

MEASUREMENT AND TECHNICAL REPORT

ADVANCED BRAIN MONITORING SYSTEMS 2850 Pio Pico Drive, Suite A Carlsbad, CA 92008

DATE: 09 April 2003

This Report Concerns:	Original Grant: X		Class II Change:
Equipment Type:	EEG Acquisition	System, Model B	-Alert
Deferred grant requested per 47 0.457(d)(1)(ii)?	CFR	Yes: Defer until:	No: X
Company Name agrees to notify to Commission by: of the intended date of announce		N/A duct so that the ç	grant can be issued on that
date.	·		
Transition Rules Request per 15.	37? Yes:	No: X*	
(*) FCC Part 15, Paragraph(s) 15.20	09(a), 15.249		
Report Prepared b	y:	TÜV AMERICA, 10040 Mesa Rin San Diego, CA 9 Phone: 858 546 Fax: 858 546	n Road 92121-2912 3999

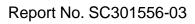




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1.0 GENERAL INFORMATION

1.1 Product Description

		CUSTOMER IN	FORMAT	ION					
COMPANY NAME:		Advanced Brain Monitoring							
COMPANY ADDRESS:		2850 Pio Pico Dr. #A							
	Carlsbad, CA 92008								
PHONE NUMBER:		760-720-0099							
FAX NUMBER:		760-720-0094							
CUSTOMER CONTACT:		Daniel J. Leven	dowski						
		PRODUCT DE	SCRIPTION	ON					
NAME, MODEL, SERIAL # OF	EUT:	B-Alert System	, Model 6	503					
DESCRIPTION OF EUT:		6 channel EEG	•						
		Component		•					
Description	Model Num	ber (s)	Se	rial Number	FCC ID Number				
Head and Host Unit	57-8, and 5	7S respectively	92	5006, and 000025					
OPERATING MODE(S):	-	Normal	•						
EUT CONFIGURATIONS:									
		POWER INT	ERFACE						
FREQUENCY/AC/DC VOLTAGE	GE:	2 AAA Internal	NiMH ba	tteries 2*1.2V					
PHASES (f)/CURRENT (amp	s):								
OSCILLATOR FREQUENCIES	S:								
		POWER SUPPLY							
DESCRIPTION:		Internal							
MANUFACTURER, MODEL #	, S/N #								
	-								
SWITCHING FREQUENCY:		300kHz +-40kHz							
POWERLINE FILTER: MODE	L #:								
DESCRIPTION OF ENCLOSU	IRE:	ABS Plastic							
CRITICAL EMI COMPONENTS	S:	TRF6900A, Cry	stal HE-N	MCC-125-B-26-E					
		SAW filter SAF							
INTERI	FACING ANI	O/OR SIMULATO	RS PER	IPHERAL EQUIPMENT	ī:				
Description		Model #		Serial #	FCC ID/Other				
Host Computer									
I/O PORTS:									
Name of Line	Тур	e of Line	Length	Status of Line	Kind of				
			of Cable		Transmission				
EEG input 1.7	□Shielded	X Unshielded	10"	☐ Passive X Active	X Analog ☐ Digital				
Reference	□Shielded	X Unshielded	10"	X Passive ☐ Active	X Analog ☐ Digital				
RS232 receive		X Unshielded	3'	☐ Passive X Active	0 0				
Rs232 transmitt		X Unshielded	3'	☐ Passive X Active	3 3				
CTS control		X Unshielded	3'	☐ Passive X Active	0 0				
Ground	□Shielded	X Unshielded	3'	X Passive ☐ Active	☐ Analog X Digital				



MAJOR SUBASSEMBLIES OR INTERNAL DEVICES							
Description Model # Serial # FCC ID #							
Head Unit	57-8	925006					
Host Unit	57-S	000025					
BLOCK DIAGRAM:		·					



1.2 Related Submittal Grant

None

1.3 Tested System Details

The FCC ID's for all equipment, plus descriptions of all cables used in the tested system are:

None

1.4 Test Methodology

Purpose of Test: To demonstrate compliance with the following tests.

