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Table 1 - Tower Series PIM Analyzer Specifications

Description	Typical Specifications	
Electrical Specifications		
Frequency Bands	**Receive Range (MHz)**	**Transmit Range (MHz)**
LTE 700 (Tower Series Dual Band 700)	698 - 722 (RX1), 780 - 798 (RX2)	745.6 - 769.4 (TX1), 732.6 - 734.4 (TX2)
APT 700 (Tower Series Dual Band 700A)	703 - 748 (RX1), 825 - 845 (RX2)	758 - 776 (TX1), 788 - 807 (TX2)
LTE 800 (Tower Series 800)	832 - 862	811 - 821 (TX1), 791 - 795 (TX2)
Cellular 850 (Tower Series 850)	824 - 849	864 - 871 (TX1), 881.6 - 894 (TX2)
GSM 900 (Tower Series 900)	890 - 915	925 - 937.5 (TX1), 951.5 - 980 (TX2)
DCS 1800 / UMTS 2100 (Tower Series Dual Band 1821)	1710 - 1785 (RX1), 1920 - 1980 (RX2)	1805 - 1833 (TX1), 1855 - 1880 (TX2)
PCS/AWS (Tower Series Dual Band 1921)	1710 - 1755 (RX1), 1850 - 1910 (RX2)	1965 - 1995 (TX1), 1930 - 1945 (TX2)
		2110 - 2155 (TX1)
LTE 2600 (Tower Series 2600)	2500 – 2570 (RX1)	2620 - 2644 (TX1) 2690 Fixed (TX2)
Transmitter	**Frequency Accuracy:** ±1 ppm @ +23°C; Stability ±1 ppm (-10°C to +55°C)	
	Frequency Aging: ±1 ppm/yr	
	Output Accuracy: ± 0.3 dB	
	Frequency Step Resolution: ± 200 KHz	
	Output Power Resolution: ± 0.1 dB	
	Adjustable Power Range: 20 to 46 dBm x 2 (100 mW – 40 W x 2)	
Receiver	**Residual Intermod Level :** < -120 dBm (< -163 dBc at 20 W); -125 dBm (-168 dBc) Typical	
	Measurement Range: -60 to -140 dBm	
	Noise Floor: -136 dBm	
	Reverse Power Protection: 13 dBm (20 mW) continuous	
Measurement Modes	**Measurement Method:** One Port, Reverse PIM	
	Real Time PIM: 3rd and 5th order IMD	
	Return Loss: Measured in dB	
	Frequency Sweep: Frequency Response	
	PIM vs. Time: 3rd and 5th order IMD	
	RX Interference: Receive Only Mode – Noise Floor Measurements	
	Noise Floor Measurement: Up-Link noise level with TX off	
	PIM Location (PiMPoint): Distance to PIM Location in Feet or Meters with VP Settings	
	Distance to Fault/Cable Loss: One Port Open-Short Calibration	
	DAS Feature: Path Loss Characteristics (at Low Power over time)	
Measurement Range	**Return Loss:** Directivity >25 dB; **Resolution:** >0.1 dB	
	VSWR: Measurement Range 17:1 to 1.12:1; **Resolution:** >0.01 dB	
	Cable Loss: Measurement Range 0 to 30 dB; **Resolution:** >0.01 dB	
	Distance to Fault: VSWR Range 17:1 to 1.02:1; **RL Range:** 0 to 40 dB	
System	**Battery:** >3 hours (Full Charge)	
	Power: AC (90 - 256 VAC, 50 - 60 Hz)	
	Alarms: Audio & Visual Display	
	Display Size & Type: 8." (203.2 mm) Capacitive TFT, Industrial Grade Screen	
	Data Ports: 3 – USB 2.0, 1 x Ethernet LAN Port	
	Remote Control: WiFi Enabled (802.11n)	
	Control: GUI Control Via Touch Screen Display	
	Battery Power: 28 VDC	
	Battery Capacity: 3.5 AH (99.4 WH)	
	Battery Type: Li-Polymer Removable Battery Pack	
Electrical	**Max Power Consumption:** <340 W	
Mechanical	**Weight:** < 18 to 27 lbs. (8.5 to 12.5 kg) (Model Dependent)	
	RF Output Connector: 1 x 7/16 DIN Female	
	Dimensions (W x H x D): 14" x 9" x 4.5" (350 × 230 × 114 mm)	
	Operating Temperature: -10°C to +45°C (14°F to 113°F), 95% RH	
	Storage Temperature: -30°C to +60°C (-22°F to 140°F), 85% RH	

1   Introduction

This user guide only covers Remote Operation of the Tower Series PiMPro PIM Analyzers.

1.1   Analyzer Frequencies Available

CCI's Tower Series Analyzer is presently available for the following frequency bands:

Model	Frequency Band	TX1 (MHz)	TX2 (MHz)	RX1 (MHz)	RX2 (MHz)
Tower 700 (Dual Band)	LTE 700	745.6 - 769.4	732.6 - 734.4	698 - 722	780 - 798
Tower 700A (Dual Band)	APT 700	758 - 776	788 - 807	703 - 748	825 - 845
Tower 800	LTE 800	811 - 821	791 - 795	832 - 862	
Tower 850	Cellular 850	864 - 871	881.6 - 894	824 - 849	
Tower 900	GSM 900	925 - 935.4	951.6 - 980	880 - 915	
Tower 1821 (Dual Band)	DCS & UMTS 1800	1805 - 1833	1855 - 1880	1710 - 1785	1920 - 1980
Tower 1921 (Dual Band)	PCS & AWS	1965 - 1995	1930 - 1945	1710 - 1755	1850 - 1910
		2110 - 2155			
Tower 2600	LTE 2600	2620 - 2644	2690 Fixed	2500 - 2570	

2   Safety

2.1   Safety Instructions

This section illustrates the systems used for presenting safety information.

Note: Reduce the risk of accidents by studying all of the instructions carefully before starting work. If questions arise regarding the safety instructions, contact your supervisor or CCI Technical Support (information below).

