

Testing Tomorrow's Technology

May 19, 2009

Mr. Ken Cox
Y Soft Americas, Inc.
74 Island Passage
Galveston, TX 77554

Dear Mr. Cox:

Enclosed please find Y Soft Americas, Inc.'s file copy of the Title 47 CFR, RF Devices, Part 15, Subpart C for Intentional Radiators, Part 15.201, 15.207 and 15.209 Certification Report and part 15.101, 15.107 and 15.109 Verification Report for the receiver and Digital Devices part of the SafeQ Network Card Reader Model HID PROX YSQNO-001-0830.

Y Soft Americas, Inc. should expect to receive a grant of Certification for this product within the next 2 – 3 weeks.

If you have any questions, please don't hesitate to call. Thank you very much for your business.

Sincerely,

A handwritten signature in dark ink, appearing to read 'SA Sawyer', followed by a horizontal line.

Stephen A. Sawyer
Chief Compliance Engineer

3505 Francis Circle Alpharetta, GA 30004
PH: 770-740-0717 Fax: 770-740-1508
www.ustech-lab.com



Testing Tomorrow's Technology

**Application for
Certification**

According to

**Title 47 US Code, Part 15, Subpart C, Sections 15.201, 15.207 and 15.209
for**

Y Soft Americas, Inc.

SafeQ Network Card Reader Model: HID PROX YSQNO-001-0830

May 19, 2009

Number of Pages in this report: 20

**3505 Francis Circle Alpharetta, GA 30004
PH: 770-740-0717 Fax: 770-740-1508
www.ustech-lab.com**

US Tech

Report Number:

Customer:

EUT:

FCC ID: W79SQN00010830

09-0070

Y Soft Americas, Inc.

SafeQ Network Card Reader Model: HID PROX YSQN0-001-0830

MEASUREMENT/TECHNICAL REPORT

COMPANY NAME: **Y Soft Americas, Inc.**

MODEL: **SafeQ Network Card Reader HID PROX**

M/N: YSQN0-001-0830

FCC ID: **W79SQN00010830**

DATE: **May 20, 2009**

This report concerns (check one): Original grant ☒
Class II permissive change_____

Equipment type: Low Powered Transceiver, Rx Verified

Deferred grant requested per 47 CFR 0.457(d)(1)(ii)? yes_____ No X

If yes, defer until:_____ date

N.A. agrees to notify the Commission by N.A. date

of the intended date of announcement of the product so that the grant can be issued on that date.

Report prepared by:

US Tech
3505 Francis Circle
Alpharetta, GA 30004

Phone Number: (770) 740-0717
Fax Number: (770) 740-1508

Table of Contents

<u>Paragraph</u>	<u>Title</u>	<u>Page</u>
1	General Information	5
1.1	Product Description	5
1.2	Related Submittal(s)	5
1.3	Subject Authorizations	5
2	Tests and Measurements	6
2.1	Configuration of Tested EUT	6
2.2	Characterization of the Test Sample	6
2.3	Test Facility	7
2.4	Test Equipment	7
2.5	Modifications	7
2.6	Test Procedures	8
2.7	Antenna Description (CFR15.203)	10
2.8	Field Strength of Fundamental (CFR 15.209(a)) (Certification)	11
2.9	Operation within Band 0.009 MHz to 0.440 MHz (Certification) (CFR15.209 (b), (c))	11
2.10	Peak Radiated Spurious Emissions (Verification)	14
2.11	Power Line Conducted Emissions for Transmitter and Receiver/ Digital Apparatus (47 CFR 107 @ 15.207) (Cert & Verification)	17
2.12	Radiated Emissions (47 CFR 15.109(a)) (Verification)	19

List of Figures

<u>Figure</u>	<u>Title</u>	<u>Page</u>
1	Test Configuration	9
2	Fundamental Frequency	13
3	Peak Radiated Spurious Emissions 2 nd Harmonic	16

List of Tables

<u>Tables</u>	<u>Title</u>	<u>Page</u>
1	EUT and Peripherals	6
2	Test Instruments	7
3	Field Strength of Fundamental Peak	12
4	Peak Radiated Spurious Emissions	15
5	Conducted Emissions Test Data	18
6	Radiated Emissions Test Data for Digital Device, Class B	20

Table of Contents (cont'd.)

