

Product Name: Action Camera	Report No: FCC022023-00283RF14
Product Model: ARG-AC-9180BK, ARG-AC-9181, ARG-AC-9182, ARG-AC-9183, ARG-AC-9184, ARG-AC-9185, ARG-AC-9186, ARG-AC-9187, ARG-AC-9188, ARG-AC-9189	Security Classification: Open
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TIRT Testing Report

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FCC RF EXPOSURE REPORT

FCC ID: 2AUGWARG-AC-9180BK

Project No. : 2023-00283
Equipment : Action Camera
Brand Name : ArgomTech
Test Model : ARG-AC-9180BK
Series Model : ARG-AC-9181, ARG-AC-9182, ARG-AC-9183, ARG-AC-9184, ARG-AC-9185, ARG-AC-9186, ARG-AC-9187, ARG-AC-9188, ARG-AC-9189
Applicant : MG Accessories & Distribution Inc
Address : 12650 NW 25th Street Suite 112 Miami Florida United States 33182
Manufacturer : MG Accessories & Distribution Inc
Address : 12650 NW 25th Street Suite 112 Miami Florida United States 33182
Issued Date : Feb.10, 2023
Report Version : V1.0
Test Sample : Engineering Sample No.: 20230203001157
Standard(s) : FCC 47 CFR Part 2.1093 & FCC 47 CFR Part 1.1307 & FCC 47 CFR Part 1.1310, 447498 D04 Interim General RF Exposure Guidance v01

- The test result referred exclusively to the presented test model /sample.
- Without written approval of TIRT Inc. the test report shall not reproduced except in full.

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REPORT ISSUED HISTORY

Report No.	Version	Description	Issued Date	Note
FCC022023-00283RF14	V1.0	Original Report	2023.02.10	Valid

1. TEST FACILITY

Company:	Beijing TIRT Technology Service Co.,Ltd Shenzhen
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A2LA Registration Number:	6049.01
FCC Accredited Lab. Designation Number:	CN1309
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2. GENERAL CONCLUSION

According to FCC §§1.1307 and 447498 D04 Interim General RF Exposure Guidance v01, the available maximum time-averaged power or effective radiated power (ERP), whichever is greater, is less than or equal to the threshold P_{th} (mW).

1) Option A. 1-mW Test Exemption

Per § 1.1307(b)(3)(i)(A), a single RF source is exempt RF device (from the requirement to show data demonstrating compliance to RF exposure limits, as previously mentioned) if the available maximum time-averaged power is no more than 1 mW, regardless of separation distance.

This exemption applies to all operating configurations and exposure conditions, for the frequency range 100 kHz to 100 GHz, regardless of fixed, mobile, or portable device exposure conditions. This is a standalone exemption, and it cannot be applied in conjunction with any other test exemption.

2) Option B. SAR-Based Exemption

A more comprehensive exemption, considering a variable power threshold that depends on both the separation distance and power, is provided in § 1.1307(b)(3)(i)(B). This exemption is applicable to the frequency range between 300 MHz and 6 GHz, with test separation distances between 0.5 cm and 40 cm, and for all RF sources in fixed, mobile, and portable device exposure conditions.

Accordingly, a RF source is considered an RF exempt device if its available maximum time-averaged (matched conducted) power or its effective radiated power (ERP), whichever is greater, are below a specified threshold.

This method shall only be used at separation distances (cm) from 0.5 centimeters to 40 centimeters and at frequencies from 0.3 GHz to 6 GHz (inclusive). P_{th} is given by:

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases}$$

Where

$$x = -\log_{10} \left(\frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right) \text{ and } f \text{ is in GHz;}$$

and

$$ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases}$$

d = the separation distance (cm);

Table B.2—Example Power Thresholds (mW)

Frequency (MHz)	Distance (mm)									
	5	10	15	20	25	30	35	40	45	50
300	39	65	88	110	129	148	166	184	201	217
450	22	44	67	89	112	135	158	180	203	226
835	9	25	44	66	90	116	145	175	207	240
1900	3	12	26	44	66	92	122	157	195	236
2450	3	10	22	38	59	83	111	143	179	219
3600	2	8	18	32	49	71	96	125	158	195
5800	1	6	14	25	40	58	80	106	136	169

3) Option C MPE-Based Exemption

An alternative to the SAR-based exemption is provided in § 1.1307(b)(3)(i)(C), for a much wider frequency range, from 300 kHz to 100 GHz, applicable for separation distances greater or equal to $\lambda/2\pi$, where λ is the free-space operating wavelength in meters. The MPE-based test exemption condition is in terms of ERP, defined as the product of the maximum antenna gain and the delivered maximum time-averaged power. For this case, a RF source is an RF exempt device if its ERP (watts) is no more than a frequency-dependent value, as detailed tabular form in Appendix B. These limits have been derived based on the basic specifications on Maximum Permissible Exposure (MPE) considered for the FCC rules in § 1.1310(e)(1).

