



LAPI LABORATORIO PREVENZIONE INCENDI S.p.A.
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- ORGANISMO NOTIFICATO IN CONFORMITÀ A REGOLAMENTO PRODOTTI DA COSTRUZIONE 305/2011/EU
- ORGANISMO NOTIFICATO IN CONFORMITÀ A DISPOSITIVI DI PROTEZIONE INDIVIDUALE DIR. 89/686/CEE
- ORGANISMO NOTIFICATO DIRETTIVA NAVALE MED 96/98 EC
- MEMBRO EGOLF e UNIFER
- RICONOSCIUTO USCG ADMINISTRATION
- RICONOSCIUTO CERTIFER
- RICONOSCIUTO ITALCERTIFER
- CERTIFICATO REGISTRO AERONAUTICO ENAC CIT 1013/L
- AUTORIZZAZIONE MINISTERO INTERNO D.M. 26/03/85
- ACCREDITATO ACCREDIA N.0086
- RICONOSCIUTO DIR. 96/98 EC MARINE EQUIPMENT - BUREAU VERITAS - DNV - LLOYD'S REGISTER
- PROVE SU AUTOVEICOLI AI SENSI DELLA DIRETTIVA 95/28 CE E REG. 118
- AUTORIZZATO BHF CALIFORNIA, CARB CALIFORNIA, CPSC USA
- AUTORIZZATO VKF SVIZZERA E EBA GERMANIA



Spettabile
NetModule AG
Meriedweg 11
3172 Niederwangen (Switzerland)

Prato, 21/10/2016

RICHIEDENTE / SPONSOR

NetModule AG

Meriedweg 11 - 3172 Niederwangen (Switzerland)



DENOMINAZIONE DEL MATERIALE / DENOMINATION OF THE MATERIAL

NetModule Router NB3700, NB3701, NB3710, NB3711

- Compliance document N° 057/VIT/16 - **UNI EN 45545-2 : 2015**
- Ref. Lab. 1687/16 - **MC Board V4.2**
- Ref. Lab. 1688/16 - **MC Board V3.1**
- Ref. Lab. 1689/16 - **NB3701 / NB3711 / NB3800 Power & Data Cable**
protetto con / *protected with* **Heat Shrink Tube Versafit**
- Ref. Lab. 1690/16 - **NB3701 / NB3711 / NB3800 Antenna Cable**
- A documentation annexed:
- N° 1 - Declaration of conformity of the Sponsor.
- N° 2 - Declaration of the differences between models of routers.
- N° 3 - User Manual of Router NB3701 (First page).
- N° 4 - Photos of the apparatus Router NB3711

Best regards

LAPI S.p.A.





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Compliance document N° 057/VIT/16



VALUTAZIONE IDONEITÀ TECNICA Evaluation of technical worthiness

RICHIEDENTE / SPONSOR

NetModule AG

Meriedweg 11 - 3172 Niederwangen (Switzerland)

DENOMINAZIONE DEL MATERIALE / DENOMINATION OF THE MATERIAL

NetModule Router NB3700, NB3701, NB3710, NB3711

Norma di riferimento ai sensi della / Reference standard according to

UNI EN 45545-2 : 2015

Metodi di prova come previsti da / Test methods as foreseen by : UNI EN 45545-2: 2015

PREMESSA / INTRODUCTION

Il presente documento riporta l'esito complessivo delle verifiche documentali e sperimentali sui componenti rilevanti contenuti nei materiali di cui sopra. Esso è stato redatto tenendo in considerazione quanto segue:

- la presenza di materiali e prodotti considerabili come "non-listed"
- le regole di grouping per i materiali prescritte da UNI EN 45545-2: 2015 punto 4.3
- le prescrizioni per i NON LISTED PRODUCTS contenute nella stessa norma
- le prescrizioni per i LISTED PRODUCTS ove applicabili

La valutazione è stata effettuata su base documentale a seguito della verifica della presenza dei risultati di prova applicabili e della loro congruenza con la costruzione della apparecchiatura e con le informazioni tecniche fornite dal Richiedente.

Si deve notare che la presente valutazione si riferisce esclusivamente alle caratteristiche di reazione al fuoco di componenti dell'apparato e non prende in alcun modo in considerazione le caratteristiche di funzionalità dell'apparato stesso e/o la conformità a specifiche, norme, Regolamenti, Direttive al di fuori di quanto strettamente previsto dalla UNI EN 45545-2: 2015.

Inoltre, le valutazioni riportate si applicano solo all'apparato in oggetto e non considerano gli eventuali cablaggi verso altre apparecchiature.

This document reports the cumulative outcome of the documental and experimental checks on the relevant components contained in the above materials It has been issued considering the following:

- the presence of materials and products that can be considered as "non-listed"
- the grouping rules for the materials prescribed by UNI EN 45545-2 : 2015 point 4.3
- the prescriptions for the NON LISTED PRODUCTS contained in the same standard
- the prescriptions for the LISTED PRODUCTS where applicable

The evaluation has been effected on a documental basis after checking the presence of the applicable test results and of their coherence with the construction of the apparatus and with the technical information supplied by the Sponsor.

It has to be noticed that this evaluation refers solely to the characteristics of fire reaction of components extracted from the apparatus and it does not take into consideration the functionality characteristics of the apparatus itself and/or the compliance to specifications, standards, Regulations, Directives which are outside of what is strictly foreseen by UNI EN 45545-2: 2015.

Moreover, the evaluations reported apply only to the apparatus in object and they do not take into account any cabling connection towards other apparatuses.

FUNZIONI E DATI TECNICI DELLE APPARECCHIATURE / FUNCTIONS AND TECHNICAL DATA OF THE APPARATUSES

L'oggetto della presente valutazione consiste in un router. L'apparato è contenuto in uno chassis metallico. Le dimensioni nominali di ingombro e i pesi dell'esemplare inviato dal Richiedente (modello NB 3711) per l'esame fisico delle caratteristiche generali sono i seguenti: (190 x 100 x 110) mm, peso 1290 g.

Il Richiedente dichiara che l'apparecchiatura in oggetto non svolge alcuna funzione relativamente alla emergenza, alla sicurezza o in relazione alle TSI applicabili o alla running capability (EN 50553) in caso di incendio.

The object of this evaluation consists of a router. The apparatus is contained in a metallic chassis. The nominal hindrance dimensions and the weight of the apparatus sent by the Sponsor (model NB 3711) for the physical examination of the general characteristics are the following ones: (190 x 100 x 110) mm, weight 1290 g.

The Sponsor declares that the apparatus in question does not performs any function relative to emergency, safety or in connection with applicable TSI or to the running capability (EN 50553) in case of fire.

Prato, 10/10/2016

Il Responsabile Certificazione
The Certification Manager

Il Direttore del Laboratorio
The Director of the Laboratory

Valid until: 09/10/2019

Dr. Massimo Borsini

Dr. Luca Ermini

Questo documento deve essere letto congiuntamente al Rapporto di Prova, per la descrizione del prodotto e per ogni altra notizia di dettaglio.

Questo documento non costituisce approvazione di tipo né certificazione di prodotto né tantomeno dichiarazione di conformità, che spetta esclusivamente al Produttore / Sponsor.

This document has to be read in conjunction with the Test Report, for the description of the product and for every other detail. This document does not represent type approval or certification of the product neither declaration of compliance, that is exclusively under the responsibility of the Manufacturer or Sponsor.

SVOLGIMENTO DELLA VALUTAZIONE / TREATMENT OF THE EVALUATION

L'analisi delle apparecchiature è stata sviluppata sulla base della distinta dei componenti presenti in esse ed in base ai loro pesi. I dati necessari ad effettuare tale analisi sono stati forniti dal Richiedente. Sulla base dei pesi dei componenti e ispezionando un esemplare di relativo al modello NB 3711 fornito appositamente dal Richiedente per tale valutazione, si conclude che i componenti da prendere in considerazione sono i seguenti:

The analysis of the apparatuses has been developed on the base of the list of the components present in them and on the base of their weights. The data needed to effect this analysis have been supplied by the Sponsor. On the base of the weights of the components and inspecting an apparatus relative to model NB 3711 supplied for this scope by the Sponsor, it is concluded that the components to be considered are the following ones:

Funzione / Function	Denominazione / Denomination	Prove scelte e spiegazione / Tests selected and rationale
PCB	MC Board V4.2	EN 60692-2-11: Requirement set R25 specifico per / specific for EL 9 (PCB) CITnlp prova complementare / Complementary test
PCB	MC Board V3.1	
Power and data cable	NB3701 / NB3711 / NB3800 Power & Data Cable protetto con / protected with Heat Shrink Tube Versafit	EN 60332-1-2 Cavo montato all'interno di chassis metallico chiuso; prova effettuata per valutare la possibilità di conduzione della fiamma verso l'interno o verso l'esterno dell'apparato Cable mounted inside a closed metal chassis; test effected to asses the possibility of conducting the flame towards the inside or the outside of the apparatus.
Antenna cable	NB3701 / NB3711 / NB3800 Antenna Cable	

Sulla base delle considerazioni di cui sopra, pertanto, sono stati selezionati i componenti riportati nella tabella sottostante, per essere sottoposti alle prove indicate nella stessa tabella.

Therefore, on the base of the above considerations, the components reported in the table below have been selected to be tested according to the tests indicated in the same table.

No.	Re. Lab.	Descrizione / Description	Rapporto di Prova / Test Report
1	1628/16	Apparato completo Complete apparatus	N/A
2	1687/16	MC Board V4.2	no. 1687.1IS0050/16 (LAPI S.p.A. - 10/10/2016): CITnlp = 0.22 no. 1687.0CI0030/16 (LAPI S.p.A. - 10/10/2016) Conforme con il requisito per la prova EN 60695-2-11 come richiamata da EN 45545-2 : 2015 Compliant with the requirement for the test EN 60695-2-11 as recalled by EN 45545-2 : 2015
3	1688/16	MC Board V3.1	no. 1688.1IS0050/16 (LAPI S.p.A. - 10/10/2016): CITnlp = 0.20 no. 1688.0CI0030/16 (LAPI S.p.A. - 10/10/2016) Conforme con il requisito per la prova EN 60695-2-11 come richiamata da EN 45545-2 : 2015 Compliant with the requirement for the test EN 60695-2-11 as recalled by EN 45545-2 : 2015
4	1689/16	NB3701 / NB3711 / NB3800 Power & Data Cable (*)	no. 1689.0CI0010/16 (LAPI S.p.A. - 10/10/2016) Conforme con il requisito per la prova EN 60332-1-2 come richiamata da EN 45545-2 : 2015 Compliant with the requirement for the test EN 60332-1-2 as recalled by EN 45545-2 : 2015
5	1690/16	NB3701 / NB3711 / NB3800 Antenna Cable	no. 1690.0CI0010/16 (LAPI S.p.A. - 10/10/2016) Conforme con il requisito per la prova EN 60332-1-2 come richiamata da EN 45545-2 : 2015 Compliant with the requirement for the test EN 60332-1-2 as recalled by EN 45545-2 : 2015

Nota (*): il componente Rif. Lab. 1689/16 (NB3701 / NB3711 / NB3800 Power & Data Cable) è protetto da guaina termorestringente Versafit

Note (*): the cable Re. Lab. 1689/16 (NB3701 / NB3711 / NB3800 Power & Data Cable) is protected by heat shrink tubing Versafit

CONCLUSIONI / CONCLUSIONS

Per quanto sopra considerato, l'apparato **RISULTA ESSERE IDONEO** relativamente ai materiali sopraelencati rispetto ai requisiti di comportamento al fuoco applicabili previsti dalla norma

UNI EN 45545-2: 2015 per i livelli di rischio HL1 - HL2 - HL3, con cavo NB3701 / NB3711 / NB3800 con Power & Data Cable protetto da guaina termorestringente Versafit

Therefore, following the above considerations, the appliance **OBTAIN THE WORTHINESS** with respect to the materials listed above to the applicable requirements of fire behaviour prescribed by the standard

UNI EN 45545-2: 2015 for Hazard Levels HL1 - HL2 - HL3, with cable NB3701 / NB3711 / NB3800 with Power & Data Cable protected by heat shrinking tube Versafit

Nota: questo documento è esclusivamente un parere tecnico di valutazione di ammissibilità e non costituisce in alcun modo approvazione di tipo né tantomeno certificazione di prodotto né tantomeno dichiarazione di conformità, che spetta esclusivamente al Produttore / Sponsor. Saranno poi gli enti o organismi deputati alla verifica e al controllo a definire la conformità di tale prodotto all'uso finale indicato e previsto.

Note: this document is only a technical assessment of worthiness and it is not to be considered in any way type approval neither product certification nor declaration of conformity which pertains exclusively to the Manufacturer / Sponsor. The Bodies charged of verification and control will define the compliance of this product for the indicated and intended end use.

Prato, 10/10/2016

Il Responsabile Certificazione

Il Direttore del Laboratorio

The Certification Manager

The Director of the Laboratory

Valid until: 09/10/2019

Dr. Massimo Barsini

Dr. Luca Ermini

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Spettabile
NetModule AG
Meriedweg 11
3172 Niederwangen (Switzerland)



Prato, 10/10/2016

Rif. 1653/16/AC

In riferimento alle Vs. richieste, Vi rimettiamo in allegato ns. Rapporti di Prova in doppia lingua (italiano/inglese), contenenti i risultati delle prove effettuate su Vs. materiale:

With reference to your order, please find enclosed our Test Reports in double language (italian/english), containing the results of the tests effected on your material:

Denominazione commerciale <i>Trade name</i>	Normativa di riferimento / <i>Reference standard:</i> UNI EN 45545-2: 2013 x R25	Riferimento Laboratorio <i>Laboratory Ref.</i>
	Metodi di prova / <i>Test methods</i>	
MC Board V4.2 Nominal thickness of the samples: 1.6 mm.	EN 60695-2-11:2001 + EN 60695-2-10:2001 Essais au fil incandescent/chauffant - Méthode d'essai d'inflammabilité pour produits finis. (Metodi di prova al filo incandescente. Metodi di prova dell'inflammabilità per prodotti finiti).	1687/16
	UNI EN 45545-2: 2013 Requisiti di comportamento al fuoco di materiali e componenti Requirements for fire behaviour of materials and components	

Denominazione commerciale <i>Trade name</i>	Normativa di riferimento / <i>Reference standard:</i> UNI EN 45545-2: 2015	Riferimento Laboratorio <i>Laboratory Ref.</i>
	Metodo di prova / <i>Test method</i>	
MC Board V4.2 Nominal thickness of the samples: 1.6 mm.	UNI EN 45545-2: 2015 Requisiti di comportamento al fuoco di materiali e componenti Requirements for fire behaviour of materials and components Titolo del metodo / Method title: NF X 70-100-1/-2 Determinazione del CIT _{NLP} / CIT _{NLP} determination	1687/16

Distinti saluti,
Best regards

LAPI S.p.A.



RAPPORTO DI PROVA NO. 1687.OCI0030/16

Test Report no.

METODO DI PROVA:

Test method

UNI EN 45545-2: 2015

DENOMINAZIONE DELLA PROVA:

Description of the standard

Requisiti di comportamento al fuoco di materiali e componenti
Requirements for fire behaviour of materials and components

TITOLO DEL METODO:

Method title

EN 60695-2-11:2001 + EN 60695-2-10:2001

Glowing-hot wire based test methods. Glow-wire flammability test method for end products

(Metodi di prova al filo incandescente. Metodi di prova dell'inflammabilità per prodotti finiti).

