

RADIO TEST REPORT

Test Report No. 15230055H-C-R1

Customer	G-Printec, Inc.
Description of EUT	Card Printer
Model Number of EUT	CX-7650
FCC ID	2AL3XG4S002
Test Regulation	FCC Part 15 Subpart C
Test Result	Complied
Issue Date	March 18, 2025
Remarks	Frequency Tolerance only

Representative test engineer	Approved by
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Junki Nagatomi Engineer	Akihiko Maeda Leader
☐ The testing in which "Non-accreditation" is displayed ⊠ There is no testing item of "Non-accreditation".	CERTIFICATE 5107.02 d is outside the accreditation scopes in UL Japan, Inc.
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REVISION HISTORY

Original Test Report No. 15230055H-C

This report is a revised version of 15230055H-C. 15230055H-C is replaced with this report.

Revision	Test Report No.	Date	Page Revised Contents
- (Original)	15230055H-C	March 17, 2025	-
1	15230055H-C-R1	March 18, 2025	p.9 Corrected the cable No. of the AC Cable in the List of Cables Used from '4' to '1'

A2LA	The American Association for Laboratory Accreditation	ICES	Interference-Causing Equipment Standard	
AC	Alternating Current	IEC	International Electrotechnical Commission	
AFH	Adaptive Frequency Hopping	IEEE	Institute of Electrical and Electronics	
AM	Amplitude Modulation	IF	Intermediate Frequency	
Amp, AMP	Amplifier	ILAC	International Laboratory Accreditation Conference	
ANSI	American National Standards Institute	ISED	Innovation, Science and Economic Development Canada	
Ant, ANT	Antenna	ISO	International Organization for Standardization	
AP	Access Point	JAB	Japan Accreditation Board	
ASK	Amplitude Shift Keying	LAN	Local Area Network	
Atten., ATT	Attenuator	LIMS	Laboratory Information Management System	
AV	Average	MCS	Modulation and Coding Scheme	
BPSK	Binary Phase-Shift Keying	MRA	Mutual Recognition Arrangement	
BR	Bluetooth Basic Rate	N/A	Not Applicable	
BT	Bluetooth	NIST	National Institute of Standards and Technology	
BT LE	Bluetooth Low Energy	NS	No signal detect.	
BW	BandWidth	NSA	Normalized Site Attenuation	
Cal Int	Calibration Interval	NVLAP	National Voluntary Laboratory Accreditation Program	
CCK	Complementary Code Keying	OBW	Occupied Band Width	
Ch., CH	Channel	OFDM	Orthogonal Frequency Division Multiplexing	
CISPR	Comite International Special des Perturbations Radioelectriques	P/M	Power meter	
CW	Continuous Wave	PCB	Printed Circuit Board	
DBPSK	Differential BPSK	PER	Packet Error Rate	
DC	Direct Current	PHY	Physical Layer	
D-factor	Distance factor	PK	Peak	
DFS	Dynamic Frequency Selection	PN	Pseudo random Noise	
DQPSK	Differential QPSK	PRBS	Pseudo-Random Bit Sequence	
DSSS	Direct Sequence Spread Spectrum	PSD	Power Spectral Density	
EDR	Enhanced Data Rate	QAM	Quadrature Amplitude Modulation	
EIRP, e.i.r.p.	Equivalent Isotropically Radiated Power	QP	Quasi-Peak	
EMC	ElectroMagnetic Compatibility	QPSK	Quadri-Phase Shift Keying	
EMI	ElectroMagnetic Interference	RBW	Resolution Band Width	
EN	European Norm	RDS	Radio Data System	
ERP, e.r.p.	Effective Radiated Power	RE	Radio Equipment	
EU	European Union	RF	Radio Frequency	
EUT	Equipment Under Test	RMS	Root Mean Square	
Fac.	Factor	RSS	Radio Standards Specifications	
FCC	Federal Communications Commission	Rx	Receiving	
FHSS	Frequency Hopping Spread Spectrum	SA, S/A	Spectrum Analyzer	
FM	Frequency Modulation	SG	Signal Generator	
Freq.	Frequency	SVSWR	Site-Voltage Standing Wave Ratio	
FSK	Frequency Shift Keying	TR	Test Receiver	
GFSK	Gaussian Frequency-Shift Keying	Тх	Transmitting	
GNSS	Global Navigation Satellite System	VBW	Video BandWidth	
GPS	Global Positioning System	Vert.	Vertical	
Hori.	Horizontal	WLAN	Wireless LAN	

