

*Testing Tomorrow's Technology*

June 17, 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 Terminal Professional Model YSQ4P-001-0830.

Y Soft Americas, Inc. should expect to receive a grant of Certification for this product within the next 1– 2 weeks.

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

Sincerely,

A handwritten signature in cursive script, reading 'Alan Ghasiani', is displayed on a light gray rectangular background.

Alan Ghasiani  
Consulting Engineer & President

**3505 Francis Circle Alpharetta, GA 30004**  
**PH: 770-740-0717 Fax: 770-740-1508**  
**[www.ustech-lab.com](http://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 Terminal Professional Model: YSQ4P-001-0830  
June 17, 2009**

**Number of Pages in this report: 20**

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## MEASUREMENT/TECHNICAL REPORT

COMPANY NAME: **Y Soft Americas, Inc.**MODEL: **SafeQ Terminal Professional****M/N: YSQ4P-001-0830**FCC ID: **W79SQ4P0010830**DATE: **July 1, 2009**

This report concerns (check one): Original grant ☒  
Class II permissive change \_\_\_\_\_

Equipment type: Low Powered Transceiver, Rx VerifiedDeferred grant requested per 47 CFR 0.457(d)(1)(ii)? yes \_\_\_\_\_ No XIf yes, defer until: \_\_\_\_\_  
dateN.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 30004Phone Number: (770) 740-0717  
Fax Number: (770) 740-1508

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## **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 Terminal Professional Model: YSQ4P-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 Color Terminal Professional HID (EUT)	YSQ4P-001-0830	SQPR9203533BBEE	W79SQ4P00010830	6' U Network Cable X 2
Desktop P.C Compaq Presario	ED865AA-ABA	CNN5391254	—	6' U Power Cord
AC Switching Power Adaptor Y Soft	Sys-1357-2412	G08 1003058228	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 June 03, 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.	Last Cal Date.
SPECTRUM ANALYZER	HEWLETT-PACKARD	8593E	3205A00124	9/9/08
RF PREAMP 0.1 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

Notes: Calibration interval is 1 year unless stated otherwise.

Measurement instrumentation is traceable to the National Institute of Standards and Technology (NIST).

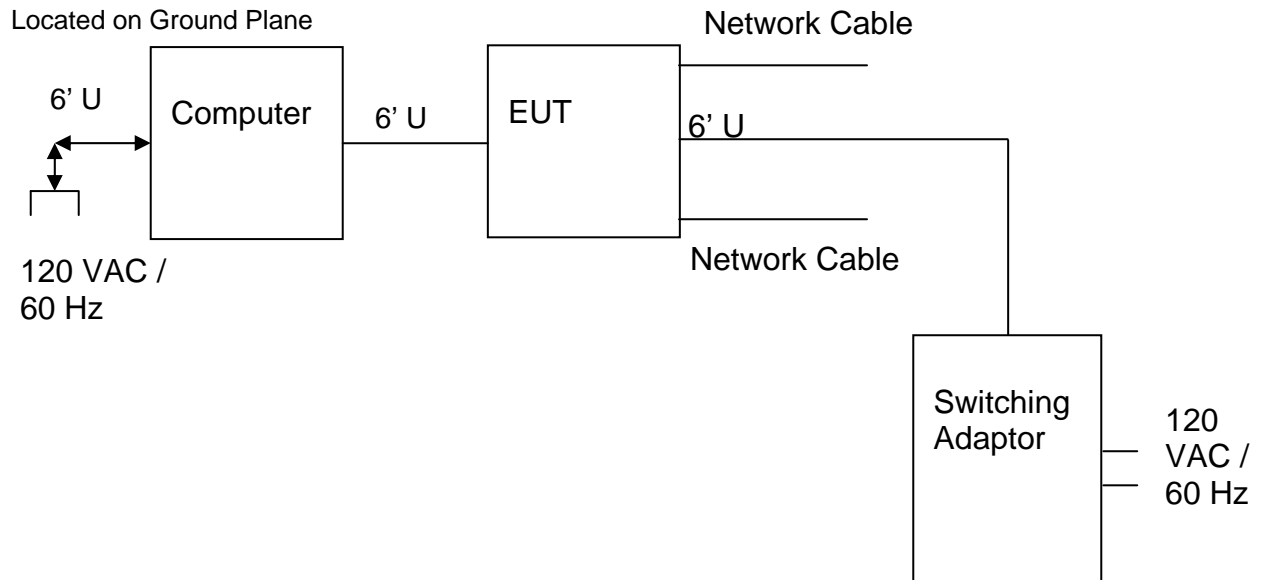
## 2.5 Equipment Modifications

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. . Ports are identical, and ANSI C63.4 was followed per 6.1.3 and additional cables did not affect emission levels.



