



Microlab Products

Microlab offers a wide selection of RF and microwave components for customers in distributed antenna systems (DAS), in-building wireless solutions, radio base-station markets, and medical equipment sectors.

Microlab's passive RF components share unique capabilities in the area of broadband frequency coverage, minimal loss and low PIM.

RF Signal Combiners

- KM-90N: Point of Interface Boxes for Passive DAS
- KM-52D: Multiple Input Signal Conditioner for Active Fiber DAS

Diplexers, Triplexers and Quadraplexers

- BK-10/11N: Low Cost Diplexers
- BK-12: Ultra Wideband Diplexer
- BK-20 & BK-24: High Power Wideband Diplexers
- BK-21N & BK-62N: Cellular/WiFi Injectors
- BK-25D: GSM-1800/UMTS-2100 Diplexer
- BK-26N: 3 GHz Diplexer
- BK-51/52/67/68: LTE/WiMax Injector
- BK-71N: LTE-700/GSM850 Diplexer
- BK-72N: AWS/PCS Diplexer
- BK-91/92: Quadraplexers

Duplexers

- BL series: Duplexers

Directional Couplers

- CK-10 series: Low PIM Directional Coupler
- CK-50 series: Directional Coupler
- CK-70 series: Broadband Air-Line Coupler

Hybrid Couplers 2x2, 3x3, and 4x4

- CA-13: 2 x 2 Ultra Broadband Hybrid Coupler
- CA-64/74/84/94: Low PIM 2x2 Hybrid Couplers
- CA-99: Low PIM 2x2 Hybrid Coupler
- CM-13/14 Low PIM, Broadband 4 x 4 Hybrid Matrix
- CM-80/81 series: Low PIM 3 x 3 Hybrid Matrix
- CM-83 series: Low PIM 3 x 1 Hybrid Matrix
- CM-58/68/78/88/98/99 series: 4 x 4 Hybrid Matrices
- CT-64/74/84 series: Low PIM Hybrid Combiners

Microlab Product offerings include: neutral host DAS and co-siting combiner solutions, hybrid couplers and hybrid matrices, cross band couplers, attenuators, RF terminations, RF power splitter and diplexers, as well as RF combiners and broadband combiner boxes for in-building DAS deployments.

Splitters, Dividers and Tappers

- DN series: Tappers/Unequal Splits
- Dx-19FN: Reactive Splitters
- Dx-49FN: Ultra Broadband Power Dividers
- Dx-67FN: Power Dividers
- Dx-69FN/FF: Low Cost Power Dividers, In Line Outputs
- Dx-77/78FN: Low Cost Power Dividers, Opposed Outputs
- Dx-82FN: LTE/WiMAX Reactive Splitters
- Dx-85/86/88: Low PIM Reactive Splitters

Attenuators and Terminations

- FY/FZ: Low PIM Attenuators
- AM/AN/AP/AQ/AR/AS/AU, Fixed Attenuators
- TA/TB series: Low Cost Resistive Terminations
- TK-20 series: Low PIM Terminations
- TK-25 series: Portable Low PIM Terminations

Other

- LA/LB: Low Pass Harmonic Filters
- JR: Low PIM, High Performance Jumper Cables, Right-Angle
- JR: Low PIM, High Performance Jumper Cables, Right-Angle
- JP: Low PIM, High Performance Jumper Cables, Straight
- HR: DC Blocks

PIM Problem Detector

PIM 21: Portable PIM Test Set



KM-90N Point of Interface Boxes for Passive DAS

350 - 5,850 MHz

Combiner Boxes using hybrids and filter technology to meet the diverse needs of neutral host DAS systems. Shown above is an 8 input, 4 output model covering 698 to 2700 MHz with PIM specified below -142 dBm. If all 4 outputs are used, as in a Distributed Antenna System, actual signal loss is less than 1dB! Similar systems embrace up to 16 inputs from 350 to 5850 MHz. Similar units available for Active DAS systems where inputs have to be combined and attenuated to input levels for fiber modulators, are identified as signal conditioners, such as the unit shown below.



KM-52D Multiple Input Signal Conditioner for Active Fiber DAS

1710 - 2170 MHz

Designed to interface four Tx/Rx signal blocks with a simplex DAS system. It allows independent level adjustment of the Tx and Rx elements of a wireless signal. The unit first duplexes each of the Tx/Rx inputs, of which the Tx outputs are combined using a 4:1 Hybrid Combiner. The combined Tx signal is then attenuated by a fixed attenuator before it is fed to a 0-30 dB level adjustment for optimum DAS performance. The DAS Rx signal is fed to a similar level adjustment, before being split into 6, with 4 to the Duplexers and 2 Rx to location monitoring ports.



BK-10/11N: Low Cost Diplexers

698 -960/1710 - 2170 MHz

High Performance Diplexer with low loss and >50 dB Isolation for Combiner Boxes is now available in a very small package. Available for outdoor environments.



BK-12: Ultra Wideband Diplexer

80 -960/1710 - 2700 MHz

LTE Bands, High Performance and very low PIM can now be diplexed in a small enclosure. N or 7-16 connectors. Available for outdoor environments.



BK-20 & BK-24: High Power Wideband Diplexers

698 -960/1710 - 2170 MHz & 80 -520/698 - 2700 MHz

Low Loss, High Performance and Low PIM at powers to 250W diplexed in a low cost, weatherproofed enclosure. For Cellular, Tetra and LTE.



BK-21N & BK-62N: Cellular/WiFi Injectors

80 - 2170/2400 - 2500 MHz & 80 - 2170/2400 - 5850 MHz

Inject WLAN 802.11(b/g) into a broadband cellular signal path with minimal loss to either path. Model BK-62N also includes 5.8 WLAN 802.11 (a/n) and 4.9 WiMAX.



BK-25D: GSM-1800/UMTS-2100 Diplexer

1710 -1880/1920 - 2170 MHz

Combine or separate Tx and Rx with limited guard band using cavity filters. Single and dual units for outdoor applications.



BK-26N: 3 GHz Diplexer

380 - 2700/3300 - 6000 MHz

Designed to separate and combine wireless cellular with those expanding applications in the 3.3 – 6 GHz band.



BK-51/52/67/68: LTE/WiMax Injector

2400 - 2700 MHz

Inject LTE-2600 or WiMAX signal into either or both a low and high band cellular signal with >50dB of isolation and minimal loss.



BK-71N: LTE-700/GSM850 Diplexer

698 - 793/824-894 MHz

Combine the LTE-700 signal with GSM-850, with >50dB of isolation and minimal signal loss.



BK-72N AWS/PCS Diplexer

1710 - 1755/2110 - 2155 MHz

Enables the combination of signals in the AWS Bands 1710-1755 and 2100-2150 MHz with the PCS Band.



BK-91/92 Quadraplexers

698 - 2700 MHz Cellular/WiFi 2.4/WiMax 4.9/WiFi 5.8

Inject multiple signal bands into a base station or DAS in-building systems, with >50dB of isolation and minimal loss



BL series: Duplexers

Splits or combines the Tx and Rx elements of a duplexed signal with high isolation and low loss.

Duplexers



CK-10 series: Low PIM Directional Coupler

698 - 2700 MHz

Very low loss, low PIM Directional Couplers using a tapered design for exceptional flatness. Available in either 3 or 4 port models.

Directional Couplers



CK-50 series: Directional Coupler

698 - 2700 MHz

Low cost Directional Couplers covering the new LTE and WiMax bands, available in a wide variety of coupling values from 5 to 30 dB.



CK-70 series: Broadband Air-Line Coupler

380 - 2700 MHz

Low PIM Directional Couplers that cover from Tetra/P25 band to the new WiMAX/LTE bands.



CA-13: 2 x 2 Ultra Broadband Hybrid Coupler

350 - 6000 MHz

Ultra-wide bandwidth with high isolation and low -150 dBc PIM, meets special combining needs of wireless signals.



CA-64/74/84/94: Low PIM 2x2 Hybrid Couplers

350 - 2700 MHz

Narrow and wide band, with low loss, high isolation and very low PIM, for all wireless signal combining needs.



CA-99: Low PIM 2x2 Hybrid Coupler

380 - 960 MHz

Wide band, with low loss, high isolation and very low PIM, for Tetra and low band wireless signal combining needs.



CM-13/14 Low PIM, Broadband 4 x 4 Hybrid Matrix

380 - 2700 or 380 - 5850 MHz

Low PIM Matrix to combine 4 inputs to 4 identical outputs with low loss and >50dB isolation.



