



ALKAN CIT, NETWORKS PROFILE

PUTTING YOU IN REACH WHEREVER YOU ARE





OVERVIEW

Alkan CIT is a leading telecommunication solution provider and system integrator that offers a wide-set of turnkey solutions to meet the ongoing demands of fixed and wireless operators in the Middle East and Africa. With regional presence in most of MEA countries, **Alkan CIT** has always been able to support its clients' businesses needs, from inception to completion, going through all phases from planning right through operation. Our portfolio comprises Satellite broadband services, OSS/BSS solutions, network infrastructure & security, Fiber optics networking, GIS solutions and GSM/CDMA specialized services including network planning & rollout, tower production, installation & commissioning, Electromechanical Services in addition to Operation & Maintenance and tower production according to international standards and as per customer's specifications. Alkan CIT integrated services guarantee sustainability and ongoing success.

TOWER PRODUCTION SERVICES

In 2005, Alkan started its tower production as a workshop with a total production capacity of 150 ton/ month. Following our regional expansion, Alkan has invested in its tower factory (ATF) in 2007 to support the growth of our international network rollout services across the region. Since early 2007 we operate a modern automated facility using latest CNC technologies & machines, **Alkan Tower Factory** has succeeded during its short history to become a reliable supplier of premium quality towers, our scope of activities includes tower production, establishment of associated infrastructure and related accessories. **ATF** products' performance and robustness are the key factors for their regional recognition. To date **Alkan CIT** designs and fabricates a rich selection of, self supporting and guyed towers, antenna support structures, fences, and tower accessories that are fully compliant with International standards and specifications, as well as customized towers as per client's specifications, our product range is complemented with full technical support and consultancy services.

PRODUCTION CAPABILITIES

ATF production capacity currently exceeds 1200 ton per month, planned to quickly expand over the coming few years in order to cope with the continuous expansion of the telecom sector transmission lines and steel towers in general in the region. We are very flexible in terms of accommodating and fulfilling specific clients' requests for producing simple or combined types of towers with customized specifications. Over the past few years, we have successfully supplied, installed and delivered turnkey tower projects in 16 different countries across the region and contributed to the network expansion of multiple wireless communication and microwave service providers. The leading-edge structural design and civil engineering expertise provided by Alkan team makes it the preferred choice and approved tower supplier for leading GSM operators in the Middle East and Africa.



ON SERVICES

PRODUCT RANGE

Alkan Towers are specially designed to support the ever-changing requirements of the wireless communication industry. Our aim is to fully satisfy customers' business needs and operational requirements by providing a broad selection of premium-quality, highly developed products and ensuring there is a tower suitable for almost every application. Products include self supporting towers, guyed towers, antenna support structures, fences, and tower accessories in addition to client specific towers as per clients' specifications.

We design and produce three families of towers; two of which are the square and triangular self supporting towers, while the third includes rooftop stub towers, different heights and loading capabilities are provided in addition to a wide range of complementary accessories and custom design towers whenever required.



SELF-SUPPORTING TOWERS

Family of self supporting, square towers with heights ranging from 30 m to 100 m, composed of angle cross sections and equipped with safety ladders. **Alkan** produces two families of Self supporting towers, with different loading capabilities to satisfy communication needs across different environments.

FAMILY 1 (24 TO 50 M HIGH)

Family of square towers with heights ranging from 24m to 50m (24, 30, 36, 40 and 50 m) designed for cellular and microwave transmission with three different loading capabilities, light, medium and heavy.

SPECIFICATIONS	LIGHT	MEDIUM		HEAVY
Extreme Wind Speed (Km/Hr)	160	160	180	160
Operational Wind Speed (Km/Hr)	120	120	126	120
Equipment Area (m ²)	9.5	14	9	22
Allowable Tilt Angle (Degree)	1	1	1	1

FAMILY 2 (60 TO 80M HIGH)

Family of square towers with heights ranging from 60m to 80m (60, 70 and 80 m), specially designed for worldwide cellular and microwave transmission with the 2 different loading capabilities of medium and heavy.

