

RF Exposure Evaluation Declaration

FCC ID: ZZ2AMC043AMC043

IC: 21923-AMC043043

APPLICANT: Amcrest Technologies LLC

Application Type: Certification

Product: Speed Dome Camera (1080P WiFi PTZ)

Model No.: IP2M-858W, IP4M-1058W

Brand Name: Amcrest

FCC Classification: Digital Transmission System (DTS)

Unlicensed National Information Infrastructure (NII)

Test Procedure(s): KDB 447498 D01v06

Test Date: December 13, 2017 ~ January 23, 2018

Reviewed By : *Sunny Sun*

(Sunny Sun)



Approved By : *Marlinchen*

(Marlin Chen)



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standards through the calibration of the equipment and evaluated measurement uncertainty herein.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd

Revision History

Report No.	Version	Description	Issue Date	Note
1712RSU02903	Rev. 01	Initial Report	03-07-2018	Valid

§2.1033 General Information

Applicant:	ZHEJIANG DAHUA VISION TECHNOLOGY CO.,LTD.			
Applicant Address:	No.1199, Bin'an Road, Binjiang District, Hangzhou, P.R. China			
Manufacturer:	ZHEJIANG DAHUA VISION TECHNOLOGY CO.,LTD.			
Manufacturer Address:	No.1199, Bin'an Road, Binjiang District, Hangzhou, P.R. China			
Test Site:	MRT Technology (Suzhou) Co., Ltd			
Test Site Address:	D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China			
FCC Registration No.:	893164			
Test Device Serial No.:	N/A	<input type="checkbox"/> Production	<input checked="" type="checkbox"/> Pre-Production	<input type="checkbox"/> Engineering

Test Facility / Accreditations

Measurements were performed at MRT Laboratory located in Tian'edang Rd., Suzhou, China.

- MRT facility is a FCC registered (MRT Reg. No. 893164) test facility with the site description report on file and has met all the requirements specified in Section 2.948 of the FCC Rules.
- MRT facility is an IC registered (MRT Reg. No. 11384A-1) test laboratory with the site description on file at Industry Canada.
- MRT facility is a VCCI registered (R-20025, G-20034, C-20020, T-20020) test laboratory with the site description on file at VCCI Council.
- MRT Lab is accredited to ISO 17025 by the American Association for Laboratory Accreditation (A2LA) under the American Association for Laboratory Accreditation Program (A2LA Cert. No. 3628.01) in EMC, Telecommunications and Radio testing for FCC, Industry Canada, EU and TELEC Rules.



1. PRODUCT INFORMATION

1.1. Equipment Description

Product Name:	Speed Dome Camera (1080P WiFi PTZ)
Model No.:	IP2M-858W; IP4M-1058W
Wi-Fi Specification:	802.11a/b/g/n/ac
Frequency Range:	802.11b/g/n-HT20: 2412 ~ 2462 MHz 802.11n-HT40: 2422 ~ 2452MHz 802.11a/n-HT20/ac-VHT20: 5180~5240MHz, 5745~5825MHz For 802.11n-HT40/ac-VHT40: 5190~5230MHz, 5755~5795MHz For 802.11ac-VHT80: 5210MHz, 5775MHz
Type of Modulation:	802.11b: DSSS; 802.11g/n/ac: OFDM
Data Rate:	802.11a: 6/9/12/18/24/36/48/54Mbps 802.11b: 1/2/5.5/11Mbps 802.11g: 6/9/12/18/24/36/48/54Mbps 802.11n: up to 150Mbps 802.11ac: up to 433.3Mbps
Antenna Gain:	2.56dBi for 2.4G 4.68dBi for 5G

2. RF Exposure Evaluation

2.1. Limits

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 ²)	Average Time (Minutes)
(A) Limits for Occupational/ Control Exposures				
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6
(B) Limits for General Population/ Uncontrolled Exposures				
300-1500	--	--	f/1500	6
1500-100,000	--	--	1	30

f= Frequency in MHz

Calculation Formula: $Pd = (Pout * G) / (4 * \pi * r^2)$

Where

Pd = power density in mW/cm²

Pout = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

r = distance between observation point and center of the radiator in cm

Pd is the limit of MPE, 1mW/cm². If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

2.2. Test Result of RF Exposure Evaluation

Product	Speed Dome Camera (1080P WiFi PTZ)			
Test Item	RF Exposure Evaluation			

Test Mode	Frequency Band (MHz)	Maximum EIRP (dBm)	Power Density at R = 20 cm (mW/cm ²)	Limit (mW/cm ²)
802.11b/g/n	2412 ~ 2462	27.42	0.1098	1
802.11a/n/ac	5180 ~ 5240 5745 ~ 5825	23.24	0.0419	

CONCLUSION:

The WLAN 2.4GHz and WLAN 5GHz can transmit simultaneously. Therefore, the Max Power Density at R (20 cm) = 0.1098mW/cm² + 0.0419mW/cm² = 0.1517mW/cm² < 1mW/cm². So the EUT complies with the requirement.

The End