Broadband Equity, Access, and Deployment (BEAD) Program: Low-Earth Orbit (LEO) Satellite Service Evidence Template Instructions and Schema

This document is intended to guide BEAD applicants in completing the **LEO Satellite Service Evidence Template.** The evidence is required to demonstrate the applicant has taken the steps necessary to ensure compliance with technical requirements for consideration as a Priority Broadband Project as established in the NTIA's BEAD Restructuring Policy Notice (issued June 6, 2025).

LEO Satellite Service Evidence Template Submission Instructions

1. Refer to the schema below for detailed instructions on how to complete each tab of the template and its associated fields. All fields are required unless otherwise stated.
2. Save your completed LEO Satellite Service Evidence Template with the following file name format: <<CompanyName>>_LEOEvidence_<<yyyy-mm-dd>>.xlsx.
3. For applications proposing to use multiple technology types in the network (e.g., fiber and licensed fixed wireless), please upload a template for each technology type used.

LEO Satellite Service Evidence Template Schema

The LEO Satellite Service Evidence Template contains six tabs:

Tab number	Description
1	Logical network diagram
2	Access layer
3	Customer premises equipment
4	Gateway infrastructure & satellite uplinks
5	Reliability & quality of service
6	Performance calculations

Information must be entered for all fields in Tabs 1 – 6. All supplemental evidence files and documents must be submitted with the completed LEO Satellite Service Evidence template.

Tab 1. Logical Network Diagram Tab

Field	Data type	Example	Description	Constraints
Logical Network Diagram	Image	Diagram	Provide a logical diagram showing terrestrial backhaul, terrestrial gateways, gateway to satellite uplink and downlink, inter-satellite connectivity, and satellite to CPE pathways	Illustrate spatial multiplexing, beams superimposed on the proposed project area, CPE placement, and CPE to user connectivity

Tab 2. Access Layer Tab

Field	Data type	Example	Description
2.1: Link Characteristics			
What is the downlink channel size (in MHz) per beam?	Number		Size in MHz
What is the uplink channel size (in MHz) per beam?	Number		Size in MHz
What modulation and coding schemes are used for uplink and downlink transmissions?	Narrative		
What are the typical and peak spectral efficiency values (bps/Hz) achieved with these schemes?	Number		Bps/Hz
What are the minimum receive sensitivities or required SNR values (in dB) for each supported modulation and coding level?	Number		dB
What is the fade margin (in dB) available for both uplink	Number		dB

Field	Data type	Example	Description
and downlink paths under worst-case conditions (e.g., heavy rain, atmospheric attenuation)? If more than one type of CPE is offered, provide fade margin values for each type.			
2.2: Beam & Spectrum Architecture			
How many beams are generated per satellite?	Number		
What is the physical footprint (diameter in km) and shape of each beam at the Earth's surface?	Number		
What is the approximate physical separation (in km) between adjacent beams?	Number		
What is the frequency reuse pattern?	Text		
How is co-channel interference mitigated between reused beams?	Narrative		
What is the estimated worst-case number of active users per beam, accounting for BEAD-funded users as well as other LEO subscribers in the coverage area?	Number		
2.3: Connection Management & Mobility			
Describe how the system select or switch satellite connections for a CPE. For example, Does the CPE connect to the satellite with the strongest signal, does the CPE maintain connections to multiple satellites simultaneously, is beam or satellite assignment managed by the network based on congestion,	Narrative		

Field	Data type	Example	Description
satellite pass duration, or other optimization criteria?			
Please provide a statistical distribution of the number of satellites in view of the proposed Broadband Serviceable Locations (BSLs) over time. Include a table or chart showing the percentage of time that 1, 2, 3, or more satellites are simultaneously visible from a typical BSL in the proposed service area.	Table		Complete the table provided showing the percentage of time that 1, 2, 3, or more satellites are simultaneously visible from a typical BSL in the proposed service area

Tab 3. Customer Premises Equipment Tab

Field	Data type	Example	Description
3.1: CPE & Connectivity			
What spectrum is used for the link betwen the CPE and the satellite, and what is the link capacity?	Narrative		
What type of connection does the CPE provide to end-user devices at the premises (e.g., Ethernet, Wi-Fi), and what is its maximum supported throughput?	Narrative		
Does the proposed service include professional installation?	Narrative		

Field	Data type	Example	Description
Will the provider install the service on rooftops or other elevated locations if necessary to obtain an unobstructed view of the sky?	Narrative		
3.2: Sky View Requirements			
What is the minimum area of unobstructed sky view required at a customer location for reliable service?			
What is the expected impact on performance (e.g., throughput, latency, packet loss, connection stability) if the sky view is partially obstructed?			
3.3: Obstruction Impact & Coverage Limitations			
What is the estimated frequency and duration of service interruptions or performance degradation over a 24-hour period if 10% of the required sky view is obstructed?			
What is the estimated frequency and duration of service interruptions or performance degradation over a 24-hour period if 50% of the required sky view is obstructed?			
What percentage of locations in the proposed project area are expected to lack sufficient unobstructed sky view due to terrain, foliage, or buildings, and how does the applicant plan to serve these locations?			

