Elliott Laboratories Inc.
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408-245-7800 Phone
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September 10, 2002

American TCB
6731 Whittier Avenue, Suite C110
McLean, VA. 22101

Gentlemen:

The enclosed documents constitute a formal submittal and application for a Grant of Equipment Authorization pursuant to Subpart C of Part 15 of FCC Rules (CFR 47) regarding intentional radiators. Data within this report demonstrates that the equipment tested complies with the FCC limits for intentional radiators.

Elliott Laboratories, as duly authorized agent prepared this submittal. A copy of the letter of our appointment as agent is enclosed.

If there are any questions or if further information is needed, please contact Elliott Laboratories for assistance.

Sincerely,

David W. Bare
Chief Technical Officer

DWB/dmg
Enclosures: Agent Authorization Letter
Emissions Test Report with Exhibits

File: R45036

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Electromagnetic Emissions Test Report and Application for Grant of Equipment Authorization pursuant to FCC Part 15, Subpart C Specifications for an Intentional Radiator ATO Model: Aerielle - 1

FCC ID:	QLM0010208
GRANTEE:	ATO 47 Peach Street Lane Mt. Sinai, NY 11766
TEST SITE:	Elliott Laboratories, Inc. 684 W. Maude Avenue Sunnyvale, CA 94086
REPORT DATE:	September 10, 2002
FINAL TEST DATE:	June 7, 2002
AUTHORIZED SIGNATORY:	David W. Bare Chief Technical Officer

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SCOPE

An electromagnetic emissions test has been performed on the ATO model Aerielle - 1 pursuant to Subpart C of Part 15 of FCC Rules for intentional radiators. Radiated emissions data has been collected, reduced, and analyzed within this report in accordance with measurement guidelines set forth in ANSI C63.4-1992 as outlined in Elliott Laboratories test procedures.

The transmitter 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 ATO model Aerielle - 1 and therefore apply only to the tested sample. The sample was selected and prepared by Art Cohen of Aerielle Group International.

OBJECTIVE

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

Certification is a procedure where the manufacturer or a contracted laboratory makes measurements and submits the test data and technical information to the FCC or a TCB. The FCC or TCB issues a grant of equipment authorization 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, which are subsequently manufactured.

STATEMENT OF COMPLIANCE

The tested sample of ATO model Aerielle - 1 complied with the requirements of Subpart C of Part 15 of the FCC Rules for low power intentional radiators.

Maintenance of FCC compliance 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.).

EMISSION TEST RESULTS

The following emissions tests were performed on the ATO model Aerielle - 1. The actual test results are contained in an exhibit of this report.

LIMITS OF CONDUCTED INTERFERENCE VOLTAGE

The EUT was not tested complied with the limits detailed in FCC Rules Part 15 Section 15.207 as the EUT is battery powered.

LIMITS OF RADIATED FIELD STRENGTH

The EUT tested complied with the limits detailed in FCC Rules Part 15 Sections 15.239(b) and (c).

The following measurement was extracted from the data recorded during the radiated electric field emissions scan and represents the highest amplitude emission relative to the specification limit. The actual test data and any correction factors are contained in an exhibit of this report.

Frequency MHz	Level dBuV/m	Pol v/h	15.239 Limit	15.239 Margin	Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
88.300	47.3	h	48.0	-0.7	Avg	0	2.0	

BANDWIDTH

The EUT tested complied with the limits detailed in FCC Rules Part 15 Section 15.239(a). The 26 dB bandwidth was 146.5 kHz.

