

# Universal Radar Baseband Board For MM-Wave Applications

## FMCW-MBB5-22

Universal radar baseband board for millimeter wave applications.

### Overview

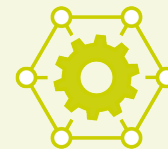
The FMCW-MBB5-22 is a full function radar core processing board that is designed to simplify the design of millimeter wave FMCW radars. The board generates swept low phase signal through local oscillator outputs that connect to an external transmitter and up to three receivers.

The IF frequency is centred at 5.4 GHz. The net outputs that can be fed to post-processors for image generation and synthetic aperture data display are generated from sub-13 MHz beat signals. This novel design allows multiple target data to be accessed by relatively inexpensive embedded data applications. Information such as range, velocity and direction can be easily computed with external software. In addition, the multiple receiver channels enable designers to implement this design as part of a monopulse tracking system. The figure on page three shows a typical application using Arralis' W Band Modules; WRX100 and WTX100 as a tracking monopulse radar at 92-96 GHz. The unit is supplied in a rugged aluminium housing with external connectors.



### Features

- Allows monopulse operation
- One transmit & three receive modules
- Four low phase noise local oscillator outputs
- Beat signal outputs allow range, velocity & direction
- Applicable with virtually any front-end with external downconversion



### Applications

- FMCW Radars
- Monopulse tracking systems



Arralis W-band Modules

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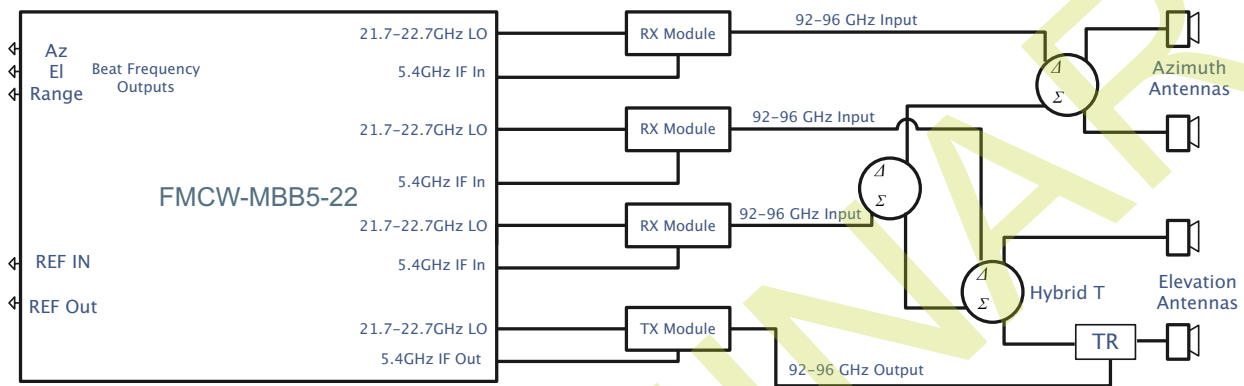


## Specifications

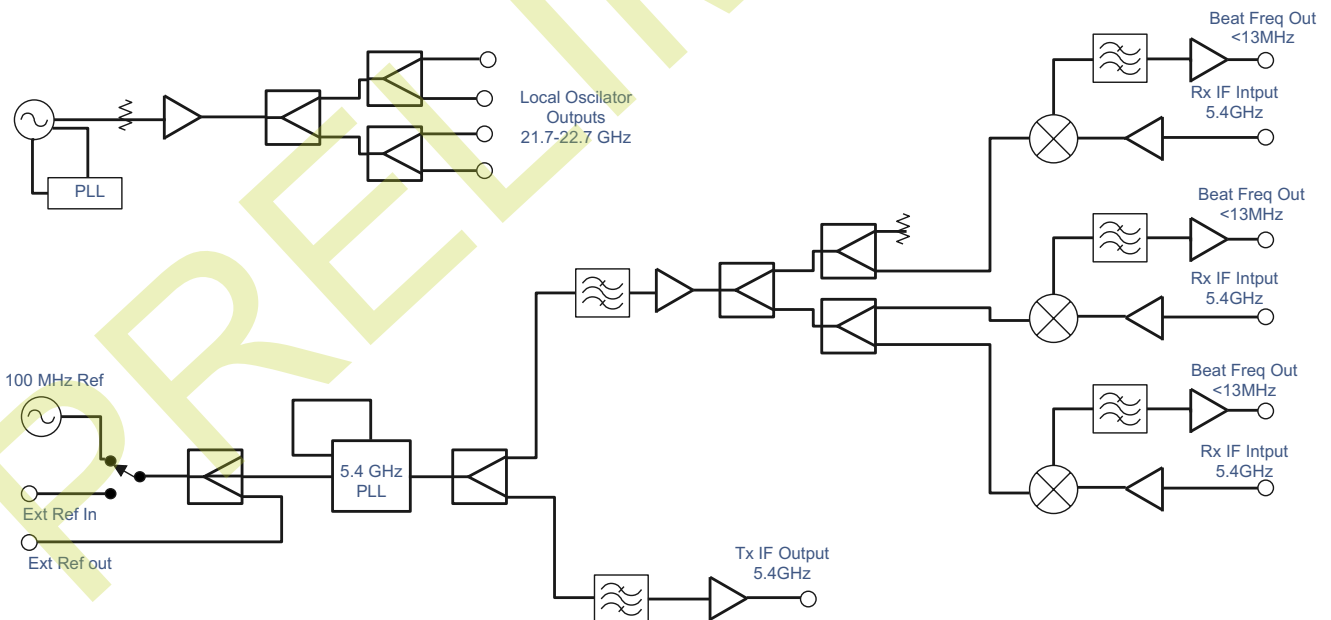
Parameter	Min	Typ	Max	Unit	Notes
TX Frequency	20.9		23.9	(GHz)	23.8-26 GHz option is available
TX Power	13		19	(dBm)	2.92 mm female
TX FMCW Waveforms	Triangular, sawtooth, single, continuous, dual ramp, programmable sweep time				
RX Frequency		5.4		(GHz)	SMA female
# of RX Channels	1		3		
Baseband Frequency	0.1		13	(MHz)	Max 40 MHz option available
Baseband Output	Differential, MCX (single ended option available)				
Conversion Gain	8		24	(dB)	Programmable
Internal Reference Output	100 MHz, 3 V <sub>pp</sub> , LVCMOS, MCX				
External Reference Input	100 MHz, min 10 dBm, MCX				
Control	i2C, SPI				
Supply	12 VDC, 075A (1A for 1 second after power up)				
Dimensions	163.4 mm x 101.2 mm x 22 mm				
Weight	550 grams				
Operating Temperature	-40°C		+85°C		

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## Typical Application 94 GHz Monopulse Set-up



## FMCW-MBB5-22 Functional Diagram



## Contact Information

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