

D2550 series of Ka-band Downconverters

INPUT SPECIFICATION		Options
1. Frequency range:	Any 1, 2, 3 or 4GHz slot within 17 to 32GHz	(see model table)
2. Connector:	K-type	
3. Impedance:	50Ω	
4. Return loss:	≥18dB	
OUTPUT SPECIFICATION		
5. Frequency range:	70MHz, 140MHz or 70MHz plus 140MHz	(see model table)
	IF B/W: ±20MHz, ±40MHz	
6. Connector:	BNC	
7. Impedance:	50Ω	
8. Return loss:	≥15dB	
9. 1dB compression point:	+10dBm	
10. Third order intercept:	+20dBm	
TRANSFER CHARACTERISTICS		
11. Gain:	30 to 50dB, adjustable in 0.1dB steps	
12. Gain ripple:	over ±20MHz: ≤1dB p.t.p.	
	over input band, 1GHz: ≤3dB p.t.p.	(1)
	over input band, 2GHz: ≤4dB p.t.p.	(1)
	over output band, 3GHz/4GHz: ≤4dB 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: ±0.1dB	
15. Frequency stability, -10°C to +60°C:	5x10 ⁻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):	<17dB	
Spurii		
19. Image rejection:	> 50dB	(2)
20. In-band spurii (at 0dBm output):	< -55dBc typical	(2)
PHASE NOISE		
21. 10Hz:	<-48dBc/Hz	
22. 100Hz:	<-70dBc/Hz	
23. 1kHz:	<-80dBc/Hz	
24. 10kHz:	<-85dBc/Hz	
25. 100kHz:	<-93dBc/Hz	
26. 1MHz:	<-110dBc/Hz	
27. Mains related:	<-50dBc	
MISCELLANEOUS		
28. Power supply:	115V/230V ±10%	
	50/60Hz ±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:	• RS232 or RS422/RS485, connector D-type 9P F • SNMP and HTTP over TCP/IP Ethernet, connector RJ45	

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

(2) Measured at maximum gain.

Model	Input	Output (c)
D2550-1	19 - 21GHz (b)	70 ± 20MHz
D2550-2	20 - 22GHz (b)	70 ± 20MHz
D2550-3	22 - 25GHz (b)	70 ± 20MHz
D2550-4	25 - 28GHz (b)	70 ± 20MHz
D2550-5	28 - 31GHz (b)	70 ± 20MHz
D2550-6	30 - 32GHz (b)	70 ± 20MHz
D2550-7	31.4 - 33.4GHz (b)	70 ± 20MHz
D2550-8	25 - 26 GHz (b)	70 ± 20MHz
D2550-9	25 - 27 GHz (b)	70 ± 20MHz
D2550-10	25.2 - 27.2 GHz (b)	70 ± 20MHz
D2550-11	17.8 - 20.2 GHz (b)	70 ± 20MHz
D2550-12	18.0 - 21.0 GHz (b)	70 ± 20MHz
D2550-13	17.7 - 20.2 GHz (b)	70 ± 20MHz

- (a) This specification covers ALL frequency agile downconverters with 70MHz and/or 140MHz IF and RF input from 17GHz to 31GHz. **This table lists ONLY more common models.** Consult our office for other models configurations.
- (b) Input frequencies are an illustrative sample.
Any other values from 17GHz to 31GHz, in 100MHz steps, are possible.
RF coverage different from 1, 2, 3 or 4GHz is also possible.
- (c) Other output IF and bandwidths possible. 70+/-20 MHz model number Dxx50-x; 140+/-40 MHz Model number Dxx60-x; 40+/-20 plus 140+/-40 MHz model number Dxx70-x
- (d) IF output 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.

