



Intertek Testing Services
ETL SEMKO

Giant Electronics Ltd.

Application
For
Certification

2.4GHz Frequency Hopping Spread Spectrum Cordless Phone with Caller ID
and Digital Answering Machine

(FCC ID: K7G2G4DSS24NS3)

WO# 03084191
TL/Ann Choy
June 18, 2003

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FCC ID: K7G2G4DSS24NS3

Intertek Testing Services Hong Kong Ltd.

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Intertek Testing Services
ETL SEMKO

June 18, 2003

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Dear Mr. Raymond Lau:

Enclosed you will find your file copy of a Part 15 Certification (FCC ID: K7G2G4DSS24NS3).

*For your reference, TCB will normally take another 15-20 days for reviewing the report.
Approval will then be granted when no query is sorted.*

Please contact me if you have any questions regarding the enclosed material.

Sincerely,



*Tommy Leung
Supervisor*

Enclosure

FCC ID: K7G2G4DSS24NS3

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LIST OF EXHIBITS

INTRODUCTION

<i>EXHIBIT 1:</i>	Summary of Tests
<i>EXHIBIT 2:</i>	General Description
<i>EXHIBIT 3:</i>	System Test Configuration
<i>EXHIBIT 4:</i>	Measurement Results
<i>EXHIBIT 5:</i>	Equipment Photographs
<i>EXHIBIT 6:</i>	Product Labelling
<i>EXHIBIT 7:</i>	Technical Specifications
<i>EXHIBIT 8:</i>	Instruction Manual
<i>EXHIBIT 9:</i>	Security Code Information

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MEASUREMENT/TECHNICAL REPORT

Giant Electronics Ltd.- MODEL: OL2410, OL2420, OL2490
FCC ID: K7G2G4DSS24NS3

This report concerns (check one) Original Grant X Class II Change

Equipment Type: DSS-Part 15 Spread Spectrum Transmitter

Deferred grant requested per 47 CFR 0.457(d)(1)(ii)? Yes No X

If yes, defer until :
date

Company Name agrees to notify the Commission by:
date

of the intended date of announcement of the product so that the grant can be issued on that date.

Transition Rules Request per 15.37? Yes No X

If no, assumed Part 15, Subpart C for intentional radiator - the new 47 CFR [08-20-02 Edition] provision.

Report prepared by:

Tommy Leung
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INTERTEK TESTING SERVICES

Table of Contents

1.0 <u>Summary of test results</u>	2
2.0 <u>General Description</u>	4
2.1 Product Description	4
2.2 Related Submittal(s) Grants	5
2.3 Test Methodology	5
2.4 Test Facility	5
3.0 <u>System Test Configuration</u>	7
3.1 Justification	7
3.2 EUT Exercising Software	7
3.3 Support Equipment List and Description	8
3.4 Equipment Modification	9
4.0 <u>Measurement Results</u>	11
4.1 Maximum Conducted Output Power at Antenna Terminals	11
4.2 Maximum 20 dB RF Bandwidth	13
4.3 Minimum Number of Hopping Frequencies	15
4.4 Minimum Hopping Channel Carrier Frequency Separation	16
4.5 Average Time of Occupancy	18
4.6 Out of Band Conducted Emissions	19
4.7 Out of Band Radiated Emissions	20
4.8 Transmitter Radiated Emissions in Restricted Bands	21
4.9 Field Strength Calculation	22
4.10 Radiated Emission Configuration Photograph - Base Unit	23
4.11 Radiated Emission Data - Base Unit	24
4.12 Radiated Emission Configuration Photograph - Handset	28
4.13 Radiated Emission Data - Handset	29
4.14 AC Line Conducted Emission	33
4.15 Line Conducted Configuration Photograph - Base Unit	34
4.16 Line Conducted Emission Configuration Data	35
4.17 Radiated Emission from Digital Section of Transceiver	36
4.18 Transmitter Duty Cycle Calculation and Measurements	39
5.0 <u>Equipment Photographs</u>	41
6.0 <u>Product Labelling</u>	43
7.0 <u>Technical Specifications</u>	45
8.0 <u>Instruction Manual</u>	47
9.0 <u>Security Code Information</u>	49

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List of attached file

Exhibit type	File Description	filename
Test Report	Test Report	report.pdf
Operation Description	Technical Description	descri.pdf
Test Setup Photo	Radiated Emission for Base	config_photos.doc
Test Setup Photo	Radiated Emission for Handset	config_photos.doc
Test Report	Maximum Output Power Plot	bmaxop.pdf, hmaxop.pdf
Test Report	20 dB Bandwidth Plot	b20dB.pdf, h20dB.pdf
Test Report	Minimum Number of Hopping Frequencies	chno.pdf
Test Report	Minimum Hopping Channel Carrier Frequency Separation	bfsepa.pdf, hfsepa.pdf
Test Report	Average Channel Occupancy Time	bavetime.pdf, havetime.pdf
Test Report	Out Band Antenna Conducted Emission Plot	bobantcon.pdf, hobantcon.pdf
Test Report	Duty Cycle Calculation and Measurement	bdcc.pdf, hdcc.pdf
Test Setup Photo	Conducted Emission	config_photos.doc
Test Report	Conducted Emission Test Result	conduct.pdf
External Photo	External Photo	external_photos.doc
Internal Photo	Internal Photo	internal_photos.doc
Block Diagram	Block Diagram	block.pdf
Schematics	Circuit Diagram	circuit.pdf
ID Label/Location	Label Artwork and Location	label.pdf
User Manual	User Manual	manual.pdf
User Manual	FCC Information	FCC information.pdf
RF Exposure Info	RF Safety	RF exposure info.pdf

EXHIBIT 1
SUMMARY OF TEST RESULTS

INTERTEK TESTING SERVICES

1.0 Summary of Test

Giant Electronics Ltd.- MODEL: OL2410
FCC ID: K7G2G4DSS24NS3

TEST	REFERENCE	RESULTS
Max. Output Power	15.247(b)	Pass
Min. No. of Hopping Frequencies	15.247(a)(1)	Pass
Min. Hopping Channel Carrier Frequency Separation	15.247(a)(1)	Pass
Average Time of Occupancy	15.247(a)(1)	Pass
Out of Band Antenna Conducted Emission	15.247(c)	Pass
Radiated Emission in Restricted Bands	15.247(c)	Pass
AC Conducted Emission	15.207	Pass
Radiated Emission from Digital Part	15.109	Pass
Antenna Requirement	15.203	Pass (See Notes)

Notes: The EUT uses a permanently attached antenna which, in accordance to Section 15.203, is considered sufficient to comply with the provisions of this section.

EXHIBIT 2
GENERAL DESCRIPTION

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2.0 **General Description**

2.1 Product Description

The OL2410 is a 2.4GHz Frequency Hopping Spread Spectrum Cordless Phone with Caller ID and Digital Answering Machine. It operates at frequency range of 2401.056 MHz to 2482.272 MHz with 95 hopping frequencies. The unit is capable of either tone or pulse dialing. The internal power supply's isolation is accomplished through a power transformer having an adequate dielectric rating. The circuit wiring is consistent under the requirement of part 68.

The handset unit consists of a keypad with twelve standard keys (0,...9,*,#), nine function keys (Mem, Clear/Del, Int, Redial/Pause, Flash, Prog, Cancel, Up, Down). A Phone key is provided to control pick/release telephone line in a toggle base.

The base unit has a intercom key, which is used to communicate with handset unit.

The antennas used in base unit and handset are integral, and the test sample is a prototype.

The model OL2420 is an additional handset with charger for selling handset standalone, and it is the same as the handset of model OL2410 in hardware aspect. The model OL2490 is putting OL2410 and OL2420 from two separated package into a single package. The difference in model number serves as marketing strategy.

The circuit description and frequency hopping algorithm is saved with filename: descri.pdf.

The hopping engine steps through a sequence, which is taken from a look-up table Flash/ROM. All 95 channels are exercised once after a period of approximately 1 second (95 x 10ms), therefore, usage of channels are equal on average.

The receiver is a single conversion superheterodyne receiver. The channel filtering is realized by a fully integrated low IF band-pass filter at a center frequency of 864kHz (inside the IC). When locked to the transmitter, the receiver is able to predict the next slot channel based on the received RFPI (Radio Fixed Part Identity).

Connection between the device and the telephone network is accomplished through the use of USOC RJ11C in the 2-wire loop calling central office line.

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2.2 Related Submittal(s) Grants

This is an application for Certification of a DSS-Part 15 Spread Spectrum Cordless Telephone System. Two transmitters are included in this application. The device is also subject to Part 68 Registration.

2.3 Test Methodology

Both AC mains line-conducted and 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. All Radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the **"Justification Section"** of this Application. All other measurements were made in accordance with the procedures in part 2 of CFR 47.

2.4 Test Facility

The open area test site and conducted measurement facility used to collect the radiated data is located at Garment Centre, 576 Castle Peak Road, Kowloon, Hong Kong. This test facility and site measurement data have been fully placed on file with the FCC.

EXHIBIT 3
SYSTEM TEST CONFIGURATION

3.0 **System Test Configuration**

3.1 Justification

For emission testing, the equipment under test (EUT) was configured for testing in a typical fashion (as a customer would normally use it). During testing, all cables were manipulated to produce worst case emissions. The handset was powered by a fully charged battery.

For the measurements, the EUT is attached to a cardboard box if necessary and placed on the wooden turntable. If the base unit attaches to peripherals, they are connected and operational (as typical as possible). The handset is remotely located as far from the antenna and the base as possible to ensure full power transmission from the base. Else, the base is wired to transmit full power without modulation.

The signal is maximized through rotation and placement in the three orthogonal axes. The antenna height and polarization are varied during the search for maximum signal level. The antenna height is varied from 1 to 4 meters. Detector function is in peak mode. Radiated emissions are taken at three meters unless the signal level is too low for measurement at that distance. If necessary, a pre-amplifier is used and/or the test is conducted at a closer distance.

All readings are extrapolated back to the equivalent three meter reading using inverse scaling with distance. Analyzer resolution is 100 kHz or greater for frequencies below 1000MHz. The resolution is 1MHz or greater for frequencies above 1000MHz.

Radiated emission measurement were performed from the lowest radio frequency signal generated in the device which is greater than 9kHz to 25GHz.

3.2 EUT Exercising Software

The EUT exercise program used during radiated and conducted testing was designed to exercise the various system components in a manner similar to a typical use.

For emissions testing, the units were setup to transmit continuously to simplify the measurement methodology. Care was taken to ensure proper power supply voltages during testing.

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3.3 Support Equipment List and Description

The FCC ID's for all equipment, plus descriptions of all cables used in the tested system (included inserted cards, which have grants) are:

HARDWARE:

The unit was operated standalone. An AC adapter (provided with the unit) was used to power the device. Its description is listed below.

- (1) AC adapter with two meter unshielded power cord permanently affixed.

CABLES:

- (1) Telecommunication cable with RJ11C connectors (1m, unshielded), terminated

OTHERS:

- (1) A headset for telephone use with 1.2m unshielded cable permanently affixed.
(Supplied by ITS)

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3.4 Equipment Modification

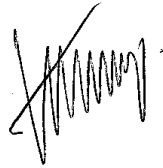
Any modifications installed previous to testing by Giant Electronics Ltd. will be incorporated in each production model sold/leased in the United States.

No modifications were installed by ETL Division, Intertek Testing Services Hong Kong Ltd.

All the items listed under section 2.0 of this report are confirmed by:

Confirmed by:

*Tommy Leung
Supervisor
Intertek Testing Services Hong Kong Ltd.
Agent for Giant Electronics Ltd.*



Signature

June 23, 2003

Date

EXHIBIT 4
MEASUREMENT RESULTS

INTERTEK TESTING SERVICES

Company: Giant Electronics Ltd.
Model: OL2410

Date of Test: May 29, 2003 to June 14, 2003

4.0 Measurement Results

4.1 Maximum Conducted Output Power at Antenna Terminals, FCC Rules 15.247(b) :

- ☐ The antenna power of the EUT was connected to the input of a power meter. Power was read directly and cable loss correction was added to the reading to obtain power at the EUT antenna terminals.
- ☒ The antenna port of the EUT was connected to the input of a spectrum analyzer. The analyzer was set for RBW>20 dB bandwidth and power was read directly in dBm. External attenuation and cable loss were compensated for using the OFFSET function of the analyser.

For antennas with gains of 6 dBi or less, maximum allowed transmitter output is 1 watt (+30 dBm).

For antennas with gains greater than 6 dBi, transmitter output level must be decreased by an amount equal to (GAIN - 6) dBm.

(Base Unit) Antenna Gain = -1.0 dBi			
Frequency (MHz)		Output in dBm	Output in mWatt
Low Channel:	2401.052	22.78	189.67
Middle Channel:	2441.664	23.47	222.33
High Channel:	2482.259	22.84	192.31

Cable loss : 0.5 dB External Attenuation : N/A dB

Cable loss, external attenuation: ☒ included in OFFSET function
☐ added to SA raw reading

EUT Transmit Antenna Gain (dBi) + dBm max. output level = 22.47 dBm (36 dBm or less)

Please refer to the attached plots for details:

Plot B1a: Low Channel Output Power
Plot B1b: Middle Channel Output Power
Plot B1c: High Channel Output Power

INTERTEK TESTING SERVICES

Company: Giant Electronics Ltd.
Model: OL2410

Date of Test: May 29, 2003 to June 14, 2003

Maximum Conducted Output Power at Antenna Terminals, FCC Rules 15.247(b) - Continued:

(Handset Unit) Maximum Antenna Gain = -1.0 dBi		
Frequency (MHz)	Output in dBm	Output in mWatt
Low Channel: 2400.885	19.50	89.1
Middle Channel: 2441.935	19.72	93.8
High Channel: 2482.143	20.75	118.9

Cable loss : 0.5 dB External Attenuation : N/A dB

Cable loss, external attenuation: [x] included in OFFSET function
[] added to SA raw reading

EUT Transmit Antenna Gain (dBi) + dBm max. output level = 19.75 dBm (36 dBm or less)

Please refer to the attached plots for details:

Plot H1a: Low Channel Output Power
Plot H1b: Middle Channel Output Power
Plot H1c: High Channel output Power

For electronic filing, the above plots are saved with filename: bmaxop.pdf, hmaxop.pdf

For RF Safety, the information is saved with filename: RF exposure info.pdf.

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Company: Giant Electronics Ltd.
Model: OL2410

Date of Test: May 29, 2003 to June 14, 2003

4.2 Maximum 20 dB RF Bandwidth, FCC Rule 15.247(a)(1):

The antenna port of the EUT was connected to the input of a spectrum analyzer. Analyzer RES BW was chosen so that the display was a result of the hopping channel modulation. For each RF output channel investigated, the spectrum analyzer center frequency was set to the channel carrier. A PEAK output reading was taken, a DISPLAY line was drawn 20 dB lower than PEAK level. The 20 dB bandwidth was determined from where the channel output spectrum intersected the display line.

(Base Unit)	
Frequency (MHz)	20 dB Bandwidth (kHz)
2441.655	663

Refer to the following plots for 20 dB bandwidth sharp:

Plot B2a: Low Channel 20 dB RF Bandwidth

Plot B2b: Middle Channel 20 dB RF Bandwidth

Plot B2c: High Channel 20 dB RF Bandwidth

For electronic filing, the above plots are saved with filename: b20dB.pdf

INTERTEK TESTING SERVICES

Company: Giant Electronics Ltd.
Model: OL2410

Date of Test: May 29, 2003 to June 14, 2003

Maximum 20 dB RF Bandwidth, FCC Rule 15.247(a)(1) - Continued:

(Handset Unit)	
Frequency (MHz)	20 dB Bandwidth (kHz)
2441.681	690

Refer to the following plots for 20 dB bandwidth sharp:

Plot H2a: Low Channel 20 dB RF Bandwidth

Plot H2b: Middle Channel 20 dB RF Bandwidth

Plot H2c: High Channel 20 dB RF Bandwidth

For electronic filing, the above plots are saved with filename: h20dB.pdf

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Company: Giant Electronics Ltd.
Model: OL2410

Date of Test: May 29, 2003 to June 14, 2003

4.3 Minimum Number of Hopping Frequencies, FCC Rule 15.247(a)(1) :

The RF passband of the EUT was divided into 5 approximately equal bands. With the analyzer set to MAX HOLD readings were taken for 2-3 minutes in each band. The channel peaks so recorded were added together, and the total number compared to the minimum number of channels required in the regulation.

No. of hopping channels	95
-------------------------	----

Minimum Requirements: at least 15 non-overlapping channels for 2400-2483.5MHz.

For electronic filing, the above plots are saved with filename: chno.pdf

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Company: Giant Electronics Ltd.
Model: OL2410

Date of Test: May 29, 2003 to June 14, 2003

4.4 Minimum Hopping Channel Carrier Frequency Separation, FCC Ref: 15.247(a)(1) :

Using the DELTA MARKER function of the analyzer, the frequency separation between two adjacent channels was measured and compared against the limit.

[] 25 kHz [x] 20 dB bandwidth of hopping channel

Channel Separation	836 kHz
--------------------	---------

Plot B4: Channel 47 and Channel 48

For electronic filing, the above plots are saved with filename: bfsepa.pdf

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Company: Giant Electronics Ltd.
Model: OL2410

Date of Test: May 29, 2003 to June 14, 2003

4.4 Minimum Hopping Channel Carrier Frequency Separation, FCC Ref: 15.247(a)(1) - Continued:

Using the DELTA MARKER function of the analyzer, the frequency separation between two adjacent channels was measured and compared against the limit.

[] 25 kHz [x] 20 dB bandwidth of hopping channel

Channel Separation	857 kHz
--------------------	---------

Plot H4: Channel 0 and Channel 1

For electronic filing, the above plots are saved with filename: hfsepa.pdf

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Company: Giant Electronics Ltd.
Model: OL2410

Date of Test: May 29, 2003 to June 14, 2003

4.5 Average Channel Occupancy Time, FCC Ref: 15.247(a)(1)

The spectrum analyzer center frequency was set to one of the known hopping channels. The SWEEP was set to 50ms, the SPAN was set to ZERO SPAN, and the TRIGGER was set to VIDEO. The time duration of the transmission so captured was measured with the MARKER DELTA function.

The SWEEP was then set to the time required by the regulation (20 seconds for 902-928 MHz devices, if the 20 dB bandwidth is less than 250 kHz, 10 seconds for 902-928MHz if the 20 dB bandwidth is or greater than 250 kHz, "0.4 seconds x Number of hopping channels employed" seconds for 2400-2483.5MHz, 30 seconds for 5725-5850MHz). The analyzer was set to SINGLE SWEEP, the total ON time was added and compared against the limit (0.4 seconds).

Average 0.4 seconds maximum occupancy in 38 seconds (0.4sec. x 95) for 2400-2483.5MHz.

Base Unit	
Average Occupancy Time = $771.4\mu\text{s} \times 4 \times 40$	123.4 ms

Refer to attached spectrum analyzer plots B5a and B5b

Hanset Unit	
Average Occupancy Time = $800\mu\text{s} \times 40$	32 ms

Refer to attached spectrum analyzer plots H5a and H5b

For electronic filing, the above plots are saved with filename: bavetime.pdf, havetime.pdf.

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Company: Giant Electronics Ltd.
Model: OL2410

Date of Test: May 29, 2003 to June 14, 2003

4.6 Out of Band Radiated Emissions, FCC Rule 15.247(c):

In any 100 kHz bandwidth outside the EUT passband, the RF power produced by the modulation products of the spreading sequence, the information sequence, and the carrier frequency shall be at least 20 dB below that of the maximum in-band 100 kHz emission, or else shall meet the general limits for radiated emissions at frequencies outside the passband, whichever results in lower attenuation.

All other types of emissions from the EUT shall meet the general limits for radiated frequencies outside the passband.

Refer to the following plots for out of band conducted emissions data:

Plot B6a.1 - B6a.2: Low Channel Emissions
Plot B6b.1 - B6b.2: Middle Channel Emissions
Plot B6c.1 - B6c.2: High Channel Emissions
Plot B6d.1 - B6d.2: Modulation Products Emissions
Plot H6a.1 - H6a.2: Low Channel Emissions
Plot H6b.1 - H6b.2: Middle Channel Emissions
Plot H6c.1 - H6c.2: High Channel Emissions
Plot H6d.1- H6d.2: Modulation Products Emissions

The plots showed the 2nd harmonic and modulation products at the band edges of 2400 MHz and 2483.5 MHz. In addition, all spurious emission and up to the tenth harmonic was measured and they were found to be at least 26 dB below the highest level of the desired power in the passband.

Furthermore, delta measurement technique for measuring bandedge emissions was incorporated in the test of the edge at 2483.5MHz.

For electronic filing, the above plots are saved with filenames: bobantcon.pdf, hobantcon.pdf

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Company: Giant Electronics Ltd.
Model: OL2410

Date of Test: May 29, 2003 to June 14, 2003

4.7 Out of Band Radiated Emissions (for emissions in 4.6 above that are less than 26 dB below carrier), FCC Rule 15.247(c):

For out of band emissions that are close to or that exceed the 20dB attenuation requirement described in the specification, radiated measurements were performed at a 3m separation distance to determine whether these emissions complied with the general radiated emission requirement.

- ☒ Not required, all emissions more than 26dB below fundamental
☐ See attached data sheet

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Company: Giant Electronics Ltd.
Model: OL2410

Date of Test: May 29, 2003 to June 14, 2003

4.8 Transmitter Radiated Emissions in Restricted Bands, FCC Rule 15.35(b), (c):

Data is included of the worst case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs and data tables of the emissions are included. All measurements were performed with peak detection unless otherwise specified.

The data on the following pages list the significant emission frequencies, the limit and the margin of compliance.

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Company: Giant Electronics Ltd.
Model: OL2410

Date of Test: May 29, 2003 to June 14, 2003

4.9 Field Strength Calculation

The field strength is calculated by adding the reading on the Spectrum Analyzer to the factors associated with preamplifiers (if any), antennas, cables, pulse desensitization and average factors (when specified limit is in average and measurements are made with peak detectors). A sample calculation is included below.

$$FS = RA + AF + CF - AG + PD + AV$$

where FS = Field Strength in dB μ V/m

RA = Receiver Amplitude (including preamplifier) in dB μ V

CF = Cable Attenuation Factor in dB

AF = Antenna Factor in dB

AG = Amplifier Gain in dB

PD = Pulse Desensitization in dB

AV = Average Factor in -dB

In the radiated emission table which follows, the reading shown on the data table may reflect the preamplifier gain. An example of the calculations, where the reading does not reflect the preamplifier gain, follows:

$$FS = RA + AF + CF - AG + PD + AV$$

Example

Assume a receiver reading of 62.0 dB μ V is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted. The pulse desensitization factor of the spectrum analyzer was 0 dB, and the resultant average factor was -10 dB. The net field strength for comparison to the appropriate emission limit is 32 dB μ V/m. This value in dB μ V/m was converted to its corresponding level in μ V/m.

$$RA = 62.0 \text{ dB}\mu\text{V}$$

$$AF = 7.4 \text{ dB}$$

$$CF = 1.6 \text{ dB}$$

$$AG = 29.0 \text{ dB}$$

$$PD = 0 \text{ dB}$$

$$AV = -10 \text{ dB}$$

$$FS = 62 + 7.4 + 1.6 - 29 + 0 + (-10) = 32 \text{ dB}\mu\text{V/m}$$

$$\text{Level in mV/m} = \text{Common Antilogarithm} [(32 \text{ dB}\mu\text{V/m})/20] = 39.8 \mu\text{V/m}$$

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Company: Giant Electronics Ltd.
Model: OL2410

Date of Test: May 29, 2003 to June 14, 2003

4.10 Radiated Emission Configuration Photograph - Base Unit

Worst Case Radiated Emission
at
7446.816MHz

For electronic filing, the worst case radiated emission configuration photographs are saved with filename: config photos.doc

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Company: Giant Electronics Ltd.
Model: OL2410

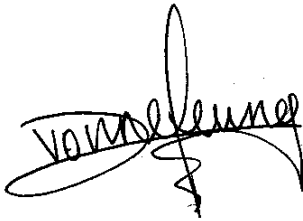
Date of Test: May 29, 2003 to June 14, 2003

4.11 Radiated Emission Data - Base Unit

The data on the following pages list the significant emission frequencies, the limit and the margin of compliance.

