ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT
CERTIFICATION TO FCC PART 15 REQUIREMENTS

for

INTENTIONAL RADIATOR

49MHz RADIO CONTROL TRANSMITTER

MODEL NO: 95456-9519-49T

BRAND NAME: TYCO R/C-TMH
TONY HAWKS SKATEBOARDER

FCC ID NO: APB95456-00A4T

REPORT NO: 01U0762-2

ISSUE DATE: MAY 14, 2001

Prepared for
MATTEL MT. LAUREL
6000 MIDATLANTIC DRIVE
MOUNT LAUREL, NJ 08054
USA

Prepared by
COMPLIANCE ENGINEERING SERVICES, INC.
561 F MONTEREY ROAD
MORGAN HILL, CA 95037, USA
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1. Proposed FCC ID Label Format
2. Authorization Letter
3. EUT Photographs
4. Schematic Diagram
5. User Manual

COMPLIANCE ENGINEERING SERVICES, INC. CCS DOCUMENT NO:CCSUP4026B
561 F MONTEREY ROAD, MORGAN HILL, CA 95037, USA TEL:(408)463-0885 FAX:(408)463-0888

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1. VERIFICATION OF COMPLIANCE

COMPANY NAME	:	MATTEL MT. LAUREL 6000 MIDATLANTIC DRIVE MOUNT LAUREL, NJ 08054 USA
CONTACT PERSON	:	FRANK WINKLER, SENIOR PROJECT ENGINEER
TELEPHONE NO.	:	(856) 840-1259
EUT DESCRIPTION	:	49MHz RADIO CONTROL TRANSMITTER
MODEL NAME/NUMBER	:	95456-9519-49T
BRAND NAME	:	TYCO R/C-TMH TONY HAWKS SKATEBOARDER
SERIAL NUMBER	:	N/A
FCC ID	:	APB95456-00A4T
DATE TESTED	:	MAY 03, 2001
REPORT NUMBER	:	01U0762-2

TYPE OF EQUIPMENT	RADIO CONTROL
EQUIPMENT TYPE	49.86 MHz TRANSMITTER
MEASUREMENT PROCEDURE	ANSI 63.4 / 1992
LIMIT TYPE	CERTIFICATION
FCC RULE	CFR 47, PART 15.235

The above equipment was tested by Compliance Engineering Services, Inc. for compliance with the requirements set forth in CFR 47, PART 15. This said equipment in the configuration described in this report shows that maximum emission levels emanating from equipment are within the compliance requirements.
Warning : This document reports conditions under which testing was conducted and results of tests performed. This document may not be altered or revised in any way unless done so by Compliance Certification Services and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Compliance Certification will constitute fraud and shall nullify the document.

Tested By:

MIKE ZHU
SENIOR EMC ENGINEER
COMPLIANCE CERTIFICATION SERVICES

Approved & Released For CCS By:

STEVE CHENG
EMC ENGINEERING MANAGER
COMPLIANCE CERTIFICATION SERVICES

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2. PRODUCT DESCRIPTION

CHASSIS TYPE	**PLASTIC**
Fundamental Frequency	**49.86 MHz**
Power Source	**9VOLT BATTERY**
Transmitting Time	**CONTINUOUS**
Type of Antenna	**PERMANENTLY ATTACHED**
No. of Channel	**1**
NO. OF LAYER	**1**
Associated Receiver	**APB95456-00A4R**

3. TEST FACILITY

The 3/10/30 meter open area test site and conducted measurement facility used to collect the radiated data is located at 561F Monterey Road, Morgan Hill, California, U.S.A. A detailed description of the test facility was submitted to the Commission on May 27, 1994.

4. MEASUREMENT STANDARDS

The site is constructed and calibrated in conformance with the requirements of ANSI C63.4/1992.

