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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 EQUIPAGGIAMENTI MARITTIMI 2014/90/EU
- MEMBRO EGOLF e UNIFER
- RICONOSCIUTO USCG ADMINISTRATION
- RICONOSCIUTO CERTIFIER
- RICONOSCIUTO ITALCERTIFER
- CERTIFICATO REGISTRO AERONAUTICO ENAC CIT 1013/L
- AUTORIZZAZIONE MINISTERO INTERNO D.M. 26/03/85
- ACCREDITATO ACCREDIA N.0086 - EN 17025
- RICONOSCIUTO DIR. 2014/90/EU MARINE EQUIPMENT - BUREAU VERITAS - DNV-GL - 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, 04/06/2018

RICHIEDENTE / SPONSOR
NetModule AG

Meriedweg 11 - 3172 Niederwangen (Switzerland)

DENOMINAZIONE DEL MATERIALE / DENOMINATION OF THE MATERIAL
NetModule Router NB3711 -2LcWacPbHd-G

- Compliance document N° 088/VIT/18 - **UNI EN 45545-2 : 2015**
- A documentation annexed:
- N° 1 - Declaration of conformity of the Sponsor.
- N° 2 - Description of the new router variants.
- N° 3 - Photos of the apparatus.

Best regards

LAPI S.p.A.





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Compliance document N° 088/VIT/18



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 NB3711 -2LcWacPbHd-G

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 APPARATUS

L'oggetto della presente valutazione consiste in un router. L'apparato è contenuto in un chassis metallico. Le dimensioni nominali di ingombro e i pesi dell'esemplare inviato dal Richiedente (modello NB3711 -2LcWacPbHd-G) per l'esame fisico delle caratteristiche generali sono i seguenti: lunghezza 190 mm con punti di assemblaggio / 167 mm senza punti di assemblaggio - altezza 121.1 mm - profondità 131, 7 mm (incluso connettori e valvola di compensazione / 108.5 (senza connettori e valvola di compensazione), peso 1700 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 NB3711 -2LcWacPbHd-G) for the physical examination of the general characteristics are the following ones:

Length 190 mm with assembly points / 167 mm without assembly points - height 121.1 mm - deepness 131.7 mm (including connectors and compensation valve / 108.5 mm without connectors and compensation valve), weight 1700 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, 04/06/2018

Il Responsabile Certificazione

The Certification Manager

Dr. Massimo Borsini

Il Direttore del Laboratorio

The Director of the Laboratory

Dr. Luca Ermini

Valid until: 03/06/2021

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

Il Richiedente dichiara che l'apparecchiatura in oggetto consiste in una variante di apparecchiature già esaminate appartenenti alla famiglia NB3711 / NB3800 con contenitore avente gradi di protezione IP65.

Il Richiedente dichiara che l'unica differenza fra il router oggetto della presente valutazione e il router oggetto della valutazione 080/VIT/17 è la sostituzione della Power Supply Board PSE_5xM12 Board V2.9 (per NB3711) con PSE Board 5xM12, 72-110V Supply V1.5.

Il Richiedente dichiara che tale scheda ha comunque le stesse caratteristiche della scheda precedentemente valutata, in termini di produttore, materiale, conformal coating, dimensioni.

Sulla base di quanto riportato e della documentazione fornita dal Richiedente, il Laboratorio ha effettuato la verifica documentale e l'ispezione visiva di un esemplare del router inviato a questo scopo.

Si conclude che il solo componente da considerare è la nuova variante di scheda, cioè la PSE Board 5xM12, 72-110V Supply V1.5. che comunque il Richiedente dichiara avere le stesse caratteristiche della Power Supply Board PSE_5xM12 Board V2.9 precedentemente valutata.

The Sponsor declares that the apparatus in object consists of a variant of an already evaluated apparatus belonging to family NB3711/NB3800 with IP65 Housing.

The Sponsor declares that the only difference between the router in object and the routers object of the evaluation 080/VIT/17 is the substitution of Power Supply Board PSE_5xM12 Board V2.9 (used for NB3711) with PSE Board 5xM12, 72-110V Supply V1.5.

The Sponsor declares that this board has anyway the same characteristics of the board previously evaluated, in terms of manufacturer, material, conformal coating, size.

