

Fuse On-Going Reliability Test Summary Report - 0AKJX Fuse series

Fuse Type and Rating : 0AKJX 150A/250A/315A

Production Lot Number : ENG'samples

Project Number : FPC-1019

Fuse Part Number : 0AKJBK150XBA/0AKJBK250XBA/0AKJBK315XBA

Reference	Test Description	Testing Condition	Acceptance Criteria	Result
UL248-1 & Drawing	Cold resistance	150A : Ambient Temperature 25+/-5°C; current <5% In, Measure Point: Fuse Cap 250A/315A: Ambient Temperature 25+/-5°C, current <10% In, measure with specified fixture	Record the real data Fuse resistance is within spec.	12/12 pass
ISO8820-8 JSAE JASO D622	Temperature rise test	Ambient Temperature 25+/-5°C; Current: 50% of rated current	The temperature rise shall not exceed 50°C	2/2 pass
JASO D622 6.3.4.1	Temperature and humidity cycle	-40°C/+120°C,each cycle 24hrs, total 10 cycle, Measure voltage drop	No appearance damage, Rc change <10%	2/2 pass
JASO D622 6.3.6	Thermal shock resistance test	150A: 48cycles, -30°C-100°C; 250A/315A: Temp.: -40°C ~ +100°C, each cycle 1hr, total 48 cycles	No appearance damage, Rc change <10%	2/2 pass
User-defined	High temperature storage test	Put samples in 125°C for 100 hours	No appearance damage, Rc change <10%	2/2 pass
150A: JASO D622 6.3.3 250A/315A:UL248-20 IEC 60068-2-64	Vibration durability test	150A:Ambient Temperature 25+/-5°C; The vibration frequency should be 10-55Hz, the Max amplitude 1.5mm, 1min per cycle, 3direction, 2hours per direction total 6 hours 250A/315A: Random vibration condition C: RMS: 30.2m/s ² 3 directions 8hrs per direction	No appearance damage, Rc change <10%	2/2 pass
JASO D622 6.3.2	Transient current intermittent cycle durability test	150A: One cycle contain a current of 2In/0.25sec, and follow by current of 0.5In/15sec; Total 50000cycle 250A/315A: One cycle contains a current of 2In/0.25sec, and follow by current of 0.5In/9.75sec, total 50000cycles	No appearance damage, Rc change <10%	2/2 pass
150A: JASO D622 6.3.4.2 & 6.3.4.3 GB/T31465.1-5.4 250A/315A:GB/T31465.1-5.4	Lubricant & Fuel oil resistance	Wipe the marking with fuel oil and lubricant for 30sec each	Marking is clear and identifiable after test	150A:12/12 pass 250A: 6/6 pass
150A:JASO D622 6.3.9 ISO8820-8 250A/315A:JASO D622 ISO8820-8	Strength of fuse links	Tighten and loosed the fuses with 12+/-1 Nm torque for 3 times	Terminals maintain integrated after test.	12/12 pass

Reported By: Hongguo Hu

Approved by: Simon Chiu

Test Complete Date: Sep 28 , 2020

Cold resistance

Fuse Type and Rating : 0AKJX 150A/250A/315A

Production Lot Number : ENG'samples

Project Number : FPC-1019

Fuse Part Number : 0AKJBK150XBA/0AKJBK250XBA/0AKJBK315XBA

Condition : UL248-1& Drawing

150A : Ambient Temperature 25+/-5°C; current <5% In, Measure Point: Fuse Cap

250A/315A: Ambient Temperature 25+/-5°C, current <10% In, measure with specified fixture

Type:	0AKJX 150A					
Start Date:	10/30/2019			End Date:	10/30/2019	
Room Temp.:	25.7	°C		Room Humi.:	66	%
No.\Name	Cold Resistance	Visual Check	No.\Name	Cold Resistance	Visual Check	
Unit:	mΩ		Unit:	mΩ		
Upper Limit:	0.9000	No Visual Damage	Upper Limit:	0.9000	No Visual Damage	
Lower Limit:	0.6000		Lower Limit:	0.6000		
1	0.7436	pass	7	0.7458	pass	
2	0.7386	pass	8	0.7368	pass	
3	0.7498	pass	9	0.7384	pass	
4	0.7422	pass	10	0.7375	pass	
5	0.7214	pass	11	0.7366	pass	
6	0.7408	pass	12	0.7340	pass	