Where local regulations exist, these are to be followed first. The safety information in this manual is a supplement to local regulations.

It is your responsibility to make certain that local regulations are known and followed.

This manual including safety information and specific instructions supplied by CCI personnel must be followed in any work performed on these products. A sufficient knowledge of English or any other languages in which the manuals or instructions are printed is required.

The safety information in this manual presupposes that any person performing work on CCI products or systems has the necessary education, training, and competence required to perform that work correctly. For certain work, additional training may be required.

2.2   Warnings

Warnings are used to indicate hazardous activities. The warnings are preceded by the common hazard symbol.

Hazard Symbol

Danger

Danger means that an accident may occur if the safety precautions are neglected. This type of accident is likely to be fatal.

Warning

Warning means that an accident may occur if the safety precautions are neglected. This type of accident may be fatal or cause serious injury. Product damage can occur.

Caution

Caution means that an accident may occur if the safety precautions are neglected. This type of accident may cause serious injury. Product damage can occur.

The following special symbols are used to indicate the risk of radio frequency radiation, electrical hazards, and ESD:

Radio frequency radiation

Electrical hazard

Electrostatic discharge

Warnings are used throughout this manual to alert the reader to special instructions concerning a particular task or operation that may be hazardous if performed incorrectly or carelessly. Therefore, read the instructions carefully.
Strict compliance with the special instructions while performing a task is the best way to prevent accidents.

2.3 Electrical Hazards

High Voltage

<table>
<tr><td align="center">Danger

High Voltage is used in the operation of this equipment. Either direct contact with the mains power or indirect contact via dampness or collected moisture can be harmful and/or fatal</td></tr>
</table>

The A.C. Installation must be carried out according to local regulations. These regulations may require the work to be carried out by a qualified and authorized electrician.

Remove metal objects from your person that may come in contact with the equipment.
Switch off power if the equipment becomes wet or damp.
Prevent damp or water from entering the equipment in bad weather.

Electrical

Danger

Improper electrical installation may cause fire or electrical shock. Approved circuit breakers for the AC mains and the cable's cross sectional areas must always be selected in accordance with local laws and regulations. Only a qualified and authorized electrician is permitted to install or modify the electrical installation.

Cable marking – Verify cable markings correspond before connecting cables

2.4 ESD

Caution

Sensitive Components such as Integrated Circuits (ICs) can be damaged by discharges of static electricity

---

2.5 Working at Heights

Caution must be taken when working at heights installing racks. Please ensure that you are trained and have the appropriate equipment for this type of installation.

2.6 Radio Frequency Radiation

Danger

Radio Frequency Radiation (RF) from antenna systems can endanger your health

---

2.7 Specific Safety for the Tower Series PIM Analyzer

The CCI Tower Series PIM Analyzer shall always be terminated with a "High Power Low PIM Load" connected either to its RF Output connector or at the end of a Device Under Test (DUT) which is connected between the CCI Tower Series PIM Analyzer and the Low PIM Load. If the Tower Series is not properly terminated, dangerous RF Radiation will be present when the unit is turned on. Additionally, the Tower Series can malfunction due to the possibility that the High Power RF can be reflected back into the Tower Series itself.

2.8 RF, Interference & Grounding Protection

If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

3 Tower Series Remote Operation

This user guide only covers Remote Operation of the Tower Series PiMPro PIM Analyzers, and it assumes that the user is familiar with the operation of the Tower Series PiMPro units.

3.1 Optional "Remote" Operation of the Tower Series PiMPro

Optional Remote operation is available when purchased for the Tower Series PiMPro units. Remote operation can be purchased either at the same time as the Tower Series PiMPro is procured, or it can be purchased at a later date. When the Remote Operation option is purchased the following will be supplied by CCI:

1) Wireless Router
2) Tablet (quantity to be specified at time of purchase)
3) Tower Series License
4) Ethernet Cable(s) – Long & short cables
5) USB Cable(s) – Long & short cables
6) Remote Operation Guide

The icon for Remote Operation can be seen in **figure 4** below. This function allows one or more tablets to control the operation of the Tower Series PiMPro. Presently remote control is available for PIM & R.Loss, PIMPoint and the Quick Start Guide functions on the Tower Series PiMPro. Note that the short USB & Ethernet cables are to be used when the wireless router is placed on the PiMPro unit itself (see **figure 1**), while the long USB & Ethernet cables can be used when placing the wireless router in the pocket of the Tower Series PiMPro (see **figure 2**).

Figure 1 – Wireless Router Mounted on PiMPro

3.1 Optional "Remote" Operation of the Tower Series PiMPro (Cont.)
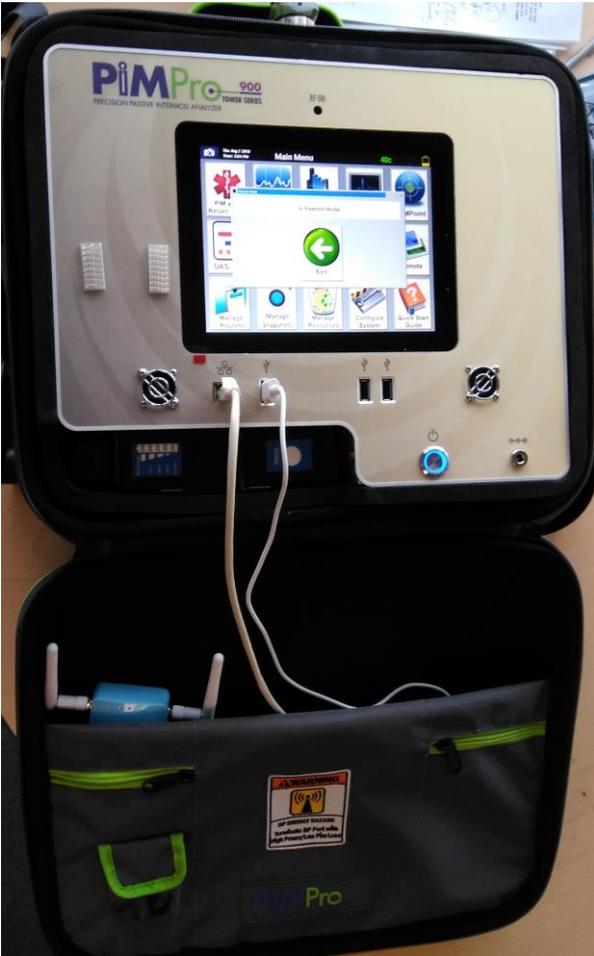
Figure 2 – Wireless Router Mounted in PiMPro Carrying Case

3.1.1 Verify "Remote" Operation is Available

"Remote" operation is available when the "Remote" icon   is visible on the Main Menu Screen on the Tower Series PiMPro.

