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MECHANICAL ENGINEERING DIVISION

April 10, 2019

CERTIFICATE OF CONFORMANCE

Panasonic System Communications Company
Two Riverfront Plaza
Newark, NJ 07102

Subject: Test Summary for SwRI® Project 18.04481.29, Environmental Testing of the Panasonic FZ-N1

This certificate serves as verification that the activities related to the MIL-STD-810G testing of the FZ-N1 handheld device were performed at Southwest Research Institute (SwRI) in accordance with the requirements identified in Panasonic Purchase Order PO85780. Photographs, test data, test results, listing of test equipment, procedure details, and copies of laboratory data logs for the subject program are contained in the final report titled, “Environmental Test Report, Panasonic FZ-N1.” The final report was issued as SwRI Document 18.04481.29.100.FR1, Issue 1 (March 2016), and includes a total of 124 pages. In accordance with SwRI retention policies, SwRI will retain an electronic copy of this report for a period of ten (10) years beyond the date of issue.

The enclosed 3-page “Summary of Tests Performedp” was issued on January 15, 2016, and references the final test report. The summary document provides a list of the tests performed under this project and the results of each test. A detailed description of the testing is provided in the referenced report.

Approved By:



Jenny Ferren, Manager
Structural Dynamics & Product Assurance
Mechanical Engineering Division



MECHANICAL ENGINEERING DIVISION

January 15, 2016

SUMMARY OF TESTS PERFORMED


Project Number: 18.04481.29

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

Equipment Tested: Panasonic FZ-N1

Test Dates: December 14, 2015 – January 14, 2016

Notes: *The test item was evaluated for ability to boot into the Android operating system following each of the tests described within this summary report or for the ability to play an audio/visual file during the test parameter application. Both standard and extended battery configurations were tested or analyzed. A listing of summarized tests and results appear in the accompanying table. Full details will be provided in SwRI Report Number 18.04481.29.100.FR1.*

Report Written By: 
Eric Dornes
Principal Engineer
Structural Dynamics and Product Assurance Section



Summary of Tests Performed on the Panasonic FZ-N1

Test Description	Test Parameters	Test Results
Altitude: Storage/Air Transport	MIL-STD-810G w/CHANGE 1, Method 500.6, Procedure I <ul style="list-style-type: none"> 40,000ft Non-Operating 	PASS: Completed 12/18/15
Altitude: Operation/Air Carriage	MIL-STD-810G w/CHANGE 1, Method 500.6, Procedure II <ul style="list-style-type: none"> 40,000ft Operating 	PASS: Completed 12/18/15
High Temperature: Storage	MIL-STD-810G w/CHANGE 1, Method 501.6, Procedure I <ul style="list-style-type: none"> 160°F Non-Operating, 7 days 	PASS: Completed 12/21/15
High Temperature: Operation	MIL-STD-810G w/CHANGE 1, Method 501.6, Procedure II (constant) <ul style="list-style-type: none"> 122°F Operating 	PASS: Completed 01/05/16
High Temperature: Tactical-Standby to Operational	MIL-STD-810G w/CHANGE 1, Method 501.6, Procedure III <ul style="list-style-type: none"> High storage (non-operating) to high operating (test for operation) 	PASS: Completed 01/06/16
Low Temperature: Storage	MIL-STD-810G w/CHANGE 1, Method 502.6, Procedure I <ul style="list-style-type: none"> -22°F Non-Operating 	PASS: Completed 01/06/16
Low Temperature: Operation	MIL-STD-810G w/CHANGE 1, Method 502.6, Procedure II <ul style="list-style-type: none"> 14°F Operating 	PASS: Completed 01/06/16
Temperature Shock	MIL-STD-810G w/CHANGE 1, Method 503.6, Procedure I <ul style="list-style-type: none"> From 200°F to -60°F, three cycles 	PASS: Completed 01/07/16
Rain: Blowing	MIL-STD-810G w/CHANGE 1, Method 506.6, Procedure I <ul style="list-style-type: none"> 5.8in/hr rain, 70mph wind, 30 minutes per surface Unit operating 	PASS: Completed 01/11/16
Rain: Drip	MIL-STD-810G w/CHANGE 1, Method 506.6, Procedure III <ul style="list-style-type: none"> 15 minute exposure, drip test 	PASS: Completed 01/13/16
Humidity	MIL-STD-810G w/CHANGE 1, Method 507.6, Procedure II (Aggravated) <ul style="list-style-type: none"> Temp. cycles 86°F to 140°F; 95%RH 	PASS: Completed 01/04/16
Sand and Dust: Dust	MIL-STD-810G w/CHANGE 1, Method 510.6, Procedure I <ul style="list-style-type: none"> Blowing Dust (operating) Operating temperature of 122°F 	PASS: Completed 01/11/16
Sand and Dust: Sand	MIL-STD-810G w/CHANGE 1, Method 510.6, Procedure II <ul style="list-style-type: none"> Blowing Sand (operating) Operating temperature of 122°F 	PASS: Completed 01/14/16
Explosive Atmosphere	MIL-STD-810G w/CHANGE 1, Method 511.6, Procedure I	PASS: Completed 12/18/15
Vibration: General Vibration – operating	MIL-STD-810G w/CHANGE 1, Method 514.7, Procedure I (Transportation) <ul style="list-style-type: none"> Panasonic provided conditions (operating) 	PASS: Completed 12/17/15
Vibration: General Vibration – non-operating	MIL-STD-810G w/CHANGE 1, Method 514.7, Procedure I (Transportation) <ul style="list-style-type: none"> Category 24, general minimal integrity (non-operating) 	PASS: Completed 12/17/15
Vibration: Helicopter – operating	MIL-STD-810G w/CHANGE 1, Method 514.7, Procedure I (Transportation) <ul style="list-style-type: none"> Helicopter Minimum Integrity (operating) 	PASS: Completed 12/17/15
Vibration: Helicopter – non-operating	MIL-STD-810G w/CHANGE 1, Method 514.7, Procedure I (Transportation) <ul style="list-style-type: none"> Helicopter Minimum Integrity (non-operating) 	PASS: Completed 12/17/15
Shock: Functional	MIL-STD-810G w/CHANGE 1, Method 516.7, Procedure I <ul style="list-style-type: none"> 40g, 11ms – Operating 	PASS: Completed 12/17/15

Test Description	Test Parameters	Test Results
Shock: Transit-Drop 48-inch	MIL-STD-810G w/CHANGE 1, Method 516.7, Procedure IV <ul style="list-style-type: none"> • 26 drops – 48in height on to 2in plywood – operating • All drops performed on the same unit 	PASS: completed 12/16/15
Shock: Transit-Drop 60-inch	MIL-STD-810G w/CHANGE 1, Method 516.7, Procedure IV <ul style="list-style-type: none"> • 26 drops – 60in height on to 2in plywood – operating • All drops performed on the same unit 	PASS: completed 12/16/15
Shock: Transit-Drop 72-inch	MIL-STD-810G w/CHANGE 1, Method 516.7, Procedure IV <ul style="list-style-type: none"> • 26 drops – 72in height on to 2in plywood – operating • All drops performed on the same unit 	PASS: completed 12/16/15
Freeze / Thaw	MIL-STD-810G w/CHANGE 1, Method 524.1, Procedure III (Rapid Temperature Change) <ul style="list-style-type: none"> • Test effects include condensation and fog 	PASS: completed 01/12/16