

EXHIBIT 1

**RESPONSE TO QUESTIONS 33 (OWNERSHIP), 35 (WAIVER REQUEST),
AND 43 (DESCRIPTION OF APPLICATION PURPOSE)**

.Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of)
)
TerreStar Networks Inc.) File No.
)
)
)
Application for modification of 2 GHz band)
Mobile Earth Terminal Blanket License (Call)
Sign E060430))

WAIVER REQUEST OF TERRESTAR NETWORKS INC.

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July 21, 2010

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Section 25.252 of the Commission’s rules¹ establishes technical standards for operation of ancillary terrestrial component (“ATC”) facilities on frequencies in the 2000-2020 and 2180-2200 MHz bands (collectively, the “2 GHz band”). Pursuant to Section 1.3 of the Commission’s rules,² TerreStar Networks Inc. (“TerreStar”), by its attorneys, hereby requests waivers of the Section 25.252 ATC base station and mobile terminal technical requirements that are described below.

These waivers will enable TerreStar to enhance network efficiency and to align its operations more closely with the needs of its customers. The waivers closely track waivers granted to the only other 2 GHz band MSS/ ATC licensee.

¹ 47 C.F.R. § 25.252.

² 47 C.F.R. § 1.3.

Summary

The waivers of Section 25.252 that TerreStar is requesting are as follows:

Section	Rule- BS shall not:	Waiver Request
25.252(a)(1)	Exceed -100.6 dBW/4 kHz EIRP spectral density at authorized band edge	In lieu of spectral density limit, base-station transmitter power shall be attenuated by a factor of $(43 + 10 \cdot \log(P))$ dB) at the band edges
25.252(a)(2)	Exceed a peak EIRP of 27 dBW in 1.23 MHz	Base stations may generate up to 32 dBW EIRP per megahertz of bandwidth
25.252(a)(3)	Exceed a peak EIRP of 25.5 dBW in 1.23 MHz toward the horizon	No limit on peak EIRP toward the horizon
25.252(a)(5)	Exceed an aggregate PFD of -51.8 dBW/m ² in 1.23 MHz at airport runways or stand areas	No limit on aggregate PFD at airport runways or stand areas
25.252(a)(8)	Exceed specified antenna gain limits in vertical-plane angles of two degrees or more above the main-lobe axis	No limit on antenna gain in vertical-plane angles of two degrees or more above the main-lobe axis

Section	MT Rule	Waiver Request
25.252(c)(2)	OOBE from MTs must be attenuated by at least $(70 + 10 \cdot \log(P))$ dB in frequencies above 2025 MHz and below 1995 MHz, and emissions in the 1995-2000 MHz and 2020-2025 MHz bands must be attenuated to an extent determined by linear interpolation from $(70 + 10 \cdot \log(P))$ dB at 1995 MHz and 2025 MHz to $(43 + 10 \cdot \log(P))$ dB at 2000 MHz and 2020 MHz	MTs may operate subject to a uniform $(43 + 10 \cdot \log(P))$ dB limit on OOBE in frequencies above the upper edge of the terminal transmission band
25.252(c)(4)	Measurement instruments with a resolution bandwidth of one megahertz or more must be used to verify compliance with the emission limits specified in Sections 25.252(c)(1) and (c)(2)	The measurement procedure used for PCS and AWS-1 terminals may be used

TerreStar demonstrates herein that its waiver requests are supported by good cause because they are identical to waivers previously granted to the other operator in the United States of a 2 GHz mobile satellite service (“MSS”) system.

I. Introduction

TerreStar’s wholly-owned subsidiary, TerreStar License Inc., holds a letter of intent (“LOI”) authorization, originally granted in 2001, to provide MSS in the

United States using spectrum in the 2 GHz band via TerreStar-1, a geostationary orbit satellite.³ The LOI authorization permits the use of 10 MHz of this 2 GHz MSS spectrum in each direction.⁴ TerreStar Networks (Canada) Inc., which is indirectly owned by TerreStar and Trio 2 General Partnership, has been authorized by Industry Canada to operate TerreStar-1 in Canada.

TerreStar-1 was launched on July 1, 2009, and on July 19, 2009, TerreStar completed an end-to-end phone call over the satellite, between two of TerreStar's quad-band GSM and tri-band WCDMA/HSPA smartphones with integrated satellite-terrestrial voice and data capabilities.

TerreStar-1 is fully operational, and TerreStar is completing final testing of its Ground Based Beam Forming and other subsystems. TerreStar-1 is poised to deliver voice and data services over TerreStar's all IP next-generation mobile broadband network that combines the power of TerreStar-1, an all-IP core network, and the latest in smartphone technology.

