

PRIMARY TERRESTRIAL SERVICES OTHER THAN BROADCASTING IN THE PLANNING AREA AND BANDS GOVERNED BY THE REGIONAL AGREEMENT GE06

1 Introduction

The Regional Agreement GE06 relating to the planning of the digital terrestrial broadcasting service in Region 1 and in the Islamic Republic of Iran, in the frequency bands 174-230 MHz and 470-862 MHz, governs the use of these bands by all primary terrestrial services including non-broadcasting ones. The primary terrestrial services other than broadcasting have been taken into account in the compatibility analysis during the development of the new digital Plan at the second session of Regional radiocommunication conference (RRC-06). The GE06 Agreement also ensures their protection from the future modifications of the digital and analogue Plans contained in the Agreement.

This document discusses the regulatory arrangement for the primary terrestrial services other than broadcasting within the GE06 Agreement, gives some background of the RRC-06 preparations and describes new regulatory procedures that are applicable to these radiocommunication services as from 17 June 2006.

2 Background

2.1 Allocation and utilization aspects

The frequency bands 174-230 MHz and 470-862 MHz are allocated, according to Article 5 of the Radio Regulations (RR), to the broadcasting service in the countries of the GE06 planning area on a primary basis. Some parts of these bands are also allocated to other terrestrial and space services on a primary basis. The exhaustive list of these allocations is given in Chapter 4 to Annex 2 of the GE06 Agreement. From a regulatory point of view, the other primary services have the same status and enjoy the same rights as the broadcasting service.

In addition to the formal allocation status, a number of administrations intensively use the bands in question for different applications in the fixed, land mobile and aeronautical radionavigation services and intend to continue this usage in future. The operation of land mobile service systems under the provisions of RR 5.316 and of aeronautical radionavigation systems under the provisions of RR 5.312 could serve as examples of such utilization.

The compatibility between the broadcasting and other primary services in the bands 174-230 MHz and 470-862 MHz was ensured through the relevant provisions of the RR, bi-lateral coordination process and also through some provisions of the ST61 and GE89 Agreements, governing the use of these bands prior to RRC-06.

Taking into account the factors listed above, other primary services were considered as an important element for all relevant activities in the context of RRC-06 preparations.

2.2 Results of the first session of Regional Radiocommunication conference (RRC-04)

The first session of the Regional radiocommunication conference (RRC-04) determined those assignments of other primary services, which were eligible for protection during the development of the new digital Plan. For this purpose RRC-04 formulated the definition of “existing and planned assignments of primary services other than broadcasting”. Only these assignments could be included in the reference situation and taken into account in the planning process at the request of the responsible administrations.

According to Section 1.7.2 of the RRC04 Report, the “existing and planned assignments of primary services other than broadcasting” were limited to *a)* the assignments recorded in the Master Register by 10.05.2004 with a favourable finding and without complaint of harmful interference and *b)* the assignments notified to the Bureau after 10.05.2004 and successfully coordinated with analogue assignments contained in the ST61 Plan, the GE89 Plan and the RCC List and with assignments for which the plan modification procedure was initiated prior to 31 October 2005.

Due to some regulatory restrictions imposed by the RR and conference decisions on the mobile-satellite service and on the new systems in the broadcasting-satellite service (see also Resolution COM4/1 of RRC-04) and taking into account the geographical location of the existing broadcasting-satellite receivers, the reference situation was limited to primary terrestrial services only and did not include primary space services.

2.3 Intersessional activities

In the period between RRC-04 and RRC-06 administrations were intensively coordinating new assignments to other primary terrestrial services (OPS) with existing analogue broadcasting assignments in order to include them in the reference situation. For ground-based stations this coordination was based on the protection criteria specified in the ST61 and GE89 Agreements and on RRC-04 propagation curves. Aircraft stations were coordinated using line-of-site distance assumed to be equal to 420 km.

As a part of intersessional activities, the Radiocommunication Bureau prepared several versions of the OPS reference situation, which were used for the first planning exercise, for the development of the draft Plan and for the final planning. The latest version of the OPS reference situation, dated of 23 May 2006 and used for the final planning at RRC-06, contained 11010 OPS frequency assignments from 18 administrations.

Distribution of these assignments by frequency bands, services and administrations is given in Table 1 below.

