

UL TEST REPORT AND PROCEDURE

Standard:	UL 62368-1, 4th Ed, 2025-07-31 (Audio/Video, information and communication technology equipment Part 1: Safety requirements) CAN/CSA C22.2 No. 62368-1:25, 4th Ed, 2025-07-31 (Audio/video, information and communication technology equipment Part 1: Safety requirements)
Certification Type:	Component Recognition
CCN:	QQJQ2, QQJQ8 (Power Supplies for Use in Audio/Video, Information and Communication Technology Equipment)
Complementary CCN:	N/A
Product:	PFC MODULE
Model:	AIH03ZPFC-01XXXX (where X can be blank or any alphanumeric character, which is for marketing purpose only and have no impact on safety)
Rating:	AC Input: 100-240Vac, 50/60Hz, 14A Max. DC Output: 390Vdc, 2.82A Max. Output power: 1100W Max
Applicant Name and Address:	ASTEC INTERNATIONAL LTD 16TH FL LU PLAZA 2 WING YIP ST. KWUN TONG KOWLOON HONG KONG

This is to certify that representative samples of the products covered by this Test Report have been investigated in accordance with the above referenced Standards. The products have been found to comply with the requirements covering the category and the products are judged to be eligible for Follow-Up Service under the indicated Test Procedure. The manufacturer is authorized to use the UL Mark on such products which comply with this Test Report and any other applicable requirements of UL LLC ('UL') in accordance with the Follow-Up Service Agreement. Only those products which properly bear the UL Mark are considered as being covered by UL's Follow-Up Service under the indicated Test Procedure.

The applicant is authorized to reproduce the referenced Test Report provided it is reproduced in its entirety.

UL authorizes the applicant to reproduce the latest pages of the referenced Test Report consisting of the first page of the Specific Technical Criteria through to the end of the Conditions of Acceptability.

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL.

Prepared By: Suki Kwong / Project Handler

Reviewed By: Brian Wong / Reviewer

Supporting Documentation

The following documents located at the beginning of this Procedure supplement the requirements of this Test Report:

A. Authorization - The Authorization page may include additional Factory Identification Code markings.

B. Generic Inspection Instructions -

- i. Part AC details important information which may be applicable to products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of this Test Report.
- ii. Part AE details any requirements which may be applicable to all products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of each Test Report.
- iii. Part AF details the requirements for the UL Certification Mark which is not controlled by the technical standard used to investigate these products. Products are permitted to bear only the Certification Mark(s) corresponding to the countries for which it is certified, as indicated in each Test Report.

Product Description

1. Built-in type equipment, suitable enclosure should be provided in end system.
2. When installing the equipment, all requirements of the mentioned standard must be fulfilled.
3. Baseplate to be connected to PE in end system. Basic insulation is provided between input/output circuits and baseplate/PE. No isolation between input and output circuits.
4. The PFC Module has no fuse. For safety operation, an external approved fast acting fuse 20A, 250Vac must be employed in front of the module.

Model Differences

N/A

Test Item Particulars

Product group	built-in component
Classification of use by	Ordinary person Instructed person Skilled person
Supply connection	AC Mains
Supply tolerance	+10%/-10%
Supply connection - type	Built-in component, consider in end system
Considered current rating of protective device ...	20 A; Location: building
Equipment mobility	for building-in
Overvoltage category (OVC)	OVC II
Class of equipment	Class I
Special installation location	N/A
Pollution degree (PD)	PD 2
Manufacturer's specified Tma	Max. for Tma: 85°C, and Max. for baseplate: 100°C °C
IP protection class	IPX0
Power systems	TN TT
Altitude during operation (m)	5000 m
Altitude of test laboratory (m)	2000 m or less
Mass of equipment (kg)	Approximately 0.12 kg

