MPE REPORT

FCC ID: 2AIOP-ALPHAS

Date of issue: July 19, 2018

Report Number:	MTi180615E062
Sample Description:	ACTION CAMERA
Model(s):	Alpha S, Alpha
Applicant:	CONC technology CO.,LTD
Address:	Huancheng South Road 26# C1 201 Shenzhen Longgang district Bantian Street Ma'antang Community ,Shenzhen, China
Date of Test:	May 29, 2018 to July 19, 2018

Shenzhen Microtest Co., Ltd.

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TEST RESULT CERTIFICATION	
Applicant's name:	CONC technology CO.,LTD
Address:	Huancheng South Road 26# C1 201 Shenzhen Longgang district Bantian Street Ma'antang Community ,Shenzhen, China
Manufacture's Name:	SHENZHEN AEE AVIATION TECHNOLOGY CO., LTD
Address:	AEE Hi-Tech Park, Songbai Road, Shiyan Town, Bao'an District Shenzhen, P.R.C.
Product name:	Action camera
Trademark:	Mokacam, Moka
Model and/or type reference:	Alpha S
Serial Model:	Alpha
Deference in serial model:	The wireless module used in the product is the same, Just different colors and appearance.
RF Exposure Procedures.....:	KDB 447498 D01 v06

This device described above has been tested by Shenzhen Microtest Co., Ltd and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

Tested by: Demi Mu July 19, 2018

Reviewed by: Blue Zheng July 19, 2018

Approved by: Smith Chen July 19, 2018

RF EXPOSURE EVALUATION

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) Radiation as specified in §1.1307(b)

Limits for Maximum Permissible Exposure (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	$*900/f^2$	6
30-300	61.4	0.163	1.0	6
300-1,500			f/300	6
1,500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*100	30
1.34-30	824/f	2.19/f	$*180/f^2$	30
30-300	27.5	0.073	0.2	30
300-1,500			f/1500	30
1,500-100,000			1.0	30

f = frequency in MHz * = Plane-wave equivalent power density

MPE Calculation Method

Friis transmission formula: $Pd= (Pout*G)\ (4*pi*R^2)$

Where

Pd= Power density in mW/cm2

Pout=output power to antenna in mW

G= Numeric gain of the antenna relative to isotropic antenna

Pi=3.14115926

R= distance between observation point and center of the radiator in cm(20cm)

Pd the limit of MPE, 1mW/cm2. If we know the maximum gain of the antenna and total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

Measurement Result

WIFI:

Operation Frequency: WIFI 802.11b/g/n HT20: 2412-2462MHz,

Power density limited: 1mW/ cm^2

Antenna Type: Wifi Antenna: Integral Antenna;
WIFI antenna gain: 0.58dBi

R=20cm

mW=10^(dBm/10)

antenna gain Numeric=10^(dBi/10)= 10^(0.58/10)=1.14

Channel Freq. (MHz)	modulation	conducted power	Tune-up power	Max		Antenna	Evaluation result at 20cm	Power density Limits
		(dBm)	(dBm)	tune-up power		Gain	Power density(mW/cm 2)	(mW/cm2)
				(dBm)	(mW)	Numeric		
		Ant A	Ant A	Ant A	Ant A	Ant A	Ant A	
2412	802.11b	11.94	11±1	12	15.84893	1.14	0.00359	1
2437		11.77	11±1	12	15.84893	1.14	0.00359	1
2462		11.76	11±1	12	15.84893	1.14	0.00359	1
2412	802.11g	10.91	11±1	12	15.84893	1.14	0.00359	1
2437		11.08	11±1	12	15.84893	1.14	0.00359	1
2462		11.79	11±1	12	15.84893	1.14	0.00359	1
2412	802.11n H20	9.33	9±1	10	10	1.14	0.00227	1
2437		9.7	9±1	10	10	1.14	0.00227	1
2462		9.94	9±1	10	10	1.14	0.00227	1

Conclusion:

For the max result: 0.00359≤ 1.0 for 1g SAR, No SAR is required.

BLE:

Operation Frequency: 2402-2480MHz,

Power density limited: 1mW/ cm^2

Antenna Type: BLE Antenna: Integral Antenna;
WIFI antenna gain: 0.58dBi

R=20cm

mW=10^(dBm/10)

antenna gain Numeric=10^(dBi/10)= 10^(0.58/10)=1.14

Transmit Frequency (GHz)	Mode	Measured Power (dBm)	Tune-up power (dBm)	Max tune-up power(dBm)	Result calculation	1g SAR	Max tune-up power(MW)
2.402	GFSK	-2.654	-2±1	-1	0.2462	3	0.7943282
2.44		-2.158	-2±1	-1	0.2482	3	0.7943282
2.48		-2.637	-2±1	-1	0.2502	3	0.7943282

Conclusion:

For the max result: 0.2462≤ 1.0 for 1g SAR, No SAR is required.

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