PERFECT WIRELESS EXPERIENCE

FG132-GL-00-M2-10
RF Test Report

V1.1

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Change History

V1.1(2025-03-06)	The chapter 5.6 add the SRS specifications
V1.0 (2025-01-02)	Initial version

1 Test Version Description

Table 1. Test version description

Product name	FG132-GL-00-M2-10
Hardware version	V1.0
Software version	19003.1000.00.02.01.51

2 Test Device

Table 2. Test device list

No.	Device Name	Manufacturer	Model
1	Programmable constant temperature and humidity test chamber	XI'AN HUANKE TEST Equipment Co., Ltd.	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℃	Normal voltage: +3.8V
2	TL/VL	Low operating temperature: -35℃	Low voltage: +3.135V
3	TL/VH	Low operating temperature: -35℃	High voltage: +4.4V
4	TH/VL	High operating temperature: +75℃	Low voltage: +3.135V
5	TH/VH	High operating temperature: +75℃	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	
			1212#	3127#		1212#	3127#
B1	L	23.0±2.7	23.3	23.3	-96.3	-102.4	-102.0
	M	23.0±2.7	23.3	23.3		-102.0	-102.1
	H	23.0±2.7	23.3	23.3		-102.0	-101.9
B2	L	23.0+2.7/-4.2	23.1	23.3	-94.3	-102.6	-102.8
	M	23.0±2.7	23.2	23.3		-103.0	-103.2
	H	23.0+2.7/-4.2	23.1	23.2		-103.0	-103.0
B3	L	23.0+2.7/-4.2	23.2	23.3	-93.3	-102.2	-102.4
	M	23.0±2.7	23.2	23.4		-102.8	-103.0
	H	23.0+2.7/-4.2	23.1	23.3		-102.4	-102.8
B4	L	23.0±2.7	23.2	23.2	-96.3	-102.1	-102.1
	M	23.0±2.7	23.2	23.2		-102.4	-102.4
	H	23.0±2.7	23.2	23.3		-102.0	-102.1
B5	L	23.0±2.7	23.1	23.3	-94.3	-103.2	-103.4
	M	23.0±2.7	23.1	23.3		-102.8	-103.2
	H	23.0±2.7	23.0	23.2		-102.8	-103.0
B7	L	23.0+2.7/-4.2	23.3	23.5	-94.3	-102.4	-102.6
	M	23.0±2.7	23.2	23.4		-102.4	-102.4
	H	23.0+2.7/-4.2	23.3	23.5		-102.0	-102.4
B8	L	23.0+2.7/-4.2	23.2	23.2	-93.3	-102.8	-103.0
	M	23.0±2.7	23.1	23.3		-103.0	-102.8
	H	23.0+2.7/-4.2	23.0	23.1		-102.6	-102.8

Band	Channel	Maximum TX Power (dBm)			RX Sensitivity (Main+Diversity) (dBm)		
		3GPP Requirement	Test Value		3GPP Requirement	Test Value	
			1212#	3127#		1212#	3127#
B12	L	23.0+2.7/-4.2	23.3	23.3	-93.3	-102.0	-102.2
	M	23.0±2.7	23.4	23.3		-102.2	-102.4
	H	23.0+2.7/-4.2	23.3	23.4		-102.2	-102.4
B13	L/M/H	23.0±2.7	23.2	23.3	-93.3	-102.4	-102.4
B14	L/M/H	23.0±2.7	23.1	23.3	-93.3	-102.2	-102.2
B17	L	23.0±2.7	23.2	23.3	-93.3	-102.2	-102.4
	M	23.0±2.7	23.3	23.4		-102.4	-102.4
	H	23.0±2.7	23.4	23.4		-102.4	-102.4
B18	L	23.0+2.7/-4.2	23.2	23.2	-96.3	-103.0	-103.0
	M	23.0±2.7	23.2	23.3		-103.0	-103.2
	H	23.0±2.7	23.1	23.3		-103.0	-103.0
B19	L	23.0±2.7	23.2	23.2	-96.3	-103.0	-103.2
	M	23.0±2.7	23.2	23.2		-102.8	-103.0
	H	23.0±2.7	23.1	23.1		-102.8	-102.8
B20	L	23.0+2.7/-4.2	23.1	23.2	-93.3	-103.0	-103.0
	M	23.0±2.7	23.1	23.2		-103.0	-103.2
	H	23.0+2.7/-4.2	23.0	23.1		-103.0	-103.0
B25	L	23.0+2.7/-4.2	23.1	23.2	-92.8	-102.5	-102.7
	M	23.0±2.7	23.1	23.3		-102.9	-103.3
	H	23.0+2.7/-4.2	23.1	23.2		-102.7	-103.1
B26	L	23.0+2.7/-4.2	23.2	23.3	-93.8	-102.9	-102.9
	M	23.0±2.7	23.2	23.4		-103.1	-103.3
	H	23.0+2.7/-4.2	23.0	23.2		-102.9	-102.9
B28	L	23.0+2.7/-3.2	23.3	23.3	-94.8	-102.9	-103.1
	M	23.0+2.7/-3.2	23.4	23.4		-103.5	-103.5
	H	23.0+2.7/-3.2	23.1	23.2		-103.3	-103.5
B30	L/M/H	23.0±2.7	23.4	23.4	-95.3	-102.0	-102.2
B66	L	23.0±2.7	23.1	23.2	-95.8	-102.3	-102.5
	M	23.0±2.7	23.1	23.3		-101.9	-102.5

