

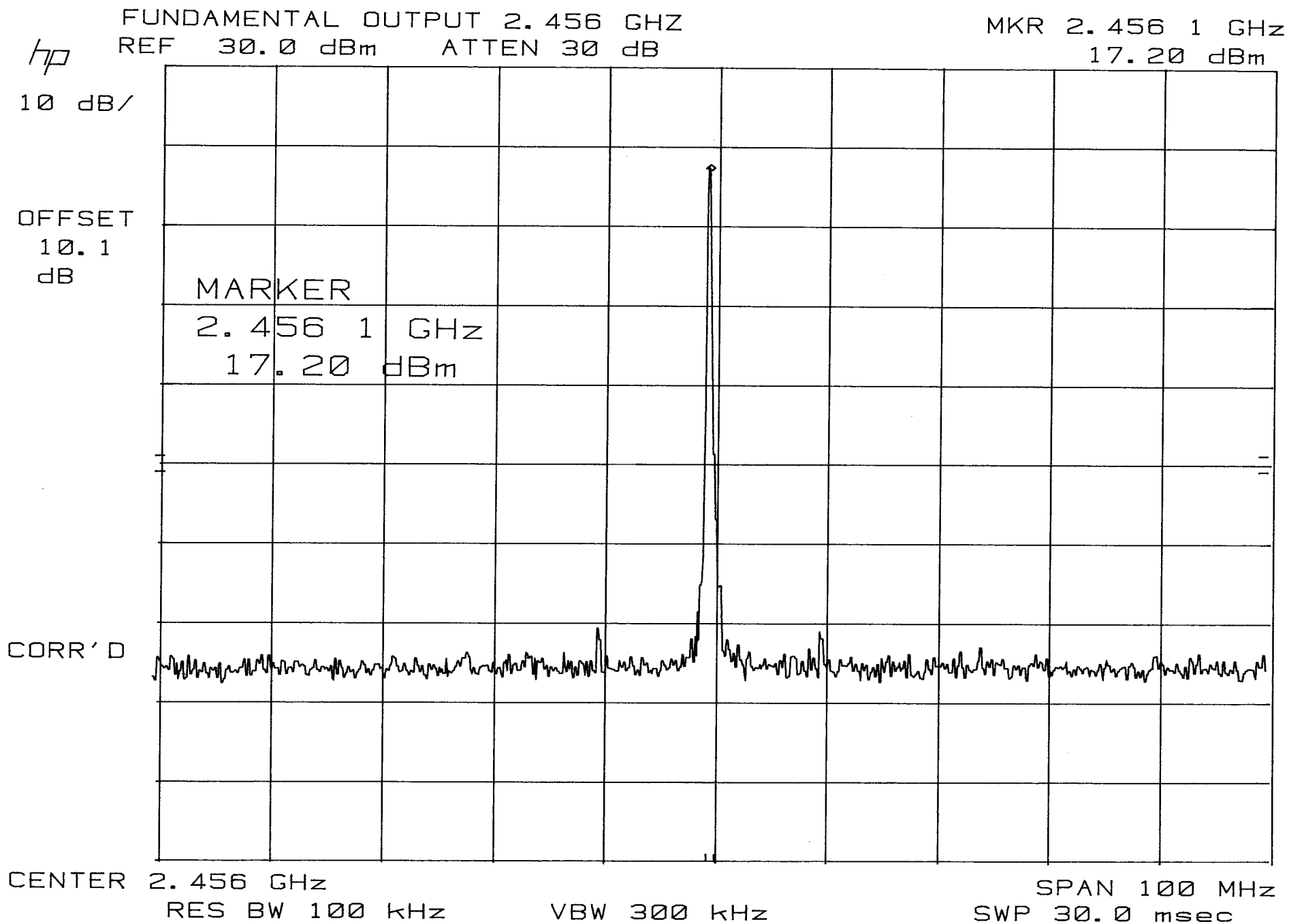
APPENDIX E

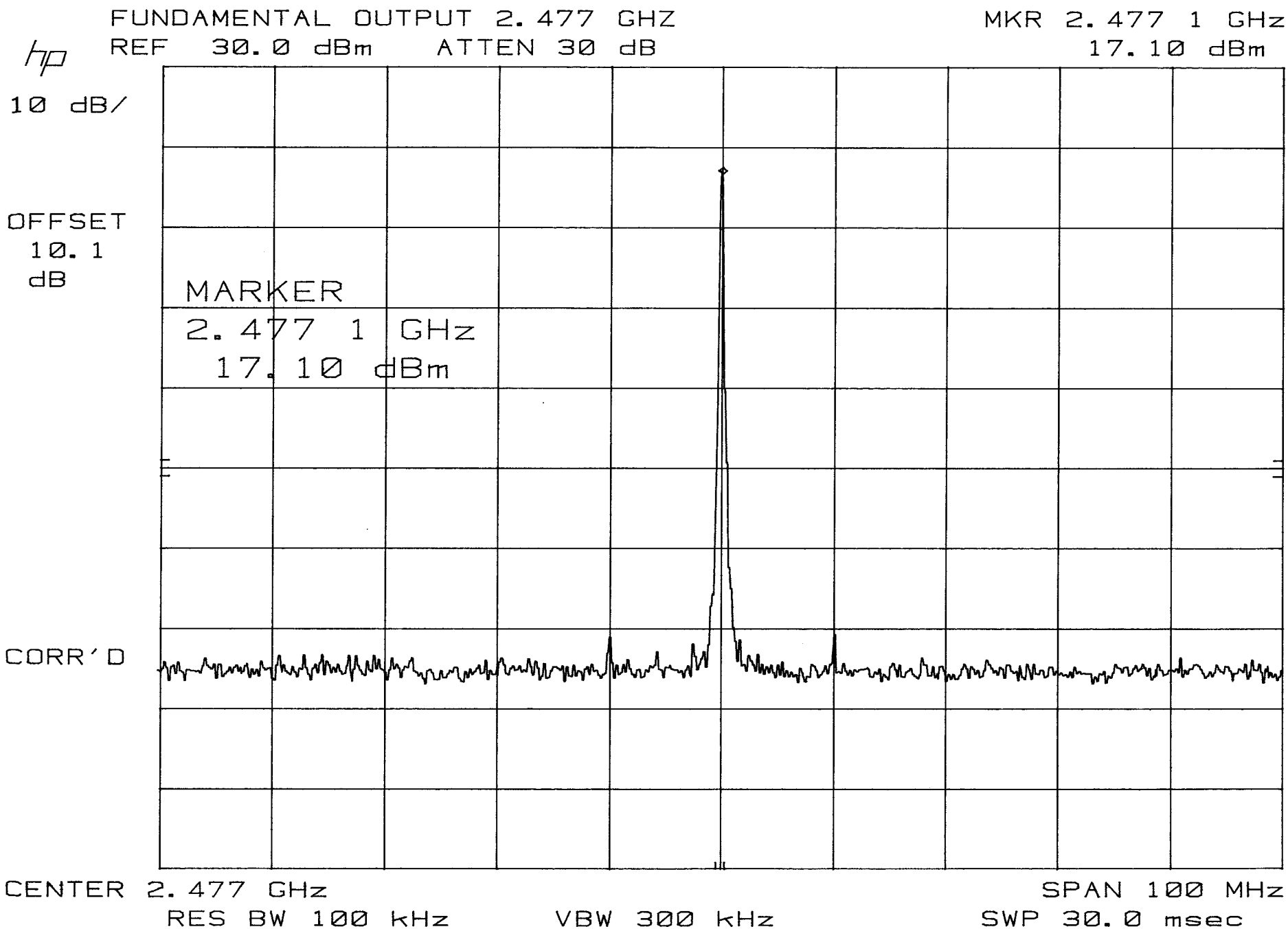
DATA SHEETS



RF OUTPUT POWER
DATA SHEETS







PEAK OUTPUT POWER**MICROTEK ELECTRONICS, INC.****VIDEO TRANSMITTER****MODEL: 2.4TLP-90**

CHANNEL	PEAK POWER OUTPUT (Watts)
LOW	0.0525
HIGH	0.0537



***OCCUPIED BANDWIDTH
DATA SHEETS***



MODULATION CHAR. 2.456 GHz
REF 30.0 dBm ATTEN 30 dB

MKR 2.448 8 GHz
-23.00 dBm

hp
10 dB/

OFFSET
10.1
dB

DL
17.0
dBm

MARKER

2.448 8 GHz
-23.00 dBm

CORR'D

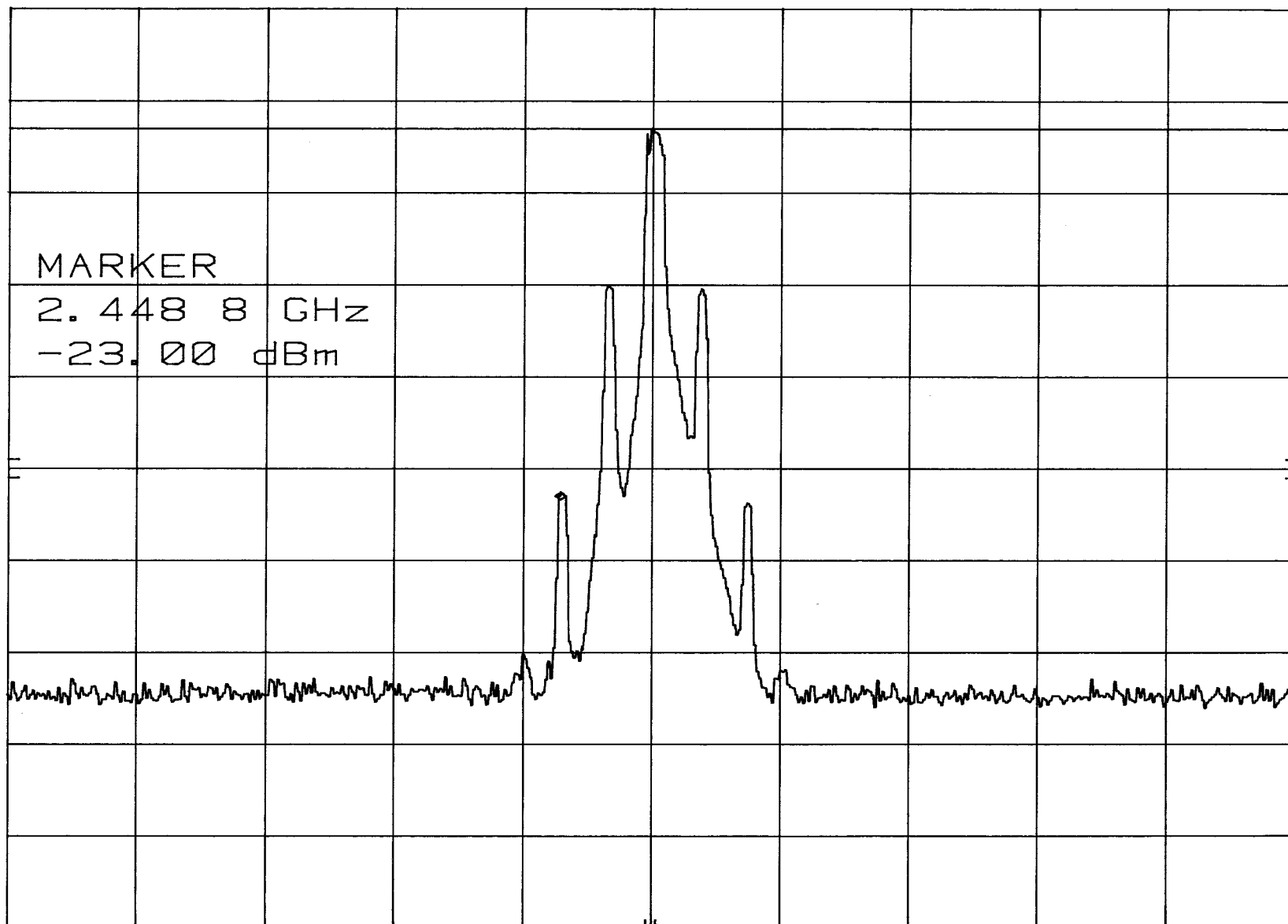
CENTER 2.456 GHz

RES BW 100 kHz

VBW 300 kHz

SPAN 100 MHz

SWP 30.0 msec



MODULATION CHAR. 2.477 GHz
REF 30.0 dBm ATTN 30 dB

MKR 2.484 6 GHz
-23.10 dBm

hp

10 dB/

OFFSET
10.1
dB

DL
17.0
dBm

MARKER

2.484 6 GHz
-23.10 dBm

CORR'D

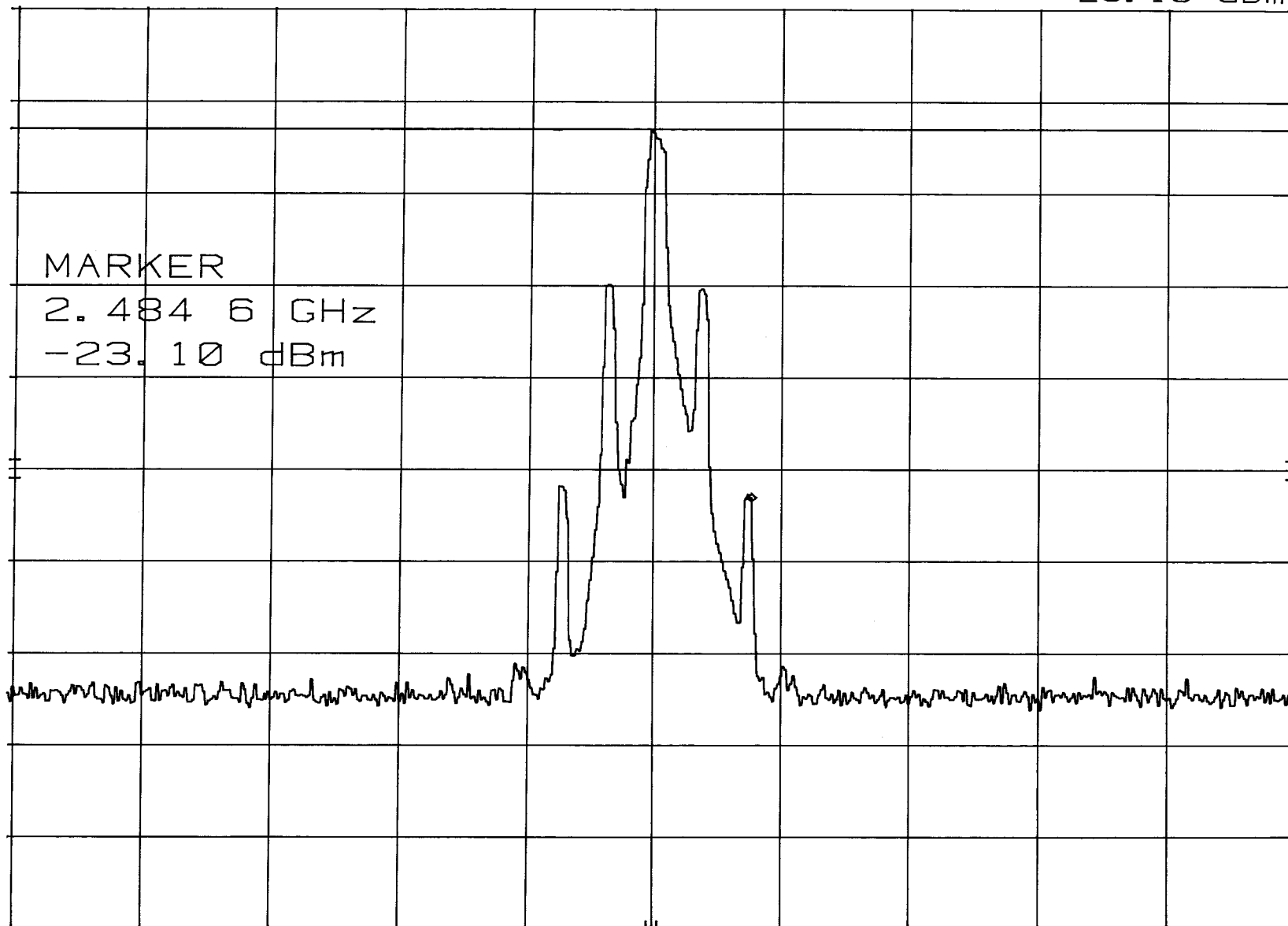
CENTER 2.477 GHz

RES BW 100 kHz

VBW 300 kHz

SPAN 100 MHz

SWP 30.0 msec



RADIATED EMISSIONS ON THE DIGITAL PORTION
DATA SHEETS



Page: 1 of 1

Test location: Compatible Electronics
Customer : MICROTEK ELECTRONICS, INC. Date : 1/14/2003
Manufacturer : MICROTEK ELECTRONICS, INC. Time : 16.53
EUT name : VIDEO TRANSMITTER Model: 2.4TLP-90
