

# **TEST REPORT**

FCC ID: 2ALNA-ICBTH30

**Product: Inear Bluetooth Headset** 

Model No.: IC-BTH30

Additional Model No.: N/A

Trade Mark: iClever

Report No.: TCT170615E007

Issued Date: Jun. 27, 2017

#### Issued for:

Shenzhen Thousandshores Technology Co., Ltd.
5/F, Chuangxin Building, Seven-star Creative Square, No.2North Alley,
Chuangye 2nd Road, Bao'an Dis 28th, ShenZhen, China, 518000

Issued By:

**Shenzhen Tongce Testing Lab.** 

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## 1. Test Certification

Approved By:

Report No.: TCT170615E007

Product:	Inear Bluetooth Headset
Model No.:	IC-BTH30
Additional Model No.:	N/A
Applicant:	Shenzhen Thousandshores Technology Co., Ltd.
Address:	5/F, Chuangxin Building, Seven-star Creative Square, No.2North Alley, Chuangye 2nd Road, Bao'an Dis 28th, ShenZhen, China, 518000
Manufacturer:	Exuberant Techology Dongguang Co., Ltd.
Address:	Dawei Road. Qiaozi, Changping. Town, Donnguan
Date of Test:	Jun. 16– Jun. 26, 2017
Applicable Standards:	FCC CFR Title 47 Part 15 Subpart C Section 15.247 KDB 558074 D01 DTS Meas Guidance v03r05

The above equipment has been tested by Shenzhen Tongce Testing Lab. and found compliance with the requirements set forth in the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Tested By: Buy Thus

Beryl Zhao

Reviewed By: Date: Jun. 26, 2017

Date: Jun. 27, 2017

Date:

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Jun. 27, 2017

**Tomsin** 





# 2. Test Result Summary

Requirement	CFR 47 Section	Result
Antenna requirement	§15.203/§15.247 (c)	PASS
AC Power Line Conducted Emission	§15.207	PASS
Conducted Peak Output Power	§15.247 (b)(3) §2.1046	PASS
6dB Emission Bandwidth	§15.247 (a)(2) §2.1049	PASS
Power Spectral Density	§15.247 (e)	PASS
Band Edge	1§5.247(d) §2.1051, §2.1057	PASS
Spurious Emission	§15.205/§15.209 §2.1053, §2.1057	PASS

#### Note:

- 1. PASS: Test item meets the requirement.
- 2. Fail: Test item does not meet the requirement.
- 3. N/A: Test case does not apply to the test object.
- 4. The test result judgment is decided by the limit of test standard.





# 3. EUT Description

Product Name:	Inear Bluetooth Headset
Model :	IC-BTH30
Additional Model:	N/A
Trade Mark:	iClever
BT Version:	BT4.1
Operation Frequency:	2402MHz~2480MHz
Channel Separation:	2MHz
Number of Channel:	40
Modulation Technology:	GFSK
Antenna Type:	Internal Antenna
Antenna Gain:	3.6dBi
Power Supply:	Rechargeable Li-ion Battery DC4.2V

**Operation Frequency each of channel** 

<del>operatio</del>	Sportation Production Statistics							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency	
0	2402MHz	10	2422MHz	20	2442MHz	30	2462MHz	
1	2404MHz	11	2424MHz	21	2444MHz	31	2464MHz	
<u></u>	(.	·	(.	<u></u>	(	<u></u>	(.ć)	
8	2418MHz	18	2438MHz	28	2458MHz	38	2478MHz	
9	2420MHz	19	2440MHz	29	2460MHz	39	2480MHz	
Remark: Channel 0, 19 & 39 have been tested.								



## 4. Genera Information

### 4.1. Test environment and mode

Operating Environment:	
Temperature:	25.0 °C
Humidity:	56 % RH
Atmospheric Pressure:	1010 mbar
Test Mode:	
Engineering mode:	Keep the EUT in continuous transmitting by select channel and modulations(The value of duty cycle is 98.46%) with Fully-charged battery.

The sample was placed (0.1m below 1GHz, 1.5m above 1GHz) above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.

## 4.2. Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Equipment	Model No.	Serial No.		FCC ID	Trade Name
1	1		0	) I	(C)

#### Note:

- 1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
- 2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.
- 3. For conducted measurements (Output Power, 6dB Emission Bandwidth, Power Spectral Density, Spurious Emissions), the antenna of EUT is connected to the test equipment via temporary antenna connector, the antenna connector is soldered on the antenna port of EUT, and the temporary antenna connector is listed in the Test Instruments.

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5. Facilities and Accreditations

#### 5.1. Facilities

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

• FCC - Registration No.: 572331

Shenzhen Tongce Testing Lab

The 3m Semi-anechoic chamber has been registered and fully described in a report with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files.