**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 Terminal Professional Model: YSQ4P-001-0830

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

Antenna Type: Coiled wire

Model Number: N/A

Gain: 0 dBi

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 set on high power continuous 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 3 meter distance an 80 dB correction factor was subtracted from the data.

**Table 3**  
**Field Strength of Fundamental Emission Peak**

Peak Radiated Emissions of Fundamental							
<b>Test By:</b>  <b>G.Y.</b>	<b>Test:</b> FCC Part 15.209			<b>Client:</b> Y Soft Americas, Inc.			
	<b>Project:</b> 09-0090			15.209	<b>Model:</b> SafeQ Terminal Professional YSQ4P-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
0.125997	22.08	55.76	-2.2	25.50	3m/-	27.7	PK

**SAMPLE CALCULATIONS:**

**RESULTS @ 0.126 MHz = (22.08 - 80) + 55.76 = -2.2 dBuV/m @ 300m**

**Conversion factor 300 meter to 3 meters =  $40 \log (3/300) = -80$  dB**

**May 13, 2009**

**Test Results**

**Reviewed By:** 

**Name:** George Yang

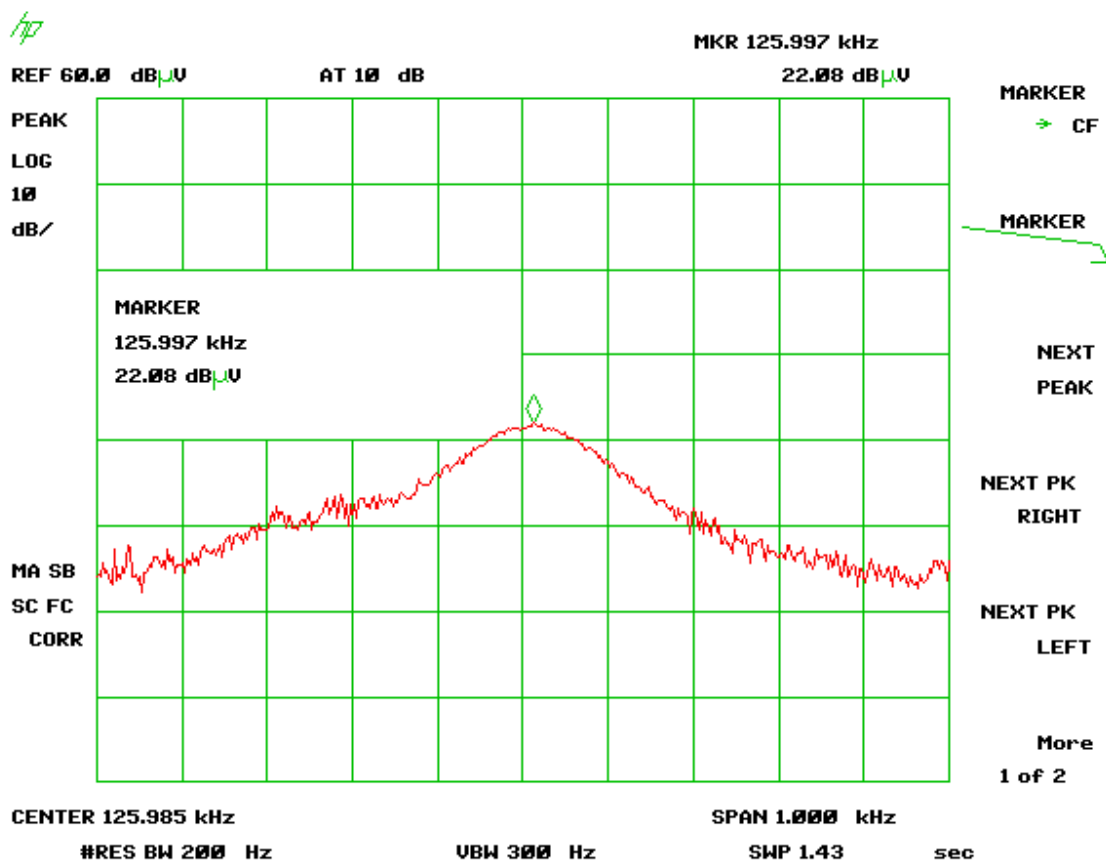


