



Electronic Communications Committee (ECC)
within the European Conference of Postal and Telecommunications Administrations (CEPT)

GUIDANCE FOR RADIO USAGE AT SPECIAL EVENTS

Vilnius, February 2004

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PURPOSE

OBJECTIVE OF THE GUIDANCE

The aim of this ECC Report is to provide guidance to operational CEPT Administrations for the planning of radio usage before and during special events such as; G8 Summit, The Olympic Games; The Tour de France etc, in order to minimise the risk of interference, especially to safety of life services. It also enables host organisers, broadcasters and other interested radio users to co-ordinate their requirements with the Authorities and to take into account the differences in rules and regulations between CEPT member countries.

1 INTRODUCTION

To help all involved organisations (users, administrations, suppliers etc) certain definitions have to be stated to enable all participants to understand the scale of an event and give them an idea of the level of planning needed to achieve a successful outcome.

The following sections consist of a checklist of suggested actions based on the experiences of administrations already routinely engaged in this type of work.

1.1 Definition of events

In planning for the communications needs, administrations need to consider the scope of the event. The following type of events can be categorised:

Major Event (also known as a **Special or Grand Event**): This is the primary subject of this paper and can be categorised as follows:

- a. National: where radio use is in one country and where spectrum may be affected in bordering countries. It is possible that cross-border interference could be caused and neighbouring countries need to be informed. Also where radio use is high enough to warrant the attendance of co-ordination team.
- b. International: where radio use is in more than one country but where spectrum use may be different in each country. CEPT Administrations in each country will need to co-ordinate frequency use to make sure that interference is not caused to event and non-event users.
- c. Trans-national: where one event takes place in neighbouring countries and where elements cross borders requiring the use of harmonised frequencies. Full co-operation between all participating administrations will need to be considered throughout the planning and running of the event to ensure that common frequencies can be used wherever possible. They may need to work as one organisation to achieve this.

Minor event: There are regional as well as local events for which temporary licences are granted in advance without participation of licensing staff on site.

It is recommended that administrations need to look at the type of the event. They can be categorised as follows:

- Sporting: crowd control, broadcasting, single or split (Olympic) venues
- Cultural event: crowd control, VIP management, radio microphones
- Inter-governmental event: security, protest handling, media
- Public event (e.g. Pope's visit, Head of State visit,...), security, media, crowd control

The location of the event will have a bearing on the amount of planning involved (one place or several places, indoor or outdoor, ...) such as:

- Stadium, circuit, Olympic complex
- City, country side, closeness to airport
- Hotel, conference centre,...

In the case of a visiting Head of State and/or Officials the political implications of the event should be studied before the event, taking into account close protection communications.

Special or Grand Events can be important, either because of the large use of spectrum, the economic or political importance to the host country or a combination of all these issues.

In the case of a major event this planning could start several years before the event. In the case of Olympic competitions the radio communications plan may start as soon as the plans are drawn up for the construction of the venue.

In most cases the area around the short event will be restricted for only authorised people. Therefore the Co-ordination team should be accredited (e.g. carrying a badge) by the organisation of the event to enter the restricted area.

1.2 Planning the stages of the Special Event

Co-ordination team

A special co-ordination team should be formed for each event. It is suggested that the following specialist would be required:

- General co-ordinator (responsible for liaison between the administration and other parties. They would chair the co-ordination meetings. At single events they may also be the project manager)
- Project manager (for one specific event) (responsible for the day-to-day management of the staff and resources and of the work to be done. In smaller events may also act as general co-ordinator)
- Frequency manager
- Field officers (enforcement staff, technical staff, monitoring, tracing interference ,...)
- Administrative staff (planning, issuing licences, secretariat,...)
- Logistic support (vehicle, equipment, accommodation,...).

Plan of Action

The co-ordination team should define the type of event and is also requested to prepare a plan of action. The plan of action should be presented to the organiser of the event and other involved organisations, such as police and local authorities for comments and approval. Aspects of the planning of frequencies and specific responsibility are also important issues.