RICHIEDENTE:

Sponsor

NetModule AG

Meriedweg 11

3172 Niederwangen (Switzerland)

DENOMINAZIONE DEL MATERIALE:

Denomination of the material

MC Board V4.2

SPESSORE NOMINALE DEI CAMPIONI:

Nominal thickness of the samples

1.6 mm

DATA RICEVIMENTO CAMPIONI:

Date of the samples receipt

22/09/2016

☐ Il presente Rapporto di Prova è costituito da / This Test Report consists of:

- no. 3 pagine (compresa la presente) / no. 3 pages (including this one).
- no. 2 allegati / no. 2 annexes.

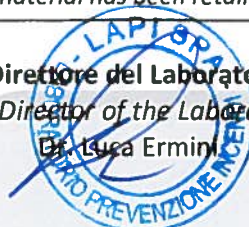
☐ I risultati riportati in questo Rapporto si riferiscono esclusivamente al materiale sottoposto a prova fornito dal Richiedente (rif. codice Laboratorio no. 1687/16). Un campione del materiale è stato conservato dal Laboratorio.

The results reported in this Test report refer exclusively to the material submitted to test and supplied by the Sponsor (Ref. Laboratory code no. 1687/16). A sample of the material has been retained by the Laboratory.

Prato, 10/10/2016

Il Direttore del Laboratorio
The Director of the Laboratory

Dr. Luca Ermini



DESCRIZIONE DEL MATERIALE

Description of the material

Aspetto: scheda elettronica (PCB). La scheda come ricevuta dal Richiedente ha dimensioni massime nominali di 100x160 mm e spessore di circa 1,6 mm, ricavati dal Laboratorio.

Appearance: electronics board (PCB). The board as received by the Sponsor has nominal maximum dimensions of 100x160 mm and thickness about 1,6 mm, obtained by the Laboratory.

Composizione e dati tecnici / Composition and technical data:

Composizione / *Composition (*)*: vedi dati tecnici allegati / *See datasheets annexed.*

Spessore / *Thickness (*)*: 1,565 mm.

Lato esposto (*): indifferente (non identico ma equivalente).

Side exposed ()*: either (not identical but equivalent).

Impiego (*): scheda elettronica montata all'interno di un dispositivo per telecomunicazioni.

End use ()*: electronics board mounted inside of the telecommunication device.

Posa in opera (*): inserito dentro un contenitore d'alluminio.

Laying mode ()*: inserted into an aluminium case.

(*) - Informazioni fornite dal Richiedente / *Information supplied by the Sponsor.*

Nota: per la composizione si rimanda alle schede di controllo di lavorazione gestite dal sistema di qualità dell'azienda e alla dichiarazione di conformità allegata.

Note: the composition is referred to the sheets of workmanship control managed by the quality system of the Company and to declaration of conformity annexed.

DESCRIZIONE DELLA PROCEDURA DI CAMPIONAMENTO

Description of the sampling procedure

Il campionamento del materiale (PCB) è stato effettuato a cura del Richiedente dal lotto di produzione n° Pro_NB3700_06 c/o lo stabilimento di Teltronic AG sito in Gewerbestrasse 9 - CH-4562 Biberist (Switzerland), in data 16 Settembre 2016, come da dichiarazione allegata.

Il Laboratorio non è stato coinvolto in alcuna operazione di campionamento della produzione.

The sampling of the material (PCB) has been effected by the Sponsor from the production batch n° Pro_NB3700_06 c/o the factory of Teltronic AG located in Gewerbestrasse 9 - CH-4562 Biberist (Switzerland), on date 16th September 2016, as indicated in the declaration annexed.

The Laboratory has not been involved in any sampling procedure of the material from the production.

DESCRIZIONE GENERALE DELLA EFFETTUAZIONE DELLA PROVA

General description of the execution of the test

La prova è stata effettuata secondo quanto descritto in EN 60695-2-11:2001 come richiamata da UNI EN 45545-2: 2015, temperatura di prova 850°C. Sono state applicate le condizioni di prova prescritte da EN 45545-2 per il requisito R25.

The test has been effected according to the prescriptions EN 60695-2-11:2001 as recalled by UNI EN 45545-2: 2015, test temperature 850°C. The test conditions are prescribed by EN 45545-2 for requirement R25.

LUOGO E DATA PROVA: Prato, 04/10/2016

Place and test date

Operatore / Operator
Ing. Fabio Crocetta



PREPARAZIONE, CONDIZIONAMENTO DEI PROVINI E CONDUZIONE DELLA PROVA

Preparation, conditioning and test procedure

I provini sono stati condizionati come richiesto dalla norma.

È stato sottoposto a prova un provino del circuito stampato, con temperatura di prova: 850°C.

I provini nelle misure richieste dalla norma sono stati forniti dal Richiedente.

Il tempo di applicazione (t_a) del filo è stato di 30 secondi.

The specimens have been conditioned as prescribed by the standard.

One specimen of the printed circuit board has been tested, with test temperature: 850°C.

The specimens in the sizes required by the standard have been supplied by the Sponsor.

The application time of the wire (t_a) has been 30 seconds.

RISULTATI / RESULTS

T = 850°C
Mancata accensione / No ignition
Persistenza di Fiamma / Flame Persistence: 0s
Propagazione fiamma / Flame propagation: Non osservata / Not detected

Osservazioni: nessuna.

Observations: none.

Foto / Photos



Foto 1: prima della prova / Picture 1: before testing



Foto 2: dopo la prova / Picture 2: after testing

LUOGO E DATA PROVA: Prato, 04/10/2016
Place and test date

Operatore / Operator
Ing. Fabio Crocetta



RAPPORTO DI PROVA / TEST REPORT NO. 1687.1IS0040/16

METODO DI PROVA:

Test method

UNI EN 45545-2: 2015

DENOMINAZIONE DELLA PROVA:

Description of the standard

Requisiti di comportamento al fuoco di materiali e componenti
Requirements for fire behaviour of materials and components

RICHIEDENTE:

Sponsor

NetModule AG

Meriedweg 11

3172 Niederwangen (Switzerland)

DENOMINAZIONE DEL MATERIALE:

Denomination of the material

MC Board V4.2

SPESSORE NOMINALE DEI CAMPIONI:

Nominal thickness of the samples

1.6 mm

DESCRIZIONE DEL MATERIALE:

Description of the material

Scheda elettronica (PCB). La scheda come ricevuta dal Richiedente ha dimensioni massime nominali di 100x160 mm.

Electronics board (PCB). The board as received by the Sponsor has nominal maximum dimensions of 100x160 mm.

☐ Questo documento fa riferimento al Rapporto di Prova no. 1687.0CI0030/16 emesso da questo Laboratorio.
This certificate refers to the Test Report no. 1687.0CI0030/16 issued by this Laboratory.

Prodotto / Product	Laminato per circuiti stampati - Printed Circuit Board laminate
Requisito / Requirement	R25
Prova richiesta / Test required	EN 60695-2-11:2001
Parametro / Parameter	Glow wire temperature (minimum 850°C)
Valore trovato / Value found	Mancata accensione a / No ignition at : 850°C
Limiti di accettazione / Acceptance limits	HL1 - HL2 - HL3: minimum 850°C

VALUTAZIONE / JUDGEMENT

Sulla base dei risultati di prova sopra riportati il materiale in oggetto **È CONFORME** alle richieste di UNI EN 45545-2: 2015 per livelli di rischio **HL1 - HL2 - HL3** set di requisiti **R25**.

On the basis of the above results the sample in object **COMPLIES** with the requirements of UNI EN 45545-2: 2015 for Hazard Levels **HL1 - HL2 - HL3** requirements set **R25**.

Prato, 10/10/2016

Il Responsabile Certificazione

The Certification Manager

Dr. Massimo Borsini

Il Direttore del Laboratorio

The Director of the Laboratory

Dr. Luca Ermini

Valid until: 09/10/2021



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Questo documento non costituisce approvazione di tipo né certificazione di prodotto né tantomeno dichiarazione di conformità, che spetta esclusivamente al Produttore / Sponsor. Il riconoscimento Certifer si riferisce alle prove di EN 45545-2 riportate nella lista pubblicata.

This document has to be read in conjunction with the Test Reports listed above, for the description of the product and for every other detail.
This document does not represent type approval or certification of the product neither declaration of compliance, that is exclusively under the responsibility of the Manufacturer or Sponsor. The Certifer approval refers to the tests according to EN 45545-2 reported in the published list.

RAPPORTO DI PROVA NO. 1687.1IS0050/16

Test Report no.

METODO DI PROVA:

Test method

UNI EN 45545-2: 2015

DENOMINAZIONE DELLA PROVA:

Description of the standard

Requisiti di comportamento al fuoco di materiali e componenti
Requirements for fire behaviour of materials and components

TITOLO DEL METODO:

Method title

NF X 70-100-1/-2

Determinazione del CIT_{NLP} / CIT_{NLP} determination

RICHIEDENTE:

Sponsor

NetModule AG

Meriedweg 11

3172 Niederwangen (Switzerland)

DENOMINAZIONE DEL MATERIALE:

Denomination of the material

MC Board V4.2

SPESSORE NOMINALE DEI CAMPIONI:

Nominal thickness of the samples

1.6 mm

DATA RICEVIMENTO CAMPIONI:

Date of the samples receipt

22/09/2016

☐ Il presente Rapporto di Prova è costituito da / This Test Report consists of:

- no. 3 pagine (compresa questa prima pagina) / no. 3 pages (including this one).
- no. 2 allegati / no. 2 annexed.

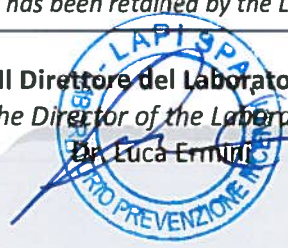
☐ I risultati riportati in questo Rapporto si riferiscono esclusivamente al materiale sottoposto a prova fornito dal Richiedente (rif. codice Laboratorio no. 1687/16). Un campione del materiale è stato conservato dal Laboratorio.

The results reported in this Report refer exclusively to the material submitted to test sent by the Sponsor (ref. Laboratory code no. 1687/16). A sample of the material has been retained by the Laboratory.

Prato, 10/10/2016

Il Direttore del Laboratorio
The Director of the Laboratory

Dr. Luca Ermini



DESCRIZIONE DEL MATERIALE

Description of the material

Aspetto: scheda elettronica (PCB). La scheda come ricevuta dal Richiedente ha dimensioni massime nominali di 100x160 mm e spessore di circa 1,6 mm, ricavati dal Laboratorio.

Appearance: electronics board (PCB). The board as received by the Sponsor has nominal maximum dimensions of 100x160 mm and thickness about 1,6 mm, obtained by the Laboratory.

Composizione e dati tecnici / Composition and technical data:

Composizione / *Composition (*)*: vedi dati tecnici allegati / *See datasheets annexed.*

Spessore / *Thickness (*)*: 1,565 mm.

Lato esposto (*): indifferente (non identico ma equivalente).

Side exposed ()*: either (not identical but equivalent).

Impiego (*): scheda elettronica montata all'interno di un dispositivo per telecomunicazioni.

End use ()*: electronics board mounted inside of the telecommunication device.

Posa in opera (*): inserito dentro un contenitore d'alluminio.

Laying mode ()*: inserted into an aluminium case.

(*) - Informazioni fornite dal Richiedente / *Information supplied by the Sponsor.*

Nota: per la composizione si rimanda alle schede di controllo di lavorazione gestite dal sistema di qualità dell'azienda e alla dichiarazione di conformità allegata.

Note: the composition is referred to the sheets of workmanship control managed by the quality system of the Company and to declaration of conformity annexed.

DESCRIZIONE DELLA PROCEDURA DI CAMPIONAMENTO

Description of the sampling procedure

Il campionamento del materiale (PCB) è stato effettuato a cura del Richiedente dal lotto di produzione n° Pro_NB3700_06 c/o lo stabilimento di Teltronic AG sito in Gewerbestrasse 9 - CH-4562 Biberist (Switzerland), in data 16 Settembre 2016, come da dichiarazione allegata.

Il Laboratorio non è stato coinvolto in alcuna operazione di campionamento della produzione.

The sampling of the material (PCB) has been effected by the Sponsor from the production batch n° Pro_NB3700_06 c/o the factory of Teltronic AG located in Gewerbestrasse 9 - CH-4562 Biberist (Switzerland), on date 16th September 2016, as indicated in the declaration annexed.

The Laboratory has not been involved in any sampling procedure of the material from the production.

DESCRIZIONE DELLA COSTRUZIONE E PREPARAZIONE DEI PROVINI

Description of the construction and preparation of the specimen

I provini sono stati ottenuti dal Laboratorio dal materiale inviato dal Richiedente. Essi non sono stati sottoposti ad alcuna operazione preliminare alla prova diversa dal condizionamento previsto dalla norma.

The specimens have been obtained by the Laboratory from the material sent by the Sponsor. They have not been submitted to any operation prior being tested except for the conditioning prescribed by the standard.

DESCRIZIONE GENERALE DELLA EFFETTUAZIONE DELLA PROVA

General description of the execution of the test

La prova è stata effettuata secondo quanto descritto in AFNOR NF X 70-100-1 e -2 come richiamata da UNI EN 45545-2: 2015, temperatura di prova 600°C.

The test has been effected according to the prescriptions AFNOR NF X 70-100-1 and -2 as recalled by UNI EN 45545-2: 2015, test temperature 600°C.

LUOGO E DATA PROVA: Prato, 04/10/2016

Place and test date

Operatore / *Operator*
Dr. Francesca Scarallo



RISULTATI / RESULTS

I risultati si riferiscono solo al comportamento di provini del prodotto nelle condizioni particolari definite dal presente metodo di prova; essi non devono essere considerati come il solo criterio per valutare il pericolo potenziale legato alla produzione di fumo nelle condizioni di uso del materiale.

These results relate only to the behaviour of the specimens of the product under the particular conditions of the test; they are not intended to be the sole criterion for assessing the potential smoke obscuration hazard of the material in use.

