

Micron 9550 SSD Series Technical Product Specification

For additional technical and warranty information, contact your Micron Sales Representative.

Features

- Micron® G8 TLC NAND
- PCI Express Gen5
 - U.2, E1.S, and E3.S 1T: single port (x4)
- NVMe Express:
 - NVMe 2.0b Base Specification
 - NVMe-MI 1.2c Specification
 - NVMe 1.0b NVM Command Set Specification
 - Number of name spaces supported: 512
 - Weighted round robin with urgent arbitration supported
- OCP 2.0 Datacenter NVME SSD Specification
OCP 2.5 Telemetry features
- TCG Storage Security Subsystem Class: Opal Rev 2.02
- Capacity (unformatted)
 - 9550 PRO: 3840GB, 7680GB, 15,360GB, 30,720GB
 - 9550 MAX: 3200GB, 6400GB, 12,800GB, 25,600GB
- Endurance: Total bytes written (TBW)
 - 9550 PRO: Up to 28,032TB at 1 DWPD
 - 9550 MAX: Up to 70,080TB at 3 DWPD
- Enterprise sector size support = 512, 4096-byte sector size (configurable)
- Security
 - Digitally signed firmware (186-5)
 - FIPS 140-3 L2 certifiable
 - Self-encrypting drive (SED) SKUs
- Surprise insertion/surprise removal (SISR) and hot-plug capable
- Self-monitoring, analysis, and reporting technology (SMART)
- Field-upgradeable firmware with support for activate without reset
- Performance¹
 - Sequential 128KB READ: Up to 14,000 MB/s
 - Sequential 128KB WRITE: Up to 10,000 MB/s
 - Random 4KB READ: Up to 3300 KIOPS
 - Random 4KB WRITE: Up to 720 KIOPS
- Latency^{2, 3}
 - READ (TYP): 60µs
 - WRITE (TYP): 10µs
- Reliability
 - MTTF: 2.0M hours @ 0–55°C and 2.5M hours @ 0–50°C⁴

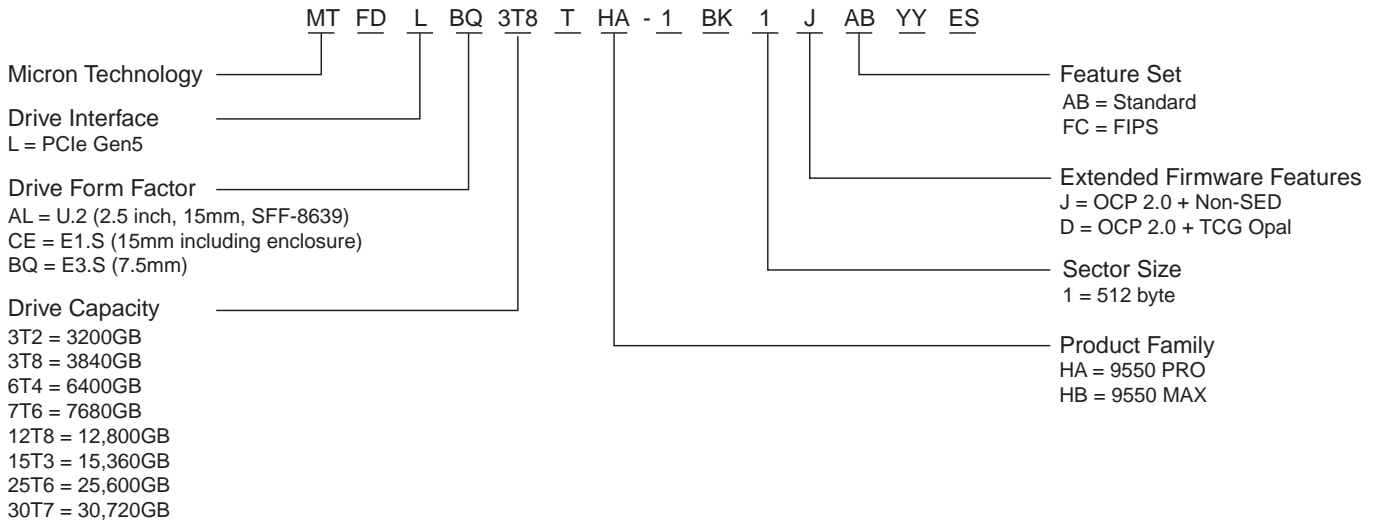
- Static and dynamic wear leveling
- Uncorrectable bit error rate (UBER): <1 sector per 10¹⁷ bits read
- OCP 2.0-compliant end-to-end data protection
- Enterprise power-loss protection
- Operating temperature⁵
 - Commercial (0°C to +70°C)
- Form factor
 - U.2 15mm: 69.85 x 100.45 x 15.00mm
 - E1.S 15mm: 33.75 x 118.75 x 15mm
 - E3.S 1T 7.5mm: 76.00 x 112.75 x 7.58mm
- Electrical specification
 - Power supply: 12V ±10%
 - AUX supply: 3.3V ±15%

