adeunis
IOT PRODUCTS & SOLUTIONS

Field Test Device

NB-IoT **LTE-M**

Test and analyse network coverage

This network tester provides accurate, real-time results on NB-IoT/LTE-M networks performance by measuring parameters such as RSRP, RSRQ, SNR, eDRX and transmission power.

The FTD connects via Bluetooth to a mobile application that provides an intuitive user interface from which you can easily set up a network test, view the analysis results and export them.

With 'Adeunis FTD NB-IoT / LTE-M' Android/iOS mobile app.

QUALIFYING AND VALIDATING CELLULAR NETWORK COVERAGE

· **Scan all the networks present**
  of the various operators within range of the tester, and make a rapid initial assessment of their performance.

· **Test NB-IoT and/or LTE-M network coverage**
  anywhere in the world, with any single or multi-operator nano-SIM card.

· **Qualify network coverage**
  at different locations and view network quality indicators for each measurement point.

· **Automatically locate**
  each measurement point.

+
· Simultaneous evaluation of NB-IoT and LTE-M networks.
· View, store and export network test results via the mobile application.
· 3 operating modes:
  · **network scan:** scan all networks and assess connection quality,
  · **network test:** select an operator and analyse network quality in detail,
  · **radiomapping project:** contextualise a network test.

Antennas — Test server — Field Test Device — Bluetooth — Mobile app.

FEATURES

NB-IoT™ LTE-M

CUSTOMISE YOUR NETWORK TESTS AND ANALYSES

Automatically or manually select the network parameters to be evaluated:
- · the operator: Vodafone, T-Mobile, SFR, Bouygues Telecom, Orange, AT&T, Swisscom, etc
- · the technology: NB-IoT, LTE-M, mixed,
- · frequency bands: Band 2, Band 8, Band 20, etc.
· Choose the trigger mode for each network test: manual, automatic, mixed.
· Customise your analyses:
- · Choose the network parameters and network quality measurement data you want to display for each test point: technology, frequency band, operator, EARFCN, Cell ID, PCI, eDRX, RSRP, RSRQ, SNR, CE level, transmission power, etc.
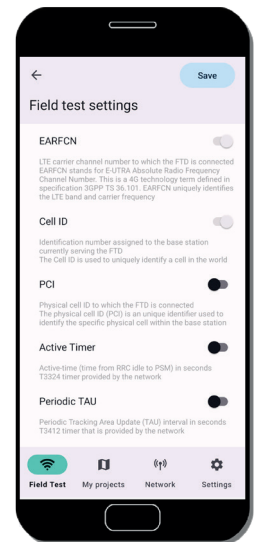
CREATE AN ANALYSIS REPORT USING RADIOMAPPING PROJECT MODE

- · Start your radiomapping project and immediately see the values of the various network indicators for each measurement point.
- · View each measurement point:
    - · on a Google Maps map,
    - · on one or more plans of your building imported into the mobile application.
- · Create your reports
    - · add comments and photos for each measurement point,
    - · generate your report in Word,
    - · share your report by email, for example, and modify it as you wish.
- · Manage all your radiomapping projects from the mobile application: editing, deleting, archiving and generating reports.

Visualisation of network parameters and network quality measurement data: Cell ID, RSRP, RSRQ, SNR technologies, etc.

Creat a radiomapping project.
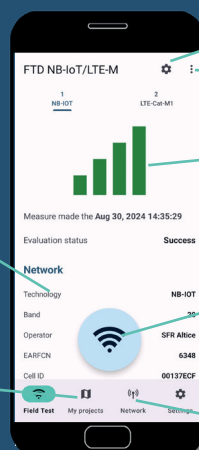
Network test settings.

Data export.

Visual indicator based on the measurement of 2 indicators, the RSRP and the RSRQ.

Manual triggering of a network test.

Set up the network to be assessed.

OPERATING
MODES

NB-IoT **LTE-M**

NETWORK TEST MODE	

A mode of operation that enables the quality of the NB-IoT and/or LTE-M network to be analysed for a specific operator, at different locations, and to display all the network quality indicators for each measurement point.