TEST	FCC CFR 47#	PASS/FAIL
Radiated Emissions	15.209(a)	Pass
Radiated Emissions	15.249	Pass

Both Conducted and Radiated testing were performed according to the procedures in FCC/ANSI C63.4 and CSA 108.8-M1983. Radiated testing was performed at an antenna-to-EUT distance of 3 meters (1 - 25 GHz).

1.5 Test Facility

The open area test site and conducted measurement data were tested by:

TÜV AMERICA, INC 10040 Mesa Rim Road San Diego, CA 92121-2912 Phone: 858 546 3999 Fax: 858 546 0364

The Test Site Data and performance comply with ANSI C63.4 and are registered with the FCC, 7435 Oakland Mills Road, Columbia Maryland 21046. All Measurement Data is acquired according to the content of FCC Measurement Procedure and ANSI C63.4, unless supplemented with additional requirements as noted in the test report.



2.0 SYSTEM TEST CONFIGURATION

2.1 Justification

The EUT was initially tested for FCC emissions in the following configuration:

See Block Diagram

2.2 EUT Exercise Software

None

2.3 Special Accessories

None

2.4 Equipment Modifications

None

2.5 Configuration of Test System

See Block Diagram



3.0 RADIATED EMISSIONS EQUIPMENT/DATA

See following page(s).



Test Conditions: RADIATED EMISSIONS: FCC Part 15.209(a) and Part 15.249

The RADIATED EMISSIONS measurements were performed at the San Diego Testing Facility:

□ - Test not applicable

Test Equipment Used:

■ - Canyon #2 (3- and 10-Meter Open Area Test Site), Carroll Canyon, San Diego, 3 meters

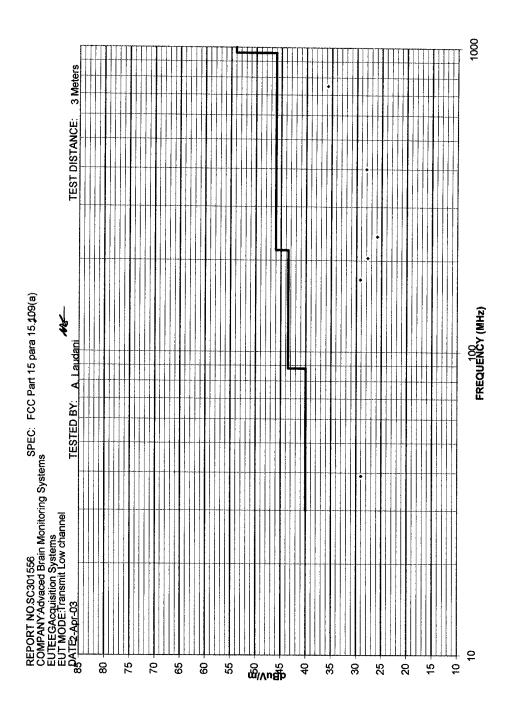
Model No.	Prop. No	. Description	Manufacturer	Serial No.	Date Cal'ed
LPB 2520/A	739	Antenna, Bilog	Antenna Research	1170	05/02
ESVS 30	427	EMI Test Receiver	Rohde & Schwarz	830350/006	12/02

■ - Roof (Small Open Area Test Site), 3 meters

Model No.	Prop. No.	Description	Manufacturer	Serial No.	Date Cal'ed
HP8566B	743	Spectrum Analyzer	Hewlett Packard	2618A02913	11/02
Cable 1	731	30' cable	United Microwave Pro		NCR*
Cable 2	756	10' Cable	United Microwave Pro		NCR*
Cable 3	6788	3' Cable	United Microwave Pro		NCR*
AMF-5D-010180-35-10P	719	PreAmplifier	Miteq	549460	NCR*
3115	251	Double Ridge Horn Antenna	EMCO	2495	12/02
8445B	6677	Preselector	Hewlett Packard	1442A01127	NCR*

Remarks: One year calibration cycle for all test equipment and sites. (*) No Calibration Required.









