PEM42A - Multi Band PIM Analyzers

- Single connection Passive Intermodulation and S-parameter measurements.

- Uses Agilent E5072A ENA series network analyzers.

- Up to 4 PIM frequency bands for multi-band testing.

- Measures PIM, return loss and insertion loss.

- Verifies complete performance of passive components in one measurement run.

- Cost effective solution for high volume production.
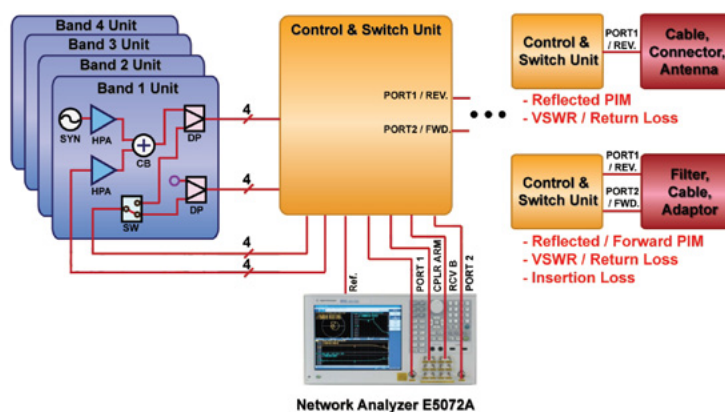
- Well suited for R&D, Production & QA.

Achieve fast, accurate, single connection PIM and S-Parameter testing of passive components

Both PIM and S-parameters, such as return loss or insertion loss, are essential measurements for passive components. Both must be tested in order to fully qualify a passive device. Conventional test systems require a network analyzer and separate PIM analyzers to test a device completely. If different test stations are used, the time required to connect and disconnect components can significantly exceed actual testing time.

AWT's new integrated solution PEM42A allows you to measure PIM and S-parameters with a single DUT connection. It utilizes the Agilent E5072A ENA series network analyzer to perform S-parameter measurements together with AWT's PEM42A multi band PIM analyzers. Whether for R&D, production or QA , this system is well suited for testing wideband components.

Conventional PIM analyzers are designed for a specific frequency band. Testing wide band devices requires several PIM analyzers. PEM42A multi band systems combine up to four frequency bands to one unified system. All instruments are controlled by a PEM42ACTRL Control & Switch Master Unit for synchronized measurements. PEM42A systems are a cost-effective solution, pro-

Network Analyzer E5072A

viding very fast and accurate measurements. Repeated connect / disconnect cycles for measuring PIM of DUTs in different frequency bands is a thing of the past. Both PIM and S-parameters are now measured without changing the physical connection. This results in a major reduction of overall test time and increases test throughput significantly.

RF & Microwave Technology

AWT - Global offers advanced telecommunication technology products and analyzers for a variety of RF and Microwave applications.

PIM Analyzers -Types

AWT - Global offers a wide variety of PIM analyzers for many different applications. These include single, double, triple and quadruple band analyzers for standard frequencies and customized frequency bands.

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Models

Model	Description	Tx Range (MHz)	Rx Range (MHz)
PEM42A-CTRL	Master Control & Switch Unit for up to four PIM42A RF Modules	All	All
PEM42A-385	TETRA 385	385 ~ 400	410~ 425
PEM42A-400	TETRA 400	390 ~ 400	380 ~ 385
PEM42A-400E	E-TETRA	420 ~ 430	410 ~ 412
PEM42A-700L	LTE700 (lower band)	728 ~ 759	698 ~ 716
PEM42A-700U	LTE700 (upper band)	730 ~ 759	776 ~ 788
PEM42A-800	LTE800	791 ~ 821	832~ 862
PEM42A-850	AMPS/CDMA	869 ~ 896	824 ~ 851
PEM42A-900E	E-GSM & GSM900	925 ~ 960	880 ~ 915
PEM42A-1800	DCS 1800 /GSM1800	1805 ~ 1880	1710 ~ 1785
PIM42A-1900	PCS1900	1930 ~ 1990	1850 ~ 1910
PEM42A-2000TD	TD-SCDMA(2000)	2010 ~ 2025	1900 ~ 1920
PEM42A-2100AWS	AWS	2110 ~ 2155	1710 ~ 1755
PEM42A-2100UMTS	UMTS/W-CDMA	2110 ~ 2170	1920 ~ 1980 / 2060
PEM42A-2160JP	W-CDMA-JP	2150 ~ 2170	2110 ~ 2140
PEM42A-WBKR	WiBro-KR	2110 ~ 2170, 2300 ~ 2390	1910 ~ 1990
PEM42A-2600LTE	IMT-E(2600), LTE2600	2620 ~ 2690	2500 ~ 2570

