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NetHawk

NetHawk M5 Multi-Analyser for monitoring wireless and VoIP

NetHawk M5

Data Sheet

version 1.6

Introduction

The NetHawk M5 is a powerful protocol analysis platform with intelligent data analysis applications for effective testing, troubleshooting and development of today's complex multi-technology networks.

The NetHawk M5 platform is designed for high capacity and performance monitoring environments where multiple users can simultaneously perform analysis. The NetHawk M5 features real-time 3G/2G multi-technology call & session tracing, Key Performance Indicator (KPI) generation, radio optimisation measurements, and ease of use with automatic configuration and GUI design.

Product platform

The NetHawk M5 consists of the analysis software with optional protocol decoding packages and applications and of interface Adapters for standard PCs. With this approach, the NetHawk M5 is most adaptive to different user requirements.

With full configuration in an industrial PC, the NetHawk M5 can monitor in real-time multiple STM-1/OC-3 or STM-4/OC-12, E1/T1/J1 (PCM, ATM, IMA modes) and Ethernet interfaces simultaneously from UTRAN, GERAN, UMAN, core and IMS network. The NetHawk M5 is also available as a laptop solution suitable for smaller configurations and easy to travel with.

The NetHawk M5 can be used in off-line mode, separately from the actual monitoring tool. There are different off-line software versions of the NetHawk M5, including one free-of-charge for trace viewing. The NetHawk M5 Online Client software even allows real-time remote access to the captured data by multiple users simultaneously.

Multi-technology support

The NetHawk M5 provides WCDMA, TD-SCDMA, EDGE, GPRS, GSM, UMA and IMS analysis capabilities, all combined in one tool. The radio access network and the core network parts can both be monitored with the NetHawk M5.

The NetHawk M5 keeps up with the latest development in the network technology to enable offering of Voice over IP and multimedia services. The NetHawk M5 can be used to verify the next step in UTRAN development, High Speed Downlink/Uplink Packet Access (HSDPA/HSUPA)

Key features

1. **Combined 3G HSDPA/HSUPA, GSM/GPRS/EDGE, IMS and UMA analysis capabilities.**
2. **Effective data capturing from multiple network interfaces – STM-1/OC-3 or STM-4/OC-12, E1/T1/J1 (PCM, ATM, IMA modes) and Ethernet.**
3. **Advanced analysis with detailed level protocol monitoring, call & session tracing with speech playback, KPI generation and radio optimisation measurements.**
4. **Fully automatic configuration including dynamic Iub, Iu and Abis interfaces.**
5. **Support for multi-user environments with NetHawk M5 Online Client software.**

and the emerging IP Multimedia System (IMS) networks. Unlicensed Mobile Access (UMA) networks that enable access to GSM/GPRS mobile services over unlicensed spectrum technologies can be tested with the NetHawk M5 as well.

Call & Session Analysis

The NetHawk M5's Call and Session Analysis is a key troubleshooting application. The calls can be closely monitored in real-time as they evolve over the UTRAN, GERAN and core network interfaces with the support for Iub, Iu-CS, Iu-PS, Abis, A, A+, Gb, Gn, Gi with SIP session analysis, ISUP, MAP, INAP, Mc and Nc.

With Call and Session Analysis it is possible with a quick glance to see whether there are any problems in the operation. Full details of the call in question are easily available. Speech of interesting CS calls from Iub or Iu-CS interface can be recorded (.wav) or listened directly from PC's loudspeakers.

Key Performance Indicators

The Call and Session Statistics provide essential information on the overall performance of the network in terms of success/failure rates (KPIs).

The Call and Session Statistics traces the transactions from the Iub, Iu-CS, Iu-PS, Abis, A, Gb, MAP and ISUP interfaces. The transaction counters, KPIs, and the distribution of failures by reason are then visualised in graphics. Transactions of an interesting KPI can be drilled-down to Call & Session Analysis and furthermore to Protocol Monitor application for more detailed level analysis.

