



Maximum Permissible Exposure Evaluation

FCC ID: 2BMA5-Q39&IC:34216-Q39

Report No.	:	TBR-C-202503-0804-4	
Applicant	:	Shenzhen Tris Vision Technology Co.,Ltd.	
Equipment Under Test (EUT)			
EUT Name	:	Bird Feeder	
Model No.	:	Q39	
Series Model No.	:	Q43D, Q36D, Q20, Q45A, TV-Q27, TV-Q40F, TV-Q40, Q39E, Q39D, Q40A, D21, TV-XM-Q20-4MP	
Brand Name	:	N/A	
Sample ID	:	HC-C-202503-0804-01-01	
Receipt Date	:	2025-04-27	
Test Date	:	2025-04-27 to 2025-07-24	
Issue Date	:	2025-07-24	
Standards	:	FCC Part 2.1091 RSS-102 Issue 6 December 15, 2023	
Test Method	:	KDB 447498 D01 General RF Exposure Guidance v06	
Conclusions	:	PASS	
		In the configuration tested, the EUT complied with the standards specified above.	
Test By	:	Lily.zhang	Lily.zhang
Reviewed By	:	Henry.huang	Henry.Huang
Approved By	:	Ivan.Su	Ivan.Su

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in the report.

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Revision History



1. General Information about EUT

1.1 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

1.2 General Description of EUT (Equipment Under Test)

EUT Name	:	Bird Feeder
Models No.	:	Q39, Q43D, Q36D, Q20, Q45A, TV-Q27, TV-Q40F, TV-Q40, Q39E, Q39D, Q40A, D21, TV-XM-Q20-4MP
Model Different	:	All these models are the same in terms of the same printed circuit board, layout and circuitry. The differences lie in the model names, colors, appearance materials and solar panels.
Product Description	Operation Frequency:	2.4G Wi-Fi: 2412MHz~2462MHz
	Modulation Type:	802.11b: DSSS (DQPSK, DBPSK, CCK) 802.11g: OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11n: OFDM (QPSK, BPSK, 16QAM, 64QAM)
	Antenna Gain:	1.82dBi FPC Antenna
Power Rating	:	Input: DC 5V DC 3.7V by 4000mAh 14.8Wh Rechargeable Li-ion battery
Software Version	:	2025.3.20
Hardware Version	:	V1.03

Remark: The above antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

PV	HVIN	Model
First PV	Q39	Q39
Second PV	Q43D	Q43D
Third PV	Q36D	Q36D
Fourth PV	Q20	Q20
Fifth PV	Q45A	Q45A
Six PV	TV-Q27	TV-Q27
Seven PV	TV-Q40F	TV-Q40F
Eight PV	TV-Q40	TV-Q40
Nine PV	Q39E	Q39E
Ten PV	Q39D	Q39D
Eleven PV	Q40A	Q40A
Twelve PV	D21	D21
Thirteen PV	TV-XM-Q20-4MP	TV-XM-Q20-4MP



2. Measurement Uncertainty

The reported uncertainty of measurement $y \pm U$, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

Test Item	Parameters	Expanded Uncertainty (U_{Lab})
Conducted Emission	Level Accuracy: 9kHz~150kHz 150kHz to 30MHz	± 3.50 dB ± 3.10 dB
Radiated Emission	Level Accuracy: 9kHz to 30 MHz	± 4.60 dB
Radiated Emission	Level Accuracy: 30MHz to 1000 MHz	± 4.50 dB
Radiated Emission	Level Accuracy: Above 1000MHz	± 4.20 dB
RF Power-Conducted	Level Accuracy: Above 1000MHz	± 0.95 dB
Power Spectral Density-Conducted	Level Accuracy: Above 1000MHz	± 3 dB
Occupied Bandwidth	Level Accuracy: 30MHz to 1000 MHz Above 1000MHz	$\pm 3.8\%$
Unwanted Emission-Conducted	Level Accuracy: 30MHz to 1000 MHz Above 1000MHz	± 2.72 dB
Temperature	/	$\pm 0.6^\circ\text{C}$
Humidity	/	$\pm 4\%$
Supply voltages	/	$\pm 2\%$
Time	/	$\pm 4\%$



3. Test Facility

The testing report were performed by the Shenzhen Toby Technology Co., Ltd., in their facilities located at 1/F., Building 6, Rundongsheng Industrial Zone, Longzhu, Xixiang, Bao'an District, Shenzhen, Guangdong, China. At the time of testing, the following bodies accredited the Laboratory:

CNAS (L5813)

The Laboratory has been accredited by CNAS to ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories for the competence in the field of testing. And the Registration No.: CNAS L5813.

