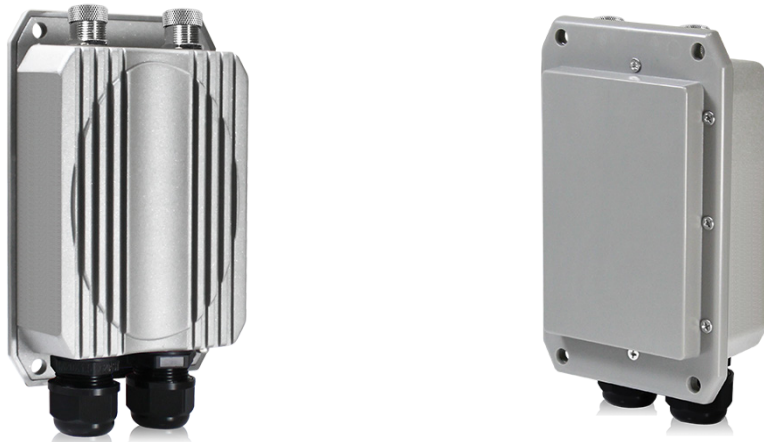


# CERIO Outdoor AP

## 1.9KM Used Built-in Patch Antenna

### Throughput Test Report

Model No. [OW-300N2-A2]



**(UI 韌體關閉外接 N-Type 天線能力，選擇  
使用內建 10dbi 面板指向天線進行測試)**

## 1. Test Product model.

**OW-300N2-A2** (1000mW eXtreme Power 11N 300Mbps +10dBi Outdoor Access Point)

## 2. Introduction

CERIO進階的 **OW-300N2-A2** Outdoor AP 主要將原先**OW-300N2**與**OW-310N2**整合為一機，重點將是此款Outdoor AP的天線設計內建指向天線和外接天線兩種類型(可2選1切換)，讓使用者可以依造需求直接切換要使用的天線。

同時此測試主要也是證明 CERIO 開發的 AP 是一步步的在進化，讓方便性更為提高，減少了架設成本，更能呈現出 AP 最完美的訊號輸出穩定效果，展現出 CERIO 開發團隊的用心。

