



Project-ID: --

**Report for fire performance according to EN 45545-2  
Fire protection on railway vehicles**

**Product:**

942 063 - 001  
OCTOPUS 24M-8PoE

**AGILE Doc-ID:**

000185669DNR

**Date**

31.01.2019

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**Releases**

Date:

Approved by: Simone Kiesel

Date: 31. Jan 19

**Conclusion**

The total combustible mass of the components that must be verified should be < 100gr.

The sealing plug (734209200) should be replaced with a sealing plug out of metal (742276001).  
The metal sealing plug can be ordered with order number 942057001.

Without the plastic sealing plug the total combustible mass of the components that must be verified is < 100gr.

The device is compliant to the requirements of EN 45545 – 2 Hazard Level HL3.



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## 1. History

Rel.	Date	Released	Author	Changes
1v0	18.03.2015	yes	Paul Eberling	Document created
2v0	31.01.2019	yes	Simone Kiesel	New standard issue

## 2. Scope

This report describes the procedure and the tests that are done to evaluate whether the device meets the requirements according to EN 45545-2: 2013 + A1:2015

## 3. Equipment under test

Product Code	Order Number	Serial Number
OCTOPUS 24M-8PoE	942 063 - 001	-

### 3.1 Related Equipment

Product Code	Order Number	Serial Number
n.a.		

## 4. Requirements

### 4.1 Essential fire safety objectives

The design of rolling stock and the products used shall incorporate the aim of limiting fire development should an ignition event occur so that an acceptable level of safety is achieved.

### 4.2 Hazard level

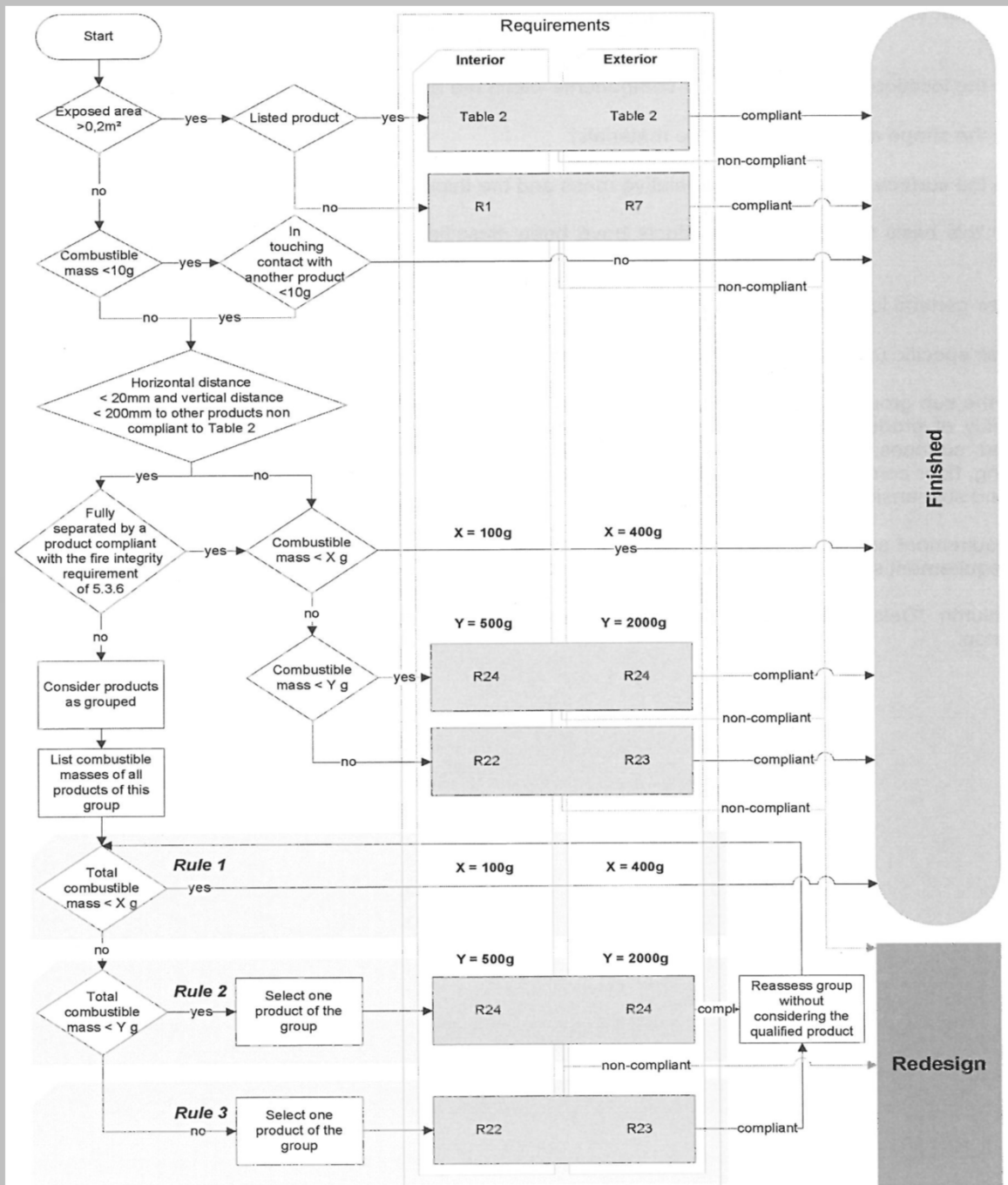
The Hazard level for the device under test is: HL3

