

Microwave Transmission MT-CRN300

1. Zero footprint, fully outdoor and cost-effective solution
2. QoS (Quality of Service) based on port, VLAN ID/Priority, DSCP for traffic prioritization
3. Scalable bandwidths (ETSI up to 112MHz, FCC up to 80MHz) and flexible modulation schemes (QPSK-4096QAM) to secure best link performance
4. Advanced multilevel LDPC and RS FEC
5. Up to 4Gbps capacity with Hitless Automatic Adaptive Coding and Modulation (HAACM)
6. The capacity can be up to 8Gbps by 2-radios aggregation
7. Power supply with coaxial cable or 2-wire cable
8. Multi-GE ports with 2-10 Gb
9. High availability and reliability based on licensed frequencies 5~44G
10. Jumbo frame up to 10240 bytes
11. Layer-2 switching, auto MDI/MDXI, VLAN, QoS, QinQ, STP/RSTP, LACP
12. 16K Mac Table Entries
13. RF and digital loopback capability
14. Adaptive digital Pre-distortion feature
15. ATPC and built-in FEC function
16. Built-in Bit Error Rate (BER) monitoring and spectrum scan
17. Small and attractive profile, Low latency and low power consumption, wide operating temperature range fits all weather conditions
18. Management capability as well as SNMP and Https call
19. Support Local and Remote loopback for Line checking
20. System Log for alarm, events, configuration.



Dumont Packet Radio

A compact all-outdoor packet radio solution,

Microwave Transmission

MT-CRN300

Combining the advantages of an all-outdoor profile with carrier-grade performance of Dumont Family, generates significant CAPEX and OPEX savings.

Dumont Packet Radio is the innovative packet radio which is the perfect replacement of optical fiber cable and FSO.

Robust and durable single-box structure withstands harsh weather conditions and can be easily mounted on towers, rooftops, lamp posts, traffic light poles and small outdoor mobile cell-sites.

Enhanced spectrum utilization, low-latency traffic and comprehensive synchronization solution.

Software-scalable bandwidths (ETSI up to 112 MHz, FCC up to 80MHz) and adaptive modulation schemes (QPSK-4096QAM) provide traffic with more flexibility and strong adaptability to various application environments.

Dumont Packet Radio is compliant with the IEEE 802.1/3 and RFC standards for various Ethernet functionalities.

User-friendly Management- Telnet, WEB GUI, NMS, SNMP Manager. Software and firmware online upgradeable.

Applications

4G and 5G mobile Backhaul

Dumont Packet Radio is a perfect fit for 3G/4G/5G base station backhaul to replace optical fiber and FSO, ideally for new all-packet base station, and caters to various connection needs: voice, data, management and control. With SynE synchronization, Dumont Packet could meet any RAN network requirement.

With external PWE3 interface unit, Smart Packet could provide up to 8EI and more Ethernet interfaces for 2G/3G/4/5G co-site scenario.

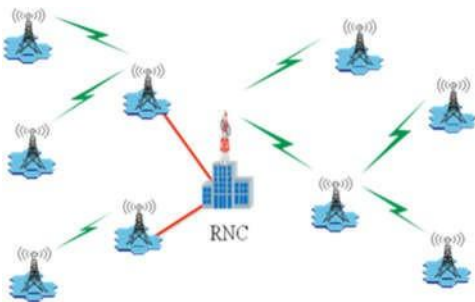


Figure 1 – Cellular Backhaul

ISP Backhaul

Dumont Packet Radio allows ISPs, who own no land lines, to quickly establish a backhaul without quality compromises. ISPs can grow up their profits by delivering services with guaranteed SLA or reaching distant clients from their PTP using radios with similar cost at licensed frequencies to avoid spectrum congestion.



Figure 2 – ISP Backhaul

Broadband Access

Dumont Packet Radio is an affordable medium capacity radio solution for enterprises that need private lines and broadband Ethernet traffic.

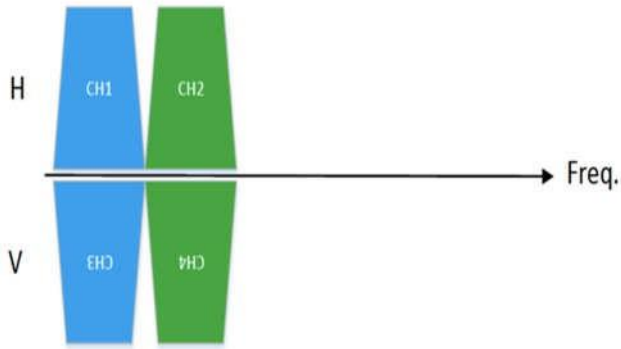
It offers solutions with fine combination of cost effectiveness & short commission time for the following applications:

- * DSLAM backhaul
- * No right-of-way
- * Extending network from a fiber POP
- * Private Communication networks