Type:	0AKJX 250A					
Start Date:	9/7/2020			End Date:	9/9/2020	
Room Temp.:	23.9	°C		Room Humi.:	48	%
No.\Name	Cold Resistance	Visual Check	No.\Name	Cold Resistance	Visual Check	
Unit:	mΩ		Unit:	mΩ		
Upper Limit:	0.4550	No Visual Damage	Upper Limit:	0.4550	No Visual Damage	
Lower Limit:	0.2910		Lower Limit:	0.2910		
1	0.4450	pass	7	0.4401	pass	
2	0.4379	pass	8	0.4490	pass	
3	0.4347	pass	9	0.4338	pass	
4	0.4390	pass	10	0.4519	pass	
5	0.4373	pass	11	0.4477	pass	
6	0.4501	pass	12	0.4316	pass	

Type:	0AKJX 315A					
Start Date:	9/7/2020			End Date:	9/9/2020	
Room Temp.:	23.9	°C		Room Humi.:	48	%
No.\Name	Cold Resistance	Visual Check	No.\Name	Cold Resistance	Visual Check	
Unit:	mΩ		Unit:	mΩ		
Upper Limit:	0.3950	No Visual Damage	Upper Limit:	0.3950	No Visual Damage	
Lower Limit:	0.2530		Lower Limit:	0.2530		
1	0.3292	pass	7	0.3334	pass	
2	0.3329	pass	8	0.3339	pass	
3	0.3287	pass	9	0.3285	pass	
4	0.3243	pass	10	0.3313	pass	
5	0.3328	pass	11	0.3289	pass	
6	0.3218	pass	12	0.3319	pass	

Temperature rise test

Fuse Type and Rating : 0AKJX 150A/250A/315A

Production Lot Number : ENG'samples

Project Number : FPC-1019

Fuse Part Number : 0AKJBK150XBA/0AKJBK250XBA/0AKJBK315XBA

Condition : ISO8820-8JSAE JASO D622

Ambient Temperature 25+-5C; Current: 50% of rated current

Type:	0AKJX 150A					
Start Date:	10/31/2019			End Date:	10/31/2019	
Room Temp.:	24.3	°C		Room Humi.:	42	%
No.\Name	Temperature rise @0.5In	Visual Check	No.\Name	Temperature rise @0.5In	Visual Check	
Unit:	°C		Unit:	°C		
Upper Limit:	50	No Visual Damage	Upper Limit:	50	No Visual Damage	
Lower Limit:			Lower Limit:			
1	24.6	pass	2	22.4	pass	

Type:	0AKJX 250A					
Start Date:	9/7/2020			End Date:	9/9/2020	
Room Temp.:	23.9	°C		Room Humi.:	48	%
No.\Name	Temperature rise @0.5In	Visual Check	No.\Name	Temperature rise @0.5In	Visual Check	
Unit:	°C		Unit:	°C		
Upper Limit:	50	No Visual Damage	Upper Limit:	50	No Visual Damage	
Lower Limit:			Lower Limit:			
1	36.9	pass	2	36.1	pass	

Type:	0AKJX 315A					
Start Date:	9/7/2020			End Date:	9/9/2020	
Room Temp.:	23.9	°C		Room Humi.:	48	%
No.\Name	Temperature rise @0.5In	Visual Check	No.\Name	Temperature rise @0.5In	Visual Check	
Unit:	°C		Unit:	°C		
Upper Limit:	50	No Visual Damage	Upper Limit:	50	No Visual Damage	
Lower Limit:			Lower Limit:			
1	37.3	pass	2	38.6	pass	

Temperature and humidity cycle

Fuse Type and Rating : 0AKJX 150A/250A/315A

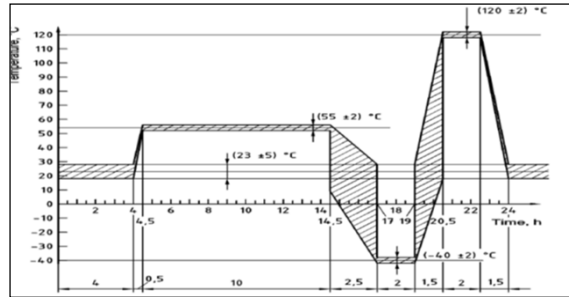
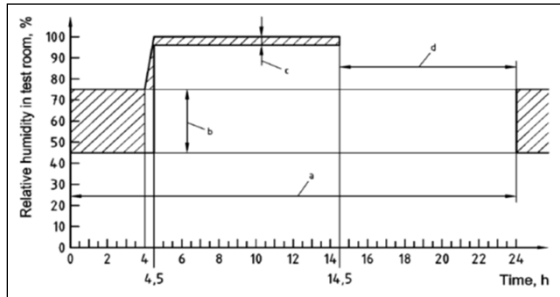
Production Lot Number : ENG'samples

