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Report No.: 2101RSU065-U3 Report Version: V01 Issue Date: 03-29-2021

# **RF Exposure Evaluation Declaration**

**FCC ID**: P270T221

**APPLICANT:** Sercomm Corporation

**Application Type:** C3PC Certification

**Product:** Dual Band ONT

Model No.: AOT-4221SR

**Brand Name:** Airtel

FCC Classification: Unlicensed National Information Infrastructure (NII)

**FCC Rule Part(s):** 2.1091

**Test Date:** January 25~27, 2021

Reviewed By: OSCAY SM

Oscar Shi

Approved By: Robin Wu

Robin Wu

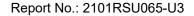




The test results relate only to the samples tested.

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.

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
2012RSU016-U3	Rev. 01	Initial Report	03-29-2021	Valid

Note: Adding band U-NII-2A and U-NII-2C, requests a Class III Permissive Change for its application with FCC ID: P27OT221 granted on 10-26-2020 and 12-07-2020.



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### 1. GENERAL INFORMATION

## 1.1. Applicant

**Sercomm Corporation** 

8F, No. 3-1, YuanQu St., NanKang, Taipei 115, Taiwan, R.O.C.

#### 1.2. Manufacturer

Sercomm Corporation

8F, No. 3-1, YuanQu St., NanKang, Taipei 115, Taiwan, R.O.C.

## 1.3. Testing Facility

$\boxtimes$	Test Site – MRT Suzhou Labora	atory			
	Laboratory Location (Suzhou – W	uzhong)			
	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 Rd., 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			
	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 Labora	tory			
	Laboratory Location (Taiwan)				
	No. 38, Fuxing 2 <sup>nd</sup> Rd., Guishan Dis	t., 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	Dual Band ONT
Model No.	AOT-4221SR
Brand Name	Airtel
Serial No.	20210126Sample#01 (Conducted Sample)
Hardware Version	8.0
Software Version	AOT4221SR_R1.9
Wi-Fi Specification	802.11a/b/g/n/ac
Antenna Delivery	2*T <sub>X</sub> + 2*R <sub>X</sub>

### 2.2. Description of Available Antennas

Antenna	Frequency	T <sub>X</sub>	Max Antenna	Beamforming	CDD Directional Gain	
Туре	Band (MHz)	Paths	Gain (dBi)	Directional	(dl	Bi)
				Gain	For Power	For PSD
				(dBi)		
PIFA	2412 ~ 2462	2	3.50	6.51	3.50	6.51
Antenna	5150 ~ 5850	2	3.30	6.31	3.30	6.31

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,

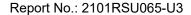
Array Gain =  $10 \log (N_{ANT}/N_{SS}) dB = 3.01$ ;

• 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  $G_{\text{ANT}}$  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 <sup>2</sup> )	(Minutes)
	(A) Limits for	Occupational/ Contr	ol 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/cm<sup>2</sup>

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/cm<sup>2</sup>. 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	Dual Band ONT
Test Item	RF Exposure Evaluation

Test Mode	Frequency Band	Maximum EIRP	Power Density at R = 20 cm	Limit
	(MHz)	(dBm)	(mW/cm <sup>2</sup> )	(mW/cm <sup>2</sup> )
	2412 ~ 2462	33.46	0.4415	1
Wi-Fi	5250 ~ 5350	29.94	0.1962	1
	5470 ~ 5725	29.94	0.1902	

#### **CONCLUSION:**

2.4G Wi-Fi and 5G Wi-Fi can transmit simultaneously.

Therefore, the Max Power Density at R (20 cm) =  $0.4415 \text{ mW/cm}^2 + 0.1962 \text{ mW/cm}^2 = 0.6377 \text{mW/cm}^2 < 1 \text{ mW/cm}^2$ .

So the safety distance is 20cm for **Dual Band ONT** installed without any other radio equipment

The End
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# **Appendix - EUT Photograph**

Refer to "2101RSU065-UE" file.