TEST REPORT

Reference No. : WTS17S0271495E V1

FCC ID..... : 2AIOC-ACC01

Applicant: : HANK ELECTRONICS CO., LTD.

Address Floor 2nd-7th, A8, Hongye Industry City, Lezhujiao, Zhoushi Road,

Baoan District, Shenzhen, China

Manufacturer : The same as above

Address: The same as above

Product Name: IR Transceiver

Model No. : HKZW-ACC01

Standards : FCC CFR47 Part 15 Section 15.249: 2016

Date of Receipt sample.... : Feb. 24, 2017

Date of Test.....: Feb. 25 – Mar. 29, 2017

Date of Issue : Mar. 29, 2017

Test Result: Pass

Note.....: This report is for Z-wave Function.

de Z

Remarks:

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

Prepared By:

Waltek Services (Shenzhen) Co., Ltd.

Address: 1/F., Fukangtai Building, West Baima Road, Songgang Street, Baoan District, Shenzhen, Guangdong, China

Tel:+86-755-83551033 Fax:+86-755-83552400

Compiled by:

Approved by:

Philo Zhong / Ma

sho zhout

Zero Zhou / Test Engineer

Reference No.: WTS17S0271495E V1

2 Contents

_			Page
1		R PAGE	
2		ENTS	
3	REVIS	SION HISTORY	4
4	GENE	RAL INFORMATION	5
	4.1 4.1 4.2 4.3 4.4	GENERAL DESCRIPTION OF E.U.T DETAILS OF E.U.T STANDARDS APPLICABLE FOR TESTING TEST FACILITY Z-WAVE TEST MODE	5 5 5
5	EQUII	PMENT USED DURING TEST	
	5.1 5.2 5.3	EQUIPMENTS LIST	
6	TEST	SUMMARY	9
7	CONE	DUCTED EMISSION	10
	7.1 7.2 7.3 7.4	E.U.T. OPERATION EUT SETUP MEASUREMENT DESCRIPTION TEST RESULT	
8	RADI	ATION EMISSION TEST	13
	8.1 8.2 8.3 8.4 8.5 8.6	EUT OPERATION TEST SETUP SPECTRUM ANALYZER SETUP TEST PROCEDURE FREQUENCY RANGE OF RADIATED MEASUREMENTS TEST RESULT	
9	PERIO	ODIC OPERATION	20
10	BAND) EDGE	21
	10.1 10.2	TEST PROCEDURETEST RESULT	
11	20 DE	BANDWIDTH MEASUREMENT	22
	11.1 11.2	TEST PROCEDURE TEST RESULT	
12	RF EX	(POSURE	23
	12.1 12.2 12.3	REQUIREMENTS THE PROCEDURES / LIMIT MPE CALCULATION METHOD	23
13	ANTE	NNA REQUIREMENT	25
14	РНОТ	OGRAPHS- MODEL HKZW-ACC01 TEST SETUP PHOTOS	26
	14.1 14.2	PHOTOGRAPH – RADIATION EMISSIONPHOTOGRAPH – CONDUCTED EMISSION TEST SETUP AT TEST SITE 2#	
15		OGRAPHS - CONSTRUCTIONAL DETAILS	

Reference No.: WTS17S0271495E V1 Page 3 of 38

15.1	EUT - EXTERNAL PHOTOS	30
15.2	EUT - Internal Photos	34

Reference No.: WTS17S0271495E Page 4 of 38

3 Revision History

Test report No.	Date of Receipt sample	Date of Test	Date of Issue	Purpose	Comment	Approved
WTS17S0271495E	Feb. 24 , 2017	Feb. 25 – Mar. 09, 2017	Mar. 10, 2017	original	-	Replaced
WTS17S0271495E V1	Feb. 24 , 2017	Feb. 25 – Mar. 29, 2017	Mar. 29, 2017	Updated	-	Valid

Remark: This report is based on Project No. WTS17S0271495E to updated the field strength of fundamental through change the software revision from V 1.0.0 to V 1.0.1.

