



You dream,
we **DESIGN**

Catalogue

5G DAS | Multiband & Multi-carrier



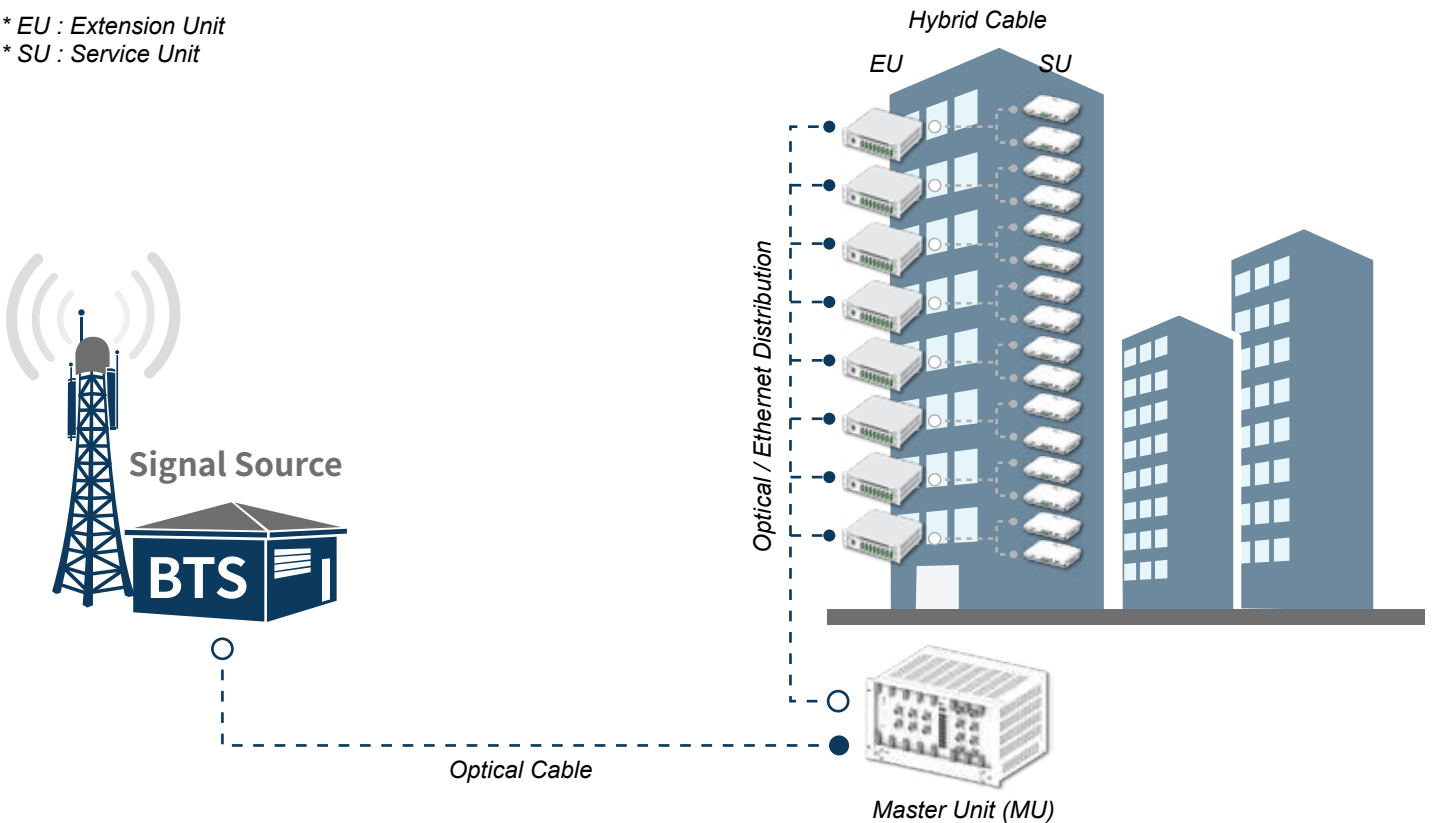
Distributed Antenna System (DAS)

Overview

Inno Instrument 5G Networking solution offers residential or commercial buildings with high density of users where there is a high demand for high capacity performing network. Our 4G+5G Multiband & Multi-carrier utilized a BTS-Fed Active / Hybrid 5G distributed antenna system to minimized blockage of cell signal to ensure seamless connectivity.

