RAK47X Wi-Fi Module

Communication RangeTest ReportV1.2

Shenzhen RAK Wireless Techonology Co., Ltd
www.rakwireless.com
info@rakwireless.com

Contents

1. Main Test Items

Excel1-1 Main test items :

Surroundings	Antenna Type	Mode of the wifi module	Test item description
Open area	PCB on board antenna	STA Mode	TCP Communication receiving rate
			TCP Communication sending rate

Excel 1-2 Main test items :

Surroundings	Antenna Type	Wifi moduel mode	Test item description
Open area	External antenna	STA mode	TCP Communication receiving rate
			TCP Communication sending rate

External Antenna As Below :

2. Testing methods and environment

2.1 Test methods

RAK47X Module

Note：A is a module board antenna B is a module external antenna

The 473 and 475 module are the same hardware design,476 and 477 module are the same hardware design. So the data can be generic.

Methods:

RAK47X Module within the establishment of two Socket, One of the TCP Sever, The other one is TCP Client. Notebook connected to the router to establish the AP, set to a static IP.

First, RAK47X Module TCP Clite connected to the notebook to use the Jperf software to build the TCP Sever, Then send data, Test module sending speed.

Then, the notebook use the Jperf software to establish the TCP client connection to the module to establish the TCP server, The Notebook to send data to the module, Test module receiving speed.

2.2 Test environment

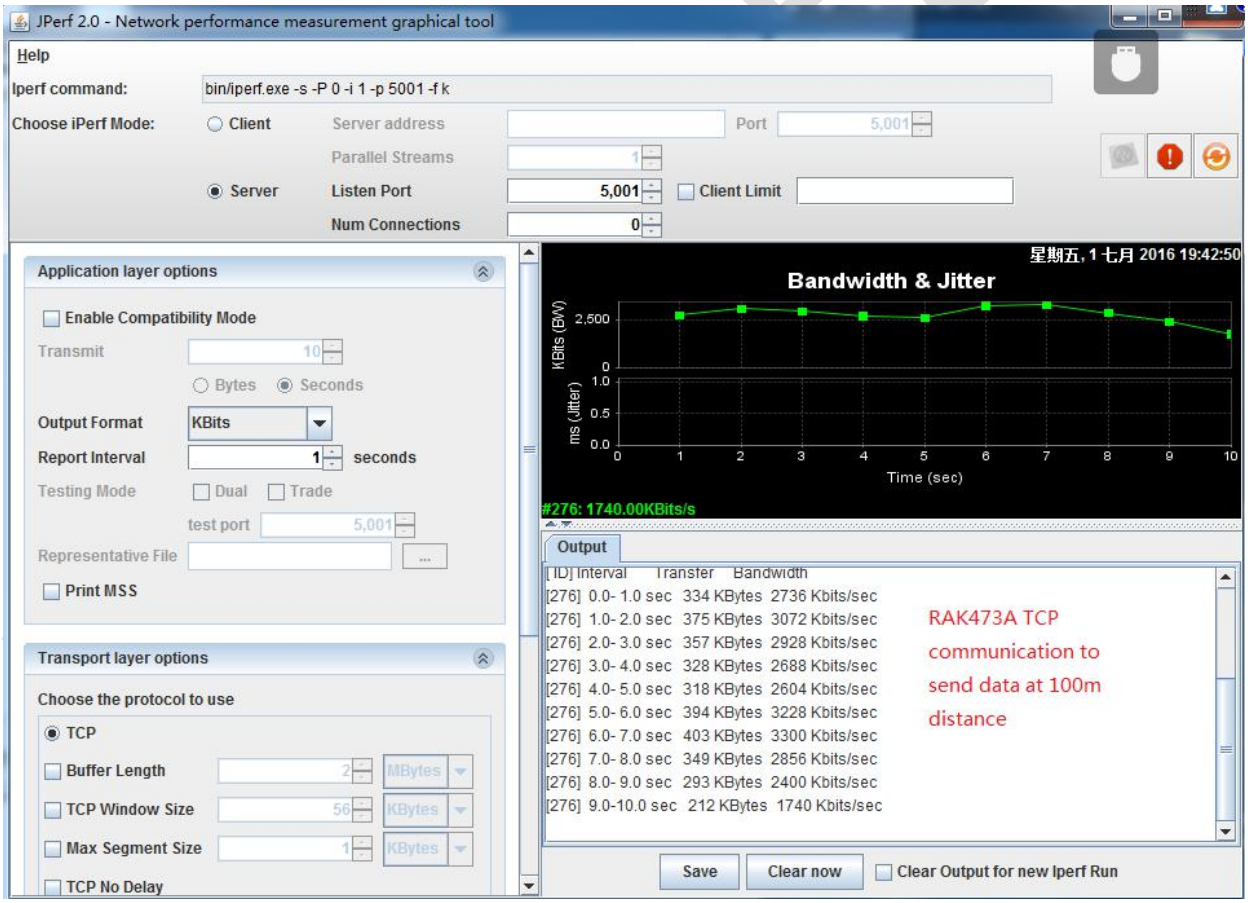
AP Router	Tenda F3	
Security	WPA2	
IP Address	Static IP	192.168.1.103
Power	Battery	Nicjoy, 2800mAh, 12V
Condition	28℃，Sunny day，Open space	01. July. 2016
Notebook	Thinkpad	
Test software	Jperf-2.0	

3. Test Result

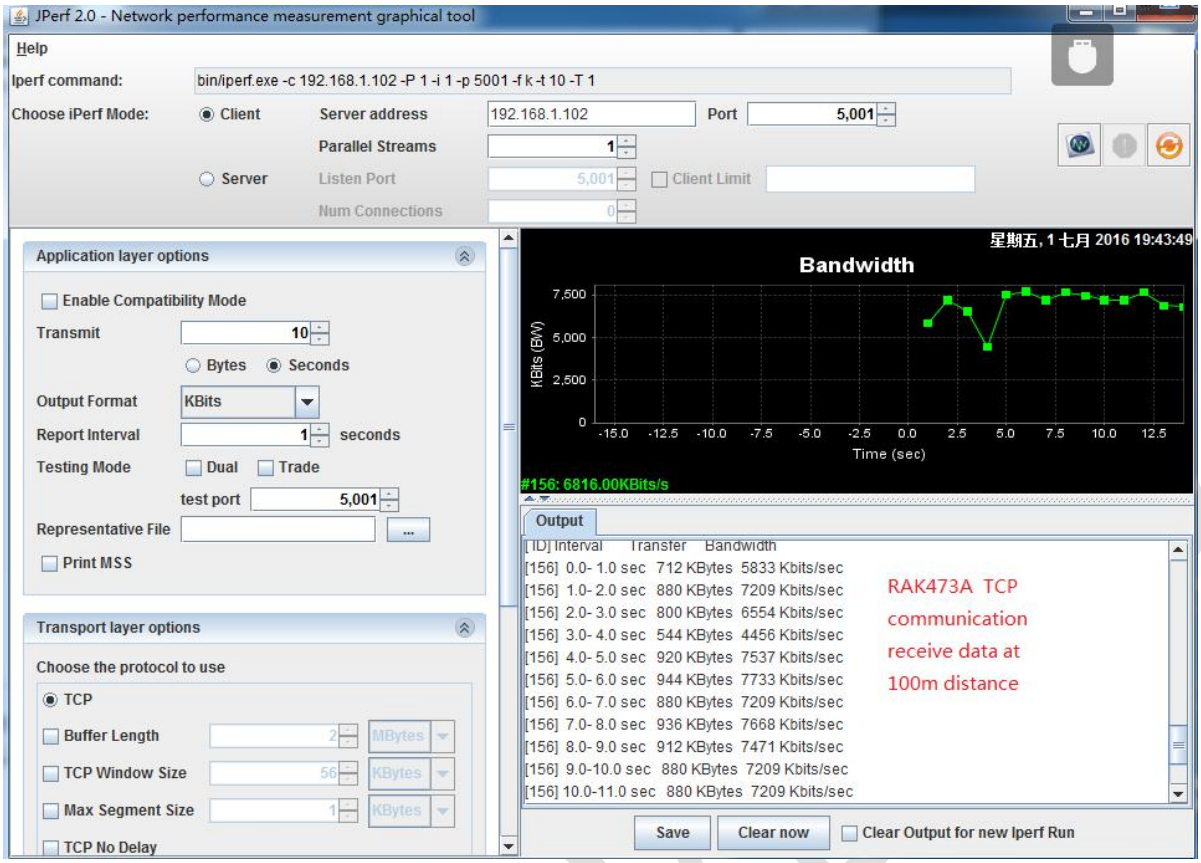
3.1 RAK473A Test Data

module	TCP	Data transmission rate					
		100m	200m	300m	400m	440m	480m
RAK473A	Send	300KB/S	250KB/S	50KB/S	60KB/S	25KB/S	0KB/S
	Receive	900KB/S	700KB/S	200KB/S	100KB/S	120KB/S	30KB/S

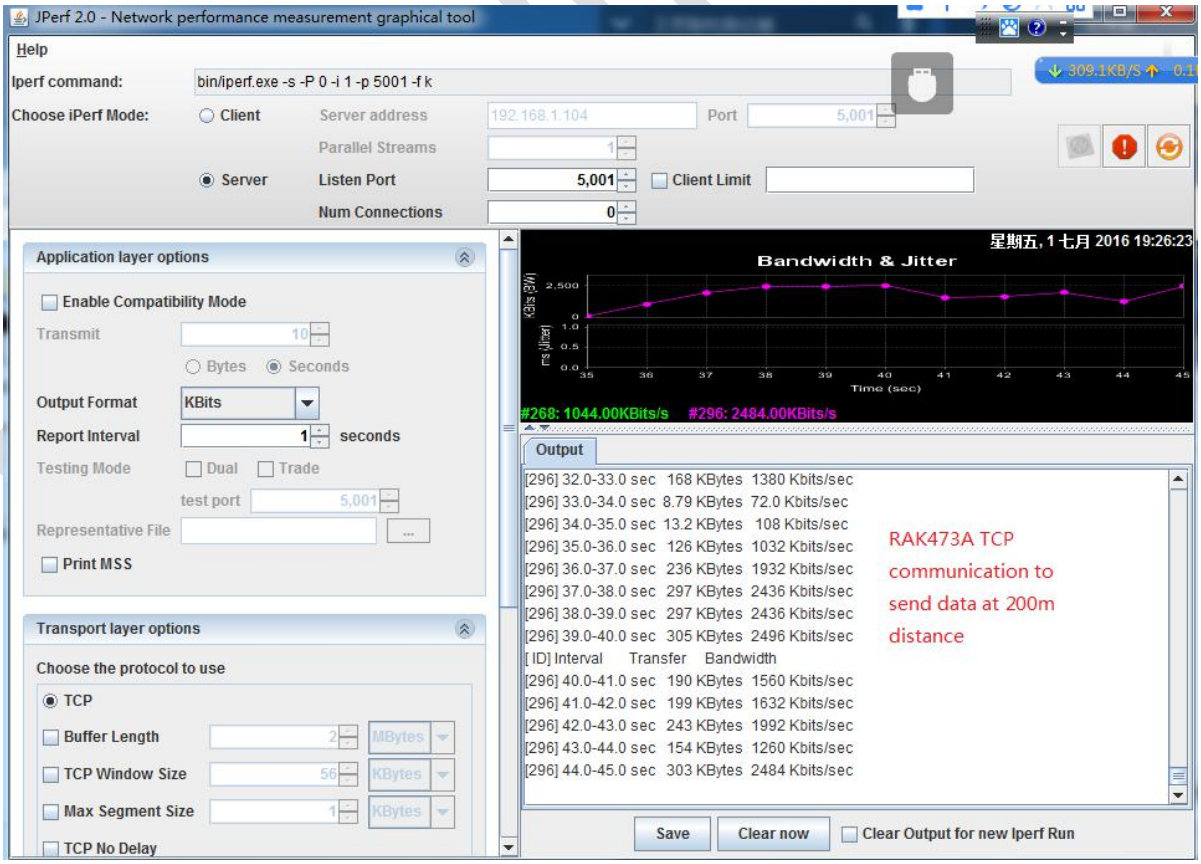
Note：A is a module board antenna



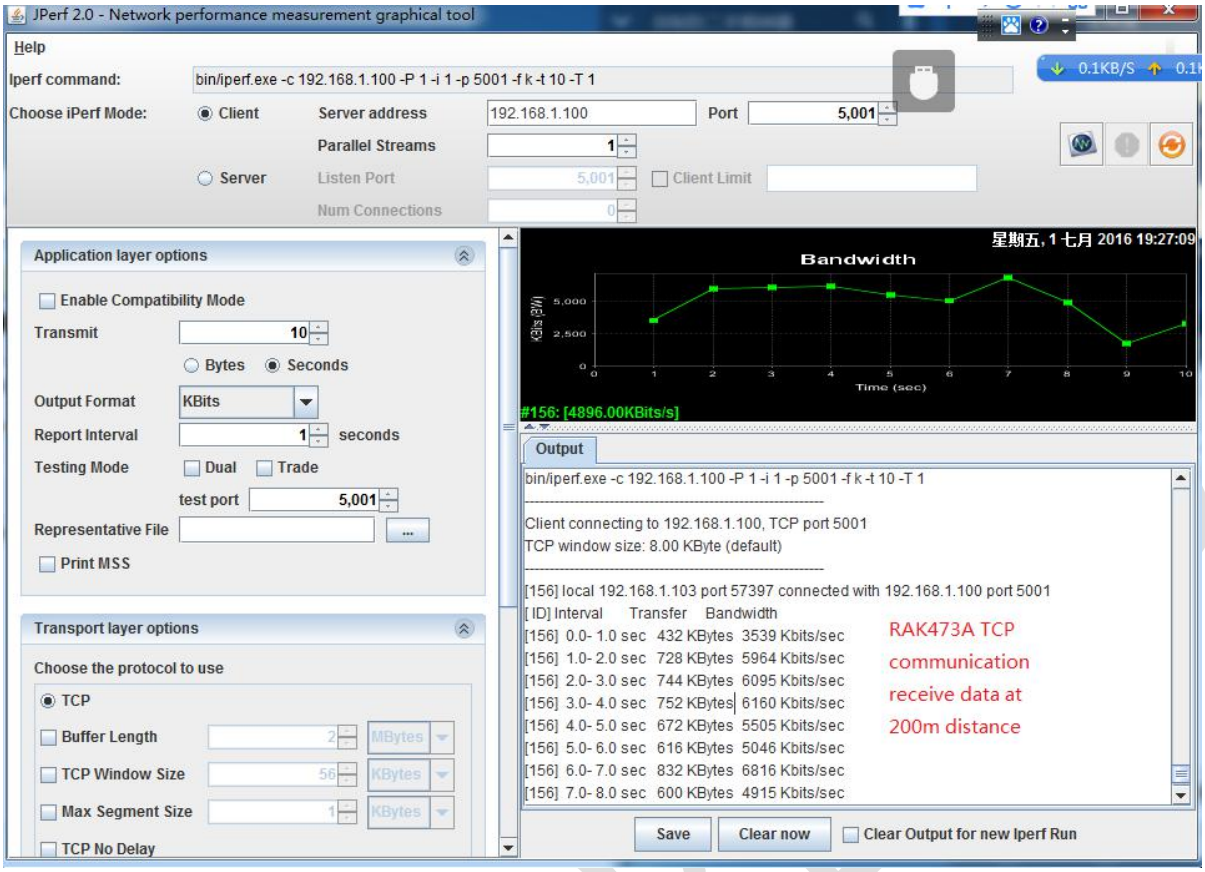
RAK473A TCP communication to send data at 100m distance



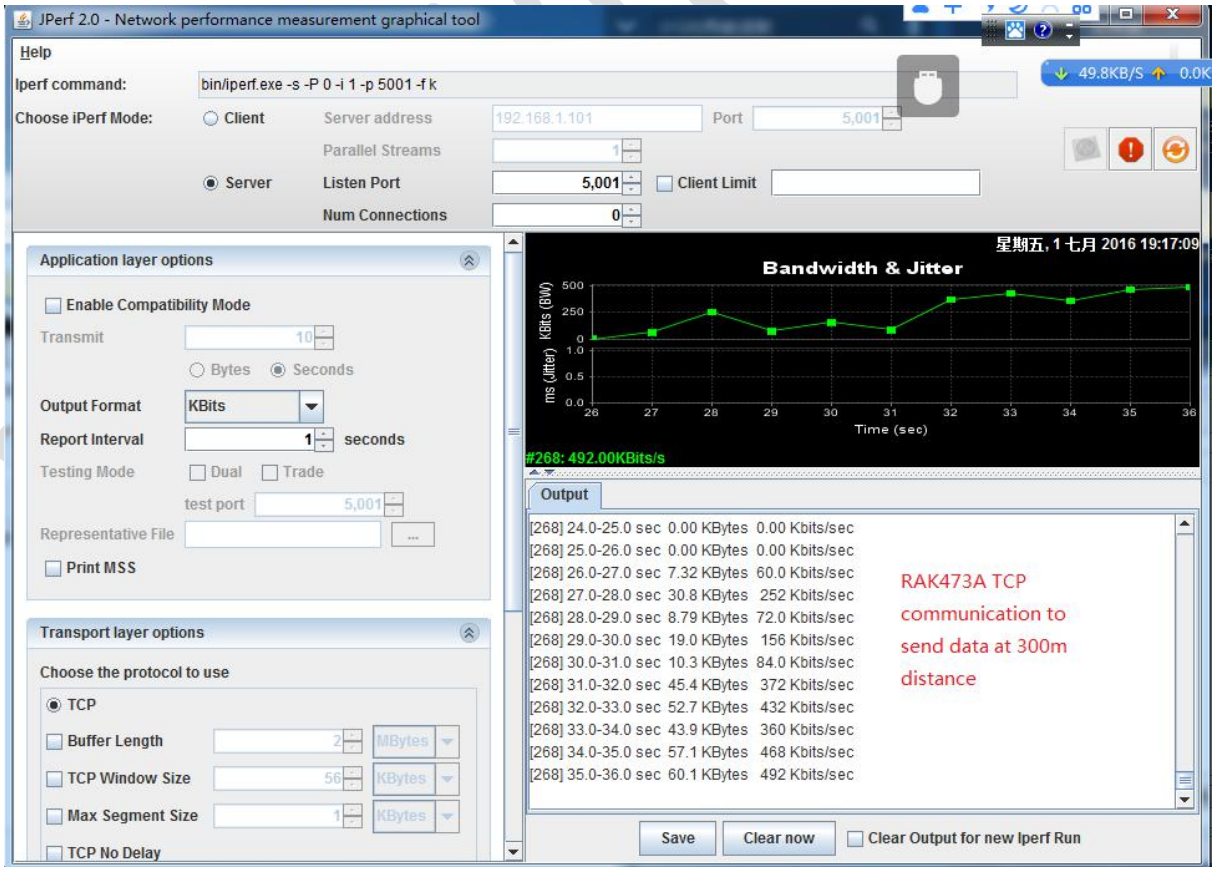
RAK473A TCP communication receive data at 100m distance



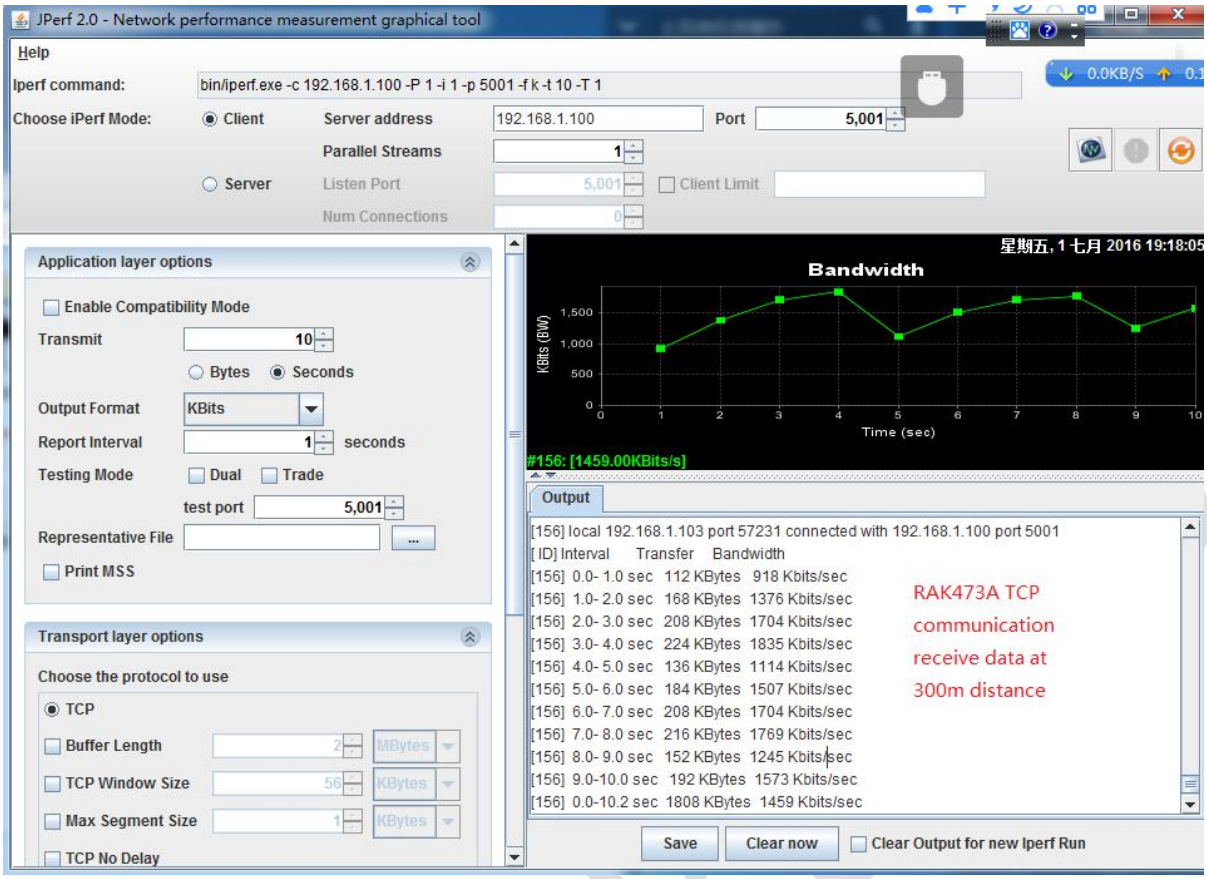
RAK473A TCP communication to send data at 200m distance



