From TI user guide: *mmWaveICBoost and Antenna Module*

	Integrated Antenna 60-GHz Intelligent Edge Sensor IWR6843AoPEVM	**High Performance 60-GHz Intelligent Edge Sensor xWR6843ISK**	**60-GHz Intelligent Edge Sensor IWR6843ISK-ODS**
Tuning Frequency	60-64 GHz	60-64 GHz	60-64 GHz
Number of Receivers	4	4	4
Number of Transmitter	3	3	3
Processing	• MCU • FFT accelerator • DSP	• MCU • FFT accelerator • DSP	• MCU • FFT accelerator • DSP
Memory	1.75 MB	1.75 MB	1.75 MB
Antenna	Antenna on Package	Antenna on PCB	Antenna on PCB
Azimuth FOV (deg)	+/- 60	+/- 60	+/- 60
Azimuth Angular Resolution (deg)	29	15	29
Elevation FOV (deg)	+/- 60	+/- 15	+/- 60
Elevation Angular Resolution (deg)	29	58	29
Gain	5dBi	7dBi	5dBi
Modular Mode	• Requires mmWaveICBOOST for debugging and DCA1000 • Flashing and functional mode available without mmWaveICBOOST	• Requires mmWaveICBOOST for debugging • Flashing and functional mode available without mmWaveICBOOST	• Requires mmWaveICBOOST for debugging • Flashing and functional mode available without mmWaveICBOOST
Raw ADC Data Capture	Yes – requires mmWaveICBOOST + DCA1000	Yes – requires DCA1000	Yes – requires DCA1000

$$\theta_{res} = \frac{\lambda}{Nd\cos(\theta)}$$

Antenna separation distance always = $\frac{\lambda}{2}$ for TI's mmWave sensors (see next page)

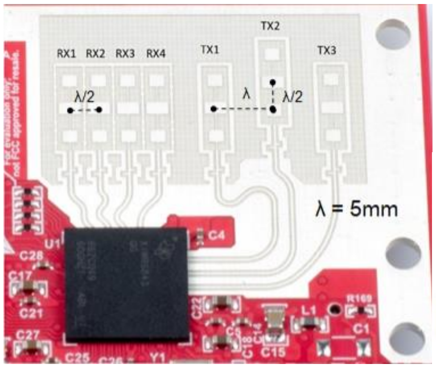
Resolution is often quoted assuming d=λ/2 and θ=0 => $\theta_{res} = \frac{2}{N}$

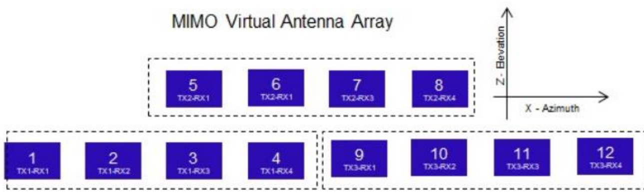
(regardless of frequencies of difference models)

N = number of RX

MIMO: $\theta_{res} = \frac{2}{N_{RX} * N_{TX}}$

6843 ISK, 1243(w/ 2 dummy antennas), 1443, 1843 (4RX 3TX)

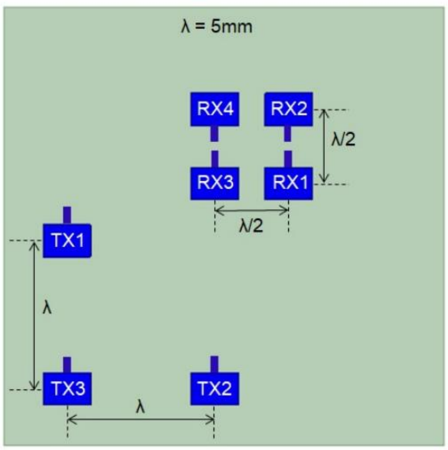


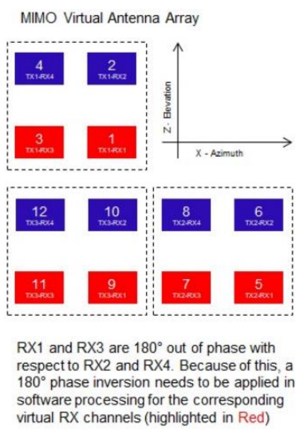


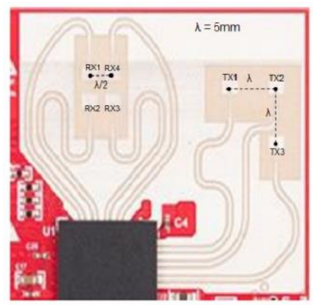
$$\theta_{res-az} = \frac{2}{8}\left(\frac{180^\circ}{\pi}\right) \cong 15^\circ, \qquad \theta_{res-el} = \frac{2}{2}\left(\frac{180^\circ}{\pi}\right) \cong 58^\circ$$

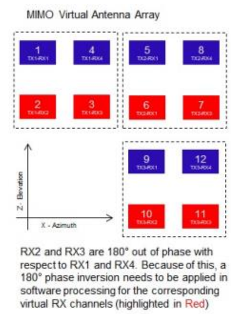
6843 AOP-EVM (4RX 3TX)

6843 ISK-ODS (4RX 3TX)









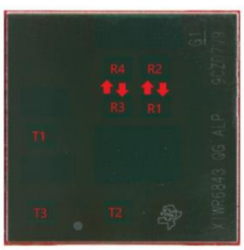
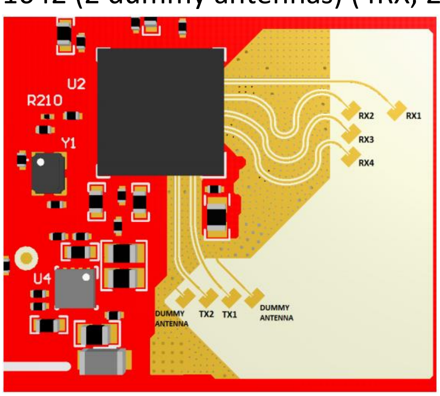
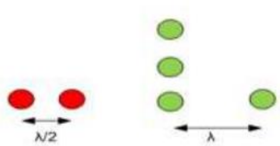


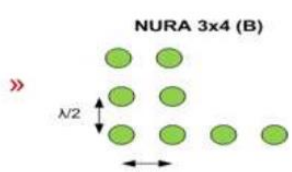
Figure 63. AOP Antennas

$$\theta_{res-az} = \theta_{res-el} = \frac{2}{4}\left(\frac{180^\circ}{\pi}\right) \cong 29^\circ$$

1642 (2 dummy antennas) (4RX, 2TX)







$$\theta_{res-az} = \frac{2}{4}\left(\frac{180^\circ}{\pi}\right) \cong 29^\circ, \qquad \theta_{res-el} = \frac{2}{3}\left(\frac{180^\circ}{\pi}\right) \cong 39^\circ$$