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	± 3.2

EQUIPMENT UNDER TEST (EUT) DETAILS

GENERAL

The ATO model Aerielle - 1 is a portable FM transmitter that is designed to connect to a personal music player and allow reception of the transmitted signal using a standard FM radio. Normally, the EUT would be worn by the user during operation. The EUT was tested on a table-top to simulate the end user environment. The electrical rating of the EUT is 3 VDC supplied by a internal replaceable battery. The sample was received on June 7, 2002 and tested on June 7, 2002. The EUT consisted of the following component(s):

Manufacturer/Model/Description	Serial Number
Antonio Precise Products Manufactory Ltd. Aerielle-1 FM Low Power Transmitter	-

ENCLOSURE

The EUT enclosure is primarily constructed of plastic. It measures approximately 3 cm wide by 5 cm long by 2 cm high.

SUPPORT EQUIPMENT

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

Manufacturer/Model/Description	Serial Number
RCA Kazoo Digital Audio Player	RA014C034RM05E

No remote support equipment was used during emissions testing.

EXTERNAL I/O CABLING

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

		Cable(s)		
Port	Connected To	Description	Shielded or Unshielded	Length(m)
Headpones(player)	EUT	EUT integral cable	Shielded	0.12

EUT OPERATION

The EUT was connected to the player and operated both with and without 1 kHz tone depending on the test performed. The maximum deviation was measured at 53.5 kHz with a 1 kHz tone. Measurements of field strength were therefore made using an input that produced 85% of this modulation or 45.7 kHz.

TEST SITE

GENERAL INFORMATION

Final test measurements were taken on June 7, 2002 at the Elliott Laboratories Open Area Test Site #1 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 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.

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.

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.

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.

SPECIFICATION LIMITS AND SAMPLE CALCULATIONS

BANDWIDTH, SECTION 15.239(a)

The limit for the bandwidth is the emission must be confined within a band 200 kHz wide centered on the operating frequency as detailed in Section 15.239(a).

FUNDAMENTAL LIMIT, SECTION 15.239(b)

The limit for the fundamental emission is 250 uV/m or 48 dBuV/m at 3 meters as detailed in Section 15.239(b).

RADIATED EMISSIONS SPECIFICATION LIMITS, SECTION 15.239(c)

The table below shows the limits for the spurious emissions from transmitters that fall outside the 200 kHz bandwidth of the device as detailed in Section 15.239(c).

Frequency Range (MHz)	Limit (uV/m @ 3m)	Limit (dBuV/m @ 3m)
0.009-0.490	$2400/F_{KHz}$ @ 300m	$67.6-20*\log_{10}(F_{KHz})$ @ 300m
0.490-1.705	$24000/F_{KHz}$ @ 30m	$87.6-20*\log_{10}(F_{KHz})$ @ 30m
1.705 to 30	30 @ 30m	29.5 @ 30m
30 to 88	100	40
88 to 216	150	43.5
216 to 960	200	46.0
Above 960	500	54.0

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

Radiated Emissions, 30 - 1000 MHz, 07-Jun-02
Engineer: Mark

Manufacturer	Description	Model #	Assett #	Cal interval	Last Calibrated	Cal Due
Elliott Laboratories	Biconical Antenna, 30-300 MHz	EL30.300	54	12	1/4/2002	1/4/2003
EMCO	Log Periodic Antenna, 0.2-2 GHz	3148	1347	12	10/16/2001	10/16/2002
Hewlett Packard	EMC Spectrum Analyzer, Opt. 026 9 KHz -26.5GHz	8593EM	1141	12	3/11/2002	3/11/2003
Rohde & Schwarz	Test Receiver, 9kHz-2750MHz	ESCS 30 EMI	1337	12	12/26/2001	12/26/2002
Rohde & Schwarz	Test Receiver, 0.009-2000 MHz	ESN	1332	12	4/16/2002	4/16/2003

Radiated Emissions, 30 - 1000 MHz, 07-Jun-02
Engineer: Vishal

Manufacturer	Description	Model #	Assett #	Cal interval	Last Calibrated	Cal Due
Elliott Laboratories	Biconical Antenna, 30-300 MHz	EL30.300	54	12	1/4/2002	1/4/2003
EMCO	Log Periodic Antenna, 0.2-2 GHz	3148	1347	12	10/16/2001	10/16/2002
Rohde & Schwarz	Test Receiver, 9kHz-2750MHz	ESCS 30 EMI	1337	12	12/26/2001	12/26/2002