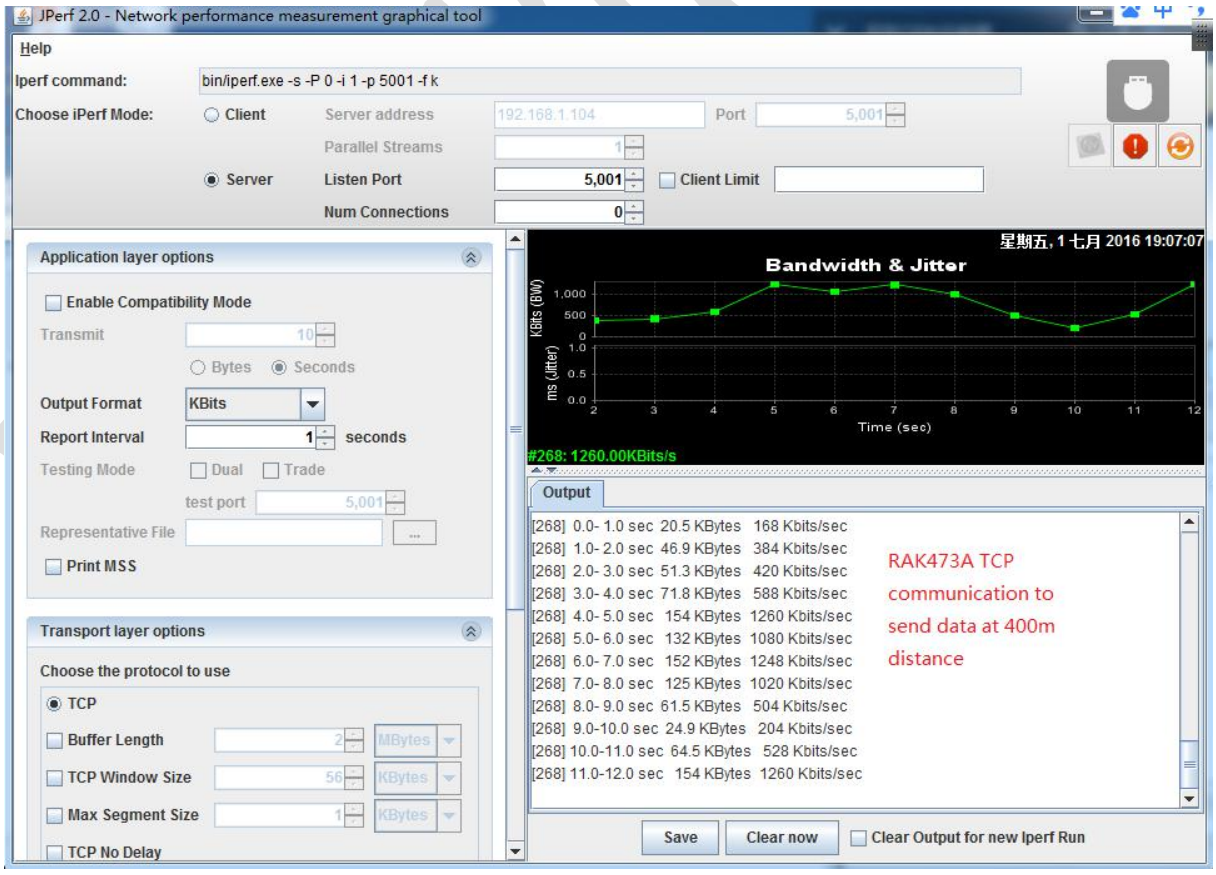
RAK473A TCP communication receive data at 200m distance



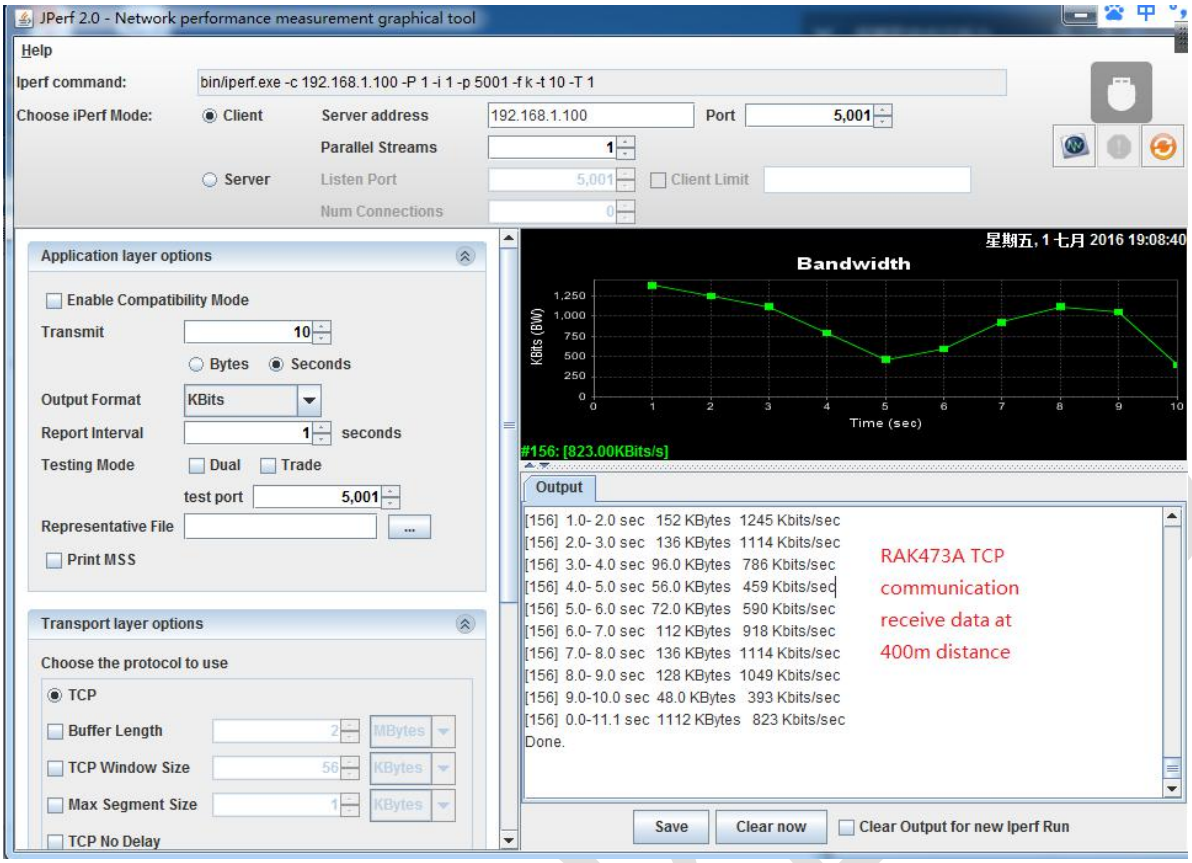
RAK473A TCP communication to send data at 300m distance



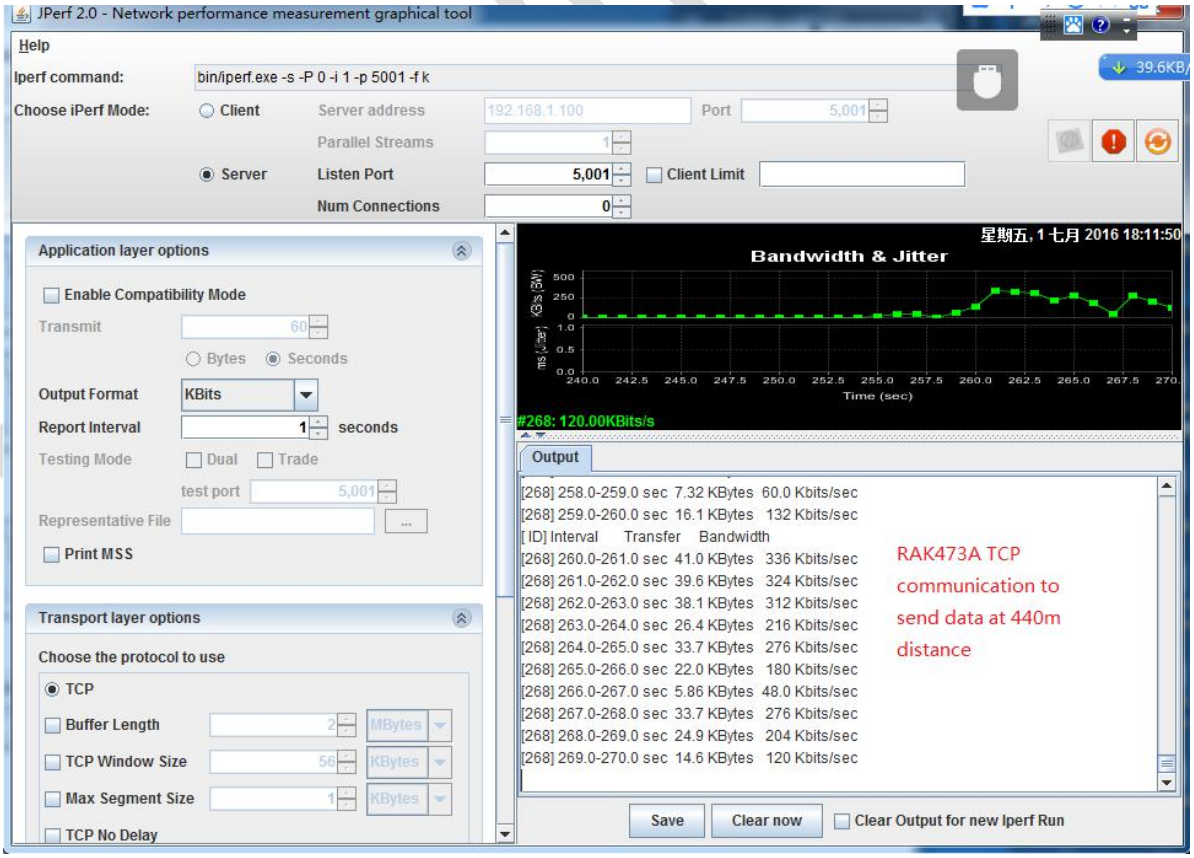
RAK473A TCP communication receive data at 300m distance



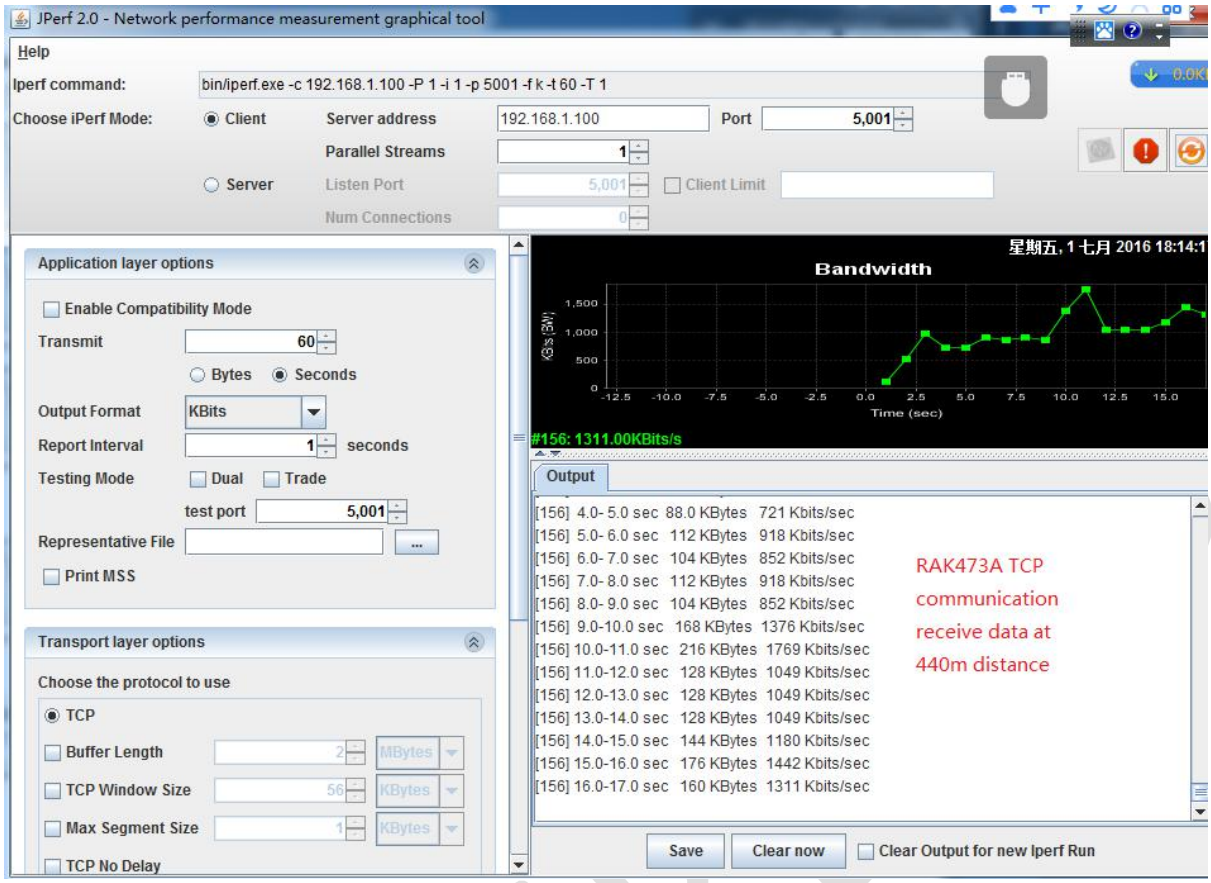
RAK473A TCP communication to send data at 400m distance



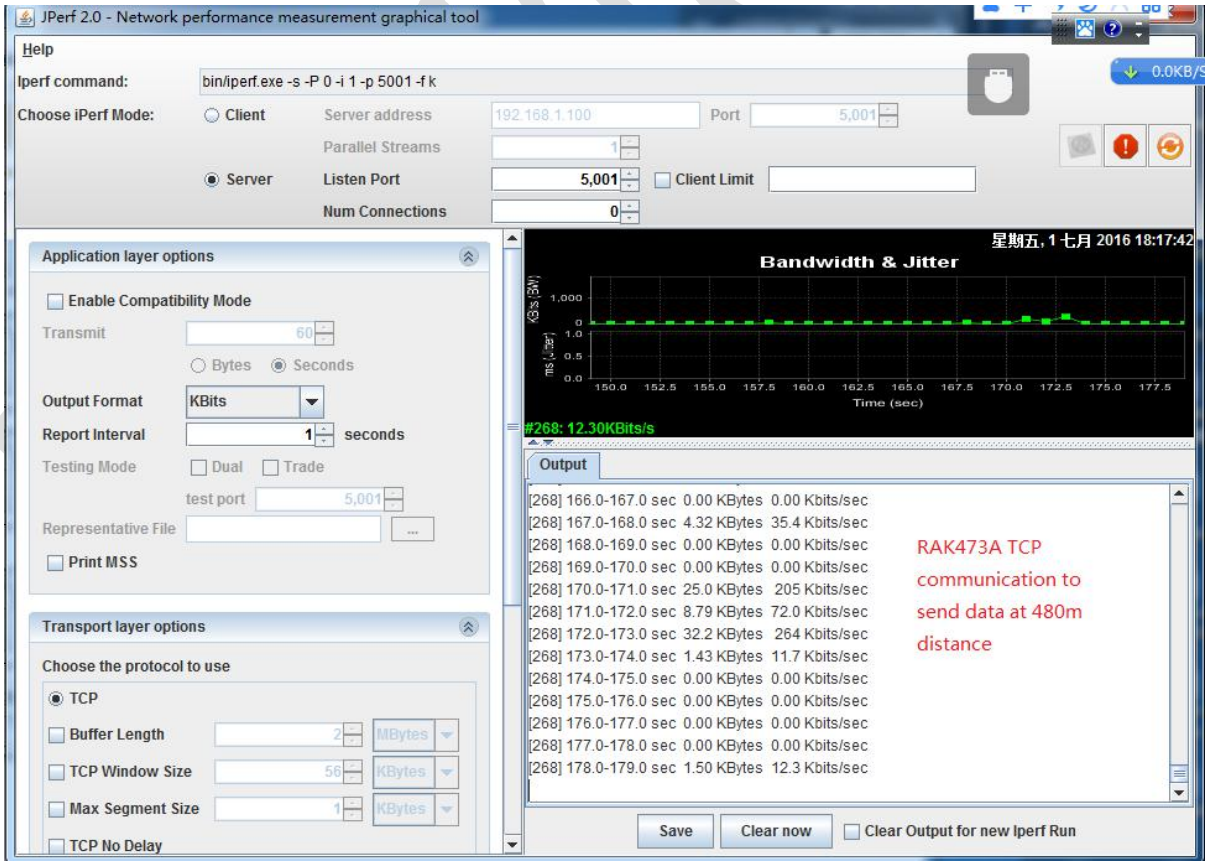
RAK473A TCP communication receive data at 400m distance



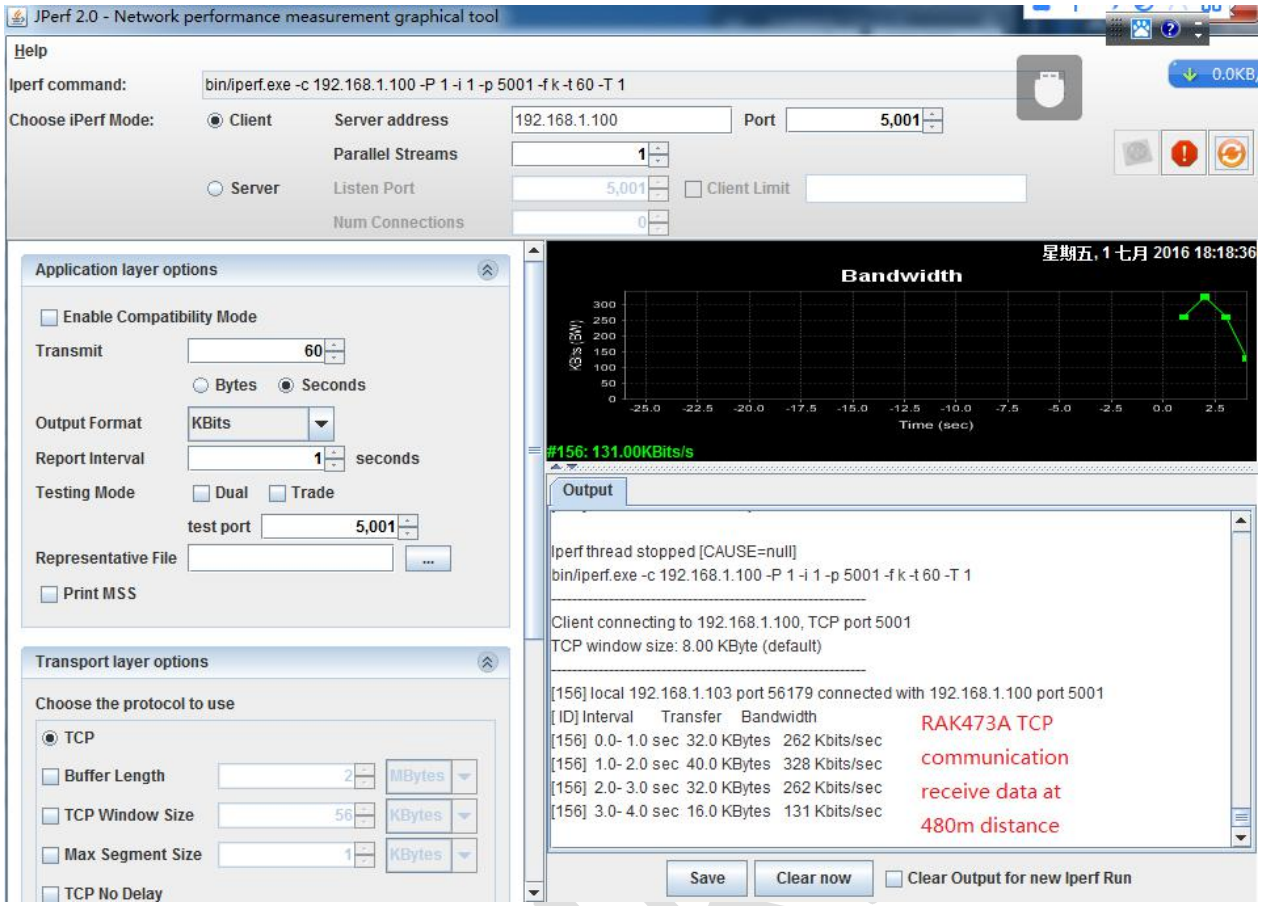
RAK473A TCP communication to send data at 440m distance