5. TEST METHODOLOGY

For an intentional radiator, the spectrum shall be investigated from the lowest radio frequency signal generated in the device, without going below 9 KHz, up to at least the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower. (CFR 47 Section 15.33)

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6. MEASUREMENT EQUIPMENT USED

Manufacturer	Model Number	Description	Serial No.	Cal Due Date
H.P.	8568B	Spectrum Analyzer	2841A04227	01/18/02
H.P.	8447D	Pre-Amplifier	2944A06589	09/19/01
H.P.	85650A	Quasi-Peak Detector	12616-127	05/04/02
SCHAFFNER-CHASE	CBL6112B	Antenna, Bilog	2586	12/11/01
BATTERY	Energizer	9Volt Nicad or 9V Alkaline (4 x AA) 6LR61-6AM6	N/A	N/A

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7. TEST PROCEDURES AND TEST RESULTS

RADIATED EMISSION TEST: (15.235 (a))

Test Procedure

1. The EUT was placed on a wooden table on the outdoor ground plane. The search antenna was placed 3 meter from the EUT. The EUT was placed in X,Y, and Z position to simulate the actual usage.

2. The turntable was slowly rotated to locate the direction of maximum emission at each EUT position. Once the maximum direction and EUT position was determined, the search antenna was raised and lowered in both vertical and horizontal polarization. The maximum reading so obtained are recorded in the data list below.

Test Result: Peak emission was under average limit. Refer to attached plots.

RADIATED EMISSION TEST: (15.235 (b))

Test Requirement : The field strength between the band edges and up to 10kHz above and below the band edges shall be attenuated at least 26 dB below the level of the unmodulated carrier or to the general limits in 15.209, which permits the higher emission levels. All emissions more than 10KHz from the band edges shall be below the levels specified in 15.209.

Test Procedure:

1. The EUT was placed on a wooden table on the outdoor ground plane. The search antenna was placed 3 meter from the EUT. The EUT was placed in X, Y, and Z position to simulate the actual usage.

2. The turntable was slowly rotated to locate the direction of maximum direction and EUT position was determined, the search antenna was raised and lowered in both vertical and horizontal polarizations. For band edge measurements a plot was taken in that position and orientation with 10KHz RES B/W and 10KHz VID B/W and compared to a limit line 26dB below the level measured in 12.235(a) plot (74.50dBµV/m-26dB = 48.50dBµV/m). For out of band measurements tabular data was taken.

Test results: All emissions were under specified limits. Refer to attached plots and tabular data sheet.

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8. RADIATED EMISSION TEST SETUP PHOTOS

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COMPLIANCE
Certification Services

FCC, VCCI, CISPR, CE, AUSTEL, NZ
UL, CSA, TUV, BSMI, DHHS, NVLAP

561F MONTEREY ROAD, SAN JOSE, CA 95037-9001
PHONE: (408) 463-0885 FAX: (408) 463-0888

Project #: 01U0762-2
Report #: 01050382
Date& Time: 05/03/01 10:49 AM
Test Engr: MIKE ZHU

