Maximum Permissible Exposure Evaluation

FCC ID: 2A8YG-93004

1. Client Information

Applicant	:	Pitsco Education LLC
Address	:	1003 E. Adams Pittsburg, Kansas 66762 USA
Manufacturer	:	Pitsco Education LLC
Address	:	1003 E. Adams Pittsburg, Kansas 66762 USA

2. General Description of EUT

EUT Name	:	SEEKER BOT	
Models No.	:	93004	
Model Difference	:	----	
Sample ID	:	HC-C-202410-0120-1-01& HC-C-202410-0120-1-02	
Product Description	:	Operation Frequency:	Bluetooth (BLE): 2402MHz~2480MHz 802.11b/g/n(HT20): 2412MHz~2462MHz 802.11n(HT40): 2422MHz~2452MHz
Power Rating	:	For Adapter (Model:3PN0508S) Input: 100-240V~ 50/60Hz 0.5A Output: 6.4V⎓500mA	
Li-ion Polymer Battery	:	DC 3.7V Rechargeable Li-ion battery	
Software Version	:	seeker_fw_072424	
Hardware Version	:	rev-1.2	
Connecting I/O Port(S)	:	Please refer to the User's Manual	

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MPE Calculations

1. Antenna Gain:

Antenna	Brand	Model Name	Type	Antenna Gain(dBi)
BLE	N/A	N/A	PCB	0
2.4G Wi-Fi	N/A	N/A	PCB	0

2. EUT Operation Condition:

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

3. Exposure Evaluation:

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S=(PG)/4\pi R^2$$

Where

S: power density
P: power input to the antenna
G: power gain of the antenna in the direction of interest relative to an isotropic radiator.
R: distance to the center of radiation of the antenna

4. Simultaneous transmission MPE Considerations

According to KDB447498: All transmitters and antennas in the host must be either evaluated for MPE compliance, by measurement or computational modeling, or qualify for the standalone MPE test exclusion in section 7.1. Simultaneous transmission MPE test exclusion applies when the sum of the MPE ratios for all simultaneous transmitting antennas incorporated in a host device, based on the calculated/estimated, numerically modeled or measured field strengths or power density, is ≤ 1.0.

This means that:

∑ of MPE ratios ≤ 1.0

5. Test Result:

Worst Maximum MPE Result								
Mode	N_{TX}	Freq. (MHz)	Conducted Power(max) (dBm)	Turn-up Power (dB)	Max tune up power (dBm) [P]	ANT Gain (dBi) [G]	Distance (cm) [R]	Power Density (mW/cm^2) [S]
BLE (1Mbps)	1	2402	2.235	2±1	3	0	20	0.0004
		2440	2.153	2±1	3	0	20	0.0004
		2480	2.401	2±1	3	0	20	0.0004
BLE (2Mbps)	1	2402	1.897	2±1	3	0	20	0.0004
		2440	2.013	2±1	3	0	20	0.0004
		2480	2.039	2±1	3	0	20	0.0004
802.11b	1	2412	13.71	14±1	15	0	20	0.0063
		2437	14.29	14±1	15	0	20	0.0063
		2462	14.09	14±1	15	0	20	0.0063
802.11g	1	2412	13.5	14±1	15	0	20	0.0063
		2437	13.94	14±1	15	0	20	0.0063
		2462	13.39	13±1	14	0	20	0.0050
802.11n (HT20)	1	2412	12.07	12±1	13	0	20	0.0040
		2437	12.73	13±1	14	0	20	0.0050
		2462	12.16	12±1	13	0	20	0.0040
802.11n (HT40)	1	2422	10.67	11±1	12	0	20	0.0032
		2437	12.37	12±1	13	0	20	0.0040
		2452	12.28	12±1	13	0	20	0.0040

Note:
N_{TX}= Number of Transmit Antennas
RF Output power specifies that Maximum Conducted Peak Output Power.

Remark:
1. Output power including turn-up tolerance;
2. Output power was adjust to duty cycle at 100% if measured duty cycle less than 98%;
3. MPE evaluate distance is 20cm from user manual provide by manufacturer.
4. Only the worst power was evaluated for each wireless function

6. Conclusion:

As specified in Table 1B of 47 CFR 1.1310- Limits for Maximum Permissible Exposure (MPE),

Limits for General Population/ Uncontrolled Exposure

Frequency Range (MHz)	Power density (mW/ cm^2)
300-1,500	F/1500
1,500-100,000	1.0

For Bluetooth LE: 2402~2480MHz & 2.4G WIFI: 2412~2462MHz
MPE limit S: 1mW/ cm2
The worst MPE is calculated as ***0.0063mW/cm2 < limit 1mW/cm2***. So, RF exposure limit warning or SAR test are not required. The EUT will only be used with a separation of 20cm or greater between the antenna and nearby persons and can therefore be considered a mobile transmitter per 47 CFR2.1091 (b).

The RF Exposure Information page from the manual is included here for reference.

For a more detailed features description, please refer to the RF Test Report.

The measurement results comply with the FCC Limit per 47 CFR 2.1091 for the uncontrolled RF Exposure of mobile device.

-----END OF THE REPORT-----