

Name (typed): _____

Title: _____

Date: _____

(d) The applicant must submit a non-refundable check in the amount of \$500 (Five Hundred Dollars) made payable to the Maritime Administration, which is a minimum fee and represents a deposit against any cost to the Government for processing the application. The applicant must also submit a signed statement (see paragraph (c) of this section) that it agrees to pay all such additional costs that will be invoiced by the Government. Government costs will be billed for actual staff hours spent at applicable hourly rates plus overhead, administrative and other associated costs.

(e) *Required platform jacket transportation project information.*

(1) Applications must include a general description of the transport, placement and/or launch project, including:

(i) A description of the platform jacket structure with launching weight, center of gravity, major dimensions, and a general arrangement plan,

(ii) The projected loading date and site,

(iii) The projected transportation date and destination site,

(iv) The names of potential coastwise-qualified vessel owners/operators contacted and their responses regarding suitability and availability of transportation vessels, and

(v) The technical merits and availability studies of coastwise-qualified vessels considered.

(2) Characteristics of the applicant's desired foreign launch barge, including, at a minimum, the following information:

(i) Name of the vessel,

(ii) Registered owner of the vessel,

(iii) Physical dimensions, deadweight capacity in long tons, ballasting capacities and arrangements, and launch capacity in long tons and arrangements,

(iv) Documentation showing classification as a launch barge by one of the following classification societies: American Bureau of Shipping (ABS), Bureau Veritas (BV), Lloyd's Register (LR), Germanischer Lloyd (GL), Det Norske Veritas (DNV) or Registro Italiano Navale (RINA).

(v) Date and place of construction of the foreign launch barge and (if applicable) rebuilding. If the applicant is unable to document the origin of the vessel, foreign construction will be assumed.

(vi) Name, address, e-mail address and telephone number of the foreign launch vessel owner.

(3) A signed statement that the applicant represents that the foregoing information is true to the best of the applicant's knowledge and belief, as required by paragraph (b) of this section.

(f) The Maritime Administration may require additional information from an applicant as part of the review process. The application will not be considered complete until the agency has received all required information.

§ 389.5 Review; issuance of determinations.

(a) The Maritime Administration will review each application for completeness, including evidence of prior notification and payment of the application fee. Applications will not be processed until deemed complete. The Maritime Administration will notify an applicant if additional information is necessary. The agency encourages submission of applications well in advance of project dates in order to allow sufficient time for review under this part.

(b) The Maritime Administration will review the information required by Section 389.4. When the application is deemed complete, the agency will publish a notice in the **Federal Register** describing the project and platform jacket involved, advising that all relevant information reasonably necessary to assess the transportation requirements will be made available to interested parties upon request. The notice will request that information on the availability of coastwise-qualified vessels be submitted within thirty (30) days after the publication date. The Maritime Administration will also notify coastwise-qualified owners/operators who have registered with per § 389.3.

(c) The Maritime Administration will review any submissions whereby an offeror owner or operator of a coastwise-qualified vessel asserts it is available and will facilitate discussions between the offeror and a platform jacket owner/operator who requires transportation services. If the parties are unable to reach agreement, the Maritime Administration will make a determination regarding vessel availability.

(d) If needed, the Maritime Administration's technical personnel will review data required by § 389.4. The data must be complete and current. Any data submitted will not be returned to an applicant and will be retained by the agency on file further to applicable record retention directives. Maritime Administration review will not substitute for the review or approval by a major classification society (ABS, BV,

LR, GL, DNV, RINA). Maritime Administration review will not verify the accuracy or correctness of an applicant's engineering proposal; rather, it will only pertain to the general reasonableness and soundness of the technical approach.

(e) The Maritime Administration will disapprove the application if:

(1) The agency finds the applicant does not comply with requirements set forth by § 389.3 or § 389.4; or

(2) The agency finds that the applicant refused to attempt to obtain transportation services that comply with the Jones Act; or

(3) The agency determines a suitable coastwise-qualified vessel is reasonably available.

(f) The Maritime Administration will issue a determination of non-availability if it is determined that no suitable coastwise-qualified vessel is reasonably available.

(g) A determination will be issued within ninety (90) days from the date the application notice was published in the **Federal Register**.

(h) A determination of non-availability will expire one-hundred and twenty (120) days after the date of issuance, unless the agency provides an extension for good cause shown.

