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Oct. 17, 2003

TIMCO ENGINEERING INC.

P.O. Box 370
849 N.W. State Road 45
Newberry, Florida

Subject: Type Acceptance Application under FCC 47 CFR, Parts 2, 22 (Subpart H) and 90 (Subpart I) - Non-Broadcast Radio Transceivers Operating in the frequency bands 806-824, 824-849, 851-869, 869-894, 896-902 and 928-941 MHz.

Applicant: Kaval Telecom Inc.
Product: In-Hancer Plus Bi-Directional Amplifier
Model: SB800
FCC ID: H6M-SB800

Dear Sir/Madam,

As appointed agent for **Kaval Telecom Inc.**, we would like to submit the application for FCC Certification for the above Product. Please review all necessary files uploaded to TIMCO Upload Web Site.

If you have any queries, please do not hesitate to contact us

Yours truly,



Tri Minh Luu, P. Eng.,
V.P., Engineering

TML/DH

Encl.



31040/SIT



C-1376



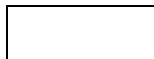
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SL2-IN-E-1119R



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Oct. 17, 2003

Kaval Telecom Inc.
60 Gough Road
Markham, Ontario
Canada, L3R 8X7

Attn.: Mr. Alan Aslett

Subject: Certification Testing in accordance with FCC 47 CFR, Parts 2, 22 (Subpart H) and 90 (Subpart I) - Non-Broadcast Radio Transceivers Operating in the frequency bands 806-824, 824-849, 851-869, 869-894, 896-902 and 928-941 MHz.

Product: In-Hancer Plus Bi-Directional Amplifier
Model: SB800

Dear Mr. Aslett,

The product sample has been tested in accordance with **FCC 47 CFR, Parts 2, 22 (Subpart H) and 90 (Subpart I) - Non-Broadcast Radio Transceivers Operating in the frequency bands 806-824, 824-849, 851-869, 869-894, 896-902 and 928-941 MHz**, and the results and observation were recorded in the engineering report, Our File No.: KTI-034FCC22-90

Enclosed you will find copy of the engineering report. If you have any queries, please do not hesitate to contact us.

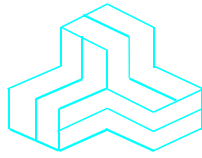
Yours truly,



Tri Minh Luu, P.Eng
Vice President - Engineering

Encl.

ENGINEERING TEST REPORT



In-Hancer Plus Bi-Directional Amplifier

Model No.: SB800

FCC ID: H6M-SB800

Applicant:

Kaval Telecom Inc.

60 Gough Road

Markham, Ontario

Canada, L3R 8X7

Tested in Accordance With

**Federal Communications Commission (FCC)
47 CFR, Parts 2, 22 (Subpart H) and 90 (Subpart I)**

UltraTech's File No.: KTI-034FCC22-90

This Test report is Issued under the Authority of
Tri M. Luu, Professional Engineer,
Vice President of Engineering
UltraTech Group of Labs

Date: Oct. 17, 2003



Report Prepared by: Tri Luu

Tested by: Hung Trinh, EMI/RFI Technician

Issued Date: Oct. 17, 2003

Test Dates: Aug. 28 – Oct. 10, 2003

- *The results in this Test Report apply only to the sample(s) tested, and the sample tested is randomly selected.*
- *This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government.*

UltraTech

3000 Bristol Circle, Oakville, Ontario, Canada, L6H 6G4

Tel.: (905) 829-1570 Fax.: (905) 829-8050

Website: www.ultratech-labs.com, Email: vic@ultratech-labs.com, Email: tri@ultratech-labs.com



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SL2-IN-E-1119R

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EXHIBIT 1. SUBMITTAL CHECK LIST

Annex No.	Exhibit Type	Description of Contents	Quality Check (OK)
--	Test Report	<ul style="list-style-type: none"> Exhibit 1: Submittal check lists Exhibit 2: Introduction Exhibit 3: Performance Assessment Exhibit 4: EUT Operation and Configuration during Tests Exhibit 5: Summary of test Results Exhibit 6: Measurement Data Exhibit 7: Measurement Uncertainty Exhibit 8: Measurement Methods 	OK
1	Test Setup Photos	Photos # 1 to 2	OK
2	External Photos of EUT	Photos # 1 to 2	OK
3	Internal Photos of EUT	Photos of 1 to 20	OK
4	Cover Letters	<ul style="list-style-type: none"> Letter from Ultratech for Certification Request Letter from the Applicant to appoint Ultratech to act as an agent Letter from the Applicant to request for Confidentiality Filing 	OK
5	Attestation Statements	<ul style="list-style-type: none"> N/A 	N/A
6	ID Label/Location Info	ID Label Location of ID Label	OK
7	Block Diagrams	Block diagrams # 1 to 1	OK
8	Schematic Diagrams	Schematic diagrams # 2 of 2	OK
9	Parts List/Tune Up Info	Parts List/Tune Up Info	N/A Component values have shown on the schematics
10	Operational Description	Operational Description	OK
11	RF Exposure Info	RF Exposure Info	OK
12	Users Manual	Users Manual	OK

ULTRATECH GROUP OF LABS

3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

File #: KTI-034FCC22-90
 Oct. 17, 2003

- All test results contained in this engineering test report are traceable to National Institute of Standards and Technology (NIST)

EXHIBIT 2. INTRODUCTION

2.1. SCOPE

Reference:	FCC Parts 2, 22 (Subpart H) and 90
Title:	Telecommunication - Code of Federal Regulations, CFR 47, Parts 2, 22H and 90I
Purpose of Test:	To gain FCC Certification Authorization for Radio operating in the frequency bands 806-824, 824-849, 851-869, 869-894, 896-902 and 928-941 MHz.
Test Procedures:	Both conducted and radiated emissions measurements were conducted in accordance with American National Standards Institute ANSI C63.4 - American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.

2.2. RELATED SUBMITTAL(S)/GRANT(S)

None

2.3. NORMATIVE REFERENCES

Publication	Year	Title
FCC CFR Parts 0-19, 80-End	2002	Code of Federal Regulations – Telecommunication
ANSI C63.4	1992	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
CISPR 22 & EN 55022	1997 1998	Limits and Methods of Measurements of Radio Disturbance Characteristics of Information Technology Equipment
CISPR 16-1	1999	Specification for Radio Disturbance and Immunity measuring apparatus and methods

EXHIBIT 3. PERFORMANCE ASSESSMENT

3.1. CLIENT INFORMATION

APPLICANT	
Name:	Kaval Telecom Inc.
Address:	60 Gough Road Markham, Ontario Canada, L3R 8X7
Contact Person:	Mr. Alan Aslett Phone #: 905-946-3397 Fax #: 905-946-3392 Email Address: asslet@kaval.com

MANUFACTURER	
Name:	Kaval Telecom Inc.
Address:	60 Gough Road Markham, Ontario Canada, L3R 8X7
Contact Person:	Mr. Alan Aslett Phone #: 905-946-3397 Fax #: 905-946-3392 Email Address: asslet@kaval.com

3.2. EQUIPMENT UNDER TEST (EUT) INFORMATION

The following information (with the exception of the Date of Receipt) has been supplied by the applicant.

Brand Name:	Kaval Telecom Inc.
Product Name:	In-Hancer Plus Bi-Directional Amplifier
Model Name or Number:	SB800
Type of Equipment:	Non-broadcast Radio Communication Equipment
External Power Supply:	120 V 60 Hz
Transmitting/Receiving Antenna Type:	Non-Integral

3.3. EUT'S TECHNICAL SPECIFICATIONS

TRANSMITTER	
Equipment Type:	Base station (fixed use)
Intended Operating Environment:	Commercial & Light Industry & Heavy Industry
Power Supply Requirement:	120 V 60 Hz
RF Input Power Rating:	-10 dBm for single channel input/output
RF Output Power Rating:	<ul style="list-style-type: none"> • 3.8 Watts max. (conducted) in 806-824 MHz • 0.5 Watts max. (conducted) in 824-849 MHz • 4.6 Watts max. (conducted) in 851-869 MHz • 0.5 Watts max. (conducted) in 869-894 MHz • 3.9 Watts max. (conducted) in 896-902 MHz • 5.5 Watts max. (conducted) in 928-941 MHz
Operating Frequency Range:	<ul style="list-style-type: none"> • 806-824 MHz • 824-849 MHz • 851-869 MHz • 869-894 MHz • 896-902 MHz • 928-941 MHz
RF Output Impedance:	50 Ohms
Channel Spacing:	EXTENDER
Occupied Bandwidth (99%):	EXTENDER (The 99% OBW of the rf output signal is the same as that of the rf input signal from a FCC certified transmitter)
Emission Designation*:	EXTENDER (The emission designation of the rf output signal is the same as that of the rf input signal from a FCC certified transmitter)
Antenna Connector Type:	N Female
Antenna Description:	<ul style="list-style-type: none"> ▪ Outdoor/Top-Roof Antenna: The Antenna Gain Limit is 10 dBi for Cellular Mobile Bacd 824-849 MHz and 20 dBi for other bands ▪ In-building Antenna: ¼ Wavelength (0 dB Gain) for all the frequency bands.

* For an average case of commercial telephony, the Necessary Bandwidth is calculated as follows:

RECEIVER	
Equipment Type:	Base station (fixed use)
Intended Operating Environment:	Commercial & Light Industry & Heavy Industry
Power Supply Requirement:	120 V 60 Hz
RF Input Power Rating:	-10 dBm for single channel input/output
Operating Frequency Range:	<ul style="list-style-type: none"> • 806-824 MHz • 824-849 MHz • 851-869 MHz • 869-894 MHz • 896-902 MHz • 928-941 MHz

3.4. LIST OF EUT'S PORTS

Port Number	EUT's Port Description	Number of Identical Ports	Connector Type	Cable Type (Shielded/Non-shielded)
1	Power Port	1	3 prong	Non-shielded
2	RF In Port (DownLink)	1	N	Shielded
3	RF Out Port (uplink)	1	N	Shielded

3.5. ANCILLARY EQUIPMENT

None

3.6. DRAWING OF TEST SETUP

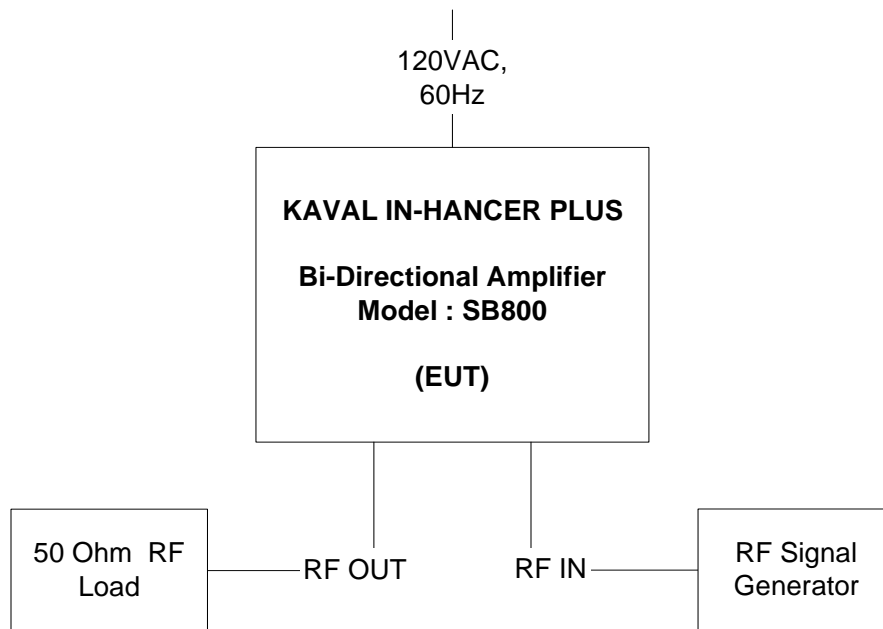


EXHIBIT 4. EUT OPERATING CONDITIONS AND CONFIGURATIONS DURING TESTS

4.1. CLIMATE TEST CONDITIONS

The climate conditions of the test environment are as follows:

Temperature:	21°C
Humidity:	51%
Pressure:	102 kPa
Power input source:	120 V 60 Hz

4.2. OPERATIONAL TEST CONDITIONS & ARRANGEMENT FOR TEST SIGNALS

Operating Modes:	The transmitter was operated in a continuous transmission mode with the carrier modulated as specified in the Test Data.
Special Test Software:	N/A
Special Hardware Used:	N/A
Transmitter Test Antenna:	The EUT is tested with the transmitter antenna port terminated to a 50 Ohms RF Load.

Transmitter Test Signals	
Frequency Band(s): <ul style="list-style-type: none"> ▪ 806-821 MHz ▪ 821-824 MHz ▪ 824-849 MHz ▪ 851-869 MHz ▪ 869-894 MHz ▪ 896-902 MHz ▪ 928-941 MHz 	Near lowest, near middle & near highest frequencies in each frequency bands that the transmitter covers: <ul style="list-style-type: none"> ▪ 806, 813.5 & 821 MHz ▪ 821, 822.5 & 824 MHz ▪ 824, 836.5 & 849 MHz ▪ 851, 860 & 869 MHz ▪ 869, 881.5 & 894 MHz ▪ 896, 902 MHz ▪ 928, 934.5 & 941 MHz
Transmitter Wanted Output Test Signals: RF Power Output (measured maximum output power): Normal Test Modulation Modulating signal source:	Maximum RF Output Power wrt. To maximum RF input of 10 dBm. Unmodulated, TDMA, GSM, CDMA, F3E & F1D External

EXHIBIT 5. SUMMARY OF TEST RESULTS

5.1. LOCATION OF TESTS

All of the measurements described in this report were performed at Ultratech Group of Labs located in the city of Oakville, Province of Ontario, Canada.

- AC Powerline Conducted Emissions were performed in UltraTech's shielded room, 16'(L) by 12'(W) by 12'(H).
- Radiated Emissions were performed at the Ultratech's 3 Meter Open Field Test Site (OFTS) situated in the Town of Oakville, province of Ontario.

The above sites have been calibrated in accordance with ANSI C63.4, and found to be in compliance with the requirements of Sec. 2.948 of the FCC Rules. The descriptions and site measurement data of the Oakville Open Field Test Site has been filed with FCC office (FCC File No.: 31040/SIT 1300B3) and Industry Canada office (Industry Canada File No.: IC2049). Last Date of Site Calibration: Aug. 10, 2003.

5.2. APPLICABILITY & SUMMARY OF EMISSION TEST RESULTS @ FCC PART 22, SUBPART H

FCC PARAGRAPH.	TEST REQUIREMENTS	APPLICABILITY (YES/NO)
22.913 & 2.1046	RF Power Output & Intermodulation	Yes
1.1307, 1.1310, 2.1091 & 2.1093	RF Exposure Limit	Yes
22.101(a) & 2.1055	Frequency Stability	Yes
22.915(d) & 2.1047(a)	Audio Frequency Response	Not applicable for an Amplifier
22.91(a), (b) & (c) & 2.1047(b)	Modulation Limiting	Not applicable for an Amplifier
22.917(a),(b),(c) & (d) & 2.1049	Emission Limitation & Emission Mask	Yes
22.917(e), (f) & (g), 2.1057 & 2.1051	Emission Limits - Spurious Emissions at Antenna Terminal	Yes
22.917(e), (f) & (g), 2.1057 & 2.1053	Emission Limits - Field Strength of Spurious Emissions	Yes

5.3. APPLICABILITY & SUMMARY OF EMISSION TEST RESULTS @ FCC PART 90, SUBPART I

FCC PARAGRAPH.	TEST REQUIREMENTS	APPLICABILITY (YES/NO)
90.205 & 2.1046	RF Power Output & Intermodulation	Yes
1.1307, 1.1310, 2.1091 & 2.1093	RF Exposure Limit	Yes
90.213 & 2.1055	Frequency Stability	Yes
90.242(b)(8) & 2.1047(a)	Audio Frequency Response	Not applicable for an Amplifier
90.210 & 2.1047(b)	Modulation Limiting	Not applicable for an Amplifier
90.210 & 2.1049	Emission Limitation & Emission Mask	Yes
90.210, 2.1057 & 2.1051	Emission Limits - Spurious Emissions at Antenna Terminal	Yes
90.210, 2.1057 & 2.1053	Emission Limits - Field Strength of Spurious Emissions	Yes

5.4. APPLICABILITY & SUMMARY OF EMISSION TEST RESULTS @ FCC PART 15, SUBPART B

In-Hancer Plus Bi-Directional Amplifier, Model No.: SB800, by Kaval Telecom Inc. has also been tested and found to comply with FCC Part 15, Subpart B - Radio Receivers and Class A Digital Devices. The engineering test report has been documented and kept in file and it is available anytime upon FCC request.

5.5. MODIFICATIONS INCORPORATED IN THE EUT FOR COMPLIANCE PURPOSES

None

5.6. DEVIATION OF STANDARD TEST PROCEDURES

None

EXHIBIT 6. MEASUREMENTS, EXAMINATIONS & TEST DATA FOR EMC EMISSIONS

6.1. TEST PROCEDURES

This section contains test results only. Details of test methods and procedures can be found in Exhibit 8 of this report

6.2. MEASUREMENT UNCERTAINTIES

The measurement uncertainties stated were calculated in accordance with requirements of UKAS Document NIS 81 with a confidence level of 95%. Please refer to Exhibit 7 for Measurement Uncertainties.

6.3. MEASUREMENT EQUIPMENT USED:

The measurement equipment used complied with the requirements of the Standards referenced in the Methods & Procedures ANSI C63.4:1992 and CISPR 16-1.

6.4. ESSENTIAL/PRIMARY FUNCTIONS AS DECLARED BY THE MANUFACTURER:

The essential function of the EUT is to correctly communicate data to and from radios over RF link.

6.5. RF POWER OUTPUT & INTERMODULATION @ FCC 2.1046, 22.913 & 90.205

6.5.1. Limits

FCC 22.913:- The effective radiated power (ERP) of transmitters in the Cellular Radiotelephone Service must not exceed the limits in this section:

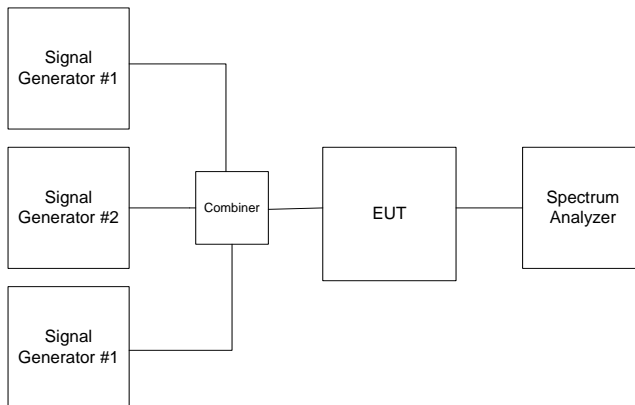
	Maximum ERP (Watts)
Base Transmitters (869-894 MHz)	500 Watts
Mobile Transmitters & Auxiliary Test Transmitters (824-849 MHz)	7 Watts

FCC 90.205:- Please refer to FCC CFR 47, Part 90, Subpart I, Para. 90.205 for specification details.

6.5.2. Method of Measurements

Refer to Exhibit 8, § 8.1 (Conducted) and 8.2 (Radiated) of this report for measurement details

6.5.3. Test Arrangement



6.5.4. Test Data

6.5.4.1. FCC Part 90 - RF OUTPUT POWERS with Modulation, Single Channel, Maximum RF IN = 10 dBm

Operating Frequency Bands (MHz)	Test Frequency (MHz)	Modulation	Total RF Output Power at Antenna Port (dBm)	Maximum Antenna Gain (dBi)	Maximum ERP (dBm)	RF Output Power Ratings at Antenna Port (dBm)
806 – 824	806.0	F1D / F3E	35.5	20	53.4	37
	815.0	F1D / F3E	35.8	20	53.7	37
	824.0	F1D / F3E	35.6	20	53.5	37
851 – 869	851.0	F1D / F3E	36.6	20	56.6	37
	960.0	F1D / F3E	36.5	20	56.5	37
	869.0	F1D / F3E	36.4	20	56.4	37
896 - 902	896.0	F1D / F3E	35.9	20	53.8	37
	902.0	F1D / F3E	35.8	20	53.7	37
928 - 941	928.0	F1D / F3E	36.7	20	54.6	37
	934.5	F1D / F3E	37.4	20	55.3	37
	941.0	F1D / F3E	37.2	20	55.1	37

6.5.4.2. FCC Part 22 - RF OUTPUT POWERS with Modulation, Single Channel, Maximum RF IN = 10 dBm, Mobile Band: 824-849 MHz

Operating Frequency Bands (MHz)	Test Frequency (MHz)	Modulation	Total RF Output Power at Antenna Port (dBm)	Maximum Antenna Gain (dBi)	Maximum ERP (dBm)	RF Output Power Ratings at Antenna Port (dBm)
824 – 849 (Mobile)	824.0	F1D / F3E	27.1	10	35.0	27
	836.5	F1D / F3E	27.1	10	35.0	27
	849.0	F1D / F3E	27.1	10	35.0	27
824 – 849 (Mobile)	824.0	CDMA	27.1	10	35.0	27
	836.5	CDMA	27.0	10	34.9	27
	849.0	CDMA	27.1	10	35.0	27
824 – 849 (Mobile)	824.0	TDMA	27.2	10	35.1	27
	836.5	TDMA	27.2	10	35.1	27
	849.0	TDMA	27.0	10	34.9	27
824 – 849 (Mobile)	824.0	GSM	27.0	10	34.9	27
	836.5	GSM	27.0	10	34.9	27
	849.0	GSM	27.1	10	35.0	27

6.5.4.3. FCC Part 22 - RF OUTPUT POWERS with Modulation, Single Channel, Maximum RF IN = 10 dBm, Fixed Base Station Band (869-894 MHz)

Operating Frequency Bands (MHz)	Test Frequency (MHz)	Modulation	Total RF Output Power at Antenna Port (dBm)	Maximum Antenna Gain (dBi)	Maximum ERP (dBm)	RF Output Power Ratings at Antenna Port (dBm)
869-894 (Mobile)	869	F1D / F3E	27.1	20	45.0	27
	881.5	F1D / F3E	27.1	20	45.0	27
	894	F1D / F3E	27.1	20	45.0	27
869-894 (Mobile)	869	CDMA	27.0	20	44.9	27
	881.5	CDMA	27.0	20	44.9	27
	894	CDMA	27.0	20	44.9	27
869-894 (Mobile)	869	TDMA	27.1	20	45.0	27
	881.5	TDMA	27.0	20	44.9	27
	894	TDMA	27.2	20	45.1	27
869-894 (Mobile)	869	GSM	27.1	20	45.0	27
	881.5	GSM	27.0	20	44.9	27
	894	GSM	27.1	20	45.0	27

6.5.4.4. INTERMODULATION IN & PEAK POWERS IN 806-824 MHz Band – NO MODULATION

Frequency (MHz)	Number of In/Out Channels	Modulation	Maximum RF Input (conducted) (dBm)	Maximum RF Output (conducted) (dBm)	Maximum Antenna Gain allowed (dBi)	Maximum ERP Measured (dBm)	Manufacturer's Maximum RF Output Rating (conducted) (dBm)
806.0	1	unmodulated	10.0	35.5	20	53.4	37
806.0, 806.0125	2	unmodulated	-53.2	26.6	20	44.5	29
806.0, 806.0125, 806.0250	3	unmodulated	-56.5	23.4	20	41.3	28
815.0	1	unmodulated	10.0	35.8	20	53.7	37
815.0, 815.0125,	2	unmodulated	-53.0	26.9	20	44.8	29
815.0, 814.9875, 815.0125	3	unmodulated	-57.3	23.4	20	41.3	28
824.0	1	unmodulated	10.0	35.6	20	53.5	37
824.0, 823.9875,	2	unmodulated	-51.9	26.4	20	44.3	29
824.0, 823.9875, 823.9750	3	unmodulated	-55.2	23.1	20	41.0	28

Please Refer to Plots # 1-9 for Intermodulation in the Band 806-824 MHz.

6.5.4.5. INTERMODULATION IN & PEAK POWERS IN 824-849 MHz Band – NO MODULATION

Frequency (MHz)	Number of In/Out Channels	Modulation	Maximum RF Input (conducted) (dBm)	Maximum RF Output (conducted) (dBm)	Maximum Antenna Gain allowed (dBi)	Maximum ERP Measured (dBm)	Manufacturer's Maximum RF Output Rating (conducted) (dBm)
824	1	unmodulated	+10.0	27.1	10	35.0	27
824, 824.030	2	unmodulated	-59.3	20.9	10	28.8	24
824, 824.030, 824.060	3	unmodulated	-62.2	18.2	10	26.1	23
836.5	1	unmodulated	-53.2	27.1	10	35.0	27
836.5, 836.530	2	unmodulated	-59.1	21.0	10	28.9	24
836.5, 836.530, 836.470	3	unmodulated	-61.5	18.1	10	26.0	23
849	1	unmodulated	+10.0	27.1	10	35.0	27
849, 848.970	2	unmodulated	-57.6	21.2	10	29.1	24
849, 848.970, 848.940	3	unmodulated	-60.9	18.0	10	25.9	23

Please Refer to Plots # 10-18 for Intermodulation in the Band 824-849 MHz.

6.5.4.6. INTERMODULATION IN & PEAK POWERS IN 851-869 MHz Band – NO MODULATION

Frequency (MHz)	Number of In/Out Channels	Modulation	Maximum RF Input (conducted) (dBm)	Maximum RF Output (conducted) (dBm)	Maximum Antenna Gain allowed (dBi)	Maximum ERP Measured (dBm)	Manufacturer's Maximum RF Output Rating (conducted) (dBm)
851.0	1	unmodulated	10.0	35.8	20	53.7	37
851.0, 851.0125	2	unmodulated	-53.4	26.5	20	44.4	29
851.0, 851.0125, 851.0250	3	unmodulated	-57.0	23.4	20	41.3	28
860.0	1	unmodulated	10.0	36.2	20	54.1	37
860, 860.0125	2	unmodulated	-54.3	26.8	20	44.7	29
860.0, 860.0125, 859.9875	3	unmodulated	-57.5	23.6	20	41.5	28
869.0	1	unmodulated	10.0	36.1	20	54.0	37
869.0 868.9875	2	unmodulated	-52.6	26.6	20	44.5	29
869.0, 868.9875, 868.9750	3	unmodulated	-56.0	23.4	20	41.3	28

Please Refer to Plots # 19-27 for Intermodulation in the Band 851-869 MHz.

6.5.4.7. INTERMODULATION IN & PEAK POWERS IN 869-894 MHz Band – NO MODULATION

Frequency (MHz)	Number of In/Out Channels	Modulation	Maximum RF Input (conducted) (dBm)	Maximum RF Output (conducted) (dBm)	Maximum Antenna Gain allowed (dBi)	Maximum ERP Measured (dBm)	Manufacturer's Maximum RF Output Rating (conducted) (dBm)
869	1	unmodulated	-51.8	27.1	10	35.0	27
869, 869.030	2	unmodulated	-57.9	21.2	10	29.1	24
869, 869.030, 869.060	3	unmodulated	-61.2	18.0	10	25.9	23
881.5	1	unmodulated	-53.2	27.1	10	35.0	27
881.5, 881.530	2	unmodulated	-58.3	21.0	10	28.9	24
881.5, 881.530, 881.470	3	unmodulated	-62.5	17.9	10	25.8	23
894	1	unmodulated	-52.5	27.1	10	35.0	27
894, 893.970	2	unmodulated	-58.4	21.1	10	29.0	24
894, 893.970, 893.940	3	unmodulated	-61.4	18.1	10	26.0	23

Please Refer to Plots # 28-36 for Intermodulation in the Band 869-894 MHz.

6.5.4.8. INTERMODULATION IN & PEAK POWERS IN 896-902 MHz Band – NO MODULATION

Frequency (MHz)	Number of In/Out Channels	Modulation	Maximum RF Input (conducted) (dBm)	Maximum RF Output (conducted) (dBm)	Maximum Antenna Gain allowed (dBi)	Maximum ERP Measured (dBm)	Manufacturer's Maximum RF Output Rating (conducted) (dBm)
896	1	unmodulated	10.0	35.9	20	53.8	37
896 896.0125	2	unmodulated	-52.3	26.2	20	44.1	29
896, 896.0125, 896.0250	3	unmodulated	-55.4	23.3	20	41.2	28
902	1	unmodulated	10	35.8	20	53.7	37
902, 901.9875	2	unmodulated	-51.5	26.3	20	44.2	29
902, 901.9875, 901.9750	3	unmodulated	-54.6	23.2	20	41.1	28

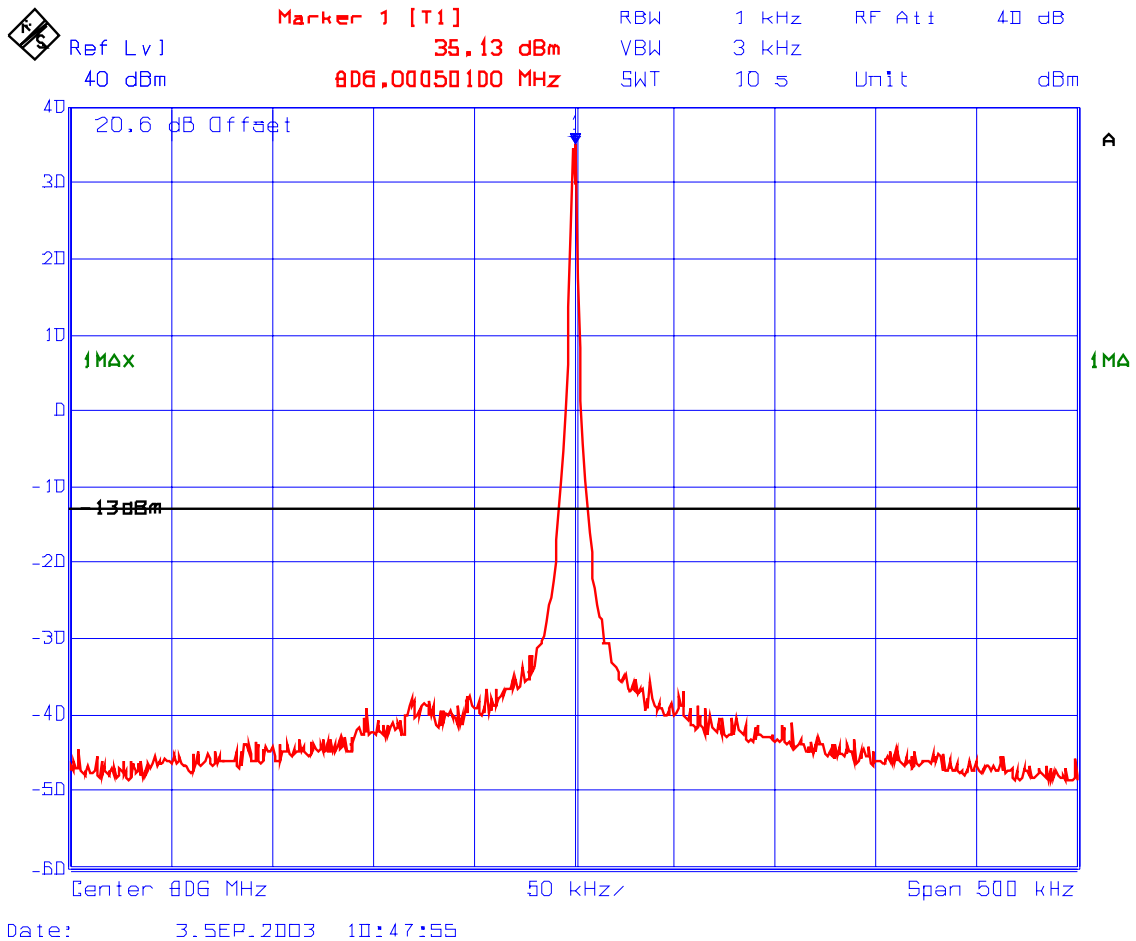
Please Refer to Plots # 37-42 for Intermodulation in the Band 896-902 MHz.

6.5.4.9. INTERMODULATION IN & PEAK POWERS IN 928-941 MHz Band – NO MODULATION

Frequency (MHz)	Number of In/Out Channels	Modulation	Maximum RF Input (conducted) (dBm)	Maximum RF Output (conducted) (dBm)	Maximum Antenna Gain allowed (dBi)	Maximum ERP Measured (dBm)	Manufacturer's Maximum RF Output Rating (conducted) (dBm)
928	1	unmodulated	10.0	36.7	20	54.6	37
928, 928.0125	2	unmodulated	-51.4	27.1	20	45.0	29
928, 928.0125, 928.0250	3	unmodulated	-54.5	24.0	20	41.9	28
934.5	1	unmodulated	10	37.4	20	55.3	37
934.5, 934.5125	2	unmodulated	-52.4	27.6	20	45.5	29
934.5, 934.5125, 934.4875	3	unmodulated	-55.3	24.4	20	42.3	28
941	1	unmodulated	10	37.2	20	55.1	37
941, 940.9875	2	unmodulated	-51.2	27.6	20	45.5	29
941, 940.9875, 940.9750	3	unmodulated	-54.5	24.5	20	42.4	28

Please Refer to Plots # 43-51 for Intermodulation in the Band 986-941 MHz.

**PLOT#: 1 Intermodulation with 1 RF signal input/output in 806-824 MHz Band
Fc: 806 MHz, RF Input: 10 dBm**



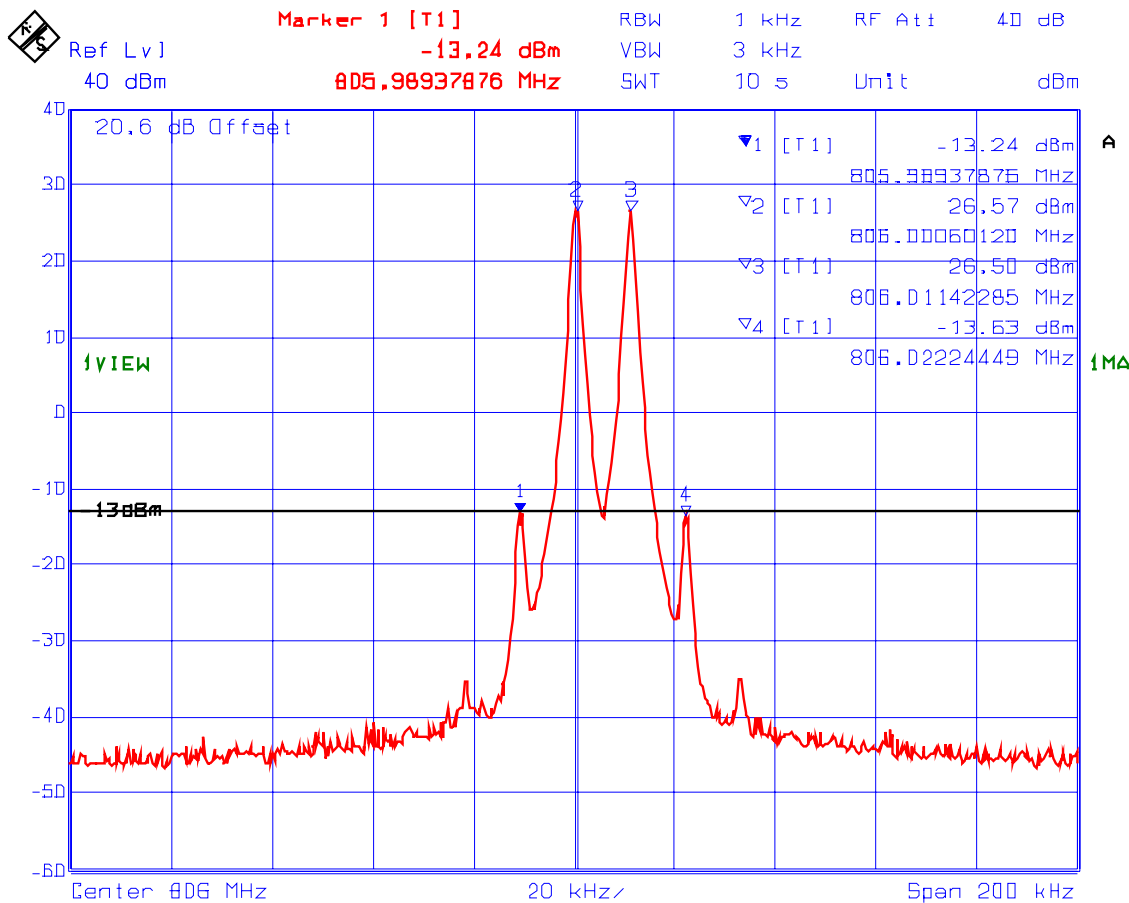
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Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

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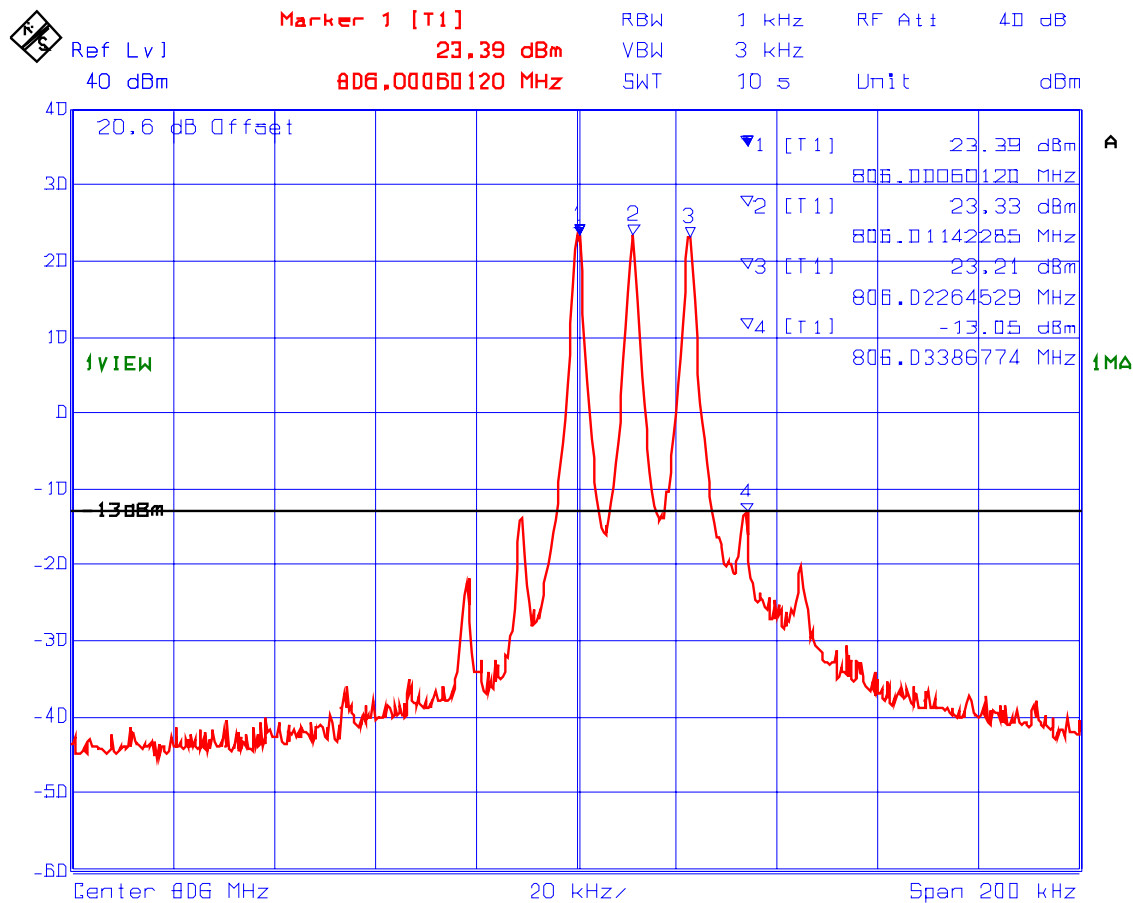
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PLOT#: 2 Intermodulation with 2 RF signal inputs/outputs in 806-824 MHz Band
Fc: 806 MHz & Fc + 12.5 kHz, RF Input: (1) -53.16 dBm, (2) -53.69 dBm



Date: 3.SEP.2003 13:37:37

PLOT # 3 Intermodulation with 3 RF signal inputs/outputs in 806-824 MHz Band
Fc: 806 MHz, Fc + 12.5 kHz & Fc + 25 kHz,
RF Input: (1) -56.46 dBm, (2) -56.53 dBm, (3) -56.66 dBm



Date: 3.SEP.2003 14:49:09

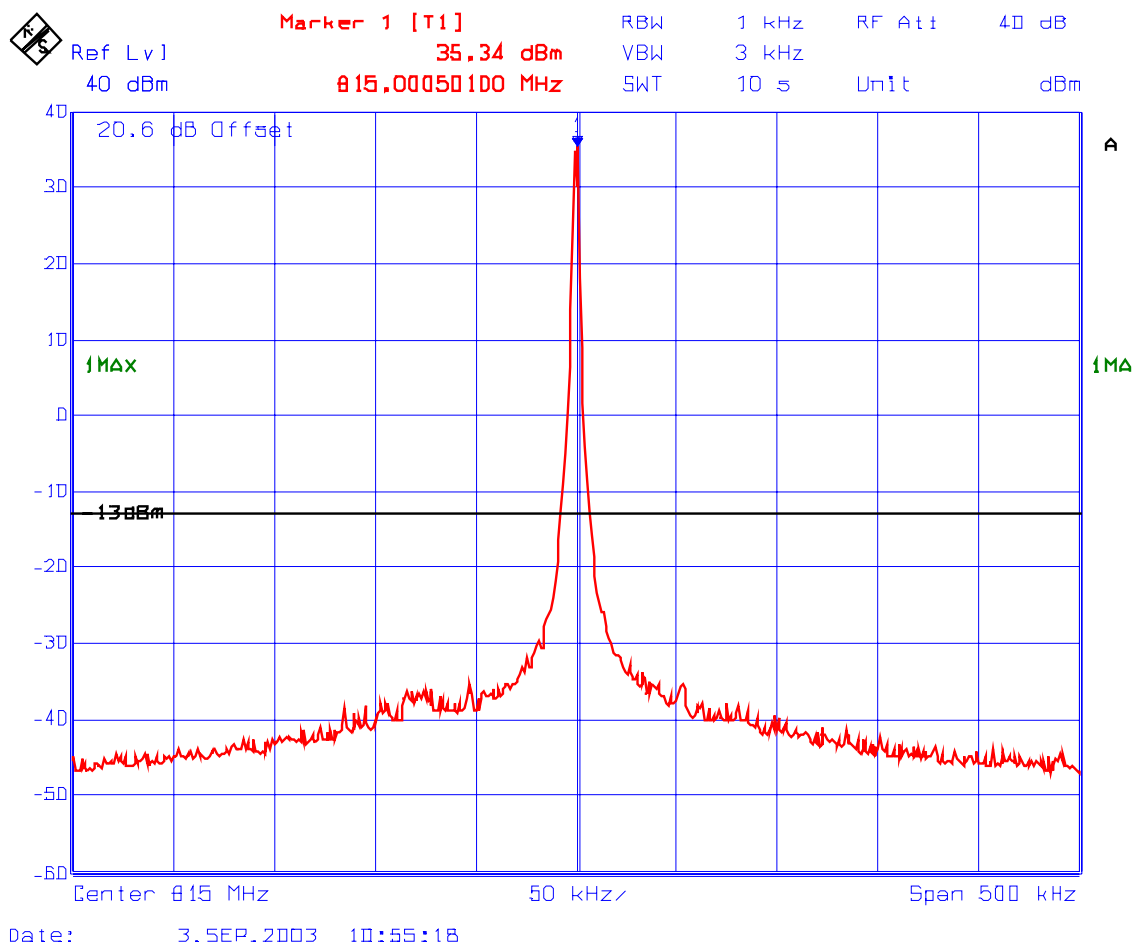
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**PLOT # 4 Intermodulation with 1 RF signal input/output in 806-824 MHz Band
Fc: 815 MHz, RF Input: 10 dBm**



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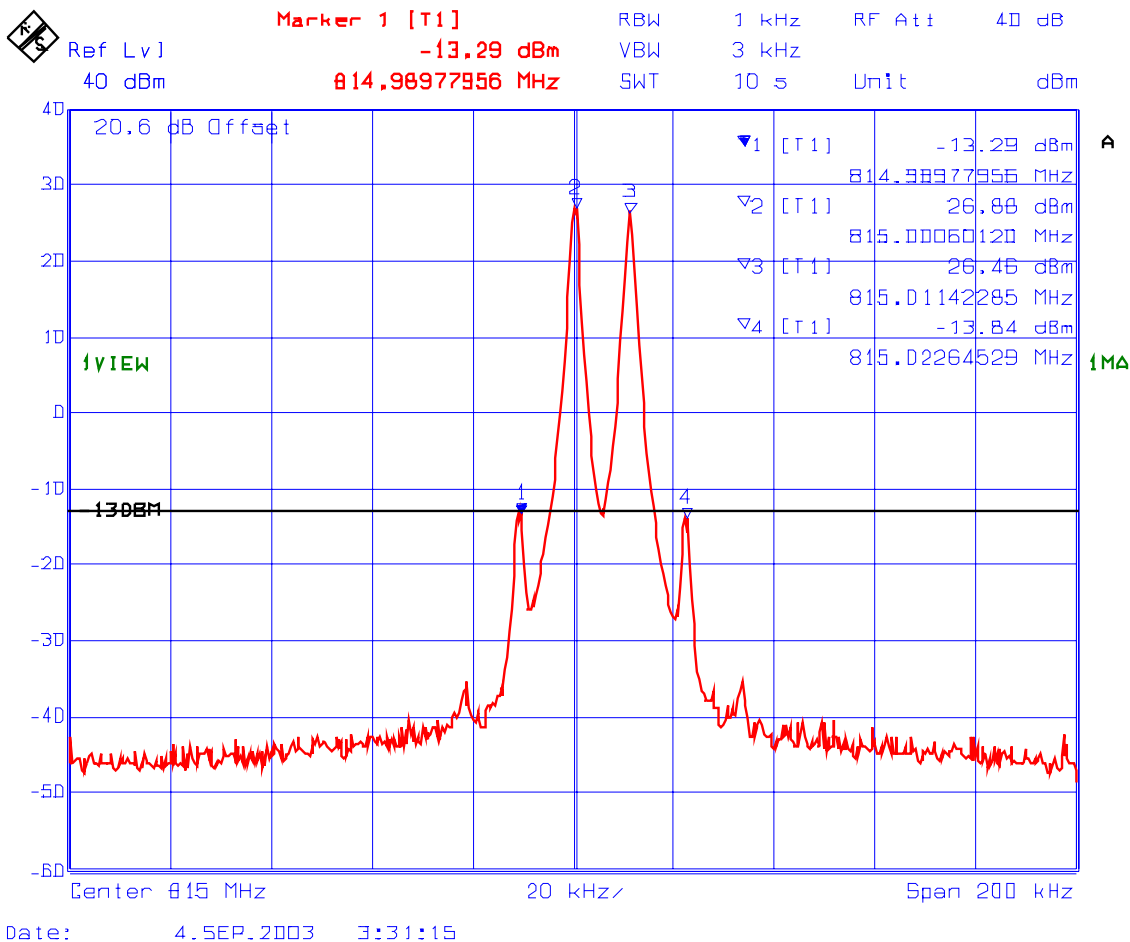
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PLOT # 5 Intermodulation with 2 RF signal inputs/outputs in 806-824 MHz Band
Fc: 815 MHz & Fc + 12.5 kHz
RF Input: (1) -52.96 dBm, (2) -53.32 dBm



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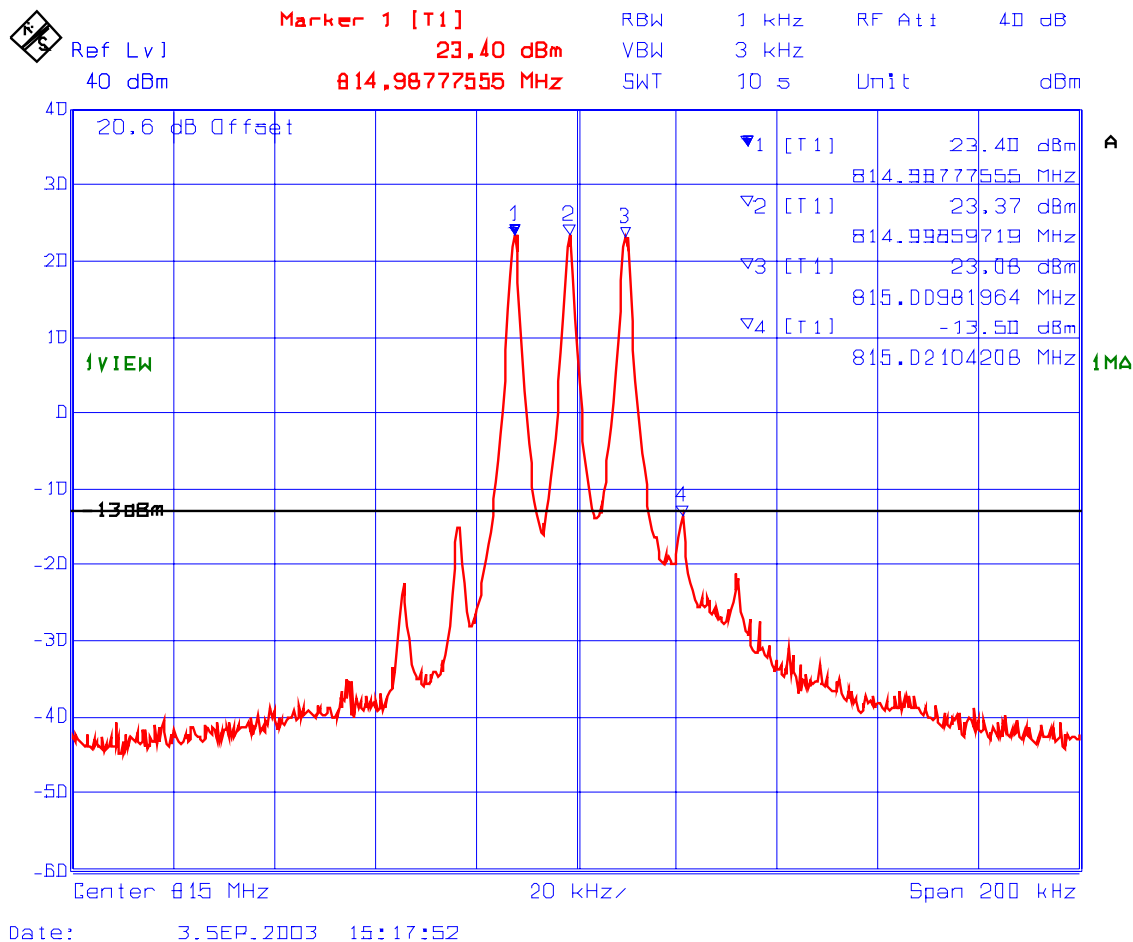
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PLOT # 6 Intermodulation with 3 RF signal inputs/outputs in 806-824 MHz Band
Fc: 815 MHz, Fc - 12.5 kHz & Fc + 12.5 kHz
RF Input: (1) -57.29 dBm, (2) -57.35 dBm, (3) -57.56 dBm



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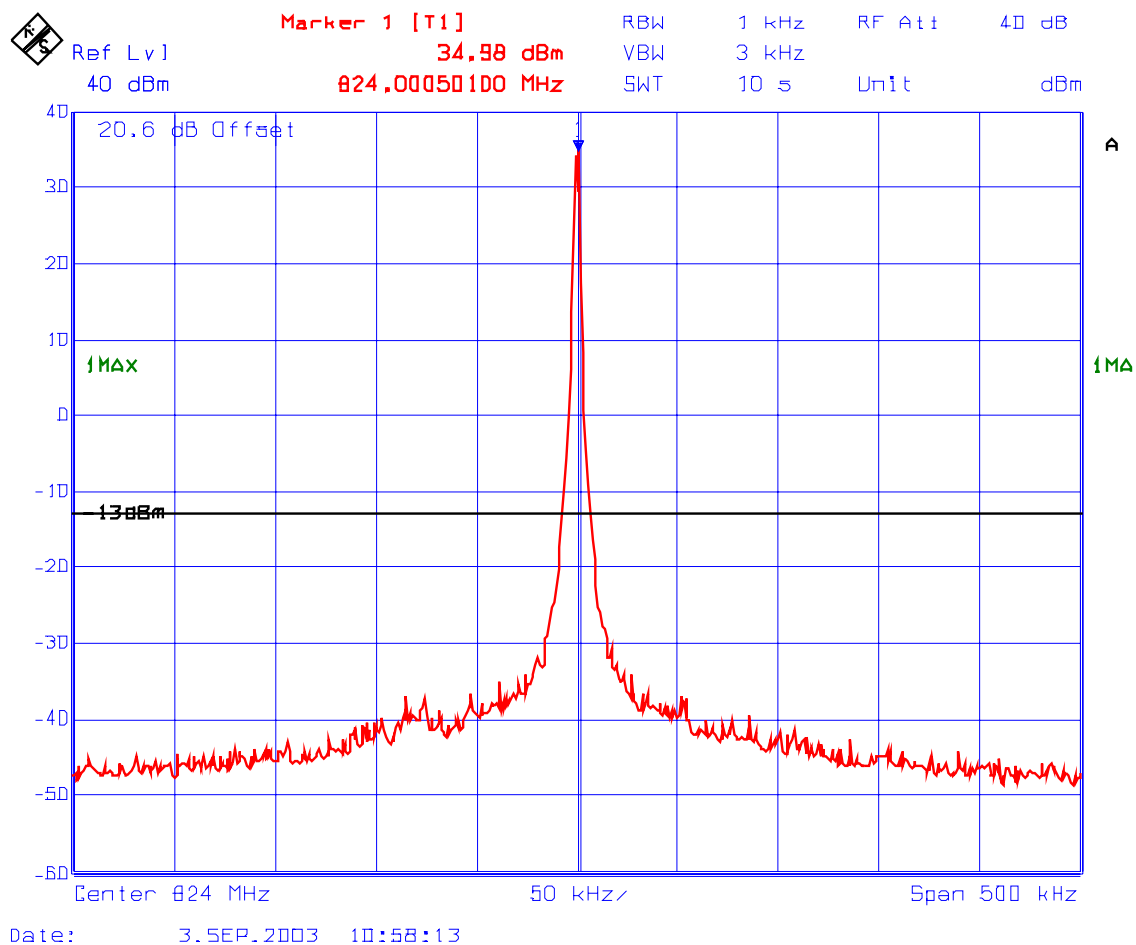
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**PLOT # 7 Intermodulation with 1 RF signal input/output in 806-824 MHz Band
Fc: 824 MHz, RF Input: 10 dBm**



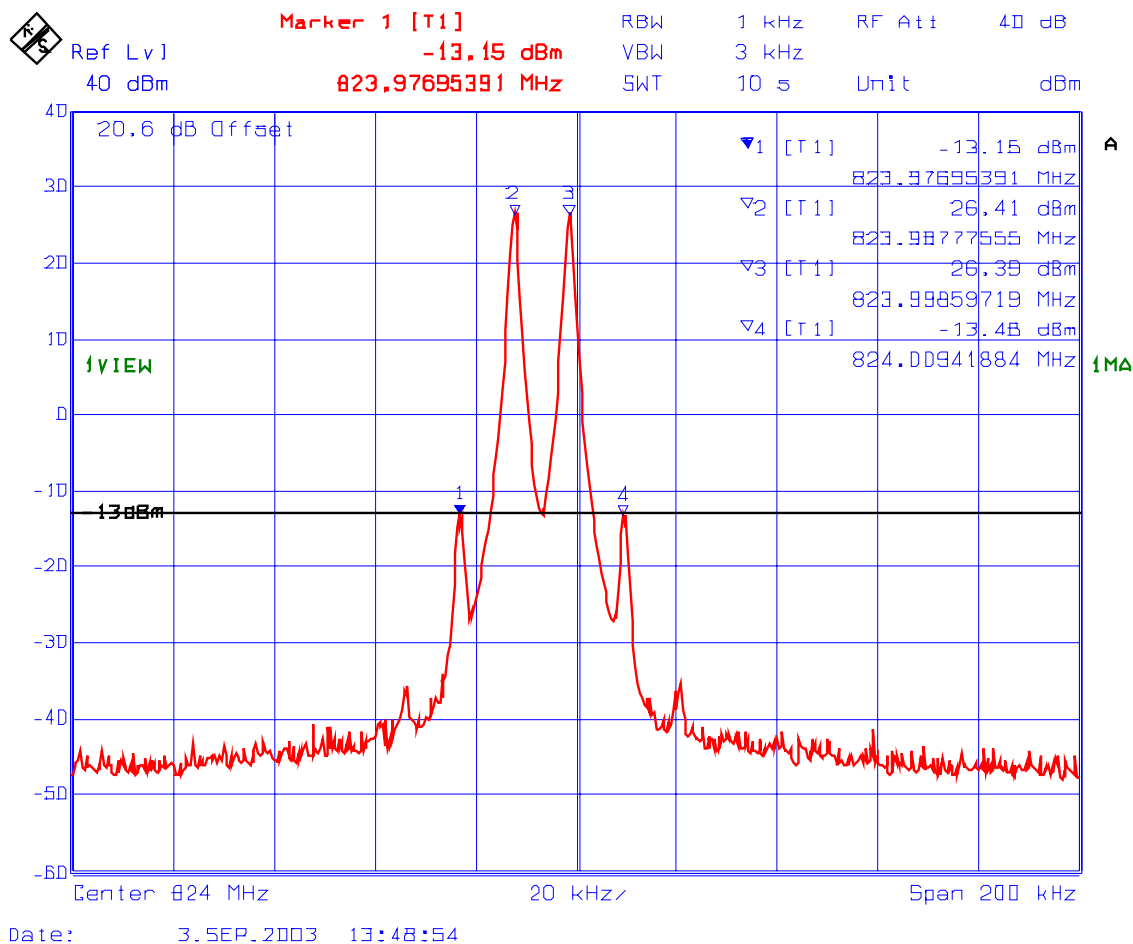
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PLOT # 8 Intermodulation with 2 RF signal inputs/outputs in 806-824 MHz Band
Fc: 824 MHz & Fc - 12.5 kHz
RF Input: (1) -51.89 dBm, (2) -52.26 dBm



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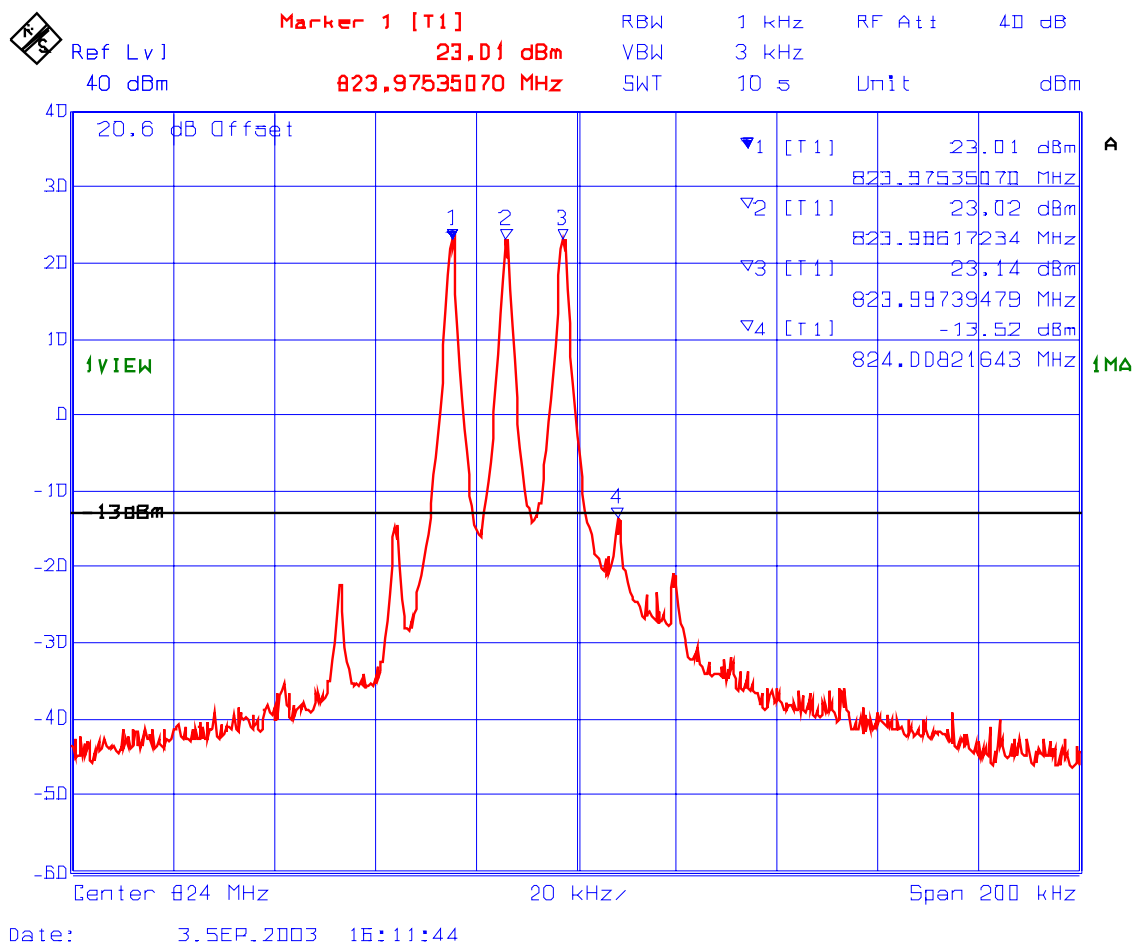
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PLOT # 9 Intermodulation with 3 RF signal inputs/outputs in 806-824 MHz Band
Fc: 824 MHz, Fc - 12.5 kHz & Fc - 25 kHz
RF Input: (1) -55.35 dBm, (2) -55.35 dBm, (3) -55.22 dBm



