



Maximum Permissible Exposure Evaluation

FCC ID: 2ATUJ-TV-XM-Q20-4MP

1. Client Information

Applicant	:	Shenzhen Tris Vision Technology Co., Ltd.
Address	:	Tris Vision Technology Park, No.17 LiGuang Industry, GuanLan Street, Longhua District, Shenzhen, China
Manufacturer	:	Shenzhen Tris Vision Technology Co., Ltd.
Address	:	Tris Vision Technology Park, No.17 LiGuang Industry, GuanLan Street, Longhua District, Shenzhen, China

2. General Description of EUT

EUT Name	:	Smart Bird Feeder						
Models No.	:	TV-XM-Q20-4MP, TV-JJ-Q20-2MP, TV-XM-Q21-3MP, TV-XM-Q22, TV-Q23, TV-Q25-4MP, TV-XM-Q27-4MP, TV-XM-Q30-4MP, TV-XM-Q31-4MP, TV-XM-Q32-4MP, TV-Q33-4MP, TV-Q35-4MP, TV-Q36, TV-Q37, TV-Q38, TV-A10, TV-A12, TV-A13, TV-D10, TV-D12, TV-D20, TV-D30, TV-D31, TV-D32, TV-D33, TV-D35, TV-D36, TV-Q37, TV-Q38, BF-2301, BF-2320, BF003, SC101, IM0817SBF0142, BF-CAM-II-B, LV-PYN30-BF, TV-C01, TV-C03, TV-C05						
Model Different	:	All of these models are identical in the same PCB, layout and circuit, the only difference is the model name and appearance.						
Product Description	:	<table border="1" style="width: 100%;"> <tr> <td>Operation Frequency:</td> <td>802.11b/g/n(HT20): 2412MHz~2462MHz</td> </tr> <tr> <td>Number of Channel:</td> <td>802.11b/g/n(HT20):11 channels</td> </tr> <tr> <td>Antenna Gain:</td> <td>2.6dBi FPC Antenna for 2.4G WiFi</td> </tr> </table>	Operation Frequency:	802.11b/g/n(HT20): 2412MHz~2462MHz	Number of Channel:	802.11b/g/n(HT20):11 channels	Antenna Gain:	2.6dBi FPC Antenna for 2.4G WiFi
Operation Frequency:	802.11b/g/n(HT20): 2412MHz~2462MHz							
Number of Channel:	802.11b/g/n(HT20):11 channels							
Antenna Gain:	2.6dBi FPC Antenna for 2.4G WiFi							
Power Rating	:	Input: DC 5V						
Li-ion Polymer Battery	:	DC 3.7V by 5000mAh Rechargeable Li-ion battery						
Software Version	:	V1.01.LITEOS.000729MN.00000.030007.00000						
Hardware Version	:	XMJP-XMJP-GK7-M23-XLB V1.01-F37-EA						
Connecting I/O Port(S)	:	Please refer to the User's Manual						
Remark	:	the evaluation report used the EUT(HC-C-202308-0212-01-01-2-2#).						

MPE Calculations for WIFI

1. EUT Operation Condition:

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

2. Exposure Evaluation:

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

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

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

3. 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:

\sum of MPE ratios ≤ 1.0

4. Test Result:

2.4G WiFi

Mode	Frequency (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]	Limit of Power Density (mW/ cm ²) (S)
802.11b	2412	13.836	13±1	14	2.6	20	0.00909	1
	2437	14.489	14±1	15	2.6	20	0.01145	1
	2462	14.282	14±1	15	2.6	20	0.01145	1
802.11g	2412	10.438	10±1	11	2.6	20	0.00456	1
	2437	16.23	16±1	17	2.6	20	0.01814	1
	2462	12.007	12±1	13	2.6	20	0.00722	1
802.11n(HT20)	2412	10.445	10±1	11	2.6	20	0.00456	1
	2437	16.435	16±1	17	2.6	20	0.01814	1
	2462	12.248	12±1	13	2.6	20	0.00722	1



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 2.4WIFI:2412~2462 MHz
MPE limit S: 1mW/ cm²

The MPE is calculated as **0.01814** < **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.

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-----