The project manager may write a framework note that describes the organisation of the team, its working procedure and the schedule of the event (example in Annex 2).

Co-ordination Meetings

The objective of the co-ordination meeting is to make sure that everybody is aware of the problems of frequency use. Some of the following elements are worth considering:

- Organisation of the meeting: invitation, documents, information, forms,...
- Participants to the meeting (on case by case basis) :
- Organisers of the venue
- Local administrative offices (local council, coastguard, aviation authorities,...)
- Organisers of the event
- Security services of the organisers
- Participants, competitors, teams etc.
- Media
- Sponsors
- Safety and emergency services
- Telecommunication operators (mobile phones)
- Other Governments if necessary
- Others (sellers, renters of radio equipment,...)

The co-ordination team should set the priorities between groups of users to deal with frequency planning and interference cases adequately....

The following order is therefore recommended:

- Priority 1: Safety and governmental (Officials) including radio enforcement teams
- Priority 2: Site security, organisation, teams,...
- Priority 3: Organisation (other than site security), host broadcaster ,...
- Priority 4: Other users.

1.3 Frequency planning

Several CEPT administrations have for a number of years been experiencing interference from unauthorised use of radio transmitters by foreign teams and organisations at international events. The unauthorised use has even interfered with national safety services and thus endangered safety of life. The reason for this is that the foreign teams have taken along and used their own radio transmitters without contacting the national telecommunications administration in the visited country in advance. When these unauthorised users have been checked, the explanation has often been that the users have not known that a licence or frequency assignment is necessary, even though it may be required in their own country! Most cases of interference could be avoided if the users contact the national telecommunications administration in the visited country in advance.

Additional technical guidance on this issue may be found in ECC Report 02 and ERC/REC 25-10 (Rev. Feb. 2003). These documents provide the list of recommended frequency tuning ranges where the assignments to temporary use of equipment could be made as well as definitions of different types of radio communications equipment that may be used for these purposes.

Planning objectives (ESSENTIAL!):

It is essential that frequency planning should be carried out in plenty time before the event taking into account the following aspects:

- Satisfying spectrum demands (with regard to the location of the event)
- Securing the access to the spectrum for the event
- Collecting the fees and issuing licences before the event
- The frequency plan must be established taking into account the priority defined in the last paragraph of 1.2.

In normal circumstances re-use distances between users of a frequency gives the users a good quality of service. This will degrade during the period of the event and it may be of benefit to the administration to publicise the fact with a reminder that their quality of service will return.

1.4 Application Form

The application forms for temporary use of radio equipment should be available in both English and the host administration national language. An example is given in Annex 1. The application form should be available on the Websites of the Administrations and the ERO website.

A list of contact points, responsible for granting licences and Enforcement, can be found on the ERO Website.

The latest official ECC List A can be downloaded from www.ero.dk (CEPT Administrations → Official list) in MS Word format.

In some cases it is helpful to have contact points for the broadcaster associations. Information about the European Broadcasting Union (EBU) can be found at www.ebu.ch where there are also links to other related sites.

1.5 Licensing

The organisations participating in short term events abroad and intending to use their own radio equipment should be aware that a licence or frequency assignment might be required. The procedure for applying for a licence or frequency assignment needs to be as simple as possible. The user should be supplied with information concerning the type of technical and administrative details required by the administration.

The user must also be provided with information on where to send the application. It is therefore recommended that administrations should make available a simple information sheet and application form.

1.5.1 Short-term licence (temporary Licence)

The application form for (temporary) use of radio equipment should be completed at least four weeks before the start of the event to give the administrations time to process the licence. The licence authorities will mostly respond within two weeks by granting a short-term licence (temporary licence). In some case a licence can be refused due to expected or calculated interference. In most case the licence authorities will contact the applicant for alternatives frequencies.