- Notes: 1. Steady state as defined by SNIA Solid State Storage Performance Test Specification Enterprise v1.1.
2. 4KB, queue depth 1 transfers used for READ/WRITE latency values.
3. TYP: Median, 50th percentile
4. Product achieves MTTF based on population statistics not relevant to individual units.
5. Temperature measured by SMART.

Part Numbering Information

Micron 9550 SSDs are available in different configurations and capacities. The chart below is a comprehensive list of options; not all options listed can be combined to define an offered product. Visit www.micron.com for a list of valid part numbers.

Figure 1: Part Number Chart



Important Notes and Warnings

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Critical Applications. Products are not authorized for use in applications in which failure of the Micron component could result, directly or indirectly in death, personal injury, or severe property or environmental damage ("Critical Applications"). Customer must protect against death, personal injury, and severe property and environmental damage by incorporating safety design measures into customer's applications to ensure that failure of the Micron component will not result in such harms. Should customer or distributor purchase, use, or sell any Micron component for any critical application, customer and distributor shall indemnify and hold harmless Micron and its subsidiaries, subcontractors, and affiliates and the directors, officers, and employees of each against all claims, costs, damages, and expenses and reasonable attorneys' fees arising out of, directly or indirectly, any claim of product liability, personal injury, or death arising in any way out of such critical application, whether or not Micron or its subsidiaries, subcontractors, or affiliates were negligent in the design, manufacture, or warning of the Micron product.

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Limited Warranty. In no event shall Micron be liable for any indirect, incidental, punitive, special or consequential damages (including without limitation lost profits, lost savings, business interruption, costs related to the removal or replacement of any products or rework charges) whether or not such damages are based on tort, warranty, breach of contract or other legal theory, unless explicitly stated in a written agreement executed by Micron's duly authorized representative.

Performance

Measured performance can vary for a number of reasons. The major factors affecting drive performance are the capacity of the drive and the interface of the host. Additionally, overall system performance can affect the measured drive performance. When comparing drives, it is recommended that all system variables are the same, and only the drive being tested varies. Performance numbers will vary depending on the host system configuration.

Table 1: Drive Performance – PRO

Performance Estimates Across All SKUs		Capacity (GB)				Unit
		3840	7680	15,360	30,720	
Sequential (128KB transfer)	Read	14,000	14,000	14,000	14,000	MB/s
	Write	6000	10,000	10,000	10,000	
Random (4KB transfer)	Read	3000	3300	3300	2800	KIOPS
	Write	300	380	400	400	
	70/30 Read/Write	510	720	970	1100	
Latency	READ (TYP)	60	60	60	60	µs
	WRITE (TYP)	11	11	11	11	
	READ (99%)	72	72	72	72	
	WRITE (99%)	12	12	12	12	

Notes: 1. Performance values measured under the following conditions:

- Steady state as defined by SNIA Solid State Storage Performance Test Specification Enterprise v1.1
- 4K sector size
- NVMe power state 0
- Sequential workloads measured using FIO with a queue depth of 32
- Random READ workloads measured using FIO with a queue depth of 512
- Random WRITE workloads measured using FIO with a queue depth of 512

2. Performance values measured with the following system configuration:

- Z690 Motherboard
- 12th Gen Intel® Core™ i7-12700K
- 2–16GB DIMM = 32GB DDR5 @ 4800

