

# Defender

## Prevent Unauthorized Access to Satellite Bandwidth

### Defender is configurable and flexible to fill up unused spectrum in any frequency plan

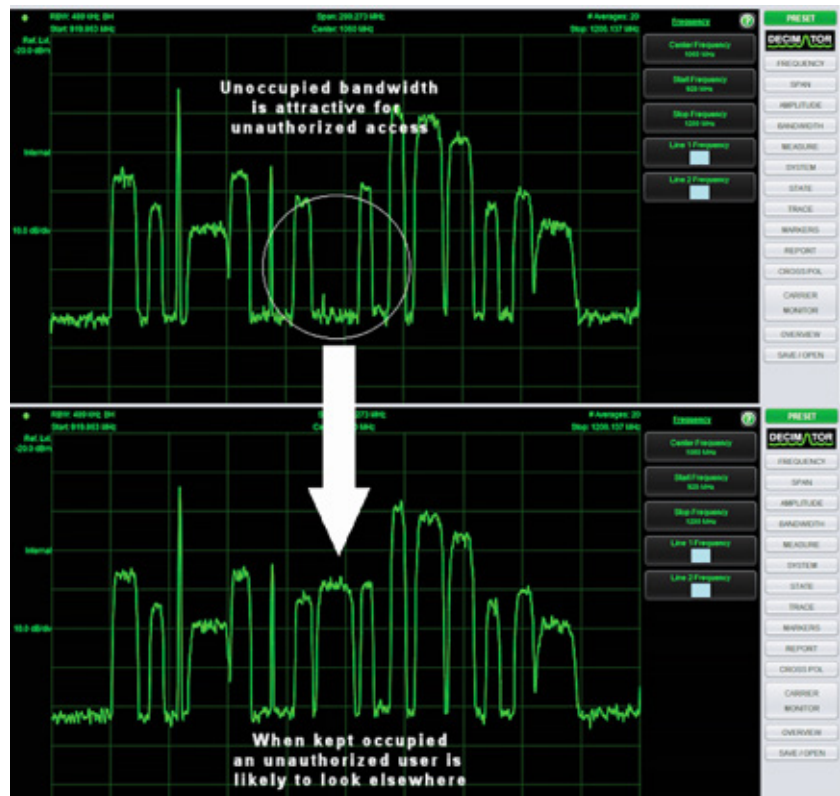
Calian, Advanced Technologies' Defender product is an innovative approach to preventing unauthorized access to satellite transponder bandwidth. Defender generates carriers that fill up available spectrum to keep from inviting unauthorized users to illegally use spectrum.

Defender saves time for technicians in the operation center by preventing unauthorized access before it occurs and requires further investigation.

Defender is capable of generating up to 32 independent 30 Msps carriers in the 950 MHz to 1750 MHz band. All carriers are frequency agile and have independent control of the power level.

Defender is configurable and flexible to fill up unused spectrum in any frequency plan. The unit provides an Ethernet management port to provide an easy to use interface from any standard web browser.

An SNMP-based monitor and control interface provides a connection to external management systems.



# Defender Specifications

## DVB-S/S2/SNG

Signal Format:	CCM
Modulation Format and FEC Rates:	QPSK; FEC rates 1/4, 1/3, 2/5, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10 8PSK, FEC rates 3/5, 2/3, 3/4, 5/6, 8/9, 9/10 16APSK, FEC rates 2/3, 3/4, 4/5, 5/6, 8/9, 9/10*
Roll Off Factor:	0.05 to 0.35 with 0.05 resolution

## Performance:

Min. Symbol Rate: (per carrier)	1 carrier 45 Mbaud 8 carrier 5 Mbaud 16 carrier 100 kbaud
Max. Symbol Rate: (per carrier)	1 carrier 416 Mbaud 8 carrier 72 Mbaud 16 carrier 30 Mbaud 30 carrier 30 Mbaud
Min. Symbol Rate Step:	1 Baud

## L-Band Interface:

Operating Frequencies <sup>3</sup>	Band 1: 950 MHz to 1450 MHz Band 2: 1250 MHz to 1750 MHz												
L-Band Output	950 - 1750 MHz, 1 Hz step 50 $\Omega$ SMA-Female +5 to -25 dBm (composite)												
Output Power Step	0.1 dB												
Output Power Stability	$\pm 0.5$ dB												
Output Power Accuracy	$\pm 0.5$ dB (single carrier)												
Monitor Output	50 $\Omega$ BNC - Female 950 - 1750 MHz -32 dBc, $\pm 3$ dB												
Return Loss	Minimum 14 dB												
Spurious	-55 dBc in any 4 kHz bandwidth												
Phase Noise:	<table border="1"> <thead> <tr> <th></th> <th>Bands 1, 2</th> </tr> </thead> <tbody> <tr> <td>100 Hz</td> <td>-80 dBc/Hz</td> </tr> <tr> <td>1 kHz</td> <td>-85 dBc/Hz</td> </tr> <tr> <td>10 kHz</td> <td>-85 dBc/Hz</td> </tr> <tr> <td>100 kHz</td> <td>-100 dBc/Hz</td> </tr> <tr> <td>1 MHz</td> <td>-110 dBc/Hz</td> </tr> </tbody> </table>		Bands 1, 2	100 Hz	-80 dBc/Hz	1 kHz	-85 dBc/Hz	10 kHz	-85 dBc/Hz	100 kHz	-100 dBc/Hz	1 MHz	-110 dBc/Hz
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## Notes:

1. All specifications at 25°C unless otherwise noted.
2. All specifications subject to change without notice.
3. All active carriers must be in the same band.

## Input Interface:

DVB-ASI:	75 $\Omega$ BNC (qty 2)
Ethernet: (data)	10/100/1000 Base T (RJ-45) (qty 2) 1/10 GB SFP+ (qty 1) Supports COP3 as per: SMPTE 2022-1-2007 and SMPTE 2022-2-2007S Supports IGMPv3
Ethernet: (control)	10/100 Base T (RJ-45)
10 MHz Frequency Reference:	Connector: 50 $\Omega$ BNC-Female
Power:	Male IEC 320 100-120 VAC, 220-240 VAC auto-ranging, 50-60 Hz Power consumption: 75 W typical

## Control Interface:

SNMP:	SNMPv2. Accessed over ethernet physical interface.
Web Interface:	Accessed over ethernet physical interface.
Alarm:	Complete suite of parameters monitored. Access via GUI or SNMP. Comprehensive alarm history. Alarm relay contact - DB9 sockets.

## Physical Interface:

Mechanical:	19" W x 1.75" H (1U) x 10" D EIA standard 19 inch rack mountable.
Weight:	7 pounds

## Environmental:

Operating Temp:	0 to 50°C
Storage Temp:	10°C to 55°C
Humidity (operating)	10% to 80% relative humidity non-condensing

## Certifications:

Electromagnetic Capability:	EN 61000-6-6-2005, EN 55022 2006 Class A, FCC Title 47, Part 15
Safety	EN 60950-1, UL 60950-1, CSA22.2 No. 60950-1

## Contact Peter today.

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