

8.9 Thermal Resistance Characteristics for FCBGA Package [ALP0180A]

THERMAL METRICS ⁽¹⁾		°C/W ^{(2) (3)}
$R\theta_{JC}$	Junction-to-case	2.6
$R\theta_{JB}$	Junction-to-board	7.5
$R\theta_{JA}$	Junction-to-free air	20.3
$R\theta_{JMA}$	Junction-to-moving air	N/A ⁽⁴⁾
Ψ_{JT}	Junction-to-package top	0.9
Ψ_{JB}	Junction-to-board	7.3

(1) For more information about traditional and new thermal metrics, see [Semiconductor and IC Package Thermal Metrics](#).

(2) °C/W = degrees Celsius per watt.

(3) These values are based on a JEDEC-defined 2S2P system (with the exception of the Theta JC [$R\theta_{JC}$] value, which is based on a JEDEC-defined 1S0P system) and will change based on environment as well as application. For more information, see these EIA/JEDEC standards:

- JESD51-2, *Integrated Circuits Thermal Test Method Environmental Conditions - Natural Convection (Still Air)*
- JESD51-3, *Low Effective Thermal Conductivity Test Board for Leaded Surface Mount Packages*
- JESD51-7, *High Effective Thermal Conductivity Test Board for Leaded Surface Mount Packages*
- JESD51-9, *Test Boards for Area Array Surface Mount Package Thermal Measurements*

(4) N/A = not applicable. Heatsink on this device.

8.10 Timing and Switching Characteristics

8.10.1 Antenna Radiation Patterns

This section discusses transmitter and receiver antenna radiation patterns in both Azimuth and Elevation planes for a specified frequency.

8.10.1.1 Antenna Radiation Patterns for Receiver

Figure 8-1 shows typical antenna radiation gain plots normalized to boresight at various frequencies for the four receivers in both Azimuth (H-Plane) and Elevation (E-Plane) planes.

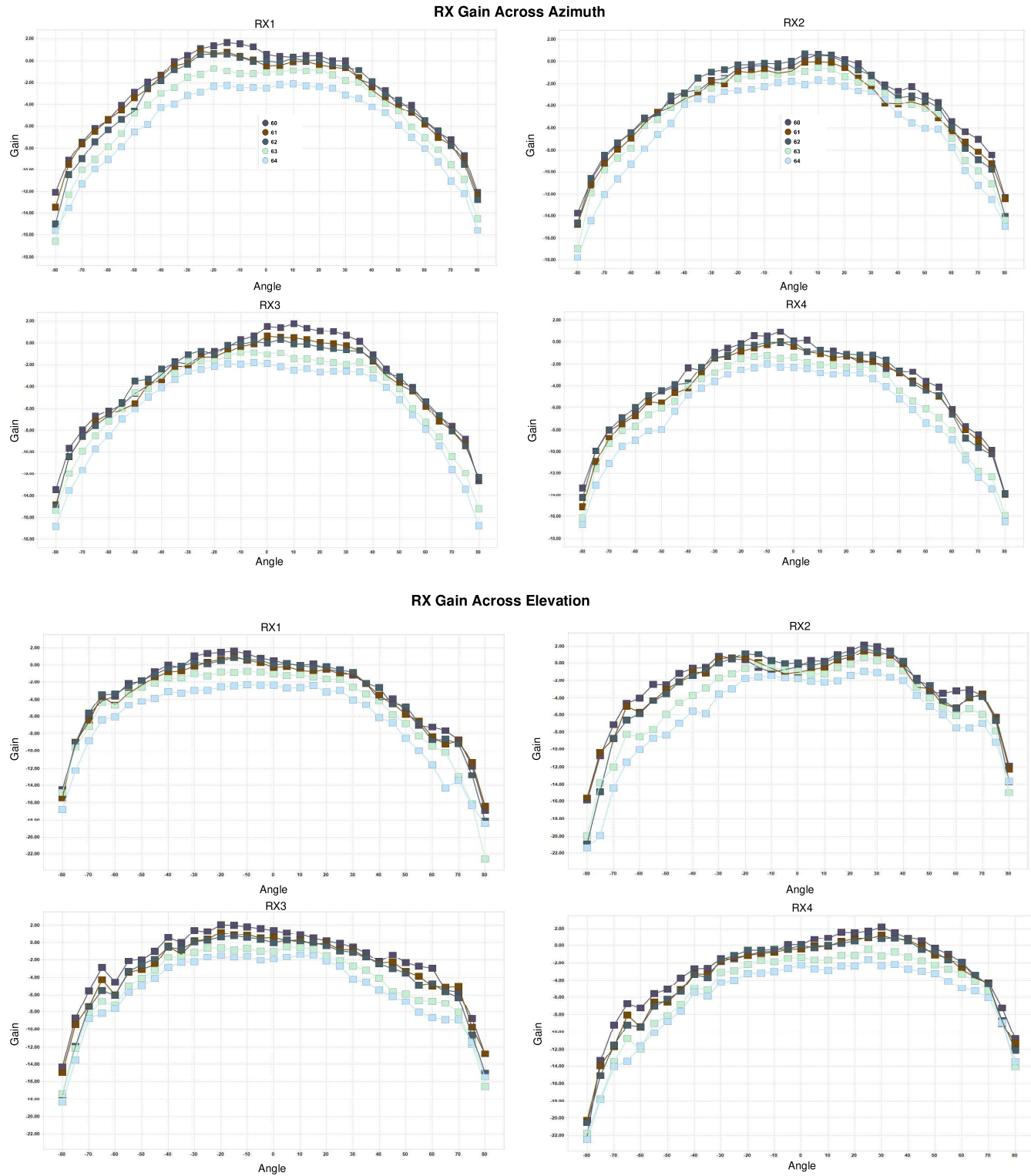
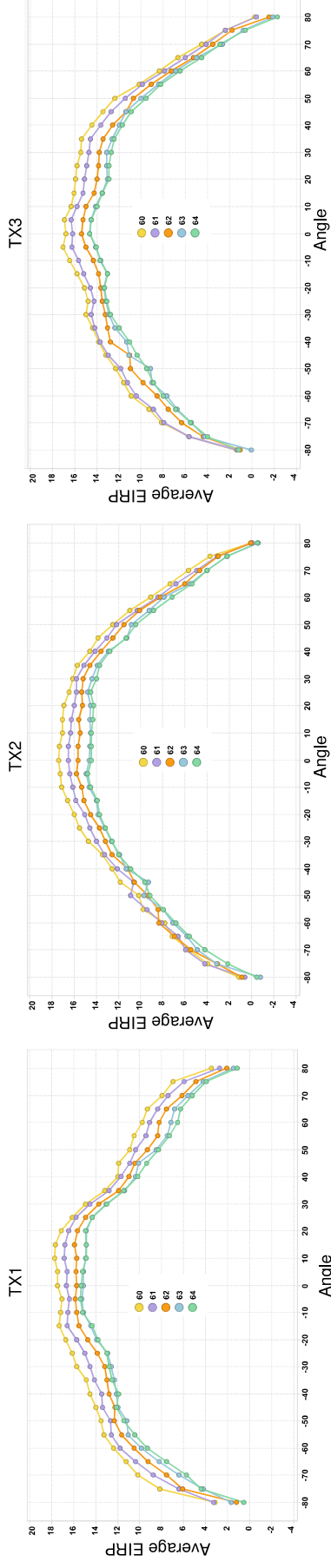


