

# 3<sup>rd</sup> and final frequency coordination meeting on the GE84 Plan Optimization for Africa

24 - 28 January 2022



AFRICAN TELECOMMUNICATIONS UNION  
UNION AFRICAINE DES TÉLÉCOMMUNICATIONS



## Overview of GE84 Plan Optimization for Africa

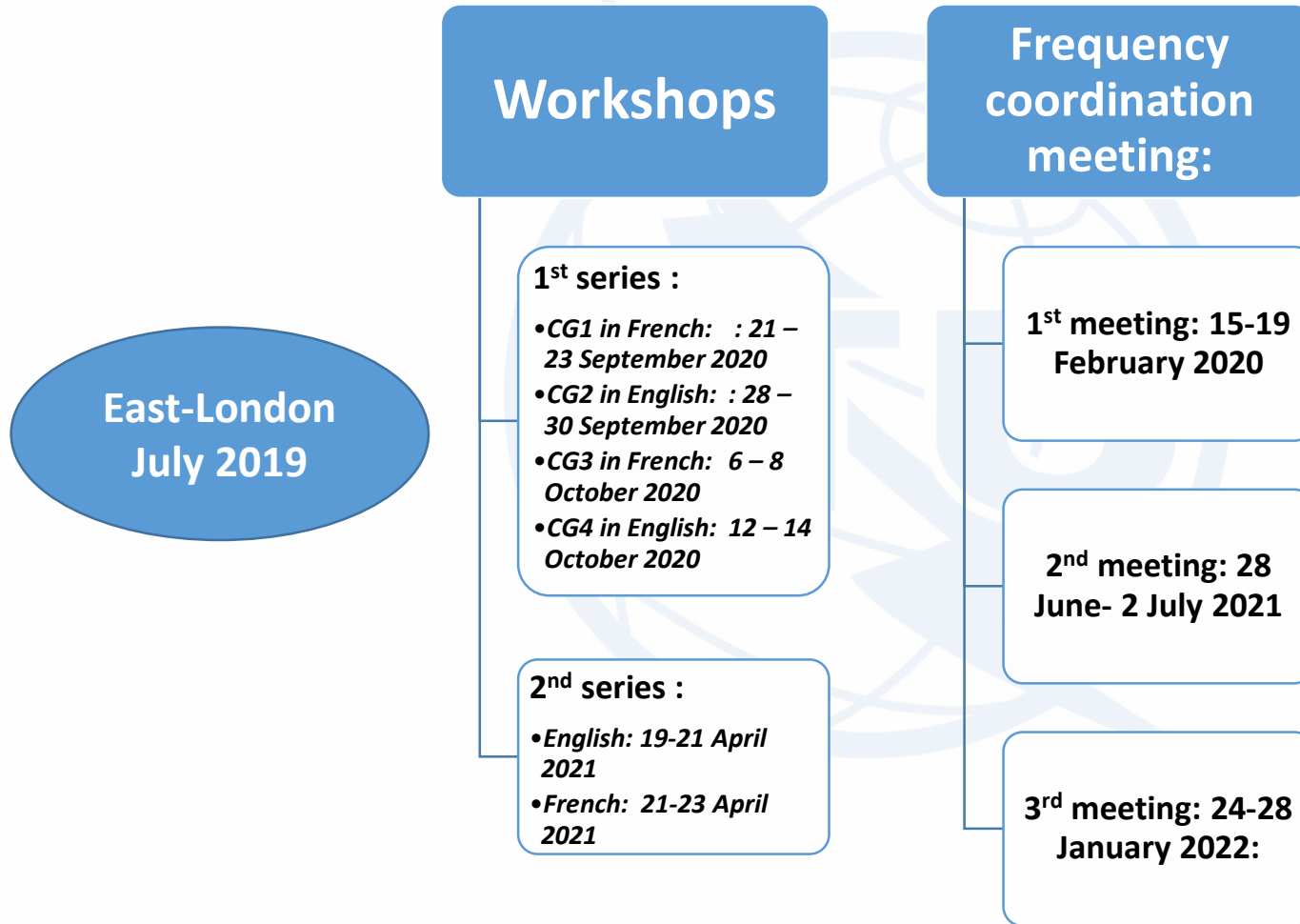
ITU/BR, Broadcasting Services Division

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# Why optimize GE84 Plan for Africa?

