Měření kvality pokrytí a služeb

HKE
elektronické měřicí přístroje

Nemo Handy

Scanner

Walker Air

Invex II

Nemo Handy

Consists of smart phone and tablet based tools supporting Android

Nemo Handy-A with Samsung Galaxy S6

Nemo Handy-A with Samsung Galaxy Note

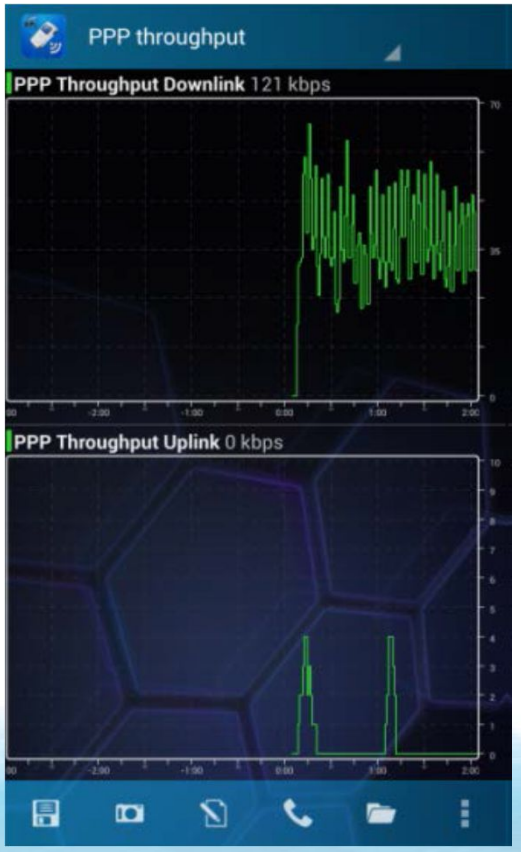
NEMO HANDY-A KEY FEATURES

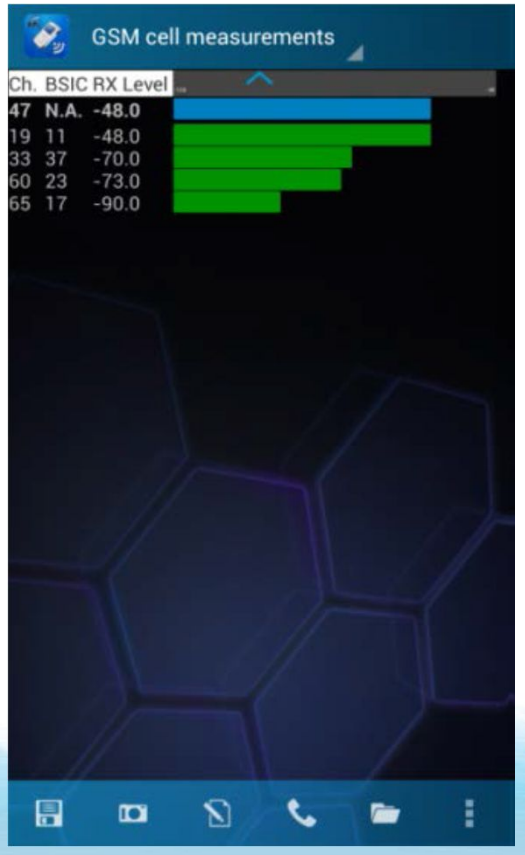
HKE
elektronické měřicí přístroje

- Android-based application
- Supports GSM, CDMA, EVDO, WCDMA, HSDPA, HSUPA, HSPA+, LTE/ LTE Cat 6, and WiFi (HetNet) measurements
- Automated service testing with scripts: voice call, voice quality, FTP and HTTP data transfers, Iperf, HTML browsing, email testing, YouTube video streaming, video quality testing, Facebook testing, LinkedIn testing, Twitter testing, Instagram testing, Dropbox testing, SMS & MMS messaging, and ping
- Support for POLQA and PESQ voice quality testing both in uplink and downlink directions; mobile to mobile and mobile to server; and real-time MOS calculation (optional)
- Support for Opticom PEVQ-S video quality testing
- HTML testing with real web browser
- System lock, band lock, LTE cell lock, scrambling code lock, and carrier lock (GERAN, UTRAN, EUTRAN)
- Optional automated testing mode
- Optional idle logging mode
- Scripts can be created and modified with Nemo Handy-A's built-in script editor
- Supports the following view types: line, bar, and gauge graphs, and text views
- Real-time statistics
- L3 and RCC signaling messages can be decoded in Nemo Handy-A UI
- Graphical and customizable user interface
- Enables collecting geographical coordinates with the internal GPS receiver
- Time and speed display using the internal GPS receiver
- Indoor floorplans with markers and geodetic coordinates (support, for example, for iBwave format)
- Walk guidance in indoor measurements
- Live map with BTS file support
- Playback for viewing measurement files after measurements. Also indoor measurements can be played back on a floorplan.
- Support for DRT4311B scanner
- Support for PCTEL IBflex scanner
- Support for Qualcomm and Broadcom chipsets

