

APPLICANT: AZDEN CORPORATION
FCC ID: BZB1000BT

TABLE OF CONTENTS LIST

TEST REPORT CONTAINING:

PAGE 1..... GENERAL INFORMATION
PAGE 2.....DESCRIPTIONS
PAGE 3-4.....RF POWER TEST PROCEDURE & AUDIO FREQUENCY RESPONSE GRAPH
PAGE 5-7.....AUDIO INPUT VERSUS MODULATION GRAPH
PAGE 8-11.....OCCUPIED BANDWIDTH
PAGE 12.....RADIATED EMISSIONS TEST DATA & TEST PROCEDURE
PAGE 13.....FREQUENCY STABILITY TEST DATA
PAGE 14.....EQUIPMENT LIST

EXHIBITS CONTAINING:

EXHIBIT 1.....FCC ID LABEL SAMPLE & ID LABEL LOCATION
EXHIBIT 2.....BLOCK DIAGRAM
EXHIBIT 3A-3C...SCHEMATICS
EXHIBIT 4A-4B...TUNING PROCEDURE
EXHIBIT 5.....CIRCUIT DESCRIPTION
EXHIBIT 6A-6H...USER'S MANUAL
EXHIBIT 7.....TEST SET UP PHOTOGRAPH
EXHIBIT 8A.....EXTERNAL FRONT VIEW PHOTOGRAPH
EXHIBIT 8B.....EXTERNAL REAR VIEW PHOTOGRAPH
EXHIBIT 8C.....EXTERNAL CONNECTOR SIDE PHOTOGRAPH
EXHIBIT 9A-9B...INTERNAL COMPONENT SIDE PHOTOGRAPH
EXHIBIT 10A-10B.INTERNAL COPPER SIDE PHOTOGRAPH

APPLICANT: AZDEN CORPORATION
FCCID: BZB1000BT
REPORT #: T:\CUS\A\AZDEN\169AU1\169AU1RPT.DOC
TABLE OF CONTENTS LIST

GENERAL_INFORMATION_REQUIRED
FOR_TYPE_ACCEPTANCE

2.1033 AZDEN CORPORATION will manufacture the BZB1000BT in quantity, for use under FCC RULES PART 74.801, LOW POWER AUXILIARY STATIONS.

2.1033 (c4) TECHNICAL_DESCRIPTION

(1) Type of Emission: 130K0F3E

Bn = 2M + 2DK

M = 20000

D = 45kHz(Peak Deviation)

K = 1

Bn = 2(20k) + 2(45k)(1) = 130k

ALLOWED AUTHORIZED BANDWIDTH = 200kHz.

74.861(e)(5)

(2) Frequency Range: Part 74: 723-735 MHz
TEST FREQ = 729.00 MHz.

(3) Power Range and Controls: UNIT has no controls.

(4) Maximum Output Power Rating: .1 Watts into 50 ohms resistive load.

(5) DC Voltages and Current into Final Amplifier:

FINAL AMPLIFIER ONLY

9.0V BATTERY

Vce = 9.0 Volts

Ice = 28 mA.

2.1033(c.10)(7) Complete Circuit Diagrams: The circuit diagram is included as EXHIBIT # 3A-3C. The block diagram is included as EXHIBIT #2.

(8) Instruction book. The instruction manual is included as Exhibit 6A-6H.

(9) Tune-up procedure. The tune-up procedure is given in page 4A-4B.

APPLICANT: AZDEN CORPORATION

FCCID: BZB1000BT

REPORT #: T:\CUS\A\AZDEN\169AU1\169AU1RPT.DOC

PAGE #: 1

APPLICANT: AZDEN CORPORATION

FCC ID: BZB1000BT

(10) Description of all circuitry and devices provided for determining and stabilizing frequency.

(11) Description of any circuits or devices employed for suppression of spurious radiation, for limiting modulation, and for limiting power.

This circuitry is described on page 5.

Limiting Modulation:

The transmitter audio circuitry is contained in IC101, IC102 and IC103.

Limiting Power:

There is no provision for limiting power.

(12) Digital modulation. This unit does not use digital modulation.

2.983(e) The data required by 2.1046 through 2.1057 is submitted below.