Project Number : FPC-1019

Fuse Part Number : 0AKJBK150XBA/0AKJBK250XBA/0AKJBK315XBA

Condition : JASO D622 6.3.4.1

-40°C/+120°C, each cycle 24hrs, total 10 cycle, Measure voltage drop



Type:	0AKJX 150A				
Start Date:	11/5/2019		End Date:	11/16/2019	
Room Temp.:	25.7	°C	Room Humi.:	55	%
No.\Name	Cold Resistance	Visual Check	No.\Name	Cold Resistance	Visual Check
Unit:	mΩ		Unit:	mΩ	
Upper Limit:	0.8248	No Visual Damage	Upper Limit:	0.8164	No Visual Damage
Lower Limit:	0.6748		Lower Limit:	0.6680	
3	0.7531	pass	4	0.7438	pass

Type:	0AKJX 250A				
Start Date:	9/10/2020		End Date:	9/23/2020	
Room Temp.:	22.4	°C	Room Humi.:	47	%
No.\Name	Cold Resistance	Visual Check	No.\Name	Cold Resistance	Visual Check
Unit:	mΩ		Unit:	mΩ	
Upper Limit:	0.4782	No Visual Damage	Upper Limit:	0.4829	No Visual Damage
Lower Limit:	0.3912		Lower Limit:	0.3951	
3	0.4359	pass	4	0.4420	pass

Type:	0AKJX 315A				
Start Date:	9/10/2020		End Date:	9/23/2020	
Room Temp.:	22.4	°C	Room Humi.:	47	%
No.\Name	Cold Resistance	Visual Check	No.\Name	Cold Resistance	Visual Check
Unit:	mΩ		Unit:	mΩ	
Upper Limit:	0.3616	No Visual Damage	Upper Limit:	0.3567	No Visual Damage
Lower Limit:	0.2958		Lower Limit:	0.2919	
3	0.3320	pass	4	0.3284	pass

Curve of Temperature and Humidity Cycle



Thermal shock resistance test

Fuse Type and Rating : 0AKJX 150A/250A/315A

Production Lot Number : ENG'samples

Project Number : FPC-1019

Fuse Part Number : 0AKJBK150XBA/0AKJBK250XBA/0AKJBK315XBA

Condition : JASO D622 6.3.6

150A: 48cycles, -30°C-100°C;250A/315A: Temp.: -40°C ~ +100°C, each cycle 1hr, total 48 cycles
 150A:The condition of a single cycle:

-Leave the test pieces inside the room at (-30±2)°C for 30 minutes.

-Move then to another room at (100±2)°C within 15 seconds and leave them for 30 minutes.

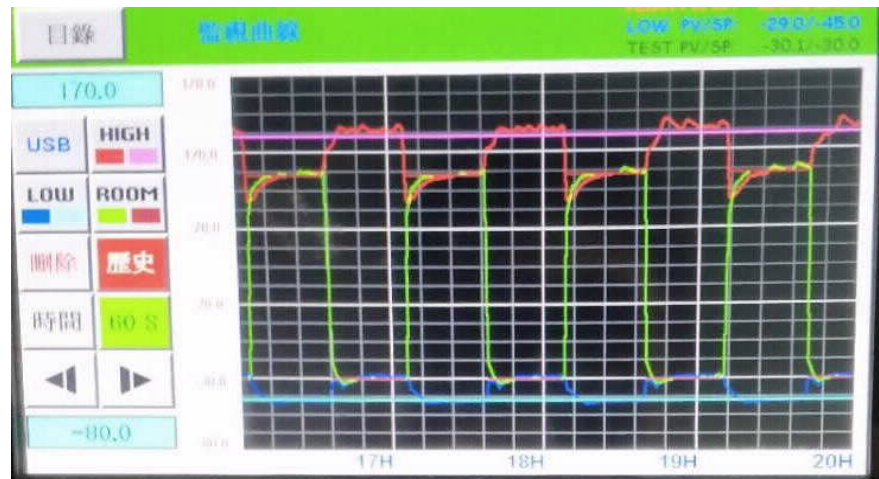
-Move them back to the original room at (-30±2)°C within 15 seconds. One cycle shall be 60 minutes.

Type:	0AKJX 150A				
Start Date:	11/11/2019		End Date:	11/14/2019	
Room Temp.:	24.9	°C	Room Humi.:	53	%
No.\Name	Cold Resistance	Visual Check	No.\Name	Cold Resistance	Visual Check
Unit:	mΩ		Unit:	mΩ	
Upper Limit:	0.7935	No Visual	Upper Limit:	0.8149	No Visual
Lower Limit:	0.6493	Damage	Lower Limit:	0.6667	Damage
5	0.7248	pass	6	0.7433	pass

Type:	0AKJX 250A				
Start Date:	9/14/2020		End Date:	9/25/2020	
Room Temp.:	22.6	°C	Room Humi.:	43	%
No.\Name	Cold Resistance	Visual Check	No.\Name	Cold Resistance	Visual Check
Unit:	mΩ		Unit:	mΩ	
Upper Limit:	0.4810	No Visual	Upper Limit:	0.4951	No Visual
Lower Limit:	0.3936	Damage	Lower Limit:	0.4051	Damage
5	0.4364	pass	6	0.4528	pass

Type:	0AKJX 315A				
Start Date:	9/14/2020		End Date:	9/25/2020	
Room Temp.:	22.6	°C	Room Humi.:	43	%
No.\Name	Cold Resistance	Visual Check	No.\Name	Cold Resistance	Visual Check
Unit:	mΩ		Unit:	mΩ	
Upper Limit:	0.3661	No Visual	Upper Limit:	0.3540	No Visual
Lower Limit:	0.2995	Damage	Lower Limit:	0.2896	Damage
5	0.3343	pass	6	0.3218	pass

Temperature curve of Thermal Shock



High temperature storage test

Fuse Type and Rating : 0AKJX 150A/250A/315A

Production Lot Number : ENG'samples

Project Number : FPC-1019

Fuse Part Number : 0AKJBK150XBA/0AKJBK250XBA/0AKJBK315XBA

Condition : User-defined

Put samples in 125°C for 100 hours

Type:	0AKJX 150A					
Start Date:	11/12/2019			End Date:	11/17/2019	
Room Temp.:	24.3	°C		Room Humi.:	51	%
No.\Name	Cold Resistance	Visual Check	No.\Name	Cold Resistance	Visual Check	
Unit:	mΩ		Unit:	mΩ		
Upper Limit:	0.8204	No Visual Damage	Upper Limit:	0.8105	No Visual Damage	
Lower Limit:	0.6712		Lower Limit:	0.6631		
7	0.7484	pass	8	0.7386	pass	

Type:	0AKJX 250A					
Start Date:	9/18/2020			End Date:	9/25/2020	
Room Temp.:	22.6	°C		Room Humi.:	43	%
No.\Name	Cold Resistance	Visual Check	No.\Name	Cold Resistance	Visual Check	
Unit:	mΩ		Unit:	mΩ		
Upper Limit:	0.4841	No Visual Damage	Upper Limit:	0.4939	No Visual Damage	
Lower Limit:	0.3961		Lower Limit:	0.4041		
7	0.4475	pass	8	0.4543	pass	

Type:	0AKJX 315A					
Start Date:	9/18/2020			End Date:	9/25/2020	
Room Temp.:	22.6	°C		Room Humi.:	43	%
No.\Name	Cold Resistance	Visual Check	No.\Name	Cold Resistance	Visual Check	
Unit:	mΩ		Unit:	mΩ		
Upper Limit:	0.3667	No Visual Damage	Upper Limit:	0.3673	No Visual Damage	
Lower Limit:	0.3001		Lower Limit:	0.3005		
7	0.3336	pass	8	0.3381	pass	

