

TEST REPORT

Applicant Name: Shenzhen Hollyland Technology Co.,Ltd
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Report Number: SZ1231205-73001E-RF-00AA1
FCC ID: 2ADZC-5803T

Test Standard (s)

FCC PART 15D

Sample Description

Product Type: FULL-DUPLEX WIRELESS INTERCOM SYSTEM
Model No.: Solidcom C1 Pro
Multiple Model(s) No.: Solidcom C1 Pro-4S-DH, HL-C1PRO-DH01
Trade Mark: HOLLYLAND, HOLLYVOX, HOLLYVIEW
Date Received: 2023/12/05
Report Date: 2024/02/26

Test Result:	Pass▲
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▲ In the configuration tested, the EUT complied with the standards above.

Prepared and Checked By:

Black Chen

Black Chen
RF Engineer

Approved By:

Jimmy Xiao

Jimmy Xiao
RF Supervisor

Note: The information marked # is provided by the applicant, the laboratory is not responsible for its authenticity and this information can affect the validity of the result in the test report. Customer model name, addresses, names, trademarks etc. are included.

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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	SZ1231205-73001E-RF-00AA1	Original Report	2024/02/26

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Product	FULL-DUPLEX WIRELESS INTERCOM SYSTEM
Tested Model	Solidcom C1 Pro
Multiple Model(s)	Solidcom C1 Pro-4S-DH, HL-C1PRO-DH01 (Please refer to the DoS [#] provided by the applicant)
Frequency Range	1921.536-1928.448 MHz
Maximum conducted peak output power	18.63dBm
Modulation Technique	GFSK
Antenna Specification [#]	ant1: 2 dBi;ant2:3.94dBi (It is provided by the applicant)
Voltage Range	DC 3.8V from battery
Sample serial number	2ESQ-3 (Assigned by BACL, Shenzhen)
Sample/EUT Status	Good condition
Adapter Information	N/A

Objective

The tests were performed in order to determine the compliance of the EUT with FCC Part 15-Subpart D, section 15.315, 15.317, 15.319 and 15.323 rules. The EMI measurements were performed according to the measurement procedure described in ANSI C63.17 – 2013.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.17 - 2013, American National Standard Methods of Measurement of the Electromagnetic and Operational Compatibility of Unlicensed Personal Communications Services (UPCS) Devices.

All emissions measurement was performed at Bay Area Compliance Laboratories Corp. (Shenzhen). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Each test item follows test standards and with no deviation.

Measurement Uncertainty

Parameter		Uncertainty
Occupied Channel Bandwidth		±5%
RF Frequency		213.55 Hz(k=2, 95% level of confidence)
RF output power, conducted		0.72 dB(k=2, 95% level of confidence)
Unwanted Emission, conducted		1.75 dB(k=2, 95% level of confidence)
AC Power Lines Conducted Emissions	9kHz-150kHz	3.94dB(k=2, 95% level of confidence)
	150kHz-30MHz	3.84dB(k=2, 95% level of confidence)
Temperature		±1°C
Humidity		±1%
Supply voltages		±0.4%

Note: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located on the 5F(B-West) , 6F, 7F, the 3rd Phase of Wan Li Industrial Building D, Shihua Rd, FuTian Free Trade Zone, Shenzhen, China.

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 715558, the FCC Designation No. : CN5045.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured to testing mode which is provided by the manufacturer.

Equipment Modifications

No modification was made to the EUT tested.

Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
Rohde & Schwarz	Digital Radio Communication Tester	CMD60	830861/029

External I/O Cable

Cable Description	Length (m)	From Port	To
/	/	/	/

Block Diagram of Test Setup

N/A

SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result	Remark
§ 1.1307 & 2.1093	Rf Exposure	Compliant	-
§ 15.317, § 15.203	Antenna Requirement	Compliant	-
§ 15.315, § 15.207	Conducted Emission	-	See Note
§ 15.323 (a)	Emission Bandwidth	-	See Note
§ 15.319 (c)	Peak Transmit Power	Compliant	-
§ 15.319 (d)	Power Spectral Density	-	See Note
§ 15.323 (d)	Emission Inside and Outside the sub-band	-	See Note
§ 15.323 (f)	Frequency Stability	-	See Note
§ 15.323 (c)(e) § 15.319 (f)	Specific Requirements for UPCS	-	See Note

Note:

1: This is Class II permissive change application for FCC ID: 2ADZC-5803T, the below changes was made based on the device certified on 01/14/2023, which was provided by the manufacturer:

- (a) Adding product models “Solidcom C1 Pro-4S-DH, HL-C1PRO-DH01”.
- (b) Adding trade mark “HOLLYVOX, HOLLYVIEW”.
- (c) Changing product from single ear to double ear.
- (d) The antenna was changed.
- (e) Some non-radio components on the PCB was updated, not affect radio part.

2: The output power was checked and verified consist with original report

3. The test data refers to the original report RA221110-53094E-RF-00A.

4. The Bay Area Compliance Laboratories Corp. (Shenzhen) is responsible for all the information provided in this report, except when information is provided by the customer as identified in this report.

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	SPECTRUM ANALYZER	FSU26	200982	2023/12/18	2024/12/17
Rohde & Schwarz	Digital Radio Communication Tester	CMD60	830553/018	2023/06/08	2024/06/07
WEINSCHTEL	Power Splitter	1515	RH386	2023/07/04	2024/07/03
Micro-Tronics	RF Cable	8082135	W1113	2023/07/04	2024/07/03
Micro-Tronics	RF Cable	8082176	W6102	2023/07/04	2024/07/03

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

FCC §1.1307&§2.1093 - RF EXPOSURE

Applicable Standard

FCC§1.1310 and §2.1093.

Test Result

Compliant, please refer to the SAR report: SZ1231205-73001E-SAA-A1.

§ 15.317, § 15.203 ANTENNA REQUIREMENT

Applicable Standard

According to 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.

Antenna Connector Construction

The EUT has two internal antennas which was permanently attached and the antenna gain[#] is 2dBi for ANT 1 and 3.94dBi for ANT 2, fulfill the requirement of this section. Please refer to the EUT photos.

Result: Compliant

FCC§15.319 (c) - PEAK TRANSMIT POWER

Applicable Standard

The peak power output as measured over an interval of time equal to the frame rate or transmission burst of the device under all conditions of modulation. Usually this parameter is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test. If the device cannot be connected directly, alternative techniques acceptable to the Commission may be used[47 CFR 15, subpart D, 15.303].

The peak transmit power is according to ANSI C63.17-2013 §6.1.2

Per FCC Part15.319 (c) Peak transmit power shall not exceed 100 microwatts multiplied by the square root of the emission bandwidth in hertz. Peak transmit power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage. The measurement results shall be properly adjusted for any instrument limitations, such as detector response times, limited resolution bandwidth capability when compared to the emission bandwidth, sensitivity, etc., so as to obtain a true peak measurement for the emission in question over the full bandwidth of the channel.

Per FCC Part15.319 (e), the peak transmit power shall be reduced by the amount in decibels that the maximum directional gain of the antenna exceeds 3 dBi.

Calculation of Peak Transmit Power Limit:

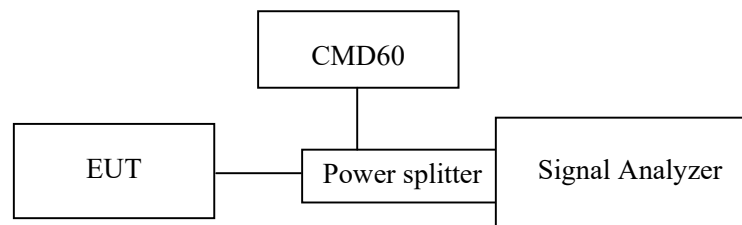
$$\text{Peak Transmit Power Limit} = 100\mu\text{W} \times (\text{EBW})^{1/2}$$