On September 30, 2009, TerreStar announced that it had entered into an agreement with AT&T to bring to market the first fully integrated satellite cellular smartphone. The smartphone combines 3G terrestrial wireless capability

³ See Order, DA 07-2028 (Int'l Bur., May 10, 2007); *TMI Communications and Company, Limited Partnership*, Order, 16 FCC Rcd 13808 (2001); *TMI Communications and Company, Limited Partnership, and TerreStar Networks, Inc. Application for Review and Request for Stay*, Memorandum Opinion and Order, 19 FCC Rcd 12603 (2004).

⁴ See *Use of Returned Spectrum in the 2 GHz Mobile Satellite Service Frequency Bands*, Order, 20 FCC Rcd 19696 (2005).

with satellite voice and data in a standard smartphone size and form factor. Using one phone number and one device, users will be able to access voice and data services in the United States, Puerto Rico, the U.S. Virgin Islands and offshore coastal waters over either the AT&T cellular network or the TerreStar satellite network. TerreStar expects to start commercial service in September 2010.

On January 13, 2010, the International Bureau authorized TerreStar to operate dual-mode mobile terminals that can be used to communicate via either TerreStar-1 or ATC base stations.⁵ In this application, TerreStar seeks to modify its ATC authority through waiver of Section 25.252.

II. TerreStar's Waiver Request is Supported by Good Cause.

A. Basis for ATC Rules

In 2003, the Commission adopted an order permitting MSS licensees in three frequency bands, including the 2 GHz MSS band, to integrate ATC into their MSS networks.⁶ The Commission found that permitting ATC operations would increase spectrum efficiency, enhance coverage, reduce costs, eliminate

⁵ Order and Authorization, DA 10-60 (Int'l Bur., Jan. 13, 2010) ("TerreStar Order").

⁶ *Flexibility for Delivery of Communications by MSS Providers*, Report and Order, 18 FCC Rcd 1962 (2003) ("ATC Order").

inefficiencies, enhance operational ability, enhance public protection, and strengthen competition.⁷

In the ATC Order, the Commission established “gating criteria” that MSS licensees need to satisfy in order to seek ATC authority.⁸ It also limited ATC operations to certain core spectrum, which in the case of the 2 GHz MSS band meant the MSS operator’s “selected assignment.”⁹ The Commission also adopted technical requirements for ATC operations.¹⁰

In the case of ATC in the 2 GHz MSS band, the Commission adopted technical rules addressing inter-service and intra-service sharing issues. These rules were intended to protect other in-band MSS systems and systems operating in adjacent bands from interference.¹¹ TerreStar is seeking a waiver of certain of the intra-service technical rules in this filing.

B. Basis for Waivers

Waiver of the Commission’s rules is warranted when good cause is shown.¹² The Commission already has granted waivers identical to those TerreStar is seeking to New DBSD Satellite Services G.P., Debtor-in-Possession

⁷ ATC Order, ¶1.

⁸ ATC Order, ¶¶ 66 *et seq.*

⁹ ATC Order, ¶ 4.

¹⁰ ATC Order, ¶¶ 103 *et seq.*

¹¹ ATC Order, ¶ 109.

¹² 47 C.F.R. § 1.3; *see also WAIT Radio v. FCC*, 418 F.2d 1153, 1157 (D.C. Cir. 1969).

("DBSD"), which is the other operator of a 2 GHz MSS in the United States.¹³

The findings the Commission made when it granted DBSD's waiver requests apply with equal force to the waivers requested by TerreStar. Accordingly, there is good cause for granting TerreStar's waiver requests.

1. Waiver of Section 25.252(a)(1): Base station EIRP spectral density

Section 25.252(a)(1) states that 2 GHz ATC base stations must limit the equivalent isotropically radiated power ("EIRP") spectral density of emissions at the edges of the operator's authorized base-station transmission band to -100.6 dBW/4 kHz or less. The Commission has granted DBSD a waiver of this rule permitting instead that ATC base-station transmitter power (P), in watts, be attenuated by a factor of $(43 + 10 \cdot \log(P) \text{ dB})$ at the band edges. TerreStar seeks the same relief.

The Commission's rationale for granting DBSD a waiver of Section 25.252(a)(1) also is applicable to TerreStar's waiver request. The EIRP spectral density limit specified in the rules was developed to protect a Boeing AMS(R)S system that has since been abandoned,¹⁴ and the Commission found that applying the attenuation limit proposed by DBSD instead would harmonize the 2 GHz MSS limit with the limit that has been proposed for AWS base stations

¹³ See Order and Authorization, DA 09-38 (Int'l Bur., Jan. 15, 2009) ("DBSD Order"). The waivers were granted to DBSD's predecessor-in-interest, New ICO Satellite Services G.P. ("ICO"). In the interest of simplicity, TerreStar uses "DBSD" in this pleading when referring either to DBSD or to ICO.

