Filters & Combiners
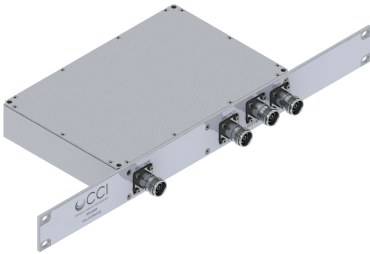
Broadband Triplexer

TPR-713730-xxx

- Combines PCS/AWS (1695-2200), WCS/BRS (2300-2700), and 3.5 (3300-5925)
- High power 200 W per port with low insertion loss
- AISG 2.0 compliant with multiple options for DC/AISG pass through
- Low intermodulation with isolation of >50 dB per band
- Triplexer is available as a 1U 19 inch rack/wall mount configuration for indoor applications and is fully outdoor rated
- Is optionally available as an outdoor wall/pole mount bracket for mounting flexibility
- High reliability of >500K Hours MTBF and multi-strike lightning protection

Overview

The CCI Broadband Triplexer combines three bands, PCS/AWS (1695-2200), WCS/BRS (2300-2700) and 3.5 (3300-5925) onto a common port. Specifically intended for use in multi-band systems with limited feeder lines, this CCI Triplexer facilitates the addition of new technologies including LTE and new spectrum to existing sites while providing a high degree of isolation between systems. Decreasing the number of feeder lines lowers tower loading, leasing and installation expenditures and the total cost to upgrade a site is significantly reduced.

The CCI Broadband Triplexer provides full band performance for each band with low insertion loss, low Intermodulation, and high power handling. Excellent return loss delivers the best match to the antennas and base station, saving precious transmit power. The outdoor version of the triplexer enables full Remote Electrical Tilt (RET) and Tower Mount Amplifiers (TMA) capability by providing DC and AISG 2.0 compliant pass-through.

Technical Description:

The Triplexer consists of multiple filters and can be used as either a splitter or combiner to aggregate the PCS/AWS, WCS/BRS, and 3.5 bands on a common feeder line. The fully weatherproof triplexer is available in both the rack mounted and outdoor pole mount models. The fully weatherproof outdoor tower mount outdoor Triplexer provides DC and AISG signal pass-through on the AWS/PCS or WCS/BRS ports to the Common port, enabling power and control for TMA's & RET antennas. The Smart Bias-Tee architecture passes the DC and AISG carrier frequency from any one of the input ports to the common port while blocking the DC and AISG signals from being re-injected into the other input ports.The triplexer has internal multi-strike lightning protection using a multi-stage surge protection circuit.

The unit has been designed to minimize insertion loss while maximizing isolation. Particular attention has been given to the intermodulation performance of the Triplexer to minimize any passive intermodulation products from occurring. This unit is a 1U high 19" rack mount and is rated for IP67 so it can be deployed both indoors and out. A wall/pole mount bracket is also shipped with the unit to provide flexible mounting options. The triplexer is also available in optional outdour single, twin and quad configurations. Both the rack mount and pole mount configurations are available with 4.3-10 conectors and are IP67 rated for outdoor use.

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

Broadband Triplexer

TPR-713730-xxx

Electrical Specification

RF Parameters	Ports	Frequency(MHz)	Specification
Return Loss	Common	1695 - 2200	18 dB min., 20 dB Typ.
		2300 - 2700	18 dB min., 20 dB Typ.
		3300 - 5925	18 dB min., 20 dB Typ.
	PCS/AWS	1695 - 2200	18 dB min., 20 dB Typ.
	WCS/BRS	2300 - 2700	18 dB min., 20 dB Typ.
	3.5	3300 - 5925	18 dB min., 20 dB Typ.
Insertion Loss	COM to PCS/AWS	1695 - 2200	0.2 dB typ., 0.35 dB max.
	COM to WCS/BRS	2300 - 2700	0.3 dB typ., 0.45 dB max.
	COM to 3.5	3300 - 5925	0.2 dB typ., 0.30 dB max.
Isolation	COM to PCS/AWS	2300 - 2700	50 dB minimum
		3300 - 5925	50 dB minimum
	COM to WCS/BRS	1695 - 2200	50 dB minimum
		3300 - 5925	50 dB minimum
	COM to 3.5	1695 - 2200	50 dB minimum
		2300 - 2700	50 dB minimum

General Characteristics	
Impedance	50 ohms
Continuous Average Power	200 W per input port maximum
Peak Envelope Power	1 kW max. (All Ports)
Intermodulation Performance	<-117 dBm (-160 dBc) typical (2 × +43 dBm tones) all bands (Indoor & Outdoor)
DC Pass Current/AISG Pass (AWS/PCS or WCS/BRS to Common port)	3A/AISG signal (2.176 MHz) per AISG 2.0

