

Network Deployment Services

Quality Network Implementation

On-Site Configuration

- Antenna Alignment
- Programming Devices for Traffic Routing
- NMS: Addressing, Customization
- Billing System Configuration
- Interconnecting Equipment
- Install and Integrate Software Applications

System Acceptance & Commissioning

- Equipment Systems Acceptance
- BWA Network Validation

Program Management

- Project Evaluation
- Network Planning and Design, Equipment Integration, Installation
- Testing
- Commissioning
- Training
- Field Engineering
- Technical Support with Maintenance and Repairs

Field Engineering

- Site Validation
- Site Preparation
- Installation Supervision
- Installation
- Test and Commissioning
- Field Survey



Quality Network Implementation

With many years of experience in quality network implementation, Harris understands that comprehensive network planning, installation and verification programs for a “turnkey” implementation solution are necessary components to ensure a smooth startup, fast transition, and optimum performance, whether implementing a new network or making enhancements to an existing system.

Harris can reduce your technical, scheduling and budget risks and provide services custom tailored to your network topology and budget. Harris' commitment for continuous quality control throughout all aspects of network deployment provides world-class integration services.

On-Site Configuration

■ Antenna Alignment

Digital microwave link performance is dependent upon the optimal alignment of antennas to:

- Optimize RSLs (Receive Signal Levels)
- Discriminate against reflections which can cause fading or outage thus reducing link performance
- Accommodate, by size and/or up-tilt, k-factor angle-of-arrival variations that may cause antenna decoupling and severe fading.

■ Programming Devices for Traffic Routing

Harris system integration team can assist you in selecting appropriate traffic routing devices for your network and implement the most cost-effective plan.

■ NMS: Addressing, Customization

The NetBoss™ Build.IT module gives you the ability to quickly and easily extend your current Smart Agents or create new ones, using an intuitive Graphical User Interface (GUI). Smart Agents are specific interfaces to particular elements, element managers, and hardware and software components.

■ Billing System Configuration

Harris' network of expert partners can provide modular turnkey Billing Solutions. We can also offer end-to-end Billing Solutions including mediation, profiling, printing and mailing services. Alternatively, our modular design allows us to easily integrate our NMS with existing Billing Systems.

■ Interconnecting Equipment

Interconnection between Harris equipment and other components of the system can be provided in-house to reduce installation times. Our qualified personnel can also assist with compatibility issues before and during on-site configuration.

■ Install and Integrate Software Applications

Harris products come equipped with embedded control software or software agents. Harris can work with you to

integrate software applications compatible with all parts of the system.

System Acceptance & Commissioning

A common understanding is made regarding acceptance criteria. This teamwork enables the peace of mind, avoiding misunderstanding of quality expectation from both parties. With Harris, you know from the start what you'll get at the end.

■ Equipment Systems Acceptance

Harris engineers pre-test each component of your network in-house prior to delivery. This ensures you of system integrity, rapid on-site installation and minimal cutover time. Our certified engineers not only help you install and configure all the new equipment, but also test, troubleshoot and when necessary, replace the products.

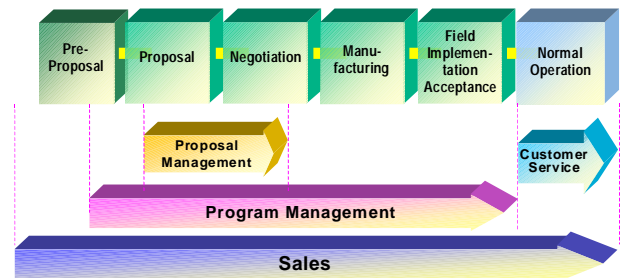
■ BWA Network Validation

Using field tools, traffic models can be validated using data monitoring and network performance optimization. Other RF field measurement tools can help benchmark the received signal level predictions obtained with our RF planning tool.

Program Management

For projects that may require complete coordination, Harris' expertise enables us to offer a diverse range of field-proven management services including:

- Project Evaluation
- Network Planning and Design
- Equipment Integration, Installation
- Testing
- Commissioning
- Training
- Field Engineering
- Technical Support
- Maintenance and Repairs.



Service providers are rapidly adopting data/IP and converged networking and management technologies to support new services for commercial and residential customers. Harris can deliver program management expertise and experience in carrier environments to help

new and established service providers more quickly and reliably deploy these technologies to gain a competitive advantage by being first-to-market with new data/IP networking services.