Technical Considerations

- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of : 85°C, and 100°C Max. for baseplate
- The product is intended for use on the following power systems : TN, TT
- Considered current rating of protective device as part of the building installation (A) : 20
- Mains supply tolerance (%) or absolute mains supply : +10%/-10%
- The equipment disconnect device is considered to be : to be considered at end system
- The following are available from the Applicant upon request : Installation (Safety) Instructions / Manual

Engineering Conditions of Acceptability

For use only in or with complete equipment where the acceptability of the combination is determined by UL LLC. When installed in an end-product, consideration must be given to the following:

- The following product-line tests are conducted for this product : Earthing Continuity, Electric Strength
- The end-product Electric Strength Test is to be based upon a maximum working voltage of : Primary – Earthed Dead Metal: 316.1 Vrms / 648.0 Vpk
- The following output circuits are at ES3 energy levels : All output(s)
- The following output circuits are at PS3 energy levels : All output(s)
- The maximum investigated branch circuit rating is : 20 A
- The investigated Pollution Degree is : 2
- Proper bonding to the end-product main protective earthing termination is : Required
- An investigation of the protective bonding terminals has : not been conducted, to be considered at end system
- The following end-product enclosures are required : Electrical, Fire, Mechanical
- The equipment is suitable for direct connection to : AC mains supply
- The power supply was evaluated to be used at altitudes up to : "5,000 m"
- The products are Class I equipment, and shall be properly earth or bonded to earth in the end use.
- The external fuse Type 0324020.MXP (20A) by LITTELFUSE was used during fault testing.

Additional Information

N/A

Markings and Instructions

Clause Title	Marking or Instruction Details
Equipment identification marking – Manufacturer identification	Listee's or Recognized Company's name, Trade Name, Trademark or File Number
Equipment identification marking – model identification	Model Number
Equipment rating marking – ratings	"Input Ratings (voltage, frequency/dc, current/power)", "Output Ratings (voltage, frequency/dc, current/power)"

Special Instructions to UL Representative

N/A

BD1.0	TABLE: Production-Line Testing Requirements					
BD1.1	Electric Strength Test Special Constructions – Refer to Generic Inspection Instructions, Part AC for further information.					
Model	Component	Removable parts	Test probe location	Test V rms	Test V dc	Test Time, s
All model(s)	-	-	-	-	-	-
BD1.2	Earthing Continuity Test Exemptions – This test is not required for the following models:					
	All model(s)					
BD1.3	Electric Strength Test Exemptions – This test is not required for the following models:					
	All model(s)					
BD1.4	Electric Strength Test Component Exemptions – The following solid-state components may be disconnected from the remainder of the circuitry during the performance of this test.					
	N/A					

BE1.0	Sample and Test Specifics for Follow-Up Tests at UL				
Model	Component	Material	Test	Sample (s)	Test Specifics
N/A	--	--	--	--	--

4.1.2	TABLE: List of critical components					Pass
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Product Category CCN(s)	Mark(s) of conformity	Supplement ID
Main PCB (metal base plate circuit board)	Interchangeable	Interchangeable	V-0, min.150°C.	ZPMV2	UL	
Other PCB	Interchangeable	Interchangeable	V-0, min.130°C.	ZPMV2	UL	
Y-Capacitor (between internal circuit and PE (C1, C2))	Holy stone (E300818)	SCC2211X series	Max. 470pF, Min. 250Vac, Min. 125°C	FOWX2	UL	
Alternate	Knowles Electronics (E228790)	SYX series, SY series	Max. 470pF, Min. 250Vac, Min. 125°C	FOWX2	UL	
Alternate	Yageo Corp (E314302)	ST series	Max. 470pF, Min. 250Vac, Min. 125°C	FOWX2	UL	
Alternate	Interchangeable	Interchangeable	Max. 470pF, Min. 250Vac, Min. 125°C	FOWX2	UL	
Inductor (L101)	Advanced Energy or AE	801-016410	150°C. See Enclosure ID 4-03 to 4-04 for details.	--	Tested as part of the unit.	
Transformer(T1200)	Advanced Energy or AE	801-016393	130°C. See Enclosure ID 4-01 to 4-02 for details.	--	Tested as part of the unit.	
Plastic Upper Case / Lower Case	Sabic (E121562)	ULTEM series, 1000	Min. 170°C, min. V-0, min. 0.75mm thickness	QMFZ2	UL	
Spacer (located between Main Board and Control Board)	Celanese International Corp (E41938)	FR50	Min. 130°C, min. V-0, min. 0.35mm thickness	QMFZ2	UL	

