MT-CRN150 Full-Outdoor Packet Radio

Tone Spread
Solutions for Wireless Signal

- Zero footprint, fully integrated and cost-effective solution
- Up to 900Mbps capacity with Hitless Automatic Adaptive Coding and Modulation (HAACM)*
- Network synchronization with SyncE
- QoS (Quality of Service) and VLAN for traffic prioritization
- Scalable bandwidths (ETSI up to 112 MHz, FCC up to 80MHz) and flexible modulation schemes (QPSK-1024QAM) to secure best link performance.
- High availability and reliability based on licensed frequencies from 6.5G to 23G
- Jumbo frame up to 9K bytes, layer-2 switching, auto MDI/MDXI, VLAN, QoS, QinQ, STP/RSTP, RLS
- RF and digital loopback capability
- Digital Pre-distortion feature
- ATPC and built-in FEC function
- Built-in Bit Error Rate (BER) monitoring spectrum scan
- Small and attractive profile, Low latency and low power consumption, wide operating temperature range fits all weather conditions
- Local management capability as well as SNMP
- Zero IF design for easy manufacturing

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Smart Packet Radio

A compact all-outdoor packet radio solution, combining the advantages of an all-outdoor profile with carrier-grade performance of Smart Family, generates significant CAPEX and OPEX savings.

Smart Packet 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 3.5/7/14/28/56MHz, FCC 5/10/20/30/40/80MHz) and adaptive modulation schemes (QPSK-128QAM) provide traffic with more flexibility and strong adaptability to various application environments.

Smart Packet 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

Cellular Backhaul

Smart Packet is a perfect fit for 3G/LTE/WiMAX 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, Smart Packet could meet any RAN network requirement.
With external PWE3 interface unit, Smart Packet could provide up to 16E1 and 4FE interfaces for 2G/3G/LTE co-site scenario.

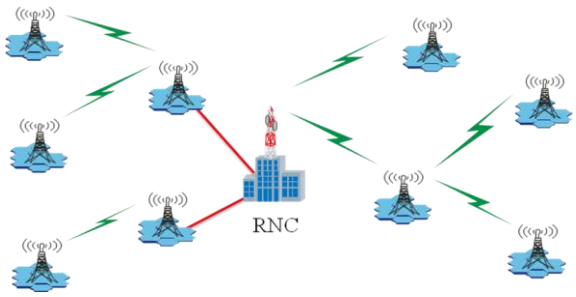

Figure 1 – Cellular Backhaul

ISP Backhaul

Smart Packet 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 PoP using radios with similar cost at licensed frequencies to avoid spectrum congestion.