RAK473A TCP communication receive data at 440m distance



RAK473A TCP communication to send data at 480m distance

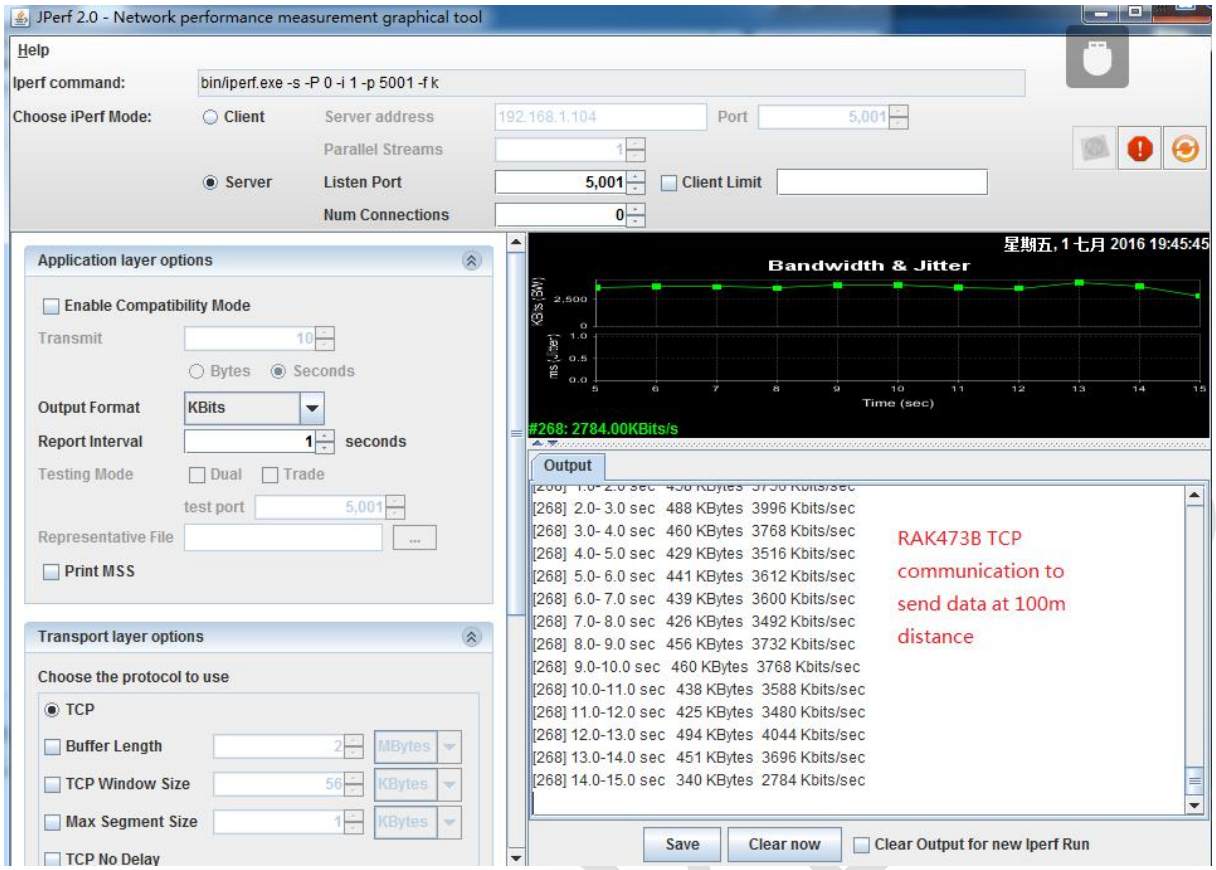


RAK473A TCP communication receive data at 480m distance

3.2 RAK473B Test Data

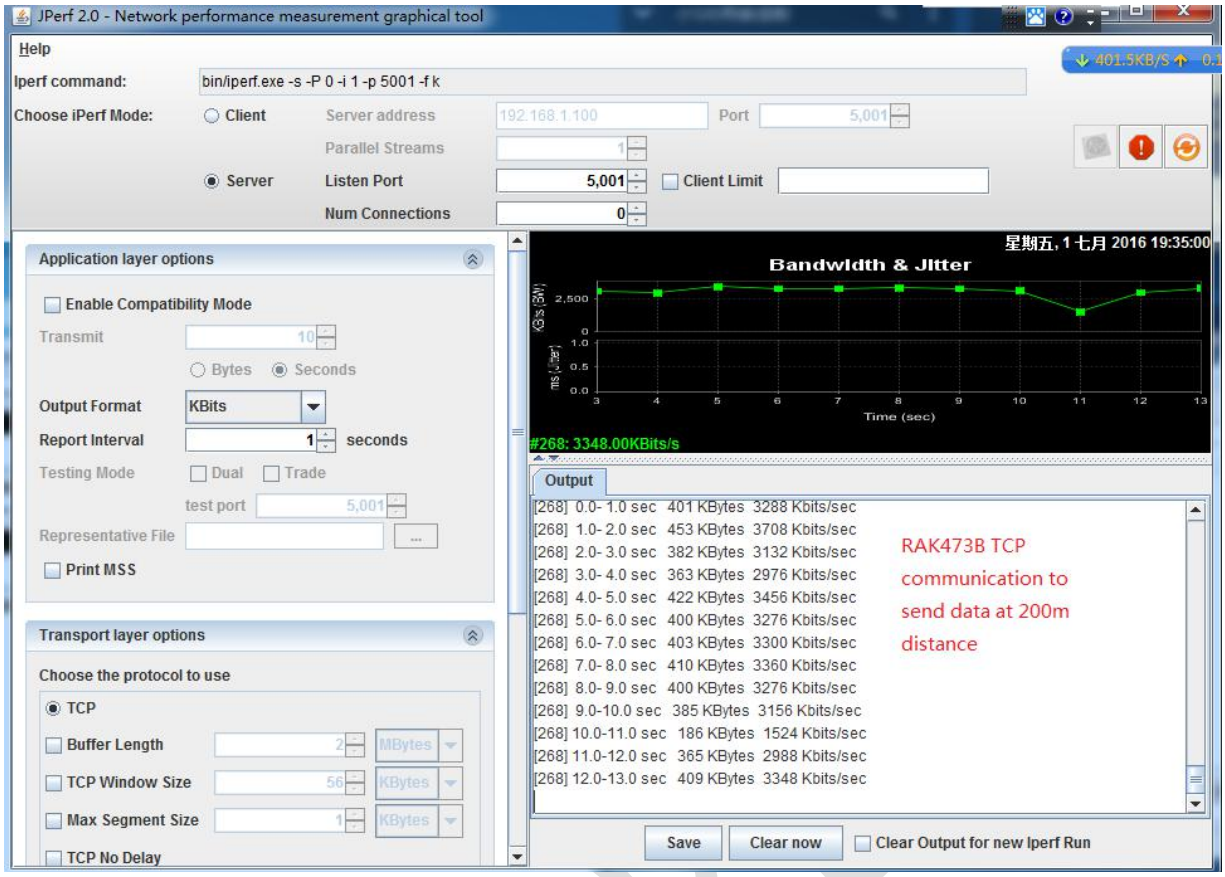
module	TCP	Data transmission rate						
		100m	200m	300m	400m	480m	490m	520m
RAK473B	Send	450KB/S	400KB/S	180KB/S	300KB/S	50KB/S	50KB/S	70KB/S
	Receive	1000KB/S	950KB/S	500KB/S	600KB/S	150KB/S	35KB/S	200KB/S

Note：B is a module external antenna



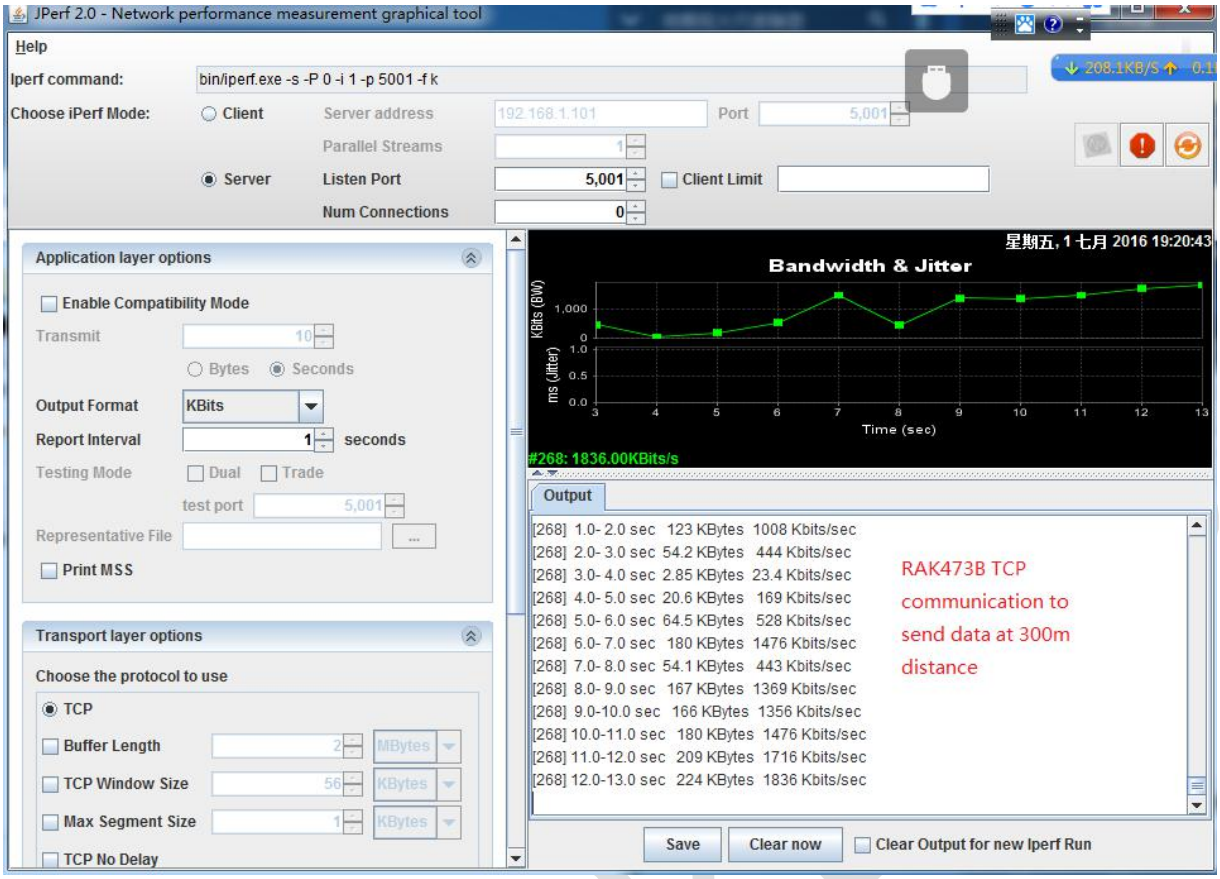
RAK473B TCP communication to send data at 100m distance

RAK473B TCP communication receive data at 100m distance

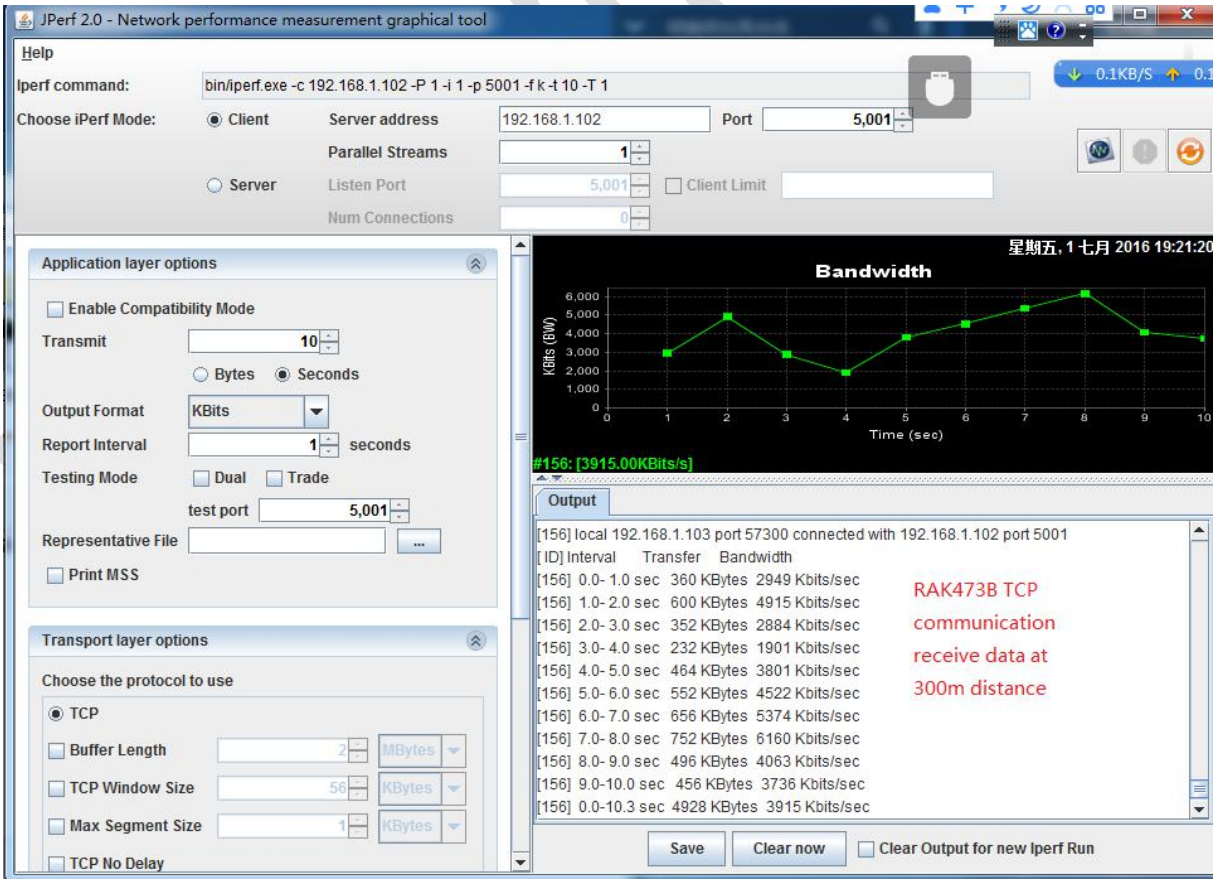


RAK473B TCP communication to send data at 200m distance

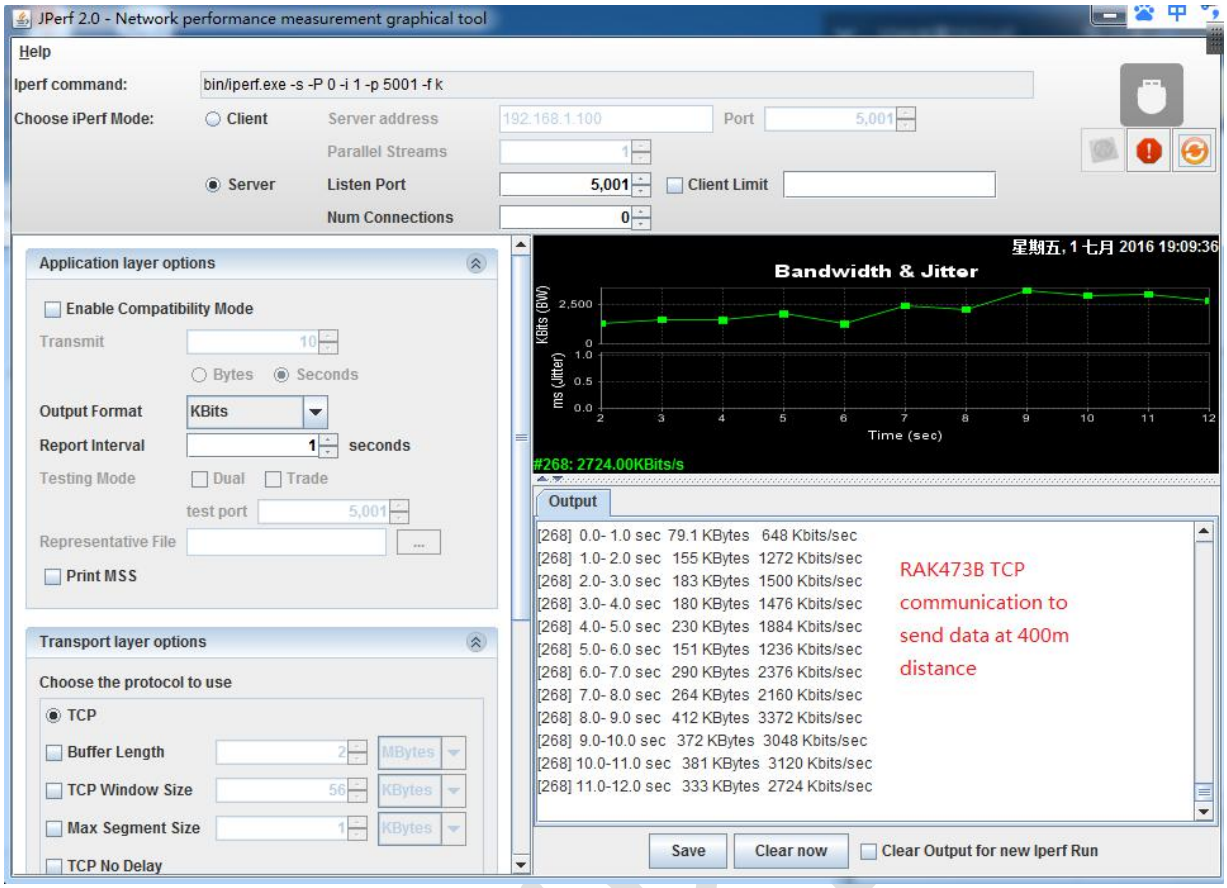
RAK473B TCP communication receive data at 200m distance



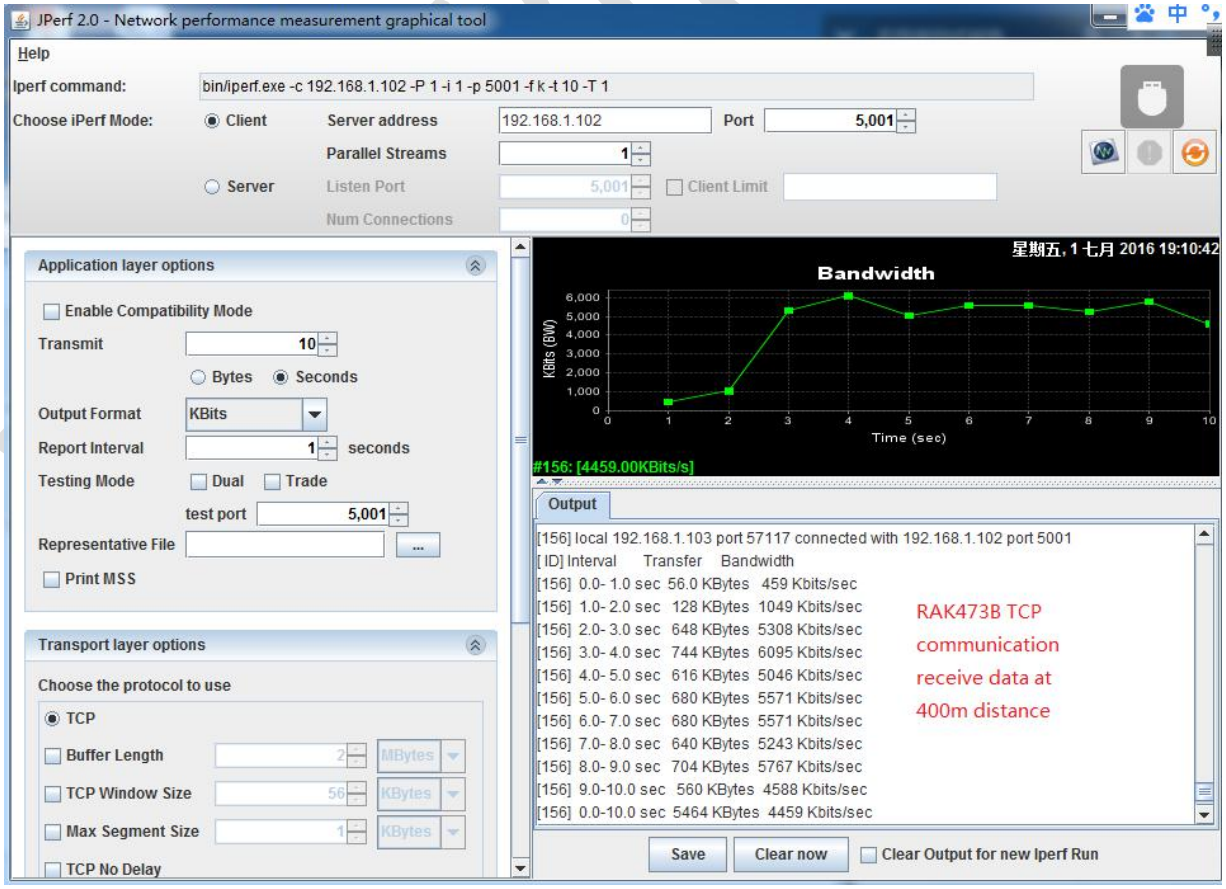
RAK473B TCP communication to send data at 300m distance



