Land Mobile Services

What are land Mobile Services?

Land Mobile Service (LMS) according to ITU Radio Regulations is defined as an Analogue or digital two-way conventional or trunked radio communications system in which two or more fixed or mobile radio stations in the land mobile service communicate on one or more frequency (ies).

It is commonly used for critical communications by public safety organizations such as Police, Fire Service, and other emergency response organizations.

In addition to the public safety sector, LMS are also commonly used commercially in various industries including Mining, Transportation, Utilities, Security, Logistics and the Military. LMS typically consist of handheld portable radios, vehicle mounted mobile radios, fixed base stations and repeaters, and network infrastructure.

Most LMS in Ghana operate using radio channels in the following Frequency Bands:

HF Band (3 to 30 MHz MHz)
VHF Band (136 to 174 MHz)
UHF Band (380 to 450 MHz)

Applying for a Land Mobile Licence

You can apply for a Land Mobile Radio Station Licence or renew it by following the links below:

1. Guidelines for the Application of a Land Mobile Radio Station Licence
2. Guidelines for the Renewal of a Land Mobile Radio Station Licence.

Types of Land Mobile Systems

An essential decision for LMR system planners is determining which system architecture should be implemented to meet technical, operational, and environmental requirements. In general, LMR systems are designed using one of two architectures: conventional or trunked. The selection of one architecture over the other is based on a range of factors, including spectrum, technical features, operational requirements, and cost considerations.

Conventional Land Mobile Radio (CLMR) System

Radiocommunications system where two or more LMR stations communicate on a predetermined frequency channel(s), without the use of any controlling station and or control frequency channel. The two (2) operational modes associated with the CLMR are the Simplex and Duplex.

Simplex Mode

Simplex Operation mode means that two (2) Land Mobile Radio (LMR) equipment will both transmit and receive on the same frequency. Their transmissions will not pass through a radio tower, instead going directly from radio to radio. The two (2) radios must be within range of each other to communicate.

The processing of calls in the Simplex Operation Mode is not automated. Users simply 'push-to-talk' (PTT) on the channel (frequency) they have programmed on their mobile or handheld terminals. Users have immediate access to the programme channel(s) at any time and must listen for a clear channel before transmitting to avoid causing interference to another user in the group.

The coverage of a LMR network is limited by the range of its mobile terminals. A fixed base transmitter or repeater is used to increase the range over which users can communicate.

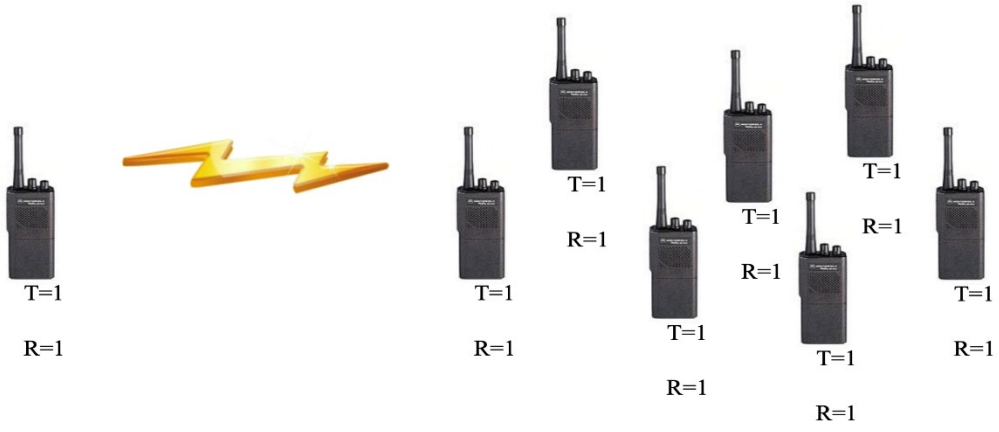


Figure 1. Land Mobile Radio Network in Simplex Mode.

Duplex Mode

Duplex operation Mode is a LMR network configuration which enables the use of a second frequency channel by the use of Repeater.

