

STATION: PETB DATE: 2021-04-09 TIME: ~16:00UTC to ~21:00UTC TECH: GD, AM

REASON FOR VISIT:

Intended to install Cambium/Xeta radio. This did so we...
Installed Sierra Wireless cell modem

PROBLEMS FOUND:

Cambium/Xeta would not connect reliably to its parent at Mt. Vollmer.

PROBLEMS FIXED:

-Did not install Cambium/Xeta radio. Instead replaced Cradle Point with Sierra Wireless.

EQUIPMENT INSTALLED: (name, s/n, uc#)

- IOTA battery charger, pn: DLS-30; with AGM dongle
- Installed new DIN rail with...
- Sierra Wireless, model: RV50X, Verizon, pn: 1103052
sn: QR0242025901B118, IMEI: 358643075248414
- DIN-4 relay: sn: DIN42101003895
- Reused existing Adam switch.
- Victron LVD, pn: BP65, set to "3A" 11.25V disconnect and 13.25V reconnect.

EQUIPMENT REMOVED: (name, s/n, uc#)

- Cradle Point cell modem (replaced with Sierra Wireless)
- "JF" run-charge battery charger (replaced with IOTA)

COMMENTS:

We tried different locations for the antenna. Finally we temporarily mounted the antenna on a ten foot poll and set it up on the walking trail (which is on a berm) directly adjacent, and north of the marina. This means that the altitude of the antenna was about ten feet higher than the top of the antenna mast at the site.

The final results were: The Cambium/Xeta radio seemed to connect with its parent at Mt. Vollmer, because it showed the parent radio in its neighbor list. But it would not reliably send data. I did about 100 individual radio pings, but only one was successful.

Data from the neighbor list showed that local RSSI was -98dB and local noise was -114dB. The minimum signal required for 229kbps (which is what we were using) should be -105dB. So it is a mystery why the radio did not seem to work.

This log file is saved, in the images directory for PETB, as a pdf with screen shots for the Cambium/Xeta radio.

After returning from the trip, and reviewing Google Earth, I discovered that I may have been pointing the antenna 10 to 15 degrees west of Mt. Vollmer. The vector from PETB to Mt. Vollmer is 136 deg true, and I used the compass app on my cell, but maybe it was out of calibration.

Since the radio did not work, we swapped the existing Cradle Point with a Sierra Wireless. We removed the SIM card from the CP and inserted it in the SW.

We also installed a new power/charging system.
Finally we vacuumed both enclosures.

IMAGES: Yes

CONSIDERATION FOR FUTURE SITE WORK:

I'd like to go back to PETB with the radio and try again. I'll try to point the antenna in the right direction to Mt. Vollmer and I also want to test from a road that is South of the marina.

Radio RF Ping

Not secure | 192.168.121.16/rfping.htm

Apps | Dust Collectors & D... | Guidance on Return... | UCB | McMaster-Carr | Electrical Wire & Ca... | Why Use Tinned Co... | Northern Arizona... | Reading list

