ADVANCED BUSINESS SCIENCES, INC.

Application
For Certification
of the ABS Cuff Transmitter

(FCC ID: OAM 1023018)

June 28, 1999

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1.0 GENERAL DESCRIPTION

1.1 Related Submittals Grants

This is single application of the Cuff transmitter for Certification under Part 15.231(e). There are no other simultaneous applications.

1.2 Product Description

The wireless cuff includes five components, a battery assembly (hub), “O” ring, transmitter assembly, a bracket and four screws.

Battery Assembly-Provides a nominal 6VDC source to power the transmitter when assembled. The transmitter will cease operation at around 3.9VDC.
“O” Ring – Seals the transmitter compartment when assembled making it waterproof.
Transmitter assembly – Encapsulated transmitter with battery contacts for power. Periodically sends a message to the receiver which resident in the PTU.

1.3 Test Methodology

Radiated emission measurements were performed according to the procedures in ANSI C63.4 (1992). All measurements were performed in Open Area Test Sites. Preliminary scans were performed in the Open Area Test Sites only to determine worst case modes. For each scan, the procedure for maximizing emissions in Appendices D and E were followed. All Radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the "**Justification Section**" of this Application.

1.4 Test Facility

The test site facility used to collect the radiated and conducted measurement data is located at 7435 4th Street North, Oakdale, Minnesota. This test facility has been fully described in a report dated on September 1996 submitted to your office. Please reference the site filing number: 31040/SIT 1300F2, dated December 26, 1996.

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2.0 SYSTEM TEST CONFIGURATION

2.1 Justification

The EUT was powered from 6VDC Battery assembly. The EUT was set up as tabletop equipment.

2.2 EUT Exercising Software

The ABS Cuff transmitter was tested in the continuous transmission mode.

2.3 Special Accessories

There are no special accessories necessary for compliance of these products.

2.4 Equipment Modification

No modifications were installed during the testing.

2.5 Support Equipment List and Description

N/A

2.6 Test Configuration Block Diagram (see Exhibit I)

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3.0 EMISSION RESULTS

Data is included of the worst case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs, data tables and graphical representations of the emissions are included.

3.1 Field Strength Calculation

The field strength is calculated by adding the Peak reading on the EMI Receiver to the factors associated with preamplifiers (if any), antennas and cables. A sample calculation is included below.

FS = RA + AF + CF - AV

Where FS = Field Strength in dB V/m
RA = Receiver Amplitude (including preamplifier) in dB V
CF = Cable Attenuation Factor in dB
AF = Antenna Factor in dB
AV = Average Factor

Assume a receiver reading of 47 dB V is obtained. The antenna factor of 19.5 dB and cable factor of 3.5 dB is added. The net field strength for comparison to the appropriate emission limit is 67 dB V/m. The average factor of 20dB is subtracted from the readings.

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3.2 Radiated Emission Data (see Exhibit II)

The fundamental output power and harmonic emissions limits are outlined in paragraph 15.231(e). The device is designed to poll at intervals not grater than once every 10 seconds, with a duration of less than 1 second. Also, the silent period between transmissions at least 30 times the duration of the transmission. The fundamental field strength allowed at the distance of 3 meters was calculated to be 67dBµV/m. The harmonics emissions which lie in the forbidden bands of §15.205 are required to meet the general radiated emissions limits of §15.209.

The maximum level of the fundamental signal at 303.858 MHz was 80 dBµV/m, which is 7dB margin below the FCC limit (67dB + 20dB CF). The worst case harmonic emission was 2.2dB below the FCC limit. Please note that an average factor of 20dB was applied to the level of the fundamental emissions for comparison to the FCC limits. One complete pulse train was measured and found not to exceed 0.1 seconds. The corresponding plot is included in the emissions data section within this report. Care was taken to avoid pulse desensitization of the measurement equipment. Please see Tables 1 and 2 for a summary of the emissions results.

Tested by:

Norman Shpilsher
EMC Engineer
Intertek Testing Services NA, Inc.

Agent for Advanced Business Sciences, Inc.

