APPENDIX D

(FCC Ref. 2.1033(b)(6))

"Report of Measurements"

Marstech Limited

11 Kelfield Street, Etobicoke, Ontario, Canada, M9W 5A1
Telephone (416) 246-1116, Fax (416) 246-1020

Authorized by: Professional Engineers Ontario

Qualified Engineering & Administrative Testing For FCC Submissions/Certifications

Approved Test Facility

Quality Assured Facility

TEST REPORT

REPORT DATE:	April 10, 2000		REPORT NO: 20171D
CONTENTS:	See Table of Contents		
SUBMITTOR:	ATLINKS USA Inc. 101 W 103rd. St. Indianapolis, IN 46290-1102 USA		
SUBJECT:	Model No:	27701XXX-M (Also Covers Model 27700XXX-M)	
	FCC ID:	G9H2-7700M	
TEST SPECIFICATION	FCC CFR 47 15.233 AND 2.989 Sections: 15.35, 15.107, 15.109, 15.207 and 15.209 NOTE: Tests Conducted Are "Type" Tests.		
DATE SAMPLE RECEIVED:	N/A	DATE TESTED:	March 30, 2000
RESULTS:	Equipment tested complies with referenced specification.		
ALTERATIONS	NONE		
Tested by:	Timco Engineering, Inc.	Approved and Certified by:	Robert G. Marshall, P. Eng.
		Date:	April 11/00

REGISTERED PROFESSIONAL ENGINEER R. G. MARSHALL

TECHNICAL REPORT - FCC 2.1033(b)

Applicant

ATLINKS USA Inc.
101 W 103rd. St.
Indianapolis, IN
46290-1102 USA

FCC Identifier

G9H2-7700M

Manufacturer

Huiyang CCT Telecommunications Products Co.
San He Economic Experimental Zone
Huiyang, Guangdong Province, The PRC

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APPLICANT: THOMSON CONSUMER ELECTRONICS (NAME CHANGED TO ATLINKS USA INC.)

FCC ID: 27701XXX-M

TABLE OF CONTENTS

TEST REPORT CONTAINING:

EXHIBIT ATTACHMENTS:

APPLICANT: THOMSON CONSUMER ELECTRONICS
FCCID : 27701XXX-M

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 8565OA, S/N 3303A01690 & Preamplifier HP 8449B-OPT H02, S/N 3008A00372 Cal. 10/17/99
2.___Signal Generator: HP 8640B, S/N 2308A21464 Cal. 9/23/99
3.___Signal Generator: HP 8614A, S/N 2015A07428 Cal. 5/29/99
4.___Passive Loop Antenna: EMCO Model 6512, 9KHz to 30MHz, S/N 9706-1211 Cal. 6/23/97
5._X_Biconnical Antenna: Eaton Model 94455-1, S/N 1057
6._X_Log-Periodic Antenna: Electro-Metrics Model EM-6950, S/N 632
7.___Dipole Antenna Kit: Electro-Metrics Model TDA-30/1-4, S/N 153 Cal. 11/24/99
8._X_Double-Ridged Horn Antenna: Electro-Metrics Model RGA-180, 1-18 GHz, S/N 2319 Cal. 4/27/99
9.___Horn 40-60GHz: ATM Part #19-443-6R
10._X_Line Impedance Stabilization Network: Electro-Metrics Model ANS-25/2, S/N 2604 Cal. 2/9/00
11.___Temperature Chamber: Tenney Engineering Model TTRC, S/N 11717-7
12.___AC Voltmeter: HP Model 400FL, S/N 2213A14499 Cal. 9/21/99
13.___Digital Multimeter: Fluke Model 8012A, S/N 4810047 Cal 9/21/99
14.___Digital Multimeter: Fluke Model 77, S/N 43850817 Cal 9/21/99
15.___Oscilloscope: Tektronix Model 2230, S/N 300572 Cal 9/23/99
16.___Frequency Counter: HP Model 5385A, S/N 3242A07460 Cal 10/6/99

TEST PROCEDURE

GENERAL: This report shall NOT be reproduced except in full without the written approval of TIMCO ENGINEERING, INC. Shielded interface cables were used in all cases except for cables connecting to the telephone line and the power cords. A test program was run which simulated a normal data transmission on a network.

POWER LINE CONDUCTED INTERFERENCE: The procedure used was ANSI STANDARD C63.4-1992 using a 50uH LISN. Both lines were observed with the UUT transmitting. The bandwidth of the spectrum analyzer was 10kHz with an appropriate sweep speed. The ambient temperature of the UUT was 76oF with a humidity of 55%.

BANDWIDTH 6.0dB: The measurements were made with the spectrum analyzer's resolution bandwidth(RBW)=1.0MHz and the video bandwidth(VBW) =3.0MHz and the span set as shown on plot.

POWER OUTPUT: The RF power output was measured at the antenna feed point using a peak power meter.

ANTENNA CONDUCTED EMISSIONS: The RBW=100KHz, VBW=300KHz and the span set to 10.0MHz and the spectrum was scanned from 30MHz to the 10th Harmonic of the fundamental. Above 1.0GHz the resolution bandwidth was 1.0MHz and the VBW = 3.0MHz and the span to 50MHz.

RADIATION INTERFERENCE: The test procedure used was ANSI STANDARD C63.4-1992 using a HEWLETT PACKARD spectrum analyzer with a preselector. The bandwidth(RBW) of the spectrum analyzer was 100kHz up to 1GHz and 1.0MHz above 1GHz with an appropriate sweep speed. The VBW above 1.0GHz was = 3.0MHz. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The ambient temperature of the UUT was 71oF with a humidity of 82%.

PRODUCT DESCRIPTION:

The 27701XXX-M is a direct sequence spread spectrum cordless telephone radio that operates in the 2400-2483.5MHz band. The antenna used for the base and the handset is permanently attached to the UUT. Its actual frequency range is:

Channel #1	2404.0MHz Lowest
Channel #40	2474.72MHz Highest

APPLICANT:	THOMSON CONSUMER ELECTRONICS
FCC ID:	27701XXX-M - ASSEMBLY #1 AND #3
NAME OF TEST:	POWER LINE CONDUCTED INTERFERENCE
RULES PART NUMBER:	15.107(a)
REQUIREMENTS:	.45 - 30 MHz 250 uV OR 47.96 dBuV
TEST PROCEDURE:	ANSI STANDARD C63.4-1992. The spectrum was scanned from .45 to 30 MHz.

TEST DATA:

THE HIGHEST EMISSION READ FOR LINE 1 WAS 101.0uV @ 25.15MHz.

THE HIGHEST EMISSION READ FOR LINE 2 WAS 75.0uV @ 19.24MHz.

THE GRAPHS IN EXHIBIT 1a & b REPRESENT THE EMISSIONS TAKEN FOR THIS DEVICE.

TEST RESULTS: Both lines were observed. The measurements indicate that the unit DOES appear to meet the FCC requirements for this class of equipment.

NAME OF TEST: 6.0dB BANDWIDTH

RULES PART NUMBER: 15.247(a)(2)

REQUIREMENTS: The 6.0dB bandwidth must be greater than 500KHz.
MEASUREMENT: The 6.0dB bandwidth measured @ 2440.60MHz was 1.47MHz for the base.

The 6.0dB bandwidth measured @ 2440.60MHz was 1.60MHz for the handset.

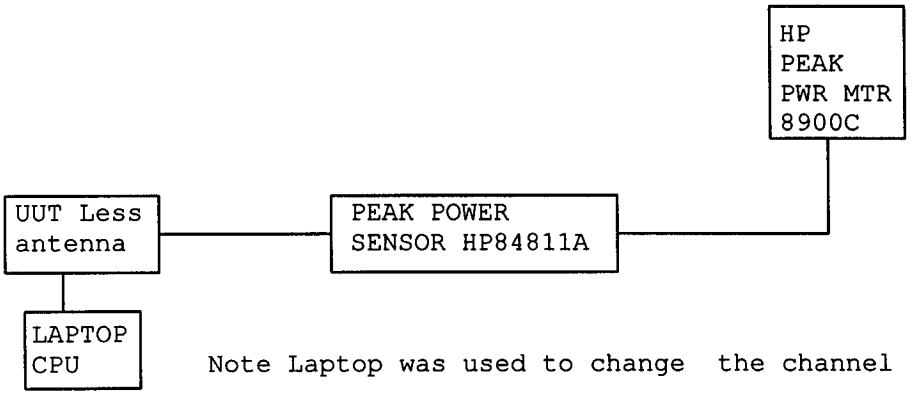
MEASUREMENT DATA: The 6dB bandwidth was measured a the Low end of band, middle of band, and the high end of the band for both the handset & the base unit. See Plots in Exhibits 2a-f,

NAME OF TEST: POWER OUTPUT

RULES PART NUMBER: 15.247(b) 1.0Watt or +30dBm
MEASUREMENT:

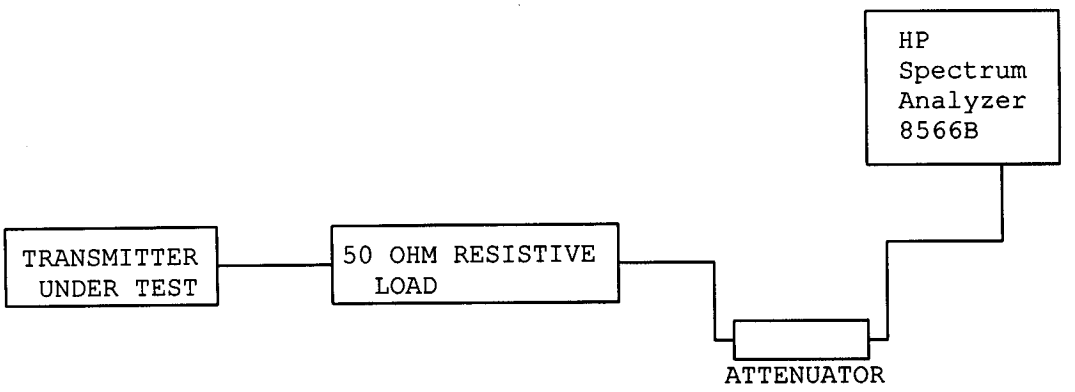
Channel No.	Power Output milliwatts	Unit
1	5.60	Base
20	7.00	Base
40	10.0	Base
1	8.20	Handset
20	9.50	Handset
40	10.0	Handset

15.247(c) Method of Measuring RF Power output:
The antenna was disconnected and a Peak power Sensor was connected in place of the antenna. The Power output was measured a the Low end of band, middle of band, and the high end of the band for both the handset & the base unit.



Note Laptop was used to change the channel

15.247(c) Method of Measuring RF Conducted Spurious Emissions



NAME OF TEST: SPURIOUS EMISSIONS AT ANTENNA TERMINALS

REQUIREMENTS: Emissions must be at least 20dB down from the highest emission level within the authorized band as measured with a 100KHz RBW.

	EMISSION FREQUENCY MHz	dB BELOW CARRIER
Channel 1	2404.0	00.0
base	4809.66	-52.2
	7214.0	-72.5
channel 20	2438.6	0.00
	4878.04	-43.2
Channel 40	2474.72	0.0
	4949.96	-42.9
HANDSET		
Channel 1	2404.0	0.0
	4809.6	-42.8
	7215.18	-59.8
Channel 21	2438.80	0.0
	4878.08	-43.9
	7317.34	-60.2
Channel 40	2475.0	0.0
	4950.00	-44.7
	7425.00	-60.1

NOTE: THE SPECTRUM WAS SCANNED TO THE TENTH HARMONIC.

