FCC RF EXPOSURE REPORT

FCC ID: Q78-ZXHNH389A

Project No.	**: 1701C100**
Equipment	**: Home Gateway**
Model	**: ZXHN H389A**
Applicant	**: ZTE Corporation**
Address	**: ZTE Plaza, Hi-Tech Park, Nanshan District, Shenzhen, Guangdong, P.R.China**
According:	**: FCC Guidelines for Human Exposure IEEE C95.1 & FCC Part 2.1091**

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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	N/A	N/A	Internal	N/A	2
2	N/A	N/A	Internal	N/A	2
3	N/A	N/A	Internal	N/A	2

Note:
The EUT incorporates a MIMO function. Physically, the EUT provides three completed transmitters and receivers (3T3R), any transmit signals are uncorrelated with each other, So Directional gain = G_{ANT}dBi, that is Directional gain=2.

5G:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain(dBi)
1	N/A	N/A	Internal	N/A	3
2	N/A	N/A	Internal	N/A	3
3	N/A	N/A	Internal	N/A	3

Note:

(1) Without Beamforming:

This EUT supports MIMO 3X3, any transmit signals are correlated with each other, so Directional gain = GANT+10log(N)dBi, that is Directional gain= 3+10log(3)dBi=7.77;

So, the UNII-1,UNII-3 output power limit is 30-7.77+6=28.23, the UNII-2A,UNII-2C output power limit is 24-7.77+6=22.23.

The UNII-1 power density limit is 17-7.77+6=15.23, the UNII-2A and UNII-2C power density limit is 11-7.77+6=9.23, the UNII-3 power density limit is 30-7.77+6=28.23.

(2) With Beamforming:

The EUT with beamformign function and beamforming antenna gain 4.5dBi that Directional gain = 3+4.5=7.5dBi, So, the UNII-1,UNII-3 output power limit is 30-7.5+6=28.50, the UNII-2A,UNII-2C output power limit is 24-7.5+6=22.50.

The UNII-1 power density limit is 17-7.5+6=15.50, the UNII-2A and UNII-2C power density limit is 11-7.5+6=9.5, the UNII-3 power density limit is 30-7.5+6=28.50.

Operating Mode / TX Mode	1TX	3TX
802.11a	V (ANT 1)	-
802.11n (20MHz)	V (ANT 1)	V (ANT+1 ANT 2+ANT 3)
802.11n (40MHz)	V (ANT 1)	V (ANT+1 ANT 2+ANT 3)
802.11ac (20MHz)	V (ANT 1)	V (ANT+1 ANT 2+ANT 3)
802.11ac (40MHz)	V (ANT 1)	V (ANT+1 ANT 2+ANT 3)
802.11ac (80MHz)	V (ANT 1)	V (ANT+1 ANT 2+ANT 3)

TEST RESULTS

EUT:	Home Gateway	Model Name :	ZXHN H389A
Temperature:	25 ℃	Relative Humidity:	60 %
Test Voltage :	AC 120V/60Hz		

2.4G WIFI

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
2	1.5849	28.97	788.8601	0.24885729	1	Complies

5G UNII-1

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm2)	Limit of Power Density (S) (mW/cm2)	Test Result
7.77	5.9841	26.56	452.8976	0.53944897	1	Complies

5G UNII-2A

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm2)	Limit of Power Density (S) (mW/cm2)	Test Result
7.77	5.9841	22.05	160.3245	0.19096350	1	Complies

5G UNII-2C

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm2)	Limit of Power Density (S) (mW/cm2)	Test Result
7.77	5.9841	22.33	171.0015	0.20368093	1	Complies

5G UNII-3

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm2)	Limit of Power Density (S) (mW/cm2)	Test Result
7.77	5.9841	28.18	657.6578	0.78334012	1	Complies

Note: the calculated distance is 20 cm.