(i) Maritime Administration determinations in this regard should not be interpreted as a change setting new Federal maritime precedents. The Maritime Administration fully supports the Jones Act, the Passenger Vessel Services Act, and other Federal U.S.-flag requirements.

Dated: September 30, 2010.

By order of the Maritime Administrator.

Christine S. Gurland,

Secretary, Maritime Administration.

[FR Doc. 2010-25229 Filed 10-8-10; 8:45 am]

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FEDERAL COMMUNICATIONS COMMISSION

47 CFR Part 15

[ET Docket No. 98-153 and 04-352; FCC 10-151]

Ultra-Wideband Transmission Systems

AGENCY: Federal Communications Commission.

ACTION: Final rule.

SUMMARY: This document reaffirms certain rules and procedures for ultra-wideband ("UWB") devices that operate on an unlicensed basis of the Commission's rules. This action terminates the Ultra-Wideband

Transmission Systems proceeding and thus provides certainty for the continued development of UWB equipment, including ground penetrating radars for underground imaging, through wall imaging systems, short-range high capacity data links, and other applications.

DATES: Effective November 12, 2010.

FOR FURTHER INFORMATION CONTACT:

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SUPPLEMENTARY INFORMATION: This is a summary of the Commission's *Third Memorandum Opinion and Order and Memorandum Opinion and Order*, ET Docket No. 98-153 and ET Docket No. 04-352, adopted August 10, 2010, and released August 11, 2010. The full text of this document is available on the Commission's Internet site at <http://www.fcc.gov>. It is also available for inspection and copying during regular business hours in the FCC Reference Center (Room CY-A257), 445 12th Street, SW., Washington, DC 20554. The full text of this document also may be purchased from the Commission's duplication contractor, Best Copy and Printing Inc., Portals II, 445 12th St., SW., Room CY-B402, Washington, DC 20554; telephone (202) 488-5300; fax (202) 488-5563; e-mail FCC@BCPIWEB.COM.

Summary of the Third Memorandum Opinion and Order and Memorandum Opinion and Order

1. In this Third Memorandum Opinion and Order, the Commission dismisses as procedurally defective a Petition for Reconsideration filed by the Satellite Industry Association ("SIA") in response to the *Second Report and Order* and *Second Memorandum Opinion and Order* ("*Second R&O*" and "*Second MO&O*") in ET Docket No. 98-153, 70 FR 6771, February 9, 2005, that argues that the power level adopted for UWB devices is too high to protect C-band (3.7-4.2 GHz) fixed satellite service ("FSS") earth stations from interference. In this Memorandum Opinion and Order, the Commission also dismisses in part and denies in part a Petition for Reconsideration filed by SIA and denies a Petition for Reconsideration filed by Cingular Wireless LLC ("Cingular") (now AT&T) in response to the *Order* ("*Order*") in ET Docket No. 04-352. Both petitions argue that the waiver granted by the *Order* of the measurement procedures for UWB devices operating in the 3.1-5.03 GHz and 5.65-10.6 GHz bands would significantly increase the potential for

interference to C-band fixed satellite and cellular operations.

Background

2. On February 14, 2002, the Commission adopted the *First Report and Order* ("*First R&O*") in ET Docket No. 98-153, 67 FR 34852, May 16, 2002, amending part 15 of its rules to permit the marketing and the unlicensed operation of products incorporating UWB technology. UWB devices operate in frequency bands that are allocated both to Federal and to non-Federal operations, including certain frequency bands where unlicensed devices generally are restricted from transmitting, *i.e.*, the restricted frequency bands, due to the extremely wide bandwidths UWB devices use. Consequently, before the Commission adopted its technical and operational rules for UWB devices, it evaluated several measured and simulated analyses regarding the potential for UWB devices to cause harmful interference to the authorized services.