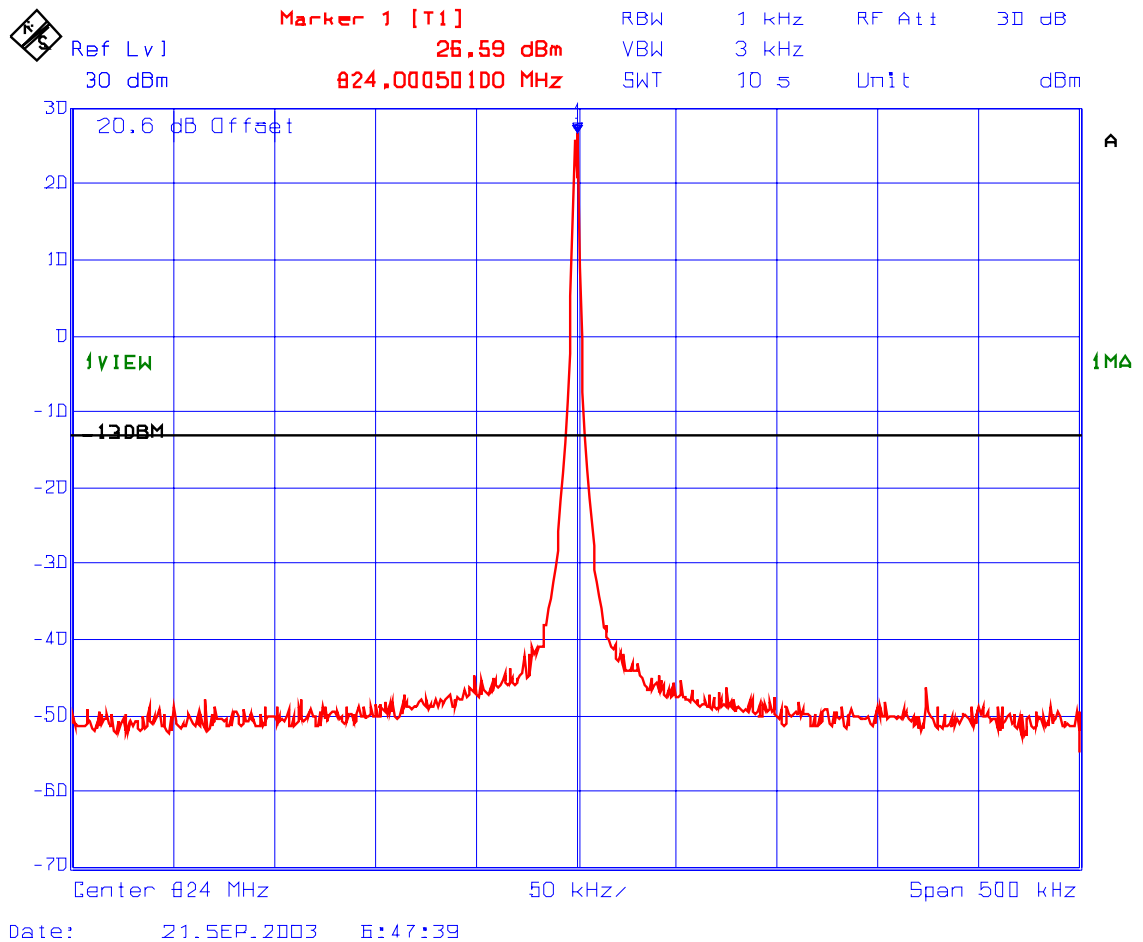
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PLOT # 10 Intermodulation with 1 RF signal input/output in 824-849 MHz Band
Fc: 824 MHz, RF Input: -53.27 dBm



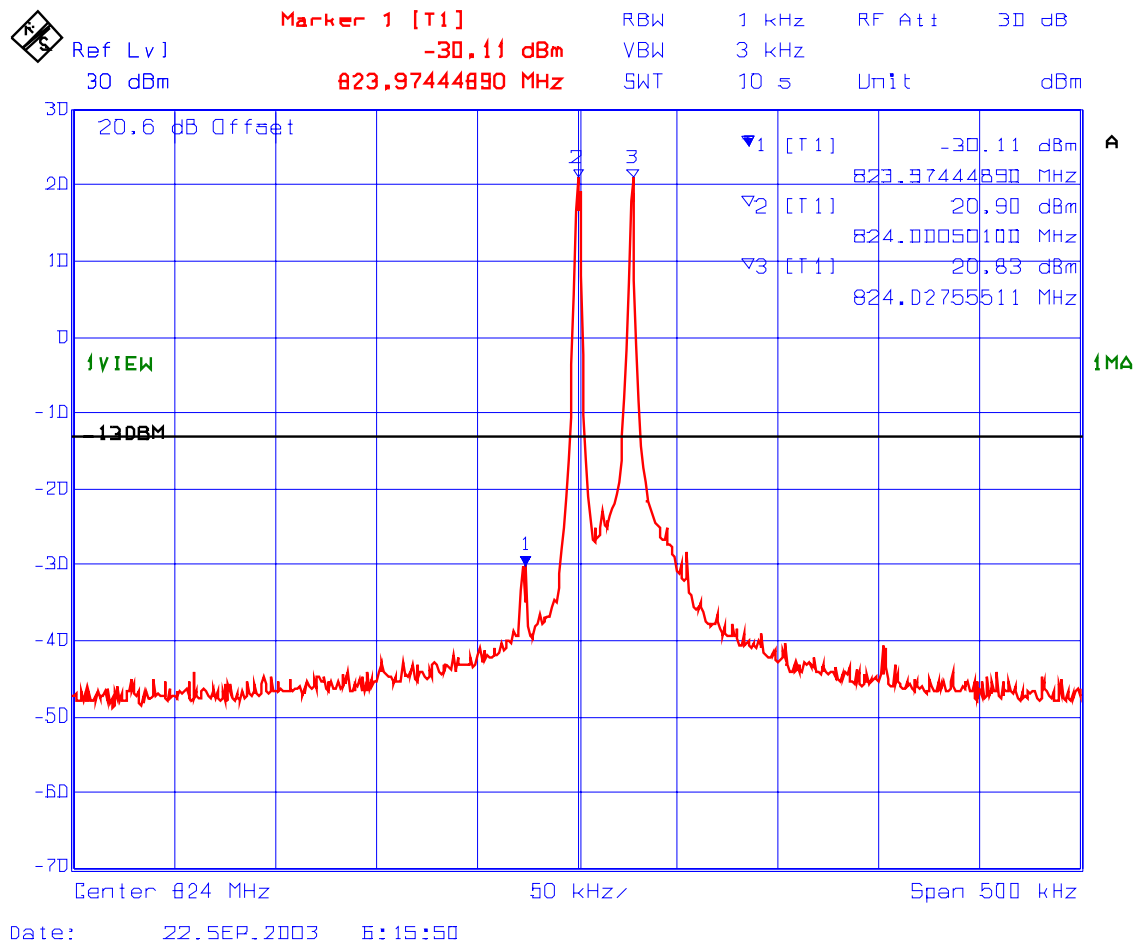
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PLOT # 11 Intermodulation with 2 RF signal inputs/outputs in 824-849 MHz Band
Fc: 824 MHz, Fc + 30 kHz
RF Input 1: -59.34 dBm, RF Input 2: -59.46 dBm



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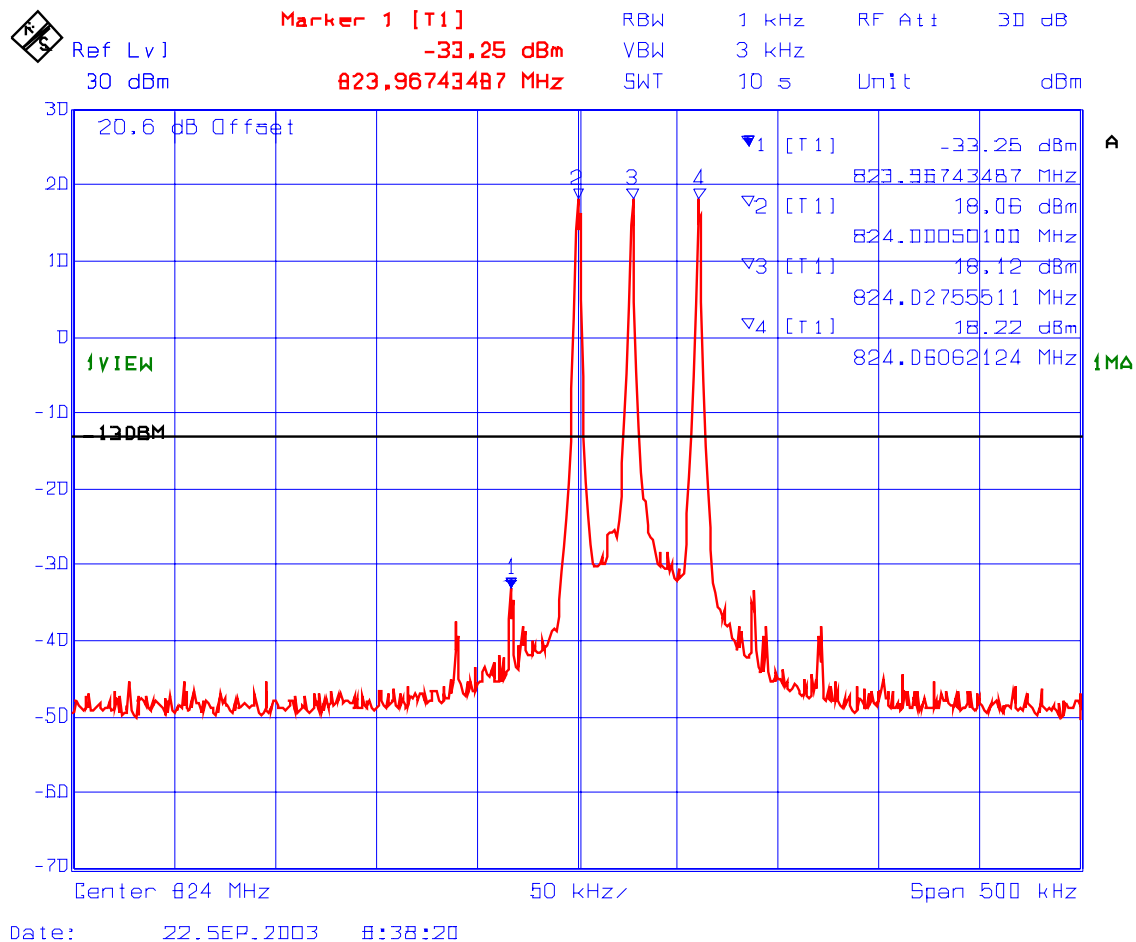
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PLOT # 12 Intermodulation with 3 RF signal inputs/outputs in 824-849 MHz Band
Fc: 824 MHz, Fc + 30 kHz, Fc + 60 kHz
RF Input 1: -62.38dBm, RF Input 2: -62.31 dBm, RF Input 3: -62.19 dBm



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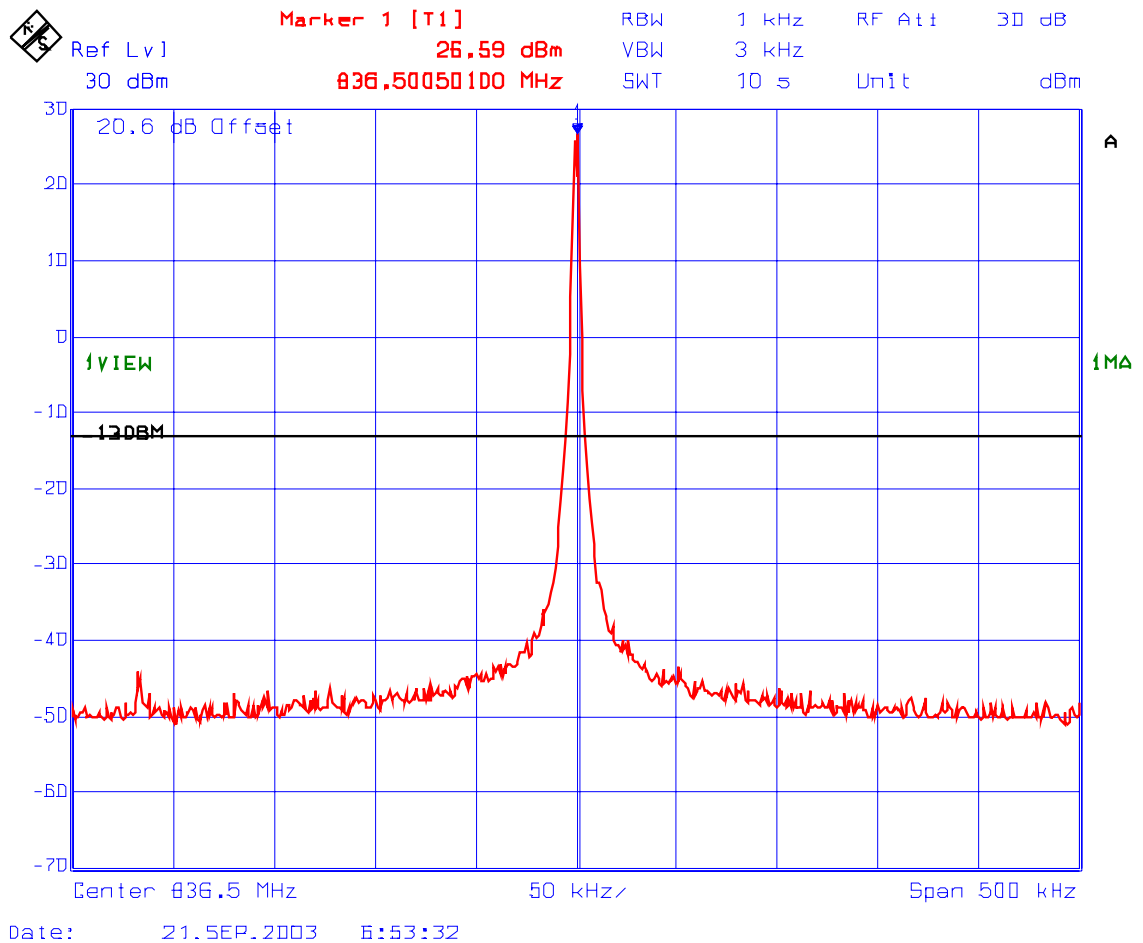
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**PLOT # 13 Intermodulation with 1 RF signal input/output in 824-849 MHz Band
Fc: 836.5 MHz, RF Input: -53.23 dBm**



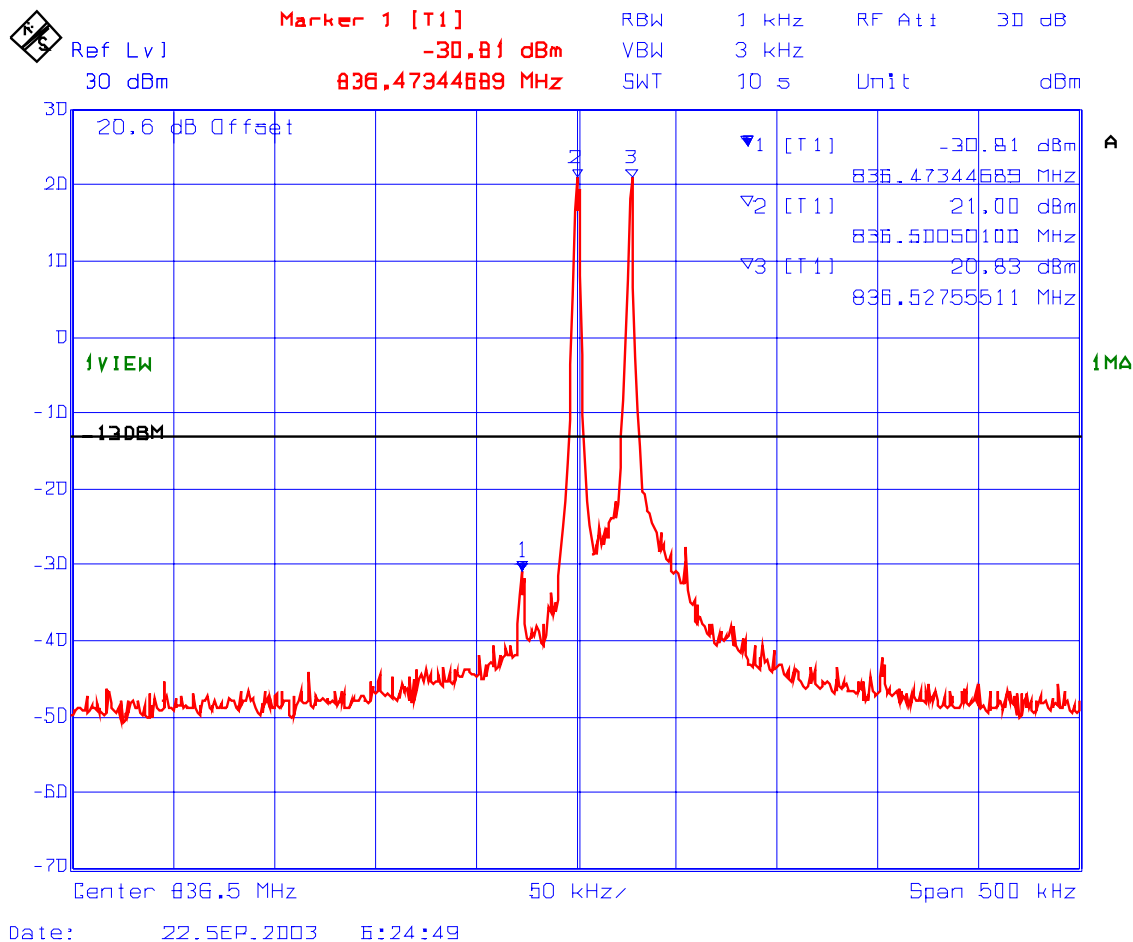
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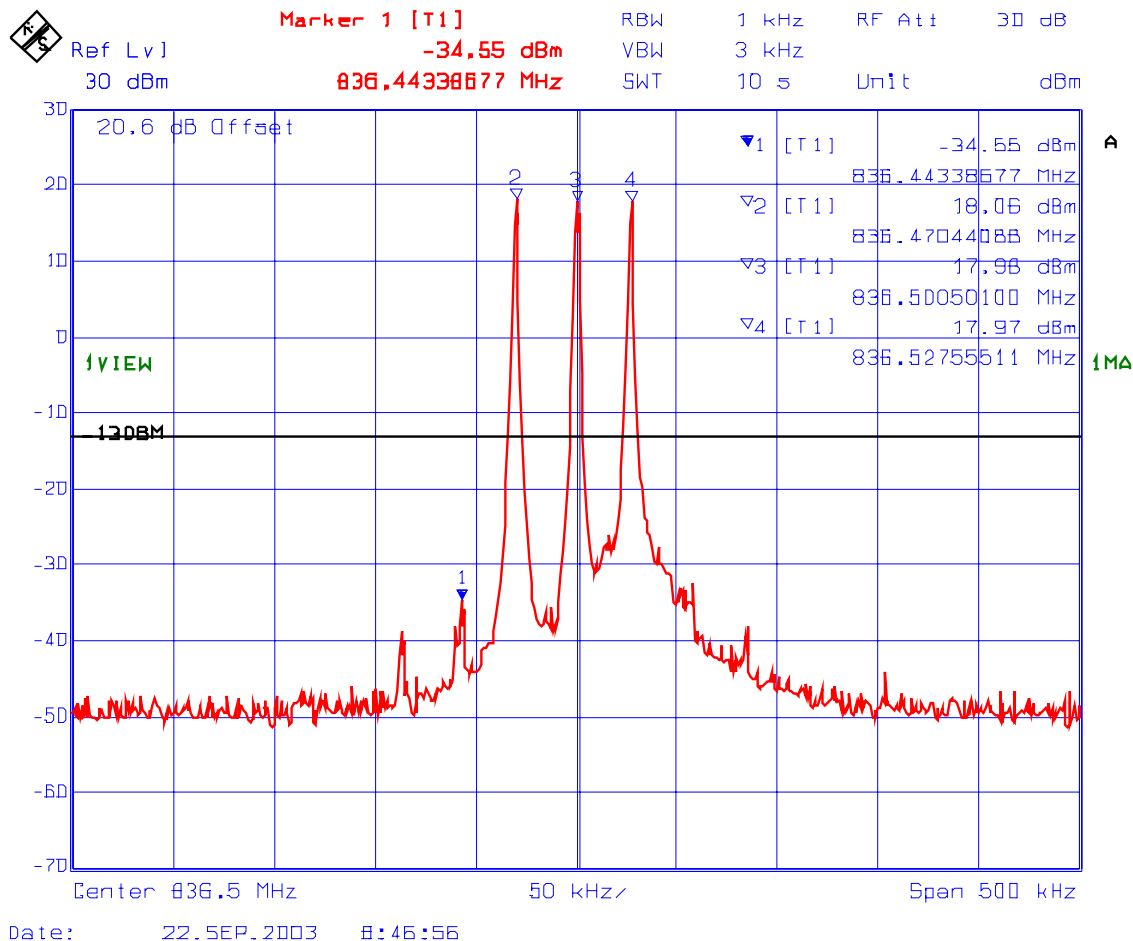
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PLOT # 14 Intermodulation with 2 RF signal inputs/outputs in 824-849 MHz Band
Fc: 836.5 MHz, Fc + 30 kHz
RF Input 1: -59.07 dBm, RF Input 2: -59.20 dBm



PLOT # 15 Intermodulation with 3 RF signal inputs/outputs in 824-849 MHz Band
Fc: 836.5 MHz, Fc + 30 kHz, Fc - 30 kHz
RF Input 1: -61.60 dBm, RF Input 2: -61.58 dBm, RF Input 3: -61.48 dBm



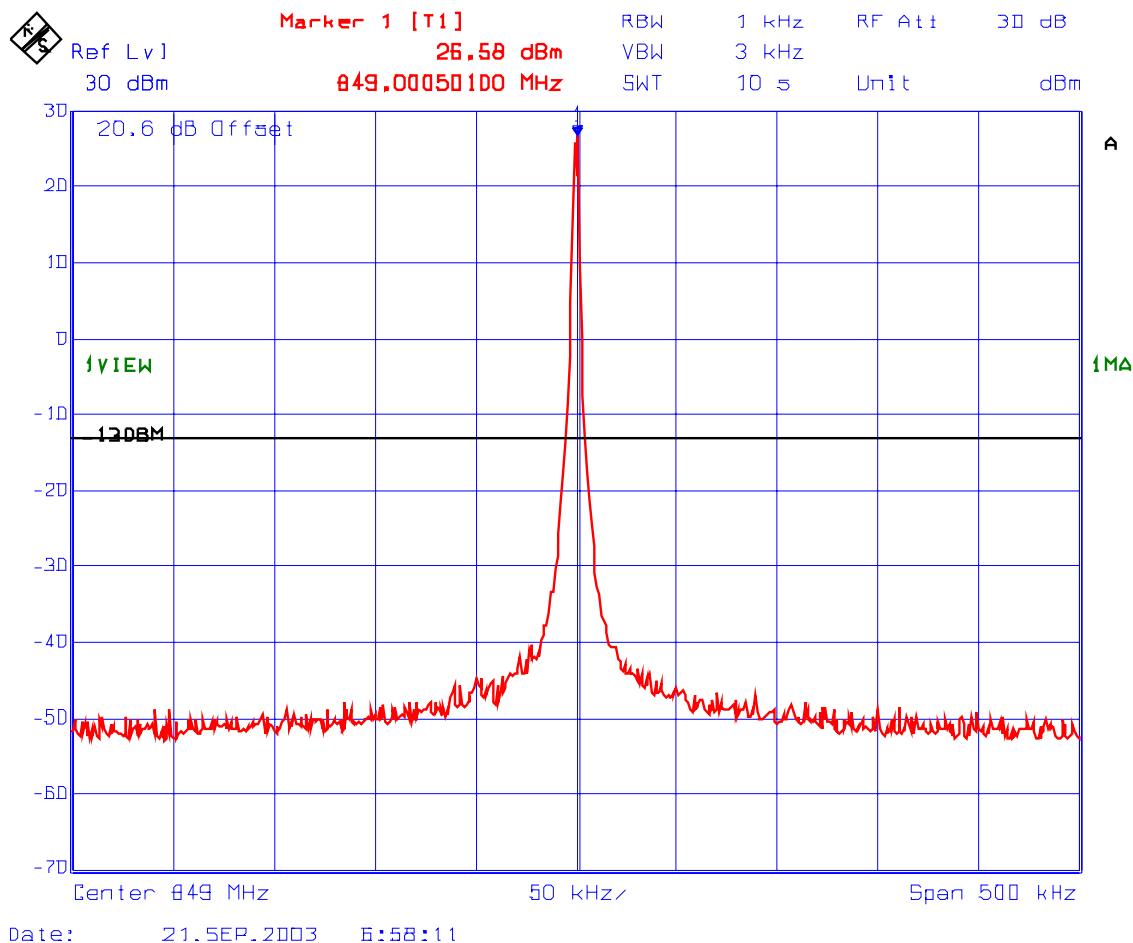
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PLOT # 16 Intermodulation with 1 RF signal input/output in 824-849 MHz Band
Fc: 849 MHz, RF Input: -51.79 dBm



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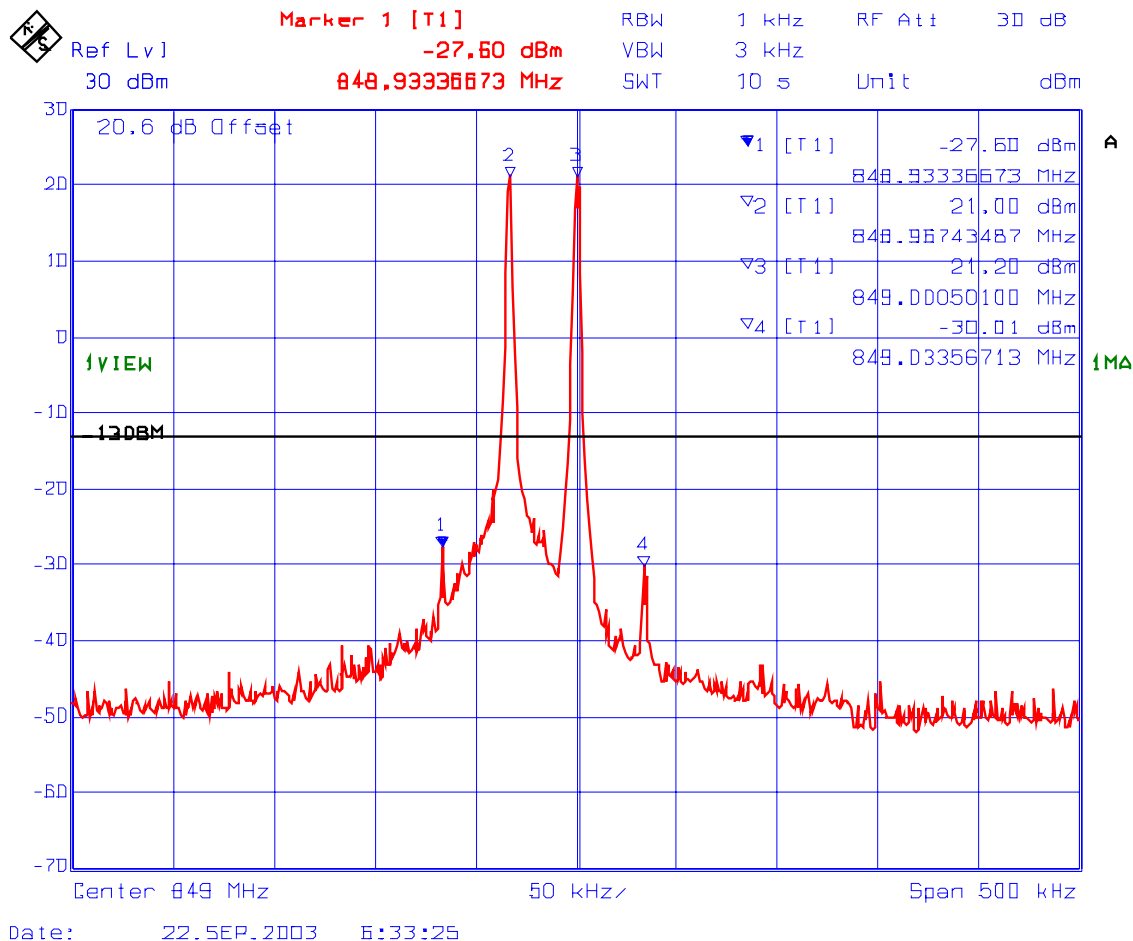
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PLOT # 17 Intermodulation with 2 RF signal inputs/outputs in 824-849 MHz Band
Fc: 849 MHz, Fc - 30 kHz
RF Input 1: -57.57 dBm, RF Input 2: -57.81 dBm



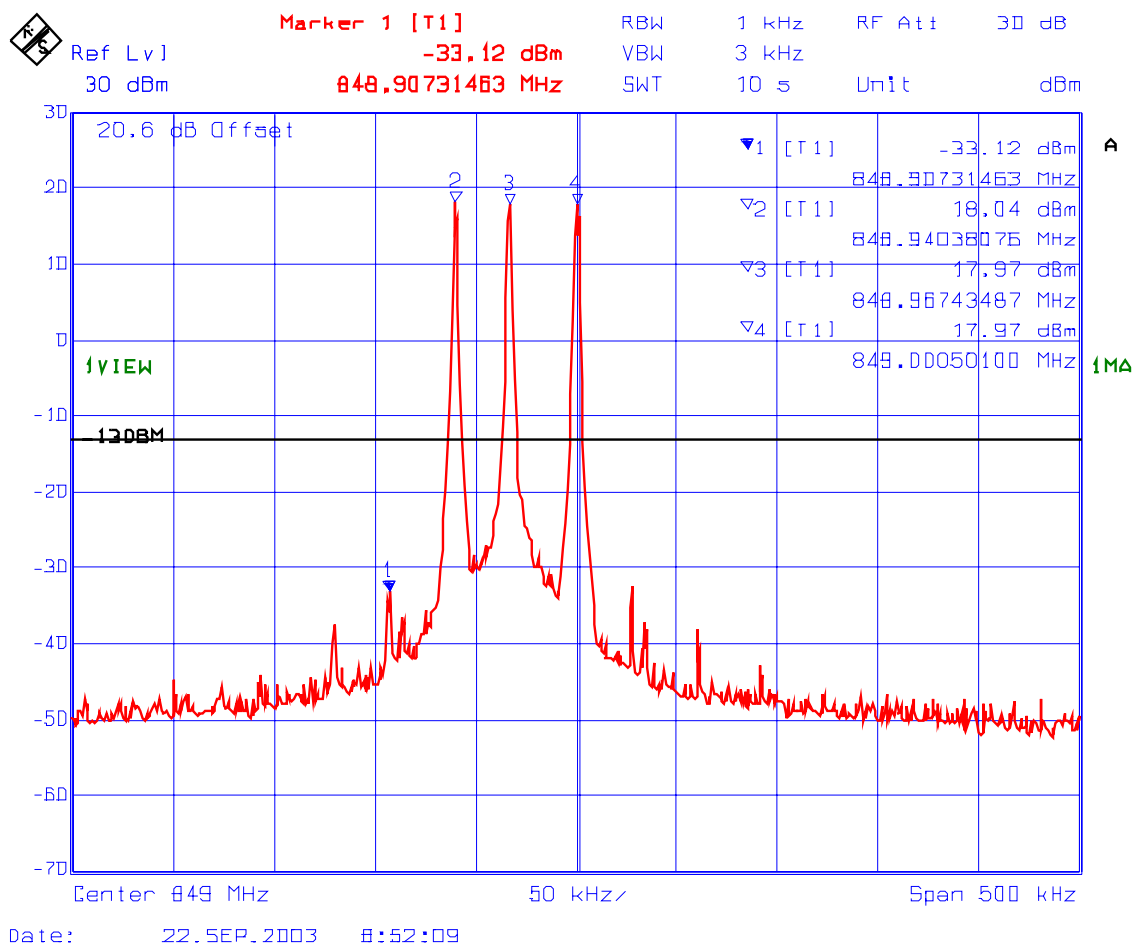
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PLOT # 18 Intermodulation with 3 RF signal inputs/outputs in 824-849 MHz Band
Fc: 849 MHz, Fc - 30 kHz, Fc - 60 kHz
RF Input 1: -60.96 dBm, RF Input 2: -60.98 dBm, RF Input 3: -60.92 dBm



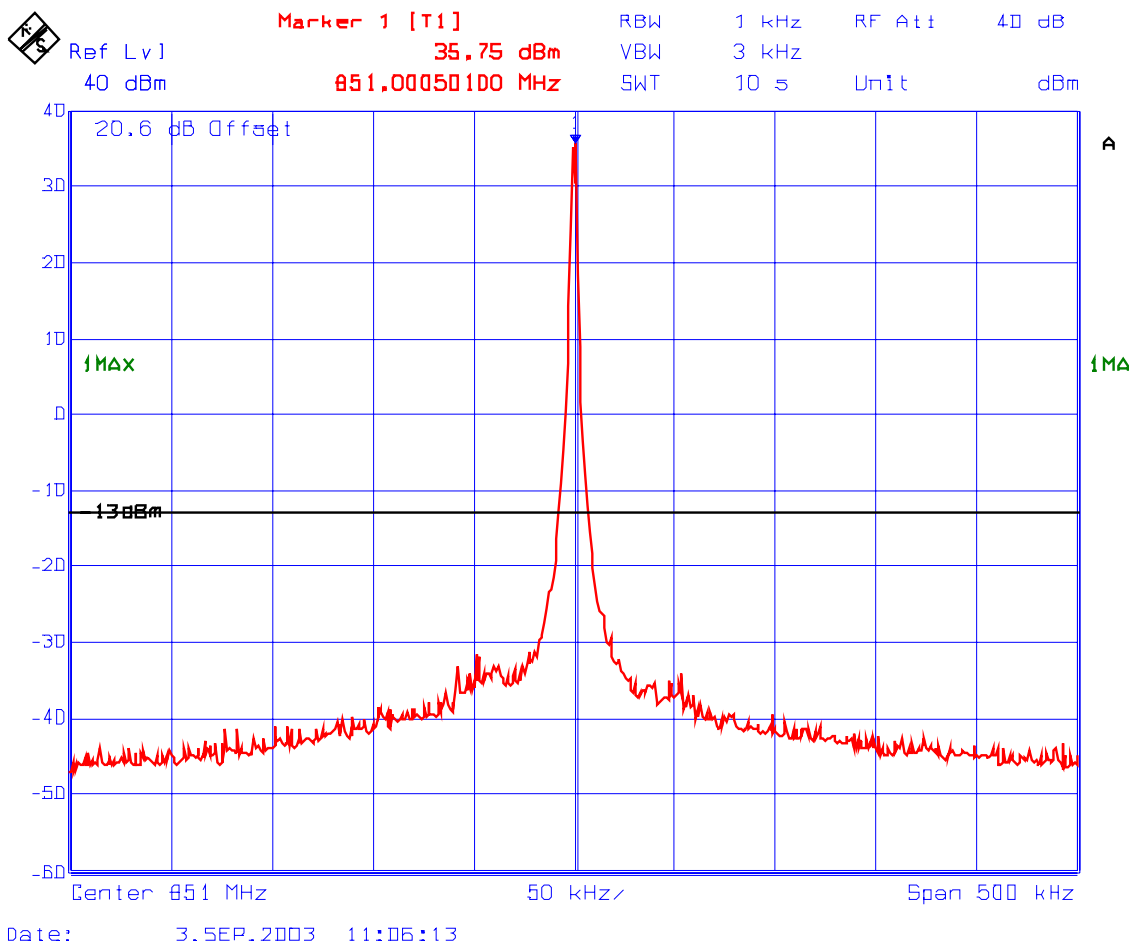
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**PLOT # 19 Intermodulation with 1 RF signal input/output in 851-869 MHz Band
Fc: 851 MHz, RF Input: 10 dBm**



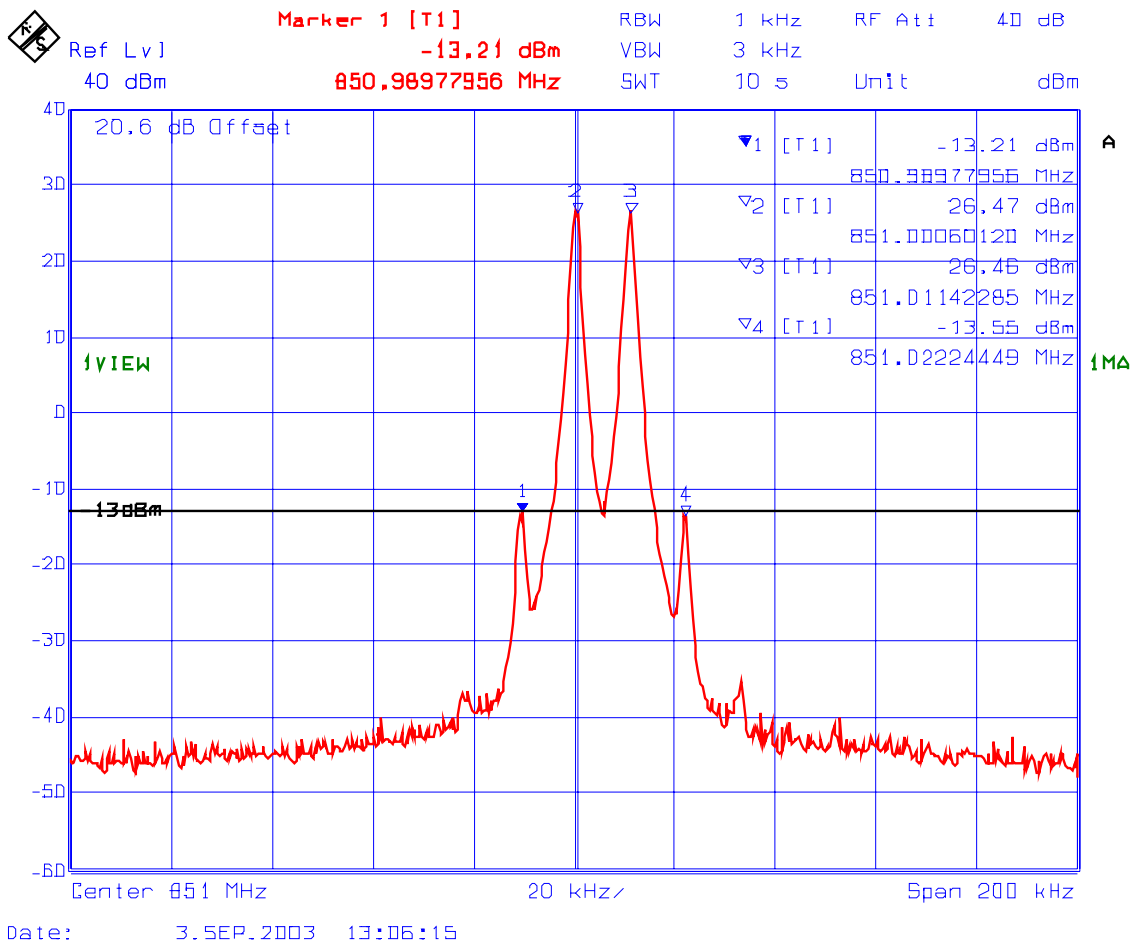
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PLOT # 20 Intermodulation with 2 RF signal inputs/outputs in 851-869 MHz Band
Fc: 851 MHz & Fc + 12.5 kHz
RF Input: (1) -53.35 dBm, (2) -53.46 dBm



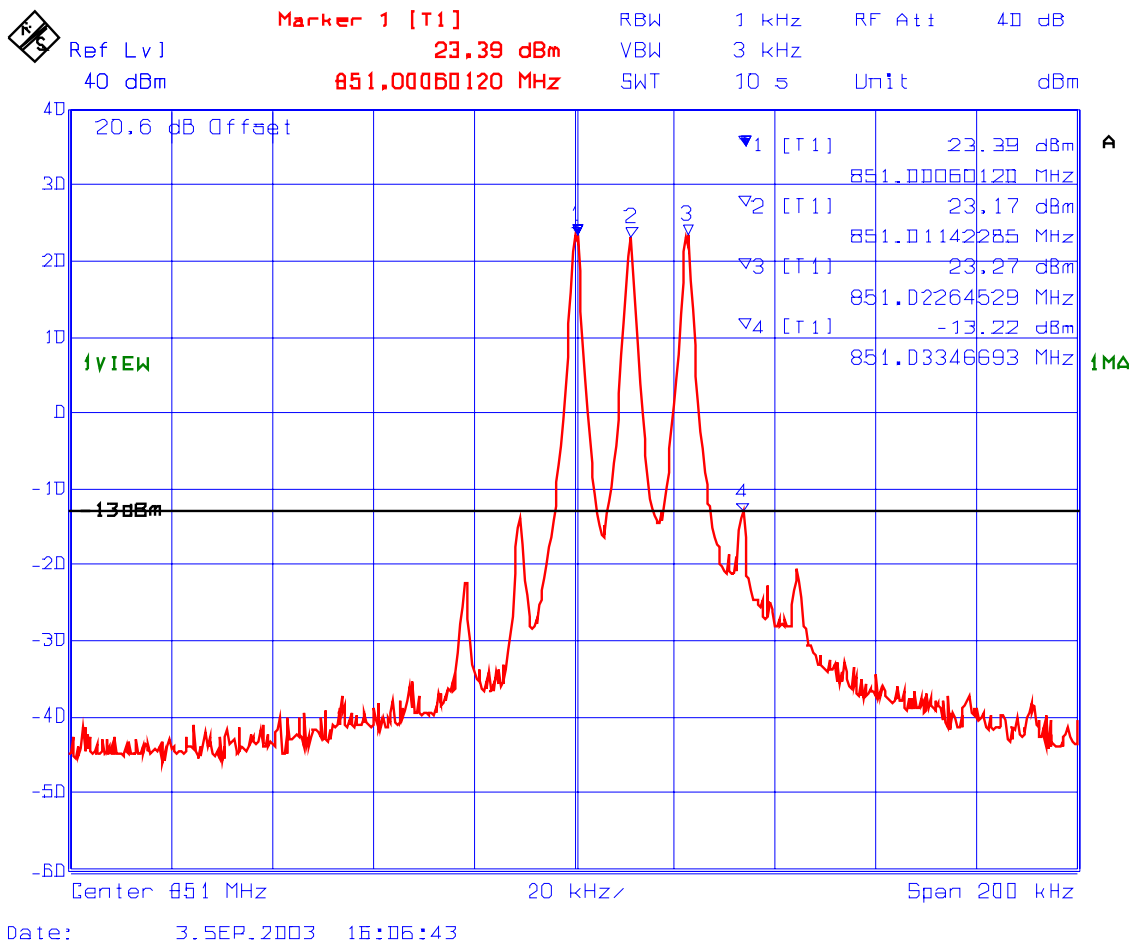
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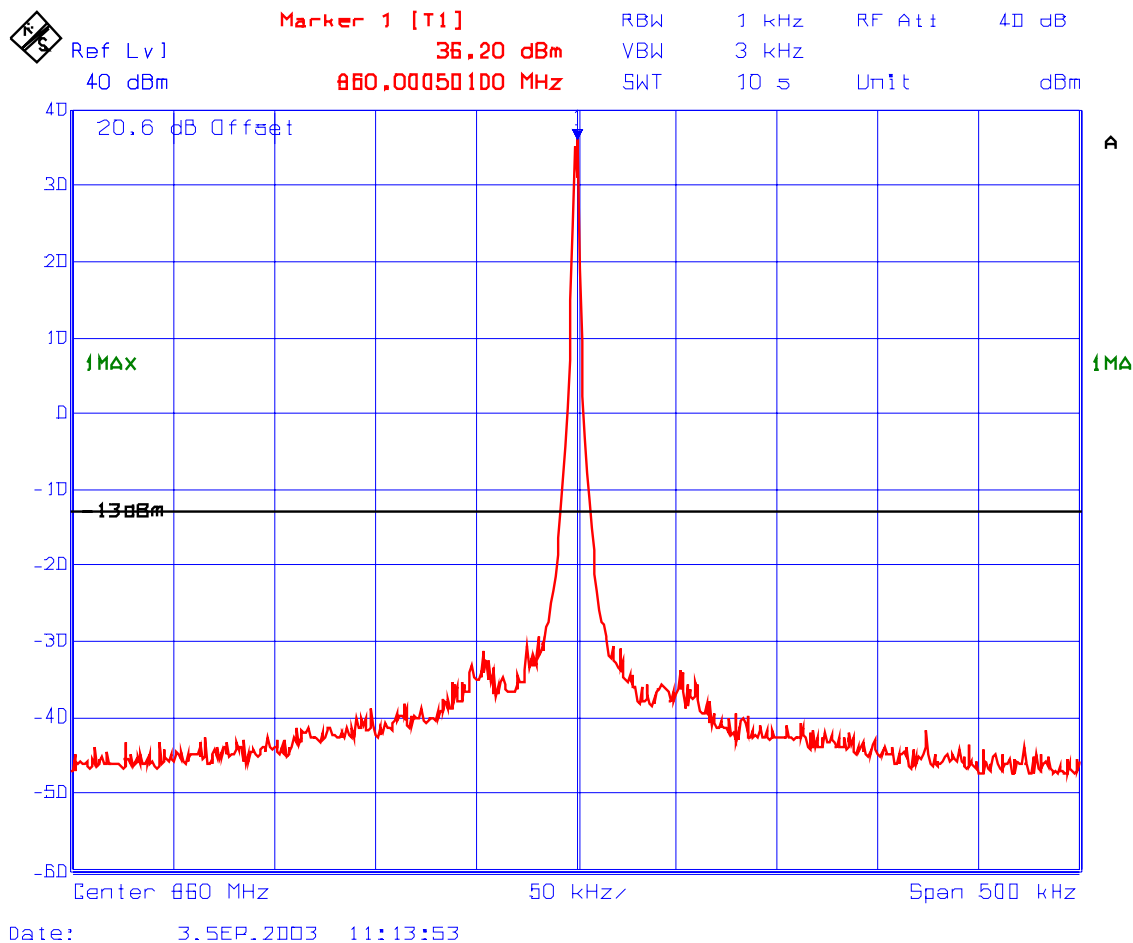
File #: KTI-034FCC22-90
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PLOT # 21 Intermodulation with 3 RF signal inputs/outputs in 851-869 MHz Band
Fc: 851 MHz, Fc + 12.5 kHz & Fc + 25 kHz
RF Input: (1) -56.97 dBm, (2) -57.20 dBm, (3) -57.10 dBm



**PLOT # 22 Intermodulation with 1 RF signal input/output in 851-869 MHz Band
Fc: 860 MHz, RF Input: 10 dBm**



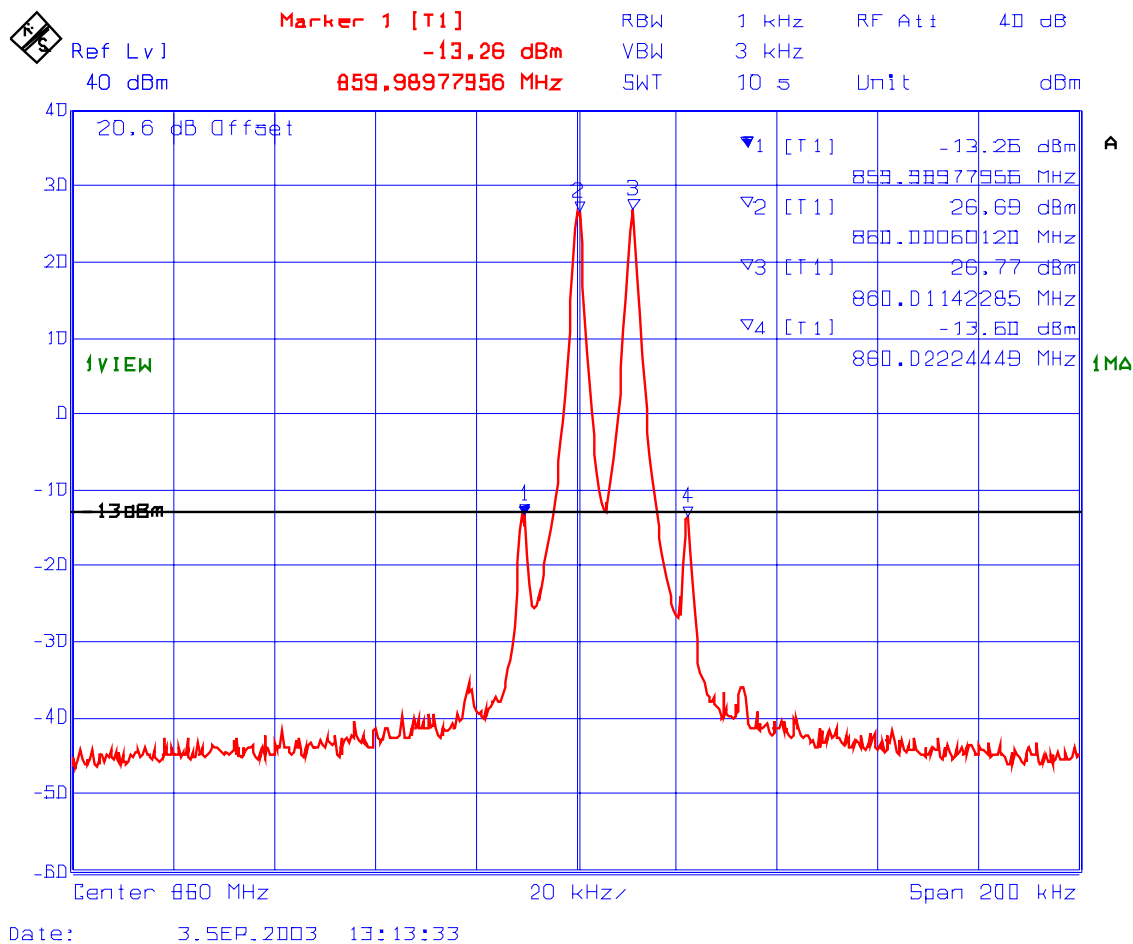
ULTRATECH GROUP OF LABS

3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

File #: KT1-034FCC22-90
Oct. 17, 2003

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PLOT # 23 Intermodulation with 2 RF signal inputs/outputs in 851-869 MHz Band
Fc: 860 MHz & Fc + 12.5 kHz
RF Input: (1) -54.31 dBm, (2) -54.49 dBm



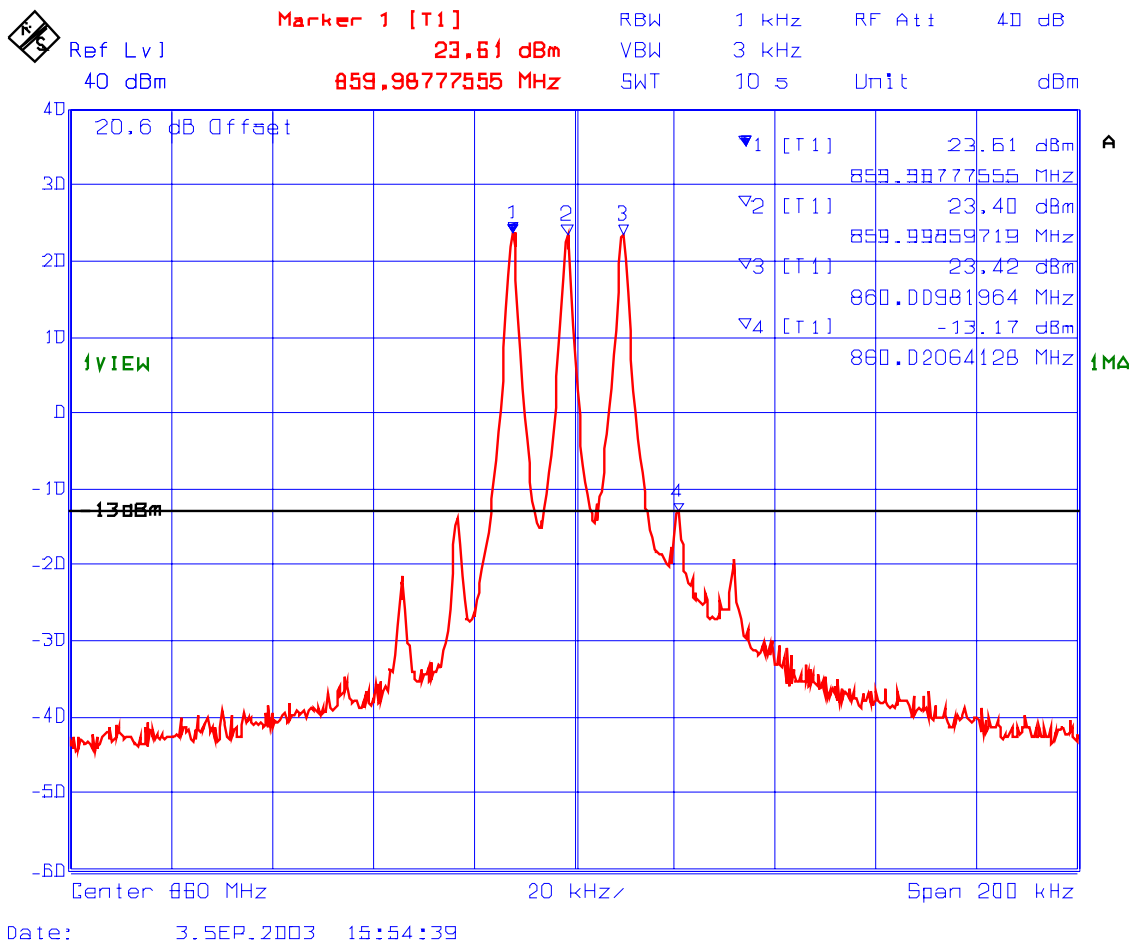
ULTRATECH GROUP OF LABS

3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

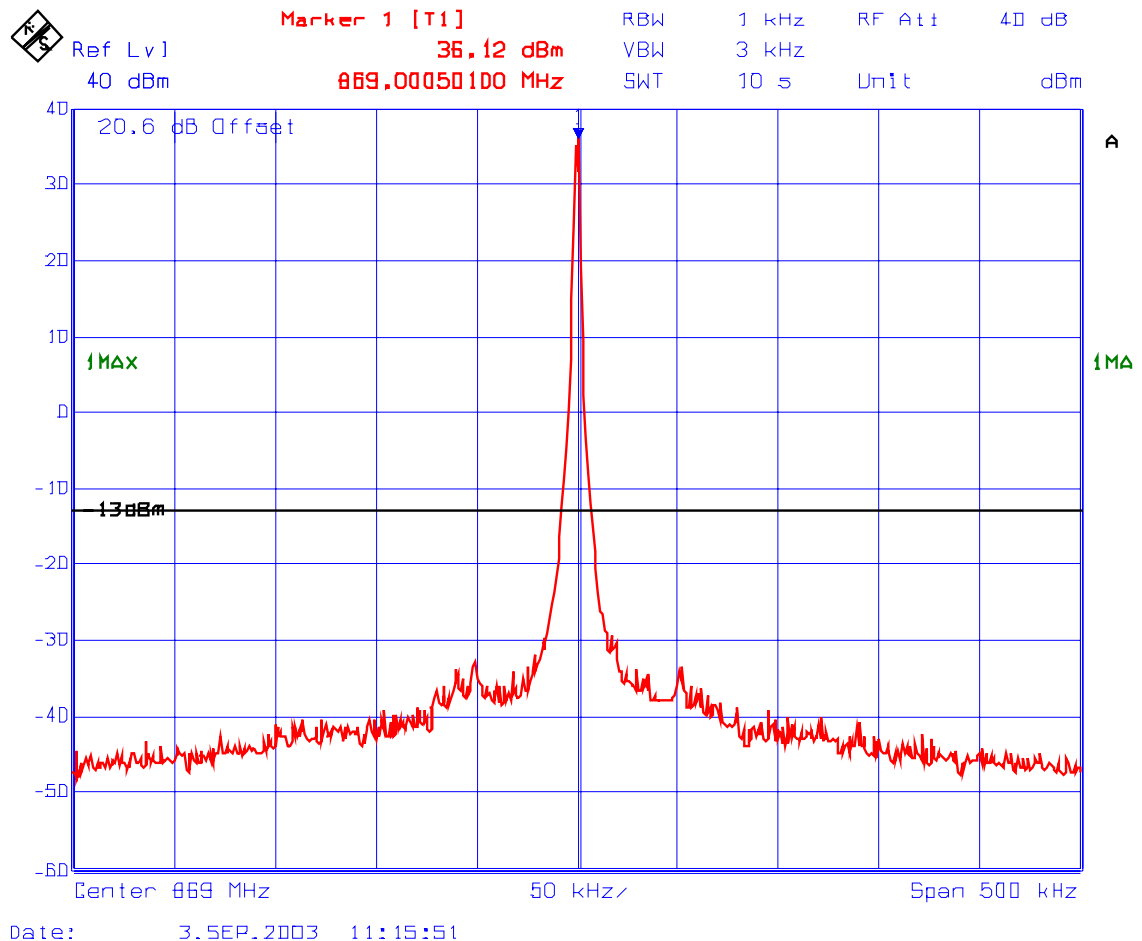
File #: KTI-034FCC22-90
 Oct. 17, 2003

- All test results contained in this engineering test report are traceable to National Institute of Standards and Technology (NIST)

PLOT # 24 Intermodulation with 3 RF signal inputs/outputs in 851-869 MHz Band
Fc: 860 MHz, Fc + 12.5 kHz & Fc - 12.5 kHz
RF Input: (1) -57.45 dBm, (2) -57.62 dBm, (3) 57.55 dBm



**PLOT # 25 Intermodulation with 1 RF signal input/output in 851-869 MHz Band
Fc: 869 MHz, RF Input: 10 dBm**



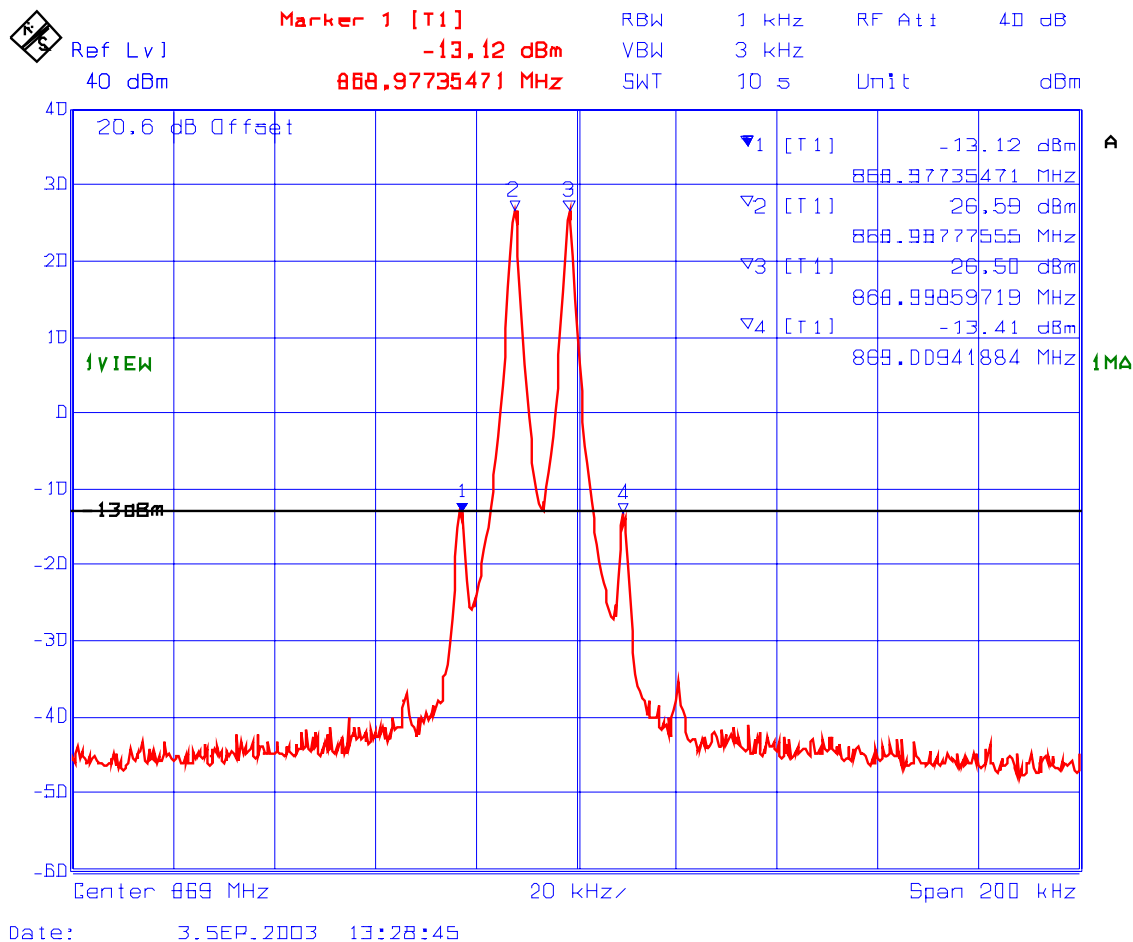
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Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