Agilent

Order Number	Description
PEM42A-E5072A-245	Agilent Network Analyzer, 2-port, 30k to 4.5 GHz, configurable test set, opt 008: frequency offset mode, opt 1E5: high stability timebase, opt 1CP: rack mount kit. Prices and delivery might vary and dependent on Agilent policies. Sold only with PEM42A PIM analyzers.
PEM42A-E5072A-285	Agilent Network Analyzer, 2-port, 30k to 8.5 GHz, configurable test set, opt 008: frequency offset mode, opt 1E5: high stability timebase, opt 1CP: rack mount kit. Prices and delivery might vary and dependent on Agilent policies. Sold only with PEM42A PIM analyzers.
PEM42A-U2001A	Agilent USB power sensor, 10 MHz - 6 GHz. Required for user calibration of E5072A network analyzers. Prices and delivery might vary and dependent on Agilent policies. Sold only with PEM42A PIM analyzers.
PEM42A-85032A	Agilent mechanical calibration kit for Network Analyzer E5072A. DIN 7/16, 50 Ohms, DC-7.5 GHz. Required for user calibration of E5072A network analyzers. Prices and delivery might vary and dependent on Agilent policies. Sold only with PEM42A PIM analyzers.
PEM42A-85032F-100	Agilent mechanical calibration kit for Network Analyzer E5072A. Type-N with adaptor (f)-(f), 50 Ohms, DC-9GHz. Required for user calibration of E5072A network analyzers. Prices and delivery might vary and dependent on Agilent policies. Sold only with PEM42A PIM analyzers.

Multi Band PIM Analyzers
Time is money. Production testing requires fast and highly reliable PIM analyzers. With AWT's PEM42A PIM and S-parameter measurements require only one connection to the DUT - even when multiple frequency bands are examined.

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Technical Specifications

System

Measurement Method	3rd, 5th, 7th to 27th order IM. Fixed Frequency Mode, Frequency Sweep, Spectrum Mode
User Interface Ports	(At E5072A) 4 x USB on rear panel 2 x USB on front panel 1 x LAN on rear panel 1 x Video on rear panel 1 x GPIB on rear panel
Display	10.2 inch touch screen at E5072A
Type	19" Rack Mount
Warm up Time	30 minutes (ENA dependent)

Transmitter

Frequency band	depends on RF Unit
Frequency increments	100 kHz
Frequency accuracy	2 ppm
Power (per tone)	20 - 44 dBm adjustable
with PIM42AOPT5	20 - 46 dBm
Power Accuracy	+/- 0.65 dB
Reverse Pwr. Protection	+43 dBm for max 5 sec
Adjustable Resolution	.25 dB

Receiver

Reverse IM @ 2x43dBm	-122 dBm (Typ. -165 dBc @ 43 dBm x 2tones)
Forward IM @ 2x43dBm	-120 dBm (Typ. - 163 dBc @ 43dBm x 2tones)
Noise Floor	<-135 dBm Typ.
Dynamic Range (typical)	125dB
Max Input Power	-10 dBm
Measurement Accuracy	+/- 1.0 dB Typ.

