		Options
INPUT SPECIFICATION		
1. Frequency range:	Check model table	
2. Connector:	BNC	(2)
3. Impedance:	50Ω	
4. Return loss:	≥15dB	
OUTPUT SPECIFICATION		
5. Frequency range:	Check model table	
6. Connector:	N-type	SMA
7. Impedance:	50Ω	
8. Return loss:	≥15dB	
9. 1dB compression point:	+10dBm	
10. Third order intercept::	+20dBm	
TRANSFER CHARACTERISTICS		
11. Gain:	0 to 30dB, adjustable in 0.1dB steps	
12. Gain ripple: over ±20MHz:	≤1dB p.t.p.	
over output band, 400MHz:	≤2dB p.t.p	(1)
13. Group delay distortion: ripple, ±20MHz	<2ns ptp	
linear, ±20MHz	<0.03ns/MHz	
parabolic, ±20MHz	<0.01ns/MHz^2	
14. Gain stability, 0°C to 50°C:	±1dB	
24hr. at constant temperature:	±0.2dB	
15. Frequency stability	0°C to +50°C:	1x10^{-7}
	At constant temperature over 24 hr:	1x10^{-8}
16. External reference:	10MHz, 0dBm	5MHz, 0dBm
17. Synthesiser step size:	1kHz	
18. Noise figure (full gain):	<20dB	
Spurii		
19. Image rejection:	> 50dB	
20. In-band spurii (at 0dBm output):	< -60dBc typical	
PHASE NOISE		
21. 10Hz:	<-50dBc/Hz	
22. 100Hz:	<-70dBc/Hz	
23. 1kHz:	<-80dBc/Hz	
24. 10kHz:	<-85dBc/Hz	
25. 100kHz:	<-95dBc/Hz	
26. 1MHz:	<-110dBc/Hz	
27. Mains related:	<-50dBc	
MISCELLANEOUS		
28. Power supply:	115V/230V ±10% 50/60Hz ±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:	● RS232 or RS422/RS485, connector D-type 9P F ● SNMP and HTTP over TCP/IP Ethernet, connector RJ-45	

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

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MODEL TABLE (a)

Model	Input (c)	Output
U491	70 ± 20MHz	2.4 - 2.5GHz (b)
U492	70 ± 20MHz	2.0 - 2.4GHz (b)
U492-2	70 ± 20MHz	2.0 - 2.6GHz (b)
U492-3	70 ± 20MHz	2.025 - 2.110GHz (b)
U493	70 ± 20MHz	2.5 - 2.7GHz (b)
U495	140 ± 40MHz	2.5 - 2.7GHz (b)
U496	140 ± 40MHz	2.4 - 2.5GHz (b)
U497	140 ± 40MHz	2.0 - 2.4GHz (b)
U498	70 ± 20MHz plus 140 ± 40MHz (d)	2.0 - 2.4GHz (b)
U499	70 ± 20MHz plus 140 ± 40MHz (d)	2.4 - 2.5GHz (b)
U494	70 ± 20MHz plus 140 ± 40MHz (d)	2.5 - 2.7GHz (b)
U492-4S	70 ± 20MHz (e) (f)	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 out 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.
(e) All RF, IF and 10MHz reference connectors are square flange with 4 screw fitting

N-type square flange

BNC

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.