

ADXRS910 / ADXRS910A Safe Launch Final Test QC Pass Elimination



March 5, 2021

Executive Summary

- ▶ An element of the ADI Safe Launch Plan for ADXRS910 prior to production is shown in the table

LOCATION	SAFE LAUNCH PLAN	OBJECTIVE	SAMPLE SIZE	EXIT CRITERIA	STANDARD PRODUCTION	CUSTOMER COMMUNICATION
Production Test	100% Ambient QC Test Pass	Verify Standard Production Testing ensures datasheet performance	100K devices processed encompassing 3 Fab Lots	100K shipped devices with corrective actions identified for any failures via 8D process.	100% Two-pass temp testing and Cold QC sample testing	Summarized report on activity and notify on exit

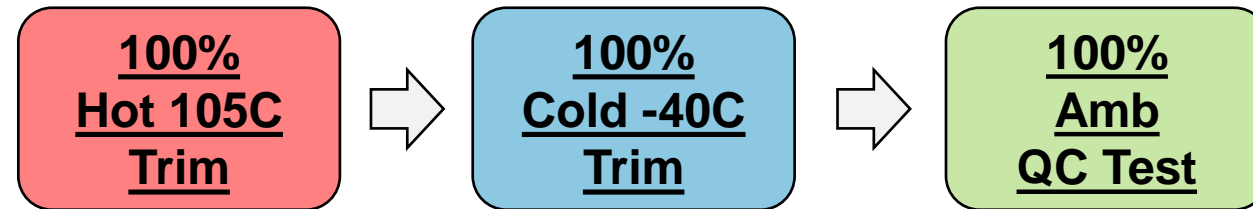
- ▶ ADI has collected the data to remove the 100% Ambient QC Test Pass based on exit criteria
 - Safe-Launch data collection completed (104k parts)
 - No failures were observed at 100% QC 25C test pass from 104k units. This data ensures that two-pass temperature testing is sufficient to meet datasheet min/max specifications.
 - All Cpk's are greater than 1.67
- ▶ ADI has confidence in removing the 100% Ambient QC test pass and proceed to 2-pass (Hot and Cold) manufacturing test flow with only sampling at the Cold QC test.

ADXRS910 Safe Launch Plan

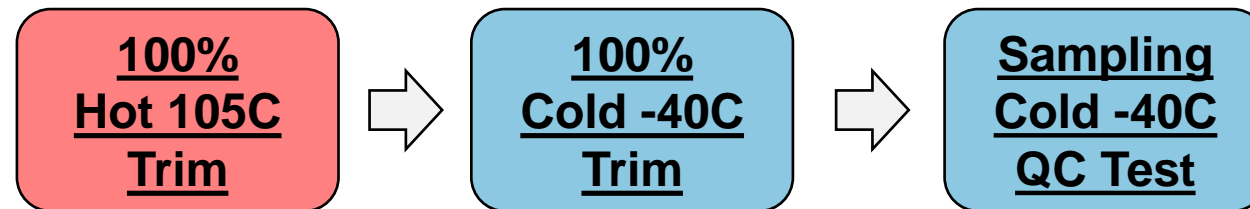
LOCATION	SAFE LAUNCH PLAN	OBJECTIVE	SAMPLE SIZE	EXIT CRITERIA	STANDARD PRODUCTION	CUSTOMER COMMUNICATION
Fab - Sensor	Process owner monthly Cpk monitoring of critical parameters (SC/CC) for all Safe Launch wafer Lots to Automotive standard Cpk (1.67).	Verify performance meets ADI standards as defined by the appropriate review board.	100K devices processed encompassing 3 FAB Lots	Cpk greater than or equal to 1.67 for Safe Launch wafer lots critical parameters with improvement actions identified via TRB for below 1.67 Cpk parameters	Automated review coordinated by PROMIS with hold alerts for low Cpk. Lots that trip alerts are dispositioned by MRB and actions taken are tracked by TRB	Cpk report and notify on exit.
Fab - ASIC	Process owner monthly Cpk monitoring of critical parameters (SC/CC) for all Safe Launch wafer Lots to Automotive standard Cpk (1.67).	Verify performance meets ADI standards as defined by the appropriate review board.	100K devices processed encompassing 3 Fab Lots	Cpk greater than or equal to 1.67 for Safe Launch wafer lots critical parameters with improvement actions identified if via TRB for below 1.67 Cpk parameters	Automated review coordinated by PROMIS with hold alerts for low Cpk. Lots that trip alerts are dispositioned by MRB and actions taken are tracked by TRB	Cpk report and notify on exit.
MFG - Chute Yield	Monthly yield monitoring of all manufacturing stages and review of normalized yield trends	Verify consistent and/or improving yield trends though safe launch.	100K devices processed encompassing 3 FAB Lots	Consistent yield trends that meet or exceed ADI standards as defined by the appropriate review board.	Standard low yield disposition procedures	Summarized report on activity and notify on exit.
Assembly	Process owner monthly Cpk monitoring of critical parameters for all Safe Launch Assembly Lots to Automotive standard Cpk (1.67).	Verify performance meets ADI standards as defined by the appropriate review board.	100K devices processed encompassing 3 FAB Lots	Cpk greater than or equal to 1.67 for critical parameters of Safe launch Assembly lots with improvement actions identified via TRB for below 1.67 Cpk parameters	Automated review coordinated by PROMIS with hold alerts for lots that trip yield limits. Lots that trip yield limits are dispositioned by Assembly MRB and actions taken are tracked by TRB	Cpk report and notify on exit.
Production Test	Process owner monthly Cpk monitoring of critical parameters (SC/CC) for all Safe Launch test Lots to Automotive standard Cpk (1.67).	Verify critical parameters have Cpk greater than or equal to 1.67	100K devices processed encompassing 3 FAB Lots	Cpk greater than or equal to 1.67 for Safe Launch test lots critical parameters with improvement actions identified via TRB for below 1.67 Cpk parameters	Monthly Cpk review	Cpk report and notify on exit.
Production Test	100% Ambient QC Test Pass *	Verify Standard Production Testing ensures datasheet performance	100K devices processed encompassing 3 Fab Lots	100K shipped devices with corrective actions identified for any failures via 8D process.	100% Two-pass temp testing and Cold QC sample testing	Summarized report on activity and notify on exit.

