

## FCC Test Report FCC Part 22, 24 / RSS 129, 133

**SONY Corporation** 

**Notebook PC** 

Model Number: PCG-4R1L

FCC ID: AK8PCG4R1L

IC-ID: 409B-PCG4R1L

TEST REPORT #: EMC\_SONYE\_029\_08001\_FCC22\_24\_PCG4R1L DATE: 2008-11-05







FCC listed: A2LA accredited

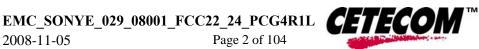
IC recognized # 3462B

#### CETECOM Inc.

411 Dixon Landing Road • Milpitas, CA 95035 • U.S.A.

Phone: +1 (408) 586 6200 • Fax: +1 (408) 586 6299 • E-mail: info@cetecomusa.com • <a href="http://www.cetecom.com">http://www.cetecom.com</a> CETECOM Inc. is a Delaware Corporation with Corporation number: 2113686

Board of Directors: Dr. Harald Ansorge, Dr. Klaus Matkey, Hans Peter May



## **Table of Contents**

1	ASSESSMEN	T	4
	EMC & Radio	·	4
2	ADMINISTR	ATIVE DATA	5
_			
		CATION OF THE TESTING LABORATORY	
		CATION OF THE CLIENTCATION OF THE MANUFACTURER	
_			
3	_	T UNDER TEST (EUT)	
	3.1 SPECIFICA	ATION OF THE EQUIPMENT UNDER TEST	6
4	SUBJECT O	F INVESTIGATION	7
5	MEASUREM	IENTS	8
	5.1 RF Powe	ER OUTPUT	8
		C 2.1046 Measurements required: RF power output	
		its:	
		CC 22.913 (a) Effective radiated power limits.	
		CC 24.232 (b)(c) Power limits	
	5.1.3 Radi	iated Output Power measurement procedure:	8
		Results 800 MHz band:	
		P Results 1900 MHz band:	
		S Emissions Radiated	
		C 2.1053 Measurements required: Field strength of spurious radiation	
		its:	
		CC 22.917 Emission limitations for cellular equipment	
		CC 24.238 Emission limitations for Broadband PCS equipment	
		iated out of band measurement procedure:	
		iated out of band emissions results on EUT:	
		ESULTS OF RADIATED TESTS 800: CDMA	
		ESULTS OF RADIATED TESTS 800: EVDO	
		ESULTS OF RADIATED TESTS PCS-1900: CDMA	
		ESULTS OF RADIATED TESTS PCS-1900: EVDO	
		ER RADIATED EMISSIONS § 2.1053 / RSS-129 & 133eiver Radiated Spurious Emissions Results	
_		•	
6		LINE CONDUCTED EMISSIONS § 15.107/207	
		ITS	
		ULTS TX Line CDMA 800:	
		ULTS TX Neutral CDMA 800:	
		ULTS TX Line EVDO 800: ULTS TX Neutral EVDO 800:	
		ULTS TX Neutral EVDO 800:ULTS TX Line CDMA 1900:	
		ULTS TX Line CDMA 1900:ULTS TX Neutral CDMA 1900:	
		ULTS TX Neutral CDMA 1900:	
		ULTS TX Neutral EVDO 1900:	
	U.1.2 NES	OLIDIA INCHINE EYDO 1700	

Test Report #: Date of Report:

# 

2008-11-05

Page 3 of 104

	6.1.10 RESULTS RX Line CDMA:	
	6.1.11 RESULTS RX Neutral CDMA:	99
7	TEST EQUIPMENT AND ANCILLARIES USED FOR TESTS	101
8	REFERENCES	102
9	BLOCK DIAGRAMS	103
10	REVISION HISTORY	104

Test Report #:
Date of Report:

## EMC\_SONYE\_029\_08001\_FCC22\_24\_PCG4R1L

2008-11-05

Page 4 of 104



## 1 Assessment

The following is in compliance with the applicable criteria specified in FCC rules Parts 2, 22 and 24 of Title 47 of the Code of Federal Regulations and in compliance with the applicable criteria specified in Industry Canada rules RSS129 and RSS133.

Company	Description	Model #	
SONY Corporation	Notebook PC	PCQ-4R1L	

Technical responsibility for area of testing:

**Lothar Schmidt** (Director Regulatory and

2008-11-05 EMC & Radio Antenna Services)

Date Section Name Signature

This report is prepared by:

Peter Mu

2008-11-05 EMC & Radio (EMC Project Engineer)

Date Section Name Signature

The test results of this test report relate exclusively to the test item specified in Identification of the Equipment under Test. The CETECOM Inc. USA does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item. The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of the CETECOM Inc USA.

2008-11-05





## 2 Administrative Data

2.1 <u>Identification of the Testing Laboratory</u>

Company Name: CETECOM Inc.

Department: EMC

Address:

411 Dixon Landing Road

Milpitas, CA 95035

U.S.A.

Telephone: +1 (408) 586 6200

Fax: +1 (408) 586 6299

Responsible Test Lab Manager: Lothar Schmidt

2.2 <u>Identification of the Client</u>

Applicant's Name: **SONY Corporation** 

Address: 1-7-1 Konan, Minato-ku,

Tokyo 108-0075, Japan

Contact Person: Michio Kobayashi

Phone No. +81-263-72-5696

Fax: +81-263-72-9755

e-mail: Michio.Kobayashi@jp.sony.com

## 2.3 <u>Identification of the Manufacturer</u>

MANUFACTURER (If different from Applicant)					
Applicant (Firm Name):	Sony EMCS Corporation				
Contact Person:	Michio Kobayashi				
Telephone:	+81-263-72-5696				
Fax:	+81-263-72-9755				
Address Line 1:	5432 Toyoshima,				
City:	Azumino-shi, Nagano				
Postal Code:	399-8282,				
Country:	Japan				
e-mail:	Michio.Kobayashi@jp.sony.com				

Page 6 of 104



#### 3 **Equipment under Test (EUT)**

#### 3.1 **Specification of the Equipment under Test**

Product Type Notebook PC

2008-11-05

Marketing Name: PCG-4R1L

Model No: PCG-4R1L

FCC-ID: AK8PCG4R1L

IC-ID: 409B-PCG4R1L

Frequency Range: 824.7 MHz to 848.31 MHz & 1851.25 MHz to 1908.75 MHz

Type(s) of Modulation: **CDMA** 

PIFA: 0.51dBi peak in 850 band, Antenna Type:

0.11dBi peak in 1900 band

**Conducted:** 

CDMA Cellular: 24.89dBm (0303.W) CDMA PCS: 24.61dBm (0.289W)

**EVDO Cellular: 24.92dBm (0.310W)** 

**EVDO PCS: 24.56dBm (0.286W)** 

Output Power

Radiated:

CDMA Cellular: 22.64dBm (0.184W) ERP CDMA PCS: 26.31dBm (0.428W) EIRP

EVDO Cellular: 22.49dBm (0.177W) ERP **EVDO PCS: 26.6dBm (0.457W) EIRP** 

Test Report #: Date of Report: EMC\_SONYE\_029\_08001\_FCC22\_24\_PCG4R1L CETECON 2008-11-05

Page 7 of 104



## **Subject of Investigation**

All testing was performed on the EUT listed in Section 3. The EUT was maximized in the X, Y, Z positions, all data in this report shows the worst case between horizontal and vertical polarization for above 1GHz.

The objective of the measurements done by Cetecom Inc. was to measure the performance of the EUT as specified by requirements listed in FCC rules Parts 2, 22 and 24 of Title 47 of the Code of Federal Regulations. The maximization of portable equipment is conducted in accordance with ANSI C63.4.

Page 8 of 104



## 5 Measurements

## 5.1 **RF Power Output**

#### 5.1.1 FCC 2.1046 Measurements required: RF power output.

Power output shall be measured at the RF output terminals when the transmitter is adjusted in accordance with the tune-up procedure to give the values of current and voltage on circuit elements as specified. The electrical characteristics of the radio frequency load attached to the output terminals when this test is made shall be stated.

## **5.1.2 Limits:**

## 5.1.2.1 FCC 22.913 (a) Effective radiated power limits.

The effective radiated power (ERP) of mobile transmitters must not exceed 7 Watts.

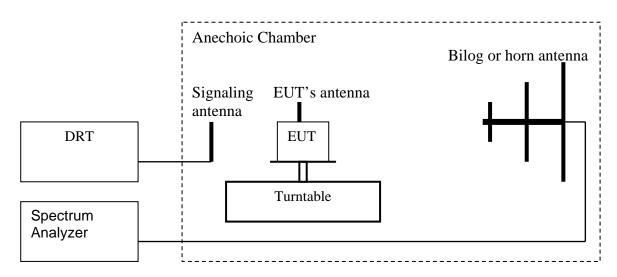
### 5.1.2.2 FCC 24.232 (b)(c) Power limits.

- (b) Mobile/portable stations are limited to 2 Watts effective isotropic radiated power (EIRP).
- (c) Peak transmit power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms equivalent voltage. The measurement results shall be properly adjusted for any limitations, such as detector response times, limited resolution bandwidth capability when compared to the emission bandwidth, sensitivity, etc., so as to obtain a true peak measurement over the full bandwidth of the channel.

## 5.1.3 Radiated Output Power measurement procedure:

Based on TIA-603C 2004

## 2.2.17.2 Effective Radiated Power (ERP) or Effective Isotropic Radiated Power (EIRP)



1. Connect the equipment as shown in the above diagram with the EUT's antenna in a vertical orientation.

Test Report #:
Date of Report:

## EMC\_SONYE\_029\_08001\_FCC22\_24\_PCG4R1L

2008-11-05 Page 9 of 104



2. Adjust the settings of the Digital Radiocommunication Tester (DRT) to set the EUT to its maximum power at the required channel.

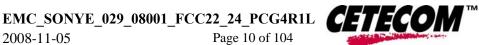
- 3. Set the spectrum analyzer to the channel frequency. Set the analyzer to measure peak hold with the required settings.
- 4. Rotate the EUT 360°. Record the peak level in dBm (LVL).
- 5. Replace the EUT with a vertically polarized half wave dipole or known gain antenna. The center of the antenna should be at the same location as the center of the EUT's antenna.
- 6. Connect the antenna to a signal generator with known output power and record the path loss in dB (LOSS). LOSS = Generator Output Power (dBm) Analyzer reading (dBm).
- 7. Determine the ERP using the following equation: ERP (dBm) = LVL (dBm) + LOSS (dB)
- 8. Determine the EIRP using the following equation: EIRP (dBm) = ERP (dBm) + 2.14 (dB)
- 9. Measurements are to be performed with the EUT set to the low, middle and high channel of each frequency band. **Spectrum analyzer settings = rbw=vbw=3MHz**

(**note:** Steps 5 and 6 above are performed prior to testing and **LOSS** is recorded by test software. Steps 3, 4, 7 and 8 above are performed with test software.)

Test Report #: Date of Report:

## Page 10 of 104

2008-11-05



#### ERP Results 800 MHz band: 5.1.4

Burst Peak ERP
≤38.45dBm (7W)

Eraguanay (MHz)	Effective Radiated Power (dBm)		
Frequency (MHz)	CDMA	EVDO	
824.7	21.00	22.28	
836.6	21.24	22.35	
848.31	22.64	22.49	

## 5.1.5 EIRP Results 1900 MHz band:

Burst Peak EIRP
≤33dBm (2W)

Frequency (MHz)	<b>Equivalent Isotropic Radiated Power (dBm)</b>		
Trequency (WITIZ)	CDMA	EVDO	
1851.25	25.36	26.01	
1880.0	26.13	26.6	
1908.25	26.31	26.51	

Page 11 of 104 Date of Report: 2008-11-05



### EIRP (800 band) CDMA **CHANNEL 1013**

§22.913(a)

EUT: M2 Platform Customer:: Sony Electronics Test Mode: CDMA 850; CH.1013

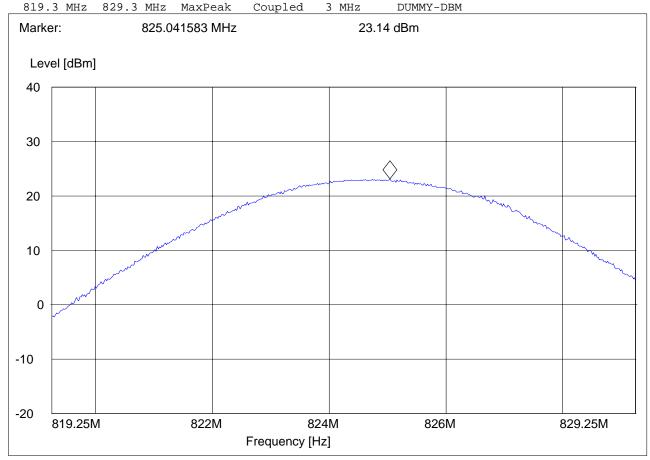
ANT Orientation: V EUT Orientation: H Test Engineer: Chris

AC + Internal Battery Voltage:

Comments:

#### SWEEP TABLE: "EIRP CDMA 850 CH8"

Start Detector Meas. IF Transducer Stop Frequency Frequency Time  ${\tt Bandw.}$ 



Page 12 of 104 Date of Report: 2008-11-05



### EIRP (800 band) CDMA **CHANNEL 384**

§22.913(a)

M2 Platform EUT: Sony Electronics CDMA 850; CH.384 Customer:: Test Mode:

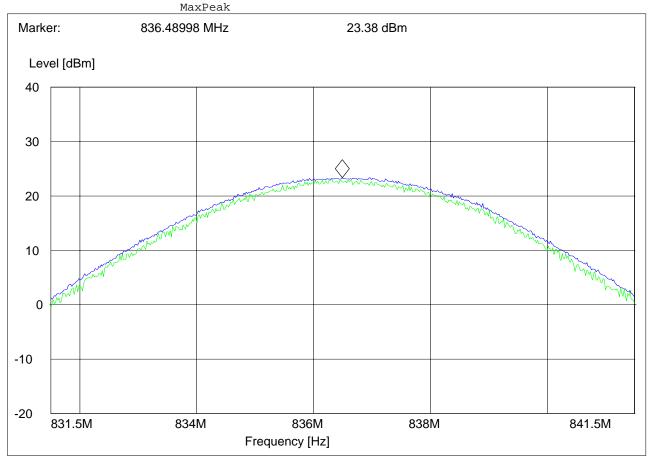
ANT Orientation: V EUT Orientation: H Test Engineer: Chris

AC + Internal Battery Voltage:

Comments:

#### SWEEP TABLE: "EIRP CDMA 850 CH383"

Start Detector Meas. IF Transducer Stop Frequency Frequency Time Bandw. 831.5 MHz 841.5 MHz MaxPeak Coupled 3 MHz DUMMY-DBM



Page 13 of 104 Date of Report: 2008-11-05



## EIRP (800 band) CDMA **CHANNEL 777**

§22.913(a)

EUT: M2 Platform Customer:: Sony Electronics Test Mode: CDMA 850; CH.777

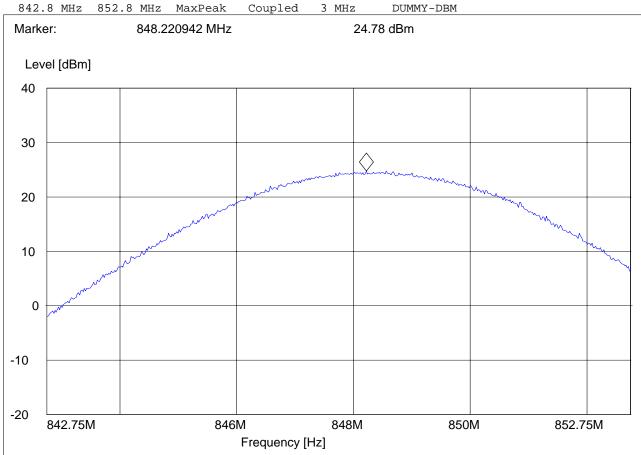
ANT Orientation: V EUT Orientation: H Test Engineer: Chris

Voltage: AC + Internal Battery

Comments:

#### SWEEP TABLE: "EIRP CDMA 850 CH758"

Start Detector Meas. IF Transducer Stop Time  ${\tt Bandw.}$ Frequency Frequency



Page 14 of 104 Date of Report: 2008-11-05



## EIRP (PCS-1900) CDMA **CHANNEL 25**

§24.232(b)

M2 Platform EUT: Sony Electronics Customer:: Test Mode: CDMA 1900; CH.25

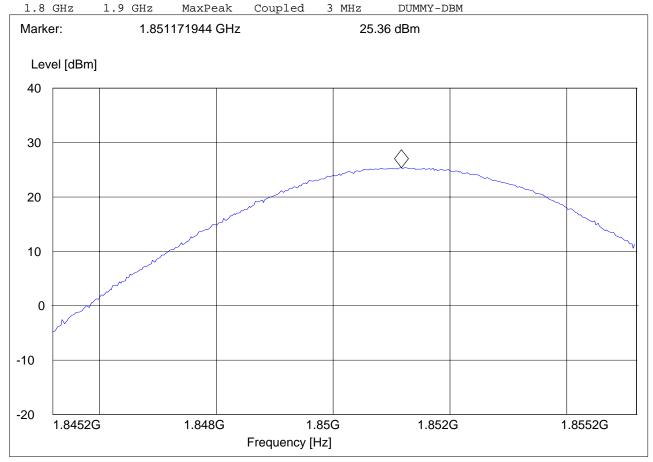
ANT Orientation: H EUT Orientation: H Test Engineer: Chris

AC + Internal Battery Voltage:

Comments:

#### SWEEP TABLE: "EIRP 1900 CH512"

EIRP PCS 1900 for channel-512 Short Description: Start Stop Detector Meas. IF Transducer Frequency Frequency Time Bandw.