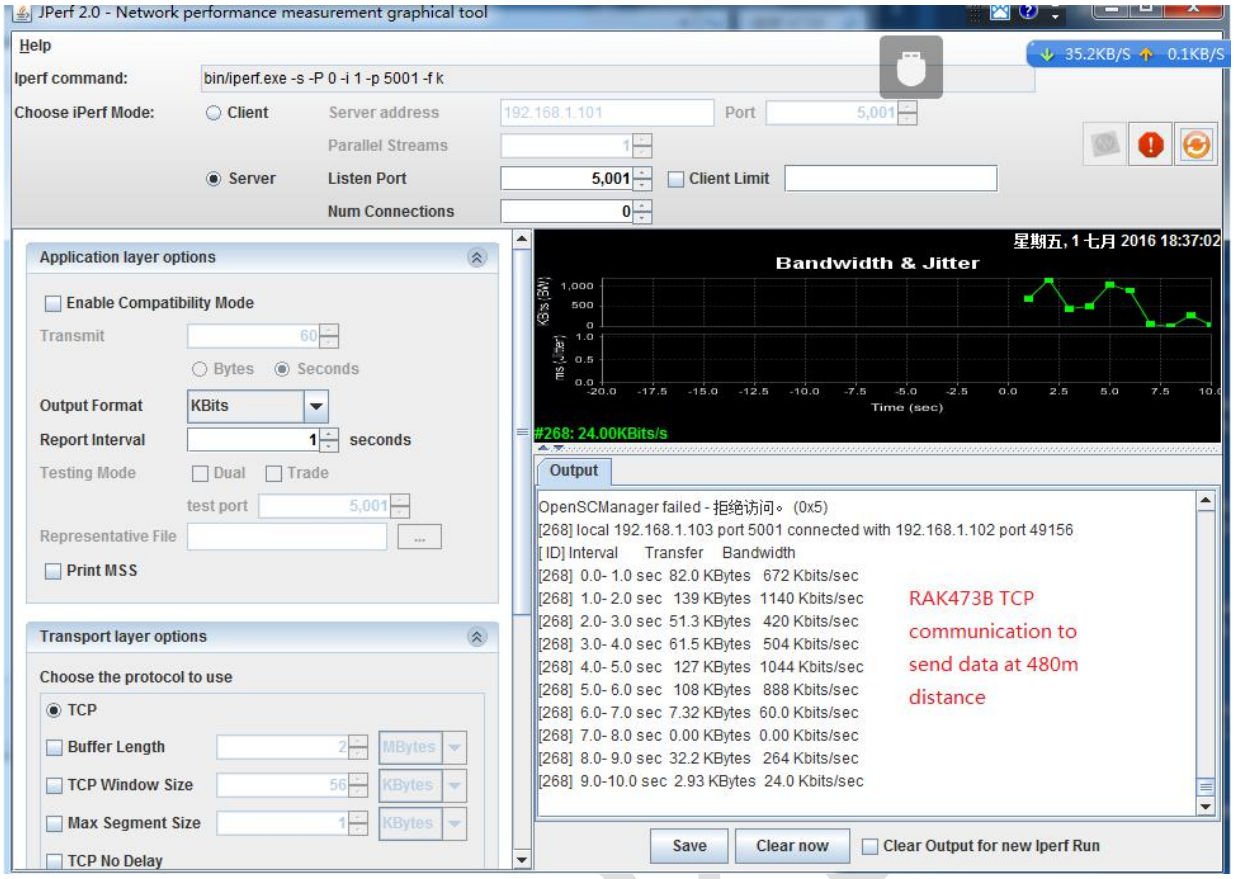
RAK473B TCP communication receive data at 300m distance



RAK473B TCP communication to send data at 400m distance

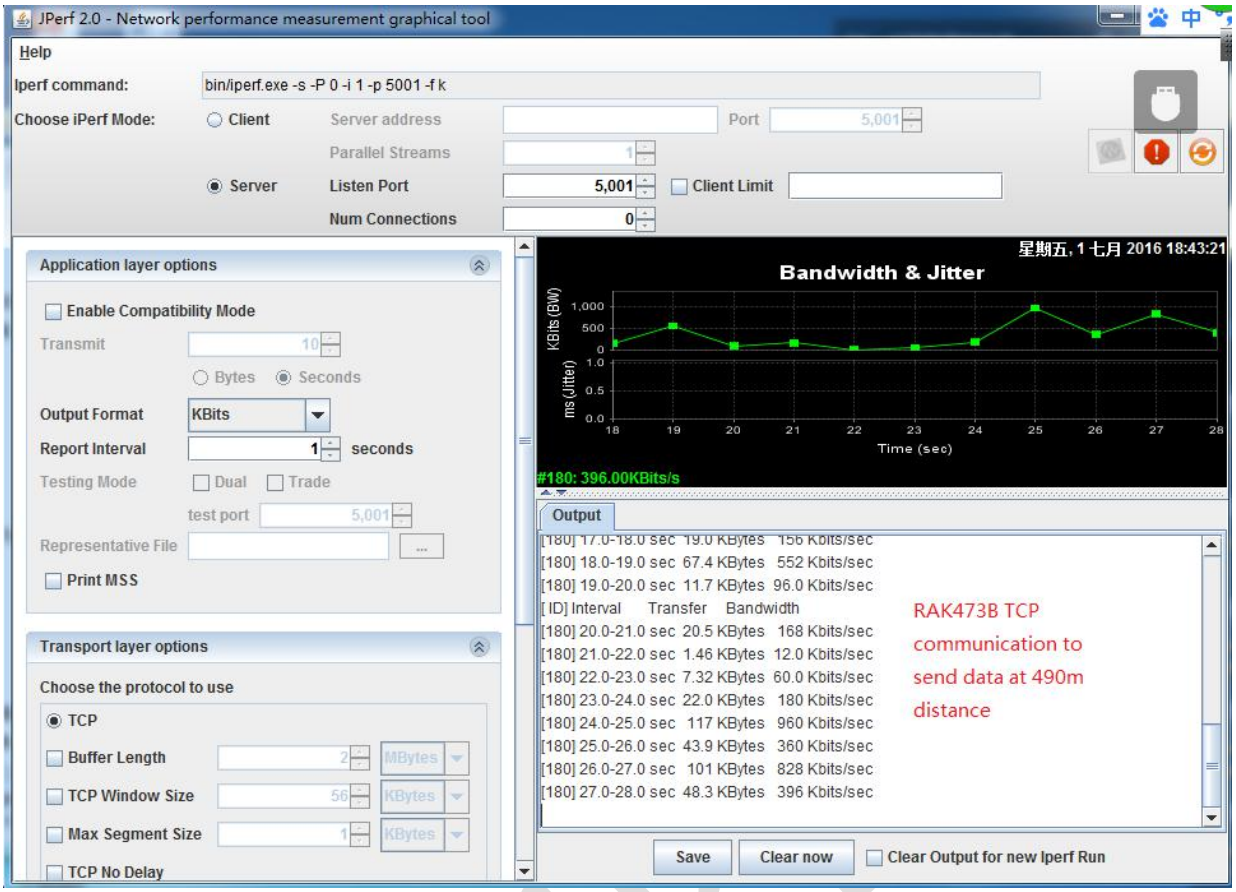


RAK473B TCP communication receive data at 400m distance

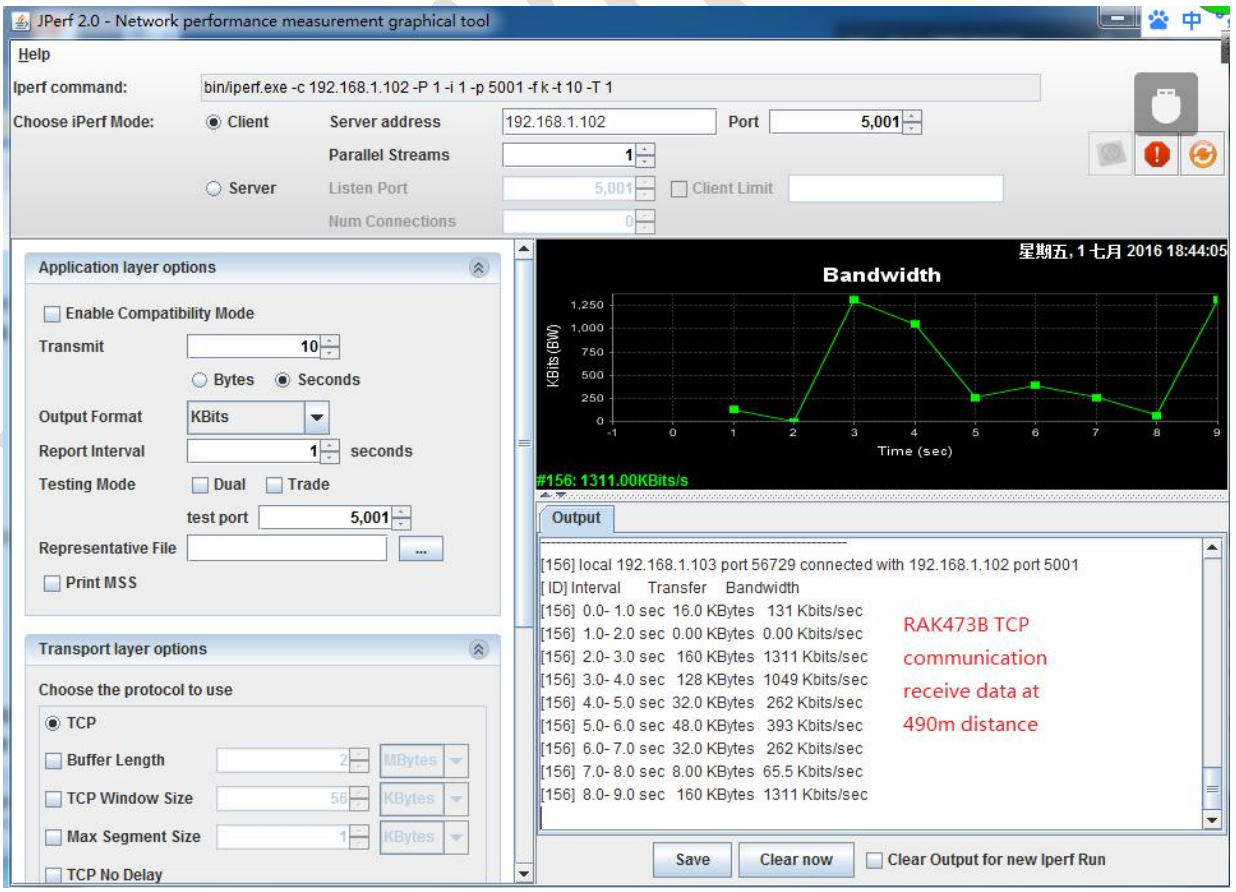


RAK473B TCP communication to send data at 480m distance

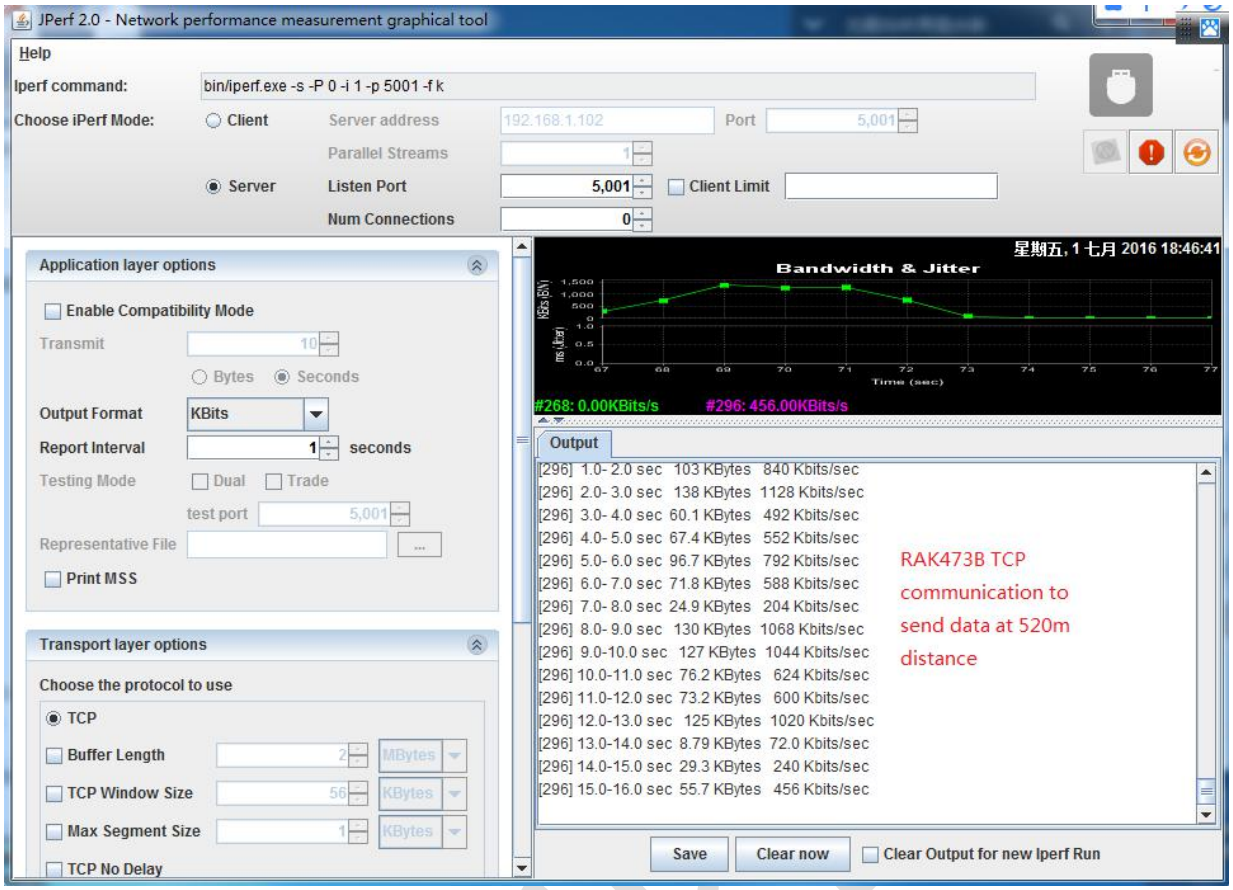
RAK473B TCP communication receive data at 480m distance



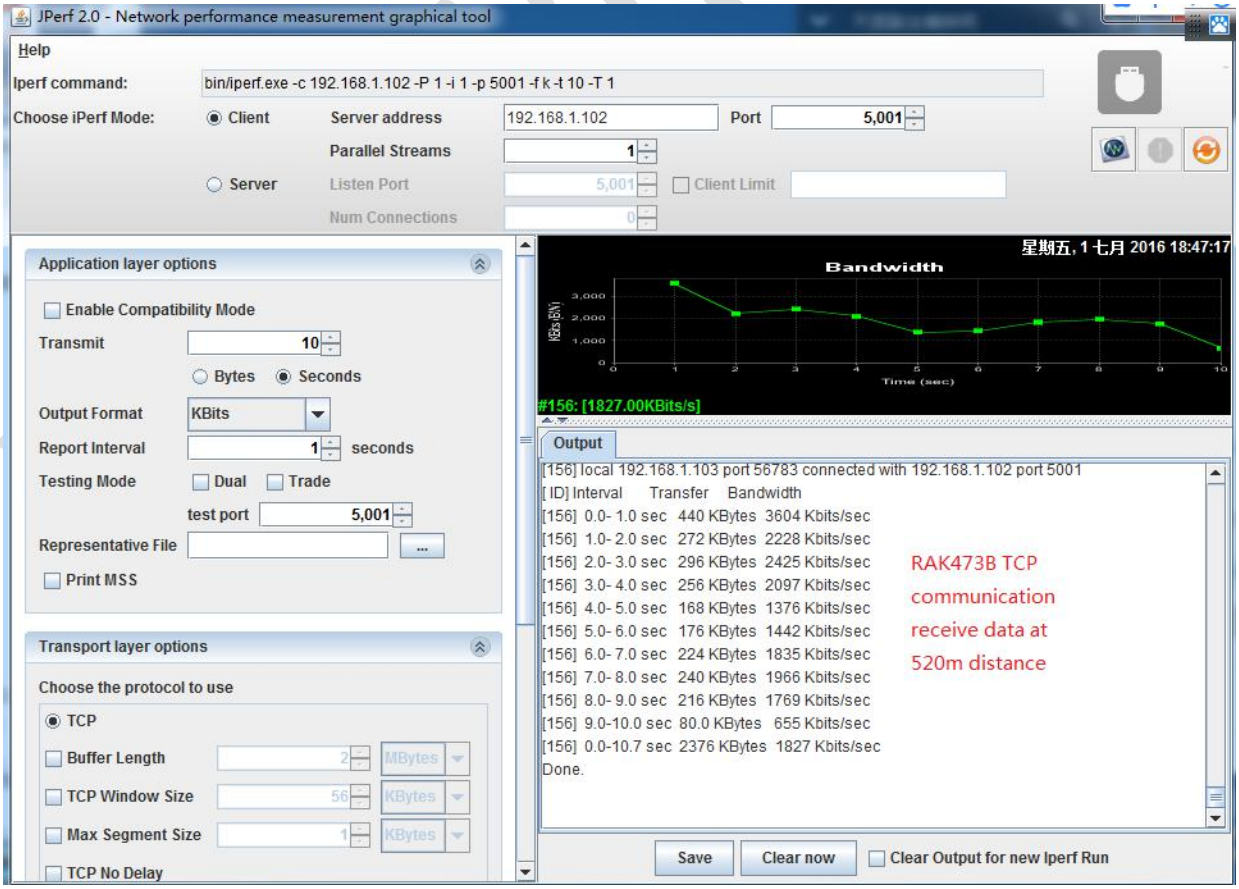
RAK473B TCP communication to send data at 490m distance



