Jenny Leinen <leinen@monterey.org>

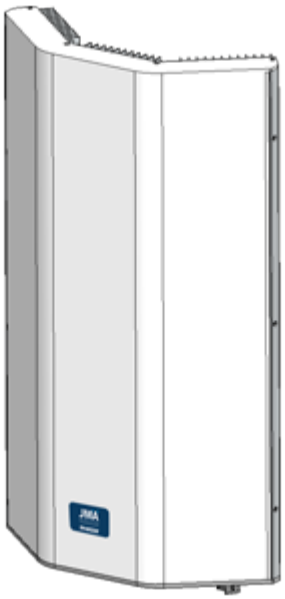
Wireless Subcommittee

1 message

rmeyers Mon, May 20, 2019 at 11:38 AM
To: leinen@monterey.org

Please distribute this email to the members of the Wireless Ordinance Subcommittee.

I have been reading about the AAS (advanced antenna systems) and the technology needed to overcome the shortcomings of 5G mm wave propagation. This is a very complicated system that relies on multiple methods to deploy, however they all depend on using physically small antennas mounted on poles or buildings, and these small antennas integrate with others in a coordinated way with MU-MIMO (multiple unit- multiple input, multiple output) circuitry and beamforming to avoid obstacles. These frequencies requires a direct line-of-sight. Here are a couple of typical 5G antennas from JMA wirelesss:



The one on the left is only 24″ x 12″ x 2.5″ and the one on the right is only 9″ x 13″ x 2″ and weighs a mere 5 lbs.

I know the link I am sending is bit complicated, but easy to break down if you look and study the illustrations and get the terminology defined. Our Monterey area will likely fall between scenarios 2 or 3, letters B and C on figure 4.

This is the white paper from Ericsson on 5G deployment:

https://www.ericsson.com/en/white-papers/advanced-antenna-systems-for-5g-networks

Deployment scenario #2: Urban low-rise

The urban low-rise scenario illustrated in section B of Figure 4 represents many of the larger cities around the world, including the outskirts of many high-rise cities. Base stations are typically deployed on rooftops, with inter-site distances of a few hundred meters. Compared to the dense urban high-rise scenario, traffic per area unit is lower. There is generally a mix of building types, which creates multipath propagation between the AAS and the UE. Maximizing the antenna area is important for improving the UL cell-edge data rates, especially for higher frequency bands employing TDD. Due to larger ISDs and decreased vertical spread of users (lower buildings), the vertical coverage range can be decreased compared to dense urban high-rise; hence, larger vertical sub-arrays can be used and there is less gain from vertical beamforming. Using larger sub-arrays for a given antenna area means that

fewer radio chains are required. Horizontal beamforming is a very effective feature that provides large gains. Reciprocity-based beamforming schemes will work for most users, but there will be users with poor coverage that need to rely on techniques such as feedback-based beamforming. MU MIMO is also appropriate at high loads due to the multi-path propagation environment, good link qualities and UE pairing opportunities. A good trade off between complexity and performance is an AAS with 16 to 32 radio chains

Deployment scenario #3: Rural/suburban

Rural or suburban macro scenarios, as depicted in section C of Figure 4, are characterized by rooftop or tower-mounted base stations with inter-site distances ranging from one to several kilometers, low or medium population density and very small vertical user distribution. This scenario calls for an AAS with a large antenna area and the ability to support horizontal beamforming. Vertical beamforming, however, does not provide any significant gains as the vertical user spread is low. Therefore, large vertical sub-arrays with small vertical coverage areas are appropriate. Reciprocity-based beamforming is supported for a smaller fraction of users than in the other scenarios, and MU-MIMO gains are more limited. A good trade-off between complexity and performance is an AAS with 8 to 16 radio chains.

In short, we must block any part of the Wireless Ordinance that exempts any physically small antennas, as it includes all 5G antenna deployments. Since all wireless communications are going to be 5G in the future, what is the point to have a Wireless Ordinance that exempts all cell antennas? Our neighborhood will likely have up to 32 antennas from **each** carrier. The densified accumulation beamforming antennas will likely be a potential danger to our community. As you are aware, there are no short or long-term studies of EMF at the frequency of mm waves, and especially at this type of densification. This mad rush to deploy, to the extent the Telecommunications companies want to be exempt from the licensing process, needs to be resisted.

Ray Meyers
Monterey, CA

In addition, here is a link to a overview of 5G mm wave safety, written by
Joel M. Moskowitz, Ph.D.,Director
Center for Family and Community Health
School of Public Health
University of California, Berkeley

https://www.saferemr.com/2017/08/5g-wireless-technology-millimeter-wave.html

Jenny Leinen <leinen@monterey.org>

Cell Tower Size exemption

1 message

Jose Rafael Ramos Sun, May 19, 2019 at 9:52 PM
Reply-To: Jose Rafael Ramos
To: Jenny Leinen <leinen@monterey.org>
Cc: Yve Ramos

My wife, Yve Ramos, and I oppose the cell tower size exemption proposed as an amendment to the cell tower ordinance. To deny the public input into the placement of the cell towers or 5G transmitters, whatever their size, is wrong and a denial of local resident input. The 5G transmitters will have to be connected by wires, and we have both aesthetic and health objections to their placement without a public hearing and scrutiny. Please forward this protest and comment to the members of the Planning Commission and the Wireless Subcommittee members.

Please send us notices of public meetings on this issue.

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