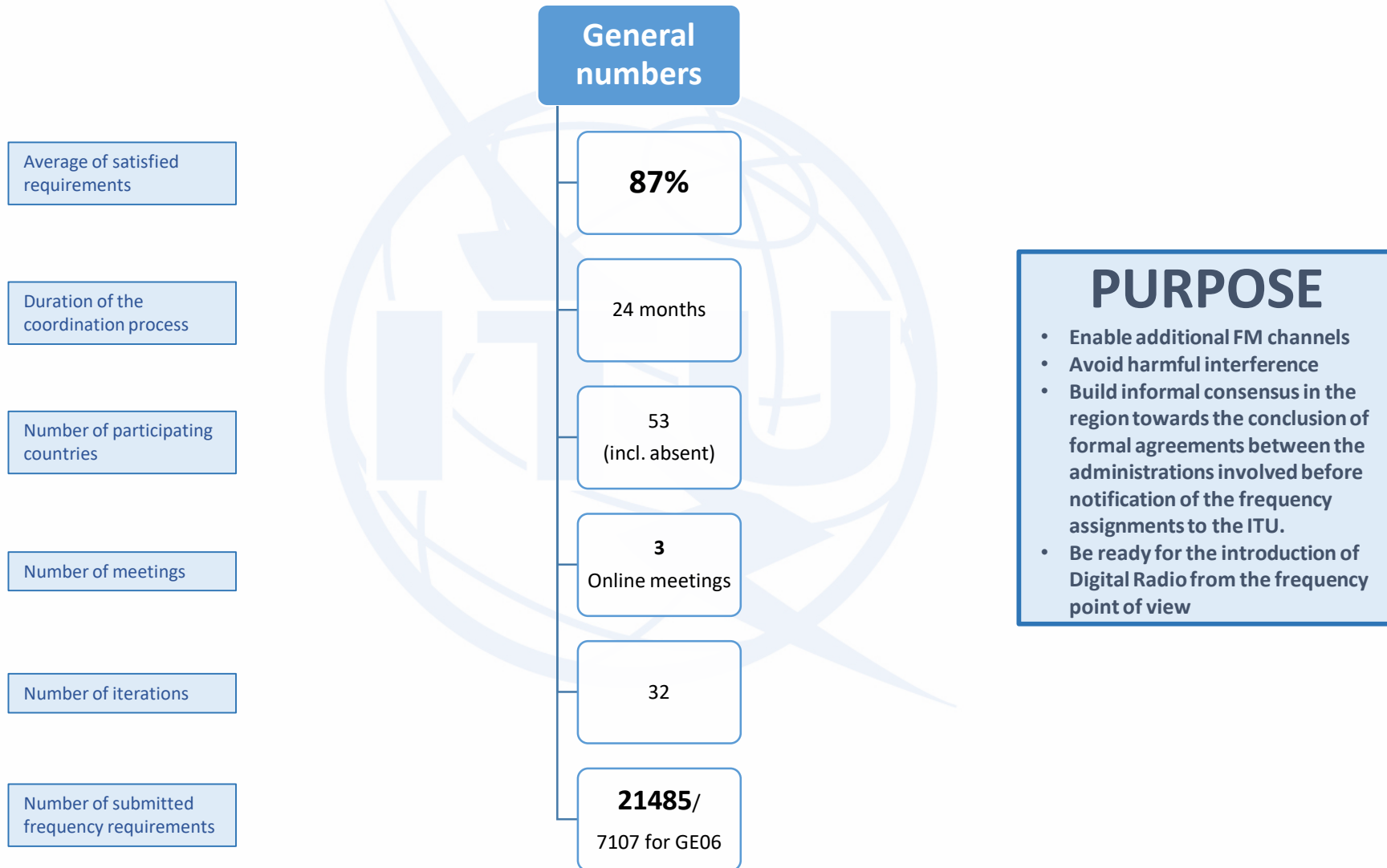
- Address the **increasing demand** for new FM radio stations by enabling the assignment of new frequencies,
- GE84 Plan is **congested**, therefore, it is needed to:
  - Ensure an efficient use of the 87.5-108 MHz band for analogue sound broadcasting, by accurately reflecting the situation of the FM band in the Region, by reviewing the:
    - *GE84 Plan entries, and*
    - *corresponding entries in the MIFR.*
  - Ensure **compatibility** among the existing and new broadcasting frequency assignments,
  - Facilitate potential future introduction of digital sound broadcasting.

