

Report from the Working Group Spectrum Engineering Tromsø, 10 – 14 May 2010



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1 Opening of the meeting

The WG SE Chairman opened the 56th WG SE meeting held in Tromsø, Norway at the kind invitation of the Norwegian Post and Telecommunications Authority (PT).

Mr. Bjarte Sørhus (Norway) welcomed the delegates in Tromsø and said that Tromsø is a place known for education and technologies and therefore matches the spirit of WG SE very well. He also provided further information about the practical arrangements and wished all the delegates a successful meeting.

The chairman of WG SE, Mr. Christoph Wöste, thanked him for the kind welcome.

The meeting was attended by a total of 41 delegates from 22 Administrations, ECO and ETSI (see **Annex 02** for details).

Apologies for absence were received from Mr. Steve Bond (United Kingdom), Mr. Alexander Klyucharev (Russian Federation), Mr. Stefan Mattson (Sweden), Mr. Conor Conran (Ireland) and Mr. Laurentiu Alexe (CRAF).

2 Adoption of the Agenda, Schedule of Work

The Agenda was adopted. A copy is attached as **Annex 01**.

The list of documents is attached in **Annex 03** and the list of SE Project Teams and their Terms of Reference is available in **Annex 04**.

3 Matters arising

3.1 ECC

The WG SE Chairman presented the results of the 25th ECC meeting held in Montpellier, France from 1 - 5 March 2010 (see SE(10)039).

He highlighted the following points:

- ECC approved the CEPT Report 39 in response to the Mandate on the 2 GHz bands subject to Public Consultation and for submission to the EC. SE42 will now have to deal with the results of the Public Consultation on this Mandate. The result of this analysis will be sent directly to the ECC meeting in June 2010. See also Section 10 (SE42).
- The ECC agreed that ECC PT1 should consider the review of Dec ECC/DEC/(06)01 "Harmonised utilisation of spectrum for terrestrial IMT-2000/UMTS systems operating within the bands 1900-1980 MHz, 2010-2025 MHz and 2110-2170 MHz". ECC invited WG SE / SE42 to provide the results of sharing studies in relation with the task 2 of the 2 GHz Mandate (i.e. BEM) as an input to this process. This would be achieved by considering the final outcome from CEPT Report 39.

- The ECC agreed to consider the final approval of the draft ECC Report 146 on GSM MCBTS in its June 2010 meeting to allow a proper resolution of the comments by WG SE / SE7 and ECC PT1. See also Section 5 (SE7).
- During the ECC meeting ETNO presented a document proposing to start a revision of the ECC Report 003 "Fixed Service in Europe - Current use and future trends Post-2002". This Report has not been updated since 2002 and WG SE (SE19) was requested to do the work. See also Section 6 (SE19).

The chairman of WG SE mentioned that the ECC plenary was informed that he completed his second term of chairmanship in WG SE. In accordance with the RoP the call for appointments is available in order to allow the forthcoming ECC meeting to appoint a new Chairman for WG SE.

The next ECC meeting is scheduled on 21 – 25 June 2010 in Baden, Switzerland.

3.2 ECC PT1 (IMT-matters)

Mr. Jaime Afonso (POR) indicated that no regular ECC PT1 meeting took place since the previous WG SE meeting in Germany. However, an extraordinary meeting took place to deal with the response to the EU Mandate on GSM 900/1800 MHz. This work is focused on Task 2 and Task 3 of this EU Mandate. Other issues of ECC PT1 work relevant to WG SE are referred to in the SE Project Team discussion.

The next ECC PT1 meeting is scheduled for 19 - 21 May 2010 in Copenhagen, Denmark.

3.3 WG FM

There was no meeting of WG FM since the last WG SE meeting. WG SE developed several liaison statements to WG FM. For further information please see sections 5 (SE7), 6 (SE19), 8 (SE24) and 11 (SE43).

The next WG FM is scheduled for 17 – 21 May 2010 in Saint Petersburg, Russia, the following one for 20 - 24 September 2010 in Sweden.

3.4 WG RA

The meeting of WG RA was in parallel to this meeting of WG SE in Gdynia, Poland. WG SE developed a liaison statement to WG FM and WG RA on SE43 activities related to CR in "white spaces" (**Annex 12**). See also section 11 on SE43 for further information.

The next meeting of WG RA is scheduled for 14 – 17 September 2010 in Ljubljana, Slovenia.

3.5 CPG

Bruno Espinosa introduced briefly document SE(10)040 containing the minutes from the 5th CPG-12 meeting held in Ponta Delgada in February 2010. WG SE noted the activities of CPG, its progress on the development of draft CEPT briefs and ECP. In particular, it was pointed out that the activities of SE19 and SE40 on WRC-12 AI 1.20 and 1.18 respectively were duly taken into account.

3.6 ETSI

3.6.1 Report from ETSI activities

WG SE considered the report from the ETSI Liaison Officer, Mr. Thomas Weber, in document SE(10)041. The executive summary of the last ETSI TC ERM#40 meeting was attached to the report in order to inform WG SE about new work as well as decisions in ETSI. The report from the ETSI Liaison Officer also included an overview on the various ETSI system reference documents and their related status.

The document InfoSE(10)015 on Revision of TR 102 664 v1.2.1 on 26 GHz SRR and its annex was presented. ERM TG SRR has revised the preliminary draft system reference document draft TR 102 664 v1.2.1 on 26 GHz SRR. This SRdoc supports the ongoing studies in SE24. This document was approved in the last TC ERM meeting for publication. Mr. Weber informed the meeting about the status in ETSI regarding the corresponding harmonized standard EN 302 697 for 26 GHz SRR. The approval for ETSI Public Enquiry is expected for June 2010. Sweden asked if ETSI will consider the results of the draft CEPT Reports 36 and 37 for the standard. Mr. Weber expects that the ETSI Public Enquiry may start in August and will take 4 months. Afterwards a resolution meeting will be held. The approval for ETSI National Vote is to be expected for March 2011. The two CEPT Reports mentioned by Sweden therefore need to be available before the final comments resolution meeting at ETSI.

