



<b>Prüfbericht-Nr.:</b> <i>Test report no.:</i>	<b>60434794 001</b>	<b>Auftrags-Nr.:</b> <i>Order no.:</i>	168292739	Seite 1 von 16 Page 1 of 16
<b>Kunden-Referenz-Nr.:</b> <i>Client reference no.:</i>	N/A	<b>Auftragsdatum:</b> <i>Order date:</i>	2020-11-30	
<b>Auftraggeber:</b> <i>Client:</i>	Sanford, L.P.dba Dymo 3 Glendale Parkway, NE Atlanta GA 30328, United States Of America			
<b>Prüfgegenstand:</b> <i>Test item:</i>	Label maker			
<b>Bezeichnung / Typ-Nr.:</b> <i>Identification / Type no.:</i>	LabelWriter 550 Turbo			
<b>Auftrags-Inhalt:</b> <i>Order content:</i>	Test Report			
<b>Prüfgrundlage:</b> <i>Test specification:</i>	CFR47 FCC Part 15: Subpart C Section 15.225 RSS-210 Issue 10 December 2019 CFR47 FCC Part 15: Subpart C Section 15.205 RSS-Gen Issue 5 March 2019 CFR47 FCC Part 15: Subpart C Section 15.207 CFR47 FCC Part 15: Subpart C Section 15.209			
<b>Wareneingangsdatum:</b> <i>Date of sample receipt:</i>	2020-12-04	Please refer to photo documents		
<b>Prüfmuster-Nr.:</b> <i>Test sample no.:</i>	A002960663-006 A002961442-009			
<b>Prüfzeitraum:</b> <i>Testing period:</i>	2020-12-05 – 2021-01-11			
<b>Ort der Prüfung:</b> <i>Place of testing:</i>	TÜV Rheinland (Shenzhen) Co., Ltd.			
<b>Prüflaboratorium:</b> <i>Testing laboratory:</i>	TÜV Rheinland (Shenzhen) Co., Ltd.			
<b>Prüfergebnis*:</b> <i>Test result*:</i>	Pass			
<b>geprüft von:</b> <i>tested by:</i>	 <b>Lin Lin</b>	<b>genehmigt von:</b> <i>authorized by:</i>	 <b>Winnie Hou</b>	
<b>Datum:</b> <i>Date:</i>	2021-01-12	<b>Ausstellungsdatum:</b> <i>Issue date:</i>	2021-01-12	
<b>Stellung / Position:</b>	Senior Project Manager	<b>Stellung / Position:</b>	Technical Certifier	
<b>Sonstiges / Other:</b>	FCC ID: RGDLW550T IC: 11034A-LW550T HVIN: LabelWriter 550 Turbo			
<b>Zustand des Prüfgegenstandes bei Anlieferung:</b> <i>Condition of the test item at delivery:</i>	<b>Prüfmuster vollständig und unbeschädigt</b> <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
<b>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.</b> <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>				

## ***Test Summary***

**5.1.1 ANTENNA REQUIREMENT**

*RESULT: Pass*

**5.1.2 99% & 20dB BANDWIDTH**

*RESULT: Pass*

**5.1.3 FREQUENCY STABILITY**

*RESULT: Pass*

**5.1.4 RADIATED SPURIOUS EMISSION (IN-BAND & OUT-BAND EMISSIONS)**

*RESULT: Pass*

**5.1.5 CONDUCTED EMISSIONS ON AC MAINS**

*RESULT: Pass*

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# 1 General Remarks

## 1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix A: Test Setup Photos

Appendix B: Test results of NFC

## 2 Test Sites

### 2.1 Test Facilities

**TÜV Rheinland (Shenzhen) Co., Ltd.**

No. 362 Huanguan Road Middle, Longhua District, Shenzhen 518110, People's Republic of China

FCC Accreditation Designation No.: CN1260

ISED Wireless Device Testing Laboratory: 25069

### 2.2 List of Test and Measurement Instruments

**Table 1: List of Test and Measurement Equipment**

<b>Unwanted Emission Testing (TS9975)</b>				
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No.</b>	<b>Serial No.</b>	<b>Cal. Until</b>
EMI Test Receiver	R&S	ESR 7	102021	2021-08-11
System Controller Interface	R&S	SCI-100	S10010038	N/A
OSP	R&S	OSP 120	102040	N/A
Pre-amplifier	R&S	SCU08F1	08320031	2021-08-10
Trilog Broadband Antenna (30 MHz - 7 GHz)	Schwarzbeck	VULB 9162	193	2022-08-08
Active Loop Antenna	Schwarzbeck	FMZB 1513	302	2022-09-13
Test software	R&S	EMC32 (V10.60.10)	N/A	N/A
Control PC	Dell	OptiPlex 7050	36NV9P2	N/A
3m Semi-Anechoic Chamber	Albatross	SAC-3m	APC17151-SAC	2021-07-06
<b>Conducted Emissions</b>				
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No.</b>	<b>Serial No.</b>	<b>Cal. Until</b>
EMI Test Receiver	R&S	ESR3	102428	2021-08-16
Impedance Stabilisation Network	R&S	ENY81	100323	2021-08-16
Impedance Stabilisation Network	R&S	ENY81-CA6	101810	2021-08-16
Artificial Mains Network	R&S	ENV216	102333	2021-08-16
EMC32 test software	R&S	EMC32(Ver.10.50.01)	N/A	N/A

## 2.3 Traceability

All measurement equipment calibrations are traceable to NIM (National Institute of Metrology) or where calibration is performed in other countries, to equivalent nationally recognized standards organizations.

