Elliott

EMC Test Data

Client:	Soma Networks	Job Number:	J46118
Model:	SOMA port 100	T-Log Number:	T46541
		Proj Eng:	David Bare
Contact:	Moataz Drebika		
Emissions Spec:	Part 24 Subpart E	Class:	N/A
Immunity Spec:	-	Environment:	-

EMC Test Data

For The

Soma Networks

Model

SOMA port 100

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Immunity Spec:	-	Environment:	-

EUT INFORMATION

General Description

The EUT is a wireless terminal which is designed to provide wireless internet 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	SOMAport 100	Wireless Terminal	102090022	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	-	-

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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

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	PC	USB	Shielded	2

EUT Operation During Emissions

EUT was set to transmit continuously at the low, middle, and high channels at full power.

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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: 3/14/02
Test Engineer: Chris Byleckie
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 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: 12°C
Rel. Humidity: 41%

Summary of Results

Run #	Test Performed	Limit	Result	Measurement
1b	Radiated Output Power	24.232(b)	Pass	32.2 dBm (EIRP)
1c	Conducted Output Power	24.232(b)	Pass	26.4 dBm (ERP)

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.

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Contact:	Moataz Drebika		
Spec:	Part 24 Subpart E	Class:	N/A

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

Channel	Frequency (MHz)	Field Strength at 3m	Antenna Pol. (H/V)	Res BW
Low	1852.7	123.3	H	1 MHz
High	1907.4	122.0	H	1 MHz
Low	1852.7	124.1	V	1 MHz
High	1907.4	126.5	V	1 MHz

Note 1:	Add note here
Note 2:	

Run #1b: Output Power (Substitution Method)

			Substitution Note 1				Comments
Frequency	Level	Pol	Pin	Gain	EIRP	Limit	
MHz	dBµV/m	v/h	(dBm)	(dBi)	(dBm)	(dBm)	
1852.70	124.1	v	22.1	6.4	28.5	33.0	
1852.70	123.3	h	20.8	6.4	27.2	33.0	
1907.40	126.5	v	25.9	6.3	32.2	33.0	
1907.40	122.0	h	21.4	6.3	27.7	33.0	

Run #1c: Output Power (Power Meter)
Power meter had a 30dB pad.
Pout = 26.4 dBm

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Contact:	Moataz Drebika		
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: 3/14/02
Test Engineer: Chris Byleckie
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: 12°C
Rel. Humidity: 41%

Summary of Results

Run #	Test Performed	Limit	Result	Margin
1 to 3	RE, 1000 - 19000 MHz Maximized Emissions	24.238(a)	Pass	See individual runs

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.

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EMC Test Data

Client:	Soma Networks	Job Number:	J46118
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		Proj Eng:	David Bare
Contact:	Moataz Drebika		
Spec:	Part 24 Subpart E	Class:	N/A

Run #1: Maximized readings, 1000 - 19000 MHz

Harmonic measurments of the Fudamental Frequency of 1852.7MHz (Low)

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.								
3705.40	72.6	H	82.2	-9.6	Avg	280	1.0	
5558.10	48.5	H	82.2	-33.7	Avg	253	1.4	(Note 2)
7410.80	51.8	H	82.2	-30.4	Avg	261	1.2	(Note 2)
9263.50	53.3	H	82.2	-28.9	Avg	320	1.0	(Note 2)
11116.20		H						Note 1
12968.90		H						Note 1
14821.60		H						Note 1
3705.40	72.0	V	82.2	-10.2	Avg	290	1.0	
5558.10	55.9	V	82.2	-26.3	Avg	259	1.4	(Note 2)
7410.80	48.4	V	82.2	-33.8	Avg	281	1.0	(Note 2)
9263.50	51.8	V	82.2	-30.4	Avg	186	1.0	(Note 2)
11116.20		V						Note 1
12968.90		V						Note 1
14821.60		V						Note 1

Note:	Harmonic Measurements were taken with a RBW: 1MHz and VBW: 3MHz with and Average Sweep 100. Modulation is CDMA, a non-constant evelope, so average measurements were taken.
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.