Reference: Abbreviations (Including words undescribed in this report)

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SECTION 1: Customer Information

Company Name	G-Printec, Inc.
Address	Kawasaki Tech Center 5F, 580-16 Horikawacho, Saiwai-ku Kawasaki-shi kanagawa 212-0013, Japan
Telephone Number	+81-44-540-3242
Contact Person	Daisuke Kamiwano

The information provided by the customer is as follows;

- Customer, Description of EUT, Model Number of EUT, FCC ID on the cover and other relevant pages
- Operating/Test Mode(s) (Mode(s)) on all the relevant pages
- SECTION 1: Customer Information
- SECTION 2: Equipment Under Test (EUT) other than the Receipt Date and Test Date
- SECTION 4: Operation of EUT during testing

SECTION 2: Equipment Under Test (EUT)

2.1 Identification of EUT

Description	Card Printer
Model Number	CX-7650
Serial Number	Refer to SECTION 4.2
Condition	Engineering prototype
	(Not for Sale: This sample is equivalent to mass-produced items.)
Modification	No Modification by the test lab
Receipt Date	March 12, 2025
Test Date	March 14, 2025

2.2 Product Description

General Specification

Rating	AC 100 V to 120 V, 3.5 A, 50 / 60 Hz AC 220 V to 240 V, 1.6 A, 50 / 60 Hz
Operating Temperature	+15 deg. C to +30 deg. C

The EUT has following similar model:

Model No.	Difference from the base model	
CX-7650 (EUT)	-	
CX-D90H	External enclosure color, Shape of front door	
K65	External enclosure color	

Although the model names differ (CX-7650, CX-D90H, and K65), the electrical structure, safety features, and EMC characteristics are identical across all three models. The only difference lies in the external enclosure.

Radio Specification

Equipment Type	Transmitter
Frequency of Operation	13.56 MHz
Type of Modulation	ASK

SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification	FCC Part 15 Subpart C
	The latest version on the first day of the testing period
Title	FCC 47CFR Part15 Radio Frequency Device Subpart C Intentional Radiators
	Section 15.207 Conducted limits
	Section 15.225 Operation within the band 13.110-14.010 MHz.

3.2 Procedures and results

Item	Test Procedure	Specification	Worst margin	Results	Remarks
Frequency Tolerance	<fcc></fcc>	<fcc></fcc>	See data	Complied	Radiated
	ANSI C63.10:2013	Section 15.225(e)			
	6 Standard test methods				
	<ised></ised>	<ised></ised>			
	RSS-Gen 6.11, 8.11	RSS-210 B.6 (b)			
Note: UL Japan, Inc.'s EMI Work Procedures: Work Instructions-ULID-003591 and Work Instructions-ULID-003593.					

FCC Part 15.31 (e)

This EUT provides stable voltage constantly to RF Module regardless of input voltage.

Therefore, this EUT complies with the requirement.

However, the supply voltage was varied and tested at 85 % and 115 % of the nominal rated supply voltage during frequency tolerance test according to Section 15.225(e).

FCC Part 15.203 Antenna requirement

It is impossible for end users to replace the antenna, because the antenna is mounted inside of the EUT. Therefore, the equipment complies with the antenna requirement of Section 15.203.

3.3 Addition to standard

No addition, exclusion nor deviation has been made from the standard.

3.4 Uncertainty

Measurement uncertainty is not taken into account when stating conformity with a specified requirement. Note: When margins obtained from test results are less than the measurement uncertainty, the test results may exceed the limit.

The following uncertainties have been calculated to provide a confidence level of 95 % using a coverage factor k = 2.

Frequency Tolerance

Item	Unit	Calculated
		Uncertainty (+/-)
Frequency Readout (Frequency counter)	ppm	0.67
Frequency Readout (Spectrum analyzer frequency readout function)	ppm	2.13

3.5 Test Location

UL Japan, Inc. Ise EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 Japan Telephone: +81-596-24-8999

