ACORDE TECHNOLOGIES

X-BAND TRANSCEIVER

Ed.07

ACTR-X Medium Power Series (20,40,80W)

19/06/09

DESCRIPTION

The ACTR-X series is an integrated transceiver, designed for X-band satellite communication systems. The ACTR-X series is consisting of a RF Block-Up Converter (BUC) and a RF Down Converter. This equipment has been tested and calibrated between -20º and +55ºC, so they assure very good gain stability with temperature. It also includes a temperature alarm and power supply shutdown to protect the amplifier from permanent damages in high temperature conditions. Moreover, ACTR-X series allows RS-232/485 communication with TCP/IP and SNMP as option.

TRANSMITTER SPECIFICATIONS

Input frequency ..... 950 – 1450 MHz (L-Band)
Maximum input level without damage ..... +10 dBm
Input impedance ..... 50 Ohms
Input L-Band VSWR ..... <1.5:1
Output frequency ..... 7.9 – 8.4 GHz (X-Band)
Output impedance ..... 50 Ohms
Output X-Band VSWR ..... <1.3:1
Output coupled sample ..... -45 dBc ± 2 dB

Transmit Characteristics @ 25ºC	P1dB	Gain	Power Consumption	Size (LxWxH)	Weight
ACTR-X20W	43.0 dBm	63 dB min	250 W	360x265x235 mm	15 Kg
ACTR-X40W	46.0 dBm	67 dB min	320 W	360x265x235 mm	15 Kg
ACTR-X80W	49.0 dBm	72 dB min	650 W	430X265X215 mm	20 Kg

Gain ripple over the whole bandwidth ..... ± 1.5 dB
Gain ripple over 40 MHz ..... ± 0.75 dB
Gain stability with temperature ..... ± 1.5 dB over the whole range
Gain stability (24 Hours) ..... ≤ 0.5 dB in a temperature of the range
Attenuation range ..... 20 dB, with 0.5 dB steps
Mute ..... ≥ 50 dB
Spurious ..... < -60 dBc at P_{OUT}=P1dB dBm
Harmonics ..... < -50 dBc
Mains related spurious ..... ≤ -35 dBc
SSB added spurious ..... ≤ -41 dBc
Noise figure ..... ≤ 15 dB (at maximum gain)
Carrier to intermodulation ratio ..... < -25 dBc for 2 tones Δf=5 Mhz P_{OUT} = P1dB - 3 dB

RECEIVER SPECIFICATIONS

Input frequency ..... 7.25 – 7.75 GHz (X-Band)
Input impedance ..... 50 Ohms
Input X-Band VSWR ..... < 1.5:1
Output frequency ..... 950 – 1450 MHz (L-Band)
Output power @ P1dB ..... > +5 dBm
Output impedance ..... 50 Ohms
Output VSWR (L-Band) ..... < 1.5:1
Linear Gain ..... 40 dB min
Gain ripple over the whole band ..... ± 1.5 dB

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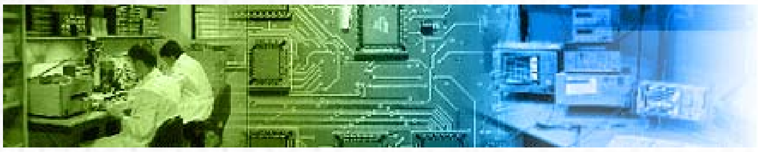

Gain ripple over 40 MHz	± 0.75 dB
Gain stability with temperature	± 1.5 dB over the whole range
Gain stability (24 Hours)	≤ 0.5 dB in a temperature of the range
Attenuation Range	20 dB with 0.5 dB steps
Dependent spurious	< -60 dBc @ Pout = -10 dBm
Independent spurious	< -60 dBm
Noise figure	≤ 15 dB (at maximum gain)
LNA power supply	+15V, 500mA max
LNA alarm	current sensing

LOCAL OSCILLATOR

Local oscillator frequency	6.950 GHz (TX) / 6.3 GHz (RX)
Output phase Noise (IESS-308/309 – 5 dB):	
100 Hz	-65 dBc/Hz
1 KHz	-75 dBc/Hz
10 KHz	-85 dBc/Hz
100 KHz	-95 dBc/Hz
1 MHz	-105 dBc/Hz
Reference frequency	10 MHz
Reference frequency level	0 dBm ± 3 dB (multiplexed at TX L-Band input connector)
Reference mode	External (internal as option)
Reference stability	same as external reference
Minimum reference to compliant typical phase noise (IESS-308/309 – 5 dB):	
100 Hz	-130 dBc/Hz
1 KHz	-140 dBc/Hz
10 KHz	-145 dBc/Hz

POWER SUPPLY

AC input voltage	110/220 VAC (47-63 Hz) (48 VDC could be selected as option)

ENVIRONMENTAL SPECIFICATIONS

Storage temperature	-40 to +85°C
Operating temperature	-20 to +55°C (-40 to +55°C could be selected as option)
Relative humidity	up to 95%
Operating altitude	up to 3500m

MECHANICAL SPECIFICATIONS

Interfaces	TX input (L-band + Ext. ref):	Type N(F) 50 ohm
	RX input (X-band):	Type N(F) 50 ohm
	Sample Output (X-band):	Type N(F) 50 ohm
	TX output (X-band):	WR112 CPRG flange
	RX output (L-band):	Type N(F) 50 ohm
	Power supply:	MS3112E12-3P
	Monitoring & Control :	MS3112E12-14S
	LNA supply :	MS3112E8-4S
Cooling system	Forced air integrated	
Finish	White RAL 9003 // Caqui M12IR	

OPTIONS

MP1:	48 VDC Power supply
MP2:	Internal 10 MHz Reference
MP3:	Operating temperature (-40 to +55°C)
MP4:	Ethernet interface (TCP/IP)
MP5:	SNMP Agent

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