Reference No.: WTS17S0271495E V1 Page 5 of 38

4 General Information

4.1 General Description of E.U.T.

Product Name	:	IR Transceiver
Model No.	:	HKZW-ACC01
Model Differences Description	:	N/A
Frequency Range	:	908.42MHz
Antenna Type	:	PCB Printed Antenna
Antenna Gian	:	0dBi
Type of Modulation	:	FSK
EIRP	:	2.92dBm
Receiver Category		3

4.1 Details of E.U.T.

Technical Data: Input: 5V === 1A(Powered by AC Adaptor: Input: 100-240V~,

50/60Hz, 500mA, Max; Output: 5V === 1A)

4.2 Standards Applicable for Testing

The tests were performed according to following standards:

FCC CFR47 Part 15 Section Telecommun

15.249: 2016

Telecommunication-RADIO FREQUENCY DEVICES-Intentional Radiators-Operation within the bands 902-928 MHz, 2400-2483.5

MHz, 5725-5875 MHZ, and 24.0-24.25 GHz.

4.3 Test Facility

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

IC – Registration No.:7760A

Waltek Services(Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the Industry Canada. The acceptance letter from the Industry Canada is maintained in our files. Registration number 7760A, October 15, 2015.

FCC Test Site 1# Registration No.: 880581

Waltek Services(Shenzhen) Co., Ltd. EMC Laboratory `has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 880581, April 29, 2014.

• FCC Test Site 2#– Registration No.: 328995

Waltek Services(Shenzhen) Co., Ltd. EMC Laboratory `has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 328995, December 3, 2014

Reference No.: WTS17S0271495E V1 Page 6 of 38

4.4 Z-wave Test Mode

All test mode(s) and condition(s) mentioned were considered and evaluated respectively by performing full tests.

And according to Part 15.31(m).

Measurements on intentional radiators or receivers, other than TV broadcast receivers, shall be performed and, if required, reported for each band in which the device can be operated with the device operating at the number of frequencies in each band specified in the following table:

Frequency range over which device operates	Number of frequencies	Location in the range of operation
1 MHz or less	1	Middle.
1 to 10 MHz	2	1 near top and 1 near bottom.
More than 10 MHz	3	1 near top, 1 near middle and 1 near bottom

So frequency is 908.42MHz, only the channel were recorded and reported.

Test mode	Lower channel	Middle channel	Upper channel
Transmitting	1	908.42MHz	1

5 Equipment Used during Test

5.1 Equipments List

Conducted Emissions Test Site 1#						
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Calibration Date	Calibration Due Date
1.	EMI Test Receiver	R&S	ESCI	100947	Sep.12, 2016	Sep.11, 2017
2.	LISN	R&S	ENV216	101215	Sep.12, 2016	Sep.11, 2017
3.	Cable	Тор	TYPE16(3.5M)	-	Sep.12, 2016	Sep.11, 2017
Condu	cted Emissions Test \$	Site 2#				
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Calibration Date	Calibration Due Date
1.	EMI Test Receiver	R&S	ESCI	101155	Sep.12, 2016	Sep.11, 2017
2.	LISN	SCHWARZBECK	NSLK 8128	8128-289	Sep.12, 2016	Sep.11, 2017
3.	Limiter	York	MTS-IMP-136	261115-001- 0024	Sep.12, 2016	Sep.11, 2017
4.	Cable	LARGE	RF300	-	Sep.12, 2016	Sep.11, 2017
3m Ser	mi-anechoic Chamber	for Radiation Emis	sions Test site	1#		
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Calibration Date	Calibration Due Date
1	Spectrum Analyzer	R&S	FSP	100091	Apr.29, 2016	Apr.28, 2017
2	Amplifier	Agilent	8447D	2944A10178	Jan.12, 2017	Jan.11, 2018
3	Active Loop Antenna	Beijing Dazhi	ZN30900A	0703	Oct.17, 2016	Oct.16, 2017
4	Trilog Broadband Antenna	SCHWARZBECK	VULB9163	33 6	Apr.09, 2016	Apr.08, 2017
5	Coaxial Cable (below 1GHz)	Тор	TYPE16(13M)	-	Sep.12, 2016	Sep.11, 2017
6	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9120 D	667	Apr.09, 2016	Apr.08, 2017
7	Broadband Preamplifier	COMPLIANCE DIRECTION	PAP-1G18	2004	Apr.13, 2016	Apr.12, 2017
8	Coaxial Cable (above 1GHz)	Тор	1GHz-18GHz	EW02014-7	Apr.13, 2016	Apr.12, 2017
3m Ser	mi-anechoic Chamber	for Radiation Emis	ssions Test site	2#		
Item	Equipment	Manufacturer	Model No.	Serial No	Last Calibration Date	Calibration Due Date
1	Test Receiver	R&S	ESCI	101296	Apr.13, 2016	Apr.12, 2017
2	Trilog Broadband Antenna	SCHWARZBECK	VULB9160	9160-3325	Apr.09, 2016	Apr.08, 2017
3	Amplifier	ANRITSU	MH648A	M43381	Apr.13, 2016	Apr.12, 2017
4	Cable	HUBER+SUHNER	CBL2	525178	Apr.13, 2016	Apr.12, 2017

