

U492 Series S-band Upconverters

INPUT SPECIFICATION	Options
1. Frequency range:	70MHz, 140MHz or 70MHz plus 140MHz (see model table) IF B/W: ± 20 MHz, ± 40 MHz (other values available)
2. Connector:	BNC
3. Impedance:	50 Ω
4. Return loss:	≥ 15 dB
OUTPUT SPECIFICATION	
5. Frequency range:	1,900 to 2,900MHz (see model table)
6. Connector:	N-type SMA
7. Impedance:	50 Ω
8. Return loss:	≥ 18 dB
9. 1dB compression point:	+10dBm
10. Third order intercept:	+20dBm
TRANSFER CHARACTERISTICS	
11. Gain:	0 to 30dB, adjustable in 0.1dB steps ⁽³⁾
12. Gain ripple: over ± 20 MHz:	≤ 1 dB p.t.p.
over output band, 400MHz:	≤ 2 dB p.t.p. ⁽¹⁾
13. Group delay distortion: ripple, ± 20 MHz	< 2 ns ptp
linear, ± 20 MHz	< 0.03 ns/MHz
parabolic, ± 20 MHz	< 0.01 ns/MHz ²
14. Gain stability, 0°C to 50°C:	± 1 dB
24hr. at constant temperature:	± 0.1 dB
15. Frequency stability, -10°C to +60°C:	10^{-7} from -10°C to +60°C
	10^{-8} at constant temperature over 24 hrs.
16. External reference:	10MHz, 0dBm 5MHz, 0dBm
17. Synthesiser step size:	1kHz
18. Noise figure (full gain):	< 20 dB
Spurii	
19. Image rejection:	> 75 dB ^{(2) (4)}
20. In-band spurii (at 0dBm output):	< -60 dBc typical ^{(2) (3)}
PHASE NOISE	
21. 10Hz:	< -58 dBc/Hz ⁽³⁾
22. 100Hz:	< -75 dBc/Hz ⁽³⁾
23. 1kHz:	< -85 dBc/Hz ⁽³⁾
24. 10kHz:	< -88 dBc/Hz ⁽⁴⁾
25. 100kHz:	< -97 dBc/Hz ⁽⁴⁾
26. 1MHz:	< -115 dBc/Hz ⁽⁴⁾
27. Mains related:	< -60 dBc ⁽³⁾
MISCELLANEOUS	
28. Power supply:	115V/230V $\pm 10\%$ 50/60Hz $\pm 10\%$, 30VA
29. Mechanical:	1U 19" frame, 400, 500 or 520mm deep (depends on model)
30. Temperature: Operating:	0° to 50°C
Storage:	-40° to 85°C
31. Relative humidity: Operating:	0 to 90%
Storage:	0 to 95%
32. Summary alarm:	NO and NC dry relay contacts via rear mounted connector
33. Summary alarm indication:	Front panel LED
34. Remote control:	<ul style="list-style-type: none"> ● RS232/RS485 serial interface, or ● TCP/IP serial network port emulation, or ● TCP/IP SNMP protocol and web browser

⁽¹⁾ Ripple spec measurement does not include 40MHz segment below the lowest limit and above the highest.

⁽²⁾ Measured at maximum gain.

⁽³⁾ These are typical values subject to ± 2 dB measurement error and overall ± 3 dB spec uncertainty.

⁽⁴⁾ These very low levels are to an overall ± 5 dB spec uncertainty.

Model	Input (c)	Output
U492	70 ± 20MHz	2.0 - 2.4GHz (b)
U497	140 ± 40MHz	2.0 - 2.4GHz (b)
U498	70 ± 20MHz plus 140 ± 40MHz (d)	2.0 - 2.4GHz (b)

- (a) This specification covers ALL frequency agile upconverters with 70MHz and/or 140MHz IF and RF output from 1.9GHz to 2.9GHz. **This table lists ONLY more common models.** Consult our office for other models configurations.
- (b) Output frequencies are an illustrative sample. Any other values from 1.9GHz to 2.9GHz, in 10MHz steps, are possible. RF coverage different from 400MHz, wider or narrower, is possible.
- (c) Other input IF and bandwidths possible.
- (d) IF input selectable via front panel and remote interface.

NOTE

All Novella's frequency converter synthesisers are of the conventional phase-locked type. No DDS techniques or ICs are used. DDS synthesisers suffer from an inherent phase uncertainty (due to the inevitable residual frequency error) rendering them unsuitable for differential phase measurements used typically in satellite ranging and monopulse tracking systems which rely on differential phase measurements between two coherent signals processed by two downlink chains.

