



# TEST REPORT

Applicant Name : PROMETHEUS GROUP LLC  
Address : PO BOX 130100 BIRMINGHAM, ALABAMA 35213-0100 USA  
Report Number : SZNS211015-53047E-00B  
FCC ID: 2ALGTBTC-4G-V

## Test Standard (s)

FCC PART 90

## Sample Description

Product Type: Hunting Camera  
Model No.: BTC-4G-V  
Trade Mark: BROWNING  
Date Received: 2021-10-15  
Date of Test: 2021-10-28  
Report Date: 2021-11-12

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

## Prepared and Checked By:

Fan Yang  
EMC Engineer

## Approved By:

Candy Li  
EMC Engineer

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

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## GENERAL INFORMATION

### Product Description for Equipment under Test (EUT)

Product	Hunting Camera
Tested Model	BTC-4G-V
Radio	LTE Cat M1
Frequency Range	LTE Band 26: 814-824MHz(TX); 859-869MHz(RX)
Output Power (Conducted power)	LTE Band 26: 20.49dBm
Antenna Specification*	0.8dBi(provided by the applicant)
Modulation Technique	QPSK, 16QAM
Voltage Range	DC 12V from battery or adapter
Sample serial number	SZNS211015-53047E-RF-S1(Assigned by ATC)
Sample/EUT Status	Good

### Objective

This test report is in accordance with Part 2-Subpart J and Subpart 90 of the Federal Communication Commission's rules.

The objective is to determine compliance with FCC Rules for output power, modulation characteristic, occupied bandwidth, spurious emissions at antenna terminal, spurious radiated emission, frequency stability and band edge.

### Test Methodology

All tests and measurements indicated in this document were performed in accordance with the Code of federal Regulations Title 47, Part 2, Part 90.

ANSI C63.26-2015, American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services

All emissions measurement was performed at Shenzhen Accurate Technology Co., Ltd. The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

## Measurement Uncertainty

Parameter		Uncertainty
Occupied Channel Bandwidth		5%
RF Frequency		$0.082 \times 10^{-7}$
RF output power, conducted		0.73dB
Unwanted Emission, conducted		1.6dB
AC Power Lines Conducted Emissions		2.72dB
Emissions, Radiated	9kHz - 30MHz	2.66dB
	30MHz - 1GHz	4.28dB
	1GHz - 18GHz	4.98dB
	18GHz - 26.5GHz	5.06dB
	26.5GHz - 40GHz	4.72dB
Temperature		1°C
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 Shenzhen Accurate Technology Co., Ltd. to collect test data is located on the 1/F., Building A, Changyuan New Material Port, Science & Industry Park, Nanshan District, Shenzhen, Guangdong, P.R. 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.: 708358, the FCC Designation No.: CN1189. Accredited by American Association for Laboratory Accreditation (A2LA) The Certificate Number is 4297.01.

Listed by Innovation, Science and Economic Development Canada (ISED), the Registration Number is 5077A.

## SYSTEM TEST CONFIGURATION

### Justification

The EUT was configured for testing according to ANSI C63.26-2015.

Band	Channel Bandwidth	Frequency
LTE Band 26	1.4 MHz	814.7MHz, 819.0MHz, 823.3MHz
	3 MHz	815.5MHz, 819.0MHz, 822.5MHz
	5 MHz	816.5MHz, 819.0MHz, 821.5MHz
	10.0 MHz	819.0MHz