RAK473B TCP communication receive data at 490m distance



RAK473B TCP communication to send data at 520m distance

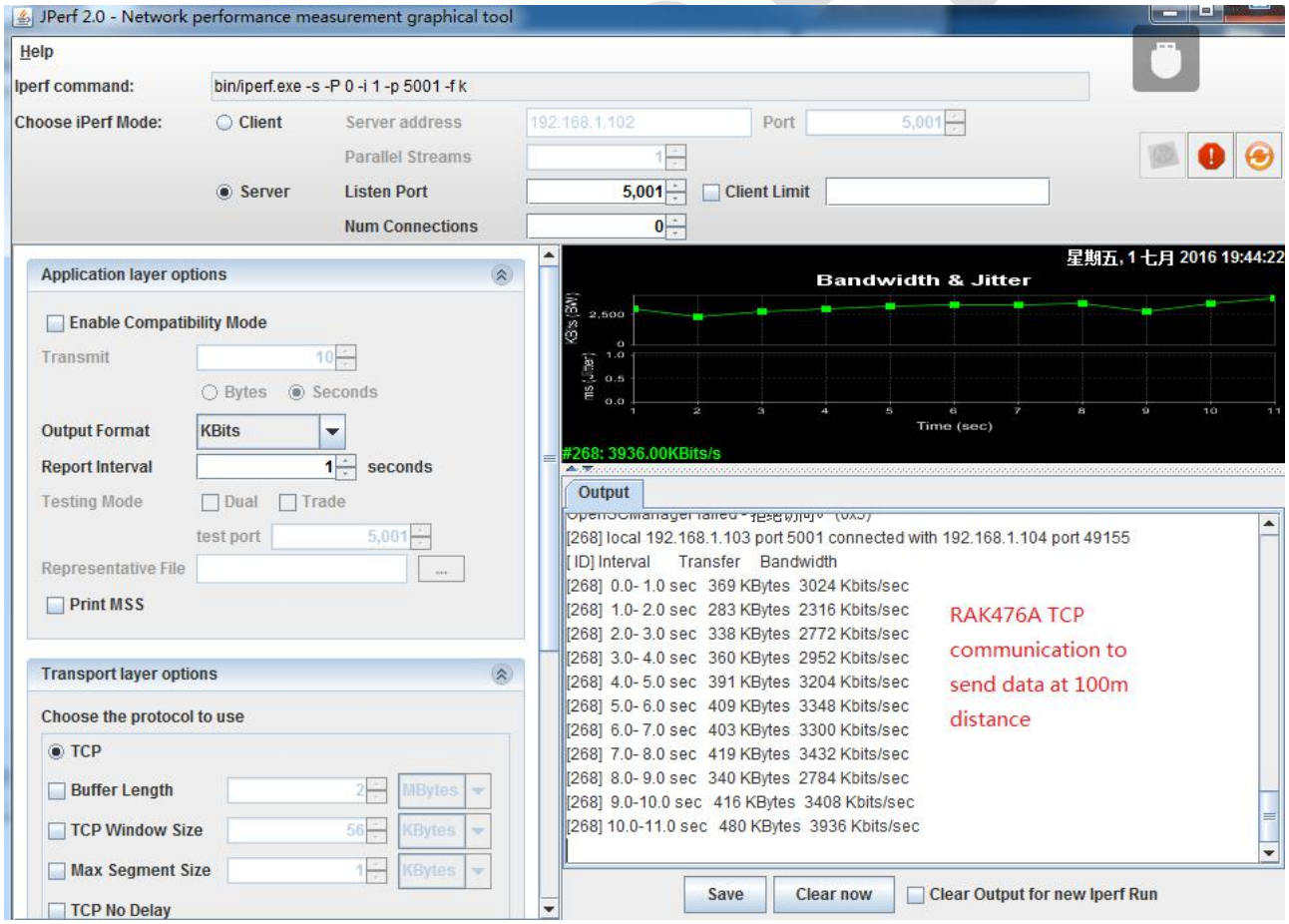


RAK473B TCP communication receive data at 520m distance

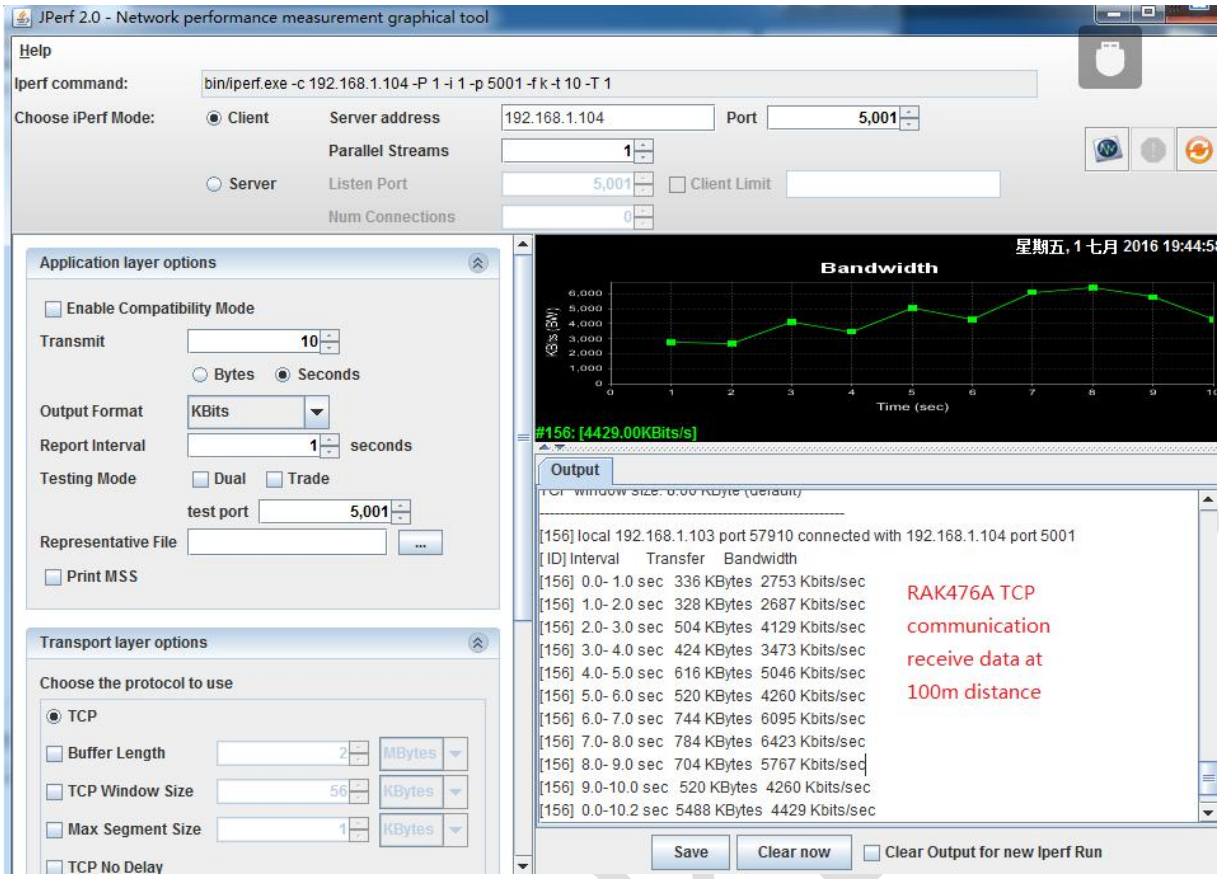
3.3 RAK476A Test Data

module	TCP	Data transmission rate					
		100m	200m	300m	400m	450m	460m
RAK476A	Send	400KB/S	400KB/S	25KB/S	100KB/S	90KB/S	60KB/S
	Receive	600KB/S	750KB/S	150KB/S	100KB/S	70KB/S	20KB/S

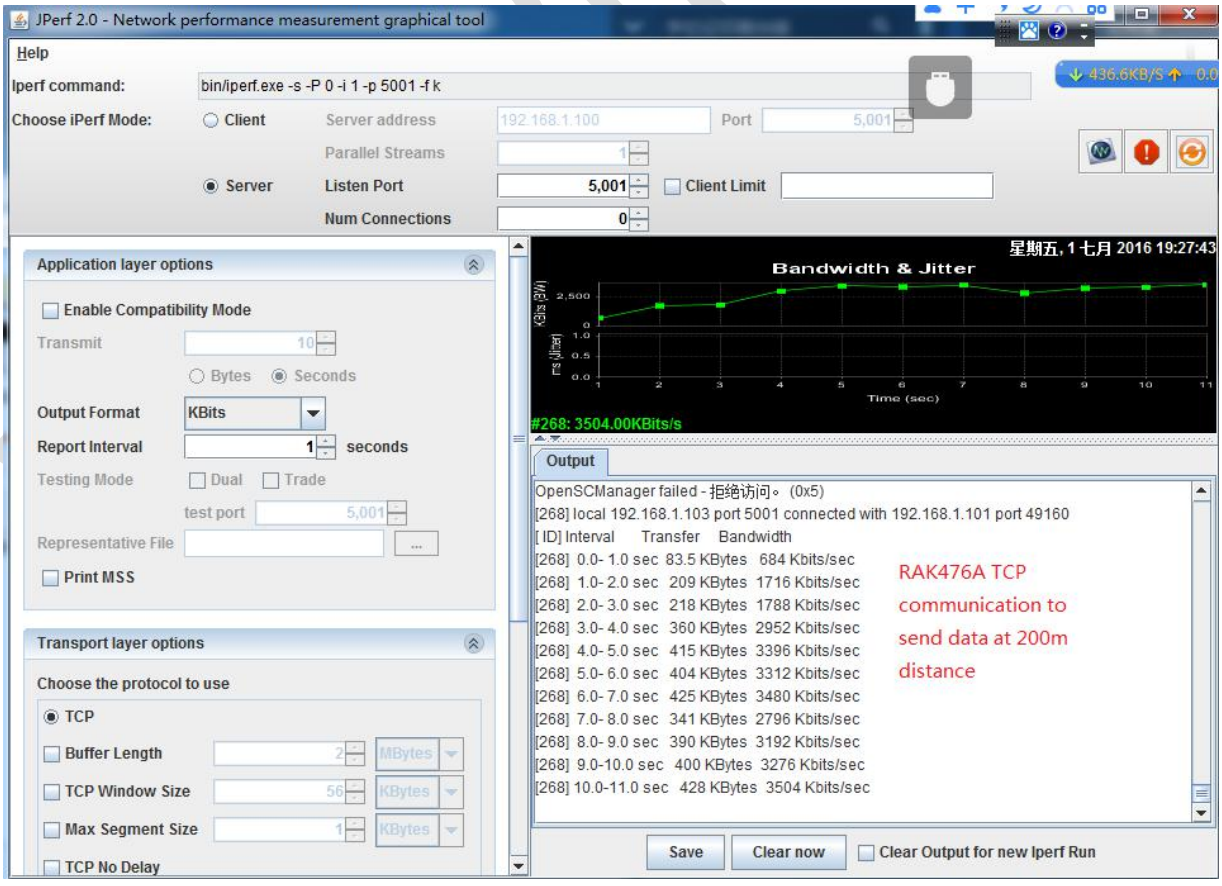
Note：A is a module board antenna



RAK476A TCP communication to send data at 100m distance

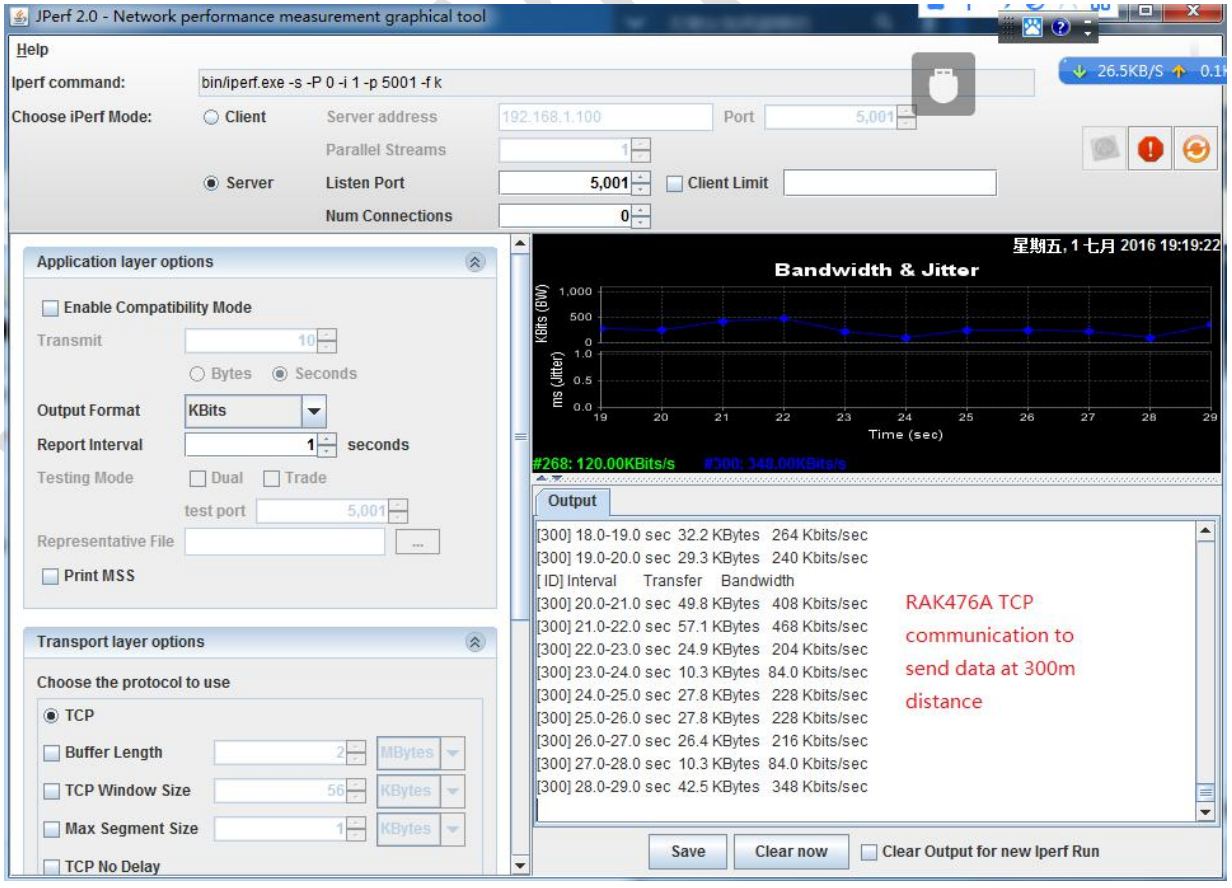


RAK476A TCP communication receive data at 100m distance



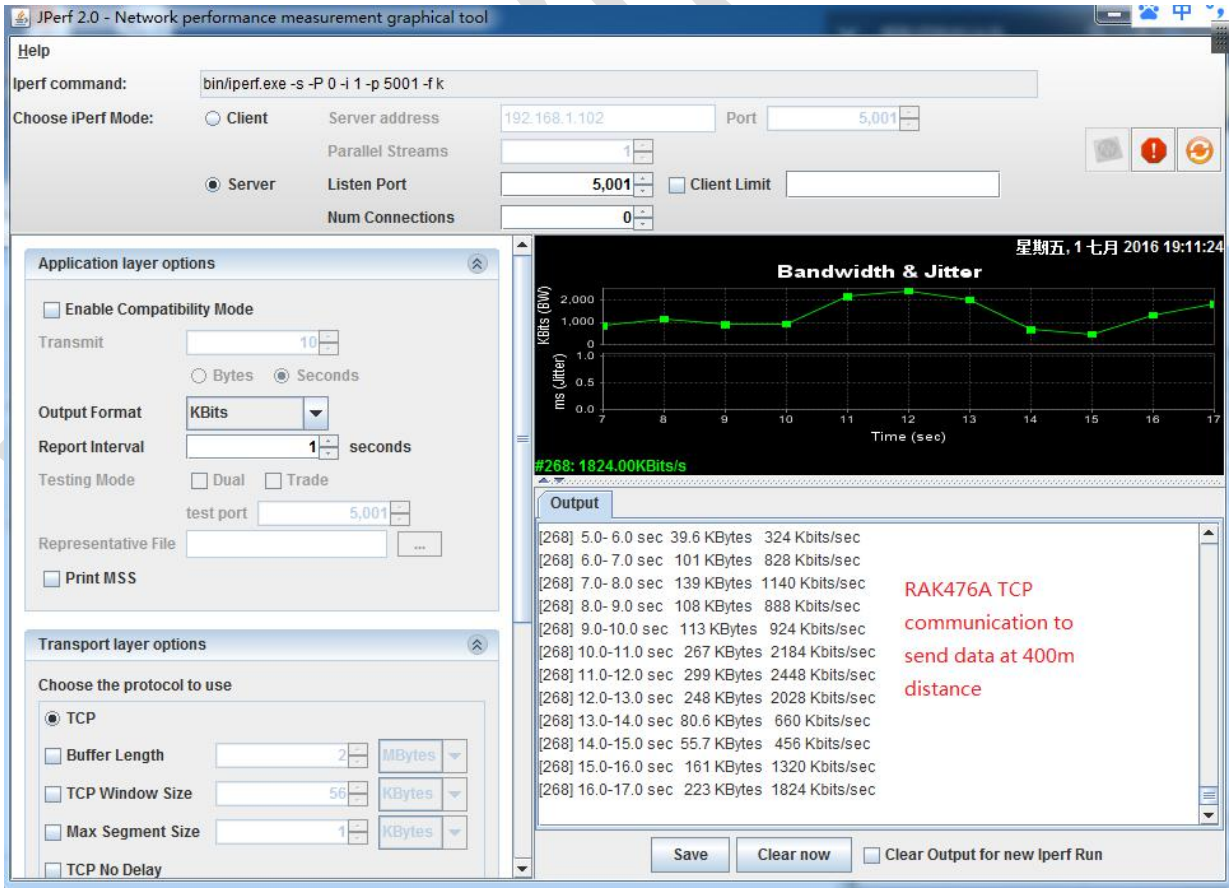
RAK476A TCP communication to send data at 200m distance

RAK476A TCP communication receive data at 200m distance

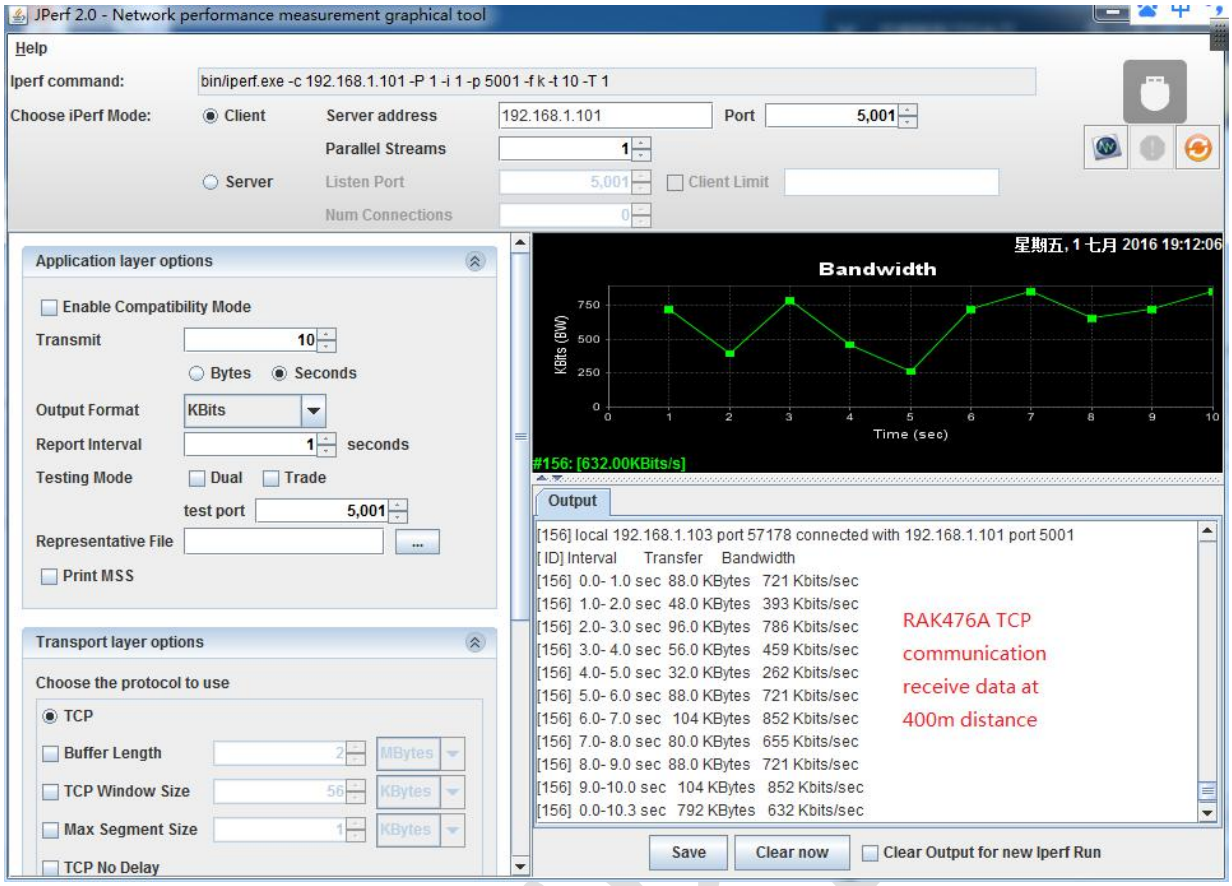


RAK476A TCP communication to send data at 300m distance

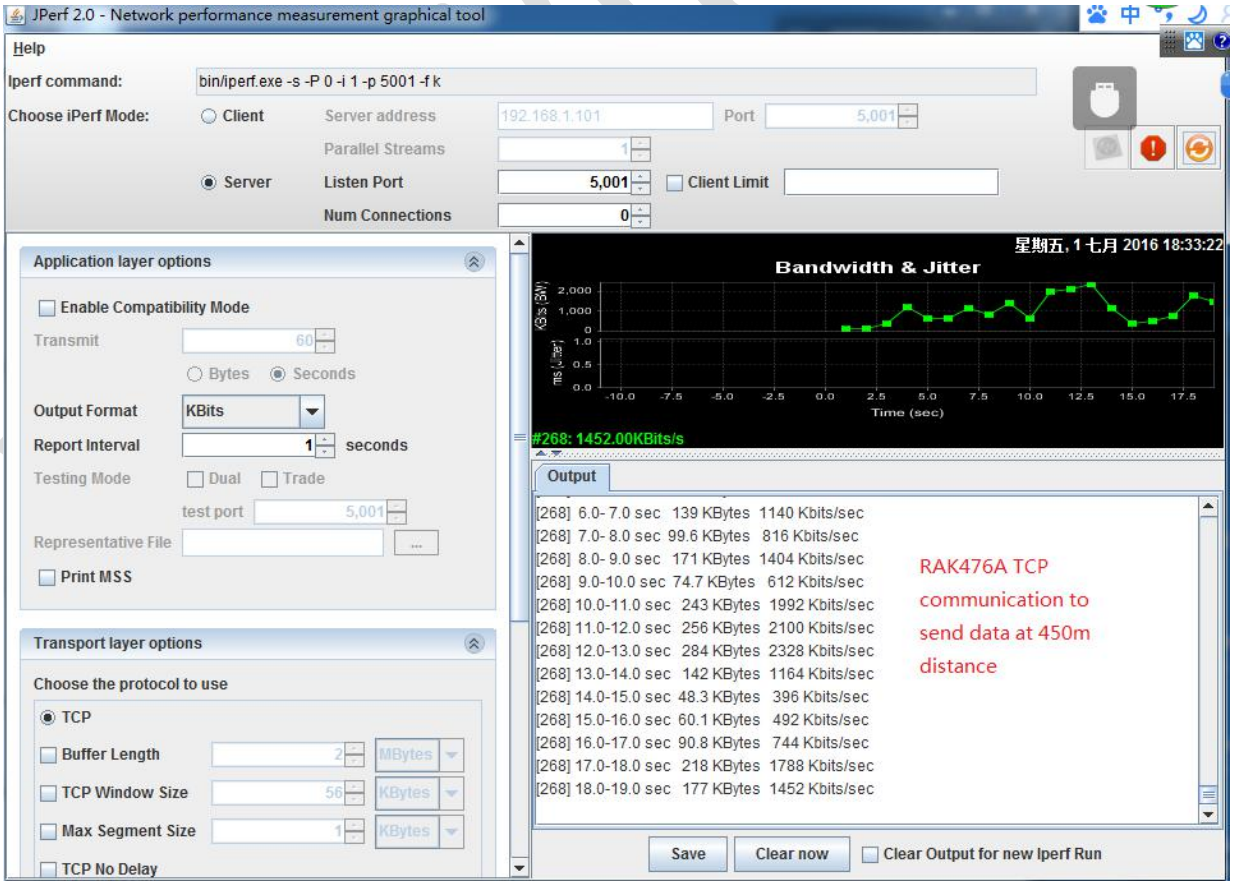
RAK476A TCP communication receive data at 300m distance



