

G565V Test Report

Basic Information			
Product Model:	G565V	Test Date:	2021/4/15~2022/6/13
SW Version:	V1.01.02	Tested by:	Li Hui Xia
HW Version:	A1	Reviewed by:	Pan Hongzhang
Adapter:	12V/2A	Quantity:	1 set

Revision History				
Version	Revised Date	Editor	Check	Change Description
V1.0	2021/04/15	Li Hui Xia	Pan Hongzhang	Initial

Summary Of Test Results			
Test Area		Test Result Pass / Fail	Remark
1. Power Integrity	1.1 DC characteristic of Power	Pass ☒ Fail ☐	
	1.2 Ripple of Power	Pass ☒ Fail ☐	
	1.3 Power consumption	Pass ☒ Fail ☐	
	1.4 Power supply stability	Pass ☒ Fail ☐	
	1.5 Power up sequence	Pass ☒ Fail ☐	
	1.6 Power down signal integrity	Pass ☒ Fail ☐	
	1.7 Power up signal integrity	Pass ☒ Fail ☐	
	1.8 High / Low Voltage Test	Pass ☒ Fail ☐	
	1.9 Frequency Offset	Pass ☒ Fail ☐	
2.WIFI Unit	2.1 RF Characteristic	Pass ☒ Fail ☐	
	2.2 Radiant Sensitivity	Pass ☒ Fail ☐	
	2.3 WIFI Throughput	Pass ☒ Fail ☐	
	2.4 Long distance test	Pass ☒ Fail ☐	
	2.5 Through a wall	Pass ☒ Fail ☐	
	2.6 Through two walls	Pass ☒ Fail ☐	
3. ETH Unit	3.1 Ethernet cable length test	Pass ☒ Fail ☐	
	3.2 Back to back	Pass ☒ Fail ☐	
	3.3 Frame loss rate	Pass ☒ Fail ☐	
	3.4 Latency	Pass ☒ Fail ☐	
	3.5 LAN-LAN Throughput	Pass ☒ Fail ☐	
	3.6 WAN-LAN DHCP	Pass ☒ Fail ☐	
	3.7 WAN-LAN PPPOE	Pass ☒ Fail ☐	

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4. LTE Module	4.1 WCDMA	Pass ☒ Fail ☐	
	4.2 LTE TX	Pass ☒ Fail ☐	
	4.3 LTE RX	Pass ☒ Fail ☐	
	4.4 LTE to LAN	Pass ☒ Fail ☐	
	4.5 LTE to WIFI 2.4G	Pass ☒ Fail ☐	
	4.6 LTE to WIFI 5G	Pass ☒ Fail ☐	
	4.7 5G Speedtest	Pass ☒ Fail ☐	
5. Basic Fuction Test	5.1 Power on/off	Pass ☒ Fail ☐	
	5.2 Button check	Pass ☒ Fail ☐	
	5.3 LED test	Pass ☒ Fail ☐	
	5.4 VOIP	Pass ☒ Fail ☐	
6. Temperature	6.1 Temperature test	Pass ☒ Fail ☐	
7. Environmental Reliability	7.1 Operation Dry Heat	Pass ☒ Fail ☐	
	7.2 Cold Testing	Pass ☒ Fail ☐	
	7.3 Operation Temperature Cycle	Pass ☒ Fail ☐	
	7.4 Operation Damp Heat	Pass ☒ Fail ☐	
	7.5 Storge Testing	Pass ☒ Fail ☐	
	7.6 Low temperature start	Pass ☒ Fail ☐	

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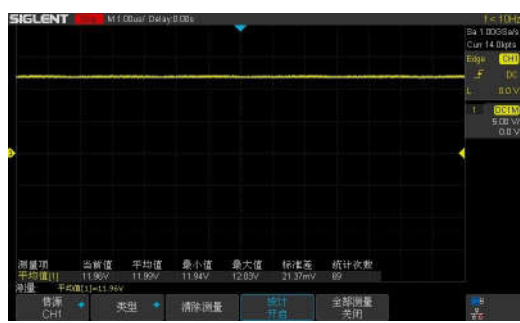
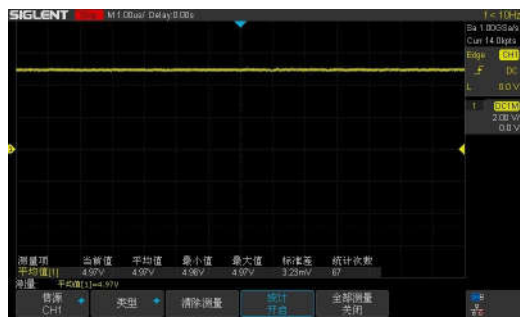
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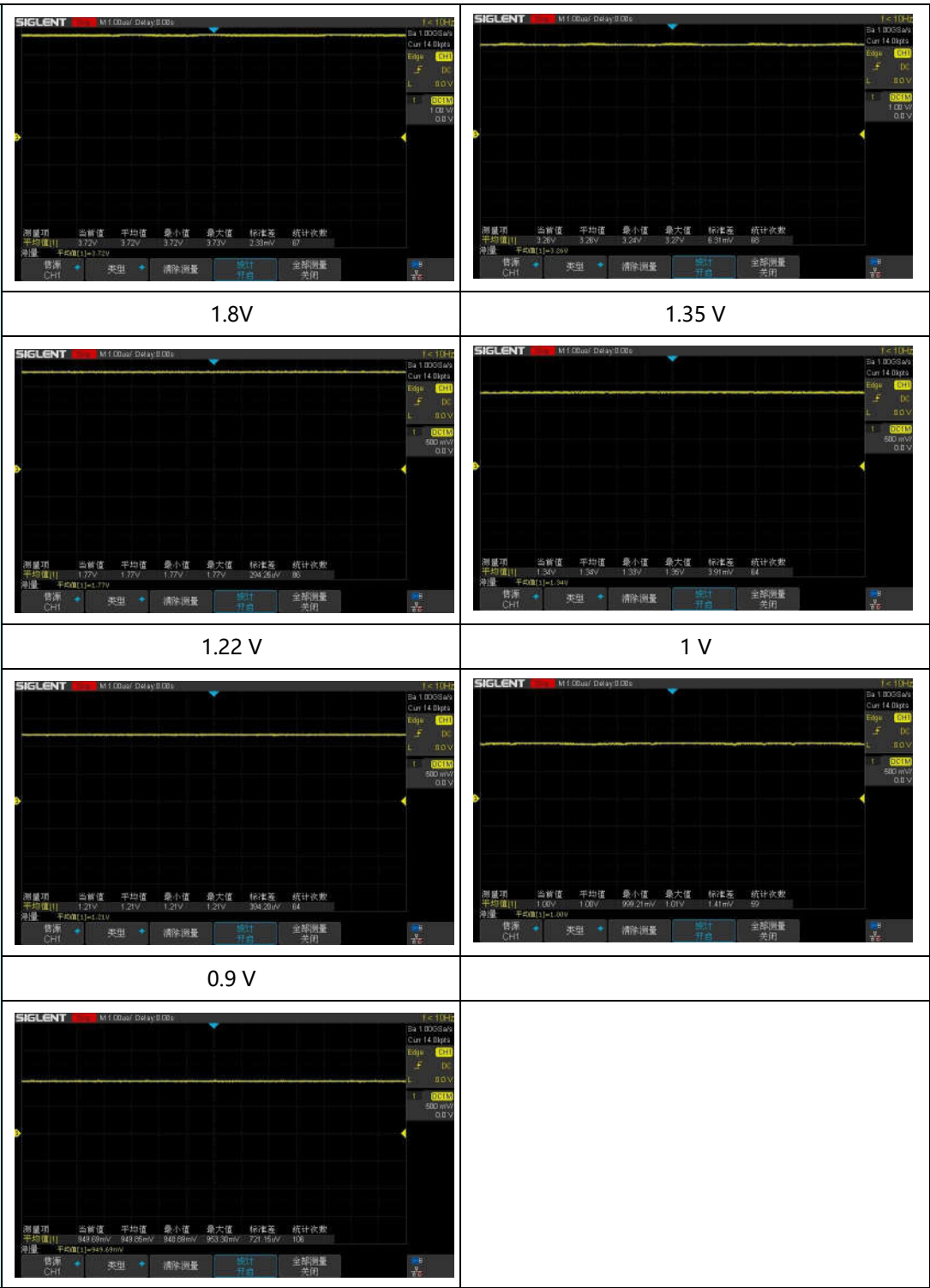
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1 Power Integrity

1.1 DC characteristic of Power

Test Item:	DC characteristic of Power						
Test Config:	Oscilloscope SIGLENT SDS 1104X-C						
Test Method:	1. Use oscilloscope (band width more than 500MHz) . 2. The Far end(DC to DC output) & Near end(Received side/IC power pins) all should be measured. 3. Test DC characteristic of Power output and chip input. when the DUT on full load.						
Pass Criteria:	Voltage range should meet the requirements of datasheet.						
Test Data:	Item	Location	Max (V)	Min (V)	Mean(V)	Spec	Result
	12V	C2	12.03	11.94	11.96	12V±5%	PASS
	5V	C9501	4.97	4.96	4.97	5V±5%	PASS
	3.8V	C1203	3.73	3.72	3.72	3.8V±5%	PASS
	3.3V	C9515	3.27	3.24	3.26	3.3V±5%	PASS
	1.8V	C601	1.77	1.77	1.77	1.8V±5%	PASS
	1.35V	C607	1.35	1.33	1.34	1.35V±5%	PASS
	1.22V	FB30	1.21	1.21	1.21	1.22V±5%	PASS
	1V	C4655	1.01	0.999	1.0	1V±5%	PASS
	0.9V	C626	0.953	0.948	0.949	0.9V±5%	PASS
	12 V			5 V			
							
	3.8 V			3.3 V			

Test Picture:



1.2 Power ripple

Test Item:	Power ripple
Test Config:	Oscilloscope SIGLENT SDS 1104X-C
	Under no-load conditions,Use oscilloscope (band width more than 500MHz) ,set Band width

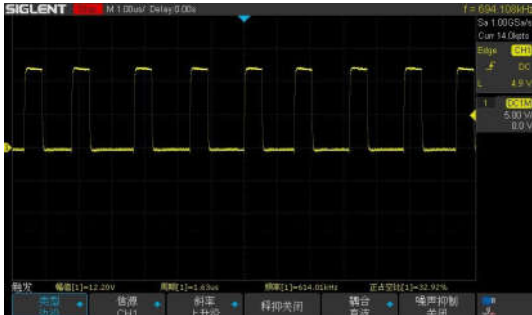
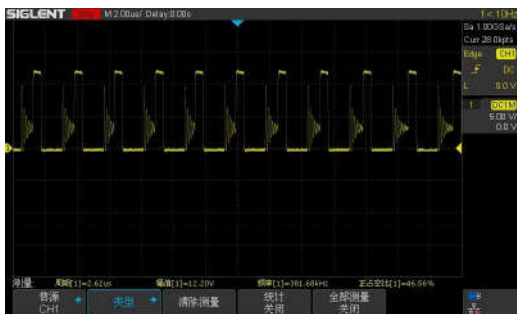
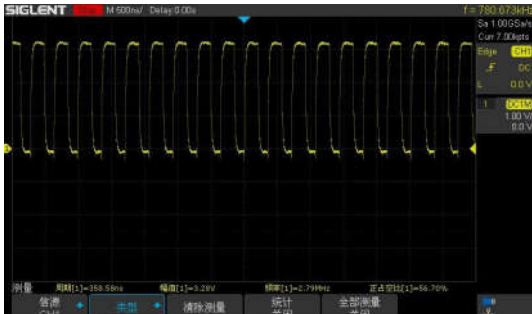
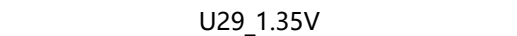
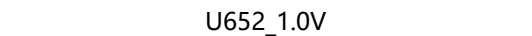
Test Method:	to 20M bandwidth, Time base more than 2ms/div(the memory depth set Max), Vertical to 20mV/div. test parameter are Max, Min, Mean, and PK-PK.				
Pass Criteria:	Ripple of Power should meet the requirements of datasheet.				
Test Data:	Item	location	Value(mv)	Spec	Result
	12V	C2	216	< 300mV	PASS
	5V	C119	98	< 100mV	PASS
	3.8V	C1203	66	< 80mV	PASS
	3.3V	C651	52	< 80mV	PASS
	1.8V	C601	30	< 50mV	PASS
	1.35V	C607	28	< 40mV	PASS
	1.22V	FB30	22	< 36mV	PASS
	1V	C667	24	< 30mV	PASS
	0.9V	C629	14	<27mV	PASS
	12 V		5 V		
	3.8 V		3.3 V		
	1.8 V		1.35 V		

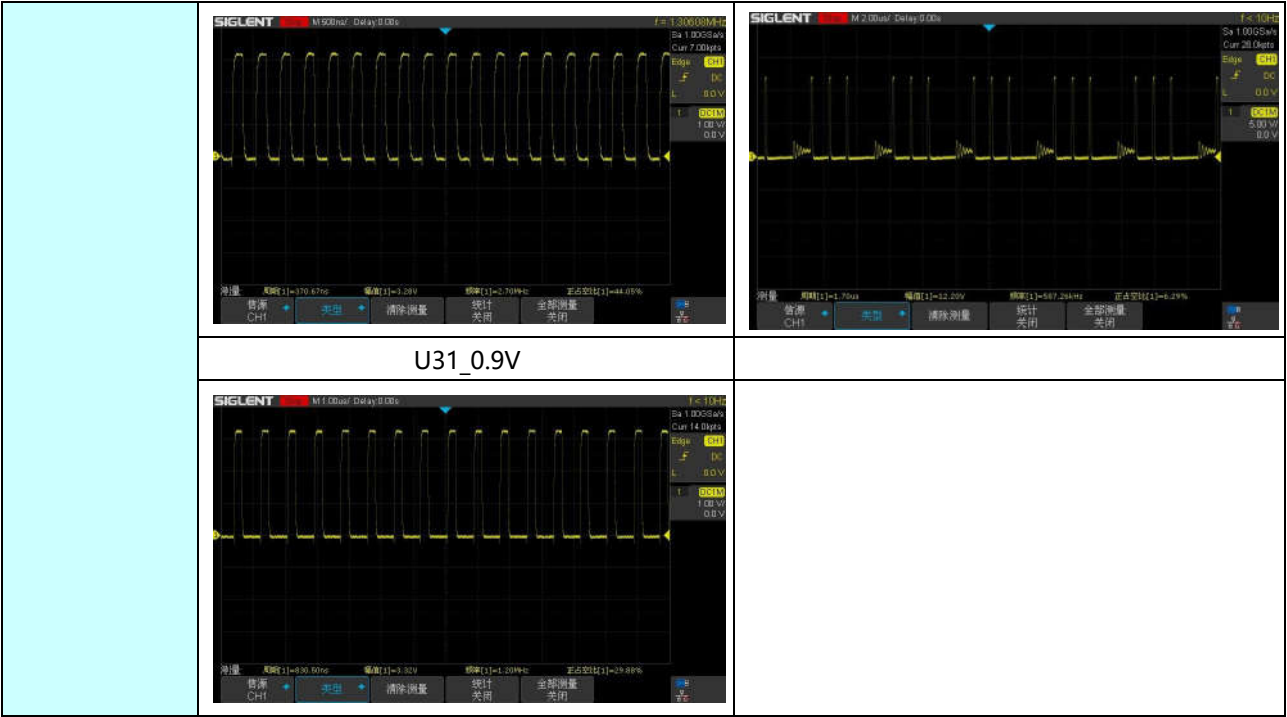
Test Picture:	1.22 V	1.0 V
	0.9 V	

1.3 Power consumption

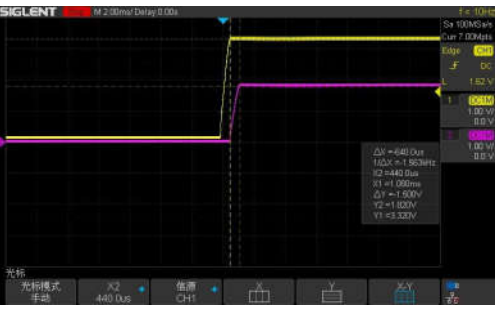
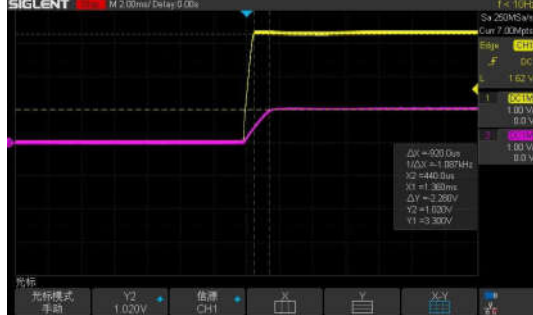
Test Item:	Power consumption				
Test Config:	DC power supply SS-1502 、IxChariot				
Test Method:	Keep the preheating under no load or full load for not less than 15 min.				
Pass Criteria:	Under full load condition, product power should be less than 24W.				
Test Data:	Item	Voltage(V)	Curren (A)	Power(W)	Result
	No-load	12	0.47	5.64	PASS
	Full load	12	1.61	19.3	PASS
Test Picture:	No-load		Full load		

1.4 Power supply stability

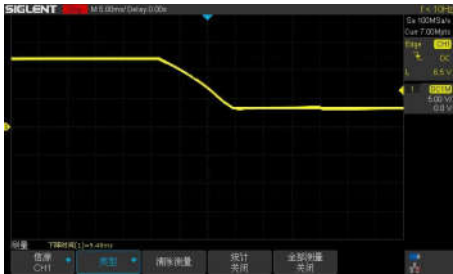
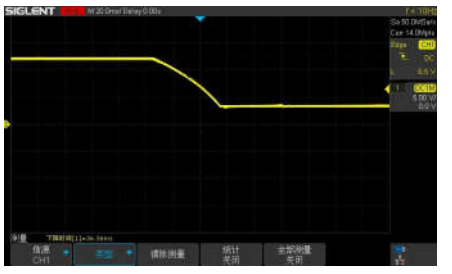
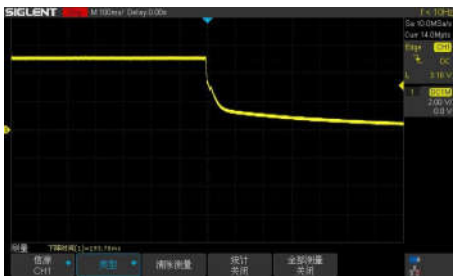
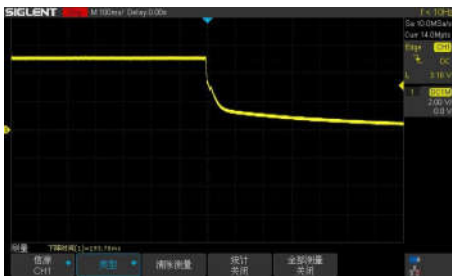
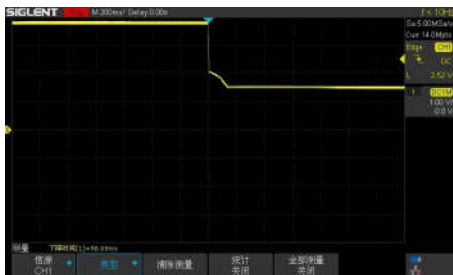
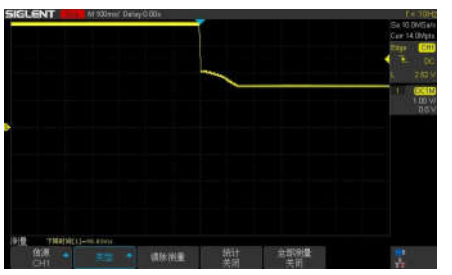
Test Item:	Power supply stability				
Test Config:	Oscilloscope SIGLENT SDS 1104X-C				
Test Method:	Verify whether the output of each power supply of the product is stable and meets the requirements. An oscilloscope is used to test the switching waveform of the power supply chip under the condition of single load.				
Pass Criteria:	The switching waveform of the power chip conforms to the requirements of the power chip Datasheet.				
Test Data:	Location	Frequency	Period	Duty cycle	Result
	U651_5V	1.00MHz	997.46ns	53.26%	PASS
	U45_3.8V	614.01kHz	1.63us	32.92%	PASS
	U650_3.3V	381.68kHz	2.62us	46.56%	PASS
	U28_1.8V	2.79MHz	358.58ns	56.7%	PASS
	U29_1.35V	2.70MHz	370.67ns	44.65%	PASS
	U652_1.0V	587.26kHz	1.70us	6.29%	PASS
	U31_0.9V	1.20MHz	830.50ns	29.88%	PASS
Test Picture:	U651_5V		U45_3.8V		
					
	U650_3.3V		U28_1.8V		
					
	U29_1.35V		U652_1.0V		
					

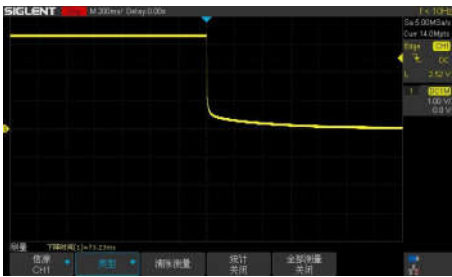
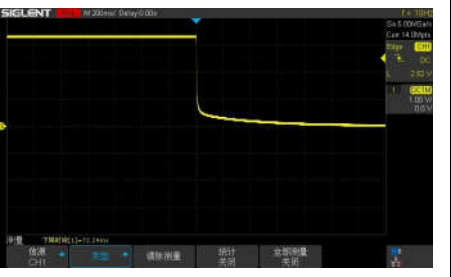
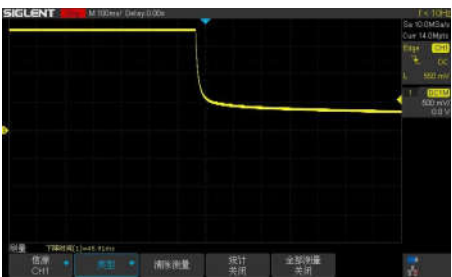
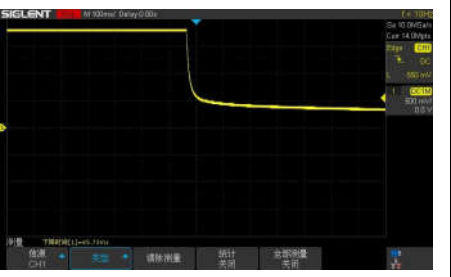
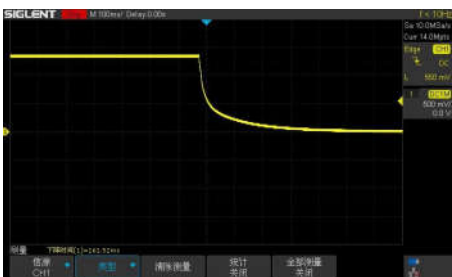
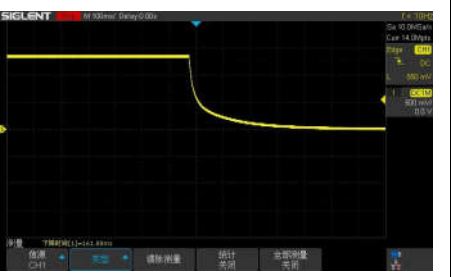
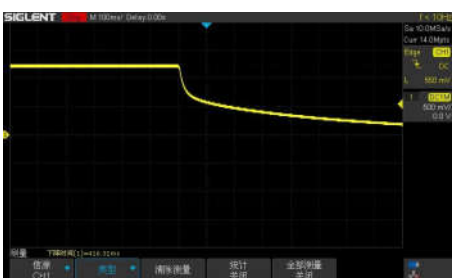
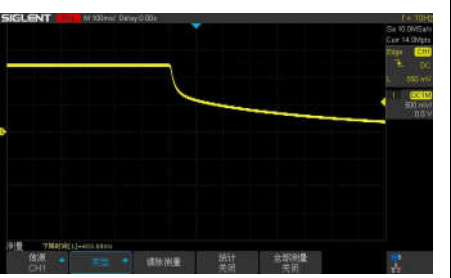
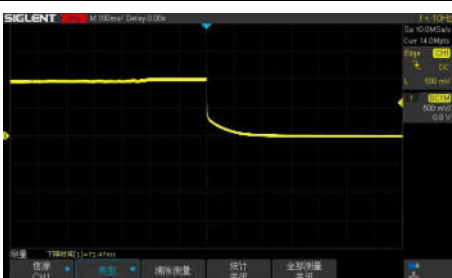
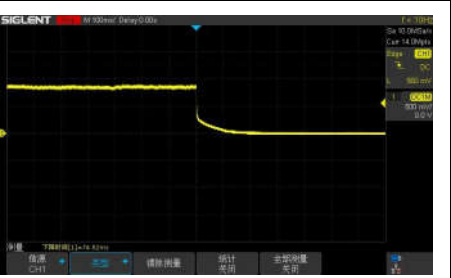
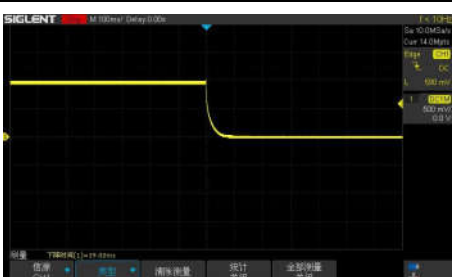


1.5 Power up sequence and overshoot

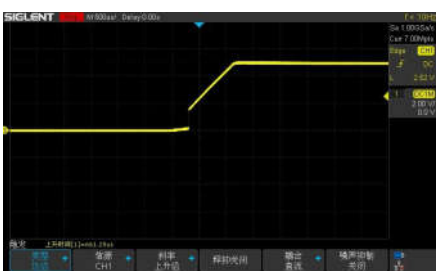
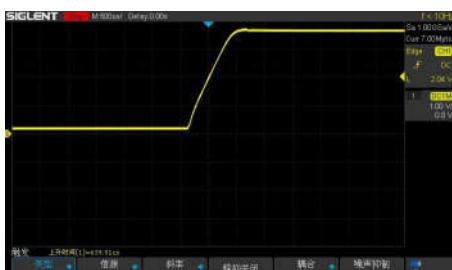
Test Item:	Power up sequence and overshoot	
Test Config:	Oscilloscope SIGLENT SDS 1104X-C	
Test Method:	Use Oscilloscope measured power on sequence when the DUT power on , Demand attention it' s every source overshoot and each other sequence.	
Pass Criteria:	Power up sequence and overshoot should meet the requirements of datasheet. Power up sequence:3.3V-->1.8V-->1.35V-->1V	
Test Data:	Item	Result
	3.3V&1.8V	PASS
	1.8V&1.0V	PASS
Test Picture:	3.3V&1.8V	
	1.8V&1.0V	