3.1.2 Connect Wireless Router

To prepare for remote operation choose the correct set of Ethernet and USB cables for the position the wireless router is to be placed in. Connect the LAN port of the supplied "Wireless Router" shown in **figure 3** to the Ethernet Port of the Tower PiMPro "for communication." Connect the Power port of the supplied Wireless Router to one of the USB ports on the Tower Series PiMPro "to power" the wireless router. Note that there are LED's on the wireless router. A Green LED indicates that the wireless router is "ON," and a RED Blinking LED indicates that the wireless router is communicating with the tablet(s).
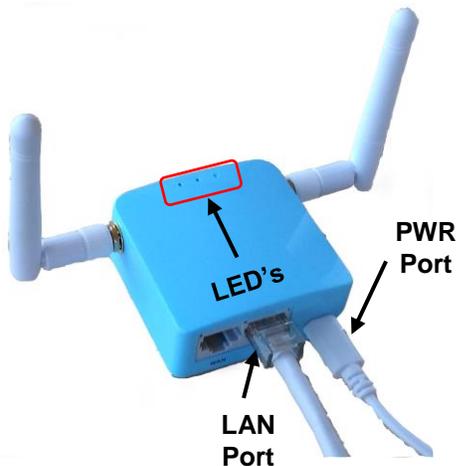
Figure 3 – Wireless Router for Tower Series PiMPro

3.1.3 Turn "ON" Tablet(s)

Turn on the tablet(s) to be used to control the Tower Series PiMPro.

3.1.4 Start Remote Operation

To start Remote Operation press the "**Remote**" Icon (see **figure 4**) on the Main Menu Screen of the Tower Series PiMPro. The "**In Remote Mode**" pop-up window will appear as shown in **figure 5** below.

Figure 4 – Tower PiMPro Main Menu Including "Remote"

Figure 5 – "In Remote Mode" Pop-up window

3.1.5 Check for Wi-Fi from Tower Series PiMPro

Check to see that the Wi-Fi operation is available from the Tower Series PiMPro, by opening the available Wi-Fi connections on the tablet. See **figure 6** for an example of the Wi-Fi connections available, where the PiMPro is highlighted. Note: The SSID and Password for the wireless router are located on the wireless router, in case they are required to make the connection with the PiMPro.

Figure 6 – Wi-Fi Connections Available

3.1.6 Open Tower Series PiMPro on Tablet

Open the Tower Series PiMPro operation on the tablet by clicking on the PiMPro icon on the Tablet's Main Menu as shown in **figure 7** below. This will open up the screen shown in **figure 8** below and the screen shows the functions presently available for "Remote Operation" on the Tower Series PiMPro. The functions include PIM & R.Loss (includes PIM vs. Time), PIMPoint and the Quick Start Guide.

Figure 7 – Tablet Main Screen with PiMPro Icon Highlighted

3.1.6   Open Tower Series PiMPro on Tablet (Cont.)

Figure 8 – PiMPro Operating Modes on Tablet

3.1.7   Verify Tower Series Wi-Fi Connection

When connected the following screen will appear on the remote tablet. Note that the unit's RF is off initially. Check for the green computer to computer connection icon in the upper right hand corner of the tablet screen as shown in **figure 8** above.

3.1.7.1   Computer Icons Show Green

If the computer to computer icons at the top right corner of the tablet screen are "green," then the wireless connection is established.

3.1.7.2   Computer Icons Show Red

If the computer to computer icons at the top right corner of the tablet screen are "red," then the wireless connection is halted. In order to reset the communications, you should "Exit" the "Remote Mode" and then start up the Remote Mode once again. Or you can go to the Wi-Fi connections on the tablet in question, and try to disconnect and restart the Wi-Fi communications on the tablet.

3.1.8   Tablet Main Screen

When ready and communicating the Tablet screen will appear as shown in **figure 8** above. PIM & R.Loss, PIMPoint and the Quickstart Guide are initially available to access when using the tablet to Remote Operate the Tower Series PiMPro.

3.1.9 Start PIM & RL Test

When the remote tablet is connected, press the PIM & R.Loss icon and the screen shown in **figure 9** below will appear. If the user needs to set the Tower Series PiMPro for values other than the default values (or wants to confirm the "default" values are correct), than the user should go through the steps listed in **3.1.9.1** and it's subparagraphs below to set up the Tower Series PiMPro for PIM and R$_L$ testing as desired. Note that if the user has two tablets connected, the user can measure the PIM in dBm on one tablet, while the other tablet is performing readings in dBc. The hi-lighted "Flashing Blue Square" in the "PIM reading" portion of the screen indicates that the PiMPro is taking readings (even when "TX" is off).

