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# Antenna Selector & Configurator

User Manual for Antenna Selector & Configurator – (Short Version)

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# Antenna Selector & Configurator

Visit our Home Page
www.kathrein-bca.com

Go to Section „Support"

Choose "Use Antenna Selector and Configurator"

**Use Antenna Selector and Configurator**
Go to Antenna Selector and Configurator

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# Antenna Selector



**Fill in Mask**
(as appropriate)

Drop down menues will help to make specifications.

**Direct Access**
If you know the Order- or Type- Number, write it in the box without blanks

**Hint:**
Typing "SIRA" in Order No. will display all SIRA brand antennas

# Antenna Selector



- No antenna found because of blank in the entry field "Order No."

  **Do not use blanks!**

  **Examples:**
  K723147 instead of K 72 31 47
  or:
  601417 instead of 601 417

- If you click "MSI -File Description", Information of MSI data base is shown

# Antenna Selector



- A selection of one or several antennas that meet with your Filter/Mask criteria is shown.

- Moving the mouse over horizont. or vertical will display a preview of pattern.

- If you click on one "…msi" file, a numerical pattern will be created, or click on "….zip" to get a container with all frequencies.

- "PDF" will create a pdf document with horizontal or vertical radiation pattern of selected frequency.

- "Click …. to Antenna Configurator" will start the configuration tool for the selected antenna.

# Antenna Configurator



- ## Start with "Input Mask"

- ## Fill in Mask
  First 4 lines are optional and necessary for documentation only.

- Frequency in [MHz] must be within the bandwidth of selected antenna.

- Specify number of Panels per Bay, Azimuth of 1st Panel and Radius for Horizontal Coverage Calculation.

- Press "calculate" button and calculation with one bay will start.

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# Antenna Configurator
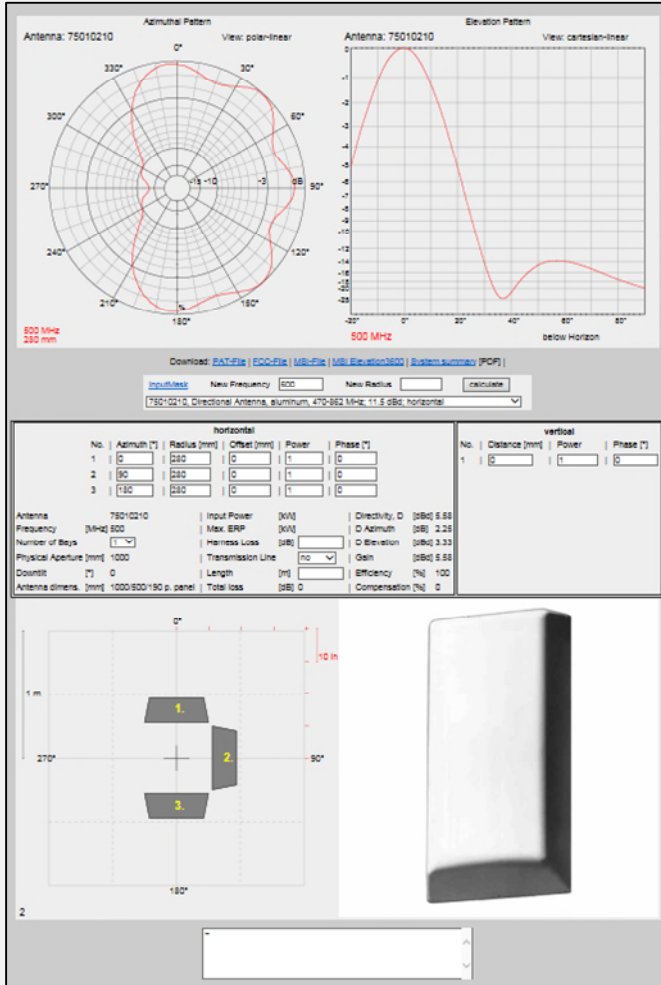


- **Result is shown**

  Horizontal and vertical radiation pattern for 1 bay, with relevant parameters.

