

tu R-HELIOS | TU Dortmund University | Communication Networks Institute

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Reconfigurable HELIOS Reflector
Orchestration Center

CNI

Manual Beambook Entry Configuration

4,1	<input type="checkbox"/>	4,2	<input type="checkbox"/>	4,3	<input type="checkbox"/>	4,4	<input type="checkbox"/>
α 0.00°	β 0.00°	α 0.00°	β 0.00°	α 0.00°	β 0.00°	α 0.00°	β 0.00°
3,1	<input type="checkbox"/>	3,2	<input type="checkbox"/>	3,3	<input type="checkbox"/>	3,4	<input type="checkbox"/>
α 0.00°	β 0.00°	α 0.00°	β 0.00°	α 0.00°	β 0.00°	α 0.00°	β 0.00°
2,1	<input type="checkbox"/>	2,2	<input type="checkbox"/>	2,3	<input type="checkbox"/>	2,4	<input type="checkbox"/>
α 0.00°	β 0.00°	α 0.00°	β 0.00°	α 0.00°	β 0.00°	α 0.00°	β 0.00°
1,1	<input type="checkbox"/>	1,2	<input type="checkbox"/>	1,3	<input type="checkbox"/>	1,4	<input type="checkbox"/>
α 0.00°	β 0.00°	α 0.00°	β 0.00°	α 0.00°	β 0.00°	α 0.00°	β 0.00°

SET CONFIGURATION SAVE CONFIGURATION SELECT ALL UNSELECT ALL

IRS Beam Codebook

NEUTRAL

Saved Here

Beam Switching Orchestration

START RESET

Configuration Calculation for Scenario Geometry

☒ Individually Aligned
☐ Equally Aligned

UE: x 0.00m y 0.00m z 0.00m BS: x 0.00m y 0.00m z 0.00m Intermodule Spacing: Δy 0.00m Δz 0.00m

CALCULATE CONFIGURATION

1

Manual Beambook Entry Configuration:
Set Alpha (α) and Beta (β) for Desired Modules With Direct Input Boxes

3

“SET CONFIGURATION” Button:
Click to Apply Configuration to IRS

2

Example for Module (2,2):

- Module Label
- Module Checkbox
- Alpha Input Field
- Beta Input Field

4

“SAVE CONFIGURATION” Button:
Click to Save Configuration to IRS Beam Codebook

Alpha (α) – Azimuth Mechanical Tilt Angle [°]
Beta (β) – Elevation Mechanical Tilt Angle [°]

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Manual Beambook Entry Configuration

4,1		4,2		4,3		4,4	
α	0.00°	β	0.00°	α	0.00°	β	0.00°
3,1		3,2		3,3		3,4	
α	0.00°	β	0.00°	α	0.00°	β	0.00°
2,1		2,2		2,3		2,4	
α	0.00°	β	0.00°	α	0.00°	β	0.00°
1,1		1,2		1,3		1,4	
α	0.00°	β	0.00°	α	0.00°	β	0.00°

Drag and Drop Here (i)

SET CONFIGURATION SAVE CONFIGURATION SELECT ALL UNSELECT ALL

IRS Beam Codebook

NEUTRAL

BEAM #1

BEAM #2

Beam Switching Orchestration

Drag and Drop Here (ii)

START RESET

Configuration Calculation for Scenario Geometry

☒ Individually Aligned
☐ Equally Aligned

CALCULATE CONFIGURATION

UE: x 0.00m y 0.00m z 0.00m BS: x 0.00m y 0.00m z 0.00m Intermodule Spacing: Δy 0.00m Δz 0.00m

1

IRS Beam Codebook:
Shows Available Configurations

2

Load Codebook Entries by Drag
and Drop Them in
(i) Manual Beambook Entry Area
or
(ii) Orchestration Mode Area

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Manual Beambook Entry Configuration