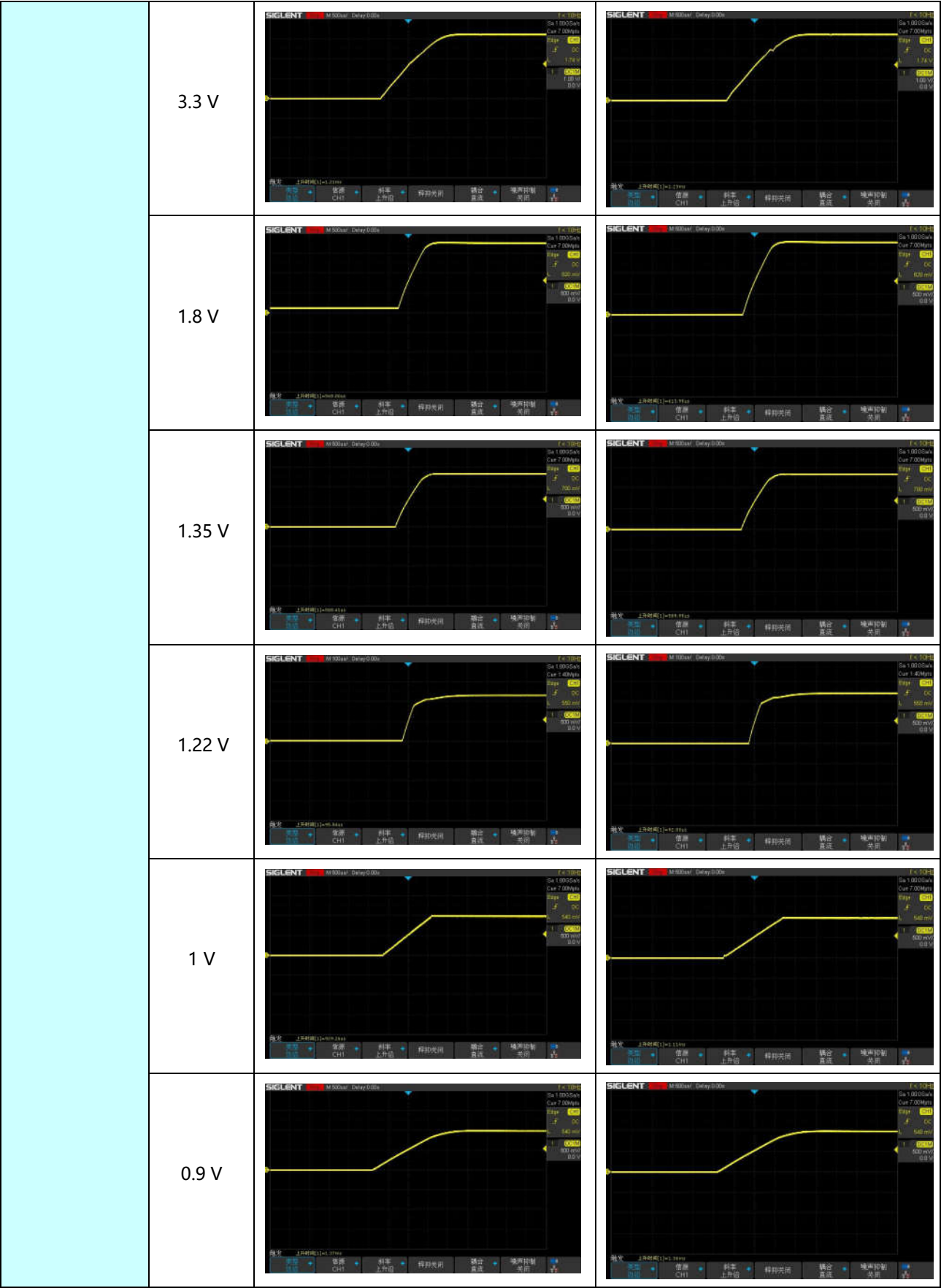
1.6 Power down signal integrity

Test Item:	Power down signal integrity		
Test Config:	Oscilloscope SIGLENT SDS 1104X-C		
Test Method:	Use oscilloscope to measure each chip on the single board		
Pass Criteria:	Power down should meet the requirements of datasheet.		
Test Data:	Item	Results	
		DC	AC
	12 V	PASS	PASS
	5 V	PASS	PASS
	3.8 V	PASS	PASS
	3.3 V	PASS	PASS
	1.8 V	PASS	PASS
	1.35 V	PASS	PASS
	1.22 V	PASS	PASS
	1 V	PASS	PASS
	0.9 V	PASS	PASS
Test Picture:		DC	AC
	12 V		
	5 V		
	3.8 V		

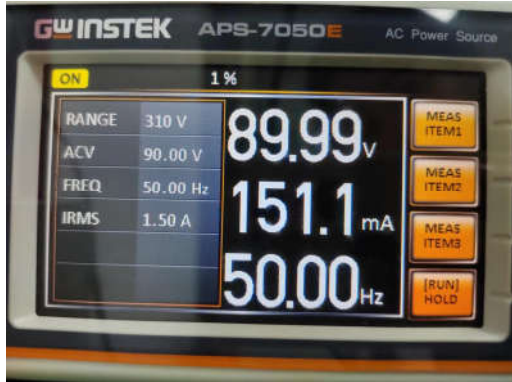
	3.3 V		
	1.8 V		
	1.35 V		
	1.22 V		
	1 V		
	0.9 V		

1.7 Power up signal integrity

Test Item:	Power up signal integrity		
Test Config:	Oscilloscope (SIGLENT SDS 1104X-C)		
Test Method:	Use oscilloscope to measure each chip on the single board		
Pass Criteria:	Power up should meet the requirements of datasheet.		
Test Data:	Item	Results	
		DC	AC
	12 V	PASS	PASS
	5 V	PASS	PASS
	3.8 V	PASS	PASS
	3.3 V	PASS	PASS
	1.8 V	PASS	PASS
	1.35 V	PASS	PASS
	1.22 V	PASS	PASS
	1 V	PASS	PASS
	0.9 V	PASS	PASS
Test Picture:		DC	AC
	12 V		
	5 V		
	3.8 V		



1.8 High / Low Voltage Test

Test Item:	High / Low Voltage Test						
Test Config:	AC Source、Multimeter(FLUKE 15B+)						
Test Method:	Verify that the input power supply deviation range of the product meets the standard.Under the condition of full load of single board, use AC voltage regulator to adjust the output voltage to the limit value or $\pm 10\%$ of the rated value specified by the product (such as AC90V and AC264V), make the single board run for at least half an hour, and use Multimeter to test the maximum, minimum and ripple values of the output voltage of each power chip or module under this state.						
Pass Criteria:	After pulling and deviating to the required value, the output voltage and ripple of each power supply meet the requirements of each chip without sag.						
Test Data:	Item	90 V/50HZ	90V/60HZ	264V/50HZ	264V/60HZ	Spec	Result
	12 V	11.86	11.78	11.74	11.74	12V $\pm 5\%$	PASS
	5 V	4.94	4.95	4.94	4.95	5V $\pm 5\%$	PASS
	3.8 V	3.73	3.72	3.74	3.74	3V8 $\pm 5\%$	PASS
	3.3V	3.25	3.25	3.25	3.22	3V3 $\pm 5\%$	PASS
	1.8 V	1.77	1.77	1.77	1.78	1V8 $\pm 5\%$	PASS
	1.35 V	1.34	1.33	1.33	1.32	1V35 $\pm 5\%$	PASS
	1.22 V	1.21	1.21	1.21	1.20	1V22 $\pm 5\%$	PASS
	1.0 V	1.0	0.99	0.99	0.99	1V $\pm 5\%$	PASS
	0.9 V	0.95	0.94	0.94	0.94	0.9V $\pm 5\%$	PASS
Test Picture:	90V/50Hz			90V/60Hz			
							
	264V/50Hz			264V/60Hz			



1.9 Frequency Offset

Test Item:	Frequency Offset				
Test Config:	Spectrometer Agilent E4405B				
Test Method:	Place the spectrometer probe above the crystal oscillator,Test the actual frequency of crystal oscillator				
Pass Criteria:	Frequency offset of main chip≤15PPM, Frequency offset of 5G WIFI≤15PPM.				
Test Data:	Item	value	Frequency Offset	Spec	Result
	Y1	50.000500	10	±20PPM	PASS
Test Picture:	Y1				

2. WIFI unit

2.1 RF Characteristic

Test Item:	RF Characteristic						
Test Config:	IQXstream-5G、Shield Box						
Test Method:	1. Test the characteristic of Wi-Fi according to the IEEE 802.11b/11g/11n/11a/11ac RF Characteristic Test Report Template specifications, Set DUT to debug state. 2. Set the test channels and transmission rate. 3 .Test transmit(Include Mask、Power transmit、EVM、Flatness、Frequency Error) and receive(example Receive sensitive) Parameters of DUT by IQview or IQnxn、IQxel ,and record results.						
Pass Criteria:	In the table below						
Test Data:	In the table below						
Transmit Power	Modulate model	Antenna	CH1	CH7	CH13	Spec	Result
	1Mbps	Antenna 0	21.84	22.61	21.82	22dBm±1.5	PASS
		Antenna 1	21.37	21.92	21.99		PASS
	11Mbps	Antenna 0	21.78	22.61	21.62	22dBm±1.5	PASS
		Antenna 1	21.42	21.69	22.54		PASS
Transmit spectrum mask	Modulate mode	Antenna	CH1	CH7	CH13	Spec	Result
	1Mbps	Antenna 0	OK	OK	OK	802.11b	PASS
		Antenna 1	OK	OK	OK		PASS
	11Mbps	Antenna 0	OK	OK	OK	802.11b	PASS
		Antenna 1	OK	OK	OK		PASS
EVM	Modulate model	Antenna	CH1	CH7	CH13	Spec	Result
	1Mbps	Antenna 0	-14.4	-14.80	-14.35	-13	PASS
		Antenna 1	-14.18	-14.68	-14.36		PASS
	11Mbps	Antenna 0	-14.07	-14.39	-13.95	-13	PASS
		Antenna 1	-13.85	-14.38	-14.02		PASS
Frequency Error	Modulate model	Antenna	CH1	CH7	CH13	Spec	Result
	1Mbps	Antenna 0	3.62	2.82	4.73	±10ppm	PASS

		Antenna 1	2.19	3.39	2.52	±10ppm	PASS
	11Mbps	Antenna 0	2.98	3.19	3.72		PASS
		Antenna 1	4.23	3.19	3.63		PASS
Receive Sensitivity	Modulate model	Antenna	CH1	CH7	CH13	Spec	Result
	1Mbps	Antenna 0	-97.5	-98.5	-97.5	≤-95dBm	PASS
		Antenna 1	-97.5	-98.5	-97		PASS
	11Mbps	Antenna 0	-90	-90.5	-89.5	≤-86dBm	PASS
		Antenna 1	-89.5	-90	-89.5		PASS
2.4G 802.11g							
Transmit Power	Modulate model	Antenna	CH1	CH7	CH13	Spec	Result
	6Mbps	Antenna 0	20.45	22.06	22.06	22dBm±1	PASS
		Antenna 1	21.94	22.18	21.84		PASS
	54Mbps	Antenna 0	20.67	19.96	20.37	20dBm±1	PASS
		Antenna 1	20.47	20.05	20.03		PASS
Transmit spectrum mask	Modulate mode	Antenna	CH1	CH7	CH13	Spec	Result
	6Mbps	Antenna 0	OK	OK	OK	802.11g	PASS
		Antenna 1	OK	OK	OK		PASS
	54Mbps	Antenna 0	OK	OK	OK	802.11g	PASS
		Antenna 1	OK	OK	OK		PASS
EVM	Modulate model	Antenna	CH1	CH7	CH13	Spec	Result
	6Mbps	Antenna 0	-30.09	-27.59	-22.56	-7	PASS
		Antenna 1	-24.08	-25.62	-24.06		PASS
	54Mbps	Antenna 0	-29.12	-34.83	-28.52	-25	PASS
		Antenna 1	-29.28	-34.49	-30.52		PASS
Frequency Error	Modulate model	Antenna	CH1	CH7	CH13	Spec	Result
	6Mbps	Antenna 0	4.02	3.21	3.14	±10ppm	PASS
		Antenna 1	4.24	3.26	4.42		PASS
	54Mbps	Antenna 0	8.43	4.34	5.22	±10ppm	PASS
		Antenna 1	5.58	3.55	4.77		PASS
Receive Sensitivity	Modulate model	Antenna	CH1	CH7	CH13	Spec	Result
	6Mbps	Antenna 0	-95.5	-96	-95	≤-88dBm	PASS
		Antenna 1	-94.5	-96	-95		PASS
	54Mbps	Antenna 0	-77	-77.5	-77	≤-71dBm	PASS
		Antenna 1	-76.5	-77.5	-76.5		PASS

2.4G 802.11n HT20							
Transmit Power	Modulate model	Antenna	CH1	CH7	CH13	Spec	Result
	MCS0	Antenna 0	22.18	22.03	22.34	22dBm±1	PASS
		Antenna 1	22.05	22.28	22.22		PASS
	MCS7	Antenna 0	19.16	19.31	19.13	19dBm±1	PASS
		Antenna 1	19.01	19.52	19.38		PASS
Transmit spectrum mask	Modulate mode	Antenna	CH1	CH7	CH13	Spec	Result
	MCS0	Antenna 0	OK	OK	OK	802.11n 20M	PASS
		Antenna 1	OK	PK	OK		PASS
	MCS7	Antenna 0	OK	OK	OK	802.11n 20M	PASS
		Antenna 1	OK	OK	OK		PASS
EVM	Modulate model	Antenna	CH1	CH7	CH13	Spec	Result
	MCS0	Antenna 0	-22.99	-27.36	-21.7	-5	PASS
		Antenna 1	-23.54	-24.76	-21.33		PASS
	MCS7	Antenna 0	-35.17	-36.37	-35.78	-28	PASS
		Antenna 1	-35.83	-36.49	-35.47		PASS
Frequency Error	Modulate model	Antenna	CH1	CH7	CH13	Spec	Result
	MCS0	Antenna 0	5.17	4.83	4.42	±10ppm	PASS
		Antenna 1	5.93	6.86	3.39		PASS
	MCS7	Antenna 0	5.55	4.28	5.25	±10ppm	PASS
		Antenna 1	6.18	5.32	6.59		PASS
Receive Sensitivity	Modulate model	Antenna	CH1	CH7	CH13	Spec	Result
	MCS0	Antenna 0	-94.5	-94.5	-94.5	≤-87dBm	PASS
		Antenna 1	-94.5	-95	-94.5		PASS
	MCS7	Antenna 0	-75	-74	-74.5	≤-69dBm	PASS
		Antenna 1	-75	-75.5	-75		PASS
2.4G 802.11ax HE20							
Transmit Power	Modulate mode	Antenna	CH1	CH7	CH13	Spec	Result
	MCS0	Antenna 0	21.75	21.62	21.80	22dBm±1	PASS
		Antenna 1	21.53	21.32	21.66		PASS
	MCS11	Antenna 0	17.53	18.08	17.98	17dBm±1	PASS
		Antenna 1	17.69	17.47	17.56		PASS
Transmit spectrum mask	Modulate mode	Antenna	CH1	CH7	CH13	Spec	Result

	MCS0	Antenna 0	OK	OK	OK	802.11ax 20M	PASS
		Antenna 1	OK	OK	OK		PASS
	MCS11	Antenna 0	OK	OK	OK	802.11ax 20M	PASS
		Antenna 1	OK	OK	OK		PASS
EVM	Modulate model	Antenna	CH1	CH7	CH13	Spec	Result
	MCS0	Antenna 0	-24.02	-28.56	-22.73	-5	PASS
		Antenna 1	-24.66	-27.66	-23.61		PASS
	MCS11	Antenna 0	-38.14	-38.42	-38.21	-35	PASS
		Antenna 1	-37.19	-40.52	-39.51		PASS
	Modulate model	Antenna	CH1	CH7	CH13	Spec	Result
Frequency Error	MCS0	Antenna 0	5.04	4.86	3.99	±10ppm	PASS
		Antenna 1	4.41	4.02	4.24		PASS
	MCS11	Antenna 0	7.53	6.96	7.01	±10ppm	PASS
		Antenna 1	4.17	4.22	4.21		PASS
	Modulate model	Antenna	CH1	CH7	CH13	Spec	Result
	Modulate model	Antenna	CH1 2412	CH7 2442	CH13 2472	Spec	Result
Receive Sensitivity	MCS0	Antenna 0	-92.5	-93.5	-92.5	≤ -88dBm	PASS
		Antenna 1	-92.5	-92.5	-92.5		PASS
	MCS11	Antenna 0	-63	-63.5	-62.5	≤ -58dBm	PASS
		Antenna 1	-62.5	-63	-62		PASS
	Modulate model	Antenna	CH1	CH7	CH13	Spec	Result
	Modulate model	Antenna	CH1 2412	CH7 2442	CH13 2472	Spec	Result
802.11ax 2.4G HE40							
Transmit Power	Modulate model	Antenna	CH1 2422	CH6 2447	CH11 2452	Spec	Result
	MCS0	Antenna 0	22.19	22.27	22.42	22dbm±1	PASS
		Antenna 1	22.40	22.25	22.19		PASS
	MCS11	Antenna 0	17.42	17.14	17.25	17dbm±1	PASS
		Antenna 1	17.41	17.12	17.02		PASS
	Modulate model	Antenna	CH1 2422	CH6 2447	CH11 2452	Spec	Result
Transmit spectrum mask	MCS0	Antenna 0	OK	OK	OK	802.11ax 40M	PASS
		Antenna 1	OK	OK	OK		PASS
	MCS11	Antenna 0	OK	OK	OK	802.11ax 40M	PASS
		Antenna 1	OK	OK	OK		PASS
	Modulate model	Antenna	CH1 2422	CH6 2447	CH11 2452	Spec	Result
	Modulate model	Antenna	CH1 2422	CH6 2447	CH11 2452	Spec	Result
EVM	MCS0	Antenna 0	-22.73	-23.78	-23.34	≤ -5dB	PASS
		Antenna 1	-21.66	-23.34	-23.95		PASS
	MCS11	Antenna 0	-38.65	-38.35	-38.58	≤ -35dB	PASS
		Antenna 1	-38.65	-38.35	-38.58		PASS
	Modulate model	Antenna	CH1 2422	CH6 2447	CH11 2452	Spec	Result
	Modulate model	Antenna	CH1 2422	CH6 2447	CH11 2452	Spec	Result

		Antenna 1	-38.85	-39.76	-39.79		PASS	
Frequency Error	Modulate model	Antenna	CH1 2422	CH6 2447	CH11 2452	Spec	Result	
	MCS0	Antenna 0	7.17	5.77	6.20	±10ppm	PASS	
		Antenna 1	5.90	5.43	5.81		PASS	
	MCS11	Antenna 0	7.04	6.58	6.91	±10ppm	PASS	
		Antenna 1	6.32	6.40	6.39		PASS	
Receive Sensitivity	Modulate model	Antenna	CH1 2422	CH6 2447	CH11 2452	Spec	Result	
	MCS0	Antenna 0	-91	-91.5	-91.5	≤-85dBm	PASS	
		Antenna 1	-91	-91	-91		PASS	
	MCS11	Antenna 0	-61	-61	-61	≤-55dBm	PASS	
		Antenna 1	-60.5	-60.5	-61		PASS	
5G 802.11a								
Transmit Power	Modulate model	Antenna	CH36 5180	CH64 5320	CH100 5500	CH157 5785	Spec	Result
	6Mbps	Antenna 0	22.97	22.52	22.55	23.01	23dBm±1	PASS
		Antenna 1	23.05	23.10	22.38	22.89		PASS
	54Mbps	Antenna 0	20.59	21.57	20.97	20.63	21dBm±1	PASS
		Antenna 1	20.25	20.75	20.32	20.56		PASS
Transmit spectrum mask	Modulate model	Antenna	CH36	CH64	CH100	CH157	Spec	Result
	6Mbps	Antenna 0	OK	OK	OK	OK	802.11a	PASS
		Antenna 1	OK	OK	OK	OK		PASS
	54Mbps	Antenna 0	OK	OK	OK	OK	802.11a	PASS
		Antenna 1	OK	OK	OK	OK		PASS
EVM	Modulate model	Antenna	CH36	CH64	CH100	CH157	Spec	Result
	6Mbps	Antenna 0	-20.17	-28.76	-21.85	-17.43	≤-5dB	PASS
		Antenna 1	-17.87	-18.18	-17.46	-18.27		PASS
	54Mbps	Antenna 0	-29.53	-32.11	-28.33	-27.03	≤-25dB	PASS
		Antenna 1	-30.85	-32.31	-25.64	-28.94		PASS
Frequency Error	Modulate model	Antenna	CH36	CH64	CH100	CH157	Spec	Result
	6Mbps	Antenna 0	8.54	7.24	6.64	6.59	±10ppm	PASS
		Antenna 1	9.42	4.59	4.9	2.79		PASS
	54Mbps	Antenna 0	9.2	7.46	8.84	7.89	±10ppm	PASS
		Antenna 1	8.30	7.88	9.32	8.20		PASS
Receive	Modulate model	Antenna	CH36	CH64	CH100	CH157	Spec	Result

Sensitivity	6Mbps	Antenna 0	-96.5	-96.5	-95.5	-95.5	≤-89dBm	PASS
		Antenna 1	-96.5	-96	-95	-95		PASS
	54Mbps	Antenna 0	-78.5	-78	-77.5	-77	≤-72dBm	PASS
		Antenna 1	-78.5	-78	-77	-77		PASS
5G 802.11n HT40								
Transmit Power	Modulate model	Antenna	CH36 5190	CH60 5310	CH100 5510	CH157 5795	Spec	Result
	MCS0	Antenna 0	22.27	21.85	21.98	21.36	22dbm±1	PASS
		Antenna 1	22.17	22.04	21.47	22.16		PASS
	MCS7	Antenna 0	20.58	20.18	20.53	20.03	20dbm±1	PASS
		Antenna 1	20.01	19.83	19.48	20.13		PASS
Transmit spectrum mask	Modulate model	Antenna	CH36	CH60	CH100	CH157	Spec	Result
	MCS0	Antenna 0	OK	OK	OK	OK	802.11n	PASS
		Antenna 1	OK	OK	OK	OK	40M	PASS
	MCS7	Antenna 0	OK	OK	OK	OK	802.11n	PASS
		Antenna 1	OK	OK	OK	OK	40M	PASS
EVM	Modulate model	Antenna	CH36	CH60	CH100	CH157	Spec	Result
	MCS0	Antenna 0	-22.26	-31.46	-23.81	-23.04	≤-5dB	PASS
		Antenna 1	-23.92	-27.2	-20.89	-21.44		PASS
	MCS7	Antenna 0	-29.89	-37.47	-29.97	-28.99	≤-28dB	PASS
		Antenna 1	-34.27	-35.96	-29.48	-30.24		PASS
Frequency Error	Modulate model	Antenna	CH36	CH60	CH100	CH157	Spec	Result
	MCS0	Antenna 0	4.99	5.62	5.07	6.15	±10ppm	PASS
		Antenna 1	5.56	5.78	7.1	5.42		PASS
	MCS7	Antenna 0	5.63	5.6	5.02	4.9	±10ppm	PASS
		Antenna 1	5.62	5.39	6.6	5.03		PASS
Receive Sensitivity	Modulate model	Antenna	CH36 5190	CH60 5310	CH100 5510	CH157 5795	Spec	Result
	MCS0	Antenna 0	-93	-93	-92.5	-92	≤-85dBm	PASS
		Antenna 1	-93	-93	-92	-92		PASS
	MCS7	Antenna 0	-74	-74	-73	-72.5	≤-67dBm	PASS
		Antenna 1	-74	-73.5	-72.5	-72.5		PASS
802.11ac VHT80								
Transmit Power	Modulate model	Antenna	CH36 5210	CH60 5290	CH100 5530	CH157 5775	Spec	Result
	MCS0	Antenna 0	21.29	20.34	20.44	20.9	21dbm±1	PASS

		Antenna 1	21.01	21.13	20.73	21.33	19dbm±1	PASS
	MCS9	Antenna 0	18.79	18.35	18.14	18.25		PASS
		Antenna 1	19.37	19.39	18.29	18.61		PASS
Transmit spectrum mask	Modulate model	Antenna	CH36	CH60	CH100	CH157	Spec	Result
	MCS0	Antenna 0	OK	OK	OK	OK	802.11ac	PASS
		Antenna 1	OK	OK	OK	OK	80M	PASS
	MCS9	Antenna 0	OK	OK	OK	OK	802.11ac	PASS
		Antenna 1	OK	OK	OK	OK	80M	PASS
EVM	Modulate model	Antenna	CH36	CH60	CH100	CH157	Spec	Result
	MCS0	Antenna 0	-26.38	-34.4	-29.34	-24.46	≤-5dB	PASS
		Antenna 1	-29.06	-30.17	-24.26	-24.18		PASS
	MCS9	Antenna 0	-36.27	-39.24	-36.96	-36.8	≤-32dB	PASS
		Antenna 1	-36.08	-36.88	-34.22	-36.36		PASS
Frequency Error	Modulate model	Antenna	CH36	CH60	CH100	CH157	Spec	Result
	MCS0	Antenna 0	3.86	3.79	3.89	6.39	±10ppm	PASS
		Antenna 1	4.89	6.74	6.49	6.73		PASS
	MCS9	Antenna 0	6.91	6.17	6.63	5.82	±10ppm	PASS
		Antenna 1	6.9	6.65	7.57	7.12		PASS
Receive Sensitivity	Modulate model	Antenna	CH36 5210	CH64 5290	CH100 5530	CH157 5775	Spec	Result
	MCS0	Antenna 0	-89.5	-89.5	-89	-88.5	≤-83dBm	PASS
		Antenna 1	-89.5	-89.5	-88.5	-88.5		PASS
	MCS9	Antenna 0	-64.5	-64.5	-63.5	-63.5	≤-58dBm	PASS
		Antenna 1	-64.5	-64.5	-63.5	-63.5		PASS
802.11ax 5G HE80								
Transmit Power	Modulate model	Antenna	CH36 5210	CH60 5290	CH100 5530	CH157 5775	Spec	Result
	HE0NSS1	Antenna 0	22.37	21.61	21.58	21.37	22dbm±1	PASS
		Antenna 1	21.78	21.58	21.57	21.53		PASS
	HE11NSS1	Antenna 0	17.29	17.35	17.17	17.22	18dbm±1	PASS
		Antenna 1	17.63	17.73	17.36	17.81		PASS
Transmit spectrum mask	Modulate model	Antenna	CH42	CH58	CH100	CH157	Spec	Result
	HE0NSS1	Antenna 0	OK	OK	OK	OK	11ax 80M	PASS
		Antenna 1	OK	OK	OK	OK		PASS
	HE11NSS1	Antenna 0	OK	OK	OK	OK	11ax 80M	PASS