**TABLE B.1—THRESHOLDS FOR SINGLE RF SOURCES
SUBJECT TO ROUTINE ENVIRONMENTAL EVALUATION**

RF Source Frequency			Minimum Distance			Threshold ERP
f_L MHz		f_H MHz	$\lambda_L / 2\pi$		$\lambda_H / 2\pi$	W
0.3	—	1.34	159 m	—	35.6 m	$1,920 R^2$
1.34	—	30	35.6 m	—	1.6 m	$3,450 R^2/f^2$
30	—	300	1.6 m	—	159 mm	$3.83 R^2$
300	—	1,500	159 mm	—	31.8 mm	$0.0128 R^2 f$
1,500	—	100,000	31.8 mm	—	0.5 mm	$19.2 R^2$
Subscripts L and H are low and high; λ is wavelength. From §1.1307(b)(3)(i)(C), modified by adding Minimum Distance columns.						

In the case of fixed RF sources operating in the same time-averaging period, or of multiple mobile or portable RF sources within a device operating in the same time averaging period, if the sum of the fractional contributions to the applicable thresholds is less than or equal to 1 as indicated in the following equation.

$$\sum_{i=1}^a \frac{P_i}{P_{th,i}} + \sum_{j=1}^b \frac{ERP_j}{ERP_{th,j}} + \sum_{k=1}^c \frac{Evaluated_k}{Exposure\ Limit_k} \leq 1$$

Where:

a = number of fixed, mobile, or portable RF sources claiming exemption using the Table 1 formula for Pth, including existing exempt transmitters and those being added.

b = number of fixed, mobile, or portable RF sources claiming exemption using the applicable Table 1 formula for Threshold ERP, including existing exempt transmitters and those being added.

c = number of existing fixed, mobile, or portable RF sources with known evaluation for the specified minimum distance.

P_i = the available maximum time-averaged power or the ERP, whichever is greater, for fixed, mobile, or portable RF source i at a distance between 0.5 cm and 40 cm (inclusive).

P_{th,i} = the exemption threshold power (Pth) according to the Table 1 formula for fixed, mobile, or portable RF source i.

ERP_j = the available maximum time-averaged power or the ERP, whichever is greater, of fixed, mobile, or portable RF source j.

ERP_{th,j} = exemption threshold ERP for fixed, mobile, or portable RF source j, at a distance of at least λ/2π, according to the applicable Table 2 formula at the location in question.

Evaluated_k = the maximum reported SAR or MPE of fixed, mobile, or portable RF source k either in the device or at the transmitter site from an existing evaluation.

Exposure Limit_k = either the general population/uncontrolled maximum permissible exposure (MPE) or specific absorption rate (SAR) limit for each fixed, mobile, or portable sources, as applicable.

3. TEST RESULTS

Operating Mode	Frequency (MHz)	Measured Power (dBm)	Measured Power (mW)	Ant. Gain (dBi)	EIRP (dBm)	ERP (dBm)	ERP (mW)	Separation Distance (mm)
11B	2412	-3.08	0.4920	-5.94	-9.02	-11.16	0.0766	5
	2437	-3.11	0.4887	-5.94	-9.05	-11.19	0.0760	5
	2462	-2.78	0.5272	-5.94	-8.72	-10.86	0.0820	5
11G	2412	1.08	1.2823	-5.94	-4.86	-7.00	0.1995	5
	2437	1.42	1.3868	-5.94	-4.52	-6.66	0.2158	5
	2462	1.59	1.4421	-5.94	-4.35	-6.49	0.2244	5
11N20	2412	1.32	1.3552	-5.94	-4.62	-6.76	0.2109	5
	2437	1.43	1.3900	-5.94	-4.51	-6.65	0.2163	5
	2462	1.75	1.4962	-5.94	-4.19	-6.33	0.2328	5

Note:

- Output power including tune up tolerance
- SAR and MPE evaluation is not required.
- Threshold $P_{th}(mW) = 3060 * (0.5/20)^{(-\text{Log}(60/(3060 * \sqrt{2.412})))} = 2.78mW$

End of Test Report