

TOWER SERIES

PiMPro

TOWER SERIES
PRECISION PASSIVE INTERMOD ANALYZER



Communication Components, Inc. (CCI) **PiMPro Tower Series** is the first truly portable family of Passive Intermod (PIM) Analyzers. It has real world 40W x 2 output power capability and can run on battery power for over three hours. The **Tower Series** demonstrates the perfect synergy of CCI's world class in-house engineering design expertise for both filters and amplifiers. Each light weight compact unit is protected by a reinforced backpack case which can easily strap to a climber's back for top-of-the-tower performance testing. The unit can be safely secured to most any tower structure with its integrated industrial grade clips. The **Tower Series** features a superior quality bright TFT capacitive 8 inch screen that provides a convenient friendly user interface.

CCI's simple GUI combined with its powerful CPU make for fast measurement acquisition and site data storage. The portable construction, designed with durable ruggedness and reliability first and foremost, **PiMPro Tower Series** will prove to be a good investment for years to come.

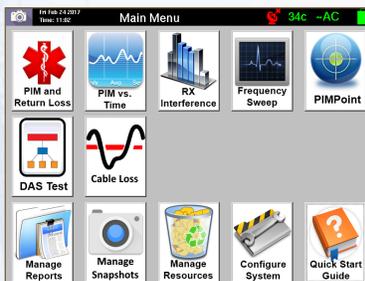
The **PiMPro Tower Series** excellent measurement sensitivity (-135 dBm) as well as its ability to set transmit tone levels down to 20 dBm (100 mW) x 2 makes it the perfect resource for convention cell sites as well as in-building Distributed Antenna System (DAS) requirements.

Features:

- Single port measurement of PIM, Return Loss, Distance to PIM (**PiMPoint**), Distance to Fault and Cable Loss
- Easy to operate with look and feel of a smart phone
- Comfortable "Backpack" style carrying case
- Large bright capacitive 8 inch screen
- GPS antenna for site location stamping on test reports
- Real world 40 W x 2 PIM testing capability
- Unique DAS test capability using unit's RF transmit functions
- Wi-Fi control using smart phone or tablet computer
- Fast battery recharge
- Auto calibration feature

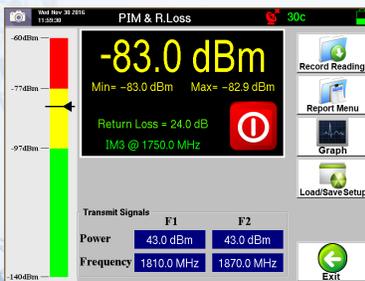
Measurement Features

Measurement Method	One Port, Reverse PIM
PIM & Return Loss	3rd, 5th, 7th & 9th Order PIM
PIM vs Time	3rd, 5th, 7th & 9th Order PIM
PIMPoint Location	Distance in Feet or Meters with VP Settings
RX Interference	Receiver Mode-Noise Floor Measurement
Frequency Sweep	Frequency Response
Distance to Fault & Cable Loss	One Port Open-Short Calibration



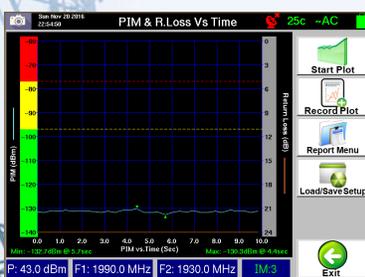
Main Screen

Main boot-up screen shows all measurement features in graphic icon format. Selecting the appropriate icon opens the associated measurement screen. This screen also provides access to the complete system configuration, report management and access to an abbreviated user manual.



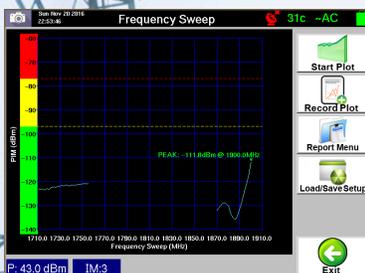
PIM & Return Loss

PiMPro's main measurement screen provides instantaneous PIM measurement in either dBc or dBm. The large display flashes to annunciate the presence of RF power at the output connector. User defined Pass/Marginal/Fail Limit lines, Output Power, Frequency and IM settings originate from this screen. PiMPro's unique Return Loss diagnostic feature at high transmit (TX) power, quickly points out open cables.



PIM vs Time Measurement

The PIM vs Time dynamic measurement mode features a graphical representation of PIM as a function of time. Time scale can be set from 10 seconds to 4 minutes. Return Loss feature is also available on this screen.