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PLOT # 26 Intermodulation with 2 RF signal inputs/outputs in 851-869 MHz Band
Fc: 869 MHz & Fc - 12.5 kHz
RF Input: (1) -52.59 dBm, (2) -52.62 dBm



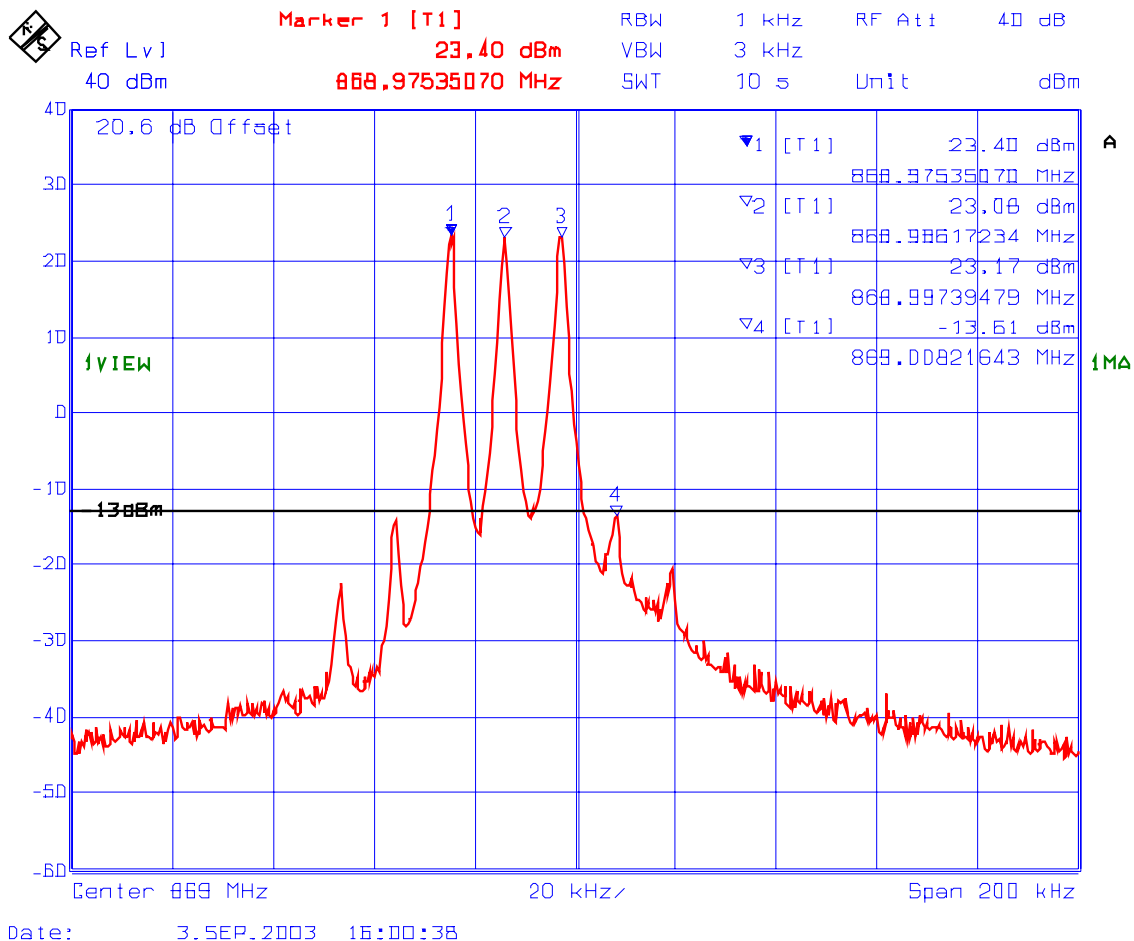
ULTRATECH GROUP OF LABS

3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

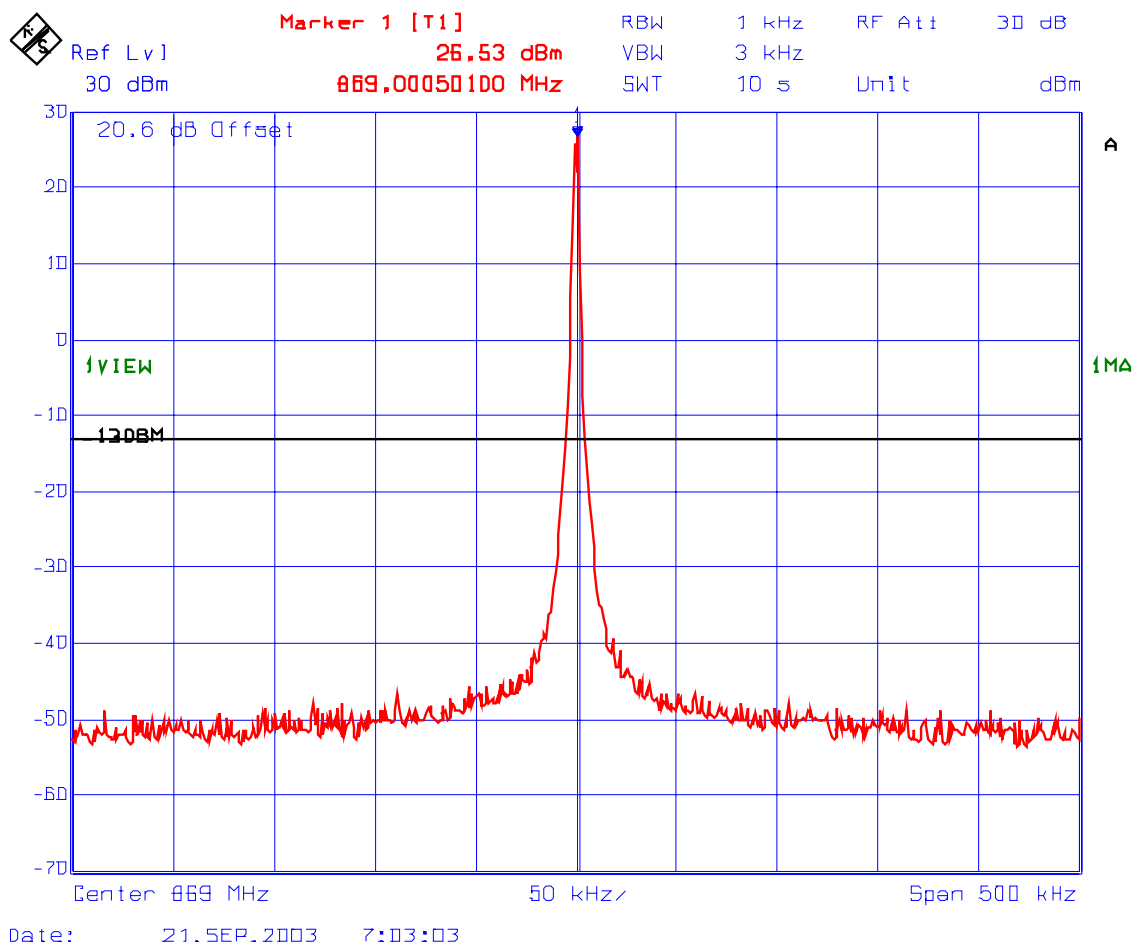
File #: KTI-034FCC22-90
 Oct. 17, 2003

- All test results contained in this engineering test report are traceable to National Institute of Standards and Technology (NIST)

PLOT # 27 Intermodulation with 3 RF signal inputs/outputs in 851-869 MHz Band
Fc: 869 MHz, Fc - 12.5 kHz & Fc - 25 kHz
RF Input: (1) -55.99 dBm, (2) -56.32 dBm, (3) -56.23 dBm



**PLOT # 28 Intermodulation with 1 RF signal input/output in 869-894 MHz Band
Fc: 869 MHz, RF Input: -51.82 dBm**



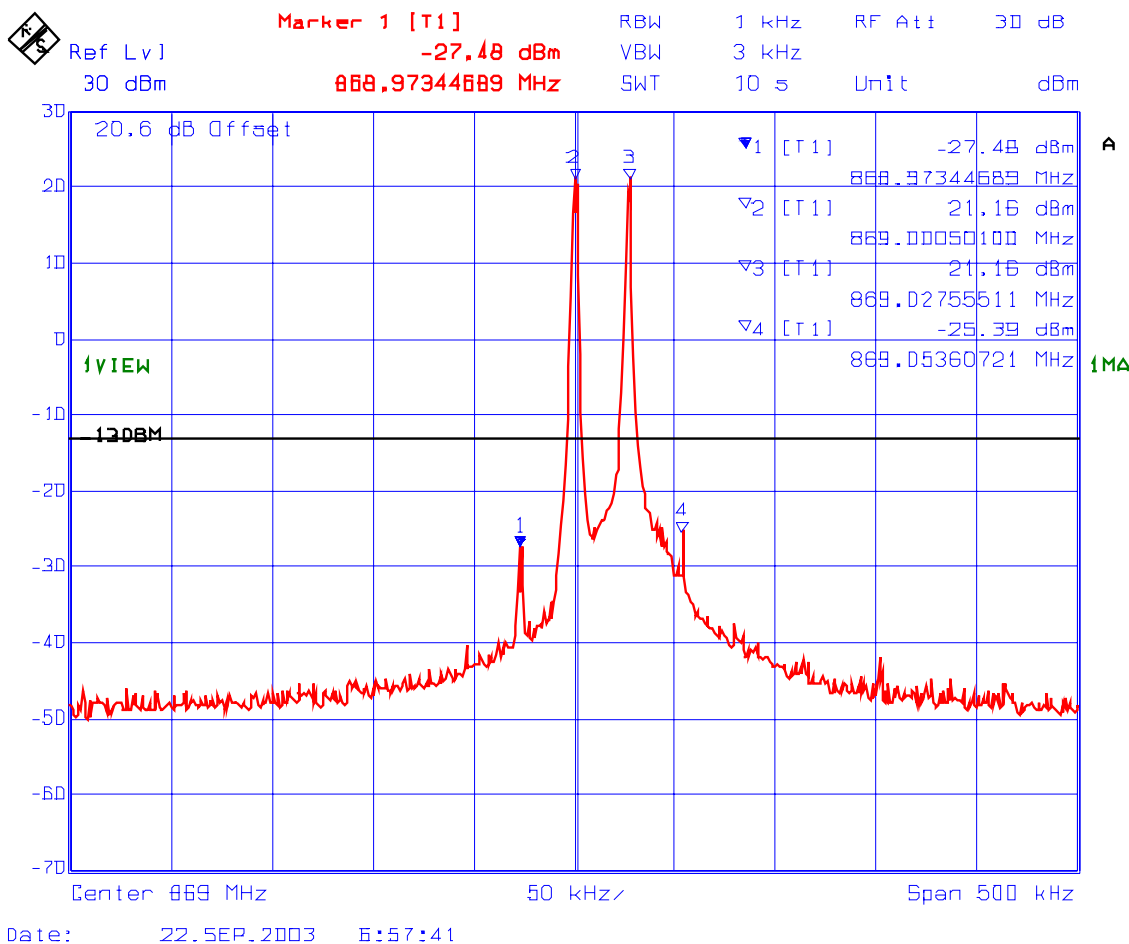
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Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

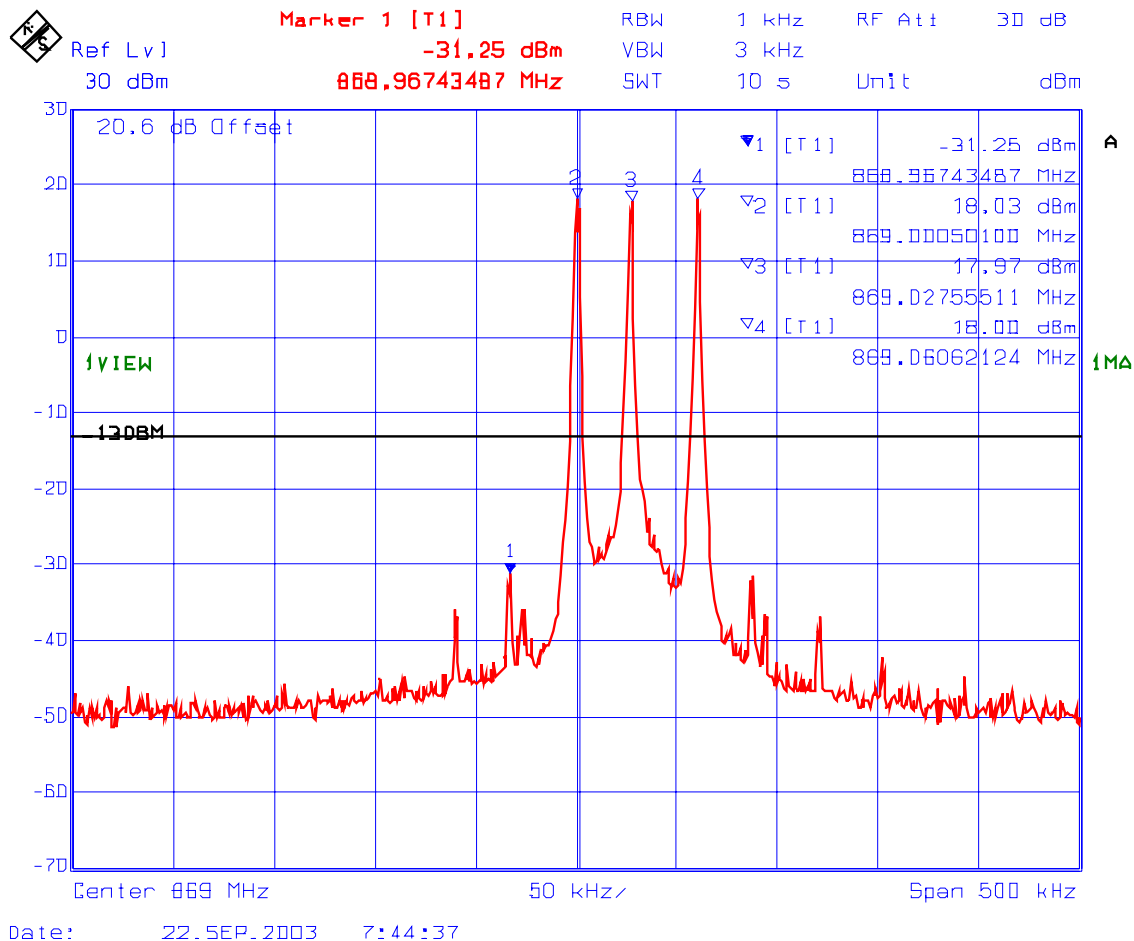
File #: KT1-034FCC22-90
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PLOT # 29 Intermodulation with 2 RF signal inputs/outputs in 869-894 MHz Band
Fc: 869 MHz, Fc + 30 kHz
RF Input 1: -57.87 dBm, RF Input 2: -57.86 dBm



PLOT # 30 Intermodulation with 3 RF signal inputs/outputs in 869-894 MHz Band
Fc: 869 MHz, Fc + 30 kHz, Fc + 60 kHz
RF Input 1: -61.43dBm, RF Input 2: -61.23 dBm, RF Input 3: -61.19 dBm



Date: 22.SEP.2003 7:44:37

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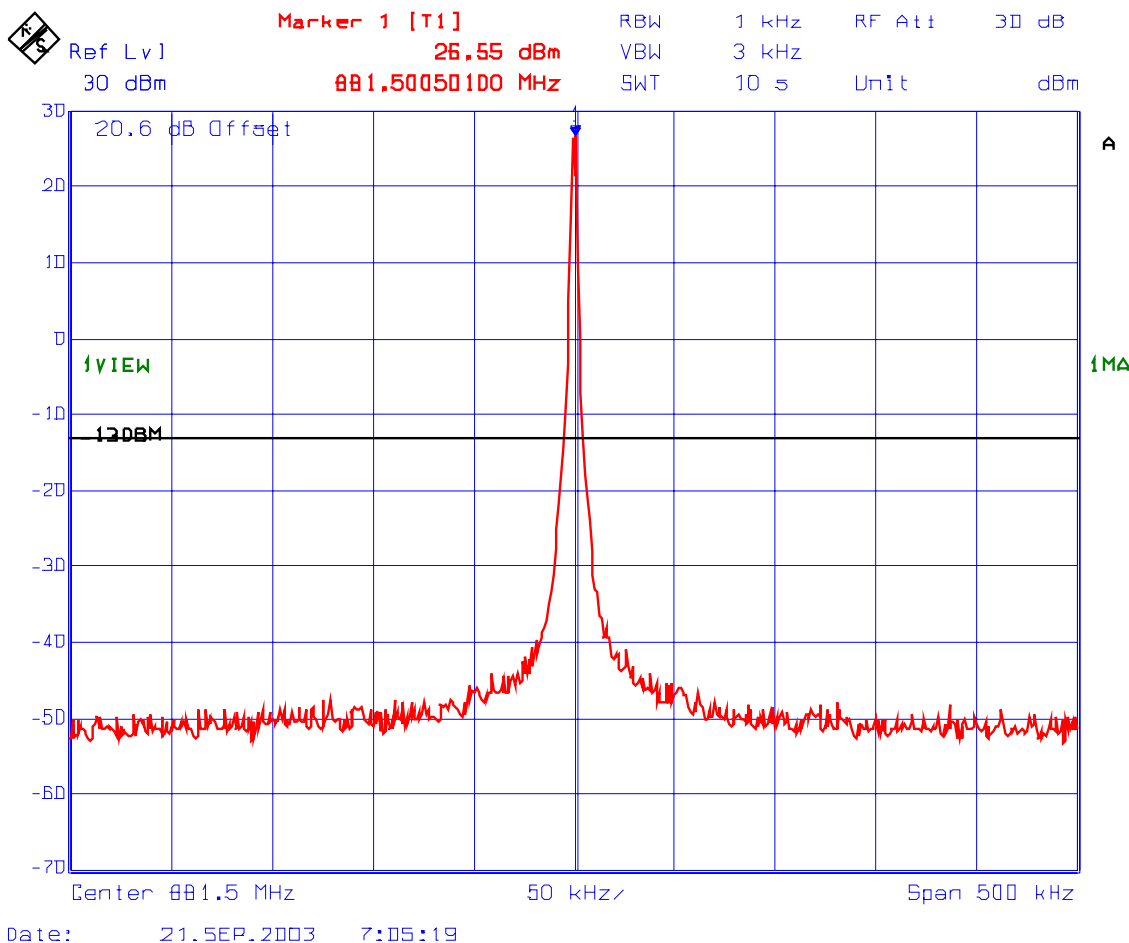
3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

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PLOT # 31 Intermodulation with 1 RF signal input/output in 869-894 MHz Band
Fc: 881.5 MHz, RF Input: -53.24 dBm



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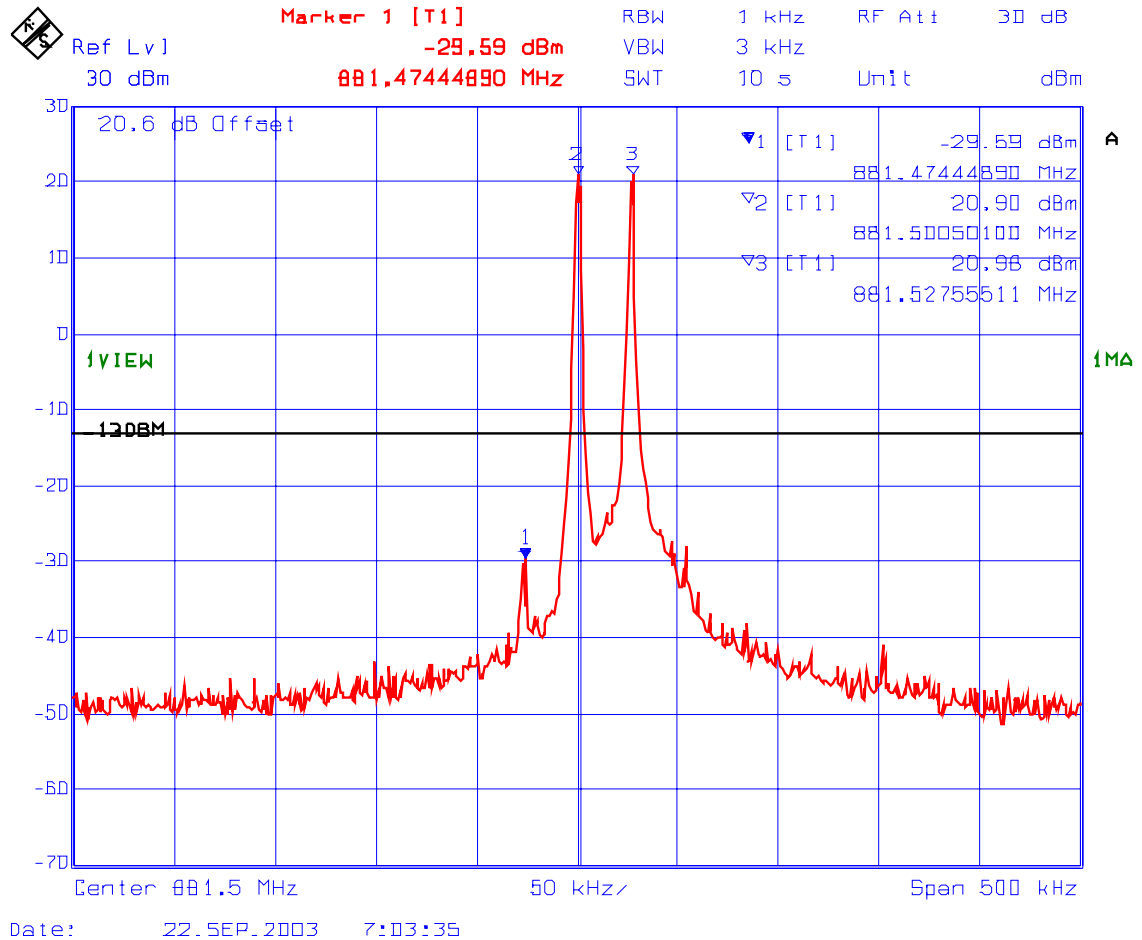
3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

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PLOT # 32 Intermodulation with 2 RF signal inputs/outputs in 869-894 MHz Band
Fc: 881.5 MHz, Fc + 30 kHz
RF Input 1: -58.29 dBm, RF Input 2: -58.28 dBm



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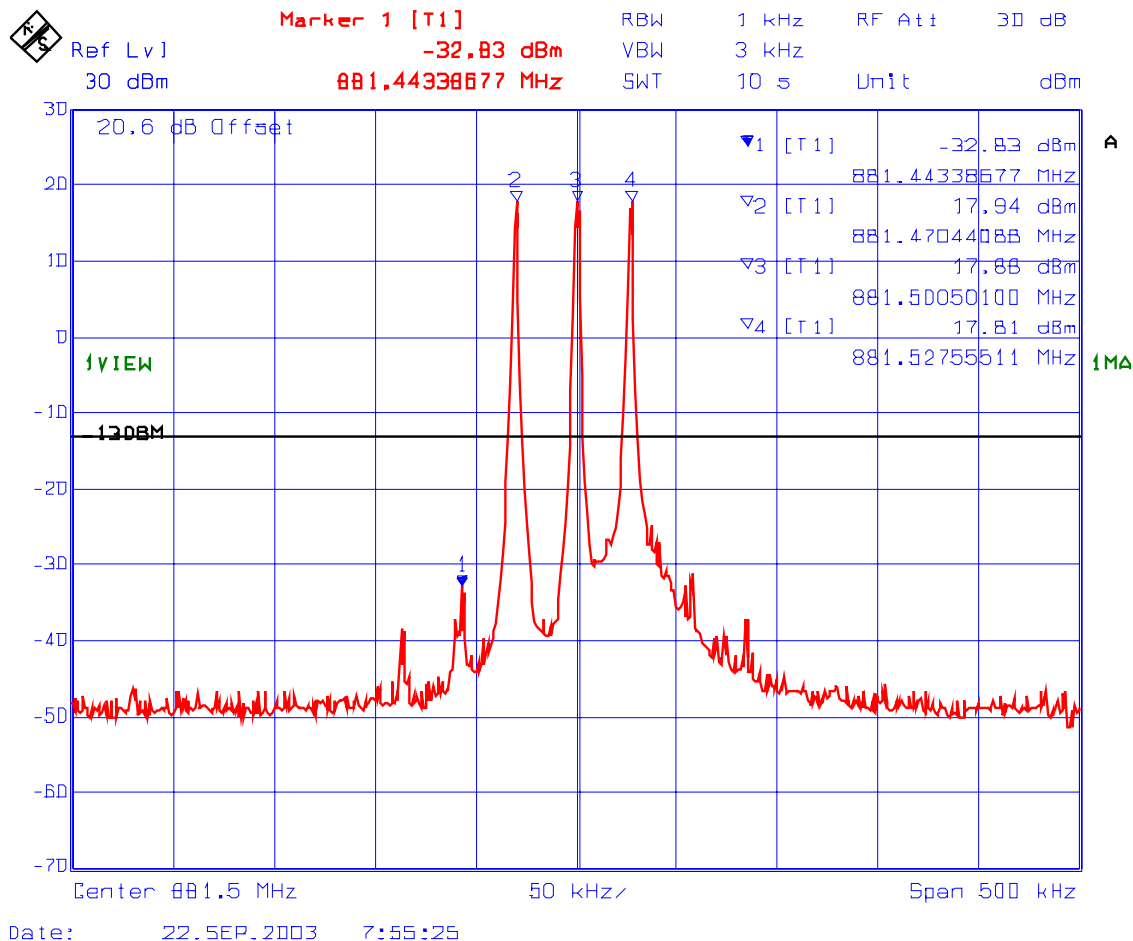
3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

File #: KTI-034FCC22-90

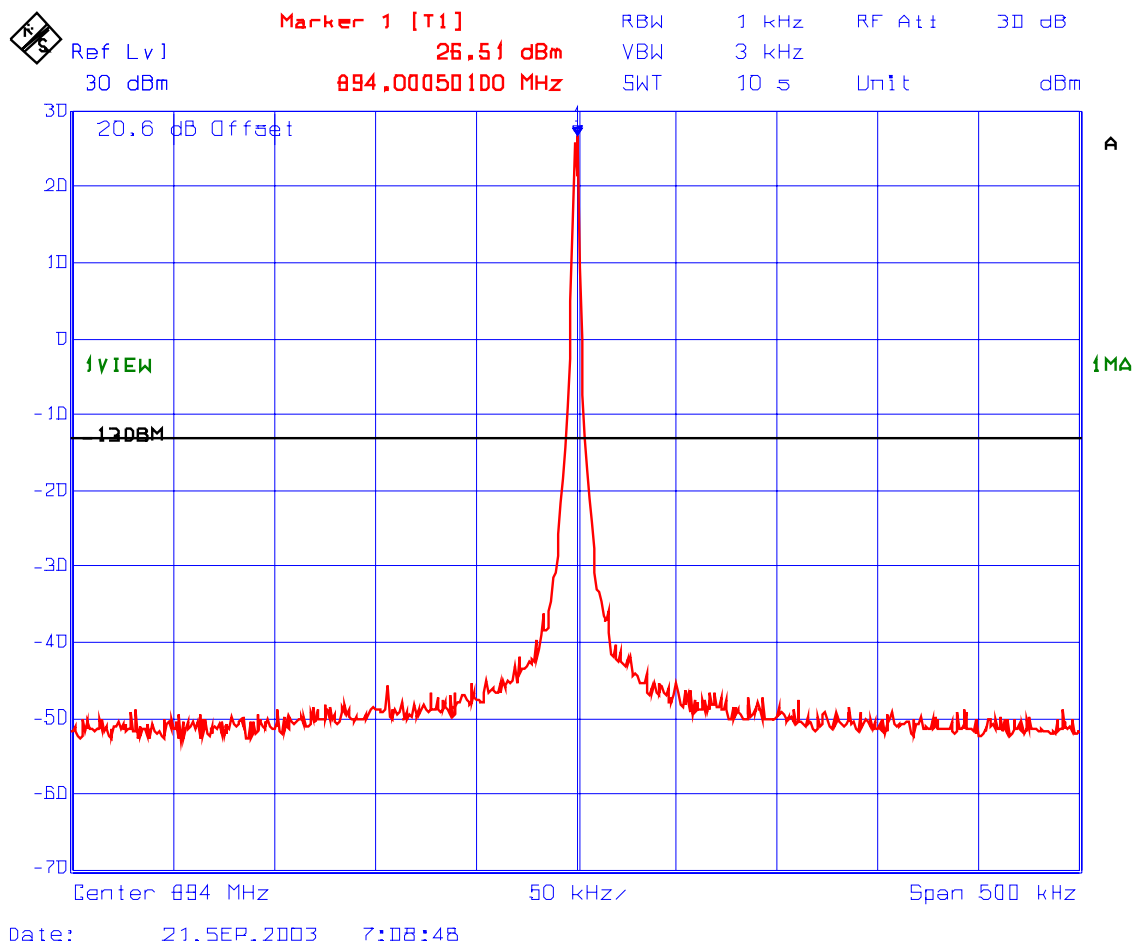
Oct. 17, 2003

- All test results contained in this engineering test report are traceable to National Institute of Standards and Technology (NIST)

PLOT # 33 Intermodulation with 3 RF signal inputs/outputs in 869-894 MHz Band
Fc: 881.5 MHz, Fc + 30 kHz, Fc - 30 kHz
RF Input 1: -62.45 dBm, RF Input 2: -62.53 dBm, RF Input 3: -62.48 dBm



**PLOT # 34 Intermodulation with 1 RF signal input/output in 869-894 MHz Band
Fc: 894 MHz, RF Input: -52.52 dBm**



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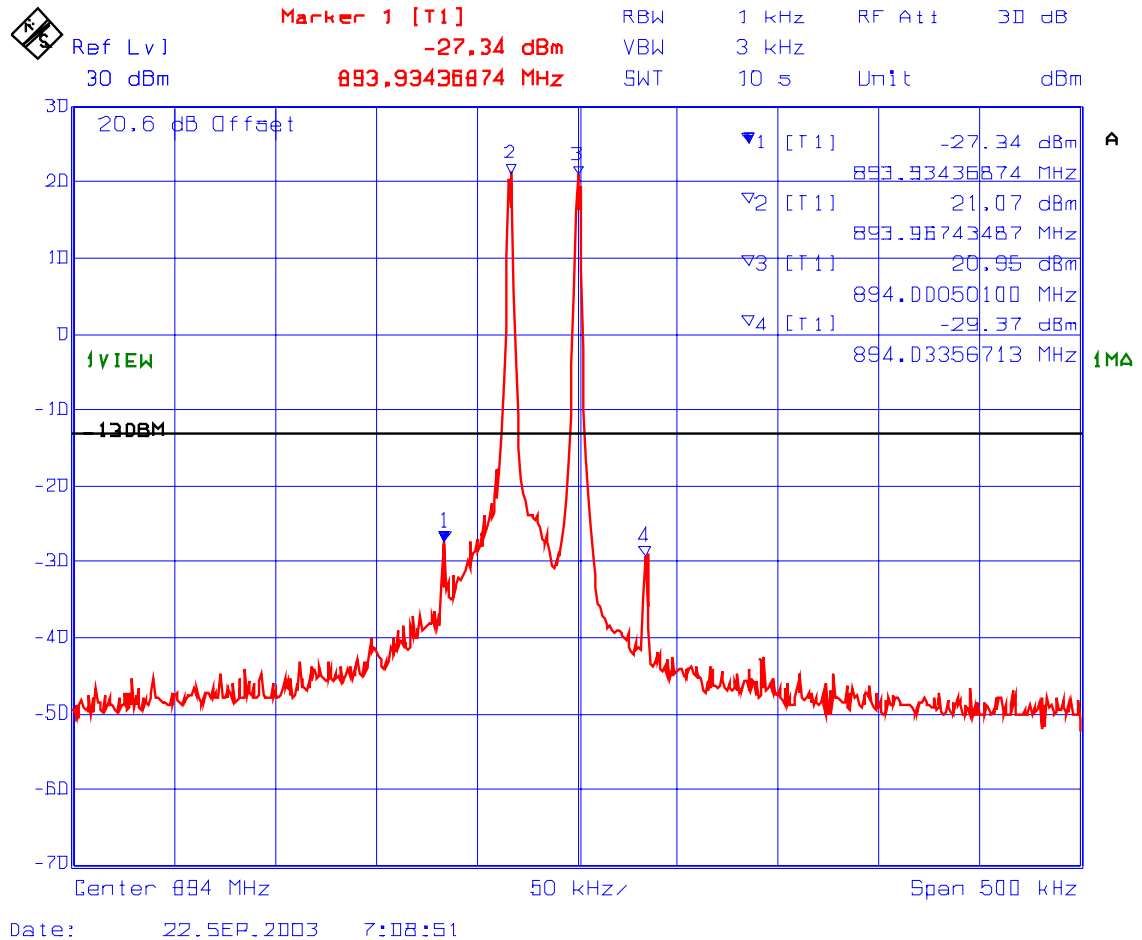
3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

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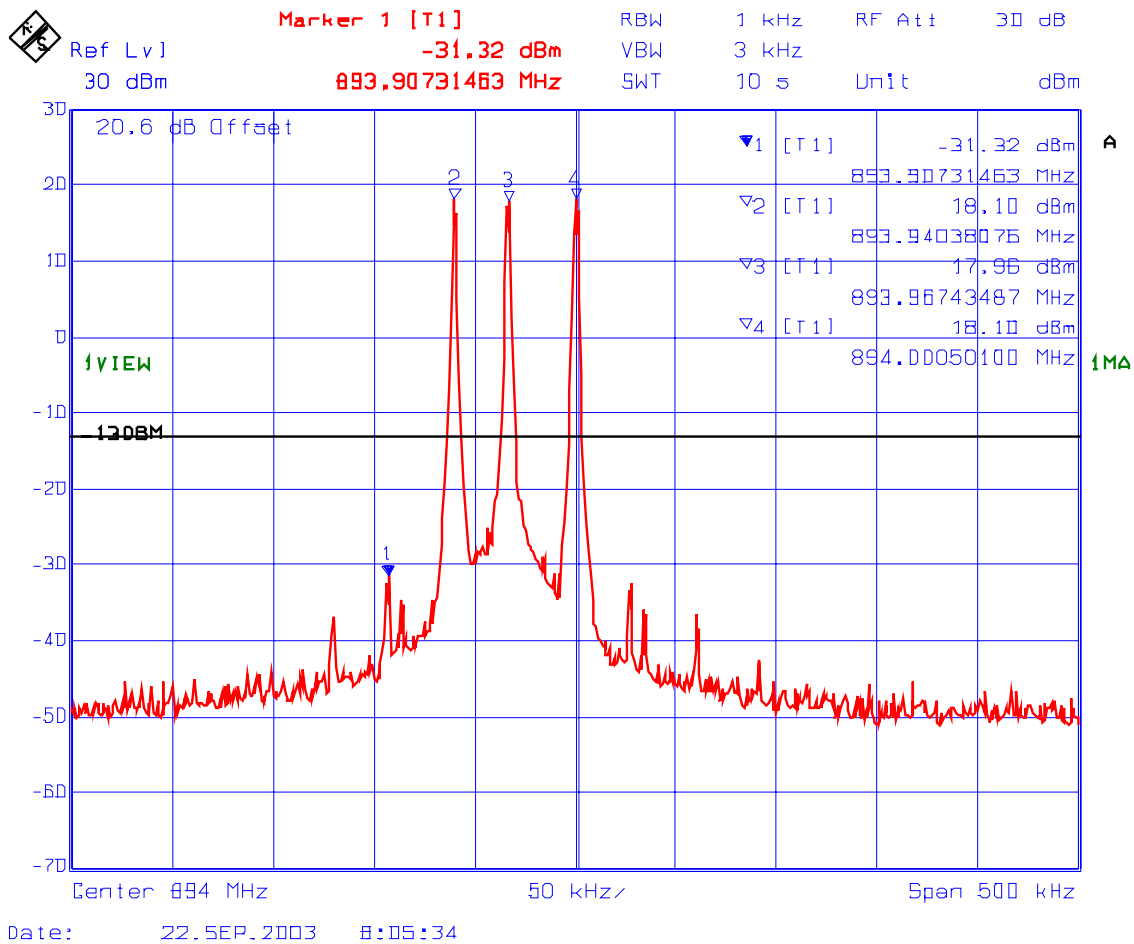
Oct. 17, 2003

- All test results contained in this engineering test report are traceable to National Institute of Standards and Technology (NIST)

PLOT # 35 Intermodulation with 2 RF signal inputs/outputs in 869-894 MHz Band
Fc: 894 MHz, Fc - 30 kHz
RF Input 1: -58.56 dBm, RF Input 2: -58.42 dBm

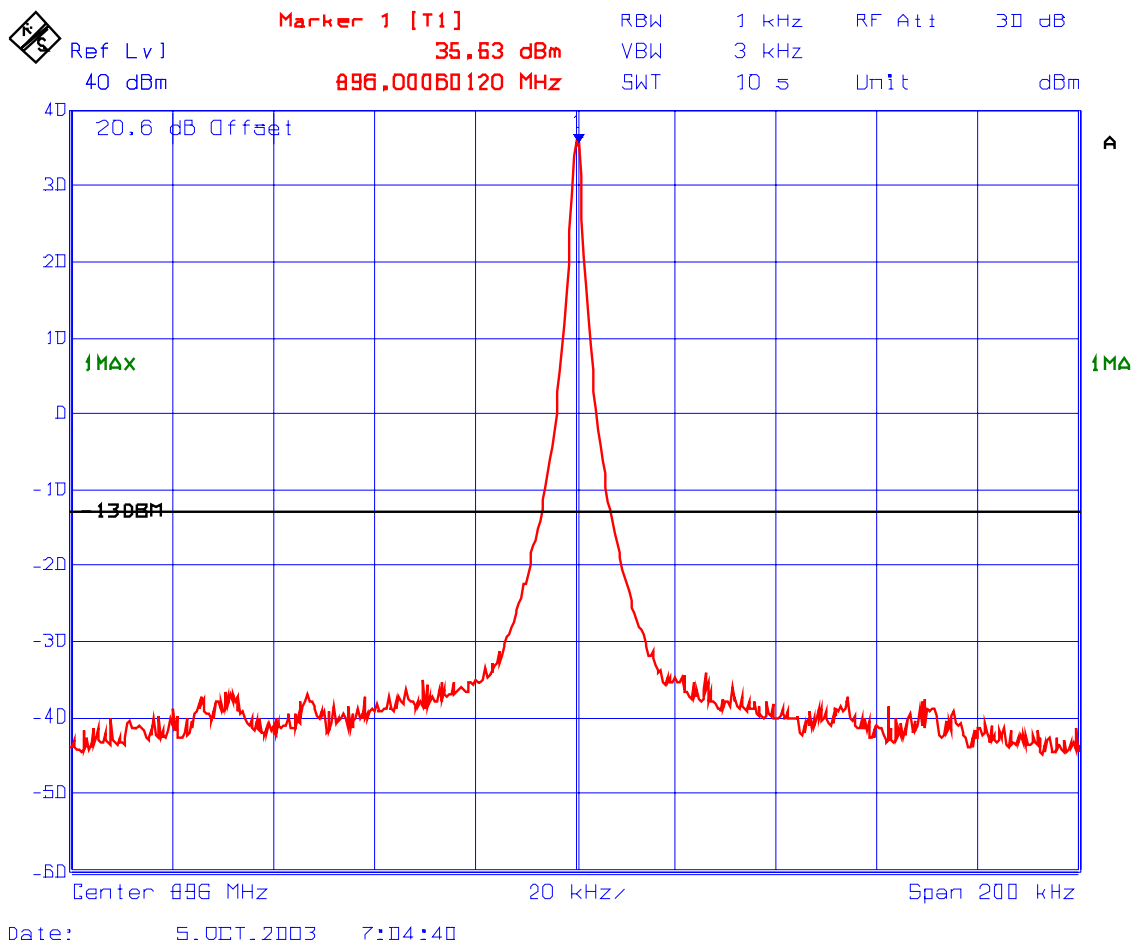


PLOT # 36 Intermodulation with 3 RF signal inputs/outputs in 869-894 MHz Band
Fc: 894 MHz, Fc - 30 kHz, Fc - 60 kHz
RF Input 1: -61.40 dBm, RF Input 2: -61.61 dBm, RF Input 3: -61.52 dBm



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**PLOT # 37 Intermodulation with 1 RF signal input/output in 896-902 MHz Band
Fc: 896 MHz, RF Input: 10 dBm**



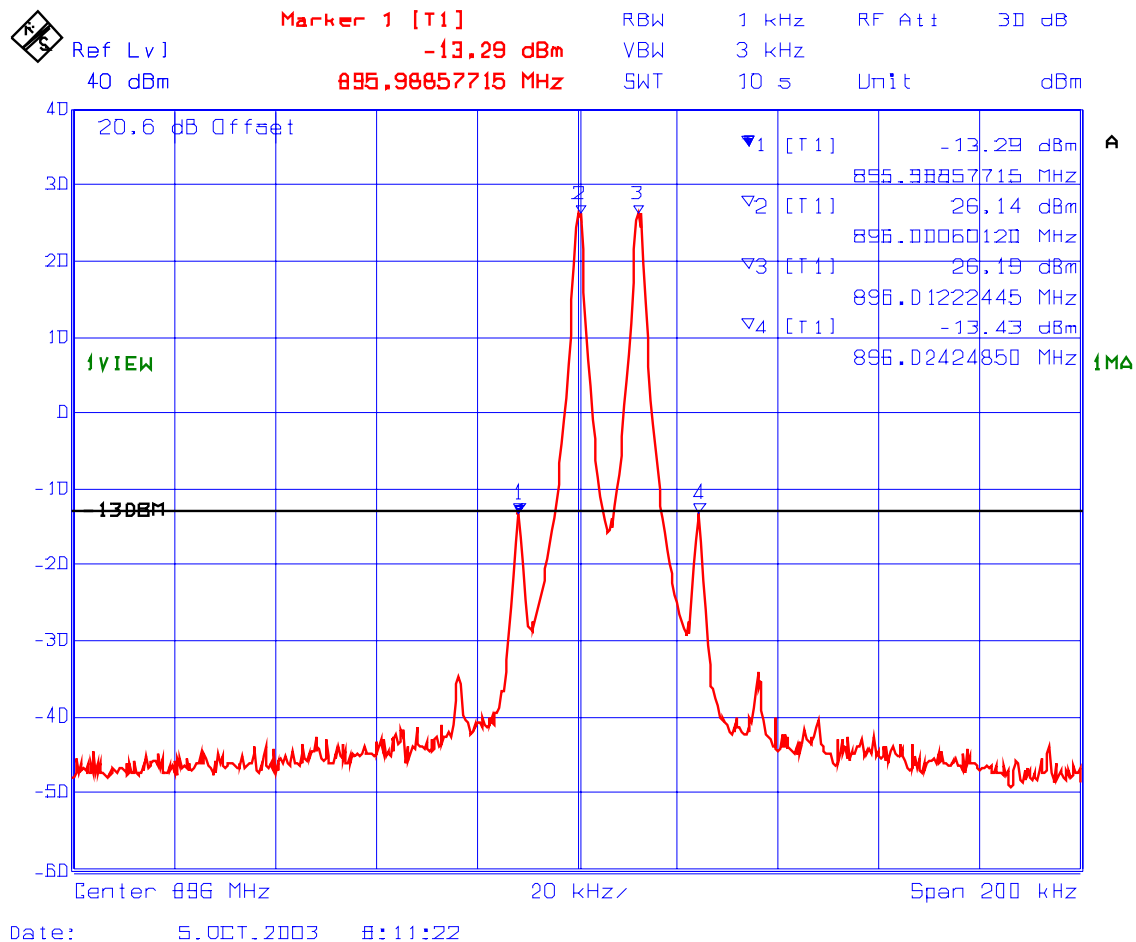
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Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

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PLOT # 38 Intermodulation with 2 RF signal inputs/outputs in 896 – 902 MHz
Fc: 896 MHz, Fc + 12.5 kHz
RF Input 1: -52.36 dBm, RF Input 2: -52.25 dBm



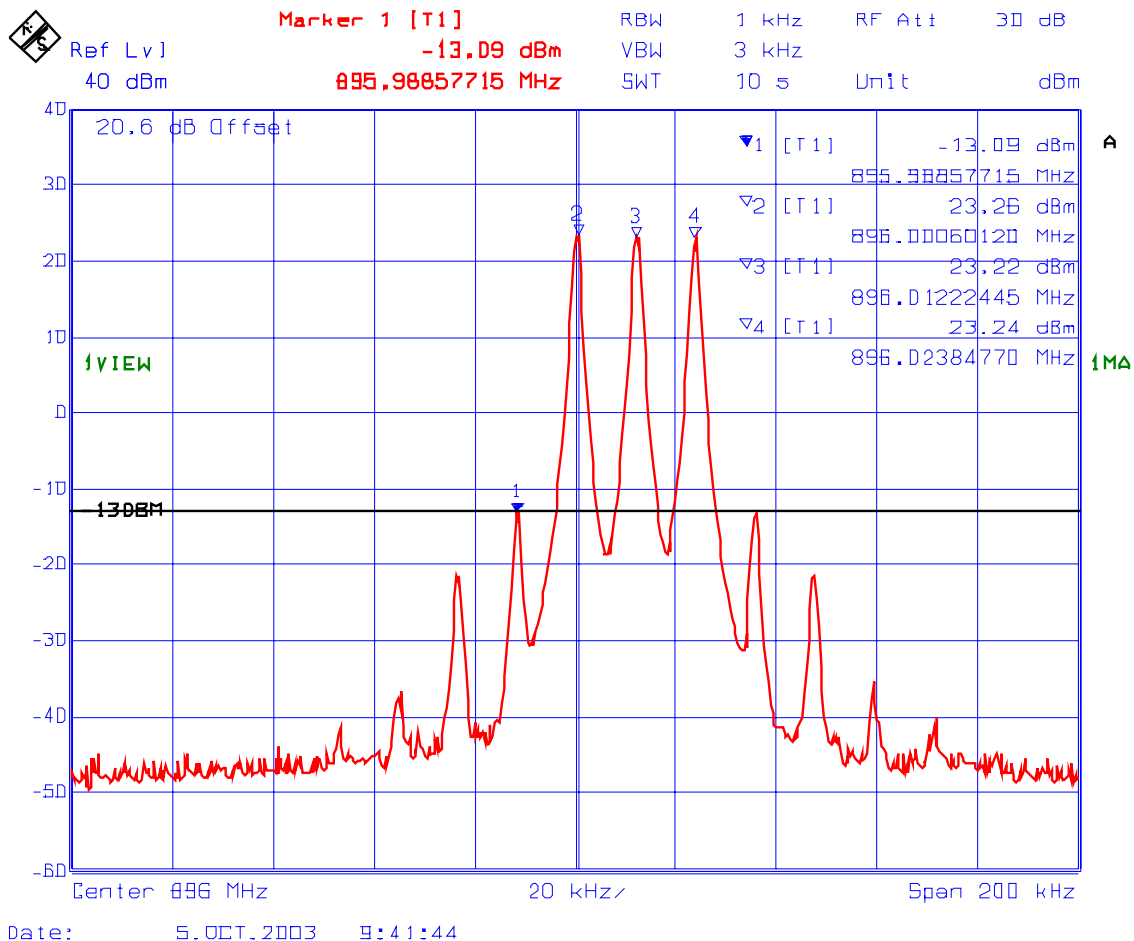
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 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

File #: **KTI-034FCC22-90**
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PLOT # 39 Intermodulation with 3 RF signal inputs/outputs in 896 – 902 MHz
Fc: 896 MHz, Fc + 12.5 kHz, Fc + 25 kHz
RF Input 1: -55.40 dBm, RF Input 2: -55.47 dBm, RF Input 3: -55.48 dBm



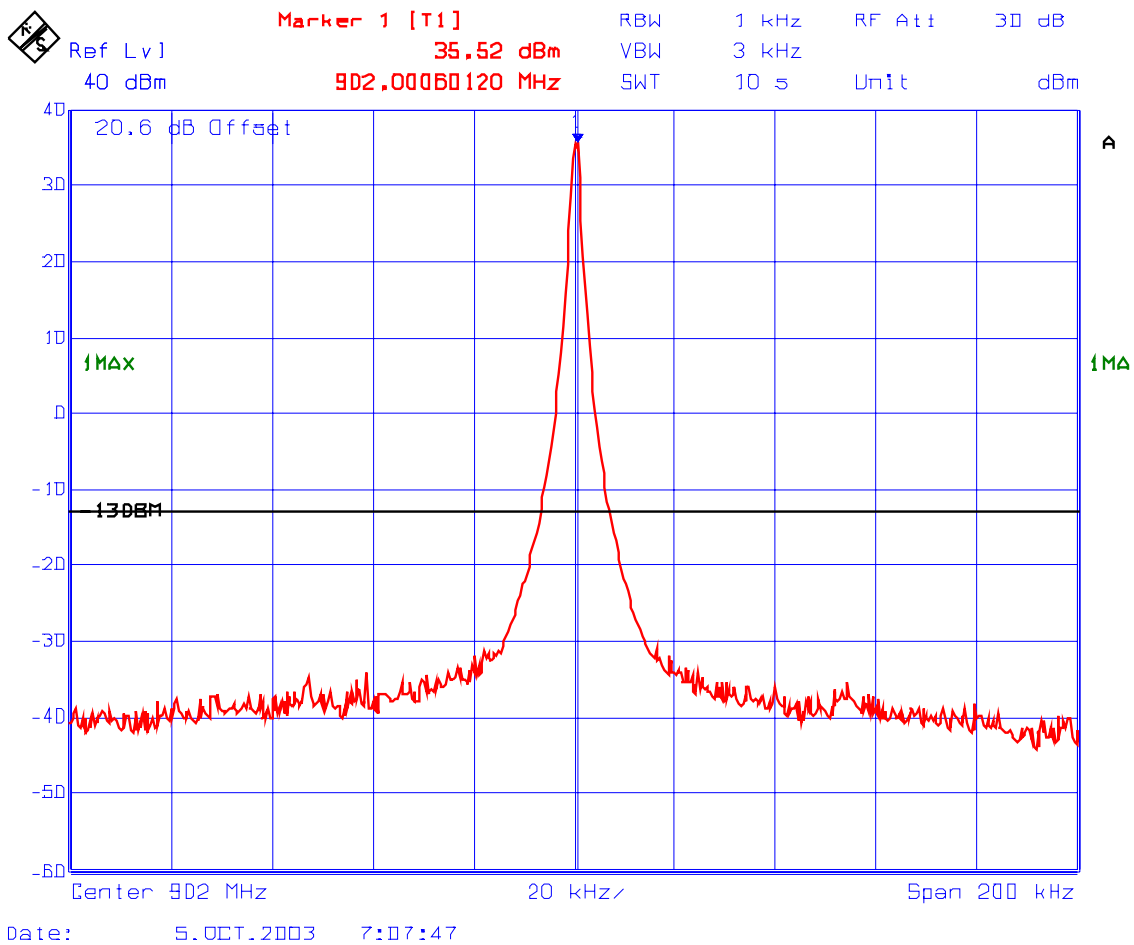
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 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

File #: KTI-034FCC22-90
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**PLOT # 40 Intermodulation with 1 RF signal input/output in 896-902 MHz Band
Fc: 902 MHz, RF Input: 10 dBm**



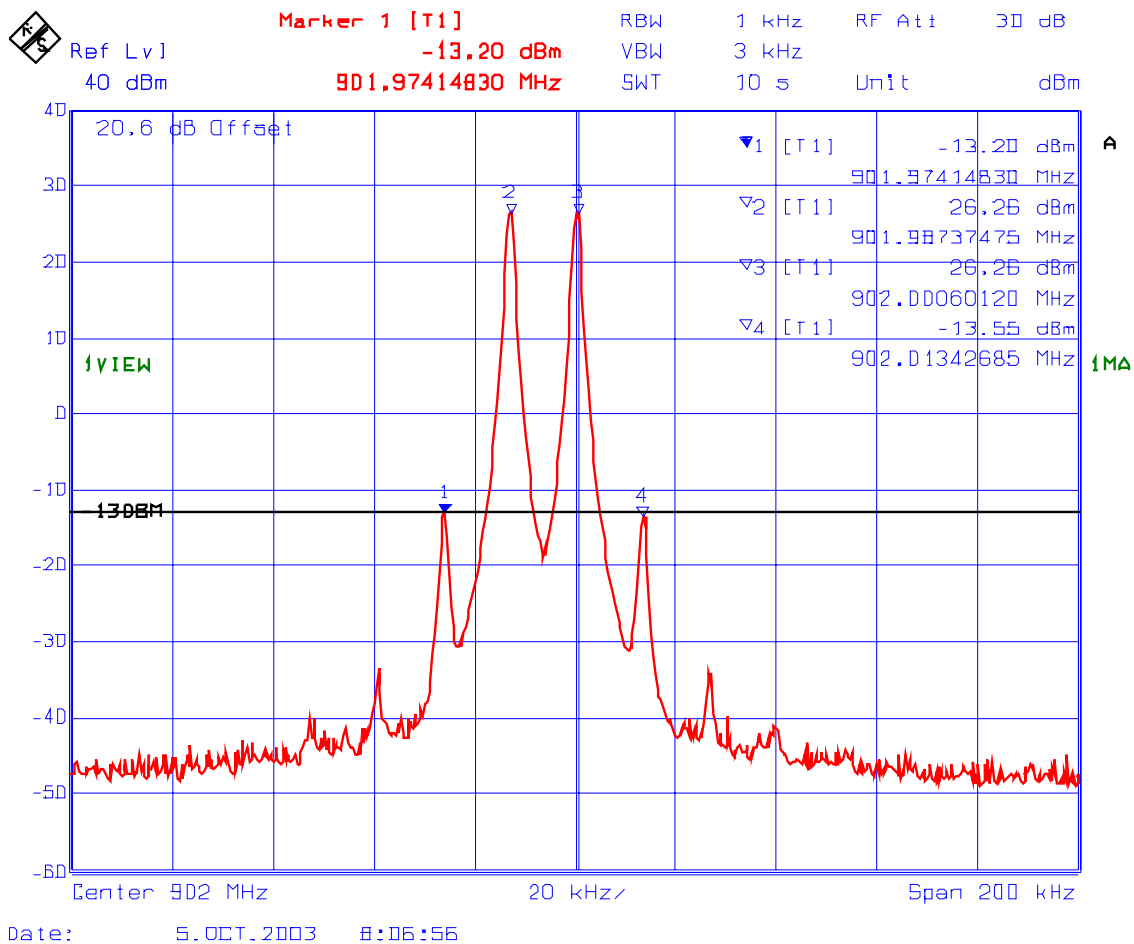
ULTRATECH GROUP OF LABS

3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

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PLOT # 41 Intermodulation with 2 RF signal inputs/outputs in 896 – 902 MHz
Fc: 902 MHz, Fc - 12.5 kHz
RF Input 1: -51.55 dBm, RF Input 2: -51.53 dBm



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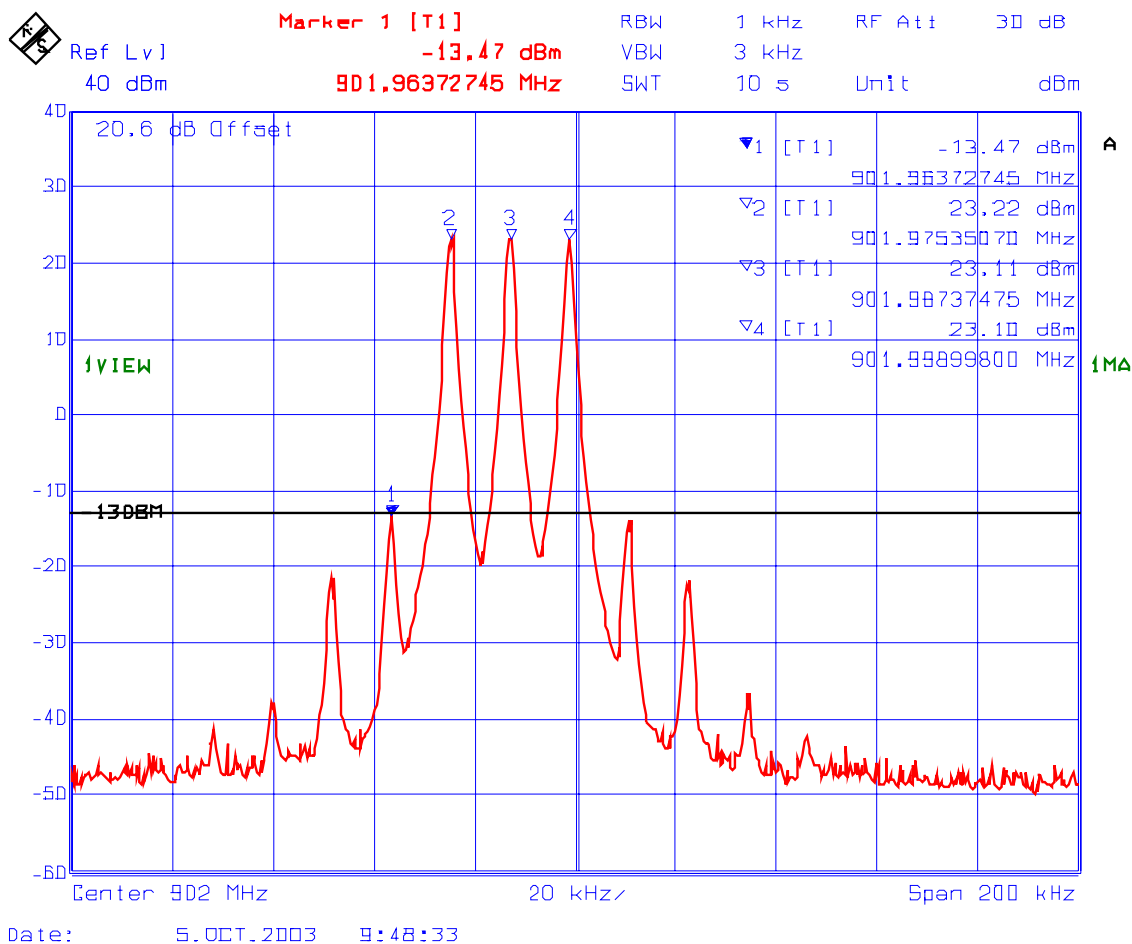
3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

File #: KTI-034FCC22-90

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PLOT # 42 Intermodulation with 3 RF signal inputs/outputs in 896 – 902 MHz
Fc: 902 MHz, Fc - 12.5 kHz, Fc - 25 kHz
RF Input 1: -54.66 dBm, RF Input 2: -54.69 dBm, RF Input 3: -54.59 dBm



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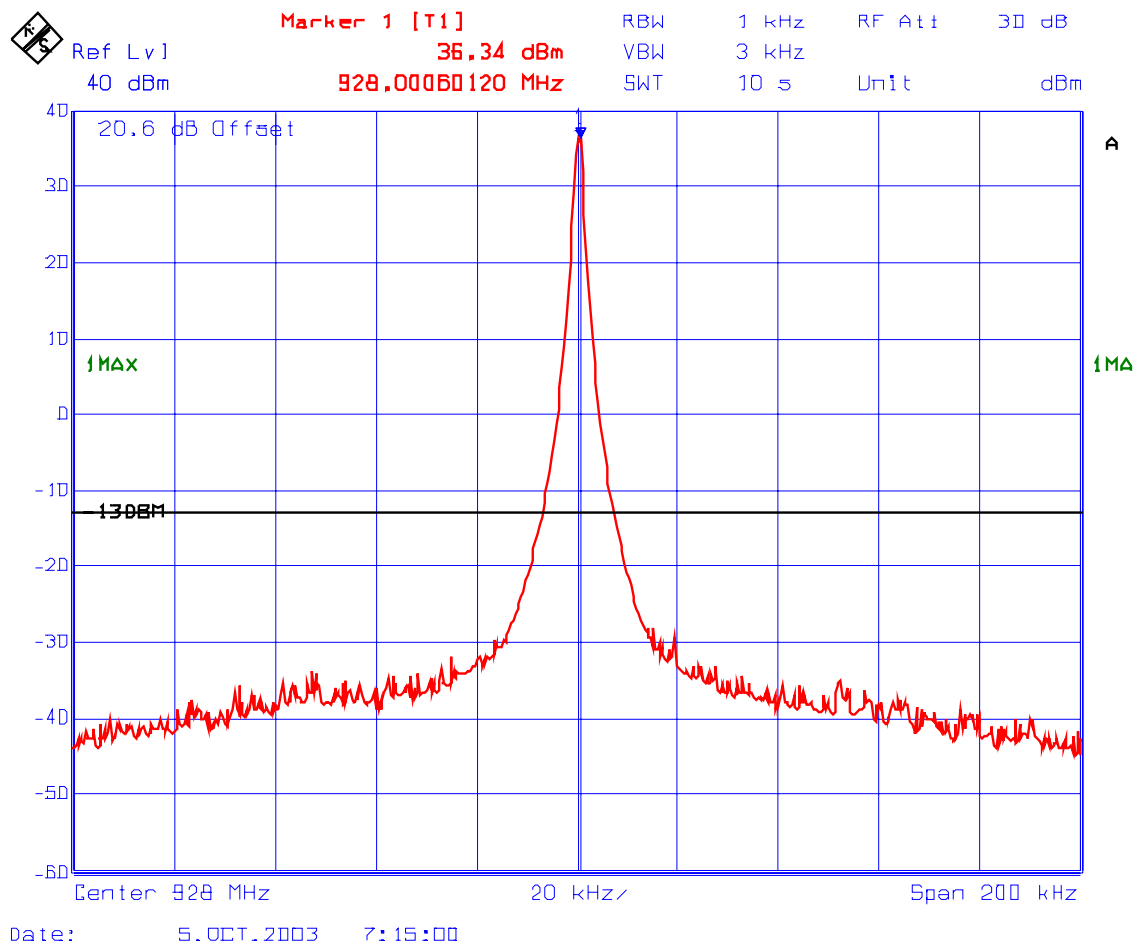
3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