• IC - Registration No.: 10668A-1

The 3m Semi-anechoic chamber of Shenzhen TCT Testing Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing

### 5.2. Location

Shenzhen Tongce Testing Lab

Address: 1F, Leinuo Watch Building, Fuyong Town, Baoan Dist, Shenzhen, China

Tel: 86-755-36638142

## 5.3. Measurement Uncertainty

The reported uncertainty of measurement  $y \pm U$ , where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

No.	Item	MU
1	Conducted Emission	±2.56dB
2	RF power, conducted	±0.12dB
3	Spurious emissions, conducted	±0.11dB
4	All emissions, radiated(<1G)	±3.92dB
5	All emissions, radiated(>1G)	±4.28dB
6	Temperature	±0.1°C
7	Humidity (C)	±1.0%

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## 6. Test Results and Measurement Data

## 6.1. Antenna requirement

Standard requirement:

FCC Part15 C Section 15.203 /247(c)

15.203 requirement:

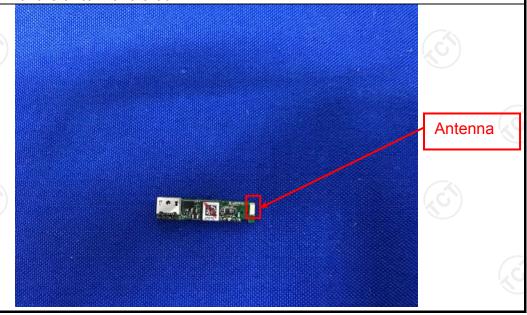
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit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

15.247(c) (1)(i) requirement:

(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.

#### **E.U.T Antenna:**

The Bluetooth antenna is an internal antenna which permanently attached, and the best case gain of the antenna is 3.6dBi.





## 6.2. Conducted Emission

## 6.2.1. Test Specification

Test Requirement:	FCC Part15 C Section	15.207	Ke				
Test Method:	ANSI C63.10:2013						
Frequency Range:	150 kHz to 30 MHz						
Receiver setup:	RBW=9 kHz, VBW=30	RBW=9 kHz, VBW=30 kHz, Sweep time=auto					
Limits:	Frequency range (MHz)         Limit (dBuV)           0.15-0.5         66 to 56*         56 to 46*           0.5-5         56         46           5-30         60         50						
Test Setup:	Reference Plane  40cm 80cm Filter AC power  E.U.T  Adapter  Test table/Insulation plane  Remark E.U.T: Equipment Under Test LISN: Line Impedence Stabilization Network						
Test Mode:		Test table height=0.8m  Transmitting + charging					
Test Procedure:	1. The E.U.T is connermode impedance stabilize provides a 50ohm/5 measuring equipment.  2. The peripheral device power through a LI coupling impedance refer to the block photographs).  3. Both sides of A.C. conducted interferer emission, the relative the interface cables ANSI C63.10: 2013	ration network 50uH coupling iment. Ses are also connected with 50ohm terrification of the line are checked by the change of the line are checked by t	(L.I.S.N.). This appedance for the ected to the main a 500hm/50uH mination. (Please test setup and ed for maximum and the maximum aipment and all of ged according to				
Test Result:	PASS						



TESTING CENTRE TECHNOLOGY Report No.: TCT170615E007

## 6.2.2. Test Instruments

Conducted Emission Shielding Room Test Site (843)									
Equipment	Manufacturer	Model	Serial Number	Calibration Due					
EMI Test Receiver	R&S	ESCS30	100139	Aug. 11, 2017					
LISN	Schwarzbeck	NSLK 8126	8126453	Aug. 16, 2017					
Coax cable (9KHz-40GHz)	тст	CE-05	N/A	Aug. 11, 2017					
EMI Test Software	Shurple Technology	EZ-EMC	N/A	N/A					

**Note:** The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).



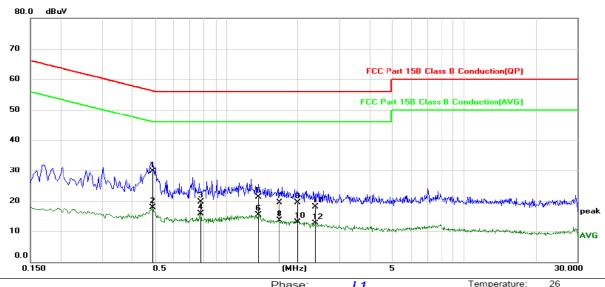




### 6.2.3. Test data

## Please refer to following diagram for individual

## Conducted Emission on Line Terminal of the power line (150 kHz to 30MHz)



Oile	i ilase.	L1	· · · · · · · · · · · · · · · · · · ·	
Limit: FCC Part 15B Class B Conduction(QP)	Power:		Humidity:	60 %

