TESTING LABORATORY
CERTIFICATE # 4821.01

FCC PART 90

TEST REPORT

For

CALTTA TECHNOLOGIES CO., LTD.

Floor12, Building G2, international E-City Nanshan District, Shenzhen, China

FCC ID: 2AQV7PH6X0U1

Report Type:	**Product Type:**
Class II Permissive Change	Digital Portable Radio

Report Number:	RSZ210401010-00AA1
Report Date:	2021-04-28
Reviewed By:	Jacob Kong RF Engineer
Prepared By:	Bay Area Compliance Laboratories Corp. (Shenzhen) 5F(B-West) ,6F,7F,the 3rd Phase of Wan Li Industrial Building D,Shihua Rd, FuTian Free Trade Zone, Shenzhen, China Tel: +86-755-33320018 Fax: +86-755-33320008 www.baclcorp.com.cn

Note: This report may contain data that are not covered by the A2LA accreditation and are marked with an asterisk "★".

BACL is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with an asterisk '*'. Customer model name, addresses, names, trademarks etc. are not considered data.

TABLE OF CONTENTS

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Product	Digital Portable Radio
Tested Model	PH600 U(1), PH660 U(1)
Multiple Model	PH690 UHF, PH660 UHF, PH600 UHF
Model Differences	Refer to the DoS letter
Frequency Range	400-470MHz
Rated Transmit Power	4Watts(High),1Watt(Low)
Channel separation	12.5kHz
Modulation Technique	4FSK/FM
Antenna Specification	SMA External Antenna
Voltage Range	DC 7.4 V from battery or DC 12.0V from adapter
Date of Test	2021-04-22
Sample serial number	RSZ210401010-RF-S1 & RSZ210401010-RF-S2(Assigned by BACL, Shenzhen)
Received date	2021-04-01
Sample/EUT Status	Good condition
Adapter information	Model: ES085H-X120100XYF Input: AC 100-240V~50/60Hz, 0.5A Output: DC 12.0V, 1.0A

Objective

This test report is prepared on behalf in accordance with Part 2, and Part 90 of the Federal Communication Commissions rules.

This is a CIIPC application of the device; the differences between the original device and the current one are as follows:

1. Changing the company address to “Floor12, Building G2, international E-City Nanshan District, Shenzhen, China”.

2. Changing the product name to “Digital Portable Radio”.

3. Adding the model names “PH600 U(1), PH660 U(1), PH690 UHF, PH660 UHF, PH600 UHF”.

4. For PH660 U(1), change the screen and keypad.

5. For PH600 U(1), remove the screen and keypad.

6. Adding the adapter for added models.

Based on above differences, we added the test item of “RADIATED SPURIOUS EMISSIONS” for added models and related photos, the other photos and data please refer to the original report.

Test Methodology

All tests and measurements indicated in this document were performed in accordance with the Code of federal Regulations Title 47 Part 2, Sub-part J as well as the following individual parts:

Part 90 – Private Land Mobile Radio Service

Applicable Standards: ANSI C63.26-2016.

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.

Measurement Uncertainty

Parameter		Uncertainty
Occupied Channel Bandwidth		±5%
RF Output Power with Power meter		±0.73dB
RF conducted test with spectrum		±1.6dB
Emissions, Radiated	Below 1GHz	±4.75dB
	Above 1GHz	±4.88dB
Temperature		±1℃
Humidity		±6%
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 test site has been approved by the FCC under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 342867,the FCC Designation No. : CN1221.

The test site has been registered with ISED Canada under ISED Canada Registration Number 3062B.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in a test mode which has been done in the factory.

EUT Exercise Software

No exercise software was used.

Special Accessories

No special accessory was used.

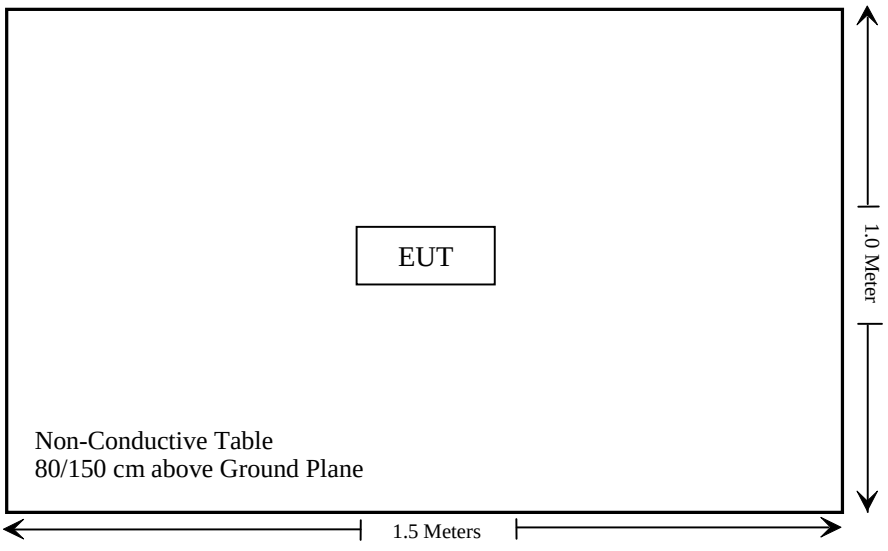
Equipment Modifications

No modification was made to the EUT tested.

Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
Unknown	Load	50ohm/100W	Unknown

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Results
§1.1307, §2.1093	RF Exposure (SAR)	Compliance
§2.1046; §90.205	RF Output Power	Compliance*
§2.1047; §90.207	Modulation Characteristic	Compliance*
§2.1049; §90.210	Occupied Bandwidth & Emission Mask	Compliance*
§2.1051;§90.210	Spurious Emission at Antenna Terminal	Compliance*
§2.1053;§90.210	Spurious Radiated Emissions	Compliance
§2.1055;§90.213	Frequency Stability	Compliance*
§90.214	Transient Frequency Behavior	Compliance*

Compliance*: Please refer to original report RSZ190325001-00D.

