Client:	Soma Networks	Job Number:	J43169
Model:	CPE-0140A-000	T-Log Number:	T43171
		Proj Eng:	David Bare
Contact:	Steve Fielding		
Emissions Spec:	Part 24 Subpart E	Class:	N/A
Immunity Spec:	-	Environment:	-

EMC Test Data

For The

Soma Networks

Model

CPE-0140A-000

Client:	Soma Networks	Job Number:	J43169
Model:	CPE-0140A-000	T-Log Number:	T43171
		Proj Eng:	David Bare
Contact:	Steve Fielding		
Emissions Spec:	Part 24 Subpart E	Class:	N/A
Immunity Spec:	-	Environment:	-

EUT INFORMATION

General Description

The EUT is a wireless terminal which is designed to provide wireless network access in homes. Normally, the EUT would be placed on a table top during operation. The EUT was, therefore, treated as table-top equipment during testing to simulate the end user environment. The electrical rating of the EUT is 120/240 V, 50/60 Hz, 2 Amps.

Equipment Under Test

Manufacturer	Model	Description	Serial Number	FCC ID
Soma Networks	CPE-0140A-000	Wireless Terminal	N/A	POZ-CPE-0140A-000

EUT Enclosure

The EUT enclosure is primarily constructed of fabricated sheet steel. It measures approximately 12 cm wide by 22 cm deep by 28 cm high.

Modification History

Mod. #	Test	Date	Modification
1	None	-	-

Client:	Soma Networks	Job Number:	J43169
Model:	CPE-0140A-000	T-Log Number:	T43171
		Proj Eng:	David Bare
Contact:	Steve Fielding		
Emissions Spec:	Part 24 Subpart E	Class:	N/A
Immunity Spec:	-	Environment:	-

Test Configuration #1

Local Support Equipment

Manufacturer	Model	Description	Serial Number	FCC ID
HP	Pavilion 7840	PC	KR10504395	DoC
Mitsubishi	Diamond Plus 91	Monitor	011A34108	DoC
HP	5181	Keyboard	BD05106245	DoC
HP	M-S34	Mouse	LZS04915643	DoC
HP	2225C	Printer	Z714S40166	DS16XU2225

Remote Support Equipment

Manufacturer	Model	Description	Serial Number	FCC ID
None				

EUT Interface Ports

		Cable(s)		
EUT Port	Connected To	Description	Shielded or Unshielded	Length(m)
USB	Unterminated	USB	Shielded	2
Ethernet	PC	RJ-45	Unshielded	1.5
Serial	PC	RS-232	Shielded	1.5
4xTelephone	Unterminated	RJ-11	Unshielded	2

EUT Operation During Emissions

EUT was set to transmit continuously at the low and high bandedges.

Client:	Soma Networks	Job Number:	J43169
Model:	CPE-0140A-000	T-Log Number:	T43171
		Proj Eng:	David Bare
Contact:	Steve Fielding		
Spec:	Part 24 Subpart E	Class:	N/A

Section 2.1046: RF Power

Test Specifics

Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.

Date of Test:	4/25/01	Config. Used:	1
Test Engineer:	jmartinez	Config Change:	None
Test Location:	SVOATS #3	EUT Voltage:	120V/60Hz

General Test Configuration

The EUT was located on the turntable for radiated field strength measurements and the local support equipment was located underneath the table.

For radiated emissions testing the measurement antenna was located 3 meters from the EUT.

Ambient Conditions:

Temperature: 23°C

Rel. Humidity: 31%

Summary of Results

Run #	Test Performed	Limit	Result	Measurement
1	Radiated Output Power	24.232(b)	Pass	32.1 dBm (EIRP)

Modifications Made During Testing:

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Client:	Soma Networks	Job Number:	J43169
Model:	CPE-0140A-000	T-Log Number:	T43171
		Proj Eng:	David Bare
Contact:	Steve Fielding		
Spec:	Part 24 Subpart E	Class:	N/A

Run #1: Radiated Output Power (EIRP)
With Integral Antenna.