Table 1
Number of assignments of other primary services in the reference situation established at RRC-06

	Radiocommunication service		
	Fixed	Land mobile	Aeronautical radionavigation
VHF band	13 (IRN)	5609 (G, IRN)	0
UHF band	902 (ARS, BEL, IRN, MRC, RUS, UAE)	3500 (ARS, CTI, EGY, F, IRN, ISR, JOR)	986 (AZE, G, GEO, IRN, KAZ, RUS, TJK, UZB)
Total (11010)	915	9109	986

3 Results of the second session of Regional radiocommunication conference (RRC-06)

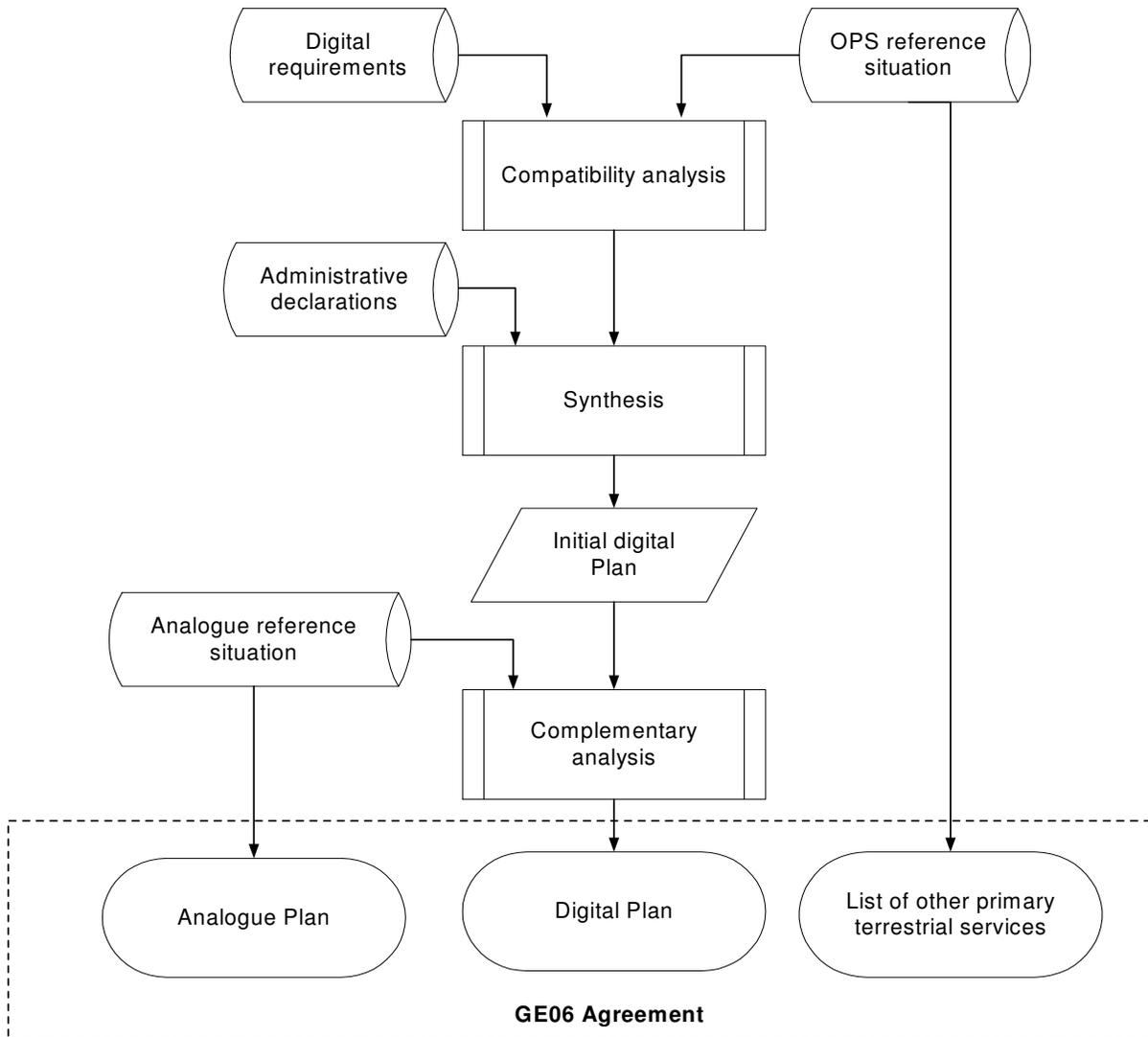
3.1 Other primary services in the planning process