Band	Channel	Maximum TX Power (dBm)			RX Sensitivity (Main+Diversity) (dBm)		
		3GPP Requirement	Test Value		3GPP Requirement	Test Value	
			1212#	3127#		1212#	3127#
B71	H	23.0±2.7	23.1	23.2	-93.5	-102.5	-102.7
	L	23.0+2.7/-3.2	23.2	23.3		-102.6	-102.4
	M	23.0+2.7/-3.2	23.1	23.2		-102.6	-102.4
	H	23.0+2.7/-3.2	23.3	23.3		-102.4	-102.4

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)	
			1212#	3127#		1212#	3127#	1212#	3127#
B1	L	23.0±2.7	23.3	23.3	-96.3	-98.8	-99.2	-100.4	-99.8
	M	23.0±2.7	23.3	23.3		-98.8	-99.0	-100.0	-99.6
	H	23.0±2.7	23.3	23.3		-98.6	-98.8	-100.0	-99.6
B2	L	23.0+2.7/-4.2	23.1	23.3	-94.3	-99.2	-99.4	-100.0	-99.6
	M	23.0±2.7	23.2	23.3		-99.6	-100.0	-100.8	-100.6
	H	23.0+2.7/-4.2	23.1	23.2		-99.6	-100.0	-100.6	-100.0
B3	L	23.0+2.7/-4.2	23.2	23.3	-93.3	-99.0	-99.2	-99.8	-99.4
	M	23.0±2.7	23.2	23.4		-99.6	-99.6	-100.6	-100.2
	H	23.0+2.7/-4.2	23.1	23.3		-99.6	-99.4	-100.4	-100.0
B4	L	23.0±2.7	23.2	23.2	-96.3	-98.8	-99.2	-100.4	-100.0
	M	23.0±2.7	23.2	23.2		-99.0	-99.6	-100.2	-99.8
	H	23.0±2.7	23.2	23.3		-98.8	-99.4	-100.0	-99.4
B5	L	23.0±2.7	23.1	23.3	-94.3	-99.4	-99.4	-101.4	-100.8
	M	23.0±2.7	23.1	23.3		-99.2	-99.2	-101.0	-100.6
	H	23.0±2.7	23.0	23.2		-99.4	-99.4	-100.8	-100.4
B7	L	23.0+2.7/-4.2	23.3	23.5	-94.3	-99.0	-98.8	-100.4	-99.8
	M	23.0±2.7	23.2	23.4		-99.2	-99.0	-100.2	-99.4
	H	23.0+2.7/-4.2	23.3	23.5		-98.8	-99.0	-99.8	-99.2
B8	L	23.0+2.7/-4.2	23.2	23.2	-93.3	-99.2	-99.2	-100.8	-100.4
	M	23.0±2.7	23.1	23.3		-99.2	-99.2	-101.2	-100.8

Band	Channel	Maximum TX Power (dBm)			RX Sensitivity (dBm)				
		3GPP Requirement	Test Value		3GPP Requirement	Test Value (Main)		Test Value (Diversity)	
			1212#	3127#		1212#	3127#	1212#	3127#
	H	23.0+2.7/-4.2	23.0	23.1		-99.2	-99.2	-100.8	-100.2
B12	L	23.0+2.7/-4.2	23.3	23.3	-93.3	-99.0	-99.0	-99.6	-99.2
	M	23.0±2.7	23.4	23.3		-99.0	-99.0	-99.8	-99.4
	H	23.0+2.7/-4.2	23.3	23.4		-99.0	-99.0	-100.2	-99.8
B13	L/M/H	23.0±2.7	23.2	23.3	-93.3	-99.0	-98.8	-100.2	-99.6
B14	L/M/H	23.0±2.7	23.1	23.3	-93.3	-99.0	-98.8	-99.6	-99.2
B17	L	23.0±2.7	23.2	23.3	-93.3	-99.0	-99.0	-100.0	-99.6
	M	23.0±2.7	23.3	23.4		-99.0	-99.0	-100.2	-99.6
	H	23.0±2.7	23.4	23.4		-99.0	-99.0	-100.2	-99.8
B18	L	23.0+2.7/-4.2	23.2	23.2	-96.3	-99.2	-99.2	-101.2	-100.6
	M	23.0±2.7	23.2	23.3		-99.2	-99.2	-101.2	-100.8
	H	23.0±2.7	23.1	23.3		-99.2	-99.0	-101.2	-100.6
B19	L	23.0±2.7	23.2	23.2	-96.3	-99.4	-99.4	-101.2	-100.8
	M	23.0±2.7	23.2	23.2		-99.2	-99.2	-101.0	-100.6
	H	23.0±2.7	23.1	23.1		-99.4	-99.2	-100.8	-100.4
B20	L	23.0+2.7/-4.2	23.1	23.2	-93.3	-99.2	-99.2	-101.2	-100.8
	M	23.0±2.7	23.1	23.2		-99.4	-99.4	-101.2	-100.6
	H	23.0+2.7/-4.2	23.0	23.1		-99.6	-99.4	-100.8	-100.4
B25	L	23.0+2.7/-4.2	23.1	23.2	-92.8	-99.1	-99.3	-100.1	-99.9
	M	23.0±2.7	23.1	23.3		-99.5	-99.9	-100.9	-100.7
	H	23.0+2.7/-4.2	23.1	23.2		-99.5	-99.9	-100.5	-100.1
B26	L	23.0+2.7/-4.2	23.2	23.3	-93.8	-99.1	-99.1	-101.1	-100.7
	M	23.0±2.7	23.2	23.4		-99.3	-99.5	-101.3	-100.9
	H	23.0+2.7/-4.2	23.0	23.2		-99.5	-99.3	-100.9	-100.3
B28	L	23.0+2.7/-3.2	23.3	23.3	-94.8	-99.9	-99.7	-100.7	-100.3
	M	23.0+2.7/-3.2	23.4	23.4		-100.3	-100.3	-101.3	-100.9
	H	23.0+2.7/-3.2	23.1	23.2		-99.9	-99.9	-101.1	-100.7
B30	L/M/H	23.0±2.7	23.4	23.4	-95.3	-98.2	-98.6	-100.0	-99.4

