

17 February 2020



Antenna Selector & Configurator

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

KATHREIN

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



> Antenna Selector

KATHREIN | Broadcast Antenna Selector

Find your antenna solution with the antenna selector
The inputs are optional and can be combined with each other.

Frequency [MHz]	<input type="text"/>
OR	
Frequency Band	<input type="text" value="all"/>
Type	<input type="text" value="all"/>
Polarization	<input type="text" value="all"/>
Input Connector	<input type="text" value="all"/>
OR	
Input Power [W]	<input type="text"/>

for direct access to Order No. (without blank)

Order No.	<input type="text"/>
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KATHREIN-Werke KG

- **Fill in Mask**
(as appropriate)

Drop down menus 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

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Frequency [MHz] OR Frequency Band

Type | Polarization

Input Connector OR Input Power [W]

Order No.

An antenna with these details could not be found.
Please check your details.

[MSI-File Description](#)

- 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



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Frequency [MHz] OR Frequency Band

Type | Polarization

Input Connector OR Input Power [W]

Order No.

Order-No.	75010325	Type	75010325
Directional Antenna, aluminum, 470-694 MHz, 8.5 dBd/4.8 dBd, elliptical			
Frequency Range	470 - 694 MHz	Max. Power	1.5 kW
Datasheet 9364384a.pdf MSI-ZIP 75010325.zip			
75010325H-470.msi PDF	75010325V-470.msi PDF	470 MHz	horizont. vertical
75010325H-500.msi PDF	75010325V-500.msi PDF	500 MHz	horizont. vertical
75010325H-550.msi PDF	75010325V-550.msi PDF	550 MHz	horizont. vertical
75010325H-600.msi PDF	75010325V-600.msi PDF	600 MHz	horizont. vertical
75010325H-650.msi PDF	75010325V-650.msi PDF	650 MHz	horizont. vertical
75010325H-700.msi PDF	75010325V-700.msi PDF	700 MHz	horizont. vertical
Polarization	elliptical	Input	7/8" EIA flange, straight
Dimension (H/W/D) [mm in]	1000/530/193 39.4/20.9/7.6	VSWR	1.15
Click here to get to Antenna Configurator for Order-No.75010325			

Order-No.	75010301	Type	75010301
Directional Antenna, aluminum, 470-696 MHz; 10.5 dBd / 10.0 dBd			
Frequency Range	470 - 696 MHz	Max. Power	1.5 kW
Datasheet 9365087.pdf MSI-ZIP 75010301.zip			
75010301H-470.msi PDF	75010301V-470.msi PDF	470 MHz	horizont. vertical
75010301H-500.msi PDF	75010301V-500.msi PDF	500 MHz	horizont. vertical
75010301H-525.msi PDF	75010301V-525.msi PDF	525 MHz	horizont. vertical
75010301H-550.msi PDF	75010301V-550.msi PDF	550 MHz	horizont. vertical
75010301H-575.msi PDF	75010301V-575.msi PDF	575 MHz	horizont. vertical
75010301H-600.msi PDF	75010301V-600.msi PDF	600 MHz	horizont. vertical
75010301H-625.msi PDF	75010301V-625.msi PDF	625 MHz	horizont. vertical
75010301H-650.msi PDF	75010301V-650.msi PDF	650 MHz	horizont. vertical
75010301H-675.msi PDF	75010301V-675.msi PDF	675 MHz	horizont. vertical
75010301H-700.msi PDF	75010301V-700.msi PDF	700 MHz	horizont. vertical
Polarization	horizontal, vertical, circular, elliptical, slant	Input	2 x 7/8, straight
Dimension (H/W/D) [mm in]	1000/530/193 39.4/20.9/7.6	VSWR	1.2
Click here to get to Antenna Configurator for Order-No.75010301			

- 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

Antenna - Configurator

Project Name

Project Number

User

Project Comment

Frequency [MHz] 470 ... 862

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

Panels per Bay

Azimuth 1th Panel 0 ... 360

Radius [mm | in]

Optional

Max. ERP [kW]

Input Power [kW]

Gain [dBd]