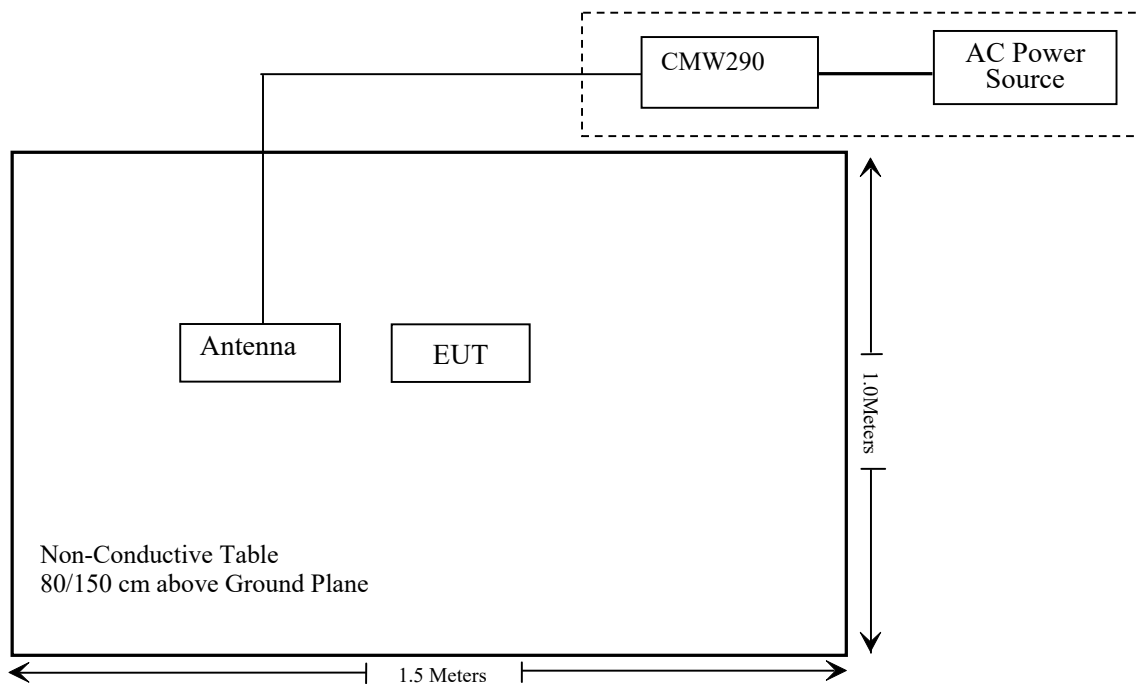
### Equipment Modifications

No modification was made to the EUT.

### Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
Rohde & Schwarz	Functional Radio Communication Tester	CMW290	154606
Un-Known	ANTENNA	Un-Known	Un-Known

### Block Diagram of Test Setup



**SUMMARY OF TEST RESULTS**

Rules	Description of Test	Result
FCC §1.1307 (b) (1) & §2.1091	Maximum Permissible exposure (MPE)	Compliant
FCC §2.1047	Modulation Characteristics	Not Applicable
FCC §2.1046; §90.635	RF Output Power	Compliant*
FCC §2.1049	Occupied Bandwidth	Compliant*
FCC §2.1051, §90.691	Spurious Emissions at Antenna Terminal	Compliant*
FCC §2.1053; §90.691	Field Strength of Spurious Radiation	Compliant
FCC §90.691	Out of band emission, Band Edge	Compliant*
FCC§ 2.1055; §90.213	Frequency stability	Compliant*

Note 1:

Compliant\*: This device contains one same radio unit, which certified with product model of BG95-M1, FCC ID: 2ALGTBG95M1, and the current device had been tested and verified the RF parameters consistently with the original device, please refers to report: R2004A0250-R5V2, issued by TA Technology (Shanghai) Co., Ltd. on 2020-07-13.

Note 2: Maximum ERP

Mode	Frequency (MHz)	Conducted power (dBm)	Antenna Gain (dBi)	Antenna Gain (dBd)	Cable Loss (dB)	ERP* (dBm)	Limit (dBm)
LTE B26 (Part 90)	814-824	20.49	0.8	-1.35	0.5	18.64	50

Note\*:  $ERP(dBm) = \text{Conducted Power}(dBm) + \text{Antenna Gain}(dBd) - \text{Cable loss}(dB)$   
 0dBd=2.15dBi, Cable Loss provided by the applicant

**Test Equipment List**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
<b>Radiated Emission Test</b>					
Rohde& Schwarz	Test Receiver	ESR	101817	2020/12/24	2021/12/23
Rohde&Schwarz	Spectrum Analyzer	FSV40	101495	2020/12/24	2021/12/23
SONOMA INSTRUMENT	Amplifier	310 N	186131	2020/12/25	2021/12/24
A.H. Systems, inc.	Preamplifier	PAM-0118P	531	2021/07/08	2022/07/07
Anritsu Corp	50 Coaxial Switch	MP59B	6100237248	2020/12/25	2021/12/24
Unknown	RF Coaxial Cable	N-5m	No.3	2020/12/25	2021/12/24
Unknown	RF Coaxial Cable	N-5m	No.4	2020/12/25	2021/12/24
Unknown	RF Coaxial Cable	N-1m	No.5	2020/12/25	2021/12/24
Unknown	RF Coaxial Cable	N-1m	No.6	2020/12/25	2021/12/24
Schwarzbeck	Bilog Antenna	VULB9163	9163-194	2020/01/05	2023/01/04
Schwarzbeck	Bilog Antenna	VULB9163	9163-323	2020/01/05	2023/01/04
Schwarzbeck	Horn Antenna	BBHA9120D	9120D-655	2020/01/05	2023/01/04
Schwarzbeck	Horn Antenna	BBHA9120D	9120D-1067	2020/01/05	2023/01/04
Unknown	RF Coaxial Cable	N-1m	No.6	2020/12/25	2021/12/24
Anritsu	Signal Generator	68369B	004114	2021/7/31	2022/7/30
Radiated Emission Test Software: e3 19821b(V9)					

\* Statement of Traceability: Shenzhen Accurate Technology Co., Ltd. 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) (1) & §2.1091- Maximum Permissible exposure (MPE)**

### **Applicable Standard**

According to subpart 1.1307 (b)(1), 2.1091 systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to RF energy level in excess of the communication guidelines.