2.1046 RF_power_output.

RF power is measured by effective radiated power.
OUTPUT POWER: .1 WATTS ERP

APPLICANT: AZDEN CORPORATION

FCCID: BZB1000BT

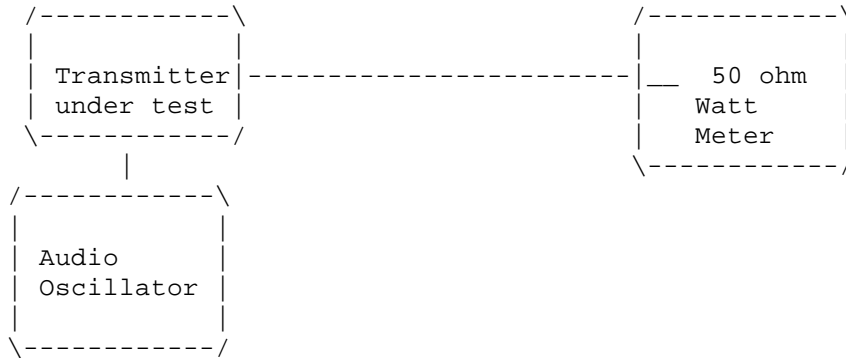
REPORT #: T:\CUS\A\AZDEN\169AU1\169AU1RPT.DOC

PAGE #: 2

APPLICANT: AZDEN CORPORATION

FCC ID: BZB1000BT

R.F. POWER OUTPUT TEST PROCEDURE



2.1047(a)(b) Modulation_characteristics:

AUDIO_FREQUENCY_RESPONSE

The audio frequency response was measured in accordance with TIA/EIA Specification 603. The audio frequency response curve is shown on the next page.