SPECIFICATIONS	Medium	Heavy
Extreme Wind Speed (Km/Hr)	160	180
Operational Wind Speed (Km/Hr)	120	126
Equipment Area (m ²)	14	30
Allowable Tilt Angle (Degree)	1	1



ROOFTOP STUB TOWERS

Triangular towers, with heights ranging from 9m to 21m, (9m, 12m, 15m, 18m and 21m) Specially designed for worldwide cellular and microwave transmission and composed of pipes and angle cross sections to ensure lightness of weight and facilitate mounting on rooftops.

SPECIFICATIONS	
Extreme Wind Speed (Km/Hr)	140
Operational Wind Speed (Km/Hr)	110
No. of Antenna (2.7x0.28x0.13m)	6
No. of Microwave (Ø 0.6m)	2
Allowable Tilt Angle (Degree)	1

ACCESSORIES

Accessories and ancillaries required to complement the different families of towers are regularly manufactured to provide protection, support antenna mounting & fixing and facilitate operation & maintenance. Among the various accessories we manufacture are Horizontal feeder gantries, Antenna support systems, Aerial mountings, Anti-climb guards, Special platforms, Lightning protection systems, Fences and Climbing ladders equipped with safety cages

DESIGN, STANDARDS & SAFETY

Premium quality GSM/ CDMA and Microwave towers, designed and constructed in compliance with International standards for RF tower, safety measures are implemented and full warranty provided.

STANDARDS

Tower wind loading and structural analysis are carried out in accordance with TIA/EIA 222-F, TIA/EIA 222-G, ASCE, AISC, BS and EN Standards, other International codes are also adopted when required by the client. 10 years warranty for all towers is offered, covering repairs, spare part replacement and fixes for damages caused by high speed winds up to fifty meters per second (3 second gust)

DESIGN

Based on accurate site based Meteorological and Geological analysis, specialized teams design and construct foundations and structures suitable for any location around the globe. Standard design specifications include Angle bolted construction towers, Shear connections Brace and leg joints, Nut, single coil spring lock washer & Bolts (material grade 8.8 according to EN 20898) and 5 nuts, 4 washers Anchor bolts (material grade S355 JR according to EN 10025). All parts are manufactured from galvanized steel (EN or BS standards)

SAFETY

Alkan products are designed to provide optimal site safety with minimal exposure to hazards, starting from production right through site installation and maintenance. The inclusion of anti-falling structures, internal ladders and indicative safety markings ensure safe and efficient tower installation. In addition, Alkan offers a comprehensive range of services to ensure the safest installation, these range from tower installation and assembly supervision, through to site maintenance and logistic and export advice.

NETWORK ROLLOUT SERVICES

Since 1998, **ALKAN CIT** has been a prime turnkey contractor providing end to end services for Telecom operators in MEA region. Having more than 1100 professionals distributed in Africa and ME with vast experience in all aspects of Networks rollout, our services include full technical support and consultancy services throughout all network rollout phases.

NETWORK PLANNING

- Select and qualify the best locations for network infrastructure,
- Develop plan of nominals to satisfy coverage requirements
- Determine line of sight availability with other sites
- Design Macro (Greenfield / Rooftop) and indoor "Micro" sites