A2LA Certificate No.: 4750.01

The laboratory has been accredited by American Association for Laboratory Accreditation(A2LA) to ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories for the technical competence in the field of Electrical Testing. And the A2LA Certificate No.: 4750.01.FCC Accredited Test Site Number: 854351. Designation Number: CN1223.

IC Registration No.: (11950A)

The Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing. The site registration: Site# 11950A. CAB identifier: CN0056.



4. Method of Measurement for FCC

4.1 EUT Operation Condition:

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

4.2 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

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:

$$\sum \text{ of MPE ratios} \leq 1.0$$



4.3 Test Result:

Test Mode	Conducted Power(max) (dBm)	Turn-up Power (dB)	Max tune up power (dBm) [P]	Max. ANT Gain (dBi) [G]	Distance (cm) [R]	Power Density (mW/ cm ²) [S]
2.4G b	15.62	15±1	16	1.82	20	0.01204
2.4G g	15.33	15±1	16	1.82	20	0.01204
2.4G n20	15.07	15±1	16	1.82	20	0.01204

4.4 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: 2412~2462MHz

MPE limit S: 1mW/ cm²

The MPE is calculated as **0.01204mW / 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.



5. Method Of Measurement for IC

5.1. Applicable Standard

[Radio Standards Specification 102](#), Radio Frequency (RF) Exposure Compliance of Radio communication Apparatus (All Frequency Bands), sets out the requirements and measurement techniques used to evaluate radio frequency (RF) exposure compliance of radio communication apparatus designed to be used within the vicinity of the human body.

[ANSI C95.1–1999](#): IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.

[FCC KDB publication 447498 D01 General RF Exposure Guidance v06](#): Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies.

5.2. Evaluation Method and Limit

According to RSS-102 Issue 6 5.3.2. Table 7, RF field strength and power density limits for devices used by the general public (uncontrolled environment)

Frequency range (MHz)	Electric field (V _{RMS} /m)	Magnetic field (A _{RMS} /m)	Power density (W/m ²)	Reference period (minutes)
10-20	27.46	0.0728	2	6
20-48	58.07 / $f^{0.25}$	0.1540 / $f^{0.25}$	8.944 / $f^{0.5}$	6
48-300	22.06	0.05852	1.291	6
300-6000	3.142 $f^{0.3417}$	0.008335 $f^{0.3417}$	0.02619 $f^{0.6834}$	6
6000-15000	61.4	0.163	10	6
15000-150000	61.4	0.163	10	616000/ $f^{1.2}$
150000-300000	0.158 $f^{0.5}$	4.21 × 10 ⁻⁴ $f^{0.5}$	6.67 × 10 ⁻⁵ f	616000/ $f^{1.2}$

Note: f is frequency in MHz.

Frequency Band	f (MHz)	Limit of Power Density (W/m ²)
2.4G WLAN	2412	5.37

Note: Limit=0.02619 $f^{0.6834}$ (where f is in MHz).

The f in the limit is the frequency of the lowest Channel.



5.3. Calculation Formula

Prediction of power density at the distance of the applicable MPE limit:

$$S = PG/4\pi R^2 = \text{Power density (in appropriate units, e.g. W/m}^2\text{)}$$

P=power input to antenna (in appropriate units, e.g W)

G=power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain.

R=distance to the center of radiation of the antenna(in appropriate units, e.g m)

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:

$$\Sigma \text{ of MPE ratios} \leq 1.0$$



5.4. Evaluation Results

Test Mode	Conducted Power(max) (dBm)	Turn-up Power (dB)	Max tune up power (dBm) [P]	Max. ANT Gain (dBi) [G]	Distance (m) [R]	Power Density (W/m ²) [S]
2.4G b	15.62	15±1	16	1.82	0.2	0.1204
2.4G g	15.33	15±1	16	1.82	0.2	0.1204
2.4G n20	15.07	15±1	16	1.82	0.2	0.1204

Remark:

1. Output power including turn-up tolerance;
2. MPE evaluate distance is 20cm from user manual provide by manufacturer.

Note

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

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