Radiated Spurious Emissions, 10-Jun-02
Engineer: David

Manufacturer	Description	Model #	Assett #	Cal interval	Last Calibrated	Cal Due
Rohde & Schwarz	Test Receiver, 20-1300MHz	ESVP	273	12	2/6/2002	2/6/2003
Elliott Laboratories	Biconical Antenna, 30-300 MHz	EL30.300	773	12	3/5/2002	3/5/2003
EMCO	Log Periodic Antenna, 0.2-2 GHz	3148	1321	12	4/23/2002	4/23/2003

Frequency Error, 11-Jun-02
Engineer: David

Manufacturer	Description	Model #	Assett #	Cal interval	Last Calibrated	Cal Due
Hewlett Packard	Microwave EMI test system (SA40, 9Hz - 40GHz), system 2	84125C	1148	12	4/2/2002	4/2/2003
Thermotron	Humidity Chamber	SM-32C Mini-max	804	12	1/21/2002	1/21/2003
Thermotron	Humidity Chamber Thermometer	Product Saver	879	12	1/21/2002	1/21/2003

Range of Modulation & Frequency Stability, 11-Jun-02
Engineer: David

Manufacturer	Description	Model #	Assett #	Cal interval	Last Calibrated	Cal Due
Hewlett Packard	Spectrum Analyzer 30Hz - 40 GHz	8564E (84125C)	1148	12	4/2/2002	4/2/2003

EXHIBIT 2: Test Data Log Sheets

ELECTROMAGNETIC EMISSIONS

TEST LOG SHEETS

AND

MEASUREMENT DATA

T47473 6 Pages

Elliott

EMC Test Data

Client:	Aerielle Group International	Job Number:	J47423
Model:	Aerielle-1	T-Log Number:	T47473
		Proj Eng:	David Bare
Contact:	Art Cohen		
Emissions Spec:	FCC 15.239, EN 300 220-3	Class:	-
Immunity Spec:	EN 301 489-3	Environment:	-

EMC Test Data

For The

Aerielle Group International

Model

Aerielle-1

Client:	Aerielle Group International	Job Number:	J47423
Model:	Aerielle-1	T-Log Number:	T47473
		Proj Eng:	David Bare
Contact:	Art Cohen		
Emissions Spec:	FCC 15.239, EN 300 220-3	Class:	-
Immunity Spec:	EN 301 489-3	Environment:	-

EUT INFORMATION

General Description

The EUT is a portable FM transmitter which is designed to connect to a personal music player and allow reception of the transmitted signal using a standard FM radio. Normally, the EUT would be worn by the user during operation. The EUT was tested on a table-top to simulate the end user environment. The electrical rating of the EUT is 3 VDC supplied by a internal replaceable battery.

Equipment Under Test

Manufacturer	Model	Description	Serial Number	FCC ID
Antonio Precise Products Manufactory	Aerielle-1	FM Low Power Transmitter	-	-

Other EUT Details

The EUT is considered a wide band power class 5a device for the requirements of EN 300 220-3. It is a type II, class 2 portable device within the meaning of EN 301 489-3.

EUT Enclosure

The EUT enclosure is primarily constructed of plastic. It measures approximately 3 cm wide by 5 cm long by 2 cm high.