## 3. Test Date and Personnel

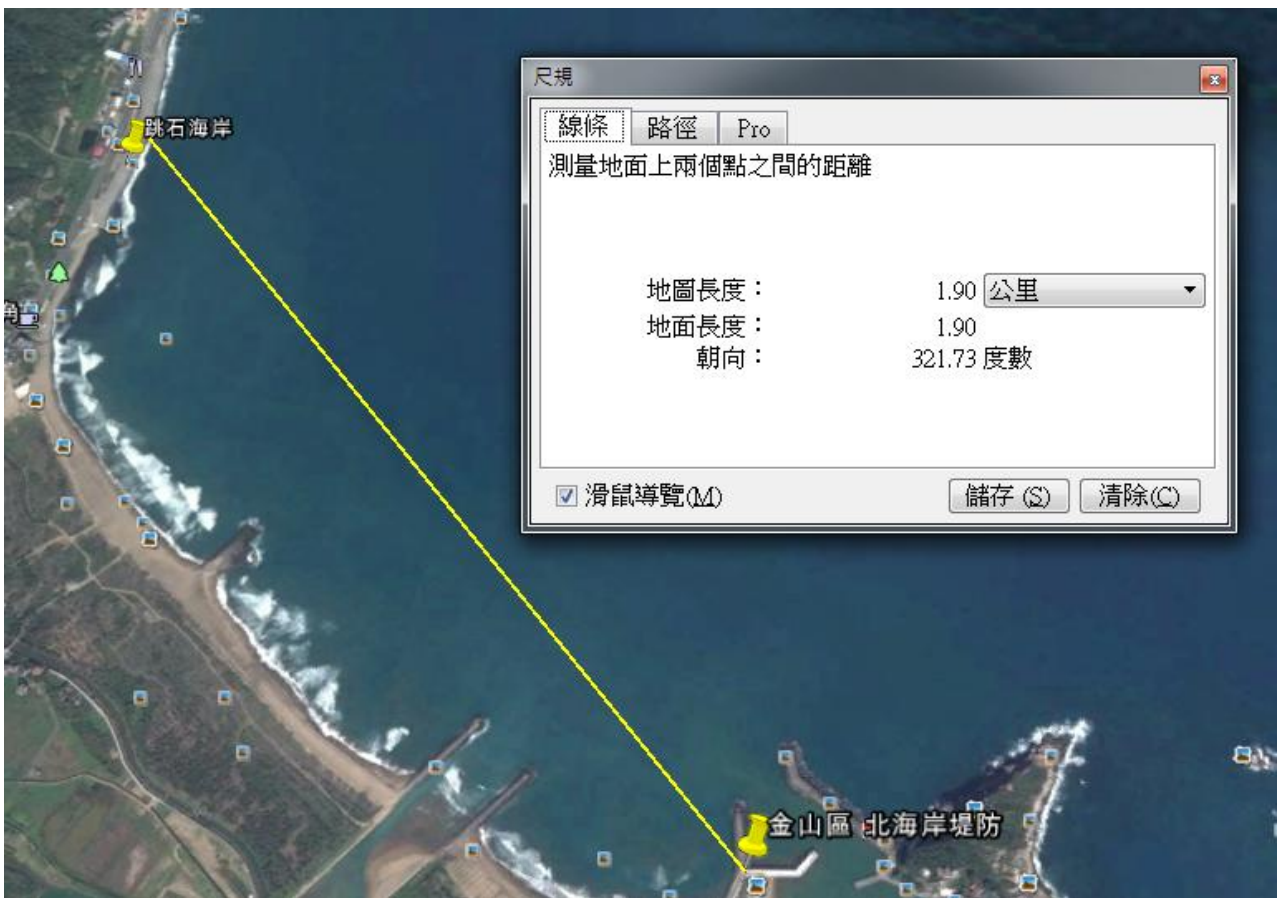
Date	2016 / 05 / 02			
Test Personnel				
				

## 4. Test Environment

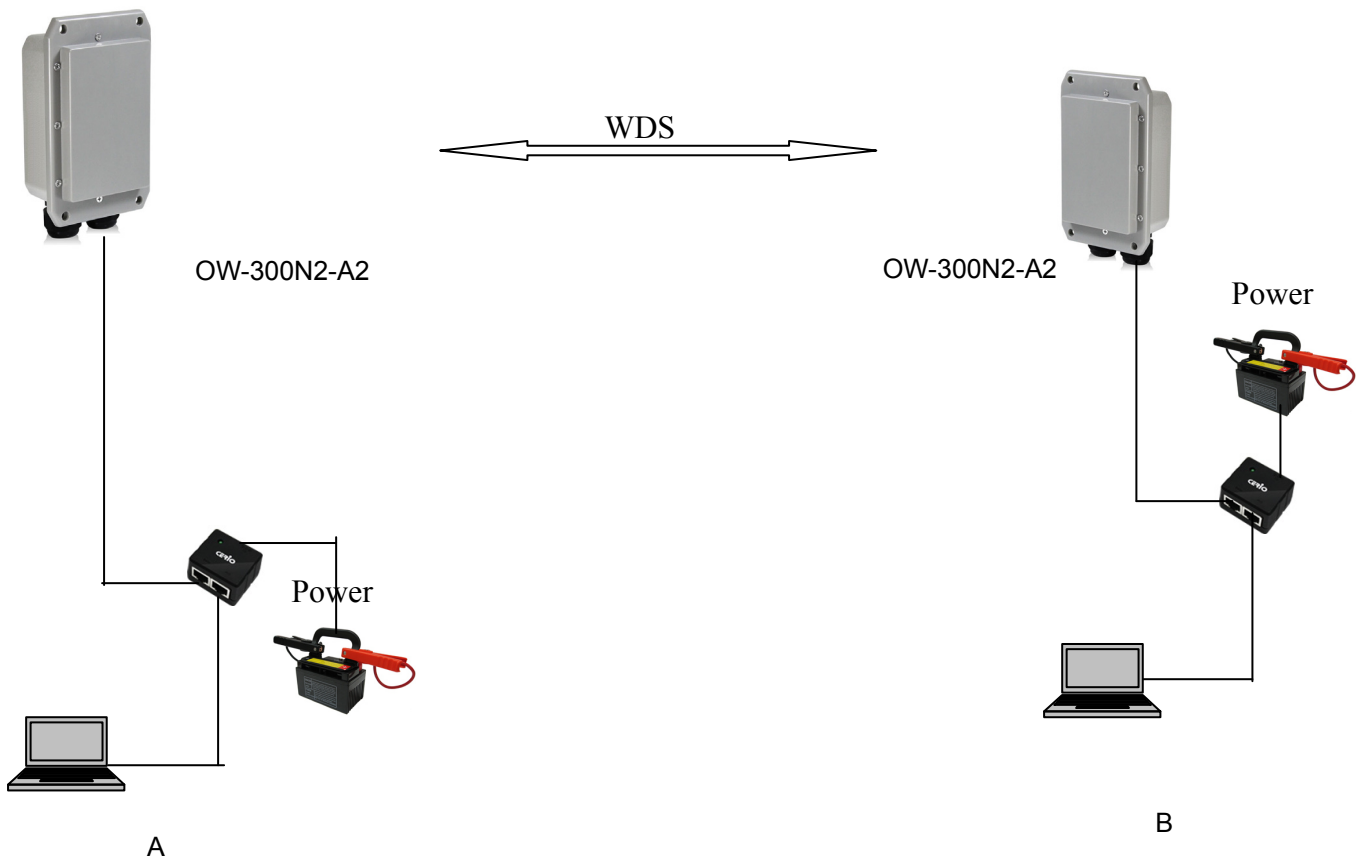
A 點, 跳石海岸

B 點 : 金山北海岸堤防