REPORT No: SC301556 SPEC: FCC Part 15 para 15.109(a)

CUSTOMER: Advaced Brain Monitoring Systems TEST DIST: 3 Meters

E U T: EEGAcquisition Systems / TEST SITE: 3

EUT MODE: Transmit Low channel BICONICAL: 739

DATE: 2-Apr-03 TESTED BY: A. Laudani 10 LOG PERIODIC: 739

NOTES: Quasi-Peak with 120 KHz measurement bandwidth. RCVR: 427

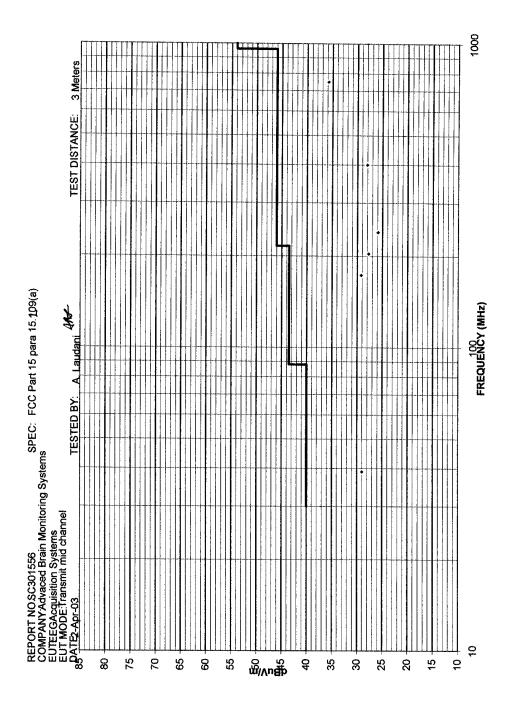
2 "AAA" Batteries

•	Temperature:	20 C	Relative Humidity:	37%		······································		
EUT MARGIN	-2.2	dB at 909 MH:	Z	37 76				4.01
FREQUENCY	VERTICAL	HORIZONTAL		MAXIMUM	SPECIFIED	EUT	EUT	ANTENNA
(MHz)	measured	measured	FACTOR	CORRECTED			ROTATION	
(181112)	(dBuv)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(degrees)	(meters)
39.00	10	2.1	19.0	29.0	40	-11.0	, ,	
173.00	18.2	8.9	11.0	29.2	43.5	-14.3		
203.60	14.8	8.3	13.0	27.8	43.5	-15.7		
240.00	10.1	10.9	15.0	25.9	46	-20.1		
400.00	9	8.8	19.1	28.1	46	-17.9		
750.00	9.4	10.1	25.8	35.9	46	-10.2		
909.00	64.4	46.9	27.4	91.8	94	-2.2	306	1.1
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Rev.No 1.0





REPORT No: \$C301556 SPEC: FCC Part 15 para 15.409(a)

TEST SITE:

CUSTOMER: Advaced Brain Monitoring Systems TEST DIST: 3 Meters

EUT: **EEGAcquisition Systems**

EUT MODE: Transmit mid channel BICONICAL: 739

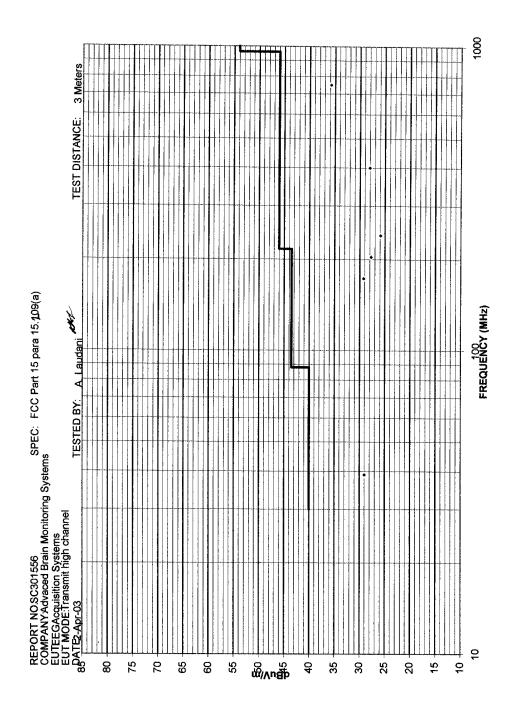
TESTED BY: A. Laudani DATE: 2-Apr-03 LOG PERIODIC: 739