ERM has adopted a new work item for an ETSI System Reference document on Broadband Direct-Air-to-Ground (DA2G) communications. The draft of the document has been agreed in ERM TG DMR but has not yet undergone ETSI internal consultation (ETSI draft SRdoc "stage 1"). The ETSI Liaison Officer presented the preliminary draft system reference document in InfoSE(10)016annex1. ETSI asks CEPT / ECC to perform the relevant spectrum investigations and compatibility studies necessary to designate appropriate frequency bands for the forward link (FL) and the reverse link (RL) for the introduction of a broadband DA2G communication service covering the whole of Europe. An ECC Decision, designating the bands, is requested by ETSI to be available by mid 2012. Mr. Weber also informed that Eurocontrol has been participating in the ETSI internal consultation on the document. WG SE also noted an input document from Eurocontrol to WG RA and the WG SE Chairman informed the WG RA Chairman about the ETSI documentation in order to ensure alignment of the activities on Broadband Direct-Air-to-Ground (DA2G) communications.

The liaison statement on ETSI SRdoc TR 102 892 V0.0.8 – 24 GHz WLAM available in InfoSE(10)017 was presented. ERM TG SRR has prepared the preliminary draft System Reference document TR 102 892 v1.1.1_0.0.8 on 24 GHz WLAM. This

document has been agreed in ERM TG SRR. The ETSI internal consultation ended on 30 April 2010, but the version presented had not yet undergone ETSI internal consultation. Compatibility studies in SE24 are underway. The description of the WLAM activity factor is considered important for SE24.

InfoSE(10)018 contains in its annexes two system reference documents for DVB-H Small Gap Fillers and Band II In-Band-On-Channel Broadcasting System (both stage 1). Both documents have a number of regulatory issues in addition to the technical issues. WG SE discussed without making conclusions on whether the DVB-H Small Gap Fillers could be considered as SRD application. The Band II In-Band-On-Channel Broadcasting System approach includes a so-called hybrid mode where analogue FM and digital broadcast are transmitted simultaneously with possibility to switch to a full digital mode at a later stage. The benefits were that no additional spectrum would be needed and the cost of implementing the system would be limited for broadcasters. However, some relaxation of the protection criteria for adjacent channels would need to be studied in WG SE.

InfoSE(10)019 from ERM TG SRR included the preliminary draft System Reference TR 102 704 v1.1.1 on 76 GHz Surveillance Radar. This is the SRdoc which was announced earlier to be made available to ECC for compatibility studies. Compatibility studies in SE24 are underway, and it is therefore requested to consider the attached preliminary draft document in the ongoing studies and at the next meetings. WG SE noted that the list of surveillance applications covered by the system reference document has been widened considerably. All applications in the SRdoc are still proposed to fall under the SRD regulations and under licence-exempt status. ETSI will also need to further investigate and ensure compliance with the public exposure limitations stipulated in 1999/519/EC on average power for the 76 GHz surveillance radars.

A response liaison statement from ETSI ERM to SE21 on draft EN 305 550-1/-2 – SRD operating in the frequency range between 40 - 246 GHz was noted by WG SE (InfoSE(10)020). ETSI ERM considered the comments sent by SE21 on this EN 305 550, incorporated some of the SE21 suggestions and approved it during the recent ERM meeting for the ETSI Public Enquiry.

After some discussion in WG SE on the need of measurement requirements for very high frequencies, WG SE agreed to send a liaison statement to ETSI and testing device manufacturers to request more detailed information on the practical measurement challenges on EHF measurements, especially above 100 GHz and unwanted emissions testing (**Annex 20**).

The documents InfoSE(10)021 and InfoSE(10)025 on the technical characteristics for Programme Making and Special Events (PMSE) applications were noted by WG SE. Based on the existing situation and questions on the different PMSE applications, it was decided in ETSI to create six specific documents for PMSE application categories. The existing ETSI TR 102 546 V.1.1.1 and the applications under the SAB/SAP definition will be considered by ETSI ERM TG17 WG3.

Additionally, WG SE noted ETSI TR 102 799 (cognitive approaches for PMSE in various frequency bands) and recommended that the content of this TR may be

considered further by SE43, (see section 11.2). The ETSI STF 386 will now continue in a further step to create first technical specifications for cognitive PMSE.

The ETSI Liaison Officer presented the revised draft version TR 102 628 V1.1.1_0.0.25 on spectrum requirements for future Public Safety and Security (PSS) systems for information and consideration (InfoSE(10)023). It is now planned to complete the work on the SRdoc by June 2010 in ETSI. Some additional information received during the WG FM PPDR workshop (Mainz, March 2010) as well as national studies have been incorporated in the present version. FM38 already discussed the document.

InfoSE(10)024 contained the latest draft EN 303 213-6 on airport surface movement radar sensors operating in the frequency range of 9 000 MHz to 9 500 MHz allocated to the radio navigation service. There is a relation to the revision of ERC REC 74-01. ERM#40 decided to inform WG SE about the latest draft version of this standard. It was agreed that SE21 should consider the document and react as appropriate.

InfoSE(10)026 contained the published Harmonized European Standard on GNSS repeaters for information.

3.6.2 Relationship between WGSE and ETSI activities

During the discussion on the ETSI activities in relation to the ETSI standard EN 302 697 for 26 GHz SRR, WG SE initiated a general discussion on means to facilitate the consideration for WG SE members of the draft harmonised standards in progress in ETSI, in particular for those which are related to WG SE activities. As a result, WG SE initiated the development of a “spread sheet”, which provides an overview of the ETSI standardization activities on harmonised standards relevant to technical studies inside ECC Working Groups and Project Teams and which is intended to be updated on a regular basis (Contact person: Marc le Devendec (ledevendec@ero.dk)). The first draft of this working document is available as **Annex 21**. Some potential improvements were identified and it is expected that this first overview should be developed further by WG SE in future meetings. In particular, the ETSI LO and WG SE Project Team Chairmen are invited to provide further ideas to this working document.