The planning process at RRC-06 consisted in four steps. Firstly, the compatibility analysis between the T-DAB/DVB-T digital requirements as well as the compatibility analysis between the digital requirements and assignments to other primary services was performed. Secondly, the administrative declarations, which permitted to overcome some incompatibilities identified during the first step, were submitted by administrations. Thirdly, the available channels were distributed to stations and allotment areas using the synthesis program and taking into account the principle of

equitable access to the extent possible. In this way the digital Plan was established. Finally, the complementary compatibility analysis between the digital Plan and the analogue broadcasting assignments was performed, ensuring compatible operation of the stations in the digital and the analogue Plans in the transition period.

The following simplified diagram could illustrate the planning process described above.

Simplified description of the planning process at RRC-06



The diagram shows that the planning process resulted in the establishment of the digital Plan. The analogue television assignments contained in the reference situation were converted into the analogue Plan. The OPS reference situation was converted into the List of assignments to other primary terrestrial services (*List*). These three sets of data became integral parts of GE06 Agreement.

From a sharing point of view, the OPS assignments contained in the List are fully compatible with the digital Plan. The new OPS assignments contained in the List, which were notified after 10 May 2004 are also compatible with the analogue Plan since they were coordinated prior to RRC-06.

However, the planning process did not consider the internal compatibility between the OPS assignments in the List.

3.2 Development of GE06 Agreement

In parallel with the planning of digital broadcasting service, RRC-06 developed the GE06 Agreement. The Agreement established the regulatory frame for the future use of all radiocommunication services in the planning area and bands.

With respect to other primary terrestrial services, the GE06 Agreement includes the definition of these services in items 1.14 and 1.15 of Article 1. Section 4.2 of Article 4 of the Agreement contains the procedure of coordination of OPS assignments with the broadcasting service. Article 5 of the Agreement describes the procedure of notification of frequency assignments to other primary services for recording in the Master Register. These coordination and notification procedures in combination with the list of characteristics specified in Annex 3 represent the basic regulatory arrangement for other primary terrestrial services within the GE06 Agreement.

In addition, Chapter 4 to Annex 2 of the Agreement describes the allocation aspects of OPS services, explains the algorithm of compatibility assessment between the broadcasting and other primary services and gives the protection criteria for a number of OPS systems. Section I of Annex 4 of the GE06 Agreement contains the methodology for the identification of the administrations affected by new OPS assignments and permits to determine when agreement with another administration is required. Finally, Annex 5 of the Agreement contains the *List of assignments to other primary terrestrial services*.

4 Implementation of RRC-06 decisions related to other primary services

Immediately after RRC-06 the Radiocommunication Bureau started to implement the decisions taken by the Conference. These activities could be grouped into three following categories:

- modifications in the relevant databases, allowing to accommodate new GE06 data and to revise ST61 and GE89 data;
- development of new notice forms in electronic format for the submission of information to the BR in the application of Article 4 and 5 of the GE06 Agreement and for exchanging data between administrations;
- development of new software required for different types of calculations specified in the Agreement.

4.1 Modifications in the data bases

Up to the end of RRC-06, the OPS reference situation and the List of other primary terrestrial services were kept in a separate database outside Bureau's processing system TerRaSys. Therefore, after the Conference all frequency assignments contained in the *List* were transferred into the fragment "GE06L" created in TerRaSys database.

The Bureau also revised the findings of OPS assignments contained in the MIFR. For those MIFR assignments, which had corresponding entries in the *List of assignments to other primary terrestrial services*, favourable findings indicating their conformity with the *List* was formulated. For those MIFR assignments, which did not have corresponding entries in the List, unfavourable "CONFORM LIST" findings was formulated. The assignments, which received unfavourable finding with respect to the List, also obtained symbol "H" in the finding observation field. This symbol "H" indicates that these assignments shall be used on a non-interference basis with respect to any other assignments and allotments that are in conformity with the GE06 Agreement. No

revision of finding has been made for the assignments recorded in the MIFR with a secondary status.

