Beam Steering Antenna

Transmit 27.5-30 GHz & Receive 17.7-20.2 GHz

Arralis

Preliminary Datasheet

KKa-FPA-1730-A

A K/Ka-band Beam Steering Antenna operating with a transmit frequency of 27.5-30 GHz and receive frequency of 17.7-20.2 GHz.

Overview

The KKa-FPA-1730-A is an active transmitting Beam Steering Antenna developed by Arralis.

A high-performance solution for modern communication systems. The antenna can be used for satellite, aviation and ground communications in remote areas as well as 5G systems. Offering a small profile and flat geometry, this technology enables wide operational bandwidth, good polarization and high EIRP in accordance with customer needs.

Dimensions: (L) 500 mm x (W) 170 mm x (H) 55 mm

Features

- Transmit 27.5-30 GHz
- Receive 17.7-20.2 GHz
- -60 to 60 degree steering in both azimuth and elevation direction
- Circular polarization

Applications

- Satellite communications
- Aviation communications
- Ground communications in remote areas
- 5G

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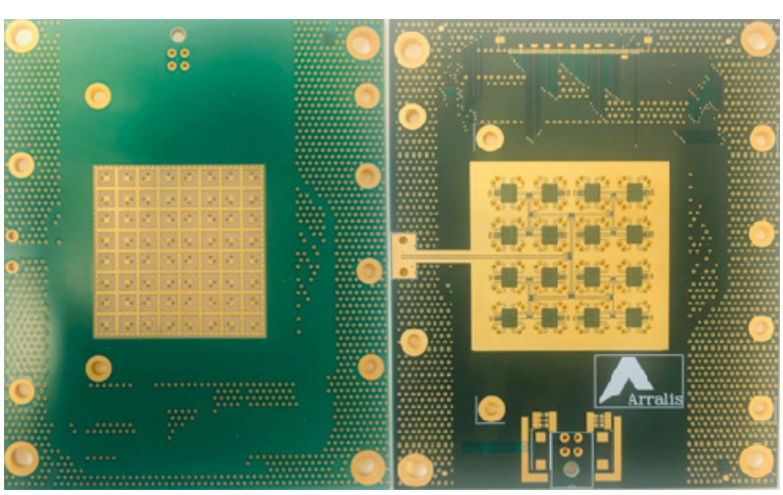
Transmit Specification

Parameter	Value	Unit
Frequency Band	27.5 - 30	GHz
Bandwidth	2.5	GHz
EIRP	48 @ 0^{O} scan 44.6 @ 60^{O} scan	Degree
HPBW	13.6 @ 0^{O} scan 22.4 @ 60^{O} scan	Degree
Gain	22 @ 0^{O} scan 18.6 @ 60^{O} scan	
Axial Ratio Over Bandwidth	<3	dB
Steering Angle	$\pm 60^{O}$	Degree
SLL	-13 to -20 (controllable)	dB
Polarization	LHCP, RHCP	
RF Port VSWR	<2	
Rf Input Power (Maximum)	0	dBm
DC Power Consumption	9.6	Watts
Board Size	110.5 x 90.5	mm
Connector	2.92 (K)	mm



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Receive Specification

Parameter	Value	Unit
Frequency Band	17.7 - 20.2	GHz
Bandwidth	2.5	GHz
HPBW	14.2 @ 0^{O} scan 23.2 @ 60^{O} scan	Degree
Gain	21.9 @ 0^{O} scan 18.4 @ 60^{O} scan	
Axial Ratio Over Bandwidth	<3	dB
Steering Angle	$\pm 60^{O}$	Degree
SLL	-13 to -20 (controllable)	dB
Polarization	LHCP, RHCP	
RF Port VSWR	<2	
Rf Input Power (Maximum)	0	dBm
DC Power Consumption	6.4	Watts
Board Size	120 x 90.5	mm
Connector	2.92 (K)	mm

