Report No.:	SA191129E10
FCC ID:	RRKC4000LG
Test Model:	C4000LG
Received Date:	Nov. 29, 2019
Test Date:	Dec. 03 to 13, 2019
Issued Date:	Dec. 30, 2019
Applicant:	Alpha Networks Inc.
Address:	No.8 Li-shing 7th Rd., Science-based Industrial Park, Hsinchu, Taiwan, R.O.C.
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory
Lab Address:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan
Test Location:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan
FCC Registration / Designation Number:	723255 / TW2022

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Release Control Record

Issue No.	Description	Date Issued
SA191129E10	Original release.	Dec. 30, 2019

1 Certificate of Conformity

Product:	VDSL2 integrated access device (IAD)
Brand:	CenturyLink
Test Model:	C4000LG
Sample Status:	ENGINEERING SAMPLE
Applicant:	Alpha Networks Inc.
Test Date:	Dec. 03 to 13, 2019
Standards:	FCC Part 2 (Section 2.1091) KDB 447498 D01 General RF Exposure Guidance v06 IEEE C95.3 -2002

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 EMC characteristics under the conditions specified in this report.

Prepared by : Phoenix Huang / Specialist , **Date:** Dec. 30, 2019

Approved by : Clark Lin / Technical Manager , **Date:** Dec. 30, 2019

2 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

$Pd = (Pout*G) / (4*pi*r^2)$

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

2.3 Classification

The antenna of this product, under normal use condition, is at least 27 cm away from the body of the user. So, this device is classified as **Mobile Device**.

2.4 Antenna Gain

Frequency Range (GHz)	Directional Antenna Gain (dBi)	Antenna Type	Antenna Connector
2.4 ~ 2.5	5.1	PCB	i-pex(MHF)
5.15 ~ 5.25	6.3		
5.25 ~ 5.35	7.6		
5.47 ~ 5.725	6.4		
5.725 ~ 5.85	7.1		
Note: More detailed information, please refer to antenna specification.			

2.5 Calculation Result of Maximum Conducted Power

Operation Mode	Evaluation Frequency (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
WLAN (2.4GHz)	2437	928.995	5.1	27	0.32815	1
WLAN (U-NII-1)	5200	881.497	6.3	27	0.41047	1
WLAN (U-NII-3)	5785	982.568	7.1	27	0.55008	1

Note:
1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
2. 2.4GHz: The directional gain = 5.1 dBi
3. 5GHz:
   U-NII-1: The directional gain = 6.3 dBi
   U-NII-3: The directional gain = 7.1 dBi

Conclusion:

The formula of calculated the MPE is:

CPD1 / LPD1 + CPD2 / LPD2 + ……etc. < 1

CPD = Calculation power density

LPD = Limit of power density

WLAN 2.4GHz + WLAN 5GHz = 0.32815 / 1 + 0.55008 / 1 = 0.87823

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

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