Another activity was related to the modification of the TerRaSys database structure to accommodate the new fields introduced by RRC-06. A few new data items were introduced by the Conference, such as the effective antenna height in 36 azimuths, the antenna gain towards the local horizon, the expiry date of the assignment and several others.

Many other related changes were made in TerRaSys programs in order to implement the RRC-06 decisions, including modifications in the receivability and validation rules, in display and query tools.

4.2 New notice types for the application of the GE06 Agreement

The BR developed new file formats for submission of notices for assignments to non-broadcasting terrestrial services in the GE06 planning areas and bands. These formats were published in Circular letter CR/261 dated 3 August 2006. The new notice types are listed in Table 2 below.

Table 2

Electronic notice types applicable to terrestrial services other than broadcasting in the planning area and bands governed by the GE06 Agreement

<i>TerRaSys</i> notice form	Applicable to	Based on
G11	TERRESTRIAL TRANSMITTING STATION IN THE FIXED SERVICE IN THE PLANNING AREA AND BANDS OF GE06 AGREEMENT Application of Article 4 and 5 procedures including No. 5.1.3	T11
G12	TERRESTRIAL TRANSMITTING STATION IN THE PLANNING AREA AND BANDS OF GE06 AGREEMENT, except station in the fixed service, LF/MF/VHF/UHF broadcasting station or typical station Application of Article 4 and 5 procedures including No. 5.1.3	T12
G13	TERRESTRIAL RECEIVING LAND STATION IN THE PLANNING AREA AND BANDS OF GE06 AGREEMENT Application of Article 4 and 5 procedures including No. 5.1.3	T13
G14	TERRESTRIAL TYPICAL TRANSMITTING STATION IN THE PLANNING AREA AND BANDS OF GE06 AGREEMENT Application of Article 4 and 5 procedures, except No. 5.1.3	T14

These new notices types G11 – G14 have been developed on the basis of existing T11 – T14 forms with addition of the new data items introduced by RRC-06. The instructions for the preparation of the new notices are contained in the Circular letter. Special emphasis should be made on the following aspects of G11 – G14 utilization:

- according to RRC-06 decisions, administrations shall submit only electronic notices. The submission of paper notices in the GE06 bands and areas is not allowed;
- G11 – G14 notices are used for both primary and secondary other services assignments operating in GE06 bands and planning area (including the whole territory of the Russian Federation);

- G11 – G14 notices should be applied as from 3 August 2006. Notice types T11 - T14 shall no longer be used for the notification of assignments to stations in terrestrial services other than broadcasting for the application of the GE06 Agreement.

4.3 Development of new software

The application of the GE06 Agreement with respect to other primary terrestrial services requires the Bureau to develop the engineering software for the following purposes:

- Identification of affected administrations (Section I of Annex 4);
- Examination of Conformity with the digital Plan entry (Section II of Annex 4);
- Verification of completeness and correctness of new notices.

The development of these programs is under way.

5. Future use of other primary terrestrial services in the GE06 planning area and bands

Administration wishing to use a new assignment in other primary terrestrial services or to modify the characteristics of an assignment already existing in the *List* shall coordinate it applying the procedure of Article 4 of GE06 Agreement before bringing this assignment into operation. After the successful completion of the coordination procedure, the notification procedure of Article 5 of the GE06 Agreement shall be applied for recording the assignment in the Master Register.

Administration has also the right to use an entry in the digital Plan for transmissions in other primary terrestrial services. If this option is chosen, the OPS assignment shall be notified under the provisions of No. 5.1.3 of Article 5, which provides for such a possibility.

5.1 Coordination procedure of Article 4

The procedure of coordination of assignments of other primary terrestrial services with the broadcasting service is contained in Section 4.2 of Article 4 of GE06 Agreement. Annex 1 to this document includes a flowchart explaining different steps of this procedure, which could be summarized as follows.

The proposing administration shall seek the agreement from all administrations, which may be affected according to criteria of Section I of Annex 4 to the Agreement. The proposing administration sends the information listed in Annex 3 using G11 – G14 electronic notices to the Radiocommunication Bureau. The Bureau identifies potentially affected administrations. Within 40 days the BR publishes the received characteristics together with the list of potentially affected administrations and the list of the administrations, which already agreed, in Part A of a Special Section of the BRIFIC. Within 40 days from the publication of the Special Section administrations may request the BR to remove their names from the list of the administrations that have given their agreement or to include their names in the list of the administrations considered to be affected.

