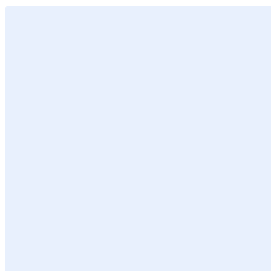


Test report no.: <i>Prüfbericht-Nr.:</i>	CN24ILNC 003	Order No.: <i>Auftragsnr.:</i>	168444225	Page 1 of 14 <i>Seite 1 von 14</i>
Client reference no.: <i>Kunden-Referenz-Nr.:</i>	N/A	Order date: <i>Auftragsdatum:</i>	2023-09-15	
Client: <i>Auftraggeber:</i>	Neusoft Group (Dalian) Co., Ltd. No.901-7 Huangpu Road. Ganjingzi District, Dalian City, Liaoning Province, China			
Test item: <i>Prüfgegenstand:</i>	Telematics Module			
Identification / Type no.: <i>Bezeichnung / Typ-Nr.:</i>	GLM2037TK (Brand name:Neusoft)			
Order content: <i>Auftrags-Inhalt:</i>	Test Report			
Test specification <i>Prüfgrundlage:</i>	CFR47 47 CFR FCC Part 2.1091 RSS-102 Issue 5			
Date of sample receipt: <i>Wareneingangsdatum:</i>	2023-10-22			
Test sample no: <i>Prüfmuster-Nr.:</i>	A003564618 001~004			
Testing period: <i>Prüfzeitraum:</i>	2023-11-01 - 2024-01-31			
Place of testing: <i>Ort der Prüfung:</i>	Refer to section 2.1			
Testing laboratory: <i>Prüflaboratorium:</i>	TÜV Rheinland (Shenzhen) Co., Ltd.			
Test result*: <i>Prüfergebnis*:</i>	Pass			
tested by: <i>geprüft von:</i>			authorized by: <i>genehmigt von:</i>	
Date: 2024-02-21 <i>Datum:</i>	Signed by: Bell Hu		Issue date: 2024-02-21 <i>Ausstellungsdatum:</i>	Signed by: Jonathan Li
Position / Stellung:	Expert/Sachverständige(r)		Position / Stellung:	Expert/Sachverständige(r)
Other: <i>Sonstiges:</i>	FCC ID: 2AZAX-GLM2037TK IC: 30546-GLM2037TK HVIN: GLM2037TK PMN: Telematics Module *This product contains a pre-certificated single module, details listed as clause 2.1.			
Condition of the test item at delivery: <i>Zustand des Prüfgegenstandes bei Anlieferung:</i>	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 getestet
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.</i></p> <p><i>Detaillierte Informationen bezüglich Prüfkonditionen, 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. TÜV 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, TÜV 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> |

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TEST SUMMARY

3.1.1 RF EXPOSURE COMPLIANCE

RESULT: Pass

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1. TEST SITES

1.1 TEST FACILITIES

TÜV Rheinland (Shenzhen) Co., Ltd.

Address: No. 362 Huanguan Road Middle, Longhua District, Shenzhen 518110, P.R. China

FCC Registration No.: 694916

ISED Wireless Device Testing Laboratory: 25069

1.2 Traceability

All measurement equipment calibrations are traceable to NIST or where calibration is performed outside the United States, to equivalent nationally recognized standards organizations.

1.3 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.

1.4 Location of Original Data

The original copies of all test data taken during actual testing were attached at Appendixes of this report and delivered to the applicant. A copy has been retained in the TÜV Rheinland (Shenzhen) file for certification follow-up purposes.

1.5 Status of Facility Used for Testing

The TÜV Rheinland (Shenzhen) Co., Ltd. facility located at No. 362 Huanguan Road Middle, Longhua District, Shenzhen 518110, P.R. China is listed on the US Federal Communications Commission list of facilities approved to perform measurements.

2. GENERAL PRODUCT INFORMATION

2.1 GENERAL DESCRIPTION

The Product is Telematics Module which supports Wi-Fi, RKE(Receiver), GSM/WCDMA/LTE/5G NR and GNSS, functions, for vehicle use.

Note: This product contains transmitter modules.

5G module*	FCC ID: 2A8RBAN958NA IC:29662-AN958NA PMN: Fibocom AN958-NA HVIN: AN958-NA	Single Modular
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For details refer to the User Manual, Technical Description and Circuit Diagram.

2.2 RATING AND SYSTEM DETAILS

Table 1: Rating of EUT

General Information of EUT	Value
Kind of Equipment:	Telematics Module
Type Designation:	GLM2037TK
FCC ID:	2AZAX-GLM2037TK
IC:	30546-GLM2037TK
HVIN:	GLM2037TK
PMN:	Telematics Module
Operating Voltage:	DC 14V, 0.4A
Operating Temperature Range:	-40 °C ~ +85 °C

3. Test Results

3.1 Transmitter Requirements & Test Suites

3.1.1 RF Exposure Compliance

RESULT:**Pass**

Test standard	:	RSS-102 Issue 5 FCC Part 1.1091
Limit	:	Table 1 of 47 CFR FCC Part 1.1310 Section 2.5.2 of RSS-102 Issue 5
Kind of test site	:	Shielded room

This device is mobile device, and the applicant declares that the minimum separation distance is greater than 20cm. Therefore MPE measurement or computational modelling should be used to determine compliance.