Specification: Fcc_B Test distance: 3.0 mtrs Lab: D
Distance correction factor($20 \cdot \log(\text{test}/\text{spec})$) : 0.00
Test Mode :

SPURIOUS EMISSIONS 10 kHz to 25000 MHz
VERTICAL and HORIZONTAL POLARIZATIONS
TEMPERATURE 69 DEGREES F., RELATIVE HUMIDITY 42%
TESTED BY: KYLE FUJIMOTO

NO SPURIOUS EMISSIONS FOUND BETWEEN 10 kHz AND 25000 MHz IN EITHER POLARIZATION
FOR THE EUT FROM THE DIGITAL PORTION



***RADIATED SPURIOUS EMISSIONS
ON THE TRANSMITTER PORTION
DATA SHEETS***



FCC Part 90

Microtek Electronics, Inc.

Video Transmitter

Model: 2.4TLP-90

Temperature: 16 Degrees Celsius, Relative Humidity 65%

Date: 01/14/03

Lab: D

Tested By: Kyle Fujimoto

Test Description: Operating Mode - Spurious Emissions**Vertical Polarization - Using the Substitution Method - 10 kHz to 25000 MHz**

Freq. (MHz)	Reference Level (dBm)*	Power** (dBm)	Antenna Gain*** (dBi)	Corr'd Power^ (dBm)	Delta (dB)	Power Limit (dBm)
4912.06	-59.1	-47.8	9.55	-38.25	-25.25	-13
7368.03	-65.3	-53.8	8.76	-45.04	-32.04	-13
4954.1	-66.7	-54.1	9.47	-44.63	-31.63	-13
7431	-63.4	-50.3	8.83	-41.47	-28.47	-13

