FCC RF EXPOSURE REPORT

FCC ID: 2ADZRG240WB

Project No.	**: 1411C236A**
Equipment	**: GPON ONU**
Model	**: G-240W-B**
Applicant	**: Alcatel-Lucent Shanghai Bell Co. Ltd.**
Address	**: 6B602, 388 Ningqiao Road Pudong, Shanghai, China**
According:	**: FCC Guidelines for Human Exposure IEEE C95.1**

BTL INC.

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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	Airgain	N2420S	Embedded	U.FL	3.20
2	Airgain	N2420S	Embedded	U.FL	3.20
3	Airgain	N2420S	Embedded	U.FL	3.20

5G

Ant.	Brand	Model Name	Antenna Type	Connector	Gain(dBi)
1	Airgain	N5x20B	Embedded	N/A	2.90
2	Airgain	N5x20B	Embedded	N/A	2.90
3	Airgain	N5x20B	Embedded	N/A	2.90
4	Airgain	N5x20B	Embedded	N/A	2.90

Note: The EUT(AC mode) has beamforming function, then, Direction gain = $G_{ANT}+10\log(N_{ANT}/N_{SS})$, where N_{SS} = the number of independent spatial streams of data.
Directional gain=2.90+10log(4/2)=2.90+3.01=5.91.

2.4G Only MPE

EUT：	GPON ONU	Model Name :	G-240W-B
Temperature :	25 ℃	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX N20 MODE /CH06		

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
3.20	2.0893	29.59	909.9133	0.37839934	1	Complies

5G Only MPE

EUT：	GPON ONU	Model Name :	G-240W-B
Temperature :	25 ℃	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	UNII-1/TX AC20 MODE/CH40		

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
5.91	3.8994	21.84	152.7566	0.11856332	1	Complies

So for 2.4G+5G simultaneous transmission MPE:

0.3784/1+0.1186/1=0.4970 < 1

Note: the calculated distance is 20 cm.