Maximum Permissible Exposure

Equipment	:	**Dual-WAN Security Firewall**
Brand Name	:	**DrayTek**
Model No.	:	**Vigor2952,Vigor2952n,Vigor2952P,Vigor2952Pn, Vigor3220,Vigor3220n,Vigor3220F,Vigor3220Fn**
FCC ID	:	**VGY2952**
Standard	:	**IEEE C95.1**
Applicant / Manufacturer	:	**DrayTek Corp.** No. 26, Fushing Rd., Hukou, Hsinchu Industrial Park, Hsinchu, 303, Taiwan

The product sample received on Oct. 29, 2015 and completely tested on Jan. 18, 2016. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with the procedures given in IEEE C95.1 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by:

Kevin Liang / Assistant Manager

Testing Laboratory
1190

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1 HUMAN EXPOSURE ASSESSMENT 4

1.1 Maximum Permissible Exposure 4

Revision History

Report No.	Version	Description	Issued Date
FA582411	Rev. 01	Initial issue of report	Sep. 23, 2016

1 Human Exposure Assessment

1.1 Maximum Permissible Exposure

1.1.1 Limit of Maximum Permissible Exposure

Limits for Occupational / Controlled Exposure				
Frequency Range (MHz)	**Electric Field Strength (E) (V/m)**	**Magnetic Field Strength (H) (A/m)**	**Power Density (S) (mW/ cm²)**	**Averaging Time |E|²,|H|² or S (minutes)**
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	($900 / f^2$)*	6
30-300	61.4	0.163	1.0	6
300-1500	-	-	F/300	6
1500-100,000	-	-	5	6
Limits for General Population / Uncontrolled Exposure				
Frequency Range (MHz)	**Electric Field Strength (E) (V/m)**	**Magnetic Field Strength (H) (A/m)**	**Power Density (S) (mW/ cm²)**	**Averaging Time |E|²,|H|² or S (minutes)**
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
Note 1: f = frequency in MHz ; *Plane-wave equivalent power density Note 2: For the applicable limit, see FCC 1.1310				

1.1.2 MPE Calculation Method

$$S = \frac{PG}{4\pi R^2}$$

S = power density (in appropriate units, e.g. mW/cm^2)
P = power input to the antenna (in appropriate units, e.g., mW)
G = power gain of the antenna in the direction of interest relative to an isotropic radiator
R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

1.1.3 Result of Maximum Permissible Exposure (2.4GHz)

RF General Information					
Frequency Range (MHz)	**IEEE Std. 802.11 Protocol**	**Ch. Frequency (MHz)**	**Channel Number**	**Number of Transmit Chains (N_{TX})**	**RF Output Power (dBm)**
2400-2483.5	b	2412-2462	1-11 [11]	1	26.24
2400-2483.5	g	2412-2462	1-11 [11]	1	24.56
2400-2483.5	n (HT20)	2412-2462	1-11 [11]	2	24.77
2400-2483.5	n (HT40)	2422-2452	3-9 [7]	2	21.77
Note 1: RF output power specifies that Maximum Conducted (Average) Output Power.					

Worst Maximum RF Output Power Result					
Exposure Environment		General Population / Uncontrolled Exposure			
Separation Distance (cm)		20			
Condition		**RF Output Power (dBm)**			
Modulation Mode	**N_{TX}**	**Chain Port 1**	**DG (dBi)**	**EIRP Power**	**PD (S) (mW/cm²)**
11b	1	26.24	2.00	28.24	0.13266
Maximum Permissible Exposure Limit (mW/cm²)					1
Note 1: N_{TX} = Number of Transmit Chains					