AUDIO_LOW_PASS_FILTER

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

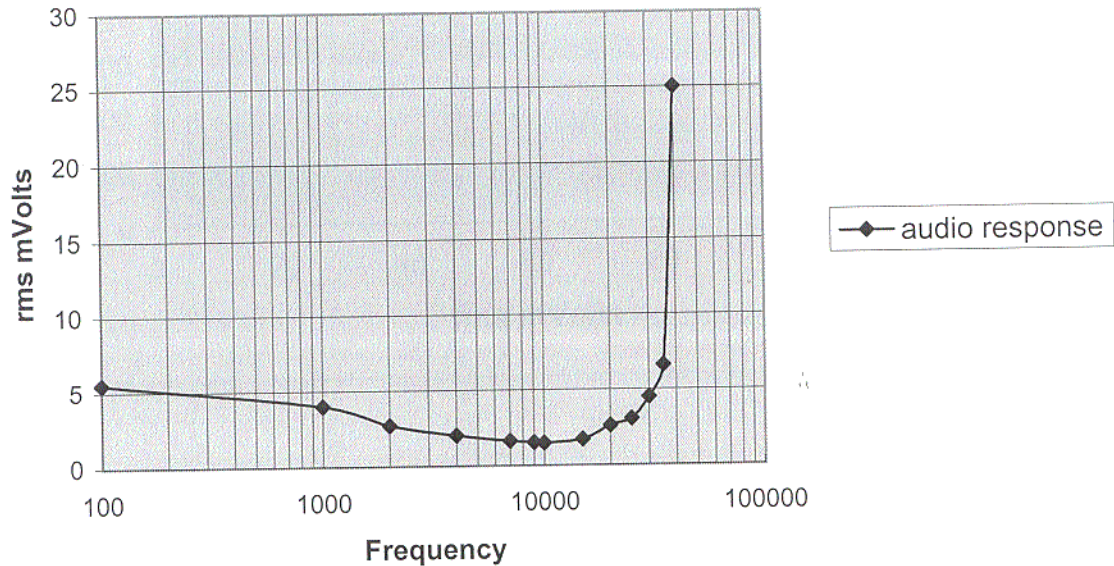
APPLICANT: AZDEN CORPORATION

FCCID: BZB1000BT

REPORT #: T:\CUS\A\AZDEN\169AU1\169AU1RPT.DOC

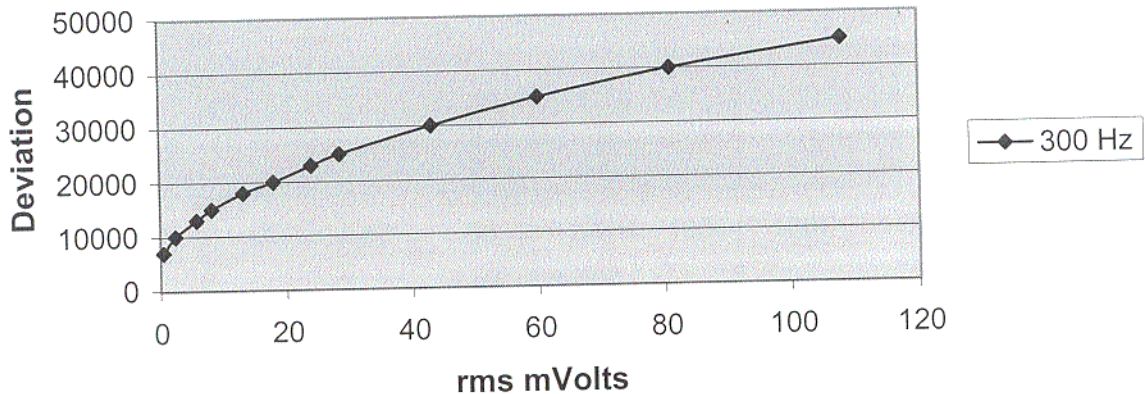
PAGE #: 3

Azden Corp.
BZB1000BT



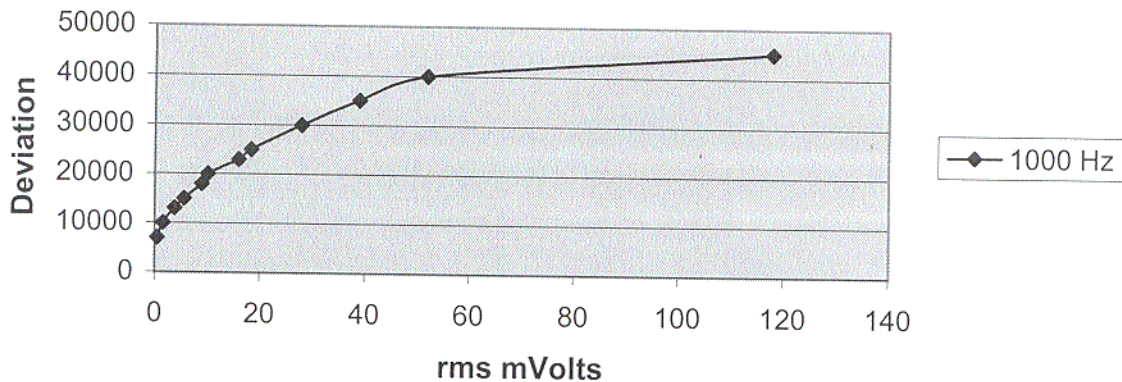
Azden Corporation
FCC ID: BZB1000BT
Job #: 169AU1
PAGE #: 4

Modulation Limiting
Azden Corp.
BZB1000BT



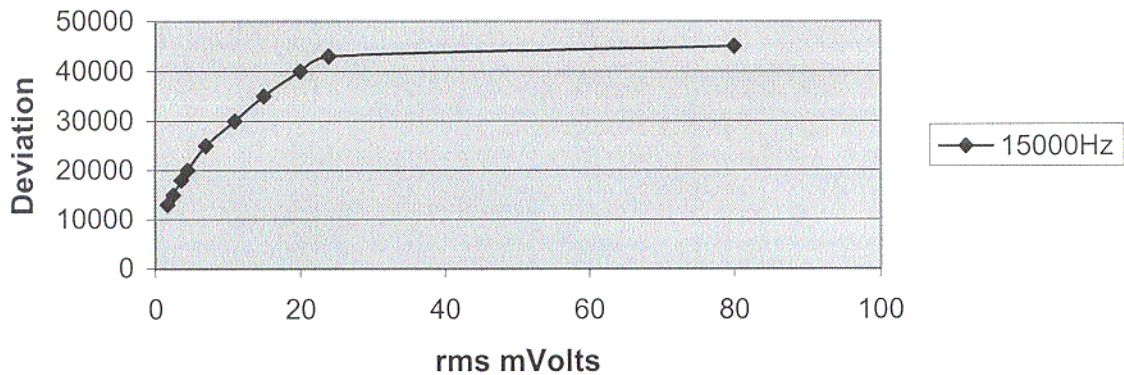
Azden Corporation
FCC ID: BZB1000BT
Job #: 169AU1
PAGE #: 5

