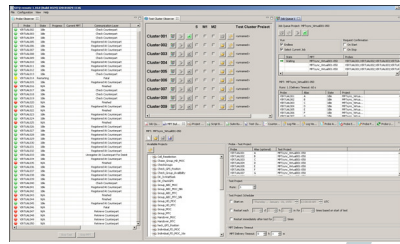
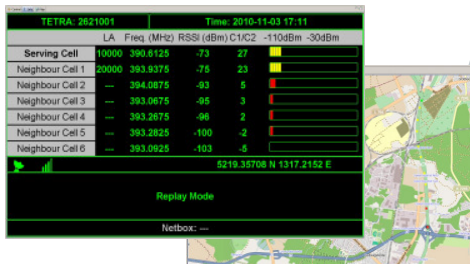


AQMS (Active Quality Monitoring System)



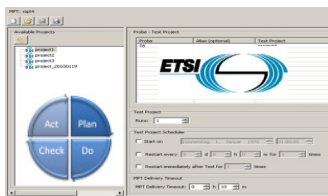
CONTROLLING

- Long time, cyclic
- Alerts
- Log files



MONITORING

- Life KPI's record and play
- Serving / Neighbour Cells
- Real time (LA, Freq., RSSI, Channel)



TESTING

- Create & execute tests automatically (individual test / campaigns)
- Central control system & monitor
- Analyze & evaluate results
- Create Reports

Functional ... Performance ... Drive ... Acceptance ... Operations



PROBE (TAXI)

- Mobile, autonomous
- Mounted or portable
- Remote via WAN



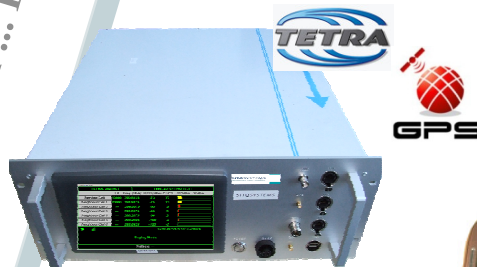
PROBE (COMPACT)

- Ultra Mobil, autonomous with monitor
- Remote via WAN



PROBE (OUTDOOR)

- Stationary, autonomous, robust
- Remote via LAN/WAN
- Housing DIN IP55



PROBE (INDOOR)

- Mobile, autonomous
- Touch Screen Monitor
- Remote via LAN/WAN
- 19" Rack



ext. MONITOR

- Monitoring & observation

AQMS (Active Quality Monitoring System)

Aims:

- Check Service Levels
- Optimize Networks
- Secure Investments

Features:

- Realistic End-to-End testing
- 24/7 availability
- Modular distributed static and/or dynamic System
- Central control, observation, monitoring (also locally), Evaluation, analyze & reporting
- Active Test scenarios
- Monitoring

Event Information with dedicated parameters

- Cell Reselection
- Start Handover
- Service Loss
- Channel Acquisition Requested / Failed / Succeeded
- Frequency Redefinition
- Registration Requested / Succeeded
- Call Restoration Requested / Failed / Succeeded
- Call Setup Failure
- Abnormal Call Clearing
- Duplicated Frequency
- Unexpected Neighbour
- Neighbour Not Broadcast
- No Neighbours
- Uplink Access failure



Network Information

- Serving Cell (Frequency, LA, AI, MNI, best neighbour (C2, RSSI))
- Serving Cell RF Parameters (Frequency, RSSI, C1)
- Neighbour (Frequency, best neighbour (LA), RSSI, C2)
- Call Types (Duplex, Simplex, Group, Direct, DMO Gateway, Call Script)
- Push to talk (Type, State)
- Encryption (Clear, End2End)
- SDS / TSM (Message, Length, Progress, Report Number, Type)
- DMO connectivity
- Speech Quality

AQMS (Active Quality Monitoring System)

Active Measurements:

- Success rates for individual calls, group calls, SDS, TSM, data transfer, hand-over, cell reselection
- Time measurement for ITSI attach
- Measurement for call setup times, speech quality and speech delay for individual and group calls.
- Latency time measurement for SDS, TSM
- Throughput measurement for data transfer
- Control feasibility for dispatcher applications

General Information

- Timestamps
- GPS Data
- Exceptions
- General Probe information

Trace Information

- Layer 3 Messages (device dependent)
- Test flow

Technical Data

- TETRA component: per default by Sepura (further devices on request)
- Speech quality measurement based on PESQ (ITU-T P.862) (further optional algorithm on request)
- Encrypted transfer of measurement data
- Power Supply 12V / 110V / 230V
- Power consumption max. 48W
- Transfer of measurement data per default via WAN, LAN, WLAN (further optional transfer path on request)
- Test language for active tests: Java-Script (further optional test languages on request)
- Connection to alarming system possible
- Measurement frequency in monitor mode: 1-5 Sekunden
- XML Interface for measurement data possible
- Analysis functions integrated via FIMAS/3G by Focus Infocom

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