List of Appendices

- Agency Agreement
- Application Forms
- Letter of Confidentiality
- Sample Label
- Block Diagram
- Schematic
- Test Configuration Photographs
- External Photographs
- Internal Photographs
- Theory of Operation
- Manual

1. General Information

The information contained in this report is presented for the FCC Equipment Authorization of Certification for the EUT.

1.1 Product Description

The Equipment under Test (EUT) is Y Soft Americas, Inc.'s, SafeQ Network Card Reader Model: HID PROX YSQN0-001-0830. The EUT is an ID terminal for printers, copiers, and multifunction devices.

1.2 Related Submittal(s)/Grant(s)

The EUT will be used as part of a system to send/receive data. The transmitter presented in this report will be used with an ID tag which has been submitted under a separate authorization.

1.3 The EUT is subject to the following authorizations:

- a) Certification of the transmitter part of the transceiver
- b) Verification as a Digital Device.

2 Tests and Measurements

2.1 Configuration of Tested System

The Test sample was tested per ANSI C63.4, *Methods of Measurement from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz* (2003). Conducted and radiated emissions data were taken with the test receiver or spectrum analyzer's resolution bandwidth adjusted to 9 kHz and 120 kHz, respectively. All measurements are peak unless stated otherwise. The video filter associated with the spectrum analyzer was off throughout the evaluation process. Interconnecting cables were manipulated as necessary to maximize emissions. A block diagram of the tested system is shown in Figure 1. Plots for fundamental and harmonic emissions are shown in Figure 2 and Figure 3. Table 1 lists the peripherals and supporting devices used in the tests.

Table 1 EUT and Peripherals

PERIPHERAL AND ITS MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID:	CABLES P/D
Y Soft SafeQ Network Card Reader (EUT)	Network Card Reader HID PROX YSQN0-001- 0830	None	W79SQN000 10830	2m U Patch Cable X 2
AC Switching Power Adaptor Y Soft	Sys-1357- 2412	G08 12030475 61	None	6' U Power Cord

P = Power D = data S = Shielded U = Unshielded

2.2 Characterization of Test Sample

The sample used for testing was received by US Tech on May 13, 2009 in good condition.

2.3 Test Facility

Testing was performed at US Tech's measurement facility at 3505 Francis Circle, Alpharetta, GA. This site has been fully described and registered with the FCC, under designation number US5117. Additionally this site has also been fully described and submitted to Industry Canada (IC), and has been approved under file number 2982A-1.

2.4 Test Equipment

Table 2 describes test equipment used to evaluate this product.

Table 2 - Test Instruments

INSTRUMENT TYPE	MANUFACTURER	MODEL	SN.	Cal Date.
SPECTRUM ANALYZER	HEWLETT-PACKARD	8593E	3205A00124	9/9/08
RF PREAMP 10 to 1000 MHz	HEWLETT-PACKARD	8447D	1937A03355	9/12/08
Active Loop Antenna 10 kHz to 30 MHz	A. H. Systems	SAS-200/562	142	11/12/08
BICONICAL ANTENNA 25 MHz to 200 MHz	EMCO	3110	9307-1431	1/22/09
LOG-PERIODIC ANTENNA 100MHz to 1000 MHz	EMCO	3146	9110-3632	11/21/07 2 Yr.
LISN	SOLAR ELE.	9247	955824 & 955825	1/29/09

Note: Calibration interval is 1 year unless stated otherwise

2.5 Equipment Modifications

No modifications were necessary to bring the EUT into compliance with the FCC Part 15.207 conducted emissions limits for an intentional radiator, and general Radiated Emissions Limits of 15.209.