Modulation Limiting
Azden Corp.
BZB1000BT



Azden Corporation
FCC ID: BZB1000BT
Job #: 169AU1
PAGE.#: 6

Modulation Limiting
Azden Corp.
BZB1000BT



Azden Corporation
FCC ID: BZB1000BT
Job #: 169AU1
PAGE #: 7

APPLICANT: AZDEN CORPORATION
FCC ID: BZB1000BT

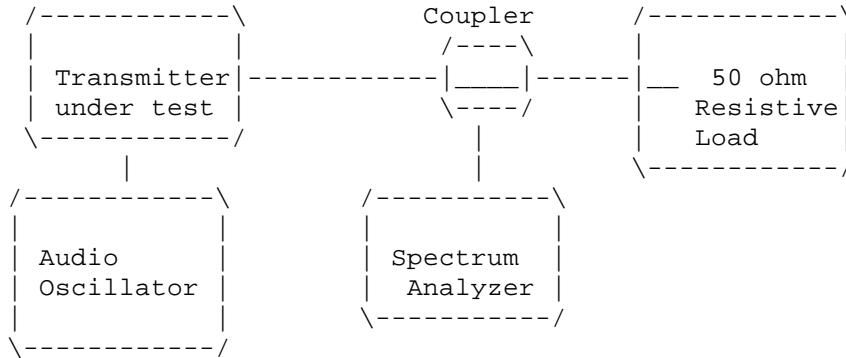
2.1049(c) Occupied Bandwidth:

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% $43 \log(P_o)$ 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 plots follow.

Wireless Microphone transmitter:

Test procedure diagram

OCCUPIED BANDWIDTH MEASUREMENT



REQUIREMENT: PART 74: 200kHz EMISSION BANDWIDTH.

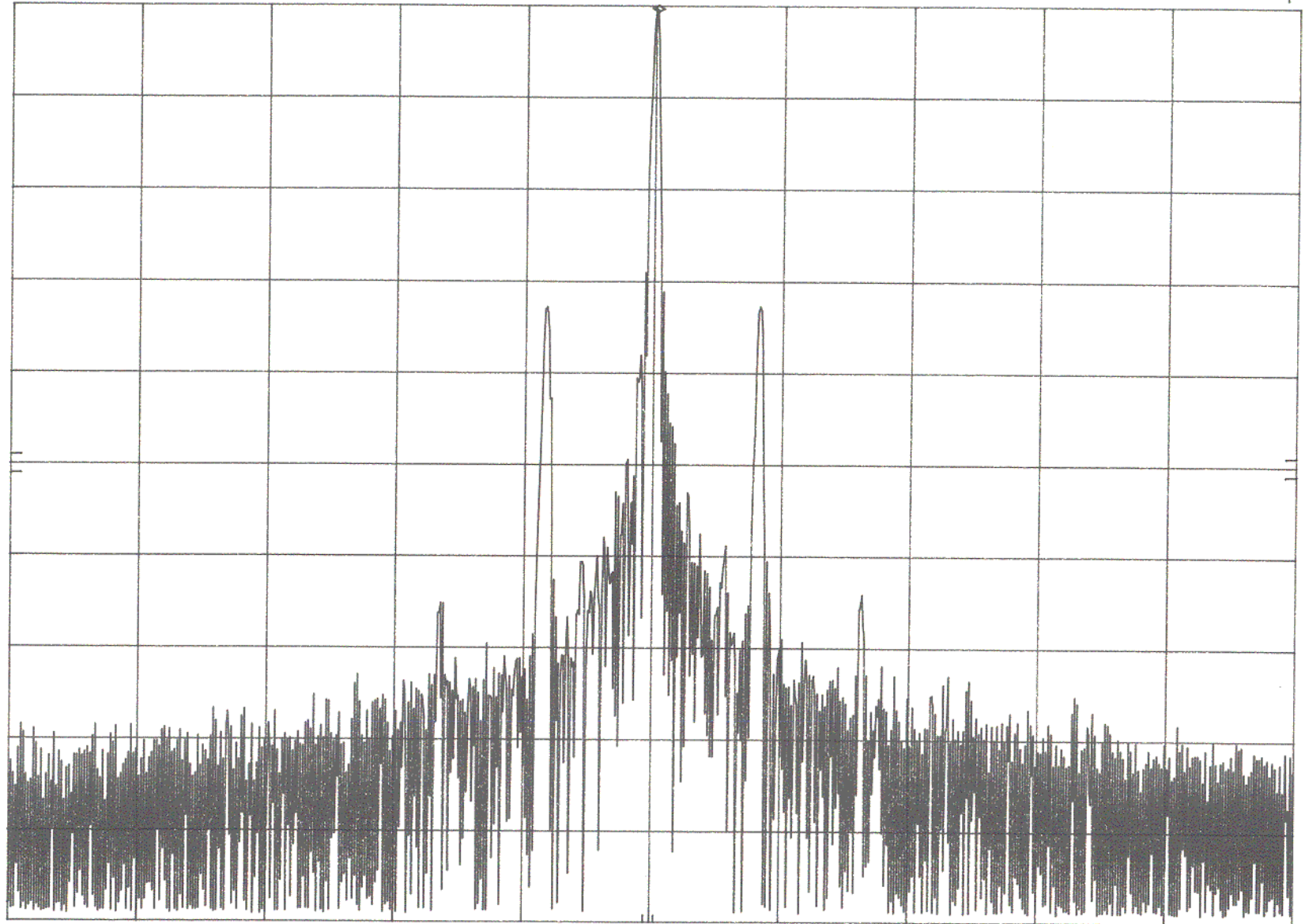
APPLICANT: AZDEN CORPORATION
FCCID: BZB1000BT
REPORT #: T:\CUS\A\AZDEN\169AU1\169AU1RPT.DOC
PAGE #: 8

