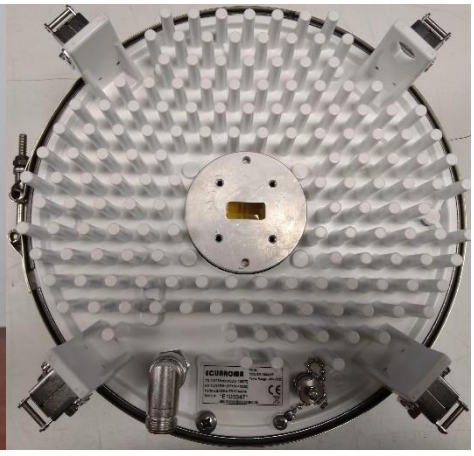
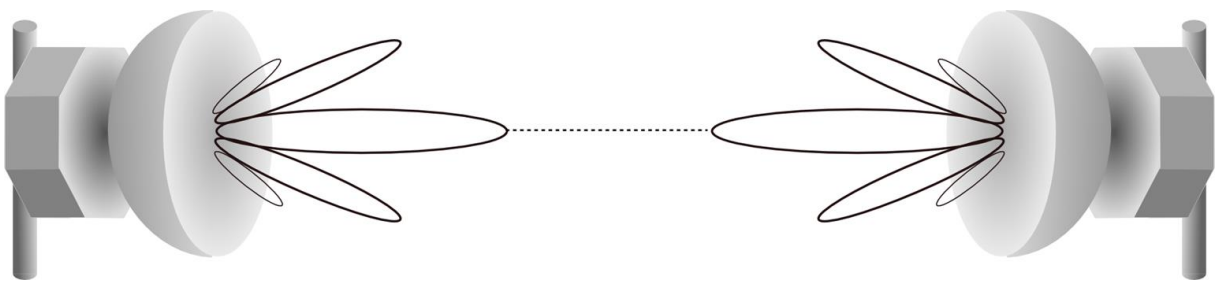
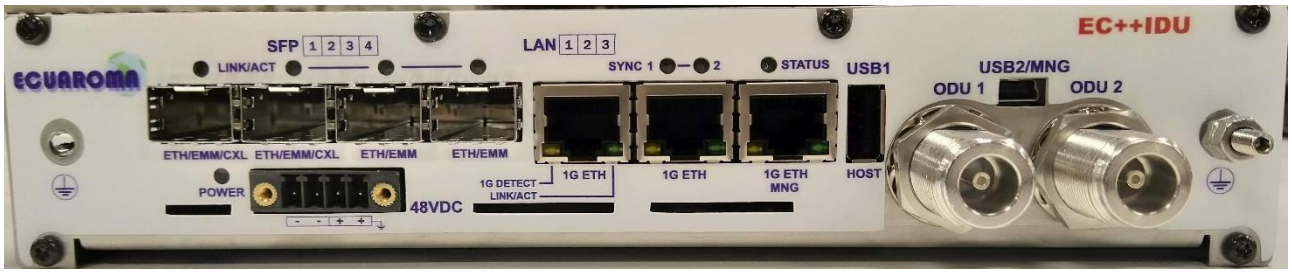
MICROWAVE TV DIGITAL – EC++IDU







DESCRIPTION

EC++IDU is the evolution of IP to meet the needs of the low cost / high performance MW network. A “real” GIGABIT ETHERNET Radio. The IDU integrates a dual channel modem that supports two active ODUs to add or switch traffic between two links. Superlative functionality with modulation scheme up to 1024QAM and BW channel up to 120MHz for each modem, capable of delivering 810Mbps Full-Duplex throughput for each channel. Out-of-the-box redundant configuration for link protection (1 + 1 HSB, FD and SD), link aggregation (2 + 0) or Dual-End station (East / West)

MAIN FEATURES

- Up to 2 Gbps aggregate capacity.
- Available modulation schemes: QPSK/16QAM/32QAM/64QAM/128QAM/256QAM/512QAM 1024QAM
- Available channel bandwidth:

- ETSI standard: 7/14/28/40/56/80 and 112MHz

- ANSI standard: 10/20/25/30/40/50/60/80 and 120MHz

- Up to 1Gbps throughput over a single channel at 1024QAM
- Integrated XPIC mechanism.
- Customer network data interface:

- 3 x RJ Gigabit Ethernet (100/1000Base-T)

- 4 x SFP (1000BaseSX/LX)

- Two USB ports for connecting USB-flash disk or PC.
- “In-Band”/”Out-of-Band” Management.

- Support of RADIUS Server authentication for users remote access.
- FEC – Forward Error Correction with RS Coding.
- Hitless and Errorless Adaptive Coding & Modulation (ACM) with dynamic capacity allocation and priority data transmission (PBPS – Packet Based Priority System).
- On-line Ethernet packet compression with reduced length of frames allowing throughput efficiency increase up to 25%.
- NAT, Proxy ARP support for effective IP management setup.
- Large range of System and Ethernet Counters.
- Adaptive Power Control ATCP.
- Built-in Network Management System (NMS) – http, https, SNMP v1,2,3, TELNET, SSH.
- Built-in Bit Error Rate (BER) Tester + Built-in Spectrum Analyzer.
- Integrated synchronization solution.
- AES-128/256 encryption for data confidentiality.

