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Model Number: 22277-F7F7

RF Engineering
and Custom Build

Hybrid 16-way L-band Active Splitter & Combiner

With dual redundant amplifiers, LNB Powering, dual redundant 10MHz Source and Ethernet Monitoring



Front View of Model 22277-F7F7

This high resilience hybrid unit comprises a 16-way L-band active splitter and a 16-way L-band active combiner in a 2U, 19" rack chassis. The unit benefits from dual redundant amplifiers and dual redundant power supplies. LNB and BUC referencing is provided on the common port via an internal dual redundant 10MHz source. 18V DC LNB Powering is also available.

Amplifier current sensing triggers the automatic switchover to the (cold standby) redundant amplifier. Front panel LED's provide a visual status of the power supplies , amplifiers in the splitter and combiner modules, and internal 10MHz source. A dry contact alarm port for PSU failure and an Ethernet port on the rear panel offer monitoring of the power supplies and amplifier status.



Rear View of Model 22277-F7F7

The 10MHz reference signal is available on the 10MHz OPS ports and if required, can be injected on to the output of the combiner or the input of the splitter using the supplied U-Link.

This particular unit is supplied with 75 ohm F-type RF connectors, but other impedances and connector types are available (model numbers will vary).



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RF Engineering and Custom Build

Hybrid 16-way L-band Active Splitter & Combiner with dual redundant amplifiers, LNB Powering, dual redundant 10MHz Source & Ethernet Monitoring

Technical specifications and operating parameters

RF Parameters

SPLITTER			
Capacity		16-way	
Frequency Range		850 -2150 MHz	
Gain		0 dB ± 2 dB	
Flatness	850-2150MHz	± 1.5 dB	
	Any 36MHz	± 0.75 dB	
1dB Compression		+3 dBm	
Noise Figure		12 dB	
Input Return Loss		10 dB	
Output Return Loss		10 dB	
LNB Power		18V dc	switchable on/off from rear panel
10MHz Injection		On to Common Port	Internal or External via U-Link
Amp Redundancy		1-to-1 redundant	cold redundancy & current sensing
COMBINER			
Capacity		16-way	
Frequency Range		850-2150 MHz (L-band)	
Gain		0 dB ± 2 dB	
Flatness	850-2150MHz	± 1.5 dB	
	Any 36MHz	± 0.75 dB	
1dB Compression		+12 dBm	
Noise Figure		24 dB	
Input Return Loss		10 dB typical	
Output Return Loss		10 dB typical	
BUC Power		None	
10MHz Injection		On to Common Port	Internal or External via U-Link
Amp Redundancy		1-to-1 redundant	cold redundancy & current sensing

Physical

Input / Output Connector	F-type
Input / Output Impedance	75Ω
Dimensions	3U high x 350mm deep x 19" wide
Weight	12 kg
Colour	White 00-E-55 semi-gloss

Power

AC Power	85-264Vac 50/60Hz
LNB Power	18 V dc
PSU	Dual redundant Diode OR

RF Parameters

10MHz Source			
10MHz Ref Source		**U-links on rear panel to select internal/external.** The 10MHz reference is injected onto the common L-band port.	2 x 50 ohm BNC's on rear panel for 10MHz external IN and internal OUT, with a U-Link supplied. **There is no 10MHz injection if the U-link is removed and the port is terminated (i.e. no external source supplied).**
Frequency		10MHz	Factory setting is to ± 1ppm, ±10Hz for 10MHz source
Output Level		+1.5 ± 1.5 dBm typical, ± 2.5 dBm worst case	Fundamental frequency (10MHz) under all operational conditions
Redundancy		Cold redundant pair. Switch over if configured nominal level is exceeded by 2.5 ± 1dB	Nominal level is "learned" by system during configuration.
Output type		Sine Wave	
Harmonic & Spurii Levels		-60 dBc typical, -50 dBc worst case	With respect to 10MHz harmonics (non related spurii levels <-80 dBm max)
Frequency Stability	Over Temp	± 1 x 10^{-8}	Typical over 0-55ºC
	Over Time	± 5 x 10^{-7} / year typical	
	Short Term Stability	< ± 1 x 10^{-11} / sec	
	Load Change	< ± 5 x 10^{-9}	
	Power supply variations	< ± 5 x 10^{-9}	
Ageing	Per day	± 5 x 10^{-10} typical	
	Per year	± 5 x 10^{-8} typical	
	Over temp	± 3 x 10^{-8}	
Phase Noise	1Hz	<-85 dBc / Hz	
	10Hz	<-115 dBc / Hz	
	100Hz	<-140 dBc / Hz	
	1000Hz	<-150 dBc / Hz	
	10000Hz	<-155 dBc / Hz	
Warm up Time		< 2 minutes	At 25ºC to < ± 1 x 10^{-7}

System Control

Display	LED's at front panel. Connectors at rear panel.
Alarms	Dry contact and Ethernet RJ45 connector to show alarm status for PSU failure and /or either amplifier failure in redundant amplifier modules

Environmental

Operating temp	0 to 45˚C
Location	Indoor use only
Storage temp	-20˚C to +75˚C
Humidity	85% non-condensing

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