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Electromagnetic Emissions Test Report and Application for Grant of Equipment Authorization pursuant to FCC Part 15, Subpart E (UNII Devices) and Industry Canada RSS 210 Issue 5 (LELEAN Devices) on the Adimos, Inc. Model: WVM-1101

FCC ID:	SIV-WVM1101
UPN:	5280A-W VM1101
GRANTEE:	Adimos, Inc. 101 1st Street Los Altos, CA 94022
TEST SITE:	Elliott Laboratories, Inc. 684 W. Maude Avenue Sunnyvale, CA 94086
REPORT DATE:	September 23, 2004
FINAL TEST DATES:	July 15, July 17 and July 31, 2004
AUTHORIZED SIGNATORY:	David W. Bare Chief Technical Officer

ACCREDITED

DECLARATIONS OF COMPLIANCE

Equipment Name and Model:
WVM-1101

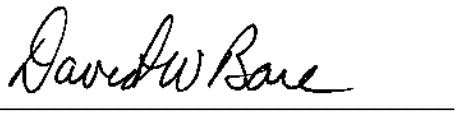
Manufacturer:
Adimos, Inc.
101 1st Street
Los Altos, CA 94022

Tested to applicable standards:
RSS-210, Issue 5, November 2001 (Low Power Licence-Exempt Radiocommunication Devices)
FCC Part 15 Subpart E (UNII Devices)

Measurement Facility Description Filed With Industry Canada:

File Number: IC 2845-2

I declare that the testing was performed or supervised by me; that the test measurements were made in accordance with the above mentioned departmental standards (through the use of ANSI C63.4 as detailed in section 5.3 of RSS-210, Issue 5); and that the equipment performed in accordance with the data submitted in this report.



Signature	
Name	David W. Bare
Title	Chief Technical Officer
Company	Elliott Laboratories Inc.
Address	684 W. Maude Ave Sunnyvale, CA 94086 USA
Date:	September 23, 2004

Maintenance of compliance with the above standards is the responsibility of the manufacturer. Any modification of the product that may result in increased emissions should be checked to ensure compliance has been maintained (i.e., printed circuit board layout changes, different line filter, different power supply, harnessing or I/O cable changes, etc.).

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SCOPE

An electromagnetic emissions test has been performed on the Adimos Inc. model WVM-1101 pursuant to Subpart E of Part 15 of FCC Rules for Unlicensed National Information Infrastructure (UNII) devices and RSS-210 Issue 5 for licence-exempt local area network (LELAN) devices. Conducted and radiated emissions data has been collected, reduced, and analyzed within this report in accordance with measurement guidelines set forth in ANSI C63.4-2001 as outlined in Elliott Laboratories test procedures.

The intentional radiator above has been tested in a simulated typical installation to demonstrate compliance with the relevant FCC performance and procedural standards.

Final system data was gathered in a mode that tended to maximize emissions by varying orientation of EUT, orientation of power and I/O cabling, antenna search height, and antenna polarization.

Every practical effort was made to perform an impartial test using appropriate test equipment of known calibration. All pertinent factors have been applied to reach the determination of compliance.

The test results recorded herein are based on a single type test of the Adimos Inc. model WVM-1101 and therefore apply only to the tested sample. The sample was selected and prepared by Malcom Caraballo of Adimos, Inc.

OBJECTIVE

The primary objective of the manufacturer is compliance with Subpart E of Part 15 of FCC Rules and RSS-210 for the radiated and conducted emissions of intentional radiators. Certification of these devices is required as a prerequisite to marketing as defined in Part 2 the FCC Rules and RSS-210.

Certification is a procedure where the manufacturer or a contracted laboratory makes measurements and submits the test data and technical information to the FCC and IC. The FCC issues a grant of equipment authorization and IC certifies upon successful completion of their review of the submitted documents. Once the equipment authorization has been obtained, the label indicating compliance must be attached to all identical units that are subsequently manufactured.

SUMMARY OF RESULTS

FCC Part 15 Section	RSS 210 Section	Description	Comments	Result
Operation in the 5.15 – 5.25 GHz Band				
15.407 (d)		As the device operates in the 5.15 – 5.25 GHz band the antenna must be integral to the device.	Antenna Gain = 5.6i The antenna is integral to the module once installed in a host system	COMPLIES
15.407(e)		Indoor operation only	Refer to user's manual in Exhibit 6	COMPLIES
15.407(a) (1)	6.2.2 q1 (i)	Bandwidth	26dB: 29.1 MHz 99%: 17.3 MHz	N/A
15.407(a) (1)	6.2.2 q1 (i)	Output Power	16.6dBm (0.046W)	COMPLIES
15.407(a) (1))	6.2.2 q1 (i)	Power Spectral Density	-1.1 dBm/MHz	COMPLIES
15.407(b) (5) / 15.209	6.2.2 q1 (ii)	Spurious Emissions below 1GHz	-5.2dB @ 67.506 MHz	COMPLIES
15.407(b) (2)	6.2.2 q1 (ii)	Spurious Emissions above 1GHz	-2.4dBm @ 5150 MHz	COMPLIES
Operation in the 5.25 – 5.35 GHz Band Note: The device is restricted to indoor use only, therefore the spectral density of spurious emissions in the 5.15 – 5.25 GHz band were limited to the power spectral limits for intentional signals detailed in FCC 15.407(a)(1) and RSS 210 6.2.2 q1 (i)				
		Maximum Antenna Gain /Integral Antenna	Antenna Gain = 5.6i The antenna is integral to the module once installed in a host system	COMPLIES
15.407(a) (2)	6.2.2 q1 (ii)	Bandwidth	26dB: 26.3 MHz 99%: 17.3 MHz	N/A
15.407(a) (2)	6.2.2 q1 (ii)	Output Power	17.9dBm (0.062W)	COMPLIES
15.407(a) (2))	6.2.2 q1 (ii)	Power Spectral Density	-0.4 dBm/MHz	COMPLIES
15.407(b) (5) / 15.209	6.2.2 q1 (ii)	Spurious Emissions below 1GHz	-5.2dB @ 67.506 MHz	COMPLIES
15.407(b) (2)	6.2.2 q1 (ii)	Spurious Emissions above 1GHz	-0.8dBm @ 5350 MHz	COMPLIES

General requirements for all bands				
	6.2.2 q(iv)(a)	Digital Modulation	Digital Modulation is used, refer to the "Theory of Operations" (Exhibit 9) for a detailed explanation.	COMPLIES
	6.2.2 q(iv)(b)	Peak Spectral Density	9.8dBm/MHz	COMPLIES
15.407(a)(6)		Peak Excursion Ratio	< 13dB	COMPLIES
	6.2.2 q(iv)(c)	Channel Selection	The device was tested on the channels representing the highest, lowest and center channels available.	N/A
15.407 (c)	6.2.2 q(iv)(d)	Automatic Discontinuation of Operation in the absence of information to transmit	Operation is discontinued in the absence of information to transmit, refer to the "Theory of Operations" in Exhibit 9 for a detailed explanation.	COMPLIES
15.407 (g)	6.2.2 q(iv)(e)	Frequency Stability	Frequency stability is better than 10ppm, (refer to the test data over 0-55 degrees C)	COMPLIES
	6.2.2 q(iv)(g)	User Manual information	All relevant statements have been included in the user's manuals. Refer to Exhibit 6 for details	COMPLIES
15.407 (f)	6.2.2 q(iv)(g)	RF Exposure Requirements	Refer to MPE calculations in Exhibit 11	COMPLIES
15.407(b) / 15.207		AC Conducted Emissions	-11.8dB @ 0.196 MHz	COMPLIES
	6.6	AC Conducted Emissions	-11.6dB @ 2.298 MHz	COMPLIES

MEASUREMENT UNCERTAINTIES

ISO Guide 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level and were calculated in accordance with NAMAS document NIS 81.

Measurement Type	Frequency Range (MHz)	Calculated Uncertainty (dB)
Conducted Emissions	0.15 to 30	± 2.4
Radiated Emissions	30 to 1000	± 3.6

EQUIPMENT UNDER TEST (EUT) DETAILS

GENERAL

The Adimos Inc. model WVM-1101 is a radio transceiver, which is designed to transmit / receive audio and video data over a short range using 802.11a. There are two versions, the "Transmit" module is designed to convert audio/video signals into digital data and transmit it to the "Receive" module, which contains circuitry to convert the received data back to analog audio/video signals. The "receive" module is also designed to convert an IR signal from a remote control into data for transmission to the "Transmit" module which converts the IR control signal to output back to the host device, such as a VCR, TV or similar piece of AV equipment. Both the transmit and receive modules used an identical rf transceiver module.

The EUT was treated as tabletop equipment during testing. The electrical rating of the EUT is 3.3 V dc.

The sample was received on July 15, 2004 and tested on July 15 and July 31, 2004. The EUT consisted of the following component(s):

Manufacturer	Model	Description	Serial Number	FCC ID
Adimos	WVM 1101 T	AV Transmitter module	prototype	SE6-WVM1101
Adimos	WVM 1101 R	AV Receiver module	prototype	SE6-WVM1101

The emissions and performance of the 802.11a transceiver were identical for the two module types (determined through preliminary testing). The radiated spurious emissions from the A/V interface circuitry was different for the frequency range 30 – 1000 MHz. Radiated spurious emissions were measured on the receiver device, which represented the worst-case.

OTHER EUT DETAILS

The EUT is a modular transceiver. During normal use the interface ports would be connected internally within the host device. The EUT was tested in a host fixture.

ENCLOSURE

The EUT does not have an enclosure as it is designed to be installed within the enclosure of a host device.

MODIFICATIONS

The EUT required modifications during testing in order to comply with the emission specifications. The EUT was modified with the addition of rf absorbing material inside the shield over the rf module.

SUPPORT EQUIPMENT

The following equipment was used as local support equipment for emissions testing:

Manufacturer	Model	Description	Serial Number	FCC ID
Adimos	WVM- DS Rev.C	test fixture	none	none
Adimos	(2) antenna	antenna	none	none
Mean Wel	PSU 30A-0	ac/dc power supply		none

No equipment was used as remote support equipment for emissions testing.

EUT INTERFACE PORTS

The I/O cabling configuration during emissions testing was as follows:

Port	Connected To	Cable(s)		
		Description	Shielded or Unshielded	Length(m)
Ethernet	laptop via hub	Cat 5 UTP	Unshielded	3
Video Input	not connected			
Audio input left	not connected			
Audio Input right	not connected			
S Video	not connected			
antenna 1	antenna	Rx / Tx antenna	Shielded	0.3
antenna 2	antenna	Rx / Tx antenna	Shielded	0.3

The audio and video ports were not connected to the test fixture, as the purpose was to evaluate the device for modular approval. Emissions form these connections will be evaluated against the appropriate product standard when the module is installed in an end product. A laptop computer was used to configure the module in transmit or receive mode and then the Ethernet cable was disconnected during radiated emissions tests.

EUT OPERATION DURING TESTING

The RX and TX modules were on the EUT table operating in a normal mode.

ANTENNA REQUIREMENTS

As the device is intended to operate in the 5.15 – 5.25 GHz band an integral antenna as detailed in 15.407 (d) and RSS-210 6.2.2(q1) (i) is required. The antenna for the device is considered an integral antenna since the integrator is cautioned that he must use the specified antennas and cables and these must not be accessible to the end product user.

TEST SITE

GENERAL INFORMATION

Final test measurements were taken on July 15, July 17 and July 31, 2004 at the Elliott Laboratories Open Area Test Site #2 and Chamber #2 located at 684 West Maude Avenue, Sunnyvale, California. The test site contains separate areas for radiated and conducted emissions testing. Pursuant to section 2.948 of the Rules, construction, calibration, and equipment data has been filed with the Federal Communications Commission. In accordance with Industry Canada rules detailed in RSS 210 Issue 5 and RSS-212, construction, calibration, and equipment data for the test sites have been filed with the Federal Communications Commission.

The FCC recommends that ambient noise at the test site be at least 6 dB below the allowable limits. Ambient levels are below this requirement with the exception of predictable local TV, radio, and mobile communications traffic. The test site contains separate areas for radiated and conducted emissions testing. Considerable engineering effort has been expended to ensure that the facilities conform to all pertinent FCC requirements.

CONDUCTED EMISSIONS CONSIDERATIONS

Conducted emissions testing is performed in conformance with ANSI C63.4-2001. Measurements are made with the EUT connected to the public power network through a nominal, standardized RF impedance, which is provided by a line impedance stabilization network, known as a LISN. A LISN is inserted in series with each current-carrying conductor in the EUT power cord.

RADIATED EMISSIONS CONSIDERATIONS

The FCC has determined that radiation measurements made in a shielded enclosure are not suitable for determining levels of radiated emissions. Radiated measurements are performed in an open field environment. The test site is maintained free of conductive objects within the CISPR defined elliptical area incorporated in ANSI C63.4 guidelines.

MEASUREMENT INSTRUMENTATION

RECEIVER SYSTEM

An EMI receiver as specified in CISPR 16-1 is used for emissions measurements. The receivers used can measure over the frequency range of 9 kHz up to 2000 MHz. These receivers allow both ease of measurement and high accuracy to be achieved. The receivers have Peak, Average, and CISPR (Quasi-peak) detectors built into their design so no external adapters are necessary. The receiver automatically sets the required bandwidth for the CISPR detector used during measurements.