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**PLOT # 43 Intermodulation with 1 RF signal input/output in 928-941 MHz Band
Fc: 928 MHz, RF Input: 10 dBm**



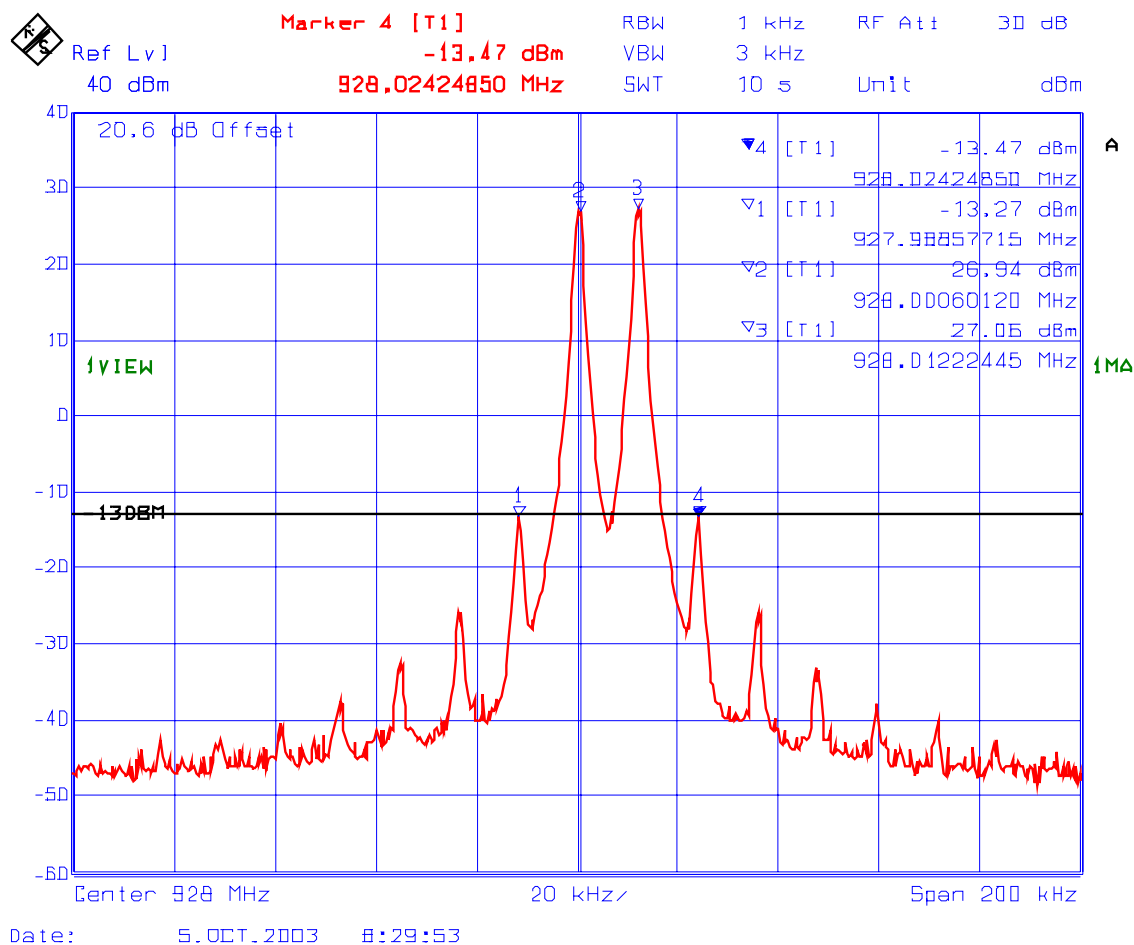
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Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

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PLOT # 44 Intermodulation with 2 RF signal inputs/outputs in 928 – 941 MHz
Fc: 928 MHz, Fc + 12.5 kHz
RF Input 1: -51.63 dBm, RF Input 2: -51.41 dBm



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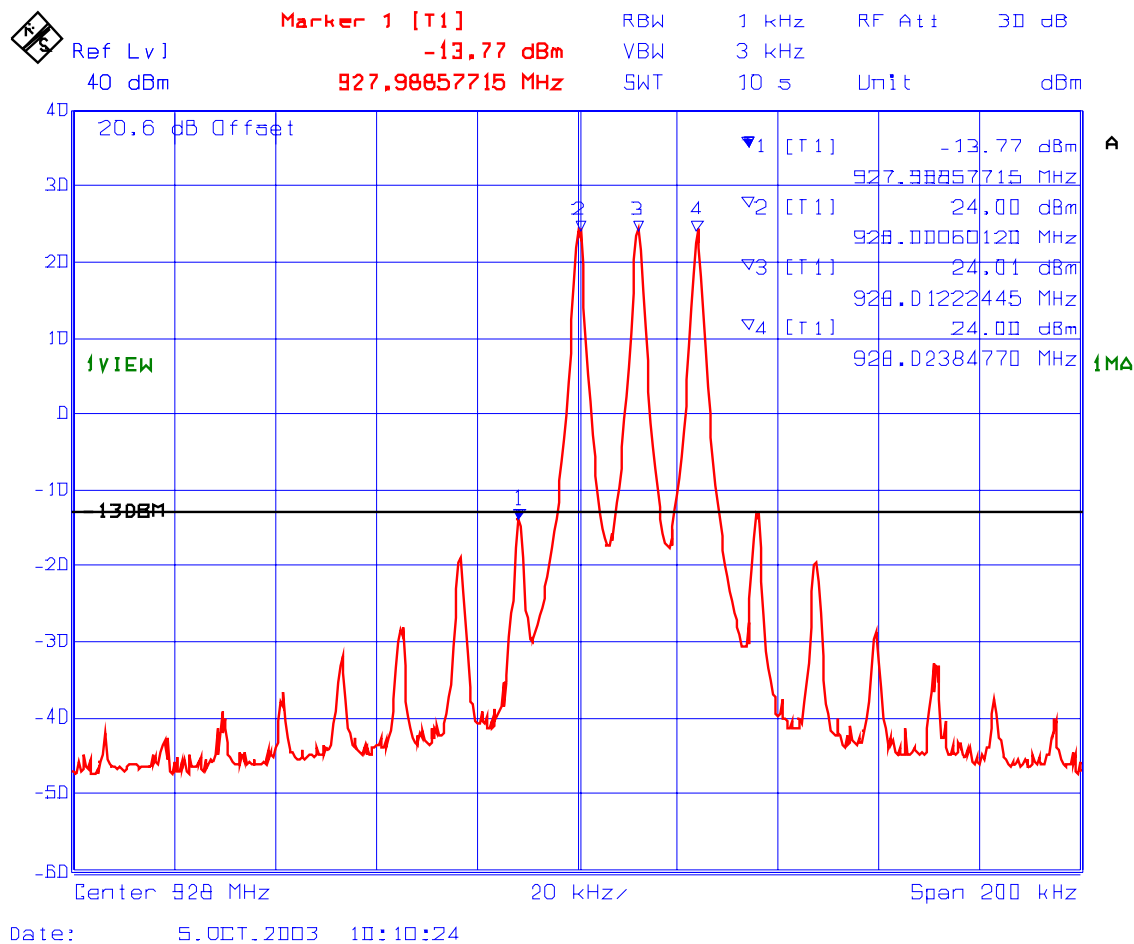
3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

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PLOT # 45 Intermodulation with 3 RF signal inputs/outputs in 928 – 941 MHz
Fc: 928 MHz, Fc + 12.5 kHz, Fc + 25 kHz
RF Input 1: -54.46 dBm, RF Input 2: -54.45 dBm, RF Input 3: -54.46 dBm



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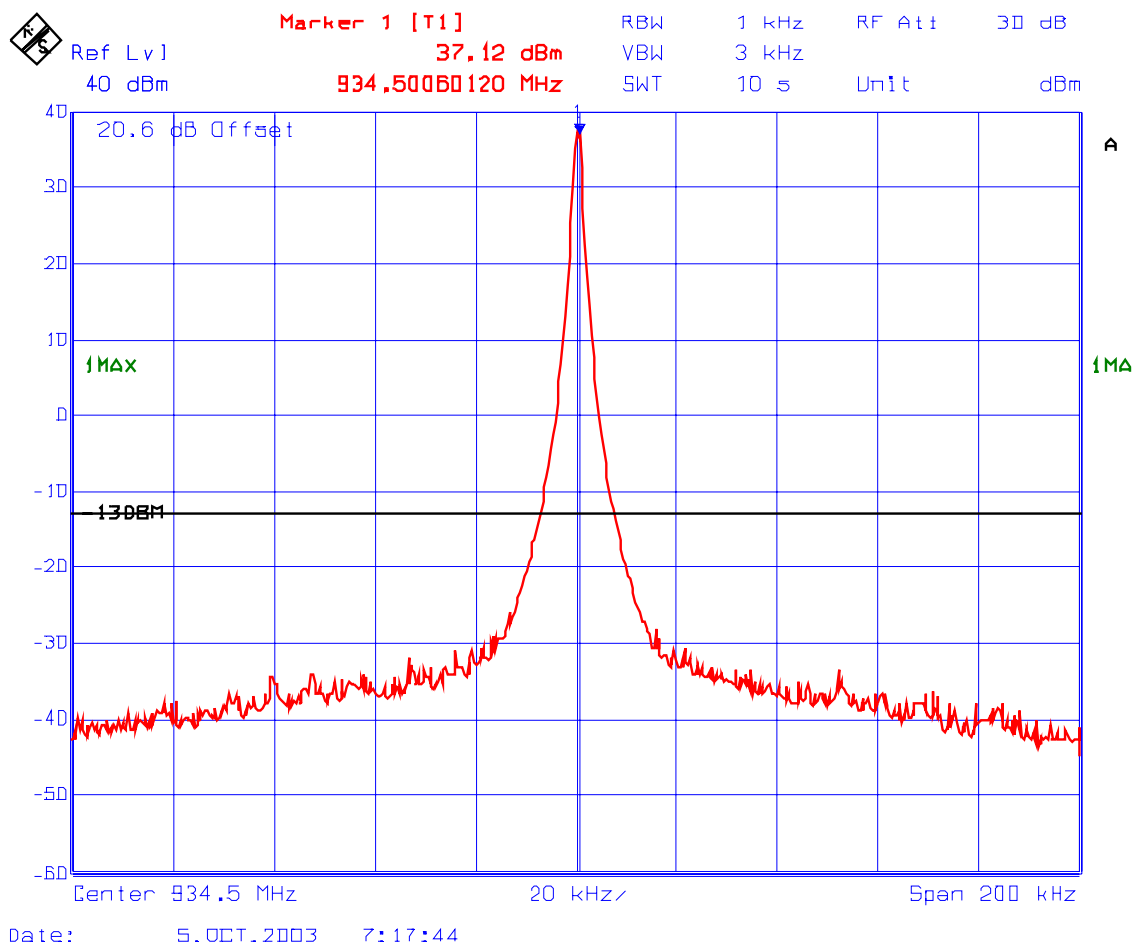
3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

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**PLOT # 46 Intermodulation with 1 RF signal input/output in 928-941 MHz Band
Fc: 934.5 MHz, RF Input: 10 dBm**



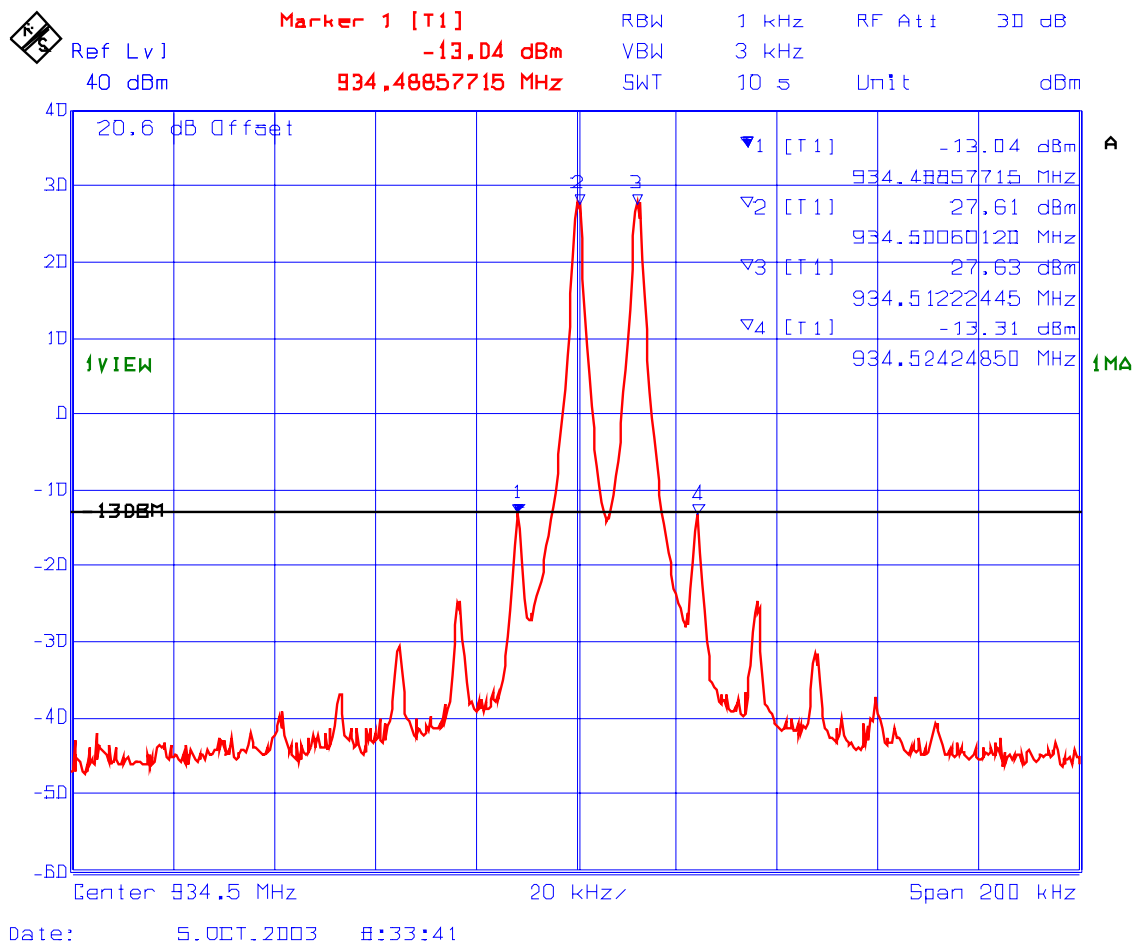
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Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

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Oct. 17, 2003

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PLOT # 47 Intermodulation with 2 RF signal inputs/outputs in 928 – 941 MHz
Fc: 934.5 MHz, Fc + 12.5 kHz
RF Input 1: -52.60 dBm, RF Input 2: -52.42 dBm



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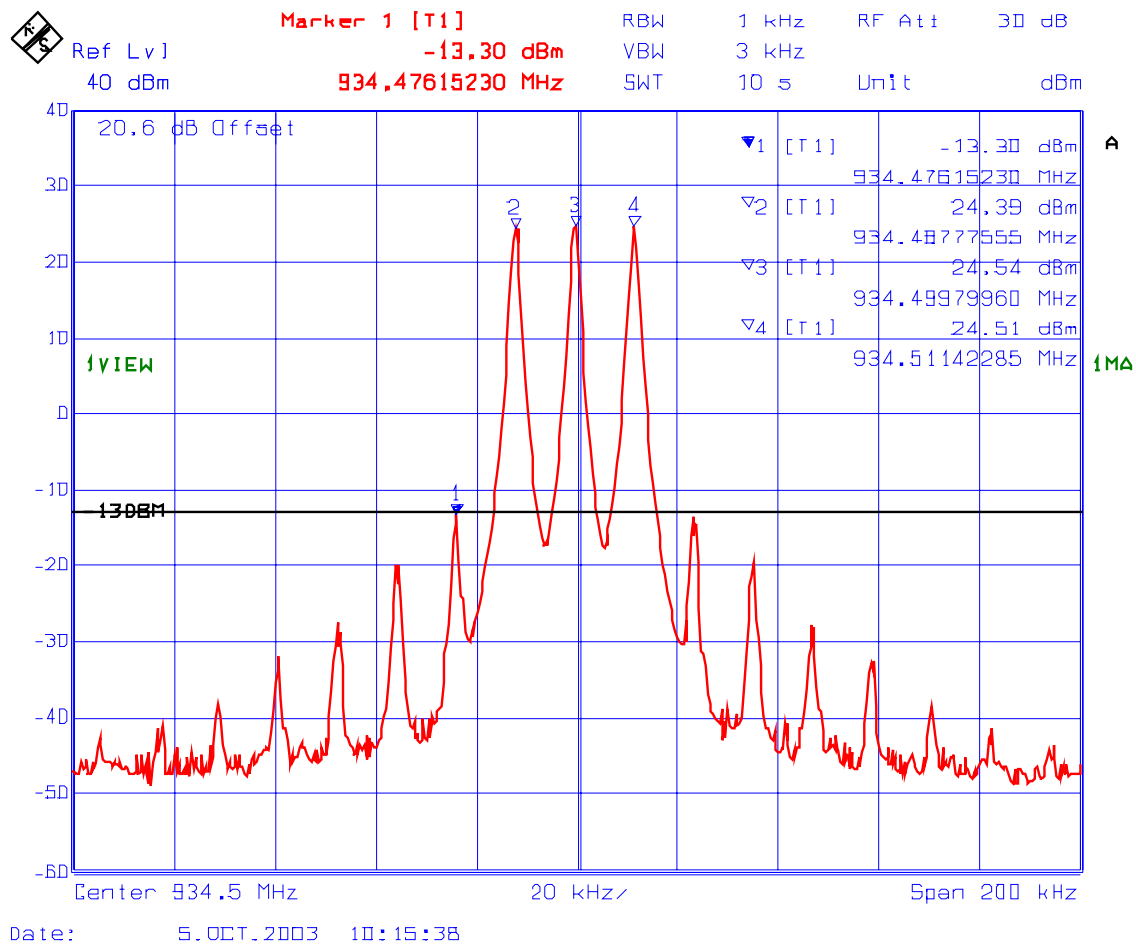
3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

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PLOT # 48 Intermodulation with 3 RF signal inputs/outputs in 928 – 941 MHz
Fc: 934.5 MHz, Fc - 12.5 kHz, Fc + 12.5 kHz
RF Input 1: -55.32 dBm, RF Input 2: -55.37 dBm, RF Input 3: -55.33 dBm



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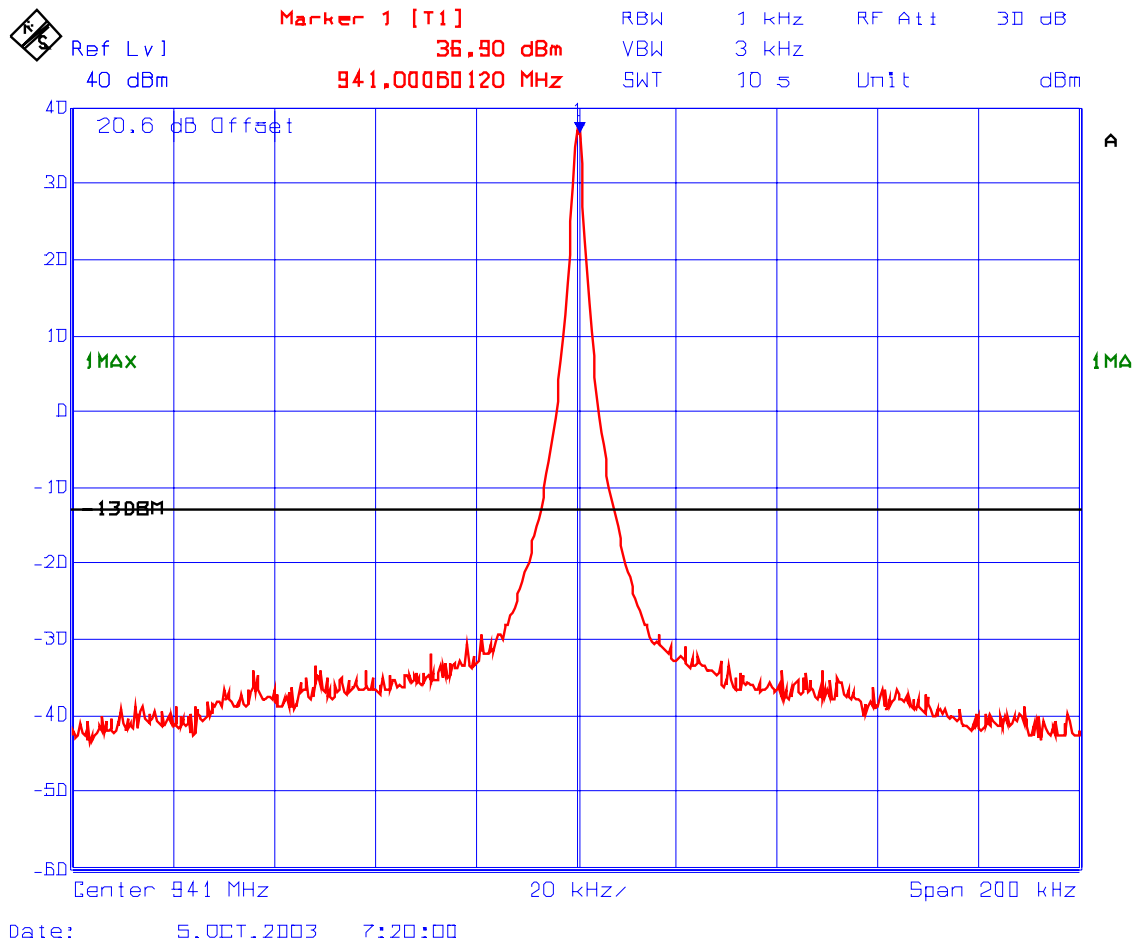
3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

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PLOT # 49 Intermodulation with 1 RF signal input/output in 928-941 MHz Band
Fc: 941 MHz, RF Input: 10 dBm



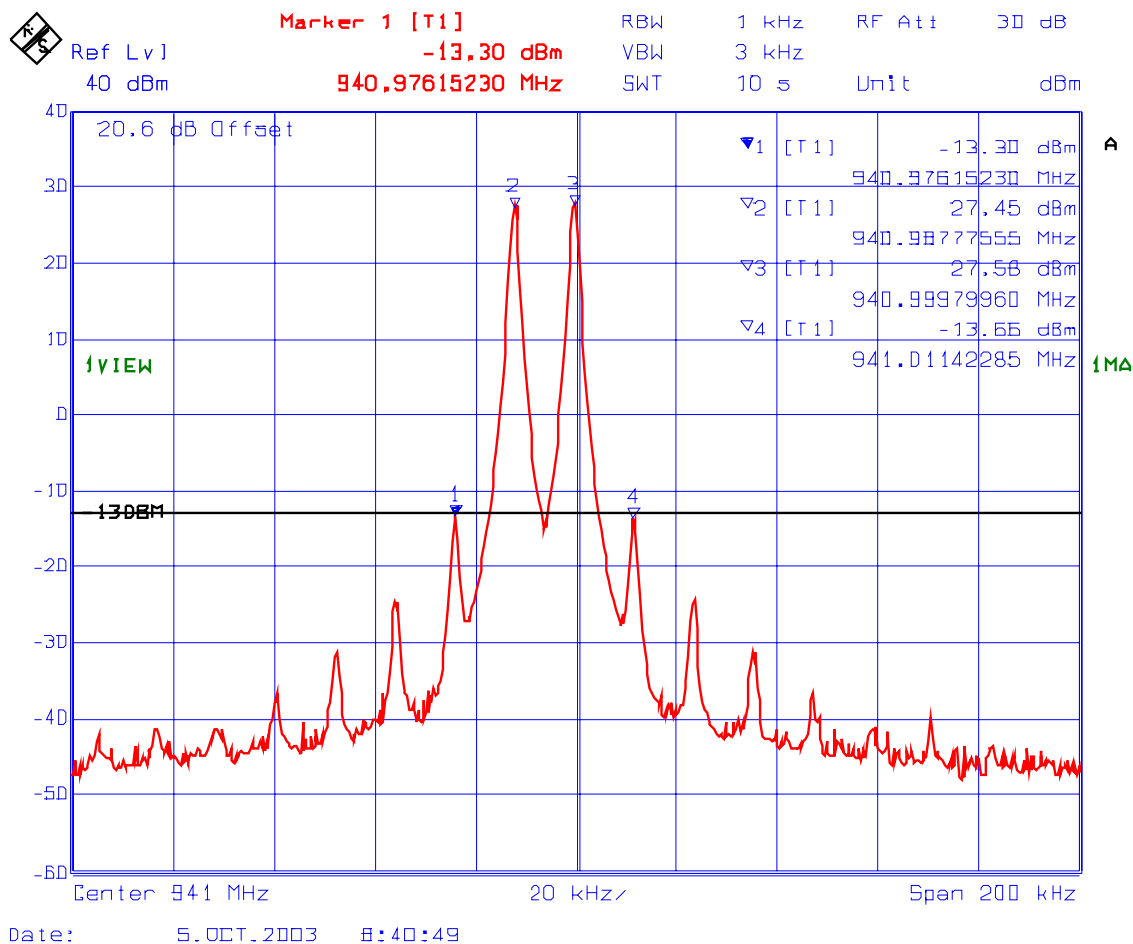
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3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

File #: KT1-034FCC22-90
Oct. 17, 2003

- All test results contained in this engineering test report are traceable to National Institute of Standards and Technology (NIST)

PLOT # 50 Intermodulation with 2 RF signal inputs/outputs in 928 – 941 MHz
Fc: 941 MHz, Fc - 12.5 kHz
RF Input 1: -51.42 dBm, RF Input 2: -51.24 dBm



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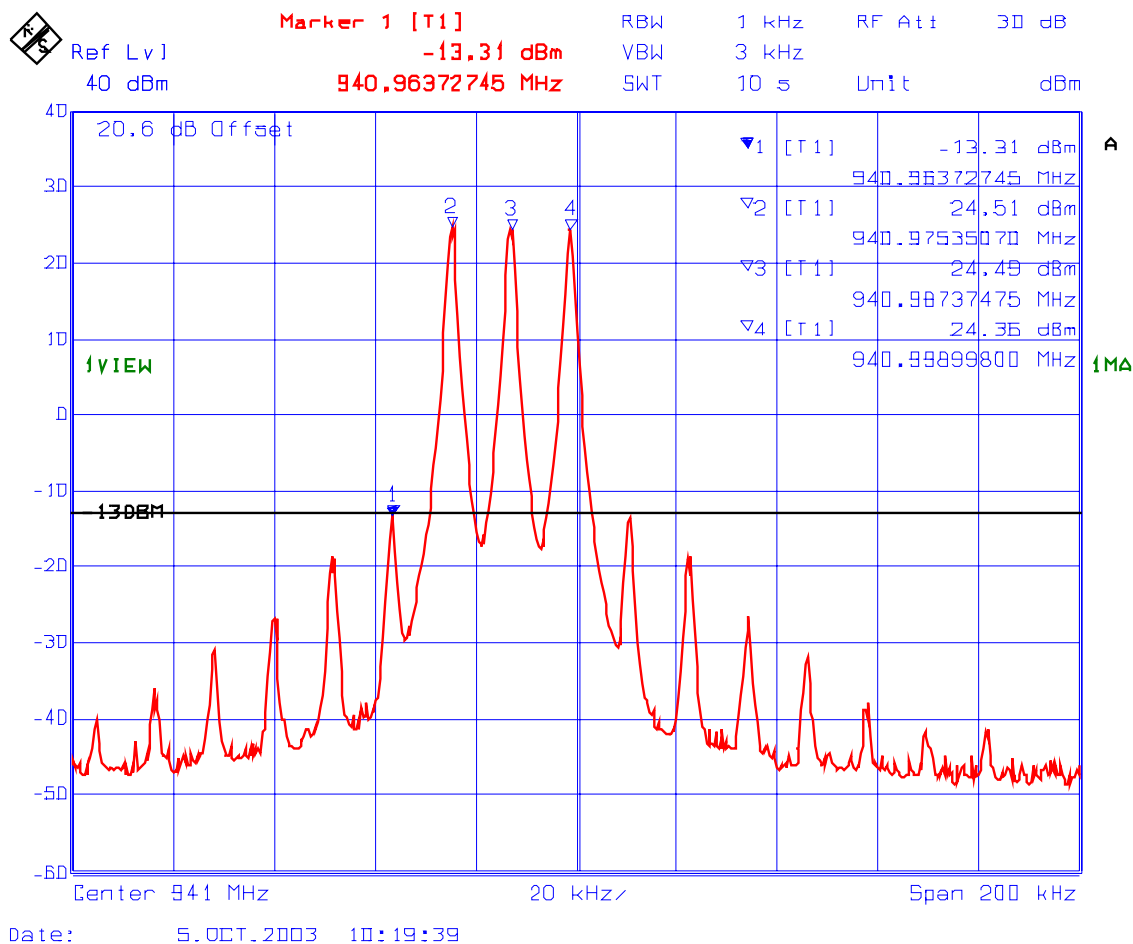
3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

File #: KTI-034FCC22-90

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PLOT # 51 Intermodulation with 3 RF signal inputs/outputs in 928 – 941 MHz
Fc: 941 MHz, Fc - 12.5 kHz, Fc - 25 kHz
RF Input 1: -54.61 dBm, RF Input 2: -54.48 dBm, RF Input 3: -54.50 dBm



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 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

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Oct. 17, 2003

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6.6. RF EXPOSURE REQUIREMENTS @ 1.1310 & 2.1091

6.6.1. Limits

- **FCC 1.1310:-** The criteria listed in the following table shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified in 1.1307(b).

LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Average Time (minutes)
(A) Limits for Occupational/Control Exposures				
300-1500	F/300	6
(B) Limits for General Population/Uncontrolled Exposure				
300-1500	F/1500	6

F = Frequency in MHz

6.6.2. Method of Measurements

Refer to FCC @ 1.1310 and 2.1091

- In order to demonstrate compliance with MPE requirements (see Section 2.1091), the following information is typically needed:
 - (1) Calculation that estimates the minimum separation distance (20 cm or more) between an antenna and persons required to satisfy power density limits defined for free space.
 - (2) Antenna installation and device operating instructions for installers (professional/unskilled users), and the parties responsible for ensuring compliance with the RF exposure requirement
 - (3) Any caution statements and/or warning labels that are necessary in order to comply with the exposure limits
 - (4) Any other RF exposure related issues that may affect MPE compliance

Calculation Method of RF Safety Distance:

$$S = PG/4\pi r^2 = EIRP/4\pi r^2$$

Where: P: power input to the antenna in mW
EIRP: Equivalent (effective) isotropic radiated power.
S: power density mW/cm²
G: numeric gain of antenna relative to isotropic radiator
r: distance to centre of radiation in cm

FCC radio frequency exposure limits may be exceeded at distances closer than r cm from the antenna of this device

$$r = \sqrt{PG/4\pi S}$$

FCC radio frequency exposure limits may not be exceeded at distances closer than r cm from the antenna of this device

- For portable transmitters (see Section 2.1093), or devices designed to operate next to a person's body, compliance is determined with respect to the SAR limit (define in the body tissues) for near-field exposure conditions. If the maximum average output power, operating condition configurations and exposure conditions are comparable to those of existing cellular and PCS phones., an SAR evaluation may be required in order to determine if such a device complies with SAR limit. When SAR evaluation data is not available, and the additional supporting information cannot assure compliance, the Commission may request that an SAR evaluation be performed, as provided for in Section 1.1307(d)

6.6.3. Test Data

6.6.3.1. Indoor Antenna - For all Frequency Bands

Antenna Gain Limit specified by Manufacturer: 0 dBi (In-building Antenna)

Minimum Frequency (MHz)	Maximum EIRP (Watts)	Calculated RF Safety Distance r (cm)	Manufacturer' Specified Separation Distance (cm)	Compliance
806	0.63	9.6	20	Complies

Note: RF EXPOSURE DISTANCE LIMITS: $r = (PG/4\pi S)^{1/2} = (EIRP/4\pi S)^{1/2}$
 $S = F/1500 = \text{lowest-f}/1500 = 806/1500 \text{ mW/cm}^2 = 0.54 \text{ mW/cm}^2$

6.6.3.2. Outdoor Antenna - Cellular Mobile Band (824-849 MHz)

Antenna Gain Limit specified by Manufacturer: 10 dBi (Roof Top Antenna)

Minimum Frequency (MHz)	Measured RF Conducted (Watts)	Calculated EIRP (Watts)	Calculated RF Safety Distance r (cm)	Manufacturer' Specified Separation Distance (cm)	Compliance
824	0.512	5.128	27.2	7,000	Complies

Note: RF EXPOSURE DISTANCE LIMITS: $r = (PG/4\pi S)^{1/2} = (EIRP/4\pi S)^{1/2}$
 $S = F/1500 = \text{lowest-f}/1500 = 824/1500 \text{ mW/cm}^2 = 0.55 \text{ mW/cm}^2$

6.6.3.3. Outdoor Antenna - For all other Frequency Bands except Cellular Mobile Band (824-849 MHz)

Antenna Gain Limit specified by Manufacturer: 20 dBi (Roof Top Antenna)

Minimum Frequency (MHz)	Measured RF Conducted (Watts)	Calculated EIRP (Watts)	Calculated RF Safety Distance r (cm)	Manufacturer' Specified Separation Distance (cm)	Compliance
806	3.8	234.4	186	7,000	Complies

Note: RF EXPOSURE DISTANCE LIMITS: $r = (PG/4\pi S)^{1/2} = (EIRP/4\pi S)^{1/2}$
 $S = F/1500 = \text{lowest-f}/1500 = 806/1500 \text{ mW/cm}^2 = 0.54 \text{ mW/cm}^2$

Evaluation of RF Exposure Compliance Requirements	
RF Exposure Requirements	Compliance with FCC Rules
Minimum separation distance between antenna and persons, specified by the manufacturer, for <ul style="list-style-type: none">In-Building Antenna:Top-Roof Antenna	<ul style="list-style-type: none">20 cm7 Meters <p>Please refer to page # 25 of the Users/ Manual and FCC RF Exposure folder</p>

6.7. FREQUENCY STABILITY @ FCC 2.1055, 22.101(A) & 90.213

6.7.1. Limits

Please refer to FCC CFR 47, Part 22, Subpart H, Sec.101(a)

FREQUENCY RANGE (MHz)	FREQUENCY TOLERANCE (ppm)
824-849 (Mobile)	+1.5
869-894 (base)	+2.5

Please refer to FCC CFR 47, Part 90, Subpart I, Para. 90.213 for specification details.

FREQUENCY RANGE (MHz)	FIXED & BASE STATIONS (ppm)
806-821	1.5
821-824	1.0
851-866	1.5
866-869	1.0
896-902	0.1
902-928 ¹³	2.5
929-930	1.5
935-940	0.1

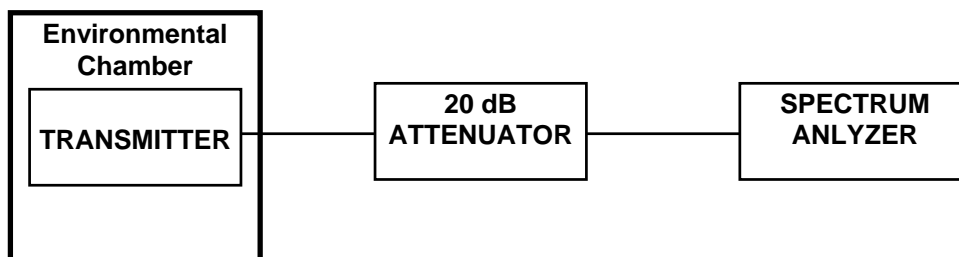
6.7.2. Method of Measurements

Refer to Exhibit 8, § 8.3 of this report for measurement details

6.7.3. Test Equipment List

Test Instruments	Manufacturer	Model No.	Serial No.	Frequency Range
EMI Receiver/ EMI Receiver	Hewlett Packard	HP 8593EM	3412A00103	9 kHz – 26.5 GHz
Attenuator(s)	Bird	DC – 22 GHz
Temperature & Humidity Chamber	Tenney	T5	9723B	-40° to +60° C range

6.7.4. Test Arrangement



6.7.5. Test Data

6.7.5.1. Frequency Stability in 806-824 MHz Band

Center Frequency:	806 MHz		
Full Power Level:	3.8 W		
Frequency Tolerance Limit:	±1.5 ppm		
Max. Frequency Tolerance Measured:	0 Hz or 0.0 ppm		
Input Voltage Rating:	120 V 60 Hz		
CENTER FREQUENCY & RF POWER OUTPUT VARIATION			
Ambient Temperature (°C)	Supply Voltage (Nominal) 120 Volts AC	Supply Voltage (85% of Nominal) 102 Volts AC	Supply Voltage (115% of Nominal) 138 Volts AC
	Hz	Hz	Hz
-30	0	N/A	N/A
-20	0	N/A	N/A
-10	0	N/A	N/A
0	0	N/A	N/A
+10	0	N/A	N/A
+20	0	0	0
+30	0	N/A	N/A
+40	0	N/A	N/A
+50	0	N/A	N/A

6.7.5.2. Frequency Stability in 824-849 MHz Band

Center Frequency:	824 MHz		
Full Power Level:	0.51 Watts		
Frequency Tolerance Limit:	±1.5 ppm		
Max. Frequency Tolerance Measured:	0 Hz or 0.0 ppm		
Input Voltage Rating:	120 V 60 Hz		
CENTER FREQUENCY & RF POWER OUTPUT VARIATION			
Ambient Temperature (°C)	Supply Voltage (Nominal) 120 Volts AC	Supply Voltage (85% of Nominal) 102 Volts AC	Supply Voltage (115% of Nominal) 138 Volts AC
	Hz	Hz	Hz
-30	0	N/A	N/A
-20	0	N/A	N/A
-10	0	N/A	N/A
0	0	N/A	N/A
+10	0	N/A	N/A
+20	0	0	0
+30	0	N/A	N/A
+40	0	N/A	N/A
+50	0	N/A	N/A

6.7.5.3. Frequency Stability in 851-869 MHz Band

Center Frequency:	851 MHz		
Full Power Level:	3.6 W		
Frequency Tolerance Limit:	1.5 ppm		
Max. Frequency Tolerance Measured:	0 Hz, 0 ppm		
Input Voltage Rating:	120 V 60 Hz		
CENTER FREQUENCY & RF POWER OUTPUT VARIATION			
Ambient Temperature (°C)	Supply Voltage (Nominal) 120 Volts AC	Supply Voltage (85% of Nominal) 102 Volts AC	Supply Voltage (115% of Nominal) 138 Volts AC
	Hz	Hz	Hz
-30	0	N/A	N/A
-20	0	N/A	N/A
-10	0	N/A	N/A
0	0	N/A	N/A
+10	0	N/A	N/A
+20	0	0	0
+30	0	N/A	N/A
+40	0	N/A	N/A
+50	0	N/A	N/A

6.7.5.4. Frequency Stability in 869-894 MHz Band

Center Frequency:	869 MHz		
Full Power Level:	0.51 W		
Frequency Tolerance Limit:	±2.5 ppm		
Max. Frequency Tolerance Measured:	0 Hz or 0 ppm		
Input Voltage Rating:	120 V 60 Hz		
CENTER FREQUENCY & RF POWER OUTPUT VARIATION			
Ambient Temperature (°C)	Supply Voltage (Nominal) 120 Volts AC	Supply Voltage (85% of Nominal) 102 Volts AC	Supply Voltage (115% of Nominal) 138 Volts AC
	Hz	Hz	Hz
-30	0	N/A	N/A
-20	0	N/A	N/A
-10	0	N/A	N/A
0	0	N/A	N/A
+10	0	N/A	N/A
+20	0	0	0
+30	0	N/A	N/A
+40	0	N/A	N/A
+50	0	N/A	N/A

6.7.5.5. Frequency Stability in 896-902 MHz Band

Center Frequency:	896 MHz		
Full Power Level:	3.9 W		
Frequency Tolerance Limit:	±0.1 ppm		
Max. Frequency Tolerance Measured:	0 Hz or 0 ppm		
Input Voltage Rating:	120 V 60 Hz		
CENTER FREQUENCY & RF POWER OUTPUT VARIATION			
Ambient Temperature (°C)	Supply Voltage (Nominal) 120 Volts AC	Supply Voltage (85% of Nominal) 102 Volts AC	Supply Voltage (115% of Nominal) 138 Volts AC
	Hz	Hz	Hz
-30	0	N/A	N/A
-20	0	N/A	N/A
-10	0	N/A	N/A
0	0	N/A	N/A
+10	0	N/A	N/A
+20	0	0	0
+30	0	N/A	N/A
+40	0	N/A	N/A
+50	0	N/A	N/A

6.7.5.6. Frequency Stability in 928-941 MHz Band

Center Frequency:	928 MHz		
Full Power Level:	4.7 W		
Frequency Tolerance Limit:	±0.1 ppm (worst case)		
Max. Frequency Tolerance Measured:	0 Hz or 0 pp,		
Input Voltage Rating:	120 V 60 Hz		
CENTER FREQUENCY & RF POWER OUTPUT VARIATION			
Ambient Temperature (°C)	Supply Voltage (Nominal) 120 Volts AC	Supply Voltage (85% of Nominal) 102 Volts AC	Supply Voltage (115% of Nominal) 138 Volts AC
	Hz	Hz	Hz
-30	0	N/A	N/A
-20	0	N/A	N/A
-10	0	N/A	N/A
0	0	N/A	N/A
+10	0	N/A	N/A
+20	0	0	0
+30	0	N/A	N/A
+40	0	N/A	N/A
+50	0	N/A	N/A

6.8. 99% OBW, 20 DB BW AND EMISSION MASK @ FCC 2.1049, 22.917(A), (B), (C) & (D), 90.208 & 90.210

6.8.1. Limits

FCC 22.917(a), (b), (c) & (D):

- Mobile station in AMPS:

EMISION MASK @ FCC 22.917		
EMISSION TYPE	Frequency removed from the carrier frequency	Attenuation wrt Carrier Level
F3E (radiotelephony) & F3D (SAT) - with audio filter	<ul style="list-style-type: none"> 20 kHz to 45 kHz 45 kHz to 2*Fc 	<ul style="list-style-type: none"> 26 dBc 60 dBc or 43+10*log(P) dBc (P in Watts) whichever is less
Alternative - F3E (radiotelephony) & F3D (SAT) - with audio filter	<ul style="list-style-type: none"> 12 kHz to 20 kHz 20 kHz to 2*Fc 	<ul style="list-style-type: none"> 117*log(f_d+12) dBc 100*log(f_d+11) dBc or 60 dBc or 43+10*log(P) dBc (P in Watts) whichever is less

- Mobile station in Wideband Digital Mode:

EMISION MASK @ FCC 22.917		
EMISSION TYPE	Frequency removed from the carrier frequency	Attenuation wrt Carrier Level
F1D (Wideband Data Mode) / F3D (Signaling Tone)	<ul style="list-style-type: none"> 20 kHz to 45 kHz 45 kHz to 90 kHz 90 kHz to 2*Fc 	<ul style="list-style-type: none"> 26 dBc 45 dBc 60 dBc or 43+10*log(P) dBc (P in Watts) whichever is less

- Mobile station in CMDA mode:

	Centre frequency offset by greater than 900 kHz for 30 kHz bandwidth or greater than 1.385 MHz for 1 MHz bandwidth	Center frequency offset by greater than 1.98 MHz for 30 kHz bandwidth or greater than 2.465 MHz for 1 MHz bandwidth
Spurious emissions not to exceed (a), or, or both (b) and (c), whichever is less stringent	(a) -42 dBc/30 kHz (b) -60 dBm / 30 kHz (c) -55 dBm/ 1 MHz	(a) -54 dBc/30 kHz (b) -60 dBm / 30 kHz (c) -55 dBm/ 1 MHz

- Base station in CMDA mode shall not exceed the following limits:

- For all offset frequencies greater than 750 kHz from the CDMA centre frequency, at least 45 dBc
- For all offset frequencies greater than 1,98 MHz from the CDMA centre frequency, at least 60 dBc

- (c) for all offset frequencies not allocated to the same operator system, at least 60 dB or -13 dBm, whichever is less stringent.

FCC 90.208 & 90.210: Emissions shall be attenuated below the mean output power of the transmitter as follows:

FREQUENCY RANGE (MHz)	Maximum Authorized BW (KHz)	CHANNEL SPACING (KHz)	Recommended Max. FREQ. DEVIATION (KHz)	FCC APPLICABLE MASK @ FCC 90.210
806-821/ 851-866	20	25	5	MASK B (Voice) & MASK G (Data)
821-824/866-869	20	12.5	5	MASK B (Voice) & MASK H (Data)
896-902/935-940	13.6	12.5	2.5	MASK I (Voice) & MASK J (Data)
902-928	Note 1	Mask K (Voice & Data)
929-930	20	25	5	MASK B (Voice) & MASK G (Data)

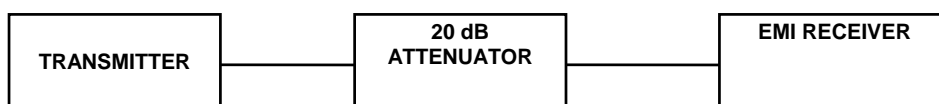
6.8.2. Method of Measurements

Refer to Exhibit 8, § 8.4 of this report for measurement details

6.8.3. Test Equipment List

Test Instruments	Manufacturer	Model No.	Serial No.	Frequency Range
EMI Receiver/ EMI Receiver	Hewlett Packard	HP 8593EM	3412A00103	9 kHz – 26.5 GHz
Attenuator(s)	Bird	DC – 22 GHz
Audio Oscillator	Hewlett Packard	HP 204C	0989A08798	DC to 1.2 MHz

6.8.4. Test Arrangement



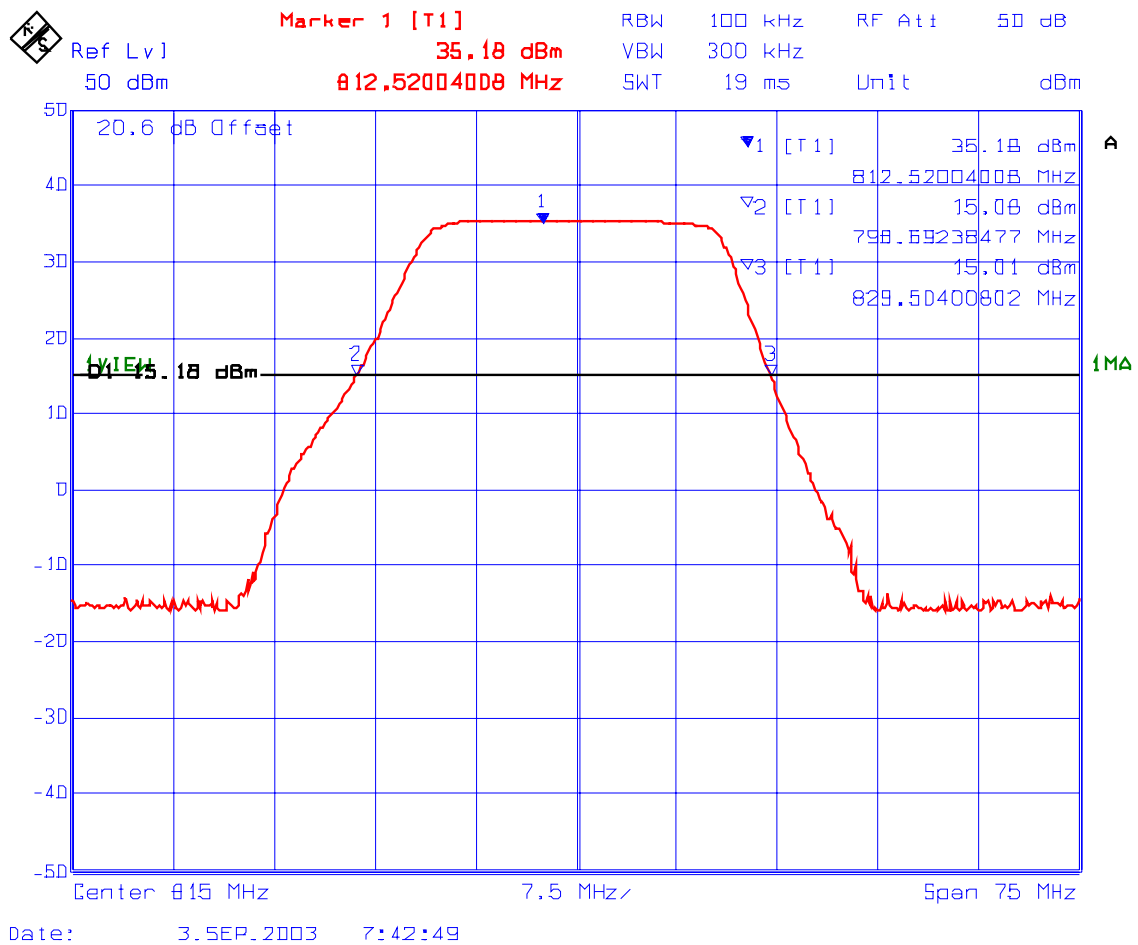
6.8.5. Test Data

6.8.5.1. 20 dB Bandwidth and Gain of the Amplifier

- Refer to Plot # 52 for detailed measure of 20 dB and maximum gain of the Amplifier from frequency band 806-824.
- Refer to Plot # 53 for detailed measure of 20 dB and maximum gain of the Amplifier from frequency band 851-869.
- Refer to Plot # 54 for detailed measure of 20 dB and maximum gain of the Amplifier from frequency band 824-849.
- Refer to Plot # 55 for detailed measure of 20 dB and maximum gain of the Amplifier from frequency band 869-894.
- Refer to Plot # 56 for detailed measure of 20 dB and maximum gain of the Amplifier from frequency band 896-902.
- Refer to Plot # 57 for detailed measure of 20 dB and maximum gain of the Amplifier from frequency band 928-941.

- *All test results contained in this engineering test report are traceable to National Institute of Standards and Technology (NIST)*

PLOT # 52 20 dB BW of the 806-824 MHz Bandpass Gain
RF Input: 9.87 dBm, Tracking from 750-850 MHz
Max Gain: 25.31 dB



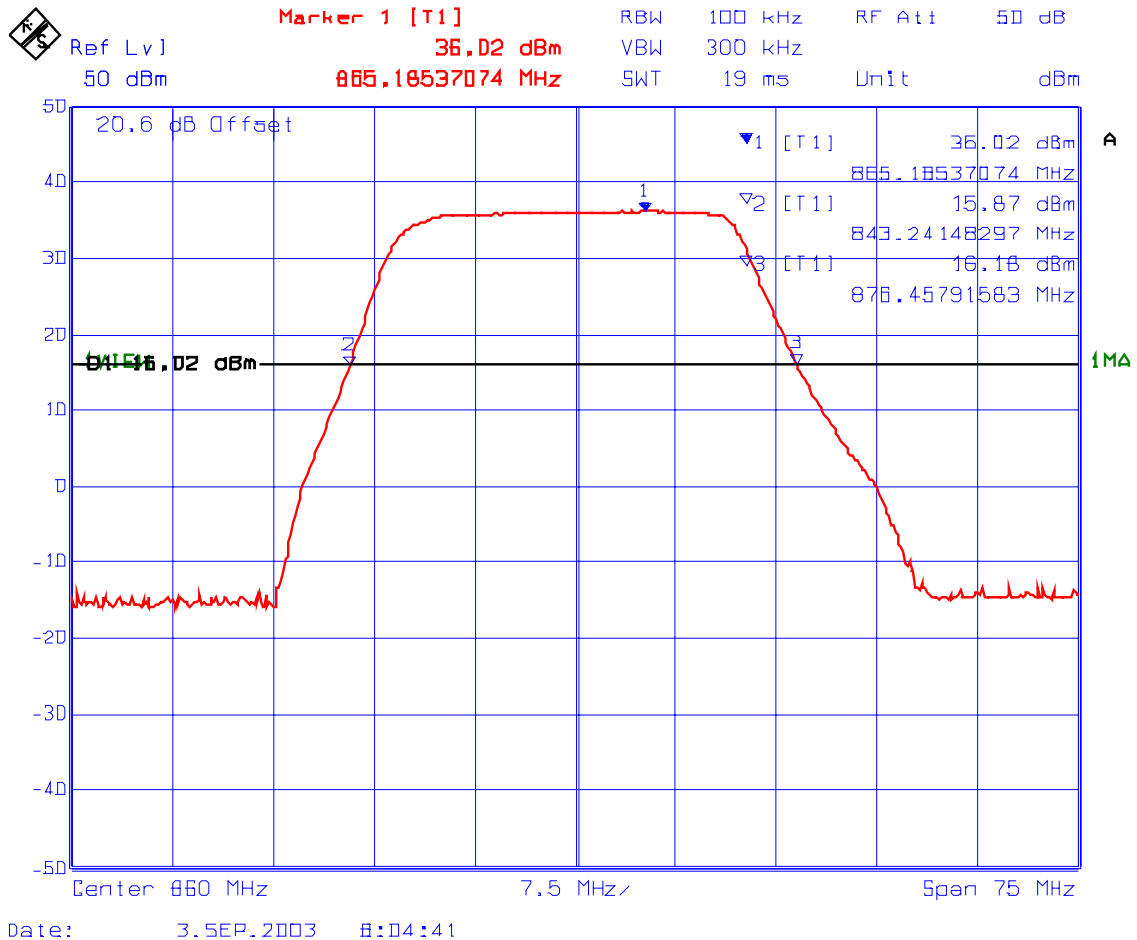
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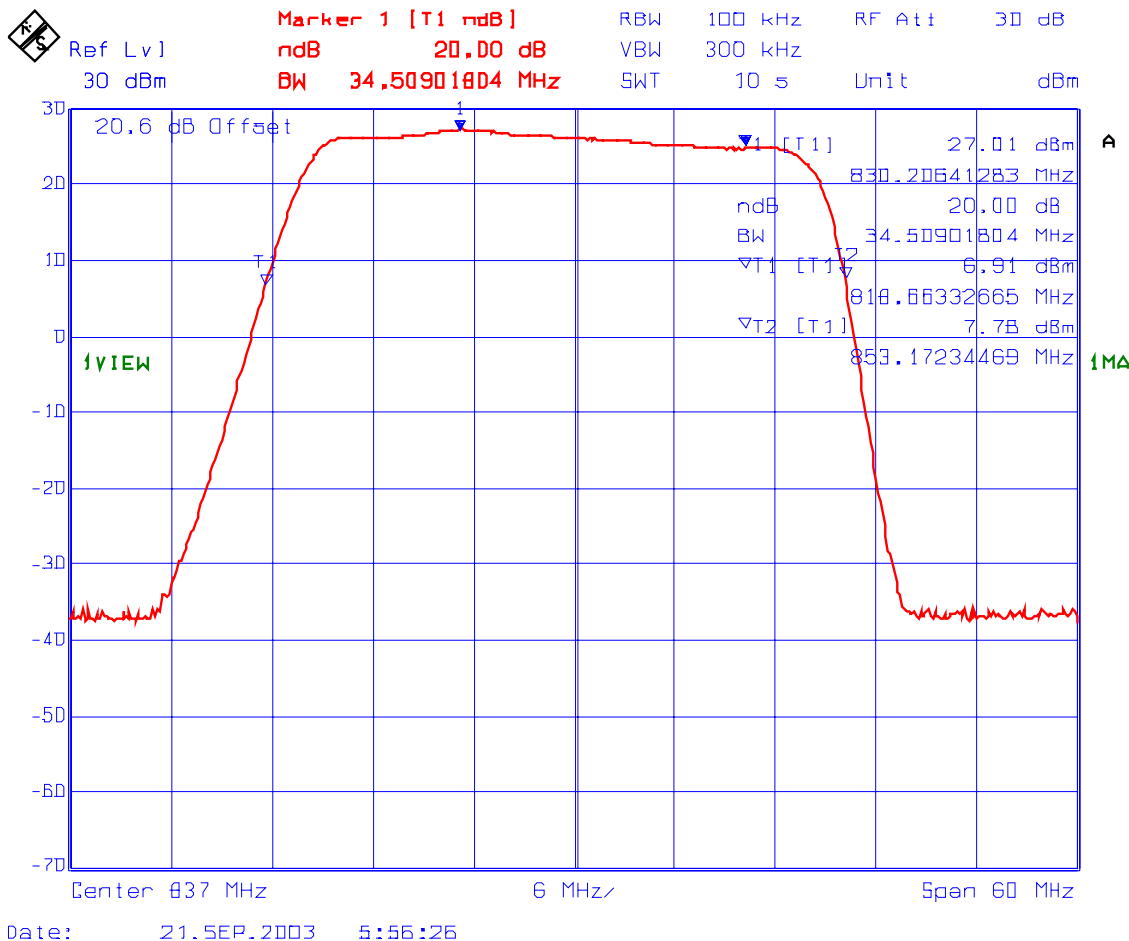
File #: KTI-034FCC22-90
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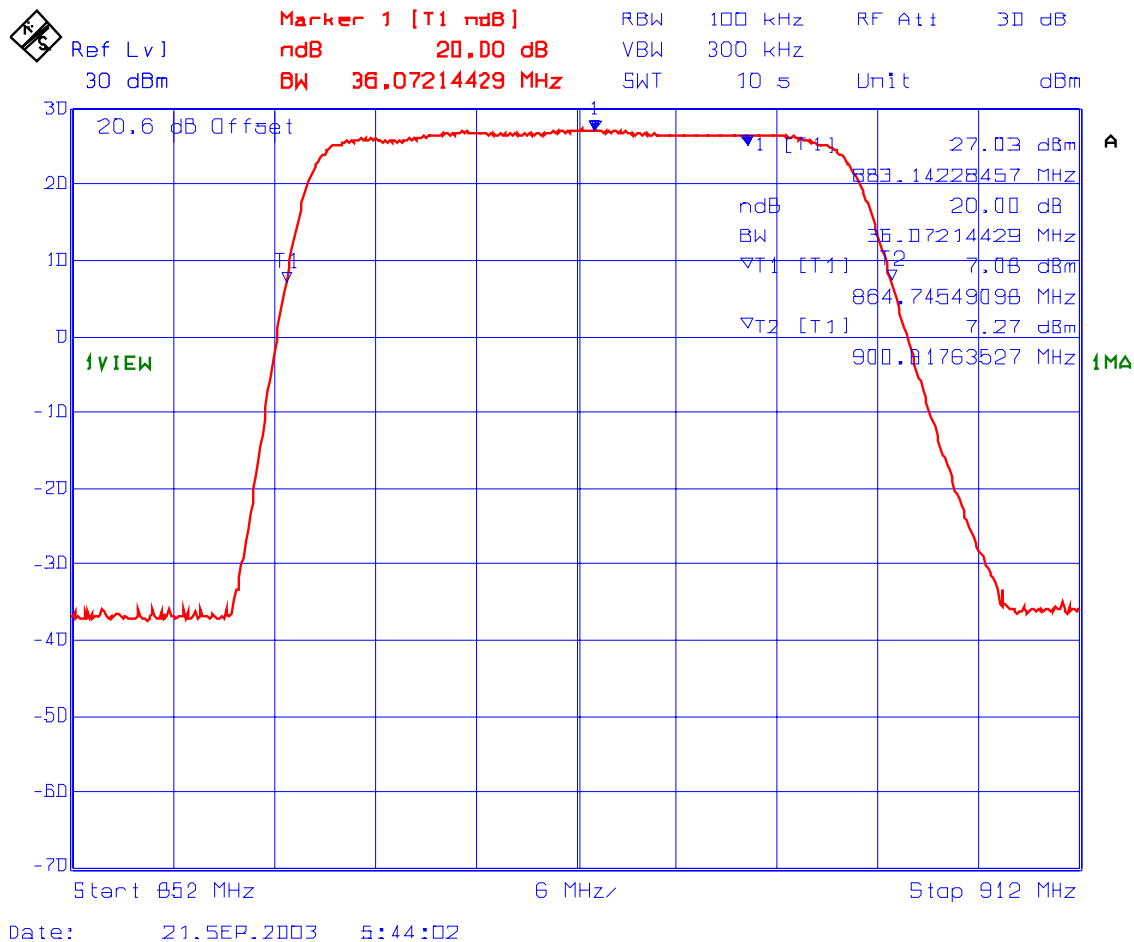
PLOT # 53 20 dB BW of the 851-869 MHz Bandpass Gain
RF Input: 9.87 dBm, Tracking from 800-900 MHz
Max Gain: 26.15 dB



PLOT # 54 20 dB BW of the 824-849 MHz Bandpass Gain
RF Input: -54.39dBm, Tracking from 800-900 MHz
Max Gain: 81.39 dB



PLOT # 55 20 dB BW of the 869-894 MHz Bandpass Gain
RF Input: -53.60 dBm, Tracking from 850-950 MHz
Max Gain: 80.60 dB



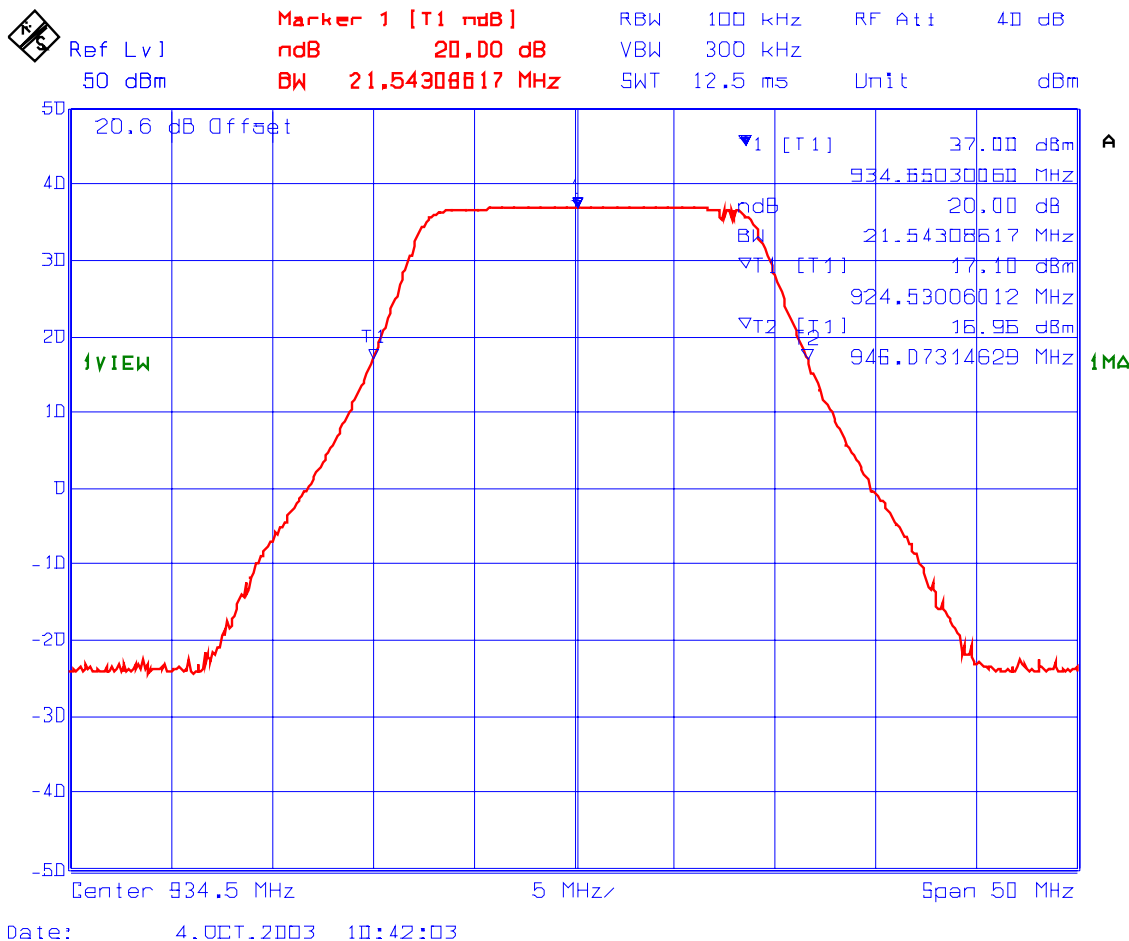
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PLOT # 57 20 dB BW of the 928-941 MHz Bandpass Gain
RF Input: 10 dBm, Tracking from 900-960 MHz
Max Gain: 27 dB



6.8.5.2. 99% Occupied Bandwidth Measurements

Remark: 98% OBW of the RF input and RF output signals were measured for comparison

6.8.5.2.1. 806-821 MHz Band

EUT's Subband (MHz)	Frequency (MHz)	Channel Spacing (kHz)	Modulation	RF IN Measured 99% OBW (kHz)	RF OUT Measured 99% OBW (kHz)
806 – 821	806.0	25.0	FM with 2.5 kHz Sine wave signal	15.6	15.6
	813.5	25.0	FM with 2.5 kHz Sine wave signal	15.6	15.6
	821.0	25.0	FM with 2.5 kHz Sine wave signal	15.6	15.6

Please Refer to Plots # 58-61 for 99% Occupied Bandwidth in the Band 806-821 MHz.