3. Two additional orders were adopted in response to several Petitions for Reconsideration. On February 13, 2003, the Commission adopted a *Memorandum Opinion and Order and Further Notice of Proposed Rule Making* ("*MO&O*" and "*FNPRM*") in ET Docket No. 98-153, 68 FR 19746 and 68 FR 19773, April 22, 2003, addressing fourteen Petitions for Reconsideration of the *First R&O* and proposing changes to the UWB regulations. On December 15, 2004, the Commission adopted the *Second R&O* and *Second MO&O*, addressing the proposals in the *FNPRM* in addition to denying the Petitions for Reconsideration of the *MO&O* filed by Cingular and by SIA. In the *Second MO&O*, the Commission also addressed the interference analysis submitted by the Coalition of C-Band Constituents ("*Coalition*"). The Coalition had contracted with Alion Science and Technology ("Alion") to determine what, if any, interference potential exists to Fixed Satellite Service ("FSS") reception from UWB operation. The Commission found that the test report on this matter ("*Alion Report*") was based on multiple worst-case and unrealistic assumptions and provided no justification to warrant reducing the allowed UWB emission levels in the FSS frequency band.

4. On March 10, 2005, the Commission adopted an *Order* granting a waiver of the measurement procedures to permit emissions from UWB transmitters operating in the 3.1-5.03 GHz and 5.65-10.6 GHz bands that employ frequency hopping or stepped frequency modulation techniques, or

that gate the transmitted signal, to be measured with the transmitter operating in its normal transmission mode. This action waived the UWB measurement requirements not only for Multi-band OFDM Alliance Special Interest Group ("MBOA-SIG") but also for any UWB device using hopped, stepped or sequenced modulation techniques or that gates the transmittal signal.

SIA Petition for Reconsideration of the Second MO&O

5. *I/N Level and Alion Report*. SIA asserts, as it has on previous occasions in this rulemaking proceeding, that the power limit adopted for UWB devices is not sufficient to protect C-band FSS earth stations from interference because, in devising this power limit, the Commission's analysis relied on a 0 dB interference-to-noise ratio ("*I/N*") for earth station receivers, which SIA states is too high. SIA also disagrees with the Commission's conclusion in the *Second MO&O* that the Alion interference study was based on multiple worst-case assumptions that were not realistic and thus did not support modifying the UWB power limits. SIA further asserts that the Commission's reliance on complaint procedures to protect FSS stations from interference from UWB devices, as discussed in the *Second MO&O*, is ineffective. Opposing comments were filed by Freescale Semiconductor, Inc. ("*Freescale*"), and joint supporting comments were filed by Fox Broadcasting Company, Fox Cable Networks and Home Box Office, Inc. ("*Fox et al.*").

6. While SIA states that its petition is a Petition for Reconsideration of the *Second R&O* and *Second MO&O*, it does not address any changes to the regulations that were adopted in the *Second R&O* portion of that document. SIA is essentially making the same arguments here that it made in its Petition for Reconsideration of the *Order*, asserting that the Alion Report supports the need to modify the UWB technical requirements. The Commission explained in the *Second MO&O* that its reasons for recalculating the analysis in the Alion study were based on its rejection of the application of a signal aggregation factor for UWB devices and its rejection of the assumption that most UWB devices would operate outdoors in proximity to FSS earth stations. As the Commission indicated in the *Second MO&O*, the inclusion of either of these factors was sufficient to demonstrate that there was no need to modify the UWB emission limits to protect FSS earth stations. SIA presents no new arguments or information in its Third Reconsideration

Petition—it merely disagrees with the Commission's analysis and conclusion. Further, SIA is essentially requesting reconsideration of an Order denying a petition for reconsideration. In that action, however, the Commission did not make any changes to the UWB regulations. Accordingly, pursuant to 47 CFR 1.429(i), the Commission is dismissing this portion of SIA's Third Reconsideration Petition as repetitious.

7. *Reliance on Complaint Procedure to Protect FSS.* SIA protests that the Commission's complaint procedures would not be effective for addressing claims of interference from UWB devices to FSS earth stations, and thus requests that the Commission modify the UWB power limits to reduce the likelihood of interference. SIA's concern is based on the Commission's statement in the *Second MO&O* that it will monitor the situation and will take whatever appropriate action is necessary to ensure that UWB operation does not result in harmful interference to FSS receivers. This statement was made in conjunction with the Commission's conclusion that the Alion Report did not justify a reduction in the UWB emission levels in the FSS frequency band, *i.e.*, that UWB devices were not a potential threat of harmful interference to FSS operations. The Commission's acknowledgement that it will continue to monitor this situation and investigate any interference complaints from unlicensed UWB devices to authorized services is consistent with Commission regulations and policies and is not by itself a basis for reconsidering the UWB emission limits that were adopted in the *First R&O*. Further, SIA's Third Reconsideration Petition is requesting reconsideration of an action that responded to a petition for reconsideration, but does not address any changes that were made to the UWB regulations. Accordingly, consistent with 47 CFR 1.429(i), the Commission is dismissing this portion of SIA's Third Reconsideration Petition.

