

Maximum Permissible Exposure Evaluation

FCC ID:2AA2K-S3

1. Client Information

Applicant	:	CANSONIC INC.
Address	:	10F., No.359, Dehe Rd., Yonghe Dist. , New Taipei City, Taiwan
Manufacturer	:	Cansonic Company Limited
Address	:	3/F, Building 1, Guanlan Industrial Park, Grain Group, 299 Guanping Road, Nan Dafu Community, Guanlan, Longhua New District, Shenzhen, China

2. General Description of EUT

EUT Name	:	Dash cam
Model(s) No.	:	S3
Model Difference	:	----
Product Description	Operation Frequency:	802.11b/g/n(HT20): 2412MHz~2462MHz 802.11n(HT40): 2422MHz~2452MHz
	RF Output Power:	2.4G WiFi: 9.46dBm (Max)
	Antenna Gain:	1.62dBi FPC Antenna
Power Supply	:	Input: DC 12~24V Output: DC 5V
Software Version	:	S3_x_x_xxxxxx_x(S3_2_8_BBABZG_A)
Hardware Version	:	S3_NT96670_MAIN_V0.2
Remark: The antenna gain provided by the applicant, the adapter and verified for the RF conduction test and adapter provided by TOBY test lab.		

Note: More test information about the EUT please refer the RF Test Report.

MPE Calculations for WIFI

1. Antenna Gain:

FPC Antenna: 2.5dBi.

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. Test Result:

Worst Maximum MPE Result								
2.4G WiFi								
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]
802.11b	1	2412	9.46	9±1	10	2.5	20	0.0035
	1	2437	9.15	9±1	10	2.5	20	0.0035
	1	2462	8.66	9±1	10	2.5	20	0.0035
802.11g	1	2412	8.24	8±1	9	2.5	20	0.0028
	1	2437	8.56	9±1	10	2.5	20	0.0035
	1	2462	8.62	9±1	10	2.5	20	0.0035
802.11n20	1	2412	8.12	8±1	9	2.5	20	0.0028
	1	2437	8.36	8±1	9	2.5	20	0.0028
	1	2462	8.38	8±1	9	2.5	20	0.0028
802.11n40	1	2422	7.87	8±1	9	2.5	20	0.0028
	1	2437	7.85	8±1	9	2.5	20	0.0028
	1	2452	8.20	8±1	9	2.5	20	0.0028
Note: (1) N _{TX} = Number of Transmit Antennas (2) RF Output power specifies that Maximum Conducted Peak Output Power.								

5. 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 2.4GWIFI

MPE limit S: 1mW/ cm²

The MPE is calculated as $0.0035 \text{ mW} / \text{cm}^2 < \text{limit } 1 \text{ mW} / \text{cm}^2$. 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.

Note

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

6. Conclusion:

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

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