

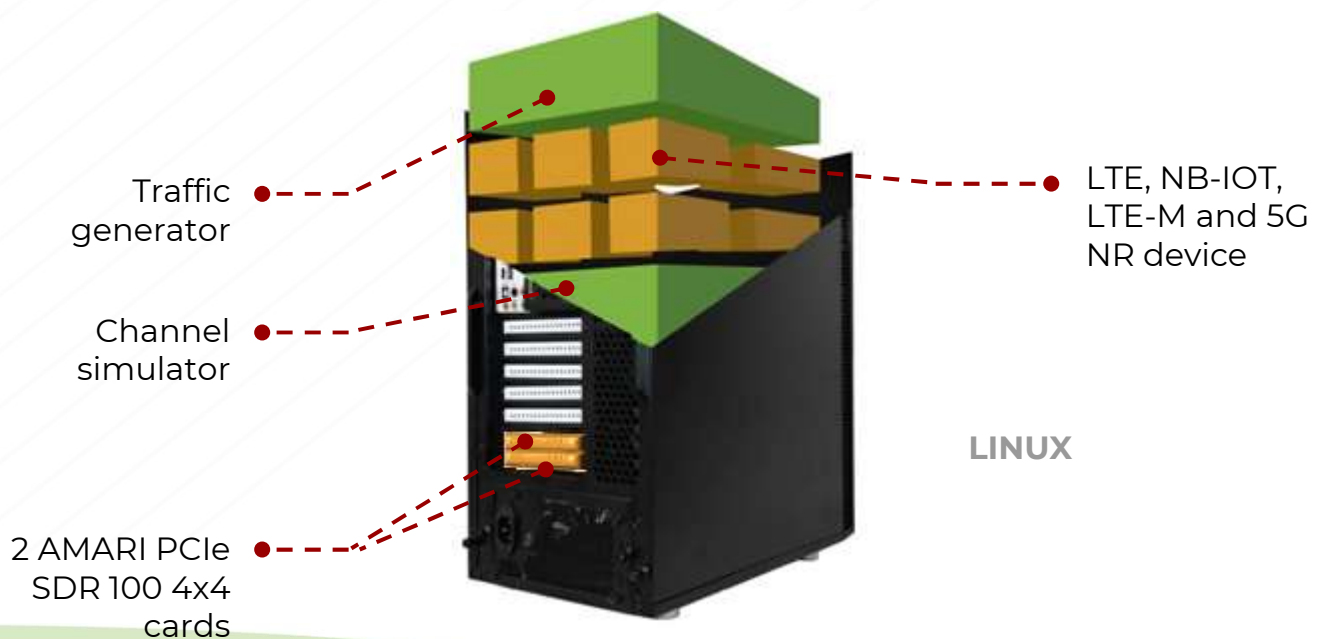
AMARI UE Simbox is an ideal solution to support functional and performance testing of LTE eNodeB, 5G NR gNodeB in NSA or SA mode as well as LTE and 5G core networks.

One single AMARI UE Simbox can simulate hundreds UEs sharing the same spectrum with different types of traffic within multiple cells. Each UE can be configured independently as LTE, 5G NR, NB-IoT or LTE-M device.

The offer is completed by an integrated IP simulation package for reproducible test results.



Complete Software Based NR/LTE Network Test Solution





Logging and Measurements

Selective logging and display of all layers of 3GPP LTE and NR stack as well as useful graphs and analytic tools



Automatic Test Setup and Scripting

Extensive WebSocket API allowing to send remote commands to each simulated UE to ease test automation



Easy Configuration

Easy configuration thanks to JSON files with example configurations already included in each software release



End to End Data Testing

Running on top of standard Linux in user space mode allowing easy integration with IP services



Data Traffic Generator

Embedded traffic generator provides a controlled environment for reproducible results as well as a variety of traffic types such as TCP, UDP and HTTP.



Channel Simulation

On the downlink side, depending on the simulated UE path loss, the channel simulator modifies the PER of PDSCH and PDCCH and updates measured RSRP/CQI and modifies the uplink signal level accordingly.



Test Features

Test features allowing to override the nominal protocol behavior in order to simulate error cases



High Performance

Highly optimized software supporting multiple UEs and cells



Frequency Agnostic

Support of all FDD and TDD sub-6GHz bands even non standard ones to test custom frequencies

3GPP

3GPP Features

Early access to 3GPP features for rapid validation of features under development

PC Specifications

Dimensions H x W x D	46.5 cm x 23.3 cm x 53.3 cm
Weight	14 kg
Number of PCIe SDR Cards	2
Power supply voltage	230 V AC input
CPU	Intel Core i9
Operating System	Linux Fedora

PCIe SDR Specifications

Dimensions H x W x D	2 cm x 13 cm x 22 cm
Weight	0.3 kg
Power supply voltage	12 V DC input
RF Coverage	500 MHz to 6.0 GHz
RF bandwidth	200 KHz to 100 MHz
Wireless range	10 meters
Operation mode	FDD and TDD
MIMO	DL 4x4

UE Simulator 4G technical specifications

3GPP Specification	LTE Release 8 support with features up to Release 15
Frequency bands	All FDD and TDD sub-6GHz bands from 500 MHz to 6 GHz with support of custom frequencies
Bandwidth	1.4, 3, 5, 10, 15 and 20 MHz, 200 KHz for NB-IoT
Carrier aggregation	up to 4 carriers in DL and 2 carriers in UL
MIMO	DL MIMO support up to 4x4
Modulation schemes	up to 256Q AM in DL and UL
AS encryption and integrity protection	AES, SNOW3G, ZUC
Handover	Intra-freq, inter-freq and inter-band Handovers
Group communication	eMBMS as per Rel10
IoT	LTE category 0 and 1, LTE-M cat M1, NB-IoT cat NB1 and NB2 UE categories
UE categories	Cat0, Cat1, cat 3, cat 4, cat 15 with 4CCs in DL and cat 13 with 2 CCs in UL
Number of active users	1000+ UEs (see table page 4 for details)
Number of active cells	4 cells MIMO 2x2 or 2 cell MIMO 4x4
IP traffic	Simulation of TCP, UDP, RTP, HTTP and VoIP with configurable packet size as well as support of external applications such as iperf

UE Simulator 5G technical specifications

3GPP Specification	Release 15
Frequency bands	All FDD and TDD sub-6GHz bands from 500 MHz to 6GHz with support of custom frequencies
Bandwidth	up to 100MHz
MIMO	up to MIMO 4x4 in DL
Modulation schemes	up to 256Q AM in DL and UL
Subcarrier spacing	All SSB/data subcarrier spacing combination
Supported modes	NSA and SA
NSA NR Split bearer	3, 3a and 3x
Use case	eMBB
Number of active users	128 UEs
Number of active cells	Up to 2 cells
IP traffic	Simulation of TCP, UDP, RTP, HTTP and VoIP with configurable packet size as well as support of external applications such as iperf

AMARI UE Simbox E Series product list

Product	RAT	Number max of UEs			
		LTE 20 MHz 2x2	LTE 20 MHz 4CC 2x2 or 2CC 4x4	5G SA NR 100MHz 4x4	5G NSA NR 100MHz 4x4 + LTE 20MHz 2x2
AMARI UE Simbox E 001	NR, LTE, NB-IOT	1	1	1	1
AMARI UE Simbox E 064	NR, LTE, NB-IOT	64	64	64	64
AMARI UE Simbox E 128	NR, LTE, NB-IOT	128	128	128	128
AMARI UE Simbox E 256	NR, LTE, NB-IOT	1000	256	128	128