Lu
Brave Zhang / Assistant Sunny Lu / Deputy Manager



Approved & Authorized Signer : David Jin
David Jin / Manager

1. SUMMARY OF STANDARDS AND RESULTS

1.1. Description of Standards and Results

The EUT has been tested according to the applicable standards as referenced below.

EMISSION		
Description of Test Item	Standard	Results
Conducted Emission Test	FCC Part 15C: 15.231 ANSI C63.10: 2013	PASS
Radiated Emission Test	FCC Part 15C: 15.231 ANSI C63.10: 2013	PASS
Stop Transmitting Time Test	FCC Part 15C: 15.231	PASS
20 dB Bandwidth Test	FCC Part 15C: 15.231	PASS

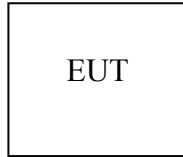
N/A is an abbreviation for Not Applicable.

2. GENERAL INFORMATION

2.1. Description of Device (EUT)

Product	: Wristband Transmitter
Model No.	: TXP-02
FCC ID	: WNG-TXP-02
Operation frequency	: 433.92MHz
Applicant	: Rondish Company Limited Unit G&H, 4/F, Block 1, Kwai Tak Ind. Ctr. 15-33 Kwai Tak St., Kwai Chung, N.T., HongKong
Manufacturer	: Rondish Company Limited Unit G&H, 4/F, Block 1, Kwai Tak Ind. Ctr. 15-33 Kwai Tak St., Kwai Chung, N.T., HongKong
Antenna Type & Gain	: Antenna Type: PCB Antenna, -5dBi gain;
Date of Test	: May.16~Jun.01,2017
Date of Receipt	: May.13,2017
Sample Type	: Prototype production

2.1. EUT Configuration and operation conditions for test



(EUT: Wristband Transmitter)

2.2. Test Facility

Site Description

Audix Technology (Shenzhen) Co., Ltd.

Name of Firm

: No. 6, Kefeng Road, Science & Technology Park, Nanshan District, Shenzhen, Guangdong, China

3m Anechoic Chamber

: Certified by FCC, USA
Registration Number: 90454
Valid Date: Jul.12, 2017

3m & 10m Anechoic Chamber

: Certified by FCC, USA
Registration Number: 794232
Valid Date: Jul.12, 2017

EMC Lab.

: Certified by Industry Canada
Registration Number: IC 5183A-1
Valid Date: May.07, 2020

: Certified by DAkkS, Germany
Registration No: D-PL-12151-01-00
Valid Date: Dec.07, 2021

: Accredited by NVLAP, USA
NVLAP Code: 200372-0
Valid Date: Mar.31, 2018

2.3. Measurement Uncertainty (95% confidence levels, k=2)

Test Item	Uncertainty
Uncertainty for Radiation Emission test in 3m chamber	2.8dB(30~200MHz, Polarization: H)
	2.8dB(30~200MHz, Polarization: V)
	3.0dB(200M~1GHz, Polarization: H)
	3.0dB(200M~1GHz, Polarization: V)
Uncertainty for Radiation Emission test in 3m chamber (1GHz-18GHz)	5.8dB(1~6GHz, Distance: 3m)
	5.8dB(6~18GHz, Distance: 3m)
Uncertainty for Radiated Spurious Emission test in RF chamber	3.6dB
Uncertainty for Conduction Spurious emission test	2.0dB
Uncertainty for Output power test	0.8dB
Uncertainty for Bandwidth test	83kHz
Uncertainty for DC power test	0.1 %
Uncertainty for test site temperature and humidity	0.6°C
	3%

3. POWER LINE CONDUCTED EMISSION TEST

According to Paragraph (c) of FCC Part 15C section 15.231, Tests to demonstrate compliance with the conducted limits are not required for devices which only employ battery power for operation and which do not operate from the AC power lines or contain provisions for operation while connected to the AC power lines.

4. RADIATED EMISSION TEST

4.1. Test Equipment

Frequency range: 30~1000MHz

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	3#Chamber	AUDIX	N/A	N/A	Mar.28,17	1 Year
2.	EMI Test Receiver	Rohde & Schwarz	ESR7	101547	Apr.22,17	1 Year
3.	Spectrum Analyzer	Agilent	N9010A	MY52220804	Oct.15,16	1 Year
4.	Amplifier	HP	8447D	2648A04738	Apr.22,17	1 Year
5.	Bi-log Antenna	TESEQ	CBL6112D	35375	Aug.03,16	1 Year
6.	RF Cable	MIYAZAKI	CFD400NL-LW	No.3	Sep.26.16	1 Year
7.	Coaxial Switch	Anritsu	MP59B	6201397222	Apr.22,17	1 Year
8.	Attenuator	EMCI	EMCI-N-6-06	AT-N0639	Sep.26.16	1 Year
9.	Test Software	AUDIX	e3	6.2009-5-21a(n)	N/A	N/A

Note: N/A means Not applicable.