The administrations concerned attempt to reach agreement. 50 days after the publication of the Special Section the Bureau request the administrations, which have not yet given their decision, to do so. After an overall 75-day period the BR informs the proposing administrations of the reminders sent and of the names of the administrations, which have agreed, and non-replying administrations. An administration, which has not replied within 75 days, is considered as an objecting one. In case of non-reply, the notifying administration may request the BR to send a reminder. If no decision is communicated to the BR within 40 days after the reminder, the non-replying administration is considered as having agreed to the proposed assignment.

In case of continuing disagreement, the BR shall conduct any studies, which may be requested by the administrations concerned. When all agreements are obtained, the proposing administration

sends the final characteristics to the BR. The Bureau publishes this information in Part B of a Special Section of the BRIFIC and updates the *List*. Administrations may request the assistance of the Bureau before or at any stage of the procedure.

This Article 4 coordination procedure of GE06 Agreement has several specific features, which may require special attention:

- the procedure could be shortened if all necessary agreements are obtained in advance. In this case the proposing administration may request the publication of Part B of the Special Section in 40 days after publication of Special Section Part A, provided that the conditions of No. 4.2.2.4 are met. For this purpose the field *t_is_pub_req* in the notice should be set to “TRUE”;
- when an administration does not reply to a coordination request within the statutory period of 75 days, the administration is considered as having objections. This is different from all other coordination procedures of the RR and the existing regional agreements, which consider the non-reply as agreement;
- the coordination procedure has a limited duration of 24 months. If the proposing administration does not inform the Bureau within 24 months after the 75-day period, the proposed assignment lapses;
- if the parameters of the proposed assignment are changed during coordination and these changes result in the identification of new affected administrations, the coordination procedure shall be re-applied from the beginning;
- if agreement of an affected administration is obtained for a specific period of time, the assignment is entered in the *List* for this period only. It is removed from the *List* and the MIFR at the end of the indicated period;
- the assignment is deleted from the *List*, if no notification under Article 5 is received by the BR within 12 months after the publication of Part B of the Special section.

5.2 Notification procedure of Article 5

When an administration intends to bring into use an assignment to other primary terrestrial services, it shall notify the assignment to the Bureau according to Article 11 of the RR. This notification shall be made not earlier than 3 months prior to bringing the assignment into operation and not later than 12 months after entering the corresponding assignment in the *List*.

The Bureau performs the regulatory examination of the notified assignment vis-à-vis the Table of frequency allocations and the other provisions of the RR. The Bureau also performs the conformity to List examination. If the both examinations give favourable findings, the assignment is recorded in the MIFR. Otherwise, it is returned to the notifying administration.

In comparison with Article 11 of the RR, Article 5 of GE06 Agreement introduced new provisions 5.2.5 to 5.2.7 allowing recording a non-coordinated assignment in the MIFR on a non-interference basis. According to these provisions, the administration, which failed to complete coordination under Article 4, may resubmit the assignment under Article 5 together with a signed commitment of operation on a non-interference basis. In this case, the assignment is recorded in the MIFR with unfavourable conformity to List finding and with the names of the administrations with which continuing disagreement exists. The proposing administration shall immediately eliminate unacceptable interference to the stations of those administrations with which continuing disagreement exists, if such interference occurs.

5.3 Use of entries in the digital Plan for other primary services

The provisions of No. 5.1.3 of Article 5 provide for the possibility to use a digital entry for the transmissions in other primary terrestrial services. In other words, a non-broadcasting station can use an assignment or an allotment recorded in the digital Plan, provided that such a usage is within the “envelope” of the digital entry.

There are several conditions, which should be met by an OPS assignment notified under No. 5.1.3. Firstly, the notification shall be made in the frequency bands and geographical areas where a primary allocation to the notified other service exists. Secondly, the peak power density of the OPS assignment in any 4 kHz shall not exceed the peak power density of the digital entry in the plan in the same 4 kHz. Thirdly, the interference potential of the OPS assignment calculated according to Section II of Annex 4 of the Agreement shall not exceed the one derived from the digital entry. Finally, the notified assignment shall not claim more protection than afforded to the digital entry.

It is recalled that typical stations in other primary services cannot be notified under the provisions of No. 5.1.3.

