

EMISSIONS TEST REPORT FOR A LOW POWER TRANSMITTER

I. GENERAL INFORMATION

Requirement: Federal Communications Commissions

Test Requirements: 15.205, 15.207, 15.209, 15.247

Applicant: Aperto Networks
1637 S Main Street
Milpitas CA 95035

Product ID: **FCC ID: PS6R3000-A2**

II. DESCRIPTION OF EQUIPMENT UNDER TEST (EUT)

The Aperto FCC ID: PS6R3000-A2 is a DTS radio system.

RF Specifications

RF Frequency Band	5728 - 5847 MHz
RF Channels	Programmable in 1 MHz steps Power programmable in 0.2 dB steps
RF Signal Bandwidth	5.8 MHz (20 dB BW)
Modulation Type	16 QAM or QPSK (dynamically selected)
Transmitter Output Power	+20dBm maximum
Antenna to be added:	15 dBi omni

III. TEST LOCATION

All emissions tests were performed at:

Compliance Certification Services
571F Monterey Road
Morgan Hill, CA 95037

T.N. Cokenias
EMC Consultant/Agent for Aperto Networks Inc.

3 December 2003

TEST PROCEDURES

Radiated emissions testing per the methods of ANSI C63.4.

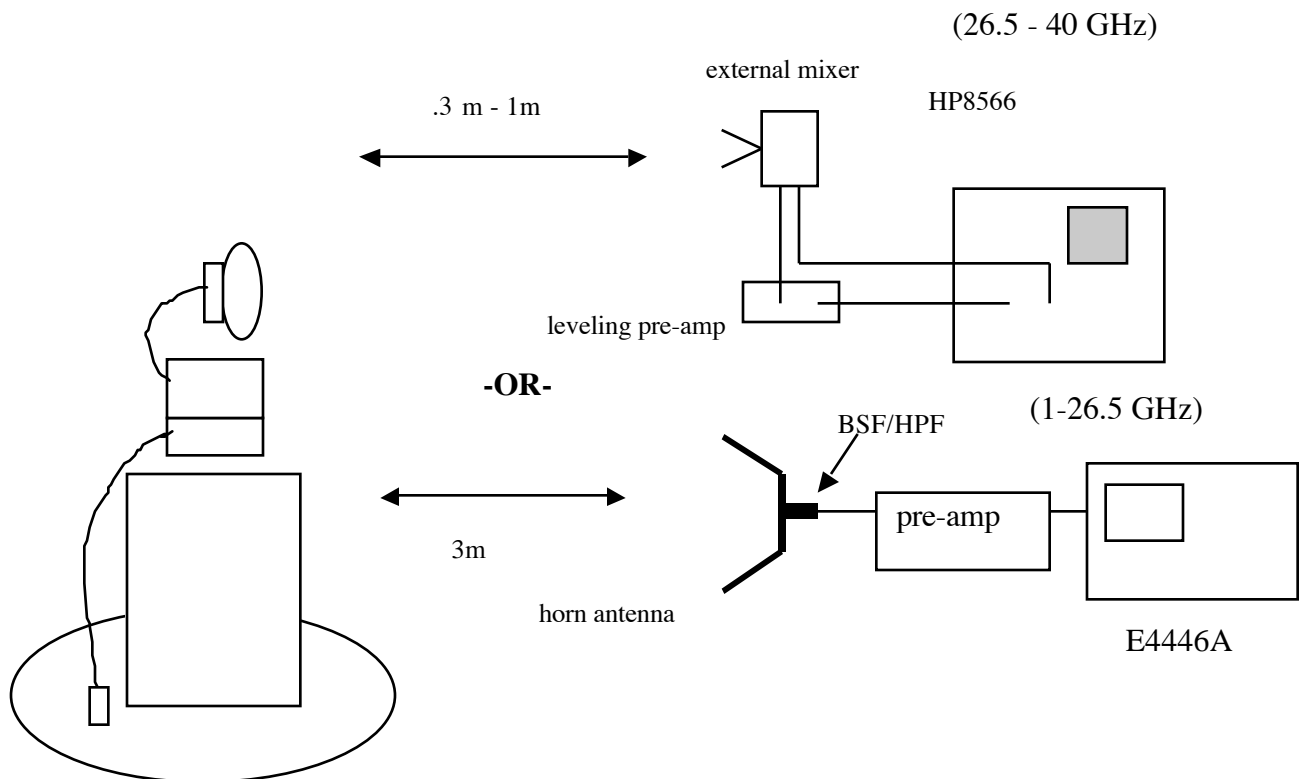
Measurement Equipment Used:

Agilent E4446A spectrum analyzer
HP 8566 spectrum analyzer
EMCO 3115 horn antenna, 1-18 GHz
ARA MWH-1826/B horn antenna, 18-26.5 GHz
Miteq 924321 pre-amplifier, 1-26 GHz
HP 8564E 9Khz-40 GHz
HP11970A external mixer 26.5-40 GHz, with 20 dBi horn antenna
HP 11975A leveling pre-amplifier, 2-8 GHz
Band stop filter 5.7 – 5.875 GHz
High pass filter, 7.5 GHz