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# Antenna Configurator
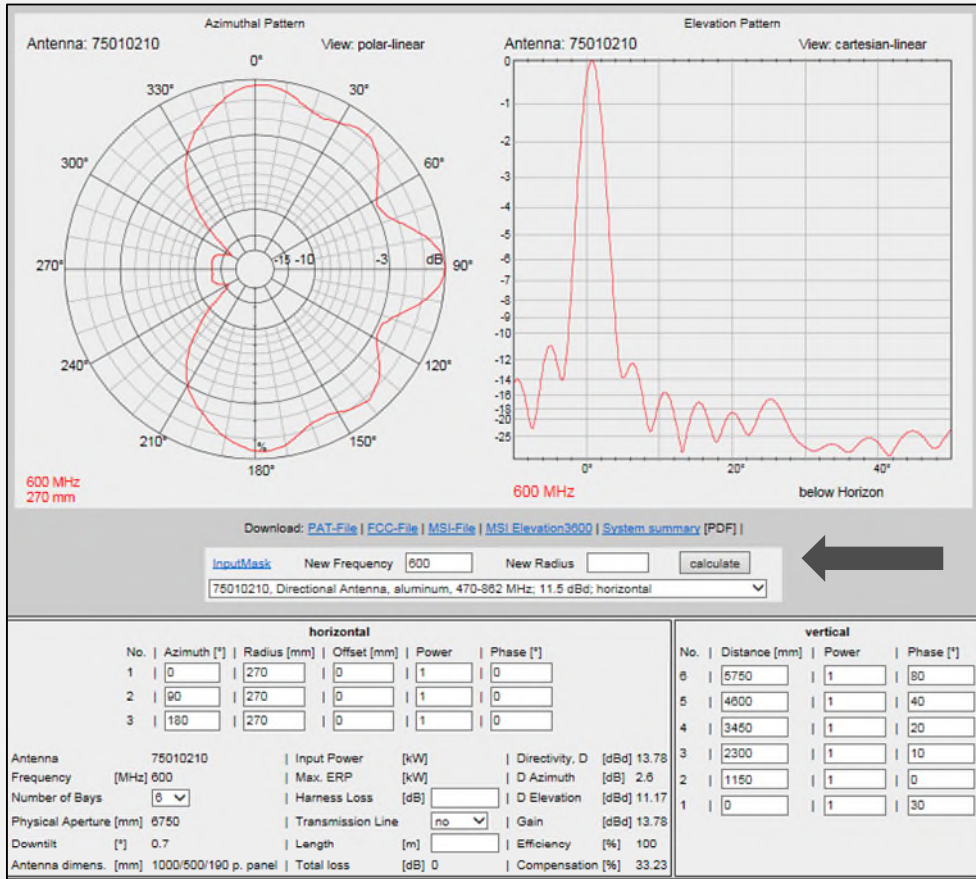


- Azimuthal and Elevation Patterns are calculated with the respective Parameters.

- Change of Frequency, Radius and Number of Bays are possible. Results are displayed in different color, 3 different modifications can be displayed.

- Directivity and Gain from **last** calculated system is displayed.

- InputMask will display input mask (see previous page 6).

