



ADDENDUM TO FC01-044

FOR THE

2.4 GHZ VIDEO/AUDIO TRANSMITTER, 2300TX250

FCC PART 90 SUBPART I
FCC PART 15 SUBPART B SECTIONS 15.107 & 15.109 CLASS B

COMPLIANCE

DATE OF ISSUE: AUGUST 30, 2001

PREPARED FOR:

Advanced Electronics Group, Inc.
10524 South La Cienega Blvd.
Inglewood, CA 90304

PREPARED BY:

Joyce Walker
CKC Laboratories, Inc.
5473A Clouds Rest
Mariposa, CA 95338

Date of test: May 2- June 8, 2001

W.O. No.: 76731

Report No.: FC01-044A

This report contains a total of 37 pages and may be reproduced in full only. Partial reproduction may only be done with the written consent of CKC Laboratories, Inc.

TABLE OF CONTENTS

Administrative Information	3
Summary of Results.....	4
Modifications Required for Compliance	4
Approvals.....	4
Equipment Under Test (EUT) Description.....	5
Equipment Under Test.....	5
Peripheral Devices	5
Temperature and Humidity During Testing	5
2.1033(c)(3) User's Manual	6
2.1033(c)(4) Type of Emissions	6
2.1033(c)(5) Frequency Range	6
2.1033(c)(6) Operating Power.....	6
2.1033(c)(7) Maximum Power Rating.....	6
2.1033(c)(8) DC Voltages	6
2.1033(c)(9) Tune-Up Procedure	6
2.1033(c)(10) Schematics and Circuitry Description	6
2.1033(c)(11) Label and Placement.....	7
2.1033(c)(12) Submittal Photos.....	7
2.1033(c)(13) Modulation Information	7
2.1033(c)(14)/2.1046/90.205(l) RF Power Output.....	8
2.1033(c)(14)/2.1047(b) - Modulation Characteristics - Audio Frequency Response	11
2.1033(c)(14)/2.1047(b) - Modulation Characteristics - Modulation Limiting Response	11
2.1033(c)(14)/2.1049(i)/90.210- Occupied Bandwidth.....	12
2.1033(c)(14)/2.1051/90.210 - Spurious Emissions at Antenna Terminal.....	16
2.1033(c)(14)/2.1053/90.210 - Field Strength of Spurious Radiation.....	19
2.1033(c)(14)/2.1055/90.213 - Frequency Stability	24
15.107 – AC Conducted Emissions.....	26
15.109 – Radiated Emissions	34

CKC Laboratories, Inc. has received Certificates of Accreditation from the following agencies:

A2LA (USA); DATech (Germany); BSMI (Taiwan); Nemko (Norway); and GOST (Russia).

CKC Laboratories, Inc has received test site Registration Acceptance from the following agencies:

FCC (USA); VCCI (Japan); and Industry Canada.

CKC Laboratories, Inc. has received Letters of Acceptance through an MRA for the following agencies:

ACA/NATA (Australia); SABS (South Africa); SWEDAC (Sweden); Radio Communications Agency (RA); HOKLAS (Hong Kong); Bakom (Swiss); BIPT (Belgium); Denmark Telestyrelsen; RvA (Netherlands); SEE (Luxembourg) SITTEL (Bolivia); and UKAS (UK).

ADMINISTRATIVE INFORMATION

DATE OF TEST: May 2- June 8, 2001

DATE OF RECEIPT: May 2, 2001

PURPOSE OF TEST: To demonstrate the compliance of the 2.4 GHz Video/Audio Transmitter, 2300TX250 with the requirements for FCC Part 90 Subpart I and FCC Part 15 Subpart B Sections 15.107 and 15.109 Class B devices. This addendum is to add additional frequency stability and bandedge data, include the calculations for the emissions mask and provide corrected ERP calculations.

TEST METHOD: ANSI C63.4 (1992)

MANUFACTURER: Advanced Electronics Group, Inc.
10524 South La Cienega Blvd.
Inglewood, CA 90304

REPRESENTATIVE: Richard Hirsch

TEST LOCATION: CKC Laboratories, Inc.
5473A Clouds Rest
Mariposa, CA 95338

SUMMARY OF RESULTS

As received, the Advanced Electronics Group, Inc. 2.4 GHz Video/Audio Transmitter, 2300TX250 was found to be fully compliant with the following standards and specifications:

United States

- FCC Part 15 Subpart B Section 15.107 and 15.109 Class B
- FCC Part 90 Subpart I
- ANSI C63.4 (1992) method

The results in this report apply only to the items tested, as identified herein.

MODIFICATIONS REQUIRED FOR COMPLIANCE

EUT was tested with a filter attached.

APPROVALS

QUALITY ASSURANCE:

A handwritten signature in black ink that reads "Dennis Ward".

Dennis Ward, Quality Manager

A handwritten signature in black ink that reads "Chuck Kendall".

Chuck Kendall, EMC/Lab Manager

TEST PERSONNEL:

A handwritten signature in black ink that reads "Randy Clark".

Randy Clark, EMC Engineer

A handwritten signature in black ink that reads "Dustin Oaks".

Dustin Oaks, EMC Engineer/
Evaluation Engineer

A handwritten signature in black ink that reads "Conan T. Boyle".

Conan T. Boyle, EMC Engineer

EQUIPMENT UNDER TEST (EUT) DESCRIPTION

The EUT is a single channel (2.473 GHz) Video/Audio Transmitter. The EUT tested by CKC Laboratories was a production unit.

EQUIPMENT UNDER TEST

2.4 GHz Video/Audio Transmitter

Manuf: Advanced Electronics Group, Inc.
Model: 2300TX250
Serial: 001
FCC ID: ORG2300TX250 (Pending)

PERIPHERAL DEVICES

The EUT was tested with the following peripheral device(s):

Camera

Manuf: Advanced Electronics
Model: WDSR-2005SC
Serial: N/A
FCC ID: DoC

Power Supply

Manuf: MCE
Model: AD41-1200500DU
Serial: N/A
FCC ID: DoC

TEMPERATURE AND HUMIDITY DURING TESTING

The temperature during testing was within +15°C and + 35°C.
The relative humidity was between 20% and 75%.

2.1033(c)(3) USER'S MANUAL

The necessary information is contained in a separate document.

2.1033(c)(4) TYPE OF EMISSIONS

The emission designator is 65MO F8W.

2.1033(c)(5) FREQUENCY RANGE

The device operates at 2473 MHz $\pm$ 10 MHz.

2.1033(c)(6) OPERATING POWER

The EUT operates at a fixed power of 0.2 watts.

2.1033(c)(7) MAXIMUM POWER RATING AS DEFINED PER FCC PART 90.205(l)

Actual power rating as defined per FCC Part 90.205(l) is 5.0 watts.

2.1033(c)(8) DC VOLTAGES

The transmitter accepts 12 VDC input.

2.1033(c)(9) TUNE-UP PROCEDURE

This device does not have any tune up procedure, as it is configured at the factory to operate within the stated frequency and power limits.

2.1033(c)(10) SCHEMATICS AND CIRCUITRY DESCRIPTION

The necessary information is contained in a separate document.

2.1033(c)(11) LABEL AND PLACEMENT

The necessary information is contained in a separate document.

2.1033(c)(12) SUBMITTAL PHOTOS

The necessary information is contained in a separate document.