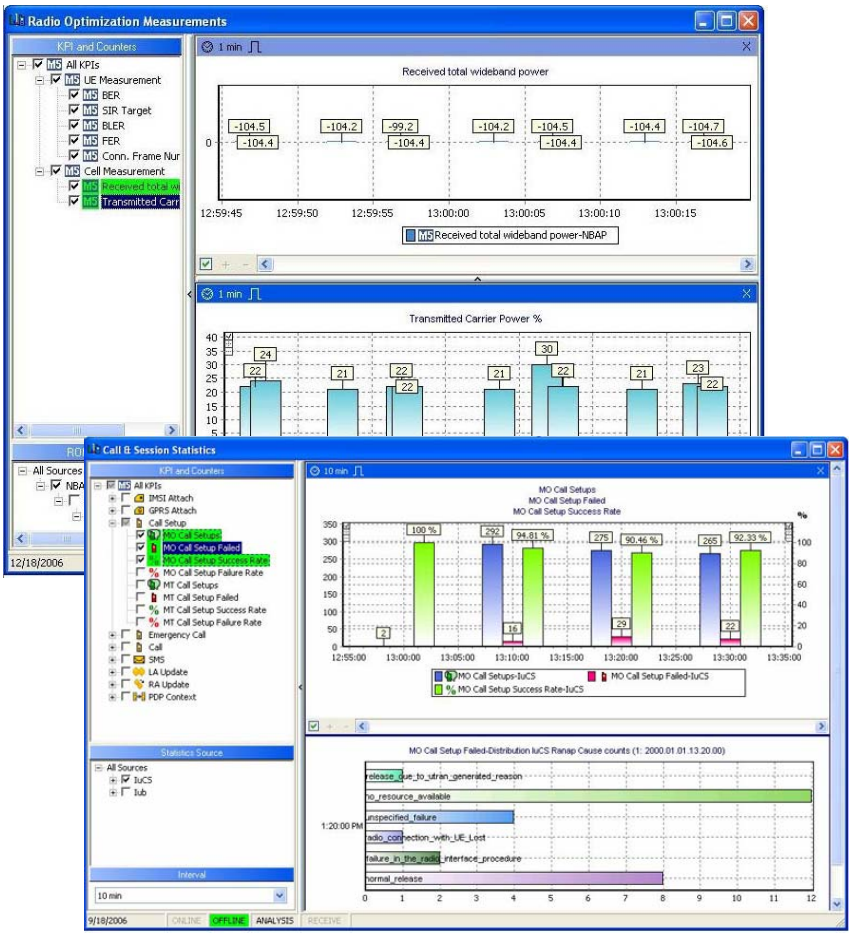

Figure 1: Call and Session Statistics and Radio Optimisation Measurements with the NetHawk M5.

Radio Optimisation Measurements

The Radio Optimisation Measurements (ROM) application provides the most important cell-level (received total wideband power, transmitted carrier power %) and UE-specific radio parameters (BLER, BER, FER and SIR-Target) from the Iub interface for power control, quality and interference analysis of the radio interface. With ROM you get an easily understandable and clear picture of the conditions in the air interface.

Protocol Monitoring

With the Protocol Monitoring application, the network operation can be analysed in more detail with data captured from the UTRAN, GERAN, UMAN, core and IMS interfaces. The Single Line Decoding view gives a good overall view of signalling, whereas the full signalling details can be analysed in the Detailed Decoding view. Effective filtering capabilities help in the analysis to focus on the most essential data.

Automatic configuration

The NetHawk M5 features an automatic, graphically aided, and faster than ever setup. The scanning functionality finds the connections to be monitored and automatically detects the protocol stacks and parameters including the dynamic Iub, Iu and Abis for the monitored PCM, ATM, IMA or IP lines.

Connectivity and capacity

Depending on the chosen PC platform, the NetHawk M5 can be equipped with several interface Adapter types that provide the physical connectivity to the network. E1/T1/J1, STM-1/OC-3, STM-4/OC-12 or Ethernet as the physical connectivity provides access to ATM, IMA, IP or the time-based transport mode.

The NetHawk M5 can monitor simultaneously alternatively up to six full-duplex STM-1/OC-3 links, three STM-4/OC-12 links, 32 bi-directional E1/T1/J1 links or eight Ethernet links. Different NetHawk Adapter combinations are possible for a best fit to different monitoring environments.

Open interface for remote control applications

The NetHawk Remote Control API (RCA) provides an open interface to the NetHawk M5 allowing development of remote control applications. The NetHawk RCA also makes it possible to build an automated testing system with the NetHawk M5s as building blocks where the M5s are controlled over a LAN.

