

# LTE - iDEN - TETRA- APCO-25 SMR 800MHz 10W Digital Fiber Optic Repeater System

Model No: DFBDA-850-40W55



## Feature

- Supports LTE, WCDMA, iDEN, TETRA, APCO25 at the SMR 850MHz band
- High power linear amplifier, designed for outdoor or in-building coverage
- Advanced digital technology to support multi carrier scenarios
- Support multi operator scenario when sharing same antenna system
- High stability and long life cycle
- Energy-efficient design, power saving

## Introduction

The LTE800 - iDEN800 Fiber Optic Repeater is the perfect solution for network optimization in mobile network that can enlarge the BTS coverage. It is widely used in the shaded area, high traffic load area and the pilot pollution area, etc.

## How does it work

The master unit of TX/RX receives the downlink (DL) signal from BTS through the DL Amplifier and Input Power Detection. The RF signal is converted to IF signal by using a mixer. The IF signal is transformed into digital signal by digital module, which uses special technology of D/A conversion, digital down-conversion and digital filtering. The digital optical signal is transmitted via Master optic unit and its fiber to the Remote unit, in which digital optical signal is converted back (Digital filtering, digital Up-conversion and A/D conversion) to RF signal via remote unit. The RF signal is then amplified in the DL-AMP (Amplifier) and PA (Power Amplifier) to meet a required output power level and then to remote DL filter and transmit at port of "To Service (TX) port". The Uplink RF signal of the mobile terminals in the coverage area is connected via an antenna port and is filtered by duplexer and amplified by the ULNA (Uplink Low Noise Amplifier).

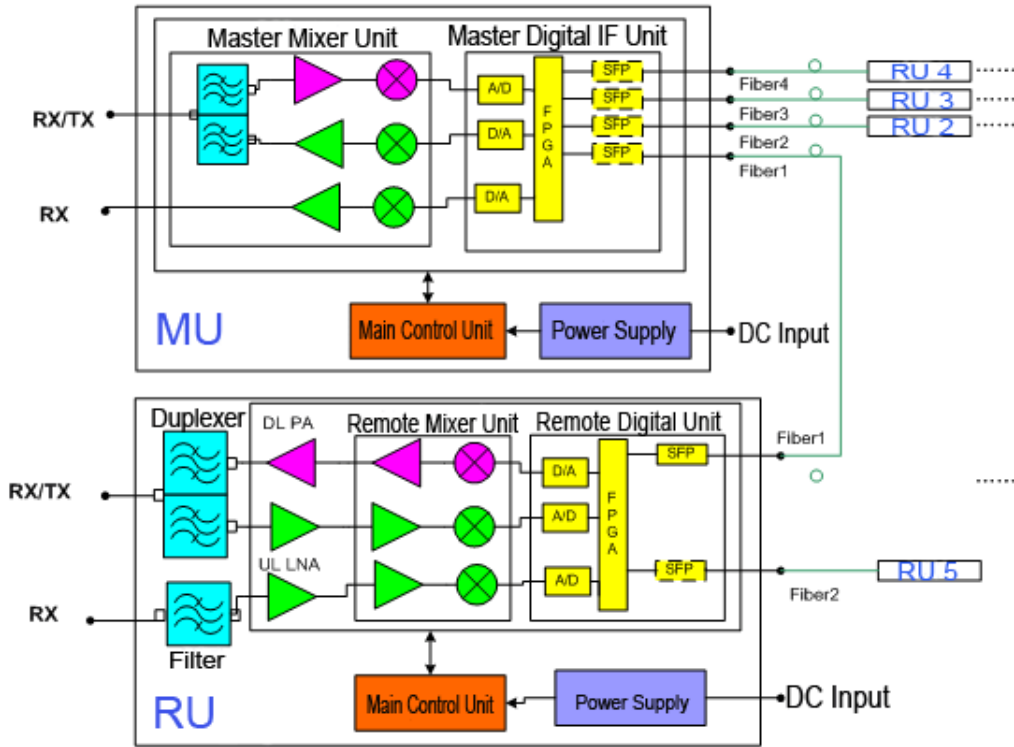
Same as in the Downlink path, using a mixer to convert the UL RF signal to IF signal, which is converted to digital optical signal by using technologies of D/A conversion, digital down-conversion and digital filtering. The digital optical signal is then transmitted via master optic unit and fiber to remote unit, in which optic signal converted back to RF (Digital filtering, digital Up-conversion and A/D conversion) signal then amplified, filtered by the UL AMP (Amplifier) and duplexer, after all processing stages, the signal are to be transmitted at via the donor/ Rx Port.

