## Request for Waiver

Comtech Mobile Datacom Corporation ("CMDC") requests a two-year waiver of footnotes US308 and US315 to the U.S. Table of Frequency Allocations and Section 25.136(d) of the Commission's Rules with respect to the operation of its MTM202 half-duplex terminals outside of the continental U.S. ("CONUS"). These provisions are intended to protect maritime mobile-satellite service distress and safety communications in the lower L-band and aeronautical mobile-satellite service distress and safety communications in the upper L-band from interference.

As discussed below, CMDC's MTM202 terminals comply with the requirements listed in Section 25.136(d) of the Commission's Rules for the protection of maritime mobile-satellite service distress and safety communications in the lower L-band, and the equivalent requirements for the protection of aeronautical mobile-satellite service distress and safety communications in the upper L-band.[1] However, these terminals do not comply with the National Telecommunications and Information Administration's ("NTIA's") interpretation of footnotes US308 and US315. NTIA determined in the *NTIA 2009 Letter* that if a terminal meets certain minimum requirements and is capable of ceasing transmissions and inhibiting further transmissions within three (3) seconds, that terminal would be considered to meet the real time access and priority preemption requirements in footnotes US308 and US315.[2] CMDC's MTM202 terminals are unable to cease transmissions within three (3) seconds when operated in certain locations outside of CONUS, most notably Alaska and Hawaii.

CMDC demonstrates below that there is good cause for granting a waiver of footnotes US308 and US315 as well as Section 25.136(d). There are only about 400 MTM202 METs in existence today, and no additional MTM202s are being built. Worst case, the MTM202 requires only 3.6 seconds to shut down when operated outside of CONUS. These terminals currently operate outside of CONUS on the MSAT satellites, SkyTerra 1, and ISAT pursuant to a waiver.[3] Grant of this waiver request is appropriate and consistent with prior precedent, including the

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1 *See Amendment of Part 87 of the Commission's Rules to Establish Technical Standards and Licensing Procedures for Aircraft Earth Stations,* 8 FCC Rcd 3156, ¶ 5, n. 22 (1993), *citing* Letter from Richard D. Parlow, Associate Administrator, Office of Spectrum Management, NTIA, and Gerald Markey, Manager, Spectrum Engineering Division, FAA to Cheryl Tritt, Chief, Common Carrier Bureau, FCC, dated January 14, 1993 *("NTIA/FAA Letter").*

2 *See* Letter of Karl B. Nebbia, Associate Administrator, Office of Spectrum Management, U.S. Department of Commerce, NTIA, to Mr. Julius Knapp, Chief, Office of Engineering and Technology, FCC, May 13, 2009 ("*NTIA 2009 Letter*").

3 *See* IB File Nos. SES-LIC-20090211-00164, SES-MOD-20090923-01223, SES-MOD-20110131-00094, SES-MOD-20130206-00159, SES-MOD-20150702-00444 and SES-MOD-20170908-00993.

requirements of the *NTIA 2009 Letter.* Accordingly, CMDC respectfully requests that the Commission grant this waiver request.

## Description of CMDC System

CMDC provides wireless packet data services from mobile terminals throughout the United States and overseas. CMDC terminals typically are placed on land vehicles or at remote, fixed site locations. Either data collection devices or keyboard/displays, or both, may be attached to the terminals depending on the customers' needs in that location or at that time.

The terminals transmit and receive data packets via L-band dedicated channels. CMDC's system is capable of using L-band channels from any carrier providing such services in the U.S. The packets can be routed over any of several terrestrial data networks, or to other mobile transceivers in the CMDC network. Use of the satellite relay is as a "bent pipe," meaning that only bandwidth and power are purchased from the satellite relay operator. Network management is provided by CMDC-owned and operated gateway sites.

The wireless packet data network is bi-directional, and transmission can be asynchronous in both directions. When powered on, terminals are either listening for packets addressed to them - individually or in groups - from a gateway station, or are transmitting packets in short bursts to a gateway station. Other modes of operation are possible, including periodic reporting from a terminal to a customer's operation center, via a gateway, and polled queries to the terminals by either the gateway or operation center.

