U2588, U2528, U2582, U2522
720MHz to Ka-band Upconverters

INPUT SPECIFICATION			Options
1. Frequency range:		720MHz	(see product table)
		IF B/W: ±40MHz, ±200MHz	(other values possible)
2. Connector:		SMA	
3. Impedance:		50Ω	
4. Return loss:		≥15dB	
OUTPUT SPECIFICATION			
5. Frequency range:		Any 1GHz or 2GHz slot within 19 to 31GHz	(see product table)
6. Connector:		K-type	
7. Impedance:		50Ω	
8. Return loss:		≥18dB	
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 ±200MHz:	≤1.5dB p.t.p.	
	over ±40MHz:	≤0.8dB p.t.p.	
	over otput band, 1GHz:	≤3dB p.t.p (1)	
	over output band, 2GHz:	≤4dB p.t.p (1)	
13. Group delay distortion:	ripple, ±40MHz	<3ns ptp	
	linear, ±40MHz	<0.03ns/MHz	
	parabolic, ±40MHz	<0.01ns/MHz^2	
14. Gain stability,	0°C to 50°C:	±1dB	
	24hr. at constant temperature:	±0.2dB	
15. Frequency stability, -10°C to +60°C:		10^{-7} from 0°C to +50°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):		<20dB	
Spurii			
19. Image rejection:		> 50dB	
20. In-band spurii (at 0dBm output):		< -55dBc typical	
PHASE NOISE			
21. 10Hz:		<-48dBc/Hz	
22. 100Hz:		<-70dBc/Hz	
23. 1kHz:		<-78dBc/Hz	
24. 10kHz:		<-83dBc/Hz	
25. 100kHz:		<-93dBc/Hz	
26. 1MHz:		<-110dBc/Hz	
27. Mains related:		<-60dBc	
MISCELLANEOUS			
28. Power supply:		115V/230V ±10%	
		50/60Hz ±10%, >60VA	
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 ● Serial emulation over TCP/IP, connector RJ45 ● SNMP and HTTP over TCP/IP Ethernet, connector RJ45	

(1) Ripple spec measurement does not include 200MHz segment below the lowest limit and above the highest.

MODEL TABLE (a)

Model	Input (c)	Output
U2588-1	720 ± 200MHz	23.2 - 24.2GHz (b)
U2588-2	720 ± 200MHz	22.7 - 23.7GHz (b)
U2588-3	720 ± 200MHz	25.4 - 26.4GHz (b)
U2588-4	720 ± 200MHz	22.8 - 23.8GHz (b)
U2588-5	720 ± 200MHz	25.2 - 26.2GHz (b)
U2572	720 ± 200MHz	25 - 27GHz (b)
U2552	720 ± 200MHz	29 - 31GHz (b)
U2553	720 ± 200MHz	25 - 28GHz (b)

(a) This specification covers ALL frequency agile upconverters with 720MHz or 1.2GHz IF and RF output from 19GHz to 31GHz. 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 19GHz to 31GHz, in 50MHz steps, are possible.
RF coverage different from 1GHz or 2GHz is also possible.

(c) Other input bandwidths possible: ±20MHz, ±40MHz, ±50MHz, ±200MHz, ±300MHz.

Option: All RF, IF and 10MHz reference connectors can be square flange with 4 screw fitting

K-type square flange

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.