Radiated Emissions Above 1 GHz

Test Requirement: 15.205, 15.209, 15.247

Test Set-Up



Test Procedures, 1- 26 GHz:

1. The EUT was placed on a wooden table resting on a turntable in the 5m anechoic chamber test site. The search antenna was placed 3m from the EUT. The EUT antenna was mounted vertically as per normal installation.
2. The turntable was slowly rotated to locate the direction of maximum emission at each emission falling in the restricted bands of 15.205.
3. Radiated emissions were investigated for a LOW channel, a MID channel, and HIGH channel. Emissions were investigated to the 10th harmonic.
4. Once maximum direction was determined, the search antenna was raised and lowered in both vertical and horizontal polarizations. The maximum readings so obtained are recorded in the data listed below.

Test Procedures, 26.5 - 40 GHz

1. The EUT was placed on a non-conductive table
2. The external mixer horn antenna was brought to within 1 foot (0.3m) of the EUT.
3. The horn antenna was moved around all surfaces of the EUT and EUT antenna in search of emissions coming from the EUT. This was done in both vertical and horizontal polarities

Testing was performed at 3 different frequencies

Channel Frequency, MHz

Low	5728
Mid	5788
High	5847

Radiated emissions were performed at each frequency for the following antenna:.

Antenna Type	Deployment	Gain	Antenna Mfr.	Model
Omni	Point to Multipoint	15 dBi	MTi	MT – 484030/N

Test Results: PASS. Worst case results are presented. Refer to separate Excel spread sheet files.

12/03/03 **High Frequency Measurement**
Compliance Certification Services, Morgan Hill Open Field Site

Test Engr: Chin Pang

Project #:

Company:Aperto

EUT Descrip.: EUT with MT-484030/N 15 dBi omni

FCC ID: PS6R3000-A2

Test Target:

Mode Oper: Constant Transmit at 20 dBm output

Test Equipment:

EMCO Horn 1-18GHz	Pre-amplifier 1-26GHz	Spectrum Analyzer	Horn > 18GHz
T73; S/N: 6717 @3m	T86 Miteq 924341	Agilent E4446A Analyzer	

Hi Frequency Cables

<input type="checkbox"/> (2 ft)	<input checked="" type="checkbox"/> (2 ~ 3 ft)	<input type="checkbox"/> (4 ~ 6 ft)	<input checked="" type="checkbox"/> (12 ft)
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Peak Measurements:

1 MHz Resolution Bandwidth

1MHz Video Bandwidth

Average Measurements:

1 MHz Resolution Bandwidth

10Hz Video Bandwidth

f GHz	Dist feet	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	HPF	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes
1, 5.728MHz, MT-484030/N															
2.400	9.8	70.1	67.9	29.2	1.8	-44.0	0.0	1.0	58.0	55.8	74.0	54.0	-16.0	1.8	L.O emission, V, -20dBc ok
11.450	9.8	50.5	37.3	38.7	4.7	-44.5	0.0	1.0	50.3	37.1	74.0	54.0	-23.7	-16.9	V, noise floor
17.184	9.8	50.6	37.5	41.2	6.0	-48.5	0.0	1.0	50.3	37.2	74.0	54.0	-23.7	-16.8	V, noise floor
11.450	9.8	51.2	37.7	38.7	4.7	-44.5	0.0	1.0	51.0	37.5	74.0	54.0	-23.0	-16.5	H, noise floor
17.184	9.8	52.0	38.0	41.2	6.0	-48.5	0.0	1.0	51.7	37.7	74.0	54.0	-22.3	-16.3	H, noise floor
Mid Ch, 5788MHz															
11.569	9.8	48.2	37.1	38.8	4.7	-44.7	0.0	1.0	48.0	36.9	74.0	54.0	-26.0	-17.1	V, noise floor
17.364	9.8	50.2	39.5	42.3	6.1	-48.3	0.0	1.0	51.2	40.5	74.0	54.0	-22.8	-13.5	V, noise floor
11.569	9.8	49.5	37.3	38.8	4.7	-44.7	0.0	1.0	49.3	37.1	74.0	54.0	-24.7	-16.9	H, noise floor
17.569	9.8	50.9	39.6	43.5	6.1	-48.1	0.0	1.0	53.5	42.2	74.0	54.0	-20.5	-11.8	H, noise floor
High Ch, 5847MHz															
11.694	9.8	49.7	37.4	38.9	4.7	-44.9	0.0	1.0	49.4	37.1	74.0	54.0	-24.6	-16.9	V, noise floor
17.576	9.8	48.0	37.1	43.6	6.1	-48.0	0.0	1.0	50.7	39.7	74.0	54.0	-23.3	-14.3	V, noise floor
11.694	9.8	50.1	37.4	38.9	4.7	-44.9	0.0	1.0	49.8	37.1	74.0	54.0	-24.2	-16.9	H, noise floor
17.576	9.8	49.0	37.3	43.6	6.1	-48.0	0.0	1.0	51.6	39.9	74.0	54.0	-22.4	-14.1	H, noise floor
No emissions were found up to 40GHz															

f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Pk Mar	Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter		