

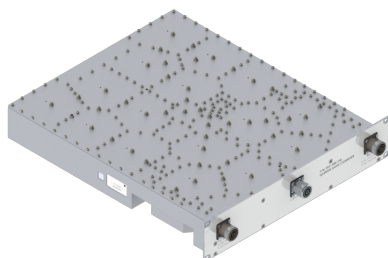


Filters & Combiners

DATA SHEET

Spectrum Sharing 900 MHz Combiner

PFC-900-3xx



- Combines two 900 MHz base station outputs with a narrow guard band onto a common port
- Full transmit and receive band combining with a guard band of 0.8 to 3 MHz
- High power 400 W per input port with insertion loss as low as 0.5 dB
- Fully passive same band combiner with excellent temperature stable filter response
- AISG 2.0 compliant DC/AISG pass through on any input port with Smart Bias-T
- Low intermodulation with typical transmit isolation of 28 dB port to port
- High reliability of >500K Hours MTBF and multi-strike lightning protection
- Compact 19" rackmount enclosure with wall mounting options

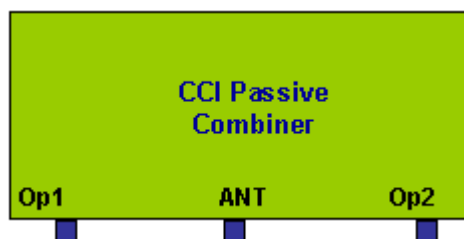
Overview

CCI's narrow guard band, low loss combiner enables two operators or two technologies (eg GSM and LTE) on different sub-bands of the 900 MHz band to be combined onto a single feeder without the insertion loss normally associated with passive combiners. The high power 400 W unit delivers a matched low insertion loss solution for the sharing of common feeder lines and antennas. The unit is a totally passive low loss filter and no power is required. AISG 2.0 compliant DC/AISG pass is provided on either input port utilizing a smart Bias-T. The input ports will sense the DC signal and enable DC/AISG to pass through to the antenna port. The unit is housed in a single rack-mounted 19" by 2U assembly and can be used with other CCI products for further sector enhancement. Outdoor packaging can be provided. Typical deployment uses two identical units per sector, enabling Tx/Rx from both operator BTS ports to combine onto 2 main feeder lines.

Technical Description:

Internal duplexers deliver signal to independent TX and RX filter combiners with ceramic resonators, enabling a high level of control and performance to maintain good isolation while minimizing insertion loss. Stages are kept to a minimum to maximize power and efficiency. Transmit paths are fully isolated from Receive paths to prevent intermodulation products.

CCI filter and combiner products are designed and produced to ISO 9001 certification standards for reliability and quality at our state-of-the-art engineering and manufacturing facilities.





Filters & Combiners

SPECIFICATIONS

Spectrum Sharing 900 MHz Combiner

PFC-900-3xx

Electrical

RF Parameters	Ports	Frequency*	Specification
Return Loss	COMMON	Operator 1 RX/TX	18 dB minimum, 20 dB typical
		Operator 2 TX/TX	18 dB minimum, 20 dB typical
	RX/TX 0	Operator 1 RX/TX	18 dB minimum, 20 dB typical
	RX/TX 1	Operator 2 RX/TX	18 dB minimum, 20 dB typical
Insertion Loss Guardband ≥ 1.6 Mhz	RX/TX 0 to COMMON	Operator 1 RX & Operator 2 RX	0.4 dB typical 0.8 dB @ band edge
	RX/TX 1 to COMMON	Operator 1 TX & Operator 2 TX	0.5 dB typical 0.95 dB @ band edge
Insertion Loss Guardband ≤ 1.4 Mhz	RX/TX 0 to COMMON	Operator 1 RX & Operator 2 RX	0.7 dB typical 1.0 dB @ band edge
	RX/TX 1 to COMMON	Operator 1 TX & Operator 2 TX	0.9 dB typical 1.3 dB @ band edge
Isolation	RX/TX 0 to RX/TX 1	Operator 1 RX & Operator 2 RX	18 dB typical 15 dB minimum
	RX/TX 0 to RX/TX 1	Operator 1 TX & Operator 2 TX	28 dB typical 25 dB minimum

*See chart below for Operator 1 RX/TX and Operator 2 RX/TX frequencies

Model Number	Operator 1		Guard Band	Operator 2	
	RX	TX		RX	TX
PFC-900-301	890.1 - 899.4	935.1 - 944.4	1.6	901.0 - 914.9	946.0 - 959.9
PFC-900-002	890.1 - 901.8	935.1 - 946.8	1.6	903.4 - 914.9	948.4 - 959.9
PFC-900-302	890.0 - 901.0	935.0 - 946.0	1.6	902.6 - 915.0	947.6 - 960.0
PFC-900-303	890.1 - 900.5	935.1 - 945.5	1.6	902.1 - 914.9	947.1 - 959.9
PFC-900-304	885.1 - 889.7	930.1 - 934.7	1.0	890.7 - 897.7	935.7 - 942.7
PFC-900-305	887.7 - 894.7	932.7 - 939.7	0.8	895.5 - 902.7	940.5 - 947.7
PFC-900-320	880.1 - 888.3	925.1 - 933.3	1.8	890.1 - 900.9	935.1 - 945.9
PFC-900-322	880.1 - 889.7	925.1 - 934.7	1.6	891.3 - 900.9	936.3 - 945.9
PFC-900-324	894.7 - 901.7	939.7 - 946.7	3.0	904.7 - 913.7	949.7 - 958.7

