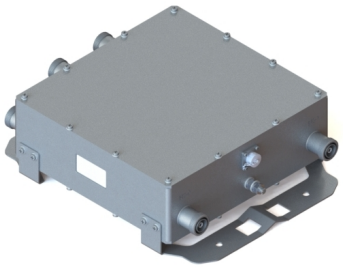
Triple Band Twin TMA (AWS/PCS/WCS) with AWS-3 and 700/850 Bypass

DATA SHEET

TMABPD7823VG12A



- Triple Band Twin TMA (AWS/PCS/WCS) which includes AWS-3 and 700/850 Bypass
- Each TMA has independent gain control of 6 to 12dB
- Fail-safe bypass mode and multi-strike lightning protection
- Small lightweight unit offers high reliability of >500K Hours MTBF
- Highly linear amplifier with low intermodulation

Overview

CCI's Triple Band Twin TMA (AWS/PCS/WCS), which includes AWS-3 and 700/850 bypass, contains two triple band TMA's in a single housing. Each TMA in the housing is fully duplexed and shares a single LNA for all three bands. The bypass path provides excellent isolation to the TMA path. Separate antenna ports for the bypass path and TMA path are combined onto a single BTS port. The Twin TMA's low noise, highly linear amplifiers improve the uplink sensitivity and the receive performance of the base station. The TMA is fully compliant with the AISG 2.0 specification and supports CDMA, EDGE/GSM, UMTS and LTE BTS equipment. The unit is ideally suited for sites upgraded to quad-band using the existing infrastructure. The TMA allows the sharing of feeder lines for all bands thus reducing tower loading, leasing, and installation costs. The input and output connectors are located inline for ease of installation in space constrained areas such as uni-pole structures and stealth antennas.

Technical Description:

The TMA system is an outdoor triple band twin tower mount unit which provides low noise amplification of PCS, AWS, AWS-3, and WCS uplink signals combined with 700/850 bypassed signals from separate antenna ports to a common BTS port. The tower mount unit consists of 14 band-pass filters, two redundant low noise amplifiers(LNA) with bypass failure circuitry, two bias tees, AISG control circuitry, and lightning protection circuitry all housed in an IP67 enclosure suited to long life masthead mounting. The AWS, PCS and WCS paths are dual duplexed to separate the low power uplink signals from the high power down link signals at the BTS and antenna ports. The AWS, PCS, and WCS uplink signals are amplified with a dedicated ultra-low noise PHEMT LNA with adjustable gain control. The unit provides protection against lightning strikes via a multistage surge protection circuit. DC power and AISG 2.0 control is provided via the BTS feeder cable. The unit operates in current window alarm (CWA) mode until a valid AISG message is detected, at which point it automatically switches to AISG mode. Once in AISG mode, the unit can only switch back to CWA mode with the receipt of an AISG CCI vendor defined command. In CWA mode, the unit requires 12VDC at each BTS port and follows typical current window convention. In AISG mode, the unit will accept 10-30 VDC from either BTS port. In AISG mode, the unit does not require an AISG 2.0 compatible site control unit(SCU) and may also be powered by a standard power distribution unit (PDU).
An optional Site Control Unit(SCU) is available to power up to 32 AISG modules per sector and to provide the monitoring and alarm functions for the system. The SCU is housed in a single (1U) 1.75" x 19" rack and contains dual redundant power supplies capable of being "hot swapped" that provide a regulated DC supply voltage on the RF coax for the tower mount amplifiers.

