Communications Regulatory Authority State of Qatar
هيئة تنظيم الاتصالات دولة قطر
P.O. Box 23404, Doha, Qatar ص.ب. ٢٣٤٠٤ الدوحة – قطر
+974 4499 5535 +٩٧٤ ٤٤٩٩ ٥٥٣٥
+974 4499 5515 +٩٧٤ ٤٤٩٩ ٥٥١٥

FACT SHEET

Automated Spectrum Monitoring System (ASMS)

General Specifications

- ASMS enables monitoring, investigation of interference, measurement of technical parameters, direction finding and location identification of wireless emissions in the radio frequency spectrum MF/HF/VHF/UHF/ SHF range (9 kHz to 40 GHz) per International Telecommunication Union (ITU) recommendations.

- Unmanned remote controlled stations are strategically located in North, South, West and Central Qatar for efficient monitoring and geolocation results.

- Client-server architecture makes similar future stations easy to integrate in ASMS i.e. the system is a scalable highly advanced ITU compliant monitoring system.

- Interconnected with a central National Control Center (NCC) at CRA's office through reliable, and highly scalable national multiprotocol label switching (MPLS) network, extended over fiber and 4G connectivity.

Architecture

- 4 x Fixed Monitoring Stations (FMS)
- 2 x Time Difference on Arrival (TDOA) Monitoring Stations
- 2 x Mobile Monitoring Stations (MMS)
- 1 x National Control Center (NCC)

P.O. Box 23404, Doha, Qatar ص.ب. ٢٣٤٠٤ الدوحة – قطر
+974 4499 5535 +٩٧٤ ٤٤٩٩ ٥٥٣٥
+974 4499 5515 +٩٧٤ ٤٤٩٩ ٥٥١٥

System Features

- Measurements of frequency, field strength, occupancy, bandwidth, modulation, direction finding, as per ITU recommendations.

- Dual bandwidth configuration offers reliable operation under different spectrum conditions: 40 MHz instantaneous bandwidth (IBW) allows rapid detection and location of spread spectrum, short duration signals; 4 MHz instantaneous bandwidth allows reliable detection of weak signals in a spectrum that is crowded with strong, nearby signals.

- Multi-channel DF system intercepts and locates analogue as well as complex digital signal modulations.

- Advanced monitoring analysis tools facilitates the complex analysis of digital / analog signals.

- All stations are provided with advanced tools of safety and security, surveillance cameras, fire protection systems and sophisticated online / real time warning systems.

Technical Specifications

Fixed Monitoring Stations

- Spectrum monitoring from 9 kHz to 8 GHz and direction finding of emissions within 300 kHz to 8 GHz.

- North & South sites are capable of Medium Frequency and High Frequency Direction Finding (HF-DF) based on the elaborate interferometry antenna with 9 element array and having Single Site Locator (SSL) capability.

- West and Central sites are configured with crossed loop antenna with HF-DF based on Watson-Watt technique.

P.O. Box 23404, Doha, Qatar ص.ب. ٢٣٤٠٤ الدوحة – قطر
+974 4499 5535 +٩٧٤ ٤٤٩٩ ٥٥٣٥
+974 4499 5515 +٩٧٤ ٤٤٩٩ ٥٥١٥

TDOA Monitoring Stations

- 20 MHz to 6GHz monitoring and DF with hybrid geo-location capability on integration with other stations in proximity.

Mobile Monitoring Stations

- VHF/UHF/SHF antenna arrays for monitoring and DF capabilities in a single structure dome antenna, mounted on a pneumatic operated 6 meter telescopic mast, for monitoring and DF from 20 MHz - 8Ghz in two vehicles.

- Active monopole antenna (9kHz – 30 MHz) along with crossed loop HF DF antenna (500kHz – 30 MHz), are also installed in two vehicles for monitoring and direction finding in MF/HF range.

- Extended monitoring DF capability of 40 GHz with portable monitoring systems (handheld spectrum analyzer and multiple frequency dependent directional antenna).

National Control Center

- Facilitates all the necessary software tools for performing monitoring tasks like field strength mapping, alarms, real time DF, spectrum analyzer, signal analysis, interface with Oracle database, hybrid/TDOA geolocation, documentation and recording of results.

- Host the database server and the online remote video / alarms surveillance system for the un-manned fixed monitoring stations are also integrated in NCC.

For more information please visit: http://cra.gov.qa/en

###