MPE Calculation is based on the conducted power, and considering maximum power and Antenna gain. The following formula is used to MPE evaluation.

$$Pd = \frac{P_{out} * G}{4R^2\pi}$$

Where

P_d = power density in mW/cm² or W/m²

P_{out} = output power to antenna in mW or W

G_{num} = Antenna gain in numeric

π = 3.14159

R = Distance between observation point and the center of radiator in cm or m

3.1.1.1 FCC Part 1.1310, Part 2.1091

According to ANSI/IEEE C95.1-1992, the criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio frequency (RF) radiation as specified in §1.1310.

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f ²)	6
30-300	61.4	0.163	1.0	6
300-1500			f/300	6
1500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f ²)	30
30-300	27.5	0.073	0.2	30
300-1500			f/1500	30
1500-100,000			1.0	30

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Table 2: Test Results of RF Exposure Calculations for FCC, Stand-alone mode

Operating Mode	Band	Max.time-average incl. tune-up		Antenna Gain (dBi)	EIRP limit (dBm)	Distance R (cm)	MPE P_d (mW/cm ²)	Limit (mW/cm ²)	Verdict
		dBm	W						
LTE	2	25	0.316	1.17	33.00	20	0.082	1.0	Pass
	4	25	0.316	0.05	30.00	20	0.064	1.0	Pass
	5	25	0.316	-0.08	38.45	20	0.062	0.55	Pass
	7	25	0.316	3.64	33.00	20	0.146	1.0	Pass
	12	25	0.316	-3.03	34.77	20	0.031	0.47	Pass
	14	25	0.316	-1.18	34.77	20	0.048	0.52	Pass
	17	25	0.316	-3.03	34.77	20	0.031	0.47	Pass
	25	25	0.316	1.17	30.00	20	0.082	1.0	Pass
	26	25	0.316	-0.08	38.45	20	0.062	0.54	Pass
	41	25	0.316	3.64	33.00	20	0.146	1.0	Pass
	42	25	0.316	4.29	30.00	20	0.169	1.0	Pass
	66	25	0.316	0.05	30.00	20	0.064	1.0	Pass
5G NR	2	26	0.398	1.17	33.00	20	0.104	1.0	Pass
	5	26	0.398	-0.08	38.45	20	0.078	0.55	Pass
	7	26	0.398	3.64	33.00	20	0.183	1.0	Pass
	12	26	0.398	-3.03	34.77	20	0.039	0.47	Pass
	14	26	0.398	-1.18	34.77	20	0.060	0.52	Pass
	25	26	0.398	1.17	30.00	20	0.104	1.0	Pass
	41	26	0.398	3.64	33.00	20	0.183	1.0	Pass
	48	18.5	0.071	4.27	23dBm /10MHz	20	0.038	1.0	Pass
	66	26	0.398	0.05	30.00	20	0.080	1.0	Pass
	71	26	0.398	-3.03	34.77	20	0.039	0.44	Pass
	77	25	0.316	5.1	30.00	20	0.204	1.0	Pass
GSM*	850	26	0.398	-0.08	38.45	20	0.078	0.55	Pass
	1900	23	0.200	1.17	33.00	20	0.052	1.0	Pass
WCDMA	2	25	0.316	1.17	33.00	20	0.082	1.0	Pass
	4	25	0.316	0.05	30.00	20	0.064	1.0	Pass
	5	25	0.316	-0.08	38.45	20	0.062	1.0	Pass

1. *For GSM bands, the time-based average power considering the duty cycle should be used in EMF evaluation.

2. All above conducted power data cited from original reports of the approved modular, SEWA2204000009RG01, SEWA2204000009RG02 with the tune-up tolerance provided by the Fibocom (the applicant of the module)

3. The antenna gain adopted in above table are provided the client

Operating Mode	Max. average EIRP incl. tune-up (dBm)	Distance (cm)	MPE (mW/cm ²)	Limit (mW/cm ²)	Verdict
2.4GHz Wi-Fi	30.00	20	0.200	1.0	Pass
5GHz Wi-Fi	31.00	20	0.251	1.0	Pass

1. All above power data cited from RF reports CN24ILNC 001 and CN24ILNC 002.

Prüfbericht - Nr.: CN24ILNC 003
Test Report No.:**Seite 10 von 14**
Page 10 of 14**Table 3: Test Results of RF Exposure Calculations for FCC, Simultaneous mode**

Co-location Mode (Worst-case)	Sum of the MPE ratios	Limit	Verdict
2.4GHz Wi-Fi+ 5G NR N77	$0.200/1+0.204/1=0.404$	1.0	Pass
5GHz Wi-Fi+ 5G NR N77	$0.251/1+0.204/1=0.455$	1.0	Pass

