



ALDCBS1X4

Technical Product Data

Features

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

Description

The ALDCBS1X4 GPS Amplified Splitter is a one input, four output device with a 17dB min. 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 amp. The other RF outputs (J2, J3, J4) are DC loaded with a 200 Ω resistor to simulate the antenna current draw.

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

Parameter	Conditions	Min	Typ	Max	Units
Freq. Range	Ant – Any Output, Unused Outputs - 50 Ω	1.1		1.7	GHz
In/Out Imped. ⁽¹⁾	Ant, J1, J2, J3, J4		50		Ω
Gain	Normal Configuration, Ant–Any Output, Unused Outputs- 50 Ω	17	18.4	19	dB
Input SWR	All ports - 50 Ω			2.0:1	-
Output SWR	Normal Configuration , All ports - 50 Ω			1.8:1	-
Noise Figure	Normal Config., Ant – Any Output, Unused Outputs - 50 Ω		4.2	4.5	dB
Gain Flatness	L1 – L2 ; Ant – Any Output, Unused Outputs - 50 Ω		0.3	1	dB
Amplitude Balance	J1 – J2 ; Ant – Any Output, Unused Outputs - 50 Ω			0.5	dB
Phase Balance	Phase (J1 – J2) ; Ant – Any Output, Unused Outputs - 50 Ω			1.0	deg
Isolation	Normal Config., Adjacent Ports, Ant - 50 Ω (see plots)	10			dB
Group delay Flatness	$\tau_{d,max} - \tau_{d,min}$: Ant – J1, J2 - 50 Ω ; Ant – J2, J1 - 50 Ω			1	ns
Req. DC Input V.	Non-Network Configuration, DC Input on J1	3.6		15	Vdc
Current ⁽²⁾	Amplifier Current Draw, All ports - 50 Ω			15	mA
Compression Point	Output power @ 1 dB Gain Compression $f=1.5\text{ GHz}$		-0.2		dBm

(1). Input/Output Impedance = 75 Ω for 75 Ω connector option.

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

Available Options

Network Power Supply		
Source Voltage Options	VOLTAGE INPUT	STYLE
	110VAC	Transformer (Wall Mount)
	220 VAC	Transformer (Wall Mount)
	240 VAC (United Kingdom)	Transformer (Wall Mount)
	Customer Supplied DC 8-28 VDC	Military Style Connector
Output Voltage Options ⁽¹⁾	DC VOLTAGE OUT	MAX CURRENT OUT FOR CORRESPONDING Vout ⁽²⁾
	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 ⁽¹⁾	All Ports Pass DC	
DC Blocked ⁽¹⁾	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 N - 75Ω	Contact Sales Agent

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

$$I_{out} \leq 2.9 / (V_{sourceDC} - V_{out}) \text{ A}$$

Part Number

N HI AL DCB S1X4- S / 5 / 110

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

Isolation Option:
HI =Hi Isolation Opt. ; **Blank** = Normal

DC Options:
DCB: DC Blocked ; **PDC**: Pass DC.

Connector Options:
N: N type; **S**: SMA; **T**: TNC; **N75**: N type -75Ω

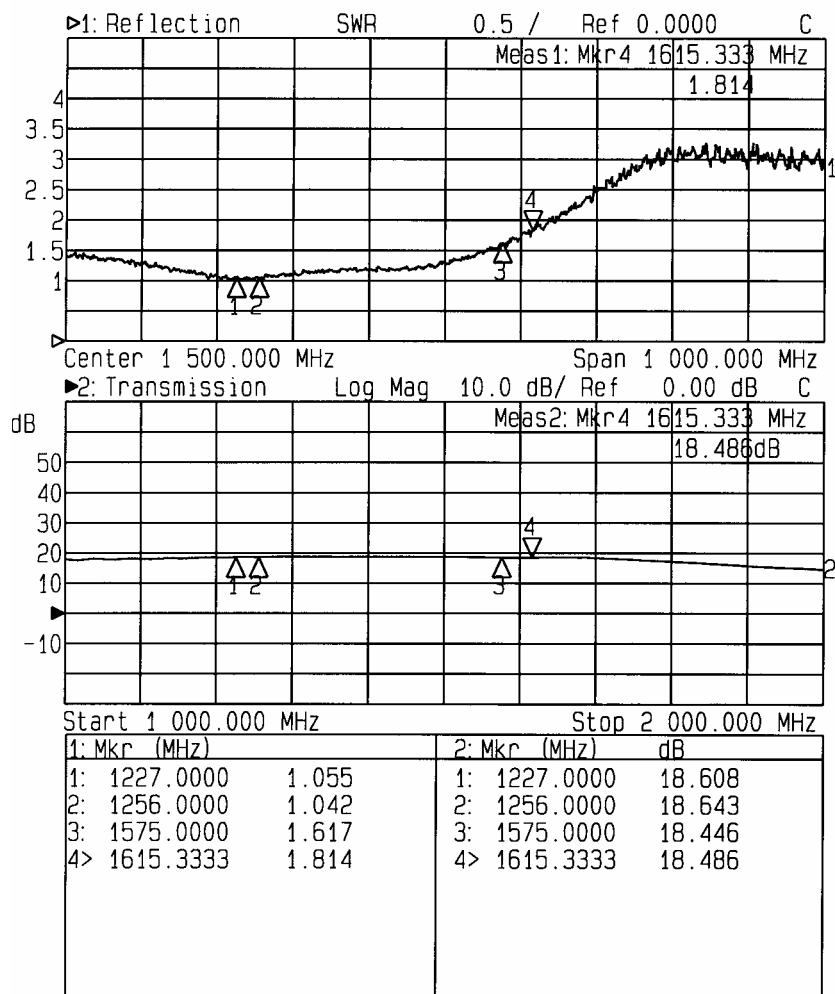
DC Output Voltage:
5, 7.5, 9, 12, 15, CXX (Custom:“XX” denotes the desired V)