_____ Signature

Date: May 24, 1999

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3.3 TEST EQUIPMENT

Receivers/Spectrum Analyzers

DESCRIPTION	SERIAL NO.	LAST CAL DATE	CAL DUE	TICK IF USED
HP 85462A Receiver RF Section	3325A00106	09/98	09/99	X
HP 85460A RF Filter Section	3330A00109	09/99	09/99	X
Advantest R3271A	55050084	03/99	03/00	
HP 83017A Microwave Amplifier	3123A00475	03/99	03/99	

Antennas

DESCRIPTION	**SERIAL NO**	**LAST CAL DATE**	**CAL DUE**	**TICK IF USED**
Schaffner-Chase Bicono-Log Antenna	2468	08/98	08/99	X
EMCO Horn antenna 3115	9507-4513	07/98	07/99	X
EMCO Log-Periodic Antenna	4515	01/99	01/00	

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EXHIBIT I

EMISSIONS TEST DATA

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Radiated Emissions **Date:** 5-12-99

Company: Advanced Business Science Inc.
Model: ABS Cuff Transmitter, s/n 0130
Test Engineer: Norman Shpilsher
Standard: **FCC Part 15.109**

Table # 1

Antenna Polarity	Antenna Hts (m)	Frequency MHz	Peak dBuV	AF dB/m	Net at 3m. dBuV/m	Class B Limit dBuV/m	Margin dB
V	1.0	32.00	8.2	17.3	25.5	40	-14.5
V	1.0	36.00	12.4	15.3	27.7	40	-12.3
V	1.0	40.00	8.5	13.1	21.6	40	-18.4
V	1.7	60.00	16.3	6.0	22.3	40	-17.7
V	1.0	80.00	11.5	7.7	19.2	40	-20.8
V	1.0	120.00	8.8	13.0	21.8	44	-22.2
V	1.0	160.00	9.4	11.3	20.7	44	-23.3
V	1.0	215.76	8.3	11.1	19.4	44	-24.6

Note: The table shows the worst case radiated emissions
All measurements were taken using a Quasi-peak detector
All measurements were taken using 100 kHz RBW

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Radiated Emissions **Date:** 5-12-99

Company: Advanced Business Science Inc.
Model: ABS Cuff Transmitter, s/n 0130
Test Engineer: Norman Shpilsher
Standard: **FCC Part 15.231(e)**

Table # 2

Antenna Polarity	Antenna Hts (m)	Frequency MHz	Peak dBuV	AF dB/m	Net at 3m. dBuV/m	Limit dBuV/m	Peak CF dB	Margin dB	Comments
V	1.9	303.858	62.4	16.2	78.6	67	20	-8.4	Fund Freq.
H	1.1	303.858	63.8	16.2	80.0	67	20	-7.0	Fund Freq.
V	2.1	607.722	20.1	23.4	43.5	46	20	-22.5	2 nd harm
H	1.6	607.722	28.3	23.4	51.7	46	20	-14.3	2 nd harm
V	1.2	911.577	26.0	27.7	53.7	46	20	-12.3	3 rd harm
H	1.8	911.577	25.7	27.7	53.4	46	20	-12.6	3 rd harm
V	1.6	1215.433 *	27.4	29.0	56.4	54	20	-17.6	4 th harm
H	1.3	1215.433 *	22.5	29.0	51.5	54	20	-22.5	4 th harm
V	1.9	1519.293 *	18.0	29.8	47.8	54	20	-26.2	5 th harm
H	1.0	1519.293 *	26.2	29.8	56.0	54	20	-18.0	5 th harm
		1823.154	N/A						6 th harm
		2127.012	N/A						7 th harm
		2430.871	N/A						8 th harm
V	1.0	2734.733 *	36.0	35.8	71.8	54	20	-2.2	9 th harm
H	2.9	2734.733 *	34.0	34.6	68.6	54	20	-5.4	9 th harm
		3038.587	N/A						10 th harm

Note: The table shows the worst case radiated emissions
All measurements were taken using a Peak detector
Measurements below 1 GHz were taken using 100 kHz RBW
Measurements above 1 GHz were taken using 1MHz RBW
* Frequency in the 15.205 Restricted bands of operations

