

# SRMAX Add-on module

## For broadband upgrade

for SR500, SWING and IRT networks  
Multi-service Broadband Access

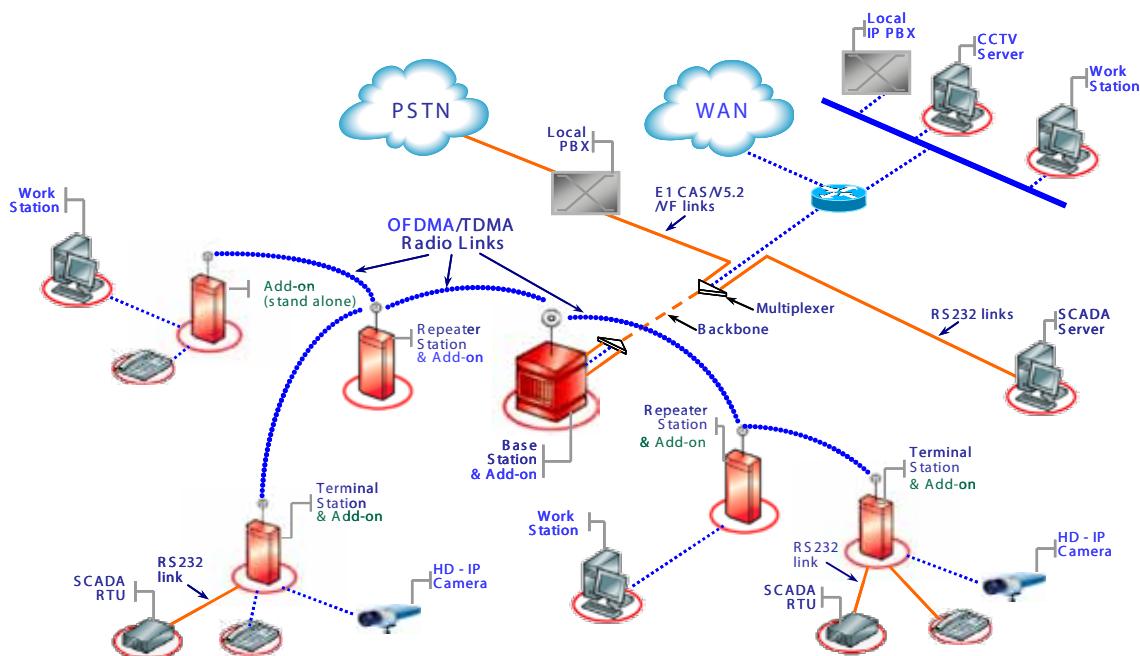
## Point-to-Multipoint Multi-service Broadband Wireless Access

SR500, SWING and IRT networks owners & operators now have the opportunity to acquire a cost-effective solution that efficiently handles applications such as toll-quality voice, broadband data transmission (files transfer, video, streaming...), or any other IP application over long range coverage. The new SRMAX add-on module from DUONS goes over and beyond these critical requirements.

The SRMAX add-on module for Broadband upgrade is a fixed wireless access (BFWA) solution that delivers a wide range of IP telecommunication services to any TelCo company, industrial operator or administration. The integrated QoS allows services specification & control in order to optimize RF resources access.

By reusing the existing network infrastructure, the network architecture of the new SRMAX add-on system is similar in all respects to the original network (design, range coverage...).

Implementing a broadband upgrade solution with SRMAX add-on module will also minimize the installation and maintenance costs, and optimize the radio frequency planning.



### Interest

The flexibility of the Broadband Upgrade with SRMAX add-on module allows any high rate IP application for Duons Telecom Networks owners. Based on WiMAX 802.16e protocol specifications, the system enables evolution to the latest generation of added-value services for existing SR500, SWING and IRT networks. This upgrade solution enables Duons radio-networks operators to maximize the Return on Investments of their telecommunication infrastructures.

# Main characteristics

**Plug'n play implementation :** The SRMAX add-on module complies with the existing SR500, SWING and IRT frequency bands such as: 1.35 – 1.525 GHz, 2.3 – 2.7 GHz and 3.4-3.7 GHz.

. Thanks to the RF coupling system provided with the SRMAX add-on module for broadband upgrade kit, no additional infrastructure is required for installation

No modification on antennas and transmission line systems required.

No additional tower, shelter or any other civil engineering work required.

No software and/or hardware upgrade on the existing network required.

Scalable add-on implementation to limit customer investment.

**High transmit power :** to preserve the radio link performances the following transmit power can be selected: +20dBm, +27dBm or +33dBm

**Adaptive modulation :** allows automatic data rate adaptation on critical propagation conditions.

**Extended coverage :** By reusing the existing infrastructure (including repeaters) the SRMAX add-on system follows the performances of the SR500, SWING or IRT network coverage (i.e. 700km with SR500)

**Efficient single Interface :** the SRMAX add-on module includes an Ethernet 10/100 Base T interface at each station. As such, it allows direct connection of any IP device (computer, IP camera, router, switch...etc. )

**Trunk capacity :** the SRMAX add-on module withstands up-to 500 out-stations on a single central station. The capacity of the radio trunk can reach 40Mbps (aggregate) on top of the existing network trunks. Dynamic resources allocation is supported and based on the QoS configuration.

## Technical specifications



Base station (BS)



Repeater (RS)



Terminal Station (TS)

Feature	Base	Repeater	Terminal
Frequency Range	2.3 - 2.7 GHz / 1.35 - 1.525 GHz		
Duplex mode	FDD		
Channel Width	5 & 10 MHz (then: 3.5 & 7 MHz)		
RF tuning	125 kHz		
Transmit Power	20, 27 & 33 dBm		
Antenna Connection	N - Female		
Adaptive modulation Levels	QPSK, 16QAM, 64QAM		
Forward Error Correction	CC & CTC		
PHY Layer	OFDMA FDD mode : 512FFT @ 5 MHz BW, 1024FFT @ 10 MHz BW		
MAC Layer	Proprietary - Based on: 802.16e System profile 1.5		
Cyclic Prefix	1/8		
GPS Synchronization connectivity	Yes		No
Number of remote stations	1 System : 511 (TS+RS)		
ARQ	Oui		
Quality of Service	Based on: 802.16e QoS: UGS, rtPS, nrtPS, BE		
Max Deployment Range	700 km		
Throughput (UL or DL) @ 5Mhz FDD	10 Mbps (20 Mbps aggregate)		
Throughput (UL or DL) @ 10Mhz FDD	20 Mbps (40 Mbps aggregate)		
Latency	65 ms for BS + TS , 25 ms for RS		
Nominal receive sensitivity	-95 dBm at QPSK		
Ethernet Interface	10/100 BaseT, Half/Full duplex, auto negotiated rate		
Protocols used	IPv4 IPv6/ udp tcp/ telnet snmp ftp http https ssh/ pop3 imap/ rtp smb		
Network Management	snmp		
Operational temperature (remote stations)	-40 / +55° C		