RF Conducted Testing							
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Calibration Date	Calibration Due Date	
1.	EMC Analyzer (9k~26.5GHz)	Agilent	E7405A	MY45114943	Sep.12, 2016	Sep.11, 2017	
2.	Spectrum Analyzer (9k-6GHz)	R&S	FSL6	100959	Sep.12, 2016	Sep.11, 2017	
3.	Signal Analyzer (9k~26.5GHz)	Agilent	N9010A	MY50520207	Sep.12, 2016	Sep.11, 2017	

5.2 Measurement Uncertainty

Parameter	Uncertainty
Radio Frequency	± 1 x 10 ⁻⁶
RF Power	± 1.0 dB
RF Power Density	± 2.2 dB
	± 5.03 dB
Radiated Spurious	(Bilog antenna 30M~1000MHz)
Emissions test	± 5.47 dB
	(Horn antenna 1000M~25000MHz)

5.3 Test Equipment Calibration

All the test equipments used are valid and calibrated by CEPREI Certification Body that address is No.110 Dongguan Zhuang RD. Guangzhou, P.R.China.

Reference No.: WTS17S0271495E V1 Page 9 of 38

6 Test Summary

Test Items	Test Requirement	Result		
Conducted Emissions	15.207	С		
	15.249(a)	С		
Radiated Emission	15.209			
	15.205(a)			
Periodic Operation	15.35(c)	С		
	15.249	С		
Band Edge	15.205			
	15.209			
20dB Bandwidth	15:215(c)	С		
Antenna Requirement	15.203	С		
Note: C=Compliance; NC=Not Compliance; NT=Not Tested; N/A=Not Applicable.				

Reference No.: WTS17S0271495E V1 Page 10 of 38

7 Conducted Emission

Test Requirement: FCC CFR 47 Part 15 Section 15.207
Test Method: ANSI C63.10:2013;ANSI C63.4:2014

Frequency Range: 150kHz to 30MHz

Class/Severity: Class B

Limit: 66-56 dB_µV between 0.15MHz & 0.5MHz

 $56~dB\mu V$ between 0.5MHz~&~5MHz $60~dB\mu V$ between 5MHz~&~30MHz

Detector:

Peak for pre-scan (9kHz Resolution Bandwidth)

Test Result:

Pass

not applicable (Remark)

7.1 E.U.T. Operation

Operating Environment:

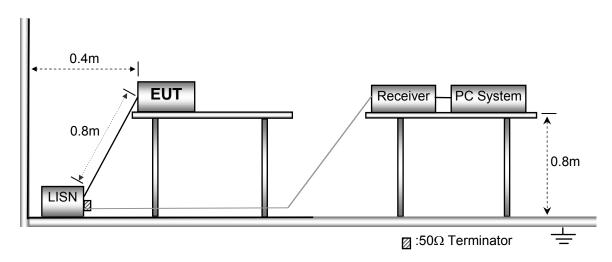
Temperature: 25.5 °C Humidity: 51 % RH Atmospheric Pressure: 101.2kPa

EUT Operation:

The test was performed in transmitting mode, the test data were shown in the report.

7.2 EUT Setup

The conducted emission tests were performed using the setup accordance with the ANSI C63.10:2013

