Chuango Security Technology Corporation

Application
For
Certification
FCC ID: RJYSS1005

Receiver

Sample Description: Mini Strobe Siren
Brand Name: smanos

Model: SS1005
Additional Models: WS-105

Report No.: 160615039SZN-001

We hereby certify that the sample of the above item is considered to comply with the requirements of FCC Part 15, mention 47 CFR [10-1-15]

Prepared and Checked by:	Approved by:
Sign on file	Digitally signed by Kidd Yang Location: Intertek Testing Services
Leo Lai Senior Project Engineer	Kidd Yang Senior Project Engineer Date: June 30, 2016

TRF No.: FCC 15C_RX_b

Intertek Testing Services Shenzhen Ltd. Kejiyuan Branch
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LIST OF EXHIBITS

MEASUREMENT/TECHNICAL REPORT

Chuango Security Technology Corporation
FCC ID: RJYSS1005

This report concerns (check one:) Original Grant __X__ Class II Change _____

Equipment Type: CYY – Communications Receiver used w/Pt 15 Transmitter

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Deferred grant requested per 47 CFR 0.457(d)(1)(ii)? Yes_____ No__X__

If yes, defer until: _____
date

Company Name agrees to notify the Commission by: _____
date

of the intended date of announcement of the product so that the grant can be issued on that date.

Transition Rules Request per 15.37? Yes_____ No__X__

If no, assumed Part 15, Subpart B for unintentional radiator - the new 47 CFR [10-1-15 Edition] provision.

Report prepared by:

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Exhibit type	File Description	filename
Test Report	Test Report	report.pdf
Operation Description	Technical Description	descri.pdf
Test Setup Photo	Radiated Emission	radiated photos.pdf
Test Setup Photo	Conducted Emission	conducted photos.pdf
External Photo	External Photo	external photos.pdf
Internal Photo	Internal Photo	internal photos.pdf
Block Diagram	Block Diagram	block.pdf
Schematics	Circuit Diagram	circuit.pdf
ID Label/Location	Label Artwork and Location	label.pdf
User Manual	User Manual	manual.pdf
Cover Letter	Confidentiality Letter	request.pdf
Cover Letter	Letter of Agency	agency.pdf

EXHIBIT 1

GENERAL DESCRIPTION

1.0 General Description

1.1 Product Description

The equipment under test (EUT) is a receiver for a Mini Strobe Siren operating at 915MHz. The EUT is powered by DC 3.7V internal rechargeable or 120-240Vac, 50/60Hz power supply. For more detailed features description, please refer to the user's manual.

The Models: WS-105 is the same as the model: SS1005 in hardware aspect, The difference in model No. and appearance silkscreen for marketing purpose.

Antenna Type: Integral antenna

For electronic filing, the brief circuit description is saved with filename: descri.pdf.

1.2 Related Submittal(s) Grants

This is a single application for certification of a receiver, and there has a transmitter which associated with this EUT, has FCC ID: RJY-SR1000 which has been granted.

1.3 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.4 (2014). Radiated emission measurement was performed in Semi-anechoic chamber and conducted emission measurement was performed in shield room. For radiated emission measurement, preliminary scans were performed in the semi-anechoic chamber only to determine the worst case modes. All radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the "**Justification Section**" of this Application. All other measurements were made in accordance with the procedures in part 2 of CFR 47.

1.4 Test Facility

The Semi-anechoic chamber and shielding room used to collect the radiated data and conducted data are Intertek Testing Services Shenzhen Ltd. Kejiyuan Branch and located at 6F, D Block, Huahan Building, Langshan Road, Nanshan District, Shenzhen, P. R. China. This test facility and site measurement data have been fully placed on file with the FCC (Registration Number: 242492).

EXHIBIT 2

SYSTEM TEST CONFIGURATION

2.0 System Test Configuration

2.1 Justification

The system was configured for testing in a typical fashion (as a customer would normally use it), and in the confines as outlined in ANSI C63.4 (2014).

The EUT was powered by full charge battery and plug in AC120V, 60Hz power during testing.

For maximizing emissions, the EUT was rotated through 360°, the antenna height was varied from 1 meter to 4 meters above the ground plane, and the antenna polarization was changed. The step by step procedure for maximizing emissions led to the data reported in Exhibit 3.