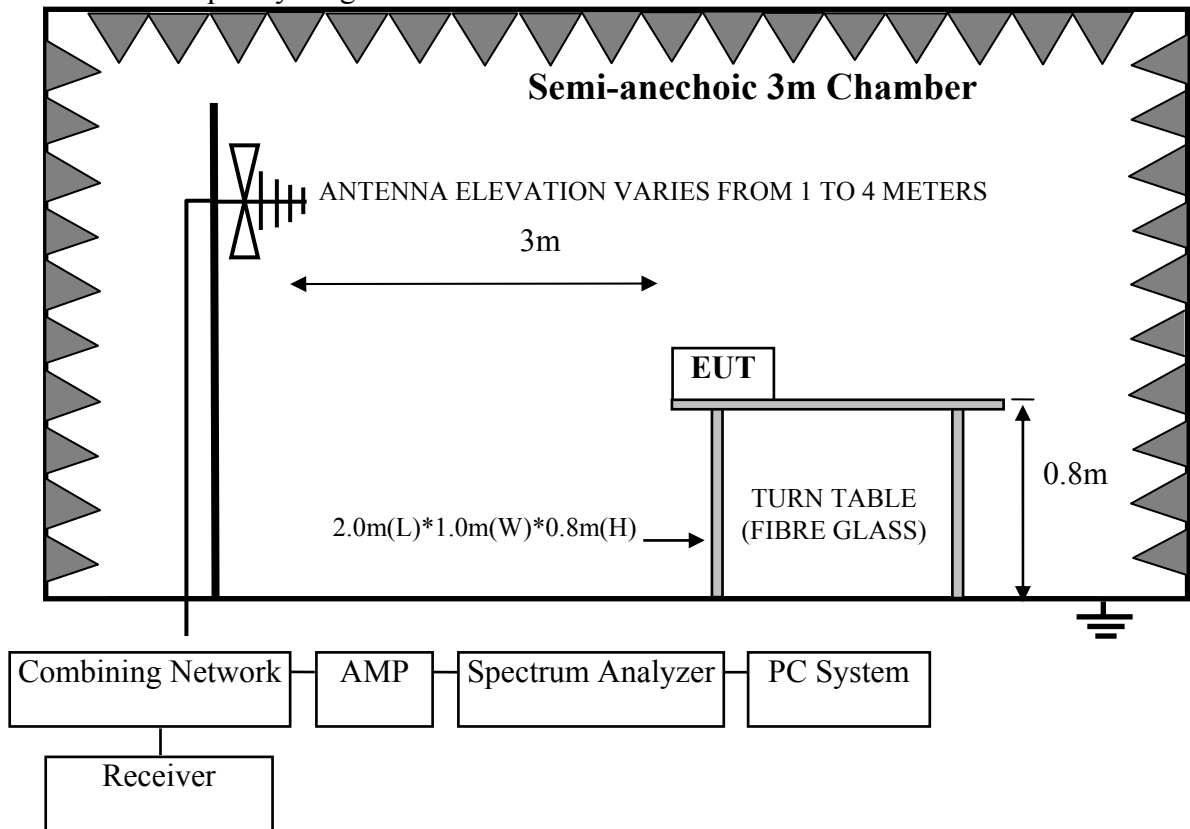
Frequency range: above 1000MHz

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	3#Chamber	AUDIX	N/A	N/A	May.17,17	1 Year
2.	EMI Test Receiver	Rohde & Schwarz	ESR7	101547	Apr.22,17	1 Year
3.	Spectrum Analyzer	Agilent	E4446A	US44300459	Apr.22,17	1 Year
4.	Horn Antenna	ETS	3115	9510-4580	Nov.16,16	1 Year
5.	Amplifier	Agilent	8449B	3008A02495	Apr.22,17	1 Year
6.	RF Cable	Hubersuhner	SUCOFLEX104	274094/4	Apr.22,17	1 Year
7.	Horn Antenna	ETS	3116	00060089	Nov.16,16	1 Year
8.	Test Software	AUDIX	e3	6.2009-5-21a(n)	N/A	N/A