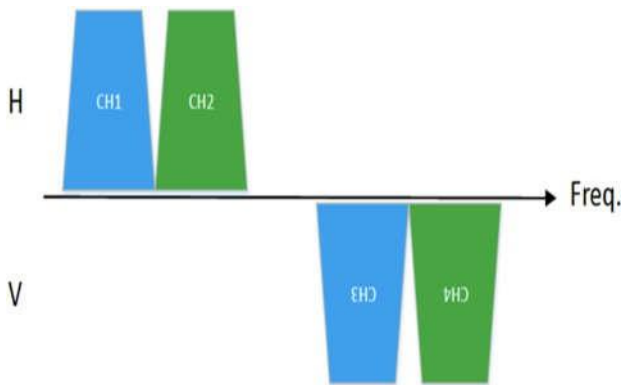
Microwave Transmission MT-CRN300

Channel Configuration

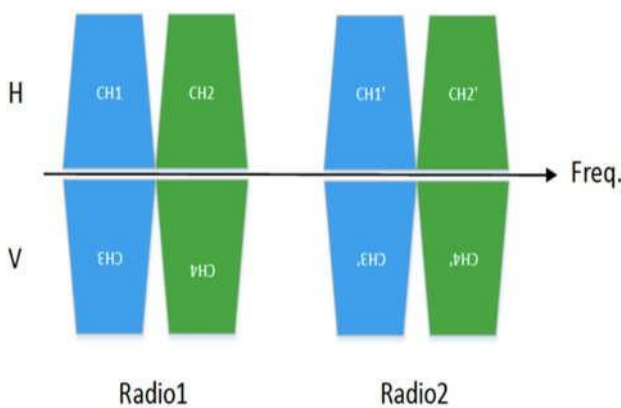
- * Dual-channels in each subband using dual-polarization (XPIC)
- * Dual-channels in different subband using dual-polarization
- * **Dual-channels with east/west and Add/drop feature**
- * 8+0 by using 2 radios