For measurements above the frequency range of the receivers, a spectrum analyzer is utilized because it provides visibility of the entire spectrum along with the precision and versatility required to support engineering analysis. Average measurements above 1000MHz are performed on the spectrum analyzer using the linear-average method with a resolution bandwidth of 1 MHz and a video bandwidth of 10 Hz.

INSTRUMENT CONTROL COMPUTER

The receivers utilize either a Rohde & Schwarz EZM Spectrum Monitor/Controller or contain an internal Spectrum Monitor/Controller to view and convert the receiver measurements to the field strength at an antenna or voltage developed at the LISN measurement port, which is then compared directly with the appropriate specification limit. This provides faster, more accurate readings by performing the conversions described under Sample Calculations within the Test Procedures section of this report. Results are printed in a graphic and/or tabular format, as appropriate. A personal computer is used to record all measurements made with the receivers.

The Spectrum Monitor provides a visual display of the signal being measured. In addition, the controller or a personal computer run automated data collection programs that control the receivers. This provides added accuracy since all site correction factors, such as cable loss and antenna factors are added automatically.

LINE IMPEDANCE STABILIZATION NETWORK (LISN)

Line conducted measurements utilize a fifty microhenry Line Impedance Stabilization Network as the monitoring point. The LISN used also contains a 250 uH CISPR adapter. This network provides for calibrated radio frequency noise measurements by the design of the internal low pass and high pass filters on the EUT and measurement ports, respectively.

POWER METER

A power meter and peak power sensor are used for all direct output power measurements from transmitters as they provide a broadband indication of the power output.

FILTERS/ATTENUATORS

External filters and precision attenuators are often connected between the receiving antenna or LISN and the receiver. This eliminates saturation effects and non-linear operation due to high amplitude transient events.

ANTENNAS

A biconical antenna is used to cover the range from 30 MHz to 300 MHz and a log periodic antenna is utilized from 300 MHz to 1000 MHz. Narrowband tuned dipole antennas are used over the entire 30 to 1000 MHz range for precision measurements of field strength. Above 1000 MHz, a horn antenna is used. The antenna calibration factors are included in site factors programmed into the test receivers.

ANTENNA MAST AND EQUIPMENT TURNTABLE

The antennas used to measure the radiated electric field strength are mounted on a non-conductive antenna mast equipped with a motor-drive to vary the antenna height.

ANSI C63.4 specifies that the test height above ground for table mounted devices shall be 80 centimeters. Floor mounted equipment shall be placed on the ground plane if the device is normally used on a conductive floor or separated from the ground plane by insulating material from 3 to 12 mm if the device is normally used on a non-conductive floor. During radiated measurements, the EUT is positioned on a motorized turntable in conformance with this requirement.

INSTRUMENT CALIBRATION

All test equipment is regularly checked to ensure that performance is maintained in accordance with the manufacturer's specifications. All antennas are calibrated at regular intervals with respect to tuned half-wave dipoles. An exhibit of this report contains the list of test equipment used and calibration information.

TEST PROCEDURES

EUT AND CABLE PLACEMENT

The FCC requires that interconnecting cables be connected to the available ports of the unit and that the placement of the unit and the attached cables simulate the worst case orientation that can be expected from a typical installation, so far as practicable. To this end, the position of the unit and associated cabling is varied within the guidelines of ANSI C63.4, and the worst case orientation is used for final measurements.

CONDUCTED EMISSIONS

Conducted emissions are measured at the plug end of the power cord supplied with the EUT. Excess power cord length is wrapped in a bundle between 30 and 40 centimeters in length near the center of the cord. Preliminary measurements are made to determine the highest amplitude emission relative to the specification limit for all the modes of operation. Placement of system components and varying of cable positions are performed in each mode. A final peak mode scan is then performed in the position and mode for which the highest emission was noted on all current carrying conductors of the power cord.

RADIATED EMISSIONS

Radiated emissions measurements are performed in two phases as well. A preliminary scan of emissions is conducted in which all significant EUT frequencies are identified with the system in a nominal configuration. At least two scans are performed from 30 MHz up to the frequency required by the regulation specified on page 1. One or more of these is with the antenna polarized vertically while the one or more of these is with the antenna polarized horizontally. During the preliminary scans, the EUT is rotated through 360°, the antenna height is varied and cable positions are varied to determine the highest emission relative to the limit.

A speaker is provided in the receiver to aid in discriminating between EUT and ambient emissions. Other methods used during the preliminary scan for EUT emissions involve scanning with near field magnetic loops, monitoring I/O cables with RF current clamps, and cycling power to the EUT.

Final maximization is a phase in which the highest amplitude emissions identified in the spectral search are viewed while the EUT azimuth angle is varied from 0 to 360 degrees relative to the receiving antenna. The azimuth which results in the highest emission is then maintained while varying the antenna height from one to four meters. The result is the identification of the highest amplitude for each of the highest peaks. Each recorded level is corrected in the receiver using appropriate factors for cables, connectors, antennas, and preamplifier gain. Emissions which have values close to the specification limit may also be measured with a tuned dipole antenna to determine compliance.

CONDUCTED EMISSIONS FROM ANTENNA PORT

Direct measurements are performed with the antenna port of the EUT connected to either the power meter or spectrum analyzer via a suitable attenuator and/or filter. These are used to ensure that the front end of the measurement instrument is not overloaded by the fundamental transmission.

Measurement bandwidths (video and resolution) are set in accordance with FCC procedures for the type of radio being tested.

SPECIFICATION LIMITS AND SAMPLE CALCULATIONS

The limits for conducted emissions from the AC power port are given in units of microvolts, the limits for radiated electric field emissions are given in units of microvolts per meter at a specified test distance and the output power limits are given in temrs of Watts, milliwatts or dBm. Data is measured in the logarithmic form of decibels relative to one microvolt, or dB microvolts (dBuV). For radiated emissions, the measured data is converted to the field strength at the antenna in dB microvolts per meter (dBuV/m). The results are then converted to the linear forms of uV and uV/m for comparison to published specifications.

Where the radiated electric field strength is expressed in terms of the equivalent isotropic radiated power (eirp) the following formula is used to determine the field strength limit in terms of microvolts per meter at a distance of 3m from the equipment under test:

$$E = \frac{1000000 \text{ v } 30 \text{ P}}{3} \quad \text{microvolts per meter}$$

where P is the eirp (Watts)

For reference, converting the voltage and electric field strength specification limits from linear to decibel form is accomplished by taking the base ten logarithm, then multiplying by 20. Conversion of power specification limits from linear units (in milliwatts) to decibel form (in dBm) is accomplished by taking the base ten logarithm, then multiplying by 10.

FCC 15.407 (a) OUTPUT POWER LIMITS

The table below shows the limits for output power and output power density. Where the signal bandwidth is less than 20 MHz the maximum output power is reduced to the power spectral density limit plus 10 times the log of the bandwidth (in MHz).

Operating Frequency (MHz)	Output Power	Power Spectral Density
5150 - 5250	50mW (17 dBm)	4 dBm/MHz
5250 - 5350	250 mW (24 dBm)	11 dBm/MHz
5725 – 5825	1 Watts (30 dBm)	17 dBm/MHz

For system using antennas with gains exceeding 6dBi, the output power and power spectral density limits are reduced by 1dB for every dB the antenna gain exceeds 6dBi.
Fixed point-to-point applications using the 5725 – 5825 MHz band may use antennas with gains of up to 23dBi without this limitation. If the gain exceeds 23dBi then the output power limit of 1 Watt is reduced by 1dB for every dB the gain exceeds 23dBi.

RS-210 6.2.2(q1) OUTPUT POWER LIMITS

The table below shows the limits for output power and output power density. Where the signal bandwidth is less than 20 MHz the maximum output power is reduced to the power spectral density limit plus 10 times the log of the bandwidth (in MHz).

Operating Frequency (MHz)	Output Power	Power Spectral Density
5150 - 5250	200mW (23 dBm)	10 dBm/MHz
5250 - 5350	250 mW (24 dBm)	11 dBm/MHz
5725 – 5825	1 Watts (30 dBm)	17 dBm/MHz

For system using antennas with gains exceeding 6dBi, the output power and power spectral density limits are reduced by 1dB for every dB the antenna gain exceeds 6dBi.
Fixed point-to-point applications using the 5725 – 5825 MHz band may use antennas with gains of up to 23dBi without this limitation. If the gain exceeds 23dBi then the output power limit of 1 Watt is reduced by 1dB for every dB the gain exceeds 23dBi.

SPURIOUS RADIATED EMISSIONS LIMITS

The table below shows the limits for unwanted (spurious) emissions falling in the restricted bands detailed in Part 15.205 and Industry Canada RSS-210 Table 2.

Frequency Range (MHz)	Limit (uV/m @ 3m)	Limit (dBuV/m @ 3m)
30 to 88	100	40
88 to 216	150	43.5
216 to 960	200	46.0
Above 960	500	54.0

The table below shows the limits for unwanted (spurious) emissions outside of the restricted bands above 1GHz.

Operating Frequency (MHz)	EIRP Limit (dBm)	Equivalent Field Strength At 3m (dBuV/m)
5150 - 5250	-27 dBm	68.3 dBuV/m
5250 - 5350	-27 dBm (note 1)	68.3 dBuV/m
5725 – 5825	-27 dBm (note 2)	68.3 dBuV/m
	-17 dBm (note 3)	78.3 dBuV/m

Note 1: If operation is restricted to indoor use only then emissions in the band 5.15 – 5.25 GHz must meet the power spectral density limits for the intentional signals detailed in RSS 210 and FCC Subpart E for devices operating in the 5.15 – 5.25 Ghz band.
Note 2: Applies to spurious signals separated by more than 10 MHz from the allocated band.
Note 3: Applies to spurious signals within 10 MHz of the allocated band.

AC POWER PORT CONDUCTED EMISSIONS LIMITS

The table below shows the limits for emissions on the AC power line as detailed in FCC Part 15.205 and Industry Canada RSS-210 section 6.6.

Frequency Range (MHz)	Limit (uV)	Limit (dBuV)
0.450 to 30.000	250	48

SAMPLE CALCULATIONS - CONDUCTED EMISSIONS

Receiver readings are compared directly to the conducted emissions specification limit (decibel form) as follows:

$$R_r - B = C$$

and

$$C - S = M$$

where:

R_r = Receiver Reading in dBuV

B = Broadband Correction Factor*

C = Corrected Reading in dBuV

S = Specification Limit in dBuV

M = Margin to Specification in +/- dB

* Broadband Level - Per ANSI C63.4, 13 dB may be subtracted from the quasi-peak level if it is determined that the emission is broadband in nature. If the signal level in the average mode is six dB or more below the signal level in the peak mode, the emission is classified as broadband.

SAMPLE CALCULATIONS - RADIATED EMISSIONS

Receiver readings are compared directly to the specification limit (decibel form). The receiver internally corrects for cable loss, preamplifier gain, and antenna factor. The calculations are in the reverse direction of the actual signal flow, thus cable loss is added and the amplifier gain is subtracted. The Antenna Factor converts the voltage at the antenna coaxial connector to the field strength at the antenna elements. A distance factor, when used for electric field measurements, is calculated by using the following formula:

$$F_d = 20*LOG_{10} (D_m/D_s)$$

where:

F_d = Distance Factor in dB

D_m = Measurement Distance in meters

D_s = Specification Distance in meters

Measurement Distance is the distance at which the measurements were taken and Specification Distance is the distance at which the specification limits are based. The antenna factor converts the voltage at the antenna coaxial connector to the field strength at the antenna elements.