Band	Channel	Maximum TX Power (dBm)			RX Sensitivity (dBm)				
		3GPP Requirement	Test Value		3GPP Requirement	Test Value (Main)		Test Value (Diversity)	
			1212#	3127#		1212#	3127#	1212#	3127#
B66	L	23.0±2.7	23.1	23.2	-95.8	-98.7	-99.1	-100.3	-99.9
	M	23.0±2.7	23.1	23.3		-98.7	-99.3	-100.1	-99.5
	H	23.0±2.7	23.1	23.2		-99.1	-99.5	-100.3	-99.9
B71	L	23.0+2.7/-3.2	23.2	23.3	-93.5	-100.2	-100.0	-99.4	-98.8
	M	23.0+2.7/-3.2	23.1	23.2		-100.2	-100.2	-99.2	-98.6
	H	23.0+2.7/-3.2	23.3	23.3		-100.0	-99.8	-99.4	-98.8

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	
			1212#	3127#		1212#	3127#
B34	L	23.0±2.7	23.4	23.2	-96.3	-102.4	-102.2
	M	23.0±2.7	23.4	23.2		-102.2	-102.4
	H	23.0±2.7	23.4	23.2		-102.4	-102.4
B38	L	23.0±2.7	23.2	23.1	-96.3	-101.8	-102.2
	M	23.0±2.7	23.2	23.2		-102.4	-102.5
	H	23.0±2.7	23.3	23.2		-102.2	-102.3
B39	L	23.0±2.7	23.2	23.3	-96.3	-102.4	-101.8
	M	23.0±2.7	23.2	23.2		-102.2	-102.0
	H	23.0±2.7	23.3	23.3		-102.0	-101.8
B40	L	23.0±2.7	23.1	23.2	-96.3	-101.8	-101.8
	M	23.0±2.7	23.2	23.2		-102.0	-102.0
	H	23.0±2.7	23.2	23.1		-101.2	-101.2
B41	L	23.0+2.7/-4.2	23.3	23.3	-94.3	-101.8	-101.8
	M	23.0±2.7	23.4	23.3		-102.4	-102.6
	H	23.0+2.7/-4.2	23.3	23.1		-102.2	-102.4
B42	L	23.0+3.0/-4.0	23.8	23.4	-95.0	-102.5	-102.9
	M	23.0+3.0/-4.0	24.1	23.6		-102.7	-103.1
	H	23.0+3.0/-4.0	23.7	23.5		-102.9	-103.3
B43	L	23.0+3.0/-4.0	23.4	23.4	-95.0	-102.9	-103.3
	M	23.0+3.0/-4.0	23.4	23.3		-102.7	-103.1
	H	23.0+3.0/-4.0	23.8	23.4		-102.9	-103.1
B48	L	23.0±3.3	23.7	23.6	-95.0	-102.9	-103.3
	M	23.0±3.3	23.4	23.3		-102.9	-103.1
	H	23.0±3.3	23.5	23.3		-102.7	-103.1

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)	
			1212#	3127#		1212#	3127#	1212#	3127#
B34	L	23.0±2.7	23.4	23.2	-96.3	-99.0	-99.2	-99.8	-99.6
	M	23.0±2.7	23.4	23.2		-99.0	-99.2	-99.8	-99.4
	H	23.0±2.7	23.4	23.2		-99.0	-99.2	-99.8	-99.6
B38	L	23.0±2.7	23.2	23.1	-96.3	-100.2	-100.2	-98.4	-98.2
	M	23.0±2.7	23.2	23.2		-100.0	-100.0	-98.8	-99.0
	H	23.0±2.7	23.3	23.2		-100.0	-100.0	-98.4	-98.4
B39	L	23.0±2.7	23.2	23.3	-96.3	-98.5	-99.2	-99.0	-99.2
	M	23.0±2.7	23.2	23.2		-98.9	-99.2	-99.2	-99.4
	H	23.0±2.7	23.3	23.3		-98.9	-99.4	-99.0	-98.6
B40	L	23.0±2.7	23.1	23.2	-96.3	-97.7	-98.1	-100.2	-99.8
	M	23.0±2.7	23.2	23.2		-98.5	-98.7	-100.0	-99.4
	H	23.0±2.7	23.2	23.1		-98.3	-98.1	-99.0	-98.8
B41	L	23.0+2.7/-4.2	23.3	23.3	-94.3	-99.6	-99.6	-97.4	-97.6
	M	23.0±2.7	23.4	23.3		-100.0	-100.2	-98.6	-98.8
	H	23.0+2.7/-4.2	23.3	23.1		-99.6	-99.6	-99.0	-99.0
B42	L	23.0+3.0/-4.0	23.8	23.4	-95.0	-100.1	-100.3	-99.1	-99.7
	M	23.0+3.0/-4.0	24.1	23.6		-100.1	-100.3	-99.9	-100.1
	H	23.0+3.0/-4.0	23.7	23.5		-100.1	-100.3	-99.9	-100.1
B43	L	23.0+3.0/-4.0	23.4	23.4	-95.0	-100.1	-100.3	-100.3	-100.1
	M	23.0+3.0/-4.0	23.4	23.3		-100.3	-100.5	-99.9	-99.9
	H	23.0+3.0/-4.0	23.8	23.4		-100.7	-100.7	-100.3	-99.9
B48	L	23.0±3.3	23.7	23.6	-95.0	-100.1	-100.3	-100.3	-100.1
	M	23.0±3.3	23.4	23.3		-99.9	-100.5	-100.3	-100.1
	H	23.0±3.3	23.5	23.3		-100.1	-100.3	-99.9	-99.7