6 Conclusions

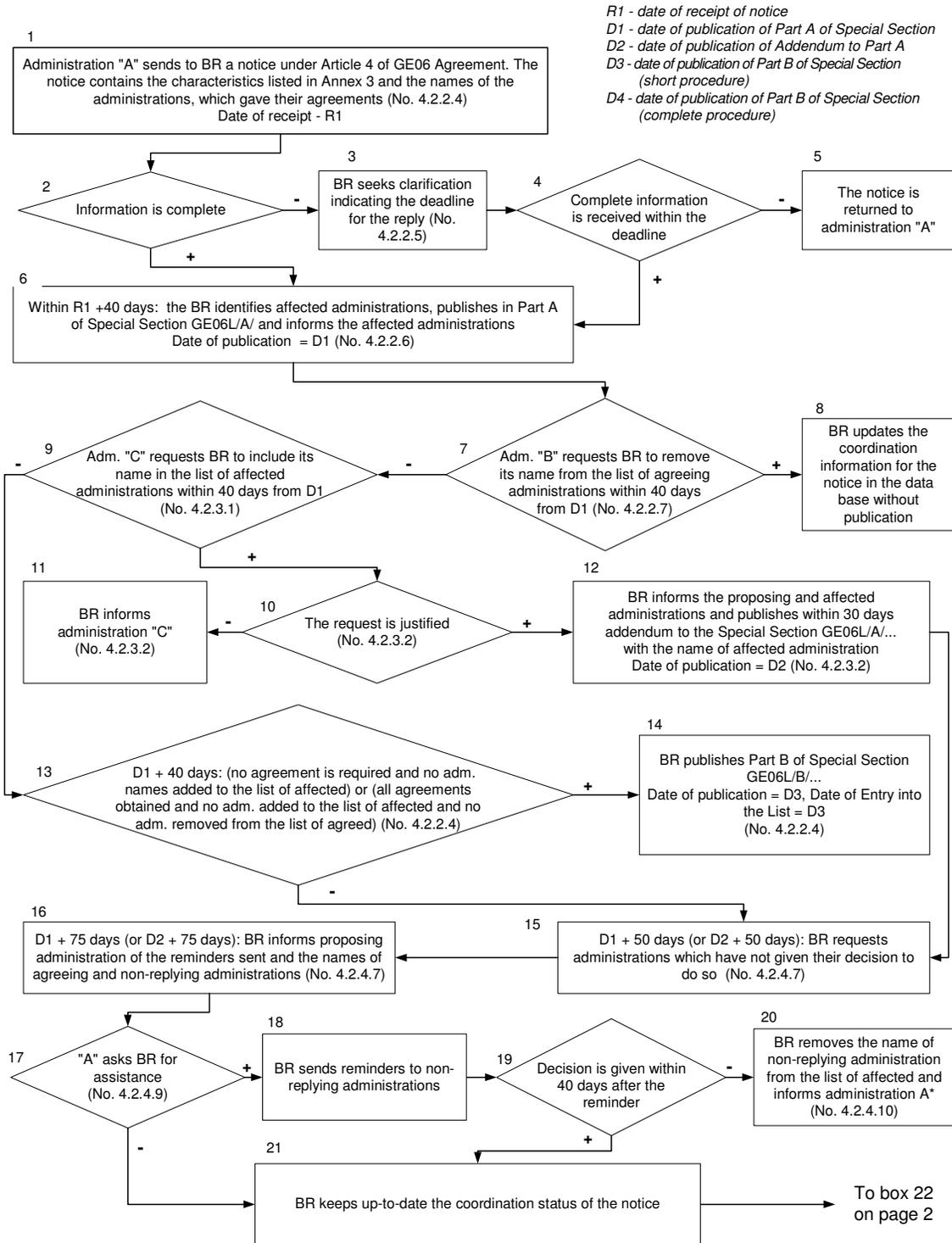
Recognizing the importance and the regulatory status of other primary terrestrial services operating in the bands 174 –230 MHz and 470 – 862 MHz, the first and second sessions of the Regional radiocommunication conference adopted the provisions necessary for the coordination of these services with the broadcasting assignments and for taking them into account in the development of the new digital Plan.