Channel	Frequency (MHz)	Field Strength at 3m	Antenna Pol. (H/V)	Res BW
Low	1848.1	124.67	H	1 MHz
High	1906.6	120.63	H	1 MHz
Low	1848.1	127.42	V	1 MHz
High	1906.6	125.89	V	1 MHz

Note 1:	Add note here
Note 2:	

Run #2: Output Power (Substitution Method)

			Substitution Note 1				Comments
Frequency	Level	Pol	Pin	Gain	EIRP	Limit	
MHz	dBµV/m	v/h	(dBm)	(dBi)	(dBm)	(dBm)	
1848.10	127.4	v	25.1	7.0	32.1	33.0	
1848.10	124.7	h	19.9	7.0	26.9	33.0	
1906.60	125.9	v	23.2	7.4	30.6	33.0	
1906.60	120.6	h	21.2	7.4	28.6	33.0	

Client:	Soma Networks	Job Number:	J43169
Model:	CPE-0140A-000	T-Log Number:	T43171
		Proj Eng:	David Bare
Contact:	Steve Fielding		
Spec:	Part 24 Subpart E	Class:	N/A

Section 2.1049: Occupied Bandwidth

Test Specifics

Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.

Date of Test: 4/26/01
Test Engineer: jmartinez
Test Location: SVOATS #3
Config. Used: 1
Config Change: None
EUT Voltage: 120V/60Hz

General Test Configuration

When performing conducted measurements from the EUT's antenna port, the antenna port of the EUT was connected to the spectrum analyzer or power meter via a suitable attenuator to prevent overloading the measurement system. All measurements are corrected to allow for the external attenuators used.

Ambient Conditions:

Temperature: 23°C
Rel. Humidity: 31%

Summary of Results

Plot #	Test Performed	Limit	Result	Comment
3	Occupied Bandwidth	24.238(b)	Pass	BW= 4.183 MHz

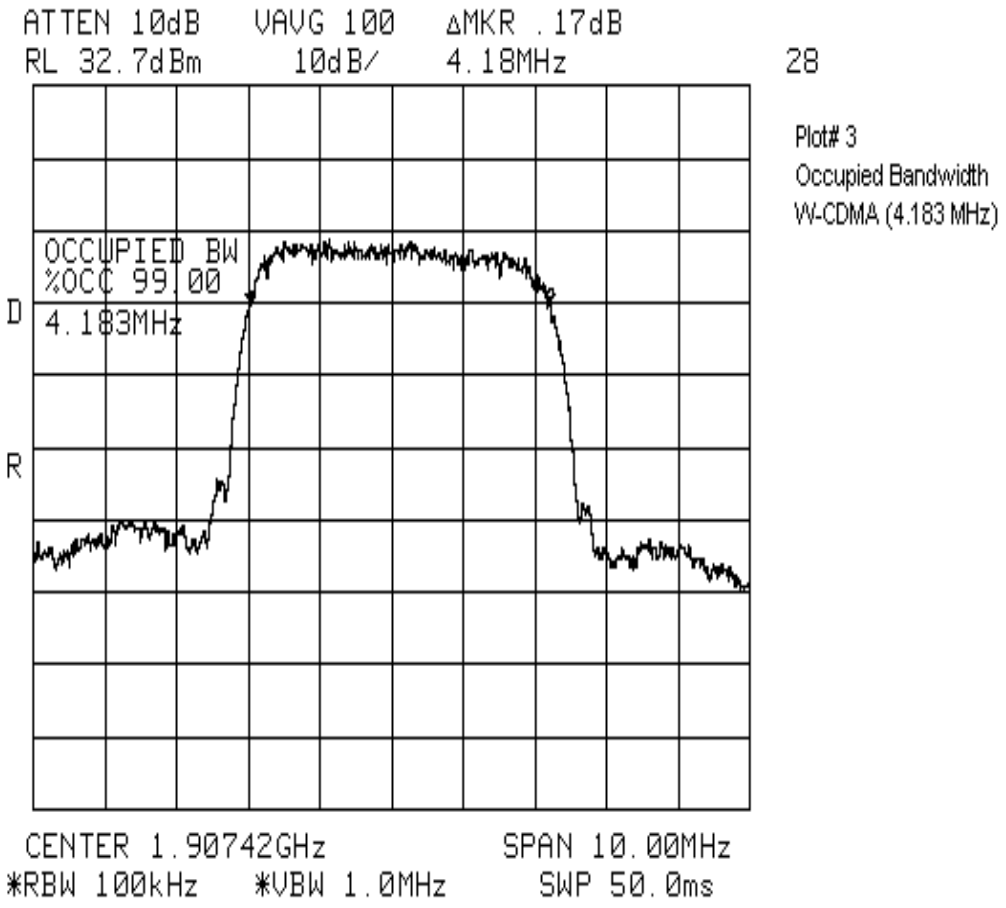
Modifications Made During Testing:

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Client:	Soma Networks	Job Number:	J43169
Model:	CPE-0140A-000	T-Log Number:	T43171
		Proj Eng:	David Bare
Contact:	Steve Fielding		
Spec:	Part 24 Subpart E	Class:	N/A



Plot# 3
Occupied Bandwidth
W-CDMA (4.183 MHz)

Client:	Soma Networks	Job Number:	J43169
Model:	CPE-0140A-000	T-Log Number:	T43171
		Proj Eng:	David Bare
Contact:	Steve Fielding		
Spec:	Part 24 Subpart E	Class:	N/A

Section 2.1051: Spurious emission at the Antenna Terminal

Test Specifics

Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.

Date of Test: 4/26/01
Test Engineer: jmartinez
Test Location: SVOATS #3

Config. Used: 1
Config Change: None
EUT Voltage: 120V/60Hz

General Test Configuration

The EUT and all local support equipment were located on the table for testing. The Eut was connected directly to Test Receiver. A 20-dB attenuator was used between the EUT and Test Receiver.

Ambient Conditions:

Temperature: 23°C
Rel. Humidity: 31%

Summary of Results

Plot #	Test Performed	Limit	Result	Level
4	Low Bandedge	24.238(a)	Pass	-34.3 dBm
5	Out-Of-Band	24.238(a)	Pass	-
6	High Bandedge	24.238(a)	Pass	-29 dBm
7	Out-Of-Band	24.238(a)	Pass	-

Modifications Made During Testing:

No modifications were made to the EUT during testing

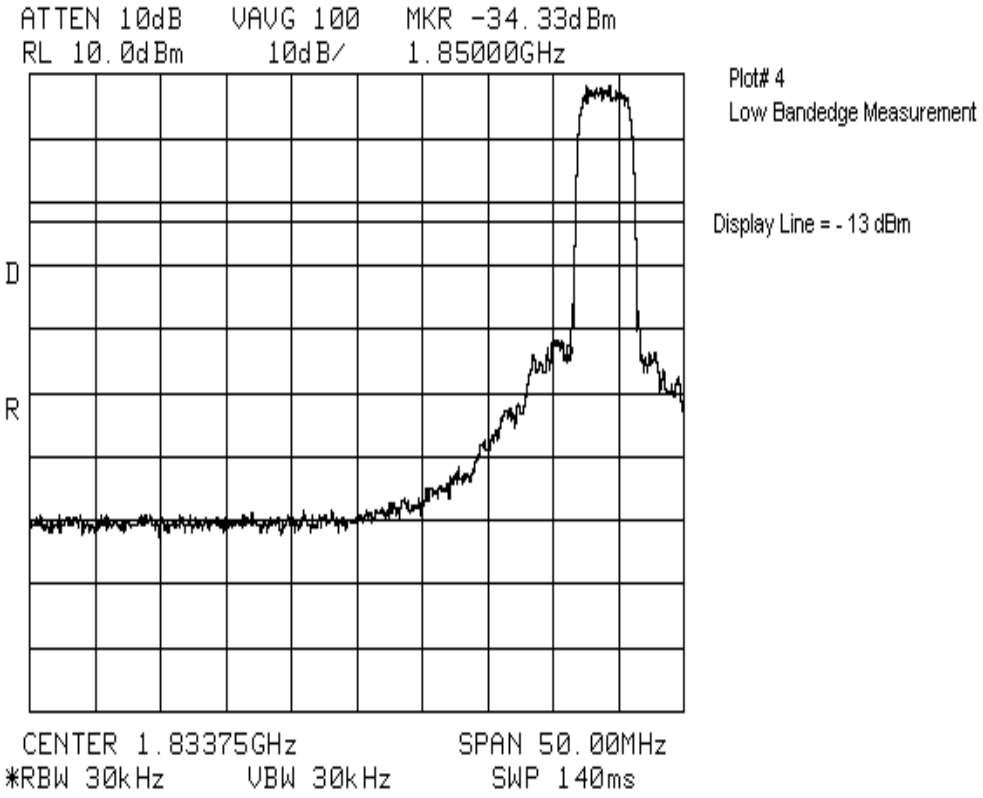
Deviations From The Standard

No deviations were made from the requirements of the standard.

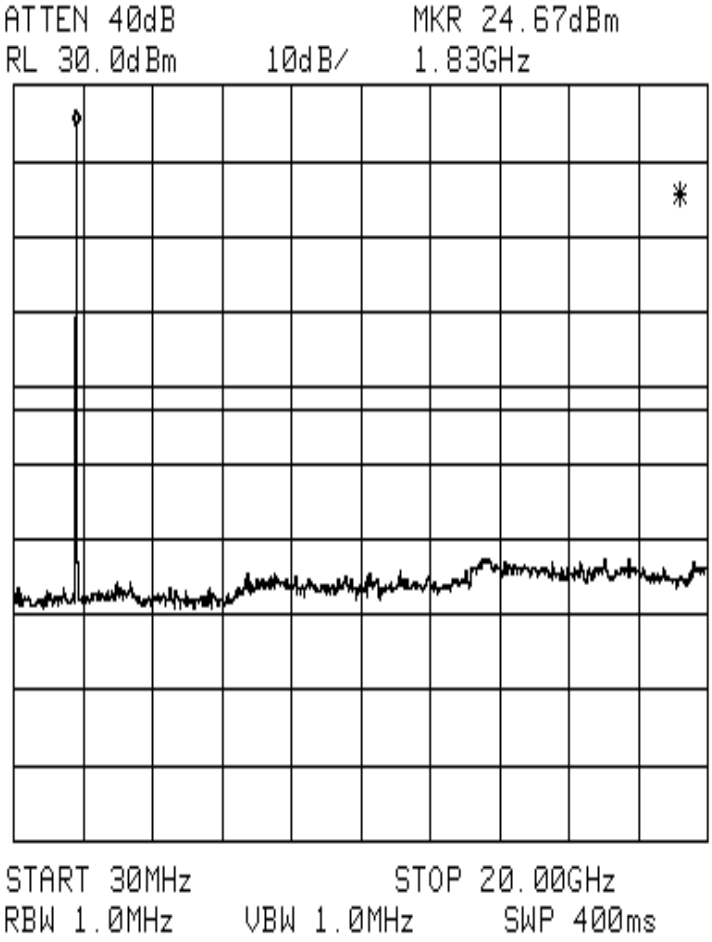
EMC Test Data

Client:	Soma Networks	Job Number:	J43169
Model:	CPE-0140A-000	T-Log Number:	T43171
		Proj Eng:	David Bare
Contact:	Steve Fielding		
Spec:	Part 24 Subpart E	Class:	N/A

Channel	Frequency (MHz)	Resolution used (kHz)	1% Resolution BW (kHz)	Correction (dB)	Measured Bandedge (dBm)	Corrected Value (dBm)
Low	1852.5	30	41	1.37	-34.33	-32.96