Judgement : Passed by 7.9dB

TEST PERSONNEL:



Tester Signature

Yvonne Leung, Engineer
Typed/Printed Name

June 18, 2003
Date

INTERTEK TESTING SERVICES

Company: Giant Electronics Ltd.
Model: OL2410
Mode : TX-Channel 0

Date of Test: May 29, 2003 to June 14, 2003

Table 1, Base Unit

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dB μ V)	Antenna Factor (dB)	Pre-Amp Gain (dB)	Average Factor (-dB)	Net 3m at (dB μ V/m)	Limit at 3m (dB μ V/m)	Margin (dB)
H	*4802.112	59.6	34.0	34	16.5	43.1	54	-10.9
H	*12005.280	48.3	40.2	34	16.5	38.0	54	-16.0
H	*19208.448	44.7	45.3	34	16.5	39.5	54	-14.5

NOTES: 1. Peak Detector data

2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative value in the margin column shows emission below limit.

4. Horn antenna and average detector are used for the emission over 1000MHz.

* Emission within the restricted band meets the requirement of part 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

Test Engineer: Yvonne Leung

INTERTEK TESTING SERVICES

Company: Giant Electronics Ltd.
Model: OL2410
Mode : TX-Channel 47

Date of Test: May 29, 2003 to June 14, 2003

Table 2, Base Unit

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dB μ V)	Antenna Factor (dB)	Pre-Amp Gain (dB)	Average Factor (-dB)	Net 3m at (dB μ V/m)	Limit at 3m (dB μ V/m)	Margin (dB)
H	*4883.328	53.0	34.0	34	10.2	42.8	54	-11.2
H	*7324.992	53.2	37.0	34	10.2	46.0	54	-8.0
H	*12208.320	42.5	40.2	34	10.2	38.5	54	-15.5
H	*19533.312	37.7	45.3	34	10.2	38.8	54	-15.2

NOTES: 1. Peak Detector data

2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative value in the margin column shows emission below limit.

4. Horn antenna and average detector are used for the emission over 1000MHz.

* Emission within the restricted band meets the requirement of part 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

Test Engineer: Yvonne Leung

INTERTEK TESTING SERVICES

Company: Giant Electronics Ltd.
Model: OL2410
Mode : TX-Channel 94

Date of Test: May 29, 2003 to June 14, 2003

Table 3, Base Unit

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dB μ V)	Antenna Factor (dB)	Pre-Amp Gain (dB)	Average Factor (-dB)	Net 3m at (dB μ V/m)	Limit at 3m (dB μ V/m)	Margin (dB)
H	**2482.272	120.5	29.1	34	10.2	105.4	---	---
H	*4964.544	54.1	34.0	34	10.2	43.9	54	-10.1
H	*7446.816	53.3	37.0	34	10.2	46.1	54	-7.9
H	*12411.360	41.9	40.2	34	10.2	37.9	54	-16.1
H	*19858.176	38.4	45.3	34	10.2	39.5	54	-14.5

NOTES: 1. Peak Detector data

2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative value in the margin column shows emission below limit.

4. Horn antenna and average detector are used for the emission over 1000MHz.

* Emission within the restricted band meets the requirement of part 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

** Fundamental emission was measured for determining band-edge compliance of using delta measurement technique.

Test Engineer: Yvonne Leung

INTERTEK TESTING SERVICES

Company: Giant Electronics Ltd.
Model: OL2410

Date of Test: May 29, 2003 to June 14, 2003

4.12 Radiated Emission Configuration Photograph - Handset

Worst Case Radiated Emission
at
4964.544MHz

For electronic filing, the worst case radiated emission configuration photographs are saved with filename: config photos.doc

INTERTEK TESTING SERVICES

Company: Giant Electronics Ltd.
Model: OL2410

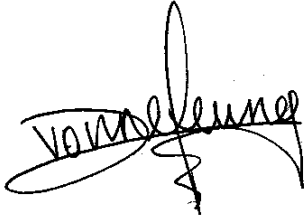
Date of Test: May 29, 2003 to June 14, 2003

4.13 Radiated Emission Data - Handset

The data on the following pages list the significant emission frequencies, the limit and the margin of compliance.

Judgement : Passed by 21.5dB

TEST PERSONNEL:



Tester Signature

Yvonne Leung, Engineer

Typed/Printed Name

June 18, 2003

Date

INTERTEK TESTING SERVICES

Company: Giant Electronics Ltd.
Model: OL2410
Mode : TX-Channel 0

Date of Test: May 29, 2003 to June 14, 2003

Table 4, Handset

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBμV)	Antenna Factor (dB)	Pre-Amp Gain (dB)	Average AVG (-dB)	Net 3m at (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
H	*4802.112	49.7	34.0	34	21.9	27.8	54	-26.2
H	*12005.280	44.9	40.2	34	21.9	29.2	54	-24.8

NOTES: 1. Peak Detector data

2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative value in the margin column shows emission below limit.

4. Horn antenna and average detector are used for the emission over 1000MHz.

* Emission within the restricted band meets the requirement of part 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

Test Engineer: Yvonne Leung

INTERTEK TESTING SERVICES

Company: Giant Electronics Ltd.
Model: OL2410
Mode : TX-Channel 47

Date of Test: May 29, 2003 to June 14, 2003

Table 5, Handset

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dB μ V)	Antenna Factor (dB)	Pre-Amp Gain (dB)	Average AVG (-dB)	Net 3m at (dB μ V/m)	Limit at 3m (dB μ V/m)	Margin (dB)
H	*4883.328	52.6	34.0	34	21.9	30.7	54	-23.3
H	*7324.992	47.6	37.0	34	21.9	28.7	54	-25.3
H	*12208.320	45.2	40.2	34	21.9	29.5	54	-24.5

NOTES: 1. Peak Detector data

2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative value in the margin column shows emission below limit.

4. Horn antenna and average detector are used for the emission over 1000MHz.

* Emission within the restricted band meets the requirement of part 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

Test Engineer: Yvonne Leung

INTERTEK TESTING SERVICES

Company: Giant Electronics Ltd.
Model: OL2410
Mode : TX-Channel 94

Date of Test: May 29, 2003 to June 14, 2003

Table 6, Handset

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBμV)	Antenna Factor (dB)	Pre-Amp Gain (dB)	Average AVG (-dB)	Net 3m at (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
H	**2482.272	115.6	29.1	34	21.9	88.8	---	---
H	*4964.544	54.4	34.0	34	21.9	32.5	54	-21.5
H	*7446.816	47.0	37.0	34	21.9	28.1	54	-25.9
H	*12411.360	44.8	40.2	34	21.9	29.1	54	-24.9

NOTES: 1. Peak Detector data

2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative value in the margin column shows emission below limit.

4. Horn antenna and average detector are used for the emission over 1000MHz.

* Emission within the restricted band meets the requirement of part 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

** Fundamental emission was measured for determining band-edge compliance of using delta measurement technique.

Test Engineer: Yvonne Leung

INTERTEK TESTING SERVICES

Company: Giant Electronics Ltd.
Model: OL2410

Date of Test: May 29, 2003 to June 14, 2003

4.14 AC Line Conducted Emission, FCC Rule 15.207:

☐ Not required; battery operation only

☒ Test data attached

INTERTEK TESTING SERVICES

Company: Giant Electronics Ltd.
Model: OL2410

Date of Test: May 29, 2003 to June 14, 2003

4.15 Line Conducted Configuration Photograph - Base

Worst Case Line-Conducted Configuration

For electronic filing, the worst case line conducted configuration photographs are saved with filename: config photos.doc

INTERTEK TESTING SERVICES

Company: Giant Electronics Ltd.
Model: OL2410

Date of Test: May 29, 2003 to June 14, 2003

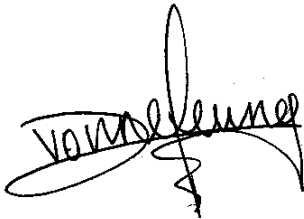
4.16 Line Conducted Emission Data

The data on the following pages list the significant emission frequencies, the limit, and the margin of compliance.

Judgement : Passed by more than 20dB margin

For electronic filing, the worst case line conducted emission data are saved with filename: conduct.pdf

TEST PERSONNEL:



Tester Signature

Yvonne Leung, Engineer

Typed/Printed Name

June 18, 2003

Date

INTERTEK TESTING SERVICES

Company: Giant Electronics Ltd.
Model: OL2410

Date of Test: May 29, 2003 to June 14, 2003

4.17 Radiated Emissions from Digital Section of Transceiver (Transmitter), FCC Ref: 15.109

☐ Not required - No digital part

☒ Test results are attached

☐ Included in the separated DOC report.

INTERTEK TESTING SERVICES

Company: Giant Electronics Ltd.
Model: OL2410

Date of Test: May 29, 2003 to June 14, 2003

Table 7, Base Unit

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dB μ V)	Antenna Factor (dB)	Pre-Amp Gain (dB)	Net at 3m (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
H	109.108	43.8	12.2	16	40.0	43.5	-3.5
H	113.230	44.4	12.6	16	41.0	43.5	-2.5
H	138.160	38.2	11.9	16	34.1	43.5	-9.4
H	168.306	42.7	13.8	16	40.5	43.5	-3.0
H	217.726	37.8	11.8	16	33.6	46.0	-12.4
H	238.463	39.6	11.4	16	35.0	46.0	-11.0
H	259.200	43.2	12.4	16	39.6	46.0	-6.4
H	300.674	41.7	14.3	16	40.0	46.0	-6.0
H	321.411	43.0	14.3	16	41.3	46.0	-4.7
H	342.148	39.4	14.6	16	38.0	46.0	-8.0

- NOTES:
1. Quasi-peak detector is used for the emission below or equal to 1000 MHz.
 2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.
 3. Negative value in the margin column shows emission below limit.
 4. Horn antenna and average detector are used for the emission over 1000MHz.

Test Engineer: Yvonne Leung

INTERTEK TESTING SERVICES

Company: Giant Electronics Ltd.
Model: OL2410

Date of Test: May 29, 2003 to June 14, 2003

Table 8, Handset

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dB μ V)	Antenna Factor (dB)	Pre-Amp Gain (dB)	Net at 3m (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
V	31.098	36.4	11.6	16	32.0	40.0	-8.0
V	41.395	35.2	11.7	16	30.9	40.0	-9.1
H	51.269	33.8	11.7	16	29.5	40.0	-10.5
H	59.826	34.3	11.0	16	29.3	40.0	-10.7
H	63.454	34.5	9.9	16	28.4	40.0	-11.6

- NOTES:
1. Quasi-peak detector is used for the emission below or equal to 1000 MHz
 2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.
 3. Negative value in the margin column shows emission below limit.
 4. Horn antenna and average detector are used for the emission over 1000MHz.

Test Engineer: Yvonne Leung

INTERTEK TESTING SERVICES

Company: Giant Electronics Ltd.
Model: OL2410

Date of Test: May 29, 2003 to June 14, 2003

4.18 Transmitter Duty Cycle Calculation and Measurements, FCC Rule 15.35(b), (c)

The EUT antenna output port was connected to the input of the spectrum analyzer. The analyzer center frequency was set to EUT RF channel carrier. The SWEP function on the analyzer was set to ZERO SPAN. The transmitter ON time was determined from the resultant time-amplitude display:

Base Unit:

Duty cycle = Maximum ON time is 0.7714msec x 4 = 3.09/10msec for four handsets operation

$$\begin{aligned}\text{Duty cycle correction, dB} &= 20 * \log (\text{DC}) \\ &= 20 * \log (0.309) \\ &= -10.2 \text{ dB}\end{aligned}$$

Handset:

Duty cycle = Maximum ON time is 0.8msec/10msec

$$\begin{aligned}\text{Duty cycle correction, dB} &= 20 * \log (\text{DC}) \\ &= 20 * \log (0.08) \\ &= -21.9 \text{ dB}\end{aligned}$$

X	See attached spectrum analyzer chart (s) for transmitter timing Base Unit: Plot B7, Plot H7
	See transmitter timing diagram provided by manufacturer
	Not applicable, duty cycle was not used.

For electronic filing, the above plots are saved with filenames: bdcc.pdf, hdcc.pdf.

EXHIBIT 5
EQUIPMENT PHOTOGRAPHS

5.0 **Equipment Photographs**

For electronic filing, the photographs are saved with filename: external photos.doc & internal photos.doc

EXHIBIT 6
PRODUCT LABELLING

6.0 **Product Labelling**

For electronic filing, the FCC ID label artwork and location is saved with filename: label.pdf

EXHIBIT 7
TECHNICAL SPECIFICATIONS

7.0 **Technical Specifications**

For electronic filing, the block diagram and circuit diagram are saved with filename: block.pdf and circuit.pdf respectively.

EXHIBIT 8
INSTRUCTION MANUAL

INTERTEK TESTING SERVICES

8.0 Instruction Manual

For electronic filing, a preliminary copy of the Instruction Manual is saved with filename: manual.pdf.

Please note that the required FCC Information to the User is saved with filename: FCC information.pdf.

This manual will be provided to the end-user with each unit sold/leased in the United States.

EXHIBIT 9
SECURITY CODE INFORMATION

9.0 Security code information

The OL2410 has at least 2^4 discrete digital codes, and the code is automatically generated during registration and send through the charging terminals to the base and the base confirms over the air.