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated Emission Test					
R&S	EMI Test Receiver	ESR3	102455	2020/08/04	2021/08/03
Sonoma instrument	Pre-amplifier	310 N	186238	2020/08/04	2021/08/03
Sunol Sciences	Broadband Antenna	JB1	A040904-2	2020/12/22	2023/12/21
COM-POWER	Dipole Antenna	AD-100	721027	NCR	NCR
Unknown	Cable 2	RF Cable 2	F-03-EM197	2020/11/29	2021/11/28
Unknown	Cable	Chamber Cable 1	F-03-EM236	2020/11/29	2021/11/28
Unknown	Cable	Chamber Cable 4	EC-007	2020/11/29	2021/11/28
Rohde & Schwarz	Auto test software	EMC 32	V9.10	NCR	NCR

*** 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(b) & §2.1093 - RF EXPOSURE INFORMATION

Applicable Standard

FCC§1.1310 and §2.1093.

Test Result

Compliance, please refer to the SAR report: RSZ210401010-20A1.

FCC §2.1053 & §90.210 - RADIATED SPURIOUS EMISSIONS

Applicable Standard

FCC §2.1053 and §90.210

Test Procedure

The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load, which was also placed on the turntable.

The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT .The test was performed by placing the EUT on 3-orthogonal axis.

The frequency range up to teeth harmonic of the fundamental frequency was investigated.

Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

Spurious emissions in dB =10 1g (TXpwr in Watts/0.001)-the absolute level

Spurious attenuation limit in dB =50+10 Log_{10} (power out in Watts) for EUT with a 12.5 kHz channel bandwidth.

Test Data

Environmental Conditions

Temperature:	26 ℃
Relative Humidity:	56 %
ATM Pressure:	101.0 kPa

The testing was performed by Andy Yu on 2021-04-22.

Test Mode: Transmitting(worst case at high power level)

Note: For above 1GHz, please refer to original report.

Test Model: PH600 U(1)

Frequency (MHz)	Receiver Reading (dBμV)	Turn Table Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)			
Analog Modulation 400.0125MHz-12.5 kHz										
800.025	30.28	284	1.5	H	-63.9	1.30	0.0	-65.20	-20	45.20
800.025	29.42	143	1.8	V	-65.6	1.30	0.0	-66.90	-20	46.90
Analog Modulation 453.2125MHz-12.5 kHz										
906.425	32.59	70	2.2	H	-63.8	1.33	0.0	-65.13	-20	45.13
906.425	33.24	198	2.0	V	-62.8	1.33	0.0	-64.13	-20	44.13
Analog Modulation 469.9875MHz-12.5 kHz										
939.975	33.65	147	1.6	H	-62.9	1.36	0.0	-64.26	-20	44.26
939.975	34.25	315	1.3	V	-59.8	1.36	0.0	-61.16	-20	41.16
Digital Modulation 400.0125MHz-12.5 kHz										
800.025	31.45	23	1.8	H	-65.7	1.30	0.0	-67.00	-20	47.00
800.025	30.21	345	1.8	V	-64.8	1.30	0.0	-66.10	-20	46.10
Digital Modulation 453.2125MHz-12.5 kHz										
906.425	33.26	80	2.2	H	-63.1	1.33	0.0	-64.43	-20	44.43
906.425	32.48	91	1.2	V	-63.6	1.33	0.0	-64.93	-20	44.93
Digital Modulation 469.9875MHz-12.5 kHz										
939.975	32.14	150	1.7	H	-64.4	1.36	0.0	-65.76	-20	45.76
939.975	31.57	207	1.4	V	-62.5	1.36	0.0	-63.86	-20	43.86

Test Model: PH660 U(1)

Frequency (MHz)	Receiver Reading (dBμV)	Turn Table Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)			
Analog Modulation 400.0125MHz-12.5 kHz										
800.025	37.63	340	2.0	H	-56.5	1.30	0.0	-57.80	-20	37.80
800.025	38.59	87	1.0	V	-56.4	1.30	0.0	-57.70	-20	37.70
Analog Modulation 453.2125MHz-12.5 kHz										
906.425	37.85	127	1.7	H	-58.5	1.33	0.0	-59.83	-20	39.83
906.425	39.48	205	2.2	V	-56.6	1.33	0.0	-57.93	-20	37.93
Analog Modulation 469.9875MHz-12.5 kHz										
939.975	42.15	54	1.7	H	-54.4	1.36	0.0	-55.76	-20	35.76
939.975	43.21	140	2.0	V	-50.8	1.36	0.0	-52.16	-20	32.16
Digital Modulation 400.0125MHz-12.5 kHz										
800.025	37.68	152	1.5	H	-56.5	1.30	0.0	-57.80	-20	37.80
800.025	39.54	282	1.3	V	-55.4	1.30	0.0	-56.70	-20	36.70
Digital Modulation 453.2125MHz-12.5 kHz										
906.425	35.54	243	2.1	H	-60.8	1.33	0.0	-62.13	-20	42.13
906.425	36.17	293	1.9	V	-59.9	1.33	0.0	-61.23	-20	41.23
Digital Modulation 469.9875MHz-12.5 kHz										
939.975	40.15	179	1.9	H	-56.4	1.36	0.0	-57.76	-20	37.76
939.975	40.55	164	1.7	V	-53.5	1.36	0.0	-54.86	-20	34.86

Note:
Absolute Level = Substituted Level - Cable loss + Antenna Gain
Margin = Limit- Absolute Level

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