



4.2. Ensuring the Radio Spectrum Legal Use

4.2.1. Radio Spectrum Monitoring

4.2.1.1. Protection of High Priority Networks

Protection of wireless networks related to the protection of human life and public safety is a top priority for EETT. Indicative examples of such networks are the networks of the CAA, the Armed Forces, the Police, the FB, and the NFAC.

Civil Aviation Authority Networks

The Air Navigation Band (108 - 137 MHz) is located right next to the band used for FM radio broadcasts (87.5 - 108 MHz). As a result of this adjacency, there are potential risks of interference from radio broadcasts in the Air Navigation frequency band. This interference is usually due to the excessive power of some radio broadcasts, in combination with the installation of their antenna systems. This results in the creation of interference effects in radio aid frequencies and CAA communications, which prevent their smooth operation with negative consequences for the safety of flights.

From the above, it becomes clear that radio broadcasts should not take place in a reckless manner. Recommendation 1009 of the International Telecommunication Union - Radiocommunications (ITU-R), imposes the obligation for harmonisation of radio broadcasts with Air Navigation frequencies. This harmonisation results in the need to impose a set of concrete technical specifications, which must be met by radio broadcasting stations. These specifications concern mainly the frequency and position of broadcasting, the effective radiated power and the radiation pattern of transmitting antennas. In its entirety,

the set of technical specifications that radio broadcasts in each area must meet are usually referred to as "FM Radio Frequency Map".

Regarding Greece, maps have been drawn up for every Prefecture. Nevertheless, with the exception of the Attica Prefecture, these Maps have not yet been applied. Even in Attica, the organised Antenna Parks, provided by the law, have not been established yet.

EETT, in 2003, proceeded to relevant inspections in the entire Greek territory. Specifically, EETT units visited areas where the CAA has installed telecommunications stations—such as Mount Geraneia and Mount Akarnanika— as well as airports facing interference problems—such as the airports of Mytilini and Rhodes—with the aim to conduct a technical study on the existing situation, intervening decisively towards the problem's resolution. Furthermore, EETT's units intervened mainly in Attica, in real time, especially for the resolution of interference problems in CAA communications.

Other High Priority Networks

EETT performed on the spot inspections in areas where the Hellenic Police (Lamia, Evoia) and the NFAC (Patra) faced interference problems. The type of interference was instantly identified and the procedures for the resolution of the issues were scheduled.

Furthermore, EETT's supervisory role was important during the two EU summits in April 2003 in Athens and in June 2003 in Chalkidiki, where the heads of state of all member-states participated. EETT in collaboration with the Hellenic Police, intervened effectively wherever was necessary, with the mobile radio direction-finding unit, in order to protect the security frequencies from possible interferences.



4.2.1.2. Recording & Control of Radio Transmissions Technical Characteristics

Mount Hymettus Broadcasting Center

In addition to the State-owned radio-television organisation, the Mount Hymettus broadcasting center houses the majority of the licensed private radio stations. In 2003, EETT continued the broadcasting controls from the aforementioned center, in order to respond effectively to its controlling role, mainly as far as it concerns the security of air navigation communication and more specifically those of the Athens International Airport (AIA) "Eleftherios Venizelos".

Specifically, during the first semester of 2003, EETT completed the recording and marking of all broadcasting installations technical equipment of licensed radio stations in Attica, using the specific center. The data collected was used for the creation of an electronic broadcasting equipment file per station. The completion of the recording and marking of equipment rendered possible the tracing of radio stations that operated illegally. Following that, EETT collaborated with the competent Forest Authority, forwarding to it all the relative data, with the aim to commence the removal procedure of all illegal installations.

An important step towards the suppression of interferences in AIA's frequencies, were the daily systematic recordings of the radio spectrum conducted by EETT, in order to control the observance of the broadcasting technical specifications, by the 35 licensed private and public radio stations of the Attica prefecture, according to the FM Radio Frequency Map.

In order for this task to be facilitated, EETT's two Fixed Monitoring Stations (FMS) were used, which have been installed in its premises in Maroussi and in the AIA. In cases where violations were ascertained, either exceeded maximum Effective Radiated Power (ERP) limits, or maximum frequency deviation, EETT forwarded the measurements to the National Radio – Television Council (NRTC), which is competent for the imposition of administrative penalties on violators. Indicatively, EETT referred 90 cases of exceeding the maximum frequency deviation limits and 39 cases of exceeding the maximum ERP.