The rear of unit was flushed with the rear of the table with 0.8m height up to 1GHz.

The equipment under test (EUT) was configured for testing in a typical fashion (as a customer would normally use it). The EUT was placed on turntable, which enabled the engineer to maximize emissions through its placement in the three orthogonal axes.

The frequency range from 30MHz to 5GHz was searched for spurious emissions from the device. Only those emissions reported were detected. All other emissions were at least 20 dB below the applicable limits.

2.2 EUT Exercising Software

There was no special software to exercise the device. Once the unit is powered up, it received continuously.

2.3 Special Accessories

N/A

2.4 Equipment Modification

Any modifications installed previous to testing by Chuango Security Technology Corporation will be incorporated in each production model sold/leased in the United States.

No modifications were installed by Intertek Testing Services Shenzhen Ltd Kejiyuan Branch.

2.5 Measurement Uncertainty

When determining of the test conclusion, the Measurement Uncertainty of test has been considered.

2.6 Support Equipment List and Description

N/A

EXHIBIT 3

EMISSION RESULTS

3.0 **Emission Results**

Data is included of the worst case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs and data tables of the emissions are included.

3.1 Radiated Emission

3.1.1 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CF - AG

where FS = Field Strength in dBµV/m
RA = Receiver Amplitude (including preamplifier) in dBµV
CF = Cable Attenuation Factor in dB
AF = Antenna Factor in dB
AG = Amplifier Gain in dB

In the following table(s), the reading shown on the data table reflects the preamplifier gain. An example for the calculations in the following table is as follows:

FS = RR + LF

where FS = Field Strength in dBµV/m
RR = RA - AG in dBµV
LF = CF + AF in dB

Assume a receiver reading of 52.0 dBµV is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB are added. The amplifier gain of 29 dB is subtracted, giving a field strength of 32 dBµV/m. This value in dBµV/m was converted to its corresponding level in µV/m.

RA = 52.0 dBµV/m
AF = 7.4 dB
CF = 1.6 dB
AG = 29.0 dB
RR = 23.0 dBµV
LF = 9.0 dB
FS = RR + LF
FS = 23 + 9 = 32 dBµV/m

Level in µV/m = Common Antilogarithm [(32 dBµV/m)/20] = 39.8 µV/m

3.1.2 Radiated Emission Configuration Photograph

Worst Case Radiated Emission
at
31.651 MHz

For electronic filing, the worst case radiated emission configuration photographs are saved with filename: radiated photos.doc.

3.1.3 Radiated Emission Data

The data on the following page lists the significant emission frequencies, the limit and the margin of compliance. Numbers with a minus sign are below the limit.

Judgement: Passed by 6.4 dB

TEST PERSONNEL:

Leo Lai, Engineer
Typed/Printed Name

June 22, 2016
Date

Applicant: Chuango Security Technology Corporation
Date of Test: June 22, 2016
Test Mode: Receive

Table 1

FCC Class B Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
H	31.940	32.1	20.0	10.7	22.8	40.0	-17.2
H	56.190	34.9	20.0	11.1	26.0	40.0	-14.0
H	190.050	39.2	20.0	11.9	31.1	43.5	-12.4
H	1392.960	45.9	36.8	24.6	33.7	54.0	-20.3
H	1685.200	41.4	36.8	28.2	32.8	54.0	-21.2
V	31.651	37.9	20.0	15.7	33.6	40.0	-6.4
V	38.277	35.6	20.0	16.0	31.6	40.0	-8.4
V	55.705	32.5	20.0	18.5	31.0	40.0	-9.0
V	4683.221	42.9	36.2	36.5	43.2	54.0	-10.8

NOTES:
1. Peak Detector Data unless otherwise stated.
2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distances were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative sign in the column shows value below limit.
4. All emissions below 1000MHz are below the QP limit and all emissions above 1000MHz are below the average limit.

Test Engineer: Leo Lai

3.2 Conducted Emission at Mains Terminal

3.2.1 Conducted Emissions Configuration Photograph

For electronic filing, the worst case conducted emission configuration photograph is saved with filename: conducted photos.pdf.