Page 15 of 104 Date of Report: 2008-11-05



#### **EIRP (PCS-1900) CDMA CHANNEL 600**

§24.232(b)

EUT: M2 Platform Sony Electronics Customer:: Test Mode: CDMA 1900; CH.600

ANT Orientation: H EUT Orientation: H Test Engineer: Chris

AC + Internal Battery Voltage:

Comments:

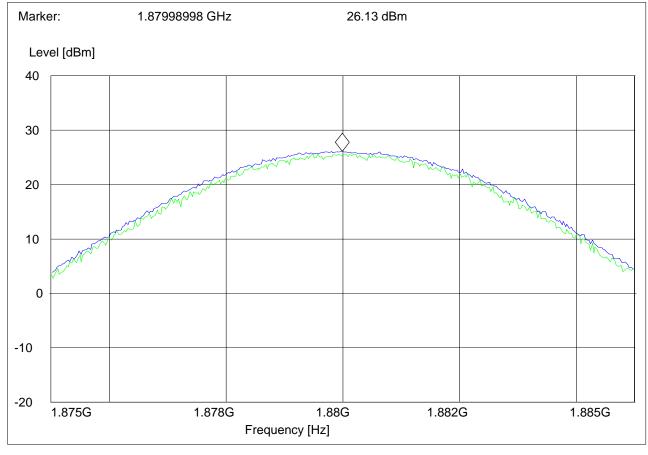
#### SWEEP TABLE: "EIRP 1900 CH661"

EIRP PCS 1900 for channel-661 Short Description: Start Detector Meas. IF Transducer Stop

Frequency Frequency Time Bandw.

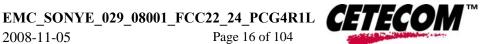
1.9 GHz 1.9 GHz MaxPeak Coupled 3 MHz DUMMY-DBM

MaxPeak



## Test Report #:

Page 16 of 104 Date of Report: 2008-11-05



### EIRP (PCS-1900) CDMA **CHANNEL 1175**

§24.232(b)

M2 Platform Sony Electronics CDMA 1900; CH.1175 EUT: Customer:: Test Mode:

ANT Orientation: H EUT Orientation: H Test Engineer: Chris

AC + Internal Battery Voltage:

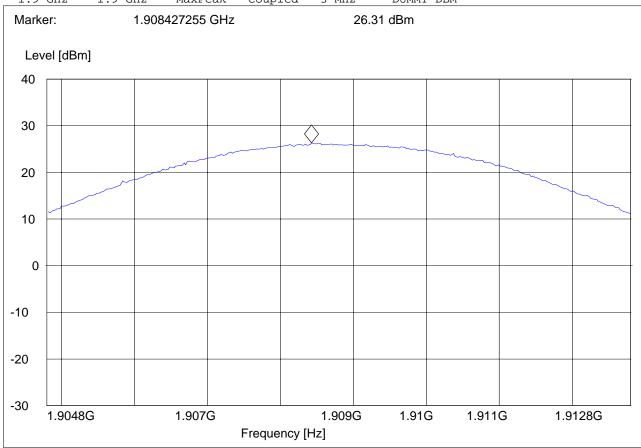
Comments:

#### SWEEP TABLE: "EIRP 1900 CH810"

EIRP PCS 1900 for channel-810 Short Description: Start Stop Detector Meas. IF Transducer

Frequency Frequency Time Bandw.

1.9 GHz 1.9 GHz MaxPeak Coupled 3 MHz DUMMY-DBM



Page 17 of 104 Date of Report: 2008-11-05



### EIRP (800 band) EVDO **CHANNEL 1013**

§22.913(a)

EUT: M2 Platform Sony Electronics EVDO 850; CH1013 Customer:: Test Mode: EVDO 850; CH1013

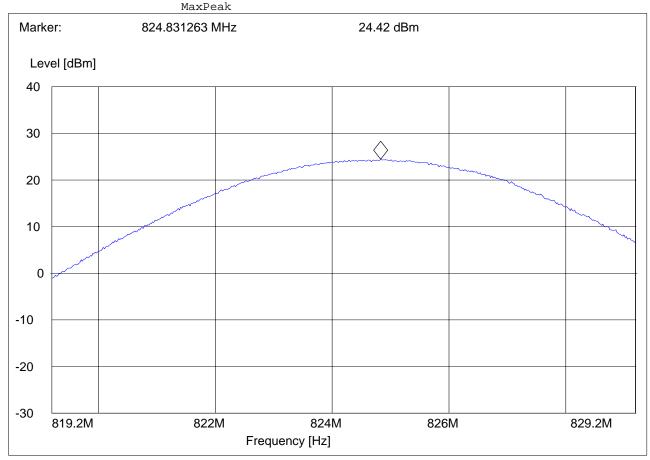
ANT Orientation: H EUT Orientation: H Test Engineer: Chris

AC + Internal Battery Voltage:

Comments:

#### SWEEP TABLE: "EIRP 850 CH 128 H"

Start IF Transducer Stop Detector Meas. Frequency Frequency Time Bandw. 819.2 MHz 829.2 MHz MaxPeak Coupled 3 MHz DUMMY-DBM



Page 18 of 104 Date of Report: 2008-11-05



### EIRP (800 band) EVDO **CHANNEL 384**

§22.913(a)

EUT: M2 Platform Sony Electronics EVDO 850; CH384 Customer:: Test Mode: EVDO 850; CH384

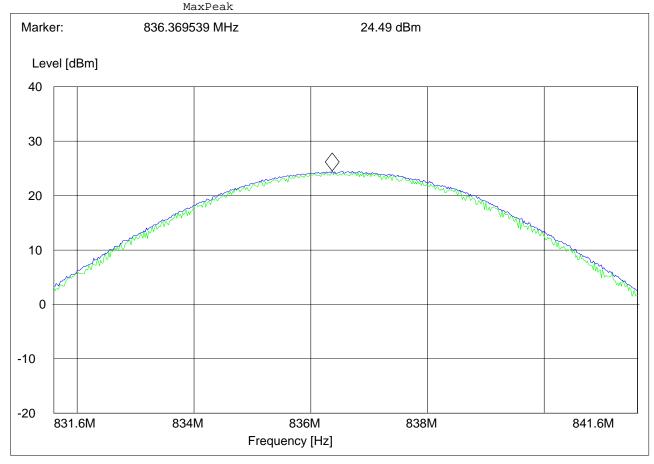
ANT Orientation: H EUT Orientation: H Test Engineer: Chris

AC + Internal Battery Voltage:

Comments:

#### SWEEP TABLE: "EIRP 850 CH 190 H"

Start IF Transducer Stop Detector Meas. Frequency Frequency Time Bandw. 831.6 MHz 841.6 MHz MaxPeak Coupled 3 MHz DUMMY-DBM



Page 19 of 104 Date of Report: 2008-11-05



## EIRP (800 band) EVDO **CHANNEL 777**

§22.913(a)

M2 Platform EUT: Sony Electronics Customer:: EVDO 850; CH777 Test Mode:

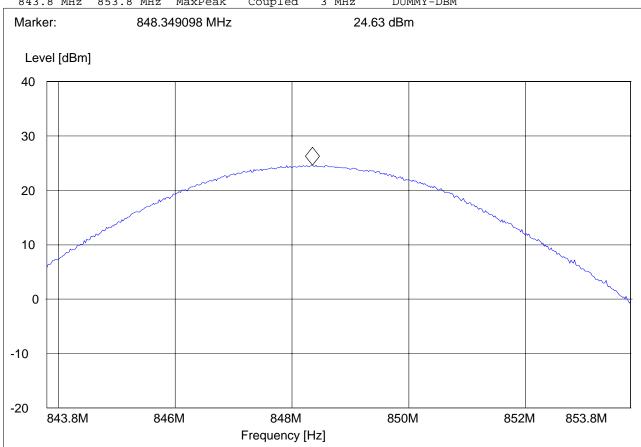
ANT Orientation: H EUT Orientation: H Test Engineer: Chris

AC + Internal Battery Voltage:

Comments:

#### SWEEP TABLE: "EIRP 850 CH 251 H"

Start Detector Meas. IF Transducer Stop Frequency Frequency Time Bandw. 843.8 MHz 853.8 MHz Coupled 3 MHz DUMMY-DBM MaxPeak



Page 20 of 104 Date of Report: 2008-11-05



## EIRP (PCS-1900) EVDO **CHANNEL 25**

§24.232(b)

M2 Platform EUT: Sony Electronics EVDO 1900; CH25 Customer:: Test Mode: EVDO 1900; CH25

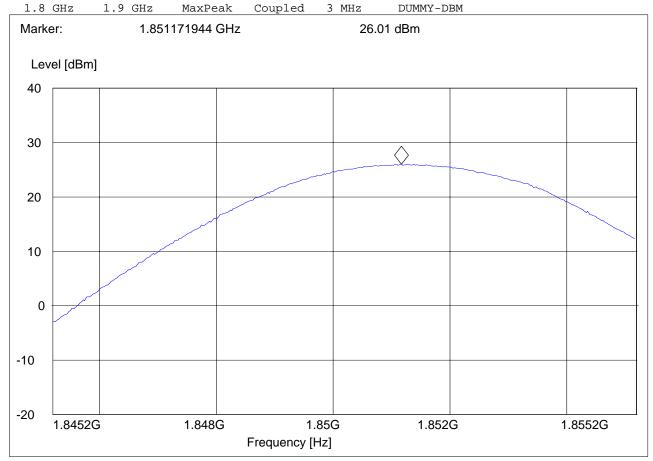
ANT Orientation: H EUT Orientation: H Test Engineer: Chris

AC + Internal Battery Voltage:

Comments:

#### SWEEP TABLE: "EIRP 1900 CH512"

EIRP PCS 1900 for channel-512 Short Description: Start Stop Detector Meas. IF Transducer Frequency Frequency Time Bandw.



Page 21 of 104 Date of Report: 2008-11-05



#### **EIRP (PCS-1900) EVDO CHANNEL 600**

§24.232(b)

EUT: M2 Platform Sony Electronics Customer:: Test Mode: EVDO 1900; CH600

ANT Orientation: H EUT Orientation: H Test Engineer: Chris

AC + Internal Battery Voltage:

Comments:

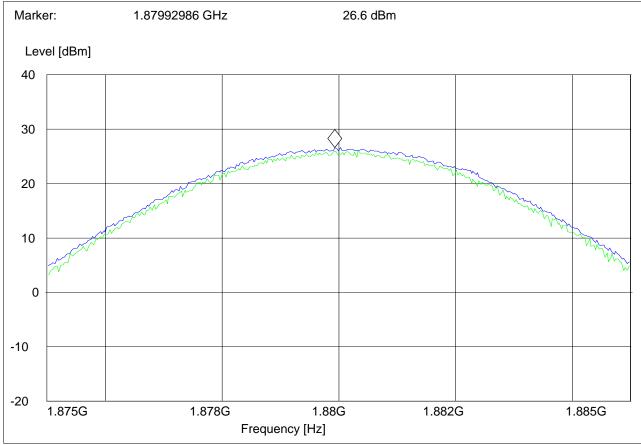
#### SWEEP TABLE: "EIRP 1900 CH661"

EIRP PCS 1900 for channel-661 Short Description: Start Detector Meas. IF Transducer Stop

Frequency Frequency Time Bandw.

1.9 GHz 1.9 GHz MaxPeak Coupled 3 MHz DUMMY-DBM

MaxPeak



Page 22 of 104 Date of Report: 2008-11-05



#### **EIRP (PCS-1900) EVDO CHANNEL 1175**

§24.232(b)

M2 Platform Sony Electronics EVDO 1900; CH1175 EUT: Customer:: Test Mode:

ANT Orientation: H EUT Orientation: H Test Engineer: Chris

AC + Internal Battery Voltage:

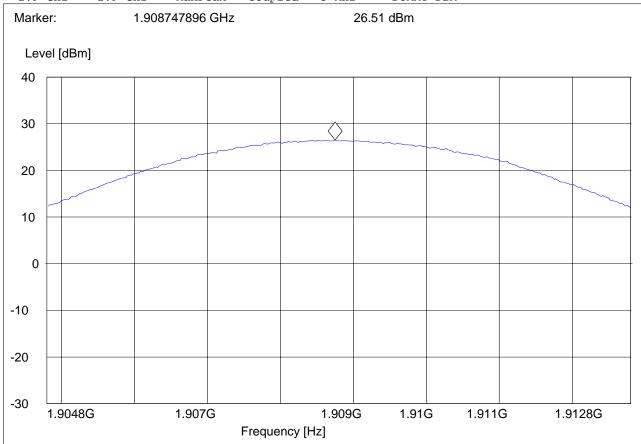
Comments:

#### SWEEP TABLE: "EIRP 1900 CH810"

EIRP PCS 1900 for channel-810 Short Description: Start Stop Detector Meas. IF Transducer

Frequency Frequency Time Bandw.

1.9 GHz 1.9 GHz MaxPeak Coupled 3 MHz DUMMY-DBM





### 5.2 **Spurious Emissions Radiated**

#### 5.2.1 FCC 2.1053 Measurements required: Field strength of spurious radiation.

(a) Measurements shall be made to detect spurious emissions that may be radiated directly from the cabinet, control circuits, power leads or intermediate circuit elements under normal conditions of installation and operation. Curves or equivalent data shall be supplied showing the magnitude of each harmonic and other spurious emission.

### **5.2.2 Limits:**

## 5.2.2.1 FCC 22.917 Emission limitations for cellular equipment.

2008-11-05

The rules in this section govern the spectral characteristics of emissions in the Cellular Radiotelephone Service.

- (a) Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P) dB$ .
- (b) *Measurement procedure*. Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (*i.e.* 100 kHz of 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

#### 5.2.2.2 FCC 24.238 Emission limitations for Broadband PCS equipment.

The rules in this section govern the spectral characteristics of emissions in the Broadband Personal Communications Service.

- (a) Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P) dB$ .
- (b) Measurement procedure. Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required

2008-11-05 Page 24 of 104

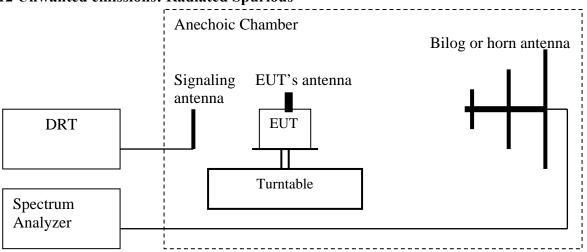


measurement bandwidth (*i.e.* 100 kHz of 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

#### 5.2.3 Radiated out of band measurement procedure:

#### **Based on TIA-603C 2004**

## 2.2.12 Unwanted emissions: Radiated Spurious



- 1. Connect the equipment as shown in the above diagram with the EUT's antenna in a horizontal orientation.
- 2. Adjust the settings of the Digital Radiocommunication Tester (DRT) to set the EUT to its maximum power at the required channel.
- 3. Set the spectrum analyzer to measure peak hold with the required settings.
- 4. Place the measurement antenna in a horizontal orientation. Rotate the EUT 360°. Raise the measurement antenna up to 4 meters in 0.5 meters increments and rotate the EUT 360° at each height to maximize all emissions. Measure and record all spurious emissions (LVL) up to the tenth harmonic of the carrier frequency.
- 5. Replace the EUT with a horizontally polarized half wave dipole or known gain antenna. The center of the antenna should be at the same location as the center of the EUT's antenna.
- 6. Connect the antenna to a signal generator with known output power and record the path loss in dB (**LOSS**). **LOSS** = Generator Output Power (dBm) Analyzer reading (dBm).
- 7. Determine the level of spurious emissions using the following equation: **Spurious** (dBm) = **LVL** (dBm) + **LOSS** (dB):
- 8. Repeat steps 4, 5 and 6 with all antennas vertically polarized.
- 9. Determine the level of spurious emissions using the following equation: **Spurious** (dBm) = **LVL** (dBm) + **LOSS** (dB):
- 10. Measurements are to be performed with the EUT set to the low, middle and high channel of each frequency band.

Test Report #:
Date of Report:

EMC\_SONYE\_029\_08001\_FCC22\_24\_PCG4R1L

2008-11-05 Page 25 of 104



(**note:** Steps 5 and 6 above are performed prior to testing and **LOSS** is recorded by test software. Steps 3, 4 and 7 above are performed with test software.)

## **Spectrum analyzer settings:**

Res B/W: 1 MHz Vid B/W: 1 MHz

### **Measurement Survey:**

Radiated emissions measurements were made only at the upper, middle, and lower carrier frequencies of the GSM-850 & PCS-1900 bands. It was decided that measurements at these three carrier frequencies would be sufficient to demonstrate compliance with emissions limits because it was seen that all the significant spurs occur well outside the band and no radiation was seen from a carrier in one block of the GSM-850 & PCS-1900 band into any of the other blocks respectively. The equipment must still, however, meet emissions requirements with the carrier at all frequencies over which it is capable of operating and it is the manufacturer's responsibility to verify this.