# Main steps of GE84 Plan Optimization for Africa

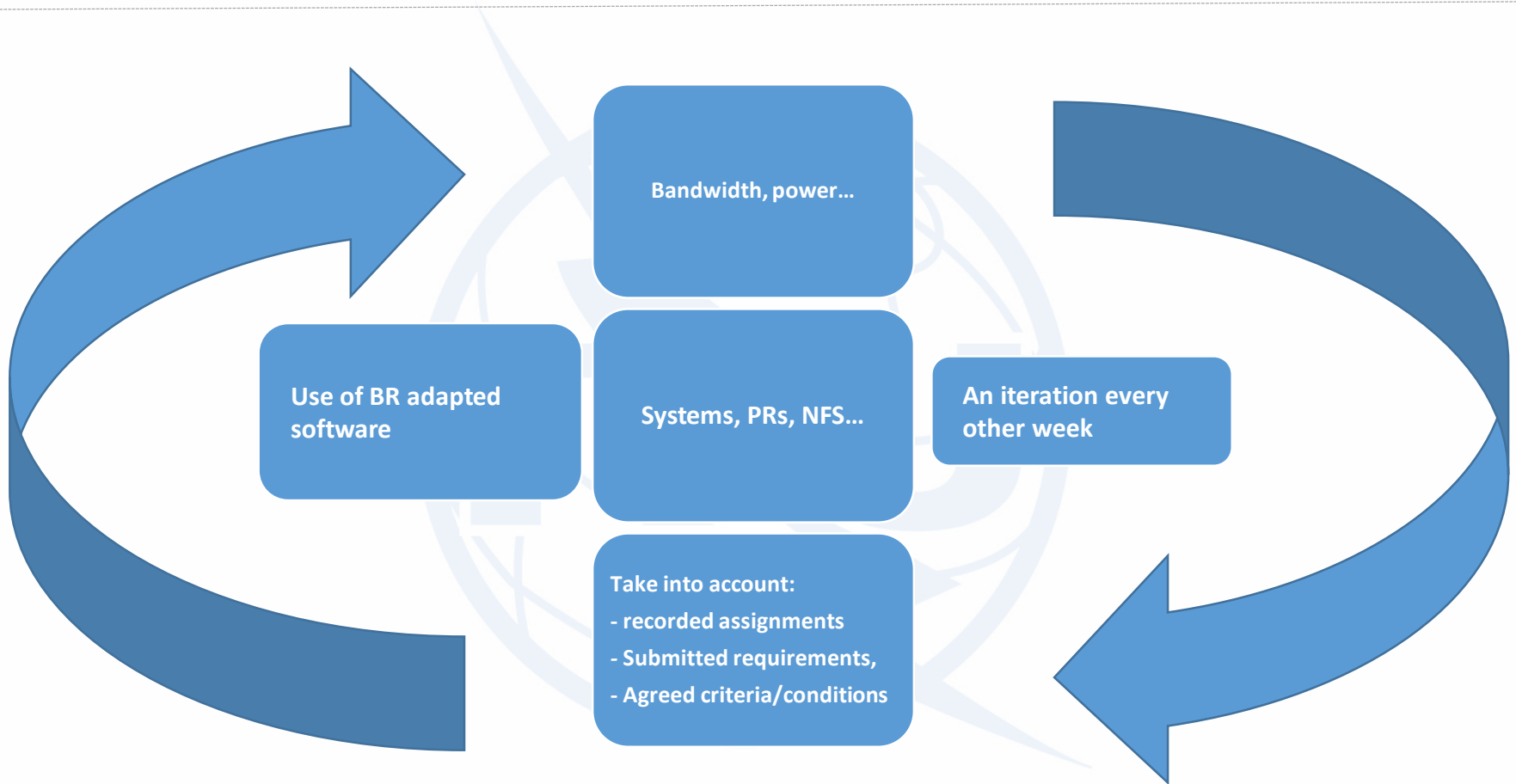


# GE84 Plan Optimization for Africa

## Few numbers...



# BR support in the coordination process



***Capacity building (training on BR software, compatibility analysis, frequency assignments...) and assistance all along the process***

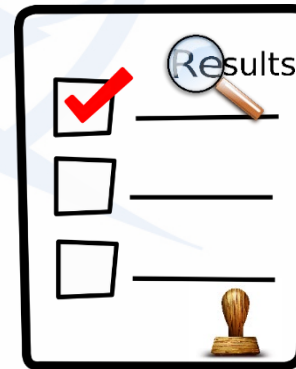
# Outcome of the frequency coordination meetings

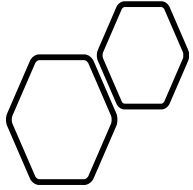
Toward a successful coordination process

- General agreed criteria and interference level
- Achieved frequency coordination for cases outside the agreed conditions on bi-lateral level

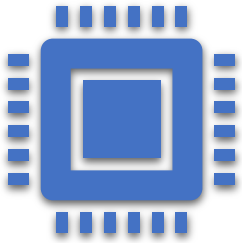
- Reasonable number of requirements, especially close to the borders;
- Suppress the Plan assignments that are not intended to be operated.