Electrical

Main Power	100 to 240V, 50 / 60Hz
Power Consumption	
PEM42A-CTRL & PEM42A	750 VA max.
E5072A	305 VA max

Environmental

Operating Temperature	+5° C to +40° C
Storage Humidity	-10°C to +60°C
Relative humidity	20% to 80% RH max (non-condensing)

Dimensions / Weight

Rack (with Auto-Caster)

Dimensions	600 x 1400 x 900 to 600 x 1533 x 1000 (mm) (23.6 x 55.1 x 35.4 to 23.6 x 60.4 x 39.4 in)
Weight	90 (kg) - 198.4 (lbs)

Unit Dimensions

PEM42A-CTRL	483 x 222 x 664 (mm) - 19 x 8.7 x 26.1 (in)
PEM42A	483 x 133 x 657 (mm) - 19 x 5.2 x 25.9 (in)
E5072A	483 x 222 x 472 (mm) - 19 x 8.7 x 18.6 (in)

Unit Weight

PEM42A-CTRL	29 (kg) - 63.9 (lbs)
PEM42A	25 to 28 (kg) - 55.1 to 61.7 (lbs)
E5072A	19.8 (kg) - 43.7 (lbs)

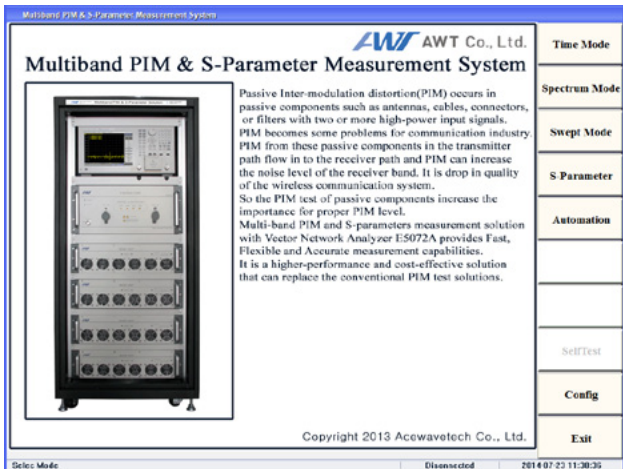**AWT Global**

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Specifications subject to change without further notification

PIM Measurement Software

▪ Main Page

▪ S-Parameter Analyses

Accessories

Type	Description
PLOAD100	Low PIM Termination 100W, PIM < -165 dBc, 380 - 2800 MHz, Connector DIN(f)
ADA-DMDF	Low PIM adapter, PIM < -165dBc @2x43dBm, DIN(m)-DIN(f), Connector Saver
LIC308-DMDM-2M	Low PIM cable, Length: 2 meter (6 ft), PIM < -165dBc, DIN(m)-DIN(m)
LIC308-DMDM-1M	Low PIM cable, Length: 1 meter (3 ft), PIM < -165dBc, DIN(m)-DIN(m)
PACC2	Accessory Kit: low PIM cable 3m DIN(m)-DIN(m), low PIM Load 50W / 10W, Frequency 698 to 2800 MHz, dual port DIN(m)-DIN(f), PIM <-165dBc dBm, torque wrench DIN7/16, (4) low PIM adaptors, cleaning tabs, hard carrying case IP66
PIMGEN	PIM generator, preset PIM value 80 dBm (+/-10) for quick system tests
PACC2L	Accessory Kit: low PIM cable 3m DIN(m)-DIN(m), low PIM Load 100W, Frequency 380 to 2800 MHz, DIN(f), PIM <-165dBc dBm, torque wrench DIN7/16, (4) low PIM adaptors, cleaning tabs, hard carrying case IP66

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Accessory Quality
AWT Global's accessories are designed to meet the highest quality standards to fulfill the strongest PIM requirements. Every individual accessory is tested for performance to ensure that AWT Global's customers receive the highest quality products.