european communications office

Annual Report 2017

Our mission

The European Communications Office (ECO) is the permanent office of the European Conference of Postal and Telecommunications Administrations (CEPT), an organisation where policymakers and regulators from 48 countries across Europe collaborate to harmonise telecommunication, radio spectrum and postal regulations.

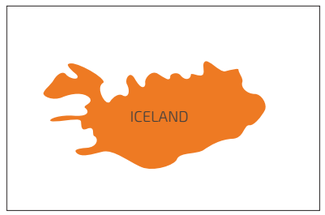
The ECO provides advice and support to the CEPT to help it to develop and deliver its policies and decisions effectively and transparently. The Office has three core duties: to provide a European centre of expertise in electronic communications, to contribute to the work of the three CEPT committees and to manage CEPT's day-to-day activities.

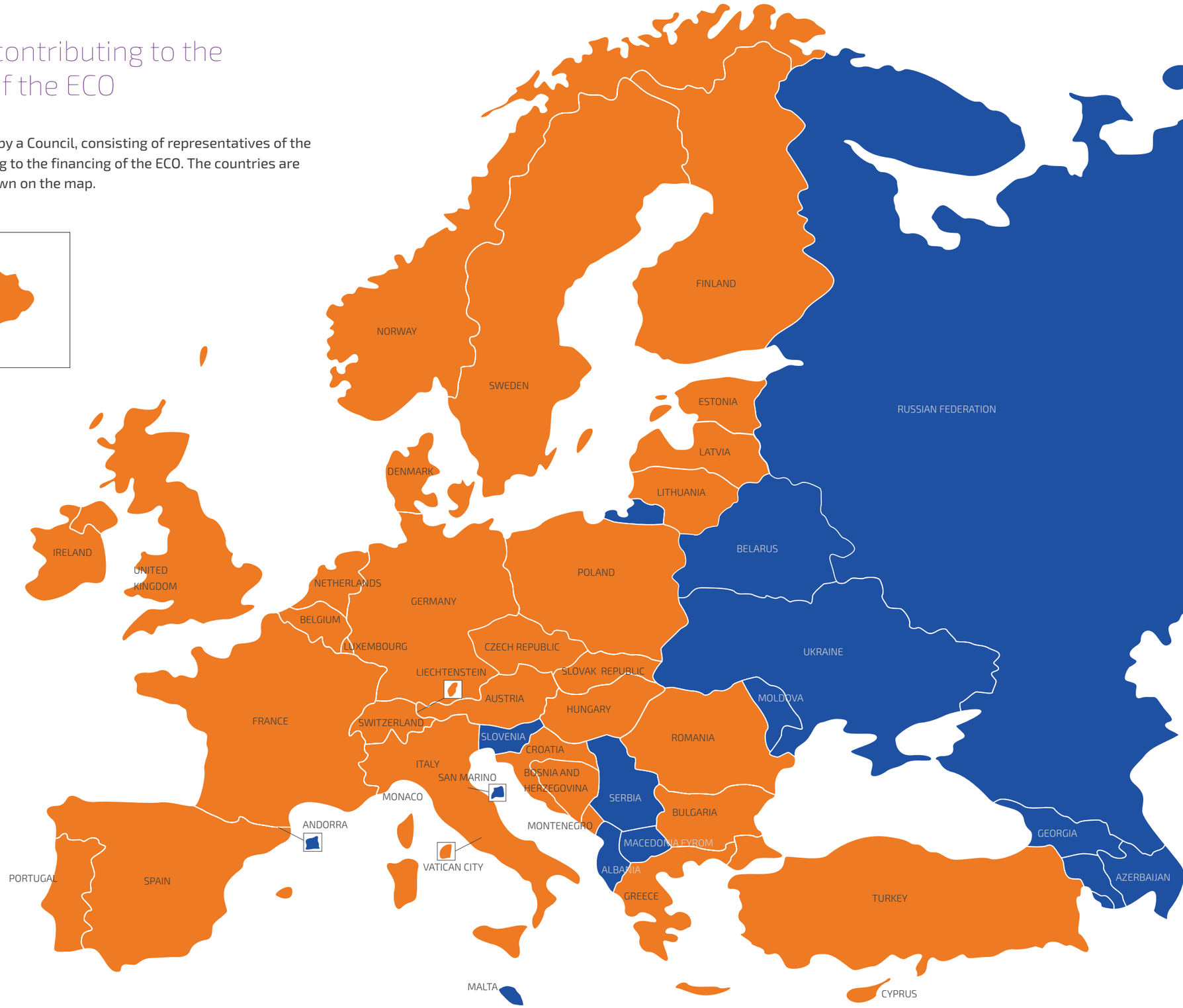
The ECO further supports CEPT member countries and other stakeholders, and provides a forum to debate and advance European communications policy for the benefit of all Europe's citizens.

contents

Countries contributing to the financing of the ECO

The ECO is governed by a Council, consisting of representatives of the countries contributing to the financing of the ECO. The countries are listed below and shown on the map.





In 2017, the following 35 countries were part of the ECO Council: Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Monaco, Montenegro, the Netherlands, Norway, Poland, Portugal, Romania, Slovak Republic, Spain, Sweden, Switzerland, Turkey, the United Kingdom and Vatican City.

Chair's Foreword

As I approach the end of my first term as Chairperson of the ECO Council, I look back on the past three years with pride at the successful efforts by the Office to support the CEPT. I have seen first-hand how ECO helps the CEPT to deliver its policies and decisions both effectively and transparently.

The ECO offices in Copenhagen were busy in 2017 as our experts held a number of workshops; among them the SEAMCAT workshops for beginners and advanced users, the 5th CEPT workshop on European Spectrum Management and Numbering, as well as a workshop for Numbering for eCall. And when they weren't hosting meetings, they were preparing and contributing to them, and providing back-office support for ECC Working Groups.

Our experts again played a key role in assisting ECC to deliver its objectives – and were on hand to help prepare draft deliverables. Among those was a set of deliverables on suitable frequencies to support the introduction of the Internet of Things. With the Internet of Things now ensconced in all our lives, ECO continues to assist the CEPT in overcoming any potential and ongoing challenges.

The ECO has also provided a range of specialist support to Com-ITU during the year, most notably in the form of assistance with European preparations for the major ITU event during this period: the World Telecommunication Development Conference which took place in Buenos Aires, Argentina, from 9 to 20 October 2017.

It is not an exaggeration to say that the ECO's work is vitally important in advancing the objectives of the CEPT and its participating administrations. To ensure it lives up to its mission statement, the Office continually invests in its tools and services, which provide spectrum information to all of the relevant stakeholders, including CEPT member countries, industry and general users.

In 2017, further work was carried out on SEAMCAT and EFIS, while ECO also undertook the mammoth task of transforming the ECO Document Database, a library of decisions, recommendations and reports in the field of spectrum and numbering regulation. The new database is much more detailed than the old one, easier to navigate and more attractive. If you haven't explored it yet, I urge you to spend time acquainting yourself with it.

The constantly improved tools and services place new demands on the Office's technology platform and on its IT function. As a follow-up to an external IT audit carried out on ECO in 2016, the Office developed a forward-looking IT strategy. This contains several recommendations on how to improve and mature the IT platform over the next three years. In 2017 a number of initiatives have been taken in order to start implementing the new strategy.

The ECO Convention was again without any newcomers in 2017 – 35 countries still contribute to the financing of the Office. Here's my yearly reminder that the Convention is open for accession by any State of which its Administration is a member of CEPT.

In an era where driverless cars, parcel-carrying drones and smart home systems are fast becoming a reality, the expertise from ECO is as essential as ever. It is the go-to European centre of expertise in electronic communications. Not only does it provide support to CEPT but it also acts as the focal point for many international organisations.

You will see the bulk of its work throughout these pages as we bring to life just how valuable the ECO is to the ongoing work of the ECC and wider CEPT organisation.

Marta Leandro
Chairperson of the ECO Council

Director's Statement

"Alone we can do so little; together we can do so much."
This quote, attributed to the American author and activist Helen Keller is something that can be applied to CEPT, the European Conference of Postal and Telecommunications Administrations, its committees and us here at the European Communications Office (ECO).

This is my third year writing the Director's Statement for the ECO's annual report. In 2017 I was struck time and time again by the collaboration necessary to bring all stakeholders together, to overcome challenges and achieve objectives in the communications sector.

This collaboration is something I see first-hand on a daily basis here at ECO. Our office is small, comprising just 12 people but we have an effective team, with our members of staff working diligently throughout 2017 to provide expert information and support to the Electronic Communications Committee (ECC), the Committee for ITU Policy (Com-ITU) and the wider CEPT.

2017 was another busy year for the team. Our achievements included everything from developing and releasing the latest version of the SEAMCAT tool; helping to develop a new Document Database to add value for users and administrations; and optimising our own website for ease of use and flexibility.

We also contributed to important subjects facing the world of communications, providing expert information on topics such as eCall, which is very nearly a reality for car drivers throughout Europe and helping the ECC in its search for suitable spectrum for future 5G mobile communications.

As always, the team was busy holding or assisting with seminars and workshops throughout the year. These are excellent opportunities to hear from various stakeholders and essential in driving regulations forward. Getting people together is extremely important.

Many of our stakeholders will be aware of the Trojan work that our experts do to support the different groups within CEPT but many may not be aware of the work that goes on behind the scenes. Our small office has five permanent members of staff who provide essential support to our experts. For example, people come from all over Europe to our meetings here in Copenhagen; were it not for our members of staff those meetings wouldn't run smoothly. Likewise, all documents are uploaded by our staff members via our network, essential for stakeholders. I felt it was important to recognise the work that our staff members do here at the office, so this year we decided to dedicate a section to informing you of their expansive roles. You can read about this on page 41.

We are such a tight and effective team, it is always difficult when members depart. In 2017, ECO said goodbye to Stella Lyubchenko and Bente Pedersen. Both of them have been valuable members of the team and we wish them well on their new adventures.

In 2017, we welcomed three new staff members to the office. Doriana Guiducci our new spectrum expert, who will support a range of project teams in the ECC group. Doriana is the first person from Italy to work at the office. In the administrative team we welcomed Anne-Dorthe Hjelm Christensen and Kenneth Karlsson. Anne-Dorthe took over from Bente Pedersen and Kenneth is our new IT specialist. It has been a great pleasure to see their willingness and passion for their roles from the moment they joined us in our fourth-floor office here at Nyropsgade.

The role of the ECO is very simple, we are here to advise and to support the CEPT and the three committees. We continue to do that in an impartial way.

Looking towards 2018, we will strive to continue to deliver our high level of technical expertise and support across all CEPT activities to help meet the ongoing challenges in our evolving electronic communications sector.

Per Christensen
Director of the ECO

The ECO: our role, our team

Our role

The primary function of the European Communications Office (ECO) is to provide expert advice and support to CEPT. We help CEPT to develop and deliver its policies and decisions in an effective and transparent way. Our core duties are threefold: to provide a European centre of expertise in electronic communications; to contribute to the work of the three CEPT committees, and to manage CEPT's day-to-day activities.

We not only provide operational support to CEPT and its three committees (ECC, CERP and Com-ITU), we also have a central duty to maximise the effectiveness of CEPT's Electronic Communications Committee (ECC).

The ECC brings together the 48 CEPT countries to develop common policies and regulations in electronic communications and their related applications for Europe. In turn, it provides a focal point for information on spectrum use. Its main objective is to harmonise the efficient use of the radio spectrum, satellite orbits and numbering resources across Europe. It takes an active role at the international level, preparing common European proposals to represent European interests in the International Telecommunication Union (ITU), and other international organisations.

In this context, the ECO seeks to complement and support the ECC by:

- improving collaboration across its membership and extending its reach beyond;
- ensuring its communications are open, consistent and effective;
- delivering new initiatives and providing strategic input to its work; and
- helping CEPT's consensus model of working to operate effectively.

Our team

Working from our offices in Copenhagen, Denmark, the ECO has a small team of 12. That team comprises the Director, six experts in the field of electronic communications, recruited from right across Europe, and five colleagues from Denmark who are responsible for managing our support and administrative services.

Together, our staff members have the expertise and experience necessary to deliver the specialist services required of the ECO. We work effectively as a team: we collaborate to identify how best to maximise our value across our many specialised activities.