The mobile transceivers transmit and receive direct sequence spread spectrum bursts. In CONUS, the typical burst duration is less than 100 milliseconds, while the maximum burst duration is about 400 milliseconds. In Alaska, Hawaii, and U.S. possessions and territories within the footprint of the satellite, a reduced data rate service is employed that results in a maximum burst duration of 1.6 seconds. Bursts from any individual transceiver are usually a minimum of several minutes apart. This means that the maximum interval during which a transceiver will not be listening to the outbound channel is less than 0.4 seconds (1.6 seconds in Alaska, Hawaii, and U.S. possessions and territories within the footprint of the satellite) and represents only a small fraction of one percent of its operating time.

In normal operation, a packet of information sent by a mobile terminal will be received by the CMDC gateway station, then routed to the designated recipient via the Internet, dedicated links, or the CMDC network outbound channel. There are no constraints on the routing of packets, though mobile-to-mobile, mobile-to-operation center, and operation center-to-mobile represent the majority of the traffic.

The mobile terminals can be tuned to transmit and receive across the entire L-band. This is to facilitate access to available bandwidth on the satellite relays, since the satellites operate many beams, and any one frequency may not be available across all beams. The outbound beams broadcast their identity in the form of network management packets from which the

mobile terminal can determine what transmission frequencies are available for use. The operating frequencies may be changed by command from the gateway stations. Also, a mobile terminal can only transmit when its receiver is locked onto a CMDC forward link.

The network management function of the CMDC network is provided by CMDC's 24/7 Network Operations Center in Germantown, MD. This function includes monitoring traffic, setting and adjusting operating frequencies, and activating a system wide shut-down capability for individual or multiple service regions as required. The shut-down can be accomplished by either CMDC personnel, locally or remotely, as well as by the satellite operator.

**Compliance with Section 25.136(d)**

The following paragraphs explain CMDC's compliance with Section 25.136(d) of the Commission's Rules, which address the protection of maritime mobile-satellite service distress and safety communications in the lower L-band.

> *Section 25.136(d)(1). All MES transmissions shall have a priority assigned to them that preserves the priority and preemptive access given to maritime distress and safety communications sharing the band.*

This requirement is not applicable, as CMDC's MESs operate only on dedicated channels that are not shared with any distress or safety communications.

> *Section 25.136(d)(2). Each MES with a requirement to handle maritime distress and safety data communications shall be capable of either: (i) recognizing message and call priority identification when transmitted from its associated LES or (ii) accepting message and call priority identification embedded in the message or call when transmitted from its associated LES and passing the identification to shipboard data message processing equipment.*

This requirement is not applicable, as CMDC's MESs are not required to handle distress or safety communications.

> *Section 25.136(d)(3). Each MES shall be assigned a unique terminal identification number that will be transmitted upon any attempt to gain access to a system.*

CMDC's terminals comply with this requirement. Each CMDC MES is part of a virtual private network with a distinct identity.

> *Section 25.136(d)(4). After an MES has gained access to a system, the mobile terminal shall be under control of a LES and shall obtain all channel assignments from it.*

CMDC's terminals comply with this requirement. After connecting to an associated LES system, the CMDC MESs obtain control and frequency tuning commands over the communication channel only from that LES.

*Section 25.136(d)(5). All MESs that do not continuously monitor a separate signalling channel or signalling within the communications channel shall monitor the signalling channel at the end of each transmission.*

CMDC's terminals comply with this requirement. The CMDC MESs operate on dedicated channels and, when not transmitting, are continuously monitoring the LES for command signals.

*Section 25.136(d)(6). Each MES shall automatically inhibit its transmissions if it is not correctly receiving separate signalling channel or signalling within the communications channel from its associated LES.*

CMDC's terminals comply with this requirement. As noted previously, a CMDC MES will not transmit unless it is properly receiving and locked onto the incoming RF signal from its associated LES.

*Section 25.136(d)(7). Each MES shall automatically inhibit its transmissions on any or all channels upon receiving a channel-shut-off command on a signalling or communications channel it is receiving from its associated LES.*

CMDC's terminals comply with this requirement. A CMDC MES will not transmit if it has been disabled by a control signal from the associated LES.

*Section 25.136(d)(8). Each MES with a requirement to handle maritime distress and safety communications shall have the capability within the station to automatically preempt lower precedence traffic.*

This requirement is not applicable, as CMDC's MESs are not required to handle distress or safety communications.