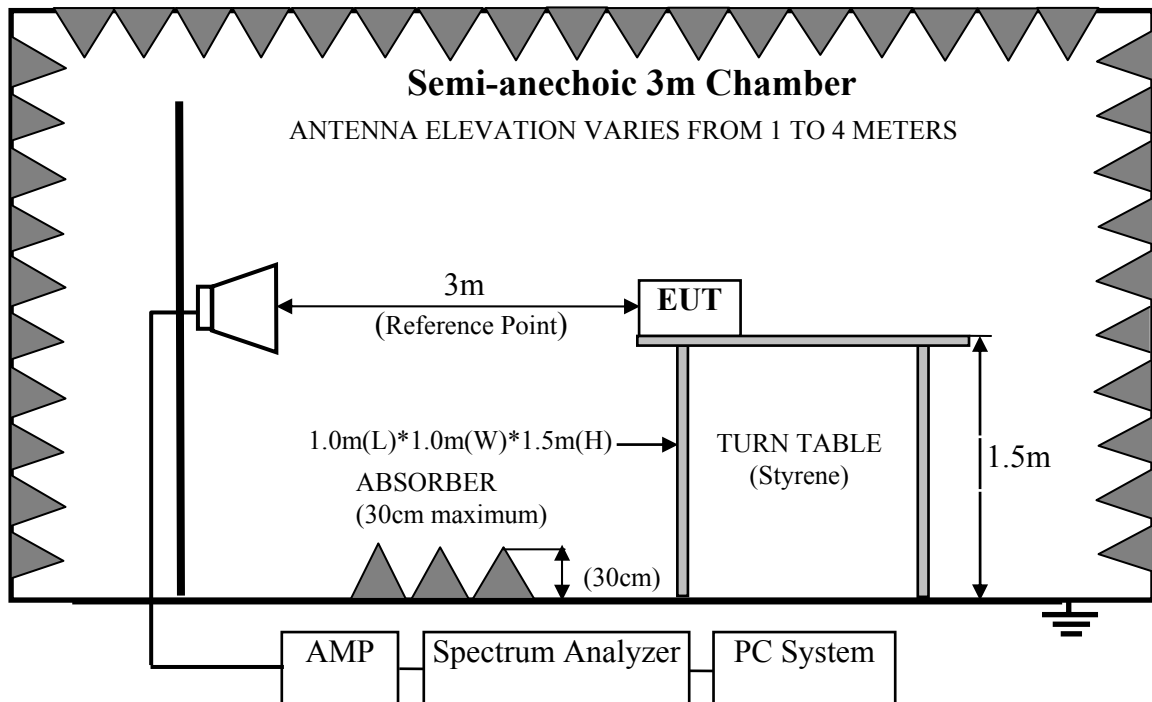
Note: N/A means Not applicable.

4.2. Block Diagram of Test Setup

For frequency range 30MHz-1000MHz



For frequency range above 1GHz



4.3. Radiated Emission Limit Standard: FCC 15.209 and 15.231

Fundamental Frequency(MHz)	Field Strength of Fundamental	Field Strength of Spurious emissions
433.92	QP:80.83dBuV/m at 3m distance	AV:60.83dBuV/m at 3m distance (Above 1GHz) PK:80.83dBuV/m at 3m distance (Above 1GHz) QP:60.83dBuV/m at 3m distance (Below 1GHz)

Note: The spurious emissions appearing within the frequency band listed in 15.205 Shall also comply with limits shown in section 15.209

4.4.EUT Configuration on Test

The following equipment are installed on Radiated Emission Test to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

4.5.Operating Condition of EUT

- 4.5.1.Setup the EUT and simulator as shown as Section 4.2.
- 4.5.2.Turn on the power of all equipments.
- 4.5.3.Let EUT work in Tx mode.

4.6.Test Procedure

The EUT and its simulators are placed on a turn table, which is 0.8 meter high above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna. Both horizontal and vertical polarization of the antenna is set on Test. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.10-2013 on radiated emission Test.

During the pretest the EUT was rotated through three orthogonal axes to determine the attitude that maximizes the emissions.

After that the EUT was manually handled to find the orientation that has the maximum emission, which is the orientation show in the test setup photos.

The bandwidth of the EMI test receiver (R&S ESR7) is set at 120kHz for frequency range from 30MHz to 1000MHz.

The bandwidth of the Spectrum's RBW is set at 1MHz and VBW is set at 3MHz for peak emissions measurement above 1GHz

This device is pulse modulated; a duty cycle factor was used to calculate average level based measured peak level.

4.7. Radiated Emission Test Results

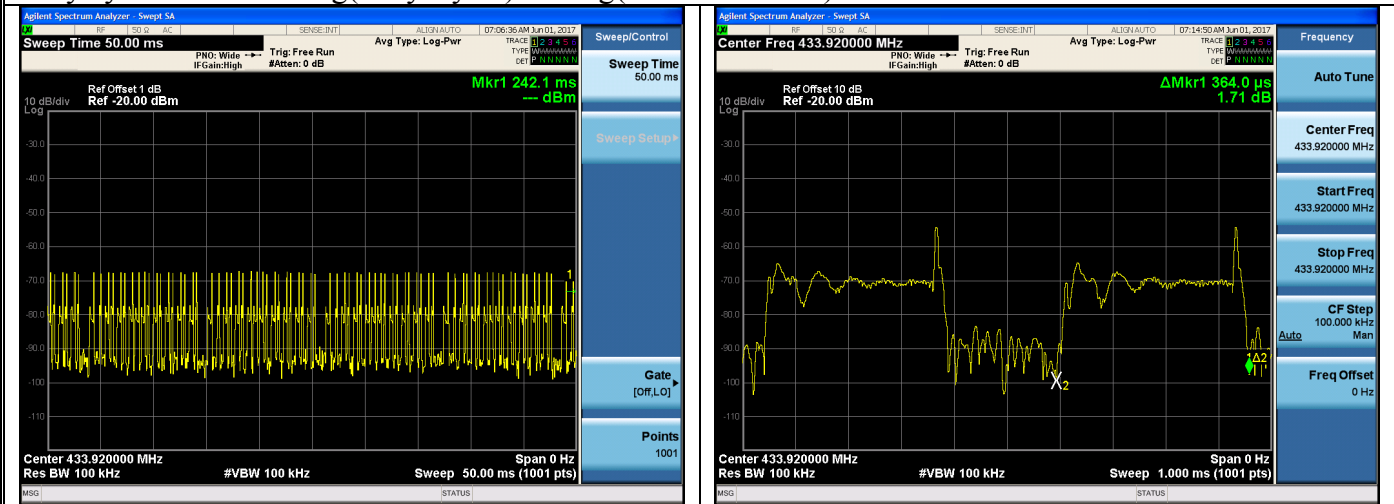
PASS.