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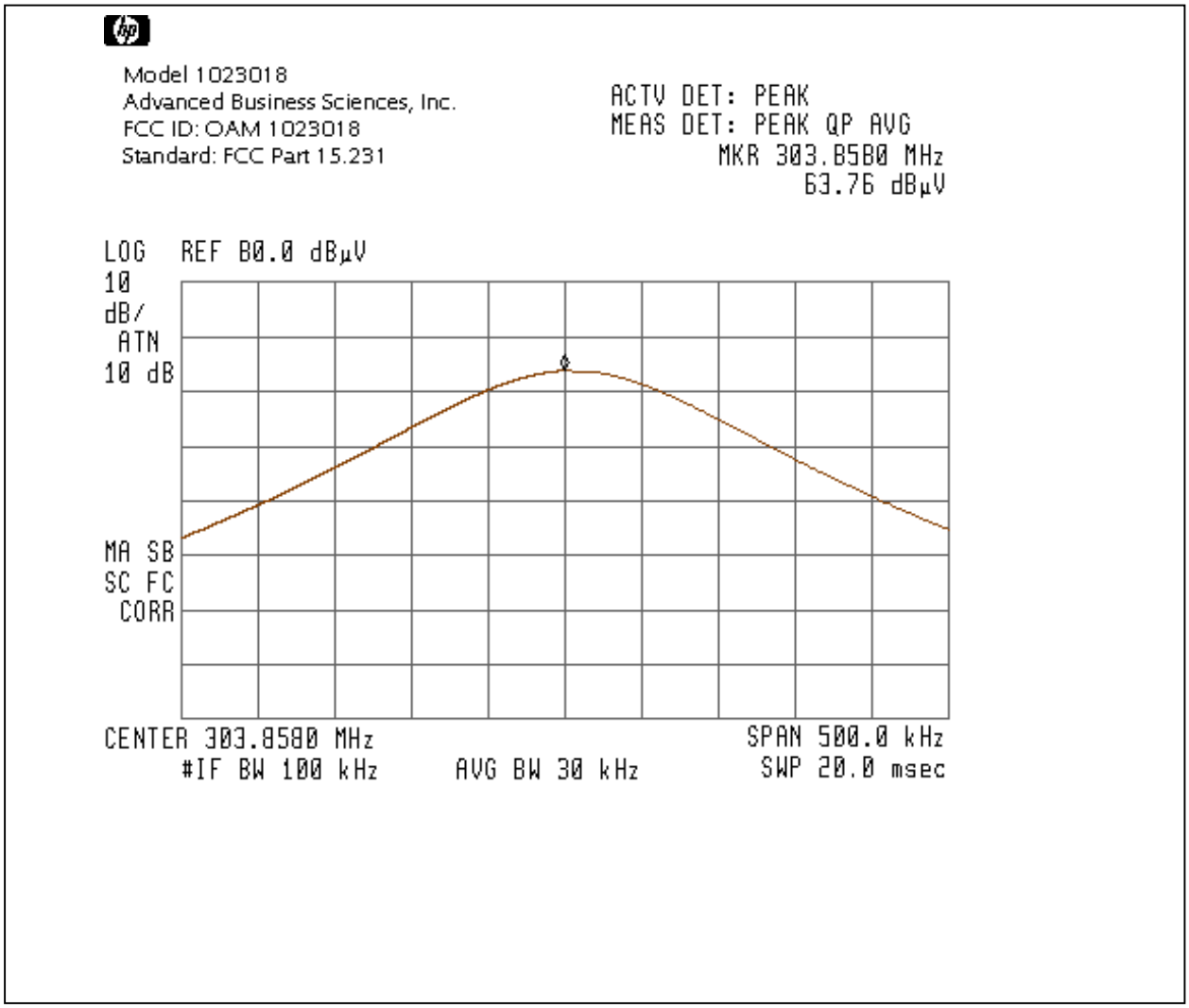
Model 1023018
Advanced Business Sciences, Inc.
FCC ID: OAM 1023018
Standard: FCC Part 15.231
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 303.8580 MHz
63.76 dBµV
LOG REF 80.0 dBµV
10
dB/
ATN
10 dB
MA SB
SC FC
CORR
CENTER 303.8580 MHz
SPAN 500.0 kHz
#IF BW 100 kHz
AVG BW 30 kHz
SWP 20.0 msec