2.6 Test Procedure

The EUT was configured as shown in the following block diagram(s) and photograph(s). The sample was tested per ANSI C63.4, Methods of Measurement from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz (1992) following US Tech's procedures 96-ENG-P15-107 for conducted emissions and 99-ENG-P15-109 for radiated emissions. Conducted and radiated emissions data were taken with the test receiver or spectrum analyzer's resolution bandwidth adjusted to 9 kHz and 120 kHz, respectively. All measurements are peak unless stated otherwise. The video filter on the spectrum analyzer was OFF throughout the evaluation process. Interconnecting cables were manipulated as necessary to maximize emissions.

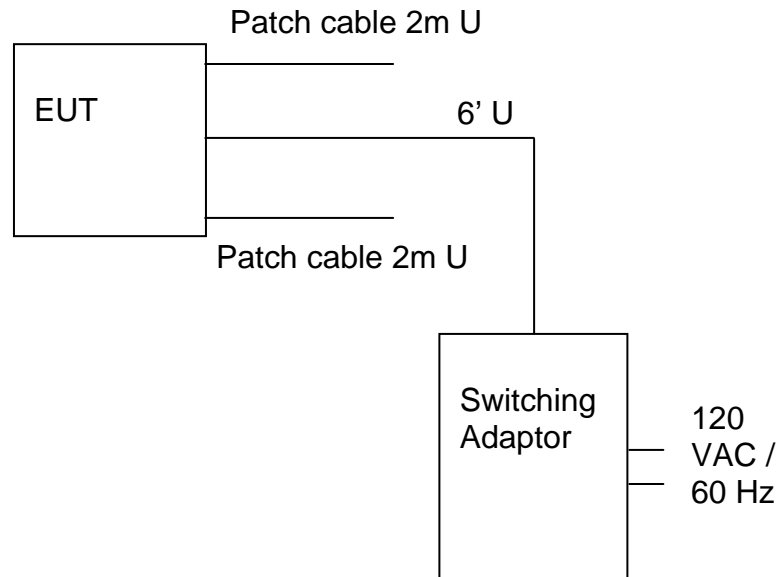


Figure 1. Test Configuration

2.7 EUT Antenna Description (FCC Sec. 15.203)

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

Y Soft America's SafeQ Network Card Reader Model: HID PROX YSQN0-001-0830

Manufacturer: HID Corporation
9292 Jeronimo Road
Irvine, CA 92618-1905

Antenna Type: Coiled wire

Model Number: N/A

Gain: 0 dB_i

Connector: Permanently attached

2.8 Field Strength of Fundamental (47 CFR 15.209(a))

The results of the measurements for peak fundamental emissions are given in Table 3 and Figure 2. The EUT emissions were measured by setting up the Active Loop Antenna in the vertical and horizontal polarizations at a distance of 3 meters from the EUT and at a height of 1.0 meters above the ground. The EUT major axis was set to face the measuring antenna so that it intercepted the plane formed by the loop at right angles. When a signal was detected, the loop was slowly rotated about its axis in an attempt to maximize the emission. The transmitter was continuously transmitting during testing. The antenna was left in the orientation where the emission was maximized and the signal was measured and recorded. The EUT was also rotated about its major axis by 360 degrees with the turntable in an attempt to maximize emissions. Due to not being a hand-held portable device the EUT was tested in the position that is most likely going to be used in the field, as shown in the photos.

2.9 Operation in the Frequency Band of 0.009 MHz to 0.490 MHz (47 CFR 15.209(a))

The Field Strength Limit is 25.59 dBuV @ 300 meters distance for 0.126 MHz. for 1 meter distance a 49.54 dB correction was subtracted from the data.