REF 30.5 dBm
10dB/

ATT 40 dB

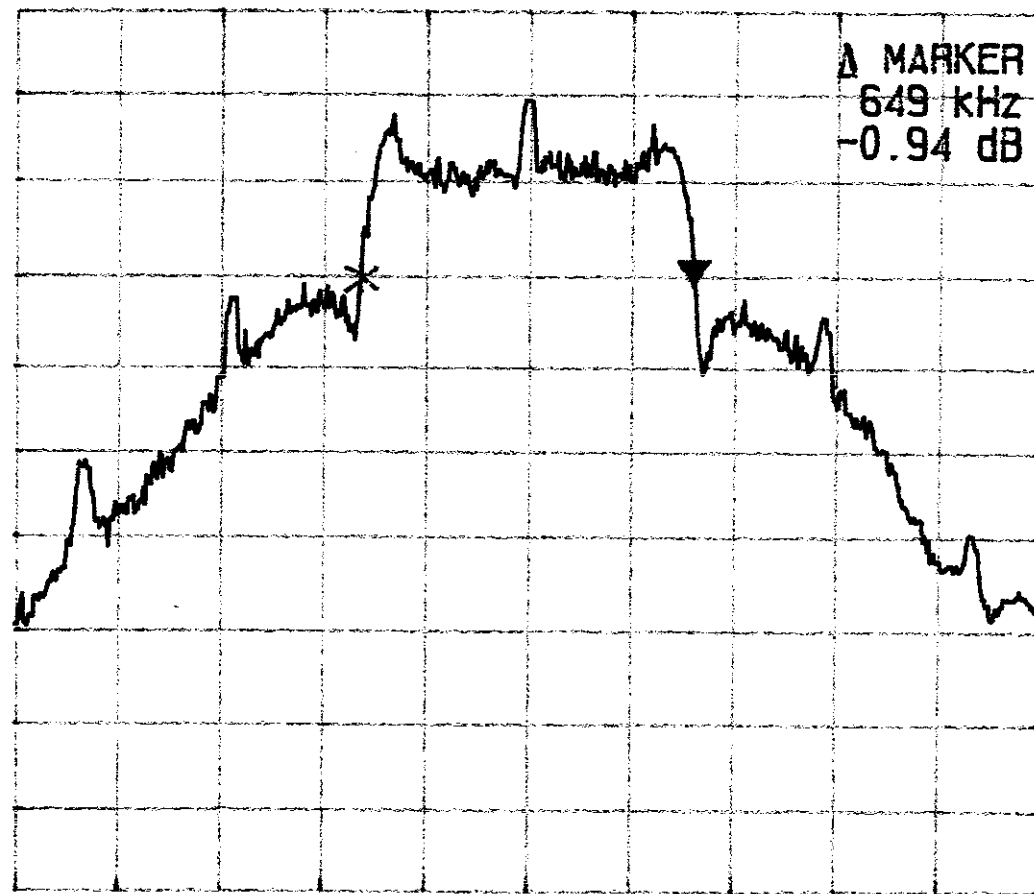
A_view B_blank

Δ MKR
649 kHz

Δ MARKER
649 kHz
-0.94 dB

REF OFS
0.5 dB

RBW
10 kHz
VBW
3 MHz
SWP
50 ms



CENTER 2.401039 GHz

SPAN 2.000 MHz

Plot B2a

REF 30.5 dBm
10dB/

ATT 40 dB

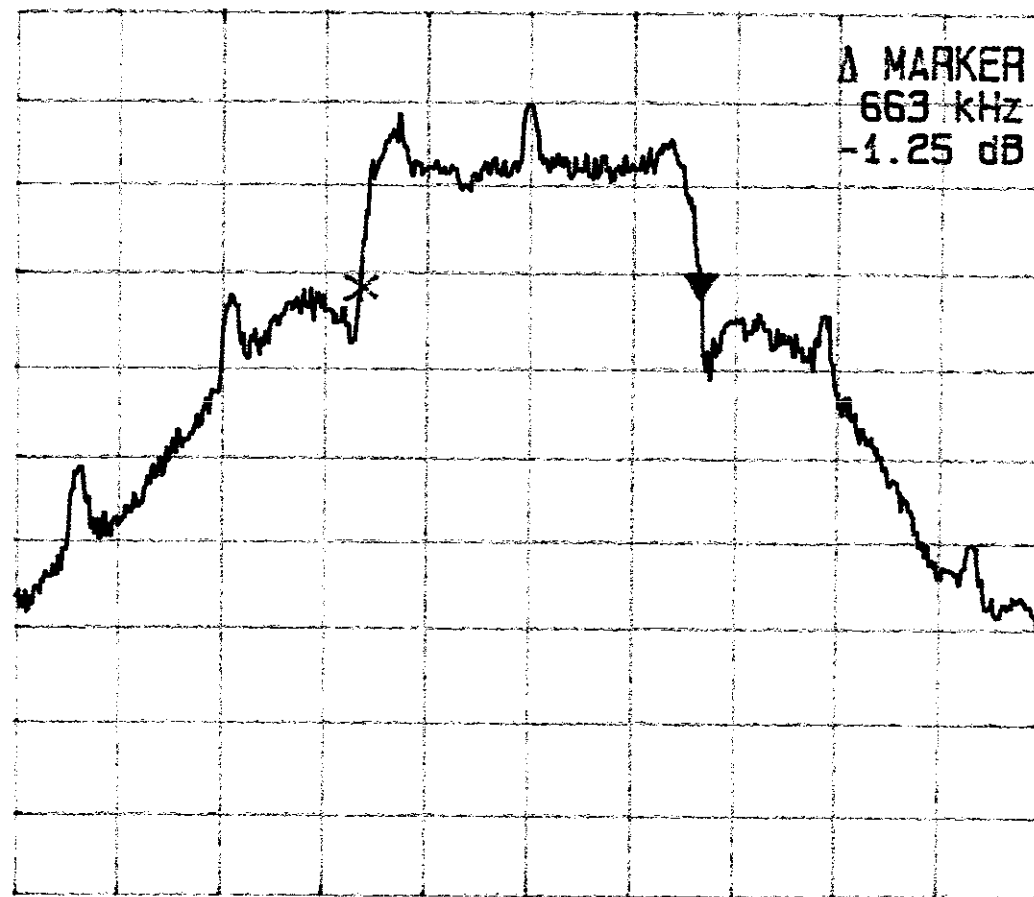
A_view 3_plank

Δ MKR
663 kHz

Δ MARKER
663 kHz
-1.25 dB

REF OFS
0.5 dB

RBW
10 kHz
VBW
3 MHz
SWP
50 ms



CENTER 2.441655 GHz

SPAN 2.000 MHz

Plot B2b

REF 30.5 dBm
10dB/

ATT 40 dB

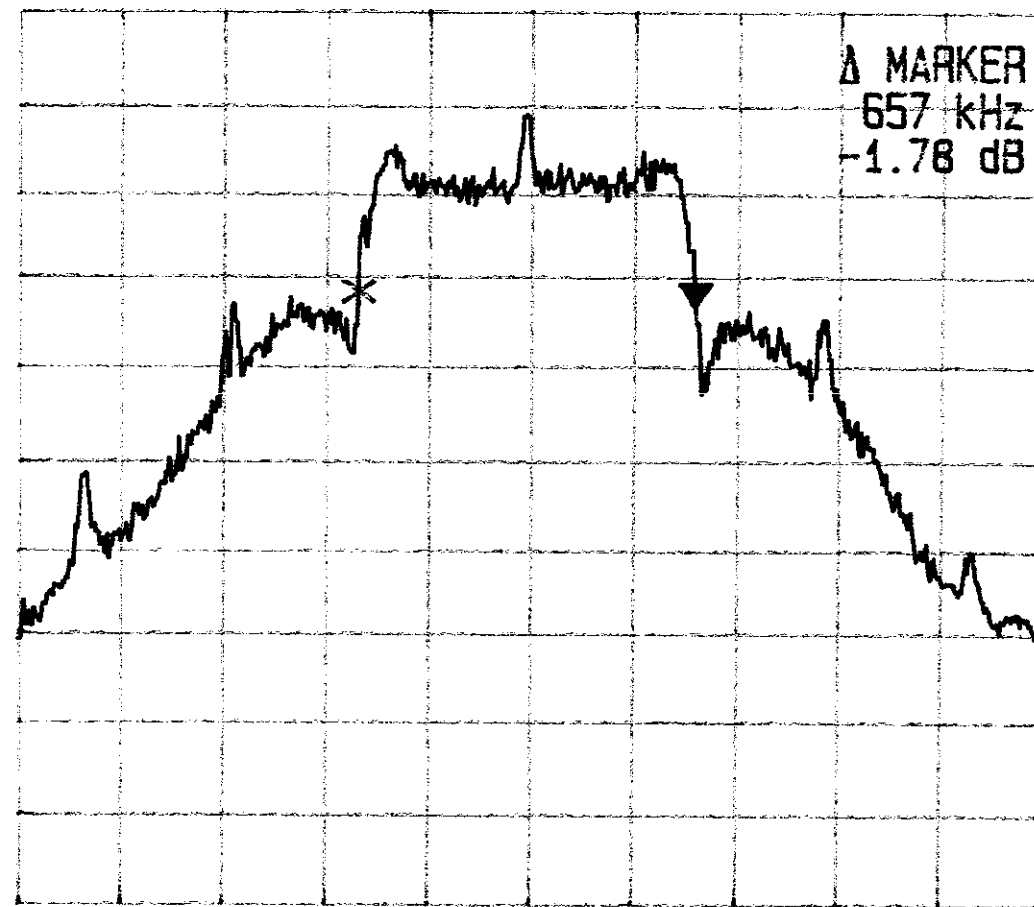
A_view 3_plank

Δ MKR
657 kHz

Δ MARKER
657 kHz
-1.78 dB

REF OFS
0.5 dB

RBW
10 kHz
VBW
3 MHz
SWP
50 ms



CENTER 2.482258 GHz

SPAN 2.000 MHz

Plot B2c

REF 30.0 dBm
10dB/

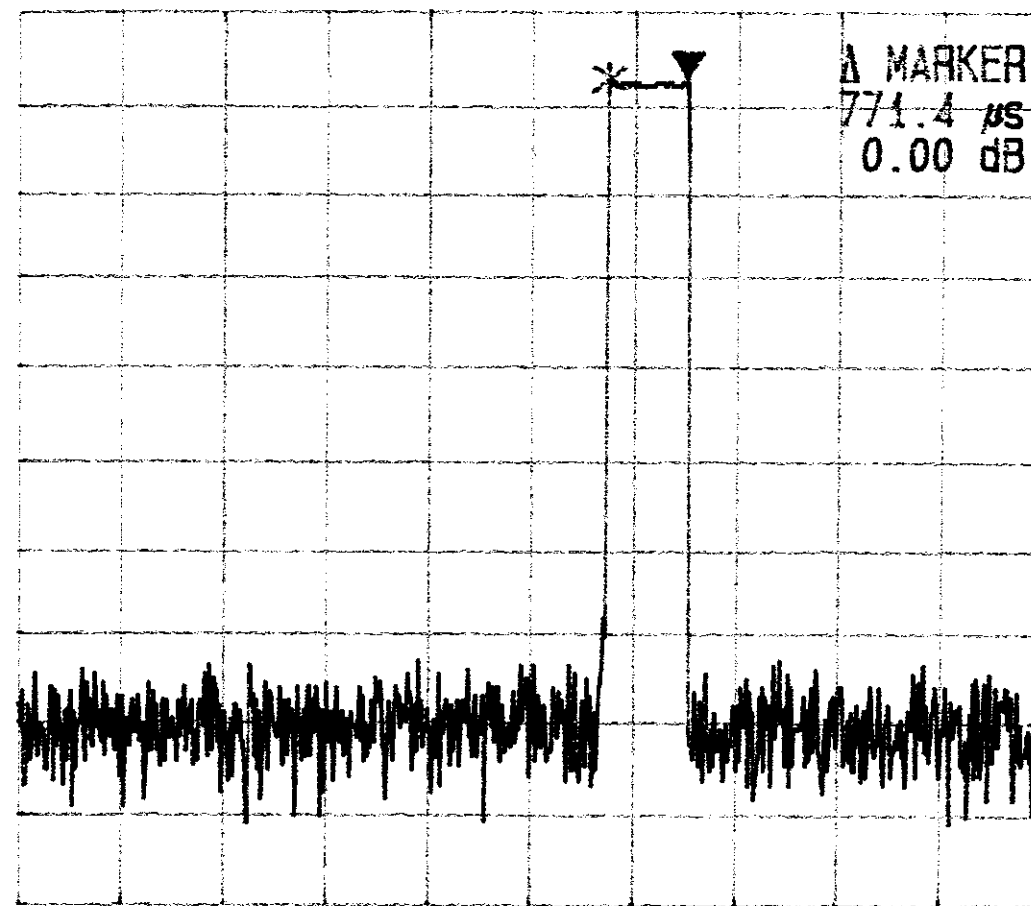
ATT 40 dB

A_view 3_plank

Δ MKR
771.4 μs

Δ MARKER
771.4 μs
0.00 dB

RBW
1 MHz
VBW
1 MHz
SWP
10 ms



CENTER 2.441664000 GHz

SPAN 0 Hz

Plot B5a

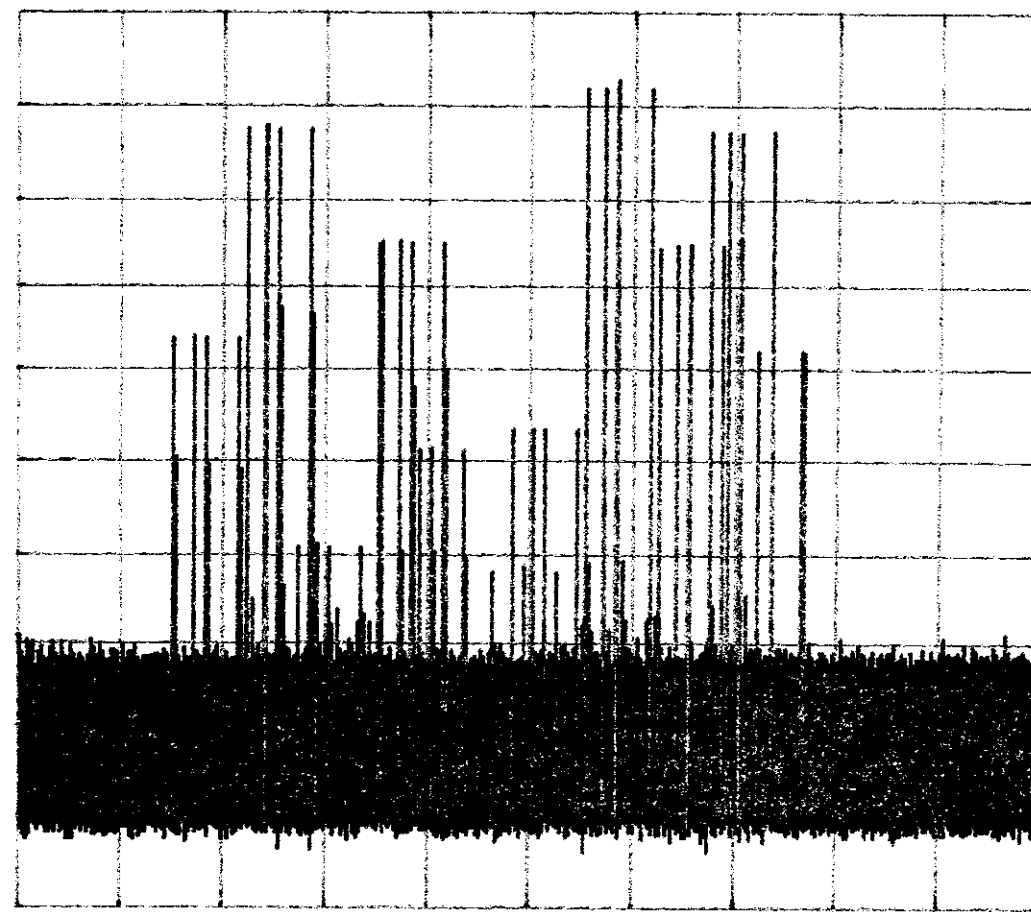
REF 30.0 dBm
10dB/

ATT 40 dB

A_view B_blank

Plot B5b

RBW
1 MHz
VBW
1 MHz
SWP
1.0 s



CENTER 2.441664000 GHz

SPAN 0 Hz

REF 30.0 dBm
10dB/

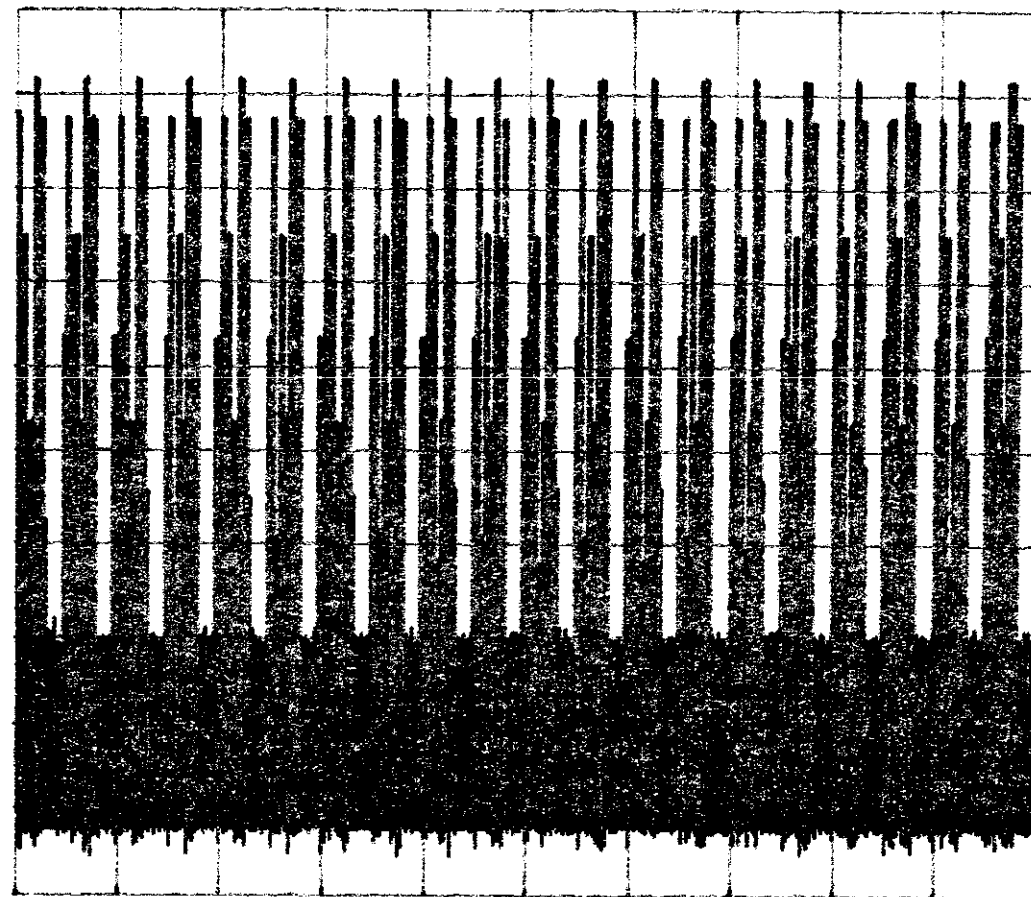
ATT 40 dB

A_view B_blank

Plt B5c

SWP
19 s

RBW
1 MHz
VBW
1 MHz
SWP
19 s



CENTER 2.441664000 GHz

SPAN 0 Hz

REF 30.0 dBm
10dB/

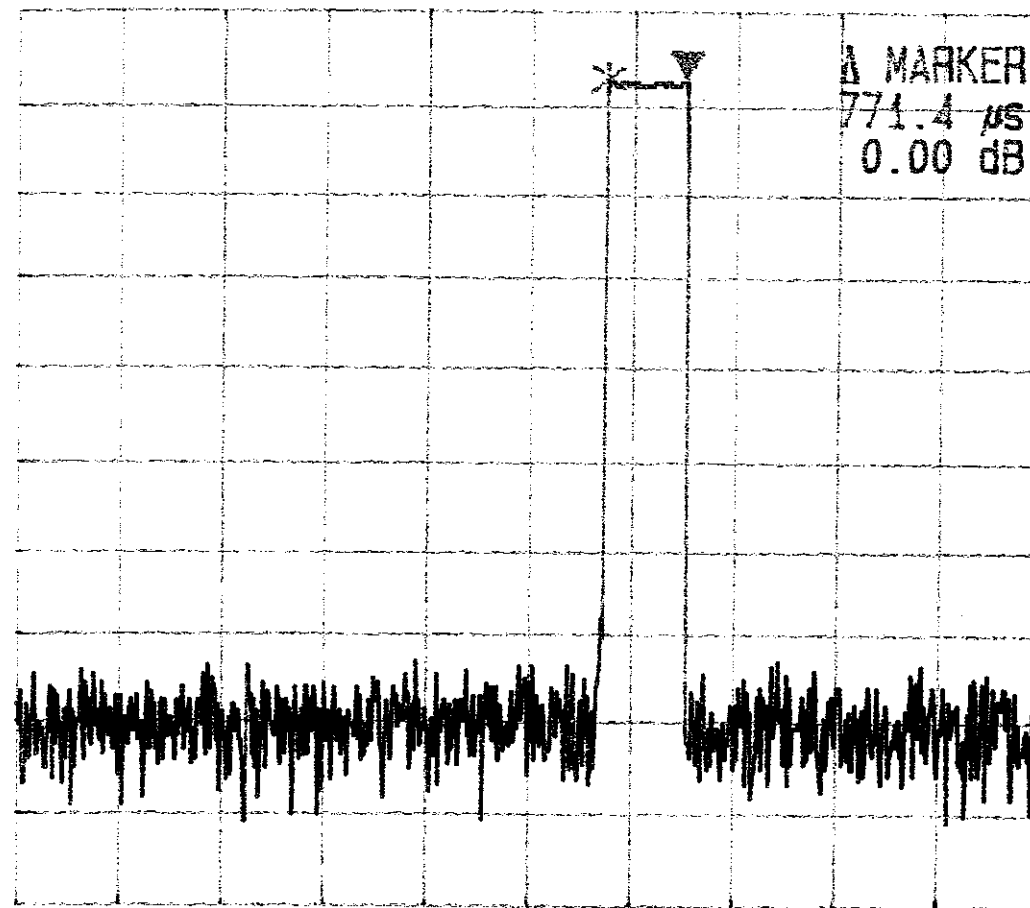
ATT 40 dB

A_view B_plank

Δ MKR
771.4 μs

Δ MARKER
771.4 μs
0.00 dB

RBW
1 MHz
VBW
1 MHz
SWP
10 ms



CENTER 2.441664000 GHz

SPAN 0 Hz

Plot B7

REF 30.5 dBm
10dB/

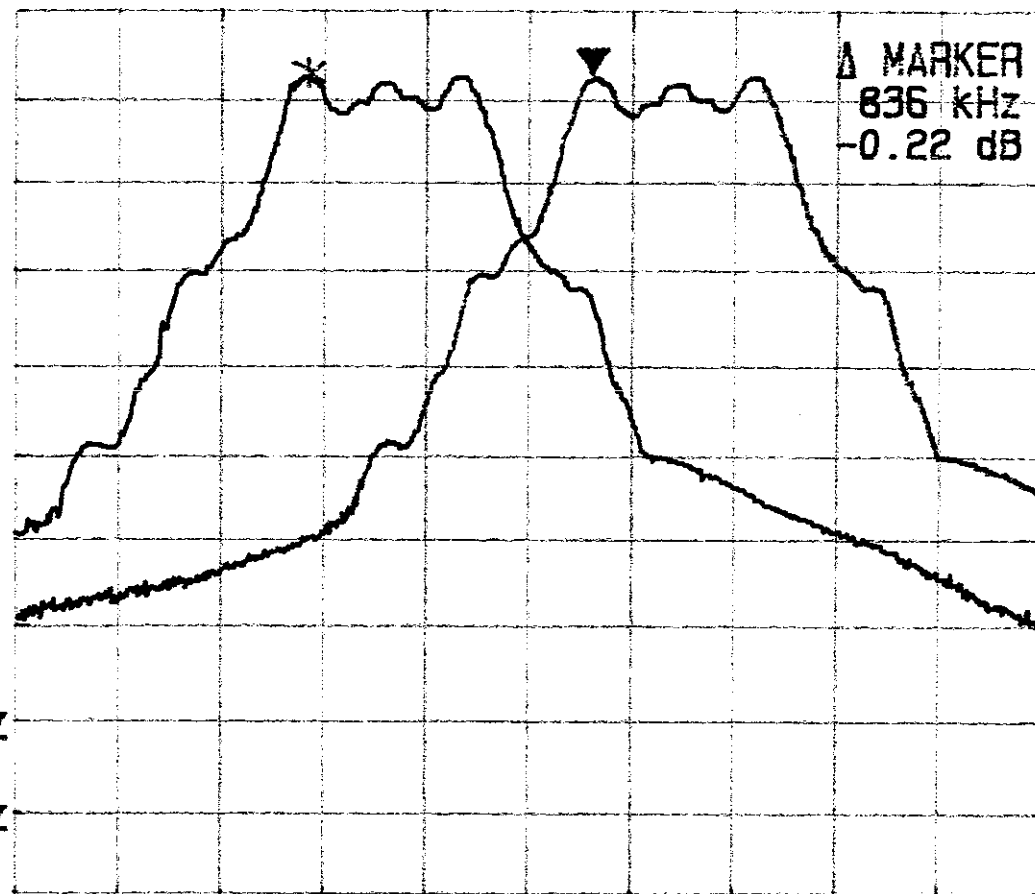
ATT 40 dB

A_view B_view

A MKR
836 kHz

REF OFS
0.5 dB

RBW
100 kHz
VBW
100 kHz
SWP
50 ms



CENTER 2.442096 GHz

SPAN 3.00 MHz

Plot B4

REF 30.5 dBm
10dB/

ATT 40 dB

A_view 8_plank