No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
	MHz	dBuV	dB	dBuV	dBu∀	dB	Detector	Comment
1 *	0.4875	18.30	11.31	29.61	56.21	-26.60	QP	
2	0.4875	6.65	11.31	17.96	46.21	-28.25	AVG	
3	0.7755	8.50	11.22	19.72	56.00	-36.28	QP	
4	0.7755	4.77	11.22	15.99	46.00	-30.01	AVG	
5	1.3650	9.90	11.38	21.28	56.00	-34.72	QP	
6	1.3650	4.08	11.38	15.46	46.00	-30.54	AVG	
7	1.6665	7.90	11.53	19.43	56.00	-36.57	QP	
8	1.6665	2.20	11.53	13.73	46.00	-32.27	AVG	
9	1.9815	7.90	11.68	19.58	56.00	-36.42	QP	
10	1.9815	1.39	11.68	13.07	46.00	-32.93	AVG	
11	2.3460	6.50	11.56	18.06	56.00	-37.94	QP	
12	2.3460	1.11	11.56	12.67	46.00	-33.33	AVG	

#### Note:

Sito

Freq. = Emission frequency in MHz

Reading level  $(dB\mu V)$  = Receiver reading

Corr. Factor (dB) = Antenna factor + Cable loss

Measurement  $(dB\mu V)$  = Reading level  $(dB\mu V)$  + Corr. Factor (dB)

 $Limit (dB\mu V) = Limit stated in standard$ 

 $Margin (dB) = Measurement (dB\mu V) - Limits (dB\mu V)$ 

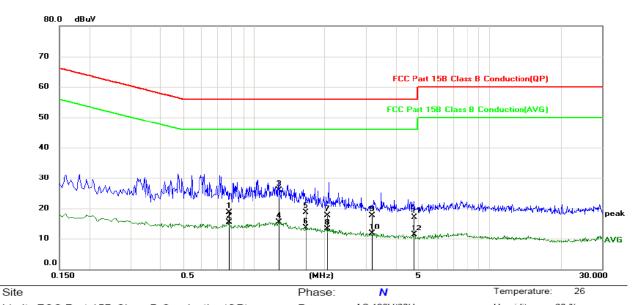
Q.P. =Quasi-Peak

AVG =average

<sup>\*</sup> is meaning the worst frequency has been tested in the frequency range 150 kHz to 30MHz



## Conducted Emission on Neutral Terminal of the power line (150 kHz to 30MHz)



Lin	nit: FCC	Part 15B C	lass B Conducti	on(QP)	Power:	AC 120V/60H;	Z	Humidity:	60 %
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure ment	e- Limit	Over		
		MHz	dBuV	dB	dBuV	dBu∀	dB	Detector	Comment
1		0.7799	7.50	11.22	18.72	56.00	-37.28	QP	
2		0.7799	4.24	11.22	15.46	46.00	-30.54	AVG	
3	*	1.2703	14.60	11.33	25.93	56.00	-30.07	QP	
4		1.2703	4.11	11.33	15.44	46.00	-30.56	AVG	
5		1.6619	7.10	11.52	18.62	56.00	-37.38	QP	
6		1.6619	2.22	11.52	13.74	46.00	-32.26	AVG	
7		2.0534	6.10	11.67	17.77	56.00	-38.23	QP	
8		2.0534	1.66	11.67	13.33	46.00	-32.67	AVG	
9		3.1740	6.50	11.27	17.77	56.00	-38.23	QP	
10		3.1740	0.42	11.27	11.69	46.00	-34.31	AVG	
11		4.7940	6.40	10.69	17.09	56.00	-38.91	QP	
12		4.7940	0.66	10.69	11.35	46.00	-34.65	AVG	

#### Note1:

Freq. = Emission frequency in MHz

Reading level  $(dB\mu V)$  = Receiver reading

Corr. Factor (dB) = Antenna factor + Cable loss

Measurement ( $dB\mu V$ ) = Reading level ( $dB\mu V$ ) + Corr. Factor (dB)

Limit (dBµV) = Limit stated in standard

 $Margin (dB) = Measurement (dB\mu V) - Limits (dB\mu V)$ 

Q.P. =Quasi-Peak AVG =average

\* is meaning the worst frequency has been tested in the frequency range 150 kHz to 30MHz.



## 6.3. Conducted Output Power

## 6.3.1. Test Specification

A)	
Test Requirement:	FCC Part15 C Section 15.247 (b)(3)
Test Method:	KDB558074
Limit:	30dBm
Test Setup:	Spectrum Analyzer EUT
Test Mode:	Refer to item 4.1
Test Procedure:	<ol> <li>The testing follows the Measurement Procedure of FCC KDB No. 558074 DTS D01 Meas. Guidance v03r05.</li> <li>Set spectrum analyzer as following:         <ul> <li>a) Set the RBW ≥ DTS bandwidth.</li> <li>b) Set VBW ≥ 3 × RBW.</li> <li>c) Set span ≥ 3 x RBW</li> <li>d) Sweep time = auto couple.</li> <li>e) Detector = peak.</li> <li>f) Trace mode = max hold.</li> <li>g) Allow trace to fully stabilize.</li> <li>h) Use peak marker function to determine the peak amplitude level.</li> </ul> </li> </ol>
Test Result:	PASS