從 A 點到 B 點實際距離 19 公里



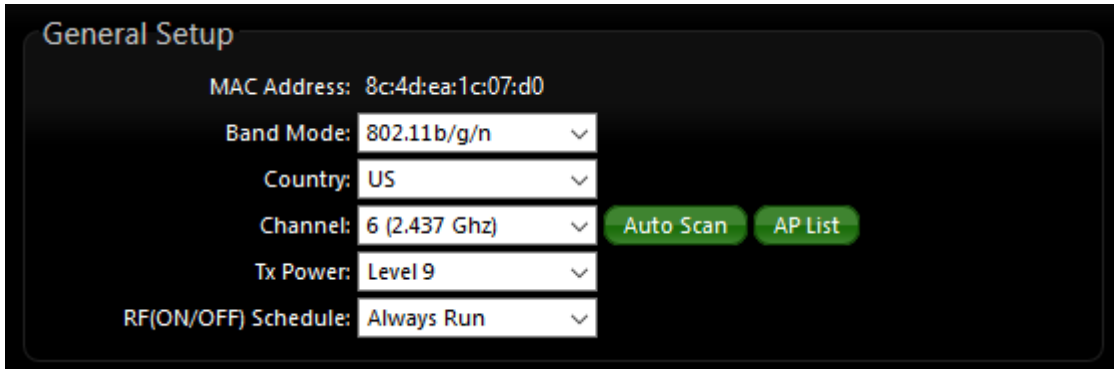
## 5. Wireless Network Configuration



此架構主要在於 A 點對 B 點使用 WDS 模式遠距離採用點對點橋接測試，透過此架構來測試當遠距離使用 WDS 點對點的橋接時 Throughput 傳送速率及分析訊號的傳送狀態