Figure 2 - Fundamental Frequency 0.126 MHz

## 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**

<b>Test By:</b>	<b>Test:</b> FCC Part 15.209			<b>Client:</b> Y Soft Americas, Inc.			
<b>G.Y.</b>	<b>Project:</b> 09-0090	<b>Class: B</b>		<b>Model:</b> SafeQ Terminal Professional YSQ4P-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	22.6	49.90	-7.50	20.10	3m/-	27.6	<b>PK</b>
No Other Spurious Emissions Found 6dB from Ground Noise Level							

**SAMPLE CALCULATIONS:**

**RESULTS:**  $0.2379 \text{ MHz} = (22.6 - 80) + 49.90 = -7.50 \text{ @ } 300\text{m distance}$

Conversion factor 300 meter to 3 meters =  $40 \log (3/300) = -80 \text{ dB}$

June 11, 2009

Test Results

Reviewed By: \_\_\_\_\_



Name: George Yang



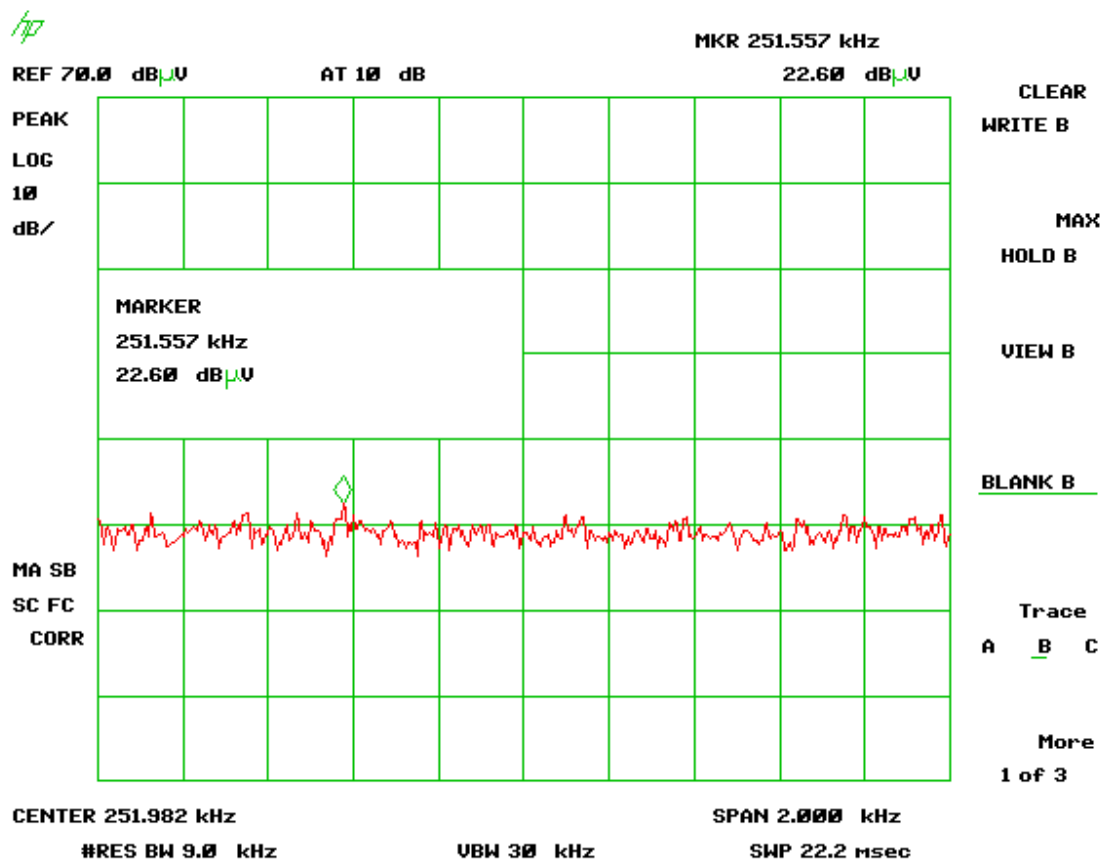


Figure 3 - Peak Radiated Spurious Emissions, 2<sup>nd</sup> harmonic.

