

MRT Technology (Shenzhen) Co., Ltd Phone: +886-755-26928918 Web: www.mrt-cert.com

Report No.: 2010RSZ077-U4 Report Version: V01 Issue Date: 04-12-2021

RF Exposure Evaluation Declaration

- FCC ID: PJZMESH1200
- Applicant: DASAN Zhone Solutions, Inc.

Application Type:	Certification
Product:	MESH AP Product
Model No.:	MESH-1200
Serial Model No.:	MESH-1200-XXX (XX= A-Z and 0-9 characters)
FCC Classification:	Digital Transmission System (DTS)
	Unlicensed National Information Infrastructure (NII)
Test Procedure(s):	FCC part 2.1091
Test Date:	November 01~02, 2020

Reviewed By:

oscar shi

Oscar Shi

Approved By:

Robin Wu



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.

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Revision History

Report No.	Version	Description	Issue Date	Note
2010RSZ077-U4	Rev. 01	Initial Report	04-12-2021	Valid



1. General Information

1.1. Applicant

DASAN Zhone Solutions, Inc.

1350 South Loop Rd. Suite 130 Alameda California, 94502, USA

1.2. Manufacturer

DASAN Zhone Solutions, Inc. 1350 South Loop Rd. Suite 130 Alameda California, 94502, USA

1.3. Testing Facility

	Test Site – MRT Suzhou Laboratory				
	 Laboratory Location (Suzhou - Wuzhong) D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China Laboratory Location (Suzhou - SIP) 				
	4b Building, Liando U Valley, No.200 Xingpu R	d., Shengpu Town, Suzhou Industrial Park, China			
	Laboratory Accreditations				
	A2LA: 3628.01 CNAS: L10551				
	FCC: CN1166	ISED: CN0001			
	VCCI: R-20025, G-20034, C-20020, T-20020				
\square	Test Site – MRT Shenzhen Laboratory				
	Laboratory Location (Shenzhen)				
	1G, Building A, Junxiangda Building, Zhongshanyuan Road West, Nanshan District, Shenzhen,				
	China				
	Laboratory Accreditations				
	A2LA: 3628.02	CNAS: L10551			
	FCC: CN1284	ISED: CN0105			
	Test Site – MRT Taiwan Laboratory				
	Laboratory Location (Taiwan)				
	No. 38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)				
	Laboratory Accreditations				
	TAF: L3261-190725				
	FCC: 291082, TW3261	ISED: TW3261			



2. PRODUCT INFORMATION

2.1. Equipment Description

Product Name	MESH AP Product	
Model No.	MESH-1200	
Serial Model No.	MESH-1200-XXX (XX= A-Z and 0-9 characters)	
Wi-Fi Specification	802.11a/b/g/n/ac	
Serial Number	313238233/313238214	
Accessories		
Adapter	Model No: S12A12-120A100-PT	
	Input: 100 ~ 240V ~ 50/60Hz, 0.4A	
	Output: 12.0V=1.0A, 12.0W	

2.2. Description of Available Antennas

Antenna Type	Frequency Band	Antenna Gain (dBi)		Directional Gain (dBi)	
	(GHz)	Ant 0	Ant 1	For Power	For PSD
	2.4~2.5	3.60	3.20	3.60	6.61
PCB Antenna	5.15 ~ 5.25	4.00	3.90	4.20	7.21
	5.725~5.85	4.20			

Note 1: The EUT supports Cyclic Delay Diversity (CDD) technology for 802.11a/b/g/n/ac mode. Note 2: The EUT supports Cyclic Delay Diversity (CDD) mode, and CDD signals are correlated. If all antennas have the same gain, G_{ANT} , Directional gain = G_{ANT} + Array Gain, where Array Gain is as follows.

• For power spectral density (PSD) measurements on all devices,

Array Gain = 10 log (N_{ANT}/N_{SS}) dB = 3.01;

• For power measurements on IEEE 802.11 devices,

Array Gain = 0 dB for $N_{ANT} \le 4$;

If antenna gains are not equal, Directional gain may be calculated by using the formulas applicable to equal gain antennas with G_{ANT} set equal to the gain of the antenna having the highest gain. Note 3: The antenna gain is declared by manufacture.



3. RF Exposure Evaluation

3.1. 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	Electric Field	Magnetic Field	Power Density	Average Time	
(MHz)	Strength (V/m)	Strength (A/m)	(mW/cm ²)	(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

Pi = 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.



3.2. Test Result of RF Exposure Evaluation

Product	MESH AP Product	
Test Item	RF Exposure Evaluation	

Test Mode	Frequency Band (MHz)	Maximum EIRP (dBm)	Power Density at R = 20 cm (mW/cm ²)	Limit (mW/cm²)
	2412 ~ 2462	29.37	0.1721	1
Wi-Fi	5180 ~ 5240	07.00	0.4000	4
	5745 ~ 5825	27.28	0.1063	1

CONCLUSION:

Therefore, the Max Power Density at R (20 cm) = $0.1721 \text{ mW/cm}^2 + 0.1063 \text{ mW/cm}^2 = 0.2784 \text{ mW/cm}^2 < 1 \text{ mW/cm}^2$.

So the safety distance is 20cm for MESH AP Product installed without any other radio equipment.

End



Appendix A - EUT Photograph

Refer to "2010RSZ077-UE" file.