4 WG SE adoption of ECC documents after public consultation

At the February 2010 meeting WG SE provisionally adopted and sent 4 draft documents to public consultation. Doc. SE(10)042rev2 from ECO presented the summary of results of public consultation.

WG SE noted the benefit of using the table of the template as currently available for responding to the PC (<http://www.ero.dk/consultation>) especially for the resolution of the comments.

WG SE considered the results of the public consultation and took actions as described for each relevant document:

4.1 Draft ECC Report 140 on compatibility between WAS/RLAN on board aircraft and radars in the bands 5250-5350 MHz and 5470-5725 MHz and excel sheet with analysis

A total of 7 comments were received during the public consultation. WG SE noted them in addition to the revised Report as provided by SE24 following these comments. WG SE decided to finally adopt the draft ECC Report 140 with the proposals from SE24 as given in **Annex 06** of these minutes.

4.2 Draft ECC Report 147 on additional Compatibility Studies relating to PWMS in the band 1518-1559 MHz excluding the band 1544 -1545 MHz

WG SE noted the 3 comments received during the public consultation and the revised Report as provided by SE24 following these comments. WG SE decided to finally adopt the draft ECC Report 147 as given in **Annex 07** of these minutes.

4.3 Draft revised Recommendation T/R 13-02 on preferred channel arrangements for fixed service systems in the frequency range 22.0-29.5 GHz

WG SE noted the 3 comments received during the public consultation and the revised Report as provided by SE19 following these comments. WG SE decided to finally adopt the Draft revised Recommendation T/R 13-02 with some editorial changes as given in **Annex 08** of these minutes.

4.4 Draft ECC Report 146: "Compatibility between GSM MCBTS and other services (TRR, RSBN/PRMG, HC-SDMA, GSM-R, DME, MIDS, DECT) operating in the 900 and 1800 MHz frequency bands"

Since this deliverable was developed in co-operation between WG SE (SE7) and ECC PT1, WG SE was invited to resolve the comments received during the Public Consultation on the following issues:

- coexistence studies between GSM MCBTS and Tactical Radio Relay (TRR) links in the 915 MHz – 935 MHz band;
- coexistence studies between GSM MCBTS and ARNS (RSBN/PRMG) system operating in the 915 MHz – 935 MHz band;
- coexistence studies between GSM MCBTS and HC-SDMA (iBurst) system operating in the 1787.5-1802.5 MHz.

WG SE also noted (without action) the comments that the ECC PT1 will resolve:

- coexistence between GSM MCBTS and GSM-R (GSM-900 band);
- coexistence between GSM MCBTS and Aeronautical systems operating in the 960 – 1215 MHz;
- coexistence between GSM MCBTS operating in the DCS-1800 band and DECT in the 1880 – 1900 MHz;
- coexistence between GSM MCBTS and military systems (MIDS) above 960 MHz.

WG SE endorsed the modifications to the draft ECC Report 146 as proposed by SE7 with further editorial changes.

Concerning the studies on the compatibility between MCBTS and RSBN/PRMG systems, it was highlighted that there are also RSBN/PRMG systems that have different parameters than the ones studied in the draft Report 146. So the results of the compatibility studies may not be applicable to those systems, but it is anticipated that the characteristics of those other systems would lead to lower probability of interference due to higher wanted signal levels.

WG SE decided to adopt the revision proposed by SE7 as given in **Annex 09** of these minutes and forwarded its responses to ECC PT1 (see chapter 5 below) Statement by the Russian Federation:

The Russian administration is of the opinion that further studies with updated RSBN parameters are desirable and that the conclusions of the Report concerning RSBN systems may not be applicable to RSBN systems with parameters other than the studied ones.

ECC PT1 is expected to send the draft ECC Report 146 with all the proposed modifications to the next ECC meeting in June 2010 for a final approval.

5 Report from Project Team SE7

Project Team SE7 is responsible for the compatibility issues of mobile systems (except IMT-2000) below 3 GHz. Mr. Petteri Jokela, the SE7 Chairman, reported about the activities of the Project Team SE7. Since the last WG SE meeting, SE7 has held two meetings: 1 - 2 March 2010 in Copenhagen, hosted by ECO, and 27 - 29 April 2010 in Brest, hosted by ANFR. About 20 delegates participated to the meetings.

5.1 GSM Multicarrier BTS (MCBTS)

The compatibility between GSM Multicarrier BTS (MCBTS) and other systems has been studied jointly by SE7 and ECC PT1. The draft ECC Report 146 on MCBTS was on Public Consultation, which ended 19 April 2010. SE7 had considered the comments, which were relevant to both SE7 and PT1 or SE7 only. As described above in chapter 4, SE7 revised the draft ECC Report 146 and provided it for approval in WG SE.

A liaison statement (**Annex 16**) was prepared to be sent to ECC PT1 explaining the treatment of the comments within WG SE / SE7. ECC PT1 is asked to consider comments relevant to their studies and those comments not already treated by SE7. The draft Report 146 with proposed modifications was attached together with an overview of the WG SE / SE7 responses to the comments.

5.2 GSM-R

SE7 has been tasked (work item SE7_12) to study practical mechanism to improve the compatibility between GSM-R and public networks and to give guidance on practical coordination. The dead-line for this work item is September 2010.

SE7 had asked WG SE to clarify the work item. The view of all administrations present at the WG SE meeting was that

- SE7 should avoid discussing the regulatory status of both types of networks and safety matters related to them;
- SE7 should study both directions, which means that both GSM-R or public networks can be victim or interferer;
- SE7 should not repeat or revise the theoretical studies already performed such as those provided in ECC Reports 96 and 146;
- SE7 should take into account that there may be specific parameters which differ between GSM-R and public networks;
- SE7 should concentrate on finding technical measures (e.g. mitigation techniques for all systems involved) to solve the co-existence issues and should not let the discussion on technical measures be influenced by economical or political aspects;
- SE7 should endeavour that no undue burden is placed on one network, but that the burden of technical measures should be shared equally in a way that the proportionality of those measures are kept in a fair manner taking into account the causes of the interferences;
- even by fulfilling the standards and licensing requirements, there still might be the need for further measures to improve compatibility;
- SE7 should consider both the core and the extension band of GSM-R;
- the digital dividend band (790-862 MHz) should not be included into the study.