On the base of what reported and of the documents sent by the Sponsor, the Laboratory has effected the documental check and the visual inspection of an item sent for this aim.

It is concluded that the only component to be considered is the new variant of board, that is PSE Board 5xM12, 72-110V Supply V1.5, which anyway the Sponsor declares to have the same characteristics of the Power Supply Board PSE_5xM12 Board V2.9 previously evaluated.

Quanto sopra è riassunto nella tabella sottostante / This is summarized in the following table:

| No. | Re. Lab. | Descrizione / Description | Rapporti di Prova / Test Reports |
|--------------------------------|----------|--|---|
| 1 | 790/18 | Apparato completo Complete apparatus | /// |
| 2 | /// | PSE_5xM12 Board V2.9 (used for NB3711) | Documento / Document : 66/VIT/16 del / of 02/12/2016 Classificazione / Classification : Conforme / Compliant : HL3 (R25) |
| Sostituita da / substituted by | | | |
| 3 | /// | PSE Board 5xM12, 72-110V Supply V1.5. | Documento / Document : 66/VIT/16 del / of 02/12/2016 Classificazione / Classification : Conforme / Compliant : HL3 (R25) |

Il Laboratorio, sulla base delle informazioni fornite dal Richiedente ha concluso che l'apparato non contiene altri componenti da esaminare sperimentalmente o documentalmente.

The Laboratory, on the base of the information supplied by the Sponsor has concluded that the apparatus does not contain other components to be examined either experimentally or on the base of the documents.

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**

*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***

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, 04/06/2018

Il Responsabile Certificazione
The Certification Manager

Il Direttore del Laboratorio

The Director of the Laboratory

Valid until: 03/06/2021

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.



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 *Urs Grütter* in his capacity of legal representative of the Company *NetModule AG*, situated in *Niederwangen, Switzerland* with address *Meriedweg 11*

declare that the following elements:

| # | Component denominated | Production batch | Date |
|---|---|------------------|------------|
| 1 | CP-Module Armada 385 V1.5 | NB3711-01966 | 07.03.2018 |
| 2 | MC Board V4.3 | NB3711-01966 | 07.03.2018 |
| 3 | PSE Board 5xM12, 72-110V V1.5 (used for NB3711 with 72 .. 110V power supply) | NB3711-01966 | 07.03.2018 |
| 4 | PCB-AP-7HE V1.0 | NB3711-01966 | 07.03.2018 |
| 5 | Antenna cable | NB3711-01966 | 07.03.2018 |
| 6 | Power & Data Cable | NB3711-01966 | 07.03.2018 |

used to manufacture the electric or electronic device denominated *NB3711-2LcWacPbHd-G* 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.

June 6th, 2018

NetModule AG

Urs Grütter

Director Engineering / Product Compliance Officer

net
Module



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<http://www.netmodule.com>
CHE-105.711.468 MWST

EVALUATION OF TECHNICAL WORTHINESS CONFORMITY DECLARATION

The undersigned, as legal representative of NetModule AG, declares that the *NetModule Router NB3711-2LcWacPbHd-G* 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).

March 15th, 2018

NetModule AG

Urs Grütter
Director Engineering / Product Compliance Officer



Annex n° 2

Description of the new router variants

Memo

| | | |
|---------|---|---|
| Author | Urs Gruetter | <input checked="" type="checkbox"/> for information <input type="checkbox"/> personally <input type="checkbox"/> to complete <input type="checkbox"/> to discuss <input type="checkbox"/> to the statement <input type="checkbox"/> to process <input type="checkbox"/> to the decision |
| Date | 14.05.2018 | |
| Subject | Description of the new Router Variants NB3711-2LcWacPbHd-G and NB3711-L2Wac-G-AE | |

| | | | |
|--------------|---|----|--|
| Recipient(s) | LAPI Laboratorio Prevenzione Incendi SpA Via della Quercia, 11 59100 Prato Italy | Cc | |
|--------------|---|----|--|

1 Introduction

This document describes the new NetModule AG router variants

- NB3711-2LcWacPbHd-G
- NB3711-L2Wac-G-AE

for the evaluation of technical worthiness according to EN45545-2. The focus of this document is on the differences to the previously issued LAPI SPA test reports N° 57/VIT/16 and N° 80/VIT/17.