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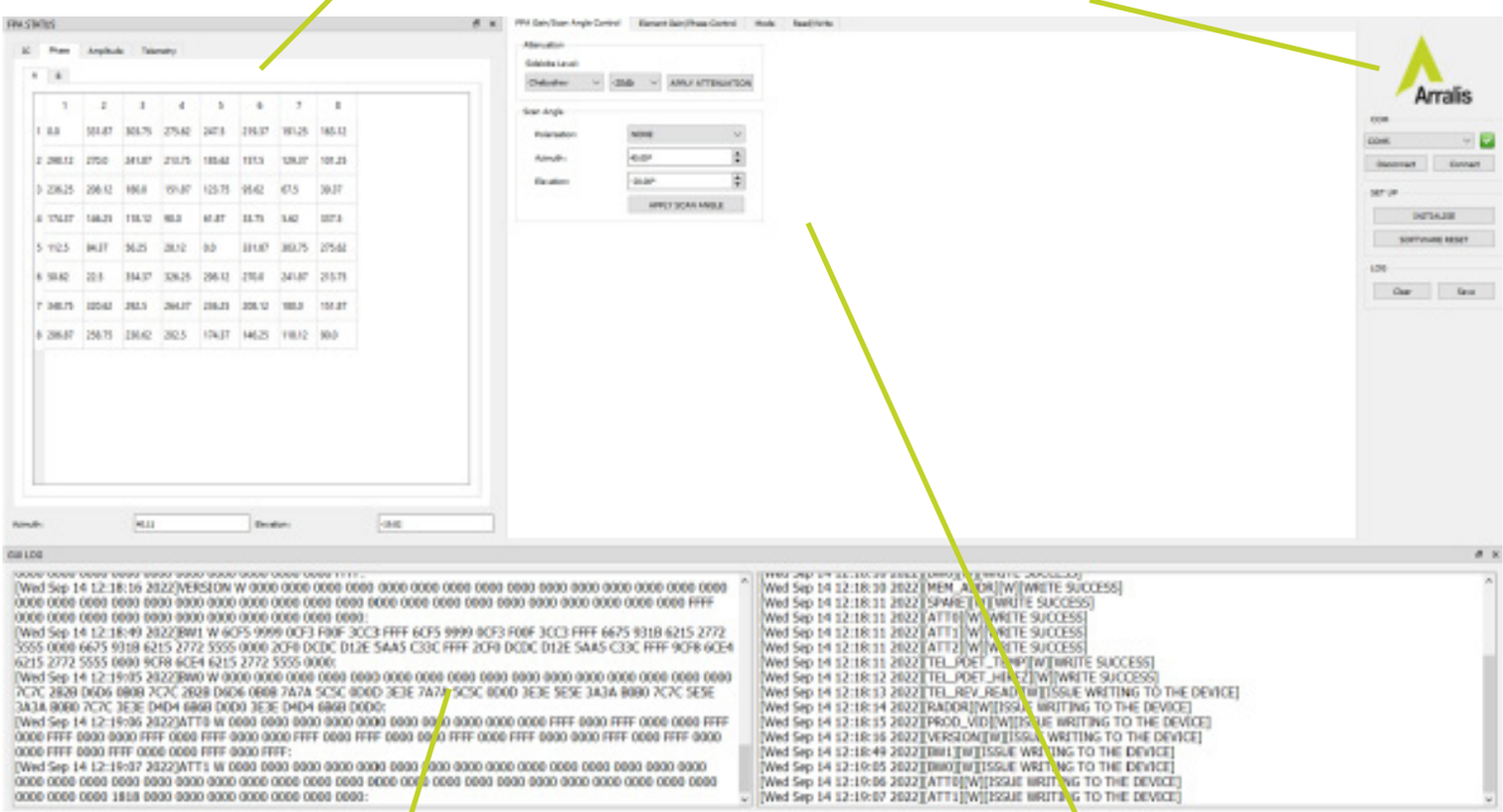
Graphical User Interface

The below images showcase the graphical user interface for the beam steering antenna. Below we have shown examples for the phase, amplitude and telemetry.

Phase

Users are able to view the phase, amplitude and telemetry of each element in the array.

The sidebar contains controls to connect to the FPA, initialise the hardware, reset the hardware and save the data displayed in the log.



The GUI log displays the commands sent to the hardware and the status of each action the GUI has performed.

The control window allows the user to beam steer the array and change the settings of individual IC's.

