



**ADDENDUM TO APICO - TRANSVIDEO INTERNATIONAL  
TEST REPORT FC04-005**

**FOR THE**

**TRANSMITTER AND RECEIVER SYSTEM, TITAN US**

**FCC PART 15 SUBPART C SECTIONS 15.209 & 15.249 AND RSS 210  
COMPLIANCE**

**DATE OF ISSUE: APRIL 27, 2004**

**PREPARED FOR:**

Apico - Transvideo International  
10700 Ventura Blvd., #2A  
North Hollywood, CA 91604

P.O. No.: 00003485  
W.O. No.: 81348

**PREPARED BY:**

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Date of test: February 11-27, 2004

**Report No.: FC04-005A**

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## ADMINISTRATIVE INFORMATION

**DATE OF TEST:** February 11-27, 2004

**DATE OF RECEIPT:** February 11, 2004

**PURPOSE OF TEST:** To demonstrate the compliance of the Transmitter and Receiver System, Titan US with the requirements for FCC Part 15 Subpart C Sections 15.209 & 15.249 and RSS 210 devices.  
**Addendum A** is to add a table for the fundamental testing, remove excess RSS 210 plots, add a statement regarding voltage variations and revise the operating frequencies on page 5.

**TEST METHOD:** ANSI C63.4 (1992)

**MANUFACTURER:** Transvideo SA  
Zone Industrielle, Rue Mariel Harel PB526  
Verneuil Sur Avre, 27135 France

**REPRESENTATIVE:** Marianne Exbrayat

**TEST LOCATION:** CKC Laboratories, Inc.  
110 Olinda Place  
Brea, CA 92621

## SUMMARY OF RESULTS

As received, the Transvideo Transmitter and Receiver System, Titan US was found to be fully compliant with the following standards and specifications:

### **United States**

- FCC Part 15 Subpart C Sections 15.209 & 15.249
- ANSI C63.4 (1992) method

FCC Site No. 90473

### **Canada**

RSS-210 using:

- FCC Part 15 Subpart C Sections 15.209 & 15.249
- ANSI C63.4 (1992) method

Industry of Canada File No. IC 3172-A

## CONDITIONS FOR COMPLIANCE

Added internal inline ferrite beads. Conducted emissions not required for this device.

## APPROVALS

Steve Behm, Director of Engineering Services

### QUALITY ASSURANCE:



Joyce Walker, Quality Assurance Administrative Manager

### TEST PERSONNEL:



Septimiu Apahidean, EMC Test Engineer

**FCC 15.31(e) Voltage Variations**

Not applicable to this device because it is battery powered and the batteries were charged each morning.

**FCC 15.31(m) Number Of Channels**

This device was tested on three channels.

**FCC 15.33(a) Frequency Ranges Tested**

15.209/15.249 Radiated Emissions: 9 kHz – 25 GHz

<b>FCC SECTION 15.35:</b> <b>ANALYZER BANDWIDTH SETTINGS PER FREQUENCY RANGE</b>			
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	1000 MHz	25 GHz	1 MHz

**FCC 15.203 Antenna Requirements**

The antenna is a Reverse Polarity SMA, RPSMA, connector and therefore the EUT complies with Section 15.203 of the FCC rules.

**FCC 15.205 Restricted Bands**

The fundamental operating frequency lies outside the restricted bands and therefore complies with the requirements of Section 15.205 of the FCC rules. Any spurious emission coming from the EUT was investigated to determine if any portion lies inside the restricted band. If any portion of a spurious emissions signal was found to be within a restricted band, investigation was performed to ensure compliance with Section 15.209.

**Eut Operating Frequency**

The EUT was operating at 2412.5 MHz, 2427.5 MHz and 2457.5 MHz.

**Temperature And Humidity During Testing**

The temperature during testing was within +15°C and + 35°C.

The relative humidity was between 20% and 75%.

## **EQUIPMENT UNDER TEST (EUT) DESCRIPTION**

The EUT tested by CKC Laboratories was a production unit.

## **EQUIPMENT UNDER TEST**

### **Video Receiver**

Manuf: Transvideo  
Model: Titan  
Serial: 03JS0785  
FCC ID: DoC

### **Video Transmitter**

Manuf: Transvideo  
Model: Titan US  
Serial: 03JS0775  
FCC ID: pending

## **PERIPHERAL DEVICES**

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

### **Video Generator**

Manuf: Extron  
Model: VTG  
Serial: NA  
FCC ID: DoC

### **Monitor**

Manuf: Sony  
Model: 1485P  
Serial: NA  
FCC ID: DoC

## REPORT OF MEASUREMENTS

The following tables report the worst case emissions levels recorded during the tests performed on the EUT. All readings taken were peak readings unless otherwise stated. The data sheets from which the emissions tables were compiled are contained in Appendix C.

<b>Table 1: FCC 15.209 Six Highest Radiated Emission Levels</b>										
FREQUENCY MHz	METER READING dB $\mu$ V	CORRECTION FACTORS				CORRECTED READING dB $\mu$ V/m	SPEC LIMIT dB $\mu$ V/m	MARGIN dB	NOTES	
		Ant dB	Amp dB	Cable dB	dB					
194.324	45.9	17.9	-28.4	3.0		38.4	43.5	-5.1	H	
195.001	46.1	17.9	-28.4	3.0		38.6	43.5	-4.9	H	
195.142	46.1	17.9	-28.4	3.0		38.6	43.5	-4.9	H	
198.424	46.0	17.8	-28.4	3.0		38.4	43.5	-5.1	H	
198.472	46.4	17.8	-28.4	3.0		38.8	43.5	-4.7	V	
198.474	46.9	17.8	-28.4	3.0		39.3	43.5	-4.2	H	

Test Method:

ANSI C63.4 (1992)

NOTES:

H = Horizontal Polarization

Spec Limit:

FCC Part 15 Subpart C Section 15.209

V = Vertical Polarization

Test Distance:

3 Meters

**COMMENTS:** Channel A, B & D. Unintentional TX-RX. The EUT system consists of a transmitter and a separate receiver placed on the turntable vertical. Data represents the highest emission from vertical position. The transmitter - Titan US Video IN is connected to the colorbar generator and the battery pack is connected to the DC power port, supplying 13.2 VDC. The receiver Titan - Video OUT is connected to the Sony Monitor, and also connected to the battery pack which also supplies 13.2 VDC. Investigating 9kHz to 25GHz. No EUT emissions detected within 20 dB of the limit below 30MHz. 72°F, 22% relative humidity. Added internal inline ferrite beads.

**Table 2: FCC 15.249 Fundamental**

FREQUENCY MHz	METER READING dB $\mu$ V	CORRECTION FACTORS			CORRECTED READING dB $\mu$ V/m	SPEC LIMIT dB $\mu$ V/m	MARGIN dB	NOTES	
		Ant dB	Amp dB	Cable dB					
2429.330M	94.7	+28.3	-37.7	4.2		89.5	94.0	-4.5	V
2429.280M	88.7	+28.3	-37.7	4.2		83.5	94.0	-10.5	H
2414.500	92.7	+28.3	-37.7	4.2		87.5	94.0	-6.5	V
2414.350	88.6	+28.3	-37.7	4.2		83.4	94.0	-10.6	H
2459.410	95.4	+28.3	-37.8	4.1		90.0	94.0	-4.0	V
2459.420	86.2	+28.3	-37.8	4.1		80.8	94.0	-13.2	H

Test Method: ANSI C63.4 (1992)  
 Spec Limit: FCC Part 15 Subpart C Section 15.249  
 Test Distance: 3 Meters

NOTES: H = Horizontal Polarization  
 V = Vertical Polarization

**COMMENTS:** Channel A, B & D. Fundamentals and Harmonics. The EUT system consists of a transmitter and a separate receiver placed on the turntable vertical. Data represents the highest emission from vertical position. The transmitter - Titan US Video IN is connected to the colorbar generator and the battery pack is connected to the DC power port, supplying 13.2 VDC. The receiver Titan - Video OUT is connected to the Sony Monitor, and also connected to the battery pack which also supplies 13.2 VDC. Measurements made up to 25GHz. 72°F, 22% relative humidity.