Figure 2 – ISP Backhaul

Broadband Access

Smart Packet 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

MT-CRN150 Full-Outdoor Packet Radio

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 (dBm-Max)		1024QAM	23	23	23	16	16	16	15	15
		512QAM	24	24	24	17	17	17	16	16
		256QAM	25	25	25	18	18	18	17	17
		128QAM	25	25	25	18	18	18	17	17
		64QAM	25	25	25	19	19	19	18	18
		32QAM	25	25	25	20	20	20	19	19
		16QAM	25	25	25	21	21	21	20	20
		QPSK	25	25	25	23	23	23	21	21
RF Output Power(dBm- Min)			0							
Tuning Increment (dB)			1							
Accuracy (dB)			±2							
RX at BER=10-6 (dBm)	112MHz	1024QAM	-52.9	N/A	-52.9	-52.4	N/A	-52.4	-52.0	-52.0
		512QAM	-56.5	N/A	-56.5	-56.0	N/A	-56.0	-55.6	-55.6
		256QAM	-59.5	N/A	-59.5	-59.0	N/A	-59.0	-58.6	-58.6
		128QAM	-62.5	N/A	-62.5	-62.0	N/A	-62.0	-61.6	-61.6
		64QAM	-65.5	N/A	-65.5	-65.0	N/A	-65.0	-64.6	-64.6
		32QAM	-68.5	N/A	-68.5	-68.0	N/A	-68.0	-67.6	-67.6
		16QAM	-71.4	N/A	-71.4	-71.0	N/A	-71.0	-70.6	-70.6
		QPSK	-77.8	N/A	-77.8	-77.3	N/A	-77.3	-76.7	-76.7
	56MHz	1024QAM	-55.9	N/A	-55.9	-55.4	-55.4	-55.4	-55.0	-55.0
		512QAM	-59.5	N/A	-59.5	-59.0	-59.0	-59.0	-58.6	-58.6
		256QAM	-62.5	N/A	-62.5	-62.0	-62.0	-62.0	-61.6	-61.6
		128QAM	-65.5	N/A	-65.5	-65.0	-65.0	-65.0	-64.6	-64.6
		64QAM	-68.5	N/A	-68.5	-68.0	-68.0	-68.0	-67.6	-67.6
		32QAM	-71.4	N/A	-71.4	-71.0	-71.0	-71.0	-70.6	-70.6
		16QAM	-74.4	N/A	-74.4	-74.0	-74.0	-74.0	-73.6	-73.6
		QPSK	-80.8	N/A	-80.8	-80.3	-80.3	-80.3	-79.7	-79.7
	28MHz	1024QAM	-57.9	-57.9	-57.9	-57.4	-57.4	-57.4	-57.0	-57.0
		512QAM	-62.4	-62.4	-62.4	-61.9	-61.9	-61.9	-61.5	-61.5
		256QAM	-65.4	-65.4	-65.4	-65.1	-65.1	-65.1	-64.7	-64.7
		128QAM	-68.5	-68.5	-68.5	-68.0	-68.0	-68.0	-67.6	-67.6
		64QAM	-71.5	-71.5	-71.5	-71.2	-71.2	-71.2	-70.8	-70.8
		32QAM	-74.5	-74.5	-74.5	-74.0	-74.0	-74.0	-73.6	-73.6
		16QAM	-77.3	-77.3	-77.3	-76.8	-76.8	-76.8	-76.4	-76.4
		QPSK	-83.7	-83.7	-83.7	-83.1	-83.1	-83.1	-82.7	-82.7
	14MHz	1024QAM	-61.1	-61.1	-61.1	-60.6	-60.6	-60.6	-60.2	-60.2
		512QAM	-64.9	-64.9	-64.9	-64.5	-64.5	-64.5	-64.1	-64.1
		256QAM	-67.9	-67.9	-67.9	-67.4	-67.4	-67.4	-67.0	-67.0
		128QAM	-70.6	-70.6	-70.6	-70.1	-70.1	-70.1	-69.7	-69.7
		64QAM	-73.3	-73.3	-73.3	-72.8	-72.8	-72.8	-72.4	-72.4
		32QAM	-76.1	-76.1	-76.1	-75.6	-75.6	-75.6	-75.2	-75.2
		16QAM	-80.3	-80.3	-80.3	-79.8	-79.8	-79.8	-79.4	-79.4
		QPSK	-86.1	-86.1	-86.1	-85.6	-85.6	-85.6	-85.2	-85.2
	7MHz	1024QAM	-63.4	-63.4	-63.4	-62.9	-62.9	-62.9	-62.5	-62.5
		512QAM	-67.6	-67.6	-67.6	-67.1	-67.1	-67.1	-66.7	-66.7
		256QAM	-70.6	-70.6	-70.6	-70.1	-70.1	-70.1	-69.7	-69.7
		128QAM	-73.4	-73.4	-73.4	-72.9	-72.9	-72.9	-72.5	-72.5
		64QAM	-76.9	-76.9	-76.9	-76.4	-76.4	-76.4	-76.0	-76.0
		32QAM	-80.4	-80.4	-80.4	-79.9	-79.9	-79.9	-79.5	-79.5
		16QAM	-83.2	-83.2	-83.2	-82.7	-82.7	-82.7	-82.3	-82.3
		QPSK	-88.9	-88.9	-88.9	-88.4	-88.4	-88.4	-88.0	-88.0
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~1024QAM		
ACM switching	Hitless		
Throughput(single channel)/Mbps	Up to 450Mbps		
Protection	2+0 with external smart switch		
Switch type	GE Layer 2	**QoS**	802.1p
Max frame size	9216 bytes	**QoS queuing**	Yes
MAC table	1k entries, auto learning & aging	**VLAN support**	802.1Q, **QinQ**
Packet buffer	31kBB;non-blocking store & forward	**Spanning tree protocol**	802.1D-1998 STP&RSTP
Flow control	802.3x	**Synchronization**	SyncE and IEEE1588v2(TC)
SNMP	SNMP traps, MIB, SNMP v1/v2c		
EMS	Web based HTTP, Telnet, FTP, SNMP		
Interface	Ethernet(basic) and E1 with external TDM-over-IP IDU(CRN155)		
Ethernet physical Interface	GE Electrical	**E1 physical interface**	RJ45 120ohm Balanced
NMS Interface	Ethernet RJ45 (in-band)		
RSSI	BNC		
Power	RJ45 with POE		
Power Supply	-48V±20%		
Power Consumption	<40W		
Ambient Temperature	-35~ +55℃		
Weight &Dimension (kg/mm)	6/315×265×130		
Humidity	All weather		
Elevation	15,000ft / 4572 m, IP67		

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

Capacity (Mbps)								
Mod BW	QPSK	16QAM	32QAM	64QAM	128QAM	256QAM	512QAM	1024QAM
14	22	44	55	66	77	88	99	110
20	31	63	79	94	110	126	141	157
28	44	88	110	132	154	176	198	220
40	63	126	157	189	220	251	283	314
56	88	176	220	264	308	352	396	440
60	94	189	236	283	330	377	424	471
80	126	252	315	377	441	503	566	630
112	176	352	440	528	616	704	792	880