Vibration durability test

Fuse Type and Rating : 0AKJX 150A/250A/315A

Production Lot Number : ENG'samples

Project Number : FPC-1019

Fuse Part Number : 0AKJBK150XBA/0AKJBK250XBA/0AKJBK315XBA

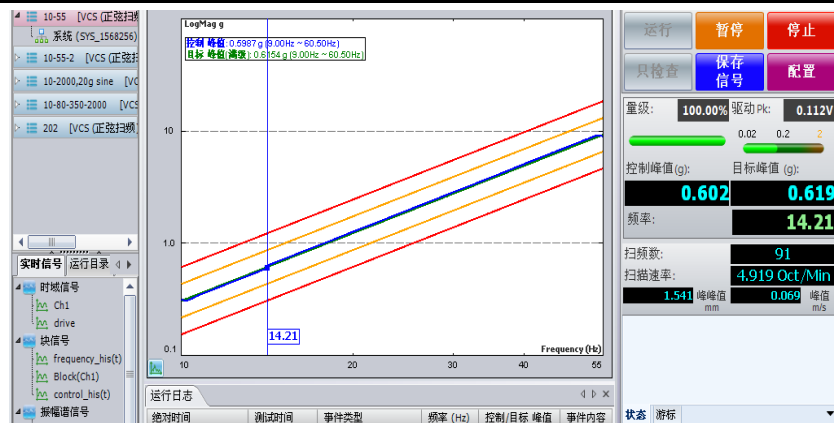
Condition : 150A: JASO D622 6.3.3250A/315A:UL248-20IEC 60068-2-64

150A: Ambient Temperature 25+-5C; The vibration frequency should be 10-55Hz, the Max amplitude 1.5mm, 1min per cycle, 3direction, 2hours per direction total 6 hours
 250A/315A: Random vibration condition C:
 RMS: 30.2m/s² 3 directions 8hrs per direction

Type:	0AKJX 150A					
Start Date:	11/5/2019			End Date:	11/11/2019	
Room Temp.:	24.5	°C		Room Humi.:	58	%
No.\Name	Cold Resistance	Visual Check	No.\Name	Cold Resistance	Visual Check	
Unit:	mΩ		Unit:	mΩ		
Upper Limit:	0.8122	No Visual Damage	Upper Limit:	0.8113	No Visual Damage	
Lower Limit:	0.6646		Lower Limit:	0.6638		
9	0.7404	pass	10	0.7409	pass	

Type:	0AKJX 250A					
Start Date:	9/21/2020			End Date:	9/23/2020	
Room Temp.:	22.4	°C		Room Humi.:	47	%
No.\Name	Cold Resistance	Visual Check	No.\Name	Cold Resistance	Visual Check	
Unit:	mΩ		Unit:	mΩ		
Upper Limit:	0.4772	No Visual Damage	Upper Limit:	0.4971	No Visual Damage	
Lower Limit:	0.3904		Lower Limit:	0.4067		
9	0.4334	pass	10	0.4560	pass	

Type:	0AKJX 315A					
Start Date:	9/21/2020			End Date:	9/23/2020	
Room Temp.:	22.4	°C		Room Humi.:	47	%
No.\Name	Cold Resistance	Visual Check	No.\Name	Cold Resistance	Visual Check	
Unit:	mΩ		Unit:	mΩ		
Upper Limit:	0.3614	No Visual Damage	Upper Limit:	0.3644	No Visual Damage	
Lower Limit:	0.2957		Lower Limit:	0.2982		
9	0.3335	pass	10	0.3321	pass	



Transient current intermittent cycle durability test

Fuse Type and Rating : 0AKJX 150A/250A/315A

Production Lot Number : ENG'samples

Project Number : FPC-1019

Fuse Part Number : 0AKJBK150XBA/0AKJBK250XBA/0AKJBK315XBA

Condition : JASO D622 6.3.2

150A: One cycle contain a current of 2In/0.25sec, and follow by current of 0.5In/15sec; Total 50000cycle
 250A/315A: One cycle contains a current of 2In/0.25sec, and follow by current of 0.5In/9.75sec, total 50000cycles

Type:	0AKJX 150A					
Start Date:	11/5/2019			End Date:	11/16/2019	
Room Temp.:	24.7	°C		Room Humi.:	58	%
No.\Name	Cold Resistance	Visual Check	No.\Name	Cold Resistance	Visual Check	
Unit:	mΩ		Unit:	mΩ		
Upper Limit:	0.8103	No Visual Damage	Upper Limit:	0.8074	No Visual Damage	
Lower Limit:	0.6629		Lower Limit:	0.6606		
11	0.7414	pass	12	0.7372	pass	