Some LMR networks are configured with Repeaters to provide extended coverage and has a higher Transmit power which is in the order of 5-20 times that of a Portable Radio. If the LMR network grows its user base or requires more talk-groups (i.e. more frequency channels) then there will be the need to add additional Repeaters and frequencies to the network.

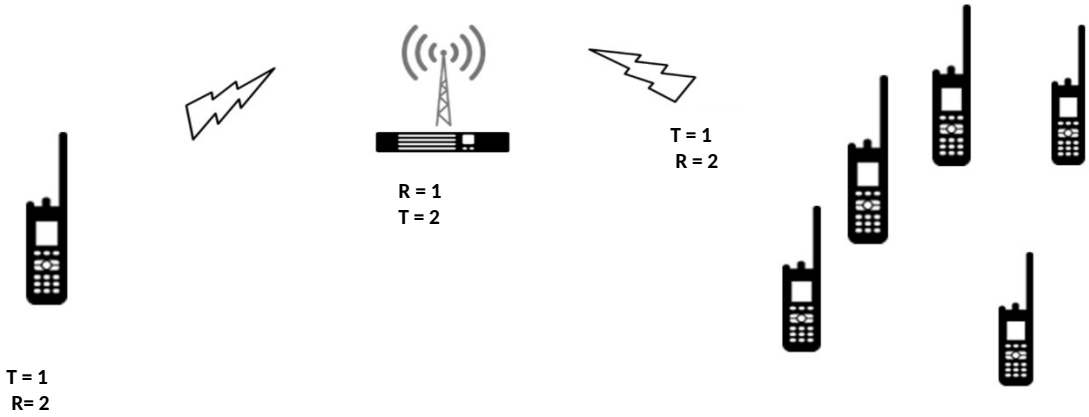
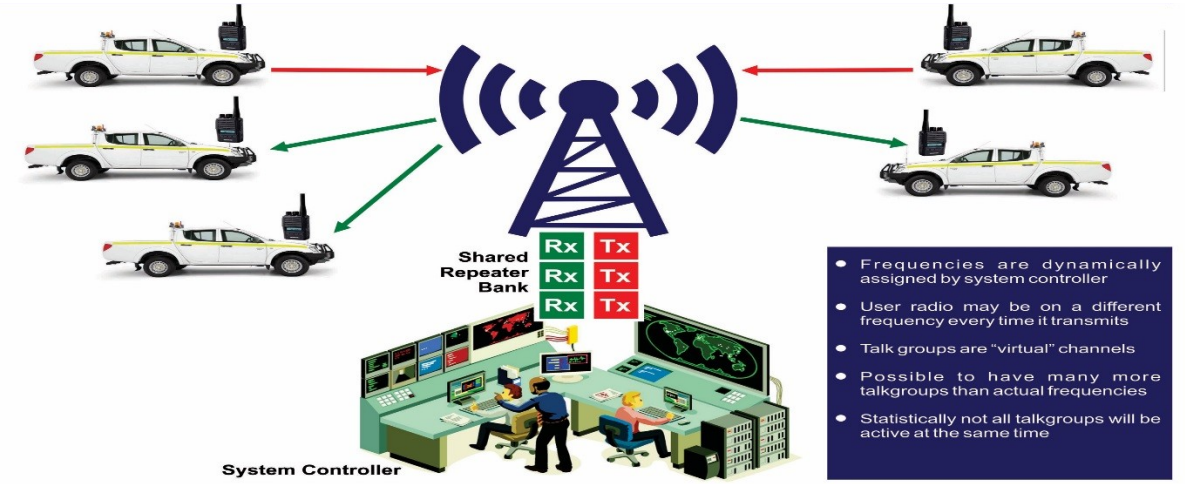


Figure 2.Land Mobile Radio Network in Duplex Mode.

