



FG132-GL-00-M2

RF Test Report

V1.1

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Change History

V1.1(2025-03-06)	The chapter 4.2 update the working voltage range
	The chapter 5.6 add the SRS specifications
V1.0 (2024-10-16)	Initial version

1 Test Version Description

Table 1. Test version description

Product name	FG132-GL-00-M2
Hardware version	V1.0
Software version	19003.1000.00.02.01.46

2 Test Device

Table 2. Test device list

No.	Device Name	Manufacturer	Model
1	Programmable constant temperature and humidity test chamber	XI'AN HUANKE Equipment Co., Ltd.	TEST GDJS-100C
2	Wideband radio communication tester	R&S	CMW500
3	Wideband radio communication tester	Anritsu	MT8821C
4	Wideband radio communication tester	R&S	CMX500
5	Wideband radio communication tester	Keysight	E7515R
6	DC power Analyzer	KEYSIGHT	N6705C
7	DC power supply	Agilent	66309D/66319D
8	Vector Signal Generator	R&S	SMBV100B

3 Test Summary

Table 3. Summary of test items

No.	Test Item	Test Result	Remarks (Failed Item)
1	LTE FDD	PASS	--
2	LTE TDD	PASS	--
3	LTE HPUE	PASS	--
4	5G RedCap FDD	PASS	--
5	5G RedCap TDD	PASS	--
6	5G RedCap SRS	PASS	--
7	GNSS	PASS	--
8	Max Throughput	PASS	--
9	Working Current	PASS	--

4 Test Standards and Conditions

4.1 Test Standards

Table 4. Supported systems and followed standards

No.	Communication System	Reference Standard/Specification
1	LTE	3GPP TS 36.521-1
2	5G RedCap	3GPP TS 38.521-1
3	GNSS	Product Specifications

4.2 Test Environment

Table 5. Test environment

No.	Test Environment	Test Temperature	Power Supply Voltage
1	Normal/NC	Normal temperature/room temperature: +25°C	Normal voltage: +3.8V
2	TL/VL	Low operating temperature: -35°C	Low voltage: +3.135V
3	TL/VH	Low operating temperature: -35°C	High voltage: +4.4V
4	TH/VL	High operating temperature: +75°C	Low voltage: +3.135V
5	TH/VH	High operating temperature: +75°C	High voltage: +4.4V

5 Test Items

5.1 LTE FDD Specifications

Description:

The maximum TX power of LTE FDD is measured by 10M QPSK 1RB. The RB position in low and medium channels is low, and the RB position in high channel is high.

Table 6. LTE-FDD maximum TX power & RX sensitivity (main+diversity) (Bandwidth=10M)

Band	Channel	Maximum TX Power (dBm)			RX Sensitivity (Main+Diversity) (dBm)		
		3GPP Requirement	Test Value		3GPP Requirement	Test Value	
			7724#	9551#		7724#	9951#
B1	L	23.0±2.7	22.9	22.9	-96.3	-101.5	-101.3
	M	23.0±2.7	22.9	23.0		-101.5	-101.1
	H	23.0±2.7	22.8	22.9		-101.5	-101.3
B2	L	23.0+2.7/-4.2	22.8	23.0	-94.3	-101.9	-101.5
	M	23.0±2.7	22.7	23.0		-102.3	-101.9
	H	23.0+2.7/-4.2	22.6	22.9		-102.3	-101.9
B3	L	23.0+2.7/-4.2	22.9	23.2	-93.3	-101.3	-101.3
	M	23.0±2.7	22.9	23.3		-101.9	-101.5
	H	23.0+2.7/-4.2	22.7	23.1		-102.1	-101.5
B4	L	23.0±2.7	22.8	23.0	-96.3	-101.7	-101.9
	M	23.0±2.7	22.8	23.1		-102.1	-102.1
	H	23.0±2.7	22.8	22.9		-101.7	-101.7
B5	L	23.0±2.7	22.9	23.3	-94.3	-102.1	-102.7
	M	23.0±2.7	22.9	23.3		-102.1	-102.7
	H	23.0±2.7	22.8	23.2		-102.3	-102.5
B7	L	23.0+2.7/-4.2	22.2	22.5	-94.3	-101.3	-101.5
	M	23.0±2.7	22.2	22.4		-101.1	-101.3
	H	23.0+2.7/-4.2	22.4	22.5		-101.1	-101.3
B8	L	23.0+2.7/-4.2	23.1	23.4	-93.3	-102.1	-102.3
	M	23.0±2.7	23.1	23.3		-102.3	-102.5
	H	23.0+2.7/-4.2	22.9	23.2		-101.9	-102.3

Band	Channel	Maximum TX Power (dBm)			RX Sensitivity (Main+Diversity) (dBm)		
		3GPP Requirement	Test Value		3GPP Requirement	Test Value	
			7724#	9551#		7724#	9951#
B12	L	23.0+2.7/-4.2	22.8	23.2	-93.3	-101.7	-101.5
	M	23.0±2.7	22.9	23.2		-101.9	-101.7
	H	23.0+2.7/-4.2	22.9	23.3		-102.1	-101.9
B13	L/M/H	23.0±2.7	22.8	23.1	-93.3	-102.1	-101.7
B14	L/M/H	23.0±2.7	22.8	23.2	-93.3	-101.7	-101.5
B17	L	23.0±2.7	23.0	23.2	-93.3	-101.9	-101.7
	M	23.0±2.7	23.0	23.2		-101.9	-101.7
	H	23.0±2.7	22.8	23.2		-101.9	-101.7
B18	L	23.0+2.7/-4.2	22.8	23.1	-96.3	-102.7	-102.5
	M	23.0±2.7	22.8	23.2		-102.7	-102.7
	H	23.0±2.7	22.9	23.2		-102.7	-102.5
B19	L	23.0±2.7	22.9	23.1	-96.3	-102.7	-102.7
	M	23.0±2.7	22.9	23.2		-102.5	-102.5
	H	23.0±2.7	22.8	23.1		-102.5	-102.3
B20	L	23.0+2.7/-4.2	22.9	23.3	-93.3	-102.7	-102.5
	M	23.0±2.7	22.9	23.2		-102.7	-102.5
	H	23.0+2.7/-4.2	22.9	23.2		-102.5	-102.3
B25	L	23.0+2.7/-4.2	22.6	23.0	-92.8	-102.0	-102.0
	M	23.0±2.7	22.7	23.0		-102.2	-102.4
	H	23.0+2.7/-4.2	22.6	23.0		-102.2	-102.4
B26	L	23.0+2.7/-4.2	22.9	23.2	-93.8	-102.4	-102.6
	M	23.0±2.7	22.9	23.3		-103.0	-102.8
	H	23.0+2.7/-4.2	22.8	23.1		-102.4	-102.6
B28	L	23.0+2.7/-3.2	22.9	23.2	-94.8	-102.5	-102.2
	M	23.0+2.7/-3.2	22.9	23.2		-103.0	-103.0
	H	23.0+2.7/-3.2	22.7	23.1		-102.8	-102.8
B30	L/M/H	23.0±2.7	22.6	22.9	-95.3	-101.1	-101.3
B66	L	23.0±2.7	22.8	23.0	-95.8	-101.6	-101.8
	M	23.0±2.7	22.6	23.0		-101.6	-101.6

Band	Channel	Maximum TX Power (dBm)			RX Sensitivity (Main+Diversity) (dBm)		
		3GPP Requirement	Test Value		3GPP Requirement	Test Value	
			7724#	9551#		7724#	9951#
B71	H	23.0±2.7	22.7	22.9	-93.5	-102.0	-102.0
	L	23.0+2.7/-3.2	22.9	23.3		-102.1	-102.3
	M	23.0+2.7/-3.2	22.9	23.3		-102.3	-102.3
	H	23.0+2.7/-3.2	22.8	23.2		-102.2	-102.3

Table 7. LTE-FDD maximum TX power & RX sensitivity (main&diversity) (Bandwidth=10M)

