

Test Report

FCC ID.: 2AB22-ZAP1FXT

Date of issue: Mar. 15, 2017

Sample Description: Etekcite Outdoor Remote Control Outlet Transmitter

Model(s): ZAP 1FXT

Applicant: Etekcite Corporation

Address: 1202 N Miller St. Suite A, Anaheim, CA 92806

Date of Test: Feb.28, 2017 to Mar. 15, 2017

ShenzhenMicrotest Co., Ltd.
<http://www.mtitest.com>



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TEST RESULT CERTIFICATION	
Applicant's name:	Etekcite Corporation
Address:	1202 N Miller St. Suite A, Anaheim, CA 92806
Manufacture's Name:	SHENZHEN SANCING TECHNOLOGY CO;LTD
Address:	Room301, A Block Tus Technology Park Jianmin road Long gang District Shenzhen China
Product description	
Product name:	Etekcite Outdoor Remote Control Outlet Transmitter
Trademark:	Etekcite
Model name:	ZAP 1FXT
Serial Model:	/
Standards:	FCC Part 15 C
Test Procedure:	ANSI C63.4-2014; ANSI C63.10-2013

This device described above has been tested by Shenzhen Microtest Co.,Ltd. and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

Tested by:

Sang di Huang

Sangdi Huang

Mar. 15, 2017

Reviewed by:

Leon Chen

Leon Chen

Mar. 15, 2017

Approved by:

Tom Xue

Tom Xue

Mar. 15, 2017

SUMMARY OF TEST RESULT

Item	FCC Part No.	Description of Test	Result
1	15.203	Antenna requirement	Pass
2	15.207	AC power line conducted emission	N/A
3	15.231(c)	20dB bandwidth	Pass
4	15.231(b)	Radiated emission	Pass
5	15.231(a)(1)	Release time	Pass

1. General description

1.1 Feature of equipment undertest (EUT)

Product name:	Etekcit Outdoor Remote Control Outlet Transmitter
Model name:	ZAP 1FXT
Tx/Rx frequency range:	Tx:433.92MHz
Modulation type:	ASK
Power source:	DC 12V/23A (ALKALINE BATTERY)
Antenna designation:	PCBA antenna
Antenna Gain:	0dBi

1.2 operation channel list

Channel	Frequency
1	433.92MHz

2. Test Configuration of EUT

2.1 EUT operation mode

During testing, the EUT is operated in TX mode. (new battery is used during all test)

2.2 Test conditions

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

- Temperature: 20°C~30°C
- Humidity: 30%~70%
- Atmospheric pressure: 98kPa~101kPa

2.3 Testing site

Test Site	Shenzhen Toby Technology Co., Ltd.
Test Site Location	1 A/F., Bldg.6, Yusheng Industrial Zone The National Road No.107 Xixiang Section 467
FCC Registration No.:	811562

2.4 Ancillary equipment list

Equipment	Model	S/N	Manufacturer
/	/	/	/

2.5 Measurement uncertainty

Measurement Uncertainty for a Level of Confidence of 95 %, $U=2 \times U_c(y)$

RF frequency	1×10^{-7}
RF power, conducted	± 1 dB
Conducted emission(150kHz~30MHz)	± 2.5 dB
Radiated emission(30MHz~1GHz)	± 4.2 dB
Radiated emission (above 1GHz)	± 4.3 dB
Temperature	± 1 degree
Humidity	± 5 %

3. List of test equipment

For RF conducted test:

Equipment	Manufacturer	Model	Serial No.	Calibration Due
Signal Analyzer	Agilent	N9010A	MY48030494	2017/11/4
4 Ch. Simultaneous Sampling 14 Bits 2 MS/s	Agilent	U2531A	TW54063513	2017/11/4
X-series USB Peak and Average Power Sensor	Agilent	U2021XA	MY54080019	2017/11/4
vector Signal Generator	Agilent	E4438C	US44271917	2017/11/4
vector Signal Generator	Agilent	E4438C	MY49070163	2017/11/4
Dc Power Supply	GW	GPR-6030D	/	2017/11/4
Temperature & Humidity Chamber	GIANT FORCE	GTH-056P	GF-94454-1	2017/11/4

For Radiated emission:

Equipment	Manufacturer	Model	Serial No.	Calibration Due
Broadband TRILOG Antenna	Schwarabeck	VULB9163	9163-872	2017/11/14
Horn Antenna	Schwarzbeck	BBHA 9120 D	9120D-1145	2017/11/14
Amplifier	HP	8447D	3113A06150	2017/11/4
Amplifier	Agilent	8449B	3008A02400	2017/7/4
Test Receiver	Schwarabeck	ESPI7	100314	2017/11/4
Spectrum analyzer	Agilent	E4407B	MY41441082	2017/11/4
Signal Generator	R&S	SMT 06	832080/007	2017/11/4

