

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of)	
)	
Amendment of Part 2 of the Commission's)	ET Docket No. 00-258
Rules)	
to Allocate Spectrum Below 3 GHz for Mobile)	
and Fixed Services to Support the)	
Introduction of New Advanced Wireless)	
Services, including Third Generation Wireless)	
Systems)	ET Docket No. 95-18
)	
Amendment of Section 2.106 of the)	
Commission's)	
Rules to Allocate Spectrum at 2 GHz for Use)	IB Docket No. 99-81
By the Mobile-Satellite Service)	
)	
The Establishment of Policies and Service)	RM-9498
Rules)	
for the Mobile-Satellite Service in the 2 GHz)	
Band)	
)	
Petition for Rule Making of the Wireless)	RM-10024
Information Networks Forum Concerning the)	
Unlicensed Personal Communications)	
Service)	
)	
Petition for Rule Making of UTStarcom, Inc.,		
Concerning the Unlicensed Personal		
Communications Service		

COMMENTS OF NOKIA, INC.

Nokia, Inc. ("Nokia") hereby comments on the Federal Communications Commission's ("Commission") *Further Notice of Proposed Rulemaking* ("FNPRM") in the above-captioned proceeding concerning the allocation of spectrum for new advanced wireless services, including third generation ("3G") wireless or International Mobile Telecommunications-2000 ("IMT-2000"). Nokia is a global company with over 60,000 employees with key growth areas in wireless and wireline communications. A pioneer in mobile telephony, Nokia is the world's leading mobile phone supplier and a top supplier of mobile, fixed and IP networks, as well as related services.

As Nokia has previously commented, the most important criteria for allocating and licensing 3G spectrum are: that this spectrum be made available as soon as possible to meet expected demand, that there be sufficient spectrum made available and that this spectrum be contiguous and wide enough to support a competitive number of operators, and finally that this spectrum be globally harmonized to the greatest extent possible.¹

Although the Commission has outlined numerous potential band plans for 3G in this proceeding, it is Nokia's view that the number of 'realistic' options has been narrowed to just a few. All of these

¹ See *Comments of Nokia, Inc.*, February 22, 2001, pp.1-3, 6-7.

remaining options use some portion of the 1710-1885 MHz band identified for IMT-2000 at the World Radiocommunications Conference-2000 ("WRC-2000") in May 2000. We believe that proposed frequency plans utilizing other bands at this time either provide too little contiguous spectrum, do not provide achieve global spectrum harmonization, or cannot be made available—i.e. fully cleared, not just allocated and licensed---in a near enough timeframe to meet increasing demand for advanced mobile services.

The most feasible options fall into two major categories by either (1) creating an in-band pairing of spectrum from 1710-1850 MHz or (2) pairing spectrum above 1710 MHz with spectrum above 2110 MHz. Below are Nokia's views on these options in light of the criteria listed above: timing of availability, sufficient amount of spectrum and global harmonization.

Option 1a

The first variation of Option 1 would be to pair 1710-1745 MHz with 1805-1840 MHz. Option 1a has the advantage of providing longer-term global harmonization by aligning with second generation ("2G") GSM1800 frequency arrangements—which should eventually be allowed to evolve to 3G--used in much of Europe and Asia and some countries in the Americas. In the longer-term, as 2G systems in the 1800 MHz band evolve to 3G, this frequency arrangement would provide the benefits of global spectrum harmonization and globally competitive sources of equipment such as less costly equipment, a greater range of products, and quicker time to market for innovative products and features. Additionally, this spectrum has the advantage of making use of spectrum within the 1710-1755 MHz band, which is already available for commercial services. The disadvantage of this frequency arrangement, however, is that it will not lead to global harmonization in the near-term as Europe and other countries are not expected to refarm 1800 MHz to 3G until sometime after 2010. With only 2x35 MHz of spectrum, this frequency arrangement by itself does not provide sufficient spectrum to support a competitive number of operators, assuming between 2x10 MHz to 2x20 MHz per operator (the minimum amount needed to provide full 3G services). Finally, this spectrum arrangement will require a reallocation of incumbent users between 1805-1840 MHz, which could potentially delay the availability of this spectrum for deployment of 3G services. It should be noted that the guardband between the new downlink at 1845 MHz and the adjacent PCS uplink at 1850 MHz would need to be resolved.