Remaining Country

In 2003, EETT continued the recording of operating radio stations outside Attica, aiming to imprint the country's radio spectrum. EETT's technical units performed recordings in the prefectures of Dodekanisa (island of Rhodes), Lesvos, Argolida, Korinthia, Voiotia, and Evoia.

From the results of the recordings, the following were ascertained:

- a) The installation of stations antenna systems in a disorderly and arbitrary manner.
- b) The non observance of the Frequencies Map and the operation of more radio stations than those provided in the relevant Ministerial Decisions (MD). Indicatively, we mention cases of radio stations that broadcasted from five different locations within the limits of the same prefecture.
- c) The above, in combination with the non observance of technical specifications and the dense installation of antenna systems in many broadcasting centers, resulted in many cases in the creation of interference effects in air navigation frequencies.

**Table 16**

**Comparison of the Number of Operating Radio Stations
with the Provisions of the Frequencies Map**

Prefecture	Number of Frequencies	
	Recording	Provision based on the Frequencies Map
Dodekanisa (Rhodes)	54	21
Lesvos (except Limnos)	28	9
Argolida	47	10
Korinthos	39	11
Evoia (North & Central)	33	8

In Table 16, we present the results from the survey of operating private radio stations, in comparison to the number provided by the Frequencies Map, for the private radio stations in every prefecture.

The existing situation requires a comprehensive overall approach and the application of systematic methods in order to resolve the problems that arise. The illegal installation and operation of non-licensed radio and television station entails also the violation of several other provisions of the legislation in force (trespassing on forest area, illegal connection to the power supply network etc.). Consequently, putting an end to this phenomenon requires cooperation of all involved parties –EETT, MTC, NRTC, Prefectures, Town Planning Authorities, Forest Authority, Ministry of Environment, Physical Planning and Public Works (MEPPPW), Hellenic Police- until the problem is finally resolved, through the establishment of the radio-television parks provided by the Frequencies Maps, organised in accordance with international standards. To this end, EETT forwarded the results of the recordings along with the necessary comments, to the competent bodies.

4.2.1.3. Private Mobile Radio Networks

In 2003, in view of the Olympic Games, EETT control

mechanisms on frequency bands assigned to PMR Networks, were intensified with the aim to ensure the unimpeded operation of licensed users and the effective management of radio spectrum.

The frequent illegal use of assigned frequencies was ascertained, resulting in interferences and obstruction of the smooth operation of legally operating PMR Networks. In all cases, the necessary actions for the imposition of penalties were scheduled.

Furthermore, throughout the Test Events, EETT technical units performed measurements and controls in all areas hosting them.

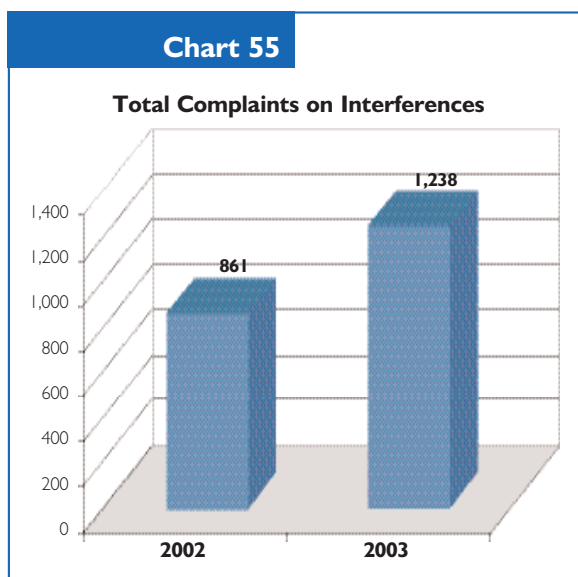
4.2.1.4. Complaints/ Interferences Management

One of the most important EETT activities in the sector of radio spectrum monitoring, during the year 2003, was the investigation of interferences complaints from spectrum users and citizens. In order to respond to the particularly increased spectrum monitoring needs in regions other than Attica, EETT cooperated with the Transportation and Communications Departments of the local Prefectural Authorities, on one hand, and with University Institutions, on the other. These organisations