		Antenna 1	OK	OK	OK	OK		PASS
EVM	Modulate model	Antenna	CH42	CH58	CH100	CH157	Spec	Result
	HE0NSS1	Antenna 0	-22.41	-30.24	-25.12	-22.48	≤-5dB	PASS
		Antenna 1	-26.66	-28.28	-21.15	-22.61		PASS
	HE11NSS1	Antenna 0	-38.52	-39.77	-37.81	-37.43	≤-35dB	PASS
		Antenna 1	-38.22	-38.27	-36.16	-35.86		PASS
Frequency Error	Modulate model	Antenna	CH42	CH58	CH100	CH157	Spec	Result
	HE0NSS1	Antenna 0	4.11	4.12	4.33	4.64	±10ppm	PASS
		Antenna 1	5.79	3.76	3.64	3.28		PASS
	HE11NSS1	Antenna 0	5.32	4.32	4.73	4.58	±10ppm	PASS
		Antenna 1	4.24	3.92	4.79	4.13		PASS
Receive Sensitivity	Modulate model	Antenna	CH36 5210	CH60 5290	CH100 5530	CH157 5775	Spec	Result
	HE0NSS1	Antenna 0	-89	-89	-88	-87.5	≤-83dBm	PASS
		Antenna 1	-88.5	-88.5	-87.5	-87.5		PASS
	HE11NSS1	Antenna 0	-58.5	-58.5	-57.5	-57.5	≤-53dBm	PASS
		Antenna 1	-58	-58	-57	-57		PASS
802.11ax 5G HE160								
Transmit Power	Modulate model	Antenna	CH36 5250	CH60 5250	CH100 5570	CH157 5815	Spec	Result
	HE0NSS1	Antenna 0	20.92	20.81	20.92	20.49	21dbm	PASS
		Antenna 1	20.89	20.88	20.65	21.05	±1	PASS
	HE11NSS1	Antenna 0	17.02	17.11	17.06	16.91	17dbm	PASS
		Antenna 1	17.01	17.02	16.47	17.23	±1	PASS
Transmit spectrum mask	Modulate model	Antenna	CH42	CH58	CH100	CH157	Spec	Result
	HE0NSS1	Antenna 0	OK	OK	OK	OK	11ax 80M	PASS
		Antenna 1	OK	OK	OK	OK		PASS
	HE11NSS1	Antenna 0	OK	OK	OK	OK	11ax 80M	PASS
		Antenna 1	OK	OK	OK	OK		PASS
EVM	Modulate model	Antenna	CH42	CH58	CH100	CH157	Spec	Result
	HE0NSS1	Antenna 0	-30.14	-29.86	-27.35	-24.91	≤	PASS
		Antenna 1	-29.08	-29.3	-25.35	-28.77	-5dB	PASS
	HE11NSS1	Antenna 0	-38.64	-38.18	-36.63	-36.93	≤-35dB	PASS
		Antenna 1	-38.71	-38.59	-37.77	-37.89		PASS
Frequency Error	Modulate model	Antenna	CH42	CH58	CH100	CH157	Spec	Result
	HE0NSS1	Antenna 0	3.66	3.87	3.79	3.72	±	PASS

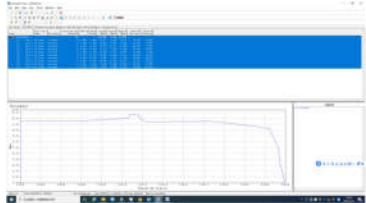
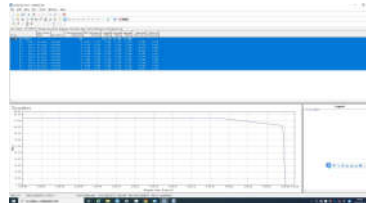
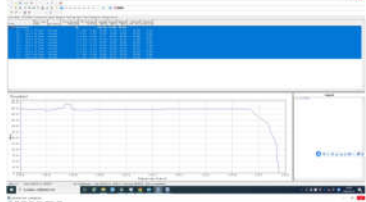
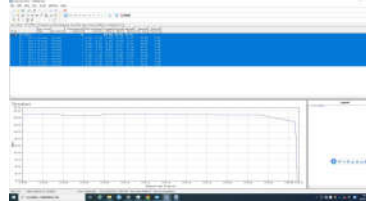
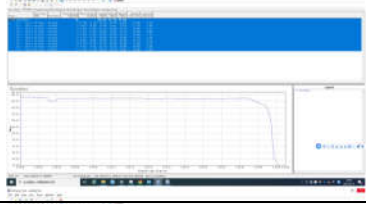
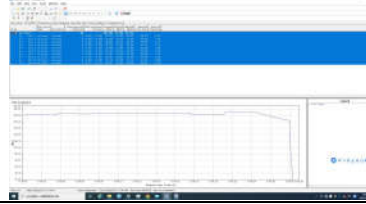
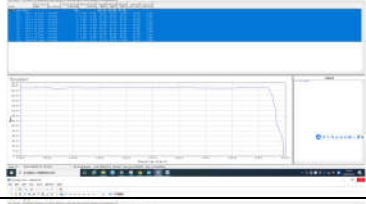
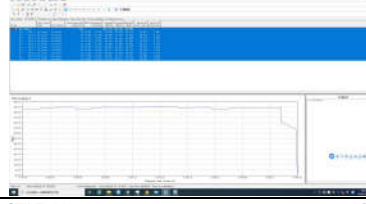
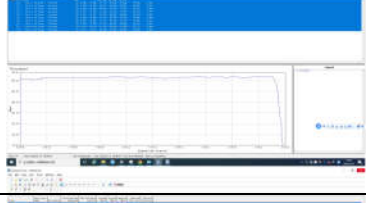
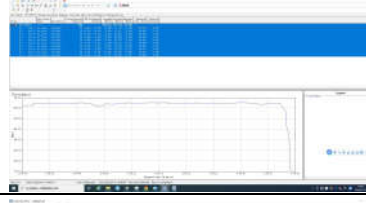
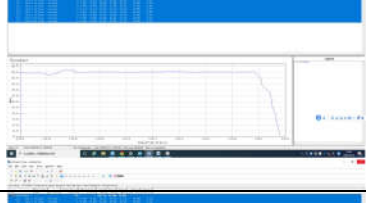
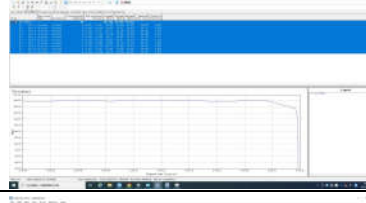
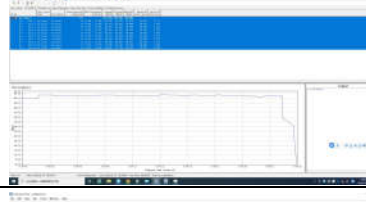
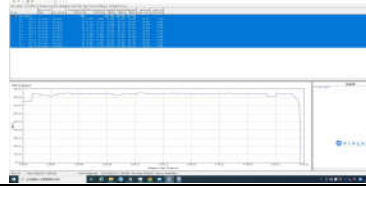
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		Antenna 0	4.33	4.41	6.42	5.72	±	PASS
		Antenna 1	4.14	3.74	3.89	3.77	10ppm	PASS
	Modulate model	Antenna	CH36 5250	CH60 5250	CH100 5570	CH157 5815	Spec	Result
	HE0NSS1	Antenna 0	-84.5	-84	-84	-83.5	≤	PASS
		Antenna 1	-84	-84	-83.5	-83	-81dBm	PASS
	HE11NSS1	Antenna 0	-54	-54	-53	-53.5	≤	PASS
		Antenna 1	-53.5	-53.5	-53	-53	-51dBm	PASS

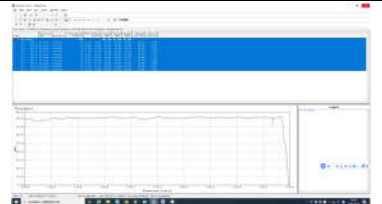
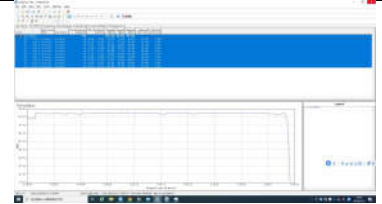
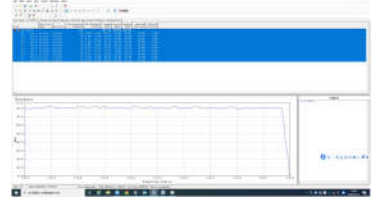
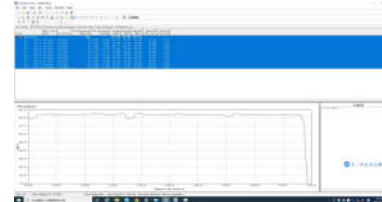
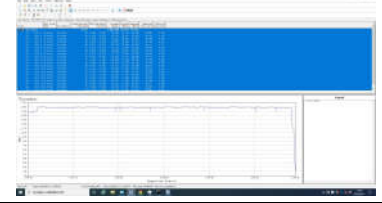
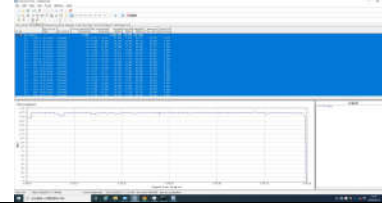
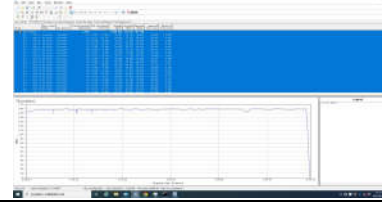
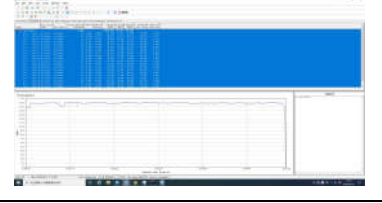
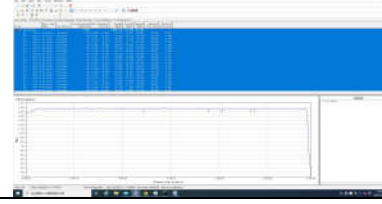
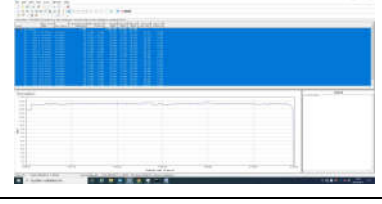
2.2 Radiant Sensitivity

Test Item:	Radiant Sensitivity							
Test Config:	IQXstream-5G、 Shield Box							
Test Method:	1. Test Radiant Receive according to the IEEE 802.11b/11g/11n/11a/11ac/11ax RF Characteristic Test Report Template specifications, Set DUT to debug state. 2. Set the test channels and transmission rate. Receive(example Receive sensitive) Parameters of DUT by IQview or IQnxn、 IQxel、 IQxstream ,and record results.							
Pass Criteria:	In the table below							
Test Data:	802.11ax 2.4G HE40							
	Modulate model	Antenna	CH1 2422	CH6 2447	CH11 2452	Spec	Result	
	MCS0	Antenna 0	-92	-91.5	-91	≤-85dBm	PASS	
		Antenna 1	-88.5	-89	-89.5		PASS	
	MCS11	Antenna 0	-58.5	-60.5	-60.5	≤-55dBm	PASS	
		Antenna 1	-59.5	-59.5	-60		PASS	
	802.11ax 5G HE160							
	Modulate model	Antenna	CH36 5210	CH60 5290	CH100 5530	CH157 5775	Spec	Result
	MCS0	Antenna 0	-86.5	-87	-87	-86	≤-83dBm	PASS
		Antenna 1	-86.5	-86	-86.5	-86		PASS
	MCS11	Antenna 0	-55	-55	-54.5	-52	≤-51dBm	PASS
		Antenna 1	-55	-55	-55	-51.5		PASS

2.3 WIFI Throughput

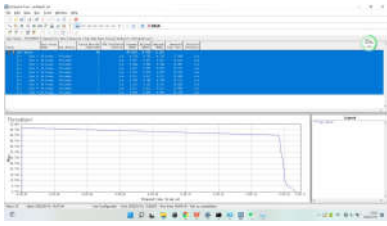
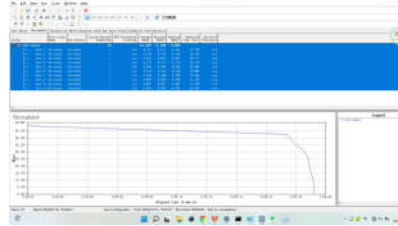
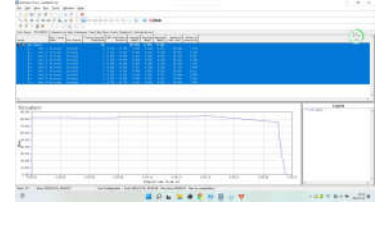
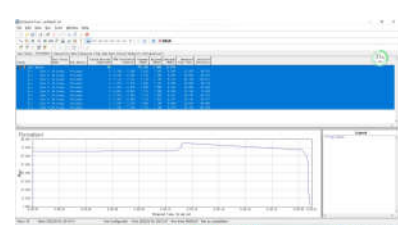
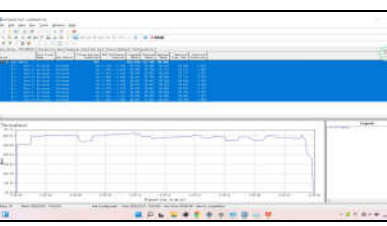
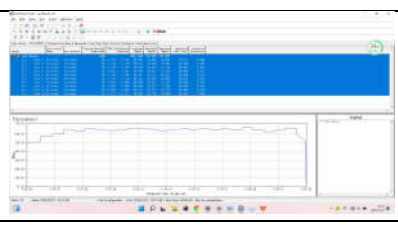
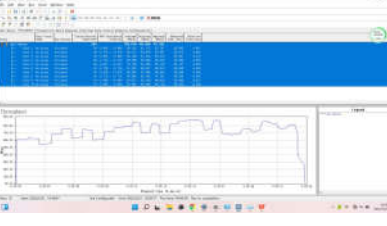
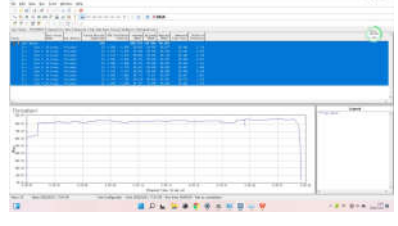
Test Item:	WIFI Throughput			
Test Config:	IxChariot、Shield room、External network card			
Test Method:	1.The LAN port of the prototype is connected to the gigabit network port of the laptop, and the wireless terminal is connected to the wireless SSID. 2.Configure the IP traffic, select High_Performance_Throughput.Scr script. 3.Set the test laptop to the wireless terminal to establish 10 upstream business flows, 10downstream business flows. 4.Set the duration of the test to 30 seconds. 5.Keep at least 1 m distance between host and client.			
Pass Criteria:	WIFI6 2.4G 40M>=380Mbps;WIFI6 5G 80M>=880Mbps.			
Test Data:	Bandwith	channel	TX (Mbps)	RX (Mbps)
	11n 2.4G 20M	Auto	113	114
	11n 2.4G 40M	Auto	234	209
	11ax 2.4G 20M	Auto	224	226
	11ax 2.4G 40M	Auto	443	421
	11ac 5G 80M	Auto	685	704
	11ax 5G 20M	Auto	234	241
	11ax 5G 40M	Auto	459	473
	11ax 5G 80M	CH44	895	917
	11ax 5G 80M	CH100	881	916
	11ax 5G 80M	CH157	883	915
	11ax 5G 160M	CH36	1650	1660
	11ax 5G 160M	CH64	1648	1658

	11ax 5G 160M	CH104	1626	1603
Test Picture:	Bandwith	channel	TX (Mbps)	RX (Mbps)
	11n 2.4G 20M	Auto		
	11n 2.4G 40M	Auto		
	11ax 2.4G 20M	Auto		
	11ax 2.4G 40M	Auto		
	11ac 5G 80M	Auto		
	11ax 5G 20M	Auto		
	11ax 5G 40M	Auto		
	11ax 5G 80M	CH44		

	11ax 5G 80M	CH100		
	11ax 5G 80M	CH157		
	11ax 5G 160M	CH36		
	11ax 5G 160M	CH64		
	11ax 5G 160M	CH104		

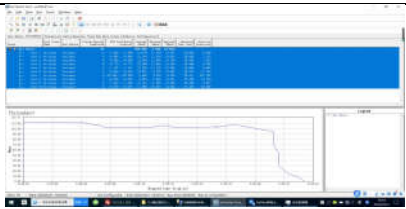
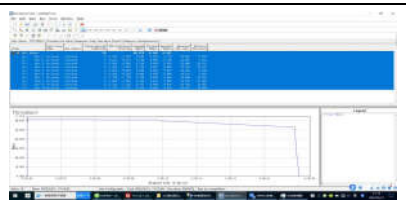
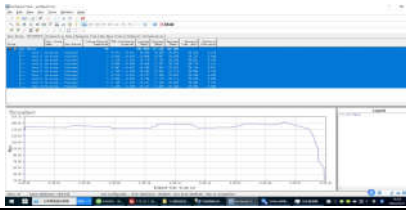
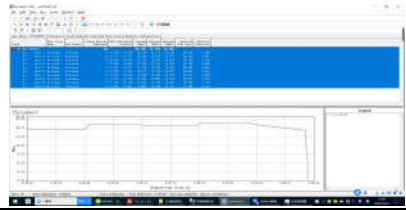
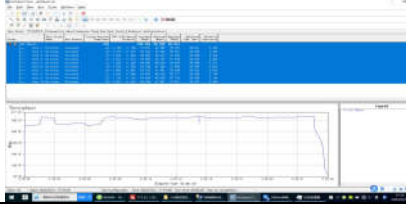
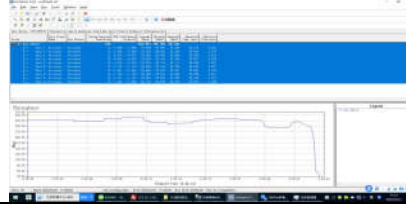
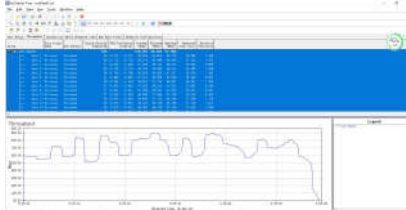
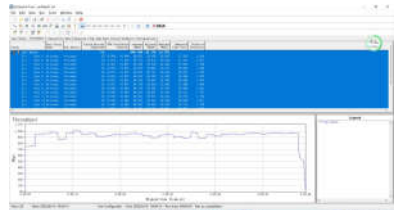
2.4 Long distance test

Test Item:	Long distance test
Test Config:	IxChariot、Laptop network card
Test Method:	1.The LAN port of the prototype is connected to the gigabit network port of the laptop, and the wireless terminal is connected to the wireless SSID. 2.Configure the IP traffic, select High_Performance_Throughput.Scr script. 3.Set the test laptop to the wireless terminal to establish 10 upstream business flows, 10 downstream business flows. 4.Set the duration of the test to 30 seconds.

	5.Keep at least 30 meters distance between host and client.		
Test Data:	Bandwidth	TX (Mbps)	RX (Mbps)
	2.4G AX 20M CH2	47	41
	2.4G AX 40M CH8	90	76
	5G AX 80M CH36	635	691
	5G AX 160M AUTO	792	892
Test Picture:	Bandwidth	TX (Mbps)	RX (Mbps)
	2.4G AX 20M CH2		
	2.4G AX 40M AUTO		
	5G AX 80M CH36		
	5G AX 160M AUTO		

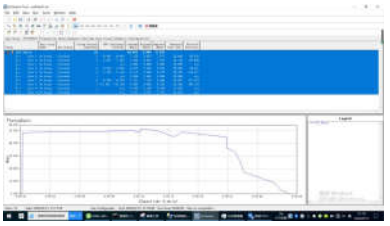
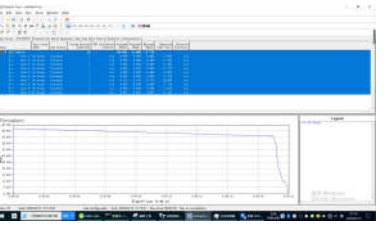
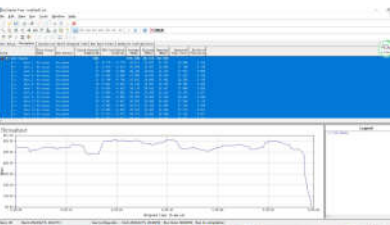
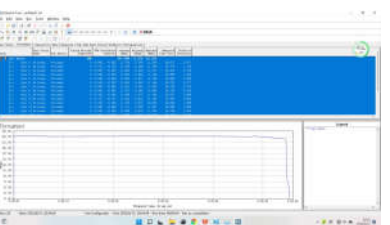
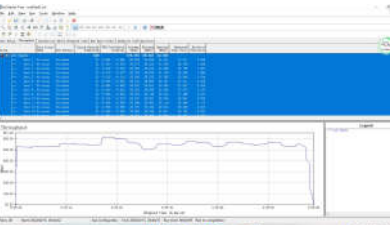
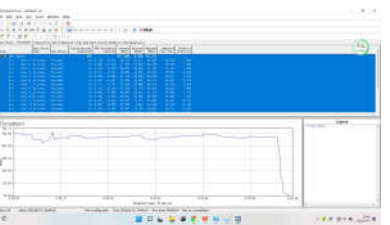
2.5 Through a wall

Test Item:	Through a wall
Test Config:	IxChariot、Laptop network card、Concrete wall.
	1.The LAN port of the prototype is connected to the gigabit network port of the laptop, and the wireless terminal is connected to the wireless SSID. 2.Configure the IP traffic, select High_Performance_Throughput.Scr script.

Test Method:	3.Set the test laptop to the wireless terminal to establish 10 upstream business flows, 10 downstream business flows. 4.Set the duration of the test to 30 seconds. 5.One concrete walls were selected for the test. 6.Keep at least 6 meters distance between host and client.		
Test Data:	Bandwidth	TX (Mbps)	RX (Mbps)
	2.4G AX 20M AUTO	100	66
	2.4G AX 40M AUTO	187	136
	5G AX 80M CH153	546	323
	5G AX 160M CH100	698	884
Test Picture:	Bandwidth	TX (Mbps)	RX (Mbps)
	2.4G AX 20M AUTO		
	2.4G AX 40M AUTO		
	5G AX 80M CH153		
	5G AX 160M CH100		

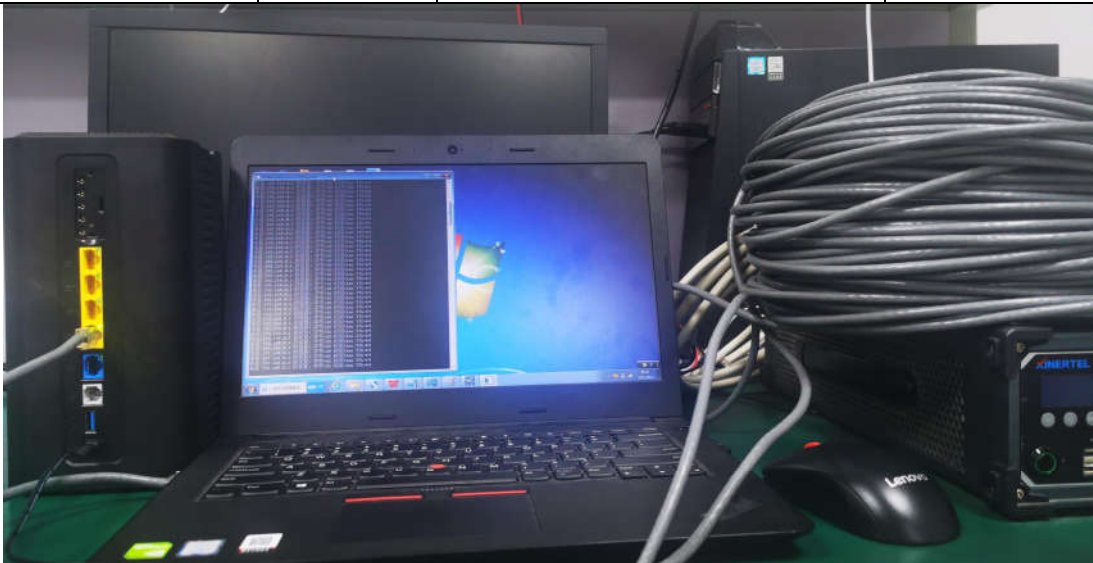
2.6 Through two walls

Test Item:	Through two walls
Test Configure:	IxChariot、Laptop network card、Concrete wall.