Source Voltage:
110 -Transformer, **220** – Transformer, **240** – Transformer, **MC** – Military Conn. (User supplies DV Voltage)

Performance

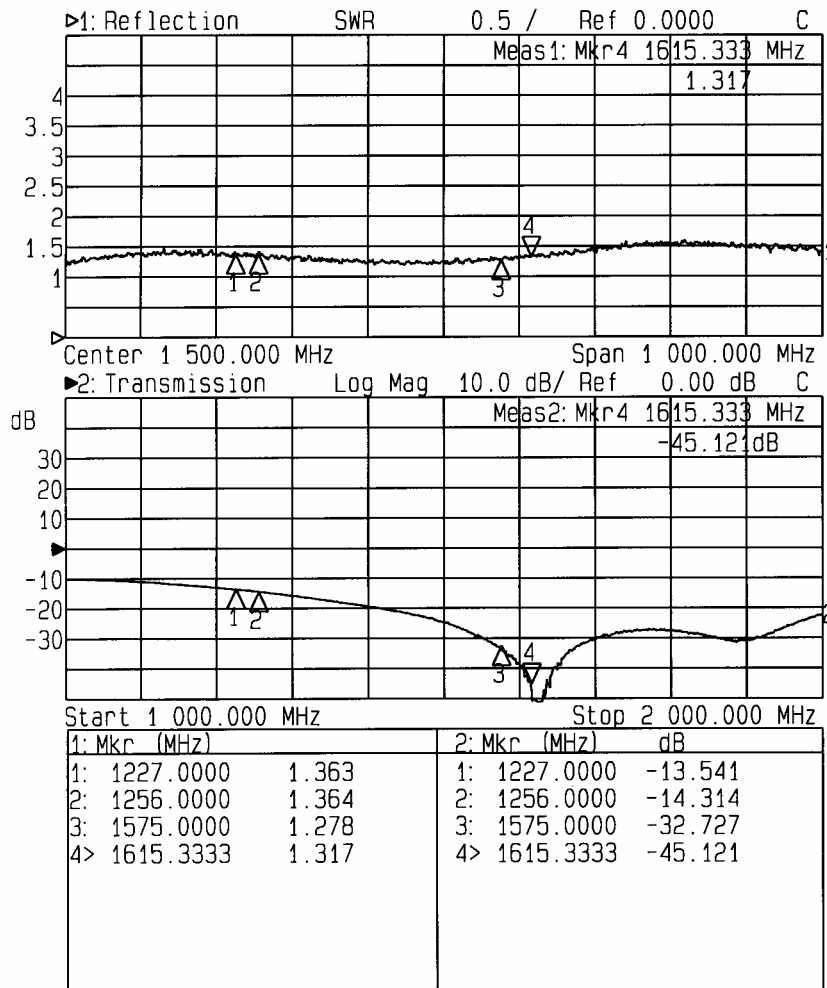
ALDCBS1X4 (Normal Output Isolation Option):