Specie gassosa Gas component	Concentrazione di riferimento Reference concentration Ci (mg/m ³)	Massa gassosa emessa relativa Relative emitted mass ci (mg/g)	Limiti di quantificazione Quantification limits (mg)
CO ₂	72000	731	87
CO	1380	118	9
HF	25	< 1	1
HCl	75	< 1	1
HBr	99	9	1
HCN	55	2	1
SO ₂	262	< 1	1
NO _x	38	< 1	1
CIT _{NLP} = $\sum ci/Ci$ = 0.22			

Foto / Photos



Foto 1: prima della prova / Picture 1: before testing

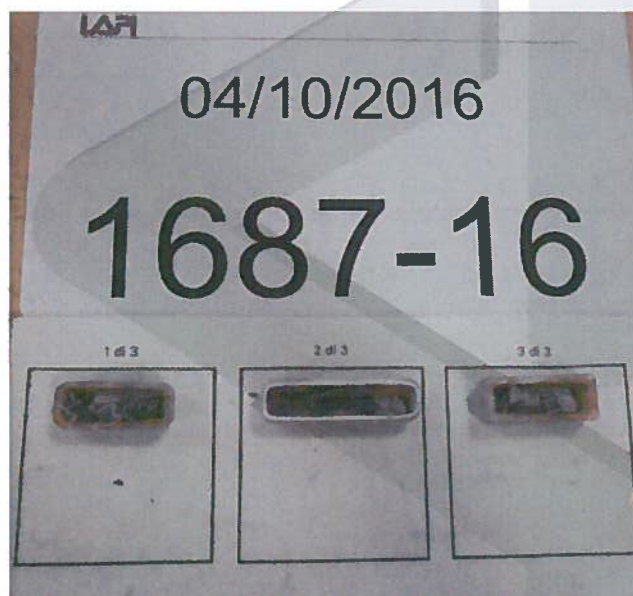


Foto 2: dopo la prova / Picture 2: after testing

LUOGO E DATA PROVA: Prato, 04/10/2016
Place and test date

Operatore / Operator
Dr. Francesca Scarnano





LABORATORY TESTS REQUEST

to send back to LA.P.I. filled in one for each specimen

Responsible Person to contact : Thomas Siegrist

Page 1/2

TEST REQUEST HEADING (full address):

NetModule AG
Meriedweg 11
3172 Niederwangen
Switzerland

INVOICE HEADING (full address):

NetModule AG
Meriedweg 11
3172 Niederwangen
Switzerland

COMMERCIAL NAME OF THE ARTICLE ¹⁾:

NB3701 / NB3711 / NB3800 PCBs, MC Board V4.2 and MC Board V3.1

Technical data of the specimen ²⁾: (see annexed sheet for stratified and composite materials)

Composition (%): see datasheets

Appearance: 100 x 160mm Colour: green

Thickness (mm): 1.565mm Weight (g/m²): Density (kg/m³):

Possible fire retardant treatment: none

The specimen is ☐ Isotropic ☒ Anisotropic

The specimen usually composes a side in view (Yes/No): No

The two sides are identical (Yes/No): No

If the two sides are not identical, identify which of the two must be tested: both

End use of the article: (CURTAIN, WALL, FLOOR, CEILINGS, etc...) telecommunication device

Laying of the article (if stuck specify the type of glue g/m²): inserted into an aluminium case

REQUESTED TESTS ON THE SPECIMEN ^{3) 5)}

EN 45545-2:2015

Product Number EL9 and

Requirement Set R25 + Citnlp

Hazard Level 3

IN ACCORDANCE TO SPEC. N. ³⁾

SEE EN 45545-2:2015, TABLE 7

REQUEST FOR MEASUREMENT UNCERTAINTY (ANNEXED TO THE TEST REPORT ⁶⁾): YES ☐ NO ☒

NOTES ON THE SPECIMEN (POSSIBLE DEROGATIONS ³⁾):

TO BE FILLED ONLY IN CASE OF TRANSPORTATION FIELD TESTS:

SAFETY DATA SHEET

N° WE_YellowCard.pdf, WE_Brand- und Rauchgastest für Bahn und Luftfahrt.pdf

TECHNICAL DATA SHEET

N° WE_Material_Datenblatt_TG135.pdf

BATCH

N° Pro_NB3700_06 Date 16.9.2016

Date

26.9.2016

Stamp and signature of Responsible

Notes (to be read to fill this form):

- 1) The commercial name of the article represents the exact name that will be written on the Test Report. It has to be univocal and match exactly to possible names written on the specimen. LA.P.I. reserves itself the right to not accept specimen whose identification is unclear or ambiguous.
- 2) Technical data reported below will be written on the Test Report as indicated by the reference specification. The side to be tested has to be clearly identified, marking it in a suitable way if possible.
- 3) List the tests to perform and their reference methods. If the tests have the purpose to verify the matching of a specimen to a specification, it is useful to mention it in this field and to enclose a copy of the specification. If not specified, we assume the request refers to the latest valid edition of the specification. Indicate in this field possible derogations to the method or supplementary procedures to apply during the test. Every derogation and/or supplementary procedure will be referred and described on the Test Report. In methods expecting a preliminary treatment of the specimen, indicate only if you don't want those treatments to be performed on the sample.
- 4) In case UNI EN ISO 3386 "Resistance to compression of low density materials" has to be effected, the material has to be sent to the Laboratory not before 72 hours from its production.
- 5) The evaluation performed by the Laboratory does not involve the approval of the product neither by the Laboratory nor by the Accreditation Body. Moreover, the mark of the Accreditation Body or any reference to the accreditation of the Laboratory shall not be used by the Customer in any way, and in particular shall not be reported in the product documentation on the product itself. A copy of the Test Report can be attached.
- 6) The Responsibility of LAPI SpA is limited to the value of the activities regarding tests requested
- 7) In case LAPI can not finish the tests for technical reasons attributable to LAPI SpA, tests will not be charged and no recourse in terms of additional costs will be due in respect of LAPI SpA
- 8) LAPI SpA submitted to test a prototype and LAPI is not responsible, in the event of a negative result of the test, of the previous marketing in case of non-compliance.



NetModule AG
Meriedweg 11
3172 Niederwangen



Datenblatt Standard FR4 TG135

Klassifizierung in Anlehnung an die IPC-4101/21

Trägermaterial : E-Glasgewebe
Harzsystem : Epoxy, ungefüllt

Erläuterungen :
C = Vorbehandlung bei Feuchtigkeit
E = Vorbehandlung bei Temperatur

Die hinter den Kennbuchstaben folgenden Zahlengruppen geben in der ersten Zahl die Dauer der Vorbehandlung in Stunden an, in der zweiten die Zahl der Vorbehandlungstemperatur in °C und in der dritten Zahl die relative Luftfeuchtigkeit

Laminatanforderung	Dicke < 0,50mm		Dicke ≥ 0,5mm		Einheit	Meßmethode
	typische Werte	Spezifikation	typische Werte	Spezifikation	metrisch	IPC-TM-650 oder wie beschrieben
Haftfestigkeit, minimal A: Low Profile Kupferfolie und Very low Profile Kupferfolie- alle Kupfergew > 17µm B: Standard Profil Kupferfolie 1 nach Wärmeschock 2 bei 125°C 3 nach Lagerung in Prozesslösungen C: Alle anderen Folien-Arten/Typen	0,9	0,70	0,95	0,70	N/mm	2 4 8
	1,05	0,80	1,20	1,05		2 4 8 2
	0,95	0,70	1,15	0,70		2 4 8 3
	0,8	0,55	1,0	0,80		2 4 8
		AABUS		AABUS		
spez. Durchgangswiderstand, minimal A: C-96/35/90 B: nach Klimalagerung C: bei erhöhter Temperatur E-24/125	4 10 ⁸	10 ⁸	6 10 ⁸	10 ⁸	MQ cm	2 5 17 1
	7 10 ⁸	10 ³	7 10 ⁸	10 ³		
Oberflächenwiderstand minimal A: C-96/35/90 B: nach Klimalagerung C: bei erhöhter Temperatur E-24/125	1 10 ⁸	10 ⁴	3 10 ⁸	10 ⁴	MQ	2 5 17 1
	6 10 ⁸	10 ³	6 10 ⁸	10 ³		
Feuchtaufnahme maximal	0,4		0,4	0,80	%	
Durchschlagfestigkeit, minimal			60	40	kV	2 5 6
Dielektrizitätszahl @ 1MHz (Laminat und laminierte Prepregs)	4,2-4,6	5,4	4,6-4,9	5,4		2 5 5 2 2 5 5 3 2 5 5 9
Dielektrischer Verlustfaktor @ 1MHz (Laminat und laminierte Prepregs)	0,015-0,02	0,035	0,015-0,02	0,035		2 5 5 2 2 5 5 3 2 5 5 9
Biegefestigkeit, minimal A Längsrichtung B Querrichtung			440 400	415 345	N/mm ²	2 4 4
Lichtbogenwiderstandsvermögen, minimal	105	60	105	60	s	2 5 1
Wärmeschock 10 s @288°C, minimal ungeätzt geätzt	erfüllt	visuell bestehen	erfüllt	visuell bestehen	Bewertung	2 4 13 1
	erfüllt	visuell bestehen	erfüllt	visuell bestehen		
Spannungsfestigkeit, minimal (Laminat und laminierte Prepregs)	40	30			kV/mm	2 5 6 2
Entflammbarkeit (Laminat und laminierte Prepregs)	V0	mind V0	V0	mind V0	Bewertung	UL94
Halogengehalt, maximal Chlor Brom Chlor + Brom	-		-		ppm	2 3 41
	-		-			
	-		-			
Glasübergangstemperatur			135	mind. 110	°C	2 4 24
Zersetzungstemperatur		-	310	-	°C	2 4 24 6 (5% Gewichtsverlust)
Z-Achsen CTE A Alpha 1 B Alpha 2 C 50°C – 260°C		-		-	ppm/°C ppm/°C %	2 4 24
		-		-		
		-	3 8-4 2	-		
Delaminierungszeit (TMA) (Kupfer entfernt) A T260 B T288 C T300		-	15	-	Minuten	2 4 24,1 und entsprechend Anpassungen in 3 10 1 2
		-		-		
		-		-		
Sonstiges CTI			3		Klasse	UL



FAC-SIMIL MODEL

TO BE COMPILED ON COMPANY'S HEADED PAPER

The undersigned

Thomas Siegrist

in his/her capacity of legal representative of the Company **NetModule AG**

declares that the sampling named

NB3701 / NB3711 / NB3800 MC Board V4.2 and MC Board V3.1

and sent to be tested

was taken from the production batch n°

Pro_NB3700_06

c/o the factory

**Teltronic AG
Gewerbstrasse 9
CH-4562 Biberist
Switzerland**

on (day:) **16** (month:) **September** (year:) **2016**

safety sheet n° (to be annexed with stamping):

WE_YellowCard.pdf

WE_Brand- und Rauchgastest für Bahn und Luftfahrt.pdf

technical data sheet n° (to be annexed with stamping)

WE_Material_Datenblatt_TG135.pdf

Date, 19.9.2016

Signature

Th. Siegrist

..

NOTE: IF THE REQUIRED DATA WERE NOT AVAILABLE, SUPPLY AS MANY DETAILS AS POSSIBLE IN ORDER TO IDENTIFY THE MATERIAL THE SAMPLING WAS TAKEN FROM



LAPI LABORATORIO PREVENZIONE INCENDI S.p.A.
I-59100 PRATO - Loc. La Querce - Via della Quercia, 11
Tel. +39 0574 575320 - Fax +39 0574 575323
e.mail: lapi@laboratoriolapi.it
web site: www.laboratoriolapi.it



- ORGANISMO NOTIFICATO IN CONFORMITÀ A REGOLAMENTO PRODOTTI DA COSTRUZIONE 305/2011/EU
- ORGANISMO NOTIFICATO IN CONFORMITÀ A DISPOSITIVI DI PROTEZIONE INDIVIDUALE DIR. 89/686/CEE
- ORGANISMO NOTIFICATO DIRETTIVA NAVALE MED 96/98 EC
- MEMBRO EGOLF e UNIFER
- RICONOSCIUTO USCG ADMINISTRATION
- RICONOSCIUTO CERTIFER
- RICONOSCIUTO ITALCERTIFER
- CERTIFICATO REGISTRO AERONAUTICO ENAC CIT 1013/L
- AUTORIZZAZIONE MINISTERO INTERNO D.M. 26/03/85
- ACCREDITATO ACCREDIA N.0086
- RICONOSCIUTO DIR. 96/98 EC MARINE EQUIPMENT - BUREAU VERITAS - DNV - LLOYD'S REGISTER
- PROVE SU AUTOVEICOLI AI SENSI DELLA DIRETTIVA 95/28 CE E REG. 118
- AUTORIZZATO BHF CALIFORNIA, CARB CALIFORNIA, CPSC USA
- AUTORIZZATO VKF SVIZZERA E EBA GERMANIA

Spettabile
NetModule AG
Meriedweg 11
3172 Niederwangen (Switzerland)



Prato, 10/10/2016
Rif. 1654/16/AC

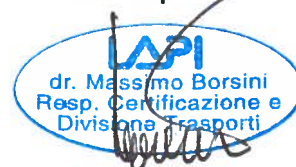
In riferimento alle Vs. richieste, Vi rimettiamo in allegato ns. Rapporti di Prova in doppia lingua (italiano/inglese), contenenti i risultati delle prove effettuate su Vs. materiale:

With reference to your order, please find enclosed our Test Reports in double language (italian/english), containing the results of the tests effected on your material:

Denominazione commerciale Trade name	Normativa di riferimento / Reference standard: UNI EN 45545-2: 2013 x R25	Riferimento Laboratorio Laboratory Ref.
	Metodi di prova / Test methods	
MC Board V3.1 Nominal thickness of the samples: 1.6 mm.	EN 60695-2-11:2001 + EN 60695-2-10:2001 Essais au fil incandescent/chauffant - Méthode d'essai d'inflammabilité pour produits finis. (Metodi di prova al filo incandescente. Metodi di prova dell'inflammabilità per prodotti finiti).	1688/16
	UNI EN 45545-2: 2013 Requisiti di comportamento al fuoco di materiali e componenti Requirements for fire behaviour of materials and components	
Denominazione commerciale Trade name	Normativa di riferimento / Reference standard: UNI EN 45545-2: 2015	Riferimento Laboratorio Laboratory Ref.
	Metodo di prova / Test method	
MC Board V3.1 Nominal thickness of the samples: 1.6 mm.	UNI EN 45545-2: 2015 Requisiti di comportamento al fuoco di materiali e componenti Requirements for fire behaviour of materials and components Titolo del metodo / Method title: NF X 70-100-1/-2 Determinazione del CIT _{NLP} / CIT _{NLP} determination	1688/16

Distinti saluti,
Best regards

LAPI S.p.A.



RAPPORTO DI PROVA NO. 1688.OCI0030/16

Test Report no.

METODO DI PROVA:

Test method

UNI EN 45545-2: 2015

DENOMINAZIONE DELLA PROVA:

Description of the standard

Requisiti di comportamento al fuoco di materiali e componenti
Requirements for fire behaviour of materials and components

TITOLO DEL METODO:

Method title

EN 60695-2-11:2001 + EN 60695-2-10:2001

Glowing-hot wire based test methods. Glow-wire flammability test method for end products

(Metodi di prova al filo incandescente. Metodi di prova dell'inflammabilità per prodotti finiti).

RICHIEDENTE:

Sponsor

NetModule AG

Meriedweg 11

3172 Niederwangen (Switzerland)

DENOMINAZIONE DEL MATERIALE:

Denomination of the material

MC Board V3.1

SPESSORE NOMINALE DEI CAMPIONI:

Nominal thickness of the samples

1.6 mm

DATA RICEVIMENTO CAMPIONI:

Date of the samples receipt

22/09/2016

☐ Il presente Rapporto di Prova è costituito da / This Test Report consists of:

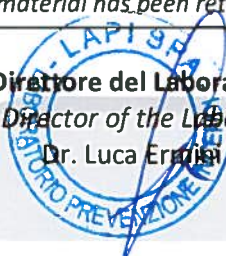
- no. 3 pagine (compresa la presente) / no. 3 pages (including this one).
- no. 2 allegati / no. 2 annexes.

☐ I risultati riportati in questo Rapporto si riferiscono esclusivamente al materiale sottoposto a prova fornito dal Richiedente (rif. codice Laboratorio no. 1688/16). Un campione del materiale è stato conservato dal Laboratorio.

The results reported in this Test report refer exclusively to the material submitted to test and supplied by the Sponsor (Ref. Laboratory code no. 1688/16). A sample of the material has been retained by the Laboratory.

Prato, 10/10/2016

Il Direttore del Laboratorio
The Director of the Laboratory
Dr. Luca Ermini



DESCRIZIONE DEL MATERIALE

Description of the material

Aspetto: scheda elettronica (PCB). La scheda come ricevuta dal Richiedente ha dimensioni massime nominali di 100x160 mm e spessore di circa 1,6 mm, ricavati dal Laboratorio.

