



INFORMATION BULLETIN

From the UTC Public Policy Division

Re: FCC Issues Draft Report and Order to Realign the 900 MHz Band

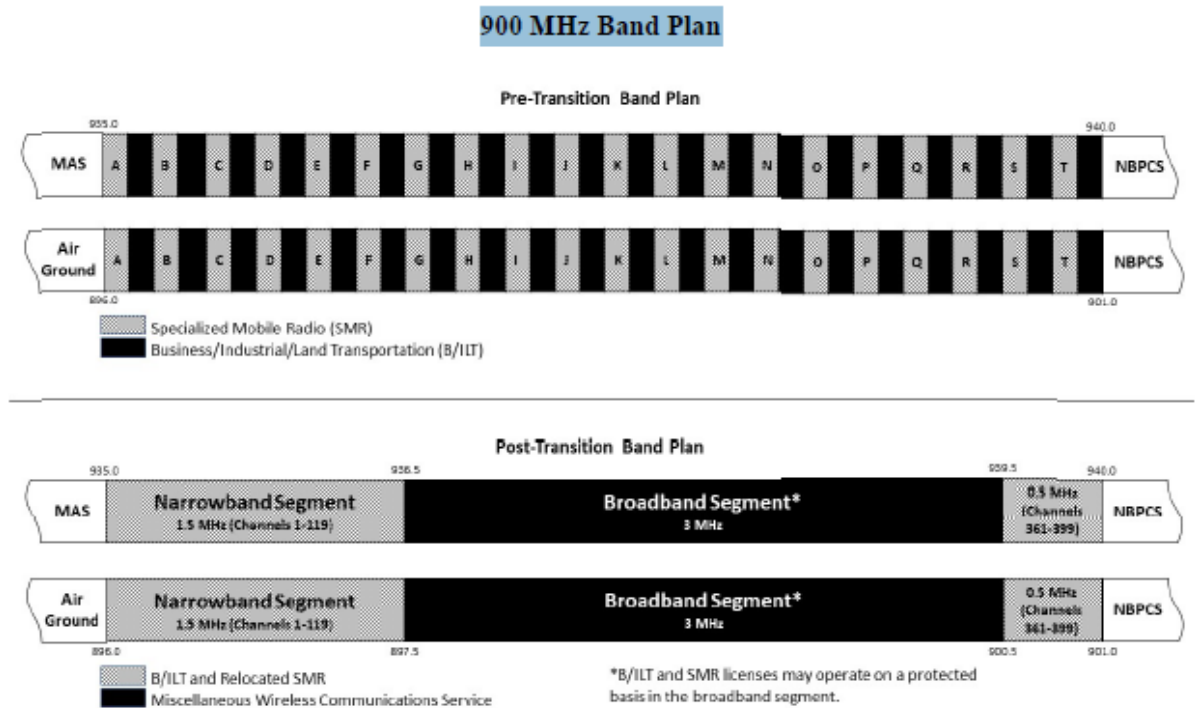
Date: April 23, 2020

Summary. The FCC has issued a draft Report and Order, Order of Proposed Modification, and Orders regarding the realignment of the 900 MHz band, which will be considered for adoption at its May 13, 2020 Open Commission Meeting. In the Report and Order, the Commission provides for a market-based approach primarily based on voluntary negotiations to create a new 3x3 MHz broadband segment of the band between 897.5-900.5/936.5-939.5 MHz by relocating narrowband incumbent licensees into two remaining segments of the band at 896-897.5/935-936.5 MHz and 900.5-901/939.5-940 MHz. Broadband applicants may invoke mandatory relocation of incumbents, but not until there are only 10 percent of the channels remaining in an area that need to be cleared. Certain “complex systems” with 45 or more functionally integrated sites are excluded from being subject to mandatory relocation. The draft Order would ensure relocation to comparable facilities based on four factors: 1) system; 2) capacity; 3) quality of service and 4) operating costs. Co-channel separation will be 70 miles and the general interference criteria for protecting narrowband systems from harmful interference is a median desired signal level measurement of -104 dBm or higher at the RF input of narrowband licensees’ mobile receivers and -101 dBm or higher at the RF input of narrowband licensees’ portable receivers.