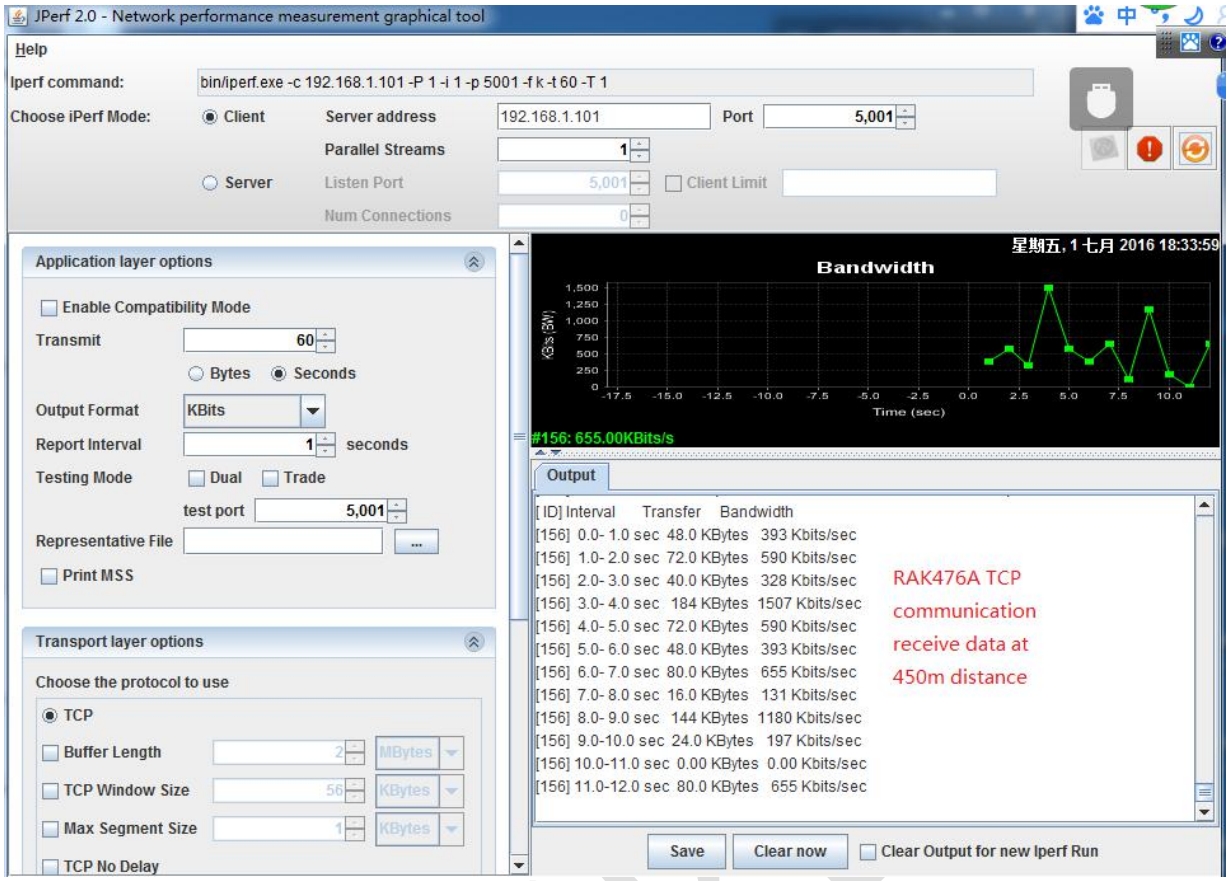
RAK476A TCP communication to send data at 400m distance



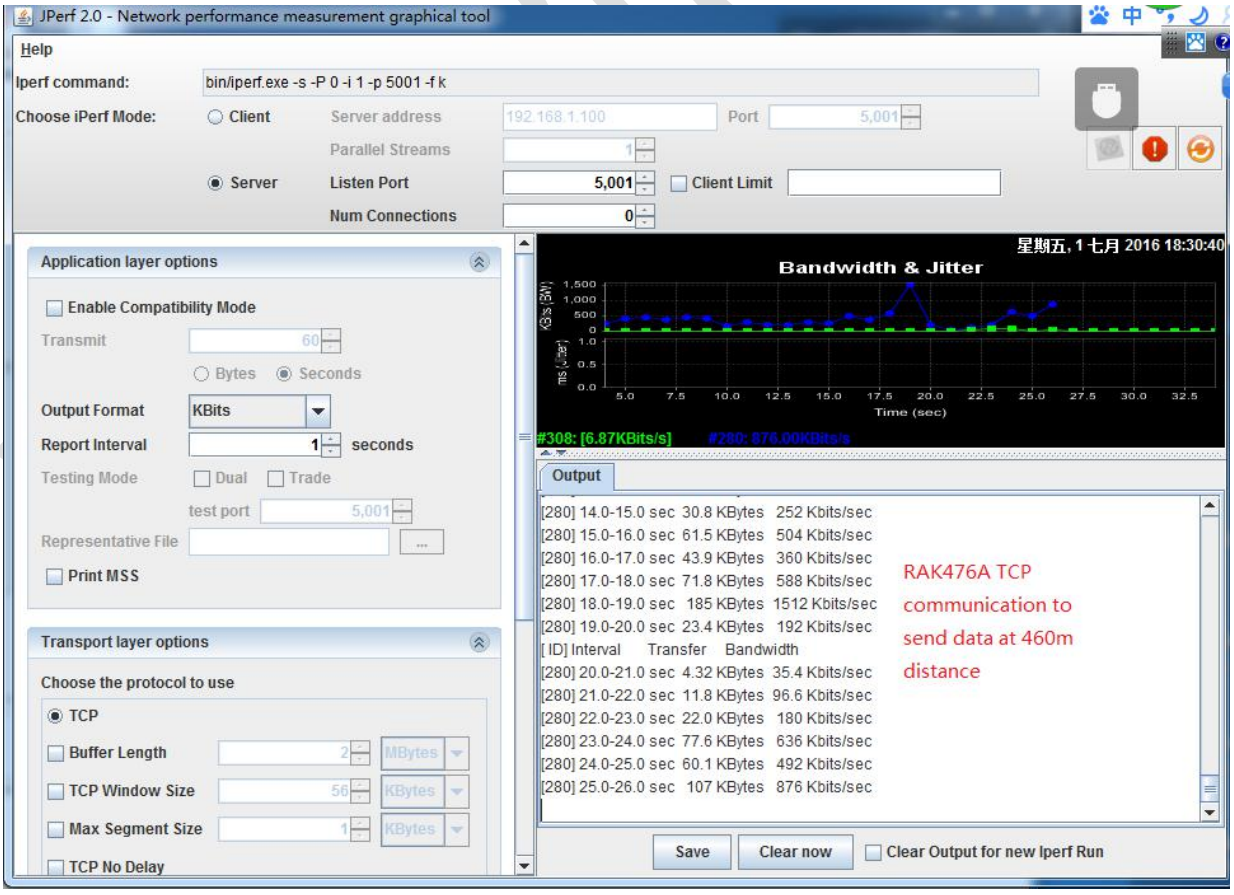
RAK476A TCP communication receive data at 400m distance



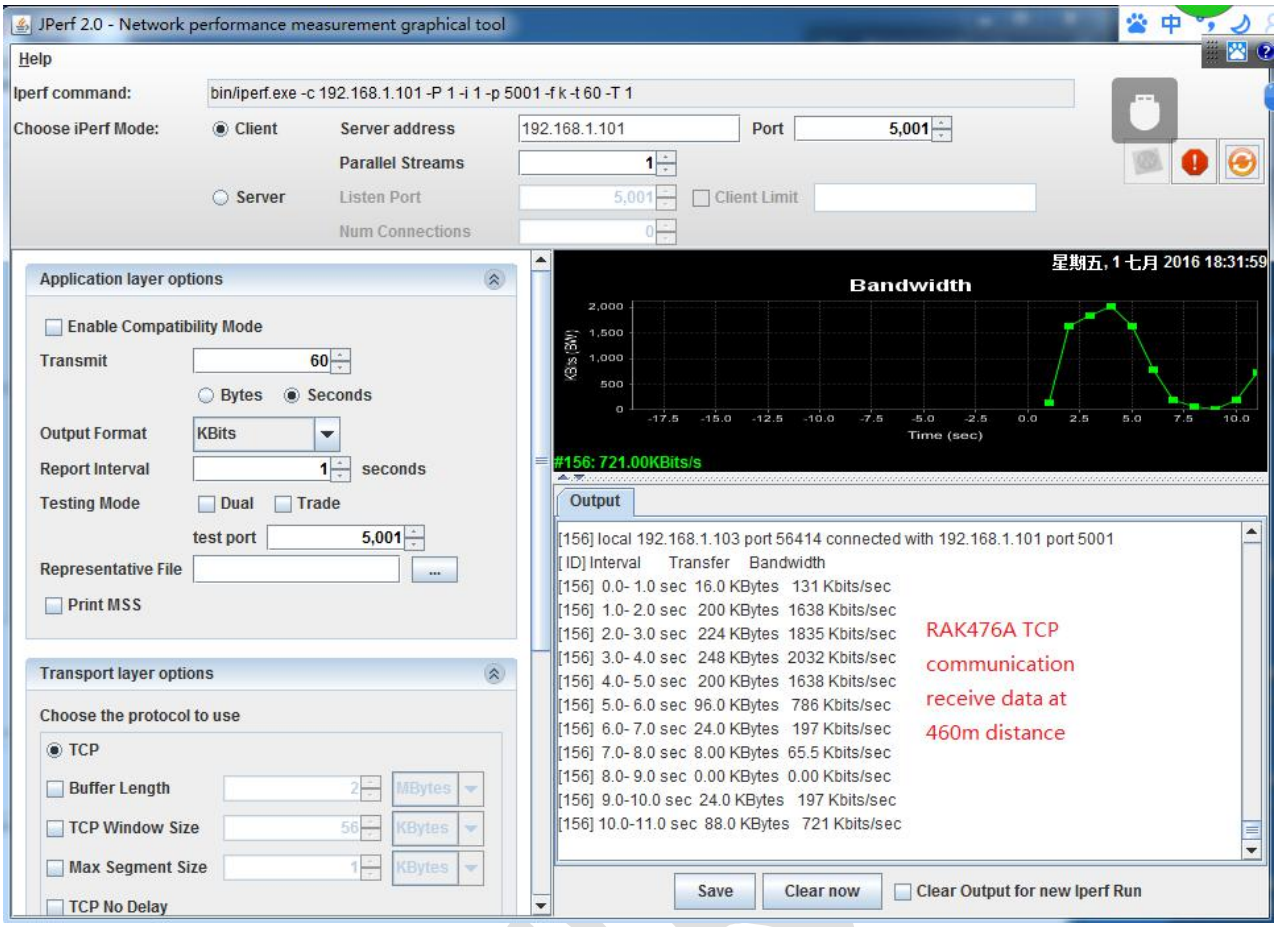
RAK476A TCP communication to send data at 450m distance



RAK476A TCP communication receive data at 450m distance



RAK476A TCP communication to send data at 460m distance

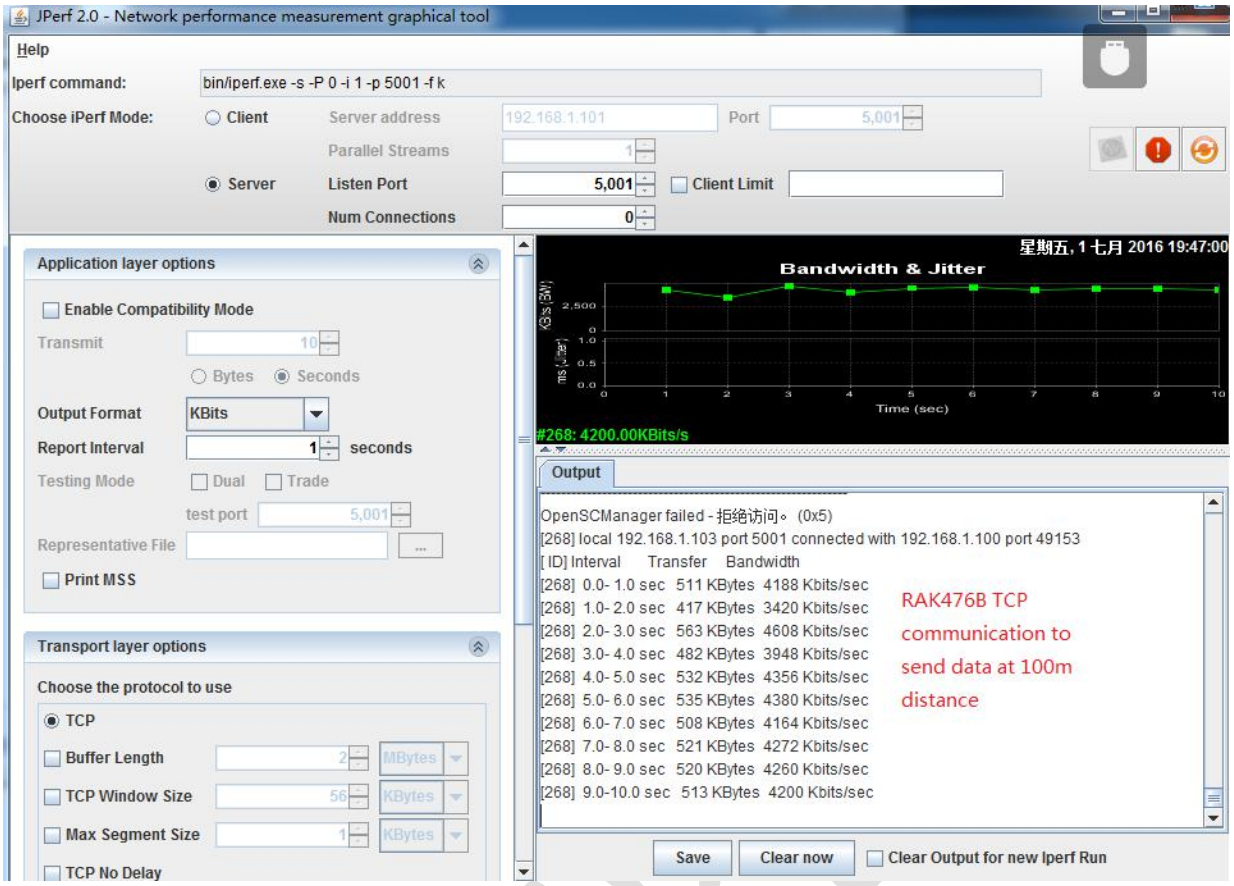


RAK476A TCP communication receive data at 460m distance

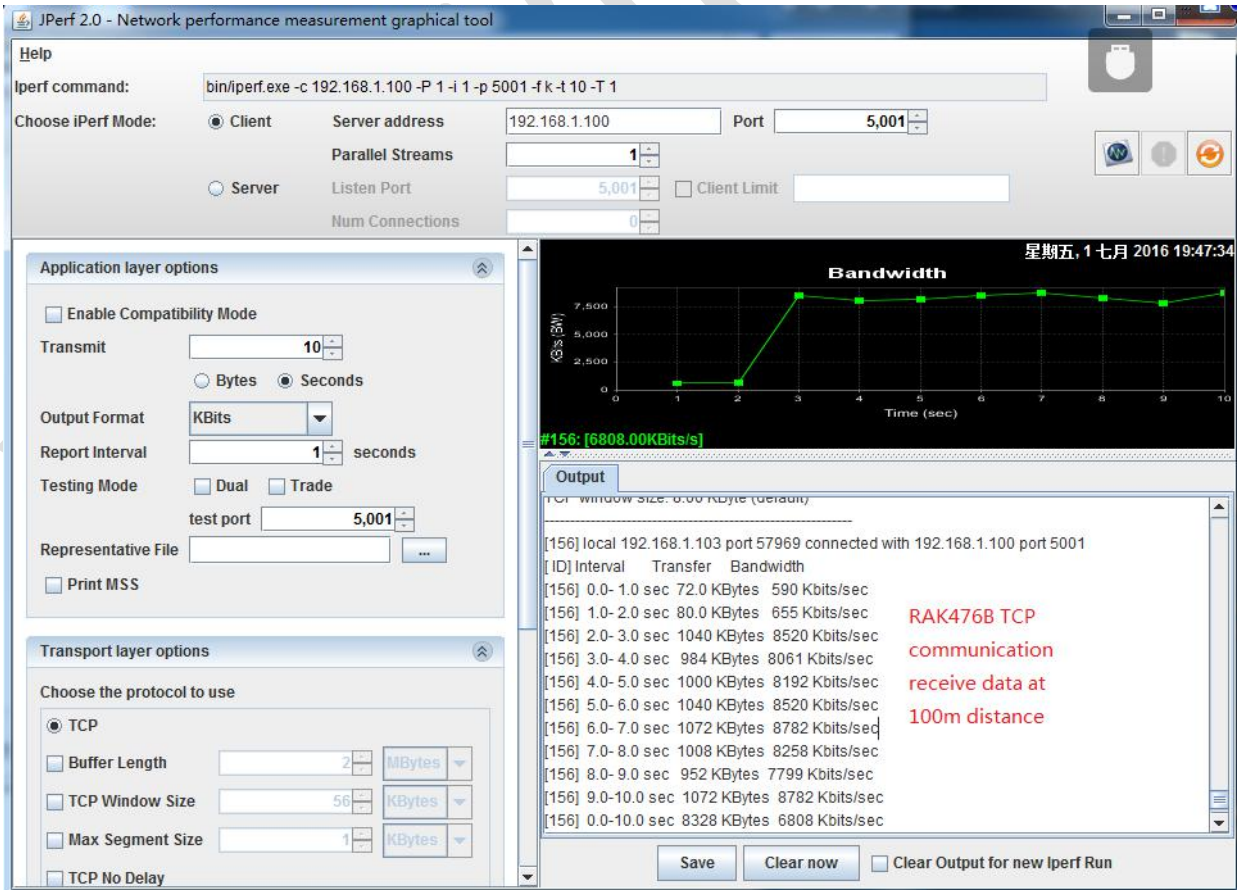
3.4 RAK476B Test Data

module	TCP	Data transmission rate							
		100m	200m	300m	400m	520m	540m	560m	600m
RAK476B	Send	500KB/S	320KB/S	400KB/S	150KB/S	110KB/S	100KB/S	10KB/S	50KB/S
	Receive	1000KB/S	900KB/S	420KB/S	220KB/S	250KB/S	40KB/S	180KB/S	35KB/S