Assignments free of interference





# Planning basis for GE84 optimization



## Technical criteria used for compatibility calculations – GE84 Agreement

Uniform 100 kHz frequency step (spacing): Section 3.2 of Chapter 3 of Annex 2 of the Agreement,  
protection ratios: Section 3.4 of Chapter 3 of Annex 2;  
propagation model: Chapter 2 of Annex 2.

### Assignments to be taken into account:

- The ones recorded in the GE84 Plan and the ones published in Part A of Special Sections GE84 : **Yes**
- Assignments to other primary services in adjacent bands: **No**



## Compatibility analysis software

ITU has adapted the existing GE84 software to a large-scale compatibility analysis necessary for the GE84 Plan optimization  
This software will be further adapted according to the agreed planning and coordination criteria.



# Criteria/conditions approved by the 1<sup>st</sup> meeting

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## Procedural

- To stop any modification to the GE84 Plan until the end of the coordination meetings.



## Practical

- Submit the requirements every other Thursday to [brbcd@itu.int](mailto:brbcd@itu.int) for iterations;
- An iteration every two weeks.
- If an administration does not submit its requirements, the requirements used for the previous iteration will be taken;
- For absent administrations, the BR will generate requirements and try to contact them.
- Stop submission of FLEX requirements to iterations starting from Iteration 9 (14 May 2021)
- Avoid drastic changes to the requirement file, starting from iteration 12 (25 June 2021)
- Invite Non-African neighbouring countries to the 2<sup>nd</sup> and 3<sup>rd</sup> meetings.



## Technical

- Maximum acceptable Nuisance Field Strength (NFS) value is 54 dB( $\mu$ V/m)
  - Take into account the polarization discrimination (10dB).
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# GE84 Plan Optimization: Reference iteration

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The **final list of assignable channels** includes:

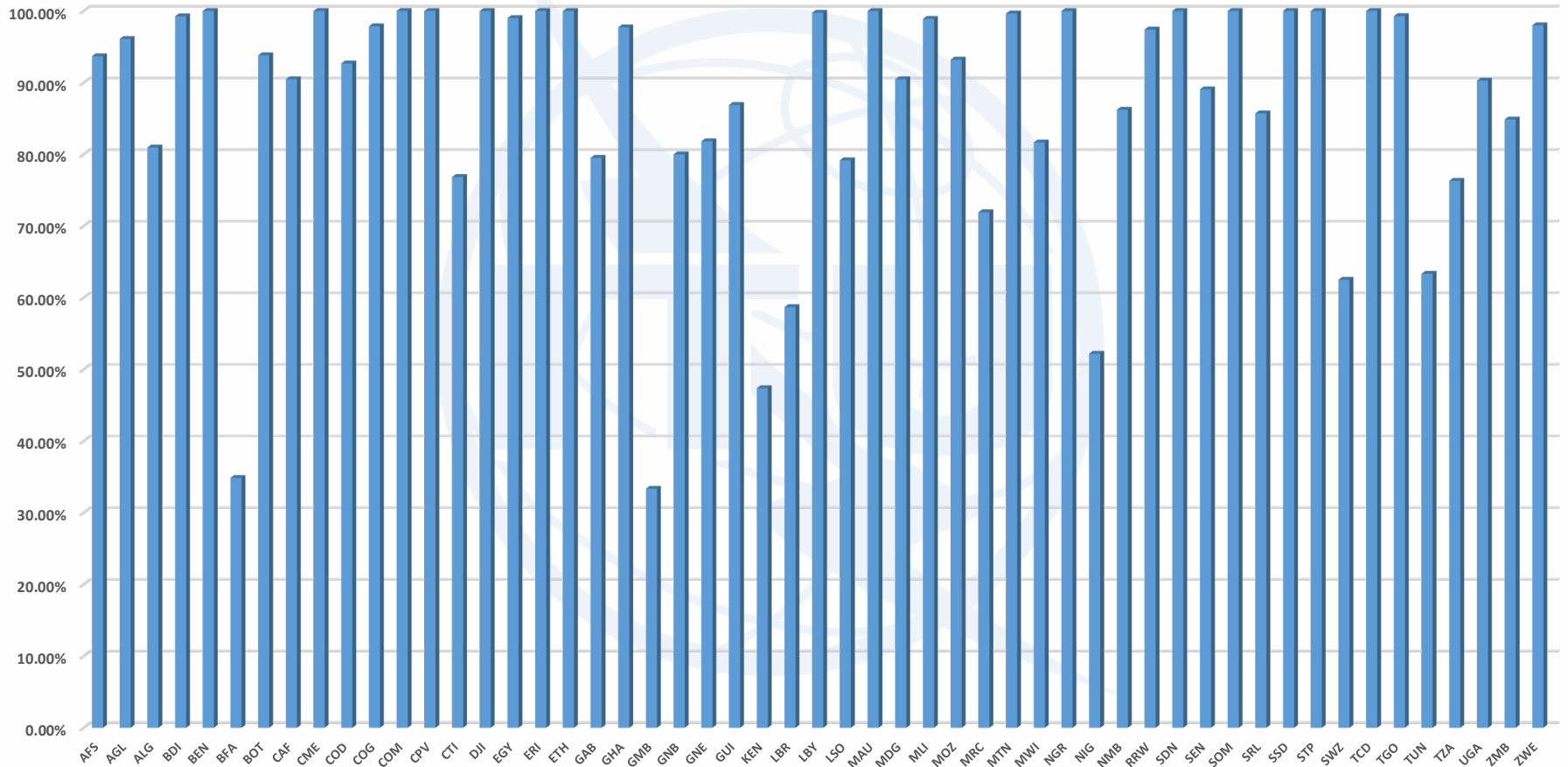
- Assignable channels, **using GE84 propagation curves and ignoring self and received interferences:**
  - requirement is in accordance with the General Agreed Criteria (such as NFS < 54 )
  - requirement is not in accordance with the General Agreed Criteria (such as NFS > 54 ) but agreement was reached with neighbouring administrations on a bilateral basis and **the name of the administrations with which you coordinated is in the <COORD>** section of the electronic notice(s)
- Non assignable channels:
  - requirement is not in accordance with the General Agreed Criteria (such as NFS > 54 ) and no agreement was reached with neighbouring administrations

