RADIO MICROONDAS PONTO A PONTO

300 Mhz to 2.5 GHz-BANDAS LICENCIADAS ETSI

The Aprisa XE in brief

- 300 MHz, 400 MHz, 600 MHz, 700 MHz, 800 MHz, 900 MHz, 1.4 GHz, 1.8 GHz, 2.0 GHz, 2.5 GHz licensed bands
- Built-in cross-connect and multiplexer
- Up to 65.4 Mbit/s capacity
- 25 kHz, 50 kHz, 75 kHz, 150 kHz, 200 kHz, 250 kHz, 500 kHz, 1.0 MHz, 1.75 MHz, 3.5 MHz, 7.0 MHz and 14.0 MHz channel sizes
- QPSK to 128 QAM modulation
- Range of 160+ km (100+ miles)
- Industry-leading reliability
- Web server and SNMP management
- All voice, data and IP applications
- MHSB and HSD protection options

ETSI Aprisa XE: MAXIMIZAÇÃO DO USO DO ESPECTRO E POSSIBILITA A IMPLEMENTAÇÃO DE LINKS EM LONGAS DISTÂNCIAS

- Arquitetura do rádio em uma simples e única caixa : Aprisa XE elimina a necessidade de um equipamento multiplex e cross connect a parte. Permite ao cliente uma modularidade de interfaces, com o intuito de integrar e concentrar tudo em IP, seja tráfego de voz ou de dados. Análise de performance, diagnóstico e configuração são extremamente fáceis através do sistema SuperVisor que está incluso.

- Alta Capacidade: Lider na maximização do espectro, pois permite modulação em até 128 QAM, o que resulta em permitir uma transmissão de até 65.4 Mbps em um canal de 14 MHz.

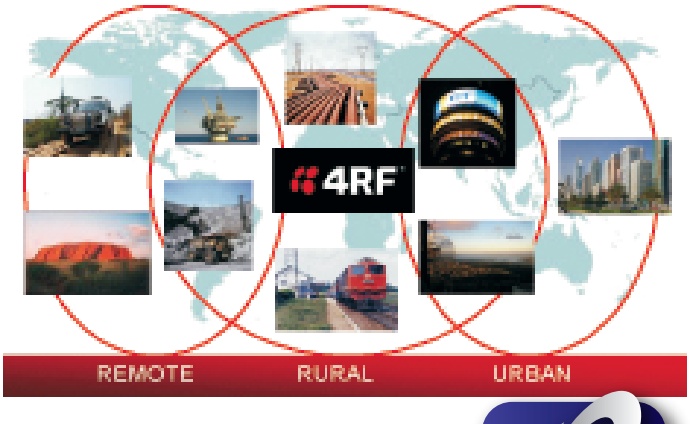
- Longo Alcançe : Possibilita estabelecer comunicação em um distância de até 160 Km, pois sobrepoe-se. a problemas como água, condições ambientais e obstáculos topográficos.

- Performance : Obtem uma alta disponibilidade, pois permite habilitar o uso do FEC (Forward Error Correction) e inerentes a baixas latências para QOS (Quality of Service) não rivais.

- Custo Efetivo: Possui um baixo custo para o cliente, pois obtem-se um rápido ROI (Retorno do Investimento) uma vez que custos operacionais são minimizados

- Opções de Redundância: Diversidade Espacial e Hot Standby são alternativas disponíveis para proteção em missões críticas.

- Confiabilidade: Apresenta MTBF de 95.72 anos. Zero de panes em 2008!



SYSTEM SPECIFICATION

RF	BAND	TUNING RANGE	SYNTHESIZER STEP SIZE
FREQUENCIES	300 MHz	330 – 400 MHz	6.25 kHz
	400 MHz	394 – 460 MHz	5.0 kHz
	400 MHz	400 – 470 MHz	6.25 kHz
	600 MHz	620 – 715 MHz	12.5 kHz
	700 MHz	698 – 806 MHz	12.5 kHz
	800 MHz	805 – 890 MHz	12.5 kHz
	900 MHz	850 – 960 MHz	12.5 kHz
	1400 MHz	1350 – 1550 MHz	12.5 kHz
	1800 MHz	1700 – 2100 MHz	62.5 kHz
	2000 MHz	1900 – 2300 MHz	62.5 kHz
	2500 MHz	2300 – 2700 MHz	62.5 kHz
MODULATION TYPES	Software configurable: QPSK / 16 / 32 / 64 / 128 QAM		
FREQUENCY STABILITY	less than ± 3 ppm		
ANTENNA CONNECTION	N-type female 50 ohm		
TRANSMITTER POWER OUTPUT		**300 – 1400 MHz**	**1800 – 2500 MHz**
QPSK		+21 to +35 dB	+20 to +34 dB
16 QAM		+17 to +31 dB	+17 to +31 dB
32 QAM		+16 to +30 dB	+16 to +30 dB
64 QAM		+15 to +29 dB	+15 to +29 dB
128 QAM		+15 to +29 dB	+15 to +29 dB
RECEIVER			
MAXIMUM INPUT LEVEL	–20 dBm		
DYNAMIC RANGE	58 to 87 dB at 10^{-6} BER		
C/I RATIO	Co-channel	QPSK	better than 16 dB
		16 QAM	better than 20 dB
		32 QAM	better than 23 dB
		64 QAM	better than 27 dB
		128 QAM	better than 30 dB
	First adjacent channel		better than –5 dB
	Second adjacent channel		better than –30 dB