Eligibility to become a broadband licensee requires the applicant to 1) hold 50% of the total licensed 900 MHz spectrum (whether SMR or B/ILT) in the relevant county; and 2) hold spectrum in the broadband segment or reach an agreement to clear through acquisition or relocation, or demonstrate how it will provide interference protection to, covered incumbent licensees collectively holding licenses in the broadband segment for at least 90% of the site-channels in the county and within 70 miles of the county boundary. To meet the 50% threshold, the Commission will include spectrum associated with: (1) 900 MHz geographic licenses covering all or part of that county, (2) 900 MHz site-based stations with service contours that intersect that county’s boundary, and (3) credit for 900 MHz spectrum used to facilitate timely acquisitions or relocations. For purposes of the 90% acquisition, relocation or protection threshold, the Commission will include any covered incumbent whose channels are fully or partially impacted (covered incumbents in channels 120 to 360), and it will include the applicant’s own spectrum holdings in the 90% of site-channels in and within 70 miles of the county. Also, site-channels are counted if they are located in and within 70 miles of the county, and if any site of a complex system is located in or within 70 miles of a county, an applicant must either hold the license for that site or reach an agreement to acquire, relocate, or protect it in order to demonstrate eligibility.

In addition to the Report and Order, the Commission also adopts an Order that would partially lift the licensing freeze. The freeze will be lifted to allow license modifications necessary for relocation, provided the application is described in a Transition Plan for a broadband applicant or related to an agreement with a broadband license after license grant (e.g., as part of mandatory relocation). Also, the Commission stated that in 2021 it will evaluate the success of the 900 MHz band realignment and explore whether it should adopt an additional mechanism to transition the 900 MHz band to broadband, including an auction mechanism if the negotiation-based transition does not successfully result in 900 MHz band realignment; closing the window on filing 900 MHz broadband applications; and/or lifting the application freeze to permit new and expanded use of 900 MHz narrowband operations beyond incumbent relocations.

Discussion. The FCC’s pre and post realignment 900 MHz band plans are illustrated below:



Narrowband Systems

Narrowband systems in the broadband segment of the 900 MHz band must be acquired, relocated or protected by the broadband applicant. Relocation applies only to covered incumbent licensees. The Commission defines “covered incumbent licensees” to include any 900 MHz site-based licensee in the broadband segment that under section 90.621(b) of the Commission’s Rules is required to be protected by a broadband licensee that locates a base station anywhere within the county, or any 900 MHz geographic-based SMR licensee in the broadband segment that has a site in the county or within 70 miles of the county boundary. The Commission notes “a prospective broadband licensee is not required to relocate all covered incumbents from the broadband segment. Rather, the prospective broadband licensee can opt to locate its base station(s) a sufficient distance from a narrowband incumbent licensee to afford the requisite protection against harmful interference.” Also, for purposes of relocation, the broadband

applicant may not offer the incumbent more spectrum than the incumbent currently holds, except where doing so is necessary to achieve equivalent coverage and/or capacity.

Broadband applicants must generally engage in voluntary negotiations with incumbent narrowband licensees to relocate, and they must provide relocation to comparable facilities. If a broadband applicant opts for mandatory relocation, the Commission requires good faith negotiations and relocation to comparable facilities. The broadband applicant must serve notice on the narrowband licensee that it plans to relocate mandatorily. Further, the broadband licensee may request information from the covered incumbent that is reasonably required for it to develop its offer of comparable facilities. Where all parties have acted in good faith, a covered incumbent must accept a broadband licensee's offer that does in fact cover reasonable relocation costs and provide comparable facilities, or else it must accept responsibility itself for transitioning to new facilities on the same timeline. Any disputes can be referred to the FCC's Wireless Telecommunications Bureau, and if there is bad faith by the broadband licensee, the matter will be referred to the Enforcement Bureau. Finally, the Commission exempts complex systems from mandatory relocation, and "not all 45 sites must be located within the county and/or within 70 miles of the county boundary where a prospective licensee is interested in deploying 900 MHz broadband." Moreover, the 45 site calculation will be based upon the number of sites as of the date of the Report and Order, which will enable licensees to consolidate or otherwise reduce the number of sites later without losing the exemption. However, the FCC declined to further expand the scope of the exemption, such as to include systems that are shared with public safety; and it declined to appoint a third party administrator to oversee negotiations, as some utilities had requested. It also declined to adopt any time limits for voluntary or mandatory relocation negotiations.