2.1033(c)(13) MODULATION INFORMATION

The necessary information is contained in a separate document.

2.1033(c)(14)/2.1046/90.205(l) - RF POWER OUTPUT

Test Conditions:

The HP-8566B Spectrum Analyzer was connected directly to the transmitter antenna terminal with an Andrews semi-rigid coaxial cable. Resolution bandwidth and video bandwidth were set to 3 MHz and the trace was set to max hold.

Test Equipment Used:

Web#	Lab	Equipment	Manufacturer	Model #	Serial #	Asset #	Cal Date	Cal Due
439	Barn	QP Adapter	HP	85650A	2811A01267	00478	11/03/00	11/3/01
472	Barn	S/A Display	HP	8566B	2403A08241	00489	11/3/00	11/3/01
502	Barn	Spectrum Analyzer	HP	8566B	2209A01404	00490	11/3/00	11/3/01
1334	Barn	Attenuator	Pasternack	PE7014-40			3/29/01	3/29/02

SET-UP PHOTO



Direct Connect

Test Data:

WO 76731
Customer Advanced Electronics Group
Model 2300TX250

FCC Part 2.1046 / 90.205

RF Power Output
Transmitter Operating on 2473MHz
Transmitter Operating Unmodulated
Measured from Antenna Terminal

Corrected Reading (dBμV)	Amplitude in dBm	Amplitude in Watts	Spec Limit (Watts)	PASS or FAIL
129.3	22.3	0.17	5.0	PASS

Calculations

Power Output Calculations:

$$\text{dBm} = \text{dB}\mu\text{V} - 107$$

$$\text{Watts} = 10^{(\text{dBm}/10)}/1000$$

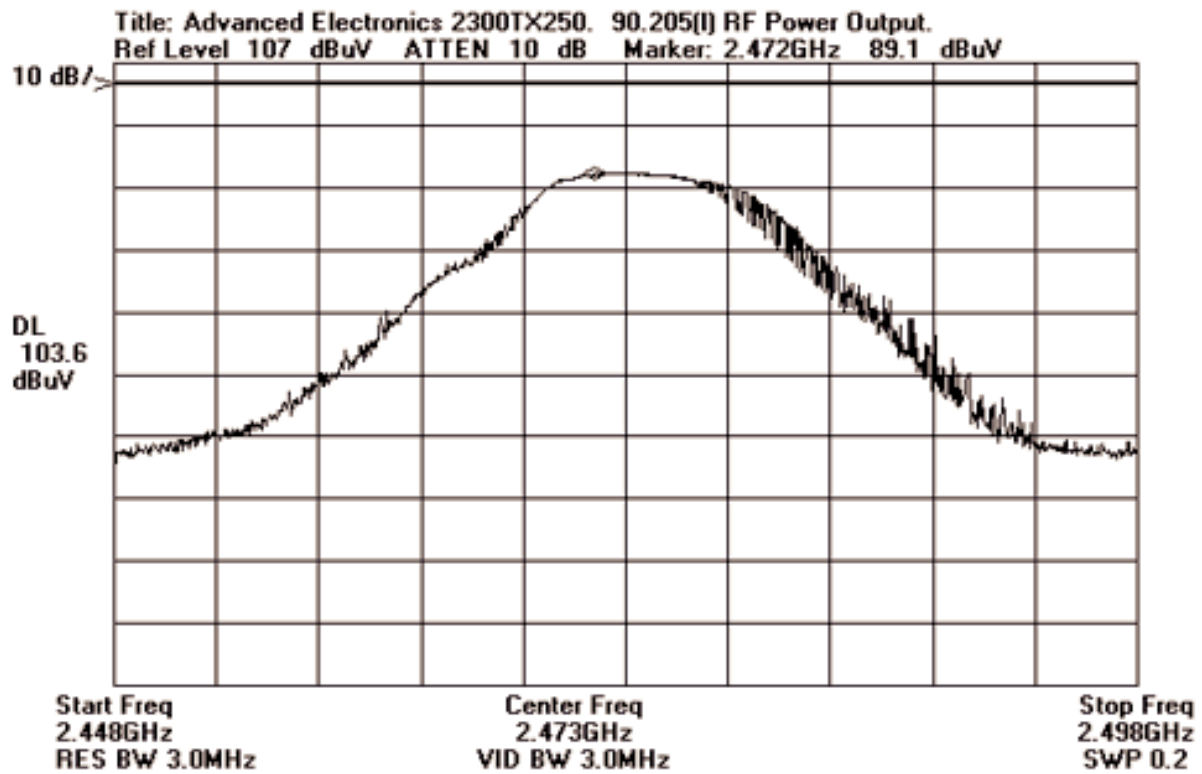
90.205(l) Power output Calculations:

Peak Modulated power output is 129.5dBuV

$$129.5\text{dBuV} - 107 = 22.5\text{dBm}$$

$$10^{(22.5/10)}/1000 = 0.177 \text{ Watts @ } 2471.5\text{MHz}$$

Peak unmodulated power output is 129.3dBuV



2.1033(c)(14)/2.1047(a) - MODULATION CHARACTERISTICS - AUDIO FREQUENCY RESPONSE

Not applicable to this unit.

2.1033(c)(14)/2.1047(b) MODULATION CHARACTERISTICS – Modulation Limiting Response

Not applicable to this unit.

2.1033(c)(14)/2.1049(i)/90.210 - OCCUPIED BANDWIDTH

Test Conditions:

The HP-8566B Spectrum Analyzer was connected directly to the transmitter antenna terminal with an Andrews semi-rigid coaxial cable. Resolution bandwidth was set to 30 kHz, video bandwidth was set to 100 kHz and the trace was set to max hold. Transmitter was being modulated on the video signal by a camera adjacent to the transmitter and on the audio by a 1kHz tone.

Test Equipment Used:

Web#	Lab	Equipment	Manufacturer	Model #	Serial #	Asset #	Cal Date	Cal Due
439	Barn	QP Adapter	HP	85650A	2811A01267	00478	11/03/00	11/3/01
472	Barn	S/A Display	HP	8566B	2403A08241	00489	11/3/00	11/3/01
502	Barn	Spectrum Analyzer	HP	8566B	2209A01404	00490	11/3/00	11/3/01
1334	Barn	Attenuator	Pasternack	PE7014-40			3/29/01	3/29/02

Support Equipment Used:

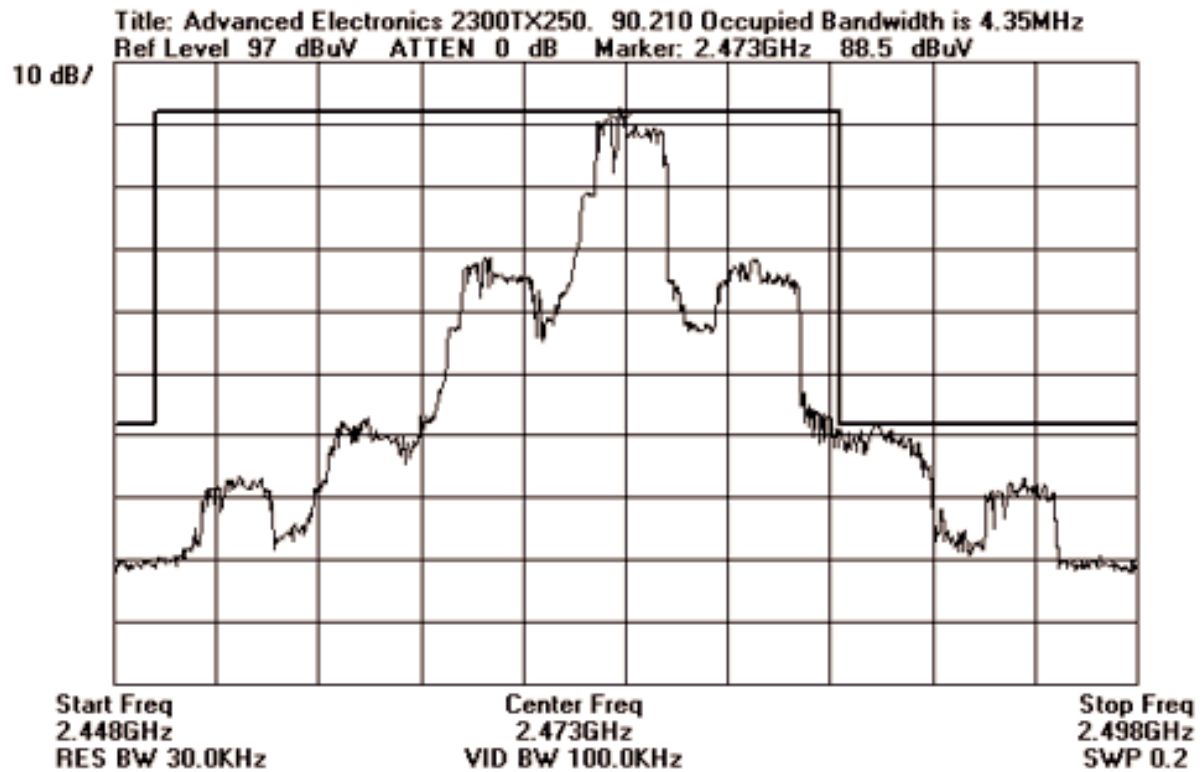
Web#	Lab	Equipment	Manufacturer	Model #	Serial #	Asset #	Cal Date	Cal Due
1105	Barn	Analyzer/Audio	HP	8903B	3011A09432	02338	10/09/00	10/9/01

SET-UP PHOTO

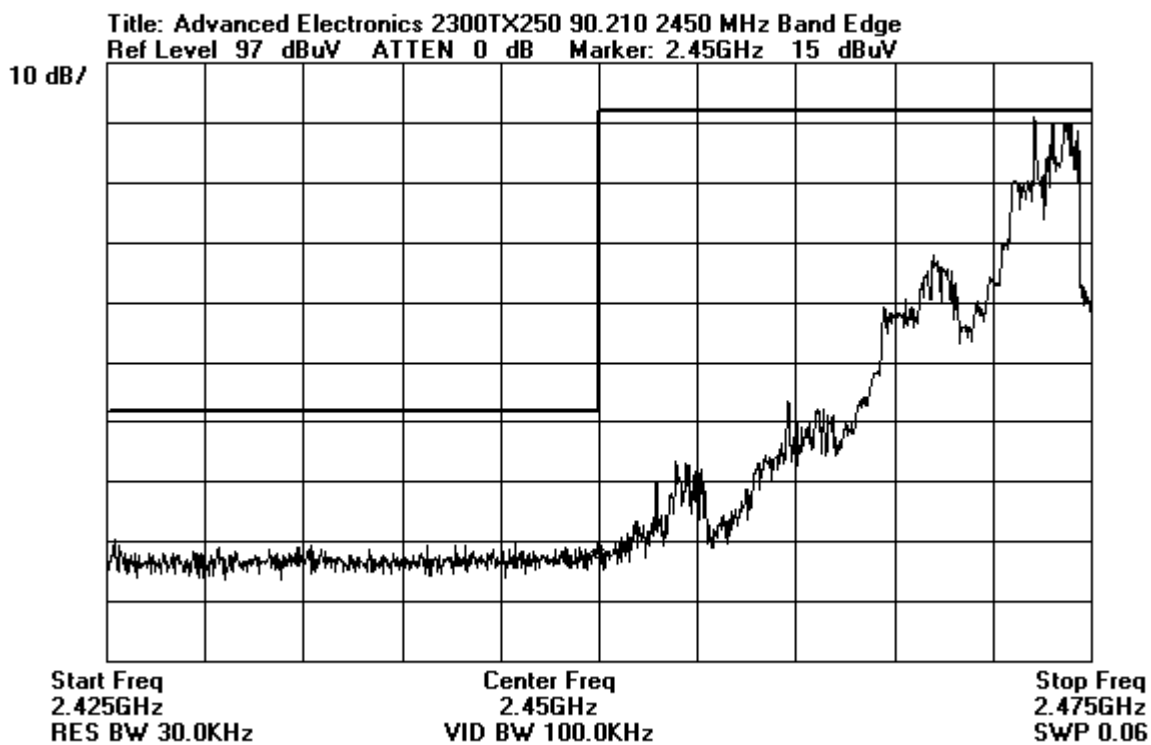


Direct Connect

Occupied Bandwidth Plot

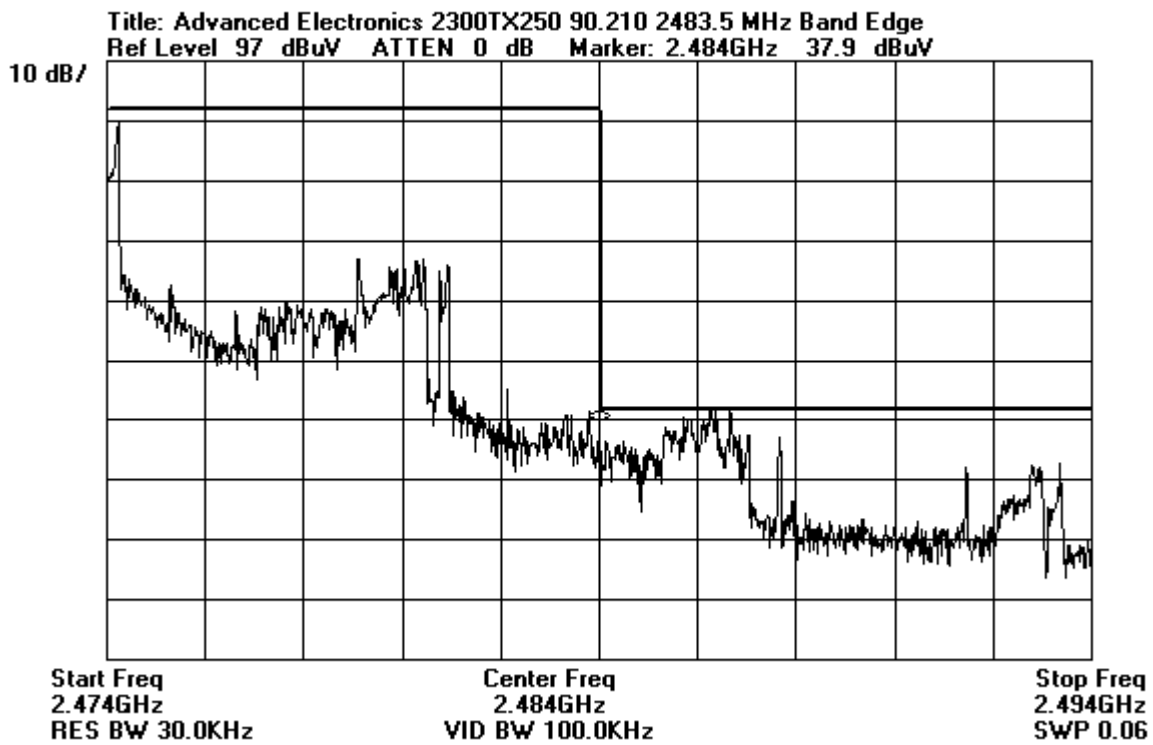


Band Edge Plot – Left Side of Mask



Notes: See Spurious Emissions data sheets in section 2.1033(c)(14)/2.1051/90.210.

