TEST RESULTS

Type of Test : IP 55 Test

Test Method : IEC 60529: 2001-02

Product / Model : 24 Core TTOC-FTB-CX245; FTTH Outdoor Subscriber Distribution Box

CLAUSE	REQUIREMENTS	RESULT-REMARKS	VERDICT
10	**Marking**		**Not Applicable**
11	**General requirements for tests**		
11.1	**Atmospheric conditions for water and dust tests**		
	The tests should be carried out under the atmospheric conditions as follows;		
	Temperature range: 15°C to 35°C	23°C	**Pass**
	Relative humidity: 25% to 75%	69%	**Pass**
11.2	**Test samples**		
	The test samples for each test shall be in clean and new condition with all parts in place and mounted in the manner stated by the manufacturer.		**Pass**
11.3	**Application of test requirements and interpretation of test results**		**Pass**
11.4	**Combination of test conditions for the 1st characteristic numeral. Tests for protection against:**		
	Protection against access to hazardous parts	See Clause 12	**Pass**
	Protection against solid foreign objects	See Clause 13	**Pass**
11.5	**Empty enclosures**		
	If the enclosure is tested without equipment inside, manufacture shall indicate which parts might be affected by test condition of 1st characteristic numeral		**Not Applicable**
12	**Test for protection against access to hazardous parts indicated by the 1st characteristic numeral**		
12.1	**Access probes**		
	Access probes to test are as specified in the standard	Test wire Ø 1.0 mm	**Pass**

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CLAUSE	REQUIREMENTS	RESULT-REMARKS	VERDICT
12.2	**Test conditions**		
	Access probe is pushed against or inserted through any openings of the enclosure with a specified force	1 N ± 10%	**Pass**
12.3	**Acceptance conditions**		
	Adequate clearance is kept between the access probe and hazardous parts.	Access probe not touch hazardous live parts	**Pass**
12.3.1	**Low-voltage equipment** (rated voltage < 1000VAC and 1500 VDC)		
	Access probe shall not touch hazardous live parts. If the test using a signal circuit, the lamp shall not light		**Pass**
12.3.2	**High-voltage equipment** (rated voltage > 1000VAC and 1500 VDC)		
	When the access probe is placed in the most unfavourable positions, the equipment shall withstand the dielectric test as specified in the relevant product standard.		**Not Applicable**
12.3.3	**Equipment with hazardous mechanical parts**		
	Access probe shall not touch hazardous live parts. If the test using a signal circuit, the lamp shall not light.		**Not Applicable**
13	**Tests for protection against solid foreign objects indicated by the 1st characteristic numeral**		
13.1	**Test means**		
	Test means and main test conditions as specified in the standard	Dust chamber	**Pass**
13.2	**Test conditions for the 1st characteristic numeral 1, 2, 3, 4**		
	The object probe is pushed against any openings of the enclosure with the force		**Not Applicable**
13.3	**Acceptance conditions for 1st characteristic numeral 1, 2, 3, 4**		
	The protection is satisfactory if the full diameter of the probe does not pass through any opening as specified in the standard		**Not Applicable**

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CLAUSE	REQUIREMENTS	RESULT-REMARKS	VERDICT
13.4	**Dust test for 1st characteristic numeral 5 and 6**		
	The talcum powder used shall be able to pass through a square-meshed sieve;		
	Nominal wire diameter 50 µm		**Pass**
	Nominal width of a gap between wires 75 µm		**Pass**
	The talcum powder shall not have been used for more than 20 tests		**Pass**
13.5	**Special conditions for 1st characteristic numeral 5**		
13.5.1	**Test conditions for the 1st characteristic numeral 5**		
	The enclosure shall deemed category 1 unless the relevant product standard for the equipment specifies that the enclosure is category 2	Category 2	**Pass**
13.5.2	**Acceptance conditions for 1st characteristic numeral 5**		
	The protection is satisfactory if, on inspection, talcum powder has not accumulated in a quantity or location such that, as with any other kind of dust, it could interfere with the correct operation of the equipment or impair safety. Except for special cases to be clearly specified in the relevant product standard, no dust shall deposit where it could lead to tracking along the creep age distances	See Table 1	**Pass**
14	**Tests for protection against water indicated by the 2nd characteristic numeral**		
14.1	**Test means**		
	Test means and main test conditions as specified in the standard.		**Pass**
14.2	**Test conditions**		
	Tests are conducted with fresh water		**Pass**
14.2.1	**Test for 2nd numeral characteristic numeral 1 with drip box**		
	Test is made with a device which produces a uniform flow of water drops over the whole area of the enclosure. Enclosure is placed on the turntable.		**Not Applicable**

