

Prüfbericht-Nr.: Test report no.:	CN25JPP0 001	Auftrags-Nr.: Order no.:	168531160	Seite 1 von 10 Page 1 of 10
Kunden-Referenz-Nr.: Client reference no.:	N/A	Auftragsdatum: Order date:	2025-01-16	
Auftraggeber: Client:	FUJIAN LANDI COMMERCIAL EQUIPMENT CO., LTD. Building 17, Section A, Software Park, No 89 Software Road, Gulou District, Fuzhou, Fujian 350003, P.R. China			
Prüfgegenstand: Test item:	POS Terminal			
Bezeichnung / Typ-Nr.: Identification / Type no.:	C20DS (Trademark: N/A)			
Auftrags-Inhalt: Order content:	Test Report			
Prüfgrundlage: Test specification:	CFR Title 47 FCC Part 2: Section 2.1091 RSS-102 Issue 6 December 2023 447498 D01 General RF Exposure Guidance v06			
Wareneingangsdatum: Date of sample receipt:	2025-01-23	Please refer to Photo Document		
Prüfmuster-Nr.: Test sample no:	A003911736-001~005 A003913858-001~016			
Prüfzeitraum: Testing period:	2025-02-13 - 2025-03-29			
Ort der Prüfung: Place of testing:	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüflaboratorium: Testing laboratory:	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüfergebnis*: Test result*:	Pass			
geprüft von: tested by:	Bell <u>X Bell x/hu</u>		genehmigt von: authorized by:	Hardy <u>X Hardy</u>
Datum: Date:	2025-04-03		Ausstellungsdatum: Issue date:	2025-04-03
Stellung / Position:	Sachverständige(r)/Expert		Stellung / Position:	Sachverständige(r)/Expert
Sonstiges / Other:	FCC ID: 2AG6N-C20DS IC: 23725-C20DS HVIN: C20DS			
Zustand des Prüfgegenstandes bei Anlieferung: Condition of the test item at delivery:	Prüfmuster vollständig und unbeschädigt Test item complete and undamaged			
* 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			
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 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>				

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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. 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.

2-3F, 101 & 102, No.2, Nuclear Power Industrial Park, Fuming Community, Fucheng Street, Longhua District, Shenzhen 518000, People's Republic of China

A2LA Certificate Number: 5162.01

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. Test facility located at 2-3F, 101 & 102, No.2, Nuclear Power Industrial Park, Fuming Community, Fucheng Street, Longhua District, Shenzhen 518000, People's Republic of 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 a POS Terminal which supports Bluetooth dual mode, 2.4 GHz Wi-Fi, 5GHz Wi-Fi and NFC 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:	POS Terminal
Type Designation:	C20DS
Trademark:	N/A
Operating Voltage:	AC/DC adapter (120V AC/60Hz) or Powered by POE
Operating Temperature Range:	0 °C ~ +40 °C
AC/DC Adapter 1#:	Model: PA-1400-76 Input: 100-240V, 50/60Hz Output: DC 19V, 2.1A
AC/DC Adapter 2#:	Model: PA-1450-26 Input: 100-240V, 50/60Hz Output: DC 19V, 2.37A
Technical Specification of Bluetooth (dual mode)	
Operating Frequency:	2402 MHz to 2480 MHz
Type of Modulation:	GFSK, $\pi/4$ -DQPSK, 8DPSK
Channel Number:	BR & EDR mode:79 channels, Low Energy mode:40 channels
Channel Separation:	BR & EDR mode:1MHz, Low Energy mode:2MHz
Data Rate:	BR & EDR mode: 1Mbps, 2Mbps, 3Mbps Low Energy mode: 1Mbps, 2Mbps
Antenna Type:	Integral Antenna
Antenna Gain:	5.89 dBi (Provided by the Client)
Technical Specification of 2.4GHz Wi-Fi	
Operating Frequency:	2412 - 2462MHz for 802.11b/g/n/ax(HT20/HE20) 2422 - 2452MHz for 802.11n/ax(HT40/HE40)
Type of Modulation:	DSSS(DBPSK/DQPSK/CCK) OFDM(BPSK/QPSK/16QAM/64QAM/256QAM/1024QAM)
Data Rate:	1/2/5.5/11 Mbps for 802.11b 6/9/12/18/24/36/48/54 Mbps for 802.11g MCS0 ~ MCS7 for 802.11n(HT20)/n(HT40) MCS0 ~ MCS11 for 802.11ax(HT20)/ax(HT40)
Channel Number:	11 channels for 802.11b/g/n/ax(HT20/HE20) 7 channels for 802.11n/ax(HT40/HE40)
Channel Separation:	5 MHz