Test Method:	1.The LAN port of the prototype is connected to the gigabit network port of the laptop, and the wireless terminal is connected to the wireless SSID. 2.Configure the IP traffic, select High_Performance_Throughput.Scr script. 3.Set the test laptop to the wireless terminal to establish 10 upstream business flows, 10 downstream business flows. 4.Set the duration of the test to 30 seconds. 5.Two concrete walls were selected for the test. 6.Keep at least 10 meters distance between host and client.		
Test Data:	Bandwidth	TX (Mbps)	RX (Mbps)
	2.4G AX 40M AUTO	44	44
	5G AX 160M AUTO	575	231
	5G AX 160M CH36	570	477
Test Picture:	Bandwidth	TX (Mbps)	RX (Mbps)
	2.4G AX 40M CH8		
	5G AX 160M AUTO		
	5G AX 160M CH36		

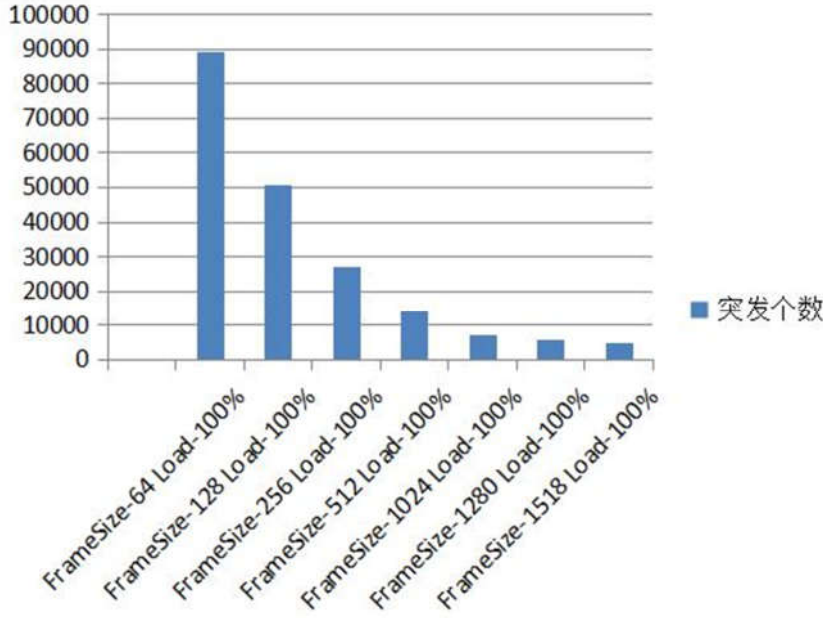
3. ETH unit

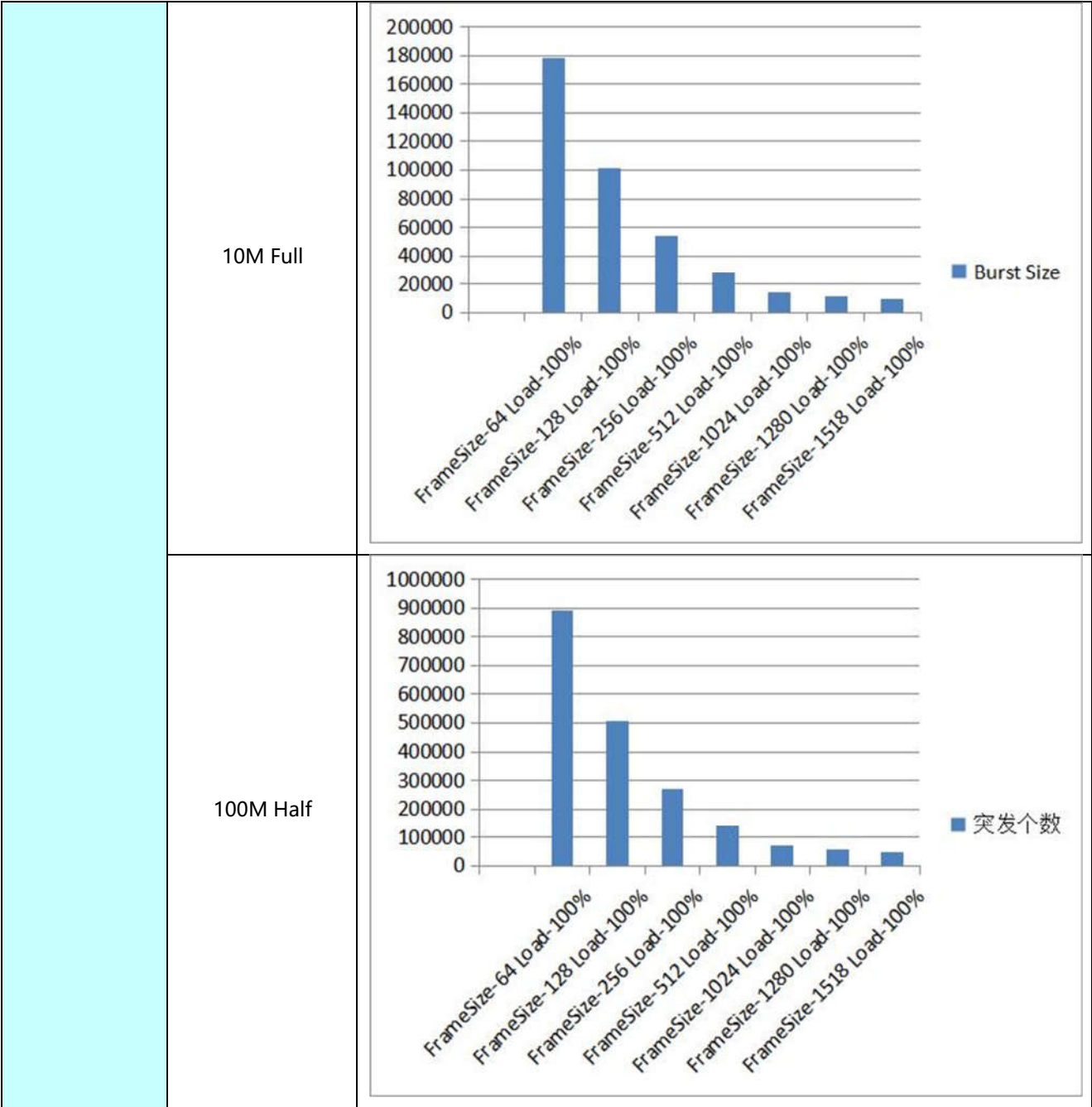
3.1 Ethernet cable length test

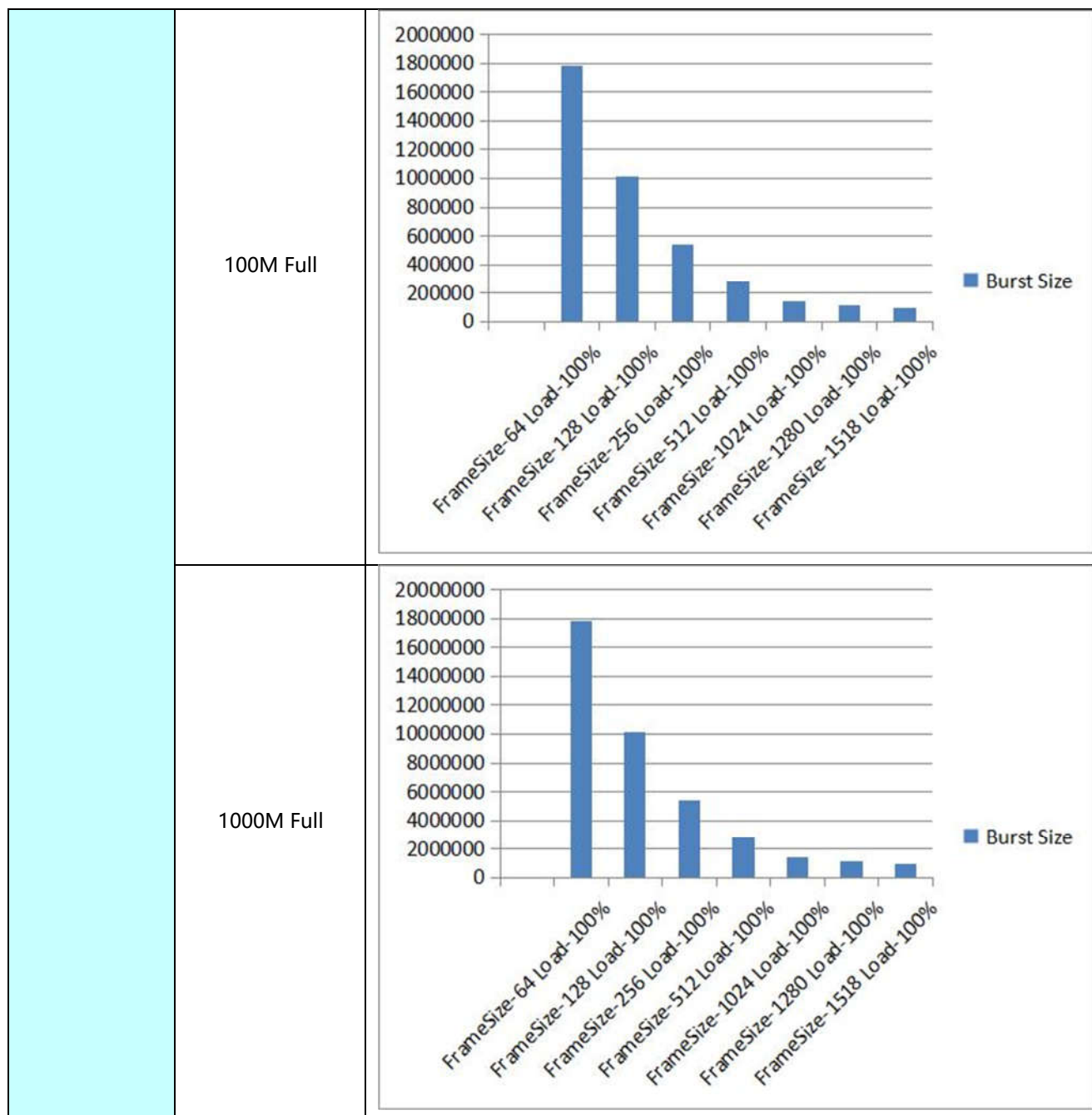
Test Item:	Ethernet cable length test			
Test Config:	PC、 Ethernet cable			
Test Method:	1. With packet size 1518 bytes, and ping 50 times for each packet size. 2. There shall be no packet loss in the ping test for 100m, Ethernet card must be Realtek card.			
Pass Criteria:	Ping packets are less than 1ms.			
Test Data:	Cable Length	Ethernet card	Port	Result
	100 m	Realtek PCIe GBE Family Controller	WAN	PASS
			LAN1	PASS
			LAN2	PASS
			LAN3	PASS
			LAN4	PASS
Test Picture:				

3.2 Back to back

Test Item:	Back to back
Test Config:	BigTao220
Test Method:	1.Connected test circuit. 2.Test the maximum cache capacity of different bytes (packet length) in different directions.

	3.Record test results.						
Pass Criteria:	RFC2544						
Test Data:	Back-To-Back (Burst Size) (LAN1→LAN2,LAN2→LAN1,LAN3→LAN4,LAN4→LAN3)						Result
	Frame Size	10M (Half)	10M (Full)	100M(Half)	100M (Full)	1G (Full)	
	64	89284	178568	892856	1785712	17857140	PASS
	128	50674	101348	506756	1013512	10135132	PASS
	256	27172	54344	271738	543476	5434780	PASS
	512	14096	28192	140976	281952	2819548	PASS
	1024	7182	14364	71838	143676	1436780	PASS
	1280	5768	11536	57692	115384	1153844	PASS
	1518	4876	9752	48764	97528	975292	PASS
Test Picture:	10M Half						

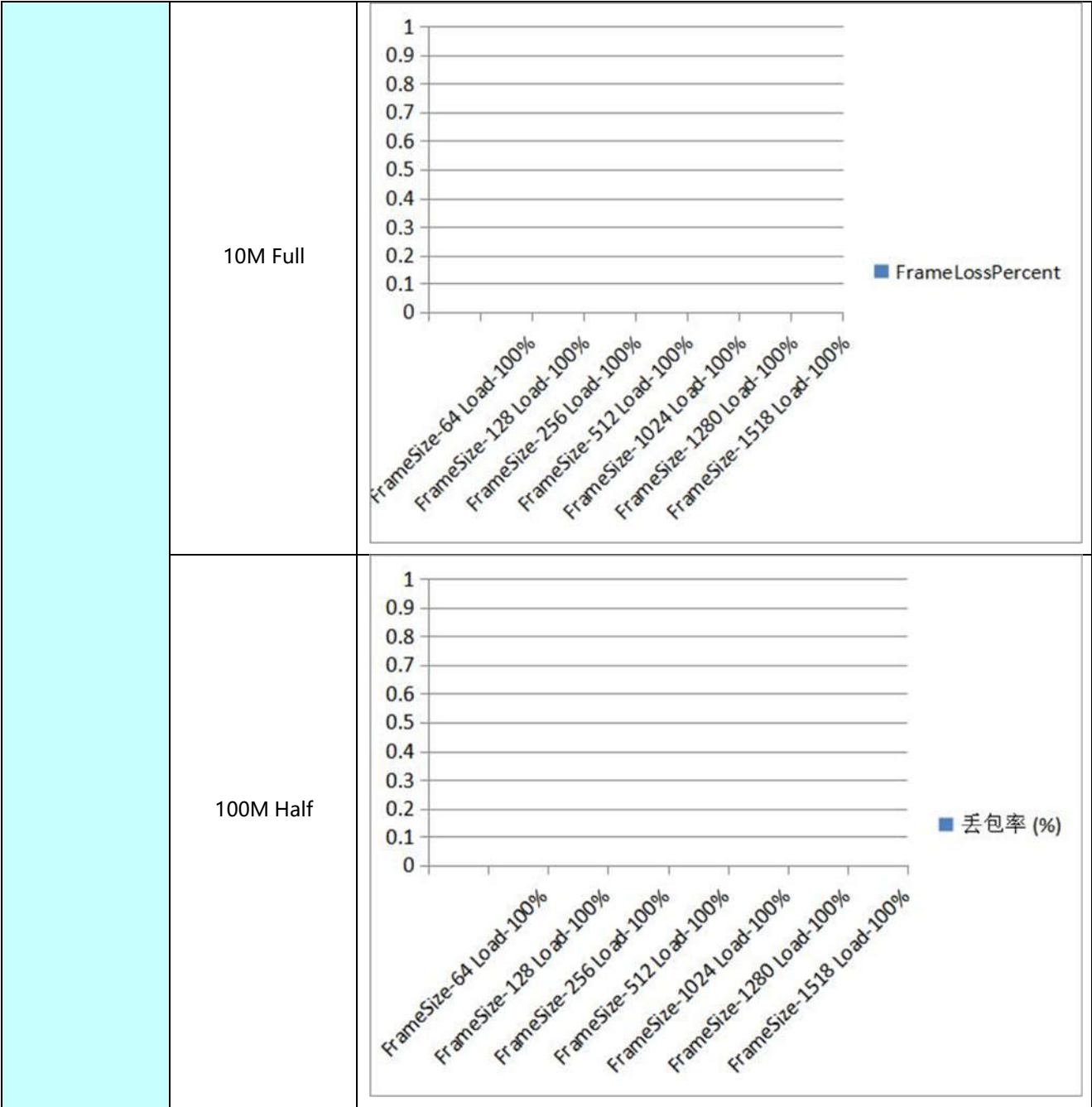


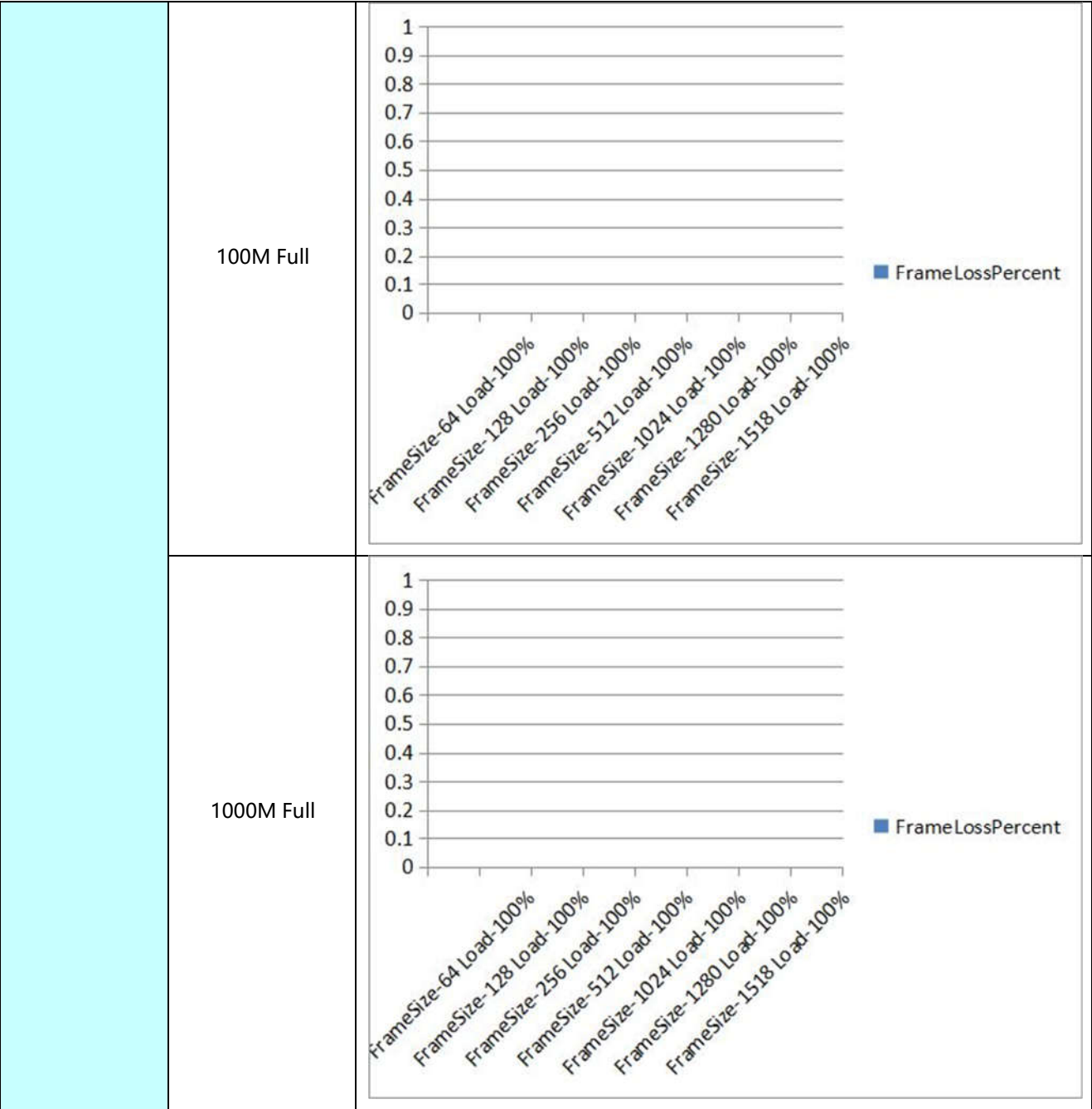


3.3 Frame loss rate

Test Item:	Frame loss rate
Test Config:	BigTao220
Test Method:	1.Connected test circuit. 2.Test the Frame loss rate for different bytes (packet length) in different directions. 3.Record test results.

Pass Criteria:	RFC2544																														
Test Data:	Packet loss (%) (LAN1→LAN2,LAN2→LAN1,LAN3→LAN4,LAN4→LAN3)						Result																								
	Frame Size	10M (Half)	10M (Full)	100M(Half)	100M (Full)	1G (Full)																									
	64	0	0	0	0	0	PASS																								
	128	0	0	0	0	0	PASS																								
	256	0	0	0	0	0	PASS																								
	512	0	0	0	0	0	PASS																								
	1024	0	0	0	0	0	PASS																								
	1280	0	0	0	0	0	PASS																								
	1518	0	0	0	0	0	PASS																								
Test Picture:	10M Half		<table><caption>丢包率 (%)</caption><tr><th>Frame Size</th><th>Load</th><th>丢包率 (%)</th></tr><tr><td>64</td><td>100%</td><td>0</td></tr><tr><td>128</td><td>100%</td><td>0</td></tr><tr><td>256</td><td>100%</td><td>0</td></tr><tr><td>512</td><td>100%</td><td>0</td></tr><tr><td>1024</td><td>100%</td><td>0</td></tr><tr><td>1280</td><td>100%</td><td>0</td></tr><tr><td>1518</td><td>100%</td><td>0</td></tr></table>					Frame Size	Load	丢包率 (%)	64	100%	0	128	100%	0	256	100%	0	512	100%	0	1024	100%	0	1280	100%	0	1518	100%	0
Frame Size	Load	丢包率 (%)																													
64	100%	0																													
128	100%	0																													
256	100%	0																													
512	100%	0																													
1024	100%	0																													
1280	100%	0																													
1518	100%	0																													

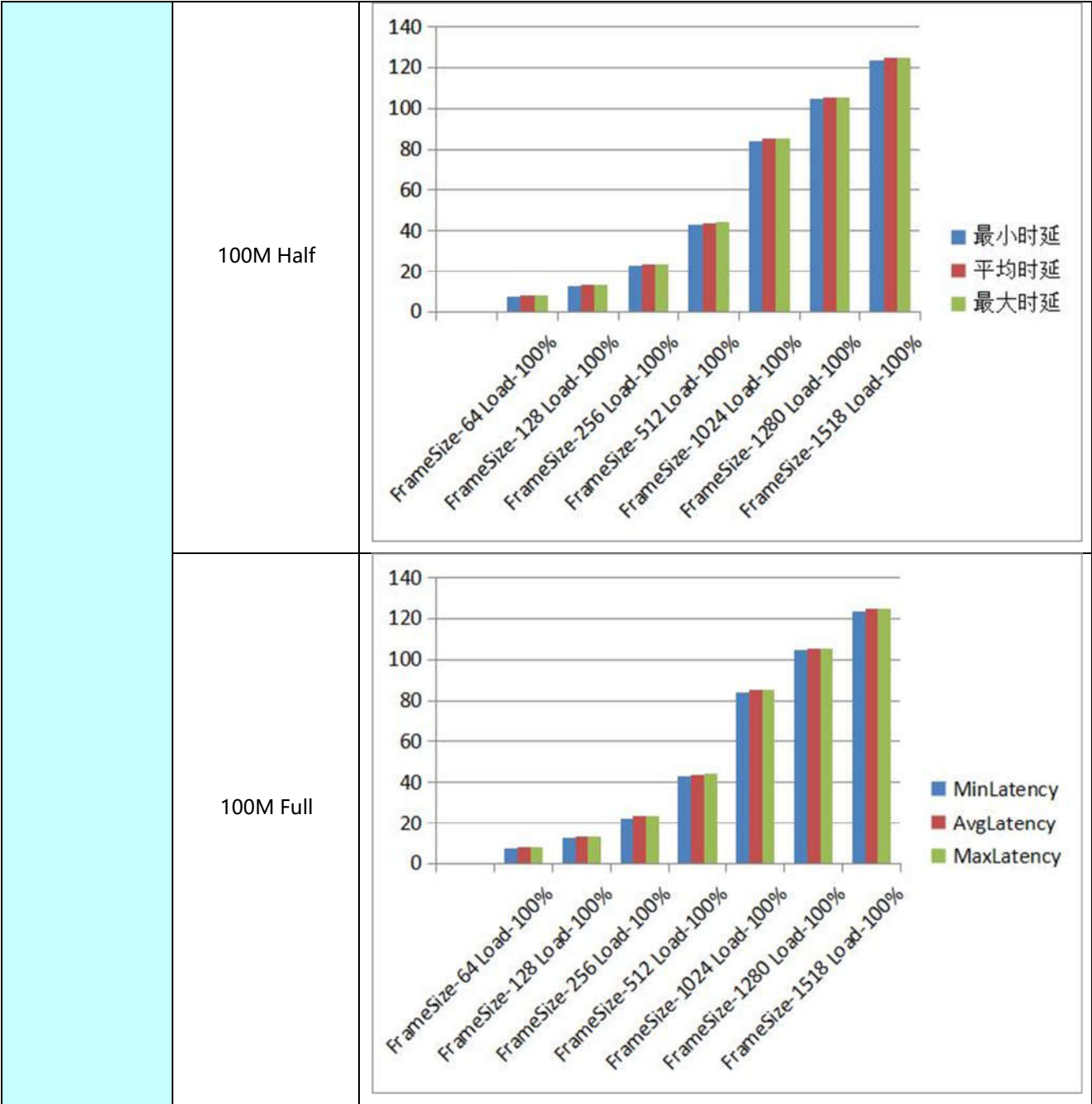


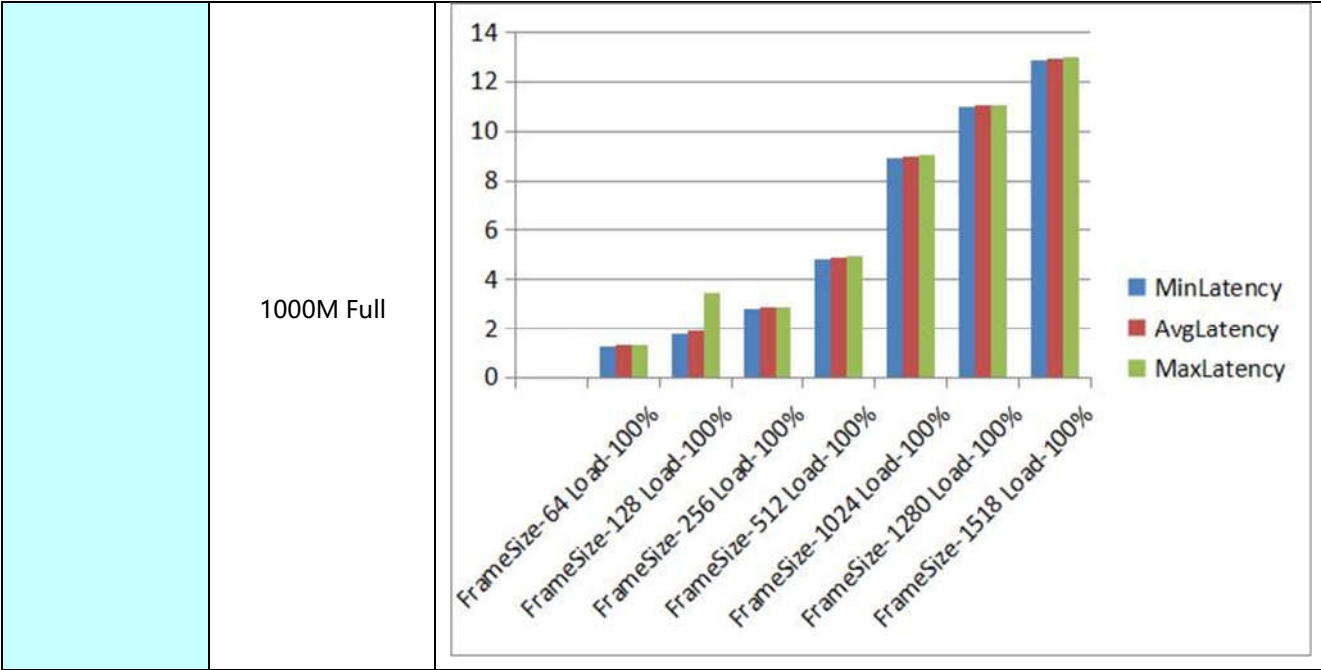


3.4 Latency

Test Item:	Latency
Test Config:	BigTao220
Test Method:	1.Connected test circuit. 2.Test the Latency for different bytes (packet length) in different directions. 3.Record test results.
Pass Criteria:	RFC2544

Test Data:	STORE & FORWARD (us) (LAN1→LAN2,LAN2→LAN1,LAN3→LAN4,LAN4→LAN3)						Result
	Frame Size	10M (Half)	10M (Full)	100M(Half)	100M (Full)	1G (Full)	
	64	76	76	8	8	1	PASS
	128	127	127	13	13	1	PASS
	256	229	289	23	23	2	PASS
	512	435	435	44	44	4	PASS
	1024	844	892	84	85	9	PASS
	1280	1049	1049	105	105	11	PASS
	1518	1239	1239	124	124	12	PASS
Test Picture:	10M Half						
	10M Full						