EUT's Subband (MHz)	Frequency (MHz)	Channel Spacing (kHz)	Modulation	RF IN Measured 99% OBW (kHz)	RF OUT Measured 99% OBW (kHz)
806 – 821	806.0	25.0	FM with an External 9600 b/s random data source	14.9	14.9
	813.5	25.0	FM with an External 9600 b/s random data source	14.9	14.8
	821.0	25.0	FM with an External 9600 b/s random data source	14.9	14.7

Please Refer to Plots # 62-65 for 99% Occupied Bandwidth in the Band 806-821 MHz.

6.8.5.2.2. 821-824 MHz Band

EUT's Subband (MHz)	Frequency (MHz)	Channel Spacing (kHz)	Modulation	RF IN Measured 99% OBW (kHz)	RF OUT Measured 99% OBW (kHz)
821-824	821.0	12.5	FM with 2.5 kHz Sine wave signal	10.4	10.4
	822.5	12.5	FM with 2.5 kHz Sine wave signal	10.4	10.4
	824.0	12.5	FM with 2.5 kHz Sine wave signal	10.4	10.4

Please Refer to Plots # 66-69 for 99% Occupied Bandwidth in the Band 821-824 MHz.

EUT's Subband (MHz)	Frequency (MHz)	Channel Spacing (kHz)	Modulation	RF IN Measured 99% OBW (kHz)	RF OUT Measured 99% OBW (kHz)
821-824	821.0	12.5	FM with an External 9600 b/s random data source	11.7	11.7
	822.5	12.5	FM with an External 9600 b/s random data source	11.7	11.7
	824.0	12.5	FM with an External 9600 b/s random data source	11.7	11.7

Please Refer to Plots # 70-73 for 99% Occupied Bandwidth in the Band 821-824 MHz.

6.8.5.2.3. 824-849 MHz Band

EUT's Subband (MHz)	Frequency (MHz)	Channel Spacing (kHz)	Modulation	RF IN Measured 99% OBW (kHz)	RF OUT Measured 99% OBW (kHz)
824-849	824.0	25	FM with 2.5 kHz Sine wave signal	15.9	15.8
	836.5	25	FM with 2.5 kHz Sine wave signal	15.9	15.8
	849.0	25	FM with 2.5 kHz Sine wave signal	15.9	15.8

Please Refer to Plots # 74-77 for 99% Occupied Bandwidth in the Band 824-849 MHz.

EUT's Subband (MHz)	Frequency (MHz)	Channel Spacing (kHz)	Modulation	RF IN Measured 99% OBW (kHz)	RF OUT Measured 99% OBW (kHz)
824-849	824.0	25	FM with an External 9600 b/s random data source	20.1	20.5
	836.5	25	FM with an External 9600 b/s random data source	20.1	20.2
	849.0	25	FM with an External 9600 b/s random data source	20.1	20.4

Please Refer to Plots # 78-81 for 99% Occupied Bandwidth in the Band 824-849 MHz.

EUT's Subband (MHz)	Frequency (MHz)	Channel Spacing (kHz)	Modulation	RF IN Measured 99% OBW (kHz)	RF OUT Measured 99% OBW (kHz)
824-849	824.0	Not Applicable	TDMA	28.4	28.4
	836.5	Not Applicable	TDMA	28.4	28.4
	849.0	Not Applicable	TDMA	28.4	28.4

Please Refer to Plots # 82-85 for 99% Occupied Bandwidth in the Band 824-849 MHz.

EUT's Subband (MHz)	Frequency (MHz)	Channel Spacing (kHz)	Modulation	RF IN Measured 99% OBW (kHz)	RF OUT Measured 99% OBW (kHz)
824-849	824.0	Not Applicable	GSM	245.3	244.1
	836.5	Not Applicable	GSM	245.3	244.1
	849.0	Not Applicable	GSM	245.3	244.1

Please Refer to Plots # 86-89 for 99% Occupied Bandwidth in the Band 824-849 MHz.

EUT's Subband (MHz)	Frequency (MHz)	Channel Spacing (kHz)	Modulation	RF IN Measured 99% OBW (kHz)	RF OUT Measured 99% OBW (kHz)
824-849	824.0	Not Applicable	CDMA	1282.6	1278.6
	836.5	Not Applicable	CDMA	1282.6	1282.6
	849.0	Not Applicable	CDMA	1282.6	1274.5

Please Refer to Plots # 90-93 for 99% Occupied Bandwidth in the Band 824-849 MHz.

6.8.5.2.4. 851-869 MHz Band

EUT's Subband (MHz)	Frequency (MHz)	Channel Spacing (kHz)	Modulation	RF IN Measured 99% OBW (kHz)	RF OUT Measured 99% OBW (kHz)
851-866	851.0	25.0	FM with 2.5 kHz Sine wave signal	15.6	15.6
	858.5	25.0	FM with 2.5 kHz Sine wave signal, RF Input	15.6	15.6
	866.0	25.0	FM with 2.5 kHz Sine wave signal	15.6	15.6

Please Refer to Plots # 94-97 for 99% Occupied Bandwidth in the Band 851-866 MHz.

EUT's Subband (MHz)	Frequency (MHz)	Channel Spacing (kHz)	Modulation	RF IN Measured 99% OBW (kHz)	RF OUT Measured 99% OBW (kHz)
851-866	851.0	25.0	FM with an External 9600 b/s random data source	14.8	14.9
	858.5	25.0	FM with an External 9600 b/s random data source	14.8	14.8
	866.0	25.0	FM with an External 9600 b/s random data source	14.8	14.9

Please Refer to Plots # 98-101 for 99% Occupied Bandwidth in the Band 851-866 MHz.

EUT's Subband (MHz)	Frequency (MHz)	Channel Spacing (kHz)	Modulation	RF IN Measured 99% OBW (kHz)	RF OUT Measured 99% OBW (kHz)
866-869	866.0	12.5	FM with 2.5 kHz Sine wave signal	10.5	10.4
	867.5	12.5	FM with 2.5 kHz Sine wave signal	10.5	10.4
	869.0	12.5	FM with 2.5 kHz Sine wave signal	10.5	10.2

Please Refer to Plots # 102-105 for 99% Occupied Bandwidth in the Band 866-869 MHz.

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EUT's Subband (MHz)	Frequency (MHz)	Channel Spacing (kHz)	Modulation	RF IN Measured 99% OBW (kHz)	RF OUT Measured 99% OBW (kHz)
866-869	866.0	12.5	FM with an External 9600 b/s random data source	11.7	11.7
	867.5	12.5	FM with an External 9600 b/s random data source	11.7	11.7
	869.0	12.5	FM with an External 9600 b/s random data source	11.7	11.7

Please Refer to Plots # 106-109 for 99% Occupied Bandwidth in the Band 866-869 MHz.

6.8.5.2.5. 869-894 MHz Band

EUT's Subband (MHz)	Frequency (MHz)	Channel Spacing (kHz)	Modulation	RF IN Measured 99% OBW (kHz)	RF OUT Measured 99% OBW (kHz)
869-894	869.0	25.0	FM with 2.5 kHz Sine wave signal	15.8	15.8
	881.0	25.0	FM with 2.5 kHz Sine wave signal	15.8	15.8
	894.0	25.0	FM with 2.5 kHz Sine wave signal	15.8	15.8

Please Refer to Plots # 110-113 for 99% Occupied Bandwidth in the Band 869-894 MHz.

EUT's Subband (MHz)	Frequency (MHz)	Channel Spacing (kHz)	Modulation	RF IN Measured 99% OBW (kHz)	RF OUT Measured 99% OBW (kHz)
869-894	869.0	25.0	FM with an External 9600 b/s random data source	20.4	20.4
	881.0	25.0	FM with an External 9600 b/s random data source	20.4	20.8
	894.0	25.0	FM with an External 9600 b/s random data source	20.4	20.8

Please Refer to Plots # 114-117 for 99% Occupied Bandwidth in the Band 869-894 MHz.

EUT's Subband (MHz)	Frequency (MHz)	Channel Spacing (kHz)	Modulation	RF IN Measured 99% OBW (kHz)	RF OUT Measured 99% OBW (kHz)
869-894	869.0	Not Applicable	TDMA	28.4	28.4
	881.5	Not Applicable	TDMA	28.4	28.4
	894.0	Not Applicable	TDMA	28.4	28.4

Please Refer to Plots # 118-121 for 99% Occupied Bandwidth in the Band 869-894 MHz.

EUT's Subband (MHz)	Frequency (MHz)	Channel Spacing (kHz)	Modulation	RF IN Measured 99% OBW (kHz)	RF OUT Measured 99% OBW (kHz)
869-894	869.0	Not Applicable	GSM	244.1	244.1
	881.5	Not Applicable	GSM	244.1	244.1
	894.0	Not Applicable	GSM	244.1	244.1

Please Refer to Plots # 122-125 for 99% Occupied Bandwidth in the Band 869-894 MHz.

EUT's Subband (MHz)	Frequency (MHz)	Channel Spacing (kHz)	Modulation	RF IN Measured 99% OBW (kHz)	RF OUT Measured 99% OBW (kHz)
869-894	869.0	Not Applicable	CDMA	1282.6	1278.6
	881.5	Not Applicable	CDMA	1282.6	1278.6
	894.0	Not Applicable	CDMA	1282.6	1278.6

Please Refer to Plots # 126-129 for 99% Occupied Bandwidth in the Band 869-894 MHz.

6.8.5.2.6. 896-902 MHz Band

EUT's Subband (MHz)	Frequency (MHz)	Channel Spacing (kHz)	Modulation	RF IN Measured 99% OBW (kHz)	RF OUT Measured 99% OBW (kHz)
896-902	896.0	12.5	FM with 2.5 kHz Sine wave signal	10.6	10.6
	896.0	12.5	FM with 2.5 kHz Sine wave signal	10.6	10.6
	901.0	12.5	FM with 2.5 kHz Sine wave signal	10.6	10.6

Please Refer to Plots # 130-132 for 99% Occupied Bandwidth in the Band 896-902 MHz.

EUT's Subband (MHz)	Frequency (MHz)	Channel Spacing (kHz)	Modulation	RF IN Measured 99% OBW (kHz)	RF OUT Measured 99% OBW (kHz)
896-902	896	12.5	FM with an External 9600 b/s random data source	11.6	11.6
	896	12.5	FM with an External 9600 b/s random data source	11.6	11.6
	901	12.5	FM with an External 9600 b/s random data source	11.7	11.6

Please Refer to Plots # 133-135 for 99% Occupied Bandwidth in the Band 896-902 MHz.

6.8.5.2.7. 929.5-940 MHz Band

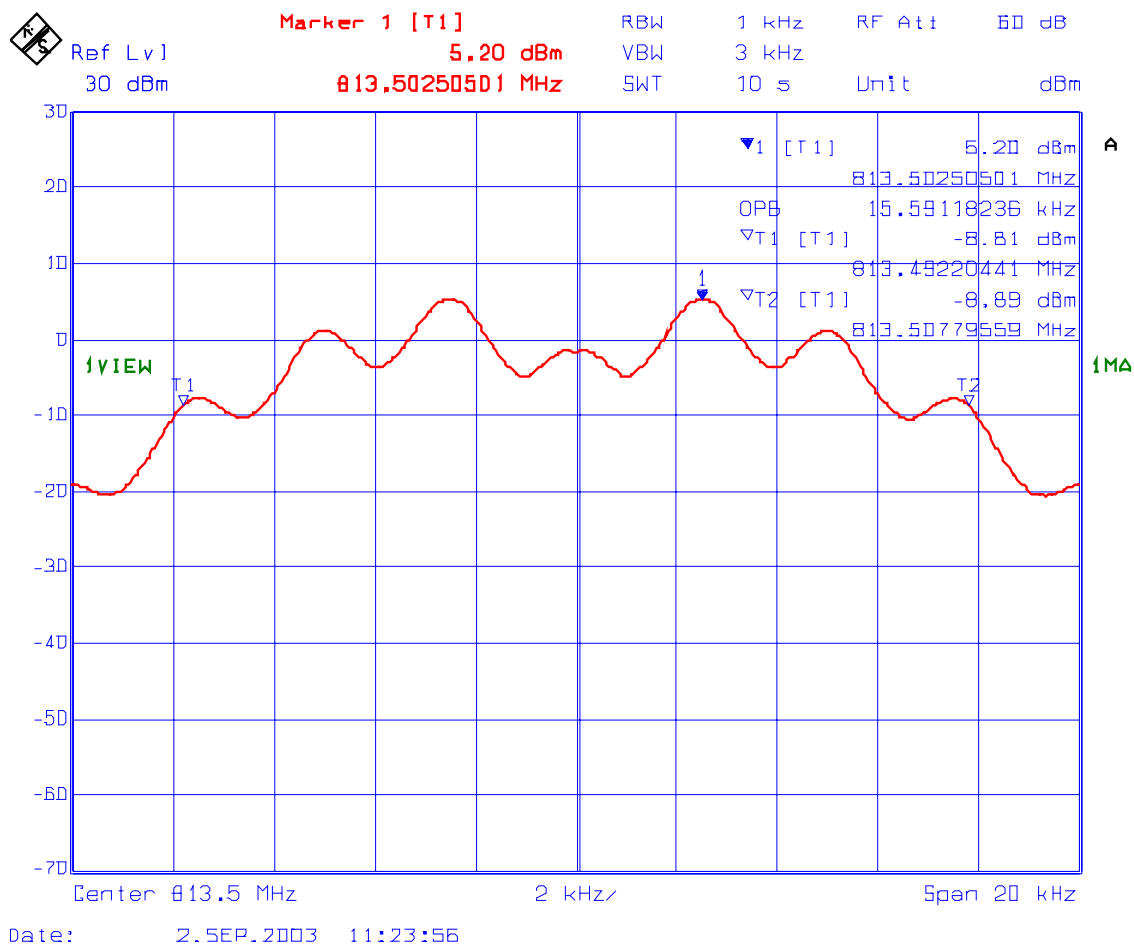
EUT's Subband (MHz)	Frequency (MHz)	Channel Spacing (kHz)	Modulation	RF IN Measured 99% OBW (kHz)	RF OUT Measured 99% OBW (kHz)
929.5	929.5	25.0	FM with 2.5 kHz Sine wave signal	15.9	15.9
	929.5	25.0	FM with an External 9600 b/s random data source	17.4	17.2

Please Refer to Plots # 136-139 for 99% Occupied Bandwidth in the Band 929.5 MHz.

EUT's Subband (MHz)	Frequency (MHz)	Channel Spacing (kHz)	Modulation	RF IN Measured 99% OBW (kHz)	RF OUT Measured 99% OBW (kHz)
935 & 940	935	12.5	FM with 2.5 kHz Sine wave signal, RF Output	10.6	10.6
	935	12.5	FM with an External 9600 b/s random data source	11.6	11.7
	940	12.5	FM with 2.5 kHz Sine wave signal	10.6	10.6
	940	12.5	FM with an External 9600 b/s random data source	11.2	11.2

Please Refer to Plots # 140-145 for 99% Occupied Bandwidth in the Band 835 & 940 MHz.

PLOT # 58 99% Occupied Bandwidth – RF Input Signal
Frequency: 813.5 MHz, 25 kHz Channel Spacing
Modulation: FM modulation with 2.5 kHz Sine wave signal



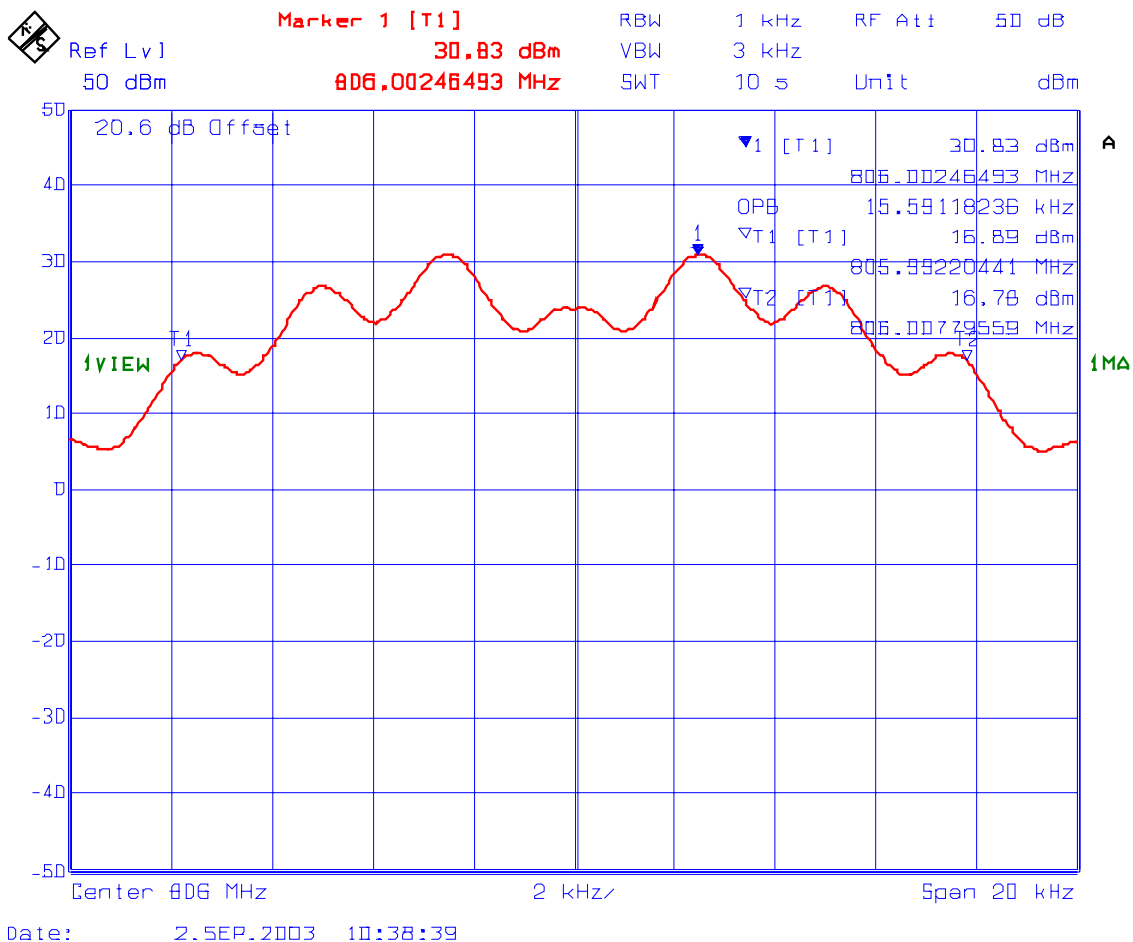
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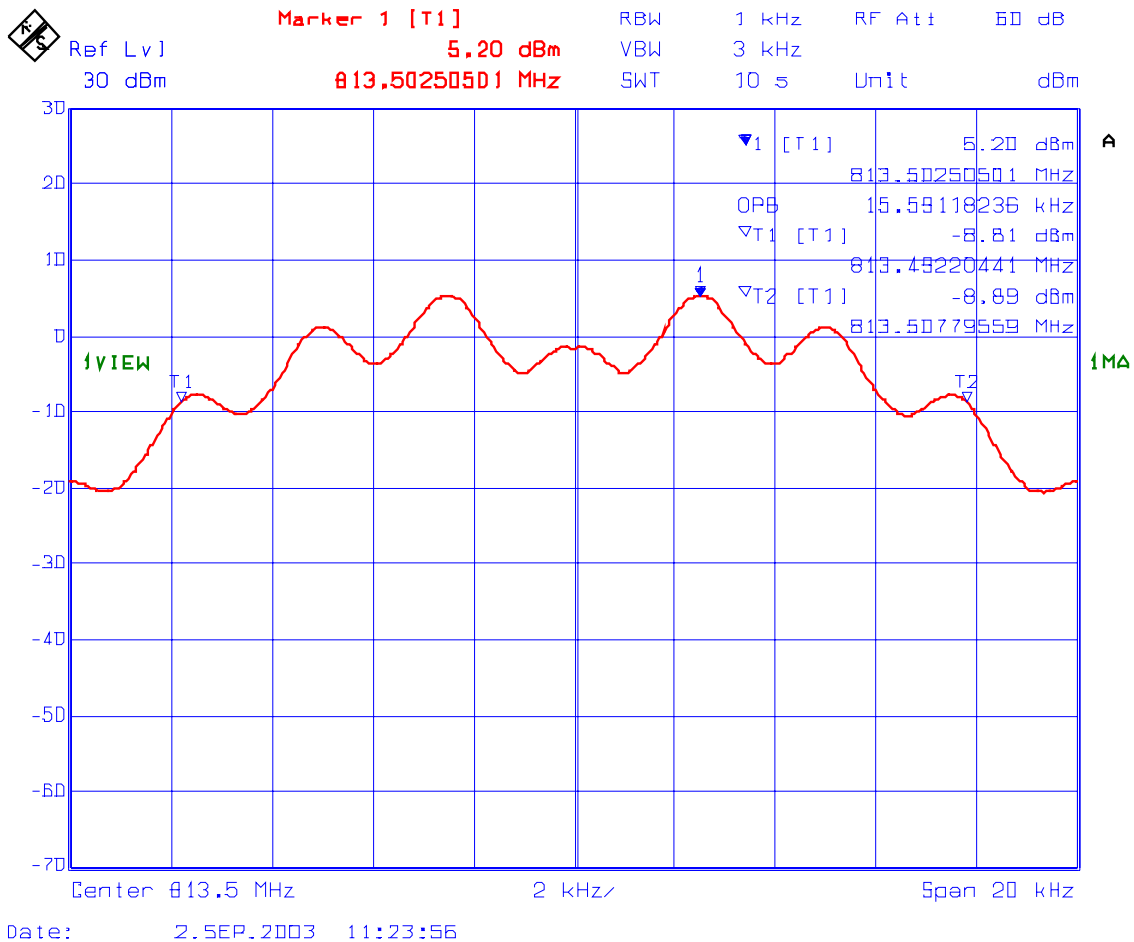
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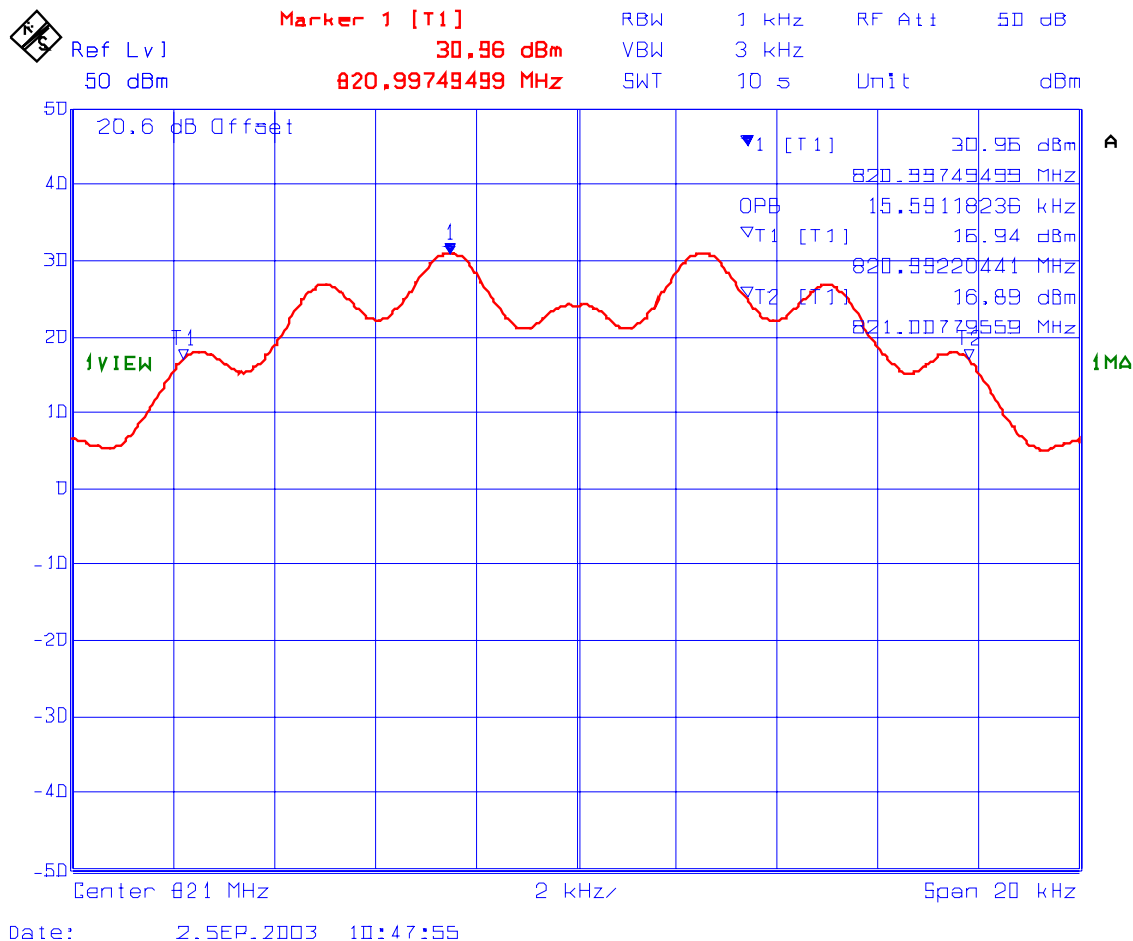
PLOT # 59 99% Occupied Bandwidth – RF Output
Frequency: 806 MHz, 25 kHz Channel Spacing
Modulation: FM modulation with 2.5 kHz Sine wave signal



PLOT # 60 99% Occupied Bandwidth – RF Output
Frequency: 813.5 MHz, 25 kHz Channel Spacing
Modulation: FM modulation with 2.5 kHz Sine wave signal



PLOT # 61 99% Occupied Bandwidth– RF Output
Frequency: 821 MHz, 25 kHz Channel Spacing
Modulation: FM modulation with 2.5 kHz Sine wave signal



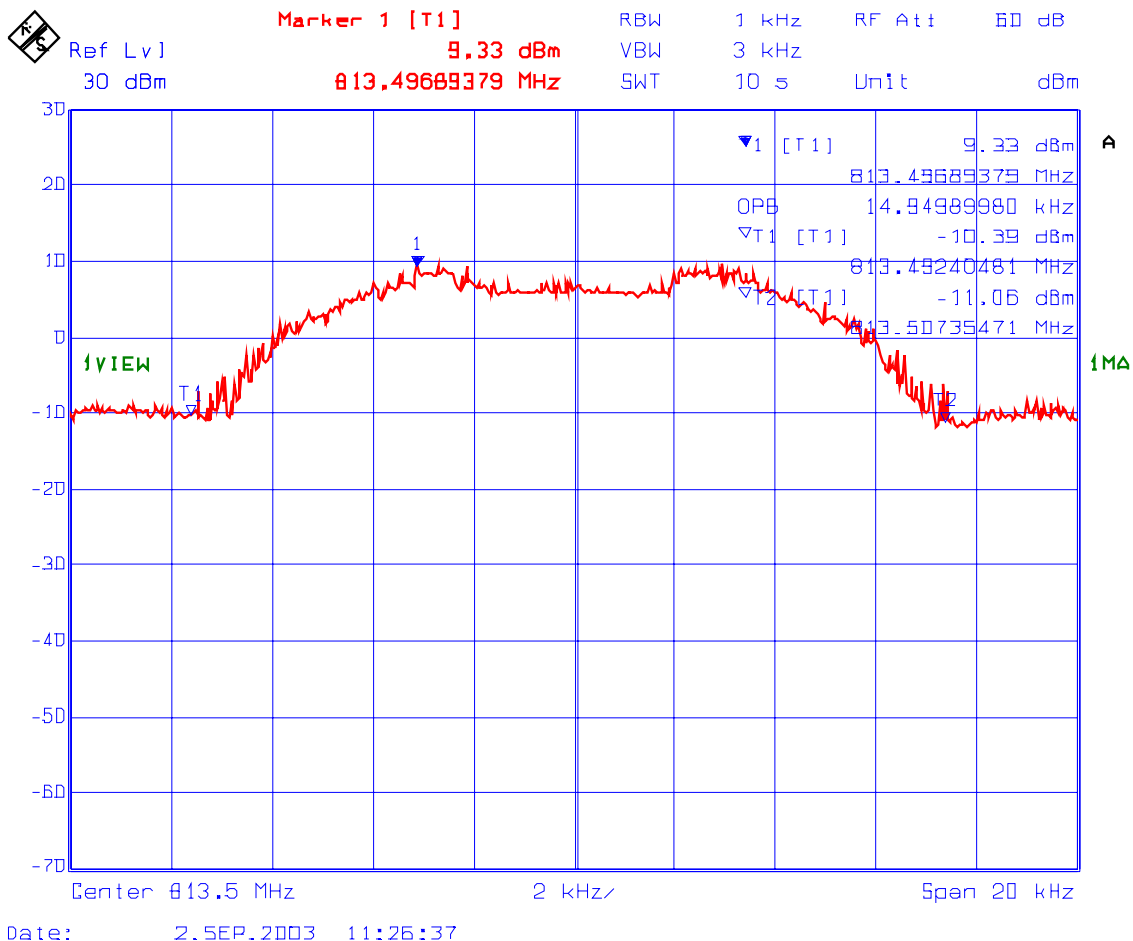
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PLOT # 62 99% Occupied Bandwidth- RF Input
Frequency: 806 MHz, 25 kHz Channel Spacing
Modulation: FM modulation with an external 9600 b/s random data source



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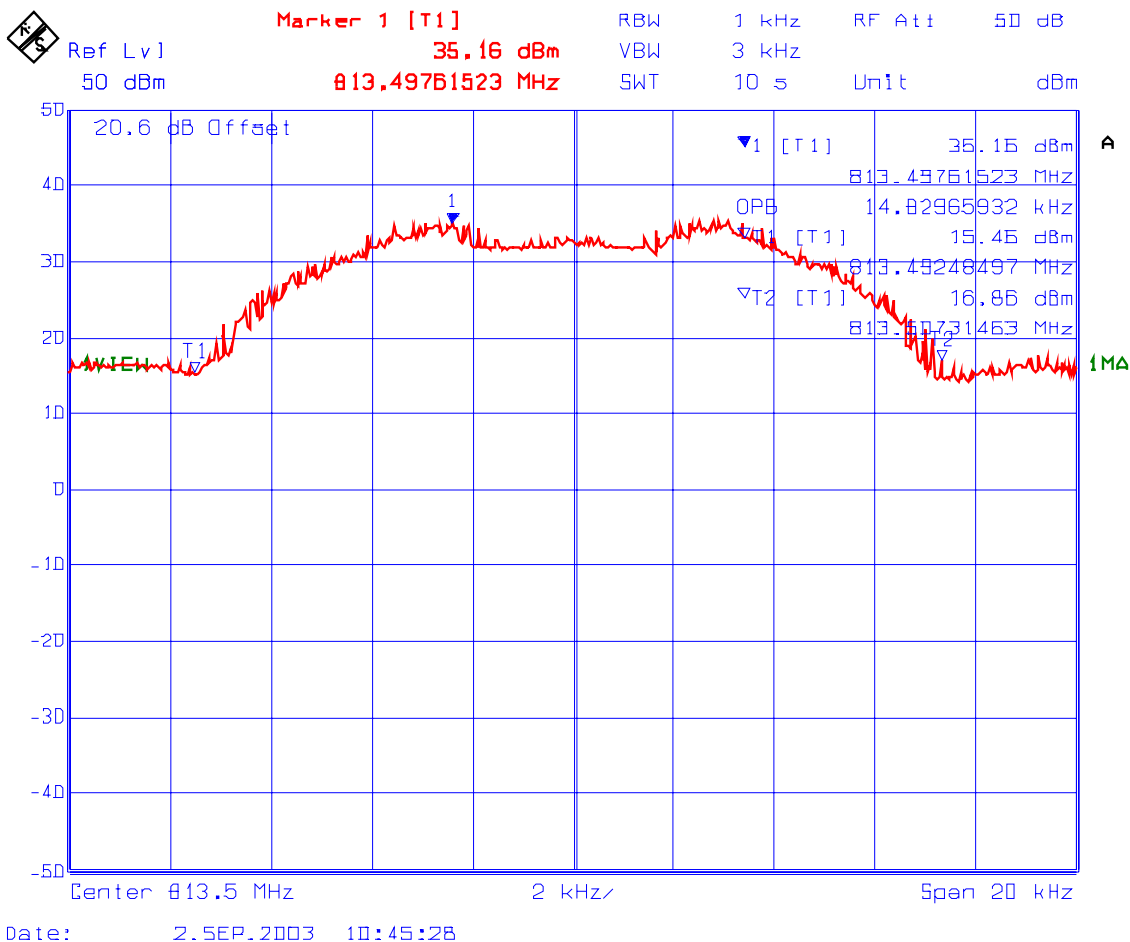
3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
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PLOT # 63 99% Occupied Bandwidth- RF Output
Frequency: 813.5 MHz, 25 kHz Channel Spacing
Modulation: FM modulation with an external 9600 b/s random data source



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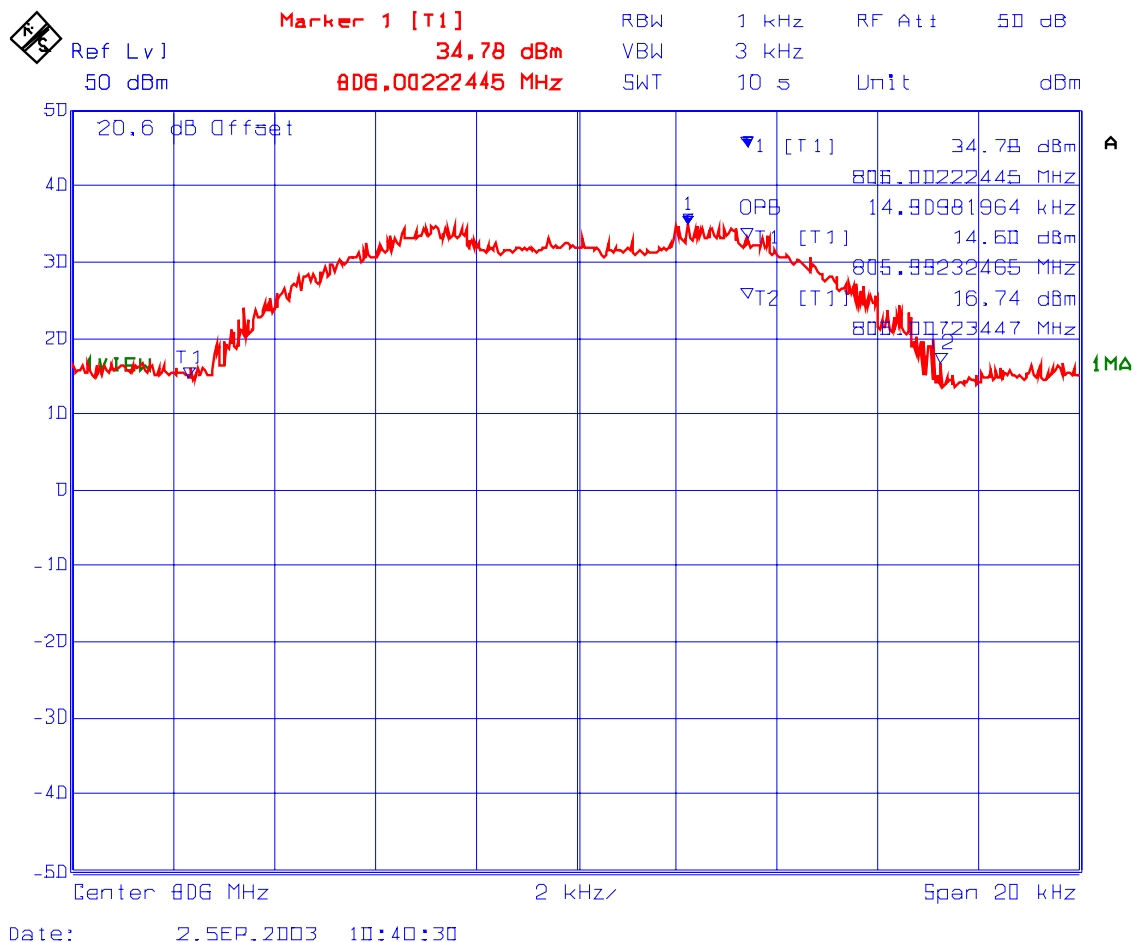
3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
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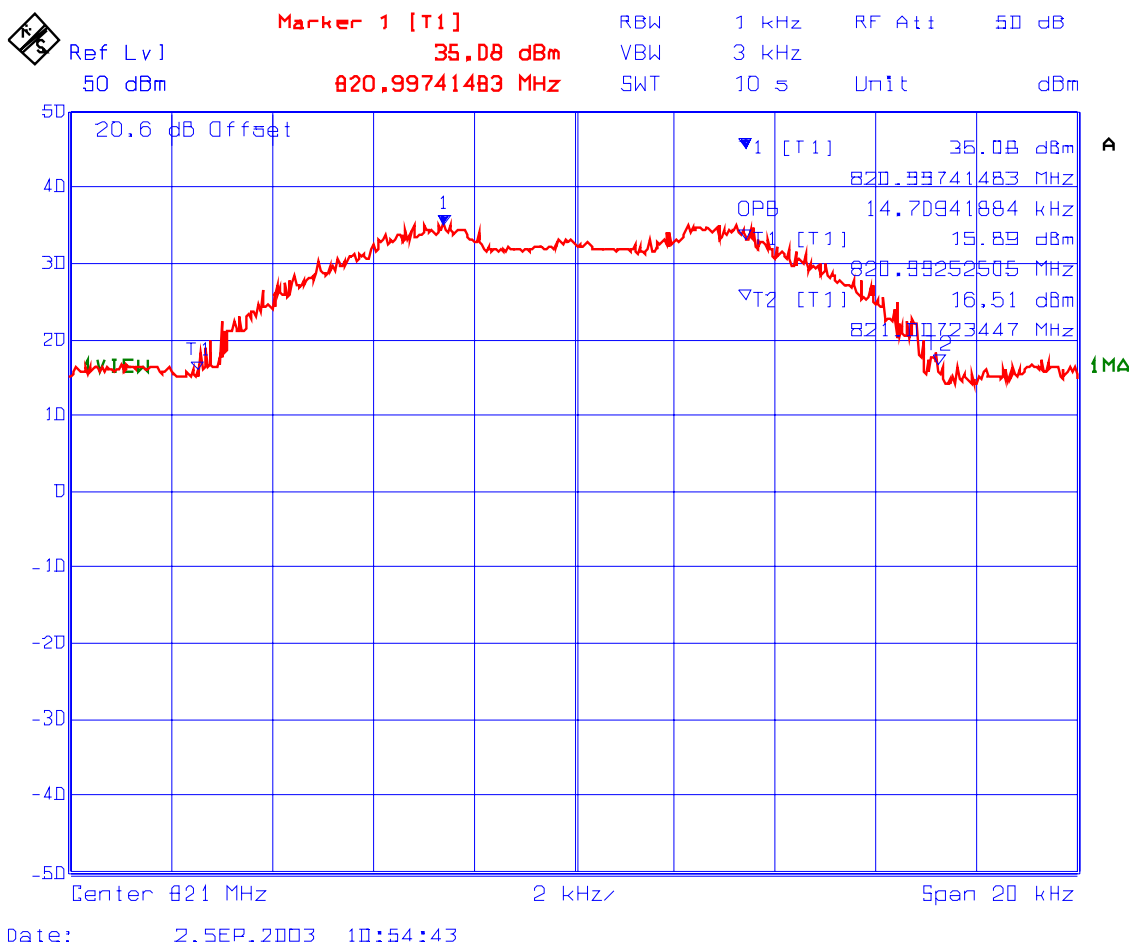
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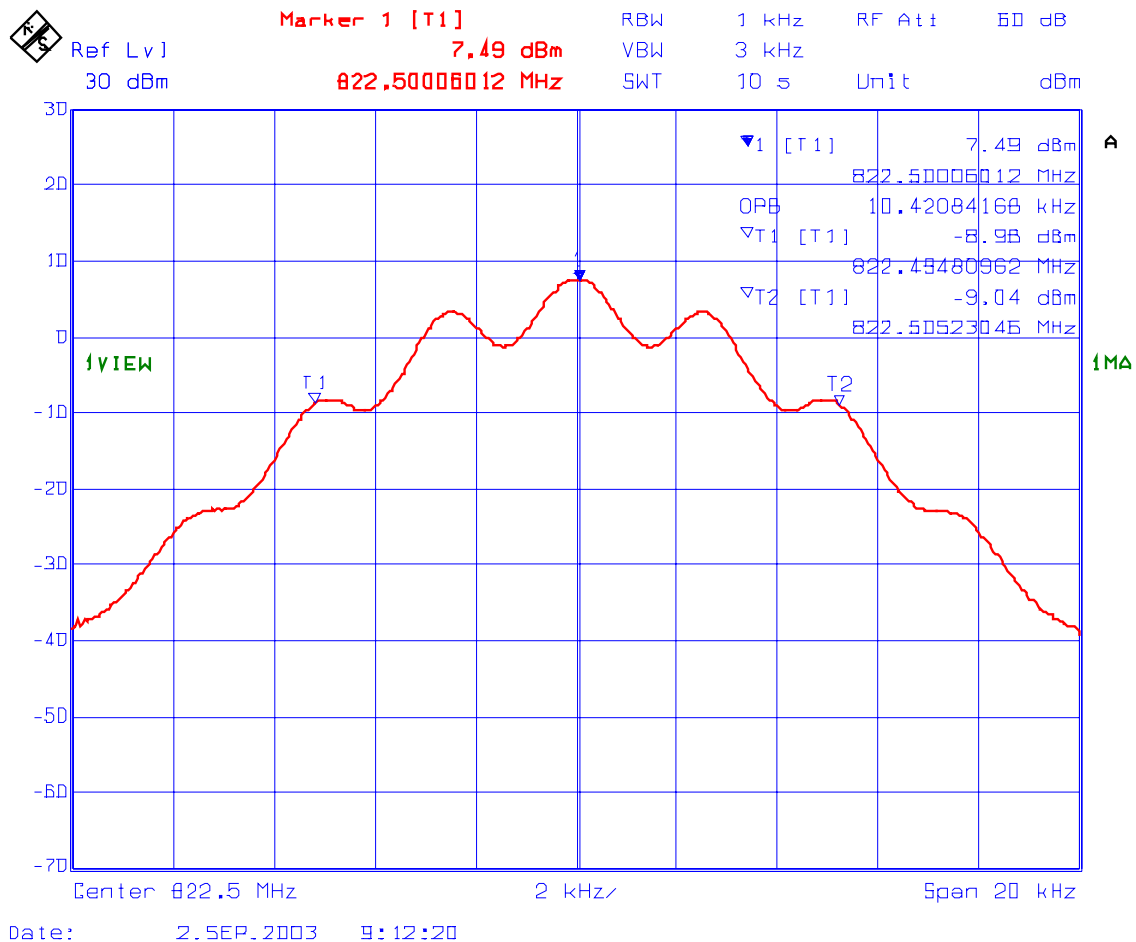
PLOT # 64 99% Occupied Bandwidth-RF Output
Frequency: 813.5 MHz, 25 kHz Channel Spacing
Modulation: FM modulation with an external 9600 b/s random data source



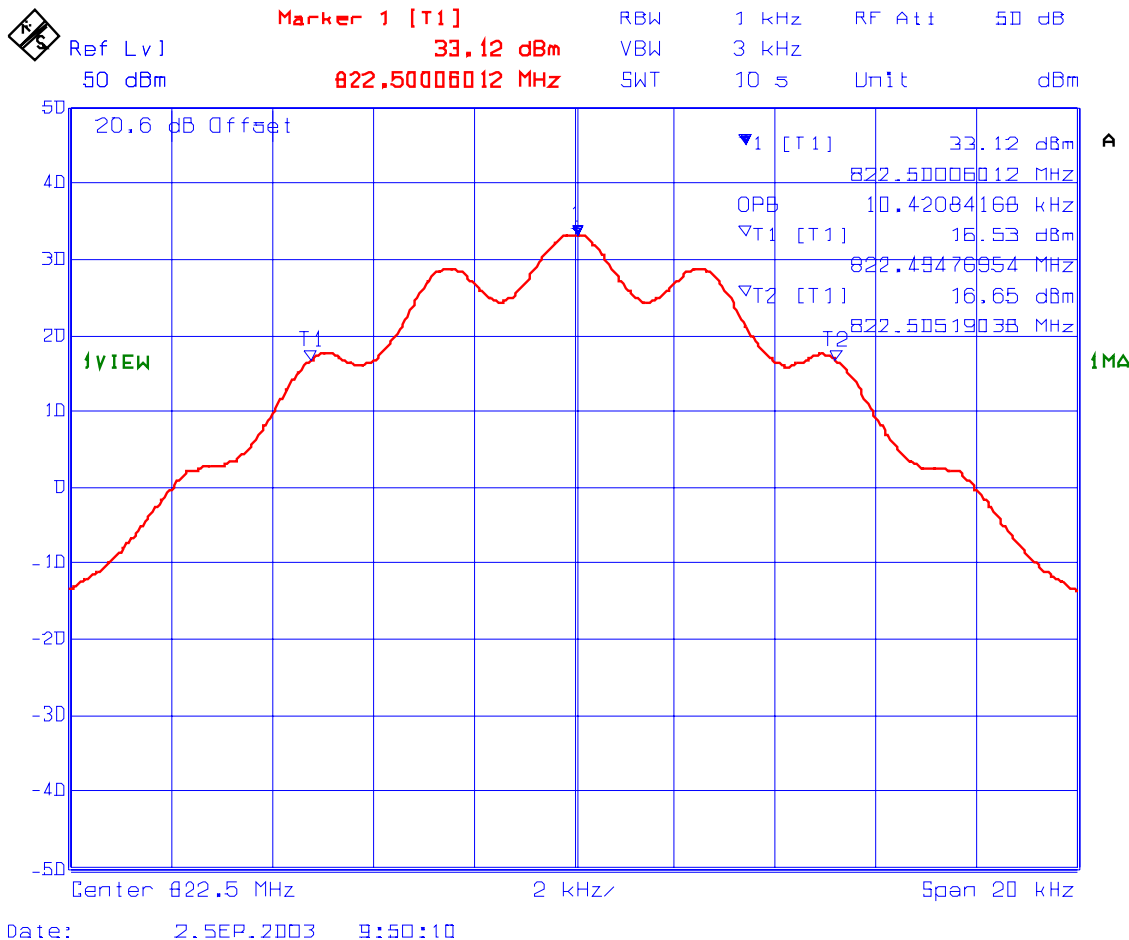
PLOT # 65 99% Occupied Bandwidth-RF Output
Frequency: 821 MHz, 25 kHz Channel Spacing
Modulation: FM modulation with an external 9600 b/s random data source



PLOT # 66 99% Occupied Bandwidth-RF Input
Frequency: 821 MHz, 12.5 kHz Channel Spacing
Modulation: FM modulation with 2.5 kHz Sine wave signal



PLOT # 67 99% Occupied Bandwidth-RF Output
Frequency: 822.5 MHz, 12.5 kHz Channel Spacing
Modulation: FM modulation with 2.5 kHz Sine wave signal



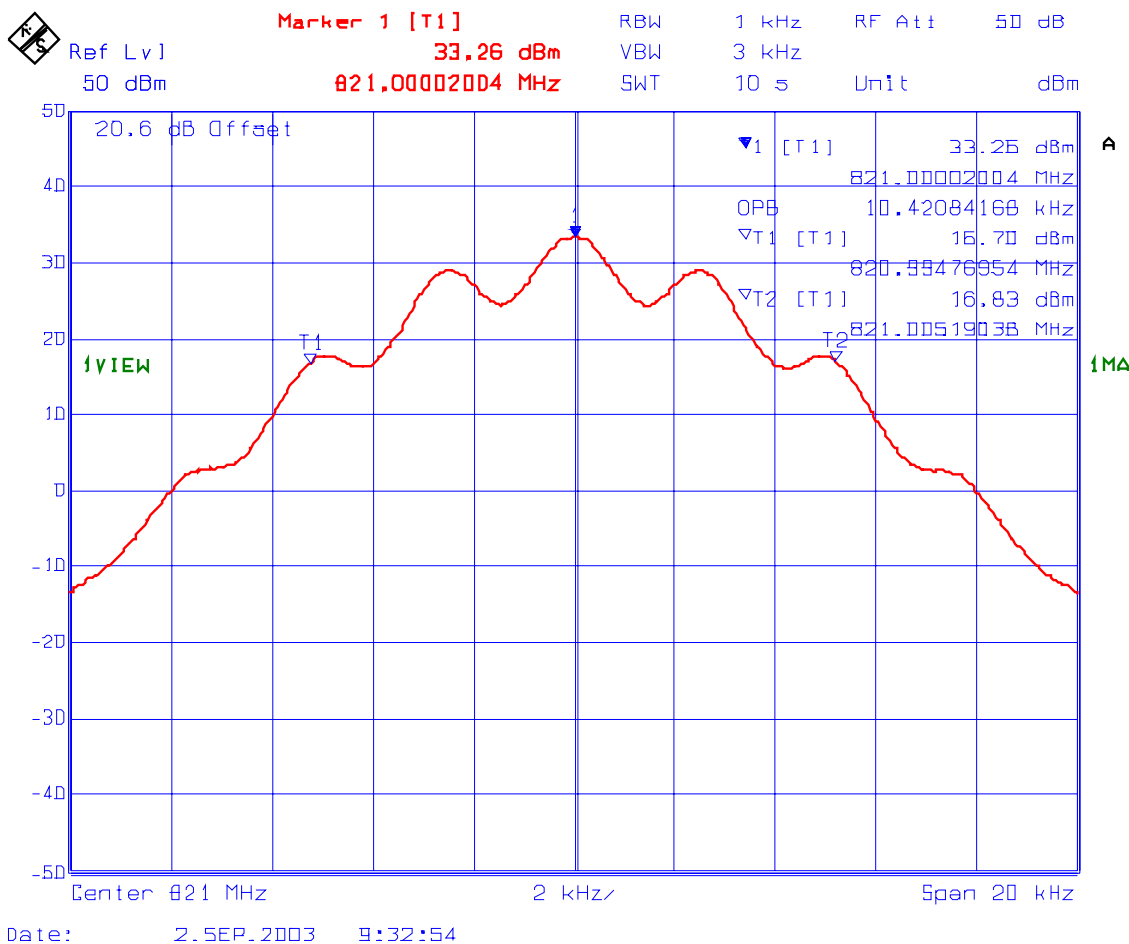
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PLOT # 68 99% Occupied Bandwidth-RF Output
Frequency: 822.5 MHz, 12.5 kHz Channel Spacing
Modulation: FM modulation with 2.5 kHz Sine wave signal



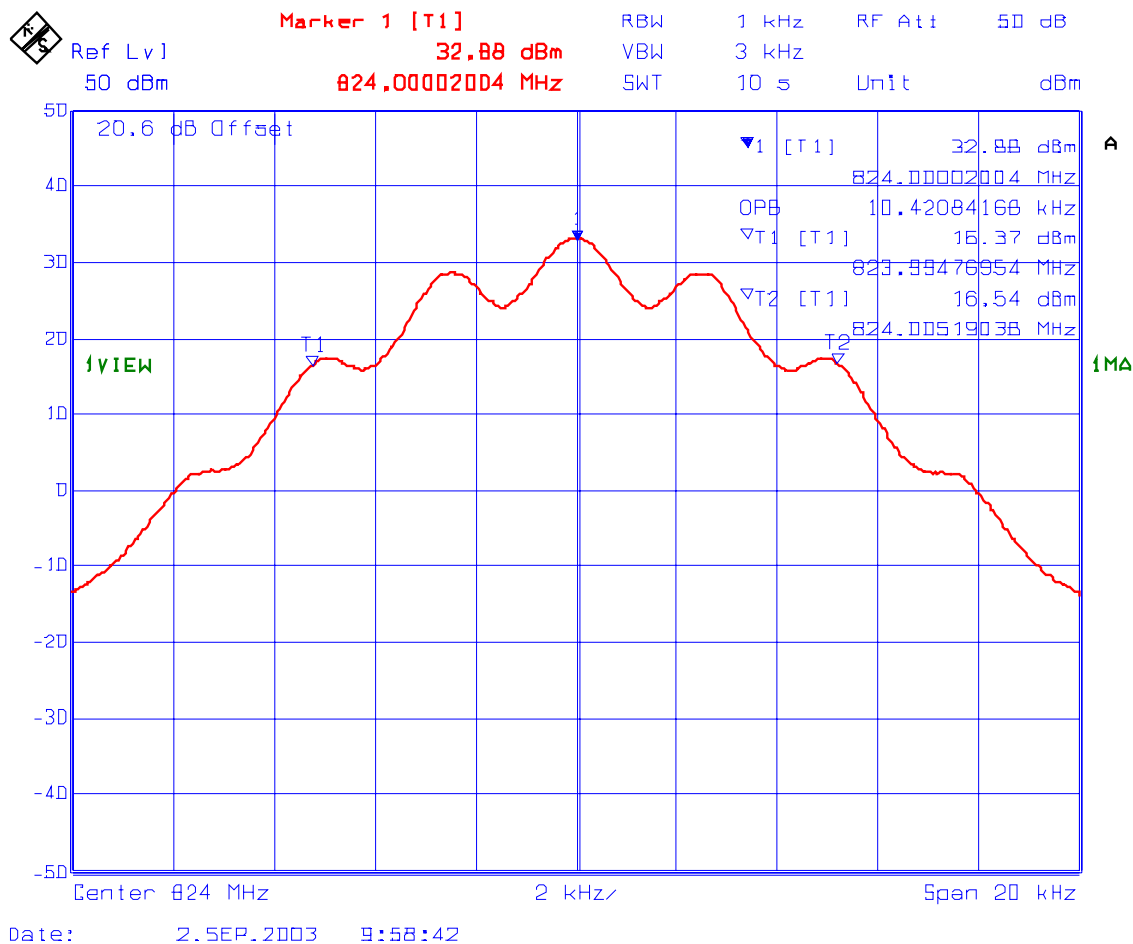
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PLOT # 69 99% Occupied Bandwidth-RF Output
Frequency: 824 MHz, 12.5 kHz Channel Spacing
Modulation: FM modulation with 2.5 kHz Sine wave signal



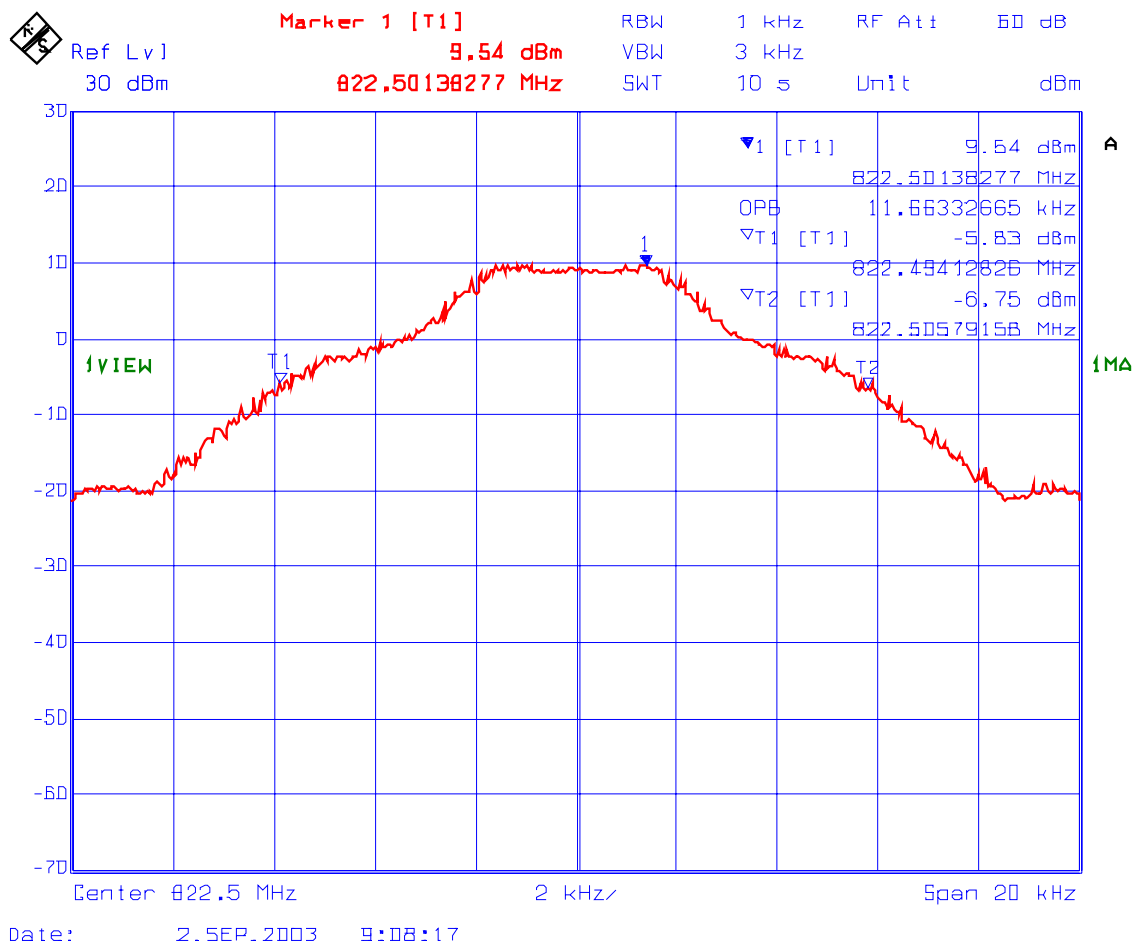
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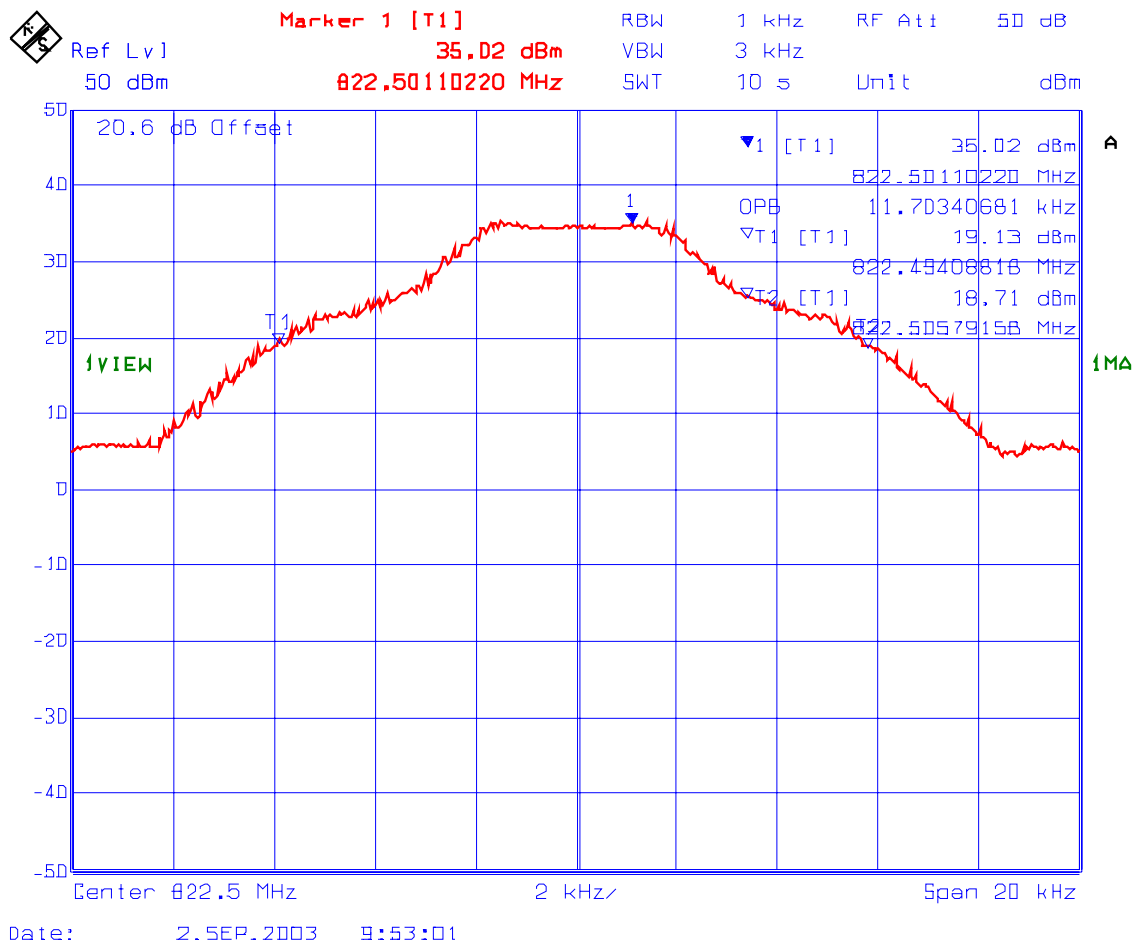
File #: KTI-034FCC22-90
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PLOT # 70 99% Occupied Bandwidth-RF Input
Frequency: 821 MHz, 12.5 kHz Channel Spacing
Modulation: FM modulation with an external 9600 b/s random data source