**Table 3: FCC 15.249 Six Highest Radiated Emission Levels**

FREQUENCY MHz	METER READING dB $\mu$ V	CORRECTION FACTORS			CORRECTED READING dB $\mu$ V/m	SPEC LIMIT dB $\mu$ V/m	MARGIN dB	NOTES
		Ant dB	Amp dB	Cable dB				
9650.979	40.5	39.3	-36.4	7.9	51.3	54.0	-2.7	H
9711.801	40.7	39.5	-36.4	7.9	51.7	54.0	-2.3	H
12060.400	37.2	40.6	-36.2	9.0	50.6	54.0	-3.4	V
12289.410	37.5	40.5	-36.6	9.2	50.6	54.0	-3.4	V
16994.300	32.1	40.7	-32.7	11.8	51.9	54.0	-2.1	H
16995.700	30.5	40.7	-32.7	11.8	50.3	54.0	-3.7	V

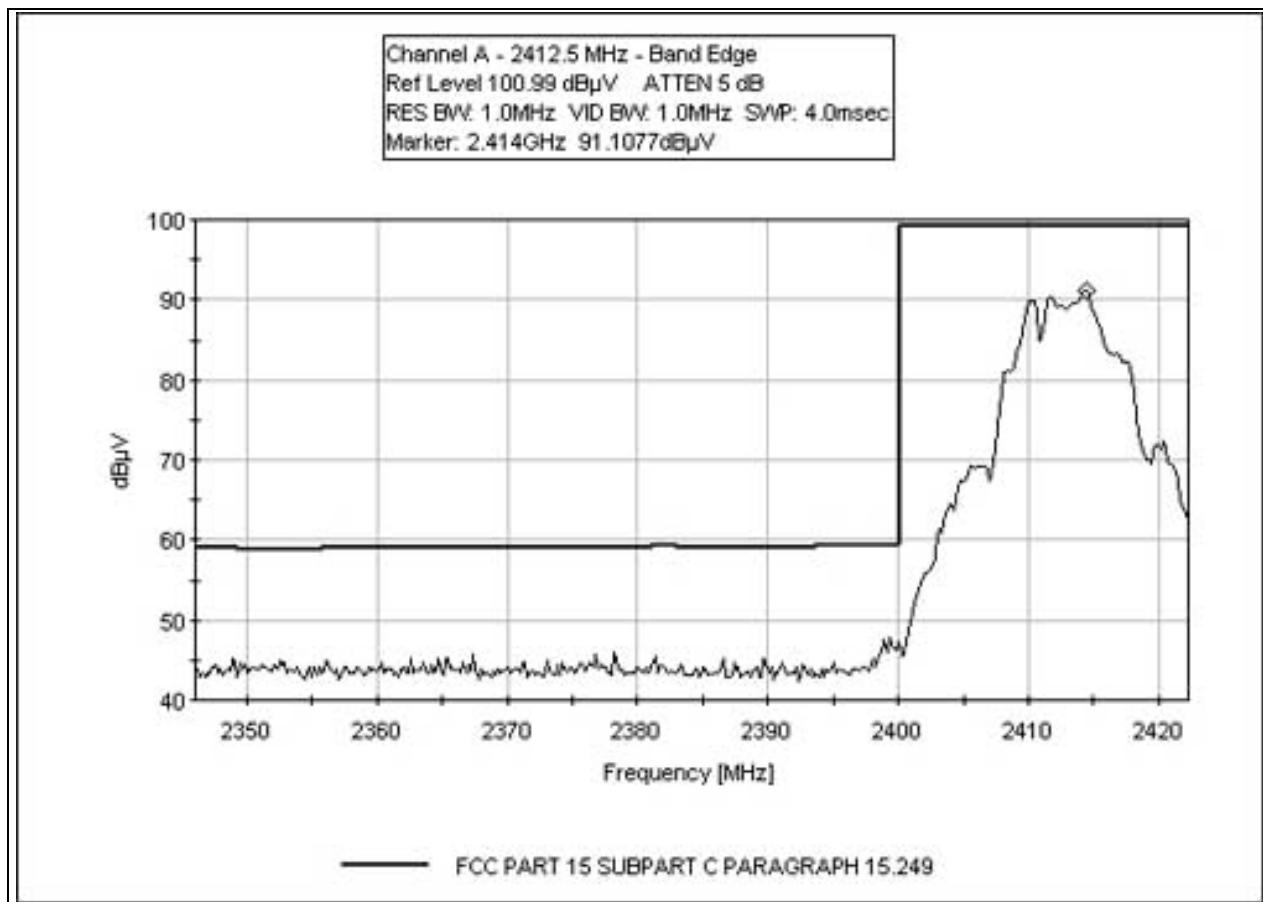
Test Method: ANSI C63.4 (1992)  
 Spec Limit: FCC Part 15 Subpart C Section 15.249  
 Test Distance: 3 Meters

NOTES: H = Horizontal Polarization  
 V = Vertical Polarization

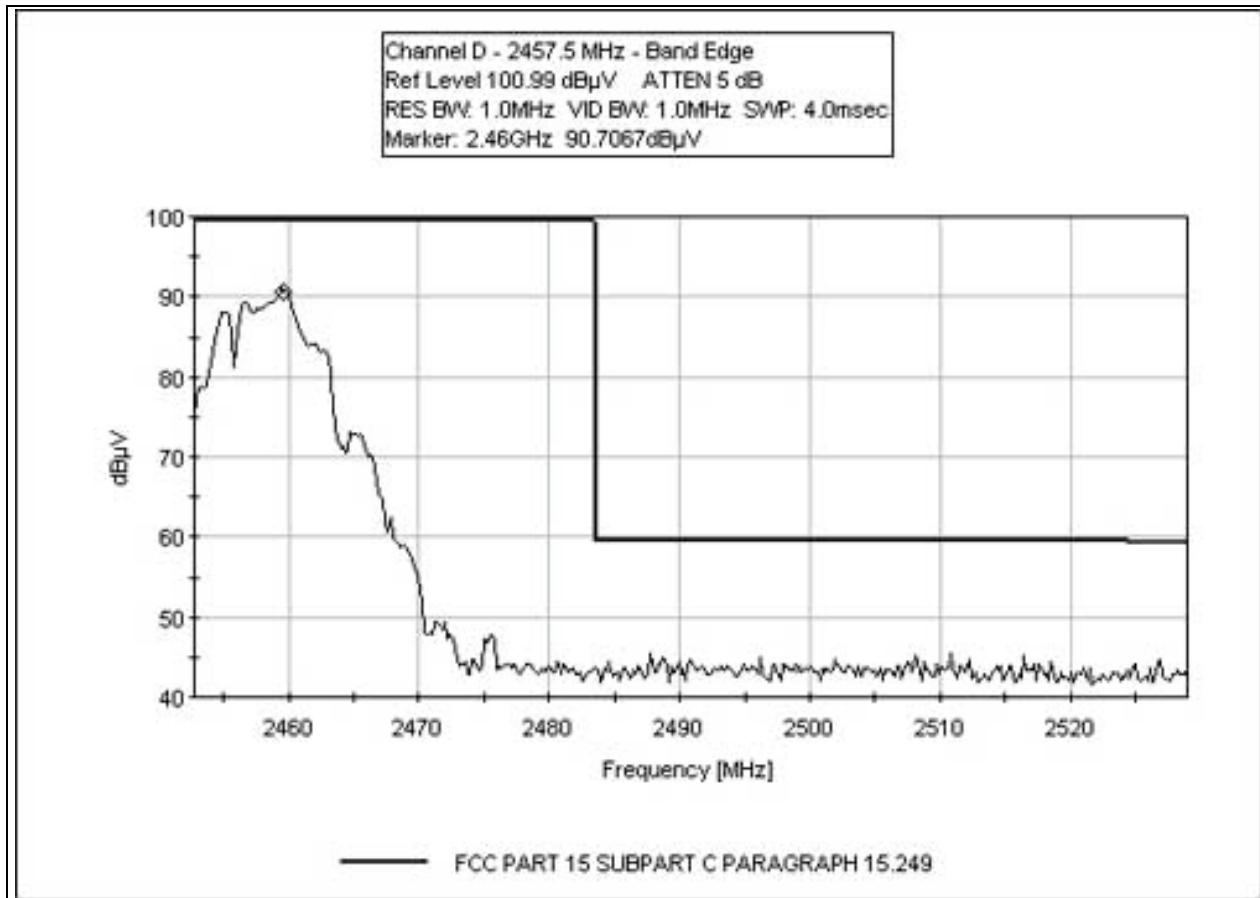
COMMENTS: Channel A, B & D. Fundamentals and Harmonics. The EUT system consists of a transmitter and a separate receiver placed on the turntable vertical. Data represents the highest emission from vertical position. The transmitter - Titan US Video IN is connected to the colorbar generator and the battery pack is connected to the DC power port, supplying 13.2 VDC. The receiver Titan - Video OUT is connected to the Sony Monitor, and also connected to the battery pack which also supplies 13.2 VDC. Measurements made up to 25GHz. 72°F, 22% relative humidity.

