RF Exposure Evaluation

Test report
On Behalf of
Hangzhou Meari Technology Co., Ltd.

For
IP Camera

Model No.: Speed 5C, CCTV-218

FCC ID: 2AG7C-SPEED5C

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1 General Description of EUT

Equipment	IP Camera
Model Name	Speed 5C
Serial No.	CCTV-218
Model Difference	All model's the function, software and electric circuit are the same, only model named different. Test sample model: Speed 5C
Trade Mark	N/A
FCC ID	2AG7C-SPEED5C
Hardware Version:	V1.0
Software Version:	V1.25
Operation frequency	802.11b/g/n 20: 2412~2462 MHz 802.11n 40: 2422~2452MHz
Number of Channels	802.11b/g/n20: 11CH 802.11n 40: 7CH
Antenna Type	IPEX Antenna
Antenna Gain	2dBi
Modulation Type	CCK/DSSS/OFDM
Power Source	DC 5.0V from adapter

2 RF Exposure Compliance Requirement

2.1 Standard Requirement

According to FCC Part1.1310: 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 part1.1307(b)

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

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

F= Frequency in MHz Friis

Formula

Friis transmission 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

Pi = 3.1416

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

Pd id the limit of MPE . 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.

3 EUT RF Exposure

Antenna Gain: 2Bi

Antenna Gain: The maximum Gain measured in fully anechoic chamber is in linear scale.

Output Power Into Antenna & RF Exposure Evaluation Distance:

Measurement Data				
802.11b mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2412MHz)	17.35	17±1	18	63.096
Middle(2437MHz)	16.95	17±1	18	63.096
Highest(2462MHz)	16.89	17±1	18	63.096

802.11g mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2412MHz)	16.90	16±1	17	50.119
Middle(2437MHz)	16.33	16±1	17	50.119
Highest(2462MHz)	16.31	16±1	17	50.119

802.11n(HT20)mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2412MHz)	16.52	16±1	17	50.119
Middle(2437MHz)	15.08	16±1	17	50.119
Highest(2462MHz)	15.90	16±1	17	50.119

802.11n(HT40)mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2422MHz)	14.35	14±1	15	31.623
Middle(2437MHz)	14.34	14±1	15	31.623
Highest(2452MHz)	14.31	14±1	15	31.623

Worst case: 802.11b mode Lowest (2412MHz)

Maximum tune-up Power (mW)	Antenna Gain (dBi)	Power Density at R = 20 cm (mW/cm2)	Limit	Result
63.096	2.0	0.0199	1	PASS

Remark: The Max Conducted Peak Output Power data refer to report Report No.: HK1910152576-E

value.:

2) $Pd = (Pout*G)/(4* Pi * R^2)=(63.096 *1.585)/(4*3.1416*20^2)=0.0199$