MKR 729.0004 MHz
73.70 dB μ V

hp REF 74.0 dB μ V ATTEN 10 dB +0 dB

10 dB/

OFFSET
-20.0
dB



Azden Corporation
FCC ID: BZB1000BT
Job #: 169AUI
Page #: 9

CENTER 729.0000 MHz
RES BW 1 kHz

VBW 300 kHz

SPAN 400.0 kHz
SWP 1.0 sec



MKR 729.0304 MHz
69.30 dB μ V

hp

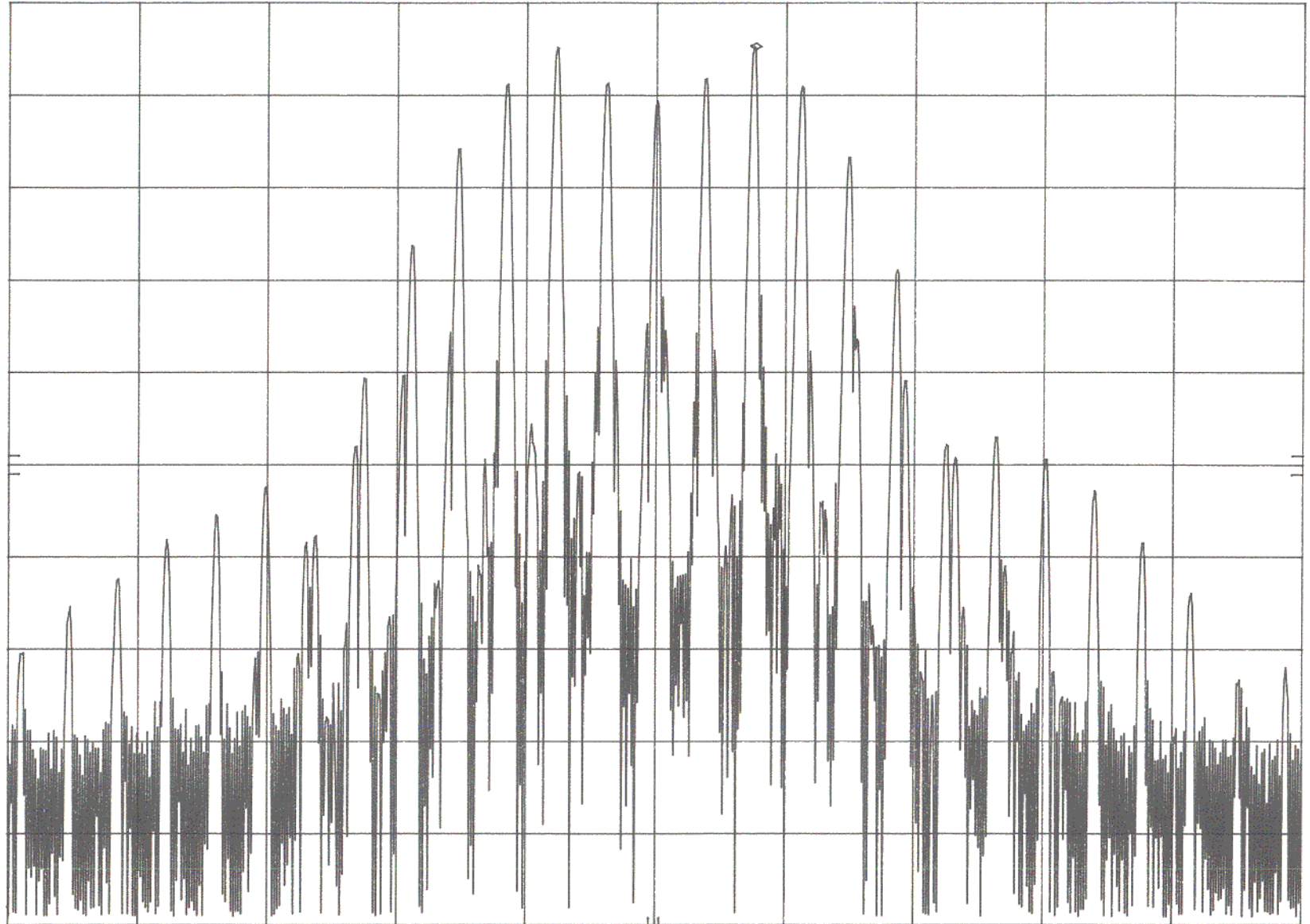
REF 74.0 dB μ V

ATTEN 10 dB +0 dB

10 dB/

OFFSET
-20.0
dB

Azden Corporation
FCC ID: BZBI000BT
Job #: 169AUI
Page #: 10



CENTER 729.0000 MHz
RES BW 1 kHz

VBW 300 kHz

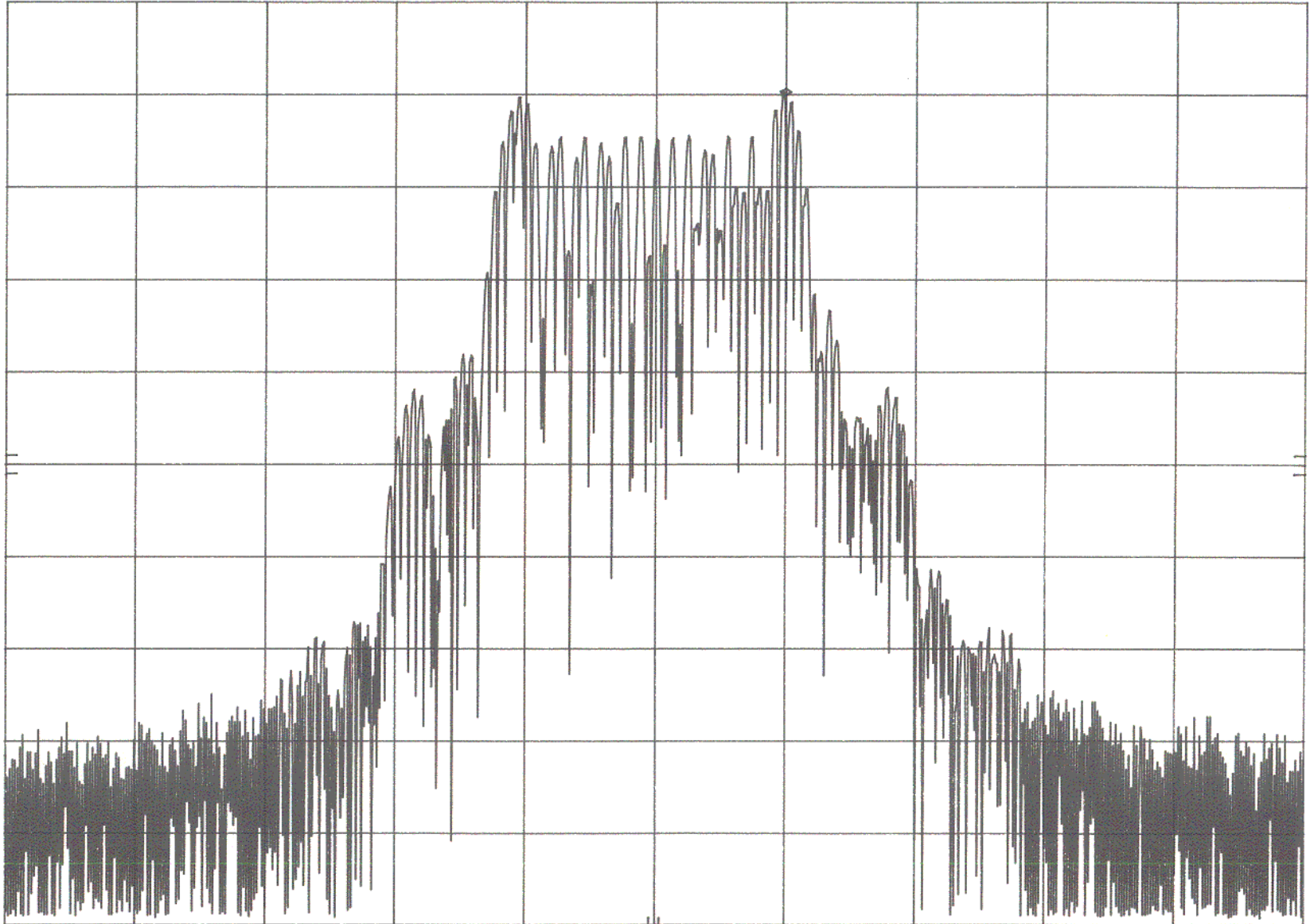
SPAN 400.0 kHz
SWP 1.0 sec

MKR 729.0396 MHz
64.30 dB μ V

hp REF 74.0 dB μ V ATTEN 10 dB +0 dB

10 dB/

OFFSET
-20.0
dB



CENTER 729.0000 MHz
RES BW 1 kHz

VBW 300 kHz

