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 40 W×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.

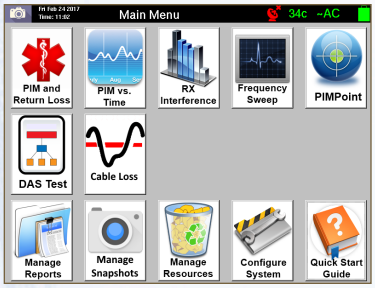
The **PiMPro Tower Series** excellent measurement sensitivity (-135 dBm) as well as its ability to set transmit tone levels down to 20 dBm (100 mW)×2 makes it the perfect resource for convention cell sites as well as in-building Distributed Antenna System (DAS) requirements.

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×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

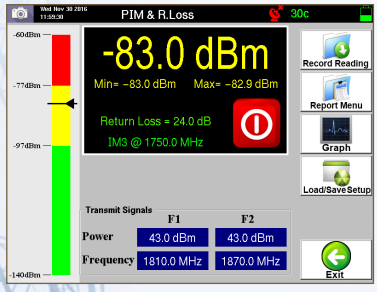
Measurement Features

Measurement Method	One Port, Reverse PIM
PIM & Return Loss	3rd & 5th PIM
PIM vs Time	3rd & 5th 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



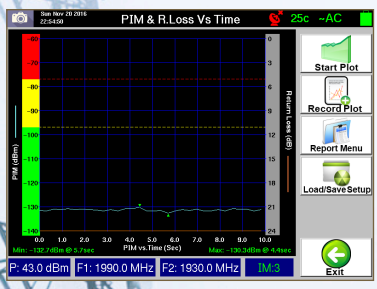
Main Screen

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.



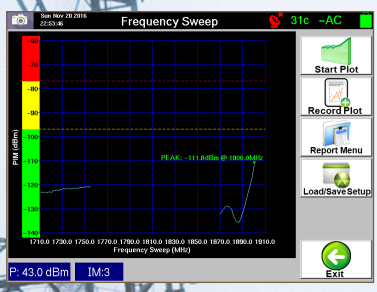
PIM & Return Loss

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.



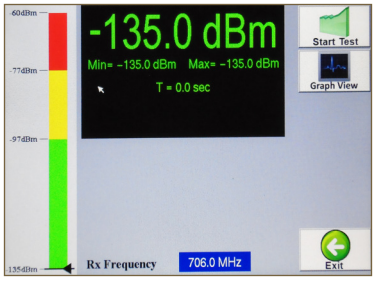
PIM vs Time Measurement

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

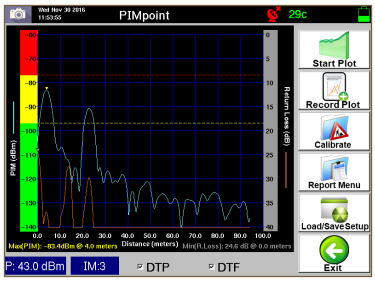
PiMPro displays a swept receive (RX) PIM range by sweeping the TX carriers from end to end within the set frequency band. PIM frequency response is displayed, exposing the worst case PIM level at the contributing frequencies. Users can immediately transfer the graph to the PIM vs Time feature and run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



DAS Measurement

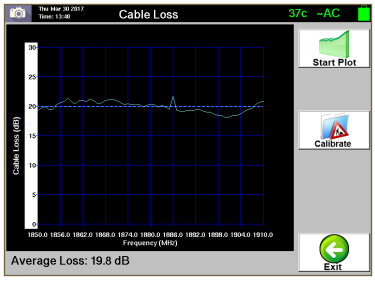
TX Function: Generates in the radio's DL frequency a low power single tone anywhere within the DAS network (usually from the head-end) to evaluate RF connectivity and path losses. With three hours of TX time a technician can roam a DAS installation with a spectrum analyzer and detect systemic RF anomalies

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.



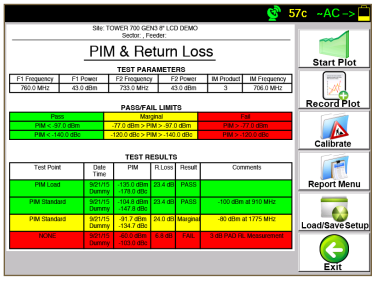
Simultaneous DTF and PiMPoint Measurements

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	200 KHz
	Power Resolution	0.1 dB
	Adjustable Output Power Range	20 to 46 dBm x 2 (100 mW to 40 W x 2)
Receiver	Residual Intermod Level	-120 dBm (Typical -125 dBm)
	Measurement Range	-60 to -140 dBm
	Noise Floor	-136 dBm
	Reverse Power Protection	13 dBm (20 mW) continuous
Measurement Mode	Measurement Method	One Port, Reverse PIM
	Real Time PIM	3rd & 5th PIM
	PIM vs Time	3rd & 5th PIM
	PIM Location (PIMPoint)	Distance in Feet or Meters with VP Settings
	RX Interference	Receive Only Mode-Noise Floor Measurement
	Frequency Sweep	Frequency Response
System	Battery Operation	>3 hours (Full Charge)
	Power	AC & DC (AC: 90-256 V, 50-60 Hz)
	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
	Remote Control	WiFi Enabled (802.11)
Electrical	Battery Power	99 WH, 28 VDC
	Battery Capacity	3500 mAH
	Battery Type	Li-Polymer Removable Battery Pack
	Max Power Consumption	<340 W
Mechanical	Weight	18.0 lbs [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

Measurement Range	
Return Loss	
Directivity	25 dB
Resolution	0.1 dB
VSWR	
Measurement Range	17:1 to 1.12:1
Resolution	0.01
Cable Loss	
Measurement Range	0 to 30 dB
Resolution	0.01 dB
Distance to Fault	
RL Vertical Range	0 to 40 dB

Order Guide PiMPro Tower Series

PiMPro Tower Series Analyzer System Packages Includes one each PiMPro Tower unit (any model), Accesory 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-	√	√	√	√	PP-AK-PSTAN-80
Open-Short -Standard					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 32 mm 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 Acessory Kit in Soft Carrying Case					PPT-EAK

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

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.

PiMPro Tower, Universal Accessory Kit & Transport Case Tower XXXX SP

Transport Case PPT-TC

GPS Antenna PPT -11

PIM Load PP-AK-LOAD

PIM Standard PP-AK-PSTAN

Open-Short Calibration Standard PPT OS

Battery accessibility takes seconds to swap.

Clips to secure unit at tower top.

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