Modification History

Mod. #	Test	Date	Modification
1			
2			
3			

Client:	Aerielle Group International	Job Number:	J47423
Model:	Aerielle-1	T-Log Number:	T47473
		Proj Eng:	David Bare
Contact:	Art Cohen		
Emissions Spec:	FCC 15.239, EN 300 220-3	Class:	-
Immunity Spec:	EN 301 489-3	Environment:	-

Test Configuration #1

Local Support Equipment

Manufacturer	Model	Description	Serial Number	FCC ID
RCA	Kazoo	Digital Audio Player	RA014C034RM05E	

Remote Support Equipment

Manufacturer	Model	Description	Serial Number	FCC ID
None				

Interface Ports

		Cable(s)		
Port	Connected To	Description	Shielded or Unshielded	Length(m)
Headpones(player)	EUT	EUT integral cable	Shielded	0.12

EUT Operation During Emissions

The EUT was connected to the player and operated both with and without 1 kHz tone depending on the test performed.

Client:	Aerielle Group International	Job Number:	J47423
Model:	Aerielle-1	T-Log Number:	T47473
		Proj Eng:	David Bare
Contact:	Art Cohen		
Spec:	FCC 15.239, EN 300 220-3	Class:	-

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: 6/7/2002
Test Engineer: David
Test Location: SVOATS #1
Config. Used: 1
Config Change:
EUT Voltage: Battery

General Test Configuration

The EUT and all local support equipment were located on the turntable for radiated emissions testing. The maximum deviation was measured at 53.5 kHz with a 1 kHz tone. Per ANSI C63.4, measurments were made using an input that produced 85% of this modulation or 45.7 kHz.

On the OATS, the measurement antenna was located 3 meters from the EUT for the measurement range 30 - 1000 MHz. 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: 21.5°C
Rel. Humidity: 52%

Summary of Results

Run #	Test Performed	Limit	Result	Margin
1	RE, Maximized emissions, fundamental and spurious	FCC 15.239	Pass	-.7dB @ 88.3MHz
2	RE, Spurious band edge	FCC 15.239	Pass	-

Modifications Made During Testing:

No modifications were made to the EUT during testing

Deviations From The Standard

The following deviations were made from the standard:

The procedure for measuring the emissions next to the band edge of the fundamental is not as specified in the FCC Rules. See description of measurement in Run #2.

Elliott

EMC Test Data

Client:	Aerielle Group International	Job Number:	J47423
Model:	Aerielle-1	T-Log Number:	T47473
		Proj Eng:	David Bare
Contact:	Art Cohen		
Spec:	FCC 15.239, EN 300 220-3	Class:	-

Run #1: Maximized radiated emissions, fundamental and spurious, 30-887 MHz
Modulated carrier (see general test configurations)

Frequency	Level	Pol	FCC 15.239		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
88.300	47.3	h	48.0	-0.7	Avg	0	2.0	x-axis
88.300	46.1	h	48.0	-1.9	Avg	0	2.1	y-axis
88.300	45.9	v	48.0	-2.1	Avg	180	1.0	z-axis
176.600	35.3	h	43.5	-8.2	QP	0	1.8	x-axis
88.300	39.0	v	48.0	-9.0	Avg	100	1.5	x-axis
618.000	37.0	v	46.0	-9.0	QP	330	1.3	x-axis EUT plus Ambient
176.600	34.0	h	43.5	-9.5	QP	0	1.8	y-axis
618.000	36.0	h	46.0	-10.0	QP	260	1.9	y-axis
618.000	35.4	v	46.0	-10.6	QP	150	1.0	y-axis
264.900	35.2	h	46.0	-10.8	QP	0	1.3	x-axis
88.300	35.7	v	48.0	-12.3	Avg	280	1.0	z-axis
264.900	32.0	h	46.0	-14.0	QP	0	1.2	y-axis
176.600	28.3	v	43.5	-15.2	QP	180	1.0	z-axis
529.700	30.7	v	46.0	-15.3	QP	0	1.0	x-axis
971.210	38.1	v	54.0	-15.9	QP	150	1.0	y-axis
88.300	32.0	h	48.0	-16.0	Avg	270	3.8	z-axis
971.210	38.0	h	54.0	-16.0	QP	360	1.9	y-axis
176.000	27.2	v	43.5	-16.3	QP	40	2.5	x-axis
971.210	37.6	v	54.0	-16.4	QP	0	1.2	y-axis
971.200	37.5	v	54.0	-16.5	QP	360	1.0	z-axis
971.210	37.4	h	54.0	-16.6	QP	280	1.8	x-axis
88.300	51.3	v	68.0	-16.7	Pk	180	1.0	z-axis
88.300	50.6	h	68.0	-17.4	Pk	0	2.0	x-axis
971.210	36.5	h	54.0	-17.5	QP	280	1.2	z-axis
88.300	49.3	h	68.0	-18.7	Pk	0	2.1	y-axis
88.300	48.0	v	68.0	-20.0	Pk	100	1.5	x-axis
264.900	25.0	v	46.0	-21.0	QP	180	1.0	z-axis
88.300	46.2	v	68.0	-21.8	Pk	280	1.0	z-axis
88.300	42.2	h	68.0	-25.8	Pk	270	3.8	z-axis