3.2.2 Conducted Emissions

Worst Case Live-Conducted Configuration
At

0.878 MHz

Judgement: Passed by 13.5 dB margin

TEST PERSONNEL:

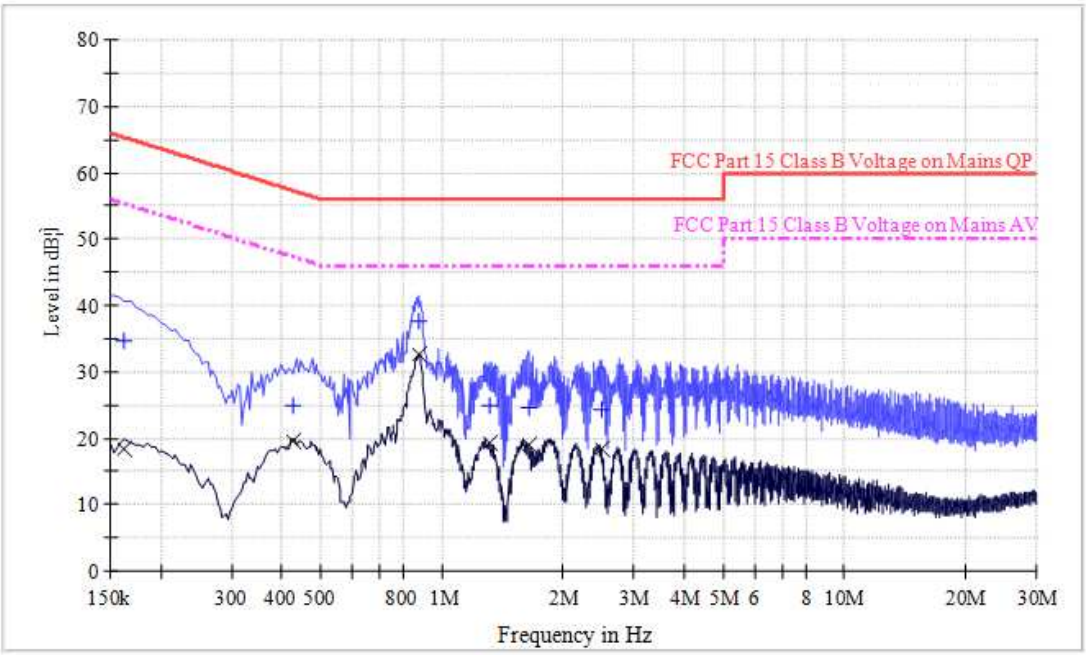
Sign on file

Leo Lai, Engineer
Typed/Printed Name

June 22, 2016
Date

Applicant: Chuango Security Technology Corporation
Date of Test: June 22, 2016
Test Mode: Receive
Sample: 1/1
Phase: Live

Conducted Emission Test - FCC



Limit and Margin QP

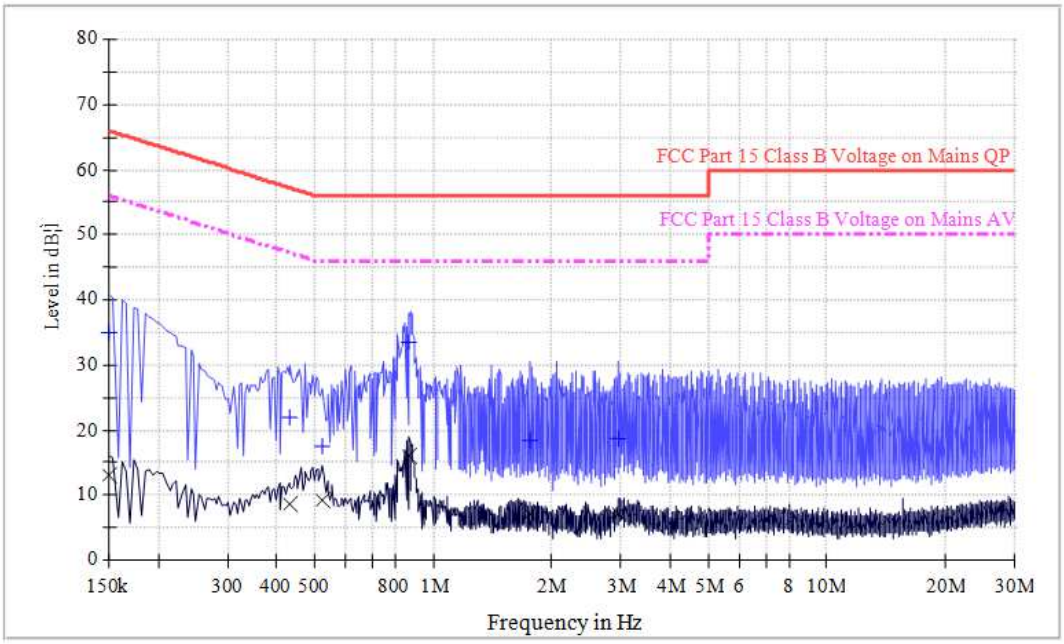
Frequency (MHz)	QuasiPeak (dBµV)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.162000	34.7	L1	9.5	30.7	65.4
0.426000	24.8	L1	9.6	32.5	57.3
0.878000	37.5	L1	9.6	18.5	56.0
1.318000	24.8	L1	9.6	31.2	56.0
1.638000	24.6	L1	9.6	31.4	56.0
2.486000	24.2	L1	9.6	31.8	56.0

