

Longer Shock Pulse Width Study Preliminary Data Review

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- 1. Task Group Composition**
- 2. Initial PIND Samples Sent to NSWCR Crane**
 1. First Group of Packages
 2. Second Group of Packages
 3. Third Group of Packages
- 3. Sample Package Test Status**
- 4. Future plans**

PIND Task Group Members

- PIND Task Group Work participant members represent the manufacturers, industry, and government agencies, and international partners:
 - Manufacturers: Microchip, Texas Instruments, IR Hi Rel/Infineon, VPT Components, Semicoa, Teledyne Microwave Solutions, Micropac Industries Inc.
 - Industry Test Laboratories—Hi Rel Labs, ORS Labs, Golden Altos
 - Government Agencies and their contractors—NASA, NSWC Crane Division, US Air Force, US Army, Aerospace Corporation, DLA Land and Maritime,
 - International Partners –ESA, NASAM, TESAT/DLR

Initial Samples PIND Tested by NSWCR Crane

- First group of 39 sample packages tested.

Package Type	Quantity
121 PGA	2
8 pin cerdip	2
8 pin side braze	2
20 pin LCC	2
31 PGA	1
32 pin CQFP	2
TO-5 4 Id	2
14 pin FP	2
DO-13	5
TO-18	5
UB	4
UA	4
TO-39	3
UMC	3
Total Sample Count	39

Initial Samples To Be PIND Tested By NSWC Crane

- Second group of 62 sample packages sent to NSWC Crane and ready to be PIND tested with standard shock pulse PIND equipment.

Package Type	Quantity	change
TO-254	20	
UB	12	
16 pin flat pack	7	
7 pin flat pack	3	
SMD.5 (U3)	20	
Total Sample Count	62	

Initial Samples To Be PIND Tested By NSWCR Crane

- Third group of 23 TO-5 sample packages sent to NSWCR Crane to be PIND tested.

Package type	quantity
TO-5	23
total sample count	23



Sample Package Test Status

- NASA MSFC Covid19 status is stage 1, test laboratories are open.
- Testing complete on the first group of 39 sample packages at NSWC Crane. Results discussed during the May 2022 JEDEC meeting.
- Second group of 62 sample packages sent to NSWC Crane are awaiting testing.
- NSWC Crane created test travelers, determined cavity heights for the 62 packages and calculated test frequencies to use.
- Third group of 23 sample packages sent to NSWC Crane for initial PIND testing.

Longer Shock Pulse Width Task Proposal Future Plans

- Perform X-ray and FOD check on the packages with anomalies from the first group tested.
- Develop travelers and schedule PIND testing of third group of samples at NSWC Crane. Then send samples to MSFC for testing.
- Will ask manufacturers for specific quantities for some of the 1- or 2-piece samples received.

Thank you!

- We would like to express our appreciation to the task group members, NASA NEPAG and SLS programs, Government Working Group, and NSWC Crane for their continued support of this effort.
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Acronyms

- DLA – Defense Logistics Agency
 - DLR – German Aerospace Center
 - DPA – Destructive Physical Analysis
 - ESA – European Space Agency
 - ESD – Electrostatic Discharge
 - FOD – Foreign Object Debris
 - JEDEC – JEDEC Solid State Technology Association
 - NASA – National Aeronautics and Space Administration
 - MSFG – Marshall Space Flight Center
 - NSWC Crane – Naval Surface Warfare Center, Crane Division
 - PIND – Particle Impact Noise Detection
 - STU – Sensitivity Test Unit
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