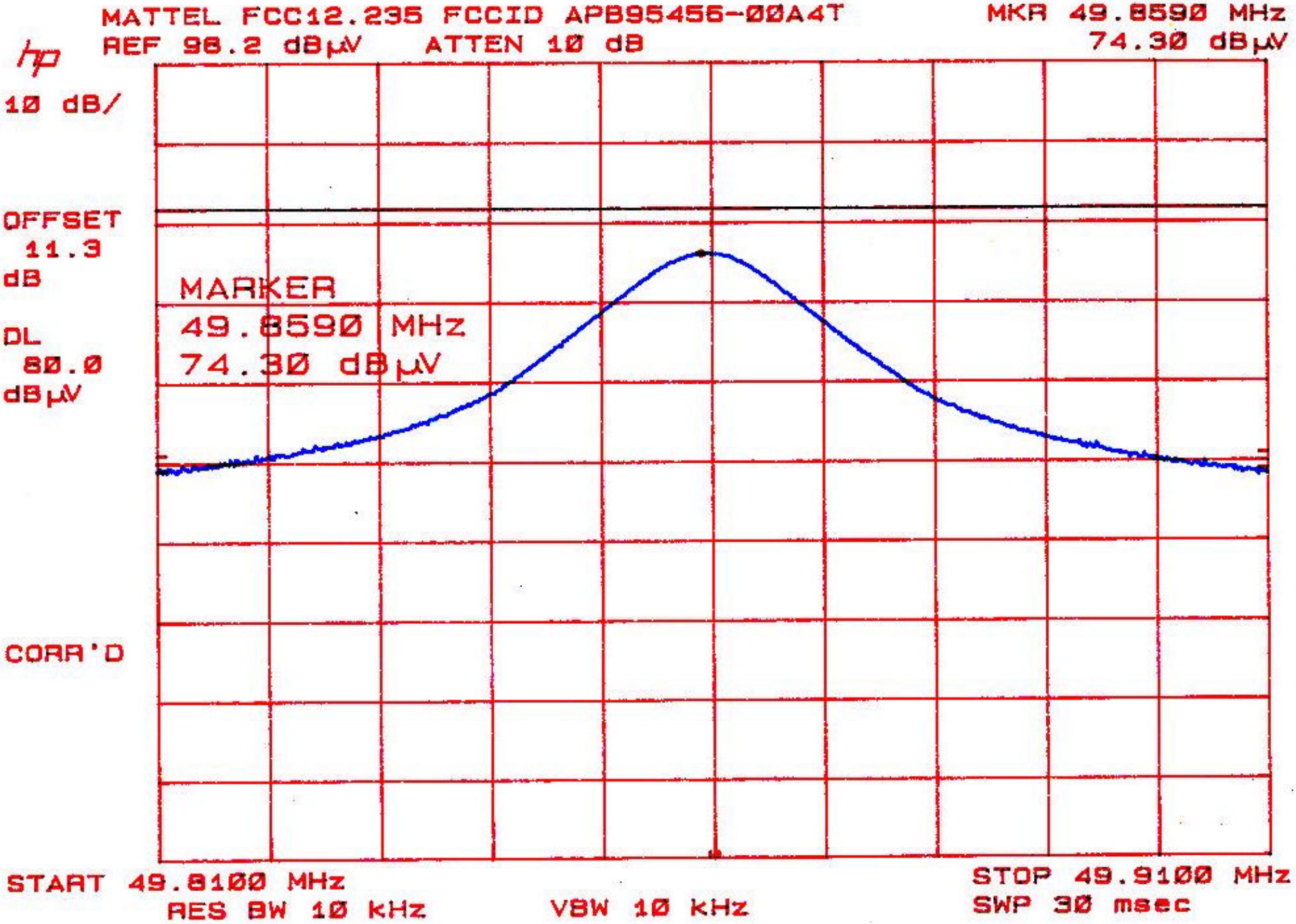
Company: MATTEL MOUNT LAUREL FW
EUT Description: 49MHZ Radio Control Transmitter,M/N:95456-9519-49T
Test Configuration : EUT ONLY
Type of Test: FCC 15.235 &15.209
Mode of Operation: TRANSMITTING MODE