Topology of BTS-Fed Active / Hybrid 5G DAS

- * EU : Extension Unit
- * SU : Service Unit



Multi-frequency band configuration

- 900MHz/ 1.7GHz/ 2.1GHz @ FDD
- 3.4GHz, 3.5GHz / 3.9GHz@TDD



4G+5G
Multi-band DAS



5G
Multi-carrier DAS

Multi-carrier configuration

- 3.5GHz band
- Up to 4 mobile carriers
- Wideband DPD up to 280MHz bandwidth in total

4G + 5G Multi-band DAS

SDM 1735-SB

KEY FEATURES

Multi-frequency band configuration

- 900MHz/ 1.7GHz/ 2.1GHz @ FDD
- 3.4GHz, 3.5GHz / 3.9GHz @TDD

Built-in POI

- High-power attenuating device inside the Master Unit
- Backup DC power source using high power energy harvesting
- Reduce heating issue of the site

UNC (Uplink Noise Cancellation)

- Minimize base station noise by eliminating noise generated by multiple SUs
- Optimized filtering algorithm for noise cancellation

System configuration

- MU: EU: SU = 1: 8: 128

Low latency design

- Reduced system delay for more TDD coverage
- Optimized design of the delay of channel filter & pre-distortion algorithm

Demodulation

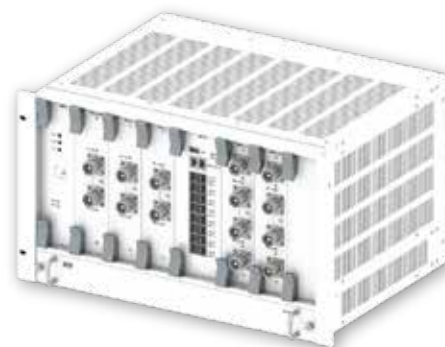
- TDD sync directly from downlink RF input

DESCRIPTION

There are many types of DAS system for in-building service that has been developed in various forms according to the demands of the market, multi-band has become popular as the network evolves from 4G to 5G NR.

This is a DAS system that supports 6 bands of 4G and 5G NR TDD simultaneously and has a structure that allows a total of 128 SUs to be distributed in a building. RF signals received from 5G NG gNB are converted into optic signals through MU and finally transmitted to SU via EU.

Hybrid cables are used for EU-to-SU connections and they are designed to allow the SU to be freely located in the desired location without an additional AC power source.



