

RF Exposure Report

Report No.: SA180625E05A

FCC ID: 2ABTEG1500

Test Model: Fios-G1500

Received Date: July 30, 2018

Test Date: Aug. 27, 2018

Issued Date: Nov. 27, 2018

Applicant: Verizon Online LLC

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**FCC Registration /
Designation Number:** 723255 / TW2022

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Release Control Record

Issue No.	Description	Date Issued
SA180625E05A	Original release.	Nov. 27, 2018

1 Certificate of Conformity

Product: Fios-G1500

Brand: Verizon

Test Model: Fios-G1500

Applicant: Verizon Online LLC

Test Date: Aug. 27, 2018

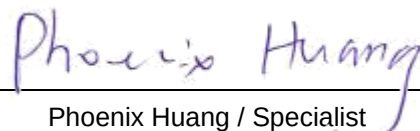
Standards: FCC Part 2 (Section 2.1091)

KDB 447498 D01 General RF Exposure Guidance v06

IEEE C95.1-1992

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.

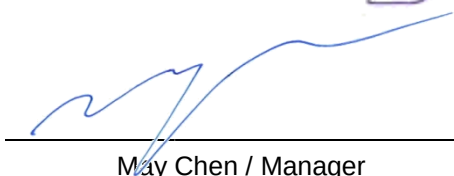
Prepared by :


Phoenix Huang / Specialist

Date:

Nov. 27, 2018

Approved by :


May Chen / Manager

Date:

Nov. 27, 2018

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

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

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 Antenna Gain

WLAN Directional gain table			
Frequency range (GHz)	Directional Antenna Gain (dBi)	Antenna Type	Antenna Connector
2.4 ~ 2.4835	2.94	Dipole	i-pex(MHF)
5.15 ~ 5.25	3.56		
5.25 ~ 5.35	3.56		
5.47 ~ 5.725	3.56		
5.725 ~ 5.85	3.56		
Z-Wave antenna spec.			
Antenna Net Gain (dBi)	Frequency range (MHz)	Antenna Type	Antenna Connector
1.73	902~928	Dipole	None
Note: More detailed information, please refer to operating description.			

Note: More detailed information, please refer to operating description.

2.5 Calculation Result

For Z-Wave technology and 2.4GHz and 5GHz (U-NII-1 band and U-NII-3 band) data was copied from the original test report (Report No.: SA180625E05)

Z-Wave Field Strength Conversion:

Frequency (MHz)	Field Strength of Fundamental (dBuV/m) @3m	EIRP (dBm)	EIRP (mW)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
908.4	93.9	-1.33	0.7362	20	0.00014646	0.6056

Note: 1. Pout EIRP (dBm) = Field Strength of Fundamental (dBuV/m) - 95.23 (dB)

2. Power Density Limit = F/1500

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	2462	996.372	2.94	20	0.39008	1
WLAN 5GHz (U-NII-1)	5240	564.338	3.56	20	0.25484	1
WLAN U-NII-2A	5270	247.878	3.56	20	0.11194	1
WLAN U-NII-2C	5500	247.392	3.56	20	0.11172	1
WLAN 5GHz (U-NII-3)	5795	480.318	3.56	20	0.21690	1

Note:

2.4GHz: Directional gain = 2.94dBi

5GHz: Directional gain = 3.56dBi

Conclusion:

The formula of calculated the MPE is:

$CPD1 / LPD1 + CPD2 / LPD2 + \dots \text{etc.} < 1$

CPD = Calculation power density

LPD = Limit of power density

$WLAN\ 2.4GHz + WLAN\ 5GHz + Z\text{-}Wave = 0.39008 / 1 + 0.25484 / 1 + 0.00014646 / 0.6056 = 0.64517$

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

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