WG SE decided that SE7 should continue the work according to these guidelines.

WG SE decided to send a liaison statement (**Annex 15**) to WG FM (copy to the UIC) explaining the purpose of these studies within WG SE / SE7.

5.3 Next meetings of SE7

SE7 has reserved the following dates for the next meetings:

SE7	31 May - 2 June 2010	Lisbon
SE7	18 - 20 August 2010	[tbd]

6 Report from Project Team SE19

The progress report of SE19 was presented in document SE(10)044rev1 and was introduced by the SE19 Chairman, Mr. Jean-Philippe Kermoal (ECO).

6.1 Results of the Public consultation

WG SE noted the results of the Public Consultation and approved for publication the draft revision T/R13-02 considering the responses from SE19 and with editorial correction (see section 4).

6.2 WI SE19_22: High Altitude Platform Stations (HAPS) in the range 5850 – 7075 MHz (WRC-12 AI 1.20)

WG SE noted the progress and the support to CPG PT-D by SE19 on HAPS technical matter. SE19 indicated that the HAPS activity will be continued by correspondence in order to provide the final draft ECC Report to the next CPG PT-D meeting (24 - 27 August 2010). Information to be sent to Alexander Klyucharev (alexander.klyucharev@ties.itu.int) (CEPT coordinator AI 1.20) leading this task. The draft ECC Report is intended to be considered for public consultation at the next WG SE meeting.

6.3 WI SE19_23: Review of ECC-ERC-T/R Recommendations made in SE19

6.3.1 ECC REC (02)06 (channelling arrangements for the 7.125-8.5 GHz band)

The working document dealing with draft new ECC Report on the usage of the 7125-8500 MHz band within the CEPT, has been further developed. Information from 25 out of 48 administrations has been collected.

It is the intention of SE19 to submit this working document with updated information to the next WG SE meeting in September for approval for public consultation. The remaining WG SE administrations who have not yet contributed are invited to inform of their current channel plan implementation in the 7.125-8.5 GHz band by the 16 July 2010 (to be sent to Meta Pavsek (meta.pavsek@apek.si) leading this correspondence activity).

6.3.2 ERC/REC/(00)05 (Use of the band 24.5 – 26.5 GHz for Fixed Wireless Access), ERC/REC/(01)03 (Use of parts of the band 27.5 – 29.5 GHz for Fixed Wireless Access (FWA)), ECC/REC/(04)06 (Guidelines for block allocation for Fixed Wireless Systems in the band 31.8 – 33.4 GHz)

WG SE noted the current working document and that it is intended that a new recommendation merging the three will be submitted to the next WG SE meeting for approval for public consultation. Sweden pointed out that the frequency band 27.5-29.5 GHz is also considered in FM44 for satellite networks. Thus, the meeting decided to send a liaison statement as given in **Annex 14** to WG FM (and FM44 in copy) with information on this new Recommendation and also on the revision of ECC Report 003 in SE19 (see section 6.5).

6.3.3 General

WG SE noted the working document on a guidance document on FS usage in the whole spectrum range. Concerning the format of this document, WG SE agreed that

the development of a “roof” recommendation would be an appropriate approach noting that this would require further analysis related to the implementation, e.g. in the case where one of the referred ECC deliverable is not implemented by an administration.

WG SE further instructed that this deliverable should contain all the information on FS service available within the existing CEPT recommendations (i.e. usage of the band, channel arrangements, guidelines for block allocation etc...).

WG SE noted the correspondence activity led by Pascal Le Berre (ANFR) (contact: le-berre@anfr.fr).

6.4 WI SE19_24: Coordinated inputs to ITU-R: WP5C

WG SE noted the document developed by SE19 on a new ITU-R recommendation for the 42 GHz band (presently not covered by ITU-R) resulting from the previous SE19 activities towards the revision of ECC/REC(01)04. This document was unanimously approved by SE19 as a CEPT contribution to the WP5C. Therefore, it will be put together with other contributions for the next WP5C meeting in November.

WG SE was informed that during this activity, an inconsistency error was identified in the revised version of the annex 1 of the ECC/REC(01)04 between the footnote 2 and Figure 1.3. WG SE entrusted ECO to modify the Figure 1.3 to reflect correctly the footnote 2 without starting a new PC since this mistake appeared as an editorial mistake.

WG SE also noted the working document on a proposal for an ITU-R WP5C contribution for aligning recommendation F.385-9 to the ECC channel arrangements in the bands 7 125 – 7 425 MHz and 7 425 – 7 725 MHz. It will be finalised in the next SE19 meeting so that it will be put together with other contributions for next WP5C November meeting.

WG SE noted the list of inconsistencies identified by SE19 between the ITU-R and ECC recommendations. The work will be carried out mainly by correspondence under the lead of Roberto Macchi (SIAE) (roberto.macchi@siaemic.it) with the view of considering for approval, at the SE19 meeting in September, contributions for the November meeting of WP5C (8 - 19 November 2010) on some of these ITU-R Recommendations. WG SE administrations are invited to actively participate in this process.

6.5 New work item: revision of the ECC report 003

ECC has mandated WG SE (SE19) to consider the revision of the ECC Report 003 “Fixed Service in Europe - Current use and future trends Post-2002”.

Sweden informed the meeting of the FM44 activities on a draft ECC Report on the use of the frequency bands 27.5-30/17.3-20.2 GHz for satellite networks and stated that several administrations in the last WG FM meeting were concerned about the negative impact that some proposals contained in this draft Report could have on the

existing use of fixed service (FS) in these bands. Therefore, Sweden asked for studies to ensure the protection of FS to be included in the SE 19 task.

This proposal was not agreed by WG SE taking into account the agreement from the last ECC meeting that these 2 issues (new draft satellite report by FM44 and revising/updating ECC Report 003 by SE19) are separate issues and should be considered as disconnected tasks.