Contact sales for additional operator frequency combinations, unit is factory settable with guard band ≥ 0.8 MHz, and ≤ 5.0 MHz)

General Characteristics	
Impedance	50 ohms
Continuous Average Power	400 W max. (all ports)
Peak Envelope Power	2 kW max. (all ports)
Intermodulation Performance	< -117 dBm (-160 dBc) typical (2 x +43 dBm tones) all bands
DC/AISG Pass any port to Common Port	3A/AISG signal (2.176 MHz) per AISG 2.0



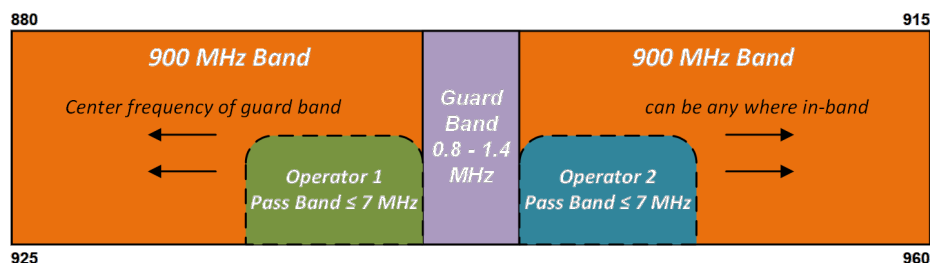
Filters & Combiners

SPECIFICATIONS

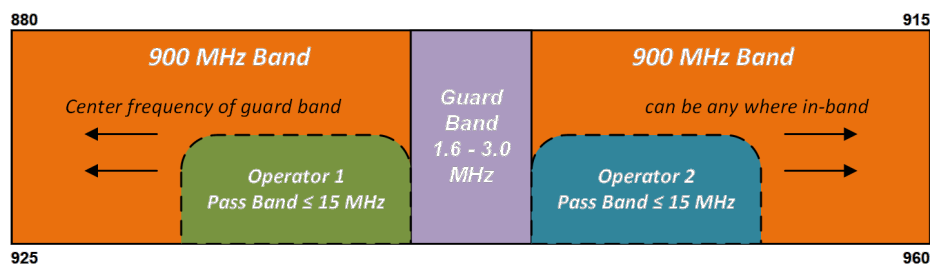
Spectrum Sharing 900 MHz Combiner

PFC-900-3xx

PFC-900-3xx 900 MHz Spectrum Sharing Combiner Band Plans



Guard band 0.8-1.4 MHz, total bandwidth of passbands & guard band is ≤ 15 MHz



Guard band 1.6-3.0 MHz, total bandwidth of passbands & guard band is ≤ 31.6 MHz

Environmental

Operating Temperature	-10 °C to +65 °C
Enclosure	Indoor (IP20 minimum)
MTBF	>500,000 hours
Lightning Protection	8/20us, ± 10 KA max, 10 strikes per IEC61000-4-5

Mechanical

Connectors	3 x 7-16 DIN female
Dimensions (with rack mount)(HxWxD)	19.0 x 21.10 x 3.5 in. (482.6 x 536.5 x 88.1 mm)
Weight with brackets	44.0 lbs (20 kg)
Mounting	Rack Mount; Optional Wall mount kit

