



# ALDCBS1X4

## Technical Product Data

### Features

- **Amplifier Gain of 18dB**  
Gain  $\geq$  17dB
- **Extremely Flat Group Delay**  
Less than 1ns variation
- **Phase Matched Outputs**  
Phase (J1 – J2)  $<$  1.0°

### Description

The ALDCBS1X4 GPS Amplified Splitter is a one input, four output device with a 17dB minimum gain block. The frequency response covers the GPS L1 & L2 bands with excellent gain flatness. In the normal configuration, one of the splitter RF outputs (J1) passes DC from the connected GPS receiver through the splitter to the antenna, allowing the GPS receiver to power both the antenna and the splitter's amplifier. The other RF outputs (J2, J3 and J4) are DC loaded with a 200 $\Omega$  resistor to simulate the antenna current draw and prevent false antenna fault detection from connected receivers.

### Electrical Specifications, $T_A = 25^{\circ}\text{C}$

Parameter	Conditions	Min	Typ.	Max	Units
Freq. Range	Ant – Any Output, Unused Outputs - 50 $\Omega$	1.1		1.7	GHz
In/Out Imped.	Ant, J1, J2, J3, J4		50		$\Omega$
Gain	Normal Configuration, Ant–Any Output, Unused Outputs- 50 $\Omega$	17	18.4	19	dB
Input SWR	All ports - 50 $\Omega$			2.0:1	-
Output SWR	Normal Configuration , All ports - 50 $\Omega$			1.8:1	-
Noise Figure	Normal Config., Ant – Any Output, Unused Outputs - 50 $\Omega$		4.2	4.5	dB
Gain Flatness	L1 – L2   ; Ant – Any Output, Unused Outputs - 50 $\Omega$		0.3	1	dB
Amplitude Balance	J1 – J2   ; Ant – Any Output, Unused Outputs - 50 $\Omega$			0.5	dB
Phase Balance	Phase (J1 – J2) ; Ant – Any Output, Unused Outputs - 50 $\Omega$			1.0	deg
Isolation	Normal Config., Adjacent Ports, Ant - 50 $\Omega$ (see plots)	10			dB
Group delay Flatness	$\tau_{d,max} - \tau_{d,min}$ : Ant – J1, J2 - 50 $\Omega$ ; Ant – J2, J1 - 50 $\Omega$			1	ns
Req. DC Input V.	Non-Network Configuration, DC Input on J1	3.6		15	Vdc
Pi dB	Output Power @ 1dB Gain Compression (f = 1.5GHz)		-2.0		dBm
Current <sup>(1)</sup>	Amplifier Current Draw, All ports - 50 $\Omega$			15	mA

(1). Current draw on input DC port in the non-networked configuration.

## Hi Isolation Option

Electrical Specifications,  $T_A = 25^{\circ}\text{C}$

Parameter	Conditions	Min	Typ	Max	Units
Freq. Range	Ant – Any Output, Unused Outputs - $50\Omega$	1.1		1.7	GHz
In/Out Imped. <sup>(1)</sup>	Ant, J1, J2, J3, J4		50		$\Omega$
Gain	Hi Isolation Config, Ant – Any Output, Unused Outputs - $50\Omega$	1.5	3.0	4	dB
Input SWR	All ports - $50\Omega$			2.0:1	-
Output SWR	All ports - $50\Omega$			1.3:1	-
Noise Figure	Ant – Any Output, Unused Outputs - $50\Omega$		4.4	4.7	dB
Gain Flatness	$ L1 - L2 $ ; Ant – Any Output, Unused Outputs - $50\Omega$		0.3	1	dB
Amplitude Balance	$ J1 - J2 $ ; Ant – Any Output, Unused Outputs - $50\Omega$			0.5	dB
Phase Balance	Phase (J1 – J2); Ant – Any Output, Unused Outputs - $50\Omega$			1.0	deg
Isolation	Adjacent Ports, Ant - $50\Omega$ (see plots)	40			dB
Group delay Flatness	$\tau_{d,max} - \tau_{d,min}$ : Ant – J1, J2 - $50\Omega$ ; Ant – J2, J1 - $50\Omega$			1	ns
Req. DC Input V.	Non-Network Configuration, DC Input on J1	3.6		15	Vdc
P <sub>i</sub> dB	Output Power @ 1dB Gain Compression (f = 1.5GHz)		-2.0		dBm
Current <sup>(2)</sup>	Amplifier Current Draw, All ports - $50\Omega$			15	mA