1.5.2 Fees

For the use of radio spectrum at short events Administrations normally issue short-term licences (temporary licence) for which fees are being charged. A survey was carried out in early 2003 with responses from several CEPT member countries respectively¹.

The survey showed the following:

- In a majority of CEPT administrations fees for short events were calculated using a daily rate, a monthly rate or a rate for a specific duration in between.
- The number of transmitters was a criteria used for the fee calculation by at least half of the administrations for all applications considered (e.g. PMR, Telemetry, SNG, SAB/SAP, Fixed links).
- The number of frequencies/channels required was used widely for fees for SNG, PMR, Telemetry and Fixed links while less than half of administrations used it for SAB/SAP applications.
- A majority of CEPT Administrations based their fees on several parameters as opposed to using only one parameter such as e.g. piece of radio-equipment, transmitter, time slot or frequency channel.
- Fee amounts calculated for specific examples for each of the above applications showed that in most CEPT member countries there was no difference between fees charged for events of a few hours and fees charged for events of up to one or two weeks.

Fees for short events currently differ greatly from country to country and a number of criteria are used by Administrations for calculation. Although there is no unique formula for setting fees, Administrations need to take account of the following key issues and decide:

- To base the fee calculation on one or several parameters;
- To use a daily or monthly rate, or other specific duration in between (e.g. 14 days);
- To charge per frequencies/channels or per number of transmitters;
- To differentiate fees for different types of applications.

When considering fees for special events Administrations need to strive towards simplifying as much as possible the way fees are being calculated and there should be transparency about how the costs are recovered and how the fees are being set. This would facilitate the task of applicants for special events authorisations in Europe as they currently face very diverse and sometimes complex fee charging systems.

It would also help administrations account for their fees and charges while making it easier to charge for special events applications.

1.6 Labelling

In some CEPT member countries (e.g. France) the radio equipment would bear special 'event' sticker, which is related to the licence. If stickers are used they must be visible and not easy to copy (different colours and designs for each event).

2 BEFORE THE SPECIAL EVENT

This paragraph corresponds to the work done several months before the event itself and is considered by many experienced officers to be an essential part of the preparation and execution of the spectrum plan. There are a number of considerations:

Defining the area

The planning team will need to define the area to be controlled including:

- Local topography
- Route between venues and/or different areas chosen for the event
- Complexity of the radio installations going to be used (in some areas there may be lots of small transmitters).

Defining the need for spectrum monitoring:

What circumstances would you spend more time monitoring? For example:

- If there are only a few free frequencies available
- If there has been no monitoring and/or enforcement actions for a long time in that area?

¹ WGRR PT RR8 sent out a questionnaire to all CEPT administrations on 10 January 2003 and responses were received from 24 Administrations. The questionnaire aimed at collecting information on how fees for short-term events are set up and respondents were also requested to provide fee calculations for specific examples developed for different types of applications. A report containing the complete results of the survey is published separately in Q3 2003 (Ero web site [www.ero.dk]).

Identifying the "Zero State"; which is the condition of the spectrum before any special event systems are put in (not mandatory). This enables the Authorities to:

- Verify existing use and identify users
- Suppress illegal use (seizure, warnings, publicity,...)
- Ensure the availability of frequencies you are going to use for the event
- Identify free frequencies (closed channels, guard bands ,...).

Spectrum monitoring issues

- Spectrum monitoring should start several months before the event
- The duration would be one to two weeks (working days) to analyse traffic
- Spectrum monitoring would continue during the planned hours of the event
- The same team would monitor before and during the event (except the frequency manager).

Often, local officers know the users who often break the rules and these can be targeted by the enforcement teams using the monitoring results produced during the "Zero State" operation.

3 JUST BEFORE THE SPECIAL EVENT

This paragraph corresponds to the work done during the week before the event itself.