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CLAUSE	REQUIREMENTS	RESULT-REMARKS	VERDICT
14.2.2	**Test for 2nd numeral characteristic numeral 2 with drip box**		
	Test is made with a device which produces a uniform flow of water drops over the whole area of the enclosure. Enclosure is tilted at 15° at four fixed positions.		**Not Applicable**
14.2.3	**Test for 2nd numeral characteristic numeral 3 with oscillating tube or spray nozzle**		
	Test is made by using oscillating tube as specified in standard. Spray ± 60° from vertical.		**Not Applicable**
	Test is made by using spray nozzle as specified in standard. Spray ± 60° from vertical.		**Not Applicable**
14.2.4	**Test for 2nd numeral characteristic numeral 4 with oscillating tube or spray nozzle**		
	Test is made by using oscillating tube as specified in standard. Spray ± 180° from vertical.		**Not Applicable**
	Test is made by using spray nozzle as specified in standard. Spray ± 180° from vertical.		**Not Applicable**
14.2.5	**Test for 2nd numeral characteristic numeral 5; with the 6.3 mm nozzle**		
	Test is made by spraying the enclosure from all practicable direction with a stream of water from a test nozzle as specified in the standard.	See Table 2	**Pass**
14.2.6	**Test for 2nd numeral characteristic numeral 6; with the 12.5 mm nozzle**		
	Test is made by spraying the enclosure from all practicable direction with a stream of water from a test nozzle as specified in the standard.		**Not Applicable**
14.2.7	**Test for 2nd numeral characteristic numeral 7; temporary immersion between 0.15 m and 1 m**		
	Test is made by completely immersing the enclosure in water.		**Not Applicable**

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CLAUSE	REQUIREMENTS	RESULT-REMARKS	VERDICT
14.2.8	**Test for 2nd numeral characteristic numeral 8; continuous immersion subject to agreement**		
	Test is made by completely immersing the enclosure in water. Test is subject to agreement between manufactured and user.		**Not Applicable**
14.3	**Acceptance conditions**		
	The enclosure shall be inspected for ingress of water	See Table 2	**Pass**
15	**Test for protection against access to hazardous parts indicated by the additional letter**		**Not Applicable**

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Table 1: Acceptance Condition for 1st Characteristic Numeral 5 – Degrees of protection against the ingress of solid foreign object

TEST METHOD	REQUIREMENT	VERDICT
IEC 60529: 2001-02 Dust test, Clause 13.4 Category 2: Enclosures where no pressure difference relative to the surrounding air is present. The enclosure under test is supported in its normal operating position inside the test chamber, but is not connected to a vacuum pump. Any drain-hole normally open shall be left open for the duration of the test. The test shall be continued for a period of 8h	Dust Protected Ingress of dust is not totally prevented, but dust shall not penetrate in a quantity to interfere with satisfactory operation of the apparatus or to impair safety.	**Pass**

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Table 2: Acceptance Condition for 2nd Characteristic Numerals 5 – Degrees of protection against ingress of water.