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

4. Test Result

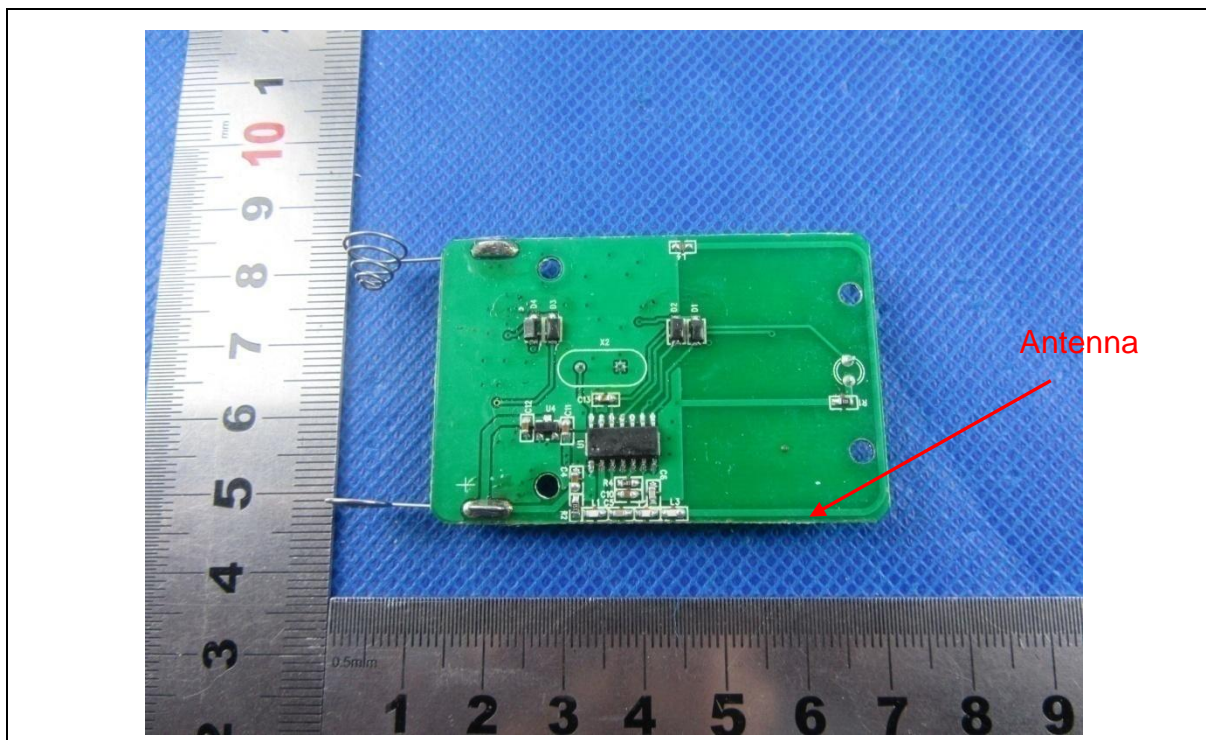
4.1 Antenna requirement

4.1.1 Requirement defined in FCC 15.203

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of 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.

4.1.2 EUT antenna description

The radio antenna of EUT is an internal permanently attached antenna, the maximum gain is 0 dBi. So the antenna meets the requirement of this part.



4.2 20dB emission bandwidth

4.2.1 Limits

The bandwidth of the emissions shall be no wider than 0.25% of the center frequency for devices operating above 70MHz and below 900MHz. So the emission bandwidth limits have been calculated in below table.