PLOT # 71 99% Occupied Bandwidth-RF Output
Frequency: 822.5 MHz, 12.5 kHz Channel Spacing
Modulation: FM modulation with an external 9600 b/s random data source



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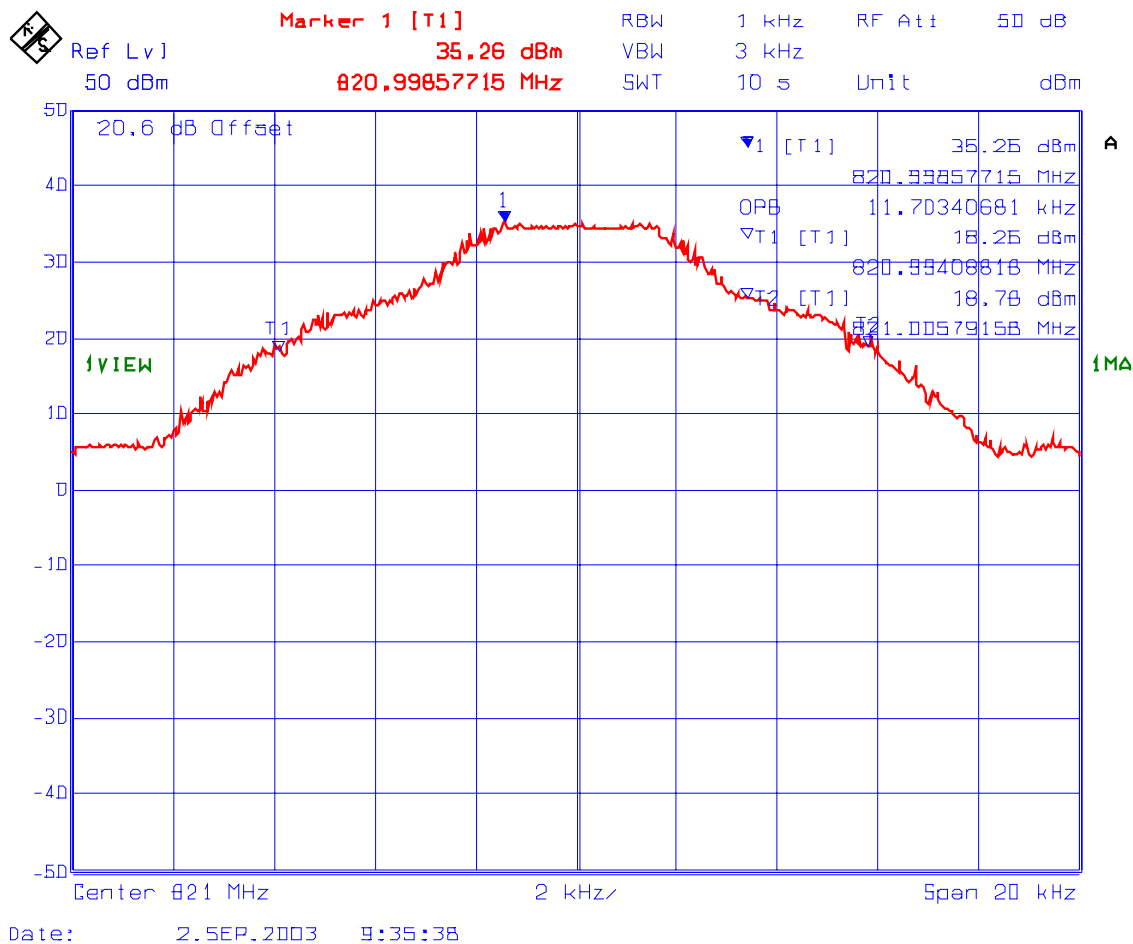
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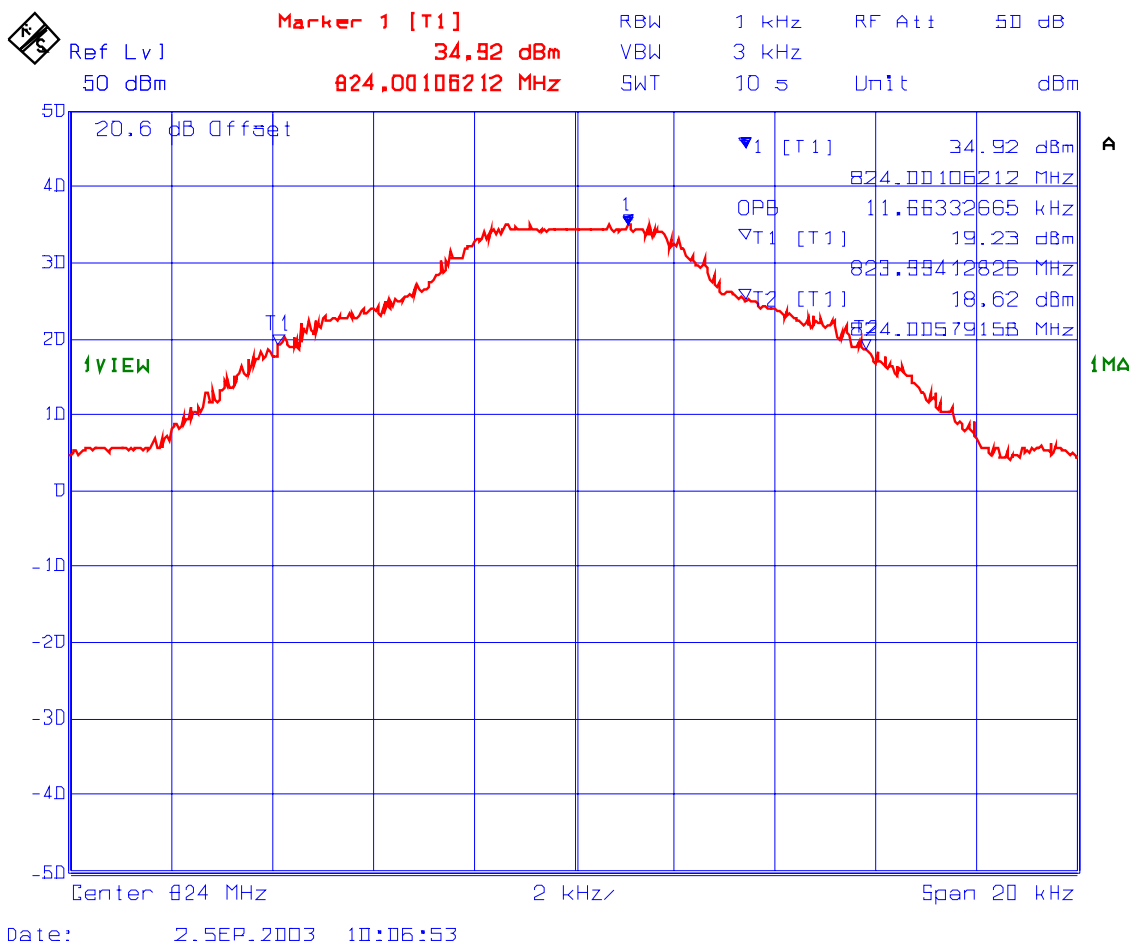
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PLOT # 72 99% Occupied Bandwidth-RF Output
Frequency: 822.5 MHz, 12.5 kHz Channel Spacing, RF Input
Modulation: FM modulation with an external 9600 b/s random data source



PLOT # 73 99% Occupied Bandwidth-RF Output
Frequency: 824 MHz, 12.5 kHz Channel Spacing
Modulation: FM modulation with an external 9600 b/s random data source



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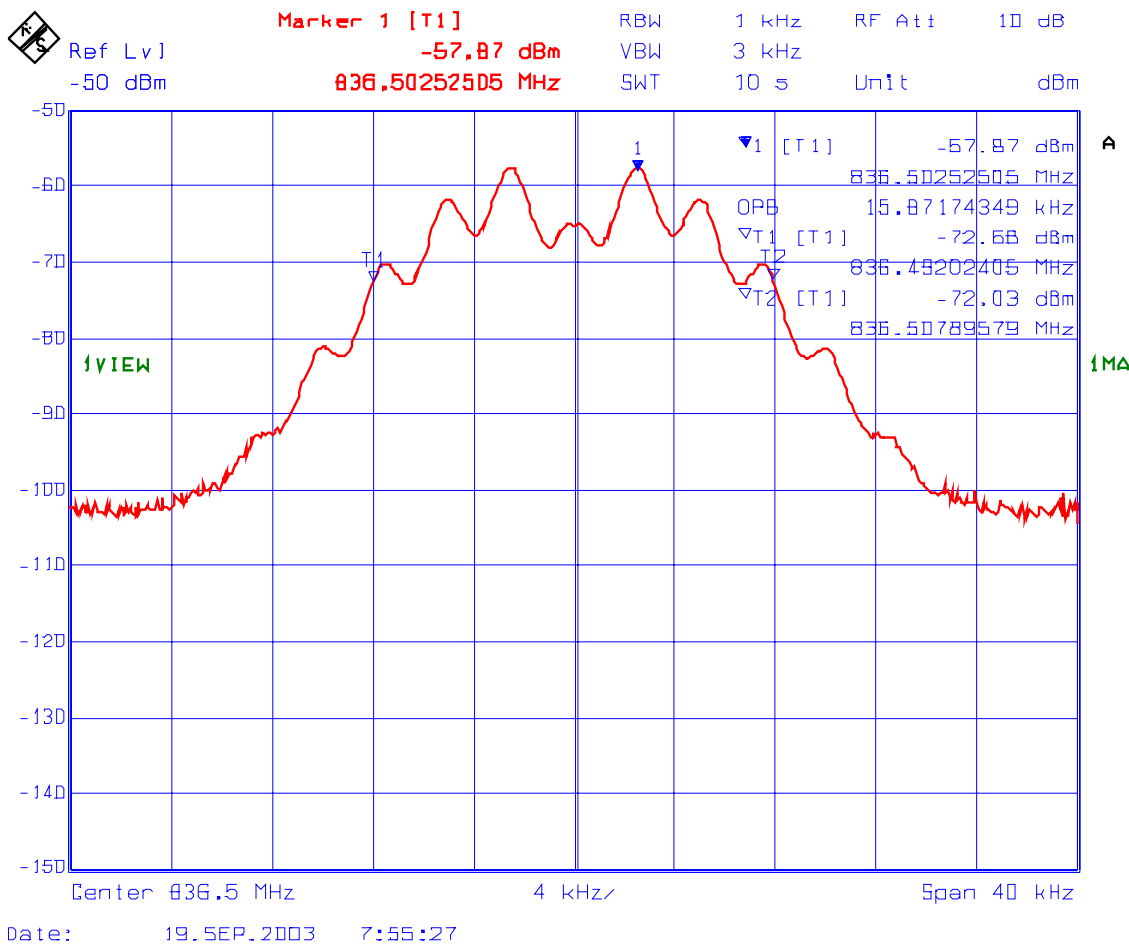
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PLOT # 74 99% Occupied Bandwidth-RF Input
Frequency: 824 MHz
Modulation: FM Modulation with 2.5 kHz Sine Wave Signal



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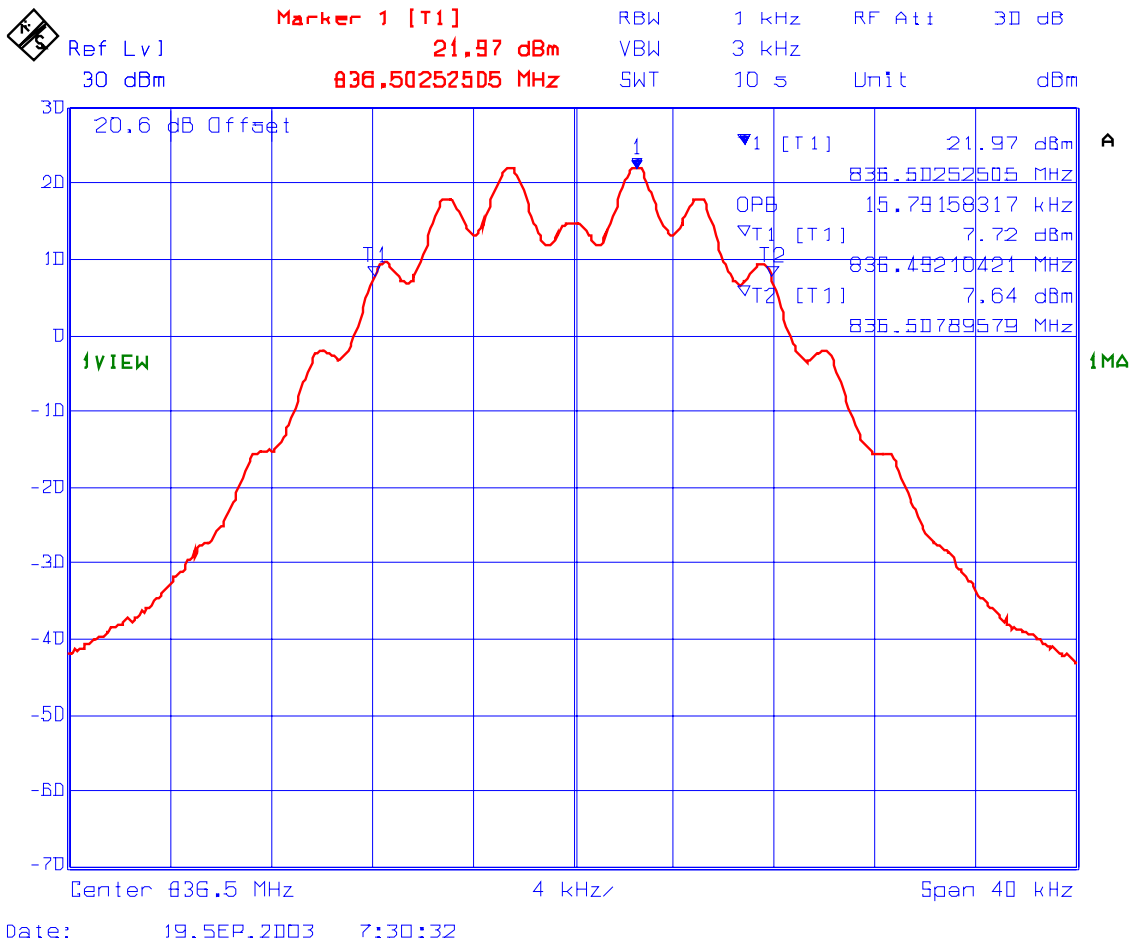
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PLOT # 75 99% Occupied Bandwidth- RF Output
Frequency: 836.5 MHz
Modulation: FM Modulation with 2.5 kHz Sine Wave Signal



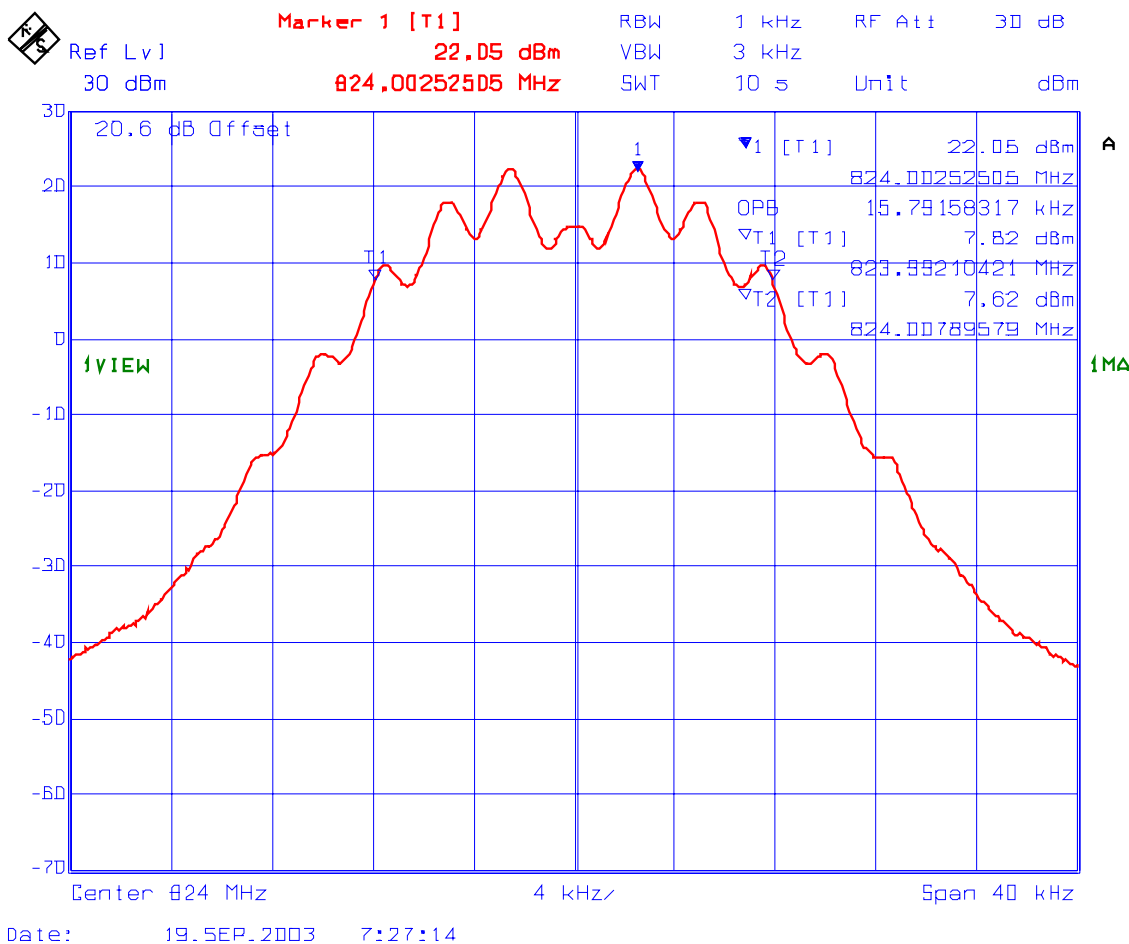
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PLOT # 76 99% Occupied Bandwidth- RF Output
Frequency: 836.5 MHz
Modulation: FM Modulation with 2.5 kHz Sine Wave Signal



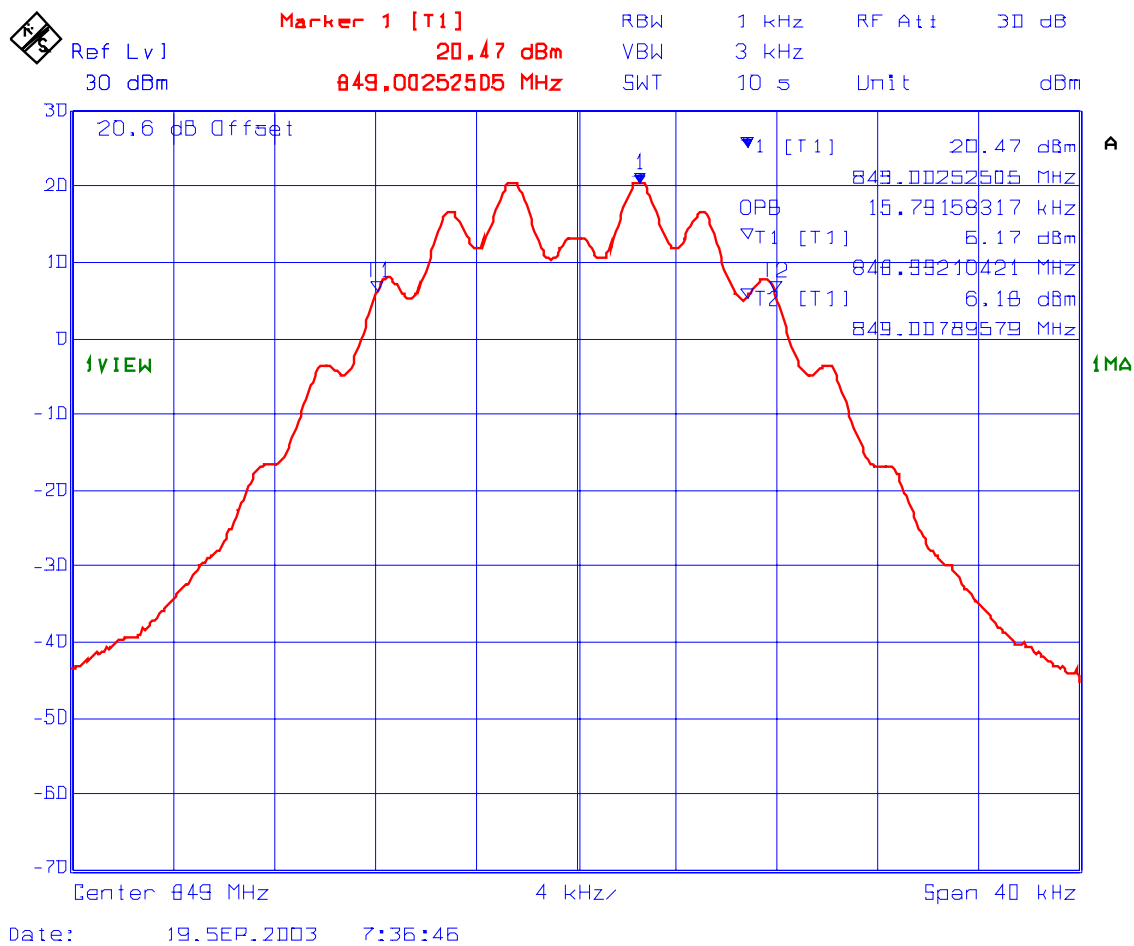
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PLOT # 77 99% Occupied Bandwidth- RF Output
Frequency: 849 MHz
Modulation: FM Modulation with 2.5 kHz Sine Wave Signal



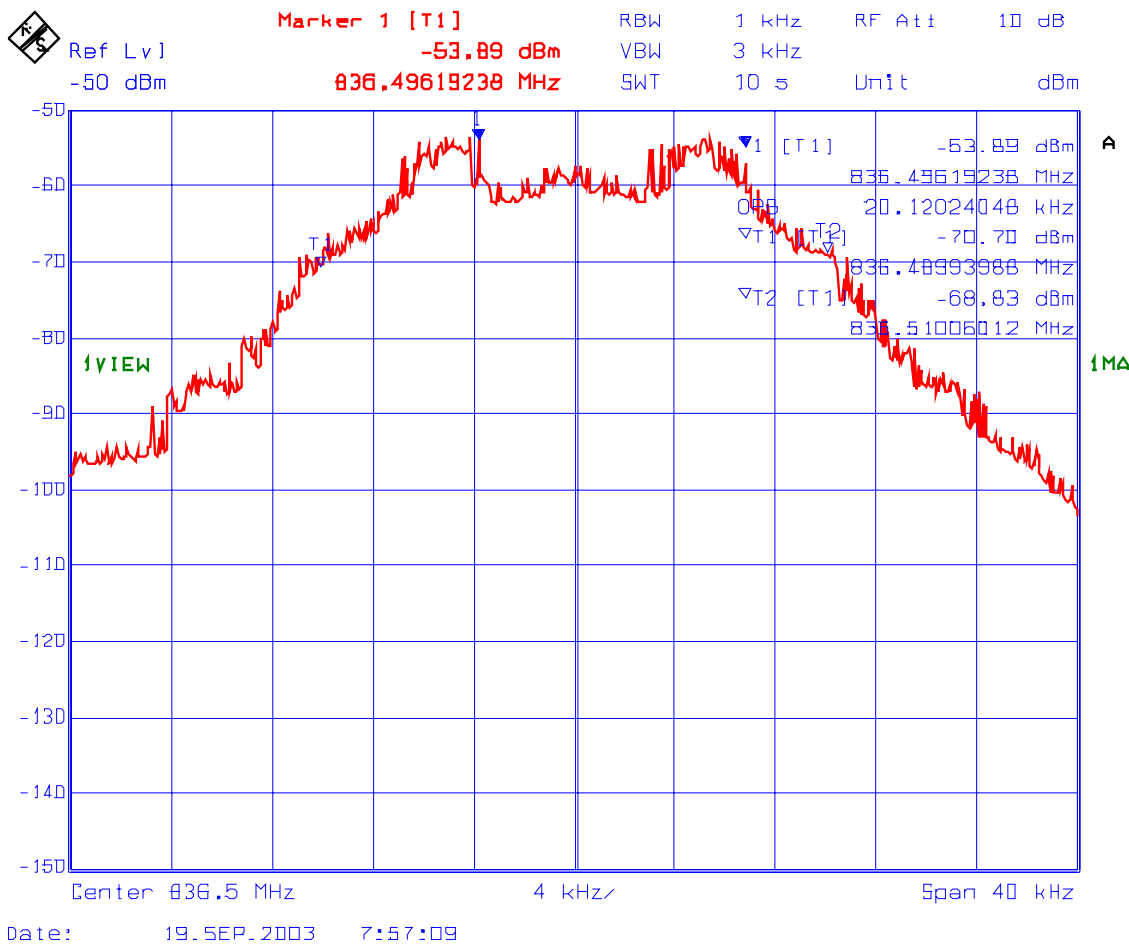
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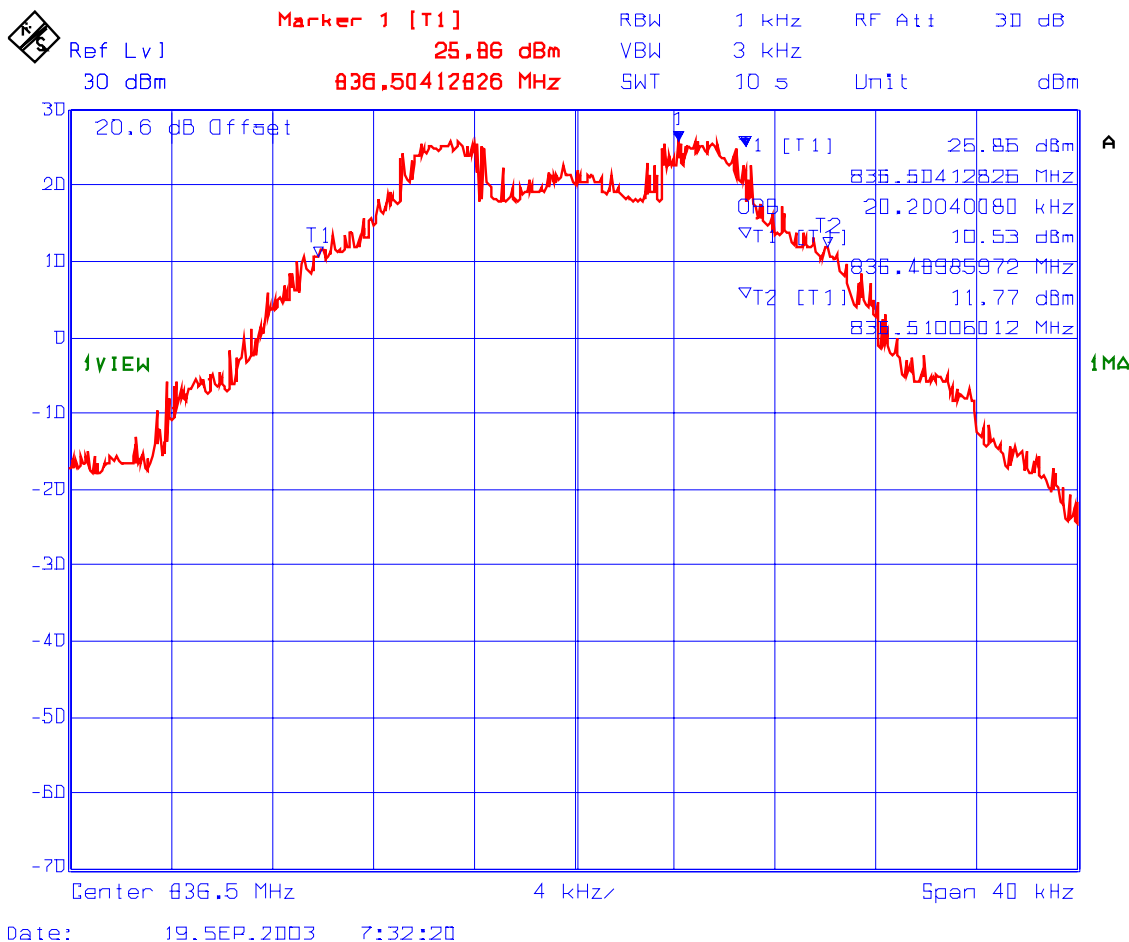
File #: KT1-034FCC22-90
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PLOT # 78 99% Occupied Bandwidth-RF Input
Frequency: 824 MHz
Modulation: FM Modulation with an external 9600 b/s random data source



PLOT # 79 99% Occupied Bandwidth- RF Output
Frequency: 836.5 MHz
Modulation: FM Modulation with an external 9600 b/s random data source



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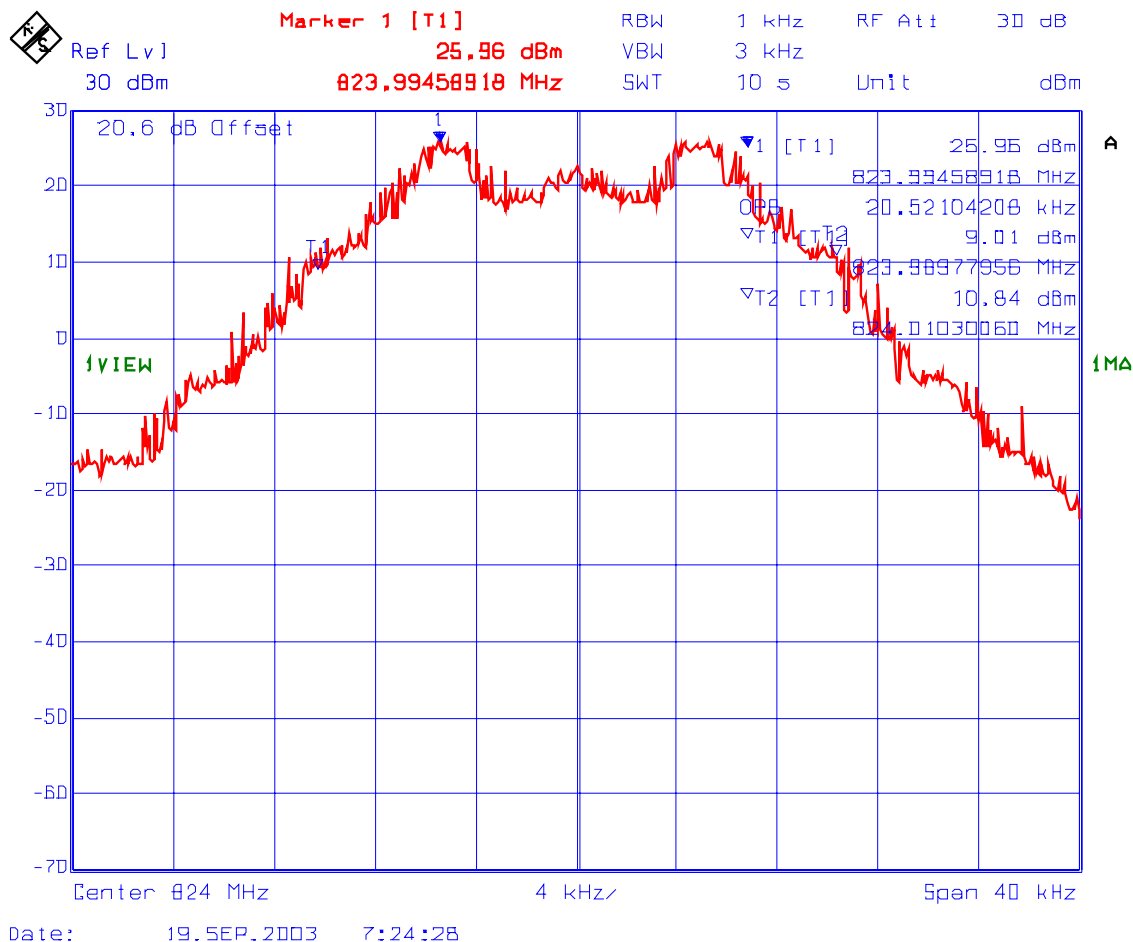
3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
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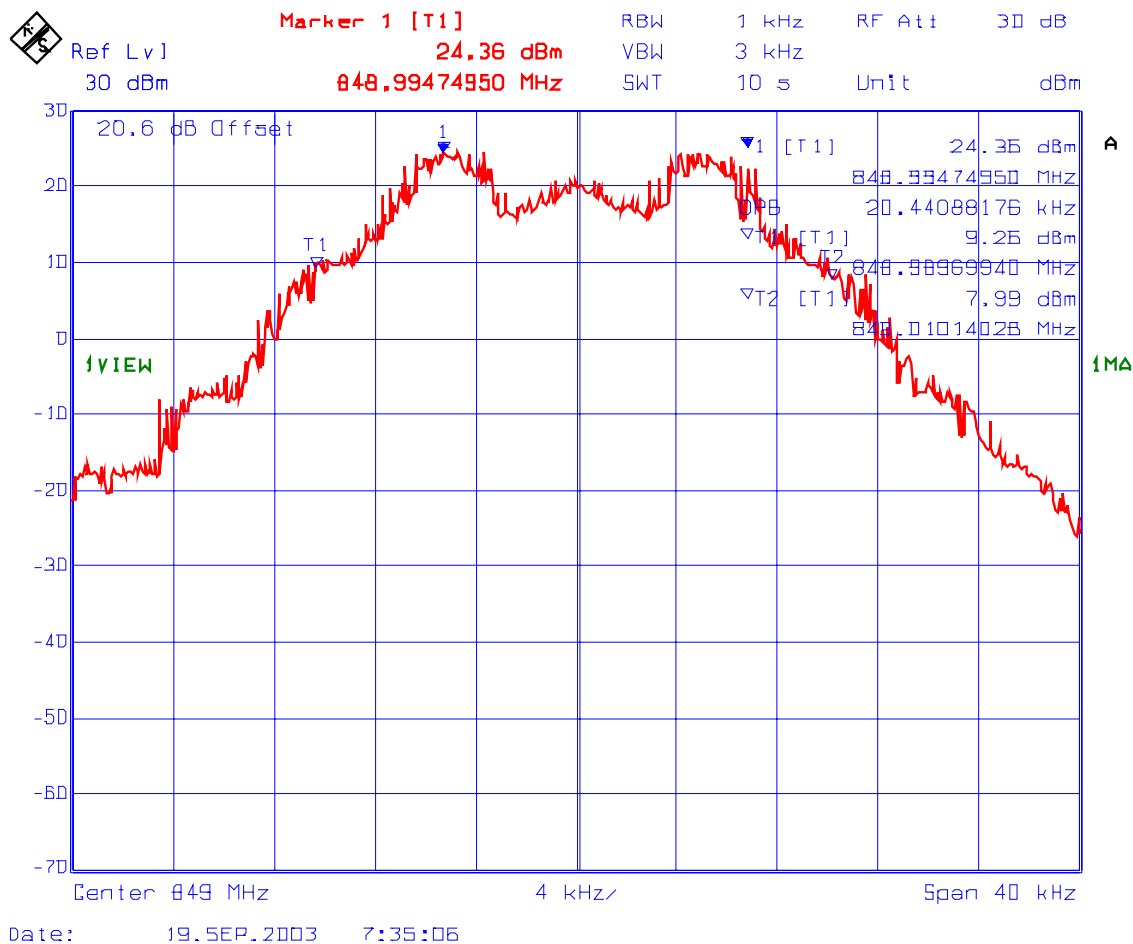
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PLOT # 80 99% Occupied Bandwidth- RF Output
Frequency: 836.5 MHz
Modulation: FM Modulation with an external 9600 b/s random data source



PLOT # 81 99% Occupied Bandwidth- RF Output
Frequency: 849 MHz
Modulation: FM Modulation with an external 9600 b/s random data source



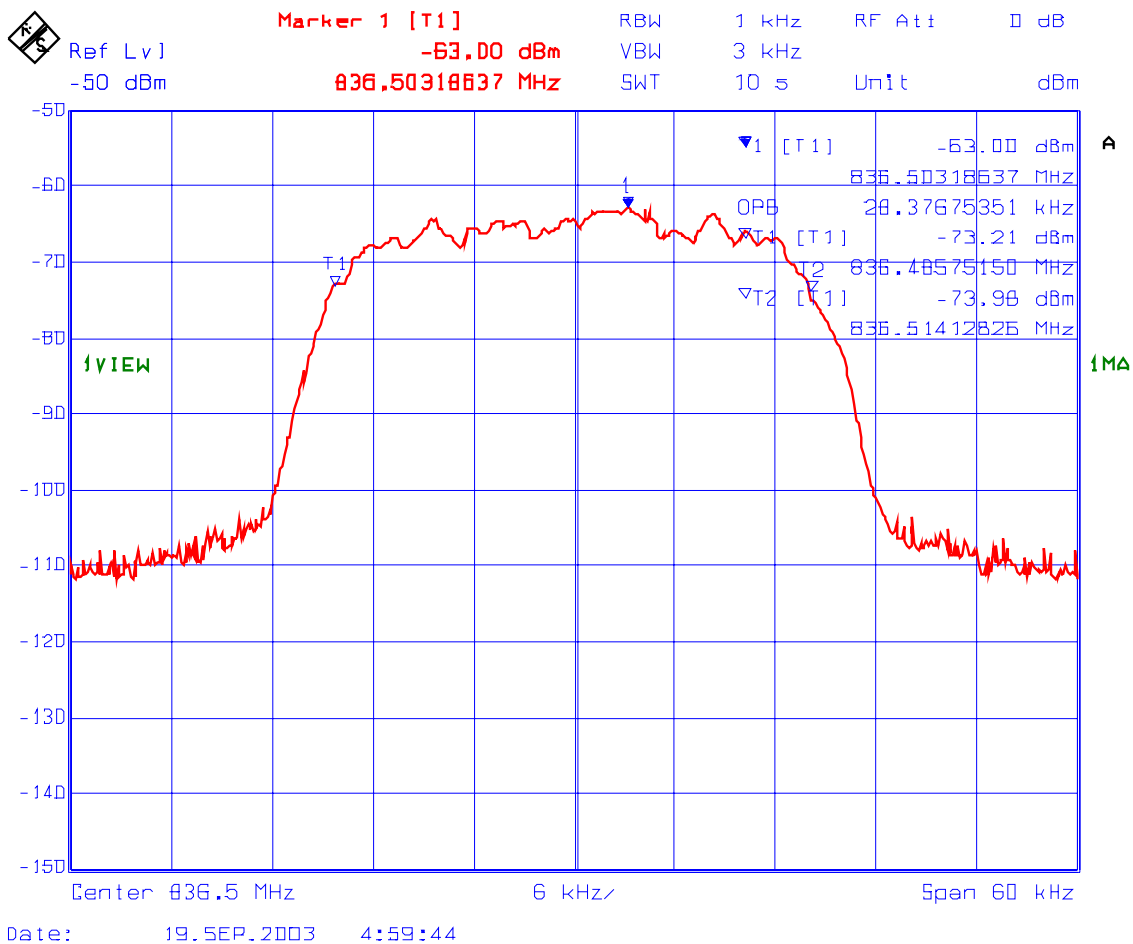
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PLOT # 82 99% Occupied Bandwidth- RF Input
Frequency: 824 MHz
Modulation: TDMA



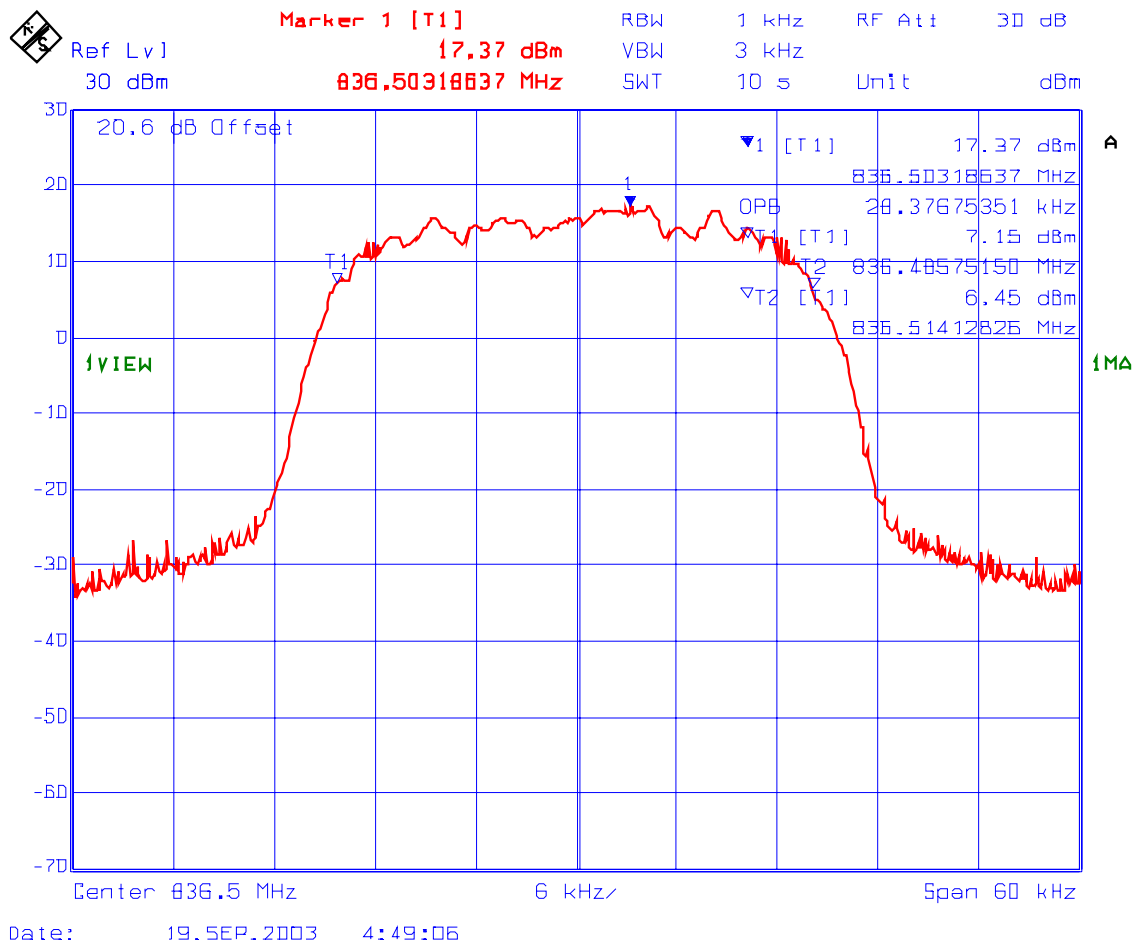
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PLOT # 83 99% Occupied Bandwidth- RF Output
Frequency: 836.5 MHz
Modulation: TDMA



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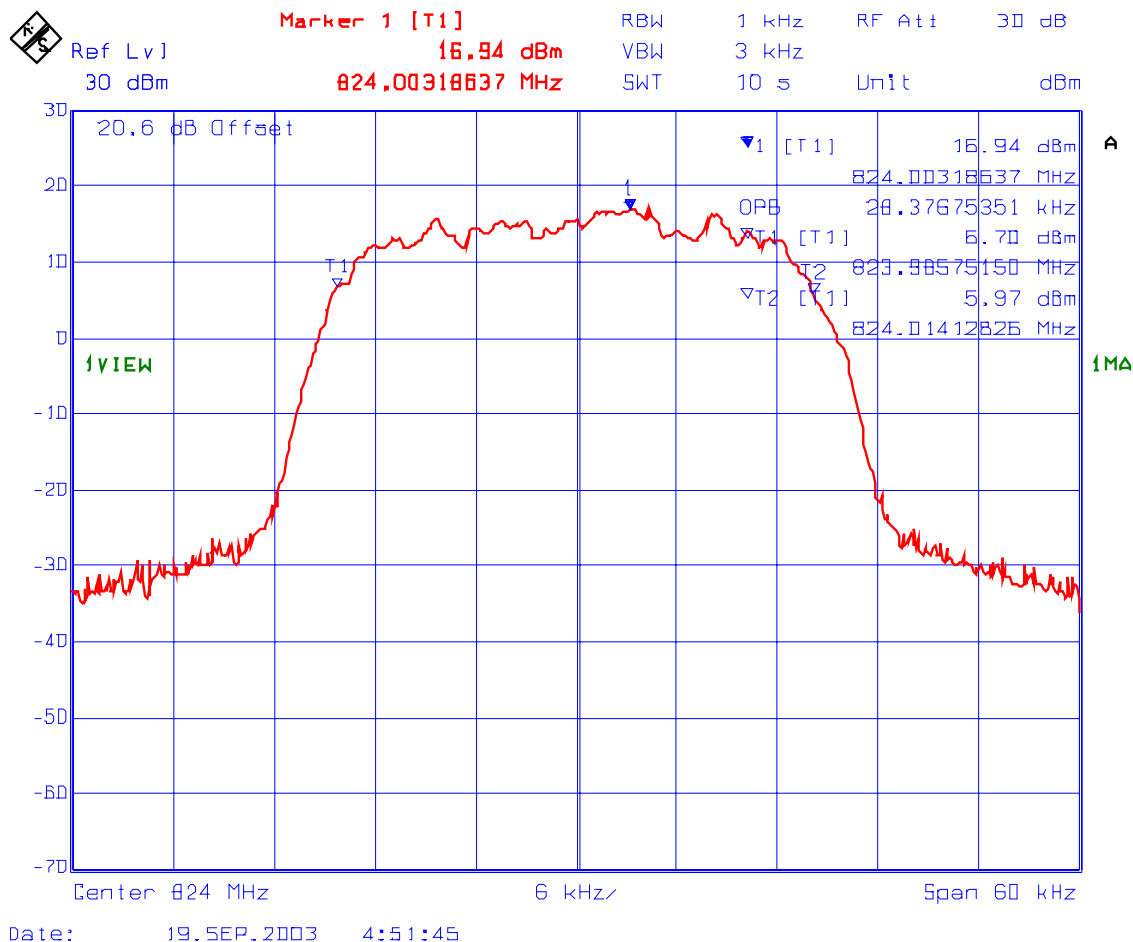
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PLOT # 84 99% Occupied Bandwidth- RF Output
Frequency: 836.5 MHz
Modulation: TDMA



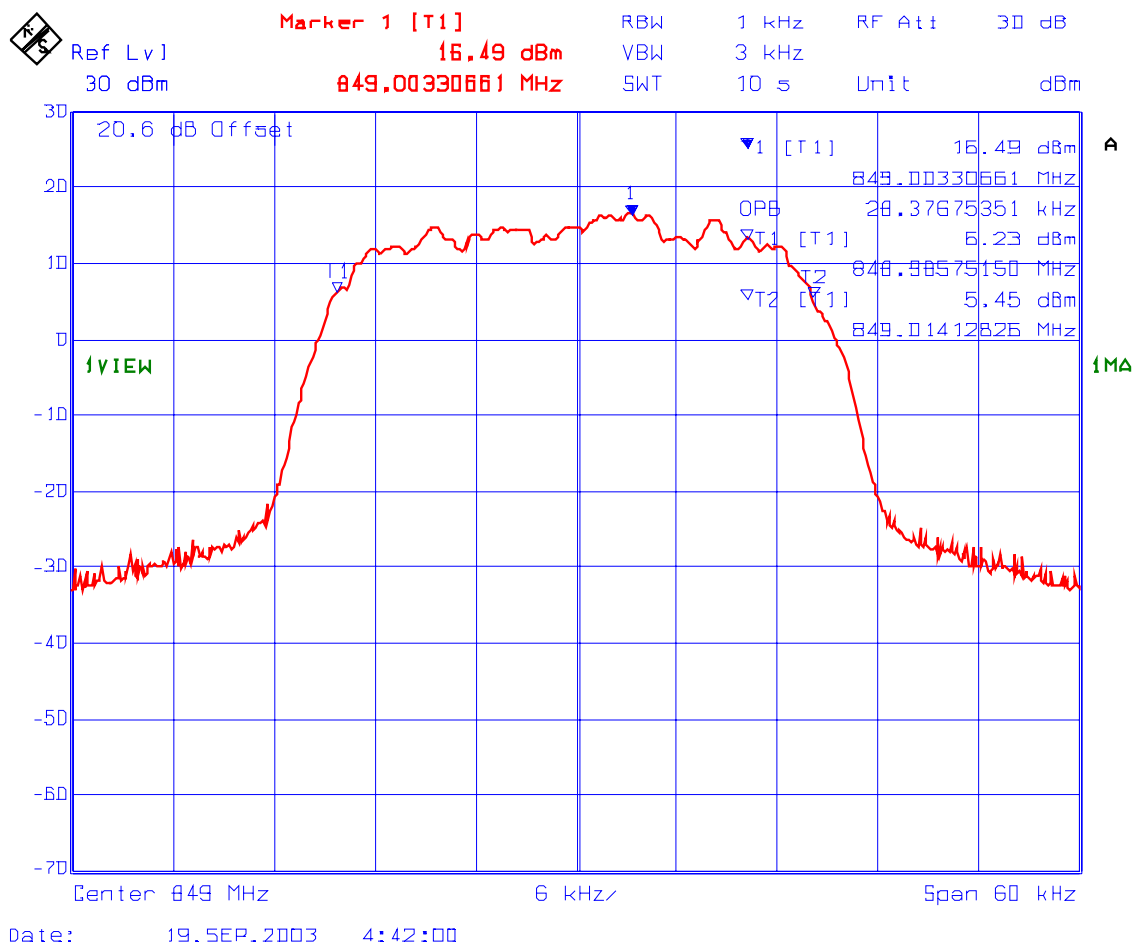
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PLOT # 85 99% Occupied Bandwidth- RF Output
Frequency: 849 MHz
Modulation: TDMA



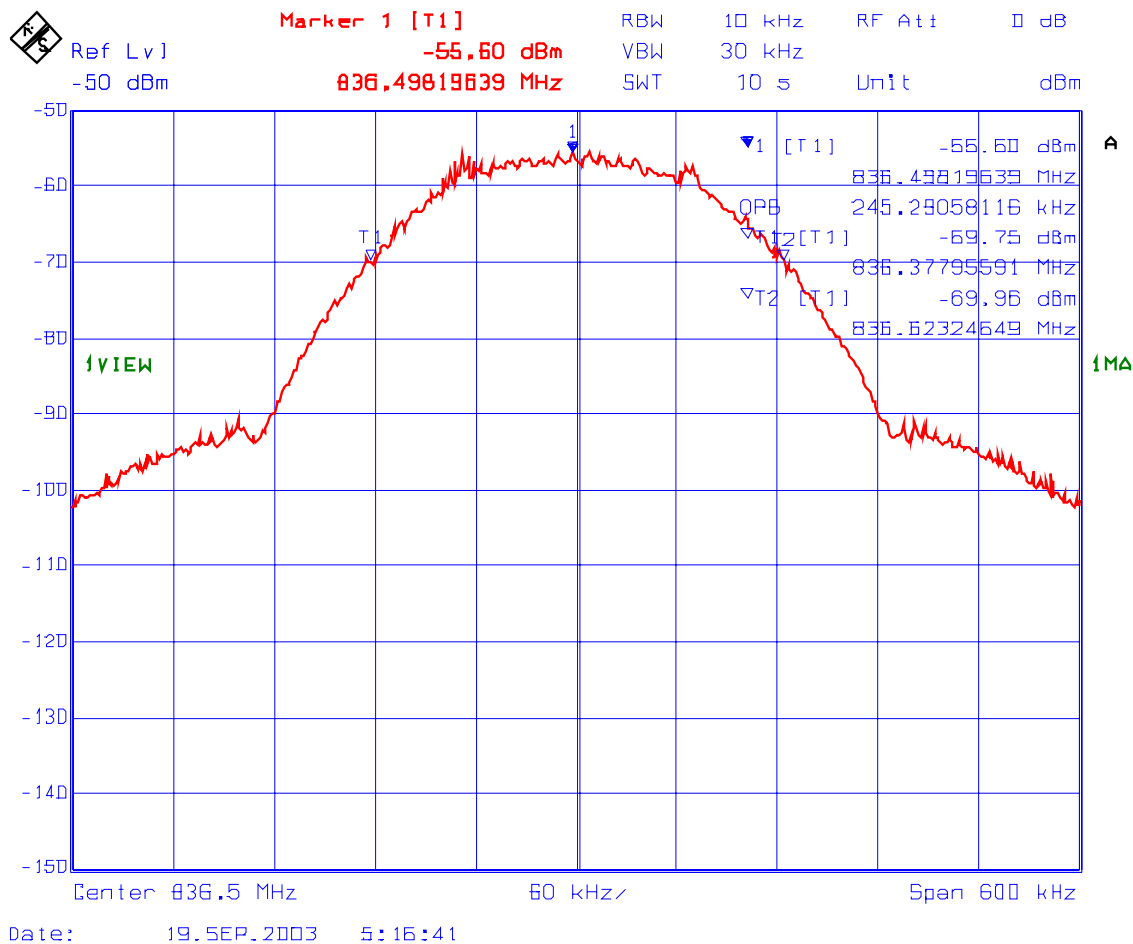
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PLOT # 86 99% Occupied Bandwidth- RF Input
Frequency: 824 MHz
Modulation: GSM



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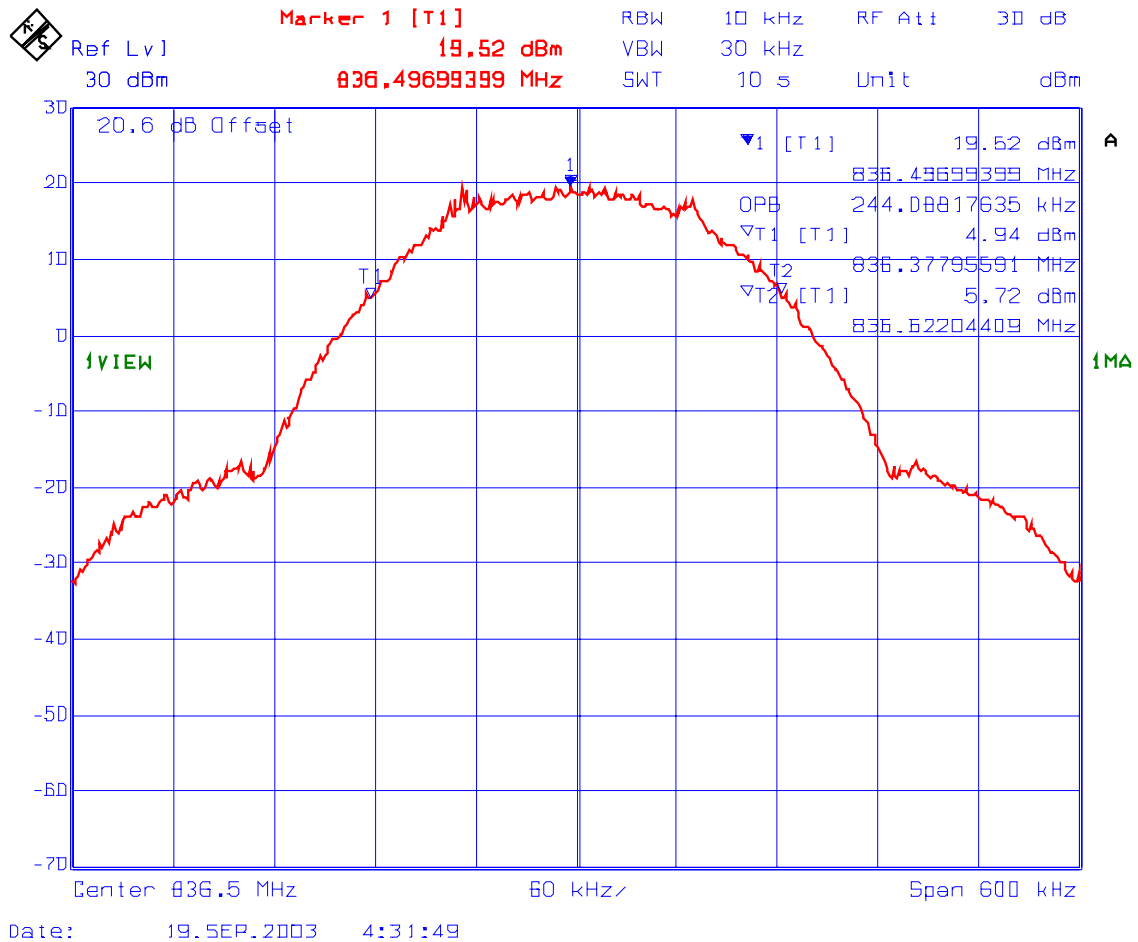
3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