*A2LA Certificate Number: 5107.02 / FCC Test Firm Registration Number: 884919

ISED Lab Company Number: 2973C / CAB identifier: JP0002

Test site	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Other rooms	Maximum measurement distance
No.1 semi-anechoic chamber	19.2 x 11.2 x 7.7	7.0 x 6.0	No.1 Power source room	10 m
No.2 semi-anechoic chamber	7.5 x 5.8 x 5.2	4.0 x 4.0	-	3 m
No.3 semi-anechoic chamber	12.0 x 8.5 x 5.9	6.8 x 5.75	No.3 Preparation room	3 m
No.3 shielded room	4.0 x 6.0 x 2.7	N/A	-	-
No.4 semi-anechoic chamber	12.0 x 8.5 x 5.9	6.8 x 5.75	No.4 Preparation room	3 m
No.4 shielded room	4.0 x 6.0 x 2.7	N/A	-	-
No.5 semi-anechoic chamber	6.0 x 6.0 x 3.9	6.0 x 6.0	-	-
No.5 measurement room	6.4 x 6.4 x 3.0	6.4 x 6.4	-	-
No.6 shielded room	4.0 x 4.5 x 2.7	4.0 x 4.5	-	-
No.6 measurement room	4.75 x 5.4 x 3.0	4.75 x 4.15	-	-
No.7 shielded room	4.7 x 7.5 x 2.7	4.7 x 7.5	-	-
No.8 measurement room	3.1 x 5.0 x 2.7	3.1 x 5.0	-	-
No.9 measurement room	8.8 x 4.6 x 2.8	2.4 x 2.4	-	-
No.10 shielded room	3.8 x 2.8 x 2.8	3.8 x 2.8	-	-
No.11 measurement room	4.0 x 3.4 x 2.5	N/A	-	-
No.12 measurement room	2.6 x 3.4 x 2.5	N/A	-	-
Large Chamber	16.9 x 22.1 x 10.17	16.9 x 22.1	-	10 m
Small Chamber	5.3 x 6.69 x 3.59	5.3 x 6.69	-	-

3.6 Test data, Test instruments, and Test set up

Refer to APPENDIX.

SECTION 4: Operation of EUT during testing

4.1 Operating Mode(s)

The mode is used:

Test mode	Remarks				
1) Transmitting mode (Tx)	Mod. off				
The EUT was operated in a manner similar to typical u	use during the tests.				
*Power of the EUT was set by the software as follows	5;				
Software: 1) T015-001 (Tx)					
(Date: 2024.03 19, Storage location:	EUT memory)				
*This setting of software is the worst case.					
Any conditions under the normal use do not exceed the condition of setting.					
In addition, end users cannot change the settings of the output power of the product.					
Justification: The system was configured in typical fashion (as a user would normally use it) for testing.					
Test Item	Operating mode				

Test Item	Operating mode
Frequency Tolerance	1)

Frequency Tolerance	
Temperature	-20 deg. C to +50 deg. C, Step 10 deg. C
Voltage	Normal Voltage AC 120 V
	Maximum Voltage AC 138 V (AC 120 V +15 %)
	Minimum Voltage AC 102 V (AC 120 V -15 %)
*This EUT provides stal	ble voltage constantly to RF Part regardless of input voltage.

4.2 Configuration and peripherals



* Cabling and setup were taken into consideration and test data was taken under worse case conditions.

Description of EUT and Support Equipment

No.	Item	Model number	Serial Number	Manufacturer	Remark
А	Card Printer	CX-7650	ES1-2	G-Printec, Inc.	EUT

List of Cables Used

No.	Name	Length (m)	Shield		Remark
			Cable	Connector	
1	AC Cable	2.0	Unshielded	Unshielded	3 wires

SECTION 5: Other tests

Test	Span	RBW	VBW	Sweep	Detector	Trace	Instrument used
Frequency	-	-	-	-	-	-	Frequency counter
Tolerance							

Test data Test result : APPENDIX : Pass

APPENDIX 1: Test data

Frequency Tolerance

Test place Semi Anechoic Chamber Date Temperature / Humidity Engineer Mode Ise EMC Lab. No.6 March 14, 2025 22 deg. C / 40 % RH Junki Nagatomi Tx Mod. off