The margin of a given emission peak relative to the limit is calculated as follows:

$$R_c = R_r + F_d$$

and

$$M = R_c - L_s$$

where:

R_r = Receiver Reading in dBuV/m

F_d = Distance Factor in dB

R_c = Corrected Reading in dBuV/m

L_s = Specification Limit in dBuV/m

M = Margin in dB Relative to Spec

EXHIBIT 1: Test Equipment Calibration Data

2 Pages

Radiated Emissions, 15-Jun-04
Engineer: Mark Briggs

Manufacturer	Description	Model #	Asset #	Cal Due
EMCO	Horn Antenna, D. Ridge 1-18GHz	3115	786	29-Oct-04
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	870	12-Jan-05
Hewlett Packard	EMC Spectrum Analyzer, 9KHz-26.5GHz	8593EM	1141	23-Mar-05

Radio Antenna Port and Radiated Spurious Emissions, 14-Jul-04
Engineer: Mark Briggs

Manufacturer	Description	Model #	Asset #	Cal Due
Elliott Laboratories	Tunable Dipole Antenna	(White) (410-1000 MHz)	323	16-Mar-05
EMCO	Horn Antenna, D. Ridge 1-18GHz	3115	487	13-May-06
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	870	12-Jan-05
Hewlett Packard	EMC Spectrum Analyzer, 9KHz-26.5GHz	8593EM	1141	23-Mar-05
Hewlett Packard	Microwave EMI test system (SA40, 30Hz - 40GHz), Sunnyvale	84125C	1149	11-Jun-05
EMCO	Horn Antenna, D. Ridge 1-18GHz	3115	1242	09-Oct-04

Conducted Emissions - AC Power Ports, 15-Jul-04
Engineer: Juan Martinez

Manufacturer	Description	Model #	Asset #	Cal Due
Solar Electronics Co	LISN	8028-50-TS-24-BNC support	904	07-Aug-04
Rohde & Schwarz	Test Receiver, 0.009-2750 MHz	ESN	1332	12-May-05
Rohde& Schwarz	Pulse Limiter	ESH3 Z2	1398	12-Jan-05

Radiated Emissions, 1000 - 26,500 MHz, 15-Jul-04
Engineer: Juan Martinez

Manufacturer	Description	Model #	Asset #	Cal Due
Hewlett Packard	Microwave EMI test system (SA40, 30Hz - 40GHz), Sunnyvale	84125C	1149	11-Jun-05
Rohde & Schwarz	Test Receiver, 0.009-2750 MHz	ESN	1332	12-May-05
EMCO	Log Periodic Antenna, 0.2-2 GHz	3148	1404	17-Nov-04
EMCO	Biconical Antenna, 30-300 MHz	3110B	1498	15-Jan-05

Radiated Emissions, 30 - 40,000 MHz, 15-Jul-04
Engineer: Juan Martinez

Manufacturer	Description	Model #	Asset #	Cal Due
EMCO	Horn Antenna, D. Ridge 1-18GHz	3115	487	13-May-06
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	870	12-Jan-05
Hewlett Packard	EMC Spectrum Analyzer, 9KHz-26.5GHz	8593EM	1141	23-Mar-05
Hewlett Packard	Microwave EMI test system (SA40, 30Hz - 40GHz), Sunnyvale	84125C	1149	11-Jun-05
EMCO	Horn Antenna, D. Ridge 1-18GHz	3115	1242	09-Oct-04

Substitution Method, 15-Jul-04
Engineer: Juan Martinez

Manufacturer	Description	Model #	Asset #	Cal Due
EMCO	Horn Antenna, D. Ridge 1-18GHz	3115	487	13-May-06
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	870	12-Jan-05
Hewlett Packard	EMC Spectrum Analyzer, 9KHz-26.5GHz	8593EM	1141	23-Mar-05
Hewlett Packard	Microwave EMI test system (SA40, 30Hz - 40GHz), Sunnyvale	84125C	1149	11-Jun-05
EMCO	Horn Antenna, D. Ridge 1-18GHz	3115	1242	09-Oct-04

Substitution Method, 15-Jul-04
Engineer: Juan Martinez

Manufacturer	Description	Model #	Asset #	Cal Due
Rohde & Schwarz	Power Sensor, 1uW-100mW, DC-18 GHz, 50ohm	NRV-Z51	1069	18-Mar-05
Hewlett Packard	Signal Generator (sweep) 0.01 - 26.5 GHz	8340A	1244	N/A
Rohde & Schwarz	Power Meter, Single Channel	NRVS	1534	18-Mar-05
EMCO	Horn Antenna, D. Ridge 1-18GHz	3115	487	13-May-06
EMCO	Horn Antenna, D. Ridge 1-18GHz	3115	1242	09-Oct-04

Antenna RF Port, 15-Jul-04
Engineer: Juan Martinez

Manufacturer	Description	Model #	Asset #	Cal Due
Rohde & Schwarz	Power Sensor, 1uW-100mW, DC-18 GHz, 50ohm	NRV-Z51	1069	18-Mar-05
Hewlett Packard	Signal Generator (sweep) 0.01 - 26.5 GHz	8340A	1244	N/A
Rohde & Schwarz	Power Meter, Single Channel	NRVS	1534	18-Mar-05
Hewlett Packard	Microwave EMI test system (SA40, 30Hz - 40GHz), Sunnyvale	84125C	1149	11-Jun-05

Temperature and Voltage Extreme, 15-Jul-04
Engineer: Juan Martinez

Manufacturer	Description	Model #	Asset #	Cal Due
Rohde & Schwarz	Power Sensor, 1uW-100mW, DC-18 GHz, 50ohm	NRV-Z51	1069	18-Mar-05
Hewlett Packard	Signal Generator (sweep) 0.01 - 26.5 GHz	8340A	1244	N/A
Rohde & Schwarz	Power Meter, Single Channel	NRVS	1534	18-Mar-05
Hewlett Packard	EMC Spectrum Analyzer, 9KHz-26.5GHz	8593EM	1141	23-Mar-05
California Instruments	Harmonics & Flicker test System	5001ix	1221	22-Aug-04
California Instruments	Harmonics & Flicker Power Unit	CTS-LR1-PCI (PACS-1)	1222	22-Aug-04

Radiated Spurious Emisions 30 - 40,000 MHz , 31-Jul-04
Engineer: Juan Martinez

Manufacturer	Description	Model #	Asset #	Cal Due
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	785	23-Jan-05
Hewlett Packard	EMC Spectrum Analyzer, 9KHz - 22GHz	8593EM	1319	20-Nov-04
EMCO	Horn Antenna, D. Ridge 1-18GHz	3115	1561	05-May-06
Micro-Tronics	Band Reject Filter, 5150-5350MHz	BRC50703-02	1680	14-Jun-05

EXHIBIT 2: Test Data Log Sheets

ELECTROMAGNETIC EMISSIONS

TEST LOG SHEETS

AND

MEASUREMENT DATA

T55971 32 Pages

Elliott

EMC Test Data

Client:	Adimos, Inc.	Job Number:	J55938
Model:	Wireless Video Module Model 1101	T-Log Number:	T55971
		Account Manager:	Susan Pelzl
Contact:	Sherry Kathpalia / NuZeal		
Emissions Spec:	FCC 15.401, EN 301 893-1	Class:	Radio
Immunity Spec:	EN 301 489 - 17	Environment:	-

EMC Test Data

For The

Adimos, Inc.

Model

Wireless Video Module Model 1101

Date of Last Test: 8/7/2004

Client:	Adimos, Inc.	Job Number:	J55938
Model:	Wireless Video Module Model 1101	T-Log Number:	T55971
		Account Manager:	Susan Pelzl
Contact:	Sherry Kathpalia / NuZeal		
Emissions Spec:	FCC 15.401, EN 301 893-1	Class:	Radio
Immunity Spec:	EN 301 489 - 17	Environment:	-

EUT INFORMATION

General Description

The Adimos Inc. model WVM-1101 is a radio transceiver, which is designed to transmit / receive audio and video data over a short range using 802.11a. There are two versions, the "Transmit" module is designed to convert audio/video signals into digital data and transmit it to the "Receive" module, which contains circuitry to convert the received data back to analog audio/video signals. The "receive" module is also designed to convert an IR signal from a remote control into data for transmission to the "Transmit" module which converts the IR control signal to output back to the host device, such as a VCR, TV or similar piece of AV equipment. Both the transmit and receive modules used an identical rf transceiver module. The EUT was treated as tabletop equipment during testing. The electrical rating of the EUT is 3.3 V dc.

Equipment Under Test

Manufacturer	Model	Description	Serial Number	FCC ID
Adimos	WVM 1101	transceiver	prototype	SE6-WVM1101

Other EUT Details

The EUT is a modular transceiver. During normal use the interface ports would be connected internally within the host device. The EUT was tested in a host fixture. For EN 301 893 tests the host fixture's dc input was wrapped through a ferrite core.

EUT Enclosure

The EUT does not have an enclosure as it is designed to be installed within the enclosure of a host device.

Modification History

Mod. #	Test	Date	Modification
1	Radiated emissions	7/31/2004	RF Absorbing material mounted inside the rf shield within the transceiver module.

Modifications applied are assumed to be used on subsequent tests unless otherwise stated as a further modification.

Client:	Adimos, Inc.	Job Number:	J55938
Model:	Wireless Video Module Model 1101	T-Log Number:	T55971
		Account Manager:	Susan Pelzl
Contact:	Sherry Kathpalia / NuZeal		
Emissions Spec:	FCC 15.401, EN 301 893-1	Class:	Radio
Immunity Spec:	EN 301 489 - 17	Environment:	-

Test Configuration #1

Local Support Equipment

Manufacturer	Model	Description	Serial Number	FCC ID
Adimos	WVM- DS Rev.C	test fixture	none	none
Adimos	(2) antenna	antenna	none	none
Mean Wel	PSU 30A-0	ac/dc power supply		none

Remote Support Equipment

Manufacturer	Model	Description	Serial Number	FCC ID
none				

Interface Cabling and Ports

Port	Connected To	Cable(s)		
		Description	Shielded or Unshielded	Length(m)
ethernet	laptop via hub	Cat 5 UTP	unshielded	3
Video Input	unterminated	video	shielded	1
Audio input left	unterminated		shielded	1
Audio Input right	unterminated		shielded	1
S Video	not connected			
antenna 1	antenna	Rx / Tx antenna	shielded	0.3
antenna 2	antenna	Rx / Tx antenna	shielded	0.3

Note: Some of the audio and video ports were not connected to the test fixture as the client that these ports would normally be connected a real product as opposed to a test fixture which is designed to allow setting the modules to non-standard modes such as "continuous transmit" for testing purposes. A laptop computer was used to configure the modules then disconnected during the test.

EUT Operation During Emissions

See data sheets. The RX and TX modules were on the EUT table operating in a continuous Transmit or receive mode.

Client:	Adimos, Inc.	Job Number:	J55938
Model:	Wireless Video Module Model 1101	T-Log Number:	T55971
		Account Manager:	Susan Pelzl
Contact:	Sherry Kathpalia / NuZeal		
Emissions Spec:	FCC 15.401, EN 301 893-1	Class:	Radio
Immunity Spec:	EN 301 489 - 17	Environment:	-

Test Configuration #2

Local Support Equipment

Manufacturer	Model	Description	Serial Number	FCC ID
Adimos	WVM- DS Rev.C	test fixture	none	none
Adimos	(2) antenna	antenna	none	none
Mean Wel	PSU 30A-0	ac/dc power supply		none

Remote Support Equipment

Manufacturer	Model	Description	Serial Number	FCC ID
none				

Interface Cabling and Ports

Port	Connected To	Cable(s)		
		Description	Shielded or Unshielded	Length(m)
ethernet	laptop via hub	Cat 5 UTP	unshielded	3
Video Input	not connected			
Audio input left	not connected			
Audio Input right	not connected			
S Video	not connected			
antenna 1	antenna	Rx / Tx antenna	shielded	0.3
antenna 2	antenna	Rx / Tx antenna	shielded	0.3

The audio and video ports were not connected to the test fixture, as the purpose was to evaluate the device for modular approval. Emissions form these connections will be evaluated against the appropriate product standard when the module is installed in an end product. A laptop computer was used to configure the module in transmit or receive mode and then the Ethernet cable was disconnected during radiated emissions tests.

EUT Operation During Emissions

See data sheets. The RX and TX modules were on the EUT table operating in a continuous Transmit or receive mode.

Client:	Adimos, Inc.	Job Number:	J55938
Model:	Wireless Video Module Model 1101	T-Log Number:	T55971
		Account Manager:	Susan Pelzl
Contact:	Sherry Kathpalia / NuZeal		
Spec:	FCC 15.401, EN 301 893-1	Class:	N/A

FCC Part 15 Subpart E Tests

Test Specifics

Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.

Date of Test: 7/31/2004
Test Engineer: Juan Martinez
Test Location: Chamber #2
Config. Used: 1
Config Change: None
EUT Voltage: 120V/60Hz

General Test Configuration

When measuring the conducted emissions from the EUT's antenna port, the antenna port of the EUT was connected to the spectrum analyzer or power meter via a suitable attenuator to prevent overloading the measurement system. All measurements are corrected to allow for the external attenuators and cables used.

Ambient Conditions:

Temperature:	24	°C
Rel. Humidity:	49	%

Summary of Results

Run #	Test Performed	Limit	Result	Comments
1	Output Power	15.407(a) (1), (2)	Pass	5180MHz @ 16.6dBm 5320 MHz @ 17.9dBm
1	Power Spectral Density (PSD)	15.407(a) (1), (2)	Pass	5180MHz @ -1.1dBm 5320 MHz @ -0.4dBm
1	26dB Bandwidth	15.407	Pass	29.1 MHz
1	99% Bandwidth	RSS 210	Pass	17.3 MHz
1	20 dB Bandwidth	RSS 210	Pass	20.3 MHz
2	Peak Excursion Envelope	15.407(a) (6)	Pass	Peak to average excursion < 13dB
3	Antenna Conducted - Out of Band Spurious	15.407(b)	Pass	All emissions below the 27dBm/MHz limit

Modifications Made During Testing:

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Client:	Adimos, Inc.	Job Number:	J55938
Model:	Wireless Video Module Model 1101	T-Log Number:	T55971
		Account Manager:	Susan Pelzl
Contact:	Sherry Kathpalia / NuZeal		
Spec:	FCC 15.401, EN 301 893-1	Class:	N/A

Run #1: Bandwidth, Output Power and Power Spectral Density

Antenna Gain: 5.6 dBi

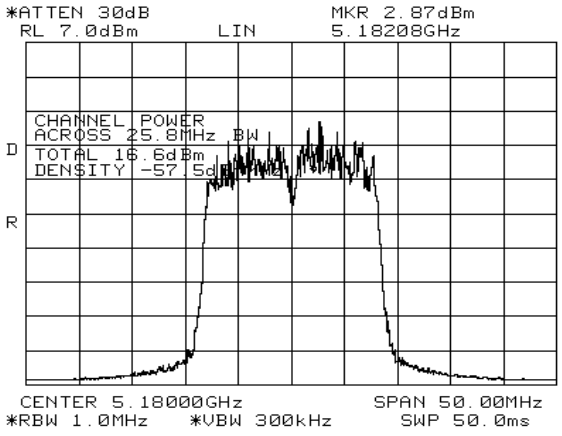
Frequency	Bandwidth (note 1) MHz			Output Power (note 2) dBm		Power (Watts)	PSD (FCC - note 3) dBm/MHz		PSD (RSS210 - note 4) dBm/MHz	
(MHz)	20dB	26dB	99%	Measured	Limit		Measured	Limit	Avg	Peak
5180	20.3	29.1	17.3	16.6	17.0	0.046	-1.1	4.0	4.2	8.4
5260	20.1	26.3	17.1	17.9	24.0	0.062	-1.7	11.0	5.6	9.8
5320	19.8	25.1	17.3	17.9	24.0	0.062	-0.4	11.0	5.5	9.4

Note 1	Bandwidth measured using RBW = 300kHz.
Note 2	T= 1/t (t=4uS) = VBW of 300kHz. RBW = 1MHz, VBW =300kHz. Linear mode, sample detector and max hold for 60 seconds. Use the channel power built in function of the analyzer to integrate power across the 26-dB BW.
Note 3	Measurement of peak power spectral density was made using RBW = 1MHz, VBW = 3MHz. Use trace averaging of 100 sweeps.
Note 4	Measurement of peak power spectral density was made using RBW = 1MHz, VBW = 1MHz. The average value is the peak output power divided by the 99% bandwidth. For RSS210 the measured value must not exceed the average value by more than 6dB without reducing the limit for output power.