NO	BY INSPECTION	RESULT/REMARKS	VERDICT
1	Appliance has the ventilation opening	No	-
2	Appliance has the drain-holes.	No	-
3	If it is has drain-holes; any water which enters does not accumulate and that it drains away without doing any harm to the appliance.		**Not Applicable**
4	Ingress of water	No water visible in the enclosure	**Pass**
5	If water has entered, it shall not;		
	a) Interfere with the correct operation of the appliance or impair the safety.		**Not Applicable**
	b) Deposit on insulation parts which could lead to tracking along the creep age distances.		**Not Applicable**
	c) Reach live parts or windings not designed to operate when wet		**Not Applicable**
	d) Accumulate near the cable end / enter the cable.		**Not Applicable**

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Type of Test : UL 94 Vertical Burning Test

Test Method : UL 94: 1997 – Underwriters Laboratories. Title: Test for Flammability of Plastic Materials for Parts in Devices and Appliances

Product / Model : 24 Core TTOC-FTB-CX245; FTTH Outdoor Subscriber Distribution Box

No.	Type of Test	Test Method	Results				
			Specimen 1	Specimen 2	Specimen 3	Specimen 4	Specimen 5
1.	Flammability, *Test Condition:* *Temperature : 23±2°* *Relative Humidity : 50±5%* *Duration : 48 Hours*	UL 94 Clause 8 20 mm Vertical Burning Test					
1.1	Afterflame time after first flame application, t_1 (seconds)		0	0	0	0	0
1.2	Afterflame time after second flame application, t_2 (seconds)		2	10	5	7	12
1.3	Afterglow time after second flame application, t_3 (seconds)		0	0	0	0	0
1.4	The test specimens burned up to the holding clamp		No	No	No	No	No
1.5	The test specimens drip flaming particles that ignited the cotton indicator		No	No	No	No	No
1.6	$t_1 + t_2$ (seconds)		2	10	5	7	12
1.7	$t_2 + t_3$ (seconds)		2	10	5	7	12
1.8	Classification [1]		V-1				

Note: [1] Reference Standard UL94:1997 Table 8.1 Materials Classifications

Criteria Conditions	*V-0*	*V-1*	*V-2*
a) Afterflame time for each individual specimen $t_1$or t_2	*≤ 10s*	*≤ 30s*	*≤ 30s*
b) Total afterflame time for any condition set (t_1 plus t_2 for the 5 specimens)	*≤ 50s*	*≤ 250s*	*≤ 250s*
c) Afterflame plus afterglow time for each individual specimen after the second flame application (t_2 + t_3)	*≤ 30s*	*≤ 60s*	*≤ 60s*
d) Afterflame or afterglow of any specimen up to the holding clamp	*No*	*No*	*No*
e) Cotton indicator ignited by flaming particles or drops	*No*	*No*	*Yes*

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No.	Type of Test	Test Method	Results				
			Specimen 1	Specimen 2	Specimen 3	Specimen 4	Specimen 5
2.	Flammability *Test Condition:* *Temperature : 70±1°* *Duration : 168 Hours*	UL 94 Clause 8 20 mm Vertical Burning Test					
2.1	Afterflame time after first flame application, t_1 (seconds)		0	0	0	0	0
2.2	Afterflame time after second flame application, t_{2v}		6	3	2	3	4
2.3	Afterglow time after second flame application, t_3 (seconds)		0	0	0	0	0
2.4	The test specimens burned up to the holding clamp		No	No	No	No	No
2.5	The test specimens drip flaming particles that ignited the cotton indicator		No	No	No	No	No
2.6	$t_1 + t_2$ (seconds)		6	3	2	3	4
2.7	$t_2 + t_3$ (seconds)		6	3	2	3	4
2.8	Classification [1]		V-0				

Note: [1] Reference Standard UL94:1997 Table 8.1 Materials Classifications

Criteria Conditions	*V-0*	*V-1*	*V-2*
a) Afterflame time for each individual specimen t_1 or t_2	*≤ 10s*	*≤ 30s*	*≤ 30s*
b) Total afterflame time for any condition set (t_1 plus t_2 for the 5 specimens)	*≤ 50s*	*≤ 250s*	*≤ 250s*
c) Afterflame plus afterglow time for each individual specimen after the second flame application ($t_2 + t_3$)	*≤ 30s*	*≤ 60s*	*≤ 60s*
d) Afterflame or afterglow of any specimen up to the holding clamp	*No*	*No*	*No*
e) Cotton indicator ignited by flaming particles or drops	*No*	*No*	*Yes*