Harness Loss [dB]

Transmission Line

Length [m | ft]

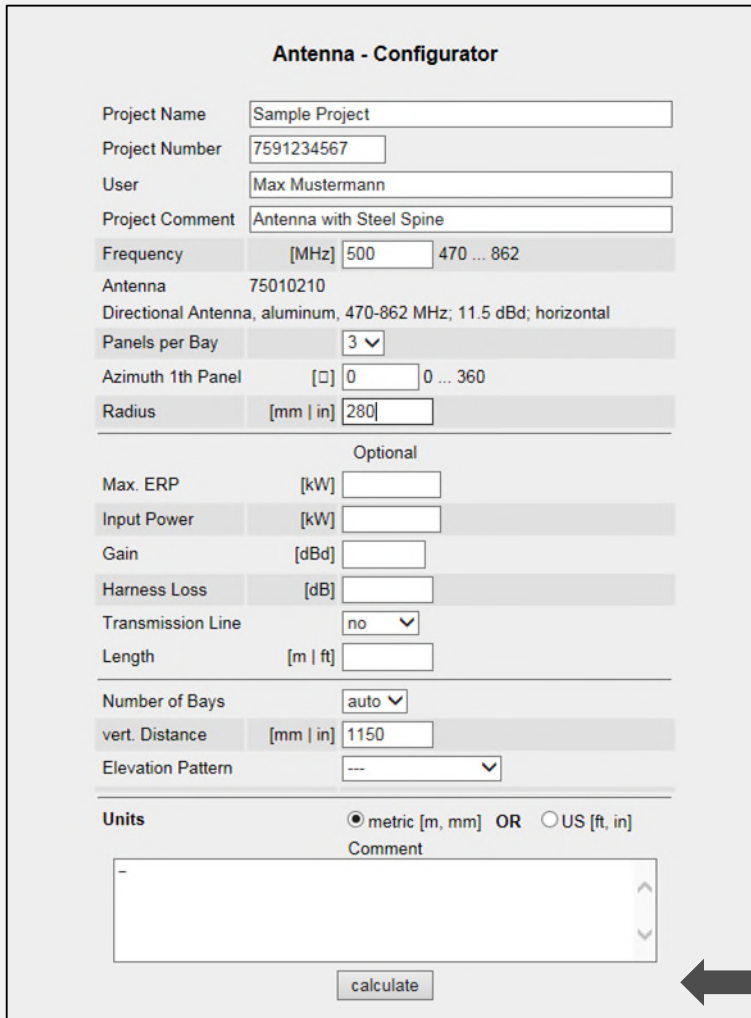
Number of Bays

vert. Distance [mm | in]

Elevation Pattern

Units metric [m, mm] OR US [ft, in]

Comment



- **Start with "Input Mask"**

- **Fill in Mask**

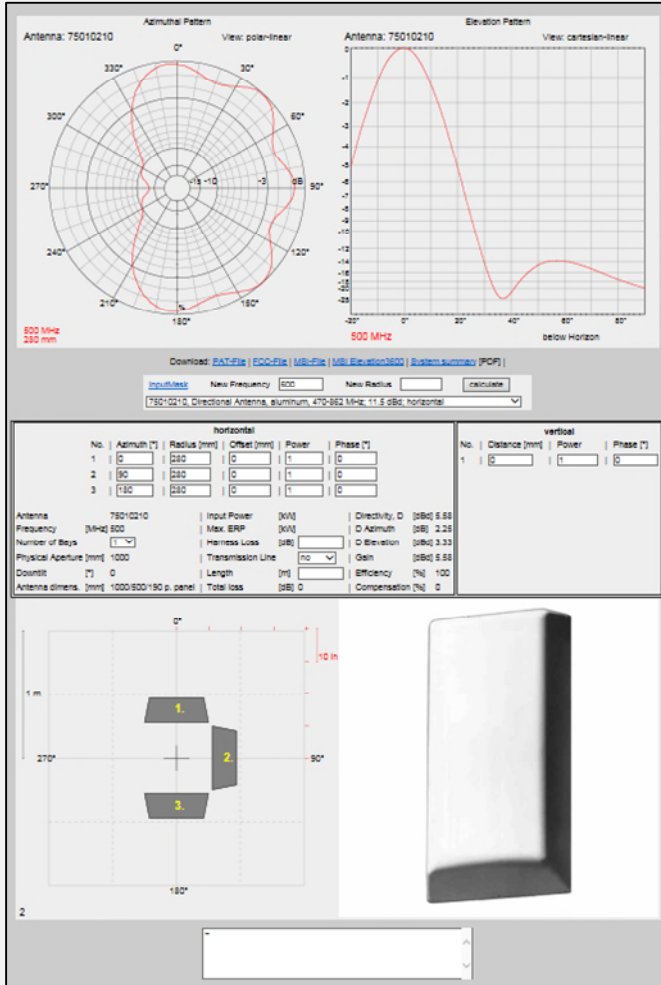
First 4 lines are optional and necessary for documentation only.