## BAND EDGE PLOTS

### Bandedge Channel A - 2412.5 MHz

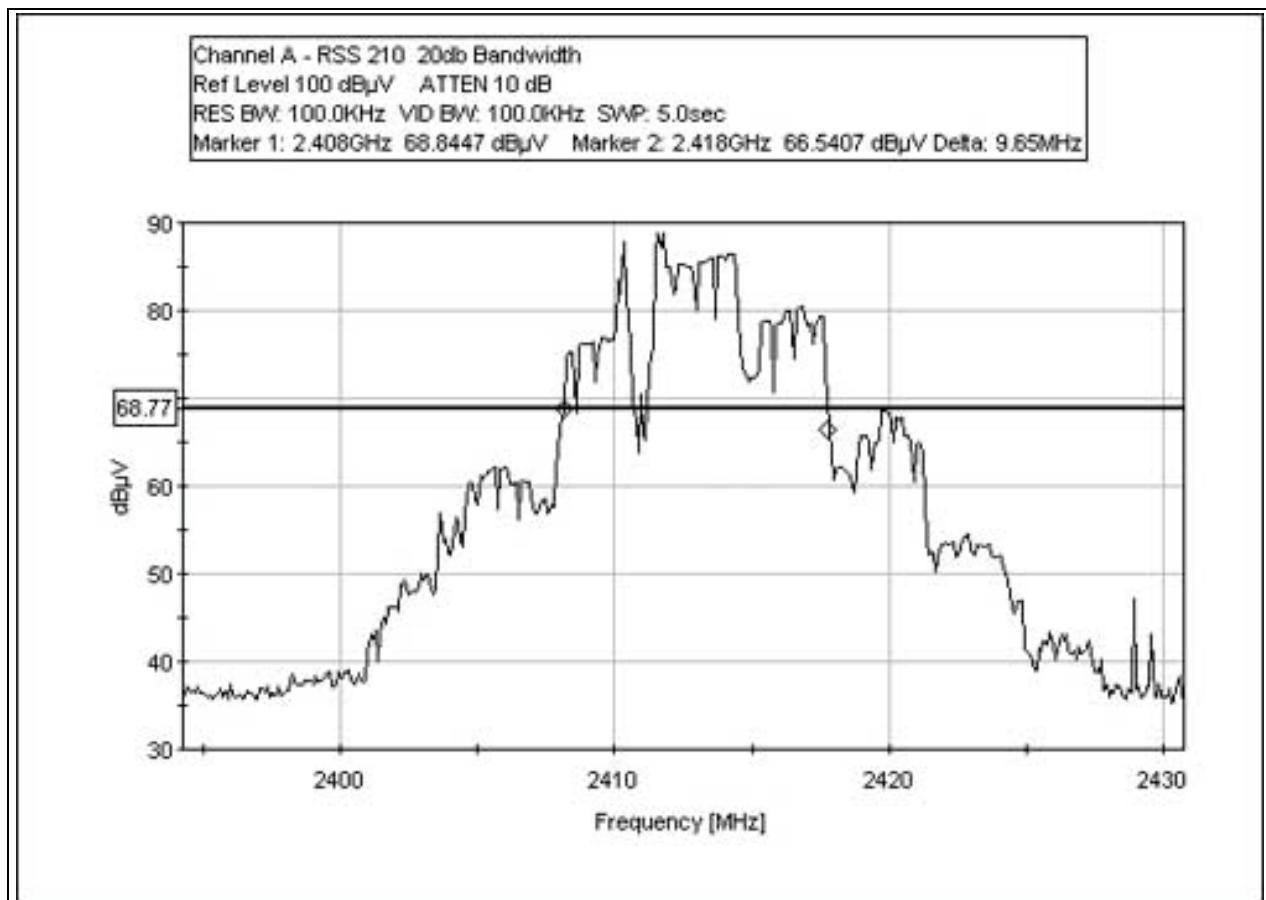


**Bandedge Channel D - 2457.5 MHz**

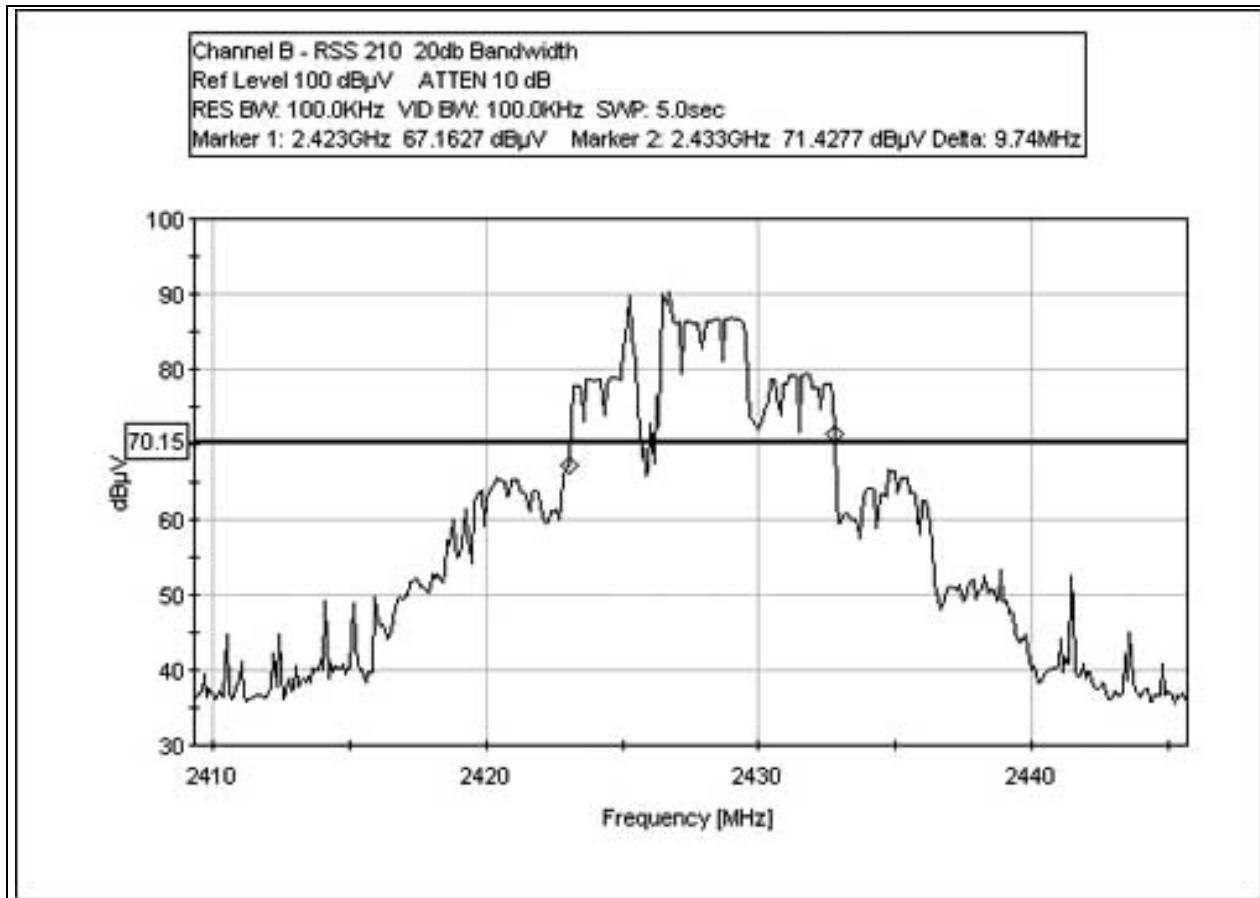


## OCCUPIED BANDWIDTH PLOTS

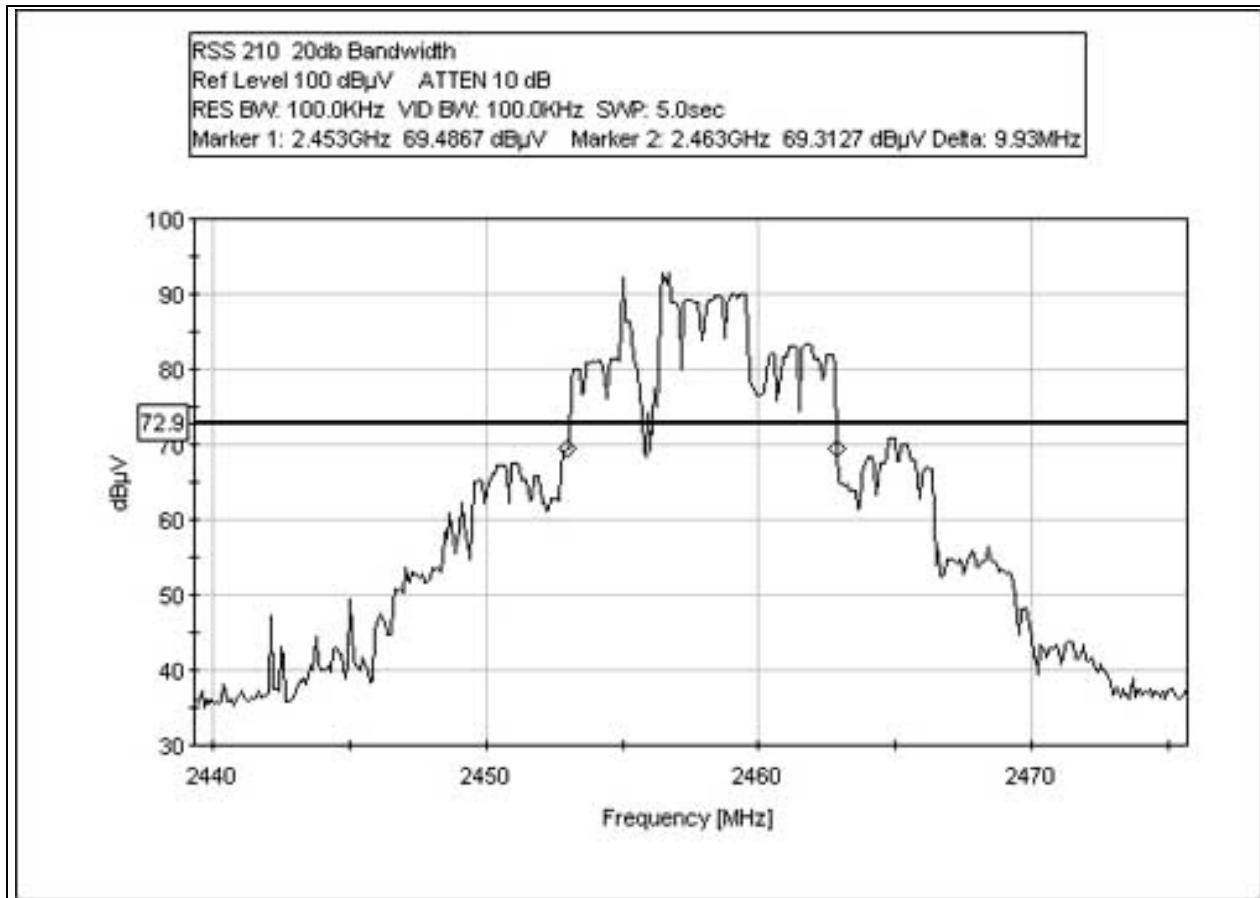
### 20dB Bandwidth Channel A - 2412.5 MHz



**20dB Bandwidth Channel B - 2427.5 MHz**



**20dB Bandwidth Channel D - 2457.5 MHz**



### MEASUREMENT UNCERTAINTY

TEST	HIGHEST UNCERTAINTY
Radiated Emissions	+/- 2.94 dB

Note: Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of  $k=2$ . Statements of compliance are based on the nominal values only.

### EUT SETUP

The equipment under test (EUT) was set up in a manner that represented its normal use, as shown in the photographs in Appendix A. Any special conditions required for the EUT to operate normally are identified in the comments that accompany the emissions tables. The corrected data was then compared to the applicable emission limits to determine compliance.

The cables were routed consistent with the typical application by varying the configuration of the test sample. Interface cables were connected to the available I/O ports of the test unit. The effect of varying the position of the cables was investigated to find the configuration that produced maximum emissions. I/O cables were of the type and length specified in the individual requirements. The length of cable that produced maximum emissions was selected.

The radiated emissions data of the EUT was taken with the HP Spectrum Analyzer. Incorporating the applicable correction factors for distance, antenna, cable loss and amplifier gain, the data was reduced as shown in Table A.

Preliminary and final measurements were taken in order to ensure that all emissions from the EUT were found and maximized.

### CORRECTION FACTORS

The basic spectrum analyzer reading was converted using correction factors as shown in the highest emissions readings in the tables. For radiated emissions in  $\text{dB}\mu\text{V}/\text{m}$ , the spectrum analyzer reading in  $\text{dB}\mu\text{V}$  was corrected by using the following formula in Table A. This reading was then compared to the applicable specification limit to determine compliance.

TABLE A: SAMPLE CALCULATIONS	
Meter reading	( $\text{dB}\mu\text{V}$ )
+	Antenna Factor (dB)
+	Cable Loss (dB)
-	Distance Correction (dB)
-	Preamplifier Gain (dB)
=	Corrected Reading ( $\text{dB}\mu\text{V}/\text{m}$ )

## TEST INSTRUMENTATION AND ANALYZER SETTINGS

The test instrumentation and equipment listed in Appendix B were used to collect both the radiated emissions data. For radiated measurements from 9 kHz to 30 MHz, the magnetic loop antenna was used. For radiated measurements below 300 MHz, the biconical antenna was used. For frequencies from 300 to 1000 MHz, the log periodic antenna was used. For frequencies from 30 to 1000 MHz, the biconilog antenna was used. The horn antenna was used for frequencies above 1000 MHz.

The HP spectrum analyzer was used for all measurements. Table B shows the analyzer bandwidth settings that were used in designated frequency bands. During radiated testing, the measurements were made with 0 dB of attenuation, a reference level of 97 dB $\mu$ V, and a vertical scale of 10 dB per division.

## SPECTRUM ANALYZER DETECTOR FUNCTIONS

The notes that accompany the measurements contained in the Tables indicate the type of detector function used to obtain the given readings. Unless otherwise noted, all readings were made in the "Peak" mode. Whenever a "Quasi-Peak" or "Average" reading is listed as one of the six highest readings, this is indicated as a "Q" or an "A" in the appropriate table. The following paragraphs describe in more detail the detector functions and when they were used to obtain the emissions data.

### **Peak**

In this mode, the Spectrum Analyzer or test engineer recorded all emissions at their peak value as the frequency band selected was scanned. By combining this function with another feature of the analyzer called "peak hold," the analyzer had the ability to measure transients or low duty cycle transient emission peak levels. In this mode the analyzer made a slow scan across the frequency band selected and measured the peak emission value found at each frequency across the band.

### **Quasi-Peak**

When the true peak values exceeded or were within 2 dB of the specification limit, quasi-peak measurements were taken using the HP Quasi-Peak Adapter for the HP Spectrum Analyzer. The detailed procedure for making quasi peak measurements contained in the HP Quasi-Peak Adapter manual were followed.

### **Average**

For certain frequencies, average measurements may be made using the spectrum analyzer. To make these measurements, the test engineer reduces the video bandwidth on the analyzer until the modulation of the signal is filtered out. At this point the analyzer is set into the linear mode and the scan time is reduced.

## EUT TESTING

### Radiated Emissions

The EUT was mounted on a nonconductive, rotating table 80 cm above the conductive grid. The nonconductive table dimensions were 1 meter by 1.5 meters.