#### 5.2.4 **Radiated out of band emissions results on EUT:**

#### **RESULTS OF RADIATED TESTS 800: CDMA** 5.2.4.1

Harmonics	Tx ch-1013 Freq. (MHz)	Level (dBm)	Tx ch-600 Freq. (MHz)	Level (dBm)	Tx ch-777 Freq. (MHz)	Level (dBm)
2	1648.4	NF	1673.2	NF 1697		NF
3	2472.6	NF	2509.8	NF	2546.4	NF
4	3296.8	NF	NF 3346.4 NF		3395.2	NF
5	4121	NF	4183	NF	4244	NF
6	4945.2	NF	NF 5019.6		5092.8	NF
7	5769.4	NF	5856.2	NF	5941.6	NF
8	6593.6	NF	6692.8	NF	6790.4	NF
9	7417.8	NF	7529.4	NF	7639.2	NF
10	8242	NF	8366	NF	8488	NF
NF = NOISE FLOOR						



TX: 30MHz - 1GHz Ant Vertical Spurious emission limit –13dBm

**Note:** 

Test Report #:

## 1. The peak above the limit line is the carrier freq.

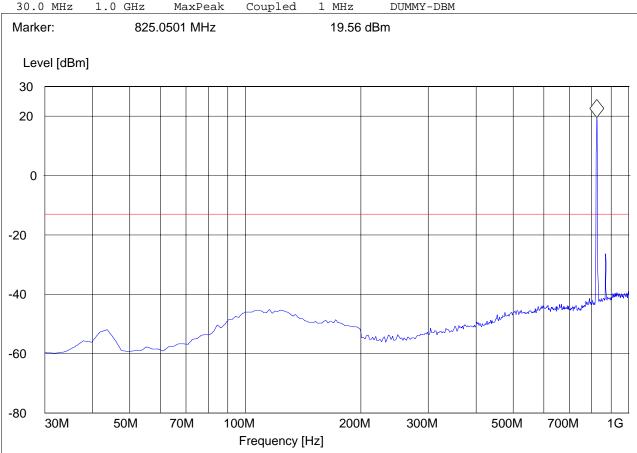
EUT: M2 Platform Sony Electronics Customer:: Test Mode: CDMA 850; CH.1013

ANT Orientation: V EUT Orientation: H Test Engineer: Chris

Voltage: AC + Internal Battery Maker placed on uplink Comments:

#### SWEEP TABLE: "FCC 24 Spur 30M-1G\_V"

IF Transducer Start Stop Detector Meas. Frequency Frequency Time Bandw. 30.0 MHz 1.0 GHz MaxPeak 1 MHz DUMMY-DBM





Page 28 of 104 Date of Report: 2008-11-05

#### TX: 30MHz - 1GHz Ant Horizontal

Spurious emission limit –13dBm

**Note:** 

Test Report #:

## 1. The peak above the limit line is the carrier freq.

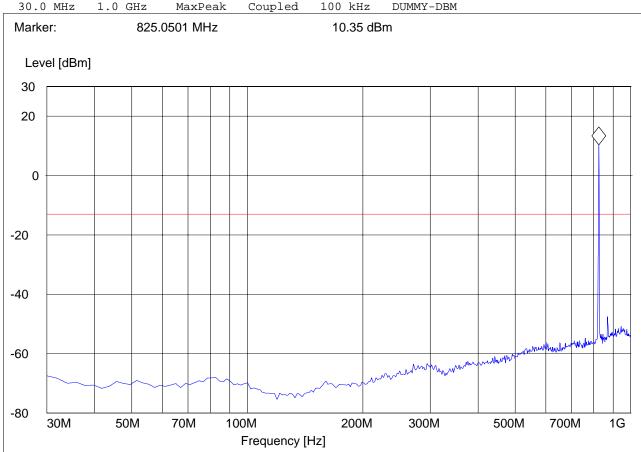
EUT: M2 Platform Sony Electronics Customer:: Test Mode: CDMA 850; CH.1013

ANT Orientation: H EUT Orientation: H Test Engineer: Chris

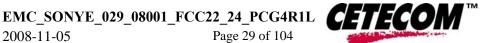
Voltage: AC + Internal Battery Comments: Maker placed on uplink

#### SWEEP TABLE: "FCC 24 Spur 30M-1G\_H"

IF Transducer Start Stop Detector Meas. Frequency Frequency Time Bandw. 30.0 MHz 1.0 GHz MaxPeak 100 kHz DUMMY-DBM



Transducer



## **RADIATED SPURIOUS EMISSIONS (800 band)** Ch 1013

1GHz-1.58GHz

Spurious emission limit -13dBm

EUT: M2 Platform
Customer:: Sony Electronics
Test Mode: CDMA 850; CH.1013

ANT Orientation: H EUT Orientation: H Test Engineer: Chris

Voltage: AC + Internal Battery

Comments:

Start

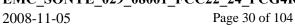
#### SWEEP TABLE: "FCC 22Spuri 1-1.58G"

Stop

Frequency			Time Ban				
1.0 GHz	1.6 GHz		Coupled 1 M		MY-DBM		
Marker:	1.301	1042084 GHz		-40.06 dBm			
	_						
Level [dBm]							
0							
-10							
-20							
-30							
-40				MAAM. II	. 4		
n a Aan	mmmmm	mmhym m	Mmymm	N_MMV	MM////////////////////////////////////	MMM MMMM	
144114							
-50							
-60 L	1.1G	1.20	G 1.3	Ġ	1.4G	1.58G	

Detector Meas. IF

Frequency [Hz]





## **RADIATED SPURIOUS EMISSIONS (800 band)** Ch1013

#### 1.58GHz - 9GHz

Date of Report:

Spurious emission limit -13dBm

M2 Platform EUT: Sony Electronics Customer:: Test Mode: CDMA 850; CH.1013

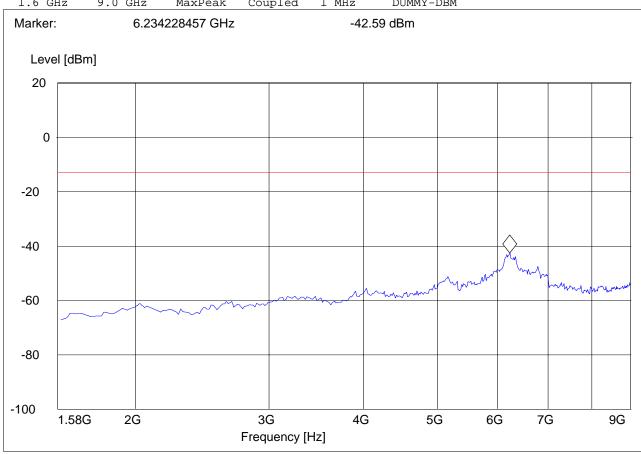
ANT Orientation: H EUT Orientation: H Test Engineer: Chris

AC + Internal Battery Voltage:

Comments:

#### SWEEP TABLE: "FCC 22Spuri 1.58-9G"

Detector Meas. IF Transducer Start Stop Frequency Frequency Time Bandw. MaxPeak 1.6 GHz 9.0 GHz DUMMY-DBM Coupled 1 MHz





TX: 30MHz - 1GHz Ant Vertical Spurious emission limit –13dBm

Note:

Test Report #:

#### 1. The peak above the limit line is the carrier freq.

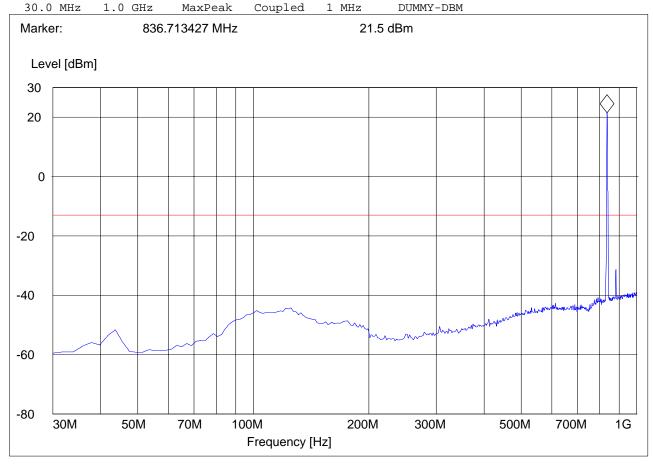
EUT: M2 Platform Customer:: Sony Electronics Test Mode: CDMA 850; CH.384

ANT Orientation: V EUT Orientation: H Test Engineer: Chris

AC + Internal Battery Voltage: Comments: Maker placed on uplink

#### SWEEP TABLE: "FCC 24 Spur 30M-1G\_V"

IF Start Detector Meas. Transducer Stop Frequency Frequency Time Bandw.





TX: 30MHz - 1GHz Ant Horizontal

Spurious emission limit -13dBm

Note:

Test Report #:

1. The peak above the limit line is the carrier freq.

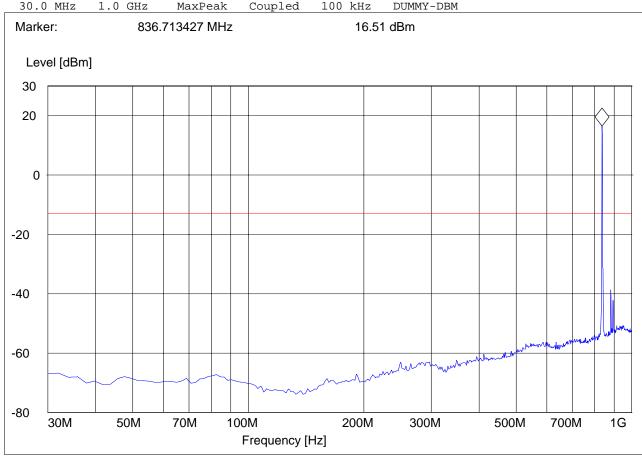
EUT: M2 Platform Customer:: Sony Electronics Test Mode: CDMA 850; CH.384

ANT Orientation: H EUT Orientation: H Test Engineer: Chris

Voltage: AC + Internal Battery Marker placed on uplink Comments:

#### SWEEP TABLE: "FCC 24 Spur 30M-1G H"

Start Stop Detector Meas. IF Transducer Frequency Frequency Time Bandw. 30.0 MHz Coupled DUMMY-DBM



Page 33 of 104

## **ADIATED SPURIOUS EMISSIONS (800 band)**

Ch 384

1GHz - 1.58GHz

Spurious emission limit –13dBm

EUT: M2 Platform Sony Election CDMA 850; CH.384 Customer:: Test Mode:

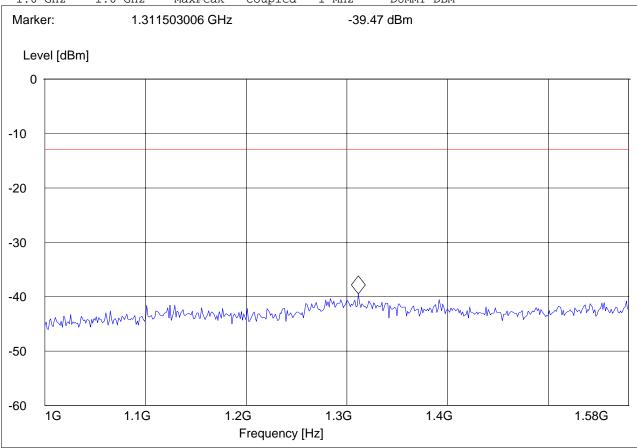
ANT Orientation: H EUT Orientation: H Test Engineer: Chris

Voltage: AC + Internal Battery

Comments:

#### SWEEP TABLE: "FCC 22Spuri 1-1.58G"

Start Stop Detector Meas. IF Transducer Frequency Frequency Time Bandw. 1.0 GHz 1.6 GHz MaxPeak Coupled 1 MHz DUMMY-DBM





Page 34 of 104 Date of Report: 2008-11-05

### **RADIATED SPURIOUS EMISSIONS (800 band)** Ch 384

## 1.58GHz - 9GHz

Spurious emission limit -13dBm

EUT: M2 Platform Customer:: Sony Electronical CDMA 850; CH.384

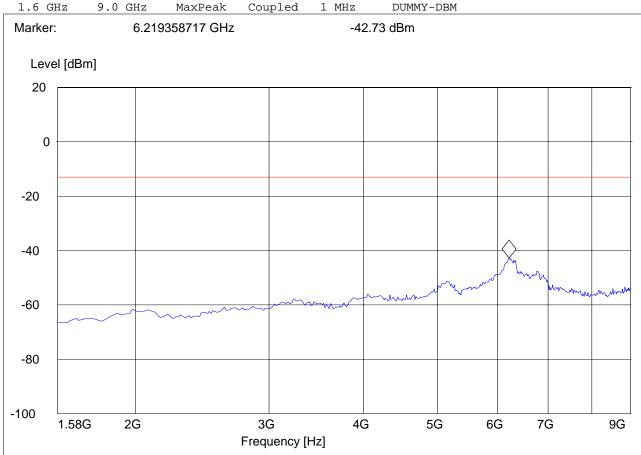
ANT Orientation: H EUT Orientation: H Test Engineer: Chris

Voltage: AC + Internal Battery

Comments:

#### SWEEP TABLE: "FCC 22Spuri 1.58-9G"

Start Stop Detector Meas. IF Transducer Frequency Frequency Time Bandw.





## TX: 30MHz - 1GHz Ant Vertical Spurious emission limit –13dBm

Note:

Test Report #:

#### 1. The peak above the limit line is the carrier freq.

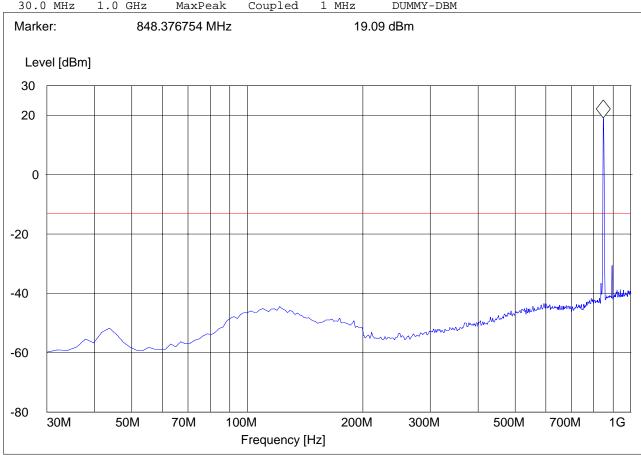
EUT: M2 Platform Customer:: Sony Electronics Test Mode: CDMA 850; CH.777

ANT Orientation: V EUT Orientation: H Test Engineer: Chris

Voltage: AC + Internal Battery Maker placed on uplink Comments:

#### SWEEP TABLE: "FCC 24 Spur 30M-1G\_V"

Start	Stop	Detector	Meas.	IF	Transducer
Frequency	Frequency		Time	Bandw.	
20 0 MHz	1 0 СИБ	MassDoals	Coupled	1 MILE	DIIMMV DDM



Page 36 of 104



#### TX: 30MHz - 1GHz Ant Horizontal

Spurious emission limit –13dBm

**Note:** 

## 1. The peak above the limit line is the carrier freq.

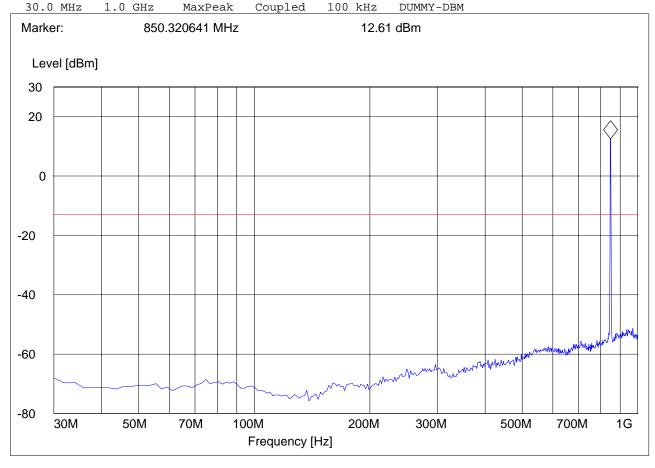
EUT: M2 Platform Customer:: Sony Electronics Test Mode: CDMA 850; CH.777

ANT Orientation: H EUT Orientation: H Test Engineer: Chris

AC + Internal Battery Voltage: Maker placed on uplink Comments:

#### SWEEP TABLE: "FCC 24 Spur 30M-1G H"

Start Stop Detector Meas. IF Transducer Frequency Frequency Time Bandw.



Transducer



## **RADIATED SPURIOUS EMISSIONS (800 band)**

Ch 777

1GHz - 1.58GHz

Spurious emission limit -13dBm

EUT: M2 Platform Customer:: Sony Electronics Test Mode: CDMA 850; CH.777

ANT Orientation: H EUT Orientation: H Test Engineer: Chris

Voltage: AC + Internal Battery

Comments:

Start

#### SWEEP TABLE: "FCC 22Spuri 1-1.58G"

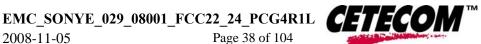
Stop

Frequency Frequency Time Bandw. 1.0 GHz MaxPeak 1.6 GHz Coupled 1 MHz DUMMY-DBM Marker: 1.303366733 GHz -40.19 dBm Level [dBm] 0 -10 -20 -30 -40 -50 -60 1.1G 1G 1.2G 1.3G 1.4G 1.58G

IF

Detector Meas.