Dual-channels in each subband using dual polarization (XPIC) with OMT



Dual-channels in different subband using dual-polarization with OMT



8+0 by using 2 radios with OMT plus combiner

Microwave Transmission

MT-CRN300



Tone Spread
Solutions for Wireless Signal

Specifications

Frequency		6.5GHz	7GHz	8GHz	11 GHz	13 GHz	15 GHz	18 GHz	23 GHz	
Standard		ETSI/ITU or customer specified								
RF Output Power/per channel (dBm-Max)	4096QAM	19	19	19	15	15	15	14	15	
	2048QAM	19	19	19	15	15	15	14	15	
	1024QAM	20	20	20	16	16	16	15	15	
	512QAM	20	20	20	16	16	16	15	16	
	256QAM	20	20	20	17	17	17	15	17	
	128QAM	20	20	20	17	17	17	15	17	
	64QAM	21	21	21	18	18	18	18	18	
	32QAM	21	21	21	19	19	19	19	19	
	16QAM	21	21	21	19	19	19	20	20	
	QPSK	21	21	21	20	20	20	21	21	
RF Output Power(dBm- Min)		0								
Tuning Increment (dB)		1								
Accuracy (dB)		±2								
RX at BER=10-6 (dBm)	112MHz	4096QAM	-49.1	N/A	-49.1	-48.6	-48.6	-48.6	-48.1	-48.1
		2048QAM	-53.0	N/A	-53.0	-52.5	-52.5	-52.5	-52.0	-52.0
		1024QAM	-56.1	N/A	-56.1	-55.6	-55.6	-55.6	-55.1	-55.1
		512QAM	-59.3	N/A	-59.3	-58.8	-58.8	-58.8	-58.3	-58.3
		256QAM	-62.3	N/A	-62.3	-61.8	-61.8	-61.8	-61.3	-61.3
		128QAM	-65.4	N/A	-65.4	-64.9	-64.9	-64.9	-64.4	-64.4
		64QAM	-68.3	N/A	-68.3	-67.8	-67.8	-67.8	-67.3	-67.3
		32QAM	-70.6	N/A	-70.6	-70.1	-70.1	-70.1	-69.6	-69.6
		16QAM	-73.7	N/A	-73.7	-73.2	-73.2	-73.2	-72.7	-72.7
		QPSK	-80.1	N/A	-80.1	-79.6	-79.6	-79.6	-79.1	-79.1
	80MHz	4096QAM	-50.5	N/A	-50.5	-50.0	-50.0	-50.0	-49.5	-49.5
		2048QAM	-54.4	N/A	-54.4	-53.9	-53.9	-53.9	-53.4	-53.4
		1024QAM	-57.6	N/A	-57.6	-57.1	-57.1	-57.1	-56.6	-56.6
		512QAM	-60.7	N/A	-60.7	-60.2	-60.2	-60.2	-59.7	-59.7
		256QAM	-63.8	N/A	-63.8	-63.3	-63.3	-63.3	-62.8	-62.8
		128QAM	-66.9	N/A	-66.9	-66.4	-66.4	-66.4	-65.9	-65.9
		64QAM	-69.7	N/A	-69.7	-69.2	-69.2	-69.2	-68.7	-68.7
		32QAM	-72.1	N/A	-72.1	-71.6	-71.6	-71.6	-71.1	-71.1
		16QAM	-75.2	N/A	-75.2	-74.7	-74.7	-74.7	-74.2	-74.2
		QPSK	-81.7	N/A	-81.7	-81.2	-81.2	-81.2	-80.7	-80.7
	56MHz	4096QAM	-51.9	-51.9	-51.9	-51.4	-51.4	-51.4	-50.9	-50.9
		2048QAM	-55.8	-55.8	-55.8	-55.3	-55.3	-55.3	-54.8	-54.8
		1024QAM	-59.1	-59.1	-59.1	-58.6	-58.6	-58.6	-58.1	-58.1
		512QAM	-62.3	-62.3	-62.3	-61.8	-61.8	-61.8	-61.3	-61.3
		256QAM	-65.4	-65.4	-65.4	-64.9	-64.9	-64.9	-64.4	-64.4
		128QAM	-68.4	-68.4	-68.4	-67.9	-67.9	-67.9	-67.4	-67.4
		64QAM	-71.2	-71.2	-71.2	-70.7	-70.7	-70.7	-70.3	-70.3
		32QAM	-73.7	-73.7	-73.7	-73.2	-73.2	-73.2	-72.7	-72.7
		16QAM	-76.8	-76.8	-76.8	-76.3	-76.3	-76.3	-75.8	-75.8
		QPSK	-83.2	-83.2	-83.2	-82.7	-82.7	-82.7	-82.2	-82.2
	40MHz	4096QAM	-53.3	-53.3	-53.3	-52.8	-52.8	-52.8	-52.3	-52.3
		2048QAM	-57.2	-57.2	-57.2	-56.7	-56.7	-56.7	-56.2	-56.2
		1024QAM	-60.6	-60.6	-60.6	-60.1	-60.1	-60.1	-59.6	-59.6
		512QAM	-63.8	-63.8	-63.8	-63.3	-63.3	-63.3	-62.8	-62.8
		256QAM	-67.0	-67.0	-67.0	-66.5	-66.5	-66.5	-66.0	-66.0
		128QAM	-69.8	-69.8	-69.8	-69.3	-69.3	-69.3	-68.8	-68.8
		64QAM	-72.6	-72.6	-72.6	-72.1	-72.1	-72.1	-71.6	-71.6
		32QAM	-75.2	-75.2	-75.2	-74.7	-74.7	-74.7	-74.2	-74.2
		16QAM	-78.4	-78.4	-78.4	-77.9	-77.9	-77.9	-77.4	-77.4
		QPSK	-84.7	-84.7	-84.7	-84.2	-84.2	-84.2	-83.7	-83.7
	28MHz	4096QAM	-54.6	-54.6	-54.6	-54.1	-54.1	-54.1	-53.6	-53.6
		2048QAM	-58.6	-58.6	-58.6	-58.1	-58.1	-58.1	-57.6	-57.6
		1024QAM	-62.1	-62.1	-62.1	-61.6	-61.6	-61.6	-61.1	-61.1
		512QAM	-65.4	-65.4	-65.4	-64.9	-64.9	-64.9	-64.4	-64.4
		256QAM	-68.5	-68.5	-68.5	-68.0	-68.0	-68.0	-67.5	-67.5
		128QAM	-71.3	-71.3	-71.3	-70.8	-70.8	-70.8	-70.3	-70.3
		64QAM	-74.1	-74.1	-74.1	-73.6	-73.6	-73.6	-73.1	-73.1
		32QAM	-76.8	-76.8	-76.8	-76.3	-76.3	-76.3	-75.8	-75.8
16QAM		-79.9	-79.9	-79.9	-79.4	-79.4	-79.4	-78.9	-78.9	
	QPSK	-86.2	-86.2	-86.2	-85.7	-85.7	-85.7	-85.2	-85.2	
Flange		UBR84	UBR84	UBR84	UBR100	UBR140	UBR140	UBR220	UBR220	
RSSI		Output voltage vs. RSL: 0 ~ 1.4V vs. -90 ~ -20dBm(10dB/200mV)								
RSL Accuracy		±2 dB(@-80~-30dBm, ±3 dB(@-90~-80dBm or -30~-20dBm								
Frequency Stability		±5ppm								
Frequency Source		Synthesizer								
Max Input Level Without Damage		0dBm								
Modulation		QPSK~4096QAM								
ACM switching		Hitless								

