



Microwave Radio Link

FNJ-MOJ Family (15-38 GHz)



Version 1
Summer 2022



Description

Fanamoj Company with more than 22 years' of telecom and electronic experience, is one of the pioneers of wireless radio links in Iran. The company is committed to design and production of customer-adapted, high-quality wireless solutions at competitive prices. Wide variety of licensed and license free microwave radio links from 5 to 38 GHz have already been designed and produced for different governmental and private sector customers.

FNJ-MOJ-XX (XX = 15/18/23/38 GHz) family are split mount radio links for carrier-class multi-technology traffic aggregation. As high performance radio links, they are capable of high capacity transport with Carrier Ethernet, IP engine and multiple 1/10 Gbps ports, while maintaining full support of the E1 traffic. MOJ split mount radio links family are compact, cost effective, easy to install and efficient solution that offer up to 1 Gbps traffic on modulation schemes from QPSK to 1024 QAM.



Features

- ODU From 15-38 GHz
- Up to 310 Mbps throughput upgradable to 1 Gbps
- Carrier-class multi-technology traffic aggregation
- Monitoring and control via SNMP V. 3
- Optimized for TCP/IP transport compliant to LTE traffic.
- QPSK to 1024 QAM modulation
- Hitless Adaptive Code and Modulation
- Header Compression
- Radio LAG over multiple ODU with XPIC
- Multi Carrier Aggregation up to 2+0
- Mixed TDM/Ethernet interfaces for dual native transport
- Single Universal ODU for any capacity and modulation
- Network Management System (NMS)



Technical Descriptions

➤ ODU+ Outdoor Accessories Specifications

Power Supply	-36 ~ -72V DC
Power Consumption	< 25W
Aperture Polarization	Vertical & Horizontal
RF Interface	Integrated WR-42
Outdoor Connector	N Type, 50ohm, Female
Interconnection Cable	Single RG-316 coaxial cable
ODU dimension	280*92*280
Weight	<4.5
IP code	IP66
Antenna diameter	0.3/0.6 m
Gain	35.5/40
VSWR	1.3
Regulatory compliance	ETSI class 3
Cross polarization	30
Polarization	V or H



➤ ODU Technical Features

Frequency Range	15/18/23/38 GHz
Modulation Method	QPSK/16QAM/32QAM/64QAM/128QAM/256QAM /512QAM/1024QAM
Traffic Capacity	310Mbps upgradable to 1 Gbps
Power control	1 dB step up to 30 dBm
TX Max Power	+24 dBm for QPSK +21 dBm for 16QAM +18 dBm for 32QAM +18 dBm for 64QAM +18 dBm for 128QAM +17 dBm for 256QAM
Phase Noise @ 10 KHz	-60 dBc
Frequency Step	250 KHz
Max RF Input	-20 dBm
RX Gain Range	60 dB
RX Noise Figure at Max Gain	6 dB
TX IF Center Frequency	350 MHz
RX IF Center Frequency	140 MHz
Frequency Stability	Better than ± 7 ppm
Ambient temp.	-40 to 60 °C

➤ IDU (MoDem+Interface) Electrical Specifications

Power Supply	-40 ~ -60V DC
Power Consumption	< 30W
IF Interface	TNC-Type
E1 Impedance	75 Ω
Heat dissipation	Fan cooling
Ambient temp.	IDU -5 to 55 °C
Case	Standard 2U 19-Inch Rack Mounted
Weight	<8 Kg
Dimension (H*W*D)	442*225*90 mm
Cards	1 modem card (+1 optional modem card) 1 CSU(E1 and Ethernet interfaces) Fan card Master/slave Redundant power supply 1 optional extended Ethernet card

➤ IDU Interface Specification

E1 Inputs	16+ E1 cross connect
Impedance E1 Inputs	75
Ethernet Inputs	2FE/2Gbe/1 NMS port
VLAN	IEEE 802.1 VLAN
QoS	Egress 8 classes Queueing, ingress 8 classes classify(CoS)
STP	MSTP, RSTP(IEEE 802.1w)
LAG	LAG/LACP(802.1AX), radio traffic aggregation
Header compression	L2/L3/L4 header compression, payload compression
Maintenance	Support RMON performance statistics on various types of object (IETF RFC 2819)
Management plane	In band control network, M plane access control list
Physical interface	2 RJ45 electrical port 2 optical SFP port 1 RJ45 NMS electrical port
MAC table	Up to 8000
Support Jumbo frame bytes	FE<2000 Gbe<9600
NMS interface types	Ethernet port (SNMP V3.0 Protocol)
NMS features	Fault management Configuration management Report management Performance management Security management Topology management

➤ Monitoring Parameters

Modem Supply Voltage Monitor	Power supply voltage and current monitoring
Temperature	IDU/ODU Temperature
OW Configuration	TX/RX Gain control
Loopback types	E1 Loopback
E1 Remote Loopback	
Modem Digital Loopback	
IF Loopback	
RF Loopback	
BER Monitoring	BER Monitoring
EVM Monitoring	EVM Monitoring
E1 LOS Monitoring in LIU	E1 LOS Monitoring
E1 AIS Monitoring in LIU	E1 AIS Monitoring
E1 Monitoring in LIU	E1 Monitoring
RX Sync Loss Monitoring	RX Sync Loss Monitoring
MODEM Connection Status	MODEM Connection Status
Active E1 Selection	Active E1 Selection/Monitoring
Date/Time	Date/Time Setting/Monitoring
TX Power Mode Selection: ATPC/Normal level	Power Mode Selection: ATPC/Normal and optimum RX signal
Password	Password Setting
Ethernet Capacity Selection	Ethernet Capacity Selection
Synthesizer and PLO Lock	Synthesizer and PLO Lock
Modem RX Level	Modem RX Level upper/lower bounds
Configuration/Monitoring	
Modem in CW mode	CW mode Activate/Deactivate
Reed Solomon Activate/Deactivate	Reed Solomon Activate/Deactivate
TX Sync Status	TX Sync Loss Monitoring
ODU Modem connection Status	ODU Modem connection Status Monitoring
Synthesizer and PLO Lock	Synthesizer and PLO Lock Monitoring
ODU TX Power	TX gain control + ODU TX power Monitoring
ODU Temperature Monitor	Temperature Boundary Configuration/ Monitoring
ODU RX Power	RX gain control + ODU RX power Monitoring



Contact Information



Address: No 1, Sartipi St., Semiyari St., after Sadr bridge, Shariati Ave., Tehran-Iran



Email: sales@fanamoj.com



Tel: +98 21 22649616



Fax: +98 21 22205492



Telegram: @Fanamoj



WhatsApp: +98 902 7101538