¹⁴ See DBSD Order, ¶ 43 & n. 102.

transmitting in the 2155-2180 MHz band.¹⁵ The same is true for TerreStar. TerreStar, moreover, is agreeable to the two conditions the Commission attached to DBSD's waiver, *i.e.*, that the waiver be subject to the outcome of pending proceedings concerning adjacent-band AWS services¹⁶ and that it not apply to operation of any base station located within 133 kilometers of a U.S. government earth station receiving in the 2200-2290 MHz band.¹⁷ TerreStar is prepared to coordinate with the National Telecommunications and Information Administration as necessary in connection with the operation of its base stations in proximity with these U.S. government earth stations.

2. Waiver of Section 25.252(a)(2): Base station peak EIRP limit

Section 25.252(a)(2) requires that 2 GHz ATC base stations generate no more than 27 dBW (approximately 501 watts) EIRP within a bandwidth of 1.23 megahertz. The Commission granted DBSD a waiver permitting its ATC base stations to generate up to 32 dBW (approximately 1585 watts) EIRP per

¹⁵ DBSD Order, ¶ 44.

¹⁶ DBSD Order, ¶ 44. Also, like DBSD, TerreStar will coordinate, pursuant to the procedures outlined in Section 24.237 of the Commission's rules, with Fixed Service stations in the 2160-2200 MHz band that have not been relocated. *See* DBSD Order, n. 101.

¹⁷ DBSD Order, n. 105.

megahertz of bandwidth.¹⁸ TerreStar hereby requests a waiver applying the same limit to its ATC base stations.¹⁹

The Commission's Section 25.252(a)(2) findings are applicable to TerreStar as well. As with 25.252(a)(1), this rule was developed to protect Boeing's AMS(R)S system. In light of Boeing's decision not to proceed with the system, the Commission found, "it would serve the public interest to allow ... ATC base stations to operate within a radiated power limit consistent with the Commission's base-station power limits for comparable terrestrial wireless systems."²⁰ The Commission also determined that "a PSD limit of 32 dBW/MHz is consistent with ... [its] established limit of 1640 watts (approximately 32 dBW) EIRP for non-rural AWS-1 base stations and non-rural PCS base stations with antenna heights of 300 meters or less, which the Commission has also proposed to prescribe for non-rural AWS base stations transmitting in the adjacent 2155-2180 MHz band."²¹ The same principles apply to TerreStar's request for a waiver establishing a PSD limit of 32 dBW/MHz, and TerreStar has no objection to making its waiver, like DBSD's waiver, "subject to possible revisions in light of

¹⁸ DBSD Order, ¶47.

¹⁹ TerreStar previously was granted a waiver permitting its base stations to generate a peak EIRP of 32 dBW independent of bandwidth. *See* TerreStar Order, ¶¶ 23-24.

²⁰ DBSD Order, ¶47.

²¹ DBSD Order, ¶47 (citations omitted).

decisions the Commission may adopt in pending proceedings on adjacent-band AWS services.”²²

**3. Waiver of Sections 25.252(a)(3), (a)(5), and (a)(8):
Base station EIRP toward the horizon, power flux
density at runways, and overhead**

DBSD was granted a waiver of three rule provisions – Sections 25.252(a)(3), (a)(5), and (a)(8) – that were “devised to accommodate the projected protection requirements of aircraft receivers in a non-geostationary Boeing 2 GHz MSS system.”²³ Section 25.252(a)(3) provides that 2 GHz ATC base stations must not generate EIRP toward the horizon in excess of 25.5 dBW within a bandwidth of 1.23 megahertz. Section 25.252(a)(5) requires that 2 GHz ATC base stations not generate aggregate power flux density of more than -51.8 dBW/m² within a 1.23 megahertz bandwidth at any airport runway, aircraft stand area, or takeoff or landing path. Section 25.252(a)(8) establishes limits on 2 GHz ATC base-station antenna gain in vertical-plane angles of 2 degrees or more above the main-lobe axis.

The Commission granted DBSD’s waiver request because the Boeing 2 GHz MSS system Sections 25.252(a)(3), (a)(5), and (a)(8) were developed to protect “was not implemented” and because TerreStar, which is the only other operator of a 2 GHz MSS system in the United States, had “explicitly acquiesced”

²² DBSD Order, ¶ 47.