Band	Channel	Maximum TX Power (dBm)			RX Sensitivity (dBm)				
		3GPP Requirement	Test Value		3GPP Requirement	Test Value (Main)		Test Value (Diversity)	
			7724#	9551#		7724#	9951#	7724#	9551#
B1	L	23.0±2.7	22.9	22.9	-96.3	-98.5	-98.6	-98.5	-99.3
	M	23.0±2.7	22.9	23.0		-98.5	-98.9	-98.1	-98.7
	H	23.0±2.7	22.8	22.9		-98.5	-98.5	-98.7	-99.1
B2	L	23.0+2.7/-4.2	22.8	23.0	-94.3	-99.0	-99.0	-98.9	-99.1
	M	23.0±2.7	22.7	23.0		-99.3	-99.5	-98.9	-99.5
	H	23.0+2.7/-4.2	22.6	22.9		-99.3	-99.5	-99.1	-99.7
B3	L	23.0+2.7/-4.2	22.9	23.2	-93.3	-98.5	-98.7	-98.5	-98.3
	M	23.0±2.7	22.9	23.3		-98.7	-99.1	-98.9	-99.1
	H	23.0+2.7/-4.2	22.7	23.1		-98.9	-99.3	-98.7	-98.3
B4	L	23.0±2.7	22.8	23.0	-96.3	-98.5	-98.5	-98.5	-98.5
	M	23.0±2.7	22.8	23.1		-99.3	-99.5	-98.1	-98.1
	H	23.0±2.7	22.8	22.9		-98.5	-98.7	-98.3	-98.1
B5	L	23.0±2.7	22.9	23.3	-94.3	-99.1	-99.3	-100.1	-99.9
	M	23.0±2.7	22.9	23.3		-99.1	-99.3	-99.7	-99.7
	H	23.0±2.7	22.8	23.2		-99.1	-99.3	-99.7	-99.5
B7	L	23.0+2.7/-4.2	22.2	22.5	-94.3	-98.1	-98.4	-98.4	-98.1
	M	23.0±2.7	22.2	22.4		-97.9	-98.1	-98.2	-97.9
	H	23.0+2.7/-4.2	22.4	22.5		-98.0	-98.1	-98.2	-97.9
B8	L	23.0+2.7/-4.2	23.1	23.4	-93.3	-99.2	-99.1	-99.1	-99.5
	M	23.0±2.7	23.1	23.3		-99.3	-99.1	-99.3	-99.7

Band	Channel	Maximum TX Power (dBm)			RX Sensitivity (dBm)				
		3GPP Requirement	Test Value		3GPP Requirement	Test Value (Main)		Test Value (Diversity)	
			7724#	9551#		7724#	9951#	7724#	9551#
	H	23.0+2.7/-4.2	22.9	23.2		-99.3	-99.1	-98.7	-99.3
	L	23.0+2.7/-4.2	22.8	23.2		-98.7	-98.9	-98.3	-98.1
B12	M	23.0±2.7	22.9	23.2	-93.3	-98.7	-98.7	-98.7	-98.3
	H	23.0+2.7/-4.2	22.9	23.3		-98.7	-98.9	-99.1	-98.5
B13	L/M/H	23.0±2.7	22.8	23.1	-93.3	-98.7	-98.9	-98.9	-98.5
B14	L/M/H	23.0±2.7	22.8	23.2	-93.3	-98.5	-98.7	-98.5	-98.1
	L	23.0±2.7	23.0	23.2		-98.7	-98.9	-98.9	-98.5
B17	M	23.0±2.7	23.0	23.2	-93.3	-98.7	-98.9	-98.9	-98.5
	H	23.0±2.7	22.8	23.2		-98.5	-98.9	-98.9	-98.7
	L	23.0+2.7/-4.2	22.8	23.1		-99.2	-99.1	-100.1	-99.7
B18	M	23.0±2.7	22.8	23.2	-96.3	-99.2	-99.1	-100.1	-99.7
	H	23.0±2.7	22.9	23.2		-99.1	-99.1	-99.9	-99.7
	L	23.0±2.7	22.9	23.1		-99.1	-99.5	-100.1	-99.7
B19	M	23.0±2.7	22.9	23.2	-96.3	-99.1	-99.3	-99.7	-99.5
	H	23.0±2.7	22.8	23.1		-99.1	-99.3	-99.7	-99.3
	L	23.0+2.7/-4.2	22.9	23.3		-99.1	-99.1	-100.1	-99.7
B20	M	23.0±2.7	22.9	23.2	-93.3	-99.2	-99.1	-99.9	-99.5
	H	23.0+2.7/-4.2	22.9	23.2		-99.3	-99.3	-99.5	-99.3
	L	23.0+2.7/-4.2	22.6	23.0		-99.1	-99.0	-98.8	-98.6
B25	M	23.0±2.7	22.7	23.0	-92.8	-99.2	-99.4	-98.8	-98.8
	H	23.0+2.7/-4.2	22.6	23.0		-99.2	-99.4	-98.8	-98.8
	L	23.0+2.7/-4.2	22.9	23.2		-99.2	-99.0	-100.0	-99.6
B26	M	23.0±2.7	22.9	23.3	-93.8	-99.2	-99.4	-100.2	-100.0
	H	23.0+2.7/-4.2	22.8	23.1		-99.2	-99.4	-99.6	-99.4
	L	23.0+2.7/-3.2	22.9	23.2		-99.5	-99.5	-99.4	-99.0
B28	M	23.0+2.7/-3.2	22.9	23.2	-94.8	-99.8	-100.0	-100.0	-99.8
	H	23.0+2.7/-3.2	22.7	23.1		-99.8	-99.6	-100.0	-99.6
B30	L/M/H	23.0±2.7	22.6	22.9	-95.3	-98.1	-98.2	-97.9	-98.3

		Maximum TX Power (dBm)			RX Sensitivity (dBm)				
Band	Channel	3GPP Requirement	Test Value		3GPP Requirement	Test Value (Main)		Test Value (Diversity)	
			7724#	9551#		7724#	9951#	7724#	9551#
B66	L	23.0±2.7	22.8	23.0	-95.8	-99.0	-98.7	-98.4	-98.4
	M	23.0±2.7	22.6	23.0		-99.5	-98.7	-98.2	-98.2
	H	23.0±2.7	22.7	22.9		-99.5	-99.3	-98.0	-98.4
B71	L	23.0+2.7/-3.2	22.9	23.3	-93.5	-100.1	-100.1	-98.5	-98.3
	M	23.0+2.7/-3.2	22.9	23.3		-100.1	-100.1	-98.3	-98.1
	H	23.0+2.7/-3.2	22.8	23.2		-99.9	-99.9	-98.6	-98.3

Table 8. Other specifications of LTE-FDD

Band	Test Environment	Protocol Section	Test Case	Result
B1/B2/B3/ B4/B5/B7/ B8/B12/ B13/B14/ B17/B18/ B19/B20/ B25/B26/ B28/B30/ B66/B71	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.2.2	UE Maximum Output Power	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.2.3	Maximum Power Reduction (MPR)	PASS
	NC	6.2.4	Additional Maximum Power Reduction (A-MPR)	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.2.5	Configured UE transmitted Output Power	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.3.2	Minimum Output Power	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.3.3	Transmit OFF power	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.3.4.1	General ON/OFF time mask	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.3.4.2.1	PRACH time mask	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.3.4.2.2	SRS time mask	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.3.5.1	Power Control Absolute power tolerance	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.3.5.2	Power Control Relative power tolerance	PASS
	Normal	6.3.5.3	Aggregate power control tolerance	PASS

Band	Test Environment	Protocol Section	Test Case	Result
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.5.1	Frequency Error	PASS
	NC	6.5.2.1	Error Vector Magnitude (EVM) for PUSCH	PASS
	NC	6.5.2.1	Error Vector Magnitude (EVM) for PUCCH	PASS
	NC	6.5.2.1	Error Vector Magnitude (EVM) for PRACH	PASS
	Normal	6.5.2.1A	PUSCH-EVM with exclusion period	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.5.2.2	Carrier leakage	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.5.2.3	In-band emissions for non-allocated RB	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.5.2.4	EVM equalizer spectrum flatness	PASS
	Normal	6.6.1	Occupied bandwidth	PASS
	NC	6.6.2.1	Spectrum Emission Mask	PASS
	NC	6.6.2.2	Additional Spectrum Emission Mask	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.6.2.3	Adjacent Channel Leakage Power Ratio	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	7.3	Reference sensitivity level	PASS
	NC	7.4	Maximum input level	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.2.3_3	Maximum Power Reduction (MPR) for UL 64QAM	PASS
	NC	6.2.4_2	Additional Maximum Power Reduction (A-MPR) for UL 64QAM	PASS
	NC	6.5.2.1_1	Error Vector Magnitude (EVM) for UL 64QAM	PASS
	NC	6.6.2.2_1	Additional Spectrum Emission Mask for UL 64QAM	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.6.2.3_4	Adjacent Channel Leakage Power Ratio for Multi-Cluster PUSCH with UL 64QAM	PASS
	NC	7.4_H	Maximum input level for 256QAM in DL	PASS

5.2 LTE TDD Specifications

Description:

The maximum TX power of LTE TDD is measured by 10M QPSK 1RB. The RB position in low and medium channels is low, and the RB position in high channel is high.