**Compliance with *NTIA/FAA Letter* Requirements**

The following paragraphs explain CMDC's compliance with the requirements set forth in the enclosure to the *NTIA/FAA Letter*. These requirements address the protection of aeronautical mobile-satellite service distress and safety communications in the upper L-band.

*1. All MES transmissions shall have a priority assigned to them that preserves the priority and preemptive access given to aeronautical distress and safety communications sharing the band.*

This requirement is not applicable, as CMDC's MESs operate only on dedicated channels that are not shared with any distress or safety communications.

*2. Each MES with a requirement to handle distress and safety data communications shall be capable of recognizing message and call priority identification when transmitted from its associated LES.*

This requirement is not applicable, as CMDC's MESs are not required to handle distress or safety communications.

*3. Each MES shall be assigned a unique terminal identification number that will be transmitted upon any attempt to gain access to a system.*

CMDC's terminals comply with this requirement. Each CMDC MES is part of a virtual private network with a distinct identity.

*4. After an MES has gained access to a system, the mobile terminal shall be under control of an LES and shall obtain all channel assignments from it.*

CMDC's terminals comply with this requirement. After connecting to an associated LES system, the CMDC MESs obtain control and frequency tuning commands over the communication channel only from that LES.

*5. All MESs that do not continuously monitor a separate signalling channel shall have provision for signalling within the communications channel.*

CMDC's terminals comply with this requirement. The CMDC MESs are a half-duplex RF system operating on dedicated channels and when not transmitting are continuously monitoring the LES for command signals.

*6. Each MES shall automatically inhibit its transmissions if it is not correctly receiving a separate signalling channel or signalling within the communications channel from its associated LES.*

CMDC's terminals comply with this requirement. As noted previously, a CMDC MES will not transmit unless it is properly receiving and locked onto the incoming RF signal from its associated LES.

*7. Each MES shall automatically inhibit its transmissions on any or all channels upon receiving a channel-shut-off command on a signalling or communications channel it is receiving from its associated LES.*

CMDC's terminals comply with this requirement. A CMDC MES will not transmit if it has been disabled by a control signal from the associated LES.

*8. Each MES with a requirement to handle distress and safety-related communications shall have the capability within the station to automatically preempt lower precedence traffic.*

This requirement is not applicable, as CMDC's MESs are not required to handle distress or safety communications.

**Compliance with NTIA interpretation regarding real time access and priority preemption**

As noted previously, NTIA has indicated that it will consider a terminal to satisfy the real time access and priority preemption requirements in footnotes US308 and US315 if the terminal is capable of, among other things, ceasing transmissions and inhibiting further transmissions within three (3) seconds. CMDC interprets this benchmark as meaning that each MES for all of its operating modes must, within three (3) seconds of receiving a shutdown command or losing lock on the downlink, stop all ongoing RF transmissions and prevent any new RF transmissions.

In Alaska and Hawaii, CMDC's MTM202 is programmed to operate at ¼ data rate. The data rate is set by CMDC's signal set and not by the individual operating the terminal. Operation at a slower data rate is necessary in these locations to compensate for the reduced availability of satellite bandwidth in these locations. At ¼ data rate, the transmission duration for a full length message (128 bytes) from a MTM202 is 1.6 seconds.

The MTM202 incorporates a two-second timeout parameter. The two-second timeout parameter means that when a MTM202 detects a loss of forward link (the link from the hub station to the MES), the MES will continue to monitor the forward link for an additional two seconds to confirm that the carrier is down before disabling the transmitter. As such, these MESs require a maximum of 3.6 seconds outside of CONUS to stop all ongoing transmissions and prevent any new transmissions. All other CMDC METs, including the MTM202 when operated in CONUS, satisfy the NTIA shutdown requirement.

**Waiver Request**

Section 1.3 of the Commission's Rules authorizes the Commission to waive its rules for "good cause shown."[4] In general, the Commission will grant a waiver of its rules if the relief requested would not undermine the policy objective of the rule in question and would otherwise serve the public interest.[5] CMDC submits that the waiver requirements of Section 1.3 are satisfied in this case for the following reasons.

*First*, CMDC's waiver request satisfies the requirements of the *NTIA 2009 Letter* for a waiver. Per the *NTIA 2009 Letter*, an applicant can be authorized under a two-year waiver to operate METs that do not satisfy the three-second shutdown requirement if the total number of non-compliant METs is less than 10,000 and the applicant agrees to submit an analysis of its MET operations in the U.S. showing the number of packets each month that exceed three (3) seconds in duration.[6] Those requirements are satisfied here. There are only about 400 MTM202 METs in existence today, and no additional MTM202s are being built.[7] CMDC requests a two-year waiver (as noted previously) and accepts a condition to submit a packet length analysis.