15.247(c),15.205 &15.209(b) Field strength of spurious emissions:

REQUIREMENTS:

FIELD STRENGTH of Fundamental: 902-928MHz 2.4-2.4835GHz 127.38dBuV/m @3m	FIELD STRENGTH of Harmonics 54 dBuV/m @3m	S15.209 30 - 88 MHz 40 dBuV/m @3M 88 -216 MHz 43.5 216 -960 MHz 46 ABOVE 960 MHz 54dBuV/m

EMISSIONS RADIATED OUTSIDE OF THE SPECIFIED FREQUENCY BANDS, EXCEPT FOR HARMONICS, SHALL BE ATTENUATED BY AT LEAST 50 dB BELOW THE LEVEL OF THE FUNDAMENTAL OR TO THE GENERAL RADIATED EMISSION LIMITS IN 15.209, WHICHEVER IS THE LESSER ATTENUATION.

REQUIREMENTS: Emissions that fall in the restricted bands (15.205) must be less than 54dBuV/m otherwise the spurious and harmonics must be attenuated by at least 20dB.

TEST DATA:

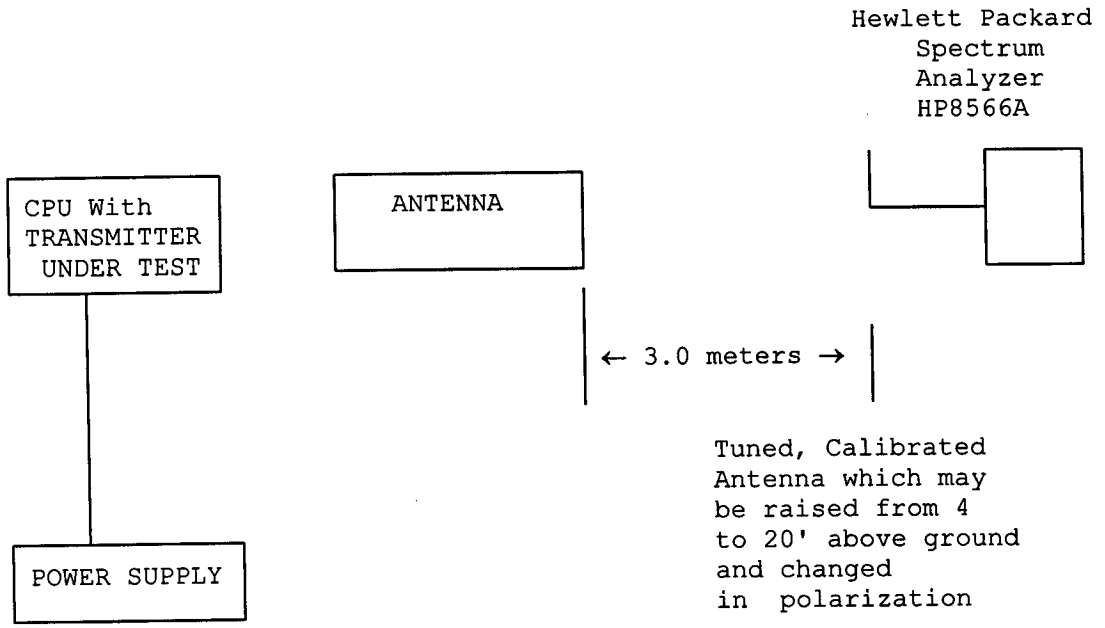
EMISSION FREQUENCY MHz	METER READING @ 3m dBuV	COAX LOSS dB	ACF dB	FIELD STRENGTH dBuV/m	FCC. LIMIT dB	MARGIN dB	ANT.
HANDSET							
2404.56	68.20	1.09	29.01	98.30			V
4809.61R	17.10	1.45	33.91	52.46	54.00	1.54	V
7214.24	14.20	1.81	36.62	52.63	54.00	1.37	V
2438.99	75.60	1.10	29.10	105.79			V
4877.97R	16.60	1.46	33.99	52.05	54.00	1.95	H
7316.95R	10.30	1.83	36.73	48.86	54.00	5.14	V
9755.93	6.20	2.12	38.67	46.99	54.00	7.01	H
2475.09	76.60	1.10	29.19	106.89			V
2483.5				45.89	54.00	8.11	
4914.07R	11.00	1.47	34.03	46.50	54.00	7.50	H
7353.05R	11.60	1.83	36.77	50.21	54.00	3.79	H
BASE							
2404.89	71.00	1.09	29.01	101.10			H
4878.18R	16.90	1.46	33.99	52.35	54.00	1.65	H
7317.07R	9.00	1.83	36.73	47.56	54.00	6.44	H
2439.09	71.00	1.10	29.10	101.19			H
4878.18R	16.90	1.46	33.99	52.35	54.00	1.65	H
7317.07R	9.00	1.83	36.73	47.56	54.00	6.44	H
2475.00	72.10	1.10	29.19	102.39			H
2483.50				44.79	54.00	9.21	
4950.00R	11.20	1.47	34.07	46.74	54.00	7.26	H
7425.00R	8.20	1.84	36.85	46.90	54.00	7.10	H

The plots of the Delta attenuation from the channel to the edge of the restricted band of 2483.5MHz are attached as exhibits 3a & b.

2.993(a)(b)
2.993(a)(b) Continued Field strength of spurious emissions:

METHOD OF MEASUREMENT: The procedure used was ANSI STANDARD C63.4-1992 & the Guidance on Measurements for Direct Sequence Spread Spectrum Systems. Measurements were made at the open field test site of TIMCO ENGINEERING INC. located at 849 N.W. State Road 45, NEWBERRY, FL 32669.

Method of Measuring Radiated Spurious Emissions



Equipment placed 4' above ground on a rotating platform.

NAME OF TEST: POWER SPECTRAL DENSITY

RULES PART NUMBER: 15.247(d)

REQUIREMENTS: The peak level measured must be no greater than +8.0dBm.

DATA: THE PLOTS ARE SHOWN IN EXHIBITS 4a-f.

BASE UNIT The HIGHEST level was at 2474.72MHz -6.2dBm.
HANDSET UNIT The HIGHEST level was at 2475.52MHz -4.4dBm.

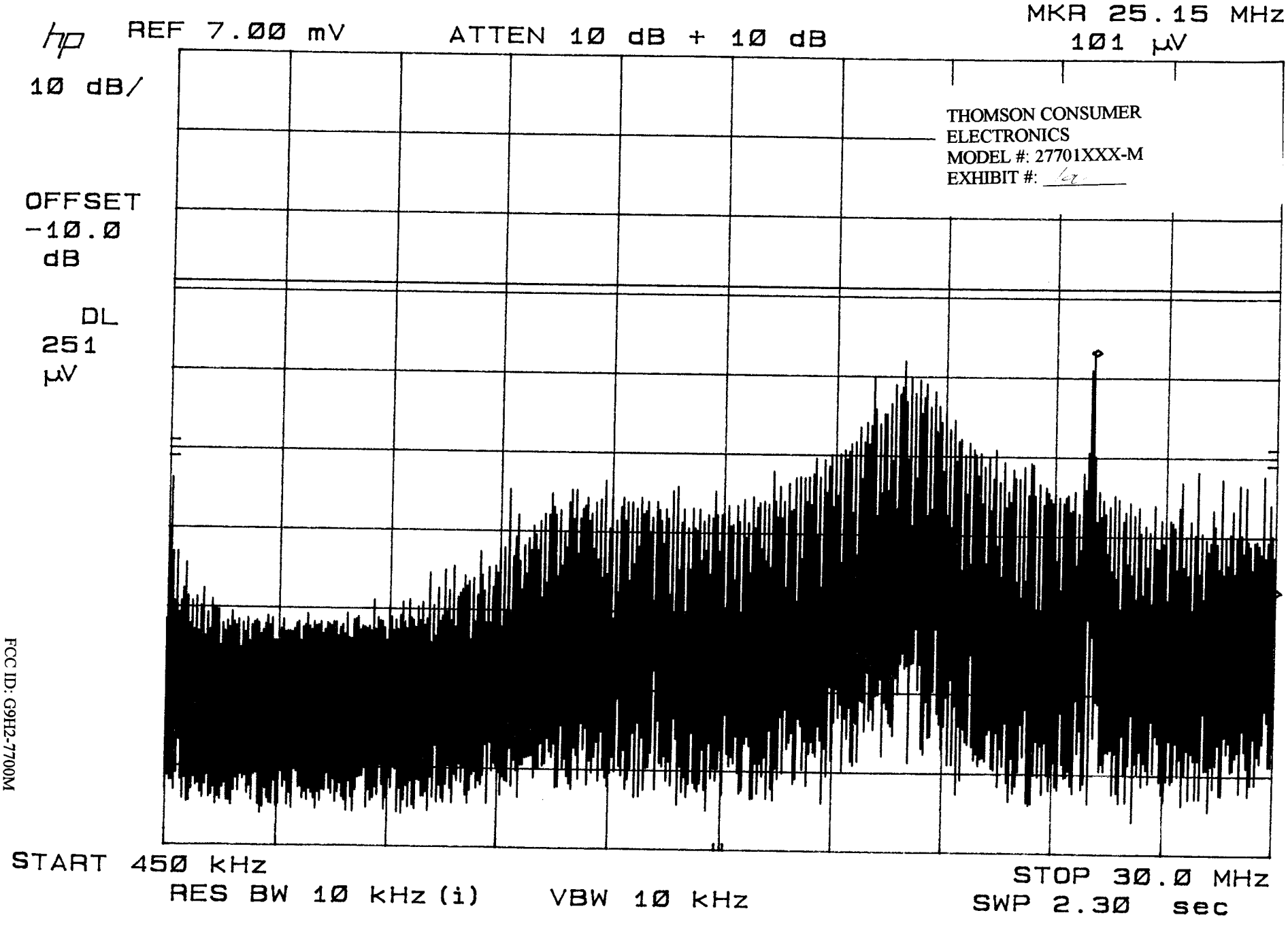
The antenna was disconnected and the output was connected to a coaxial attenuator and to the Spectrum analyzer and the power spectral density was measured a the Low end of band, middle of band, and the high end of the band for both the handset & the base unit. The plots of the power spectral power density for the low end of the band, middle of the band, and the high end of the band for both the handset & the base are attached as exhibits 4a-f.

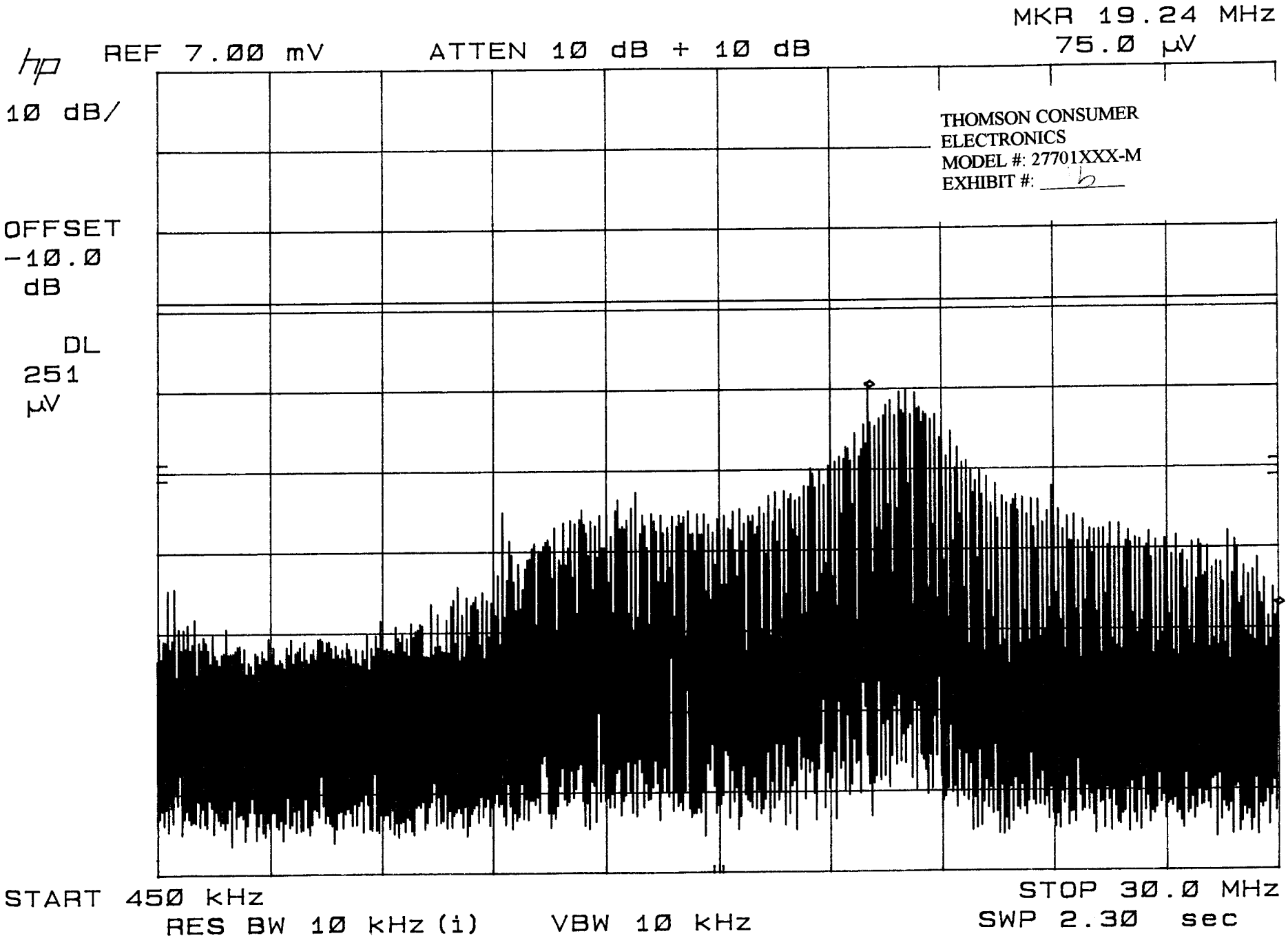
RULES PART NUMBER: 15.247(e)

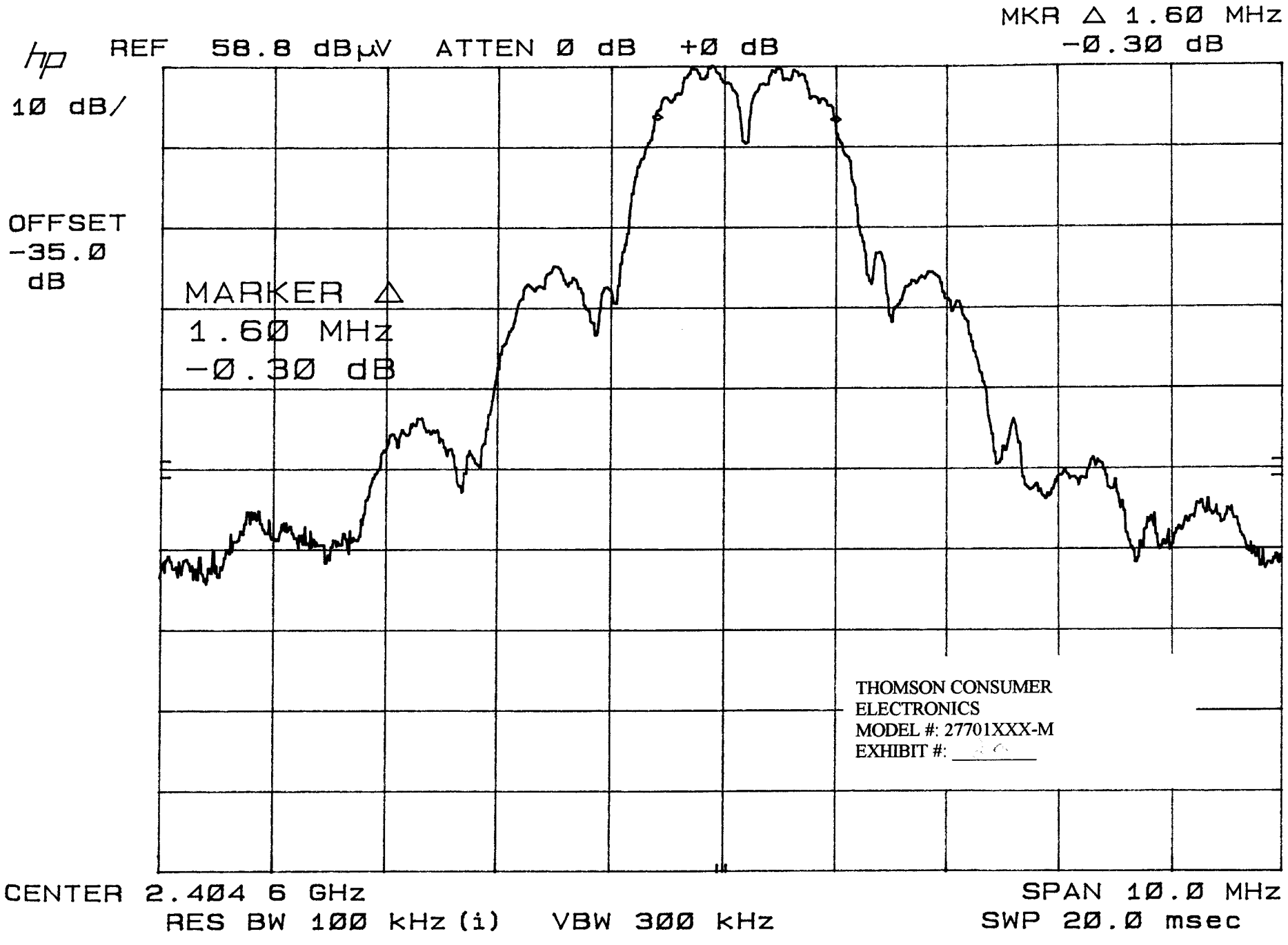
REQUIREMENTS:

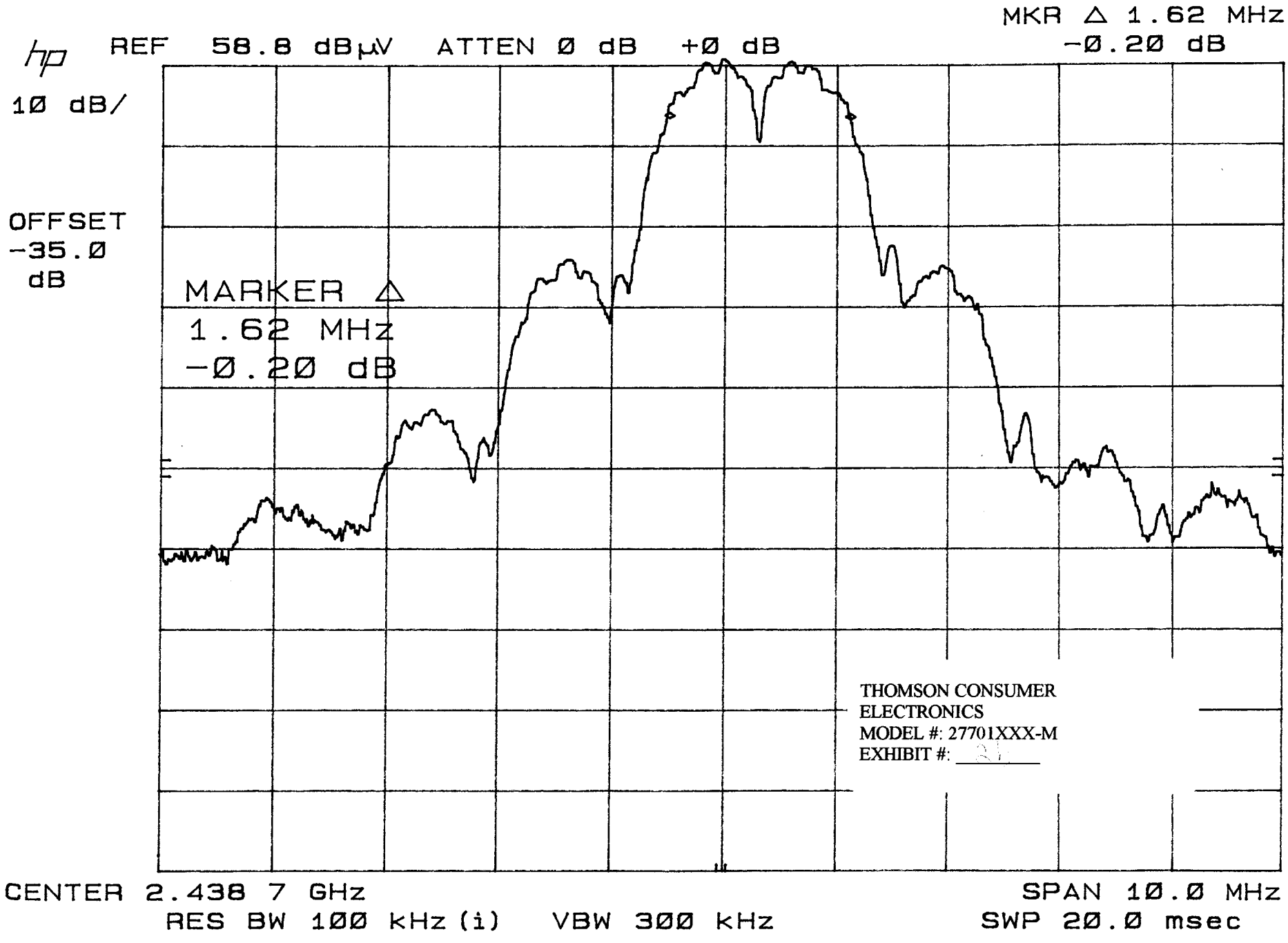
DATA: The processing gain information supplied by the manufacturer is 11.3dB. (Refer to Exhibit 5 a, b and c)

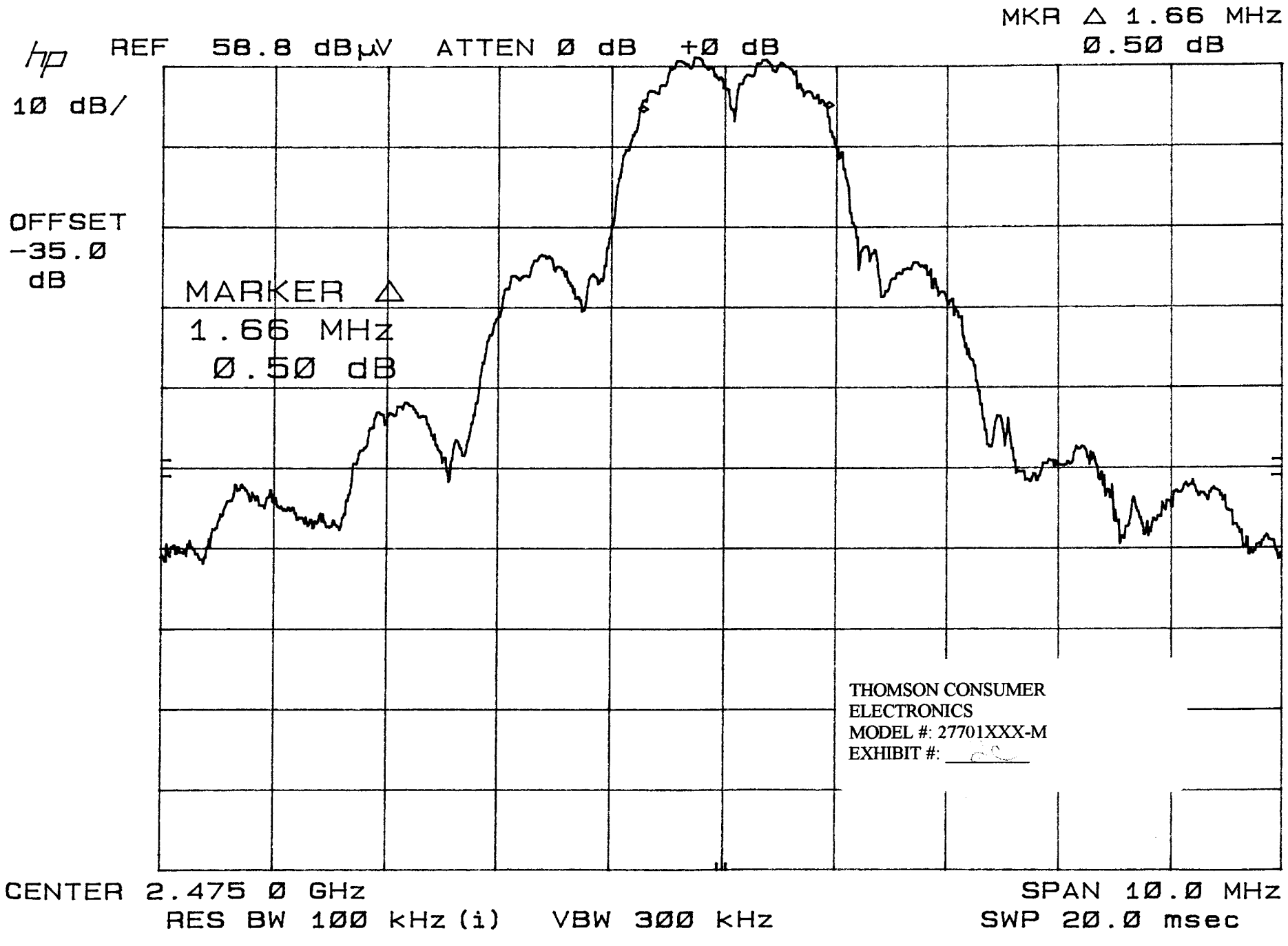
NAME OF TEST:	ANTENNA GAIN
RULES PART NUMBER:	15.247 (b) (3)
REQUIREMENTS:	Antenna gain may not exceed 6 dBi without reducing peak power.
DATA:	HANDSET: 2 dBi BASE: 1 dBi

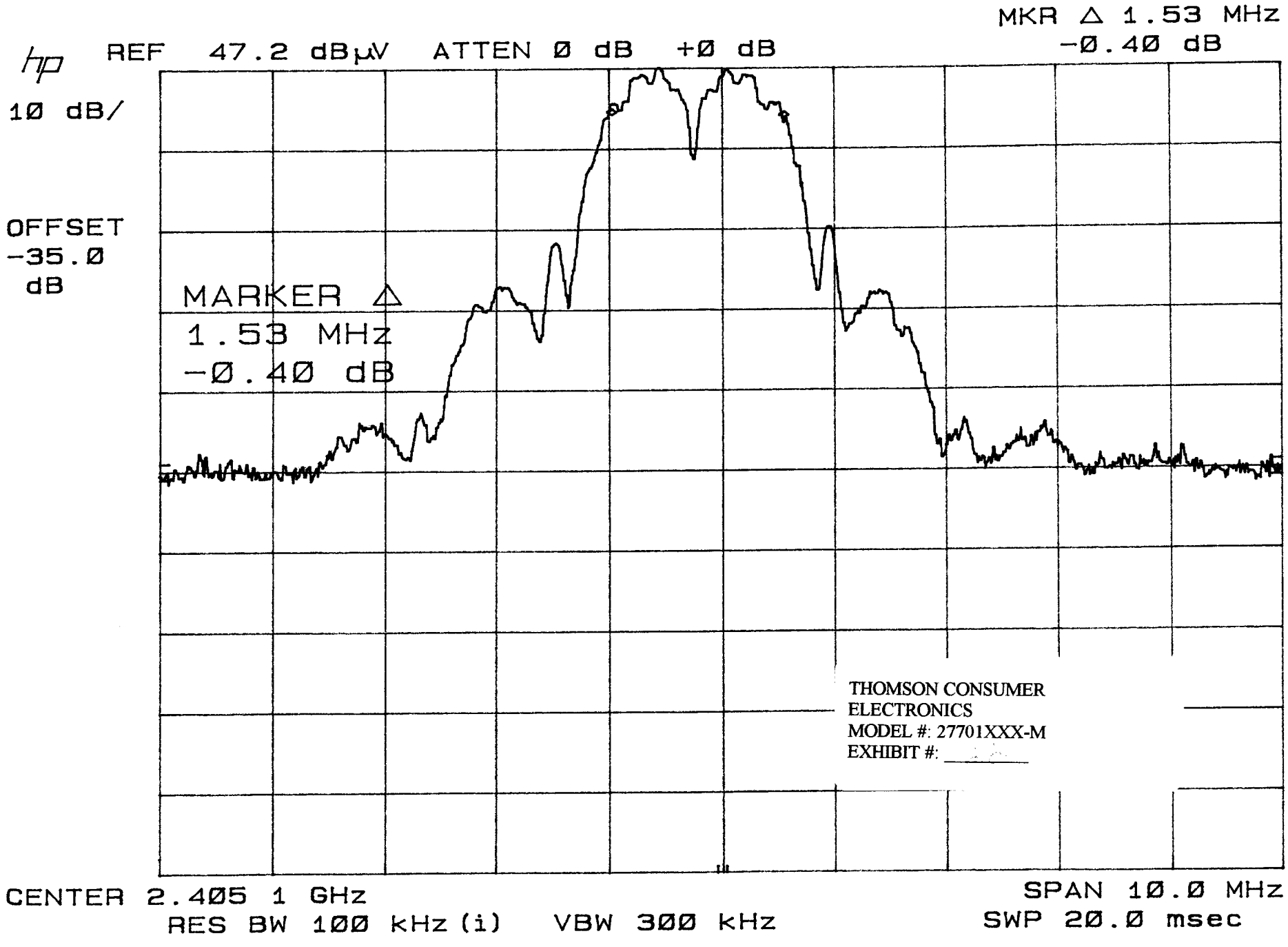

REF 7.00 mV
ATTEN 10 dB + 10 dB
MKR 25.15 MHz
101 µV
10 dB/
OFFSET
-10.0
dB
DL
251
µV
THOMSON CONSUMER
ELECTRONICS
MODEL #: 27701XXX-M
EXHIBIT #: 4a
START 450 kHz
RES BW 10 kHz (i)
VBW 10 kHz
STOP 30.0 MHz
SWP 2.30 sec

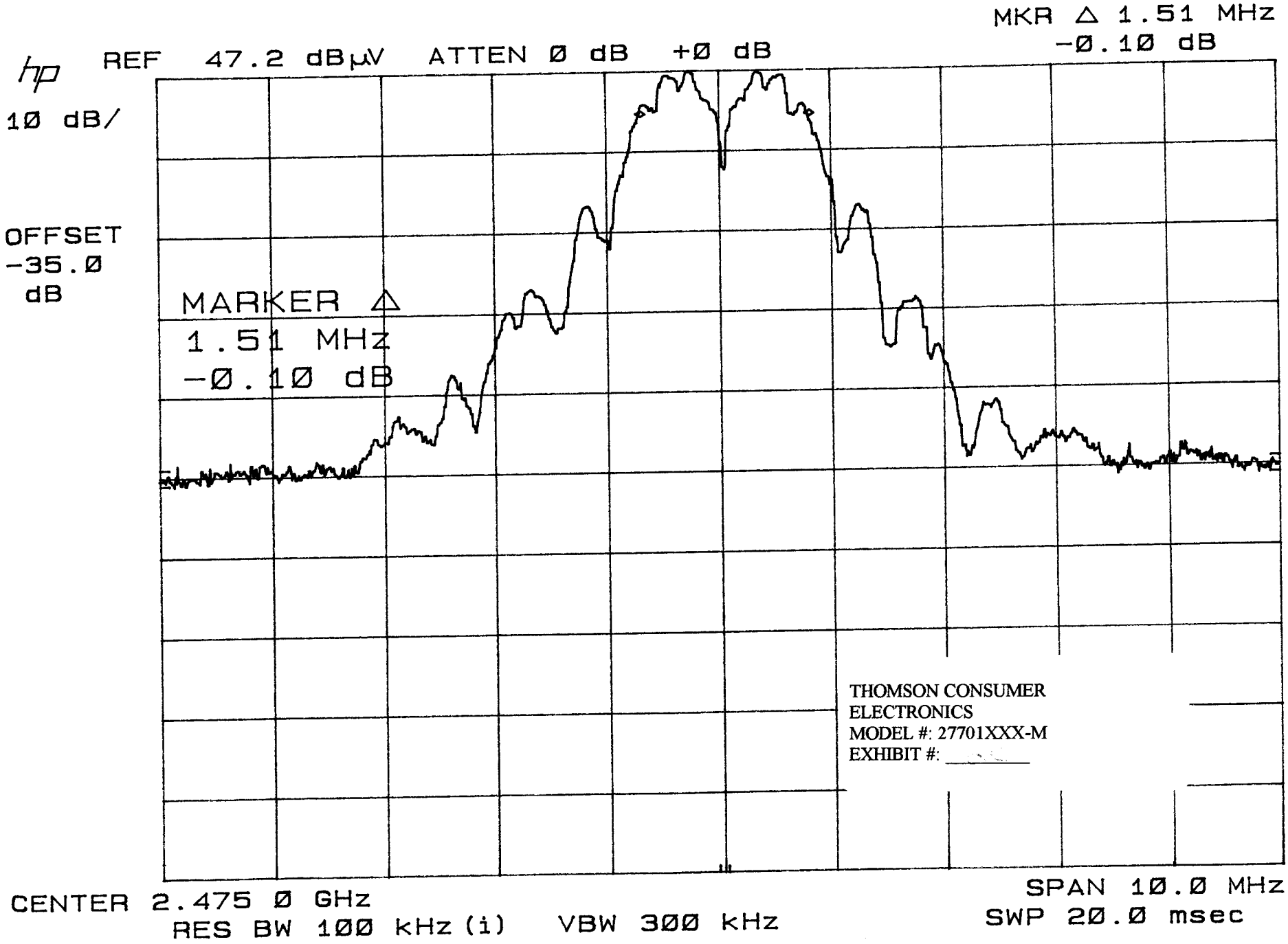

MKR 19.24 MHz
75.0 µV
REF 7.00 mV
ATTEN 10 dB + 10 dB
10 dB/
THOMSON CONSUMER
ELECTRONICS
MODEL #: 27701XXX-M
EXHIBIT #: b
OFFSET
-10.0
dB
DL
251
µV
START 450 kHz
STOP 30.0 MHz
RES BW 10 kHz (i)
VBW 10 kHz
SWP 2.30 sec

