

IP65 Test Report

Issue by

Design Technology Department

Report No: 1512IP2272BR

Product Model	10.4" Rugged Tablet PC : Taurus FM10
Product Description	Rugged Tablet PC
Test Reason	<input checked="" type="checkbox"/> New product <input checked="" type="checkbox"/> Rugged Tablet PC <input type="checkbox"/> Renew product <input type="checkbox"/> PCB : <input type="checkbox"/> BIOS: <input type="checkbox"/> Revision change <input type="checkbox"/> PCB : <input type="checkbox"/> BIOS: <input type="checkbox"/> Component:

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Issue date

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Approved

Freeman Lee
Test Engineer

1. Document Introduction and Revision History

This document describes how we conduct the environment conditions and test procedure. It includes the test equipment we use, the test condition, and the test procedure we take. We also define our test criteria and the way to conclude the test result.

(According to client's test specification, please see following sheets in detail.)

Table of Testing Summary Results

NO	Test Item	Condition Description	Sect. / Page	Reference to
1	IP65	IP6X & IPX5	4 / 5	IEC60529

IP Code of Definitions

Code Letters	IP	Test Description
First Code Number (Dust-Proof)	0	No Protection
	1	Prevents object greater than 50mm from entering
	2	Prevents object greater than 12mm from entering
	3	Prevents object greater than 2.5mm from entering
	4	Prevents object greater than 1mm from entering
	5	Prevents dust from entering but to a limited extent
	6	Full protection from dust
Second Code Number (Water-Proof)	0	No protection
	1	Protects from vertical water drops
	2	Protects from water drops coming down at a max. angle of 15 degrees
	3	Spraying
	4	Splashing
	5	Jetting
	6	Powerful Jetting
	7	Waterproofs from 15 cm to 1 meter underwater
	8	Waterproofs from greater than 1 meter underwater at long periods of time

2. Product Configuration

1. M/B : FMB80-100A
2. CPU : Intel Atom E3845@1.91G 10W
3. Panel : CMO G104X1-L04 1024X768 500Nits
4. RAM : Transcend TS512MSK64W6H DDR3L-1600 4G
5. SSD : Transcend TS64GMTS400 M.2 2242 MLC 64GB
6. Touch : AMT 16108-1-01 80%/1.75mm
7. GPS : u-blox NEO-6Q-0
8. WiFi & Bluetooth : Intel 7265NGW(2x2 AC+BT4.0)
9. 3G : Sierra MC8090
10. Camera : Fangtec AH4220C2-S2-2Z7 2M
11. Battery : JHT B5054 2S2P 3800mAh
12. BIOS /EC : FMB80V023 x64 / FMB8P023FM08
13. Adapter : EDAC EA1050C-120 AC(100-240V~1.8A,50-60Hz) DC 12V 4.16A
14. HotTab : 1.0.2

3. Photo of Product Configuration

Photo of EUT



4. IP65 Test:

4-1: IP6X

Test for Degrees of Protection Provided by Enclosures:

Test Equipment:

Name	Brand	Model	Serial No.
1.0 mm Test Wire Probe	ED&D	TRP-02	B0050180
Digital Force Gauge	ALGOL	HF-50	HF-101764
Dust Tester	T-MACHINE	TMJ-9723C	T-23-05041

Lab Environmental Conditions:

Ambient temperature: 25±3°C

Relative humidity: 55±20%RH

Test Method/ Specification:

Test method: Reference to IEC 60529 Edition 2.1:2001-02-IP6X

1. Test for protection against access to hazardous parts:

Test method: The test wire with 1.0mm in diameter and 100 mm long is pushed against or inserted through any openings of the enclosure with the force specified in Table 6 in IEC 60529 Edition 2.1:2001-02. Examine whether the test wire touches the hazardous live parts inside the enclosure or not.

Test force: 1N±10%

2. Test for protection against solid foreign objects:

Test method: IEC 60529 Edition 2.1:2001-02-IP6X (Dust test)

Type of dust: Talcum powder

The amount of dust: 2 kg

The chamber size: 1 m³

The Maximum depression: -20 mbar

Test duration: 8 hours

4-2: IPX5

Test for Degrees of Protection Provided by Enclosures:

Test Equipment:

Name	Brand	Model	Serial No.
IPX5 Water Jet Hose Nozzle Set	PTL	P03.26	5050565

Lab Environmental Conditions:

Ambient temperature: $25\pm 3^{\circ}\text{C}$

Relative humidity: $55\pm 20\%RH$

Test Method/ Specification:

Test method: Reference to IEC 60529 Edition 2.1:2001-02-IPX5

Test means: Spraying the enclosure from all practicable directions with a stream of water from a standard test nozzle as specified in test standard.

Internal diameter of the nozzle: 6.3 mm

Delivery rate: 12.5 l/min $\pm 5\%$

Distance from nozzle to enclosure surface: between 2.5 m and 3 m

Core of the substantial stream: circle of approximately 40 mm diameter at 2.5 m distance from nozzle

Test duration: 3 minutes

4-3: . Check Condition and Requirements:

IP6X: Does any dust deposit inside the enclosure at the end of the test? No
Function Check & Performance Check: Normal

IPX5: Provide protection against ingress water? Yes
Function Check & Performance Check: Normal



4-4: Test Result:

Examine the appearance of specimen(s) by visual check and perform functional check after this test. Connect the specimen with rated power then examine whether the display function of specimen could be work normally or not.

- Functional Check & Mechanical Structure: Normal
- Appearance check (Visual check): No visible damage
- The requirements of the performance test and check shall be met.



4-5.: Test Judgment:

— Test Result as below:

Check Item Style Item No.	Appearance check (Visual check)		Functional & Performance check
	Initial	Final	
10.4" Rugged Tablet PC : Taurus FM10	No visible damage	No visible damage	Normal