Ku-Band Transceiver
5900 series

SPECIFICATIONS

TRANSMIT SECTION

IF input

Frequency range	
Narrow BW option	70 ± 20 MHz/140 ± 20 MHz selectable
Wide BW option	140 ± 40 MHz
Impedance	50/75 Ω selectable
Connector	N female
Return loss	18 dB minimum

Gain specification

Gain	
4 W	64 dB nominal
8 W	68 dB nominal
16 W	71 dB nominal
Attenuator range	0 dB to 25 dB nominal
Attenuator step size	1 dB nominal
Gain flatness	
Over IF	
Narrow BW option	±1.0 dB maximum, 40 MHz
Wide BW option	±2.0 dB maximum, 80 MHz
Over frequency range	±2.0 dB maximum
Gain stability	±1.5 dB maximum, –40°C to +55°C

RF output

Frequency range	14.0 to 14.5 GHz
Connector	WR75, PBR120 flange with M4 tapped holes
VSWR	1.5:1 maximum

4 W SSPA

Output power (1 dB GCP)	+36.5 dBm (4.5 W) typical +36.0 dBm (4 W) minimum
Carrier to intermodulation ratio	–27 dBc, two carriers, each @ 6 dB OPBO from 1 dB GCP

8 W SSPA

Output power (1 dB GCP)	+39.5 dBm (9 W) typical +39.0 dBm (8 W) minimum
Carrier to intermodulation ratio	–26 dBc, two carriers each @ 6 dB OPBO from 1 dB GCP

16 W SSPA

Output power (1 dB GCP)	+42.3 dBm (17 W) typical +42.0 dBm (15.9 W) minimum
Carrier to intermodulation ratio	–25 dBc, two carriers each @ 6 dB OPBO from 1 dB GCP

Spurious output	Meets EN 301 428 with 54 dBi antenna gain

Phase noise (SSB)*

100 Hz	–60 dBc/Hz maximum
1 kHz	–70 dBc/Hz maximum
10 kHz	–75 dBc/Hz maximum
100 kHz	–85 dBc/Hz maximum

Synthesiser step size	1 MHz

Frequency stability

–40°C to +55°C	±2 x 10^{-8}
Aging	±1 x 10^{-7}/year

RECEIVE SECTION (EXCLUDING LNB)

RF input

Frequency range	950 to 1700 MHz
Impedance	50 Ω
Connector	N female
VSWR	1.4:1 maximum
Noise figure	20 dB typical
DC output (switch selectable)	+15 V @ 30 to 425 mA
10 MHz output	0 dBm ± 1 dB

IF output

Frequency range	
Narrow BW option	70 ± 20 MHz/140 ± 20 MHz selectable
Wide BW option	140 ± 40 MHz
Impedance	50/75 Ω selectable
3rd order intercept	+15 dBm minimum
Connector	N female
Return loss	18 dB minimum

Gain specification

Gain	35 dB nominal
Attenuator range	0 dB to 25 dB nominal
Attenuator step size	1 dB nominal
Gain flatness	
Over IF	
Narrow BW option	±1.0 dB maximum, 40 MHz
Wide BW option	±2.0 dB maximum, 80 MHz
Over frequency range	±2.0 dB maximum
Gain stability	±3.0 dB maximum, –40°C to +55°C

Image rejection	50 dB minimum
Spurious output	–65 dBm maximum

Phase noise (SSB)*

100 Hz	–60 dBc/Hz maximum
1 kHz	–70 dBc/Hz maximum
10 kHz	–80 dBc/Hz maximum
100 kHz	–90 dBc/Hz maximum

Synthesiser step size	1 MHz

Frequency stability

–40°C to +55°C	±2 x 10^{-8}
Aging	±1 x 10^{-7}/year

L-Band IF monitor port

Output frequency range	950 to 1700 MHz
Gain	10 ± 3 dB Rx RF I/P to L-Band monitor
Gain ripple	±2 dB maximum
Connector	N female
Impedance	50 Ω
Return loss	15 dB minimum

*Meets Intelsat Phase Noise requirement using Limit-2 for data rates up to 8 Mbps. Excludes mains related sidebands.

LOW NOISE BLOCK CONVERTER

Indicative specifications.