HKE
elektronické měřicí přístroje

REAL-TIME DATA VIEWS AND USER INTERFACE

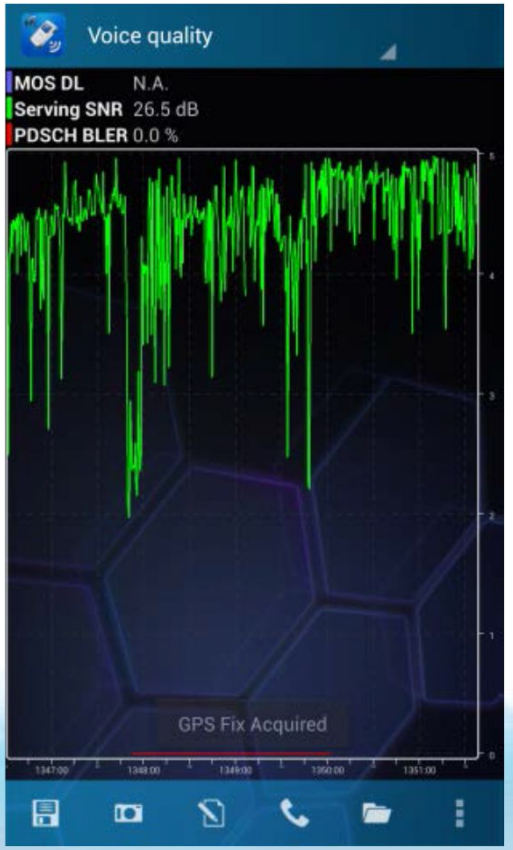




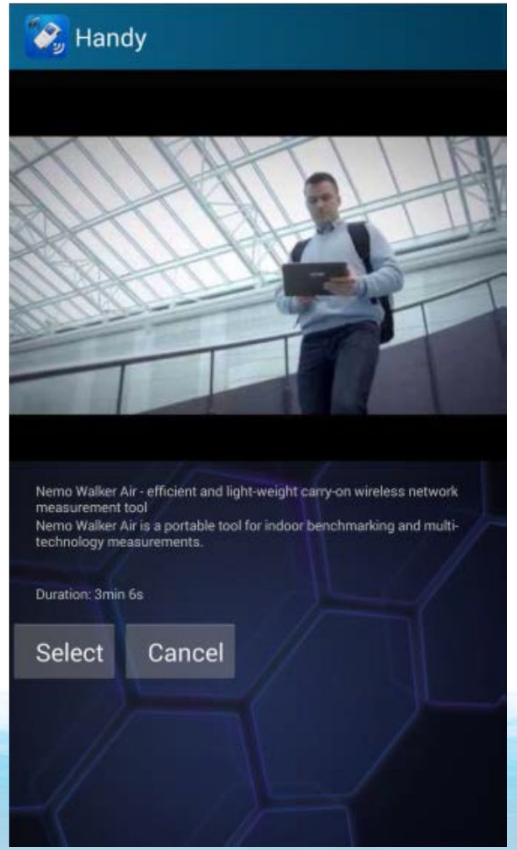
APPLICATION TESTING

HKE
elektronické měřicí přístroje

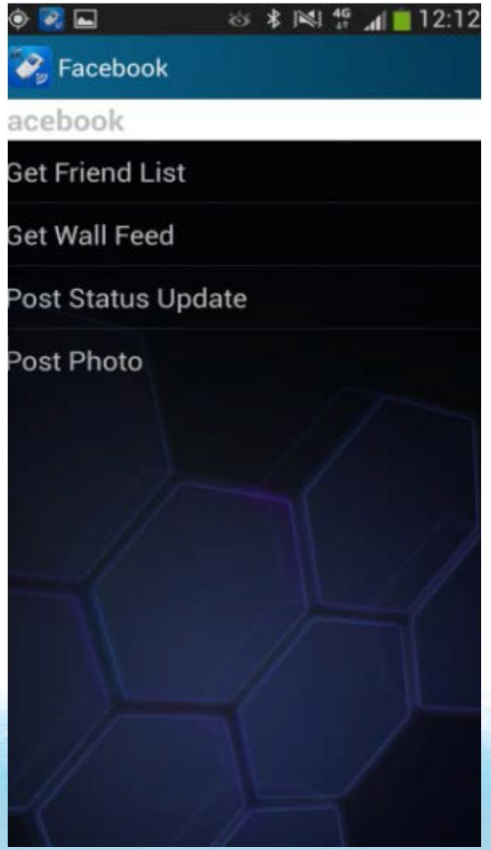
Voice quality testing



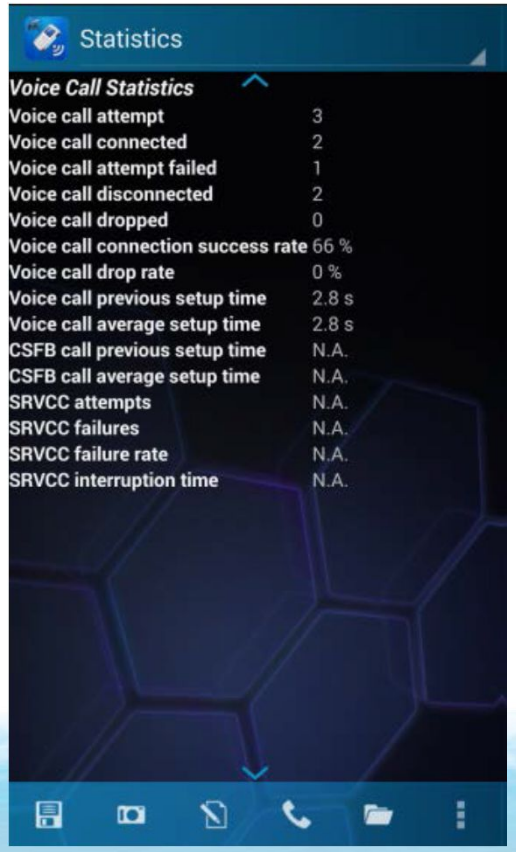
YouTube video streaming



Facebook testing



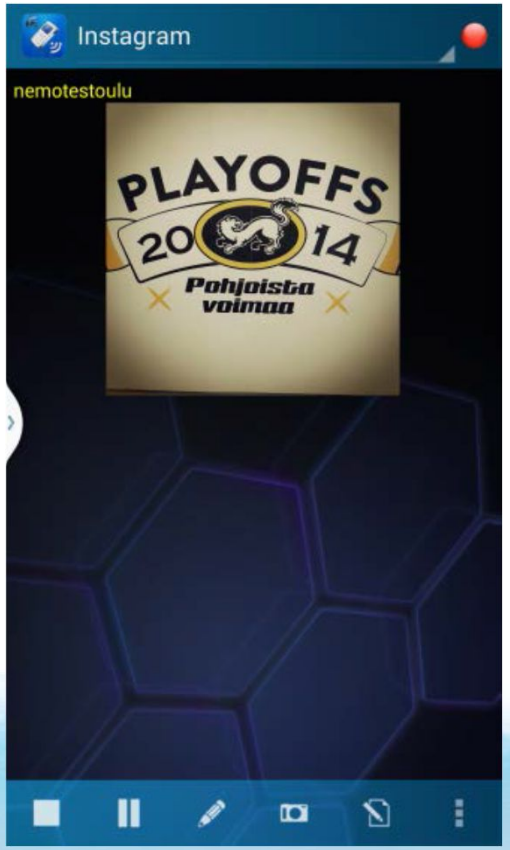
Handy-A VoLTE Views Voice MOS and SIP Signaling



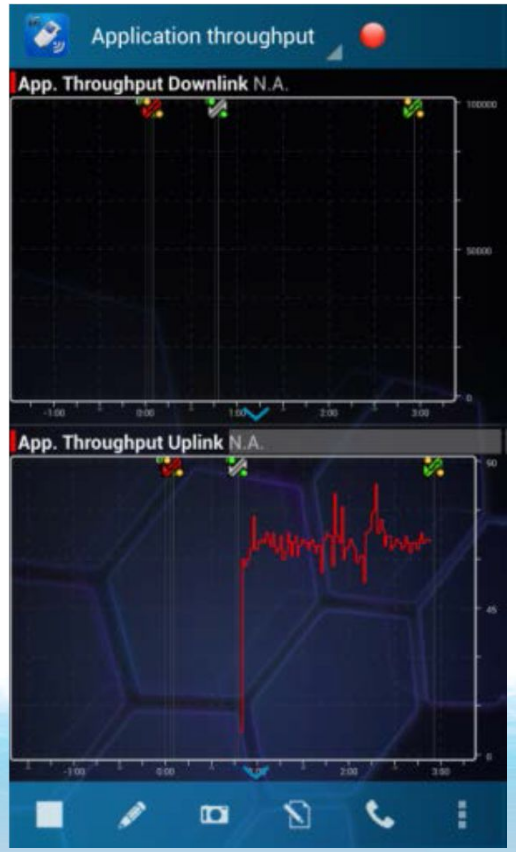
Nemo Handy Features

HKE
elektronické měřicí přístroje

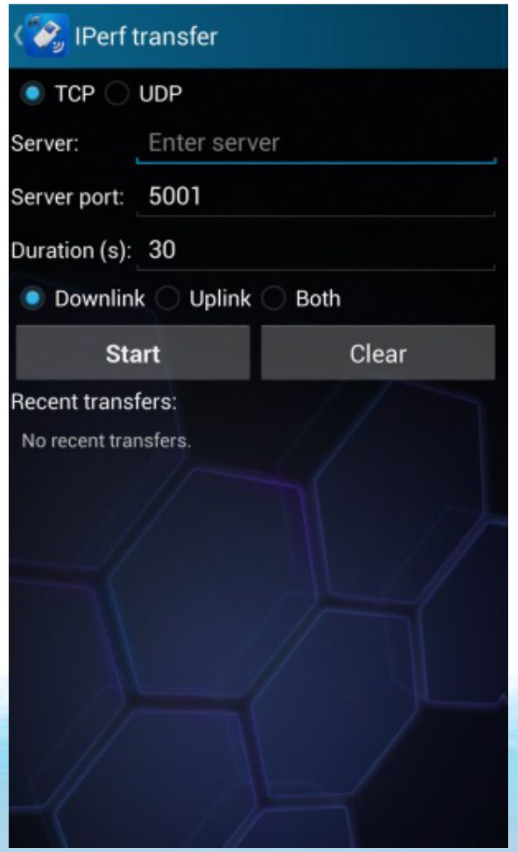
LinkedIn testing, Twitter testing, Instagram testing, Dropbox testing, and Email testing



