

5G NR TDD Band N78 Fiber DAS Master Unit Supporting 4X4 MIMO

Model No: FMU-T35-24W10

Features

- Master Unit is based on the standard 5G EMTS POI connected to an Attenuator box and Fiber Conversion Box (FCB)
- 5G RF Extension 4 x4 MIMO system supports TDD technology
- Allows fast 5G NR network deployment
- Designed to comply with ETSI 3GPP TS 38.106
- Supports NSA (Non-Standalone) and SA (Standalone) 5G network
- One Master Unit can support 2 Extension Units (EU), and One EU can support Up to 8 Fiber Remote Units (FRU) to maximize the utilization of fiber optical cable (a star topology is formed between EU and FRUs)
- The POI combines the 4 mobile carriers into 2 X 4 outputs
- The 4 outputs from the POI will be equalized using the attenuator box
- Can be managed through OMT/NMS

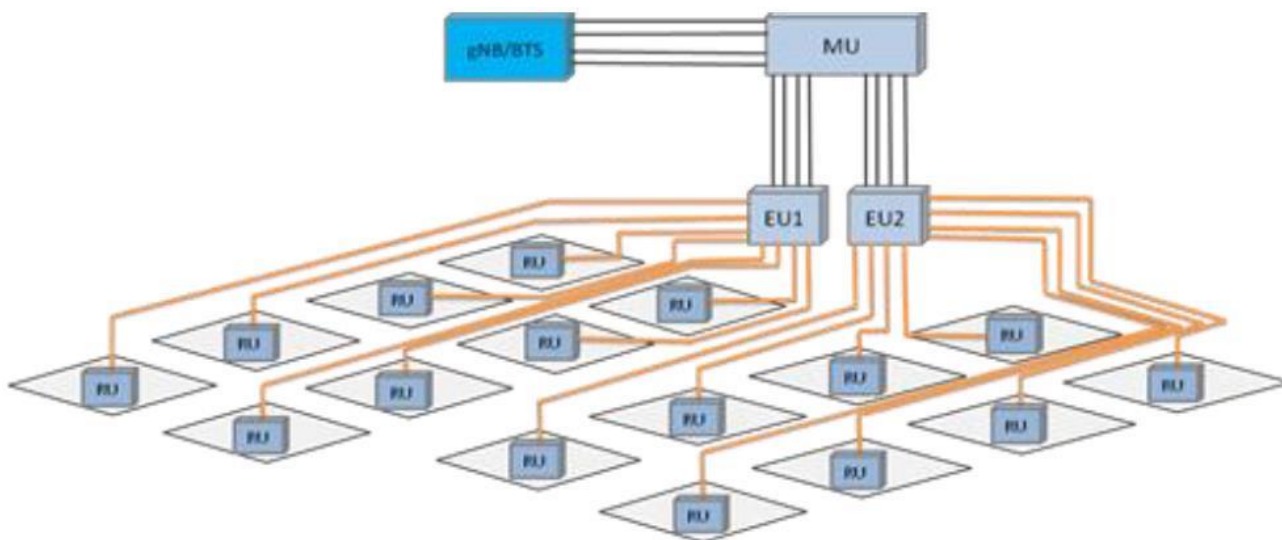
Introduction

The EMTS Telecom Services Ltd. F/O DAS solution provides an affordable solution for multi-operator 5G indoor signal coverage problems for multi-operator deployment. The Master Unit (MU) is based on POI, Attenuator box, and Fiber Conversion Box Unit (FCB). One Master Unit (MU) is connected to 2 Extension Units (EU). Each EU is connected to 8 Fiber Remote Units (FRU) via fiber optic cables. The gNB RF signals of all 4 operators are fed to the 5G POI. The POI combines all 4 operators into 4 MIMO streams. The combined RF signal is attenuated using an attenuator box and fed into the FCB. The MU converts the RF signal to an optical signal, 1 signal per MIMO stream. The optical signal is connected to the Extension Unit (EU) through F/O cables. One MU supports 2 EU. The EU splits the optical signal from the MU into 8 optical signals for the fiber Remote Unit (RU) via fiber optic cable. The fiber RU will reconvert the optical signal into an RF signal and provide the signal to the areas where network coverage is inadequate. The mobile signal is also amplified and retransmitted to the BTS via the opposite direction. The EMTS 5G Fiber Optic Repeater system is designed to support MIMO 4X4 topology. The EMTS Telecom Services 5G DAS solutions boost network performance to stay ahead of the fast-moving 5G multi-operator deployments & get a fast ROI simultaneously.