Broadband Operations

The draft Order provides expanded eligibility that would enable utilities a greater opportunity to become broadband licensees. Instead of requiring the broadband applicant to hold all 20 geographically licensed SMR blocks for the relevant county as it originally proposed in the NPRM, it will permit an applicant holding more than 50% of the total licensed 900 MHz spectrum (whether SMR or B/ILT) in the relevant county to be eligible for a broadband license. For purposes of meeting this threshold, any county that intersects the coverage area of a site is counted, based on either the 40 dB μ V/m field strength contour of a site or the 20 mile radius around a site. Some utilities had requested that the Commission provide utilities with a right of refusal for broadband licenses, but the Commission declined that request and reasoned that the 50% threshold approach it adopted went far enough so that "utilities with substantial B/ILT holdings can apply for 900 MHz broadband license to become broadband licensees."

In addition to the 50% threshold, the Commission also requires a broadband applicant to demonstrate that it holds spectrum or has reached agreements with covered incumbents collectively holding licenses for at least 90% of the site-channels in a county and within 70 miles of the county boundary. So, the applicant will need to submit a certification that it has met these thresholds as well as a Transition Plan for the relocation of incumbents; and the FCC is going to require that one of the FCC-certified frequency coordinators certify that the Transition Plan's representations can be implemented. The negotiation-based transition will commence upon issuance of a Public Notice opening a filing window during which the Wireless

Telecommunications Bureau will accept applications consistent with the adopted rules. The FCC declined to set a finite period for the filing of applications.

Licensing and Operating Rules

Broadband segment. The FCC has revised the allocation of the 900 MHz band for a “Mobile Except Aeronautical Mobile Service” which is on a co-primary basis with the Fixed Service, and it is designating the 900 MHz broadband allocation as a Miscellaneous Wireless Communications Service under part 27 of the Commission’s rules. The Commission declined to regulate broadband under Part 90 of the rules. The broadband licenses will be county-based and the initial license term will be 15 years, followed by a 10-year term for license renewals. Under the performance requirements, the broadband licensee must (1) provide reliable signal coverage and offer broadband service; and (2) meet either (a) a population coverage requirement, or (b) a geographic coverage requirement. The population metric is to provide reliable signal coverage and offer broadband service to at least 45% of the population in the license area within six years of license grant; and at least 80% of the population in the license area within twelve years of license grant. The geographic metric is to provide reliable service to least 25% of the geographic license area within six years of license grant; and 50% within 12 years. The FCC is also requiring licensees to transmit broadband data, but it declined to set specific data rates or latency metrics. Instead, the draft Order sets a safe harbor to provide 3/3 megahertz 3GPP standard LTE service offering for advanced services (i.e. not solely using 1.4/1.4 MHz channels or NB-IoT, although it is permitted as an ancillary service offering). This safe harbor is based on 3GPP standard release 8 or later release. In addition, the FCC is requiring broadband licensees to provide advanced services over its 3GPP-based 3/3 MHz LTE service; and it provides examples including advanced metering and mission critical applications. Finally, the FCC is establishing penalties for failure to meet the performance benchmarks. If a 900 MHz broadband licensee fails to meet the first performance benchmark, it will require the licensee to meet the final performance benchmark two years sooner (i.e., at 10 years into the license term) and will reduce the license term from 15 years to 13 years. If the licensee fails to meet its final performance benchmark, its authorization for that license area will terminate automatically without Commission action. These penalties extend to lessees; so, if they fail to meet their performance requirements, the Commission will penalize the licensee.