Limit and Margin AV

Frequency (MHz)	Average (dBµV)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.162000	18.3	L1	9.5	37.1	55.4
0.426000	19.5	L1	9.6	27.8	47.3
0.878000	32.5	L1	9.6	13.5	46.0
1.318000	19.3	L1	9.6	26.7	46.0
1.638000	18.9	L1	9.6	27.1	46.0
2.486000	18.5	L1	9.6	27.5	46.0

Applicant: Chuango Security Technology Corporation
Date of Test: June 22, 2016
Test Mode: Receive
Sample: 1/1
Phase: Neutral

Conducted Emission Test - FCC



Limit and Margin QP

Frequency (MHz)	QuasiPeak (dBµV)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	34.8	N	9.6	31.2	66.0
0.434000	22.0	N	9.6	35.2	57.2
0.522000	17.5	N	9.6	38.5	56.0
0.870000	33.5	N	9.6	22.5	56.0
1.758000	18.5	N	9.6	37.5	56.0
2.966000	18.7	N	9.6	37.3	56.0

Limit and Margin AV

Frequency (MHz)	Average (dBµV)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	12.9	N	9.6	43.1	56.0
0.434000	8.4	N	9.6	38.8	47.2
0.522000	9.2	N	9.6	36.8	46.0
0.870000	16.0	N	9.6	30.0	46.0
1.758000	7.0	N	9.6	39.0	46.0
2.966000	7.0	N	9.6	39.0	46.0

EXHIBIT 4

EQUIPMENT PHOTOGRAPHS

4.0 **Equipment Photographs**

For electronic filing, the photographs are saved with filename: external photos.doc and internal photos.doc.

EXHIBIT 5

PRODUCT LABELLING

5.0 **Product Labelling**

For electronics filing, the FCC ID label artwork and the label location are saved with filename: label.pdf.

EXHIBIT 6

TECHNICAL SPECIFICATIONS

6.0 **Technical Specifications**

For electronic filing, the block diagram and schematic of the tested EUT are saved with filename: block.pdf and circuit.pdf respectively.

EXHIBIT 7

INSTRUCTION MANUAL

7.0 **Instruction Manual**

For electronic filing, a preliminary copy of the Instruction Manual is saved with filename: manual.pdf.

This manual will be provided to the end-user with each unit sold/leased in the United States.

EXHIBIT 8

MISCELLANEOUS INFORMATION

8.0 Miscellaneous Information

The miscellaneous information includes details of the test procedure.

This miscellaneous information includes details of the stabilizing process (including a plot of the stabilized waveform), the test procedure and calculation of the factors such as pulse desensitization and averaging factor.

8.1 Stabilization Waveform

Previous to the testing, the Superheterodyne receiver was stabilized as outlined in the test procedure. For the electronic filing, the plot saved with filename: Supeheterodyne.pdf show the fundamental emission when a signal generator was used to stabilize the receiver. Please note that the antenna was placed as close as possible to the EUT for clear demonstration of the waveform and that accurate readings are not possible from this plot.

8.2 Discussion of Pulse Desensitization

This device is a Superheterodyne receiver. No desensitization of the measurement equipment is required as the received signals are continuously.

8.3 Calculation of Average Factor

This device is a Superheterodyne receiver. It is not necessary to apply average factor to the measurement result.