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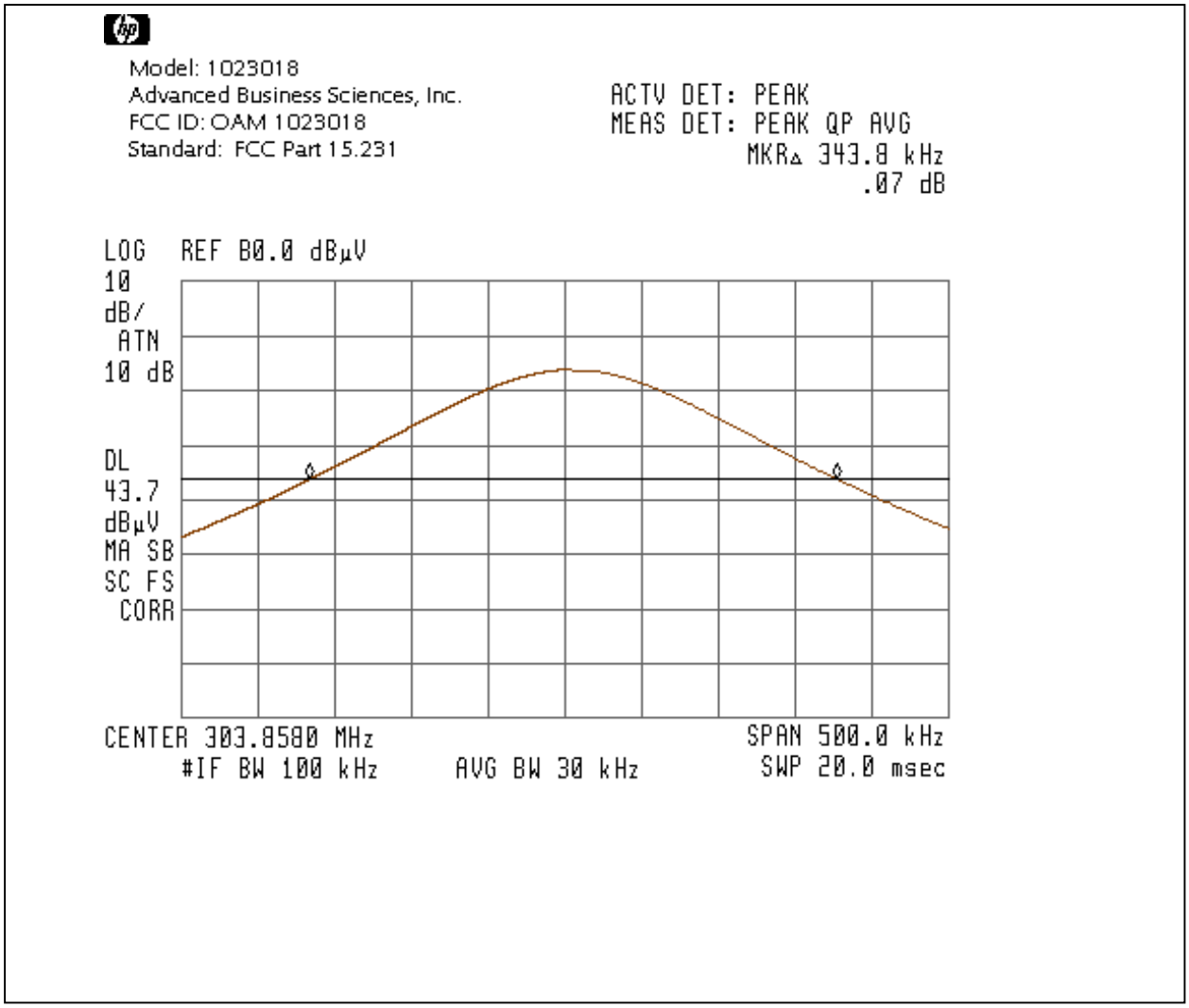
Model: 1023018
Advanced Business Sciences, Inc.
FCC ID: OAM 1023018
Standard: FCC Part 15.231
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 343.8 kHz
.07 dB
LOG REF 80.0 dBµV
10
dB/
ATN
10 dB
DL
43.7
dBµV
MA SB
SC FS
CORR
CENTER 303.8580 MHz
SPAN 500.0 kHz
#IF BW 100 kHz
AVG BW 30 kHz
SWP 20.0 msec