(Master Unit)
MU



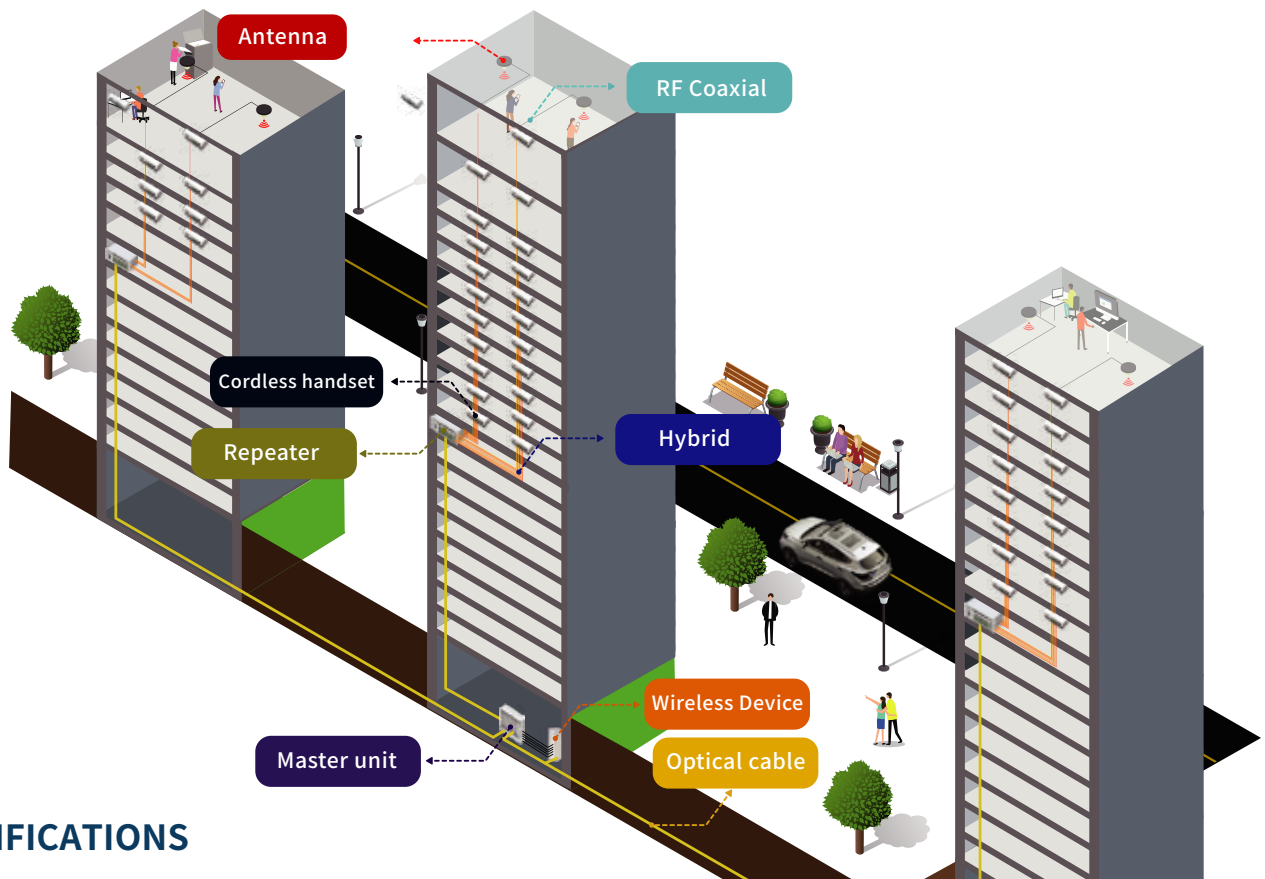
(Extension Unit)
EU



(Service Unit)
SU

4G + 5G Multi-band DAS

Topology



SPECIFICATIONS

Item	Link	Specification
Frequency Range	UL /DL	700MHz, 900MHz, 1.7GHz, 2.1GHz, 3.5GHz, 3.9GHz
Service Unit TYPE	—	1.7GHz+2.1GHz+3.5GHz @SU TYPE1 700MHz or 900MHz+3.9GHz @SU TYPE2
Max Output Power	DL	+23dBm/port @700MHz, 900MHz, 1.7GHz, 2.1GHz
	UL	+24dBm/port @3.5GHz, 3.9GHz
		0 dBm/port
System Gain	DL	23dB @700MHz, 900MHz, 1.7GHz, 2.1GHz, 24dB @3.5GHz, 3.9GHz
	UL	27dB max.
Delay	UL /DL	≤6usec
SEM	DL	3GPP TS 38.104 compliant
Spurious Emission	DL	3GPP TS 38.104 compliant
EVM	DL	≤3% @256QAM
ACLR	DL	≥40 dB
VSWR	UL	≤1.5:1
Noise Figure	UL	≤6dB
System Configuration	—	MU:EU:SU=1:8:128
SFP	—	25Gbps

5G Multi-carrier DAS

GDM 3436-MC

KEY FEATURES

Multi-carrier configuration

- 3.5GHz band
- Up to 4 mobile carriers
- Wideband DPD up to 280MHz bandwidth in total

Built-in POI

- High-power attenuating device inside the Master Unit
- Backup DC power source using high power energy harvesting
- Reduce heating issue of the site

UNC (Uplink Noise Cancellation)

- Minimize base station noise by eliminating noise generated by multiple SUs
- Optimized filtering algorithm for noise cancellation

System configuration

- MU: EU: SU = 1: 8: 128
- HSU (46dBm), LSU (30dBm)

Low latency design

- Reduced system delay for more TDD coverage
- Optimized design of the delay of channel filter & pre-distortion algorithm

Demodulation

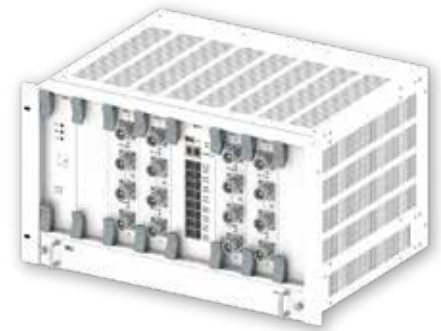
- TDD sync directly from downlink RF input

DESCRIPTION

The GDM 3436-MC product is a 5G-dedicated DAS system developed to cover 3.5GHz frequency band coverage.

