# ITU World Radiocommunication Seminar

GE75 What-if Studies: Simulation and Software Tool

7–11 December 2026, Geneva, Switzerland



# GE75 What-if Studies

## Simulation & Software Tool

Practical demonstration

**11 December 2026**



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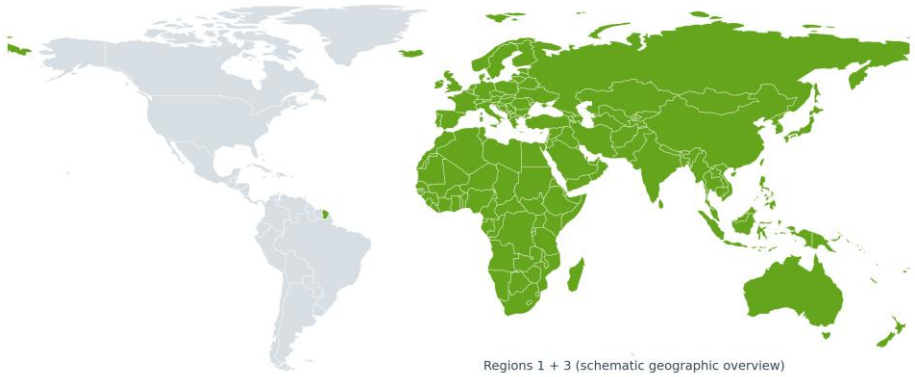
# GENEVA 1975 (GE75)

Plan for MF broadcasting in Regions 1 and 3 and LF broadcasting in Region 1

## PLANNING AREA




## FREQUENCY BANDS

**LF • 150–285 kHz**

Region 1 only

**MF • 525–1 605 kHz**

**Regions 1 & 3**

**Plan modifications: GE75 Article 4**

Source: ITU-R LF/MF Broadcasting — GE75

# Coordination examination & affected administrations

**TECHNICAL BASIS | AGREEMENT ARTICLE 4 + ANNEX 2**

## 01 Reference assignments

Compare with assignments in accordance with the Agreement on the same or adjacent channel (Art. 4 §3.1).

## 02 Service-area test points

At points on the boundary of the protected service area, evaluate the existing usable field strength (Art. 4 §3.2.5).

## 03 New interference contribution

Apply Annex 2 propagation, interference summation and protection ratios to obtain the new usable field strength.

## 04 Affected decision

If $\Delta Eu = Eu(new) - Eu(existing) \geq 0.5$ dB at any relevant point, the assignment may be considered affected.

**RoP Part A3 (GE75) clarifies Annex 2 technical provisions, including §4.4 protection ratios;**

# One examination engine, two What-if scans

TECHNICAL APPLICATION | CANDIDATE → EXAMINATION → DECISION

## FREQUENCY SCAN

**Vary the assigned frequency channel**

Each 9 kHz candidate → rerun GE75 examination for HJ and HN → list affected administrations and worst ΔEu.

**Find channels with Affected = <None>.**

## POWER SCAN

**Vary antenna power, hold frequency**

Iteratively change power (and Max EMRP at fixed antenna gain) → rerun HJ/HN examinations → test whether anyone is affected.

**Return highest clear power (≤ 2,000 kW).**

**Same decision rule: any relevant ΔEu ≥ 0.5 dB ⇒ affected; otherwise no affected administrations.**

# GE75 in one picture: the coordination context

## 1 Plan assignment

A notified LF/MF broadcasting proposal is assessed against relevant assignments and the GE75 examination framework.

## 2 Potentially affected

The technical examination identifies administrations or assignments that may be affected.

## 3 Next regulatory step

Simulation supports preparation; it does not replace the applicable GE75 Article 4 procedure.