4,1	<input type="checkbox"/>	4,2	<input type="checkbox"/>	4,3	<input type="checkbox"/>	4,4	<input type="checkbox"/>
α 0.00°	β 0.00°	α 0.00°	β 0.00°	α 0.00°	β 0.00°	α 0.00°	β 0.00°
3,1	<input type="checkbox"/>	3,2	<input type="checkbox"/>	3,3	<input type="checkbox"/>	3,4	<input type="checkbox"/>
α 0.00°	β 0.00°	α 0.00°	β 0.00°	α 0.00°	β 0.00°	α 0.00°	β 0.00°
2,1	<input type="checkbox"/>	2,2	<input type="checkbox"/>	2,3	<input type="checkbox"/>	2,4	<input type="checkbox"/>
α 0.00°	β 0.00°	α 0.00°	β 0.00°	α 0.00°	β 0.00°	α 0.00°	β 0.00°
1,1	<input type="checkbox"/>	1,2	<input type="checkbox"/>	1,3	<input type="checkbox"/>	1,4	<input type="checkbox"/>
α 0.00°	β 0.00°	α 0.00°	β 0.00°	α 0.00°	β 0.00°	α 0.00°	β 0.00°

SET CONFIGURATION SAVE CONFIGURATION SELECT ALL UNSELECT ALL

IRS Beam Codebook

NEUTRAL

BEAM #1

BEAM #2

Beam Switching Orchestration

BEAM #1 2.00s

BEAM #2 2.00s

START RESET

Configuration Calculation for Scenario Geometry

☒ Individually Aligned
☐ Equally Aligned

UE: x 0.00m y 0.00m z 0.00m

BS: x 0.00m y 0.00m z 0.00m

Intermodule Spacing: Δy 0.00m Δz 0.00m

CALCULATE CONFIGURATION

1
Beam Switching Orchestration Area

2
"START" Button:
Click After Loading Configurations
to Start Automatic Orchestration

3
"RESET" Button:
Click to End and Reset Automatic
Orchestration Mode

1

Calculate Configuration From
Scenario Geometry Input

2

Select Between Configuration
Type:
(i) Individually Aligned or
(ii) Equally Aligned

5

“CALCULATE CONFIGURATION”
Button:
Click to Apply Calculated
Configuration to SELECTED
(Checked Module Checkbox)
Modules

Manual Beambook Entry Configuration

4,1		4,2		4,3		4,4	
α	0.00°	β	0.00°	α	0.00°	β	0.00°
α	0.00°	β	0.00°	α	0.00°	β	0.00°
α	0.00°	β	0.00°	α	0.00°	β	0.00°
α	0.00°	β	0.00°	α	0.00°	β	0.00°

SET CONFIGURATION SAVE CONFIGURATION SELECT ALL UNSELECT ALL

IRS Beam Codebook

NEUTRAL BEAM #1 BEAM #2

Beam Switching Orchestration

BEAM #1 2.00s BEAM #2 2.00s

START RESET

Configuration Calculation for Scenario Geometry

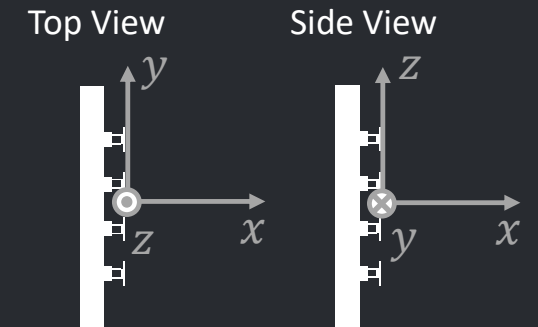
☒ Individually Aligned ☐ Equally Aligned

UE: x 0.00m y 0.00m z 0.00m BS: x 0.00m y 0.00m z 0.00m Intermodule Spacing: Δy 0.00m Δz 0.00m

CALCULATE CONFIGURATION

3

Coordinate Input for UE and BS:
The Coordinate System for the
Calculator is Defined With the
Coordinate System Origin at the
Center of the Reflector:



4

Input for Intermodule Spacing in
y-and z-Direction