²³ DBSD Order, ¶ 49.

to DBSD's request for waiver of these rule provisions."²⁴ The waiver grant is subject to the condition that "[if] TerreStar or a successor-in-interest commences providing 2 GHz MSS aeronautical service," DBSD "will be obliged to resolve any harmful interference with aircraft reception of satellite downlinks in the 2190-2200 MHz band caused by operation of its ATC base stations."²⁵

TerreStar respectfully requests waivers of Sections 25.252(a)(3), (a)(5), and (a)(8) identical to those granted to DBSD.²⁶ The principal rationale for the DBSD waivers – that Boeing's 2 GHz MSS system was not implemented – also supports TerreStar's waiver requests. And just as TerreStar had acquiesced in DBSD's waiver requests, so DBSD has acquiesced in TerreStar's. DBSD is a party to a coordination agreement in which it committed to support requests for waiver of Section 25.252 filed by TerreStar that are identical to those previously requested by DBSD. Further, TerreStar has no objection to a condition, like that applied to DBSD, requiring it to resolve harmful interference from its ATC base stations to 2 GHz MSS aeronautical service provided by another operator. Accordingly, there is good cause for TerreStar's request for a waiver of Sections 25.252(a)(3), (a)(5), and (a)(8).

²⁴ DBSD Order, ¶ 49.

²⁵ DBSD Order, ¶ 49.

²⁶ The Commission previously waived for TerreStar a related provision, Section 25.252(a)(4), which requires a minimum separation of 190 meters between ATC base stations and airport runways, aircraft stand areas, and aircraft takeoff and landing paths. See TerreStar Order, ¶¶ 20, 22. TerreStar also was granted partial waivers of Sections 25.252(a)(3), (a)(5), and (a)(8), see TerreStar Order at ¶¶ 20, 22, 25-26, and now seeks to have these provisions waived completely in accordance with the DBSD precedent.

4. Waiver of Section 25.252(c)(2): Mobile terminal attenuation requirements

Section 25.252(c)(2) requires out-of-band emissions (“OOBE”) from 2 GHz ATC mobile terminals to be attenuated by at least $(70 + 10 \cdot \log(P))$ dB in frequencies above 2025 MHz and below 1995 MHz, and requires emissions in the 1995-2000 MHz and 2020-2025 MHz bands to be attenuated to an extent determined by linear interpolation from $(70 + 10 \cdot \log(P))$ dB at 1995 MHz and 2025 MHz to $(43 + 10 \cdot \log(P))$ dB at 2000 MHz and 2020 MHz.

The Commission granted DBSD a waiver of the part of these requirements pertaining to emissions in frequencies above 2020 MHz. Under this waiver, DBSD’s ATC mobile terminals may operate subject to a uniform $(43 + 10 \cdot \log(P))$ dB limit on OOBE in frequencies above the upper edge of its terminal transmission band.²⁷ The Commission found that a uniform $(43 + 10 \cdot \log(P))$ dB limit “will harmonize the upper-end emission limit with the OOBE limit that the Commission has proposed for AWS terminals transmitting in the adjacent 2020-2025 MHz J Block and will not adversely affect Broadcast Auxiliary Service (‘BAS’) or Electronic News Gathering (‘ENG’) in frequencies above 2025 MHz.”²⁸

TerreStar requests the same waiver. TerreStar’s mobile terminals operate in the 2000-2010 MHz band, which is 10 MHz further from frequencies above 2025 MHz than the 2010-2020 MHz band employed by DBSD’s mobile terminals.

²⁷ DBSD Order, ¶ 61.

²⁸ DBSD Order, ¶ 61 (citation omitted).

If a uniform $(43 + 10 \cdot \log(P))$ dB limit for DBSD's mobile terminals "will not adversely affect Broadcast Auxiliary Service ('BAS') or Electronic News Gathering ('ENG') in frequencies above 2025 MHz," then of necessity the same is true, and more so, for a uniform $(43 + 10 \cdot \log(P))$ dB limit for TerreStar's mobile terminals. There is good cause, therefore, to grant the same waiver for TerreStar.

5. Waiver of Section 25.252(c)(4): Emission measurement

Section 25.252(c)(4) requires that measurement instruments with a resolution bandwidth of one megahertz or more be used to verify compliance with the emission limits specified in Sections 25.252(c)(1) and (c)(2). DBSD requested and was granted a waiver permitting it to follow the measurement procedure used for PCS and AWS-1 terminals.²⁹ TerreStar requests a waiver giving it authority to use this alternate procedure.

In the DBSD Order, the Commission found that use of the alternate procedure "would have no adverse consequences" and "is the most appropriate way of measuring out-of-band emissions into adjacent spectrum."³⁰ These findings furnish good cause for the waiver TerreStar is requesting.

²⁹ See DBSD Order, ¶¶ 63-64.

³⁰ DBSD Order, ¶ 64 (citation omitted).

CONCLUSION

For good cause shown, TerreStar's waiver requests should be granted.

Respectfully submitted,

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