Note: The emission in the restricted Bands in section 15.205 comply with the 15.209 general limit.

The frequency range from 30MHz to 5000MHz was investigated. When PK measured Levels comply with average limit, then the average levels were deemed to comply with Average limit.

Note: The duty cycle factor for calculate average level is -4.695dB, and average limit is 20dB below peak limit, so if peak measured level comply with average limit, the average level was deemed to comply with average limit.

$$\text{Duty cycle factor} = 20\log(\text{Duty Cycle}) = 20\log(80 * 0.364 / 50\text{ms}) = -4.695\text{dB}$$

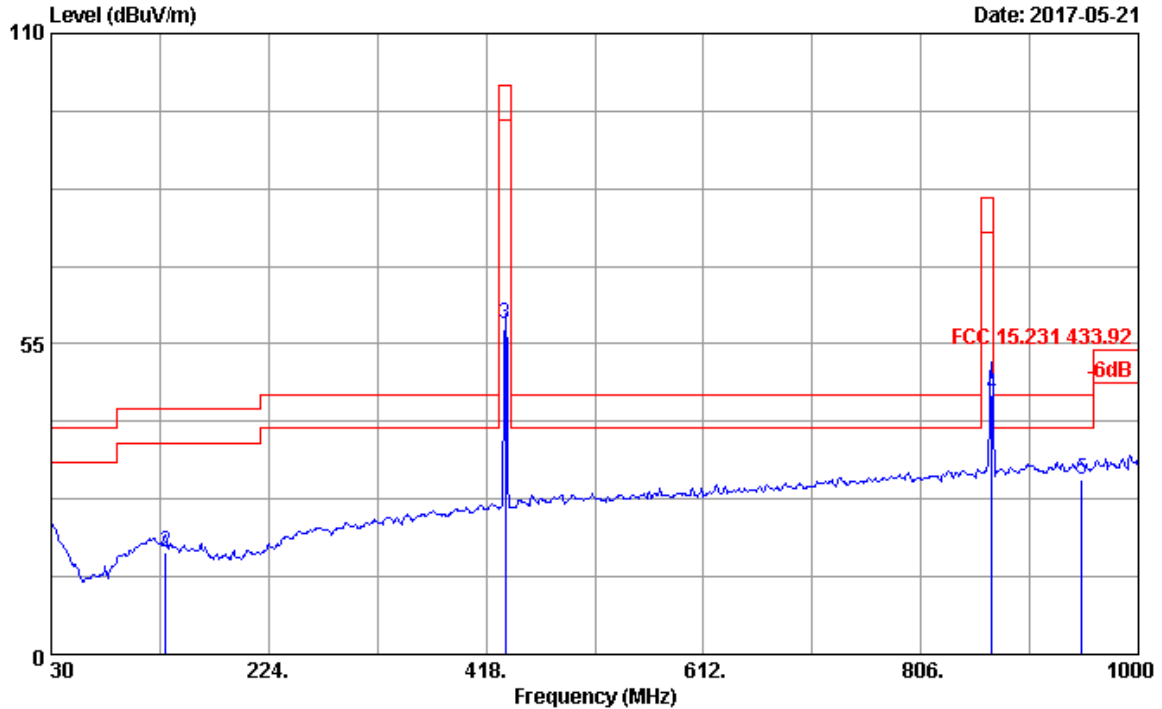


Frequency: 30MHz~1GHz

Data: 3

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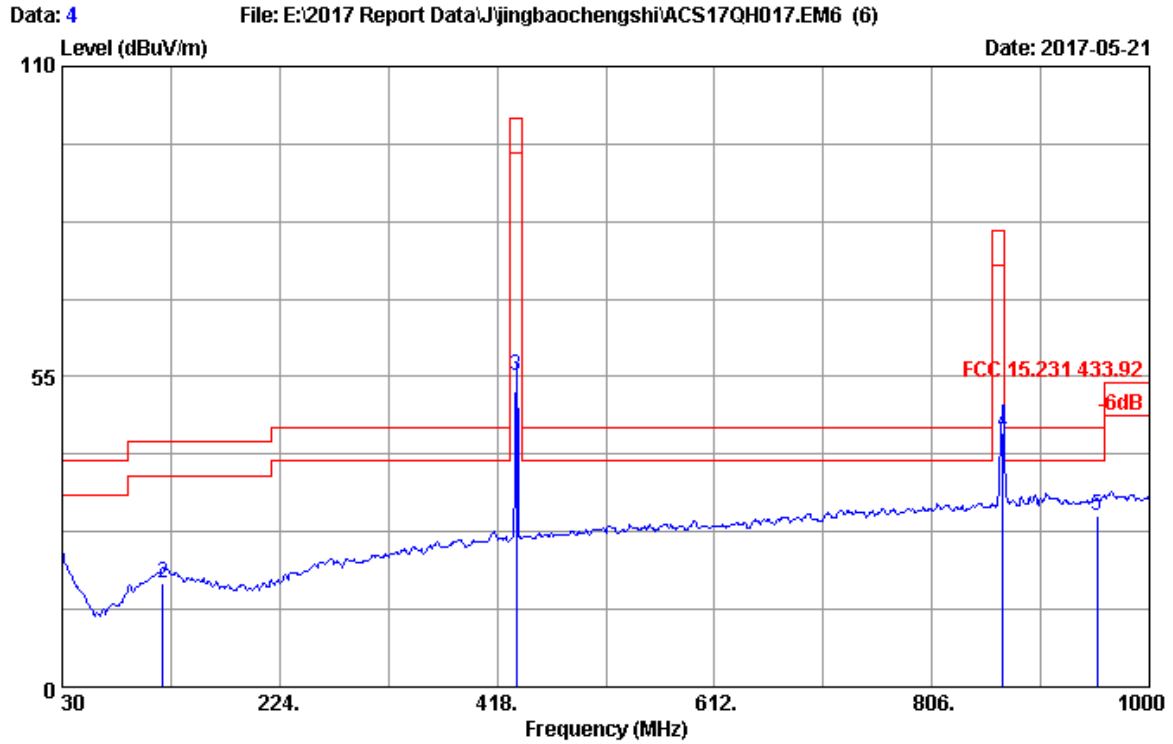
Date: 2017-05-21



Site no. : 3m Chamber Data no. : 3
 Dis. / Ant. : 3m 2017 CBL6112D 35375 Ant. pol. : VERTICAL
 Limit : FCC 15.231 433.92
 Env. / Ins. : 21.0°C/52% Engineer : Hogen
 EUT : Wristband Transmitter M/N:TXP-02
 Power rating : DC 3V
 Test Mode : TX

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	30.00	18.90	6.42	28.25	23.39	20.46	40.00	19.54	QP
2	131.85	12.56	7.00	27.92	26.43	18.07	43.50	25.43	QP
3	435.46	17.33	8.44	27.80	60.45	58.42	100.83	42.41	QP
4	869.05	21.65	10.11	27.83	42.00	45.93	80.83	34.90	QP
5	949.56	22.20	10.34	27.55	25.90	30.89	46.00	15.11	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp factor.
 2. The emission levels that are 20dB below the official limit are not reported.