Input

Frequency range	
Band 1	10.95 to 11.7 GHz
Band 2	11.7 to 12.2 GHz
Band 3	12.25 to 12.75 GHz
Interface	WR75
VSWR	2.5:1 typical

Noise figure	1.2 dB @ 25°C maximum 1.0 dB typical

Gain specification

Gain	60 dB typical
Gain flatness	±1.5 dB maximum full band

Output

1 dB GCP	0 dBm minimum
3rd order intercept	+11 dBm minimum
Impedance	50 Ω
Connector	N female
VSWR	1.5:1 typical

TRANSMIT REJECT FILTER (OPTIONAL)

Pass band	10.95 to 12.75 GHz
Insertion loss	0.05 dB maximum
Reject band	13.75 to 14.5 GHz
Rejection	55 dB maximum

GENERAL

Input voltage	42 to 72 V DC (floating input) standard 115/230 V AC ± 15% with power supply unit

Power consumption

DC	4 W	115 W maximum SSPA On
	8 W	165 W maximum SSPA On
	16 W	250 W maximum SSPA On
		50 W maximum SSPA Off
AC	4 W	180 VA typ. @ nom. AC voltage SSPA On
	8 W	260 VA typ. @ nom. AC voltage SSPA On
	16 W	390 VA typ. @ nom. AC voltage SSPA On

MONITOR AND CONTROL

Control panel facilities

Indicators: Standby, On, Warm-up, SSPA activated, Converter fault, LNB fault, SSPA fault, Temperature fault, Fan fault

Controls: Power control (off/standby/on), SSPA (inhibit/remote/activate), Serial interface settings, LNB supply via Rx RF input connector, Mains/Battery supply select

Remote monitor and control facilities

Serial interface standards:	RS232, RS422 (RS485)
Protocol standards:	ASCII, Packet (RS485)
Protocol address range:	0 to 127

Remote monitoring functions (serial interface): Standby, On, Warm-up, SSPA activated, SSPA output power (8 and 16 watt transceivers only), Converter and SSPA temperatures, Converter fault, LNB fault, SSPA fault, Temperature fault, Fan fault, SSPA inhibit control, SSPA activate control, Transmit frequency, Receive frequency, Transmit attenuation, Receive attenuation, Cable compensation, Reference oscillator override, SSPA alarm enable, LNB alarm enable, Temperature compensation select, Packet address (ASCII mode only), Packet address range (ASCII mode only), Packet protocol select (ASCII mode only), SSPA mode select, Converter lock, Status change poll, Power-up mode

Remote control functions (serial interface): Power control (standby/on), SSPA inhibit control, SSPA activate control, Transmit frequency, Receive frequency, Transmit attenuation, Receive attenuation, Cable compensation, Reference oscillator override, SSPA alarm enable, LNB alarm enable, Temperature compensation select, Address range select (ASCII mode only), Packet protocol select (ASCII mode only), SSPA mode select, Reset, Reset change bits, Power-up mode

Remote monitoring functions (contact closure): Standby, Warm-up, SSPA activated, Converter fault, LNB fault, SSPA fault, Temperature fault, Fan fault

Remote control functions (contact closure): Power control (standby/on), SSPA inhibit control, SSPA activate control

ENVIRONMENTAL

Converter module and SSPA module

Temperature	–40°C to +55°C
Relative humidity	100%
Cooling	Converter—Convection 4 W—Convection 8 W, 16 W—Forced air
Weatherproofing	Sealed to 34 kPa

Power supply unit

Temperature	–40°C to +55°C
Relative humidity	100%
Cooling	Convection
Weatherproofing	Sealed to IP65

PHYSICAL

All dimensions are measured over the connectors.

Size

Converter module	110 mm W x 410 mm D x 240 mm H
SSPA module, 4 W	140 mm W x 300 mm D x 145 mm H
SSPA module, 8 W, 16 W	140 mm W x 335 mm D x 195 mm H
Power Supply Unit	200 mm W x 160 mm D x 370 mm H

Weight

Converter module	8 kg
SSPA module, 4 W	5.1 kg
SSPA module, 8 W, 16 W	6 kg
Power Supply Unit	9 kg

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