Band Edge Plot – Right Side of Mask



Notes: See Spurious Emissions data sheets in section 2.1033(c)(14)/2.1051/90.210.

2.1033(c)(14)/2.1051/90.210 - SPURIOUS EMISSIONS AT ANTENNA TERMINAL

Test Equipment Used:

Web#	Lab	Equipment	Manufacturer	Model #	Serial #	Asset #	Cal Date	Cal Due
439	Barn	QP Adapter	HP	85650A	2811A01267	00478	11/03/00	11/3/01
472	Barn	S/A Display	HP	8566B	2403A08241	00489	11/3/00	11/3/01
502	Barn	Spectrum Analyzer	HP	8566B	2209A01404	00490	11/3/00	11/3/01
1105	Barn	Analyzer/Audio	HP	8903B	3011A09432	02338	10/09/00	10/9/01
854	HF	2.4GHz Low Pass Filter	K&L Microwave, INC.	10L121-2200/T2400-0/0	1	01439	10/03/00	10/3/01
855	HF	2.4GHz High Pass Filter	K&L Microwave, INC	91H31-3000	00001	01440	10/03/00	10/3/01
1334	Barn	Attenuator	Pasternack	PE7014-40			03/29/01	3/29/02

ANALYZER BANDWIDTH SETTINGS PER FREQUENCY RANGE

TEST	BEGINNING FREQUENCY	ENDING FREQUENCY	BANDWIDTH SETTING
RADIATED EMISSIONS	9 kHz	150 kHz	200 Hz
RADIATED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	30 MHz	1000 MHz	120 kHz
RADIATED EMISSIONS	1 GHz	26 GHz	1 MHz

SET-UP PHOTO



Direct Connect

Test Location: CKC Laboratories, Inc. • 5473A Clouds Rest • Mariposa, CA 95338 • 800-500-4362

Customer: **Advanced Electronics**

Specification: **90.210**

Work Order #: **76731**

Date: 05/25/2001

Test Type: **Maximized Emissions**

Time: 09:11:49

Equipment: **Transmitter**

Sequence#: 3

Manufacturer: Advanced Electronics

Tested By: Randal Clark

Model: 2300TX250

S/N: 001

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Transmitter*	Advanced Electronics	2300TX250	001

Support Devices:

Function	Manufacturer	Model #	S/N
Camera	Advanced Electronics	WDSR-2005SC	N/A
Power Supply	MCE	AD41-1200500DU	N/A

Test Conditions / Notes:

EUT is a transmitter operating on 2473 MHz. Transmitter is being modulated on the video signal by a camera adjacent to the transmitter and on the audio by a 1kHz tone. EUT is directly connected to spectrum analyzer. Frequency Range Tested: 9kHz - 26Ghz.

Emissions Mask C

Fd is the frequency deviation in kHz from center of authorized band.

1) 5-10kHz removed: $83\text{LOG}(F_d/5)$

2) 10kHz to 24kHz removed: $29\text{LOG}(F_d^2/11)$ or 50dBc whichever is the lesser attenuation. 24kHz point calculated from the lesser attenuation stipulation:

$50\text{dB} = 29\text{LOG}(F_d^2/11)$; $F_d = 24\text{kHz}$

3) 24kHz to 250% removed from center of band: 50dBc

4) >250% removed: $43 + 10\text{LOG}(P)$ where P is unmodulated power in Watts of the carrier.

Peak unmodulated power output is 129.3dBuV

$P(\text{mW}) = 10^{((135.8-107)/10)} = 169.8$

Therefore signals must be attenuated;

$43 + 10\text{LOG}(0.170) = 35\text{dBc}$

Measurement Data:

Reading listed by margin.

Test Distance: None

#	Freq MHz	Rdng dBμV	Pad dB	Filte dB		Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	2485.810M	36.3	+40.4	+0.0		+0.0	76.7	79.3	-2.6	None
	Ave									
^	2485.810M	47.0	+40.4	+0.0		+0.0	87.4	79.3	+8.1	None
3	2483.760M	31.6	+40.4	+0.0		+0.0	72.0	79.3	-7.3	None
	Ave									
^	2483.760M	56.7	+40.4	+0.0		+0.0	97.1	79.3	+17.8	None
5	2492.200M	31.5	+40.4	+0.0		+0.0	71.9	79.3	-7.4	None
	Ave									

^	2492.200M	42.1	+40.4	+0.0	+0.0	82.5	79.3	+3.2	None
7	2445.250M Ave	23.6	+40.4	+0.0	+0.0	64.0	79.3	-15.3	None
^	2445.250M	35.8	+40.4	+0.0	+0.0	76.2	79.3	-3.1	None
9	12367.100M	76.7	+0.0	+1.9	+0.0	78.6	94.3 With New Filter	-15.7	None
10	4942.100M	72.4	+0.0	+0.8	+0.0	73.2	94.3 With New Filter	-21.1	None
11	7417.000M	68.3	+0.0	+4.8	+0.0	73.1	94.3 With New Filter	-21.2	None
12	17312.900M	49.3	+0.0	+17.9	+0.0	67.2	94.3 With New Filter	-27.1	None
13	14824.600M	55.6	+0.0	+5.9	+0.0	61.5	94.3 With New Filter	-32.8	None
14	9882.800M	55.6	+0.0	+3.5	+0.0	59.1	94.3 With New Filter	-35.2	None

2.1033(c)(14)/2.1053/90.210 - FIELD STRENGTH OF SPURIOUS RADIATION

Test Equipment Used:

Web#	Lab	Equipment	Manufacturer	Model #	Serial #	Asset #	Cal Date	Cal Due
92	Barn	Bicon Antenna	A&H	SAS-200/542	156	00225	12/8/00	12/8/01
341	Barn	Log Antenna	A&H	SAS-200/510	154	01330	05/07/01	5/7/02
354	Barn	Magnetic Loop	EMCO	6502	1074	00226	5/31/2001	5/31/02
401	Barn	Preamp	HP	8447D	1937A02604	00099	03/29/01	3/29/02
439	Barn	QP Adapter	HP	85650A	2811A01267	00478	11/03/00	11/3/01
472	Barn	S/A Display	HP	8566B	2403A08241	00489	11/3/00	11/3/01
502	Barn	Spectrum Analyzer	HP	8566B	2209A01404	00490	11/3/00	11/3/01
765	Barn	Preamp	HP	8449B	3008A00301	02010	10/13/00	10/13/01
1105	Barn	Analyzer/Audio	HP	8903B	3011A09432	02338	10/09/00	10/9/01
690	HF	Cable #4 (50')	Andrew	FSJ1-50A	N/A	N/A	4/16/01	4/16/02
855	HF	2.4GHz High Pass Filter	K&L Microwave, INC	91H31-3000	00001	01440	10/03/00	10/3/01
1107	HF	Cable #7 (25')	Andrew	FSJ1-50A	N/A	N/A	4/16/01	4/16/02
737	HF	1-18GHz Horn Antenna	EMCO	3115	9307-4085	00656	2/28/01	2/28/02
691	HF	Cable #2 (2')	Andrew	FSJ1-50A	N/A	N/A	4/16/01	4/16/02

