



QUALCOMM Incorporated

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September 19, 2017

Ex Parte Filing

Ms. Marlene Dortch
Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

**Re: Authorizing Permissive Use of the “Next Generation”
Broadcast Television Standard — GN Docket No. 16-142**

Dear Ms. Dortch:

QUALCOMM Incorporated (“Qualcomm”) provides the following comments in support of the recent *ex parte* filing by T-Mobile USA in the above docket containing a technical white paper entitled “Complications Associated with ATSC 3.0 Implementation in Mobile Devices.”¹ Qualcomm broadly agrees with the T-Mobile technical paper that details the significant challenges associated with supporting ATSC 3.0 reception in new mobile devices and believes any proposal to mandate that mobile devices incorporate support for ATSC 3.0 should be out of the question. In this regard, Qualcomm also concurs with Verizon that mobile device manufacturers and mobile service providers should “have the option of deciding whether and when” to incorporate support for ATSC 3.0.²

Mandating support of ATSC 3.0 in mobile devices would unduly impact device performance, the efficient use of spectrum, and mobile device competition. Incorporating ATSC 3.0 reception in smartphones is a complex issue that requires significant effort and careful consideration of the impact on the overall performance of the device. The T-Mobile technical paper provides useful information on the many trade-offs associated with ATSC 3.0 mobile device integration. Specifically:

- Reception of ATSC 3.0 on a mobile device requires an entirely new receive chain including new antenna(s), filters, amplifiers, oscillators, and an ATSC 3.0 demodulator/receiver. This increases the cost and size of devices and may well render these devices uncompetitive when compared to devices without ATSC 3.0 capabilities;
- Adding antennas or expanding the bandwidth of an existing antenna reduces its efficiency for the reception of 4G LTE and 5G signals, and, therefore, less efficient use of spectrum;

¹ See T-Mobile USA, Inc. *Ex Parte* Filing (Sept. 11, 2017).

² See, e.g., Verizon *Ex Parte* Filing (Aug. 18, 2017) at 1.

- Including a larger antenna and the additional components necessary to support ATSC 3.0 without impacting antenna efficiency would occupy a substantial amount of device real estate, which typically is needed to include advanced features, such as 4x4 MIMO, a feature that today is vastly improving wireless reception, capacity, and throughput, and is a key factor in enabling smartphones to receive Gigabit LTE, the fastest 4G service available today; and,
- ATSC 3.0 receiver operation can cause interference to 4G LTE and 5G radios operating in the same device.

In light of the detrimental effects that including ATSC 3.0 support can have on the cost and size of a mobile device, the technology trade-offs required to accommodate competing technologies, and the reduced performance and spectral efficiency that it may have on other mobile bands and services, the decision to include ATSC 3.0 support in a mobile device should be a voluntary decision for the marketplace to decide, and, again, any proposal that the FCC mandate ATSC 3.0 support should be deemed out of the question.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'D. Brenner', with a long horizontal flourish extending to the right.

Dean R. Brenner
Senior Vice President, Spectrum Strategy &
Technology Policy

John W. Kuzin
Vice President and Regulatory Counsel