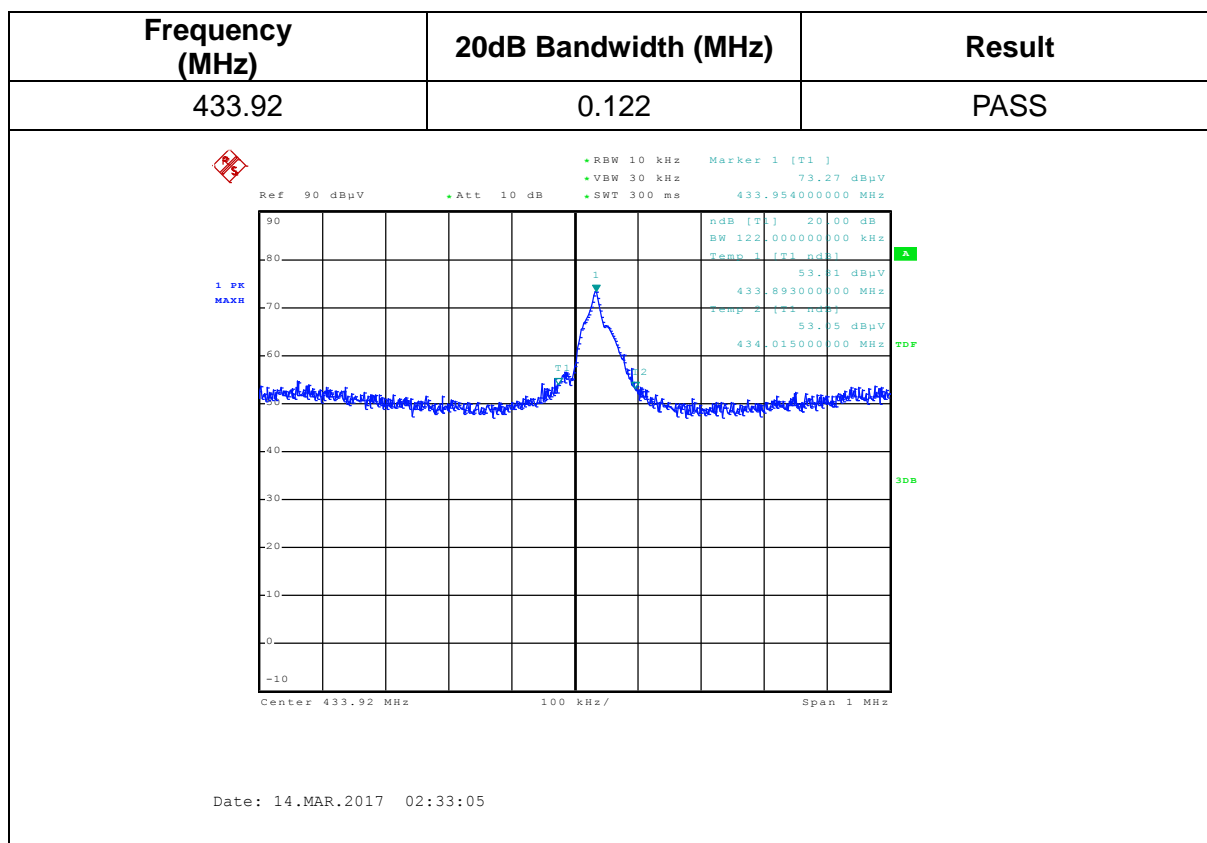
Fundamental Frequency	20 dB Bandwidth Limits (MHz)
433.92MHz	1.0848

4.2.2 Testmethod

Set Spectrum Analyzer centre Frequency= Fundamental Frequency, RBW=10 kHz, VBW= 30 kHz, Span= 1 MHz

Allow the trace to stabilize, measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 20 dB relative to the maximum level measured in the fundamental emission.

4.2.3 Test result



4.3 Radiated emission

4.3.1 Limit

In addition to the provisions of Section 15.205, the field strength of emissions from intentional radiators shall not exceed the following:

Fundamental Frequency (MHz)	Field Strength of Fundamental (microvolt/meter) at 3m	Field Strength of Spurious Emissions (microvolt/meter) at 3m
40.66~40.70	2250	225
70~130	1250	125
130~174	1250 to 3750(**)	125 to 375(**)
174~260	3750	375
260~470	3750 to 12500(**)	375 to 1250(**)
Above 470	12500	1250

** Linear interpolations, the formulas for calculating the maximum permitted fundamental field strengths are as follows:

as shown in the above table, based on the average value of the measured emissions. As an alternative, compliance with the limits in the above table may be based on the use of measurement instrumentation with a CISPR quasi-peak detector.

The limits on the field strength of the spurious emissions in the above table are based on the fundamental frequency of the intentional radiator. Spurious emissions shall be attenuated to the average (or, alternatively, CISPR quasi-peak) limits shown in this table or to the general limits shown in §15.209, whichever limit permits a higher field strength.

Frequency (MHz)	Field strength $\mu\text{V/m}$	Field strength $\text{dB}\mu\text{V/m}$	Detector	Measurement distance
30-88	100	40	QP	3m
88-216	150	43.5	QP	
216-960	200	46	QP	
960-1000	500	46	QP	
Above 1000	500	54	AV	
Above 1000	5000	74	PK	

4.3.2 Test method

The measuring distance of 3m shall be used for measurements at frequency up to 1GHz and above 1 GHz. The EUT was placed on a rotating 0.8m high above ground; the table was rotated 360 degrees to determine the position of the highest radiation.

