



Test Report No.: SA180629W005-1



RF EXPOSURE REPORT

Product: 402550 module

Model Name: MP21-ARGON

FCC ID: OMC402550

Applicant: Icon Health & Fitness, Inc.

Address: 1500 South 1000 West 435-786-5915 Logan, UT 84321, United States

Manufacturer: Icon Health & Fitness, Inc.

Address: 1500 South 1000 West 435-786-5915 Logan, UT 84321, United States

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
SA180629W005-1	Original release	Sep. 17, 2018



2 GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT	402550 module	
MODEL NAME	MP21-ARGON	
NOMINAL VOLTAGE	12Vdc (adapter or host equipment)	
OPERATING TEMPERATURE RANGE	0 ~ 40°C	
MODULATION TYPE	WLAN	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
	BT_LE	BT-LE(GFSK) for DTS
	Bluetooth	GFSK, $\pi/4$ -DQPSK, 8DPSK
OPERATING FREQUENCY	WLAN	2412 ~ 2462MHz for 11b/g/n(HT20) 5150 ~ 5250MHz, 5250 ~ 5350MHz, 5470 ~ 5725MHz, 5725 ~ 5805MHz for 11a/n(HT20)/n(HT40)/ac(HT80)
	Bluetooth/BT_LE	2402MHz ~ 2480MHz
ANTENNA TYPE	PIFA Antenna	
ANTENNA GAIN	2.54dBi for BT/2.4G WLAN 2.3dBi for 5180 ~ 5240MHz 2.3dBi for 5260 ~ 5320MHz 2.7dBi for 5500 ~ 5700MHz 2.64dBi for 5745 ~ 5805MHz	
HW VERSION	A185C V3.0	
SW VERSION	Model AOSP on avn_ref	
I/O PORTS	Refer to user's manual	
CABLE SUPPLIED	N/A	

NOTE:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
2. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.



3 RF EXPOSURE

3.1 LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

FREQUENCY RANGE (MHz)	ELECTRIC FIELD STRENGTH (V/m)	MAGNETIC FIELD STRENGTH (A/m)	POWER DENSITY (mW/cm ²)	AVERAGE TIME (minutes)
LIMITS FOR GENERAL POPULATION / UNCONTROLLED EXPOSURE				
300-1500	F/1500	30
1500-100,000	1.0	30

F = Frequency in MHz

3.2 MPE CALCULATION FORMULA

$$Pd = (Pout * G) / (4 * pi * r^2)$$

where

Pd = power density in mW/cm²

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

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

3.3 CLASSIFICATION

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user. So, this device is classified as **Mobile Device**.

3.4 CONDUCTED POWER

Bluetooth

GFSK

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	TUNE-UP POWER (dBm)	PASS/FAIL
0	2402	5.95	6.5	N/A
39	2441	6.11	6.5	N/A
78	2480	5.65	6.5	N/A

$\pi/4$ DQPSK

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	TUNE-UP POWER (dBm)	PASS/FAIL
0	2402	0.61	1.0	N/A
39	2441	0.73	1.0	N/A
78	2480	0.56	1.0	N/A

8DPSK

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	TUNE-UP POWER (dBm)	PASS/FAIL
0	2402	0.65	1.0	N/A
39	2441	0.81	1.0	N/A
78	2480	0.55	1.0	N/A

BT-LE (GFSK)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	TUNE-UP POWER (dBm)	PASS/FAIL
0	2402	5.42	6.0	N/A
39	2441	5.55	6.0	N/A
78	2480	5.38	6.0	N/A



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WIFI 2.4G

802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	TUNE-UP POWER (dBm)	PASS/FAIL
1	2412	15.10	15.5	N/A
6	2437	15.31	15.5	N/A
11	2462	13.43	14.0	N/A

802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	TUNE-UP POWER (dBm)	PASS/FAIL
1	2412	12.23	12.5	N/A
6	2437	15.07	15.5	N/A
11	2462	12.27	12.5	N/A

802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	TUNE-UP POWER (dBm)	PASS/FAIL
1	2412	13.50	14.0	N/A
6	2437	13.63	14.0	N/A
11	2462	13.74	14.0	N/A



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WIFI 5G

802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	TUNE-UP POWER (dBm)	PASS/FAIL
36	5180	9.17	9.5	PASS
40	5200	13.21	13.5	PASS
48	5240	13.27	13.5	PASS
52	5260	12.98	13.5	PASS
60	5300	12.93	13.5	PASS
64	5320	13.07	13.5	PASS
100	5500	12.72	13.5	PASS
116	5580	12.63	13.5	PASS
140	5700	12.65	13.5	PASS
149	5745	12.63	13.5	PASS
157	5785	12.61	13.5	PASS
161	5805	12.82	13.5	PASS

802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	TUNE-UP POWER (dBm)	PASS/FAIL
36	5180	13.15	13.5	PASS
40	5200	13.33	13.5	PASS
48	5240	13.08	13.5	PASS
52	5260	12.67	13.5	PASS
60	5300	12.42	13.5	PASS
64	5320	12.84	13.5	PASS
100	5500	12.06	13.5	PASS
116	5580	12.24	13.5	PASS
140	5700	12.55	13.5	PASS
149	5745	12.32	13.5	PASS
157	5785	12.39	13.5	PASS
161	5805	12.37	13.5	PASS



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802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	TUNE-UP POWER (dBm)	PASS/FAIL
38	5190	9.55	10.0	PASS
46	5230	12.17	12.5	PASS
54	5270	11.73	12.5	PASS
62	5310	11.80	12.5	PASS
102	5510	10.73	12.5	PASS
110	5550	10.78	12.5	PASS
134	5670	11.56	12.5	PASS
151	5755	11.77	12.5	PASS
159	5795	11.65	12.5	PASS

802.11ac (80MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	TUNE-UP POWER (dBm)	PASS/FAIL
42	5210	9.33	9.5	PASS
58	5290	11.21	11.5	PASS
106	5530	10.39	11.5	PASS
155	5775	11.17	11.5	PASS

3.5 CALCULATION RESULT OF MAXIMUM CONDUCTED POWER

TUNE-UP POWER TABLE

Band	Frequency (MHz)	Operating Mode	Tune-Up Power And Tolerance (dBm)
Bluetooth	2441	GFSK	6.0 ± 0.5
WIFI 2.4G	2437	11b	15.0 ± 0.5
WIFI 5G B1	5200	11n (20MHz)	13.0 ± 0.5
WIFI 5G B2	5320	11a	13.0 ± 0.5
WIFI 5G B3	5500	11a	13.0 ± 0.5
WIFI 5G B4	5805	11a	13.0 ± 0.5

WIFI

Band	Frequency (MHz)	Operating Mode	Antenna Gain (dBi)	Tune-up Power (dBm)	E.I.R.P Power (mW)	Power Density (mW/cm ²)	limit (mW/cm ²)	PASS / FAIL
Bluetooth	2441	GFSK	2.54	6.5	8.017	0.002	1.00	PASS
WIFI 2.4G	2437	11b	2.54	15.5	63.680	0.013	1.00	PASS
WIFI 5G B1	5200	11n (20MHz)	2.3	13.5	38.019	0.008	1.00	PASS
WIFI 5G B2	5320	11a	2.3	13.5	38.019	0.008	1.00	PASS
WIFI 5G B3	5500	11a	2.7	13.5	41.687	0.008	1.00	PASS
WIFI 5G B4	5805	11a	2.64	13.5	41.115	0.008	1.00	PASS

--END--