

FCC RF EXPOSURE REPORT

FCC ID: QISHG8245Q

Project No. : 1506C156
Equipment : GPON Terminal
Model : EchoLife HG8245Q
Applicant : Huawei Technologies Co.,Ltd.
**Address : Administration Building, Headquarters of
Huawei Technologies Co., Ltd., Bantian,
Longgang District, Shenzhen China**
**According: : FCC Guidelines for Human Exposure IEEE
C95.1**

B T L I N C .

No.3, Jinshagang 1st Road, Shixia, Dalang Town, Dongguan, China.
TEL: +86-769-8318-3000 FAX: +86-769-8319-6000

MPE CALCULATION METHOD:

Calculation Method of RF Safety Distance:

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

where:

S = power density

P = power input to the antenna

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

Table for Filed Antenna

2.4G

Ant.	Manufacturer	Model Name	Antenna Type	Connector	Gain (dBi)	Note
1	Huawei	HG8245DANT2G	Internal	N/A	1.98	2.4G
2	Huawei	HG8245DANT2G	Internal	N/A	1.98	2.4G
3	Huawei	HG8245DANT2G	Internal	N/A	1.98	2.4G

Note:

1. The EUT incorporates a MIMO function. Physically, the EUT provides three completed transmitters and receivers (3T3R). All transmit signals are completely uncorrelated, then, Direction gain = G_{ANT} , that is Directional gain=1.98.
2. ANT 1 for 1TX was found to be the worst case and recorded.

Operating Mode TX Mode	1TX	3TX
802.11b	V (ANT 1)	-
802.11g	-	V (ANT 1+ ANT 2 + ANT 3)
802.11n(20MHz)	-	V (ANT 1+ ANT 2 + ANT 3)
802.11n(40MHz)	-	V (ANT 1+ ANT 2 + ANT 3)

5G

Ant.	Manufacturer	Model Name	Antenna Type	Connector	Gain (dBi)	Note
4	Huawei	HG8245DANT5G.	Internal	N/A	1.86	5G
5	Huawei	HG8245DANT5G.	Internal	N/A	1.86	5G
6	Huawei	HG8245DANT5G.	Internal	N/A	1.86	5G

Note:

1. The EUT incorporates a MIMO function. Physically, the EUT provides three completed transmitters and receivers (3T3R). All transmit signals are completely uncorrelated, then, Direction gain = G_{ANT} , that is Directional gain=1.86.
2. ANT 4 for 1TX was found to be the worst case and recorded.

Operating Mode TX Mode	1TX	3TX
802.11a	V (ANT 4)	-
802.11n(20MHz)	-	V (ANT 4+ANT 5 + ANT 6)
802.11n(40MHz)	-	V (ANT 4+ANT 5 + ANT 6)
802.11ac(20MHz)	-	V (ANT 4+ANT 5 + ANT 6)
802.11ac(40MHz)	-	V (ANT 4+ANT 5 + ANT 6)
802.11ac(80MHz)	-	V (ANT 4+ANT 5 + ANT 6)

TEST RESULTS

2.4G

EUT :	GPON Terminal	Model Name :	EchoLife HG8245Q
Temperature:	25 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX N20 MODE_ Total /CH01, CH06, CH11		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
1.98	1.5776	24.15	260.0160	0.08164891	1	Complies
1.98	1.5776	24.20	263.0268	0.08259436	1	Complies
1.98	1.5776	24.18	261.8183	0.08221487	1	Complies

UNII-1

EUT :	GPON Terminal	Model Name :	EchoLife HG8245Q
Temperature:	25 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX AC40 MODE_ Total / CH38, CH46		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
1.86	1.5346	15.32	34.0408	0.01039801	1	Complies
1.86	1.5346	15.42	34.8337	0.01064021	1	Complies

UNII-2A

EUT :	GPON Terminal	Model Name :	EchoLife HG8245Q
Temperature:	25 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX N40 MODE_ Total / CH54, CH62		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
1.86	1.5346	19.87	97.0510	0.02964493	1	Complies
1.86	1.5346	20.06	101.3911	0.03097065	1	Complies

UNII-2C

EUT :	GPON Terminal	Model Name :	EchoLife HG8245Q
Temperature:	25 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX N40 MODE_ Total / CH102, CH110, CH134		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
1.86	1.5346	19.43	87.7001	0.02678862	1	Complies
1.86	1.5346	19.24	83.9460	0.02564191	1	Complies
1.98	1.5776	19.19	82.9851	0.02605856	1	Complies

UNII-3

EUT :	GPON Terminal	Model Name :	EchoLife HG8245Q
Temperature:	25 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX N20 MODE_ Total / CH149, CH157, CH165		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
1.86	1.5346	19.16	82.4138	0.02517389	1	Complies
1.86	1.5346	18.96	78.7046	0.02404088	1	Complies
1.98	1.5776	19.12	81.6582	0.02564191	1	Complies

For 2.4G+5G simultaneous transmission MPE:

$$0.0826/1+0.0310/1=0.1136 < 1$$

Note: the calculated distance is 20 cm.