HTTP sessions



Iperf for TCP/UDP

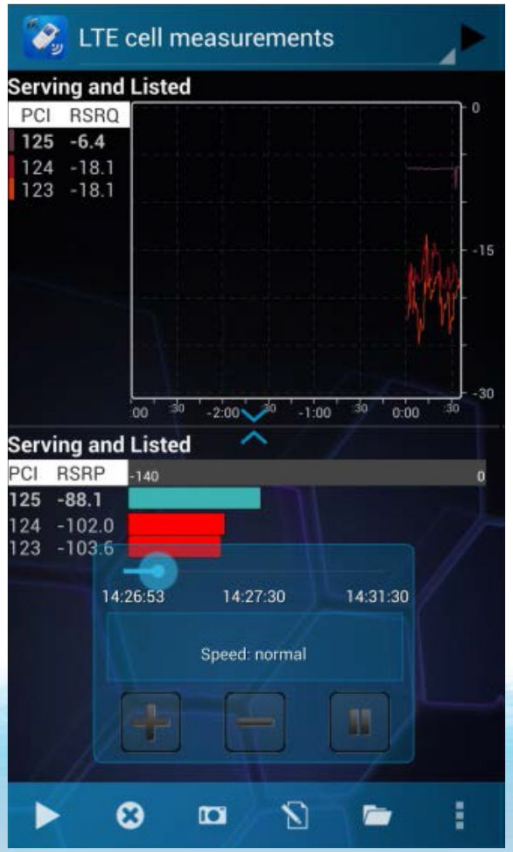


Nemo Handy Features

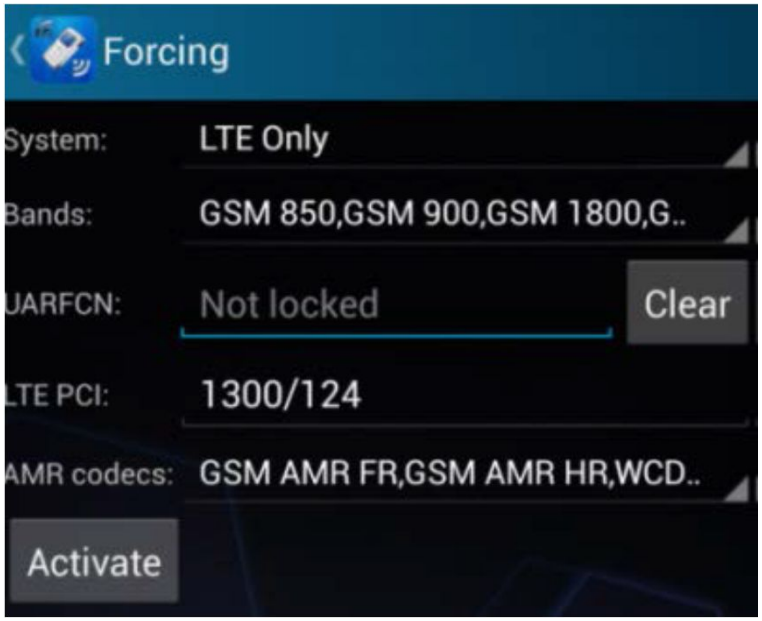
HKE
elektronické měřicí přístroje

HTML testing with real browser view

PLAYBACK

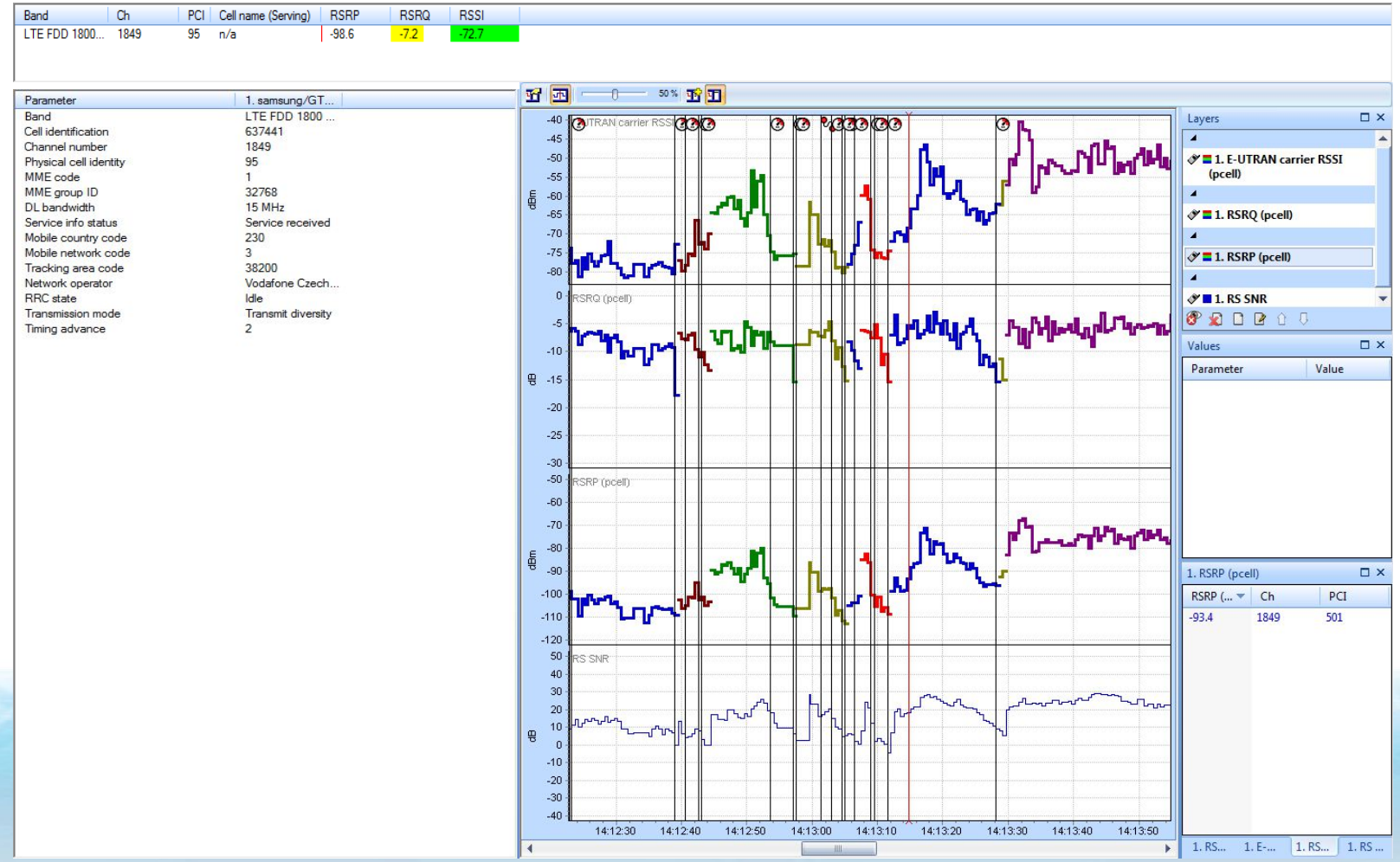


Forcing



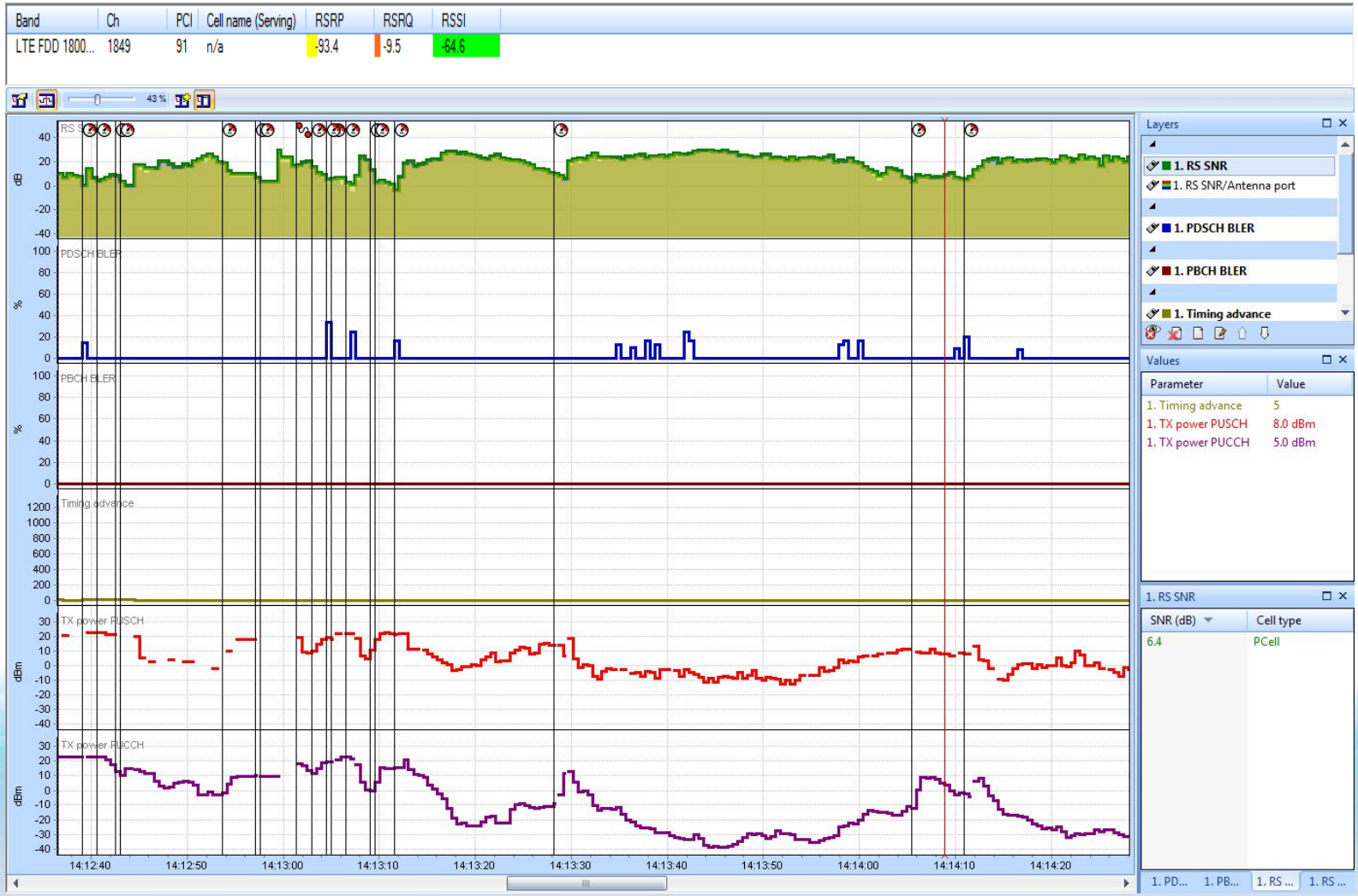
Serving Cell Measurements

HKE
elektronické měřicí přístroje



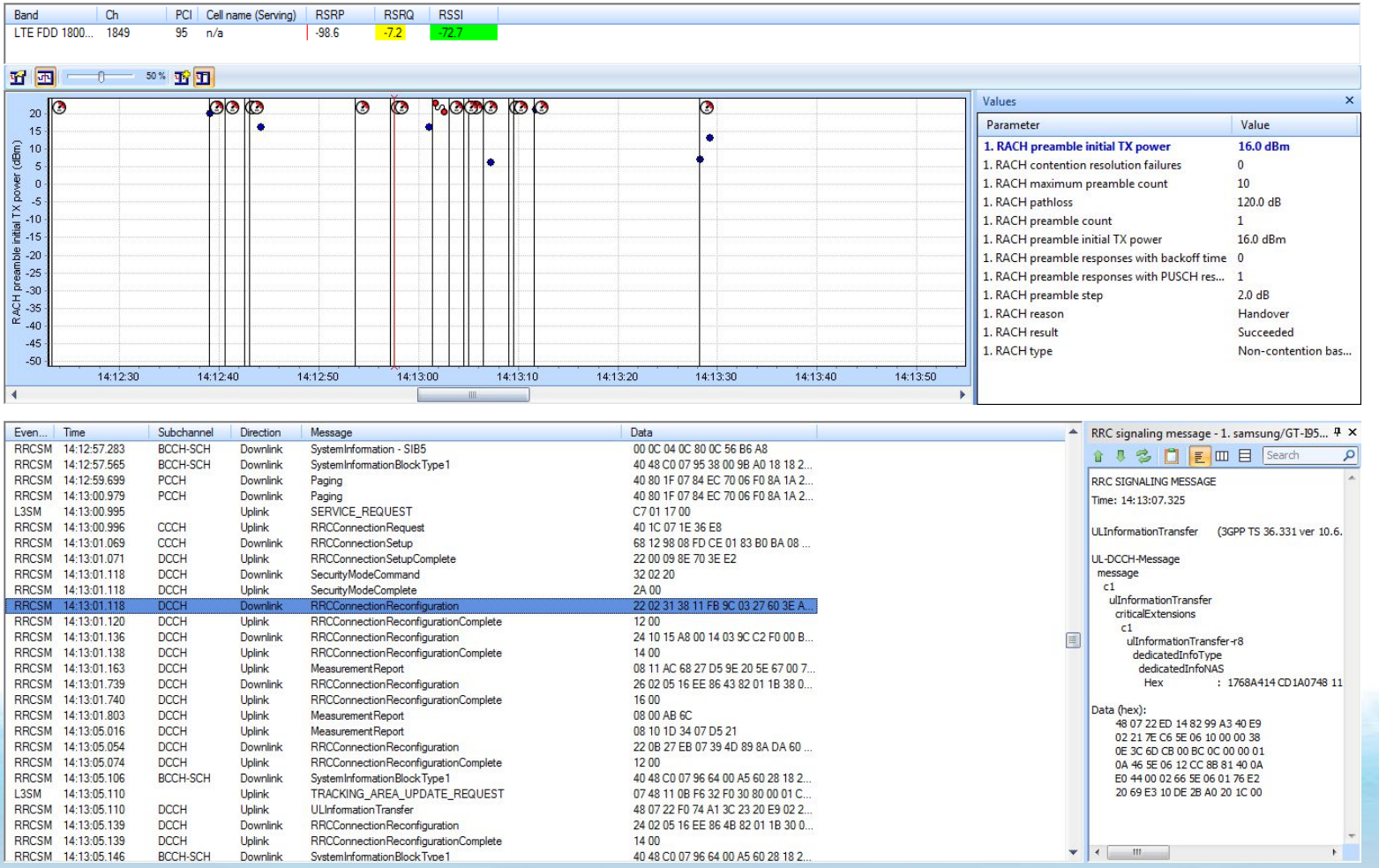
Physical Channel Information

HKE
elektronické měřicí přístroje



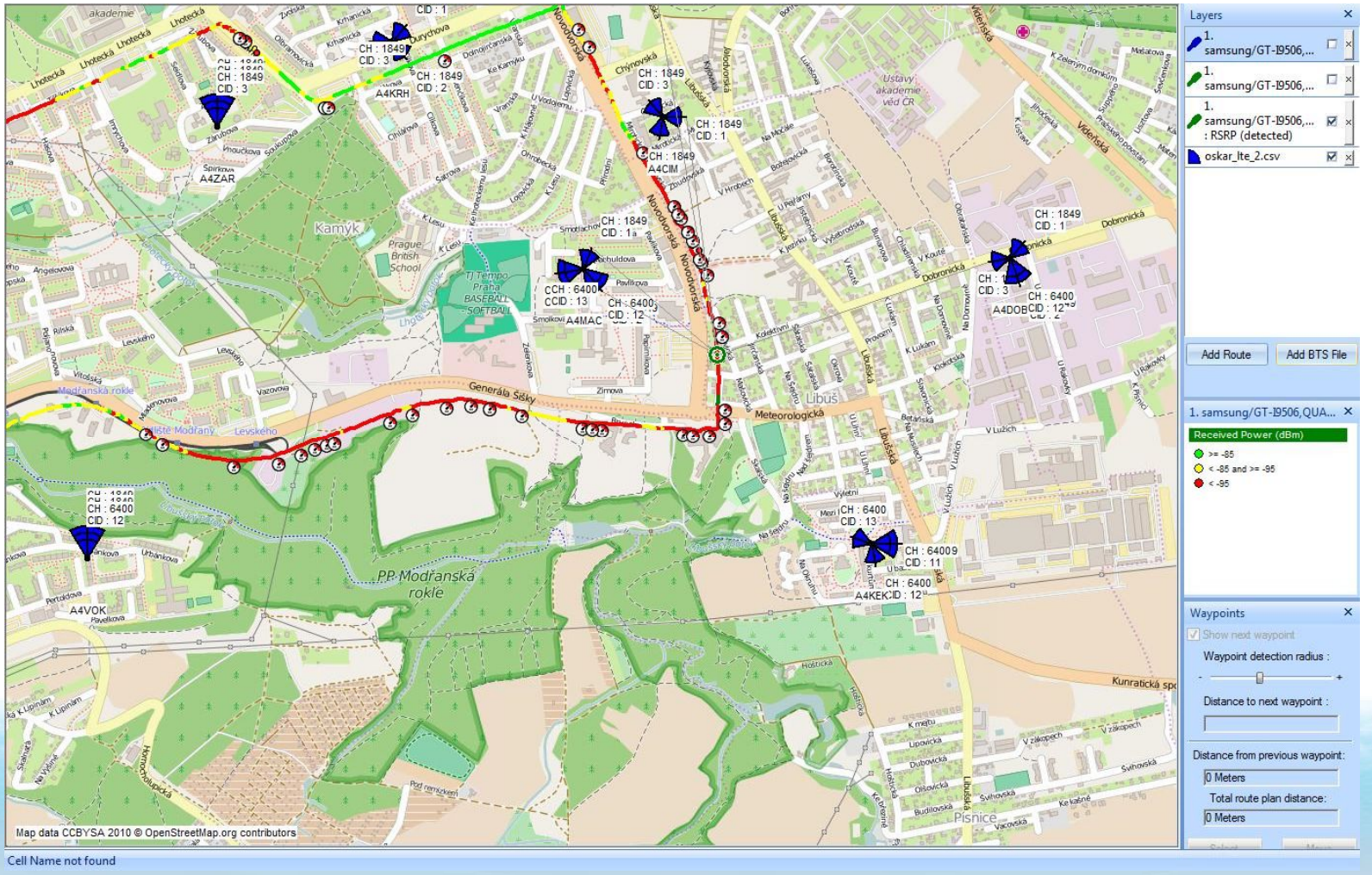
Signaling and RACH information

