

Procedure for MMDS survey

Importance of site survey

A radio frequency (RF) site survey is the first step in the deployment of a Wireless network and the most important step to ensure desired operation.

Site survey is a process by which the surveyor studies the facility to understand the RF behavior, discovers RF coverage areas, checks for RF interference and determines the appropriate placement of Wireless devices

Required Equipments & Details:

1. GPS (with battery)
2. Compass
3. Work order copy for survey
4. Laptop (with IM tool V 6.0.2 and V 6.1.1, CM 5.3, Distance & RF calc)
5. Aperto SU with POE (After confirming using back to back test)
6. Testing cable (50 meters – straight cable & 5 meters cross cable)
7. Power junction box
8. Testing pole (5 meters – Foldable)
9. BSU parameters

BSU name and address

LAT, LONG, AMSL (from ground)

Tower height.

Building height (if any).

Antenna height.

BSU IP address

Frequency

Channel width

BSU ID

Management VLAN ID (400 or 2300)

Polarization

Bearing angle / Coverage angle

10. Free IP available details for all the BSU

Procedure:

1. Confirm whether the address given in the work order is valid or not, if not intimate the same to vendor.
2. Contact the customer through phone and fetch the permission for doing the survey, in case if there is no permission, update the status immediately to Vendor team, else proceed and fix the timing for survey.
3. Visit the customer end and find the LAT, LONG & AMSL values from **ground level**.
4. Visit the server room and calculate the cable length between IDU and ODU end. This has to be less than 95m. Check if there is any high voltage line in the vicinity and note it in the remarks column. Avoid high voltage wires for cable routing path.
5. Check if there are high voltage lines (electric transmission lines) which are nearby. Check if there are any other RF devices mounted nearby and note them in the remarks column.
6. Calculate the bearing angle

In distance calculator point A should be the BSU LAT & LONG and point B should be CPE LAT & LONG always. Consider the A to B bearing angle and check whether it falls under the coverage.

Calculate the hop distance for the same points A and B.

7. Check for LOS from the customer terrace towards BSU. Use compass pointer to find the direction of BSU. If the BSU is visible then there is LOS.
8. For both LOS/NLOS, then proceed for L2 survey using the available pole. Configure the parameters according to the sector coverage and note the RSSI. Rotate the antenna through 360 degrees and repeat this procedure for all other MMDS BSU, and note down the RSSI. Values.
9. If signal cannot be received, check all the CPE parameter like BSU ID, frequency, polarization, channel width and WSS (PW 760 means WSS default 1, if PW 1000 WSS according to the sector like 1, 2, 3 or 4).
10. Suggest the required height of antenna at customer premise with help of graph and contour map after completing the path survey.
11. Take a snap shot for the RSSI level and that of throughput test.
To get throughput use (telnet 5000 port and given the command sp tPutCLoop, 2, 1, BSU ID