RRC-06 took the decision to create the List of assignments to other primary terrestrial services. The Conference approved the provisions allowing to update this *List* and to protect the assignments contained in the *List* from future modifications of the analogue and digital broadcasting Plans. In context of the GE06 Agreement the *List* has the same regulatory status as the broadcasting plans and follows the coordination and notification procedures, which are very similar to the ones applied to the broadcasting service.

In this way, the GE06 Agreement contains all necessary elements for providing compatible operation of the broadcasting and other primary terrestrial services sharing the planned bands.

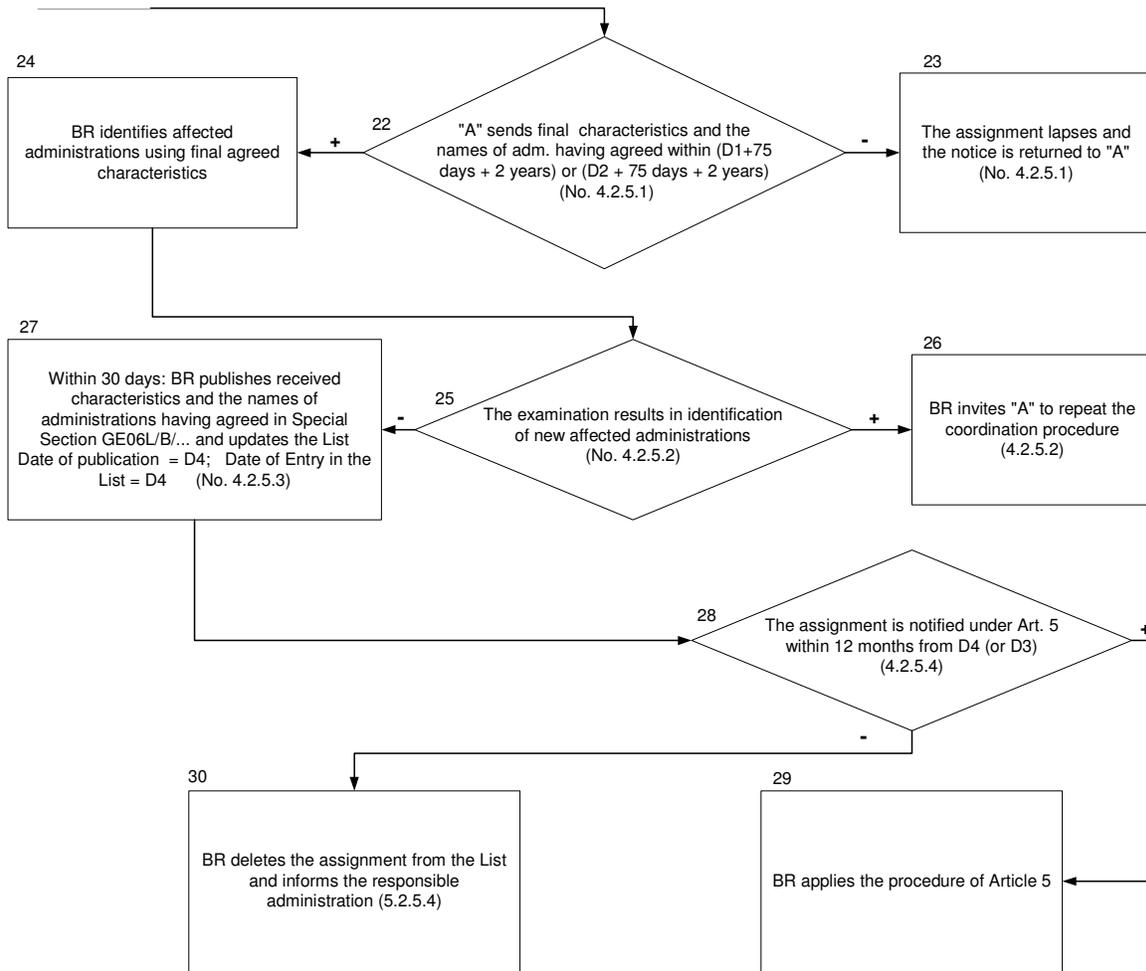
Annex1

Coordination procedure for other primary terrestrial services under Article 4 of Regional Agreement GE06



* **Note to Box 20:** GE06 Agreement does not envisage that BR informs administration A; however, this course of action is required for the continuation of the procedure