ANALYZER BANDWIDTH SETTINGS PER FREQUENCY RANGE

TEST	BEGINNING FREQUENCY	ENDING FREQUENCY	BANDWIDTH SETTING
RADIATED EMISSIONS	9 kHz	150 kHz	200 Hz
RADIATED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	30 MHz	1000 MHz	120 kHz
RADIATED EMISSIONS	1 GHz	26 GHz	1 MHz

SET-UP PHOTOS



Radiated Emissions - Front View – Whip Antenna



Radiated Emissions - Back View - Whip Antenna

SET-UP PHOTOS



Radiated Emissions - Front View – Paddle Antenna



Radiated Emissions - Back View – Paddle Antenna

WO 76731
 Customer Advanced Electronics Group
 Model 2300TX250
 Antenna Whip Antenna

FCC Part 2.1053 / 90.210

Field strength of spurious radiation

Transmitter Operating on 2473MHz

These data represent the six highest readings.

Data represents field strength readings measured from a horn antenna referenced to a dipole

Polarity	Frequency (MHz)	Sig Gen Corrected Reading (dBuV/m)	Test Distance (meters)	Horn Antenna Gain (Numerical)	ERP (Watts)	Spec Limit (Watts)	PASS or FAIL
V	7418.3	78.3	3.0	6.1094	0.00000333	0.000054	PASS
V	9892.0	78.2	3.0	8.4333	0.00000236	0.000054	PASS
H	14829.0	80.2	3.0	15.3462	0.00000205	0.000054	PASS
H	7411.4	76.0	3.0	6.1094	0.00000196	0.000054	PASS
VA	14838.0	79.6	3.0	15.3462	0.00000179	0.000054	PASS
V	4940.7	73.5	3.0	6.1094	0.00000110	0.000054	PASS

Calculations

The data taken is relative to the radiated power of each spurious emission with reference to the peak power output of the transmitter.

Spurious Emissions must be attenuated below the fundamental by
 $43 + 10 \cdot \log(P)$ where P is unmodulated power in Watts of the carrier.

Peak unmodulated power output is 129.3dBuV

$P(W) = 10^{((129.3-107)/10)/1000} = 0.1698$ Watts

$43 + 10 \cdot \log(0.170) = 35$ dBc

Spurs Limit in Watts:

$10^{((129.3-107-35)/10)} = 0.054$ mW = 54uW

ERP Calculations

$EPR = (Ed)^2 / 30G$

$E = V/m$

d = Test Distance in meters

G = Gain of Antenna (numerical gain of a half wave dipole antenna 1.64 per 2.1053(a))

WO 76731
 Customer Advanced Electronics Group
 Model 2300TX250
 Antenna Paddle Antenna

FCC Part 2.1053 / 90.210

Field strength of spurious radiation

Transmitter Operating on 2473MHz

These data represent the six highest readings.

Data represents field strength readings measured from a horn antenna referenced to a dipole

Polarity	Frequency (MHz)	Sig Gen Corrected Reading (dBμV/m)	Test Distance (meters)	Horn Antenna Gain (Numerical)	ERP (Watts)	Spec Limit (Watts)	PASS or FAIL
V	7413.8	74.7	3.0	6.1094	0.00000145	0.000054	PASS
V	14834.8	78.6	3.0	15.3462	0.00000142	0.000054	PASS
H	7414.2	72.1	3.0	6.1094	0.00000080	0.000054	PASS
H	14833.4	75.3	3.0	15.3462	0.00000066	0.000054	PASS
H	12363.6	73.3	3.0	13.0617	0.00000049	0.000054	PASS
V	4941.1	69.1	3.0	6.1094	0.00000040	0.000054	PASS

Calculations

The data taken is relative to the radiated power of each spurious emission with reference to the peak power output of the transmitter.

Spurious Emissions must be attenuated below the fundamental by
 $43 + 10 \cdot \log(P)$ where P is unmodulated power in Watts of the carrier.

Peak unmodulated power output is 129.3dBμV

$P(W) = 10^{((129.3-107)/10)/1000} = 0.1698 \text{ Watts}$

$43 + 10 \cdot \log(0.170) = 35\text{dBc}$

Spurs Limit in Watts:

$10^{((129.3-107-35)/10)} = 0.054 \text{ mW} = 54\mu\text{W}$

ERP Calculations

$EPR = (Ed)^2/30G$

$E = V/m$

d = Test Distance in meters

G = Gain of Antenna (numerical gain of a half wave dipole antenna 1.64 per 2.1053(a))

2.1033(c)(14)/2.1055/90.213 - FREQUENCY STABILITY

Test Conditions:

EUT was placed inside a temperature chamber and the SA was connected directly to the antenna terminal.

Test Equipment Used:

Web#	Lab	Equipment	Manufacturer	Model #	Serial #	Asset #	Cal Date	Cal Due
472	Barn	S/A Display	HP	8566B	2403A08241	00489	11/3/00	11/3/01
502	Barn	Spectrum Analyzer	HP	8566B	2209A01404	00490	11/3/00	11/3/01
858	Barn	Temp Chamber	Thermotron	S-1.2 MiniMax	11899	01879	3/29/2001	3/29/02

SET-UP PHOTO



Test Data:

Ambient Frequency 2.472650 GHz

Temp C°	Voltage	Freq(GHz)	250 Deviation	% Error
-30	120 AC	2.472565	0.000085	0.003438
-20	120 AC	2.472565	0.000085	0.003438
-10	120 AC	2.472575	0.000075	0.003033
0	120 AC	2.472610	0.000040	0.001618
10	120 AC	2.472675	0.000025	0.001011
20	102 AC (-15%)	2.472640	0.000010	0.000404
20	120 AC	2.472640	0.000010	0.000404
20	138 AC(+15%)	2.472640	0.000010	0.000404
30	120 AC	2.472695	0.000045	0.001820
40	120 AC	2.472660	0.000010	0.000404
50	120 AC	2.472680	0.000030	0.001213