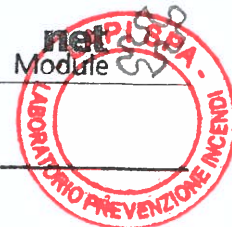
2 NB3711-2LcWacPbHd-G

- This router variant is a new member of the NB3711 / NB3800 routers with IP65 Housing (Hardware Option "Hd") → see current compliance document N° 080/VIT/17
- The only difference between the previously tested variant and the new variant is the power supply board (PSE)
 - Previously tested variant (NB3711-2LcWacHd-G)
 - #1002 - PSE Board 5xM12 V2.9
 - Input voltage range of PSE = 24Vdc .. 60Vdc
 - New variant (NB3711-2LcWacPbHd-G)
 - #1016 - PSE Board 5xM12, 72-110V Supply V1.5
 - Input voltage range of PSE = 50Vdc .. 136Vdc
 - Both power supply boards share the same raw PCB specifications (manufacturer, material, conformal coating, size ...)
 - The electronic components are different for the two power supply board variants



3 NB3711-L2Wac-G-AE

- This customer specific NB3711 router variant uses the standard electronics of all NB3711 variants (see compliance document N° 057/VIT/16) but is assembled in the smaller case of the NB3701.
- Since the last evaluation a few minor changes have been applied to the assembly of the PCBs and therefore the PCB versions have been increased:
 - The MC Board V4.2 becomes **MC Board V4.3** (the new version V4.3 has already been introduced in the NB3800 with IP65 housing, compliance document N° 080/VIT/17); the following PCB BOM changes have been made (see as well "diffBOM-NBHW_08_MC_Board(6_Slots(A))_xls"):
 - **Sx100** → We had to change the reset button type. The reset button is from the same manufacturer, from the same series and has a slightly different size (7x3.7x1.8mm instead of 7x3.7x1.1mm) and weight (2.5g instead of 2g).
 - The PSE Board 5xM12 V2.9 becomes **PSE Board 5xM12 V2.10**, the following PCB BOM changes have been made (see as well "diffBOM-Project_PSE_Board(5x_M12_front)(Standard)_xls"):
 - **Qe100** → The quartz oscillator department of the company Fox Electronics has been acquired by the company IDT. The company IDT has changed the part numbers of the former Fox Electronics devices but they still sell them with the same specifications
 - **Rs202** → The value this chip resistor had to be changed from 1k Ohms to 2.2k Ohms due to a design problem. The chip resistor comes from the same manufacturer, is from the same series, has physically the same size (~1mm x 0.5mm x 0.5mm) and about the same marginal weight, but have a different resistor value.
 - The CP Module Armada 385 V1.3 becomes **CP Module Armada 385 V1.5** (the new version V1.5 has already been introduced in the NB3800 with IP65 housing, compliance document N° 080/VIT/17); the following PCB BOM changes have been made (see as well "diffBOM-CP_Module_Armada385(Standard)_xls"):
 - **U200, U201** → We had to use a faster speed grade of the same DDR3 RAM device, since the slower one we used before is end of life
 - **U300** → Due to an end of life issue of the eMMC Flash memory device we had to introduce the recommended replacement part from the same manufacturer (approximately the same size and weight)
 - **X1101** → since the old connector (http://www.molex.com/molex/products/datasheet.jsp?part=active/0528932495_FFC_FPC_CONNECTORS.xml) was end of life, we had to replace it with a similar one from the same manufacturer (http://www.molex.com/molex/products/datasheet.jsp?part=active/0528922433_FFC_FPC_CONNECTORS.xml)
 - **Q1100** → The quartz oscillator department of the company Fox Electronics has been acquired by the company IDT. The company IDT has changed the part numbers of the former Fox Electronics devices but they still sell them with the same specifications
 - **C603, C604, C605, C606, C607, C608** → The value of those 6 ceramic capacitors had to be changed from 100nF to 180nF due to a design problem. The capacitors come from the same manufacturer, from the same series, have physically the same size (~1mm x 0.5mm x 0.5mm) and about the same marginal weight, but have a different capacitance value.
- Additionally to the PCB BOM changes the #4002 (Dual Choke) of the Top Level BOM was replaced by #4025. The choke is still the same as before, but the manufacturer changed his naming scheme.



