

## U2550 series of Ka-band Upconverters

INPUT SPECIFICATION		Options
1. Frequency range:	70MHz, 140MHz or 70MHz plus 140MHz IF B/W: $\pm 20\text{MHz}$ , $\pm 40\text{MHz}$	(see model table)
2. Connector:	BNC	
3. Impedance:	50 $\Omega$	
4. Return loss:	$\geq 15\text{dB}$	
OUTPUT SPECIFICATION		
5. Frequency range:	Any 1, 2, 3 or 4GHz slot within 17 to 32GHz	(see model table)
6. Connector:	K-type	
7. Impedance:	50 $\Omega$	
8. Return loss:	$\geq 18\text{dB}$	
9. 1dB compression point:	+7dBm	
10. Third order intercept:	+17dBm	
TRANSFER CHARACTERISTICS		
11. Gain:	0 to 30dB, adjustable in 0.1dB steps	
12. Gain ripple:	over $\pm 20\text{MHz}$ : $\leq 1\text{dB p.t.p.}$ over output band, 1GHz: $\leq 3\text{dB p.t.p.}$ (1) over output band, 2GHz: $\leq 4\text{dB p.t.p.}$ (1) over output band, 3GHz/4GHz: $\leq 4\text{dB p.t.p.}$ (1)	
13. Group delay distortion:	ripple, $\pm 20\text{MHz}$ : $< 2\text{ns ptp}$ linear, $\pm 20\text{MHz}$ : $< 0.03\text{ns/MHz}$ parabolic, $\pm 20\text{MHz}$ : $< 0.01\text{ns/MHz}^2$	
14. Gain stability, 0°C to 50°C:	$\pm 1\text{dB}$	
24hr. at constant temperature:	$\pm 0.1\text{dB}$	
15. Frequency stability, -10°C to +60°C:	$5 \times 10^{-8}$ $10^{-8}$ at constant temperature over 24 hrs.	
16. External reference:	10MHz, 0dBm	5MHz, 0dBm
17. Synthesiser step size:	1kHz	
18. Noise figure (full gain):	$< 20\text{dB}$	
Spurii		
19. Image rejection:	$> 50\text{dB}$	
20. In-band spurii (at 0dBm output):	$< -55\text{dBc typical}$	(2)
PHASE NOISE		
21. 10Hz:	$< -48\text{dBc/Hz}$	
22. 100Hz:	$< -70\text{dBc/Hz}$	
23. 1kHz:	$< -80\text{dBc/Hz}$	
24. 10kHz:	$< -85\text{dBc/Hz}$	
25. 100kHz:	$< -93\text{dBc/Hz}$	
26. 1MHz:	$< -110\text{dBc/Hz}$	
27. Mains related:	$< -50\text{dBc}$	
MISCELLANEOUS		
28. Power supply:	115V/230V $\pm 10\%$ 50/60Hz $\pm 10\%$ , 50VA	
29. Mechanical:	1U 19" frame, 400, 500 or 560mm 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"> <li>• RS232 or RS422/RS485, connector D-type 9P F</li> <li>• SNMP and HTTP over TCP/IP Ethernet, connector RJ45</li> </ul>	

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

(2) Measured at maximum gain.

Model	Input (c)	Output
U2550-1	70 ± 20MHz	23.7 - 25.7GHz (b)
U2550-2	70 ± 20MHz	20 - 22GHz (b)
U2550-3	70 ± 20MHz	25 - 26GHz (b)
U2550-4	70 ± 20MHz	25 - 27GHz (b)
U2550-5	70 ± 20MHz	25.2 - 28.2GHz (b)
U2550-6	70 ± 20MHz	29 - 31GHz (b)
U2550-7	70 ± 20MHz	25 - 28GHz (b)
U2550-8	70 ± 20MHz	22 - 25GHz (b)
U2550-9	70 ± 20MHz	28 - 31GHz (b)
U2550-10	70 ± 20MHz	30 - 32GHz (b)
U2550-11	70 ± 20MHz	27 - 30GHz (b)
U2550-12	70 ± 20MHz	27 - 31GHz (b)
U2550-13	70 ± 20MHz	27.5 - 31.0GHz (b)

- (a) This specification covers ALL frequency agile upconverters with 70MHz and/or 140MHz IF and RF output from 17GHz to 31GHz. **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 17GHz to 31GHz, in 50MHz steps, are possible. RF coverage different from 1, 2, 3 or 4GHz is also possible.
- (c) Other input IF and bandwidths possible. 70+/-20 MHz model number Uxx50-x; 140+/-40 MHz Model number Uxx60-x; 40+/-20 plus 140+/-40 MHz model number Uxx70-x
- (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.