Frequency [Hz]



## **RADIATED SPURIOUS EMISSIONS (800)** Ch 777

1.58GHz - 9GHz

Spurious emission limit -13dBm

EUT: M2 Platform Sony Electronics Customer:: Test Mode: CDMA 850; CH.777

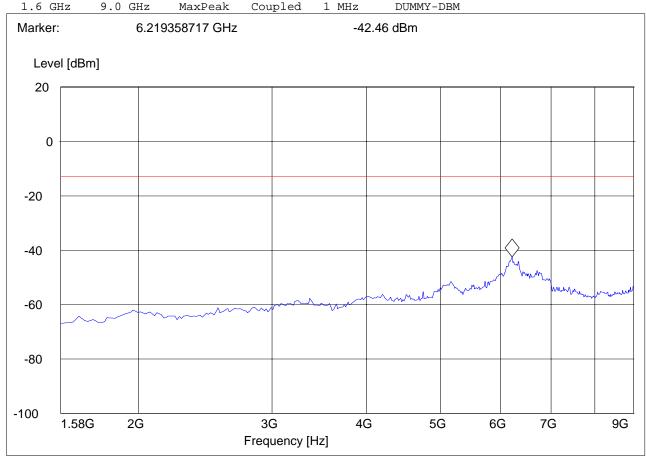
ANT Orientation: H EUT Orientation: H Test Engineer: Chris

Voltage: AC + Internal Battery

Comments:

#### SWEEP TABLE: "FCC 22Spuri 1.58-9G"

Start Stop Detector Meas. IF Transducer Frequency Frequency Time Bandw. 1.6 GHz 1 MHz DUMMY-DBM



Test Report #: Date of Report:

Page 39 of 104 2008-11-05



## **RESULTS OF RADIATED TESTS 800: EVDO**

Harmonics	Tx ch-1013 Freq. (MHz)	Level (dBm)	Tx ch-600 Freq. (MHz)	Level (dBm)	Tx ch-777 Freq. (MHz)	Level (dBm)
2	1648.4	NF	1673.2	NF	1697.6	NF
3	2472.6	NF	2509.8	NF	2546.4	NF
4	3296.8	NF	3346.4	NF	3395.2	NF
5	4121	NF	4183	NF	4244	NF
6	4945.2	NF	5019.6	NF	5092.8	NF
7	5769.4	NF	5856.2	NF	5941.6	NF
8	6593.6	NF	6692.8	NF	6790.4	NF
9	7417.8	NF	7529.4	NF	7639.2	NF
10	8242	NF	8366	NF	8488	NF
		1	NF = NOISE FLO	OR		•



TX: 30MHz - 1GHz Ant Vertical Spurious emission limit –13dBm **Note:** 

## 1. The peak above the limit line is the carrier freq.

EUT: M2 Platform Customer:: Customer:: Sony Electronics Test Mode: EVDO 850; CH1013

ANT Orientation: V EUT Orientation: H Test Engineer: Chris

AC + Internal Battery Voltage:

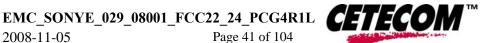
Comments:

Test Report #:

## SWEEP TABLE: "FCC 24 Spur 30M-1G\_V"

Star Freq 30.0	uency	Stop Frequ 1.0 G			ector Peak		Meas. Time Coupled	IF Bandw. 1 MHz		sducer Y-DBM						
Marke	er:		825.0	501 N	MHz			18.93	dBm							
	el [dBm]															
30																$\prod$
20																
0 -																
-20																
-40															المعالية	i Norda
						مسهر	~~~~	wh	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	nunhum	mman hall	yparodolo	WWW.	sanque dell	) William	
-60																
-80	30M	501	И	70M	1	00 F	M requency [H	200 zl	M 30	OM	500	M	700	M	1	G
							, ,,	•								

TX: 30MHz - 1GHz Ant Horizontal Spurious emission limit –13dBm



#### Note:

Test Report #:

## 1. The peak above the limit line is the carrier freq.

EUT: M2 Platform Customer:: Sony Electronics Test Mode: EVDO 850; CH1013

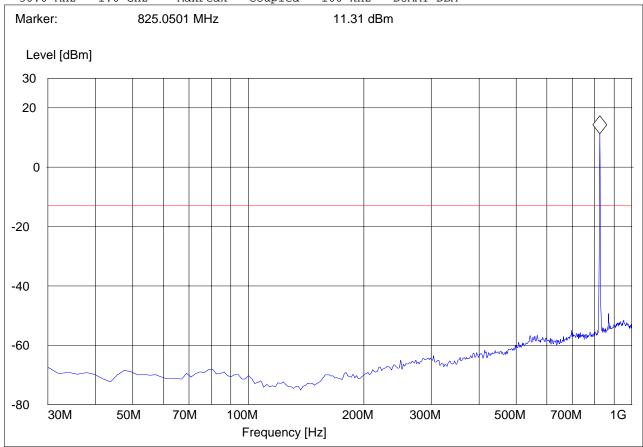
ANT Orientation: H EUT Orientation: H Test Engineer: Chris

AC + Internal Battery Voltage:

Comments:

#### SWEEP TABLE: "FCC 24 Spur 30M-1G\_H"

Stop Detector Meas. IF Transducer Time Frequency Frequency Bandw. 30.0 MHz 1.0 GHz MaxPeak Coupled 100 kHz DUMMY-DBM





Page 42 of 104

# RADIATED SPURIOUS EMISSIONS (800 band) Ch 1013

1GHz - 1.58GHz

Date of Report:

Spurious emission limit -13dBm

EUT: M2 Platform
Customer:: Sony Electronics
Test Mode: EVDO 850; CH1013

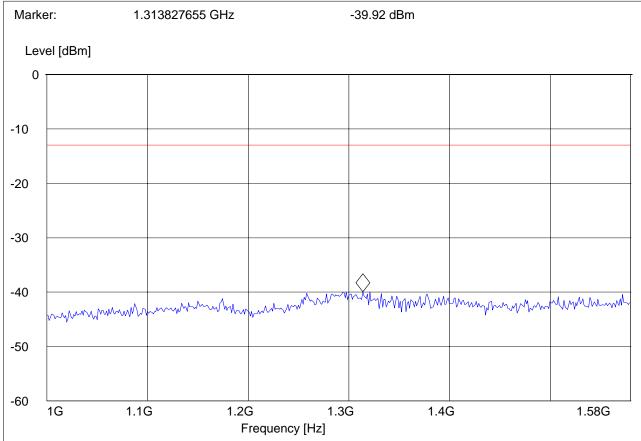
ANT Orientation: H
EUT Orientation: H
Test Engineer: Chris

Voltage: AC + Internal Battery

Comments:

#### SWEEP TABLE: "FCC 22Spuri 1-1.58G"

Marker:	1.3138	327655 GHz		-39.92	dBm
1.0 GHz	1.6 GHz	MaxPeak	Coupled	1 MHz	DUMMY-DBM
Frequency	Frequency		Time	Bandw.	
Start	Scop	Detector	Meas.	1r	Transducer



Page 43 of 104



# **RADIATED SPURIOUS EMISSIONS (800 band)** Ch1013

2008-11-05

1.58GHz - 9GHz

Date of Report:

Spurious emission limit -13dBm

EUT: M2 Platform
Customer:: Sony Electronics
Test Mode: EVDO 850; CH1013

ANT Orientation: H EUT Orientation: H Test Engineer: Chris

AC + Internal Battery Voltage:

Comments:

## SWEEP TABLE: "FCC 22Spuri 1.58-9G"

Start		Stop	Detector	Meas. Time	IF	Transd	ucer			
Freque 1.6 GH		Frequency 9.0 GHz	MaxPeak	Coupled	Bandw. 1 MHz	DUMMY-	DBM			
Marker:		6.2193	58717 GHz		-42	2.56 dBm				
Leve	el [dBm]									
20										
0										
-20										
-40										
					-۸	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Many	www.	whenha	mann
-60			~~~							
000										
-80										
-100										
-100	1.58G	2G		3G Frequency [	4( H <del>7</del> 1	G 50	G 60	G 70	3	9G
				i roquonoy [	· ·-]					

Date of Report:

2008-11-05

Page 44 of 104



## TX: 30MHz - 1GHz Ant Vertical Spurious emission limit -13dBm

**Note:** 

## 1. The peak above the limit line is the carrier freq.

EUT: M2 Platform Customer:: Sony Electronics Test Mode: EVDO 850; CH384

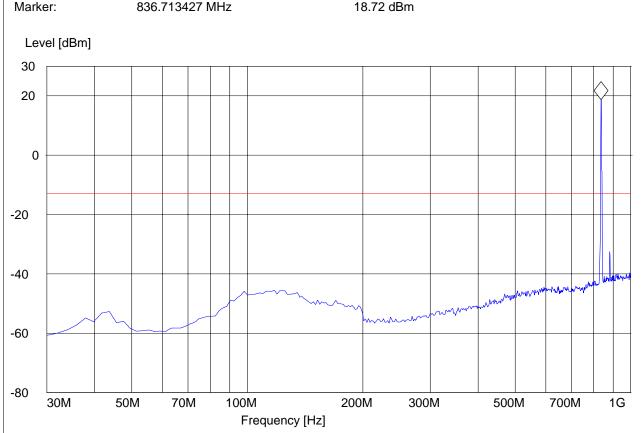
ANT Orientation: V EUT Orientation: H Test Engineer: Chris

Voltage: AC + Internal Battery

Comments:

#### SWEEP TABLE: "FCC 24 Spur 30M-1G\_V"

Detector Meas. IF Transducer Start Stop Frequency Frequency Time Bandw. 30.0 MHz 1.0 GHz Coupled DUMMY-DBM MaxPeak 1 MHz 836.713427 MHz 18.72 dBm



Page 45 of 104 Date of Report: 2008-11-05



#### TX: 30MHz - 1GHz Ant Horizontal

Spurious emission limit -13dBm

**Note:** 

## 1. The peak above the limit line is the carrier freq.

EUT: M2 Platform Customer:: Sony Electronics Test Mode: Sony Electronics
EVDO 850; CH384

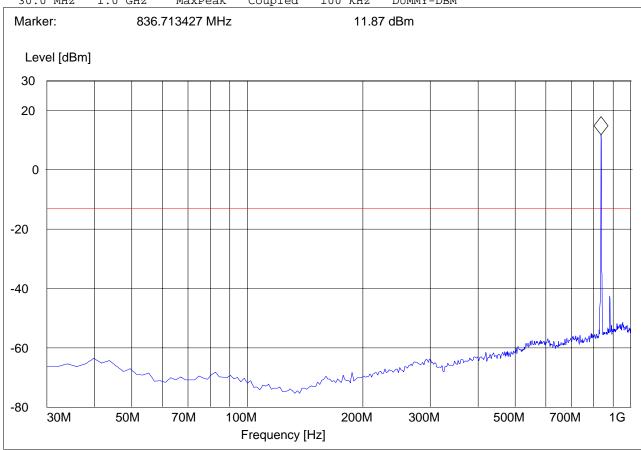
ANT Orientation: H EUT Orientation: H Test Engineer: Chris

Voltage: AC + Internal Battery

Comments:

#### SWEEP TABLE: "FCC 24 Spur 30M-1G\_H"

Start	Stop	Detector	Meas.	IF	Transducer
Frequency	Frequency		Time	Bandw.	
30.0 MHz	1.0 GHz	MaxPeak	Coupled	100 kHz	DUMMY-DBM





Page 46 of 104 Date of Report: 2008-11-05

## **RADIATED SPURIOUS EMISSIONS (800 band)** Ch 384

1GHz - 1.58GHz

Spurious emission limit -13dBm

EUT: M2 Platform Customer:: Sony Electronics Test Mode: EVDO 850; CH384

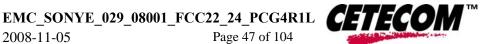
ANT Orientation: H EUT Orientation: H Test Engineer: Chris

Voltage: AC + Internal Battery

Comments:

#### SWEEP TABLE: "FCC 22Spuri 1-1.58G"

Start Stop Detector Meas. Transducer Frequency Frequency Time Bandw. 1.0 GHz DUMMY-DBM 1.6 GHz MaxPeak Coupled 1 MHz Marker: 1.278957916 GHz -39.14 dBm Level [dBm] 0 -10 -20 -30 -40 -50 -60 1.2G 1G 1.1G 1.3G 1.4G 1.58G Frequency [Hz]



# **RADIATED SPURIOUS EMISSIONS (800 band)**

Ch 384

1.58GHz - 9GHz

Spurious emission limit -13dBm

EUT: M2 Platform Customer:: Sony Electronics Test Mode: EVDO 850; CH384

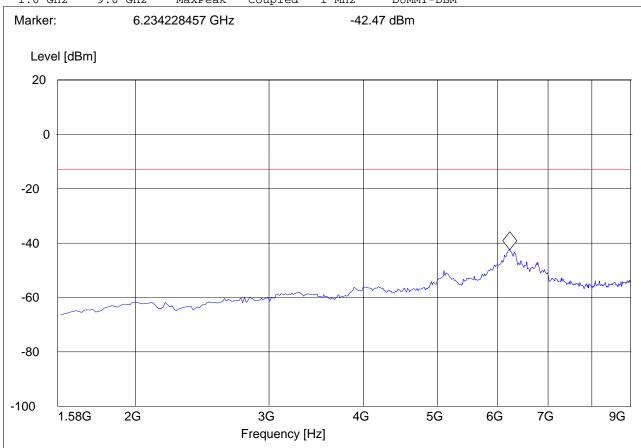
ANT Orientation: H EUT Orientation: H Test Engineer: Chris

Voltage: AC + Internal Battery

Comments:

#### SWEEP TABLE: "FCC 22Spuri 1.58-9G"

Start Stop Detector Meas. Transducer Frequency Frequency Time Bandw. 1.6 GHz Coupled DUMMY-DBM 9.0 GHz MaxPeak 1 MHz



Date of Report:

TX: 30MHz - 1GHz Ant Vertical Spurious emission limit -13dBm **Note:** 

## 1. The peak above the limit line is the carrier freq.

2008-11-05

EUT: M2 Platform Customer:: Sony Electronics Test Mode: EVDO 850; CH777

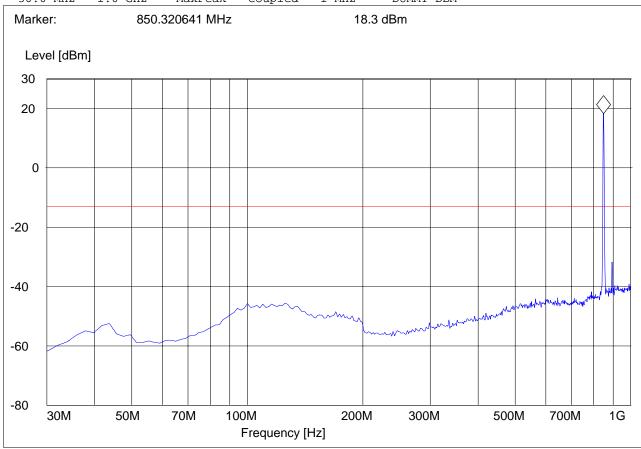
ANT Orientation: V EUT Orientation: H Test Engineer: Chris

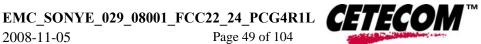
Voltage: AC + Internal Battery

Comments:

#### SWEEP TABLE: "FCC 24 Spur 30M-1G\_V"

Start Stop Detector Meas. TF Transducer Frequency Frequency Time Bandw. 30.0 MHz 1.0 GHz MaxPeak Coupled 1 MHz DUMMY-DBM





TX: 30MHz - 1GHz Ant Horizontal

Spurious emission limit -13dBm

Note:

1. The peak above the limit line is the carrier freq.

EUT: M2 Platform Customer:: Sony Electronics Test Mode: EVDO 850; CH777

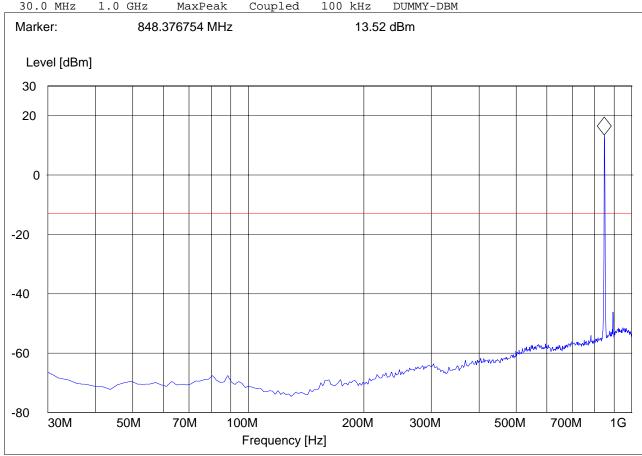
ANT Orientation: H EUT Orientation: H Test Engineer: Chris

Voltage: AC + Internal Battery

Comments:

#### SWEEP TABLE: "FCC 24 Spur 30M-1G H"

Start Stop Detector Meas. IF Transducer Frequency Frequency Time Bandw. 30.0 MHz Coupled DUMMY-DBM



Transducer



## **RADIATED SPURIOUS EMISSIONS (800 band)**

Ch 777

1GHz - 1.58GHz

Spurious emission limit -13dBm

EUT: M2 Platform Customer:: Sony Electronics Test Mode: EVDO 850; CH777

ANT Orientation: H
EUT Orientation: H
Test Engineer: Chris

Voltage: AC + Internal Battery

Comments:

Start

#### SWEEP TABLE: "FCC 22Spuri 1-1.58G"

Stop

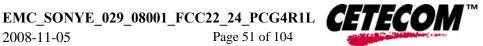
Frequency Frequency Time Bandw. 1.0 GHz MaxPeak 1.6 GHz Coupled 1 MHz DUMMY-DBM Marker: 1.259198397 GHz -40.55 dBm Level [dBm] 0 -10 -20 -30 -40 -50 -60 1.1G 1G 1.2G 1.3G 1.4G 1.58G Frequency [Hz]

IF

Detector Meas.

2008-11-05

Page 51 of 104



**RADIATED SPURIOUS EMISSIONS (800)** 

Ch 777

1.58GHz - 9GHz

Date of Report:

Spurious emission limit -13dBm

EUT: M2 Platform Sony Electronics Customer:: Test Mode: EVDO 850; CH777

ANT Orientation: H EUT Orientation: H Test Engineer: Chris

Voltage: AC + Internal Battery

Comments:

## SWEEP TABLE: "FCC 22Spuri 1.58-9G"

Start Stop Detector Meas. IF Transducer Frequency Frequency Time Bandw. 1.6 GHz 9.0 GHz MaxPeak Coupled 1 MHz DUMMY-DBM 6.204488978 GHz Marker: -43.28 dBm Level [dBm] 20 0 -20 -40 -60 -80 -100 1.58G 2G 3G 4G 5G 6G 7G 9G Frequency [Hz]

#### 5.2.4.3 RESULTS OF RADIATED TESTS PCS-1900: CDMA

2008-11-05

Harmonic	Tx ch-25 Freq.(MHz)	Level (dBm)	Tx ch-600 Freq. (MHz)	Level (dBm)	Tx ch-1175 Freq. (MHz)	Level (dBm)
2	3700.4	NF	3760	NF	3819.6	NF
3	5550.6	NF	5640	NF	5729.4	NF
4	7400.8	NF	7520	NF	7639.2	NF
5	9251	NF	9400	NF	9549	NF
6	11101.2	NF	11280	NF	11458.8	NF
7	12951.4	NF	13160	NF	13368.6	NF
8	14801.6	NF	15040	NF	15278.4	NF
9	16651.8	NF	16920	NF	17188.2	NF
10	18502	NF	18800	NF	19098	NF
		1	NF = NOISE FLOOF	<u>'</u> ₹	1	ı

## EMC\_SONYE\_029\_08001\_FCC22\_24\_PCG4R1L **CETECOM** Test Report #:

Page 53 of 104 Date of Report: 2008-11-05



Spurious emission limit -13dBm

**Antenna: vertical** 

Note: This plot is valid for low, mid & high channels (worst-case plot)

Detector Meas.