Client:	Soma Networks	Job Number:	J43169
Model:	CPE-0140A-000	T-Log Number:	T43171
		Proj Eng:	David Bare
Contact:	Steve Fielding		
Spec:	Part 24 Subpart E	Class:	N/A

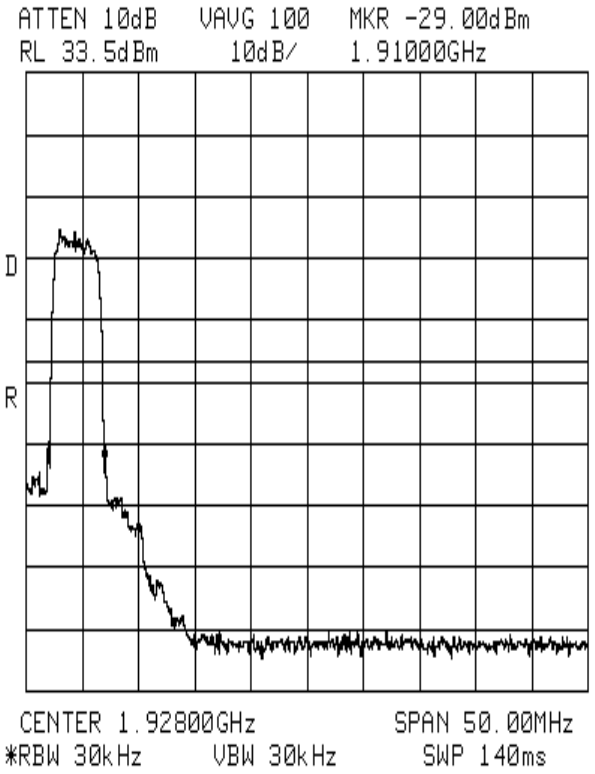


Plot# 5
Out-of-Band (Low channel)

Display Line = - 13 dBm

Client:	Soma Networks	Job Number:	J43169
Model:	CPE-0140A-000	T-Log Number:	T43171
		Proj Eng:	David Bare
Contact:	Steve Fielding		
Spec:	Part 24 Subpart E	Class:	N/A