Our team

Front row, from left: Bruno Espinosa, Anne-Dorthe Hjelm Christensen, Susanne Have;
Second row: Vibeke Hansen, José Carrascosa, Mette Tobiassen, Doriana Guiducci;
Third row: Per Christensen, Thomas Weber, Kenneth Karlsson, Peter Faris, Freddie McBride.

The ECO team and their main areas of responsibility in 2017

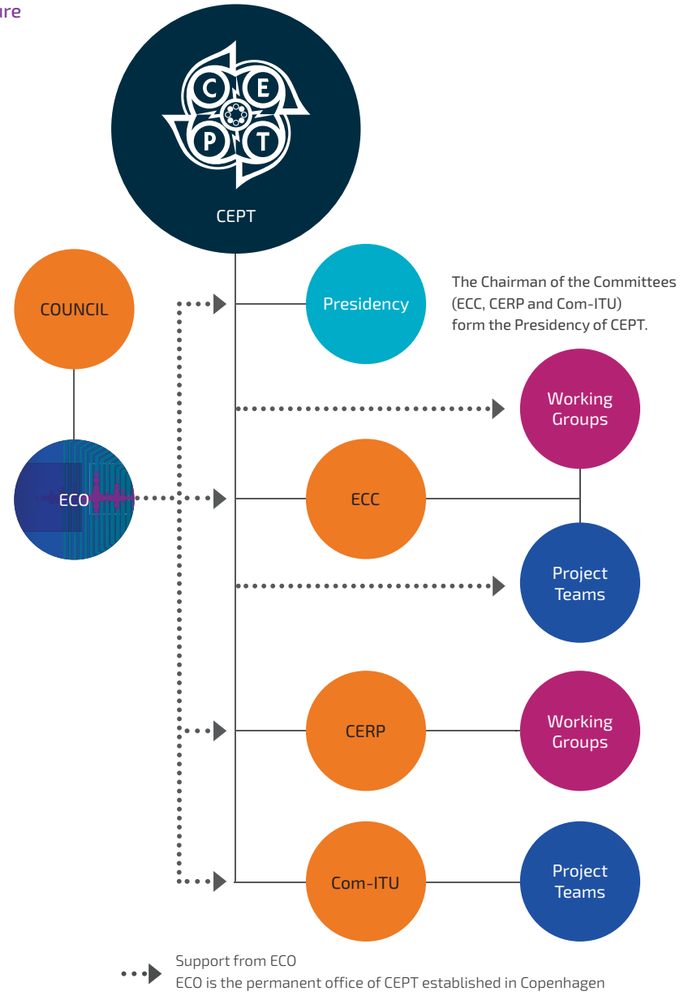
Per Christensen	Director, Denmark
Bruno Espinosa	Deputy Director, France (Frequency Management, Com-ITU, EC Coordination, ETSI Coordination)
José Carrascosa	Spain (Spectrum Engineering, SEAMCAT, Broadcasting Plan Management)
Peter Faris	Ireland (Spectrum Engineering, Mobile broadband, Satellite Services)
Doriana Guiducci	Italy (Spectrum Engineering, Frequency Management, WRC preparation), joined the ECO in June 2017
Stella Lyubchenko	Russian Federation (Spectrum Engineering, Frequency Management, Satellite Services, WRC preparation), left the ECO on 31 May 2017 at the end of contract period
Freddie McBride	Ireland (Numbering and Networks, Com-ITU)
Thomas Weber	Germany (Frequency Management, EFIS Management)
Anne-Dorthe Hjelm Christensen	(Public consultations, ECC documentation database, EFIS, Administration), joined the ECO in March 2017
Vibeke Hansen	(Webmaster editor, Reception, Administration)
Susanne Have	(CEPT, Council, Administration, SAT MoU)
Kenneth Karlsson	(Office IT, Technical enquiries), joined the ECO in September 2017
Bente Pedersen	(Public consultations, ECC documentation database, EFIS, Administration), retired from the ECO in April 2017
Mette Tobiassen	(Finance, Human Resources)

Supporting CEPT

European Conference of Postal and Telecommunications Administrations
– 48 European countries cooperating to regulate posts, radio spectrum and communications networks

The ECO provides a Secretariat for the CEPT (including its Presidency) as an umbrella organisation for its three autonomous business committees.

Our structure



The Chairmen of the three committees are also co-Presidents of CEPT.

CEPT ECC
Electronic Communications Committee

The Electronic Communications Committee (ECC) is responsible for developing common policies and regulations in electronic communications and harmonising spectrum use. ECC is also in charge of European coordination and preparation for meetings in the Radiocommunication Sector of the ITU.

Mr Eric Fournier, France, is Chairman of the ECC.

CERP

The European Committee for Postal Regulation (CERP) is responsible for postal regulation, as well as European coordination and preparation for meetings of the Universal Postal Union (UPU).

Mr Germán Vázquez, Spain, is Chairman of CERP.

Com-ITU

The Committee for ITU Policy (Com-ITU) is responsible for European coordination and preparation for meetings of the ITU.

Mr Manuel da Costa Cabral, Portugal, is Chairman of Com-ITU.

The CEPT co-presidency works together to deliver greater efficiency through the effective coordination of its work. Its core aim is to create a dynamic market in the field of European posts and electronic communications for the benefit of society.

As a permanent office, the ECO supports the Presidency in the following areas:

1) the day-to-day handling of correspondence into and from the Presidency, with some secretarial and advisory support for coordination between the co-Presidents;
2) the provision and maintenance of content of the sections of the CEPT website that relate to the Presidency and CEPT as a parent organisation for its three committees;
3) the preparation of reports to the membership on the activities of the Presidency and assistance to the Chairmen with other aspects of reporting to the membership;
4) the invoicing and collection of CEPT member financial contributions, used to pay for the ECO's support and external expenditure as required, namely the costs of Assemblies, and some of the facilities provided for CEPT delegations and international conferences;
5) as required, preparation of facilities and secretariat support for CEPT Assemblies.

The CEPT Assembly is the supreme body of the organisation, and is convened as required. There was no need to call for an Assembly meeting in 2017.

2017 in brief

The ECO is the permanent office of CEPT and its three committees

Our experts actively contributed to more than **100** physical meetings within the CEPT's committees: 285 man-days shared between our international team

The ECO provides a European centre of expertise in electronic communications

The ECO maximises the effectiveness of CEPT's Electronic Communications Committee (ECC)

We performed a detailed review of the cooperation agreements between ECC and its external partners. We assessed the 36 agreements in force

We maintained and upgraded EFIS, which had 200 000 visits

We participated in meetings and events outside of the CEPT framework, promoting the views and results reached within the ECC

We launched v5.1.1 of SEAMCAT in May and prepared v5.2.0 for release in early 2018

We developed a brand new Documentation Database (DocDB) and launched it for live testing in May 2017

In 2017, 35 CEPT countries contributed to the financing of the ECO

There were around 660 000 visits to DocDB from users from all over the world. They had access to 680 ECC Deliverables in force

ECO team members organised 121 web meetings to support CEPT's committees

We carried out 33 public consultations, which were used to inform the substance of new or revised ECC deliverables. We processed and analysed 117 responses

ECO organised 2 thematic workshops on eCALL and EFIS, 1 tutorial on European spectrum and numbering management and 2 training sessions for SEAMCAT

ECO conducted a survey on the CEPT portal

We undertook and completed the CEPT portal optimisation project

The ECO managed **9 questionnaires** to CEPT administrations on behalf of CEPT committees

We produced 3 ECC electronic newsletters, addressing 8 specific articles in spectrum and numbering management

We hosted 41 meetings, spread across 86 days, attracting more than 1 070 participants to Copenhagen

The CEPT portal, which we manage had 823 000 visits in 2017, from 4650 registered users

SECTION

2

Review of the year

2.1 Providing specialist support to the CEPT committees

The ECO is the European centre of expertise in electronic communications. As one of our primary functions, we contribute to the CEPT committees, in particular its Electronic Communications Committee (ECC).

We maximise the Committee's overall effectiveness through our expertise, our range of specialist support services and our active involvement in ECC projects and activities.

Our work in supporting the CEPT committees is manifold. In 2017 we:

- Contributed to Working Groups and Project Teams across the ECC;
- Helped advance topics of interest within ECC;
- Assisted Com-ITU and its Project Teams;
- Continued to upgrade the SEAMCAT tool and EFIS, the ECO Frequency Information System;
- Developed a new Documentation Database to enhance the visibility of ECC deliverables;
- Conducted consultations and questionnaires on behalf of CEPT committees;
- Provided a central source for specialist information.

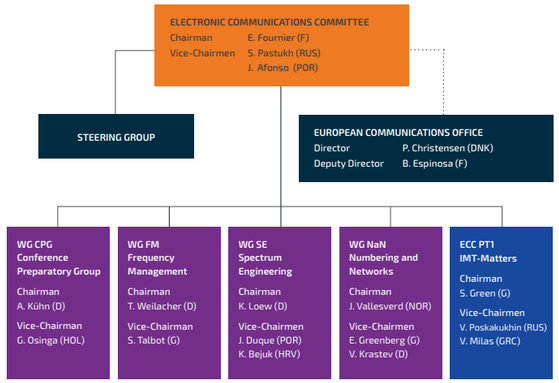
2.1.1 Contributing to improving the efficiency of the ECC and its working processes

The chief contribution of ECO experts to the ECC is their continuous work as embedded members of various Working Groups and Project Teams. ECO experts participate in almost every meeting of the ECC and its many subsidiary bodies. They assist in the preparation and management of the meetings and the necessary follow-up work.

In 2017, ECO colleagues participated in 98 physical meetings within the ECC, the equivalent of 270 man-days shared mainly between the six international experts from our team, plus the Director.

This continuous and significant presence means the ECO's role is essential for improving the ECC's efficiency, as well as for streamlining its working processes.

Structure of the ECC – November 2017



ECO's participation within a group is driven by its goal to positively contribute to the group's work and to help achieve positive outcomes, in particular during the development of ECC Deliverables and the definition of CEPT common positions.

We help prepare and also submit input contributions to meetings, in areas where our expertise is beneficial to the work. As described in subsequent sections, our experts analyse the responses from public consultations and from questionnaires, a task that is essential to the development and completion of ECC deliverables. In addition, we have developed EFIS and SEAMCAT, two important analysis tools for ECC. With EFIS we contribute to ECC activities by analysing spectrum usage and related information. With SEAMCAT, we carry out detailed compatibility and sharing studies.

As a result of our involvement in the full range of ECC activities and of internal coordination, we also contribute to facilitate cooperation between different groups on topics of mutual interest. This is an enabler role to increase efficiency and consistency within the ECC.

When the meetings are on, our primary role is to provide assistance to the Chairman and to advise and support the group in its activities. Our central and neutral position leads us, when required, to conduct drafting activities and to provide guidance to solve specific issues.

When a meeting is over, our supporting role does not end there. We editorialise and process draft deliverables, as well as develop summaries of meeting outcomes for publication on the ECC website.

In 2017, we actively contributed to most of ECC work items leading to new deliverables. One illustrative example of our multifaceted role is provided on page 17.

In addition, the Office has a specific role in the application and the maintenance of the ECC Rules of Procedure and the ECC Working Methods. Our activities in this area in 2017 are described on page 18.

Occasionally, the ECO is invited to provide a Chairman for a Project Team or a Forum Group. Our leadership is called upon particularly in cases where we have been playing a central role in the related topic.

In this context, we have continued in 2017 to lead:

- Project Team STG, which is responsible for the development of the CEPT compatibility tool, SEAMCAT, within the Working Group Spectrum Engineering (WG SE);
- SRD Maintenance Group of the Frequency Management Working Group (WG FM) responsible for Short Range Devices (SRD).

We also continued to lead the activities of the WG FM forum group dealing with amateur radio issues. This is consistent with our role as the focal point of the CEPT regulatory framework on amateur radio aspects, dealing with issues related to certificates and licences.

eCall – An example of the ECO expert's multifaceted role

eCall is a European initiative intended to bring rapid assistance to motorists involved in a collision anywhere in the European Union. It works using in-vehicle sensors which, when activated, automatically call the pan-European Emergency Number 112. From 31 March 2018, all new cars sold in Europe must have eCall capability.

The challenges relating to the deployment of eCall have received a lot of attention by the many different eCall stakeholder groups in recent years and none more so than those challenges related to providing addressing and connectivity for eCall devices. Such challenges have been considered by the ECC's Working Group on Numbering and Networks (WG NaN). The story of eCall provides a good example of the multifaceted role played by the ECO expert from an initial problem description to the publication of a fully informed ECC deliverable.