3.1 Logistic aspects

Accreditation for all staff and vehicles should be checked at this time to ensure that staff can get anywhere that you need to at any time. There are a number of specific points to remember:

Installation of the control centre

This could be a camper van, rented office cabin or permanent office suite at the venue. The co-ordination team should define the location of technical support vehicles and ensure that they are secured in a car park when not in use. The installation of power supply, radio networks, telephone and fax should be checked.

All relevant documents should be available such as:

- Contact points list
- Licensing questionnaire
- Labelling documents
- Framework note
- Permanent frequency plan
- Temporary frequency plan
- Copy of event disaster plan.

Staff team

- Co-ordination team mentioned above
- As many staff as required to install the control centre.

Technical resources (optimum configuration)

In the control centre it is recommended to have measurement facilities :

- A spectrum analyser (measurement range: 9 kHz – 2 GHz);
- Test equipment.

Technical support in the vehicles

Technical support in the vehicles can be:

- Receivers;
- Filters;
- Spectrum analyser;
- Signal tracing equipment (portable);
- Field strength measuring equipment.

Accreditation

The co-ordination team should have a badge(s) for entering the restricted area of the event.

3.2 Spectrum monitoring

The provision of the following resources would be an asset.

- A fixed monitoring (remote) station if one is close (this may or may not have Direction Finding (DF) facilities, see below)
- Direction Finding may be of three different types and, depending on their locations, can be of great use:
- Fixed – where the DF is housed in a building with a permanent tower. May be remote controlled
- Static – where the DF is fitted in a vehicle with a telescopic mast and can be moved with sufficient warning. May be locally or remote controlled.
- Mobile – where the DF is mounted in a vehicle where bearings can be taken and the vehicle moved to another location or where bearings can be taken on the move enabling the crew to be able to drive to the source
- A separate mobile communications network, preferably with speech privacy.

The co-ordination team should not rely on public telecommunications networks such as GSM due to the heavy use particularly in an emergency situation. Privacy or encryption systems should be used wherever possible as sensitive frequency and operational information for event security may be passed over the air and could be intercepted by unfriendly parties.

3.3 Frequency assignment (last minute requests)

There are always customers who forget vital elements of their plan and we should be in a position to accommodate their requests by:

- Identifying spare channels
- Processing frequency requests.

CEPT Administrations should consider indicating to foreign applicants a simple explanation of their main radio legislation and the penalties for infringement of the rules. This may be done by information sheet or guidance booklet. There are often last-minute applications and these need to be accommodated. The CEPT administrations have different methods of granting authority for frequency use. For instance the "technical agreement" given in France or "temporary licences" may be issued on site in UK. Other countries have different methods of granting authority to frequencies.

However, in all CEPT member countries, a temporary licence has to be issued for temporary use.

3.4 Inspection

Once systems are licensed it is suggested that there is an easy way to verify that users have conformed to the instructions. This could be by keeping lists or physically marking equipment. The following list is probably the minimum needed and could be expanded, dependant on time and staff resources.

The main criteria to check on an inspection of radio equipment are;

- Frequency
- Power level
- Bandwidth
- Spurious (partly with spectrum analyser).

In some CEPT member countries, one of the ways to avoid double checking consist of affixing a special event "sticker" on the devices as soon as they have been inspected. Another way would be to keep a database of all inspected equipment.

If the inspection of the radio equipment proves that the licence parameters are met, further investigations with respect to EMC (89/336/EEC) and R&TTE (99/5/EC) Directives need not be checked, as it is unlikely to cause interference given the environment and length of use.

Special Events do not involve the usual method of working. Users of radio equipment may come from non-EU countries with their own devices and frequency planning is made on case by case basis, for a short term period to avoid the risk of interference.

During the inspection practical information can be collected in case of interference, such as:

- Name of the user/organisation
- Mobile phone number(s)
- Frequency assigned
- Channels installed but unused

- Bandwidth
- Make and model of the equipment.

3.5 Satellite News Gathering (SNG) transportable earth stations

These are used by news media organisations to provide live feeds and are likely to turn up anywhere, often without notice. All SNG terminals should hold authority to operate but need clearance from the satellite operator and, importantly for radiocommunications administrators, site clearance to operate from a particular location.