EBW is the transmit emission bandwidth in Hz determined in the other test item:

Test Procedure

Using the manufacturer’s information on occupied bandwidth set the spectrum analyzer as follows:

RBW	≥ Emission bandwidth
Video bandwidth	≥ RBW
Span	Zero
Center frequency	Nominal center frequency of channels
Amplitude scale	Log (linear may be used if analyzer has sufficient linear dynamic range and accuracy)
Detection	Peak detection
Trigger	Video
Sweep rate	Sufficiently rapid to permit the transmit pulse to be resolved accurately



Test Data

Environmental Conditions

Temperature:	25.6 °C
Relative Humidity:	51 %
ATM Pressure:	101 kPa

The testing was performed by Bruce Lin on 2024-02-23.

Test mode: Transmitting

Test Result: Compliant. Please refer to the following table and plots.

Ant 1

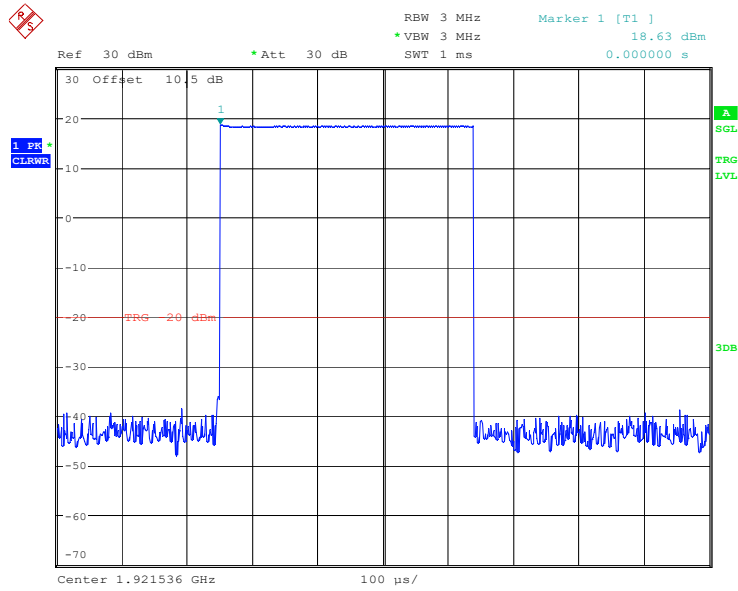
Channel	Frequency (MHz)	Peak Transmit Power (dBm)	Limit (dBm)
Low	1921.536	18.63	20.79
Middle	1924.992	18.59	20.81
High	1928.448	18.53	20.81
EBW _{Low channel} = 1442000Hz, EBW _{Middle channel} = 1452000 Hz, EBW _{High channel} = 1452000 Hz Peak Transmit Power Limit = $100(EBW)^{1/2} \mu W$			

Ant 2

Channel	Frequency (MHz)	Peak Transmit Power (dBm)	Limit (dBm)
Low	1921.536	18.49	19.85
Middle	1924.992	17.83	19.87
High	1928.448	17.81	19.87
EBW _{Low channel} = 1442000Hz, EBW _{Middle channel} = 1452000 Hz, EBW _{High channel} = 1452000 Hz Peak Transmit Power Limit = $100(EBW)^{1/2} \mu W$ For ANT 2, the maximum antenna gain=3.94dBi>3dBi, the limit should reduce 0.94dBi			