8.4 Emissions Test Procedures

The following is a description of the test procedure used by Intertek Testing Services in the measurements of Superheterodyne Receiver operating under Part 15, Subpart B rules.

The test set-up and procedures described below are designed to meet the requirements of ANSI C63.4 – 2014. Superheterodyne receivers are stabilized prior to measurement by generating a signal well above the receiver threshold whose frequency is tuned until the emissions stabilize into a line spectrum. The signal is usually generated as CW with a R&S SML03 signal generator and a short whip antenna and is at a level of several hundred to several thousand mV/m. Plots of the stabilized signal will be shown. If a modulated signal is used, it will be noted.

The Superheterodyne Receiver equipment under test (EUT) is placed on a Styrene turntable which is four feet in diameter and approximately 0.8 meter in height above the ground plane. During the radiated emissions test, the turntable is rotated and any cables leaving the EUT are manipulated to find the configuration resulting in maximum emissions. The antenna height and polarization are varied during the testing to search for maximum signal levels. The height of the antenna is varied from one to four meters.

Detector function for radiated emissions above 1GHz is in peak mode and Quasi-Peak mode is used below 1GHz. Average readings, when required, are taken by measuring the duty cycle of the equipment under test and subtracting the corresponding amount in dB from the measured peak readings.

For radiated emission, the frequency range scanned is 30MHz to 5GHz.

Detector function for conducted emissions is in QP & AV mode and IFBW setting is 9 kHz from the frequency band 150 kHz to 30MHz.

8.4 Emissions Test Procedures (cont'd)

The EUT is warmed up for 15 minutes prior to the test.

AC power to the unit is varied from 85% to 115% nominal and variation in the fundamental emission field strength is recorded. If battery powered, a new, fully charged battery is used.

Conducted measurements were made as described in ANSI C63.4 - 2014.

The IF bandwidth used for measurement of radiated signal strength was 10 kHz for emission below 30 MHz and 120 kHz for emission from 30 MHz to 1000 MHz. Above 1000 MHz, a resolution bandwidth of 1 MHz is used.

Receiver measurements are normally conducted at a measurement distance of three meters. However, to assure low enough noise floor in the restricted bands, signals are acquired at a distance of one meter or less. All measurements are extrapolated to three meters using inverse scaling, but those measurements taken at a closer distance are so marked.

EXHIBIT 9

CONFIDENTIALITY REQUEST

9.0 **Confidentiality Request**

For electronic filing, the confidentiality request of the tested EUT is saved with filename: request.pdf.

EXHIBIT 10

TEST EQUIPMENT LIST

10.0 Test Equipment List

Equipment No.	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due Date
SZ061-12	BiConiLog Antenna	ETS	3142E	00166158	15-Sep-2015	15-Sep-2016
SZ061-08	Horn Antenna	ETS	3115	00092346	17-Oct-2015	17-Oct-2016
SZ181-04	Preamplifier	Agilent	8449B	3008A02474	23-Jan-2016	23-Jan-2017
SZ185-01	EMI Receiver	R&S	ESCI	100547	23-Jan-2016	23-Jan-2017
SZ056-03	Spectrum Analyzer	R&S	FSP30	101148	14-Jun-2016	14-Jun-2017
SZ188-01	Anechoic Chamber	ETS	RFD-F/A-100	4102	16-Apr-2016	16-Apr-2018
SZ062-02	RF Cable	RADIALL	RG 213U	0	30-Dec-2015	30-Jun-2016
SZ062-06	RF Cable	RADIALL	0.04-26.5GHz	0833254	6-Apr-2016	6-Oct-2016
SZ062-12	RF Cable	RADIALL	0.04-26.5GHz	083387	6-Apr-2016	6-Oct-2016
SZ180-01	Signal Generator	R&S	SML03	103286	23-May-2016	23-May-2017
SZ185-02	EMI Test Receiver	R&S	ESCI	100692	03-Nov-2015	03-Nov-2016
SZ187-01	Two-Line V-Network	R&S	ENV216	100072	03-Nov-2015	03-Nov-2016
SZ187-02	Two-Line V-Network	R&S	ENV216	100073	24-Jun-2015	24-Jun-2016
SZ188-03	Shielding Room	ETS	RFD-100	4100	23-Aug-2014	23-Aug-2016