EMTS Telecom Services offers a comprehensive portfolio of enhanced coverage solutions for Wireless Networks, Based on advanced technologies. EMTS proven indoor and outdoor solutions solve a wide range of network challenges including interference and oscillation problems, challenging coverage holes, rapid response deployment and inadequate in-building coverage. Regardless of the technology or frequency, EMTS can provide customized coverage solutions that address any combination of unique and complex network needs for Wireless Networks.

System Distribution & Architecture



Electrical Specification

Master Unit Specification	
Item	Specification
Supported Bandwidth	270MHz
Frequency Range	3300 to 3570MHz
Signal Mode (Analog/Digital)	Analog
The Max. RU Quantity Single MU(4X4) Can Support	16
Support 4X4 MIMO	YES
RF Connector Type / Number (BTS side)	16x4.3-10 Female
Fiber Type (EU side)	Single Mode
Optical Wavelength	UL: 1310nm/DL: 1550nm
Optical Connector Type/ Number	8xSC/APC (4X4 MIMO)



About EMTS Telecom Services Ltd.:

EMTS is a leading supplier of high-quality RF coverage solutions designed to maximize wireless network coverage in difficult RF environments and complex settings. The company specializes in extending RF radio coverage to rural areas, office buildings, subways, tunnels, and shadowed areas. The EMTS Telecom Services coverage solution supports all major mobile technologies and wireless networks' standards.

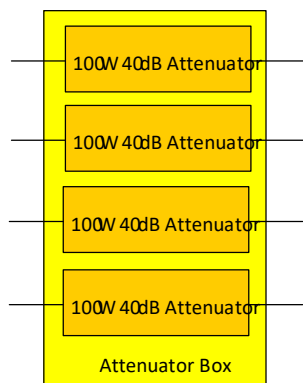
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Sub-Unit - Point Of Interface (POI) specification	
Item	Specification
Frequency Range	3300 - 3570 MHz
Number of Inputs (BTS side)	16 Inputs
Number of Outputs (Attenuator box side)	8 Outputs, Only 4 are used
VSWR / Return Loss RF	≤ 1.288 / ≥ 18 dB
Insertion Loss (dB)	≤ 4.5 dB
Isolation (dB)	≥ 28 dB
Power Handling (W)	≥ 400 watts
PIM	≤ -153 dBc @2x43dBm
Applications	Indoor DAS
Connector type	4.3-10 Mini Din
Weight (kg)	35Kg
Size	19-inch box Hight 6U
Operating Temperature (°C)	-20 up to 55°C
Relative Humidity (%)	95%



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Sub-unit - Attenuator Box - specification	
Item	Specification
Attenuation	40dB
Accuracy	±2dB
Frequency Range	3400~3800MHz
VSWR	≤1.25
PIM3	≤-155dBc
Impedance	50 Ω
Rated Power	100W
Connector Type /Number	8 x 4.3-10 Female: 4 x Input Ports and 4 x Output ports
Operating Temperature	-20°C ~ +50°C
Relative Humidity	5%~95%
Dimensions	19-inch 2U chassis (485mm x 350mm x 90mm)
Weight	≤ 12Kg
Application	Indoor