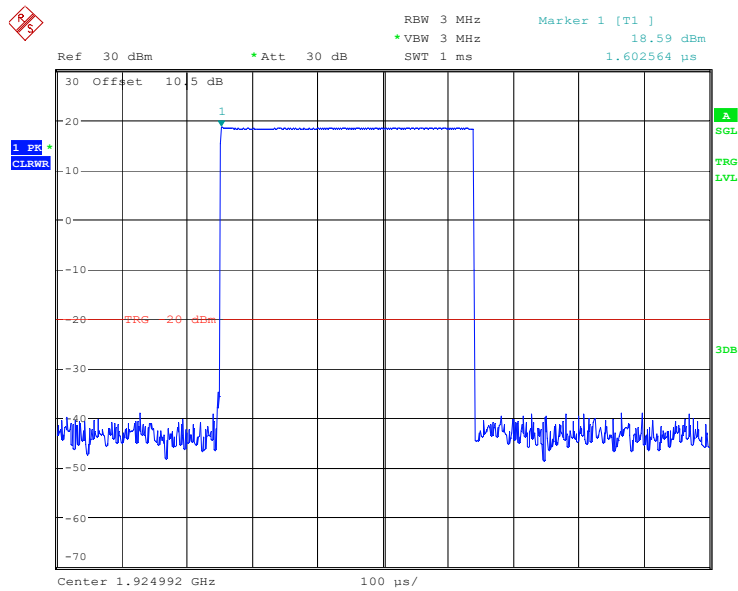
Ant 1

Low Channel



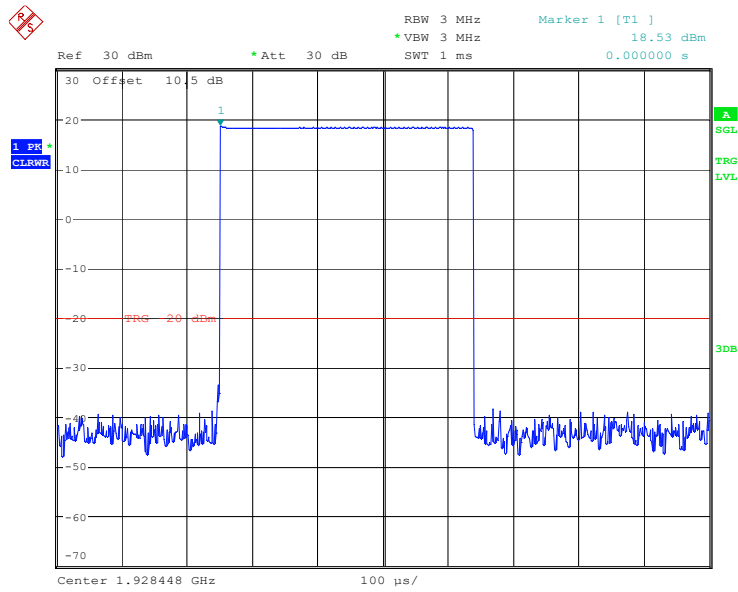
ProjectNo.:SZ1231205-73001E-FP Tester:Bruce Lin
Date: 23.FEB.2024 21:03:09