## Available Options

Network Power Supply		
Source Voltage Options	VOLTAGE INPUT	
	110VAC	Transformer (Wall Mount)
	220 VAC	Transformer (Wall Mount)
	240 VAC (United Kingdom)	Transformer (Wall Mount)
Output Voltage Options <sup>(1)</sup>	Customer Supplied DC 9-32 VDC	
	Military Style Connector	
	DC VOLTAGE OUT	
	MAX CURRENT OUT FOR CORRESPONDING V <sub>out</sub> <sup>(2)</sup>	
	5 V	110mA
	7.5V	130mA
	9V	140mA
12V	170mA	
15V	210mA	
Custom	TDB	
Output Port Isolation Options		
Isolation Options	Normal Isolation, 16dB min. Output Port – to – Output Port	
	High Isolation, 42dB min. Output Port – to – Output Port	
Pass/Block DC Options		
Pass DC <sup>(1)</sup>	All Ports Pass DC	
DC Blocked <sup>(1)</sup>	J2 is DC blocked, Pass DC from J1 to ANT.	
RF Connector Options		
Connector Options	CONNECTOR STYLE	
	CHARGE	
	Type N	NC
	Type SMA	NC
	Type TNC	NC
Type BNC	NC	

(1). With Network Option, any RF port (input or output) can be DC blocked or pass the DC voltage.

(2).  $T_A = +50^{\circ}\text{C}$ . Assuming Source of 110V or 220V Wall Mount Transformer. In general, maximum output current can be determined by:  $I_{out} \leq 2.9 / (V_{sourceDC} - V_{out})$  A

Part Number

**N HI AL DCB S1X4- S / 5 / 110**

Network Option:

**N** =Network Option; **Blank**: No Network

Isolation Option:

**HI** =Hi Isolation Option; **Blank** = Normal

DC Options:

**DCB** = DC Blocked; **PDC** = Pass DC

Connector Options:

**N** = N type; **S** = SMA; **T** = TNC; **B** = BNC

DC Output Voltage:

**3.3, 5, 7.5, 9, 12, 15, CXX** (Custom: "XX" denotes desired V)

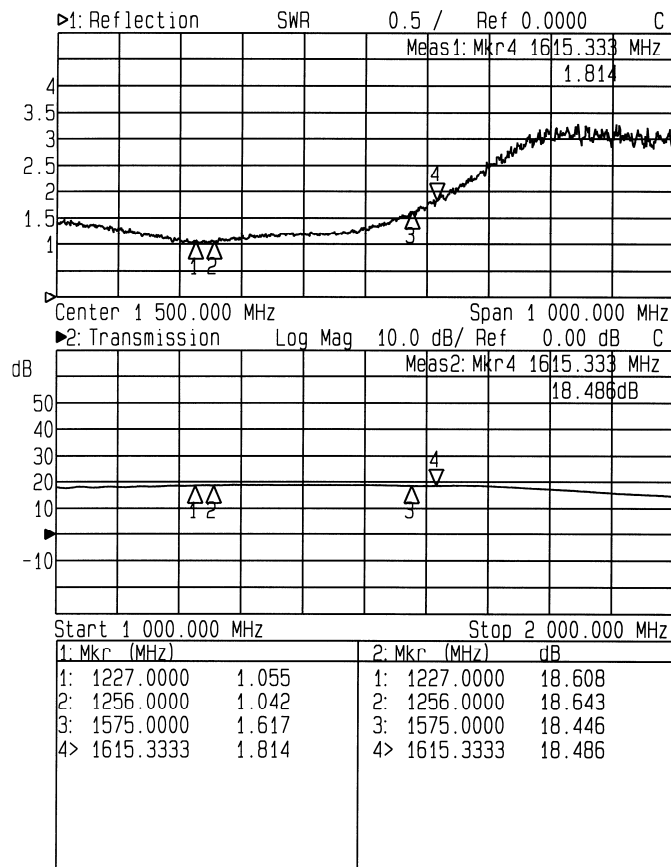
Source Voltage:

**110** -Transformer, **220** – Transformer, **240** – Transformer, **MC** – Military DC Connector (User supplies 9-32VDC)

Performance:

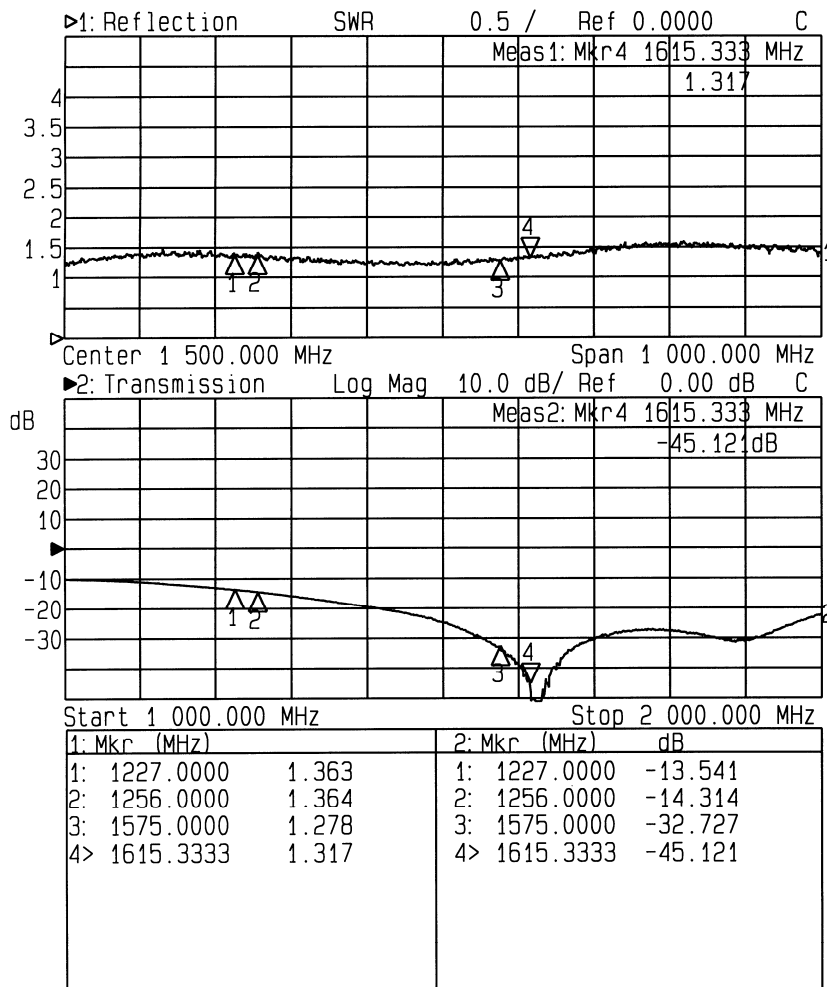
**ALDCBS1X4 (Normal Output Isolation Option) (continued):**

Input SWR (Ant. Port) and Frequency Response: Ant. To J1, J2, J3, J4) (Typical, type N connector):



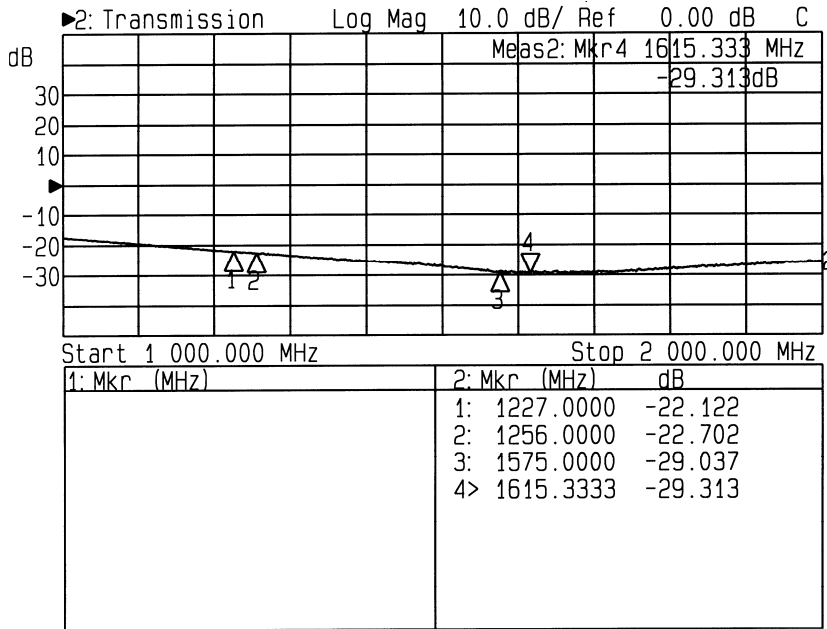
**ALDCBS1X4 (Normal Output Isolation Option) (continued):**