When the eCall question was raised within WG NaN there was very little information available as to how exactly eCall would work and how it would be deployed. At the request of WG NaN, the ECO expert undertook the task to investigate further, to consult with relevant stakeholders and to produce a briefing document for WG NaN to consider. The briefing document concluded that there were significant numbering and network issues and WG NaN decided that these issues should be addressed through an appropriate ECC deliverable.

With the agreement of WG NaN, the ECO expert undertook the task of raising awareness of these issues: he attended various workshops and conferences organised by the European Commission and representative groups from the automotive industry. The ECO expert presented the numbering and network challenges at these events. He also participated in meetings of the European eCall Implementation Platform (EeIP), a multi-stakeholder group responsible for guiding, coordinating and monitoring progress on the implementation of the eCall service across Europe. During these meetings the ECO expert raised awareness of the numbering and network challenges and worked to ensure that they were on the EeIP agenda with an appropriate priority weighting.

The ECO expert briefed WG NaN on progress throughout this process and coordinated WG NaN contributions to the EeIP's report on eCall Life Cycle Management, which was presented to the EeIP plenary committee in June 2016.

In parallel, WG NaN developed a first draft of an ECC Recommendation on Numbering for eCall through its Project Team on Future Numbering Issues (PT FNI). In order to ensure that the draft deliverable was fully informed, and following agreement with WG NaN, the ECO expert organised a public workshop at the ECO office in Copenhagen on 31 January 2017 (see more on page 28).

The workshop represented a key milestone in the ECC's consultation process and was followed by an article written by the ECO expert and published in the May 2017 edition of the ECC newsletter. The article provided a summary of the workshop findings, general information on eCall deployment and an outline of the ECC related activities.

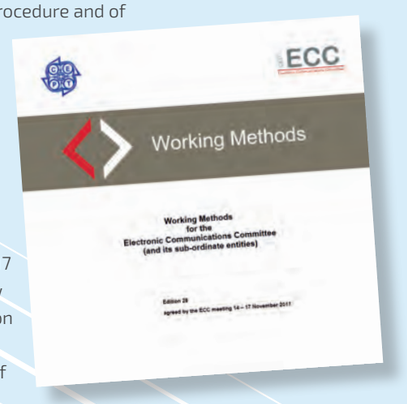
Following consideration of the workshop findings, the development of the draft ECC Recommendation on Numbering for eCall was completed in a short timeframe with the assistance of ECO's expertise and electronic meeting facilities. As a result, WG NaN approved draft ECC Recommendation (17)04 at its 14th meeting in Helsinki on 30 May - 01 June 2017. The public consultation commenced on Thursday, 22 June and ended on Wednesday, 23 August. The ECO expert analysed the responses, prepared a summary document and presented it to PT FNI and WG NaN for further consideration. ECC Recommendation (17)04 was finally adopted at the 15th meeting of WG NaN in Bucharest on 21-23 November 2017 and subsequently published on the ECO Documentation Database.

Public policy documents, such as ECC deliverables, are much more effective when those who are going to be affected the most are fully consulted. In the case of eCall, the consultation with stakeholders was extensive and the process demonstrated the multifaceted nature of the ECO expert's role in developing effective ECC deliverables.

Supporting ECC on procedural matters and working arrangements

In 2010-2011, ECC had detailed considerations on the streamlining of its structure and its working processes. One of the main results of this exercise was the closure of the Working Group Regulatory Affairs (WG RA) and the consequential redistribution of its tasks to various entities. Specifically, ECO was given a leading role in dealing with regulatory and procedural issues on behalf of ECC, with an emphasis on the maintenance and amendment of the ECC Rules of Procedure and the ECC Working Methods.

After a couple of revisions of these basic documents in the period 2011-2016, we initiated in 2017 a more thorough review under the guidance of the ECC Steering Group. This was originally triggered by the need to respond to specific requests from ECC, such as the clarification of the principles for appointment of Chairmen and Vice-Chairmen. The Office also used this opportunity to ensure that ECC is driven by a consistent set of rules, which takes into account the evolution in the working arrangements and the growing use of electronic means. Another factor was to rationalise the processes, in particular for the amendments of ECC deliverables. This would help the ECC in being more reactive to update its framework, when appropriate. As a result of this activity, new versions of the Rules of Procedure and of the Working Methods were adopted by the ECC Plenary in June and November 2017 respectively.



We have also performed in 2017 a detailed review of the cooperation agreements (Memorandum of Understanding, MoU, and Letter of Understanding, LoU) between ECC and its external partners. We assessed the 36 agreements in force in 2017, taking into consideration the current activities of the concerned organisations and their recent involvement within ECC. As a result, we proposed the withdrawal of four of these LoUs, considered as obsolete. This was endorsed by ECC in November 2017.

In order to support ECC in its goal to identify possible LoU partners, we approached a few European organisations that have mutual interests with ECC. Our aim was to formalise the cooperation, and we provided initial text for potential LoUs. This led to the approval of four new LoUs to be formally signed late 2017-early 2018.

2.1.2 Upgrading and maintaining the ECO Frequency Information System (EFIS)

In 2017, we continued to upgrade the EFIS tool, with two main objectives in mind:

- To enhance the amount and quality of information in the database on frequency use in Europe;
- To improve the interface, in order to make EFIS easier to use for stakeholders and to help CEPT administrations in making their national information available in the database.

The main improvements to frequency information features brought in 2017 are:

- A new module for Programme Making and Special Event applications (PMSE) has been incorporated into EFIS. It displays the implementation status and the associated national conditions in CEPT countries for each of the frequency ranges available for PMSE in Europe (as per ERC Recommendation 25-10);
- The module providing national information for fixed service use in Europe has been enhanced with new statistics and graphical visualisations;
- A dedicated webpage has been implemented in EFIS with links to the 48 CEPT national frequency tables.

In addition, we maintained our dedication to improve the interface in order to increase the usefulness and user-friendliness of EFIS. Taking into account the feedback from users, we enhanced the search functions in EFIS and we adjusted the electronic export and import functions.

In 2017, the EFIS database received approximately 200 000 unique visits from either Europe (about 50% of them) or from other regions of the world.

What is EFIS?

Since the beginning in 2002, EFIS has been administered by the ECO and managed under the supervision of the ECC through its ECO Frequency Information System Maintenance Group (EFIS/MG).

In 2007, EFIS became the 'European Spectrum Information Portal', fulfilling EC Decision 2007/344/EC on harmonised availability of information regarding spectrum use in the European Union Member States. EFIS is also referred to in Recital 24 of the Radio Equipment Directive (2014/53/EU). ECC Decision (01)03 defines the needs for EFIS for the whole CEPT membership.

46 CEPT administrations now publish data in EFIS.

All information in EFIS is available to the public either via the ECO website or directly under https://www.efis.dk/.

2.1.3 Conducting questionnaires for improved regulatory outcomes

Questionnaires are developed, when appropriate, within the framework of the three CEPT Committees: ECC, Com-ITU and CERP. They are generally set up in order to gather information from administrations and other stakeholders to improve the development of deliverables and to support the identification of common trends and positions.

The ECO assists the relevant groups in the development of the questionnaires, acts as a contact point to release them and collects the corresponding responses.

In most cases, the ECO also processes the information collected through the questionnaire and analyses and summarises the responses. Those responses are then considered by the responsible group in order to decide how to benefit from this information.

In 2017, the ECO managed six questionnaires to CEPT administrations on behalf of ECC groups. They addressed topics in the spectrum and numbering management area, where the need to collect national information was felt appropriate to support ECC activities.

Five of these questionnaires were processed through the electronic questionnaire tool, which has been available on the CEPT portal since 2013. Amongst the questionnaires sent to the 48 CEPT administrations, the annual questionnaire on interference statistics triggered responses from 40 countries.

In 2017, we managed two electronic questionnaires on behalf of CERP, the CEPT committee on postal matters. They were designed in order to support CERP in streamlining its framework. We also implemented in our tool one electronic questionnaire run by Com-ITU, the committee responsible for the CEPT co-ordination of ITU activities, to help in the identification of priority topics for Europe.

As in previous years, we also managed 10 questionnaires through our electronic tool triggered by CEPT administrations willing to collect views from other administrations on numbering and networks matters.

QUESTIONNAIRES MANAGED BY THE ECO IN 2017	REPLIES RECEIVED
Electronic questionnaires conducted on behalf of ECC groups	
Questionnaire to CEPT administrations on interference statistics encountered in 2016	40
Questionnaire to CEPT administrations on national measures aimed at combatting fraud and misuse of E.164 numbers and CLI spoofing	17
Questionnaire to CEPT administrations on prohibition of CLI spoofing in CEPT Countries	24
Questionnaire to CEPT administrations on PSAP statistics	16
Questionnaire to CEPT administrations on Number Portability implementation options after migration to all-IP	20
Paper questionnaires conducted on behalf of ECC groups	
Questionnaire to CEPT administrations on interference cases caused by WAS/RLAN equipment in the meteorological radars operating in the 5600-5650 MHz frequency range	37
Electronic questionnaires conducted on behalf of CERP	
Questionnaire on the future of CERP	18
Questionnaire on the future of CERP: proposals to debate	11
Electronic questionnaires conducted on behalf of Com-ITU	
Questionnaire on CEPT objectives for PP-18	19

2.1.4 Developing the SEAMCAT spectrum analysis tool to match users' needs

SEAMCAT in brief

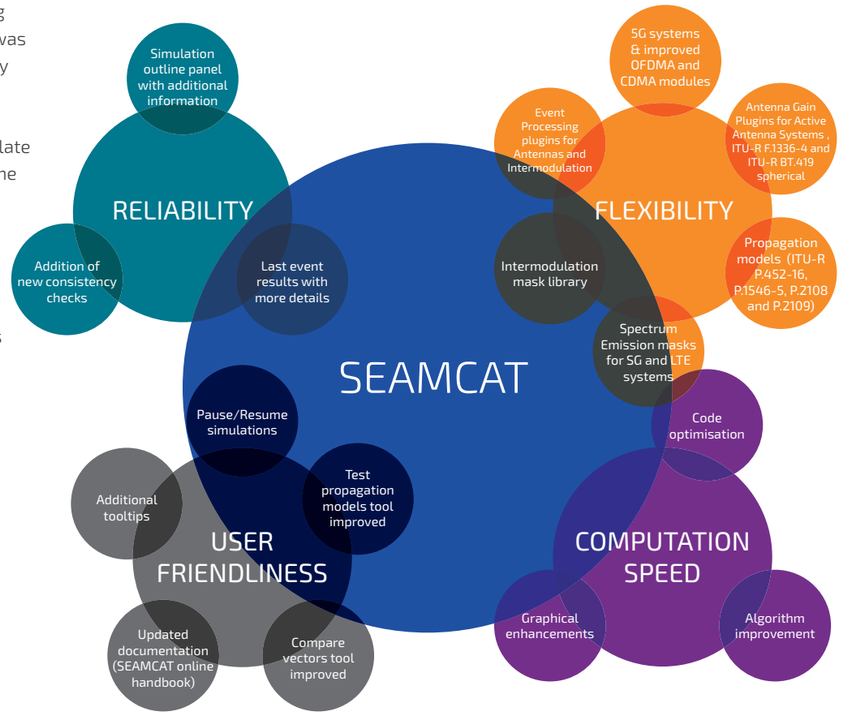
SEAMCAT (Spectrum Engineering Advanced Monte Carlo Analysis Tool) is an open source and free-of-charge software tool. It is based on the Monte-Carlo simulation method, which permits statistical modelling of different scenarios for the coexistence of wireless communications systems. SEAMCAT has been developed to deal with a diversity of complex spectrum engineering and wireless compatibility situations. It is developed and enhanced by the ECO, in cooperation with the SEAMCAT Technical Group (STG), a project team of the ECC Working Group Spectrum Engineering (WG SE).

SEAMCAT can assess the potential interference between different radiocommunication systems that operate in shared, overlapping or adjacent frequency bands. It can also evaluate radio equipment parameters taking into account all interference mechanisms.

SEAMCAT is a system-oriented tool, which allows the user to build customised libraries (such as radio systems, antennas, spectrum masks, propagation models etc.) or use those provided by other stakeholders, to ease the effort in building complete scenarios for investigation. SEAMCAT is distributed with a predefined set of libraries that are at the user´s disposal every time there are studies to perform. It is possible to join the SEAMCAT community to contribute to the development of the software and its libraries.