- 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.

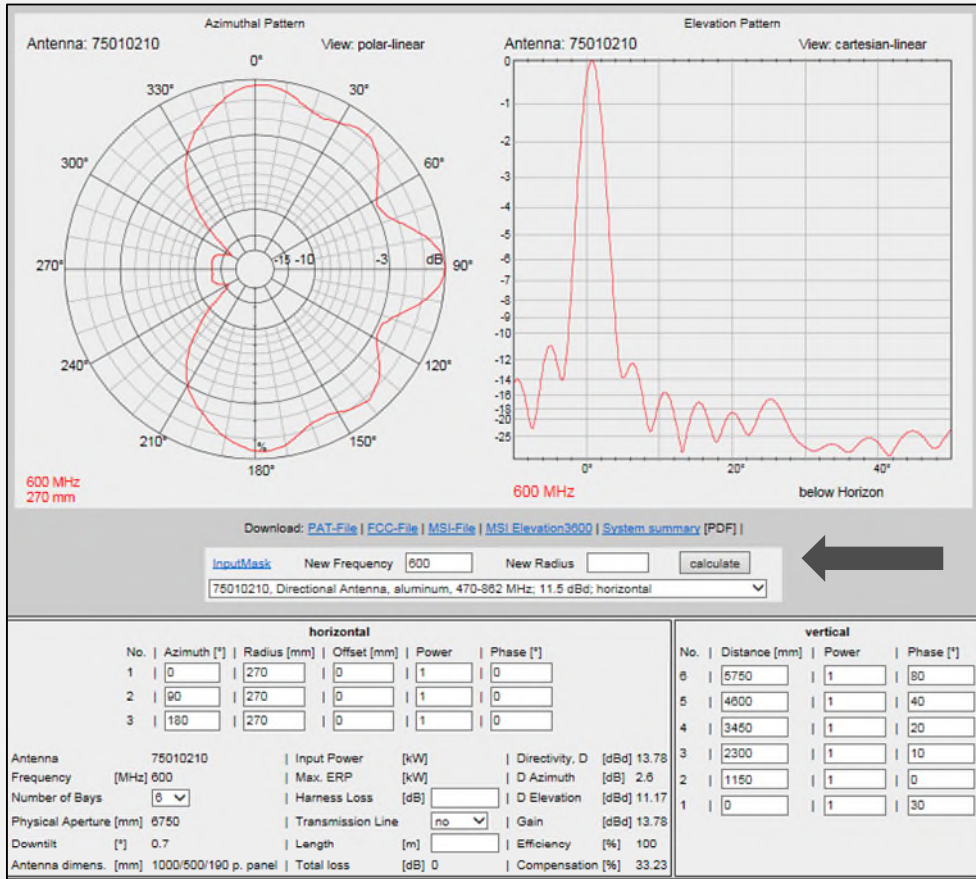
- Press "calculate" button and calculation with one bay will start.