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SPECIFICATIONS

Electrical

RF Parameters	Ports	Frequency(MHz)	Specification
Return Loss (minimum)	700/850 ANT	698 - 894	18 dB
	PCS/AWS/WCS ANT	1850 - 1910	18 dB (10 dB bypass mode)
		1930 - 1990	18 dB
		1710 - 1780	18 dB (10 dB bypass mode)
		2110 - 2180	18 dB
		2305 - 2320	18 dB (10 dB bypass mode)
		2345 - 2360	18 dB
	BTS	698 - 894	18 dB
		1850 - 1910	18 dB (10 dB bypass mode)
		1930 - 1990	18 dB
		1710 - 1780	18 dB (10 dB bypass mode)
		2110 - 2180	18 dB
		2305 - 2320	18 dB (10 dB bypass mode)
		2345 - 2360	18 dB
Gain Setting	PCS/AWS/WCS ANT to BTS	1710 - 1780, 1850 - 1910, 2305 - 2320	6 to 12 dB adjustable in 0.25 dB steps via AISG (± 1.0 dB)
Gain, Actual (when set for 6 dB)	PCS/AWS/WCS ANT to BTS	1710 - 1780, 1850 - 1910	6 ± 1.0 dB
		2305 - 2320	5 ± 1.0 dB
Gain, Actual (when set for 9 dB)	PCS/AWS/WCS ANT to BTS	1710 - 1780, 1850 - 1910	9 ± 1.0 dB
		2305 - 2320	8 ± 1.0 dB
Gain, Actual (when set for 12 dB)	PCS/AWS/WCS ANT to BTS	1710 - 1780, 1850 - 1910	12 ± 1.0 dB
		2305 - 2320	11 ± 1.0 dB
Insertion Loss	700/850 ANT - BTS	698 - 894	0.25 dB typical
	PCS/AWS/WCS ANT to BTS (RX Bypass mode)	1850 - 1910	2.5 dB typical
		1710 - 1780	2.5 dB typical
		2305 - 2320	4.5 dB typical
	PCS/AWS/WCS ANT to BTS (TX)	1930 - 1990	0.5 dB typical
		2110 - 2180	0.4 dB typical
		2345 - 2360	0.7 dB typical
Isolation	700/850 ANT to PCS/AWS/WCS ANT	698 - 894	70 dB
		1710 - 2360	70 dB
Noise Figure	PCS/AWS/WCS ANT to BTS	1850 - 1910	1.5 dB typical
		1710 - 1780	1.3 dB typical
		2305 - 2320	2.3 dB typical
Input Third Order Intercept Point (minimum)	PCS/AWS/WCS ANT to BTS	1710 - 1780	+12 dBm at maximum gain
		1850 - 1910	+12 dBm at maximum gain
		2305 - 2320	+12 dBm at maximum gain

General Characteristics	
Impedance	50 ohms
Continuous Average Power	200 W max.
Peak Envelope Power	2 kW max.
Intermodulation Performance(all ports)	<-117 dBm (-160 dBc) typical (2 x +43 dBm tones) all bands
Operating Voltage	+10V to +30V DC provided via coax or AISG
Power Consumption	< 2.0 W

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Environmental

Operating Temperature	-40˚C to +65˚C
Ingress Protection	IP67
MTBF	>500,000 hours
Lightning Protection	8/20us, ±10KA max, 10 strikes each per IEC61000-4-5

Mechanical

Connectors	6 x 7-16 DIN female 1 x AISG
Dimensions enclosure (HxWxD)	10.63 x 11.04 x 3.75 in. (270.0 x 280.3 x 95.2 mm)
Dimensions with brackets (HxWxD)	14.22 x 11.56 x 4.24 in. (361.8 x 293.5 x 107.6 mm)
Weight enclosure	25.0 lbs (11.3 kg)
Weight with brackets	26.0 lbs (11.8 kg)
Mounting	Pole/Wall mounting bracket