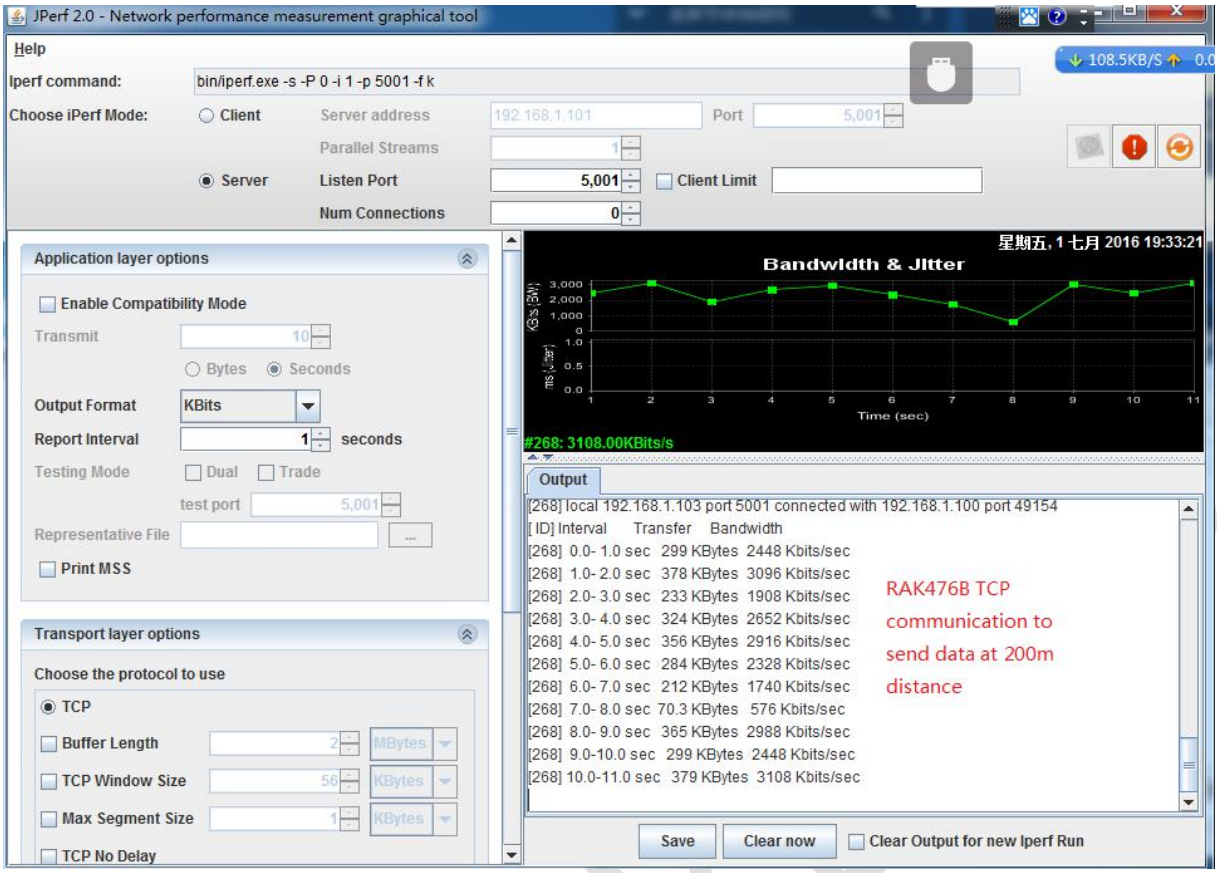
Note：B is a module external antenna



RAK476B TCP communication to send data at 100m distance

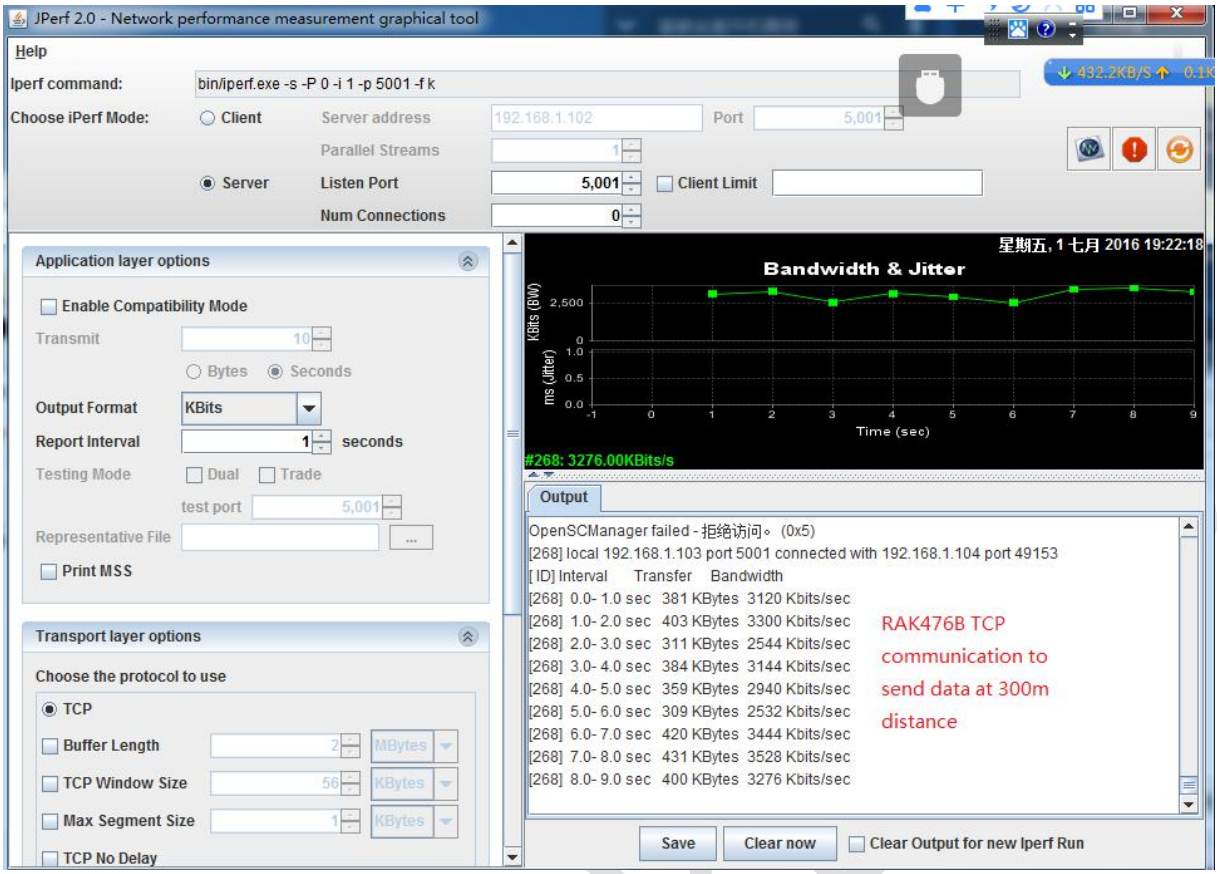


RAK476B TCP communication receive data at 100m distance



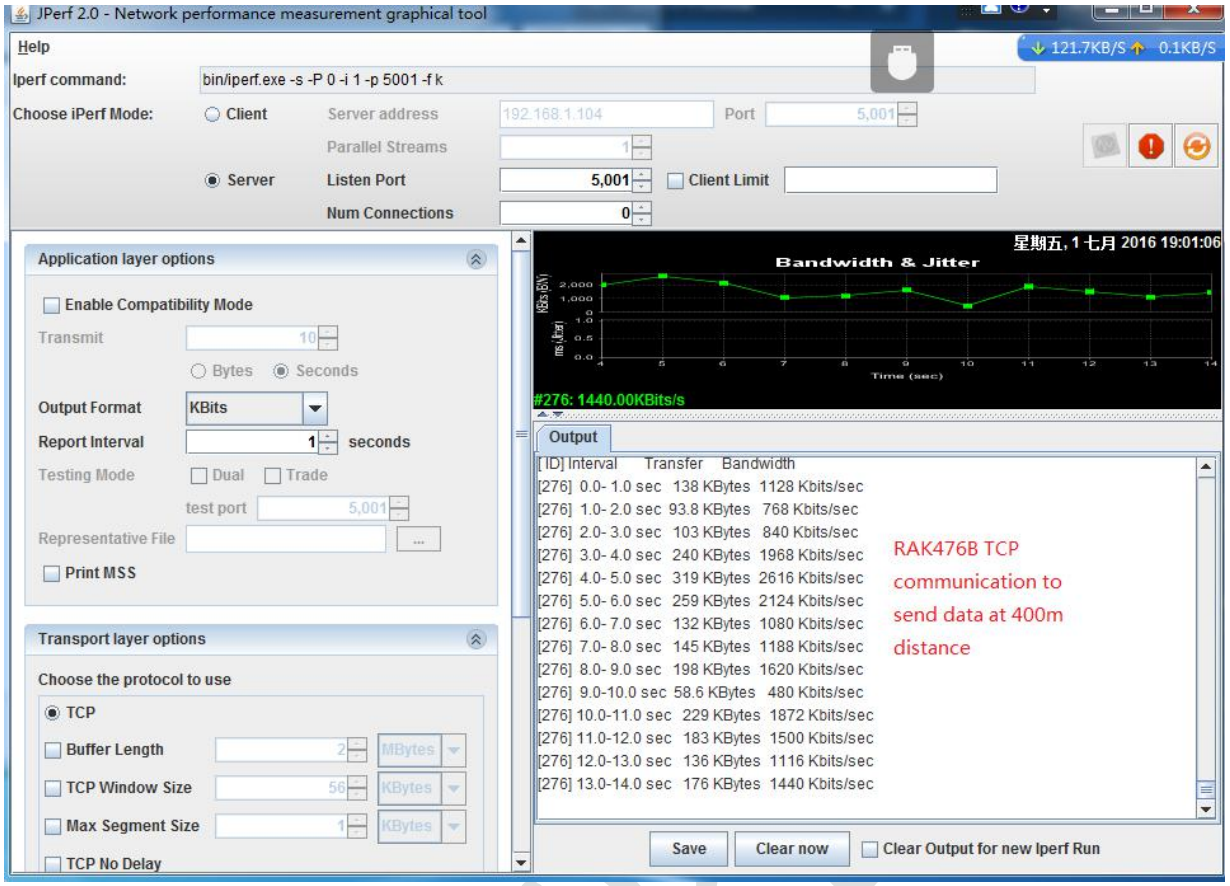
RAK476B TCP communication to send data at 200m distance

RAK476B TCP communication receive data at 200m distance

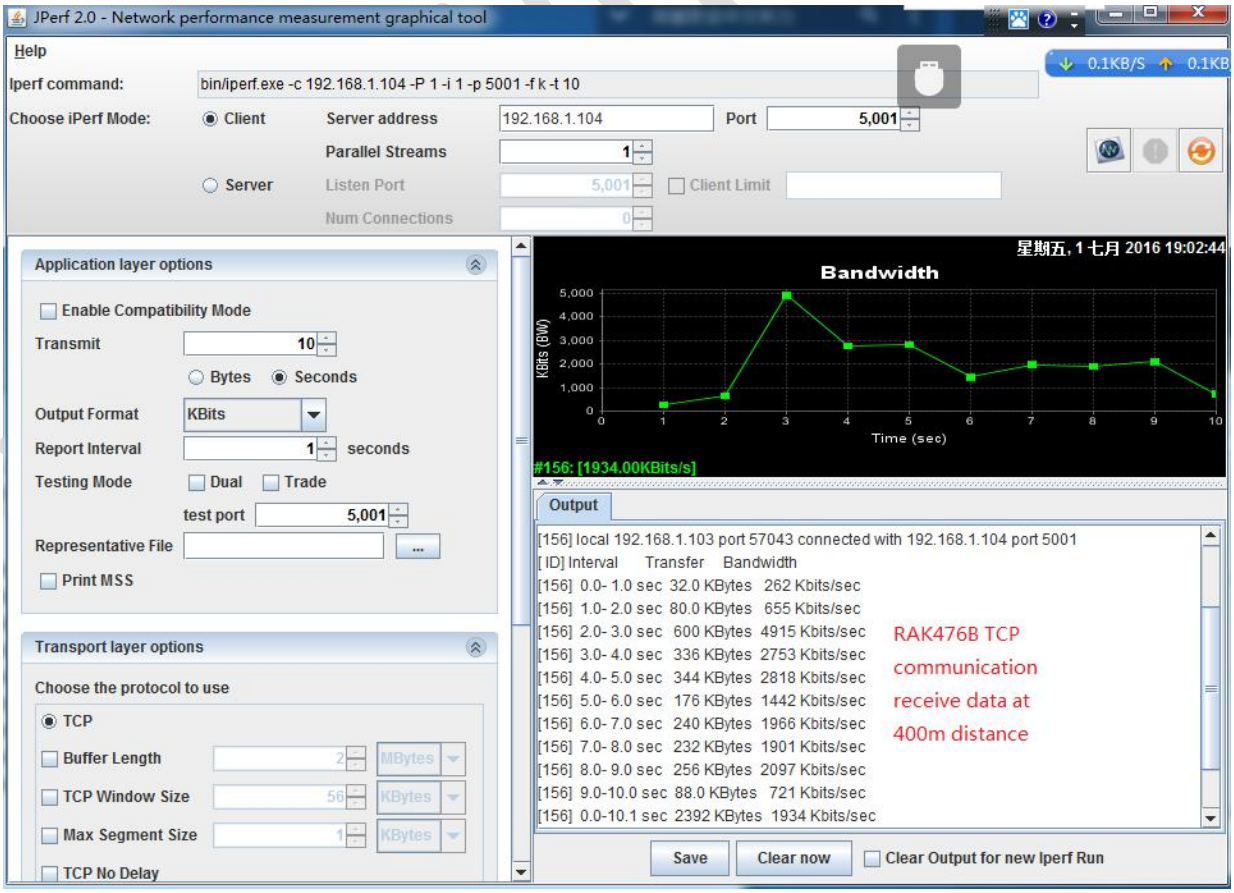


RAK476B TCP communication to send data at 300m distance

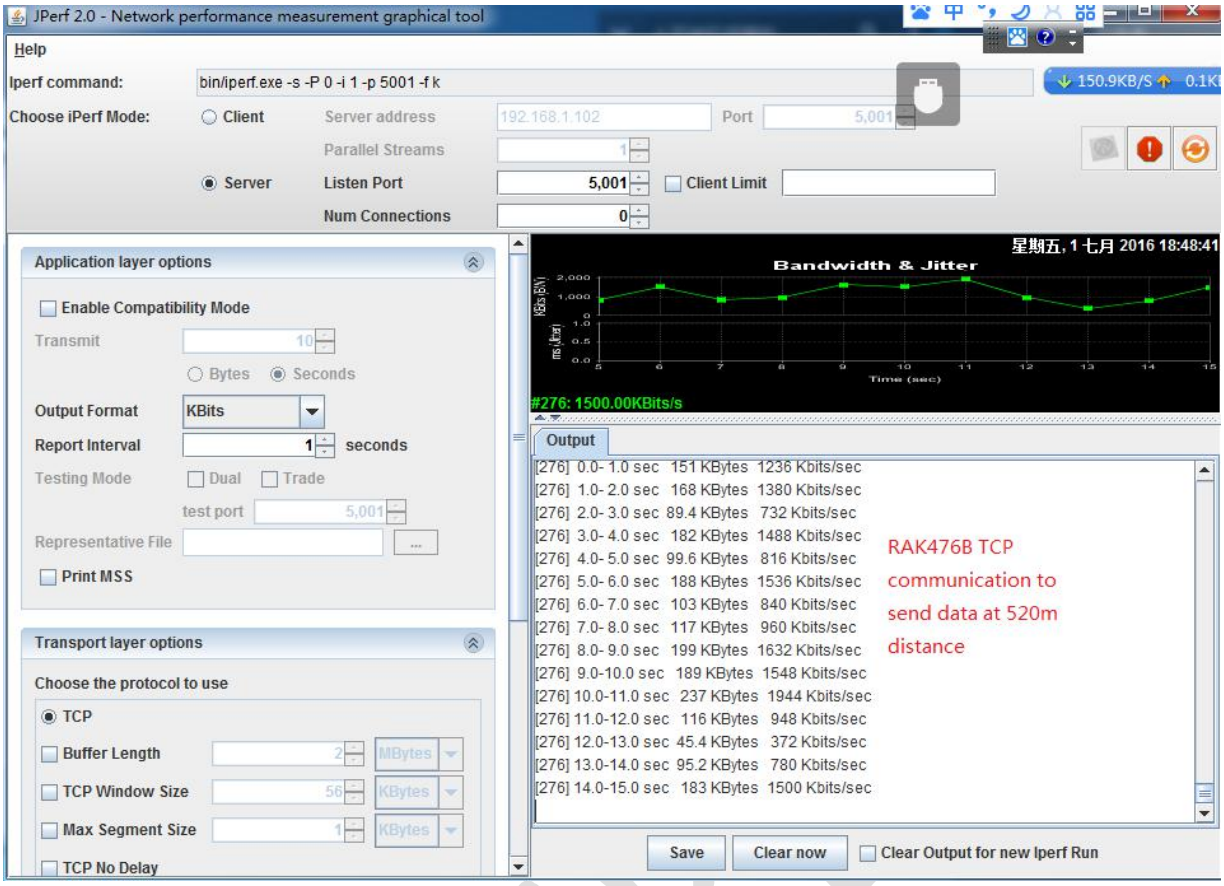
RAK476B TCP communication receive data at 300m distance



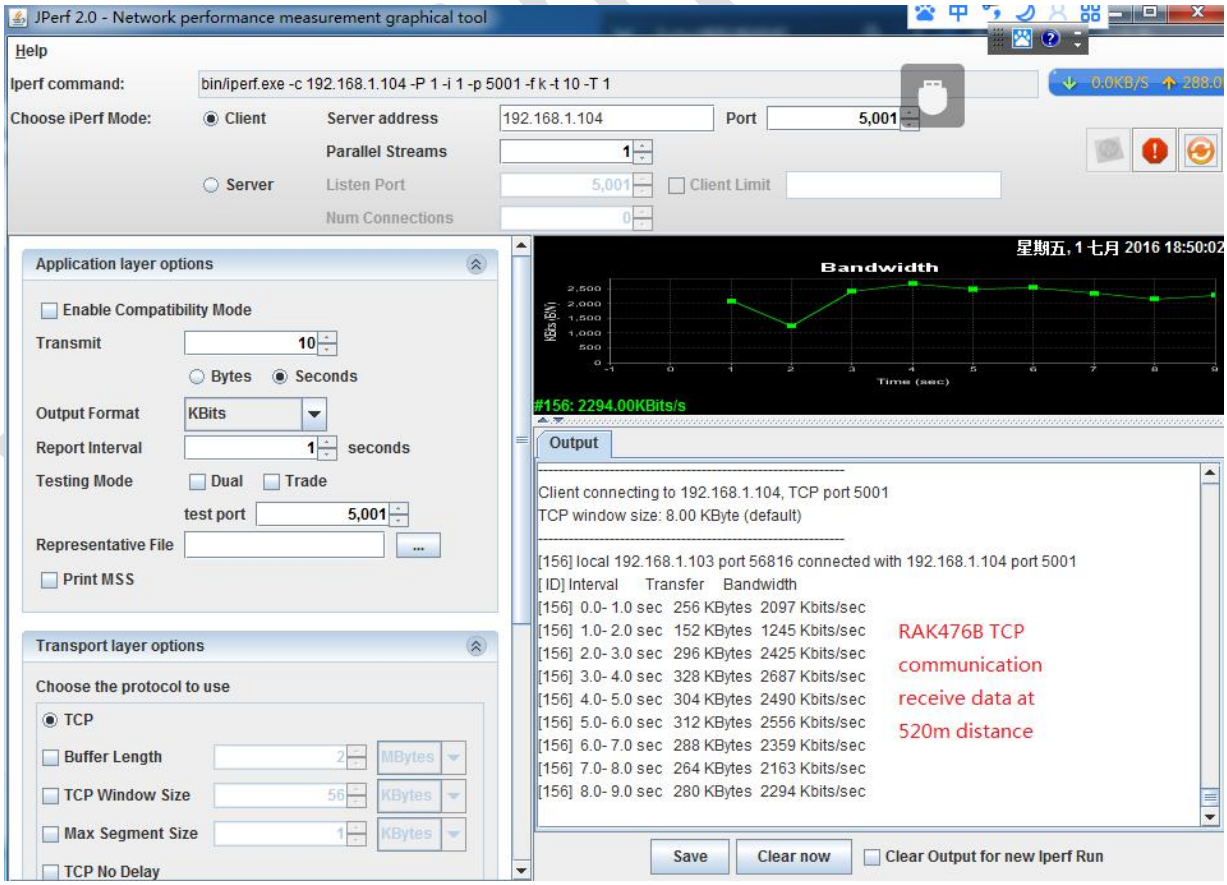
RAK476B TCP communication to send data at 400m distance