Table 9. LTE-TDD maximum TX power & RX sensitivity (main+diversity) (Bandwidth=10M)

Band	Channel	Maximum TX Power (dBm)			RX Sensitivity (Main+Diversity) (dBm)		
		3GPP Requirement	Test Value		3GPP Requirement	Test Value	
			7724#	9551#		7724#	9551#
B34	L	23.0±2.7	22.5	22.9	-96.3	-101.7	-101.9
	M	23.0±2.7	22.5	23.0		-101.7	-101.9
	H	23.0±2.7	22.4	22.8		-101.7	-101.7
B38	L	23.0±2.7	22.5	22.9	-96.3	-101.5	-101.5
	M	23.0±2.7	22.5	22.9		-101.5	-101.7
	H	23.0±2.7	22.5	23.0		-100.9	-101.1
B39	L	23.0±2.7	22.6	23.1	-96.3	-101.7	-101.9
	M	23.0±2.7	22.6	23.0		-101.9	-101.9
	H	23.0±2.7	22.7	23.1		-101.9	-102.1
B40	L	23.0±2.7	22.6	23.1	-96.3	-100.9	-100.9
	M	23.0±2.7	22.7	23.1		-101.3	-101.5
	H	23.0±2.7	22.5	22.9		-100.5	-100.7
B41	L	23.0+2.7/-4.2	22.4	22.9	-94.3	-100.5	-100.7
	M	23.0±2.7	22.5	22.9		-101.7	-101.5
	H	23.0+2.7/-4.2	22.5	22.8		-101.3	-101.3
B42	L	23.0+3.0/-4.0	22.6	22.9	-95.0	-101.8	-101.8
	M	23.0+3.0/-4.0	22.6	23.0		-101.6	-101.6
	H	23.0+3.0/-4.0	22.3	22.7		-101.8	-102.0
B43	L	23.0+3.0/-4.0	22.3	22.9	-95.0	-101.8	-102.0
	M	23.0+3.0/-4.0	22.2	22.6		-102.0	-102.2
	H	23.0+3.0/-4.0	22.5	22.8		-102.2	-102.0
B48	L	23.0±3.3	22.5	22.9	-95.0	-101.8	-102.0
	M	23.0±3.3	22.2	22.7		-102.2	-102.0
	H	23.0±3.3	23.4	23.4		-102.0	-102.2

Table 10. LTE-TDD maximum TX power & RX sensitivity (main&diversity) (Bandwidth=10M)

Band	Channel	Maximum TX Power (dBm)			RX Sensitivity (dBm)				
		3GPP Requirement	Test Value		3GPP Requirement	Test Value (main)		Test Value (diversity)	
			7724#	9551#		7724#	9951#	7724#	9551#
B34	L	23.0±2.7	22.5	22.9	-96.3	-98.9	-99.1	-98.5	-98.5
	M	23.0±2.7	22.5	23.0		-98.9	-99.1	-98.5	-98.3
	H	23.0±2.7	22.4	22.8		-98.9	-99.0	-98.5	-98.5
B38	L	23.0±2.7	22.5	22.9	-96.3	-99.6	-99.7	-97.7	-97.7
	M	23.0±2.7	22.5	22.9		-99.4	-99.6	-97.8	-97.8
	H	23.0±2.7	22.5	23.0		-99.3	-99.5	-96.6	-96.9
B39	L	23.0±2.7	22.6	23.1	-96.3	-99.1	-99.0	-98.7	-98.5
	M	23.0±2.7	22.6	23.0		-99.2	-99.0	-98.7	-98.7
	H	23.0±2.7	22.7	23.1		-99.2	-99.1	-98.7	-98.5
B40	L	23.0±2.7	22.6	23.1	-96.3	-97.5	-97.7	-98.1	-98.3
	M	23.0±2.7	22.7	23.1		-97.9	-98.1	-98.5	-98.9
	H	23.0±2.7	22.5	22.9		-97.2	-97.1	-97.5	-97.9
B41	L	23.0+2.7/-4.2	22.4	22.9	-94.3	-99.3	-99.3	-96.8	-96.7
	M	23.0±2.7	22.5	22.9		-99.5	-99.3	-97.6	-97.5
	H	23.0+2.7/-4.2	22.5	22.8		-99.1	-99.1	-97.5	-97.7
B42	L	23.0+3.0/-4.0	22.6	22.9	-95.0	-99.5	-99.6	-98.3	-98.3
	M	23.0+3.0/-4.0	22.6	23.0		-99.6	-99.7	-98.2	-98.1
	H	23.0+3.0/-4.0	22.3	22.7		-99.6	-99.5	-98.1	-98.0
B43	L	23.0+3.0/-4.0	22.3	22.9	-95.0	-99.8	-99.8	-97.8	-98.2
	M	23.0+3.0/-4.0	22.2	22.6		-99.8	-99.9	-98.2	-98.4
	H	23.0+3.0/-4.0	22.5	22.8		-99.8	-99.8	-98.2	-98.4
B48	L	23.0±3.3	22.5	22.9	-95.0	-99.7	-99.6	-97.6	-97.8
	M	23.0±3.3	22.2	22.7		-99.7	-99.7	-98.2	-98.2
	H	23.0±3.3	22.1	22.5		-99.7	-99.7	-98.4	-98.2

Table 11. Other specifications of LTE-TDD

Band	Test Environment	Protocol Section	Test Case	Result
B34/B38/	Normal, TL/VL, TL/VH,	6.2.2	UE Maximum Output Power	PASS

Band	Test Environment	Protocol Section	Test Case	Result
B39/B40/ B41/B42/ B43/B48	TH/VL, TH/VH			
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.2.3	Maximum Power Reduction (MPR)	PASS
	NC	6.2.4	Additional Maximum Power Reduction (A-MPR)	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.2.5	Configured UE transmitted Output Power	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.3.2	Minimum Output Power	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.3.3	Transmit OFF power	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.3.4.1	General ON/OFF time mask	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.3.4.2.1	PRACH time mask	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.3.4.2.2	SRS time mask	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.3.5.1	Power Control Absolute power tolerance	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.3.5.2	Power Control Relative power tolerance	PASS
	Normal	6.3.5.3	Aggregate power control tolerance	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.5.1	Frequency Error	PASS
	NC	6.5.2.1	Error Vector Magnitude (EVM) for PUSCH	PASS
	NC	6.5.2.1	Error Vector Magnitude (EVM) for PUCCH	PASS
	NC	6.5.2.1	Error Vector Magnitude (EVM) for PRACH	PASS
	Normal	6.5.2.1A	PUSCH-EVM with exclusion period	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.5.2.2	Carrier leakage	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.5.2.3	In-band emissions for non-allocated RB	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.5.2.4	EVM equalizer spectrum flatness	PASS
	Normal	6.6.1	Occupied bandwidth	PASS

Band	Test Environment	Protocol Section	Test Case	Result
	NC	6.6.2.1	Spectrum Emission Mask	PASS
	NC	6.6.2.2	Additional Spectrum Emission Mask	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.6.2.3	Adjacent Channel Leakage Power Ratio	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	7.3	Reference sensitivity level	PASS
	NC	7.4	Maximum input level	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.2.3_3	Maximum Power Reduction (MPR) for UL 64QAM	PASS
	NC	6.2.4_2	Additional Maximum Power Reduction (A-MPR) for UL 64QAM	PASS
	NC	6.5.2.1_1	Error Vector Magnitude (EVM) for UL 64QAM	PASS
	NC	6.6.2.2_1	Additional Spectrum Emission Mask for UL 64QAM	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.6.2.3_4	Adjacent Channel Leakage Power Ratio for Multi-Cluster PUSCH with UL 64QAM	PASS
	NC	7.4_H	Maximum input level for 256QAM in DL	PASS

5.3 LTE HPUE Specifications

Description:

The maximum TX power is measured by 10MHz QPSK 1RB. The RB position in low and medium channels is low, and the RB position in high channel is high.