NOTES: Quasi-Peak with 120 KHz measurement bandwidth. RCVR: 427

2 "AAA" Batteries

•	Temperature:	20 C	Relative Humidity:	37%				· · · · · · · · · · · · · · · · · · ·
EUT MARGIN	-2.3	dB at 915 MH:					ver	1,8b
FREQUENCY	VERTICAL	HORIZONTAL	CORRECTION	MAXIMUM	SPECIFIED	EUT	EUT	ANTENNA
(MHz)	measured	measured	FACTOR	CORRECTED	LIMIT	MARGIN	ROTATION	HEIGHT
	(dBuv)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(degrees)	(meters)
39.00	10	2.1	19.0	29.0	40	-11.0		
173.00	18.2	8.9	11.0	29.2	43.5	-14.3		
203.60	14.8	8.3	13.0	27.8	43.5	-15.7		
240.00	10.1	10.9	15.0	25.9	46	-20.1		
400.00	9	8.8	19.1	28.1	46	-17.9		
750.00	9.4	10.1	25.8	35.9	46	-10.2		
915.00	64.4	48.8	27.4	91.8	94	-2.3	305	1.1
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Rev.No 1.0





REPORT No: SC301556 SPEC: FCC Part 15 para 15.109(a)

TEST SITE:

3

CUSTOMER: Advaced Brain Monitoring Systems TEST DIST: 3 Meters

EUT: **EEGAcquisition Systems**

EUT MODE: Transmit high channel **BICONICAL:** 739

TESTED BY: A. Laudani DATE: 2-Apr-03 LOG PERIODIC: 739

NOTES: Quasi-Peak with 120 KHz measurement bandwidth. RCVR: 427

2 "AAA" Batteries

-	Temperature:	20 C	Relative Humidity:	37%	···			
EUT MARGIN	-3.9	dB at 927 MHz					ver	1.8b
FREQUENCY	VERTICAL	HORIZONTAL	CORRECTION	MAXIMUM	SPECIFIED	EUT	EUT	ANTENNA
(MHz)	measured	measured	FACTOR	CORRECTED	LIMIT	MARGIN	ROTATION	HEIGHT
	(dBuv)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(degrees)	(meters)
39.00	10	2.1	19.0	29.0	40	-11.0		
173.00	18.2	8.9	11.0	29.2	43.5	-14.3		
203.60	14.8	8.3	13.0	27.8	43.5	-15.7		
240.00	10.1	10.9	15.0	25.9	46	-20.1		
400.00	9	8.8	19.1	28.1	46	-17.9		
750.00	9.4	10.1	25.8	35.9	46	-10.2		
927.00	62.7	45.3	27.4	90.1	94	-3.9	309	1
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REPORT No: SC301556 TESTER: Alan Laudani SPEC: FCC 15.249

CUSTOMER: Advanced Brain Monitoring Systems TEST DIST: 3 Meters

E U T: EEG Acquisition System TEST SITE: Roof

EUT MODE: Transmit BICONICAL: N/A

DATE: April 2, 2003 LOG: N/A

NOTES: OTHER: 251

above 1GHz: RBW & VBW 1 MHz for Pk; RBW 1MHz and VBW 10Hz for AVG

below 1GHz: Quasipeak, 120 kHz BW, Test Site Canyon 2

No other emissions evident.

