

# NEMO

## OUTDOOR

### For GSM/GPRS/EDGE/WCDMA Wireless Networks

#### Nokia 6680 Mobile Phone

#### Technical Specifications

##### Mobile Features

- WCDMA 2100 / GSM/GPRS 900/1800
- GSM/GPRS/EDGE:
  - Timeslots 4+1, 3+2
- WCDMA
  - PS NRT 384/128
  - CS NT 57.6
  - CS T 64 (video calls)
  - Multi RAB
- Functionality support based on:
  - Core Network: 3GPP R99 June-2004 Baseline
  - GERAN: 3GPP R99 July-2004 Baseline
  - WCDMA RAN: 3GPP R99 March-2004 Baseline

##### Forcing Features

- Cell barring
- Band lock
- System lock
- Channel lock
- Scrambling code lock

##### Application Protocols

- ICMP ping
- FTP protocol
- HTTP protocol
- Nemo protocol (for TCP and UDP testing)
- SMTP and POP3 protocols (for email testing)
- MMS testing
- WAP testing
- RTSP streaming

##### Serving Cell Information

- Cellular system
- Channel number
- Roaming information
- Service information

- Cell ID -RAC -MCC
- MNC -LAC

##### WCDMA Signaling Messages

- Layer 3
- RRC
- RLC
- Logical subchannels for all messages

##### RACH Parameters

- Random access initial TX power
- Random access maximum preamble count
- Random access preamble count
- Random access preamble step
- Random access message TX power
- UL interference level

##### Physical Layer Parameters

- BLER -BER -RSSI
- RSCP
- Physical channel UL throughput
- TX power
- Ec/No for active/neighbor/detected set

##### Power Control Parameters

- BLER
- SIR target
- TX power control algorithm
- TX power control step size
- Number of increase/decrease UL / DL power commands

##### Soft Handover Parameters

- Ec/No for active/neighbor set
- Soft handover status
- Soft handover event
- Addition window

- Drop window
- Replacement window
- Time to trigger 1A
- Time to trigger 1B
- Time to trigger 1C
- Added scrambling code nr.
- Removed scrambling code nr.
- Cell count active
- Cell count monitored

##### Additional 3G Information

- Compressed mode indication
- BS diversity state
- RRC state
- WCDMA neighbor list with GSM neighbors
- Inter-system GSM neighbor measurement results
- Results of inter-frequency neighbor measurements
- Measurement events
- Used AMR codec

##### GSM Signaling Messages

- Layer 3
- Layer 2
- RLC/MAC control messages
- Logical subchannels for all messages

##### GSM Serving Cell RF Parameters

- DTX -RLT -FER
- C1 & C2
- Mean BEP (8-PSK & GMSK)
- Mean BEP coefficient variance (8-PSK & GMSK)
- RXLEV (full & sub)
- RXQUAL (full & sub)
- Packet RXQUAL
- TXPOWER
- Timing advance
- C value

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- Signal variance
- I levels (per TN)

#### **GSM Serving Channel Information**

- BCCH -HSN
- BSIC -MAIO
- ARFCN
- TCH (FR, EFR)
- Timeslot number
- Hopping flag

#### **GSM Neighbor Information**

- N1 - N8 BCCH
- N1 - N8 BSIC
- N1 - N8 RXLEV
- N1 - N6 C1 & C2
- GSM neighbor list with WCDMA neighbors
- Inter-system WCDMA neighbor measurement results

#### **SNDCP Information**

- Header compression status
- Data compression status

#### **LLC Tracing**

- Retransmitted LLC block rate
- LLC data throughput UL/DL

#### **RLC/MAC Information**

- Retransmitted RLC block rate
- RLC/MAC data throughput UL/DL
- Number of timeslots in GPRS UL/DL
- GPRS coding scheme UL/DL
- EGPRS modulation and coding scheme UL/DL
- RLC BLER
- GPRS/EGPRS indication
- TLLI
- TFI UL/DL
- RLC window size UL/DL

#### **Call Information**

- Call type
- Number of calls
- Call connecting status
- Call attempt time
- Call failure time
- Call failure cause
- Call duration
- Call disconnect cause

#### **Packet Data Information**

- PDP activation attempt time
- PDP active duration
- PDP activation failure time
- PDP activation failure cause
- PDP context deactivation time
- PDP context deactivation cause
- Packet state
- Packet protocol address
- Attach failure time
- Attach failure cause
- Attach attempt time
- Attach attempt time
- Attach duration
- Detach time
- GMM/SM state
- QoS settings

#### **User Level Data Information**

- Data transfer protocol
- Data transfer direction
- Data transfer attempt number
- Data transfer host address
- Data transfer host port
- Application data throughput UL/DL
- Application packet error rate
- Transferred bytes UL/DL
- PPP layer data throughput
- Data connection establishment time
- Data connection rate UL/DL
- Data connection duration
- Data connection failure time
- Data connection failure cause

- Data transfer failure cause
- Data size UL/DL
- Data disconnect cause
- Ping rate
- Ping timeout
- Ping time (application data round trip travel time)

#### **Statistics**

- Call statistics
- Handover/handoff statistics
- Soft handover statistics
- Intersystem handover statistics
- Intersystem cell reselection statistics
- Location area statistics
- Attach statistics
- PDP context statistics
- MMS statistics
- Routing area statistics
- User level data statistics