Appearance: electronics board (PCB). The board as received by the Sponsor has nominal maximum dimensions of 100x160 mm and thickness about 1,6 mm, obtained by the Laboratory.

Composizione e dati tecnici / Composition and technical data:

Composizione / Composition (*): vedi dati tecnici allegati / See datasheets annexed.

Spessore / Thickness (*): 1,565 mm.

Lato esposto (*): indifferente (non identico ma equivalente).

Side exposed (): either (not identical but equivalent).*

Impiego (*): scheda elettronica montata all'interno di un dispositivo per telecomunicazioni.

End use (): electronics board mounted inside of the telecommunication device.*

Posa in opera (*): inserito dentro un contenitore d'alluminio.

Laying mode (): inserted into an aluminium case.*

(*) - Informazioni fornite dal Richiedente / Information supplied by the Sponsor.

Nota: per la composizione si rimanda alle schede di controllo di lavorazione gestite dal sistema di qualità dell'azienda e alla dichiarazione di conformità allegata.

Note: the composition is referred to the sheets of workmanship control managed by the quality system of the Company and to declaration of conformity annexed.

DESCRIZIONE DELLA PROCEDURA DI CAMPIONAMENTO

Description of the sampling procedure

Il campionamento del materiale (PCB) è stato effettuato a cura del Richiedente dal lotto di produzione n° Pro_NB3700_06 c/o lo stabilimento di Teltronic AG sito in Gewerbestrasse 9 - CH-4562 Biberist (Switzerland), in data 16 Settembre 2016, come da dichiarazione allegata.

Il Laboratorio non è stato coinvolto in alcuna operazione di campionamento della produzione.

The sampling of the material (PCB) has been effected by the Sponsor from the production batch n° Pro_NB3700_06 c/o the factory of Teltronic AG located in Gewerbestrasse 9 - CH-4562 Biberist (Switzerland), on date 16th September 2016, as indicated in the declaration annexed.

The Laboratory has not been involved in any sampling procedure of the material from the production.

DESCRIZIONE GENERALE DELLA EFFETTUAZIONE DELLA PROVA

General description of the execution of the test

La prova è stata effettuata secondo quanto descritto in EN 60695-2-11:2001 come richiamata da UNI EN 45545-2: 2015, temperatura di prova 850°C. Sono state applicate le condizioni di prova prescritte da EN 45545-2 per il requisito R25.

The test has been effected according to the prescriptions EN 60695-2-11:2001 as recalled by UNI EN 45545-2: 2015, test temperature 850°C. The test conditions are prescribed by EN 45545-2 for requirement R25.

LUOGO E DATA PROVA: Prato, 04/10/2016

Place and test date

Operatore / Operator
Ing. Fabio Crocetta



PREPARAZIONE, CONDIZIONAMENTO DEI PROVINI E CONDUZIONE DELLA PROVA

Preparation, conditioning and test procedure

I provini sono stati condizionati come richiesto dalla norma.

È stato sottoposto a prova un provino del circuito stampato, con temperatura di prova: 850°C.

I provini nelle misure richieste dalla norma sono stati forniti dal Richiedente.

Il tempo di applicazione (t_a) del filo è stato di 30 secondi.

The specimens have been conditioned as prescribed by the standard.

One specimen of the printed circuit board has been tested, with test temperature: 850°C.

The specimens in the sizes required by the standard have been supplied by the Sponsor.

The application time of the wire (t_a) has been 30 seconds.

RISULTATI / RESULTS

T = 850°C
Mancata accensione / No ignition
Persistenza di Fiamma / Flame Persistence: 0s
Propagazione fiamma / Flame propagation: Non osservata / Not detected

Osservazioni: nessuna.

Observations: none.

Foto / Photos



Foto 1: prima della prova / Picture 1: before testing



Foto 2: dopo la prova / Picture 2: after testing

LUOGO E DATA PROVA: Prato, 04/10/2016

Place and test date

Operatore / Operator

Ing. Fabio Crocetta



RAPPORTO DI PROVA / TEST REPORT NO. 1688.1IS0040/16

METODO DI PROVA:

Test method

UNI EN 45545-2: 2015

DENOMINAZIONE DELLA PROVA:

Description of the standard

Requisiti di comportamento al fuoco di materiali e componenti
Requirements for fire behaviour of materials and components

RICHIEDENTE:

Sponsor

NetModule AG
Meriedweg 11
3172 Niederwangen (Switzerland)

DENOMINAZIONE DEL MATERIALE:

Denomination of the material

MC Board V3.1

SPESSORE NOMINALE DEI CAMPIONI:

Nominal thickness of the samples

1.6 mm

DESCRIZIONE DEL MATERIALE:

Description of the material

Scheda elettronica (PCB). La scheda come ricevuta dal Richiedente ha dimensioni massime nominali di 100x160 mm.
Electronics board (PCB). The board as received by the Sponsor has nominal maximum dimensions of 100x160 mm.

☐ Questo documento fa riferimento al Rapporto di Prova no. 1688.0CI0030/16 emesso da questo Laboratorio.
This certificate refers to the Test Report no. 1688.0CI0030/16 issued by this Laboratory.

Prodotto / Product	Laminato per circuiti stampati - Printed Circuit Board laminate
Requisito / Requirement	R25
Prova richiesta / Test required	EN 60695-2-11:2001
Parametro / Parameter	Glow wire temperature (minimum 850°C)
Valore trovato / Value found	Mancata accensione a / No ignition at : 850°C
Limiti di accettazione / Acceptance limits	HL1 - HL2 - HL3: minimum 850°C

VALUTAZIONE / JUDGEMENT

Sulla base dei risultati di prova sopra riportati il materiale in oggetto **È CONFORME** alle richieste di
UNI EN 45545-2: 2015 per livelli di rischio **HL1 - HL2 - HL3** set di requisiti **R25**.

On the basis of the above results the sample in object **COMPLIES** with the requirements of
UNI EN 45545-2: 2015 for Hazard Levels **HL1 - HL2 - HL3** requirements set **R25**.

Prato, 10/10/2016

Il Responsabile Certificazione
The Certification Manager

Il Direttore del Laboratorio
The Director of the Laboratory

Valid until: 09/10/2021

Dr. Massimo Borsini

Dr. Luca Ermini



Questo documento deve essere letto congiuntamente ai Rapporti di Prova sopra riportati, per la descrizione del prodotto e per ogni altra notizia di dettaglio.

Questo documento non costituisce approvazione di tipo né certificazione di prodotto né tantomeno dichiarazione di conformità, che spetta esclusivamente al Produttore / Sponsor. Il riconoscimento Certifer si riferisce alle prove di EN 45545-2 riportate nella lista pubblicata.

This document has to be read in conjunction with the Test Reports listed above, for the description of the product and for every other detail.
This document does not represent type approval or certification of the product neither declaration of compliance, that is exclusively under the responsibility of the Manufacturer or Sponsor. The Certifer approval refers to the tests according to EN 45545-2 reported in the published list.

RAPPORTO DI PROVA NO. 1688.1IS0050/16

Test Report no.

METODO DI PROVA:

Test method

UNI EN 45545-2: 2015

DENOMINAZIONE DELLA PROVA:

Description of the standard

Requisiti di comportamento al fuoco di materiali e componenti
Requirements for fire behaviour of materials and components

TITOLO DEL METODO:

Method title

NF X 70-100-1/-2

Determinazione del CIT_{NLP} / CIT_{NLP} determination

RICHIEDENTE:

Sponsor

NetModule AG

Meriedweg 11

3172 Niederwangen (Switzerland)

DENOMINAZIONE DEL MATERIALE:

Denomination of the material

MC Board V3.1

SPESSORE NOMINALE DEI CAMPIONI:

Nominal thickness of the samples

1.6 mm

DATA RICEVIMENTO CAMPIONI:

Date of the samples receipt

22/09/2016

☐ Il presente Rapporto di Prova è costituito da / This Test Report consists of:

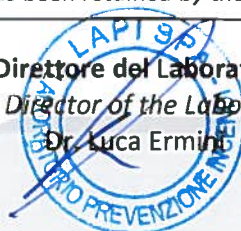
- no. 3 pagine (compresa questa prima pagina) / no. 3 pages (including this one).
- no. 2 allegati / no. 2 annexed.

☐ I risultati riportati in questo Rapporto si riferiscono esclusivamente al materiale sottoposto a prova fornito dal Richiedente (rif. codice Laboratorio no. 1688/16). Un campione del materiale è stato conservato dal Laboratorio.

The results reported in this Report refer exclusively to the material submitted to test sent by the Sponsor (ref. Laboratory code no. 1688/16). A sample of the material has been retained by the Laboratory.

Prato, 10/10/2016

Il Direttore del Laboratorio
The Director of the Laboratory
Dr. Luca Ermini



DESCRIZIONE DEL MATERIALE

Description of the material

Aspetto: scheda elettronica (PCB). La scheda come ricevuta dal Richiedente ha dimensioni massime nominali di 100x160 mm e spessore di circa 1,6 mm, ricavati dal Laboratorio.

Appearance: electronics board (PCB). The board as received by the Sponsor has nominal maximum dimensions of 100x160 mm and thickness about 1,6 mm, obtained by the Laboratory.

Composizione e dati tecnici / Composition and technical data:

Composizione / Composition (*): vedi dati tecnici allegati / See datasheets annexed.

Spessore / Thickness (*): 1,565 mm.

Lato esposto (*): indifferente (non identico ma equivalente).

Side exposed (): either (not identical but equivalent).*

Impiego (*): scheda elettronica montata all'interno di un dispositivo per telecomunicazioni.

End use (): electronics board mounted inside of the telecommunication device.*

Posa in opera (*): inserito dentro un contenitore d'alluminio.

Laying mode (): inserted into an aluminium case.*

(*) - Informazioni fornite dal Richiedente / Information supplied by the Sponsor.

Nota: per la composizione si rimanda alle schede di controllo di lavorazione gestite dal sistema di qualità dell'azienda e alla dichiarazione di conformità allegata.

Note: the composition is referred to the sheets of workmanship control managed by the quality system of the Company and to declaration of conformity annexed.

DESCRIZIONE DELLA PROCEDURA DI CAMPIONAMENTO

Description of the sampling procedure

Il campionamento del materiale (PCB) è stato effettuato a cura del Richiedente dal lotto di produzione n° Pro_NB3700_06 c/o lo stabilimento di Teltronic AG sito in Gewerbstrasse 9 - CH-4562 Biberist (Switzerland), in data 16 Settembre 2016, come da dichiarazione allegata.

Il Laboratorio non è stato coinvolto in alcuna operazione di campionamento della produzione.

The sampling of the material (PCB) has been effected by the Sponsor from the production batch n° Pro_NB3700_06 c/o the factory of Teltronic AG located in Gewerbstrasse 9 - CH-4562 Biberist (Switzerland), on date 16th September 2016, as indicated in the declaration annexed.

The Laboratory has not been involved in any sampling procedure of the material from the production.

DESCRIZIONE DELLA COSTRUZIONE E PREPARAZIONE DEI PROVINI

Description of the construction and preparation of the specimen

I provini sono stati ottenuti dal Laboratorio dal materiale inviato dal Richiedente. Essi non sono stati sottoposti ad alcuna operazione preliminare alla prova diversa dal condizionamento previsto dalla norma.

The specimens have been obtained by the Laboratory from the material sent by the Sponsor. They have not been submitted to any operation prior being tested except for the conditioning prescribed by the standard.

DESCRIZIONE GENERALE DELLA EFFETTUAZIONE DELLA PROVA

General description of the execution of the test

La prova è stata effettuata secondo quanto descritto in AFNOR NF X 70-100-1 e -2 come richiamata da UNI EN 45545-2: 2015, temperatura di prova 600°C.

The test has been effected according to the prescriptions AFNOR NF X 70-100-1 and -2 as recalled by UNI EN 45545-2: 2015, test temperature 600°C.

LUOGO E DATA PROVA: Prato, 04/10/2016

Place and test date

Operatore / Operator
Dr. Francesca Scardano



RISULTATI / RESULTS

I risultati si riferiscono solo al comportamento di provini del prodotto nelle condizioni particolari definite dal presente metodo di prova; essi non devono essere considerati come il solo criterio per valutare il pericolo potenziale legato alla produzione di fumo nelle condizioni di uso del materiale.

These results relate only to the behaviour of the specimens of the product under the particular conditions of the test; they are not intended to be the sole criterion for assessing the potential smoke obscuration hazard of the material in use.

Specie gassosa Gas component	Concentrazione di riferimento Reference concentration Ci (mg/m ³)	Massa gassosa emessa relativa Relative emitted mass ci (mg/g)	Limiti di quantificazione Quantification limits (mg)
CO ₂	72000	801	87
CO	1380	113	9
HF	25	< 1	1
HCl	75	< 1	1
HBr	99	7	1
HCN	55	2	1
SO ₂	262	< 1	1
NO _x	38	< 1	1
CIT _{NLP} = $\sum ci/Ci$ = 0.20			

Foto / Photos

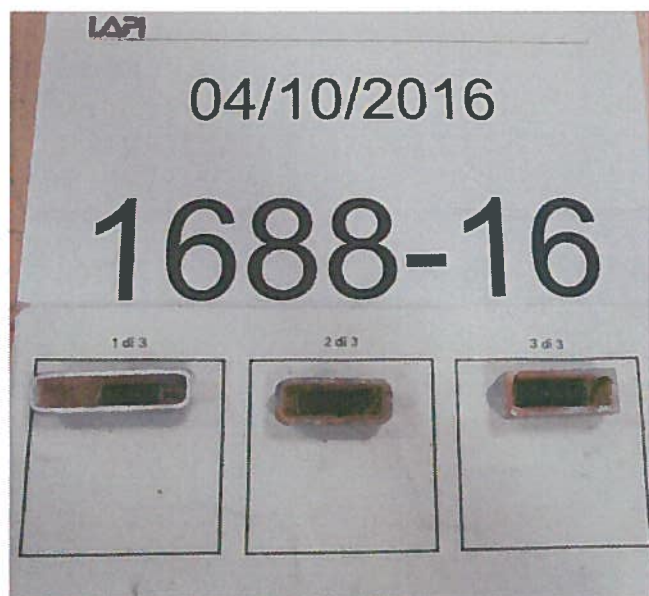


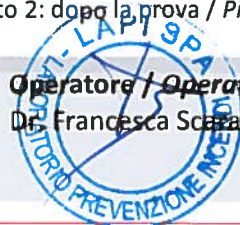
Foto 1: prima della prova / Picture 1: before testing



Foto 2: dopo la prova / Picture 2: after testing

LUOGO E DATA PROVA: Prato, 04/10/2016
Place and test date

Operatore / Operator
Dr. Francesca Scarpino





LABORATORY TESTS REQUEST

to send back to LA.P.I. filled in one for each specimen

Responsible Person to contact : Thomas Siegrist

Page 1/2

TEST REQUEST HEADING (full address): NetModule AG Meriedweg 11 3172 Niederwangen Switzerland	INVOICE HEADING (full address): NetModule AG Meriedweg 11 3172 Niederwangen Switzerland
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COMMERCIAL NAME OF THE ARTICLE ¹⁾:
NB3701 / NB3711 / NB3800 PCBs, MC Board V4.2 and MC Board V3.1

Technical data of the specimen ²⁾: (see annexed sheet for stratified and composite materials)