EUT: M2 Platform Customer:: Sony Electronics Test Mode: CDMA 1900

ANT Orientation: V EUT Orientation: H Test Engineer: Chris

Voltage: AC + Internal Battery

Comments:

Start

#### SWEEP TABLE: "FCC 24 Spur 30M-1G\_V"

Stop

	quency MHz	Freque	ency Hz	Maxl	eak		Time Coupled	Bandw. 1 MHz		UMMY-	-DBM						
Marke	er:		994.1	68337	MHz			-3	8.73 dE	3m							
	el [dBm]																
30																	
0																	
-20																	
-40																والمران	-A-A-A
						_~		·/···	\\	····	mmm	menomente	Mappellor	verplan	a/Atapara property	A PARTIE A	
-60									·								
-80	30M	FO!		7014		100	NA.	200	N A	200	M	500	N A	700	N 4	1	G
	JUIVI	501	VI	70M		100l F	ivi Trequency [H	200 Hz]	IVI	300	VI	500	IVI	700	IVI	1	G

IF

Transducer

# EMC\_SONYE\_029\_08001\_FCC22\_24\_PCG4R1L **CETECOM**

Page 54 of 104 Date of Report: 2008-11-05



TX: 30MHz - 1GHz

Test Report #:

Spurious emission limit -13dBm

**Antenna: Horizontal** 

Note: This plot is valid for low, mid & high channels (worst-case plot)

Detector Meas.

EUT: M2 Platform Customer:: Sony Electronics Test Mode: CDMA 1900

ANT Orientation: H EUT Orientation: H Test Engineer: Chris

Voltage: AC + Internal Battery

Comments:

Start

#### SWEEP TABLE: "FCC 24 Spur 30M-1G\_H"

Stop

Frequ	uency	Frequen		rPeak	Time Coupled	Bandw. 100 kH	z DUMMY	_DBM					
Marke			37.79559		Coupied		0.58 dBm	-DBM					
Leve	el [dBm]												
30													
20													
0													
-20													
-40													
												114	
-60									whomas was	Marra Marra	Mwww.	What was	
						0 -	mormon	whomm					
					M~~~	~~~~	_						
-80 L	30M	50M	70M	100	) M	200	M 300	M	500	M	700N	1 1	IG
			2		requency [		200						-

IF

Transducer



Ch 25

1GHz - 3GHz

Spurious emission limit -13dBm

Note: The peak above the limit line is the carrier freq. at ch-25.

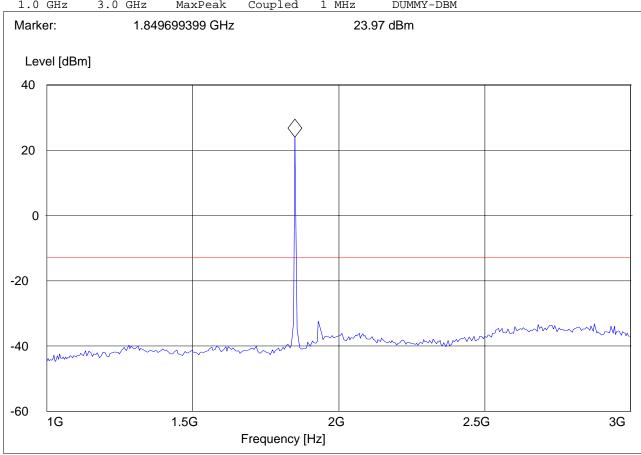
EUT: M2 Platform
Customer:: Sony Electronics
Test Mode: CDMA 1900; CH.25

ANT Orientation: H
EUT Orientation: H
Test Engineer: Chris

Voltage: AC + Internal Battery Comments: Marker placed on uplink

#### SWEEP TABLE: "FCC 24Spuri 1-3G"

Start	Stop	Detector	Meas.	IF	Transducer
Frequency	Frequency		Time	Bandw.	
1 0 GHz	3 N GH-2	MavDeak	Counled	1 MH-	DIIMMV-DBM



Page 56 of 104



## **RADIATED SPURIOUS EMISSIONS(PCS 1900)** Ch 25

3GHz - 18GHz

Spurious emission limit -13dBm

EUT: M2 Platform Customer:: Sony Electronics Test Mode: CDMA 1900; CH.25

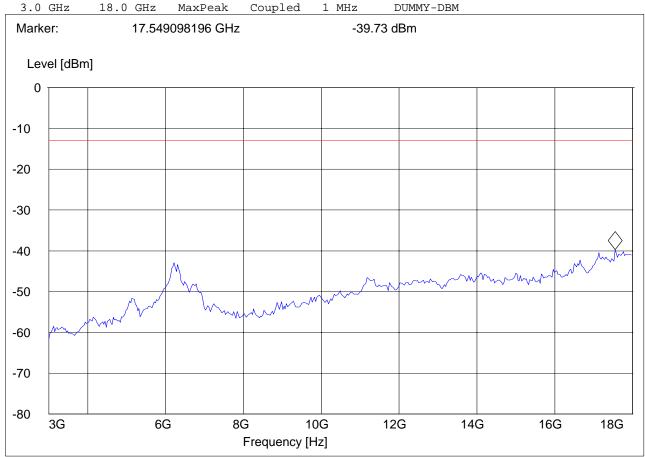
ANT Orientation: H EUT Orientation: H Test Engineer: Chris

AC + Internal Battery Voltage:

Comments:

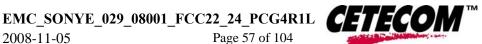
#### SWEEP TABLE: "FCC 24Spuri 3-18G"

IF Start Stop Meas. Transducer Detector Frequency Frequency Time Bandw.



2008-11-05

Page 57 of 104



## **RADIATED SPURIOUS EMISSIONS(PCS 1900)**

18GHz - 19GHz

Date of Report:

Spurious emission limit -13dBm

EUT: M2 Platform
Customer:: Sony Electronics
Test Mode: CDMA 1900; CH.25

ANT Orientation: H EUT Orientation: H Test Engineer: Chris

AC + Internal Battery Voltage:

Comments:

## SWEEP TABLE: "FCC 24spuri 18-19.1G"

	t uency GHz	Stop Frequency 19.1 GHz	Detector Average	Meas. Time Coupled	IF Bandw. 1 MHz	Transducer		
Marke	er:	18.62	1643287 GHz		-57	.99 dBm		
Lev	el [dBm]							
0 -								
-10								
-20								
-30								
-40								
-50						^		
-60	~~~~	~~~~~~^		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	www.	
-70							· · · · · · · · · · · · · · · · · · ·	w
-80	100	10.00			40.00			10.10
	18G	18.2G		3.4G Frequency [H	18.60 Hz]	G 18.8	ى	19.1G



Ch 600

1GHz - 3GHz

Spurious emission limit -13dBm

Note: The peak above/close to the limit line is the carrier freq. at ch-600.

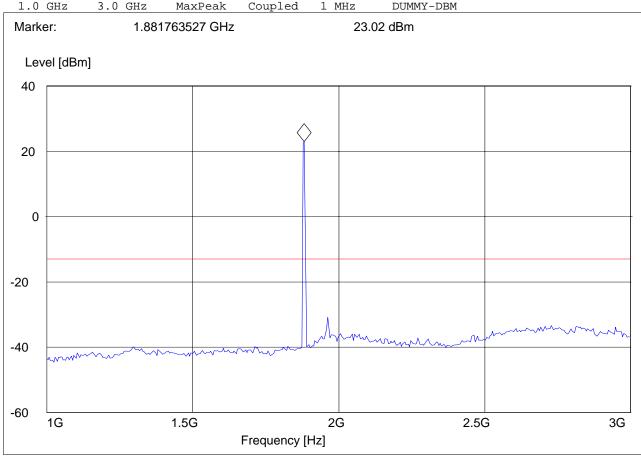
EUT: M2 Platform Sony Electronics Customer:: CDMA 1900; CH.600 Test Mode:

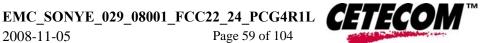
ANT Orientation: H EUT Orientation: H Test Engineer: Chris

Voltage: AC + Internal Battery Comments: Marker placed on uplink

#### SWEEP TABLE: "FCC 24Spuri 1-3G"

Start Stop Detector Meas. IF Transducer Frequency Frequency Time Bandw. 1.0 GHz DUMMY-DBM





Ch 600

**3GHz – 18GHz** 

Spurious emission limit -13dBm

EUT: M2 Platform Customer:: Sony Electronics Test Mode: CDMA 1900; CH.600

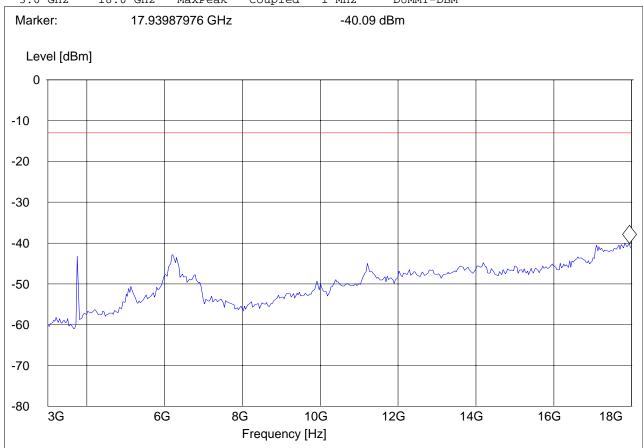
ANT Orientation: H EUT Orientation: H Test Engineer: Chris

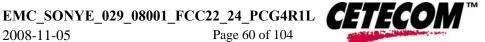
Voltage: AC + Internal Battery

Comments:

#### SWEEP TABLE: "FCC 24Spuri 3-18G"

Start Stop Detector Meas. Transducer Frequency Frequency Time Bandw. 3.0 GHz 18.0 GHz DUMMY-DBM MaxPeak Coupled 1 MHz





Page 60 of 104 Date of Report: 2008-11-05

# **RADIATED SPURIOUS EMISSIONS(PCS 1900)**

Ch 600

18GHz - 19GHz

Spurious emission limit -13dBm

EUT: M2 Platform
Customer:: Sony Electronics
Test Mode: CDMA 1900; CH.600

ANT Orientation: H EUT Orientation: H Test Engineer: Chris

AC + Internal Battery Voltage:

Comments:

## SWEEP TABLE: "FCC 24spuri 18-19.1G"

	t uency GHz	Stop Frequency 19.1 GHz	Detector Average	Meas. Time Coupled	IF Bandw. 1 MHz	Transducer		
Marke	er:	18.60	4008016 GHz		-57	7.65 dBm		
Lev	el [dBm]							
0 -								
-10								
-20								
-30								
-40								
-50								
-60	<b>/-</b> /			www.ww	~~~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	
-70								
-80	100	10.00		10	40.00			10.10
	18G	18.2G		3.4G Frequency [l	18.60 Hz]	G 18.8	ق	19.1G



Page 61 of 104

## RADIATED SPURIOUS EMISSIONS(PCS 1900)

Ch 1175

1GHz - 3GHz

Spurious emission limit -13dBm

Note: The peak above the limit line is the carrier freq. at ch-1175.

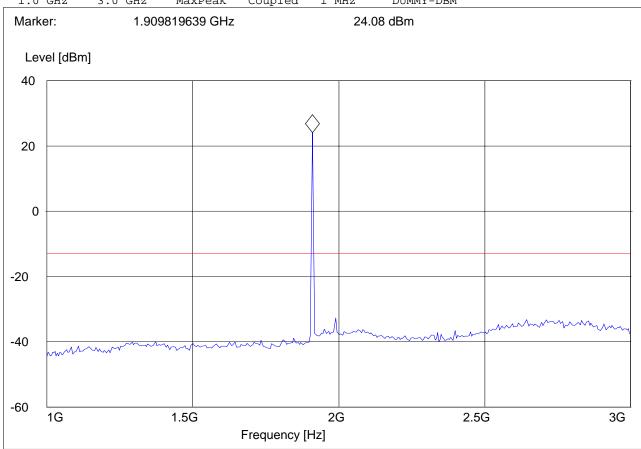
EUT: M2 Platform
Customer:: Sony Electronics
Test Mode: CDMA 1900; CH.1175

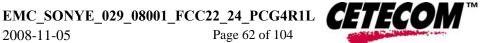
ANT Orientation: H
EUT Orientation: H
Test Engineer: Chris

Voltage: AC + Internal Battery Comments: Marker placed on uplink

#### SWEEP TABLE: "FCC 24Spuri 1-3G"

Start	Stop	Detector	Meas.	IF	Transducer
Frequency	Frequency		Time	Bandw.	
1 0 GHz	3 0 GHz	MayDeak	Counled	1 MH 7	DIIMMY-DRM





Page 62 of 104 Date of Report: 2008-11-05

## **RADIATED SPURIOUS EMISSIONS(PCS 1900)** Ch 1175

**3GHz – 18GHz** 

Spurious emission limit -13dBm

EUT: M2 Platform
Customer:: Sony Electronics
Test Mode: CDMA 1900; CH.1175

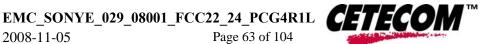
ANT Orientation: H EUT Orientation: H Test Engineer: Chris

Voltage: AC + Internal Battery

Comments:

## SWEEP TABLE: "FCC 24Spuri 3-18G"

Star Freq 3.0	uency	Stop Frequency 18.0 GHz	Detector MaxPeak	Meas. Time Coupled	Bandw.	Transducer DUMMY-DBM						
Marke	er:	3.811	623246 GHz		-23.67	dBm						
	el [dBm]	I										
0 -												
-10												
-20												
-30												
-40			Ą					www.				
-50		Mym	/ hn		~~~~	mmmman	Mumber	V-				
-60	/m/l/	Man "										
-70												
-80	3G	60	G 80	G 10	 G 12	2G 14	G 160	G 18G				
	Frequency [Hz]											



18GHz - 19.1GHz

Date of Report:

Spurious emission limit -13dBm

EUT: M2 Platform Sony Electronics Customer:: Test Mode: CDMA 1900; CH.600

ANT Orientation: H EUT Orientation: H Test Engineer: Chris

AC + Internal Battery Voltage:

Comments:

#### SWEEP TABLE: "FCC 24spuri 18-19.1G"

Start Stop Detector Meas. IF Transducer Frequency Frequency Time Bandw. 18.0 GHz 19.1 GHz Coupled 1 MHz DUMMY-DBM Average 18.617234469 GHz -57.91 dBm Marker: Level [dBm] 0 -10 -20 -30 -40 -50 -60 -70 -80 18G 18.2G 18.4G 18.6G 18.8G 19.1G Frequency [Hz]

#### 5.2.4.4 RESULTS OF RADIATED TESTS PCS-1900: EVDO

2008-11-05

Harmonic	Tx ch-25 Freq.(MHz)	Level (dBm)	Tx ch-600 Freq. (MHz)	Level (dBm)	Tx ch-1175 Freq. (MHz)	Level (dBm)				
2	3700.4	NF	3760	NF	3819.6	NF				
3	5550.6	NF	5640	NF	5729.4	NF				
4	7400.8	NF	7520	NF	7639.2	NF				
5	9251	NF	9400	NF	9549	NF				
6	11101.2	NF	11280	NF	11458.8	NF				
7	12951.4	NF	13160	NF	13368.6	NF				
8	14801.6	NF	15040	NF	15278.4	NF				
9	16651.8	NF	16920	NF	17188.2	NF				
10	18502	NF	18800	NF	19098	NF				
NF = NOISE FLOOR										

EMC\_SONYE\_029\_08001\_FCC22\_24\_PCG4R1L **CETECOM** Test Report #:

Page 65 of 104 Date of Report: 2008-11-05



TX: 30MHz - 1GHz

Spurious emission limit -13dBm

**Antenna: vertical** 

Note: This plot is valid for low, mid & high channels (worst-case plot)

Detector Meas.

EUT: M2 Platform EUT: M2 Platform
Customer:: Sony Electronics
Test Mode: EVDO 1900

ANT Orientation: V EUT Orientation: H Test Engineer: Chris

Voltage: AC + Internal Battery

Comments:

Start

## SWEEP TABLE: "FCC 24 Spur 30M-1G\_V"

Stop

Free		Frequen 1.0 GHz	cy MaxPea	Time	Bandw.	DUMMY-I						
Mark			7.234469 M			.23 dBm	JBM .					
	el [dBm]											
30												
20												
0												
-20												
-40					Μ.,		,	and the same of the same	HARVE MANAGEMENT AND STREET			
					The same	a some	amand mark					
-60						***************************************						
-80	30M	50M	70M	100M	200N	1 300M	500	OM 700	OM 1G			
				Frequer	ncy [Hz]							

IF

Transducer

#### EMC\_SONYE\_029\_08001\_FCC22\_24\_PCG4R1L **CETECOM** Test Report #:

Page 66 of 104 Date of Report: 2008-11-05



TX: 30MHz - 1GHz

Spurious emission limit -13dBm

**Antenna: Horizontal** 

Note: This plot is valid for low, mid & high channels (worst-case plot)

Detector Meas.