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	
			1212#	2095#
B38	L	26.0±2.7	26.3	26.3
	M	26.0±2.7	26.3	26.2
	H	26.0±2.7	26.3	26.2
B40	L	26.0±2.7	26.1	26.3
	M	26.0±2.7	26.2	26.1
	H	26.0±2.7	26.3	26.2

Band	Channel	Maximum TX Power (dBm)		
		3GPP Requirement	Test Value	
			1212#	2095#
B41	L	26.0+2.7/-4.2	26.3	26.4
	M	26.0±2.7	26.3	26.2
	H	26.0+2.7/-4.2	26.3	26.1
B42	L	26.0+3/-4	26.8	26.4
	M	26.0+3/-4	27.1	26.7
	H	26.0+3/-4	26.7	26.4
B43	L	26.0+3/-4	26.4	26.4
	M	26.0+3/-4	26.4	26.2
	H	26.0+3/-4	26.7	26.4

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 Table7.3.2.4.1-3.
- 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 ≤ 3.0GHz	3.0GHz < f ≤ 4.2GHz	4.2GHz < f ≤ 6.0GHz
BW ≤ 40MHz	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 ≤ 3.0GHz	3.0GHz < f ≤ 6.0 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	
				1212#	3127#		1212#	3127#
n1	20	L	23±2±TT	22.8	23.0	-93.8+TT	-99.5	-99.3
		M	23±2±TT	22.9	23.1		-99.3	-99.1
		H	23±2±TT	22.8	23.0		-99.1	-99.3
n2	20	L	23+2/-3.5±TT	22.9	22.9	-91.8+TT	-99.7	-99.5
		M	23±2±TT	23.0	22.9		-100.1	-99.5
		H	23+2/-3.5±TT	22.8	22.9		-99.7	-99.9
n3	20	L	23+2/-3.5±T	23.0	22.9	-90.8+TT	-99.5	-99.5
		M	23±2±TT	22.9	23.0		-99.9	-99.7
		H	23+2/-3.5±TT	23.1	22.9		-99.7	-99.7
n5	20	L	23±2±TT	23.2	23.0	-86.8+TT	-100.1	-99.7
		M	23±2±TT	23.3	23.0		-100.3	-99.7
		H	23±2±TT	23.2	23.0		-100.1	-99.7
		L	23+2/-3.5±TT	23.2	23.0		-99.1	-99.3

Band	BW (MHz)	Channel	Maximum TX Power (dBm)			RX Sensitivity (Main+Diversity) (dBm)		
			3GPP Requirement	Test Value		3GPP requirement	Test Value	
				1212#	3127#		1212#	3127#
n7	20	M	23±2±TT	23.1	22.9	-91.8+TT	-98.9	-99.1
		H	23+2/-3.5±TT	23.1	23.0		-98.5	-99.1
n8	20	L	23+2/-3.5±TT	23.3	23.0	-85.8+TT	-99.9	-99.7
		M	23±2±TT	23.1	23.0		-99.9	-99.5
		H	23+2/-3.5±TT	22.9	22.9		-99.9	-99.5
n12	10	L	23+2/-3.5±TT	23.4	23.0	-93.8+TT	-101.9	-101.7
		M	23±2±TT	23.4	23.0		-102.1	-101.9
		H	23+2/-3.5±TT	23.5	23.0		-102.3	-101.9
n13	10	L/M/H	23±2±TT	23.0	22.8	-93.8+TT	-102.3	-102.1
n14	10	L/M/H	23±2±TT	23.0	22.7	-93.8+TT	-102.1	-101.7
n18	10	L	/	23.3	23.0	/	-103.3	-102.9
		M	/	23.2	23.0		-103.3	-102.9
		H	/	23.2	23.0		-103.3	-102.9
n20	20	L	23+2/-3.5±TT	23.3	23.1	-89.8+TT	-99.7	-99.3
		M	23±2±TT	23.2	23.0		-99.9	-99.5
		H	23+2/-3.5±TT	23.2	23.0		-99.7	-99.3
n25	20	L	23+2/-3.5±TT	22.9	22.9	-90.3+TT	-99.6	-99.0
		M	23±2±TT	22.9	22.9		-100.0	-99.6
		H	23+2/-3.5±TT	22.8	23.0		-99.6	-100.0
n26	20	L	23+2/-3.5±TT	23.1	22.9	-87.6+TT	-100.1	-99.7
		M	23±2±TT	23.2	23.1		-100.1	-99.7
		H	23+2/-3.5±TT	23.1	23.0		-100.1	-99.7
n28	20	L	23+2+TT/-2.5-TT	23.2	23.0	-90.8+TT	-100.3	-99.9
		M	23+2+TT/-2.5-TT	23.2	23.0		-100.3	-100.1
		H	23+2+TT/-2.5-TT	23.2	22.8		-100.3	-99.9
n30	10	L/M/H	23±2±TT	23.0	22.7	-95.8+TT	-101.7	-101.9
n66	20	L	23±2±TT	23.0	23.1	-93.3+TT	-99.6	-99.8
		M	23±2±TT	23.1	23.0		-99.2	-99.6