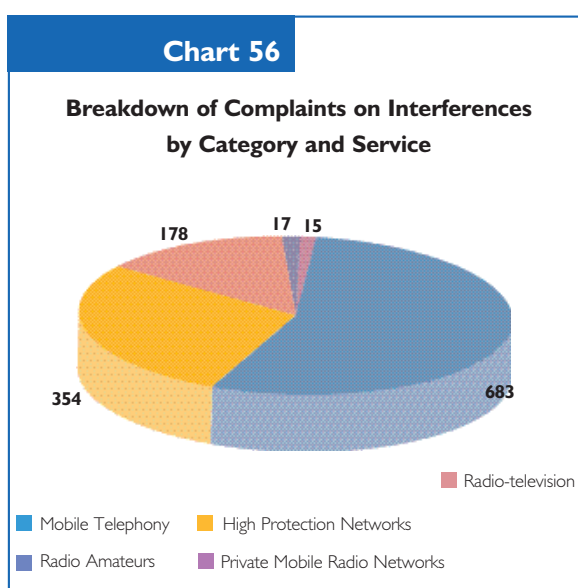
contributed significantly to the work of the Monitoring Department.

The total number of complaints for 2003 amounted to 1,238, an increase of 43.8% in relation to 2002, as it can be seen in Chart 55.



Source: EETT

The distribution of the aforementioned complaints per service, for 2003, is presented in Chart 56.



Source: EETT

In more detail, 354 interference cases were recorded in the aforementioned high priority networks, the majority of which concerned the CAA. In their total, the aforementioned interference cases in the Attica region, were immediately resolved. To this success contributed the institution of EETT 24hour Standby, according to which the monitoring operation is activated at any time during the day a serious interference problem that may cause hazards for the human life safety, arises. At the same time, technical units were dispatched in order to face similar problems in the rest of the country.

The cases of requests/ complaints that concerned mobile telephony antenna mast constructions amounted to 683. Following a detailed examination of the necessary documents, it was ascertained that 604 cases concerned licensed antennas and the applicants/ denouncers were notified of their legality. For the remaining 79 cases, which concerned non-licensed constructions, EETT's technical units performed 66 autopsies in total, in mobile telephony base stations. From those autopsies, 58 took place in Attica and 8 in other parts of the country. Furthermore, 4 cases were assigned to the Mobile Radio Communications Laboratory of the National Technical University of Athens (NTUA) and 4 to the Radio Communications Laboratory of the Aristotle University of Thessalonica (AUTH), whereas for 5 complaints outside Attica, the contribution of the respective Prefectures was requested.

In what concerns complaints for interferences in radio stations, these amounted to 178, out of which:

- 72 concerned the region of Attica and particularly:
 - 22 interferences complaints for licensed radio stations.
 - 18 interferences complaints for television stations.
 - 32 citizen complaints for existence of illegal radio stations, as well as interferences in

television receivers and other appliances, from illegal broadcasts.

The aforementioned complaints were investigated and the findings were forwarded to the NRTC and the MTC for the imposition of the administrative penalties provided by the radio-television legislation.

- 94 complaints concerned interferences outside Attica. These complaints were in their majority forwarded to the respective Prefectures.

At the same time, EETT became the recipient of a small number of complaints on interferences in PMR Networks (15). Emphasis was given to interference problems in the Radio networks of the Hellenic Police and the FB, for which a successful effort to resolve them was made.

Finally, EETT executed controls for the following cases:

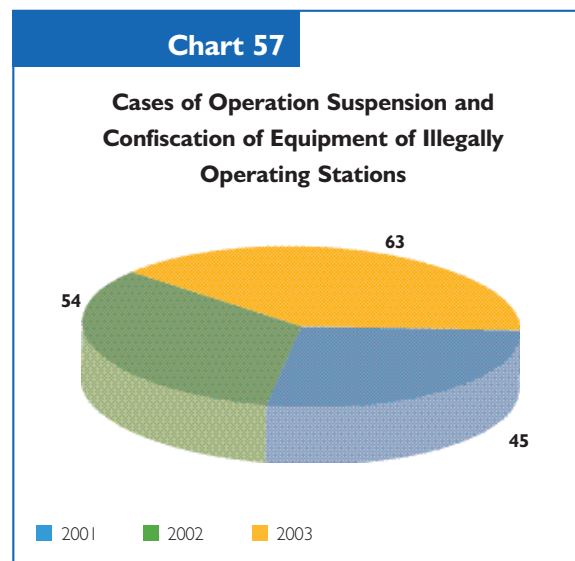
- 11 complaints concerning illegal radio amateur broadcasts and installations, as well as interferences in licensed radio amateurs.
- 6 cases in which radio amateurs were asked to verify the operation of their systems in accordance with their Licence terms.