The main controlling panel (PCM) of the master and remote units is controlling their modules and communicate with each other via the data link of the optic modules. User can inquire and set the parameters by LOC (local monitoring) interface on the master/remote unit. and user also can do in the OMC (Operation and Maintenance Center) by IP network. Power supply unit - supplies power to all the active modules and in charge of charging battery.

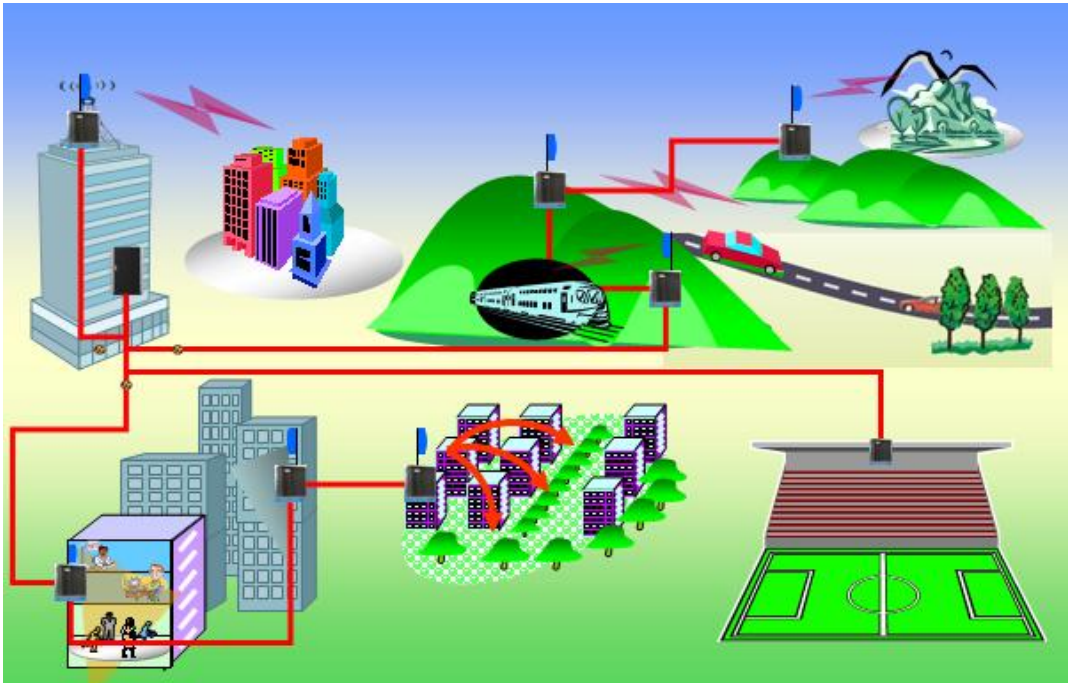
**EMTS Telecom Services** offers a comprehensive portfolio of enhanced coverage solutions for the Wireless Networks, Based on advanced technologies. **EMTS** proven, indoor and outdoor solutions solve a wide range of network challenges including interference and oscillation problems, challenging coverage 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 the Wireless Networks.



## System Diagram



## System Applications



### 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 coverage solution supports all major mobile technologies and standards of wireless Networks.

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Note: All specifications subject to change without notice.