Band	BW (MHz)	Channel	Maximum TX Power (dBm)			RX Sensitivity (Main+Diversity) (dBm)		
			3GPP Requirement	Test Value		3GPP requirement	Test Value	
				1212#	3127#		1212#	3127#
		H	23±2±TT	23.0	22.9		-99.2	-99.6
n70	15	L/M/H	23±2±TT	22.6	23.1	-95.0+TT	-100.9	-101.5
n71	20	L	23+2+TT/-2.5-TT	23.2	22.9	-86.0+TT	-99.7	-99.9
		M	23+2+TT/-2.5-TT	23.0	22.8		-99.9	-99.9
		H	23+2+TT/-2.5-TT	23.0	22.8		-99.5	-99.7

Table 15. 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)	
				1212#	3127#		1212#	3127#	1212#	3127#
n1	20M	L	23±2±TT	22.8	23.0	-93.8+3+TT	-95.9	-95.7	-96.7	-96.7
		M	23±2±TT	22.9	23.1		-95.9	-95.5	-96.5	-96.7
		H	23±2±TT	22.8	23.0		-95.5	-95.3	-96.3	-96.7
n2	20M	L	23+2/-3.5±TT	22.9	22.9	-91.8+3+TT	-96.3	-95.7	-97.1	-96.7
		M	23±2±TT	23.0	22.9		-96.7	-96.0	-97.3	-97.1
		H	23+2/-3.5±TT	22.8	22.9		-96.1	-96.5	-96.9	-97.1
n3	20M	L	23+2/-3.5±T	23.0	22.9	-90.8+3+TT	-95.9	-95.9	-97.1	-96.3
		M	23±2±TT	22.9	23.0		-96.1	-96.1	-97.5	-96.7
		H	23+2/-3.5±TT	23.1	22.9		-96.1	-96.1	-97.3	-96.7
n5	20M	L	23±2±TT	23.2	23.0	-86.8+3+TT	-96.3	-95.9	-97.7	-97.3
		M	23±2±TT	23.3	23.0		-96.5	-96.1	-97.7	-97.3
		H	23±2±TT	23.2	23.0		-96.3	-96.1	-97.7	-97.1
n7	20M	L	23+2/-3.5±TT	23.2	23.0	-91.8+3+TT	-95.5	-95.7	-96.5	-96.7
		M	23±2±TT	23.1	22.9		-95.1	-95.9	-96.7	-96.3
		H	23+2/-3.5±TT	23.1	23.0		-95.1	-95.9	-96.1	-96.1
n8	20M	L	23+2/-3.5±TT	23.3	23.0	-85.8+3+TT	-96.1	-95.7	-97.5	-97.1
		M	23±2±TT	23.1	23.0		-96.1	-95.7	-97.5	-97.1
		H	23+2/-3.5±TT	22.9	22.9		-95.9	-95.7	-97.5	-97.1