Environmental Specification

Operating Temperature	-40˚C to +65˚C
Enclosure	IP67 outdoor rated
Connectors	IP67 outdoor rated
Relative Humidity	0 - 99%
MTBF	>500,000 hours
Lightning Protection	8/20us, ±10KA max, 10 strikes each, IEC61000-4-5

DS-TPR713730xxx-V1.0-220805

Filters & Combiners

Broadband Triplexer

TPR-713730-xxx

Mechanical Specification

Indoor Rack Mount	
Connectors	4 × 7-16 DIN female or 4 × 4.3-10 female
Body Dimensions (Rackmount)	1.73 × 9.80 × 6.65 in. (44.0 × 249.0 × 169.0 mm)
Overall Dimensions (Rackmount - connectors not included)	1.73 × 19.00 × 6.81 in. (44.0 × 483.0 × 173.0 mm)
Weight	8.4 lbs (3.8 kg)
Mounting	19 inch (483 mm) x 1U (266 mm) rack or included wall mount bracket

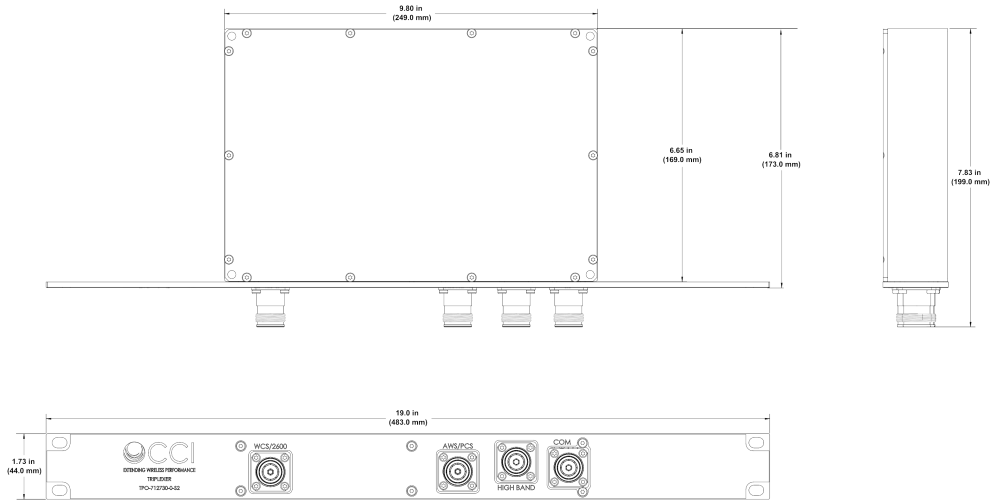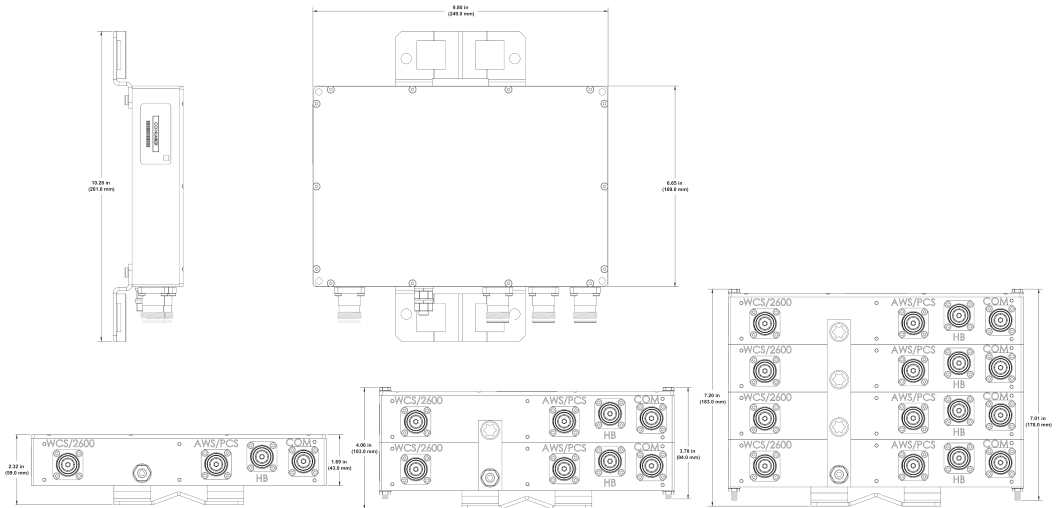| Outdoor	Single	Twin	Quad
Body Dimensions (Outdoor Pole Mount)	1.69 × 9.80 × 6.65 in. (43 × 249 × 169 mm)	3.70 × 9.80 × 6.65 in. (94 × 249 × 169 mm)	7.01 × 9.80 × 6.65 in. (178 × 249 × 169 mm)
Overall Dimensions (Outdoor Pole Mount)	2.32 × 9.80 × 10.28 in. (59 × 249 × 261 mm)	4.06 × 9.80 × 10.28 in. (103 × 249 × 261 mm)	7.20 × 9.80 × 10.28 in. (183 × 249 × 261 mm)
Weight	8.0 lbs (3.6 kg)	14.6 lbs (6.65 kg)	27.8 lbs (12.6 kg)
Mounting	Pole/Wall mounting bracket		