Tape (wrapped on C2)	P Leo & Co (E126174)	1K220	220 °C	OANZ2	UL	
Alternate	Teraoka (E56086)	650S #25; 4916 #25	200 °C	OANZ2	UL	
Alternate	3M (E17385)	92	180°C	OANZ2	UL	
Alternate	Interchangeable	Interchangeable	Min. 130°C	OANZ2	UL	
Thermal Paste (Stick on L101)	Henkel Corporation (E59150)	BERGQUIST LIQUI FORM TLF 6001(d)	Min. 0.5mm thickness; min. V-0; 150°C	QMFZ2	UL	
Alternate	Parkweller New Material (Huizhou) Co.,Ltd (E524393)	TS 300-XX series	Min.0.5mm thickness; min. V-0; 150°C	QMFZ2	UL	
Alternate	Interchangeable	Interchangeable	Min. V-0; min. 150°C	QMFZ2	UL	
Potting Glue	Chengdu Taly Technology Co Ltd (E224183)	GA-0230-2 A/B	Min. V-0; 150°C, Min. 3.0mm thickness	QMFZ2	UL	
Alternate	Parkweller New Material (Huizhou) Co.,Ltd (E524393)	TC 200-XX series	Min. V-0; 150°C, Min. 0.5mm thickness	QMFZ2	UL	
Alternate	Interchangeable	Interchangeable	Min. V-0; min. 150°C	QMFZ2	UL	

Enclosures

Type	Supplement Id	Description
Photographs	03-01	Top View
Photographs	03-02	Bottom View
Photographs	03-03	Side View
Photographs	03-04	Internal View 1
Photographs	03-05	Internal View 2
Photographs	03-06	PWB View 1 (Control Board)
Photographs	03-07	PWB View 2 (Control Board)
Photographs	03-08	PWB View 1 (DRV Board)
Photographs	03-09	PWB View 2 (DRV Board)
Photographs	03-10	PWB View (Main Board with Spacer)
Photographs	03-11	Spacer
Photographs	03-12	Cover and Case View 1
Photographs	03-13	Cover and Case View 2
Diagrams	04-01	Specification of Transformer (T1200)
Diagrams	04-02	Drawing of Transformer (T1200) Holder
Diagrams	04-03	Specification of Inductor (L101)
Diagrams	04-04	Drawing of Inductor (L101) Holder
Schematics + PWB	05-01	PWB Layout 1 of Main Board (709-061613-0003-AA)
Schematics + PWB	05-02	PWB Layout 2 of Main Board (509-061613-0103-AA)
Schematics + PWB	05-03	PWB Layout 1 of Control Board (709-061614-0002-AA)
Schematics + PWB	05-04	PWB Layout 2 of Control Board (509-061614-0002-AA)
Schematics + PWB	05-05	PWB Layout 1 of DRV Board (709-061615-0001-AA)
Schematics + PWB	05-06	PWB Layout 2 of DRV Board (509-061615-0002-AA)
Schematics + PWB	05-07	Circuit Diagram of Main Board (710-061613-0003-AA)
Schematics + PWB	05-08	Circuit Diagram of Control Board (710-061614-0002-AA)
Schematics + PWB	05-09	Circuit Diagram of DRV Board (705-007185-0001-AA)
Manuals	06-01	Manual
Miscellaneous	07-01	Drawing of Cover
Miscellaneous	07-02	Drawing of Case
Miscellaneous	07-03	Drawing of Spacer
Miscellaneous	07-04	Label Artwork