During the preliminary radiated scan, the EUT was powered up and operating in its defined FCC test mode. For radiated measurements from 9 kHz to 30 MHz, the magnetic loop antenna was used. The frequency range of 30 MHz to 88 MHz was scanned with the biconical antenna located about 1.5 meter above the ground plane in the vertical configuration. During this scan, the turntable was rotated and all peaks at or near the limit were recorded. The frequency range of 100 to 300 MHz was then scanned in the same manner using the biconical antenna and the peaks recorded. Lastly, a scan of the FM band from 88 to 110 MHz was made, using a reduced resolution bandwidth and frequency span. The biconical antenna was changed to the horizontal polarity and the above steps were repeated. After changing to the log periodic antenna in the horizontal configuration, the frequency range of 300 to 1000 MHz was scanned. The log periodic antenna was changed to the vertical polarity and the frequency range of 300 to 1000 MHz was again scanned. For frequencies exceeding 1000 MHz, the horn antenna was used. Care was taken to ensure that no frequencies were missed within the FM and TV bands. An analysis was performed to determine if the signals that were at or near the limit were caused by an ambient transmission. If unable to determine by analysis, the equipment was powered down to make the final determination if the EUT was the source of the emission.

A thorough scan of all frequencies was made manually using a small frequency span, rotating the turntable as needed. The test engineer maximized the readings with respect to the table rotation, antenna height, and configuration of EUT. Maximizing of the EUT was achieved by monitoring the spectrum analyzer on a closed circuit television monitor.

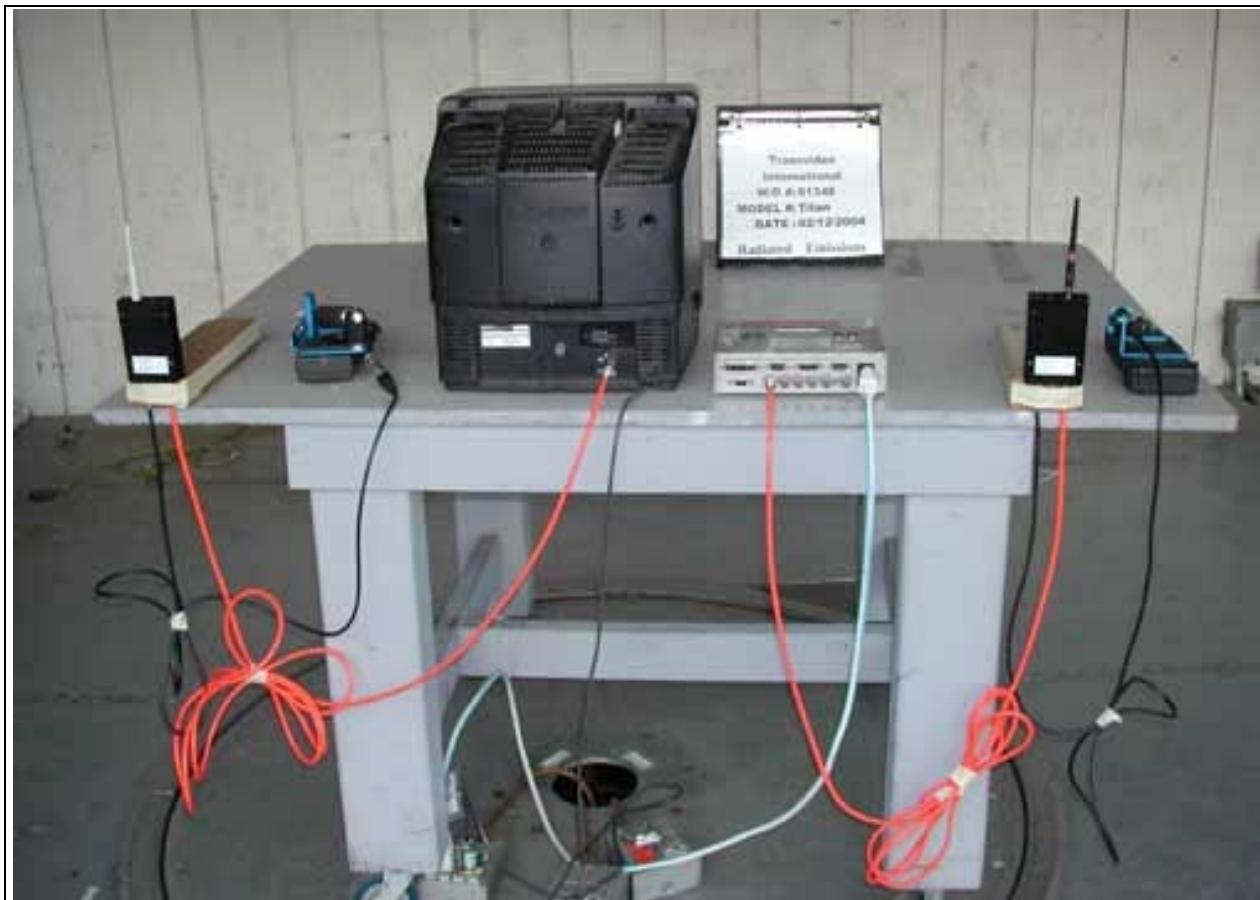
**APPENDIX A**  
**TEST SETUP PHOTOGRAPHS**

**PHOTOGRAPH SHOWING RADIATED EMISSIONS**



Radiated Emissions - Front View

**PHOTOGRAPH SHOWING RADIATED EMISSIONS**



Radiated Emissions - Back View

## APPENDIX B

### TEST EQUIPMENT LIST

#### Radiated Emissions

Equipment	Asset #	Manufacturer	Model #	Serial #	Cal Date	Cal Due
Spectrum Analyzer RF Section	02462	HP	8568B	2928A04874	031103	031104
Spectrum Analyzer Display Section	02472	HP	85662A	3001A18430	031103	031104
QP Adapter	01437	HP	85650A	3303A01884	092702	092704
Spectrum Analyzer	02467	Agilent	E7405A	US40240225	033103	033104
Bicon Antenna	306	AH	SAS200/540	220	092302	092304
Log Periodic Antenna	300	AH	SAS 00/516	331	092302	092304
Pre-amp	00309	HP	8447D	1937A02548	082303	082304
Antenna cable	NA	NA	RG214	Cable#15	123003	123004
Pre-amp to SA cable	NA	Harbour	RG223/U	Cable#10	070802	070804
Horn Antenna	0849	EMCO	3115	6246	091002	091004
18-26.5 GHz Horn Antenna	02112	HP	84125-8008	3643A00027	070103	070105
Microwave Pre-amp	00786	HP	83017A	3123A00281	091102	091104
1/4" Heliax Coaxial Cable	NA	Andrew	FSJ-50A-4	Cable#7 (6 ft)	073103	073104
Heliax Antenna cable	NA	Andrew	LDF1-50	Cable#20	101303	101304
24" SMA Cable	2604	Argosy	UFA147A	0-0360-200200	012304	012305

**APPENDIX C:**  
**MEASUREMENT DATA SHEETS**

Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • (714) 993-6112

Customer: **Transvideo International**  
 Specification: **FCC 15.209**  
 Work Order #: **81348** Date: 02/27/2004  
 Test Type: **Maximized emission** Time: 15:50:08  
 Equipment: **Video Transmitter** Sequence#: 4  
 Manufacturer: Transvideo Tested By: Septimiu Apahidean  
 Model: Titan US  
 S/N: 03JS0775

***Equipment Under Test (\* = EUT):***

Function	Manufacturer	Model #	S/N
Video Receiver	Transvideo	Titan	03JS0785
Video Transmitter*	Transvideo	Titan US	03JS0775

***Support Devices:***

Function	Manufacturer	Model #	S/N
Monitor	Sony	1485P	-
Video Generator	Extron	VTG	

***Test Conditions / Notes:***

Channel A Unintentional TX-RX The EUT system consists of a transmitter and a separate receiver placed on the turntable vertical. Data represents the highest emission from vertical position. The transmitter - Titan US Video IN is connected to the colorbar generator and the battery pack is connected to the DC power port, supplying 13.2 VDC. The receiver Titan - Video OUT is connected to the Sony Monitor, and also connected to the battery pack which also supplies 13.2 VDC. Investigating 9kHz to 25GHz. No EUT emissions detected within 20 dB of the limit below 30MHz. 72°F, 22% relative humidity.