Table 12. LTE HPUE maximum TX power

Band	Channel	Maximum TX Power (dBm)		
		3GPP Requirement	Test Value	
			7724#	9551#
B38	L	26.0±2.7	25.5	25.6
	M	26.0±2.7	25.8	25.9
	H	26.0±2.7	25.7	25.9
B40	L	26.0±2.7	25.9	26.1
	M	26.0±2.7	25.8	26.1
	H	26.0±2.7	25.7	26.0

Band	Channel	Maximum TX Power (dBm)		
		3GPP Requirement	Test Value	
			7724#	9551#
B41	L	26.0+2.7/-4.2	25.6	25.8
	M	26.0±2.7	25.7	25.9
	H	26.0+2.7/-4.2	25.7	25.9
B42	L	26.0+3/-4	25.7	25.9
	M	26.0+3/-4	26.0	26.1
	H	26.0+3/-4	25.7	25.7
B43	L	26.0+3/-4	25.8	25.9
	M	26.0+3/-4	25.6	25.9
	H	26.0+3/-4	25.9	26.1

Table 13. Other specifications of LTE HPUE

Band	Test Environment	Protocol Section	Test Case	Result
B38/B40/ B41/B42/ B43	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.2.2_1	UE Maximum Output Power for HPUE	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.2.3_1	Maximum Power Reduction (MPR) for HPUE	PASS
	NC	6.2.4_1	Additional Maximum Power Reduction (A-MPR) for HPUE	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.2.5_1	Configured UE transmitted Output Power for HPUE	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.3.5_1.1	Power Control Absolute power tolerance for HPUE	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.3.5_1.2	Power Control Relative power tolerance for HPUE	PASS
	Normal	6.3.5_1.3	Aggregate power control tolerance for HPUE	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.6.2.3_1	Adjacent Channel Leakage Power Ratio for HPUE	PASS

5.4 5G RedCap FDD Specifications

Description:

- The maximum TX power of 5G RedCap is measured in FDD SCS=15KHz, TDD SCS=30KHz, UL DFT-s-OFDM QPSK Inner Full RB.

- The RX sensitivity of 5G RedCap is measured in FDD SCS=15KHz, TDD SCS=30KHz, the UL RB configure refer to 3GPP protocol 38.521-1 Table 7.3.2.4.1-3.
- TT is the test tolerance, and the tolerance value of TX power is referred to 3GPP protocol 38.521-1 Table 6.2I.1.5-2, as shown in the following figure.

Table 6.2I.1.5-2: Test Tolerance (UE maximum output power)

	$f \leq 3.0\text{GHz}$	$3.0\text{GHz} < f \leq 4.2\text{GHz}$	$4.2\text{GHz} < f \leq 6.0\text{GHz}$
BW $\leq 40\text{MHz}$	0.7 dB	1.0 dB	1.0 dB

Figure 1. RedCap maximum TX power tolerance

Refer to 3GPP protocol 38.521-1 Table 7.3I.2.5-7 for tolerances of RX sensitivity, as shown in the following figure.

Table 7.3I.2.5-7: Test Tolerance (TT) for RX sensitivity level for RedCap UE

$f \leq 3.0\text{GHz}$	$3.0\text{GHz} < f \leq 6.0\text{GHz}$
0.7 dB	1.0 dB

Figure 2. RedCap Tolerances of RX sensitivity

Table 14. RedCap maximum TX power & RX sensitivity (main+diversity)

Band	BW (MHz)	Channel	Maximum TX Power (dBm)			RX Sensitivity (Main+Diversity) (dBm)		
			3GPP Requirement	Test Value		3GPP requirement	Test Value	
				7724#	9951#		7724#	9951#
n1	20	L	$23 \pm 2 \pm \text{TT}$	22.5	22.7	-93.8+TT	-98.7	-98.9
		M	$23 \pm 2 \pm \text{TT}$	22.4	22.8		-98.7	-98.7
		H	$23 \pm 2 \pm \text{TT}$	22.5	22.7		-98.9	-98.9
n2	20	L	$23 + 2/-3.5 \pm \text{TT}$	22.7	22.9	-91.8+TT	-99.3	-99.3
		M	$23 \pm 2 \pm \text{TT}$	22.7	22.8		-99.5	-99.3
		H	$23 + 2/-3.5 \pm \text{TT}$	22.5	22.7		-99.5	-99.5
n3	20	L	$23 + 2/-3.5 \pm \text{T}$	22.8	23.0	-90.8+TT	-98.9	-98.7
		M	$23 \pm 2 \pm \text{TT}$	22.8	23.1		-99.1	-98.9
		H	$23 + 2/-3.5 \pm \text{TT}$	22.9	23.0		-99.3	-98.9
n5	20	L	$23 \pm 2 \pm \text{TT}$	23.1	23.2	-86.8+TT	-99.5	-99.5
		M	$23 \pm 2 \pm \text{TT}$	23.2	23.1		-99.7	-99.5
		H	$23 \pm 2 \pm \text{TT}$	22.9	23.1		-99.5	-99.5
		L	$23 + 2/-3.5 \pm \text{TT}$	22.6	22.7		-98.9	-98.9

Band	BW (MHz)	Channel	Maximum TX Power (dBm)			RX Sensitivity (Main+Diversity) (dBm)		
			3GPP Requirement	Test Value		3GPP requirement	Test Value	
				7724#	9951#		7724#	9951#
n7	20	M	23±2±TT	22.7	22.9	-91.8+TT	-98.7	-98.7
		H	23+2/-3.5±TT	22.7	22.9		-98.7	-98.7
n8	20	L	23+2/-3.5±TT	23.0	23.1	-85.8+TT	-99.5	-99.3
		M	23±2±TT	23.0	23.1		-99.3	-99.3
		H	23+2/-3.5±TT	22.9	23.0		-99.3	-99.3
n12	10	L	23+2/-3.5±TT	23.3	23.4	-93.8+TT	-101.5	-101.3
		M	23±2±TT	23.3	23.3		-101.7	-101.5
		H	23+2/-3.5±TT	23.1	23.3		-101.7	-101.7
n13	10	L/M/H	23±2±TT	22.9	23.0	-93.8+TT	-101.9	-101.9
n14	10	L/M/H	23±2±TT	23.1	23.2	-93.8+TT	-101.7	-101.5
n18	10	L	/	23.0	23.1	/	-102.7	-102.7
		M	/	22.9	23.1		-102.7	-102.7
		H	/	22.8	22.8		-102.7	-102.7
n20	20	L	23+2/-3.5±TT	22.8	22.9	-89.8+TT	-99.3	-99.1
		M	23±2±TT	22.8	22.7		-99.3	-99.3
		H	23+2/-3.5±TT	23.0	23.1		-99.1	-99.1
n25	20	L	23+2/-3.5±TT	23.1	23.2	-90.3+TT	-99.2	-99.2
		M	23±2±TT	23.0	23.0		-99.4	-99.2
		H	23+2/-3.5±TT	23.0	23.3		-99.6	-99.6
n26	20	L	23+2/-3.5±TT	23.2	23.2	-87.6+TT	-99.5	-99.5
		M	23±2±TT	23.0	23.0		-99.5	-99.5
		H	23+2/-3.5±TT	22.8	22.7		-99.5	-99.5
n28	20	L	23+2+TT/-2.5-TT	22.9	22.8	-90.8+TT	-99.7	-99.7
		M	23+2+TT/-2.5-TT	22.8	22.7		-99.9	-99.7
		H	23+2+TT/-2.5-TT	22.8	22.7		-99.7	-99.7
n30	10	L/M/H	23±2±TT	22.9	22.9	-95.8+TT	-100.5	-100.9
n66	20	L	23±2±TT	23.0	22.9	-93.3+TT	-99.2	-99.0
		M	23±2±TT	22.8	22.8		-99.2	-99.0

Band	BW (MHz)	Channel	Maximum TX Power (dBm)			RX Sensitivity (Main+Diversity) (dBm)		
			3GPP Requirement	Test Value		3GPP requirement	Test Value	
				7724#	9951#		7724#	9951#
		H	23±2±TT	23.2	23.1		-99.4	-99.2
n70	15	L/M/H	23±2±TT	23.0	23.2	-95.0+TT	-100.7	-100.7
		L	23+2+TT/-2.5-TT	22.9	23.2		-99.7	-99.7
n71	20	M	23+2+TT/-2.5-TT	22.4	22.8	-86.0+TT	-99.7	-99.7
		H	23+2+TT/-2.5-TT	22.7	22.9		-99.7	-99.7

Table 15. RedCap maximum TX power & RX sensitivity (main&diversity)

