

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

In the Matter of	)	
	)	
Kepler Communications Inc., Petition for	)	IBFS File No. SAT-LOI-20161115-00114
Declaratory Ruling	)	(Call Sign S2981)
	)	

**ADDITIONAL INFORMATION FOR 140 SATELLITE FILING**

Kepler Communications Inc. (Kepler) is hereby providing the Commission with further information on its non-geostationary satellite orbit (NGSO) fixed-satellite service (FSS) system, for which market access to the US was requested.

1. Kepler is including for reference the changes made to schedule S. The changes made were to fix errata or further clarify how the system intends to operate based on the request of the International Bureau.

Change	Type	Description
Removal of Min / Max Saturation Flux Density of all Beams	Errata	As described in Kepler’s earlier submission Saturation Flux Density is not an applicable parameter since Kepler does not employ a bent pipe architecture. The inclusion of SFD in the prior Schedule S was an error.
Addition of receive beams: UG1r, UG3, UG4, UU2, UU3, UU4, UU5, UU5r, UU6, UU6r, UG5, UG5r, UG2, UG2r	Clarification	At the request of the Commission these receive beams were added to clarify the capable operating range of the system. They are used to show both LHCP and RHCP operation, in addition to lower and upper bounds on operating elevation angles of the system. Note, receive beams for gateways are included for completeness though at present Kepler does not intend to operate gateways within the United States.

<p>Addition of receive channels:                  UUal, UUah, UUbl,                  UUbh, UUcl, UUch,                  GUal, GUah</p>	<p>Clarification</p>	<p>At the request of the Commission these receive channels were added to show the operating range of Kepler's SDR.</p>
<p>Correction of G/T at Max. Gain Point</p>	<p>Errata</p>	<p>G/T was updated to take into account the elevation angle of communication as presented in the service area description.</p>
<p>Addition of transmit beams:                  DG2, DU2, DU3,                  DU3r, DG3, DG4,                  DU1r, DU2r</p>	<p>Clarification</p>	<p>At the request of the Commission these transmit beams were added to clarify the capable operating range of the system. They are used to show both LHCP and RHCP operation, in addition to lower and upper bounds on operating elevation angles of the system. Note, transmit beams for gateways are included for completeness though at present Kepler does not intend to operate gateways within the United States. Should Kepler operate a gateway within the United States in the future it will maintain the same constant EIRP density demonstrated in these transmit beams in order to maintain EPFD compliance.</p>
<p>Correction of PFD values</p>	<p>Errata</p>	<p>It was noted that PFD values were incorrectly calculated for all beams. This was corrected for all beams.</p>
<p>Correction of EIRP density values</p>	<p>Errata</p>	<p>It was noted that EIRP density was inconsistently calculated using different reference bandwidths. This has been recalculated using the same reference bandwidth across all beams to emphasize the use of a constant EIRP density.</p>
<p>Correction of Max. Transmit EIRP</p>	<p>Errata</p>	<p>Corrected Max. Transmit EIRP to take into consideration the elevation angle of communication as presented in the service area description.</p>
<p>Addition of transmit channels:</p>	<p>Clarification</p>	<p>At the request of the Commission these transmit channels were added to clarify the capable operating range of the</p>

DUcl, DUch, DUbl, DUbh, DUal, DUah, DGb1, DGbh, DGal, DGah,		system. Note, transmit channels for gateways are included for completeness though at present Kepler does not intend to operate gateways within the United States. Should Kepler operate a gateway within the United States in the future it will maintain the same constant EIRP density demonstrated in these transmit beams in order to maintain EPFD compliance.
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- As noted previously, Kepler’s satellite is designed to maintain a target power-flux density (“PFD”) at the surface of the earth as shown in Figure 5 of Kepler’s petition for declaratory ruling<sup>1</sup>. For further clarity, this is achieved by maintaining a constant EIRP density across all bands and bandwidths. Ensuring EPFD, and PFD compliance independent of how the SDR parameters<sup>2</sup> change to support coordination and customer requirements. As noted in Schedule S, the maximum EIRP density that is maintained across all beams is -50.5 dBW/Hz. This EIRP density is constrained by the software onboard the Kepler SDR, which is preprogrammed prior to launch. The SDR will host a look up table of bandwidth, data rate, and power. This look up table will define the allowable operating parameters of the SDR to ensure a constant EIRP density. In operation, the SDR will select the complimentary parameters from this look up table prior to a transmission.