*The Reference Level is the meter reading off the Spectrum Analyzer after maximizing the EUT for Field Strength.

** Power = Output of Signal Generator where the signal is injected into the Substitution Ant.
The Output of the Signal Generator is obtained when the output matches the Reference Level

*** The gain of the substitution antenna

^ The Corr'd Power (dBm) = Power (dBm) + Antenna Gain (dBi).

No Emissions were Found after the 3rd Harmonic



FCC Part 90

Microtek Electronics, Inc.

Video Transmitter

Model: 2.4TLP-90

Temperature: 16 Degrees Celsius, Relative Humidity 65%

Date: 01/14/03

Lab: D

Tested By: Kyle Fujimoto

Test Description: Operating Mode - Spurious Emissions**Horizontal Polarization - Using the Substitution Method - 10 kHz to 25000 MHz**

Freq. (MHz)	Reference Level (dBm)*	Power** (dBm)	Antenna Gain*** (dBi)	Corr'd Power^ (dBm)	Delta (dB)	Power Limit (dBm)
4912.02	-62.8	-48.1	9.55	-38.55	-25.55	-13
7368.03	-65.4	-50.8	8.76	-42.04	-29.04	-13
4954.1	-67.7	-53.3	9.47	-43.83	-30.83	-13
7431	-63.6	-47.9	8.83	-39.07	-26.07	-13

*The Reference Level is the meter reading off the Spectrum Analyzer after maximizing the EUT for Field Strength.