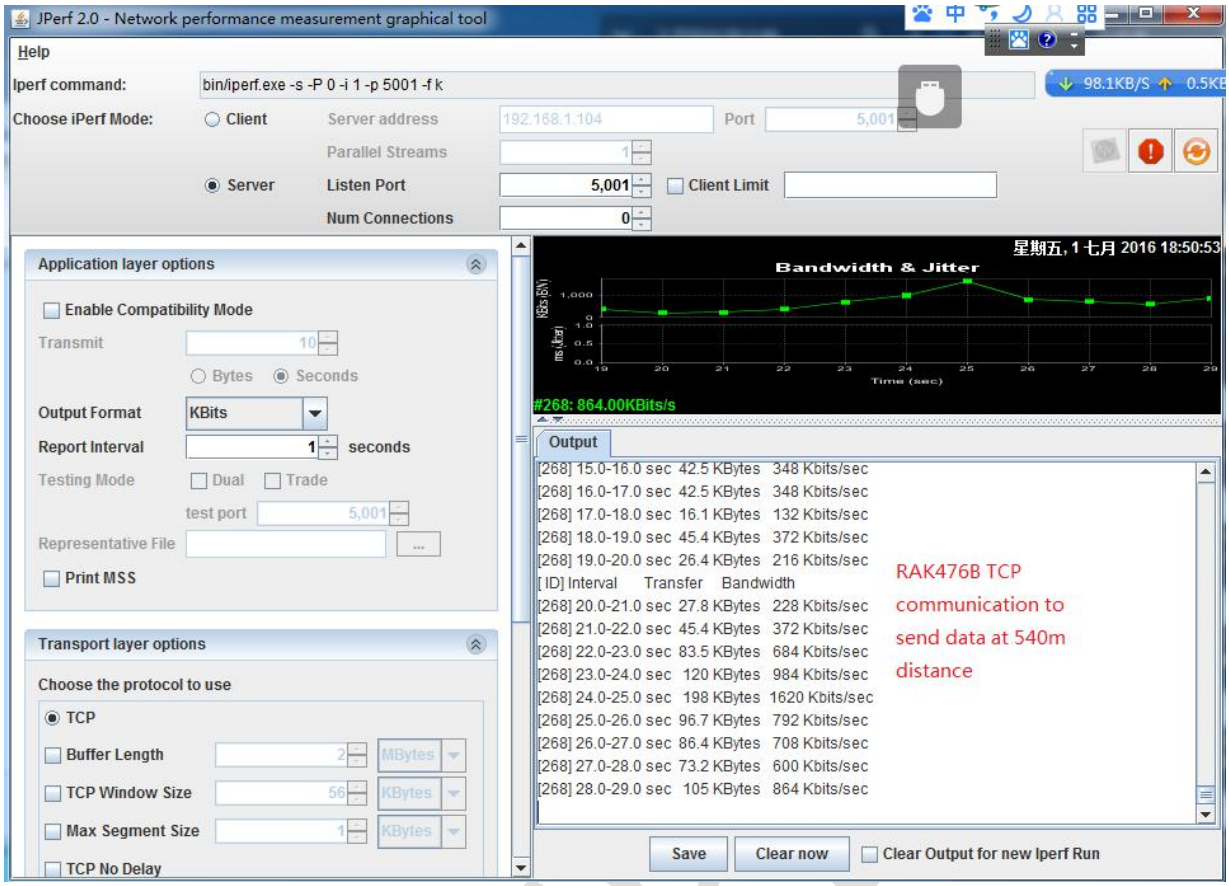
RAK476B TCP communication receive data at 400m distance



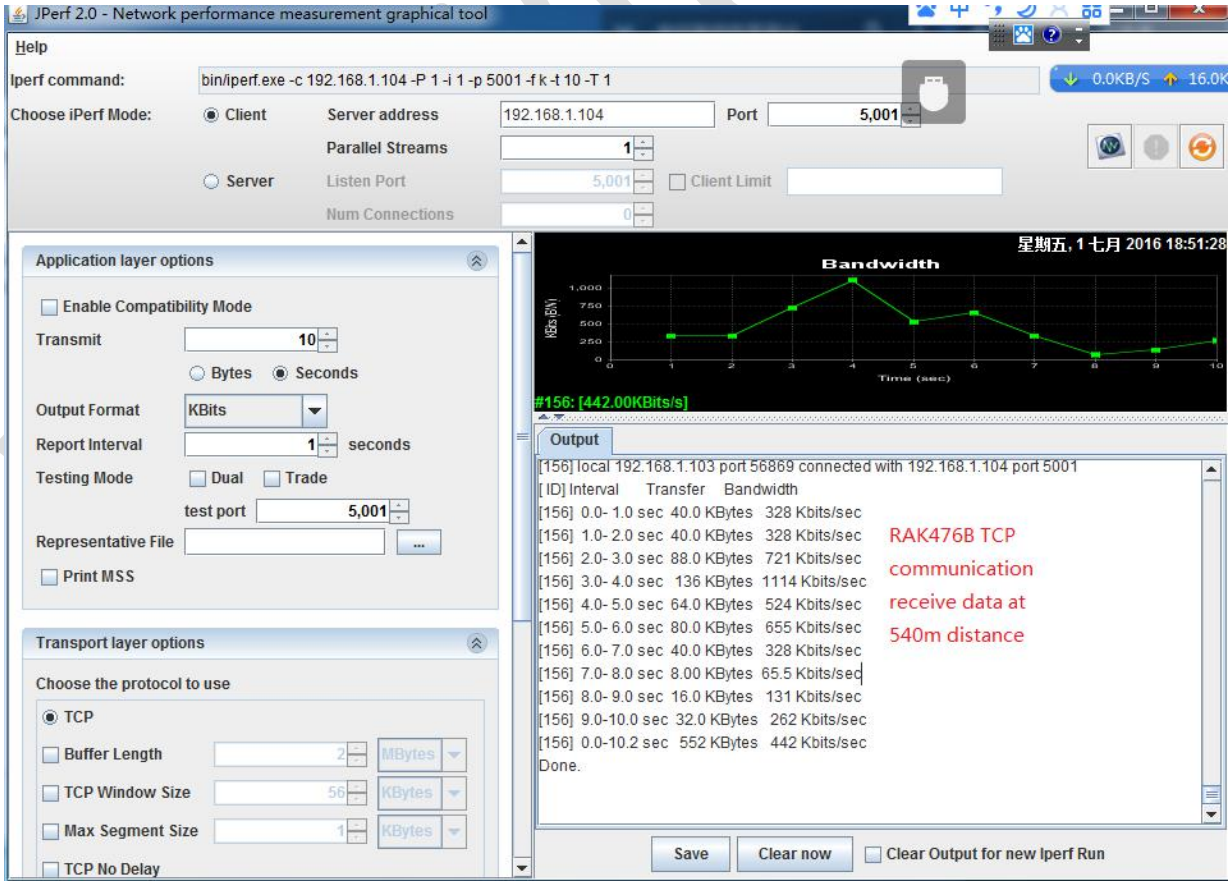
RAK476B TCP communication to send data at 520m distance



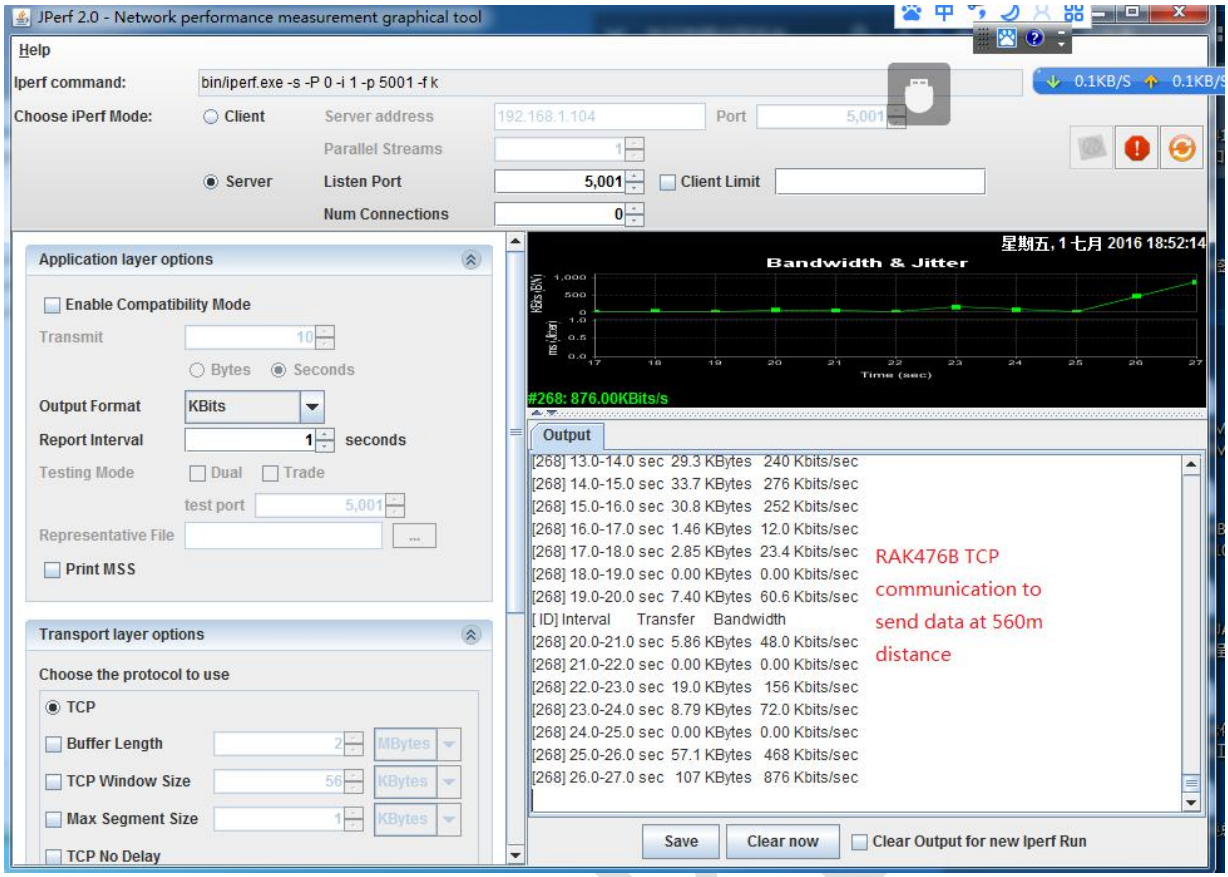
RAK476B TCP communication receive data at 520m distance



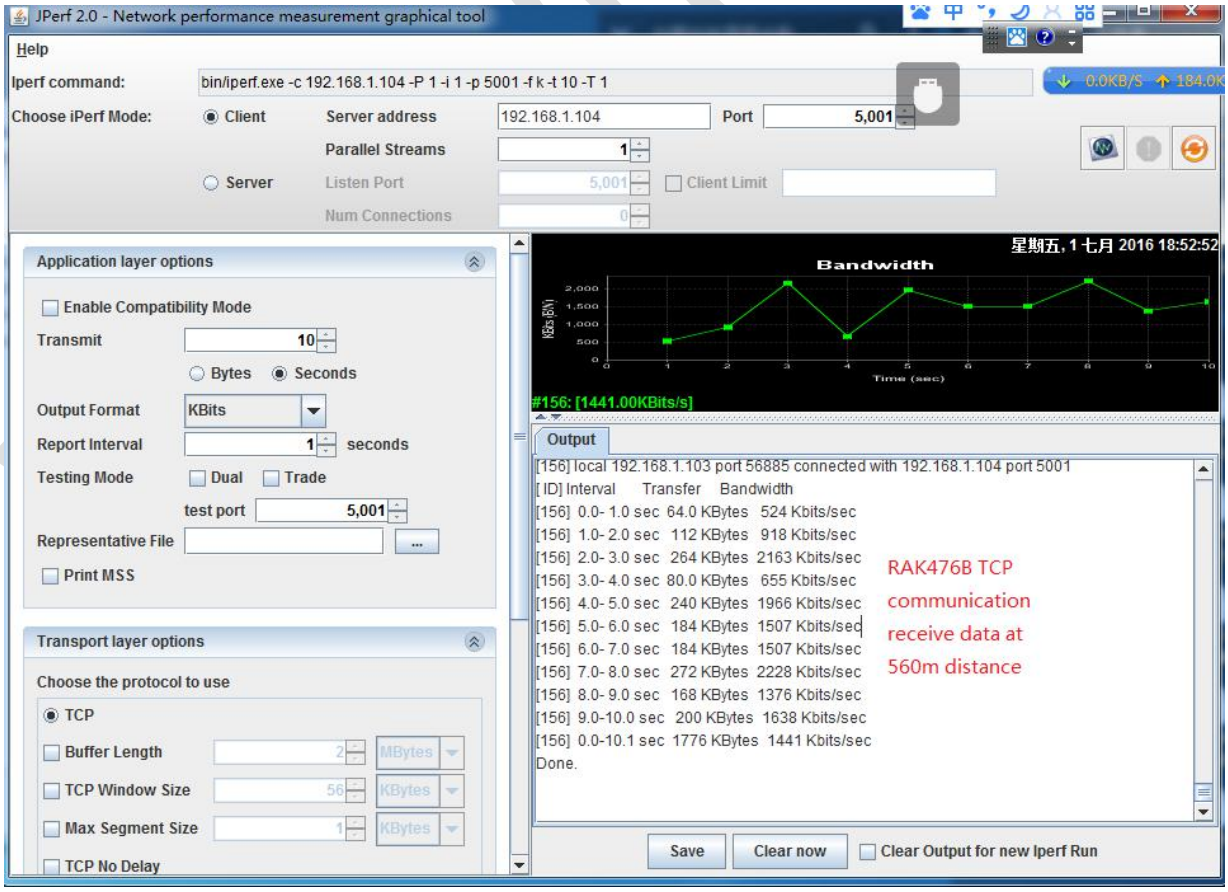
RAK476B TCP communication to send data at 540m distance



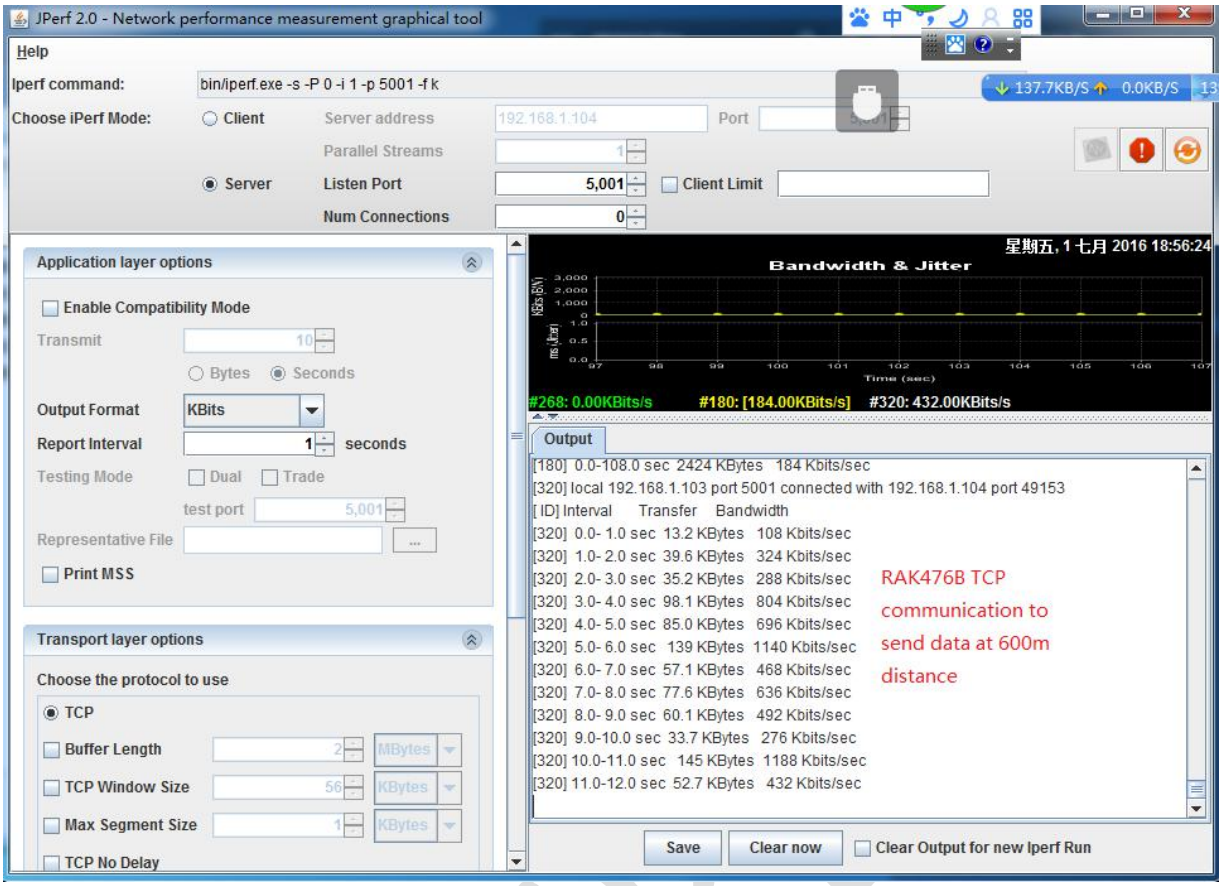
RAK476B TCP communication receive data at 540m distance



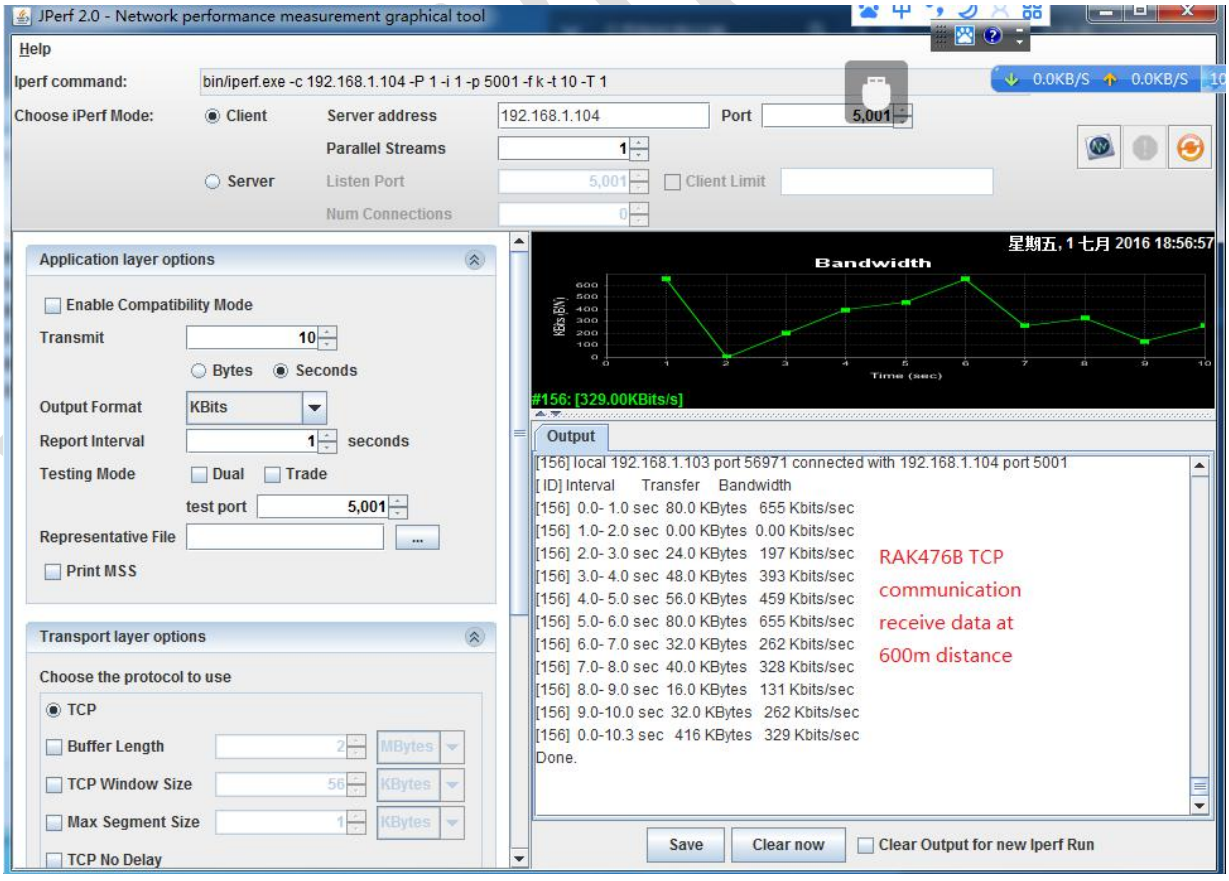
RAK476B TCP communication to send data at 560m distance



RAK476B TCP communication receive data at 560m distance



RAK476B TCP communication to send data at 600m distance



RAK476B TCP communication receive data at 600m distance

3.5 Test Data Summary

RAK 47X	TCP	Data transmission rate(B/S)												
		100m	200m	300m	400m	440m	450m	460m	480m	490m	520m	540m	560m	600m
473 A	Send	300K	250K	50K	60K	25K	/	/	0K	No connection				
	Receive	900K	700K	200K	100K	120K	/	/	30K	No connection				
473 B	Send	450K	400K	180K	300K	/	/	/	50K	50K	70K	No connection		
	Receive	1000K	950K	500K	600K	/	/	/	150K	35K	200K	No connection		
476 A	Send	400K	400K	25K	100K	/	90K	60K	No connection					
	Receive	600K	750K	150K	100K	/	70K	20K	No connection					
476 B	Send	500K	320K	400K	150K	/	/	/	/	/	110K	100K	10K	50K
	Receive	1000K	900K	420K	220K	/	/	/	/	/	250K	40K	180K	35K

Note：A is a module board antenna B is a module external antenna

4. Test Records

Version	Modify Contents	Tester	Test Time
V1.0	First version，update test data	王连博、袁宏强	2016/05/14
V1.1	Update external antenna test data	唐文勇、操小成	2016/05/26
V1.2	Update test content	操小成	2016/07/2