
MPE REPORT

Report No.: SRTC2021-9004(F)-21120701(I)

Product Name: LTE CPE

Product Model: MF286C3

Applicant: ZTE Corporation

Manufacturer: ZTE Corporation

Specification: FCC Part §2.1091, §2.1093, §1.1307(b), §1.1310 (2019)

FCC ID: SRQ-MF286C3

The State Radio_monitoring_center Testing Center (SRTC)

15th Building, No.30 Shixing Street, Shijingshan District,

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1 GENERAL INFORMATION

1.1 Notes of the test report

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1.2 Information about the testing laboratory

Company:	The State Radio_monitoring_center Testing Center (SRTC)
Address:	15th Building, No.30 Shixing Street, Shijingshan District, P.R.China
City:	Beijing
Country or Region:	P.R.China
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Designation Number	CN1267

1.3 Applicant's details

Company:	ZTE Corporation
Address:	ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China

1.4 Manufacturer's details

Company:	ZTE Corporation
Address:	ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China

1.5 Test environment

Date of Receipt of test sample at SRTC:	2021-11-29
Testing Start Date:	2021-11-30
Testing End Date:	2021-12-21

Environmental Data:	Temperature (°C)	Humidity (%)
Ambient	22	35

Normal Supply Voltage (V d.c.):	12
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2 DESCRIPTION OF THE DEVICE UNDER TEST

2.1 Final Equipment Build Status

Frequency Bands	GSM: 850/1900 WCDMA: II/IV/V LTE: 2/4/5/7/28 WIFI2.4GHz: 2.412GHz~2.462GHz WIFI5GHz UNII-1: 5.180GHz-5.240GHz WIFI5GHz UNII-3: 5.745GHz-5.825GHz
Mode	GPRS/EGPRS WCDMA/HSDPA/HSUPA/HSPA+ LTE(QPSK/16QAM/64QAM) WIFI2.4GHz: 802.11b/g/n HT20/n HT40 WIFI5GHz: 802.11a/n HT20/n HT40/ac VHT20/ac VHT40 /ac VHT80/
Power Supply	DC Adapter
Hardware Version	V1.0
Software Version	CR_CHLCLAROMF286C3V1.0.0B01
IMEI or Sample	#1

ANT Gain information

ANT Name	Gain (dBi)	Frequency Band
ANT2	1.85	LTE: 7
ANT3	2.70	GSM: 850/1900 WCDMA: II/IV/V LTE: 2/4/5/28
2.4G-1	3.22	2.4G SISO1
2.4G-2	2.11	2.4G SISO2
5G-1	3.69	5G SISO1
5G-2	4.29	5G SISO2

3 REFERENCE SPECIFICATION

Specification	Version	Title
2.1091	2019	Radio frequency radiation exposure evaluation: mobile devices.
2.1093	2019	Radio frequency radiation exposure evaluation: portable devices.
1.1307(b)	2019	Actions that may have a significant environmental effect, for which Environmental Assessments (EAs) must be prepared.
1.1310	2019	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: Ms. Li Jin 	Issued date: 20211222

5 TEST RESULTS

5.1 Average Power Output Test Result

Mode	Maximum Average power(dBm)
GSM850	33.0
GSM1900	29.5
WCDMA Band II	24.0
WCDMA Band IV	24.0
WCDMA Band V	25.0
LTE Band 2	23.0
LTE Band 4	23.0
LTE Band 5	24.0
LTE Band 7	23.0
LTE Band 28	24.0
WiFi2.4GHz	17.5
WiFi5.2GHz	18.5
WiFi5.8GHz	19.0

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:

$$\text{The } S = PG / (4\pi R^2)$$

Where S = power density in mW/cm²

P = transmit power in mW

G = numeric gain of transmit antenna

R = distance (cm)

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.

Band	Freq. (MHz)	Maximum Power (dBm)	Maximum EIRP (dBm)	Maximum EIRP (Mw)	Power Density at 20cm	Limit (mW/cm ²)	Power Density / Limit
GSM850	848.8	33.0	35.70	3715.35	0.739	1.0	0.739
GSM1900	1850.2	29.5	32.20	1659.59	0.330	1.0	0.330
WCDMA Band II	1852.4	24.0	26.70	467.74	0.093	1.0	0.093
WCDMA Band IV	1712.4	24.0	26.70	467.74	0.093	1.0	0.093
WCDMA Band V	846.6	25.0	27.70	588.84	0.117	1.0	0.117
LTE Band 2	1909.3	23.0	25.70	371.54	0.074	1.0	0.074
LTE Band 4	1711.5	23.0	25.70	371.54	0.074	1.0	0.074
LTE Band 5	846.5	24.0	26.70	467.74	0.093	1.0	0.093
LTE Band 7	2535	23.0	24.85	305.49	0.061	1.0	0.061
LTE Band 28	745.5	24.0	26.70	467.74	0.093	1.0	0.093
WLAN2.4GHz MIMO	2412	17.5	19.94	98.63	0.020	1.0	0.020
WLAN5.2GHz SISO	5180	18.5	22.79	190.11	0.038	1.0	0.038
WLAN5.8GHz MIMO	5720	19.0	23.36	216.77	0.043	1.0	0.043

Note1:

SAR considers the worst case, use Tune up with maximum power plus antenna gain as EIRP.

Note2:

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

Worst Simultaneous Transmission Result

WWAN Power Density / Limit	WLAN Power Density / Limit	Σ(Power Density / Limit) of WWAN+ WLAN
0.739	0.043	0.782

Note: Simultaneous Transmission Limit=Power Density₁/ limit₁ + Power Density₂/ limit₂<1

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

---End of Test Report---