WG SE noted the initial steps presented by SE19 and reminded that, when appropriate, SE19 could inform WG FM or FM44 of its activity in the revision of report 003. A new work item (SE19_25) was inserted in the work program. A correspondence activity led by Massimiliano Simoni (massimiliano.simoni@telecomitalia.it) will start its work within SE19. A liaison statement was sent to WG FM and FM44 informing them of this new work item as given in **Annex 14**. Another liaison statement was sent to ETSI ATTM TM4 and ETNO to also inform them of this new activity as given in **Annex 19**.

6.6 Future meeting of SE19

The next SE19 meeting is scheduled for 7 - 8 September 2010 (Belgrade, Serbia).

7 Report from Project Team SE21

The progress report of SE21 presented in document SE(10)045 was introduced by Mr. Jean-Yves Guyomard (France) on behalf of the SE21 Chairman, Mr. Alexander Klyucharev (Russian Federation). SE21 has had one meeting in Toulouse, France (2 - 4 March 2010) since the previous WG SE meeting.

7.1 Activity in WP 1A

WG SE noted the activity in the last ITU-R meetings related to unwanted emission limits, in particular the revision of recommendations ITU-R SM.329-10, M.1581-3 and M.1580-3 that will have to be monitored by SE21.

7.2 MCBTS unwanted emission limits

WG SE noted the liaison activity with ETSI TC ERM and ETSI ERM TG DMR about the draft revision of CEPT/ERC Rec. 74-01 section dealing with MCBTS. The main concern was the definition of the breaking point between the out-of-band and the spurious domain expressed as a percentage of the envelope emission bandwidth when dealing with multi carriers which are not continuous. It was recognised that this issue was out of the scope of Recommendation 74-01.

WG SE noted that ECC report 146 dealing with MCBTS was revised by SE7 after public consultation and includes the definition of the spurious emission at a constant offset of 10 MHz from band edge of the operating transmit band. This will have to be taken into account by SE21 at its next meetings for the revision of 74-01.

7.3 Cooperation with ETSI on SRD above 40 GHz and unwanted emissions above 100 GHz

WG SE was informed about the concerns expressed by SE21 on the draft EN 305 550-1/-2 for SRD equipment operating at frequencies above 40 GHz developed by ETSI ERM TG28:

- The unwanted emission limits for these equipments were defined only below 100 GHz and no limit was defined above because of measurement difficulties. SE21 considered that this difficulty should be better explained and that it was not in any case a good reason not to specify any limit above 100 GHz.
- Clause 7.5 proposing that Ultra Low Power Equipments (ULPE) “can operate in the complete band 40 GHz to 246 GHz with a maximum e.i.r.p. equal or lower than the maximum unwanted emissions limit in the spurious domain” was making spurious emission limits a “generic” limit for all radio applications. Spurious emissions limits are not and cannot be used as such a “generic” limit, since they cover erratic and non constant signal types and not constant “noise-like” emissions, such as those of SRDs.

WG SE was informed by ETSI ERM (InfoSE(10)020) that the draft standard was corrected, but that the problem of measurement for frequency bands higher than 100 GHz could not be solved. Thus, WG SE decided to send a letter to testing equipment manufacturers inviting them to meet with SE21 in Helsinki and discuss this issue further (see **Annex 20**).

7.4 Draft ECC report on the impact of radar unwanted emissions on other services

The working document towards draft ECC Report was further revised in SE21 with new study results. The proposal from Germany to restructure this draft new Report and include a generic assessment methodology of radar spurious emission limits was not agreed in SE21 since it came too late in the process. Germany was invited to consider including this methodology into the Annex 1, if needed, at the next SE21 meeting.

With regard to radar spurious emissions, SE21 is invited to consider the draft EN 303 213-6 (document InfoSE(10)024) dealing with airport surveillance radars where concerns are being expressed about the discrepancy between the CEPT and ITU regulations of spurious emissions and the potential difficulty to meet the 100 dBc limit.

7.5 Date and place of the next SE21 meetings

The next SE21 meetings are scheduled for the following dates:

Meeting 72: 2 – 4 June 2010, Helsinki, Finland.

Meeting 73: 1 – 3 September 2010, Montegrotto, Italy (co-located with SE24 and SRD/MG).

8 Report from Project Team SE24

The progress report of SE24 presented in document SE(10)046 was introduced by the SE24 Chairman, Mr. Marc LeDevendec (ECO).

SE24 held one plenary meeting in Amersfoort, Netherlands (6 - 8 April 2010) since the recent WG SE meeting. Additionally two Joint FM47/SE24 meetings were held in Mainz (17 - 19 February 2010) and in Maisons-Alfort (7 May 2010). Besides this, SE24 held a physical drafting group meetings relating to FM47 activities (15 March 2010) and a couple of web-meetings relating to SRR, WLAM and RLAN.

8.1 Maximising spectrum use efficiency (SE24_23)

SE24 considered how sub bands could be arranged to meet the different requirements of different types of user. It is planned that one or more web meetings will take place prior to the next SE24 meeting in order to further progress on the draft report. WG SE noted the status of this work item.

8.2 Studies relating to UWB as described in Annex to CEPT Report 34 (excluding Airborne UWB) (SE24_28)

The working document was reviewed in order to include the material from ETSI ERM providing clarifications relating to UWB specific applications and their targeted bands as requested by WG SE in February 2010.

With regard to the activities relating to LAES-FSS inputs are sought for the next meeting and there will be no correspondence activities. LT2 and LTA are discussed by correspondence and also using the ECO Forum facilities (<http://forum.ero.dk/> password se24). WG SE noted the status of this work item.

8.3 Compatibility studies on SRR 26 GHz including WLAM (SE24_31)

This work item is in support of FM47 ongoing activities relating to the EC Mandate on SRR – Part 2. Two areas of work are under development: WLAM and SRR.

On WLAM, the work is still ongoing. WG SE noted that SE24 aims at finalising a draft new ECC Report at its June 2010 meeting. The working document was provided in Annex 3 to document SE(10)046. Administrations are invited to contribute at the June meeting.

