

Test report no.: Prüfbericht-Nr.:	KR23LXPM 001	Order No.: Auftragsnr.:	156155595 10	Page 1 of 9 Seite 1 von 9
Client reference no.: Kunden-Referenz-Nr.:	2086860	Order date: Auftragsdatum:	2023-03-29	
Client: Auftraggeber:	RNU Co., Ltd. 58, Maeyeo-ro, Dong-gu, Daegu, 41065, Rep. of Korea			
Test item: Prüfgegenstand:	RE-Merge			
Identification / Type no.: Bezeichnung / Typ-Nr.:	RHS-B500			
Order content: Auftrags-Inhalt:	CE EMC			
Test specification: Prüfgrundlage:	<i>[Emission]</i> EN 55014-1:2017+A11:2020 * EN IEC 55014-1:2021 EN 61000-3-2:2014 * EN IEC 61000-3-2:2019+A1:2021 EN 61000-3-3:2013 * EN 61000-3-3:2013+A1:2019		<i>[Immunity]</i> EN 55014-2:1997+A1:2001+A2:2008 * EN IEC 55014-2:2021 category III, IV	
Date of sample receipt: Wareneingangsdatum:	N/A			
Test sample no.: Prüfmuster-Nr.:	N/A			
Testing period: Prüfzeitraum:	2023-04-19 ~ 2023-04-21			
Place of testing: Ort der Prüfung:	Gumi University EMC			
Testing laboratory: Prüflaboratorium:	TÜV Rheinland Korea Ltd.			
Test result*: Prüfergebnis*:	Pass			
compiled by: zusammengestellt von:	 Nam-Hee Jung		authorized by: genehmigt von:	 Mi-Ran Park
Date: 2023-05-18 Datum:	Nam-Hee Jung		Issue date: 2023-05-18 Ausstellungsdatum:	2023-05-18 Mi-Ran Park
Position / Stellung:	Expert/Sachverständige(r)		Position / Stellung:	Expert/Sachverständige(r)
Other: Sonstiges	Detail test results and testing period are described in attached EMC test report GETEC-E2-23-047 (67 pages, issued date 2023-05-02) of Gumi University EMC Center. * The above mentioned standard version additionally applied for this evaluation report. No additional testings are required for this additional version.			
Condition of the test item at delivery: Zustand des Prüfgegenstandes bei Anlieferung:	Test item complete and undamaged Prüfmuster vollständig und unbeschädigt			
* Legend:	P(ass) = passed a.m. test specification(s)	F(ail) = failed a.m. test specification(s)	N/A = not applicable	N/T = not tested
* Legende:	P(ass) = entspricht o.g. Prüfgrundlage(n)	F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	N/A = nicht anwendbar	N/T = nicht
This test report only relates to the above mentioned test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark. <i>Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.</i>				



