

MPE REPORT

Report No.: SRTC2021-9004(F)-21030302(I)

Product Name: WIFI Router

Product Model: MF263, MF266B

Applicant: ZTE CORPORATION

Manufacturer: ZTE CORPORATION

Specification: FCC Part §2.1091, §2.1093, §1.1307(b), §1.1310 (2020)

FCC ID: SRQ-MF263

The State Radio_monitoring_center Testing Center (SRTC)

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1 GENERAL INFORMATION

1.1 Notes of the test report

The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written permission of The State Radio_monitoring_center Testing Center (SRTC). The test results relate only to individual items of the samples which have been tested. The certification and accreditation identifiers used in this report shall not be applicable to the tested or calibrated samples thereof. The manufacturer shall not mark the tested samples or items (or a separate part of the item) with the identifiers of certification and accreditation to mislead relevant parties about the tested samples or items.

1.2 Information about the testing laboratory

Company:	The State Radio_monitoring_center Testing Center (SRTC)
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1.3 Applicant's details

Company:	ZTE CORPORATION
Address:	ZTE Plaza, #55 Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Guangdong
City:	Shenzhen
Country or Region:	China
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1.4 Manufacturer's details

Company:	ZTE CORPORATION
Address:	ZTE Plaza, #55 Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Guangdong
City:	Shenzhen
Country or Region:	China
Contacted person:	Gong Yu
Tel:	+86-21-68895397
Email:	gongyu@zte.com.cn

2 DESCRIPTION OF THE DEVICE UNDER TEST

2.1 Final Equipment Build Status

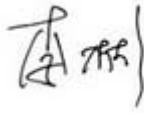
Frequency Bands	WIFI2.4GHz: 2400MHz – 2483.5MHz WIFI5GHz UNII-1: 5150MHz – 5250MHz WIFI5GHz UNII-3: 5725MHz – 5850MHz
Mode	WIFI2.4GHz: 802.11b/g/n 20/40 WIFI5GHz: 802.11a/n/ac 20/40/80
Power Supply	DC Adapter
Hardware Version	MF266BHW1.0
Software Version	BD_CLAPEIDUMF266BV1.0.0B01
IMEI or Sample	#1

3 REFERENCE SPECIFICATION

Specification	Version	Title
2.1091	2020	Radio frequency radiation exposure evaluation: mobile devices.
2.1093	2020	Radio frequency radiation exposure evaluation: portable devices.
1.1307(b)	2020	Actions that may have a significant environmental effect, for which Environmental Assessments (EAs) must be prepared.
1.1310	2020	Radio frequency radiation exposure limits.
KDB447498	October 23, 2015	RF exposure procedures and equipment authorization policies for mobile and portable devices

4 RESULT SUMMARY

No.	Test case	FCC reference
1	MPE Calculation	FCC Part §2.1091, FCC Part §2.1093, FCC Part §1.1307(b) FCC Part §1.1310 KDB 447498

This Test Report Is Issued by: Mr. Peng Zhen 	Checked by: Mr. Li Bin 
Tested by: Mr. Du Wei 	Issued date: 20210423

5 TEST RESULTS

5.1 Average Power Output Test Result

Wi-Fi 2.4GHz

Mode	Tones/ RU Index	Freq (MHz)	Chain	Average power output (dBm)	Tune-up Tolerance (dBm)	Antenna Gain (dBi)	Tune-up Tolerance+ Antenna Gain (dBm)
802.11b	NA	2412MHz	Chain0	17.64	18.0	2.5	20.5
	NA		Chain1	17.90	18.0	2.6	20.6
	NA	2437MHz	Chain0	17.95	18.0	2.5	20.5
	NA		Chain1	17.72	18.0	2.6	20.6
	NA	2462MHz	Chain0	18.15	18.5	2.5	21.0
	NA		Chain1	18.52	19.0	2.6	21.6
802.11g	NA	2412MHz	Chain0	15.31	15.5	2.5	18.0
	NA		Chain1	15.65	16.0	2.6	18.6
	NA	2437MHz	Chain0	15.71	16.0	2.5	18.5
	NA		Chain1	15.63	16.0	2.6	18.6
	NA	2462MHz	Chain0	15.97	16.0	2.5	18.5
	NA		Chain1	16.29	16.5	2.6	19.1
802.11n20M	NA	2412MHz	Chain0	14.69	15.0	2.5	17.5
	NA		Chain1	14.81	15.0	2.6	17.6
	NA		MIMO	17.76	18.0	2.6	20.6
	NA	2437MHz	Chain0	14.97	15.0	2.5	17.5
	NA		Chain1	14.76	15.0	2.6	17.6
	NA		MIMO	17.88	18.0	2.6	20.6
	NA	2462MHz	Chain0	15.04	15.5	2.5	18.0
	NA		Chain1	15.43	15.5	2.6	18.1
	NA		MIMO	18.25	18.5	2.6	21.1
802.11n40M	NA	2422MHz	Chain0	14.48	14.5	2.5	17.0
	NA		Chain1	14.22	14.5	2.6	17.1
	NA		MIMO	17.36	17.5	2.6	20.1
	NA	2437MHz	Chain0	14.73	15.0	2.5	17.5
	NA		Chain1	14.51	15.0	2.6	17.6
	NA		MIMO	17.63	18.0	2.6	20.6
	NA	2452MHz	Chain0	14.65	15.0	2.5	17.5
	NA		Chain1	14.48	14.5	2.6	17.1
	NA		MIMO	17.58	17.8	2.5	20.3