**What-if = decision support before a formal notice or modification**

# Where the tool fits in the GE75 workflow

**Prepare**
T03 ADD / MODIFY

›

**Simulate**
GE75 What-if

›

**Review**
Affected cases

›

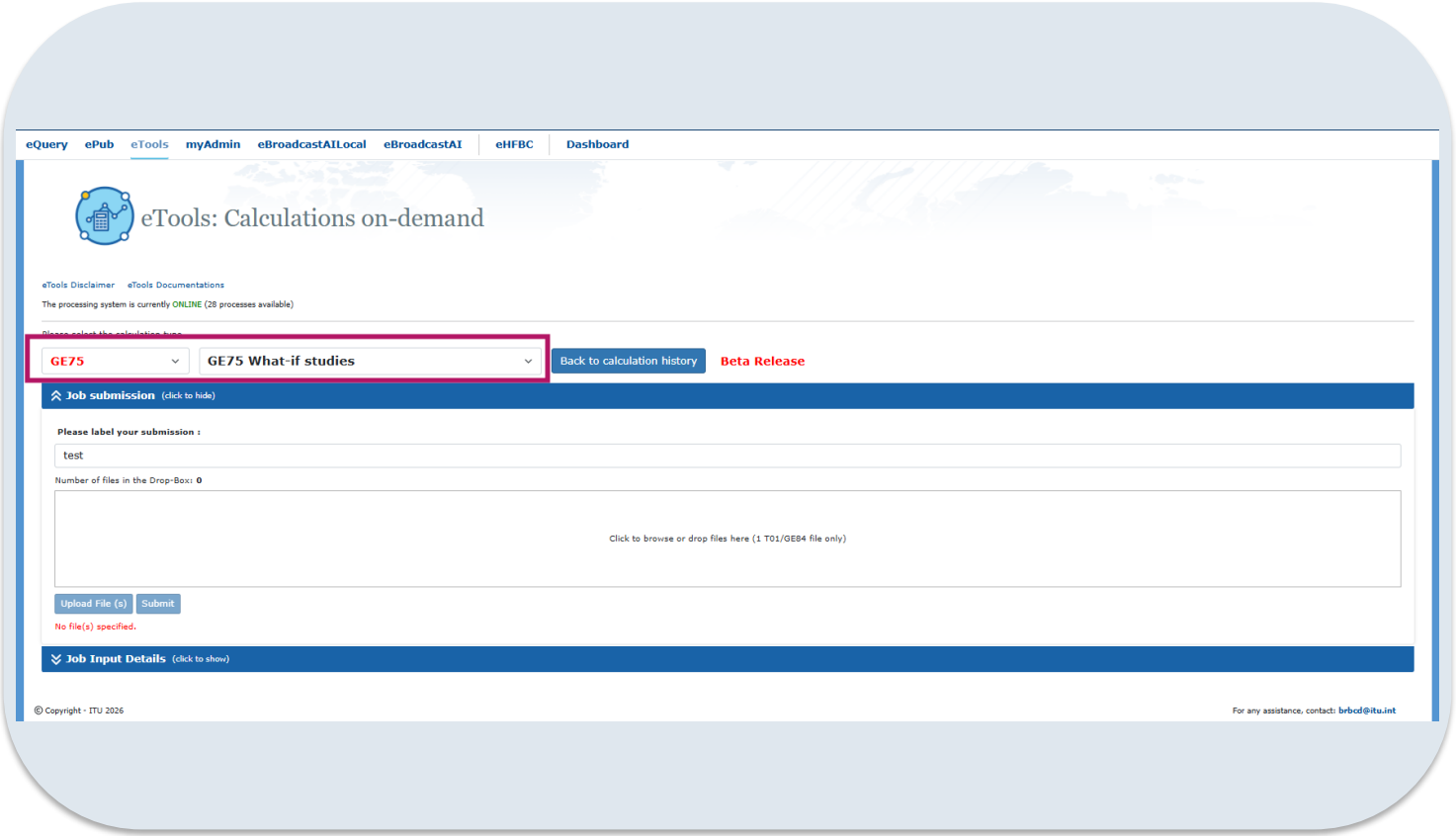
**Revise**
Frequency / power

›

**Proceed**
Applicable GE75 process

**No Plan or MIFR update is made by the what-if calculation.**

# Start the GE75 What-if calculation




## 1 • Select service

Choose GE75 What-if Studies.

## 2 • Upload file

Load the T03 notice.