Band	BW	Channel	Maximum TX Power (dBm)			RX Sensitivity (dBm)				
			3GPP Requirement	Test Value		3GPP Requirement	Test Value (main)		Test Value (diversity)	
				1212#	3127#		1212#	3127#	1212#	3127#
n12	10M	L	23+2/-3.5±TT	23.4	23.0	-93.8+3+TT	-98.5	-98.7	-99.3	-98.7
		M	23±2±TT	23.4	23.0		-98.5	-98.7	-99.7	-99.1
		H	23+2/-3.5±TT	23.5	23.0		-98.3	-98.5	-99.9	-99.3
n13	10M	L/M/H	23±2±TT	23.0	22.8	-93.8+3+TT	-98.3	-98.9	-99.7	-99.1
n14	10M	L/M/H	23±2±TT	23.0	22.7	-93.8+3+TT	-98.9	-98.7	-99.3	-98.7
n18	10M	L	/	23.3	23.0	/	-99.5	-99.1	-100.9	-100.3
		M	/	23.2	23.0		-99.5	-98.9	-101.1	-100.5
		H	/	23.2	23.0		-99.5	-98.9	-101.1	-100.5
n20	20M	L	23+2/-3.5±TT	23.3	23.1	-89.8+3+TT	-95.7	-95.5	-97.3	-96.9
		M	23±2±TT	23.2	23.0		-96.1	-95.7	-97.3	-96.9
		H	23+2/-3.5±TT	23.2	23.0		-96.3	-95.9	-97.1	-96.7
n25	20M	L	23+2/-3.5±TT	22.9	22.9	-90.3+3+TT	-96.4	-95.6	-97.0	-96.8
		M	23±2±TT	22.9	22.9		-96.6	-96.0	-97.2	-97.2
		H	23+2/-3.5±TT	22.8	23.0		-96.2	-96.6	-97.0	-97.0
n26	20M	L	23+2/-3.5±TT	23.1	22.9	-87.6+3+TT	-96.3	-95.9	-97.7	-97.1
		M	23±2±TT	23.2	23.1		-96.3	-95.9	-97.7	-97.1
		H	23+2/-3.5±TT	23.1	23.0		-96.3	-95.9	-97.5	-97.1
n28	20M	L	23+2+TT/-2.5-TT	23.2	23.0	-90.8+3+TT	-96.9	-96.7	-97.5	-97.1
		M	23+2+TT/-2.5-TT	23.2	23.0		-97.1	-96.9	-97.5	-97.1
		H	23+2+TT/-2.5-TT	23.2	22.8		-97.1	-96.7	-97.5	-97.1
n30	10M	L/M/H	23±2±TT	23.0	22.7	-95.8+3+TT	-97.7	-98.3	-99.5	-99.1
n66	20M	L	23±2±TT	23.0	23.1	-93.3+3+TT	-96.2	-96.0	-96.6	-97.0
		M	23±2±TT	23.1	23.0		-96.0	-95.8	-96.4	-96.8
		H	23±2±TT	23.0	22.9		-95.6	-96.0	-96.6	-96.8
n70	15M	L/M/H	23±2±TT	22.6	23.1	-95.0+3+TT	-97.5	-98.1	-98.3	-98.5
		L	23+2+TT/-	23.2	22.9		-97.3	-97.0	-95.9	-95.9

Band	BW	Channel	Maximum TX Power (dBm)			RX Sensitivity (dBm)				
			3GPP Requirement	Test Value		3GPP Requirement	Test Value (main)		Test Value (diversity)	
				1212#	3127#		1212#	3127#	1212#	3127#
n71	20M		2.5-TT			-86.0+3+TT				
		M	23+2+TT/-2.5-TT	23.0	22.8		-97.5	-97.2	-95.9	-96.1
		H	23+2+TT/-2.5-TT	23.0	22.8		-97.3	-96.9	-95.7	-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 Table7.3.2.4.1-3.
- 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 ≤ 3.0GHz	3.0GHz < f ≤ 4.2GHz	4.2GHz < f ≤ 6.0GHz
BW ≤ 40MHz	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 7.3I.2.5-7: Test Tolerance (TT) for RX sensitivity level for RedCap UE

f ≤ 3.0GHz	3.0GHz < f ≤ 6.0 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	
				1212#	3127#		1212#	3127#
n38	20	L	23±2±TT	23.0	22.8	-93.8+TT	-99.7	-99.9
		M	23±2±TT	22.8	22.6		-99.9	-100.1
		H	23±2±TT	22.9	22.6		-99.7	-100.1
n40	20	L	23±2±TT	22.6	23.0	-93.8+TT	-99.5	-99.1
		M	23±2±TT	22.8	23.1		-99.9	-99.5
		H	23±2±TT	22.9	22.9		-99.3	-99.5
n41	20	L	23+2/-3.5±TT	22.8	22.6	-91.8+TT	-99.7	-99.1
		M	23±2±TT	23.0	22.9		-99.9	-100.1
		H	23+2/-3.5±TT	22.8	22.9		-99.1	-99.9
n48	20	L	23+2+TT/-3-TT	22.9	23.3	-92.8+TT	-100.3	-100.5
		M	23+2+TT/-3-TT	23.1	23.2		-100.1	-100.3
		H	23+2+TT/-3-TT	23.3	23.3		-100.1	-100.3
n77	20	L	23+2+TT/-3-TT	23.0	23.0	-92.3+TT	-99.4	-99.4
		M	23+2+TT/-3-TT	23.2	23.4		-100.0	-100.4
		H	23+2+TT/-3-TT	23.7	23.7		-100.0	-100.8
n78	20	L	23+2+TT/-3-TT	22.9	22.8	-92.8+TT	-99.5	-99.5
		M	23+2+TT/-3-TT	23.2	23.5		-100.3	-100.5
		H	23+2+TT/-3-TT	23.4	23.1		-100.3	-100.5

