

Prüfbericht-Nr.: <i>Test report no.:</i>	NN23YOLC 002	Auftrags-Nr.: <i>Order no.:</i>	168399325	Seite 1 von 4 <i>Page 1 of 4</i>
Kunden-Referenz-Nr.: <i>Client reference no.:</i>	N/A	Auftragsdatum: <i>Order date:</i>	2022-12-07	
Auftraggeber: <i>Client:</i>	Maersk Container Industri AS Bjerndrupvej 47, 6360 Tinglev, Denmark			
Prüfgegenstand: <i>Test item:</i>	Sekstant BLE Transceiver			
Bezeichnung / Typ-Nr.: <i>Identification / Type no.:</i>	839215ID182			
Auftrags-Inhalt: <i>Order content:</i>	Test Report			
Prüfgrundlage: <i>Test specification:</i>	CFR47 FCC Part 2: Section 2.1091 CFR47 FCC Part 1: Section 1.1310 KDB 447498 D01 General RF Exposure Guidance v06 FCC KDB Publication 865664 D02 v01r02 RSS-102 Issue 5 March 2015			
Wareneingangsdatum: <i>Date of sample receipt:</i>	2022-12-07	Please refer to Photo Document		
Prüfmuster-Nr.: <i>Test sample no.:</i>	A003377842-001--005			
Prüfzeitraum: <i>Testing period:</i>	2022-12-07 - 2023-02-27			
Ort der Prüfung: <i>Place of testing:</i>	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüflaboratorium: <i>Testing laboratory:</i>	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüfergebnis*: <i>Test result*:</i>	Pass			
geprüft von: <i>tested by:</i>			genehmigt von: <i>authorized by:</i>	
Datum: <i>Date:</i>	2023-03-24 Signed by: Breeze Jiang		Ausstellungsdatum: <i>Issue date:</i>	2023-03-24 Signed by: Lin Lin
Stellung / Position:	Senior Project Engineer		Stellung / Position:	Reviewer
Sonstiges / Other:	FCC ID: 2AUZI-839215ID182 IC: 25568-839215ID182 HVIN: 839215ID182			
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i>	Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged</i>			
* Legende:	1 = sehr gut P(ass) = entspricht o.g. Prüfgrundlage(n)	2 = gut F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	3 = befriedigend N/A = nicht anwendbar	4 = ausreichend N/T = nicht getestet
* Legend:	1 = very good P(ass) = passed a.m. test specification(s)	2 = good F(ail) = failed a.m. test specification(s)	3 = satisfactory N/A = not applicable	4 = sufficient N/T = not tested
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>This test report only relates to the a. m. 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>				

V05

1. Radio Frequency Exposure

RESULT:
Pass

Test standard : KDB 447498 D01 General RF Exposure Guidance v06
CFR47 FCC Part 2: Section 2.1093
CFR47 FCC Part 1: Section 1.1310
FCC KDB Publication 865664 D02 v01r02
RSS-102 Issue 5 March 2015

1.1 Product Technical Information

The EUT is a Sekstant BLE Transceiver, which supports Bluetooth low energy wireless technologies.

For details refer to the User Manual, Technical Description and Circuit Diagram.

General Information of EUT	Value
Kind of Equipment	Sekstant BLE Transceiver
Type Designation	839215ID182
Operating Voltage	DC 12V
FCC ID	2AUZI-839215ID182
IC	25568-839215ID182
HVIN	839215ID182
Technical Specification of BLE	
Operating Frequency	2402 MHz to 2480 MHz
Type of Modulation	GFSK
Channel Number	40 channels
Channel Separation	2 MHz
Antenna Type	PIFA Antenna
Antenna Number	1
Antenna Gain	2.14 dBi

➤ Product Classification

This device defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at 20 cm is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons.

Max 2.14 dBi for 2.4GHz Bluetooth antenna

➤ Radio Frequency Exposure Limit

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)
300-1,500	--	--	f/1500
1,500-100,000	--	--	1.0

➤ Radio Frequency Exposure Calculation Formula

$$S = \frac{PG}{4\pi R^2}$$

where: S = power density (in appropriate units, e.g. mW/cm²)

P = power input to the antenna (in appropriate units, e.g., mW)

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

or:

$$S = \frac{EIRP}{4\pi R^2}$$

where: EIRP = equivalent (or effective) isotropically radiated power

a) RF Exposure Evaluation (worse case)

Mode	*Measured RF Output Power (dBm)	EIRP (dBm)	Distance (cm)	Power Density (mW/cm ²)	FCC Limit (mW/cm ²)
BLE	-3.10	-0.96	20	0.0020	1.0

Note:

*BLE RF Output Power: Refer to NN23YOLC 001

➤ Conclusion

Therefore the maximum calculations result of above are meet the requirement of Radio Frequency Exposure (MPE) limit.

➤ **For IC**

The maximum output power of the transmitter is $-3.10\text{dBm} = (0.5\text{ mW})$, which is below the SAR exclusion threshold level $4\text{ mW} = 6.02\text{ dBm}$.

Hence the EUT is exempted from routine evaluation limits (SAR Evaluation) according to clause 2.5.1 of RSS-102 Issue 5.