Output SWR (J1, J2, J3, J4) and Adjacent Output Isolation (J1-J3, J2-J4) (Typical, type N connector):



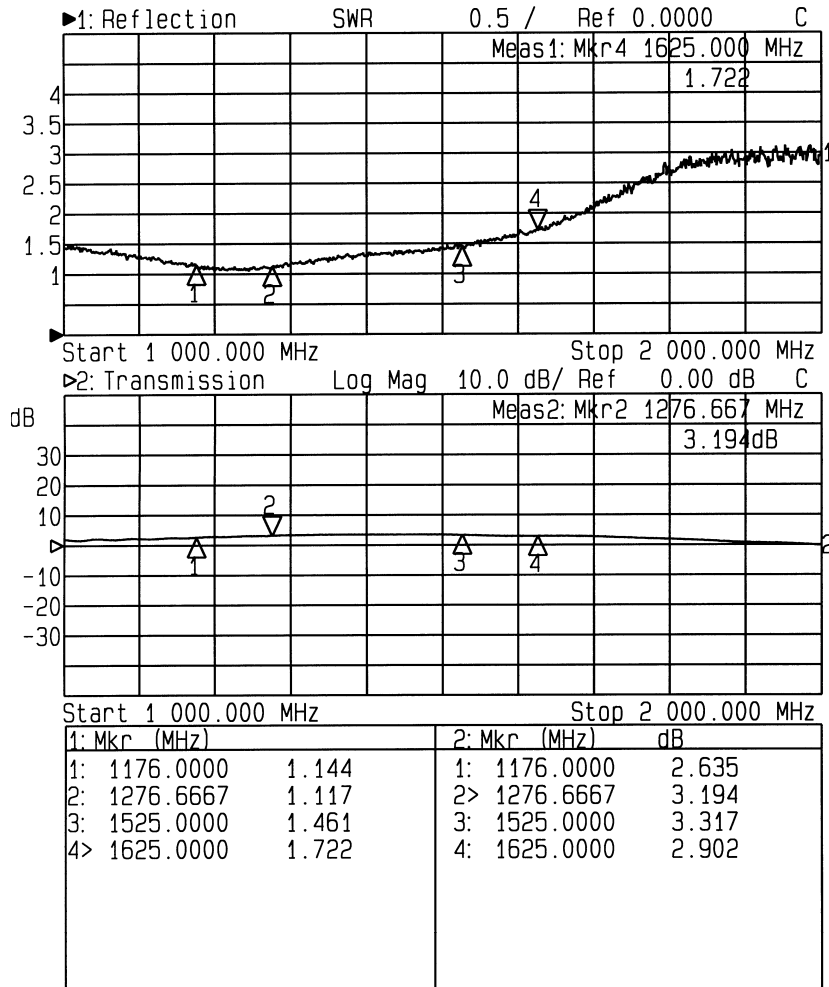
**ALDCBS1X4 (Normal Output Isolation Option) (continued):**

Opposite Output Isolation (J1-J2, J3-J4) (Typical, type N connector):