			Maximum TX Power (dBm)			RX Sensitivity (dBm)				
Band	BW	Channel	3GPP Requirement	Test Value		3GPP Requirement	Test Value (main)		Test Value (diversity)	
				7724#	9551#		7724#	9551#	7724#	9551#
n1	20M	L	23±2±TT	22.5	22.7	-93.8+3+TT	-95.5	-95.5	-95.9	-95.9
		M	23±2±TT	22.4	22.8		-95.7	-95.7	-95.7	-95.5
		H	23±2±TT	22.5	22.7		-95.5	-95.5	-95.9	-95.9
n2	20M	L	23+2/-3.5±TT	22.7	22.9	-91.8+3+TT	-96.1	-95.9	-96.1	-96.1
		M	23±2±TT	22.7	22.8		-96.7	-96.5	-96.3	-96.3
		H	23+2/-3.5±TT	22.5	22.7		-96.5	-96.3	-96.5	-96.5
n3	20M	L	23+2/-3.5±T	22.8	23.0	-90.8+3+TT	-95.5	-95.7	-95.9	-95.7
		M	23±2±TT	22.8	23.1		-95.5	-95.9	-96.1	-95.9
		H	23+2/-3.5±TT	22.9	23.0		-96.1	-96.1	-96.1	-95.7
n5	20M	L	23±2±TT	23.1	23.2	-86.8+3+TT	-96.1	-96.1	-96.9	-96.9
		M	23±2±TT	23.2	23.1		-96.1	-95.9	-97.1	-96.9
		H	23±2±TT	22.9	23.1		-96.1	-96.1	-96.9	-96.9
n7	20M	L	23+2/-3.5±TT	22.6	22.7	-91.8+3+TT	-95.1	-95.1	-96.1	-96.1
		M	23±2±TT	22.7	22.9		-95.1	-95.3	-95.7	-95.7
		H	23+2/-3.5±TT	22.7	22.9		-95.1	-95.1	-95.9	-95.9
n8	20M	L	23+2/-3.5±TT	23.0	23.1	-85.8+3+TT	-95.9	-95.9	-96.9	-96.9
		M	23±2±TT	23.0	23.1		-95.9	-95.9	-96.7	-96.7
		H	23+2/-3.5±TT	22.9	23.0		-95.5	-95.7	-96.7	-96.7

Band	BW	Channel	Maximum TX Power (dBm)		RX Sensitivity (dBm)					
			3GPP Requirement	Test Value		3GPP Requirement	Test Value (main)		Test Value (diversity)	
				7724#	9551#		7724#	9551#	7724#	9551#
n12	10M	L	23+2/-3.5±TT	23.3	23.4	-93.8+3+TT	-98.5	-98.5	-98.3	-98.1
		M	23±2±TT	23.3	23.3		-98.5	-98.5	-98.7	-98.5
		H	23+2/-3.5±TT	23.1	23.3		-98.3	-98.3	-98.9	-98.9
n13	10M	L/M/H	23±2±TT	22.9	23.0	-93.8+3+TT	-99.1	-98.9	-98.9	-98.9
n14	10M	L/M/H	23±2±TT	23.1	23.2	-93.8+3+TT	-98.9	-98.9	-98.5	-98.3
n18	10M	L	/	23.0	23.1	/	-99.1	-99.1	-100.3	-100.1
		M	/	22.9	23.1		-99.1	-99.1	-100.1	-100.1
		H	/	22.8	22.8		-99.1	-99.1	-100.3	-100.3
n20	20M	L	23+2/-3.5±TT	22.8	22.9	-89.8+3+TT	-95.5	-95.5	-96.7	-96.7
		M	23±2±TT	22.8	22.7		-95.9	-95.9	-96.7	-96.5
		H	23+2/-3.5±TT	23.0	23.1		-95.9	-95.9	-96.5	-96.3
n25	20M	L	23+2/-3.5±TT	23.1	23.2	-90.3+3+TT	-96.2	-96.2	-96.2	-96.0
		M	23±2±TT	23.0	23.0		-96.3	-96.4	-96.2	-96.2
		H	23+2/-3.5±TT	23.0	23.3		-96.6	-96.4	-96.4	-96.4
n26	20M	L	23+2/-3.5±TT	23.2	23.2	-87.6+3+TT	-96.1	-95.9	-97.1	-96.9
		M	23±2±TT	23.0	23.0		-96.1	-95.9	-96.9	-96.9
		H	23+2/-3.5±TT	22.8	22.7		-96.1	-96.1	-96.9	-96.9
n28	20M	L	23+2+TT/-2.5-TT	22.9	22.8	-90.8+3+TT	-96.7	-96.7	-96.7	-96.7
		M	23+2+TT/-2.5-TT	22.8	22.7		-96.9	-96.7	-96.9	-96.7
		H	23+2+TT/-2.5-TT	22.8	22.7		-96.7	-96.5	-96.9	-96.7
n30	10M	L/M/H	23±2±TT	22.9	22.9	-95.8+3+TT	-98.1	-97.9	-98.7	-98.7
n66	20M	L	23±2±TT	23.0	22.9	-93.3+3+TT	-96.0	-95.8	-96.0	-96.0
		M	23±2±TT	22.8	22.8		-96.2	-95.8	-95.8	-95.8
		H	23±2±TT	23.2	23.1		-96.2	-95.8	-96.2	-96.2
n70	15M	L/M/H	23±2±TT	23.0	23.2	-95.0+3+TT	-97.9	-97.9	-97.5	-97.5
		L	23+2+TT/-2.5-	22.9	23.2		-97.0	-97.0	-95.9	-95.9

			Maximum TX Power (dBm)			RX Sensitivity (dBm)				
Band	BW	Channel	3GPP Requirement	Test Value		3GPP Requirement	Test Value (main)		Test Value (diversity)	
				7724#	9551#		7724#	9551#	7724#	9551#
n71	20M		TT							
		M	23+2+TT/-2.5-TT	22.4	22.8	-86.0+3+TT	-97.5	-97.9	-95.9	-95.9
		H	23+2+TT/-2.5-TT	22.7	22.9		-97.0	-97.0	-95.5	-95.5

Table 16. Other specifications of RedCap

Band	Test Environment	Protocol Section	Test Case	Result
n1/n2/n3/ n5/n7/n8/ n12/n13/ n14/n18/ n20/n25/ n26/n28/ n30/n66/ n70/n71	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.2I.1	UE maximum output power for RedCap	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.2.2	Maximum Power Reduction (MPR)	PASS
	Normal	6.2.3	UE additional maximum output power reduction	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.2.4	Configured transmitted power	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.3.1	Minimum output power	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.3.2	Transmit OFF power	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.3.3	Transmit ON/OFF time mask	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.3.3.4	PRACH time mask	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.3.3.6	SRS time mask	PASS
	Normal	6.3.4.2	Absolute power tolerance	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.3.4.3	Power Control Relative power tolerance	PASS
	Normal	6.3.4.4	Aggregate power tolerance (PUCCH/PUSCH)	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.4.1	Frequency error	PASS

Band	Test Environment	Protocol Section	Test Case	Result
	Normal	6.4.2.1	Error Vector Magnitude (PUCCH/PUSCH/PRACH)	PASS
	Normal	6.4.2.2	Carrier leakage	PASS
	Normal	6.4.2.3	In-band emissions (PUCCH/PUSCH)	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.4.2.4	EVM equalizer spectrum flatness	PASS
	Normal	6.4.2.5	EVM equalizer spectrum flatness for Pi/2 BPSK	PASS
	Normal	6.5.1	Occupied bandwidth	PASS
	Normal	6.5.2.2	Spectrum Emission Mask	PASS
	Normal	6.5.2.3	Additional spectrum emission mask	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.5.2.4	Adjacent channel leakage ratio	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	7.3I.2	Reference sensitivity power level for RedCap	PASS
	Normal	7.4	Maximum input level	PASS

5.5 5G RedCap TDD Specifications

Description:

- The maximum TX power of 5G RedCap is measured in FDD SCS=15KHz, TDD SCS=30KHz, UL DFT-s-OFDM QPSK Inner Full RB.
- The RX sensitivity of 5G RedCap is measured in FDD SCS=15KHz, TDD SCS=30KHz, the UL RB configure refer to 3GPP protocol 38.521-1 Table 7.3.2.4.1-3.
- TT is the test tolerance, and the tolerance value of TX power is referred to 3GPP protocol 38.521-1 Table 6.2I.1.5-2, as shown in the following figure.

Table 6.2I.1.5-2: Test Tolerance (UE maximum output power)

	$f \leq 3.0\text{GHz}$	$3.0\text{GHz} < f \leq 4.2\text{GHz}$	$4.2\text{GHz} < f \leq 6.0\text{GHz}$
BW $\leq 40\text{MHz}$	0.7 dB	1.0 dB	1.0 dB

Figure 3. RedCap maximum TX power tolerance

Refer to 3GPP protocol 38.521-1 Table 7.3I.2.5-7 for tolerances of RX sensitivity, as shown in the following figure.

