R F – T E S T R E P O R T

- Human Exposure -

Type / Model Name	:	KNX-A1.8
Product Description	:	UWB Anchor Kinexon Sports & Media Inc
Applicant	:	22 west 38th
Address	:	NEW YORK, NY 10018, USA
Manufacturer	:	Kinexon GmbH
Address	:	Schellingstraße 35 80799 MÜNCHEN, GERMANY

Test Result according to the standards listed in clause 1 test standards:	**POSITIVE**

Test Report No. : T44481-01-03FX	07. December 2020 Date of issue

Deutsche Akkreditierungsstelle
D-PL-12030-01-01
D-PL-12030-01-02

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FCC ID: 2ALC5-KNX-IREC2

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1 TEST STANDARDS

The tests were performed according to following standards:

FCC Rules and Regulations Part 1, Subpart I - Procedures Implementing the National Environmental Policy Act of 1969

Part 1, Subpart I, Section 1.1310	Radiofrequency radiation exposure limits
Part 1, Subpart 2, Section 2.1091	Radiofrequency radiation exposure evaluation: **mobile devices**.
Part 1, Subpart 2, Section 2.1093	Radiofrequency radiation exposure evaluation: **portable devices**.
KDB 447498 D01 v06	RF Exposure procedures and equipment authorisation policies for mobile and portable devices, October 23, 2015.
ANSI C95.1: 2005	IEEE Standard for Safety Levels with respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz
ETSI TR 100 028 V1.3.1: 2001-03,	Electromagnetic Compatibility and Radio Spectrum Matters (ERM); Uncertainties in the Measurement of Mobile Radio Equipment Characteristics—Part 1 and Part 2

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2 EQUIPMENT UNDER TEST

2.1 Information provided by the Client

Please note, we do not take any responsibility for information provided by the client or his representative which may have an influence on the validity of the test results.

2.2 Sampling

The customer is responsible for the choice of sample. Sample configuration, start-up and operation is carried out by the customer or according his/her instructions.

2.3 Photo documentation of the EUT – Detailed photos see ATTACHMENT A1 and A2

2.4 Equipment type, category

mobile UWB Device for indoor use

2.5 Short description of the equipment under test (EUT)

The EUT is a fully certified hand-held and indoor UWB device under **FCC ID: 2ALC5-KNX-IREC2**. The manufacturer changes the antenna of the device. The test report shows human exposure consideration of hand-held UWB devices with frequency > 6 GHz.

Number of tested samples: 1
Serial number: 40084
Firmware version: 4.27.0

EUT configuration:
(The CDF filled by the applicant can be viewed at the test laboratory.)

2.6 Variants of the EUT

None.

2.7 Operation frequency and channel plan

The operating frequency of UWB is 3100 MHz to 10600 MHz.

Channel number	f_c (MHz)
Channel 3	4492.8
Channel 5	6489.6

2.8 Transmit operating modes

Modulation: variable pulse position modulation (PPM) in combination with binary phase shift keying (BPSK).

Data rate: 6.8 Mbit/s

2.9 Antennas

The following antennas shall be used with the EUT:

Number	Characteristic	Model number	Plug	f-range (GHz)	Gain (dBi)	Average Gain (dBi)
1	directional	ES-0042	RSMA	3.1 – 10.3	9.0	9.0

2.10 Power supply system utilised

Power supply voltage, V_{nom} : 48 V DC (PoE)

Note: Additionally, the EUT has a DC socket which can be powered with 12 V to 24 V DC.

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3 TEST RESULT SUMMARY

FCC Rule Part	Description	Result
§1.1093 *	SAR exclusion consideration for devices operating > 6 GHz	passed

* The test report shows the compliance of the devices operating over 6 GHz according to the RF Exposure Policy Updates from the TCB Workshop in November 2019.

3.1 Final assessment

The equipment under test fulfills the requirements cited in clause 1 test standards.

