

FCC RF EXPOSURE REPORT

FCC ID: Q78-ZXHNH198A

Project No. : 1509C188
Equipment : Home Gateway
Model : ZXHN H198A
Applicant : ZTE CORPORATION
Address : ZTE Plaza, Keji Road South, Hi-Tech Road South
Hi-Tech Industrial Park Nanshan District, Shenzhen,
Guangdong 518057 China

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

Ant.	Brand	Model Name	Antenna Type	Connector	Gain(dBi)
1	COCOMM	W2G4-S01-Z	Internal	N/A	2.8
2	COCOMM	W2G4-S01-Z	Printed	N/A	2.8

Note:

The EUT incorporates a MIMO function. Physically, the EUT provides two completed transmitters and receivers (2T2R).

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

5G

Ant.	Brand	Model Name	Antenna Type	Connector	Gain(dBi)
1	COCOMM	W5G-C03-L	Internal	N/A	2.8
2	COCOMM	W5G-C03-L	Internal	N/A	2.8

Note:

The EUT incorporates a MIMO function. Physically, the EUT provides two completed transmitters and receivers (2T2R).

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

TEST RESULTS

EUT :	Home Gateway	Model Name :	ZXHN H198A
Temperature :	22 °C	Relative Humidity:	58 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX B MODE /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
2.8	1.9055	19.90	97.7237	0.03706384	1	Complies
2.8	1.9055	19.69	93.1108	0.03531428	1	Complies
2.8	1.9055	20.39	109.3956	0.04149066	1	Complies

EUT :	Home Gateway	Model Name :	ZXHN H198A
Temperature :	22 °C	Relative Humidity:	58 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX G MODE /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
2.8	1.9055	24.50	281.8383	0.10689327	1	Complies
2.8	1.9055	24.42	276.6942	0.10494225	1	Complies
2.8	1.9055	24.68	293.7650	0.11141672	1	Complies

EUT :	Home Gateway	Model Name :	ZXHN H198A
Temperature:	22 °C	Relative Humidity:	58 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX N-20M 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
2.8	1.9055	24.76	299.2265	0.11348811	1	Complies
2.8	1.9055	24.37	273.5269	0.10374099	1	Complies
2.8	1.9055	24.43	277.3320	0.10518417	1	Complies

EUT :	Home Gateway	Model Name :	ZXHN H198A
Temperature:	22 °C	Relative Humidity:	58 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX N-40M MODE_ Total /CH03, CH06, CH09		

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
2.8	1.9055	24.72	296.4831	0.11244765	1	Complies
2.8	1.9055	24.78	300.6076	0.11401195	1	Complies
2.8	1.9055	24.46	279.2544	0.10591327	1	Complies

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EUT :	Home Gateway	Model Name :	ZXHN H198A
Temperature:	28 °C	Relative Humidity:	60 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX A MODE_Total / CH36, CH40, CH48		

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
2.8	1.9055	20.98	125.3141	0.04752809	1	Complies
2.8	1.9055	22.88	194.0886	0.07361230	1	Complies
2.8	1.9055	22.54	179.4734	0.06806916	1	Complies

EUT :	Home Gateway	Model Name :	ZXHN H198A
Temperature:	28 °C	Relative Humidity:	60 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX N-20M MODE_Total / CH36, CH40, CH48		

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
2.8	1.9055	20.30	107.1519	0.04063969	1	Complies
2.8	1.9055	24.48	280.5434	0.10640214	1	Complies
2.8	1.9055	23.10	204.1738	0.07743733	1	Complies

EUT :	Home Gateway	Model Name :	ZXHN H198A
Temperature:	28 °C	Relative Humidity:	60 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX N-40M 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
2.8	1.9055	18.84	76.5597	0.02903691	1	Complies
2.8	1.9055	23.59	228.5599	0.08668628	1	Complies

EUT :	Home Gateway	Model Name :	ZXHN H198A
Temperature:	28 °C	Relative Humidity:	60 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX AC-20M MODE_ Total / CH36, CH40, CH48		

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
2.8	1.9055	18.36	68.5488	0.02599862	1	Complies
2.8	1.9055	23.11	204.6445	0.07761584	1	Complies
2.8	1.9055	22.86	193.1968	0.07327408	1	Complies

EUT :	Home Gateway	Model Name :	ZXHN H198A
Temperature:	28 °C	Relative Humidity:	60 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX AC-40M 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
2.8	1.9055	20.08	101.8591	0.03863228	1	Complies
2.8	1.9055	24.86	306.1963	0.11613159	1	Complies

EUT :	Home Gateway	Model Name :	ZXHN H198A
Temperature:	28 °C	Relative Humidity:	60 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX AC-80M MODE_ Total /CH42		

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
2.8	1.9055	20.06	101.3911	0.03845478	1	Complies

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EUT :	Home Gateway	Model Name :	ZXHN H198A
Temperature:	28 °C	Relative Humidity:	60 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX A MODE_Total / CH52, CH60, CH64		

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
2.8	1.9055	19.70	93.3254	0.03539569	1	Complies
2.8	1.9055	19.66	92.4698	0.03507118	1	Complies
2.8	1.9055	19.35	86.0994	0.03265505	1	Complies

EUT :	Home Gateway	Model Name :	ZXHN H198A
Temperature:	28 °C	Relative Humidity:	60 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX N-20M MODE_Total / CH52, CH60, CH64		

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
2.8	1.9055	19.96	99.0832	0.03757945	1	Complies
2.8	1.9055	19.87	97.0510	0.03680869	1	Complies
2.8	1.9055	18.44	69.8232	0.02648197	1	Complies