Frequency Sweep

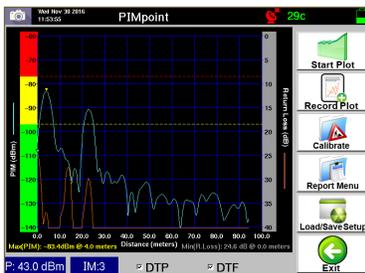
PiMPro displays a swept receive (RX) PIM range by sweeping the TX carriers from end to end within the set frequency band. PIM frequency response is displayed, exposing the worst case PIM level at the contributing frequencies. Users can immediately transfer the graph to the PIM vs Time feature and run a new test to isolate the causes of the specific PIM.



DAS Measurement

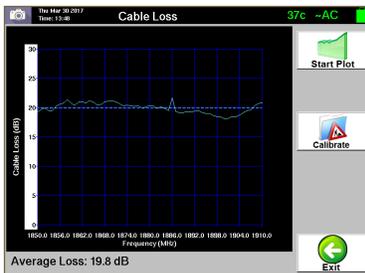
TX Function: Generates in the radio's DL frequency a low power single tone anywhere within the DAS network (usually from the head-end) to evaluate RF connectivity and path losses. With three hours of TX time a technician can roam a DAS installation with a spectrum analyzer and detect systemic RF anomalies

RX Function: Used as a receiver tool to evaluate ideal areas within a given location to position DAS antennas. Using a simple Yagi or planar antenna for external interference evaluation, a DAS antenna can be optimally positioned to locations where external interference is lowest.



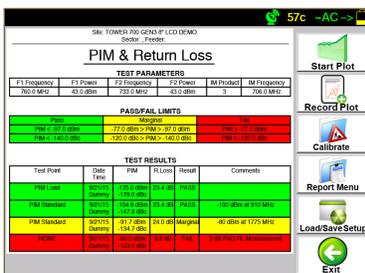
Simultaneous DTF and PiMPoint Measurements

After a simple calibration procedure, the unit allows simultaneous measurements (superimposed on the same screen) of Distance to Fault and **PiMPoint** (PIM vs. Distance). All the measurements are done from a single port, no need to disconnect to a separate measurement port.



Cable Insertion Loss

Cable insertion loss measurements are accurately performed in the uplink of the PIM analyzers band. A simple open-short calibration is all that is required for this **one port** measurement. Much of the measurement error is removed with the displayed average insertion loss value.



Report Generator

Report data for all measurement modes can be stored in either HTML or PDF file format. Users can concatenate a limitless series of measurements with different sectors, feeders, color codes as one single PDF file. Reports can be saved in **PiMPro's** internal memory or to external USB memory from the unit's front panel.

PiMPro Tower Series

Model	Band	Transmit (TX)1 MHz	Transmit (TX)2 MHz	Receive (RX)1 MHz	Receive (RX)2 MHz
Tower 700	LTE 700	745.6-769.4	732.6-734.4	698-722	780-798
Tower 700A	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	E-GSM 900	925-937.5	951.5-980	880-915	
Tower 1821	DCS&UMTS	1805-1837	1855-1880	1710-1785	1920-1980
Tower 1921	PCS & AWS	1965-1995	1930-1945	1710-1755	1850-1910
		2110-2155			
Tower 2600	LTE 2600	2620-2644	2690-Fixed	2500-2570	

Specifications

Transmitter	Frequency Accuracy	± 1 ppm at 23°C (Stability: ± 1 ppm, -10°C-+55°C; Aging: ± 1 ppm/yr)
	Power Accuracy	0.3 dB
	Frequency Step Size	200KHz
	Power Resolution	0.1 dB
	Adjustable Output Power Range	20 to 46 dBm x 2 (100mW to 40W x 2)
Receiver	Residual Intermod Level	-120dBm (Typical -125 dBm)
	Measurement Range	-60 to -140 dBm
	Noise Floor	-136 dBm
	Reverse Power Protection	13 dBm (20mW) continuous
Measurement Mode	Measurement Method	One Port, Reverse PIM
	Real Time PIM	3rd, 5th, 7th & 9th Order PIM
	PIM vs Time	3rd, 5th, 7th & 9th Order PIM
	PIM Location (PIMPoint)	Distance in Feet or Meters with VP Settings
	RX Interference	Receive Only Mode-Noise Floor Measurement
System	Frequency Sweep	Frequency Response
	Battery Operation	>3 hours (Full Charge)
Electrical	Power	AC & DC (AC: 90-256V, 50-60Hz)
	Alarms	Audio & Visual
	Display Size & Type	8.0" [203.2 mm] Capacitive TFT (Industrial Grade)
	Data Ports	3-USB 2.0, 1-Ethernet LAN Port
Mechanical	Remote Control	WiFi Enabled (802.11)
	Battery Power	99WH, 28VDC
	Battery Capacity	3500 mAH
	Battery Type	Li-Polymer Removable Battery Pack
	Max Power Consumption	<340W
Measurement Range	Return Loss	
	Directivity	25 dB
	Resolution	0.1 dB
	VSWR	
	Measurement Range	17:1 to 1.12:1
Cable Loss	Resolution	0.01
	Measurement Range	0 to 30 dB
Distance to Fault	Resolution	0.01 dB
	RL Vertical Range	0 to 40 dB
Weight	Weight	18.0lbs [8.5 kg] to 27.0 lbs. [12.5 kg] (depending on model)
	RF Output Connector	7-16 DIN Female
	Dimensions (W x H x D)	14" x 9" x 4.5" [350 x 230 x 114 mm]
	Operating Temperature	-10 to 45°C, 14 to 113°F, 95% RH
	Storage Temperature	-30 to 60°C, -22 to 140°F, 95% RH