Figure 9 – PIM & R.Loss Screen Prior to Test

3.1.9.1 Change PIM & R.Loss and PIM vs. Time Settings

Note that PIM & R.Loss settings can be changed from the tablet(s) when in remote operation. Settings available for change include:

1) F1 and F2 Frequencies
2) Power Levels of F1 and F2
3) Test Duration
4) PIM Acceptance/Failure Limits
5) Turn-On and Turn-Off of the TX
6) IM Frequency
7) dBm/dBc Unit Change
8) Battery Life Selection
9) Record Reading
10) PIM vs. Time (Graph)

3.1.9.1.1 Change Frequencies

The F1 and F2 frequencies can be changed as on the Tower Series PiMPro itself. Pressing the associated frequency for F1 and F2 (see the highlighted area in **figure 9**) will open up the pop-up window to enter the new F1 or F2 frequency. See **figure 10** below for the TX-1 (or TX-2) pop-up window. If the user attempts to set a frequency outside the allowable range, a "Frequency out of Range" pop-up window appears (as seen in **figure 11**) and also indicates "Please Try Again."
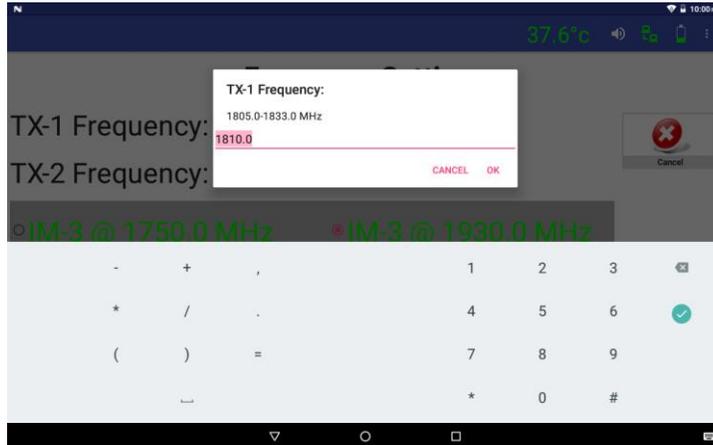
Figure 10 – TX-1 Frequency Setting Pop-up Window
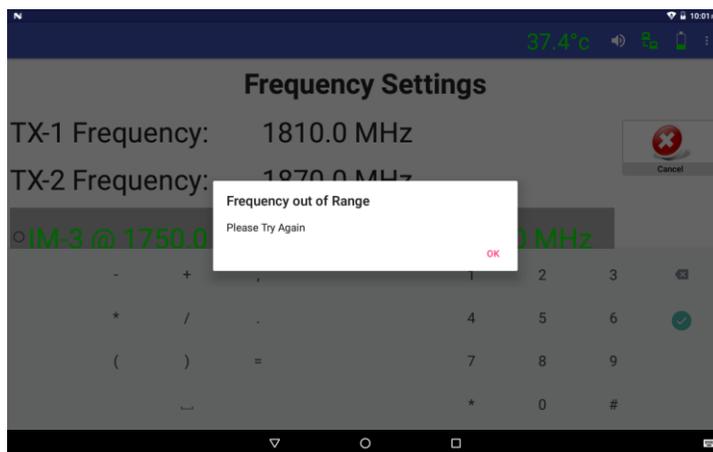
Figure 11 – "Frequency out Of Range" Pop-up Window

3.1.9.1.2 Change Power

The Power Level of the F1 and F2 frequencies can also be changed as on the Tower Series PiMPro. Pressing the Power Level shown will open up the pop-up window to enter the new power level for F1 or F2. See **figure 12** below for the location to press the F1 and F2 Power Level. This will open up the Power Setting pop-up window as shown in **figure 13**. *Note: if the user selects a power value which is outside of the available range, a pop-up window will appear similar to the one shown for the frequency range being out of range. However, it will indicate "Power Out of Range" and "Please Try Again."*
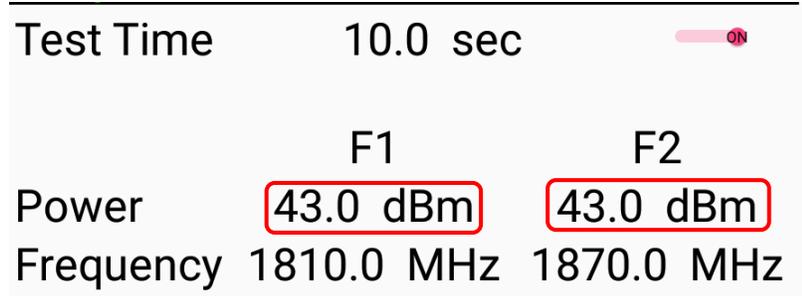
Figure 12 – Location of F1 & F2 Power Level Icons
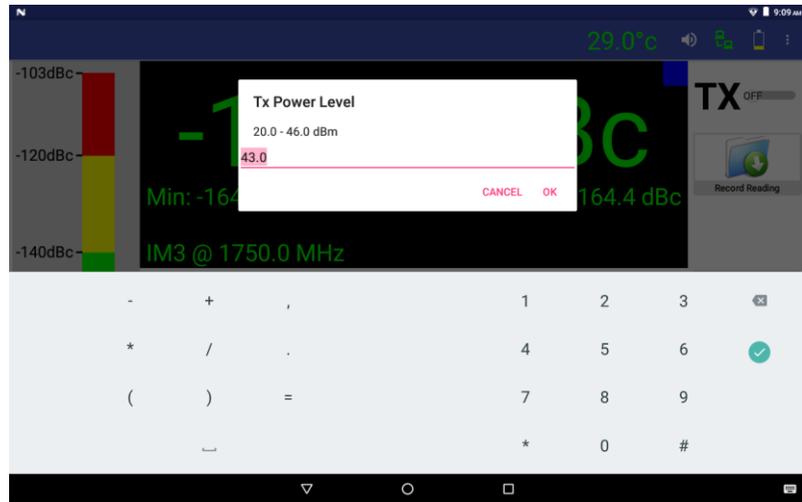
Figure 13 – TX Power Level Setting Pop-up Window