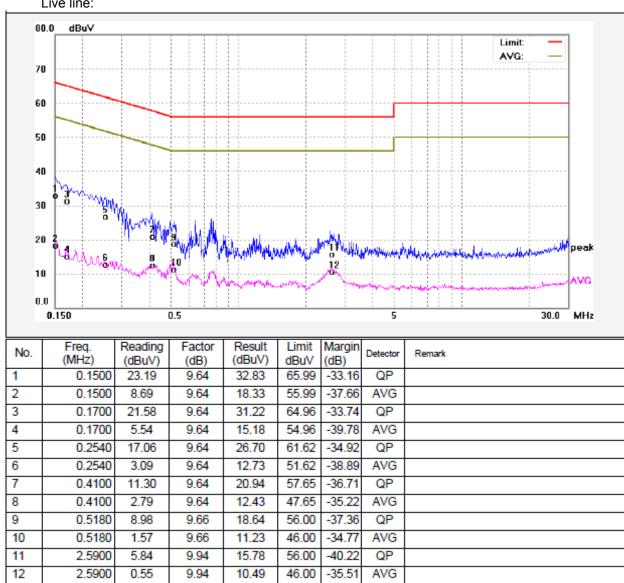


7.3 Measurement Description

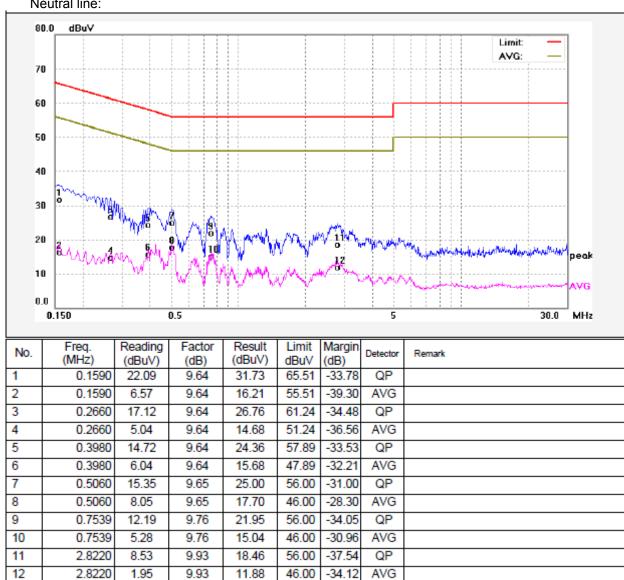
The maximised peak emissions from the EUT was scanned and measured for both the Live and Neutral Lines. Quasi-peak & average measurements were performed if peak emissions were within 6dB of the average limit line.

7.4 Test Result

Live line:



Neutral line:



Reference No.: WTS17S0271495E V1 Page 13 of 38

8 Radiation Emission Test

Test Requirement: FCC Part15 Paragraph 15.249&15.209&15.205

Test Method: ANSI 63.10: 2013;ANSI C63.4:2014

Measurement Distance: 3m

Test Result: Pass Fai

15.249(a)Limit:

Fundamental frequency	Field strength of fundamental		Field strength of harmonics	
	mV/m	dBuV/m	uV/m	dBuV/m
902-928 MHz	50	94	500	54
2400-2483.5 MHz	50	94	500	54
5725-5875 MHz	50	94	500	54
24.0-24.25 GHz	250	108	2500	68

15.209 Limit:

13.203 Littit.						
_	Field Strength		Field Strength Limit at 3m Measurement Dist			
Frequency (MHz)	uV/m	Distance (m)	uV/m	dBuV/m		
0.009 ~ 0.490	2400/F(kHz)	300	10000 * 2400/F(kHz)	20log ^{(2400/F(kHz))} + 80		
0.490 ~ 1.705	24000/F(kHz)	30	100 * 24000/F(kHz)	20log ^{(24000/F(kHz))} + 40		
1.705 ~ 30	30	30	100 * 30	20log ⁽³⁰⁾ + 40(29.54+40)		
30 ~ 88	100	3	100	20log ⁽¹⁰⁰⁾ =(40)		
88 ~ 216	150	3	150	20log ⁽¹⁵⁰⁾ =(43.5)		
216 ~ 960	200	3	200	20log ⁽²⁰⁰⁾ =(46)		
Above 960	500	3	500	20log ⁽⁵⁰⁰⁾ =(54)		

Note: RF Voltage(dBuV)=20 log₁₀ RF Voltage(uV)

8.1 EUT Operation

Operating Environment:

Temperature: 23.5 °C
Humidity: 51.1 % RH
Atmospheric Pressure: 101.2kPa

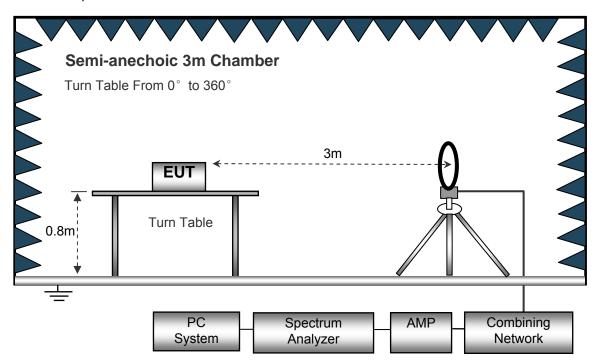
EUT Operation:

The test was performed in transmitting mode, the test data were shown in the report.

