

Prüfbericht-Nr.: <i>Test report no.:</i>	CN24K76Q 004	Auftrags-Nr.: <i>Order no.:</i>	168501938	Seite 1 von 10 <i>Page 1 of 10</i>	
Kunden-Referenz-Nr.: <i>Client reference no.:</i>	N/A	Auftragsdatum: <i>Order date:</i>	2024-08-27		
Auftraggeber: <i>Client:</i>	Shining 3D Tech Co., Ltd. No. 1398, Xiangbin Road, Wenyan, Xiaoshan, Hangzhou, Zhejiang, P.R. China				
Prüfgegenstand: <i>Test item:</i>	Laser 3D Scanner				
Bezeichnung / Typ-Nr.: <i>Identification / Type no.:</i>	FreeScan Trak ProW				
Auftrags-Inhalt: <i>Order content:</i>	Test Report				
Prüfgrundlage: <i>Test specification:</i>	CFR47 FCC Part 2: Section 2.1093 FCC KDB Publication 447498 D01 RSS-102 Issue 6 December 15, 2023				
Wareneingangsdatum: <i>Date of sample receipt:</i>	2024-08-27	Please refer to Photo Document			
Prüfmuster-Nr.: <i>Test sample no.:</i>	A003790564-001~002 A003790295-001~005				
Prüfzeitraum: <i>Testing period:</i>	2024-09-25 - 2024-12-15				
Ort der Prüfung: <i>Place of testing:</i>	Refer to section 2.1				
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>	2025-02-17 Signed by: Bell Hu		Ausstellungsdatum: <i>Issue date:</i>	2025-02-17 Signed by: Jonathan Li	
Stellung / Position:	Sachverständige(r)/Expert		Stellung / Position:	Sachverständige(r)/Expert	
Sonstiges / <i>Other:</i>	FCC ID: 2AMG4-FSTSTE0A0, IC: 24652-FSTSTE0A0, HVIN: FreeScan TE25W, PMN: FreeScan Trak ProW				
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: P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T = nicht getestet * 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					
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Anmerkungen
Remarks

1	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 Prüfkonditionen, Prüfequipment und Messunsicherheiten sind im Prüflabor vorhanden und können auf Wunsch bereitgestellt werden. <i>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.</i>
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3	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>Test clauses with remark of * are subcontracted to qualified subcontractors and described under the respective test clause in the report.</i> <i>Deviations of testing specification(s) or customer requirements are listed in specific test clause in the report.</i>
4	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>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.</i>

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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.

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

FCC Accreditation Designation No.: CN1260

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, 518110, Shenzhen, 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 3D Scanner which supports 2.4GHz Wi-Fi and 5GHz Wi-Fi functions.
For details refer to the User Manual, Technical Description and Circuit Diagram.

2.2 Rating and System Details

Table 1: Technical Specification of EUT

General Information of EUT	Value
Kind of Equipment:	Laser 3D Scanner
Type Designation:	FreeScan Trak ProW
FCC ID:	2AMG4-FSTSTE0A0
IC:	24652-FSTSTE0A0
PMN:	FreeScan Trak ProW
HVIN:	FreeScan TE25W
Operating Voltage:	DC 24V

3. Test Results

3.1 Transmitter Requirements & Test Suites

3.1.1 RF Exposure Compliance

RESULT:

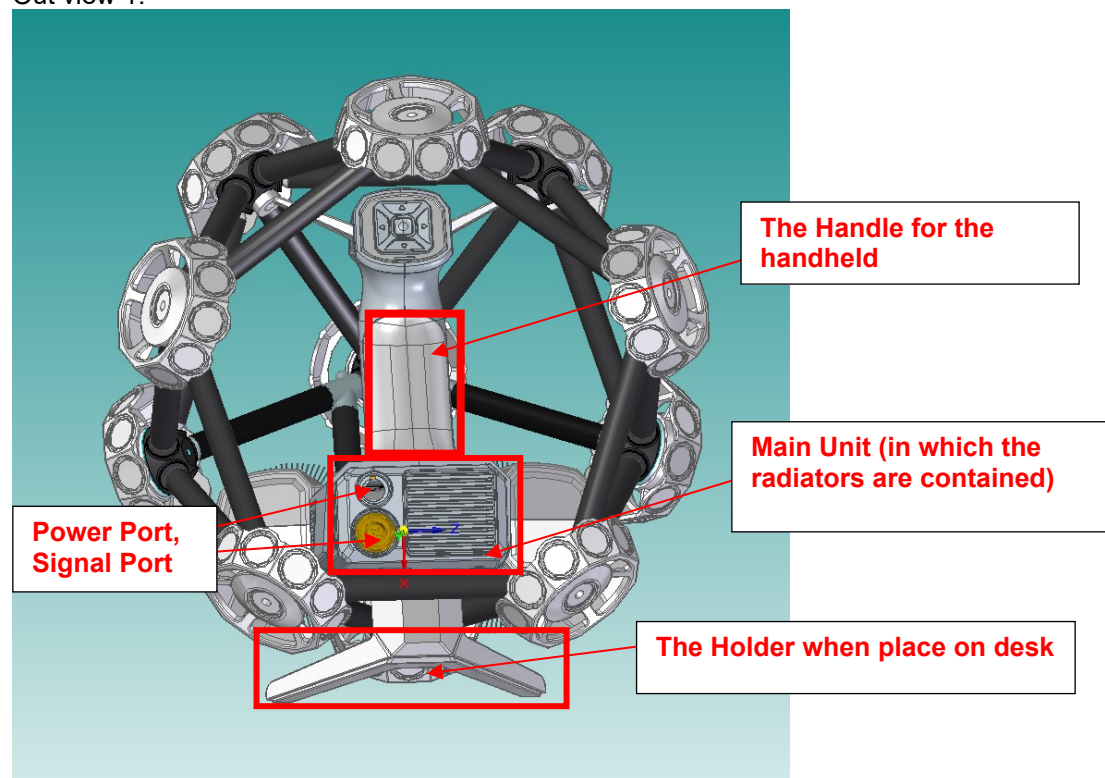
Pass

Test standard : CFR47 FCC Part 2: Section 2.1093
RSS-102 Issue 6 December 15, 2023
FCC KDB 447498 D01 General RF Exposure Guidance v06

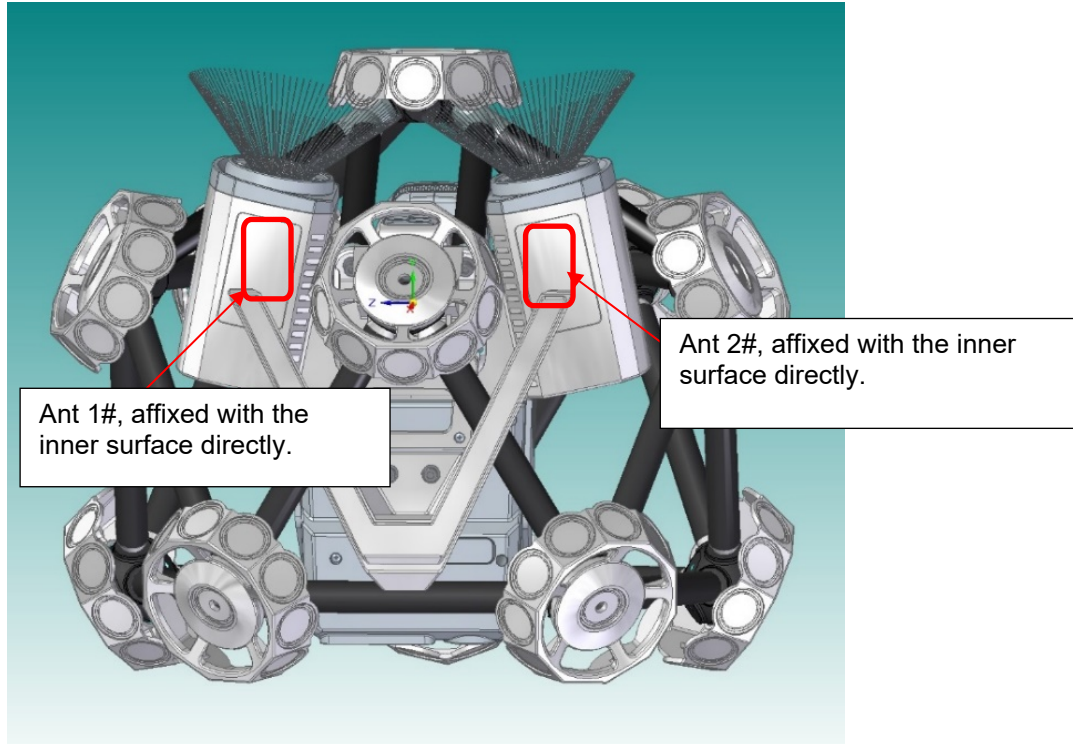
Measurement Record:

This product is hand-held only, when in normal use, the distance between the hand and the radiated construction is larger than 5cm (about 8cm). More details shown in the antenna distribution diagrams, as following.

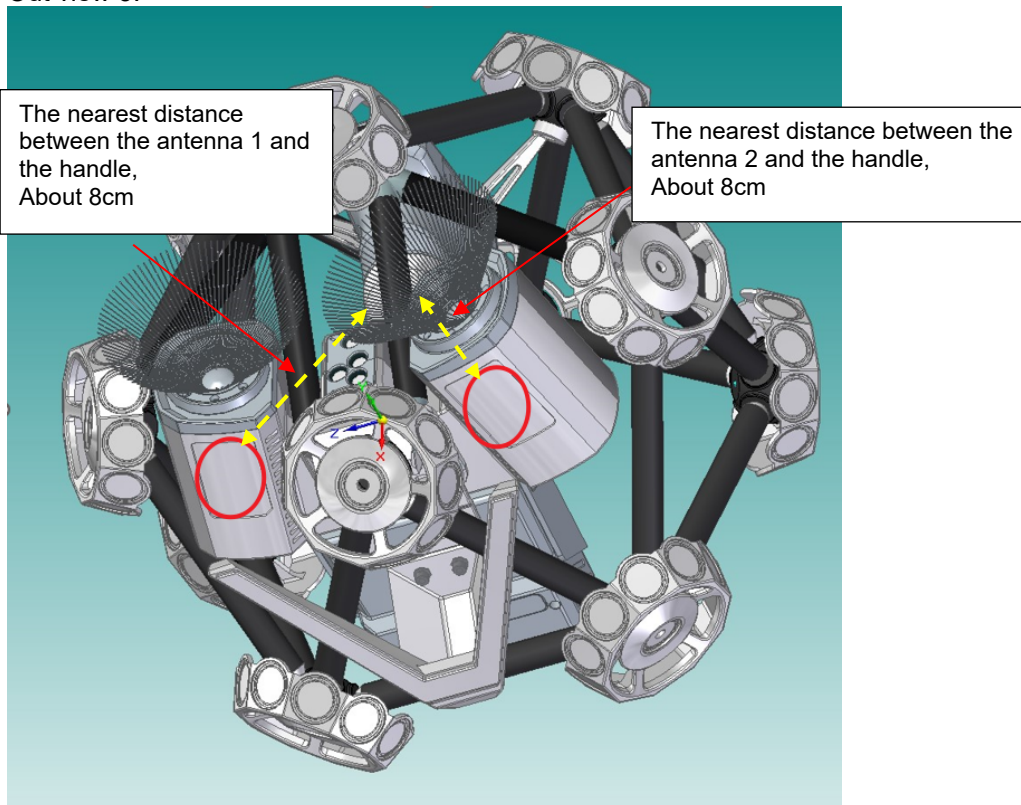
Out view 1:



Out view 2:



Out view 3:



FCC Part 1.1310, Part 2.1093, KDB 447498 D01 General RF Exposure Guidance v06

Appendix A|

SAR Test Exclusion Thresholds for 100 MHz – 6 GHz and ≤ 50 mm

Approximate SAR Test Exclusion Power Thresholds at Selected Frequencies and Test Separation Distances are illustrated in the following Table. The equation and threshold in 4.3.1 must be applied to determine SAR test exclusion.

MHz	5	10	15	20	25	mm
150	39	77	116	155	194	SAR Test Exclusion Threshold (mW)
300	27	55	82	110	137	
450	22	45	67	89	112	
835	16	33	49	66	82	
900	16	32	47	63	79	
1500	12	24	37	49	61	
1900	11	22	33	44	54	
2450	10	19	29	38	48	
3600	8	16	24	32	40	
5200	7	13	20	26	33	
5400	6	13	19	26	32	
5800	6	12	19	25	31	
MHz	30	35	40	45	50	mm
150	232	271	310	349	387	SAR Test Exclusion Threshold (mW)
300	164	192	219	246	274	
450	134	157	179	201	224	
835	98	115	131	148	164	
900	95	111	126	142	158	
1500	73	86	98	110	122	
1900	65	76	87	98	109	
2450	57	67	77	86	96	
3600	47	55	63	71	79	
5200	39	46	53	59	66	
5400	39	45	52	58	65	
5800	37	44	50	56	62	

Note: 10-g Extremity SAR Test Exclusion Power Thresholds are 2.5 times higher than the 1-g SAR Test Exclusion Thresholds indicated above. These thresholds do not apply, by extrapolation or other means, to occupational exposure limits.

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

Test Mode (note 3)	Output Power (including Tune-up tolerance) (note 1)		Pmax in Annex A (note 2) (mW)	Result
	(dBm)	(mW)		
2.4GHz SRD	7.0	5.01	240	Pass
2.4GHz Wi-Fi	21.0	125.89	240	Pass
5.1GHz Wi-Fi	20.0	100.00	165	Pass
5.8GHz Wi-Fi	19.0	79.43	165	Pass

Note 1: Refer to the RF reports CN24K76Q 001~003 for power data.

Note 2: The Pmax in the table is based on 5cm distance Hand-held exposure environment, as more conservative evaluation, which is stricter than the actual condition, i.e. 8cm distance.

(KDB447498 D01v06 Appendix A SAR Test Exclusion Thresholds for 100 MHz – 6 GHz and ≤ 50 mm).

Note 3: 10-g Extremity SAR Test Exclusion Power Thresholds are 2.5 times higher than the 1-g SAR Test Exclusion Thresholds indicated above.

Table 3: Test Results of RF Exposure Calculations for FCC, Simultaneous mode (Worst-case)

Test Mode	Sum of the radio	Limit	Result
5.1GHz Wi-Fi+2.4GHz SRD	100/165+5/240=0.64	1.0	Pass

Note: Simultaneous mode not supported for 2.4GHz Wi-Fi and 5GHz Wi-Fi.

For IC RSS-102 Issue 6:

6.3. SAR exemption limits

Devices operating at or below the applicable output power levels (adjusted for tune-up tolerance) specified in table 11, based on the separation distance, are exempt from SAR evaluation. The separation distance, defined as the distance between the user and/or bystander and the antenna and/or radiating element of the device or the outer surface of the device, shall be less than or equal to 20 cm for these exemption limits to apply.

Table 11: Power limits for exemption from routine SAR evaluation based on the separation distance

Frequency (MHz)	≤ 5 mm (mW)	10 mm (mW)	15 mm (mW)	20 mm (mW)	25 mm (mW)	30 mm (mW)	35 mm (mW)	40 mm (mW)	45 mm (mW)	> 50 mm (mW)
≤ 300	45	116	139	163	189	216	246	280	319	362
450	32	71	87	104	124	147	175	208	248	296
835	21	32	41	54	72	96	129	172	228	298
1900	6	10	18	33	57	92	138	194	257	323
2450	3	7	16	32	56	89	128	170	209	245
3500	2	6	15	29	50	72	94	114	134	158
5800	1	5	13	23	32	41	54	74	102	128

The exemption limits in table 11 are based on measurements and simulations of half-wave dipole antennas at separation distances of 5 mm to 50 mm from a flat phantom, which provides a SAR value of approximately 0.4 W/kg for 1 g of tissue.

For limb-worn devices where the 10 gram of tissue applies, the exemption limits for routine evaluation in table 11 are multiplied by a factor of 2.5

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

Test Mode (note 3)	Output Power (including Tune-up tolerance) (note 1)		Pmax as per Table 11 (note 2) (mW)	Result
	(dBm)	(mW)		
2.4GHz SRD	7.0	5.01	612.5	Pass
2.4GHz Wi-Fi	21.0	125.89	612.5	Pass
5.1GHz Wi-Fi	20.0	100.00	320	Pass
5.8GHz Wi-Fi	19.0	79.43	320	Pass

Note 1: The output Power used for SAR exemption evaluation is the higher of conducted power or EIRP. Refer to the RF reports CN24K76Q 001~003 for power data.

Note 2: The Pmax in the table is based on Hand-held exposure environment under the distance larger than 5cm.

Note 3: 10-g Extremity SAR Test Exclusion Power Thresholds are 2.5 times higher than the 1-g SAR Test Exclusion Thresholds indicated above.

Table 5: Test Results of RF Exposure Calculations for IC, Simultaneous mode (Worst-case)

Test Mode	Sum of the radio	Limit	Result
5.1GHz Wi-Fi+2.4GHz SRD	100/320+5/612.5=0.32	1.0	Pass

Note: Simultaneous mode not supported for 2.4GHz Wi-Fi and 5GHz Wi-Fi.