CM-80/81 series: Low PIM 3 x 3 Hybrid Matrix

698 - 2700 MHz

Combine 3 broadband signals to 3 identical outputs with minimal interaction, low PIM and just 4.8 dB loss. Available for indoor and outdoor environments.



CM-83 series: Low PIM 3 x 1 Hybrid Matrix

698 - 2700 MHz

Combine 3 signals to a common feed with minimal interaction, low PIM and just 4.8 dB loss.



CM-58/68/78/88/98/99 series: 4 x 4 Hybrid Matrices

380 - 2700 MHz

New same side inputs design concept! 4 x 4 Hybrid Matrices with 30 dB Isolation, low -155 dBc PIM, and available IP67 housings. Narrow and broadband models.



CT-64/74/84 series: Low PIM Hybrid Combiners

698 – 2700 MHz

Combine 2 high power cellular signals using a Hybrid Coupler Combiner with PIM <-160 dBc, IP67 and up to 160W total input power

Splitters, Dividers and Tappers



DN series: Tappers/Unequal Splits

380 - 2700 MHz

Low priced broadband Tappers for DAS, from a 2:1 split to 1000:1, 30 dB split. Low PIM, IP67 in N or 7-16 DIN



Dx-19FN: Reactive Splitters

698 - 2700 MHz

Low cost Splitters to cover all wireless bands in the 698 – 2700 MHz operating band with specified low PIM. In 2, 3 and 4 way models.



Dx-49FN: Ultra Broadband Power Dividers

350 - 6000 MHz

Wilkinson power dividers to satisfy extremely broadband needs in DAS systems in either 2 or 4 way configurations, N.



Dx-67FN: Power Dividers

380 - 2700 MHz

Low cost, 2, 3 & 4 way broadband power dividers with high output isolation, to satisfy needs in the TETRA P25 bands and all cellular.



Dx-69FN/FF: Low Cost Power Dividers, In Line Outputs

698 - 2700 MHz

Low cost, general purpose Power Dividers in 2 to 8 ways covering the full 698 - 2700 MHz with either N or SMA connectors.



Dx-77/78FN: Low Cost Power Dividers, Opposed Outputs

698 - 2700 MHz or 800 - 2500 MHz

Low cost, general purpose Power Dividers in 2 to 6 ways for specific needs requiring opposed N connectors.



Dx-82FN: LTE/WiMAX Reactive Splitters

1.7 - 6 GHz

Low cost, high power, high performance reactive splitters to satisfy the growing interest in the WiMAX and LTE bands.



Dx-85/86/88: Low PIM Reactive Splitters

380 - 3800 GHz

Low cost, high power, high performance splitters to satisfy the growing interest in all wireless bands, with low PIM and IP67. Available in 2, 3, 4, 5 and 6 way configurations, N or DIN.

Attenuators and Terminations



FY/FZ: Low PIM Attenuators

698 - 2700 MHz

30W to 100W Fixed Coaxial Attenuators with PIM < -160 dBc. Standard values from 6 to 20 dB in N or 7-16 mm DIN



AM/AN/AP/AQ/AR/AS/AU, Fixed Attenuators

DC - 3 GHz

2W to 250W Fixed Coaxial Attenuators with standard values from 3 to 30 dB in SMA, N, and 7-16 mm DIN.



TA/TB series: Low Cost Resistive Terminations

10W to 250W

Rugged, reliable terminations for most wireless applications where low PIM is not critical.



TK-20 series: Low PIM Terminations

698 - 2700 MHz

Terminations for wireless applications from 10W to 100W have very low PIM, essential in so many duplex transmission systems.



TK-25 series: Portable Low PIM Terminations

698 - 2170 MHz

50W Terminations for applications where portability is essential such as mast head antenna test requirements.

Other



LA/LB: Low Pass Harmonic Filters

400 MHz - 18 GHz

Low pass filters to suppress harmonics and out of band noise, spurious signals and interference.



JR: Low PIM, High Performance Jumper Cables, Right-Angle

DC - 3000 MHz

Low cost, Low PIM jumper cables, using sheathed 0.141 coaxial cable series uses straight to right angled N or 7-16 mm connectors. Standard lengths from stock.



JP: Low PIM, High Performance Jumper Cables, Straight

DC - 3000 MHz

Low cost, Low PIM jumper cables, using sheathed 0.141 coaxial cable series uses straight to straight N or 7-16 mm connectors. Standard lengths from stock.