Wi-Fi 5GHz U-NII-1

Mode	Tones/ RU Index	Freq (MHz)	Chain	Average power output (dBm)	Tune-up Tolerance (dBm)	Antenna Gain (dBi)	Tune-up Tolerance+ Antenna Gain (dBm)
802.11a	NA	5180	Chain0	15.86	16.0	3.0	19.0
			Chain1	17.20	17.5	2.8	20.3
			MIMO	19.59	19.8	2.9	22.7
		5220	Chain0	15.99	16.0	3.0	19.0
			Chain1	17.28	17.5	2.8	20.3
			MIMO	19.69	19.8	2.9	22.7
		5240	Chain0	16.00	16.0	3.0	19.0
			Chain1	17.27	17.5	2.8	20.3
			MIMO	19.69	19.8	2.9	22.7
802.11n20M		5180	Chain0	14.82	15.0	3.0	18.0
			Chain1	16.29	16.5	2.8	19.3
			MIMO	18.63	18.8	2.9	21.7
		5240	Chain0	14.93	15.0	3.0	18.0
			Chain1	16.30	16.5	2.8	19.3
			MIMO	18.68	18.8	2.9	21.7
802.11n40M		5190	Chain0	14.98	15.0	3.0	18.0
			Chain1	16.45	16.5	2.8	19.3
			MIMO	18.79	18.8	2.9	21.7
		5230	Chain0	15.05	15.5	3.0	18.5
			Chain1	16.49	16.5	2.8	19.3
			MIMO	18.84	19.0	2.9	21.9
802.11ac20M		5180	Chain0	13.76	14.0	3.0	17.0
			Chain1	15.37	15.5	2.8	18.3
			MIMO	17.65	17.8	2.9	20.7
		5220	Chain0	13.84	14.0	3.0	17.0
			Chain1	15.42	15.5	2.8	18.3
			MIMO	17.71	17.8	2.9	20.7
	5240	Chain0	13.81	14.0	3.0	17.0	
		Chain1	15.30	15.5	2.8	18.3	
		MIMO	17.63	17.8	2.9	20.7	
802.11ac40M	5190	Chain0	13.90	14.0	3.0	17.0	
		Chain1	15.50	15.5	2.8	18.3	
		MIMO	17.78	17.8	2.9	20.7	
	5230	Chain0	13.95	14.0	3.0	17.0	
		Chain1	15.56	16.0	2.8	18.8	
		MIMO	17.84	18.1	2.9	21.0	
802.11ac80M	5210	Chain0	13.57	14.0	3.0	17.0	
		Chain1	15.09	15.5	2.8	18.3	
		MIMO	17.41	17.8	2.9	20.7	