Date of receipt of test sample : acc. to storage records

Testing commenced on : 26 November 2020

Testing concluded on : 26 November 2020

Checked by:

Klaus Gegenfurtner
I confirm the correctness and integrity of this document
2020.12.07 15:42:20 +01'00'

Klaus Gegenfurtner
Teamleader Radio

Tested by:

I am the author of this document
2020.12.07 15:19:32 +01'00'

Franz-Xaver Schrettenbrunner
Radio Team

4 TEST ENVIRONMENT

4.1 Address of the test laboratory

CSA Group Bayern GmbH
Ohmstrasse 1-4
94342 STRASSKIRCHEN
GERMANY

4.2 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15-35 °C
Humidity:	30-60 %
Atmospheric pressure:	86-106 kPa

4.1 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. It is noted that the expanded measurement uncertainty corresponds to the measurement results from the standard measurement uncertainty multiplied by the coverage factor k = 2. The true value is located in the corresponding interval with a probability of 95 % The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16-4-2 / 2011 + A1 / 2014 „Uncertainties, statistics and limit modelling – Uncertainty in EMC measurements“ and is documented in the quality system acc. to DIN EN ISO/IEC 17025. For all measurements shown in this report, the measurement uncertainty of the test laboratory, CSA Group Bayern GmbH, is below the measurement uncertainty as defined by CISPR. Therefore, no special measures must be taken into consideration with regard to the limits according to CISPR. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

4.2 Conformity Decision Rule

The conformity decision rule is based on the ILAC G8 published at the time of reporting.

5 HUMAN EXPOSURE

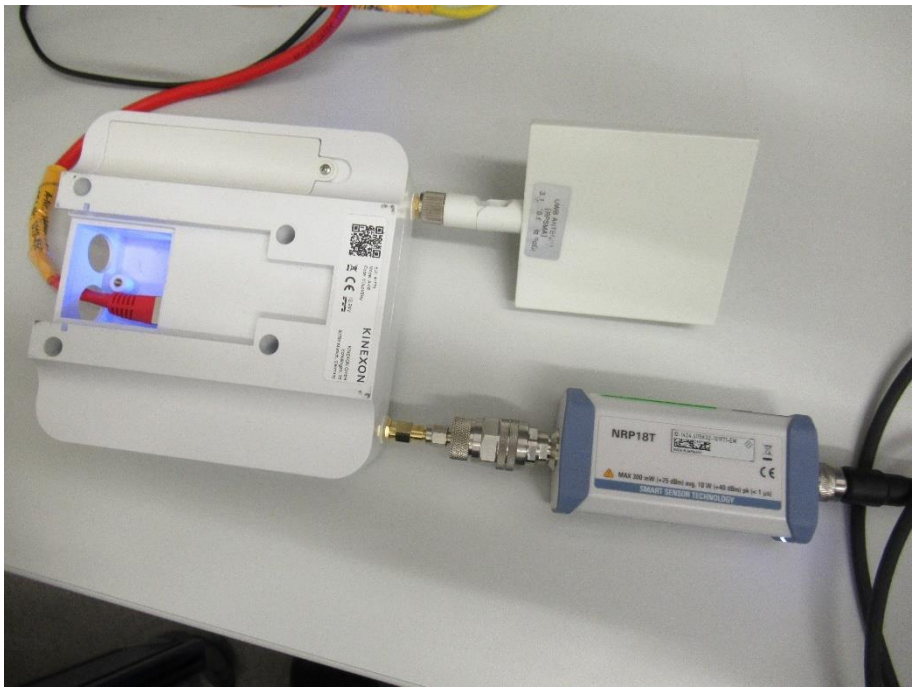
5.1 SAR test exclusion considerations

For test instruments and accessories used see section 6 Part **CPC 3**.

5.1.1 Description of the test location

Test location: Shielded Room S6

5.1.2 Photo documentation of the test set-up



5.1.3 Applicable standard

According to RF exposure guidance:
Systems operating under the provisions of this section shall be operated in a manner that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines.

5.1.4 Description of Measurement

The measurement was performed conducted. The EUT was set in transmission mode. The power was detected with a thermal power detector.

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5.1.5 Test result

Channel	Center frequency (MHz)	average power (dBm)	Tune-up tolerance (dB)
5	6489.6	-37.4	2.00

According to TCB Workshop Novermber 2019 RF Exposure Policy Updates dated Novemver 13, 2019, specifically slide 11:

Test exclusion based on 1 mW may be used now with the portable device f > 6 GHz FCC MPE power density limits.
Maximum time-averaged conducted power irrespective of distance from the body.

Measured power including tune-up tolerance: **-35.4 dBm = 0.00028 mW**

Result: The device is compliant with the test exclusion requirement of 1 mW, SAR measurement is not necessary.

The requirements are **FULFILLED.**

Remarks: None.

6 USED TEST EQUIPMENT AND ACCESSORIES

All test instruments used are calibrated and verified regularly. The calibration history is available on request.

Test ID	Model Type	Equipment No.	Next Calib.	Last Calib.	Next Verif.	Last Verif.
CPC 3	NRP18T	02-02/07-19-001	02/11/2021	02/11/2020		