> Antenna Configurator



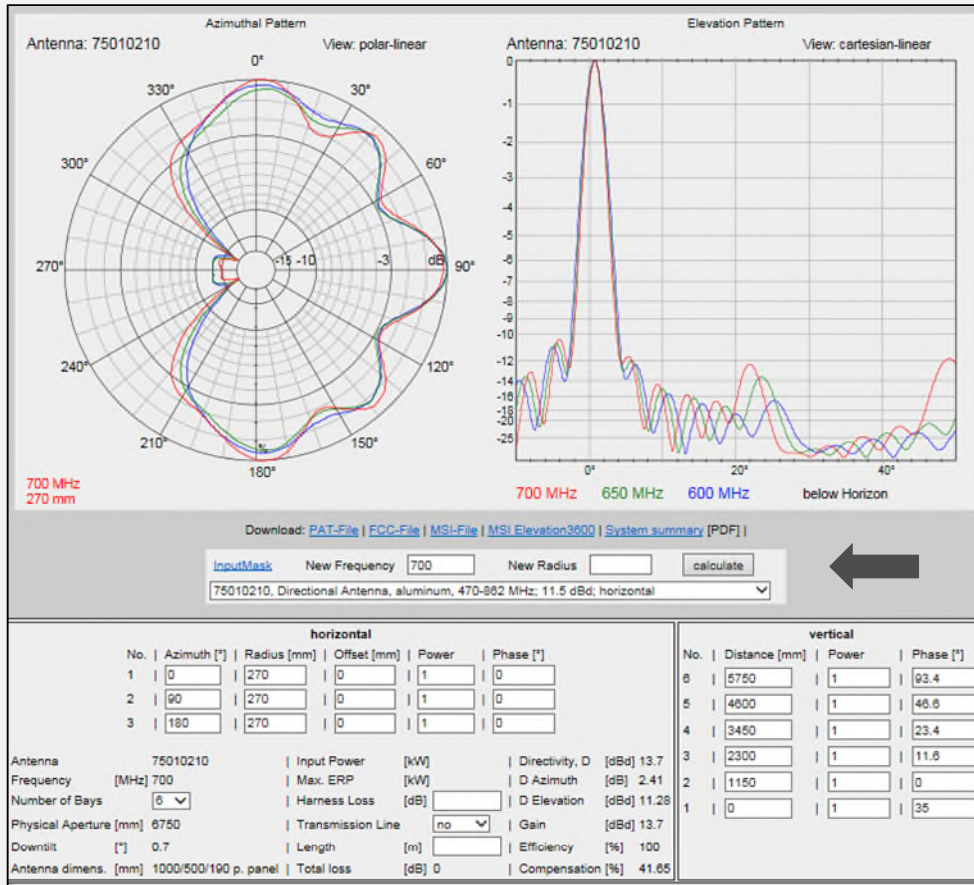
- **Result is shown**
Horizontal and vertical radiation pattern for 1 bay, with relevant parameters.

> 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).

> 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 !

> Antenna Configurator - Input Mask - Options

		Optional
Max. ERP	[kW]	<input type="text" value="2000"/>
Input Power	[kW]	<input type="text" value="60"/>
Gain	[dBd]	<input type="text"/>
Harness Loss	[dB]	<input type="text" value="0.5"/>
Transmission Line		<input type="text" value="6 1/8"/> ▾
Length	[m ft]	<input type="text" value="300"/>
<hr/>		
Number of Bays		<input type="text" value="auto"/> ▾
vert. Distance	[mm in]	<input type="text" value="1100"/>
Elevation Pattern		<input type="text" value="Auto1"/> ▾
<hr/>		
Units	<input checked="" type="radio"/> metric [m, mm] OR <input type="radio"/> US [ft, in]	
	Comment	
	<div style="border: 1px solid gray; padding: 5px;"><code>Number of Bays = auto: From HRP, Max. ERP and Input Power the Software calculates the number of bays automatically. Elevation Pattern: Choose standard pattern, Auto1, Auto2 or Downtilt / Null-fill.</code></div>	
	<input type="button" value="calculate"/>	

- 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.