Composition (%): see datasheets

Appearance: 100 x 160mm Colour: green

Thickness (mm): 1.565mm Weight (g/m²): Density (kg/m³):

Possible fire retardant treatment: none

The specimen is ☐ Isotropic ☒ Anisotropic

The specimen usually composes a side in view (Yes/No): No

The two sides are identical (Yes/No): No

If the two sides are not identical, identify which of the two must be tested: both

End use of the article: (CURTAIN, WALL, FLOOR, CEILINGS, etc...) telecommunication device

Laying of the article (if stuck specify the type of glue g/m²): inserted into an aluminium case

REQUESTED TESTS ON THE SPECIMEN ³⁾: EN 45545-2:2015 Product Number EL9 and Requirement Set R25 + Citnlp ✓ Hazard Level 3	IN ACCORDANCE TO SPEC. N. ³⁾ SEE EN 45545-2:2015, TABLE 7 REQUEST FOR MEASUREMENT UNCERTAINTY (ANNEXED TO THE TEST REPORT ⁶⁾): YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>
--	--

NOTES ON THE SPECIMEN (POSSIBLE DEROGATIONS ³⁾) :

TO BE FILLED ONLY IN CASE OF TRANSPORTATION FIELD TESTS :

SAFETY DATA SHEET	N° WE_YellowCard.pdf, WE_Brand- und Rauchgastest für Bahn und Luftfahrt.pdf
TECHNICAL DATA SHEET	N° WE_Material_Datenblatt_TG135.pdf
BATCH	N° Pro_NB3700_06 Date 16.9.2016

Date

26.9.2016

Stamp and signature of Responsible

Notes (to be read to fill this form):

- 1) The commercial name of the article represents the exact name that will be written on the Test Report. It has to be univocal and match exactly to possible names written on the specimen. LA.P.I. reserves itself the right to not accept specimen whose identification is unclear or ambiguous.
- 2) Technical data reported below will be written on the Test Report as indicated by the reference specification. The side to be tested has to be clearly identified, marking it in a suitable way if possible.
- 3) List the tests to perform and their reference methods. If the tests have the purpose to verify the matching of a specimen to a specification, it is useful to mention it in this field and to enclose a copy of the specification. If not specified, we assume the request refers to the latest valid edition of the specification. Indicate in this field possible derogations to the method or supplementary procedures to apply during the test. Every derogation and/or supplementary procedure will be referred and described on the Test Report. In methods expecting a preliminary treatment of the specimen, indicate only if you don't want those treatments to be performed on the sample.
- 4) In case UNI EN ISO 3386 "Resistance to compression of low density materials" has to be effected, the material has to be sent to the Laboratory not before 72 hours from its production.
- 5) The evaluation performed by the Laboratory does not involve the approval of the product neither by the Laboratory nor by the Accreditation Body. Moreover, the mark of the Accreditation Body or any reference to the accreditation of the Laboratory shall not be used by the Customer in any way, and in particular shall not be reported in the product documentation on the product itself. A copy of the Test Report can be attached.
- 6) The Responsibility of LAPI SpA is limited to the value of the activities regarding tests requested
- 7) In case LAPI can not finish the tests for technical reasons attributable to LAPI SpA, tests will not be charged and no recourse in terms of additional costs will be due in respect of LAPI SpA
- 8) LAPI SpA submitted to test a prototype and LAPI is not responsible, in the event of a negative result of the test, of the previous marketing in case of non-compliance.



NetModule AG
Meriedweg 11
3172 Niederwangen

Datenblatt Standard FR4 TG135

Klassifizierung in Anlehnung an die IPC-4101/21



Trägermaterial : E-Glasgewebe
Harzsystem : Epoxy, ungefüllt

Erläuterungen :
C = Vorbehandlung bei Feuchtigkeit
E = Vorbehandlung bei Temperatur

Die hinter den Kennbuchstaben folgenden Zahlengruppen geben in der ersten Zahl die Dauer der Vorbehandlung in Stunden an, in der zweiten die Zahl der Vorbehandlungstemperatur in °C und in der dritten Zahl die relative Luftfeuchtigkeit

Laminatanforderung	Dicke < 0,50mm		Dicke ≥ 0,5mm		Einheit	Meßmethode
	typische Werte	Spezifikation	typische Werte	Spezifikation		
Haftfestigkeit, minimal A Low Profile Kupferfolie und Very low Profile Kupferfolie- alle Kupfergew. > 17µm B Standard Profil Kupferfolie 1 nach Wärmeschock 2 bei 125°C 3 nach Lagerung in Prozesslösungen C Alle anderen Folien-Arten/Typen	0,9	0,70	0,95	0,70		2 4 8
	1,05	0,80	1,20	1,05	N/mm	2 4 8 2
	0,95	0,70	1,15	0,70		2 4 8 3
	0,8	0,55	1,0	0,80		2 4 8
		AABUS		AABUS		
spez. Durchgangswiderstand, minimal A C 96/35/90 B nach Klimalagerung C bei erhöhter Temperatur E-24/125	4 10 ⁶	10 ⁶	6 10 ⁶			
			4 10 ⁶	10 ⁶	MΩ cm	2 5 17 1
Oberflächenwiderstand minimal A C 96/35/90 B nach Klimalagerung C bei erhöhter Temperatur E-24/125	7 10 ⁶	10 ³	7 10 ⁶	10 ³		
					MΩ	2 5 17 1
Feuchteaufnahme maximal	0,4		0,4	0,80	%	
Durchschlagfestigkeit, minimal			60	40	kV	2 5 6
Dielektrizitätszahl @ 1MHz (Laminat und laminierte Prepregs)	4,2-4,6	5,4	4,6-4,9	5,4		2 5 5 2 2 5 5 3 2 5 5 9
Dielektrischer Verlustfaktor @ 1MHz (Laminat und laminierte Prepregs)	0,015-0,02	0,035	0,015-0,02	0,035		2 5 5 2 2 5 5 3 2 5 5 9
Biegefestigkeit, minimal A Längsrichtung B Querrichtung			440 400	415 345	N/mm ²	2 4 4
			105	60	s	2 5 1
Lichtbogenwiderstandsvermögen, minimal	105	60	105	60		
Wärmeschock 10 s @288°C, minimal ungeätzt geätzt	erfüllt	visuell bestehen	erfüllt	visuell bestehen	Bewertung	2 4 13 1
	erfüllt	visuell bestehen	erfüllt	visuell bestehen		
Spannungsfestigkeit, minimal (Laminat und laminierte Prepregs)	40	30			kV/mm	2 5 6 2
Entflammbarkeit (Laminat und laminierte Prepregs)	V0	mind V0	V0	mind V0	Bewertung	UL94
Halogengehalt, maximal Chlor Brom Chlor + Brom	-		-		ppm	2 3 4 1
	-		-			
	-		-			
Glasübergangstemperatur			135	mind 110	°C	2 4 24
Zersetzungstemperatur			310	-	°C	2 4 24 6 (5% Gewichtsverlust)
Z-Achsen CTE A Alpha 1 B Alpha 2 C 50°C - 250°C		-		-	ppm/°C	
		-		-	ppm/°C	
		-	3 8 4 2	-	%	2 4 24
Delaminierungszeit (TMA) (Kupfer entfernen) A T260 B T288 C T300		-	15	-		2 4 24 1 und entsprechend Anpassungen in 3 10 1 2
		-		-	Minuten	
		-		-		
Sonstiges CTI			3		Klasse	UL



FAC-SIMIL MODEL

TO BE COMPILED ON COMPANY'S HEADED PAPER

The undersigned

Thomas Siegrist

in his/her capacity of legal representative of the Company **NetModule AG**

declares that the sampling named

NB3701 / NB3711 / NB3800 MC Board V4.2 and MC Board V3.1

and sent to be tested

was taken from the production batch n°

Pro_NB3700_06

c/o the factory

**Teltronic AG
Gewerbestrasse 9
CH-4562 Biberist
Switzerland**

on (day:) **16** (month:) **September** (year:) **2016**

safety sheet n° (to be annexed with stamping):

WE_YellowCard.pdf

WE_Brand- und Rauchgastest für Bahn und Luftfahrt.pdf

technical data sheet n° (to be annexed with stamping)

WE_Material_Datenblatt_TG135.pdf

Date, **19.9.2016**

Signature

NOTE: IF THE REQUIRED DATA WERE NOT AVAILABLE, SUPPLY AS MANY DETAILS AS POSSIBLE IN ORDER TO IDENTIFY THE MATERIAL THE SAMPLING WAS TAKEN FROM



LAPI LABORATORIO PREVENZIONE INCENDI S.p.A.
I-59100 PRATO - Loc. La Querce - Via della Quercia, 11
Tel. +39 0574 575320 - Fax +39 0574 575323
e.mai: lapi@laboratoriolapi.it
web site: www.laboratoriolapi.it



- ORGANISMO NOTIFICATO IN CONFORMITÀ A REGOLAMENTO PRODOTTI DA COSTRUZIONE 305/2011/EU
- ORGANISMO NOTIFICATO IN CONFORMITÀ A DISPOSITIVI DI PROTEZIONE INDIVIDUALE DIR. 89/586/CEE
- ORGANISMO NOTIFICATO DIRETTIVA NAVALE MED 96/98 EC
- MEMBRO EGOLF e UNIFER
- RICONOSCIUTO USCG ADMINISTRATION
- RICONOSCIUTO CERTIFER
- RICONOSCIUTO ITALCERTIFER
- CERTIFICATO REGISTRO AERONAUTICO ENAC CIT 1013/L
- AUTORIZZAZIONE MINISTERO INTERNO D.M. 26/03/85
- ACCREDITATO ACCREDIA N 0086
- RICONOSCIUTO DIR. 96/98 EC MARINE EQUIPMENT - BUREAU VERITAS - DNV - LLOYD'S REGISTER
- PROVE SU AUTOVEICOLI AI SENSI DELLA DIRETTIVA 95/28 CE E REG. 118
- AUTORIZZATO BHF CALIFORNIA, CARB CALIFORNIA, CPSC USA
- AUTORIZZATO VKF SVIZZERA E EBA GERMANIA

Spettabile
NetModule AG
Meriedweg 11
3172 Niederwangen (Switzerland)



Prato, 10/10/2016
Rif. 1655/16/AC

In riferimento alle Vs. richieste, Vi rimettiamo in allegato ns. Rapporto di Prova in doppia lingua (italiano/inglese), contenente i risultati della prova effettuata su Vs. materiale:

With reference to your order, please find enclosed our Test Report in double language (italian/english), containing the results of the test effected on your material:

Denominazione commerciale <i>Trade name</i>	Metodo di Prova <i>Test method</i>	Rif. Laboratorio <i>Laboratory Ref.</i>
NB3701 / NB3711 / NB3800 Power & Data Cable protetto con / <i>protected with</i> Heat Shrink Tube Versafit	CEI EN 60332-1-2:2006 + CEI EN 60332-1-1:2006, EN 60332-1-2:2004 + EN 60332-1-1:2004 Prova di non propagazione della fiamma su un singolo conduttore o cavo isolato <i>Test for resistance to vertical flame propagation for a single insulated conductor or cable</i>	1689/16

Distinti saluti,
Best Regards

LAPI S.p.A.



RAPPORTO DI PROVA NO. 1689.OCI0010/16

Test Report no.

METODO DI PROVA:

Test method

CEI EN 60332-1-2:2006 + CEI EN 60332-1-1:2006,
EN 60332-1-2:2004 + EN 60332-1-1:2004

DENOMINAZIONE DELLA PROVA:

Denomination of the test

Prova di non propagazione della fiamma su un singolo conduttore o cavo isolato
Test for resistance to vertical flame propagation for a single insulated conductor or cable

RICHIEDENTE:

Sponsor

NetModule AG
Meriedweg 11
3172 Niederwangen (Switzerland)

DENOMINAZIONE DEL MATERIALE:

Denomination of the material

NB3701 / NB3711 / NB3800 Power & Data Cable
protetto con / protected with Heat Shrink Tube Versafit

DATA RICEVIMENTO CAMPIONI:

Date of the samples receipt

22/09/2016

☐ Il presente Rapporto di Prova è costituito da / This Test Report consists of:

- no. 4 pagine (compresa questa prima pagina) / no. 4 pages (including this one).
- no. 2 allegati / no. 2 annexes.

☐ I risultati riportati in questo Rapporto si riferiscono esclusivamente al materiale sottoposto a prova fornito dal Richiedente (rif. codice Laboratorio no. 1689/16). Un campione del materiale è stato conservato dal Laboratorio.

The results reported in this Report refer exclusively to the material submitted to test sent by the Sponsor (ref. Laboratory code no. 1689/16). A sample of the material has been retained by the Laboratory.

Prato, 10/10/2016

Il Direttore del Laboratorio
The Director of the Laboratory
Dr. Luca Ermini



DESCRIZIONE DEL MATERIALE

Description of the material

Aspetto: cavi inguainati in guaina di colore nero, conduttori interni in vari colori, con diametro esterno di $\approx 1,5$ mm e di $\approx 4,5$ mm; misure e diametri ricavati dal Laboratorio.

Appearance: cables sheathed with black sheath, internal conductors in various colours with an outer diameter of $\approx 1,5$ mm and $\approx 4,5$ mm; measurements and diameter obtained by the Laboratory.

Peso ricavato dal Laboratorio / *Weight obtained by the Laboratory:* ≈ 7.5 e / and ≈ 40 g/m lineare / lineal.

Composizione e dati tecnici / Composition and technical data:

Composizione / *Composition* (*): si rimanda alle schede tecniche fornite dal Richiedente / *reference to be made to the technical data sheet supplied by the Sponsor.*

Cavo / *Cable* (*): Flush-type connector - SACC-E-MS-4CON-M16/0,5 SCO by Phoenix Contact

Lato esposto / *Side exposed* (*): indifferente (guaina) / *either (sheath).*

Guaina Termorestringente a protezione dei conduttori / *Heat shrinking tube protecting the conductors* (*)
Versafit by Raytronics AG.

(*) - Informazioni fornite dal Richiedente / *Information supplied by the Sponsor.*

Nota: per la composizione si rimanda alle schede di controllo di lavorazione gestite dal sistema di qualità dell'azienda e alla dichiarazione di conformità allegata.

Note: *the composition is referred to the sheets of workmanship control managed by the quality system of the Company and to declaration o conformity annexed.*

DESCRIZIONE DELLA PROCEDURA DI CAMPIONAMENTO

Description of the sampling procedure

Il campionamento del materiale (PCB) è stato effettuato a cura del Richiedente dal lotto di produzione n° Pro_NB3700_06 c/o lo stabilimento di Teltronic AG sito in Gewerbestrasse 9 - CH-4562 Biberist (Switzerland), in data 16 Settembre 2016, come da dichiarazione allegata.

Il Laboratorio non è stato coinvolto in alcuna operazione di campionamento della produzione.

The sampling of the material (PCB) has been effected by the Sponsor from the production batch n° Pro_NB3700_06 c/o the factory of Teltronic AG located in Gewerbestrasse 9 - CH-4562 Biberist (Switzerland), on date 16th September 2016, as indicated in the declaration annexed.

The Laboratory has not been involved in any sampling procedure of the material from the production.

PREPARAZIONE E CONDIZIONAMENTO

Preparation and conditioning

Preparazione e condizionamento dei provini sono stati eseguiti in conformità agli standard in oggetto.

Preparation and conditioning of the specimens have been effected according to the standard in object.