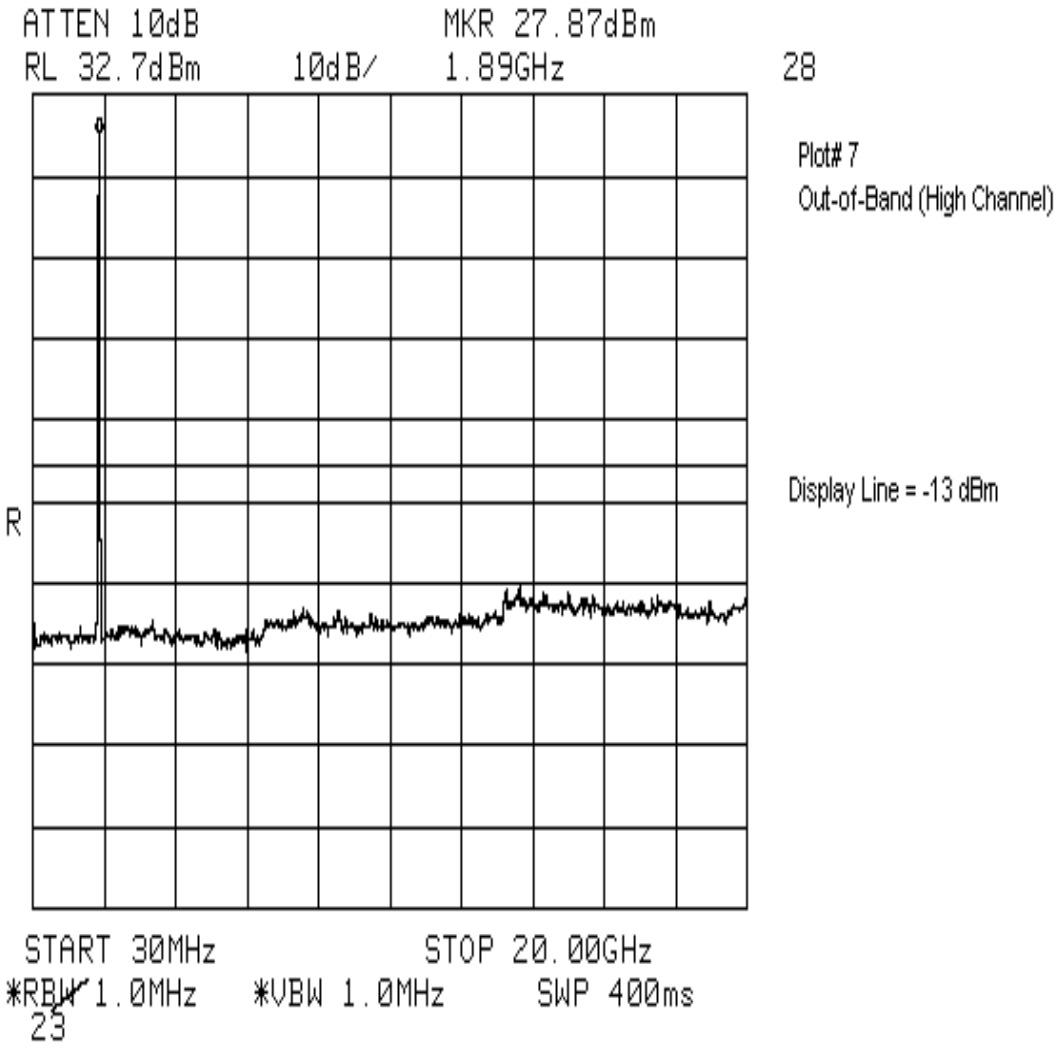
Channel	Frequency (MHz)	Resolution used (kHz)	1% Resolution BW (kHz)	Correction (dB)	Measured Bandedge (dBm)	Corrected Value (dBm)
Low	1907.5	30	41	1.37	-29	-27.63



Plot# 6
High Bandedge Measurement

Display = -13 dBm

Client:	Soma Networks	Job Number:	J43169
Model:	CPE-0140A-000	T-Log Number:	T43171
		Proj Eng:	David Bare
Contact:	Steve Fielding		
Spec:	Part 24 Subpart E	Class:	N/A



Client:	Soma Networks	Job Number:	J43169
Model:	CPE-0140A-000	T-Log Number:	T43171
		Proj Eng:	David Bare
Contact:	Steve Fielding		
Spec:	Part 24 Subpart E	Class:	N/A

Section 2.1053: Field strenght of Spurious emissions

Test Specifics

Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.

Date of Test: 4/26/01
Test Engineer: jmartinez
Test Location: SVOATS #3
Config. Used: 1
Config Change: None
EUT Voltage: 120V/60Hz

General Test Configuration

The EUT was located on the turntable for radiated emissions testing.

On the OATS, the measurement antenna was located 3m from the EUT for the frequency range 1 - 20 GHz.

For radiated emissions testing the measurement antenna was located 3 meters from the EUT. For any Spurious emission more than 20-dB of the field strenght limit, substitution was performed. If the Spurious emissions are 20-dB below the field strength limit, substituion does not have to be performed.

Ambient Conditions:

Temperature: 21°C
Rel. Humidity: 35%

Summary of Results

Run #	Test Performed	Limit	Result	Margin
1	RE, 1000 - 19000 MHz Maximized Emissions	24.238(a)	Pass	-20.2 dB @ 3814 MHz

Modifications Made During Testing:

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Client:	Soma Networks	Job Number:	J43169
Model:	CPE-0140A-000	T-Log Number:	T43171
		Proj Eng:	David Bare
Contact:	Steve Fielding		
Spec:	Part 24 Subpart E	Class:	N/A