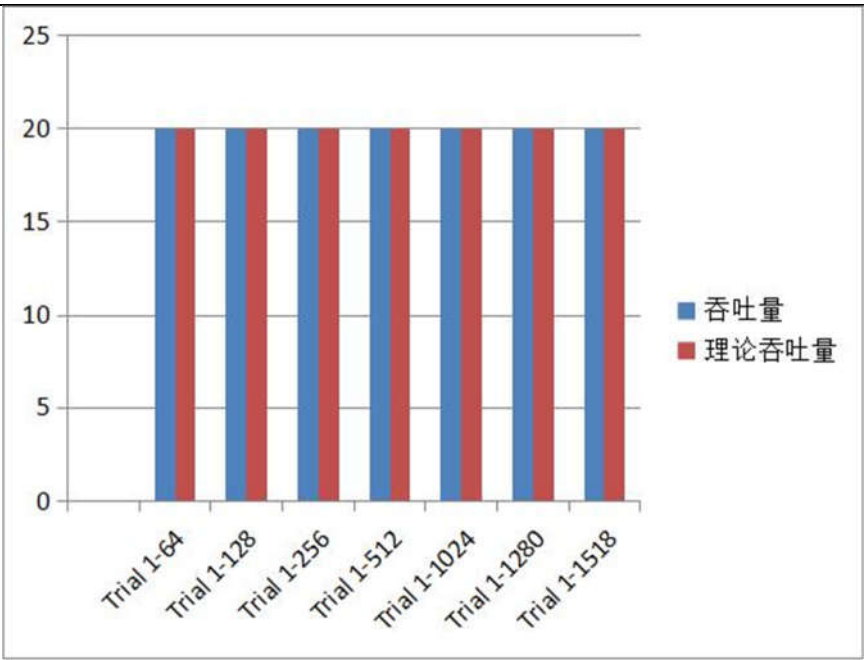


3.5 LAN-LAN Throughput

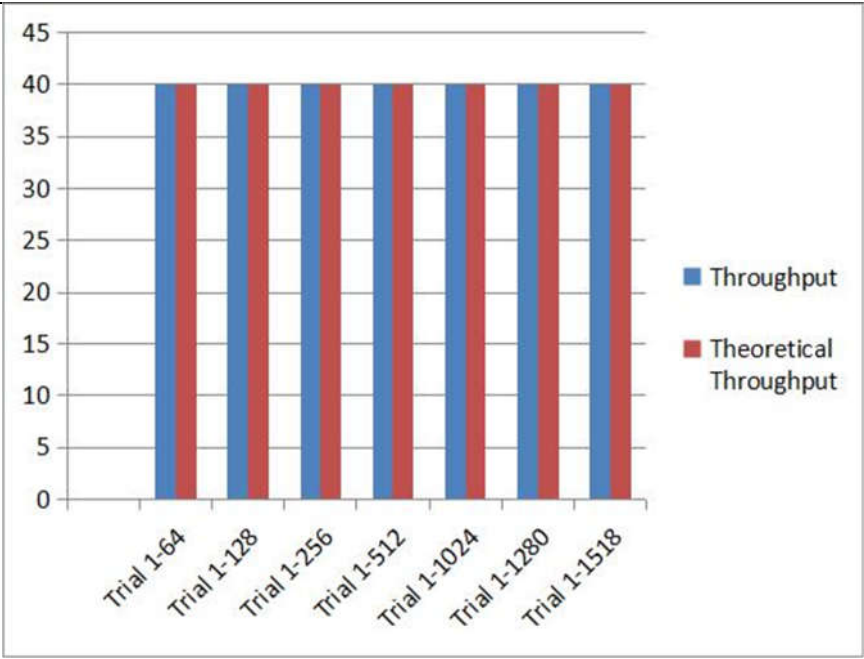
Test Item:	LAN-LAN Throughput						
Test Config:	BigTao220						
Test Method:	1.Connected test circuit. 2.Test the Throughput for different bytes (packet length) in different directions. 3.Record test results.						
Pass Criteria:	RFC2544						
Test Data:	Wire Speed(M) (LAN1→LAN2,LAN2→LAN1,LAN3→LAN4,LAN4→LAN3)						Result
	Frame Size	10M (Half)	10M (Full)	100M(Half)	100M (Full)	1G (Full)	
	64	20	40	200	400	4000	PASS
	128	20	40	200	400	4000	PASS
	256	20	40	200	400	4000	PASS
	512	20	40	200	400	4000	PASS
	1024	20	40	200	400	4000	PASS
	1280	20	40	200	400	4000	PASS
	1518	20	40	200	400	4000	PASS

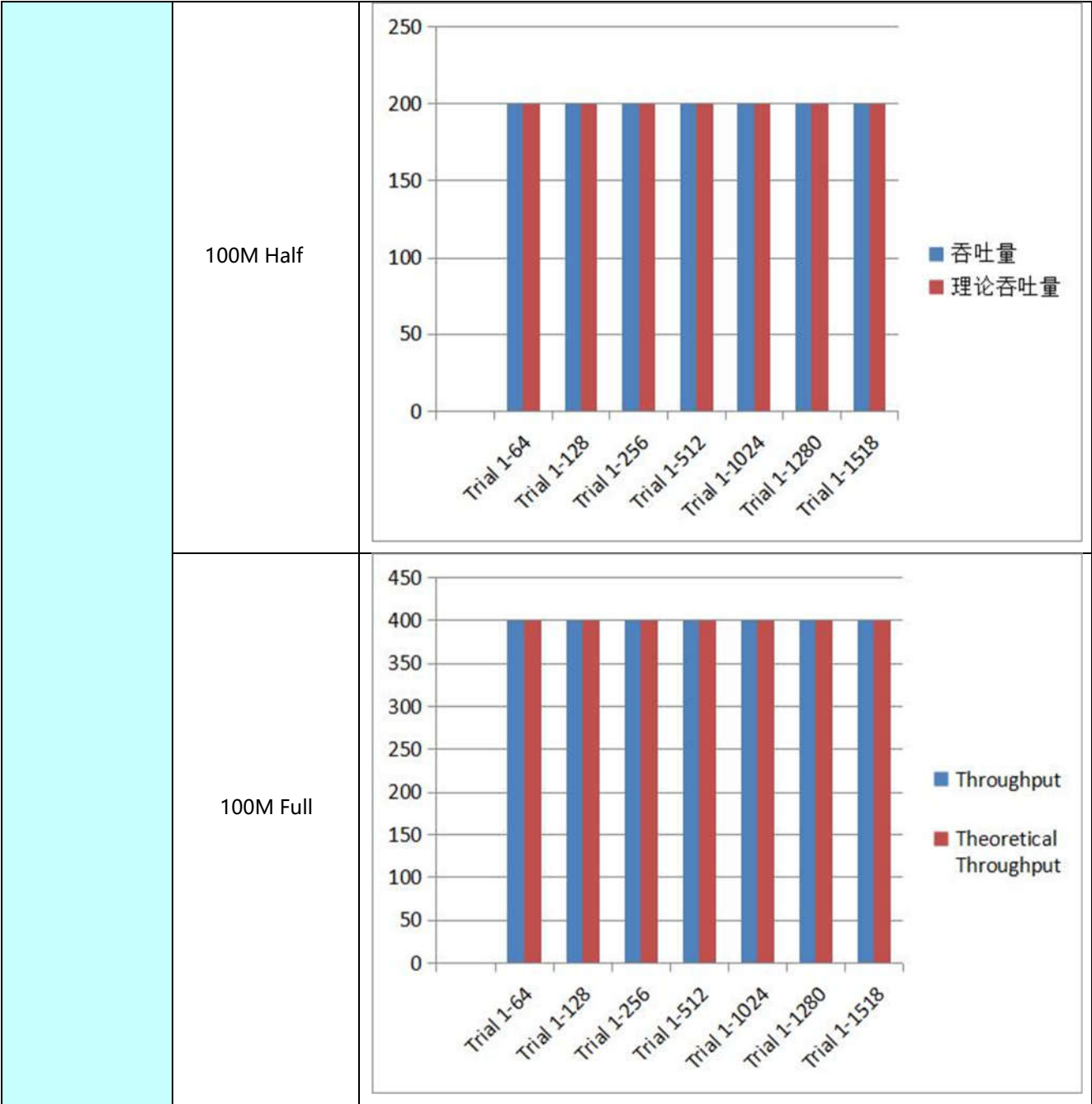
Test Picture:

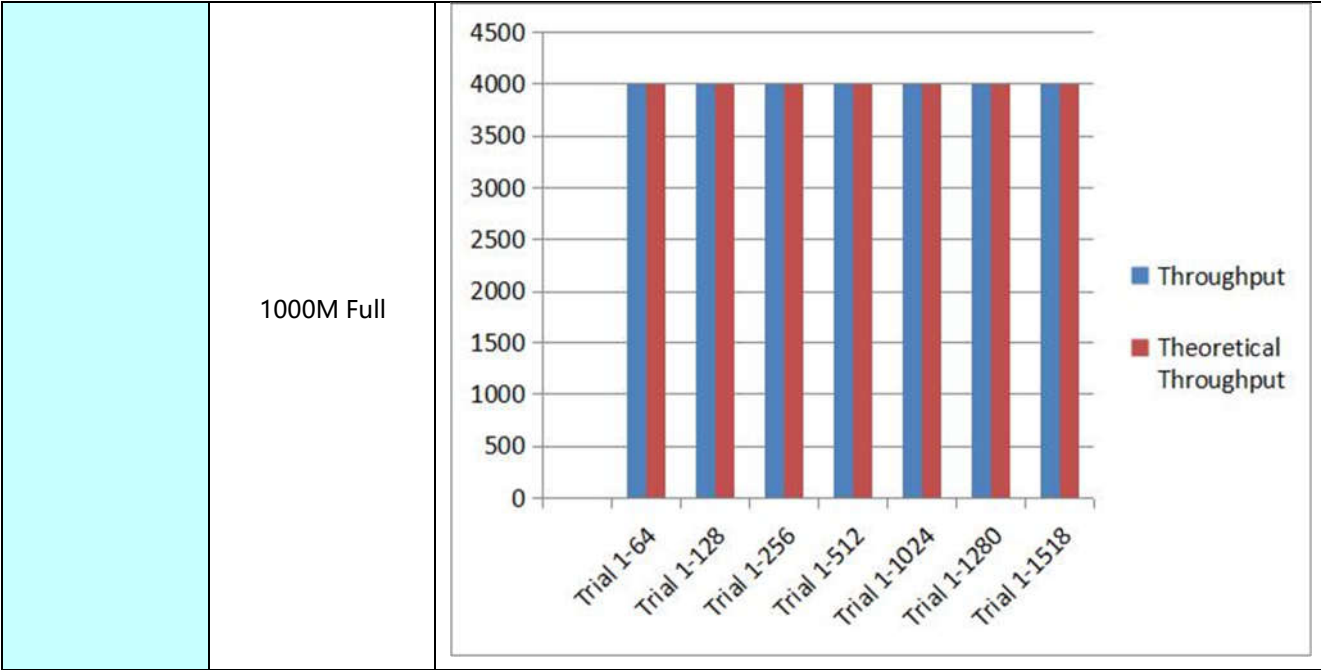
10M Half



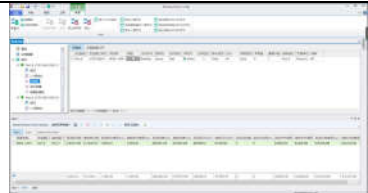
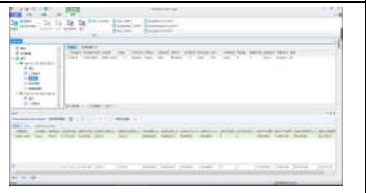
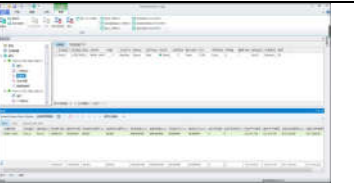
10M Full

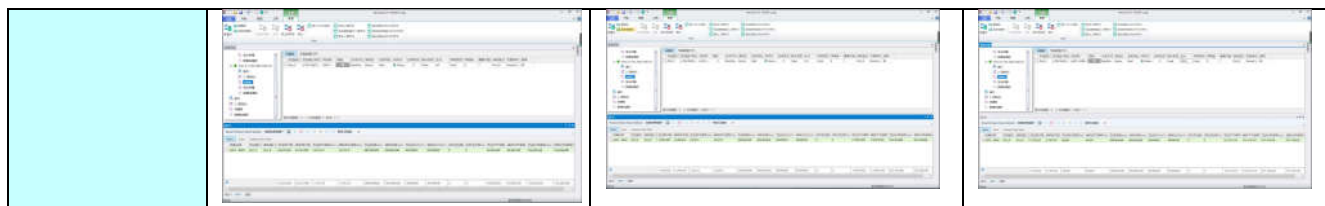




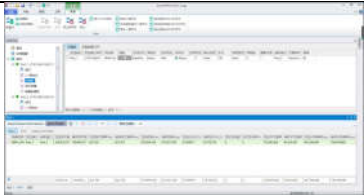
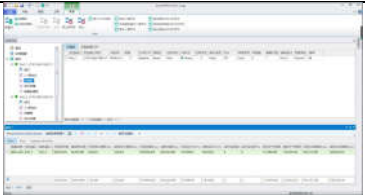
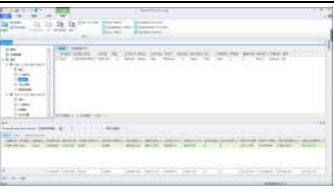
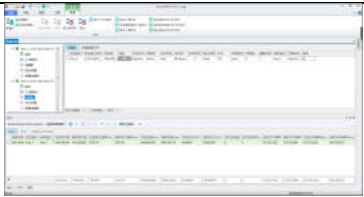
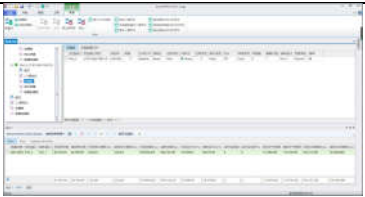


3.6 WAN-LAN DHCP

Test Item:	WAN-LAN DHCP																																			
Test Config:	BigTao220																																			
Test Method:	Test the throughput to the IEEE802.3 specifications.																																			
Test Data:	<table><tr><td>Item</td><td>Frame Size(Byte)</td><td>Test data (Max Mbps)</td><td>Criterion (Mbps)</td><td>Results</td></tr><tr><td rowspan="3">WAN->LAN Throughput</td><td>64</td><td>880M, Packet loss=0%</td><td>≥1000*85%</td><td>PASS</td></tr><tr><td>512</td><td>990M, Packet loss=0%</td><td>≥1000*85%</td><td>PASS</td></tr><tr><td>1518</td><td>990M, Packet loss=0%</td><td>≥1000*85%</td><td>PASS</td></tr><tr><td rowspan="3">LAN->WAN Throughput</td><td>64</td><td>990M, Packet loss=0%</td><td>≥1000*85%</td><td>PASS</td></tr><tr><td>512</td><td>990M, Packet loss=0%</td><td>≥1000*85%</td><td>PASS</td></tr><tr><td>1518</td><td>990M, Packet loss=0%</td><td>≥1000*85%</td><td>PASS</td></tr></table>					Item	Frame Size(Byte)	Test data (Max Mbps)	Criterion (Mbps)	Results	WAN->LAN Throughput	64	880M, Packet loss=0%	≥1000*85%	PASS	512	990M, Packet loss=0%	≥1000*85%	PASS	1518	990M, Packet loss=0%	≥1000*85%	PASS	LAN->WAN Throughput	64	990M, Packet loss=0%	≥1000*85%	PASS	512	990M, Packet loss=0%	≥1000*85%	PASS	1518	990M, Packet loss=0%	≥1000*85%	PASS
	Item	Frame Size(Byte)	Test data (Max Mbps)	Criterion (Mbps)	Results																															
	WAN->LAN Throughput	64	880M, Packet loss=0%	≥1000*85%	PASS																															
		512	990M, Packet loss=0%	≥1000*85%	PASS																															
		1518	990M, Packet loss=0%	≥1000*85%	PASS																															
	LAN->WAN Throughput	64	990M, Packet loss=0%	≥1000*85%	PASS																															
		512	990M, Packet loss=0%	≥1000*85%	PASS																															
1518		990M, Packet loss=0%	≥1000*85%	PASS																																
Test Picture:	WAN-LAN 64 Byte		WAN-LAN 512 Byte		WAN-LAN 1518 Byte																															
																																				
	LAN-WAN 64 Byte		LAN-WAN 512 Byte		LAN-WAN 1518 Byte																															



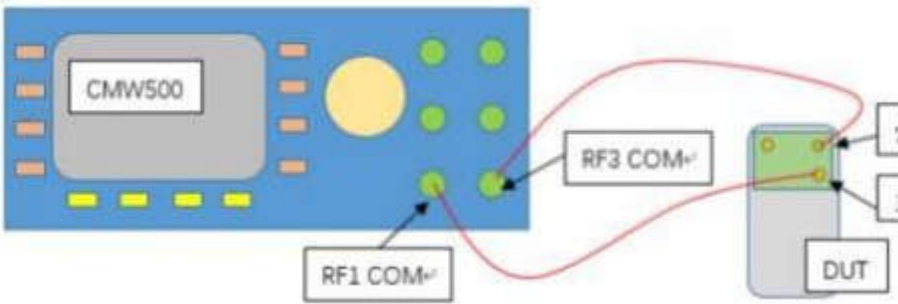
3.7 WAN-LAN PPPOE

Test Item:	WAN-LAN PPPOE					
Test Config:	BigTao220					
Test Method:	Test the throughput to the IEEE802.3 specifications.					
Test Data:	Item	Frame Size(Byte)	Test data (Max Mbps)	Criterion (Mbps)	Results	
	WAN->LAN Throughput	128	980M, Packet loss=0%	≥1000*85%	PASS	
		512	980M, Packet loss=0%	≥1000*85%	PASS	
		1492	990M, Packet loss=0%	≥1000*85%	PASS	
	LAN->WAN Throughput	128	940M, Packet loss=0%	≥1000*85%	PASS	
		512	980M, Packet loss=0%	≥1000*85%	PASS	
		1492	990M, Packet loss=0%	≥1000*85%	PASS	
Test Picture:	WAN-LAN 128 Byte		WAN-LAN 512Byte		WAN-LAN 1492Byte	
						
	LAN-WAN128Byte		LAN-WAN512Byte		LAN-WAN1492 Byte	
						

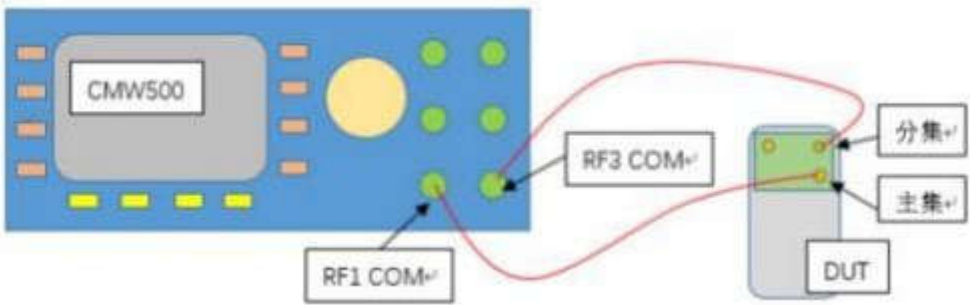
4. Module

4.1 WCDMA

Test Item:	WCDMA
Test Configure:	CMW500、Shield Box

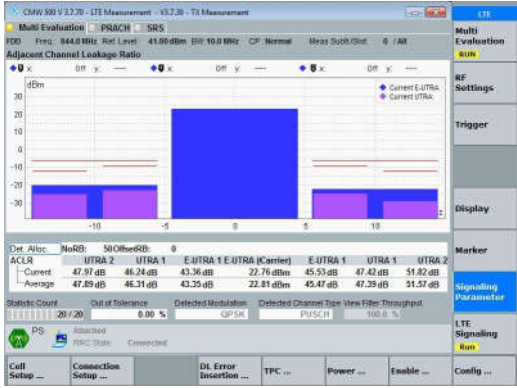
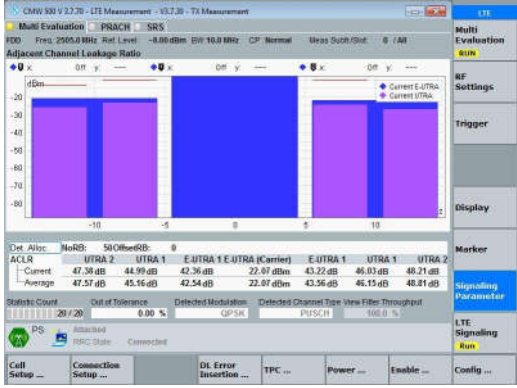
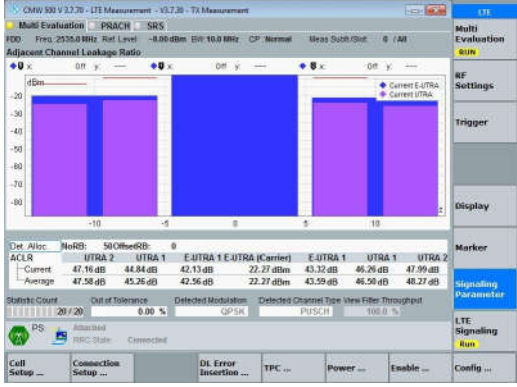
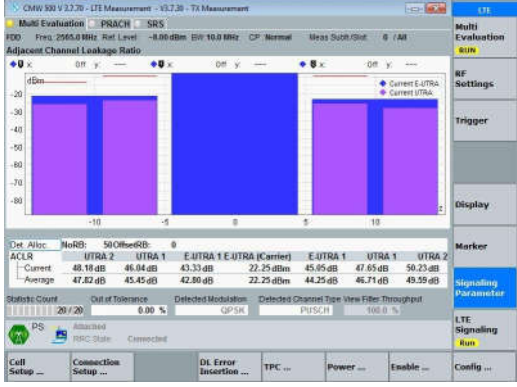
Test Method:					
Pass Criteria:		3GPP			
Test Data:		In the report below			
Operating Band		PWR(24+1-3)	EVM	Sensitivity	
Band1	CH10562	25.36	2.52	-108	PASS
	CH10700	25.42	1.23	-109	
	CH10838	25.12	1.31	-108	
Band5	CH4357	24.55	2.20	-110	PASS
	CH4408	24.56	1.07	-110	
	CH4458	24.44	2.94	-110	
Band8	CH2937	24.39	2.53	-110	PASS
	CH3012	24.32	1.43	-110	
	CH3088	24.22	3.09	-109	

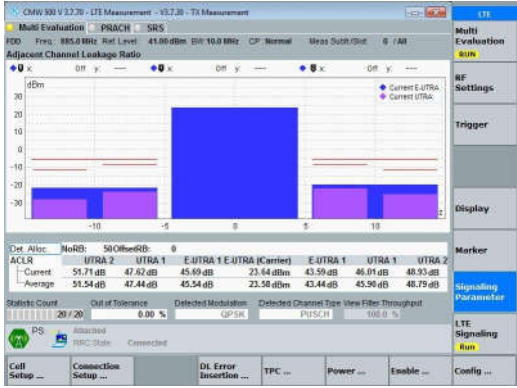
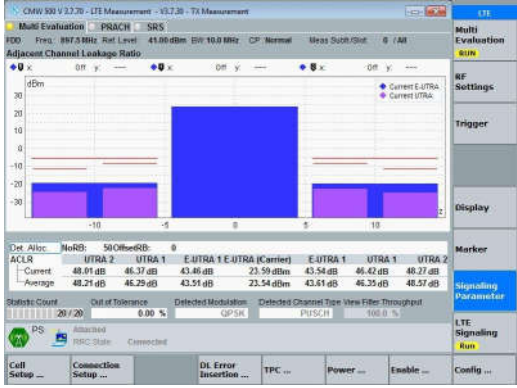
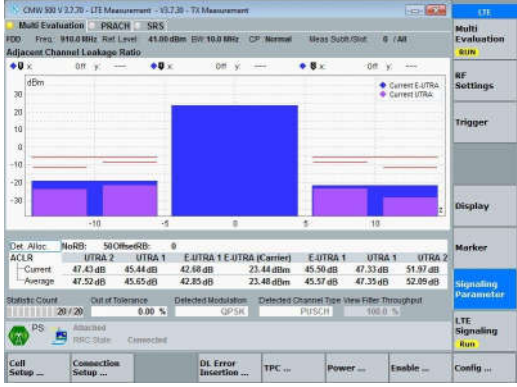
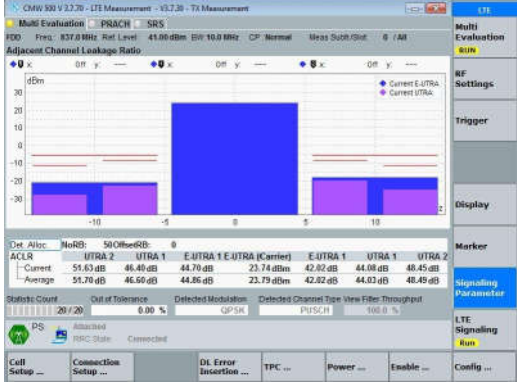
4.2 LTE TX

Test Item:		LTE TX			
Test Configure:		CMW500、Shield Box			
Test Method:					
Pass Criteria:		3GPP			
Test Data:		In the report below			
Operating Band		PWR(23+ -2)	EVM	ACLR	

Band1	CH50	23.88	1.77	OMV 500 V 2.7.20 - LTE Measurement - V3.7.20 - TX Measurement Multi EvaluationPRACHSRS FDD Freq: 1825.0 MHz Ref Level: 41.00 dBm BW: 10.0 MHz CP: Normal Meas SubRat: 0 / AM Adjacent Channel Leakage Ratio <
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	CH1575	22.94	1.72	OMV 500 V 3.70 - LTE Measurement - V3.7.20 - TX Measurement Multi EvaluationPRACHSRS FDD Freq: 1747.5 MHz Ref Level: 41.00 dBm BW: 10.0 MHz CP: Normal Meas Sub/Slot: 0 / All Adjacent Channel Leakage Ratio 0 x0 x0 x 0 x0 x0 x 0 x0 x0 x 30 20 10 0 -10 -20 -30 -10 -5 0 5 10 2 Current E-UTRA Current E-UTRA Det. Alloc: NoRB: 50 OffsetsRB: 0 ACLRUTRA 2UTRA 1E-UTRA 1E-UTRA (Carrier)E-UTRA 1UTRA 1UTRA 2 Current45.11 dB42.36 dB39.88 dB22.99 dBm39.89 dB41.47 dB44.56 dB Average45.12 dB42.37 dB39.88 dB23.62 dBm39.19 dB41.55 dB44.68 dB Statistics Count: 20 / 20 Out of Tolerance: 0.00 % Detected Modulation: QPSK Detected Channel Type: View Filter Throughput: 100.0 % PSAttached NRFC State: Connected Cell Setup... Connection Setup... DL Error Insertion... TPC... Power... Enable... Config...
	CH1900	22.68	2.76	OMV 500 V 3.70 - LTE Measurement - V3.7.20 - TX Measurement Multi EvaluationPRACHSRS FDD Freq: 1747.5 MHz Ref Level: 41.00 dBm BW: 10.0 MHz CP: Normal Meas Sub/Slot: 0 / All Adjacent Channel Leakage Ratio 0 x0 x0 x 0 x0 x0 x 0 x0 x0 x 30 20 10 0 -10 -20 -30 -10 -5 0 5 10 2 Current E-UTRA Current E-UTRA Det. Alloc: NoRB: 50 OffsetsRB: 0 ACLRUTRA 2UTRA 1E-UTRA 1E-UTRA (Carrier)E-UTRA 1UTRA 1UTRA 2 Current42.18 dB36.84 dB35.12 dB22.42 dBm37.84 dB38.58 dB45.06 dB Average42.41 dB37.41 dB35.61 dB22.74 dBm37.49 dB38.04 dB45.32 dB Statistics Count: 20 / 20 Out of Tolerance: 0.00 % Detected Modulation: QPSK Detected Channel Type: View Filter Throughput: 100.0 % PSAttached NRFC State: Connected Cell Setup... Connection Setup... DL Error Insertion... TPC... Power... Enable... Config...
Band5	CH2450	22.86	1.21	OMV 500 V 3.70 - LTE Measurement - V3.7.20 - TX Measurement Multi EvaluationPRACHSRS FDD Freq: 826.0 MHz Ref Level: 41.00 dBm BW: 10.0 MHz CP: Normal Meas Sub/Slot: 0 / All Adjacent Channel Leakage Ratio 0 x0 x0 x 0 x0 x0 x 0 x0 x0 x 30 20 10 0 -10 -20 -30 -10 -5 0 5 10 2 Current E-UTRA Current E-UTRA Det. Alloc: NoRB: 50 OffsetsRB: 0 ACLRUTRA 2UTRA 1E-UTRA 1E-UTRA (Carrier)E-UTRA 1UTRA 1UTRA 2 Current48.27 dB46.95 dB43.86 dB22.43 dBm43.14 dB45.90 dB47.99 dB Average48.11 dB46.44 dB43.50 dB22.84 dBm42.87 dB45.54 dB47.87 dB Statistics Count: 20 / 20 Out of Tolerance: 0.00 % Detected Modulation: QPSK Detected Channel Type: View Filter Throughput: 100.0 % PSAttached NRFC State: Connected Cell Setup... Connection Setup... DL Error Insertion... TPC... Power... Enable... Config...
	CH2525	22.81	1.14	OMV 500 V 3.70 - LTE Measurement - V3.7.20 - TX Measurement Multi EvaluationPRACHSRS FDD Freq: 826.0 MHz Ref Level: 41.00 dBm BW: 10.0 MHz CP: Normal Meas Sub/Slot: 0 / All Adjacent Channel Leakage Ratio 0 x0 x0 x 0 x0 x0 x 0 x0 x0 x 30 20 10 0 -10 -20 -30 -10 -5 0 5 10 2 Current E-UTRA Current E-UTRA Det. Alloc: NoRB: 50 OffsetsRB: 0 ACLRUTRA 2UTRA 1E-UTRA 1E-UTRA (Carrier)E-UTRA 1UTRA 1UTRA 2 Current48.66 dB45.61 dB43.87 dB22.44 dBm43.19 dB45.77 dB49.83 dB Average48.53 dB45.60 dB43.19 dB22.79 dBm43.45 dB45.85 dB49.89 dB Statistics Count: 20 / 20 Out of Tolerance: 0.00 % Detected Modulation: QPSK Detected Channel Type: View Filter Throughput: 100.0 % PSAttached NRFC State: Connected Cell Setup... Connection Setup... DL Error Insertion... TPC... Power... Enable... Config...