## 6.3.2. Test Instruments

Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	R&S	FSU	200054	Aug. 11, 2017
RF cable (9kHz-40GHz)	тст	RE-06	N/A	Aug. 12, 2017
Antenna Connector	TCT	RFC-01	N/A	Aug. 12, 2017

**Note:** The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

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## 6.3.3. Test Data

BT LE mode					
Test channel	Maximum Conducted Output Power (dBm)	Limit (dBm)	Result		
Lowest	-1.74	30.00	PASS		
Middle	0.25	30.00	PASS		
Highest	1.39	30.00	PASS		

### Test plots as follows:





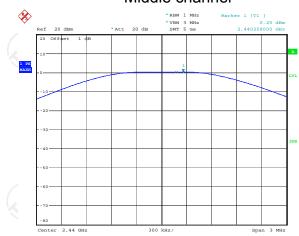
### BT LE mode

#### Lowest channel



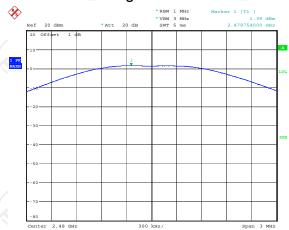


## Middle channel



#### Date: 23.JUN.2017 18:44:36

# Highest channel



Date: 23.JUN.2017 18:44:15



## 6.4. Emission Bandwidth

## 6.4.1. Test Specification

Test Requirement:	FCC Part15 C Section 15.247 (a)(2)
Test Method:	KDB558074
Limit:	>500kHz
Test Setup:	
	Spectrum Analyzer EUT
Test Mode:	Refer to item 4.1
Test Procedure:	<ol> <li>The testing follows FCC KDB Publication No. 558074 DTS D01 Meas. Guidance v03r05.</li> <li>Set to the maximum power setting and enable the EUT transmit continuously.</li> <li>Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. The 6dB bandwidth must be greater than 500 kHz.</li> <li>Measure and record the results in the test report.</li> </ol>
Test Result:	PASS

## 6.4.2. Test Instruments

RF Test Room							
Equipment	Manufacturer	Model	Serial Number	Calibration Due			
Spectrum Analyzer	R&S	FSU	200054	Aug. 11, 2017			
RF cable (9kHz-40GHz)	тст	RE-06	N/A	Aug. 12, 2017			
Antenna Connector	TCT	RFC-01	N/A	Aug. 12, 2017			

**Note:** The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).



## 6.4.3. Test data

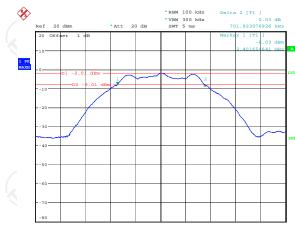
Toot shannel	6dB Emission Bandwidth (kHz)				
Test channel	BT LE mode	Limit	Result		
Lowest	701.92	>500k	0		
Middle	714.74	>500k	PASS		
Highest	701.92	>500k			

Test plots as follows	Si (Si			



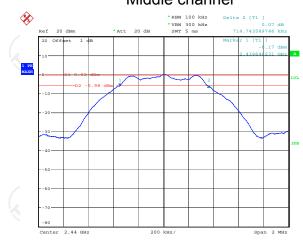
### BT LE mode





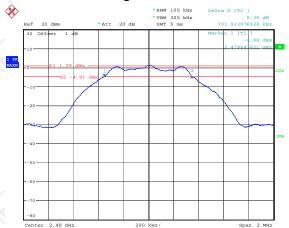


## Middle channel



Date: 23.JUN.2017 18:38:21

# Highest channel



Date: 23.JUN.2017 18:39:36



## 6.5. Power Spectral Density

## 6.6. Test Specification

Test Requirement:	FCC Part15 C Section 15.247 (e)
Test Method:	KDB558074
Limit:	The peak power spectral density shall not be greater than 8dBm in any 3kHz band at any time interval of continuous transmission.
Test Setup:	EUT.
Test Mode:	Refer to item 4.1
Tool mode.	The testing follows Measurement Procedure 10.2
Test Procedure:	<ul> <li>Method PKPSD of FCC KDB Publication No.558074 D01 DTS Meas. Guidance v03r05</li> <li>2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.</li> <li>3. Set to the maximum power setting and enable the EUT transmit continuously.</li> <li>4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW): 3 kHz ≤ RBW ≤ 100 kHz. Video bandwidth VBW ≥ 3 x RBW. In order to make an accurate measurement, set the span to 1.5 times DTS Channel Bandwidth. (6dB BW)</li> <li>5. Detector = peak, Sweep time = auto couple, Trace mode = max hold, Allow trace to fully stabilize. Use the peak marker function to determine the maximum power level.</li> <li>6. Measure and record the results in the test report.</li> </ul>
Test Result:	PASS