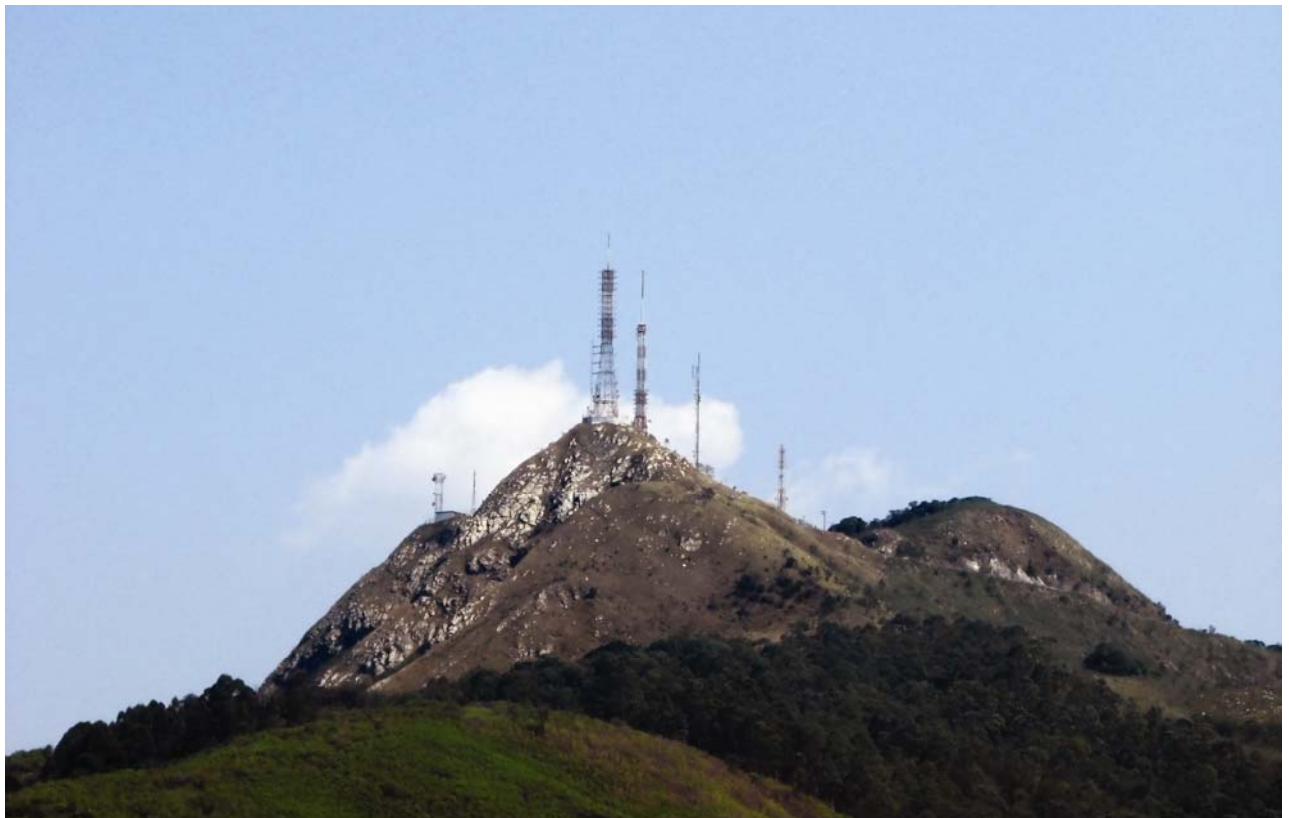
SITE ACQUISITION

- Survey and selection of options.
- Negotiate with landlords and sign (HOT) agreements.
- Title Documents collection, review, & validation.
- Acquire official permits for construction and environmental health & safety

SITE CONSTRUCTION

For (Green Field Sites - Rooftop Sites - Indoor Solutions Sites)

- Design and construct all civil works.
- Supply and erection of masts, stub towers, and towers.
- Supply and installation of Shelters, Shelter internal fittings & site electromechanical materials, RF materials and Steel or Brick Fences



FIBER OPTICS NETWORKING

In recent years it has become apparent that fiber-optics are steadily replacing copper wire as an appropriate means of communication signal transmission. They span the long distances between local phone systems as well as providing the backbone for many network systems, cable television services, university campuses, office buildings, industrial plants, electric utility companies and residential compounds. Fiber optic networks' high speed of operation, bandwidth, resistance to electromagnetic noise, long signal transmission and low cost of maintenance resulted in Fiber optics being the fastest growing global broadband technology with significant deployments occurring across the globe. **Alkan CIT** teams of highly qualified engineers and technicians led by finest technology experts, possess the skills and expertise required for implementing and maintaining mega fiber network and FTTX projects as well as providing turnkey solutions and material supply.

FIBER INSTALLATION

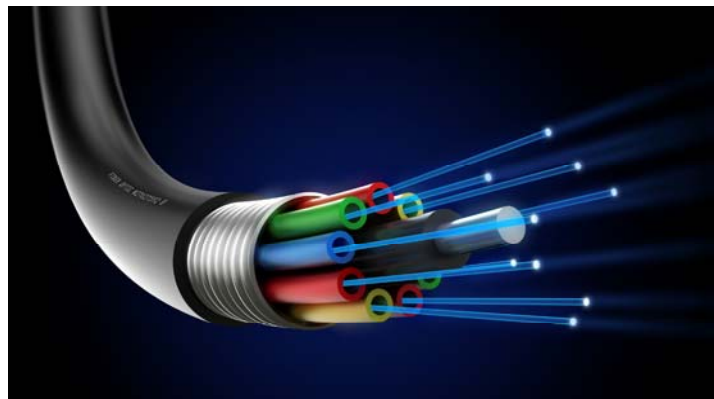
This meets the requirements of cable lying in different types of soils, crossings, jointing and testing of cables. Cables can be either laid using automated or conventional open trenching techniques.