From box 21
on page 1



Notes to the flowchart

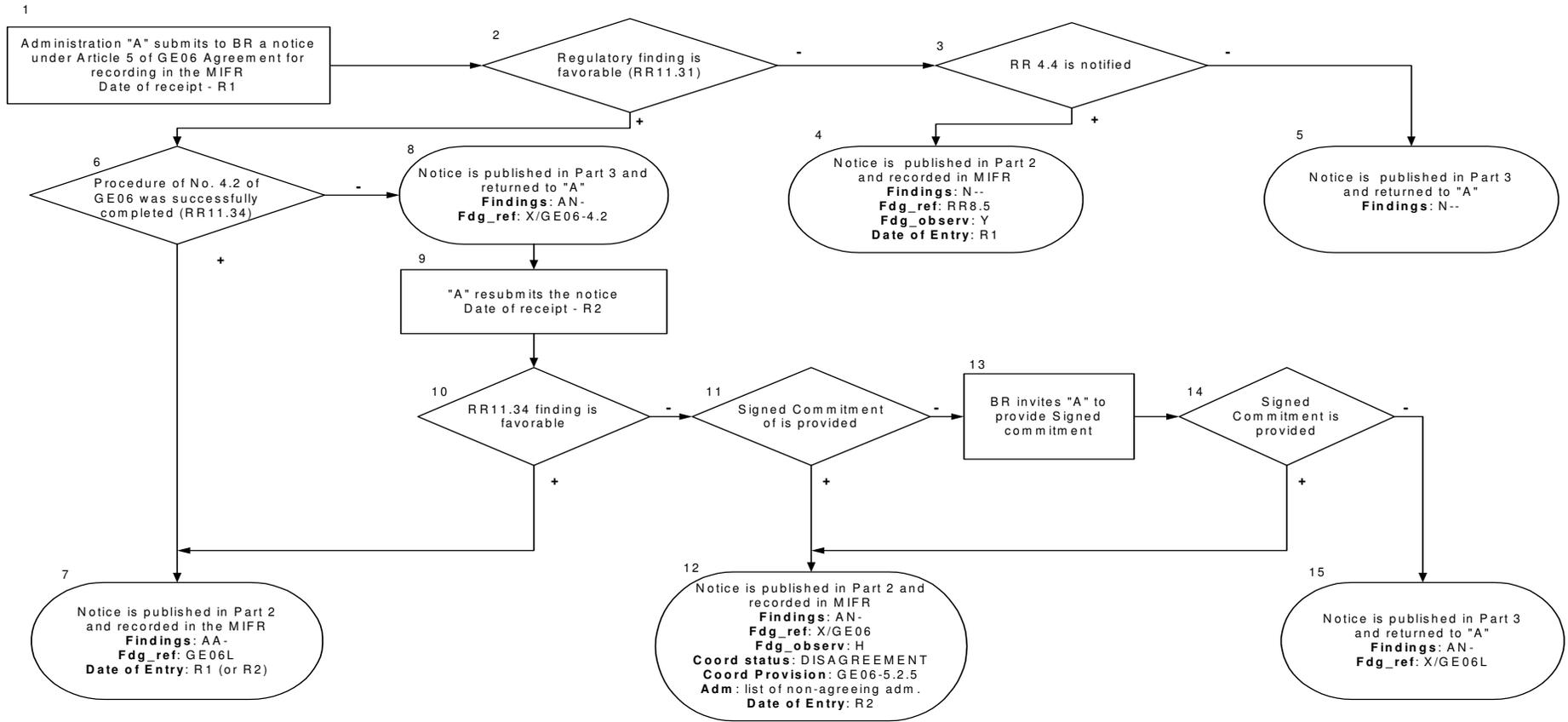
1. An administration may request the assistance of the BR before or at any stage of coordination procedure specified in Article 4 (4.2.4.12). If request for assistance is received under No. 4.2.4.8 or No. 4.2.4.10, it shall be treated within 40 days.
2. If an assignment is entered into the List for a limited period of time, the BR after the end of this period shall inform the responsible administration and delete the assignment from the List and the MIFR (4.2.5.5).

This flowchart is for information only and does not form part of the GE06 Agreement

Annex 2

Notification procedure for other primary terrestrial services under Article 5 of Regional Agreement GE06

*R1 - date of receipt of the original notice
R2 - date of receipt of resubmitted notice*



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