

# MPE REPORT

FCC ID: ZCB-637JBU

Date of issue: Oct. 14, 2019

Report number: MTi19082805-1E2

Sample description: IP Camera

Model(s): 637JBU, 706JBU, 634JBU, 638JBU, 639JBU, 640JBU, 754JA,  
758JCQ, 759JCQ, 791JA, Q6, Q7, Q8, W5S, W6, W7

Applicant: Shenzhen Smart-eye Digital Electronics Co., Ltd

Address: #6 Northern Zone, Shangxue S&T City, Bantian, Longgang District,  
Shenzhen, China

Date of test: Sept. 04, 2019 to Oct. 14, 2019

Shenzhen Microtest Co., Ltd.

<http://www.mtitest.com>



TEST RESULT CERTIFICATION	
Applicant's name:	Shenzhen Smart-eye Digital Electronics Co., Ltd
Address:	#6 Northern Zone, Shangxue S&T City, Bantian, Longgang District, Shenzhen, China
Manufacture's name:	Shenzhen Smart-eye Digital Electronics Co., Ltd
Address:	#6 Northern Zone, Shangxue S&T City, Bantian, Longgang District, Shenzhen, China
Product name:	IP Camera
Trademark:	N/A
Model and/or type reference .:	637JBU
Serial model .....	706JBU, 634JBU, 638JBU, 639JBU, 640JBU, 754JA, 758JCQ, 759JCQ, 791JA, Q6, Q7, Q8, W5S, W6, W7
RF exposure procedures .....	KDB 447498 D01 v06

This device described above has been tested by Shenzhen Microtest Co., Ltd and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

Tested by:

Danny Xu

Oct. 14, 2019

Reviewed by:

Blue Zheng

Oct. 14, 2019

Approved by:

Smith Chen

Oct. 14, 2019



## RF EXPOSURE EVALUATION

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) Radiation as specified in §1.1307(b)

Limits for Maximum Permissible Exposure (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm <sup>2</sup> )	Averaging time (minutes)
<b>(A) Limits for Occupational/Controlled Exposure</b>				
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	*900/f <sup>2</sup>	6
30-300	61.4	0.163	1.0	6
300-1,500			f/300	6
1,500-100,000			5	6
<b>(B) Limits for General Population/Uncontrolled Exposure</b>				
0.3-1.34	614	1.63	*100	30
1.34-30	824/f	2.19/f	*180/f <sup>2</sup>	30
30-300	27.5	0.073	0.2	30
300-1,500			f/1500	30
1,500-100,000			1.0	30

f = frequency in MHz \* = Plane-wave equivalent power density

### MPE Calculation Method

Friis transmission formula:  $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2)$

Where

$P_d$  = Power density in mW/cm<sup>2</sup>

$P_{out}$  = output power to antenna in mW

$G$  = Numeric gain of the antenna relative to isotropic antenna

$\pi$  = 3.1415926

$R$  = distance between observation point and center of the radiator in cm(20cm)

$P_d$  the limit of MPE, 1mW/cm<sup>2</sup>. If we know the maximum gain of the antenna and total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.



## Measurement Result

### WIFI:

Operation Frequency: WIFI 802.11b/g/n HT20: 2412-2462MHz,

802.11n HT40: 2422-2452MHz,

Power density limited: 1mW/ cm<sup>2</sup>

Antenna Type: Wifi Antenna: PIFA Antenna;

WIFI antenna gain: 1.73dBi

R=20cm

$mW=10^{(dBm/10)}$

antenna gain Numeric= $10^{(dBi/10)}=10^{(1.73/10)}=1.49$

Channel Freq. (MHz)	modulation n	conducted power	Tune -up power	Max		Antenna	Evaluation result at 20cm	Power density Limits
		(dBm)	(dBm)	tune-up power		Gain	Power density(mW/cm <sup>2</sup> )	(mW/cm <sup>2</sup> )
				(dBm)	(mW)	Numeric		
		Ant A	Ant A	Ant A	Ant A	Ant A	Ant A	
2412	802.11b	8.74	9±1	10	10	1.49	0.00296	1
2437		9.39	9±1	10	10	1.49	0.00296	1
2462		8.57	9±1	10	10	1.49	0.00296	1
2412	802.11g	9.35	9±1	10	10	1.49	0.00296	1
2437		9.9	9±1	10	10	1.49	0.00296	1
2462		9.21	9±1	10	10	1.49	0.00296	1
2412	802.11n H20	9.25	9±1	10	10	1.49	0.00296	1
2437		9.81	9±1	10	10	1.49	0.00296	1
2462		9.16	9±1	10	10	1.49	0.00296	1
2422	802.11n H40	8.25	8±1	9	7.9432823	1.49	0.00235	1
2437		8.48	8±1	9	7.9432823	1.49	0.00235	1
2452		8.34	8±1	9	7.9432823	1.49	0.00235	1

### Conclusion:

For the max result:  $0.00296 \leq 1.0$  for 1g power density limit, No SAR is required.

----END OF REPORT----