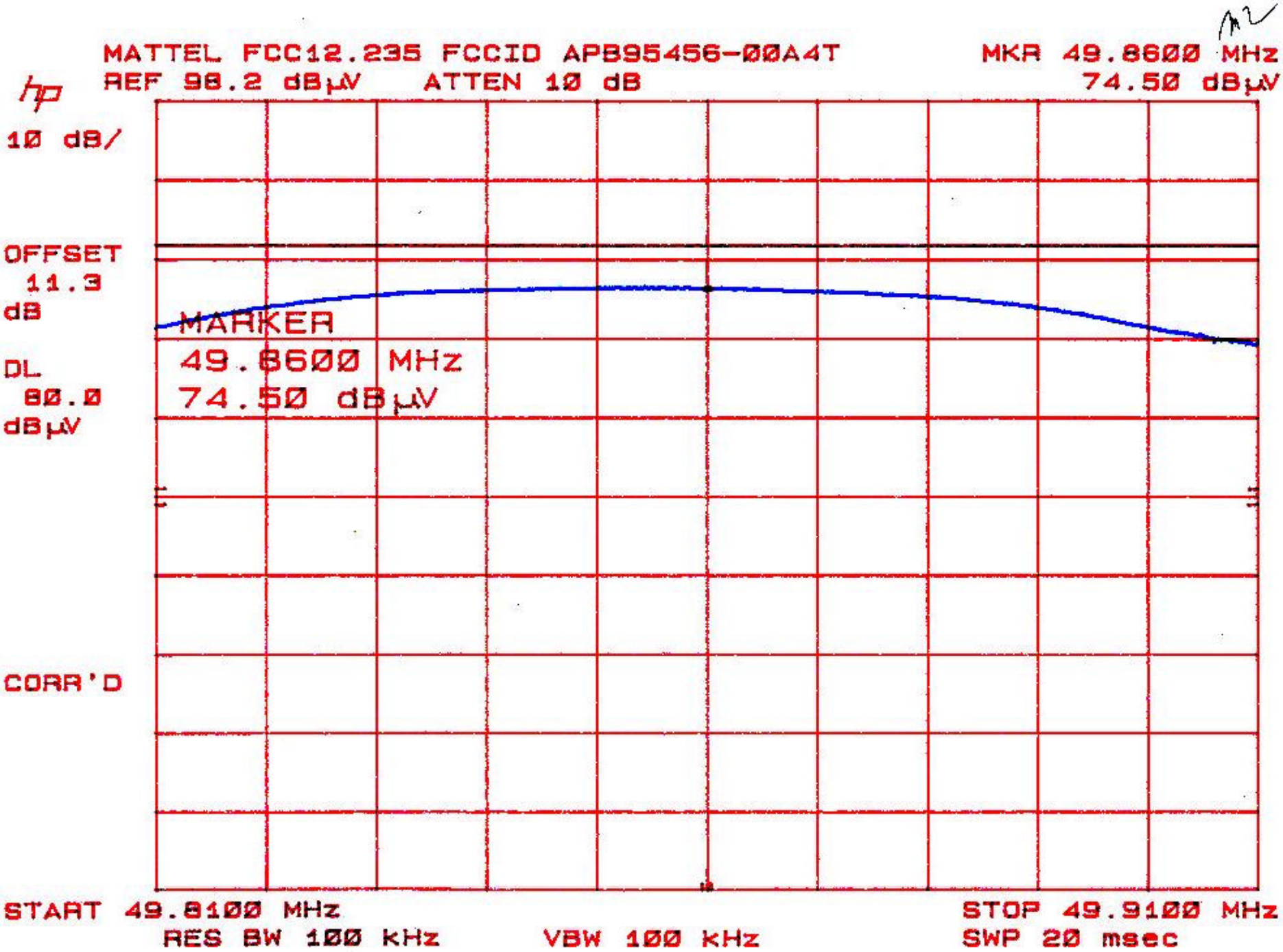
A-Site | B-Site | C-Site | F-Site | 6 Worst Data | Descending