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)	
				1212#	3127#		1212#	3127#	1212#	3127#
n38	20M	L	23±2±TT	23.0	22.8	-93.8+2.5+TT	-97.4	-97.3	-96.0	-96.3
		M	23±2±TT	22.8	22.6		-97.2	-97.3	-96.4	-96.7
		H	23±2±TT	22.9	22.6		-97.2	-97.1	-96.2	-96.7
n40	20M	L	23±2±TT	22.6	23.0	-93.8+2.5+TT	-95.6	-95.1	-97.4	-96.7
		M	23±2±TT	22.8	23.1		-95.8	-95.7	-97.6	-96.9
		H	23±2±TT	22.9	22.9		-95.2	-95.5	-97.2	-96.9
n41	20M	L	23+2/-3.5±TT	22.8	22.6	-91.8+2.5+TT	-97.2	-97.0	-96.2	-96.2
		M	23±2±TT	23.0	22.9		-97.4	-97.3	-96.4	-96.7
		H	23+2/-3.5±TT	22.8	22.9		-97.0	-97.3	-95.8	-95.9
n48	20M	L	23+2+TT/-3-TT	22.9	23.3	-92.8+2.5+TT	-97.6	-97.5	-97.0	-97.1
		M	23+2+TT/-3-TT	23.1	23.2		-97.6	-97.7	-96.6	-97.1
		H	23+2+TT/-3-TT	23.3	23.3		-97.6	-97.5	-96.4	-96.9
n77	20M	L	23+2+TT/-3-TT	23.0	23.0	-92.3+2.5+TT	-96.1	-96.6	-96.7	-96.4
		M	23+2+TT/-3-TT	23.2	23.4		-97.1	-97.6	-96.9	-97.2
		H	23+2+TT/-3-TT	23.7	23.7		-97.3	-97.8	-96.9	-97.4
n78	20M	L	23+2+TT/-3-TT	22.9	22.8	-92.8+2.5+TT	-96.2	-96.5	-96.6	-96.5
		M	23+2+TT/-3-TT	23.2	23.5		-97.6	-97.5	-97.0	-96.9
		H	23+2+TT/-3-TT	23.4	23.1		-97.0	-97.5	-97.2	-97.3

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	
			1212#	2095#
GNSS	Tracking sensitivity	dBm	-157.0	-157.0
	Cold start (RX power@-130dBm)	s	30.4	30.0
	Warm start (RX power@-130dBm)	s	28.5	28.2
	Hot start (RX power@-130dBm)	s	1.1	1.0
	Acquisition Sensitivity at different power level (cold start)	dBm	-146.5	-146.5
	Position Accuracy (cold start@-130dBm, CEP 50%)	m	1.2	1.0
	C/N0 (RX power@-130dBm)	dB/Hz	38.8	39.1
	Current consumption fixing (Cold start - average current until TTFF with 20SVs @-130dBm)	mA	45.0	46.4
	Current consumption tracking (Weak signal,20SVs @-146dBm, no power saving, fix rate=1sec)	mA	43.7	45.6

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)
			CH23130	97.462	97.462	36.696	36.696
	B13	10M	CH23230	97.462	97.462	36.696	36.696
	B14	10M	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
	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	1212#		2095#	
			Test value (mA)	Power (dBm)	Test value (mA)	Power (dBm)
LTE-FDD RMS (10MHz 1RB)	B1	CH18050	625	23.3	640	23.3
		CH18300	561	23.3	566	23.3
		CH18550	596	23.3	604	23.3
	B2	CH18650	570	23.1	565	23.3
		CH18900	645	23.2	609	23.3
		CH19150	566	23.1	571	23.2
	B3	CH19250	560	23.2	569	23.3
		CH19575	613	23.2	621	23.4
		CH19900	676	23.1	677	23.3
	B4	CH20000	617	23.2	605	23.2
		CH20175	678	23.2	630	23.2
		CH20350	605	23.2	605	23.3
	B5	CH20450	600	23.1	614	23.3
		CH20525	565	23.1	571	23.3
		CH20600	617	23.0	623	23.2
	B7	CH20800	737	23.3	740	23.5
		CH21100	681	23.2	675	23.4
		CH21400	823	23.3	803	23.5
	B8	CH21500	559	23.2	536	23.2
		CH21625	552	23.1	522	23.3
		CH21750	568	23.0	558	23.1
	B12	CH23060	557	23.3	559	23.3
		CH23095	542	23.4	536	23.3
		CH23130	619	23.3	615	23.4
	B13	CH23230	646	23.2	610	23.3
	B14	CH23330	524	23.1	527	23.3
	B17	CH23780	551	23.2	555	23.3
		CH23790	584	23.3	584	23.4

System	Band	Channel	1212#		2095#	
			Test value (mA)	Power (dBm)	Test value (mA)	Power (dBm)
		CH23800	615	23.4	617	23.4
	B18	CH23900	562	23.2	557	23.2
		CH23925	564	23.2	562	23.3
		CH23950	529	23.1	534	23.3
	B19	CH24050	531	23.2	532	23.2
		CH24075	544	23.2	546	23.2
		CH24100	541	23.1	541	23.1
	B20	CH24200	611	23.1	613	23.2
		CH24300	566	23.1	571	23.2
		CH24400	584	23.0	586	23.1
	B25	CH26090	568	23.1	563	23.2
		CH26365	637	23.1	606	23.3
		CH26640	627	23.1	612	23.2
	B26	CH26740	601	23.2	606	23.3
		CH26865	577	23.2	590	23.4
		CH26990	601	23.0	608	23.2
	B28	CH27260	543	23.3	550	23.3
		CH27410	536	23.4	545	23.4
		CH27610	539	23.1	542	23.2
	B30	CH27710	729	23.4	724	23.4
	B66	CH132022	609	23.1	609	23.2
		CH132422	586	23.1	593	23.3
		CH132622	636	23.1	638	23.2
	B71	CH133172	593	23.2	598	23.3
		CH133297	499	23.1	506	23.2
		CH133422	529	23.3	523	23.3
LTE-TDD RMS (10MHz 1RB)	B34	CH36250	328	23.4	314	23.2
		CH36275	315	23.4	314	23.2
		CH36300	315	23.4	316	23.2

