FCC RF EXPOSURE REPORT

FCC ID: V7TMESH5S

Project No.	**: 1806C124**
Equipment	**: AC1200 Whole Home Mesh WiFi System**
Model	**: Mesh5s**
Applicant	**: SHENZHEN TENDA TECHNOLOGY CO.,LTD**
Address	**: 6-8 Floor, Tower E3, No. 1001, Zhongshanyuan Road, Nanshan District, Shenzhen, China. 518052**
According:	**: FCC Guidelines for Human Exposure IEEE C95.1 & FCC Part 2.1091**

BTL INC.

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.	Brand	Model Name	Antenna Type	Connector	Gain(dBi)
1	N/A	N/A	PCB	IPEX	4.5
2	N/A	N/A	PCB	IPEX	4.5

Note:
The EUT incorporates a MIMO function. Physically, the EUT provides two completed transmitters and receivers (2T2R), all transmit signals are completely correlated,
then,
for Non-beamforming function,
Direction gain = GANT+10log(N)dBi=4.5+10log(2), that is Directional gain=7.51.
So, the out power limit is 30-7.51+6=28.49,
the power density limit is 17-7.51+6=15.49,
for beamforming function,
Beamforming Gain=3 dBi, Direction gain = 7.51,
So, the out power limit is 30-7.51-3+6=25.49
the power density limit is 30-7.51-3+6=25.49

5G

Ant.	Brand	Model Name	Antenna Type	Connector	Gain(dBi)	Note
1	N/A	N/A	PCB	IPEX	3	UNII-1
1	N/A	N/A	PCB	IPEX	4	UNII-3
2	N/A	N/A	PCB	IPEX	3	UNII-1
2	N/A	N/A	PCB	IPEX	4	UNII-3

Note:
The EUT incorporates a MIMO function. Physically, the EUT provides two completed transmitters and receivers (2T2R), all transmit signals are completely correlated, then,
for Non-beamforming function,
Direction gain = $10 \log[(10^{G1/20} + 10^{G2/20})^2/N]$, that are
UNII-1 Directional gain=$10 \log[(10^{3/20} + 10^{3/20})^2/2]$ = 6.01dBi
UNII-3 Directional gain=$10 \log[(10^{4/20} + 10^{4/20})^2/2]$ = 7.01dBi
The UNII-1 Output Power limit is 30-6.01+6=29.99 dBm
The UNII-3 Output Power limit is 30-7.01+6=28.99 dBm
The UNII-1 PSD limit is 17-6.01+6=16.99 dBm/MHz
The UNII-3 PSD limit is 30-7.01+6=28.99 dBm/500kHz.
for beamforming function,
Beamforming Gain=3 dBi,
UNII-1 Directional gain = 6.01dBi
UNII-3 Directional gain = 7.01dBi
So, UNII-1, the out power limit is 30-6.01-3+6=26.99
UNII-3 the out power limit is 30-7.01-3+6=25.99,
UNII-1 the power density limit is 17-6.01-3+6=13.99,
UNII-3 the power density limit is 30-7.01-3+6=25.99.

TEST RESULTS

EUT：	AC1200 Whole Home Mesh WiFi System	Model Name :	Mesh5s
Temperature：	25 ℃	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		

2.4G WIFI Non-Beamforming:

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
4.5	2.8184	28.37	687.07	0.38543	1	Complies

2.4G WIFI with Beamforming:

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
4.5	2.8184	25.36	343.56	0.19273	1	Complies

UNII-1 Non-Beamforming:

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	2.5119	21.22	132.4342	0.06621	1	Complies

UNII-1 with Beamforming:

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	2.5119	21.01	126.1828	0.06309	1	Complies

UNII-3 Non-Beamforming:

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	2.5119	21.68	147.2313	0.07361	1	Complies

UNII-3 with Beamforming:

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	2.5118	21.44	139.3157	0.05260	1	Complies

For 2.4G+5G simultaneous transmission MPE:

0.38543/1+0.07361/1=0.45904<1

Note: the calculated distance is 20 cm.