

CFIP series

III Digital Microwave Radio Unit



III CFIP FODU TECHNICAL SPECIFICATION

Frequency range (GHz)	6/7/8/10/11/13/15/18/23/24/26/38
Duplexing scheme	Frequency Division Duplexing (FDD)
Channel bandwidth (MHz)¹	7, 13.75/14, 27.5/28
Modulation	4QAM / 16QAM / 32QAM / 64QAM / 128QAM
Capacity (Mbps)	100; 108 with 4xE1 wayside channels

III PERFORMANCE

Configuration	1+0, Ring/Mesh (with RSTP), 2+0 (Ethernet aggregation with external switch)
Frequency stability (ppm) incl. aging	+/-7
Traffic Interfaces	100Mbps Fast Ethernet (RJ-45) / 4xE1 (18-pin connector)
Guaranteed max Tx power (dBm)	(see 2 nd page for details)
RSL Threshold at BER 10⁻⁶, 28MHz, 32QAM, 108Mbps (dBm)	(see 2 nd page for details)
Adaptive Coding and Modulation (ACM)	Hitless

III PORTS

Flange	CFIP-6: N-Type CFIP-7 and CFIP-8: UBR84 CFIP-10 and CFIP-11: UBR100 CFIP-13 and CFIP-15: UBR140 CFIP-18 and CFIP-23: UBR220 CFIP-24: Circular 10mm CFIP-26: UBR260 CFIP-38: UBR320
Ethernet with power over Ethernet cable 4xE1	RJ-45 (data traffic, management port, power) 18-pin connector
RSL port, RSSI, BNC connector	Output voltage vs RSL: 0 to 1.4V vs -90 to -20dBm
Serial port for configuration	RS-232, Twin BNC connector

III MANAGEMENT FEATURES

TCP/IP	WEB, SNMP, Telnet - local and remote
ASCII Terminal	Serial via Twin-BNC
Monitoring	Via Telnet, WEB GUI, SAF NMS, SNMP Manager
Loopbacks	Yes, E1, modem, IF loopback

III ETHERNET

Switch Type	Managed Fast Ethernet Layer 2
Max frame size	1916 bytes
MAC table	1K entries; automatic learning and aging
Packet buffer	32KB; non-blocking store&forward
Flow Control	802.3x
VLAN support	802.1Q (up to 15 concurrent traffic VLANs)
QoS	64 level DiffServ (DSCP) or 8 level 802.1p mapped in 4 prioritization queues with VLAN support
Spanning Tree Protocol	802.1D-2004/ RSTP ²

III MECHANICAL & ELECTRICAL

Stationary use	ETSI EN 300 019-2-4, class 4.1E; non weather-protected locations IP 67 degree of protection according to IEC 60529 standard
Temperature range	-33° C to +55° C
Dimensions: HxWxD, mm / weight, kg	288x288x80 / 3.5
Input DC voltage	-40.5V to -57V DC (conforms to ETSI EN 300 132-2)
Max. power consumption	19-33W (Standard Tx power); 19-45W (High Tx power)
Built-in surge protection	Conforms to ETSI EN 301 489-1; EN 61000-4-5; IEC 61000-4-5

¹ According to ETSI channel plan

² Note that RSTP cannot be used together with multiple VLANs according to 802.1D-2004



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III RSL AT 10⁶ BER (DBM) AND TOTAL PAYLOAD CAPACITY (MBPS)

BW, MHz ¹	Modulation	FEC ²	6 GHz	7 GHz	8 GHz	10 GHz	11 GHz	13 GHz	15 GHz	18 GHz	23 GHz	24 GHz	26 GHz	38 GHz	Capacities, Mbps
7	4QAM	Strong	-92,5	-92,5	-92	-92	-92	-92	-91,5	-92	-91	-92	-92	-90	8
	16QAM	Strong	-86,5	-86,5	-86	-86	-86	-86	-85,5	-86	-85	-86	-86	-84	17
	32QAM	Strong	-82,5	-82,5	-82	-82	-82	-82	-81,5	-82	-81	-82	-82	-80	21
	64QAM	Strong	-79,5	-79,5	-79	-79	-79	-79	-78,5	-79	-78	-79	-79	-77	28
	64QAM	Weak	-76,5	-76,5	-76	-76	-76	-76	-75,5	-76	-75	-76	-76	-74	30
14	4QAM	Strong	-89,5	-89,5	-89	-89	-89	-89	-88,5	-89	-88	-89	-89	-87	17
	16QAM	Strong	-83,5	-83,5	-83	-83	-83	-83	-82,5	-83	-82	-83	-83	-81	34
	32QAM	Strong	-79,5	-79,5	-79	-79	-79	-79	-78,5	-79	-78	-79	-79	-77	43
	64QAM	Strong	-76,5	-76,5	-76	-76	-76	-76	-75,5	-76	-75	-76	-76	-74	57
	128QAM	Strong	-73,5	-73,5	-73	-73	-73	-73	-72,5	-73	-72	-73	-73	-71	68
	128QAM	Weak	-70,5	-70,5	-70	-70	-70	-70	-69,5	-70	-69	-70	-70	-68	74
28	4QAM	Strong	-86,5	-86,5	-86	-86	-86	-86	-85,5	-86	-85	-86	-86	-84	35
	16QAM	Strong	-80,5	-80,5	-80	-80	-80	-80	-79,5	-80	-79	-80	-80	-78	69
	32QAM	Strong	-76,5	-76,5	-76	-76	-76	-76	-75,5	-76	-75	-76	-76	-74	88/100 ³
	64QAM	Strong	-73,5	-73,5	-73	-73	-73	-73	-72,5	-73	-72	-73	-73	-71	100-108 ⁴

¹ According to ETSI channel plan

² Forward Error Correction (FEC) can be optimized either for sensitivity (Strong FEC) or for capacity (Weak FEC)

³ 100Mbps capacity is available using 32QAM StrongFEC modulation without ACM

⁴ Total capacity depends on number of E1 channels used

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III CFIP Tx POWER

Modulation	Standard/High Tx Power, dBm				
	6, 7, 8 GHz	10, 11, 13, 15 GHz	18, 23, 26 GHz	24 ⁵ GHz	38 ⁵ GHz
4QAM	+19 / +27	+19 / +25	+19	-20...0	+17
16QAM	+18 / +26	+18 / +24	+18	-20...-1	+16
32QAM	+17 / +25	+17 / +23	+17	-20...-2	+15
64QAM	+15 / +23	+15 / +21	+15	-20...-4	+13
128QAM	+15 / +23	+15 / +21	+15	-20...-4	+13

⁵ Output Tx range may differ for previous hardware and software versions



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