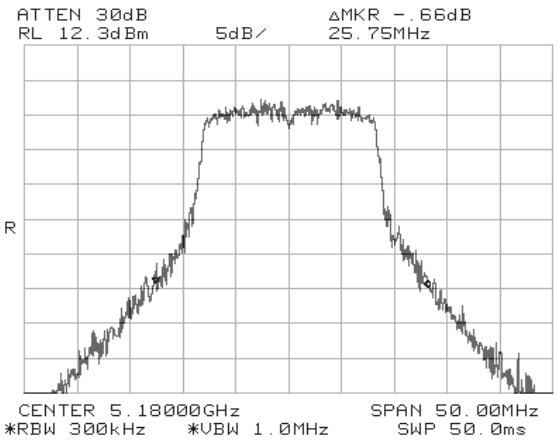
Client:	Adimos, Inc.	Job Number:	J55938
Model:	Wireless Video Module Model 1101	T-Log Number:	T55971
		Account Manager:	Susan Pelzl
Contact:	Sherry Kathpalia / NuZeal		
Spec:	FCC 15.401, EN 301 893-1	Class:	N/A

5180 MHz (Setting 13.5)

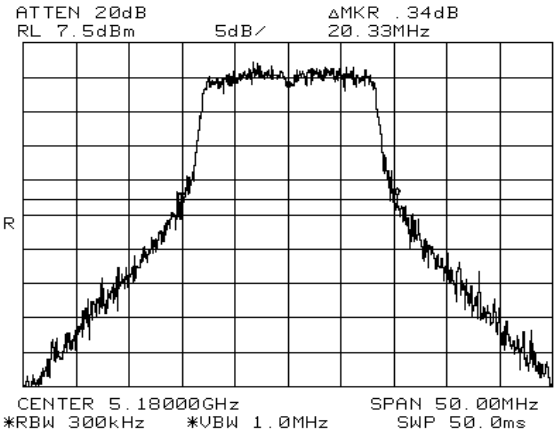
Power Measurements



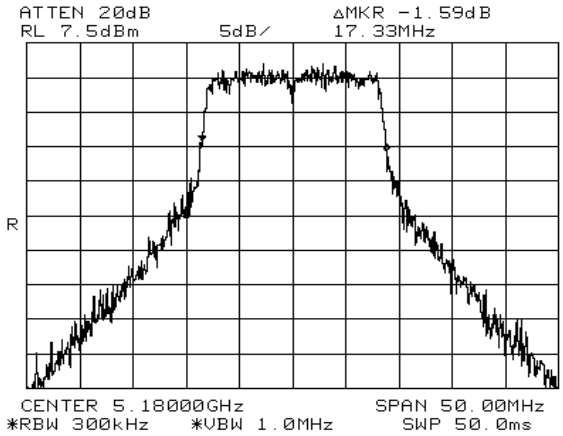
26-dB



20-dB

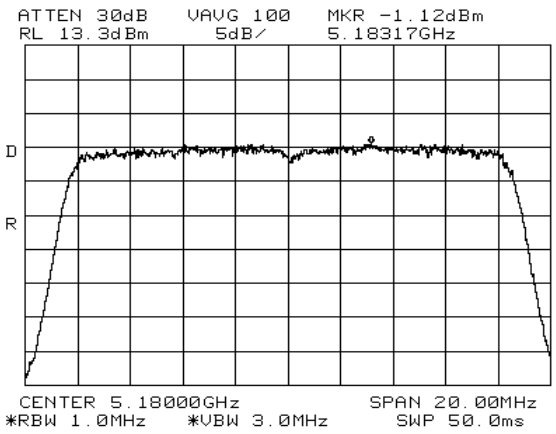


99%

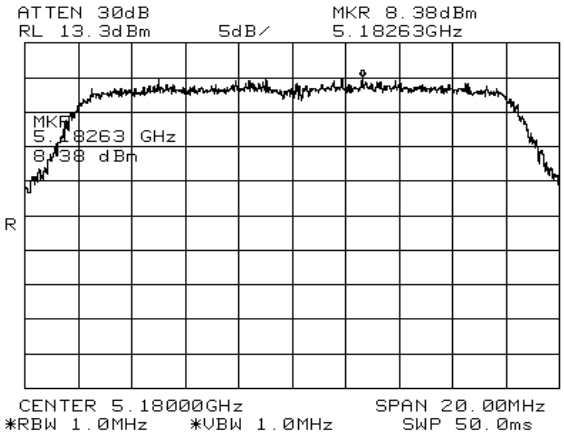


Client:	Adimos, Inc.	Job Number:	J55938
Model:	Wireless Video Module Model 1101	T-Log Number:	T55971
		Account Manager:	Susan Pelzl
Contact:	Sherry Kathpalia / NuZeal		
Spec:	FCC 15.401, EN 301 893-1	Class:	N/A

FCC PSD



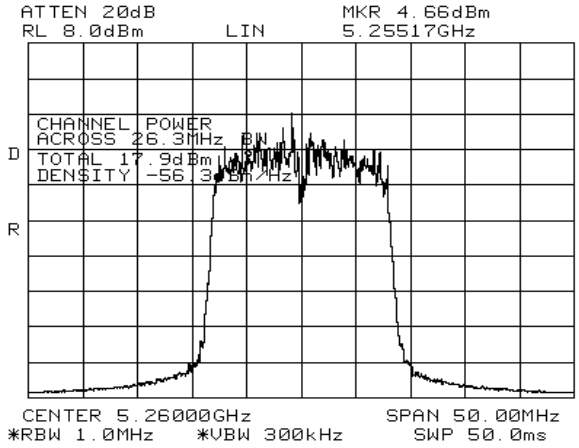
IC PSD



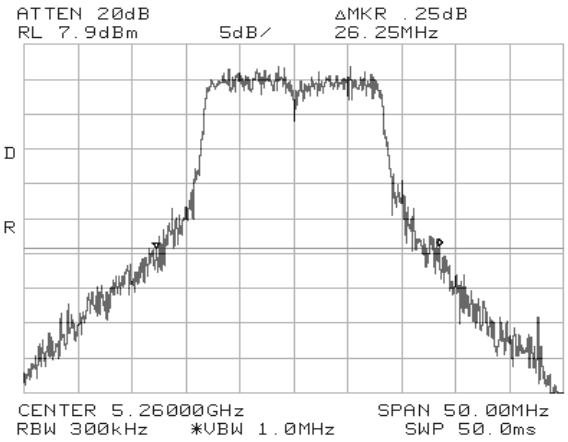
Client:	Adimos, Inc.	Job Number:	J55938
Model:	Wireless Video Module Model 1101	T-Log Number:	T55971
		Account Manager:	Susan Pelzl
Contact:	Sherry Kathpalia / NuZeal		
Spec:	FCC 15.401, EN 301 893-1	Class:	N/A

5260 MHz (Setting 17.5)

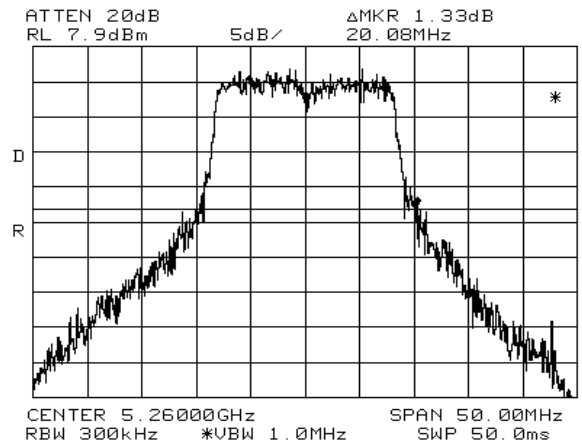
Power Measurements



26-dB



20-dB



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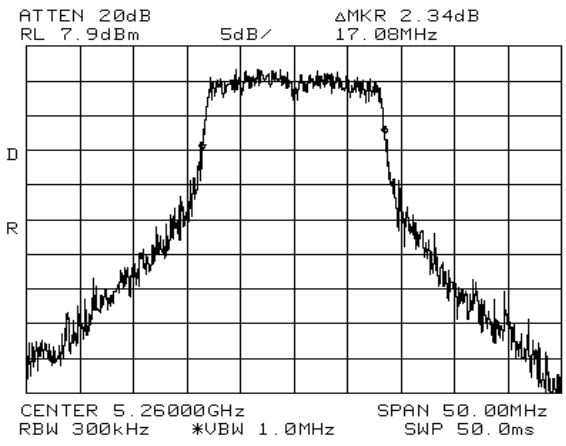
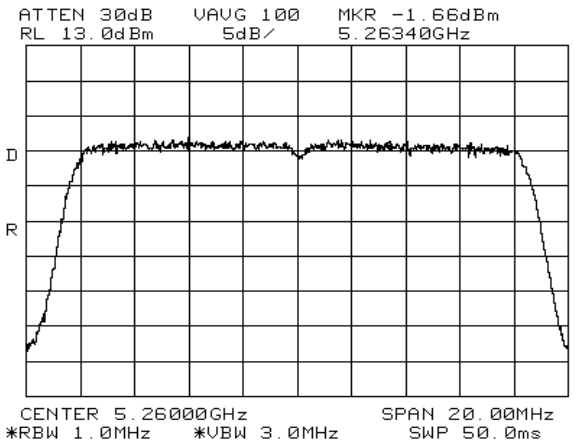


Client:	Adimos, Inc.	Job Number:	J55938
Model:	Wireless Video Module Model 1101	T-Log Number:	T55971
		Account Manager:	Susan Pelzl
Contact:	Sherry Kathpalia / NuZeal		
Spec:	FCC 15.401, EN 301 893-1	Class:	N/A

FCC PSD



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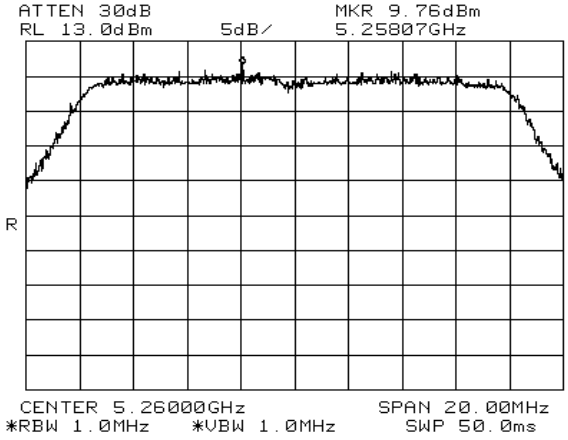
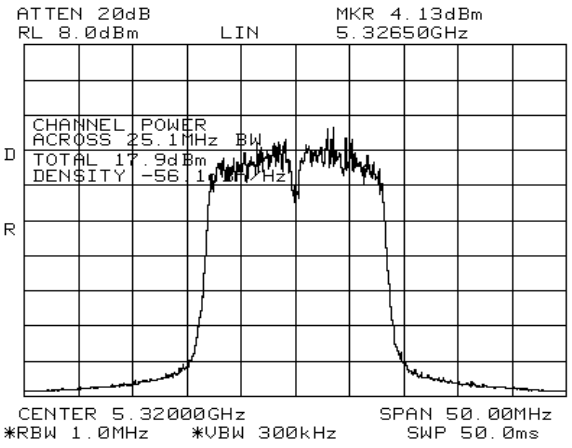


