



849 NW STATE ROAD 45  
 NEWBERRY, FL 32669 USA  
 PH: 888.472.2424 OR 352.472.5500  
 FAX: 352.472.2030  
 Email: [tei@timcoengr.com](mailto:tei@timcoengr.com)  
 Email: [info@timcoengr.com](mailto:info@timcoengr.com)  
 HTTP: [//WWW.TIMCOENGR.COM](http://WWW.TIMCOENGR.COM)

**FCC Part 74  
 And Industry Canada RSS-123  
 Test Report**

APPLICANT	AZDEN CORPORATION
ADDRESS	1-12-17 KAMI-RENJAKU MITAKA, TOKYO 181 JAPAN
FCC ID IC CERTIFICATION	BZB30BTL 2817A-30BT
MODEL NUMBER	30BTL
PRODUCT DESCRIPTION	Wireless Microphone
DATE SAMPLE RECEIVED	February 26, 2007
DATE TESTED	March 19, 2007
TESTED BY	Nam Nguyen
APPROVED BY	Mario de Aranzeta
TIMCO REPORT NO.	481AUT7TestReport.doc
TEST RESULTS	<input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAIL

**THE ATTACHED REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT  
 THE WRITTEN APPROVAL OF TIMCO ENGINEERING, INC.**





**AZDEN CORPORATION**  
**FCC ID: BZB30BTL**

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**GENERAL INFORMATION REQUIRED FOR CERTIFICATION**

- 2.1033(c)(1) AZDEN CORPORATION will manufacture the BZB30XT  
in quantity, for use under FCC RULES  
2.1033(c)(2) RULES PART 74.801, LOW POWER AUXILIARY STATIONS.

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2.1033 TECHNICAL DESCRIPTION

(c)(4) Type of Emission: 110K0F3E

$B_n = 2M + 2DK$   
 $M = 15000$   
 $D = 40 \text{ kHz (Peak Deviation)}$   
 $K = 1$   
 $B_n = 2(15k) + 2(40k)(1) = 110k$

ALLOWED AUTHORIZED BANDWIDTH = 200kHz.  
74.861(e)(5)

(c)(5) Frequency Range: Part 74: 723.00 - 735.00 MHz

TEST FREQ = 723.00 MHz, 728.95 MHz, and 734.95 MHz

(c)(6) Power Range and Controls: EUT has no controls.

(c)(7) Maximum Output Power Rating: 0.018 Watts ERP

(c)(8) DC Voltages and Current into Final Amplifier:

FINAL AMPLIFIER ONLY  
INPUT POWER – (3.0V)(0.14A) = 0.42 Watts

2.1033 (c)(14) The data required by 2.1046 through 2.1057 is submitted below.

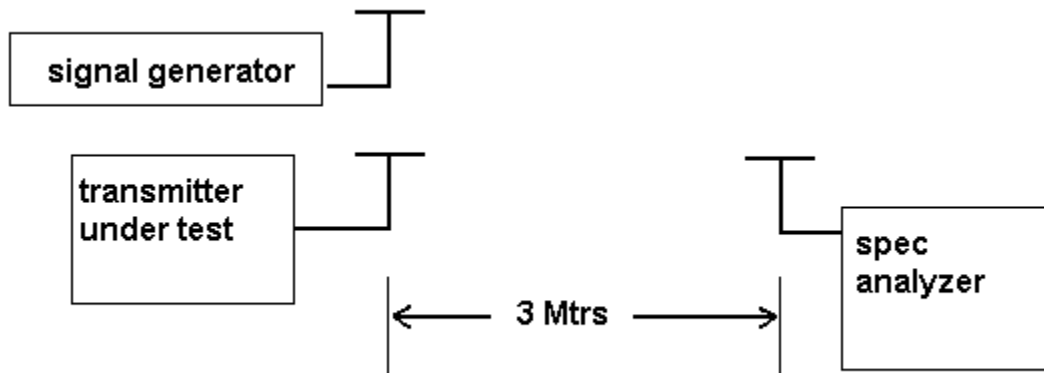
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### RF POWER OUTPUT 2.1046

RF power measured is:

0.018 WATTS ERP

For a device with a fixed antenna, RF power is measured as ERP as the antenna is permanently attached. The substitution method was used as described in TIA-603-C.



**METHOD OF MEASUREMENT:** The tabulated data shows the results of the radiated field strength emissions test. The spectrum was scanned from 30 MHz to at least the tenth harmonic of the fundamental. This test was conducted per ANSI/TIA 603-C:2004 using the substitution method. Measurements were made at the test site of Timco Engineering, Inc. located at 849 NW State Road 45, Newberry, FL 32669.