DATA PROVA: 03/10/2016

Test date

Operatore / Operator
Ing. Fabio Crocetta



LUOGO E DATA DI SVOLGIMENTO DELL'ATTIVITÀ DI PROVA

Place and test date

L'attività di prova è stata effettuata in data 03/10/2016 presso la sede principale del Laboratorio (Via della Quercia, 11 - Prato).

The test has been effected on date 03/10/2016 c/o the principal place of the Laboratory (Via della Quercia, 11 - Prato).

PROCEDIMENTO DI PROVA

Test procedure

La prova è stata eseguita in conformità allo standard citato. Poiché non è possibile ottenere una lunghezza di cavo continuo di circa 600 mm, gli spezzoni di cavo forniti dal Richiedente sono stati giuntati a mezzo di filo metallico in modo da garantire la continuità di propagazione della fiamma.

Il Richiedente ha fornito gli spezzoni di cavo già protetti dalla guaina Versafit.

The test has been effected according to the cited standard. As it is not possible to obtain a length of continuous cable of about 600 mm, the pieces of the cable supplied by the Sponsor have been joined by means of metallic wire in order to ensure the continuity of flame propagation.

The Sponsor has supplied the pieces of cable already protected by tubing Versafit.

DEROGHE INDICATE DAL RICHIEDENTE, EFFETTUATE DAL LABORATORIO

Variations indicated by the Sponsor, effected by the Laboratory.

Nessuna / None.

RISULTATO / RESULT

Distanza tra il bordo inferiore del supporto superiore ed il limite superiore della zona bruciata:

Distance between the lower edge of the top support and the upper onset of charring:

393 mm

Distanza tra il bordo inferiore del supporto superiore ed il limite inferiore della zona bruciata:

Distance between the lower edge of the top support and the lower onset of charring:

494 mm

Nota / Note

Risultano soddisfatti i requisiti prescritti da UNI EN 45545-2 per la prova in oggetto.

The requirements prescribed by UNI EN 45545-2 for the standard in object are fulfilled.

DATA PROVA: 03/10/2016

Test date

Operatore / Operator
Ing. Fabio Crocetta



Foto / Photos

CEI EN 60332-1

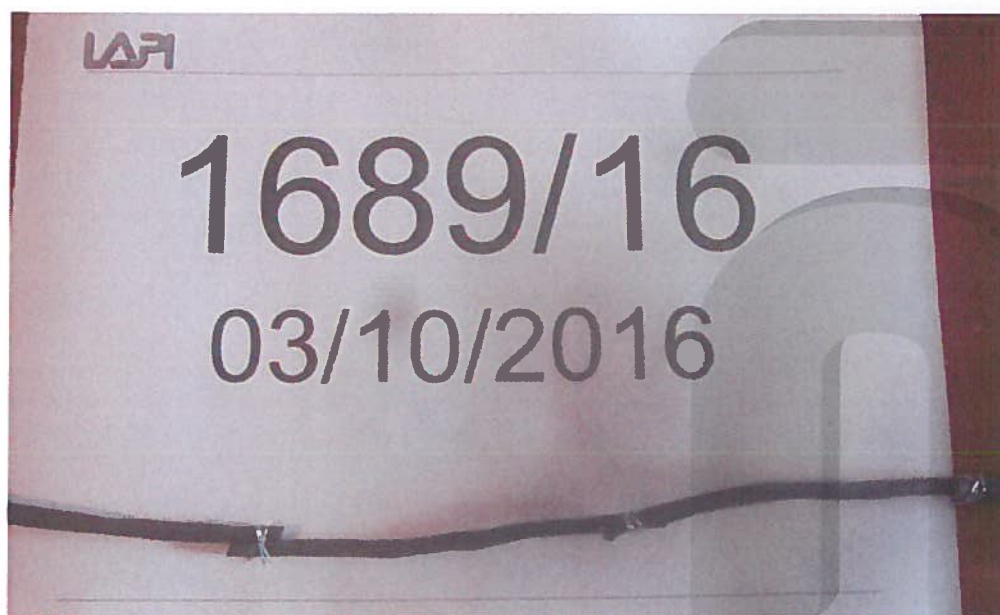


Foto 1: prima della prova
Picture 1: before testing



Foto 2: durante la prova
Picture 2: during the test



Foto 3: dopo la prova
Picture 3: after testing

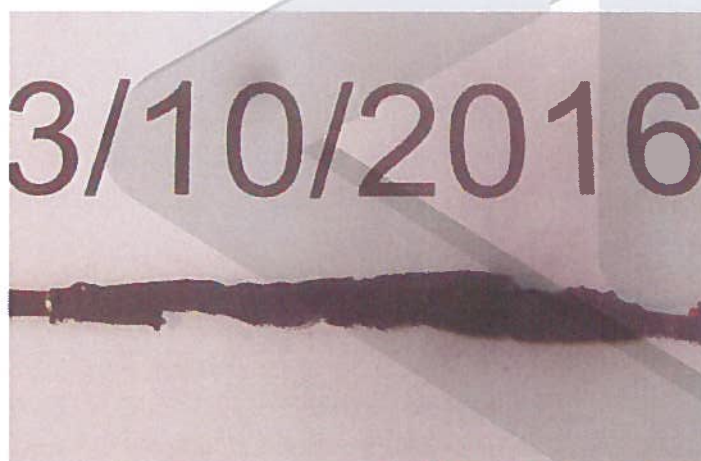


Foto 4: dopo la prova, dettaglio
Picture 4: after testing, detail

DATA PROVA: 03/10/2016
Test date

Operatore / Operator
Ing. Fabio Crocetta





LABORATORY TESTS REQUEST

to send back to LA.P.I. filled in one for each specimen

Responsible Person to contact : Thomas Siegrist

Page 1/2

TEST REQUEST HEADING (full address):

NetModule AG
Meriedweg 11
3172 Niederwangen
Switzerland

INVOICE HEADING (full address):

NetModule AG
Meriedweg 11
3172 Niederwangen
Switzerland

COMMERCIAL NAME OF THE ARTICLE ¹⁾:

NB3701 / NB3711 / NB3800 Power & Data Cable

Technical data of the specimen ²⁾: (see annexed sheet for stratified and composite materials)

Composition (%): unknown

Appearance: various length Colour: several

Thickness (mm): 1.2mm Weight (g/m²): Density (kg/m³):

Possible fire retardant treatment: none

The specimen is ☐ Isotropic ☒ Anisotropic

The specimen usually composes a side in view (Yes/No): No

The two sides are identical (Yes/No): n/a

If the two sides are not identical, identify which of the two must be tested: n/a

End use of the article: (CURTAIN, WALL, FLOOR, CEILINGS, etc...) telecommunication device

Laying of the article (if stuck specify the type of glue g/m²): inserted into an aluminium case

REQUESTED TESTS ON THE SPECIMEN ^{3) 5)}

EN 45545-2:2015

Product Number EL1a

Requirement Set R15

Hazard Level 3

IN ACCORDANCE TO SPEC. N. ³⁾

SEE EN 45545-2:2015, TABLE 7

REQUEST FOR MEASUREMENT UNCERTAINTY (ANNEXED TO THE TEST REPORT ⁶⁾): YES ☐ NO ☒

NOTES ON THE SPECIMEN (POSSIBLE DEROGATIONS ³⁾):

TO BE FILLED ONLY IN CASE OF TRANSPORTATION FIELD TESTS :

SAFETY DATA SHEET

N° not available

TECHNICAL DATA SHEET

N° Connector & cable: Phoenix Contact 1523450 (SACC-E-MS-4CON-M16/0,5 SCO), 1523476 (SACC-E-F5-8CON-M16/0,5 SCO)

Heat shrink tube: Raytronics VERSAFIT-1-0, VERSAFIT-1-1/4, VERSAFIT-1/4, VERSAFIT-3/16-0

BATCH

N° Pro_NB3700_06 Date 16.9.2016

Date

26.9.2016

Stamp and signature of Responsible

Notes (to be read to fill this form):

- 1) The commercial name of the article represents the exact name that will be written on the Test Report. It has to be univocal and match exactly to possible names written on the specimen. LA.P.I. reserves itself the right to not accept specimen whose identification is unclear or ambiguous.
- 2) Technical data reported below will be written on the Test Report as indicated by the reference specification. The side to be tested has to be clearly identified, marking it in a suitable way if possible.
- 3) List the tests to perform and their reference methods. If the tests have the purpose to verify the matching of a specimen to a specification, it is useful to mention it in this field and to enclose a copy of the specification. If not specified, we assume the request refers to the latest valid edition of the specification. Indicate in this field possible derogations to the method or supplementary procedures to apply during the test. Every derogation and/or supplementary procedure will be referred and described on the Test Report. In methods expecting a preliminary treatment of the specimen, indicate only if you don't want those treatments to be performed on the sample.
- 4) In case UNI EN ISO 3386 "Resistance to compression of low density materials" has to be effected, the material has to be sent to the Laboratory not before 72 hours from its production.
- 5) The evaluation performed by the Laboratory does not involve the approval of the product neither by the Laboratory nor by the Accreditation Body. Moreover, the mark of the Accreditation Body or any reference to the accreditation of the Laboratory shall not be used by the Customer in any way, and in particular shall not be reported in the product documentation on the product itself. A copy of the Test Report can be attached.
- 6) The Responsibility of LAPI SpA is limited to the value of the activities regarding tests requested

<https://www.phoenixcontact.com/us/products/1523450>

NetModule AG
Meriedweg 11
3172 Niederwangen



Flush-type connector - SACC-E-MS-4CON-M16/0,5 SCO - 1523450

Please be informed that the data shown in this PDF Document is generated from our Online Catalog. Please find the complete data in the user's documentation. Our General Terms of Use for Downloads are valid (<http://phoenixcontact.com/download>)



Flush-type connector, Universal, 4-position, PlugLink:straightLink:M12-SPEEDCON, A-coded, Front mounting, M16 x 1.5, Individual wires, Cable length: 0.5 m

Product Features



Key commercial data

Packing unit	1 pc
Weight per Piece (excluding packing)	19.2 GRM
Custom tariff number	85444290
Country of origin	Germany

Technical data

Dimensions

Length of cable	0.5 m
-----------------	-------

Ambient conditions

Ambient temperature (operation)	-25 °C ... 85 °C (Plug / socket)
	-40 °C ... 85 °C (without mechanical actuation)
Degree of protection	IP67

General

Note	The electrical and mechanical data specified assume that the connector pair is correctly locked and mounted. If the connector is unlocked and if there is a danger of contamination, the connector must be sealed using a protective cap > IP54. Influences arising from litz wires, cables or PCB assembly must also be taken into consideration.
Rated current at 40°C	4 A
Rated voltage	250 V



<https://www.phoenixcontact.com/us/products/1523476>

NetModule AG
Meriedweg 11
3172 Niederwangen



Flush-type connector - SACC-E-FS-8CON-M16/0,5 SCO - 1523476

Please be informed that the data shown in this PDF Document is generated from our Online Catalog. Please find the complete data in the user's documentation. Our General Terms of Use for Downloads are valid (<http://phoenixcontact.com/download>)



Sensor/Actuator flush-type socket, 8-pos., M12-SPEEDCON, A-coded, front/screw mounting with M16 thread, with 0.5 m TPE litz wire, 8 x 0.25 mm²

Product Features



Key commercial data

Packing unit	1 pc
Weight per Piece (excluding packing)	26.0 GRM
Custom tariff number	85444290
Country of origin	Germany

Technical data

Dimensions

Length of cable	0.5 m
-----------------	-------

Ambient conditions

Ambient temperature (operation)	-25 °C ... 85 °C (Plug / socket)
Degree of protection	IP67

General

Note	The electrical and mechanical data specified assume that the connector pair is correctly locked and mounted. If the connector is unlocked and if there is a danger of contamination, the connector must be sealed using a protective cap > IP54. Influences arising from litz wires, cables or PCB assembly must also be taken into consideration.
Rated current at 40°C	2 A
Rated voltage	30 V
Rated surge voltage	0.8 kV



NetModule AG
Meriedweg 11
3172 Niederwangen

Heat Shrinking Tube

Raytronics AG

**Highly Flame-Retardant,
Very Flexible, Low-Shrink-
Temperature, Polyolefin
Tubing**

Product Facts

- 2:1 shrink ratio
- Low shrink temperature reduces installation time and the risk of damage to temperature-sensitive components
- Very flexible; doesn't easily wrinkle when bent
- Highly flame-retardant
- Hot stamps extremely well
- Higher temperature rating, better thermal stability, and higher resistance to physical abuse than noncrosslinked materials
- Free of polybrominated biphenyls (PBBs) and polybrominated biphenyl oxides and ethers (PBBOs and PBBEs), which are classified as environmentally hazardous substances



Applications

Cost-effective choice for many commercial and military applications, electrically insulates and protects in-line components, disconnect terminals, and splices. Bundles wires for very flexible light-duty harnesses. Strain-relieves electrical wire connections for commercial applications. Identifies or color-codes wires, cables, terminals, and components.

Installation

Minimum shrink temperature: 70°C [158°F]
Minimum full recovery temperature: 90°C [194°F]

Operating Temperature Range

-55°C to 135°C
[-67°F to 275°F]

Specifications/Approvals

Series	UL 	CSA 	Military	Raychem
Versafit	E35586 VW-1 600 V, 125°C	LR31929 VW-1 600 V, 125°C	AMS-DTL-23053/5* Classes 1 & 3	RW-3009

*Formerly MIL-I-23053/5 and MIL-DTL-23053/5



Heat Shrinking Tube

NetModule AG
Meriedweg 11
3172 Niederwangen **Raytronics AG**

Product Dimensions

Size	Inside Diameter		Recovered Wall Thickness** After Heating
	Expanded as Supplied	Maximum Recovered After Heating	
3/64	1.63 ± 0.2 [0.064 ± 0.008]	0.6 [0.023]	0.40 ± 0.08 [0.016 ± 0.003]
1/16	1.85 ± 0.2 [0.073 ± 0.008]	0.8 [0.031]	0.43 ± 0.08 [0.017 ± 0.003]
3/32	2.79 ± 0.2 [0.110 ± 0.008]	1.2 [0.046]	0.51 ± 0.08 [0.020 ± 0.003]
1/8	3.43 ± 0.2 [0.135 ± 0.008]	1.6 [0.062]	0.51 ± 0.08 [0.020 ± 0.003]
3/16	5.21 ± 0.3 [0.205 ± 0.010]	2.4 [0.093]	0.51 ± 0.08 [0.020 ± 0.003]
1/4	7.11 ± 0.3 [0.280 ± 0.010]	3.2 [0.125]	0.64 ± 0.08 [0.025 ± 0.003]
3/8	10.16 ± 0.4 [0.400 ± 0.015]	4.8 [0.187]	0.64 ± 0.08 [0.025 ± 0.003]
1/2	13.72 ± 0.4 [0.540 ± 0.015]	6.4 [0.250]	0.64 ± 0.08 [0.025 ± 0.003]
5/8***	16.90 ± 0.4 [0.665 ± 0.015]	8.0 [0.315]	0.76 ± 0.08 [0.030 ± 0.003]
3/4	20.45 ± 0.4 [0.805 ± 0.015]	9.5 [0.375]	0.76 ± 0.08 [0.030 ± 0.003]
1	25.53 ± 0.4 [1.055 ± 0.015]	12.7 [0.500]	0.89 ± 0.12 [0.035 ± 0.005]
1 1/4***	33.40 ± 0.7 [1.315 ± 0.025]	15.9 [0.625]	1.02 ± 0.15 [0.040 ± 0.006]
1 1/2	39.88 ± 0.8 [1.570 ± 0.030]	19.1 [0.750]	1.02 ± 0.15 [0.040 ± 0.006]
2	52.83 ± 1.0 [2.080 ± 0.040]	25.4 [1.000]	1.14 ± 0.16 [0.045 ± 0.007]
3	78.49 ± 1.0 [3.090 ± 0.040]	38.1 [1.500]	1.27 ± 0.20 [0.050 ± 0.008]
4	104.14 ± 1.3 [4.100 ± 0.050]	50.8 [2.000]	1.40 ± 0.23 [0.055 ± 0.009]