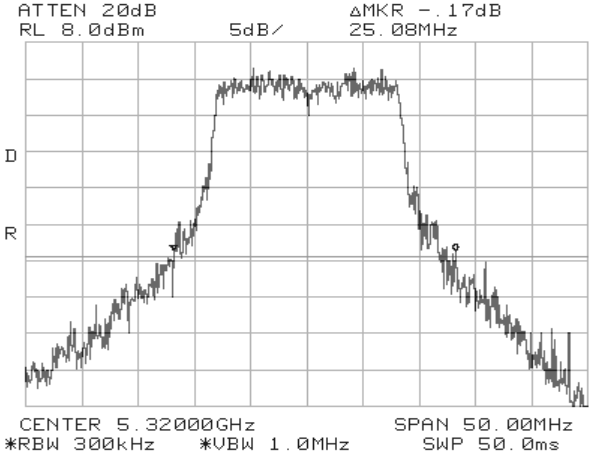
Client:	Adimos, Inc.	Job Number:	J55938
Model:	Wireless Video Module Model 1101	T-Log Number:	T55971
		Account Manager:	Susan Pelzl
Contact:	Sherry Kathpalia / NuZeal		
Spec:	FCC 15.401, EN 301 893-1	Class:	N/A

5320 MHz (Setting 17.5)

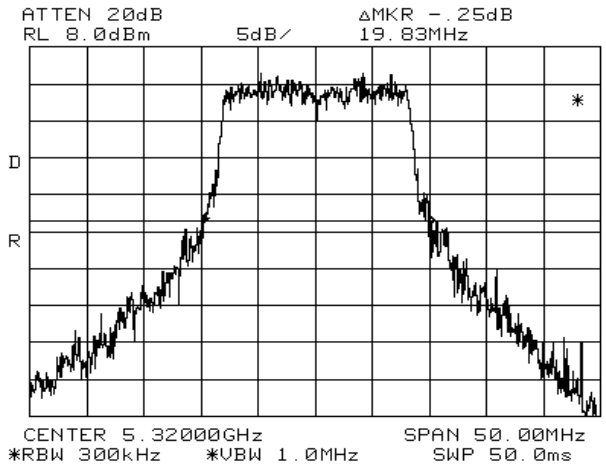
Power Measurements



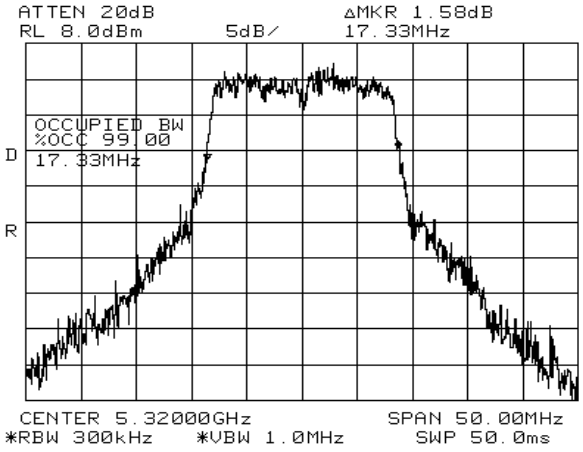
26-dB



20-dB



99%



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Model:	Wireless Video Module Model 1101	T-Log Number:	T55971
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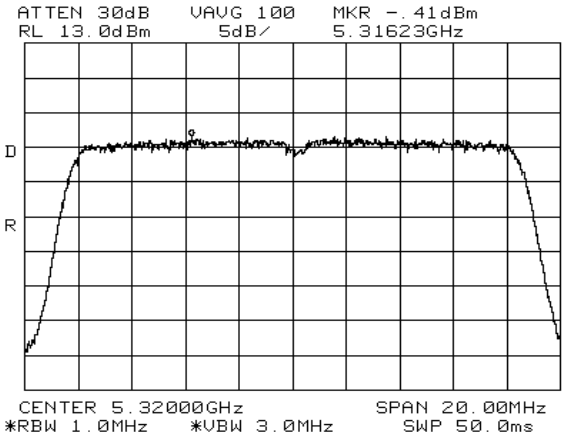
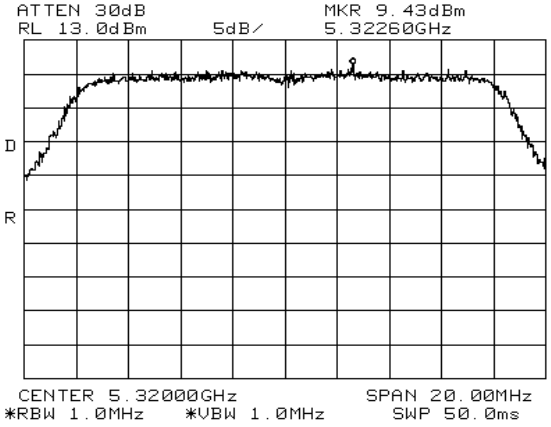
Contact:	Sherry Kathpalia / NuZeal		
Spec:	FCC 15.401, EN 301 893-1	Class:	N/A

FCC PSD



IC PSD



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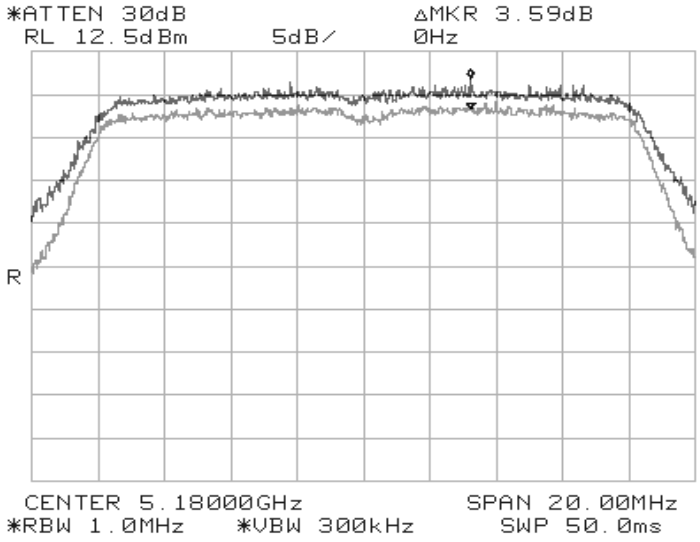
Model:	Wireless Video Module Model 1101	T-Log Number:	T55971
		Account Manager:	Susan Pelzl
Contact:	Sherry Kathpalia / NuZeal		
Spec:	FCC 15.401, EN 301 893-1	Class:	N/A

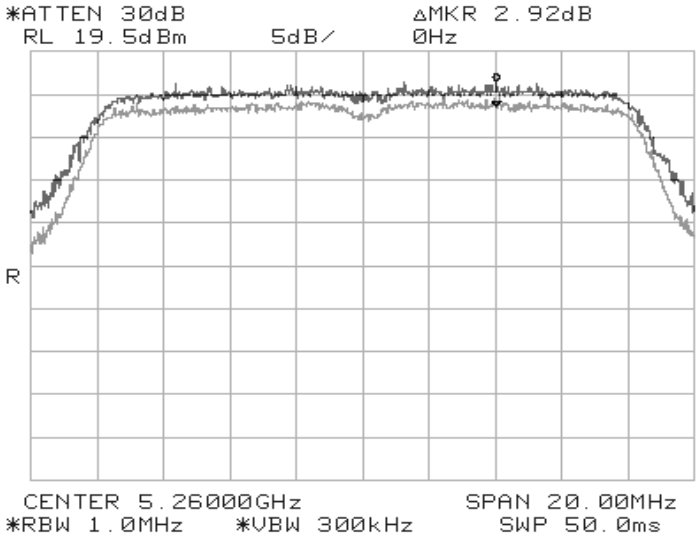
Run #2: Peak Excursion Measurement

Plots Showing Peak Excursion

Trace A: RBW = 1MHz VBW = 3MHz

Trace B: RBW = 1 MHz, VBW = Method# 3





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Model:	Wireless Video Module Model 1101	T-Log Number:	T55971
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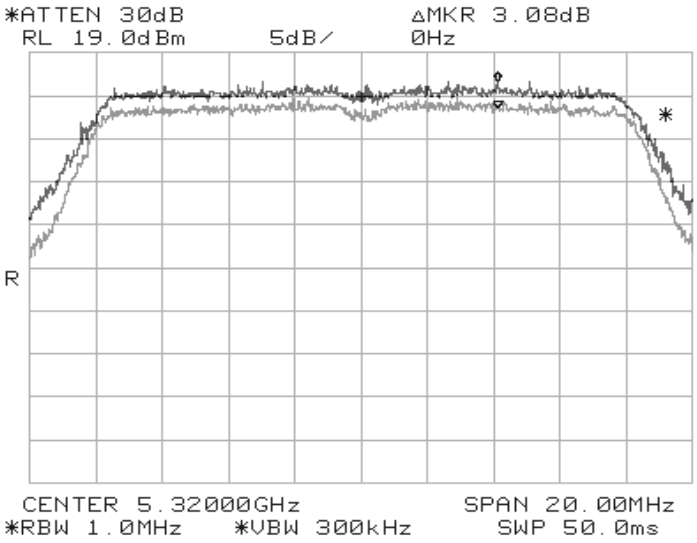
Contact:	Sherry Kathpalia / NuZeal		
Spec:	FCC 15.401, EN 301 893-1	Class:	N/A

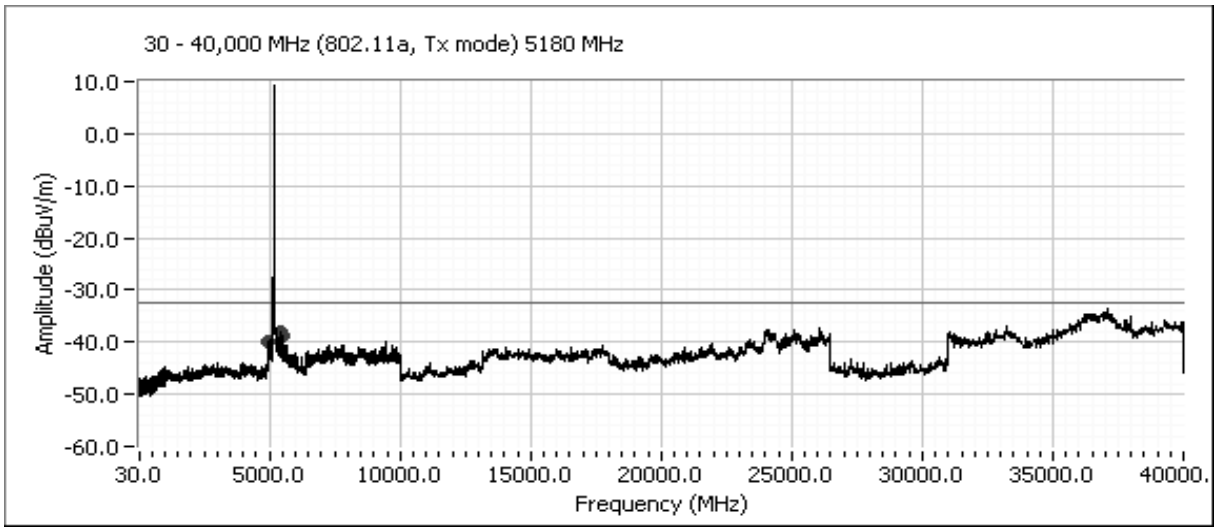


Client:	Adimos, Inc.	Job Number:	J55938
Model:	Wireless Video Module Model 1101	T-Log Number:	T55971
		Account Manager:	Susan Pelzl
Contact:	Sherry Kathpalia / NuZeal		
Spec:	FCC 15.401, EN 301 893-1	Class:	N/A

Run #3: Out Of Band Spurious Emissions - Antenna Conducted

The antenna gain of the radios integral antenna is 5.6dBi. The EIRP limit is -27dBm/MHz for all out of band signals that do not fall in restricted bands. A limit of -32.6 dBm was, therefore, used for signals not in restricted bands and close to the intentional band with the assumption that the antenna gain was equal to 5.6 within 100 MHz of the upper and lower band edges. For signals removed from the band edge by more than 100MHz, radiated measurements were made (refer to run #6) if the signal amplitude exceeded -37dBm.

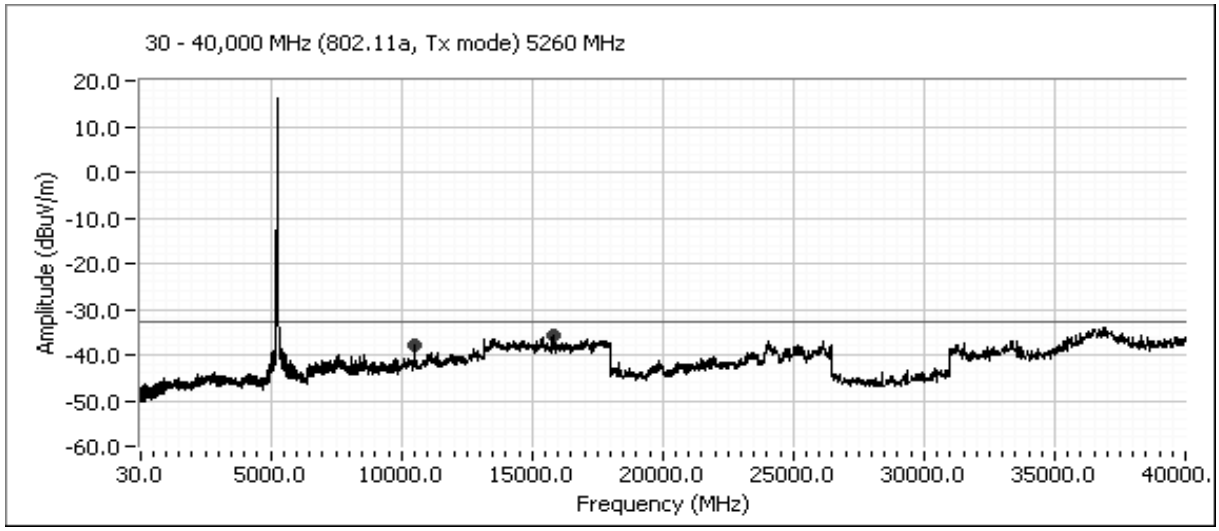
Plots Showing Out-Of-Band Emissions (RBW=VBW=1MHz)



Frequency MHz	Level dBm	Port	FCC 15.407 Limit	FCC 15.407 Margin	Detector	Comments
5436.667	-38.2	RF Port	-32.6	-5.6	Peak	RB=VB = 1MHz
5528.334	-38.8	RF Port	-32.6	-6.2	Peak	RB=VB = 1MHz
4950.834	-39.7	RF Port	-32.6	-7.1	Peak	RB=VB = 1MHz

Note 1:	Signal is in a restricted band.
Note 2:	Signal is not in restricted band. Limit is -27dBm eirp. As the signal strength is significantly lower than -27dBm no field strength measurements required.
Note 3:	Signal is not in restricted band. Limit is -27dBm eirp. Although the signal strength is significantly lower than -27dBm field strength measurements were made.
Note 4:	All spurious signals in this frequency band measured during digital device radiated emissions test.