HKE
elektronické měřicí přístroje



RSRP world map

HKE
elektronické měřicí přístroje



Throughput

HKE
elektronické měřicí přístroje

NEMO Walker Air

HKE
elektronické měřicí přístroje

Centralized control of Slave units from the Master Synchronized time and start/stop measurements
Synchronized script events
Status display of all units
Indoor marker sharing to Slaves
Master does not measure or perform scripts

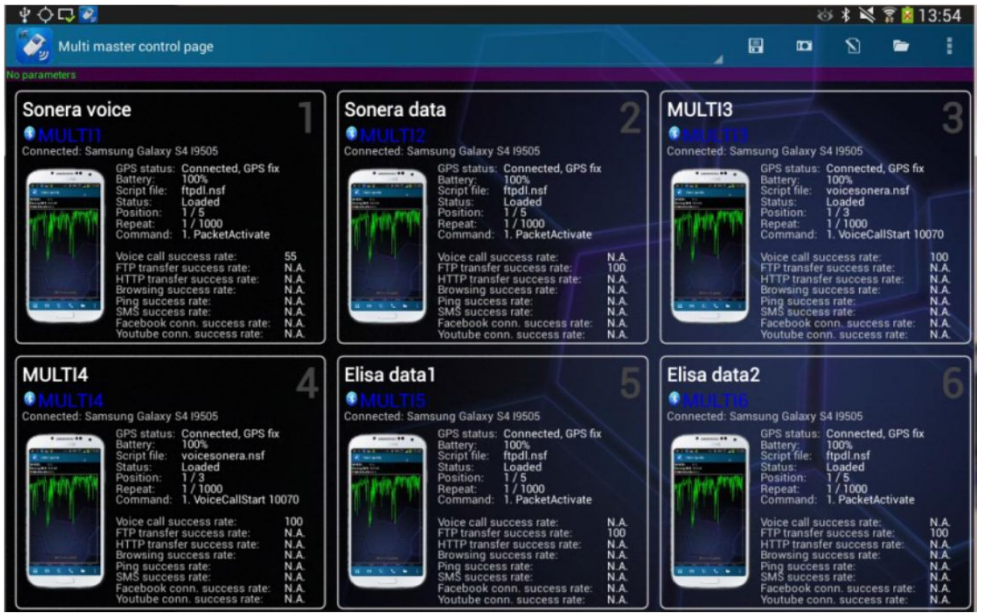
●Supports all the same testing functionalities as Nemo Handy-A, including VQ POLQA and PESQ

NEMO Walker Air

HKE
elektronické měřicí přístroje

Monitor the status of all Slaves on real time
Script status
Battery status
Real-time success rates for transactions
User-defined KPIs

●Full control of Slaves Connect/disconnect Slaves
Define measurement scripts
Set device labels (free-form text describing the device, saved to logfile)
Control logfile upload of the Slaves



NEMO Walker Air

HKE
elektronické měřicí přístroje

3x10,000mAh Verbatim USB battery back
- Runtime of the complete system: 10 h
- One 12/220/110v charging cable for the whole system