Trunk Land Mobile Radio System

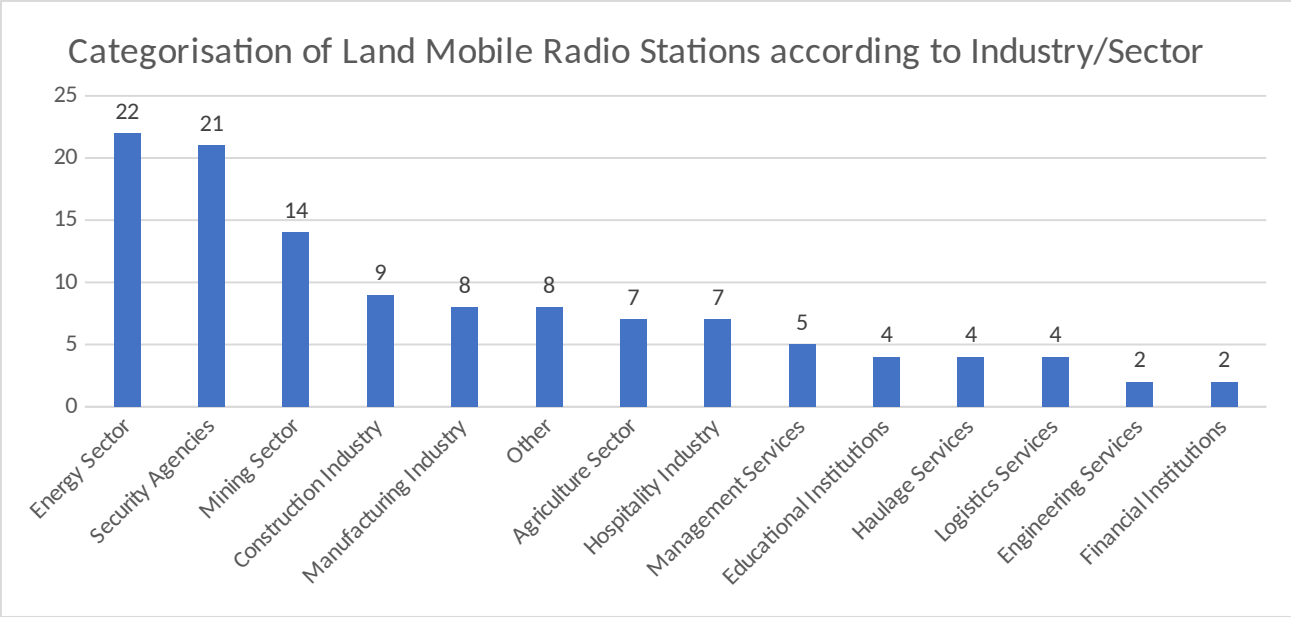
A trunked radio system is a complex type of computer-controlled two-way radio system that allows sharing of relatively few radio frequency channels among a large group of users. Instead of assigning, for example, a radio channel to one particular user at a time, users are instead assigned to a logical grouping, a "talkgroup". When any user in that group wishes to converse with another user in the talkgroup, a vacant radio channel is found automatically by the system and the conversation takes place on that channel. Many unrelated conversations can occur on a channel, making use of the otherwise idle time between conversations. Each radio transceiver contains a microcomputer to control it. A control channel coordinates all the activity of the radios in the system. The control channel computer sends packets of data to enable one talkgroup to talk together, regardless of frequency.



Statistics as at September, 2020

The Total number of companies with unexpired Land Mobile Radio Station Licences are One Hundred and Seventeen (117) Licencees. Kindly find below a table and bar chart categorized according to Industry/Sector.

Item No	Industry/Sector	Quantity
1	Energy Sector	22
2	Security Agencies	21
3	Mining Sector	14
4	Construction Industry	9
5	Manufacturing Industry	8
6	Other	8
7	Agricultural Sector	7
8	Hospitality Industry	7
9	Management Services	5
10	Educational Sector	4
11	Haulage Industry	4
12	Logistics Services	4
13	Engineering Services	2
14	Financial Institutions2	2
Total		117


Categorisation of Land Mobile Radio Stations according to Industry/Sector
25
20
15
10
5
0
22
21
14
9
8
8
7
7
5
4
4
4
2
2
Energy Sector
Security Agencies
Mining Sector
Construction Industry
Manufacturing Industry
Other
Agriculture Sector
Hospitality Industry
Management Services
Educational Institutions
Haulage Services
Logistics Services
Engineering Services
Financial Institutions