EUT: M2 Platform Customer:: Sony Electronics Test Mode: EVDO 1900

ANT Orientation: H EUT Orientation: H Test Engineer: Chris

Voltage: AC + Internal Battery

Comments:

Start

#### SWEEP TABLE: "FCC 24 Spur 30M-1G\_H"

Stop

30.0 MHz 1.0 GHz MaxPeak Coupled 100 kHz DUMMY-DBM  Marker: 961.122244 MHz -49.9 dBm  Level [dBm] 30 20 -20 -40		quency		ency		) l-		Time	Bandw.							
30 20 0 -20 -40			1.0 G					Coupled			-DRM					
-20 -40 -60		vel [dBm]	]													
-20 -40 -60	30															$\prod$
-20 -40 -60	20														+	
-20 -40 -60																
-40 -60	0															
-40 -60																
-40 -60	-20															
-60																
-60	40															
	-40															
													نبدال	المحمل	all warming the same	AND REAL PROPERTY.
	-60									- Marin	my washin	manny	Wall days	Mark Con.	+	
			<b>-</b>	~	-	<u> </u>	<b>~</b>	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	$\sim\sim\sim$	,						
-80 30M 50M 70M 100M 200M 300M 500M 700M	-80	30M	501		70M	1	100	M	200	M 300	M	500	M	7001	M	1G

IF

Transducer

Frequency [Hz]



Page 67 of 104

## RADIATED SPURIOUS EMISSIONS(PCS 1900)

Ch 25

1GHz - 3GHz

Spurious emission limit -13dBm

Note: The peak above the limit line is the carrier freq. at ch-25.

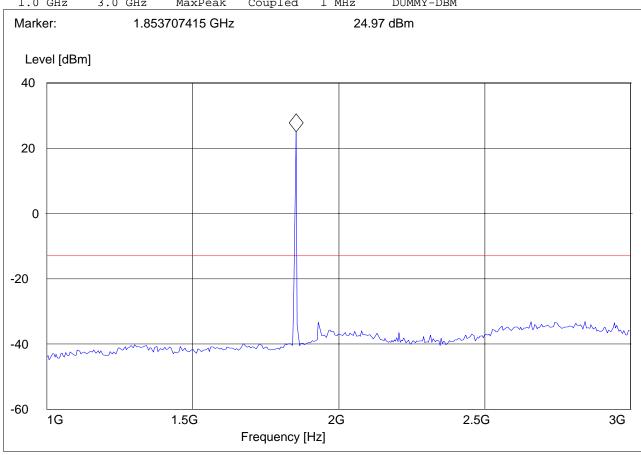
EUT: M2 Platform Customer:: Sony Electronics Test Mode: EVDO 1900; CH25

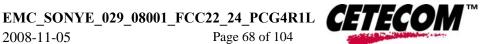
ANT Orientation: H
EUT Orientation: H
Test Engineer: Chris

Voltage: AC + Internal Battery Comments: Marker placed on uplink

#### SWEEP TABLE: "FCC 24Spuri 1-3G"

Start	Stop	Detector	Meas.	IF	Transducer
Frequency	Frequency		Time	Bandw.	
1 0 GHz	3 0 GH2	MavDaak	Counled	1 MH-7	DIIMMV-DRM





**3GHz – 18GHz** 

Spurious emission limit -13dBm

EUT: M2 Platform
Customer:: Sony Electronics
Test Mode: EVDO 1900; CH25

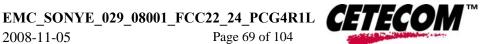
ANT Orientation: H EUT Orientation: H Test Engineer: Chris

AC + Internal Battery Voltage:

Comments:

## SWEEP TABLE: "FCC 24Spuri 3-18G"

Star Freq 3.0	uency	Stop Frequency 18.0 GHz	Detector MaxPeak	Time	Bandw.	Transducer DUMMY-DBM						
Marke	er:	17.819	9639279 GHz		-40.34 c	lBm						
Level [dBm]												
0												
-10												
-20												
-30												
-40			M									
-50		~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	/ hy	W		·····	mmmmm	~M W				
-60	m	my V										
-70												
-80	3G	60	G 80	G 10	G 12	G 14	G 160	G 18G				
	Frequency [Hz]											



Ch 25

18GHz - 19GHz

Spurious emission limit -13dBm

EUT: M2 Platform Customer:: Sony Electronics Test Mode: Sony Electronic: Sony Electronic: Test Mode: EVDO 1900; CH25

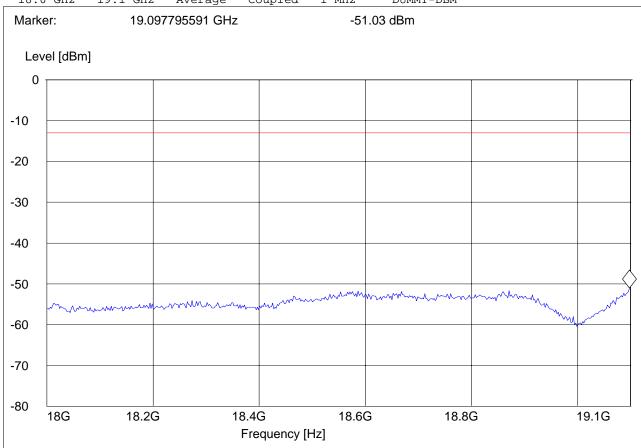
ANT Orientation: H EUT Orientation: H Test Engineer: Chris

Voltage: AC + Internal Battery

Comments:

#### SWEEP TABLE: "FCC 24spuri 18-19.1G"

Start Stop Detector Meas. Transducer Frequency Frequency Time Bandw. 18.0 GHz 19.1 GHz DUMMY-DBM Average Coupled 1 MHz





Ch 600

1GHz - 3GHz

Spurious emission limit -13dBm

Note: The peak above/close to the limit line is the carrier freq. at ch-600.

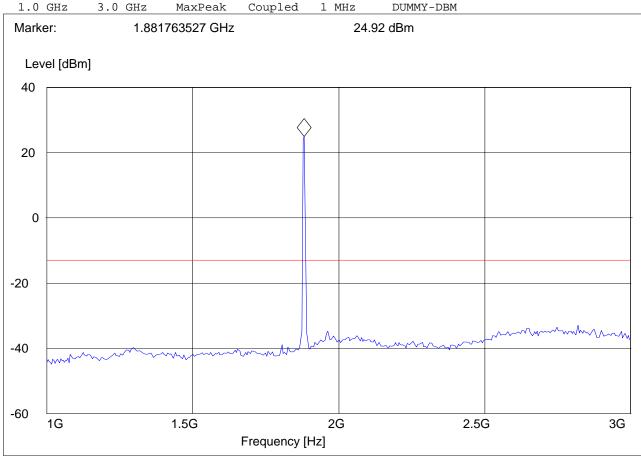
EUT: M2 Platform
Customer:: Sony Electronics
Test Mode: EVDO 1900; CH600

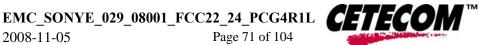
ANT Orientation: H
EUT Orientation: H
Test Engineer: Chris

Voltage: AC + Internal Battery Comments: Marker placed on uplink

#### SWEEP TABLE: "FCC 24Spuri 1-3G"

Start Stop Detector Meas. IF Transducer Frequency Frequency Time Bandw.





Ch 600

**3GHz – 18GHz** 

Spurious emission limit -13dBm

EUT: M2 Platform Customer:: Sony Electronics Test Mode: EVDO 1900; CH600

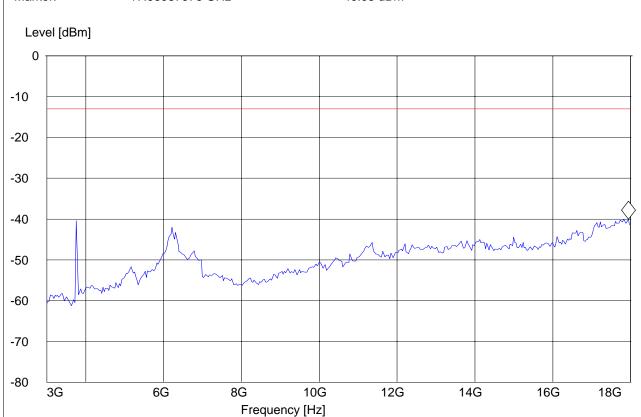
ANT Orientation: H EUT Orientation: H Test Engineer: Chris

Voltage: AC + Internal Battery

Comments:

#### SWEEP TABLE: "FCC 24Spuri 3-18G"

Start Stop Detector Meas. Transducer Frequency Frequency Time Bandw. 3.0 GHz 18.0 GHz DUMMY-DBM MaxPeak Coupled 1 MHz Marker: 17.93987976 GHz -40.03 dBm





Page 72 of 104 Date of Report: 2008-11-05

# **RADIATED SPURIOUS EMISSIONS(PCS 1900)**

Ch 600

18GHz - 19GHz

Spurious emission limit -13dBm

EUT: M2 Platform
Customer:: Sony Electronics
Test Mode: EVDO 1900; CH600

ANT Orientation: H EUT Orientation: H Test Engineer: Chris

AC + Internal Battery Voltage:

Comments:

## SWEEP TABLE: "FCC 24spuri 18-19.1G"

Star Freq 18.0	uency	Stop Frequency 19.1 GHz	Detector Average	Meas. Time Coupled	IF Bandw. 1 MHz	Transducer						
Marker: 18.566533066 GHz -50.86 dBm												
Leve	Level [dBm]											
0												
-10												
-20												
-30												
-40												
-50			·^ ·· · · · · · · · · · · · · · · · · ·		mm-mm	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		,,,,,				
-60												
-70												
-80	120	10.20		2.40	10.00	2 40.0		10.10				
	18G 18.2G 18.4G 18.6G 18.8G 19.1G Frequency [Hz]											



## RADIATED SPURIOUS EMISSIONS(PCS 1900)

Ch 1175

1GHz - 3GHz

Spurious emission limit -13dBm

Note: The peak above the limit line is the carrier freq. at ch-1175.

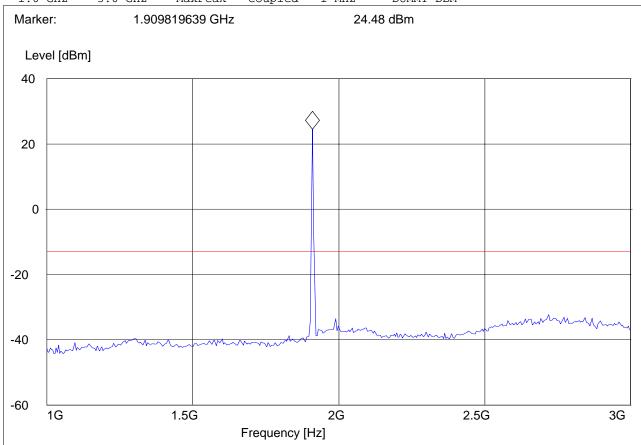
EUT: M2 Platform Customer:: Sony Electronics Test Mode: EVDO 1900; CH1175

ANT Orientation: H EUT Orientation: H Test Engineer: Chris

Voltage: AC + Internal Battery Comments: Marker placed on uplink

#### SWEEP TABLE: "FCC 24Spuri 1-3G"

Start Stop Detector Meas. IF Transducer Frequency Frequency Time Bandw. Coupled 1.0 GHz 3.0 GHz MaxPeak 1 MHz DUMMY-DBM



EMC\_SONYE\_029\_08001\_FCC22\_24\_PCG4R1L **CETECON** Page 74 of 104



## **RADIATED SPURIOUS EMISSIONS(PCS 1900)** Ch 1175

2008-11-05

**3GHz – 18GHz** 

Date of Report:

Spurious emission limit -13dBm

EUT: M2 Platform Sony Electronics Customer:: Test Mode: EVDO 1900; CH1175

ANT Orientation: H EUT Orientation: H Test Engineer: Chris

AC + Internal Battery Voltage:

Comments:

#### SWEEP TABLE: "FCC 24Spuri 3-18G"

Start Stop Transducer Detector Frequency Frequency Time Bandw. 3.0 GHz 18.0 GHz MaxPeak Coupled 1 MHz DUMMY-DBM Marker: 3.811623246 GHz -22.53 dBm Level [dBm] 0 -10 -20 -30 -40 -50 -60 -70 -80 3G 6G 8G 10G 12G 14G 16G 18G Frequency [Hz]

IF

Meas.



## **RADIATED SPURIOUS EMISSIONS(PCS 1900)** Ch 1175

## 18GHz - 19.1GHz

Date of Report:

Spurious emission limit -13dBm

EUT: M2 Platform
Customer:: Sony Electronics
Test Mode: EVDO 1900; CH1175

ANT Orientation: H EUT Orientation: H Test Engineer: Chris

Voltage: AC + Internal Battery

Comments:

## SWEEP TABLE: "FCC 24spuri 18-19.1G"

	rt quency ) GHz	Stop Frequency 19.1 GHz	Detector Average	Meas. Time Coupled	IF Bandw. 1 MHz	Transducer		
Marke	er:	18.894	198998 GHz		-51.5	5 dBm		
Lev	el [dBm]							
0								
-10								
-20								
-30								
-40								
-50					10.Mm		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	_~
-60	Mumm			mmm m			- What was a second	mm
-70								
-80	18G	18.2G	4.0	3.4G	18.6G	18.80		19.1G
	100	10.2G		Frequency [I		18.80		19.10

Test Report #: Date of Report:

# 

Page 76 of 104

2008-11-05



#### 5.3 **RECEIVER RADIATED EMISSIONS**

§ 2.1053 / RSS-129 & 133

#### **NOTE:**

1. The radiated emissions were done with different settings, using the relevant pre-amplifiers for the relevant frequency ranges. This is the reason that the graphs show different noise levels. In the range between 3GHz and 26.5GHz very short cable connections to the antenna was used to minimize the noise level.

#### Limits

## **SUBCLAUSE § RSS-133**

Frequency (MHz)	Field strength (μV/m)	Measurement distance (m)
0.009 - 0.490	2400/F (kHz)	300
0.490 - 1.705	24000/F (kHz)	30
1.705 - 30.0	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

#### **Receiver Radiated Spurious Emissions Results**

Measurements were performed with the EUT in X, Y and Z orientations with the measurement antenna in both horizontal and vertical polarity. The plots below show the results of the worst case orientation and polarity.



#### RECEIVER RADIATED SPURIOUS EMISSIONS

RX: 30MHz - 1GHz

Spurious emission limit -13dBm

Antenna Vertical

Test Report #:

Note: This plot is valid for low, mid & high channels (worst-case plot)

Detector Meas.

Time

EUT: M2 Platform Sony Electronics Customer::

Test Mode: RX ANT Orientation: V EUT Orientation: H Test Engineer: Chris

AC + Internal Battery Voltage:

Comments:

Start

0 30M

#### SWEEP TABLE: "CANADA RE\_30M-1G\_Ver"

200M

300M

400M

Frequency [Hz]

Stop

Frequency Frequency

30	.0 MHz	1.0 GH	z MaxI	Peak Co	upled :	100 kHz	3141-#13	186_Vert		
Mar	ker:	ę	982.50501 I	MHz		33.41 d	BμV/m			
Le	vel [dBµ	V/m]								
70										
60										
50										
40										
30	. /\	.1.1	Λ.				Lama MM	mmmm	M	~~~~~~
20	/	MV / M	Man	WYVWWY!	MWMVVVM	,~~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			
10										

IF

Bandw.

Transducer

500M

600M

700M

800M

900M

1G



#### RECEIVER RADIATED SPURIOUS EMISSIONS

RX: 30MHz - 1GHz

Spurious emission limit -13dBm

Antenna Horizontal

Note: This plot is valid for low, mid & high channels (worst-case plot)

EUT: M2 Platform Customer:: Sony Electronics

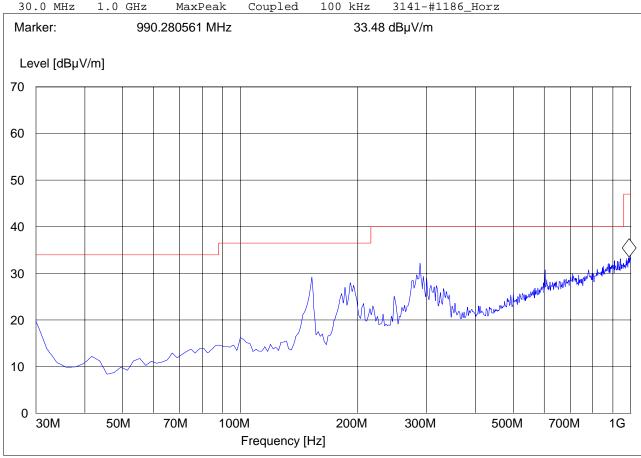
Test Mode: ANT Orientation: H EUT Orientation: H Test Engineer: Chris

Voltage: AC + Internal Battery

Comments:

#### SWEEP TABLE: "CANDA RE\_30M-1G\_Hor"

Start Stop Detector Meas. Transducer Frequency Frequency Time Bandw.





#### RECEIVER RADIATED SPURIOUS EMISSIONS

**RX: 1GHz - 18GHz** 

Test Report #:

Spurious emission limit -13dBm CETECOM Inc.

#### 411 Dixon Landing Road; Milpitas, CA 95035

EUT / Description: M2 Platform Customer: Sony Electronics

Operation Mode: ANT Orientation: : H EUT Orientation:: H Test Engineer: Chris

AC + Internal Battery Voltage:

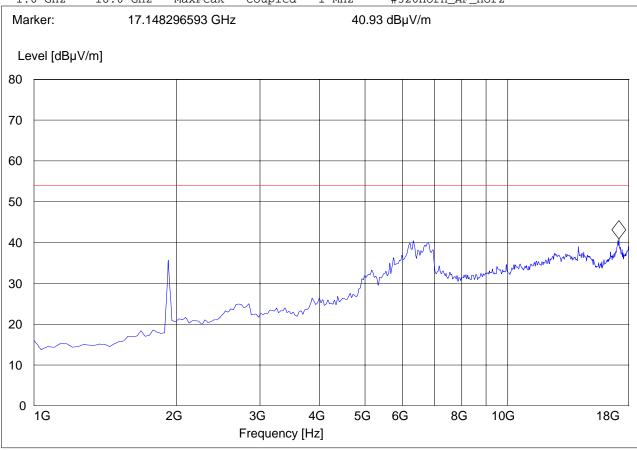
Comments::

#### SWEEP TABLE: "CANADA RE\_1-18G"

Stop IF Transducer Start Detector Meas.