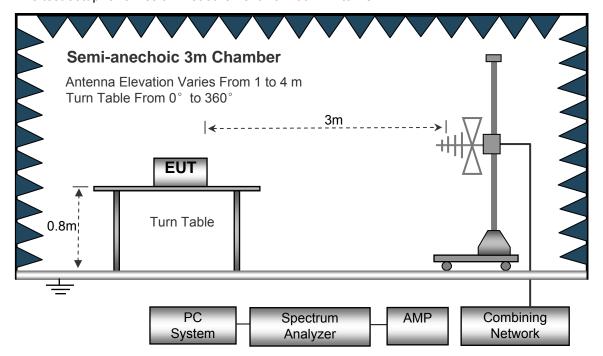
8.2 Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.10: 2013.

The test setup for emission measurement below 30MHz.



The test setup for emission measurement from 30MHz to 1GHz.



Anechoic 3m Chamber

Antenna Elevation Varies From 1 to 4 m
Turn Table From 0° to 360°

Turn Table

Absorbers

Spectrum

Analyzer

Combining

Network

AMP

The test setup for emission measurement above 1 GHz.

System

8.3 Spectrum Analyzer Setup

Below 30MHz		
	Sweep Speed	. Auto
	IF Bandwidth	.10kHz
	Video Bandwidth	.10kHz
	Resolution Bandwidth	.10kHz
30MHz ~ 1GHz	z	
	Sweep Speed	. Auto
	Detector	.PK
	Resolution Bandwidth	.100kHz
	Video Bandwidth	.300kHz
Above 1GHz		
	Sweep Speed	. Auto
	Detector	.PK
	Resolution Bandwidth	.1MHz
	Video Bandwidth	.3MHz
	Detector	.Ave.
	Resolution Bandwidth	.1MHz
	Video Bandwidth	.10Hz
	Video Bandwidth	.10Hz

Reference No.: WTS17S0271495E V1 Page 16 of 38

8.4 Test Procedure

1. The EUT is placed on a turntable. For below 1GHz, the EUT is 0.8m above ground plane; For above1GHz, the EUT is 1.5m above ground plane.

- 2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
- 3. EUT is set 3m away from the receiving antenna, which is moved from 1m to 4m to find out the maximum emissions. The spectrum was investigated from the lowest radio frequency signal generated in the device, without going below 9 kHz, up to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.
- 4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
- 6. Repeat above procedures until the measurements for all frequencies are complete.
- 7. The radiation measurements are tested under 3-axes(X, Y, Z) position(X denotes lying on the table, Y denotes side stand and Z denotes vertical stand), after pre-test, It was found that the worse radiation emission was get at the X position. So the data shown was the X position only.

Reference No.: WTS17S0271495E V1 Page 17 of 38

8.5 Frequency range of radiated measurements.

According to FCC 47 CFR Section 15.33:

- (a) For an intentional radiator, the spectrum shall be investigated from the lowest radio frequency signal generated in the device, without going below 9 kHz, up to at least the frequency shown in this paragraph:
- (1) If the intentional radiator operates below 10 GHz: to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.
- (2) If the intentional radiator operates at or above 10 GHz and below 30 GHz: to the fifth harmonic of the highest fundamental frequency or to 100 GHz, whichever is lower.
- (3) If the intentional radiator operates at or above 30 GHz: to the fifth harmonic of the highest fundamental frequency or to 200 GHz, whichever is lower, unless specified otherwise elsewhere in the rules.
- (4) If the intentional radiator contains a digital device, regardless of whether this digital device controls the functions of the intentional radiator or the digital device is used for additional control or function purposes other than to enable the operation of the intentional radiator, the frequency range shall be investigated up to the range specified in paragraphs (a)(1) through (a)(3) of this section or the range applicable to the digital device, as shown in paragraph (b)(1) of this section, whichever is the higher frequency range of investigation.

Result: So the Frequency range of radiated form: 9KHz to 10GHz.

Reference No.: WTS17S0271495E V1 Page 18 of 38

8.6 Test Result

Test Frequency: 9KHz~30MHz

The measurements were more than 20 dB below the limit and not reported.

Test Frequency: 30MHz ~ 10GHz

Frequenc	Receive	Turn	RX Antenna		Correcte	0 1 1	FCC Part 15.249/209/205		
y y	r Reading	Detector	table Angle	Height	Pola r	d Factor	Corrected Amplitude	Limit	Margi n
(MHz)	(dBµV)	(PK/QP)	Degre e	(m)	(H/V)	(dB/m)	(dBµV/m)	(dBµV/m)	(dB)
56.23	39.21	QP	98	1.8	V	-11.40	27.81	40.00	-12.19
908.42	97.58	QP	28	1.5	Н	0.50	91.80	94.00	-2.20
908.42	94.48	QP	260	1.8	V	0.50	91.26	94.00	-2.74
1816.84	66.54	PK	92	1.2	Н	-13.21	53.33	74.00	-20.67
1816.84	58.99	PK	227	1.6	V	-13.21	45.78	74.00	-28.22
2725.26	59.64	PK	290	1.1	Н	-13.08	46.56	74.00	-27.44
2725.26	55.78	PK	357	1.1	V	-13.08	42.70	74.00	-31.30
5745.00	58.99	PK	322	1.6	Н	-9.08	49.91	74.00	-24.09
5745.00	56.74	PK	289	1.8	V	-9.08	47.66	74.00	-26.34

AV = Peak +20Log10(duty cycle) =PK+(-10.63) [refer to section 9 for more detail]

710 Todak 12020g To (daty by ole) The Vitable to decide to the more details							
Frequency	PK	RX Antenna	Duty cycle	AV	FCC Part 15.249/209/205		
Frequency P	FK	Polar	Factor		Limit	Margin	
(MHz)	(dBµV/m)	(H/V)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	
1816.84	54.69	Н	-10.63	44.06	54.00	-9.94	
1816.84	47.14	V	-10.63	36.51	54.00	-17.49	
2725.26	47.92	Н	-10.63	37.29	54.00	-16.71	
2725.26	44.06	V	-10.63	33.43	54.00	-20.57	
5745.00	51.27	Н	-10.63	40.64	54.00	-13.36	
5745.00	49.02	V	-10.63	38.39	54.00	-15.61	

9 Periodic Operation

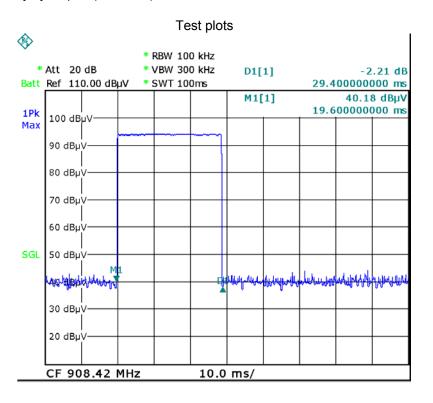
The duty cycle was determined by the following equation:

To calculate the actual field intensity, the duty cycle correction factor in decibel is needed for later use and can be obtained from following conversion

Duty Cycle(%)=Total On interval in a complete pulse train/ Length of a complete pulse train * % Duty Cycle Correction Factor(dB)=20 * Log₁₀(Duty Cycle Correction Factor)

Total transmission time(ms)	29.40
Length of a complete transmission period(ms)	100
Duty Cycle(%)	29.40
Duty Cycle Correction Factor(dB)	-10.63

Refer to the duty cycle plot (as below)



Reference No.: WTS17S0271495E V1 Page 21 of 38

10 Band Edge

Test Requirement: 15.249(d):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 §15.209, whichever is the lesser attenuation.

Test Method: ANSI C63.10:2013

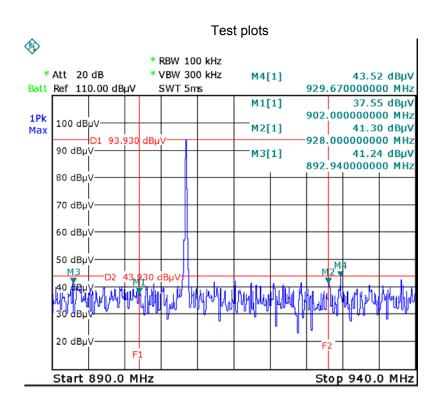
Test Mode: Transmitting

10.1 Test Procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;

Set the spectrum analyzer: RBW = 100kHz, VBW = 300kHz, Sweep = auto
 Detector function = peak, Trace = max hold

10.2 Test Result



Reference No.: WTS17S0271495E V1 Page 22 of 38

11 20 dB Bandwidth Measurement

Test Requirement: FCC CFR47 Part 15 Section 15.215(c)