System	Band	Channel	1212#		2095#	
			Test value (mA)	Power (dBm)	Test value (mA)	Power (dBm)
	B38	CH37800	459	23.2	417	23.1
		CH38000	450	23.2	382	23.2
		CH38200	371	23.3	344	23.2
	B39	CH38300	275	23.2	279	23.3
		CH38450	278	23.2	280	23.2
		CH38600	282	23.3	282	23.3
	B40	CH38700	383	23.1	377	23.2
		CH39150	338	23.2	340	23.2
		CH39600	339	23.2	339	23.1
	B41	CH39700	394	23.3	385	23.3
		CH40620	422	23.4	376	23.3
		CH41540	412	23.3	363	23.1
	B42	CH41640	346	23.8	346	23.4
		CH42590	352	24.1	346	23.6
		CH43540	337	23.7	329	23.5
	B43	CH43640	328	23.4	317	23.4
		CH44590	300	23.4	292	23.3
		CH45540	303	23.8	294	23.4
	B48	CH55290	344	23.7	328	23.6
		CH55990	326	23.4	313	23.3
		CH56690	300	23.5	291	23.3
LTE-TDD HUPE RMS (10MHz 1RB)	B38	CH37800	592	26.3	562	26.3
		CH38000	605	26.3	548	26.2
		CH38200	537	26.3	497	26.2
	B40	CH38700	541	26.1	545	26.3
		CH39150	474	26.2	479	26.1
		CH39600	500	26.3	505	26.2
	B41	CH39700	585	26.3	571	26.4
		CH40620	608	26.3	553	26.2

System	Band	Channel	1212#		2095#	
			Test value (mA)	Power (dBm)	Test value (mA)	Power (dBm)
		CH41540	548	26.3	534	26.1
	B42	CH41640	480	26.8	465	26.4
		CH42590	493	27.1	466	26.7
		CH43540	465	26.7	440	26.4
	B43	CH43640	435	26.4	413	26.4
		CH44590	392	26.4	377	26.2
		CH45540	398	26.7	385	26.4
RedCap FDD RMS (10MHz Inner_Ful)	n1	CH423000	581	22.8	587	23.0
		CH428000	569	22.9	552	23.1
		CH433000	584	22.8	573	23.0
	n2	CH387000	560	22.9	569	22.9
		CH392000	622	23.0	588	22.9
		CH397000	551	22.8	532	22.9
	n3	CH362000	522	23.0	511	22.9
		CH368500	590	22.9	544	23.0
		CH375000	672	23.1	661	22.9
	n5	CH174800	565	23.2	575	23.0
		CH176300	572	23.3	559	23.0
		CH177800	568	23.2	560	23.0
	n7	CH525000	738	23.2	727	23.0
		CH531000	683	23.1	657	22.9
		CH537000	774	23.1	763	23.0
	n8	CH186000	550	23.3	537	23.0
		CH188500	546	23.1	522	23.0
		CH191000	554	22.9	521	22.9
	n12	CH146800	549	23.4	540	23.0
		CH147500	570	23.4	570	23.0
		CH148200	546	23.5	531	23.0
	n13	CH150200	571	23.0	561	22.8

System	Band	Channel	1212#		2095#	
			Test value (mA)	Power (dBm)	Test value (mA)	Power (dBm)
	n14	CH152600	524	23.0	520	22.7
	n18	CH173000	593	23.3	597	23.0
		CH173500	603	23.2	604	23.0
		CH174000	601	23.2	600	23.0
	n20	CH159200	638	23.3	631	23.1
		CH161200	617	23.2	594	23.0
		CH163200	648	23.2	627	23.0
	n25	CH387000	560	22.9	571	22.9
		CH392500	617	22.9	591	22.9
		CH398000	579	22.8	557	23.0
	n26	CH172800	599	23.1	608	22.9
		CH175300	572	23.2	573	23.1
		CH177800	575	23.1	575	23.0
	n28	CH152600	566	23.2	570	23.0
		CH156100	566	23.2	582	23.0
		CH159600	554	23.2	564	22.8
	n30	CH471000	732	23.0	737	22.7
	n66	CH423000	648	23.0	658	23.1
		CH429000	558	23.1	560	23.0
		CH435000	590	23.0	588	22.9
	n70	CH400000	585	22.5	632	23.1
		CH400500	577	22.6	632	23.1
		CH401000	576	22.7	632	23.1
	n71	CH124400	538	23.2	546	22.9
		CH126900	498	23.0	489	22.8
		CH129400	540	23.0	511	22.8
RedCap TDD RMS	n38	CH516000	250	23.0	229	22.8
		CH519000	247	22.8	217	22.6
		CH522000	234	22.9	214	22.6

System	Band	Channel	1212#		2095#	
			Test value (mA)	Power (dBm)	Test value (mA)	Power (dBm)
(20MHz Inner_Ful)	n40	CH462000	235	22.6	258	23.0
		CH470000	212	22.8	235	23.1
		CH478000	206	22.9	211	22.9
	n41	CH501204	208	22.8	223	22.6
		CH518598	245	23.0	240	22.9
		CH535998	238	22.8	255	22.9
	n48	CH637334	222	22.9	210	23.3
		CH641666	206	23.1	203	23.2
		CH646000	204	23.3	197	23.3
	n77	CH620668	223	23.0	235	23.0
		CH650000	210	23.2	217	23.4
		CH679332	310	23.7	298	23.7
	n78	CH620668	221	22.9	232	22.8
		CH636666	241	23.2	239	23.5
		CH652666	209	23.4	217	23.1