***Transducer Legend:***

T1=Cable #10 070804	T2=Cable# 15 123004
T3=Log antenna, SN331 092304	T4=Bicon SN220 092304
T5=Preamp 8447D 082304	T6=Horn 6246_091004
T7=HP83017A Preamp 091104	T8=SMA Cable 1-40GHz AN2604_012305
T9=Cable#20 Heliax 48ft 101304	T10=-----

***Measurement Data:*** Reading listed by margin.

Test Distance: 3 Meters

#	Freq	Rdng	Reading listed by margin.				Dist	Corr	Spec	Margin	Polar
			T1	T2	T3	T4					
			T5	T6	T7	T8					
			T9	T10							
	MHz	dB $\mu$ V	dB	dB	dB	dB	Table	dB $\mu$ V/m	dB $\mu$ V/m	dB	Ant
1	195.001M	46.1	+0.2	+2.8	+0.0	+17.9	+0.0	38.6	43.5	-4.9	Horiz
			-28.4	+0.0	+0.0	+0.0					
			+0.0	+0.0							
2	198.309M	45.9	+0.2	+2.8	+0.0	+17.8	+0.0	38.3	43.5	-5.2	Vert
			-28.4	+0.0	+0.0	+0.0					
			+0.0	+0.0							
3	195.644M	45.6	+0.2	+2.8	+0.0	+17.9	+0.0	38.1	43.5	-5.4	Horiz
			-28.4	+0.0	+0.0	+0.0					
			+0.0	+0.0							
4	6251.700M	43.7	+0.0	+0.0	+0.0	+0.0	+0.0	48.4	54.0	-5.6	Horiz
			+0.0	+33.2	-35.5	+0.9					
			+6.1	+0.0							

5	194.983M	45.4	+0.2	+2.8	+0.0	+17.9	+0.0	37.9	43.5	-5.6	Vert
			-28.4	+0.0	+0.0	+0.0					
			+0.0	+0.0							
6	195.370M	45.4	+0.2	+2.8	+0.0	+17.9	+0.0	37.9	43.5	-5.6	Vert
			-28.4								
7	253.530M	44.1	+0.2	+3.0	+0.0	+19.0	+0.0	38.0	46.0	-8.0	Horiz
			-28.3								
8	236.690M	43.7	+0.2	+2.9	+0.0	+18.5	+0.0	37.0	46.0	-9.0	Horiz
			-28.3								
9	4523.700M	45.7	+0.0	+0.0	+0.0	+0.0	+0.0	44.8	54.0	-9.2	Horiz
			+0.0	+33.2	-39.7	+0.7					
			+4.9	+0.0							
10	5051.700M	42.5	+0.0	+0.0	+0.0	+0.0	+0.0	44.0	54.0	-10.0	Horiz
			+0.0	+33.5	-37.9	+0.8					
			+5.1	+0.0							
11	222.218M	40.8	+0.2	+2.8	+0.0	+18.2	+0.0	33.7	46.0	-12.3	Vert
			-28.3								
12	160.138M	38.5	+0.2	+2.4	+0.0	+18.4	+0.0	31.1	43.5	-12.4	Vert
			-28.4								
13	163.320M	38.0	+0.2	+2.4	+0.0	+18.4	+0.0	30.6	43.5	-12.9	Vert
			-28.4								
14	142.280M	38.2	+0.2	+2.1	+0.0	+17.3	+0.0	29.4	43.5	-14.1	Vert
			-28.4								
15	140.158M	37.6	+0.2	+2.1	+0.0	+17.2	+0.0	28.7	43.5	-14.8	Vert
			-28.4								
16	466.660M	34.2	+0.4	+4.2	+18.9	+0.0	+0.0	29.5	46.0	-16.5	Horiz
			-28.2	+0.0	+0.0	+0.0					
			+0.0								
17	645.000M	26.6	+0.5	+4.9	+20.9	+0.0	+0.0	25.4	46.0	-20.6	Horiz
			-27.5	+0.0	+0.0	+0.0					
			+0.0								
18	396.600M	30.4	+0.4	+3.9	+17.1	+0.0	+0.0	23.6	46.0	-22.4	Horiz
			-28.2	+0.0	+0.0	+0.0					
			+0.0								

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Customer: **Transvideo International**  
 Specification: **FCC 15.209**  
 Work Order #: **81348** Date: 02/27/2004  
 Test Type: **Maximized emission** Time: 15:17:34  
 Equipment: **Video Transmitter** Sequence#: 5  
 Manufacturer: Transvideo Tested By: Septimiu Apahidean  
 Model: Titan US  
 S/N: 03JS0775

***Equipment Under Test (\* = EUT):***

Function	Manufacturer	Model #	S/N
Video Receiver	Transvideo	Titan	03JS0785
Video Transmitter*	Transvideo	Titan US	03JS0775

***Support Devices:***

Function	Manufacturer	Model #	S/N
Monitor	Sony	1485P	-
Video Generator	Extron	VTG	

***Test Conditions / Notes:***

Channel B Unintentional TX-RX The EUT system consists of a transmitter and a separate receiver placed on the turntable vertical. Data represents the highest emission from vertical position. The transmitter - Titan US Video IN is connected to the colorbar generator and the battery pack is connected to the DC power port, supplying 13.2 VDC. The receiver Titan - Video OUT is connected to the Sony Monitor, and also connected to the battery pack which also supplies 13.2 VDC. Investigating 9kHz to 25GHz. No EUT emissions detected within 20 dB of the limit below 30MHz. 72°F, 22% relative humidity. Added internal inline ferrite beads.

***Transducer Legend:***

T1=Cable #10 070804	T2=Cable# 15 123004
T3=Log antenna, SN331 092304	T4=Bicon SN220 092304
T5=Preamp 8447D 082304	T6=Horn 6246_091004
T7=HP83017A Preamp 091104	T8=SMA Cable 1-40GHz AN2604_012305
T9=Cable#20 Heliax 48ft 101304	

***Measurement Data:*** Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	Reading listed by margin.				Dist	Corr	Spec	Margin	Polar
			T1	T2	T3	T4					
			T5	T6	T7	T8					
			T9								
							Table	dB $\mu$ V/m	dB $\mu$ V/m	dB	Ant
1	194.324M	45.9	+0.2	+2.8	+0.0	+17.9	+0.0	38.4	43.5	-5.1	Horiz
			-28.4	+0.0	+0.0	+0.0					
			+0.0								
2	198.424M	46.0	+0.2	+2.8	+0.0	+17.8	+0.0	38.4	43.5	-5.1	Horiz
			-28.4	+0.0	+0.0	+0.0					
			+0.0								
3	195.057M	44.8	+0.2	+2.8	+0.0	+17.9	+0.0	37.3	43.5	-6.2	Horiz
			-28.4	+0.0	+0.0	+0.0					
			+0.0								
4	195.172M	43.4	+0.2	+2.8	+0.0	+17.9	+0.0	35.9	43.5	-7.6	Vert
			-28.4	+0.0	+0.0	+0.0					
			+0.0								

5	6268.900M	41.0	+0.0	+0.0	+0.0	+0.0	+0.0	45.7	54.0	-8.3	Horiz
			+0.0	+33.2	-35.5	+0.9					
			+6.1								
6	236.584M	44.0	+0.2	+2.9	+0.0	+18.5	+0.0	37.3	46.0	-8.7	Horiz
			-28.3	+0.0	+0.0	+0.0					
			+0.0								
7	160.379M	41.9	+0.2	+2.4	+0.0	+18.4	+0.0	34.5	43.5	-9.0	Horiz
			-28.4	+0.0	+0.0	+0.0					
			+0.0								
8	140.280M	42.9	+0.2	+2.1	+0.0	+17.2	+0.0	34.0	43.5	-9.5	Vert
			-28.4	+0.0	+0.0	+0.0					
			+0.0								
9	5836.900M	41.0	+0.0	+0.0	+0.0	+0.0	+0.0	44.3	54.0	-9.7	Horiz
			+0.0	+33.3	-36.5	+0.9					
			+5.6								
10	163.369M	40.1	+0.2	+2.4	+0.0	+18.4	+0.0	32.7	43.5	-10.8	Horiz
			-28.4	+0.0	+0.0	+0.0					
			+0.0								
11	236.596M	41.8	+0.2	+2.9	+0.0	+18.5	+0.0	35.1	46.0	-10.9	Vert
			-28.3	+0.0	+0.0	+0.0					
			+0.0								
12	466.645M	38.6	+0.4	+4.2	+18.9	+0.0	+0.0	33.9	46.0	-12.1	Vert
			-28.2	+0.0	+0.0	+0.0					
			+0.0								
13	4108.900M	41.9	+0.0	+0.0	+0.0	+0.0	+0.0	41.3	54.0	-12.7	Horiz
			+0.0	+33.4	-39.3	+0.7					
			+4.6								
14	253.529M	38.2	+0.2	+3.0	+0.0	+19.0	+0.0	32.1	46.0	-13.9	Horiz
			-28.3	+0.0	+0.0	+0.0					
			+0.0								
15	466.645M	36.6	+0.4	+4.2	+18.9	+0.0	+0.0	31.9	46.0	-14.1	Horiz
			-28.2	+0.0	+0.0	+0.0					
			+0.0								
16	222.118M	37.1	+0.2	+2.8	+0.0	+18.2	+0.0	30.0	46.0	-16.0	Vert
			-28.3	+0.0	+0.0	+0.0					
			+0.0								
17	396.599M	31.4	+0.4	+3.9	+17.1	+0.0	+0.0	24.6	46.0	-21.4	Horiz
			-28.2	+0.0	+0.0	+0.0					
			+0.0								

Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • (714) 993-6112

Customer: **Transvideo International**  
 Specification: **FCC 15.209**  
 Work Order #: **81348** Date: 02/27/2004  
 Test Type: **Maximized emission** Time: 14:55:43  
 Equipment: **Video Transmitter** Sequence#: 6  
 Manufacturer: Transvideo Tested By: Septimiu Apahidean  
 Model: Titan US  
 S/N: 03JS0775

***Equipment Under Test (\* = EUT):***

Function	Manufacturer	Model #	S/N
Video Receiver	Transvideo	Titan	03JS0785
Video Transmitter*	Transvideo	Titan US	03JS0775

***Support Devices:***

Function	Manufacturer	Model #	S/N
Monitor	Sony	1485P	-
Video Generator	Extron	VTG	

***Test Conditions / Notes:***

Channel D Unintentional TX-RX The EUT system consists of a transmitter and a separate receiver placed on the turntable vertical. Data represents the highest emission from vertical position. The transmitter - Titan US Video IN is connected to the colorbar generator and the battery pack is connected to the DC power port, supplying 13.2 VDC. The receiver Titan - Video OUT is connected to the Sony Monitor, and also connected to the battery pack which also supplies 13.2 VDC. Investigating 9kHz to 25GHz. No EUT emissions detected within 20 dB of the limit below 30MHz. 72°F, 22% relative humidity. Added internal inline ferrite beads.

***Transducer Legend:***

T1=Cable #10 070804	T2=Cable# 15 123004
T3=Log antenna, SN331 092304	T4=Bicon SN220 092304
T5=Preamp 8447D 082304	T6=Horn 6246_091004
T7=HP83017A Preamp 091104	T8=SMA Cable 1-40GHz AN2604_012305
T9=Cable#20 Heliax 48ft 101304	

***Measurement Data:*** Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	Reading listed by margin.				Dist	Corr	Spec	Margin	Polar
			T1	T2	T3	T4					
			T5	T6	T7	T8					
			T9								
							Table	dB $\mu$ V/m	dB $\mu$ V/m	dB	Ant
1	198.474M	46.9	+0.2	+2.8	+0.0	+17.8	+0.0	39.3	43.5	-4.2	Horiz
			-28.4	+0.0	+0.0	+0.0					
			+0.0								
2	198.472M	46.4	+0.2	+2.8	+0.0	+17.8	+0.0	38.8	43.5	-4.7	Vert
			-28.4	+0.0	+0.0	+0.0					
			+0.0								
3	195.142M	46.1	+0.2	+2.8	+0.0	+17.9	+0.0	38.6	43.5	-4.9	Horiz
			-28.4	+0.0	+0.0	+0.0					
			+0.0								
4	195.130M	44.3	+0.2	+2.8	+0.0	+17.9	+0.0	36.8	43.5	-6.7	Vert
			-28.4	+0.0	+0.0	+0.0					
			+0.0								

5	236.577M	45.7	+0.2	+2.9	+0.0	+18.5	+0.0	39.0	46.0	-7.0	Horiz
			-28.3	+0.0	+0.0	+0.0					
			+0.0								
6	163.217M	42.1	+0.2	+2.4	+0.0	+18.4	+0.0	34.7	43.5	-8.8	Horiz
			-28.4	+0.0	+0.0	+0.0					
			+0.0								
7	222.204M	43.8	+0.2	+2.8	+0.0	+18.2	+0.0	36.7	46.0	-9.3	Horiz
			-28.3	+0.0	+0.0	+0.0					
			+0.0								
8	6266.400M	39.6	+0.0	+0.0	+0.0	+0.0	+0.0	44.3	54.0	-9.7	Vert
			+0.0	+33.2	-35.5	+0.9					
			+6.1								
9	6263.900M	39.5	+0.0	+0.0	+0.0	+0.0	+0.0	44.2	54.0	-9.8	Horiz
			+0.0	+33.2	-35.5	+0.9					
			+6.1								
10	5831.900M	39.8	+0.0	+0.0	+0.0	+0.0	+0.0	43.1	54.0	-10.9	Horiz
			+0.0	+33.3	-36.5	+0.9					
			+5.6								
11	160.306M	39.7	+0.2	+2.4	+0.0	+18.4	+0.0	32.3	43.5	-11.2	Horiz
			-28.4	+0.0	+0.0	+0.0					
			+0.0								
12	466.645M	38.6	+0.4	+4.2	+18.9	+0.0	+0.0	33.9	46.0	-12.1	Vert
			-28.2	+0.0	+0.0	+0.0					
			+0.0								
13	140.282M	39.9	+0.2	+2.1	+0.0	+17.2	+0.0	31.0	43.5	-12.5	Horiz
			-28.4	+0.0	+0.0	+0.0					
			+0.0								
14	4106.400M	41.1	+0.0	+0.0	+0.0	+0.0	+0.0	40.5	54.0	-13.5	Vert
			+0.0	+33.4	-39.3	+0.7					
			+4.6								
15	5834.400M	37.2	+0.0	+0.0	+0.0	+0.0	+0.0	40.5	54.0	-13.5	Vert
			+0.0	+33.3	-36.5	+0.9					
			+5.6								
16	466.645M	36.6	+0.4	+4.2	+18.9	+0.0	+0.0	31.9	46.0	-14.1	Horiz
			-28.2	+0.0	+0.0	+0.0					
			+0.0								
17	396.599M	31.4	+0.4	+3.9	+17.1	+0.0	+0.0	24.6	46.0	-21.4	Horiz
			-28.2	+0.0	+0.0	+0.0					
			+0.0								

Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • (714) 993-6112

Customer: **Transvideo International**  
 Specification: **FCC PART 15 SUBPART C PARAGRAPH 15.249**  
 Work Order #: **81348** Date: 02/12/2004  
 Test Type: **Maximized emission** Time: 11:24:37  
 Equipment: **Video Transmitter** Sequence#: 2  
 Manufacturer: Transvideo Tested By: Septimiu Apahidean  
 Model: Titan US  
 S/N: 03JS0775

***Equipment Under Test (\* = EUT):***

Function	Manufacturer	Model #	S/N
Video Receiver	Transvideo	Titan	03JS0785
Video Transmitter*	Transvideo	Titan US	03JS0775

***Support Devices:***

Function	Manufacturer	Model #	S/N
Monitor	Sony	1485P	-
Video Generator	Extron	VTG	

***Test Conditions / Notes:***

Channel B Fundamentals and Harmonics. The EUT system consists of a transmitter and a separate receiver placed on the turntable vertical. Data represents the highest emission from vertical position. The transmitter - Titan US Video IN is connected to the colorbar generator and the battery pack is connected to the DC power port, supplying 13.2 VDC. The receiver Titan - Video OUT is connected to the Sony Monitor, and also connected to the battery pack which also supplies 13.2 VDC. Measurements made up to 25GHz. 72°F, 22% relative humidity.