Table 3
Field Strength of Fundamental Emission Peak

Peak Radiated Emissions of Fundamental							
Test By: G.Y.	Test: FCC Part 15.209			Client: Y Soft Americas, Inc.			
	Project: 09-0070			15.209	Model: SafeQ Network Card Reader HID PROX YSQN0-001-0830		
Frequency (MHz)	Measured Test Data (dBuV)	AF+ CA – AMP+DC (dB/m)	Results (dBuV/m)	Limits (dBuV/m)	Distance / Polarization	Margin (dB)	Detector PK/QP/AVG
0.1261	11.92	55.76	18.14	25.50	1m/-	7.40	PK

SAMPLE CALCULATIONS:

RESULTS @ 0.126 MHz = (11.92-49.54)+55.76 = 18.14 dBuV/m @ 300m
Conversion factor 300 meter to 1 meters = 20 log (1/300) = -49.54 dB

May 13, 2009**Test Results****Reviewed By:**

Name: George Yang

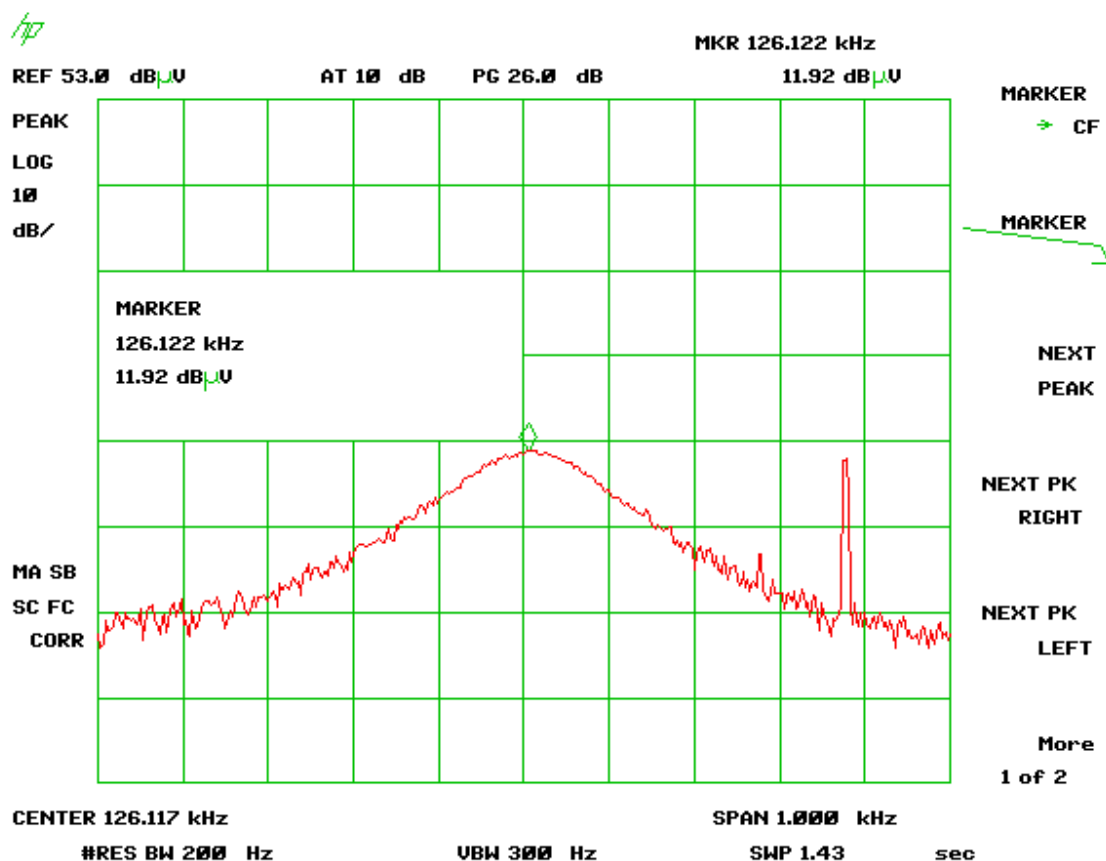


Figure 2 - Fundamental Frequency 0.126 MHz

2.10 Peak Radiated Spurious Emissions (FCC Section 15.209)

A preliminary scan was performed on the EUT to determine spurious frequencies that were caused by the transmitter portion of the product. Significant emissions that fell within restricted bands were then measured on an OATS site. Radiated measurements below 30 MHz were tested with a RBW = 9 KHz. The results of all peak radiated spurious emissions including those falling in the restricted bands are given in Table 4 and in Figure 3.