Figure 8-1. Receiver Antenna Radiation Pattern

8.10.1.2 Antenna Radiation Patterns for Transmitter

Figure 8-2 shows typical antenna radiation patterns for the three transmitters in both Azimuth (H-Plane) and Elevation (E-Plane) planes.

TX Output Power Across Azimuth



TX Output Power Across Elevation

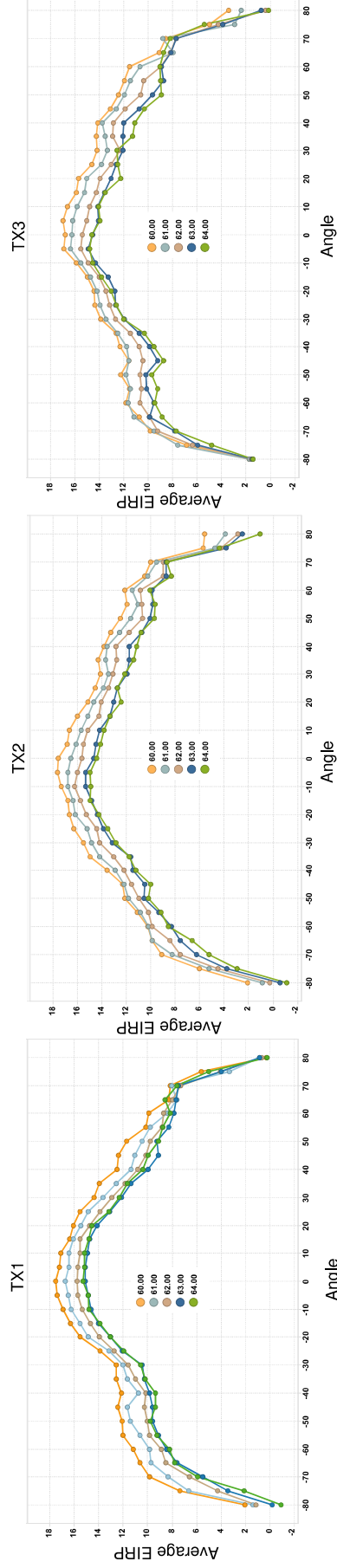


Figure 8-2. Transmitter Antenna Radiation Pattern

8.10.2 Antenna Positions

Figure 8-3 shows the placement and relative spacing of the antennas.

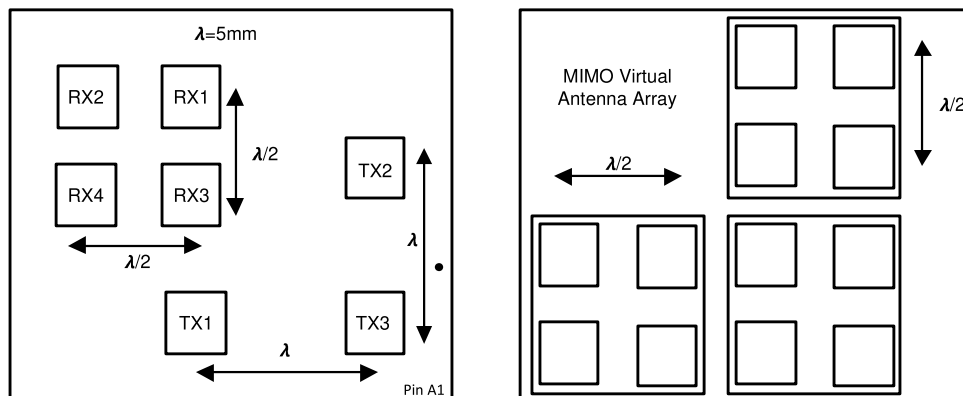


Figure 8-3. Antenna Positions (Placement and Relative Spacing)

8.10.3 Power Supply Sequencing and Reset Timing

The IWR6843AOP device expects all external voltage rails to be stable before reset is deasserted. Figure 8-4 describes the device wake-up sequence.