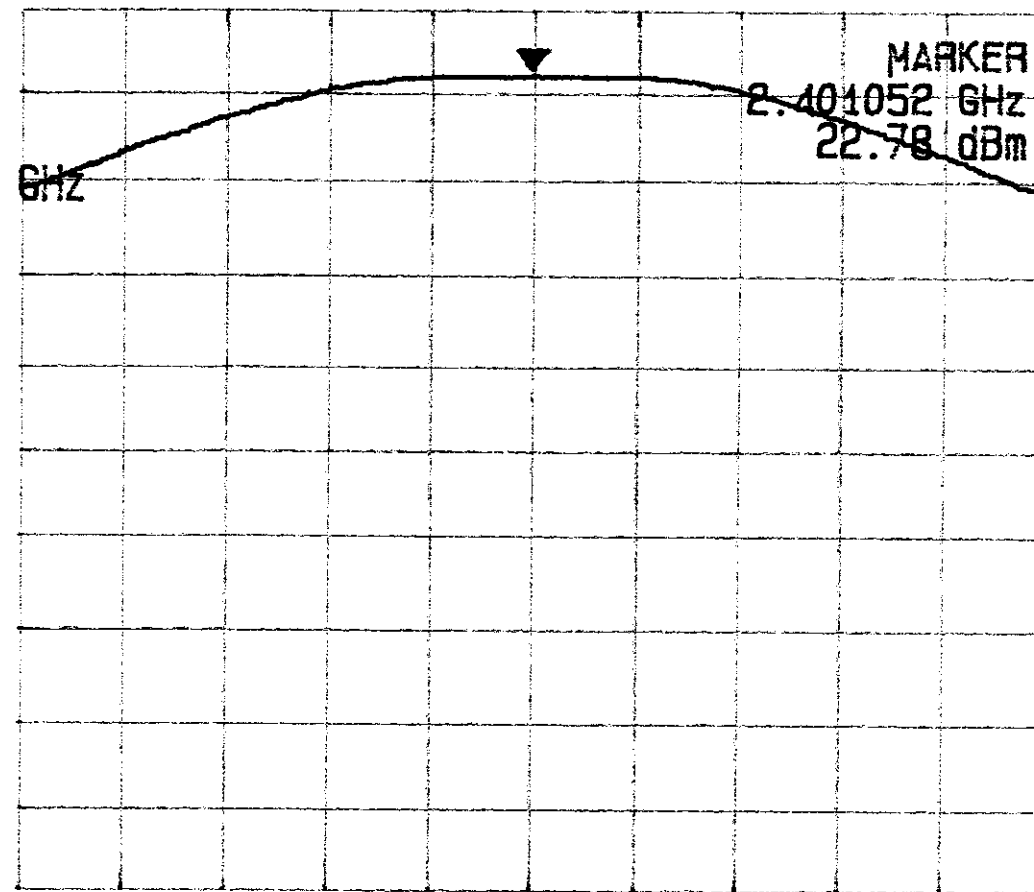
Plot B1a

MKR
2.401052 GHz

MARKER
2.401052 GHz
22.78 dBm

REF OFS
0.5 dB

RBW
1 MHz
VBW
3 MHz
SWP
50 ms



CENTER 2.401056 GHz

SPAN 3.00 MHz

REF 30.5 dBm
10dB/

ATT 40 dB

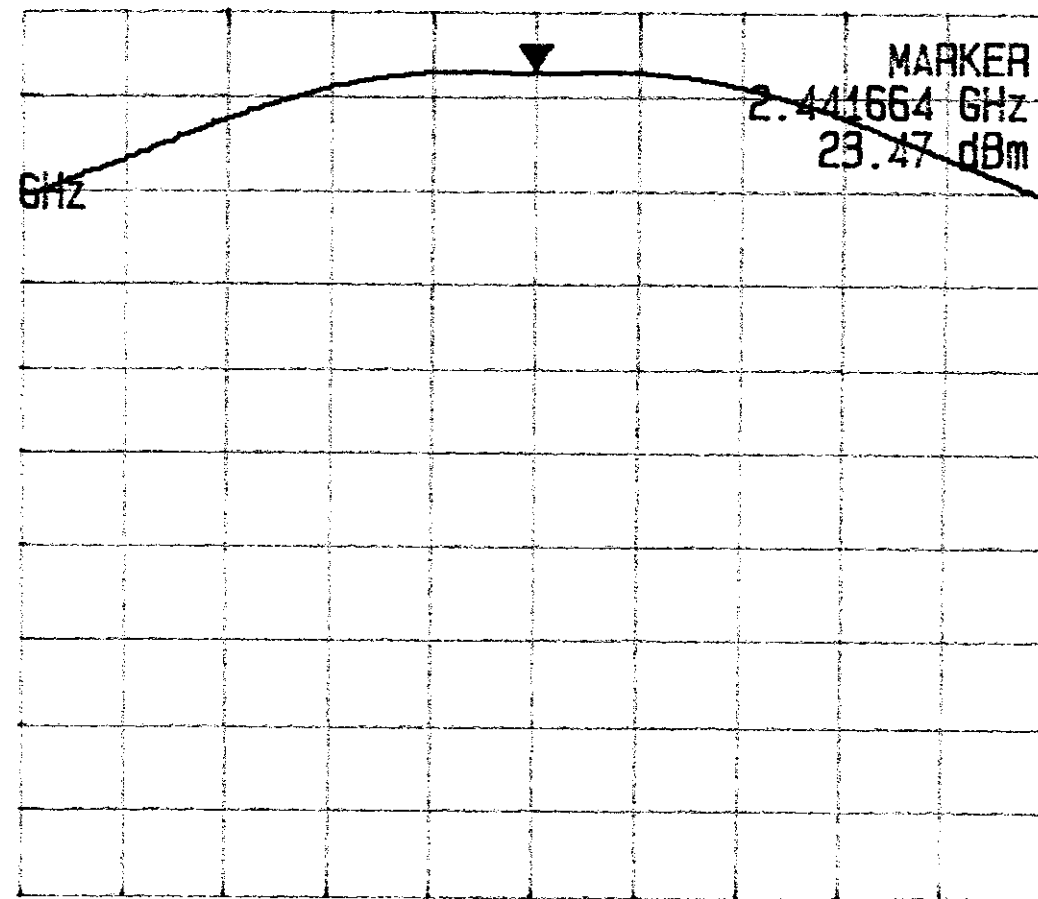
A_view B_plank

MKR
2.441664 GHz

MARKER
2.441664 GHz
23.47 dBm

REF DFS
0.5 dB

RBW
1 MHz
VBW
3 MHz
SWP
50 ms



CENTER 2.441664 GHz

SPAN 3.00 MHz

Plot B1b

REF 30.5 dBm
10dB/

ATT 40 dB

A_view B_blank

Plot B1c

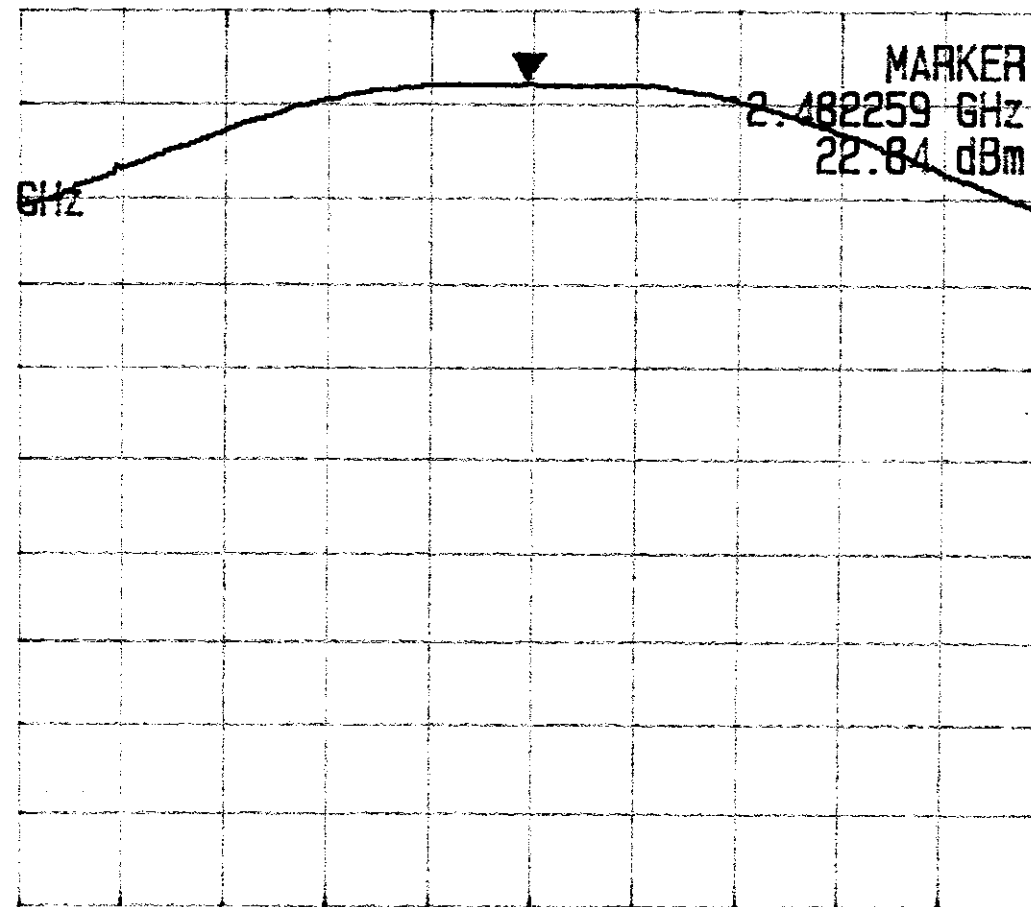
MKR
2.482259 GHz

MARKER

2.482259 GHz
22.84 dBm

REF OFS
0.5 dB

RBW
1 MHz
VBW
3 MHz
SWP
50 ms



CENTER 2.482272 GHz

SPAN 3.00 MHz

REF 30.5 dBm
10dB/

ATT 40 dB

A_view B_blank

MKR
2.393 GHz

MARKER
2.393 GHz
21.75 dBm

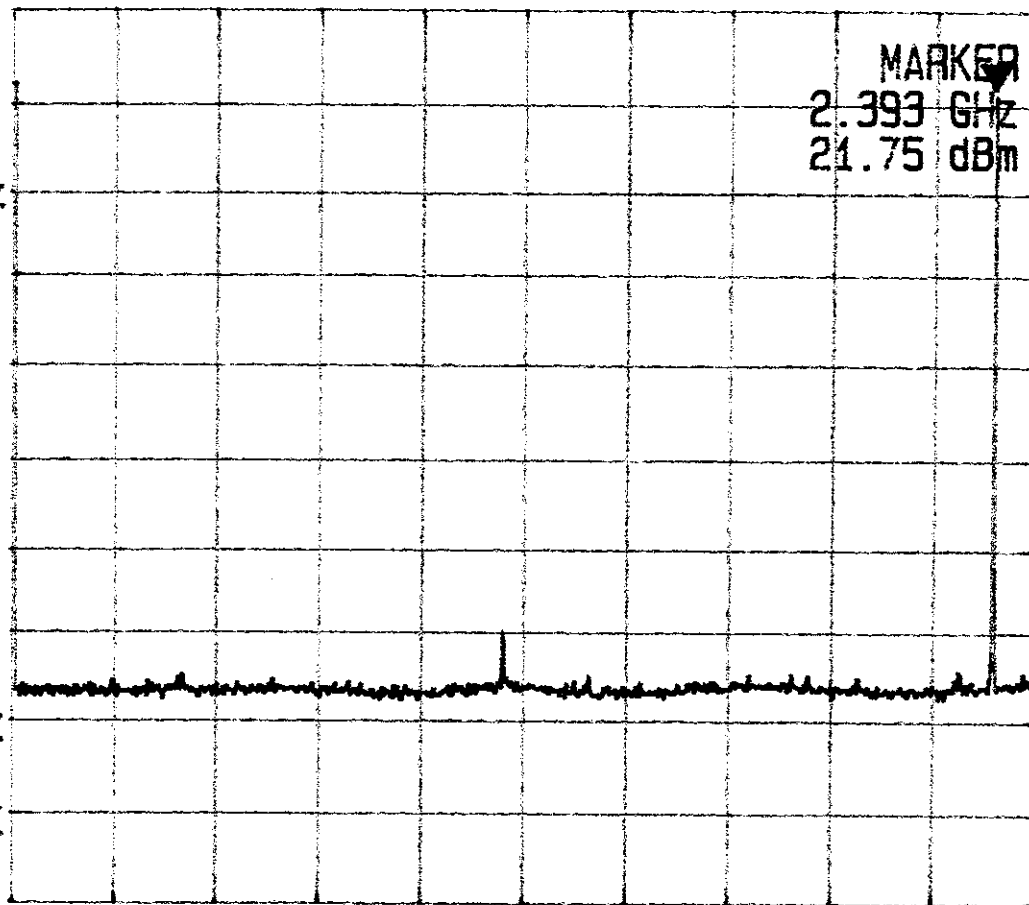
REF OFS
0.5 dB

RBW
100 kHz
VBW
300 kHz
SWP
500 ms

START 1 MHz

STOP 2.500 GHz

Plot B6a.1



REF 30.5 dBm
10dB/

ATT 40 dB

A_view B_plank

MKR
2.394 GHz

MARKER
2.394 GHz
19.78 dBm

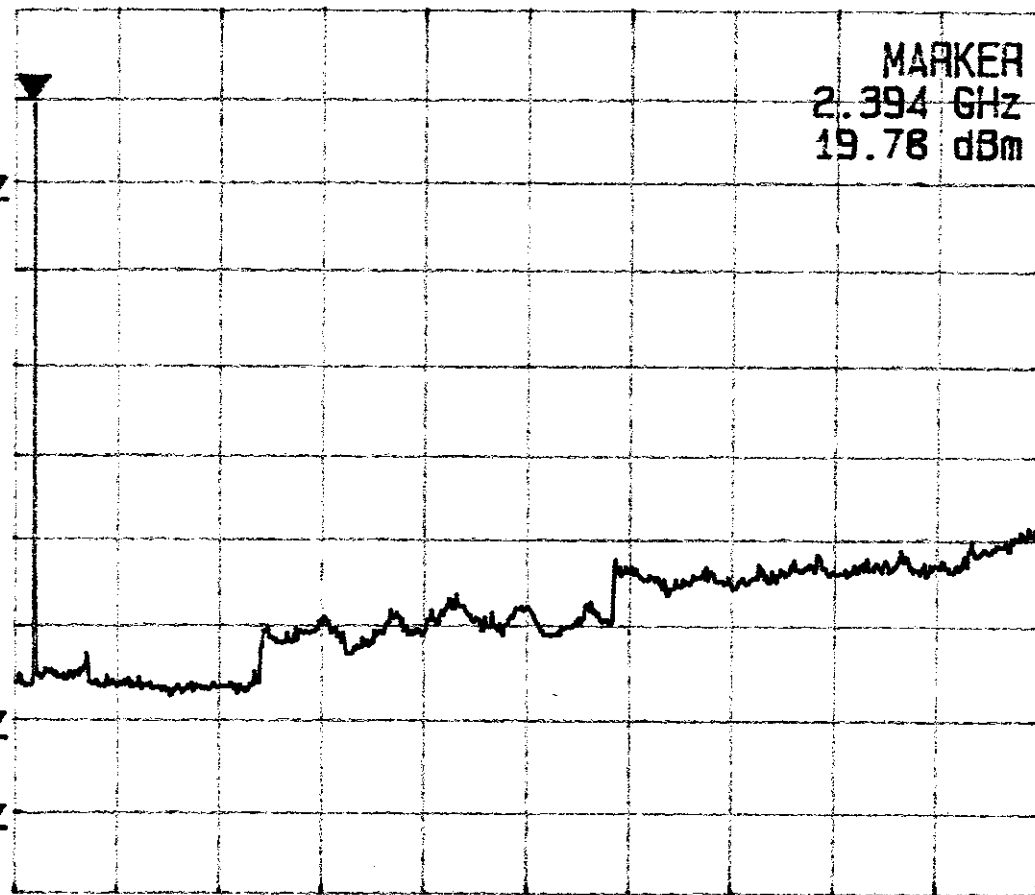
REF OFS
0.5 dB

RBW
100 kHz
VBW
300 kHz
SWP
5.0 s

START 2.0000 GHz

STOP 25.000 GHz

Plot B6a.2



REF 30.5 dBm
10dB/

ATT 40 dB

A_view B_plank

MKR
2.436 GHz

MARKER
2.436 GHz
22.56 dBm

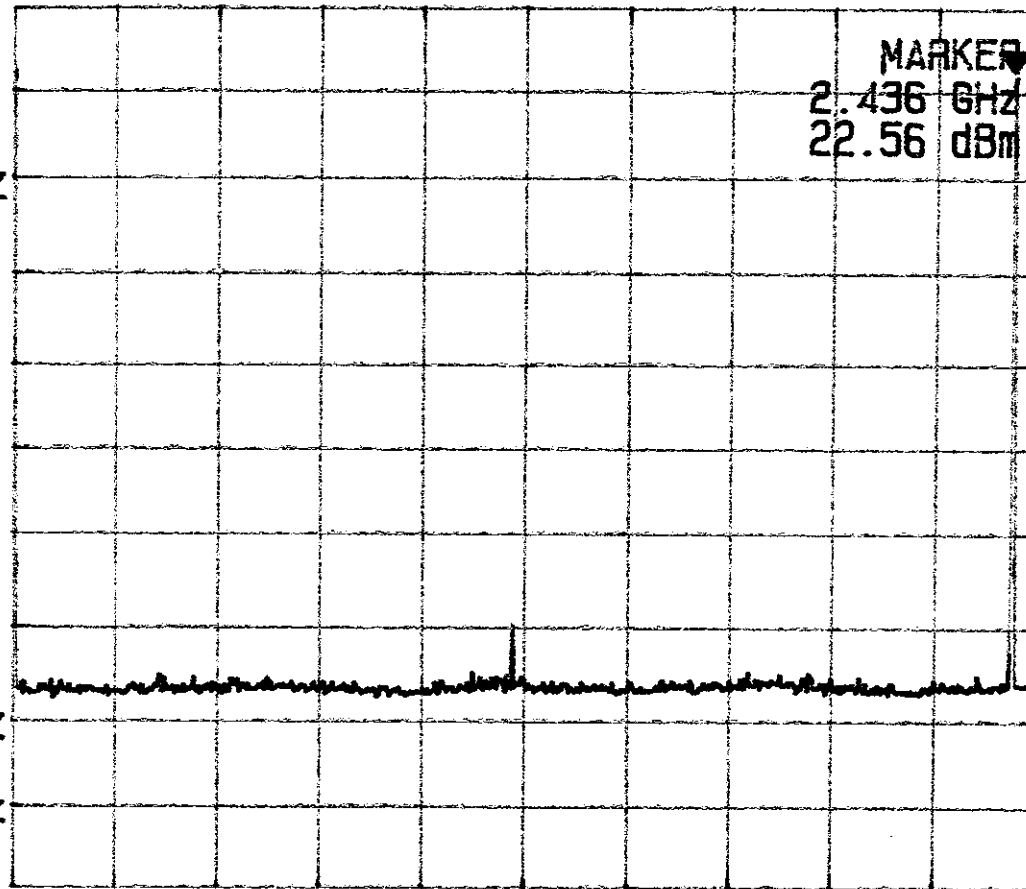
REF OFS
0.5 dB

RBW
100 kHz
VBW
300 kHz
SWP
500 ms

START 1 MHz

STOP 2.500 GHz

Plot BGb.1



REF 30.5 dBm
10dB/

ATT 40 dB

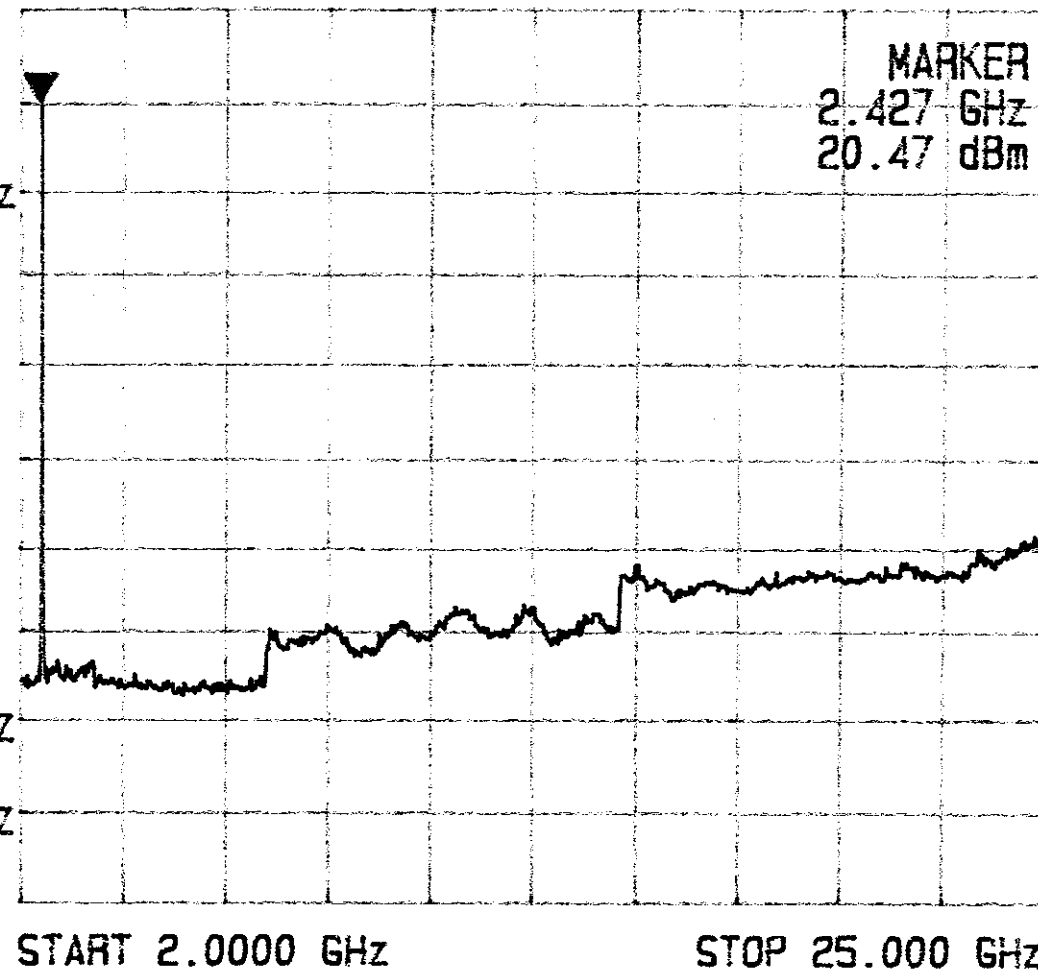
A_view 3_plank

MKR
2.427 GHz

MARKER
2.427 GHz
20.47 dBm

REF OFS
0.5 dB

RBW
100 kHz
VBW
300 kHz
SWP
5.0 s



Plt B6b.2

REF 30.5 dBm
10dB/

ATT 40 dB

A_view B_blank

MKR
2.475 GHz

MARKER
2.475 GHz
21.16 dBm

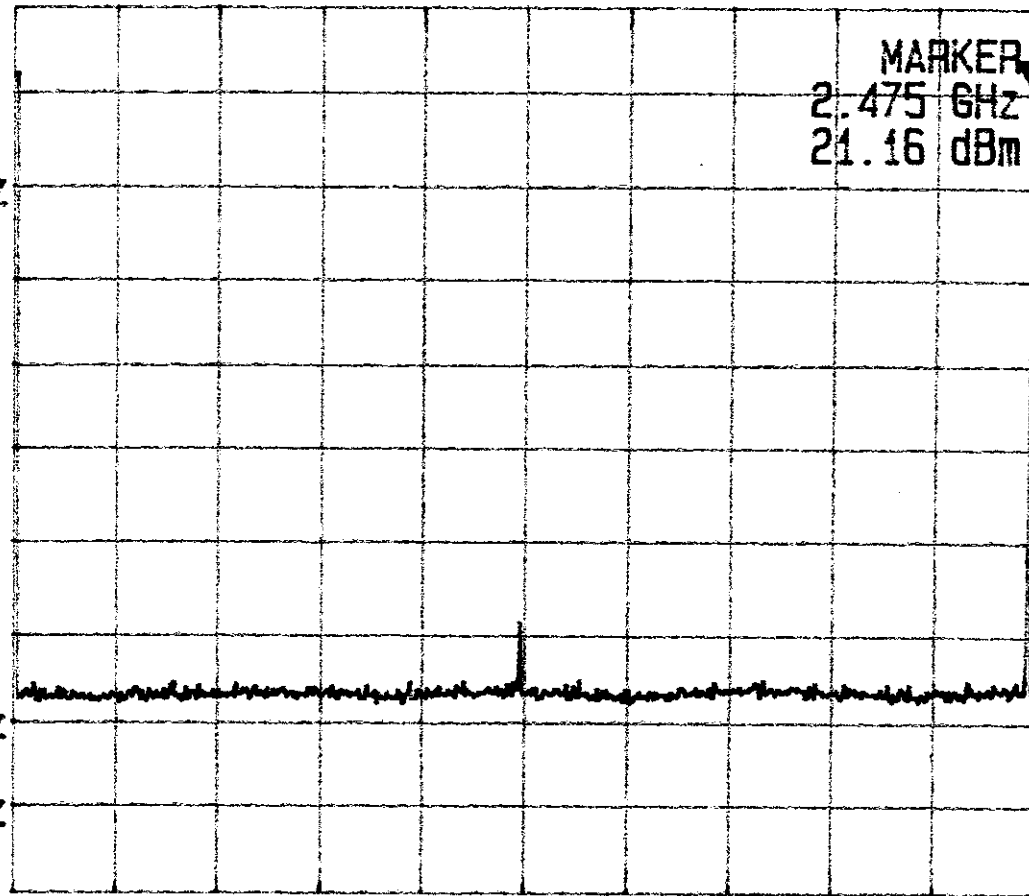
REF OFS
0.5 dB

RBW
100 kHz
VBW
300 kHz
SWP
500 ms