SYSTEM PARAMETERS

Frequency Band	4 GHz	5 GHz	6 GHz	7/8 GHz	10 GHz	11 GHz	13 GHz
Operating Frequency (GHz)	3.6 - 4.2	4.4 - 5	5.9 - 7.1	7.1 - 8.5	10.0 - 10.7	10.7 - 11.7	12.75 - 13.25
Tx Power (dBm)	SP/HP	SP/HP	SP/HP	SP/HP	SP/HP	SP/HP	SP/HP
QPSK	+27/+32	+27/+32	+27/+32	+27/+32	+26/+31	+26/+31	+26/+31
16, 32, 64 QAM	+24/+29	+24/+29	+24/+29	+24/+29	+23/+28	+23/+28	+23/+28
128 QAM	+22/+27	+22/+27	+22/+27	+22/+27	+21/+26	+21/+26	+21/+26
256 QAM	+20/+25	+20/+25	+20/+25	+20/+25	+19/+24	+19/+24	+19/+24
512 QAM*	+19/+24	+19/+24	+19/+24	+19/+24	+18/+23	+18/+23	+18/+23
1024 QAM*	+18/+23	+18/+23	+18/+23	+18/+23	+17/+22	+17/+22	+17/+22
Rx Sensitivity (dBm) @10^{-6}BER							
QPSK (28/56 MHz)	-88/-85	-88/-85	-88/-85	-88/-85	-88/-85	-88/-85	-88/-85
32 QAM (28/56 MHz)	-78/-74	-78/-74	-78/-74	-78/-74	-78/-74	-78/-74	-78/-74
128 QAM (28/56 MHz)	-70/-66	-70/-66	-70/-66	-70/-66	-70/-66	-70/-66	-70/-66
256 QAM (28/56 MHz)	-67/-63	-67/-63	-67/-63	-67/-63	-67/-63	-67/-63	-67/-63
512 QAM (28/56 MHz)*	-64/-60	-64/-60	-64/-60	-64/-60	-64/-60	-64/-60	-64/-60
1024 QAM (28/56 MHz)*	-61/-57	-61/-57	-61/-57	-61/-57	-61/-57	-61/-57	-61/-57
Antenna Port interface	N-Type	N-Type	UDR70	UDR84	UBR100	UBR100	Circular WG
Frequency Band	15 GHz	17 GHz UL	18 GHz	23 GHz	24 GHz UL	26 GHz	38 GHz*
Operating Frequency (GHz)	14.4 -15.35	17.1 to 17.3	17.7 to 19.7	21.2 to 23.6	24.0 to 24.25	24.55 to 26.45	37.0 to 39.5
Tx Power (dBm)	SP	SP	SP	SP	SP	SP	SP
QPSK	+25	+13	+23	+22	+10	+25	+18
16, 32, 64 QAM	+22	+10	+20	+19	+7	+22	+15
128 QAM	+20	+8	+18	+17	+5	+20	+13
256 QAM	+18	+6	+16	+15	+3	+18	+11
512 QAM*	+17	+5	+15	+14	+2	+17	+10
1024 QAM*	+16	+4	+14	+13	+1	+16	+9
Rx Sensitivity (dBm) @10-6BER							
QPSK (28/56 MHz)	-88/-85	-87/-84	-87/-84	-87/-84	-87/-84	-87/-84	-86/-83
32 QAM (28/56 MHz)	-78/-74	-77/-73	-77/-73	-77/-73	-77/-73	-77/-73	-76/-72
128 QAM (28/56 MHz)	-70/-66	-69/-66	-69/-66	-69/-66	-69/-66	-69/-66	-68/-65
256 QAM (28/56 MHz)	-67/-63						

512 QAM (28/56 MHz)*	-64/-60	-64/-61	-64/-61	-64/-61	-64/-61	-64/-61	-63/-60
1024 QAM (28/56 MHz)*	-61/-57	-61/-57	-61/-57	-61/-57	-61/-57	-61/-57	-60/-56
		-58/-54	-58/-54	-58/-54	-58/-54	-58/-54	-57/-53
Antenna Port interface	Proprietary Circular WG (“Ball” Adapter)						
Standard Compliance	Radio ETSI EN 302 217, EN 301 216, EN 301 128, EN 300 198						
	Power Supply ETSI EN 300 132-2						
	EMC / Safety ETSI EN 301 489 / IEC EN 60950						
* Expected values							
NETWORK MANAGEMENT							
Support	SNMP, WEB based GUI, TELNET, ASCII console						
Local Access	Ethernet 10/100 Base-T / RJ-45, RS232, USB-A, USB-B						
Out-of-Band Management	115 Mbps						
In-band Management	Via LAN						
IP Addresses	Primary, secondary						
IP Option	NAT, Proxy ARP						
IP Utilities	Ping, telnet						
MECHANICAL / ENVIROMENTAL							
Dimensions	IDU: “HALF”19” standard rack (1U), 210 x 44 x201mm ODU: D 260mm x H 160mm						
Weight	IDU: 2 Kg; ODU: 6.0 Kg						
Operating Temperature	IDU: -5° to +45°C; ODU: -33° to +55°C (Arctic option -50°C)						
Altitude	Up to 4500 meters						
Humidity	IDU: 95% condensing; ODU: 100% all-weather						