Table 7.3l.2.5-7: Test Tolerance (TT) for RX sensitivity level for RedCap UE

$f \leq 3.0\text{GHz}$	$3.0\text{GHz} < f \leq 6.0\text{ GHz}$
0.7 dB	1.0 dB

Figure 4. RedCap Tolerances of RX sensitivity

Table 17. RedCap maximum TX power & RX sensitivity (main+diversity)

Band	BW (MHz)	Channel	Maximum TX Power (dBm)			RX Sensitivity (Main+Diversity) (dBm)		
			3GPP Requirement	Test Value		3GPP requirement	Test Value	
				7724#	9951#		7724#	9951#
n38	20	L	23±2±TT	22.8	22.7	-93.8+TT	-99.5	-99.3
		M	23±2±TT	22.8	22.8		-99.7	-99.3
		H	23±2±TT	22.7	22.6		-99.3	-99.3
n40	20	L	23±2±TT	22.6	22.7	-93.8+TT	-98.7	-98.3
		M	23±2±TT	22.8	22.8		-99.1	-99.1
		H	23±2±TT	22.8	22.8		-99.1	-98.9
n41	20	L	23+2/-3.5±TT	22.5	22.2	-91.8+TT	-99.0	-99.0
		M	23±2±TT	22.8	22.5		-99.5	-99.5
		H	23+2/-3.5±TT	22.7	22.5		-99.9	-99.7
n48	20	L	23+2+TT/-3-TT	23.2	22.9	-92.8+TT	-100.3	-100.3
		M	23+2+TT/-3-TT	23.2	22.9		-100.5	-100.3
		H	23+2+TT/-3-TT	23.0	22.6		-100.5	-100.3
n77	20	L	23+2+TT/-3-TT	23.2	22.9	-92.3+TT	-99.6	-99.4
		M	23+2+TT/-3-TT	22.7	22.6		-100.4	-100.2
		H	23+2+TT/-3-TT	23.4	23.6		-100.4	-100.2
n78	20	L	23+2+TT/-3-TT	23.0	23.1	-92.8+TT	-99.7	-99.5
		M	23+2+TT/-3-TT	23.1	23.1		-100.3	-100.1
		H	23+2+TT/-3-TT	22.9	22.8		-100.5	-100.3

Table 18. RedCap maximum TX power & RX sensitivity (main&diversity)

Band	BW	Channel	Maximum TX Power (dBm)		RX Sensitivity (dBm)					
			3GPP Requirement	Test Value		3GPP Requirement	Test Value (main)		Test Value (diversity)	
				7724#	9551#		7724#	9551#	7724#	9551#
n38	20M	L	23±2±TT	22.8	22.7		-96.3	-96.3	-95.3	-95.1
		M	23±2±TT	22.8	22.8	-93.8+2.5+TT	-96.3	-96.5	-95.7	-95.7
		H	23±2±TT	22.7	22.6		-96.3	-96.5	-95.1	-95.5
n40	20M	L	23±2±TT	22.6	22.7		-95.1	-95.1	-96.3	-96.3
		M	23±2±TT	22.8	22.8	-93.8+2.5+TT	-95.5	-95.3	-96.9	-97.1
		H	23±2±TT	22.8	22.8		-95.3	-95.1	-96.9	-96.7
n41	20M	L	23+2/-3.5±TT	22.5	22.2		-97.5	-97.0	-95.2	-95.0
		M	23±2±TT	22.8	22.5	-91.8+2.5+TT	-97.5	-97.5	-95.9	-95.7
		H	23+2/-3.5±TT	22.7	22.5		-97.5	-97.0	-96.3	-96.1
n48	20M	L	23+2+TT/-3-TT	23.2	22.9		-97.7	-97.3	-97.1	-96.9
		M	23+2+TT/-3-TT	23.2	22.9	-92.8+2.5+TT	-97.9	-97.7	-97.1	-96.9
		H	23+2+TT/-3-TT	23.0	22.6		-97.7	-97.5	-96.9	-96.9
n77	20M	L	23+2+TT/-3-TT	23.2	22.9		-97.0	-96.8	-96.2	-96.0
		M	23+2+TT/-3-TT	22.7	22.6	-92.3+2.5+TT	-97.6	-97.6	-97.2	-97.0
		H	23+2+TT/-3-TT	23.4	23.6		-98.0	-97.8	-97.0	-96.8
n78	20M	L	23+2+TT/-3-TT	23.0	23.1		-97.1	-96.7	-96.1	-95.9
		M	23+2+TT/-3-TT	23.1	23.1	-92.8+2.5+TT	-97.5	-97.3	-97.1	-96.9
		H	23+2+TT/-3-TT	22.9	22.8		-97.7	-97.5	-97.3	-97.1

Table 19. Other specifications of RedCap

Band	Test Environment	Protocol Section	Test Case	Result
n38/n40/ n41/n48/ n77/n78	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.2I.1	UE maximum output power for RedCap	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.2.2	Maximum Power Reduction (MPR)	PASS
	Normal	6.2.3	UE additional maximum output power reduction	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.2.4	Configured transmitted power	PASS

Band	Test Environment	Protocol Section	Test Case	Result
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.3.1	Minimum output power	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.3.2	Transmit OFF power	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.3.3	Transmit ON/OFF time mask	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.3.3.4	PRACH time mask	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.3.3.6	SRS time mask	PASS
	Normal	6.3.4.2	Absolute power tolerance	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.3.4.3	Power Control Relative power tolerance	PASS
	Normal	6.3.4.4	Aggregate power tolerance (PUCCH/PUSCH)	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.4.1	Frequency error	PASS
	Normal	6.4.2.1	Error Vector Magnitude (PUCCH/PUSCH/PRACH)	PASS
	Normal	6.4.2.2	Carrier leakage	PASS
	Normal	6.4.2.3	In-band emissions (PUCCH/PUSCH)	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.4.2.4	EVM equalizer spectrum flatness	PASS
	Normal	6.4.2.5	EVM equalizer spectrum flatness for Pi/2 BPSK	PASS
	Normal	6.5.1	Occupied bandwidth	PASS
	Normal	6.5.2.2	Spectrum Emission Mask	PASS
	Normal	6.5.2.3	Additional spectrum emission mask	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	6.5.2.4	Adjacent channel leakage ratio	PASS
	Normal, TL/VL, TL/VH, TH/VL, TH/VH	7.3I.2	Reference sensitivity power level for RedCap	PASS
	Normal	7.4	Maximum input level	PASS

5.6 5G RedCap SRS Specifications

Table 20. SA 1T2R

Band	Channel	Maximum TX Power (dBm)	
		Test Value (TX0)	Test Value (TX0_SRS)
n38	M	21.0	20.4
n40	M	21.2	20.7
n41	M	20.7	20.1
n48	M	20.8	20.5
n77	M	21.1	20.9
n78	M	20.8	20.7

5.7 GNSS Specifications

Table 21. GNSS specifications

Mode	Test Case	Unit	Test Value	
			0363#	8862#
GNSS	Tracking sensitivity	dBm	-157.5	-157.0
	Cold start (RX power@-130dBm)	s	30.4	30.5
	Warm start (RX power@-130dBm)	s	28.4	28.9
	Hot start (RX power@-130dBm)	s	1.1	1.1
	Acquisition Sensitivity at different power level (cold start)	dBm	-146.0	-146.5
	Position Accuracy (cold start@-130dBm, CEP 50%)	m	1.2	0.6
	C/N0 (RX power@-130dBm)	dB/Hz	38.8	38.7
	Current consumption fixing (Cold start - average current until TTFF with 20SVs @-130dBm)	mA	45.6	45.2
	Current consumption tracking (Weak signal, 20SVs @-146dBm, no power saving, fix rate=1sec)	mA	44.7	44.5

5.8 Max Throughput

Single Band Max throughput

Description:

- For LTE single band maximum physical layer throughput test, the BW is the maximum

BW defined by the 3GPP protocol. The uplink-downlink configurations of the TDD band to be set 5 when DL max physical layer throughput test, and to be set 0 when UL max physical layer throughput test, and the special subframe is 4.

- For SA single band maximum physical layer throughput test, the BW is the maximum BW defined by the 3GPP protocol. The FDD SCS is 15kHz, TDD SCS is 30kHz, the uplink-downlink configurations of the TDD band to be set 5ms 8DS1U S(10:2:2) when DL max physical layer throughput test, and to be set 3DS6U S(10:2:2) when UL max physical layer throughput test.