## 3 • Choose scan

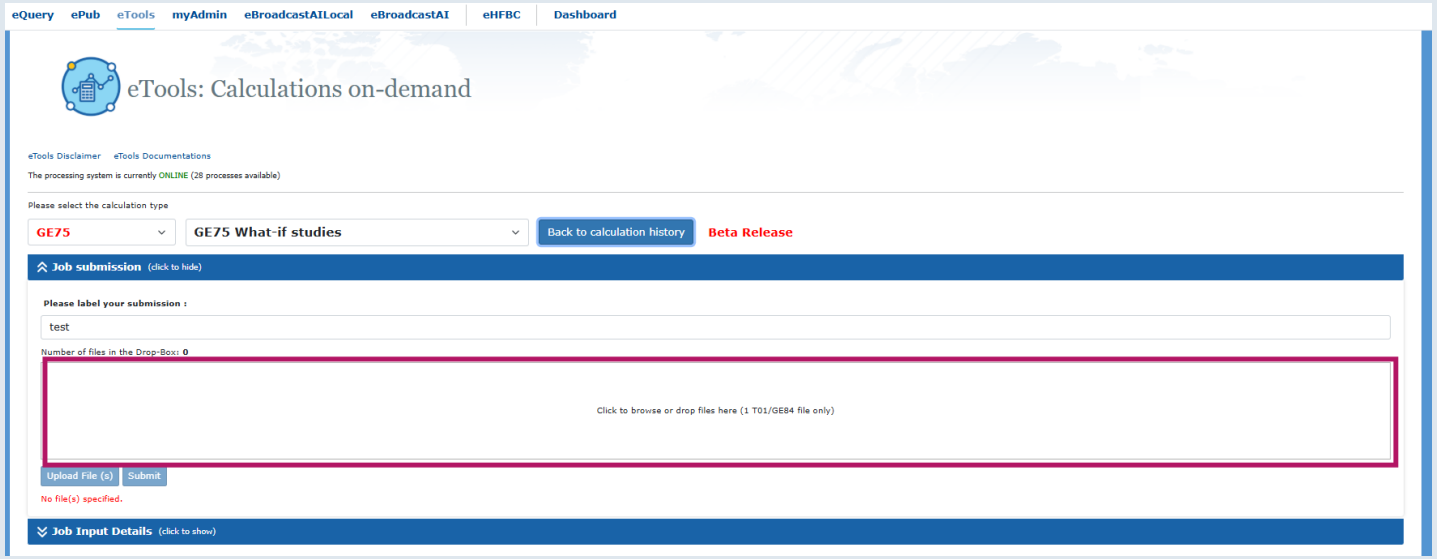
Frequency or antenna power.

# Upload the GE75 T03 notice file

## T03 notice input

Choose the notice file in the highlighted upload area.

The input must contain the proposed GE75 characteristics before starting the scan.



# Two modes, two questions

## SCAN FREQUENCIES

Which GE75 channels in a selected range produce no affected administrations?