**Wall thickness will be less if tubing recovery is restricted during shrinkage

***Nonstandard size, available by special order only

Ordering Information

Color	Standard	Black (-0), white (-9), red (-2), blue (-6), yellow (-4), green (-5)
	Nonstandard	Brown (-1), orange (-3), violet (-7), gray (-8)
Size selection	Always order the largest size that will shrink snugly over the component to be covered Special order sizes are available upon request.	
Standard packaging****	On spools	
Ordering description*****	Specify product name, size and color (for example, Versalit 1/4-0)	

****Available in the convenient RaySpool packaging/dispensing system, for sizes 1/16" up to 1"

*****Europe only For supply to MIL, Def Stan and BS add -MS, -DS or -BS to ordering description



FAC-SIMIL MODEL

TO BE COMPILED ON COMPANY'S HEADED PAPER

The undersigned

Thomas Siegrist

in his/her capacity of legal representative of the Company **NetModule AG**

declares that the sampling named

NB3701 / NB3711 / NB3800 Power & Data Cable

and sent to be tested

was taken from the production batch n°

Pro_NB3700_06

c/o the factory

**Teltronic AG
Gewerbestrasse 9
CH-4562 Biberist
Switzerland**

on (day:) **16** (month:) **September** (year:) **2016**

safety sheet n° (to be annexed with stamping):
not available

technical data sheet n° (to be annexed with stamping)
**Connector & cable: Phoenix Contact 1523450 (SACC-E-MS-4CON-M16/0,5 SCO),
1523476 (SACC-E-FS-8CON-M16/0,5 SCO)
Heat shrink tube: Raytronics VERSAFIT-1-0, VERSAFIT-1-1/4, VERSAFIT-1/4,
VERSAFIT-3/16-0**

Date, 19.9.2016

Signature

Th. Siegrist

**NOTE: IF THE REQUIRED DATA WERE NOT AVAILABLE, SUPPLY AS MANY
DETAILS AS POSSIBLE IN ORDER TO IDENTIFY THE MATERIAL THE SAMPLING
WAS TAKEN FROM**



LAPI LABORATORIO PREVENZIONE INCENDI S.p.A.
I-59100 PRATO - Loc. La Querce - Via della Quercia, 11
Tel. +39 0574 575320 - Fax +39 0574 575323
e.mai: lapi@laboratoriolapi.it
web site: www.laboratoriolapi.it



- ORGANISMO NOTIFICATO IN CONFORMITÀ A REGOLAMENTO PRODOTTI DA COSTRUZIONE 305/2011/EU
- ORGANISMO NOTIFICATO IN CONFORMITÀ A DISPOSITIVI DI PROTEZIONE INDIVIDUALE DIR. 89/686/CEE
- ORGANISMO NOTIFICATO DIRETTIVA NAVALE MED 96/98 EC
- MEMBRO EGOLF e UNIFER
- RICONOSCIUTO USCG ADMINISTRATION
- RICONOSCIUTO CERTIFER
- RICONOSCIUTO ITALCERTIFER
- CERTIFICATO REGISTRO AERONAUTICO ENAC CIT 1013/L
- AUTORIZZAZIONE MINISTERO INTERNO D.M. 26/03/85
- ACCREDITATO ACCREDIA N.0086
- RICONOSCIUTO DIR. 96/98 EC MARINE EQUIPMENT - BUREAU VERITAS - DNV - LLOYD'S REGISTER
- PROVE SU AUTOVEICOLI AI SENSI DELLA DIRETTIVA 95/28 CE E REG. 118
- AUTORIZZATO BHF CALIFORNIA, CARB CALIFORNIA, CPSC USA
- AUTORIZZATO VKF SVIZZERA E EBA GERMANIA

Spettabile
NetModule AG
Meriedweg 11
3172 Niederwangen (Switzerland)



Prato, 10/10/2016
Rif. 1656/16/AC

In riferimento alle Vs. richieste, Vi rimettiamo in allegato ns. Rapporto di Prova in doppia lingua (italiano/inglese), contenente i risultati della prova effettuata su Vs. materiale:

With reference to your order, please find enclosed our Test Report in double language (italian/english), containing the results of the test effected on your material:

Denominazione commerciale Trade name	Metodo di Prova Test method	Rif. Laboratorio Laboratory Ref.
NB3701 / NB3711 / NB3800 Antenna Cable	CEI EN 60332-1-2:2006 + CEI EN 60332-1-1:2006, EN 60332-1-2:2004 + EN 60332-1-1:2004 Prova di non propagazione della fiamma su un singolo conduttore o cavo isolato <i>Test for resistance to vertical flame propagation for a single insulated conductor or cable</i>	1690/16

Distinti saluti,
Best Regards

LAPI S.p.A.



RAPPORTO DI PROVA NO. 1690.OCI0010/16

Test Report no.

METODO DI PROVA:

Test method

CEI EN 60332-1-2:2006 + CEI EN 60332-1-1:2006,
EN 60332-1-2:2004 + EN 60332-1-1:2004

DENOMINAZIONE DELLA PROVA:

Denomination of the test

Prova di non propagazione della fiamma su un singolo conduttore o cavo isolato

Test for resistance to vertical flame propagation for a single insulated conductor or cable

RICHIEDENTE:

Sponsor

NetModule AG
Meriedweg 11
3172 Niederwangen (Switzerland)

DENOMINAZIONE DEL MATERIALE: NB3701 / NB3711 / NB3800 Antenna Cable

Denomination of the material

DATA RICEVIMENTO CAMPIONI: 22/09/2016

Date of the samples receipt

☐ Il presente Rapporto di Prova è costituito da / This Test Report consists of:

- no. 4 pagine (compresa questa prima pagina) / no. 4 pages (including this one).
- no. 2 allegati / no. 2 annexes.

☐ I risultati riportati in questo Rapporto si riferiscono esclusivamente al materiale sottoposto a prova fornito dal Richiedente (rif. codice Laboratorio no. 1690/16). Un campione del materiale è stato conservato dal Laboratorio.

The results reported in this Report refer exclusively to the material submitted to test sent by the Sponsor (ref. Laboratory code no. 1690/16). A sample of the material has been retained by the Laboratory.

Prato, 10/10/2016

Il Direttore del Laboratorio
The Director of the Laboratory
Dr. Luca Ermini



DESCRIZIONE DEL MATERIALE

Description of the material

Aspetto: cavo con guaina di colore grigio con diametro esterno di $\approx 1,3$ mm; misure e diametri ricavati dal Laboratorio.

Appearance: cable with sheath of grey colour and with an outer diameter of $\approx 1,3$ mm, measurements and diameter obtained by the Laboratory.

Peso ricavato dal Laboratorio / *Weight obtained by the Laboratory*: ≈ 5 g/m (lineare / *lineal*).

Composizione e dati tecnici / Composition and technical data:

Composizione / *Composition (*)*: si rimanda alle schede tecniche fornite dal Richiedente / *reference to be made to the technical data sheet supplied by the Sponsor*.

Cavo / *Cable (*)*: Flush-type connector - SACC-E-MS-4CON-M16/0,5 SCO by Phoenix Contact

Lato esposto / *Side exposed (*)*: indifferente (guaina) / *either (sheath)*.

(*) - Informazioni fornite dal Richiedente / *Information supplied by the Sponsor*.

Nota: per la composizione si rimanda alle schede di controllo di lavorazione gestite dal sistema di qualità dell'azienda e alla dichiarazione di conformità allegata.

Note: *the composition is referred to the sheets of workmanship control managed by the quality system of the Company and to declaration of conformity annexed.*

DESCRIZIONE DELLA PROCEDURA DI CAMPIONAMENTO

Description of the sampling procedure

Il campionamento del materiale (PCB) è stato effettuato a cura del Richiedente dal lotto di produzione n° Pro_NB3700_06 c/o lo stabilimento di Teltronic AG sito in Gewerbestrasse 9 - CH-4562 Biberist (Switzerland), in data 16 Settembre 2016, come da dichiarazione allegata.

Il Laboratorio non è stato coinvolto in alcuna operazione di campionamento della produzione.

The sampling of the material (PCB) has been effected by the Sponsor from the production batch n° Pro_NB3700_06 c/o the factory of Teltronic AG located in Gewerbestrasse 9 - CH-4562 Biberist (Switzerland), on date 16th September 2016, as indicated in the declaration annexed.

The Laboratory has not been involved in any sampling procedure of the material from the production.

PREPARAZIONE E CONDIZIONAMENTO

Preparation and conditioning

Preparazione e condizionamento dei provini sono stati eseguiti in conformità agli standard in oggetto.

Preparation and conditioning of the specimens have been effected according to the standard in object.

DATA PROVA: 03/10/2016

Test date



Operatore / Operator
Ing. Fabio Crocetta

LUOGO E DATA DI SVOLGIMENTO DELL'ATTIVITÀ DI PROVA

Place and test date

L'attività di prova è stata effettuata in data 03/10/2016 presso la sede principale del Laboratorio (Via della Quercia, 11 - Prato).

The test has been effected on date 03/10/2016 c/o the principal place of the Laboratory (Via della Quercia, 11 - Prato).

PROCEDIMENTO DI PROVA

Test procedure

La prova è stata eseguita in conformità allo standard citato. Poiché non è possibile ottenere una lunghezza di cavo continuo di circa 600 mm, gli spezzoni di cavo forniti dal Richiedente sono stati giuntati a mezzo di filo metallico in modo da garantire la continuità di propagazione della fiamma.

The test has been effected according to the cited standard. As it is not possible to obtain a length of continuous cable of about 600 mm, the pieces of the cable supplied by the Sponsor have been joined by means of metallic wire in order to ensure the continuity of flame propagation.

DEROGHE INDICATE DAL RICHIEDENTE, EFFETTUATE DAL LABORATORIO

Variations indicated by the Sponsor, effected by the Laboratory.

Nessuna / None.

RISULTATO / RESULT

Distanza tra il bordo inferiore del supporto superiore ed il limite superiore della zona bruciata:

Distance between the lower edge of the top support and the upper onset of charring:

341 mm

Distanza tra il bordo inferiore del supporto superiore ed il limite inferiore della zona bruciata:

Distance between the lower edge of the top support and the lower onset of charring:

489 mm

Nota / Note

Risultano soddisfatti i requisiti prescritti da UNI EN 45545-2 per la prova in oggetto.

The requirements prescribed by UNI EN 45545-2 for the standard in object are fulfilled.

DATA PROVA: 03/10/2016

Test date

Operatore / Operator
Ing. Fabio Crocetta



Foto / Photos

CEI EN 60332-1

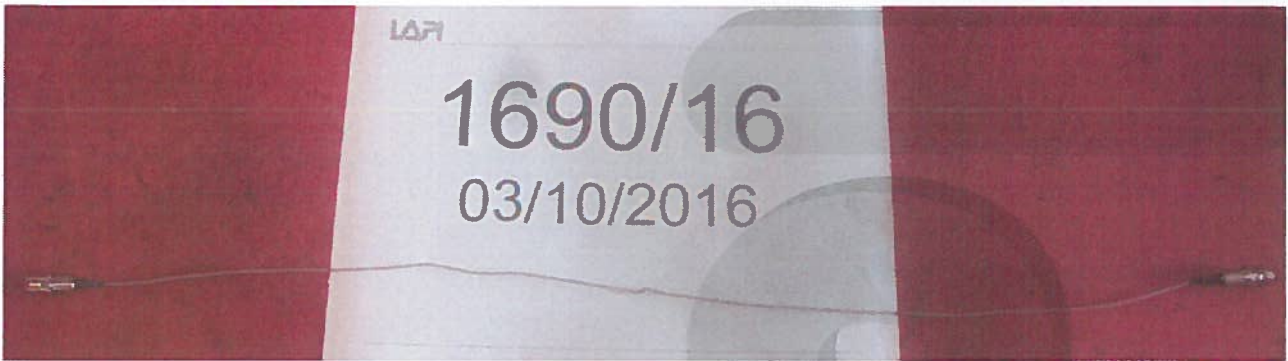


Foto 1: prima della prova
Picture 1: before testing



Foto 2: durante la prova
Picture 2: during the test

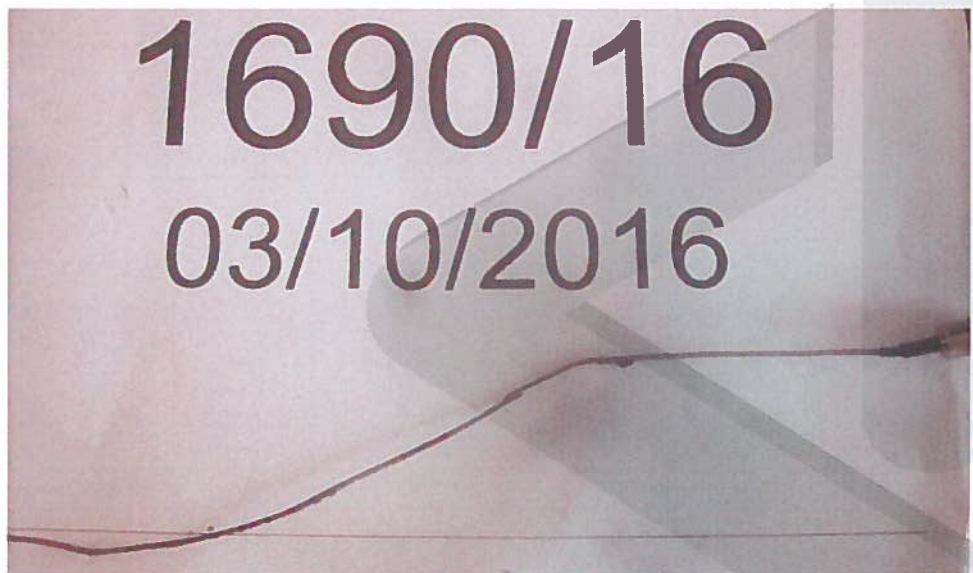


Foto 3: dopo la prova
Picture 3: after testing

DATA PROVA: 03/10/2016
Test date

Operatore / Operator
Ing. Fabio Crocetta





LABORATORY TESTS REQUEST

to send back to LA.P.I. filled in one for each specimen

Responsible Person to contact: Thomas Siegrist

Page 1/2

TEST REQUEST HEADING (full address):

NetModule AG
Meriedweg 11
3172 Niederwangen
Switzerland

INVOICE HEADING (full address):

NetModule AG
Meriedweg 11
3172 Niederwangen
Switzerland

COMMERCIAL NAME OF THE ARTICLE ¹⁾:

NB3701 / NB3711 / NB3800 Antenna Cable

Technical data of the specimen²⁾: (see annexed sheet for stratified and composite materials)

Composition (%): unknown

Appearance: 340mm Colour: grey

Thickness (mm): 1.3mm Weight (g/m²): Density (kg/m³):