Tab 4. Gateway Infrastructure and Satellite Uplinks Tab

Field	Data type	Example	Description
4.1: Gateway Side Location and Design			
How are gateway sites selected and constructed to manage the effects of local weather, foliage, terrain, and radio frequency interference?	Narrative		
What operational or design measures are taken to ensure resiliency and consistent link quality under adverse conditions?	Narrative		
4.2: Backhaul and Capacity from Gateway to Internet Backbone			
Describe the upstream and downstream terrestrial backhaul used to connect gateway sites to the internet backbone and data centers.	Narrative		
What is the current capacity of these backhaul connections?	Narrative		
How is capacity scaled over time as demand increases?	Narrative		
4.3: Gateway to Satellite Link Characteristics			
What is the typical downlink and uplink channel size per gateway-to-satellite link?			
What modulation and coding schemes are used for these links, and what is the resulting spectral efficiency?			
What are the receive sensitivity and minimum SNR requirements for each supported data rate and modulation/coding level?			
What fade margin is maintained on uplink and downlink transmissions to mitigate signal degradation due to rain, humidity, and			

Field	Data type	Example	Description
other atmospheric conditions?			
What is the aggregate throughput capacity from a single gateway site to the satellite constellation?			
How many satellites can a single gateway maintain simultaneous connections with?	Number		
Is the same frequency spectrum reused for multiple gateway-to-satellite links? If so, describe the reuse strategy and any limitations.	Narrative		

Tab 5. Reliability and Quality of Service Tab

Field	Data type	Example	Description
5.1: Performance Threshold			
How does the applicant monitor and ensure that roundtrip latency, real-time packet loss, and jitter remain within the following thresholds during typical and peak operating conditions?		Latency: ≤ 100 ms Packet loss: ≤ 2% over any 15-second interval Jitter: ≤ 30 ms over any 15-second interval	
5.2: Network Management & Redundancy			
How is network congestion detected in real time?	Narrative		
What mechanisms are used to prioritize or shape traffic during periods of congestion?	Narrative		
How does the system mitigate packet loss or disruption during handoffs between satellites?	Narrative		
What redundancy is built into the last-mile access path to	Narrative		

Field	Data type	Example	Description
preserve session continuity during brief interruptions or link degradation?			
5.3: Handoff Performance Metrics			
In a worst-case scenario, what is the measured duration of MAC-layer link loss during a satellite handoff?	Narrative		
What is the impact of satellite handoff on end-to-end latency, including any mitigation techniques?	Narrative		
What is the expected instantaneous packet loss (in % or packet count) during satellite handoff or gateway reassignment?	Number		

Tab 6. Performance Calculations Tab

Field	Data type	Example	Description
6.1: Demonstration of Capacity			
Using worst-case design assumptions, please provide calculations demonstrating that the network can provide to each location at the time of activation: **(1) A minimum of 100 Mbps download and 20 Mbps upload** **(2) ≤ 100 ms roundtrip latency** **(3) Simultaneous 5 Mbps to all connected locations sharing the beam, including BEAD and non-BEAD users**	Number		Calculations should be for the proposed design specific to the BSLs and all network components encompassed the application. Please include the following in your calculations: 1. Existing network components upon which the application is dependent 2. Oversubscription ratios

Field	Data type	Example	Description
			Your calculations must account for total spectrum usage within the beam(s) serving the proposed project area as well as total spectrum usage and capacity between the satellite(s) and terrestrial gateway(s).
6.2: Demonstration of Scalability			
Please demonstrate, using calculations based on the submitted technical information, how the proposed network will meet the following performance targets five years after initial deployment, assuming a 25% annual increase in capacity demand: **(1) Provide at least 240 Mbps download and 48 Mbps upload capacity to each Broadband Serviceable Location (BSL)** **(2) Maintain roundtrip latency no greater than 100 ms under projected peak load** **(3) Support simultaneous 12 Mbps throughput for all connected users sharing beam capacity (including BEAD-funded and non-BEAD users)**	Number		Your response must: 1. Account for total spectrum usage within the beam(s) serving the proposed project area 2. Account for total spectrum usage and capacity between satellite(s) and terrestrial gateway(s) 3. Describe if and how spectrum can be added to the network to meet future demand, including required U.S. and international regulatory approvals, expected approval timelines, and associated risks

Field	Data type	Example	Description
			4. Describe if and how additional satellites may be deployed to meet future demand, including required U.S. and international regulatory approvals, expected approval timelines, and associated risks.
6.3: Demonstration of Support for 5G and Advanced Services			
Please demonstrate, using calculations based on the submitted technical information, how the proposed network will support deployment of 5G, successor wireless technologies, and other advanced services. **For the purpose of this demonstration, calculations should be based on one of the following two scenarios:** **(1) Rural capacity backhaul to one provider at each of three locations, or** **(2) Three separate providers at one location each**	Number		The calculations must demonstrate that the following performance targets can be met: 1. Deliver at least 300 Mbps download and 30 Mbps upload capacity to each of three 5G mobile providers collocated at a location within the proposed project area (totaling 900/90 Mbps aggregate capacity) 2. Maintain roundtrip latency no greater than 100 ms on each of these links. Your response must:

Field	Data type	Example	Description
			1. Account for all spectrum use within the beam(s) serving the proposed area, including BEAD-funded and other active users 2. Account for all spectrum use and throughput capacity between the satellite(s) and terrestrial gateway(s)