This request is normally circulated to aviation, military and emergency authorities, but clearance is refused if the earth station is too close to sensitive installations or aircraft flight-paths.

In some CEPT Member countries (e.g. The Netherlands and United Kingdom) a 'Site Clearance Procedure' is obligated before the up-link transmission can be started. Therefore, it is recommended that foreign SNG operators should contact the Administrations in an early phase in order to be informed about the legal use of SNG terminals. The addresses of the CEPT Administrations can be found on the ERO website: www.ero.dk

3.6 Other Activities

These activities will depend on the time available to staff and managers but can have an effect on the overall quality of the communications at an event especially where a number of radio systems are grouped closely together.

The issues will be:

- Awareness of electromagnetic compatibility and R&TTE issues (limited practical tests) due to the effect of adjacent systems
- Surveying the progress of the installation of radio equipment

It is wise to observe the quality of equipment and antenna installation. Some installers cut corners which leads to poor installations and increased interference problems when the event starts

- Taking part in the complete test of the safety command centre (about 2 days before the event)

4 DURING THE SPECIAL EVENT

Even for regular events the amount of work can vary from year to year. Remember that whilst team are concentrating on the work within the venue problems can occur (either because of the event or not) that staff must be available to work outside the security and crowd perimeter and to know all the local roads to avoid traffic jams. So, some points to take into account:

Ensuring availability of co-ordination staff

- Permanent contact point (out-of-hours arrangements)
- 'Staffing duty rota (register)'

Receiving and logging complaints:

- Reactive response
- Making a note

Permanent survey to prevent and solve interference complaints:

- Proactive response
- Visual and spectrum monitoring

Legal proceedings (depending on local legal rules)

- Reporting offences
- Seizing equipment (shortest delays to get the judiciary authorisation)

In an emergency where there is harmful interference, switching off offending equipment at once and regularising the procedure as soon as possible afterwards is seen as the best way.

It is recognised that at some event locations each organisation may operate strict policies to control the use of radio within the boundaries of the particular venue. An example is within a sports stadium where the organiser may insist in seeing valid radio licence.

5 AFTER THE SPECIAL EVENT: DEBRIEFING

It is essential that the planning and execution of the plan is reviewed and lessons learned from mistakes and those of other organisations that affect your work. It is important to identify the things that went well as this has an effect on the morale of the staff and make them keen to work well at the next event. These are the areas to work on:

Debriefing meeting applicable:

- For the staff team
- For the participants of the co-ordination meeting

It is recommended that a “debriefing” Report of the event should be written. The Report should contain the following information:

- An overview of the event as a whole;
- A statistics of frequencies assigned;
- A statistics of labelling affixed and licences issued;
- A statistics of interference complaints;
- Other relevant information of interest.

The ‘debriefing’ Report should be sent to the participants of the co-ordination team, the organisers of the event and applicable broadcasting organisations.

- Legal proceedings (depending on local legal rules)
- Regularising legal actions started during the event
- Responding to complaints about staff interventions
- Preparing next event
- Analysis of unsolved problems to improve future events (learning from the mistakes: changing procedures, rules,)
- Deciding the level of involvement in the future

6 CONCLUSION

Proper planning is essential for a successful short event to favour a proactive approach instead of limiting the actions to problem solving during the event. Most of the work must be done before the event. Indeed, it is very difficult to intervene during the event because of restricted movement around the venue (additional security, crowded area,...). It is also essential to have the full co-operation with the event organisers.