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## 5. Test procedure

According to EN 45545-2 capture 4.3 there are no requirements to products with a combustible mass of < 10 g not in touching contact with another unclassified product and the exposed area is < 0,2m<sup>2</sup>. For grouped products no requirements apply to the products if the combustible mass is < 100 g. The assessment process for all parts of the device is visualized in the following flow chart (Figure 1).

Figure 1:





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### 5.1 Evaluation of components

SAP BOM Pos.	Hirschmann Part number	Hirschmann part description	quantity	combustible mass per unit [gr]	comments	total combustible mass [gr]
	Z04S16 942063001					
0010	737898102	OCTOPUS 24M PoE, Gehäusedeckel neu	1	10,00	mass of powder coating	10,00
0020	737763001	OCTOPUS 8M, Light-Pipe	28	0,09		2,63
0040	211379000	EINBAUSTECKER-GEHAEUSE M12X1	1	0,05	mass of O-Ring	0,05
	<b>PCBA</b>					
0050	837512315	Octopus 8M-8PoE, Leiterplatte, best. CC	1			0,00
		tested parts of PCBA:				
		PCB: 742031002 Octopus PoE, Leiterplatte	1	0,00	PCB fulfills the requirements of table 2 EN45545 for PCB's - R24 OI= 32% see OI testreport AGILE DOC-ID: 000163930DNR	0,00
		If suitable products which achieve the requirements are not available on the market, the electronics devices on printed boards are approved on functional necessity. According to Capture 4.7 of EN 45545-2.  We will change the material of the M12 connectros to UL94V0 listed material as soon as possible. Even with non V0 material we are only at 106gr.				
	832892102	EF12L OCTOPUS, Buchsen-Kontaktträger kpl.	8	2,14286	Ethernet Ports (see above - we will modify the material to UL94V0 material as soon as possible)	17,14
	832938100	EF12L5A, Buchsen-Kontaktträger kpl.	1	2,2163	ACA (see above - we will modify the material to UL94V0 material as soon as possible)	2,22
	832895102	EF12L4A, Buchsen-Kontaktträger kpl.	1	2,2607	V.24 (see above - we will modify the material to UL94V0 material as soon as possible)	2,26
	211378000	EINBAUSTECKER M12, 5-POLIG O.GEHAEUSE	1	2,22	Power Connector	2,22
0052	742447002	RSP, Wärmeleitpaste GEL30 (730g)	1	7,30		7,30
	<b>PCBA</b>					
0055	837470105	OCTOPUS 16M, Leiterpl. best. (8TX) CC	1			0,00
		tested parts of PCBA:				
		PCB: 737 851 - 001	2	0,00	PCB fulfills the requirements of table 2 EN45545 for PCB's - R24 OI= 32% see OI testreport AGILE DOC-ID: 000163913DNR	0,00
		If suitable products which achieve the requirements are not available on the market, the electronics devices on printed boards are approved on functional necessity. According to Capture 4.7 of EN 45545-2.  We will change the material of the M12 connectros to UL94V0 listed material as soon as possible. Even with non V0 material we are only at 106gr.				
	832892102	EF12L OCTOPUS, Buchsen-Kontaktträger kpl.	8	2,14286	Ethernet Ports (see above - we will modify the material to UL94V0 material as soon as possible)	17,14
0060	730190003	EF12L..., Gewindebuchse M12x1 - SW15	26	0,00	Metall part	0,00
0070	219380000	O-RING 12X1 (FKM-LABSFR. -40 G) SCHWARZ	27	0,06	calculated, density 1,9 mg/mm <sup>3</sup>	1,65
0080	219379000	O-RING 7X1 (FKM-LABSFR. -40 GRAD) GRUEN	26	0,04	calculated, density 1,9 mg/mm <sup>3</sup>	1,04
0090	733968003	6-KT-MU.ELKE 412 FO-3	26	0,00	Metall part	0,00
0100	737899002	OCTOPUS 24M, Gehäuse Rückwand (neu)	1	0,00	Metall part	0,00
0105	737900002	OS2 24TX, Dichtung leitfähig	1	14,00		14,00
0110	737764001	OCTOPUS 8M, Abstandshalter	17	0,00	Metall part	0,00
						0,00