Middle Channel



ProjectNo.:SZ1231205-73001E-FP Tester:Bruce Lin
Date: 23.FEB.2024 21:02:28

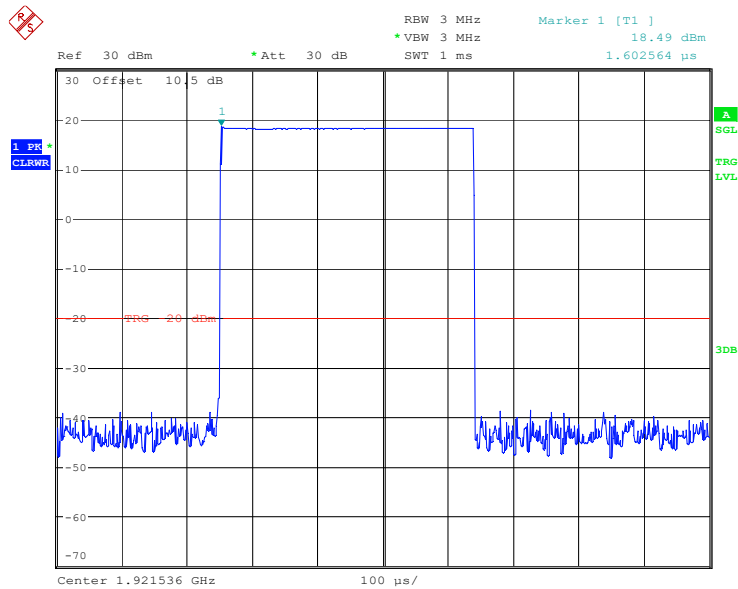
High Channel



ProjectNo.:SZ1231205-73001E-FP Tester:Bruce Lin
Date: 23.FEB.2024 21:01:58

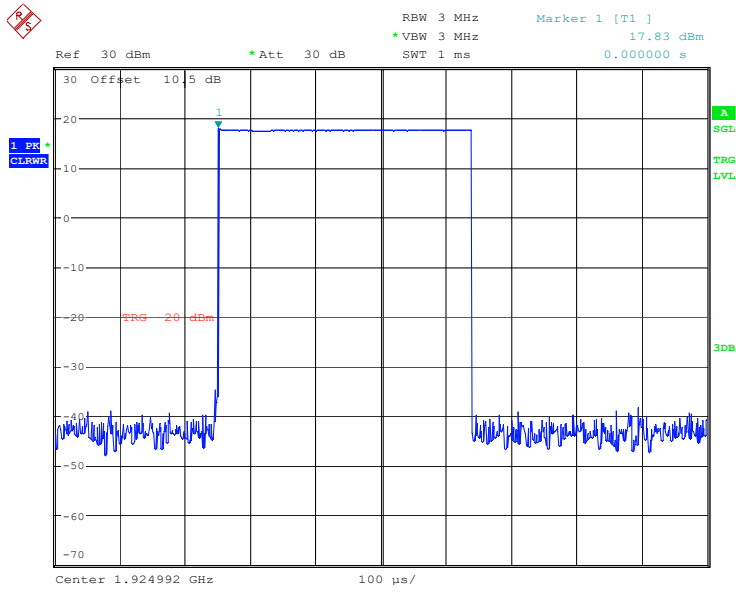
Ant 2

Low Channel



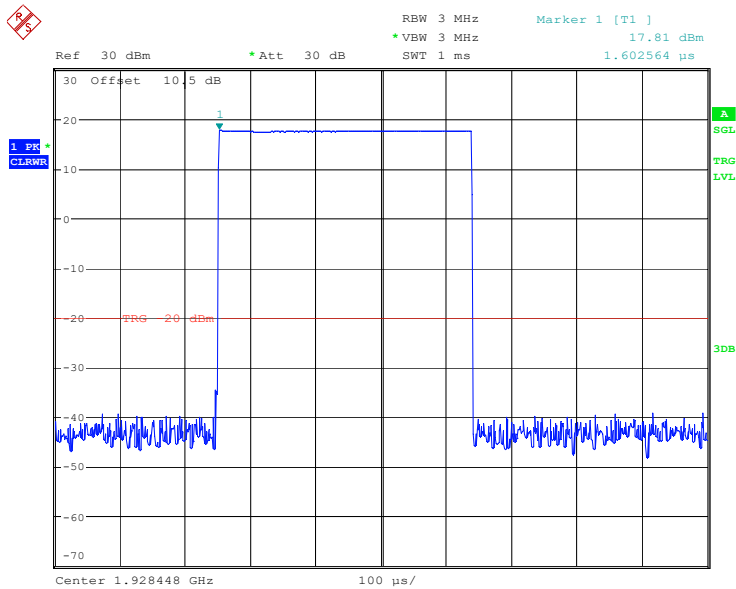
ProjectNo.:SZ1231205-73001E-FP Tester:Bruce Lin
Date: 23.FEB.2024 21:04:50

Middle Channel



ProjectNo.:SZ1231205-73001E-FP Tester:Bruce Lin
Date: 23.FEB.2024 21:09:59

High Channel



ProjectNo.:SZ1231205-73001E-FP Tester:Bruce Lin
Date: 23.FEB.2024 21:09:15

***** END OF REPORT *****