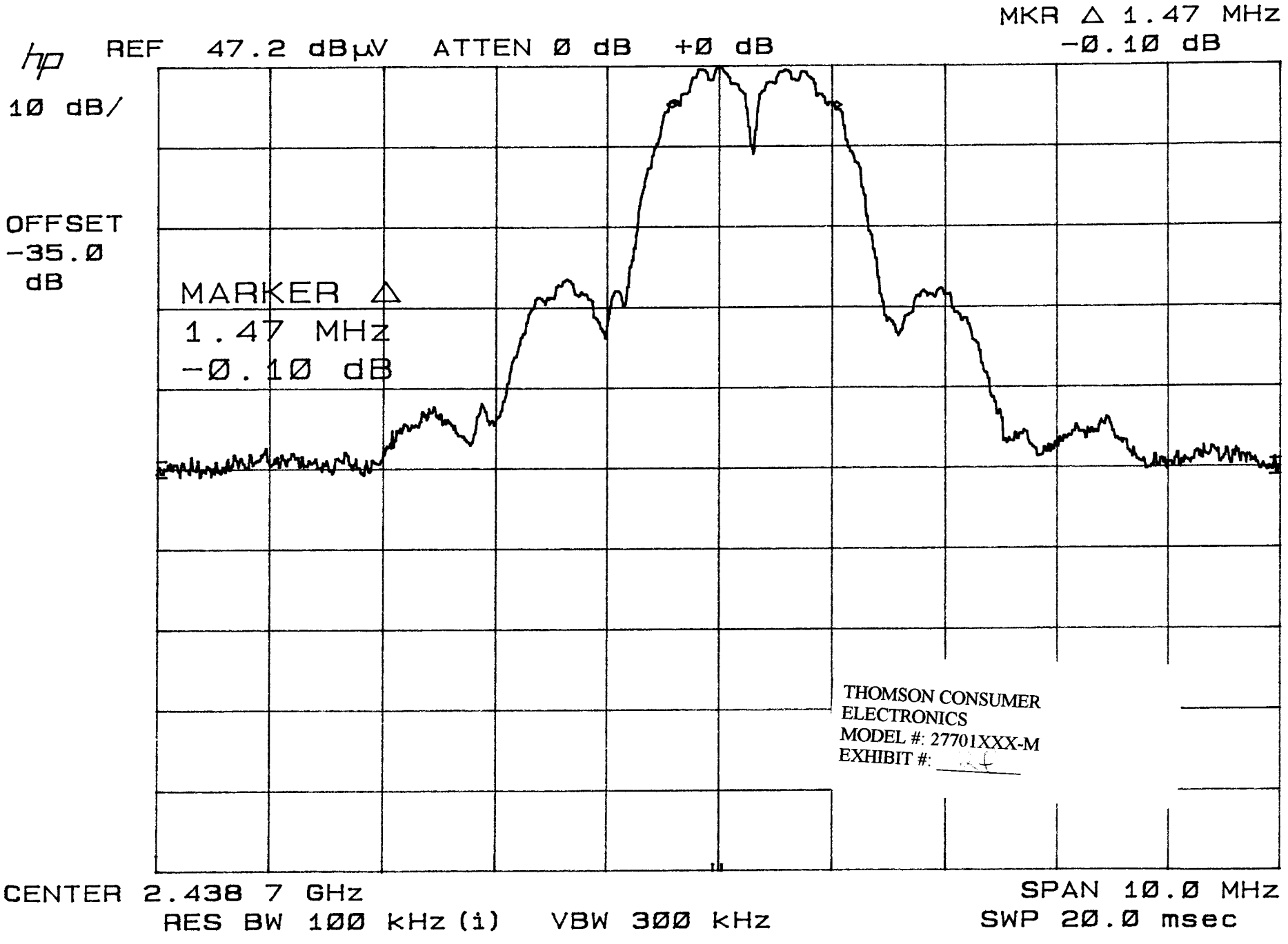

MKR Δ 1.60 MHz
-0.30 dB
REF 58.8 dBμV ATTEN 0 dB +0 dB
10 dB/
OFFSET
-35.0
dB
MARKER Δ
1.60 MHz
-0.30 dB
THOMSON CONSUMER
ELECTRONICS
MODEL #: 27701XXX-M
EXHIBIT #:
CENTER 2.404 6 GHz
SPAN 10.0 MHz
RES BW 100 kHz (i)
VBW 300 kHz
SWP 20.0 msec

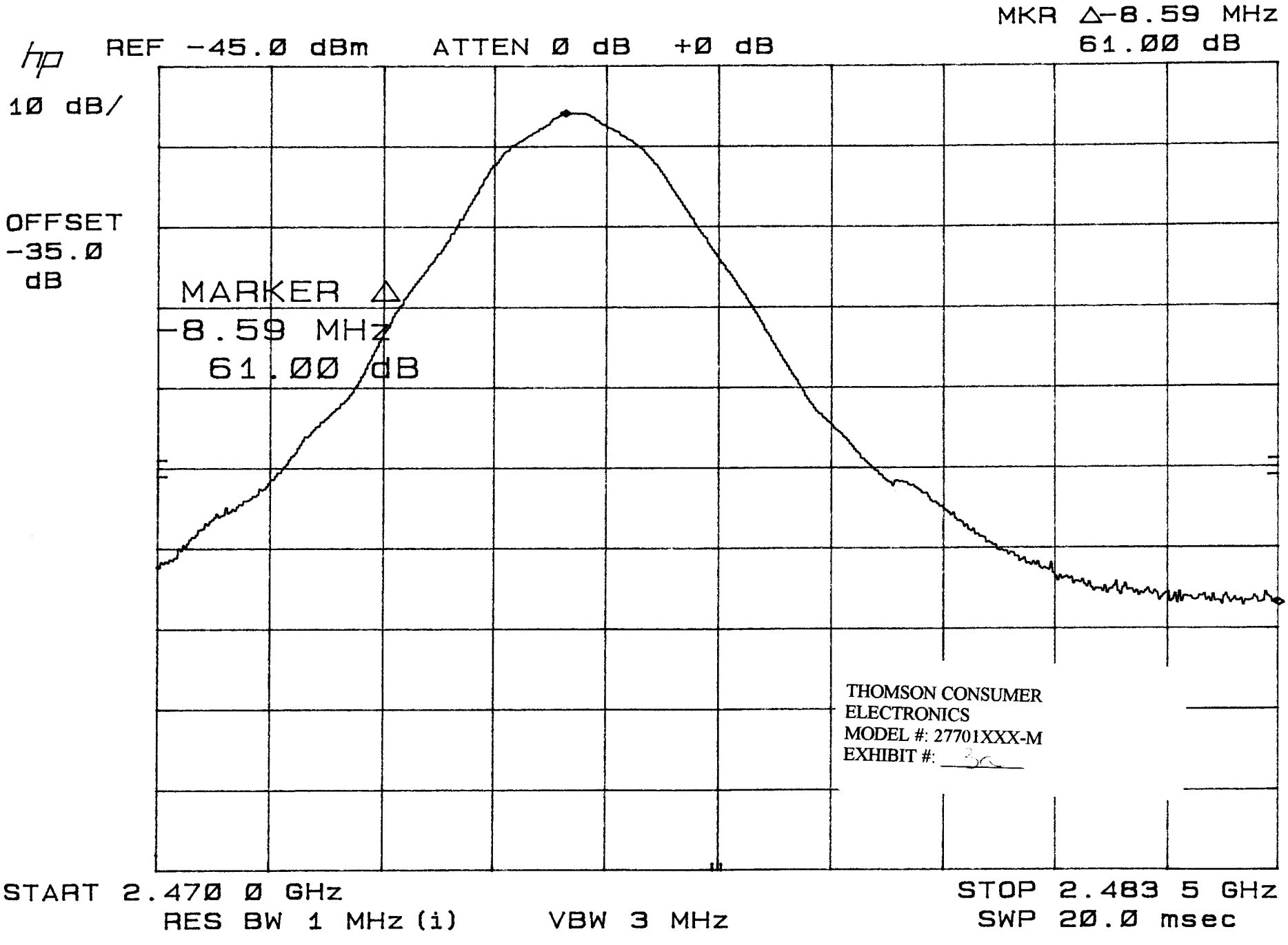

MKR △ 1.62 MHz
-0.20 dB
REF 58.8 dBµV ATTEN 0 dB +0 dB
10 dB/
OFFSET
-35.0
dB
MARKER △
1.62 MHz
-0.20 dB
THOMSON CONSUMER
ELECTRONICS
MODEL #: 27701XXX-M
EXHIBIT #:
CENTER 2.438 7 GHz
SPAN 10.0 MHz
RES BW 100 kHz (i)
VBW 300 kHz
SWP 20.0 msec

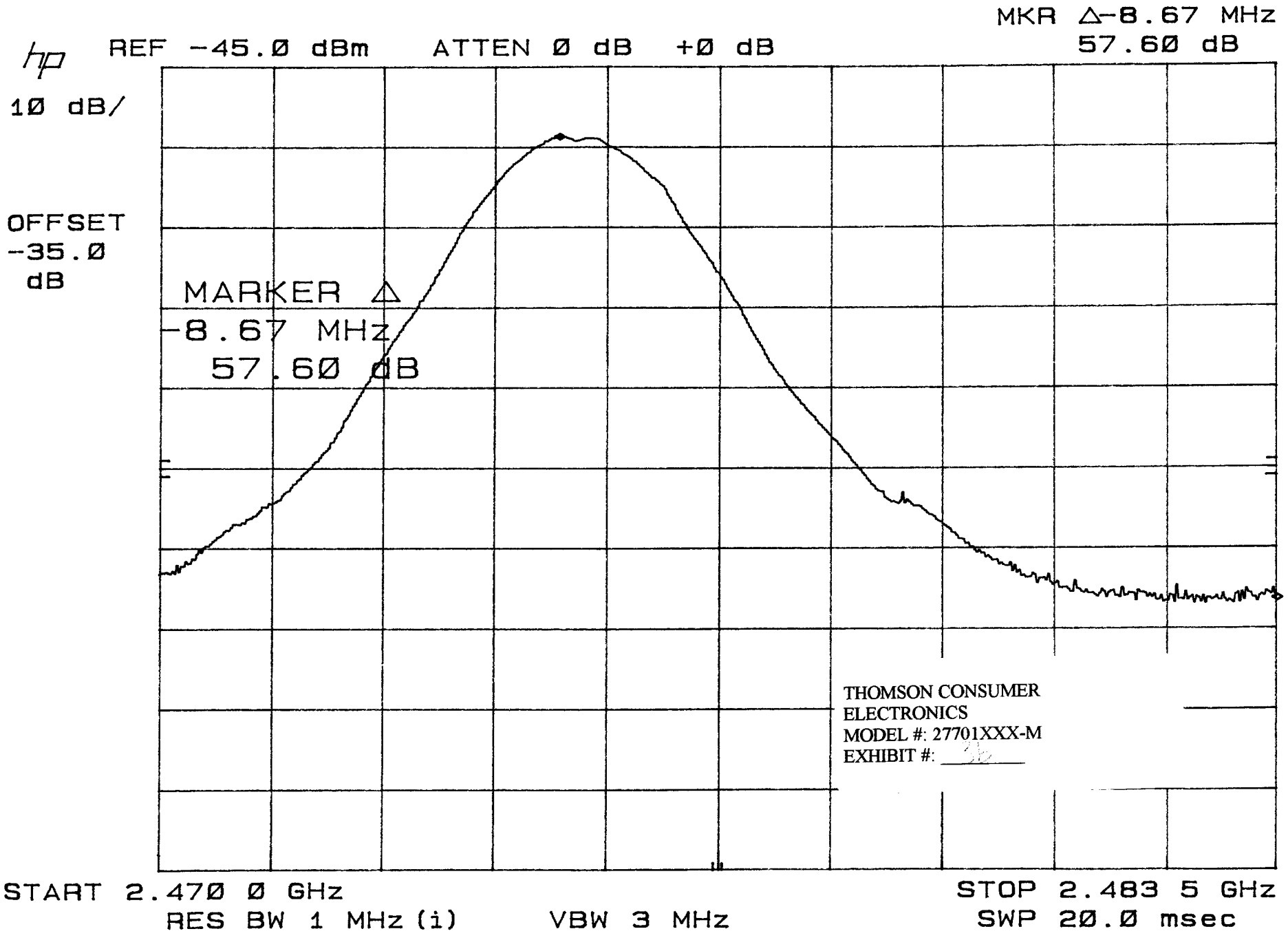

MKR △ 1.66 MHz
Ø.5Ø dB
REF 58.8 dBµV ATTEN Ø dB +Ø dB
10 dB/
OFFSET
-35.Ø
dB
MARKER △
1.66 MHz
Ø.5Ø dB
THOMSON CONSUMER
ELECTRONICS
MODEL #: 27701XXX-M
EXHIBIT #:
CENTER 2.475 Ø GHz
SPAN 10.Ø MHz
RES BW 1ØØ kHz (i)
VBW 3ØØ kHz
SWP 2Ø.Ø msec