The tool is updated on a regular basis and is downloadable free of charge at: www.seamcat.org

In 2017 SEAMCAT has continued being developed and the fruit of this work was reflected in the release of v5.1.1 in May 2017. After that release, work started to include among other important functionalities the possibility to simulate 5G (IMT2020) systems according to the relevant ITU and 3GPP specifications. The main improvements made to the tool during 2017 aim to respond to the central objectives for SEAMCAT development to achieve increased flexibility, reliability, user friendliness and computation speed as outlined hereafter.



Besides the development of the tool, SEAMCAT has been introduced in workshops, conferences and publications, as detailed in other sections.

The following timeline presents the main activities related to SEAMCAT promotion and training during 2017:

JANUARY	SEAMCAT workshop for beginners, ATU, Nairobi, Kenya
MAY	SEAMCAT workshop for advanced users, ECO, Copenhagen, Denmark
JUNE	Approval of Report ITU-R SM.2028-2, ITU, Geneva, Switzerland
OCTOBER	SEAMCAT workshop for beginners, ECO, Copenhagen, Denmark

Responding to ECC needs for the SEAMCAT development

The main purpose for the continuous development of SEAMCAT is to provide ECC project teams with a free of cost software that allows them perform their coexistence studies. With that objective in mind, the ECO and the SEAMCAT Technical Group (STG) works in close cooperation with the relevant ECC groups to respond to their needs.

In that respect, SEAMCAT has gone through many important changes during 2017, in particular working towards the implementation within the tool of features associated with the fifth generation of mobile technology referred to as '5G'. Due to the ambitious plan set up by the ECC to release in 2018 the regulatory and technical harmonised conditions for 5G systems in the pioneer bands, it was quite essential to make available in due time appropriate features to support the compatibility studies required for the development of such conditions. As a result, ECO and the STG worked together with the ECC Project Team 1, responsible for mobile communication networks, on the identification of the requirements to accommodate 5G systems into SEAMCAT. It resulted into the implementation in the software of antenna plugins, spectrum emission masks and propagation models relevant for 5G, based on the relevant specifications (e.g. ITU, 3GPP). In addition, the user interface and the consistency check feature were enhanced to respond to the needs for 5G systems.

This illustrated how our efforts to keep SEAMCAT up-to-date contribute to the efficiency of the ECC activities. The needs of ECC Project Teams evolve dynamically in the course of a year in order to address different coexistence studies that involve stakeholders from CEPT administrations and industry. Consequently, a high reactivity is required in the process.

The ECO in its role of managing the SEAMCAT project and providing the chairmanship of STG ensures a seamless working environment where specific requests can be responded in a timely manner.

It shouldn't be forgotten that SEAMCAT was conceived as a cooperative project in which CEPT administrations contribute not only with ideas and suggestions, but also with specific proposals for the enhancement of the tool. In that respect, the Office continuously invites CEPT administrations and industry stakeholders to increase their involvement in the development of the tool, as they are ultimately the main beneficiaries of this work.

Thanks to all these efforts made within the CEPT, spectrum engineers involved in coexistence studies outside the CEPT can also benefit from a continuously upgraded tool. We have seen in 2017 an increased demand for SEAMCAT workshops from administrations outside of CEPT and a higher participation of engineers from universities and industry in the workshops organised in the ECO during this year.

2.1.5 Conducting consultations to deliver better policies

In the context of the development of ECC deliverables, the ECO is responsible for conducting consultations on behalf of the ECC (available at https://cept.org/ecc/tools-and-services/ecc-consultation).

Our public consultations are an important part of the process because they offer the opportunity to receive proposals and views from a wide range of stakeholders to improve our policies.

The role of the ECO in the consultation process has two dimensions:

- Administrative responsibility: it includes the tidying and formatting of the draft deliverables, the launching of the consultation process and the collection of the responses;
- Expertise application: we perform a detailed analysis of the responses received. Those responses can include, on the one hand, general comments, which provide views on the topic under consideration, and on the other hand, specific proposals (editorial, substantial or technical) intended to amend the draft deliverable under consultation. As a result, we develop, when appropriate, a revised version of the draft ECC deliverable under consultation so that the views expressed by stakeholders are properly reflected. This activity is an essential element for the conclusive discussions that lead to the final approval of draft ECC deliverables towards their adoption and publication on the ECO Documentation Database (see section 2.1.6).

In 2017, we carried out 33 public consultations, which were used to inform the substance of new or revised ECC deliverables.

As a result of these 33 public consultations, we processed and analysed a total of 117 responses from administrations and other stakeholders. The number of responses triggered by each draft deliverable during a public consultation can differ significantly. While four of them did not lead to any comment, three draft deliverables resulted in between 12 and 15 replies to their respective public consultation.

2.1.6 Maintaining a record of important deliverables

The ECC's work to consider and develop policies on spectrum and numbering matters and to manage these scarce resources is given effect mainly through its deliverables, namely Decisions, Recommendations and Reports. Once these deliverables are approved by the ECC or one of its Working Groups, we publish them in the ECO's Documentation Database (DocDB, https://www.ecodocdb.dk/). The database also gives access to European Commission Decisions related to ECC activities and includes some helpful information such as related documents.

In 2017 there have been around 660 000 visits to DocDB from users from all over the world. They had access to all the documents available in DocDB in 2017, including the 680 ECC Deliverables in force, an archive of withdrawn or superseded deliverables and many additional informative documents.

Whilst we continued our activity in managing the existing Document Database, we have been very busy in 2017 with the development of a brand new Documentation database (see more on page 23). This new DocDB has been live for testing since May 2017 and will definitely replace the old version in spring 2018.

Developing a new ECO Documentation Database

After about 10 years of operation with some limited developments, we identified the need in 2016 to develop a brand new ECO Documentation Database (DocDB). Most of the activities were performed in 2017 based on the following principles:

- To maintain the primary function of DocDB, which is to act as the library of ECC deliverables;
- To increase its usefulness with the inclusion of additional features and information;
- To build upon an enhanced synergy between DocDB and EFIS, in particular in terms of content management;
- To benefit from the technology developments since the previous version of DocDB was set up in 2007.

Like the previous version, the new DocDB contains ECC Deliverables (ECC Decisions, Recommendations and Reports and CEPT Reports in response to Mandates from the European Commission), national implementation information for ECC Decisions and additional informative documents, such as the European Commission Decisions related to ECC Deliverables. The new DocDB also includes ECO Reports (results of internal studies) and references to relevant ETSI harmonised standards.

The main features of the new database are:

- A new layout with additional options for display and enhanced visibility of the information;
- The inclusion for each deliverable of a range of relevant information such as the applicable frequency ranges and application terminology, the related documentation and an archive showing the previous versions of this deliverable;
- An advanced search functionality which enables users to find ECC Deliverables by inputting a range of criteria;
- The possibility to get information on recent updates of the database content;
- The ability for CEPT administrations to provide themselves the status of their national implementation of ECC deliverables.

The new DocDB is based on the same content management system as the EFIS database. This, together with the use of common features between both databases, is the first step towards a further evolution. In 2018, we plan to develop a new application programming interface (API), which would rationalise the interaction of the existing databases (in particular EFIS and DocDB) managed by ECO and other external sources of information. This would facilitate the future use, development and management of our information systems.

New DocDB main page

Old DocDB main page

2.1.7 Providing a central source of specialist information

To support the ECC in its goal to be a focal point in Europe for information on electronic communications, the ECO works to provide accurate and up-to-date operational information on various areas. It does this through the ECC website and through our various tools, which are further described within this Report.

A short, non-exhaustive guide is provided below. It describes the main types of information made available on the ECC website and our databases, and outlines where they can be found.

	SUBJECTS	DOCUMENTS	NATIONAL INFORMATION	SPECIALIST SERVICES	EVENTS
ECC Website http://cept.org/ecc	**Group area:** information on running activities and progress within each group belonging to the ECC structure **Topics:** information on a wide range of topics and long term studies on which ECC is currently working or has recently developed regulations	**Meeting documents:** access to contributions, working documents and meeting reports from all groups within ECC **Newsletters:** three to four ECC electronic newsletters published each year to promote ECC achievements **Framework:** reference documents which set up the framework and targets of ECC activities	**Contact points:** national contacts of CEPT administrations and on special topics **Regulatory information:** information on national regulations applicable in specific spectrum and numbering topics	**Consultation:** information on public consultation and links to draft deliverables under consultation **Questionnaires:** links to current and past questionnaires carried out to improve the development of deliverables	**ECC Meeting calendar:** information about upcoming meetings **News:** information and summary of recent meetings and events **Workshops:** information, presentations and summary **Presentations:** made by ECO and ECC officials at different fora
ECO Documentation Database (ECODOCDB) http://www.ecodocdb.dk/		**Deliverables:** library of Decisions, Recommendations, Reports approved by ECC with associated archive and information **Related documentation:** link to relevant documents (from EC and ETSI) related to ECC deliverables	**Implementation status:** national implementation of ECC deliverables		
ECO Frequency Information System (EFIS) http://www.efis.dk/	**Modules:** specific features gathering information (ECC deliverables, national usage, associated statistics) on key spectrum topics (short range devices, mobile bands, fixed service, PMSE)	**Regulatory references:** links to ECC, EC and ETSI relevant documents **Spectrum inventory:** library of information documents for spectrum inventory purposes	**Frequency tables:** tables of frequency use in national CEPT administrations **Spectrum inventory:** national information on frequency usage and spectrum rights		
ECC Work Programme Database (ECC WP DB) http://eccwp.cept.org/	**Work items:** information on the individual items in the work programme of ECC and its subordinate groups				
700 MHz Information Repository http://700mhz.cept.org/countries			**700 MHz repository:** national information on the coordination status in the 700 MHz band		

In addition to the tools and services described in other sections of this Report, ECO develops and maintains some pages on the ECC website, dedicated to key topics such as those highlighted in the ECC strategic plan. They are designed to respond to some of the needs identified within the ECC by CEPT administrations and other stakeholders.

The main objectives are to reflect the progress of ECC activities on these items, to develop material which may complement, support or illustrate published ECC deliverables and to make specific information (national contact points, national regulatory information, information not available elsewhere on the ECC website) available to stakeholders.

In 2017, we developed a new page to gather information related to wireless access systems and RadioLAN. When appropriate, we also updated the information available (e.g. ECC deliverables, relevant activities, contact points) on the already existing webpages.

ECO Bulletin

Another example of the ECO's role as a source of specialist information is the development of ECO Bulletins, which highlight what happens in the area of electronic communications in regions outside CEPT. We aim to inform the ECC about new initiatives in other regions of the world. This allows comparisons of the regulatory approaches in those regions and also the ability to identify issues that could potentially be addressed in Europe in the near future. In 2017, we produced three Bulletins, which were submitted to each of the three ECC Plenary meetings and then spread within the relevant sub groups. They addressed about 40 different items covering a broad range of developments in spectrum and networks management.

2.1.8 Providing specialist support to Com-ITU

The main focus of the ECO's support to Com-ITU in 2017 was to help CEPT's preparations for the World Telecommunications Development Conference (WTDC-17), which took place in Buenos Aires, Argentina, from 9 October to 30 October 2017.

The ECO assisted Com-ITU and the Project Team that was specifically tasked with coordinating preparations for WTDC-17 (PT WTDC17). We contributed to the development of a document on CEPT's aims, principles and priorities for the Conference. This document served as a brief for the preparations. The ECO also assisted with the preparation and submission of 18 European Common Proposals (ECP) and the further development of the CEPT brief in the weeks leading up to the Conference. We also provided administrative support on these activities at meetings of Com-ITU and PT WTDC17 during 2017.

Looking towards 2018, Com-ITU also began its preparations for the ITU's Plenipotentiary Conference (PP-18) which will take place in Dubai, United Arab Emirates, from 29 October to 16 November 2018. The ECO prepared, and analysed the results of, an online questionnaire to inform CEPT's objectives and priorities for the Conference. It also assisted in establishing two new project teams dedicated to the coordination of this work. One project team will focus on policy topics (PT PP18 Policy) and the other will focus on Financial, Management and Organisational topics (PT PP18 FIMO).

In addition, the ECO provided its usual assistance to Com-ITU and its Project Team on ITU-T strategic issues (PT-ITU-T) in preparation for ITU Council 2017 and regular meetings of council working groups, expert working groups, and TSAG.

Com-ITU held five physical meetings in 2017 and three of these were hosted at the ECO in January, September and December. The ECO provided facilities for remote participation at all Com-ITU meetings and hosted several web meetings for Com-ITU's project teams throughout the year.