START 1 MHz

STOP 2.500 GHz

Plot B6 c.1



REF 30.5 dBm
10dB/

ATT 40 dB

A_view B_plank

MKR
2.460 GHz

MARKER
2.460 GHz
18.78 dBm

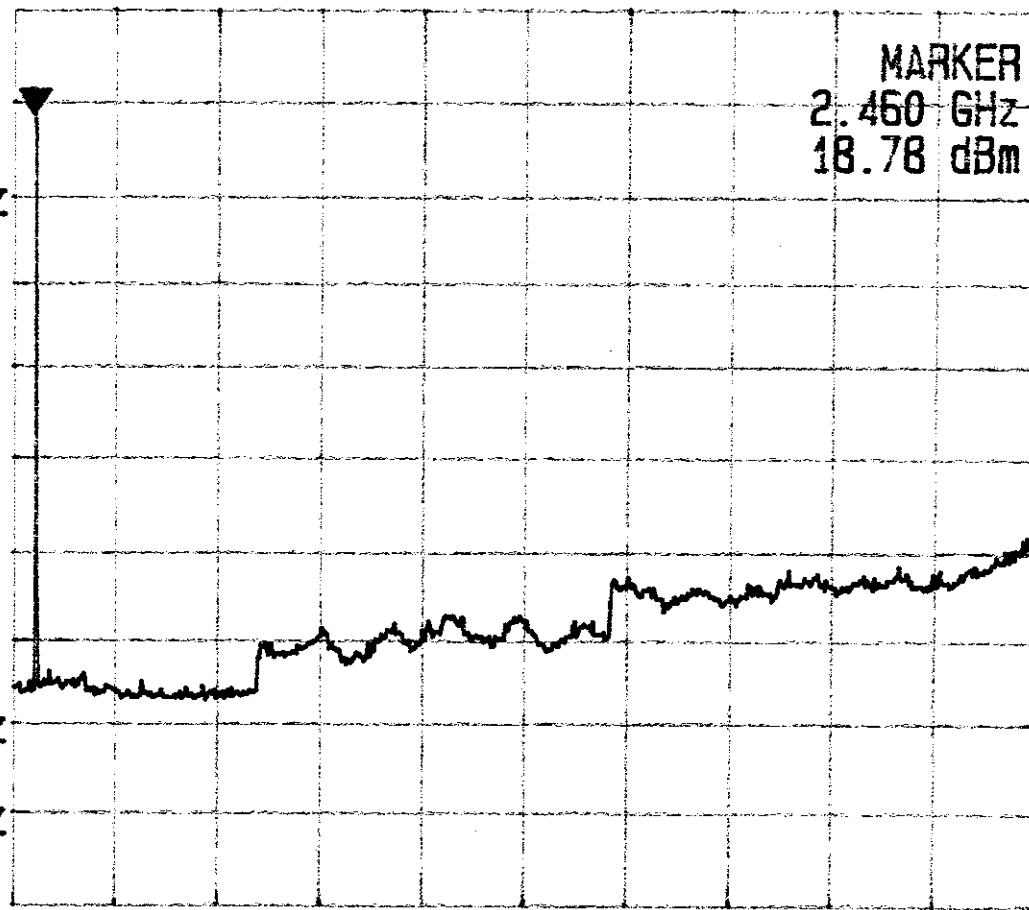
REF DFS
0.5 dB

RBW
100 kHz
VBW
300 kHz
SWP
5.0 s

START 2.0000 GHz

STOP 25.000 GHz

Plot B6c.2



REF 30.5 dBm
10dB/

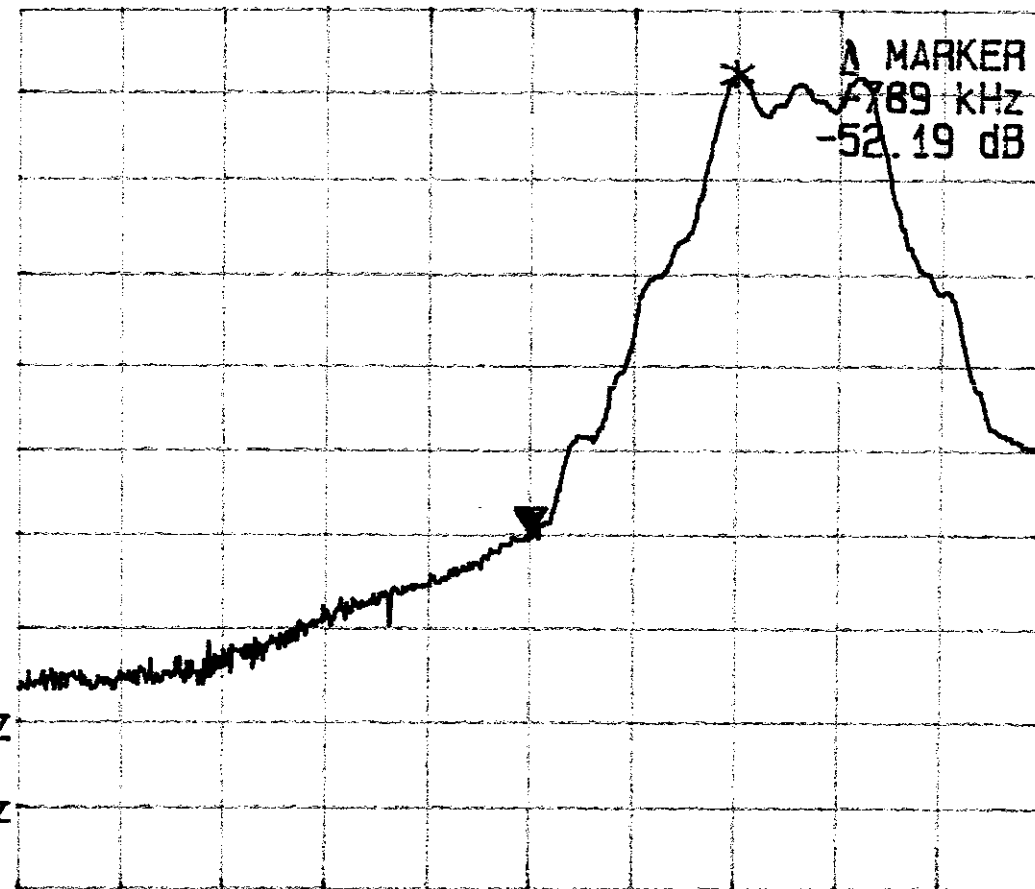
ATT 40 dB

A_view B_blank

Δ MKR
-789 kHz

REF OFS
0.5 dB

RBW
100 kHz
VBW
300 kHz
SWP
50 ms



CENTER 2.40000 GHz

SPAN 4.00 MHz

Plot B6d.1

REF 30.5 dBm
10dB/

ATT 40 dB

A_view B_blank

Δ MKR
989 kHz

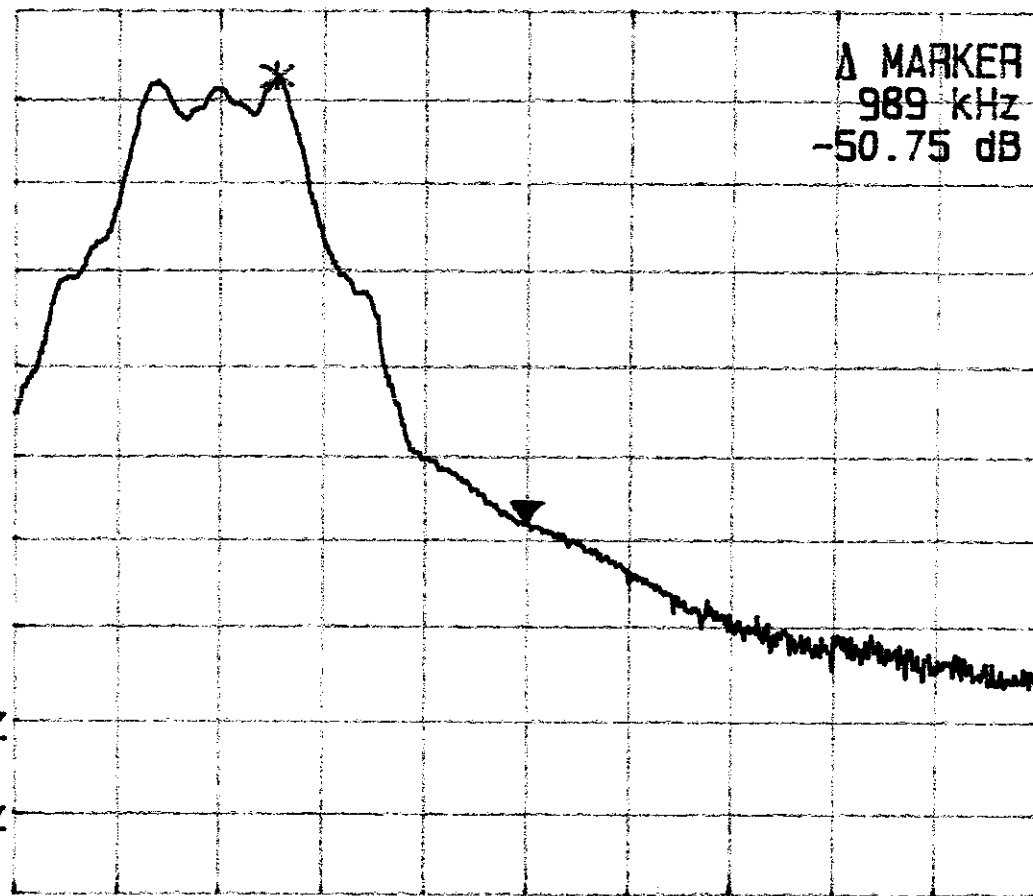
Δ MARKER
989 kHz
-50.75 dB

REF OFS
0.5 dB

RBW
100 kHz
VBW
300 kHz
SWP
50 ms

CENTER 2.483500 GHz

SPAN 4.00 MHz



Plot B6d.2

REF 30.0 dBm
10dB/

ATT 40 dB

A_view B_blank

Plot 3a

RBW
30 kHz
VBW
100 kHz
SWP
50 ms



START 2.39500 GHz

STOP 2.41500 GHz

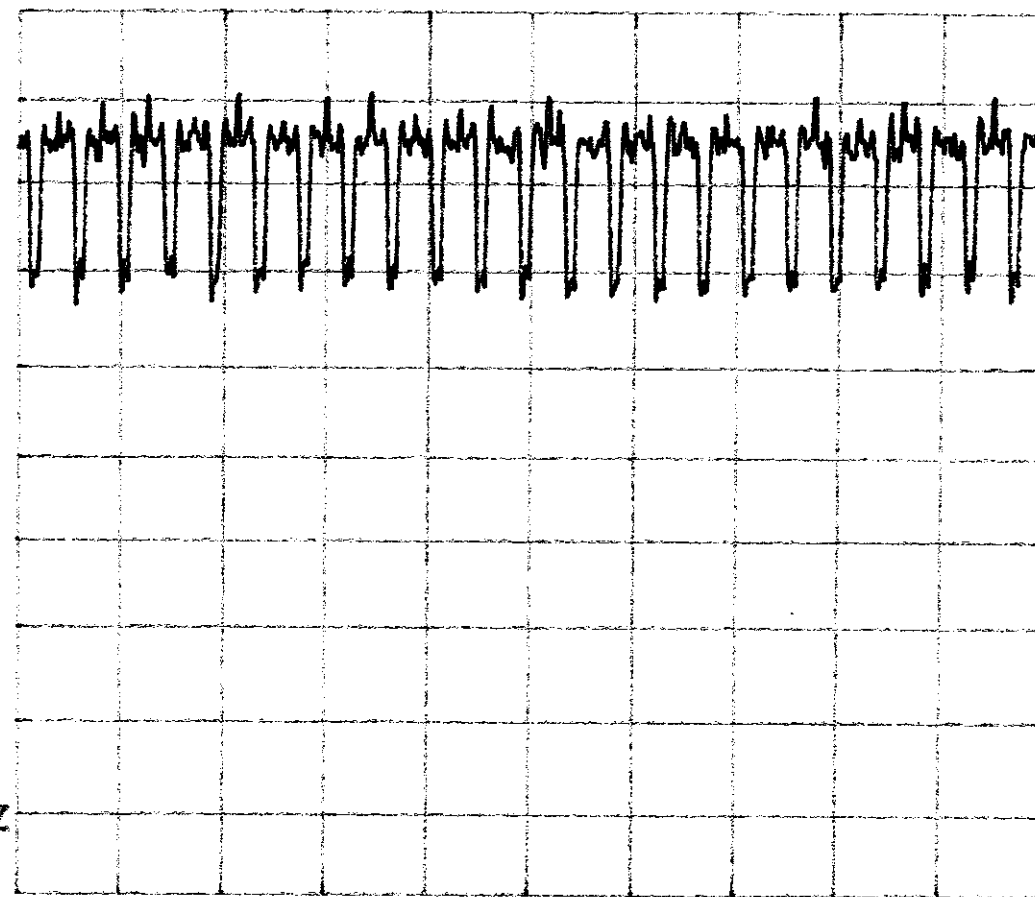
REF 30.0 dBm
10dB/

ATT 40 dB

A_view B_blank

Plot 3b

RBW
30 kHz
VBW
100 kHz
SWP
50 ms



START 2.41500 GHz

STOP 2.43500 GHz

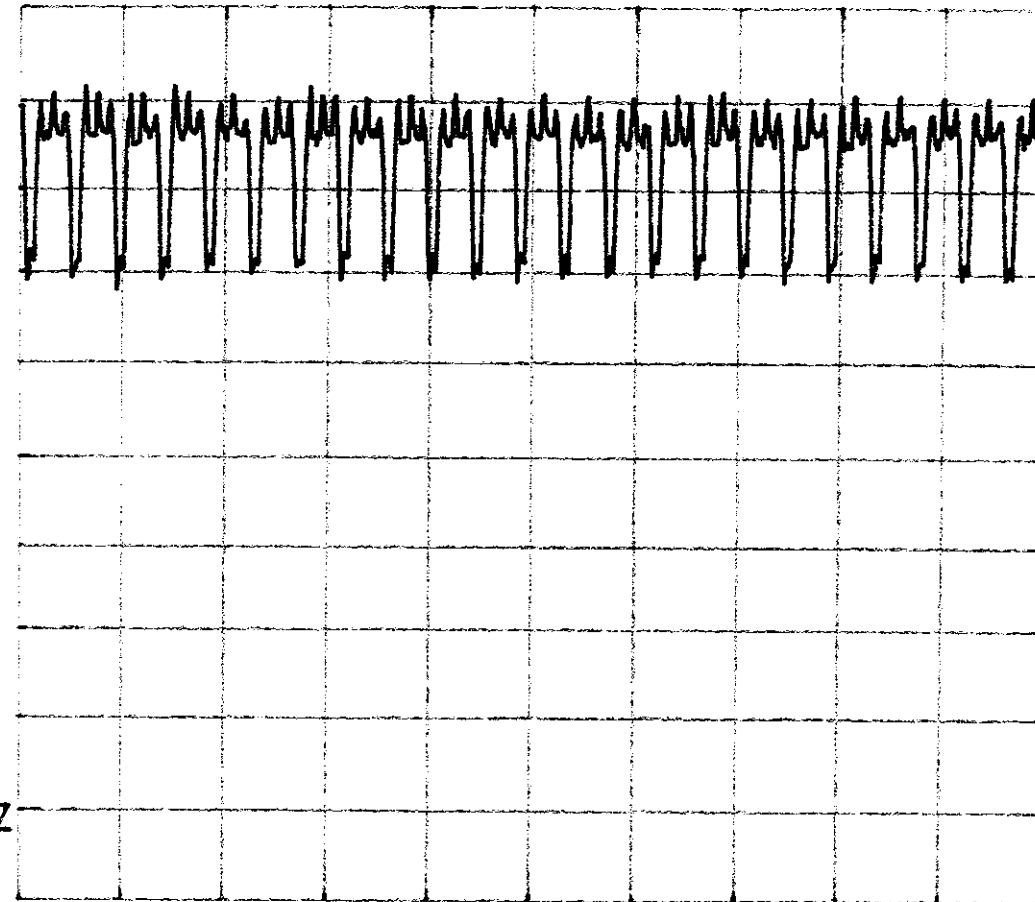
REF 30.0 dBm
10dB/

ATT 40 dB

A_view B_plank

Plot 3c

RBW
30 kHz
VBW
100 kHz
SWP
50 ms



START 2.43500 GHz

STOP 2.45500 GHz

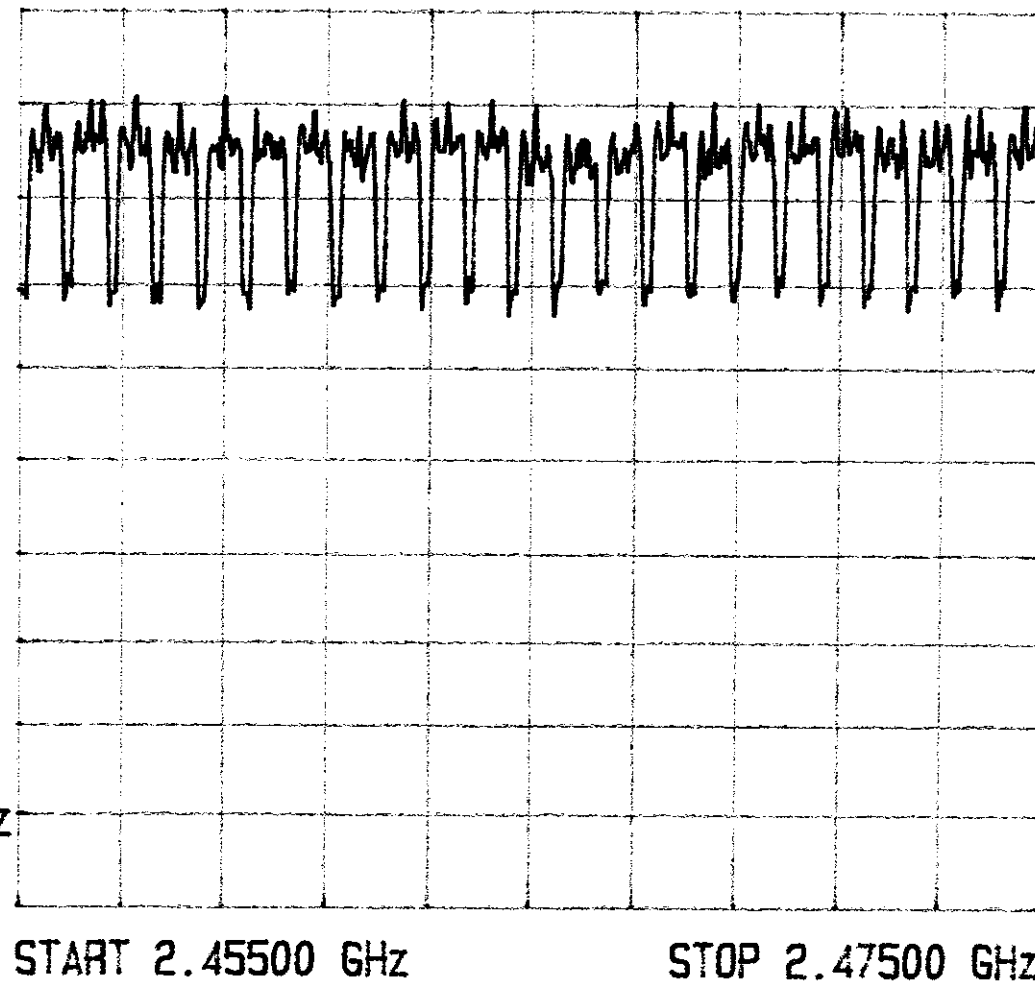
REF 30.0 dBm
10dB/

ATT 40 dB

A_view B_blank

Plot 3d

RBW
30 kHz
VBW
100 kHz
SWP
50 ms



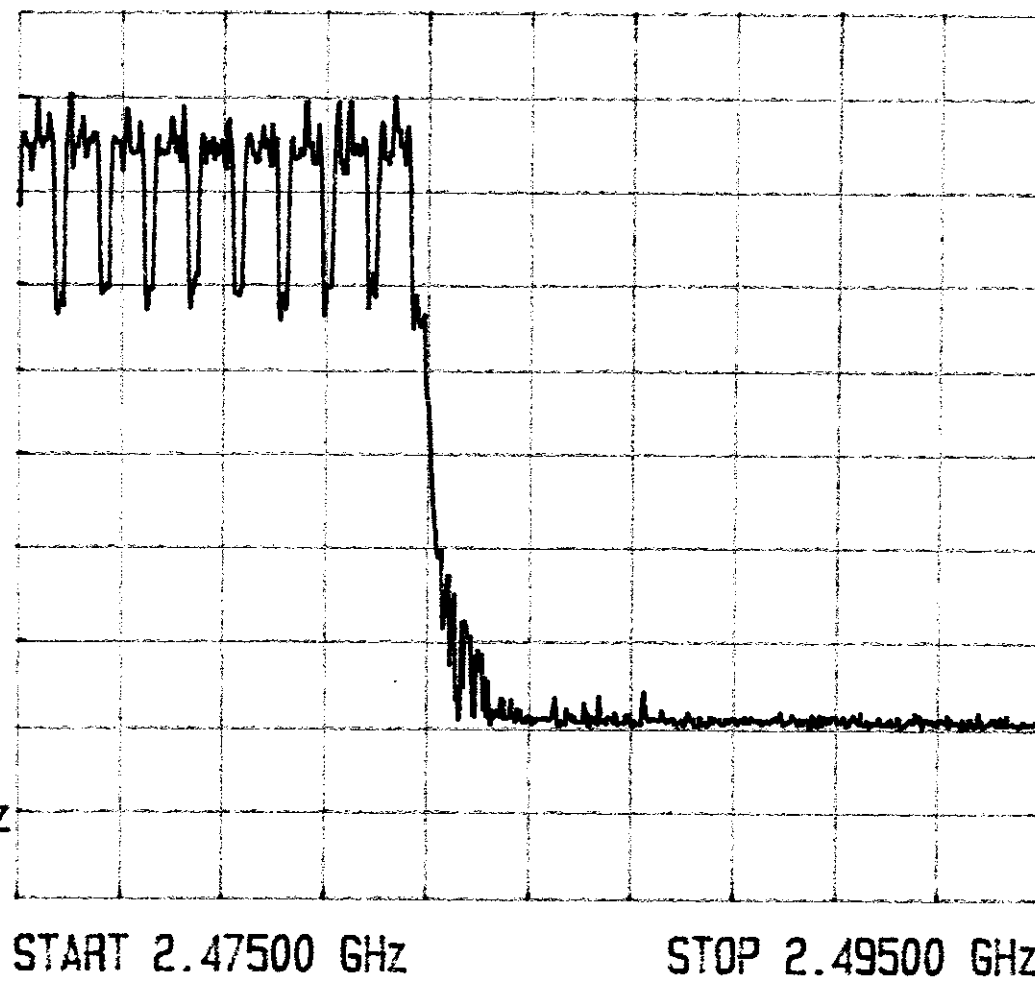
REF 30.0 dBm
10dB/

ATT 40 dB

A_view B_blank

Plot 3e

RBW
30 kHz
VBW
100 kHz
SWP
50 ms



REF 30.5 dBm
10dB/

ATT 40 dB

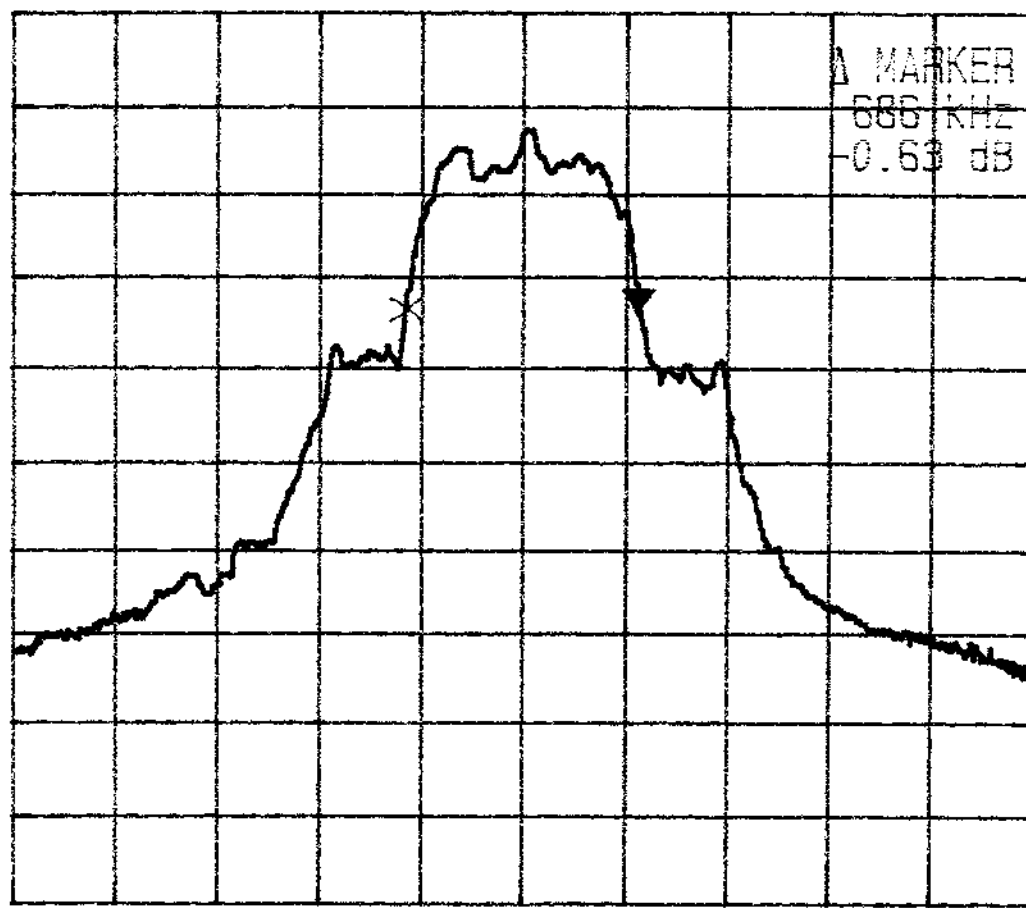
A_view B_blank

Plot H2a

SPAN
3.00 MHz

REF DFS
0.5 dB

RBW
30 KHz
VBW
3 MHz
SWP
50 ms



CENTER 2.401086 GHz

SPAN 3.00 MHz

REF 30.5 dBm
10dB/

ATT 40 dB

A_view B_blank