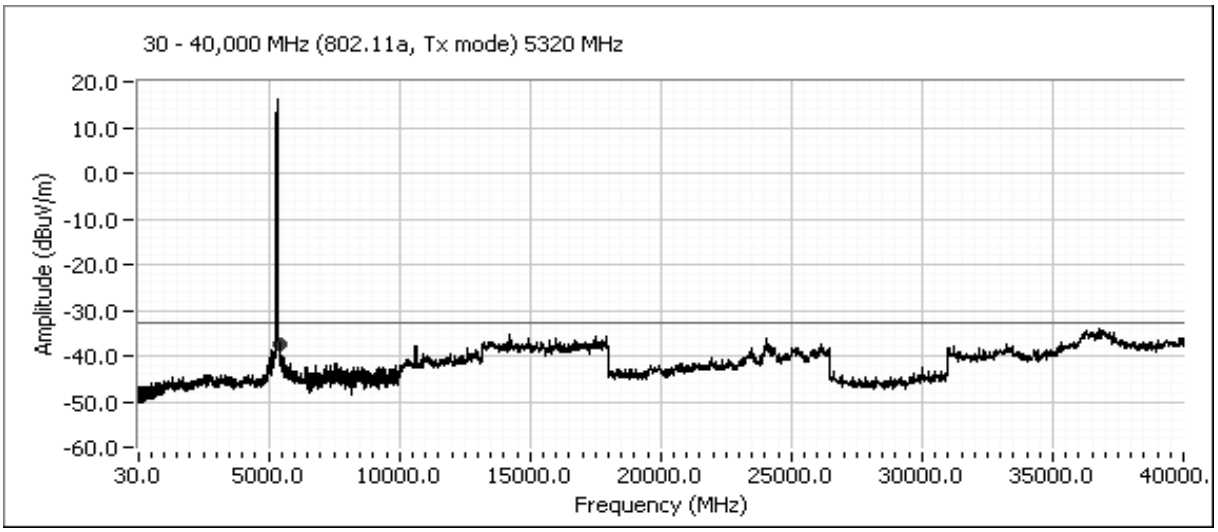
Client:	Adimos, Inc.	Job Number:	J55938
Model:	Wireless Video Module Model 1101	T-Log Number:	T55971
		Account Manager:	Susan Pelzl
Contact:	Sherry Kathpalia / NuZeal		
Spec:	FCC 15.401, EN 301 893-1	Class:	N/A



Frequency MHz	Level dBm	Port	FCC 15.407 Limit	FCC 15.407 Margin	Detector	Comments
15777.00	-35.6	RF Port	-32.6	-3.0	Peak	RB=VB = 1MHz
10520.92	-37.9	RF Port	-32.6	-5.3	Peak	RB=VB = 1MHz

Note 1:	Signal is in a restricted band.
Note 2:	Signal is not in restricted band. Limit is -27dBm eirp. As the signal strength is significantly lower than -27dBm no field strength measurements required.
Note 3:	Signal is not in restricted band. Limit is -27dBm eirp. Although the signal strength is significantly lower than -27dBm field strength measurements were made.
Note 4:	All spurious signals in this frequency band measured during digital device radiated emissions test.

Client:	Adimos, Inc.	Job Number:	J55938
Model:	Wireless Video Module Model 1101	T-Log Number:	T55971
		Account Manager:	Susan Pelzl
Contact:	Sherry Kathpalia / NuZeal		
Spec:	FCC 15.401, EN 301 893-1	Class:	N/A



Frequency MHz	Level dBm	Port	FCC 15.407 Limit	FCC 15.407 Margin	Detector	Comments
5436.667	-37.5	RF Port	-32.6	-4.9	Peak	RB=VB = 1MHz

Note 1:	Signal is in a restricted band.
Note 2:	Signal is not in restricted band. Limit is -27dBm eirp. As the signal strength is significantly lower than -27dBm no field strength measurements required.
Note 3:	Signal is not in restricted band. Limit is -27dBm eirp. Although the signal strength is significantly lower than -27dBm field strength measurements were made.
Note 4:	All spurious signals in this frequency band measured during digital device radiated emissions test.

Client:	Adimos, Inc.	Job Number:	J55938
Model:	Wireless Video Module Model 1101	T-Log Number:	T55971
		Account Manager:	Susan Pelzl
Contact:	Sherry Kathpalia / NuZeal		
Spec:	FCC 15.401, EN 301 893-1	Class:	N/A

Radiated Emissions

Test Specifics

Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.

Date of Test: 7/31/2004
Test Engineer: Jmartinez
Test Location: SVOATS #2
Config. Used: 2
Config Change: None
EUT Voltage: 120V/60Hz

General Test Configuration

The EUT and all local support equipment were located on the turntable for radiated spurious emissions testing. All remote support equipment was located on turntable floor.

For radiated emissions testing the measurement antenna was located 3 meters from the EUT.

Ambient Conditions:

Temperature: 22 °C
Rel. Humidity: 59 %

Summary of Results

Run #	Test Performed	Limit	Result	Margin
1a - 1c	RE, 30 - 40,000 MHz - Spurious Emissions	FCC Part 15.209 / 15.401	Pass	-0.8dB @ 5350 MHz

Modifications Made During Testing:

No modifications were made to the EUT during testing. Modifications were made to the EUT by the client prior to testing to reduce spurious emissions.

Deviations From The Standard

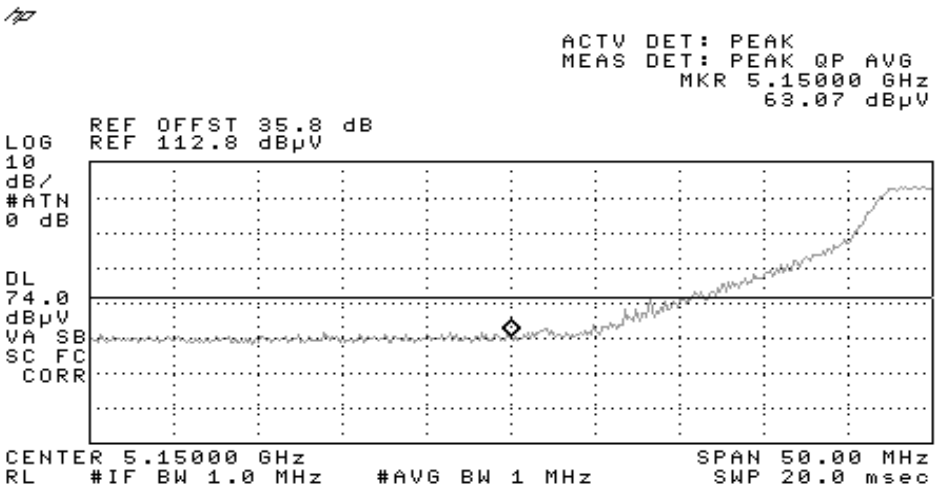
No deviations were made from the requirements of the standard.

Client:	Adimos, Inc.	Job Number:	J55938
Model:	Wireless Video Module Model 1101	T-Log Number:	T55971
		Account Manager:	Susan Pelzl
Contact:	Sherry Kathpalia / NuZeal		
Spec:	FCC 15.401, EN 301 893-1	Class:	N/A

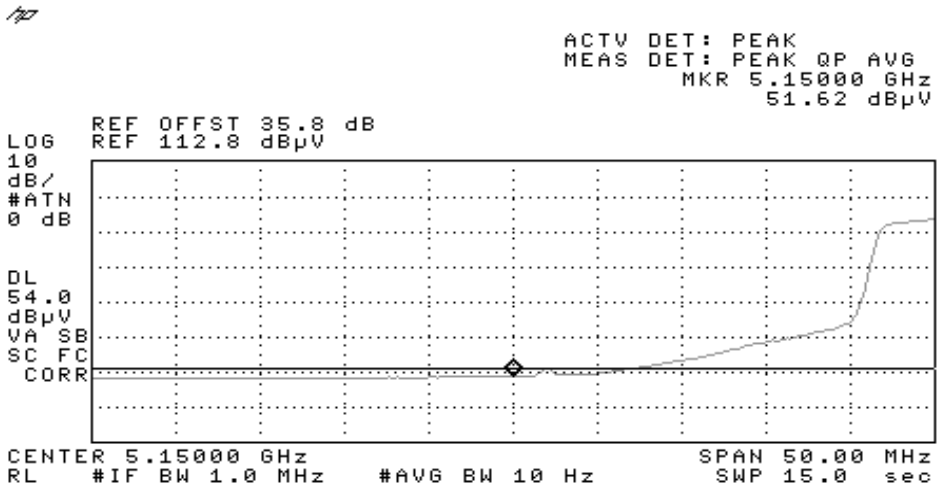
Run #1a: Radiated Spurious Emissions, 1000 - 40000 MHz. Low Channel @ 5180 MHz
Power setting 13.5

	H	V	
Fundamental emission level @ 3m in 1MHz RBW:	104.5	96.9	Peak Measurement (RBW=VBW = 1MHz)
Fundamental emission level @ 3m in 1MHz RBW:	94.9	86.8	Average Measurement (RBW=VBW = 10Hz)

Peak Bandedge (Horizontal)

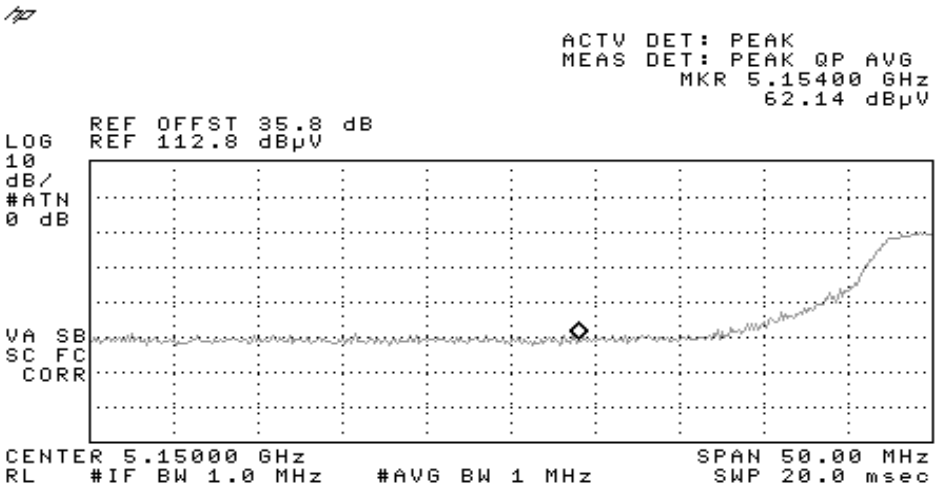


Average Bandedge (Horizontal)

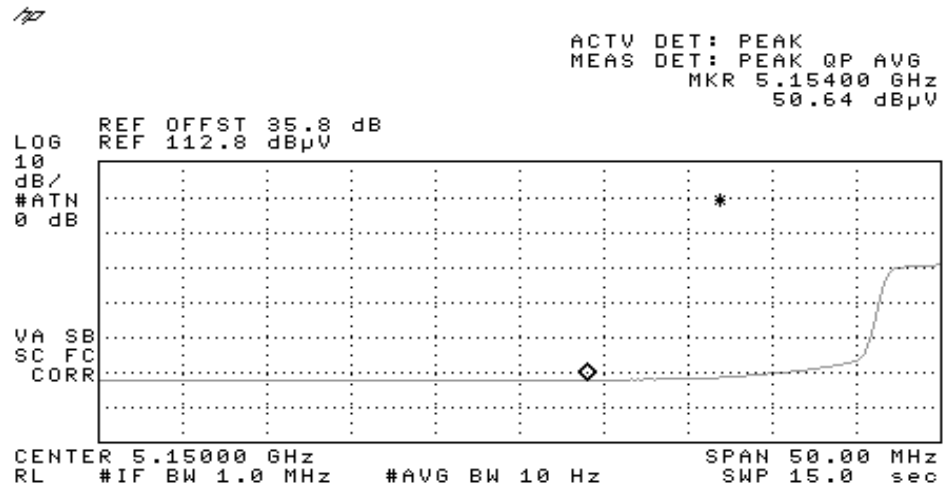


Client:	Adimos, Inc.	Job Number:	J55938
Model:	Wireless Video Module Model 1101	T-Log Number:	T55971
		Account Manager:	Susan Pelzl
Contact:	Sherry Kathpalia / NuZeal		
Spec:	FCC 15.401, EN 301 893-1	Class:	N/A