- Excavation and back filling of trenches
- Laying HDPE/PVC pipes in trenches, jointing of pipe with water/air tight sockets
- Laying of warning tape
- Crossing bridges through attachment or existing bridge ducts
- Cable pulling/plowing in the Pipe
- Jointing of cables
- Testing and commissioning
- Pouring and installation of Hand holes
- Documentation and as built drawings

FIBER MAINTENANCE

Carrying out regular preventive Surveys as scheduled as well as handling environmental faults (corrective maintenance) as per agreed upon time frame in order to ensure a continuous and proper operation of the Fiber optic system

- Teams of engineers and technicians, ready on the move to handle faults around the clock (24/7)
- Local teams distributed along the routes to detect and fix faults within minimal response time as per SLA
- Monthly checks of dark fibers



OPERATION & MAINTENANCE

Alkan's Operation & Maintenance (O&M) suite of services was first introduced to the market in 2000 to provide comprehensive maintenance programs for Global System for Mobile Communications (GSM) and Code Division Multiple Access (CDMA) networks and to complement our integrated suite of network infrastructure services including planning, rollout, installation and commissioning. We provide preventive, corrective and recurring maintenance services to hundreds of telecommunication sites and facilities across the region. By attending to every detail, our proven and seasoned teams of project managers and master technicians eliminate the worry of critical processes related to management and operation of networks' sites, facilities and assets. Our services help network operators extend their regional coverage, enhance network performance and focus on core business. **Alkan O&M** teams comprise more than 570 master technicians and professional engineers, all backed up with state of the art technologies and technical training, offering 24/7 onsite services, teams include **Mobile maintenance teams** on the go teams, responding to regular requests, **Deployment Standby teams** 24x7 on call Emergency teams and **Site Resident teams** for critical locations, operate, monitor, analyze and immediately solve any situation. **Alkan CIT** offers premium quality O&M Professional Services for Tower Networks, rendered 24/7 to maintain the network elements and the associated BTS/Node B/BSC/COW infrastructure items of the Sites.

OPERATION SERVICES

Include managing and enhancing the physical network; incorporating new technologies and enabling new services such as the adoption of GPRS, EDGE and 3G. We provide variety of solutions dedicated for network infrastructure management thus enabling decision making, resource optimization, down time minimization and adoption of new technology for Signaling & Switching, Optical transmission and Connectivity.

MAINTENANCE SERVICES

Include on-site Maintenance whether Preventive, Corrective or Scheduled covering the base station equipment, telecom equipment, transmission and outsource equipment (air-conditions, shelters and their contents, power systems, tower/stub towers, generator sets, etc...) in addition to all site facilities and environment as well as interconnected hardware or devices



TENANCE SERVICES

GSM/CDMA TELECOMMUNICATION NETWORKS

Alkan CIT provides O & M services for some of the world's leading telecom operators, having a track record of consistent delivery on world class service levels and scoring high customer satisfaction scores, our services successfully address all different aspects of GSM/CDMA networks O&M including Hand-Over / On Air / RFS Acceptance Testing, Front Office and Helpdesk applications, BTS / Node B / BSC / Hub sites, Generator Sets, Solar Systems, Microwave (MW) & Transmission (TX) Systems, Mobile sites "Cell On Wheel" (COW), Towers and Steel Supporting Structures, Site Security and ownership issues

HAND-OVER / ON AIR / RFS ACCEPTANCE TESTING

Ensures compliance of network elements and equipment with technical specifications, services includes:

- Facts findings
- Visual inspection
- Testing to ensure safe and efficient operation
- Reporting and documentation

FRONT OFFICE AND HELPDESK

24x7 networks monitoring using the network management system in the Network Operations Centre (NOC). Network Surveillance consists of Surveillance, carrying out recovery actions and escalating failure situations

Maintains Operated Network performance information and liaises with help desk functions regarding performance technical questions and availability of Operated Network

Manages and coordinates the changes in the configuration of the Network and maintains up to date information

