CCS Enabling 5G

Self-organising mmWave access and backhaul

Metnet 12Gbps unlicensed 60GHz mmWave

CCS Metnet 12Gbps unlicensed 60Ghz mmWave backhaul system has been developed for both existing mobile operators and new entrants looking to harness the potential of the unlicensed spectrum opportunity.

Metnet 12Gbps is the first element in CCS's new Software-Defined Network architecture, with multiple Metnet 60Ghz nodes combining to function as a remotely managed SDN-capable networking switch.

Applications include:

- Small cell backhaul
- Pre-5G FWA and enterprise
- Wifi backhaul
- Fibre extension and G-Fast/DLSAM backhaul
- CCTV backhaul

Operating in the unlicensed mmWave spectrum band from 57GHz to 71GHz, ultra-high capacity 12Gbps multipoint Metnet is optimised for performance edge today, while providing a clear path to much higher multi-gigabit capacity.

Metnet 3D-SON™ delivers advanced proprietary interference avoidance utilising time, frequency and space switching agility to manage co-ordination and co-existence with other 60Ghz systems. With a wide 300° field of view, Metnet 12Gbps nodes connect autonomously to form flexible MPtMP (mesh) self-organising, self-healing networks that dynamically reconfigure to optimise performance and spectral efficiency as the physical environment or traffic levels change. Applications include small cell backhaul, 5G FWA and enterprise access and backhaul, WiFi backhaul, fibre and G-Fast extension, and CCTV backhaul.

The CCS Metnet 12Gbps unlicensed 60GHz mmWave system enables flexible deployments which can easily be adapted to match customers changing requirements. Low-cost high range Metnet 60GHz CPEs can be automatically included in the mesh to support high capacity and low-cost FWA subscribers.

Metnet currently supports Wi-Gig and will support future 5G standards for both access and backhaul. Harnessing high-capacity phased array transceivers, Metnet's NG roadmap will provide 10's of Gbps of switching capacity. The next-generation mmWave platform can support 24GHz-42GHz, other bands such as E-band, W-band can be supported as required. Metnet's core 3D-SON™ capability drives unparalleled end-to-end QOS, interference control, synchronisation and scalability – for ultimate 5G performance and next-generation future-proofing.

Metnet 12Gbps	
Frequency band	60GHz mmWave unlicensed Full 57GHz to 71GHz band
Topologies	MultiPoint-to-MultiPoint (MPtMP) mesh Point-to-MultiPoint (PtMP) Point-to-Point (PtP)
Capacity	12Gbps per Node
Radio Access	Metnet SON utilizing S-TDMA Dynamic TDD Self-organising zero frequency planning, interference aware with time and frequency switching agility
Beamwidth	Wide 300° field of view
Antennas	Beamforming Phase array 16x2 element arrangment 20dBi gain per antenna
Channels	Multiple 2160MHz wide channels 802.11ad WiGig compliant
Modulation and coding	13 levels of adaptive encoding
Transmitter	20dBm SiGE based
Effective radiated power	42dBm per sector
Range	300m at MCS10 (3Gbps) High gain CPE node range up to 1km at 3Gbps.
Interfaces	Up to 4 Ethernet interfaces 2 x fixed RJ45 100/1000 Base-T 1 x optional 2.5 Gbps SFP (Optical or Electrical) 1 x optional 10 Gbps SFP (Optical or Electrical)
Ethernet services	Native Ethernet 802.1Q (VLAN tagging) 802.1p (Class of service) Differentiated Services Code Point (DSCP) 802.1ad (QinQ)
Power	100V - 240V AC / 50 - 60Hz 48V DC and PoE (1 x PD interface IEEE 802.3bt)
Dimensions	137W x 257H x 100D mm
Weight	3.3kg

All specifications are draft and subject to change.

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