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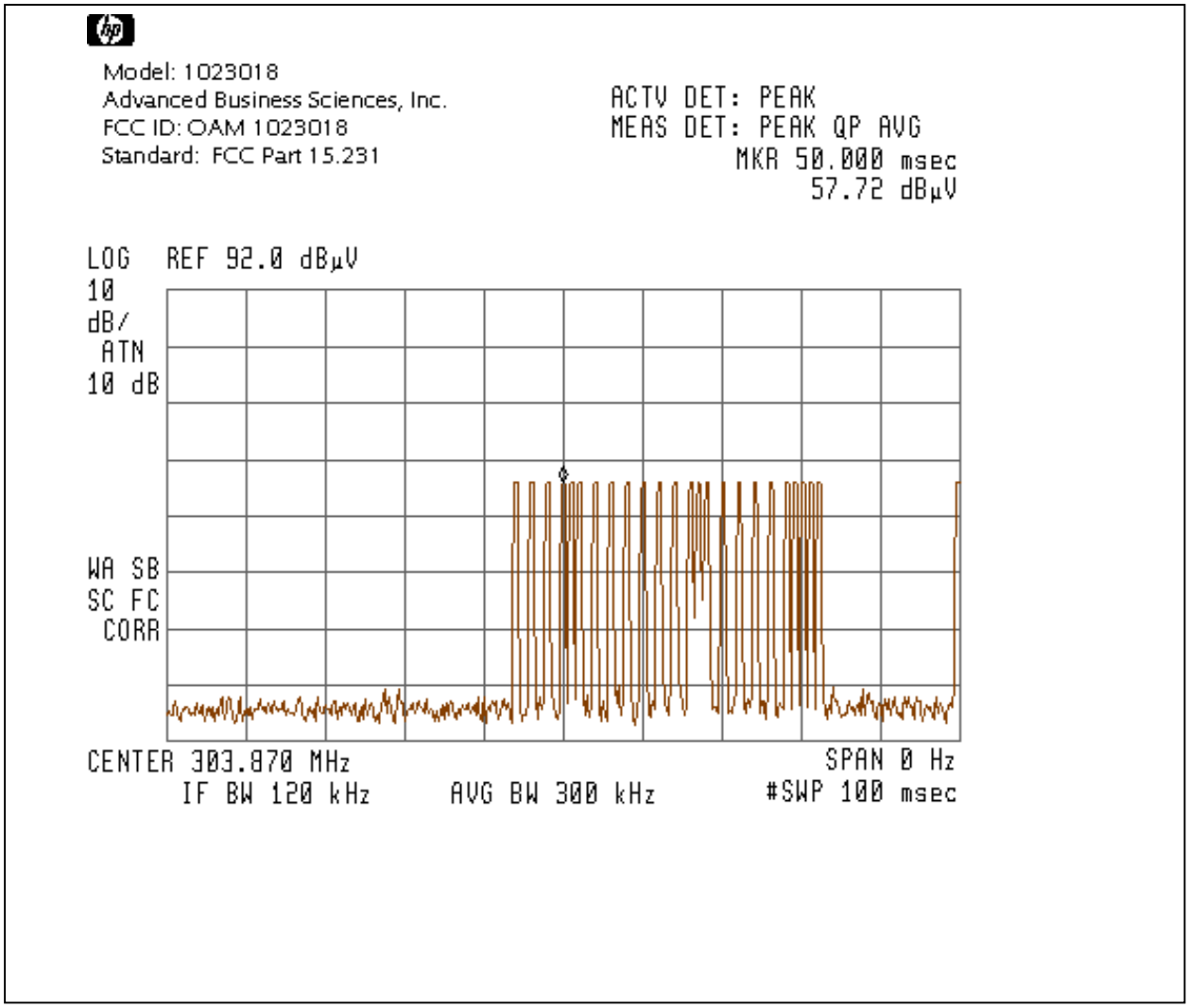
Model: 1023018
Advanced Business Sciences, Inc.
FCC ID: OAM 1023018
Standard: FCC Part 15.231
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 50.000 msec
57.72 dBµV
LOG REF 92.0 dBµV
10
dB/
ATN
10 dB
WA SB
SC FC
CORR
CENTER 303.870 MHz
SPAN 0 Hz
IF BW 120 kHz
AVG BW 300 kHz
#SWP 100 msec

