Prüfbericht-Nr.: *Test report no.:*	**60434186 001**	**Auftrags-Nr.:** *Order no.:*	168292741	Seite 1 von 16 *Page 1 of 16*
Kunden-Referenz-Nr.: *Client reference no.:*	N/A	**Auftragsdatum:** *Order date:*	2020-11-30	
Auftraggeber: *Client:*	Sanford, L.P.dba Dymo 3 Glendale Parkway, NE Atlanta GA 30328, United States Of America			
Prüfgegenstand: *Test item:*	Label maker			
Bezeichnung / Typ-Nr.: *Identification / Type no.:*	LabelWriter 5XL			
Auftrags-Inhalt: *Order content:*	Test Report			
Prüfgrundlage: *Test specification:*	CFR47 FCC Part 15: Subpart C Section 15.225 CFR47 FCC Part 15: Subpart C Section 15.205 CFR47 FCC Part 15: Subpart C Section 15.207 CFR47 FCC Part 15: Subpart C Section 15.209		RSS-210 Issue 10 December 2019 RSS-Gen Issue 5 March 2019	

Wareneingangsdatum: *Date of sample receipt:*	2020-12-04	Please refer to photo documents
Prüfmuster-Nr.: *Test sample no:*	A002960663-002~003	
Prüfzeitraum: *Testing period:*	2020-12-05 – 2021-01-08	
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:*	Lin Lin	**genehmigt von:** *authorized by:*	Winni e Hou
Datum: *Date:* 2021-01-08		**Ausstellungsdatum:** *Issue date:* 2021-01-08	
Stellung */ Position:*	Senior Project Manager	**Stellung** */ Position:*	Technical Certifier

Sonstiges */ Other:*

FCC ID: RGDLW5XL
IC: 11034A-LW5XL
HVIN: LabelWriter 5XL

Zustand des Prüfgegenstandes bei Anlieferung: **Prüfmuster vollständig und unbeschädigt**
Condition of the test item at delivery: ***Test item complete and undamaged***

* Legende:	1 = sehr gut	2 = gut	3 = befriedigend	4 = ausreichend	5 = mangelhaft
	P(ass) = entspricht o.g. Prüfgrundlage(n)		F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	N/A = nicht anwendbar	N/T = nicht getestet
** Legend:*	*1 = very good*	*2 = good*	*3 = satisfactory*	*4 = sufficient*	*5 = poor*
	P(ass) = passed a.m. test specification(s)		*F(ail) = failed a.m. test specification(s)*	*N/A = not applicable*	*N/T = not tested*

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

Contents

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

Unwanted Emission Testing (TS9975)				
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Until**
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	2020-09-30
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
Conducted Emissions				
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Until**
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 basics using in house standards or comparisons.

2.5 Measurement Uncertainty

Parameter	Uncertainty
Radio Frequency	±1 x 10-7
Conducted Emission, (9kHz to 150kHz)/(150kHz to 30MHz)	± 3.70 dB / ± 3.30 dB
Radiated Emission (3m SAC), 30MHz to 1000MHz	± 4.52 dB
Radiated Emission (3m SAC), above 1000MHz	± 4.37 dB
Temperature	±1 °C
Humidity	±5 %
Voltage (DC)	±1 %
Voltage (AC, <10kHz)	±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 5XL
FCC ID	RGDLW5XL
IC	11034A-LW5XL
HVIN	LabelWriter 5XL
Operating Voltage	DC 24V@3.75A input via power adapter
Testing Voltage	AC 120V/60Hz
Power adapter	Model: DSA-96PFB-24 2 240375 Input: 100-240V, 50/60Hz Output: DC 24V@3.75A
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 5XL* 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)

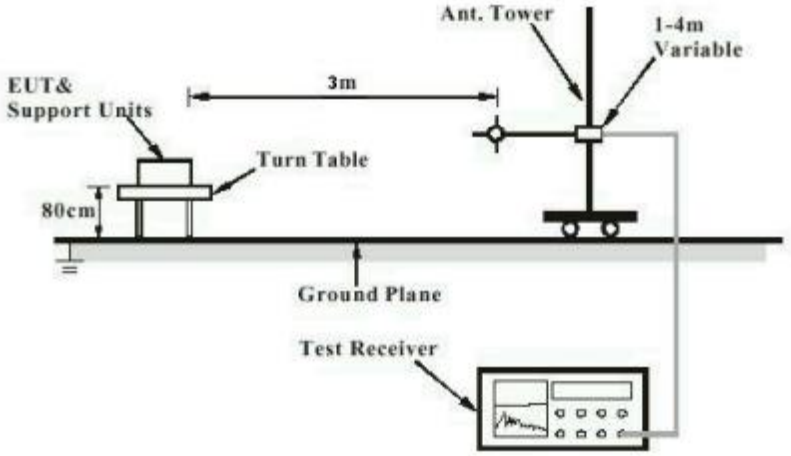


Diagram of Measurement Configuration for Conducted Transmitter Measurement

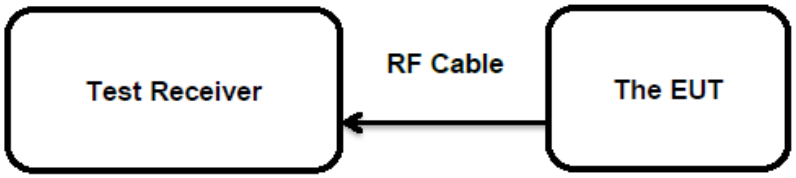
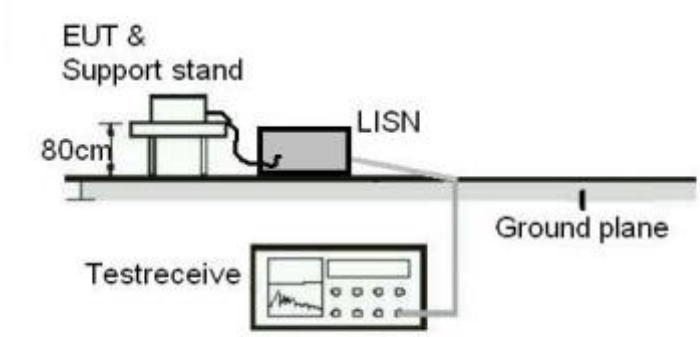


Diagram of Measurement Equipment Configuration for Mains Conduction Measurement



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 ℃
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	:	±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 ℃
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 ℃
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	:	2020-12-09
Input voltage	:	AC 120V/60Hz
Operation mode	:	A
Ambient temperature	:	23 ℃
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