Microwave Transmission

MT-CRN300



Tone Spread
Solutions for Wireless Signal

Throughput (single channel)/Mbps	Up to 1400Mbps(@4*40MHz (anatel) ,2500Mbps(@4*80MHz, 4Gbps(@4*112MHz		
Switch type	10GE Layer 2	QoS	802.Ip
Max frame size	10240 bytes	QoS queuing	Yes
MAC table	16k entries, auto learning & aging	VLAN support	802.IQ, QinQ
Packet buffer	8Mbit;non-blocking store & forward	Spanning tree protocol	802.ID-1998 STP&RSTP
Flow control	802.3x	Synchronization	N/A
SNMP	SNMP traps, MIB,SNMP v1/v2c/v3,		
EMS	Web based HTTP, SNMP, https call		
Interface	2-10GE optical , Multi-mode 10G SFP		
NMS Interface	Ethernet(in-band)		
RSSI	Mini-BNC		
Power	Coaxial cable with N-type connector		
Power Supply	-48V±20%		
Power Consumption	< 150W		
Ambient Temperature	-35~ +55 C		
Weight &Dimension (kg/mm)	TBD		
Humidity	All weather		
Elevation	15,000ft / 4572 m,IP65		

Notes: All Specifications are typical values and subject to change without prior notice.

		Capacity (Mbps)/per channel									
BW	Mod	QPSK	16QAM	32QAM	64QAM	128QAM	256QAM	512QAM	1024QAM	2048QAM	4096QAM
28MHz	2+0	91.9	183.6	224.6	276.5	322.6	368.5	415.7	461.0	501.8	531.7
	4+0	182.8	367.2	449.2	553.1	645.2	737.1	831.4	922.0	1003.6	1063.4
	8+0	365.6	734.4	898.4	1106.2	1290.4	1474.2	1662.8	1844.0	2007.2	2126.8
29.65MHz	2+0	97.4	194.4	237.8	292.8	341.6	390.2	440.2	488.2	531.4	563.0
	4+0	194.8	388.8	475.6	585.6	683.2	780.4	880.4	976.4	1062.9	1126.1
	8+0	389.6	777.6	951.2	1171.2	1366.4	1560.8	1760.8	1952.8	2125.9	2252.3
40MHz	2+0	130.0	260.1	320.2	396.1	462.2	528.4	594.0	662.0	720.0	768.0
	4+0	260.0	520.0	640.0	792.0	924.0	1056.0	1188.0	1324.0	1440.0	1536.0
	8+0	520.0	1040.0	1280.0	1584.0	1848.0	2112.0	2376.0	2648.0	2880.0	3072.0
56MHz	2+0	183.8	367.2	449.2	553	645.2	737	831.4	922	1003.6	1063.4
	4+0	365.6	734.4	898.4	1106.2	1290.4	1474.2	1662.8	1844	2007.2	2126.8
	8+0	731.2	1468.8	1796.8	2212.4	2580.8	2948.4	3325.6	3688	4014.4	4253.6
59.3MHz	2+0	189.6	372.1	462.0	570.2	666.3	755.5	847.5	949.9	1024.0	1064.6
	4+0	379.1	744.1	923.9	1140.3	1332.6	1510.9	1694.9	1899.7	2047.9	2129.2
	8+0	758.2	1488.2	1847.8	2280.7	2665.2	3021.7	3389.8	3799.4	4095.8	4384.4
80MHz	2+0	244.35	478.0	596.8	734.5	858.8	969.75	1086.8	1221.7	1311.4	1406
	4+0	488.7	956.0	1193.6	1469.0	1717.6	1939.5	2173.6	2443.4	2622.8	2812.0
	8+0	977.4	1912.0	2387.2	2938.0	3435.2	3879.0	4347.2	4886.8	5245.6	5624.0
112MHz	2+0	367.6	734.4	898.4	1106	1290.4	1474	1662.8	1844	2007.2	2126.8
	4+0	731.2	1468.8	1796.8	2212.4	2580.8	2948.4	3325.6	3688	4014.4	4253.6
	8+0	1462.4	2937.6	3593.6	4424.8	5161.6	5896.8	6651.2	7376	8028.8	8507.2

Note:

1. The max output power is test under each polarization port with dual channel. If using one channel per polarization port, the max. Power will increase about 3.5dB.
2. For lower freq. bands(Below 15GHz), we can use single channel XPIC(2+0) and wider channel bandwidth(112MHz) to get 2Gbps capacity at lower cost.
3. For narrow bandwidth, the capacity is almost double for XPIC. But for wide bandwidth, like 112MHz, the capacity is 1.86 times. We take 1.9 times for 80MHz at XPIC.
4. For HC (head compression) at network traffic model 2, the capacity will increase about 20~30%