Maximum Permissible Exposure

FCC ID:	2AYD4UWA-100
APPLICANT:	NPOINT INFOTECH Co., LTD
Application Type:	Certification
Product:	Intelligent Wi-Fi / Bluetooth Sensor Detector
Model No.:	UWA-110; UWA-XXX, GWB-XXX ; SWB-XXX (X:0~9 and A~Z)
Brand Name:	N-POINT
FCC Rule Part(s):	Part 2.1091
Test Date:	November 25, 2020~January 9, 2021

Reviewed By : Paddy Chen

(Paddy Chen)

Approved By : Chenz Ker

(Chenz Ker)

Testing Laboratory
3261

The test results relate only to the samples tested.

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report. Test results reported herein relate only to the item(s) tested.

Revision History

Report No.	Version	Description	Issue Date
2011TWF101-U4	1.0	Original Report	2021-02-04

1. PRODUCT INFORMATION

1.1. Equipment Description

Product Name	Intelligent Wi-Fi / Bluetooth Sensor Detector
Model No.	UWA-110; UWA-XXX, GWB-XXX ; SWB-XXX (X:0~9 and A~Z)
Brand Name	N-POINT
Wi-Fi Specification	802.11b/g/n (1TX / 1RX)
Frequency Range	**BLE:** 2402~2480MHz **2.4GHz:** For 802.11b/g/n-HT20: 2412 ~ 2462 MHz For 802.11n-HT40: 2422 ~ 2452 MHz
Type of modulation	**BLE** GFSK **2.4GHz:** 02.11b: DSSS, DBPSK, DQPSK, CCK 802.11g/n-20M: OFDM, BPSK, QPSK, 16QAM, 64QAM

Note:

1. Model difference as below table (Declared by the manufacturer).

Model	Description	Note
UWA-110 & UWA-XXX	only for marketing different	X:0~9 and A~Z, only for marketing different
GWB-XXX	Turn off microphone function by software	X:0~9 and A~Z, only for marketing different
SWB-XXX	Connect with different sensor by software	X:0~9 and A~Z, only for marketing different

2. The difference does not affect the RF test result, so we selected UWA-110 for all RF testing.

1.2. Antenna Description

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	N/A	AP800-02-P5	PIFA	0.69dBi

2. Maximum Permissible Exposure(MPE)

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				
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 Exposures				
0.3-1.4	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

Note : (1) f= Frequency in MHz , (2) * = Plane-wave equivalent power density

Calculation 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

Under normal use condition, is at least 20cm away from the body of the user.

So, this device is classified as **Mobile Device**.

2.2. Test Result

Mode	Frequency Band (MHz)	Output Power (dBm)	Output Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
WLAN	2412~2462	25.60	363.0781	0.69	20	0.0847	1
BLE	2402~2480	5.005	3.1659	0.69	20	0.0007	1

Simultaneous Calculation:

$$CPD1 / LPD1 + CPD2 / LPD2 + \ldots\ldots etc. < 1$$

Where

CPD = Calculation power density

LPD = Limit of power density

WIFI + BLE = 0.0847 + 0.0007 = 0.0854 mW/cm^2

Therefore, the maximum calculations are less than the "1" limit. Complies with FCC radiation exposure requirement specified in the FCC Rule 2.1091.

The End