15.107 – AC CONDUCTED EMISSIONS

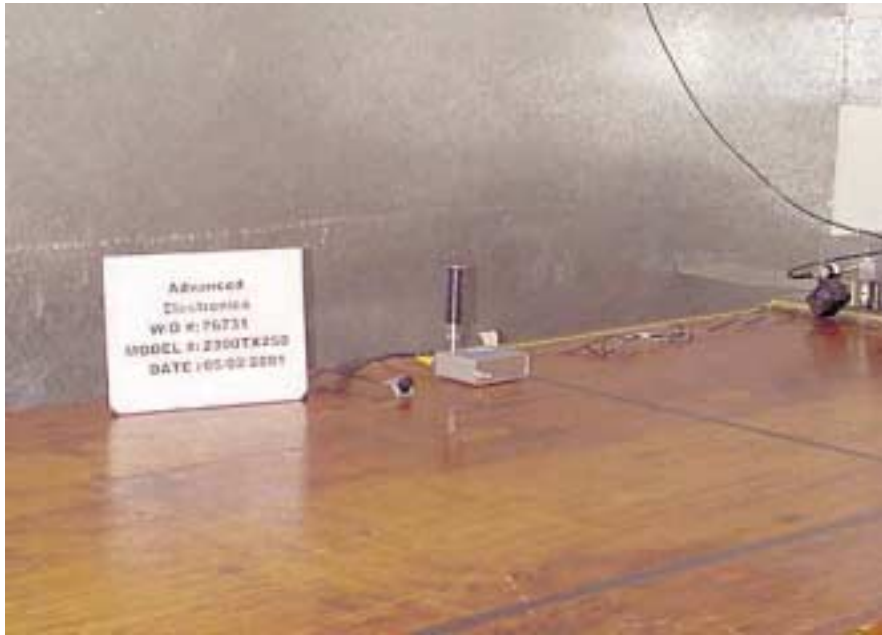
Test Equipment Used:

Web#	Lab	Equipment	Manufacturer	Model #	Serial #	Asset #	Cal Date	Cal Due
327	Barn	LISN's set	Solar	8028-50-TS-24-BNC	814493, 474	02056	5/22/01	5/22/02
439	Barn	QP Adapter	HP	85650A	2811A01267	00478	11/03/00	11/3/01
472	Barn	S/A Display	HP	8566B	2403A08241	00489	11/3/00	11/3/01
502	Barn	Spectrum Analyzer	HP	8566B	2209A01404	00490	11/3/00	11/3/01
1105	Barn	Analyzer/Audio	HP	8903B	3011A09432	02338	10/09/00	10/9/01

ANALYZER BANDWIDTH SETTINGS PER FREQUENCY RANGE

TEST	BEGINNING FREQUENCY	ENDING FREQUENCY	BANDWIDTH SETTING
RADIATED EMISSIONS	450 kHz	30 MHz	9 kHz

SET-UP PHOTOS



Mains Conducted – Front View



Mains Conducted – Back View

Test Location: CKC Laboratories, Inc. • 5473A Clouds Rest • Mariposa, CA 95338 • 800-500-4362

Customer: **Advanced Electronics**

Specification: **FCC 15.107 Class B**

Work Order #: **76731**

Date: 05/25/2001

Test Type: **Conducted Emissions**

Time: 16:41:47

Equipment: **Transmitter**

Sequence#: 11

Manufacturer: Advanced Electronics

Tested By: Randal Clark

Model: 2300TX250

S/N: 001

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Transmitter*	Advanced Electronics	2300TX250	001

Support Devices:

Function	Manufacturer	Model #	S/N
Camera	Advanced Electronics	WDSR-2005SC	N/A
Power Supply	MCE	AD41-1200500DU	N/A

Test Conditions / Notes:

EUT is a transmitter operating on 2473 MHz. Transmitter is being modulated on the video signal by a camera adjacent to the transmitter and on the audio by a 1kHz tone. EUT is transmitting into a 50 Ohm Load.

Measurement Data:

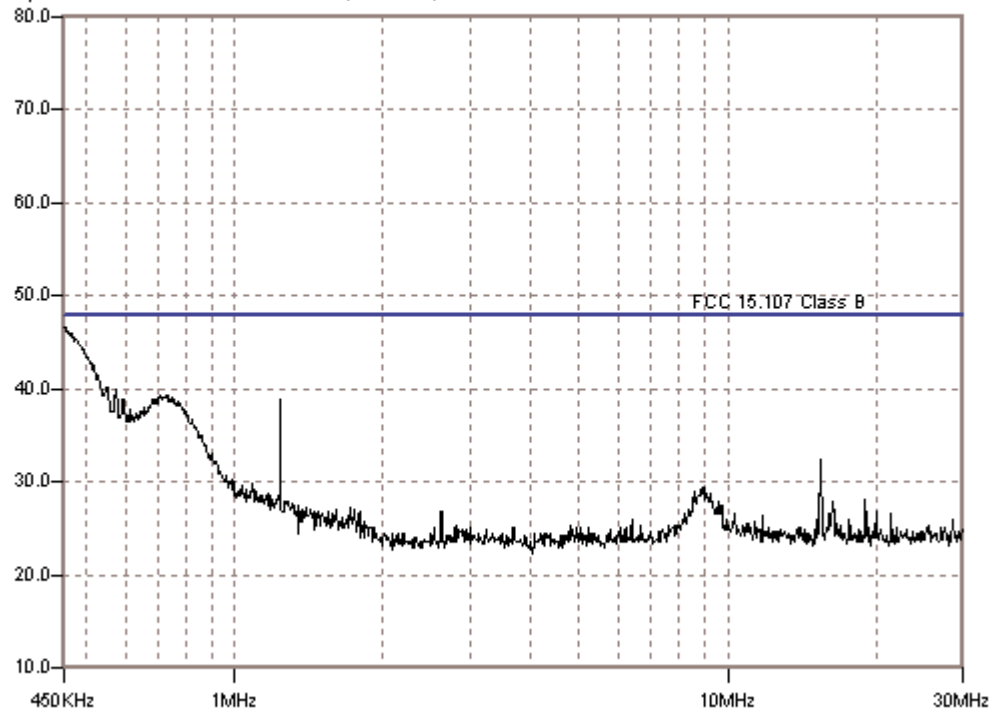
Reading listed by margin.

Test Lead: Black

#	Freq MHz	Rdng dBμV	Cable LISN				Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
			dB	dB	dB	dB					
1	516.864k	41.9	+0.1	+0.5			+0.0	42.5	48.0	-5.5	Black
2	551.968k	39.7	+0.1	+0.4			+0.0	40.2	48.0	-7.8	Black
3	573.698k	39.5	+0.1	+0.4			+0.0	40.0	48.0	-8.0	Black
4	732.500k	38.8	+0.1	+0.4			+0.0	39.3	48.0	-8.7	Black
5	744.202k	38.6	+0.1	+0.4			+0.0	39.1	48.0	-8.9	Black
6	1.239M	38.4	+0.1	+0.4			+0.0	38.9	48.0	-9.1	Black
7	683.188k	38.3	+0.1	+0.4			+0.0	38.8	48.0	-9.2	Black
8	594.593k	38.3	+0.1	+0.4			+0.0	38.8	48.0	-9.2	Black
9	663.965k	37.5	+0.1	+0.4			+0.0	38.0	48.0	-10.0	Black
10	657.278k	37.5	+0.1	+0.4			+0.0	38.0	48.0	-10.0	Black
11	792.678k	37.4	+0.1	+0.4			+0.0	37.9	48.0	-10.1	Black
12	617.160k	37.3	+0.1	+0.4			+0.0	37.8	48.0	-10.2	Black
13	646.413k	37.1	+0.1	+0.4			+0.0	37.6	48.0	-10.4	Black