Relating to SRR, the working document was reviewed, in particular, considering the conclusions reached in February 2010 at the joint FM47-SE24 meeting. SE24 was not in position to finalise the document by correspondence / web meetings after the plenary meeting. The working document toward an ECC Report on SRR is provided as Annex 4 to document SE(10)046 and is expected to be finalised for the next WG SE meeting.

WG SE noted that FM47 is kept informed on a regularly basis through joint meeting or through attendance of the SE24 Chairman to FM47 meetings.

8.4 Surveillance Radar (SE24_33)

ETSI-ERM provided a preliminary draft System Reference TR 102 704 v1.1.1 on 76 GHz Surveillance Radar. Three categories of equipments are considered:

- Category 1, ground based vehicular applications
- Category 2: for Perimeter surveillance and intruder detection and tracking
- Category 3: applications in the industrial environment and quasi fixed applications

The document indicated that the new planned applications for surveillance radars operating in the 76 GHz to 77 GHz band need to be evaluated with regard to their compatibility to systems in shared and adjacent bands. In particular, the present 76 GHz to 77 GHz vehicle radars operating on the roads in many countries world-wide as well as future SRR-applications in the adjacent band 77 - 81 GHz. There is also a need to investigate the compatibility to the automotive radar system within the 76 GHz to 77 GHz band with reference to the defined types of different scenarios for the surveillance application.

With this new information WG SE agreed that this Work Item will be re-activated in SE24 taking into account the guidance provided by WG FM at the 54th WG SE meeting (Bordeaux, September 2009). Administrations are invited to contribute at the next SE24 meeting.

8.5 Low Power Active Medical Implants (LP-AMI) (SE24_34)

SE24 finalised the working document by including the comments received, in particular, from ECC PT1.

WG SE considered the draft ECC Report, and some comments were made relating to the consistency of the parameters used in the Part I and Part II of the report. WG SE decided to send the document with a few modifications for Public Consultation (see **Annex 10**).

Germany informed WG SE that they also have PPDR wireless audio links in the 2.3 GHz band (2350 – 2400 MHz) whose technical characteristics are not covered by SAP/ENG technical parameters contained in the draft ECC Report.

Liaison statements to WG FM, ETSI ERM and ECC PT1 were developed to inform them about the status of the work relating to this work item (see **Annexes 13, 17 and 18**).

8.6 Airborne UWB in the frequency bands 3.1 - 4.8 GHz and 6 - 8.5 GHz (SE24_35)

No new material was made available relating to the characteristics of Airborne UWB. SE24 further discussed the question relating to the fuselage attenuation and developed initial specifications for the measurements. ECO has established a forum in order to further discuss this issue prior to the next meeting (<http://forum.ero.dk/> password se24). The working document was reviewed in order to include material relating to compatibility study between radiolocation systems and UWB Airborne.

It was noted that the SRDoc dealing with Broadband, Direct Air-to-Ground Communications operating in part of the frequency range from 790 MHz to 5150 MHz (document InfoSE(10)016) contained information relating to flight density above Europe which may be useful for this work item.
WG SE noted the status of this work item.

8.7 Any Other Business

WG SE discussed the need for a revision of ERC Report 44 (Sharing between inductive Systems and radiocommunication Systems in the Band 9 – 135 kHz) in order to update it according to ECC Report 135 (inductive applications). WG SE agreed that instead of reviewing the existing reports, SE24 should consider developing some text to be inserted within ERC Report 44 or in the “Archive” field on the ECODocDB (www.ecodocdb.dk).

8.8 Date and place of future SE24 meetings

Web meeting on SE24_23: 17 May 2010 (starting at 15:00)
M54: 16 - 18 June 2010, Ofcom-UK, London, United Kingdom, Regular meeting
M55: 30 August – 01 September 2010 (01 September joint meeting with SRD/MG), Anitec, Montegrotto, Italy, Regular meeting
M56: 6 - 8 October, ECO, Copenhagen, Denmark, Regular meeting
M57: 15 - 17 November, TBD, Regular meeting

9 Report from Project Team SE40

Mr. Jean-Yves Guyomard, the SE40 Chairman, introduced the report of SE40 activities in document SE(10)047.

SE40 met on the 8 - 9 February 2010 in the premises of ANFR in Maisons-Alfort, the 8th March 2010 in the premises of BNetzA (Satellite measurement station) in Leeheim (Germany) and the 27 - 28 April 2010 in the premises of OFCOM in Biel/Bienne (Switzerland).

9.1 Liaison with the STG

WG SE noted the liaison statement sent by SE40 to the SEAMCAT Technical Group to suggest the implementation of a simplified version of ITU-R Recommendation P.452 for such studies in a future version of SEAMCAT. The STG Chairman highlighted the problem of tests which will require the assistance of Administrations.

9.2 CGC at 1.6 and 2.5 GHz

WG SE noted the last activities on this issue related to compatibility between CGC base stations below 2.5 GHz and IMT base stations above 2.5 GHz, and between CGC and RAS at 1.6 GHz.

9.3 WRC-11 Agenda item 1.18 – RDSS in the band 2483.5 - 2500 MHz

WG SE considered the draft ECC report on technical studies related to this agenda item. The report was amended during the meeting and WG SE agreed to send it to public consultation (**Annex 11**). It was noted by the meeting that no study was performed with WLAN below 2483.5 MHz as indicated by Sweden and this might be raised during public consultation.

9.4 Leeheim measurements

WG SE noted the activities of SE40 on the preparation of future measurements of unwanted emissions of IRIDIUM satellites in the RAS band using a spectrometer provided by CRAF and the German MPIfR.

The new measurements are expected to take place in the first weeks of June. They will be performed on as many IRIDIUM satellites as possible during three sessions of 8 continuous hours (equivalent to 3 working days) to cover a full 24 hours activity of the system. They are expected to lead to a great improvement in the quality of the measurements performed and allow SE40 and ECC to draw better conclusions on this issue.