## 6. Throughput test

### # GUI Setting of Channel 6:



### ※ OW-300N2-A2 (TX+RX) Throughput

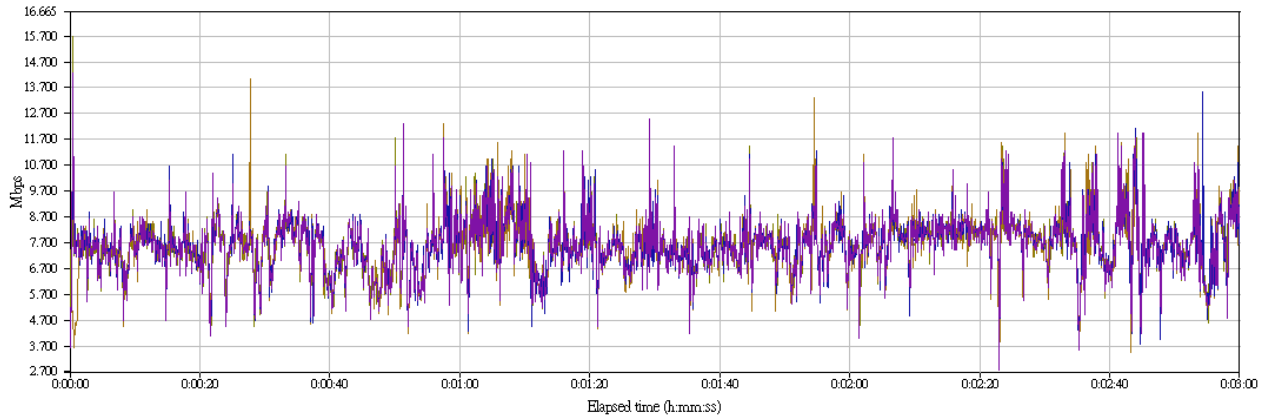
Channel	Up/down load	Throughput (Mbps)		
		Average	Min.	Max.
6	UP + Down	51.812	2.210	16.667
6	Down	76.372	0.707	72.728
6	up	30.242	0.245	25.000

### 測試上/下載之平均數據圖(up+down load)

Test Setup	Throughput	Transaction Rate	Response Time	Raw Data Totals	Endpoint Configuration						
Group	Pair Group Name	Run Status	Timing Records Completed	95% Confidence Interval	Average (Mbps)	Minimum (Mbps)	Maximum (Mbps)	Measured Time (sec)	Relative Precision		
<b>All Pairs</b>			<b>11,656</b>		<b>51.812</b>	<b>2.210</b>	<b>16.667</b>				
	Pair 6	No Group	Finished	1,694	-0.056 : +0.056	7.567	3.556	15.686	179.097	0.743	
	Pair 7	No Group	Finished	1,687	-0.061 : +0.061	7.536	3.463	14.085	179.083	0.805	
	Pair 8	No Group	Finished	1,693	-0.058 : +0.058	7.564	2.787	13.559	179.066	0.771	
	Pair 10	No Group	Finished	1,693	-0.059 : +0.059	7.563	2.768	14.286	179.088	0.781	
	Pair 11	No Group	Finished	1,563	-0.092 : +0.092	6.983	2.326	12.500	179.065	1.324	
	Pair 12	No Group	Finished	1,660	-0.067 : +0.067	7.416	3.556	11.940	179.081	0.900	
	Pair 13	No Group	Finished	1,666	-0.065 : +0.065	7.445	2.210	16.667	179.020	0.868	