Freq. (MHz)	Reading (dBuV)	AF (dB)	Closs (dB)	Pre-amp (dB)	Level (dBuV/m)	Limit FCC B	Margin (dB)	Pol (H/V)	Az (Deg)	Height (Meter)	Mark (P/Q/A)
Z POSITION:											
49.86	92.63	9.76	1.59	29.48	74.50	80.00	-5.50	3mV	90.00	1.00	P
149.58	45.80	11.23	2.72	29.18	30.57	43.50	-12.93	3mV	90.00	1.00	P
249.29	44.40	12.46	3.70	28.64	31.92	46.00	-14.08	3mV	90.00	1.00	P
299.15	44.90	13.48	4.19	28.53	34.04	46.00	-11.96	3mV	90.00	1.00	P
Y POSITION:											
49.86	84.50	9.76	1.59	29.48	66.37	80.00	-13.63	3mV	60.00	1.00	P
149.57	43.50	11.23	2.72	29.18	28.27	43.50	-15.23	3mV	60.00	1.00	P
249.29	42.70	12.46	3.70	28.64	30.22	46.00	-15.78	3mV	60.00	1.00	P
299.16	42.90	13.48	4.19	28.53	32.04	46.00	-13.96	3mV	60.00	1.00	P
X POSITION:											
49.86	83.50	9.76	1.59	29.48	65.37	80.00	-14.63	3mV	60.00	1.00	P
149.57	44.60	11.23	2.72	29.18	29.37	43.50	-14.13	3mV	60.00	1.00	P
249.29	43.80	12.46	3.70	28.64	31.32	46.00	-14.68	3mV	60.00	1.00	P
299.16	43.20	13.48	4.19	28.53	32.34	46.00	-13.66	3mV	60.00	1.00	P
X POSITION:											
49.86	86.90	9.76	1.59	29.48	68.77	80.00	-11.23	3mH	90.00	3.00	P
149.57	43.50	11.23	2.72	29.18	28.27	43.50	-15.23	3mH	90.00	3.00	P
249.29	44.80	12.46	3.70	28.64	32.32	46.00	-13.68	3mH	90.00	3.00	P
299.15	44.60	13.48	4.19	28.53	33.74	46.00	-12.26	3mH	90.00	1.00	P
Y POSITION:											
49.86	86.00	9.76	1.59	29.48	67.87	80.00	-12.13	3mH	60.00	3.00	P
149.57	43.20	11.23	2.72	29.18	27.97	43.50	-15.53	3mH	60.00	3.00	P
249.29	45.20	12.46	3.70	28.64	32.72	46.00	-13.28	3mH	60.00	1.00	P
299.15	45.10	13.48	4.19	28.53	34.24	46.00	-11.76	3mH	60.00	1.00	P
Z POSITION:											
49.86	83.00	9.76	1.59	29.48	64.87	80.00	-15.13	3mH	50.00	3.00	P
149.57	43.10	11.23	2.72	29.18	27.87	43.50	-15.63	3mH	50.00	3.00	P
249.29	44.10	12.46	3.70	28.64	31.62	46.00	-14.38	3mH	30.00	1.00	P