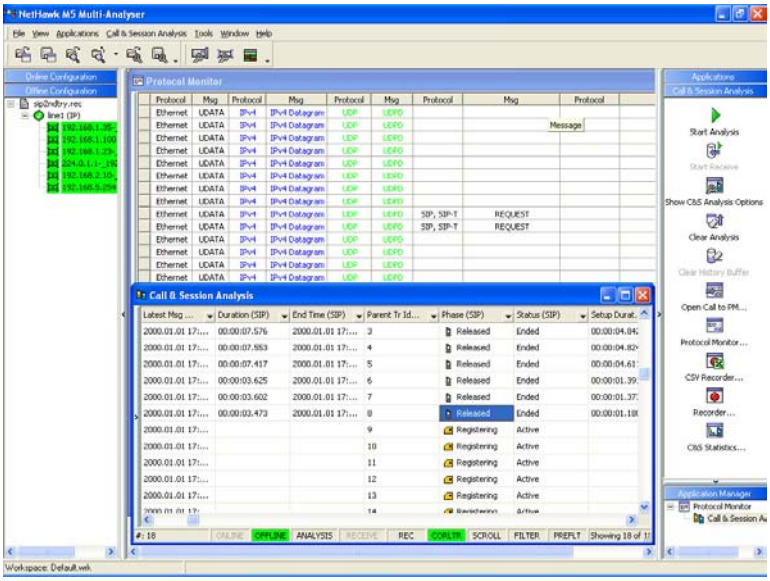

Figure 2: SIP session analysis with the NetHawk M5.

Product components

> NetHawk M5 SW with UTRAN, GERAN and/or Core protocol decoding package
> NetHawk M5 Viewer for offline trace viewing
> NetHawk Adapter(s) / Dongle
> User documentation
> A cable set
> Options:
- Manufacturer-specific protocols
- Iub and Gb deciphering
- Inverse Multiplexing over ATM
- Call & Session Analysis application for UTRAN/GERAN/Core
- Radio Optimisation Measurement (ROM) for Iub
- Speech playback and recording for Iub and Iu-CS
- TD-SCDMA
- UMA Up interface support
- NetHawk Remote Control API

> NetHawk M5 Online Client allowing real-time access to the captured data (optional software).
> NetHawk M5 Offline software for trace viewing, post-processing and analysis (optional software).

PC requirements

> Minimum HW requirements:
- Pentium® 2 GHz CPU or faster
- 1 GB of RAM, 2 GB recommended
- 10 GB of free disk space
- SVGA colour display (1024 x 768), 16 bit colours

> Minimum SW requirements:
- Operating system: Microsoft Windows® XP Professional + Service Pack 2 or Microsoft Windows® Server 2003 + Service Pack 1

NETHAWK ADAPTERS FOR A LAPTOP PC

NetHawk N3/N3i for one full-duplex STM-1/OC-3 optical link (multi/single mode).

NetHawk N2 for one bi-directional E1/T1/J1 link (PCM/ATM).

NetHawk N5 for eight bi-directional E1/T1/J1 links in PCM, ATM or IMA mode.

Supported configurations

> 1 x NetHawk N3
> 1 x NetHawk N3 + 1 x NetHawk N3i
> 1 x NetHawk N3 + 1 x NetHawk N2
> 1-2 x NetHawk N2
> 1-2 x NetHawk N5
> 1 x NetHawk N3i + 1 x NetHawk N5
> 1 x NetHawk N2 + 1 x NetHawk N5
> In addition, one Ethernet link with the PC's own adapter.

NETHAWK ADAPTERS FOR A DESKTOP PC

NetHawk D6 for two full-duplex STM-1/OC-3 links or one STM-4/OC-12 link (multi/single mode).

NetHawk D3 for one full-duplex STM-1/OC-3 optical link (multi/single mode).

NetHawk D5 for eight bi-directional E1/T1/J1 links in PCM, ATM or IMA mode. Support for fractional ATM.

NetHawk NAP for two bi-directional E1/T1/J1 links (PCM/ATM).

NetHawk D4 C-Lite for two 10/100 Mbit and Gigabit Ethernet links.

Supported configurations

> Up to six different NetHawk Adapters can be installed to one PC as follows:
  - Up to three NetHawk D6s
  - Up to five NetHawk D3s
  - Up to four NetHawk D5s
  - Up to four NetHawk NAPs
  - Up to four NetHawk D4 C-Lites
> In addition, one Ethernet link with the PC's own Ethernet adapter.

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