### 6.6.1. Test Instruments

RF Test Room							
Equipment	Manufacturer	Model	Serial Number	Calibration Due			
Spectrum Analyzer	R&S	FSU	200054	Aug. 11, 2017			
RF cable (9kHz-40GHz)	тст	RE-06	N/A	Aug. 12, 2017			
Antenna Connector	тст	RFC-01	N/A	Aug. 12, 2017			

**Note:** The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).



6.6.2. Test data

#### Report No.: TCT170615E007

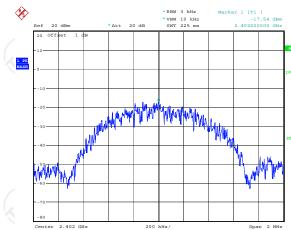
Toot shannal	Power Spectral Density (dBm/3kHz)				
Test channel	BT LE mode	Limit	Result		
Lowest	-17.54	8 dBm/3kHz	100		
Middle	-15.35	8 dBm/3kHz	PASS		
Highest	-14.34	8 dBm/3kHz			

### Test plots as follows:



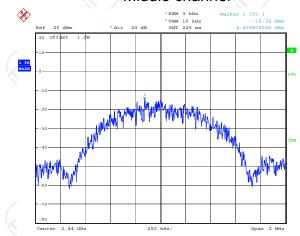


### Lowest channel



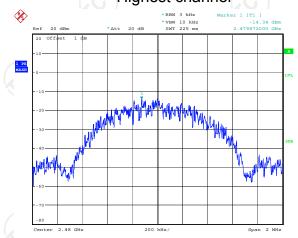
Date: 23.JUN.2017 18:45:43

## Middle channel



Date: 23.JUN.2017 18:46:01

## Highest channel



Date: 23.JUN.2017 18:46:18



# 6.7. Conducted Band Edge and Spurious Emission Measurement

## 6.7.1. Test Specification

Test Requirement:	FCC Part15 C Section 15.247 (d)			
Test Method:	KDB558074			
Limit:	In any 100 kHz bandwidth outside of the authorized frequency band, the emissions which fall in the non-restricted bands shall be attenuated at least 20 dB / 30dB relative to the maximum PSD level in 100 kHz by RF conducted measurement and radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).			
Test Setup:	Structure Analysis EUT			
Test Mode:	Spectrum Analyzer  Refer to item 4.1			
rest Mode.	1. The RF output of EUT was connected to the spectrum			
Test Procedure:	<ol> <li>analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.</li> <li>Set to the maximum power setting and enable the EUT transmit continuously.</li> <li>Set RBW = 100 kHz, VBW=300 kHz, Peak Detector. Unwanted Emissions measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when maximum peak conducted output power procedure is used. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB per 15.247(d).</li> <li>Measure and record the results in the test report.</li> <li>The RF fundamental frequency should be excluded against the limit line in the operating frequency band.</li> </ol>			
Test Result:	PASS			