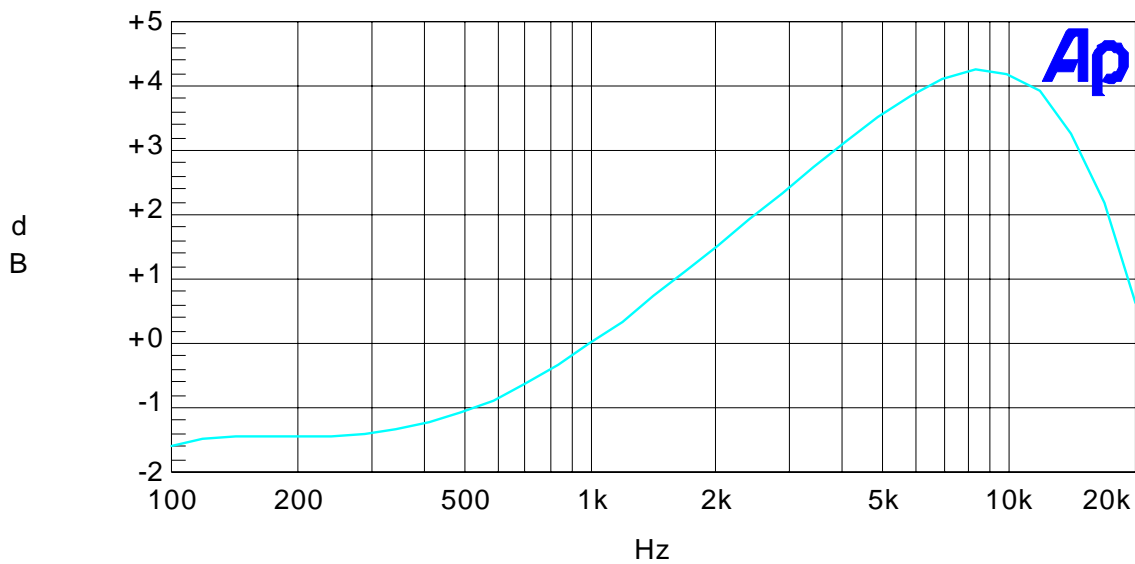


**MODULATION CHARACTERISTICS 2.1047(a)(b):**

**AUDIO FREQUENCY RESPONSE**

The audio frequency response was measured in accordance with ANSI/TIA 603-C:2004. The audio frequency response curve is shown below.

Audio Frequency Response Plot



Color	Line Style	Thick	Data	Axis
Cyan	Solid	1	Anlr.Level A!Normalize	Left

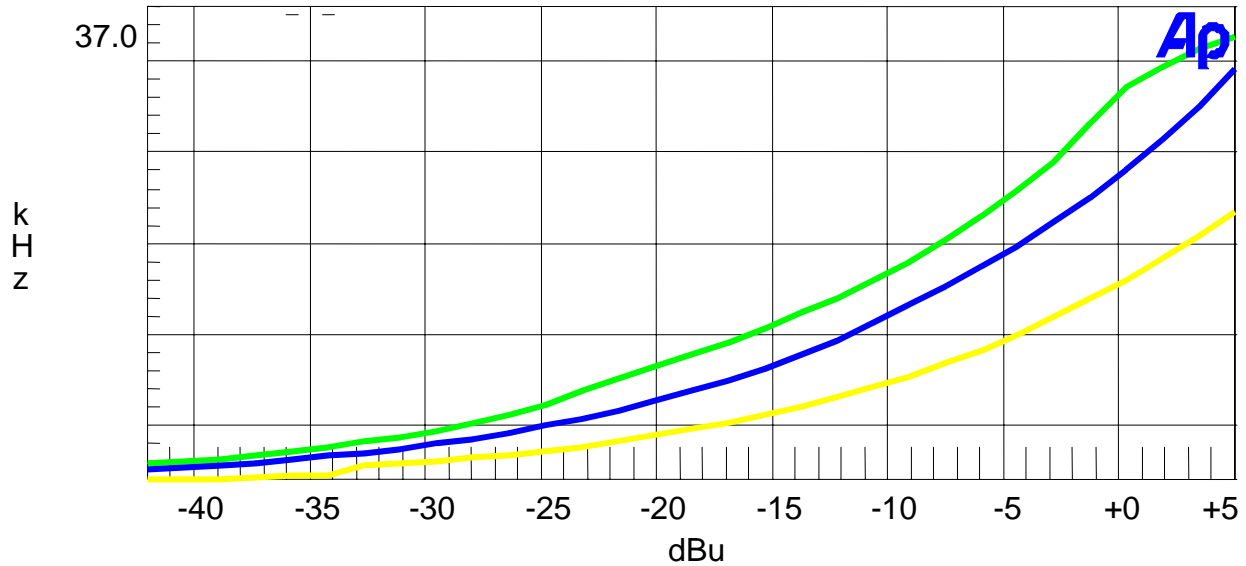
MaxFreq.at1

**AUDIO LOW PASS FILTER**

The audio low pass filter is not required in this unit.