## **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**

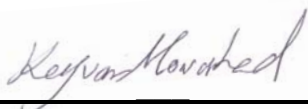
Conducted Emissions						
<b>Test By:</b>	<b>Test:</b> FCC Part 15.207			<b>Client:</b>		
<b>G.Y.</b>	<b>Class B</b>			Y Soft Americas, Inc.		
	<b>Project:</b> 09-0090			<b>Model:</b>		
	<b>Peak vs. Average Limits</b>			YSoft SafeQ Terminal		
				Professional YSQ4P-001-0830		
Frequency (MHz)	Test Data (dBuV)	IL+CA-AMP (dB)	Results (dBuV)	Limits (dBuV)	Margin (dB)	Detector
Phase						
0.1850	46.88	-1.10	45.78	54.3	8.5	QP
0.6300	24.62	-0.30	24.32	46.0	21.7	PK
3.3600	31.62	-0.02	31.60	46.0	14.4	PK
7.6900	28.69	0.13	28.82	50.0	21.2	PK
13.3800	29.20	0.23	29.43	50.0	20.6	PK
22.7000	23.95	0.33	24.28	50.0	25.7	PK
Neutral						
0.1860	49.07	-1.08	47.99	54.2	6.2	PK
0.5870	29.78	0.30	30.08	46.0	15.9	PK
1.2300	29.83	-0.15	29.68	46.0	16.3	PK
5.0880	23.38	-0.03	23.35	50.0	26.7	PK
14.0750	32.53	0.24	32.77	50.0	17.2	PK
20.3800	28.99	0.37	29.36	50.0	20.6	PK

**SAMPLE CALCULATIONS: At 0.185 MHz= 46.88 dBuV+(-1.10 dB)= 45.78 dBuV**

**June 11, 2009**

**Test Results**

**tested By:**



**Name: Keyvan Muvahhid**

**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							
<b>Test By:</b>	<b>Test:</b> FCC Part 15.109			<b>Client:</b> Y Soft Americas, Inc.			
<b>K.M</b>	<b>Project:</b> 09-0090	<b>Class:</b> A		<b>Model:</b> YSoft SafeQ Terminal Professional YSQ4P-001-0830			
Frequency (MHz)	Test Data (dBuV)	AF+CL -PA (dB)	Results (dBuV/m)	Limits (dBuV/m)	Distance / Polarization	Margin (dB)	Detector PK/QP /AVG
200.00	17.95	13.99	31.94	43.5	3m./VERT	11.6	QP
224.00	10.96	14.24	25.20	46.4	3m./VERT	21.2	PK
250.00	15.85	15.78	31.63	46.4	3m./VERT	14.8	QP
274.00	17.37	17.08	34.45	46.4	3m./VERT	11.9	QP
299.98	16.37	18.54	34.91	46.4	3m./VERT	11.5	QP
324.98	16.00	17.95	33.95	46.4	3m./VERT	12.5	QP
374.00	11.51	18.81	30.32	46.4	3m./VERT	16.1	PK
400.00	12.56	19.15	31.71	46.4	3m./VERT	14.7	QP
425.00	7.55	19.98	27.53	46.4	3m./VERT	18.9	PK
500.00	10.54	22.55	33.09	46.4	3m./VERT	13.3	PK
560.00	8.70	22.58	31.28	46.4	3m./VERT	15.1	PK
700.00	3.84	26.03	29.87	46.4	3m./VERT	16.5	PK
725.00	6.45	26.27	32.72	46.4	3m./VERT	13.7	PK
733.00	11.75	26.78	38.53	46.4	3m./HORZ	7.9	QP

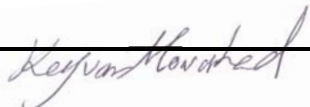
**SAMPLE CALCULATIONS:**

10.45 dB extrapolation factor from 3 meters to 10 meters added to the test data.

**RESULTS:** At 200 MHz = 17.95 dBuV + 13.99 dB= 31.94 dBuV

June 11, 2009

**Test Results**

Tested By: 

Name: Keyvan Muvahhid