**Disclaimer:** *GE84 Optimization tool does not take into account **Aeronautical radionavigation stations** in calculations. It is your responsibility to ensure the protection of your operating/existing aeronautical stations through bilateral discussions. See provision 4.2.2 f) of the GE84 Agreement.*

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# Status so far- Average assignable: 87%

Iter32-Percentage of assignable channels-Ignoring internal and received interference

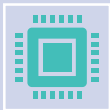


# GE84 Plan optimization success

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The success of GE84 optimization came as result of:



Intensive involvement by administrations in:

updating the GE84 Plan,  
updating the MIFR,  
providing the necessary data/requirements,  
mastering the software and tools provided by ITU,



Active and fruitful participation in the frequency coordination meetings

Engineers in charge of the GE84 Plan and/or frequency assignment for FM radio,  
Same participating experts from all administrations involved along the process,



Identification of mutually compatible assignments.

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# Next steps

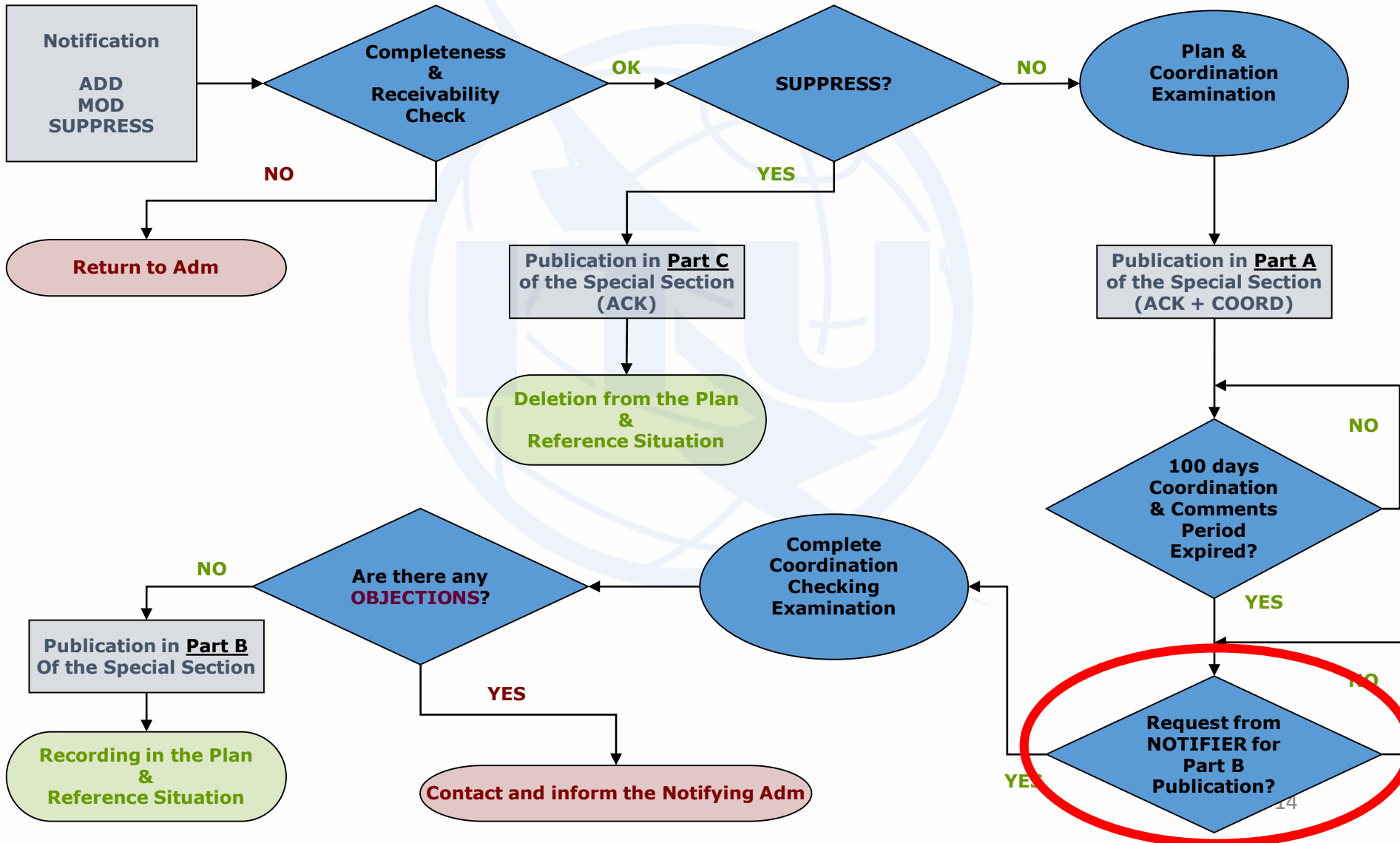
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- **Final list of assignable channels: Iteration 32**  
(Thursday 27 January 2022)
  - **Next:**
    - **Official submission under article 4** of GE84 Plan of assignable channels: (including coordination information) starting Monday **31 January 2022**
    - **Coordination continues: Non assignable channels:**
      - Continue discussions with your neighbours
      - Search for new frequencies using the different tools (FLEX, terrain models, propagation models, etc) by using the option of FLEX requirements that is in the GE84 optimization tool.
    - **Stations in operation:**  
Notify them according to article 7 of GE84 Agreement (article 11 of RR) once they are recorded in the Plan
-

# *Plan modification Procedure*

- *Notification:*
  - T01 notice form for Addition or Modification to the Plan
  - TB5 notice for Suppression or Withdrawal
- *Publication*
  - Must be requested for publication in Part B (TB3 notice)
  - Publication in Part B only if no objections
- *Important*
  - Pursuant to paragraphs 1.3 of Part A2 and 4.6.1 of Part A5 of the Rules of Procedure (RoP) the frequencies pending in coordination stage are deleted after 2 years and 100 days

# Plan modification Procedure



# *Notification to the Master Register*

## *(Article 7 of GE84 Agreement)*

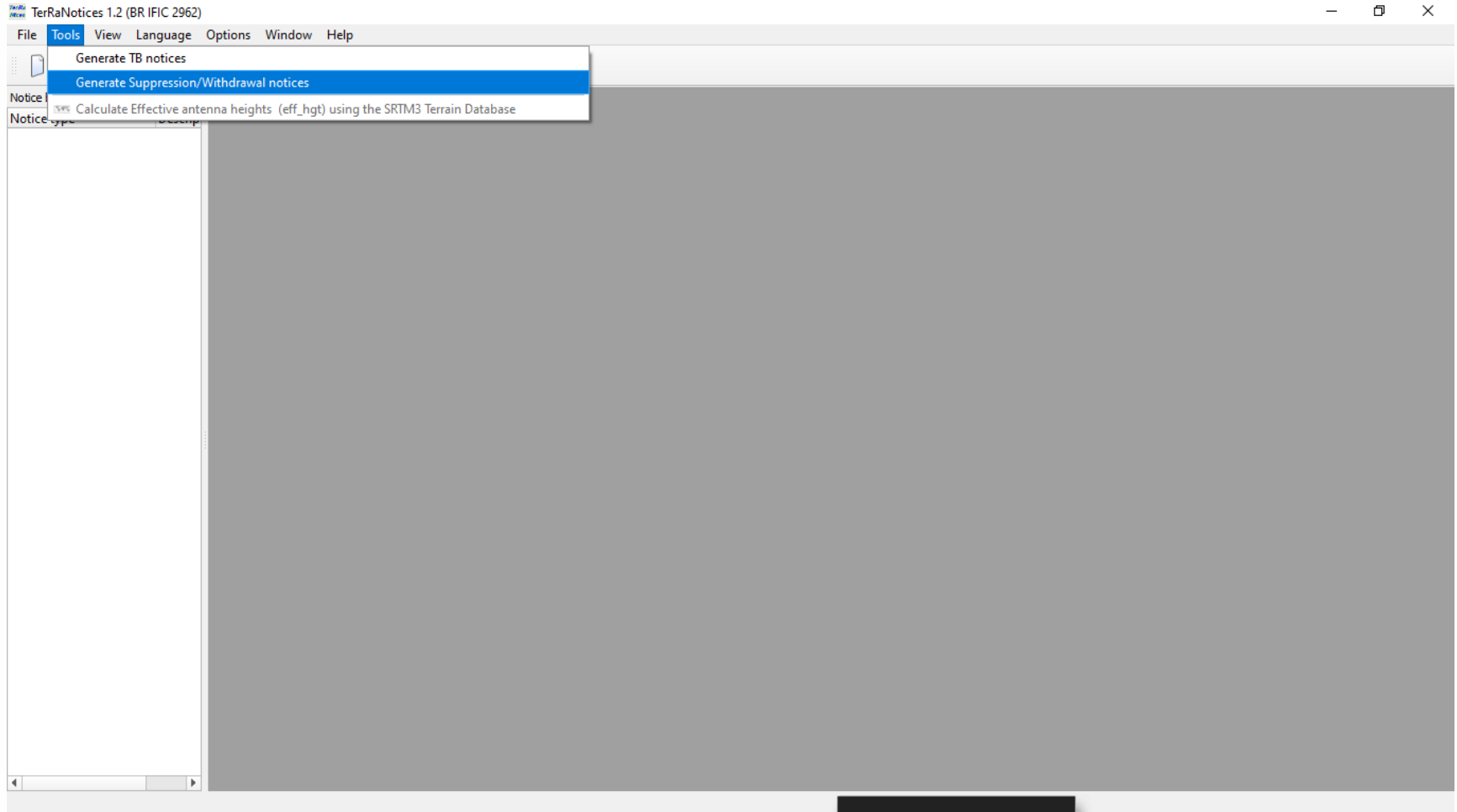
**Assignment must be RECORDED in the PLAN**

When an administration proposes to bring into use an assignment, it shall notify its characteristics to the BR in accordance with the provisions of **Article 11** of the Radio Regulations.

When the assignment brought into use conforms to the technical characteristics described for this assignment in the Plan, it is then recorded in the Master International Frequency Register (commonly called the **MIFR**).



# Notice to notify to MIFR



Domain

FM/TV

Fragment

GE84

Notices / Recorded

Recorded

Assignments/Allotments

Assignments only

Administration

AGL

BR IDs

Unique identifier given by the Administration

Add >

< Remove

<< Clear

Frequency

From

96.7

MHz

To

Date of reception

From

01 Jan 1950

To

27 Jan 2022

Notice type

1A4  
1A5  
1A6  
BC6  
DS1

Add >

< Remove

<< Clear

Class of station

BC  
BT

Add >

< Remove

<< Clear

Additional criteria for TB2 notices generation

**It is not possible to create a TB2 notice for a GE06D plan entry of type DT1 or GT1 where the system variant is not specified. Either a GT1 notice must be used instead of a TB2, or the plan entry must first be modified to specify the system variant.**

View SQL query

OK

Cancel

Notice browser

Notice type	Description
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### TB notices generator