3. Latency values measured under the following configuration:

- Random workloads using FIO with 4KB transfers and a queue depth of 1
- TYP = median, 50th percentile

4. System variations will affect measured results.

- 128KB sequential read performance is dependent on system configuration and test conditions

Table 2: Drive Performance – MAX

Performance Estimates Across All SKUs		Capacity (GB)				Unit
		3200	6400	12,800	25,600	
Sequential (128KB transfer)	Read	14,000	14,000	14,000	14,000	MB/s
	Write	6000	10,000	10,000	10,000	
Random (4KB transfer)	Read	3000	3300	3300	2800	KIOPS
	Write	540	640	720	700	
	70/30 Read/Write	760	1000	1300	1300	
Latency	READ (TYP)	60	60	60	60	µs
	WRITE (TYP)	11	11	11	11	
	READ (99%)	72	72	72	72	
	WRITE (99%)	12	12	12	12	

Notes: 1. Performance values measured under the following conditions:

- Steady state as defined by SNIA Solid State Storage Performance Test Specification Enterprise v1.1
- 4K sector size
- NVMe power state 0
- Sequential workloads measured using FIO with a queue depth of 32
- Random READ workloads measured using FIO with a queue depth of 512
- Random WRITE workloads measured using FIO with a queue depth of 512

2. Performance values measured with the following system configuration:

- Z690 Motherboard
- 12th Gen Intel® Core™ i7-12700K
- 2-16GB DIMM = 32GB DDR5 @ 4800

3. Latency values measured under the following configuration:

- Random workloads using FIO with 4KB transfers and a queue depth of 1
- TYP = median, 50th percentile

4. System variations will affect measured results.

- 128KB sequential read performance is dependent on system configuration and test conditions

Endurance

SSD endurance is dependent on many factors, including, usage conditions applied to the drive, drive performance and capacity, and formatted sector size.

Table 3: Total Bytes Written

Model	Capacity (GB)	4K Random Total Bytes Written (TB)	128K Sequential Total Bytes Written (TB)
PRO	3840	7008	29,400
	7680	14,016	58,300
	15,360	28,032	104,500
	30,720	56,064	201,200
MAX	3200	17,520	37,200
	6400	35,040	74,200
	12,800	70,080	143,100
	25,600	140,160	282,600

- Notes: 1. Values represent the theoretical maximum endurance for the given transfer size and type. Actual lifetime will vary by workload. Refer to Percentage Used in the SMART/Health Information (Log Identifier 02h) to check the device life used.
2. Total bytes written calculated assuming drive is 100% full (user capacity) with workload of 100% random aligned 4KB writes.

Electrical Characteristics

Environmental conditions beyond those listed may cause permanent damage to the device. This is a stress rating only, and functional operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect reliability.

Table 4: Power Consumption – PRO

User Capacity	Capacity (GB)				Unit
	3840	7680	15,360	30,720	
Active read (maximum)	18	19	23	24	W
Active write (maximum)	19	20	23	23	W
128K sequential read (average)	14	15	17	18	W
128K sequential write (average)	16	15	16	16	W
4K random read (average)	16	17	19	19	W
4K random write (average)	17	21	21	23	W
4K 70/30 random read/write (average)	15	17	19	18	W
Idle (average)	5	5	5	5	W

- Notes: 1. Power limiting is configured through Set/Get Features Power Management.
2. Power consumption measurements are for reference only; actual workload power consumption will vary.

Table 5: Power Consumption – MAX

User Capacity	Capacity (GB)				Unit
	3200	6400	12,800	25,600	
Active read (maximum)	18	19	23	24	W
Active write (maximum)	19	20	25	23	W
128K sequential read (average)	14	15	17	18	W
128K sequential write (average)	15	15	17	16	W
4K random read (average)	16	17	19	19	W
4K random write (average)	17	21	19	23	W
4K 70/30 random read/write (average)	13	17	17	18	W
Idle (average)	5	5	5	5	W

- Notes: 1. Power limiting is configured through Set/Get Features Power Management.
2. Power consumption measurements are for reference only; actual workload power consumption will vary.