EIRP substitution method measurement

Frequency	Level	Pol	Substitution [Note 2]					Comments
MHz	dBµV/m	v/h	Pin (dBm)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	
3705.400	72.6	v	-29.8	8.5	-21.3	-13.0	-8.3	
3705.400	72.0	h	-29.2	8.5	-20.7	-13.0	-7.7	

Note 2:	Pin is the power input (dBm) to the substitution antenna to obtain the field strength recorded from the EUT. G is the gain (dBi) for the substitution antenna.ERP is the effective radiated power (Pin + GdBi - 2.2) from the substitution antenna. EIRP is calculated as follows (Pin+GdBi)

Client:	Soma Networks	Job Number:	J46118
Model:	SOMA port 100	T-Log Number:	T46541
		Proj Eng:	David Bare
Contact:	Moataz Drebika		
Spec:	Part 24 Subpart E	Class:	N/A

Run #2: Maximized readings, 1000 - 19000 MHz

Harmonic measurments of the Fudamental Frequency of 1875MHz (Middle)

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.								
3750.000	67.5	H	82.2	-14.7	Pk	145	1.1	
5625.000	59.6	H	82.2	-22.6	Pk	203	1.0	(Note 2)
7500.000	61.2	H	82.2	-21.0	Pk	165	1.2	(Note 2)
9375.00	57.3	H	82.2	-24.9	Pk	125	1.1	(Note 2)
11250.00	52.1	H						Note 1
13125.00	51.2	H						Note 1
15000.00	50.2	H						Note 1
3750.000	73.5	V	82.2	-8.7	Pk	140	1.0	
5625.000	59.7	V	82.2	-22.5	Pk	193	1.0	(Note 2)
7500.000	58.4	V	82.2	-23.8	Pk	169	1.1	(Note 2)
9375.00	56.1	V	82.2	-26.2	Pk	228	1.1	(Note 2)
11250.00	51.8	V						Note 1
13125.00	51.7	V						Note 1
15000.00	50.2	V						Note 1

EIRP substitution method measurement

Frequency	Level	Pol	Substitution [Note 2]					Comments
MHz	dBµV/m	v/h	Pin (dBm)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	
3750.000	73.5	v	-29.0	8.5	-20.5	-13.0	-7.5	
3750.000	67.5	h	-30.2	8.5	-21.7	-13.0	-8.7	

Note 2:	Pin is the power input (dBm) to the substitution antenna to obtain the field strength recorded from the EUT. G is the gain (dBi) for the substitution antenna.ERP is the effective radiated power (Pin + GdBi - 2.2) from the substitution antenna. EIRP is calculated as follows (Pin+GdBi)

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Spec:	Part 24 Subpart E	Class:	N/A

Run #3: Maximized readings, 1000 - 19000 MHz

Harmonic measurments of the Fudamental Frequency of 1907.5MHz (High)

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.								
3815.00	65.3	H	82.2	-17.0	Avg	324	1.0	
5722.50	56.8	H	82.2	-25.5	Avg	147	2.1	(Note 2)
7630.00	60.6	H	82.2	-21.6	Avg	328	1.1	(Note 2)
9537.50	51.4	H	82.2	-30.8	Avg	217	1.0	(Note 2)
11445.00		H						Note 1
13352.50		H						Note 1
15260.00		H						Note 1
3815.00	71.7	V	82.2	-10.5	Avg	292	1.0	
5722.50	59.7	V	82.2	-22.5	Avg	0	1.0	(Note 2)
7630.00	59.5	V	82.2	-22.7	Avg	297	1.2	(Note 2)
9537.50	52.8	V	82.2	-29.4	Avg	298	1.0	(Note 2)
11445.00		V						Note 1
13352.50		V						Note 1
15260.00		V						Note 1

Note:	Harmonic Measurements were taken with a RBW: 1MHz and VBW: 3MHz with and Average Sweep 100. Modulation is CDMA, a non-constant evelope, so average measurements were taken.
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.

EIRP and ERP measurements

Frequency	Level	Pol	Substitution Note 2					Comments
MHz	dBµV/m	v/h	Pin (dBm)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	
3815.000	65.3	h	-32.5	8.4	-24.1	-13.0	-11.1	
3815.000	71.7	v	-29.6	8.4	-21.2	-13.0	-8.2	

Note 2:	Pin is the power input (dBm) to the substitution antenna to obtain the field strength recorded from the EUT. G is the gain (dBi) for the substitution antenna.ERP is the effective radiated power (Pin + GdBi - 2.2) from the substitution antenna. EIRP is calculated as follows (Pin+GdBi)