

RF Exposure Report

Report No.: SA190807D08A

FCC ID: TK4WLE1216V520

Test Model: WLE1216V5-20, WLE1216V5-20-I

Received Date: Nov. 18, 2019

Test Date: Nov. 29 to Dec. 27, 2019

Issued Date: Mar. 9, 2020

Applicant: Compex Systems Pte Ltd

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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**FCC Registration /
Designation Number:** 198487 / TW2021



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Release Control Record

Issue No.	Description	Date Issued
SA190807D08A	Original release.	Mar. 9, 2020

1 Certificate of Conformity

Product: WiFi Module

Equipment Class: Unlicensed National Information Infrastructure TX

Brand: COMPEX

Test Model: WLE1216V5-20, WLE1216V5-20-I

Sample Status: Pre-Production

Applicant: Compex Systems Pte Ltd

Test Date: Nov. 29 to Dec. 27, 2019

Standards: FCC Part 2 (Section 2.1091)

IEEE C95.3 -2002

References Test Guidance: KDB 447498 D01 General RF Exposure Guidance v06

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

Prepared by : Jessica Cheng , **Date:** Mar. 9, 2020
Jessica Cheng / Senior Specialist

Approved by : Rex Lai , **Date:** Mar. 9, 2020
Rex Lai / Associate Technical Manager

2 General Information

2.1 General Description of EUT

Product	WiFi Module
Brand	COMPEX
Test Model	WLE1216V5-20, WLE1216V5-20-I
Status of EUT	Pre-Production
Operating Frequency	5180~5240MHz, 5260~5320MHz, 5500~5720MHz, 5745~ 5825MHz
Output Power	5180~5240MHz: 92.52 mW 5260~5320MHz: 89.684mW 5500~5720MHz: 83.01mW 5745~5825MHz: 370.176mW
Antenna Type	Refer to note as below
Antenna Connector	Reverse SMA
Accessory Device	N/A
Data Cable Supplied	N/A

Note:

1. The difference compared with original test report is adding frequency bands: 5260-5320MHz and 5500-5720MHz by software and adding antenna source (Dipole antenna model: RFDPA171300SBLB801).
2. This report is prepared for FCC class II permissive change.
3. 2.4GHz & 5GHz technologies can transmit at same time.
4. The antenna information is listed as below.

Description	Platform: Network Security Appliance (Brand: Check Point / Model: V-81W)		
	2412-2462MHz	5180-5825MHz	
Antenna Type	Dipole Antenna	Dipole Antenna	
Antenna model	RFDPA171300SBLB801	RFDPA171300SBLB801	
Maximum Gain (dBi)	2.22	4.29	4.29
Remark	Original Approved		Additional
		The DFS bands 2A and 2C are disabled by software	Add DFS bands 2A and 2C are used by software

5. The EUT provides 4 completed transmitters and 4 receivers.

Modulation Mode	TX FUNCTION
802.11a	1TX
802.11n (20MHz)	4TX
802.11n (40MHz)	4TX
802.11ac (20MHz)	4TX
802.11ac (40MHz)	4TX
802.11ac (80MHz)	4TX
802.11ac (80MHz + 80MHz)	2TX+2TX

6. Accessory device of Platform as follows.

Brand	Model	Rating
FSP	FSP060-DHAN3	AC I/P : 100-240V ~ 1.8A 50-60Hz DC O/P 12V==5.0A Power cord: AC 2 Pin, Non-shielded DC cable (1.2m) With one Core

7. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

3 RF Exposure

2.1 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)
Limits For General Population / Uncontrolled Exposure				
0.3-1.34	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

f = Frequency in MHz ; *Plane-wave equivalent power density

2.2 MPE 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

2.3 Classification

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user.
So, this device is classified as **Mobile Device**.

2.4 Calculation Result of Maximum Conducted Power

FCC ID: TK4WLE1216V520 (WLAN 5GHz)

Frequency Band (MHz)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
5180~5240	19.66	4.29	20	0.0494	1
5260~5320	19.53	4.29	20	0.0479	1
5500~5720	19.19	4.29	20	0.0443	1
5745~5825	25.68	4.29	20	0.1976	1

Note:

1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
2. The device didn't support beam-forming technology and Cyclic Delay Diversity (CDD) technology, and the transmit signals are uncorrected, so no add array gain to the band power and band PSD.

FCC ID: TK4WLE1216V220 (WLAN 2.4GHz)

Frequency Band (MHz)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
2412-2462	26.00	2.22	20	0.1320	1

Note:

1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
2. The device didn't support beam-forming technology and Cyclic Delay Diversity (CDD) technology, and the transmit signals are uncorrected, so no add array gain to the band power and band PSD.

Simultaneously transmitter condition:

FCC ID: TK4WLE1216V220 (WLAN 2.4GHz) + FCC ID: TK4WLE1216V520 (WLAN 5GHz)
= 0.1320 + 0.1976 = 0.3296

Therefore the maximum calculations of above situations are less than the "1" limit.

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