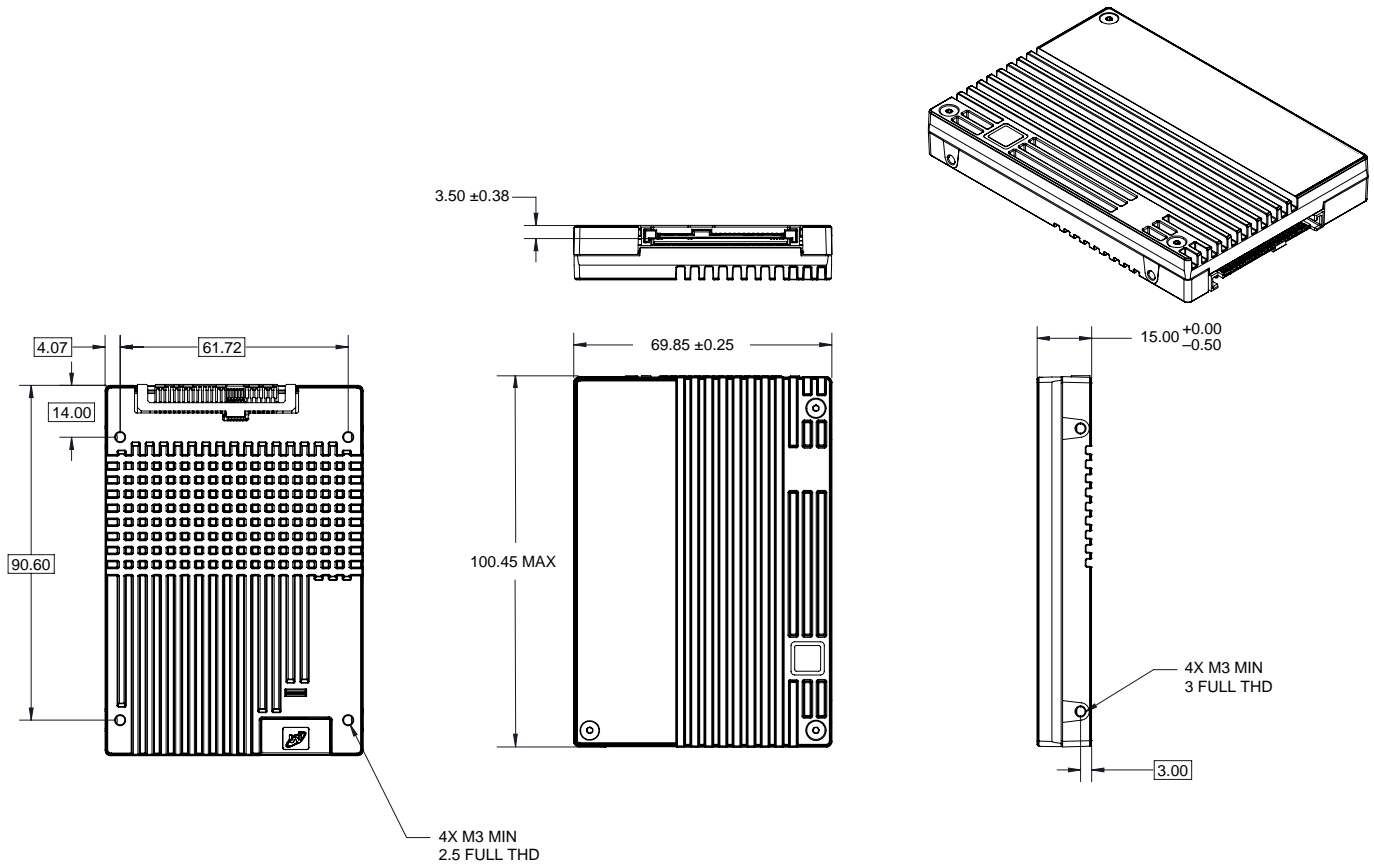
Table 6: Operating Voltage – U.2, E1.S, E3.S 1T

Power Rail	Electrical Parameter	Value	Unit
12V	Operating voltage	12	Vdc (±10%)
	MIN/MAX rise time	0.1	ms/100ms
	Fall time	<5	s
	MIN power-off time	50	ms
	Inrush current (typical peak)	2.1	A
	MAX average current (RMS): U.2	4.5	A
	E1.S and E3.S 1T	3.15	
	Over current limit	6	A
Over voltage limit	15	V	
3.3 V _{AUX}	Operating voltage	3.3	Vdc (±15%)
	MIN/MAX rise time	1	ms/50ms
	MIN/MAX fall time	1	ms/5s
	MAX average current	20	mA

Physical Configuration

U.2 Enterprise PCIe (SFF-8201 and SFF-8639)

Figure 2: U.2 15mm Nominal Dimensions



- Notes: 1. All dimensions are in millimeters.
2. M3 Torque: Maximum of 5 lbf-in at 100 rpm with an actuation style lever.