14	630.533k	36.8	+0.1	+0.4	+0.0	37.3	48.0	-10.7	Black
15	612.145k	36.7	+0.1	+0.4	+0.0	37.2	48.0	-10.8	Black
16	821.095k	36.3	+0.1	+0.4	+0.0	36.8	48.0	-11.2	Black
17	899.660k	32.5	+0.1	+0.4	+0.0	33.0	48.0	-15.0	Black
18	15.465M	31.4	+0.3	+0.8	+0.0	32.5	48.0	-15.5	Black
19	958.166k	30.2	+0.1	+0.4	+0.0	30.7	48.0	-17.3	Black
20	986.584k	29.7	+0.1	+0.4	+0.0	30.2	48.0	-17.8	Black
21	996.613k	29.5	+0.1	+0.4	+0.0	30.0	48.0	-18.0	Black
22	1.089M	29.3	+0.1	+0.4	+0.0	29.8	48.0	-18.2	Black
23	1.033M	29.1	+0.1	+0.4	+0.0	29.6	48.0	-18.4	Black
24	8.983M	23.8	+0.2	+5.4	+0.0	29.4	48.0	-18.6	Black
25	8.847M	24.1	+0.2	+4.9	+0.0	29.2	48.0	-18.8	Black
26	1.095M	28.7	+0.1	+0.4	+0.0	29.2	48.0	-18.8	Black
27	1.055M	28.7	+0.1	+0.4	+0.0	29.2	48.0	-18.8	Black
28	8.560M	25.0	+0.2	+3.8	+0.0	29.0	48.0	-19.0	Black
29	1.112M	28.4	+0.1	+0.4	+0.0	28.9	48.0	-19.1	Black
30	452.507k	7.9	+0.1	+0.5	+0.0	8.5	48.0	-39.5	Black
	Ave								
^	452.507k	46.0	+0.1	+0.5	+0.0	46.6	48.0	-1.4	Black

CKC Laboratories, Inc. Date: 05/25/2001 Time: 4:37:47 PM WO#: 76731
 FCC 15.107 Class B Test Lead: Black Sequence#: 11
 dBµV Advanced Electronics 2300TX250 powered by 120VAC60Hz.



Test Location: CKC Laboratories, Inc. • 5473A Clouds Rest • Mariposa, CA 95338 • 800-500-4362

Customer: **Advanced Electronics**
 Specification: **FCC 15.107 Class B**
 Work Order #: **76731**
 Test Type: **Conducted Emissions**
 Equipment: **Transmitter**
 Manufacturer: Advanced Electronics
 Model: 2300TX250
 S/N: 001

Date: 05/25/2001
 Time: 16:47:24
 Sequence#: 12
 Tested By: Randal Clark

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Transmitter*	Advanced Electronics	2300TX250	001

Support Devices:

Function	Manufacturer	Model #	S/N
Camera	Advanced Electronics	WDSR-2005SC	N/A
Power Supply	MCE	AD41-1200500DU	N/A

Test Conditions / Notes:

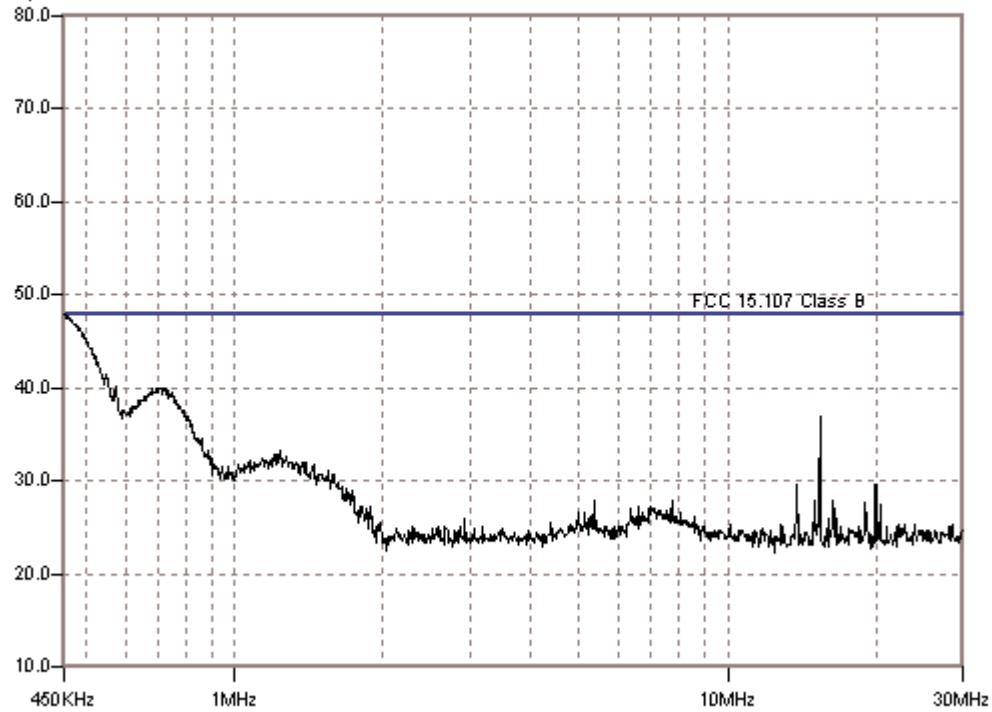
EUT is a transmitter operating on 2473 MHz. Transmitter is being modulated on the video signal by a camera adjacent to the transmitter and on the audio by a 1kHz tone. EUT is transmitting into a 50 Ohm Load.

Measurement Data: Reading listed by margin. Test Lead: White

#	Freq MHz	Rdng dBμV	Cable		LISN		Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
			dB	dB	dB	dB					
1	548.624k	40.7	+0.1		+0.6		+0.0	41.4	48.0	-6.6	White
2	575.370k	39.5	+0.1		+0.6		+0.0	40.2	48.0	-7.8	White
3	705.755k	39.3	+0.1		+0.6		+0.0	40.0	48.0	-8.0	White
4	721.635k	39.2	+0.1		+0.6		+0.0	39.9	48.0	-8.1	White
5	694.054k	39.2	+0.1		+0.6		+0.0	39.9	48.0	-8.1	White
6	682.352k	39.2	+0.1		+0.6		+0.0	39.9	48.0	-8.1	White
7	734.172k	39.0	+0.1		+0.6		+0.0	39.7	48.0	-8.3	White
8	638.891k	38.0	+0.1		+0.6		+0.0	38.7	48.0	-9.3	White
9	770.947k	37.6	+0.1		+0.6		+0.0	38.3	48.0	-9.7	White
10	613.817k	37.2	+0.1		+0.6		+0.0	37.9	48.0	-10.1	White
11	791.006k	36.8	+0.1		+0.6		+0.0	37.5	48.0	-10.5	White
12	802.708k	36.3	+0.1		+0.6		+0.0	37.0	48.0	-11.0	White
13	15.446M	36.3	+0.3		+0.3		+0.0	36.9	48.0	-11.1	White