Type:	0AKJX 250A					
Start Date:	9/11/2020			End Date:	9/23/2020	
Room Temp.:	22.4	°C		Room Humi.:	47	%
No.\Name	Cold Resistance	Visual Check	No.\Name	Cold Resistance	Visual Check	
Unit:	mΩ		Unit:	mΩ		
Upper Limit:	0.4925	No Visual Damage	Upper Limit:	0.4748	No Visual Damage	
Lower Limit:	0.4029		Lower Limit:	0.3884		
11	0.4498	pass	12	0.4359	pass	

Type:	0AKJX 315A					
Start Date:	9/11/2020			End Date:	9/23/2020	
Room Temp.:	22.4	°C		Room Humi.:	47	%
No.\Name	Cold Resistance	Visual Check	No.\Name	Cold Resistance	Visual Check	
Unit:	mΩ		Unit:	mΩ		
Upper Limit:	0.3618	No Visual Damage	Upper Limit:	0.3651	No Visual Damage	
Lower Limit:	0.2960		Lower Limit:	0.2987		
11	0.3326	pass	12	0.3373	pass	

Lubricant & Fuel oil resistance

Fuse Type and Rating : 0AKJX 150A/250A/315A

Production Lot Number : ENG'samples

Project Number : FPC-1019

Fuse Part Number : 0AKJBK150XBA/0AKJBK250XBA/0AKJBK315XBA

Condition : 150A: JASO D622 6.3.4.2 & 6.3.4.3GB/T31465.1-5.4 250A/315A:GB/T31465.1-5.4

Wipe the marking with fuel oil and lubricant for 30sec each

Type:	0AKJX 150A				
Start Date:	11/19/2019			End Date:	11/19/2019
Room Temp.:	25.2	°C		Room Humi.:	61 %
No.\Name			No.\Name		
Upper Limit:					
Lower Limit:	Marking still legible			Marking still legible	
1	pass		7	pass	
2	pass		8	pass	
3	pass		9	pass	
4	pass		10	pass	
5	pass		11	pass	
6	pass		12	pass	

Type:	0AKJX 250A				
Start Date:	9/28/2020			End Date:	9/28/2020
Room Temp.:	21.7	°C		Room Humi.:	45 %
No.\Name			No.\Name		
Upper Limit:					
Lower Limit:	Marking still legible			Marking still legible	
1	pass		8	pass	
4	pass		10	pass	
5	pass		12	pass	

Strength of fuse links

Fuse Type and Rating : 0AKJX 150A/250A/315A

Production Lot Number : ENG'samples

Project Number : FPC-1019

Fuse Part Number : 0AKJBK150XBA/0AKJBK250XBA/0AKJBK315XBA

Condition : 150A:JASO D622 6.3.9ISO8820-8 250A/315A:JASO D622ISO8820-8
Tighten and loosed the fuses with 12+/-1 Nm torque for 3 times

Type:	0AKJX 150A					
Start Date:	11/19/2019			End Date:	11/19/2019	
Room Temp.:	25.2	°C		Room Humi.:	61	%
No.\Name	The frequency of Install and dismantle	Visual Check	No.\Name	The frequency of Install and dismantle	Visual Check	
Unit:			Unit:			
Upper Limit:		No Visual Damage	Upper Limit:		No Visual Damage	
Lower Limit:	3		Lower Limit:	3		
1	>3	pass	7	>3	pass	
2	>3	pass	8	>3	pass	
3	>3	pass	9	>3	pass	
4	>3	pass	10	>3	pass	
5	>3	pass	11	>3	pass	
6	>3	pass	12	>3	pass	

Type:	0AKJX 250A					
Start Date:	9/28/2020			End Date:	9/28/2020	
Room Temp.:	21.7	°C		Room Humi.:	45	%
No.\Name	The frequency of Install and dismantle	Visual Check	No.\Name	The frequency of Install and dismantle	Visual Check	
Unit:			Unit:			
Upper Limit:		No Visual Damage	Upper Limit:		No Visual Damage	
Lower Limit:	3		Lower Limit:	3		
1	>3	pass	7	>3	pass	
2	>3	pass	8	>3	pass	
3	>3	pass	9	>3	pass	
4	>3	pass	10	>3	pass	
5	>3	pass	11	>3	pass	
6	>3	pass	12	>3	pass	