Option 1b

The second variation of Option 1 would be to pair 1710-1745 MHz with 1805-1840 MHz and 1755-1795 MHz with 2110-2150 MHz. Like Option 1a, this option would provide some longer-term harmonization with 2G GSM 1800 MHz pairings globally. Moreover, this option uses the portions of the globally allocated and licensed downlink spectrum for 3G at 2110-2170 MHz, the one band that is globally available for 3G. Additionally, this option has the advantage of providing significantly more spectrum, up to 2x75 MHz, than Option 1a. However, this option---by allowing two frequency pairings--introduces greater complexity to the equipment, which would likely be reflected in cost, size and time to market of equipment, particularly for handsets. To a greater extent than Option 1a, this frequency arrangement will face the challenges and longer timeframe associated with relocating Federal incumbents out of the 1755-1845 MHz band. Finally, the guard bands between uplink and downlink of the new spectrum and the uplink of PCS would need to be resolved.

Option 2a

The first variation of Option 2 would be to pair 1710-1770 MHz with 2110-2170 MHz. In terms of longer-term global spectrum harmonization, this option is the “next best” to the Option 1 variations. While this frequency arrangement would use a new pairing, it would take advantage of globally common uplink and downlink mobile bands. This option would provide immediate harmonization with the globally available 3G downlink spectrum at 2110-2170 MHz consistent with 3G systems that are already licensed in Europe and Asia and longer-term global harmonization with the GSM1800 uplink spectrum at 1710-1785 MHz. The complexity associated with this arrangement would be equivalent to the equipment complexity anticipated with Option 1b. This option would provide 2x60MHz, significantly more than Option 1a. While this option would require additional groups of incumbents to relocate, it would require each of these incumbent groups to vacate less spectrum. For example, Federal incumbents would have to vacate less spectrum---only 1755-1770 MHz---than with either Options 1a or 1b, possibly shortening the timeframe for availability. Multipoint Distribution Service (“MDS”) incumbents at 2150-2160 MHz would need to be relocated and MSS spectrum—not currently licensed to any incumbents--at 2165-2170 MHz would need to be reallocated. It is Nokia’s view that reallocation of 2150-2160 MHz will be necessary to take advantage of the globally available 3G band at 2110-2170 MHz and provide a contiguous band necessary for 3G services. Additionally, relocation of the incumbents in 2150-2160 MHz would help to resolve the issues associated with adjacent channel sharing between fixed and mobile services such as required guard bands if 3G is to be allocated in 2110-2150 MHz and 2160-2165 MHz. It is also Nokia’s view that reallocation of the MSS spectrum at 2165-2170 MHz is beneficial as it helps to harmonize this spectrum with global uses for terrestrial mobile or 3G and provides a wide contiguous band for 3G. Reallocation of 2165-2170 MHz would be minimally disruptive as this spectrum is not licensed and would not require relocation of incumbents.

Option 2b

The second variation of Option 2 would be to pair 1710-1780 MHz with 2110-2180 MHz. This option shares the same advantages and disadvantages as Option 2a, but has the additional advantage of providing 2x70 MHz, to better meet demand for 3G services. Realizing the full benefit of this additional 2x10 MHz of spectrum, however, requires meeting additional challenges, as the upper portion of these bands is not currently globally allocated for terrestrial mobile use. In considering this option, Nokia urges the Commission to explore market sharing and regulatory issues related to 1770-1780 MHz and 2170-2180 MHz with other national regulators, as 3G terminals should be global.

Summary

Nokia urges the Commission to consider the timing of availability of spectrum, to make sufficient spectrum available to support full 3G services by a competitive number of operators, and the importance of global harmonization of the spectrum allocated.

In reviewing the most feasible options for allocating 3G spectrum in the light of these options, Nokia notes advantages to all of these options. With respect to the timing of availability, Nokia notes that Options 2a and 2b are most likely to bring spectrum to the market in a shorter time frame. With respect

to sufficient amount of spectrum, Options 1b, 2a and 2b provide sufficient spectrum to support close to a competitive number of 3G operators, while Option 1a provides far too little to meet this goal. With respect to global harmonization, Options 1a provides the best long-term harmonization in terms of both frequency bands and pairing, while Options 1b, 2a and 2b provide the next best level of long-term harmonization and immediate near-term harmonization by using the one globally common 3G downlink band at 2110-2170 MHz. Nokia recommends that the ability of these options to meet all three goals should be weighed carefully in deciding on a spectrum allocation for new advanced wireless services.