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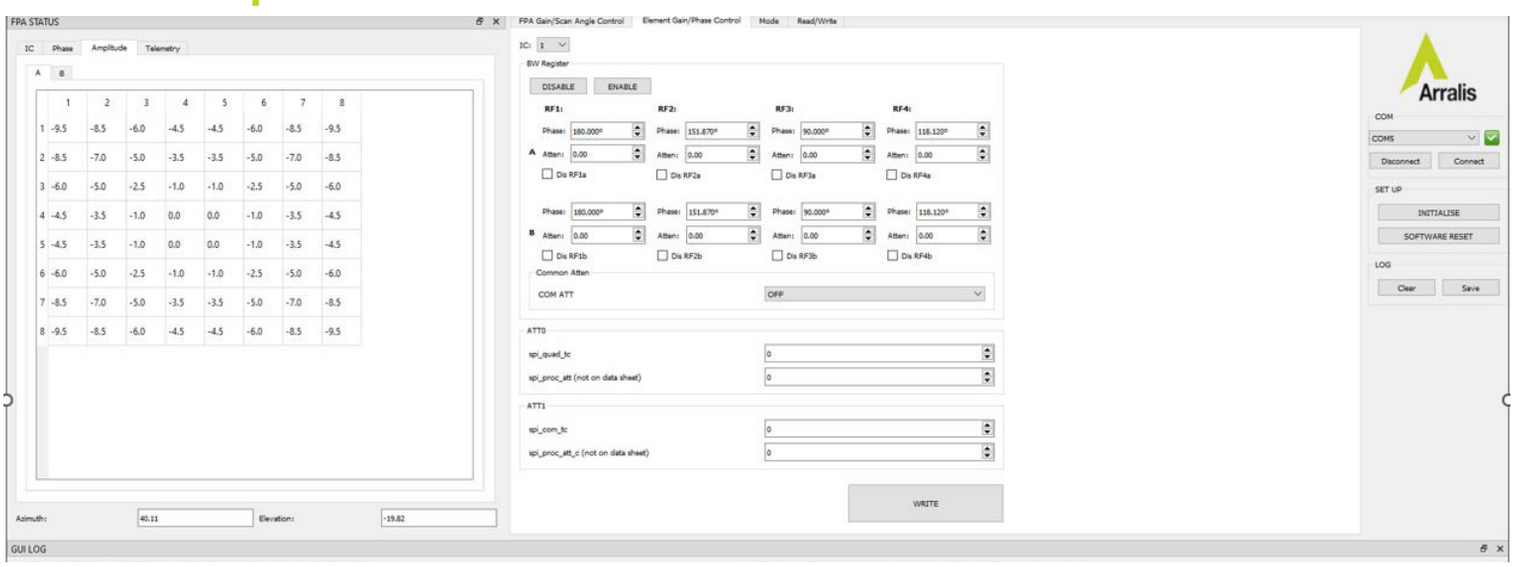
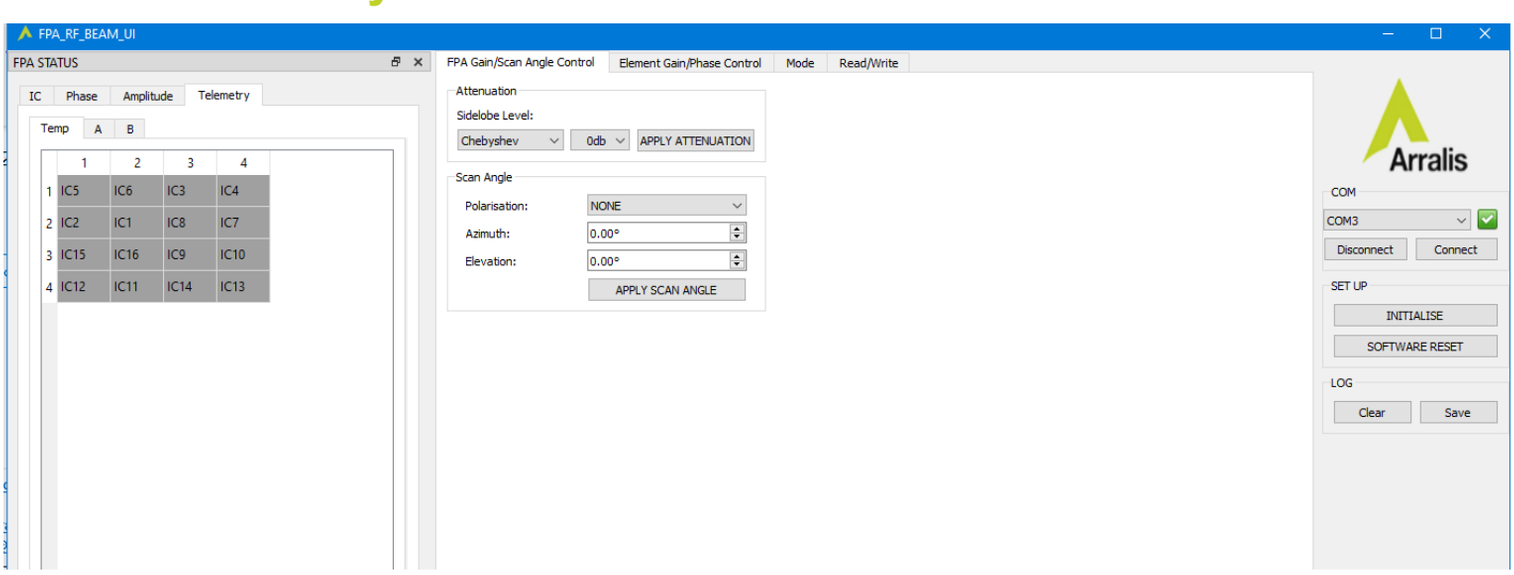
Amplitude



Telemetry



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