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



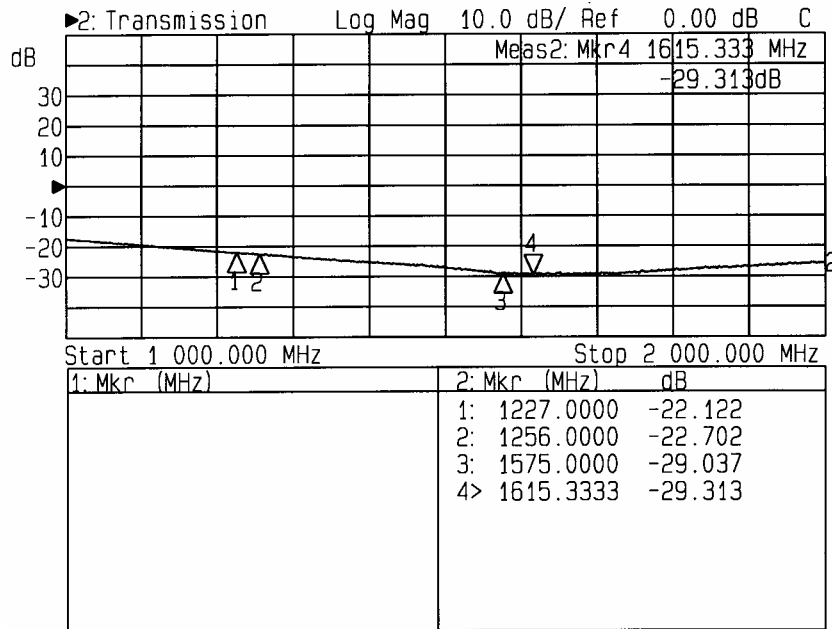
ALDCBS1X4 (Normal Output Isolation Option) (continued):

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



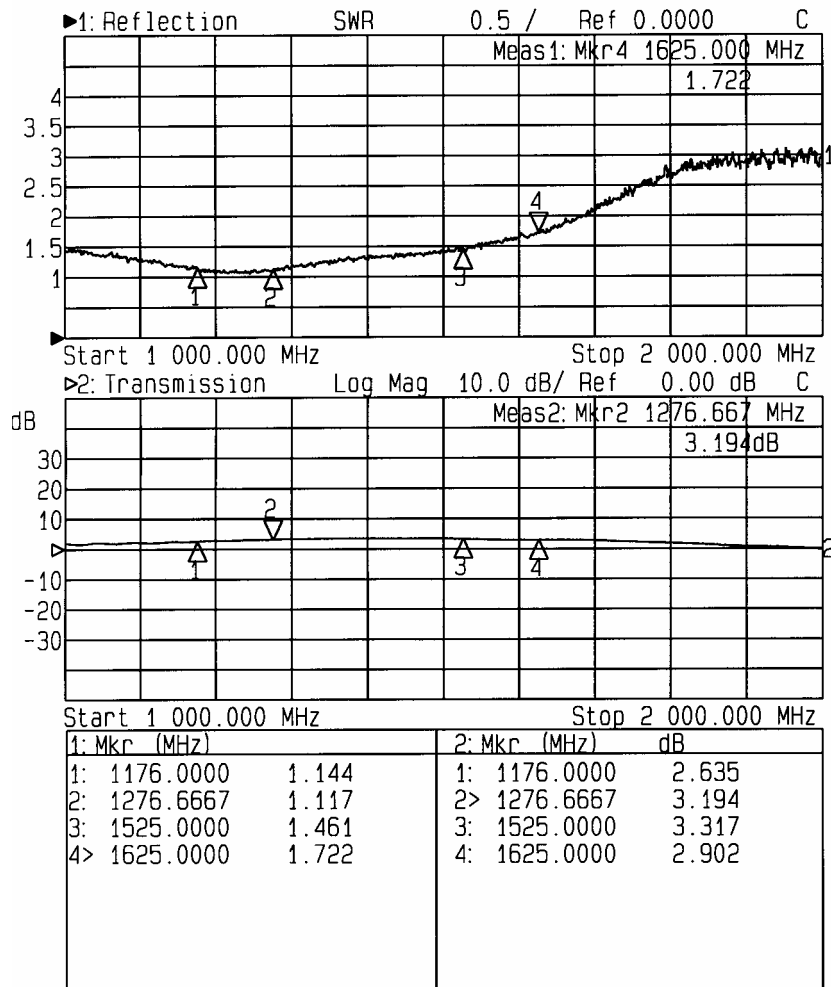
ALDCBS1X4 (Normal Output Isolation Option) (continued):