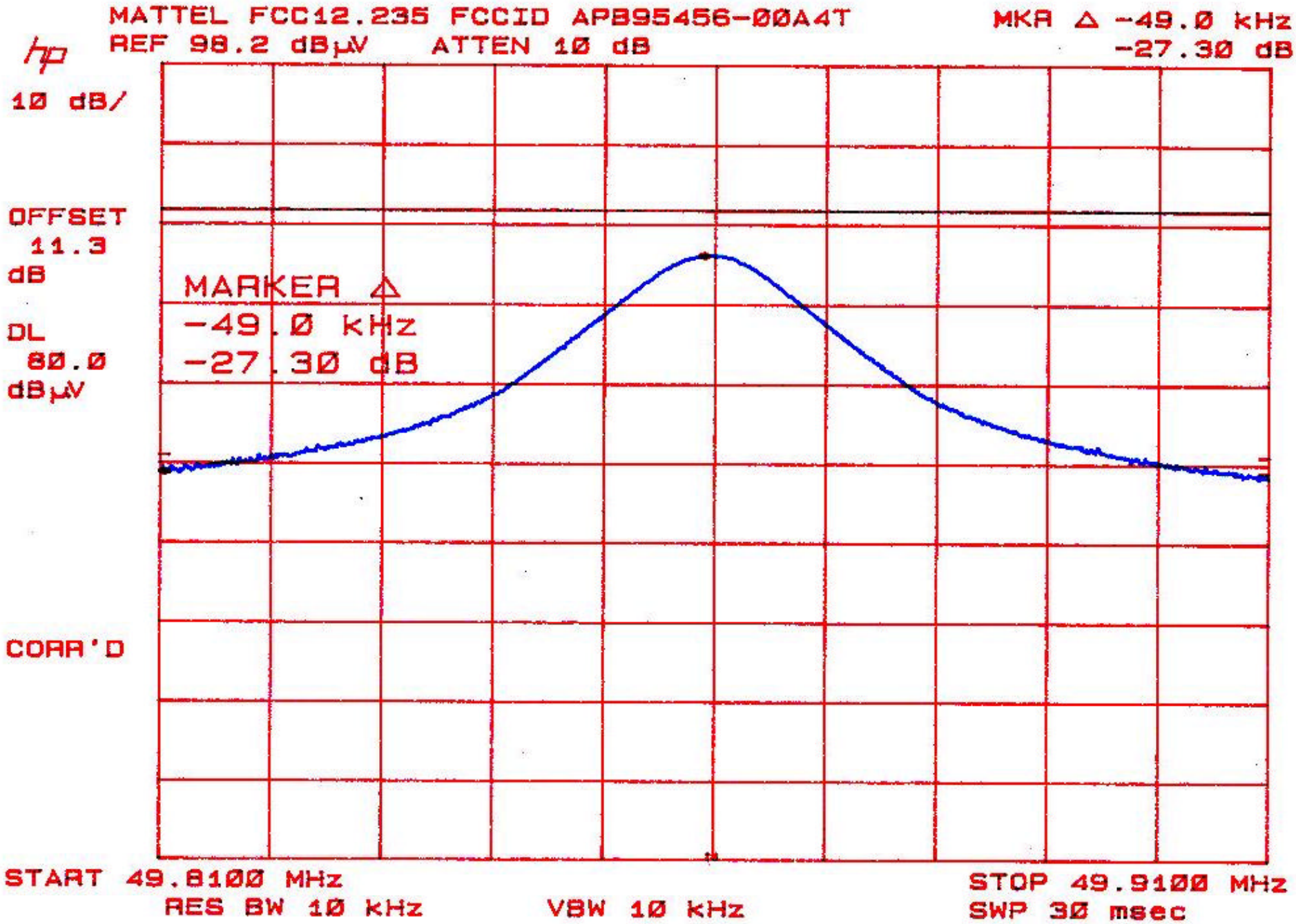
299.15	42.40	13.48	4.19	28.53	31.54	46.00	-14.46	3mH	50.00	1.00	P
Total data #: 24											