<sup>1</sup> See Kepler Technical Narrative and Kepler’s letter to the Commission date June 8<sup>th</sup>, 2017

<sup>2</sup> Power, bandwidth, and center frequency

- As requested by the Commission, Kepler is providing the following set of figures that show Kepler’s antenna gain contours overlaid on a plot of the coverage region.

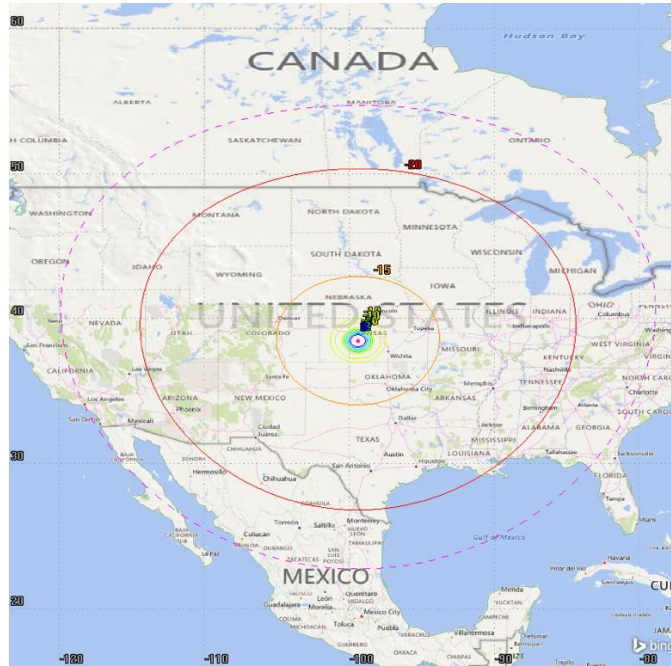


Figure 1: Single Kepler satellite beam gain contour visible on the ground. Dashed line represents service area.

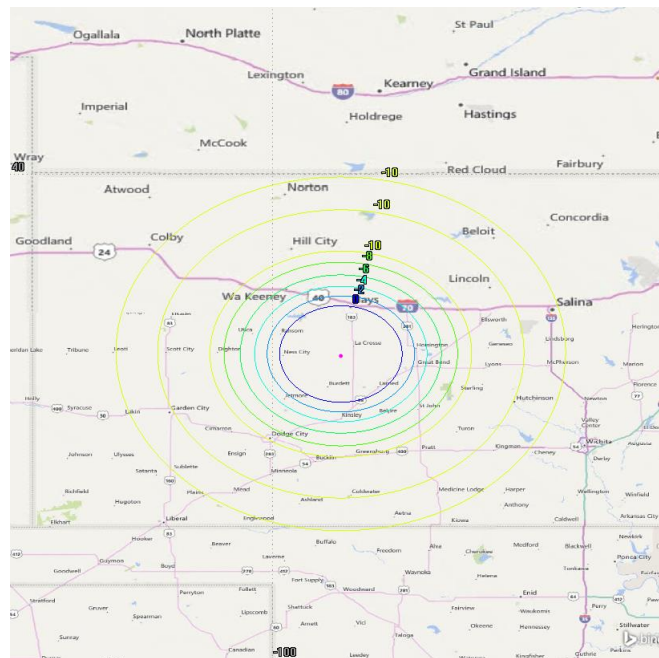


Figure 2: Zoomed in version of Figure 1 to show gain contour lines more clearly.