DUPLEXER (bandpass)	TX / RX SPLIT	FREQUENCY BANDS
500 kHz	≥ 5 MHz	300, 400 MHz
2.0 MHz	≥ 9.45 MHz	300, 400 MHz
3.5 MHz	≥ 20 MHz	300, 400 MHz
7.0 MHz	≥ 30 MHz	700 MHz
	≥ 45 MHz	600 MHz
	≥ 40 MHz	800, 900 MHz
	≥ 48 MHz	1400 MHz
14.0 MHz	≥ 47.5 MHz	1800 MHz
	≥ 91 MHz	2000 MHz
	≥ 74 MHz	2500 MHz

POWER SUPPLY	
INPUT RANGE	115 / 230 VAC, 50 / 60 Hz
	±12 VDC (10.5 – 18 VDC), ±24 VDC (20.5 – 30 VDC), ±48 VDC (40 – 60 VDC)
	+12 VDC (10.5 – 18 VDC) Low Power Option
POWER CONSUMPTION	53 – 180 W input power (dependent on interface cards fitted and transmitter output power level)
LOW POWER OPTION (12 VDC)	41 – 53 W input power (dependent on interface cards fitted and transmitter output power level)
INTERFACES	
ETHERNET	Integrated 4-port 10 / 100Base-T switch with port-based rate limiting, VLAN tagging and QoS Support
E1 / T1	Quad 120 ohm G.703 / 4
DATA	Quad asynchronous V.24 / RS-232 Single synchronous X.21 / V.35 / RS-449 / RS-530
ANALOGUE	Dual 2-wire FXS / FXO (POTS); Quad 4-wire E&M
AUXILIARY INTERFACES	
ALARMS	4 external alarm outputs, 2 external alarm inputs
CONFIGURATION	Embedded web server with SNMP
MANAGEMENT	Ethernet interface for SuperVisor™ and SNMP; V.24 / RS-232 setup port
RSSI	Front panel test point
ENVIRONMENTAL	
OPERATING	–10° C to +50° C (+14° F to +122° F)
STORAGE	–20° C to +70° C (–4° F to +158° F)
HUMIDITY	Maximum 95 % non-condensing
ALTITUDE	Up to 2000 metres (6600 feet)
MECHANICAL	
RACK MOUNT	19" 2U high (internal duplexer)
WEIGHT	10 kg (23 lbs) typical
PROTECTED OPTIONS	
MHSB	≤ 4 dB splitter / cable loss, ≤ 1 dB TX relay / cable loss (system gain reduced by a maximum of 5 dB)
HSD	≤ 1 dB TX relay / cable loss, < 25 ms TX switching / hitless RX switching
COMPLIANCE	
RADIO	EN 302 217
EMI / EMC	EN 301 489 Parts 1 & 4
SAFETY	EN 60950
ENVIRONMENTAL	ETS 300 019 Class 3.2, EN 50385, WEEE