Peak Bandedge (Vertical)



Average Bandedge (Vertical)



Client:	Adimos, Inc.	Job Number:	J55938
Model:	Wireless Video Module Model 1101	T-Log Number:	T55971
		Account Manager:	Susan Pelzl
Contact:	Sherry Kathpalia / NuZeal		
Spec:	FCC 15.401, EN 301 893-1	Class:	N/A

Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5150.000	51.6	h	54.0	-2.4	Avg	325	2.0	Band edge
5150.000	50.6	v	54.0	-3.4	Avg	254	1.2	Band edge
15540.000	46.5	v	54.0	-7.5	Avg	277	1.2	Noise floor
10360.000	60.7	v	68.3	-7.6	Avg	325	1.3	x2 fundamental harmonic
8285.000	44.4	v	54.0	-9.6	Avg	10	1.2	VCO or LO (Restricted band)
15540.000	44.3	h	54.0	-9.7	Avg	360	1.1	Noise floor
8288.000	43.2	h	54.0	-10.8	Avg	0	1.2	VCO or LO (Restricted band)
5150.000	63.1	h	74.0	-10.9	Pk	325	2.0	Band edge
5088.027	42.6	h	54.0	-11.4	Avg	0	1.0	Noise floor
5150.000	62.1	v	74.0	-11.9	Pk	254	1.2	Band edge
5088.027	41.0	v	54.0	-13.0	Avg	0	1.0	Noise floor
4296.500	54.0	h	68.3	-14.3	Avg	0	1.0	Noise floor
15540.000	59.2	v	74.0	-14.8	Pk	277	1.2	Noise floor
10360.000	52.1	h	68.3	-16.2	Avg	321	1.5	x2 fundamental harmonic
15540.000	56.0	h	74.0	-18.0	Pk	360	1.1	Noise floor
5088.027	55.6	h	74.0	-18.4	Pk	0	1.0	Noise floor
4296.500	47.2	v	68.3	-21.1	Avg	0	1.0	Noise floor
8285.000	52.4	v	74.0	-21.6	Pk	10	1.2	VCO or LO (Restricted band)
5088.027	52.1	v	74.0	-21.9	Pk	0	1.0	Noise floor
8288.000	51.2	h	74.0	-22.8	Pk	0	1.2	VCO or LO (Restricted band)

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set to -27dBm/MHz (-68.3dBuV/m).
Note 2:	Bandege measurements were measured at 3 meters (35.8dB Ref Level Offset corrections factor was included into the readings.)

Client:	Adimos, Inc.	Job Number:	J55938
Model:	Wireless Video Module Model 1101	T-Log Number:	T55971
		Account Manager:	Susan Pelzl
Contact:	Sherry Kathpalia / NuZeal		
Spec:	FCC 15.401, EN 301 893-1	Class:	N/A

Run #1b: Radiated Spurious Emissions, 1000 - 40000 MHz. Center Channel @ 5260 MHz
Power setting 17.5

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
10520.000	52.3	h	54.0	-1.7	Avg	0	1.3	x2 fundamental harmonic
10520.000	51.9	v	54.0	-2.1	Avg	278	1.0	x2 fundamental harmonic
8415.000	50.6	v	54.0	-3.4	Avg	0	1.1	VCO or LO (Restricted band)
15780.000	47.7	v	54.0	-6.3	Avg	281	1.0	Noise floor
8415.000	47.5	h	54.0	-6.5	Avg	15	1.2	VCO or LO (Restricted band)
15780.000	47.5	h	54.0	-6.5	Avg	253	1.0	Noise floor
10520.000	67.4	h	74.0	-6.6	Pk	0	1.3	x2 fundamental harmonic
15780.000	63.3	v	74.0	-10.7	Pk	281	1.0	Noise floor
4200.000	42.9	v	54.0	-11.1	Avg	331	1.2	
10520.000	62.8	v	74.0	-11.2	Pk	278	1.4	x2 fundamental harmonic
15780.000	61.6	h	74.0	-12.4	Pk	253	1.0	Noise floor
5088.000	41.5	v	54.0	-12.5	Avg	0	1.0	Noise floor
8415.000	57.1	v	74.0	-16.9	Pk	0	1.1	VCO or LO (Restricted band)
4200.000	34.2	h	54.0	-19.8	Avg	0	1.0	Noise floor
8415.000	53.1	h	74.0	-20.9	Pk	15	1.2	VCO or LO (Restricted band)
5088.000	52.1	v	74.0	-21.9	Pk	0	1.0	Noise floor
4200.000	50.5	v	74.0	-23.5	Pk	331	1.2	
4200.000	46.5	h	74.0	-27.5	Pk	0	1.0	Noise floor

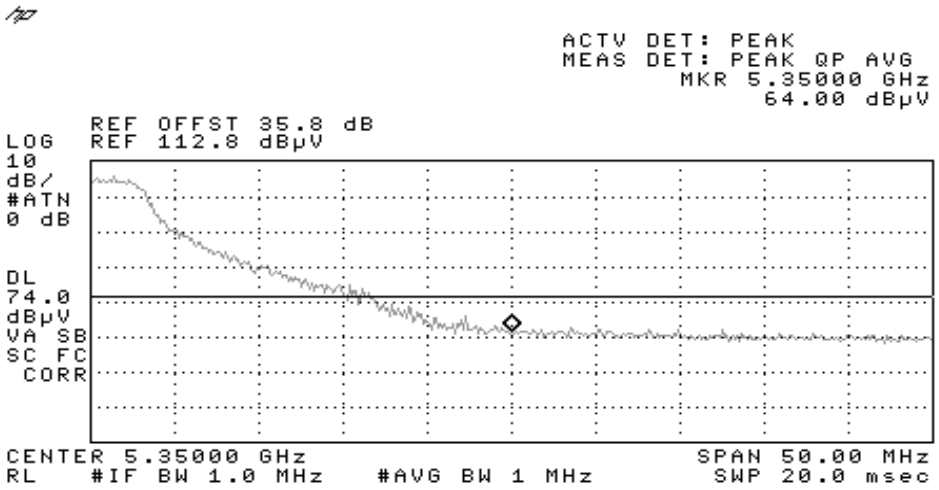
Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set to -27dBm/MHz (-68.3dBuV/m).

Client:	Adimos, Inc.	Job Number:	J55938
Model:	Wireless Video Module Model 1101	T-Log Number:	T55971
		Account Manager:	Susan Pelzl
Contact:	Sherry Kathpalia / NuZeal		
Spec:	FCC 15.401, EN 301 893-1	Class:	N/A

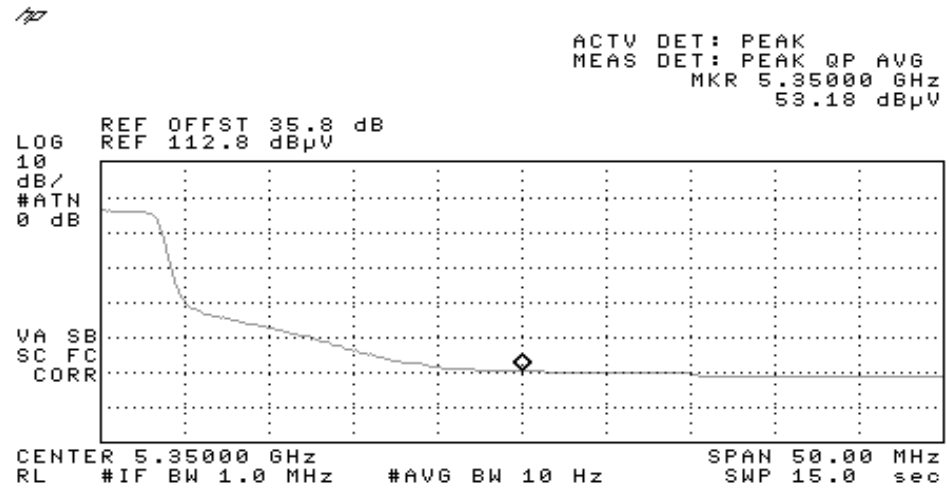
Run #1c: Radiated Spurious Emissions, 1000 - 40000 MHz. High Channel @ 5320 MHz
Power setting 17.5

	H	V	
Fundamental emission level @ 3m in 1MHz RBW:	100	108	Peak Measurement (RBW=VBW = 1MHz)
Fundamental emission level @ 3m in 1MHz RBW:	91.2	99.7	Average (RBW= 1 MHz, VBW = 10Hz)

Peak Bandedge (Horizontal)

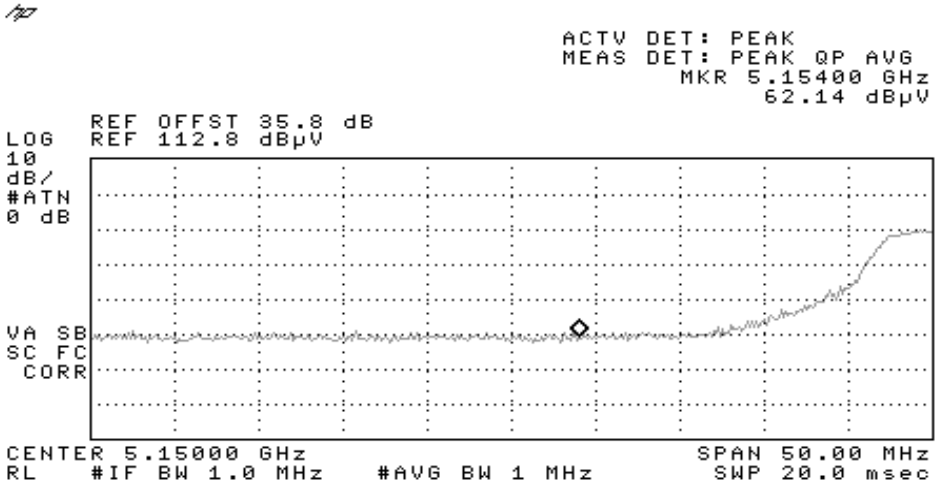


Average Bandedge (Horizontal)

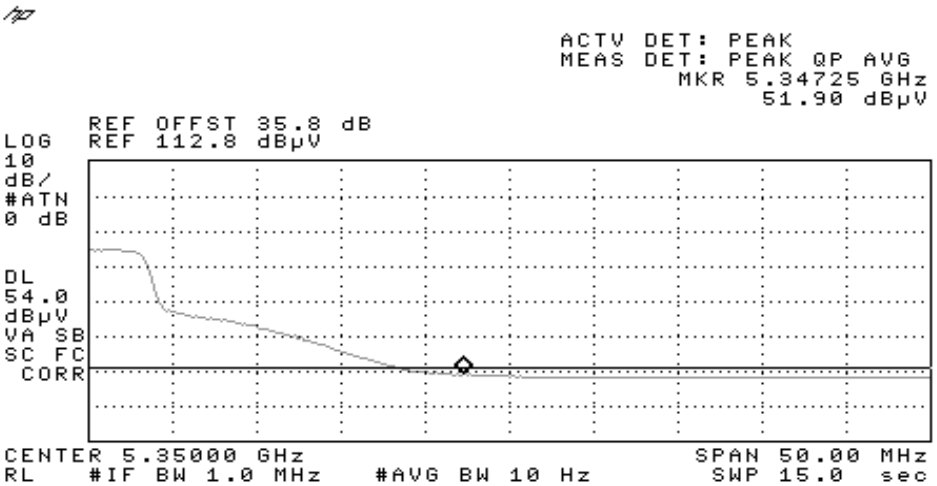


Client:	Adimos, Inc.	Job Number:	J55938
Model:	Wireless Video Module Model 1101	T-Log Number:	T55971
		Account Manager:	Susan Pelzl
Contact:	Sherry Kathpalia / NuZeal		
Spec:	FCC 15.401, EN 301 893-1	Class:	N/A

Peak Bandedge (Vertical)



Average Bandedge (Vertical)



Client:	Adimos, Inc.	Job Number:	J55938
Model:	Wireless Video Module Model 1101	T-Log Number:	T55971
		Account Manager:	Susan Pelzl
Contact:	Sherry Kathpalia / NuZeal		
Spec:	FCC 15.401, EN 301 893-1	Class:	N/A

Other Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5350.000	53.2	h	54.0	-0.8	Avg	0	2.0	Band edge
5350.000	51.9	v	54.0	-2.1	Avg	351	1.2	Band edge
10640.000	49.5	v	54.0	-4.5	Avg	284	1.2	x2 fundamental harmonic
5088.000	49.1	v	54.0	-4.9	Avg	0	1.0	Noise floor
15960.000	46.0	v	54.0	-8.0	Avg	0	1.0	Noise floor
10640.000	65.9	v	74.0	-8.1	Pk	284	1.2	x2 fundamental harmonic
15960.000	45.4	h	54.0	-8.6	Avg	0	1.0	Noise floor
5350.000	64.0	h	74.0	-10.0	Pk	0	2.0	Band edge
5088.000	42.9	h	54.0	-11.1	Avg	0	1.0	Noise floor
5407.980	42.5	h	54.0	-11.5	Avg	0	1.0	Noise floor
5407.980	42.5	v	54.0	-11.5	Avg	0	1.0	Noise floor
8511.000	56.6	h	68.3	-11.7	Pk	354	1.3	VCO or LO (Non-Restricted band)
5350.000	62.1	v	74.0	-11.9	Pk	351	1.2	Band edge
8511.000	56.1	v	68.3	-12.2	Pk	12	1.1	VCO or LO (Non-Restricted band)
10640.000	40.8	h	54.0	-13.2	Avg	238	1.2	x2 fundamental harmonic
5088.000	58.8	v	74.0	-15.2	Pk	0	1.0	Noise floor
15960.000	58.5	v	74.0	-15.5	Pk	0	1.0	Noise floor
10640.000	58.4	h	74.0	-15.6	Pk	238	1.2	x2 fundamental harmonic
15960.000	57.8	h	74.0	-16.2	Pk	0	1.0	Noise floor
5088.000	55.7	h	74.0	-18.3	Pk	0	1.0	Noise floor
5407.980	54.1	v	74.0	-19.9	Pk	0	1.0	Noise floor
4434.480	43.7	v	68.3	-24.6	Avg	0	1.0	Noise floor
4434.480	41.2	h	68.3	-27.1	Avg	0	1.0	Noise floor
5407.980	43.1	h	74.0	-30.9	Pk	0	1.0	Noise floor

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set to -27dBm/MHz (-68.3dBuV/m).
Note 2:	Bandege measurements were measured at 3 meters (35.8dB Ref Level Offset corrections factor was included into the readings.)

