

April 18, 2019

## TEST DATA SUMMARY

**SwRI Project No:** 18.18276.04

**Customer Name:** Panasonic System Communications Company  
Two Riverfront Plaza  
Newark, NJ 07102  
Attn: Pala Vachirabanjong

**Equipment Tested:** Panasonic FZ-L1 and FZ-T1

**Test Dates:** February 15 – April 17, 2019

**Test Reference:** MIL-STD-810G Change 1, “Department of Defense Test Method Standard for Environmental Engineering Considerations and Laboratory Tests,” 15 April 2014.

The Panasonic FZ-L1 and FZ-T1 were tested at Southwest Research Institute for compliance to client specified requirements from MIL-STD-810G Change 1. The test items were evaluated for performance-affecting physical damage, and for their ability to successfully re-boot the operating system following a non-operating test exposure, and to continue to play an audio/video file during operating test environments. Results of the testing performed are summarized in the matrix below.

This summary is provided for review while the final report is in progress, and is not intended to be a stand-alone document. A full report including detailed configuration information, test procedures and results will be issued as Southwest Research Institute (SwRI) Test Report 18.18276.04.100.FR1, Issue 1.

This summary shall not be reproduced, except in full, without written approval of Southwest Research Institute. The results of this summary apply only to the specific samples tested. If the manufacturer extends the test results to apply to other samples of the same model, or from the same lot or batch, the manufacturer should ensure the additional samples are manufactured using identical electrical and mechanical components and assembly procedures.

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**Table 1: Summary of Test Results - Panasonic FZ-L1 and FZ-T1**

ID	MIL-STD-810G, Change 1 Method/Procedure	Test Description	Parameters	FZ-L1 Test Results	FZ-T1 Test Results
1	Method 500.6 Procedure I	Low Pressure (Altitude): Storage/Air Transport	40,000ft Non-Operating	PASS	PASS
2	Method 500.6 Procedure II	Low Pressure (Altitude): Operation/Air Carriage	40,000ft Operating	PASS	PASS
3	Method 501.6 Procedure I	High Temperature: Storage	+71.1°C [+160°F] Non-Operating	PASS	PASS
4	Method 501.6 Procedure II	High Temperature: Operation	+50°C [+122°F] (constant) Operating	PASS	PASS
5	Method 501.6 Procedure III	High Temperature: Tactical – Standby to Operational	+71.1°C [+160°F] Standby +50°C [+122°F] Operating	PASS	PASS
6	Method 502.6 Procedure I	Low Temperature: Storage	-30°C [-22°F] Non-Operating	PASS	PASS
7	Method 502.6 Procedure II	Low Temperature: Operation	-10°C [+14°F] Operating on Batteries	PASS	PASS
8	Method 503.6 Procedure I	Temperature Shock	+71.1°C [+160°F] to -30°C [-22°F] Three (3) cycles	PASS	PASS
9	Method 506.6 Procedure III	Rain: Drip	15 minute exposure	PASS	PASS
10	Method 506.6 Procedure I	Rain: Rain and Blowing Rain	5.8 in./hour rain, 70 mph wind 30 min/surface; Operating	PASS	PASS
11	Method 507.6 Procedure I	Humidity: Induced	Cycle B3, 15 days	PASS	PASS
12	Method 507.6 Procedure II	Humidity: Aggravated	Temp. cycles 86°F to 140°F; 95%RH	PASS	PASS
13	Method 510.6 Procedure I	Sand and Dust: Blowing Dust	Dust concentration of 0.3±0.2g/ft <sup>3</sup> ; Operating temp +50°C [+122°F]	PASS <sup>1</sup>	PASS <sup>2</sup>
14	Method 510.6 Procedure II	Sand and Dust: Blowing Sand	Sand concentration of 0.06±0.015g/ft <sup>3</sup> ; Operating temp +50°C [+122°F]	PASS <sup>1</sup>	PASS <sup>2</sup>
15	Method 511.6 Procedure I	Explosive Atmosphere: Operation	95% n-Hexane fuel, 3.8% by volume	PASS	PASS
16	Method 514.7 Procedure I	Vibration: General Vibration – Operating	Category 4, Common carrier (US Highway Truck) Figure 514.7C-2	PASS	PASS
			Category 4, Composite wheeled vehicle Figure 514.7C-4	PASS	PASS
17	Method 514.7 Procedure I	Vibration: General Vibration – Non-operating	Category 24, General minimum integrity exposure Figure 514.7E-1	PASS	PASS
18	Method 514.7 Procedure I	Vibration: General Vibration – Operating	Category 24, Helicopter minimum integrity exposure Figure 514.7E-2	PASS	PASS
19	Method 514.7 Procedure I	Vibration: General Vibration – Non-operating	Category 24, Helicopter minimum integrity exposure Figure 514.7E-2	PASS	PASS
20	Method 516.7 Procedure I	Shock: Functional	40g, 11ms - Operating	PASS	PASS
21	Method 516.7 Procedure IV	Shock: Transit-Drop	26 drops at 48-in. onto 2-in. plywood. Non-operating.	PASS	PASS
22	Method 516.7 Procedure IV		26 drops at 60-in. onto 2-in. plywood. Non-operating.	PASS	PASS
23	Method 524.1 Procedure III	Freeze/Thaw: Rapid Temperature Change	Thaw: +30°C [+86°F] at 95% RH Freeze: -10°C [+14°F]	PASS	PASS

Note<sup>1</sup>: The FZ-T1 has no cover or plug on the audio jack. While the units experienced intrusion into this port during both sand and dust tests, they were operational after the exposure once cleaned.

Note<sup>2</sup>: The audio jack on the FZ-L1 had a dust cover but no cover seal, which resulted in intrusion into this port during both sand and dust tests. The audio jacks on each unit were operational after the exposure once cleaned.