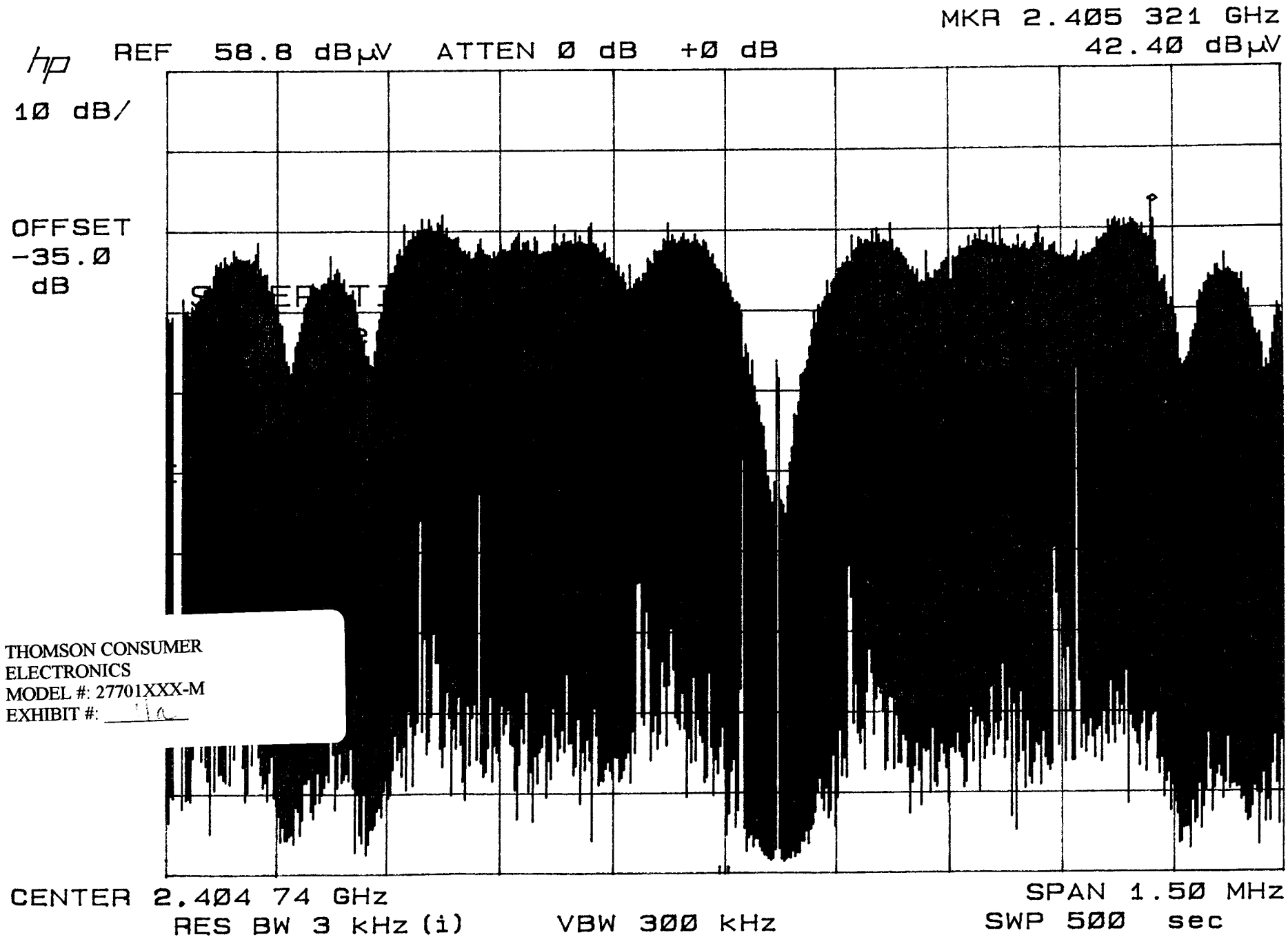

MKR Δ 1.53 MHz
-0.40 dB
REF 47.2 dBμV ATTEN 0 dB +0 dB
10 dB/
OFFSET
-35.0
dB
MARKER Δ
1.53 MHz
-0.40 dB
THOMSON CONSUMER
ELECTRONICS
MODEL #: 27701XXX-M
EXHIBIT #:
CENTER 2.405 1 GHz
SPAN 10.0 MHz
RES BW 100 kHz (i)
VBW 300 kHz
SWP 20.0 msec


MKR Δ 1.51 MHz
-Ø.1Ø dB
hp REF 47.2 dBμV ATTEN Ø dB +Ø dB
1Ø dB/
OFFSET
-35.Ø
dB
MARKER Δ
1.51 MHz
-Ø.1Ø dB
THOMSON CONSUMER
ELECTRONICS
MODEL #: 27701XXX-M
EXHIBIT #:
CENTER 2.475 Ø GHz
RES BW 1ØØ kHz (i) VBW 3ØØ kHz
SPAN 1Ø.Ø MHz
SWP 2Ø.Ø msec

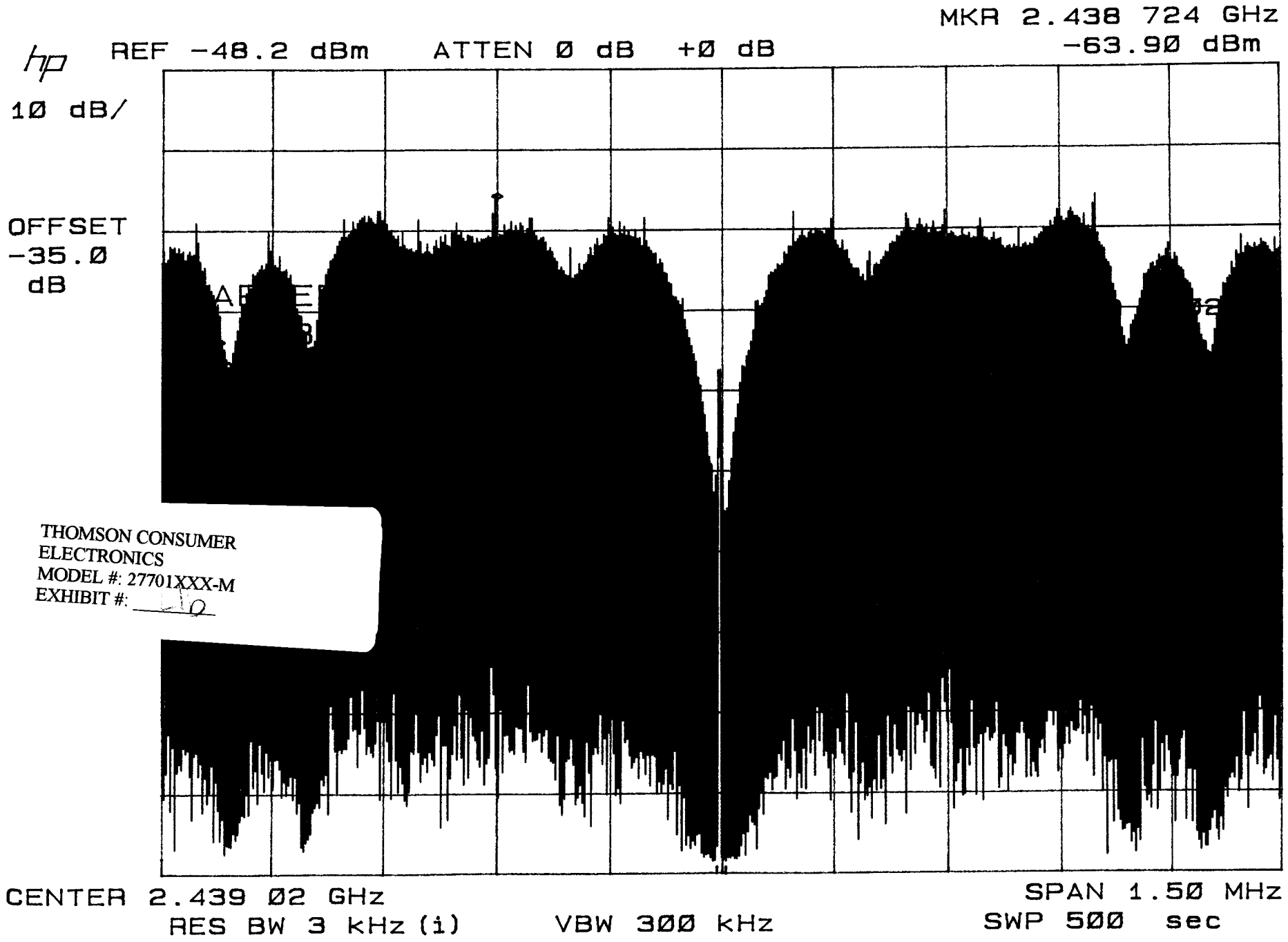

MKR Δ 1.47 MHz
-0.10 dB
REF 47.2 dBμV ATTEN 0 dB +0 dB
10 dB/
OFFSET
-35.0
dB
MARKER Δ
1.47 MHz
-0.10 dB
THOMSON CONSUMER
ELECTRONICS
MODEL #: 27701XXX-M
EXHIBIT #:
CENTER 2.438 7 GHz
SPAN 10.0 MHz
RES BW 100 kHz (i)
VBW 300 kHz
SWP 20.0 msec

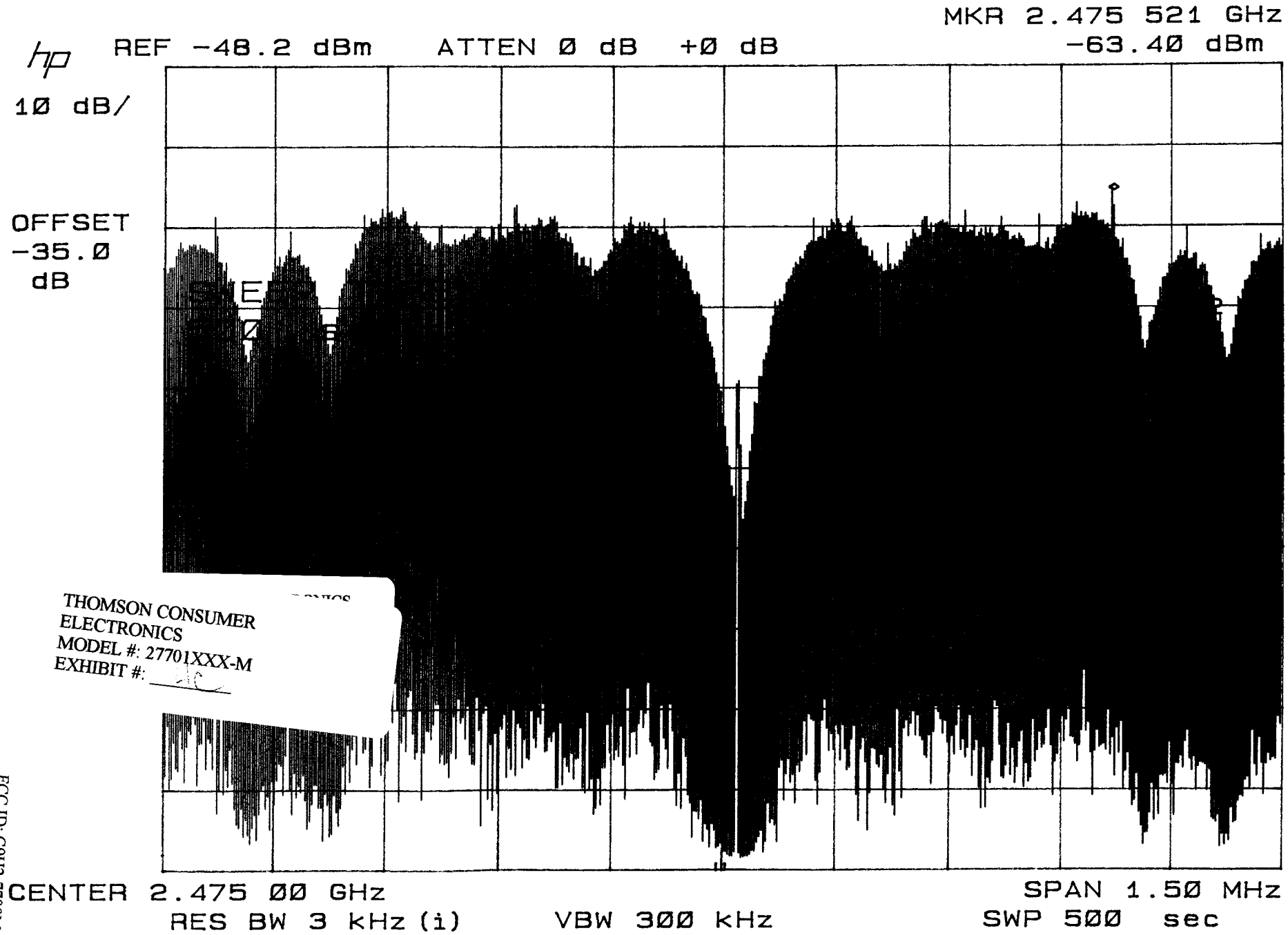

MKR Δ-8.59 MHz
61.00 dB
REF -45.0 dBm
ATTEN 0 dB +0 dB
10 dB/
OFFSET
-35.0
dB
MARKER Δ
-8.59 MHz
61.00 dB
THOMSON CONSUMER
ELECTRONICS
MODEL #: 27701XXX-M
EXHIBIT #: 3c
START 2.470 0 GHz
RES BW 1 MHz (i)
VBW 3 MHz
STOP 2.483 5 GHz
SWP 20.0 msec

