RF Exposure Evaluation Report

APPLICANT	:	Askey Computer Corp.
EQUIPMENT	:	Multi - Sensor Camera
BRAND NAME	:	Askey
MODEL NAME	:	QB-MSC-FXL
FCC ID	:	H8N-QBMSCFXL
STANDARD	:	47 CFR Part 2.1091

We, SPORTON INTERNATIONAL INC., would like to declare that the device has been evaluated in accordance with 47 CFR Part 2.1091, and pass the limit. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by: Eric Huang / Deputy Manager

Approved by: Jones Tsai / Manager

Testing Laboratory
1190

SPORTON INTERNATIONAL INC.
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Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA5D1117	Rev. 01	Initial issue of report	Mar. 01, 2016

1. Administration Data

1.1. Testing Laboratory

Testing Laboratory	
Test Site	SPORTON INTERNATIONAL INC.
Test Site Location	No.52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978

Applicant	
Company Name	Askey Computer Corp.
Address	10F, No. 119, Jiankang RD., Zhonghe Dist., New Taipei City 23585, Taiwan, R.O.C.

Manufacturer	
Company Name	Askey Technology (Jiangsu) Corporation
Address	No. 1388, JiaoTong Road, Wujiang Economic-Technological Development Area, Wujiang, 215200, China

2. Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT Type	Multi - Sensor Camera
Brand Name	Askey
Model Name	QB-MSC-FXL
FCC ID	H8N-QBMSCFXL
Wireless Technology and Frequency Range	WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.3GHz Band: 5260 MHz ~ 5320 MHz WLAN 5.5GHz Band: 5500 MHz ~ 5580 MHz and 5660 MHz ~ 5700 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz
Mode	· 802.11a/b/g/n/ac HT20/HT40/VHT20/VHT40/VHT80
HW Version	REV04
SW Version	0.1.o.111
EUT Stage	Identical Prototype

Remark:

1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

3. Maximum RF average output power among production units

	Mode	Channel	Frequency (MHz)	Data Rate	Tune-Up Limit
2.4GHz WLAN ANT 1	802.11b	CH 1	2412	1Mbps	19.0
		CH 6	2437		19.0
		CH 11	2462		19.0
	802.11g	CH 1	2412	6Mbps	17.0
		CH 6	2437		19.0
		CH 11	2462		17.0
	802.11n-HT20	CH 1	2412	MCS0	16.0
		CH 6	2437		19.0
		CH 11	2462		16.0
	802.11n-HT40	CH 3	2422	MCS0	13.0
		CH 6	2437		17.0
		CH 9	2452		13.0

	Mode	Channel	Frequency (MHz)	Data Rate	Tune-Up Limit
2.4GHz WLAN ANT 2	802.11b	CH 1	2412	1Mbps	19.0.
		CH 6	2437		19.0
		CH 11	2462		19.0
	802.11g	CH 1	2412	6Mbps	17.0
		CH 6	2437		19.0
		CH 11	2462		17.0
	802.11n-HT20	CH 1	2412	MCS0	16.0
		CH 6	2437		19.0
		CH 11	2462		16.0
	802.11n-HT40	CH 3	2422	MCS0	13.0
		CH 6	2437		17.0
		CH 9	2452		13.0

	Mode	Channel	Frequency (MHz)	Data Rate	Tune-Up Limit
2.4GHz WLAN ANT 1+2	802.11n-HT20	CH 1	2412	MCS8	19.0
		CH 6	2437		19.0
		CH 11	2462		18.0
	802.11n-HT40	CH 3	2422	MCS8	14.5
		CH 6	2437		19.0
		CH 9	2452		15.5

	Mode	Channel	Frequency (MHz)	Data Rate	Tune-Up Limit
5.2GHz WLAN ANT 1/2	802.11a	CH 36	5180	6Mbps	18.0
		CH 44	5220		18.0
		CH 48	5240		18.0
	802.11n-HT20	CH 36	5180	MCS0	17.5
		CH 44	5220		17.5
		CH 48	5240		17.5
	802.11n-HT40	CH 38	5190	MCS0	13.5
		CH 46	5230		17.5
	802.11ac-VHT20	CH 36	5180	MCS0	17.5
		CH 44	5220		17.5
		CH 48	5240		17.5
	802.11ac-VHT40	CH 38	5190	MCS0	13.5
		CH 46	5230		17.5
	802.11ac-VHT80	CH 42	5210	MCS0	12.0

	Mode	Channel	Frequency (MHz)	Data Rate	Tune-Up Limit
5.3GHz WLAN ANT 1/2	802.11a	CH 52	5260	6Mbps	18.0
		CH 60	5300		18.0
		CH 64	5320		18.0
	802.11n-HT20	CH 52	5260	MCS0	17.5
		CH 60	5300		17.5
		CH 64	5320		17.5
	802.11n-HT40	CH 54	5270	MCS0	17.5
		CH 62	5310		13.5
	802.11ac-VHT20	CH 52	5260	MCS0	17.5
		CH 60	5300		17.5
		CH 64	5320		17.5
	802.11ac-VHT40	CH 54	5270	MCS0	17.5
		CH 62	5310		15.0
	802.11ac-VHT80	CH 58	5290	MCS0	13.0