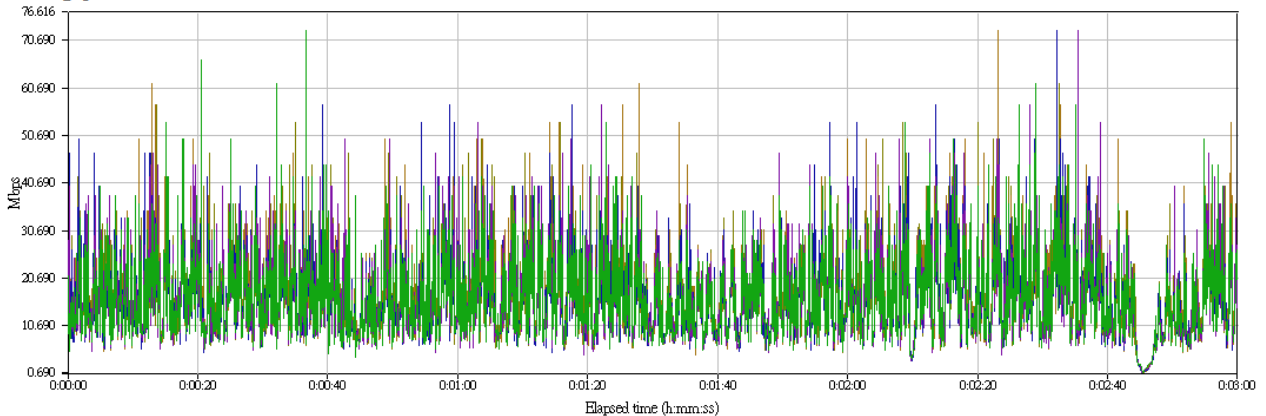
Throughput



測試下載之平均數據圖(down load)

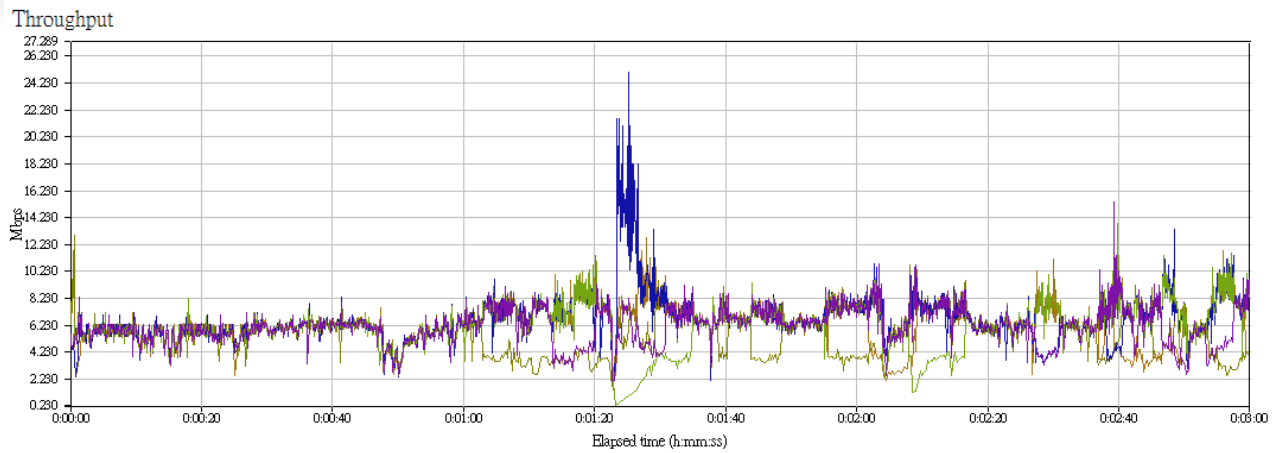
Test Setup	Throughput	Transaction Rate	Response Time	Raw Data Totals	Endpoint Configuration					
Group	Pair Group Name	Run Status	Timing Records Completed	95% Confidence Interval	Average (Mbps)	Minimum (Mbps)	Maximum (Mbps)	Measured Time (sec)	Relative Precision	
<b>All Pairs</b>			<b>17,182</b>		<b>76.372</b>	<b>0.707</b>	<b>72.728</b>			
	Pair 6	No Group	Finished: Wami...	3,450	-0.317 : +0.317	15.485	0.832	61.539	178.242	2.045
	Pair 7	No Group	Finished: Wami...	3,461	-0.312 : +0.312	15.541	1.078	72.728	178.168	2.005
	Pair 8	No Group	Finished: Wami...	3,430	-0.310 : +0.310	15.398	0.905	72.728	178.207	2.010
	Pair 10	No Group	Finished: Wami...	3,415	-0.317 : +0.317	15.328	0.778	72.728	178.235	2.070
	Pair 11	No Group	Finished: Wami...	3,426	-0.323 : +0.323	15.381	0.707	72.728	178.193	2.100