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# Antenna Configurator
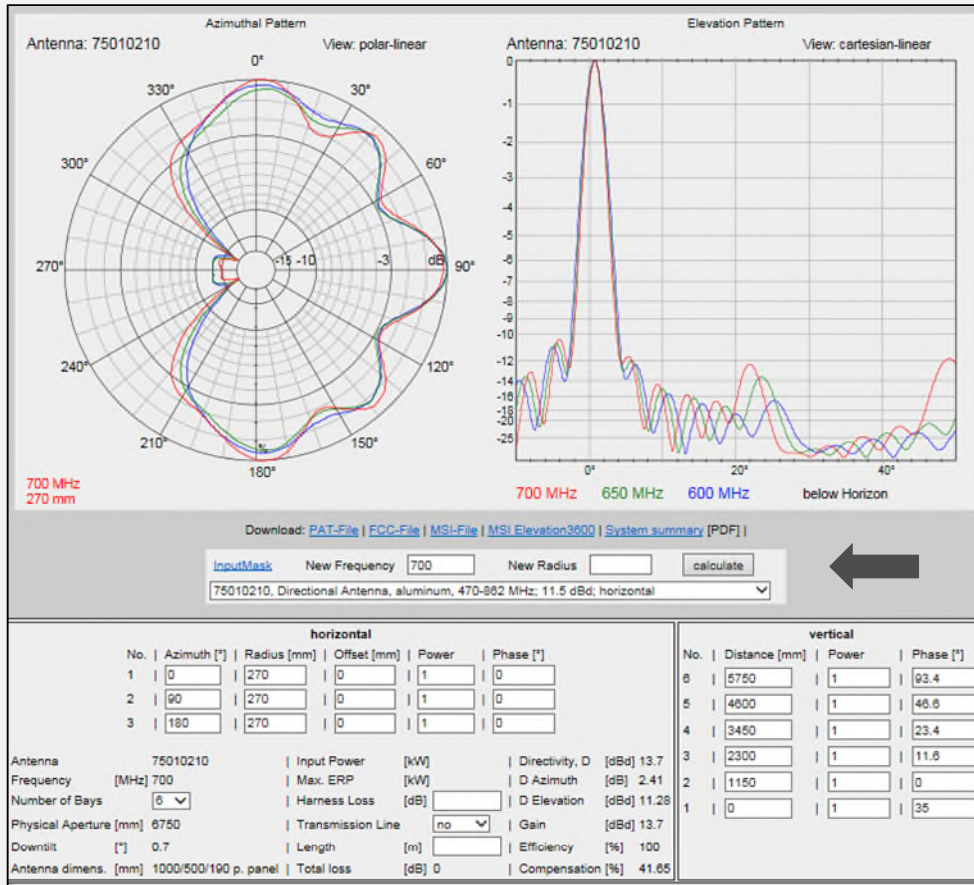


- **Modifications**

- Change values in the input boxes.

  or:

- Press "Input Mask" for new values.

- Please mind:
  Click 2 times "calculate", only one frequency remains !

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# Antenna Configurator - Input Mask - Options



- **The software supports you to design the right antenna system, if you deliver the relevant inputs.**

- Your inputs can be:
  - Max. ERP and Input Power
  - Max. ERP and Gain
  - Input Power and Gain
  - Gain

- Losses for gain calculation:
  - Harness and Transmission Line Losses

- Number of Bays:
  - Automatic calculation of bays
  - Manual input of bays

- Elevation Pattern:
  - Choose standard pattern (---), or
  - Automatic Pattern (Auto1 or Auto2), or
  - Downtilt / Null-fill

- Units:
  - Make sure that you are using the right units.

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# Antenna Configurator - Input Mask - Output / Preview



- **Output / Preview**

- For dual-pol or elliptical antennas there are 3 possibilities for output patterns:

  - HPol/VPol/Total
  - HPol/VPol
  - Total

- Pattern Output and Scaling:
  Choose the format and scaling for the screen and documentation.

- Press "calculate"

**Important Note:**
The Antenna Configurator uses consistent azimuthal and elevation patterns.
- Azimuthal Pattern: Reference is true north, moving clockwise.
- Elevation Pattern: Reference is horizon, moving counterclockwise, positive values are below horizon.