Order Guide PiMPro Tower Series

PiMPro Tower Series Analyzer System Packages

Includes one each PiMPro Tower unit (any model), Accessory Kit, Transport Case

Model	Part Number
PiMPro Tower 700 SP	Tower 700B SP
PiMPro Tower 700A SP	Tower 700B APT SP
PiMPro Tower 800 SP	Tower 800B SP
PiMPro Tower 850 SP	Tower 850B SP
PiMPro Tower 900 SP	Tower 900B SP
PiMPro Tower 1821 SP	Tower 1821B SP
PiMPro Tower 1921 SP	Tower 1921B SP
PiMPro Tower 2600 SP	Tower 2600B SP

PiMPro Tower Series Options

GPS capability includes GPS antenna	PPT 11
DTF & Cable Loss measurement, includes Open-Short standard	PPT 21
Wi-Fi remote control app	PPT 31

PiMPro Tower Series Accessories & Kits*

	Syst Pkg	Econ Pkg	PPT-AK	PPT-EAK	Part Number
Jumper Cable DIN Male to DIN Male	√	√	√	√	PP-AK-CBL-DMDM
Jumper Cable DIN Male to DIN Female	√		√		PP-AK-CBL-DMDF
PIM Standard- Open-Short -Standard	√	√	√	√	PP-AK-PSTAN-80 PPT-OS
Low PIM Load	√	√	√	√	PP-AK-LOAD
7-16 DIN-Male to DIN-Male Adaptor	√		√		PP-AK-DMDM
7-16 DIN-Female to DIN-Female Adaptor	√		√		PP-AK-DFDF
7-16 DIN Male to 4.3-10 Male Adaptor	√		√		PP-AK-DMMM
7-16 DIN Male to 4.3-10 Female Adaptor	√		√		PP-AK-DMMF
Torque Wrench	√	√	√	√	PP-AK-TORW
Adjustable Wrench	√	√	√	√	PP-AK-ADJW
Small 32mm Wrench for 7-16 DIN	√		√		PP-AK-FIXW
Stand Alone Battery Charger	√		√		PP-AKT-CHRGR
Spare Battery Pack (1 included with Tower Unit)					PPT-AK-BATT1
Soft Carrying Case for Accessories			√	√	AKC
Tower Transport Case	√	√			PPT-TC
AC/DC Power Supply (included with Analyzer)					PPT-AC-ADPT

Standalone Accessory Kits

Accessory Kit in Soft Carrying Case	PPT-AK
Economy Accessory Kit in Soft Carrying Case	PPT-EAK

*All accessory Kit Components and cables have low PIM connectors, with PIM level < -122dBm

PiMPro Tower Series Warranty Extensions

	Part Number
One year extended warranty for PiMPro Tower	EW1
Two years extended warranty for PiMPro Tower	EW2
Four years extended warranty for PiMPro Tower	EW4

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PiMPro Tower Series Warranty

All **Tower Series PiMPro Analyzers** are sold with a one year warranty on all parts and labor. This warranty is not transferable and subject to restrictions for damage made to the instrument and improper use of the equipment. The warranty does not apply to adapters and cables in CCI's companion accessory kits as they are subject to considerable field wear and abuse.



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Disclaimer: PiMPro Passive Intermodulation Analyzers should be operated only by a trained technician. Improper use can result in damage to the product or the device being tested. It is the responsibility of the user to operate product in accordance with manufacturer's specifications in a safe and appropriate manner. Misuse of a testing device may result in inadvertent transmissions, which is a violation of FCC regulations. CCI disclaims all liability associated from misuse or negligence of its testing products. CCI reserves the right to make specification changes and/or upgrades as part of our ongoing commitment to product development and enhancements.

For additional product ordering information contact your area Communication Components Inc. account representative or independent distributor.