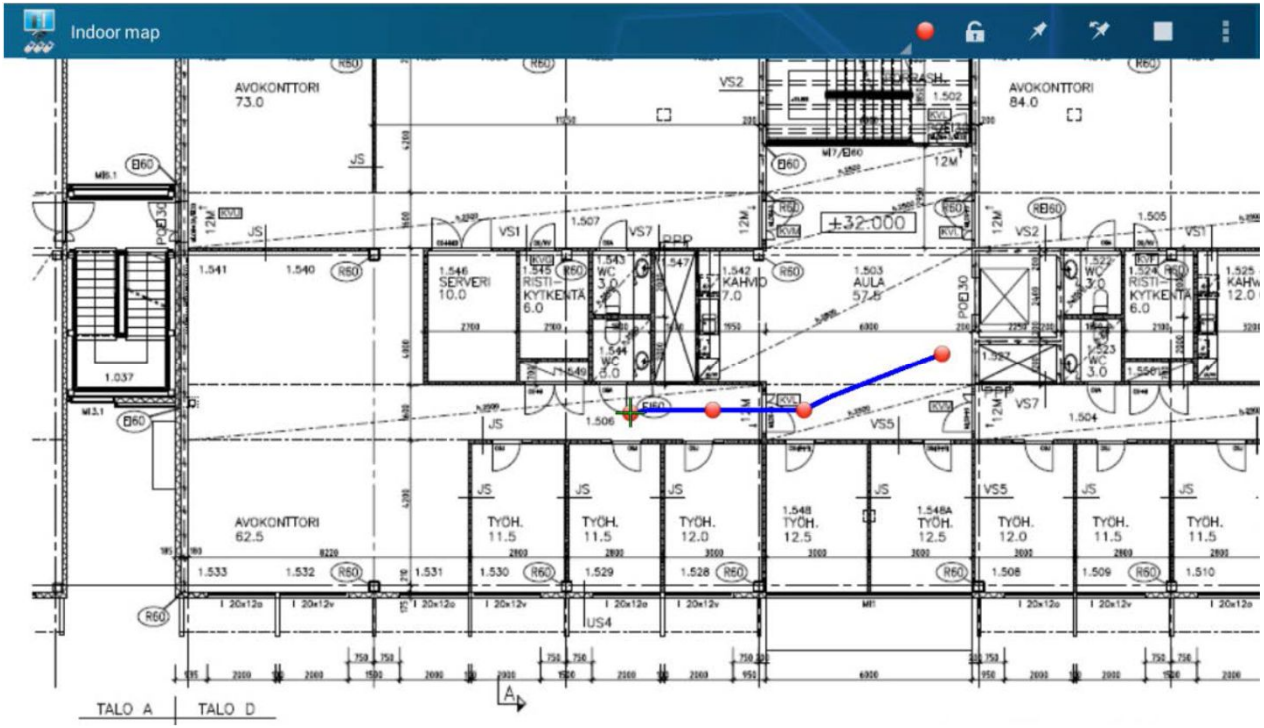
NEMO Walker Air

HKE
elektronické měřicí přístroje

Floor plan is loaded into the Master device

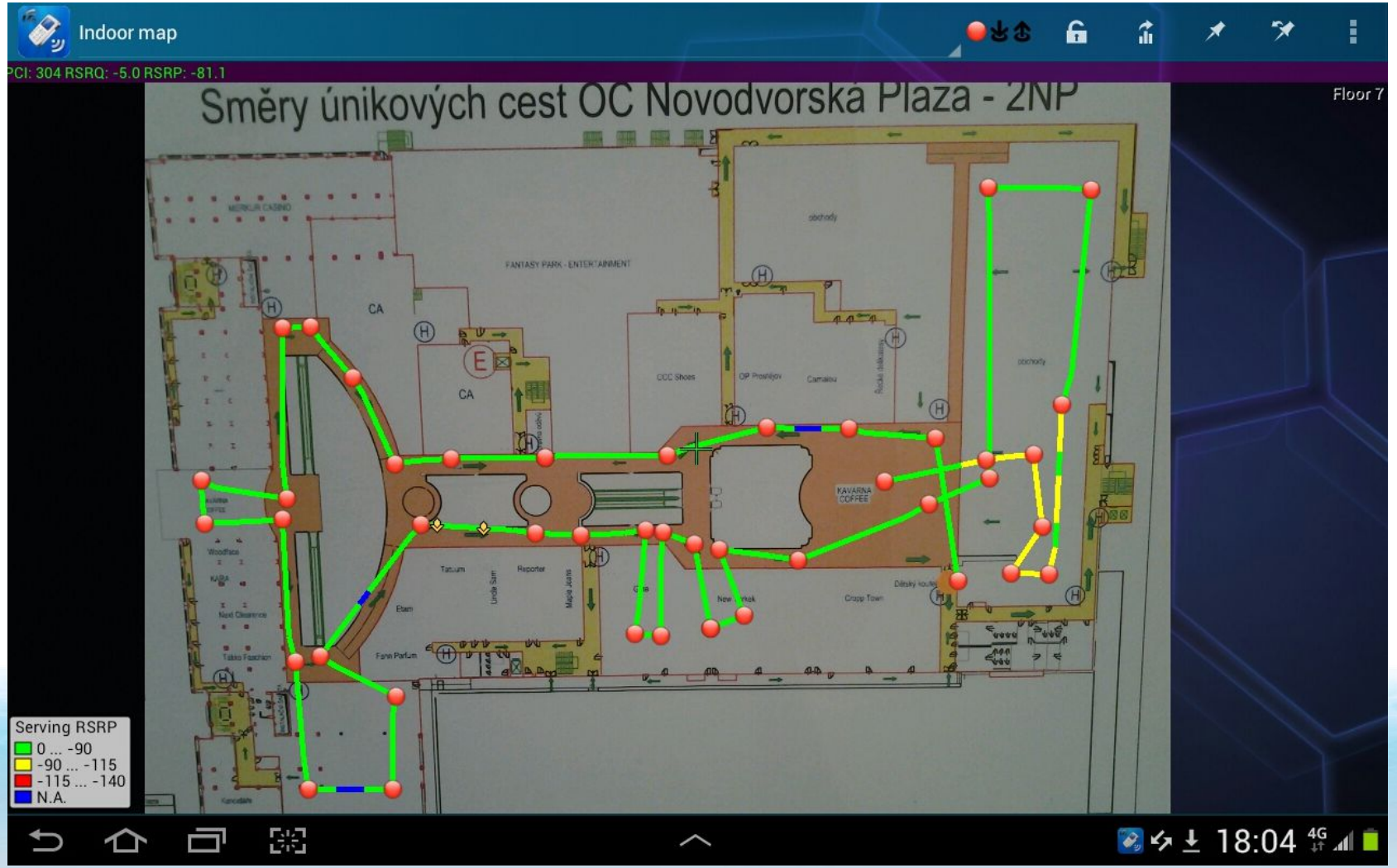
Waypoints are placed on the floor plan during the measurements

Waypoints are embedded on the Slave logfiles automatically to provide location information