** Power = Output of Signal Generator where the signal is injected into the Substitution Ant.
The Output of the Signal Generator is obtained when the output matches the Reference Level

*** The gain of the substitution antenna

^ The Corr'd Power (dBm) = Power (dBm) + Antenna Gain (dBi).

No Emissions were Found after the 3rd Harmonic



SPURIOUS EMISSIONS AT THE ANTENNA TERMINAL
DATA SHEETS



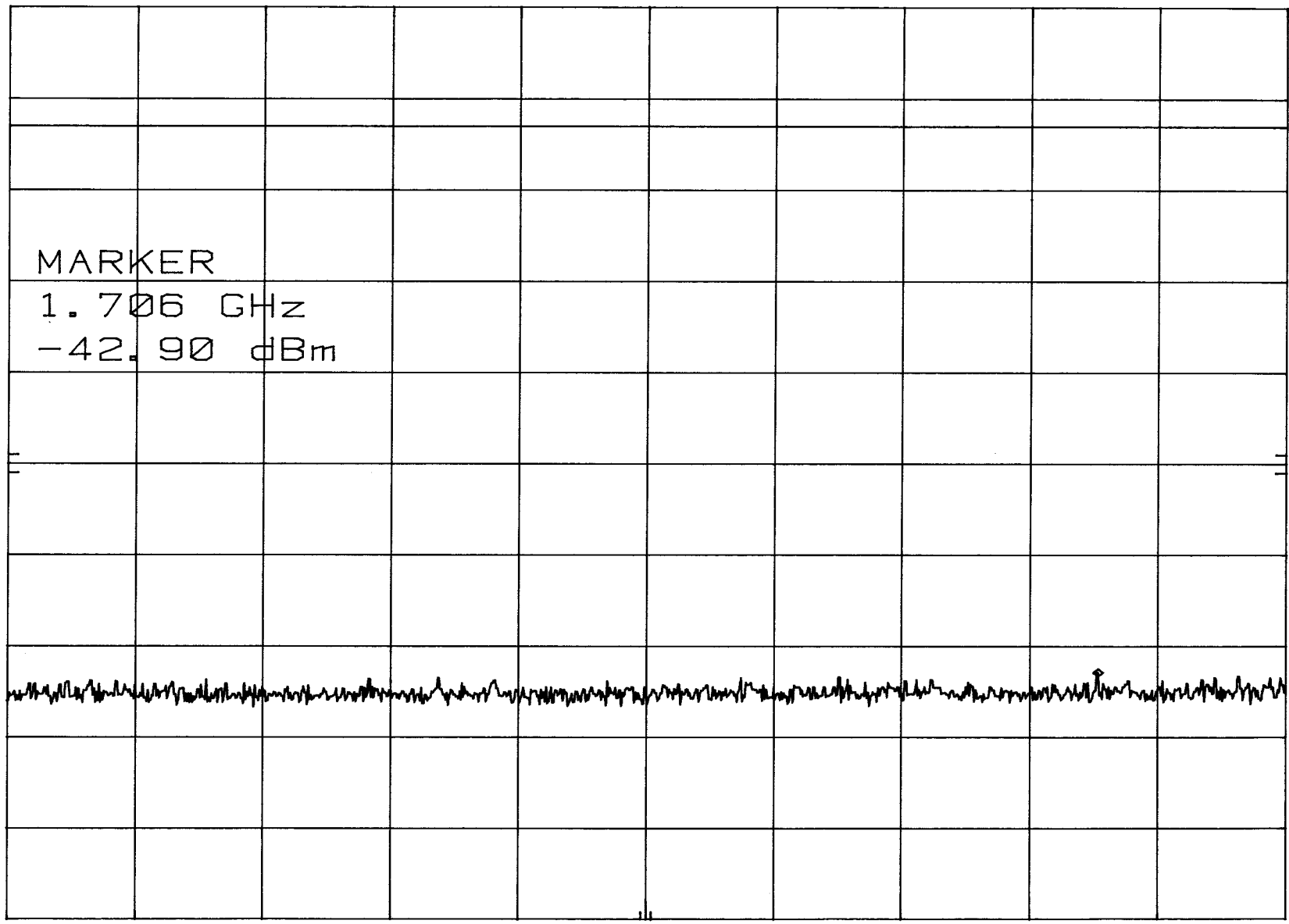
hp CONDUCTED SPURIOUS 2.456 GHZ MKR 1.706 GHz
REF 30.0 dBm ATTN 30 dB -42.90 dBm