SIA and Cingular Petitions for Reconsideration of the Order

8. When the Commission adopted its UWB regulations in 2002, it established standards that were technically neutral, permitting the use of any type of technology or modulation technique that resulted in the transmitter's compliance with the minimum bandwidth specification and the limits on radiated emissions. The Commission recognized in the *First R&O* that measurement procedures had not been established to address transmitters, UWB or otherwise, employing stepped

frequency, frequency hopping, or swept frequency transmissions, and that their interference aspects had not been evaluated based on the different measurement results that would be obtained from measurements taken with the system operating in its normal operating mode. At the time the Commission adopted the UWB rules, its rules already required that frequency swept devices be measured with the frequency sweep stopped at the frequency chosen for the measurements reported. With respect to the *First R&O*, the Commission adopted a rule specifying measurement procedures for UWB devices using pulsed gated modulation schemes, which were under development at that time, requiring measurements to be made with the pulse train gated on if the transmitter is quiescent for intervals that are long compared to the nominal pulse repetition. The Commission, consistent with its existing regulations, also adopted a rule stating that it may consider alternative measurement procedures. The Commission stated, but did not codify in the rules, that UWB transmitters employing stepped frequency, frequency hopping, or swept frequency transmissions need to be measured with the step, hopping, or sweep function disabled and with the transmitter operating continuously at a fundamental transmission frequency.

9. Subsequent to the adoption of the UWB standards, on August 26, 2004, the MBOA-SIG filed a petition for waiver of the UWB measurement procedures as applied to UWB systems employing multiband orthogonal frequency division multiplexing ("MB-OFDM") modulation, which is a stepped or sequenced modulation scheme, operating in the 3.1–5.03 GHz and 5.65–10.6 GHz bands. MBOA-SIG requested a waiver of the measurement procedures for such systems, as discussed in paragraph 32 of the *First R&O*. MBOA-SIG also requested a waiver of the measurement procedure in 47 CFR 15.521(d), as adopted in the *First R&O*, for pulse gated systems to the extent that this rule applied to MB-OFDM systems. Freescale Semiconductor, Inc. ("Freescale"), which produces a UWB device based on a direct-sequence spreading of binary-phase-shift-keyed pulses ("DS-UWB") employing pulse gating techniques, requested that the Commission extend any waiver of the measurement rules and procedures to permit any UWB device to be measured in its normal operating mode so as to retain technical neutrality in the Commission's UWB regulations. In support of its request, MBOA-SIG

submitted simulated and actual test data demonstrating that the interference potential of frequency hopped or stepped systems, measured in their normal operating modes, is less than that of a UWB transmitter employing impulse modulation. In addition, NTIA and the Commission developed detailed measurement procedures for frequency hopping and stepped frequency systems.

10. In reaching its decision to adopt the waiver, the Commission recognized that the interference aspects of a transmitter employing frequency hopping, stepped frequency modulation, or gating are quite similar, as viewed by a receiver, in that transmitters using these burst formats appear to the receiver to emit for a short period of time followed by a quiet period. The Commission thus concluded that any requirement to stop the frequency hop, band sequencing, or system gating serves only to add another unnecessary level of conservatism to already stringent UWB standards. Accordingly, the Commission granted a waiver of the measurement procedures, permitting the emissions from UWB transmitters that employ frequency hopping or stepped frequency modulation techniques, or that gate the transmitted signal, to be measured with the transmitter operating in its normal transmission mode. This allows the measurements to account for the time averaging during which the UWB emitter is not transmitting.

11. On April 11, 2005, Cingular and SIA filed Petitions for Reconsideration of the *Order* requesting that it be vacated. SIA also requested that operation of UWB devices under the terms of the *Order* not be allowed in the 3650–4200 MHz band used for satellite downlinks, pending the outcome of NTIA studies of interference from UWB devices to satellite digital television receivers in this band. Supporting comments were filed by Sprint Corporation ("Sprint") and supporting reply comments were filed by Cingular and by SIA. Opposing comments were filed by the WiMedia Alliance ("WiMedia-MBOA").