Com-ITU meeting in ECO, September 2017

We continued to maintain the Com-ITU website in 2017 with relevant and timely news releases about the main events relevant to the Committee, and summarised the main outcomes from each of the Com-ITU Plenary meetings and also from meetings of the Project Teams. We continued to maintain the Com-ITU Twitter account in order to share formal and factual information on Com-ITU activities.

2.2 Meeting the objectives of the ECC strategic plan

An important role of the ECO is to help implement the ECC's five-year strategic plan, from 2015-2020. In 2017, we found ourselves two years into implementing this in-depth strategy, which outlines the policy goals, key challenges and priorities that constitute the framework for the ECC's activities during the five-year period.

Over the five years, the ECO will be contributing to the overall fulfilment of the plan through its specialist support, which was outlined in the previous section. We have also been explicitly assigned particular tasks in the context of the ECC's role as a focal point in Europe on electronic communications and its cooperation with other bodies.

As in 2016, our actions performed in 2017 were against the following objectives:

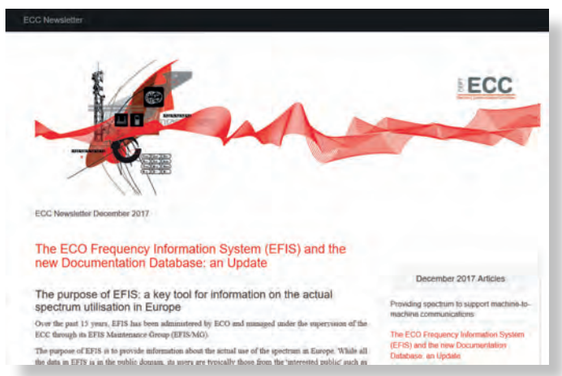
- To promote the ECC's achievements through the development of electronic newsletters and communications initiatives;
- To facilitate the exchange of views through the organisation of workshops on thematic issues and the development of training sessions to increase stakeholders' awareness of ECC activities;
- To increase the visibility of the ECC through presentations at relevant workshops and events;
- To support the ECC through continuous cooperation with other bodies, including the European Commission, ETSI, other external organisations, academia and research programmes.

2.2.1 Promoting ECC deliverables and activities through electronic newsletters and communications initiatives

In 2017, we consolidated the implementation of the ECC's communications programme by releasing three ECC electronic newsletters. The programme was complemented with the release on the ECC website of news releases and meeting summaries. The main goal was to promote ECC achievements and to increase its reach to potential newcomers in the area of electronic communications.

In 2017, the ECO was heavily involved in the release of ECC electronic newsletters. In addition to the publication and distribution of the three published editions, we also identified the topics for inclusion and our experts wrote the eight articles covered in those editions.

- The May 2017 edition included two articles. One was triggered by the workshop organised by the ECO and held on 31 January 2017 on numbering for eCall (see page 17). As a follow-up activity, we felt it appropriate to develop a summary of the two-day workshop and the fruitful exchanges addressing eCall interoperability and numbering challenges, which took place during it. The second article highlighted the role played by spectrum engineering in ensuring communications are interference-free.
- In September 2017, we published an extensive edition of the newsletter with four articles covering a broad range of topics in the spectrum and numbering area: (i) activities to identify frequencies to facilitate 5G deployments by 2020; (ii) developments in technology and spectrum management concerning automotive sensors and cooperative automotive communications; (iii) opportunities for spectrum for programme making and special event (PMSE) applications; and (iv) the technical and regulatory drivers for migration from PSTN/ISDN to IP-based networks.
- The last edition, published in December 2017, gave us the opportunity to go through the various activities within ECC on spectrum to support Machine-To-Machine Communications (M2M). We also wrote an updated piece on the benefits and recent developments of the ECO Frequency Information System (EFIS) and the new Documentation Database.



The newsletters were distributed electronically to some 5 200 stakeholders and were published on the ECC website.

You can subscribe to the ECC electronic newsletter for free on our ECC newsletter page, where an online archive of past copies is also available.

Across the year, ECO has also informed the subscribers to the ECC newsletters about the main events, such as the results from the three ECC Plenary meetings held in 2017, the running of workshops, questionnaires and public consultations, and the release of new versions of our tools and databases.

Publications of ECC Newsletters and of news releases have been backed up by short notifications, spread through the ECC Twitter account, @CEPT_ECC, managed by the ECO. Our use of Twitter remains very focussed on the communication of factual information concerning ECC, covering in particular the most significant meetings and workshops.

In order to describe the more routine activities within the ECC in greater detail, we also maintained our efforts in the development and publication of monthly news summaries on the ECC website. These bulletins provide a round-up of the main outcomes of ECC Working Group and Project Team meetings and events that take place each month. They are developed from contributions of the ECO's experts with responsibility for the various groups. Through the year, 10 monthly summaries have been published in the news area of the ECC main page (https://www.cept.org/ecc).

2.2.2 Organising workshops on thematic issues and developing training sessions to increase awareness of ECC activities

In order to encourage the exchange of information and to raise the awareness of ECC activities on thematic issues, the ECO has been deeply involved in the organisation of two workshops held in 2017 within the ECC framework. They addressed numbering issues related to eCall and the status and developments of the ECO Frequency Information System (EFIS) respectively.

We have also organised and led two training sessions on the use of the SEAMCAT tool and one workshop on European spectrum management and numbering specifically designed for newcomers in the area of electronic communications regulations. Additional information on the workshops is available at: https://cept.org/ecc/tools-and-services/cept-workshops.

Public workshop on numbering for eCall (ECO, Copenhagen, Denmark, 31 January 2017)

The ECO supported the ECC's Working Group Numbering and Networks (WG NaN) in the organisation of this event held at the ECO's premises.

eCall is an initiative intended to bring rapid assistance to motorists involved in a collision anywhere in Europe. It works using in-vehicle sensors which, when activated, automatically call the pan-European Emergency Number 112. From 31 March 2018, all new type cars sold in Europe must have eCall capability.

The workshop, which gathered 60 participants, had expert presenters and participants from all the key stakeholder groups including the automotive sector, mobile network sector, the national emergency services authorities and the regulatory sector. The workshop specifically represented a key milestone in the ECC's public consultation process on ECC Recommendation (17)04 on Numbering for eCall and, more generally, provided an opportunity for participants to exchange views on all aspects of eCall (see also page 17).

60 participants came to ECO on 31 January 2017 for the workshop on numbering for eCall

The ECO was not just involved in the practical organisation and preparation of the workshop. We led on the development of the agenda and speaker selection, as well as directly contributing during the workshop by giving a presentation on key assumptions related to numbering and deployment of eCall.

As a follow-up to the workshop, we also authored an article on eCall for the May 2017 edition of the ECC newsletter, as outlined on page 27.

SEAMCAT workshop for advanced users (ECO, Copenhagen, Denmark, 23-24 May 2017)

The workshop was organised on the back of the latest SEAMCAT developments, which led to the release of the version 5.1.1 in May 2017. It was specifically designed for advanced SEAMCAT users and focussed on the implementation and development of functional, simulation and system plugins. Through a range of presentations and exercises prepared by ECO, the participants were given the opportunity to build their own plugins and to get a better understanding of the source code and its potential.

Workshop on the ECO Frequency Information System (EFIS) (Mainz, Germany, 19 September 2017)

The ECO initiated and coordinated this event set up to discuss the status and developments of the EFIS database. More than 50 participants attended the workshop. The workshop provided guidance to CEPT administrations on supplying information to EFIS and guidance to the interested public on how to use EFIS. Suggestions were made for further improvement and development of the tool.

Presentations were provided by ECO, national administrations, ADCO/RED and RED/CA demonstrating the different usages and expectations related to EFIS from a range of stakeholders.

This workshop has proven to be very informative for the participants and also very useful for ECO, thanks to the feedback and suggestions expressed during the event. This contributed positively to the identification of actions for EFIS improvements going forward.

Thomas Weber, ECO, presenting at the EFIS Workshop, Mainz, 19 September 2017

SEAMCAT workshop for beginners (ECO, Copenhagen, Denmark, 24-25 October 2017)

The ECO organised and led a two-day SEAMCAT training session for beginners on 24-25 October 2017 at the ECO premises in Copenhagen. Some 35 participants attended the workshop, which was specifically designed for new SEAMCAT users and for those who wished to get acquainted with the new features introduced with the latest SEAMCAT version 5.1.1, released in May 2017.
It included an overview of the tool and its main modules and a set of exercises so that participants could become familiar with the key functionalities and with the graphical user interface.

According to the participants' feedback obtained through a questionnaire, the workshop responded to their expectations in terms of understanding the theoretical principles upon which the Monte-Carlo simulation is based. Positive feedback was specifically expressed in relation to the practical exercises proposed during the workshop.

Fifth CEPT Workshop on European Spectrum Management and Numbering (ECO, Copenhagen, Denmark, 26 October 2017)

For the fifth time since the start of this initiative in 2012, the ECO organised a workshop on European Spectrum Management and Numbering. It was specifically designed for newcomers in the area of electronic communications, both working for national regulators and in the industry, as well as for those who would like to broaden their knowledge of modern regulation of spectrum management and numbering in Europe.

The workshop was attended by 40 participants. Presentations were prepared by ECO staff and by Michael Sharpe (ETSI Director of Spectrum and Equipment Regulation). They addressed the following areas:

- CEPT-ECC-ECO: who we are, what we do
- European Framework for the use of spectrum – ECC, EC, ETSI: who does what?
- Major topics currently dealt with by ECC: covering numbering, network and spectrum issues
- ECO tools and software: overview of EFIS, the new ECO Documentation Database, SEAMCAT and the CEPT portal.

2.2.3 Increasing the visibility of the ECC through presentations at events

During the year, ECO experts continued to actively participate in a range of conferences and workshops where we delivered presentations on behalf of ECC. The main target was to share information and increase awareness and understanding about the ECC's areas of expertise, its policies and regulations.

UIC Group for Frequency Aspects, Munich, Germany, 7 February 2017

Within the UIC, the worldwide railway organisation, a dedicated group, the UGFA (UIC Group of Frequency Aspects), has been recently set up to address frequency aspects. Building upon the Letter of Understanding between the ECC and UIC, we responded favourably to an invitation from the UGFA where we provided an overview of the ECC activities relevant to railway operators. We covered in particular the work related to GSM-R, the railway telecommunications system standardised by ETSI, the initial investigations on spectrum for the Future Railway Mobile Communication System and studies on urban rail systems.

FICORA workshop on national eCall implementation, Helsinki, Finland, 8 February 2017

As part of its analysis of the national implementation of eCall, FICORA, the Finnish Communications Regulatory Authority, organised a workshop to exchange views with interested stakeholders on the issues to be addressed. In this context, the ECO spoke about the European regulatory framework and about some of the aspects related to numbering for eCall.

IWPC conference on 'Automotive Radar Sensors for Semi-Automatic and Autonomous Driving and Parking Systems', Wolfsburg, Germany, 21-23 February 2017

This workshop was organised by IWPC, the International Wireless Industry Consortium, to provide an update on developments regarding automotive radar technology to enable semi-automatic and/or autonomous parking and driving systems.

We informed the workshop's participants about the spectrum management activities in Europe related to applications in transport and traffic telematics including sensors.

IWPC conference on 'Connected Cars, V2X & Autonomous Vehicles', Düsseldorf, Germany, 24-26 April 2017

This event, also managed by the IWPC, brought together representatives from across the wireless and automotive ecosystems to discuss trends related to connected vehicle technology.

The Office introduced the relevant ECC regulations and activities, including automotive radars, intelligent transport systems (ITS) and use of RLAN on board vehicles.

Low Power Radio Association (LPRA) Radio Solutions Conference 2017, Groenlo, the Netherlands, 17-18 May 2017

The Low Power Radio Association (LPRA) is a trade association established to represent the interests of the Short Range Devices (SRD) and RFID industry. They organise every two years the Radio Solutions Conference where representatives of regulatory authorities and of industry meet together to exchange information on the latest relevant developments.

The Office provided an overview of the European regulatory framework for SRD, with a focus on the opportunities recently identified by ECC in the UHF band for SRD and RFID. The Conference was also informed on how valuable information on the spectrum use in Europe can be obtained from the EFIS database.