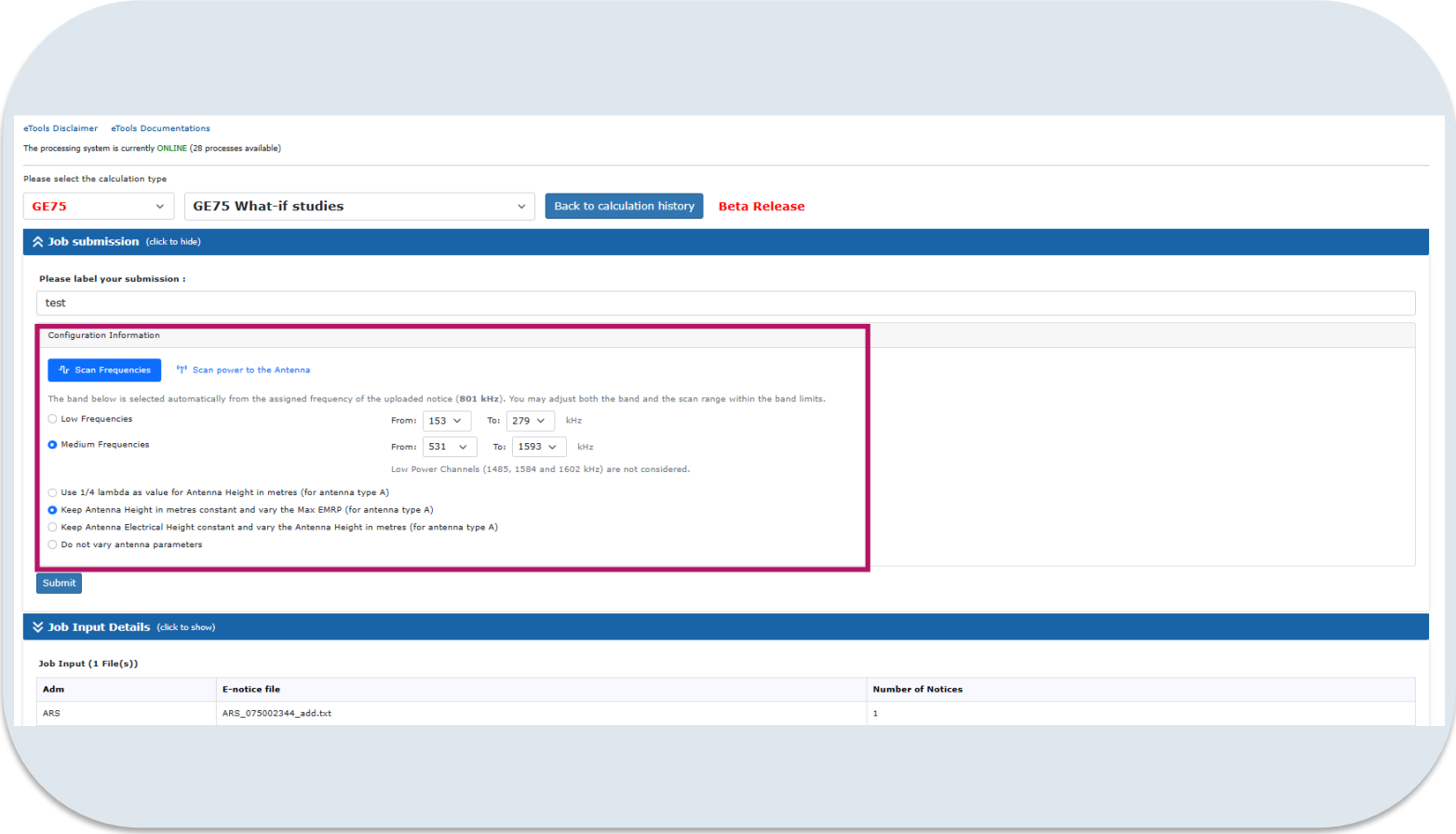
9 kHz channel spacing; LF/MF band selection.

## SCAN POWER TO ANTENNA

At the notified frequency, what is the highest antenna power that affects no other administration?

Separate HJ/HN calculations.

# Frequency scan: set up the search




## Configure & submit

Check LF or MF band.

Set From / To in kHz.

Choose type-A antenna variation, where applicable.

Submit the job.

# Frequency scan: compare channels

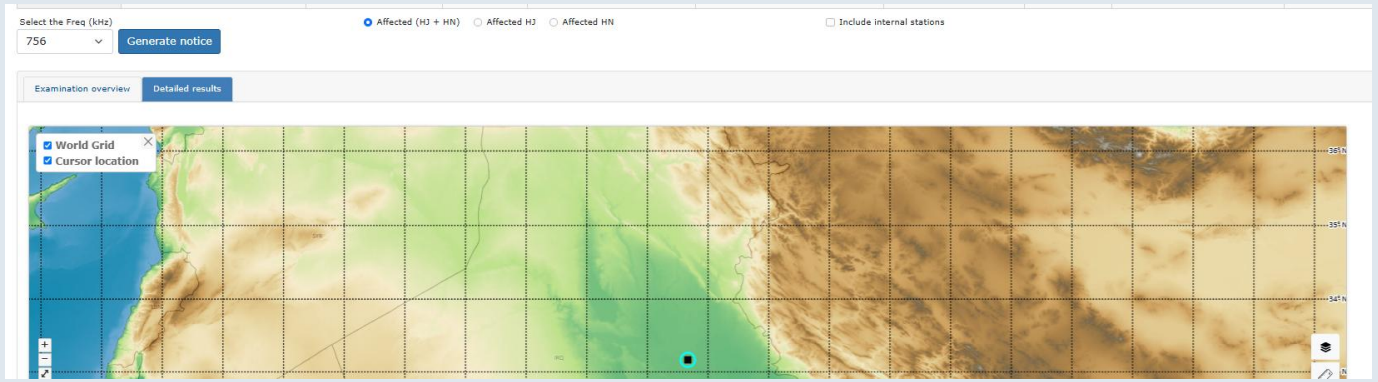
| Freq (kHz) | Max EMRP HJ (dB(kW)) | Ant. Hgt HJ (m) | Affected HJ | Worst Result HJ (dB) | Max EMRP HN (dB(kW)) | Ant. Hgt HN (m) | Affected HN | Worst Result HN (dB) | Affected Adms |
|---|---|---|---|---|---|---|---|---|---|
| 702 | 12.80 | 120 | | | | | | | |
| 711 | 12.81 | 120 | | | | | | | |
| 720 | 12.83 | 120 | | | | | | | |
| 729 | 12.84 | 120 | | | | | | | |
| 738 | 12.85 | 120 | | | | | | | |
| 747 | 12.86 | 120 | | | | | | | |
| 756 | 12.88 | 120 | IRQ | 2.4 | | | | | IRQ |
| 765 | 12.91 | 120 | | | | | | | |
| 774 | 12.93 | 120 | | | | | | | |
| 783 | 12.95 | 120 | | | | | | | |
| 792 | 12.98 | 120 | | | | | | | |
| 801 | 13.00 | 120 | | | | | | | |
| 810 | 13.02 | 120 | | | | | | | |
| 819 | 13.05 | 120 | | | | | | | |
| 828 | 13.07 | 120 | | | | | | | |
| 837 | 13.09 | 120 | | | | | | | |
| 846 | 13.11 | 120 | | | | | | | |
| 855 | 13.14 | 120 | | | | | | | |
| 864 | 13.16 | 120 | | | | | | | |
| 873 | 13.18 | 120 | | | | | | | |
| 882 | 13.21 | 120 | | | | | | | |
| 891 | 13.23 | 120 | | | | | | | |
| 900 | 13.25 | 120 | | | | | | | |