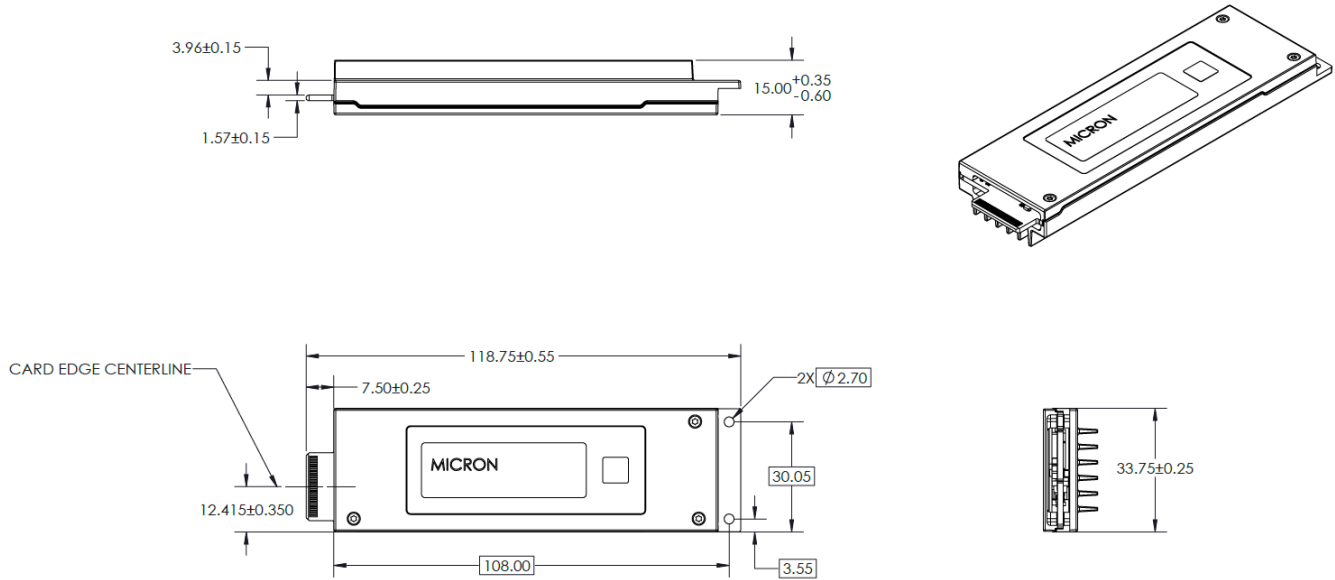
Table 7: U.2 Enterprise PCIe Dimensions

Form Factor	Width	Length	Height	Unit
U.2 15mm	69.85	100.45	15	mm

Note: 1. Dimension values per SFF-8201 Revision 3.4 and SFF-8639 Revision 2.1.

E1.S Enterprise PCIe x4 – SFF-TA-1006

Figure 3: E1.S 15mm Nominal Dimensions



Note: 1. All dimensions are in millimeters.