> Antenna Configurator - Input Mask - Output / Preview

calculate

Output / Preview

Preview for Dualpol-Antenna HPol/VPol ref. to Total ▾

	PDF	Preview	
Azimuthal Pattern polar linear	<input checked="" type="checkbox"/>	<input checked="" type="radio"/>	
Azimuthal Pattern polar logarithmic	<input type="checkbox"/>	<input type="radio"/>	Scale 0- 40 ▾ dB
Azimuthal Pattern cartesian linear	<input type="checkbox"/>	<input type="radio"/>	Start - 180 <input type="text"/> End + 180 <input type="text"/>
Azimuthal Pattern cartesian logarithmic	<input type="checkbox"/>	<input type="radio"/>	Start - 180 <input type="text"/> End + 180 <input type="text"/>
Elevation Pattern polar linear	<input type="checkbox"/>	<input type="radio"/>	
Elevation Pattern polar logarithmic	<input type="checkbox"/>	<input type="radio"/>	Scale 0- 40 ▾ dB
Elevation Pattern cartesian linear	<input checked="" type="checkbox"/>	<input checked="" type="radio"/>	Start - 10 <input type="text"/> End + 50 <input type="text"/>
Elevation Pattern cartesian logarithmic	<input type="checkbox"/>	<input type="radio"/>	Start - 20 <input type="text"/> End + 90 <input type="text"/>
Tables	<input checked="" type="checkbox"/>		
Datasheet	<input checked="" type="checkbox"/>		

HPol/VPol ref. to Total
 HPol/VPol
 Total

■ 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.

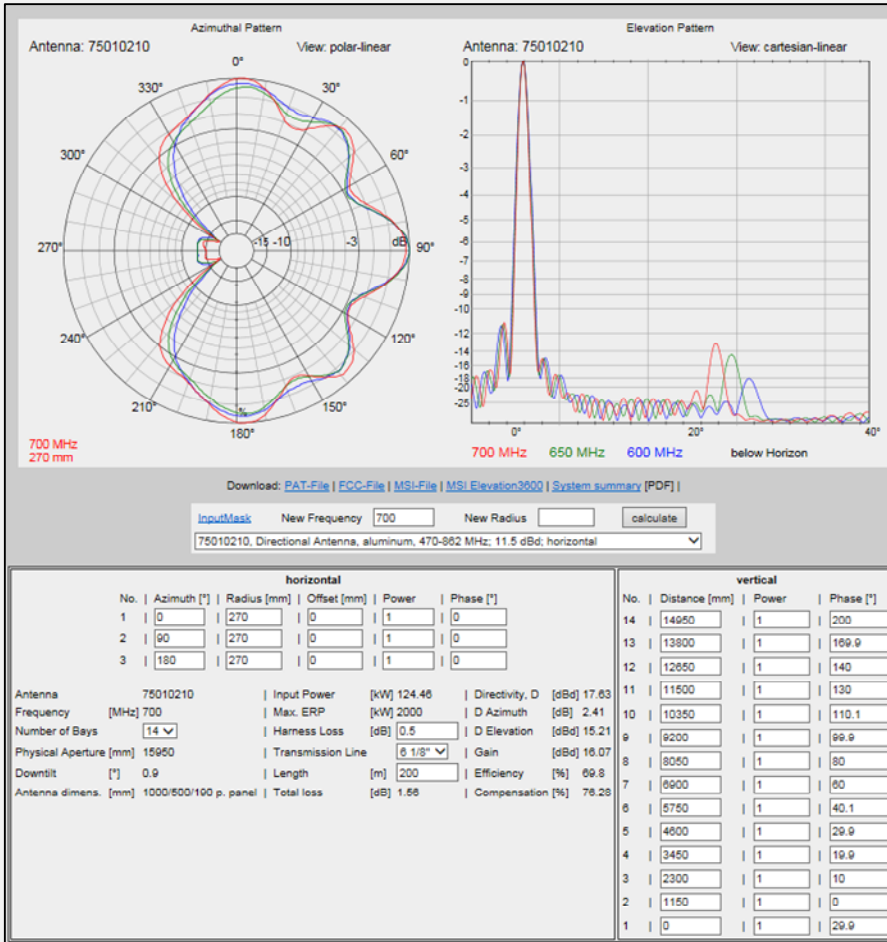
- Press "[calculate](#)"