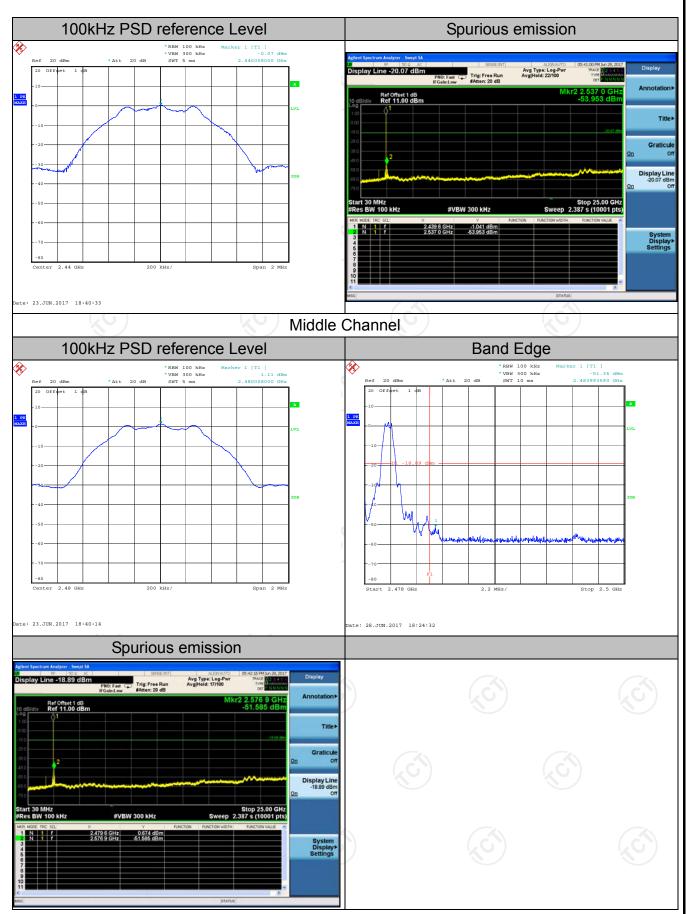
### 6.7.2. Test Instruments

RF Test Room												
Equipment	Manufacturer	Model	Serial Number	Calibration Due								
Spectrum Analyzer	R&S	FSU	200054	Aug. 11, 2017								
Spectrum Analyzer	N9020A	Agilent	Aug. 13, 2016	Aug. 12, 2017								
RF cable (9kHz-40GHz)	тст	RE-06	N/A	Aug. 12, 2017								
Antenna Connector	TCT	RFC-01	N/A	Aug. 12, 2017								

**Note:** The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

#### 6.7.3. Test Data







## **Highest Channel**



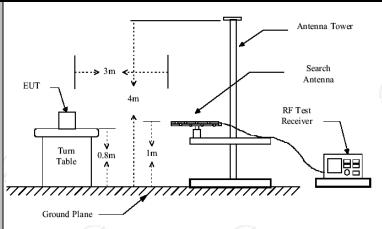




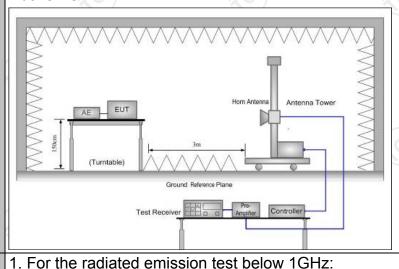
## **6.8. Radiated Spurious Emission Measurement**

## 6.8.1. Test Specification

Test Requirement:	FCC Part15	C Section	n 15.209	(0)	(6					
Test Method:	ANSI C63.10: 2013									
Frequency Range:	9 kHz to 25 GHz									
Measurement Distance:	3 m									
Antenna Polarization:	Horizontal & Vertical									
Operation mode:	Refer to item	1 4.1	(	(C)	C					
	Frequency 9kHz- 150kHz 150kHz-	Detector Quasi-pea Quasi-pea	k 200Hz	VBW 1kHz 30kHz	Remark  Quasi-peak Value  Quasi-peak Value					
Receiver Setup:	30MHz 30MHz-1GHz	Quasi-pea	ık 100KHz	300KHz	Quasi-peak Value Peak Value					
	Above 1GHz	Peak Peak	1MHz 1MHz	3MHz 10Hz	Average Value					
	Frequer	-	Field Str (microvolts	s/meter)	Measurement Distance (meters)					
	0.009-0.4 0.490-1.7		2400/F(KHz) 24000/F(KHz)		300					
	1.705-3		30		30					
	30-88		100		3					
	88-216		150		3					
Limit:	216-96	0	200	)	3					
	Above 9	60	500		3					
		( ز		(O')	I/O					
	Frequency		Field Strength (microvolts/meter)		ement nce Detector ers)					
	Above 1GH	z	500	3	Average					
			5000	3 0MU=	Peak					
	For radiated emissions below 30MHz  Distance = 3m  Computer  Pre -Amplifier									
Test setup:	EUT	Turn table	Ground Plane		Receiver					
	30MHz to 10	_	I faire							



#### Above 1GHz



The EUT was placed on a turntable with 0.8 meter

Test Procedure:

above ground. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower. 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. For the radiated emission test above 1GHz: Place the measurement antenna on a turntable with 1.5 meter above ground, which is away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final

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	measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.  2. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level  3. For measurement below 1GHz, 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 quasi-peak detector and reported.  4. Use the following spectrum analyzer settings:  (1) Span shall wide enough to fully capture the emission being measured;  (2) Set RBW=100 kHz for f < 1 GHz; VBW ≥RBW;
	Sweep = auto; Detector function = peak; Trace = max hold;  (3) Set RBW = 1 MHz, VBW= 3MHz for f 1 GHz for peak measurement.  For average measurement: VBW = 10 Hz, when duty cycle is no less than 98 percent. VBW \geq 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.
Test mode:	Refer to section 4.1 for details
Test results:	PASS (C) (C)