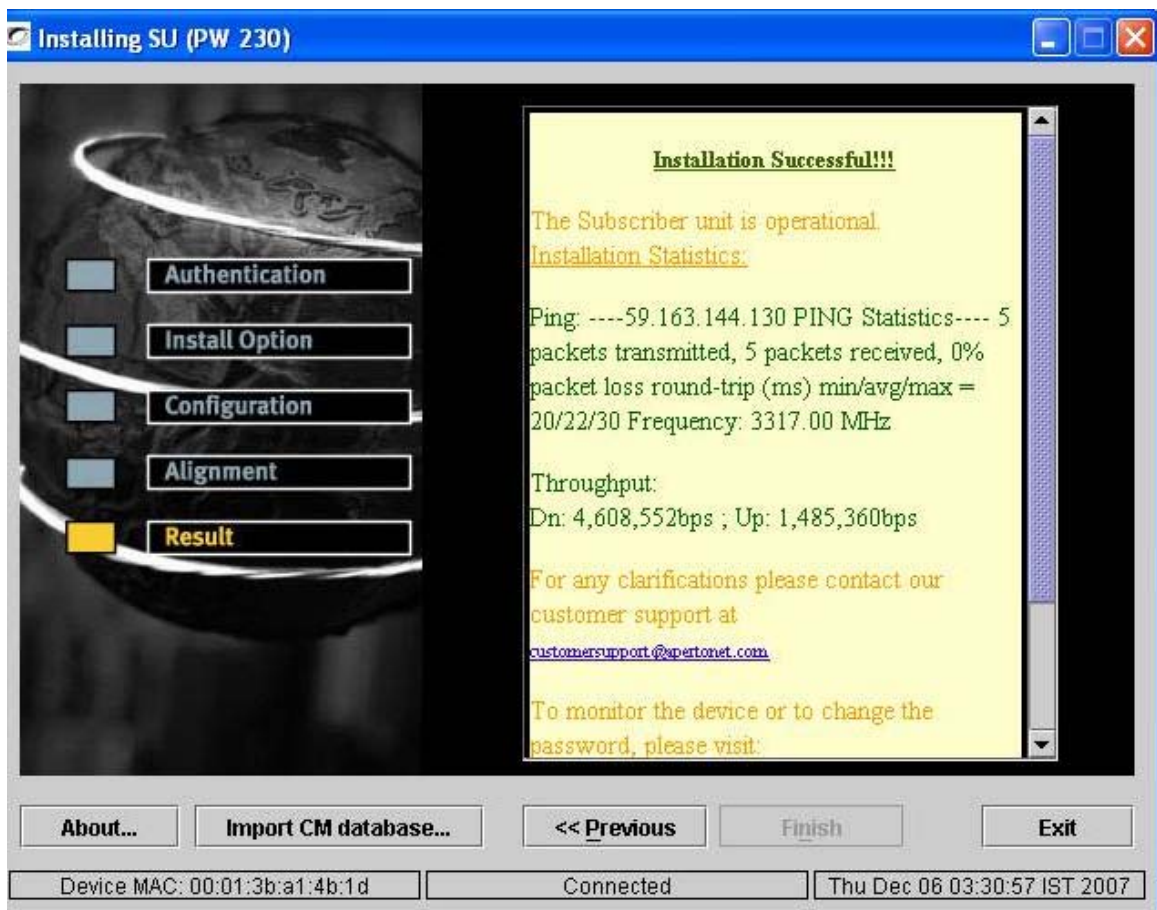
Example: APERTO Networks CPE - VxWorks 5.4 - Telnet (port=5000)

VxWorks Login: isp

Password:

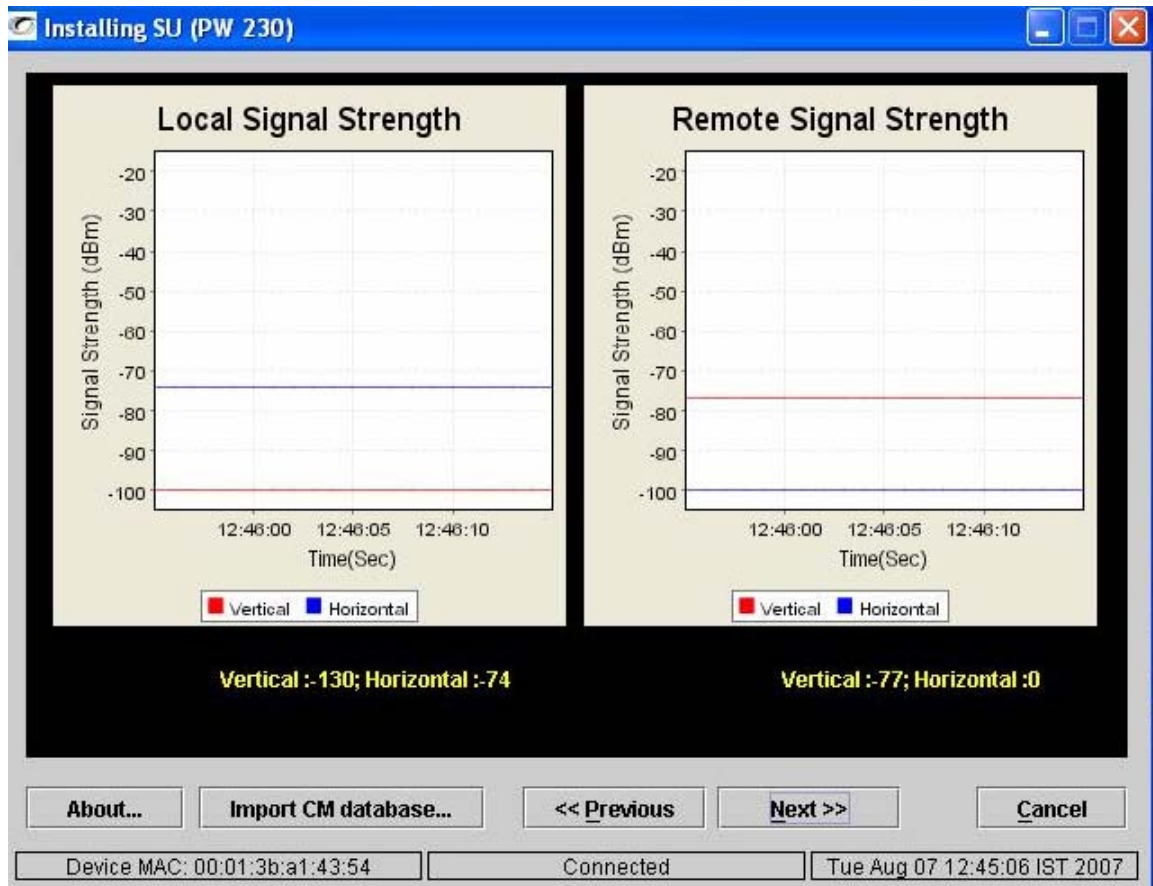
```
PW230> sp tPutCLoop,2,1,"203.197.100.2"
task spawned: id = 0x945037c0, name = t2
value = -1806682176 = 0x945037c0
PW230> tPutC: IP:203.197.100.2 Direction:DS Size:byteCount 1 MB
tPutC0: Sent ... 203.197.100.2 1048576 bytes in 63.72 seconds (16.07 KBps)
tPutC: IP:203.197.100.2 Direction:US Size:byteCount 1 MB
tPutC0: Received ... 203.197.100.2 1048576 bytes in 69.73 seconds (14.69 KBps)
tPutC: IP:203.197.100.2 Direction:DS Size:byteCount 1 MB
tPutC0: Sent ... 203.197.100.2 1048576 bytes in 63.53 seconds (16.12 KBps)
tPutC: IP:203.197.100.2 Direction:US Size:byteCount 1 MB
tPutC0: Received ... 203.197.100.2 1048576 bytes in 69.36 seconds (14.76 KBps)
tPutCLoop done)
```