Table 4 Peak Radiated Spurious Emissions

Test By:	Test: FCC Part 15.209			Client: Y Soft Americas, Inc.			
G.Y.	Project: 09-0070	Class: B		Model: SafeQ Network Card Reader HID PROX YSQN0-001-0830			
Frequency (MHz)	Test Data (dBuV)	AF+CL -PA (dB)	Results (dBuV/m)	Limits (dBuV/m) @300m	Distance / Polarization	Margin (dB)	Detector PK/QP /AVG
0.2379	-4.64	49.90	-4.28	20.10	1m/-	24.40	PK
No Other Spurious Emissions Found 6dB from Ground Noise Level							

SAMPLE CALCULATIONS:

RESULTS: $0.2379 \text{ MHz} = (-4.64 - 49.54) + 49.90 = -4.28 \text{ @ } 300\text{m distance}$

Conversion factor 300 meter to 3 meters = $20 \log (1/300) = -49.54 \text{ dB}$

May 13, 2009

Test Results
Reviewed By: _____


Name: George Yang

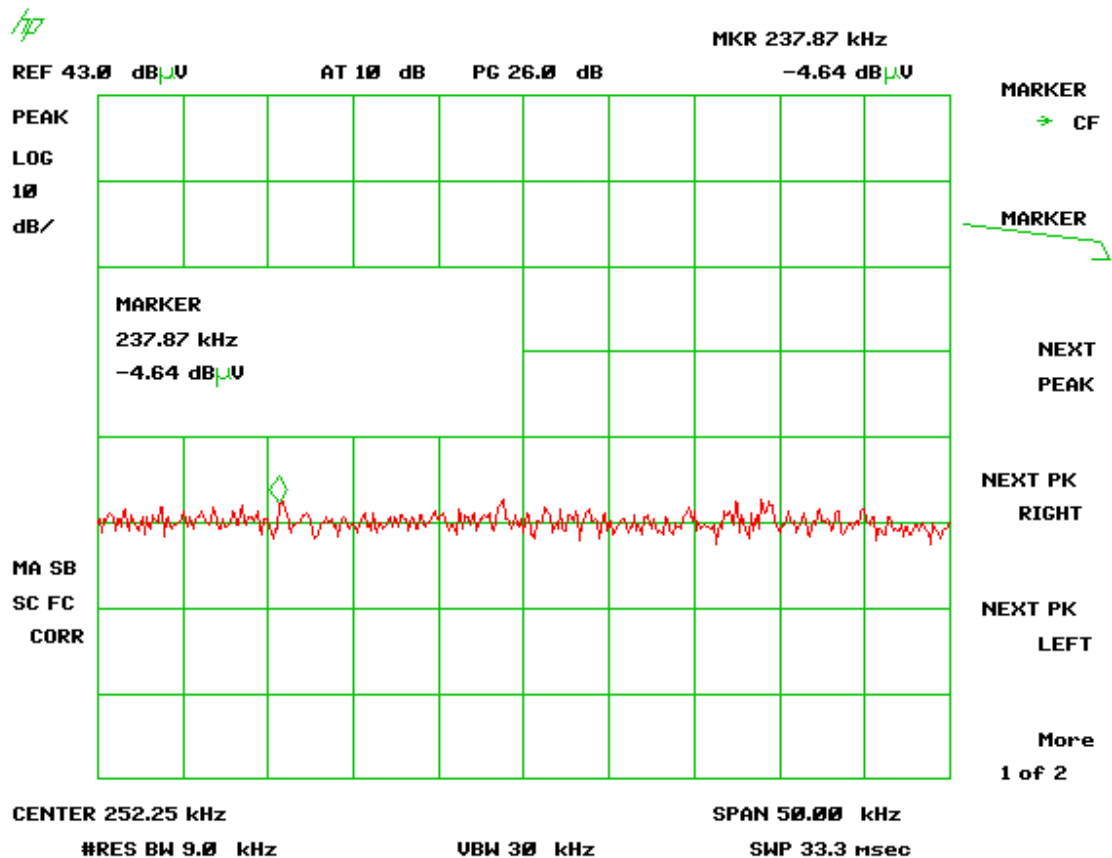


Figure 3 - Peak Radiated Spurious Emissions, 2nd harmonic.