10 dB/

OFFSET
10.1
dB

DL
17.0
dBm

CORR'D



START 2 MHz RES BW 100 kHz VBW 300 kHz STOP 2.00 GHz
SWP 599 msec

CONDUCTED SPURIOUS 2.456 GHZ

MKR 7.36 GHz

hp

REF 30.0 dBm ATTN 40 dB

-20.60 dBm

10 dB/

OFFSET

10.1

dB

DL

-13.0

dBm

MARKER

7.36 GHz

-20.60 dBm

CORR'D

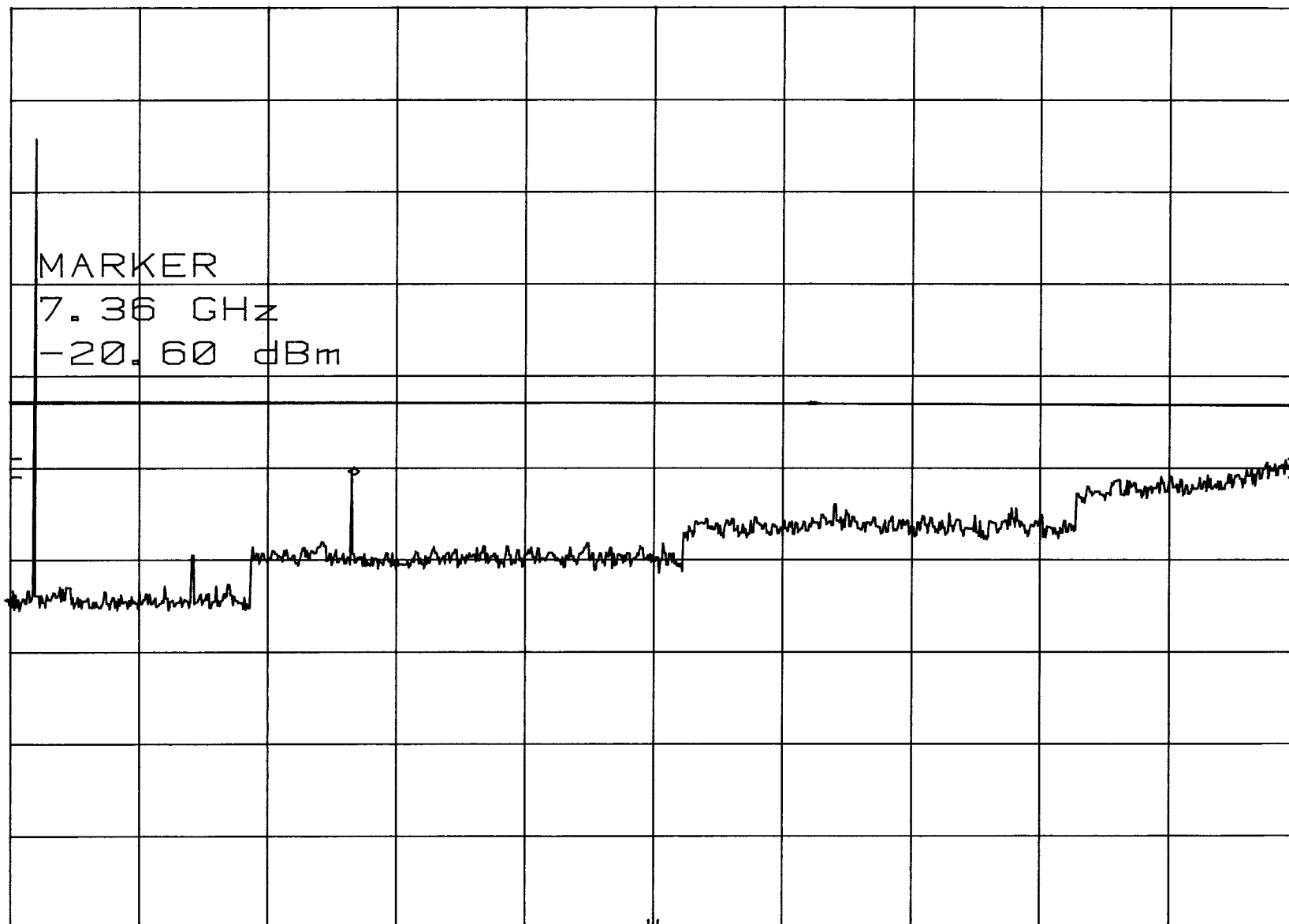
START 2.0 GHz

RES BW 100 kHz

VBW 300 kHz

STOP 22.0 GHz

SWP 6.00 sec



CONDUCTED SPURIOUS 2.456 GHZ

MKR 23.518 GHZ

hp

REF 0.3 dBm

HARMONIC 6L

-73.00 dBm

10 dB/

CNVLOSS

22.0

dB

DL

-42.9

dBm

MARKER

23.518 GHZ

-73.00 dBm

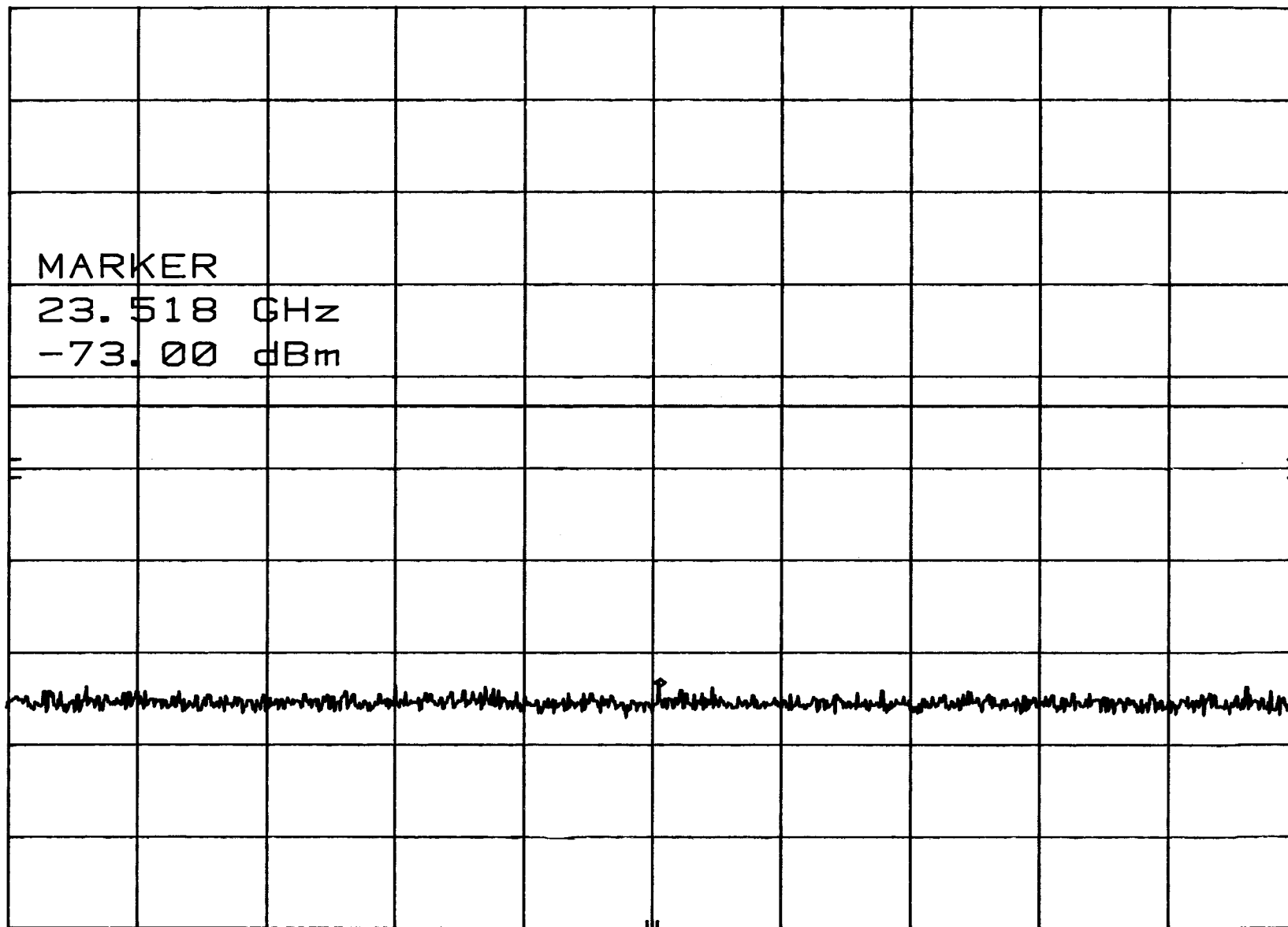
START 22.00 GHZ

RES BW 100 kHz

VBW 300 kHz

STOP 25.00 GHZ

SWP 900 msec



hp

CONDUCTED SPURIOUS 2.477 GHz

REF 30.0 dBm ATTEN 30 dB

MKR 1.744 GHz

-42.60 dBm

10 dB/

OFFSET

10.1

dB

DL

17.0

dBm

MARKER

1.744 GHz

-42.60 dBm

CORR'D

START 2 MHz

RES BW 100 kHz

VBW 300 kHz

STOP 2.00 GHz

SWP 599 msec

CONDUCTED SPURIOUS 2.477 GHz

MKR 7.42 GHz

hp

REF 40.0 dBm ATTEN 40 dB

-19.40 dBm

10 dB/

OFFSET

10.0

dB

DL

-13.0

dBm

MARKER

7.42 GHz

-19.40 dBm

CORR'D

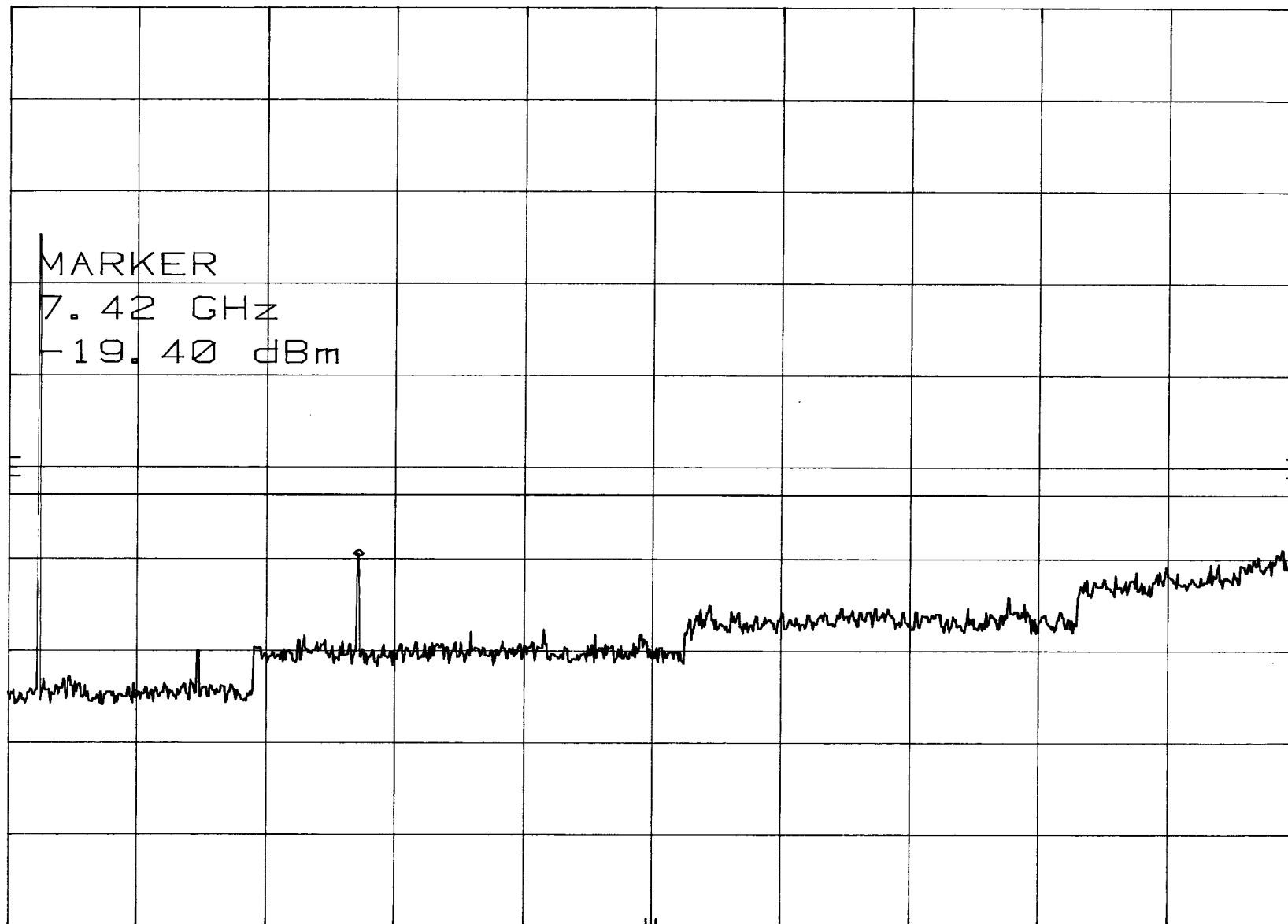
START 2.0 GHz

RES BW 100 kHz

VBW 300 kHz

