5G Spectrum Sharing Technology

Sharing licensed and unlicensed bands enhances 5G spectrum utilisation and reduces spectrum licence & equipment costs. Together with ASTRI's independent consultation services, these advantages are encouraging enterprise 5G infrastructure deployment.

Keywords:
- Spectrum, Spectrum Sharing, Enterprise, private network, consultation, licensed band, unlicensed band, MORAN, MOCN, DSS, PHY, MAC, RRC

Problems addressed

- Wideband 5G services consume a large amount of spectrum
- 5G licensed cellular bands are limited and expensive
- The major costs of 5G services are the spectrum licensing fee and new equipment cost; both are high
- Industry attention is focused on the public network, with little attention to and support for private and enterprise network deployment

ASTRI has developed technologies to enhance 5G spectrum utilisation, allowing operators to access free unlicensed spectrum and share the existing 4G spectrum. This also enables multiple operators to share 5G bands and equipment. ASTRI can also provide an independent consultation service and give advice on private network deployment.

Innovations

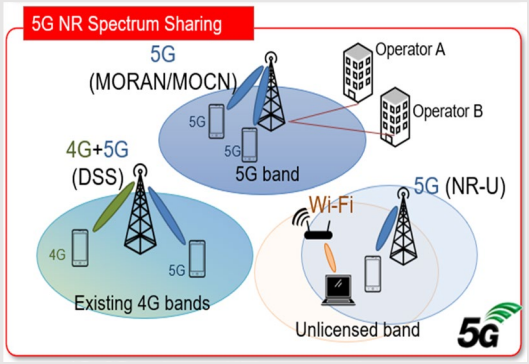
Innovations to enhance 5G spectrum utilisation

- NR-based Access to Unlicensed Spectrum (NR-U)
- Adaptive time resource scheduling. Flexible Tx/Rx switching PHY
- NR/LTE Dynamic Spectrum Sharing (DSS)
- New RRC algorithms. NR/LTE co-existence and collision avoidance
- MORAN / MOCN. Multi-operators can share a 5G network
- Parallel core network interfaces

Key impact

- Equipment costs are reduced due to ASTRI's commercial grade reference design
- Customers benefit from reduced service costs
- Allows 5G trials and private network deployment through free unlicensed bands
- Existing 4G and emerging 5G operators share the same band
- Offers smooth and progressive transition from 4G to 5G spectrum usage for operators. Speeds up NR deployment with existing LTE bands

Innovation snapshot



Project completed

- Ongoing

Applications

- Spectrum sharing
- Private network deployment
- Enterprise network deployment consultation
- 5G network sharing

Patents

- US Patent No. 10,334,516 and CN Patent No. ZL201880000209.4
- US Patent No. 10,877,729 and CN App. No. 201980000177.2
- US Patent No. 9,860,861 and CN Patent No. ZL201680000457.X

ASTRI Patent Search

Commercialisation opportunities

- IP licensing
- Technology co-development