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Remarks
Anmerkungen

1	<p>The equipment used during the specified testing period was calibrated according to our test laboratory calibration program. The equipment fulfils the requirements included in the relevant standards. The traceability of the test equipment used is ensured by compliance with the regulations of our management system. Detailed information regarding test conditions, equipment and measurement uncertainty is available in the test laboratory and could be provided on request.</p> <p><i>Alle eingesetzten Prüfmittel waren zum angegebenen Prüfzeitraum gemäß eines festgelegten Kalibrierungsprogramms unseres Prüfhauses kalibriert. Sie entsprechen den in den Prüfprogrammen hinterlegten Anforderungen. Die Rückverfolgbarkeit der eingesetzten Prüfmittel ist durch die Einhaltung der Regelungen unseres Managementsystems gegeben. Detaillierte Informationen bezüglich Prüfbedingungen, Prüfequipment und Messunsicherheiten sind im Prüflabor vorhanden und können auf Wunsch bereitgestellt werden.</i></p>
2	<p>As contractually agreed, this document has been signed digitally only. TUV Rheinland has not verified and unable to verify which legal or other pertaining requirements are applicable for this document. Such verification is within the responsibility of the user of this document. Upon request by its client, TUV Rheinland can confirm the validity of the digital signature by a separate document. Such request shall be addressed to our Sales department. An environmental fee for such additional service will be charged.</p> <p><i>Wie vertraglich vereinbart, wurde dieses Dokument nur digital unterzeichnet. Der TÜV Rheinland hat nicht überprüft, welche rechtlichen oder sonstigen diesbezüglichen Anforderungen für dieses Dokument gelten. Diese Überprüfung liegt in der Verantwortung des Benutzers dieses Dokuments. Auf Verlangen des Kunden kann der TÜV Rheinland die Gültigkeit der digitalen Signatur durch ein gesondertes Dokument bestätigen. Diese Anfrage ist an unseren Vertrieb zu richten. Eine Umweltgebühr für einen solchen zusätzlichen Service wird erhoben.</i></p>
3	<p>Test clauses with remark of * are subcontracted to qualified subcontractors and described under the respective test clause in the report. Deviations of testing specification(s) or customer requirements are listed in specific test clause in the report.</p> <p><i>Prüfklausel mit der Note * wurden an qualifizierte Unterauftragnehmer vergeben und sind unter der jeweiligen Prüfklausel des Berichts beschrieben. Abweichungen von Prüfspezifikation(en) oder Kundenanforderungen sind in der jeweiligen Prüfklausel im Bericht aufgeführt.</i></p>
4	<p>The decision rule for statements of conformity, based on numerical measurement results, in this test report is based on the "Zero Guard Band Rule" and "Simple Acceptance" in accordance with ILAC G8:2019 and IEC Guide 115:2021, unless otherwise specified in the applied standard mentioned on Page 1 of this report or requested by the customer. This means that measurement uncertainty is not taken in account and hence also not declared in the test report. For additional information to the resulting risk based of this decision rule please refer to ILAC G8:2019.</p> <p><i>Die Entscheidungsregel für Konformitätserklärungen basierend auf numerischen Messergebnissen in diesem Prüfbericht basiert auf der "Null-Grenzwert-Regel" und der "Einfachen Akzeptanz" gemäß ILAC G8:2019 und IEC Guide 115:2021, es sei denn, in der auf Seite 1 dieses Berichts genannten angewandten Norm ist etwas anderes festgelegt oder vom Kunden gewünscht. Dies bedeutet, dass die Messunsicherheit nicht berücksichtigt wird und daher auch nicht im Prüfbericht angegeben wird. Zu weiteren Informationen bezüglich des Risikos durch diese Entscheidungsregel siehe ILAC G8:2019.</i></p>
5	

Revisions

Report No.	Issue date	Change / Remarks
KR23LXPM 001	2023-05-18	Original document

1. General Remarks

1.1 Test Summary and Result

Test	Specifications	Result
Emission: EN 55014-1:2017+A11:2020 EN IEC 55014-1:2021 ¹⁾ Detail test results and testing period are described in attached EMC test report GETEC-E2-23-047 (67 pages, issued date 2023-05-02) of Gumi University EMC Center.		
EN 55014-1:2017+A11:2020 EN IEC 55014-1:2021 ¹⁾		
Continuous disturbance	9 kHz - 30 MHz	Pass
Discontinuous disturbance	0.15 MHz - 30 MHz	Pass
Radiated Emission	9 kHz - 1 GHz	Pass
EN 61000-3-2:2014 EN IEC 61000-3-2:2019+A1:2021 ¹⁾	50 Hz - 2 kHz	N/A ²⁾
EN 61000-3-3:2013 EN 61000-3-3:2013+A1:2019 ¹⁾	230 V, 50 Hz	Pass
Immunity: EN 55014-2:1997+A1:2001+A2:2008 (category IV) EN IEC 55014-2:2021 (category IV) ¹⁾ Detail test results and testing period are described in attached EMC test report GETEC-E2-23-047 (67 pages, issued date 2023-05-02) of Gumi University EMC Center.		
EN 61000-4-2:2009 ³⁾	Contact: ±4 kV, Air: ±8 kV HCP: ±4 kV, VCP: ±4 kV	Pass
EN 61000-4-3:2006+A1:2008+A2:2010 ³⁾	80 MHz - 1000 MHz	Pass
EN 61000-4-4:2012 ³⁾	1 kV (AC input)	Pass
EN 61000-4-5:2014+A1:2017 ³⁾	1 kV (AC input)	Pass
EN 61000-4-6:2014 ³⁾	0.15 MHz ~ 80 MHz: 3 V, 80 % AM (1 kHz)	Pass
EN IEC 61000-4-11:2020 ³⁾	230 V, 50 Hz	Pass

¹⁾ These standards were applied for testing and requested by client.

²⁾ Since the power of EUT is less than 75W, N/A is processed.

³⁾ Basic standards as mentioned above were used instead of the versions listed in the normative references of EN 55014-2:1997+A1:2001+A2:2008.

1.2 Test Report Purpose

The purpose of this test report is to show compliance of the EUT (Equipment Under Test) with the requirements of harmonized standards for the EMC Directive (2014/30/EU) and of other standards listed in section 1.1.