STOP 22.0 GHz

SWP 6.00 sec



CONDUCTED SPURIOUS - 2.477 GHz
REF 0.3 dBm HARMONIC 6L

MKR 23.062 GHz
-74.30 dBm

hp

10 dB/

CNVLOSS
22.0
dB

DL
-42.9
dBm

MARKER
23.062 GHz
-74.30 dBm

START 22.00 GHz

RES BW 100 kHz

VBW 300 kHz

STOP 25.00 GHz
SWP 900 msec

FREQUENCY STABILITY
DATA SHEETS



Frequency Stability over Temperature FCC 2.10555 and 90.213

Microtek Electronics, Inc.

Date: 1/29/03

Video Transmitter

Lab: Environment Assoc.

Model: 24.TLP-90

Tested By: Kyle Fujimoto

Test Description: Low Channel - Center Frequency - 2.4560040 GHz

Temp Celsius	Voltage	FREQUENCY (GHz)	Deviation	% ERROR
-30	120 VAC	2.4560025	0.0000015	0.0000611
-20	120 VAC	2.456003	0.0000010	0.0000407
-10	120 VAC	2.456004	0.0000000	0.0000000
0	120 VAC	2.4560032	0.0000008	0.0000326
10	120 VAC	2.456004	0.0000000	0.0000000
20	102 VAC (85%)	2.4560039	0.0000001	0.0000041
20	120 VAC (100%)	2.456004	0.0000000	0.0000000
20	138 VAC (115%)	2.4560041	-0.0000001	0.0000041
30	120 VAC	2.4560041	-0.0000001	0.0000041
40	120 VAC	2.4560038	0.0000002	0.0000081
50	120 VAC	2.4560037	0.0000003	0.0000122



Frequency Stability over Temperature FCC 2.10555 and 90.213

Microtek Electronics, Inc.