Table 22. Single Band Max throughput

System	Band	BW	Channel	DL Theoretical Value (Mbps)	DL Test Value (Mbps)	UL Theoretical Value (Mbps)	UL Test Value (Mbps)
LTE-FDD RMS	B1	20M	CH18100	194.973	194.973	75.376	75.376
			CH18300	194.973	194.973	75.376	75.376
			CH18500	194.973	194.973	75.376	75.376
	B2	20M	CH18700	194.973	194.973	75.376	75.376
			CH18900	194.973	194.973	75.376	75.376
			CH19100	194.973	194.973	75.376	75.376
	B3	20M	CH19300	194.973	194.973	75.376	75.376
			CH19575	194.973	194.973	75.376	75.376
			CH19850	194.973	194.973	75.376	75.376
	B4	20M	CH20050	194.973	194.973	75.376	75.376
			CH20175	194.973	194.973	75.376	75.376
			CH20300	194.973	194.973	75.376	75.376
	B5	10M	CH20450	97.462	97.462	36.696	36.696
			CH20525	97.462	97.462	36.696	36.696
			CH20600	97.462	97.462	36.696	36.696
	B7	20M	CH20850	194.973	194.973	75.376	75.376
			CH21100	194.973	194.973	75.376	75.376
			CH21350	194.973	194.973	75.376	75.376
	B8	10M	CH21500	97.462	97.462	36.696	36.696
			CH21625	97.462	97.462	36.696	36.696
			CH21750	97.462	97.462	36.696	36.696
	B12	10M	CH23060	97.462	97.462	36.696	36.696
			CH23095	97.462	96.973	36.696	36.696

System	Band	BW	Channel	DL Theoretical Value (Mbps)	DL Test Value (Mbps)	UL Theoretical Value (Mbps)	UL Test Value (Mbps)
LTE-TDD RMS	B13	10M	CH23130	97.462	97.462	36.696	36.696
			CH23230	97.462	97.462	36.696	36.696
			CH23330	97.462	97.462	36.696	36.696
	B17	10M	CH23780	97.462	97.462	36.696	36.696
			CH23790	97.462	97.462	36.696	36.696
			CH23800	97.462	97.462	36.696	36.696
	B18	15M	CH23925	149.899	149.899	55.056	55.056
	B19	15M	CH24075	149.899	149.899	55.056	55.056
	B20	20M	CH24250	194.973	194.973	75.376	75.376
			CH24300	194.973	194.973	75.376	75.376
			CH24350	194.973	194.973	75.376	75.376
	B25	20M	CH26115	194.973	194.973	75.376	75.376
			CH26365	194.973	194.973	75.376	75.376
			CH26615	194.973	194.973	75.376	75.376
	B26	15M	CH26765	149.899	149.899	55.056	55.056
			CH26865	149.899	149.899	55.056	55.056
			CH26965	149.899	149.899	55.056	55.056
	B28	20M	CH27310	194.973	194.973	75.376	75.376
			CH27460	194.973	194.973	75.376	75.376
			CH27560	194.973	194.973	75.376	75.376
	B30	10M	CH27710	97.462	97.462	36.696	36.696
	B66	20M	CH132072	194.973	194.973	75.376	75.376
			CH132422	194.973	194.973	75.376	75.376
			CH132572	194.973	194.973	75.376	75.376
	B71	20M	CH133222	194.973	194.973	75.376	75.376
			CH133322	194.973	194.973	75.376	75.376
			CH133372	194.973	194.973	75.376	75.376
LTE-TDD RMS	B34	15M	CH36275	130.76	130.76	33.034	33.034
			CH37850	170.89	170.89	45.226	45.226

System	Band	BW	Channel	DL Theoretical Value (Mbps)	DL Test Value (Mbps)	UL Theoretical Value (Mbps)	UL Test Value (Mbps)
	B38	20M	CH38000	170.89	170.89	45.226	45.226
			CH38150	170.89	170.89	45.226	45.226
	B39	20M	CH38350	170.89	170.89	45.226	45.226
			CH38450	170.89	170.89	45.226	45.226
			CH38550	170.89	170.89	45.226	45.226
	B40	20M	CH38750	170.89	170.89	45.226	45.226
			CH39150	170.89	170.89	45.226	45.226
			CH39550	170.89	170.89	45.226	45.226
	B41	20M	CH39750	170.89	170.89	45.226	45.226
			CH40620	170.89	170.89	45.226	45.226
			CH41490	170.89	170.89	45.226	45.226
	B42	20M	CH41690	170.89	170.89	45.226	45.226
			CH42590	170.89	170.89	45.226	45.226
			CH43490	170.89	170.89	45.226	45.226
	B43	20M	CH43690	170.89	170.89	45.226	45.226
			CH44590	170.89	170.89	45.226	45.226
			CH45490	170.89	170.89	45.226	45.226
	B48	20M	CH55340	170.89	170.89	45.226	45.226
			CH55990	170.89	170.89	45.226	45.226
			CH56640	170.89	170.89	45.226	45.226
RedCap FDD RMS	n1	20M	CH424000	230.74	230.74	122.98	122.98
			CH428000	231.15	231.15	122.98	122.98
			CH432000	230.95	230.95	122.98	122.98
	n2	20M	CH388000	230.74	230.74	122.98	122.98
			CH392000	231.15	231.15	122.98	122.98
			CH396000	230.95	230.95	122.98	122.98
	n3	20M	CH363000	231.36	231.36	122.98	122.98
			CH368500	231.36	231.36	122.98	122.98
			CH374000	231.15	231.15	122.98	122.98

System	Band	BW	Channel	DL Theoretical Value (Mbps)	DL Test Value (Mbps)	UL Theoretical Value (Mbps)	UL Test Value (Mbps)
	n5	20M	CH175800	231.36	231.36	122.98	122.98
			CH176300	231.36	231.36	122.98	122.98
			CH176800	230.74	230.74	122.98	122.98
	n7	20M	CH526000	230.74	230.74	122.98	122.98
			CH531000	231.36	231.36	122.98	122.98
			CH536000	231.15	231.15	122.98	122.98
	n8	20M	CH187000	231.15	231.15	122.98	122.98
			CH188500	231.36	231.36	122.98	122.98
			CH190000	230.74	230.74	122.98	122.98
	n12	15M	CH147300	173.24	173.24	92.2	92.2
			CH147500	173.85	173.85	92.2	92.2
			CH147700	173.85	173.85	92.2	92.2
	n13	10M	CH150200	111.91	111.91	60.46	60.46
	n14	10M	CH152600	111.91	111.91	60.46	60.46
	n18	15M	CH173500	173.55	173.55	92.2	92.2
	n20	20M	CH160200	231.36	231.36	122.98	122.98
			CH161200	230.74	230.74	122.98	122.98
			CH162200	230.74	230.74	122.98	122.98
	n25	20M	CH388000	230.74	230.74	122.98	122.98
			CH392500	231.36	231.36	122.98	122.98
			CH397000	231.15	231.15	122.98	122.98
	n26	20M	CH173800	231.15	231.15	122.98	122.98
			CH175300	231.36	231.36	122.98	122.98
			CH176800	230.74	230.74	122.98	122.98
	n28	20M	CH153600	230.95	230.95	122.98	122.98
			CH156600	231.36	231.36	122.98	122.98
			CH158600	230.74	230.74	122.98	122.98
	n30	10M	CH471000	112.52	112.52	60.46	60.46
			CH424000	230.74	230.74	122.98	122.98

System	Band	BW	Channel	DL Theoretical Value (Mbps)	DL Test Value (Mbps)	UL Theoretical Value (Mbps)	UL Test Value (Mbps)
RedCap TDD RMS	n66	20M	CH429000	231.36	231.36	122.98	122.98
			CH434000	231.15	231.15	122.98	122.98
	n70	15M	CH400500	173.24	173.24	92.2	92.2
	n71	20M	CH125400	231.36	231.36	122.98	122.98
			CH126900	230.74	230.74	122.98	122.98
			CH128400	230.95	230.95	122.98	122.98
	n38	20M	CH516000	193.31	193.31	78.08	78.08
			CH519000	193.31	193.31	78.08	78.08
			CH522000	193.31	193.31	78.08	78.08
	n40	20M	CH462000	193.31	193.31	78.08	78.08
			CH470000	193.21	193.21	78.08	78.08
			CH478000	193.56	193.56	78.08	78.08
	n41	20M	CH501204	193.31	193.31	78.08	78.08
			CH518598	193.21	193.21	78.08	78.08
			CH535998	193.41	193.41	78.08	78.08
RedCap TDD RMS	n48	20M	CH637334	193.21	193.21	78.08	78.08
			CH641666	193.21	193.21	78.08	78.08
			CH646000	193.31	193.31	78.08	78.08
	n77	20M	CH620668	193.31	193.31	78.08	78.08
			CH650000	193.56	193.56	78.08	78.08
			CH679332	193.41	193.41	78.08	78.08
	n78	20M	CH620668	193.31	193.31	78.08	78.08
			CH636666	193.21	193.21	78.08	78.08
			CH652666	193.41	193.41	78.08	78.08