*Second*, the Commission's prior actions with respect to CMDC's half-duplex terminals provide precedent for grant of this waiver request. In the *CMDC Order*, the Commission granted CMDC a waiver of footnotes US308 and US315 to the U.S. Table of Frequency Allocations and Section 25.136(d) of the Commission's Rules with respect to the operation of certain half-duplex terminals on MSAT-1 and MSAT-2 on the basis that (a) CMDC's half-duplex terminals will not adversely affect current aeronautical and maritime safety operations in the L-band; (b) CMDC operates on dedicated channels; and (c) the extent and number of the operations that do not meet NTIA's shutdown requirements are limited.[8] The Commission found that "under these circumstances, requiring [CMDC] to terminate those limited operations … or to employ an alternative (and more expensive) full-duplex system for those operations, or to employ a full-duplex system for all of the systems because of the limited noncompliance of a few stations on a few occasions, would impose an undue economic burden in light of the absence of harm in this case."[9]

All of the findings on which the Commission based its decision to grant a waiver in the *CMDC Order* are equally valid with respect to the continued operation of CMDC's MTM202

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4 47 CFR § 1.3.

5 *See Comtech Mobile Datacom Corp., Order and Authorization*, IB File No. SES-AMD-20070907-01251, DA 09-906, rel. May 15, 2009 ("*CMDC Order*") at ¶ 4.

6 *See NTIA 2009 Letter* at 4.

7 The MTM202 is at end of life; no additional units are being sold.

8 *CMDC Order* at ¶ 7.

9 *CMDC Order* at ¶ 7.

terminals on SkyTerra 1, the MSAT satellites, and ISAT. As noted previously, there are a limited number of MTM202 terminals in existence today. Worst case, each MTM202 terminal takes only 3.6 seconds to stop all ongoing transmissions and prevent any new transmissions – only 0.6 seconds longer than the NTIA requirement. An analysis of CMDC's MET operations over the 21-month period between Nov. 1, 2017, and July 31, 2019 shows that, on average, the monthly number of packets having a transmission duration exceeding three (3) seconds is 6592, equivalent to 220 per day, on average, assuming a 30-day month. This monthly average is a marked decrease from that of the May 15, 2015 through August 7, 2017, period (averaging 9,536 such transmissions per day, assuming a 30-day month) as reported in CMDC's last application for license modification (and based on which a continued waiver was granted). Given that these packets are spread over the entire United States and its territories and given that the NTIA requirement is only exceeded by a maximum of 0.6 seconds we believe this does not adversely impact the goal of the NTIA requirement.

All the MTM202 terminals operate on dedicated channels transmitting only short bursts of data and using dedicated frequencies that are not assigned to and cannot cause interference to services provided in the GMDSS or the AMS(R)S. CMDC notes that it has never received any complaints of interference regarding the operation of any of its half-duplex METs, nor is CMDC otherwise aware that any of its half-duplex METs have caused such interference. As such, the Commission's conclusion in the *CMDC Order* that a grant of CMDC's requested waiver would not result in any harmful or undue interference to aeronautical and maritime safety operations in the L-band remains valid and supports grant of this waiver request.

*Third*, grant of this waiver request will serve the public interest, as it will enable CMDC to continue to satisfy customer demand for service. The U.S. Army's Joint Battle Command-Platform ("JBC-P") command and control system, also known as Blue Force Tracking ("BFT"), operates the MTM202 METs in the U.S. and worldwide. Grant of this waiver request will enable the U.S. Army to continue using their MTM202 METs, and will permit CMDC to continue to provide requested services to the U.S. Army. Requiring CMDC to terminate these operations or deploy alternative equipment would impose an undue economic burden in light of the circumstances.

*Finally*, as noted previously, CMDC's MTM202 METs currently operate outside of CONUS on ISAT pursuant to a waiver identical to that requested herein. As a practical matter, this waiver request merely seeks an extension of CMDC's existing waiver.

In light of these facts, it is clear that there is good cause for grant of CMDC's waiver request. CMDC respectfully asks that the Commission grant this request.