## 2.4 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.

## 2.5 Measurement Uncertainty

Parameter	Uncertainty
Radio Frequency	$\pm 1 \times 10^{-7}$
Conducted Emission, (9kHz to 150kHz)/(150kHz to 30MHz)	$\pm 3.70 \text{ dB} / \pm 3.30 \text{ dB}$
Radiated Emission (3m SAC), 30MHz to 1000MHz	$\pm 4.52 \text{ dB}$
Radiated Emission (3m SAC), above 1000MHz	$\pm 4.37 \text{ dB}$
Temperature	$\pm 1 \text{ }^\circ\text{C}$
Humidity	$\pm 5 \%$
Voltage (DC)	$\pm 1 \%$
Voltage (AC, <10kHz)	$\pm 2 \%$

## 2.6 Location of Original Data

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

## 2.7 Status of Facility Used for Testing

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

## 3 General Product Information

### 3.1 Product Function and Intended Use

The device is a Label maker, which supports NFC function.

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

### 3.2 Ratings and System Details

Table 2: Technical Specification of EUT

General Information of EUT	Value
Kind of Equipment	Label maker
Type Designation	LabelWriter 550 Turbo
FCC ID	RGDLW550T
IC	11034A-LW550T
HVIN	LabelWriter 550 Turbo
Operating Voltage	DC 24V@2.5A input via power adapter
Testing Voltage	AC 120V/60Hz
Power adapter	Model: DYS865-240250W Input: 100-240V, 50/60Hz Output: DC 24V, 2.5A
Technical Specification of RFID	
Operating Frequency	13.56 MHz
Type of Modulation	ASK
Channel Number	1 channel
Antenna Type	PCB Loop Antenna
Antenna Gain	0dBi

### 3.3 Independent Operation Modes

The basic operation modes are:

- A. On, NFC transmitting mode
- B. Off

### 3.4 Noise Generating and Noise Suppressing Parts

Refer to Circuit Diagram for further details.

### 3.5 Submitted Documents

- Application Form

- User Manual



## 4 Test Set-up and Operation Modes

### 4.1 Principle of Configuration Selection

**Radio Spectrum:** The equipment under test (EUT) was configured at its highest power output in order to measure its highest possible radiation and conducted level. The test modes were adapted accordingly in reference to the instructions for use.

**Emission:** The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the instructions for use.

### 4.2 Test Operation and Test Software

Test operation refers to test setup in chapter 5. All tests were performed according to the procedures in ANSI C63.10: 2013.

According to clause 3.1, all tests were performed on model LabelWriter 550 Turbo in this report.

### 4.3 Special Accessories and Auxiliary Equipment

Table 3: List of Accessories and Auxiliary Equipment

Description	Manufacturer	Model	S/N	Remark
Portable Laptop	Lenovo	ThinkPad T480	10Q67059	N/A
USB Cable	newell	USB Cable	---	Shielded, Length: 1.2m Provided by client

### 4.4 Countermeasures to Achieve EMC Compliance

The test sample which has been tested contained the noise suppression parts as described in the Technical Construction File (TCF).

No additional measures were employed to achieve compliance.

## 4.5 Test Setup Diagram

Diagram of Measurement Configuration for Radiation Test (Below 1GHz)