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

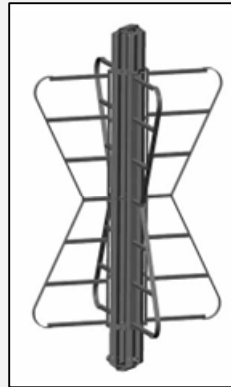


■ Terms

- **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) / Directivity (linear) [%]
- **Compensation:**
Phase difference of panels will improve VSWR of the system (a phase difference of 90° will attain 100% compensation).

> Antenna Configurator - Sample Applications

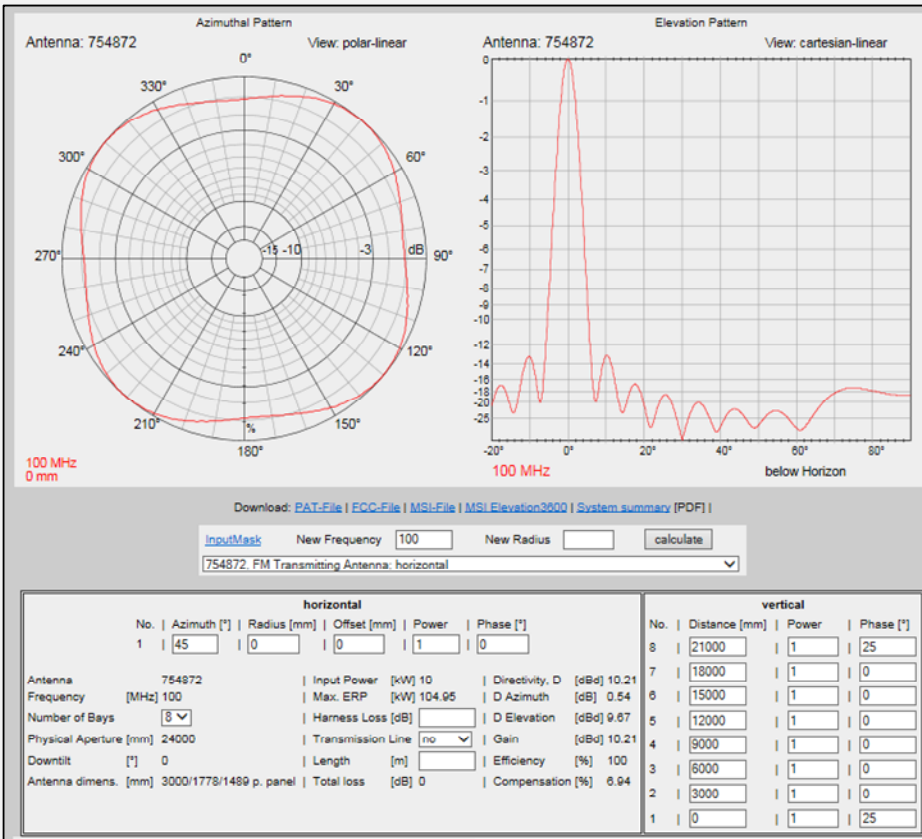
Frequency	[MHz]	100
Antenna	754872	
FM Transmitting Antenna; horizontal		
Panels per Bay		1 ▾
Azimuth 1th Panel	[°]	45 0 ... 360
Radius	[mm in]	0
Optional		
Max. ERP	[kW]	
Input Power	[kW]	10
Gain	[dBd]	
Harness Loss	[dB]	
Transmission Line		no ▾
Length	[m ft]	
Number of Bays		8 ▾
vert. Distance	[mm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