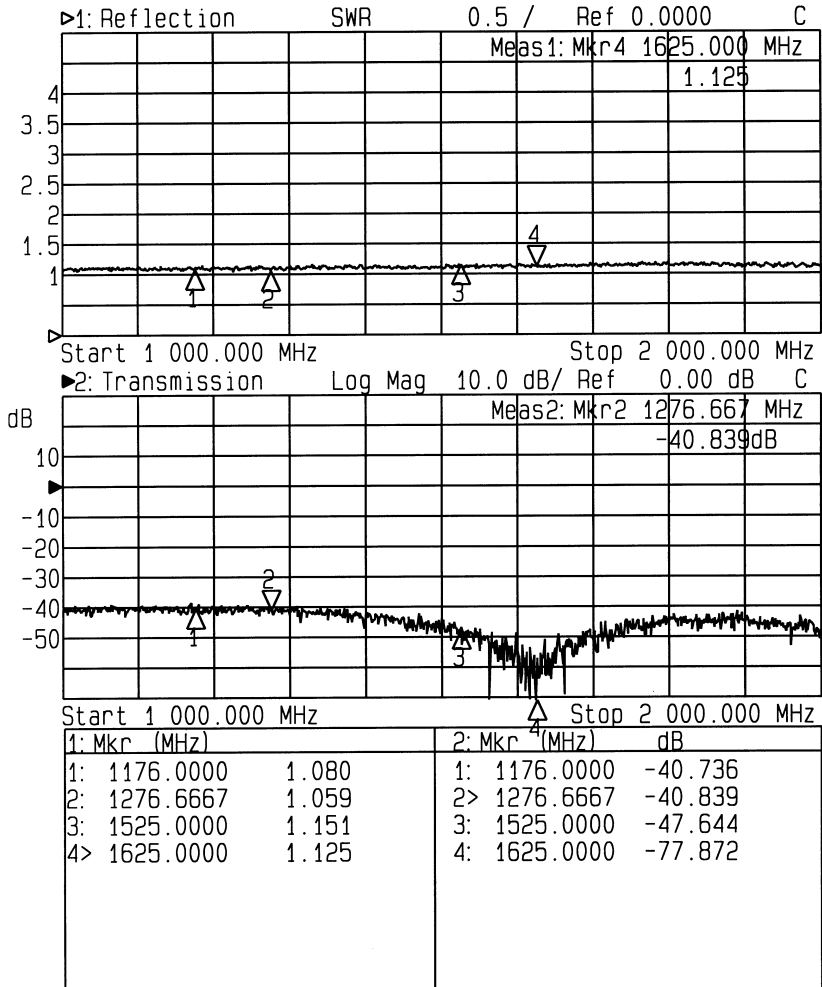
**HIALDCBS1X4 (Hi Isolation Option):**

Input SWR (Ant. Port) and Frequency Response: Ant. To J1, J2, J3, J4 (Typical, type N connector)



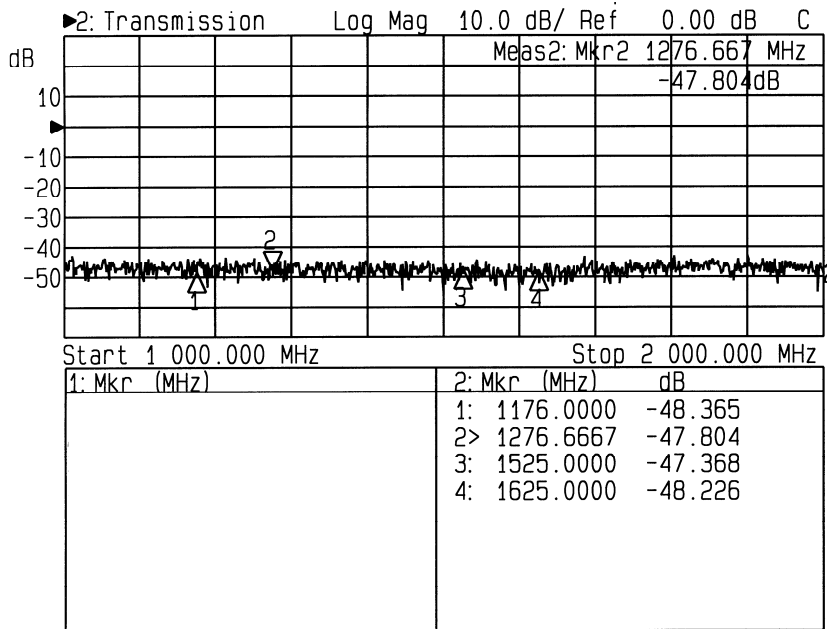
**HIALDCBS1X4 (Hi Isolation Option) (continued):**

Output SWR (J1, J2, J3, J4) and Adjacent Output Isolation (J1-J3, J2-J4) (Typical, type N connector):



**ALDCBS1X4 (Hi Isolation Option) (continued):**

Opposite Output Isolation (J1-J2, J3-J4) (Typical, type N connector):



**Mechanical**

Dimensions:

Height: 1.3"

Length (not including connectors) Body: 2.5"  
 Base Plate: 3.25"

Width (not including connectors): 2.5"

Weight:

12 oz. (340 grams)

Operating Temp. Range: -40° to +75°C