ENGINEERING AND TECHNOLOGY

The Engineering and Technology division comprises the Frequency Spectrum and the Radio Monitoring and Regions departments. The responsibilities of the Engineering and Technology division include:

- Support in the granting of frequency and station licences, certificates and authorisations

- Management and planning of access to the radio frequency spectrum

- Preparation of frequency band plans

- Investigation of radio communications interferences

- Assessment, adoption and management of technical standards relating to customer equipment and other devices.

FREQUENCY SPECTRUM DEPARTMENT

The Frequency Spectrum Department consists of following:

- Spectrum Management

- Radio-communications Frequency Licences

- Equipment Type Approval/Specifications

- Broadcasting Spectrum

Spectrum Management

The following notices were published with regard to the management of the radio frequency spectrum:

- Government Gazette No. 29351, dealing with a licensing framework for the most popular frequency bands and competing applications.

- Government Gazette No. 29685, dealing with the use of Personal Locator Beacons for emergency purposes.

- Government Gazette No. 29345, dealing with ICASA's decision on the sharing of the 800 MHz broadcasting frequency band between broadcasting and non-boroadcasting services.

- Government Gazette No. 29161, dealing with the use of Radio Frequency Identification (RFID) systems.

Radio-communications Frequency Licences

Frequency licences are issued to radio-communications operators ranging from large-scale users who hold multitudes of frequencies to single-frequency users who use the licences for two-way radios or burglar alarms. During the reporting period more than 5 100 new spectrum licences were issued. This brings the total number of licences issued during the year in review to more than 88 300. Approximately 5 550 licences were cancelled, either on request or due to non-payment.

Equipment Type Approval/Specifications

All relevant standard telecommunications technical specifications are assessed by the national Standards Technical Committee (STC), TC 80, which is governed by Standards South Africa (formerly the South Africa Bureau of Standards).

The Standards Liaison Committee of ICASA oversees the work undertaken by the STC TC 80, as well as that carried out by Standards South Africa's TC 73 Committee (Electro-magnetic Compatibility) and TC 74 (Communications Technology).

ICASA and Standards South Africa have a standing Memorandum of Understanding that governs their mutual cooperation and relationship. The approval of equipment and the approval of licences are done against relevant standards covering Technical Performance, Electrical Safety and Electro-magnetic Compatibility.

- *Telecommunication Line Terminal Equipment (TLTE)*

Telecommunication equipment that interfaces with the Public Switched Telephone Network (PSTN) is classified as Telecommunication Line Terminal Equipment (TLTE), sometimes also referred to as Customer Premises Equipment (CPE), Terminal Equipment or Telephone Attachments.

This category includes modems, all types of phones, fax machines, speech recorders and lightning protection devices, etc. One hundred and sixty-nine (169) TLTE licences were issued for the year under review.

- *Switching Systems (SWS)*

All types of telecommunication equipment that have one or more input ports and are capable of connecting to the Public Switched Telecommunication Network (PSTN), and a number of extension ports to which TLTE may be connected, as well as the ability to interconnect incoming and extension ports together for the purpose of exchanging electronic information, are classified as Switching Systems (SWSs).

This category includes Private Automatic Branch Exchange (PABX), Integrated Services Digital Network (ISDN), Automatic Call Distribution System (ACD) and Automatic Call Processing System (ACP), to mention a few. Fifty-two (52) SWS licences were issued in this category for the year under review.

- *Radio Frequency (RF) Equipment*

Radio Frequency Type approval relates to manually checking the performance of equipment from a provided test report with respect to a given standard and verifying compliance.

This category includes, amongst others, two-way radios, cellular phones and base stations, and short-range devices. Nine hundred and eighty-six (986) RF approvals were issued for the year under review.

- *Line Maintenance Organisations*

Two categories of Line Maintenance Organisations are licensed, namely Line Maintenance Organisation Type 1 (LMO-1) and Line Maintenance Organisation type 2 (LMO-2)

Line Maintenance Organisation Type 1 (LMO-1)

The organisation is licensed to install, alter and maintain ICASA-approved PABX switching units, as well as the associated extension-line cabling and terminal equipment. Seventeen (17) LMO-1 licences were issued for the year under review.

Line Maintenance Organisation type 2 (LMO-2)

The organisation is licensed to install and maintain telephone cabling and reticulation. One (1) LMO-2 licence was issued for the year under review.