Possible fire retardant treatment: none

The specimen is ☐ Isotropic ☒ Anisotropic

The specimen usually composes a side in view (Yes/No): No

The two sides are identical (Yes/No): n/a

If the two sides are not identical, identify which of the two must be tested: n/a

End use of the article: (CURTAIN, WALL, FLOOR, CEILINGS, etc...) telecommunication device

Laying of the article (if stuck specify the type of glue g/m²): inserted into an aluminium case

REQUESTED TESTS ON THE SPECIMEN ³⁾:

EN 45545-2:2015
Product Number EL1a
Requirement Set R15
Hazard Level 3

IN ACCORDANCE TO SPEC. N.³⁾

SEE EN 45545-2:2015, TABLE 7

REQUEST FOR MEASUREMENT UNCERTAINTY (ANNEXED TO THE TEST REPORT ⁴⁾): YES ☐ NO ☒

NOTES ON THE SPECIMEN (POSSIBLE DEROGATIONS⁵⁾):

TO BE FILLED ONLY IN CASE OF TRANSPORTATION FIELD TESTS:

SAFETY DATA SHEET

N° not available

TECHNICAL DATA SHEET

N° K-2399-xx.pdf

BATCH

N° Pro_NB3700_06 Date 16.9.2016

Date

26.9.2016

Stamp and signature of Responsible

Notes (to be read to fill this form):

- 1) The commercial name of the article represents the exact name that will be written on the Test Report. It has to be univocal and match exactly to possible names written on the specimen. LA.P.I. reserves itself the right to not accept specimen whose identification is unclear or ambiguous.
- 2) Technical data reported below will be written on the Test Report as indicated by the reference specification. The side to be tested has to be clearly identified, marking it in a suitable way if possible.
- 3) List the tests to perform and their reference methods. If the tests have the purpose to verify the matching of a specimen to a specification, it is useful to mention it in this field and to enclose a copy of the specification. If not specified, we assume the request refers to the latest valid edition of the specification. Indicate in this field possible derogations to the method or supplementary procedures to apply during the test. Every derogation and/or supplementary procedure will be referred and described on the Test Report. In methods expecting a preliminary treatment of the specimen, indicate only if you don't want those treatments to be performed on the sample.
- 4) In case UNI EN ISO 3386 "Resistance to compression of low density materials" has to be effected, the material has to be sent to the Laboratory not before 72 hours from its production.
- 5) The evaluation performed by the Laboratory does not involve the approval of the product neither by the Laboratory nor by the Accreditation Body. Moreover, the mark of the Accreditation Body or any reference to the accreditation of the Laboratory shall not be used by the Customer in any way, and in particular shall not be reported in the product documentation on the product itself. A copy of the Test Report can be attached.
- 6) The Responsibility of LAPI SpA is limited to the value of the activities regarding tests requested
- 7) In case LAPI can not finish the tests for technical reasons attributable to LAPI SpA, tests will not be charged and no recourse in terms of additional costs will be due in respect of LAPI SpA
- 8) LAPI SpA submitted to test a prototype and LAPI is not responsible, in the event of a negative result of the test, of the previous marketing in case of non-compliance.



FAC-SIMIL MODEL

TO BE COMPILED ON COMPANY'S HEADED PAPER

The undersigned

Thomas Siegrist

in his/her capacity of legal representative of the Company **NetModule AG**

declares that the sampling named

NB3701 / NB3711 / NB3800 Antenna Cable

and sent to be tested

was taken from the production batch n°

Pro_NB3700_06

c/o the factory

**Teltronic AG
Gewerbestrasse 9
CH-4562 Biberist
Switzerland**

on (day:) 16 (month:) **September** (year:) 2016

safety sheet n° (to be annexed with stamping):
not available

technical data sheet n° (to be annexed with stamping)
K-2399-xx.pdf

Date, 19.9.2016

Signature

NOTE: IF THE REQUIRED DATA WERE NOT AVAILABLE, SUPPLY AS MANY DETAILS AS POSSIBLE IN ORDER TO IDENTIFY THE MATERIAL THE SAMPLING WAS TAKEN FROM



Annex n° 1

Declaration of conformity of the Sponsor



EVALUATION OF TECHNICAL WORTHINESS CONFORMITY DECLARATION

LA.P.I. S.p.A.

Att. To Dr. Luca Ermini, Certification Manager

The undersigned Dr. Thomas Siegrist in his/her capacity of legal representative of the Company NetModule AG, situated in Niederwangen, Switzerland with address Meriedweg 11

declares that the following elements:

1. Component denominated **NB3701 / NB3711 / NB3800 MC Board V4.2 and MC Board V3.1**
production batch **Pro_NB3700_06** dated **15.4.2016**
2. Component denominated **NB3701 / NB3711 / NB3800 Power & Data Cable**
production batch **Pro_NB3700_06** dated **15.4.2016**
3. Component denominated **NB3701 / NB3711 / NB3800 Antenna Cable**
production batch **Pro_NB3700_06** dated **15.4.2016**

used to manufacture the electric or electronic device denominated NetModule Routers NB3701, NB3711, and NB3800 and employed on board on trains for **ground-to-vehicle communication, passenger WiFi and further communication applications** verified on the basis of the Evaluation of Technical Worthiness requirements according to the standard/s **EN45545-2:2015**

are being sampled directly by the device or by batches destined to be used in the setting up of the device, and that they are in conformity to the components employed in the conventional production as sent manuals and documentation related to the evaluation activity (experimental and not).

In case of components' changes (raw materials, supplier, dimensions, ...and so on), the undersigned declares to suspend the production and to communicate immediately to LA.P.I. S.p.A. in order to arrange the possible substitutive and integrative checking activities necessary to restore the initial conditions, preceding the Evaluation of Technical Worthiness.

Furthermore, declares that no modifications have been effected or will be, even on the components that have been not considered for testing in force of the derogation possibly applied considering the reference standard.

Therefore, is accepted that not abiding the mentioned conditions imply the invalidation of the verifications' validity carried out without Responsibility of LA.P.I. S.p.A.

October 11, 2016

NetModule AG

Dr. Thomas Siegrist
Technical CEO



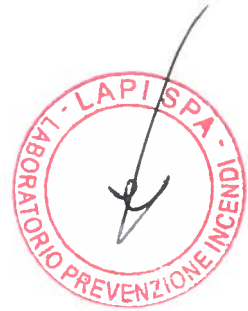
**EVALUATION OF TECHNICAL WORTHINESS
CONFORMITY DECLARATION**

The undersigned, as legal representative of NetModule AG, declares that the apparatus is not involved in any activity related to emergency or safety and is not considered part of the running capabilities (EN 50553) of the train in case of fire as prescribed by the TSI (Technical Specification of Interoperability).

October 11, 2016

NetModule AG

Dr. Thomas Siegrist
Technical CEO



Annex n° 2

Declaration of the differences between models of routers



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NetModule Router Differences

Manufacturer: NetModule AG (address see above)
Product Description: NetModule Routers
NB3700, NB3701, NB3710, NB3711
Intended Purpose: Telecommunications terminal equipment

We, NetModule AG, the manufacturer of the NetModule Routers, hereby declare that the relevant differences between the NB3700 and NB3701 / NB3710 and NB3711 are:

- CP Module Armada 385 incl. heat sink, heat sink pads, power cable instead of CP Module
- WLAN Module Compex WLE600VX instead of Compex WLE200NX

Please refer to the respective Top Level BOMs for reference.

Niederwangen, September 12, 2016

NetModule AG

Dr. Thomas Siegrist
Technical CEO



Annex n° 3

**User Manual of Router NB3701
(First page)**



NetModule Router NB3701

User Manual for Software Version 4.0



Manual Version 0.9 (Draft)

NetModule AG, Switzerland

August 28, 2016



Annex n° 4

Photos of the apparatus NetModule Router NB3711



Foto 1: apparato completo Router NB3711

Photo 1: Router NB3711 complete apparatus



Foto 2: apparato completo Router NB3711 (sopra)
Photo 2: Router NB3711 complete apparatus (upper)

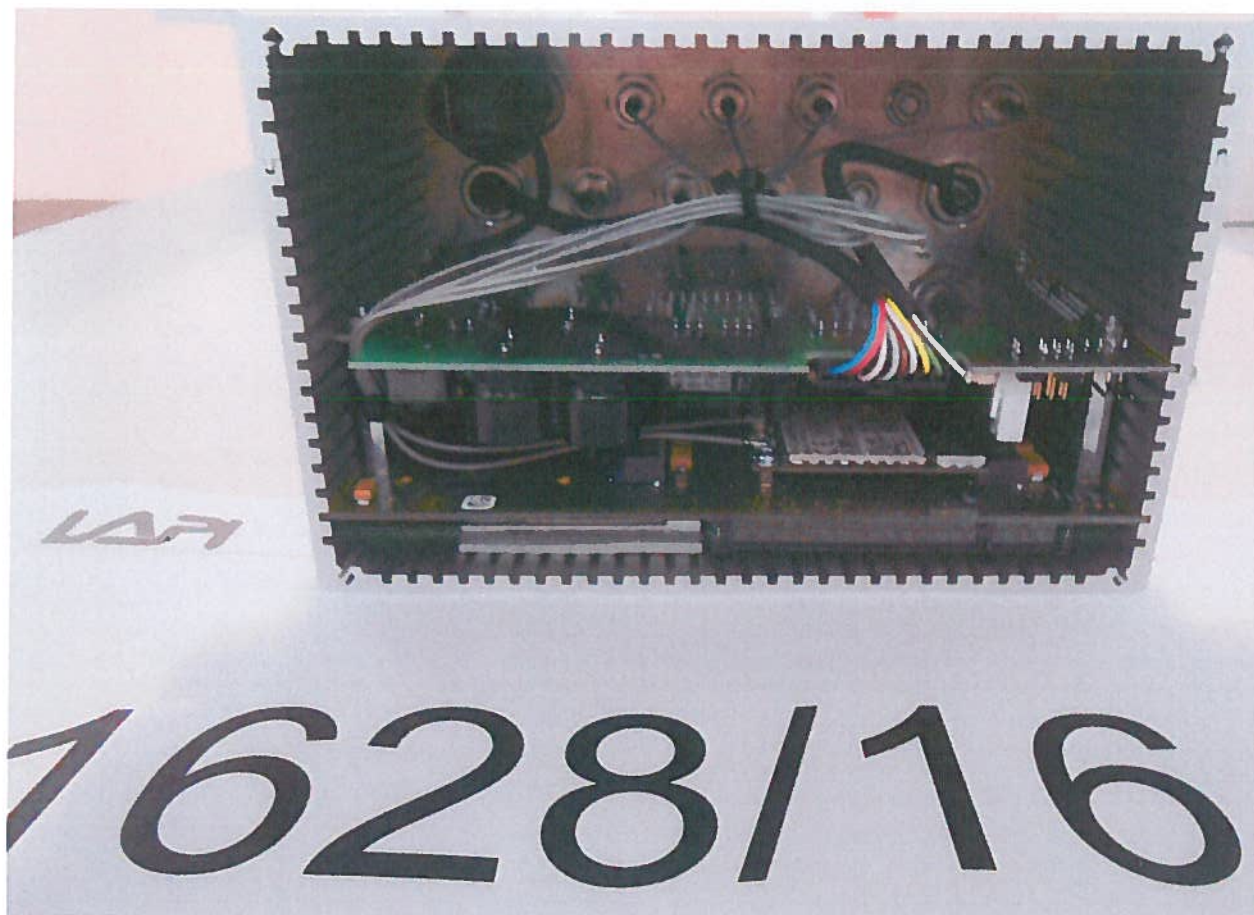


Foto 3: apparato completo Router NB3711 (interno)

Photo 3: Router NB3711 complete apparatus (inside)

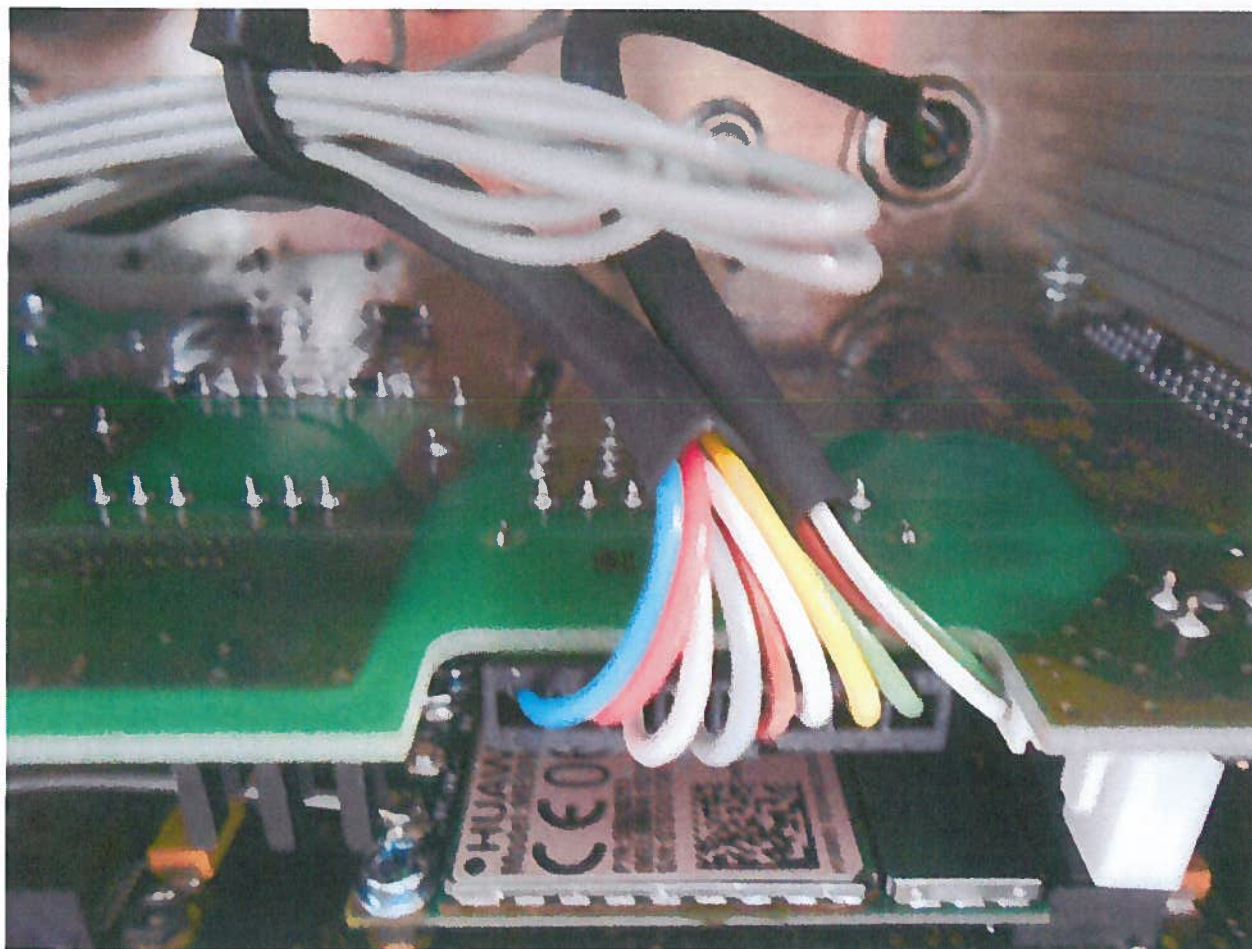


Foto 4: apparato completo Router NB3711 (dettaglio interno)

Photo 4: Router NB3711 complete apparatus (internal detail)