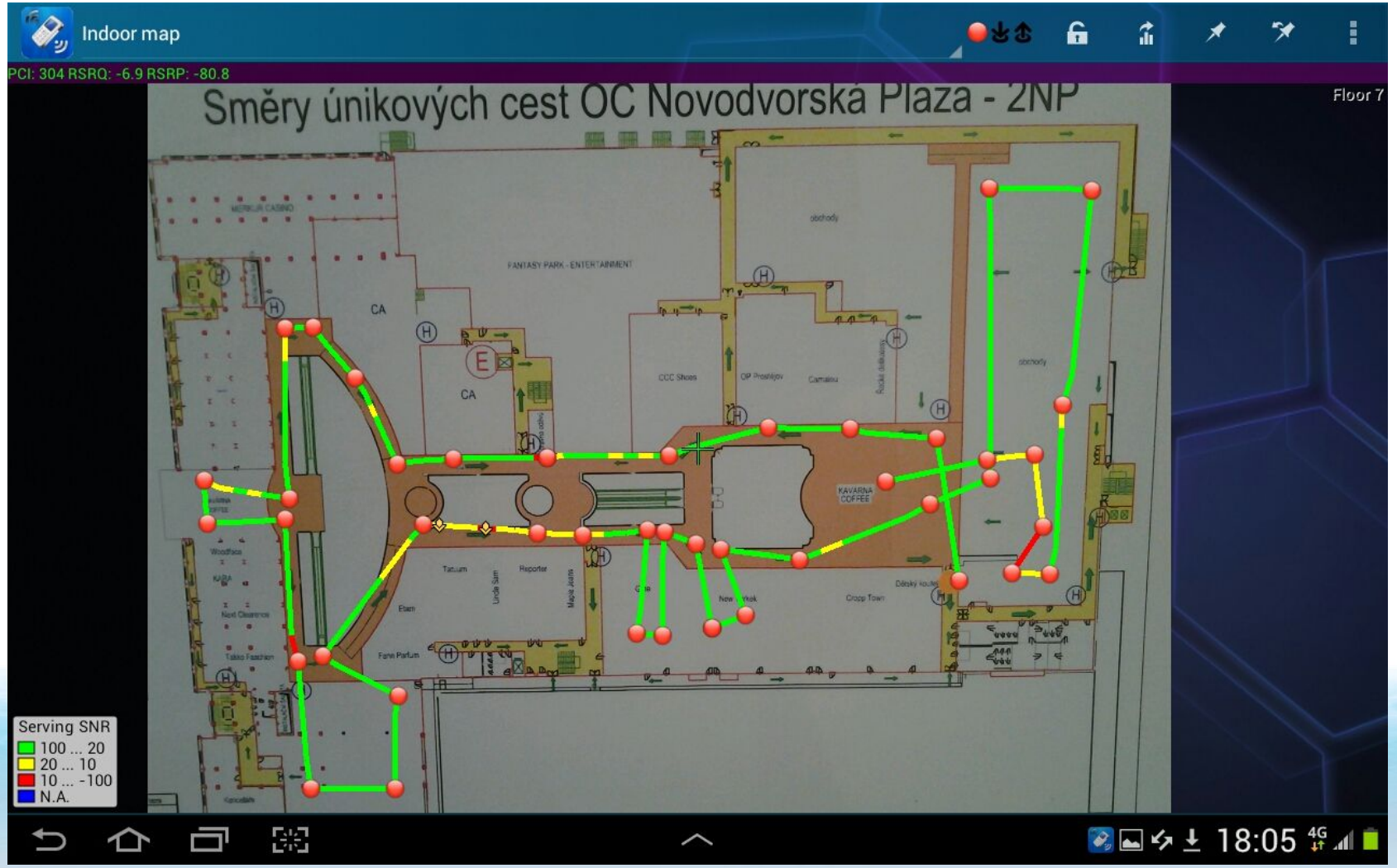
NEMO Walker Air

HKE
elektronické měřicí přístroje



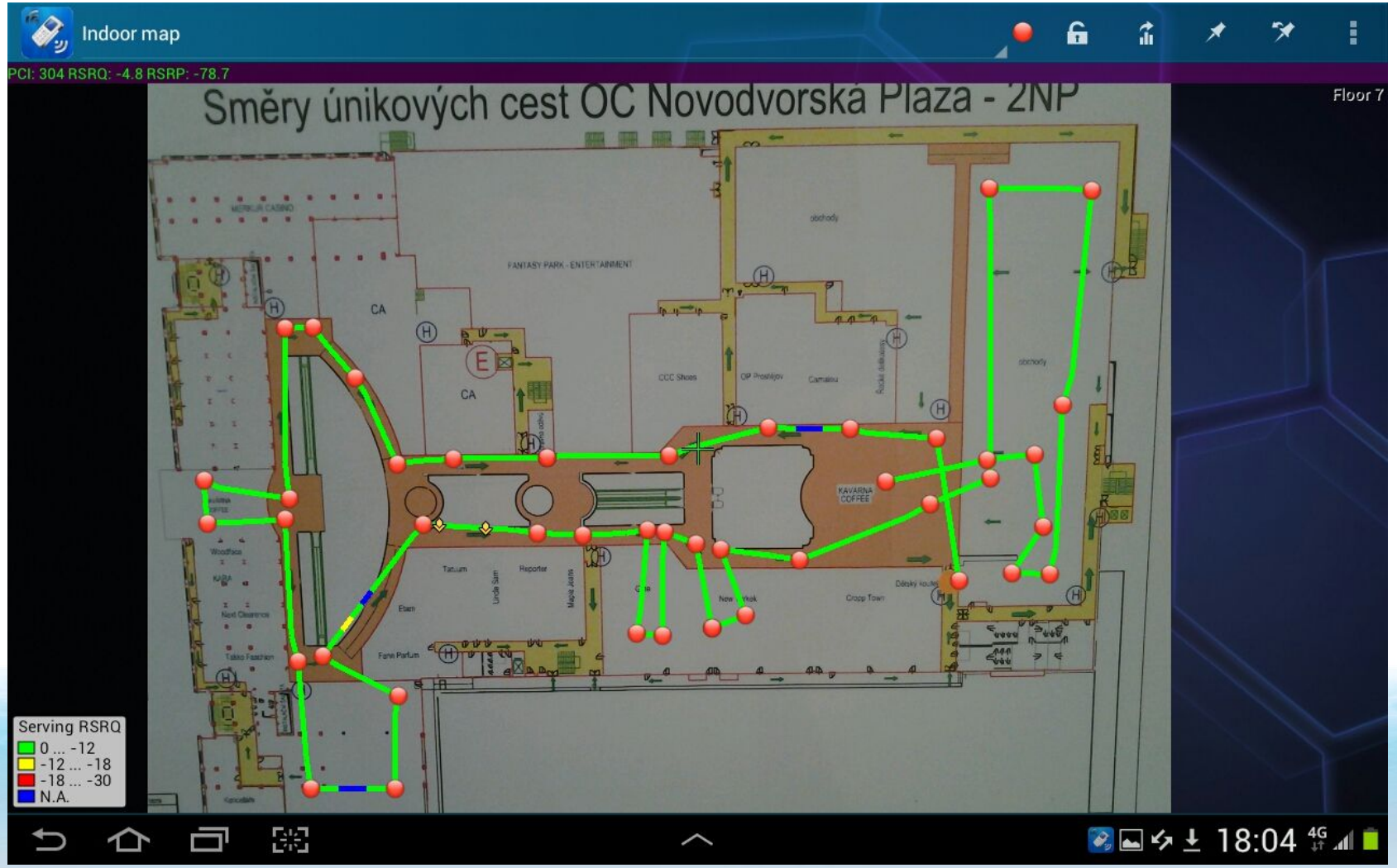
NEMO Walker Air

HKE
elektronické měřicí přístroje



NEMO Walker Air

HKE
elektronické měřicí přístroje



NEMO FSR1

HKE
elektronické měřicí přístroje

–Tunable wideband RF Down Convert (low band, FSR1 7010 SWD). Covers the E-UTRA bands from **698 MHz to 960 MHz** All technologies. Uplink/downlink. RSSI in UL scanning
–Tunable wideband RF Down Convert (high band, FSR1 1727 SWD). Covers the E-UTRA bands from **1 710 MHz to 2 690 MHz**. All technologies. Uplink/downlink. RSSI in UL scanning
–Tri-band discrete DC (FSR1 453537-20)
●410 – 493 MHz, CDMA band Class 5 and 11 UL/DL, E-UTRA 31 UL/DL
●3400 – 3600 MHz, E-UTRA 42 (TDD LTE), E-UTRA 22 (FDD LTE) UL/DL
●3600 – 3800 MHz E-UTRA 43 (TDD LTE)
●LTE SIB1 decoding for FDD and TDD