Throughput



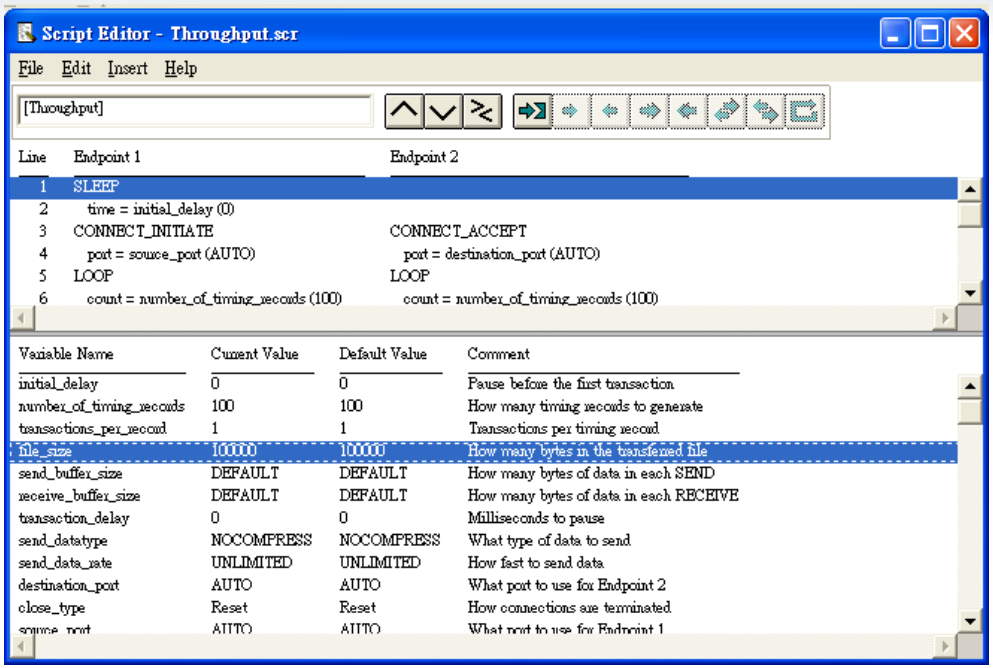
測試上傳之平均數據圖(up load)

Test Setup	Throughput	Transaction Rate	Response Time	Raw Data Totals	Endpoint Configuration					
Group	Pair Group Name	Run Status	Timing Records Completed	95% Confidence Interval	Average (Mbps)	Minimum (Mbps)	Maximum (Mbps)	Measured Time (sec)	Relative Precision	
<b>All Pairs</b>			<b>6,804</b>		<b>30.242</b>	<b>0.245</b>	<b>25.000</b>			
	Pair 6	No Group	Finished	1,227	-0.091 : +0.091	5.478	1.411	12.903	179.198	1.659
	Pair 7	No Group	Finished	1,391	-0.094 : +0.094	6.211	1.975	12.699	179.159	1.513
	Pair 8	No Group	Finished	1,475	-0.089 : +0.089	6.585	2.162	25.000	179.196	1.344
	Pair 9	No Group	Finished	1,353	-0.232 : +0.232	6.039	0.245	14.546	179.244	3.838
	Pair 10	No Group	Finished	1,358	-0.081 : +0.081	6.062	2.073	15.385	179.212	1.338



## 7. TEST Tools

TEST Equipment		
Notebook	HP Pavilion dv4 x1 RAM : 4G CPU : Intel Core Duo 2.4GHz OS : Windows XP sp3	HP Pavilion dm4-1108TX 4GB DDR3-1333 Intel Core i5 560M 2.66GHz OS : Windows XP sp3
Power	350W x 2	
Tripod	2	
Antenna	2x2 Built-in 10dBi Dual Patch antenna	
Test products	OW-300N2-A2 :1000mW eXtreme Power 11N 300Mbps +10dBi Outdoor Access Point	
TEST Software		