## 6.8.2. Test Instruments

Radiated Emission Test Site (966)											
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due							
ESPI Test Receiver	ROHDE&SCHW ARZ	ESVD	100008	Aug. 11, 2017							
Spectrum Analyzer	ROHDE&SCHW ARZ	FSEM	848597/001	Aug. 11, 2017							
Pre-amplifier	EM Electronics Corporation CO.,LTD	EM30265	07032613	Aug. 11, 2017							
Pre-amplifier	HP	8447D	2727A05017	Aug. 11, 2017							
Loop antenna	ZHINAN	ZN30900A	12024	Aug. 13, 2017							
Broadband Antenna	Schwarzbeck	VULB9163	340	Aug. 13, 2017							
Horn Antenna	Schwarzbeck	BBHA 9120D	631	Aug. 13, 2017							
Horn Antenna	Schwarzbeck	BBHA 9170	373	Aug. 13, 2017							
Antenna Mast	ccs	CC-A-4M	N/A	N/A							
Coax cable (9kHz-40GHz)	тст	RE-low-01	N/A	Aug. 11, 2017							
Coax cable (9kHz-40GHz)	тст	RE-high-02	N/A	Aug. 11, 2017							
Coax cable (9kHz-40GHz)	тст	RE-low-03	N/A	Aug. 11, 2017							
Coax cable (9kHz-40GHz)	тст	RE-high-04	N/A	Aug. 11, 2017							
EMI Test Software	Shurple Technology	EZ-EMC	N/A	N/A							

**Note:** The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

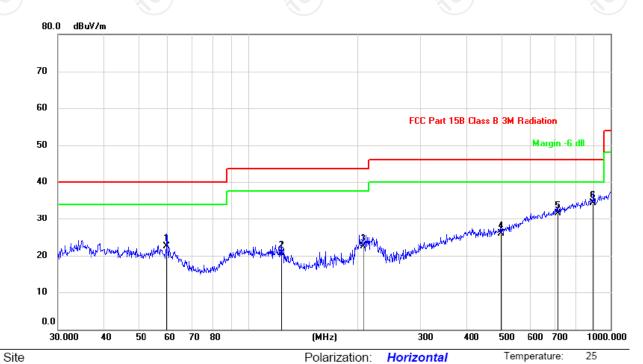


## 6.8.3. Test Data

### Please refer to following diagram for individual

**Below 1GHz** 

Horizontal:

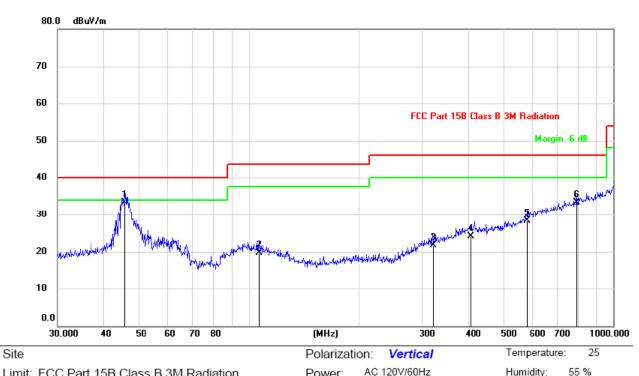


Limit: FCC Part 15B Class B 3M Radiation			า	Power:	AC 120V	60Hz	Hu	ımidity:	55 %		
No.	Mk.	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		59.8588	30.00	-7.42	22.58	40.00	-17.42	QP			
2		123.6985	29.90	-9.25	20.65	43.50	-22.85	QP			
3		207.1226	31.60	-9.07	22.53	43.50	-20.97	QP			
4		497.6765	27.00	-1.13	25.87	46.00	-20.13	QP			
5		714.1734	27.50	4.09	31.59	46.00	-14.41	QP			
6	*	896.9965	27.20	7.02	34.22	46.00	-11.78	QP			





### Vertical:



L	LIMIT: FCC Part 15B Class B 3W Radiation						AC 120V/	OUNZ	пи	midity.	35 76
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	45.6948	40.20	-6.88	33.32	40.00	-6.68	QP			
2		107.1337	26.60	-6.86	19.74	43.50	-23.76	QP			
3		319.9370	26.10	-4.48	21.62	46.00	-24.38	QP			
4		406.0880	25.60	-1.51	24.09	46.00	-21.91	QP			
5		580.7026	26.80	1.56	28.36	46.00	-17.64	QP			
6		790.6188	27.60	5.65	33.25	46.00	-12.75	QP			

**Note:** 1.The low frequency, which started from 9KHz~30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported

2. Measurements were conducted in all three channels (high, middle, low), and the worst case Mode (Low channel) was submitted only.