	Т				r							v.beta1	la
FREQ (MHz)	VER1 (dB pk	ricaL uv) av		CONTAL Buv) av	CF (dB/m)	MAX L (dBuʻ		SPEC (dBu pk	LIMIT V/m) av	(dB)	RGIN pk v	EUT Rotation	Antenna Height
915	64.4		48.8		27.4	91.8		94		-2.2		305	1.1
1830	61.4	53.4	61.8	50.6	-3.36	58.44	50	74	54	-15.6	-4.0	327	1.3
2745	48.0	42.7	48.8	42.3	2.425	51.23	45.1	74	54	-22.8	-8.9	300	1.3
3660	46.6	35.7	48.4	34.6	5.312	53.71	41	74	54	-20.3	-13.0	296	1.1
4575	44.8	34.3	45.1	34.3	4.875	49.98	39.2	74	54	-24.0	-14.8		
5490	45.7	34.2	45.1	34.3	11.704	57.4	46	74	54	-16.6	-8.0		
6405	32.8	22.2	33.3	22.2	12.934	46.23	35.1	74	54	-27.8	-18.9		
7320	33.2	21.9	32.2	21.9	15.46	48.66	37.4	74	54	-25.3	-16.6		
8235	32.1	21.6	32.1	21.6	17.388	49.49	39	74	54	-24.5	-15.0		
9150	31.8	21.8	32.5	21.8	19.12	51.62	40.9	74	54	-22.4	-13.1		
909	64.4		46.9		27.4	91.8		94		-2.2		306	1.1
1818	59.7	57	62.4	53.5	-3.576	58.82	53.4	74	54	-15.2	-0.58	320	1.2
2727	47.6	36.7	50.2	37.6	2.335	52.54	39.9	74	54	-21.5	-14.1	315	1.4
3636	48.3	36.1	51.1	37.3	5.2352	56.34	42.5	74	54	-17.7	-11.5		
4545	45.1	35	46	35.1	4.725	50.73	39.8	74	54	-23.3	-14.2		
5454	45.9	32.8	43.3	32.8	11.3584	57.26	44.2	74	54	-16.7	-9.84		
6363	32.3	22.8	33	22.8	12.8164	45.82	35.6	74	54	-28.2	-18.4		
7272	32.9	21.8	32.4	21.9	15.316	48.22	37.2	74	54	-25.8	-16.8		
8181	31.7	21.3	_31.4	21.3	17.3448	49.04	38.6	74	54	-25	-15.4		
9090	32.2	21.4	32.2	21.4	19.312	51.51	40.7	74	54	-22.5	-13.3		
													
													-





REPORT No: SC301556 TESTER: FCC 15.249

CUSTOMER: Advanced Brain Monitoring Systems TEST DIST: 3 Meters

EUT: EEG Acquisition System TEST SITE: Roof

EUT MODE: Transmit BICONICAL: N/A

DATE: April 2, 2003 LOG: N/A

NOTES: OTHER: 251 above 1GHz: RBW & VBW 1 MHz for Pk; RBW 1MHz and VBW 10Hz for AVG

below 1GHz: Quasipeak, 120 kHz BW, Test Site Canyon 2

No other emissions evident.

v.beta1a VERTICAL HORIZONTAL MAX LEVEL SPEC LIMIT MARGIN **FREQ** (dBuv) (dBuv) CF (dB/m) (dBuV/m) (dBuV/m) (dB) (MHz) рk рk av pk av рk 927 62.7 45.3 27.4 90.1 27.4 94 -3.9 309 1.0 1854 58.2 51.0 60.4 52.2 -2.928 57.47 49.3 74 54 -16.5 -4.7 327 1.3 2781 49.8 26.3 48.6 36.5 2.605 52.41 39.1 74 54 -21.6 -14.9 329 1.3 3708 51.6 37.2 51.0 38.0 -10.5 329 5.4656 57.07 43.5 74 54 -16.9 1.2 4635 43.3 32.8 43.8 5.175 32.8 48.98 38 74 54 -25.0 -16.0 5562 43.0 | 33.6 45.1 33.6 11.8 56.9 45.4 74 54 -17.1 -8.6 6489 34.3 22.4 32.8 22.4 13.1692 47.47 74 35.6 54 -26.5 -18.4 22.2 21.6 7416 33.6 22.2 31.9 15.748 49.35 37.9 74 54 -24.7 -16.1 31.7 21.6 8343 34.3 17.4744 51.77 39.1 74 54 -22.2 -14.9 9270 32.6 21.8 32.6 21.8 18.736 51.34 40.5 74 54 -22.7 -13.5



(EMC Chief Engineer)

4.0 ATTESTATION STATEMENT	
GENERAL REMARKS:	
SUMMARY:	
All tests were performed per CFR 47,	Part(s) 15.209(a), 15.249
■ - Performed	
The Equipment Under Test	
■ - Fulfills the requirements of CFR	47, Part(s) 15.209(a), 15.249
Testing Start Date:	02 April 2003
Testing End Date:	02 April 2003
- TÜV AMERICA, INC	
Responsible Engineer:	Responsible Engineer:
Jim Owl	L. Laurdon
Jim Owen	Alan Laudani

(EMC Engineer)