2.2.4 Supporting the ECC and CEPT through continuous cooperation with other organisations

Within its mission, the ECC highlighted its role to represent European interests in the ITU on issues related to the use of the radio spectrum, satellite orbits and numbering resources. ECC also emphasised the benefits of a strong partnership with all stakeholders, the European Commission and ETSI to facilitate the delivery of technologies and services for the benefit of society. In this context, the ECO plays a fundamental role in building effective business relationships with these key partners of the ECC.

In order to increase the visibility of ECC's achievements, the ECO is also quite active in helping the ECC extend its reach on a range of topics towards other external organisations, including the other Regional telecommunication organisations, and also towards universities and research programmes.

ETSI

The European Telecommunications Standards Institute, ETSI, is an essential partner of CEPT and its committees, in particular the ECC. The ECO plays an important role in this partnership through its direct participation in ETSI activities and very good cooperation with the ETSI secretariat.

The primary objective of our involvement in ETSI activities is to ensure that the technical requirements resulting from the regulations and studies developed by the ECC are understood and properly taken into account in the related standardisation activities within ETSI.

The ETSI Technical Committee on EMC and radio spectrum matters (TC ERM) is our main focus concerning radio spectrum issues. One of TC ERM's duties is to be responsible for ETSI's interface with ECC on radio matters. In 2017, we attended all three meetings that TC ERM held at the ETSI headquarters in Sophia-Antipolis. The main goal of this participation was to contribute to the continued consistency between ECC and ETSI activities. At these meetings, we submitted information documents on the most relevant developments within ECC and provided, when appropriate, the necessary explanations to support ECC activities and outcomes.

We developed and maintained, on the ECC website, a dedicated page (https://cept.org/ecc/ecc-and-etsi) describing how these two organisations work together. It includes a set of documents and tools designed to strengthen the synergy between ECC and ETSI. In 2017, we made efforts, in cooperation with the ETSI Secretariat, to enhance the following:

- A comprehensive spreadsheet listing the ETSI Harmonised Standards under development, covering Article 3.2 of the Radio Equipment Directive, and their relation to approved ECC deliverables or ongoing ECC activities: ECO has resumed its activity, which was on hold since 2015, to develop this tool. It supports ECC groups in monitoring the consistency between ECC and ETSI work;
- A matrix which indicates the work relationship between specific groups respectively within the ECC and ETSI;
- A brochure which provides an introduction to the regulatory environment in Europe for radio equipment and spectrum: after a significant revision published in July 2016, ECO and the ETSI secretariat have published an updated version in November 2017.

We also worked with the ETSI secretariat to improve and streamline how the ETSI Deliverables are referenced in our databases, namely EFIS and the ECO Documentation Database.

In the field of numbering and networks (NaN), the ECO maintained its close cooperation with ETSI's Technical Committee Network Technologies (TC NTECH), ETSI's centre of expertise on network technologies, which provides architecture and protocol specifications for network interoperability and interconnection.

The ECO participated in the April 2017 meeting of NTECH and reported back to the relevant Working Group NaN Project Teams on work items related to IP options for Number Portability and the final stages of the work in response to EC Mandate M/493 to develop a European Standard for the provision of caller location information from emergency calls originating on IP networks. A dedicated NaN technical liaison officer from ETSI NTECH continues to participate in each WG NaN meeting and provides progress reports on NTECH's work programme.

As the ECC's work in the field of emergency services communications has increased in recent years since the establishment of our Project Team on Emergency Services (PT ES), 2017 saw the ECO's first participation in ETSI's Special Committee on Emergency Telecommunications (EMTEL). EMTEL has the status of a Special Committee (SC) within ETSI, which provides the group with the flexibility to produce Technical Reports (TRs) as well as Technical Specifications (TSs). ETSI and the ECO teamed up to organise a joint workshop between EMTEL and PT ES. The workshop took place in October 2017 in Biel/Bienne at the kind invitation of the Swiss Federal Office of Communications. The workshop proved to be a great success and identified areas where synergies between the two groups could be exploited on subjects such as public warning services, pan-European mobile emergency applications and emergency caller location information from private/corporate networks. A further workshop is planned for 2018 to continue this fruitful collaboration.

European Commission and European Union relevant activities

The ECO continued its task of providing regular support to the ECC as observer representing the ECC at all the 2017 meetings of both the Radio Spectrum Committee (RSC) of the European Commission (EC) and of the Radio Spectrum Policy Group (RSPG). In particular, the ECO prepared the summary report of ECC activities for each RSC meeting and supported the ECC Chairman in its presentation, when required. We have also participated in the two ECC-EC consultation meetings held in 2017 as part of the ECC delegation.

Our involvement in these activities is mainly driven by the need to ensure an efficient interface between the ECC and the Commission in implementing the Radio Spectrum Decision. Furthermore, it also provides us with valuable background information that we can feed into our activities within ECC's groups, in particular when developing CEPT Reports in response to Mandates from the European Commission.

As part of the European preparation for the upcoming ITU World Radiocommunication Conference 2019 (WRC-19), CEPT and the European Commission agreed to organise a joint workshop in May 2017 to offer an opportunity for stakeholders to present their views on the agenda items of that conference. The ECO participated in this event and we provided assistance to the CEPT speakers in preparation of presentations prior to the workshop. We also produced a summary of the main discussions for publication on the ECC website afterwards.

In 2017, the ECO participated in the Telecommunication Conformity Assessment and Market Surveillance Committee (TCAM) activities on an ad-hoc basis. Specifically, we contributed to the work on the definition of radio equipment subclasses in the context of the implementation of the Radio Equipment Directive. This helped in ensuring the consistency between the definition of sub-classes and the corresponding spectrum regulations.

In 2017, the ECO continued to support ECC Working Group Numbering and Networks to foster and maintain a close working relationship between the CEPT and the Body of European Regulators for Electronic Communications (BEREC) through collaboration at the working group level on an informal basis. The main objective of this relationship is to leverage the different skillsets of both groups to encourage further cooperation and avoid duplication of effort. The ECO participated in BEREC's 5th Stakeholder Forum, which took place in October 2017 where BEREC's midterm strategy (2018-2020) and the BEREC work programme for 2018 were discussed. Topics of mutual interest include addressing connectivity challenges to support high capacity networks and enabling 5G.

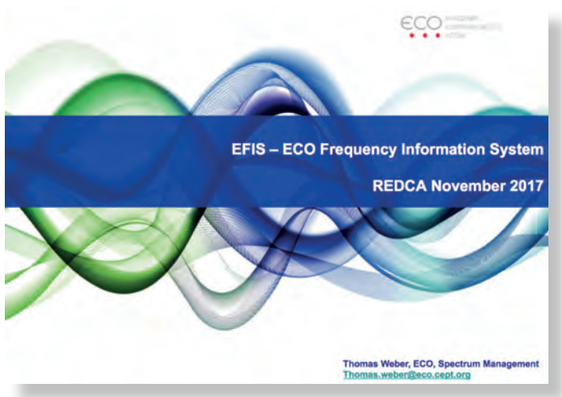
ADCO RED and RED CA

The Radio Equipment Directive (RED), Directive 2014/53/EU, regulates the requirements that products, within its scope, must meet in order to be placed on the market and put into service. It includes the essential requirements for radio equipment, to both effectively use and support the efficient use of radio spectrum in order to avoid harmful interference.

The implementation of the RED at the European level involves a number of organisations, in particular the European Commission and ETSI. The ECC has also a key role to play in this area through its technical expertise in radio spectrum. In this context, ECO has been very active for many years in supporting ECC in this subject. It led us to act as an ECC focal point with two influential bodies for the implementation of the RED: the Administrative Cooperation in RED (ADCO RED) and the RED Compliance Association (RED CA).

In 2017, we attended the three meetings of ADCO RED, the major group of the European regulators in the RED compliance area. We reported on the results from surveys carried out within ECC on interference cases encountered by national administrations. We also contributed to the setting up of the cooperation process between ADCO RED and the ECC Working Group Frequency Management, which will assist ADCO RED in its market surveillance of Radio LAN equipment planned in 2018.

We also participated in the two meetings held in 2017 of RED CA, which gathers the RED Notified Bodies and any interested testing or manufacturing organisation. We informed the group about the relevant recent ECC published deliverables and activities. We also highlighted the possible source of information for RED CA members on the ECC website, on EFIS and on the ECO Documentation Database. We carried out at the November 2017 meeting of RED CA a comprehensive online presentation of EFIS, which attracted a lot of interest. As a result, we provided in December 2017 a training webinar on EFIS to US notified certification bodies for radio equipment.



ITU

ECO experts participate in the relevant study group meetings of ITU within the ITU-R (Radiocommunication) and ITU-T (Telecommunication Standardisation) sectors. Our participation in these meetings provides us with the opportunity to promote European achievements to other regions of the world and to engage and exchange views with regulatory experts on activities and developments outside of Europe.

In 2017, we continued our involvement in the activities of spectrum management ITU-R working groups (WP 1B, and SG 1), mainly to support the ECC's work on SRD and to promote the SEAMCAT tool.

The new ITU-R Recommendation SM.2103 on the global harmonisation of Short Range Devices categories, developed within a correspondence group led by Thomas Weber from ECO, was finalised and approved.

Concerning SEAMCAT, the process initiated by the Office in 2016 on the revision of ITU-R Report SM.2028 was completed in October 2017 with the publication of its new version. As a result, this Report, which contains specifications of the Monte Carlo simulation methodology for use in sharing and compatibility studies between radio systems, is now consistent with the current implementation of SEAMCAT. It also represents an important step for the promotion of SEAMCAT in the ITU.

The ECO participated in two meetings of ITU-T Study Group 2 (SG2) which took place in April and November 2017. SG2 is the lead study group with responsibility for operational aspects of service provision and telecommunications management. During the April meeting the ECO made a presentation informing SG2 members of the ECC's ongoing work on analysing the impact of over-the-air (OTA) provisioning of SIM profiles on regulation in Europe. The presentation covered the identifiers involved in the OTA process which relate to ITU-T Recommendations E.212 and E.118. A review of E.118 within SG2 has since commenced as a result of this engagement. At the November meeting, during discussions on International Revenue Share Fraud, the ECO informed the meeting of its ongoing work in this area and that it expects to publish an ECC Report on the role of numbers in fraud and misuse in 2018. This report will be presented to SG2 following adoption.

We also followed the activities of ITU-T Study Group 20 which is responsible for identifying standardisation requirements of Internet of Things (IoT) technologies, with an initial focus on IoT applications in smart cities and communities (SC&C). There are common areas of interest between SG2 and SG20 as regards numbering and identifiers for M2M/IoT devices and it is important for the ECC to be briefed on these activities.

Our cooperation with ITU was also apparent in 2017 on a more operational standpoint. We hosted in Copenhagen the 3rd and 4th meetings of the Steering ITU Europe Centres of Excellence, held in January and December 2017 respectively. This gave us the opportunity not only to work together with ITU representatives but also to get some knowledge about the Centre of Excellence strategy, put in place within the Telecommunication Development sector of the ITU (ITU-D) and about the headlines of its implementation in Europe.

ITU Europe CoE meeting, ECO, Copenhagen, 17 January 2017

Other organisations

In addition to the main ECC's partners previously mentioned, ECO continued to build working relationships with various other organisations in 2017.

To name some examples, ECO maintained the cooperation with the railway communications community through its occasional participation in the UIC (International Railway Union, an ECC LoU partner) Group for Frequency Aspects (UGFA). This contributed to an active involvement of this community in the activities initiated in 2017 within the ECC Working Group Frequency Management.

ECO also continued to monitor the developments in sensor platforms and cooperative communications for more semi-automatic and autonomous driving and parking systems in road traffic and the related spectrum requirements. In this context, the Office actively participated in relevant events and gathered helpful material for an article in the September 2017 edition of the ECC electronic newsletter (see page 27).

These efforts helped to foster exchanges between ECC and interested communities, and to bring these communities closer to the ECC work, both in terms of participation and contribution.

Promoting the exchange between the ECC and the other Regional telecommunication organisations

The ECO acts as a permanent point of contact with other Regional telecommunication organisations recognised by the ITU. In particular, we are the point of the contact in the course of preparations for the World Radiocommunication Conferences (WRCs).

In 2017, we continued coordinating the process of cooperation and exchange of information between the ECC Conference Preparatory Group (CPG) and the other regional organisations for the preparation of the next WRC in 2019 (WRC-19). As part of this support to CPG and its Project Teams, we participated in the first Inter-regional workshop on WRC-19 preparation, organised by the ITU, in Geneva in November 2017, and we were involved in the submission of the preliminary views from CEPT to the workshop. In addition, the Office actively contributed to the development and the exchange of relevant documentation such as the presentations providing CEPT positions to other regional organisations. We also arranged throughout the year the participation from CEPT representatives to meetings of other regional organisations, and vice-versa.