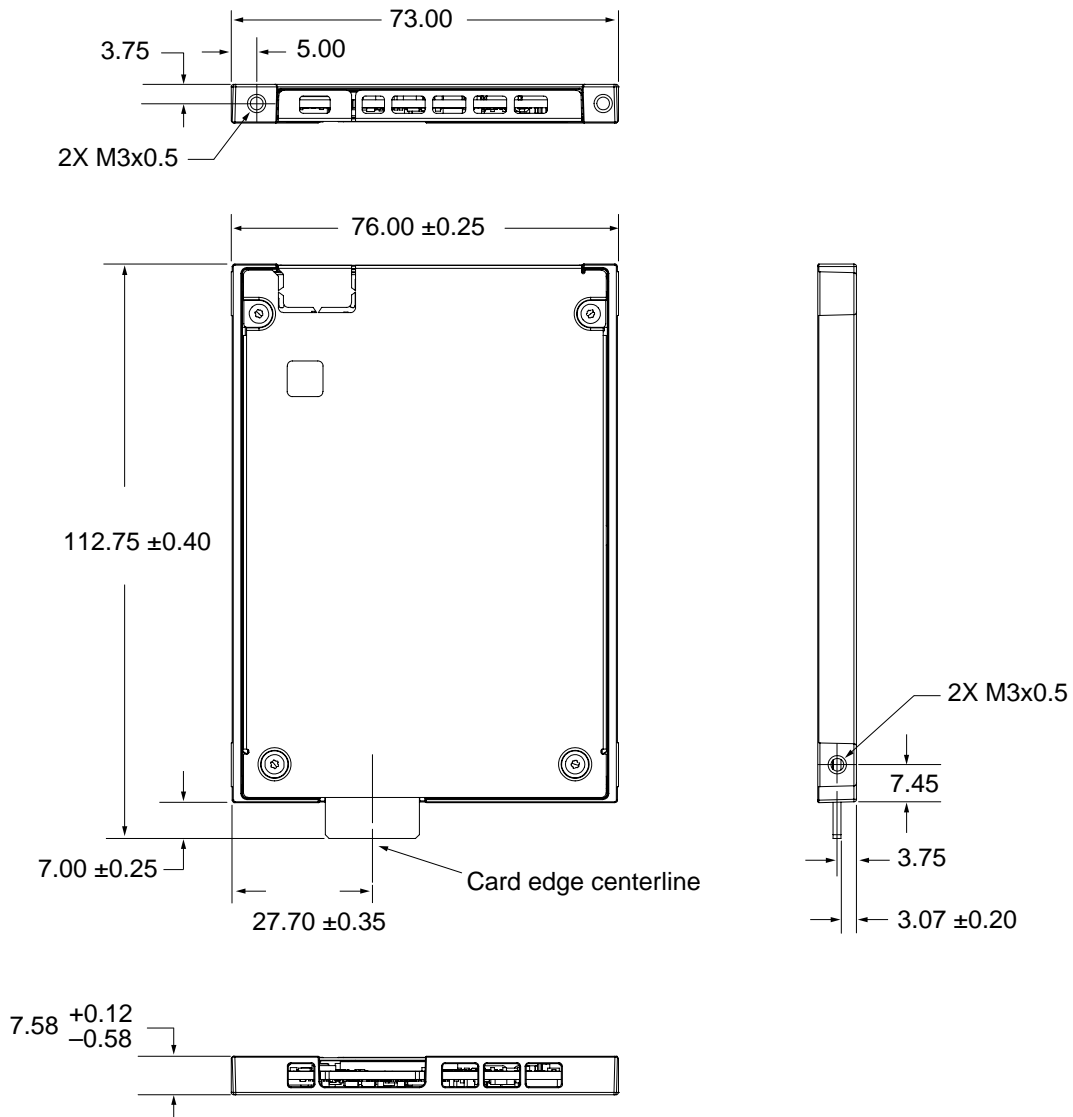
Table 8: E1.S Enterprise PCIe x4 Dimensions

Form Factor	Width	Length	Height	Unit
E1.S 15mm	33.75	118.75	15.00	mm

Note: 1. Dimension values per SFF-TA-1006 Revision 1.5.

E3.S Enterprise PCIe – SFF-TA-1008

Figure 4: E3.S 1T 7.5mm Nominal Dimensions



- Notes: 1. All dimensions are in millimeters.
2. M3 Torque: Maximum of 5 lbf-in at 100 rpm with an actuation style lever.

Table 9: E3.S 1T Enterprise PCIe x4 Dimensions

Form Factor	Width	Length	Height	Unit
E3.S 1T 7.5mm	76.00	112.75	7.58	mm

Note: 1. Dimension values per SFF-TA-1008 Revision 2.0.

FCC Rules

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Revision History

Rev. A – 02/2025

- Initial release

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