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Modulation Limiting Plots:  
 10 KHz (Green), 2.5 KHz (Blue), and 300 Hz (Yellow)



Color	Line Style	Thick	Data	Axis
Green	Solid	3	Anlr.Level A	Left
Blue	Solid	3	Anlr.Level A	Left
Yellow	Solid	3	Anlr.Level A	Left

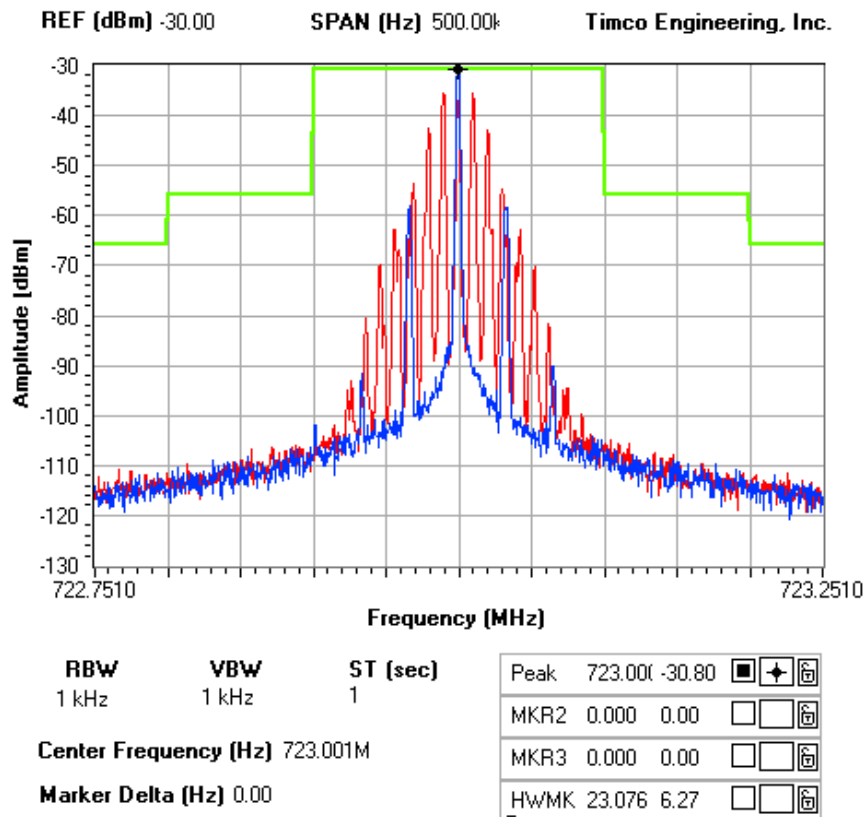


**OCCUPIED BANDWIDTH:**

Data in the plots show that all sidebands between 50 & 100% for the authorized bandwidth are attenuated by at least 25dB. From 100 to 250% of the authorized bandwidth they are attenuated by at least 35dB and beyond 250% 43 log(Po) dB. The plot shows the transmitter modulated with 15000 Hz(the highest modulation frequency), adjusted for 50% modulation plus 16 dB. The spectrum analyzer was set with the unmodulated carrier at the top of the screen. The test procedure diagram and occupied bandwidth plot follows.