## Electrical Specifications:

| Feature                    | Downlink  | Uplink                    |
|----------------------------|---|---------------------------|
| Frequency Range            | 851-869MHz  | 806-824MHz                |
| Gain (Max.)                | 55±3dB  | 50±3dB                    |
| Output Power (Max.)        | 40dBm±1dB   | 0dBm±1dB                  |
| Gain adjustable range/step | ≥30dB/1dB   |                           |
| Gain Adjustable Error      | Gain adjustable range is 0-20dB, error≤±1dB; ≥21dB, error≤±1.5dB  |                           |
| ALC                        | When adding ≤10dB at max. output level, output variation ≤±2dB, when adding >10dB, output variation ≤±2dB or turnoff.   |                           |
| VSWR                       | ≤1.5  |                           |
| Ripple in Band             | ≤3.0dB  |                           |
| Group delay                | Repeater delay: ≤18μs(One with one, Fiber optical pigtail 1m);<br>System delay: ≤25μs(One with six, Fiber optical pigtail 1m);<br>Delay compensation range: ≥100μs automatic or manually compensation;<br>Delay calibration step: ≤1μs; |                           |
| ALC                        | When adding ≤10dB at max. output level, output variation ≤±2dB, when adding >10dB, output variation ≤±2dB or be off.  |                           |
| Noise Figure               | <5dB (only for uplink)  |                           |
| Out-band gain              | ≥400kHz   | ≥56dB                     |
|                            | ≥600kHz   | ≥60dB                     |
|                            | ≥1MHz   | ≥60dB                     |
|                            | ≥5MHz   | ≥65dB                     |
| IMD                        | In-Band   | ≤-45dBc                   |
|                            | Out-Band  | 9kHz-1GHz≤-36dBm/100kHz   |
|                            |   | 1GHz-12.75GHz≤-30dBm/1MHz |
| Spurious emission          | 9kHz-1GHz≤-36dBm/100kHz   |                           |
|                            | 1GHz-12.75GHz≤-30dBm/1MHz   |                           |
| Blocking                   | F1 -20MHz-F1-2.5MHz: -40dBm/ GSM signal   |                           |
|                            | F2 +2.5MHz-F2+20MHz: -40dBm/ GSM signal   |                           |
|                            | 100kHz-F1-20MHz: 0dBm/ CW signal  |                           |
|                            | F2+20MHz-12.75GHz: 0dBm/ CW signal  |                           |
|                            | 1805MHz-1880MHz (Except1800MHz Downlink)  |                           |
|                            | 1880MHz-1920MHz / 2010MHz-2025MHz / 2110MHz-2170MHz / 2300MHz-2400MHz / 2400MHz-2483.5MHz / 2500MHz-2690MHz / 3300MHz-3600MHz / 806MHz-835MHz: 0dBm/ CW signal  |                           |
|                            | 1880MHz -1920MHz/1920MHz-1980MHz: 0dBm/ CW signal   |                           |

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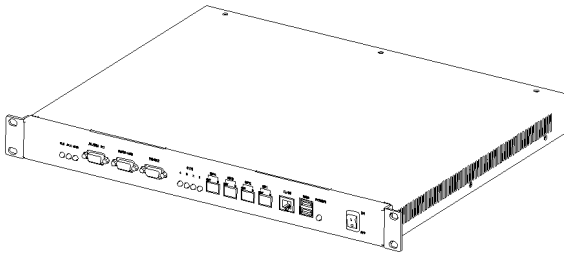
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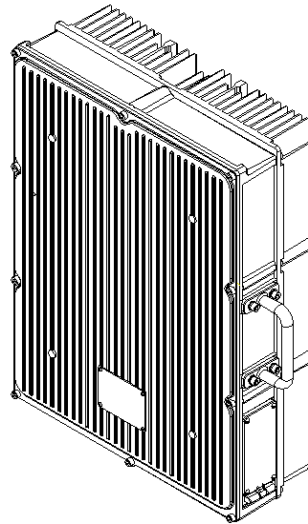
## Mechanical Specifications

|                        |  |                           |
|------------------------|--|---------------------------|
| Power Supply           | Master unit: DC -48V±9.6V or AC: 90-270V<br>Remote unit: AC 110V/220V, 45~60Hz |                           |
| Dimension and Weight   | Master Unit: 482.6*43.6*365mm, ≤10kg<br>Remote Unit: 520*380*151mm, ≤20kg      |                           |
| Max. Power Consumption | Master Unit: ≤90W  | Remote Unit: ≤120W        |
| Operating Temperature  | Master Unit: 0 to +45°C  | Remote Unit: -25 to +55°C |
| Operating Humidity     | Master Unit: ≤85%  | Remote Unit: ≤95%         |
| Environmental Class    | Master Unit: IP30  | Remote Unit: IP65         |
| RF Connector           | N-Female, 50ohm  |                           |
| MTBF                   | ≥50000 hours   |                           |
| Monitor Interface      | Local Monitor: TCP/IP or RS232, Remote Monitor: TCP/IP or Modem SMS            |                           |

### Products outlook:



Master Unit  
P/N: FBB-850-L-I



Remote Unit  
P/N: FBR-850-40W40-L-I

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