# Antenna Configurator - Terms
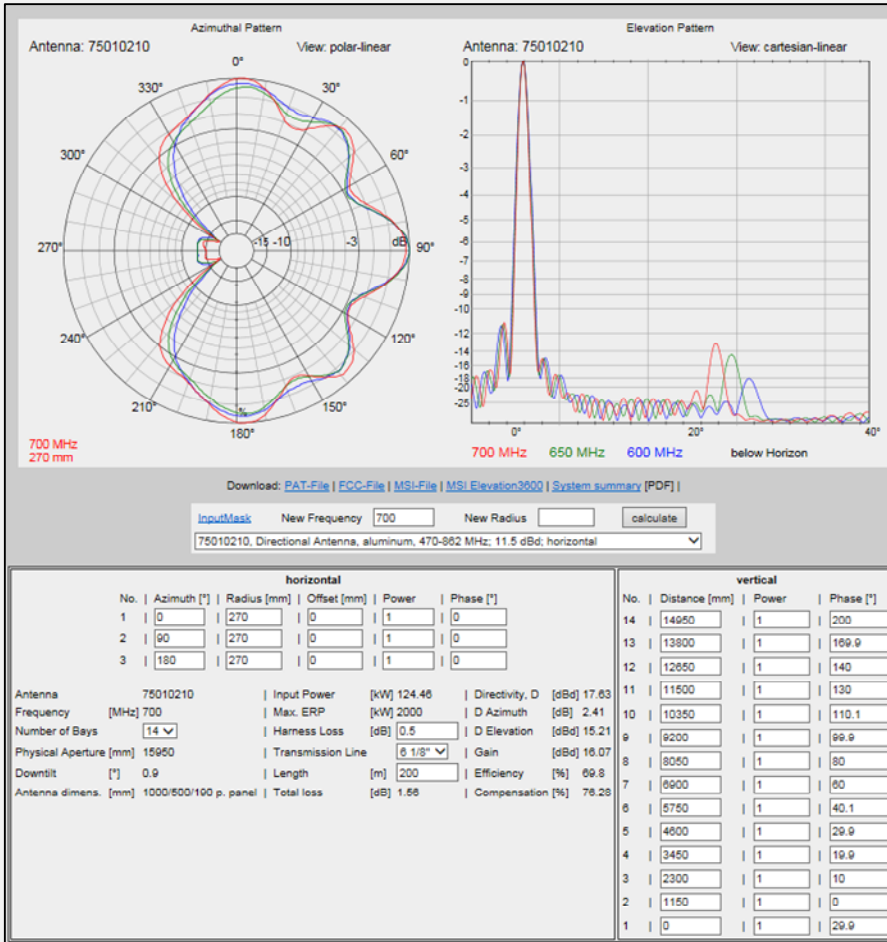


- ## Terms

- **Physical Aperture:**
  Length of antenna

- **Input Power:**
  Please check if the total number of panels allow that power.

- **Max. ERP (Effective Radiated Power):**
  Max. ERP = Input Power * Gain (linear)

- **Harness Loss:**
  Losses of the internal cabling.

- **Gain:**
  Gain [dBd] = Directivity [dBd]– Losses [dB]

- **Efficiency:**
  Efficiency = Gain (linear) / Directivty (linear) [%]

- **Compensation:**
  Phase difference of panels will improve VSWR of the system (a phase difference of 90° will attain 100% compensation.

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# Antenna Configurator - Sample Applications



| Frequency | [MHz] | 100 |
| Antenna | | 754872 |
| FM Transmitting Antenna; horizontal | | |
| Panels per Bay | | 1 |
| Azimuth 1th Panel | [°] | 45 0 ... 360 |
| Radius | [mm \| in] | 0 |
| | Optional | |
| Max. ERP | [kW] | |
| Input Power | [kW] | 10 |
| Gain | [dBd] | |
| Harness Loss | [dB] | |
| Transmission Line | | no |
| Length | [m \| ft] | |
| Number of Bays | | 8 |
| vert. Distance | [mm \| in] | 3000 |
| Elevation Pattern | | Downtilt / Null-fill |
| Units | metric [m, mm] OR US [ft, in] | |
| | calculate | |
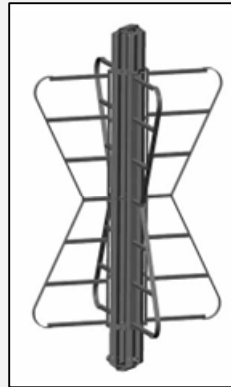
- **FM Top Mount Antenna**

- Only 1 panel per bay, because it is an omni antenna.