<p>Chariot Version 6.7</p>	 <p>The screenshot shows the Chariot Script Editor interface. At the top, there's a menu bar (File, Edit, Insert, Help) and a toolbar. Below that is a script editor window titled 'Script Editor - Throughput.scr' containing a script with the following lines:</p> <pre> 1 SLEEP 2 time = initial_delay (0) 3 CONNECT_INITIATE          CONNECT_ACCEPT 4 port = source_port (AUTO)  port = destination_port (AUTO) 5 LOOP                      LOOP 6 count = number_of_timing_records (100)  count = number_of_timing_records (100) </pre> <p>Below the script editor is a table of variables:</p> <table border="1"> <thead> <tr> <th>Variable Name</th> <th>Current Value</th> <th>Default Value</th> <th>Comment</th> </tr> </thead> <tbody> <tr> <td>initial_delay</td> <td>0</td> <td>0</td> <td>Pause before the first transaction</td> </tr> <tr> <td>number_of_timing_records</td> <td>100</td> <td>100</td> <td>How many timing records to generate</td> </tr> <tr> <td>transactions_per_record</td> <td>1</td> <td>1</td> <td>Transactions per timing record</td> </tr> <tr> <td>file_size</td> <td>10000</td> <td>10000</td> <td>How many bytes in the transferred file</td> </tr> <tr> <td>send_buffer_size</td> <td>DEFAULT</td> <td>DEFAULT</td> <td>How many bytes of data in each SEND</td> </tr> <tr> <td>receive_buffer_size</td> <td>DEFAULT</td> <td>DEFAULT</td> <td>How many bytes of data in each RECEIVE</td> </tr> <tr> <td>transaction_delay</td> <td>0</td> <td>0</td> <td>Milliseconds to pause</td> </tr> <tr> <td>send_datatype</td> <td>NOCOMPRESS</td> <td>NOCOMPRESS</td> <td>What type of data to send</td> </tr> <tr> <td>send_data_rate</td> <td>UNLIMITED</td> <td>UNLIMITED</td> <td>How fast to send data</td> </tr> <tr> <td>destination_port</td> <td>AUTO</td> <td>AUTO</td> <td>What port to use for Endpoint 2</td> </tr> <tr> <td>close_type</td> <td>Reset</td> <td>Reset</td> <td>How connections are terminated</td> </tr> <tr> <td>source_port</td> <td>AUTO</td> <td>AUTO</td> <td>What port to use for Endpoint 1</td> </tr> </tbody> </table> <p>At the bottom of the window, there's a 'Run' button and a control panel for running the script for a fixed duration: 0 Hrs, 3 Min, 0 Sec.</p>	Variable Name	Current Value	Default Value	Comment	initial_delay	0	0	Pause before the first transaction	number_of_timing_records	100	100	How many timing records to generate	transactions_per_record	1	1	Transactions per timing record	file_size	10000	10000	How many bytes in the transferred file	send_buffer_size	DEFAULT	DEFAULT	How many bytes of data in each SEND	receive_buffer_size	DEFAULT	DEFAULT	How many bytes of data in each RECEIVE	transaction_delay	0	0	Milliseconds to pause	send_datatype	NOCOMPRESS	NOCOMPRESS	What type of data to send	send_data_rate	UNLIMITED	UNLIMITED	How fast to send data	destination_port	AUTO	AUTO	What port to use for Endpoint 2	close_type	Reset	Reset	How connections are terminated	source_port	AUTO	AUTO	What port to use for Endpoint 1
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## 8. Conclusion

此測試重點在於為了要讓使用者能更加的廣泛應用 OW-300N2-A2 產品修訂 PCBA 上的天線轉換裝置,同時也增加 Heater 自動感應加熱裝置,修改了主板功能,再透過此測試,要證明不但一樣有穩定的訊號功率輸出外,Throughput 的傳送接收值相對也非常穩定,證明我們 CERIO 所開發無線產品的技術絕對是非常強穩,在我們的開發團隊上,大家努力的專研設計,不管在技術上,或是品質上,都是值得考驗。

此產品應用主要可以假想 A 點是有上網服務,但 B 點完全無 WiFi 網路服務下, A 點與 B 點可以使用 WDS 做點對點橋接,在 B 點部分使用 AP+WDS 功能,讓 B 點的 AP 可以服務附近的無線使用者連接 B 點 AP,再透過到 A 點的無線基地台使用 WiFi 上網。對於網路規劃者是一個不錯的理想產品,如下圖示意圖