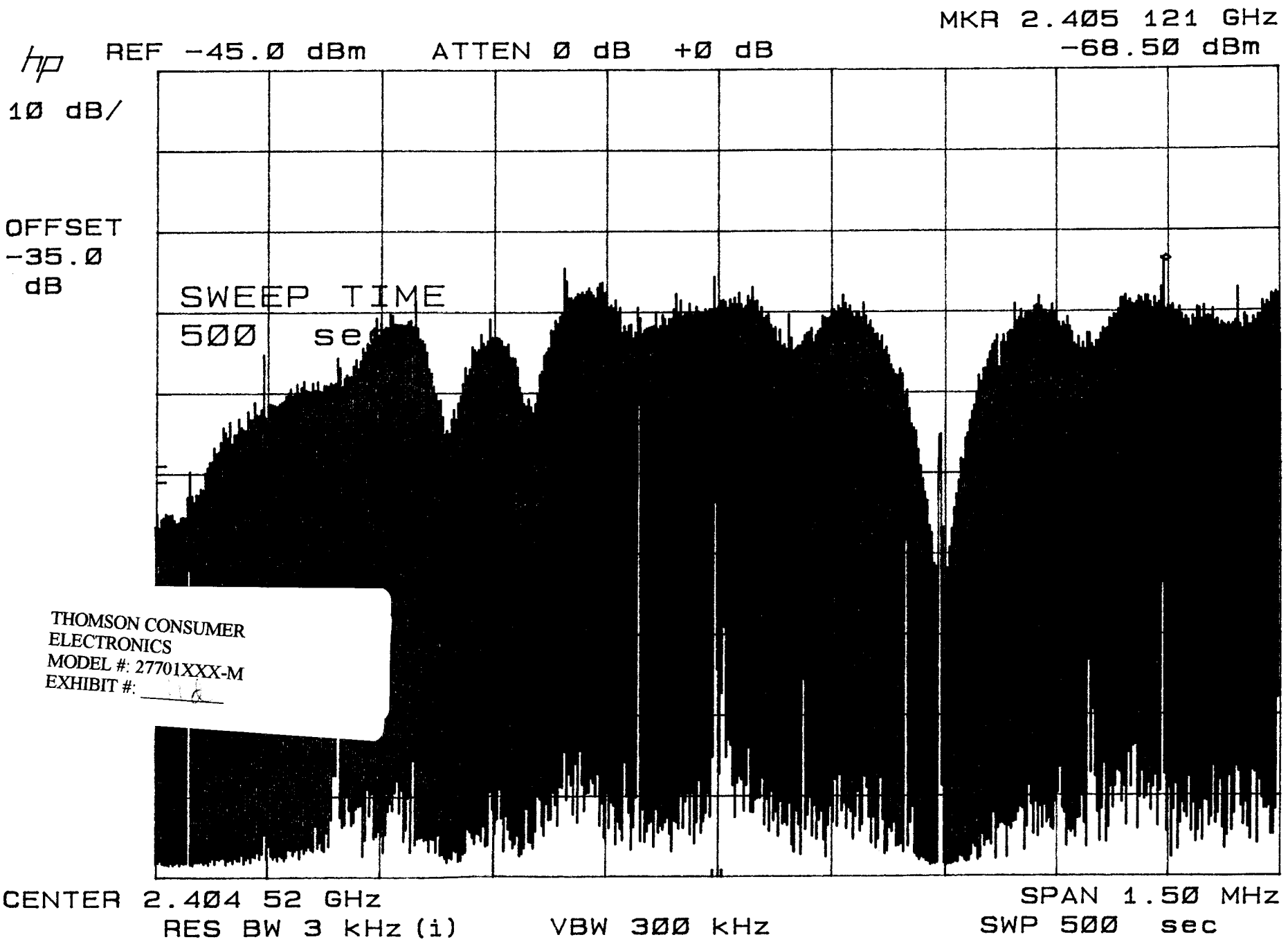

MKR Δ-8.67 MHz
57.60 dB
REF -45.0 dBm
ATTEN 0 dB +0 dB
10 dB/
OFFSET
-35.0
dB
MARKER Δ
-8.67 MHz
57.60 dB
THOMSON CONSUMER
ELECTRONICS
MODEL #: 27701XXX-M
EXHIBIT #:
START 2.470 0 GHz
RES BW 1 MHz (i)
VBW 3 MHz
STOP 2.483 5 GHz
SWP 20.0 msec



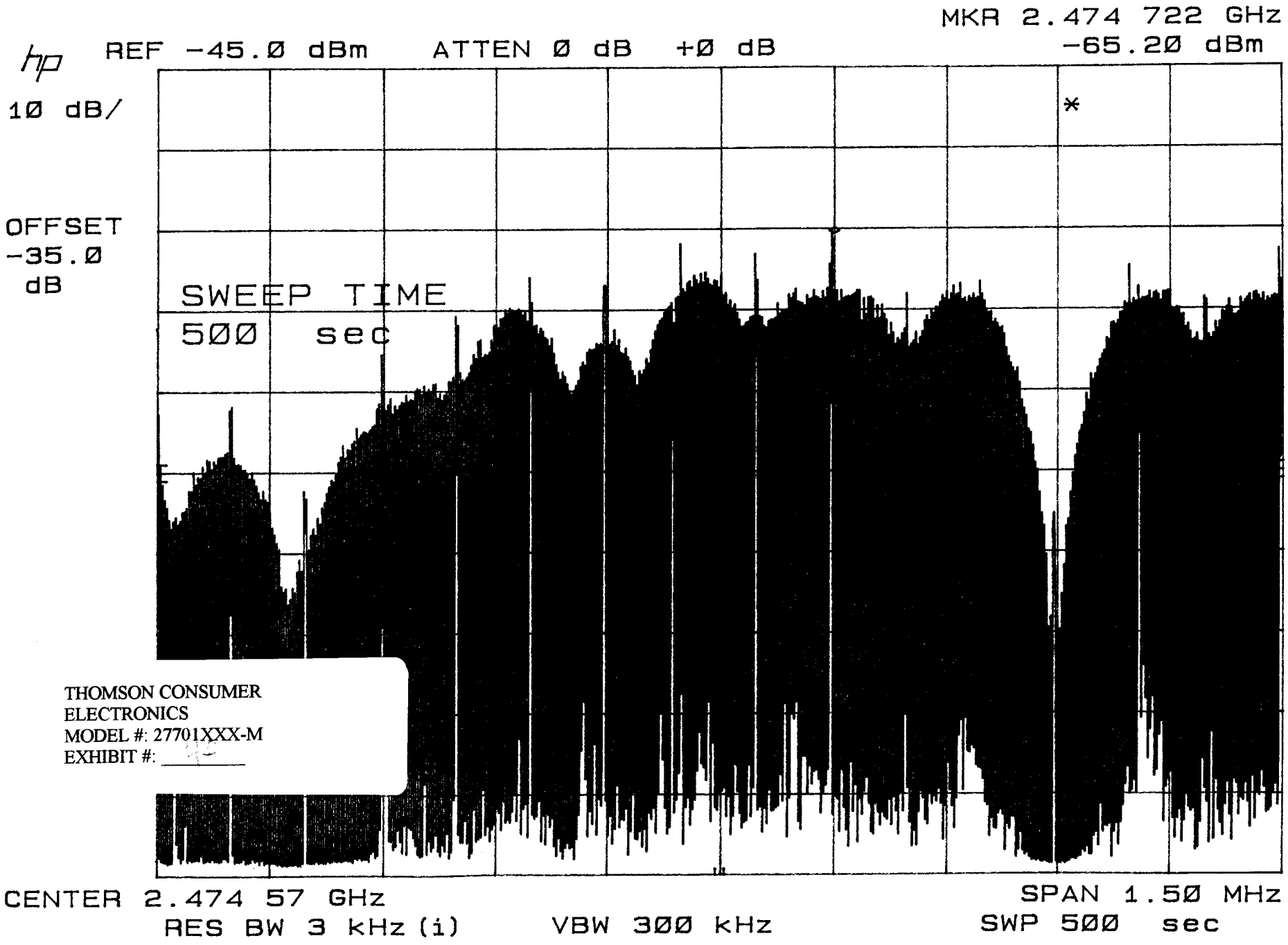
THOMSON CONSUMER
ELECTRONICS
MODEL #: 27701XXX-M
EXHIBIT #: 11a