Date: 1/29/03

Video Transmitter

Lab: Environment Assoc.

Model: 24.TLP-90

Tested By: Kyle Fujimoto

Test Description: High Channel - Center Frequency - 2.4770030 GHz

Temp Celsius	Voltage	FREQUENCY (GHz)	Deviation	% ERROR
-30	120 VAC	2.477002	0.0000010	0.0000404
-20	120 VAC	2.477003	0.0000000	0.0000000
-10	120 VAC	2.477031	-0.0000280	0.0011304
0	120 VAC	2.47703	-0.0000270	0.0010900
10	120 VAC	2.47703	-0.0000270	0.0010900
20	102 VAC (85%)	2.477003	0.0000000	0.0000000
20	120 VAC (100%)	2.477003	0.0000000	0.0000000
20	138 VAC (115%)	2.4770031	-0.0000001	0.0000040
30	120 VAC	2.477001	0.0000020	0.0000807
40	120 VAC	2.4770005	0.0000025	0.0001009
50	120 VAC	2.4770005	0.0000025	0.0001009

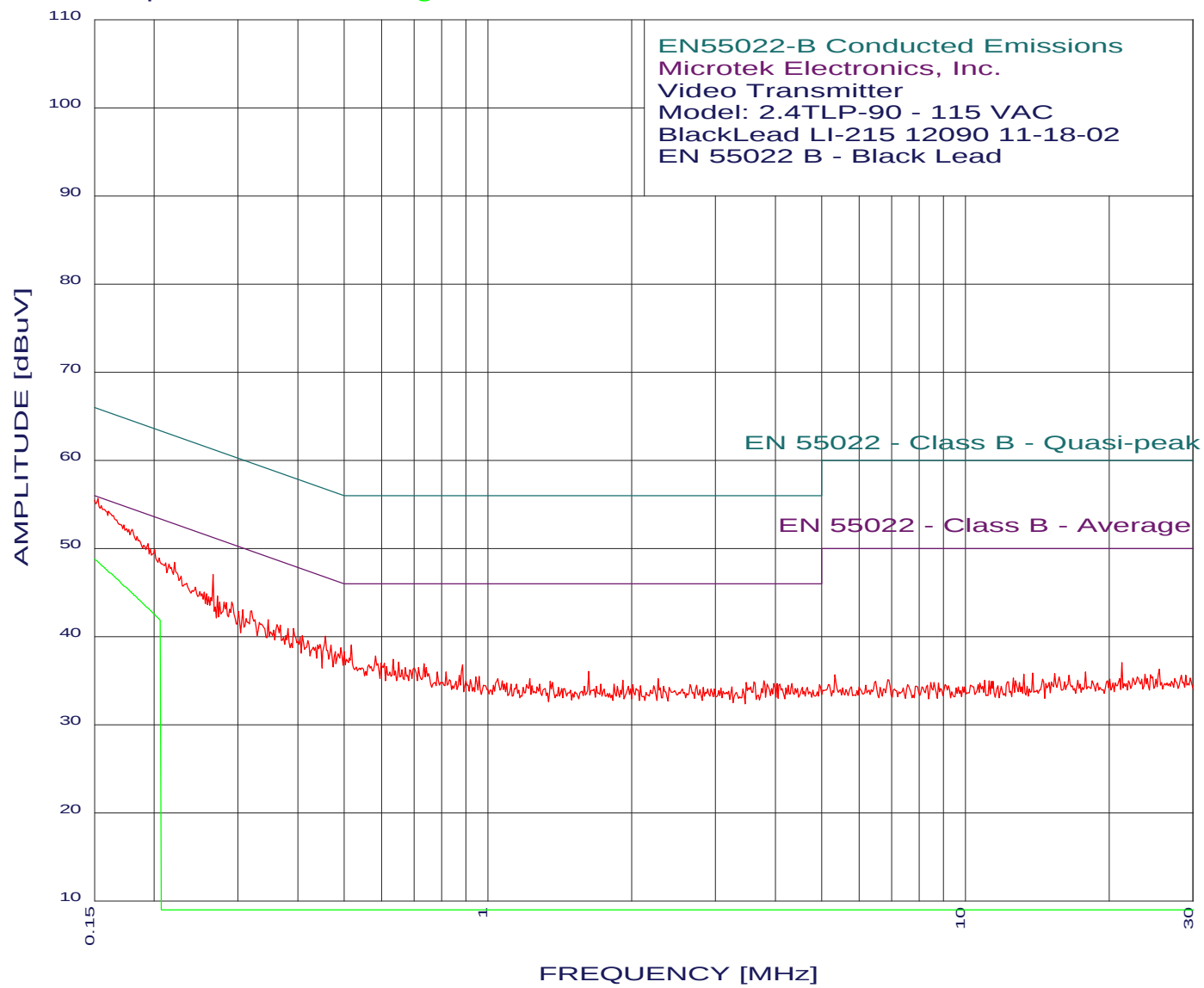


CONDUCTED EMISSIONS
DATA SHEETS



EMISSION LEVEL [dBuV] PEAK
Graph for Peak & Average

1/15/2003 10:17:13



COMPATIBLE
ELECTRONICS



**COMPATIBLE
ELECTRONICS**

1/15/2003 10:17:13

Microtek Electronics, Inc.
Video Transmitter
Model: 2.4TLP-90 - 115 VAC
EN 55022 B - Black Lead
TEST ENGINEER : Kyle Fujimoto

29 highest peaks above -50.00 dB of EN 55022 - Class B - Average limit line

Peak criteria : 0.10 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.152	55.64	55.86	-0.22*
2	0.155	54.84	55.73	-0.89*
3	0.161	54.23	55.43	-1.20*
4	0.173	52.63	54.81	-2.18*
5	0.180	52.13	54.50	-2.37*
6	0.175	52.23	54.72	-2.49*
7	0.177	52.13	54.63	-2.50*
8	0.184	51.33	54.28	-2.96*
9	0.195	50.53	53.84	-3.31*
10	0.190	50.33	54.01	-3.69*
11	0.201	49.82	53.58	-3.75*
12	0.197	49.93	53.75	-3.83*
13	0.266	47.02	51.24	-4.22
14	0.221	48.42	52.78	-4.36
15	0.205	48.92	53.40	-4.47*
16	0.215	48.22	53.00	-4.78*
17	0.212	48.32	53.14	-4.82*
18	0.228	46.82	52.52	-5.70
19	0.234	46.02	52.30	-6.28
20	0.244	45.62	51.95	-6.33
21	0.272	44.62	51.07	-6.45
22	0.255	45.02	51.60	-6.58
23	0.291	43.92	50.49	-6.58
24	0.250	45.12	51.77	-6.65
25	0.258	44.82	51.51	-6.69
26	0.457	40.01	46.76	-6.75
27	0.320	42.92	49.71	-6.79
28	0.240	45.22	52.08	-6.86
29	0.252	44.82	51.68	-6.86