2.11 Power Line Conducted Emissions for Transmitter and Receiver/Digital Apparatus (47 CFR 15.107&15.207)

The conducted voltage measurements have been carried out in accordance with FCC Sections 15.207 per the procedures of ANSI C63.4 paragraph 7, utilizing a spectrum analyzer connected to an LISN and with the EUT placed into a continuous mode of transmit for the transmitter portion of the test and the transmitter disabled for the Receiver/Digital part of the test. The results are given in Table 5.

Table 5 Conducted Emissions Test Data for Transmitter and Receiver/Digital Devices

Conducted Emissions						
Test By:	Test: FCC Part 15.207			Client:		
G.Y.	Class B			Y Soft Americas, Inc.		
	Project: 09-0070			Model:		
	Peak vs. Average Limits			YSoft SafeQ Network Card Reader		
				HID PROX YSQN0-001-0830		
Frequency (MHz)	Test Data (dBuV)	IL+CA-AMP (dB)	Results (dBuV)	Limits (dBuV)	Margin (dB)	Detector
Phase						
0.1777	51.70	-0.25	51.45	54.6	3.1	PK
0.5935	38.20	-0.02	38.18	46.0	7.8	PK
1.0840	35.50	0.07	35.57	46.0	10.4	PK
5.3250	25.40	0.16	25.56	50.0	24.4	PK
19.0400	34.00	0.52	34.52	50.0	15.5	PK
20.3400	32.80	0.42	33.22	50.0	16.8	PK
Neutral						
0.1784	51.50	-0.32	46.55	54.6	3.4	PK
0.5235	30.60	-0.15	34.63	46.0	15.6	PK
3.1200	33.60	0.14	37.12	46.0	12.3	PK
5.0100	28.60	0.13	35.55	50.0	21.3	PK
19.1500	31.50	0.42	33.42	50.0	18.1	PK
20.0300	26.70	0.40	27.17	50.0	22.9	PK

SAMPLE CALCULATIONS: At 0.1777 MHz= 51.70 dBuV+(-0.25 dB)= 51.45 dBuV

May 14, 2009

Test Results

Reviewed By:



Name: George Yang

2.12 Verification Radiated Emissions (47 CFR 15.109(b))

Radiated emissions were evaluated from 30 MHz to 1 GHz. Measurements were made with the analyzer's bandwidth set to 120 kHz for measurements made below 1 GHz. Results are shown in Table 6.

Table 6 Radiated Emissions Data for Digital Device

30 MHz – 1 GHz							
Test By:	Test: FCC Part 15.109			Client: Y Soft Americas, Inc.			
G.Y.	Project: 09-0070	Class: B		Model: YSoft SafeQ Network Card Reader YSQN0-001-0830 HID PROX			
Frequency (MHz)	Test Data (dBuV)	AF+CL -PA (dB)	Results (dBuV/m)	Limits (dBuV/m)	Distance / Polarization	Margin (dB)	Detector PK/QP /AVG
174.9850	12.29	16.81	29.10	43.5	3m. /VERT	14.4	PK
49.6300	6.90	11.71	18.61	40.0	3m. /HORZ	21.4	PK
112.4500	13.04	12.80	25.84	43.5	3m. /HORZ	17.7	PK
225.0000	10.45	14.38	24.83	46.0	3m. /VERT	21.2	PK
250.0000	10.98	15.78	26.76	46.0	3m. /VERT	19.2	PK
498.0000	6.30	22.50	28.80	46.0	3m. /VERT	17.2	PK

SAMPLE CALCULATIONS:**RESULTS:** At 174.985 Mhz= 12.29 dBuV + 16.81 dB= 29.10 dBuV**May 13, 2009**

Test Results
Reviewed By: _____


Name: George Yang