

FCC RF EXPOSURE REPORT

FCC ID: RYK-WPEQ160ACNBT

Project No. : 1706188
Equipment : 802.11ac/a/b/g/n Wi-Fi+BT Module
Test Model : WPEQ-160ACN(BT)
Serial Model : WPEQ-160ACN
Applicant : SparkLAN Communications, Inc.
Address : 8F.,No.257,Sec.2,Tiding-Blvd.,Neihu
District,Taipei City 11493,Taiwan (R.O.C.)

According: : FCC Guidelines for Human Exposure IEEE
C95.1

B T L I N C .

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MPE CALCULATION METHOD:

Calculation Method of RF Safety Distance:

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

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 Band:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	Wanshin	WSS038	Dipole	RP-SMA	4.6

5G Band:

Ant.	Manufacturer	Model Name	Antenna Type	Connector	Gain (dBi)	
					5150-5250 MHz	5725-5850 MHz
1	Wanshin	WSS038	Dipole	RP-SMA	5.5	4

CACULATION:

Bluetooth EDR:

Test Mode :	TX Mode _1Mbps
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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
4.6	2.8840	1	1.2589	0.00072269	1	Complies

Test Mode :	TX Mode _3Mbps
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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
4.6	2.8840	1	1.2589	0.00072269	1	Complies

Bluetooth LE:

Test Mode :	CH00, CH19 , CH39
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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
4.6	2.8840	2	1.5849	0.00090981	1	Complies

2.4G:

Test Mode :	TX B Mode Total / CH01, CH06, CH11
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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
4.6	2.8840	23	199.5262	0.11453820	1	Complies

Test Mode :	TX G Mode Total / CH01, CH06, CH11
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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
4.6	2.8840	23	199.5262	0.11453820	1	Complies

Test Mode :	TX N-20M Mode Total / CH01, CH06, CH11
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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
4.6	2.8840	23	199.5262	0.11453820	1	Complies

Test Mode :	TX N-40M Mode Total / CH03, CH06, CH09
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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
4.6	2.8840	22	158.4893	0.09098093	1	Complies

Note: the calculated distance is 20 cm.

5G:

Test Mode :	TX A Mode /CH36, CH40, CH48
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Antenna Gain (dBi)	Antenna Gain (numeric)	AVG. Output Power (dBm)	AVG. Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
5.5	3.5481	20	100.0000	0.07062368	1	Complies

Test Mode :	TX AC20 Mode /CH36, CH40, CH48
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Antenna Gain (dBi)	Antenna Gain (numeric)	AVG. Output Power (dBm)	AVG. Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
5.5	3.5481	19	79.4328	0.05609839	1	Complies

Test Mode :	TX AC40 Mode / CH38, CH46
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Antenna Gain (dBi)	Antenna Gain (numeric)	AVG. Output Power (dBm)	AVG. Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
5.5	3.5481	18	63.0957	0.04456053	1	Complies

Test Mode :	TX AC80 Mode / CH42
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Antenna Gain (dBi)	Antenna Gain (numeric)	AVG. Output Power (dBm)	AVG. Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
5.5	3.5481	17	50.1187	0.03539569	1	Complies

Note: the calculated distance is 20 cm.

COLLOCATED POWER DENSITY CALCULATIONS

So for 2.4G+5G simultaneous transmission:

$$0.11453820/1+0.07062368/1=0.18516189 <1$$