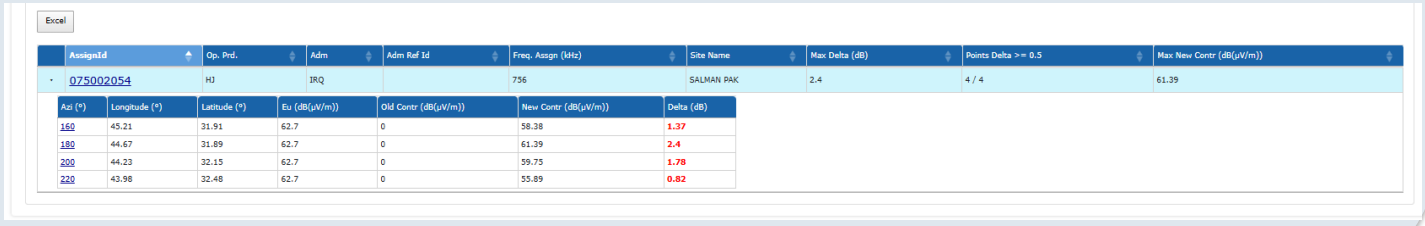
## Read the summary

One row per scanned channel.

Compare HJ and HN affected results.

# Drill down: affected assignments and test points



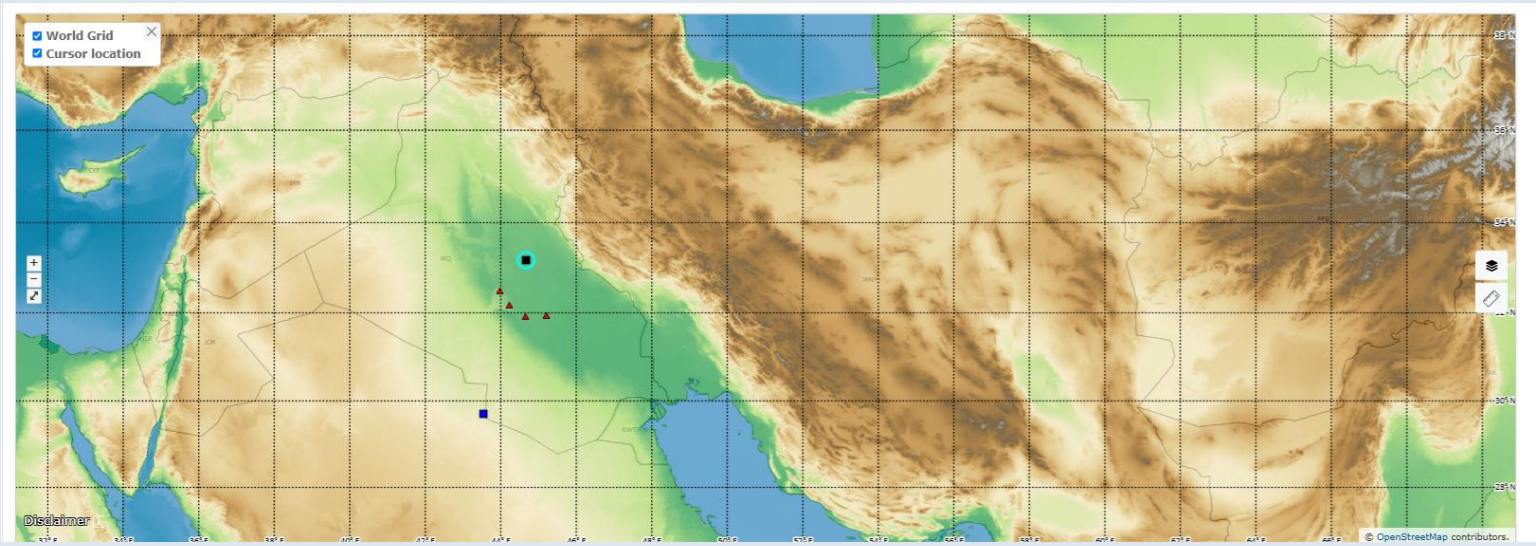

## Examine evidence

Select frequency and affected category.

Examination overview: affected stations and maximum delta.

Detailed results: individual test points, contributions and delta.

# Use the map to explain the outcome




## Geographic context

Connect the selected frequency with the mapped stations and test-point information.

Use the map alongside—not instead of—the numerical examination.

# Power scan: find an admissible antenna power

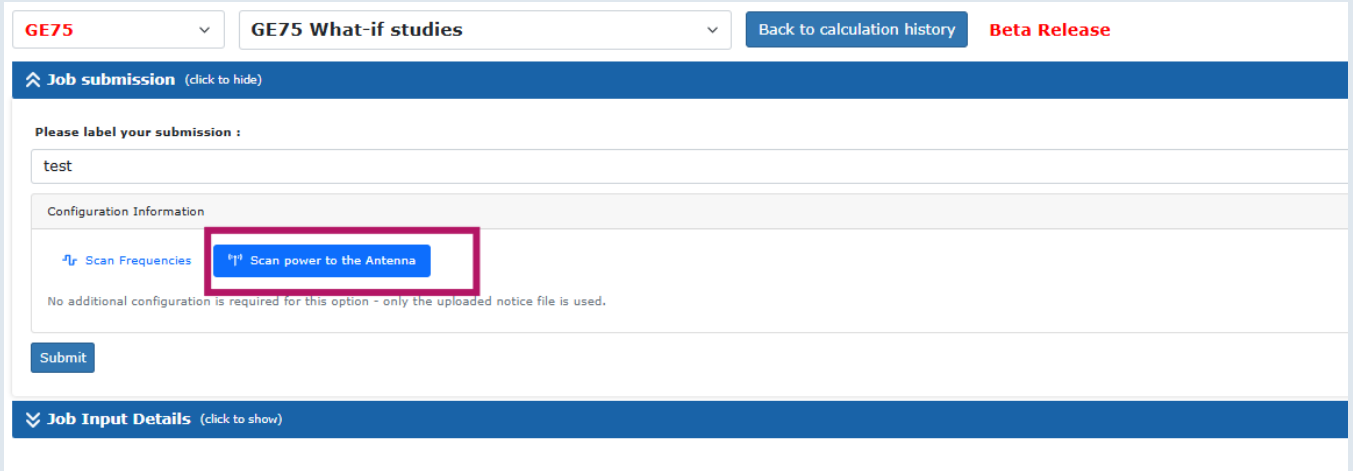
## Power search logic

Start at notified power.

Increase or decrease by bracketing / halving.