File #: KTI-034FCC22-90

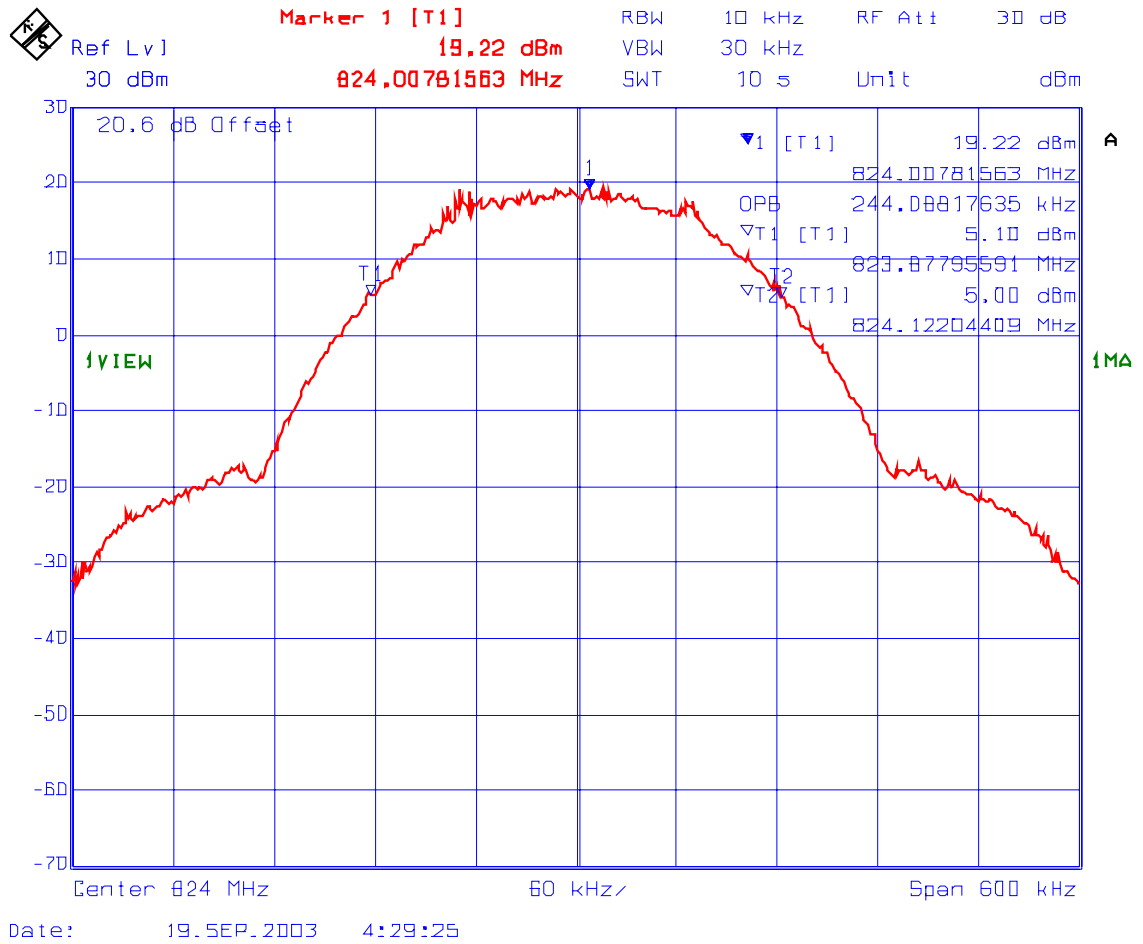
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PLOT # 87 99% Occupied Bandwidth- RF Output
Frequency: 836.5 MHz
Modulation: GSM



PLOT # 88 99% Occupied Bandwidth- RF Output
Frequency: 836.5 MHz
Modulation: GSM



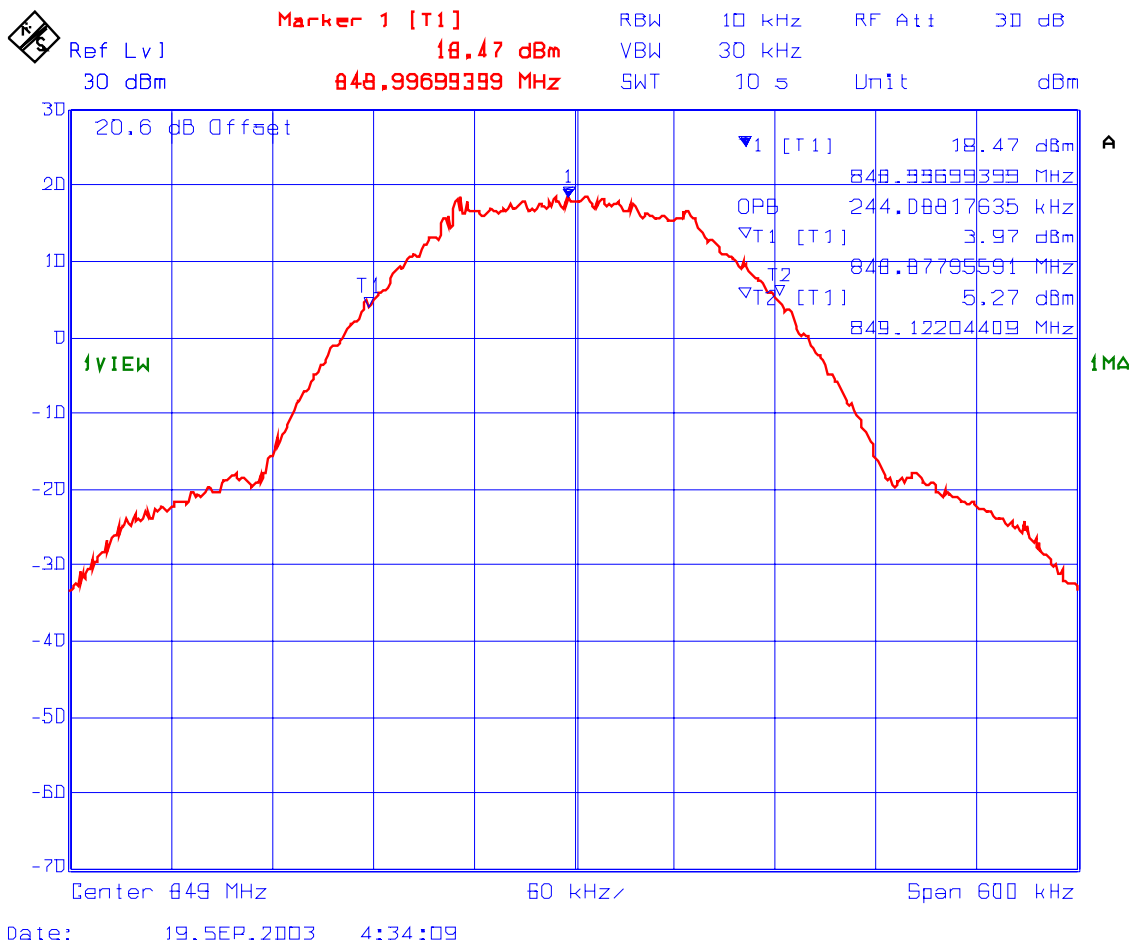
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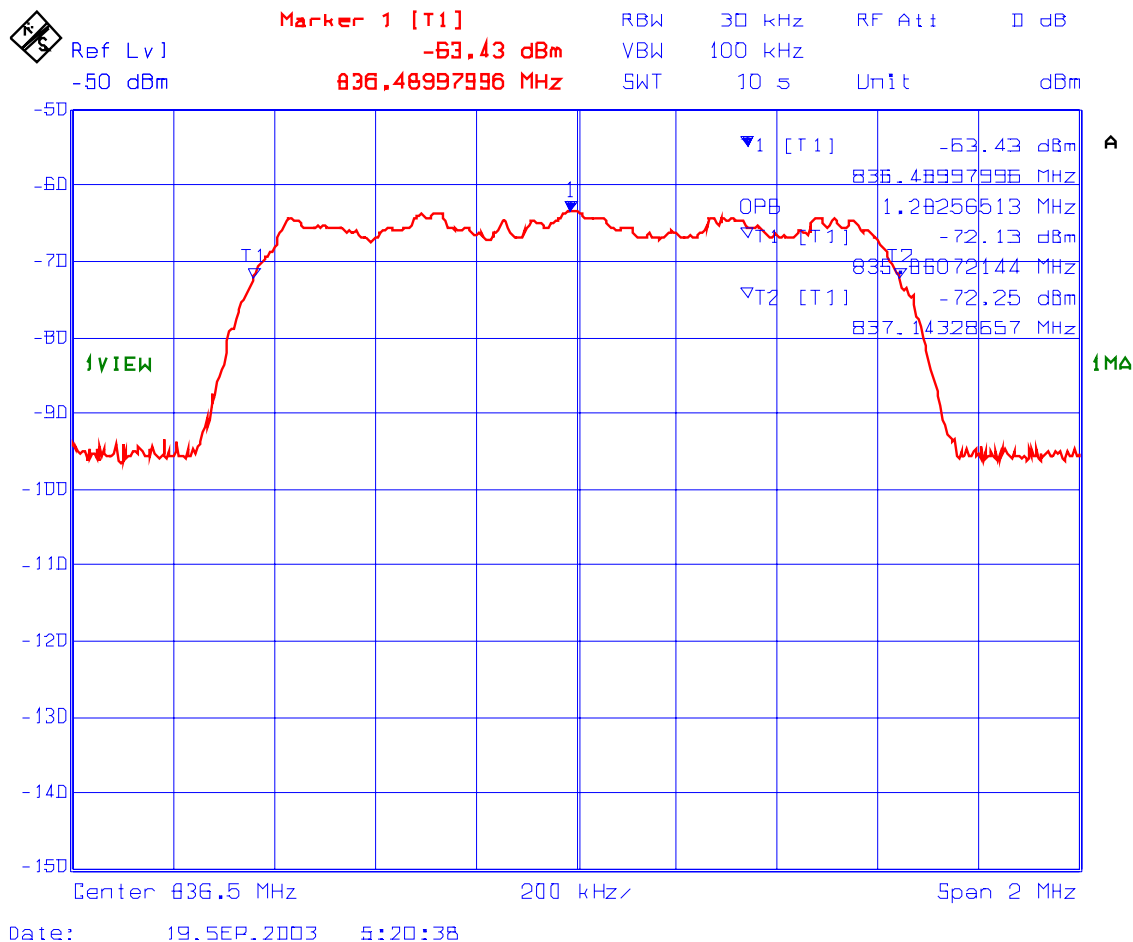
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PLOT # 89 99% Occupied Bandwidth- RF Output
Frequency: 849 MHz
Modulation: GSM



PLOT # 90 99% Occupied Bandwidth- RF Input
Frequency: 824 MHz
Modulation: CDMA



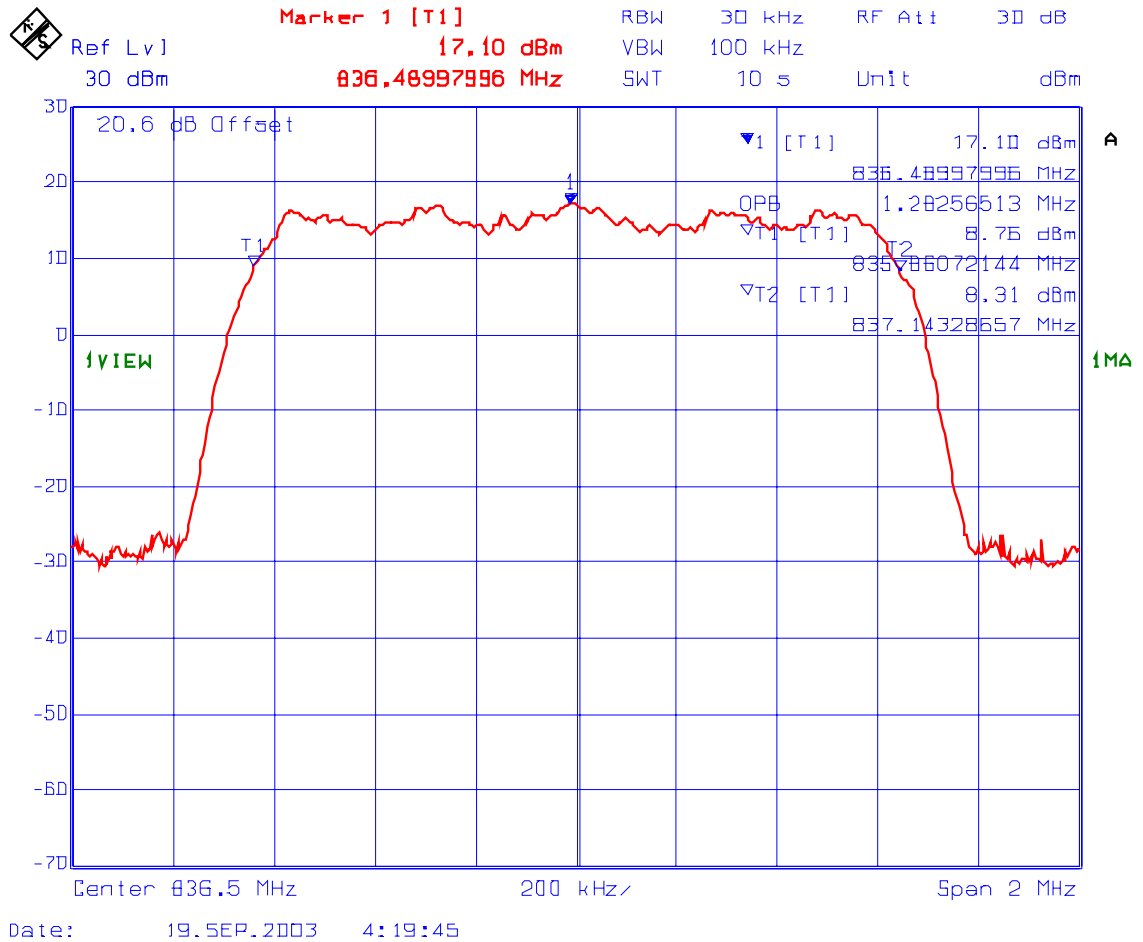
ULTRATECH GROUP OF LABS

3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

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PLOT # 91 99% Occupied Bandwidth- RF Output
Frequency: 836.5 MHz
Modulation: CDMA



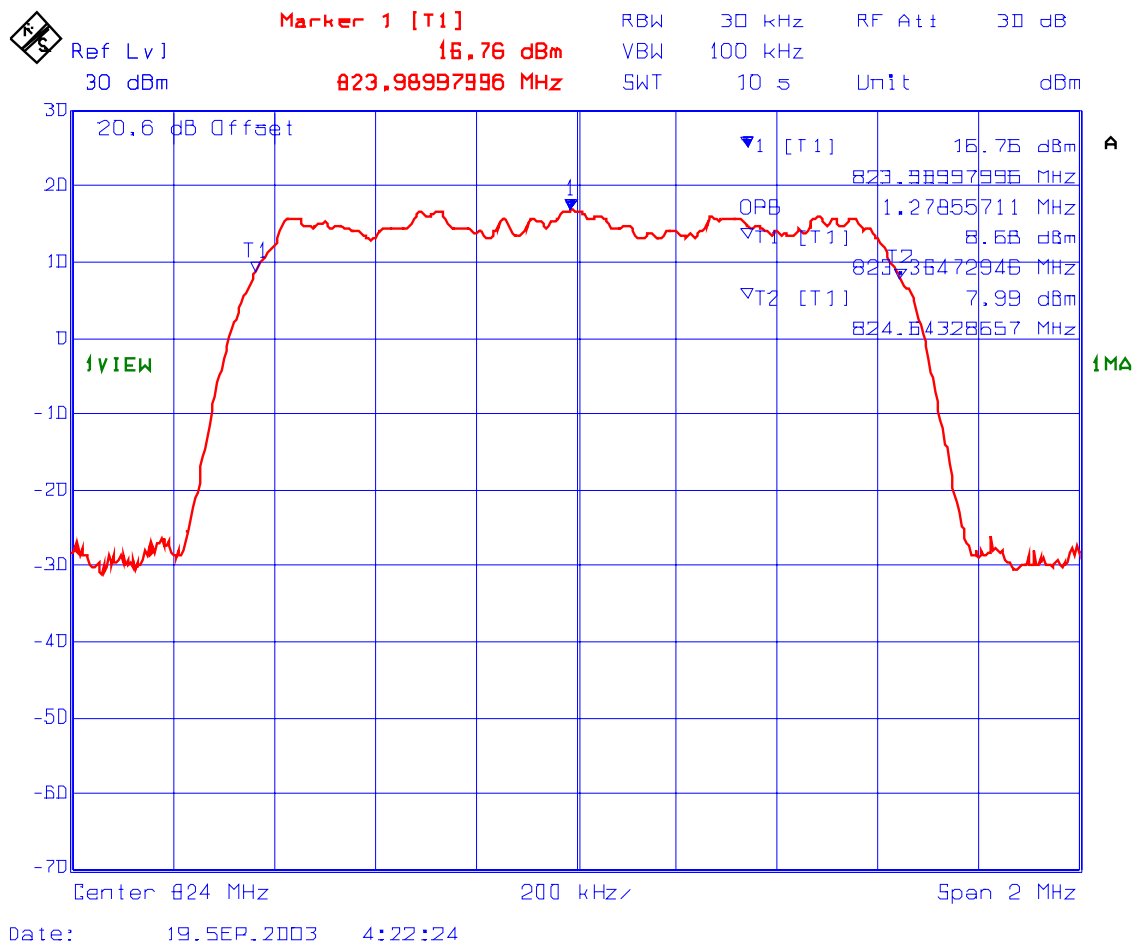
ULTRATECH GROUP OF LABS

3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

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- All test results contained in this engineering test report are traceable to National Institute of Standards and Technology (NIST)

PLOT # 92 99% Occupied Bandwidth- RF Output
Frequency: 836.5 MHz
Modulation: CDMA



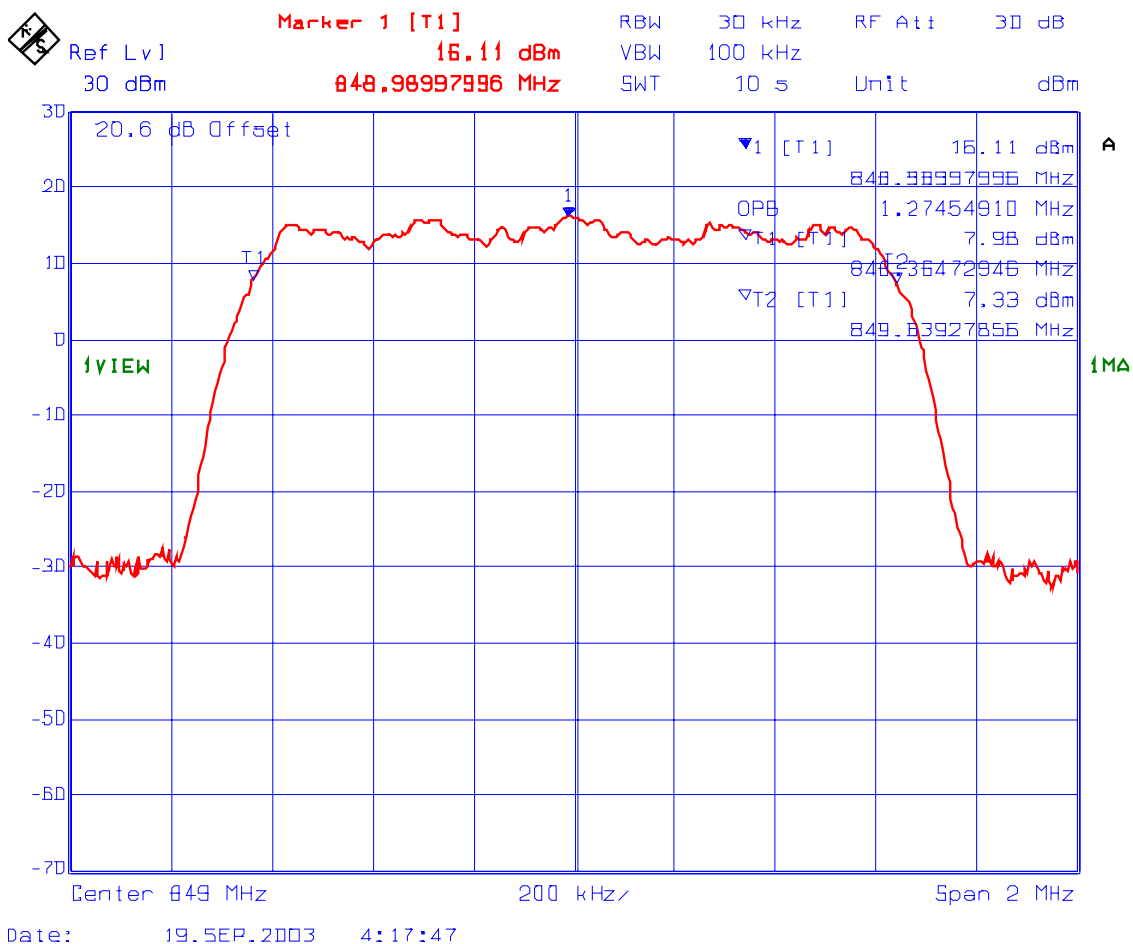
ULTRATECH GROUP OF LABS

3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

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PLOT # 93 99% Occupied Bandwidth- RF Output
Frequency: 849 MHz
Modulation: CDMA



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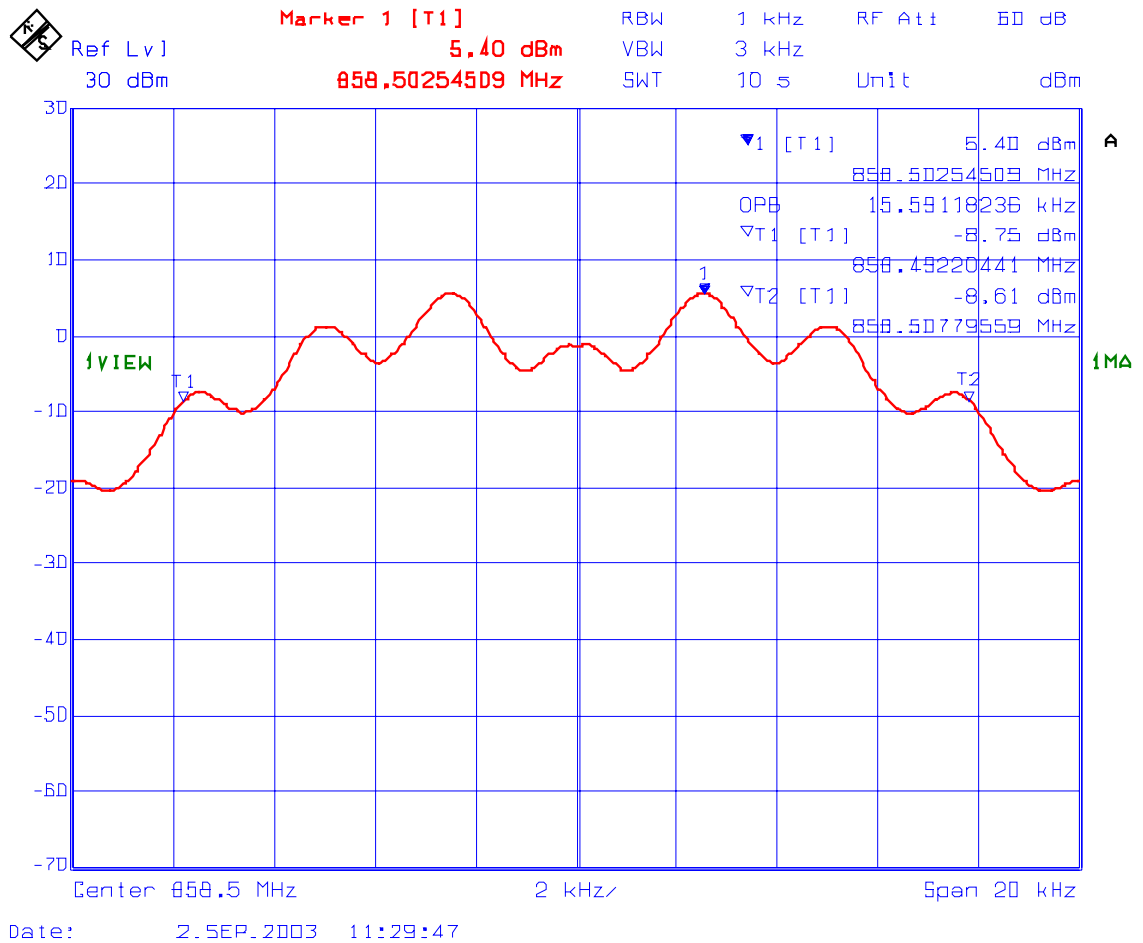
3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

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PLOT # 94 99% Occupied Bandwidth-RF Input
Frequency: 851 MHz, 25 kHz Channel Spacing
Modulation: FM modulation with 2.5 kHz Sine wave signal



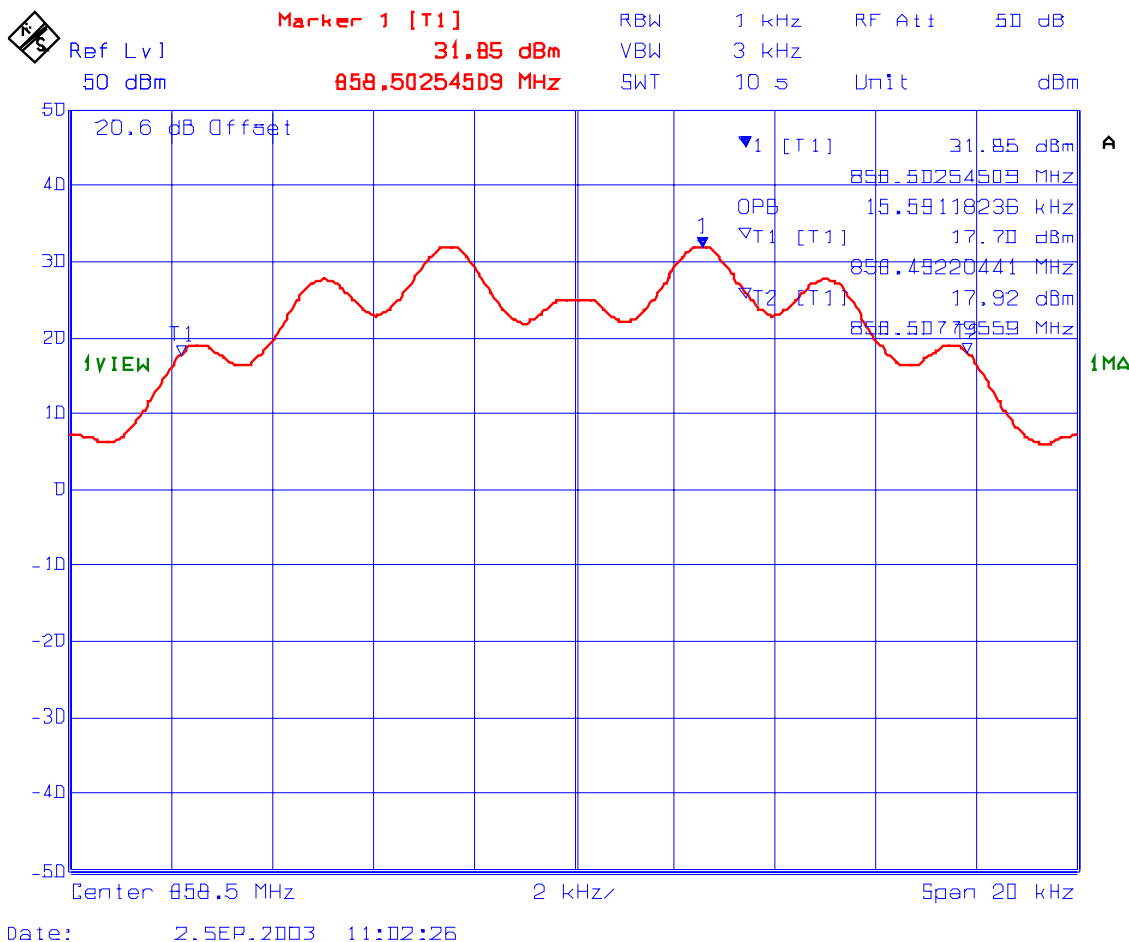
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3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

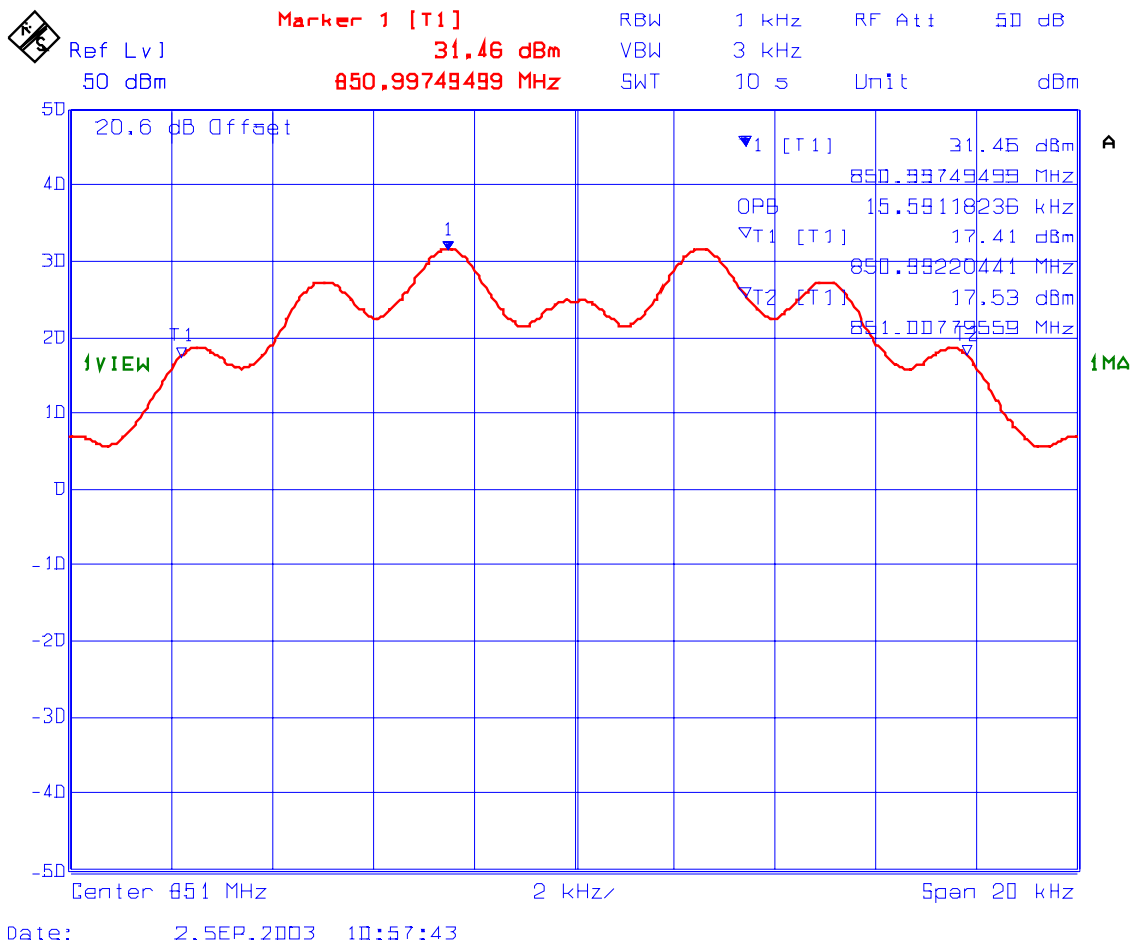
File #: KT1-034FCC22-90
 Oct. 17, 2003

- All test results contained in this engineering test report are traceable to National Institute of Standards and Technology (NIST)

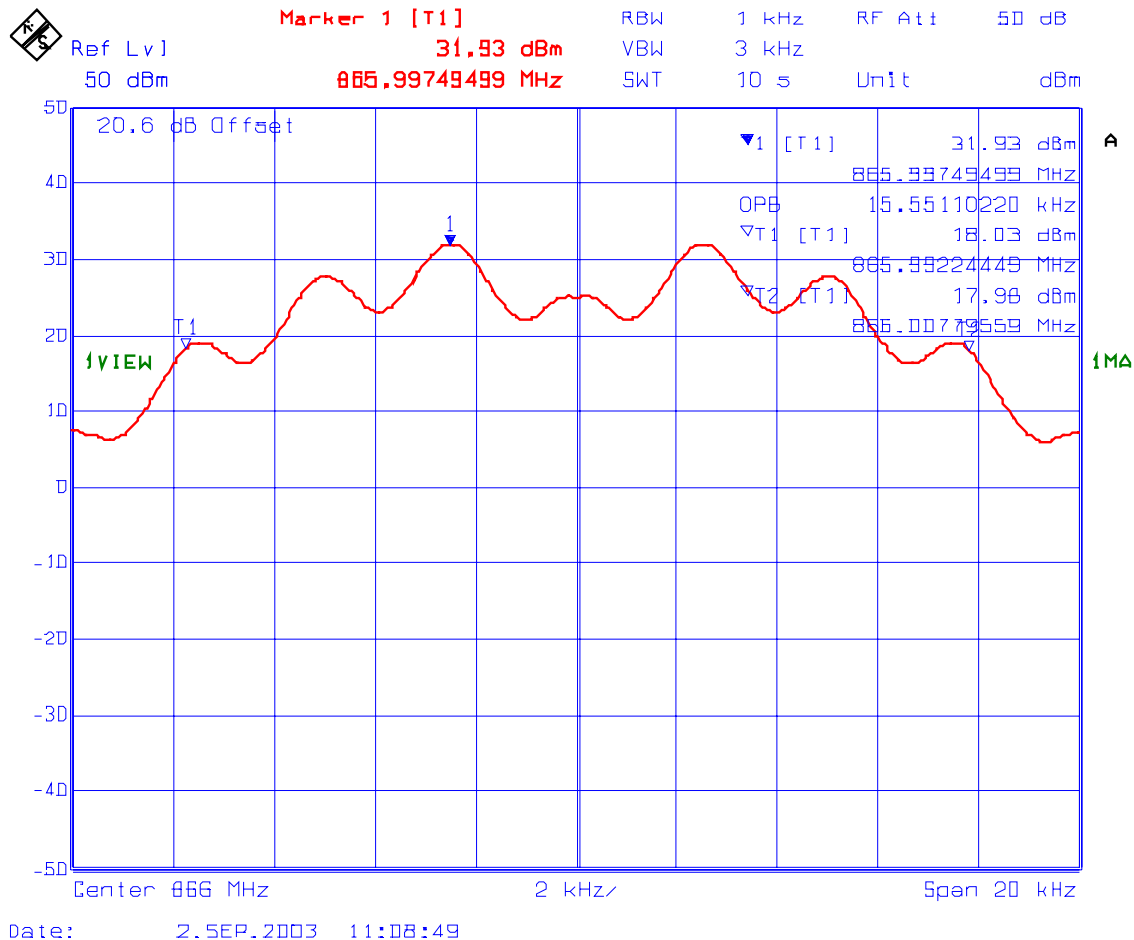
PLOT # 95 99% Occupied Bandwidth- RF Output
Frequency: 858.5 MHz, 25 kHz Channel Spacing
Modulation: FM modulation with 2.5 kHz Sine wave signal



PLOT # 96 99% Occupied Bandwidth- RF Output
Frequency: 858.5 MHz, 25 kHz Channel Spacing
Modulation: FM modulation with 2.5 kHz Sine wave signal



PLOT # 97 99% Occupied Bandwidth- RF Output
Frequency: 866 MHz, 25 kHz Channel Spacing
Modulation: FM modulation with 2.5 kHz Sine wave signal



ULTRATECH GROUP OF LABS

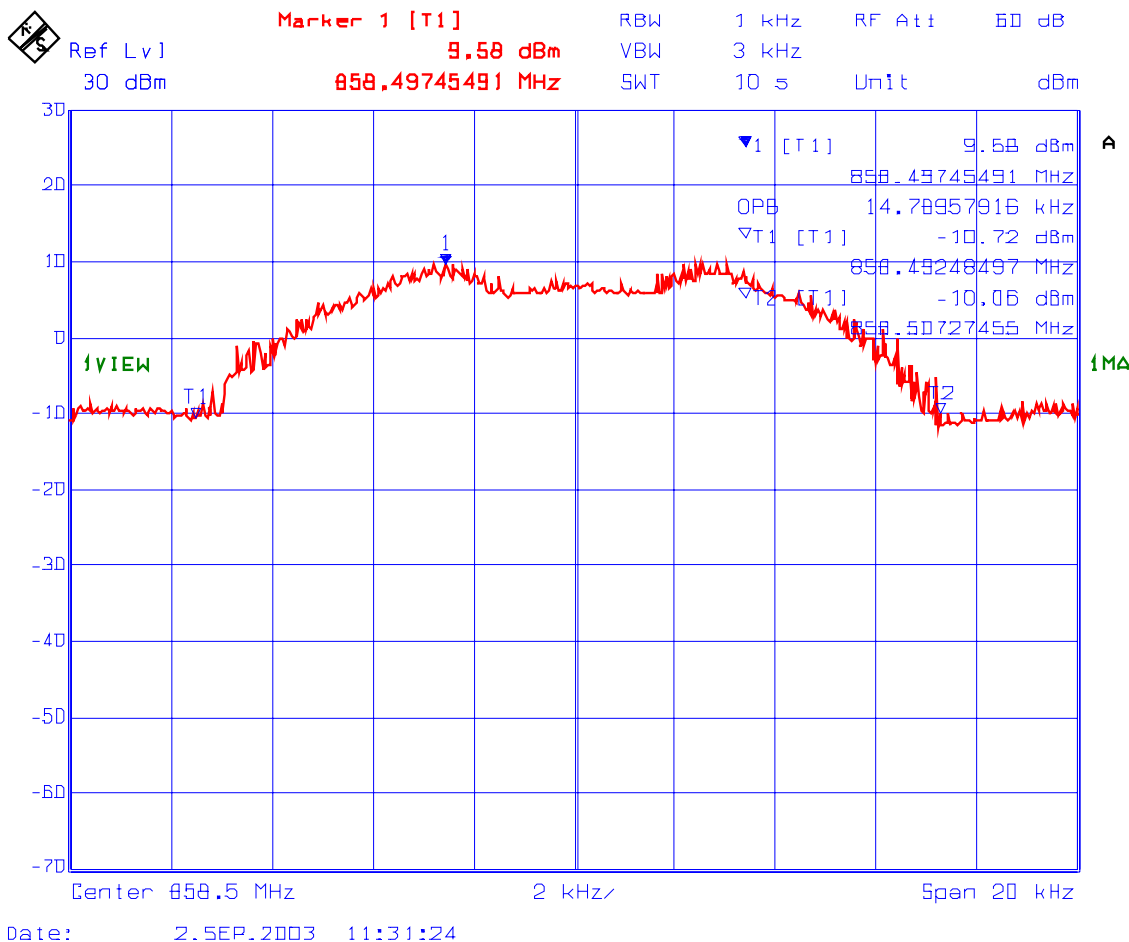
3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

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PLOT # 98 99% Occupied Bandwidth- RF Input
Frequency: 851 MHz, 25 kHz Channel Spacing
Modulation: FM modulation with an external 9600 b/s random data source



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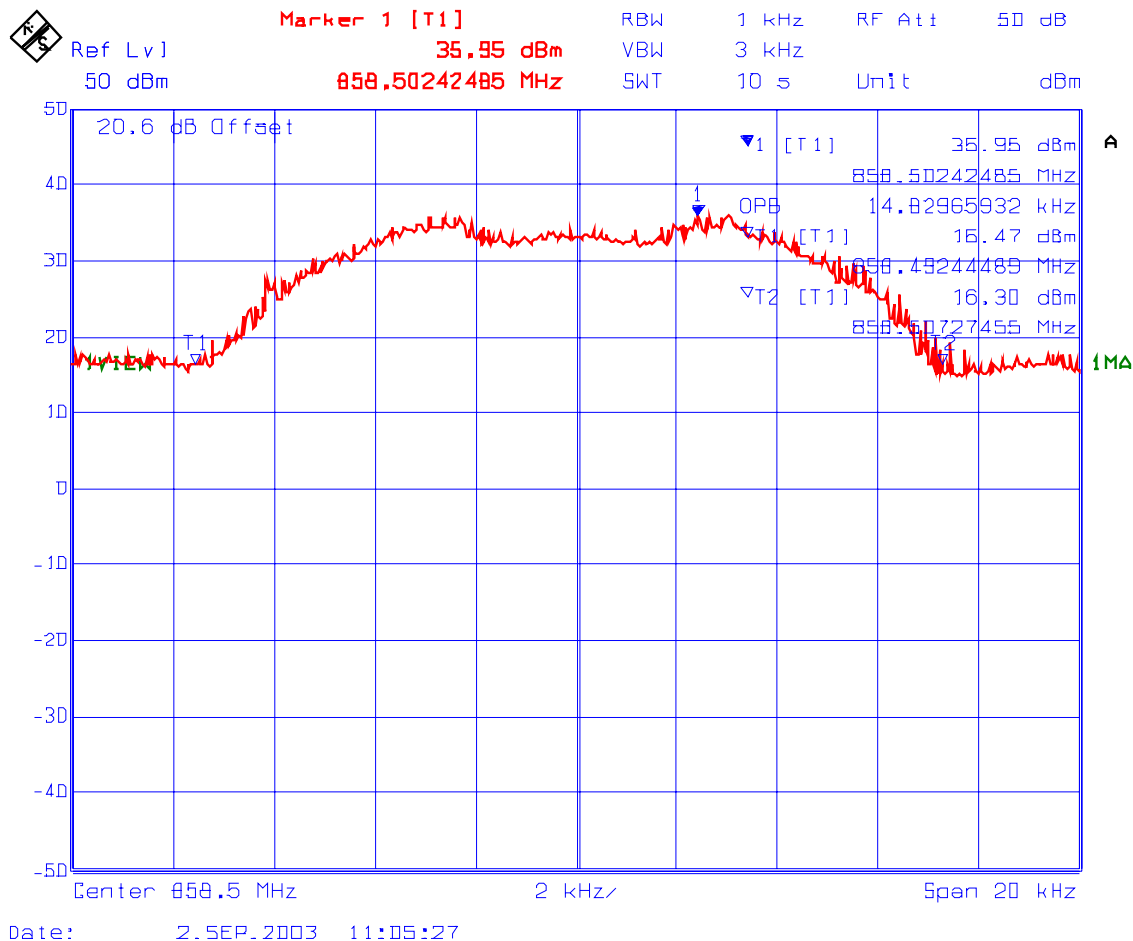
3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

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PLOT # 99 99% Occupied Bandwidth- RF Output
Frequency: 858.5 MHz, 25 kHz Channel Spacing
Modulation: FM modulation with an external 9600 b/s random data source



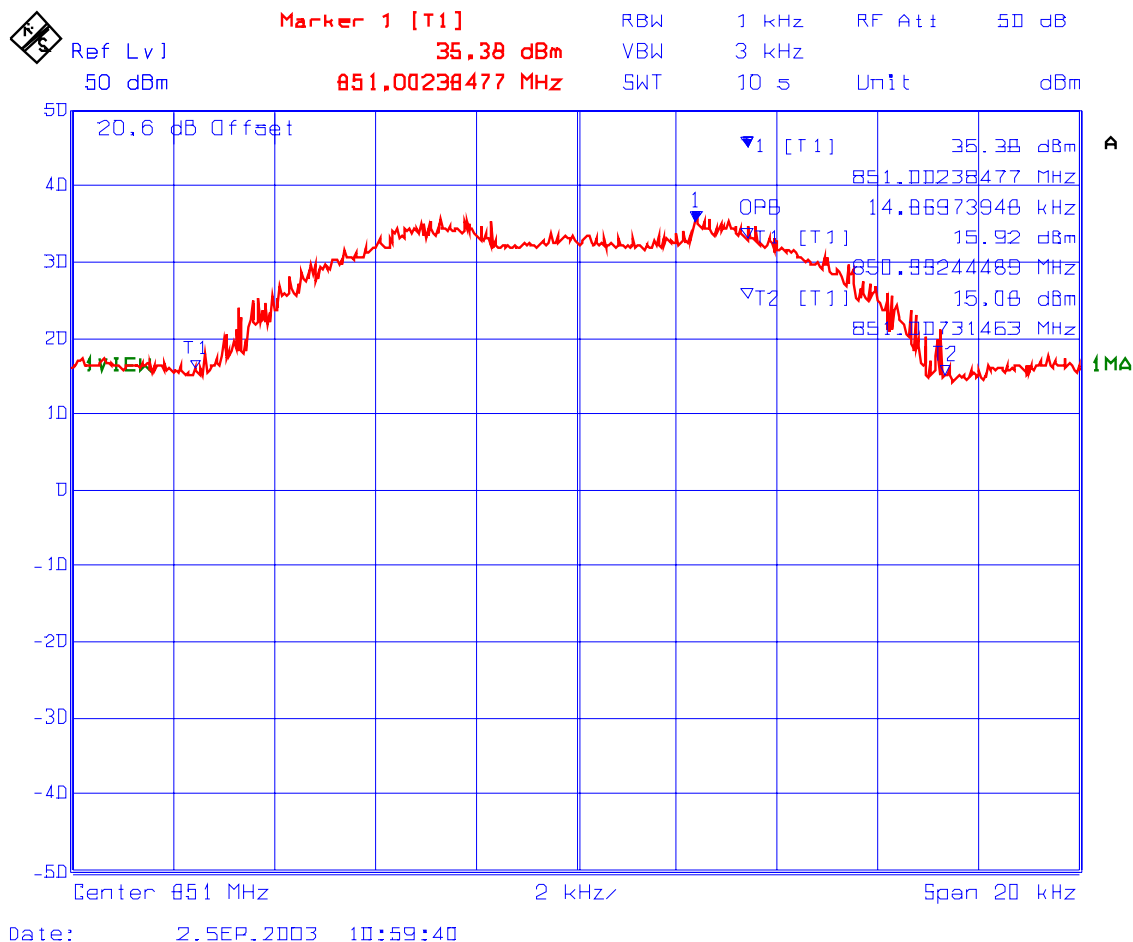
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3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

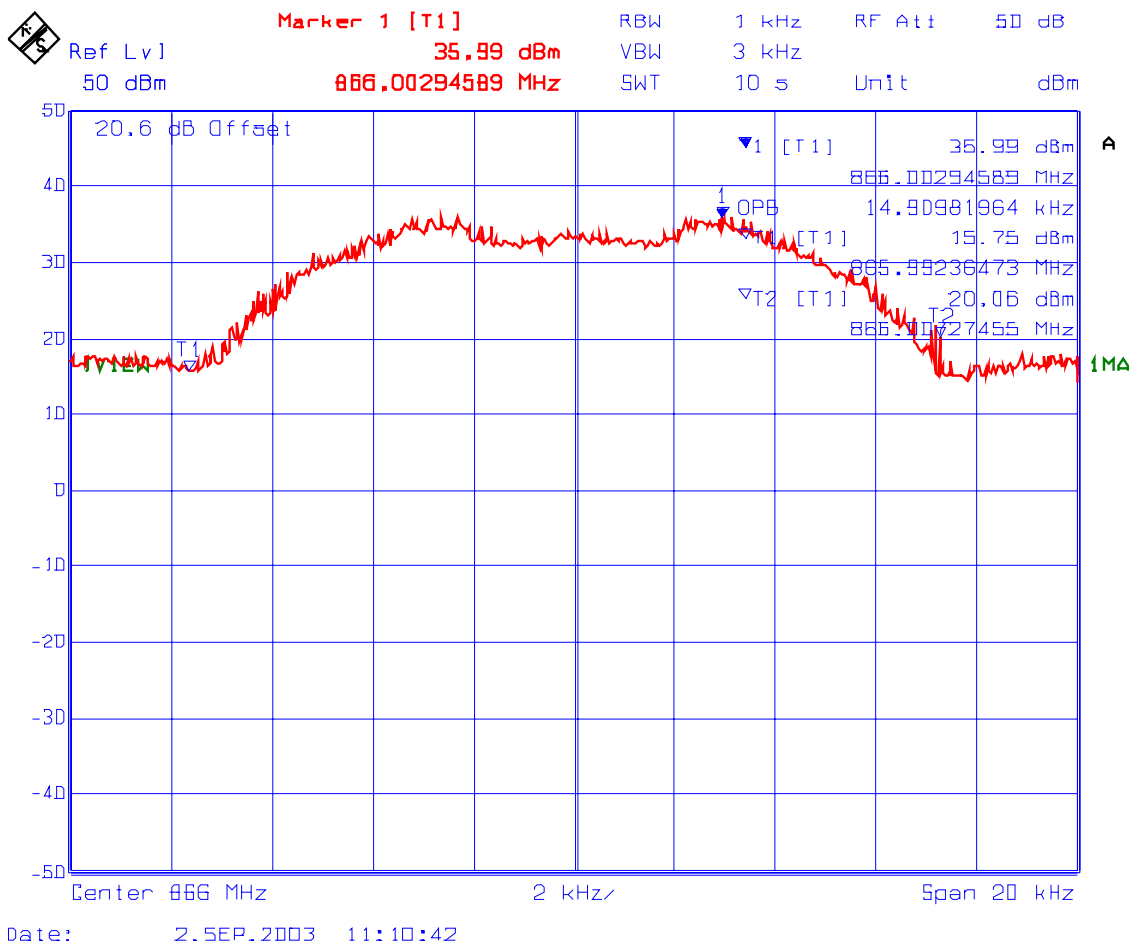
File #: KT1-034FCC22-90
 Oct. 17, 2003

- All test results contained in this engineering test report are traceable to National Institute of Standards and Technology (NIST)

PLOT # 100 99% Occupied Bandwidth- RF Output
Frequency: 858.5 MHz, 25 kHz Channel Spacing
Modulation: FM modulation with an external 9600 b/s random data source



PLOT # 101 99% Occupied Bandwidth- RF Output
Frequency: 866 MHz, 25 kHz Channel Spacing
Modulation: FM modulation with an external 9600 b/s random data source



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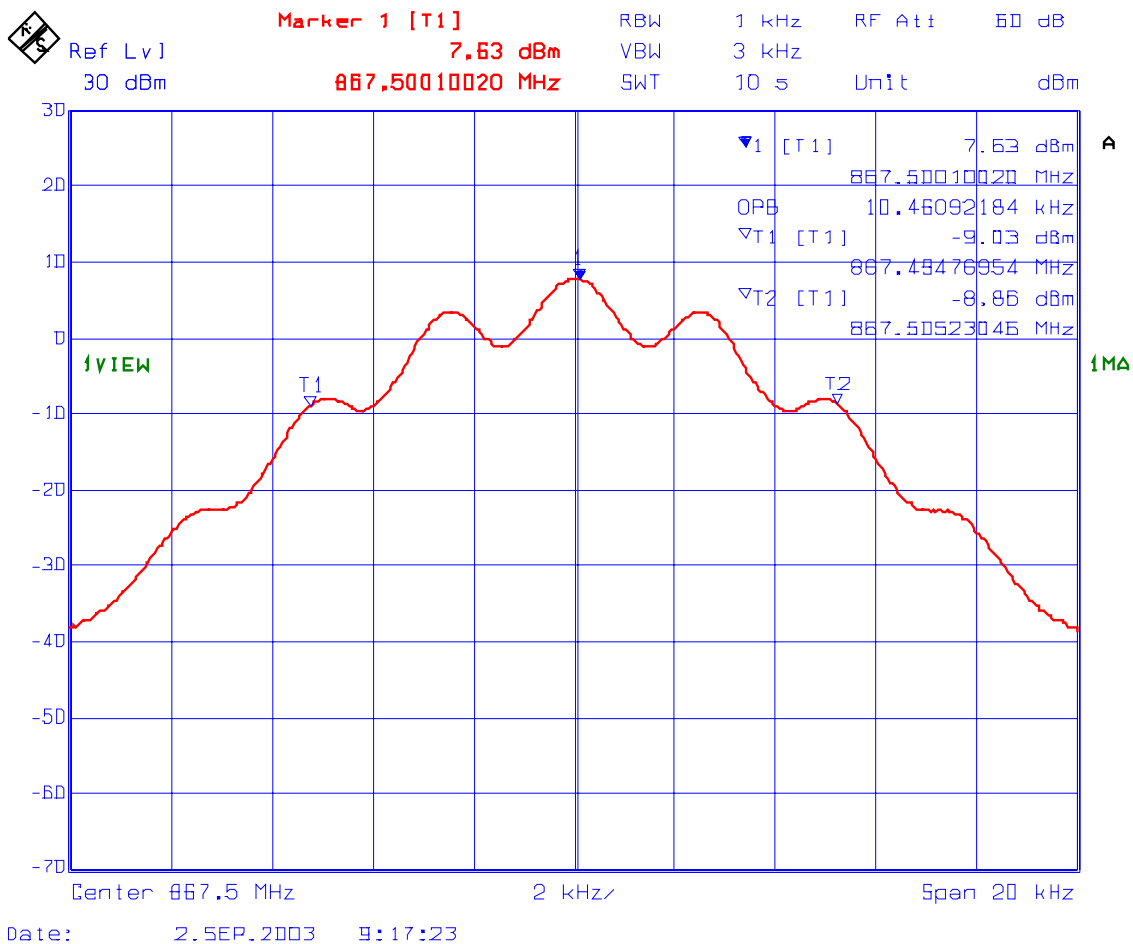
3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

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PLOT # 102 99% Occupied Bandwidth- RF Input
Frequency: 866 MHz, 12.5 kHz Channel Spacing
Modulation: FM modulation with 2.5 kHz Sine wave signal



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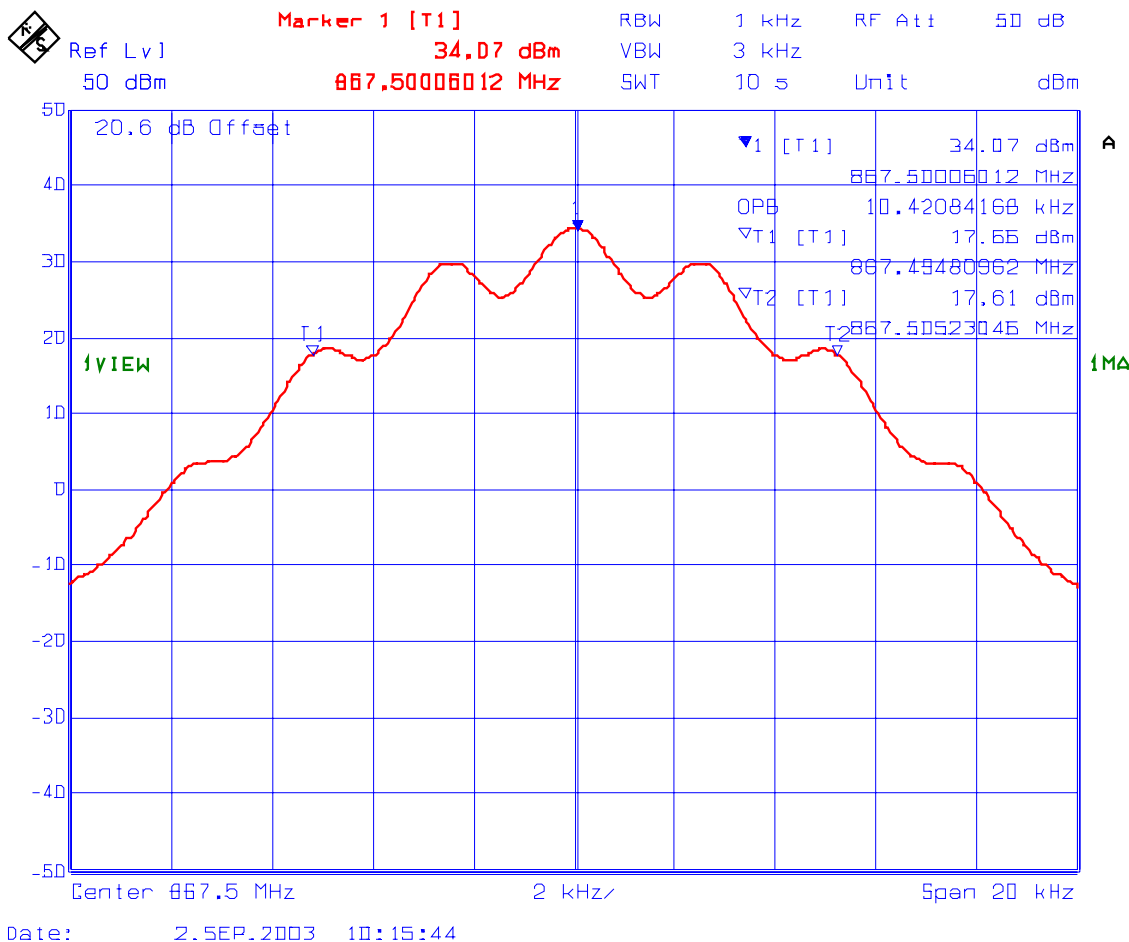
3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

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PLOT # 103 99% Occupied Bandwidth- RF Output
Frequency: 867.5 MHz, 12.5 kHz Channel Spacing
Modulation: FM modulation with 2.5 kHz Sine wave signal



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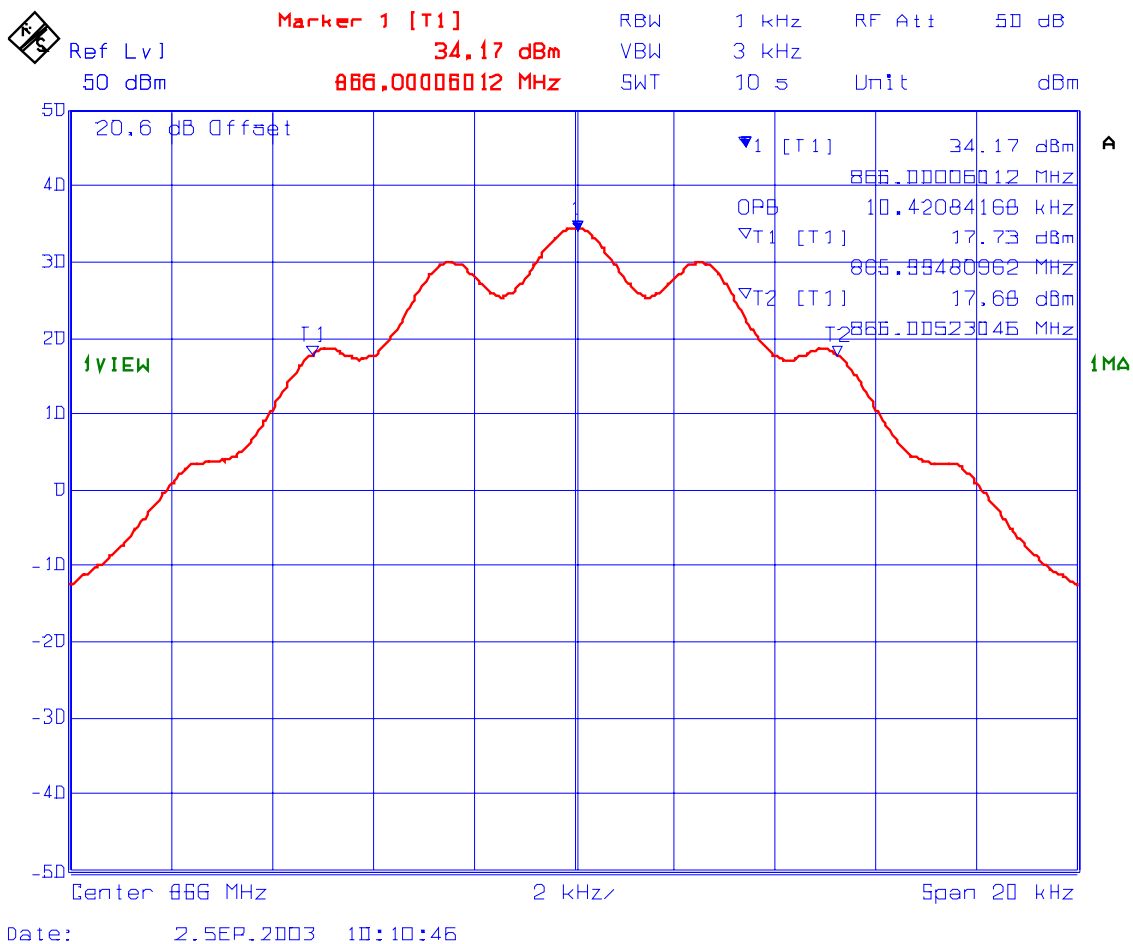
3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

File #: KT1-034FCC22-90

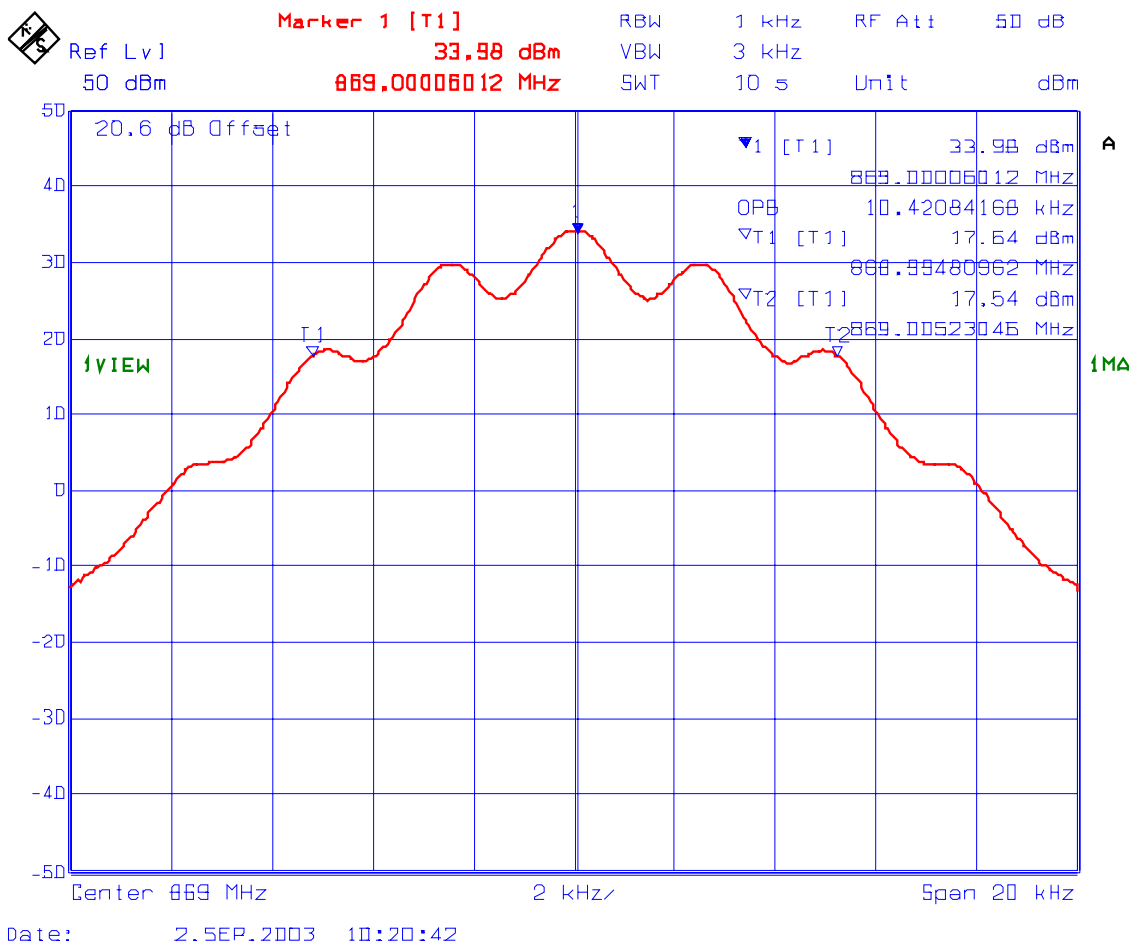
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- All test results contained in this engineering test report are traceable to National Institute of Standards and Technology (NIST)