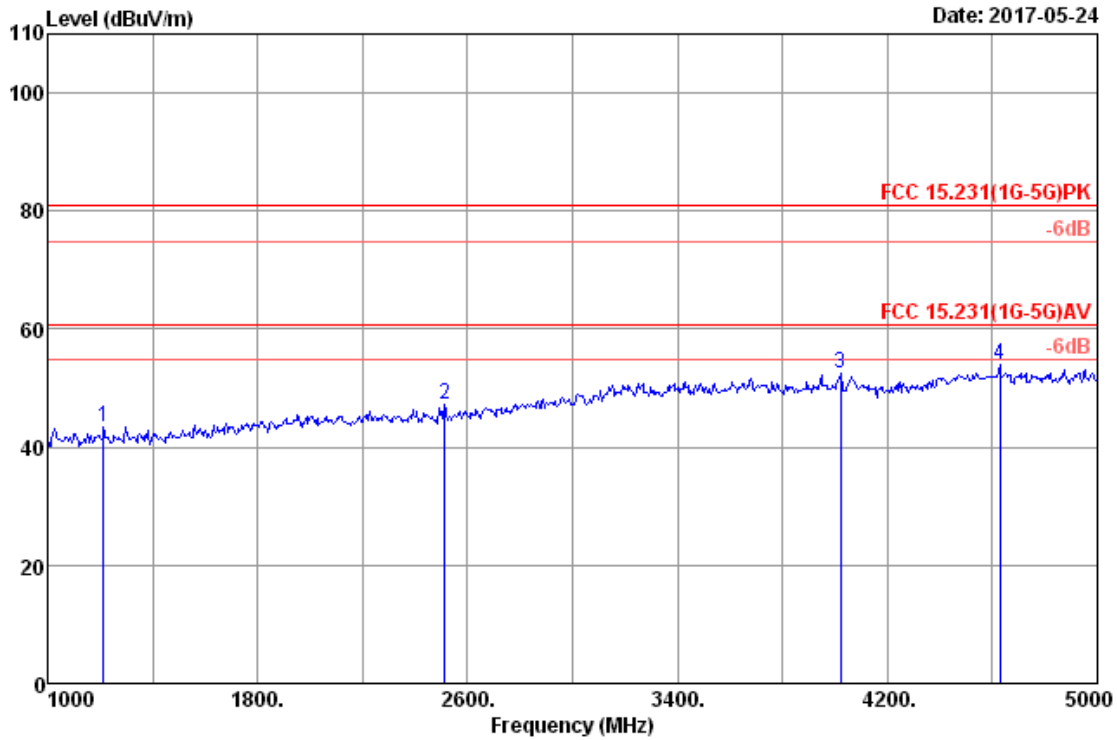


Site no. : 3m Chamber Data no. : 4
 Dis. / Ant. : 3m 2017 CBL6112D 35375 Ant. pol. : HORIZONTAL
 Limit : FCC 15.231 433.92
 Env. / Ins. : 21.0°C/52% Engineer : Hogen
 EUT : Wristband Transmitter M/N:TXP-02
 Power rating : DC 3V
 Test Mode : TX

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	30.00	18.90	6.42	28.25	24.40	21.47	40.00	18.53	QP
2	120.21	13.70	7.02	27.97	25.50	18.25	43.50	25.25	QP
3	435.46	17.33	8.44	27.80	57.21	55.18	100.83	45.65	QP
4	869.05	21.65	10.11	27.83	41.14	45.07	80.83	35.76	QP
5	953.44	22.22	10.34	27.54	25.35	30.37	46.00	15.63	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp factor.
 2. The emission levels that are 20dB below the official limit are not reported.

Frequency: 1GHz~5GHz

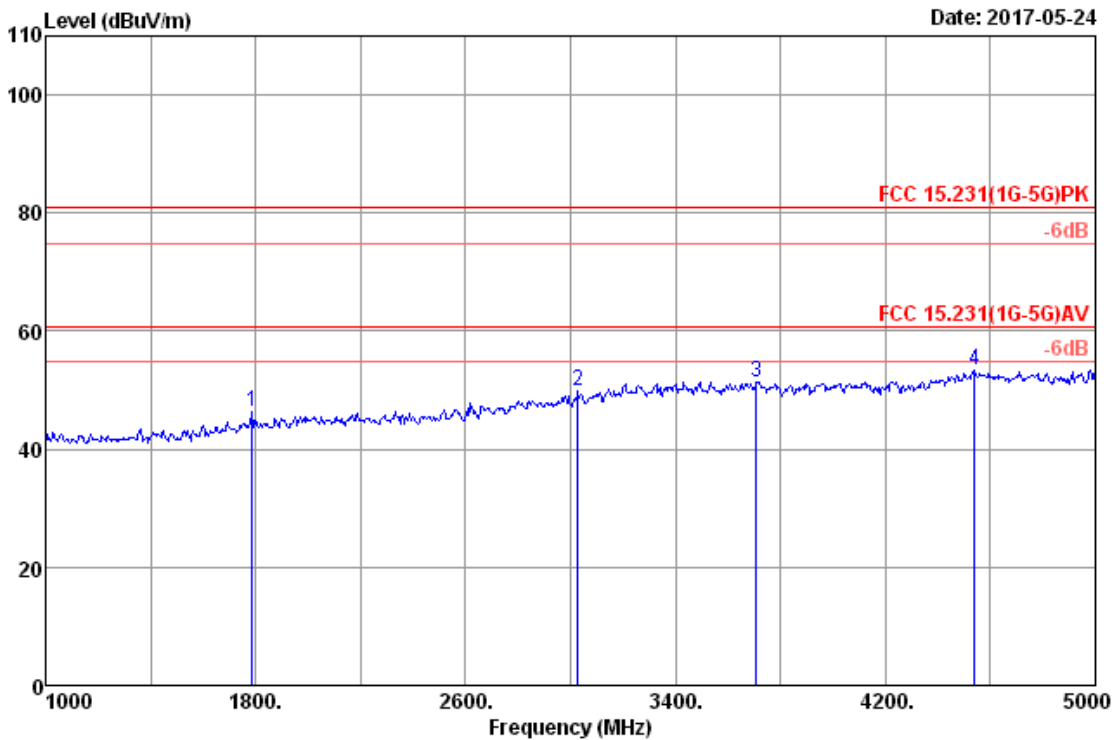


Site no. : 3m Chamber
 Dis. / Ant. : 3m 2016 3115(4580)
 Limit : FCC 15.231(1G-5G)PK
 Env. / Ins. : 22.6°C/51.2%
 EUT : Wristband Transmitter M/N:TXP-02
 Power rating : DC 3W
 Test Mode : TX