Responsible for day-to-day administration of information systems and databases necessary for network operation and maintenance

Serves as the central focal point responsible for receiving all technical complaints and act as a central unified interface with the operators' internal departments

- Network Surveillance
- Performance Management
- Configuration Management
- System Administration and Security Management
- Help Desk



BTS / NODE B / BSC / HUB SITES

The maintenance of BTS/Node B/BSC/Hub sites refers to daily inspection and inspection recording. Daily inspection is carried out according to the project requirements and the routine inspection criteria. Alkan Field Maintenance Team inspects the site periodically, and produces the inspection reports as required. If any exception occurs, FM team handles it promptly. If the problem needs to be escalated to a higher level of handling or involves safety pitfalls, FM team reports to the relevant heads of operator/vendor promptly.

PREVENTIVE MAINTENANCE

Periodical Preventive / Routine activities are rendered to the Sites' components to insure their impeccable operation in all perspectives, to avoid potential malfunctions that might affect the continuous operation or the lifetime of any of the constituent components.

CORRECTIVE MAINTENANCE

Rendered to recuperate malfunctions of sites' components requested by the Operator/NOC as a result of fault detection. The objective is to promptly respond, within an agreed upon response time, to the work order and permanently rectify the fault ensuring its minimal outage in order to resume complete site proper functioning.

GENERATOR SETS

PREVENTIVE MAINTENANCE

Periodic and as per manufacturers' recommendations field visits are conducted by operational field teams to check generators, replace consumable spare parts (i.e. oil filter, diesel filter, air filter and engine oil), perform health checks, identify potential faults and take necessary actions to rectify them.

CORRECTIVE MAINTENANCE

Carried out to fix or adjust significant equipment defects or failures, by replacement of defected parts. Field Operation teams are available 24x7 and will be located in the specified locations according to network distribution to carry out Corrective Maintenance activities.

GENERATORS FUELING

Fuel is a crucial element for generators operation therefore monitoring the fueling consumptions, planning of proper fuel tanks capacities and designs to ensure efficient operation of the Generators, are our specialization as we operate and maintain more than 560 Generators of different types and capacities starting from 30 KVA to more than 1000 KVA.

GENERATORS OVERHAULING

According to the manufacturers' recommendations to ensure smooth and efficient operation of the generator sets in all prospective from simple up to complete engine and alternator overhaul are carried out

SOLAR SYSTEMS

SITE INSTALLATION & MAINTENANCE

- System and material Transportation to the site
- System Array foundation Construction
- Site civil works
- Solar Energy equipment installation
- Preliminary and Final Acceptance Testing

MEASUREMENTS AND TESTING

Regular measurements and testing procedures for different system components, with proper replacement whenever needed, applies for:

- Solar panel cables & connections
- Battery system cables, connections and output
- Controller connections
- Inverter connections and output
- Air Craft Warning Light system

MICROWAVE (MW) & TRANSMISSION (TX) SYSTEMS

Antenna Faults (Total System Sweep)

Tests covering, Data of Sector Set: Length of (Lower Jumper / Feeder / Upper Jumper) & height/type (antenna), Feeder Size, Return Loss vs. Distance To Fault: Complete System to detect fault location (ID fault area), VSWR vs. Distance to Fault: Complete System to detect fault location (ID fault area) and VSWR vs. Frequency, Complete System to detect fault location (ID fault area) - Before & After

MW & Transmission Faults

- **MW ALIGNMENT:** CURRENT ORIENTATION MEASURES, MISALIGNMENT CAUSES DESCRIPTION, FINAL ORIENTATION AND HEIGHTS MEASURES, RF CABLE STATUS VISUAL INSPECTION
- **B - HDSL PROBLEMS:** CURRENT STATUS DESCRIPTION (LENGTH AND PATH), CAUSE OF THE FAULT DEFINITION, FINAL STATUS IDENTIFICATION (CHANGE IN PATH, LENGTH OF CABLE AND PROTECTION TYPE)

MOBILE SITES “CELL ON WHEEL” (COW)

Storing, maintaining, mobilizing and operating the mobile sites in accordance with the client plan to ensure optimum coverage for all special events that require extra coverage.