Test Method: ANSI C63.10:2013

Test Mode: Transmitting

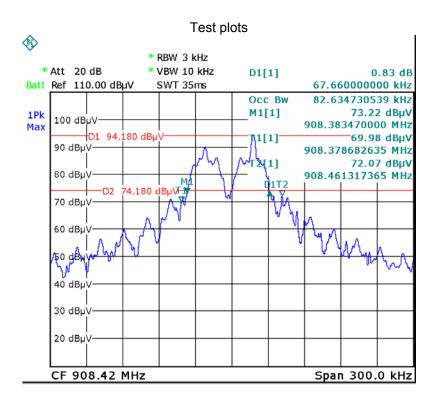
11.1 Test Procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;

2. Set the spectrum analyser: RBW = 3 kHz, VBW = 10 kHz

11.2 Test Result

Frequency (MHz)	Bandwidth Emission (kHz)			
908.42	67.66			



Reference No.: WTS17S0271495E V1 Page 23 of 38

12 RF Exposure

Test Requirement: FCC Part 1.1307

Evaluation Method: FCC Part 2.1091 & KDB 447498 D01 General RF Exposure Guidance v06

12.1 Requirements

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2 m normally can be maintained between the user and the device.

12.2 The procedures / limit

(0)Limits for Occupational / Controlled Exposure

(0)=to :0: 0 000.p	(o) Elithic for Goodpational / Goritioned Exposure							
Frequency Range (MHz)	Electric Field Strength € (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)				
0.3-3.0	614	1.63	(100)*	6				
3.0-30	1842 / f	4.89 / f	(900 / f)*	6				
30-300	61.4	0.163	1.0	6				
300-1500			F/300	6				
1500-100,000			5	6				

(B) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength € (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

Note: f = frequency in MHz; *Plane-wave equivalent power density

Reference No.: WTS17S0271495E V1 Page 24 of 38

12.3 MPE Calculation Method

For Z-wave								
Frequency(MHz)	E _{Meas} (dBuV/m)	EIRP(dBm)	EIRP(mW)	Power Density (mW/cm2)	Limit of Power Density (mW/cm2)	Result		
908.42	98.08	2.92	1.96	0.000399	0.61	Compliance		

 $EIRP=E_{Meas} + 20log(d_{Meas})-104.7, PD=EIRP / 4\pi d^{2}$

Where

EIRP is the equivalent isotropically radiated power, in dBm

 E_{Meas} is the field strength of the emission at the measurement distance, in $dBuV\!/m$

 d_{Meas} is the measurement distance, in \boldsymbol{m}

d is the minimum mobile separation distance, d=0.2m

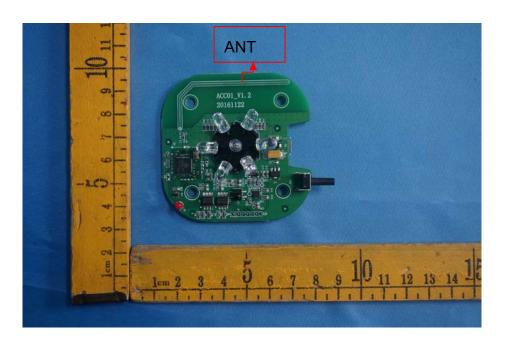
13 Antenna Requirement

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 shall be considered sufficient to comply with the provisions of this section. 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. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

For intentional device, according to FCC 47 CFR 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.

Result:

The EUT has one PCB Printed Antenna, the gain is 0dBi. meets the requirements of FCC 15.203.