3.1.9.1.3 Change Test Duration

The duration of the PIM & R.Loss test can also be changed as on the Tower Series PiMPro. Pressing the "Test Time Icon" (as shown in **figure 14**) on the Screen will open up the pop-up (see **figure 15** below) to change the Test Duration, which has a duration of 10 to 240 seconds. Please note that there is an icon to the "right" of the Test Time which appears as if it is a slider. Clicking the icon (which changes the icon by showing the bar next to the letters Test Time as having shifted to the "right" and turning "red") as shown in **figure 14**, tells the Tower Series PiMPro to only test for the "specified" amount of time. In the screen shown below, this would be 10 seconds. If the Icon is off (the icon will appear gray and what appears as if it is a slider is to the "left") then the PIM and R.Loss test will stay on for the maximum allowable period of 4 minutes (240 seconds).
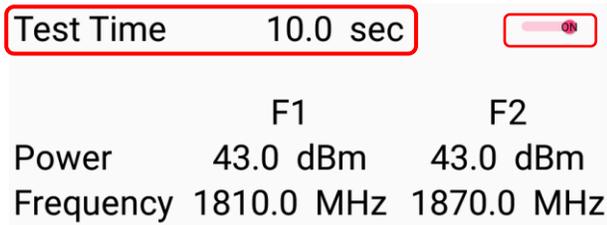
Figure 14 – Location of PIM vs. Time "Slider"
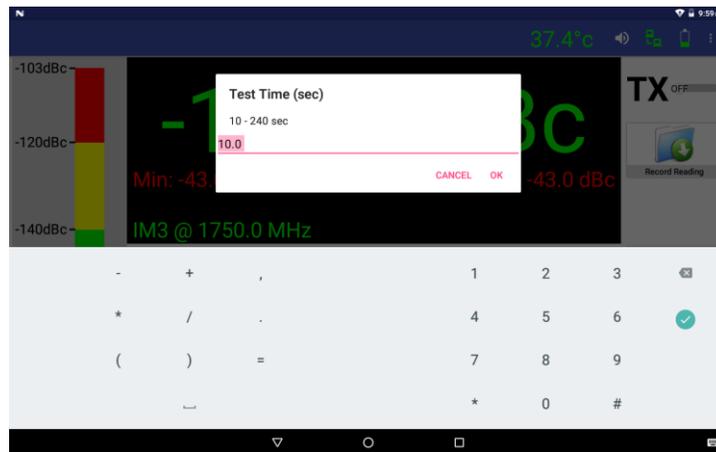
Figure 15 – Time Duration Setting Pop-up Window

3.1.9.1.4 PIM Units and Acceptance/Failure Limits

The PIM Acceptance/Failure Limits can be accessed by pressing the left side bar (icon) of the tablet screen. Clicking on the Acceptance/Failure Limit Icon on the left side of the screen will open up the pop-up window to allow for control of the Passing and Failing IM Criteria. Pressing on the -140 dBc portion of the icon opens up the PIM Pass Limit pop-up window, while pressing on the -120 dBc portion of the icon opens up the PIM Fail Limit pop-up window. The allowable Pass and Fail limits are -103 dBc to -183 dBc (-80 dBm to -140 dBm). See **figures 16 - 18** below for an example.

3.3.9.1.4 PIM Units and Acceptance/Failure Limits (Cont.)
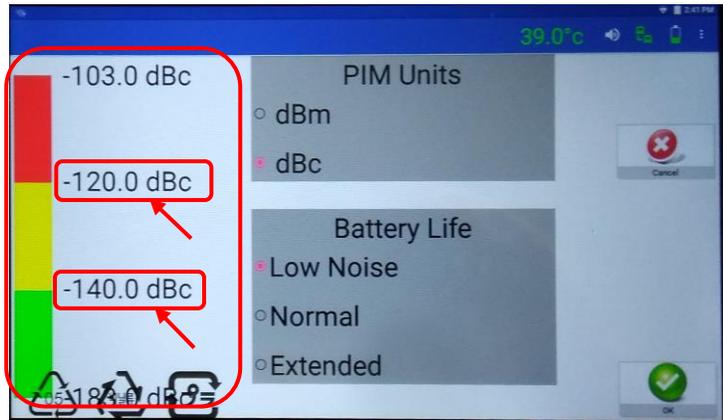
Figure 16 – PIM Level Pop-up Window

Figure 17 – PIM Pass Limit Pop-up Window

Figure 18 – PIM Fail Limit Pop-up Window

3.1.9.1.5 IM Frequency Change

The IM Frequency can be accessed by pressing the "IMx" (where "x" can be 3, 5, 7 or 9) portion of the screen as highlighted in **figure 19** below. This will open up the window shown in **figure 20**. Select the appropriate IM Frequency ("allowed values" are shown in "Green" text), and press the "OK" button. Note that the IM frequencies listed in "red" text are out of valid range for that band, hence, not "selectable." If the IM frequencies showing are not acceptable, then change the F1 and F2 frequencies as needed to achieve the desired acceptable IM order and IM frequency. *Note: pressing a value which is shown in red and clicking the "OK" button will give the user a popup window indicating "IM Not Valid" and "Please Try Again."*
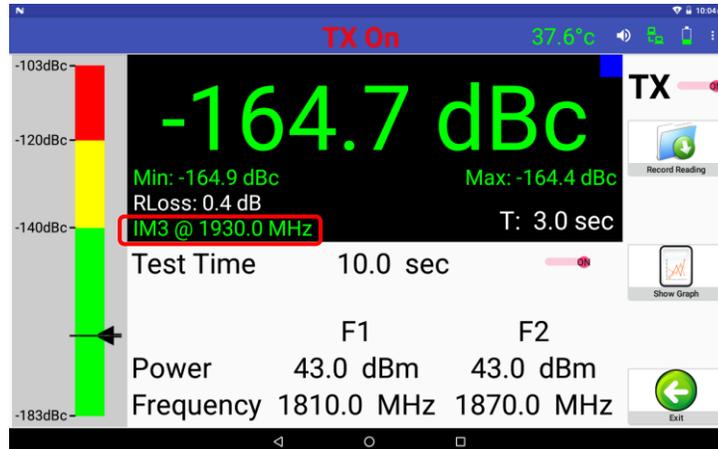
Figure 19 – PIM & R.Loss Screen for Location of IM Product
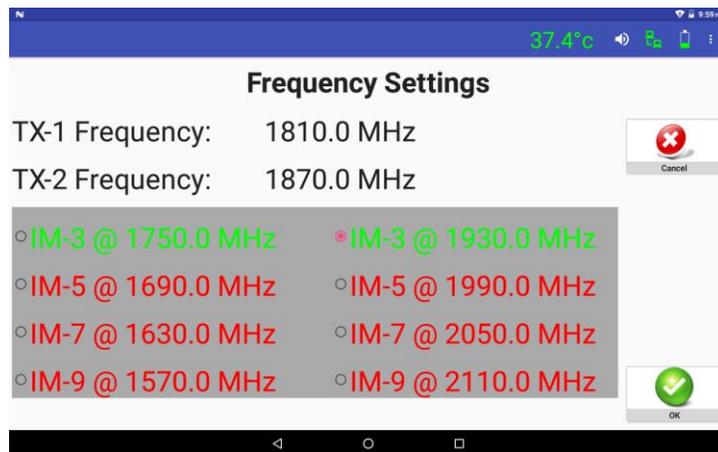
Figure 20 – IM Selection Window