Run #1: Maximized readings, 1000 - 19000 MHz

Harmonic measurments of the Fudamental Frequency of 1906 MHz

Frequency	Level	Pol	24.238(a)		Detector	Azimuth	Height	Comments	
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters		
Power set to Maximum.									
3814.000	61.5	H	82.2	-20.7	Pk	145	1.1	Peak reading, peak limit (Note 2)	
5721.900	59.6	H	82.2	-22.6	Pk	203	1.0	Peak reading, peak limit (Note 2)	
7629.000	61.2	H	82.2	-21.0	Pk	165	1.2	Peak reading, peak limit (Note 2)	
11443.00	57.3	H	82.2	-24.9	Pk	125	1.1	Peak reading, peak limit (Note 2)	
13349.00	52.1	H						Note 1	
15256.00	51.2	H						Note 1	
17163.00	50.2	H						Note 1	
19070.00	51.5	H						Note 1	
3814.000	62.0	V	82.2	-20.2	Pk	140	1.0	Peak reading, peak limit (Note 2)	
5721.900	59.7	V	82.2	-22.5	Pk	193	1.0	Peak reading, peak limit (Note 2)	
7629.000	58.4	V	82.2	-23.8	Pk	169	1.1	Peak reading, peak limit (Note 2)	
11443.00	56.1	V	82.2	-26.2	Pk	228	1.1	Peak reading, peak limit (Note 2)	
13349.00	51.8	V						Note 1	
15256.00	51.7	V						Note 1	
17163.00	50.2	V						Note 1	
19070.00	51.8	V						Note 1	

Note 1:	No other emission detected, within 20-dB of the limit, beyond the 5th harmonic.
Note 2:	Substitution was not performed since the measured field strenght is 20-dB below the limit.

Client:	Soma Networks	Job Number:	J43169
Model:	CPE-0140A-000	T-Log Number:	T43171
		Proj Eng:	David Bare
Contact:	Steve Fielding		
Spec:	Part 24 Subpart E	Class:	N/A

Section 2.1055: Frequency Stability

Test Specifics

Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.

Date of Test: 6/5/01
Test Engineer: Soma Networks
Test Location: Enviromental Chamber
Config. Used: 1
Config Change: None
EUT Voltage: 12 Vdc and 5 Vdc

General Test Configuration

EUT was place inside the Temperature Chamber and all local support equipment were located outside on a table for testing. The Eut was connected directly to Test Receiver. An attenuator was used between the EUT and Test Receiver.

Chamber was set to -30 to 50 degrees Celsius (60 degrees Celsius for Canada). Incremented 10 degress per temperature and let unit stabilized for every temperature.

Voltage stability was done at 20 degress Celsius. For battery operated units decrease DC voltage until battery end-point was found.

Voltage stability was done at 20 degress Celsius. For AC operated units varied voltage at 85% and 115% of the nomial AC voltage.

Ambient Conditions:

Temperature: N/A
Rel. Humidity: N/A

Summary of Results

Run #	Test Performed	Limit	Result	Comment
1a	Temperature Vs. Frequency	24.235	Pass	.3 Hz
2a	Voltage Vs. Frequency	24.235	Pass	+/- 0 Hz

Modifications Made During Testing:

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Client:	Soma Networks	Job Number:	J43169
Model:	CPE-0140A-000	T-Log Number:	T43171
		Proj Eng:	David Bare
Contact:	Steve Fielding		
Spec:	Part 24 Subpart E	Class:	N/A

Run# 1a: Temperature Vs. Frequency

Per Section 24.235 states that the Fundamental must stay within the blockedge.

Temperature	Deviation
(Celsius)	(Hz)
-30	0.1
-20	0.0
-10	-0.1
0	0.0
10	0.0
20	0.3
30	0.0
40	0.0
50	0.0

Run# 2a: Voltage Vs. Frequency

Per Section 24.235 states that the Fundamental must stay within the blockedge.

Nomianl Voltage is 120Vdc.

Voltage	Deviation
(Dc)	(Hz)
85%	0.0
115%	0.0