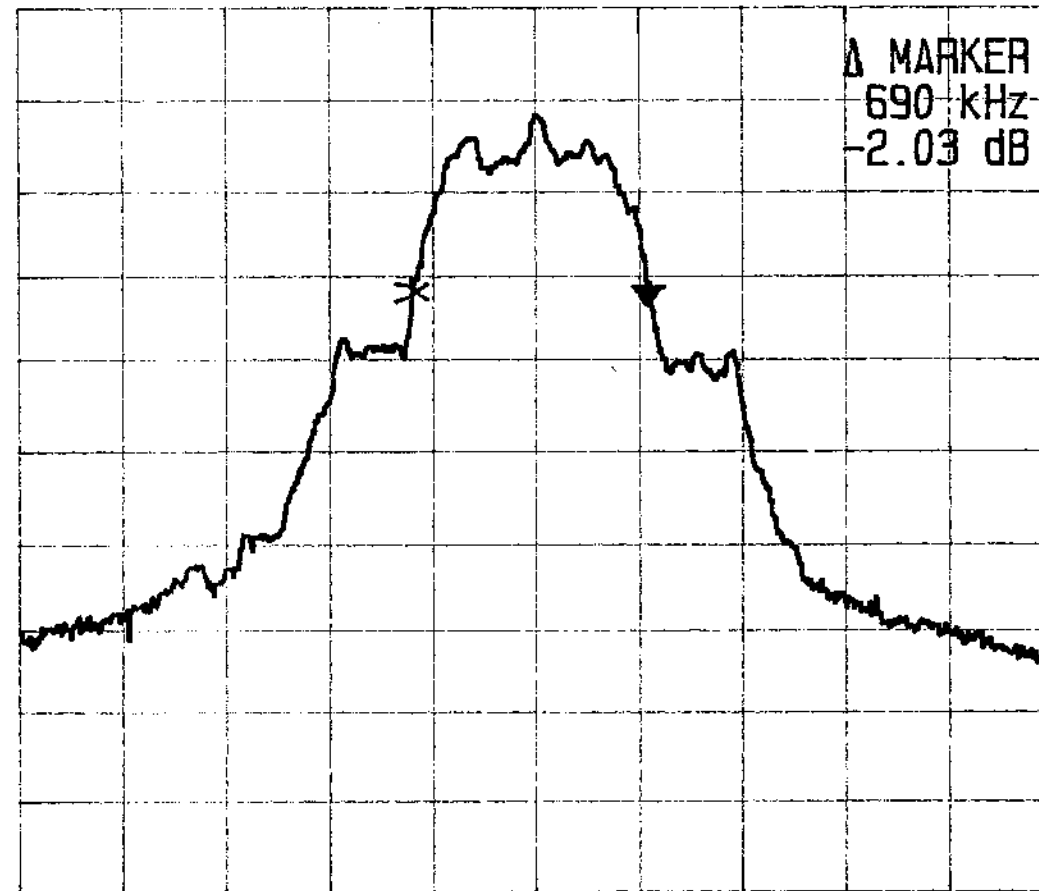
Plot H2b

Δ MKR
690 kHz

Δ MARKER
690 kHz
-2.03 dB

REF OFS
0.5 dB

RBW
30 kHz
VBW
3 MHz
SWP
50 ms



CENTER 2.441681 GHz

SPAN 3.00 MHz

REF 30.5 dBm
10dB/

ATT 40 dB

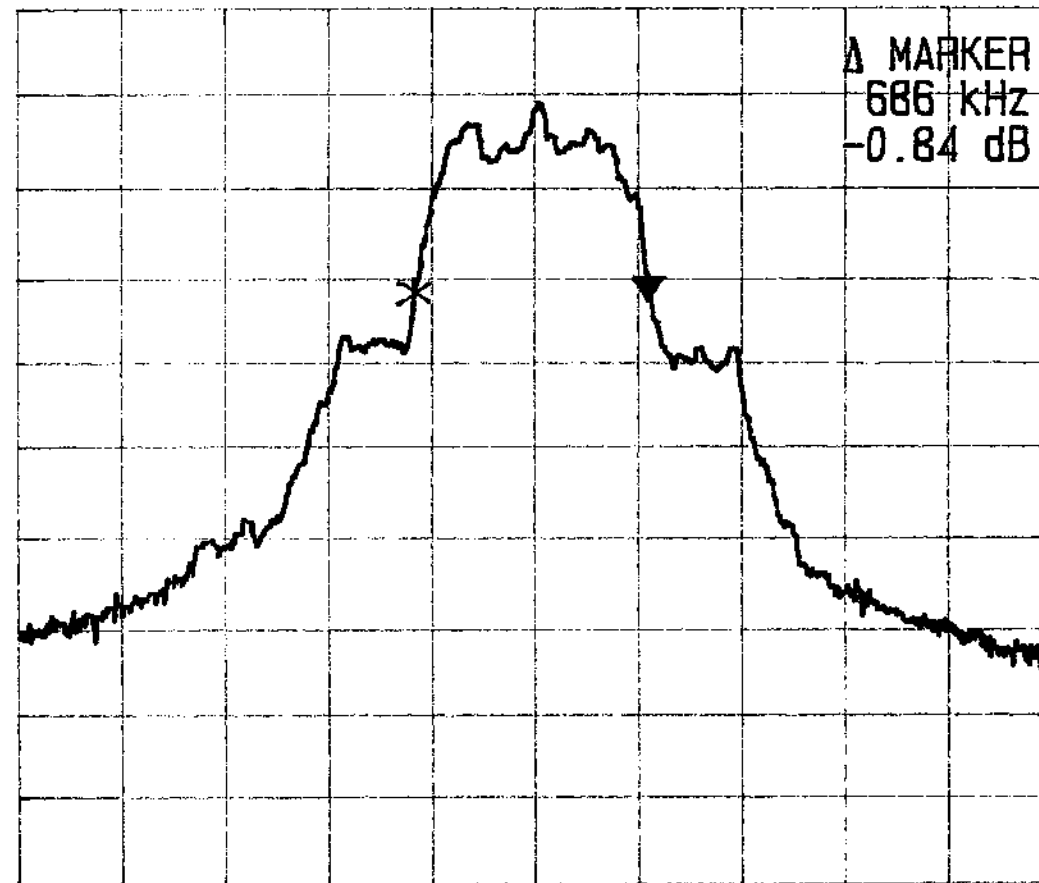
A_view B_blank

Plot H2c

Δ MKR
686 kHz

REF OFS
0.5 dB

RBW
30 kHz
VBW
3 MHz
SWP
50 ms



CENTER 2.482272 GHz

SPAN 3.00 MHz

REF 30.0 dBm
10dB/

ATT 40 dB

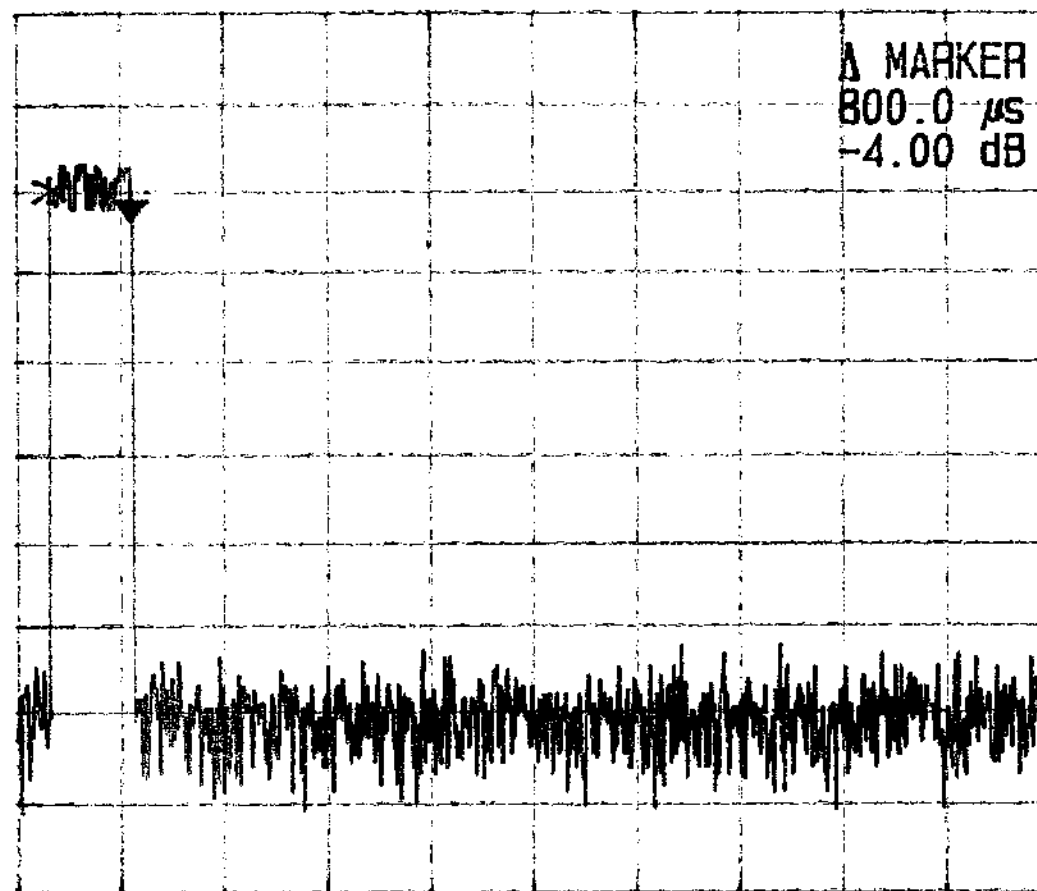
A_view B_blank

Plot H5a

Δ MKR
800.0 μs

Δ MARKER
800.0 μs
-4.00 dB

RBW
1 MHz
VBW
1 MHz
SWP
10 ms



CENTER 2.441664000 GHz

SPAN 0 Hz

REF 30.0 dBm
10dB/

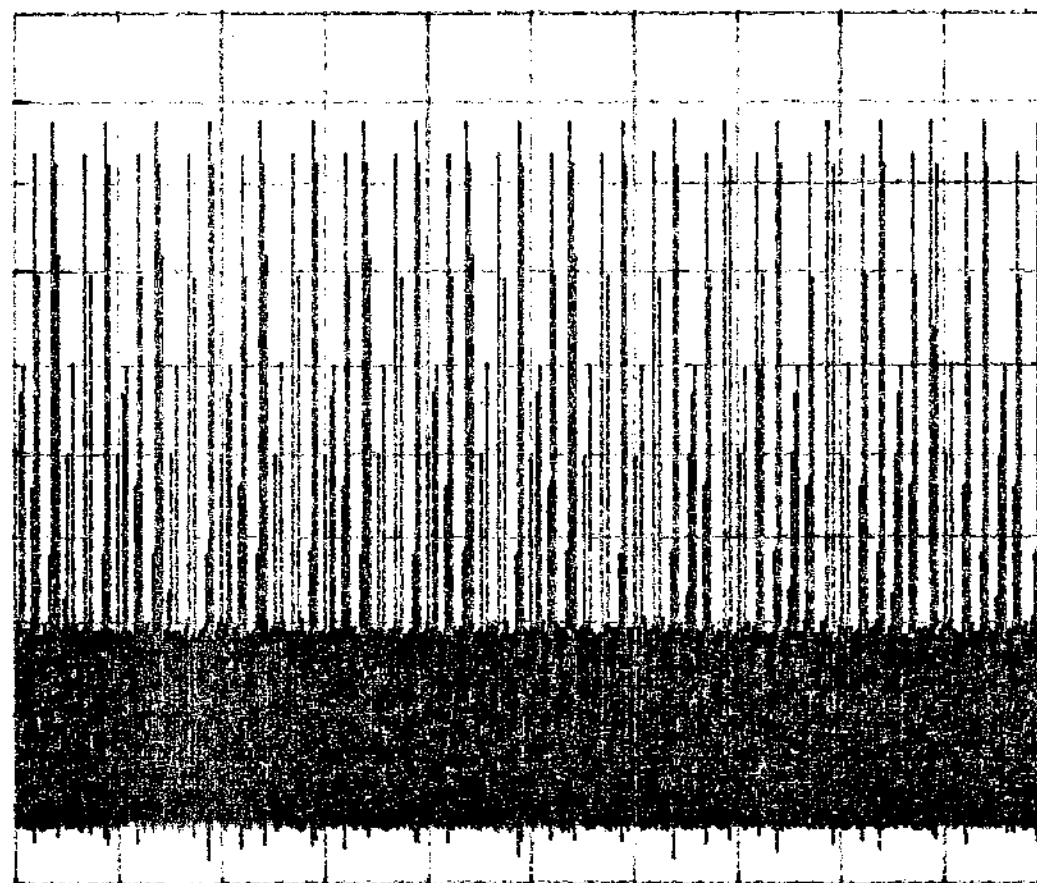
ATT 40 dB

A_view B_blank

Plot H5b

SWP
19 s

RBW
1 MHz
VBW
1 MHz
SWP
19 s



CENTER 2.441664000 GHz

SPAN 0 Hz

REF 30.0 dBm
10dB/

ATT 40 dB

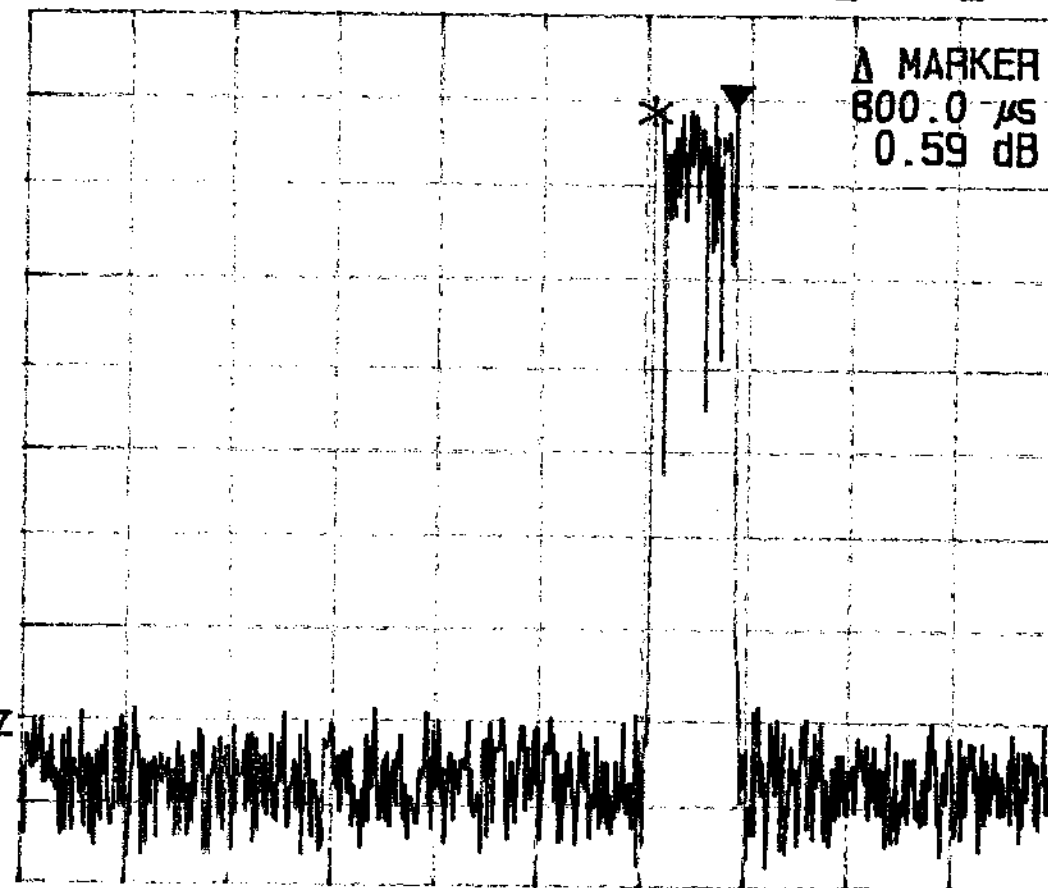
A_view B_blank

Plot H7

Δ MKR
800.0 μs

Δ MARKER
800.0 μs
0.59 dB

RBW
100 kHz
VBW
1 MHz
SWP
10 ms



CENTER 2.441664000 GHz

SPAN 0 Hz

REF 30.0 dBm
10dB/

ATT 40 dB

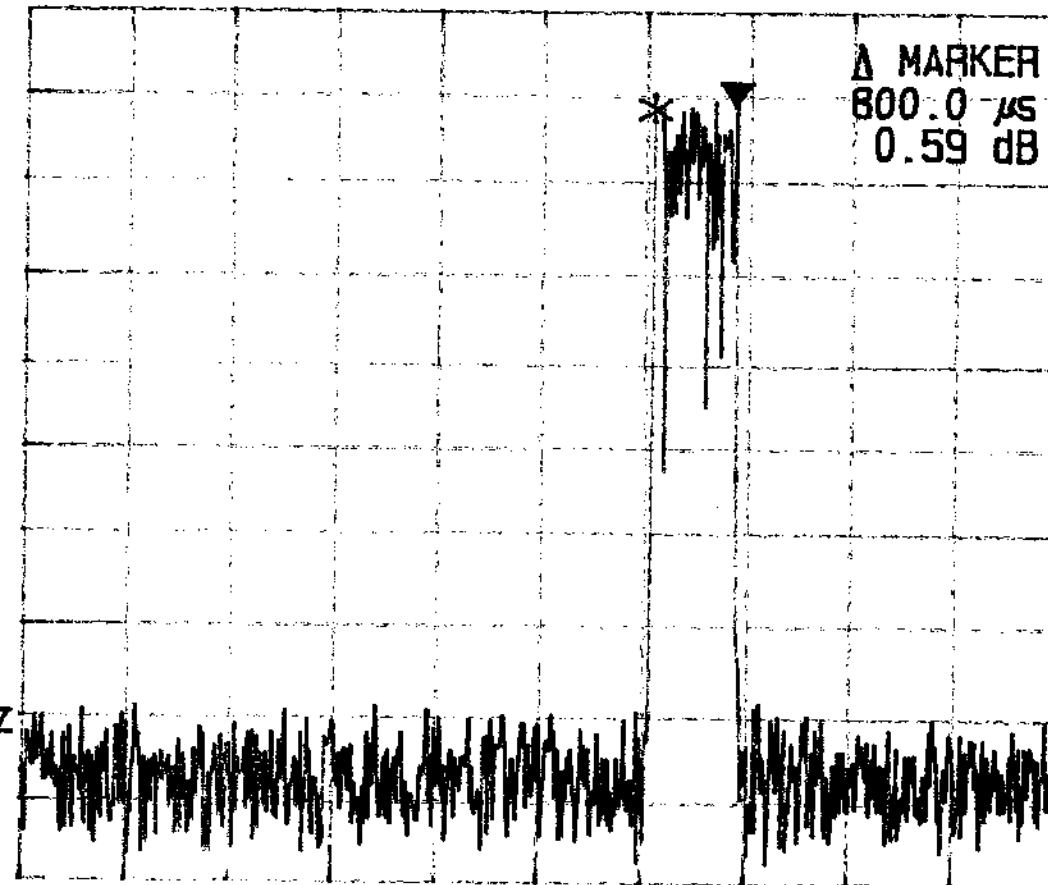
A_view B_blank

Plot H7

Δ MKR
800.0 μs

Δ MARKER
800.0 μs
0.59 dB

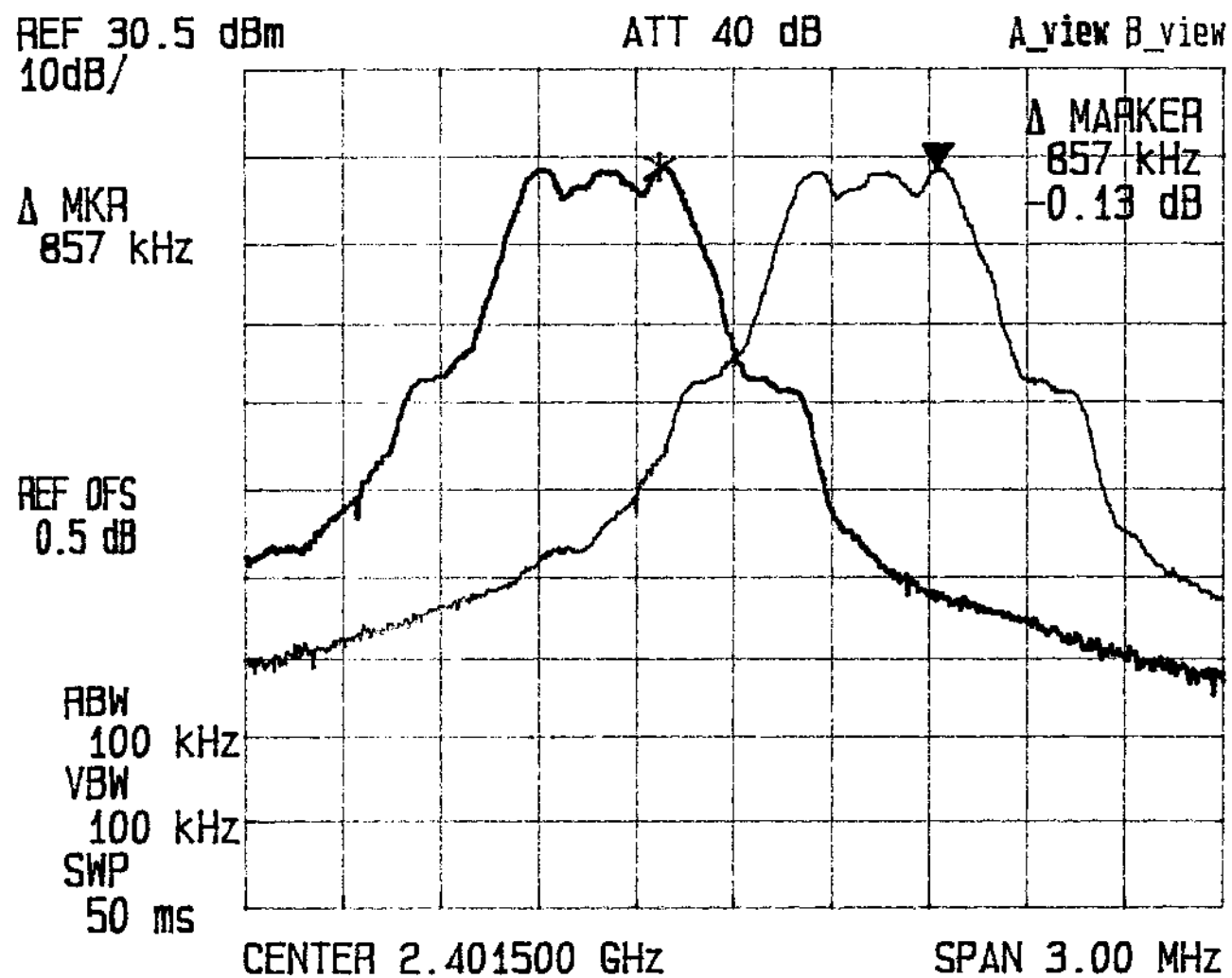
RBW
100 kHz
VBW
1 MHz
SWP
10 ms



CENTER 2.441664000 GHz

SPAN 0 Hz

Plot H4



REF 30.5 dBm
10dB/

ATT 40 dB

A_view B_blank

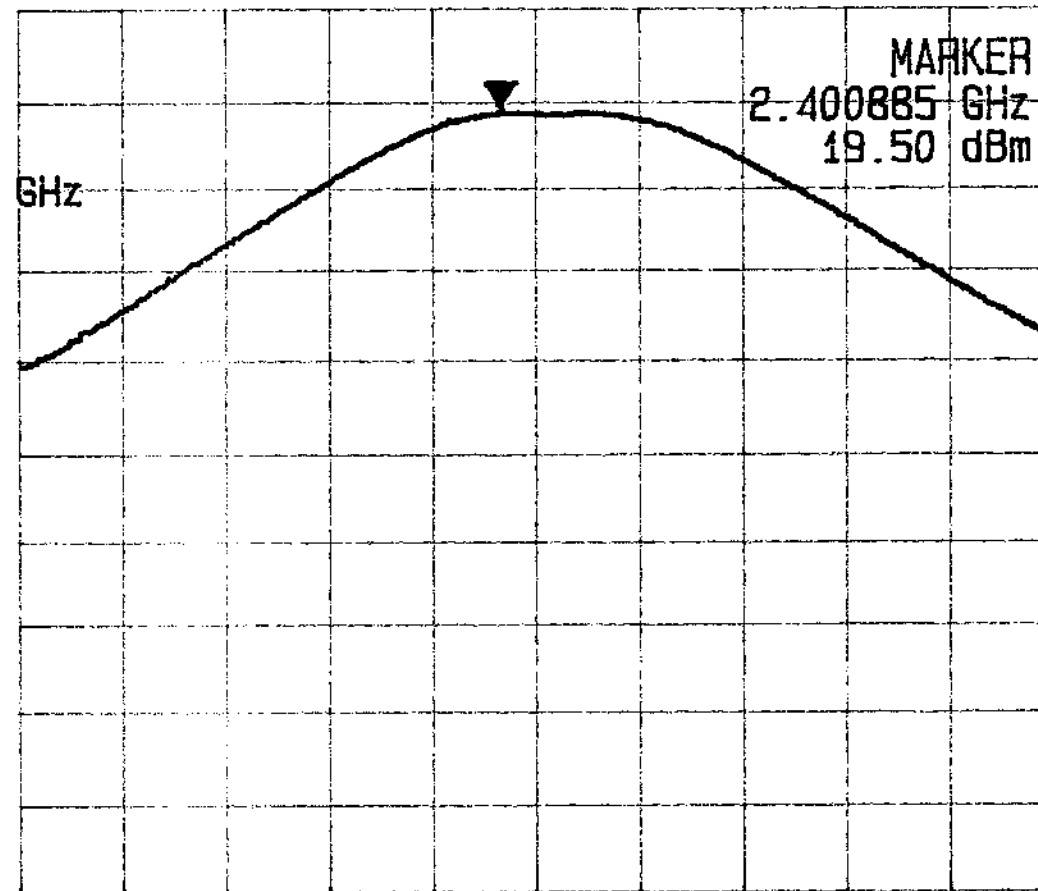
Plot H1a

MKR
2.400885 GHz

MARKER
2.400885 GHz
19.50 dBm

REF OFS
0.5 dB

RBW
1 MHz
VBW
3 MHz
SWP
50 ms



CENTER 2.401056 GHz

SPAN 5.00 MHz

REF 30.5 dBm
10dB/

ATT 40 dB

A_view B_blank

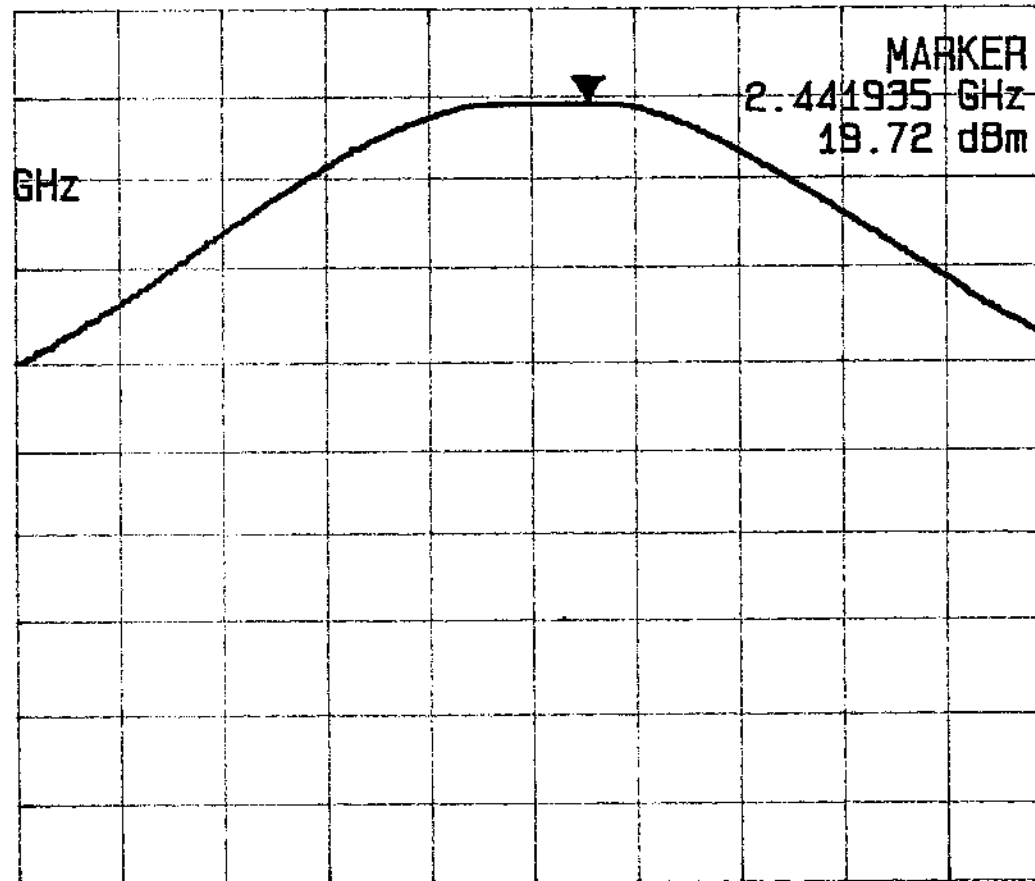
Plot H1b

MKR
2.441935 GHz

MARKER
2.441935 GHz
19.72 dBm

REF OFS
0.5 dB

RBW
1 MHz
VBW
3 MHz
SWP
50 ms



CENTER 2.441664 GHz

SPAN 5.00 MHz

REF 30.5 dBm