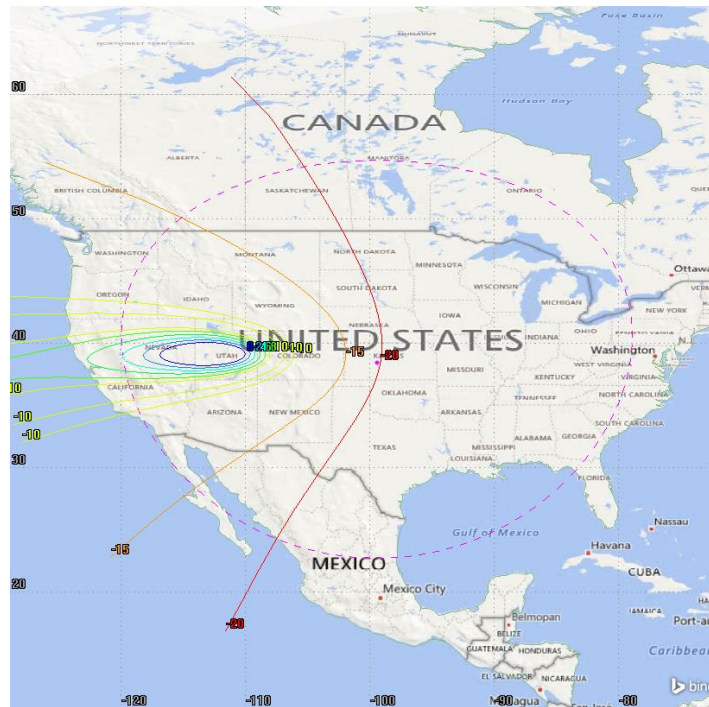


Figure 3: Single beam gain contour visible on the ground when steered to a 64 degree off bore-sight angle. Dashed line represents service area.

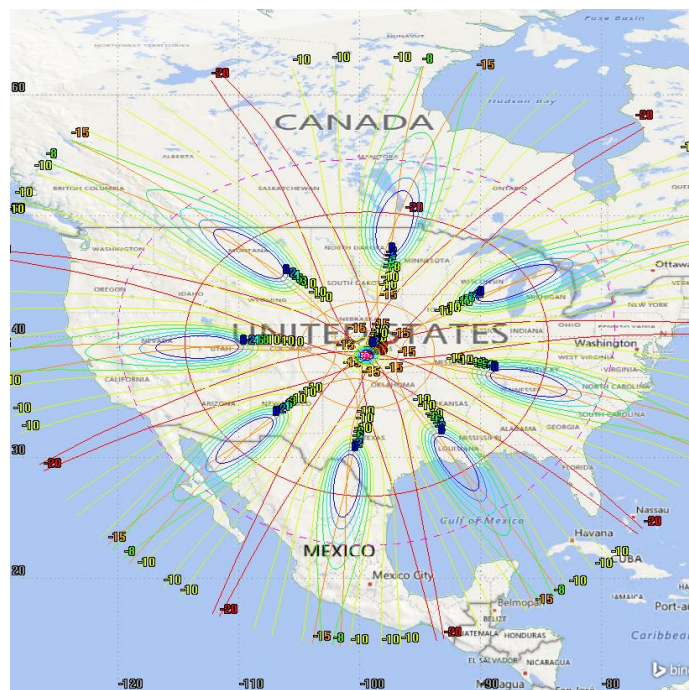


Figure 4: Single beam gain contour visible on the ground if simultaneously steered in every direction. This is the assumption made when computing EPFD for the full satellite constellation. Dashed line represents coverage region.



Kepler Communications Inc.

675 King Street West, #204  
Toronto, ON Canada  
M5V 1M9

Respectfully submitted,

Kepler Communications Inc.

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June 26, 2017

By: /s/ Nickolas G. Spina

Nickolas G. Spina  
Manager of Launch and Regulatory Affairs  
Kepler Communications Inc.