4.2.1.5. Administrative – Penal Sanctions

The controls mentioned in the previous sections, in combination with the recordings of EETT monitoring stations and the relevant complaints received during 2003, led to the tracing and confiscation of broadcasting equipment of 60 illegal radio-television stations (36 radio stations and 24 television stations), out of which 6 were confiscated in the broadcasting center of Chortiatis in Thessalonica, following EETT’s intervention, in collaboration with the State Security Directorate of the Hellenic Police. Furthermore, the

equipment of 3 illegal PMR Networks was confiscated too.

The total number of undertakings that were ceased from operation and whose equipment was confiscated, is presented in Chart 57, according to which an increase of 16% was noted in comparison to 2002.



Source: EETT

In what concerns illegal installations of antenna systems, EETT imposed administrative fines for 68 cases of illegal antenna mast constructions (see Table 17).

Table 17

Total Fines for Illegal Antenna Mast Constructions

Providers	Number of Illegal Antenna Mast Constructions	Total Fines (euros)
VODAFONE	21	249,436
COSMOTE S.A.	29	327,784
STET HELLAS S.A.	16	179,740
INTRACONNECT S.A.	1	14,674
OTE	1	14,674



4.2.2. Organisational Infrastructure

EETT, given the increasing volume of complaints and aiming to manage them in a more effective manner, proceeded to the design and implementation of a network complaint database. The database enables the monitoring of a complaint's investigation. The electronic collection of data allows the exploitation of useful information and the extraction of statistical data such as complaints management times, complaints per service category and per prefecture. The aforementioned system is directly linked to the scheduling and organisation of daily actions.

The daily management of the submitted complaints requires the involvement of technical units of personnel with a significant differentiation in their duties (interrogation employees detached from the Hellenic Police, technical staff, drivers, technical experts). Furthermore, the use of a large number of equipment of varied categories is required (vehicles, portable equipment, fixed equipment).

EETT, for the effective management of the aforementioned human and technical resources, started in 2003 the drafting of specifications for the implementation of a resource management system of ERP type (Enterprise Resource Planning).

4.2.3. Installation of Technical Equipment

The establishment of the necessary infrastructures for the coverage of immediate control and monitoring needs was a basic concern for EETT in 2003. In this context and having already the experience from the installation and operation of the FMS in the AIA, during the previous year, EETT proceeded to the procurement and installation of suitable monitoring equipment in another two airports of the country, the airport "Nikolaos

Kazantzakis" in Herakleion of Crete, and the airport "Diagoras" in Rhodes.

The specific airports were chosen according to:

- a) The volume of traffic they support.
- b) The specialised radio aids they possess, such as the Instrument Landing System (ILS) in the airport of Rhodes.

It is worth stressing that, in Herakleion of Crete, due to the installation area of the FMS and the geography of the space, the station is also used for the monitoring of the spectrum in the wider Herakleion area.

The FMS include all the necessary equipment for the spectrum's monitoring in the 20 MHz to 1.3 GHz band, whereas there is the possibility for a future expansion of the monitoring band up to 3 GHz. The support software of the FMS provides remote control possibility of the station's operations from the Control Center, located in EETT's premises in Athens. Remote control allows the automatic execution of Monitoring Work Plans (MWP) from the stations at predefined intervals.

4.3. Placing on the Market and Use of Telecommunications Equipment

4.3.1. Completion of an Up to Date Regulatory Framework

The status of placing on the market, free movement and use of RTTE, is defined on a pan-European level by Directive 1999/5/EC of the European Parliament and of the Council of the 9th of March 1999. Presidential Decree (PD) 44/2002 harmonised Greek legislation with the aforementioned Directive. According to PD 44/2002, EETT was assigned the responsibility for issues of placing on the market, free movement and use of RTTE.