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	PCBA					
0120	837410305	MICE-NG, Backplane best. (16P) A.M. -EEC	1			0,00
		tested parts of PCBA:				
		PCB: 737787001	1	0,00	PCB fulfills the requirements of table 2 EN45545 for PCB's - R24 OI= 32% see OI testreport AGILE DOC-ID: 000163910DNR	0,00
		If suitable products which achieve the requirements are not available on the market, the electronics devices on printed boards are approved on functional necessity. According to Capture 4.7 of EN 45545-2.				
	PCBA		0,01			
0122	837330105	MB - 2T, Backplane bestückt (belackt)	1			0,00
		tested parts of PCBA:				
		PCB: 737 572 - 002	1	0,00	PCB fulfills the requirements of table 2 EN45545 for PCB's - R24 OI= 32% see OI testreport AGILE DOC-ID: 000163911DNR	0,00
		If suitable products which achieve the requirements are not available on the market, the electronics devices on printed boards are approved on functional necessity. According to Capture 4.7 of EN 45545-2.				
0125	737829001	MICE-NG, Wärmeleitpad	3	0,00	000088303DNR (Bergquist), 000171434DNR(MTC)	0,00
0130	253380000	L-SCHR.AM 2,5X5 ST/NI	14	0,00	Metall part	0,00
0140	253369000	L-SCHR.AM 2,5X8 ST/NI	21	0,00	Metall part	0,00
0150	255962000	ZYL-SCHR.M 4X16 NRST	12	0,00	Metall part	0,00
0160	742237001	Haftetikett 57x30 3M7818 silbermatt	2	0,40	calculated, density 1,1 mg/mm <sup>3</sup>	0,80
0170	211801000	Laschenstopfen 12xy 1,5 natur-PE-LD	26	0,00	only used for shipping. To preserve the suitability of your device for IP65/67 :Seal unused sockets and plugs with your desired type of protection screws -> 734209200 Verschluss-Schraube M12X1 VS	0,00
0175	211740000	Gew.-Schutzkappe M12X1 rot	1	0,00	only used for shipping	0,00
0180	257307000	ZAHNSCHEIBE A 3,2 ST/ZN	1	0,00	Metall part	0,00
0190	253368000	L-SCHR.AM 3X6 ST/NI	1	0,00	Metall part	0,00
0220	742321002	Aufkleber bedruckt, Funktionserde	1	0,01	calculated, density 1,1 000171955DNR	0,01
0230	742477001	OCTOPUS 24M-8PoE, Frontkleber	1	13,00	meassured	13,00
<b>Total:</b>						<b>91,5</b>