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Antenna Registration Question 4: Directional Antenna Information

The 5G Radios that we are developing is intended to have the following 3 configurations:

1. 5G Base Station Radio with phased array antennas

In this configuration, the antenna pattern will depend on the analog beam forming. In a typical use, the antenna will have half power beam width around 10 degree in both azimuth and elevation. The pointing direction of the beams can be arbitrary as we could orient the equipment in different directions within the lab or inside the building. Additionally, the beam direction can also be steered by applying different phases across the multiple transceiver chains that drives the antenna array.

2. Fixed 5G Hub with planar array antenna

In this configuration, the planar antenna array has about 10 degree half power beam width in elevation, and about 60 degree half power beam width in azimuth. Additional digital processing can further increase the gain of the antenna array and narrow the beam width. In the extreme case, the beam could be narrowed down to about 15 degree half power beam width in azimuth due to digital processing. Note these narrow beams will be confined within the antenna pattern envelop of the planar antenna array, which has about 60 degree half power horizontal beam width and 10 degree half power vertical beam width. Again, the pointing direction of the beams can be arbitrary as we can orient the equipment towards different directions within the lab or inside the building.

3. Fixed 5G CPE with dish antenna

In this configuration, the dish antenna has about 2 ~ 5 degree half power beam width in both azimuth and elevation. The pointing direction of the antenna can be arbitrary as we point the equipment towards different directions in the lab or inside the building during tests.