- Maximum Input Power = 10 kW

- Maximum number of bays = 8

- Calculate pattern and Max. ERP

# Antenna Configurator - Sample Applications
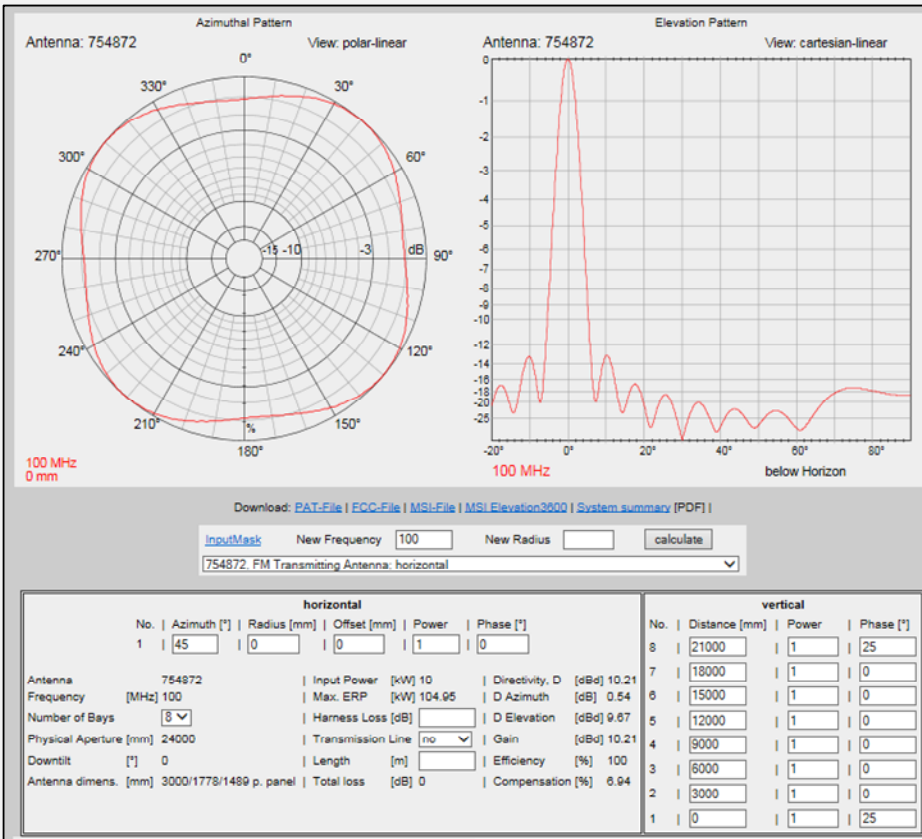


- **Result is shown**

- Input power of 10 kW will result in 104.95 kW ERP.
  Azimuthal and Elevation Pattern are normalized.

  0 dB = 1 = Max. ERP

- You can make changes in all input boxes. For new calculation press the button "calculate".

# Antenna Configurator - Support of Dual Pol Antennas
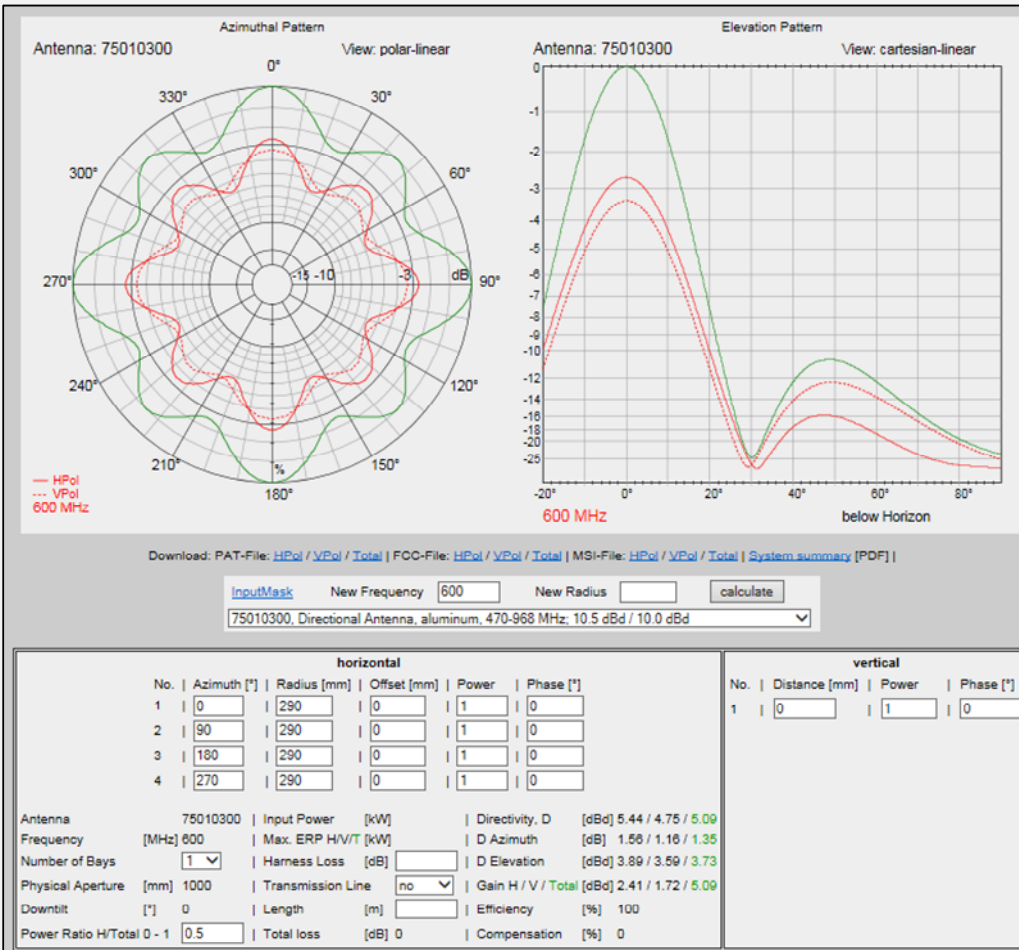


- **Limitations**

- The configurator calculates the azimuthal pattern of one bay and the elevation pattern of one row !
  Hence, the displayed elevation pattern is not a cut at a defined azimuth angle, it is the pattern of one row scaled with the gain of HPol, VPol and the magnitude .

- Please mind:
  It is not a full 3D calculation !

# Antenna Configurator - Documentation

Download: PAT-File | FCC-File | MSI-File | MSI Elevation3600 | System summary [PDF] |

| InputMask | New Frequency | 700 | New Radius | | calculate |

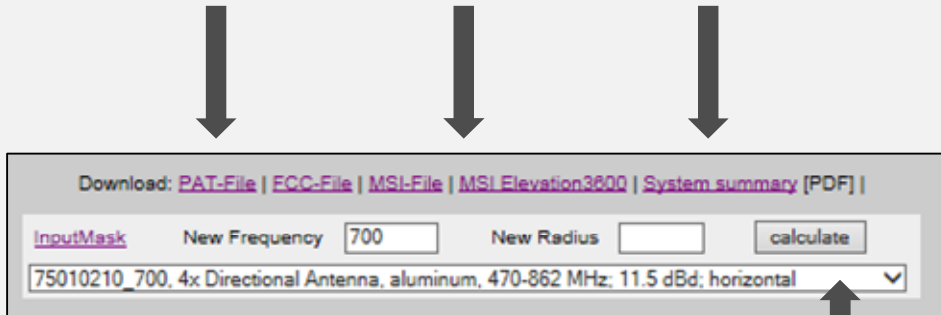75010210_700, 4x Directional Antenna, aluminum, 470-862 MHz; 11.5 dBd; horizontal

Note:
You can select a different antenna with your setup.

System Summary (PDF)

- **Documentation**

- **Following Documents are available:**
  - System Summary (PDF)
  - PAT-File
  - FCC-File
  - MSI-File
  - MSI Elevation 3600

- All Files and Tables include values and data from the **last** calculation.

- Pattern are separately shown for each frequency.

- PAT-File, FCC-File and MSI-File: Use copy & paste to put values in an editor, or save as ...

# Antenna Selector & Configurator

- **Disclaimer:**

  This software is under development and may not be completely free of errors. For customer solutions you are advised to verify your work with the Broadcast Department of KATHREIN Broadcast GmbH. In no case shall KATHREIN be liable for any damages whatsoever (including, without limitation, damages for loss of business profits or business interruption), arising out of the use of or inability to use this software.

- **Contact:**

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