Narrowband segments. The FCC will limit access to new channels in the narrowband segment in transitioned markets to those eligible for B/ILT Pool frequencies, with limited exceptions. In doing so, the FCC agreed with UTC and utilities that restricting eligibility for B/ILT Pool entities in the narrowband segments would “ensure the safe, reliable and secure delivery of essential electric, gas and water services as well as other critical transport and petroleum services” and protect B/ILT Pool licensees against interference from broadband operations. SMR licensees will only be able to access narrowband channels in these segments by acquisition and conversion of channels, consistent with section 90.621(f) of the rules or by meeting the pool eligibility criteria for their internal business operations.

Technical Rules

1) Broadband segment.

Transmitter power limits. The FCC is establishing power limits for base and repeater stations not to exceed 400 watts/megahertz in non-rural areas and 800 watts/megahertz in rural areas,

with maximum permissible power decreasing as the antenna height above average terrain (HAAT) rises above 304 meters. Also, provided it doesn't cause interference, the 900 MHz broadband licensee may operate with an effective radiated power not to exceed 1000 watts/megahertz in non-rural areas and 2000 watts/megahertz in rural areas and an antenna height above average terrain (HAAT) not to exceed 304 meters (1,000 feet), with the maximum permissible power decreasing as the HAAT rises above 304 meters. The FCC also adopted its proposal to permit an effective radiated power for mobile, control and auxiliary test stations in the broadband segment not to exceed 10 watts, and effective radiated power of portables not to exceed 3 watts. The FCC concluded that these power levels will protect against interference, despite comments from Nextera, which stated that tests indicate LTE broadband signals will interfere with LMR receivers because LTE operations would cause the sensitivity level to degrade, resulting in near/far interference where an LMR receiver is geographically close to a strong interferer.

Out of band emission limits/guard band. The FCC established an OOB limit outside a licensee's frequency band of operation of at least $43 + 10 \log (P)$ dB for uplink operations in the 897.5-900.5 MHz band and at least $50 + 10 \log (p)$ dB for downlink operations in the 936.5-939.5 MHz band. In doing so, the FCC agreed with comments by Anterix and disagreed with comments by Nextera and Motorola. The Commission also declined to adopt a guard band between the narrowband and broadband segments. In doing so, it observed that the 3GPP standard only uses 2.7 MHz of the 3/3 MHz block, leaving a 150 kHz in-band spectral buffer on each side adjacent to the narrowband segments.

Interference protection and resolution. The FCC primarily relies on 70 mile distance separation to prevent interference, but it also requires broadband licensees to quickly resolve interference. In doing so, it established a new rule section 27.1510, which sets the interference criteria as -104 dBm or higher at the RF input of narrowband licensees' mobile receivers and -101 dBm or higher at the RF input of narrowband licensees' portable receivers.

2) Narrowband segments.

The FCC decided to use the existing 900 MHz technical rules to protect against interference in the narrowband segment. While it agreed with UTC and other utilities regarding the potential for interference and importance of protecting narrowband operations, it found that the existing safeguards in the part 90 rules are sufficient to protect against and resolve these interference concerns. Furthermore, it explained that the technical parameters governing the 900 MHz broadband segment are consistent with the interference resistance of current 900 MHz narrowband radio equipment and systems, which it concluded will ensure adequate interference protection to narrowband incumbents.

Order Announcing Partial Lifting of the Freeze.

As part of its rules, the FCC announced that it would partially lift the temporary freeze on the acceptance of certain applications related to part 90 services operating in the 900 MHz band, effective as of the adoption of the Order. Specifically, the FCC is lifting the freeze for the limited purpose of permitting covered incumbents to file applications to relocate their operations to different frequencies or locations and transition 900 MHz operations, provided the application is described in a Transition Plan for a broadband applicant or related to an agreement with a

broadband license after license grant (e.g., as part of mandatory relocation). Provided the above criteria are met, an applicant seeking license modification to relocate from the broadband segment will not be required to separately include with its application a request for waiver of the current freeze.