Configuration	Set up a network test via the dedicated mobile application
Manual tests	Trigger a network test by pressing the virtual button on the mobile application or the button on the FTD. The test results are displayed instantly on the mobile application. The quality of the signal received from a cellular network is not static; it can vary even in short intervals. For a more accurate assessment of the network, the FTD has an 'average' function. This allows between 5 and 10 successive tests to be carried out each time the button is pressed.
Automatic test	Automatically triggers several successive network tests based on a user-configured interval to perform a continuous assessment of the network over a long period of time. Interval from 30s to 24h with 30s granularity. Test results are displayed instantly on the mobile application. The 'repeat' function can also be activated for automatic testing.

When a network test is triggered, the mobile application automatically displays the following indicators:

Visual indicator	4 bars based on the measurement of 2 indicators, RSRP and RSRQ.
Network identification	Technology, band, operator, MCC-MNC, EARFCN, Cell ID, PCI.
Network quality indicators	Active timer, TAU, PSM, eDRX, RSRP, RSRQ, SNR, transmission power, CE level, energy consumption, TX repeats, RX repeats, DL path loss.
Geolocation and time stamping	Based on the smartphone's position (latitude, longitude, accuracy).
Customisation of test results	Users can customise the network test by selecting the indicators they want to display from a list.
Data storage and export	Results are collected in the application and stored on the smartphone. The results are made available in the form of a .csv file. The results can be exported via the application or sent to an http server.

NETWORK SCAN MODE	

Operating mode enabling a choice of scanning: all the NB-IoT and/or LTE-M networks of the various operators within range of the FTD, or just the operators supported by the SIM, and evaluating connection quality.

Data included in the report	Timestamp, GPS position, operator, technology, MCC-MNC, EARFCN, Cell ID, PCI, RSRQ, RSRP.
Export	The results are collected in the application and stored on the smartphone. The scan report can be exported in .csv format.

RADIOMAPPING PROJECT MODE	

Operating mode for contextualising a NB-IoT and/or LTE-M network test.

Information associated with the test	Timestamp, values of the various network indicators, comments, geolocation on a building plan or Google Maps, photos.
Data storage and export	Results are collected in the application and stored on the smartphone. These results are available and can be exported in the form of a .word report.

TECHNICAL SPECIFICATIONS

NB-IoT LTE-M

ARF8393AAA	
Network	
Module	Nordic nRF9160 module
Antenna	Internal
Cellular standard	3GPP LTE Version 13
Networks	NB-IoT, LTE-M
NB-IoT frequency bands	B1, B2, B3, B4, B5, B8, B12, B13, B17, B19, B20, B25, B26, B28, B66
LTE-M frequency bands	B1, B2, B3, B4, B5, B8, B12, B13, B18, B19, B20, B25, B26, B28, B66
Mechanical characteristics of FTD	
Dimensions	105 x 75.2 x 22.8 mm
Weight	140g
Case	Unit: ABS GP22 Lexan: Autotex polycarbonate Black colour
FTD operating conditions	
Recommended range of use	-20°C / +40°C unloaded 0°C / +36°C on load
Humidity	0 to 85% RH (non-condensing)
FTD power supply	
Power supply	Rechargeable lithium-ion battery 3.7V, 2Ah, 7.4Wh
Recharging	Via USB Type-C cable Charging time 6 hours
Operating autonomy	>15 days (switched on for an average of 12 hours a day)
FTD interfaces	
SIM	1 socket for nano SIM card 4FF | Class C (1.8V)
LEDs	Green/red LEDs indicating battery level Blue LEDs indicating start-up, Bluetooth connection, acknowledgement of network test triggering
Buttons	1 FTD start/stop button 1 Network test button
USB Type-C	FTD loading
FTD firmware update	
	Bluetooth update via the Adeunis FTD NB-IoT / LTE-M mobile application
Regulations and certifications	
	Directive 2014/53/UE (RED) AS/NZS 4268 FCC- Title 47 CFR Part 15 RSS-247 Issue 2