4 Conclusion

NetModule AG herewith declares that the chapters

2 - NB3711-2LcWacPbHd-G

3 - NB3711-L2Wac-G-AE

of this document list the differences of the 2 new NB3711 router variants (NB3711-2LcWacPbHd-G, NB3711-L2Wac-G-AE) to the previously tested NB3711 variants (see compliance documents N° 57/VIT/16 and N° 80/VIT/17).

May 14th, 2018

NetModule AG

Urs Grütter

Director Engineering / Product Compliance Officer



Annex n° 3

Photos of the apparatus

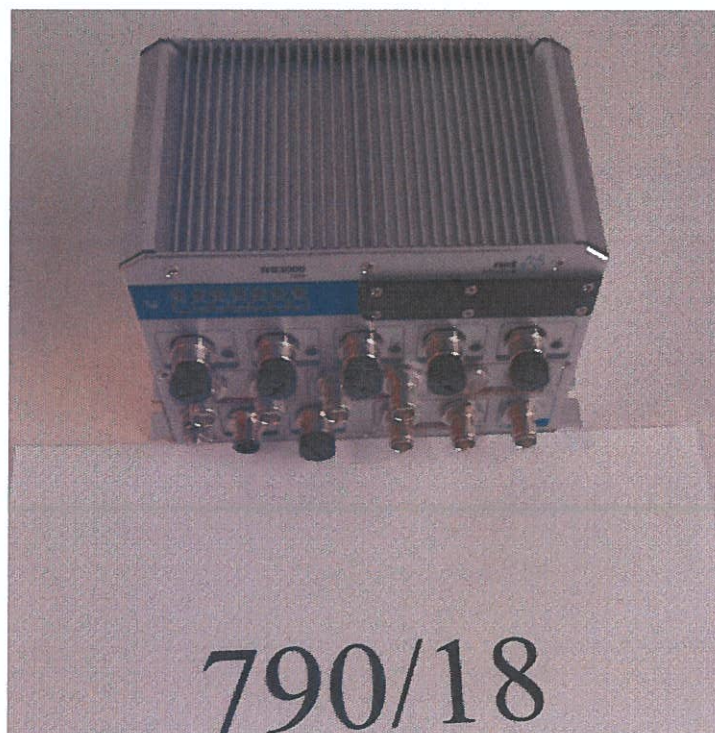


Foto 1: apparato completo NetModule Router
Photo 1: NetModule Router complete apparatus

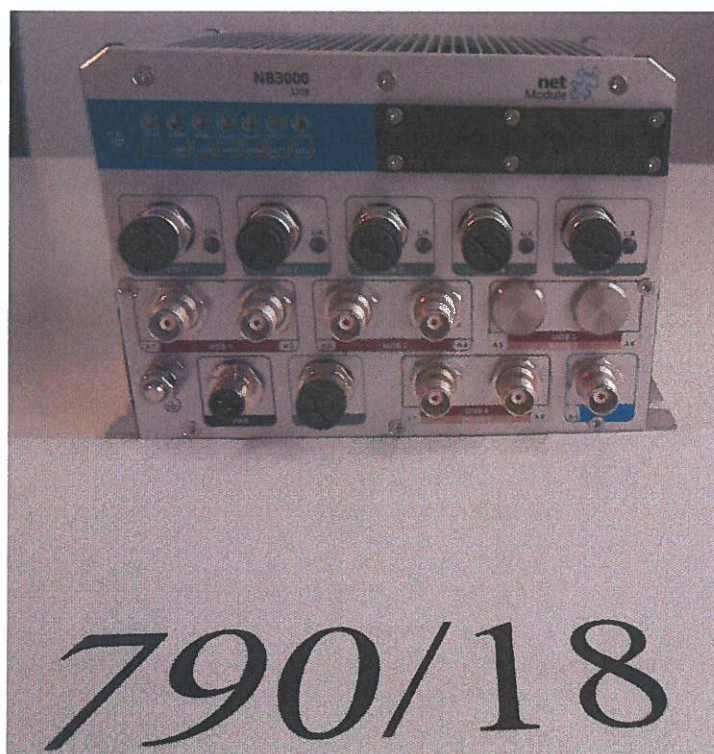


Foto 2: fronte del NetModule Router
Photo 2: front of NetModule Router