



RF Exposure Evaluation Declaration

FCC ID: TK4WLE900VX
Applicant: Compex Systems Pte Ltd
Application Type: Class II Permissive Change
Product: 802.11ac Dual Band Module
Model No.: WLE900VX, WLE900VX-I
Brand Name: COMPEX
FCC Classification: Unlicensed National Information Infrastructure (UNII)
Digital Transmission System (DTS)
FCC Rule Part(s): FCC Part 2.1091
Result: Complies

Reviewed By: 

Jame Yuan

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
2208RSU014-U3	Rev. 01	Initial Report	2022-09-27	Valid

Note: This report was based on MRT original report No.1801RSU027-U3. Adding one new antenna information and antenna gain is less than before, so it has no effect on the results.

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1.4. Product Information

Product Name	802.11ac Dual Band Module
Model No.	WLE900VX, WLE900VX-I
Wi-Fi Specification	802.11a/b/g/n/ac
Antenna Information	Refer to section 1.5
Remark: 1. The information of EUT was provided by the manufacturer, and the accuracy of the information shall be the responsibility of the manufacturer.	

1.5. Antenna Details

Original Antenna List

Antenna Type	Manufacturer	Max Directional Gain (dBi)	
		2.4GHz	5GHz
Panel Antenna 1#	Compex Systems Pte Ltd	11.0	--
Panel Antenna 2#	Kenbotong Communication LTD	10.0	10.0
Panel Antenna 3#	Smart Ant Inc	7.0	7.0
Panel Antenna 4#	TAOGLAS Inc	4.5	6.7
Panel Antenna 5#	Compex Systems Pte Ltd	5.0	5.0
Panel Antenna 6#	Compex Systems Pte Ltd	5.0	5.0
Omni Antenna 1#	Kunshan Wavelink Electronic Co., Ltd	2.0	2.0
Omni Antenna 2#	Smart Ant Co., Ltd	2.5	5.0
Omni Antenna 3#	Smart Ant Co., Ltd	3.0	6.0
Omni Antenna 4#	Smart Ant Co., Ltd	2.0	2.0
Omni Antenna 5#	Smart Ant Co., Ltd	5.0	7.0
Omni Antenna 6#	Smart Ant Co., Ltd	3.0	6.0
Omni Antenna 7#	Smart Ant Co., Ltd	2.0	2.0
Omni Antenna 8#	Smart Ant Co., Ltd	4.5	7.0

Add New Antenna

Antenna Type	Manufacturer	Max Directional Gain (dBi)	
		2.4GHz	5GHz
Omni Antenna	Ethertronics Inc	3.6	5.1

Note: The antenna gain is from antenna data sheet provided by the manufacturer.

1.6. Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 2.1091 & KDB 447498 D04 Interim General RF Exposure Guidance v01

2. RF Exposure Evaluation

2.1. Test 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

Calculation Formula: $P_d = (P_{out} * G) / (4 * \pi * r^2)$

Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

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

P_d 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.

2.2. Calculated Result

Product	802.11ac Dual Band Module
Test Item	RF Exposure Evaluation

Antenna Gain: Refer to Clause 1.2 of antenna description.

Test Mode	Frequency Band (MHz)	Maximum EIRP (dBm)	Power Density at R = 20 cm (mW/cm ²)	Limit (mW/cm ²)
802.11b/g/n	2412 ~ 2462	35.30	0.6741	1
802.11a/n/ac	5180 ~ 5240	35.96	0.7847	1
	5260 ~ 5320			
	5500 ~ 5720			
	5745 ~ 5825			

CONCLUSION:

The max Power Density at R (20 cm) = 0.7847mW/cm² < 1mW/cm²

Therefore, the Min Safety Distance is 20cm.