HR: DC Blocks

380 - 2700 MHz

Used to prevent the flow of DC and low frequency current surges, along the inner and/or outer conductors of a coaxial transmission line, while permitting the unimpeded flow of RF signals.



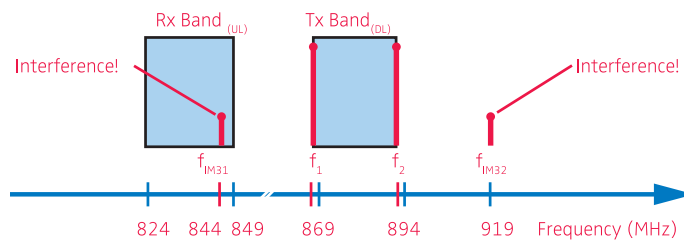
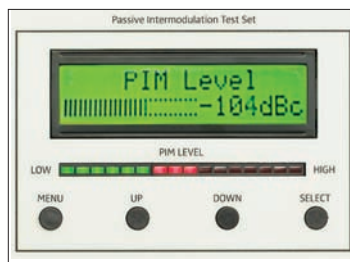
PIM 21: Portable PIM Test Set

Improves Wireless Network Quality and Detects Unwanted PIM Sources

Passive intermodulation (PIM) in wireless networks distorts receiving bands, which results in significant loss of receiver sensitivity. This again causes poor call quality, low data rates and even dropped calls. Boonton's PIM 21 is a microprocessor-controlled, portable test set that measures passive intermodulation (PIM) of systems.

Low quality components or assemblies in radio base stations, in-building DAS installations or other systems transmitting radio frequencies can cause passive intermodulation. Poor manufacturing or assembly of components in coaxial feeder elements such as connectors, jumper cables, splitters, hybrids, filters, DC blocks and antennas can cause PIM.

By applying two carriers to a RF system, PIM21 detects and measures its intermodulation (IM3) behavior. With this, the PIM21 provides the user with a helpful and easy to use tool to pinpoint and repair or replace defective elements.



Features and Benefits:

- PIM sensitivity of -80 to -153 dBc @ 850 MHz (typical -155 dBc @ 850 MHz)
- Measurement carrier power: 2x 33dBm
- Multiple frequency bands available
- Battery-operated
- Rugged, weather-proof (IP55)
- Numeric and bar graph interface
- Audio PIM level indicator

Related Products

Boonton 52000 Series USB Power Meter

Who We Are

Wireless Telecom Group is a global designer and manufacturer of radio frequency (“RF”) and microwave-based products for wireless and advanced communications industries. We market our products and services worldwide under the Boonton Electronics (“Boonton”), Microlab/FXR (“Microlab”) and Noisecom brands. Our Brands and products have maintained a reputation for their accuracy and performance as they support our customers’ technological advancements within communications. We offer our customers a complementary suite of high performance instruments and components meeting a variety of standards including peak power meters, signal analyzers, noise sources, power splitters, combiners, diplexers, noise modules and precision noise generators. We serve commercial and government markets within the satellite, cable, radar, avionics, medical, and computing applications. We are headquartered in Parsippany, New Jersey, in the New York City metropolitan area and we maintain a global network of Sales offices dedicated to providing excellent product support.

Wireless Telecom Group, Inc. continuously targets opportunities that allow us to capitalize on our synergies and our talents. Our technological capabilities along with our customer service strategies remain essential competencies for our success.

 **Noisecom**

Noisecom is a global provider of electronic noise generation equipment and noise sources in the commercial and military telecommunications fields. Utilized for accurate, reliable measurements, users look to Noisecom for specialized assistance with their equipment design.

 **Boonton**

Boonton Electronics, a wholly owned subsidiary, is a leader in the manufacture of test equipment dedicated to measuring the power of RF and Microwave systems used in multiple telecommunication markets. A pioneer in the industry, Boonton continues to provide high quality and high value instruments for users backed with outstanding customer support.

 **Microlab**

Microlab, a wholly owned subsidiary, is a global provider of passive microwave components including power splitters, directional couplers and filters. These products are employed as system components in commercial applications such as wireless base stations for cellular, paging and private communications, in-building wireless signal distribution, television transmitters and aircraft navigation landing systems. Microlab products are also used in military systems such as electronic countermeasures and missile guidance.

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are subject to change without prior notice.