Cambium Networks™

Device Name: TX.BK.PETB Uptime: 0 00:22:30

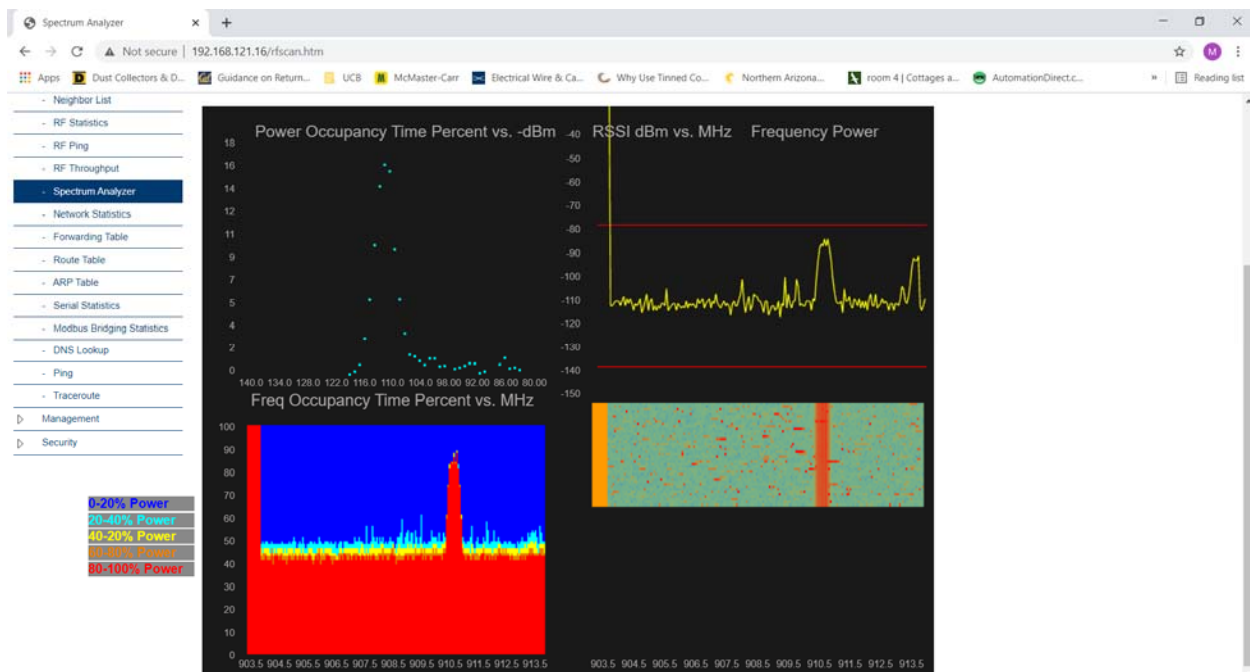
Radio RF Ping

Remote Radio ID Ping Count

Ping Count	Radio Id	Name	Remote Noise	Remote Signal	Local Noise	Local Signal
10	411	No response	0	0	0	0
9	411	No response	0	0	0	0
8	411	cgi timeout				
7	411	No response	0	0	0	0
6	411	No response	0	0	0	0
5	411	No response	0	0	0	0
4	411	No response	0	0	0	0
3	411	RXPETB	-105	-95	-95	-95
2	411	cgi timeout				
1	411	No response	0	0	0	0

Main

- Network
- Radio
- Serial
- cnMaestro
- Diagnostics
 - Neighbor List
 - RF Statistics
 - RF Ping**
 - RF Throughput
 - Spectrum Analyzer
 - Network Statistics
 - Forwarding Table
 - Route Table
 - ARP Table
 - Serial Statistics
 - Modbus Bridging Statistics
 - DNS Lookup
 - Ping



Radio RF Ping

192.168.121.16/rfping.htm

AppsDust Collectors & D...Guidance on Return...UCBMcMaster-CarrElectrical Wire & Ca...Why Use Tinned Co...Northern Arizona...room 4 | Cottages a...AutomationDirect.c...Reading list

Cambium Networks™

Device Name: TX.BK.PETBUptime: 0 00:29:19

Main

Network

Radio

Serial

cnMaestro

Diagnostics

Neighbor List

RF Statistics

RF Ping

RF Throughput

Spectrum Analyzer

Network Statistics

Forwarding Table

Route Table

ARP Table

Serial Statistics

Modbus Bridging Statistics

DNS Lookup

Ping

Traceroute

Management

Security

Remote Radio ID411Ping Count10Start PingStop PingClear

Ping Count	Radio Id	Name	Remote Noise	Remote Signal	Local Noise	Local Signal
10	411	No response	0	0	0	0
9	411	No response	0	0	0	0
8	411	No response	0	0	0	0
7	411	No response	0	0	0	0
6	411	cgi timeout				
5	411	No response	0	0	0	0
4	411	No response	0	0	0	0
3	411	No response	0	0	0	0
2	411	No response	0	0	0	0
1	411	No response	0	0	0	0

Neighbor list

192.168.121.16/neighborlist.htm

AppsDust Collectors & D...Guidance on Return...UCBMcMaster-CarrElectrical Wire & Ca...Why Use Tinned Co...Northern Arizona...room 4 | Cottages a...AutomationDirect.c...Reading list

Cambium Networks™

Device Name: TX.BK.PETBUptime: 0 00:31:12

Main

Network

Radio

Serial

cnMaestro

Diagnostics

Neighbor List

RF Statistics

RF Ping

RF Throughput

Spectrum Analyzer

Network Statistics

Forwarding Table

Route Table

ARP Table

Serial Statistics

Modbus Bridging Statistics

DNS Lookup

Ping

Traceroute

Management

Security

Radio	IP Address	MAC Address	Device id	Local RSSI	Local Noise	Local Age	Remote RSSI	Remote Noise	Remote TxPwr	Remote Age	Learned Age
1	192.168.121.15	70f1e5025155	411	-98	-114	5m	-94	-99	0	7m	15m