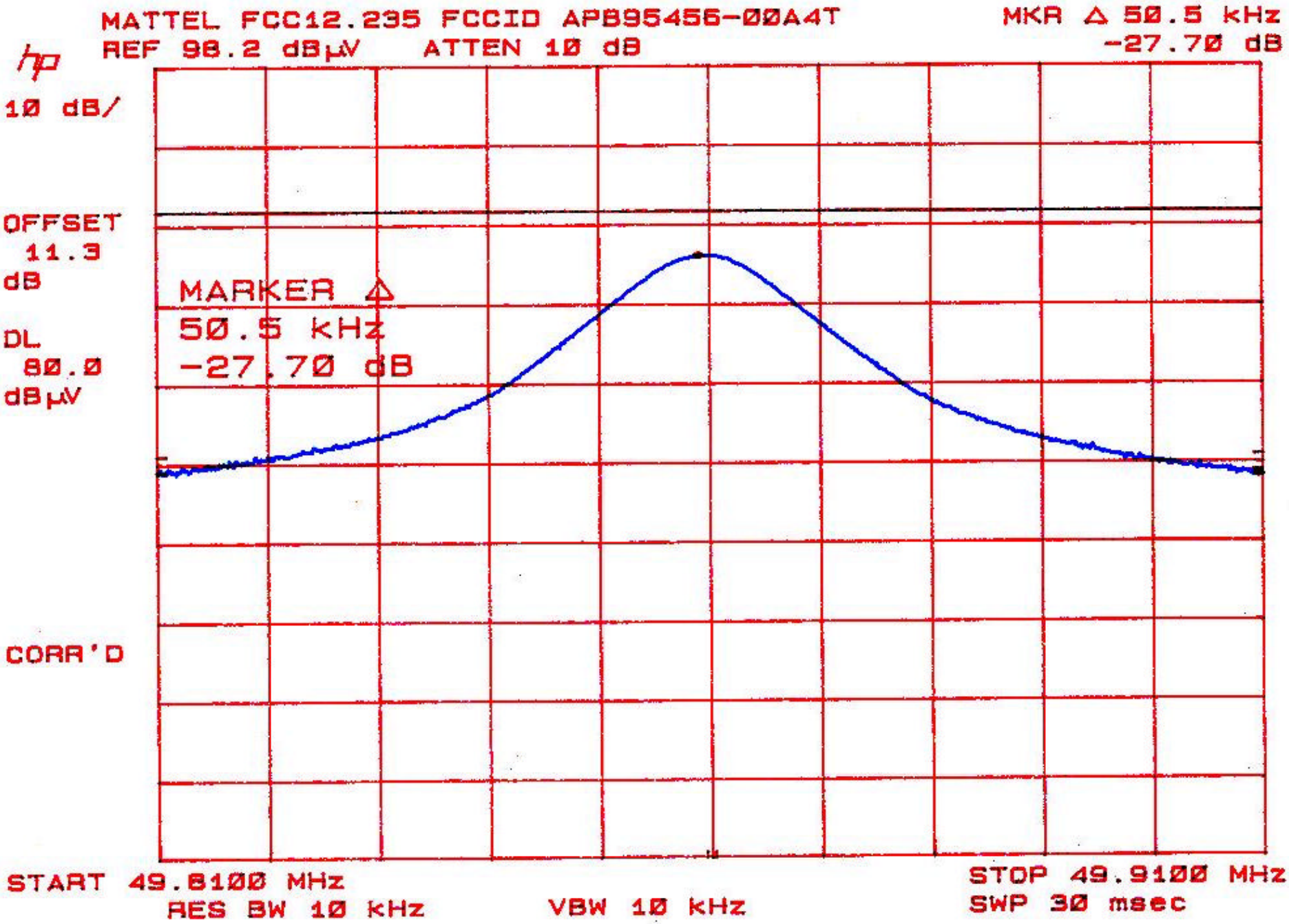
V.2b


MATTEL FCC12.235 FCCID APB95456-00A4T
REF 98.2 dBμV ATTEN 10 dB
MKR 49.8590 MHz
74.30 dBμV
10 dB/
OFFSET
11.3
dB
DL
80.0
dBμV
CORR'D
MARKER
49.8590 MHz
74.30 dBμV
START 49.8100 MHz
RES BW 10 kHz
VBW 10 kHz
STOP 49.9100 MHz
SWP 30 msec


MATTEL FCC12.235 FCCID APB95456-00A4T
MKR 49.8600 MHz
REF 98.2 dBµV ATTEN 10 dB
74.50 dBµV
10 dB/
OFFSET
11.3
dB
MARKER
49.8600 MHz
74.50 dBµV
DL
80.0
dBµV
CORR'D
START 49.8100 MHz
STOP 49.9100 MHz
RES BW 100 kHz
VBW 100 kHz
SWP 20 msec

M2


MATTEL FCC12.235 FCCID APB95456-00A4T
REF 98.2 dBμV ATTEN 10 dB
MKR Δ -49.0 kHz
-27.30 dB
10 dB/
OFFSET
11.3
dB
DL
80.0
dBμV
MARKER Δ
-49.0 kHz
-27.30 dB
CORR'D
START 49.8100 MHz
RES BW 10 kHz
VBW 10 kHz
STOP 49.9100 MHz
SWP 30 msec


MATTEL FCC12.235 FCCID APB95456-00A4T
REF 98.2 dBμV ATTEN 10 dB
MKR Δ 50.5 kHz
-27.70 dB
hp
10 dB/
OFFSET
11.3
dB
DL
80.0
dBμV
MARKER Δ
50.5 kHz
-27.70 dB
CORR'D
START 49.8100 MHz
RES BW 10 kHz
VBW 10 kHz
STOP 49.9100 MHz
SWP 30 msec