#### **Limits for General Population/Uncontrolled Exposure**

<b>Limits for General Population/Uncontrolled Exposure</b>				
<b>Frequency Range (MHz)</b>	<b>Electric Field Strength (V/m)</b>	<b>Magnetic Field Strength (A/m)</b>	<b>Power Density (mW/cm<sup>2</sup>)</b>	<b>Averaging Time (Minutes)</b>
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f <sup>2</sup> )	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30

f = frequency in MHz

\* = Plane-wave equivalent power density

### **Result**

#### **Calculated Formulary:**

Predication of MPE limit at a given distance

$$S = \frac{PG}{4\pi R^2}$$

S = power density (in appropriate units, e.g. mW/cm<sup>2</sup>)

P = power input to the antenna (in appropriate units, e.g., mW).

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain.

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

For worst case:

Mode	Frequency (MHz)	Antenna Gain		Tune up Conducted power		Evaluation Distance (cm)	Power Density (mW/cm <sup>2</sup> )	MPE Limit (mW/cm <sup>2</sup> )
		(dBi)	(numeric)	(dBm)	(mW)			
LTE B2	1850-1910	2.8	1.91	22	158.49	20	0.060	1
LTE B4	1710-1755	2.7	1.86	22	158.49	20	0.059	1
LTE B5	824-849	0.8	1.20	22	158.49	20	0.038	0.549
LTE B12	699-716	0.33	1.08	22	158.49	20	0.034	0.466
LTE B13	777-787	0.33	1.08	22	158.49	20	0.034	0.518
LTE B25	1850-1915	2.8	1.91	22	158.49	20	0.060	1
LTE B26 (Part 90)	814-824	0.8	1.20	22	158.49	20	0.038	0.543
LTE B26 (Part 22)	824-849	0.8	1.20	22	158.49	20	0.038	0.549
LTE B66	1710-1780	2.7	1.86	22	158.49	20	0.059	1
LTE B85	698-716	0.33	1.08	22	158.49	20	0.034	0.465

Note 1: The tune up conducted power was declared by the applicant.

To maintain compliance with the FCC's RF exposure guidelines, place the equipment at least 20cm from nearby persons.

**Result: Compliant.**

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## **FCC §2.1047 - MODULATION CHARACTERISTIC**

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According to FCC § 2.1047(d), Part 90 there is no specific requirement for digital modulation, therefore modulation characteristic is not presented.

**FCC §2.1053, §90.691 – FIELD STRENGTH SPURIOUS RADIATED****Applicable Standard**

FCC § 2.1053, §90.691;

**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 tenth 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 =  $10 \lg(\text{TXpwr in Watts}/0.001)$  – the absolute level

Spurious attenuation limit in dB =  $43 + 10 \log_{10}(\text{power out in Watts})$

**Test Data****Environmental Conditions**

<b>Temperature:</b>	20 °C
<b>Relative Humidity:</b>	46 %
<b>ATM Pressure:</b>	100.0 kPa

*The testing was performed by Fan Yang on 2021-10-28*

*EUT Operation Mode: Transmitting*

*Test Result: Compliant.*

*Pre-scan with all the bandwidth for X axis, Y axis, Z axis, and worst case for Z axis as below:*

30MHz – 10GHz:

Frequency(MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
4G BAND26, 30MHz – 10GHz, 1.4MHz Bandwidth, Low Channel								
972.34	-63.76	147	2.3	H	12.69	-51.07	-13	38.07
49.97	-58.50	158	2.4	V	2.65	-55.85	-13	42.85
1629.4	-49.24	52	2	H	-2.76	-52.00	-13	39.00
1629.4	-55.33	286	2.4	V	-2.83	-58.16	-13	45.16
4G BAND26, 30MHz – 10GHz, 1.4MHz Bandwidth, Middle Channel								
972.34	-64.46	99	2.2	H	12.69	-51.77	-13	38.77
49.97	-59.10	225	1.1	V	2.65	-56.45	-13	43.45
1638	-49.60	214	1.8	H	-2.75	-52.35	-13	39.35
1638	-56.17	317	2.1	V	-2.81	-58.98	-13	45.98
4G BAND26, 30MHz – 10GHz, 1.4MHz Bandwidth, High Channel								
972.34	-62.22	94	1.5	H	10.53	-51.69	-13	38.69
49.97	-53.37	145	1.4	V	-3.2	-56.57	-13	43.57
1646.6	-49.53	67	1.1	H	-2.73	-52.26	-13	39.26
1646.6	-55.89	169	1.1	V	-2.8	-58.69	-13	45.69

**Note:**

Absolute Level = Receiver Reading + Substituted Factor

Substituted Factor contains: SG Level - Cable loss+ Antenna Gain

Margin = Limit - Absolute Level

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