3.1.9.1.6 dBm/dBc Unit Change

The dBm/dBc Units can be changed by the user accessing the screen in **figure 21** below and pressing the appropriate units "radio" button. Remember that if you have two tablets, one can be reading in dBm and the other can be reading in dBc.
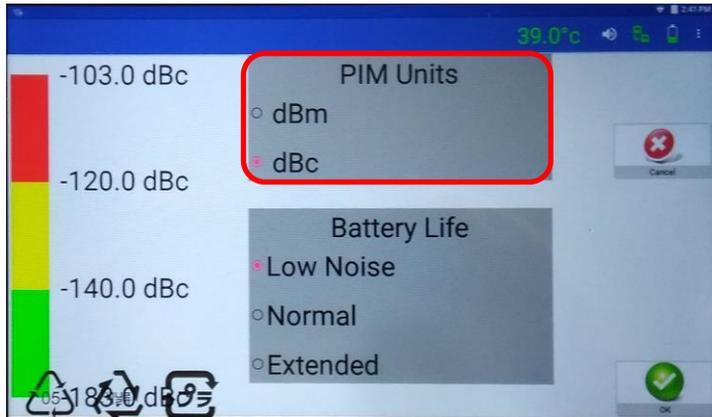
Figure 21 – dBm/dBc Unit Change Selection

3.1.9.1.7 Battery Life Selection

The Battery Life options can be changed by the user accessing the screen in **figure 22** below and pressing the appropriate "radio" button (Low Noise, Normal or Extended).
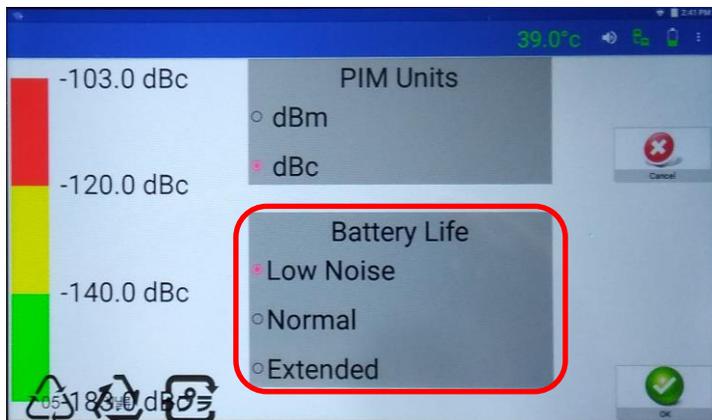
Figure 22 – Battery Life Selection Screen

3.1.9.1.8 Turn-On and Turn-Off of Transmitter (TX)

Please note that there is an icon to the "right" of the PIM and Return Loss readings which appears as if it is a slider. Clicking the "TX icon" (which changes the icon by showing the bar next to the letters TX as having shifted to the "right" and turning "red") as shown in **figure 23**, tells the Tower Series PiMPro to "Turn ON" the RF Power for PIM and Return Loss testing. If you are close to the PiMPro unit, you should see the "RF ON" RED LED turn on when you activate the "TX ON" on the Remote tablet. *Note: Prior to "Turning ON" the Tower Series PiMPro, make sure that it is terminated with the Low PIM Load, and not operating into an open.*

Clicking the "TX icon" again changes the position of the bar as having shifted to the left and turning gray. This "Turns RF Power OFF" on the Tower Series PiMPro.

Figure 23 – Icon to Turn TX (RF) ON

3.1.9.1.9 Record Reading

Record Reading can also be set-up as on the Tower Series PiMPro. Pressing the Record Reading icon on the Screen will open up the pop-up window to enter the Site Info. Once the Company, Site and Technician information is entered, the user must press the "check mark" (accept input information) on the tablet in order to get to the next screen. See **figure 24** below for an example.
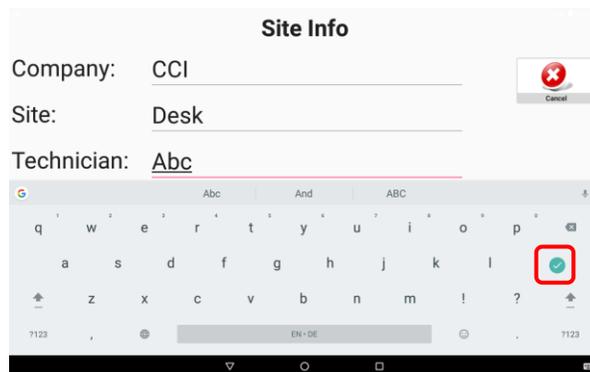
Figure 24 – Site Info Pop-up Window after Depressing Record Reading

This now opens the ""Sector Info" pop-up window. The user must enter the "Sector" and "Feeder" information. To accept the information entered in the "Sector Info" screen, press the "OK" button on the screen. See **figure 25** for an example.