TOWERS AND STEEL SUPPORTING STRUCTURES

Towers, stub- Towers and other steel supporting structures are subject to various environmental conditions that may cause tension, compression, twisting and even corrosion, although they are all manufactured of long life materials, yet they need to be regularly maintained in order to ensure safety and ongoing efficiency. Alkan CIT through its civil works department performs the following inspection and maintenance services and applies any required repairs

- Steel Supporting Members Inspection & Maintenance
- Structural Inspection

ELECTROMECHANICAL SERVICES

Alkan CIT offers turnkey Electromechanical services for business leaders in all business disciplines. Our portfolio covers planning, design, and execution of all electromechanical installations according to customers' business needs; in addition to renovations and extensions of existing sites.

Alkan CIT provides quality Electromechanical services combining modern management skills with state-of-the-art technology and quality materials while maintaining high standards of workmanship to ensure clients' satisfaction with due consideration to Health, Safety and Environment. With proven track record of success in executing the Electromechanical works of various mega projects for many prestigious customers in fields of telecom, banking, public services and government within their office buildings, workshops, data centers, GSM switching rooms, NOCs, submarine cable landing stations, warehouses and more, we have acquired invaluable experience and expertise and supported our customer's ongoing success.

Services include

Architectural works

- Redesign & reconstruction
- Raised floors
- False ceilings
- Grid ventilation tiles



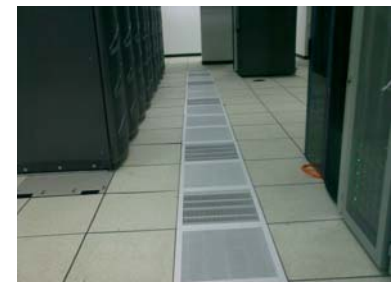
Electrical works

- Networking and distribution
- Power distribution panels
- Data networking & cabling
- Cable paths and trays



Mechanical works

- Fire fighting systems: detectors, alarms and sprinklers
- Plumbing
- Moisture, heat, temperature and smoke sensors and control panels
- HVAC: Central Air conditioning & heating



FACILITY MANAGEMENT

Alkan CIT provides turnkey solutions for all different aspects of the Facility management including: Construction Projects Management, Property Operation & Maintenance in addition to Critical & Vital operation Environments Management for Data Centers.

CRITICAL & VITAL OPERATION ENVIRONMENTS MANAGEMENT FOR DATA CENTERS

Stemming from our understanding of how critical the data centers & MSC are, we have developed the technical skills of our resident teams in order to become fully capable of dealing with and rectifying any technical problematic incident/failure of any component in the MSC including Building Management Systems, Electrical systems, Mechanical Systems, Light Current systems in addition to a bunch of mission critical standard services

ELECTRICAL SYSTEMS

- Electrical system (Power distributions)
- Emergency Power Supply Generator Sets
- Un-interrupted Power Supply (UPS)
- Batteries and Charges
- Lighting

MECHANICAL SYSTEMS

- HVAC (Chillers, AHU, FCU, Pumps, Dx units, etc...)
- Fire Fighting
- Elevators
- Irrigation

LIGHT CURRENT SYSTEMS

- Telecommunication
- T.V & Satellite Reception
- Public Address Voice Alarm
- Fire Alarm & Life Safety
- Access Control & Security
- Public access
- Clock
- CCTV

STANDARD SERVICES

- Initial site evaluations
- Power Quality Audit & Monitoring
- Battery Maintenance Programs
- Thermography services
- Critical equipment performance test
- Precision environmental climate control to data centers & switches
- Fire suppression stations testing

COMPLEMENTARY SERVICES

SITE SECURITY AND OWNERSHIP ISSUES

As a part of the site management we provide the overall management, co-ordination, administration and supervision for the effective and efficient realization of the site owner's relationships, power issues and security services.

WAREHOUSE LOGISTICS MANAGEMENT

Alkan CIT provides warehousing facilities across the region through its various service centers. Each warehouse is equipped with an automated system for material planning, stock control, inventory and supply chain management to track and predict part usage and keep stock of spare parts needed for the clients' beforehand thus providing premium O&M services. We have also established partnerships and alliance agreements with major technology vendors in addition to Alkan CIT's Alkan tower factory (ATF) the main supplier of communication towers, accessories and ancillaries for leading telecom operators across the region.



SAMPLE REFERENCES



SIEMENS



ALKAN CIT AROUND THE GLOBE