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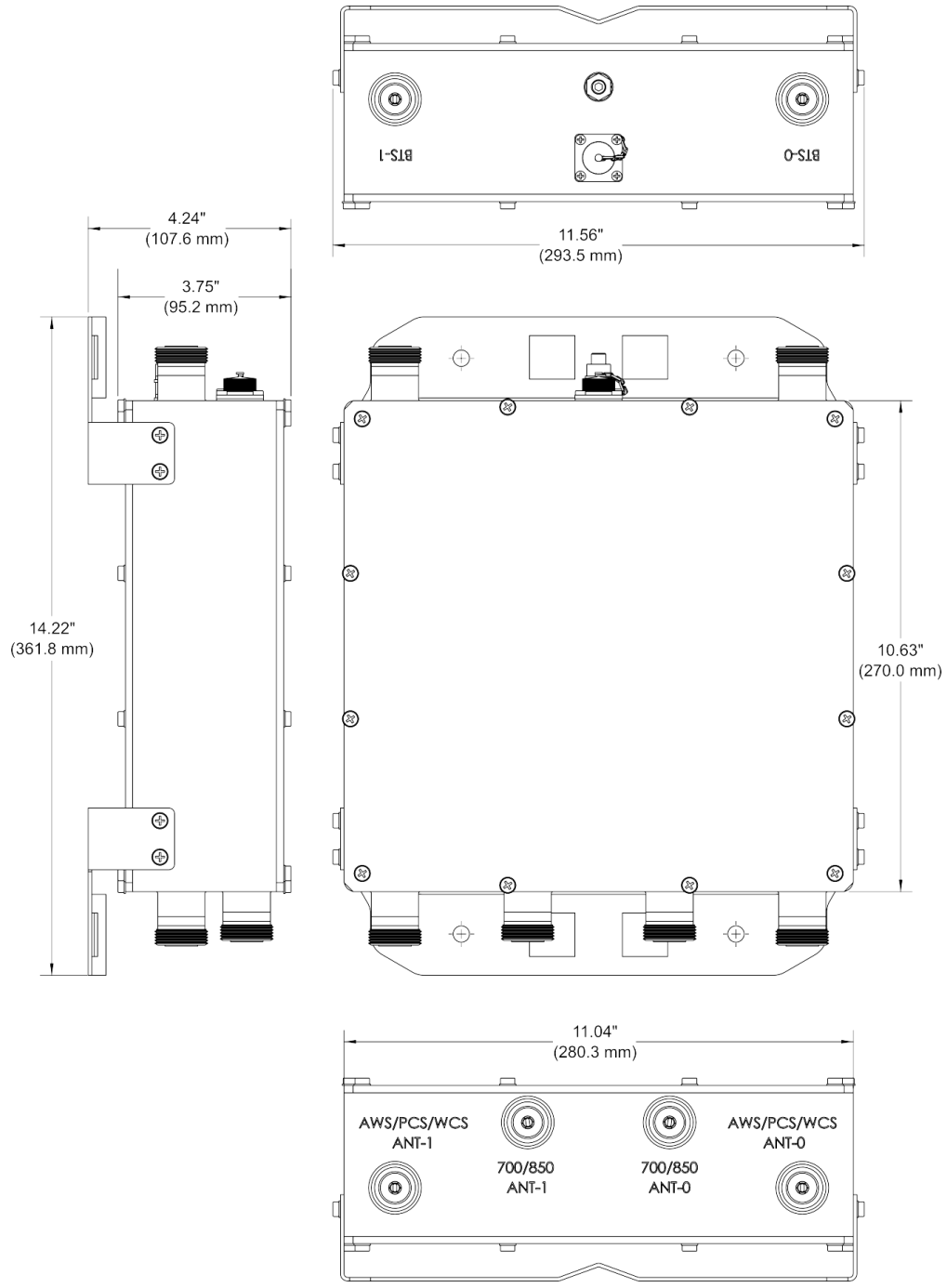
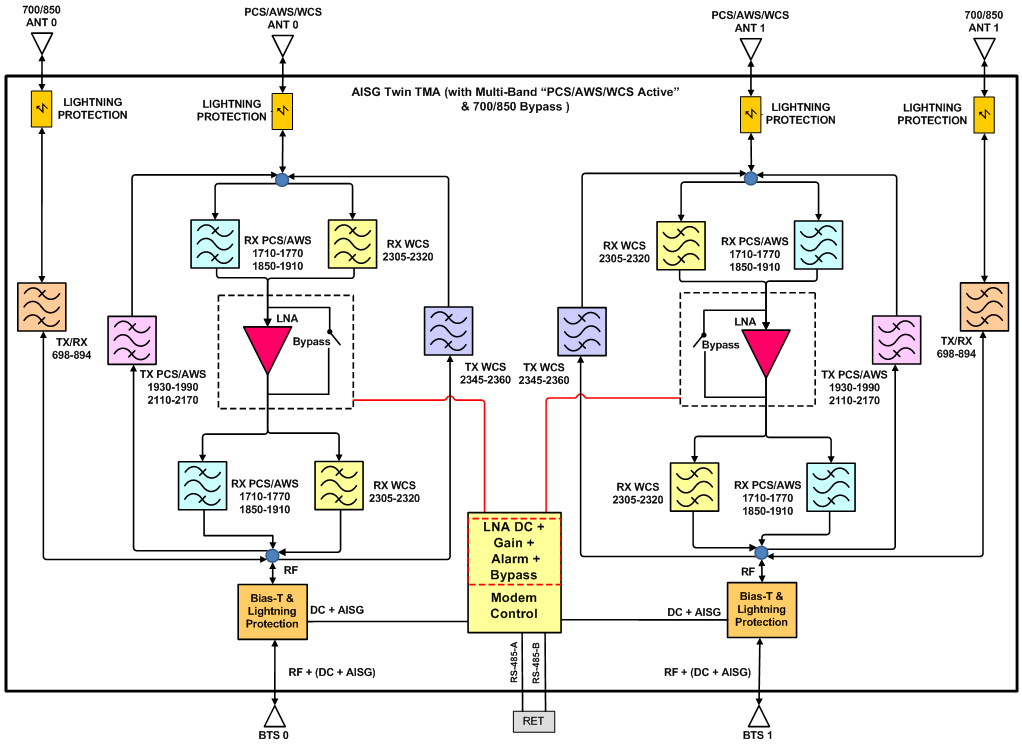


TMABPD7823VG12A Outline Drawing

Triple Band Twin TMA (AWS/PCS/WCS) with AWS-3 and 700/850 Bypass

Block Diagram



TMABPD7823VG12A Block Diagram

Triple Band Twin TMA (AWS/PCS/WCS) with AWS-3 and 700/850 Bypass

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STANDARDS & CERTIFICATIONS

Parts & Accessories

TMABPD7823VG12A	Triple Band Twin TMA (PCS/AWS/WCS) with 700/850 Bypass with 7/16 DIN connectors

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 IP68

Certifications

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