The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set to make measurement.

For the actual test configuration, please see the test setup photo.

4.3.3 Test Result

PK:

Frequency MHz	Result dB μ V/m		AV Limit dB μ V/ m	Margin (dB)		Remark
	Hor.	Ver.		Hor.	Ver.	
433.92	72.28	61.95	80.8	-28.52	-38.85	Fundamental
867.84	55.32	43.89	60.8	-25.48	-36.91	Harmonics
1301.76	47.98	35.47	60.8	-32.82	-45.33	Harmonics

Remark:

If the PK measured values lower than average mode limit, the EUT shall be deemed to meet average limits.

4.4 Time of occupancy (dwell time)

4.4.1 Limit

15.231a (1)

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

4.4.2 Test method

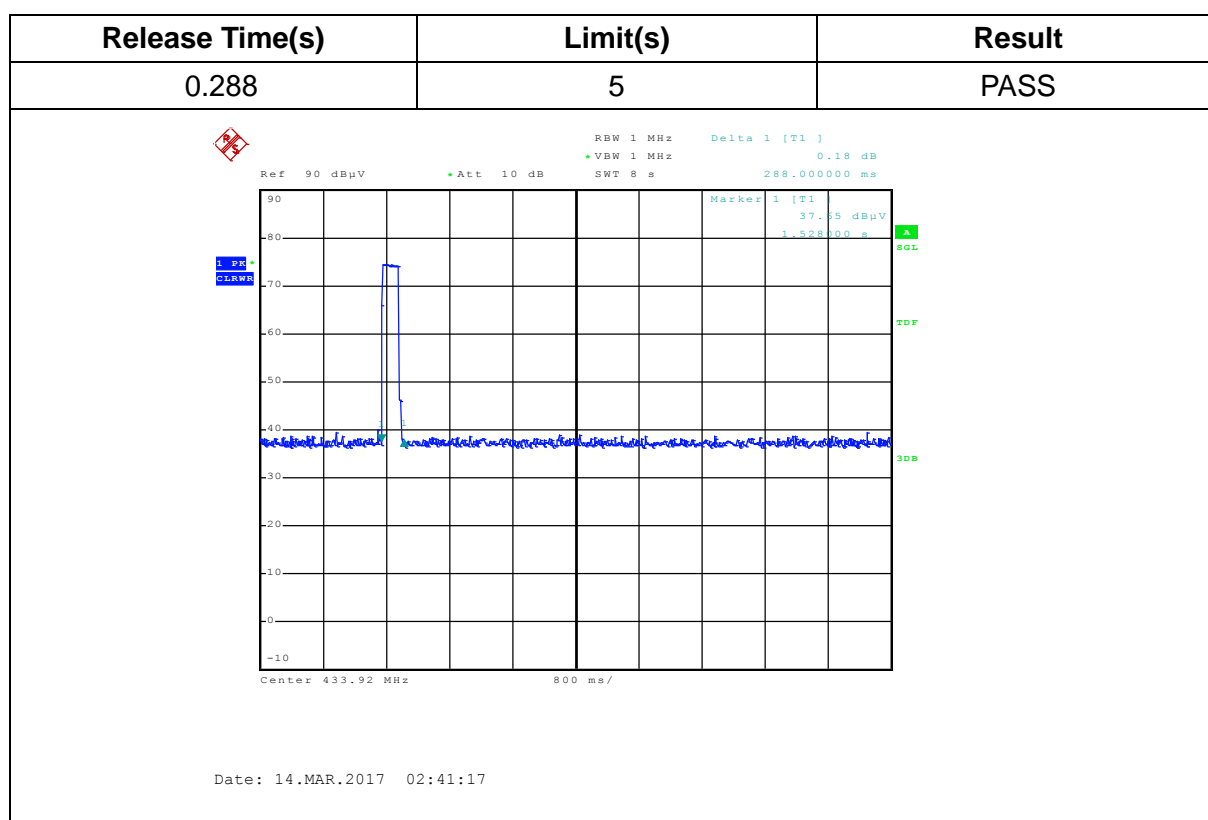
Setup the EUT as show in the block diagram above.

Set Spectrum Analyzer Centre Frequency= Fundamental Frequency, RBW=1MHz, VBW=1MHz, Span= 0 Hz. Sweep Time= 8 Seconds.

Setup the EUT as normal operation and press Transmitter button.

Release the button, use Delta Mark function to test the time.

4.4.3 Test Result



----END OF REPORT----