9.5 Pseudolites

WG SE was informed of the liaison statement sent by SE40 to FM44 giving the results of technical studies related to CW indoor pseudolites. No comment was raised.

9.6 New work item

On the basis of a proposal submitted by France (document SE(10)048), a new work item was added to the work program and attributed to SE40 dealing with the studies of the required compatibility conditions between specific meteorological radars at 24 and 35 GHz and other systems in existing services in this band and adjacent bands. The work item was supported by France, Germany, Switzerland, Finland, Slovenia, the Netherlands, the Czech Republic, Romania, Sweden and Norway. The work should be completed by May 2011.

9.7 Next meeting

The next SE40 meeting is planned in Pozzalo (Sicily), 23 - 24 August just before CPG PT-D which will be held in the same location.

10 Report from Project Team SE42

There has been no SE42 meeting since the 55th WG SE meeting.

The draft CEPT Report 39 in response to the EC Mandate on the 2 GHz bands was approved for public consultation at the 25th ECC meeting in March 2010 and the public consultation ended on the 10th of May 2010.

Document InfoSE(10)028, the summary of results of the public consultation developed by the ECO and containing all the comments received was brought to the attention of the meeting.

SE42 will at its next meeting (Reykjavik, Iceland, 25 - 26 May 2010) consider the resolution of these comments with the view to submitting an overview on this subject to the next ECC Plenary (21 - 25 June 2010) for the final approval of the CEPT Report 39.

As agreed during the 55th WG SE meeting, SE42 will be closed following the final approval of the CEPT Report 39.

The WG SE Chairman expressed his thanks to the SE42 Chairman and its project team for their extensive work over the last 4 years.

11 Report from Project Team SE43

The SE43 Chairman, Mr. Bruno Espinosa reported about the activities of SE43 since the 55th WG SE meeting (document SE(10)049). SE43 held its 4th (3 – 5 March 2010) and 5th (7 - 9 April 2010) meetings, both hosted by ECO in Copenhagen and devoted its activities to the WI SE43_1.

11.1 SE43 activities on WI SE43_1

SE43 made a lot of progress in its work on the development of the technical and operational requirements of cognitive radio systems in the white spaces of the 470 - 790 MHz band. The latest version of the preliminary draft ECC Report was made available as Annex 2 to document SE(10)049 and WG SE participants were invited to provide comments directly to SE43 in order to allow the completion of the draft ECC Report by SE43 in time for the next WG SE meeting.

Since SE43 was unable to complete the draft ECC Report in time for this 56th WG SE meeting, SE43 developed, in accordance with the guidance from the previous WG SE meeting, a summary report which highlights, in particular, the preliminary findings and the areas that SE43 will focus upon towards the completion of its work.

WG SE considered the summary report as contained in Annex 1 to document SE(10)049 and agreed to endorse it with a couple of minor modifications. This is available as **Annex 22**. This document will be brought to the attention of the ECC and can be used to reflect the status of the SE43 work prepared so far to interested bodies.

WG SE also developed a liaison statement to WG FM and WG RA (see **Annex 12**) containing the summary report for information. Clarification on the organisation of the

work related to cognitive radio systems within WG FM and WG RA was also sought since SE43 may need to seek assistance, e.g. on geolocation database management.

Document SE(10)053 was presented by Sweden and proposed a change in the SE43 terms of reference to consider in SE43 also the protection of systems in the bands adjacent to the 470 - 790 MHz, for example the mobile service above 790 MHz as a consequence of the recently published EC Decision.

After some discussion, WG SE decided not to modify the SE43 terms of reference but asked SE43 to consider any contribution submitted on the protection of services in adjacent bands under the condition that this would not delay the completion of SE43 work.

11.2 Other SE43 activities

WG SE noted the other SE43 activities on the cooperation with the STG on the implementation of the sensing feature in SEAMCAT and the exchange of liaison statement with ETSI TC ERM on the draft TR 102799 on cognitive PMSE systems. The latest version of the TR 102799 (v1.2.3) was provided in document InfoSE(10)025 for information and it was pointed out that it contains valuable information on cognitive techniques which may be considered by SE43 towards the completion of its draft ECC Report.

11.3 Future SE43 work and meetings

The dates and locations of the next SE43 meetings are:

- 15 – 17 June 2010, Mainz (with an informal SE43 workshop on geolocation and the experience in the UK on the 14th of June, 14h00),
- 1 – 3 September 2010, Biel.

12 Leeheim Measurements

See section 9.4.

13 EMC

A brief oral report was given by Mr. Pentti Lindfors (FIN) about the latest activities in the relevant groups responsible for EMC. WG SE noted the information.

14 ECO assistance to WG SE

Mr Jean-Philippe Kermaol presented document SE(10)051rev1 on the ECO assistance to WG SE.

14.1 ECO doc database www.ecodocdb.dk

The new version of the ECO docdatabase which is now on-line with a new URL was presented.

14.2 Web-based Work Programme database (WPDB)

The ECC Work Programme Database is available at the front page of ECO web site or on the work program page of the WG SE web page (www.ero.dk/wgse).

For request of new feature/enhancement WG SE members are invited to contact the ECO which will gather the received ideas (ECO contact point: Fatih Yurdal (yurdal@ero.dk))

14.3 ECO bulletin

The new ECO bulletin of activities in other regions was noted by WG SE in ECC(10)010 (ECC Montpellier meeting).

14.4 ECO EWMs

The new ECO Forum is available at <http://forum.ero.dk>. WG SE noted the ECO guidelines on the Electronic Working Method (EWM) within the ECC. Also it noted the ECO guidelines on the use of the GoToMeeting platform since it is getting widely use within WG SE PTs.

14.5 ECO Guidance Note about Access to Publicly Available ECC Documents

The ECO delegates presented the guidance note about access to publicly available ECC documents. In order to reflect more accurately the content of the linked document, WG SE invited the ECO to modify the title of the hyperlink on the ECO front page.

14.6 Other ECO issues

WG SE was informed of the development of the web page http://www.ero.dk/cr_sdr which summarises the various activities relating to Cognitive Radio Systems (CRS) and Software Defined Radio (SDR) systems within CEPT.