***Transducer Legend:***

T1=SMA Cable 1-40GHz AN2604_012305	T2=Horn 6246_091004
T3=HP83017A Preamp 091104	T4=Cable#20 Heliax 48ft 101304

***Measurement Data:***

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dB $\mu$ V	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dB $\mu$ V/m	Spec dB $\mu$ V/m	Margin dB	Polar Ant
1	16994.300M	32.1	+1.5	+39.2	-32.7	+11.8	+0.0	51.9	54.0	-2.1	Horiz
2	9711.801M	40.7	+1.1	+38.4	-36.4	+7.9	+0.0	51.7	54.0	-2.3	Horiz
3	16995.700M	30.5	+1.5	+39.2	-32.7	+11.8	+0.0	50.3	54.0	-3.7	Vert
4	2429.330M	94.7	+0.5	+28.3	-37.7	+3.7	+0.0	89.5	94.0	-4.5	Vert
											Fundamental
5	14566.800M	33.8	+1.4	+40.8	-37.1	+10.0	+0.0	48.9	54.0	-5.1	Horiz
6	12137.700M	34.8	+1.2	+39.4	-36.3	+9.0	+0.0	48.1	54.0	-5.9	Vert
7	7284.300M	44.1	+1.0	+35.6	-39.0	+6.1	+0.0	47.8	54.0	-6.2	Horiz

8	14567.240M	32.5	+1.4	+40.8	-37.1	+10.0	+0.0	47.6	54.0	-6.4	Vert
9	12139.300M	32.6	+1.2	+39.4	-36.3	+9.0	+0.0	45.9	54.0	-8.1	Horiz
10	7284.980M	41.4	+1.0	+35.6	-39.0	+6.1	+0.0	45.1	54.0	-8.9	Vert
11	9710.930M	32.9	+1.1	+38.4	-36.4	+7.9	+0.0	43.9	54.0	-10.1	Vert
12	4856.780M	42.8	+0.8	+33.3	-38.6	+5.3	+0.0	43.6	54.0	-10.4	Vert
13	2429.280M	88.7	+0.5	+28.3	-37.7	+3.7	+0.0	83.5	94.0	-10.5	Horiz
											Fundamental
14	4856.800M	42.6	+0.8	+33.3	-38.6	+5.3	+0.0	43.4	54.0	-10.6	Horiz

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Customer: **Transvideo International**  
 Specification: **FCC PART 15 SUBPART C PARAGRAPH 15.249**  
 Work Order #: **81348** Date: 02/12/2004  
 Test Type: **Maximized emission** Time: 10:11:58  
 Equipment: **Video Transmitter** Sequence#: 1  
 Manufacturer: Transvideo Tested By: Septimiu Apahidean  
 Model: Titan US  
 S/N: 03JS0775

***Equipment Under Test (\* = EUT):***

Function	Manufacturer	Model #	S/N
Video Receiver	Transvideo	Titan	03JS0785
Video Transmitter*	Transvideo	Titan US	03JS0775

***Support Devices:***

Function	Manufacturer	Model #	S/N
Monitor	Sony	1485P	-
Video Generator	Extron	VTG	

***Test Conditions / Notes:***

Channel A Fundamentals and Harmonics. The EUT system consists of a transmitter and a separate receiver placed on the turntable vertical. Data represents the highest emission from vertical position. The transmitter - Titan US Video IN is connected to the colorbar generator and the battery pack is connected to the DC power port, supplying 13.2 VDC. The receiver Titan - Video OUT is connected to the Sony Monitor, and also connected to the battery pack which also supplies 13.2 VDC. Measurements made up to 25GHz. 72°F, 22% relative humidity.

***Transducer Legend:***

T1=SMA Cable 1-40GHz AN2604_012305	T2=Horn 6246_091004
T3=HP83017A Preamp 091104	T4=Cable#20 Heliax 48ft 101304

***Measurement Data:***

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dB $\mu$ V	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dB $\mu$ V/m	Spec dB $\mu$ V/m	Margin dB	Polar Ant
1	9650.979M	40.5	+1.1	+38.2	-36.4	+7.9	+0.0	51.3	54.0	-2.7	Horiz
2	12060.400M	37.2	+1.2	+39.4	-36.2	+9.0	+0.0	50.6	54.0	-3.4	Vert
3	14472.900M	35.0	+1.4	+40.9	-37.0	+10.0	+0.0	50.3	54.0	-3.7	Vert
4	9650.600M	38.1	+1.1	+38.2	-36.4	+7.9	+0.0	48.9	54.0	-5.1	Vert
5	2414.500M	92.7	+0.5	+28.3	-37.7	+3.7	+0.0	87.5	94.0	-6.5	Vert
Fundamental											
6	7238.550M	42.8	+0.9	+35.5	-39.1	+6.1	+0.0	46.2	54.0	-7.8	Horiz

7	2414.350M	88.6	+0.5	+28.3	-37.7	+3.7	+0.0	83.4	94.0	-10.6	Horiz
8	7238.100M	39.2	+0.9	+35.5	-39.1	+6.1	+0.0	42.6	54.0	-11.4	Vert
9	4825.440M	41.6	+0.8	+33.3	-38.7	+5.3	+0.0	42.3	54.0	-11.7	Horiz
10	4825.600M	39.9	+0.8	+33.3	-38.7	+5.3	+0.0	40.6	54.0	-13.4	Vert

Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • (714) 993-6112

Customer: **Transvideo International**  
 Specification: **FCC PART 15 SUBPART C PARAGRAPH 15.249**  
 Work Order #: **81348** Date: 02/12/2004  
 Test Type: **Maximized emission** Time: 12:09:07  
 Equipment: **Video Transmitter** Sequence#: 2  
 Manufacturer: Transvideo Tested By: Septimiu Apahidean  
 Model: Titan US  
 S/N: 03JS0775

***Equipment Under Test (\* = EUT):***

Function	Manufacturer	Model #	S/N
Video Receiver	Transvideo	Titan	03JS0785
Video Transmitter*	Transvideo	Titan US	03JS0775

***Support Devices:***

Function	Manufacturer	Model #	S/N
Monitor	Sony	1485P	-
Video Generator	Extron	VTG	

***Test Conditions / Notes:***

Channel D Fundamentals and Harmonics. The EUT system consists of a transmitter and a separate receiver placed on the turntable vertical. Data represents the highest emission from vertical position. The transmitter - Titan US Video IN is connected to the colorbar generator and the battery pack is connected to the DC power port, supplying 13.2 VDC. The receiver Titan - Video OUT is connected to the Sony Monitor, and also connected to the battery pack which also supplies 13.2 VDC. Measurements made up to 25GHz. 72°F, 22% relative humidity.

***Transducer Legend:***

T1=SMA Cable 1-40GHz AN2604_012305	T2=Horn 6246_091004
T3=HP83017A Preamp 091104	T4=Cable#20 Heliax 48ft 101304

***Measurement Data:*** Reading listed by margin. **Test Distance: 3 Meters**

#	Freq MHz	Rdng dB $\mu$ V	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dB $\mu$ V/m	Spec dB $\mu$ V/m	Margin dB	Polar Ant
1	12289.410M	37.5	+1.2	+39.3	-36.6	+9.2	+0.0	50.6	54.0	-3.4	Vert
2	2459.410M	95.4	+0.5	+28.3	-37.8	+3.6	+0.0	90.0	94.0	-4.0	Vert
3	14746.910M	34.6	+1.4	+40.5	-37.2	+10.0	+0.0	49.3	54.0	-4.7	Vert
4	9831.910M	37.0	+1.1	+38.8	-36.5	+7.9	+0.0	48.3	54.0	-5.7	Vert
5	14744.410M	32.0	+1.4	+40.5	-37.2	+10.0	+0.0	46.7	54.0	-7.3	Horiz
6	9829.410M	34.5	+1.1	+38.8	-36.5	+7.9	+0.0	45.8	54.0	-8.2	Horiz
7	12286.910M	32.5	+1.2	+39.3	-36.6	+9.2	+0.0	45.6	54.0	-8.4	Horiz

8	7371.910M	41.0	+1.0	+35.9	-39.0	+6.2	+0.0	45.1	54.0	-8.9	Horiz
9	7374.410M	38.2	+1.0	+35.9	-39.0	+6.3	+0.0	42.4	54.0	-11.6	Vert
10	4916.910M	40.4	+0.8	+33.4	-38.4	+5.2	+0.0	41.4	54.0	-12.6	Vert
11	4914.410M	39.9	+0.8	+33.4	-38.4	+5.2	+0.0	40.9	54.0	-13.1	Horiz
12	2459.420M	86.2	+0.5	+28.3	-37.8	+3.6	+0.0	80.8	94.0	-13.2	Horiz
											Fundamental