12. Cingular and SIA raise various objections to support their central argument that the waiver of the UWB measurement procedures will effectively and significantly increase the potential for harmful interference from UWB devices. SIA also argues that multiple studies demonstrate that the existing UWB power limits expose FSS receivers to unacceptable interference, and it continues to request the application of a -20 dB I/N as a protection requirement for FSS

operation. This portion of SIA's petition is merely a request to reconsider the standards adopted in the *First R&O*. The Commission rejects SIA's petition on this same issue. Because SIA's petition for reconsideration raises the same arguments as its earlier petition and does not address any decision made in the *Order*, the Commission dismisses this portion of its petition. The Commission discussed in paragraphs 17–19 of *Third MO&O and MO&O* the other arguments raised by Cingular and SIA in their petitions for reconsideration of the *Order* and conclude that the petitions offer no new evidence that would support vacating or changing the *Order*. Accordingly, these petitions are being denied.

13. *Argument that the waiver violated the Administration Procedure Act ("APA") and other statutes and eviscerates the rules.* The Commission concludes that the waiver of the measurement procedures for certain UWB devices does not constitute a rule in violation of the APA and that the waiver does not "eviscerate" the rules. Indeed, the Commission's action is entirely consistent with its rules. The Commission permits the use of alternative measurement procedures, provided the applicant can demonstrate that the requested procedure is reasonable. For example, the Commission's rules provide that the Commission will accept measurement data that meets various standards or procedures established and published by the Commission or recognized bodies as well as "any measurement procedure acceptable to the Commission * * * demonstrating compliance with [its] requirements * * *." The Commission's rule specifying measurement procedures for pulsed gated UWB devices, 47 CFR 15.521(d), also states that alternative measurement procedures may be considered by the Commission. Even if one considers the Commission's statements in the *First R&O* regarding measurement procedures for gated, stepped frequency, frequency hopping or swept frequency transmissions to be tantamount to a "published" measurement procedure, the Commission's rules clearly allow it to consider alternative measurement procedures for UWB devices without conducting a rulemaking proceeding.

14. While the Commission could have addressed the measurement procedure requested by MB-OFDM without a notice and comment proceeding, it believed that the prudent course of action was to analyze MBOA-SIG's request within the context of its waiver standard. It issued a Public Notice and entertained comments from interested

parties. It is important to note that no changes were made to the emission standards on which the non-interference probability of UWB devices is based. Rather, the Commission relaxed an overly conservative measurement procedure that artificially constrained the emissions from UWB devices employing certain modulation types to levels that were effectively below the levels permitted under the regulations. Further, only the portion of 47 CFR 15.521(d) applicable to pulsed gated UWB devices was waived; the measurement procedure for swept frequency transmissions was not waived. Thus, the Commission's determination does not constitute "evisceration" of the rules.

15. It is a well-established principle that the Commission will waive its rules in specific cases only if it determines, after careful consideration of all pertinent factors, that such a grant would serve the public interest without undermining the policy which the rule in question is intended to serve. In the *Order* the Commission determined that permitting use of the new measurement procedures was in the public interest because it enabled a new technology to be introduced to the market to the benefit of businesses and consumers. In addition, the Commission demonstrated how granting the waiver would not undermine the policy which the rule is intended to serve, *i.e.*, the prevention of harmful interference to the authorized radio services. Test information evaluating the interference potential of these emission types, based on measurements performed with the equipment in its normal operating mode was submitted by MBOA-SIG. Through testing and interference analysis, MBOA-SIG provided convincing information that the application of these test procedures to systems employing MB-OFDM modulation would not result in an increased risk of harmful interference. In the *Order*, the Commission supplied a reasonable explanation as to why a similar application to DS-UWB systems also would not result in an increased risk of interference but would retain the technical neutrality of the UWB regulations. Thus, the Commission concludes that the waiver granted in the *Order* permitting UWB transmitters employing frequency hopping, stepped frequency or gated modulation techniques to be measured in their normal operating mode does not constitute a violation of the APA. Further, as the Commission has not amended its rules, the issuance of the subject waiver did not violate the

Congressional Review Act or the Regulatory Flexibility Act. Accordingly, this portion of Cingular's petition is denied.