ANNEX 1: GENERIC APPLICATION FORM FOR TEMPORARY USE OF RADIO EQUIPMENT (SPECIFICITY ACCORDING TO NATIONAL LEGAL RULES)

APPLICATION FOR TEMPORARY USE OF RADIO EQUIPMENT OUTSIDE YOUR OWN COUNTRY

Quantity	Venue location	Make type	Category of equipment. <i>See below</i>	Output power	RF bandwidth Data rate	Channel separation	Frequency range covered by the equipment	Proposed Frequencies	<i>For official use:</i> Assigned Frequencies
							Transmit/Receive	Transmit/Receive	Transmit/Receive

<p>FB - base station, repeater</p> <p>MB - mobile equipment</p> <p>HP – hand portable</p> <p>MW - microwave equipment</p> <p>WM - wireless microphone</p> <p>MV - mobile video camera transmitter</p> <p>AB - airborne use</p> <p>SAP/SAB – command/audio equipment</p> <p>SNG – Satellite News Gathering</p> <p>Enter one or more abbreviations in the category of equipment column. Define additional abbreviations below, as needed.</p> <p>(if needed the coverage area should also be mentioned)</p>	<p>Sports team [] Broadcast [] Press [] Other (specify):</p>
	<p>Organisation:</p> <p>Address:</p> <p>Country:</p> <p>Responsible person:</p> <p>Phone: Date:</p> <p>Fax: Sign:</p>
	<p>Responsible Person and Contact</p> <p>Address during Phone:</p> <p>The event: (during the event)</p>
	<p>Event and Time period Applied for:</p>

Please use typewriter or block letters. Additional information can be given on the back of this form.

ANNEX 2 : EXAMPLE OF FRAMEWORK NOTE

Example of framework note

(To be drafting before any actions)

Nature of the mission

- *Heading and date of the event.*
- *Operating period of the Co-ordination team.*

Composition of the inspecting team

Staff identification

Names, mobile phone numbers and vehicle information of all the staff of the coordination team.

Resources on site

- Location of the Command Post (PC) of the coordination team
- Fixed resources (Fixed monitoring stations available).
- Mobile resources (Type of mobile vehicle).

Reference documents

- Dates and participants of preliminary meetings (Minutes on diskette)
- Necessary contact points (Names and phone numbers: prefect, organizers, police, ...)
- Lists of the permanent and the temporary frequencies (diskette)
- Table for auxiliary broadcasting equipment (diskette)
- Application form (national language and English). (diskette)
- Framework note (diskette)
- Copies of monitoring form (diskette)
- "Event" Stickers and database of authorised equipment (diskette)
- Copies of technical reports (diskette).

Mission priorities

Spectrum monitoring before the event

- Listing of the frequency bands to be monitored: Safety services, GSM, for temporary frequency allocation and for broadcasting auxiliaries.
- Investigating unauthorized emissions and unauthorized equipment: Identify users of each unauthorized emission in order either to stop them or to regularise them.
- Monitor frequency bands (as listed) where illegal equipment may be found.

Spectrum Monitoring during the event

Actions in accordance to the defined priorities

Monitoring of temporary frequency attributions

- Carry out monitoring of the temporary emissions in order to detect any source of interference and of the correct use of these frequencies according to the schedule. (CF. list of the temporary authorisations of frequency).
- Specific monitoring of some permanent frequency usage (*PMR close the site, Civil aviation,*).

Investigation of unauthorised emissions

- Identify users of each unauthorized emission in order either to stop them or to regularise their situation.

Report

Preparation

The project manager or general -coordinator is instructed to collect all the information necessary for the drafting of the final report (the teams' daily Report, monitoring reports, technical reports,...). The report must be completed within the standard time frame.

Completion

Include photos when possible and some background information about the event in the final report.

ANNEX 3: BIBLIOGRAPHY

- *ECC (02) 15 REPORT on market surveillance, radio equipment inspection, spectrum monitoring and enforcement aspects of these activities*
- *ECC Report 02 "SAP/SAB (incl. ENG/OB) spectrum use and future requirements"*
- *ERC/REC 25-10 (Revision February 2003) "Frequency ranges for the use of temporary terrestrial audio and video SAP/SAB links (incl. ENG/OB)"*
- *ITU spectrum monitoring handbook*
- *National frequency tables*
- *National regulations.*