EUT :	Home Gateway	Model Name :	ZXHN H198A
Temperature:	28 °C	Relative Humidity:	60 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX N-40M 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
2.8	1.9055	21.89	154.5254	0.05860712	1	Complies
2.8	1.9055	19.33	85.7038	0.03250501	1	Complies

EUT :	Home Gateway	Model Name :	ZXHN H198A
Temperature:	28 °C	Relative Humidity:	60 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX AC-20M MODE_Total / CH52, CH60, CH64		

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
2.8	1.9055	19.46	88.3080	0.03349272	1	Complies
2.8	1.9055	19.35	86.0994	0.03265505	1	Complies
2.8	1.9055	19.1	81.2831	0.03082836	1	Complies

EUT :	Home Gateway	Model Name :	ZXHN H198A
Temperature:	28 °C	Relative Humidity:	60 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX AC-40M 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
2.8	1.9055	21.79	151.0080	0.05727306	1	Complies
2.8	1.9055	21.60	144.5440	0.05482143	1	Complies

EUT :	Home Gateway	Model Name :	ZXHN H198A
Temperature:	28 °C	Relative Humidity:	60 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX AC-80M MODE_Total / CH58		

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
2.8	1.9055	20.93	123.8797	0.04698404	1	Complies

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EUT :	Home Gateway	Model Name :	ZXHN H198A
Temperature:	28 °C	Relative Humidity:	60 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX A MODE_Total / CH100, CH116, CH140		

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
2.8	1.9055	19.37	86.4968	0.03280578	1	Complies
2.8	1.9055	19.58	90.7821	0.03443106	1	Complies
2.8	1.9055	17.80	60.2560	0.02285338	1	Complies

EUT :	Home Gateway	Model Name :	ZXHN H198A
Temperature:	28 °C	Relative Humidity:	60 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX N-20M MODE_Total / CH100, CH116, CH140		

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
2.8	1.9055	19.70	93.3254	0.03539569	1	Complies
2.8	1.9055	19.89	97.4990	0.03697859	1	Complies
2.8	1.9055	16.4	43.6516	0.01655581	1	Complies

EUT :	Home Gateway	Model Name :	ZXHN H198A
Temperature:	28 °C	Relative Humidity:	60 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX N-40M 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
2.8	1.9055	21.02	126.4736	0.04796786	1	Complies
2.8	1.9055	21.73	148.9361	0.05648724	1	Complies
2.8	1.9055	21.37	137.0882	0.05199366	1	Complies

EUT :	Home Gateway	Model Name :	ZXHN H198A
Temperature:	28 °C	Relative Humidity:	60 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX AC-20M MODE_Total / CH100, CH116, CH140		

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
2.8	1.9055	18.76	75.1623	0.02850692	1	Complies
2.8	1.9055	19.61	91.4113	0.03466972	1	Complies
2.8	1.9055	16.58	45.4988	0.01725641	1	Complies

EUT :	Home Gateway	Model Name :	ZXHN H198A
Temperature:	28 °C	Relative Humidity:	60 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX AC-40M 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
2.8	1.9055	22.20	165.9587	0.06294342	1	Complies
2.8	1.9055	22.60	181.9701	0.06901609	1	Complies
2.8	1.9055	22.37	172.5838	0.06545614	1	Complies

EUT :	Home Gateway	Model Name :	ZXHN H198A
Temperature:	28 °C	Relative Humidity:	60 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX AC-80M MODE_Total / CH106, CH122		

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
2.8	1.9055	20.17	103.9920	0.03944122	1	Complies
2.8	1.9055	23.55	226.4644	0.08589154	1	Complies

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EUT :	Home Gateway	Model Name :	ZXHN H198A
Temperature:	28 °C	Relative Humidity:	60 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX A 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
2.8	1.9055	19.65	92.2571	0.03499052	1	Complies
2.8	1.9055	23.02	200.4472	0.07602394	1	Complies
2.8	1.9055	22.76	188.7991	0.07160616	1	Complies

EUT :	Home Gateway	Model Name :	ZXHN H198A
Temperature:	28 °C	Relative Humidity:	60 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX N-20M 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
2.8	1.9055	20.40	109.6478	0.04158631	1	Complies
2.8	1.9055	23.40	218.7762	0.08297559	1	Complies
2.8	1.9055	21.73	148.9361	0.05648724	1	Complies

EUT :	Home Gateway	Model Name :	ZXHN H198A
Temperature:	28 °C	Relative Humidity:	60 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX N-40M MODE_Total / CH151, CH159		

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
2.8	1.9055	22.01	158.8547	0.06024907	1	Complies
2.8	1.9055	24.14	259.4179	0.09838987	1	Complies

EUT :	Home Gateway	Model Name :	ZXHN H198A
Temperature:	28 °C	Relative Humidity:	60 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX AC-20M 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
2.8	1.9055	18.9	77.6247	0.02944085	1	Complies
2.8	1.9055	23.12	205.1162	0.07779476	1	Complies
2.8	1.9055	21.45	139.6368	0.05296029	1	Complies

EUT :	Home Gateway	Model Name :	ZXHN H198A
Temperature:	28 °C	Relative Humidity:	60 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX AC-40M MODE_Total / CH151, CH159		

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
2.8	1.9055	20.64	115.8777	0.04394914	1	Complies
2.8	1.9055	24.13	258.8213	0.09816358	1	Complies

EUT :	Home Gateway	Model Name :	ZXHN H198A
Temperature:	28 °C	Relative Humidity:	60 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX AC-80M MODE_Total / CH155		

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
2.8	1.9055	20.12	102.8016	0.03898974	1	Complies

For 2.4G+5G simultaneous transmission MPE:

$$0.1140/1+0.1161/1=0.2301<1$$

Note: the calculated distance is 20 cm.