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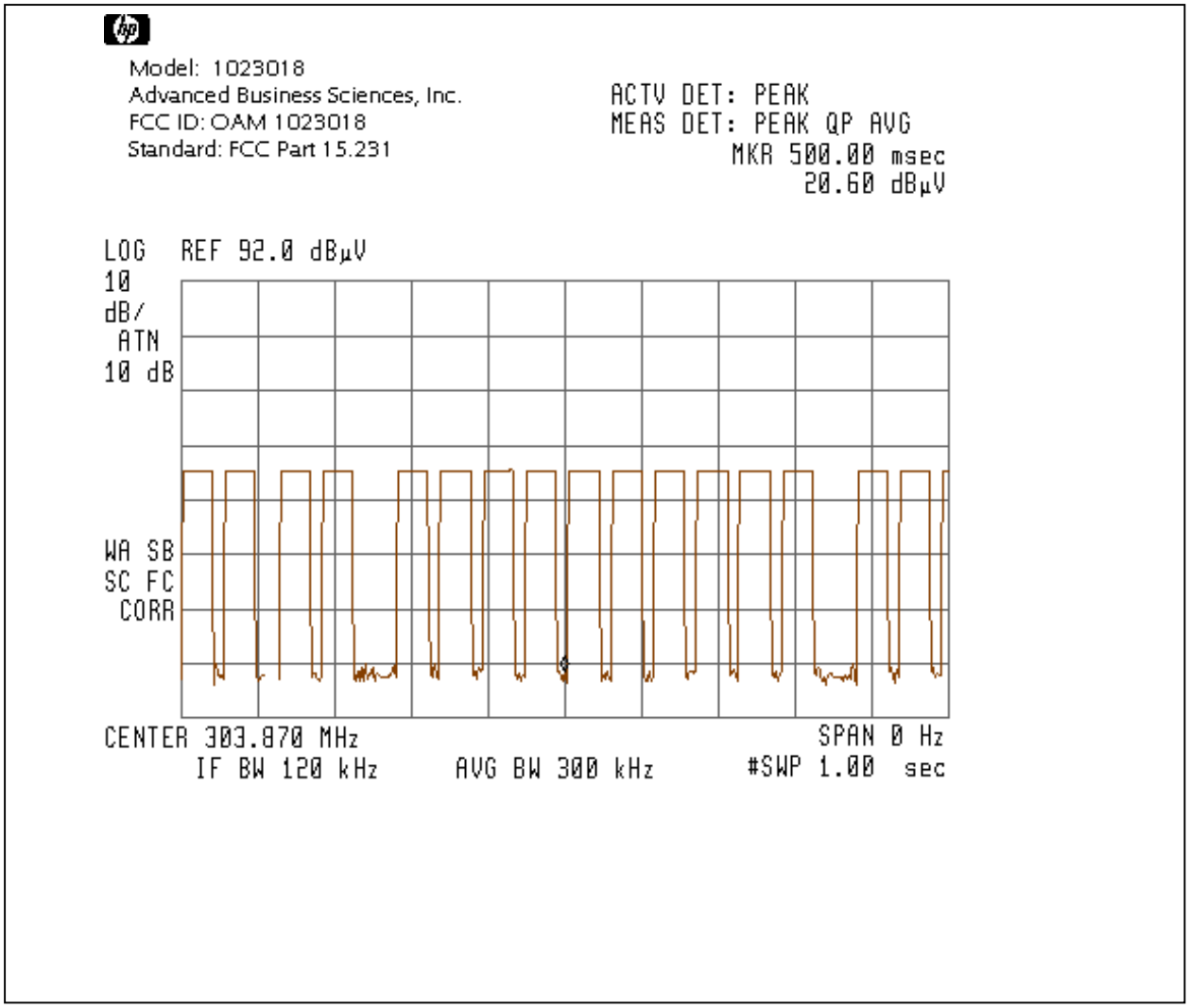
Model: 1023018
Advanced Business Sciences, Inc.
FCC ID: OAM 1023018
Standard: FCC Part 15.231
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 500.00 msec
20.60 dBµV
LOG REF 92.0 dBµV
10
dB/
ATN
10 dB
WA SB
SC FC
CORR
CENTER 303.870 MHz
SPAN 0 Hz
IF BW 120 kHz
AVG BW 300 kHz
#SWP 1.00 sec