An integral component of any service program is the availability of live customer service and technical support functions. Harris provides around-the-clock telephone support from our help desk of highly skilled and dedicated, factory-trained technical support engineers. They are available to answer any questions relating to the deployment, configuration, expansion and operation of Harris equipment.

Field Engineering

Field support is an integral element of customer product support. Installations, preventative maintenance, emergency service, training and security implementation are the highlights of the field engineering services offered by Harris.

■ **Site Validation**

Initial site validation is necessary to ensure satisfactory network performance and operation on any wireless system. Harris' primary objectives during site validation are to determine optimal equipment, antenna location(s) and alignment, mounting along with system power requirements and to identify any other RF devices operating in the area that may potentially interfere with or impact network performance.

■ **Site Preparation**

Before installation can begin, preparation of the new or existing site must be done to ensure that it can accept the new equipment. Harris engineers and technicians will be able to evaluate if the roof or tower will be adequate to support the antenna or if it will require structural reinforcement and also if permits will be required should a tower need to be constructed. Preparation involves contingency planning to avoid possible future obstructions such as tree growths and construction of future buildings. It also involves assurance of proper site grounding and powering.

■ **Installation Supervision**

One of the key advantages of wireless access systems is that they can be deployed in only a fraction of the time required for traditional wireline networks such as copper or fiber. With the unrivaled experience of Harris's Field Service Engineers and Project Managers, supervision of the deployment and installation work is provided.

■ **Installation**

Harris provides high-quality installation services to help you deploy your new capabilities in a variety of geographical and technological environments.

For large projects, Harris will arrange for an in-country team with a highly experienced Field Manager for the

entire duration of the field implementation phase. Harris has the capabilities to meet the required installation roll-out while minimizing cutover time to allow the Customer to meet specific deployment deadlines and objectives.

Field installation crews consist of radio/network technicians and antenna riggers who are specialized in the installation of antenna and coaxial cables. Technicians install indoor equipment which includes configuration and testing of Harris plus OEM equipment.

■ **Test and Commissioning**

Field-testing will be performed on all Harris supplied equipment to demonstrate compliance to product specifications as previously agreed to between Harris and the Customer.

Field commissioning tests are performed to encompass testing required to demonstrate compliance. Harris will provide experienced commissioners in the telecommunications industry to perform all contracted tests during the project.

The field commissioning teams work with engineering documents including commissioning and acceptance specifications, equipment manuals and technical support documentation. Field test data will be recorded on field test data forms. These documents will become the baseline documents for maintenance records.

Harris equipment includes high-level test capabilities that permit fast system testing without the need for specialized or complicated test equipment to perform the installation and commissioning.

■ **Field Survey**

Harris can provide qualified surveyors to obtain factual path data. From this data, evaluations can be performed to determine the performance level of the system when installed. The main requirement for radio links is line-of-sight. Conducted field surveys will provide the basis to help determine the selection of paths, antenna elevations/sizes and configuration/computation of the received signal levels and fade margins. When conducting a path survey, Harris will verify site coordinates, ground elevations and record trees and man-made obstructions along the path. This information will be recorded on the appropriate path profile. Harris will assign an appropriate factor for tree heights.

Maintenance Services

Networks need regular monitoring to ensure that they meet the required specifications and to avoid costly problems and downtime before they happen. To help our customers meet these needs on a cost-efficient basis, Harris offers remote network monitoring and management and as required, on-site network evaluation services.



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in North America**

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- CALGARY, ALBERTA, CANADA
- LOS ANGELES, CALIFORNIA, USA
- MIAMI, FLORIDA, USA
- MONTREAL, QUEBEC, CANADA
- SAN ANTONIO, TEXAS, USA
- SAN FRANCISCO, CALIFORNIA, USA
- SEATTLE, WASHINGTON, USA
- WASHINGTON, D.C., USA

Offices & Operations in other Countries

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- SAO PAULO, BRAZIL
- BEIJING, CHONGQING, HONG KONG,
SHANGHAI, SHENZHEN, XIAN, CHINA
- BOGOTA, COLOMBIA
- PARIS, FRANCE
- ATHENS, GREECE
- BEIRUT, LEBANON
- KUALA LUMPUR, MALAYSIA
- MEXICO CITY, MONTERREY, MEXICO
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