25C Pass Removal

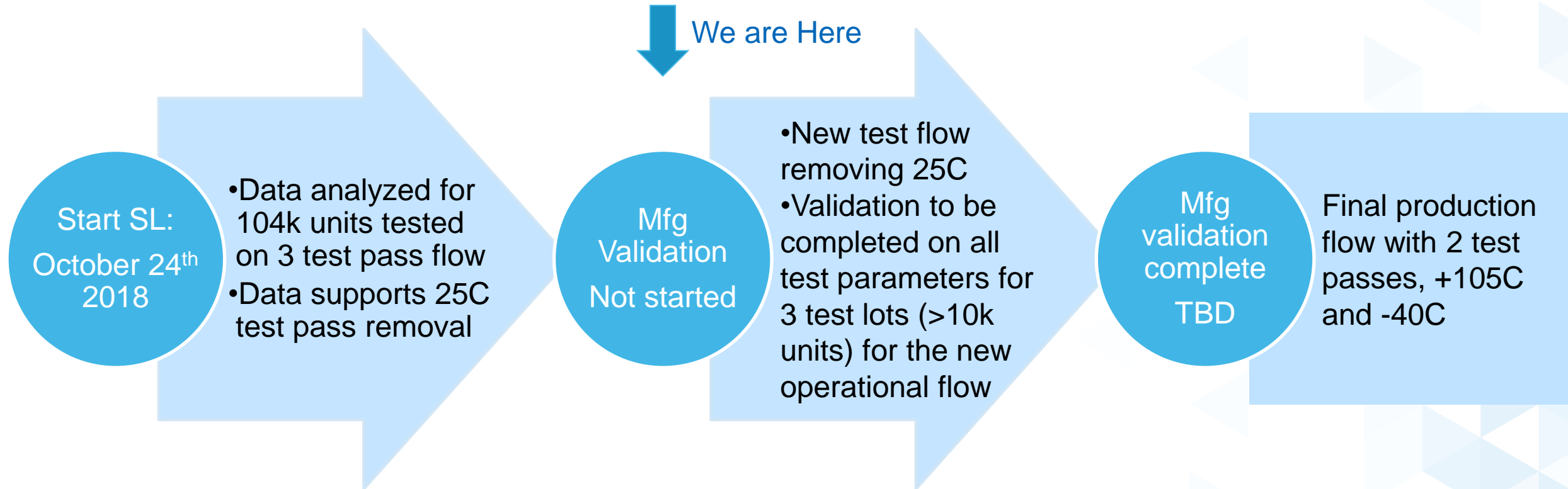
ADXRS910 Safe Launch ATE Flow



ADXRS910 Planned Production ATE Flow



25C Pass Removal Plan



Mfg Validation:

- No code change, just a manufacturing flow change
- 25C test pass removed
- Flow change validation by running production lots and verifying yield performance

ADXRS910 25C Pass Elimination Supporting Data *SC/CC Data Review*

ADXRS910 Parametric Data Cpk Summary

- ▶ The ADXRS910 Parametric Test data was compiled for ~104K Safe Launch parts at each temperature pass
- ▶ The ADI guideline is that the product Critical Characteristics (CC) must have $Cpk > 1.67$
- ▶ The ADXRS910 Safe Launch meets the requirement per the table of Cpk's below

Temp	Offset	Sensitivity	Self Test 1K	Self Test 500	Resonator f_0	Res Q	AVDD	DVDD
Cold -40C	8.52	18.69	3.30	6.30	13.61	2.12	2.24	2.15
Hot 105C	36.37	28.03	3.87	4.78	13.82	2.43	2.79	2.13
Ambient 25C	4.75	6.05	3.49	4.09	13.73	2.87	2.50	2.16

End