The DAS can support up to four operators based on each operator's 4T4R input, and the SU is designed to cover two output power specification: HSU (High-power SU) and LSU (Low-power SU), so that the coverage can be flexibly conducted for installation purposes.

By applying ultra-broadband DPD technology, the service bandwidth of SU has been extended to 280 MHz, and it also can be designed as a single SU up to 300 MHz band depending on the market needs.



(Master Unit)
MU



(Extension Unit)
EU



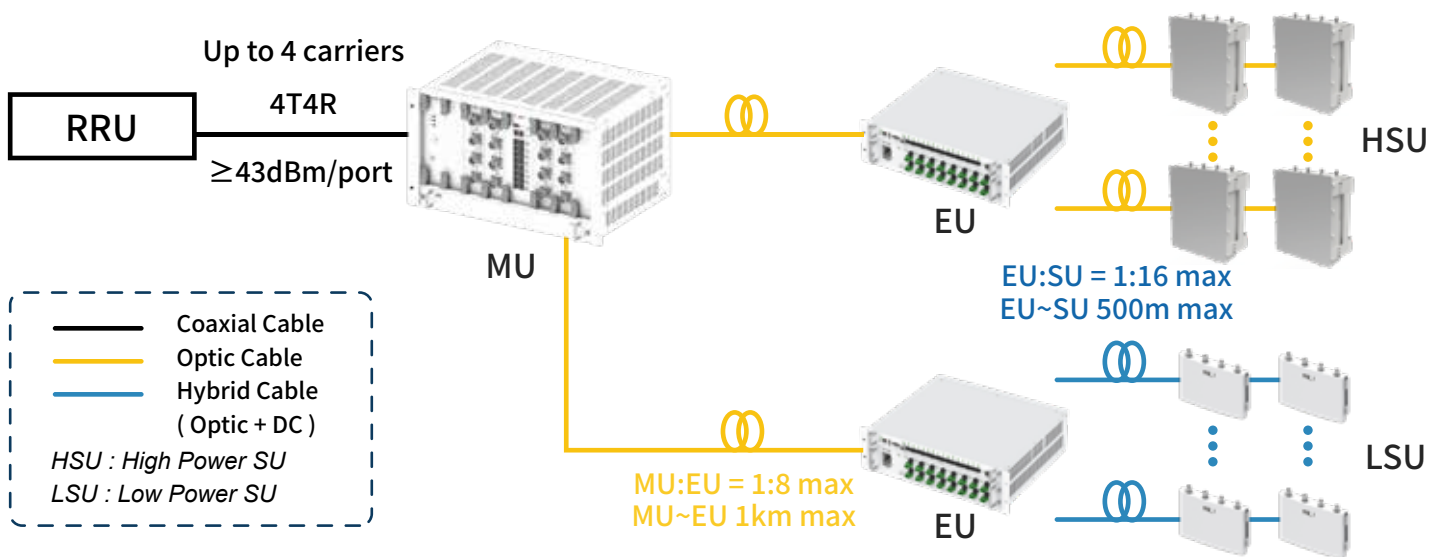
(High Power SU)
HSU



(Low Power SU)
LSU

5G Multi-carrier DAS

Topology



SPECIFICATIONS

Item	Link	Specification
Frequency Range	UL /DL	3300 ~ 3600 MHz
Total Bandwidth	UL /DL	300MHz
MIMO	UL /DL	4T4R
Max Input Power	DL	+10 dBm/carrier
Max Output Power	DL	+40 dBm/carrier, +46dBm/4carrier total@HSU, +21 dBm/carrier, +27dBm/4carrier total@LSU
Max Input Power	UL	-47 dBm
Max Output Power	UL	-10 dBm
System Gain	UL /DL	37 /30 dB@HSU, 30 /11 dB@LSU
Gain Flatness (UL/DL)	UL /DL	≤ 3 dBp-p /carrier
Frequency Stability	UL /DL	$\leq 0.01\text{ppm}$
Delay	UL /DL	≤ 6 usec
SEM	DL	3GPP TS 38.104 compliant
Spurious Emission	DL	3GPP TS 38.104 compliant
EVM	DL	$\leq 3.5\%$ @256QAM
ACLR	DL	≥ 45 dB
VSWR	UL	$\leq 1.5:1$
Noise Figure	UL	$\leq 6\text{dB}$
System Configuration	—	MU:EU:SU=1:8:128

4TECT

ООО «4TECT»

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