Filters & Combiners

Broadband Triplexer

TPR-713730-xxx

Rackmount Broadband Triplexer (TPR-713730-xxx) Outline Drawing

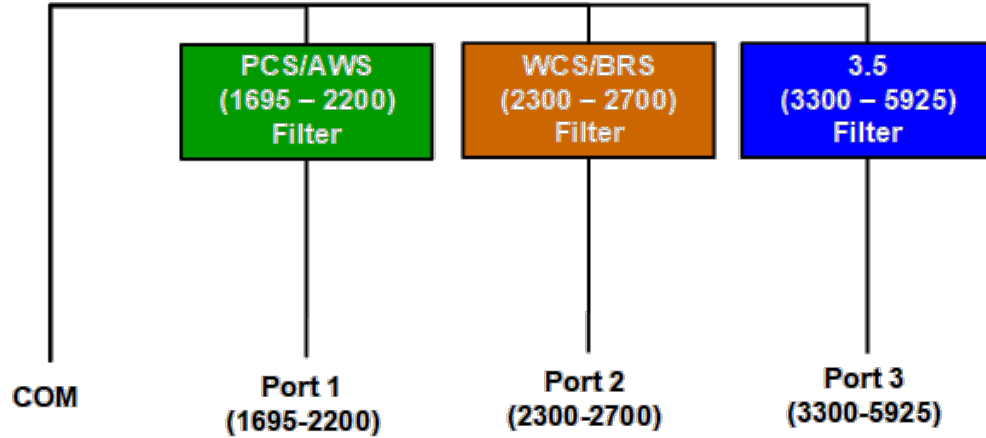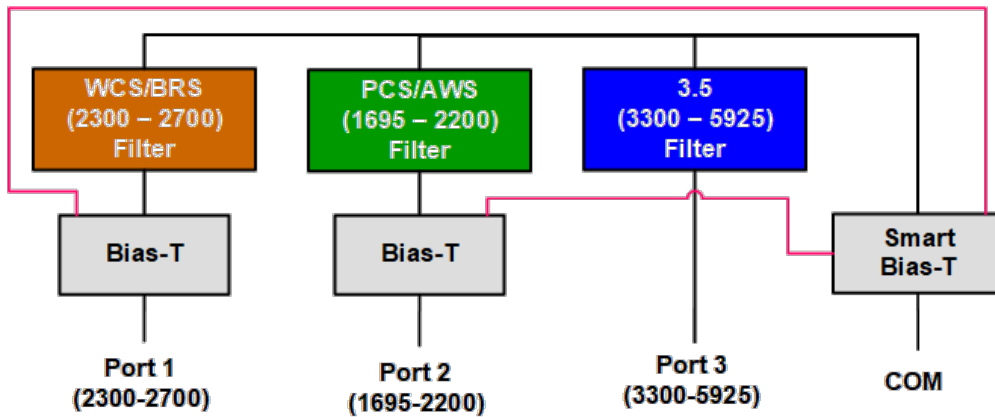*Broadband Triplexer (TPO-713730-xxx) Outline Drawing*

Filters & Combiners

Broadband Triplexer

Block Diagram

Broadband Rackmount Triplexer Block Diagram

Broadband Outdoor Triplexer with Smart Bias-T Block Diagram

DS-TPR713730xxx-V1.0-220805

STANDARDS & CERTIFICATIONS

Broadband Triplexer

TPR-713730-xxx

Parts & Accessories

TPR-713730-0-S2	19 inch Rackmount Broadband Triplexer with 4.3-10 connectors, includes optional wall mount bracket and no DC/AISG pass through
TPO-713730-x-S2	Outdoor Broadband Triplexer with 4.3-10 connectors
TPO-713730-x-T2	Outdoor Twin Broadband Triplexer with 4.3-10 connectors
TPO-713730-x-Q2	Outdoor Quad Broadband Triplexer with 4.3-10 connectors

Option (-x)	Description
-S	Smart Bias-T, DC/AISG Pass through on either AWS/PCS port or WCS/BRS port
-0	No DC/AISG Pass through
-1	DC/AISG Pass through AWS/PCS Band to COMMON, DC Block on all other input ports
-2	DC/AISG Pass through WCS/BRS to COMMON, DC Block on all other input ports

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 IP20, IP67, IP68

Certifications

Federal Communication Commission (FCC) Part 15 Class B, CE, CSA US, ISO 9001

CCI Communication Components Inc.
EXTENDING WIRELESS PERFORMANCE