Our central position in the exchange between the ECC and the other Regional telecommunication organisations helped us in developing fruitful work relationships with these organisations to promote ECC achievements in areas which go beyond the preparation for WRCs.

In this context, the Office was invited by the African Telecommunications Union (ATU) to give a two-day workshop on SEAMCAT in Nairobi, Kenya in January 2017. Some 63 participants from industry and administrations from 24 ATU countries attended the workshop, specifically designed for new SEAMCAT users. It included presentations and practical exercises that would allow participants to use the tool for their coexistence studies. The Office received very positive feedback from the participants after the workshop.

ECO experts during the ATU workshop on SEAMCAT, January 2017

Another way in which the Office contributes extensively to the cooperation between ECC and other Regional telecommunication organisations is certainly in the context of EFIS. For a number of years, we have worked with the Asia-Pacific Telecommunity (APT) on the development of the APT Frequency Information System (AFIS), a system comparable to EFIS where APT member states can make available their national information on radio spectrum usage. AFIS has now reached a mature stage and is operational; its key features and layout are similar to those in EFIS.

In 2017, the server hosting AFIS was moved to the APT headquarters in Bangkok, Thailand, and the ECO signed with APT a software licence agreement describing the respective roles in the future management and development of AFIS. ECO and APT intend to keep exchanging on any software developments in the EFIS and AFIS in order to mutually benefit from future developments on both sides.

Collaboration with universities and research programmes

In its latest strategic plan in 2015, the ECC assigned the ECO with the task of further developing collaboration with universities and relevant scientific institutes willing to do research on spectrum issues. In addition, the Office was further advised by the ECC Steering Group to strengthen the cooperation with the Joint Research Centre (JRC) of the European Commission and to focus on the developments on 5G, also considering projects funded under the Horizon 2020 (H2020) European Research and Innovation Programme, in particular 5G-PPP.

In this context, the Office has been investigating additional research opportunities that might arise from the upcoming Phase 3 of H2020 5G-PPP, expected in 2018 and mainly related to 5G experimental realisations. Follow-up actions are expected in 2018, which would support the CEPT roadmap for 5G. This roadmap sets up a comprehensive list of actions on 5G and identifies the related ECC activities.

In 2017, the Office started cooperating with the Polytechnic University in Valencia (UPV), Spain. Specifically, we provided presentations at a two-session workshop in March 2017. The first part of the workshop took place at the Telecommunications Engineering School and consisted of an introduction to the European regulatory framework in spectrum engineering and frequency management. The second presentation, which was an introduction to SEAMCAT, was held at the Institute of Telecommunications and Multimedia Applications (iTEAM). This is a research centre integrated in the Polytechnic University.

The workshop was attended by degree and master students, professors and associate researchers, who expressed active interest in CEPT activities and in the use of SEAMCAT. Further cooperation is expected with the UPV in the near future.

In September 2017, ECO signed a cooperation agreement with the Vilnius University, Lithuania, with the aim to facilitate the contribution of Academia to the development of spectrum engineering and electromagnetic compatibility methods. This agreement was specifically designed to increase the involvement of Vilnius University in the development of SEAMCAT and to strengthen the scientific and research relationship with the Office.

2.3 Managing our operational services

ECO is committed to delivering high quality support to CEPT and its committees across a wide range of operational and professional services.

This back-end support is vital in the day-to-day operations of the CEPT. It helps to provide crucial information and logistical services to our colleagues throughout Europe. Our objective is to ensure that the correct information is available to people when they need it, and we do this through managing, maintaining and updating various information sources throughout the year. Logistically, we also develop electronic working arrangements and we provide meeting facilities, as well as offering administrative support to CEPT and its committees.

2.3.1 Managing CEPT's family of websites

Launched in 2011, the CEPT portal is a key instrument in the promotion and support of the work of CEPT and its committees. It provides a common platform with harmonised functionalities to the five websites of the bodies that constitute the CEPT family: CEPT, its three business committees (ECC, Com-ITU and CERP) and its permanent Office (ECO).

After four years of moderate developments, we implemented in December 2016 a significant upgrade of the portal. This was followed in 2017 by actions in three areas to consolidate the enhanced portal:

- Survey on the CEPT portal: the Office carried out a short survey with the view to gathering feedback from stakeholders on the upgrade implemented in 2016. This is further described on the next page.
- CEPT portal optimisation project: after updating the layout of the CEPT portal in 2016, we undertook in 2017 a significant review of its 'engine' in order to stabilise and optimise it. This was done through a review and simplification of the complex logic and the refactoring of the main system blocks with the use of modern components. We also covered the whole system by test automation to make it more stable and future-proof when additional developments are brought into it.
- Minor developments: as part of the maintenance activities of the portal, we implemented a couple of improvements to the portal in response to relevant requests from users.

THE CEPT PORTAL IN 2017	
Number of user profiles registered to the portal	4 650
Unique visits*	823 000

* Multiple hits having the same IP and date are counted as one unique visit

Looking for stakeholders' views on the CEPT portal

In the five years since its launch, the CEPT portal evolved moderately. However, with technologies changing rapidly, we felt it needed a significant upgrade. We wanted a more modern, user-friendly portal. ECO undertook the upgrade in 2016, working with our partners to substantially improve the design and implementing a responsive layout for tablets and smartphones. We implemented items such as mega-menus (instead of vertical tabs in the previous version) and a more extensive use of icons, and we tried to simplify the general layout of the portal. The results were deployed in December 2016.

We wanted to hear from the users of the new portal to ensure that the key objectives of the update were met, so in 2017 ECO carried out a short survey among stakeholders. The survey contained six questions: four closed questions, whereby respondents would answer yes/no and have the opportunity to comment where the answer was negative, and two open questions.

ECO made the survey available on the electronic questionnaire feature hosted by the CEPT portal for two weeks – from 27 September 2017 until 11 October 2017. We had a very good response, with 92 users answering our questions. Here's a brief overview of the questions and their results.

Our CEPT portal survey: A summary

Question 1: Concerned with the look and feel of the portal, it asked: Do you think that the design throughout the CEPT portal (5 websites) gives a united impression and feel of the website/sites (colours of banners etc)?

YES 89
NO 2
SATISFACTION 97.8%

Question 2: This concerned the implementation of modern design components. It asked: Do you think the general layout has been simplified throughout the portal?

YES 89
NO 3
SATISFACTION 96.7%

Question 3: With regards the content and visibility, we asked: Due to our specialised audience, focus should be put on content and visibility: Do you think the content and text is more visible and easy to read?

YES 85
NO 9
SATISFACTION 90.4%

Question 4: This was based around responsive views through mobile platforms: Do you think that the portals responsive view is manageable on mobile devices such as desktops, laptops, tablets and smartphones?

YES 72
NO 4
SATISFACTION 94.7 %

Question 5: We asked: Are there any areas where we could improve? Please specify.

Question 6: We asked the respondents to supply us with any other feedback.

Our assessment

The vast majority of the feedback was positive and supportive of the changes in the portal. Our efforts to make the content more visible and easy-to-read have generally succeeded. This survey also confirmed that the CEPT portal is now much more suitable for the navigation on mobile interfaces.

Thanks to this survey, we received very helpful suggestions and feedback from respondents. It gave us a very meaningful source of information for the possible future improvements of the portal.

For example, a range of observations and suggestions was provided concerning the meeting documents area. This is an essential part of the portal, and needs to be more user-friendly. We plan to investigate how we can improve the area in 2018.

2.3.2 Managing our online databases

Besides the specialist databases and tools such as EFIS (page 18), DocDB (page 23) and SEAMCAT (page 20), the ECO manages and updates other important online information systems on which many of our European stakeholders rely.

Maintaining and upgrading the ECC Work Programme Database

The ECC Work Programme Database (WP DB) is part of the suite of ECO software tools that support CEPT. The purpose of the WP DB is to provide the ECC and its constituent bodies with online facilities for maintaining and updating their work programme on an ongoing basis. This is done with the assistance of the ECO team. It consists of a number of work items, allocated to the various groups within the ECC, with the possibility to filter them according to a set of parameters.

In May 2017, we implemented a new version of WP DB with a new design. The use of modern web design components gives a more dynamic look to the tabular structure of the database. It also offers more flexibility to the user in selecting the information they are interested in.

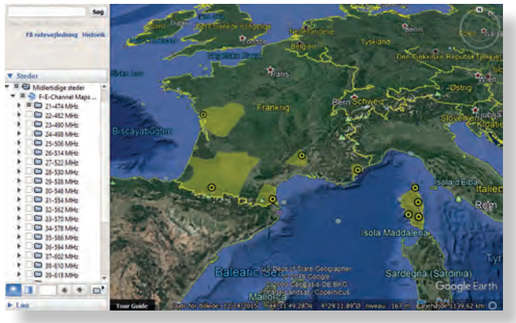
Following the implementation of these software improvements, ECO has been working to streamline the content of the database. We submitted proposals to the concerned groups in order to harmonise, as far as possible, the way the various work items are described in WP DB.

The ECC WP DB is available at https://eccwp.cept.org/. At the end of 2017, it contained information related to 511 ECC work items, either active or finalised. In particular, it provided the up-to-date status of the 147 work items which have been in progress in the course of 2017. It has been visited approximately 25 000 times in 2017.

Enhancing the information repository on progress for coordination for the 700 MHz band

In the context of the implementation of the digital dividend in the 700 MHz band (i.e. change of use of the band 694-790 MHz from broadcasting to mobile service), the ECC tasked ECO to develop a tool that would allow users to monitor and review the progress of bilateral and multilateral coordination negotiations between CEPT countries. As a result, in 2015 the Office developed and released on the CEPT portal a first version of this 700 MHz information repository.

Since then, we have been working together with the interested stakeholders to enhance the repository. In 2017, we introduced a new graphical display in order to visualise channel contour zones as shown in the figure below:



We also improved the data import function in an effort to assist administrations in providing the relevant information, with additional flexibility around the format of geographical coordinates and associated consistency checks.

At the end of 2017, the repository included relevant information from 10 CEPT administrations, as shown below:

In 2017, the repository was consulted approximately 35 000 times.

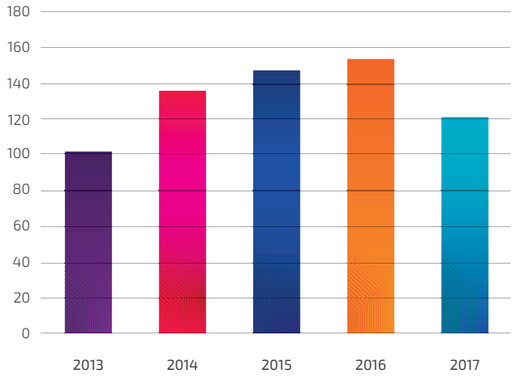
2.3.3 Promoting electronic working arrangements

CEPT and its Committees generally agree that the efficiency of working processes can be improved by making use of the available electronic systems. In this respect, ECO provides our stakeholders with access to four main tools and services dedicated to electronic working.

- **Web-meeting facilities:** Fully operational since 2012, our web-meeting facilities are based on the use of the commercial 'GoToMeeting' platform combined with the meeting management features integrated into our portal. They are now part of CEPT's routine in terms of meeting management.

These facilities are also used to offer, on an ad hoc basis, remote participation for some physical meetings.

Number of web-meetings organised by ECO



In 2017, the ECO organised 121 web-meetings, generally running for two to three hours. Whilst the number of web-meetings decreased in 2017 compared to the previous years, we observed an increase of the average participation: 12 participants per meeting in 2017 compared to 9 to 10 participants in previous years. This is due to the more frequent use of these facilities for ad hoc sessions of Project Teams gathering more than 20 participants.

