RF Exposure Evaluation declaration

Product Name	Wireless Access Point
Model No.	AP-90M
FCC ID	AFJ360300

Applicant	ICOM Incorporated
Address	1-1-32 Kamiminami, Hirano-ku, Osaka, 547-0003, Japan

Date of Receipt	Sep. 10, 2014
Date of Declaration	Jan. 07, 2015
Report No.	1490280R-RFUSP05V00

1. RF Exposure Evaluation

1.1. 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

Friis Formula

Friis transmission formula: $Pd = (Pout*G)/(4*pi*r^2)$

Where

Pd = power density in mW/cm^2

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, 1 mW/cm^2. 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.

1.2. Test Procedure

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

The temperature and related humidity: 18℃and 78％ RH.

1.3. Test Result of RF Exposure Evaluation

Product : Wireless Access Point
Test Item : RF Exposure Evaluation

Operation Frequency	802.11b/g/n-20MHz:2412-2462MHz 802.11n-40MHz:2422-2452MHz 802.11a/n-20MHz:5745-5825MHz 802.11n-40MHz:5755-5795MHz 802.11ac-80MHz: 5775MHz 802.11a/n-20MHz: 5180-5320MHz, 5500-5700MHz 802.11n-40MHz: 5190-5310, 5510-5670MHz 802.11ac-20MHz: 5720, 802.11ac-40MHz: 5710 802.11ac-80MHz: 5210-5290MHz, 5530-5690MHz
Maximum Conducted output power	23.52dBm for 2.4GHz Internal Antenna 20.82dBm for 2.4GHz External Antenna 22.61dBm for 5GHz Internal Antenna 22.03dBm for 5GHz External Antenna
Antenna gain	1.15dBi for 2.4GHz Internal Antenna 3.00dBi for 2.4GHz External Antenna 3.24dBi for 5GHz Internal Antenna 5.00dBi for 5GHz External Antenna

2.4GHz Internal Antenna

Output Power Into Antenna & RF Exposure Evaluation Distance:

Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm2)
224.9055	0.058308

Power density is lower than the limit (1 mW/cm2).

2.4GHz External Antenna

Output Power Into Antenna & RF Exposure Evaluation Distance:

Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm2)
120.7814	0.047944

Power density is lower than the limit (1 mW/cm2).

5GHz Internal Antenna

Output Power Into Antenna & RF Exposure Evaluation Distance:

Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm2)
182.3896	0.076512

Power density is lower than the limit (1 mW/cm2).

5GHz External Antenna

Output Power Into Antenna & RF Exposure Evaluation Distance:

Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm2)
159.5879	0.100399

Power density is lower than the limit (1 mW/cm2).