Client:	Adimos, Inc.	Job Number:	J55938
Model:	Wireless Video Module Model 1101	T-Log Number:	T55971
		Account Manager:	Susan Pelzl
Contact:	Sherry Kathpalia / NuZeal		
Spec:	FCC 15.401, EN 301 893-1	Class:	Radio

Radiated Emissions

Test Specifics

Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.

Date of Test: 7/17/2004
Test Engineer: Juan Martinez
Test Location: SVOATS #2
Config. Used: 2
Config Change: None
EUT Voltage: 120V/60Hz

General Test Configuration

The EUT and all local support equipment were located on the turntable for radiated emissions testing.

Unless otherwise specified, the measurement antenna was located 3 meters from the EUT.

Ambient Conditions:

Temperature: 26 °C
Rel. Humidity: 35 %

Summary of Results

Run #	Test Performed	Limit	Result	Margin
1	RE, 30 - 1000MHz, Maximized Emissions	FCC 15.209	Pass	-5.2dB @ 67.506MHz

Modifications Made During Testing:

The following modifications were made to the EUT during testing in order to comply with the requirements of the standard:
Removed 3 out of the 4 metal standoff holding the module.

Deviations From The Standard

No deviations were made from the requirements of the standard.

Client:	Adimos, Inc.	Job Number:	J55938
Model:	Wireless Video Module Model 1101	T-Log Number:	T55971
		Account Manager:	Susan Pelzl
Contact:	Sherry Kathpalia / NuZeal		
Spec:	FCC 15.401, EN 301 893-1	Class:	Radio

Run #1: Preliminary Radiated Emissions, 30-1000 MHz

Note - the emissions below 1GHz were independent of operating frequency and operating mode (Tx versus Rx).

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
67.506	34.8	v	40.0	-5.2	QP	-	-	
62.500	34.2	v	40.0	-5.8	QP	-	-	
52.500	34.0	v	40.0	-6.0	QP	-	-	
42.500	32.5	v	40.0	-7.5	QP	-	-	
47.520	32.5	v	40.0	-7.5	QP	-	-	
480.000	38.0	v	46.0	-8.0	QP	-	-	
77.505	31.3	v	40.0	-8.7	QP	-	-	
875.080	37.3	v	46.0	-8.7	QP	-	-	
875.080	37.0	h	46.0	-9.0	QP	-	-	
57.500	31.0	v	40.0	-9.0	QP	-	-	
480.000	36.0	h	46.0	-10.0	QP	-	-	
72.512	26.0	v	40.0	-14.0	QP	-	-	
425.010	31.2	h	46.0	-14.8	QP	-	-	
37.503	24.3	v	40.0	-15.7	QP	-	-	
67.506	24.3	h	40.0	-15.7	QP	-	-	
420.040	30.0	h	46.0	-16.0	QP	-	-	
77.505	24.0	h	40.0	-16.0	QP	-	-	
400.000	29.9	v	46.0	-16.1	QP	-	-	
412.538	29.1	h	46.0	-16.9	QP	-	-	
560.000	28.4	v	46.0	-17.6	QP	-	-	
40.000	22.0	v	40.0	-18.0	QP	-	-	
400.000	27.8	h	46.0	-18.2	QP	-	-	
32.502	21.5	v	40.0	-18.5	QP	-	-	
560.000	26.5	h	46.0	-19.5	QP	-	-	
430.040	26.4	h	46.0	-19.6	QP	-	-	
62.500	20.1	h	40.0	-19.9	QP	-	-	
32.502	20.0	h	40.0	-20.0	QP	-	-	
420.040	24.8	v	46.0	-21.2	QP	-	-	
425.010	24.1	v	46.0	-21.9	QP	-	-	
72.512	18.1	h	40.0	-21.9	QP	-	-	
47.520	16.7	h	40.0	-23.3	QP	-	-	
720.000	22.5	h	46.0	-23.5	QP	-	-	
720.000	22.5	v	46.0	-23.5	QP	-	-	
432.540	20.7	h	46.0	-25.3	QP	-	-	
127.510	17.4	v	43.5	-26.1	QP	-	-	
938.000	18.2	h	46.0	-27.8	QP	-	-	
430.040	16.4	v	46.0	-29.6	QP	-	-	

Client:	Adimos, Inc.	Job Number:	J55938
Model:	Wireless Video Module Model 1101	T-Log Number:	T55971
		Account Manager:	Susan Pelzl
Contact:	Sherry Kathpalia / NuZeal		
Spec:	FCC 15.401, EN 301 893-1	Class:	Radio

Radiated Emissions

Test Specifics

Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.

Date of Test: 7/15/2004
Test Engineer: Juan Martinez
Test Location: SVOATS #2
Config. Used: 2
Config Change: None
EUT Voltage: 120V/60Hz

General Test Configuration

The EUT and all local support equipment were located on the turntable for radiated emissions testing. Remote support equipment was located approximately 2 meters from the test area with all I/O connections routed overhead.

Unless otherwise specified, the measurement antenna was located 3m from the EUT for the frequency range 1 - 30 GHz.

Note, **preliminary** testing indicates that the emissions were maximized by orientation of the EUT and elevation of the measurement antenna. **Maximized** testing indicated that the emissions were maximized by orientation of the EUT, elevation of the measurement antenna, and manipulation of the EUT's interface cables.

Ambient Conditions:

Temperature: 20 °C
Rel. Humidity: 56 %

Summary of Results

Run #	Test Performed	Limit	Result	Margin
1	RE, 1000 - 30,000 MHz, Maximized Emissions	RSS-210	Pass	-1.4dB @ 8416.0MHz

Modifications Made During Testing:

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Elliott

EMC Test Data

Client:	Adimos, Inc.	Job Number:	J55938
Model:	Wireless Video Module Model 1101	T-Log Number:	T55971
		Account Manager:	Susan Pelzl
Contact:	Sherry Kathpalia / NuZeal		
Spec:	FCC 15.401, EN 301 893-1	Class:	Radio

Run #1: Maximized readings, 1000 - 30,000 MHz
Measurements made at 3m per IC requirements.

Frequency	Level	Pol	RSS-210 Rx		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
8416.000	58.6	v	60.0	-1.4	Pk	53	1.2	
4200.000	48.2	v	60.0	-11.8	Pk	127	1.4	
4200.000	47.3	h	60.0	-12.7	Pk	127	1.4	
8416.000	43.5	h	60.0	-16.5	Pk	0	1.2	

Client:	Adimos, Inc.	Job Number:	J55938
Model:	Wireless Video Module Model 1101	T-Log Number:	T55971
		Account Manager:	Susan Pelzl
Contact:	Sherry Kathpalia / NuZeal		
Spec:	FCC 15.401, EN 301 893-1	Class:	Radio

Conducted Emissions - Power Ports

Test Specifics

Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.

Date of Test: 7/15/2004
Test Engineer: Juan Martinez
Test Location: SVOATS #2
Config. Used: 2
Config Change: None
EUT Voltage: Refer to individual run

General Test Configuration

For tabletop equipment, the EUT was located on a wooden table, 40 cm from a vertical coupling plane and 80cm from the LISN. Remote support equipment was located approximately 2 meters from the test area. All I/O connections were routed overhead.

Ambient Conditions:

Temperature: 20 °C
Rel. Humidity: 56 %

Summary of Results

Run #	Test Performed	Limit	Result	Margin
1	CE, AC Power, 230V/50Hz	EN55022 B	Pass	-11.2dB @ 0.196 MHz
2	CE, AC Power,120V/60Hz	EN55022 B	Pass	-11.8dB @ 0.196 MHz
3	CE, AC Power,120V/60Hz	RSS-210	Pass	-11.6dB @ 2.298 MHz

Modifications Made During Testing:

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Client:	Adimos, Inc.	Job Number:	J55938
Model:	Wireless Video Module Model 1101	T-Log Number:	T55971
		Account Manager:	Susan Pelzl
Contact:	Sherry Kathpalia / NuZeal		
Spec:	FCC 15.401, EN 301 893-1	Class:	Radio

Run #1: AC Power Port Conducted Emissions, 0.15 - 30MHz, 230V/50Hz

Frequency	Level	AC	EN55022 B		Detector	Comments
MHz	dBµV	Line	Limit	Margin	QP/Ave	
0.199	46.0	Line	63.7	-17.7	QP	
0.199	35.0	Line	53.7	-18.7	Average	
0.298	41.0	Line	60.3	-19.3	QP	
0.298	33.9	Line	50.3	-16.4	Average	
0.397	39.7	Line	57.9	-18.2	QP	
0.397	34.6	Line	47.9	-13.3	Average	
0.196	48.7	Neutral	63.8	-15.1	QP	
0.196	42.6	Neutral	53.8	-11.2	Average	
0.295	43.3	Neutral	60.4	-17.1	QP	
0.295	38.8	Neutral	50.4	-11.6	Average	
0.394	39.0	Neutral	58.0	-19.0	QP	
0.394	35.1	Neutral	48.0	-12.9	Average	

Run #2: AC Power Port Conducted Emissions, 0.15 - 30MHz, 120V/60Hz

Frequency	Level	AC	EN55022 B		Detector	Comments
MHz	dBµV	Line	Limit	Margin	QP/Ave	
0.196	51.2	Line	63.8	-12.6	QP	
0.196	39.8	Line	53.8	-14.0	Average	
0.291	39.3	Line	60.5	-21.2	QP	
0.291	32.5	Line	50.5	-18.0	Average	
2.245	18.5	Line	56.0	-37.5	QP	
2.245	10.5	Line	46.0	-35.5	Average	
0.196	51.2	Neutral	63.8	-12.6	QP	
0.196	42.0	Neutral	53.8	-11.8	Average	
0.295	40.6	Neutral	60.4	-19.8	QP	
0.295	32.8	Neutral	50.4	-17.6	Average	
0.394	32.1	Neutral	58.0	-25.9	QP	
0.394	26.9	Neutral	48.0	-21.1	Average	

Client:	Adimos, Inc.	Job Number:	J55938
Model:	Wireless Video Module Model 1101	T-Log Number:	T55971
		Account Manager:	Susan Pelzl
Contact:	Sherry Kathpalia / NuZeal		
Spec:	FCC 15.401, EN 301 893-1	Class:	Radio

Run #3: AC Power Port Conducted Emissions, 0.45 - 30MHz, 120V/60Hz

Frequency	Level	AC	RSS-210		Detector	Comments
MHz	dBµV	Line	Limit	Margin	QP/Ave	
0.599	30.4	Line	48.0	-17.6	QP	
0.701	32.0	Line	48.0	-16.0	QP	
2.298	36.4	Line	48.0	-11.6	QP	
0.599	27.9	Neutral	48.0	-20.1	QP	
1.496	29.1	Neutral	48.0	-18.9	QP	
2.298	33.8	Neutral	48.0	-14.2	QP	

EXHIBIT 3: Test Configuration Photographs

4 Pages

EXHIBIT 4: Proposed FCC ID Label & Label Location

EXHIBIT 5: Detailed Photographs of Adimos, Inc. Model WVM-1101Construction

7 Pages

EXHIBIT 6: Operator's Manual for Adimos, Inc. Model WVM-1101

11 Pages

EXHIBIT 7: Block Diagram of Adimos, Inc. Model WVM-1101

1Pages

EXHIBIT 8: Schematic Diagrams for Adimos, Inc. Model WVM-1101

2 Pages

EXHIBIT 9: Theory of Operation for Adimos, Inc. Model WVM-1101

28 Pages

EXHIBIT 10: Advertising Literature

1 Page

EXHIBIT 11: RF Exposure Information

1 Pages

EXHIBIT 12: Modular Approval Requirements

2 Pages