



5G/6G FR3 OAI Testbed

The Purpose-Built Open-Source Platform for 6G Midband Innovation

The TMYTEK FR3 OAI Testbed is an open, purpose-built platform for advanced 5G/6G experimentation in the **FR3 midband (6-24 GHz)**—widely recognized as the **“golden band” for 6G**. Built on our FR2 OAI testbed architecture, it integrates the allbesmart OAIBOX™ FR3 stack with NI Ettus USRP X410, TMYTEK’s UD Box 0630, and a 6-30 GHz horn antenna, enabling real-time testing across the upper-midband spectrum.

With full OpenAirInterface (OAI) support, it enables real-time FR3 waveform testing, AI-driven spectrum sharing, and coexistence modeling with FWA, SATCOM downlinks, and microwave systems. It makes the invisible measurable—giving researchers a way to shape strategies that **turn spectrum complexity into deployment reality**.

Beyond protocol validation, it’s a **bridge between lab innovation and regulatory design** - empowering teams to influence the standards that will define 6G.

Who It’s Built For:

From waveform design and spectrum sharing to RIS and ISAC prototyping, the TMYTEK FR3 OAI Testbed equips researchers, regulators, and innovators with a **customizable, reference-grade platform for real-world experimentation** - aligned with IMT-2030 (7.123-8.4 GHz and 14.8-15.35 GHz) and ready for WRC-27.

Benefits:

- **FR2*¹ & FR3 in one platform:**
Modular front-end for FR2 beamformer or FR3 antenna flexibility.
- **Ready for the “Golden Band” of 6G:**
Covers 6-30 GHz to align with 3GPP and IMT-2030 midband (6-24 GHz) targets.
- **Open-source:**
Full-stack OAI access for protocol development, system design, and academic 6G research.
- **Seamless experimentation:**
Enables quick setup of frequency, bandwidth, and hopping logic via OAIBOX Dashboard - no scripting required.
- **Future-ready architecture:**
Tailored for 6G enablers - AI-RAN, RIS, ISAC, and spectrum coexistence in midband environments.

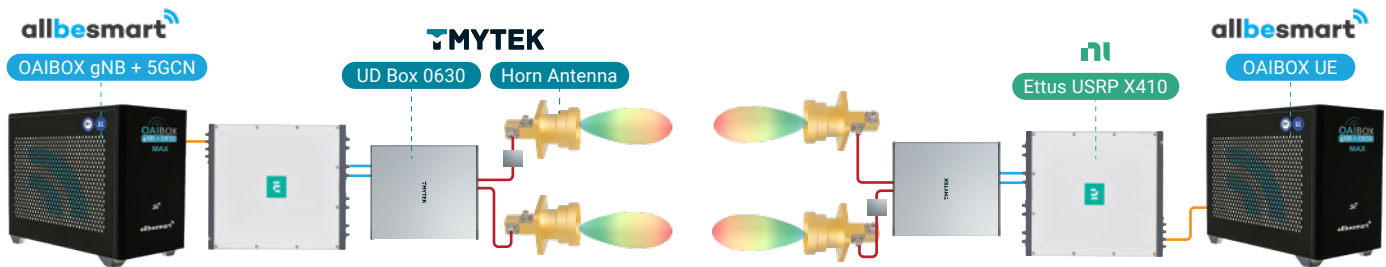
- ✓ **Wireless researchers** advancing next-gen protocols
- ✓ **Spectrum regulators** validating FR3 and coexistence models
- ✓ **6G innovators** prototyping RIS, ISAC, AI/ML, and AI-native RAN
- ✓ **Universities and labs** needing a customizable FR3 testbed for reference-grade, repeatable research.

*1 For FR2 beamformer requirements, please contact our sales team: sales@tmytek.com

Technical Highlights:

Category	5G FR2 Testbed	6G FR3 Testbed
gNB	3GPP 5G NR Release 17	3GPP 5G NR Release 17
5G CN	OAI 5GCN open source (AMF, AUSF, NRF, SMF, UDM, UDR, UPF, NSSF)	OAI 5GCN open source (AMF, AUSF, NRF, SMF, UDM, UDR, UPF, NSSF)
Architecture	SISO, MIMO*2	SISO
Frequency Range*3	3GPP FR2	Midband (FR3)
Channel Bandwidth	100 MHz for OAI UE 200 MHz for COTS UE	100 MHz for OAI UE
Max. Throughput	100 Mbps for OAI UE 300 Mbps for COTS UE	100 Mbps for OAI UE
Duplex mode	TDD	TDD
Front-End Hardware	TMYTEK BBox (phased array beamformer) (26.5-29.5 GHz)	Horn Antenna (6-30 GHz)
UE Support	OAI UE 5G SA UE Quectel RG530F series + SIM card	OAI UE

*2 DEV stage *3 Excluding antenna



Product Includes:

Modular structure for scalable testbed deployment. Check the components that match your use case.

Category	Component	FR2 OAI Testbed	FR3 OAI Testbed
OAIBOX	gNB	✓	✓
	O-CU & O-DU*4	Optional	Optional
OAIBOX Dashboard License	FR1 & FR2 License	✓	--
	FR3 License	--	✓
TMYTEK UD Box	UD Box 5G	✓	--
	UD Box 0630	✓	✓
TMYTEK RFFE	Horn Antenna	--	✓
	BBox One	✓	--
Filter*5	7.125–9 GHz	--	Optional
	10–13.25 GHz	--	Optional
	14.8–15.35 GHz	--	Optional
NI Ettus USRP	X410	Optional	Optional
UE		Optional (e.g., Quectel RG530F series)	OAIBOX UE

*4 For O-CU & O-DU requirements, please contact our sales team: sales@tmytek.com
*5 Full-band support from 6–30 GHz, please contact our sales team: sales@tmytek.com

Unlock the Golden Band of 6G

Discover how the TMYTEK FR3 OAI Testbed accelerates **6G midband prototyping** - bringing AI-RAN, RIS, and spectrum coexistence from lab to real-world deployment.

- Contact us: sales@tmytek.com
- Website: [TMYTEK.com](https://tmytek.com)