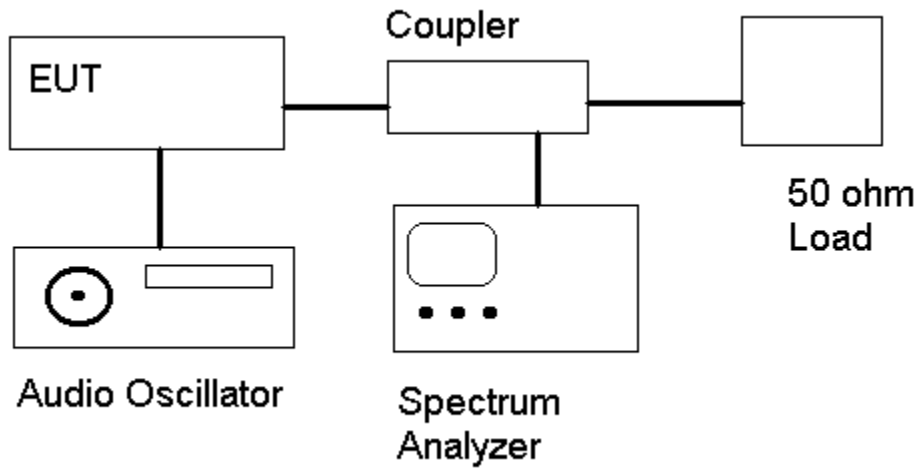
**NOTES:**

AZDEN CORPORATION - FCC ID: BZB30BT  
OCCUPIED BANDWIDTH PLOT



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**Test procedure diagram**



**OCCUPIED BANDWIDTH MEASUREMENT**





**SPURIOUS EMISSIONS AT ANTENNA TERMINALS (conducted) 2.1051:**

Not Applicable no antenna connector.

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**FIELD STRENGTH OF SPURIOUS EMISSIONS 2.1053(a)(b):**

REQUIREMENTS: Emissions must be  $43 + 10\log(P_o)$  dB below the mean power output of the transmitter.

$$43 + 10 \log(0.018) = 25.55\text{dB}$$

**TEST DATA:**

**723.00 MHz**

Emission Frequency MHz	Ant. Polarity	dB Below Carrier (dBc)
723.00	V	0
1446.00	V	48.08
2169.00	H	42.64
2892.00	H	45.79
3615.00	H	52.43
4338.00	H	51.11
5061.00	H	45.80
5784.00	H	43.79
6507.00	H	50.33
7230.00	H	54.99

**728.95 MHz**

Emission Frequency MHz	Ant. Polarity	dB Below Carrier (dBc)
728.95	V	0
1457.90	H	46.26
2186.85	H	47.72
2915.80	V	28.70
3644.75	H	42.86
4373.70	H	47.98
5102.65	H	51.28
5831.60	H	40.06
6560.55	V	40.52
7289.50	H	49.56

**734.95 MHz**

Emission Frequency MHz	Ant. Polarity	dB Below Carrier (dBc)
734.95	V	0
1469.90	V	50.54
2204.85	H	44.19
2939.80	H	31.52
3674.75	H	40.10
4409.70	H	39.56
5144.65	H	34.37
5879.60	H	34.54
6614.55	V	37.41
7349.50	H	54.74

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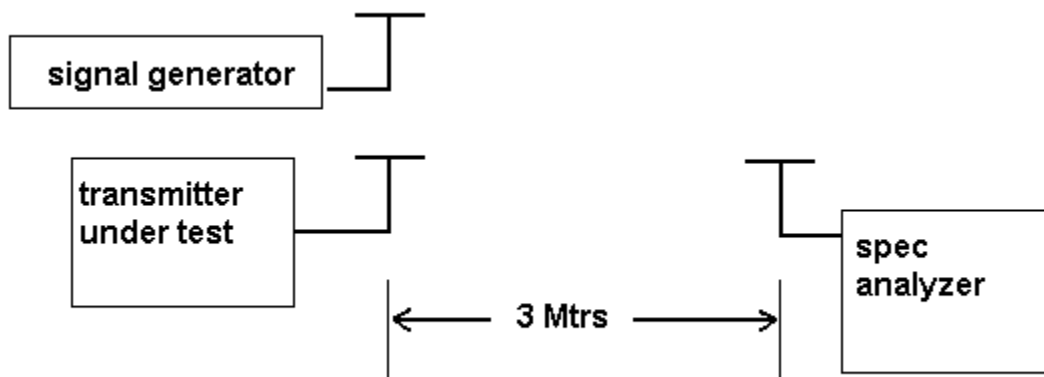
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**METHOD OF MEASUREMENTS:** The tabulated data shows the results of the radiated field strength emissions test. The spectrum was scanned from 30 MHz to at least the tenth harmonic of the fundamental. This test was conducted per ANSI/TIA 603-C:2004 using the substitution method. Measurements were made at the test site of Timco Engineering, Inc. located at 849 NW State Road 45, Newberry, FL 32669.

#### Method of Measuring Radiated Spurious Emissions





**FREQUENCY STABILITY 2.1055:**

S74.861(e)(4)

Temperature and voltage tests were performed to verify that the frequency remains within the .0050%,(50 ppm)(74.861 e.4) limit.