Take a screen shot or else take the snapshot as below snap shot after locking with BSU

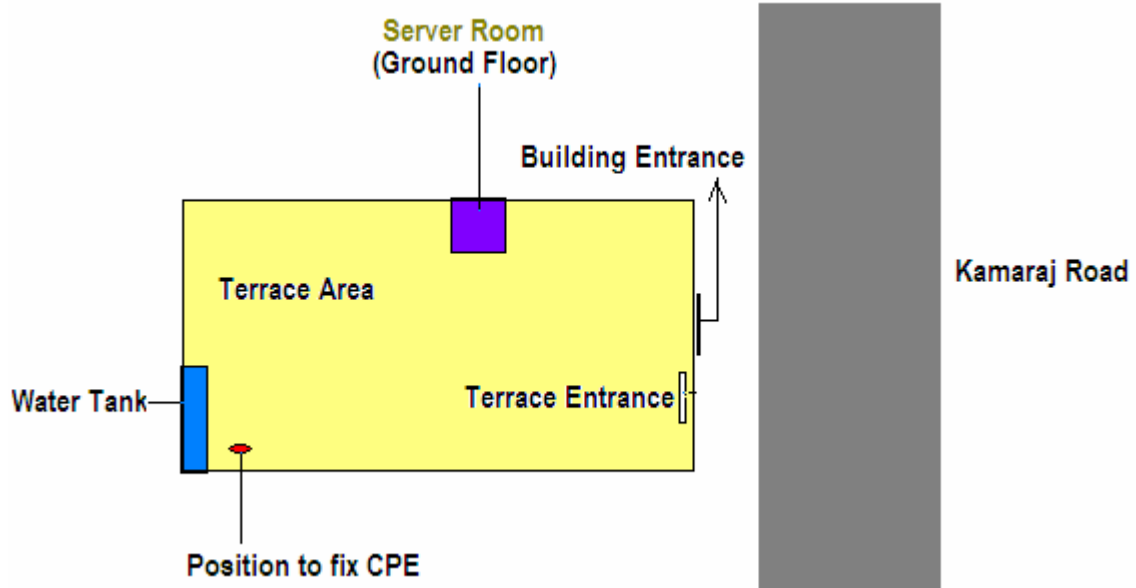


12. Check for the earth pit availability (Check for Building earthing, which is different from other electrical and lighting arrestor earthing pit).
13. Check for provision to fix the pole or mast.
14. Once Pole or Mast is suggested, confirm the quality of the building condition.

15. Take a photo shot of where the mast or pole (exact location) is to be erected.
16. Prepare the survey report with all the data collected from the site. Check twice before sending the report.
17. Insert the site diagram with top view in the survey report, also mark the locations where the pole or mast is to be erected and the screen shot of throughput test and RSSI level.



Example Diagram:



18. Send the report to vendor team, with a copy to concerned GCL in charge