14 Photographs- Model HKZW-ACC01 Test Setup Photos

14.1 Photograph – Radiation Emission

Below 30MHz



Test frequency from 30MHz to 1GHz at test site 2#

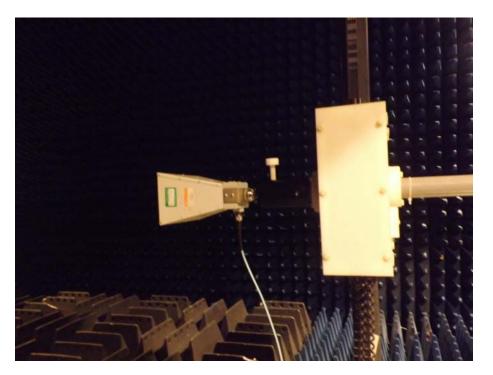




Test frequency from 1GHz to 10GHz at test site 1#



Reference No.: WTS17S0271495E V1 Page 28 of 38





Reference No.: WTS17S0271495E V1 Page 29 of 38

14.2 Photograph – Conducted Emission Test Setup at Test Site 2#



15 Photographs - Constructional Details

15.1 EUT - External Photos





Reference No.: WTS17S0271495E V1 Page 31 of 38





Reference No.: WTS17S0271495E V1 Page 32 of 38





Reference No.: WTS17S0271495E V1 Page 33 of 38





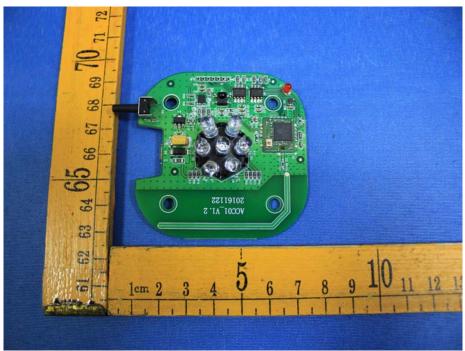
15.2 EUT - Internal Photos



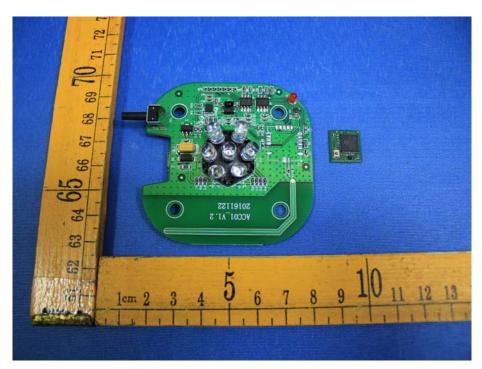


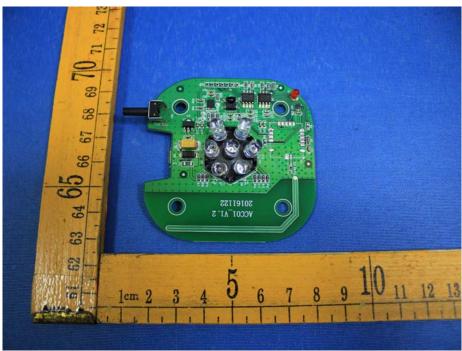
Reference No.: WTS17S0271495E V1 Page 35 of 38



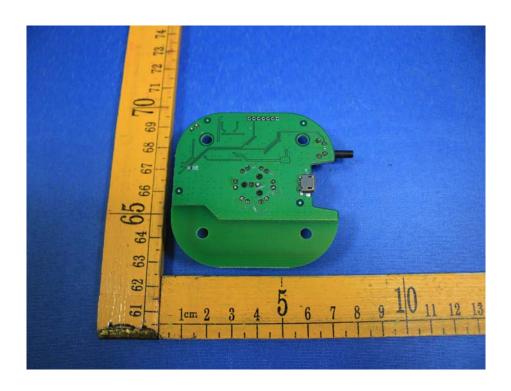


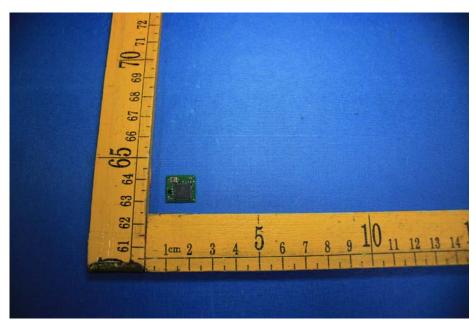
Reference No.: WTS17S0271495E V1 Page 36 of 38



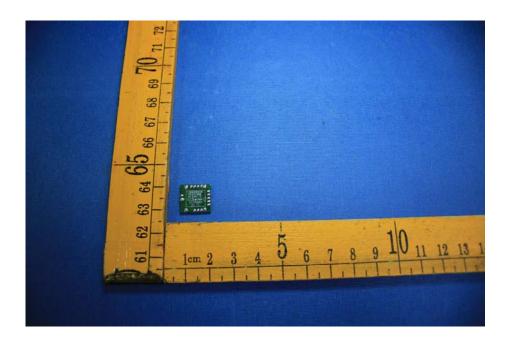


Reference No.: WTS17S0271495E V1 Page 37 of 38





Reference No.: WTS17S0271495E V1 Page 38 of 38



=====End of Report=====