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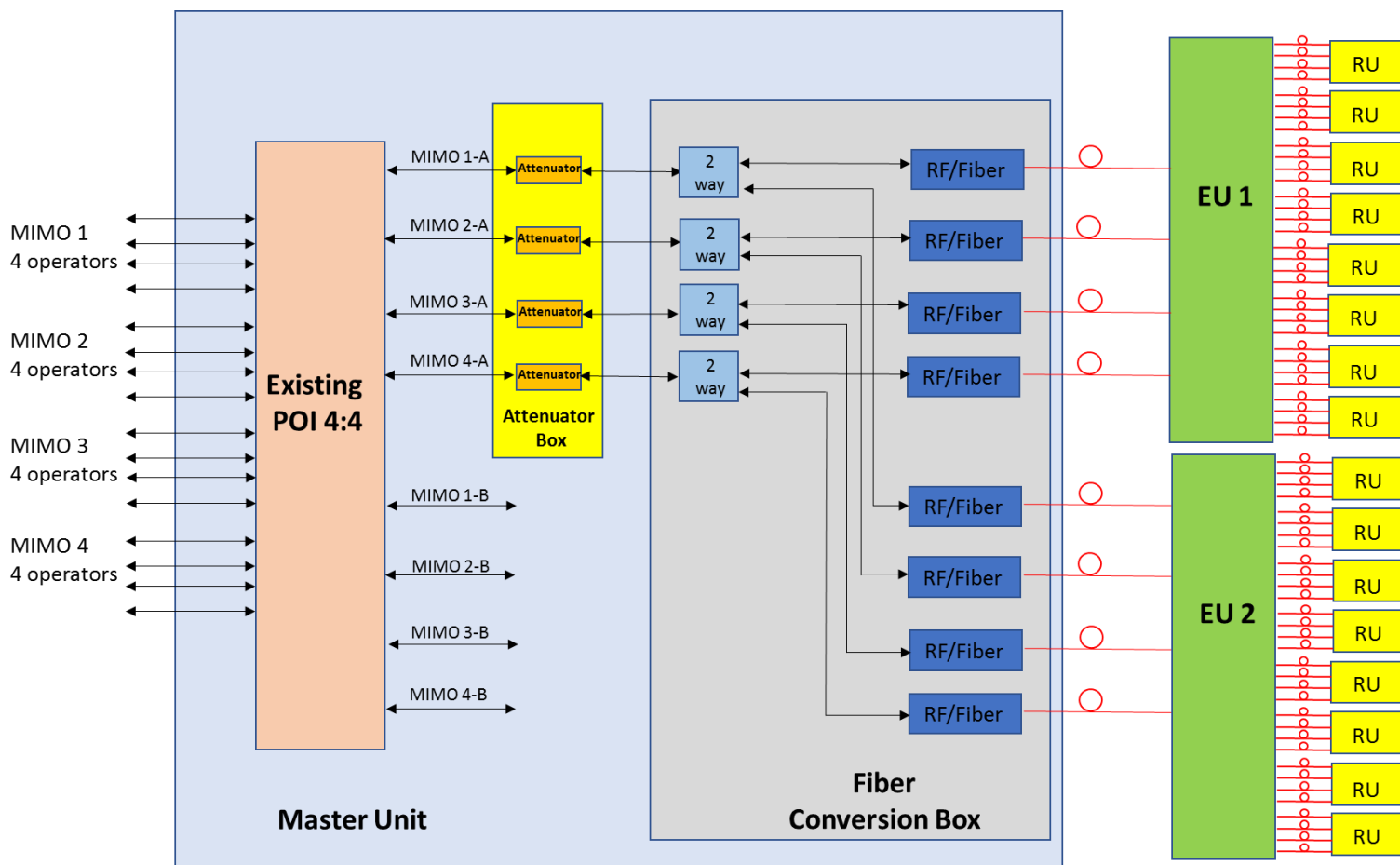
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Sub-Unit - Fiber Conversion Box (FCB) specification	
Item	Specification
RF Connector Type / Number (Attenuator box side)	4x4.3-10 Female
Fiber Type (EU side)	Single Mode
Optical Wavelength	UL: 1310nm/DL: 1550nm
Optical Connector Type/Number	8xSC/APC (4X4 MIMO)
VSWR	≤ 1.5
Maximum Gain @DL/UL	-5 $\pm$ 2dB
Manual Adjustable Attenuator	≥ 15 dB/Step 1dB(*per band)
Noise Figure@4RU connection	≤ 5 dB
Maximum Input Power (Non-Destructive)	+10dBm
Optical Receiver Sensitivity	-12dBm
Optical Output Power	≥ -4 dBm
Max RF Output Power (UL)	-10 $\pm$ 2dBm
ALC Range	≥ 20 dB
Protection	IP30
Local Monitoring Interface	RJ45 and Wi-Fi Hotspot
Remote Monitoring Interface	Cloud NMS via 4G Wireless Modem and RJ45 Interface
Room Operating Temperature	-10 ~ +45°C
Operating Humidity	$\leq 95\%$
Dimension (H x W x D) (mm)	485mm×350mm×88mm
Mounting Type	Rack Mounting
Weight (Kg)	≤ 10 kg
Power Supply	AC100-240V, 50/60Hz
Power Consumption	60 watts
Protection Design: Short Circuit, Over Voltage, Surge Protection, or High-Temperature Protection Design	Supported
Battery Backup / Time	External Battery for 30min (to send alarm message etc.)
MTBF	> 50000 hr
Automatic level adjustment to compensate for the optical loss	Supported



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