2. Test Sites

2.1 Test Facilities

Gumi University EMC Center

37 Yaeun-ro, Gumi-si, Gyeongsangbuk-do, 39213, Republic of Korea (with accredited no. KOLAS: KT397)

2.2 List of Test and Measurement Instruments

Refer to the attached test report:

GETEC-E2-23-047 (67 pages, issued date 2023-05-02) of Gumi University EMC Center.

2.3 Measurement Uncertainty

Refer to the attached test report:

GETEC-E2-23-047 (67 pages, issued date 2023-05-02) of Gumi University EMC Center.

3. General Product Information

3.1 Product Function and Intended Use

The EUT (equipment under test) is a RE-Merge household and similar use.

3.2 Ratings and System Details

Test Voltage: AC 230 V, 50 Hz (with AC/DC adapter)

Rated Voltage: DC 5 V

Serial No.: Proto type

Test Voltage, Frequency and more details, refer to the attached test report:
GETEC-E2-23-047 (67 pages, issued date 2023-05-02) of Gumi University EMC Center.

3.3 Noise Generating and Noise Suppressing Parts

The highest frequency generated or used by the EUT is 16 MHz.

More details, refer to the attached test report:

GETEC-E2-23-047 (67 pages, issued date 2023-05-02) of Gumi University EMC Center.

3.4 Submitted Documents and Information

Following documents have been submitted by the client:

- Draft manual by RNU Co., Ltd.
- Rating Label by RNU Co., Ltd.
- GETEC-E2-23-047 (67 pages, issued date 2023-05-02) of Gumi University EMC Center.

Following information provided in this test report has been submitted by the client:

- Client name and address;
- EUT identification, ratings, system details, and description of product function and intended use;
- Information related to noise generating and noise suppressing parts (if any).

Note) Sample was checked to evaluate the test report GETEC-E2-23-047 (67 pages, issued date 2023-05-02) of Gumi University EMC Center.

3.5 Model differences

None.

4. Test Setup and Operation Modes

4.1 Principle of Configuration Selection

Emission:

The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the instructions for use.

Immunity:

The equipment under test (EUT) was configured to have its highest possible susceptibility against the tested phenomena. The test modes were adapted accordingly in reference to the instructions for use.

4.2 Operation Modes

The operation modes used for testing are:

- A. Charge mode
- B. Wireless Charge mode
- C. Operating mode

More details, refer to the attached test report:

GETEC-E2-23-047 (67 pages, issued date 2023-05-02) of Gumi University EMC Center.

4.3 Physical Configuration for Testing

Refer to the attached test report:

GETEC-E2-23-047 (67 pages, issued date 2023-05-02) of Gumi University EMC Center.

4.4 Test Software

No software used.

4.5 Special Accessories and Auxiliary Equipment

Refer to the attached test report:

GETEC-E2-23-047 (67 pages, issued date 2023-05-02) of Gumi University EMC Center.

4.6 Countermeasures to achieve Compliance

No additional measures were employed to achieve compliance.

4.7 Performance Criteria for Immunity Testing

Description of Performance Criteria	
Criteria A	The apparatus shall continue to operate as intended during the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and from what the user may reasonably expect from the apparatus if used as intended.
Criteria B	The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. During the test, degradation of performance is allowed, however no change of actual operating state or stored data is allowed to persist after the test. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and from what the user may reasonably expect from the apparatus if used as intended.
Criteria C	Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls, or by any operation specified in the instructions for use.

5. Documentation Requirements

Following documents inspected::

- Draft manual by RNU Co., Ltd.
- Rating Label by RNU Co., Ltd.

5.1 Documentation Requirements

No.	Item	Requirement	Result	Remarks
1.	Cable Specification and Classification	<p>EN 55014-1:2017+A11:2020, clause 6 EN IEC 55014-1:2021, clause 6</p> <p>The user documentation and/or manual shall contain details of any special measures required to be taken by the purchaser or user to ensure EMC compliance of the Product.</p> <p>EN 55014-2:1997+A1:2001+A2:2008, clause 8 EN IEC 55014-2:2021, clause 8</p> <p>Unless otherwise specified, the tests shall be made while the apparatus is operated as intended by the manufacturer, in the most susceptible operating mode consistent with normal use.</p>	P	Refer to manual

5.2 Documentation Requirements of EMCD 2014/30/EU

No.	Item	Requirement	Result	Remarks
1.	Apparatus Identification	<p>EMCD 2014/30/EU, article 7(5)</p> <p>Manufacturers shall ensure that apparatus which they have placed on the market bear a type, batch or serial number or other element allowing their identification, or, where the size or nature of the apparatus does not allow it, that the required information is provided on the packaging or in a document accompanying the apparatus.</p>	P	Refer to Rating Label.

END OF TEST REPORT