# XON A PARTNERS

# AST SpaceMobile: Technical Performance Assessment

May 23 2023

### Table of Contents

1.	Ove	rview	4		
2.	Syst	em Description	4		
	2.1.	Constellation & Satellite Description	4		
	2.2.	Frequency Spectrum and Operation Parameters	6		
3.	Serv	ice Performance Assessment	8		
	3.1.	Link Budget Performance	8		
	3.2.	Throughput Performance1	.1		
4.	Diffe	erentiation from Competing Constellations1	1		
5.	Risk	s1	2		
Appendix 1. Market Traction and Investments by Wireless Ecosystem					
Appendix 2. Assumptions for The Link Budget Analysis16					
A	About Xona Partners				

## List of Figures

Figure 1 BlueWalker 3 693 sq. ft. phased-array antenna. [Source: AST]
Figure 2 AST satellite coverage example. [Source: AST]7
Figure 3 AST architecture showing wireless base stations on Earth. [Source: AST]7

### List of Tables

Table 1 Summary of link budget, throughput and capacity performance	2
Table 2 Satellite roadmap. [Source: AST]	5
Table 3 Frequency bands and antenna characteristics	6
Table 4 Downlink link budget for AST in 800 MHz band	8
Table 5 Uplink link budget for AST in 800 MHz band	9
Table 6 Downlink link budget for AST in 2 GHz band	9
Table 7 Uplink link budget for AST in 2 GHz band	10
Table 8 Investments received by AST SpaceMobile	14
Table 9 Description of downlink and uplink link budget parameters and assumptions	16
Table 10 LTE modulation and coding rate performance	17

### About Xona Partners

Xona Partners (Xona) is a boutique advisory services firm specialized in technology, media and telecommunications. Xona was founded in 2012 by a team of seasoned technologists and startup founders, managing directors in global ventures, and investment advisors. Drawing on its founders' cross-functional expertise, Xona offers a unique multidisciplinary integrative technology and investment advisory service to private equity and venture funds, technology corporations, as well as regulators and public sector organizations. We help our clients in pre-investment due diligence, post investment lifecycle management, and strategic technology management to develop new sources of revenue. Visit our site at <a href="https://xonapartners.com">https://xonapartners.com</a>