INPUT SPECIFICATION		Options
1. RF tuning band:	7GHz to 9GHz (see model table)	
2. Connector:	SMA	N-Type
3. Impedance:	50Ω	
4. Return loss:	≥18dB	

OUTPUT SPECIFICATION	
5. Frequency range:	720MHz ±200MHz (520 to 920MHz)
6. Connector:	SMA
7. Impedance:	50Ω
8. Return loss:	≥15dB
9. 1dB compression point:	+10dBm
10. Third order intercept::	+20dBm

TRANSFER CHARACTERISTICS			
11. Gain:		25 to 45dB, adjustable in 0.1dB steps	(2)
12. Gain ripple:	over ±200MHz	≤1.5dB p.t.p.	(2)
	over input band, 1GHz:	≤3dB p.t.p	(2) (3)
	over input band, 2GHz:	≤4dB p.t.p	(2) (3)
13. Gain stability,	0°C to 50°C:	±1dB	
	24hr. at constant temperature:	±0.1dB	
14. Frequency stability, -10°C to +60°C:		1x10^{-7} from -10°C to +60°C	
		1x10^{-8} at constant temperature over 24 hrs.	
15. External reference:		10MHz, 0dBm	5MHz, 0dBm
16. Synthesiser step size:		1kHz	
17. Noise figure (full gain):		<17dB	

Spurii		
18. Image rejection:	> 50dB	(1)
19. In-band spurii (at 0dBm output):	< -55dBc	(1)

PHASE NOISE	
20. 10Hz:	<-45dBc/Hz
21. 100Hz:	<-70dBc/Hz
22. 1kHz:	<-80dBc/Hz
23. 10kHz:	<-85dBc/Hz
24. 100kHz:	<-95dBc/Hz
25. 1MHz:	<-110dBc/Hz
26. Mains related:	<-50dBc

MISCELLANEOUS (Indoor units – D688-x)		
27. Power supply:		115V/230V ±10%
		50/60Hz ±10%, 50VA
28. Mechanical:		1U 19" frame, 500mm deep
29. Temperature:	Operating:	0° to 50°C
	Storage:	-40° to 85°C
30. Relative humidity:	Operating:	0 to 90%
	Storage:	0 to 95%
31. Summary alarm:		NO and NC dry relay contacts via rear mounted connector
32. Summary alarm indication:		Front panel LED
33. 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

MISCELLANEOUS (Outdoor units – D688-xE)

34. Power supply:		115V/230V ±10% 50/60Hz ±10%, 50VA
35. Mechanical:		Metal box, IP67 rating, 510x325x70mm
36. Temperature:	Operating:	-20° to +50°C
	Storage:	-50° to +85°C
37. Relative humidity:	Operating:	0 to 90%
	Storage:	0 to 95%
38. Summary alarm:		NO and NC dry relay contacts via rear mounted connector
39. Summary alarm indication:		Via serial remote interface
40. Remote control:		RS232 or RS422/RS485
41. Connectors:		In, out and External 10MHz are N-type

- Novella SatComs reserves the right to modify or amend the present specification without prior notice.
  While best efforts were used to ensure feasibility and adherence to spec figures, adjustments may be required.

[1] Measured at maximum gain.

[2] Gain and frequency dependant measurements must be performed using a calibrated scalar (or vector) analyser, minimum standard Agilent model 8757D. All cables must be calibrated and their losses taken into account. Failure to adhere to these industry standard practices will render measurements invalid. No claims under warranty for "Out of Spec" items will be accepted by Novella SatComs unless such procedures are rigorously adhered to.

[3] Ripple spec measurement does not include 200MHz segment below the lowest limit and above the highest.

MODEL TABLE [a]

Model	Input tuning band	Output [b]
D688-1 (D628)	7.0 - 9.0GHz [a]	720 ± 200MHz
D688-2	7.7 - 8.5GHz [a]	720 ± 200MHz
D688-3	8.0 - 8.4GHz [a]	720 ± 200MHz
D688-4	8.0 - 8.5GHz [a]	720 ± 200MHz
D688-5	8.0 - 9.0GHz [a]	720 ± 200MHz
D688-6	7.2 - 7.8GHz [a]	720 ± 200MHz
D688-7	7.945 - 8.945GHz [a]	720 ± 200MHz
D688-8	7.8 - 8.8GHz [a]	720 ± 200MHz
D688-9	7.7 - 7.9GHz [a]	720 ± 200MHz
D688-10	7.0 - 8.0GHz [a]	720 ± 200MHz
D688-11	7.75 - 8.4GHz [a]	720 ± 200MHz
D688-12	7.9 - 8.5GHz [a]	720 ± 200MHz

(a) Input frequencies are an illustrative sample. Any other values from 7GHz to 9GHz, usually in 50MHz steps, are possible.
(b) Other IF's and bandwidths possible.

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.