b com

[tech that makes yours better]

◆ b<>com explores, designs, and provides the digital technologies of tomorrow aimed at accelerating transitions.

◆ b<>com advocates for responsible digital innovation in the service of **decarbonization**.

◆ A unique co-investment model, an innovation circle, that generates technology, knowledge, expertise, and competitiveness.

◆ **Located in Rennes, France**

◆ **Considered as a SME (non lucrative) for EU projects**

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increased efficiency
to optimize processes

innovation to support
reindustrialization

project engineering

/**image, vision**
& **interaction**/

/**advanced
connectivity**/

Research
& Innovation

/**artificial intelligence**/

/**prospective**
& **design**/

/**cloud**/

<b<>>com expertises>

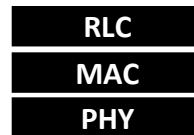| Technological Areas	Topics	b<>com Experience / assets	Next steps
MIMO signal processing techniques	Discrete communications using cell-free massive MIMO	1 PhD thesis ongoing, research papers	Design prototype / PoC
	Full Duplex Self interference cancellation techniques	1 PhD thesis completed, research papers	Design prototype / PoC
Non terrestrial networks	GEO / IoT	- 1 PhD thesis ongoing on MAC layer scheduling optimization - NB-IoT (3GPP Rel'13) eNB developed by b<>com (SDR platform)	- Rel'17 NB-IoT support - NTN IoT field tests with partner using an existing GEO constellation
	LEO / 5G-NR broadband	Initial study of the rel'18 specifications	Leverage on bcom 5G-NR platform to demonstrate 5G NTN capabilities
	TN-NTN integration	Work not yet started	
AI	Application to Layer 1 real time receiver processing : time & frequency synchronization, channel estimation, equalization…	Research papers on AI use for PRACH preambule detection, time and frequency offset estimation	Leverage on bcom 5G-NR platform to introduce IA based innovations
	Optimization of 5G MAC scheduling : QoS management, slicing	1 PhD thesis completed on 5G resource allocation & scheduling in the context of 5G IAB, research papers	
New waveforms	Study new waveforms in the context of integrated sensing and communication (ISAC)	Research papers on OCDM, AFDM, OTFS	Design prototype / PoC
Sustainability	Power efficiency Use cases/KVIs (energy, agriculture, …)	Participation to SUSTAIN-6G SNS project	- Wireless optical communications PoC design (ongoing) - Demonstrate gnB L1 power optimization

Radio Unit

Distributed Unit

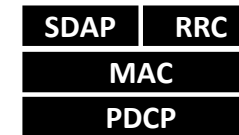Centralized Unit

core network

RLC
MAC
PHY

SDAP	RRC
MAC	
PDCP	

eCPRI

F1
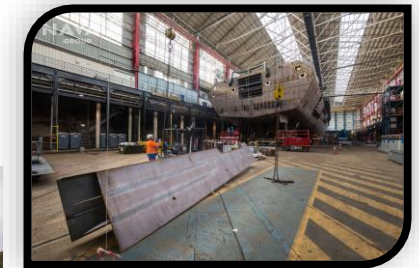
NG

container

- n38 band (2.6GHz), TDD, 2Tx / 2Rx
- 40MHz bandwidth, cavity RF filter
- 2x37dBm output power, Digital Pre-distortion
- eCPRI Fronthaul, split 8 (7.2 under development)
- GNSS, GPSDO

- FR1 TDD duplexing
- Up to 100 MHz bandwidth
- 30kHz subcarrier spacing
- 2Tx 2Rx, 1 layer
- PHY: PSS/SSS, PBCH, PDCCH, PDSCH,PUCCH (F0), PUSCH, PRACH (A1/A2/A3)
- MAC: SIB1, RA procedure, dynamic UL/DL scheduler, SR handling

Stream B - Research for revolutionary and evolutionary 6G Technology and systems Specific Challenges and Objectives

STREAM-B-01-01: Advanced Architectures Systems and Technologies

STREAM-B-01-02: Advanced IoT and Device Technologies

STREAM-B-02: Wireless Communication Technologies and Signal Processing – Standardisation and Follow-up/PoCs

STREAM-B-03-01: 6G NTN-TN Unification/Integration

STREAM-B-03-02: Higher Speed Optical Access Networks and future end-to-end Packet Optical Network Architecture in 6G

Stream C – Smart Network & Services experimental infrastructure

HORIZON-JU-SNS-2025-STREAM-C-01: 6G Telco Cloud and Service Provision Enablers

HORIZON-JU-SNS - Stream D – SNS Trials and Pilots (T&Ps) with Verticals

HORIZON-JU-SNS-2025-STREAM-D-01: SNS Trials and Pilots (T&Ps) with Verticals

Thanks

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