Data no. : 3
 Ant. pol. : HORIZONTAL
 Pre : 101.2kPa
 Engineer : zack_zhu

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	1212.00	25.50	6.08	48.35	36.48	43.45	80.83	37.38	Peak
2	2512.00	28.34	8.48	46.89	36.38	47.33	80.83	33.50	Peak
3	4020.00	32.30	11.25	45.19	36.32	52.42	80.83	28.41	Peak
4	4628.00	32.51	11.64	45.31	35.63	53.83	80.83	27.00	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp Factor
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 4
 Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : VERTICAL
 Limit : FCC 15.231(1G-5G)PK Pre : 101.2kPa
 Env. / Ins. : 22.6°C/51.2% Engineer : zack_zhu
 EUT : Wristband Transmitter M/N:TXP-02
 Power rating : DC 3V
 Test Mode : TX

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBUV)	AMP factor (dB)	Emission Level (dBUV/m)	Limits (dBUV/m)	Margin (dB)	Remark
1	1788.00	27.11	7.48	48.22	36.46	46.35	80.83	34.48	Peak
2	3028.00	29.87	10.33	46.16	36.42	49.94	80.83	30.89	Peak
3	3708.00	31.54	11.02	45.19	36.28	51.47	80.83	29.36	Peak
4	4540.00	32.30	11.59	45.00	35.61	53.28	80.83	27.55	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp Factor
 2. The emission levels that are 20dB below the official limit are not reported.

5. STOP TRANSMITTING TIME TEST

5.1. Test Equipment

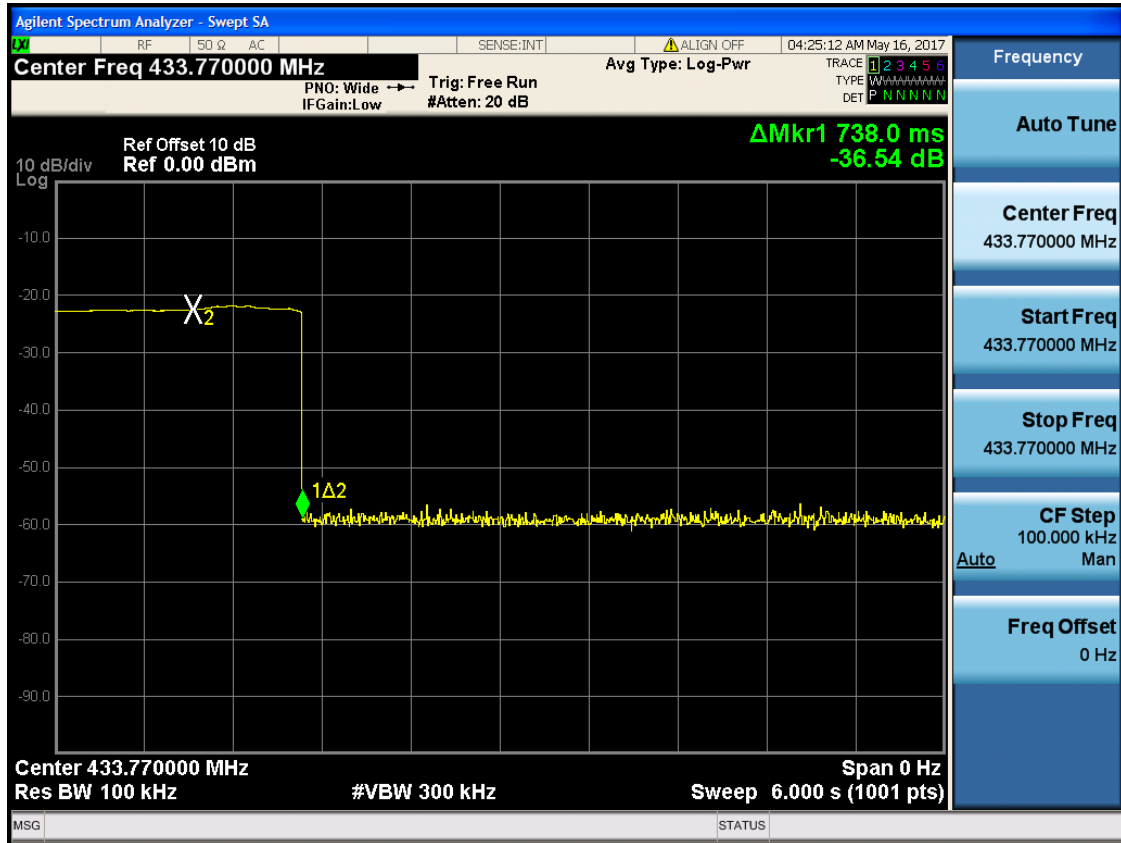
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum	Agilent	N9030A	MY51380221	Oct.15,16	1Year

5.2. Limit

A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.