*Please See the Average Readings on the Next Page and on the Plot

**COMPATIBLE
ELECTRONICS**

1/15/2003 10:17:13

Microtek Electronics, Inc.
Video Transmitter
Model: 2.4TLP-90 - 115 VAC
EN 55022 B - Black Lead
TEST ENGINEER : Kyle Fujimoto

2 highest peaks above -50.00 dB of EN 55022 - Class B - Average limit line

Peak criteria : 0.00 dB, Curve : Average

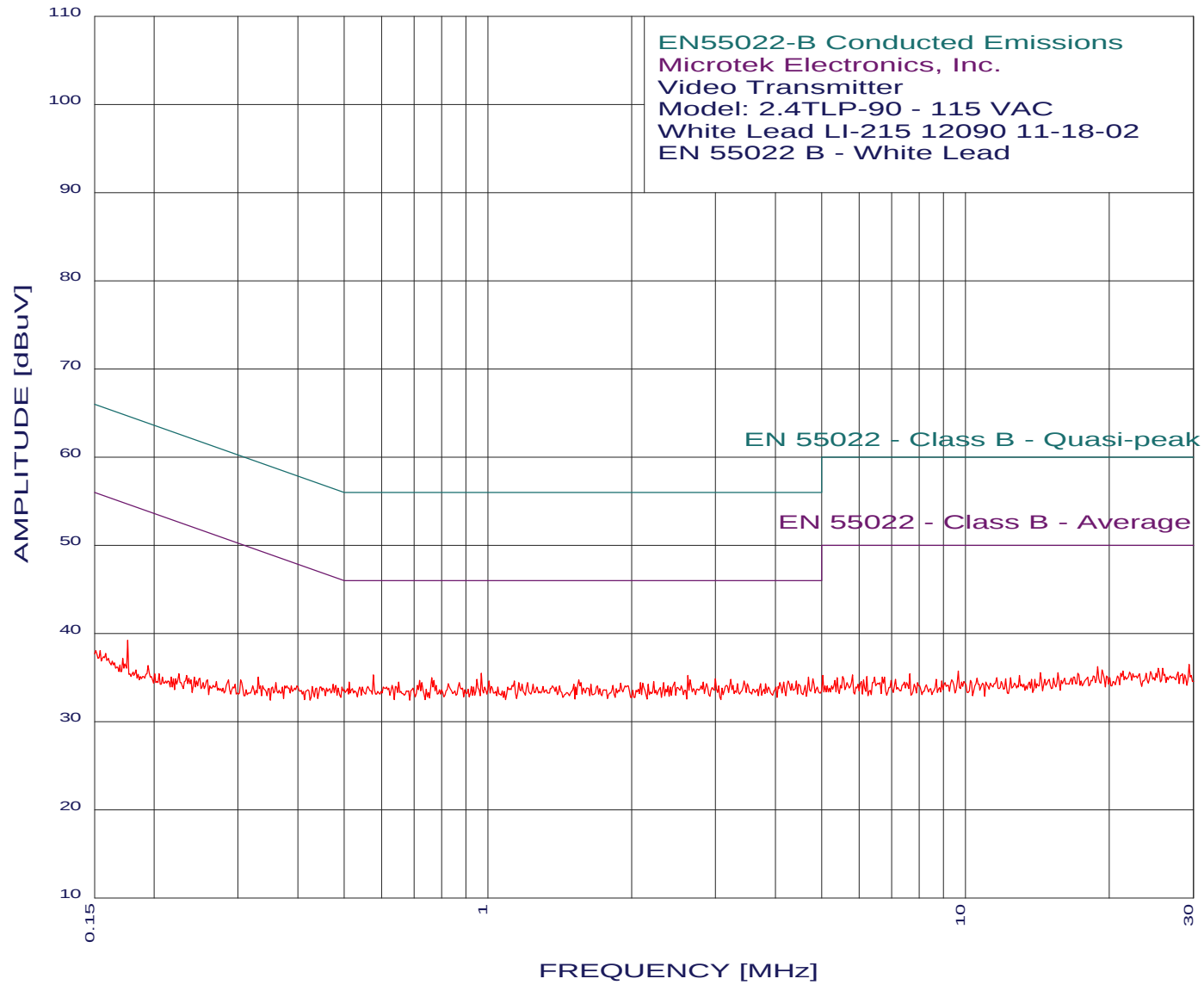
Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.150	48.78	56.00	-7.22
2	30.000	0.00	50.00	-50.00



COMPATIBLE
ELECTRONICS

EMISSION LEVEL [dBuV] PEAK
Graph for **Peak**

1/15/2003 10:12:50





**COMPATIBLE
ELECTRONICS**

1/15/2003 10:12:50

Microtek Electronics, Inc.
Video Transmitter
Model: 2.4TLP-90 - 115 VAC
EN 55022 B - White Lead
TEST ENGINEER : Kyle Fujimoto

32 highest peaks above -50.00 dB of EN 55022 - Class B - Average limit line
Peak criteria : 0.10 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.969	35.49	46.00	-10.51
2	0.577	35.29	46.00	-10.71
3	2.624	35.24	46.00	-10.76
4	4.696	35.02	46.00	-10.98
5	0.763	34.98	46.00	-11.02
6	2.995	34.86	46.00	-11.14
7	4.799	34.83	46.00	-11.17
8	0.948	34.79	46.00	-11.21
9	3.226	34.77	46.00	-11.23
10	2.651	34.75	46.00	-11.25
11	1.552	34.71	46.00	-11.29
12	0.720	34.68	46.00	-11.32
13	0.771	34.68	46.00	-11.32
14	4.432	34.61	46.00	-11.39
15	4.249	34.60	46.00	-11.40
16	1.136	34.59	46.00	-11.41
17	1.006	34.59	46.00	-11.41
18	3.438	34.57	46.00	-11.43
19	2.226	34.53	46.00	-11.47
20	4.159	34.50	46.00	-11.50
21	0.513	34.49	46.00	-11.51
22	0.651	34.49	46.00	-11.51
23	2.826	34.45	46.00	-11.55
24	2.462	34.44	46.00	-11.56
25	2.334	34.43	46.00	-11.57
26	2.089	34.43	46.00	-11.57
27	1.569	34.41	46.00	-11.59
28	1.210	34.40	46.00	-11.60
29	4.092	34.40	46.00	-11.60
30	1.160	34.39	46.00	-11.61
31	30.000	34.53	50.00	-15.47
32	0.150	37.65	56.00	-18.35