- **Email reflectors:** For the three CEPT Committees and their sub-groups, we provide and manage a range of dedicated email reflectors, used to exchange information and to complement the physical and web-meetings, as well as to progress the activities. Most of these reflectors are processed through the CEPT portal, which offers the opportunity to users to manage their subscriptions, including a change in email address, through the CEPT portal. In 2017, we managed more than 50 email reflectors to assist groups within the CEPT Committees.
- **CEPT Forum:** The forum features have been integrated into the CEPT portal since 2012 and have been further improved since then. The extent of its use depends upon the groups and project teams. It constitutes an efficient complement to the physical meetings, the web-meetings and the email reflectors to progress the work on specific work streams.
- **CEPT Chat system:** This system is activated upon request to facilitate CEPT coordination at major events through the implementation of a real-time chat function, which is interfaced to the CEPT portal. It has been made available in 2017 to assist Com-ITU during the World Telecommunications Development Conference (WTDC-17, Buenos Aires, 9 - 30 October 2017) and to support the CEPT coordination during sessions of relevant ITU-R Working Parties.

2.3.4 Providing facilities for collaborative working

CEPT's work is based on collaboration between regulators and industry representatives from different countries across Europe. We provide physical meetings at our premises at Nyropsgade 37 in central Copenhagen, where we have been located since May 2014.

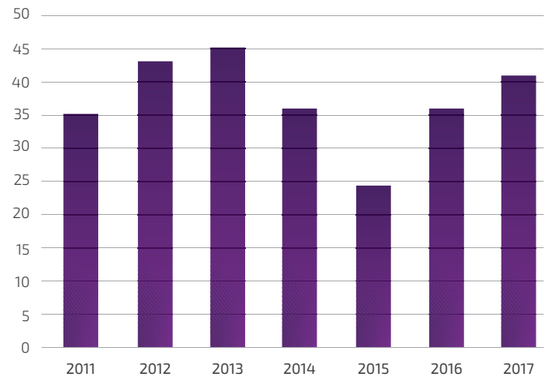
Our main meeting room has a capacity of approximately 60 seats and can be divided into two rooms of 40 and 20 seats respectively. We also have a second meeting room for approximately 20 seats. In 2017, we made available a further small meeting room, for approximately eight people, which can be used by delegates for ad hoc meetings and phone conferences.

Our meeting rooms have internet access for delegates, as well as projection facilities. In addition, the main room has video and audio webcasting features to allow remote participation on an ad hoc basis.

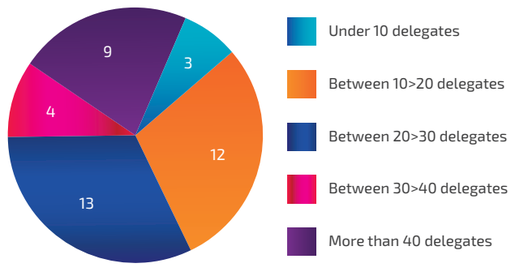
CPG PTA meeting in ECO, February 2017

After a significant decrease in 2015, right after we moved in to our current premises, we are pleased to observe that the use of our meeting facilities has risen in 2016 and in 2017 to reach an extent comparable to previous years. In 2017 we hosted 41 meetings, spread across 86 days, which attracted more than 1 070 participants, mostly from around Europe, to Copenhagen. These meetings ranged from small working sessions with six participants to larger events involving more than 50 attendees.

Number of meetings 2011 - 2017



Number of delegates per meeting in ECO in 2017



Collaboration in Action: A behind-the-scenes look at the operational and administrative support

The experts at the European Communications Office may be the front-facing personnel but it is the permanent staff who keep the day-to-day operations going. To use a motoring analogy, they are the engine of our operation – essential for the smooth running of the office.

Our permanent staff consists of five people: Susanne Have, Vibeke Hansen, Mette Tobiassen and new members to the team in 2017, Anne-Dorthe Hjelm Christensen and Kenneth Karlsson. They are, above all, team members who collaborate and communicate effectively with each other and with the experts, often working across a variety of roles when one member of the team is away.

Susanne Have is the secretary of the ECO Council meetings, preparing documentation, invitations, and recording and reporting the minutes. She is also providing administrative support to Com-ITU and CERP and is the contact point for ITU, ETSI, as well as other international organisations.

Susanne Have works closely with the experts including setting up electronic questionnaires, collecting and compiling the results. This, in turn, helps the team to inform CEPT committees in the development of deliverables and in the establishment of positions.

Vibeke Hansen has seen her role expand over the past two decades. She works on reception and manages the day-to-day running of the office. In 2017, she assisted in 86 days' worth of meetings in Copenhagen, helping more than 1000 attendees with everything from arranging transport from the office to managing meeting facilities for ad hoc sessions.

Vibeke Hansen's role of webmaster editor meant she was project leader of a programme to optimise the CEPT portal and its five websites. She worked closely with the website developer, to identify and repair bugs and to ensure the portal, which has more than 800 000 visits each year, runs as smoothly as possible. She also expanded her involvement in the supervision of the websites contents, supporting our experts and the group's chairperson in the collection and the update of relevant material. This is a key contribution in our efforts to make the CEPT portal an accurate and consistent source of information for our stakeholders.

Anne-Dorthe Hjelm Christensen, who joined ECO in 2017 as administrative assistant, provides support for our experts. Through her involvement in the task of processing and editing ECC deliverables before their final publication, she started putting in place some procedures to improve the readability of these important documents. In addition, Anne-Dorthe manages the ECO Document Database and EFIS, alongside expert Thomas Weber. In 2017, we published a new and updated Document Database; throughout the course of the year Anne-Dorthe worked closely with Thomas to carry out lots of improvements to the system. With these new developments, her role in regularly inputting and checking information is becoming more pre-eminent due to the continuous increase of the amount of detailed information made available on the databases.

ECO organises many meetings at our premises in Copenhagen, but we also attend meetings outside ECO. In 2017, ECO went on 121 missions to 26 countries, mostly in Europe. 357 meeting days and 346 nights were spent outside ECO. Anne-Dorthe is responsible for the booking of travels for our experts and the contact with our travel agency.

Mette Tobiassen joined ECO as finance and HR officer in 2015. She is responsible for financial management and human resource administration within the Office ensuring that the policies are consistent with the financial and legal framework of the Office. Mette is also responsible for the communication and cooperation with the institutions of Danish Government. She reports to both management at the ECO and the Council.

In 2017, Mette started preparations for the new data protection strategy, which will be a key project for ECO in 2018, and will be essential for the ongoing use of our website and relevant tools by stakeholders.

Since joining ECO in September 2017, Kenneth Karlsson has been managing and maintaining the IT system. Kenneth is project lead for new developments with the websites and IT platforms. This role is vital due to the high level of expectations from CEPT, its committees, administrations and stakeholders on the IT-based tools developed and maintained by the Office.

In 2017, Kenneth formulated and started the implementation of a plan for the update and the rationalisation of the IT platforms in order to improve the reliability and efficiency of our resources. The plan will continue to be executed in 2018.

Along with Mette, he also commenced planning for the new online data protection strategy in 2017, and will complete implementation in 2018.

2.3.5 Supporting the CEPT Presidency

In 2017, ECO support to the CEPT Presidency has mainly been in the form of routine activities, such as: the invoicing and collection of CEPT member financial contributions; correspondence with the CEPT Co-Presidency; responding to requests about CEPT, and maintenance of the sections of the website which relate to the CEPT Presidency. We also organised an electronic meeting of the Presidency, which offered a good opportunity to the new CERP Chairman, Mr Germán Vázquez from Spain, to initiate cooperation with the two other CEPT co-Presidents and with the ECO Director.

2.3.6 Supporting the European Committee for Postal Regulation (CERP)

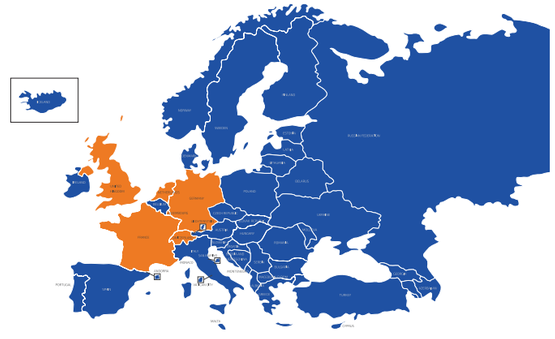
ECO further increased its operational support to CERP and its Working Groups in 2017. It involved: secretarial support; correspondence with the CERP Chairmanship; responding to mails from outside bodies; creating electronical questionnaires, maintenance of the CERP section of the website and upload of documentation.

We also hosted two meetings of the WG UPU in our premises in 2017 and helped run a number of web-meetings for the new CERP Chairmanship. We presented to the CERP Chairmanship a range of services used by other CEPT committees, which may also be beneficial to the CERP members. This led to a more extensive use by CERP and the WG UPU of the resources developed by the Office (CEPT portal, questionnaire, CERP forum, email reflector etc.).

2.3.7 Supporting the Satellite Monitoring Memorandum of Understanding

Due to the highly specialised and costly nature of satellite monitoring facilities, a group of European national authorities have established an agreement under the Satellite Memorandum of Understanding (SAT MoU) to share access to the space radio monitoring station located in Leeheim, Germany. The agreement facilitates satellite monitoring activities within CEPT, particularly to investigate interference involving satellites.

In 2017, the signatories of the agreement are: France, Germany, Luxembourg, The Netherlands, Switzerland and the United Kingdom.



SAT MoU member countries per 1 January 2017

The ECO provides secretariat support to the management committee responsible for the SAT MoU. We also manage CEPT's SAT MoU financial account, which was set up to cover the costs of using the Leeheim facilities.

The ECO also acts as the interface between the SAT MoU and the ECC. In 2017, the Office reported to the SAT MoU the status of the activities carried out within the Working Group Spectrum Engineering Project Team SE40. SE40's activities triggered a satellite monitoring campaign of Iridium's NEXT constellation in 2017 in order to assess the potential impact of interference from this constellation into Radio Astronomy observations. The planned scope of the campaign was extensively debated in ECC groups and was brought to the attention of SAT MoU by the ECO. The first step of this campaign consisted of measurements of the unwanted emissions from a number of the satellites in the new constellation into spectrum used for Radio Astronomy. The second step, scheduled for 2018, will allow measurements on a statistically representative number of satellites and relevant analysis of these measurements. The results will be reported to the SAT MoU and also to the Project Team SE40 in order to identify any appropriate consequential action.

The ECO actively participated in the drafting of a document describing SAT MoU activities since its creation in July 2003. Furthermore, the ECO assisted in the drafting of a leaflet, which promotes the role of SAT MoU in satellite monitoring activities. This work was finalised in 2017.

Leeheim monitoring station

Further information on the SAT MoU is available from our website at: https://cept.org/eco/groups/eco/sat-mou/client/introduction/ .

SECTION

3

Structure and governance

The ECO is governed by the ECO Council, consisting of representatives of the Contracting Parties to the 'Convention for the establishment of the European Communications Office'. This defines the terms of reference for the ECO and its funding arrangement. In 2017, 34 countries were officially Contracting Parties to the ECO Convention and 35 countries are contributors to the financing of the ECO. The ECO Council Chairperson and the ECO Director have entered into discussions with some of the CEPT administrations who are not currently members of the ECO Council in order to attract new signatories to the ECO Convention.

The Council has responsibilities, which include agreeing the ECO's budget and work programme on an annual basis. These are prepared by ECO staff under the guidance of the Director. The Council's preferred method of working is by consensus. The ECO Council held its 16th meeting in Edinburgh, United Kingdom, in May 2017 and its 17th meeting in ECO, Copenhagen, in November/December 2017.

Ms Marta Leandro of Portugal has been Chair of the Council since her election in May 2015 and Dr Samuel Ritchie of Ireland has been Vice-Chairman since December 2015.

Financial summary

The ECO was approximately 98% financed by the following 35 countries in 2017:

Austria, Belgium[1], Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Monaco, Montenegro, the Netherlands, Norway, Poland, Portugal, Romania, Slovak Republic, Spain, Sweden, Switzerland, Turkey, the United Kingdom, and Vatican City.

The remainder is from directly funded services (e.g. administration of the CEPT and the Satellite Memorandum of Understanding).

The following figures provide a financial summary for 2017.

	DKK	EUR
INCOME	**18 148 478**	**2 437 706**
EXPENDITURE		
Staff Costs (salaries, pension contributions, etc.)	12 275 751	1 648 881
Running Expenses (outsourcing, projects, professional fees, travel)	4 459 449	598 994
Office Facilities (rent, building related expenses)	1 882 988	252 923
Expenditure total	**18 618 188**	**2 500 798**
Operating balance for end of year	**-469 710**	**-63 092**

Based on exchange rate of DKK 1 = EUR 0.134

[1] Belgium is not one of the Contracting Parties to the ECO Convention but contributes to the financing of the ECO.

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