Frequency Frequency Time Bandw.

1.0 GHz 18.0 GHz MaxPeak Coupled 1 MHz #326horn\_AF\_horz



2008-11-05

Page 80 of 104



# 6 AC POWER LINE CONDUCTED EMISSIONS § 15.107/207

#### **6.1.1 LIMITS**

Technical specification: 15.107 / 15.207 (Revised as of August 20, 2002)

\$15.107 (a) Except for Class A digital devices, for equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a  $50 \, \mu H/50$  ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

#### Limit

Frequency of Emission (MHz)	Conducted Limit (dBµV)					
	Quasi-Peak	Average				
0.15 - 0.5	66 to 56*	56 to 46*				
0.5 - 5	56	46				
5 – 30	60	50				
* Decreases with logarithm of the freque	ncy					

ANALYZER SETTINGS: RBW = 10KHz VBW = 10KHz



#### 6.1.2 **RESULTS TX Line CDMA 800:**

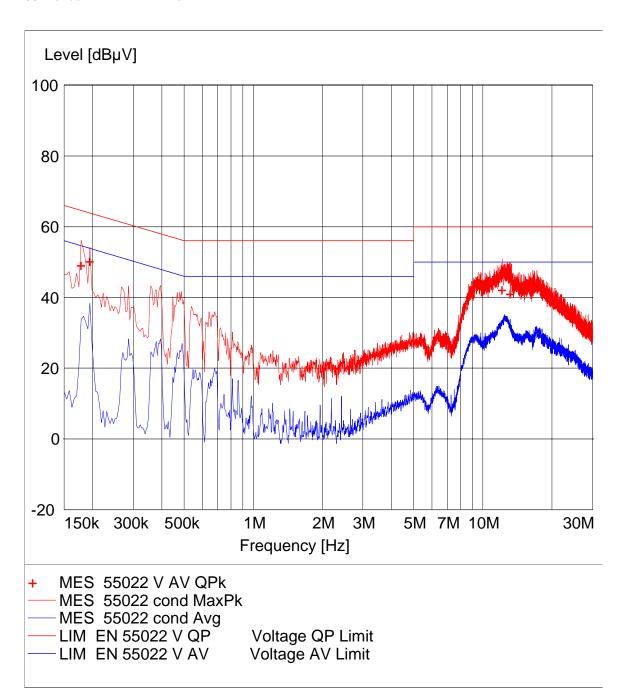
EUT: M2 Platform Sony Electronics Manufacturer:

CDMA 850 Test Mode:

ANT Orientation:: N/A EUT Orientation:: H Test Engineer:: Chris

Power Supply: : AC + Laptop

Comments: Line



#### EMC\_SONYE\_029\_08001\_FCC22\_24\_PCG4R1L **CETECOM** Test Report #:

Page 82 of 104 Date of Report: 2008-11-05



## MEASUREMENT RESULT: "55022 V AV QPk"

11/3/200	08 10:3	34AM						
Frequ	uency	Level	Transd	Limit	Margin	Line	PE	AUX
								STATE
	MHz	dΒμV	dВ	dΒμV	dВ			
0.1	78000	49.20	0.0	65	15.3	1		OFF
0.19	94000	50.40	0.1	64	13.4	1		OFF
12.13	26000	42.40	0.7	60	17.6	1		OFF
13.18	32000	41.20	0.7	60	18.8	1		OFF

#### LIMIT LINE: "EN 55022 V AV"

Short Description: Voltage AV Limit 4/27/1998 2:24PM Frequency Level MHz dΒμV 0.150000 56.00 0.500000 46.00 5.000000 46.00 5.000000 50.00 30.000000 50.00

#### LIMIT LINE: "EN 55022 V QP"

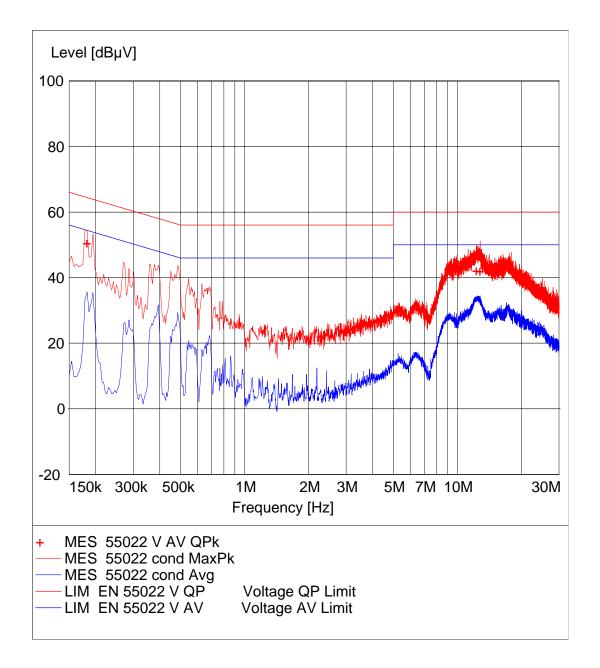
Short Description: Voltage QP Limit 4/27/1998 2:24PM Frequency Level MHzdΒμV 0.150000 66.00 0.500000 56.00 5.000000 56.00 5.000000 60.00 30.000000 60.00



#### 6.1.3 **RESULTS TX Neutral CDMA 800:**

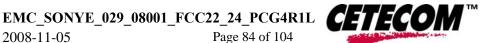
EUT: M2 Platform Manufacturer: Sony Electronics Test Mode: CDMA 850

ANT Orientation:: N/A EUT Orientation:: H Test Engineer:: Chris Power Supply: : AC + Laptop Comments: : Neutral



# Test Report #:

Page 84 of 104 Date of Report: 2008-11-05



## MEASUREMENT RESULT: "55022 V AV QPk"

11	/3/2008 10:	28AM						
	Frequency	Level	Transd	Limit	Margin	Line	PΕ	AUX
								STATE
	MHz	dBuV	dВ	dBuV	dB			
				p				
	0.182000	50.60	0.1	64	13.8	1		TTO
				· -		_		011
	12.298000	42.30	0.7	60	17.7	1		OFF
	12.774000	42.20	0.7	60	17.8	1		OFF

#### LIMIT LINE: "EN 55022 V AV"

Short Description: Voltage AV Limit 4/27/1998 2:24PM Frequency Level MHz dBuV 0.150000 56.00 0.500000 46.00 5.000000 46.00 5.000000 50.00 30.000000 50.00

#### LIMIT LINE: "EN 55022 V QP"

Voltage QP Limit Short Description: 4/27/1998 2:24PM Frequency Level MHzdΒμV 0.150000 66.00 0.500000 56.00 5.000000 56.00 5.000000 60.00 30.000000 60.00

Page 85 of 104 Date of Report: 2008-11-05

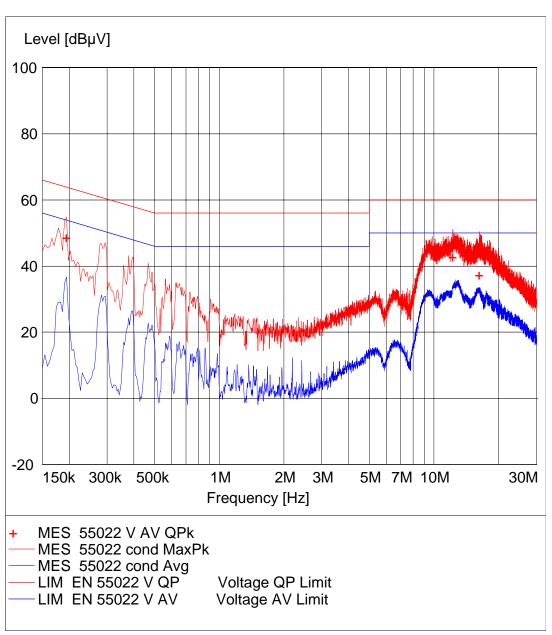


#### 6.1.4 **RESULTS TX Line EVDO 800:**

EUT: M2 Platform Sony Electronics Manufacturer:

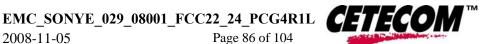
Test Mode: EVDO 850 ANT Orientation:: N/A EUT Orientation:: H Test Engineer:: Chris Power Supply: : AC + Laptop

Comments: : Line



# Test Report #:

Page 86 of 104 Date of Report: 2008-11-05



## MEASUREMENT RESULT: "55022 V AV QPk"

11	/3/2008 10:	02AM						
	Frequency	Level	Transd	Limit	Margin	Line	PΕ	AUX
								STATE
	MHz	dBuV	dВ	dBuV	dB			
				p				
	0.194000	48.70	0.1	64	15.2	1		TTO
				· -		_		011
	12.234000	42.90	0.7	60	17.1	1		OFF
	16.282000	37.40	0.1	60	22.6	1		OFF

#### LIMIT LINE: "EN 55022 V AV"

Short Description: Voltage AV Limit 4/27/1998 2:24PM Frequency Level MHz dBuV 0.150000 56.00 0.500000 46.00 5.000000 46.00 5.000000 50.00 30.000000 50.00

#### LIMIT LINE: "EN 55022 V QP"

Voltage QP Limit Short Description: 4/27/1998 2:24PM Frequency Level MHzdΒμV 0.150000 66.00 0.500000 56.00 5.000000 56.00 5.000000 60.00 30.000000 60.00

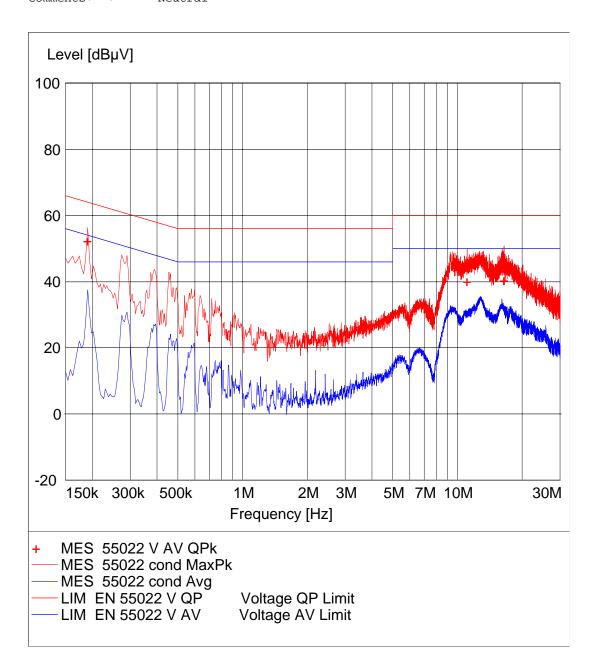
Page 87 of 104 Date of Report: 2008-11-05



#### 6.1.5 **RESULTS TX Neutral EVDO 800:**

EUT: M2 Platform Sony Electronics Manufacturer: Test Mode: EVDO 850

ANT Orientation:: N/A EUT Orientation:: H Test Engineer:: Chris
Power Supply: : AC + Laptop
Comments: : Neutral Comments: : Neutral



#### EMC\_SONYE\_029\_08001\_FCC22\_24\_PCG4R1L **CETECOM** Test Report #:

Page 88 of 104 Date of Report: 2008-11-05



## MEASUREMENT RESULT: "55022 V AV QPk"

11/	3/2008 9:5	7AM						
	Frequency	Level	Transd	Limit	Margin	Line	PE	AUX
								STATE
	MHz	dΒμV	dВ	dΒμV	dВ			
	0.190000	52.40	0.1	64	11.7	1		OFF
	11.098000	40.20	0.6	60	19.8	1		OFF
	16.458000	40.50	0.1	60	19.5	1		OFF
	16.486000	40.50	0.1	60	19.5	1		OFF

#### LIMIT LINE: "EN 55022 V AV"

Short Description: Voltage AV Limit 4/27/1998 2:24PM Frequency Level MHz dΒμV 0.150000 56.00 0.500000 46.00 5.000000 46.00 5.000000 50.00 30.000000 50.00

#### LIMIT LINE: "EN 55022 V QP"

Short Description: Voltage QP Limit 4/27/1998 2:24PM Frequency Level MHzdΒμV 0.150000 66.00 0.500000 56.00 5.000000 56.00 5.000000 60.00 30.000000 60.00

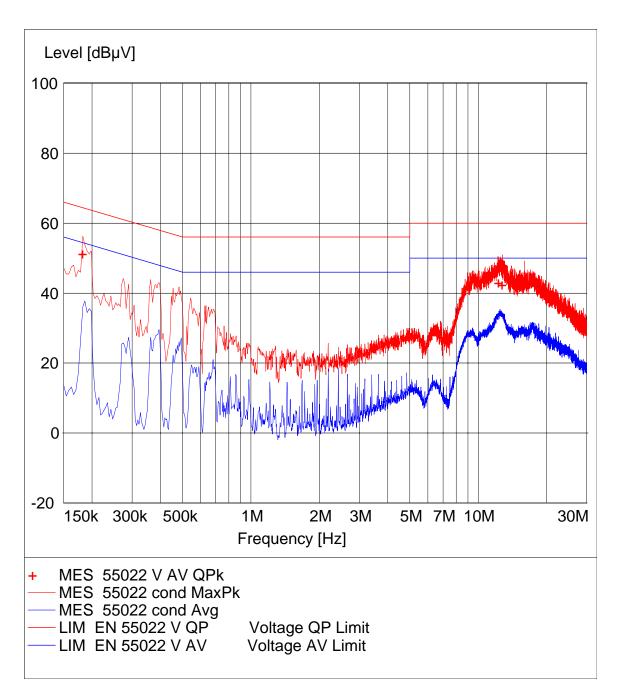


#### 6.1.6 **RESULTS TX Line CDMA 1900:**

EUT: M2 Platform Sony Electronics Manufacturer:

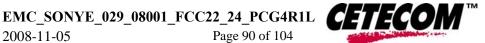
Test Mode: CDMA1900 ANT Orientation:: N/A EUT Orientation:: H Test Engineer:: Chris Power Supply: : AC + Laptop

Comments: : Line



# Test Report #:

Page 90 of 104 Date of Report: 2008-11-05



## MEASUREMENT RESULT: "55022 V AV QPk"

/3/2008 10	:38AM						
Frequency	Level	Transd	Limit	Margin	Line	PΕ	AUX
							STATE
MHz	dBuV	dВ	dBuV	dВ			
	•						
0.182000	51.40	0.1	64	13.0	1		OFF
12.290000	43.10	0.7	60	16.9	1		OFF
12.762000	42.50	0.7	60	17.5	1		OFF
	MHz 0.182000 12.290000	MHz dBμV  0.182000 51.40 12.290000 43.10	Frequency         Level         Transd           MHz         dBμV         dB           0.182000         51.40         0.1           12.290000         43.10         0.7	Frequency         Level         Transd         Limit           MHz         dBμV         dB dBμV           0.182000         51.40         0.1         64           12.290000         43.10         0.7         60	Frequency         Level         Transd         Limit         Margin           MHz         dBμV         dB         dBμV         dB           0.182000         51.40         0.1         64         13.0           12.290000         43.10         0.7         60         16.9	Frequency         Level         Transd         Limit         Margin         Line           MHz         dBμV         dB         dBμV         dB           0.182000         51.40         0.1         64         13.0         1           12.290000         43.10         0.7         60         16.9         1	Frequency         Level         Transd         Limit         Margin         Line         PE           MHz         dBμV         dB         dBμV         dB           13.0         1          12.290000         43.10         0.7         60         16.9         1

#### LIMIT LINE: "EN 55022 V AV"

Short Description: Voltage AV Limit 4/27/1998 2:24PM Frequency Level MHz dBuV 0.150000 56.00 0.500000 46.00 5.000000 46.00 5.000000 50.00 30.000000 50.00

#### LIMIT LINE: "EN 55022 V QP"

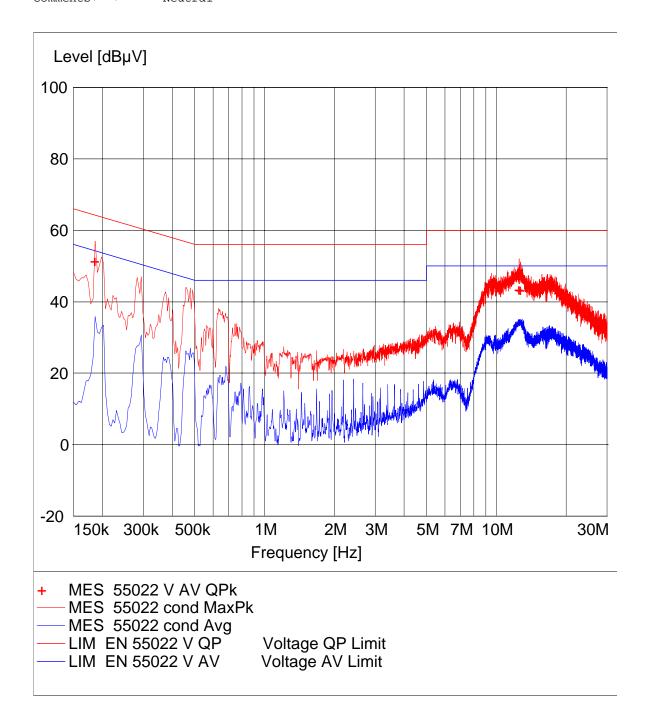
Voltage QP Limit Short Description: 4/27/1998 2:24PM Frequency Level MHzdΒμV 0.150000 66.00 0.500000 56.00 5.000000 56.00 5.000000 60.00 30.000000 60.00