#### **Above 1GHz**

Low chann	el: 2402 N	1Hz							
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBµV)	AV reading (dBuV)	Correction Factor (dB/m)	Peak	n Level AV (dBµV/m)	Peak limit (dBµV/m)	AV limit (dBµV/m)	Margin (dB)
2390	Н	50.74		-7.52	43.22		74	54	-10.78
4804	Н	42.46		7.44	49.90		74	54	-4.10
7206	Н	35.72		13.54	49.26		74	54	-4.74
	H		-						
			(.6)						
2390	V	48.53		-7.52	41.01	<u></u>	74	54	-12.99
4804	V	41.67		7.44	49.11		74	54	-4.89
7206	V	35.81		13.54	49.35		74	54	-4.65
~~~	V				X		*		
(G)		$(C_{i}, C_{i})$		(20	(`(		$(C_{\bullet})$		120

Middle cha	nnel: 2440	OMHz							
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBµV)	AV reading (dBµV)	Correction Factor (dB/m)	Emission Peak (dBµV/m)	AV	Peak limit (dBµV/m)	AV limit (dBµV/m)	Margin (dB)
4880	(CH)	40.26	- <del>1</del> <sub>X</sub> C	7.01	47.27	(C) <del>-</del>	74	54	-6.73
7320	7	34.88		13.21	48.09	<u></u>	74	54	-5.91
	Н								
4880	V	44.28		0.99	45.27		74	54	-8.73
7320	V	39.25		9.87	49.12		74	54	-4.88
	V	)			-				

High chann	nel: 2480 N	ЛHz							
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBµV)	AV reading (dBµV)	Correction Factor (dB/m)	Peak	n Level AV (dBµV/m)	Peak limit (dBµV/m)	AV limit (dBµV/m)	Margin (dB)
2483.5	Н	50.20		-7.52	42.68		74	54	-11.32
4960	Н	42.62		7.44	50.06		74	54	-3.94
7440	Н	35.65		13.54	49.19		74	54	-4.81
)	Н				) <del></del>		\\\		
2483.5	V	49.58		-7.52	42.06		74	54	-11.94
4960	V	40.53		7.44	47.97		74	54	-6.03
7440	$\mathcal{L}^{V}$	35.76	-4,0	13.54	49.30	(C)	74	54	-4.70
	V			/					

#### Note:

- 1. Emission Level=Peak Reading + Correction Factor; Correction Factor= Antenna Factor + Cable loss Pre-amplifier
- 2. Margin (dB) = Emission Level (Peak) (dB $\mu$ V/m)-Average limit (dB $\mu$ V/m)
- 3. The emission levels of other frequencies are very lower than the limit and not show in test report.
- 4. Measurements were conducted from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 5. Data of measurement shown "---"in the above table mean that the reading of emissions is attenuated more than 20 dB below the limits or the field strength is too small to be measured.

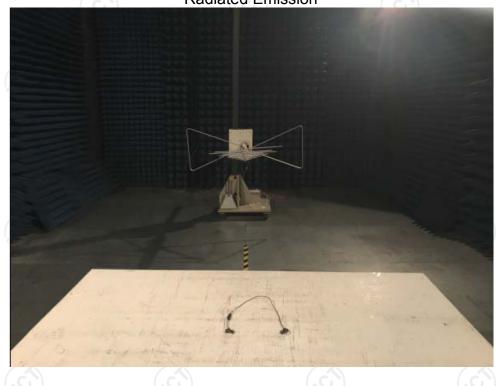
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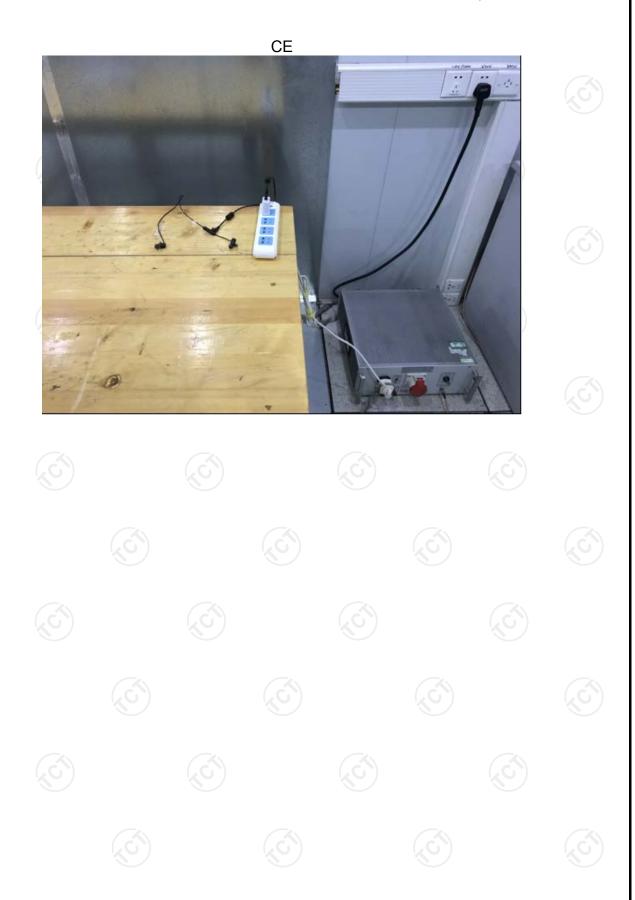
## **Appendix A: Photographs of Test Setup**

Product: Inear Bluetooth H eadset
Model: IC-BTH30
Radiated Emission











Appendix B: Photographs of EUT Product: Inear Bluetooth H eadset Model: IC-BTH30

External Photos











TCT通测检测
TESTING CENTRE TECHNOLOGY













## Product: Inear Bluetooth H eadset Model: IC-BTH30 Internal Photos