Broadcasting Spectrum

The Broadcasting Spectrum Unit allocates and assigns broadcasting frequencies. Its activities for the year were:

- The Publication of the outcome of intention to use Broadcasting Channel 65 for non-broadcasting services (Government Gazette No. 29345).
- The processing of 136 broadcasting frequency applications.

MONITORING AND REGIONS

The Electronic Communications Act (ECA) gives the Authority the power to control, plan, administer, manage and licence the frequency spectrum. The Radio Monitoring and Regions (RM&R) department ensures effective spectrum management by enforcing compliance with enabling legislation.

The department conducts inspections and monitors the telecommunications and broadcasting industries to ensure that licensees comply with regulations, and with the terms and conditions of their licences. Regional offices (Pretoria, Johannesburg, Durban, Port Elizabeth, Cape Town and Bloemfontein) also ensure that licensees use their allocated frequency spectrum without interfering with other licensed users or services.

Through its enforcement functions, the department inspects dealers, seals and confiscates illegal telecommunication and radio equipment, and searches, traces, detects and locates undesired and interfering sources of electro-magnetic emissions. The department also undertakes verification and recording of the current spectrum usage and occupancy statistics, including progress on any migration process.

For the reporting year, the department's activities were as follows:

- Cross-border interference
- Compliance and labelling campaigns
- Licence compliance

- Maritime functions
- High-site Inspections
- Spectrum compliance
- State-of-the-art equipment
- Events

Cross-border Interference

Transtel experienced interference on the Radio Train order between Phalaborwa and Komatipoort. The department investigated the interference and traced its source to Mozambique. The source of the interference was a Code Division Multiple-access wireless telephone network implemented by the Mozambique fixed-line operator (TDM) in Maputo.

On the basis of the findings and subsequent notification of the relevant authorities, the Mozambican regulator (INCM) migrated all the licenced users, including TDM, out of the band. Further investigation by INCM revealed that there are unlicensed users in the band.

Subsequently, INCM requested ICASA to assist in the tracing of other illegal users. ICASA's Central Monitoring Office went to Maputo and did direction finding on these transmissions, and the results were given to INCM to do the necessary enforcement. A further request for assistance was received by ICASA for the same purpose.

Compliance and Labelling Campaigns

The regional offices conducted compliance and enforcement campaigns in their respective regions throughout the year. These compliance and enforcement campaigns yielded the following achievements:

- A total of 76 illegal radio transmitters and receivers were located and confiscated
- Illegal cordless phones were located and confiscated.
- Two illegal broadcasters were closed down and equipment was confiscated.

- Labelling and type approval campaigns in retailing businesses led to telecommunications equipment and radio-controlled toys being removed from the shelves of major stores.
- A total of 1 547 unlabelled cellular phones were confiscated.
- Warnings were issued to unlicensed operators in the Industrial Scientific and Medical (ISM) band.

It should be noted that some industry players are beginning to respond positively to this campaign and are now pursuing the type approval process. To date a total of 704 units of confiscated equipment have been returned after compliance with the Act had been proved.

Licence Compliance

Regional Offices have collected the outstanding licence fees and have sealed equipment on which fees are still outstanding so as to prevent any illegal usage that might pollute the spectrum.

The department closed a total of 3 718 files received from the Finance Department's Tracing and Collection section, including locally generated files. In addition, 489 radios were sealed due to non-payment of license fees, or at the request of the owner, to prevent them from operating. Confiscated equipment totalled 1 633 units.

Regional Offices have processed a total of 1 432 new licences, collecting application fees to the amount of R1 733 631.

Maritime Functions

ICASA's technical personnel who used to conduct marine surveys have been transferred to South African Maritime Safety Authority with effect from May 2006. However, they are still conducting Restricted Radio Telephone Operator and Global Maritime Distress and Safety System (GMDSS) examinations on behalf of ICASA in the coastal regions.

Two hundred and ninety-seven (297) GMDSS exams were conducted by the Durban and Cape Town offices, and exam fees collected amounted to R38 610. The coastal regions and the Pretoria region conducted 765 maritime-restricted radio telephone examinations and collected R 94 250 in examination fees.

High-site Inspections

Regional Offices also perform high-site inspections to proactively minimise interference and illegal transmissions. More than 200 high-site inspections were conducted in the past year. Audits were conducted and variations that were found resulted in the issuing of compliance notices. New sites were commissioned to ensure compliance to licence conditions and specifications. Alarm audits were also performed to ensure that there were no discrepancies in the number of users of the high-sites.

Spectrum Compliance

Out of a total of 661 interference cases, 446 have been cleared, representing a 67.47% success rate.