■ FM Top Mount Antenna

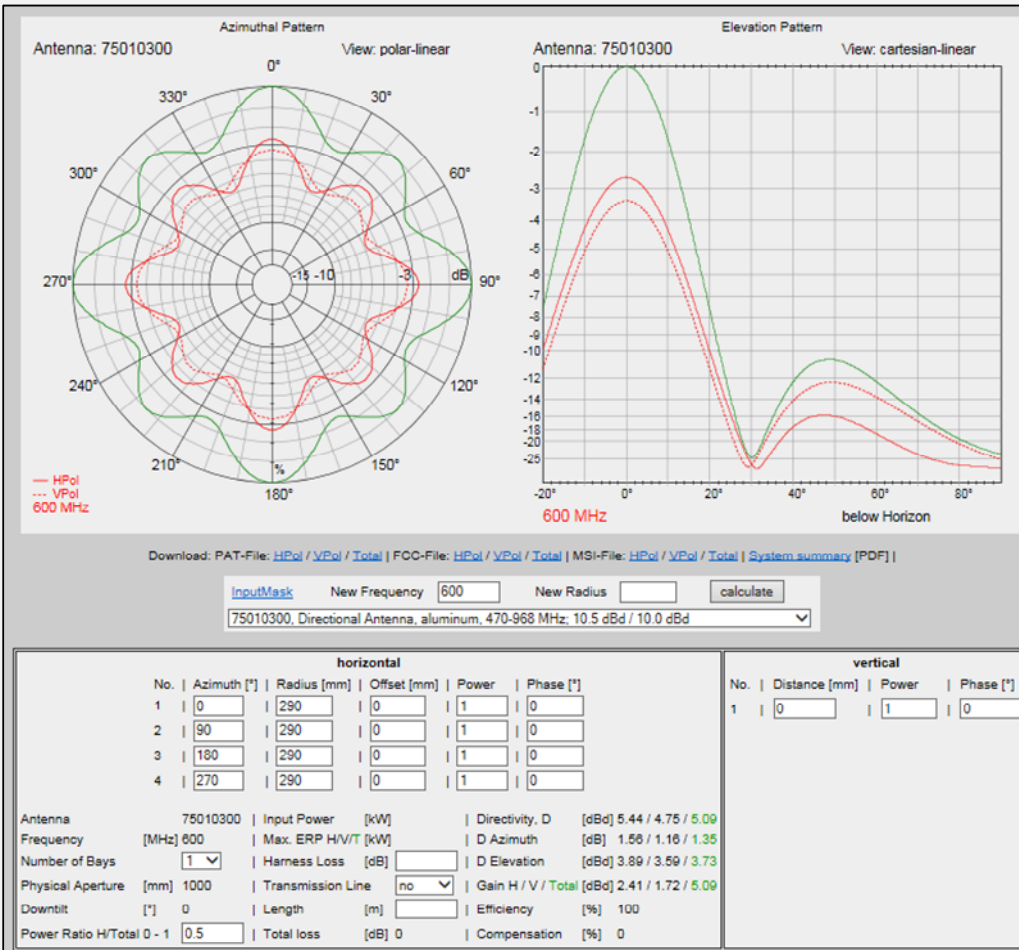
- Only 1 panel per bay, because it is an omni antenna.
- Maximum Input Power = 10 kW
- Maximum number of bays = 8
- Calculate pattern and Max. ERP

> 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"**.

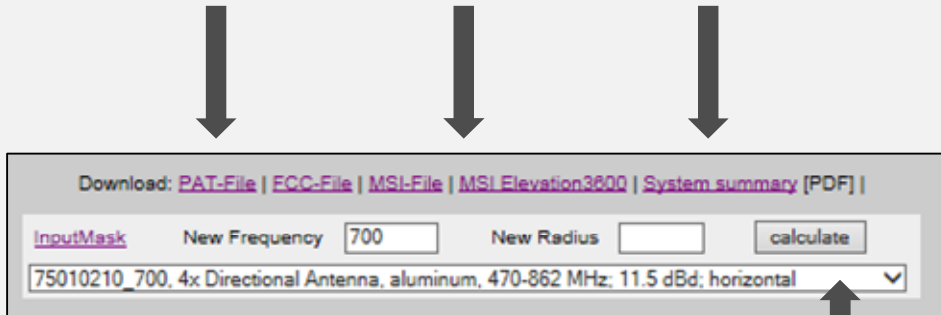
Antenna Configurator - Support of Dual Pol Antennas



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



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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