DATA SHEET

AWS Antenna Sharing Combiner

ASC1921VG09A

- Small, lightweight, outdoor unit
- Multi-Technology Combiner (GSM/UMTS/CDMA/LTE AWS Band)
- Can also be used for same technology (e.g. UMTS/UMTS or LTE/LTE)
- Can be used close to Antenna
- Can be used in Ground Based Applications while maintaining Diversity Path
- Can operate as a Passive Combiner in non-DC fed system
- Rx path is "Independent" of Tx path
- Can survive incorrect installation as ports are protected
- AISG 2.0 compatible unit
- ASC receives DC Voltage and AISG sampling at the UMTS BTS-0(M) port
- ASC operates at constant power
- High Linearity
- Lightning protected
- Fail-safe bypass mode
- High reliability

Overview

CCI's AWS Band Multi-Technology Antenna Sharing Combiner (ASC) allows two AWS band base stations to share the same antennas and preserves receive diversity without any combining losses. In the downlink direction, the AWS band transmit signal from each Base Station is directed to one of the two antenna ports. In the uplink direction, an AWS amplifier compensates for combining losses normally associated with passive combiners. The Gain of the amplifier can be controlled remotely using AISG 2.0 Protocol, and the gain level to each BTS can be independently controlled.

Technical Description:

The ASC system consists of an outdoor tower mount unit with one antenna input. The tower mount unit is dual duplexed to separate the low-power uplink signal from the high-power downlink signal at the antenna port, amplifies the low-level uplink signals using an ultra-low noise amplifier (LNA), and recombines the two paths at the BTS port. In addition, the uplink signal is split out after the LNA and routed to the BTS diversity port. The tower mount units consist of nine band-pass filters, three redundant low-noise amplifiers, three splitters, bypass failure circuitry, and bias tee's which are all housed in an IP65 moisture proof enclosure, with IP68 Immersion proof connectors suited to long-life masthead mounting. The unit provides protection against lightning strikes via a multi-stage surge protection circuit. AISG 2.0 DC power and control is provided via the feeder cable from the BTS using the AISG 2.0 and 3GPP standard. The ASC is powered through the (BTS-0(M)) port. Additionally the ASC operates at constant power when powered by an AISG 2.0 Compatible Site Control Unit, or BTS. A separate AISG connector is also provided to allow direct AISG connection or "Daisy Chaining" to multiple AISG products at the top of the tower. With fully protected input ports, the unit can be installed without the concern of damaging the unit should it be incorrectly installed.

Applications

- Functions as a combiner for same band Base Station Equipment, (Can be same technology (e.g. UMTS and UMTS or LTE and LTE) or different technology (e.g. LTE and UMTS)) enabling Rx Diversity and overcoming losses normally associated with passive combiners.
- Can be used close to the antenna, enabling Remote Radio Head equipment to be combined with Coaxial fed systems which use a pair of Coaxial Feeder Lines. Gives additional gain for overcoming feeder and combining losses.
- Can be used in ground based applications, as a combiner. Overcomes losses and maintains Rx Diversity path.
- PDU has flexibility to be used in non-DC fed systems, thus giving passive combining of two same band systems into coaxial feeder line pair.

SPECIFICATIONS

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Electrical Specification

RF Parameters	Ports	Frequency(MHz)	Specification
Return Loss	ANT	1710 - 1910	18 dB min. (15 dB bypass mode)
		2110 - 2155	18 dB min.
	BTS	1710 - 1910	18 dB min. (15 dB bypass mode)
		2110 - 2155	18 dB min.
Gain	ANT - BTS	1710 - 1910	1 to 9 dB adjustable in 0.25 dB steps via AISG (± 0.75 dB)
Insertion Loss	ANT - BTS (RX Bypass mode)	1710 - 1910	5.0 dB typ., 5.4 dB max. (±0.3 dB)
	ANT - BTS (TX)	2110 - 2155	0.25 dB typ, 0.4 dB max. (±0.05 dB)
Noise Figure	ANT - BTS	1710 - 1910	1.4 dB typ., 1.6 dB max @ 25°C 1.6 dB typ., 1.8 dB max @ 65°C
Input Third Order Intercept Point	ANT - BTS	1710 - 1910	+9 dB min. at max. gain