APPENDIX

Photo 1: Sample of 24 Core TTOC-FTB-CX245; FTTH Outdoor Subscriber Distribution Box

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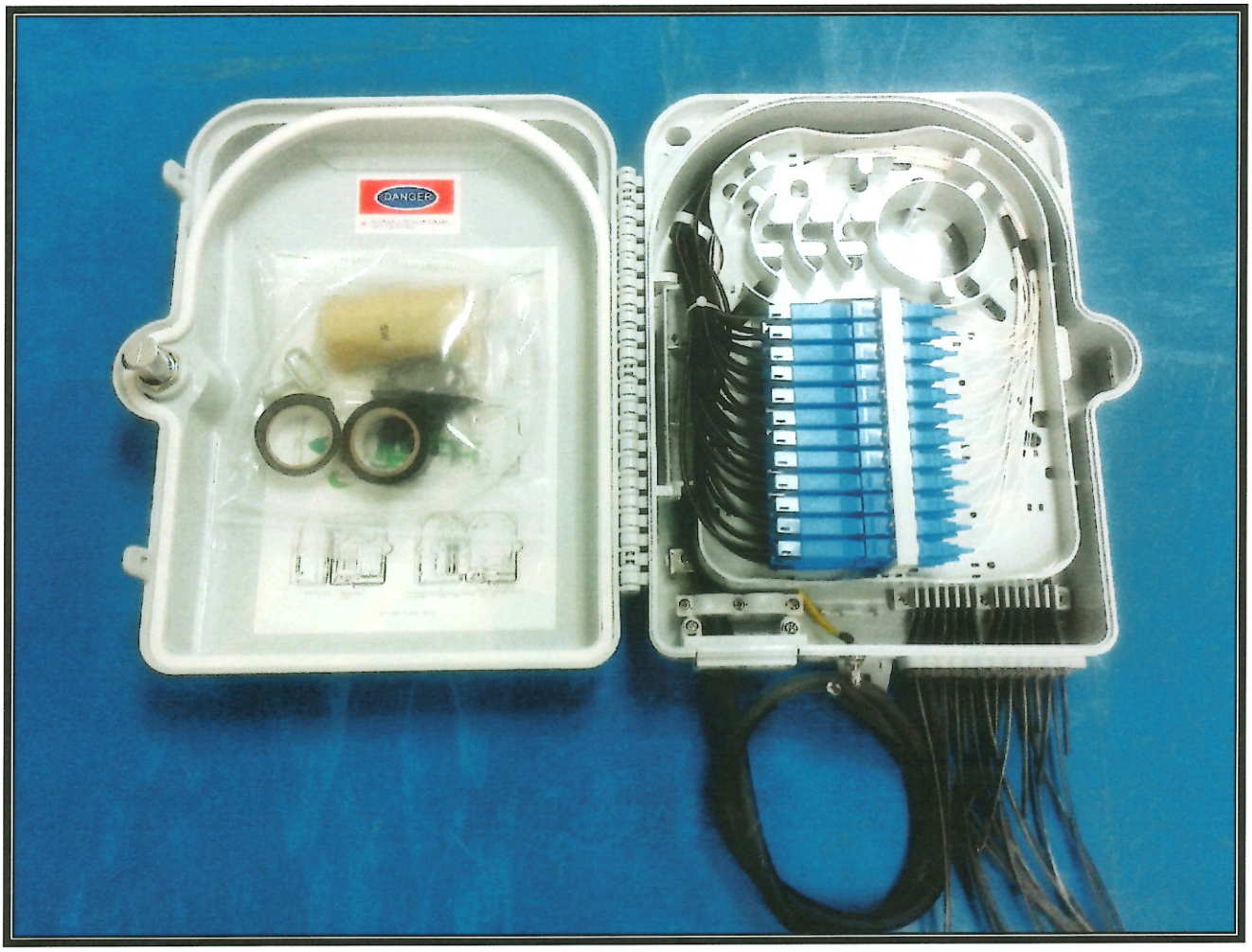

Photo 2: Inner side of 24 Core TTOC-FTB-CX245; FTTH Outdoor Subscriber Distribution Box

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