Notice type to generate: TB2 - Notification under Article 11 of an assignment with all technical characteristics as in the plan

Found assignments

Check all 0 / 3

BR ID	Administration	Fragment	Administration's unique identifier	SFN id	Assigned frequency	Class of station	Notice type	Coordinates	Site name
<input type="checkbox"/> 084041883	AGL	GE84			96.7	BC	1A5 / RECORDED	12°52'00"E - 7°14'00"S	AMBRIZETE
<input type="checkbox"/> 084041973	AGL	GE84			96.7	BC	1A5 / RECORDED	16°33'00"E - 13°17'00"S	CHITEMBO
<input type="checkbox"/> 084042093	AGL	GE84			96.7	BC	1A5 / RECORDED	16°41'00"E - 8°36'00"S	MONTE VER

Copy BR ID into remarks

# Or

The screenshot shows the TerRaNotices 1.2 application window. The title bar reads "TerRaNotices 1.2 (BR IFIC 2962) - [<Untitled>\* - T01\*]". The menu bar includes File, Tools, View, Language, Options, Window, and Help. The File menu is open, showing options such as "New file", "Open file", "Paste notice from Clipboard", "Recent files", "Close", "Close all", "Wizard", "Open a notice from the DB" (highlighted), "Open a notice from the DB (Last query)", "Duplicate file", "Duplicate selected notices", "Duplicate selected notices in new file", "Insert new notice", "Remove selected notices", "Edit", "Validate notice", "Validate file", "View validation messages", "Validate and save file", "Validate and save file as...", "Save without validation", "Save without validation as...", "View generated notice", "Reload file", "View file", "Open containing folder", and "Quit".