Wi-Fi 5GHz U-NII-3

Mode	Tones/ RU Index	Freq (MHz)	Chain	Average power output (dBm)	Tune-up Tolerance (dBm)	Antenna Gain (dBi)	Tune-up Tolerance+ Antenna Gain (dBm)	
802.11a	NA	5745	Chain0	15.05	15.5	3.0	18.5	
			Chain1	17.53	18.0	2.8	20.8	
			MIMO	19.47	19.9	2.9	22.8	
		5785	Chain0	15.00	15.0	3.0	18.0	
			Chain1	17.04	17.5	2.8	20.3	
			MIMO	19.15	19.4	2.9	22.3	
		5825	Chain0	15.30	15.5	3.0	18.5	
			Chain1	16.47	16.5	2.8	19.3	
			MIMO	18.93	19.0	2.9	21.9	
802.11n20M		5745	Chain0	14.25	14.5	3.0	17.5	
			Chain1	16.48	16.5	2.8	19.3	
			MIMO	18.52	18.6	2.9	21.5	
		5785	Chain0	14.26	14.5	3.0	17.5	
			Chain1	15.99	16.0	2.8	18.8	
			MIMO	18.22	18.3	2.9	21.2	
		5825	Chain0	14.46	14.5	3.0	17.5	
			Chain1	15.55	16.0	2.8	18.8	
			MIMO	18.05	18.3	2.9	21.2	
802.11n40M		5755	Chain0	14.34	14.5	3.0	17.5	
			Chain1	16.47	16.5	2.8	19.3	
			MIMO	18.54	18.6	2.9	21.5	
		5795	Chain0	14.32	14.5	3.0	17.5	
			Chain1	15.98	16.0	2.8	18.8	
			MIMO	18.24	18.3	2.9	21.2	
		802.11ac20M	5745	Chain0	13.27	13.5	3.0	16.5
				Chain1	15.59	16.0	2.8	18.8
				MIMO	17.59	17.9	2.9	20.8
5785			Chain0	13.27	13.5	3.0	16.5	
			Chain1	15.15	15.5	2.8	18.3	
			MIMO	17.32	17.6	2.9	20.5	
5825			Chain0	13.55	14.0	3.0	17.0	
			Chain1	14.73	15.0	2.8	17.8	
			MIMO	17.19	17.5	2.9	20.4	
802.11ac40M		5755	Chain0	13.48	13.5	3.0	16.5	
			Chain1	15.62	16.0	2.8	18.8	
			MIMO	17.69	17.9	2.9	20.8	
		5795	Chain0	13.42	13.5	3.0	16.5	
			Chain1	15.14	15.5	2.8	18.3	
			MIMO	17.37	17.6	2.9	20.5	
		802.11ac80M	5775	Chain0	13.09	13.5	3.0	16.5
				Chain1	15.08	15.5	2.8	18.3
				MIMO	17.21	17.6	2.9	20.5

Maximum Tune-up Tolerance + Antenna Gain

Mode	Chain	Maximum (dBm)	Maximum (mW)
WiFi2.4GHz	Chain1	21.6	144.5
WiFi5.2GHz	MIMO	22.7	186.6
WiFi5.8GHz	MIMO	22.8	191.0

5.2 Calculation result

FCC LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

(A) Limits for Occupational/Controlled Exposure ☐

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	*900/f ²	6
30-300	61.4	0.163	1.0	6
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6

(B) Limits for General Population/Uncontrolled Exposure ☒

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-1.34	614	1.63	*100	30
1.34-30	824/f	2.19/f	*180/f ²	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/1500	30
1500-100,000	--	--	1.0	30

f = frequency in MHz *Plane-wave equivalent power density

Calculation procedure:

According to §2.1091, §2.1093, §1.1307(b) and §1.1310, systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

The MPE was calculated at 20 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

$$S = PG / (4\pi R^2)$$

Where S = power density in mW/cm²

P = transmit power in mW

G = numeric gain of transmit antenna

R = distance (cm)

PG = Tune-up Tolerance + Antenna Gain

The calculations in the table below use the highest gain of antenna for client EUT. These calculations represent worst case in terms of the exposure levels. The worst case is the Maximum PG in terms of corresponding mode.

Band	Mode	Freq. (MHz)	Maximum PG (dBm)	Maximum PG (mW)	Power Density at 20cm (mW/cm ²)	Limit (mW/cm ²)
WLAN2.4GHz SISO	802.11b	2462	21.6	144.5	0.029	1
WLAN5.2GHz MIMO	802.11a	5180	22.7	186.6	0.037	1
WLAN5.8GHz MIMO	802.11a	5745	22.8	191.0	0.038	1

Note:

For conservativeness, the lowest frequency of each band is used to determine the MPE limit of that band.

Worst Simultaneous Transmission Result (Power Density)

WLAN2.4GHz SISO (mW/cm ²)	WLAN 5.8GHz MIMO (mW/cm ²)	Sum (mW/cm ²)	Limits (mW/cm ²)
0.029	0.038	0.067	1

According to the KDB447498 D01 section 7.1 determine the device is exclusion from SAR test.

---End of Test Report---