WG SE was also informed on the collaboration with research institutes and the new web page <http://www.ero.dk/research>. It was also mentioned that as part of this activity, the ECO will attend the EMC Europe 2010 (9th International Symposium on EMC joint with 20th International Wroclaw Symposium on EMC) September 13 - 17, 2010, Wroclaw, Poland and participate in a SEAMCAT workshop on 17th September (see <http://www.emceurope.org/2010/>).

The manpower of ECO experts to WG SE was presented for the year 2010 and 2011. Regarding the forecast for 2011, WG SE increased the proposed ECO support

from 30 to 35 days for “Other SE PTs and new projects” to respond adequately to the support to SE21, the follow up of SE43 and any possible new Project Teams.

Regarding the general ECO activities, as usually they focused on providing daily support and contributions to various SE Project Teams, as well as carrying out the public consultation of WG SE adopted documents, the public consultation for the CEPT report mandated by the European Commission and development of SEAMCAT.

Regarding the public consultation for the provisionally approved document at this meeting, the following tentative schedule of consultation was anticipated:

- pre-consultation with administrations: 20 May – 3 June 2010,
- public consultation: 4 June – 4 August 2010.

15 STG (SEAMCAT)

Jean-Philippe Kermoal (ECO) presented the latest STG activities in document SE(10)050. The current patch release of SEAMCAT is version 3.2.0. (www.seamcat.org) with the implementation of LTE, an enhanced generate multiple feature, overloading and a revised implementation of the “closest interferer” mode feature.

The Recommendation ITU-R P.1546-3 is still under testing and WG SE members are invited to contact their propagation expert to further test it. WG SE was informed of the work effort on the development of the JTG5-6 for ARNS plug-in at the request of Telia Sonera.

Cognitive radio feature is implemented in 3.2.1 Beta 2. WG SE members are invited to test it. (www.seamcat.org/betaversion)

WG SE noted that the development of the WiMAX specifications for SEAMCAT were under progress (Possible start of the implementation is scheduled for June 2010 if specifications are finalised by end of May 2010).

WG SE agreed on the work steps established during the joint SE7/STG meeting.

WG SE confirmed that the ToR of STG_1 also covers the promotion of the features of the SEAMCAT software (e.g. through contribution to the ITU-R).

The next STG meeting is on the 18 May 2010 at the ECO in Copenhagen (co-located with ECC PT1).

SEAMCAT documentation:

LTE: <http://seamcat.iprojects.dk/wiki/Manual/Scenario/OFDMA>

Generate multiple:

<http://seamcat.iprojects.dk/wiki/Manual/Special/GenerateMultipleInterferingLinks>

Overloading: <http://seamcat.iprojects.dk/wiki/Manual/Algorithms/OverloadingSignals>

Cognitive Radio: <http://seamcat.iprojects.dk/wiki/Manual/Scenario/CRS>

16 DFS Testing

Mr. Joao Duque (Portugal) provided some information about tests recently performed on DFS and interference from RLAN into meteorological radars operating at 5640 MHz (see InfoSE(10)027). Laboratory testing showed some positive results on the DFS behaviour. Since the RLAN under testing included a feature that notched the band used by the radar, the field tests did not allow reaching meaningful conclusion about its DFS efficiency. Additional tests may be performed on a different meteorological radar.

17 WG SE work programme

The updated version was agreed and will be annexed to the Chairman's Report to the next ECC Plenary. It is attached as **Annex 05**.

18 Any other business

There was no other business.

19 Approval of the Report of the Meeting

This report was approved by the meeting with authority given to the Chairman to make necessary editorial improvements.

20 Date and place of future meetings

13 – 17 September 2010, Cluj Napoca, Romania

24 – 28 January 2011, Cardiff, UK

21 Closure of the meeting

As indicated in chapter 3.1 (Report from ECC) a new chairman of WG SE will be appointed at the June meeting of the ECC. The current chairman indicated that he will not continue to attend future WG SE meetings. He expressed that he enjoyed the friendly atmosphere in this technical group during his participation since 1994. In particular he highlighted the support he received during the recent 6 years in his function of chairman of WG SE. During his chairmanship WG SE developed 6 new ECC Recommendations and 18 ERC/ECC Recommendations were revised. Additionally about 45 new ECC Reports and 5 revised ECC Reports were approved during this time. These deliverables are widely accepted inside and outside the CEPT. The WG SE Chairman thanked the WG SE delegates and all Project Team chairmen supporting him during the recent 6 years. He expressed his special thanks to his former secretary Harry Kuhn and to Bettina Funk in her function as present

secretary of WG SE for the perfect assistance during and around the meetings. Additionally he wanted to thank his former Vice Chairman Ove Tovås (Norway) for his work in WG SE between 2004 and 2008.

Last but not least he expressed his sincere gratitude to the current Vice Chairmen of WG SE, Mr. Jaime Afonso and Mr. Bruno Espinosa for the enormous support during all the meetings. Mr. Afonso will not continue as Vice Chairman and Mr. Espinosa is nominated for the future chairmanship. The current chairman, also on behalf of his secretary and Mr. Afonso, wished the new team all the best for the future and expressed his heartfelt gratitude for the nice presents he received from the delegates.

Finally he thanked the Norwegian Administration for hosting the meeting and for organizing a beautiful social event.

On behalf of the WG SE delegates, Mr. Barry Goodyear thanked the Chairman, the Vice-Chairmen and the Secretary for the efficient running of the meeting. He also thanked the Norwegian Administration for their hospitality and the wonderful meeting location. In addition on behalf of all the WG SE delegates he expressed the great appreciation and sincere thanks to Christoph Wöste the WG SE Chairman for the last six years for his excellent chairmanship, Bettina Funk for being the Secretary since January 2008 and Jaime Afonso for his Vice-Chairmanship and wished them success in their future activities.

Finally the WG SE Chairman concluded by wishing all participants a pleasant journey home and closed the 56th WG SE meeting.