#### 6.1.7 **RESULTS TX Neutral CDMA 1900:**

EUT: M2 Platform Sony Electronics Manufacturer:

Test Mode: CDMA1900 ANT Orientation:: N/A EUT Orientation:: H Test Engineer:: Chris Power Supply: : AC + Laptop Comments: : Neutral



#### EMC\_SONYE\_029\_08001\_FCC22\_24\_PCG4R1L **CETECOM** Test Report #:

Page 92 of 104 Date of Report: 2008-11-05



#### MEASUREMENT RESULT: "55022 V AV QPK"

11/3	/2008 10:4	13AM						
F	requency	Level	Transd	Limit	Margin	Line	PE	AUX STATE
	MHz	dΒμV	dB	dΒμV	dB			
	0.186000	51.50	0.1	64	12.7	1		OFF
1	2.522000	43.60	0.7	60	16.4	1		OFF
1	2.722000	43.40	0.7	60	16.6	1		OFF

#### LIMIT LINE: "EN 55022 V AV"

Short Description: Voltage AV Limit 4/27/1998 2:24PM Frequency Level MHz dBµV 0.150000 56.00 0.500000 46.00 5.000000 46.00 5.000000 50.00 30.000000 50.00

#### LIMIT LINE: "EN 55022 V QP"

Short Description: Voltage QP Limit 4/27/1998 2:24PM Frequency Level MHzdΒμV 0.150000 66.00 0.500000 56.00 5.000000 56.00 5.000000 60.00 30.000000 60.00



#### 6.1.8 **RESULTS TX Line EVDO 1900:**

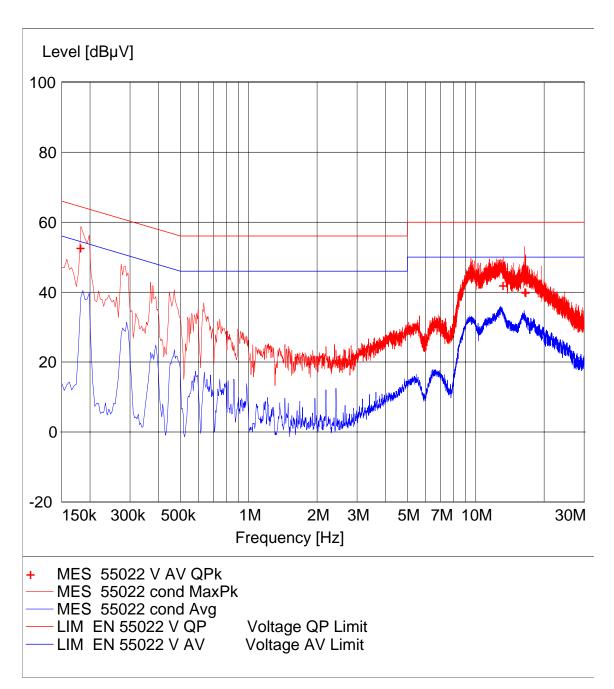
EUT: M2 Platform Sony Electronics Manufacturer:

Test Mode: EVDO 1900

ANT Orientation:: N/A EUT Orientation:: H Test Engineer:: Chris

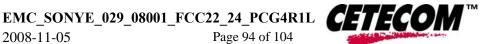
Power Supply: : AC + Laptop

Comments: : Line



# Test Report #:

Page 94 of 104 Date of Report: 2008-11-05



## MEASUREMENT RESULT: "55022 V AV QPK"

11	./3/2008 9:4	5AM						
	Frequency	Level	Transd	Limit	Margin	Line	PE	AUX STATE
	MHz	dΒμV	dB	dΒμV	dB			
	0.182000	52.80	0.1	64	11.6	1		OFF
	13.206000	42.10	0.7	60	17.9	1		OFF
	16.406000	43.30	0.1	60	16.7	1		OFF
	16.502000	40.20	0.1	60	19.8	1		OFF
	16.598000	40.10	0.1	60	19.9	1		OFF

#### LIMIT LINE: "EN 55022 V AV"

Short Descr 4/27/1998 2:	-	Voltage	AV	Limit
Frequency	Level			
MHz	dΒμV			
0.150000	56.00			
0.500000	46.00			
5.000000	46.00			
5.000000	50.00			
30.000000	50.00			

#### LIMIT LINE: "EN 55022 V QP"

Short Descrip	-	Voltage	QP	Limit
Frequency	Level			
MHz	dΒμV			
0.150000	66.00			
0.500000	56.00			
5.000000	56.00			
5.000000	60.00			
30.000000	60.00			

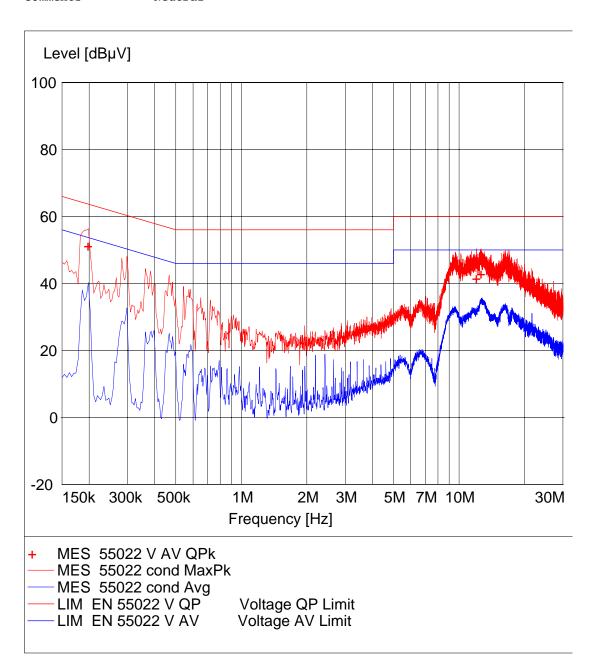


#### 6.1.9 **RESULTS TX Neutral EVDO 1900:**

EUT: M2 Platform Manufacturer: Sony Electronics

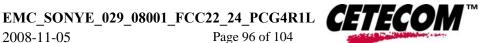
EVDO 1900 Test Mode:

ANT Orientation:: N/A EUT Orientation:: H Test Engineer:: Chris Power Supply: : AC + Laptop
Comments: : Neutral Comments: : Neutral



# Test Report #:

Page 96 of 104 Date of Report: 2008-11-05



## MEASUREMENT RESULT: "55022 V AV QPk"

11	/3/2008 9:5	2AM						
	Frequency	Level	Transd	Limit	Margin	Line	PΕ	AUX
								STATE
	MHz	dBuV	dВ	dBuV	dB			-
		u2p.	42	a2p.	42			
	0.198000	51.40	0.1	64	12.2	1		OFF
	0.196000	51.40	0.1	04	12.2	Т		OFF
	12.034000	41.70	0.7	60	18.3	1		OFF
	12.630000	43.10	0.7	60	16.9	1		OFF

#### LIMIT LINE: "EN 55022 V AV"

Short Description: Voltage AV Limit 4/27/1998 2:24PM Frequency Level MHz dBuV 0.150000 56.00 0.500000 46.00 5.000000 46.00 5.000000 50.00 30.000000 50.00

#### LIMIT LINE: "EN 55022 V QP"

Voltage QP Limit Short Description: 4/27/1998 2:24PM Frequency Level MHzdΒμV 0.150000 66.00 0.500000 56.00 5.000000 56.00 5.000000 60.00 30.000000 60.00

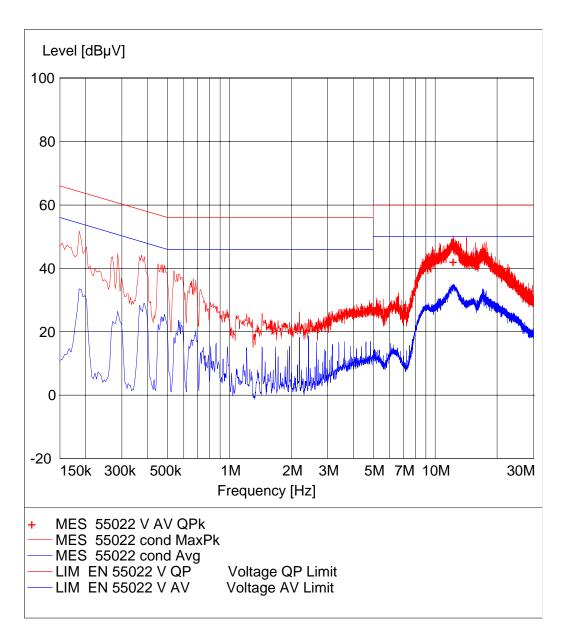


#### 6.1.10 RESULTS RX Line CDMA:

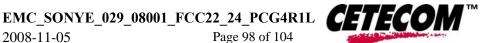
EUT: M2 Platform Manufacturer: Sony Electronics

Test Mode: ANT Orientation:: N/A EUT Orientation:: H Test Engineer:: Chris Power Supply: : AC + Laptop

Comments: : Line



Page 98 of 104 Date of Report: 2008-11-05



## MEASUREMENT RESULT: "55022 V AV QPk"

11/3/2008	10:06AM
-----------	---------

Test Report #:

Frequency	Level	Transd	Limit	Margin	Line	PE	AUX STATE
MHz	dΒμV	dВ	dΒμV	dВ			
12.242000	42.20	0.7	60	17.8	1		OFF

#### LIMIT LINE: "EN 55022 V AV"

Short Descr: 4/27/1998 2::	-	Voltage	AV	Limit
Frequency	Level			
MHz	dΒμV			
0.150000	56.00			
0.500000	46.00			
5.000000	46.00			
5.000000	50.00			
30.000000	50.00			

#### LIMIT LINE: "EN 55022 V QP"

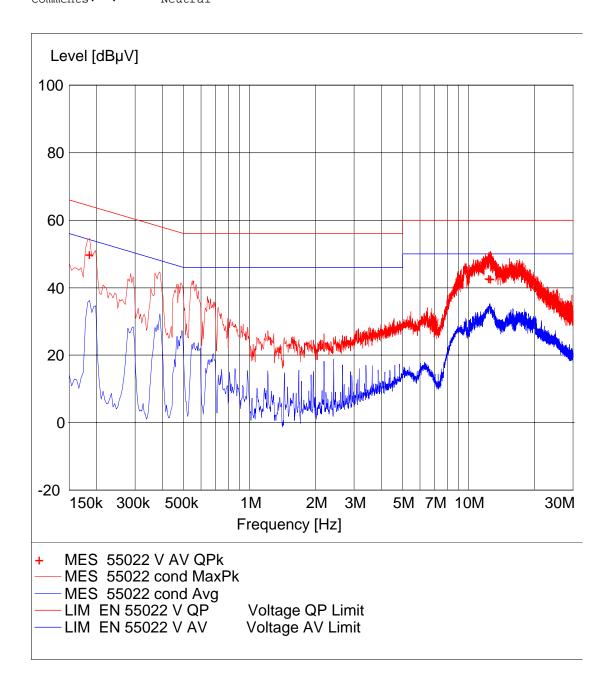
Short Descr 27/1998 2:	-	Voltage	QP	Limit
Frequency	Level			
MHz	dΒμV			
0.150000	66.00			
0.500000	56.00			
5.000000	56.00			
5.000000	60.00			
30.000000	60.00			



## 6.1.11 RESULTS RX Neutral CDMA:

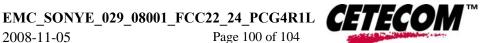
EUT: M2 Platform Sony Electronics Manufacturer:

Test Mode: ANT Orientation:: N/A EUT Orientation:: H Test Engineer:: Chris
Power Supply: : AC + Laptop
Comments: Noutral Comments: : Neutral



# Test Report #:

Page 100 of 104 Date of Report: 2008-11-05



## MEASUREMENT RESULT: "55022 V AV QPk"

/3/2008 10:	11AM						
Frequency	Level	Transd	Limit	Margin	Line	PΕ	AUX
							STATE
MHz	dBuV	dВ	dBuV	dВ			
0 186000	50 00	0 1	64	14 2	1		OFF
					_		011
12.382000	42.90	0.7	60	17.1	1		OFF
12,602000	42.70	0.7	60	17.3	1		OFF
	Frequency	MHz dBμV  0.186000 50.00 12.382000 42.90	Frequency         Level         Transd           MHz         dBμV         dB           0.186000         50.00         0.1           12.382000         42.90         0.7	Frequency         Level         Transd         Limit           MHz         dBμV         dB dBμV           0.186000         50.00         0.1         64           12.382000         42.90         0.7         60	Frequency         Level         Transd         Limit         Margin           MHz         dBμV         dB         dBμV         dB           0.186000         50.00         0.1         64         14.2           12.382000         42.90         0.7         60         17.1	Frequency         Level         Transd         Limit         Margin         Line           MHz         dBμV         dB         dBμV         dB           0.186000         50.00         0.1         64         14.2         1           12.382000         42.90         0.7         60         17.1         1	Frequency         Level         Transd         Limit         Margin         Line         PE           MHz         dBμV         dB         dBμV         dB           12.382000         20.00         0.1         64         14.2         1          12.382000         17.1         1

#### LIMIT LINE: "EN 55022 V AV"

Short Description: Voltage AV Limit 4/27/1998 2:24PM Frequency Level MHz dBuV 0.150000 56.00 0.500000 46.00 5.000000 46.00 5.000000 50.00 30.000000 50.00

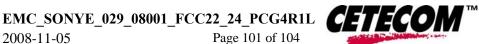
#### LIMIT LINE: "EN 55022 V QP"

Voltage QP Limit Short Description: 4/27/1998 2:24PM Frequency Level MHzdΒμV 0.150000 66.00 0.500000 56.00 5.000000 56.00 5.000000 60.00 30.000000 60.00

Test Report #: Date of Report:

2008-11-05

Page 101 of 104



# **TEST EQUIPMENT AND ANCILLARIES USED FOR TESTS**

No	Instrument/Ancillary	Type	Manufacturer	Serial No.	Cal Due	Interval
01	Spectrum Analyzer	ESIB 40	Rohde & Schwarz	100107	May 2009	1 year
02	Spectrum Analyzer	FSEM 30	Rohde & Schwarz	100017	August 2009	1 year
03	Signal Generator	SMY02	Rohde & Schwarz	836878/011	May 2009	1 year
04	Power-Meter	NRVD	Rohde & Schwarz	0857.8008.02	May 2009	1 year
05	Biconilog Antenna	3141	EMCO	0005-1186	June 2009	1 year
06	Horn Antenna (1- 18GHz)	SAS- 200/571	AH Systems	325	June 2009	1 year
07	Horn Antenna (18- 26.5GHz)	3160-09	EMCO	1240	June 2009	1 year
08	Power Splitter	11667B	Hewlett Packard	645348	n/a	n/a
09	Climatic Chamber	VT4004	Voltsch	G1115	May 2009	1 year
10	High Pass Filter	5HC2700	Trilithic Inc.	9926013	n/a	n/a
11	High Pass Filter	4HC1600	Trilithic Inc.	9922307	n/a	n/a
12	Pre-Amplifier	JS4- 00102600	Miteq	00616	May 2009	1 year
13	Power Sensor	URV5-Z2	Rohde & Schwarz	DE30807	May 2009	1 year
14	Digital Radio Comm. Tester	CMD-55	Rohde & Schwarz	847958/008	May 2009	1 year
15	Universal Radio Comm. Tester	CMU 200	Rohde & Schwarz	832221/06	May 2009	1 year
16	LISN	ESH3-Z5	Rohde & Schwarz	836679/003	May 2009	1 year
17	Loop Antenna	6512	EMCO	00049838	July 2009	2 years

Test Report #: Date of Report: EMC\_SONYE\_029\_08001\_FCC22\_24\_PCG4R1L **CETECOM** 

2008-11-05

Page 102 of 104



#### **References** 8

Title 47—Telecommunication, CHAPTER I--FEDERAL COMMUNICATIONS COMMISSION,

PART 2--FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS October 1, 2001.

Title 47—Telecommunication, CHAPTER I--FEDERAL COMMUNICATIONS COMMISSION,

PART 22 PUBLIC MOBILE SERVICES October 1, 1998.

FCC Report and order 02-229 September 24, 2002.

Title 47—Telecommunication, CHAPTER I--FEDERAL COMMUNICATIONS COMMISSION,

PART 24 PERSONAL COMMUNICATIONS SERVICES October 1, 1998.

ANSI / TIA-603-C-2004 Land Mobile FM or PM Communications Equipment Measurement and Performance Standard November 7, 2002.

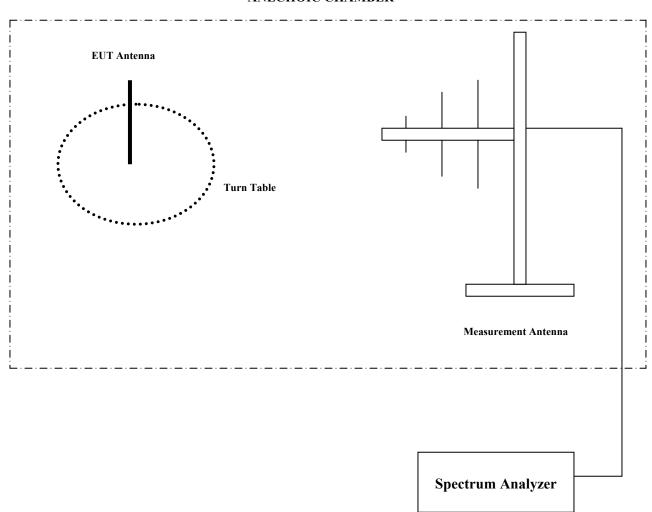
2008-11-05

Page 103 of 104



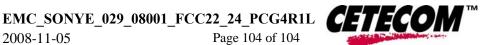
# 9 BLOCK DIAGRAMS Radiated Testing

## ANECHOIC CHAMBER



Test Report #: Date of Report:

Page 104 of 104 2008-11-05



# 10 Revision History

2008-11-05: First Issue