	CH2600	22.84	1.20	
Band7	CH2800	22.06	1.33	
	CH3100	22.26	1.25	
	CH3400	22.24	1.31	

Band8	CH3500	23.62	1.09	
	CH3625	23.56	1.19	
	CH3750	23.44	1.18	
Band20	CH6200	23.82	1.28	

	CH6300	23.78	1.04	
	CH6400	23.56	1.12	
Band28	CH9260	23.71	1.30	
	CH9435	23.86	1.64	

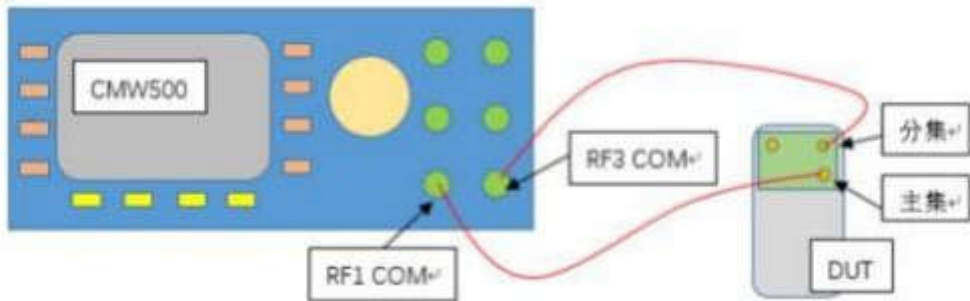
	CH9610	23.76	2.17	
Band38	CH37800	22.92	1.28	
	CH38000	22.68	1.34	
	CH38200	22.35	1.20	

Band40	CH38700	22.86	1.67	OMV 500 V 2.7.20 - LTE Measurement - V3.7.20 - TX Measurement Multi EvaluationPRACHSRS FDD Freq: 2305.0 MHz Ref Level: -8.00 dBm BW: 10.0 MHz CP: Normal Meas SubS: 0 / All Adjacent Channel Leakage Ratio
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	CH40620	22.76	1.44	OMV 500 V 2.7.20 - LTE Measurement - V3.7.20 - TX Measurement Multi EvaluationPRACHSRS FDD Freq: 2583.0 MHz Ref Level: -8.00 dBm BW: 10.0 MHz CP: Normal Meas SubS: 0 / 0 / 0 Adjacent Channel Leakage Ratio dBm Det Alloc: NoRB: 50 OffsetsRB: 0 ACLR <table><thead><tr><th></th><th>UTRA 2</th><th>UTRA 1</th><th>E-UTRA 1 E-UTRA (Carrier)</th><th>E-UTRA 1</th><th>UTRA 1</th><th>UTRA 2</th></tr></thead><tbody><tr><td>Current</td><td>48.37 dB</td><td>45.82 dB</td><td>43.21 dB</td><td>22.87 dBm</td><td>41.79 dB</td><td>44.22 dB</td></tr><tr><td>Average</td><td>47.82 dB</td><td>45.16 dB</td><td>42.64 dB</td><td>22.82 dBm</td><td>41.17 dB</td><td>43.47 dB</td></tr></tbody></table> Statistics Count: 20 / 20 Out of Tolerance: 0.00 % Detected Modulation: QPSK Detected Channel Type: View Filter Throughput: PUSCH 100.0 % PS Attached RRC State: Connected Cell Setup ... Connection Setup ... DL Error Insertion ... TPC ... Power ... Enable ... Config ...		UTRA 2	UTRA 1	E-UTRA 1 E-UTRA (Carrier)	E-UTRA 1	UTRA 1	UTRA 2	Current	48.37 dB	45.82 dB	43.21 dB	22.87 dBm	41.79 dB	44.22 dB	Average	47.82 dB	45.16 dB	42.64 dB	22.82 dBm	41.17 dB	43.47 dB
	UTRA 2	UTRA 1	E-UTRA 1 E-UTRA (Carrier)	E-UTRA 1	UTRA 1	UTRA 2																			
Current	48.37 dB	45.82 dB	43.21 dB	22.87 dBm	41.79 dB	44.22 dB																			
Average	47.82 dB	45.16 dB	42.64 dB	22.82 dBm	41.17 dB	43.47 dB																			
	CH41190	21.88	1.33	OMV 500 V 2.7.20 - LTE Measurement - V3.7.20 - TX Measurement Multi EvaluationPRACHSRS FDD Freq: 2650.0 MHz Ref Level: -8.00 dBm BW: 10.0 MHz CP: Normal Meas SubS: 0 / 0 / 0 Adjacent Channel Leakage Ratio dBm Det Alloc: NoRB: 50 OffsetsRB: 0 ACLR <table><thead><tr><th></th><th>UTRA 2</th><th>UTRA 1</th><th>E-UTRA 1 E-UTRA (Carrier)</th><th>E-UTRA 1</th><th>UTRA 1</th><th>UTRA 2</th></tr></thead><tbody><tr><td>Current</td><td>47.97 dB</td><td>46.28 dB</td><td>43.33 dB</td><td>21.89 dBm</td><td>42.53 dB</td><td>45.13 dB</td></tr><tr><td>Average</td><td>47.87 dB</td><td>45.89 dB</td><td>43.10 dB</td><td>21.89 dBm</td><td>42.23 dB</td><td>44.00 dB</td></tr></tbody></table> Statistics Count: 20 / 20 Out of Tolerance: 0.00 % Detected Modulation: QPSK Detected Channel Type: View Filter Throughput: PUSCH 100.0 % PS Attached RRC State: Connected Cell Setup ... Connection Setup ... DL Error Insertion ... TPC ... Power ... Enable ... Config ...		UTRA 2	UTRA 1	E-UTRA 1 E-UTRA (Carrier)	E-UTRA 1	UTRA 1	UTRA 2	Current	47.97 dB	46.28 dB	43.33 dB	21.89 dBm	42.53 dB	45.13 dB	Average	47.87 dB	45.89 dB	43.10 dB	21.89 dBm	42.23 dB	44.00 dB
	UTRA 2	UTRA 1	E-UTRA 1 E-UTRA (Carrier)	E-UTRA 1	UTRA 1	UTRA 2																			
Current	47.97 dB	46.28 dB	43.33 dB	21.89 dBm	42.53 dB	45.13 dB																			
Average	47.87 dB	45.89 dB	43.10 dB	21.89 dBm	42.23 dB	44.00 dB																			
Band42	CH41640	22.73	1.53	OMV 500 V 2.7.20 - LTE Measurement - V3.7.20 - TX Measurement Multi EvaluationPRACHSRS FDD Freq: 3405.0 MHz Ref Level: 41.00 dBm BW: 10.0 MHz CP: Normal Meas SubS: 0 / 0 / 0 Adjacent Channel Leakage Ratio dBm Det Alloc: NoRB: 50 OffsetsRB: 0 ACLR <table><thead><tr><th></th><th>UTRA 2</th><th>UTRA 1</th><th>E-UTRA 1 E-UTRA (Carrier)</th><th>E-UTRA 1</th><th>UTRA 1</th><th>UTRA 2</th></tr></thead><tbody><tr><td>Current</td><td>52.68 dB</td><td>49.85 dB</td><td>43.90 dB</td><td>22.57 dBm</td><td>42.87 dB</td><td>49.13 dB</td></tr><tr><td>Average</td><td>50.95 dB</td><td>48.28 dB</td><td>42.77 dB</td><td>22.63 dBm</td><td>42.05 dB</td><td>47.53 dB</td></tr></tbody></table> Statistics Count: 20 / 20 Out of Tolerance: 0.00 % Detected Modulation: QPSK Detected Channel Type: View Filter Throughput: PUSCH 100.0 % PS Attached RRC State: Connected Cell Setup ... Connection Setup ... DL Error Insertion ... TPC ... Power ... Enable ... Config ...		UTRA 2	UTRA 1	E-UTRA 1 E-UTRA (Carrier)	E-UTRA 1	UTRA 1	UTRA 2	Current	52.68 dB	49.85 dB	43.90 dB	22.57 dBm	42.87 dB	49.13 dB	Average	50.95 dB	48.28 dB	42.77 dB	22.63 dBm	42.05 dB	47.53 dB
		UTRA 2	UTRA 1	E-UTRA 1 E-UTRA (Carrier)	E-UTRA 1	UTRA 1	UTRA 2																		
Current	52.68 dB	49.85 dB	43.90 dB	22.57 dBm	42.87 dB	49.13 dB																			
Average	50.95 dB	48.28 dB	42.77 dB	22.63 dBm	42.05 dB	47.53 dB																			
CH42570	23.39	1.32	OMV 500 V 2.7.20 - LTE Measurement - V3.7.20 - TX Measurement Multi EvaluationPRACHSRS FDD Freq: 3480.0 MHz Ref Level: -8.00 dBm BW: 10.0 MHz CP: Normal Meas SubS: 0 / 0 / 0 Adjacent Channel Leakage Ratio dBm Det Alloc: NoRB: 50 OffsetsRB: 0 ACLR <table><thead><tr><th></th><th>UTRA 2</th><th>UTRA 1</th><th>E-UTRA 1 E-UTRA (Carrier)</th><th>E-UTRA 1</th><th>UTRA 1</th><th>UTRA 2</th></tr></thead><tbody><tr><td>Current</td><td>48.29 dB</td><td>46.53 dB</td><td>43.39 dB</td><td>22.79 dBm</td><td>42.57 dB</td><td>45.47 dB</td></tr><tr><td>Average</td><td>48.28 dB</td><td>46.03 dB</td><td>43.34 dB</td><td>22.36 dBm</td><td>42.25 dB</td><td>44.06 dB</td></tr></tbody></table> Statistics Count: 20 / 20 Out of Tolerance: 0.00 % Detected Modulation: QPSK Detected Channel Type: View Filter Throughput: PUSCH 100.0 % PS Attached RRC State: Connected Cell Setup ... Connection Setup ... DL Error Insertion ... TPC ... Power ... Enable ... Config ...		UTRA 2	UTRA 1	E-UTRA 1 E-UTRA (Carrier)	E-UTRA 1	UTRA 1	UTRA 2	Current	48.29 dB	46.53 dB	43.39 dB	22.79 dBm	42.57 dB	45.47 dB	Average	48.28 dB	46.03 dB	43.34 dB	22.36 dBm	42.25 dB	44.06 dB	
	UTRA 2	UTRA 1	E-UTRA 1 E-UTRA (Carrier)	E-UTRA 1	UTRA 1	UTRA 2																			
Current	48.29 dB	46.53 dB	43.39 dB	22.79 dBm	42.57 dB	45.47 dB																			
Average	48.28 dB	46.03 dB	43.34 dB	22.36 dBm	42.25 dB	44.06 dB																			

	CH43540	22.58	1.30	
Band43	CH43640	20.83	1.17	
	CH44580	20.23	1.02	
	CH45540	20.40	1.38	

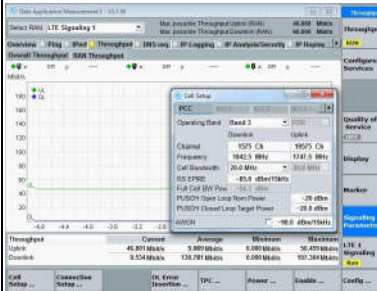
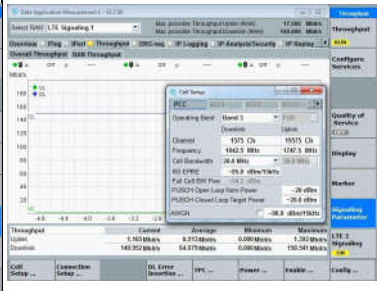
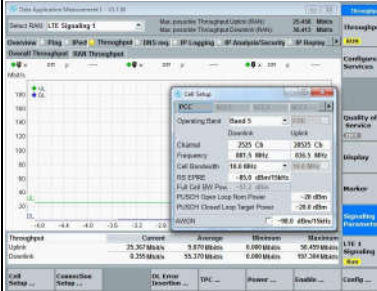
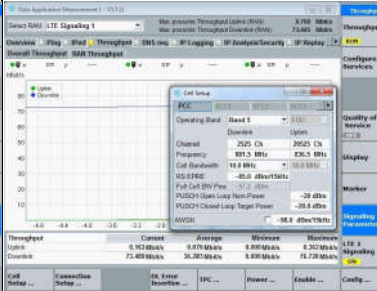
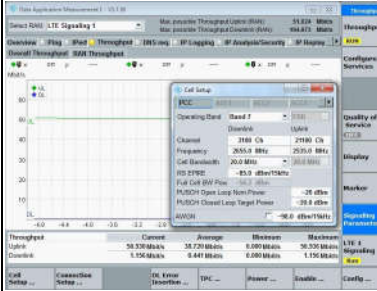
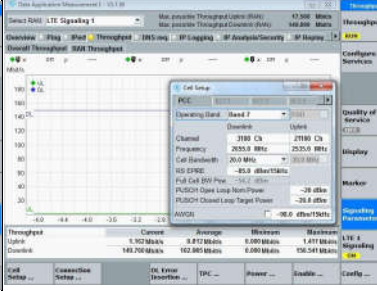
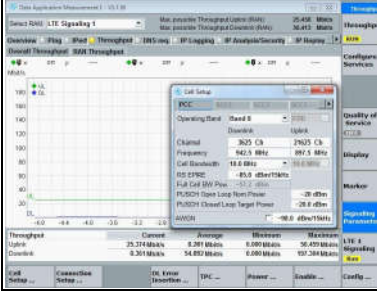
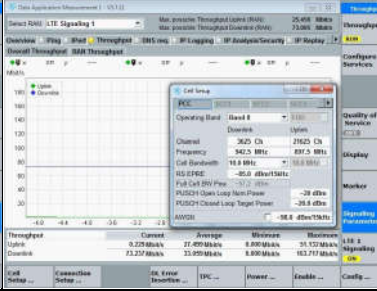
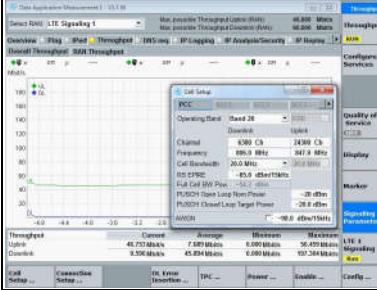
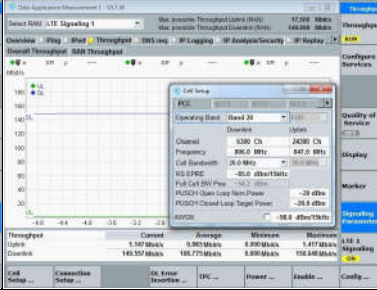
4.3 LTE RX

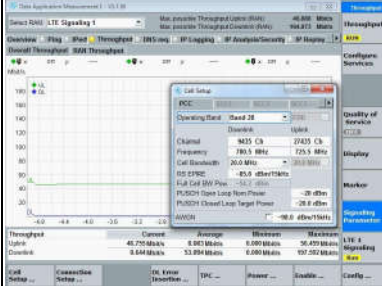
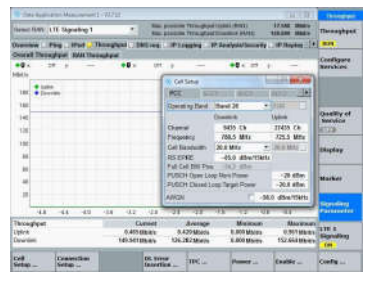
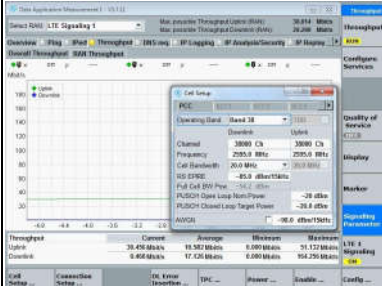
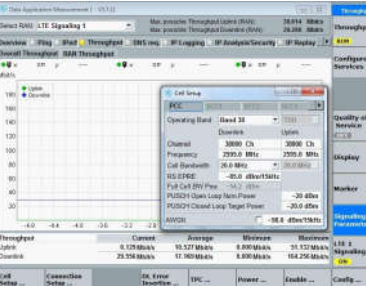
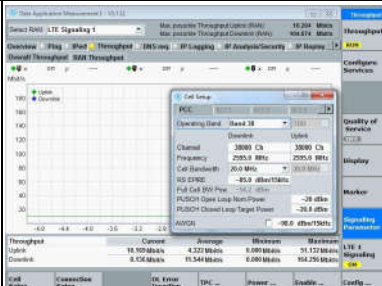
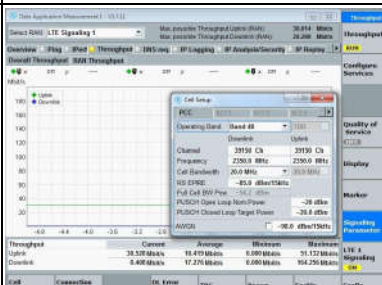
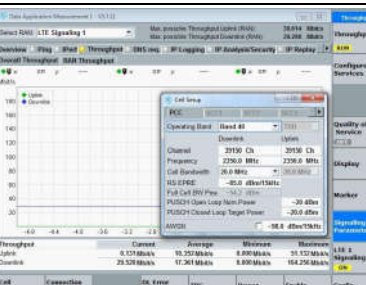
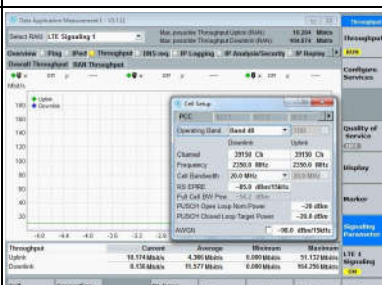
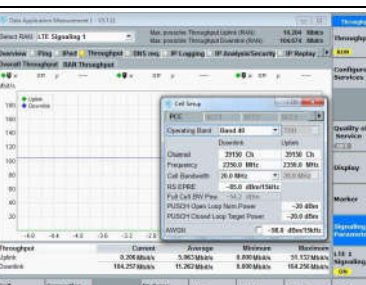
Test Item:	LTE RX				
Test Configure:	CMW500、Shield Box				
Test Method:					
Pass Criteria:	3GPP Manual				
Test Data:	10MHz&64QAM				
	Band	Channel	Main+Div	Main+MIMO1	Main+MIMO2
	Band1	300	-88.2	-86.8	-87.3
	Band3	1575	-89	-87.9	-88.3
	Band5	2525	-88.9	-89.2	-89.3
	Band7	3100	-86.3	-86.1	-86.8
	Band8	3625	-88.6	-88.9	-88.6
	Band20	6300	-90.1	/	/
	Band28	9435	-90.1	-90.3	-90.1
	Band38	38000	-85.1	-84.7	-84.8
	Band40	39150	-85.8	-85.8	-86.4

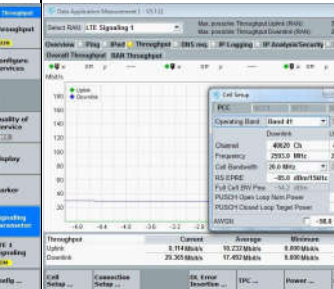
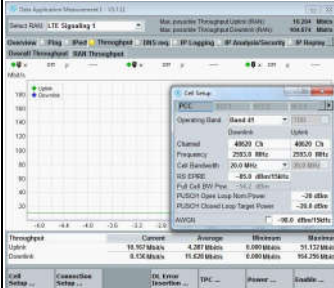
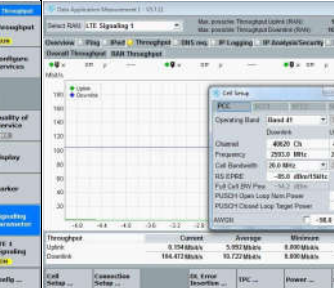
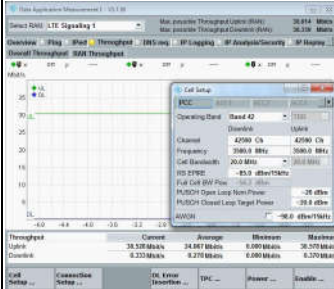
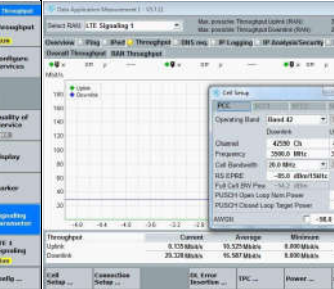
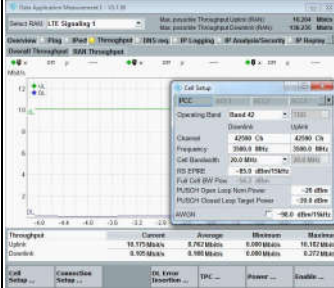
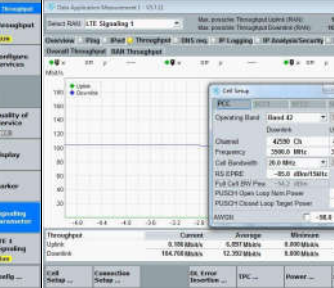
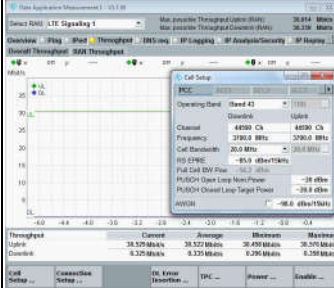
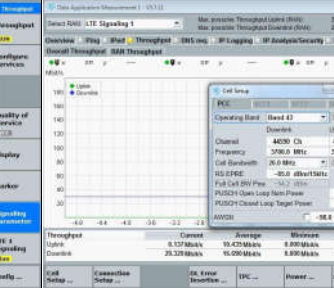
	Band41	40620	-84.9	-84.6	-84.9
	Band42	42590	-84.3	-84.0	-84
	Band43	44590	-84.2	-83.9	-83.1

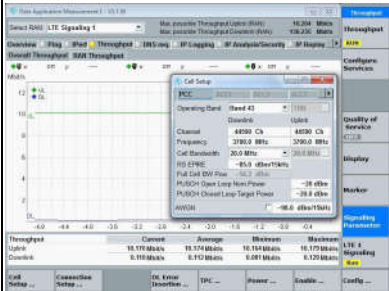
4.5 LTE to LAN

Test Item:	LTE to LAN			
Test Configure:	CMW500、FileZilla-3.44.1、Shield Box			
Test Method:				
Pass Criteria:	RS EPRE= -85dbm		20MHz Uplink(Mbit/s)	20MHz Downlink(Mbit/s)
	FDD 10MHz		23~25	73~75
	FDD 20MHz		45~50	145~150
	TDD Config0 20MHz		25~30	25~30
	TDD Config4 20MHz		9~10	100~105
Test Data:	Band	Bandwidth	Uplink(Mbit/s) 16-QAM	Downlink(Mbit/s) 64-QAM
	Band1	20MHz	 46	 149

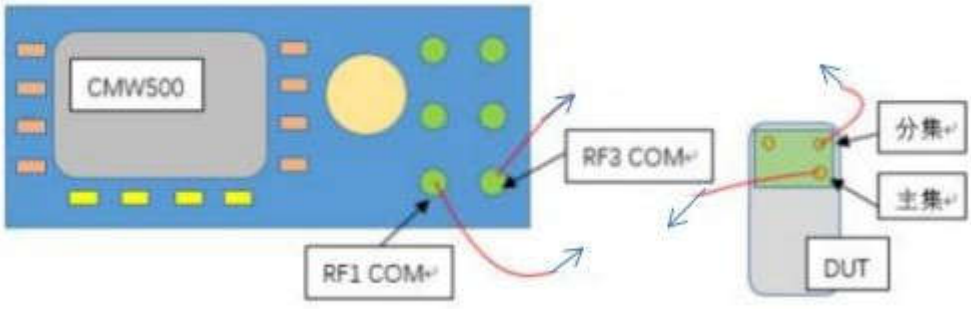
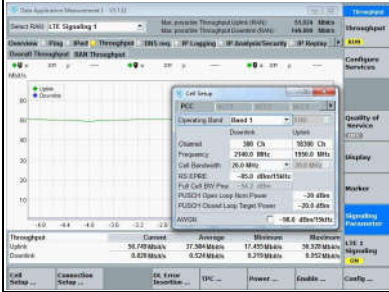
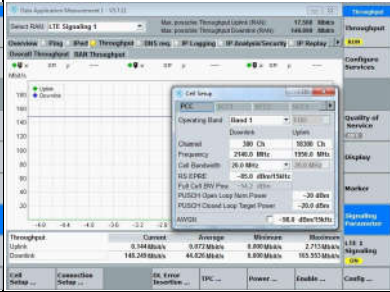
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	Band5	10MHz		
	Band7	20MHz		
	Band8	10MHz		
	Band20	20MHz		