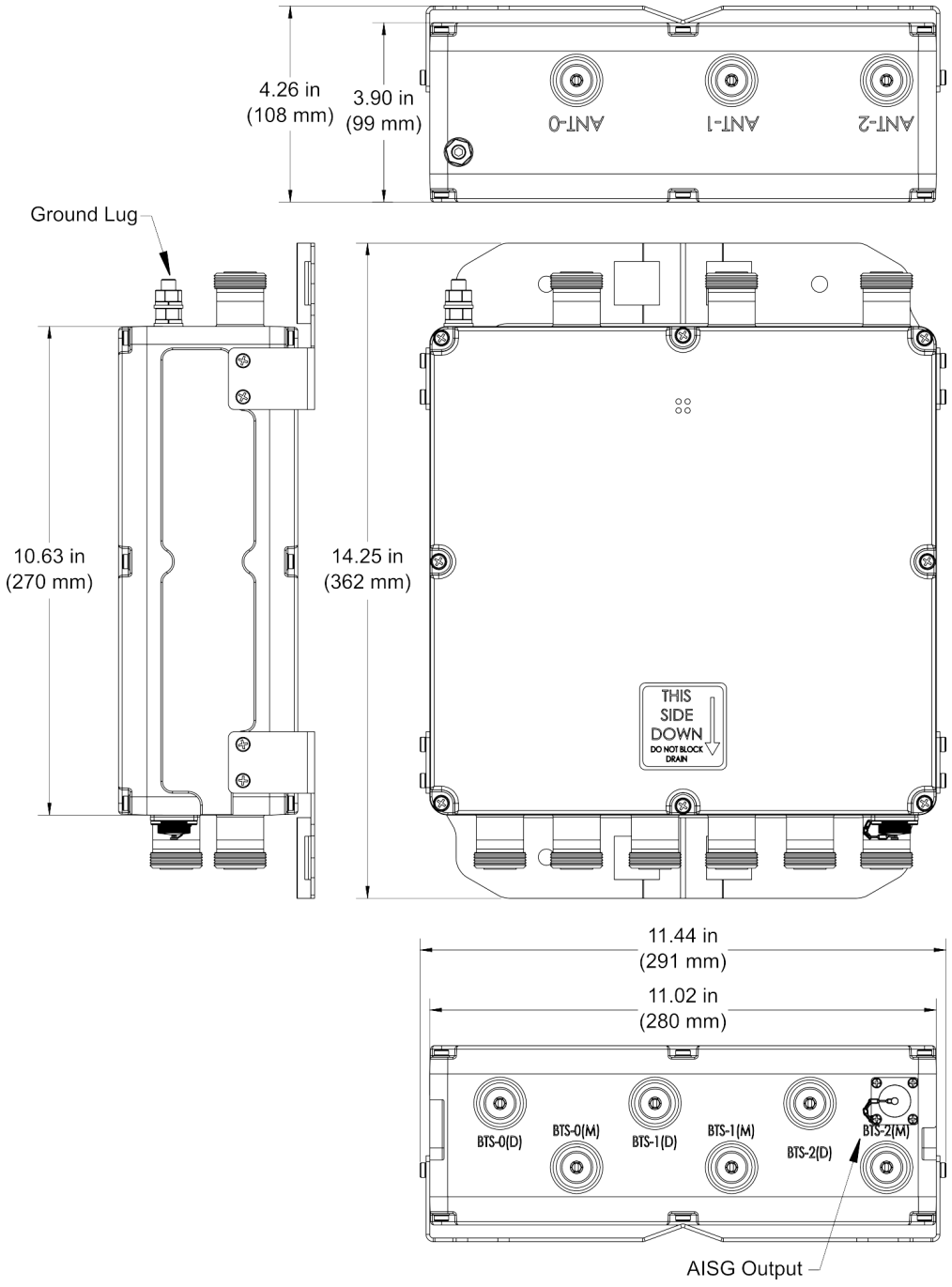
General Characteristics	
Impedance	50 ohms
Continuous Average Power	200 W max.
Peak Envelope Power	2 kW max.
Intermodulation Performance(all ports)	<-110 dBm (-153 dBc) typical (2 × +43 dBm tones) all bands
Operating Voltage	+10V to +30V DC provided via coax or AISG
Power Consumption	≤ 2.7 W

