

Before the
Federal Communications Commission
Washington, DC 20554

In the Matter of

Promoting Investment in the 3550-3700MHz Band

Petitions for Rulemaking Regarding the
Citizens Broadband Radio Service

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GN Docket No. 17-258

RM-11788 (Terminated)
RM-17789 (Terminated)

COMMENTS OF
TRANSIT WIRELESS, LLC

Jeremy D. Ward, Senior Wireless Engineer

December 28, 2017



Transit Wireless LLC is a neutral host operator that delivers wireless and fiber-based communications services within the New York City subway system.

Transit Wireless (TW) is a private company that was formed to meet the MTA's requirement to design, build, own, and operate a neutral host wireless network serving the underground stations of the New York City Subway; and to provide commercial wireless services within all underground subway stations. TW delivered 278 stations two years ahead of schedule and under budget. TW operates under a 27-year license with the MTA, maintaining a highly resilient network supporting a variety of consumer, business, and transit and public safety communications needs across all licensed cellular bands, unlicensed bands and a dedicated 4.9GHz public safety bands.

Transit Wireless built the Transit Wireless WiFi network within the underground subway stations, an initiative that has been recognized by the Wireless Broadband Alliance as the "Best Wi-Fi Deployment to Connect the Unconnected in an Urban Environment." The network is considered one of the largest high-density Wi-Fi networks in the world serving over half-a-million sessions as day, with transfer exceeding 22TB daily.

The next logical extension of our communications infrastructure is to extend services into the tunnels to deliver mobile cellular, public Wi-Fi aboard trains, and other communications services to the transit operator including those that help to enable Communications Based Train Control (CBTC).

To deliver such an extension Transit Wireless has undertaken several years of research and development, specifically related to enabling high-speed Wi-Fi and mission critical services aboard the trains that carry 5.3 million riders a day. The product of this effort is a reference architecture and design that aims to deliver high-speed communications services onboard subway trains through the construction of a highly-resilient LTE-Advanced Tracksides Network (TSN).

Spectrum is a key concern in this endeavor. To that end, we have identified the CBRS band as a natural choice for enabling this network for the following reasons:

- **Cost**
 - CBRS is expected to provide a new band for private network operators with a minimal up-front investment
- **Alignment with Global Standards**
 - The band aligns with current 3GPP LTE Bands 42 and 43, and most recently Band 48. This alignment is key to delivering LTE services using this new swath of spectrum as off-the-shelf RAN hardware is available from a number of suppliers
- **Propagation Characteristics within Tunnels**
 - The 3550-3700MHz frequency range propagates better within tunnels than free-space due to the physical characteristics of the frequency
 - Other frequencies, including the 2.5GHz BRS and EBS bands (3GPP Band 41) do not propagate as well within tunnels; In fact, bands below 2.5GHz begin to quickly attenuate within the tunnel environment we intend to operate in. Even the 2100MHz AWS band fades quickly at less than half-a-mile – even at 43dBm EIRP

Beyond the technical specifics, access to affordable Priority Access Licenses (PALs) in a city as populated as New York City is a key concern for our company. While some of the concerns raised by T-



Mobile and CTIA are understandable, **it is our belief that The Commission needs to strike the right balance of affordability for new entrants with novel use-cases, as doing so is in the best interest of promoting investment within the band for all potential players.**

While **it is our position that PAL license terms and geographic sizing should remain unchanged**, we propose an alternative to the all-or-nothing approach that The Petitioners have suggested, should The Commission see an adequate argument for making changes to the PAL portion of the CBRS band:

1. PAL Geography Should Be Treated as a Two-Tier Allocation

- a. **Small PAL** – keep at least a 40MHz portion of the PAL allocation at the current Census Tract size
- b. **Large PAL** – expand the remaining 30MHz of the PAL allocation to either CMA or PEA sizes

2. PAL Terms Should Be Treated by the Same Two-Tier Allocation

- a. **Small PAL** – keep the same 40MHz portion of the PAL allocation at the current 3-year term
- b. **Large PAL** – expand the remaining 30MHz of the PAL allocation to a 7-year or 10-year term

3. PAL Renewability for both the Small PAL and Large PAL Tiers Should be Guaranteed, provided that the licensee has met the following Tier-dependent build-out requirements:

- a. **Small PAL**
 - i. 20% buildout in the first three years to allow renewal, or
 - ii. 40% buildout by the end of the second three-year term
- b. **Large PAL**
 - i. 40% buildout in the first three years
 - ii. 70% buildout in the first seven years

Respectfully Submitted.

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