



## Datasheet

# Empirix xCentrix Mobile Broadband Analysis Package

Predict: Timely intelligence and expert analysis reveals innovative business opportunities and enables smarter decision-making across the organization

Mobile Network Operators need every edge in today's competitive and evolving environment. Consumer consumption of mobile resources is growing exponentially and tolerance for poor service is over. Empirix offers actionable intelligence – on network utilization, subscriber experience, application performance and more – enabling operators to make smarter decisions at every level.

### Empirix: Transforming Data into Intelligence

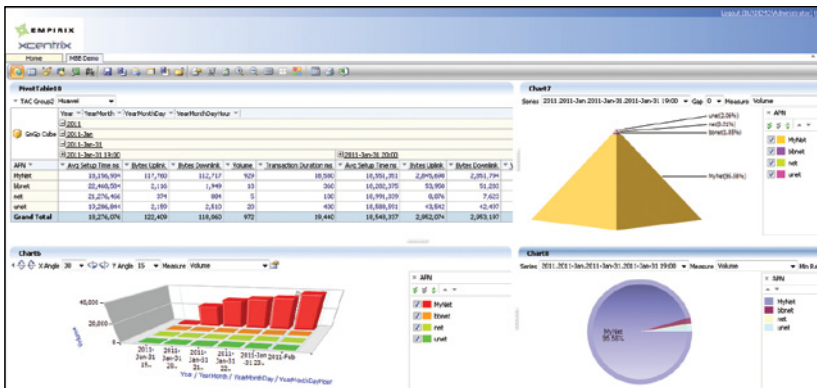
The Empirix xCentrix business intelligence and reporting platform quickly manipulates large volumes of data and presents it in a way that is meaningful to each unique user. Leveraging Empirix's tremendous knowledge of Mobile Broadband (MBB) technologies and market drivers, Empirix xCentrix includes a vast array of packaged reports that do more than simply display a string of statistics. For more free form analysis, the Empirix xCentrix MBB Analysis Package offers an elegant web-based interface for drilling into micro events

or layering multiple data points and KPIs to reveal hidden trends. There is no need to wait for queries results; Empirix xCentrix delivers its findings instantaneously.

The Empirix xCentrix platform correlates multiple data streams for richer analytics. The products capabilities for GPRS/UMTS MMB networks are enabled by the following types of data feeds:

- α GPRS PDP Context Details
- α IuPS PDP Context Details
- α GnGp (GTP) Details
- α HTTP Data Records
- α IPDR Data Records

The Empirix xCentrix MBB Analytics Package leverages Empirix MSP probes for robust data collection and the Empirix E-XMS management platform, which normalizes data streams from multiple sources.



### Applications:

- Optimize the subscriber experience
- Create more profitable pricing plans
- Understand end-to-end application performance
- Evaluate and refine new service offerings
- Discern which mobile devices burden network resources
- Plan effective infrastructure investments
- Identify root cause issues

### Features:

- Comprehensive, out-of-box MBB analysis and reports
- Multi-dimensional reporting enables users to slice and dice both dimensions and KPIs from many perspectives to illuminate hidden trends
- Powerful and elegant web-based environment for easily visualizing the meaning contained in the data
- High performance "big data" platform provides instantaneous returns when users manipulate data views
- Automated report delivery – to users or portals – triggered by date or data event
- Report sharing
- Customizable for every job function, department and business decision

## Starter Kit Reports

The Empirix xCentrix MBB Analysis Package offers a full range of reports to enable smarter decision making across all departments and job functions.

Report Type	Report Name	Report Description
Device Analysis	Top N Device/Handset Type	This report provides and compares the traffic consumption among the tracked set of devices/handsets.
	Worst Device/Handset by Network Accessibility	This report analyzes and ranks the list of devices/handsets whose service connections are most likely to fail from non-network/operator related causes.
	Most Popular Device/Handset	This report analyzes and ranks the popularity of the devices/handsets based on usage by unique subscribers. It can also provide insight into the uptake of particular devices in a particular region or area.
Subscriber Analysis	Top N Subscribers	This report analyzes and ranks the top N subscribers based on total data consumption by volume. It also provides information for enforcing fair usage policies and evaluating new marketing and pricing initiatives.
	Top N Roamers	This reports analyzes and ranks the top N home subscribers who roam outside of their home network. It enables personalized pricing or roaming plans for these subscribers.
	Worst N Subscribers with Service Accessibility Issues	This report analyzes and ranks the list of subscribers having the worst experience accessing services. It includes a general set of failure causes and provides a starting point for further investigations.
	Roaming Distribution by Subscriber Country	This report analyzes and provides a distribution of countries by Mobile Country Code (MCC) where the roamers are currently on the network and active sessions by the roamers on the network.
	Roaming Distribution by Subscriber Network	This report analyzes and provides a distribution of networks by Mobile Network Code (MNC) where the roamers are currently on the network and active sessions by the roamers on the network.
	Most Utilized Network Elements	This report analyzes and ranks the most utilized network elements (SGSN, RNC, etc.) based on data volumes and the number of session attempts supported.
	Worst N Network Elements by Service Accessibility	This report analyzes and ranks the worst network elements by most failures in service accessibility attempts.
Network Analysis	Most Growth Areas by Traffic Volume	This reports analyzes and ranks the top N cells, SGSN or regions having the greatest increase in volume over a specific period. This helps identify growth areas and capacity planning.
	Most Growth Areas by Unique Subscribers	This report analyzes and ranks the top N cells, SGSN or regions having the greatest increase in traffic from unique subscribers over a specific period. This report identifies growth areas, demographics and capacity planning issues.