3.1.1.2 RSS-102 Exemption Limits for Routine Evaluation – RF Exposure Evaluation

RF exposure evaluation is required if the separation distance between the user and/or bystander and the device's radiating element is greater than 20 cm, except when the device operates as follows:

- below 20 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 1 W (adjusted for tune-up tolerance);
- at or above 20 MHz and below 48 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $4.49/f^{0.5}$ W (adjusted for tune-up tolerance), where f is in MHz;
- at or above 48 MHz and below 300 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 0.6 W (adjusted for tune-up tolerance);
- at or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $1.31 \times 10^{-2} f^{0.6834}$ W (adjusted for tune-up tolerance), where f is in MHz;
- at or above 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 5 W (adjusted for tune-up tolerance).

In these cases, the information contained in the RF exposure technical brief may be limited to information that demonstrates how the e.i.r.p. was derived.

Table 4: Test Results of RF Exposure Calculations for ISED, Stand-alone

Operating Mode	Band	Max.time-average incl. tune-up		Antenna Gain (dBi)	EIRP or ERP limit (dBm)	Distance R (cm)	Maximum EIRP (W)	Threshold power (W)	Verdict
		dBm	W						
LTE	2	25	0.316	1.17	33.00	20	0.414	2.239	Pass
	4	25	0.316	0.05	30.00	20	0.320	2.122	Pass
	5	25	0.316	-0.08	38.45	20	0.310	1.288	Pass
	7	25	0.316	3.64	33.00	20	0.731	2.751	Pass
	12	25	0.316	-3.03	34.77	20	0.157	1.151	Pass
	14	25	0.316	-1.18	34.77	20	0.241	1.250	Pass
	17	25	0.316	-3.03	34.77	20	0.157	1.157	Pass
	25	25	0.316	1.17	30.00	20	0.414	2.239	Pass
	26	25	0.316	-0.08	38.45	20	0.310	1.278	Pass
	41	25	0.316	3.64	33.00	20	0.731	2.748	Pass
	42	25	0.316	4.29	30.00	20	0.849	3.394	Pass
	66	25	0.316	0.05	30.00	20	0.320	2.122	Pass
	71	25	0.316	-3.03	34.77	20	0.157	1.110	Pass
5G NR	2	26	0.398	1.17	33.00	20	0.521	2.239	Pass
	5	26	0.398	-0.08	38.45	20	0.391	1.288	Pass
	7	26	0.398	3.64	33.00	20	0.920	2.751	Pass
	12	26	0.398	-3.03	34.77	20	0.198	1.151	Pass
	14	26	0.398	-1.18	34.77	20	0.303	1.250	Pass
	25	26	0.398	1.17	30.00	20	0.521	2.239	Pass
	41	26	0.398	3.64	33.00	20	0.920	2.748	Pass
	48	18.5	0.071	4.27	23dBm /10MHz	20	0.189	3.495	Pass
	66	26	0.398	0.05	30.00	20	0.403	2.122	Pass
	71	26	0.398	-3.03	34.77	20	0.198	1.110	Pass
	77	25	0.316	4.29	30.00	20	0.849	3.325	Pass
	78	25	0.316	4.29	30.00	20	0.849	3.325	Pass
GSM*	850	26	0.398	-0.08	38.45	20	0.391	1.288	Pass
	1900	23	0.200	1.17	33.00	20	0.261	2.239	Pass
WCDMA	2	25	0.316	1.17	33.00	20	0.414	2.239	Pass
	4	25	0.316	0.05	30.00	20	0.320	2.122	Pass
	5	25	0.316	-0.08	38.45	20	0.310	1.288	Pass

- *For GSM bands, the time-based average power considering the duty cycle should be used in EMF evaluation.
- All above conducted power data cited from original reports of the approved modular, SEWA2204000009RG01, SEWA2204000009RG02 with the tune-up tolerance provided by the Fibocom (the applicant of the module)
- The antenna gain adopted in above table are provided the client

Operating Mode	Max. average EIRP incl. tune-up (dBm)	Distance (cm)	Maximum EIRP (W)	Threshold power (W)	Verdict
2.4GHz Wi-Fi	30.00	20	1.00	2.70	Pass
5GHz Wi-Fi	31.00	20	1.26	4.52	Pass

- All above power data cited from RF reports CN24ILNC 001 and CN24ILNC 002.

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Test Report No.:**Seite 13 von 14**
Page 13 of 14**Table 5: Test Results of RF Exposure Calculations for ISED, Simultaneous mode**

Co-location Mode	Sum of the ratios	Limit	Verdict
2.4GHz Wi-Fi+ 5G NR N7	$1.00/2.70+0.92/2.75=0.71$	1.0	Pass
5GHz Wi-Fi+ 5G NR N7	$1.26/4.52+0.92/2.75=0.61$	1.0	Pass

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