	Mode	Channel	Frequency (MHz)	Data Rate	Tune-Up Limit
5.5GHz WLAN ANT 1/2	802.11a	CH 100	5500	6Mbps	18.0
		CH 116	5580		18.0
		CH 140	5700		18.0
	802.11n-HT20	CH 100	5500	MCS0	17.5
		CH 116	5580		17.5
		CH 140	5700		17.5
	802.11n-HT40	CH 102	5510	MCS0	16.0
		CH 110	5550		17.5
		CH 134	5670		17.5
	802.11ac-VHT20	CH 100	5500	MCS0	17.5
		CH 116	5580		17.5
		CH 140	5700		17.5
	802.11ac-VHT40	CH 102	5510	MCS0	17.5
		CH 110	5550		17.5
		CH 134	5670		17.5
	802.11ac-VHT80	CH 106	5530	MCS0	12.5

	Mode	Channel	Frequency (MHz)	Data Rate	Tune-Up Limit
5.8GHz WLAN ANT 1/2	802.11a	CH 149	5745	MCS0	18.0
		CH 157	5785		18.0
		CH 165	5825		18.0
	802.11n-HT20	CH 149	5745	MCS0	17.5
		CH 157	5785		17.5
		CH 165	5825		17.5
	802.11n-HT40	CH 151	5755	MCS0	15.5
		CH 159	5795		17.5
	802.11ac-VHT20	CH 149	5745	MCS0	16.5
		CH 157	5785		17.5
		CH 165	5825		17.5
	802.11ac-VHT40	CH 151	5755	MCS0	15.5
		CH 159	5795		17.5
	802.11ac-VHT80	CH 155	5775	MCS0	14.5

	Mode	Channel	Frequency (MHz)	Data Rate	Tune-Up Limit
5.2GHz WLAN ANT 1+2	802.11n-HT20	CH 36	5180	MCS8	17.5
		CH 44	5220		17.5
		CH 48	5240		17.5
	802.11n-HT40	CH 38	5190	MCS8	15.0
		CH 46	5230		17.5
	802.11ac-VHT20	CH 36	5180	MCS0	17.5
		CH 44	5220		17.5
		CH 48	5240		17.5
	802.11ac-VHT40	CH 38	5190	MCS0	15.0
		CH 46	5230		17.5
	802.11ac-VHT80	CH 42	5210	MCS0	14.0

	Mode	Channel	Frequency (MHz)	Data Rate	Tune-Up Limit
5.3GHz WLAN ANT 1+2	802.11n-HT20	CH 52	5260	MCS8	17.5
		CH 60	5300		17.5
		CH 64	5320		17.5
	802.11n-HT40	CH 54	5270	MCS8	17.5
		CH 62	5310		16.5
	802.11ac-VHT20	CH 52	5260	MCS0	17.5
		CH 60	5300		17.5
		CH 64	5320		17.5
	802.11ac-VHT40	CH 54	5270	MCS0	17.5
		CH 62	5310		15.0
	802.11ac-VHT80	CH 58	5290	MCS0	14.5

	Mode	Channel	Frequency (MHz)	Data Rate	Tune-Up Limit
5.5GHz WLAN ANT 1+2	802.11n-HT20	CH 100	5500	MCS8	17.5
		CH 116	5580		17.5
		CH 140	5700		17.5
	802.11n-HT40	CH 102	5510	MCS8	17.5
		CH 110	5550		17.5
		CH 134	5670		17.5
	802.11ac-VHT20	CH 100	5500	MCS0	17.5
		CH 116	5580		17.5
		CH 140	5700		17.5
	802.11ac-VHT40	CH 102	5510	MCS0	17.5
		CH 110	5550		17.5
		CH 134	5670		17.5
	802.11ac-VHT80	CH 106	5530	MCS0	14.0

	Mode	Channel	Frequency (MHz)	Data Rate	Tune-Up Limit
5.8GHz WLAN ANT 1+2	802.11n-HT20	CH 149	5745	MCS8	17.5
		CH 157	5785		17.5
		CH 165	5825		17.5
	802.11n-HT40	CH 151	5755	MCS8	17.5
		CH 159	5795		17.5
	802.11ac-VHT20	CH 149	5745	MCS0	17.5
		CH 157	5785		17.5
		CH 165	5825		17.5
	802.11ac-VHT40	CH 151	5755	MCS0	17.5
		CH 159	5795		17.5
	802.11ac-VHT80	CH 155	5775	MCS0	15.5

4. RF Exposure Limit Introduction

According to ANSI/IEEE C95.1-1992, the criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio frequency (RF) radiation as specified in §1.1310.

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 Exposures				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f2)	6
30-300	61.4	0.163	1.0	6
300-1500			f/300	6
1500-100,000			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/f2)	30
30-300	27.5	0.073	0.2	30
300-1500			f/1500	30
1500-100,000			1.0	30

The MPE was calculated at 20 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

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

Where:
S = Power Density
P = Output Power at Antenna Terminals
G = Gain of Transmit Antenna (linear gain)
R = Distance from Transmitting Antenna

5. Radio Frequency Radiation Exposure Evaluation

5.1. Standalone Power Density Calculation

Band	Frequency (MHz)	Antenna Gain (dBi)	Maximum Power (dBm)	Maximum EIRP (dBm)	Maximum EIRP (W)	Average EIRP (mW)	Power Density at 20cm (mW/cm^2)	Limit (mW/cm^2)
2.4GHz WLAN	2412.0	3.10	19.00	22.100	0.162	162.181	0.032	1.000
5GHz WLAN	5180.0	5.20	18.00	23.200	0.209	208.930	0.042	1.000

Note: For conservativeness, the lowest frequency of each band is used to determine the MPE limit of that band

Conclusion:

According to 47 CFR §2.1091, the RF exposure analysis concludes that the RF Exposure is FCC compliant.