10dB/

ATT 40 dB

A_view B_blank

Plot H1c

MKR
2.482143 GHz

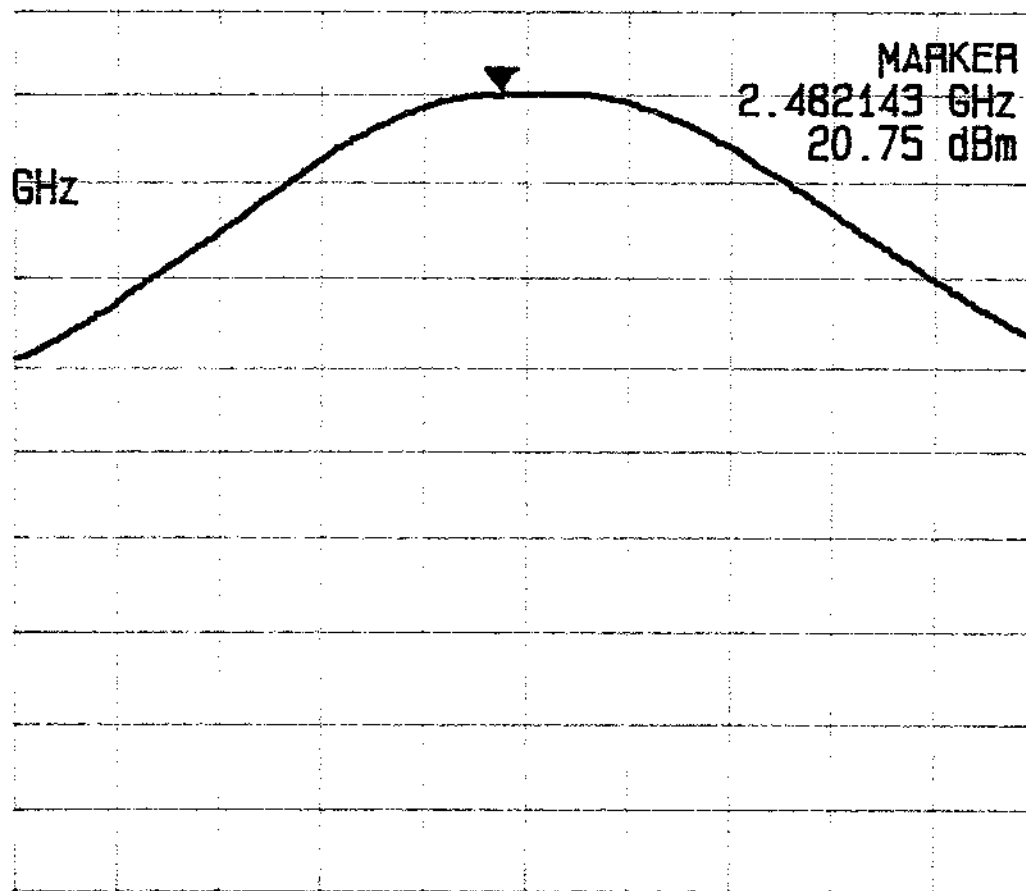
MARKER
2.482143 GHz
20.75 dBm

REF OFS
0.5 dB

RBW
1 MHz
VBW
3 MHz
SWP
50 ms

CENTER 2.482272 GHz

SPAN 5.00 MHz



REF 30.5 dBm
10dB/

ATT 40 dB

A_view B_blank

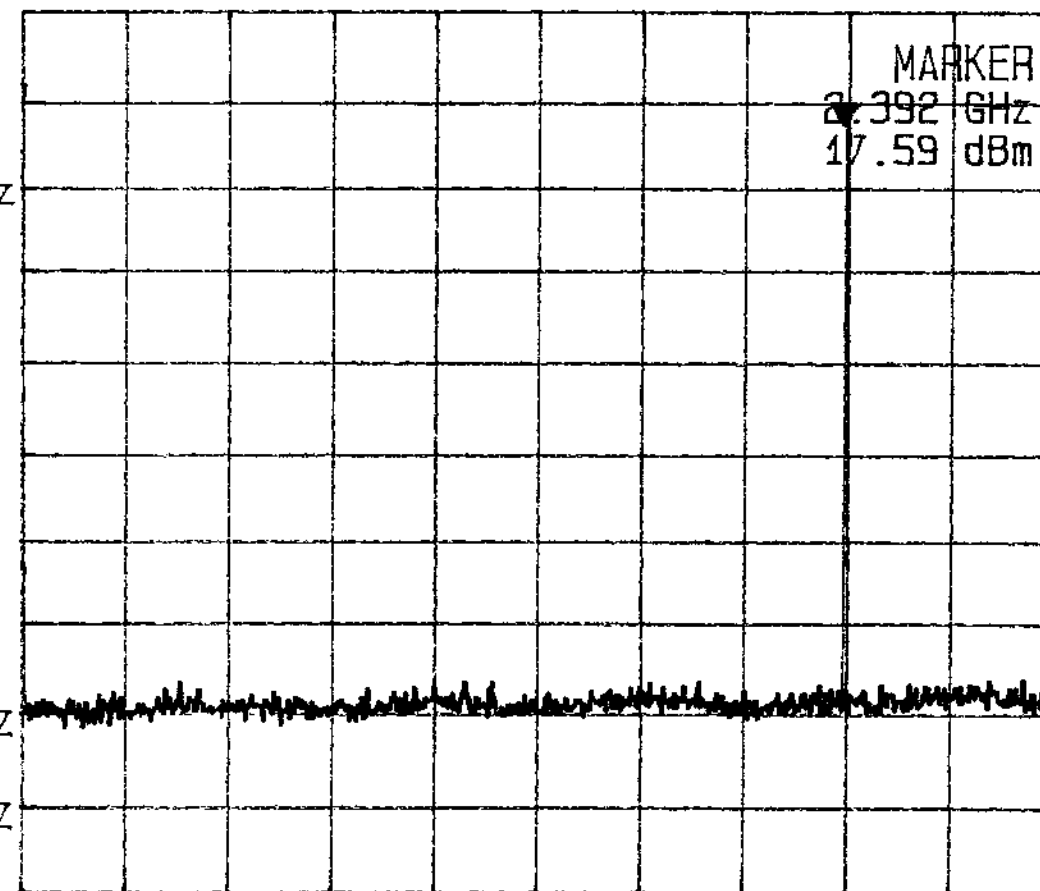
Plot H6a.1

MKR
2.392 GHz

MARKER
2.392 GHz
17.59 dBm

REF OFS
0.5 dB

RBW
100 kHz
VBW
300 kHz
SWP
600 ms



START 1 MHz

STOP 3.000 GHz

REF 30.5 dBm
10dB/

ATT 40 dB

A_view B_blank

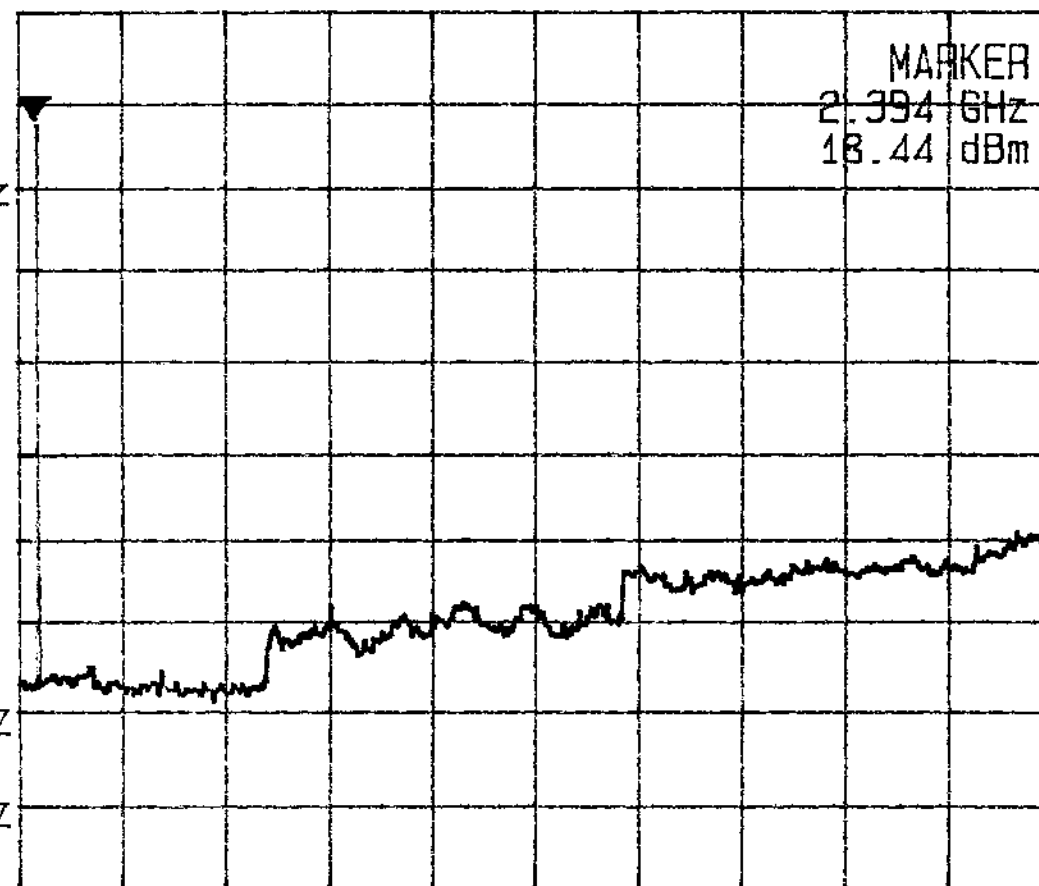
Plot H6a.2

MKR
2.394 GHz

MARKER
2.394 GHz
18.44 dBm

REF OFS
0.5 dB

RBW
100 kHz
VBW
300 kHz
SWP
5.0 s



START 2.000 GHz

STOP 25.000 GHz

REF 30.5 dBm
10dB/

ATT 40 dB

A_view B_blank

Plot H6b.1

MKR
2.439 GHz

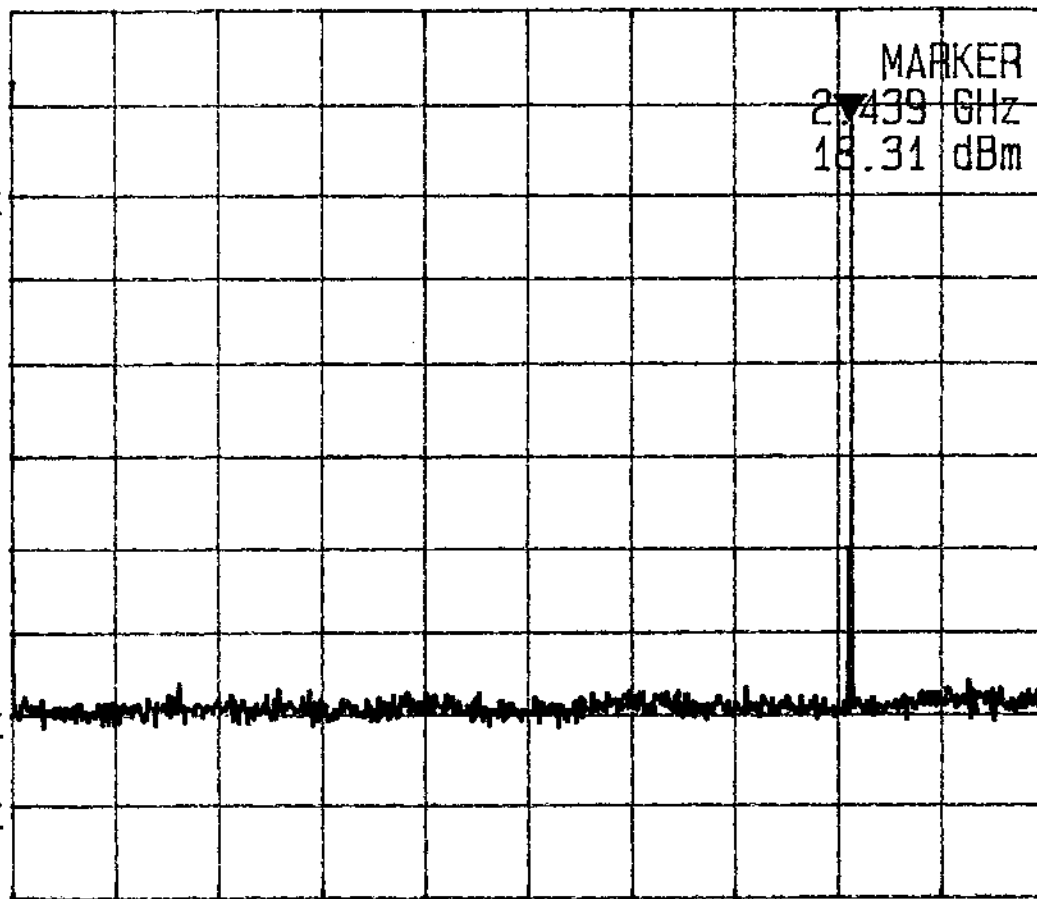
MARKER
2.439 GHz
18.31 dBm

REF OFS
0.5 dB

RBW
100 kHz
VBW
300 kHz
SWP
600 ms

START 1 MHz

STOP 3.000 GHz



REF 30.5 dBm
10dB/

ATT 40 dB

A_view B_blank

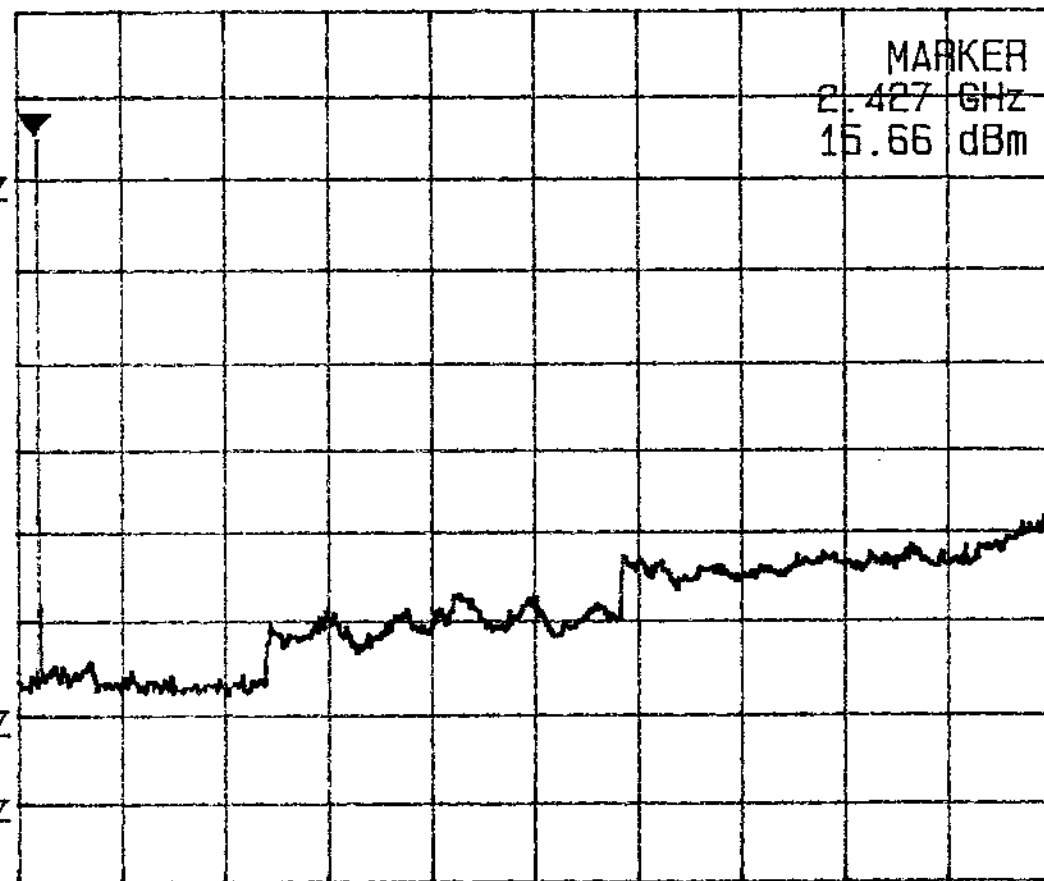
Plot H6b.2

MKR
2.427 GHz

MARKER
2.427 GHz
15.66 dBm

REF OFS
0.5 dB

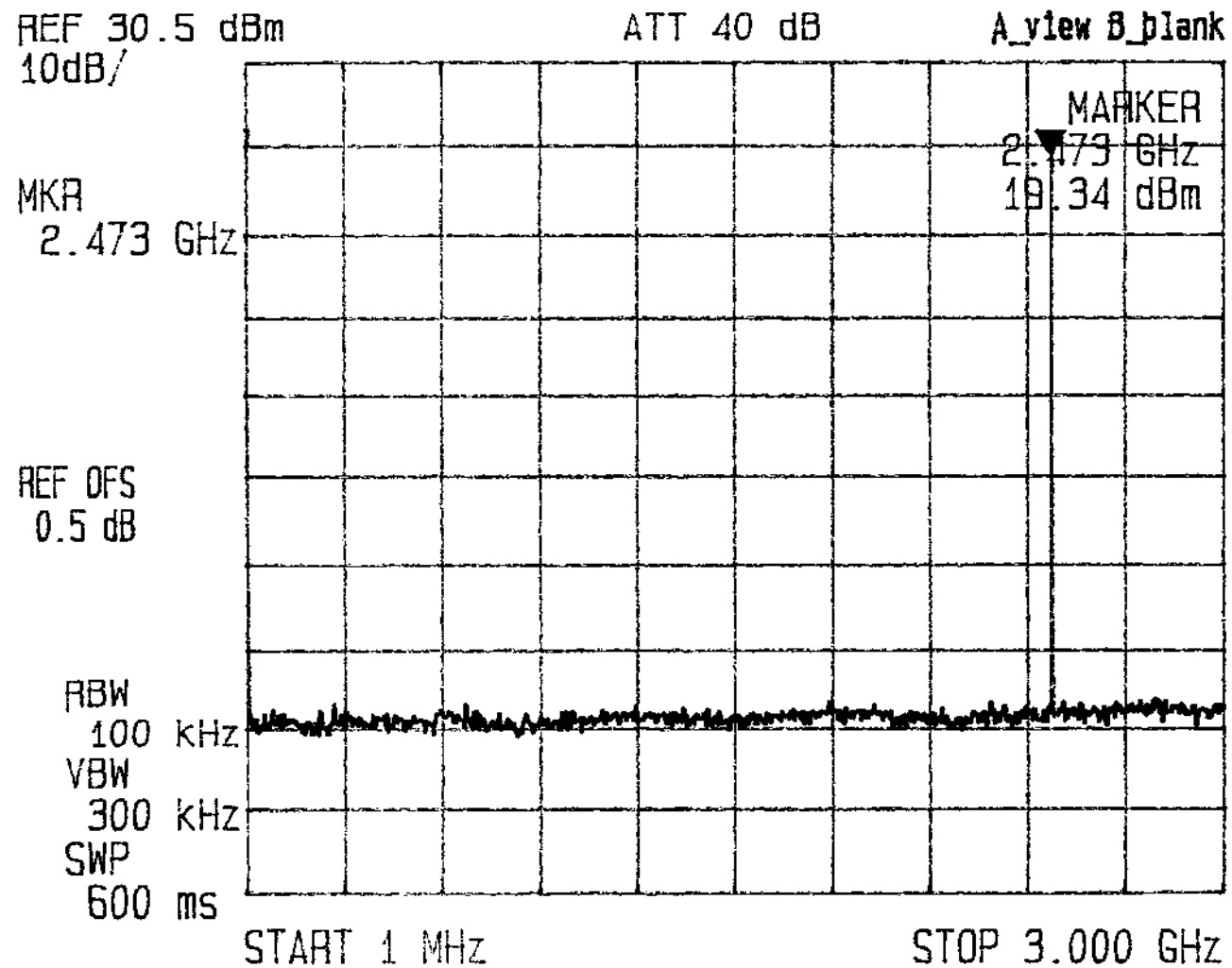
RBW
100 kHz
VBW
300 kHz
SWP
5.0 s



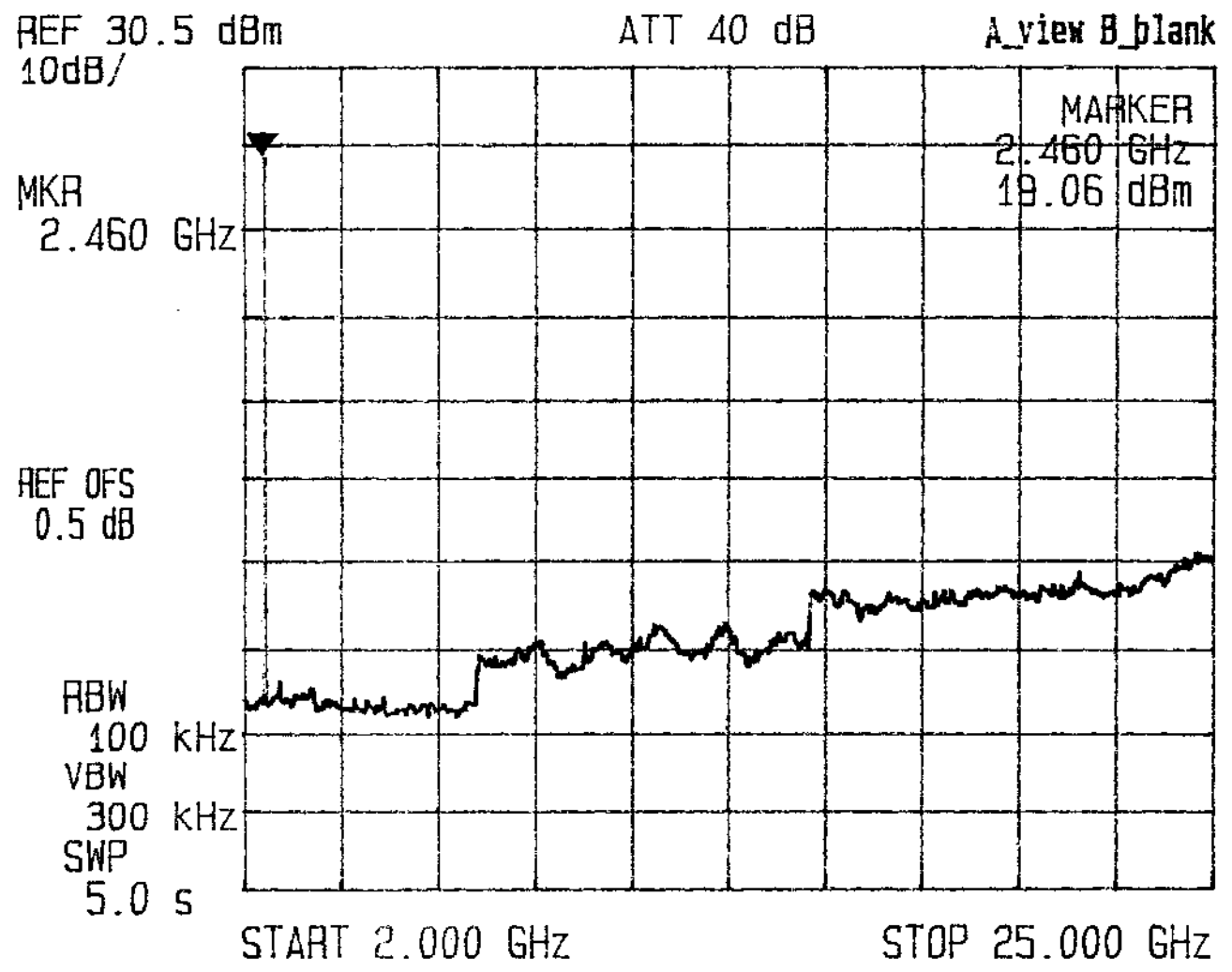
START 2.000 GHz

STOP 25.000 GHz

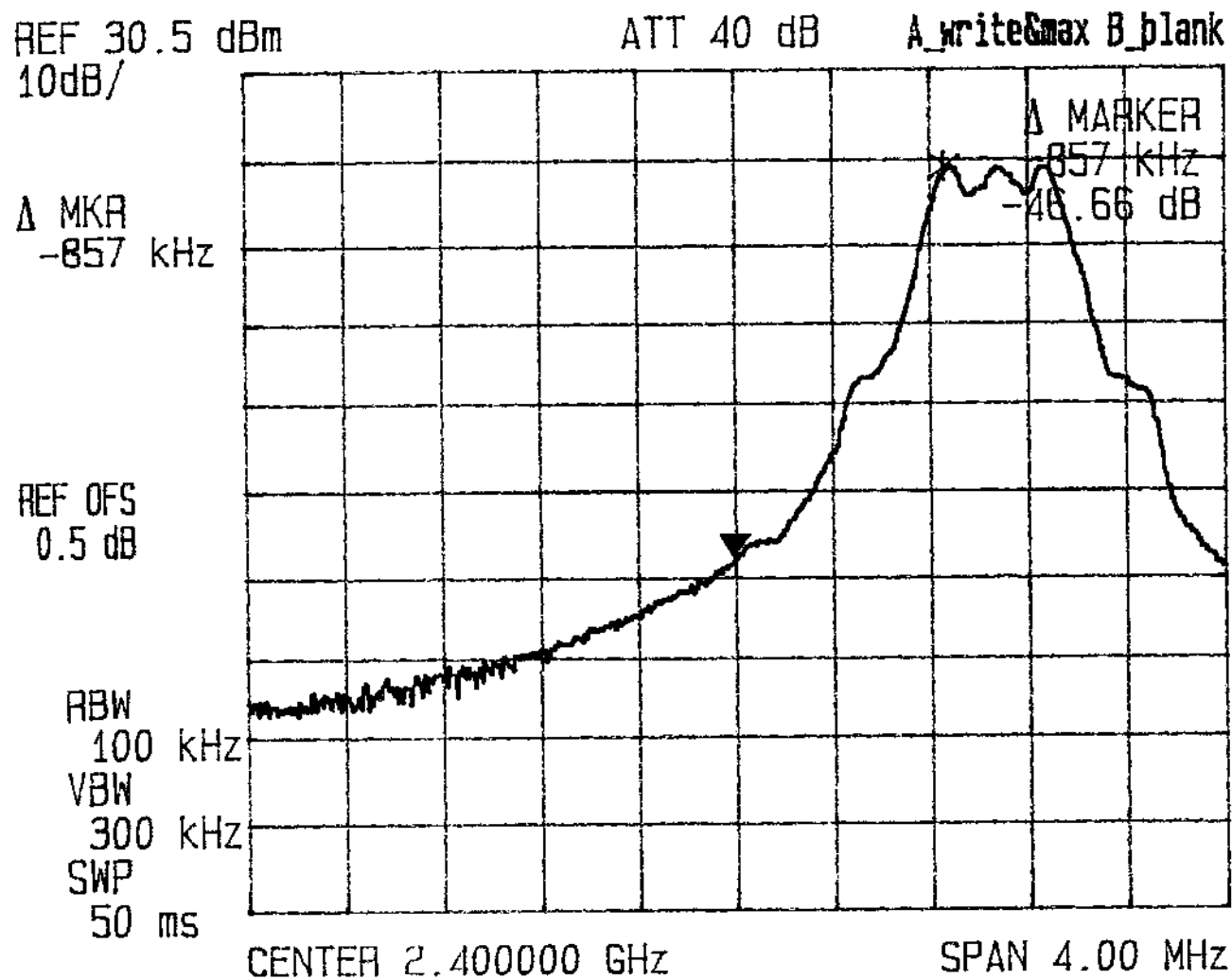
Plot H6C.1



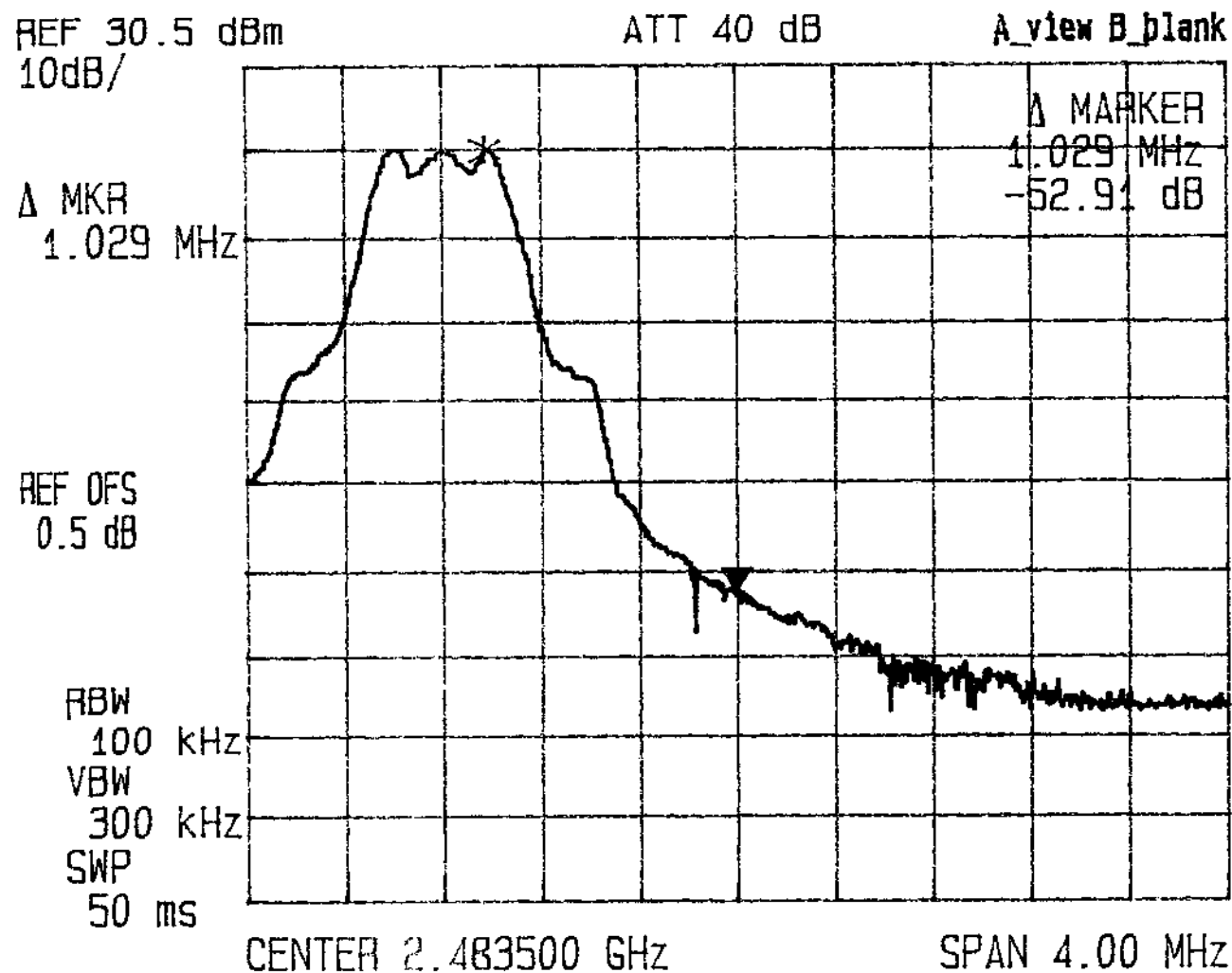
Plot H6c,2



Plot H6d.1



Plot H6d.2





Intertek Testing Services

ETL SEMKO

Report No.: 03084191
Talk (4 Handsets) Mode

Tested By: Hong, Report No.: 03084191

Scan Settings (1 Range)

Frequencies				Receiver Settings			
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp OpRge
150k	30M	5k	10k	PK+AV	10ms	AUTO	LN OFF 60dB

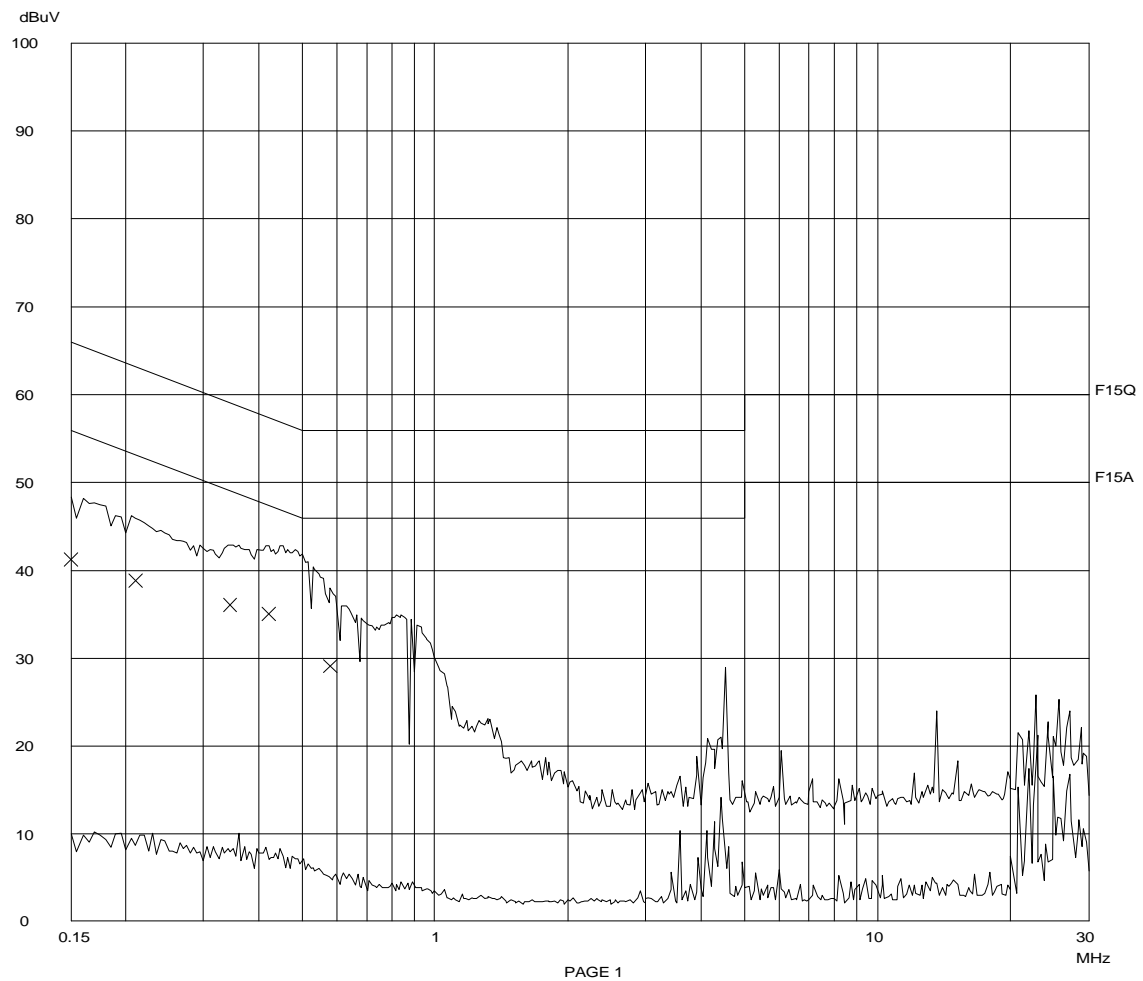
Final Measurement: x QP / + AV