3.3.9.1.9 Record Reading (Cont.)
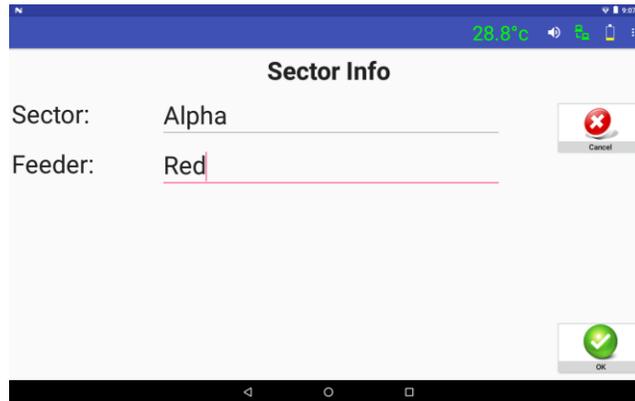
Figure 25 – Sector Info Pop-up Window

This will next bring up the Label and Comment window. The user can select the appropriate label by pressing on that label for the test condition (see **figure 26**), and add a comment (if needed for further definition) by pressing the bar next to "Comment:" and adding the appropriate text. After selecting the appropriate label and adding a comment (when required), the user must press the "OK" button in order to access a window (see **figure 27**) which contains the following choice of "PIM & R.Loss Record Reading" actions:

1) PIM vs. Time
2) TX Off Reading
3) Cancel
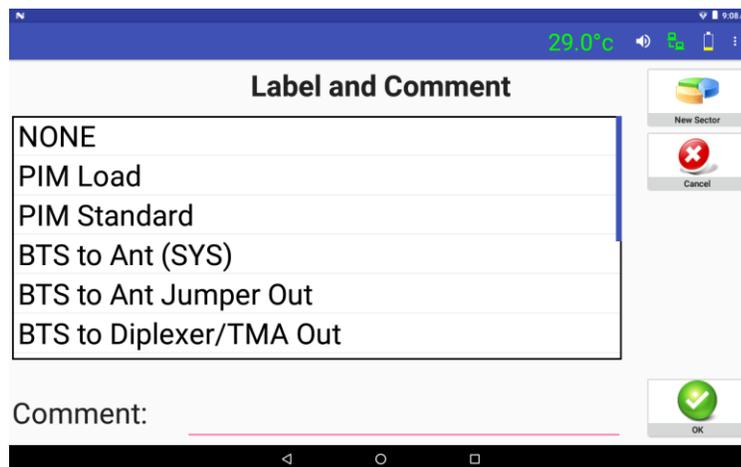
Figure 26 – Label and Comment Pop-up Window

3.3.9.1.9 Record Reading (Cont.)

Figure 27 – Record Reading Pop-up Window

When performing "PIM vs. Time" measurement the user can click on the "View Graph" Icon in order to open up the "Graph View" window (as shown in **figure 27**). "Record Reading" can be activated from the Graph View shown in **figure 28** to record the PIM Reading. *Note that this only records the PIM Reading, it does not record the plot (graph).*

Figure 28 – PIM vs. Time "Graphical" Window

3.1.9.1.10 Report Menu

The Report Menu can be generated from the Remote tablet, but reports can only accessed from the main unit.

3.1.10 PIMPoint

Note that PIMPoint calibration must be performed from the Tower Series PiMPro itself before making any measurements by the Remote tablet. Calibration cannot be performed from the remote tablet(s). Once the PIMPoint calibration is completed from the Tower Series PiMPro the remainder of the PIMPoint operation is available on the tablet.

3.1.10.1 PIMPoint Calibration

As noted earlier, the PIMPoint Calibration must be performed using the Tower Series PiMPro unit itself. Once the calibration sequence is completed, the PIMPoint testing can be performed using the remote tablet(s).

3.1.10.2 PIMPoint Test

Pressing the PIMPoint Icon after calibration will initiate the PIMPoint testing, unless the calibration has not been performed (see **figure 29**). If the calibration has not been performed, than a pop-up window will appear to inform the user that the Calibration sequence has not been performed. If the calibration has not been performed, the user will see the window shown in **figure 30**.
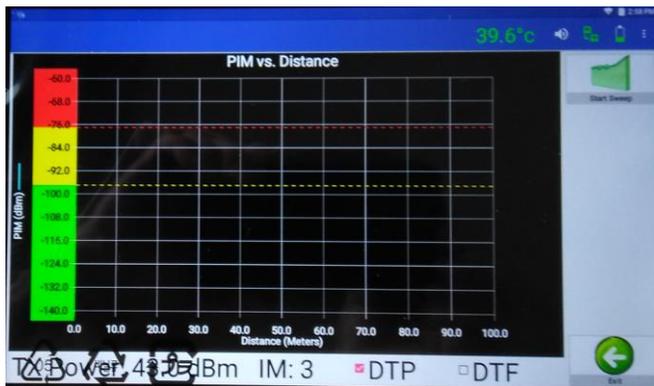
Figure 29 – Initial DTP Screen Prior to Reading
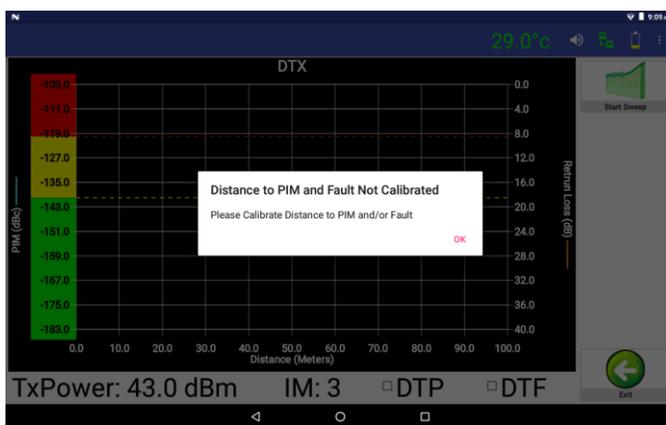
Figure 30 – PIMPoint Not Available Screen Due to No Calibration Performed

