RF EXPOSURE EVALUATION REPORT

FCC ID	:	WR974100118120
Equipment	:	SmartCamera with voice control
Brand Name	:	ecobee
Model Name	:	EBSCV01
Applicant	:	ecobee Incorporated 207 Queens Quay West, Suite 600, Toronto, Ontario, M5J 1A7 , Canada
Manufacturer	:	Wistron Corporation 21F, No. 88, Sec. 1, Hsin Tai Wu Rd., Hsichih Dist, New Taipei City 221,Taiwan R.O.C
Standard	:	47 CFR Part 2.1091

We, SPORTON INTERNATIONAL INC has been evaluated this product in accordance with 47 CFR Part 2.1091 and it complies with applicable limit.

The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

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Cona Huang

Approved by: Cona Huang / Deputy Manager

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory

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History of this test report

Report No.	Version	Description	Issued Date
FA972333	Rev. 01	Initial issue of report	Oct. 24, 2019

1. Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT Type	SmartCamera with voice control
Brand Name	ecobee
Model Name	EBSCV01
FCC ID	WR974100118120
Wireless Technology and Frequency Range	WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz Sub-gig: 920 MHz ~ 927.35 MHz
Mode	WLAN: 802.11a/b/g/n/ac HT20 / HT40 / VHT20 / VHT40 / VHT80 Bluetooth BR/EDR/LE Sub-gig
HW Version	7.2.00.00
SW Version	7.0.00.00
EUT Stage	Identical Prototype

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

Reviewed by: Jason Wang

Report Producer: Wan Liu

2. Maximum RF average output power among production units (dBm)

<Sub-gig>

Band/Mode	Tune-up Limit
900 (MHz)	13

<Bluetooth>

Band / Mode	Tune-up Limit				
	BR / EDR			LE	
	1M	2M	3M	1M	2M
Bluetooth	12.5	10.5	10.5	8.5	8.5

<WLAN 2.4G>

Band	Tune-up Limit			
	11b	11g	HT20	HT40
2.4GHz WLAN	19	19	18	11

<WLAN 5G>

Band/Mode	Tune-up Limit					
	11a	HT20	HT40	VHT20	VHT40	VHT80
5.2GHz WLAN	19.5	18.5	12.5	18.5	13.5	12
5.8GHz WLAN	18.5	17.5	12.5	17.5	13	11.5

3. 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

4. Radio Frequency Radiation Exposure Evaluation

4.1. 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)	Power Density / Limit
2.4GHz WLAN	2412.0	3.10	19.00	22.100	0.162	162.181	0.032	1.000	0.032
5GHz WLAN	5180.0	4.40	19.50	23.900	0.245	245.471	0.049	1.000	0.049
Bluetooth	2402.0	3.10	12.50	15.600	0.036	36.308	0.007	1.000	0.007
Sub-gig	920.0	1.00	13.00	14.000	0.025	25.119	0.005	0.613	0.008

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

4.2. Collocated Power Density Calculation

Sub-gig Power Density / Limit	WLAN Power Density / Limit	Bluetooth Power Density / Limit	∑(Power Density / Limit) of Sub-gig+WLAN+Bluetooth
0.008	0.049	0.007	0.064

Note:

1. 2.4GHz WLAN and 5GHz WLAN cannot transmit simultaneously.
2. ∑(Power Density / Limit): This is a summation of [(power density for each transmitter/antenna included in the simultaneous transmission)/ (corresponding MPE limit)], for Sub-gig + WLAN + Bluetooth.
3. Considering the all the EIRP performance listed in the table above, the aggregated (power density /limit) is smaller than 1, and MPE of 3 collocated transmitters is compliant

Conclusion:

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