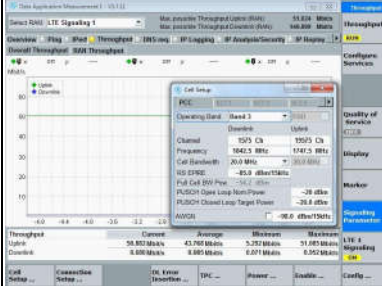
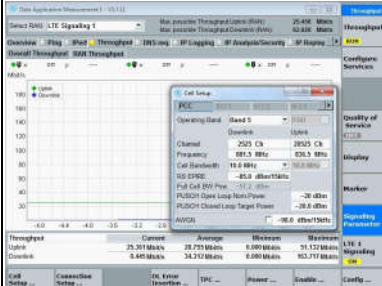
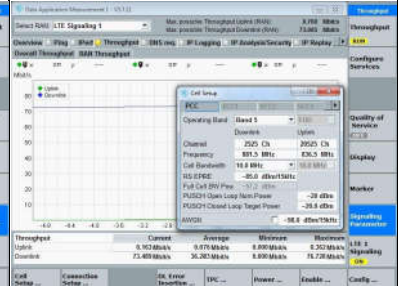
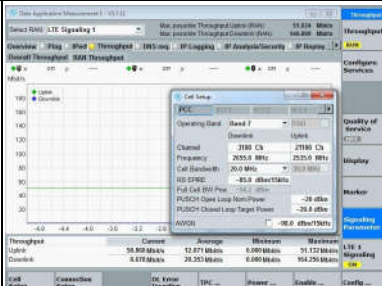
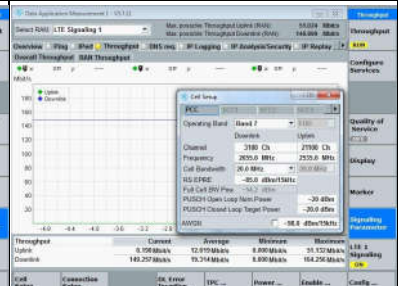
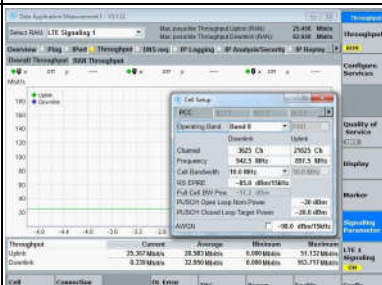
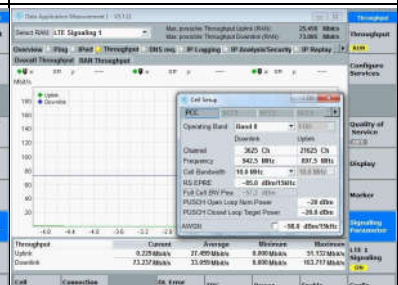
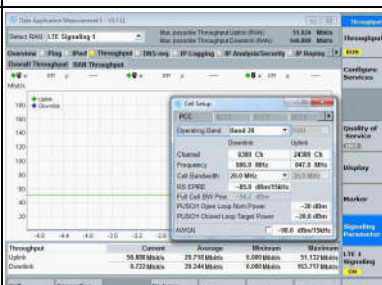
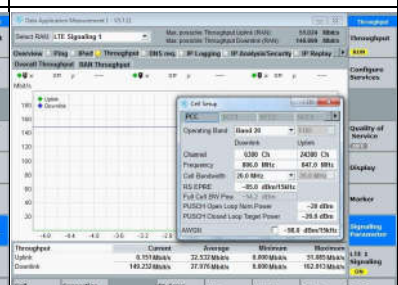
	Band28	20MHz		
			46	149
	Band38	20MHz/Cfg0		
			30	29
	Band38	20MHz/Cfg4		
			10	104
	Band40	20MHz/Cfg0		
			30	29
	Band40	20MHz/Cfg4		
			10	104

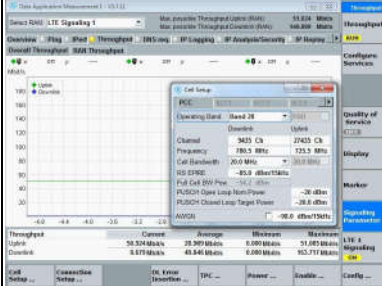
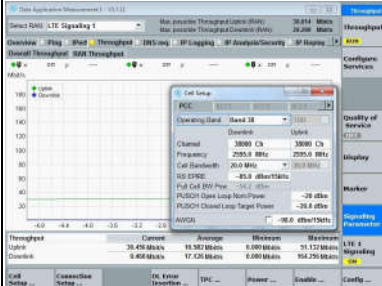
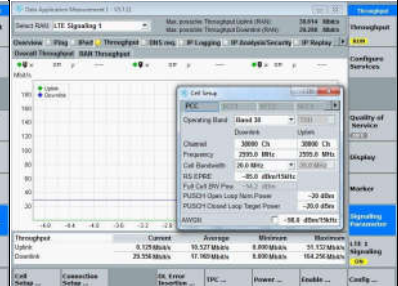
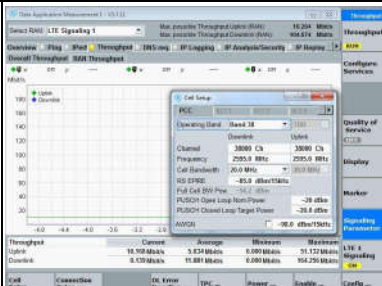
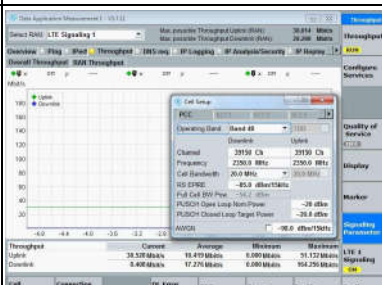
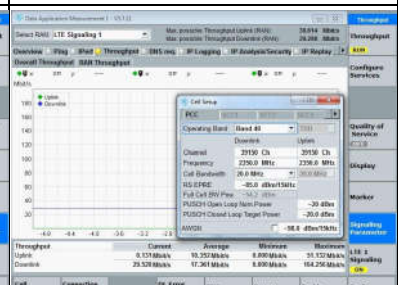
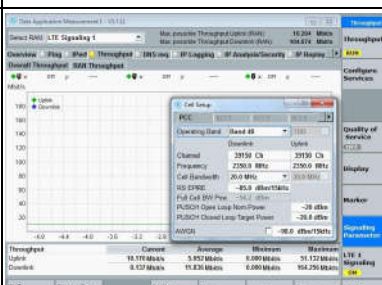
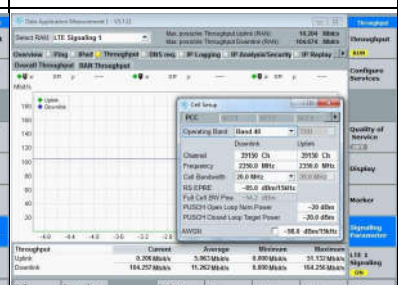
	Band41	20MHz/Cfg0		
			30	29
	Band41	20MHz/Cfg4		
			10	104
	Band42	20MHz/Cfg0		
			30	29
	Band42	20MHz/Cfg4		
			10	104
	Band43	20MHz/Cfg0		
			30	29

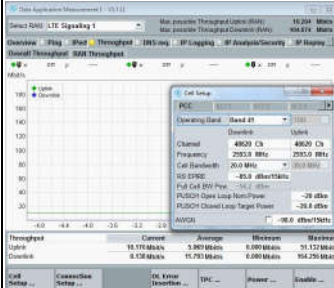
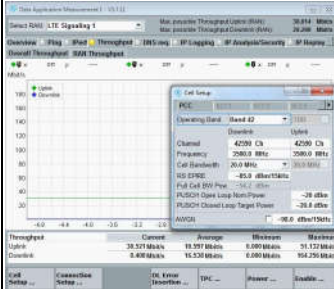
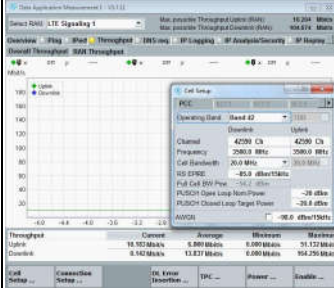
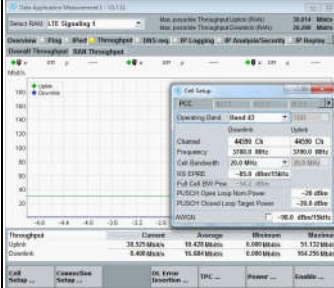
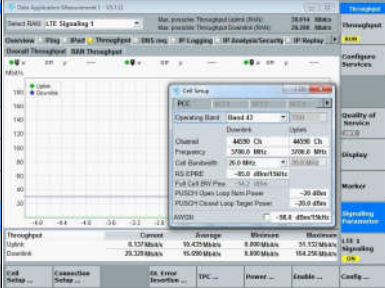
				
	Band43	20MHz/Cfg4	10	104

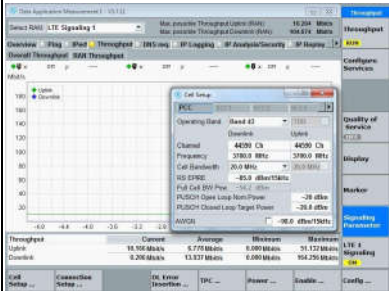
4.5 LTE to WiFi 2.4G

Test Item:	LTE to WIFI 2.4G		
Test Configure:	CMW500、FileZilla-3.44.1、Shield Box		
Test Method:			
Pass Criteria:	RS EPRE= -85dbm		20MHz Uplink(Mbit/s)
	FDD 10MHz		23~25
	FDD 20MHz		45~50
	TDD Config0 20MHz		25~30
	TDD Config4 20MHz		9~10
Test Data:	Band	Bandwidth	Uplink(Mbit/s) 16-QAM
	Band1	20MHz	Downlink(Mbit/s) 64-QAM
			
			50
			
			148

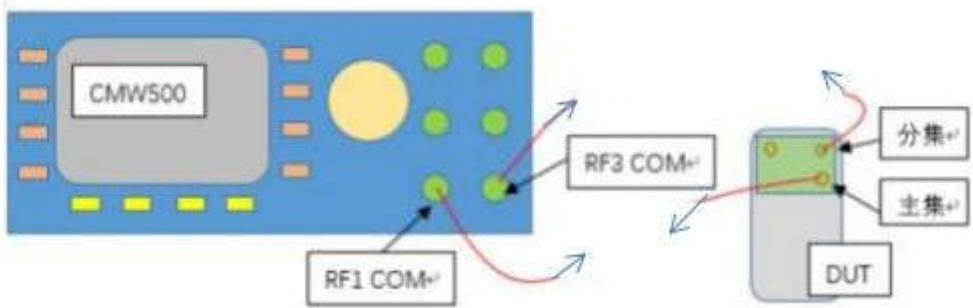
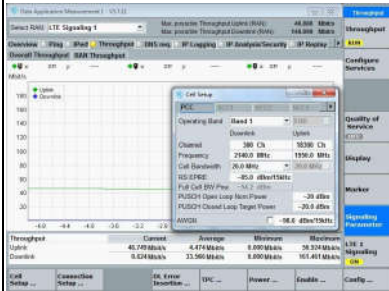
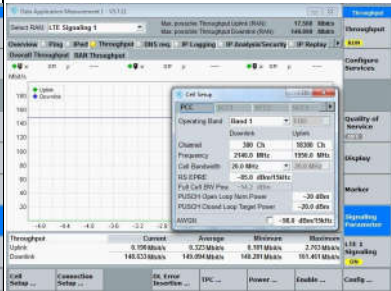
	Band3	20MHz	 50	 149
	Band5	10MHz	 25	 73
	Band7	20MHz	 50	 149
	Band8	10MHz	 25	 73
	Band20	20MHz	 50	 149

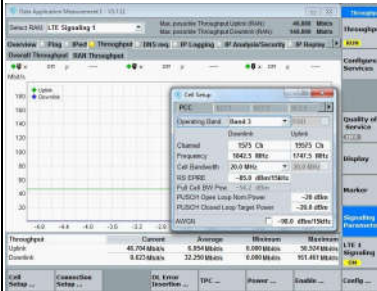
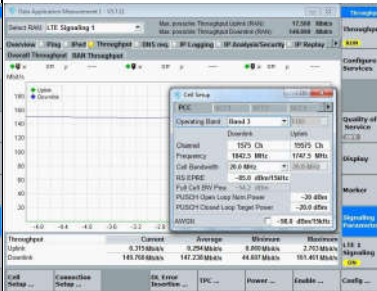
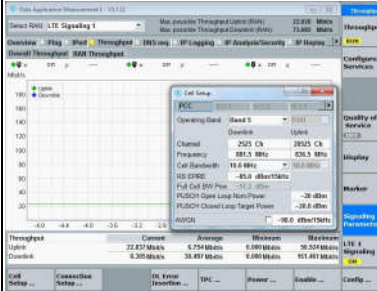
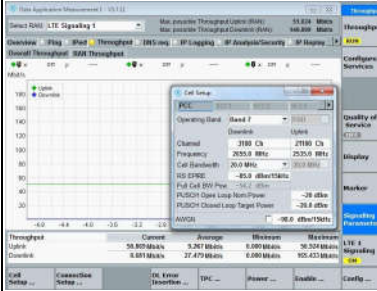
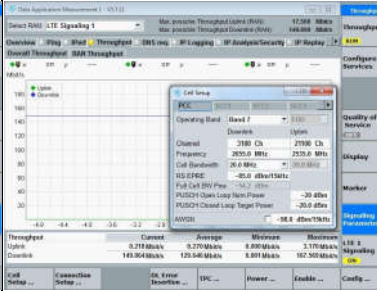
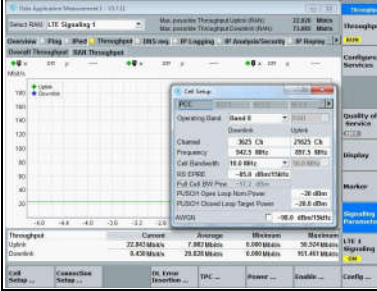
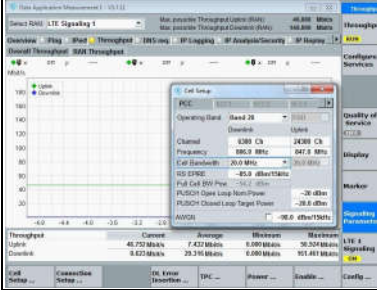
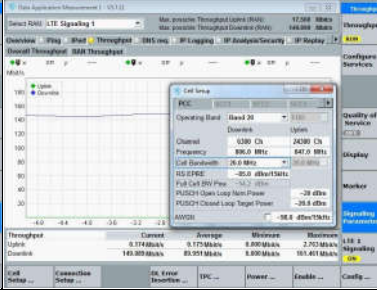
	Band28	20MHz	 50	 149
	Band38	20MHz/Cfg0	 30	 29
	Band38	20MHz/Cfg4	 10	 104
	Band40	20MHz/Cfg0	 30	 29
	Band40	20MHz/Cfg4	 10	 104

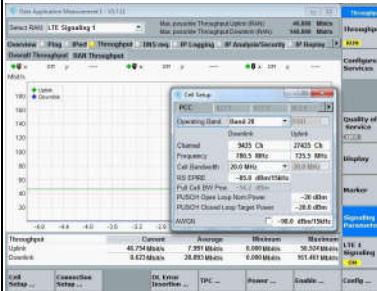
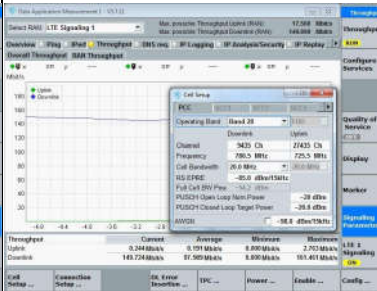
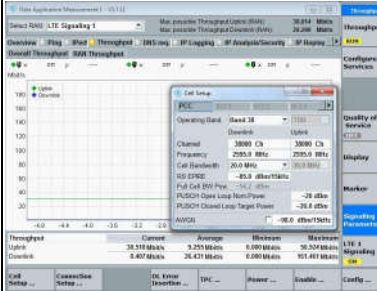
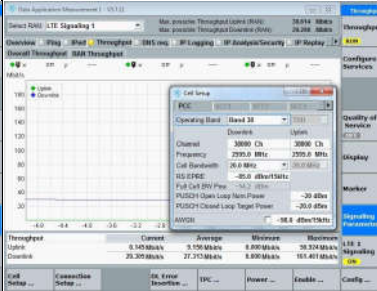
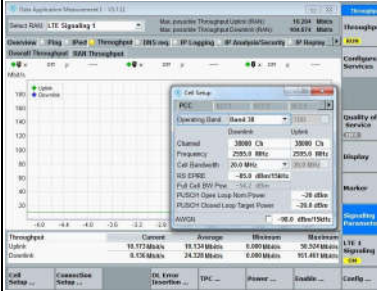
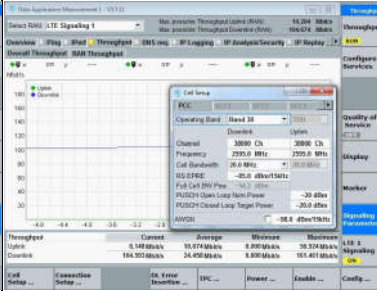
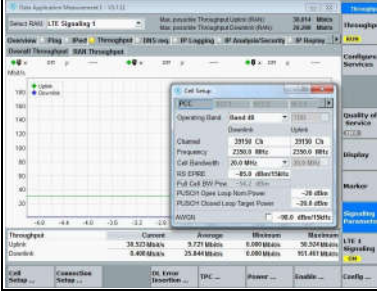
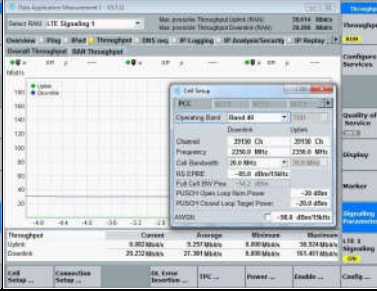
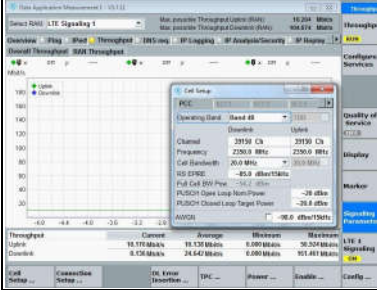
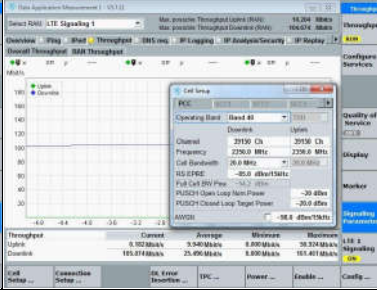
	Band41	20MHz/Cfg0		
			30	29
	Band41	20MHz/Cfg4		
			10	104
	Band42	20MHz/Cfg0		
			30	29
	Band42	20MHz/Cfg4		
			10	104
	Band43	20MHz/Cfg0		
			30	29

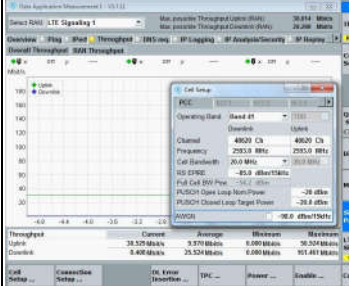
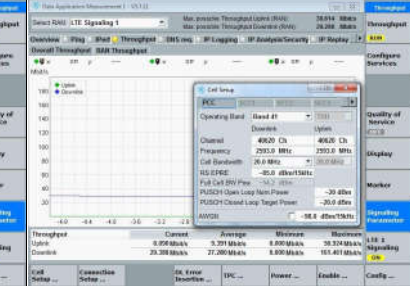
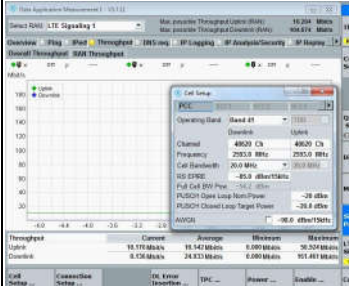
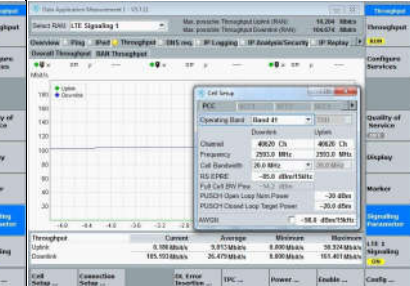
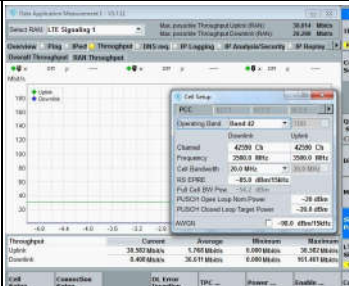
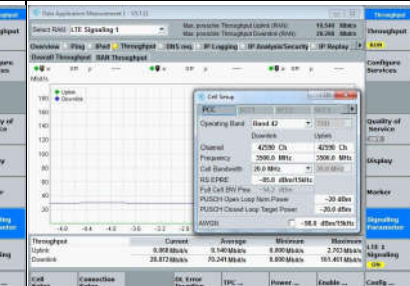
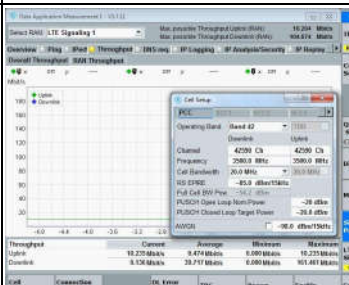
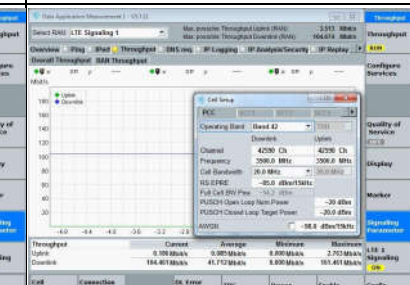
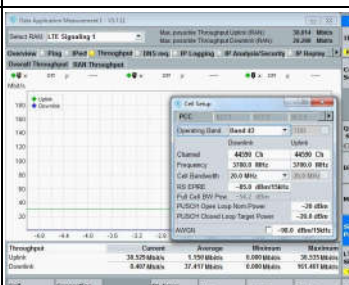
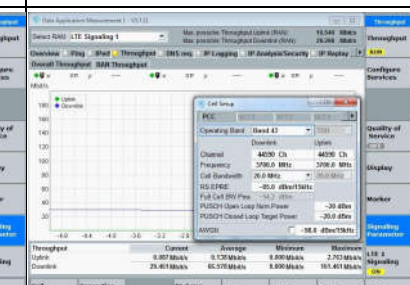
	Band43	20MHz/Cfg4	 10	 104
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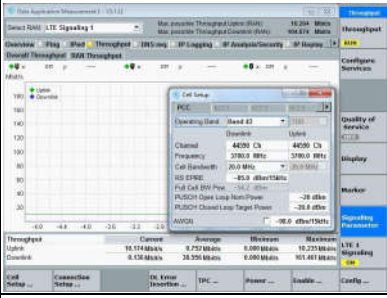
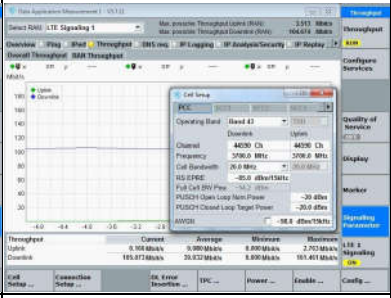
4.6 LTE to WiFi5G

Test Item:	LTE to WIFI5G		
Test Configure:	CMW500、FileZilla-3.44.1、Shield Box		
Test Method:			
Pass Criteria:	RS EPRE= -85dbm	20MHz Uplink(Mbit/s)	20MHz Downlink(Mbit/s)
	FDD 10MHz	23~25	73~75
	FDD 20MHz	45~50	145~150
	TDD Config0 20MHz	25~30	25~30
	TDD Config4 20MHz	9~10	100~105
Test Data:	Band	Bandwidth	
	Band1	20MHz	
			 46
			 148

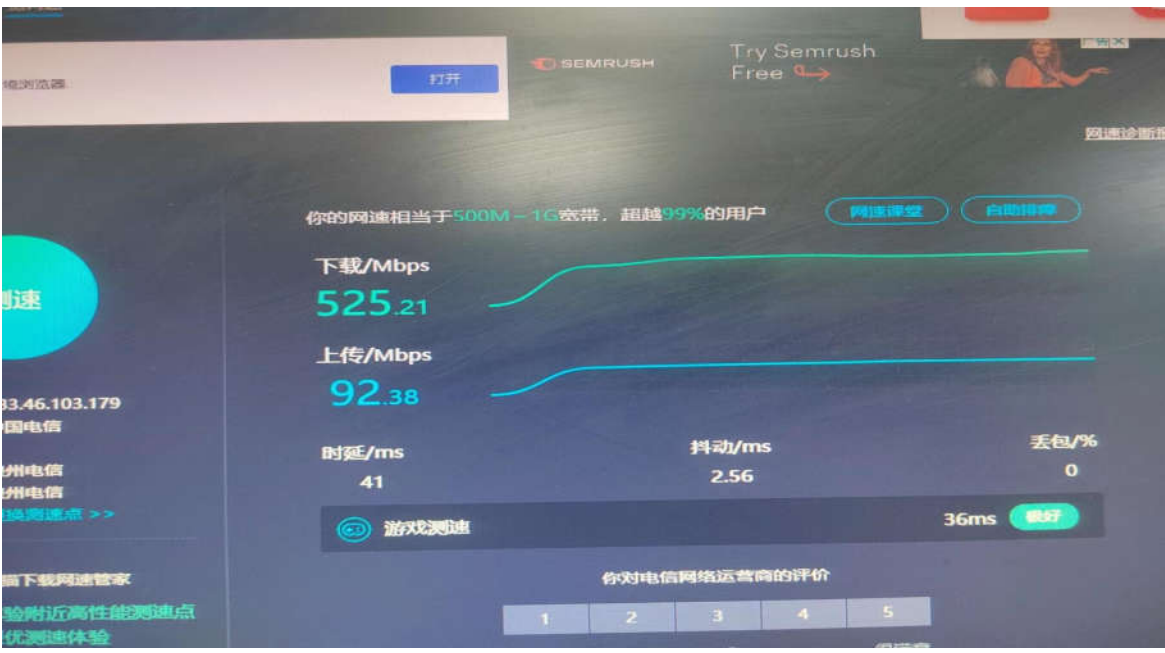
	Band3	20MHz	 46	 149
	Band5	10MHz	 25	 73
	Band7	20MHz	 50	 149
	Band8	10MHz	 25	 72.8
	Band20	20MHz	 46	 149