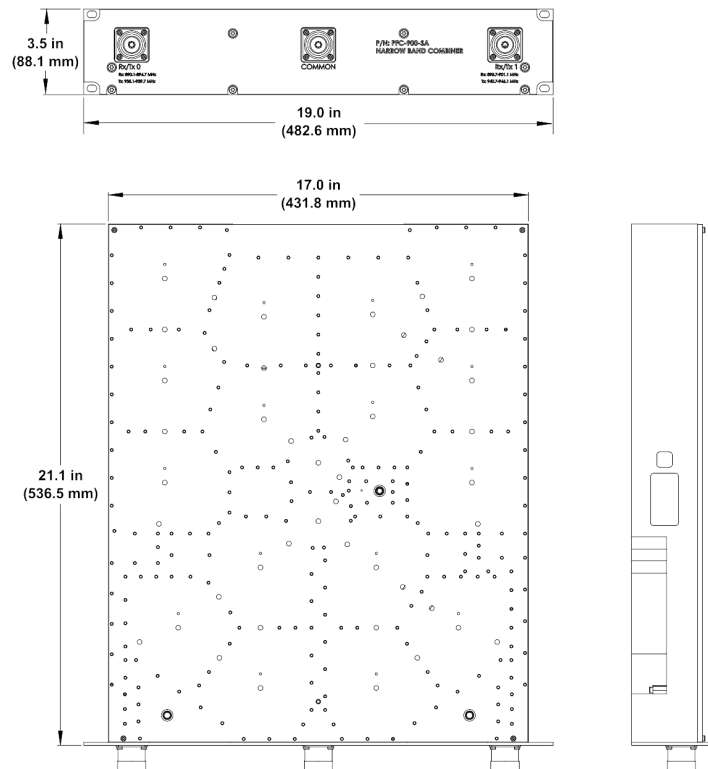


Filters & Combiners

SPECIFICATIONS

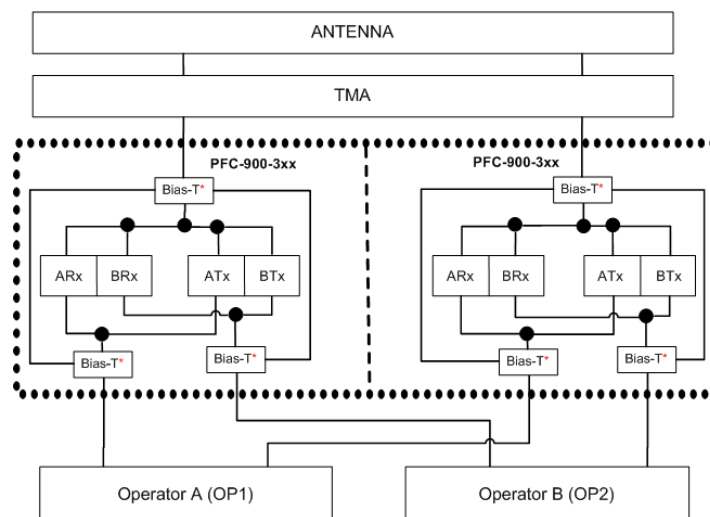
Spectrum Sharing 900 MHz Combiner

PFC-900-3xx



PFC-900-3xx Spectrum Sharing 900 MHz Combiner Outline Drawing

Block Diagram



PFC-900-3xx Spectrum Sharing 900 MHz Combiner Typical Application / Block Diagram



Filters & Combiners

STANDARDS & CERTIFICATIONS

Spectrum Sharing 900 MHz Combiner

PFC-900-3xx

Parts & Accessories

PFC-900-xxx Spectrum Sharing 3 Port 900 MHz Rack Mount Combiner with Smart Bias-Tee and 7-16 connectors

*See chart below for specific Model Numbers and the associated Operator 1 RX/TX and Operator 2 RX/TX frequencies

Model Number	Operator 1		Guard Band	Operator 2	
	RX	TX		RX	TX
PFC-900-301	890.1 - 899.4	935.1 - 944.4	1.6	901.0 - 914.9	946.0 - 959.9
PFC-900-002	890.1 - 901.8	935.1 - 946.8	1.6	903.4 - 914.9	948.4 - 959.9
PFC-900-302	890.0 - 901.0	935.0 - 946.0	1.6	902.6 - 915.0	947.6 - 960.0
PFC-900-303	890.1 - 900.5	935.1 - 945.5	1.6	902.1 - 914.9	947.1 - 959.9
PFC-900-304	885.1 - 889.7	930.1 - 934.7	1.0	890.7 - 897.7	935.7 - 942.7
PFC-900-305	887.7 - 894.7	932.7 - 939.7	1.0	895.7 - 902.8	940.7 - 947.7
PFC-900-320	880.1 - 888.3	925.1 - 933.3	1.8	890.1 - 900.9	935.1 - 945.9
PFC-900-322	880.1 - 889.7	925.1 - 934.7	1.6	891.3 - 900.9	936.3 - 945.9
PFC-900-324	894.7 - 901.7	939.7 - 946.7	3.0	904.7 - 913.7	949.7 - 958.7

Contact sales for additional operator frequency combinations, unit is factory settable with guard band ≥ 1.0 MHz, and ≤ 5.0 MHz)

Standards & Compliance

Safety	EN 60950-1, UL 60950-1
Emission	EN 55022
Immunity	EN 55024
Environmental	IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-5, IEC 60068-2-6, IEC-60068-2-11, IEC 60068-2-14, IEC 60068-2-18, IEC 60068-2-27, IEC 60068-2-29, IEC 60068-02-30, IEC 60068-2-52, IEC 60068-2-64, IEC61000-4-5, GR-63-CORE 4.3.1, EN 60529 IP67, IP68

Certifications

Antenna Interface Standards Group (AISG), Federal Communication Commission (FCC) Part 15 Class B, CE, CSA US, ISO 9001



CCI

Communication Components Inc.

EXTENDING WIRELESS PERFORMANCE