Report Type	Report Name	Report Description
Application Analysis	Top N URL	This report provides the top N URL/web sites based on the volume of users.
	Top N Application	This report provides the top N applications based on the volume of users.
	Worst Performance N Websites	This report provides the worst N URL/web sites by response times and non-network related error causes.
	Distribution of Applications	This report provides a distribution of top applications based on the volume of users.
	Worst N Accessible Applications	This report provides the worst N applications in terms of accessibility.

### Multi-dimensional Analysis

Empirix xCentrix supports on-demand reporting and allows users to slice, dice and interact with the data on the fly. Users can fully explore all data dimensions and measures to design reports or dashboards based on their own unique requirements. The following dimensions and measurements are enabled when used with Empirix MSP Probes v2.9.3:

Data Feed	Dimensions	Measures
GPRS PDP Context Details	Active Flag Start Date and Time IMEI TAC IMSI APN Cell Roaming Type PDP Deactivation Success Flag PDP Rejected Flag BSC IP Address	Active Uplink Period (Seconds) Active Downlink Period (Seconds) Bytes Uplink (Bytes) Bytes Downlink (Bytes) Packets Uplink (Packets) Packets Downlink (Packets) Setup Time (Millisecond) Volume Active Success Rate (Percent) IMSI Distinct Count Session Management Cause Session Restarted Flag SGSN IP Address Timeout Expired Region
LuPS PDP Context Details	Active Flag Start Date and Time IMEI TAC IMSI APN Cell Roaming Type PDP Deactivation Success Flag PDP Rejected Flag RNC PC Session Management Cause Session Restarted Flag SGSN PC Timeout Expired Region	Active Uplink Period (Seconds) Active Downlink Period (Seconds) Bytes Uplink (Bytes) Bytes Downlink (Bytes) Packets Uplink (Packets) Packets Downlink (Packets) Setup Time (Millisecond) Volume Active Success Rate (Percent) IMSI Distinct Count

Data Feed	Dimensions	Measures
GnGp (GTP) Details	Active Flag Start Date and Time IMEI TAC IMSI APN Cell Radio Access Technology Response Cause Present Flag Delete Cause Present Flag Answer Flag Roaming Type Transaction In Sequence Flag Transaction Type SGSN IP Address	Activate Success Activate Success Rate (%) Average Setup Time (Nanosecond) Average Setup Time (Nanosecond) Bytes Control Plane (Bytes) Bytes Downlink (Bytes) Bytes Uplink (Bytes) GTP Transaction Volume Packets Downlink (Packets) Packets Uplink (Packets) Transaction Duration (Millisecond) Volume IMSI Distinct Count
HTTP	Cell IMEI TAC IMSI Host HTTP Request HTTP Status Start Datetime User Agent	Fragmented Packets in Download (%) Fragmented Packets in Upload (%) Out of Sequence Packets in Download (%) Out of Sequence Packets in Upload (%) Packet Loss in Download (%) Packet Loss in Upload (%) Retransmitted Bytes in Download (%) Retransmitted Bytes in Upload (%) Duration Fragmented Download Fragmented Upload Loss Download Loss Upload Network RT Out of Sequence Download Out of Sequence Upload Packets Download Packets Upload Retransmitted Download Retransmitted Upload
IPDR	Assigned Internet Protocol Endpoint A Endpoint B IMEI Tac IMSI Internet Application Internet Service Port A Port B Start Datetime TCP Status	Application Response Time Bytes Retransmitted Fragmented Packets Network Response Time Out of Sequence Packets Packets Lost Packets Retransmitted Packets Transferred Total Data Transferred Total Payload Transferred Volume of IPDR ASDRs

For a complete list of offices worldwide, or to find an authorized distributor in your area, please visit: [www.empirix.com/contactus](http://www.empirix.com/contactus).

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