16. *Argument that the waiver increases the threat of harmful interference by 6 dB or more.* Cingular claims that the change in measurement procedures allowed by the waiver effectively will increase the power levels of UWB devices by 6 dB or more and will introduce additional interference that cannot be mitigated through error correction coding or other means. Cingular argues that the OFDM waveform addressed under the waiver was not envisioned during the original rulemaking, that there were no measurements or tests with this technology, and that the waiver deviates from the Commission's policy of proceeding cautiously with regulations. Cingular continues to contend that additional testing is needed to address the impact on wideband receivers. It argues that measurements or tests were not performed for the MB-OFDM system nor was there an analysis of interference potential. SIA states that because the Commission believed that the UWB emission limits were conservative, a view SIA does not share, it thought that additional interference could be permitted by granting the waiver.

17. The petitioners' arguments are based on a mistaken assertion that the UWB emission limits were somehow relaxed as a result of the waiver. The Commission did not change the emission levels for UWB devices in the *Order*. Instead, the Commission merely allowed the use of different measurement procedures that demonstrate, consistent with our rules, that the devices comply with the power limits for UWB devices.

18. The UWB limits on radiated emissions were based on extensive and extremely conservative analyses in the *First R&O* and on the supposition that a transmitter would operate continuously within a single frequency band. However, the MB-OFDM transmitter envisioned by MBOA-SIG hops to three different channel frequencies. The transmission duty cycle on a specific channel is 26 percent (5.9 dB). By requiring the emissions to be measured with the MB-OFDM transmitter operating continuously on the same operating frequency, the duty cycle per channel is artificially increased to 100 percent and an emission level is measured that is 5.9 dB higher than what would be obtained with the transmitter functioning in its normal operating mode. Thus, Cingular is not correct that the waiver permits the

UWB emission levels to increase by 6 dB or more. Rather, the measurement procedures described in the *First R&O* for this type of transmission scheme would require testing in an artificial operating mode that results in the actual emissions from the MB-OFDM transmitter being restricted to 5.9 dB below the limits specified in the rules. The effect of the waiver is to provide a more realistic representation of the signal level actually produced by the UWB device, permitting the UWB transmitters to function at the emission limits permitted by the regulations.

19. As stated in the *Order*, contrary to Cingular's claims, the MBOA-SIG members conducted simulated and actual testing of devices employing the MB-OFDM modulation format to demonstrate that, under normal operating conditions, there is no greater interference potential from an MB-OFDM UWB waveform than from an impulse-generated UWB waveform even when compliance with the emission limits is demonstrated with the frequency hop or step function active. The Commission stated that these results are consistent with the theory, as expressed by NTIA, that RMS measured emission levels are proportional to the measured bandwidth and the spectral power density, irrespective of pulse rate or modulation. Indeed, an integrated RMS measurement provides true average power readings, even for non-continuous signals such as frequency hopped UWB waveforms. Thus, the 6 dB potential increase claimed by Cingular will not be seen by a victim receiver and is irrelevant with regard to interference potential. Instead, the victim receiver will see the RMS average of that signal. This is the reason that the Commission adopted RMS average limits for UWB devices.

20. The Commission took a cautious approach throughout this proceeding, limiting the applications for UWB and adopting knowingly conservative emission limits. This approach was not contravened by the waiver since no changes were made to the emission masks. Cingular and SIA have provided no new information to support their claims of increased interference potential and no arguments which undermine our rationale in granting the waiver. Accordingly, these portions of Cingular's and SIA's Petitions for Reconsideration are denied.

21. *Argument that the Commission did not meaningfully respond to Cingular's comments.* In response to MBOA-SIG's waiver request, Cingular argued that the waiver could not be granted without tests comparing the measurements of transmissions from

MBOA-SIG's proposed system that would result with and without the frequency hopping stopped. In the *Order*, the Commission concluded that the tests submitted by MBOA-SIG demonstrated that, under normal operating conditions, MBOA-SIG's proposed system does not increase the potential for interference relative to a UWB transmitter using impulse modulation. Based on that conclusion, the Commission concluded that there was no need for the additional testing recommended by Cingular.

22. In its Petition for Reconsideration, Cingular argues that the Commission failed to address its comments adequately because it did not conduct the tests that Cingular recommended. The Commission disagrees. The Commission considered the record fully, including Cingular's arguments, in determining whether additional testing was needed. The Commission also explained fully why it concluded that MBOA-SIG's proposed system did not increase the potential for interference relative to a UWB transmitter using impulse modulation, and that, therefore, the additional tests recommended by Cingular were unnecessary. Accordingly, we find that the Commission did consider Cingular's comments in this proceeding, and we are denying this portion of Cingular's petition.

23. Furthermore, the Commission continues to conclude that there was no justification to delay the outcome of this proceeding by requiring MBOA-SIG to perform the additional testing requested by Cingular in its comments responding to the MBOA-SIG Petition for Waiver. By proposing testing of MBOA-SIG's proposed system with the frequency hopping stopped, Cingular in effect advocated testing that system while artificially forced to operate at a 100 percent per channel duty cycle. MBOA-SIG's proposed system is designed to operate at a 26 percent per channel duty cycle. Testing such a system at a 100 percent duty cycle will show an emission level that is 5.9 dB higher than it would be at a 26 percent duty cycle. However, such a test would be irrelevant, as it would not reflect the actual operation of the equipment and would not be indicative of the interference potential of the UWB emissions.

24. *Argument that the Commission gave no weight to Freescale's comments that contradicted the MBOA-SIG test results and the waiver was overbroad.* As stated in the *Order*, several of the comments contained technical discussions on whether or not the MB-OFDM modulation format resulted in

greater or lesser interference than the DS-UWB format. However, the Commission added that this issue is not relevant to the request for waiver. What is important with regard to the waiver request is whether or not the MB-OFDM modulation format, when measured in the normal operating mode, has a sufficiently greater interference potential than a UWB transmitter employing impulse modulation so as to increase the risk of harmful interference. While the comments argued this issue based on different criteria, the Commission rejected as improbable the theoretical analyses that were performed assuming a zero background noise level, a zero bit error rate and a victim receiver with a bandwidth that is greater than the UWB band switching rate. Instead, it favored the analysis from MBOA-SIG as being representative of an actual operating system where the background noise level will mask a low level undesired signal and bit error rates are greater than zero. Based on this real-world analysis and actual measured test data submitted by MBOA-SIG, the Commission stated that it was clear that the interference potential of the MB-OFDM format, based on compliance with the rules being demonstrated with the frequency hop active, is no greater than that of an impulse UWB emission. Thus, contrary to the claims of the petitioners, the Commission did explain why it favored the MBOA-SIG analysis over that of the conflicting analysis from Freescale and did address the objections to the petition.

25. The Commission also disagrees with SIA's statement that any increase to the number of FSS symbols that potentially could be affected by interference due to the use of frequency hopping waveforms will also result in harmful interference. In adopting rules for UWB devices, the Commission chose to rely on emission limits as the tool for preventing harmful interference irrespective of the duty cycle of the UWB device or its specific modulation type. Because the waiver does not change the emission limits, the Commission concludes that the potential for harmful interference will not be increased. Neither SIA nor Cingular provided any new information demonstrating that the Commission erred in its decision.

26. The Commission also disagrees with SIA's argument that application of the waiver to all MB-OFDM devices and to DS-UWB devices was overbroad. NTIA's technical analyses clearly demonstrated that the average power of the transmitted signal, not its instantaneous power such as would be measured in a static mode, was the

appropriate basis for determining interference potential. Further, this reasoned analysis by the Commission allowed for continued technology-neutral treatment of various UWB design formats without undermining the policy which the rule is intended to serve, *i.e.*, the prevention of harmful interference to the authorized radio services. Based on the above information, the Commission therefore finds that these portions of SIA's and Cingular's Petitions for Reconsideration are without merit and are denied.

27. *Argument that Multiple devices operating in an area will synchronize and fill up the spectrum.* There is no evidence or valid analysis to support Cingular's claims that multiple, co-located UWB devices will synchronize their transmissions. Freescale did make such claims in its comments to MBOA-SIG's Petition for Waiver. However, this issue was specifically addressed by MBOA-SIG in its reply comments and by Texas Instruments in its *ex parte* comments. As they show in these findings, such synchronization would require nanosecond time-scale synchronization between devices—an improbable task, particularly if the devices were attempting to monitor the spectrum to determine open operating windows. These transmitters are thus uncoordinated and will employ different on-off starting times, and possibly different timing intervals, which will be further degraded by timing drifts between the devices. Further, the Commission has already demonstrated that SIA's claims of cumulative interference are misplaced. Even if synchronization were possible, the emissions from co-located transmitters with synchronized operations still would not be expected to add linearly at a victim receiver as slight differences in path lengths due to multipath and other factors would skew any synchronization as well as the levels of the received signals. If the Commission assumes the unlikely condition where an FSS receiver will receive signals from multiple UWB devices and that these UWB signals are synchronized with respect to reception by the FSS receiver and not by the UWB receiver, three devices operating simultaneously on the three channels would result in a maximum increase in the received level of approximately 4.8 dB. This is exactly the same increase that would be caused by three impulse devices operating under the same conditions. Therefore, waiving of the measurement rule would not increase the likelihood of aggregation.

28. The Commission finds that there is no evidence from the petitioners that

UWB devices will synchronize or interleave their transmissions or that there will be any aggregate or cumulative effects from multiple UWB transmitters operating in the same area. Thus, no rule prohibiting such operation is necessary. Accordingly, these portions of Cingular's and SIA's Petitions for Reconsideration are denied.

29. *Argument that the Commission needs to exclude operation in the 3.65–4.2 GHz band under the waiver, just as it did in the 5.03–5.65 GHz band, pending completion of ITS testing.* The Commission delayed implementation of its waiver provisions on the 5.03–5.65 GHz band, pending completion of the ITS study, solely as a matter of deference to NTIA and not because of any demonstrated potential for harmful interference to these systems. Such action is within the Commission's discretion. When spectrum, such as the 5.03–5.65 GHz band, is allocated for use by Federal Government agencies, the Commission consults with NTIA on any proposed non-Federal use of that spectrum. However, when spectrum is allocated exclusively for non-Federal operations, the Commission has exclusive jurisdiction to interpret and apply interference analyses and studies in determining emission limits and operating parameters. Because the Commission had already determined in its rulemaking proceeding that there was no potential for harmful interference to FSS reception, there was no need to delay implementing the waiver in the 3.65–4.2 GHz FSS band.

30. In addition, the Commission notes that Microwave Landing Systems operate in the 5.03–5.65 GHz band, which are used for precision approach and landing of civilian and military aircraft. The Commission finds that it was a reasonable exercise of its discretion for the Commission to be more cautious with respect to MLS because of the public safety function that those systems serve. On the other hand, while we agree with SIA that commercial FSS merits protection from interference in the 3.65–4.2 GHz band, FSS generally does not serve the same public safety function as MLS. Accordingly, the Commission finds that it was a reasonable exercise of the Commission's discretion for it to conclude based on the record in the *Order* that granting MBOA-SIG's waiver request with respect to 3.65–4.2 GHz band would not create an unreasonable increase in the potential for interference to FSS in that band.

31. The Commission continues to maintain that FSS C-band receivers are more than adequately protected from

UWB emissions, as shown in the various interference analyses when rational operating conditions are employed. This conclusion has been verified through the Alion interference study submitted by the C-band Coalition and through the analysis and real world tests performed by MBOA-SIG. Further, the completed ITS study, which analyzed whether there were discernible differences between different modulation formats that could be used in UWB devices, does not alter our conclusion that FSS C-band receivers are unlikely to suffer harmful interference from UWB emissions. Accordingly, this portion of SIA's Petition for Reconsideration is denied.

Ordering Clauses

32. Pursuant to Sections 4(i), 302, 303(f), 303(r), and 405 of the Communications Act of 1934, as amended, 47 U.S.C. 154(i), 302, 303(f), 303(r), and 405, the Petition for Reconsideration from the Satellite Industry Association in response to the Commission's *Second Report and Order and Second Memorandum Opinion and Order* in ET Docket No. 98–153 is *dismissed*.

33. The Petition for Reconsideration from the Satellite Industry Association in response to the Commission's *Order* in ET Docket No. 04–352 is *dismissed* in part and *denied* in part. The Petition for Reconsideration from Cingular Wireless LLC in response to the Commission's *Order* in ET Docket No. 04–352 is *denied*.

34. The Commission will not send a copy of this Order, pursuant to the Congressional Review Act. The Memorandum Opinion Order does not change any rules; it reaffirms certain rules and procedures for ultra-wideband (UWB) devices that operate on an unlicensed basis under part 15 of the Commission's rules, and dismisses and denies Petitions for Reconsideration.

35. *It is further ordered* that ET Docket No. 98–153 and 04–352 are *terminated*.

Federal Communications Commission.

Marlene H. Dortch,
Secretary.

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