SPAN 400.0 kHz
SWP 1.0 sec

Azden Corporation
FCC ID: BZB1000BT
Job #: 169AUI
Page #: 11

2.1051 Spurious emissions at antenna terminals(conducted):
Not Applicable no antenna connector.

2.1053(a)(b) Field strength of spurious emissions:

NAME OF TEST: RADIATED SPURIOUS EMISSIONS

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

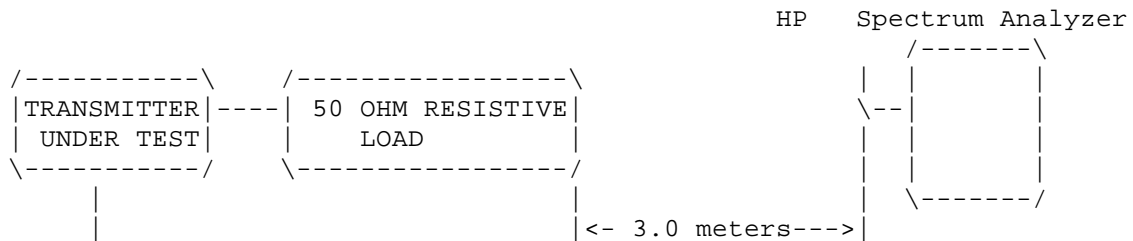
$$43 + 10 \log(0.01) = 23.00 \text{ dB}$$

TEST DATA:

EMISSION FREQUENCY MHz	MR @ 3m dBuV	COAX LOSS dB	ACF dB	FIELD STRENGTH dBuV/m	FCC LIMIT DB	ATTN dB	MARGIN Db	ANT. POL
729.00	83.30	2.00	21.73	107.03	0.00	0.00	0.00	H
1458.00	41.10	1.00	25.83	67.90	23.00	39.10	16.10	V
2187.00	36.20	1.06	28.47	65.73	23.00	41.31	18.31	V
2916.00	34.10	1.17	30.29	65.56	23.00	41.47	18.47	V
3645.00	21.60	1.28	32.11	54.99	23.00	52.04	29.04	H
4374.00	15.50	1.39	33.42	50.31	23.00	56.72	33.72	H
5103.00	4.50	1.50	34.24	40.24	23.00	66.80	43.80	H
5832.00	17.90	1.61	35.06	54.57	23.00	52.47	29.47	V
6561.00	19.50	1.71	35.88	57.10	23.00	49.94	26.94	V
7290.00	1.80	1.82	36.70	40.33	23.00	66.71	43.71	V

METHOD OF MEASUREMENT: The procedure used was TIA/EIA STANDARD 603. The spectrum was scanned from 30 to at least the tenth harmonic of the fundamental using a HP model 8566B spectrum analyzer and an appropriate antenna. Measurements were made at the open field test site of TIMCO ENGINEERING INC. located at 849 NW SR 45 Newberry, Florida 32669.