System Performance

250 kHz CHANNEL		SUPPORTED IN 300 MHz, 400 MHz, 700 MHz, 800 MHz, 900 MHz, 1400 MHz, 1800 MHz, 2000 MHz and 2500 MHz bands				
CAPACITY [1]	gross (E1 + wayside)	408 (6 TS + 24) kbit/s	824 (12 TS + 56) kbit/s	1032 (16 TS + 8) kbit/s	1240 (19 TS + 24) kbit/s	1448 (22 TS + 40) kbit/s
RECEIVER SENSITIVITY [2]		–101 dBm	–95 dBm	–92 dBm	–89 dBm	–86 dBm
SYSTEM GAIN [2]		136 dB	126 dB	122 dB	118 dB	115 dB
SYSTEM LATENCY [3]	interleaver (on / off)	33.2 ms / 11.2 ms	17.5 ms / 6.6 ms	14.3 ms / 5.4 ms	12.1 ms / 5.0 ms	9.8 ms / 4.2 ms
500 kHz CHANNEL		**SUPPORTED IN 300 MHz, 400 MHz, 700 MHz, 800 MHz, 900 MHz, 1400 MHz, 1800 MHz, 2000 MHz and 2500 MHz bands**				
CAPACITY [1]	gross (E1 + wayside)	792 (12 TS + 24) kbit/s	1592 (24 TS + 56) kbit/s	1992 (31 TS + 8) kbit/s	2392 (1 E1 + 304) kbit/s	2792 (1 E1 + 704) kbit/s
RECEIVER SENSITIVITY [2]		–99 dBm	–93 dBm	–90 dBm	–87 dBm	–84 dBm
SYSTEM GAIN [2]		134 dB	124 dB	120 dB	116 dB	113 dB
SYSTEM LATENCY [3]	interleaver (on / off)	17.5 ms / 5.9 ms	9.3 ms / 3.5 ms	8.0 ms / 3.4 ms	6.9 ms / 3.2 ms	5.7 ms / 2.8 ms
1.0 MHz CHANNEL		**SUPPORTED IN 300 MHz, 400 MHz, 700 MHz, 800 MHz, 900 MHz, 1400 MHz, 1800 MHz, 2000 MHz and 2500 MHz bands**				
CAPACITY [1]	gross (E1 + wayside)	1624 (25 TS + 24) kbit/s	3256 (1 E1 + 1168) kbit/s	4072 (1 E1 + 1984) kbit/s	4888 (2 E1 + 712) kbit/s	5704 (2 E1 + 1528) kbit/s
RECEIVER SENSITIVITY [2]		–96 dBm	–90 dBm	–87 dBm	–84 dBm	–81 dBm
SYSTEM GAIN [2]		131 dB	121 dB	117 dB	113 dB	110 dB
SYSTEM LATENCY [3]	interleaver (on / off)	9.2 ms / 3.7 ms	5.4 ms / 2.4 ms	4.8 ms / 2.4 ms	4.0 ms / 2.4 ms	3.5 ms / 2.1 ms
1.75 MHz CHANNEL		**SUPPORTED IN 300 MHz, 400 MHz, 600 MHz, 700 MHz, 800 MHz, 900 MHz, 1400 MHz, 1800 MHz, 2000 MHz and 2500 MHz bands**				
CAPACITY [1]	gross (E1 + wayside)	2872 (1 E1 + 784) kbit/s	5752 (2 E1 + 1576) kbit/s	7192 (3 E1 + 928) kbit/s	8632 (4 E1 + 280) kbit/s	10072 (4 E1 + 1720) kbit/s
RECEIVER SENSITIVITY [2]		–94 dBm	–88 dBm	–85 dBm	–82 dBm	–79 dBm
SYSTEM GAIN [2]		129 dB	119 dB	115 dB	111 dB	108 dB
SYSTEM LATENCY [3]	interleaver (on / off)	5.8 ms / 2.8 ms	3.9 ms / 2.4 ms	3.4 ms / 2.2 ms	3.0 ms / 2.0 ms	2.9 ms / 1.9 ms
3.5 MHz CHANNEL		**SUPPORTED IN 300 MHz, 400 MHz, 600 MHz, 700 MHz, 800 MHz, 900 MHz, 1400 MHz, 1800 MHz, 2000 MHz and 2500 MHz bands**				
CAPACITY [1]	gross (E1 + wayside)	5720 (2 E1 + 1544) kbit/s	11448 (5 E1 + 1008) kbit/s	14312 (6 E1 + 1784) kbit/s	17176 (8 E1 + 472) kbit/s	20040 (9 E1 + 1248) kbit/s
RECEIVER SENSITIVITY [2]		–90 dBm	–84 dBm	–81 dBm	–78 dBm	–75 dBm
SYSTEM GAIN [2]		125 dB	115 dB	111 dB	107 dB	104 dB
SYSTEM LATENCY [3]	interleaver (on / off)	3.8 ms / 2.3 ms	2.5 ms / 2.0 ms	2.5 ms / 1.8 ms	2.5 ms / 1.8 ms	2.4 ms / 1.7 ms
7.0 MHz CHANNEL				**SUPPORTED IN 1400 MHz, 1800 MHz, 2000 MHz and 2500 MHz bands**		
CAPACITY [1]	gross (E1 + wayside)	11832 (5 E1 + 1392) kbit/s	23672 (11 E1 + 704) kbit/s	29592 (14 E1 + 360) kbit/s	35512 (17 E1 + 16) kbit/s	41432 (19 E1 + 1760) kbit/s
RECEIVER SENSITIVITY [2]		–87 dBm	–81 dBm	–78 dBm	–75 dBm	–72 dBm
SYSTEM GAIN [2]		122 dB	112 dB	108 dB	104 dB	101 dB
SYSTEM LATENCY [3]	interleaver (on / off)	2.5 ms / 2.0 ms	2.3 ms / 1.8 ms	2.0 ms / 1.8 ms	1.9 ms / 1.8 ms	2.0 ms / 1.6 ms
14.0 MHz CHANNEL					**SUPPORTED IN 1800 MHz, 2000 MHz and 2500 MHz bands**	
CAPACITY [1]	gross (E1 + wayside)	23992 (11 E1 + 1024) kbit/s	47992 (22 E1 + 2056) kbit/s	59992 (28 E1 + 1528) kbit/s	65464 (28 E1 + 7000) kbit/s	65400 (28 E1 + 6936) kbit/s
RECEIVER SENSITIVITY [2]		–84 dBm	–78 dBm	–75 dBm	–72 dBm	–69 dBm
SYSTEM GAIN [2]		119 dB	109 dB	105 dB	101 dB	98 dB
SYSTEM LATENCY [3]	interleaver (on / off)	2.2 ms / 1.9 ms	1.7 ms / 2.0 ms	1.7 ms / 1.7 ms	1.7 ms / 1.9 ms	1.8 ms / 1.5 ms