14	857.035k	33.9	+0.1	+0.6	+0.0	34.6	48.0	-13.4	White
15	1.244M	32.7	+0.1	+0.5	+0.0	33.3	48.0	-14.7	White
16	886.288k	32.6	+0.1	+0.6	+0.0	33.3	48.0	-14.7	White
17	1.210M	32.3	+0.1	+0.5	+0.0	32.9	48.0	-15.1	White
18	1.277M	32.0	+0.1	+0.5	+0.0	32.6	48.0	-15.4	White
19	1.187M	31.8	+0.1	+0.6	+0.0	32.5	48.0	-15.5	White
20	1.137M	31.8	+0.1	+0.6	+0.0	32.5	48.0	-15.5	White
21	899.660k	31.7	+0.1	+0.6	+0.0	32.4	48.0	-15.6	White
22	1.257M	31.7	+0.1	+0.5	+0.0	32.3	48.0	-15.7	White
23	1.160M	31.5	+0.1	+0.6	+0.0	32.2	48.0	-15.8	White
24	1.075M	31.5	+0.1	+0.6	+0.0	32.2	48.0	-15.8	White
25	1.389M	31.4	+0.1	+0.5	+0.0	32.0	48.0	-16.0	White
26	1.296M	31.4	+0.1	+0.5	+0.0	32.0	48.0	-16.0	White
27	1.377M	31.3	+0.1	+0.5	+0.0	31.9	48.0	-16.1	White
28	1.331M	31.3	+0.1	+0.5	+0.0	31.9	48.0	-16.1	White
29	913.033k	31.1	+0.1	+0.6	+0.0	31.8	48.0	-16.2	White
30	452.507k	7.5	+0.1	+0.6	+0.0	8.2	48.0	-39.8	White
	Ave								
^	452.507k	47.2	+0.1	+0.6	+0.0	47.9	48.0	-0.1	White

CKC Laboratories, Inc. Date: 05/25/2001 Time: 4:43:16 PM W/O#: 76731
FCC 15.107 Class B Test Lead: White Sequence#: 12
dB μ V Advanced Electronics 2300TX250 powered by 120VAC60Hz.



15.109 – RADIATED EMISSIONS

Test Equipment Used:

Web#	Lab	Equipment	Manufacturer	Model #	Serial #	Asset #	Cal Date	Cal Due
92	Barn	Bicon Antenna	A&H	SAS-200/542	156	00225	12/8/00	12/8/01
341	Barn	Log Antenna	A&H	SAS-200/510	154	01330	05/07/01	5/7/02
401	Barn	Preamp	HP	8447D	1937A02604	00099	03/29/01	3/29/02
439	Barn	QP Adapter	HP	85650A	2811A01267	00478	11/03/00	11/3/01
472	Barn	S/A Display	HP	8566B	2403A08241	00489	11/3/00	11/3/01
502	Barn	Spectrum Analyzer	HP	8566B	2209A01404	00490	11/3/00	11/3/01
1105	Barn	Analyzer/Audio	HP	8903B	3011A09432	02338	10/09/00	10/9/01
854	HF	2.4GHz Low Pass Filter	K&L Microwave, INC.	10L121-2200/T2400-0/0	1	01439	10/03/00	10/3/01

ANALYZER BANDWIDTH SETTINGS PER FREQUENCY RANGE			
TEST	BEGINNING FREQUENCY	ENDING FREQUENCY	BANDWIDTH SETTING
RADIATED EMISSIONS	9 kHz	150 kHz	200 Hz
RADIATED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	30 MHz	1000 MHz	120 kHz
RADIATED EMISSIONS	1 GHz	26 GHz	1 MHz

SET-UP PHOTOS



Radiated Emissions - Front View – Paddle Antenna



Radiated Emissions - Back View – Paddle Antenna

Test Location: CKC Laboratories, Inc. • 5473A Clouds Rest • Mariposa, CA 95338 • 800-500-4362

Customer: **Advanced Electronics**
 Specification: **15.109 CLASS B**
 Work Order #: **76731**
 Test Type: **Maximized Emissions**
 Equipment: **Transmitter**
 Manufacturer: Advanced Electronics
 Model: 2300TX250
 S/N: 001

Date: 05/29/2001
 Time: 14:49:53
 Sequence#: 15
 Tested By: Randal Clark

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Transmitter*	Advanced Electronics	2300TX250	001

Support Devices:

Function	Manufacturer	Model #	S/N
Camera	Advanced Electronics	WDSR-2005SC	N/A
Power Supply	MCE	AD41-1200500DU	N/A

Test Conditions / Notes:

EUT is a transmitter operating continuously on 2473 MHz with the paddle antenna. Transmitter is being modulated on the video signal by a camera adjacent to the transmitter and on the audio by a 1kHz tone. RBW 120kHz VBW 120kHz. Frequency Range Tested: 9kHz - 26GHz. Low pass filter added to the input of the amplifier for overload protection.

Measurement Data:

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	Amp Filt dB	Bicon dB	Log 1 dB	Cable dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	57.312M	54.2	-27.1 +0.0	+10.3	+0.0	+1.5	+0.0	38.9	40.0	-1.1	Vert
^	57.307M	54.7	-27.1 +0.0	+10.3	+0.0	+1.5	+0.0	39.4	40.0	-0.6	Vert
3	228.917M	45.4	-26.5 +0.1	+16.6	+0.0	+3.0	+0.0	38.6	46.0	-7.4	Horiz
4	745.809M	35.3	-27.8 +0.2	+0.0	+21.4	+6.1	+0.0	35.2	46.0	-10.8	Horiz
5	60.063M	42.6	-27.1 +0.0	+10.0	+0.0	+1.5	+0.0	27.0	40.0	-13.0	Vert
6	57.285M	42.0	-27.1 +0.0	+10.3	+0.0	+1.5	+0.0	26.7	40.0	-13.3	Horiz
7	745.828M	32.2	-27.8 +0.2	+0.0	+21.4	+6.1	+0.0	32.1	46.0	-13.9	Vert
8	162.155M	40.1	-26.8 +0.0	+13.6	+0.0	+2.5	+0.0	29.4	43.5	-14.1	Vert
9	658.031M	32.7	-27.9 +0.2	+0.0	+20.4	+5.7	+0.0	31.1	46.0	-14.9	Horiz
10	114.521M	37.8	-27.0 +0.0	+13.7	+0.0	+2.1	+0.0	26.6	43.5	-16.9	Horiz
11	657.994M	30.7	-27.9 +0.2	+0.0	+20.4	+5.7	+0.0	29.1	46.0	-16.9	Vert
12	372.050M	34.6	-26.9 +0.1	+0.0	+17.1	+4.0	+0.0	28.9	46.0	-17.1	Horiz

13	162.187M	36.6	-26.8 +0.0	+13.6	+0.0	+2.5	+0.0	25.9	43.5	-17.6	Horiz
14	371.931M	33.7	-26.9 +0.1	+0.0	+17.1	+4.0	+0.0	28.0	46.0	-18.0	Vert
15	60.071M	37.3	-27.1 +0.0	+10.0	+0.0	+1.5	+0.0	21.7	40.0	-18.3	Horiz
16	171.698M	32.8	-26.8 +0.0	+15.5	+0.0	+2.6	+0.0	24.1	43.5	-19.4	Horiz
17	120.050M	33.4	-27.0 +0.0	+14.2	+0.0	+2.2	+0.0	22.8	43.5	-20.7	Vert
18	120.077M	33.0	-27.0 +0.0	+14.2	+0.0	+2.2	+0.0	22.4	43.5	-21.1	Horiz
19	240.083M	32.0	-26.6 +0.1	+16.1	+0.0	+3.1	+0.0	24.7	46.0	-21.3	Vert
20	240.080M	29.3	-26.6 +0.1	+16.1	+0.0	+3.1	+0.0	22.0	46.0	-24.0	Horiz