Antenna Type:	Integral Antenna
Antenna Number:	1Tx1RX
Antenna Gain:	5.89 dBi (Provided by the Client)
Technical Specification of 5GHz Wi-Fi	
Operating Frequency:	5180-5240MHz, 5260-5320MHz, 5500-5700MHz, 5745-5825MHz
Channel Number:	5180-5240MHz 4CHs, 802.11 a/n20/ac20/ax20 2CHs, 802.11 n40/ac40/ax40 1CH, 802.11 ac80/ax80 5260-5320MHz 4CHs, 802.11 a/n20/ac20/ax20 2CHs, 802.11 n40/ac40/ax40 1CH, 802.11 ac80/ax80 5500-5700MHz 11CHs, 802.11 a/n20/ac20/ax20 5CHs, 802.11 n40/ac40/ax40 2CH, 802.11 ac80/ax80 5745-5825MHz 5 channels for 802.11a/n20/ac20/ax20 2 channels for 802.11n40/ac40/ax40 1 channel for 802.11ac80/ax80
Type of Modulation:	OFDM(BPSK/QPSK/16QAM/64QAM/256QAM/1024QAM)
Data Rate:	6/9/12/18/24/36/48/54 Mbps for 802.11a MCS0~MCS7 for 802.11n MCS0~MCS9 for 802.11ac MCS0~MCS11 for 802.11ax
Channel Separation:	20MHz, 40MHz, 80MHz
Antenna Type:	Integral Antenna
Antenna Number:	1Tx1RX
Antenna Gain:	5.15 dBi max. for 5150-5350MHz, 5.61 dBi max. for 5470-5725MHz 4.44 dBi max. for 5725-5875MHz (Provided by the Client)
Technical Specification of NFC	
Operating Frequency:	13.56 MHz
Type of Modulation:	ASK
Channel Number:	1 channel
Antenna Type:	Coil Antenna
Antenna gain:	-10 dBi (Provided by the Client)

Note: The correctness of all data provided by customer in the test report is ensured and responsible of the customer. Any misjudgment of the test results caused by the use of incorrect data provided by customer shall be borne by the customer.

3. Test Results

3.1 RF Exposure Evaluation

3.1.1 RF Exposure Compliance

RESULT:
Pass

Test standard : CFR Title 47 FCC Part 2.1091
RSS-102 Issue 6

Limit : Table 1 of CFR Title 47 FCC Part 1.1310
Section 6.6 of RSS-102 Issue 6

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.

Antenna Gain: 5.89 dBi for Bluetooth & 2.4GHz Wi-Fi,
5.15 dBi for 5.2/5.3GHz Wi-Fi, 5.61 dBi for 5.6GHz Wi-Fi, 4.44 dBi for 5.8GHz Wi-Fi

3.1.1.1 RF Exposure Compliance Requirement for FCC

a) Radio Frequency Exposure Limit

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

f = frequency in MHz. * = Plane-wave equivalent power density.

b) 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

c) RF Exposure Calculations for FCC, stand-alone mode
(1) For Bluetooth & Wi-Fi:

Operating Mode	Max. EIRP incl. tune-up (dBm)	Distance (cm)	MPE P _d (mW/cm ²)	Limit (mW/cm ²)	Verdict
Bluetooth	10.0	20	0.002	1.0	Pass
2.4GHz Wi-Fi	20.0	20	0.019	1.0	Pass
5GHz Wi-Fi	21.0	20	0.025	1.0	Pass

Note: The Bluetooth and 2.4G/5GWi-Fi of EUT cannot transmitting sync.

(2) For NFC

The maximum measured field strength of NFC is 39.03 dBuV/m, the calculated power is -68 dBm which it's far below the SAR test exclusion threshold level (474mW). So, According to KDB 447498 D01 v06 appendic C, SAR Test Exclusion Thresholds for < 100 MHz and < 200 mm, the maximum measured power is less than or equal to 474mW, then the apparatus is deemed to comply with the basic restrictions without testing.

d) Conclusion

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

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

The EUT shall comply with the requirement of RSS-102 section 6.6.

Exemption from Routine Evaluation Limits – 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.

a) RF Exposure Calculations for ISED, Stand-alone mode

Operating Mode	Max. EIRP incl. tune-up (dBm)	Maximum EIRP (W)	Distance (cm)	Threshold power (W)	Verdict
Bluetooth	10.0	0.0100	20	2.68	Pass
2.4GHz Wi-Fi	20.0	0.2000	20	2.68	Pass
5GHz Wi-Fi	21.0	0.1259	20	4.53	Pass
NFC	-63.0	0.00000001	20	1	Pass

Note: The maximum EIRP lower than the threshold power in section 6.6, thus compliant.

Both e.i.r.p. for Bluetooth & 2.4G/5G Wi-Fi & NFC are less than the RF exposure evaluation exempted power. So RF exposure evaluation is not required.

b) Conclusion

“RF Radiation Exposure Statement Caution: This Transmitter must be installed to provide a separation distance of at least 20 cm from all persons.”