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



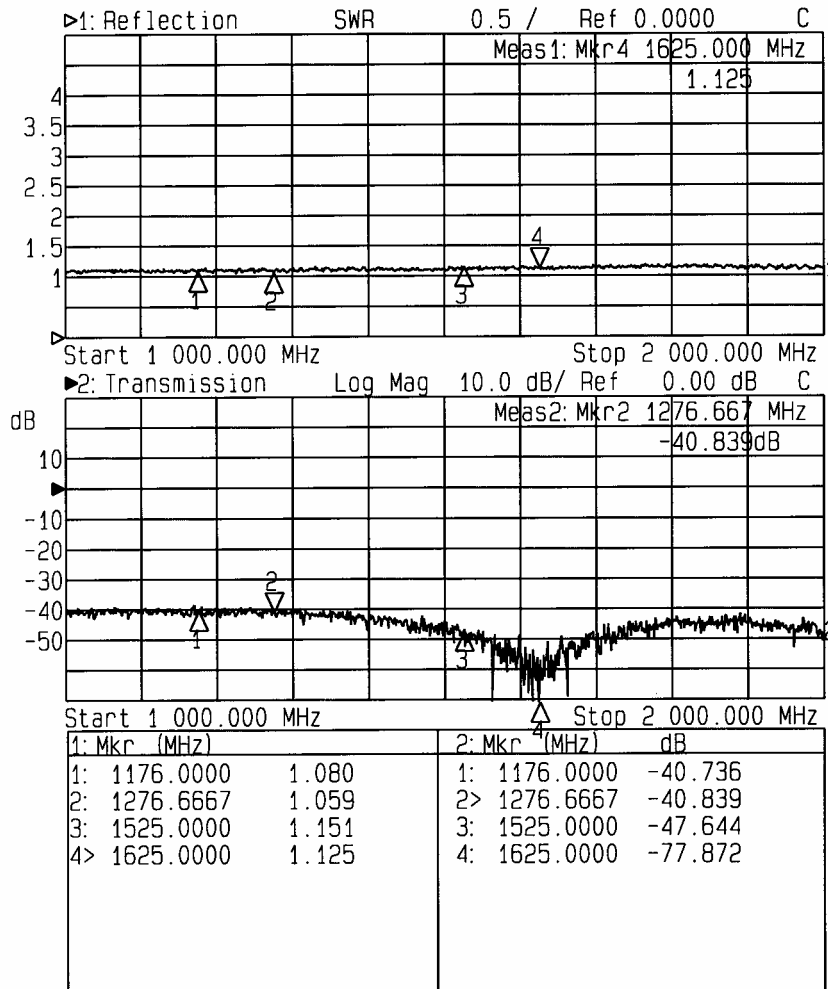
HIALDCBS1X4 (Hi Output Isolation Option):

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



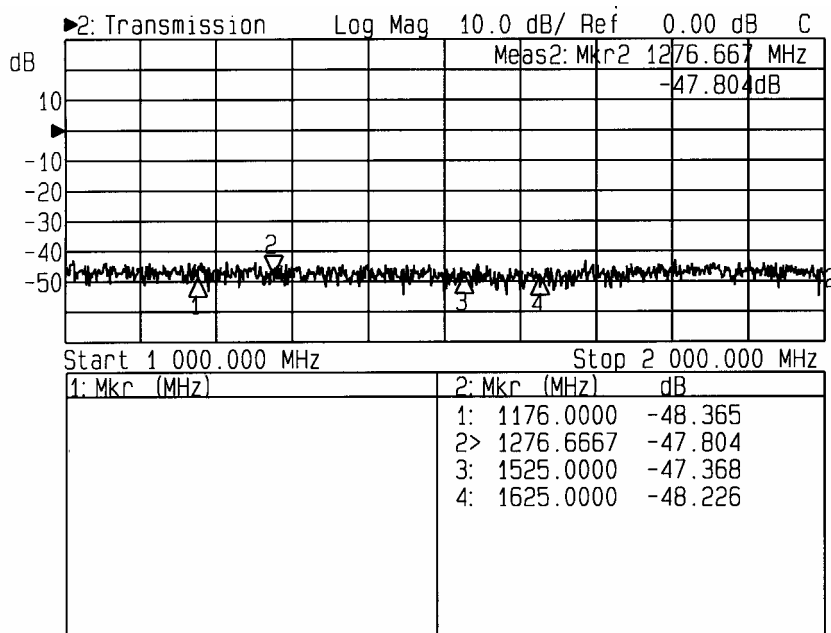
HIALDCBS1X4 (Hi Output Isolation Option) (continued):

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



ALDCBS1X4 (Hi Output Isolation Option) (continued):

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



Mechanical

Dimensions:

Height: 1.3"

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

Width (not including connectors): 2.5"

Weight:

10 oz. (286 grams)

Operating Temp. Range: -40° to + 75°C