The main interface features a central form with various input fields and dropdown menus. A prominent "T01" label is visible in the top right corner. The form includes sections for:

- 12A/ Operating agency**: A dropdown menu.
- 2C/ Date of bringing into use**: Two date pickers.
- 12B/ Address code**: A dropdown menu.
- 10B/ Regular hours of operation (UTC)**: Two time pickers labeled "From" and "To".
- 4C/ Longitude**: A field with a value of 12° 52' 0" E.
- Latitude**: A field with a value of 7° 14' 0" S.
- 9EA/ Altitude of site above sea level**: A field with a value of 0 m.
- 3A1/ Call sign**: An empty text field.
- 3A2/ Station identification**: An empty text field.
- 7D/ Transmission system**: A dropdown menu with the value 4.
- 9D/ Polarization**: A dropdown menu with the value H.
- 8BH/ Horizontal e.r.p.**: A field with a value of 47.000 dBW.
- 8BV/ Vertical e.r.p.**: An empty field with dBW units.
- 9EB/ Maximum Effective Antenna Height**: A field with a value of 38 m.
- 9E/ Height of Antenna Above Ground Level**: A field with a value of 0 m.

At the bottom, there are sections for "the following administrations" and "13C/ Notified remarks".

TerRaNotices 1.2 (BR IFIC 2962) - [Untitled>\* - T01\*]

File Tools View Language Options Window Help

Notice browser

Notice type

- <Untitled>\*
  - Head section
  - AGL - 2
  - T01|ADD\*
- <Untitled>\*
  - Head section
  - AGL
  - T01|ADD\*

Date of notification

ID1/ Unique identification code given by the Administration to the assignment

Fragment

Notification intended for

Article 11

Addition

Modification

ST61

12A/ Operating agency

2C/ Date of bringing into use

12B/ Address code

10B/ Regular hours of operation (UTC)

From : To :

Assignment characteristics

Antenna characteristics

Station information

4A/ Antenna site name

AMBRIZETE

4C/ Longitude

12° 52' 0" E

9EA/ Altitude of site above sea level

0 m

3A1/ Call sign

4B/ Geographic area

AGL

Latitude

7° 14' 0" S

3A2/ Station identification

Emission characteristics

1A/ Assigned frequency

100 MHz

7D/ Transmission system

4

8BH/ Horizontal e.r.p.

47.000 dBW

7AB/ Bandwidth

300.000 kHz

9D/ Polarization

H

8BV/ Vertical e.r.p.

dBW

Antenna characteristics

9/ Antenna directivity

ND

9EB/ Maximum Effective Antenna Height

38 m

9E/ Height of Antenna Above Ground Level

0 m

Coordination successfully completed with the following administrations

13C/ Notified remarks

Available administrations

Selected administrations

AFG

AFS

ALB

ALG

Add >

< Remove

2 fields are invalid !

Date of bringing into use

Address code

T01

# GE84 Plan Optimization Workshops

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- Online trainings based on demonstrations and presentations on the project, its mainstreams, and the use of BR software, including:
  - the tools adapted by the BR to run compatibility analysis of new requirements,
  - General view on the GE84 Agreement applicable procedures
  
- Workshop meeting recordings and presentations are available online at:  
[www.itu.int/en/ITU-R/terrestrial/broadcast/africa/Pages/Workshop.aspx](http://www.itu.int/en/ITU-R/terrestrial/broadcast/africa/Pages/Workshop.aspx)



# Quick Links

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- Website for the GE84 Optimization Project:  
[www.itu.int/en/ITU-R/terrestrial/broadcast/africa/Pages/default.aspx](http://www.itu.int/en/ITU-R/terrestrial/broadcast/africa/Pages/default.aspx)
  - GE84 online workshops material:  
[www.itu.int/en/ITU-R/terrestrial/broadcast/africa/Pages/Workshop.aspx](http://www.itu.int/en/ITU-R/terrestrial/broadcast/africa/Pages/Workshop.aspx)
  - GE84 Software (on eBroadcasting portal):  
[www.itu.int/ITU-R/eTerrestrial/eBroadcasting](http://www.itu.int/ITU-R/eTerrestrial/eBroadcasting)
  - Final Acts of the GE84 Agreement:  
[www.itu.int/pub/R-ACT-RRC.5-1984/en](http://www.itu.int/pub/R-ACT-RRC.5-1984/en)
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**Thank you!**