	Band28	20MHz	 46	 149
	Band38	20MHz/Cfg0	 30	 29
	Band38	20MHz/Cfg4	 10	 104
	Band40	20MHz/Cfg0	 30	 29
	Band40	20MHz/Cfg4	 10	 105

	Band41	20MHz/Cfg0		
			30	29
	Band41	20MHz/Cfg4		
			10	105
	Band42	20MHz/Cfg0		
			30	28
	Band42	20MHz/Cfg4		
			10	104
	Band43	20MHz/Cfg0		
			30	29

	Band43	20MHz/Cfg4		
			10	105

4.7 5G Speedtest

Test Item:	5G Speedtest		
Test Configure:	Browser		
Test Method:	Record the www.speedrtest.cn and test the network speed		
Test Data:		Uplink(Mbit/s)	Downlink(Mbit/s)
	Speedtest	92.38	525.21
Test Picture:			

5. Basic Function Test

5.1 Power on/off

Test Item:	Power on/off			
Test Config:	Time switch machine			
Test Method:	Under normal temperature, Power on-off the DUT, Used button, flashboard button and used insert connection-peg (contain Adapter input and output), at least 5 times.			
Pass Criteria:	The DUT all function must be normal every time.			
Test Data:	Item	Test times	Pass times	Result
	DUT Button	10	10	PASS
	Flashboard button	10	10	PASS
	Connection-peg Adapter input	10	10	PASS

5.2 Button check

Test Item:	Button check		
Test Config:	with the hand		
Test Method:	1.Press each button with the hand. 2.Test the function of each button is normal.		
Pass Criteria:	Test the function of each button is normal.		
Test Data:	Item	Test value	Result
	Reset button	OK	PASS
	WPS button	OK	PASS

5.3 LED status test

Test Item:	LED status test		
Test Config:	Eyes to observe		
Test Method:	Enter the command to turn on all leds,Check to see if they are all turned on.		
Test Data:	LED	Colour	Results
	POWER	Blue	OK

	Internet	Blue	OK
	WIFI 2.4 G	Blue	OK
	WIFI 5.8 G	Blue	OK
	WPS	Blue	OK
	Sighigh	Blue	OK
	Sigmid	Green	OK
	Siglow	Orange	OK
	Phone	Blue	OK
	VOLTE	Green	OK
	4G	Blue	OK
	5G	Blue	OK
	USB	Blue	OK
	WAN	Yellow	OK
	LAN1	Yellow	OK
	LAN2	Yellow	OK
	LAN3	Yellow	OK
	LAN4	Yellow	OK

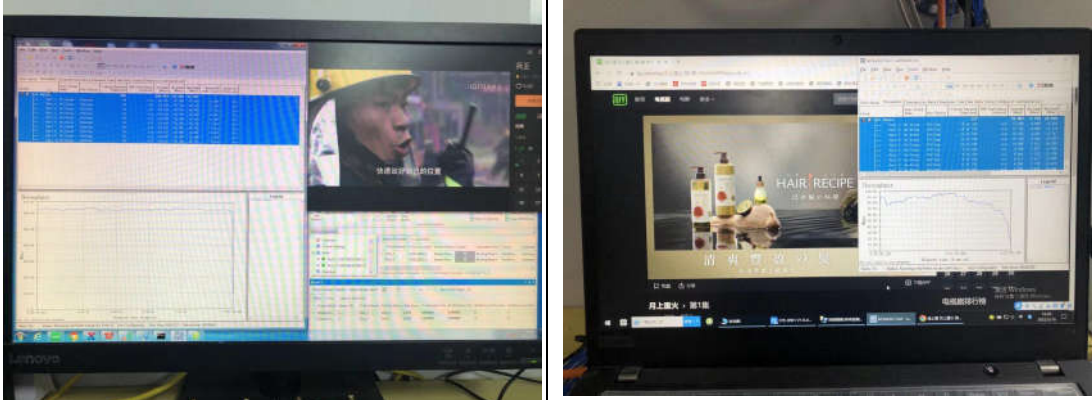
5.4 VOIP

Test Item:	VOIP			
Test Config:	SIP Server、telephone			
Test Method:	1.POTS joins SIP server registration. 2.POTS connects to a telephone and makes and receives calls.			
Pass Criteria:	After POST is connected to the telephone,it has a feed,and the telephone can be picked up for calling.			
Test Data:	Port	Feed	Ring	Quality
	POTS	OK	OK	OK

6. Temperature Test

6.1 Temperature test

Test Item:	Temperature test
Test Config:	Temperature measuring device、Bigtao220、TEMP&HUMI TEST Chamber.
Test Method:	1. The test product must be carried out in a calm or low wind environment.

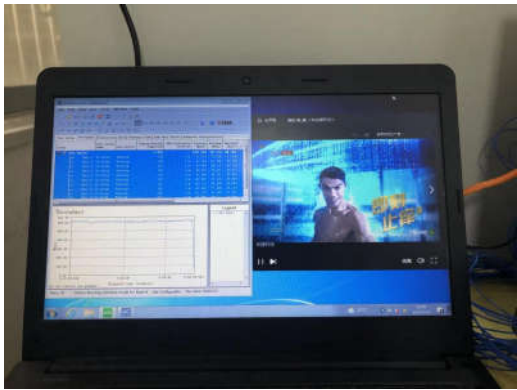
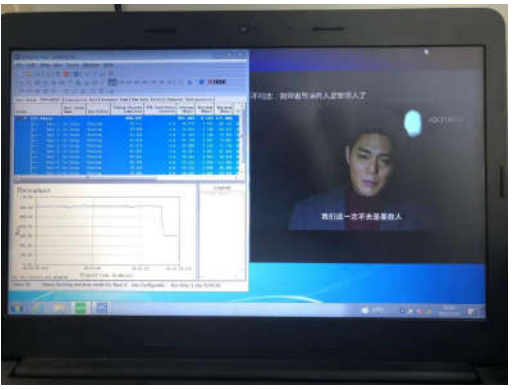
Test Data:	2. DUT is tested under full load. 3. The test points should include key heating elements, heat sensitive elements, user can touch the shell surface, etc 4. Product testing starts after 4 hours of continuous work.				
	No	Location	40°C	Spec	Result
	01	Inner shell 1	66.7	≤85°C	PASS
	02	5G WIFI PA	90~95	≤125°C	PASS
	03	5G Module	76.7	≤100°C	PASS
	04	CPU	83.6	≤125°C	PASS
	05	U3 DDR	87	≤125°C	PASS
	06	U404 PWR Chip	88.5	≤125°C	PASS
	07	U45 PWR Chip	81.7	≤125°C	PASS
	08	U407 PWR Chip	87	≤125°C	PASS
	09	U648 Voice Chip	70.7	≤100°C	PASS
	10	Y1 Crystal Oscillator	79.1	≤85°C	PASS
	11	U31 PWR Chip	83.8	≤125°C	PASS
	12	Inner shell 2	64.2	≤85°C	PASS
	13	Outer Shell 1	50.3	ΔT≤25°C	PASS
	14	Outer Shell 2	50.4	ΔT≤25°C	PASS
	15	Outer Shell 3	50.2	ΔT≤25°C	PASS
	16	Outer Shell 4	50.1	ΔT≤25°C	PASS
	17	Bottom case	44.6	ΔT≤25°C	PASS
	18	Epitheca	60.3	ΔT≤25°C	PASS
Environment					
					
Temperature record					

		
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7. Environmental Reliability

7.1 Operation Dry Heat Testing

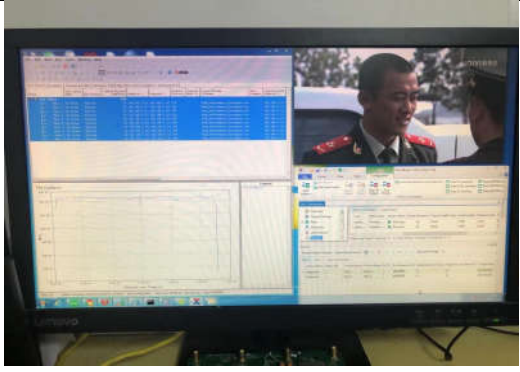
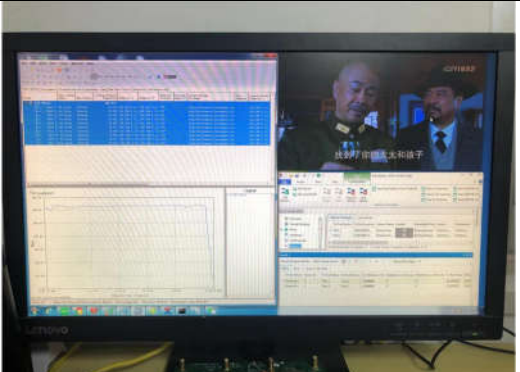
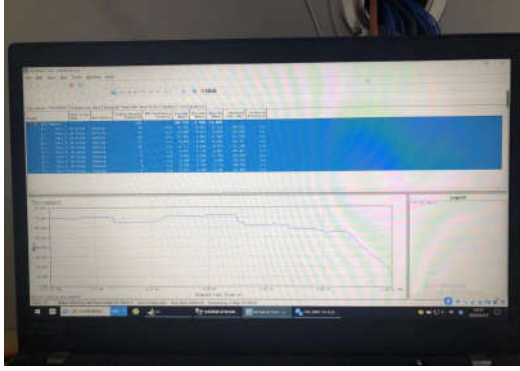
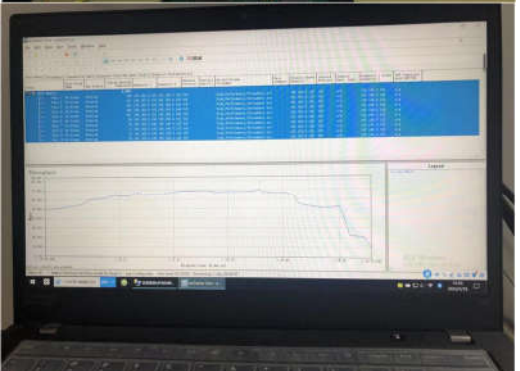
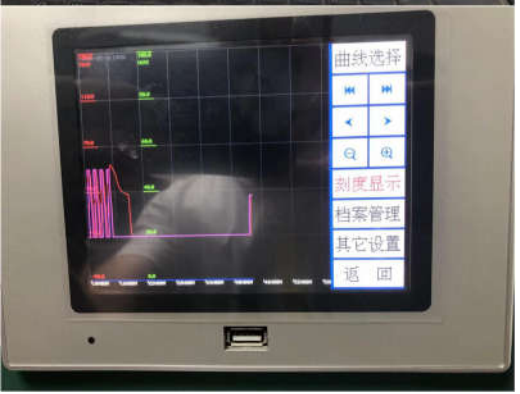
Test Item:	Operation Dry Heat Testing											
Test Config:	Bigtao220、 TEMP&HUMI TEST Chamber											
Test Method:	Take at least one UNIT-DUT into thermal chamber and set up in full loaded operation modes. Conduct a high temperature (THigh) with relative humidity ≤ 50% for one cycle. UNIT-DUT performance shall be monitored throughout test. Definition of the temperature profile includes high temperature (THigh) with ≤ 50% humidity setting, dwell times and transition time. The dwell time is 48 hours for Enterprise/SMB products and 24 hours for Consumer/SOHO products; transition time is 1 hour from one end to the other. One cycle time is 50 / 26 hours and minimum one cycle are required.											
Test Conditions :	<table><tr><th rowspan="2">Test Description</th><th colspan="3">Condition</th></tr><tr><th>Temperature (°C)</th><th>Humidity (R.H)</th><th>Dwell Temp. (Hours)</th></tr><tr><td>Dry Heat Test</td><td>T_{High}</td><td>≤50%</td><td>48 / 24</td></tr></table>	Test Description	Condition			Temperature (°C)	Humidity (R.H)	Dwell Temp. (Hours)	Dry Heat Test	T _{High}	≤50%	48 / 24
Test Description	Condition											
	Temperature (°C)	Humidity (R.H)	Dwell Temp. (Hours)									
Dry Heat Test	T _{High}	≤50%	48 / 24									

Test Picture:						
						
Result:	WIFI		ETH		USB	
	PASS		PASS		PASS	
	Structure		Module		Phone	
	PASS		PASS		PASS	

7.2 Operation Low Temperature (Cold) Testing

Test Item:	Operation Low Temperature (Cold) Testing
Test Config:	Bigtao220、TEMP&HUMI TEST Chamber
Test Method:	Take at least one UNIT-DUT into thermal chamber and set up in full loaded operation modes. Conduct a low temperature (TLow) without relative humidity for one cycle. UNIT-DUT performance shall be monitored throughout test. Definition of the temperature profile includes low temperature (TLow) without humidity setting, dwell times and transition time. The dwell time is 48 hours for Enterprise/SMB products and 24 hours for Consumer/SOHO products; transition time is 1 hour from one end to the other. One cycle time is 50 / 26 hours and minimum one cycle are required.

	Condition			
	Test Description	Temperature (°C)	Humidity (R.H)	Dwell Time (Hours)
Test Conditions:	Cold Test	T _{Low}	No concern	48 / 24
	Temperature (°C) 25 T_{Low} Operation Mode R.H. no concern Time (Hours) 0.5 1 48 / 24 1 0.5 Total 50 / 26 hours			
Pass Criteria:	During the test, the business operation was normal and the electrical performance was normal.Business interruption and loss cannot occur during operation.			
	Before the test		After the test	
	TEMP & HUMI Programmable Control TEMP 27.98 SV: -10.00 HW: 0.0 湿度 湿度 SV: OFF 启动 保持 暂停 停止		TEMP & HUMI Programmable Control 温度 25.09 SV: -10.00 湿度 湿度 SV: OFF 取消 确定 启动	

Test Picture:			
			
			
Result:			
			
			
Result:	WIFI	ETH	USB
	PASS	PASS	PASS
	Structure	Module	Phone
	PASS	PASS	PASS

7.3 Operation Temperature Cycle Testing

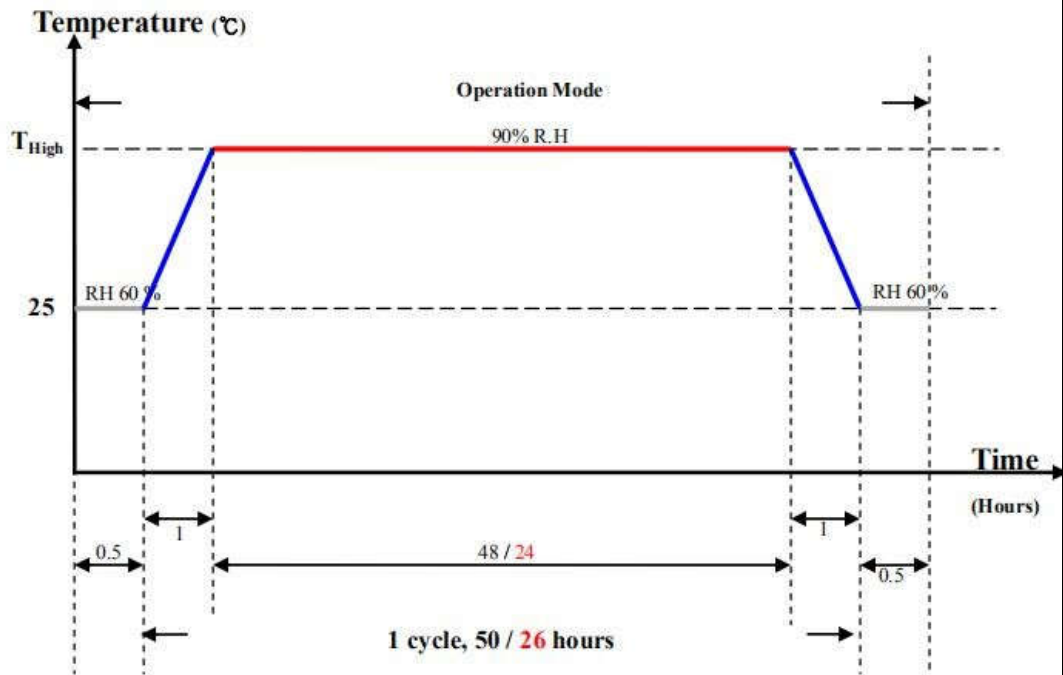
Test Item:	Operation Temperature Cycle Testing
Test Config:	Bigtao220、TEMP&HUMI TEST Chamber
Test Method:	Take at least one UNIT-DUT into thermal chamber and set up in full loaded operating modes. Conduct a change of temperature for 20 cycles. UNIT-DUT performance shall be monitored throughout test. Definition of the temperature profile includes low temperature (TLow), high temperature (THigh) without humidity setting, dwell times and transition time.

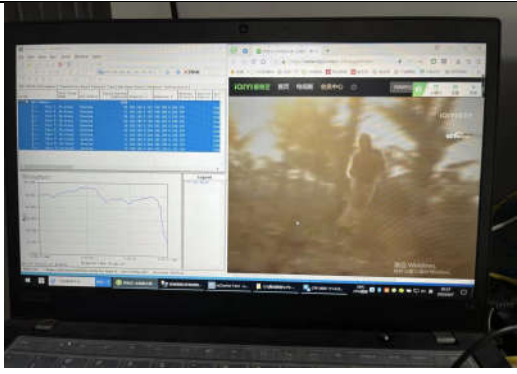
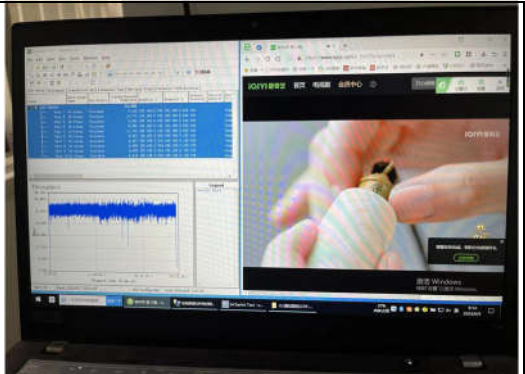
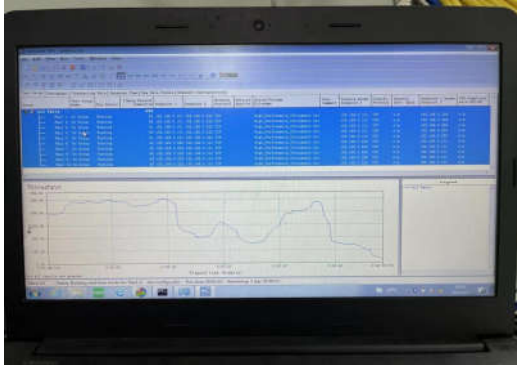
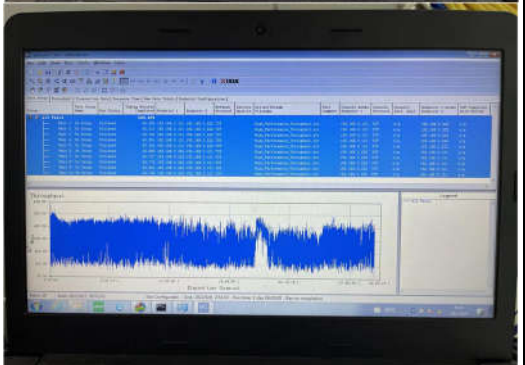
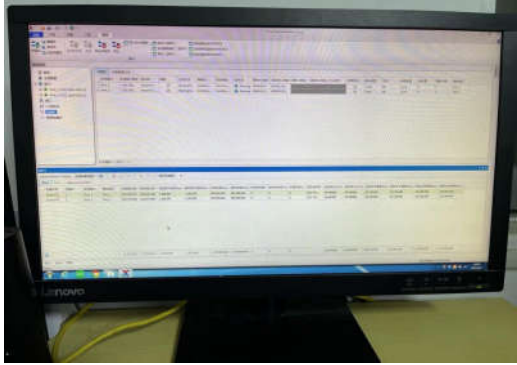
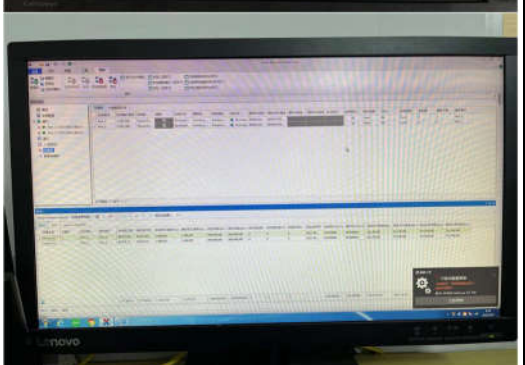
	The dwell time is 15 minutes each condition, transition time is one hour from one end to the other. One cycle time is 2.5 hours and minimum 20 cycles for Enterprise/SMB Products and 10 cycles for Consumer/SOHO products are required.															
Test Conditions :	<table border="1"><thead><tr><th rowspan="2">Test Description</th><th colspan="3">Condition</th></tr><tr><th>Temperature (°C)</th><th>Humidity (R.H.)</th><th>Dwell Time. (Minutes)</th></tr></thead><tbody><tr><td rowspan="2">High / Low Temperature Cycle</td><td>T_{High}</td><td>No concern</td><td>15</td></tr><tr><td>T_{Low}</td><td>No concern</td><td>15</td></tr></tbody></table>		Test Description	Condition			Temperature (°C)	Humidity (R.H.)	Dwell Time. (Minutes)	High / Low Temperature Cycle	T _{High}	No concern	15	T _{Low}	No concern	15
	Test Description	Condition														
Temperature (°C)		Humidity (R.H.)	Dwell Time. (Minutes)													
High / Low Temperature Cycle	T _{High}	No concern	15													
	T _{Low}	No concern	15													
Pass Criteria:	During the test, the business operation was normal and the electrical performance was normal.Business interruption and loss cannot occur during operation.															
	Before the test	After the test														

Test Picture:			
Result:	WIFI	ETH	USB
	PASS	PASS	PASS
	Structure	Module	Phone
	PASS	PASS	PASS

7.4 Operation Damp Heat Testing

Test Item:	Operation Damp Heat Testing
Test Config:	Bigtao220、TEMP&HUMI TEST Chamber
Test Method:	Take at least one UNIT-DUT into thermal chamber and set up in full loaded operation modes. Conduct a high temperature (THigh) with high relative humidity for one cycle. UNIT-DUT performance shall be monitored throughout test. Definition of the temperature profile includes high temperature (THigh) with high humidity (90%) setting, dwell times and transition time. The dwell time is 48 hours for Enterprise/SMB products and 24 hours for

	Consumer/SOHO products; transition time is one hour from one end to the other. One cycle time is 50 / 26 hours and minimum one cycle are required.														
Test Conditions:	<table><tr><th rowspan="2">Test Description</th><th colspan="3">Cndition</th></tr><tr><th>Temperature (°C)</th><th>Humidity (R.H)</th><th>Dwell Time (Hours)</th></tr><tr><td>Damp Heat Test</td><td>T_{High}</td><td>90%</td><td>48 / 24</td></tr></table>				Test Description	Cndition			Temperature (°C)	Humidity (R.H)	Dwell Time (Hours)	Damp Heat Test	T _{High}	90%	48 / 24
	Test Description	Cndition													
Temperature (°C)		Humidity (R.H)	Dwell Time (Hours)												
Damp Heat Test	T _{High}	90%	48 / 24												
															
Pass Criteria:	During the test, the business operation was normal and the electrical performance was normal.Business interruption and loss cannot occur during operation.														
	Before the test		After the test												
															

Test Picture:						
						
						
Result:	WIFI		ETH		USB	
	PASS		PASS		PASS	
	Structure		Module		Phone	
	PASS		PASS		PASS	

7.5 Storge Testing

Test Item:	Storge Testing
Test Config:	Bigtao220、TEMP&HUMI TEST Chamber
	The test put a CARTON-DUT into thermal chamber then conducting a series of climate conditions for 8 hours (Consumer/SOHO products). Cosmetic inspection and functional verification shall be conducted then for all Unit, Gift-box and Carton. There are three climate conditions Low temperature High temperature with low humidity High temperature with high humidity

Test Method:	The humidity condition is not quite critical at low temperature due to the nature of climate. In contrast, at high temperature we have to seriously consider it at low (50%) and high (90%) relative humidity. As the nature of climate the high temperature is set to 40°C at high relative humidity condition per D-Link requirement. It is expected that each test can be conducted and inspected separately, but consider to shorten test time usually they can be conducted in series and inspected in once.																					
Test Conditions :	<table border="1"> <thead> <tr> <th rowspan="2">Test Description</th><th colspan="3">Condition</th></tr> <tr> <th>Temperature (°C)</th><th>Humidity (R.H)</th><th>Dwell Time. (Hours)</th></tr> </thead> <tbody> <tr> <td>Low Temperature</td><td><u>T_{Low}</u></td><td>≤5%</td><td>8</td></tr> <tr> <td>High Temperature/Low Humidity</td><td><u>T_{High}</u></td><td>50%</td><td>8</td></tr> <tr> <td>High Temperature/High Humidity</td><td>40</td><td>90%</td><td>8</td></tr> </tbody> </table> 			Test Description	Condition			Temperature (°C)	Humidity (R.H)	Dwell Time. (Hours)	Low Temperature	<u>T_{Low}</u>	≤5%	8	High Temperature/Low Humidity	<u>T_{High}</u>	50%	8	High Temperature/High Humidity	40	90%	8
Test Description	Condition																					
	Temperature (°C)	Humidity (R.H)	Dwell Time. (Hours)																			
Low Temperature	<u>T_{Low}</u>	≤5%	8																			
High Temperature/Low Humidity	<u>T_{High}</u>	50%	8																			
High Temperature/High Humidity	40	90%	8																			
Pass Criteria:	The index parameters before and after the test are qualified without obvious deviation, and the function is normal. Machine appearance and structure are normal.																					
	Before the test:	After the test:																				

Test Picture:			
Result:			
Result:	WIFI	ETH	USB
	PASS	PASS	PASS
	Structure	Module	Phone
	PASS	PASS	PASS

7.6 Low temperature start

Test Item:	Low temperature start													
Test Config:	adapter、TEMP&HUMI TEST Chamber													
Test Method:	The test put a CARTON-DUT into thermal chamber , temperature to -10°C , DUT cooling after half an hour. Cycle for three tests.													
Test Conditions:	<table border="1"> <thead> <tr> <th rowspan="2">Test Description</th><th colspan="3">Condition</th></tr> <tr> <th>Temperature (°C)</th><th>Humidity (R.H)</th><th>Dwell Temp. (Hours)</th></tr> </thead> <tbody> <tr> <td>Low temperature start</td><td>T_{Low}</td><td>No concern</td><td>0.5</td></tr> </tbody> </table>			Test Description	Condition			Temperature (°C)	Humidity (R.H)	Dwell Temp. (Hours)	Low temperature start	T_{Low}	No concern	0.5
Test Description	Condition													
	Temperature (°C)	Humidity (R.H)	Dwell Temp. (Hours)											
Low temperature start	T_{Low}	No concern	0.5											
Pass Criteria:	The DUT can start on normally after cooling													
Test Result:														
Results:	The DUT can start normally at the -10°C temperature													