Environmental Specification

Operating Temperature	-40˚ C to +65˚C
Enclosure	IP65 (Unit Body), IP68 (Connector
MTBF	>500,000 hours
Lightning Protection	8/20us, ±2KA max, 10 strikes each, IEC61000-4-5

Mechanical Specification

Connectors	DIN 7-16 female x 9 (BTS (x 3), ANT (x 3), RxD (x 3)), AISG x 1
Dimensions (w/o connectors or brackets)(H×W×D)	10.63 x 11.02 x 3.90 in. (270 x 280 x 99 mm)
Dimensions (with brackets)(H×W×D)	14.25 x 11.44 × 4.26 in. (362 x 291 x 108 mm)
Weight (w/o Bracket)	22.0 lbs (10.0 kg)
Weight (with Bracket)	23.25 lbs (10.5 kg)
Mounting	Pole/Wall Mounting Bracket



ASC1921VG09A Outline Drawing

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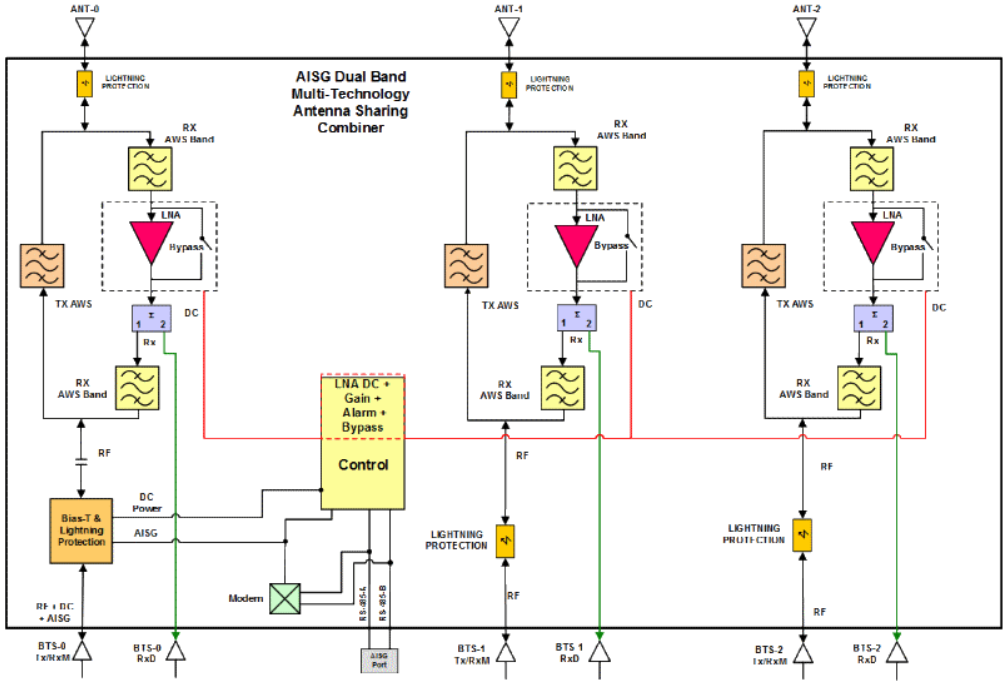
Block Diagram



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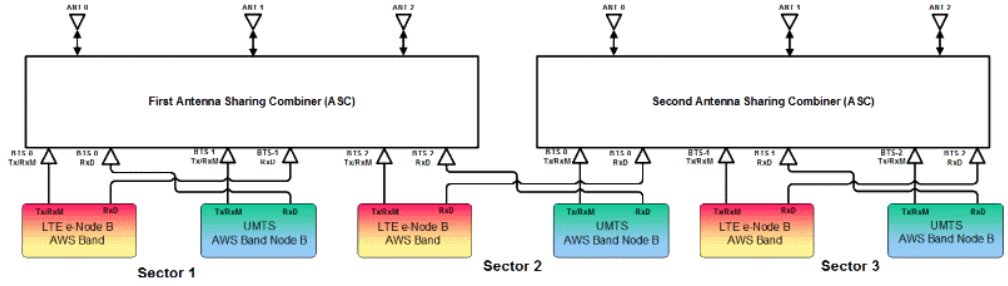

Typical AWS Band ASC Installation Diagram

ORDERING

AWS Antenna Sharing Combiner

Parts & Accessories

ASC1921VG09A	AWS Multi-Technology Outdoor Antenna Sharing Combiner

Certifications

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