NEMO FSR1 RX Level

HKE
elektronické měřicí přístroje

Model	Band 1	Band 2	Notes
FSR1 1826-20 2x2 (BW 20MHz) MIMO	1805 – 1880 MHz GSM 1800 DL WCDMA 1800 DL LTE 1800 DL E-UTRA bands 3, 9	2496- 2690MHz LTE 2500, 2600 E-UTRA bands 7, 38 and 41	In production Product code FS0101-00
FSR1 8026-20 2x2 (BW 20MHz) MIMO	791 – 821 MHz LTE 800 DL, E-UTRA band 20	2496- 2690MHz LTE 2500, 2600 E-UTRA bands 7, 38 and 41	In production Product code FS0101-03
FSR1 7523-20 2x2 (BW 20MHz) MIMO	703 – 803 MHz LTE FDD700 DL, LTE TDD 700 E-UTRA bands 12, 13, 14, 17, 28, 29, 44	2300- 2400MHz LTE FDD DL 2300 LTE TDD 2300 E-UTRA bands 30, 40	In production Product code FS0101-04

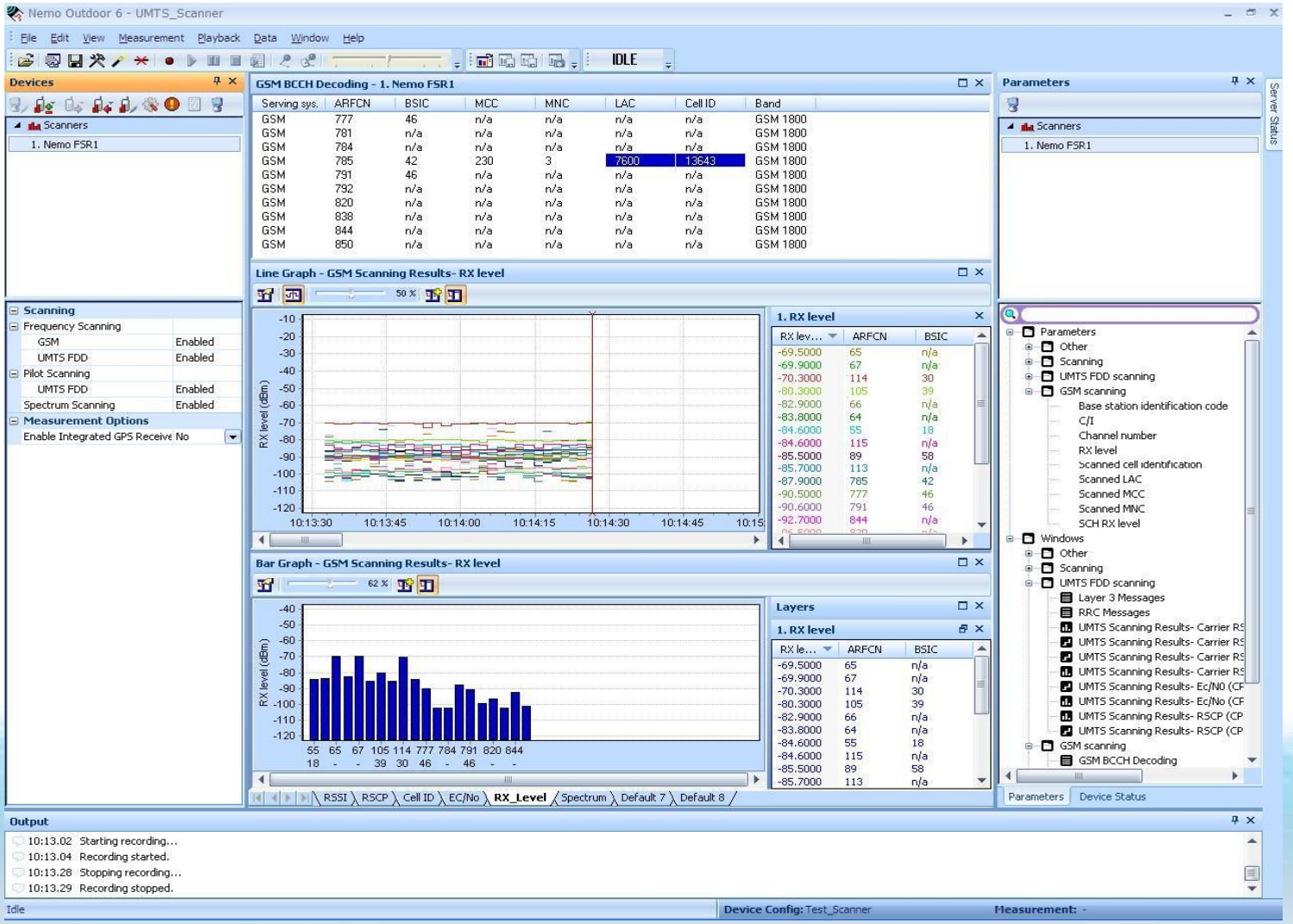
HKE
elektronické měřicí přístroje

Nemo FSR1 Scanner Down Converters Frequency Ranges

Model	Band 1	Band 2	Band 3	Band 4	Notes
FSR1 19202326-20 China LTE TDD / TD-SCDMA	1880 - 1920 MHz LTE TDD, E-UTRA band 39	2300 - 2400 MHz LTE TDD E-UTRA band 40	2496 - 2690 MHz LTE TDD E-UTRA band 41	2010-2025 MHz TD-SCDMA, E-UTRA band 34	In production Product code FS0101-06
FSR1 85941821-20 China LTE FDD/ WCDMA/CDMA/GSM	2110 - 2170 MHz WCDMA2100 DL, LTE FDD 2100 DL, E-UTRA band 1	1805 – 1880 MHz GSM 1800 DL WCDMA 1800 DL LTE FDD 1800 DL E-UTRA band 3	869 – 894 MHz GSM850 DL WCDMA850 DL LTE FDD 850 DL E-UTRA band 5	925 – 960 MHz GSM900 DL CDMA900 DL WCDMA 900 DL LTE FDD 900 DL E-UTRA band 8	In production Product code FS0101-05
FSR1 72821718-5 UL specific DC	698 – 748 MHz, GSM700 UL CDMA700 UL WCDMA700 UL LTE FDD700 UL E-UTRA bands 12, 17, 28	807 - 849 MHz GSM850 UL CDMA850 UL WCDMA850 UL LTE FDD 850 UL E-UTRA bands 5, 26, 27	1710 - 1785 MHz GSM1800UL CDMA1800 UL WCDMA1800 UL LTE FDD 1800 UL E-UTRA bands 3, 4, 9	1850 – 1925 MHz GSM1900 UL CDMA1900 WCDMA1900 UL LTE FDD 1900 UL E-UTRA bands 2, 25	In production Product code FS0101-09
FSR1 78891925--5 UL specific DC	776 – 799 MHz GSM700 UL CDMA700 UL WCDMA700 UL LTE FDD700 UL E-UTRA bands 13, 14	880 – 915 MHz GSM900 UL CDMA900 UL WCDMA 900 UL LTE FDD 900 UL E-UTRA band 8	1920 – 1980 MHz WCDMA 2100 UL LTE FDD2100 UL E-UTRA band 1	2500 – 2570 MHz LTE FDD2600 UL E-UTRA band 7	In production Product code FS0101-10

NEMO FSR1 RX Level

HKE
elektronické měřicí přístroje



Invex II

HKE
elektronické měřicí přístroje