Meas Time: 1 s

Subranges: 16

Acc Margin: 20dB

Transducer No.	Start	Stop	Name
21	9k	30M	EW0698



Ctrl No.: N/A



Intertek Testing Services

ETL SEMKO

Report No.: 03084191
Talk (4 Handsets) Mode

Tested By: Hong, Report No.: 03084191

Scan Settings (1 Range)

|----- Frequencies -----||----- Receiver Settings -----|

Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150k	30M	5k	10k	PK+AV	10ms	AUTO	LN OFF	60dB

Final Measurement

Frequency QP Level QP Limit

MHz	dBuV	dBuV
-----	------	------

0.15000	41.2	66.0
---------	------	------

0.21000	38.8	63.2
---------	------	------

0.34500	36.1	59.1
---------	------	------

0.42000	34.9	57.5
---------	------	------

0.58000	29.1	56.0
---------	------	------

Frequency AV Level AV Limit

MHz	dBuV	dBuV
-----	------	------

no Results

* limit



Intertek Testing Services

ETL SEMKO

Report No.: 03084242
Charging Mode with
Additional Charger

Tested By: Hong, Report No.: 03084242

Scan Settings (1 Range)

|----- Frequencies -----||----- Receiver Settings -----|

Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150k	30M	5k	10k	PK+AV	10ms	AUTO	LN OFF	60dB

Final Measurement: x QP / + AV

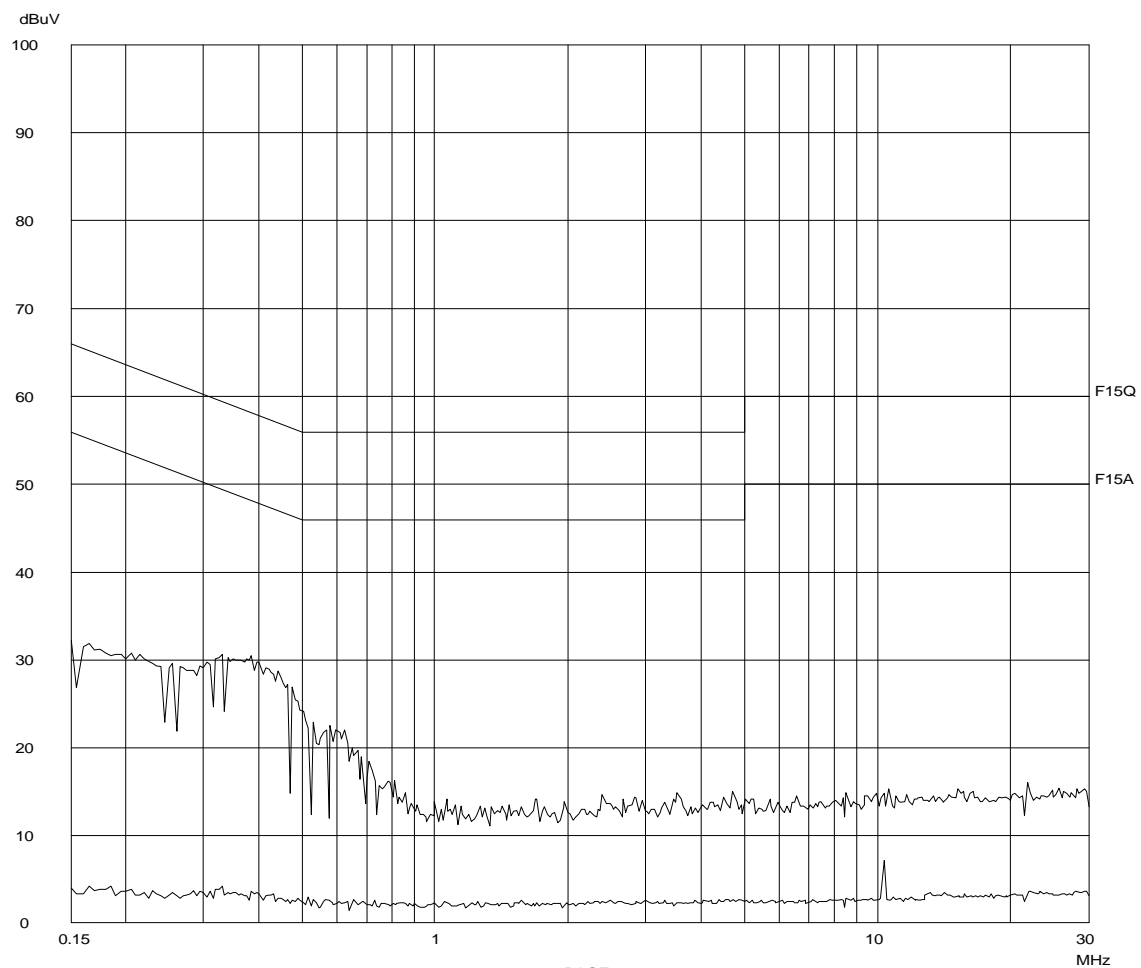
Meas Time: 1 s

Subranges: 16

Acc Margin: 20dB

Transducer No. Start Stop Name

21 9k 30M EW0698



PAGE 1

Ctrl No.: N/A



Intertek Testing Services

ETL SEMKO

Report No.: 03084242
Charging Mode with
Additional Charger

Tested By: Hong, Report No.: 03084242

Scan Settings (1 Range)

|----- Frequencies -----||----- Receiver Settings -----|

Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150k	30M	5k	10k	PK+AV	10ms	AUTO	LN OFF	60dB

Final Measurement

no Results

Ctrl No.: N/A