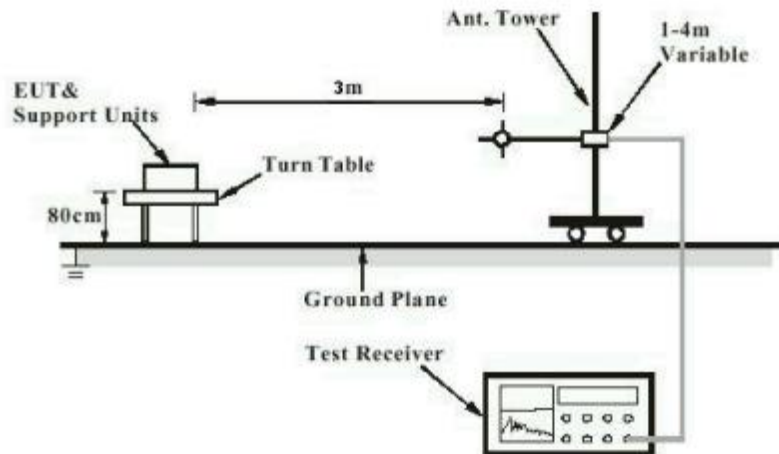


Diagram of Measurement Configuration for Conducted Transmitter Measurement

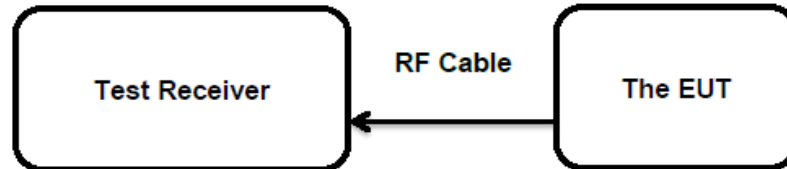
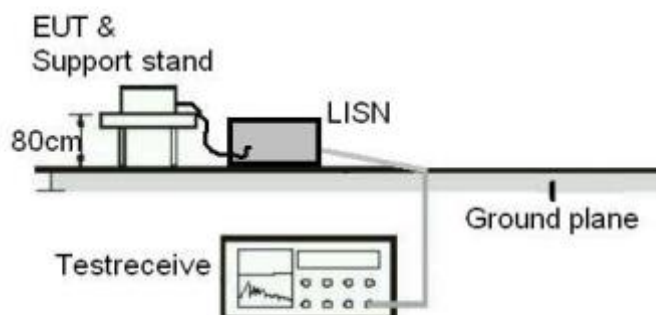


Diagram of Measurement Equipment Configuration for Mains Conduction Measurement



## 5 Test Results

### 5.1 Transmitter Requirement & Test Suites

#### 5.1.1 Antenna Requirement

**RESULT:****Pass****Test Specification**

Test standard : FCC Part 15.203  
RSS-Gen, Clause 6.8

According to the manufacturer declared, the EUT has a PCB Loop Antenna and the antenna connector is designed with permanent attachment and no consideration of replacement. Therefore the EUT is considered sufficient to comply with the provision.

Refer to EUT Photo for further details.

### 5.1.2 99% & 20dB Bandwidth

**RESULT:****Pass****Test Specification**

Test standard	: FCC Part 15.215 (c) RSS-Gen Issue 5, Clause 6.6
Basic standard	: ANSI C63.10: 2013
Limits	: N/A
Kind of test site	: Shielded Room

**Test Setup**

Date of testing	: 2021-01-08
Input voltage	: AC 120V/60Hz
Operation mode	: A
Ambient temperature	: 25 °C
Relative humidity	: 56 %
Atmospheric pressure	: 101 kPa

For the measurement records, refer to the appendix B.

### 5.1.3 Frequency Stability

**RESULT:****Pass****Test Specification**

Test standard	: FCC Part 15.225 (e) RSS-210 Issue 10, Clause B6(b)
Basic standard	: ANSI C63.10: 2013
Limits	: $\pm 0.01\%$ of Operating Frequency (1356Hz)
Kind of test site	: Shielded Room

**Test Setup**

Date of testing	: 2020-12-09
Input voltage	: AC 120V/60Hz
Operation mode	: A
Ambient temperature	: 25 °C
Relative humidity	: 56 %
Atmospheric pressure	: 101 kPa

For the measurement records, refer to the appendix B.

### 5.1.4 Radiated Spurious Emission (In-Band & Out-Band Emissions)

**RESULT:** **Pass****Test Specification**

Test standard : FCC Part 15.225 (a)(b)(c)(d)  
FCC Part 15.209 & 15.205  
RSS-210 Issue 10, Clause B6(a)  
RSS-Gen Issue 5, Clause 8.9

Basic standard : ANSI C63.10: 2013

Limits : FCC Part 15.209(a)  
RSS-Gen Issue 5, Clause 8.9

Kind of test site : 3m Semi-anechoic Chamber

**Test Setup**

Date of testing : 2020-12-09

Input voltage : AC 120V/60Hz

Operation mode : A

Ambient temperature : 23 °C

Relative humidity : 45 %

Atmospheric pressure : 101 kPa

For the measurement records, refer to the appendix B.

### 5.1.5 Conducted Emissions on AC Mains

**RESULT:****Pass****Test Specification**

Test standard	: FCC Part 15.207(a) RSS-Gen Issue 5, Clause 8.8
Basic standard	: ANSI C63.10: 2013
Limits	: FCC Part 15.207(a) RSS-Gen Issue 5, Clause 8.8
Kind of test site	: Shielded Room

**Test Setup**

Date of testing	: 2021-01-11
Input voltage	: AC 120V/60Hz
Operation mode	: A
Ambient temperature	: 23 °C
Relative humidity	: 45 %
Atmospheric pressure	: 101 kPa

For the measurement records, refer to the appendix B.

## 6 Photographs of the Test Set-Up

For photographs of the test set-up, refer to the appendix A.

## 7 List of Tables

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