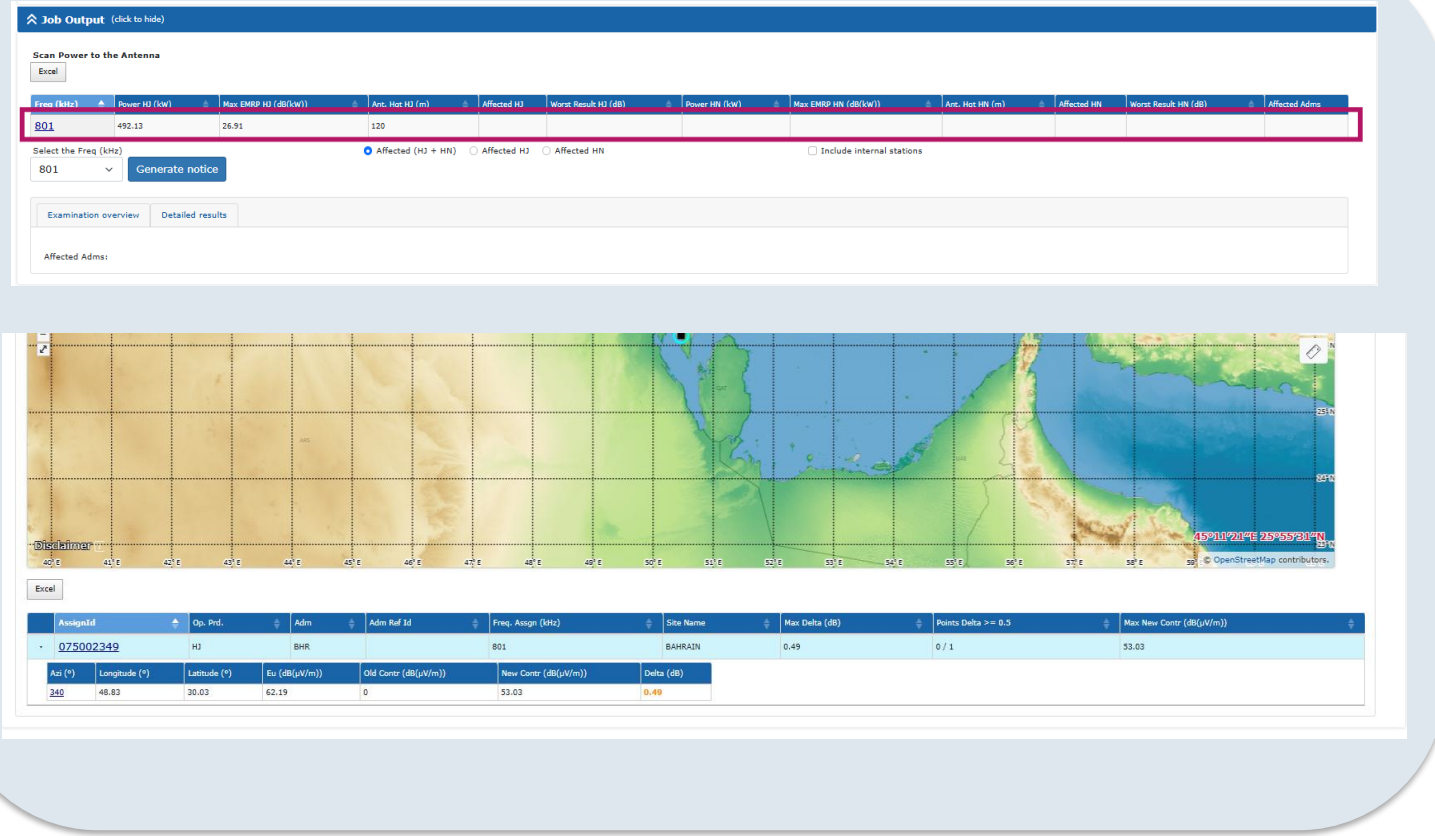
Maximum 2,000 kW.

Stop at <0.01 kW step or 40 iterations.




**Max EMRP tracks power when antenna gain is held constant.**

# Power scan: interpret limits and results




## Check before relying

Notified frequency is fixed.

Power never exceeds 2,000 kW.

Type-A antenna <0.2 λ below 3 kW is not yet supported.

Review HJ and HN separately.

# From simulation results to a checked notice

## Output checklist

Select the preferred result.

Use Generate notice.

Check all characteristics and affected lists.

For frequency scans, manually update antenna height / Max EMRP if variation was used.

# A safe operational checklist

**01** **INPUT**

Valid single T03; ADD or uniquely matched MODIFY

**02** **SETUP**

Correct band, range and antenna treatment

**03** **RESULT**

HJ/HN affected summary and detailed test points

**04** **OUTPUT**

Verify generated notice against chosen simulation

# Thank you

## Questions & discussion

GE75 What-if Studies