5.9 Working Current

1. Test conditions: normal temperature of 25°C/3.8V
2. Test data:

Table 23. Single band working current

System	Band	Channel	2014#		0306#	
			Test value (mA)	Power (dBm)	Test value (mA)	Power (dBm)
LTE-FDD RMS (10MHz 1RB)	B1	CH18050	617	22.9	613	22.9
		CH18300	564	22.9	559	23.0
		CH18550	611	22.8	613	22.9
	B2	CH18650	592	22.8	586	23.0
		CH18900	619	22.7	615	23.0
		CH19150	561	22.6	551	22.9
	B3	CH19250	590	22.9	581	23.2
		CH19575	620	22.9	616	23.3
		CH19900	713	22.7	704	23.1
	B4	CH20000	588	22.8	580	23.0
		CH20175	607	22.8	613	23.1
		CH20350	593	22.8	572	22.9
	B5	CH20450	627	22.9	632	23.3
		CH20525	585	22.9	591	23.3
		CH20600	636	22.8	633	23.2
	B7	CH20800	710	22.2	698	22.5
		CH21100	646	22.2	629	22.4
		CH21400	747	22.4	732	22.5
	B8	CH21500	568	23.1	556	23.4
		CH21625	542	23.1	532	23.3
		CH21750	576	22.9	575	23.2
	B12	CH23060	549	22.8	556	23.2
		CH23095	553	22.9	546	23.2
		CH23130	635	22.9	632	23.3
	B13	CH23230	639	22.8	624	23.1
	B14	CH23330	528	22.8	527	23.2
	B17	CH23780	585	23.0	576	23.2
		CH23790	613	23.0	609	23.2

System	Band	Channel	2014#		0306#	
			Test value (mA)	Power (dBm)	Test value (mA)	Power (dBm)
	B18	CH23800	641	22.8	630	23.2
		CH23900	580	22.8	581	23.1
		CH23925	569	22.8	567	23.2
		CH23950	556	22.9	555	23.2
	B19	CH24050	555	22.9	552	23.1
		CH24075	561	22.9	568	23.2
		CH24100	563	22.8	562	23.1
	B20	CH24200	632	22.9	631	23.3
		CH24300	584	22.9	573	23.2
		CH24400	599	22.9	601	23.2
	B25	CH26090	590	22.6	581	23.0
		CH26365	623	22.7	614	23.0
		CH26640	631	22.6	611	23.0
	B26	CH26740	638	22.9	636	23.2
		CH26865	610	22.9	610	23.3
		CH26990	626	22.8	613	23.1
	B28	CH27260	559	22.9	557	23.2
		CH27410	545	22.9	545	23.2
		CH27610	552	22.7	550	23.1
	B30	CH27710	716	22.6	703	22.9
	B66	CH132022	592	22.8	577	23.0
		CH132422	577	22.6	560	23.0
		CH132622	615	22.7	594	22.9
	B71	CH133172	629	22.9	599	23.3
		CH133297	515	22.9	509	23.3
		CH133422	546	22.8	535	23.2
LTE-TDD RMS (10MHz 1RB)	B34	CH36250	331	22.5	331	22.9
		CH36275	324	22.5	325	23.0
		CH36300	321	22.4	325	22.8

System	Band	Channel	2014#		0306#	
			Test value (mA)	Power (dBm)	Test value (mA)	Power (dBm)
	B38	CH37800	414	22.5	400	22.9
		CH38000	423	22.5	399	22.9
		CH38200	370	22.5	349	23.0
	B39	CH38300	286	22.6	279	23.1
		CH38450	291	22.6	283	23.0
		CH38600	300	22.7	291	23.1
	B40	CH38700	419	22.8	456	22.9
		CH39150	360	22.9	380	23.0
		CH39600	367	23.4	423	23.7
	B41	CH39700	361	22.4	371	22.9
		CH40620	380	22.5	362	22.9
		CH41540	394	22.5	353	22.8
	B42	CH41640	328	22.6	334	22.9
		CH42590	323	22.6	327	23.0
		CH43540	308	22.3	304	22.7
	B43	CH43640	297	22.3	282	22.9
		CH44590	304	22.2	297	22.6
		CH45540	324	22.5	310	22.8
	B48	CH55290	304	22.5	306	22.9
		CH55990	292	22.2	290	22.7
		CH56690	302	22.1	291	22.5
LTE-TDD HUPE RMS (10MHz 1RB)	B38	CH37800	551	25.5	532	25.6
		CH38000	560	25.8	527	25.9
		CH38200	536	25.7	500	25.9
	B40	CH38700	571	25.8	603	25.8
		CH39150	493	25.5	510	25.5
		CH39600	540	25.7	563	25.8
	B41	CH39700	515	25.6	540	25.8
		CH40620	556	25.7	527	25.9

System	Band	Channel	2014#		0306#	
			Test value (mA)	Power (dBm)	Test value (mA)	Power (dBm)
RedCap RMS (10MHz Inner_Ful)	B42	CH41540	544	25.7	514	25.9
		CH41640	434	25.7	442	25.9
		CH42590	427	26.0	440	26.1
		CH43540	400	25.7	399	25.7
		CH43640	383	25.8	382	25.9
		CH44590	385	25.6	378	25.9
		CH45540	425	25.9	407	26.1
		CH423000	549	22.5	587	22.7
	n1	CH428000	521	22.4	571	22.8
		CH433000	560	22.5	605	22.7
		CH387000	511	22.7	554	22.9
	n2	CH392000	536	22.7	608	22.8
		CH397000	519	22.5	548	22.7
		CH362000	539	22.8	580	23.0
	n3	CH368500	604	22.8	635	23.1
		CH375000	693	22.9	743	23.0
		CH174800	540	23.1	586	23.2
	n5	CH176300	547	23.2	581	23.1
		CH177800	539	22.9	579	23.1
		CH525000	720	22.6	736	22.7
	n7	CH531000	682	22.7	695	22.9
		CH537000	784	22.7	793	22.9
		CH186000	500	23.0	567	23.1
	n8	CH188500	518	23.0	555	23.1
		CH191000	527	22.9	561	23.0
		CH146800	527	23.3	564	23.4
	n12	CH147500	556	23.3	613	23.3
		CH148200	511	23.1	572	23.3
	n13	CH150200	529	22.9	576	23.1

System	Band	Channel	2014#		0306#	
			Test value (mA)	Power (dBm)	Test value (mA)	Power (dBm)
	n14	CH152600	496	22.9	533	23.0
	n18	CH173000	554	23.0	609	23.1
		CH173500	566	23.1	621	23.2
		CH174000	570	23.1	626	23.2
	n20	CH159200	592	23.2	629	23.2
		CH161200	563	23.0	620	23.1
		CH163200	595	22.9	651	23.1
	n25	CH387000	508	22.8	546	22.8
		CH392500	545	22.8	631	22.9
		CH398000	550	22.8	585	22.7
	n26	CH172800	597	23.0	619	23.1
		CH175300	577	23.1	591	23.2
		CH177800	581	23.0	599	23.0
	n28	CH152600	526	23.0	584	23.3
		CH156100	537	23.2	583	23.2
		CH159600	526	23.0	569	23.0
	n30	CH471000	741	22.8	752	22.7
		CH423000	591	22.9	652	22.8
	n66	CH429000	550	22.8	549	22.7
		CH435000	555	22.8	569	22.7
	n70	CH400000	637	22.9	618	22.9
		CH400500	638	23.0	614	22.9
		CH401000	630	22.8	619	22.8
	n71	CH124400	558	23.2	590	23.1
		CH126900	509	23.0	516	23.2
		CH129400	541	22.9	551	23.2
RedCap RMS	TDD n38	CH516000	246	22.8	239	22.7
		CH519000	236	22.8	236	22.8
		CH522000	230	22.7	230	22.6

System	Band	Channel	2014#		0306#	
			Test value (mA)	Power (dBm)	Test value (mA)	Power (dBm)
(20MHz Inner_Ful)	n40	CH462000	229	22.4	239	22.4
		CH470000	197	22.5	207	22.9
		CH478000	179	22.8	180	22.8
	n41	CH501204	171	22.5	193	22.2
		CH518598	214	22.8	233	22.5
		CH535998	208	22.7	225	22.5
	n48	CH637334	181	23.2	215	22.9
		CH641666	177	23.2	205	22.9
		CH646000	179	23.0	205	22.6
	n77	CH620668	225	23.2	231	22.9
		CH650000	217	22.7	213	22.6
		CH679332	298	23.4	306	23.6
	n78	CH620668	223	23.0	232	23.1
		CH636666	229	23.1	233	23.1
		CH652666	219	22.9	216	22.8