3.1.10.2 PIMPoint Test (Cont.)

Once the user has completed the PIMPoint calibration, and initiates the PIMPoint test, the screen will change to add the "Record Reading" icon on the right hand side, as seen in **figure 31** below.
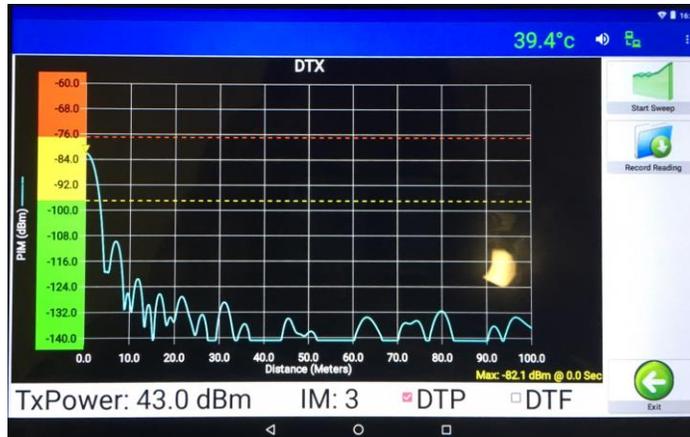
Figure 31 – DTP and "Record Reading"

3.1.11 Quick Start Guide

Finally, the Quick Start Guide can be opened and read from the tablet screen by pressing on the Quick Strat Guide icon. See **figure 32** for the initial screen upon opening the Quick Start Guide.
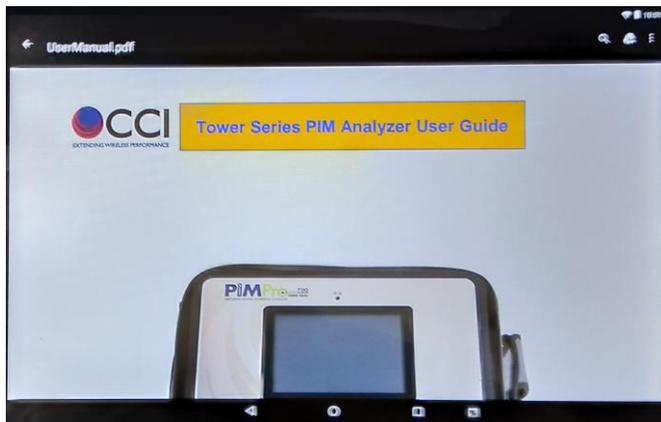
Figure 32 – Quick Start Guide as Viewed on a Tablet

3.1.12 Multiple Tablets

Note that multiple (or at least two) tablets can be connected to the Tower Series PiMPro with the "Remote" option enabled. See notes about the operation below.

3.1.12.1 Notes About Operation with Two Tablets Connected

When two Tablets are connected, and you are performing PIM & R.Loss, one tablet can show the reading in dBm units, and the other can be set to show the reading in dBc units.

C Appendix C –Declarations of Conformity

C.1 CE Declaration of Conformity

Hereby, **Communication Components Inc.**
89 Leuning Street
South Hackensack, NJ 07606
USA

declares that the following products are in compliance with the essential requirements of Directive 2014/30/EU (EMC Directive) and Directive 2014/35/EU (LVD Directive) if installed and operated in accordance with manufacturer's instructions, per Certificate of Compliance No. 2G16129.CC0T74.

Part Number	Model Number	Description
Tower 700B	PiMPro Tower 700	Tower Series PIM Analyzer
Tower 700B APT	PiMPro Tower 700A	Tower Series PIM Analyzer
Tower 800B	PiMPro Tower 800	Tower Series PIM Analyzer
Tower 850B	PiMPro Tower 850	Tower Series PIM Analyzer
Tower 900B	PiMPro Tower 900	Tower Series PIM Analyzer
Tower 1821B	PiMPro Tower 1821	Tower Series PIM Analyzer
Tower 1900	PiMPro Tower 1900	Tower Series PIM Analyzer
Tower 1921B	PiMPro Tower 1921	Tower Series PIM Analyzer
Tower 2600B	PiMPro Tower 2600	Tower Series PIM Analyzer

These products are in conformity with the following European harmonized and published standards at the date of this declaration.

Referenced EMC Standard:	
EN 55022:2010 "Class B"	EN 61000-3-3: 2013
EN 55024: 2010	IEC 60950-1: 2005+A1: 2009+A2: 2013
EN 61000-3-2: 2014	EN 60950-1: 2006+A11: 2009+A1: 2010+A12: 2011+A2: 2013
EN 61000-3-3: 2013	

C.2   **KC Declaration of Conformity**

Hereby,   **Communication Components Inc.**
              89 Leuning Street
              South Hackensack, NJ 07606
              USA

declares that the following products have been registered under Clause 3, Article 58-2 of Radio Waves Act, if installed and operated in accordance with manufacturer's instructions, per Registration No. MSIP-REM-1CI-PIMPROTOWER.

Part Number	Model Number	Description
Tower 700B	PiMPro Tower 700	Tower Series PIM Analyzer
Tower 700B APT	PiMPro Tower 700A	Tower Series PIM Analyzer
Tower 800B	PiMPro Tower 800	Tower Series PIM Analyzer
Tower 850B	PiMPro Tower 850	Tower Series PIM Analyzer
Tower 900B	PiMPro Tower 900	Tower Series PIM Analyzer
Tower 1821B	PiMPro Tower 1821	Tower Series PIM Analyzer
Tower 1921B	PiMPro Tower 1921	Tower Series PIM Analyzer
Tower 2600B	PiMPro Tower 2600	Tower Series PIM Analyzer

These products are in conformity with the following NRAA published standards at the date of this declaration.

Referenced EMC Standard and Test Method	
Specification	**Method**
KN 11	KN 11
KN 61326-1 (Table 1)	KN 61000-4-2
	KN 61000-4-3
	KN 61000-4-4
	KN 61000-4-5
	KN 61000-4-6
	KN 61000-4-8
	KN 61000-4-11

C.3   **Sample Label Showing CE "Mark" and KC "Mark" and MSIP Registration Number**

Tower Series PIM Analyzer Remote Operation User Guide

Revision History

Revision	Date Released	Author	Changes
1.0	8/2/2018	J. Baszak	Create Remote Operation User Manual
1.1	8/15/2018	J. Baszak	Corrected paragraph 3.1.9 on page 15 to list the correct figure number