Client:	Aerielle Group International	Job Number:	J47423
Model:	Aerielle-1	T-Log Number:	T47473
		Proj Eng:	David Bare
Contact:	Art Cohen		
Spec:	FCC 15.239, EN 300 220-3	Class:	-

Run #2: Spurious band edge emissions

Since it is not reasonable to measure the field strength of the emission at the band edge using the 120 kHz RBW and QP detector, a 26 dB bandwidth measurement was performed (Analyzer trace shown). The 26 dB points were measured from the peak of the unmodulated signal down the slopes of the modulated signal envelope. Since the 26 dB bandwidth was 146.5 kHz, it is considered to meet the requirement of 15.209 outside of the 200 kHz band used for this type of device, which requires compliance with a field strength limit 4.5 dB lower than the maximum in band field strength.

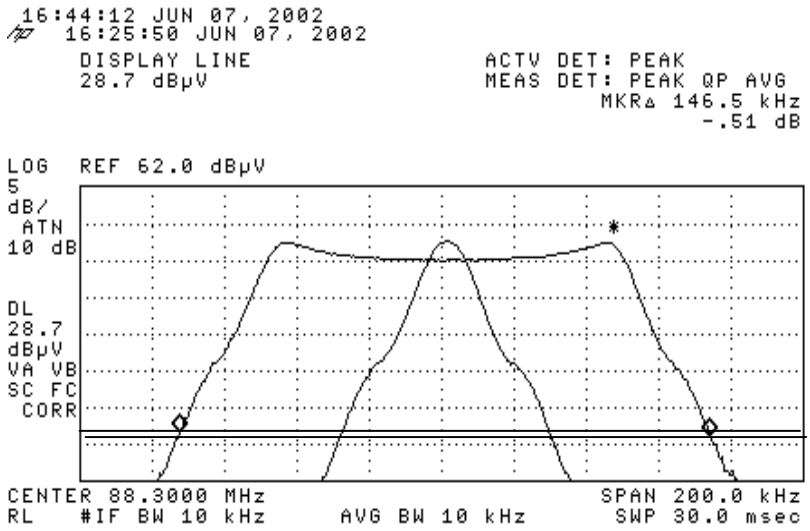

EXHIBIT 3: Test Configuration Photographs

Uploaded as A Separate Attachment

EXHIBIT 4: Theory of Operation ATO Model Aerielle - 1

Uploaded as A Separate Attachment

EXHIBIT 5: Proposed FCC ID Label & Label Location

Uploaded as A Separate Attachment

EXHIBIT 6: Detailed Photographs ATO Model Aerielle - 1

Uploaded as A Separate Attachment

EXHIBIT 7: Installation Guide ATO Model Aerielle - 1

Uploaded as A Separate Attachment

EXHIBIT 8: Block Diagram ATO Model Aerielle - 1

Uploaded as A Separate Attachment

EXHIBIT 9: Schematic Diagrams ATO Model Aerielle - 1

Uploaded as A Separate Attachment