Test c	ondition	Tested	Measured	Frequency	Res	sult	Limit
Temp.	Voltage	timing	frequency	error			
[deg. C]	[V]	-	[MHz]	[MHz]	[%]	[ppm]	[+/- %]
50	120	Power on	13.559873	-0.000127	-0.00094	-9.4	0.01
		+ 2 min.	13.559850	-0.000150	-0.00110	-11.0	0.01
		+ 5 min.	13.559816	-0.000184	-0.00136	-13.6	0.01
		+ 10 min.	13.559797	-0.000203	-0.00149	-14.9	0.01
40	120	Power on	13.559846	-0.000154	-0.00114	-11.4	0.01
		+ 2 min.	13.559824	-0.000176	-0.00130	-13.0	0.01
		+ 5 min.	13.559815	-0.000185	-0.00136	-13.6	0.01
		+ 10 min.	13.559811	-0.000190	-0.00140	-14.0	0.01
30	120	Power on	13.559890	-0.000110	-0.00081	-8.1	0.01
		+ 2 min.	13.559883	-0.000117	-0.00087	-8.7	0.01
		+ 5 min.	13.559850	-0.000150	-0.00110	-11.0	0.01
		+ 10 min.	13.559854	-0.000146	-0.00108	-10.8	0.01
20	120	Power on	13.559974	-0.000026	-0.00019	-1.9	0.01
		+ 2 min.	13.559972	-0.000028	-0.00021	-2.1	0.01
		+ 5 min.	13.559902	-0.000098	-0.00072	-7.2	0.01
		+ 10 min.	13.559899	-0.000101	-0.00075	-7.5	0.01
20	102	Power on	13.559837	-0.000163	-0.00120	-12.0	0.01
	(120V -15%)	+ 2 min.	13.559918	-0.000082	-0.00061	-6.1	0.01
		+ 5 min.	13.559915	-0.000085	-0.00063	-6.3	0.01
		+ 10 min.	13.559906	-0.000094	-0.00069	-6.9	0.01
20	138	Power on	13.559847	-0.000153	-0.00113	-11.3	0.01
	(120V +15%)	+ 2 min.	13.559921	-0.000079	-0.00058	-5.8	0.01
		+ 5 min.	13.559914	-0.000086	-0.00064	-6.4	0.01
		+ 10 min.	13.559912	-0.000089	-0.00065	-6.5	0.01
10	120	Power on	13.560061	0.000061	0.00045	4.5	0.01
		+ 2 min.	13.560049	0.000049	0.00036	3.6	0.01
		+ 5 min.	13.560037	0.000037	0.00027	2.7	0.01
		+ 10 min.	13.560027	0.000027	0.00020	2.0	0.01
0	120	Power on	13.560076	0.000076	0.00056	5.6	0.01
		+ 2 min.	13.560066	0.000066	0.00049	4.9	0.01
		+ 5 min.	13.560057	0.000057	0.00042	4.2	0.01
		+ 10 min.	13.560059	0.000059	0.00043	4.3	0.01
-10	120	Power on	13.560084	0.000084	0.00062	6.2	0.01
		+ 2 min.	13.560080	0.000080	0.00059	5.9	0.01
		+ 5 min.	13.560074	0.000073	0.00054	5.4	0.01
		+ 10 min.	13.560069	0.000069	0.00051	5.1	0.01
-20	120	Power on	13.560077	0.000077	0.00057	5.7	0.01
		+ 2 min.	13.560072	0.000072	0.00053	5.3	0.01
		+ 5 min.	13.560071	0.000071	0.00052	5.2	0.01
		+ 10 min.	13.560071	0.000070	0.00052	5.2	0.01

Calculation formula:

Frequency error = Measured frequency - Tested frequency Result [%] = Frequency error / Tested frequency * 100

 Tested frequency:
 13.56 MHz

 Limit (+/-):
 0.01 %
 (+/- 100ppm)

*The test was begun from 50 deg. C and the temperature was lowered each 10 deg. C.

APPENDIX 2: Test instruments

Test Equipment

Test Item	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Cal Int
FT	244712	Thermo-Hygrometer	HIOKI E. E. CORPORATION	LR5001	231202106	2025/01/19	12
FT	141558	Digital Tester(TRUE RMS MULTIMETER)	Fluke Corporation	115	17930030	2024/05/17	12
FT	141429	Temperature and Humidity Chamber	Espec	PL-2KP	14015723	2024/08/23	12
FT	141498	Microwave Counter	ADVANTEST	R5373	120100309	2024/07/19	12
FT	202512	Loop Antenna	UL-ISE	-	-	-	-

*Hyphens for Last Calibration Date and Cal Int (month) are instruments that Calibration is not required (e.g. software), or instruments checked in advance before use.

The expiration date of the calibration is the end of the expired month. As for some calibrations performed after the tested dates, those test equipment have been controlled by means of an unbroken chains of calibrations.

All equipment is calibrated with valid calibrations. Each measurement data is traceable to the national or international standards.

Test item:

FT: Frequency Tolerance