**The test was conducted as follows:** The transmitter was placed in the temperature chamber at 25 °C and allowed to stabilize for one hour. The transmitter was keyed ON for one minute during which four frequency readings were recorded at 15-second intervals. The worse case number used in the table below. The assigned channel frequency was considered to be the reference frequency. The temperature was then reduced to -30 °C after which the transmitter was again allowed to stabilize for one hour. The transmitter was keyed ON for one minute, and again frequency readings were noted at 15-second intervals. The worst-case number was again used in the table below. This procedure was repeated in 10-degree increments up to + 50 degrees C.

**MEASUREMENT DATA:**

(Ref. Frequency): 728.950378 MHz

TEMPERATURE °C	FREQUENCY MHz	PPM
TEMPERATURE °C	FREQUENCY MHz	PPM
-30°C	728.936927	-18.45
-20°C	728.943458	-9.49
-10°C	728.947917	-3.38
-0°C	728.950415	0.05
10°C	728.951235	1.18
20°C	728.950964	0.80
30°C	728.950139	-0.33
40°C	728.949435	-1.29
50°C	728.949219	-1.59

Batt. Volts	Batt. Data	PPM
-15%	728.950962	0.80
+15%	728.950962	0.80

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**EMC EQUIPMENT LIST**

Device	Manufacturer	Model	Serial Number	Cal/Char Date	Due Date
3/10-Meter OATS	TEI	N/A	N/A	Listed 3/27/04	3/26/07
3-Meter OATS	TEI	N/A	N/A	Listed 1/11/06	1/10/09
AC Voltmeter	HP	400FL	2213A14499	CAL 12/29/06	12/29/08
Coaxial Cable #64	Semflex Inc.	60637	Timco #64	CHAR 11/28/05	11/28/07
Antenna: Dipole Kit	Electro-Metrics	TDA-30/1-4	152	CAL 3/3/06	3/3/09
Frequency Counter	HP	5385A	2730A03025	CAL 4/15/05	4/15/07
Hygro-Thermometer	Extech	445703	0602	CAL 8/1/05	8/1/07
Antenna: Log-Periodic	Electro-Metrics	LPA-25	1122	CAL 12/1/06	12/1/08
Measuring Tape-7.5M	Kraftixx	7.5M PROFI		CHAR 12/16/05	12/16/07
Modulation Analyzer	HP	8901A	3435A06868	CAL 11/4/04	11/4/06
Digital Multimeter	Fluke	FLUKE-77-3	79510405	CAL 4/15/05	4/15/07
Analyzer Open-Frame Tower Preamplifier	HP	8449B	3008A01075	CAL 8/8/05	8/8/07
Analyzer Silver Tower Quasi-Peak Adapter	HP	85650A	3303A01844	CAL 10/30/06	10/30/08
Analyzer Silver Tower RF Preselector	HP	85685A	2620A00294	CAL 10/30/06	10/30/08
Analyzer Silver Tower Spectrum Analyzer	HP	8566B Opt 462	3552A22064 3638A08608	CAL 10/30/06	10/30/08

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<b>Device</b>	<b>Manufacturer</b>	<b>Model</b>	<b>Serial Number</b>	<b>Cal/Char Date</b>	<b>Due Date</b>
<b>System One</b>	<b>Audio Precision</b>	<b>System One</b>	<b>SYS1-45868</b>	<b>CHAR 3/27/06</b>	<b>3/27/08</b>
<b>Analyzer Tan</b>	<b>HP</b>	<b>8449B-H02</b>	<b>3008A00372</b>	<b>CAL 12/8/05</b>	<b>12/8/07</b>
<b>Tower</b>					
<b>Preamplifier</b>					
<b>Analyzer Tan</b>	<b>HP</b>	<b>85650A</b>	<b>3303A01690</b>	<b>CAL 12/8/05</b>	<b>12/8/07</b>
<b>Tower Quasi-</b>					
<b>Peak Adapter</b>					
<b>Analyzer Tan</b>	<b>HP</b>	<b>85685A</b>	<b>3221A01400</b>	<b>CAL 12/7/05</b>	<b>12/7/07</b>
<b>Tower RF</b>					
<b>Preselector</b>					
<b>Analyzer Tan</b>	<b>HP</b>	<b>8566B Opt 462</b>	<b>3138A07786</b>	<b>CAL 12/7/05</b>	<b>12/7/07</b>
<b>Tower</b>			<b>3144A20661</b>		
<b>Spectrum</b>					
<b>Analyzer</b>					
<b>Temperature</b>	<b>Tenney</b>	<b>TTRC</b>	<b>11717-7</b>	<b>CHAR 3/23/06</b>	<b>3/23/08</b>
<b>Chamber</b>	<b>Engineering</b>				

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