Method of Measuring Radiated Spurious Emissions



Tuned Calibrated antenna that maybe raised from 1 meter to 4 meters above ground. The antenna was placed in both the

Equipment placed on horizontal and vertical planes. rotating platform, 80 cm above ground.

APPLICANT: AZDEN CORPORATION

FCCID: BZB1000BT

REPORT #: T:\CUS\A\AZDEN\169AU1\169AU1RPT.DOC

PAGE #: 12

APPLICANT: AZDEN CORPORATION
FCC ID: BZB1000BT

2.1055 Frequency stability:
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) specification limit.

The test was conducted as follows: The transmitter was placed in the temperature chamber at 25 degrees 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 was taken for temperature plotting. The assigned channel frequency was considered to be the reference frequency. The temperature was then reduced to -30 degrees 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 recorded for temperature plotting. This procedure was repeated in 10-degree increments up to + 50 degrees C.

MEASUREMENT DATA:

Assigned Frequency (Ref. Frequency): 729.000 000

TEMPERATURE_C	FREQUENCY_MHz	PPM
-30	728.986 563	-18.43
-20	728.992 027	-10.94
-10	728.995 585	- 6.06
0	728.997 954	- 2.81
10	728.999 359	- 0.88
20	728.999 942	- 0.08
30	729.000 213	+ 0.29
40	729.000 472	+ 0.65
50	729.000 068	+ 1.47

25c END BATT. Volt(7.65)= 7.65VDC 729.000 117 + 0.11
25c END BATT. Volt(10.35)= 10.35VDC 729.000 102 + 0.07

RESULTS OF MEASUREMENTS: The maximum frequency variation over the temperature range was -18.43 to +1.47 ppm. The maximum frequency variation over the voltage range was +0.11 ppm.

APPLICANT: AZDEN CORPORATION
FCCID: BZB1000BT
REPORT #: T:\CUS\A\AZDEN\169AU1\169AU1RPT.DOC
PAGE #: 13

- 2.1033(c.11) Photo_or_Drawing_of_Label:
See EXHIBIT # 1.
- 2.1033(c.12) Photos_of_Equipment:
See EXHIBIT #'S 8A-10B.

TEST EQUIPMENT LIST

1. X Spectrum Analyzer: HP 8566B-Opt 462, S/N 3138A07786, w/
preselector HP 85685A, S/N 3221A01400, Quasi-Peak Adapter
HP 85650A, S/N 3303A01690 & Preamplifier HP 8449B-OPT H02,
S/N 3008A00372
2. X Biconnical Antenna: Eaton Model 94455-1, S/N 1057,
3. Biconnical Antenna: Electro-Metrics Model BIA-25, S/N 1171
4. X Log-Periodic Antenna: Electro-Metrics Model EM-6950, S/N 632
5. Log-Periodic Antenna: Electro-Metrics Model LPA-30, S/N 409
6. X Double-Ridged Horn Antenna: Electro-Metrics Model RGA-180,
1-18 GHz, S/N 2319
7. 18-26.3GHz Systron Donner Standard Gain Horn #DBE-520-20
8. Horn 40-60GHz: ATM Part #19-443-6R
9. Line Impedance Stabilization Network: Electro-Metrics Model
EM-7820, w/NEMA Adapter S/N 2682
10. Temperature Chamber: Tenney Engineering Model TTRC, S/N 11717-7
11. Frequency Counter: HP Model 5385A, S/N 3242A07460
12. Peak Power Meter: HP Model 8900C, S/N 2131A00545
13. X Open Area Test Site #1-3meters
14. Signal Generator: HP 8640B, S/N 2308A21464
15. Signal Generator: HP 8614A, S/N 2015A07428
16. Passive Loop Antenna: EMCO Model 6512, 9KHz to 30MHz, S/N
9706-1211
17. Dipole Antenna Kit: Electro-Metrics Model TDA-30/1-4, S/N 153
18. AC Voltmeter: HP Model 400FL, S/N 2213A14499
19. Digital Multimeter: Fluke Model 8012A, S/N 4810047
20. Digital Multimeter: Fluke Model 77, S/N 43850817
21. Oscilloscope: Tektronix Model 2230, S/N 300572

APPLICANT: AZDEN CORPORATION

FCCID: BZB1000BT

REPORT #: T:\CUS\A\AZDEN\169AU1\169AU1RPT.DOC

PAGE #: 14