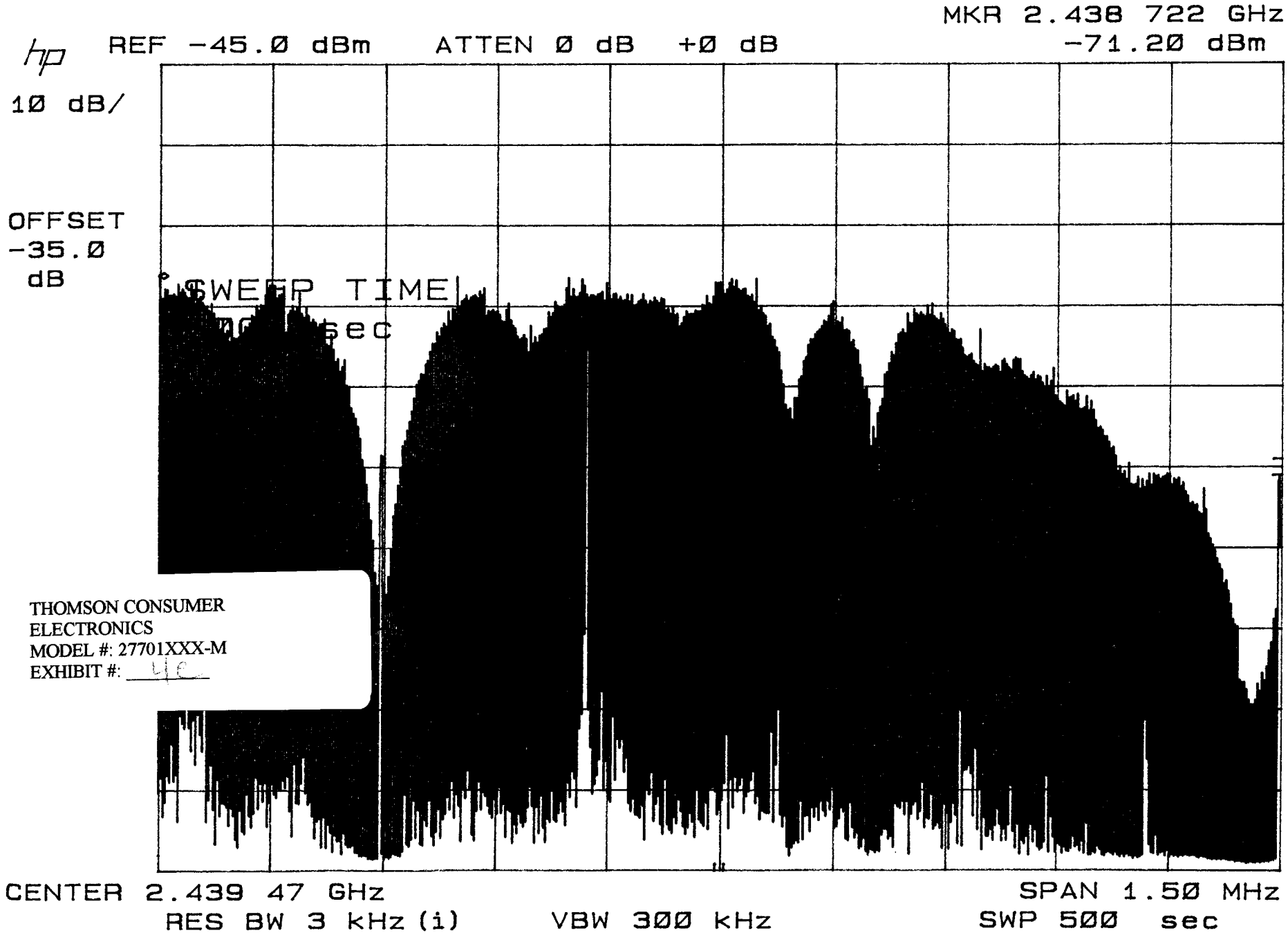

MKR 2.438 724 GHz
-63.90 dBm
REF -48.2 dBm
ATTEN 0 dB +0 dB
10 dB/
OFFSET
-35.0
dB
THOMSON CONSUMER
ELECTRONICS
MODEL #: 27701XXX-M
EXHIBIT #: O
CENTER 2.439 02 GHz
SPAN 1.50 MHz
RES BW 3 kHz (i)
VBW 300 kHz
SWP 500 sec


MKR 2.475 521 GHz
-63.40 dBm
REF -48.2 dBm
ATTEN 0 dB +0 dB
10 dB/
OFFSET
-35.0
dB
THOMSON CONSUMER
ELECTRONICS
MODEL #: 27701XXX-M
EXHIBIT #:
CENTER 2.475 00 GHz
SPAN 1.50 MHz
RES BW 3 kHz (i)
VBW 300 kHz
SWP 500 sec



THOMSON CONSUMER
ELECTRONICS
MODEL #: 27701XXX-M
EXHIBIT #: 6


MKR 2.474 722 GHz
-65.20 dBm
REF -45.0 dBm
ATTEN 0 dB +0 dB
10 dB/
OFFSET
-35.0
dB
SWEEP TIME
500 sec
THOMSON CONSUMER
ELECTRONICS
MODEL #: 27701XXX-M
EXHIBIT #:
CENTER 2.474 57 GHz
SPAN 1.50 MHz
RES BW 3 kHz (i)
VBW 300 kHz
SWP 500 sec



THOMSON CONSUMER
ELECTRONICS
MODEL #: 27701XXX-M
EXHIBIT #: 11E

Processing Gain Measurements from CCT for Model No. 27701XXX-M series 2.4GHz DSST product for Thomson using Conexant's DCT

1. Scope

This document details the results of measurement of the processing gain of a DCT FFF phone with reference to the Code of Federal Regulations, Title 47, Chapter 1, Part 15 Radio Frequency Devices (FCC).

FCC	Federal Communications Commission
SNR	Signal to Noise Ratio
JSR	Jammer to Signal Ratio
CW	Continuous wave (jammer)
HS	Handset
BS	Basestation
DBPSK	Differential Binary Phase Shift Keying

Table 1: Abbreviations

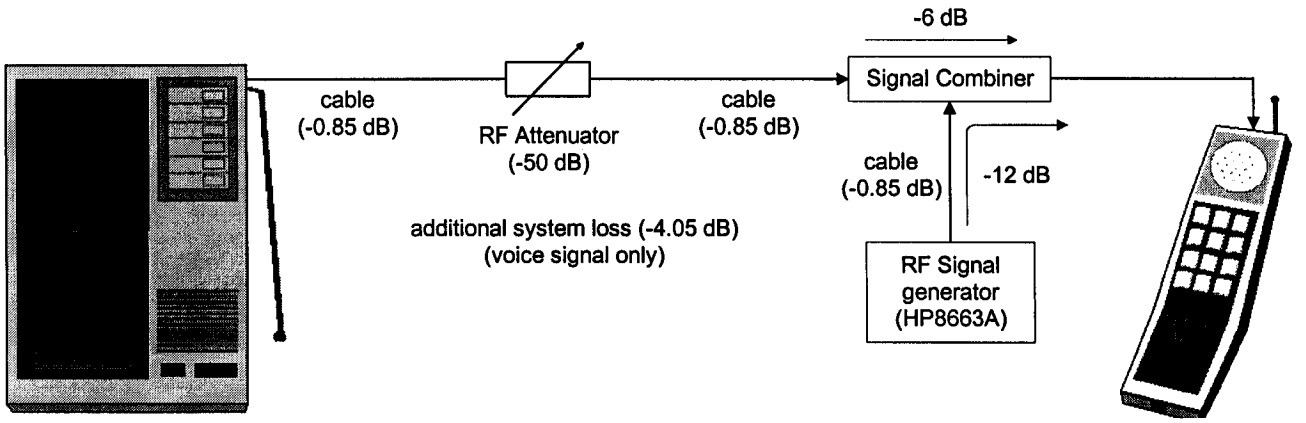
2. An Overview of the FCC Method for measuring Processing Gain

The method is specified by the FCC to measure processing gain. The detailed are in FCC documents 15.247 (e)(1). This involves transmitting a CW jammer in the RF passband of the system and measuring the jammer to signal ratio (JSR) required to achieve a certain bit error rate. The choice of the actual value of the bit error rate is left up to the tester. The jammer is stepped in 50 kHz increments across the entire passband and in each case the JSR to achieve the desired bit error rate is measured. The JSR is measured at the RF input to the system under test. The lowest 20% of the JSR data (in dB) is discarded. The processing gain can then be calculated as follows:-

$$G_p = \left(\frac{S}{N}\right)_{theory} + \left(\frac{J}{S}\right)_{measured} + L_{system}$$

where G_p is the processing gain, the SNR is that theoretically predicted for the system under the test to achieve the desired bit error rate, the JSR is the lowest value (in dB) in the remaining data set and L_{sys} adjusts for non-ideal system losses. L_{sys} can not be greater than 2 dB.

3. Processing Gain Measurement Test Setup



The following parameters were used in the test setup.

HS Tx power (dBm)	-1.9	
BS LNA gain (dB)	0	
Channel attenuation (dB)	-50	
Test system losses (signal) (dB)	-11.75	-4.05 dB (system), -6 dB (signal combiner), -1.7 dB (2 cables)
Test system losses (jammer) (dB)	-12.85	-12 dB (signal combiner), -0.85 dB (cable)

Table 2: Test Setup Parameters

4. Results & Calculation

The following measurement results were taken at the basestation. The desired bit error rate was set at 10^{-3}.

Jammer Frequency (MHz)	BER(BS)	Received jammer Power (dBm)	Received signal Power (dBm)	Jammer/Signal Ratio (dB)
2438.10	9.4x10-4	-59.55	-63.65	4.1
2438.15	9.9x10-4	-59.05	-63.65	4.6
2438.20	9.6x10-4	-57.95	-63.65	5.7
2438.25	9.6x10-4	-60.15	-63.65	3.5
2438.30	9.6x10-4	-64.15	-63.65	-0.5
2438.35	9.6x10-4	-64.25	-63.65	-0.6
2438.40	9.7x10-4	-61.55	-63.65	2.1
2438.45	1.1x10-3	-61.55	-63.65	2.1
2438.50	9.8x10-4	-61.55	-63.65	2.1
2438.55	1.1x10-3	-61.95	-63.65	1.7
2438.60	9.2x10-4	-62.85	-63.65	0.8
2438.65	1.1x10-3	-56.65	-63.65	7
2438.70	1.0x10-3	-59.85	-63.65	3.8
2438.75	1.0x10-3	-61.15	-63.65	2.5
2438.80	1.0x10-3	-56.65	-63.65	7
2438.85	1.1x10-3	-62.05	-63.65	1.6
2438.90	1.0x10-3	-57.65	-63.65	6
2438.95	1.1x10-3	-55.65	-63.65	8
2439.00	1.1x10-3	-55.65	-63.65	8
2439.05	1.0x10-3	-49.35	-63.65	14.3
2439.10	9.9 x10-4	-57.65	-63.65	6
2439.15	1.1x10-3	-59.25	-63.65	4.4
2439.20	1.0x10-3	-62.35	-63.65	1.3
2439.25	9.7x0-4	-59.05	-63.65	4.6
2439.30	1.0x0-3	-61.05	-63.65	2.6
2439.35	9.9x0-4	-62.35	-63.65	1.3
2439.40	1.1x0-3	-62.55	-63.65	1.1
2439.45	9.0x0-4	-61.95	-63.65	1.7
2439.50	1.0x0-3	-61.05	-63.65	2.6
2439.55	9.9x0-4	-62.35	-63.65	1.3
2439.60	1.1x0-3	-64.05	-63.65	-0.4
2439.65	9.2x0-4	-56.25	-63.65	7.4
2439.70	1.0x0-3	-59.85	-63.65	3.8
2439.75	1.1x0-3	-57.25	-63.65	6.4
2439.80	9.2x0-4	-62.35	-63.65	1.3
2439.85	9.9x0-4	-58.15	-63.65	5.5
2439.90	9.9x0-4	-59.15	-63.65	4.5

Table 3: Test Results

For DBPSK at 10^{-3} bit error rate the required SNR is 8.0 dB. Using the results above and the data in the table below the processing gain is calculated to be 11.3 dB.

Required SNR (dB)	8.0
System losses (dB)	2.0
J/S ratio at 80% point (dB)	1.30
FCC Processing gain (dB)	**11.3**

Table 4: Processing Gain Calculation data

Conclusions

The result measured for processing gain of 11.3 dB is close to the actual processing gain due to a 12 chip spreading code of $10 \times \log_{10}(12) = 10.8$ dB

FEDERAL COMMUNICATIONS COMMISSION
Laboratory Division
7435 Oakland Mills Road
Columbia, MD. 21046

December 29, 1999

Registration Number: 95517

Timco Engineering, Inc.
P.O. BOX 370
849 N.W. State Road 45
Newberry, FL 32669

Attention: S Sanders

Re: Measurement facility located at Newberry
3 meter site
Date of Listing: December 22, 1999

Gentlemen:

Your submission of the description of the subject measurement facility has been reviewed and found to be in compliance with the requirements of Section 2.948 of the FCC Rules. The description has, therefore, been placed on file and the name of your organization added to the Commission's list of facilities whose measurement data will be accepted in conjunction with applications for Certification under Parts 15 or 18 of the Commission's Rules. Please note that this filing must be updated for any changes made to the facility, and at least every three years from the date of listing the data on file must be certified as current.

If requested, the above mentioned facility has been added to our list of those who perform these measurement services for the public on a fee basis. An up-to-date list of such public test facilities is available on the Internet on the FCC Website at WWW.FCC.GOV, E-Filing, OET Equipment Authorization Electronic Filing.

Sincerely,

Thomas W. Phillips

Thomas W Phillips
Electronics Engineer