RefreshClear

RF Statistics

192.168.121.16/radiodiag.htm

AppsDust Collectors & D...Guidance on Return...UCBMcMaster-CarrElectrical Wire & Ca...Why Use Tinned Co...Northern Arizona...room 4 Cottages a...AutomationDirect...Reading list

Network

Radio

Radio Temp: 27 C PA Temp: 26 C Supply Voltage: 20269 mV Radio Voltage: 7368 mV

Serial

Bytes Tx: 8524 Bytes Rx: 16571

cnMaestro

Tx Rate: 0.0 kbps Rx Rate: 0.5 kbps Link Status: Down - No Peer Disconnect Count: 21

Current Tx Percent: 0 Current Rx Percent: 0 LQM: 0.00

Diagnosics

Frequency Max Noise Min Noise Avg Noise Max Signal Min Signal Avg Signal Fwd Power Reverse Power % Occupancy PA Current

Neighbor List

902404985 -97 -115 -112 -95 -97 -97 1024 7 0 710

RF Statistics

902714955 -97 -115 -112 -95 -97 -97 1024 7 0 710

RF Ping

903024925 -100 -120 -113 -94 -96 -96 988 15 0 740

RF Throughput

903334895 -100 -120 -113 -94 -96 -96 988 15 0 740

Spectrum Analyzer

903644865 -98 -119 -112 -94 -98 -96 993 17 0 760

Network Statistics

903954835 -98 -119 -112 -94 -98 -96 993 17 0 760

Forwarding Table

904264805 -91 -118 -112 -88 -97 -95 976 6 0 700

Route Table

904574775 -91 -118 -112 -88 -97 -95 976 6 0 700

ARP Table

904884745 -84 -119 -112 -90 -98 -96 985 29 0 790

Serial Statistics

905194715 -84 -119 -112 -90 -98 -96 985 29 0 790

Modbus Bridging Statistics

905504685 -79 -119 -113 -91 -98 -95 1014 16 0 760

DNS Lookup

905814655 -79 -119 -113 -91 -98 -95 1014 16 0 760

Ping

906124625 -88 -120 -112 -89 -99 -95 1000 23 0 780

Traceroute

906434595 -88 -120 -112 -89 -99 -95 1000 23 0 780

Management

906744565 -82 -120 -113 -93 -98 -96 995 16 0 750

Security

907054535 -82 -120 -113 -93 -98 -96 995 16 0 750

907364505 -78 -119 -110 -93 -100 -96 1009 6 0 710

907674475 -78 -119 -110 -93 -100 -96 1009 6 0 710

907984445 -79 -120 -112 -85 -100 -96 985 9 0 720

908294415 -79 -120 -112 -85 -100 -96 985 9 0 720

908604385 -87 -120 -112 -86 -102 -97 1000 7 0 720

908914355 -87 -120 -112 -86 -102 -97 1000 7 0 720

909224325 -75 -118 -112 -93 -103 -98 988 22 0 780

909534295 -75 -118 -112 -93 -103 -98 988 22 0 780

Radio Setup

192.168.121.16/radionetset.htm

Device Name: TX.BK.PETB

Uptime: 0 00:32:40

Camium Networks™

Main

Network

Radio

RF Mode

RF Settings

Network Settings

Seamless Serial Map

Serial

cnMaestro

Diagnosics

Management

Security

Radio Network Settings

900 MHz ISM

Autoconfig Enabled.
See AP for Settings.

DescriptionTX.BK.PETB at PETB

Auto-ConfigurationOn, Compatibility Mode

Network Type

Network RoleEnd Point (EP)

Enable Repeaters

Repeater Hop Offset

Roaming

Network Address410

Device ID412

Link-with Device ID411

Network Radius

Beacon Interval

AP Repeat

MMSTypeNone

Max Payload Bytes

Dynamic Payload

ProtocolEthernet

Serial Number:E5020680

Firmware Version:1.56.20518

Regulation:FCC

Diag Threshold-81dBm

Save

Commit