5.3. Test Results

Frequency (MHz)	Stop Transmitting Time	Limit	Conclusion
433.920	738.0ms	5s	PASS



6. 20 DB BANDWIDTH TEST

6.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum	Agilent	N9030A	MY51380221	Oct.15,16	1 Year
2.	Attenuator (20dB)	Agilent	8491B	MY39262165	Apr.27,17	1 Year
3.	RF Cable	Marvelous Microwave Inc	SFL402105FLEX	NO.1	Oct.15,16	1 Year

6.2. Limit

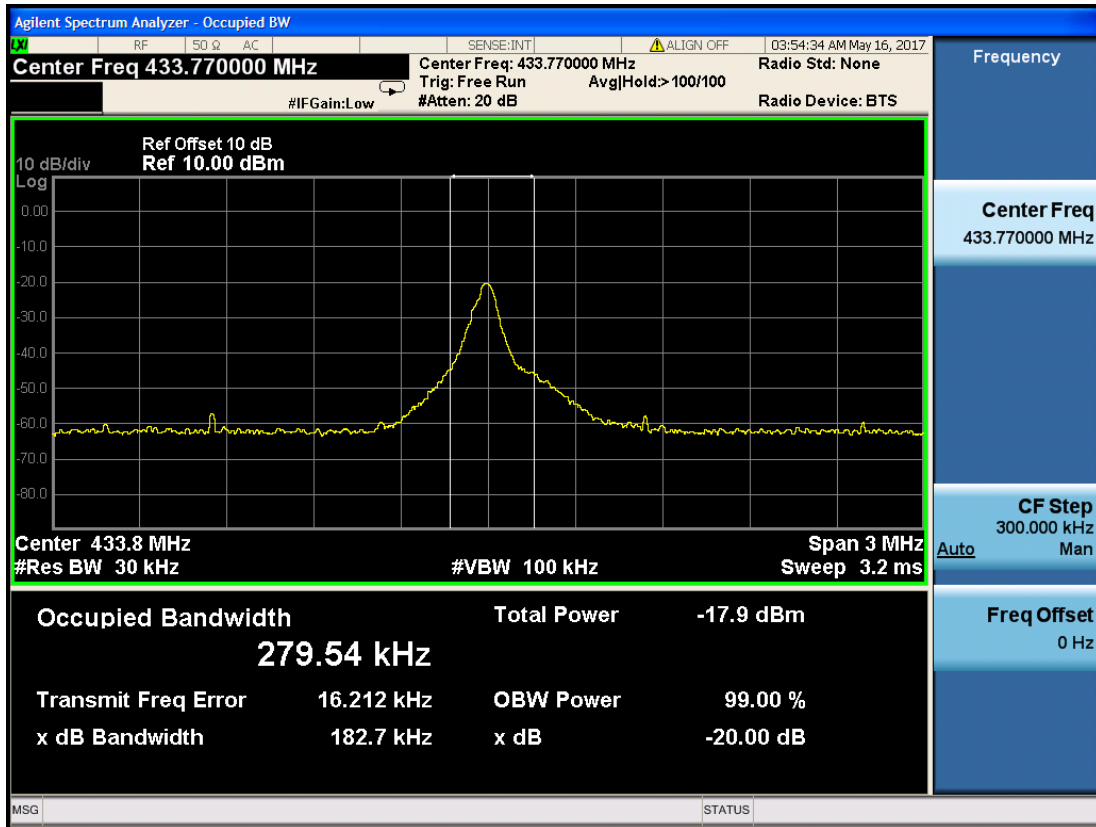
The bandwidth of the emission shall be no wider than 0.25% of the center frequency.

6.3. Test Results

EUT: Wristband Transmitter		
M/N: TXP-02		
Test date: 2017-05-16	Pressure: 101.4±1.0 kpa	Humidity: 52.3±3.0%
Tested by: Allan-He	Test site: RF site	Temperature: 23.1±0.6 °C

Test Mode	Frequency (MHz)	-20dB bandwidth (KHz)	Limit (MHz)
TX	433.92	182.7	≤ 1.0848

Conclusion : PASS



7. ANTENNA REQUIREMENT

RESULT : **PASS**

Test Date : May.16~Jun.01,2017

Test standard : FCC Part 15.231

Limit : the use of antennas with directional gains that do not exceed 6 dBi

According to the manufacturer declared, the EUT has an PCB Antenna, the directional gain of antenna is -5dBi, and the antenna connector is designed with permanent attachment and no consideration of replacement. Therefore the EUT is considered sufficient to comply the provision.

8. RADIO FRREQUENCY EXPOSURE COMPLIANCE

RESULT : PASS

Test standard : FCC KDB Publication 447498 D01 V05

Since maximum peak output power of the transmitter is $<10\text{mW}$, i.e. $0.0000011507\text{mW} < 10\text{mW}$, hence the EUT is excluded from SAR evaluation according to FCC KDB Publication 447498 D01: General RF Exposure Guidance V05.

9. DEVIATION TO TEST SPECIFICATIONS

[NONE]