PLOT # 104 99% Occupied Bandwidth- RF Output
Frequency: 867.5 MHz, 12.5 kHz Channel Spacing
Modulation: FM modulation with 2.5 kHz Sine wave signal



PLOT # 105 99% Occupied Bandwidth- RF Output
Frequency: 869 MHz, 12.5 kHz Channel Spacing
Modulation: FM modulation with 2.5 kHz Sine wave signal



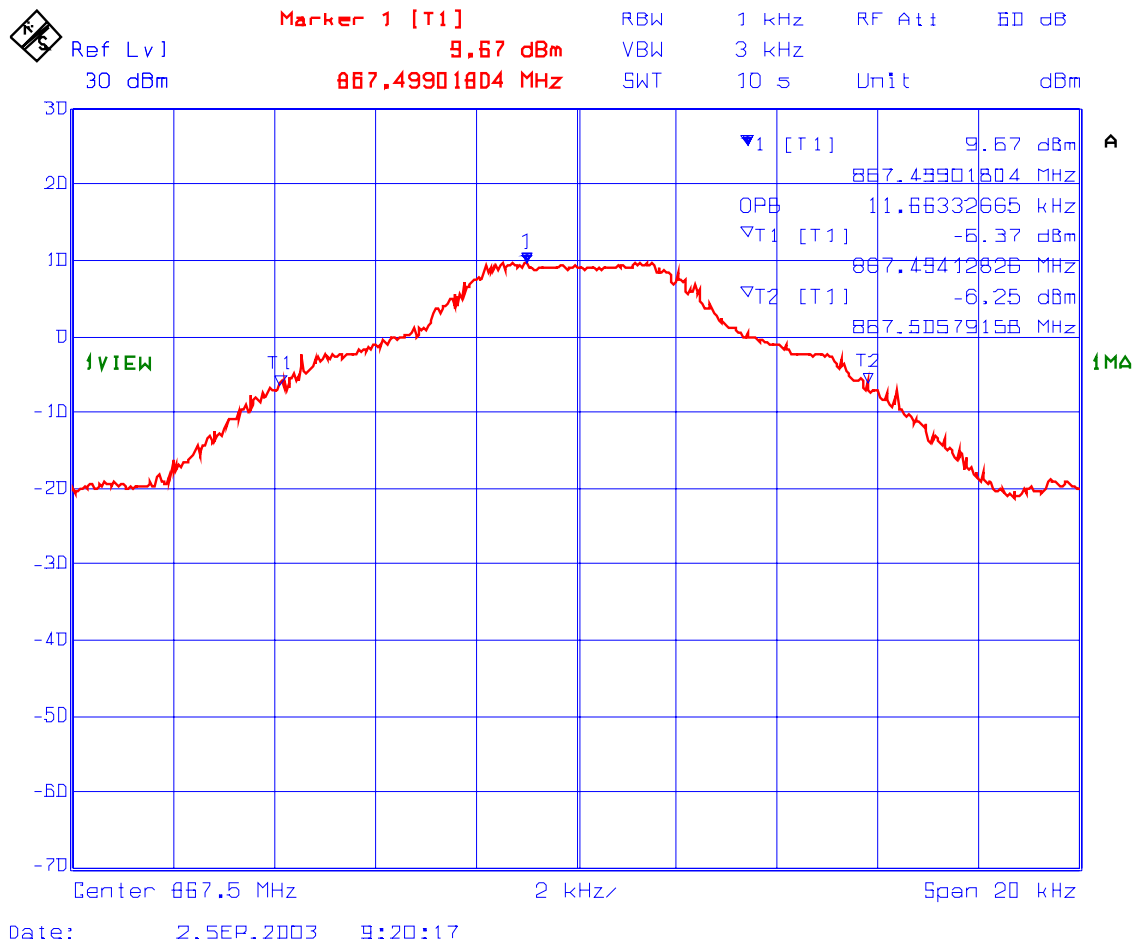
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3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

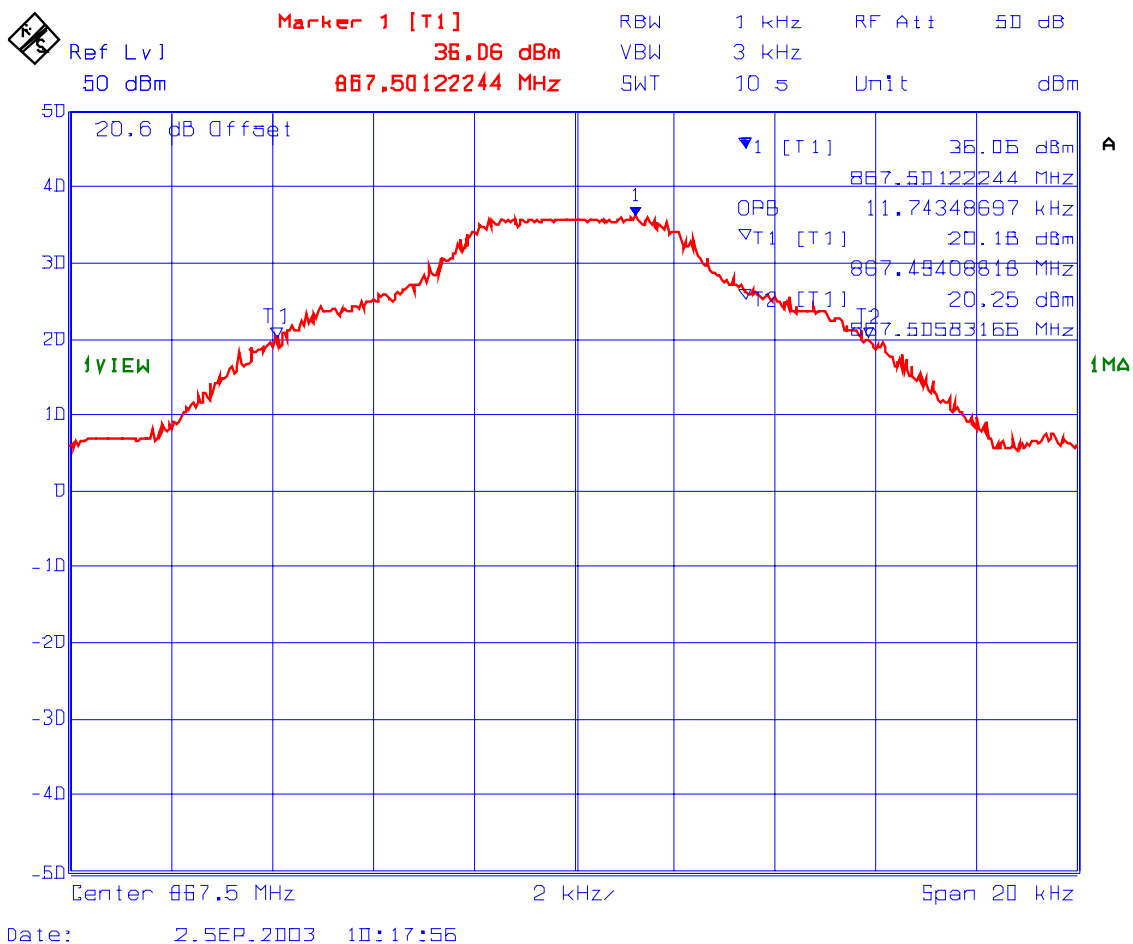
File #: KTI-034FCC22-90
 Oct. 17, 2003

- All test results contained in this engineering test report are traceable to National Institute of Standards and Technology (NIST)

PLOT # 106 99% Occupied Bandwidth- RF Input
Frequency: 866 MHz, 12.5 kHz Channel Spacing
Modulation: FM modulation with an external 9600 b/s random data source



PLOT # 107 99% Occupied Bandwidth- RF Output
Frequency: 867.5 MHz, 12.5 kHz Channel Spacing
Modulation: FM modulation with an external 9600 b/s random data source



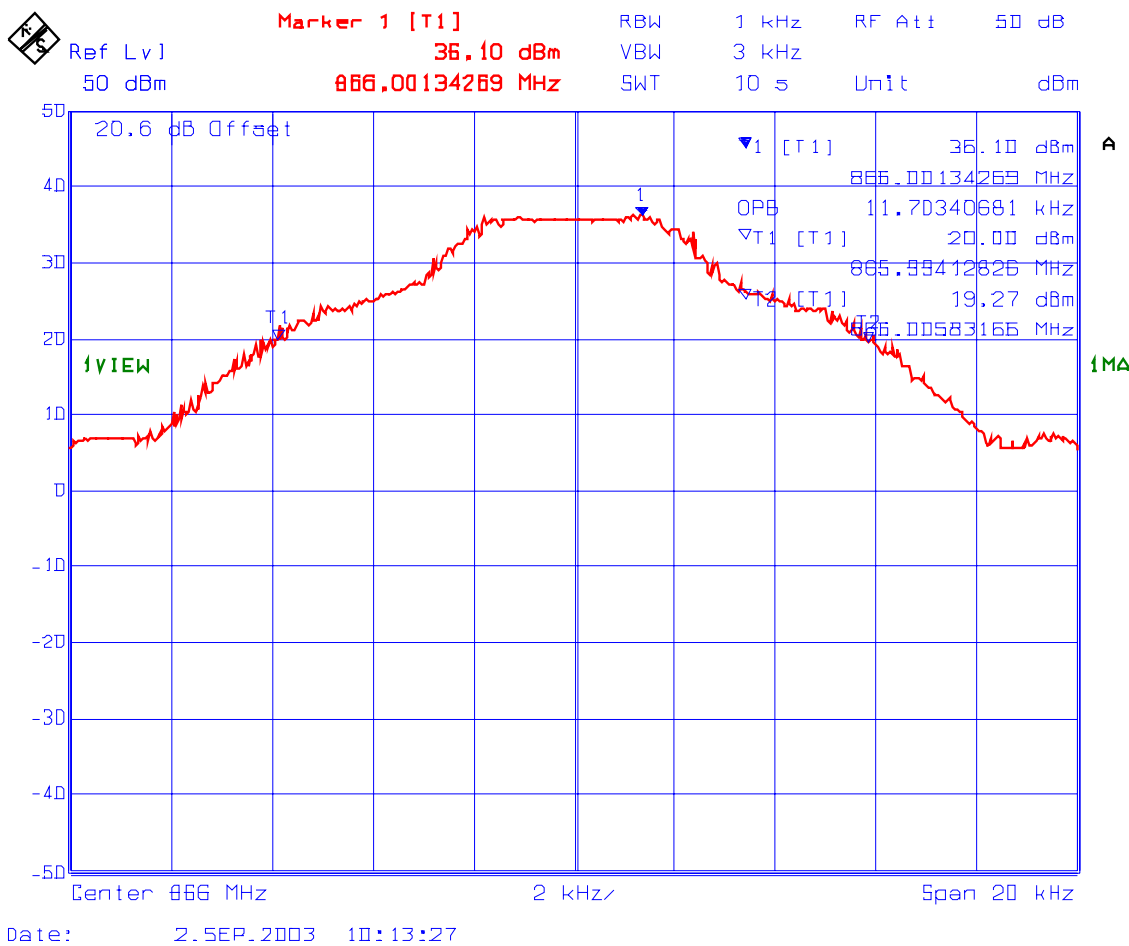
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3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

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PLOT # 108 99% Occupied Bandwidth- RF Output
Frequency: 867.5 MHz, 12.5 kHz Channel Spacing
Modulation: FM modulation with an external 9600 b/s random data source



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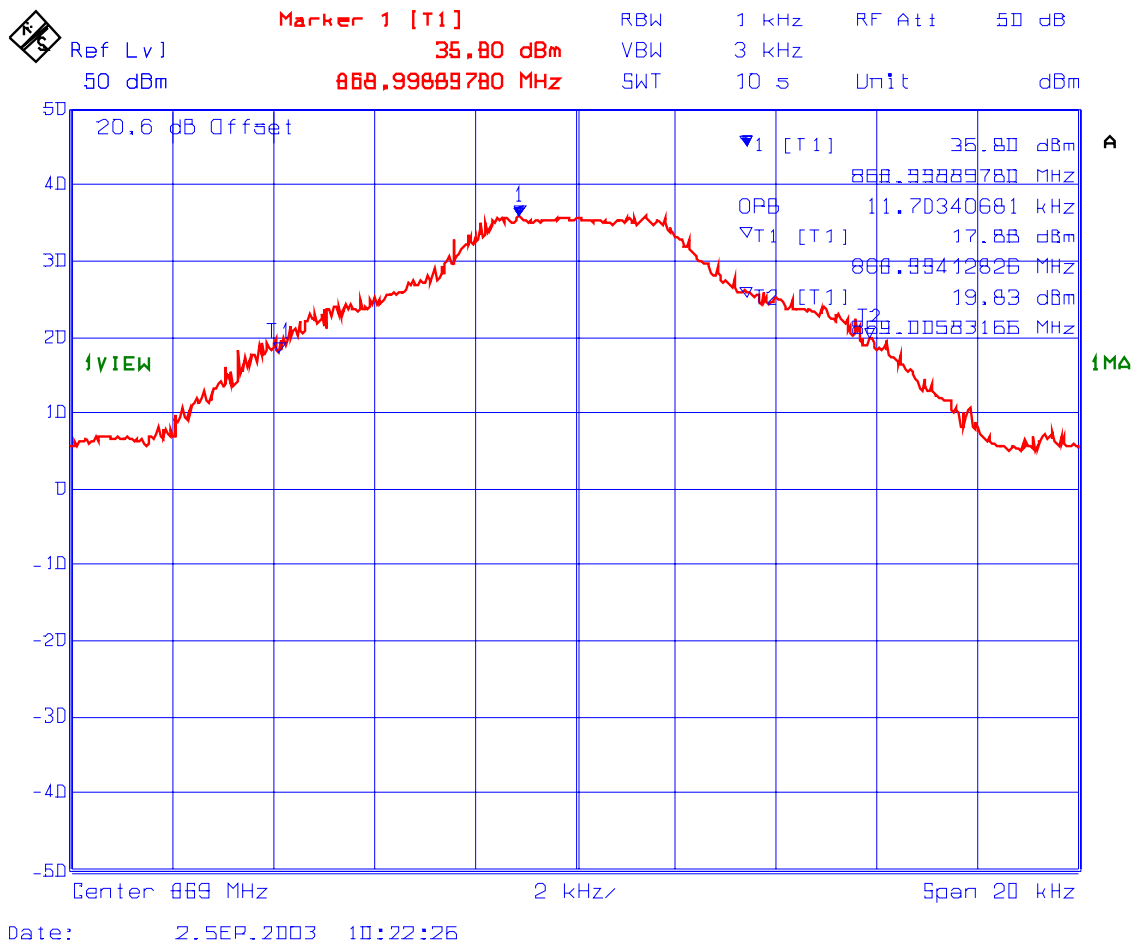
3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

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PLOT # 109 99% Occupied Bandwidth- RF Output
Frequency: 869 MHz, 12.5 kHz Channel Spacing
Modulation: FM modulation with an external 9600 b/s random data source



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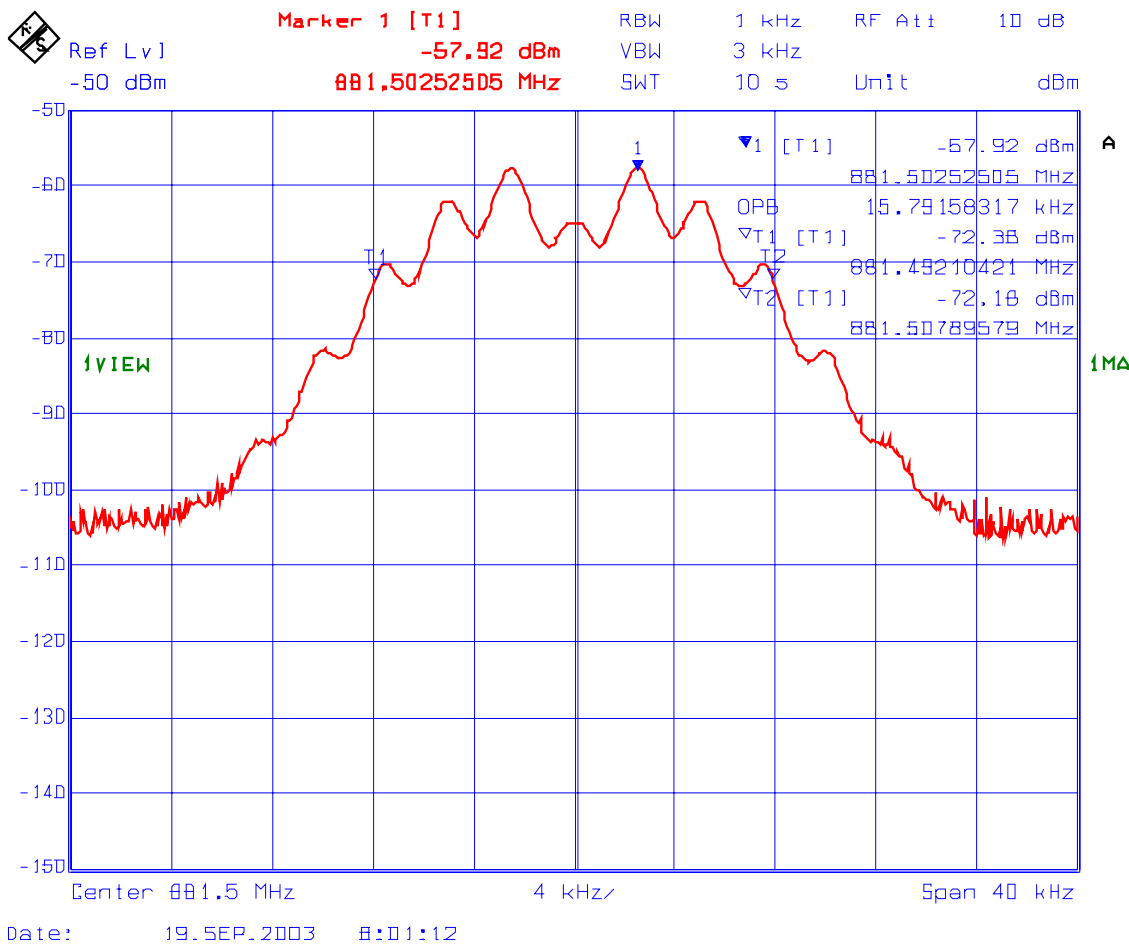
3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

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PLOT # 110 99% Occupied Bandwidth- RF Input
Frequency: 869 MHz
Modulation: FM Modulation with 2.5 kHz Sine Wave Signal



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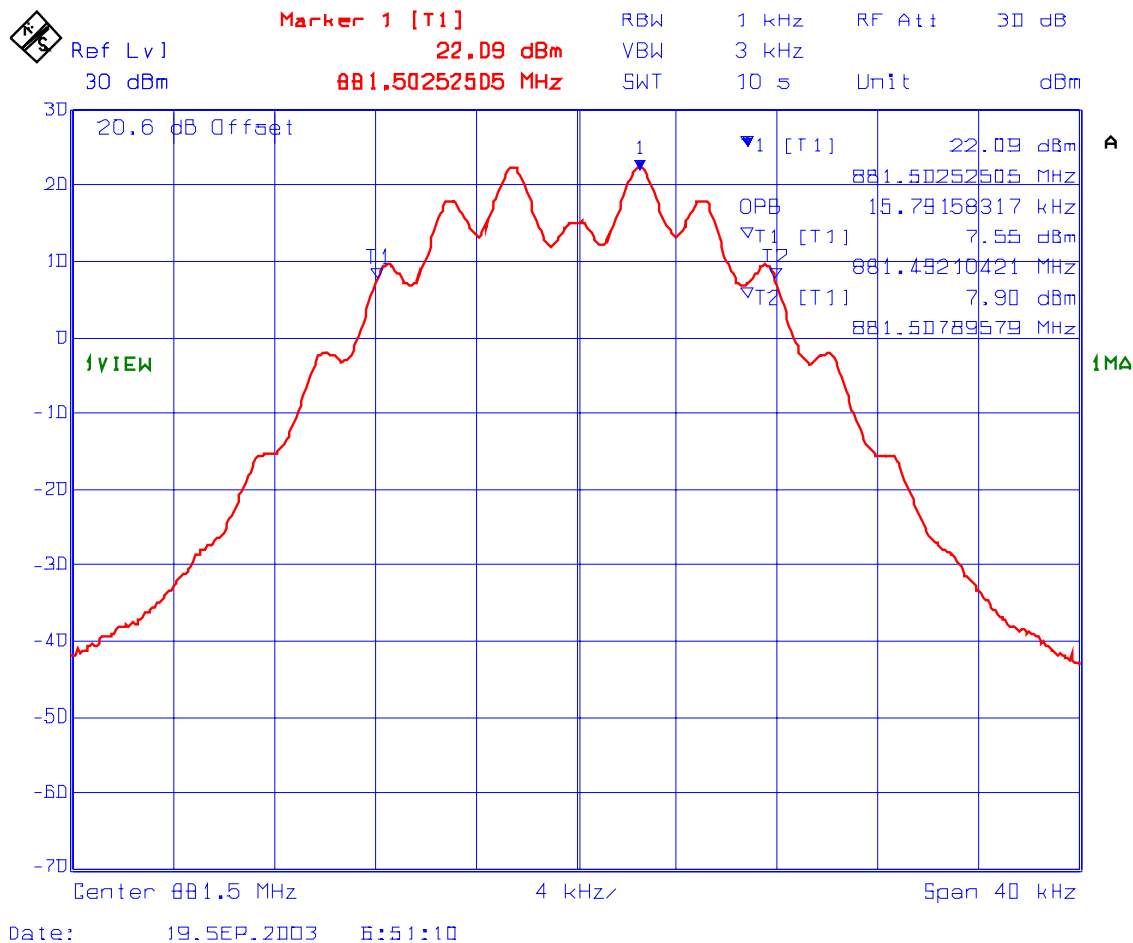
3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

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PLOT # 111 99% Occupied Bandwidth- RF Output
Frequency: 881.5 MHz
Modulation: FM Modulation with 2.5 kHz Sine Wave Signal



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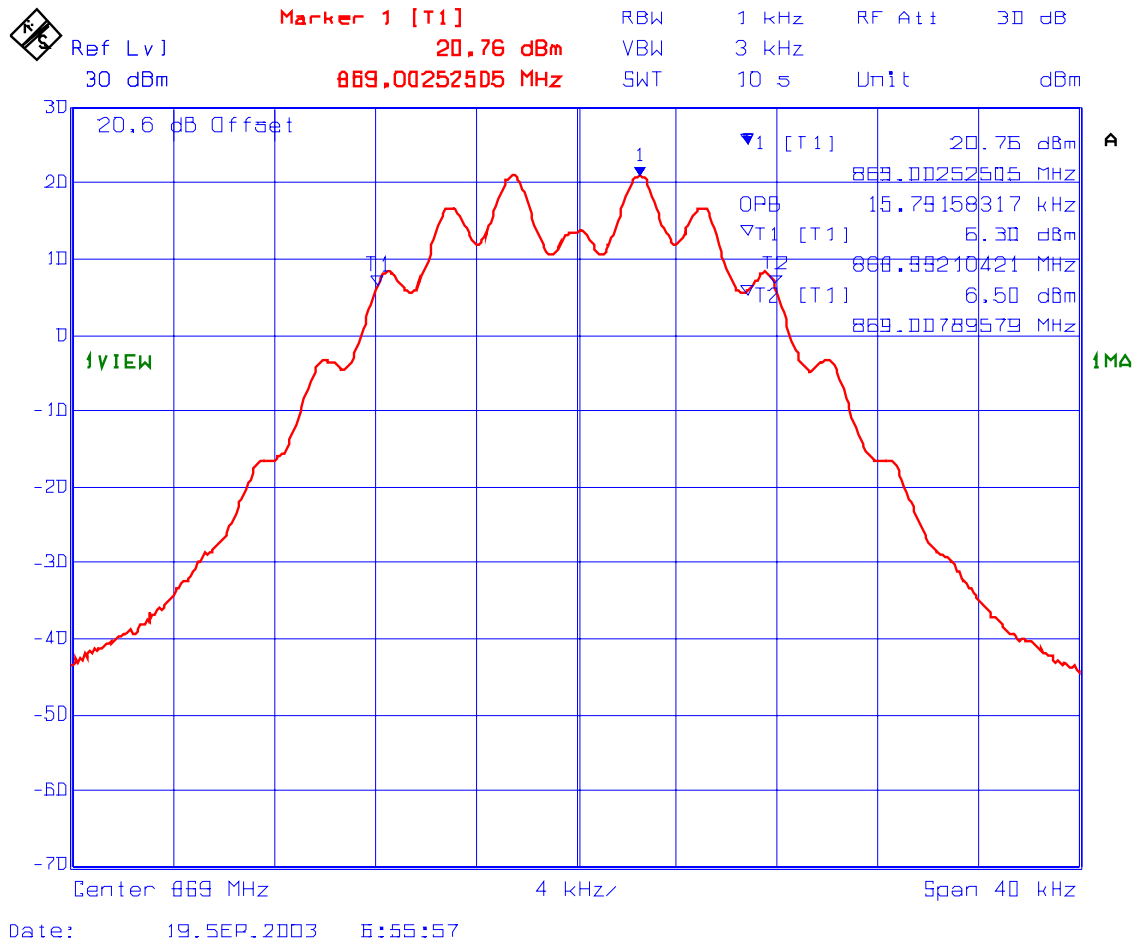
3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

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PLOT # 112 99% Occupied Bandwidth- RF Output
Frequency: 881.5 MHz
Modulation: FM Modulation with 2.5 kHz Sine Wave Signal



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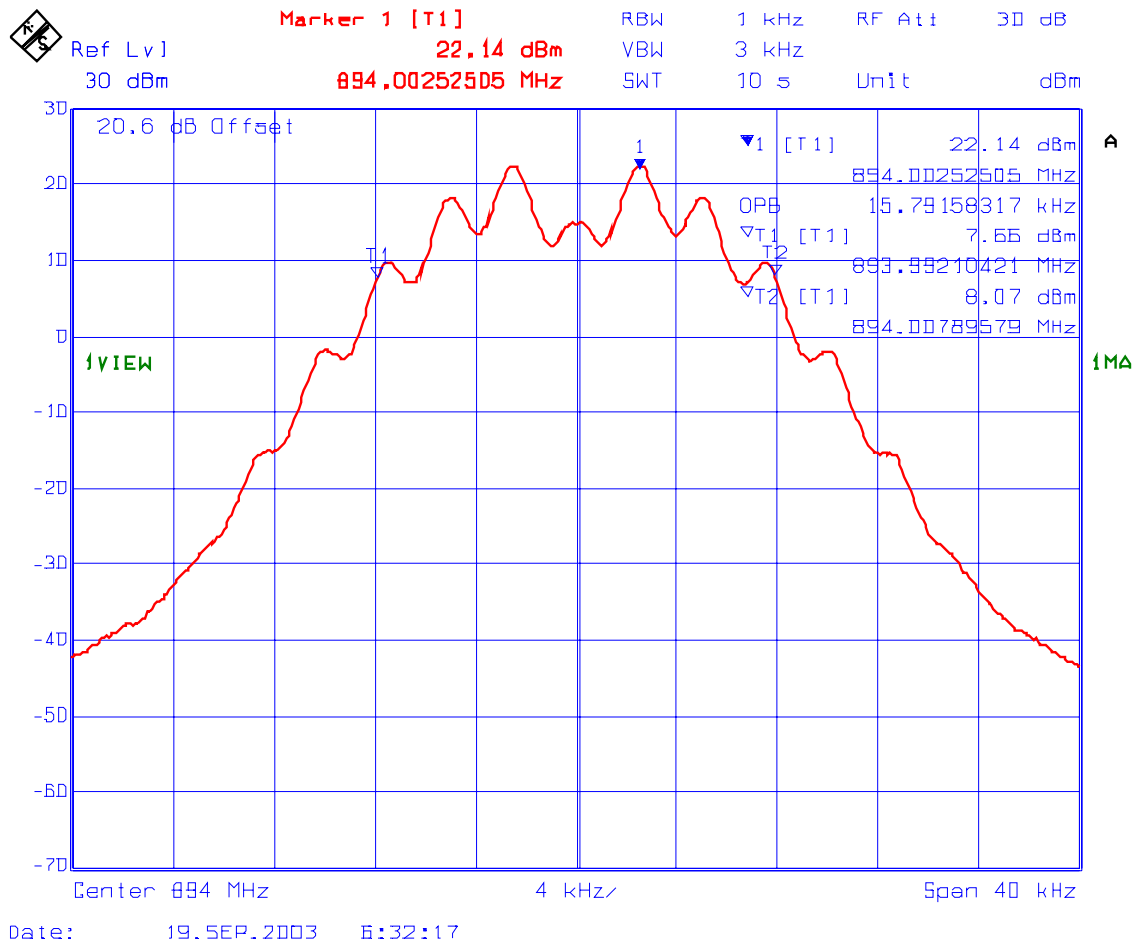
3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

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PLOT # 113 99% Occupied Bandwidth- RF Output
Frequency: 894 MHz
Modulation: FM Modulation with 2.5 kHz Sine Wave Signal



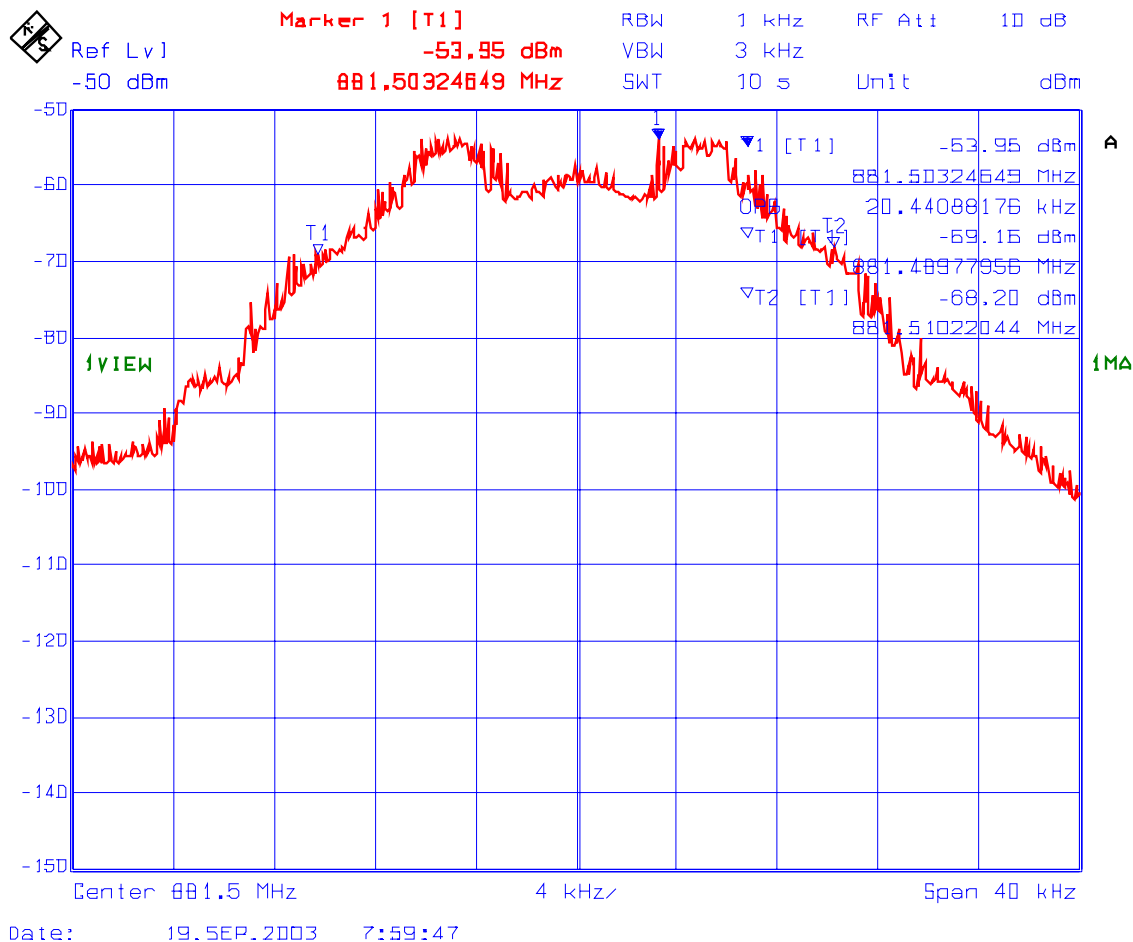
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Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

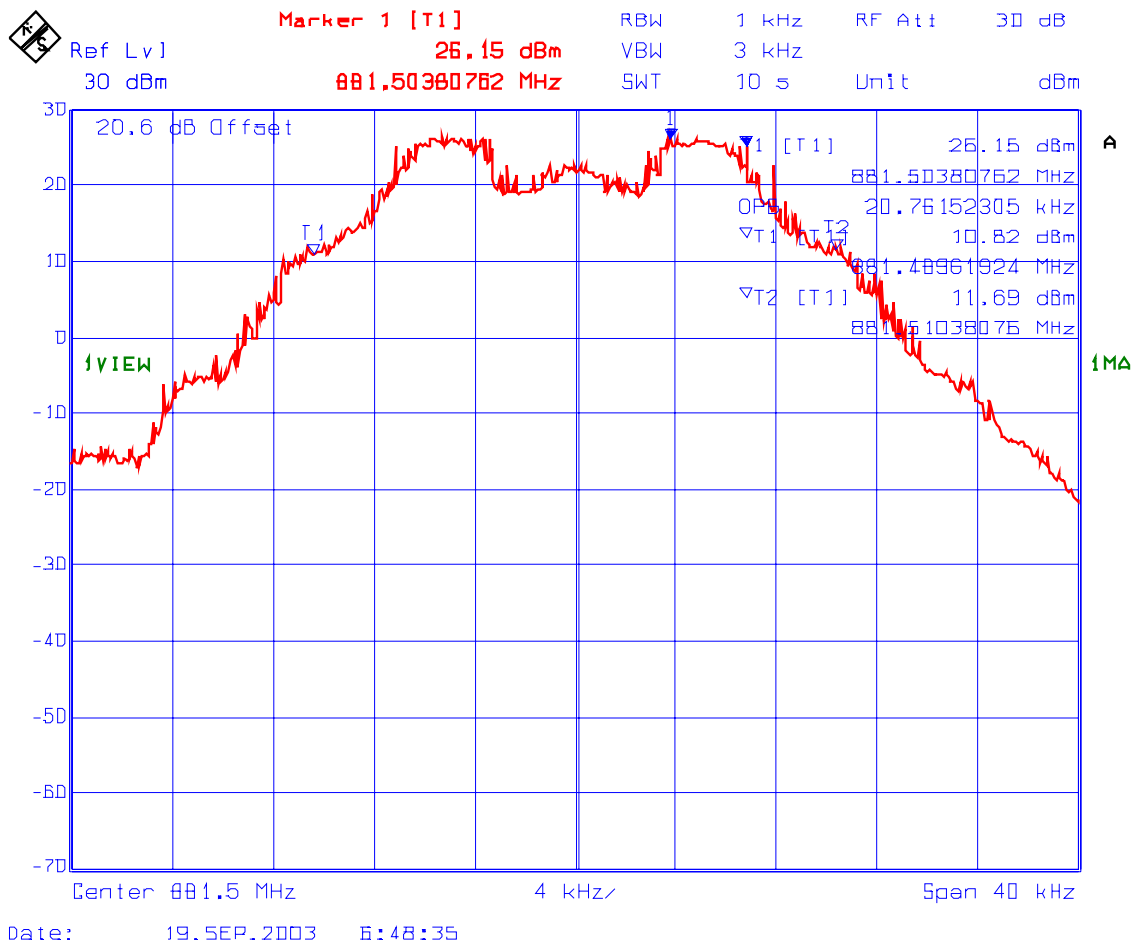
File #: KTI-034FCC22-90
Oct. 17, 2003

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PLOT # 114 99% Occupied Bandwidth- RF Input
Frequency: 869 MHz
Modulation: FM Modulation with an external 9600 b/s random data source



PLOT # 115 99% Occupied Bandwidth- RF Output
Frequency: 881.5 MHz
Modulation: FM Modulation with an external 9600 b/s random data source



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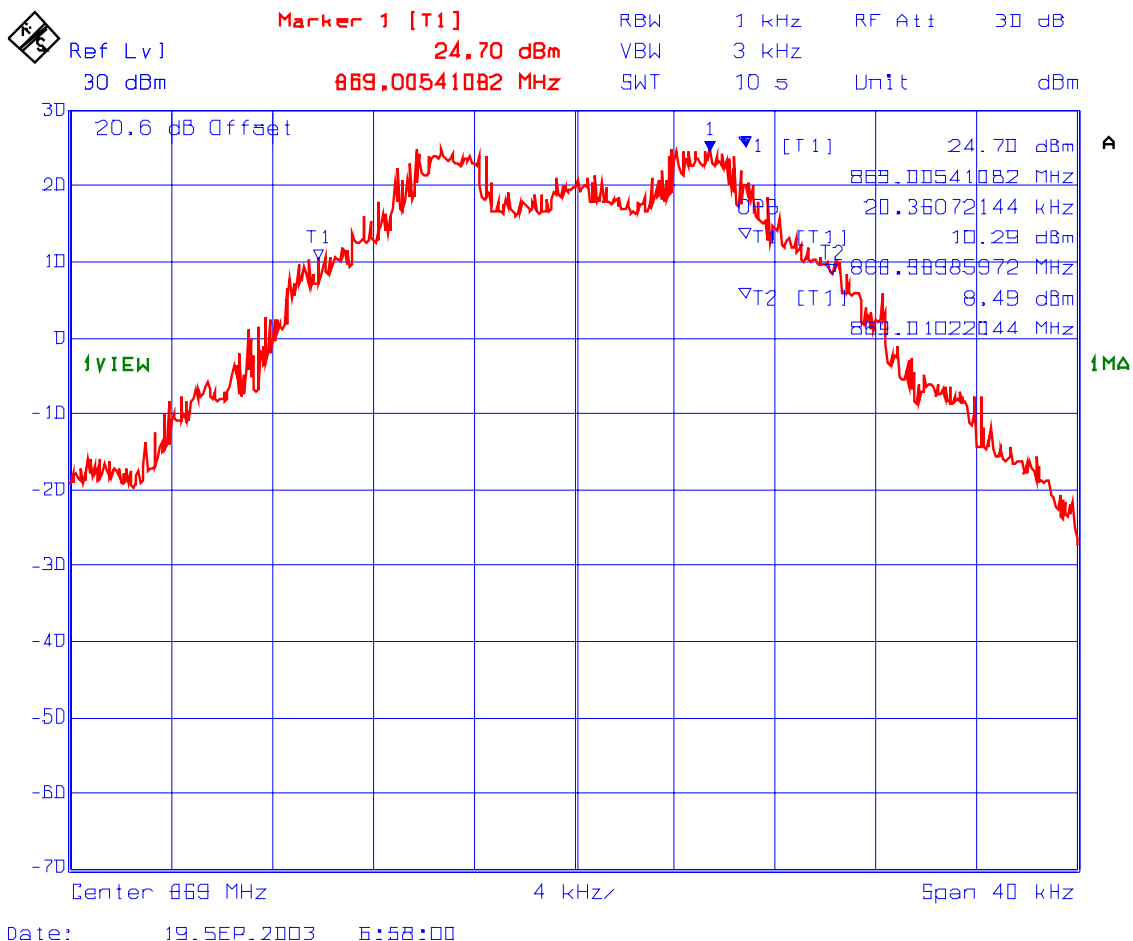
3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

File #: **KTI-034FCC22-90**

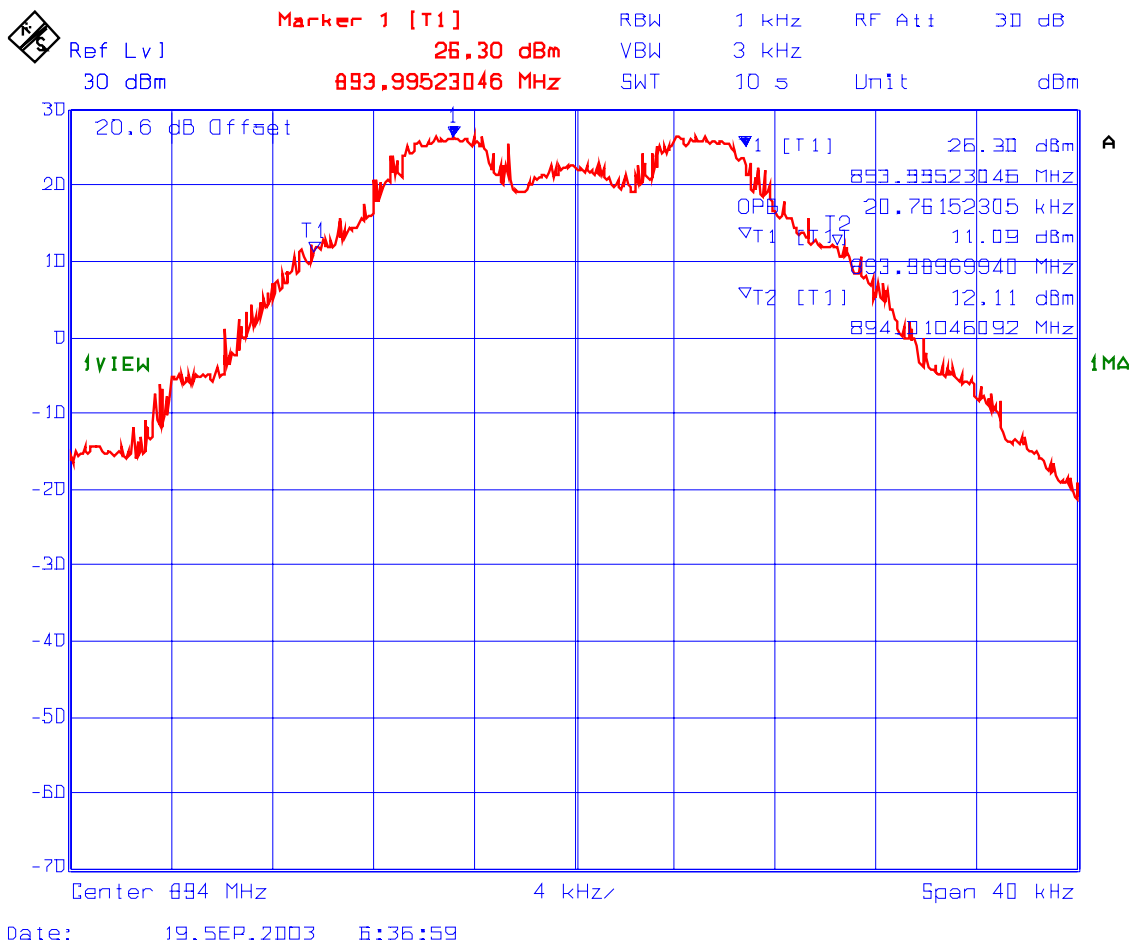
Oct. 17, 2003

- All test results contained in this engineering test report are traceable to National Institute of Standards and Technology (NIST)

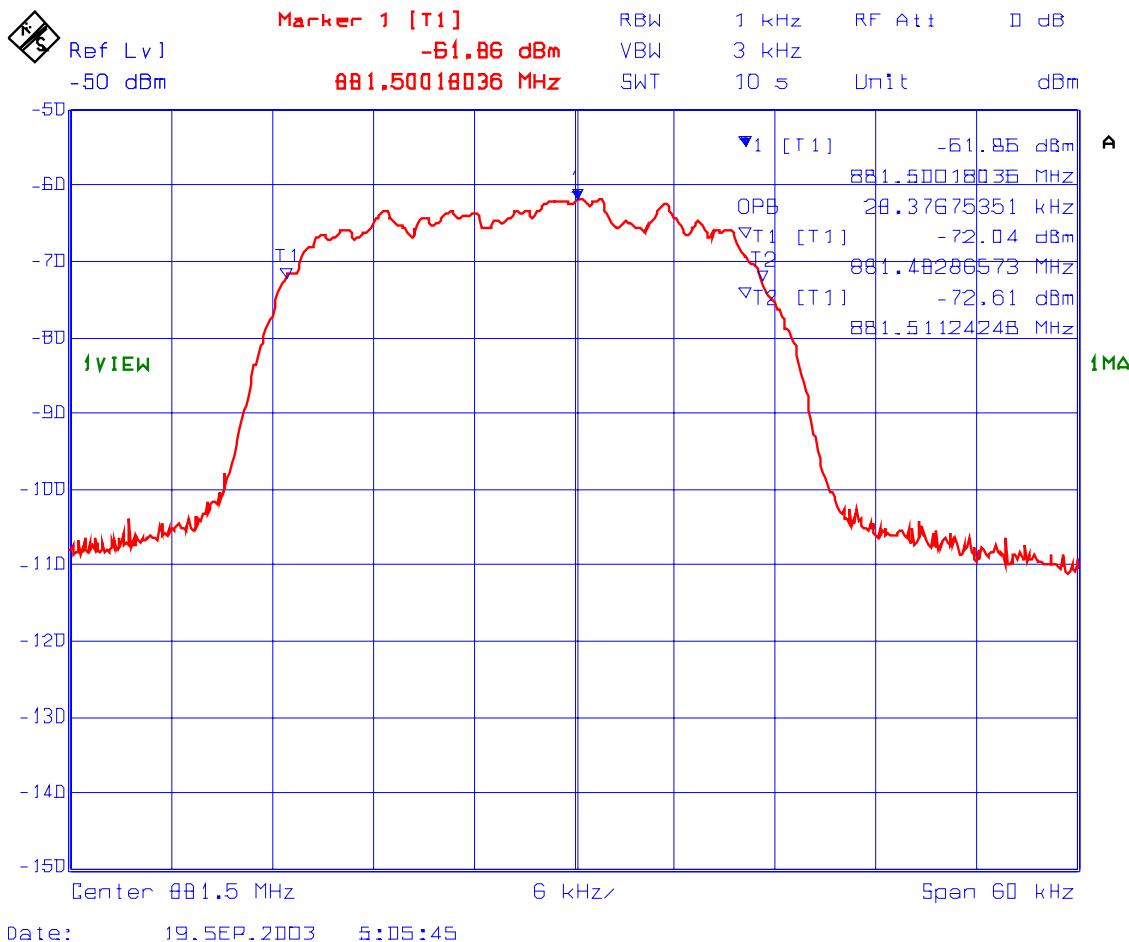
PLOT # 116 99% OBW Occupied Bandwidth- RF Output
Frequency: 881.5 MHz
Modulation: FM Modulation with an external 9600 b/s random data source



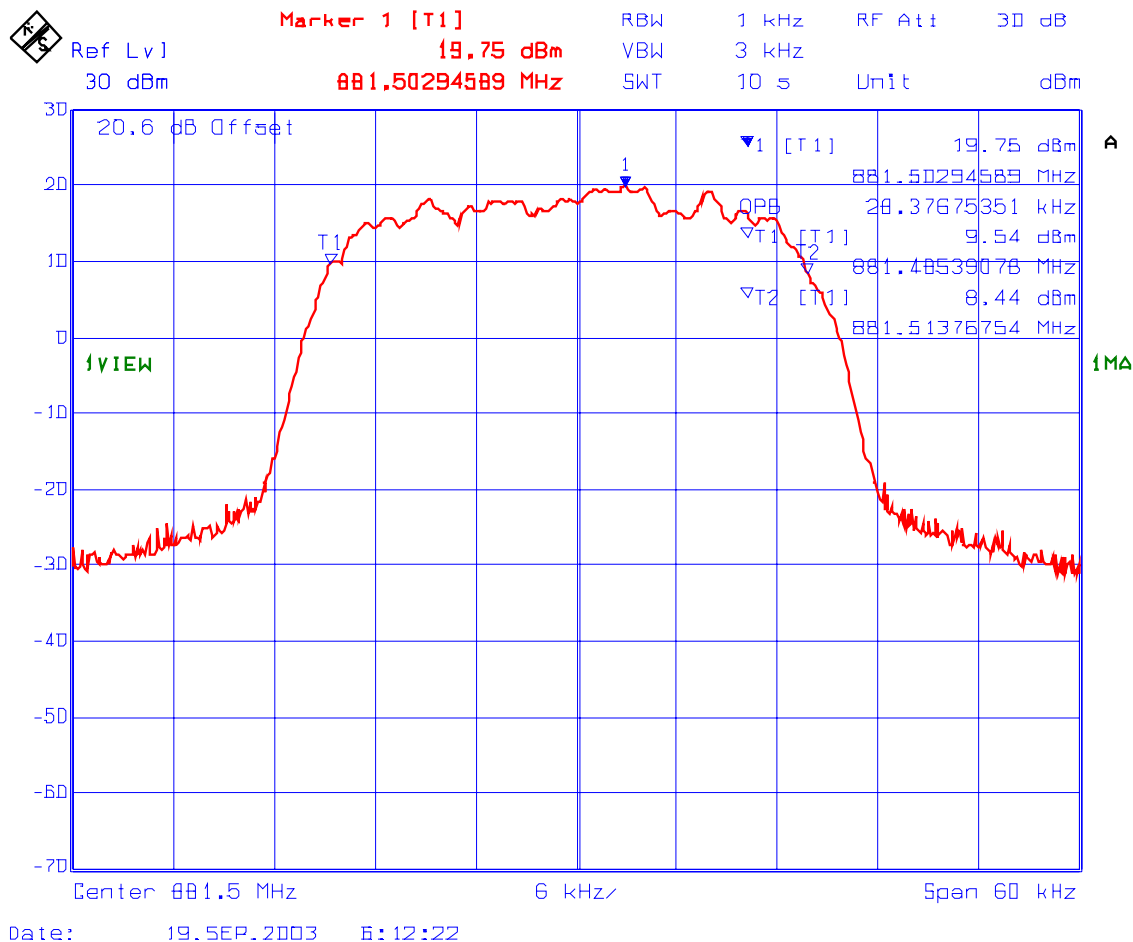
PLOT # 117 99% Occupied Bandwidth- RF Output
Frequency: 894 MHz
Modulation: FM Modulation with an external 9600 b/s random data source



PLOT # 118 99% Occupied Bandwidth- RF Input
Frequency: 869 MHz
Modulation: TDMA



PLOT # 119 99% Occupied Bandwidth- RF Output
Frequency: 881.5 MHz
Modulation: TDMA



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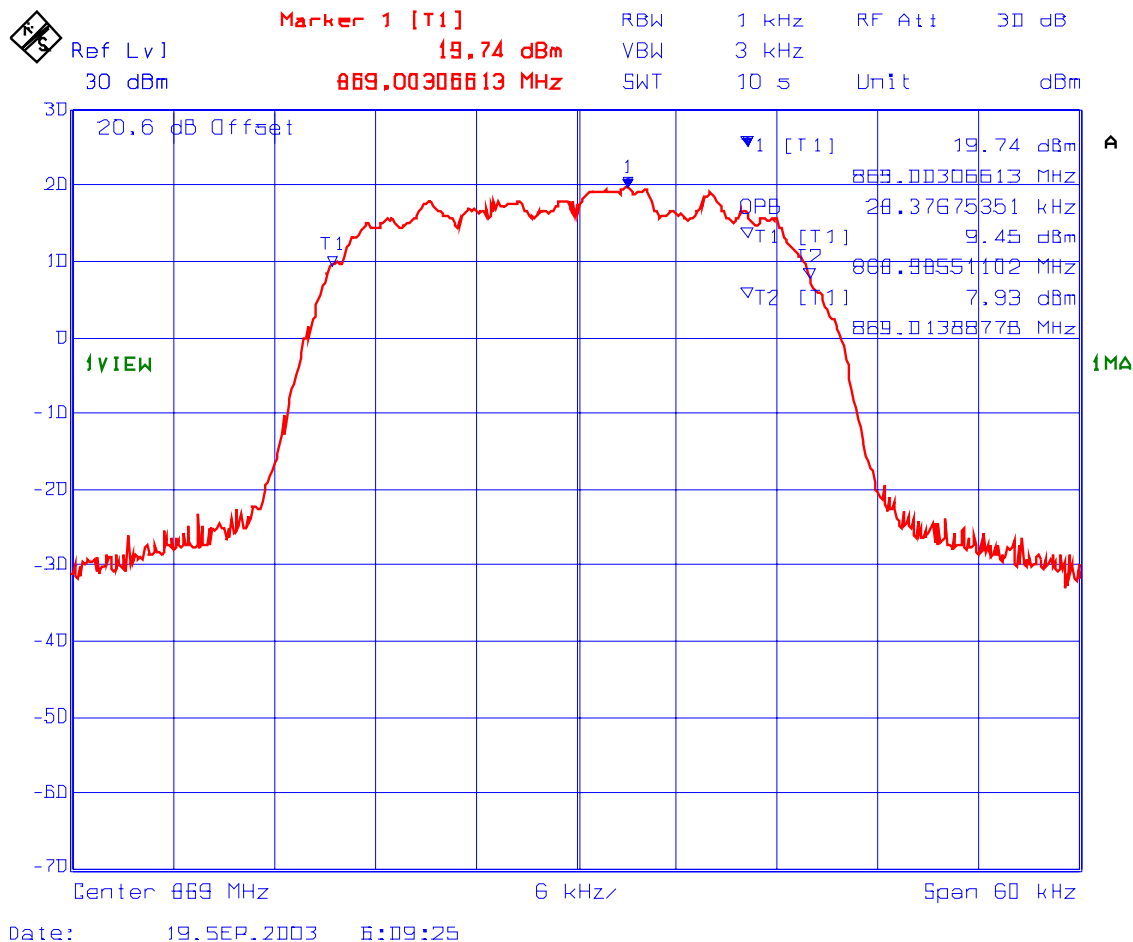
3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

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PLOT # 120 99% Occupied Bandwidth- RF Output
Frequency: 881.5 MHz
Modulation: TDMA



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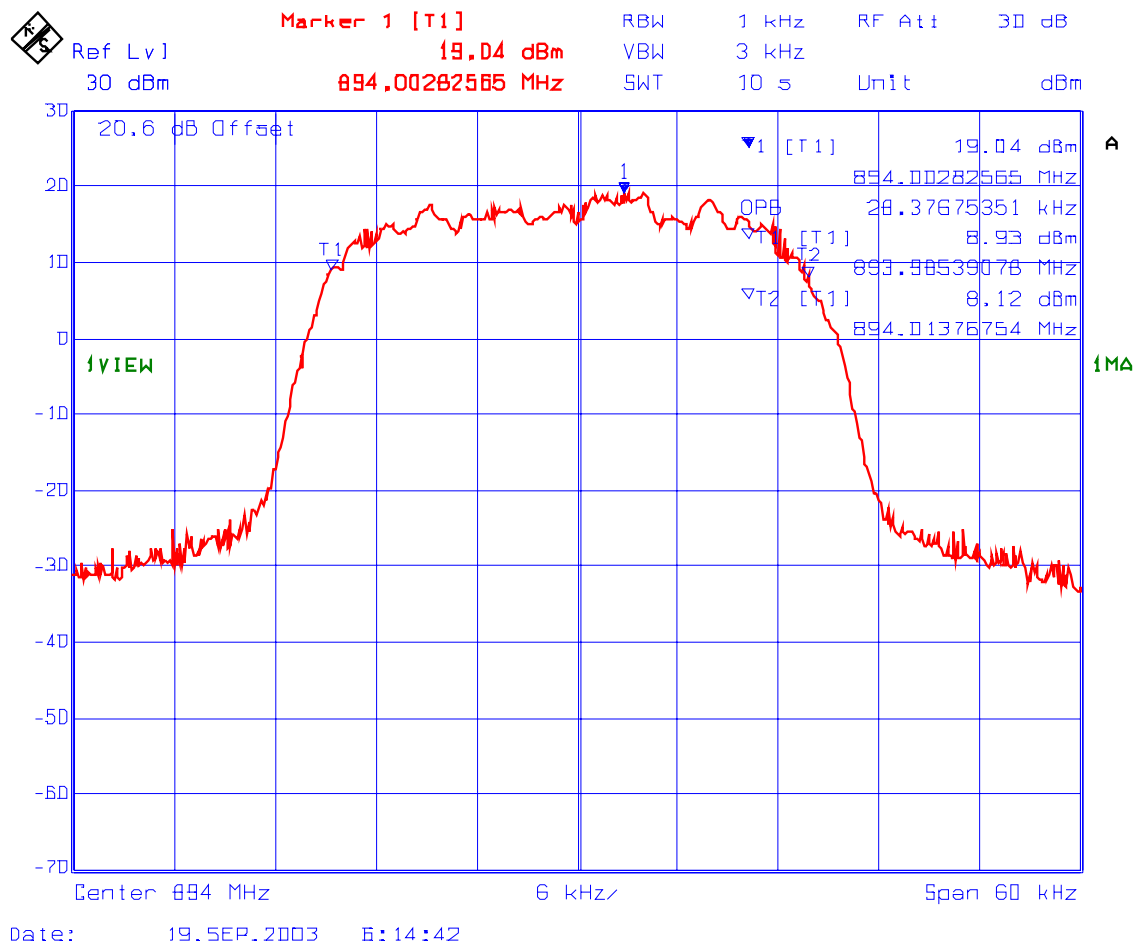
3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

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PLOT # 121 99% Occupied Bandwidth- RF Output
Frequency: 894 MHz
Modulation: TDMA



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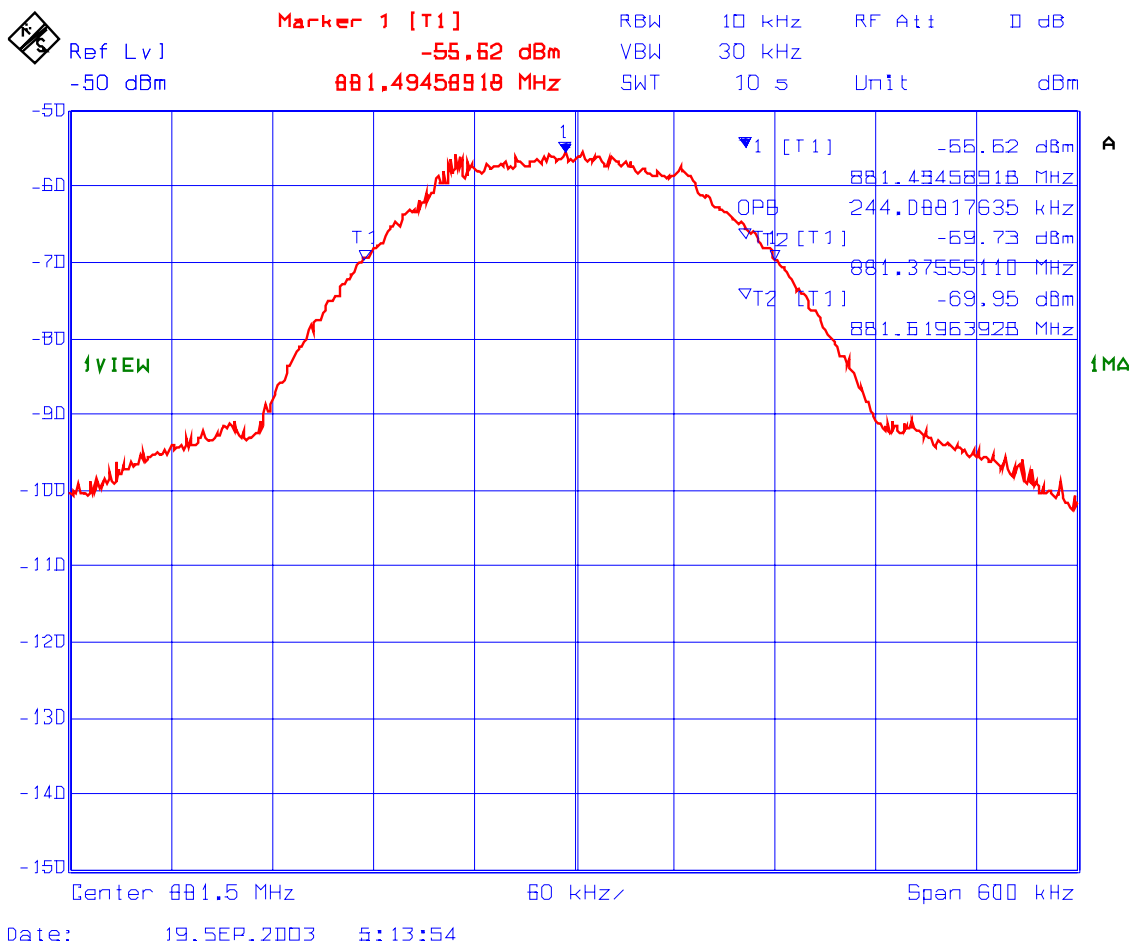
3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

File #: KTI-034FCC22-90

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PLOT # 122 99% Occupied Bandwidth- RF Input
Frequency: 869 MHz
Modulation: GSM



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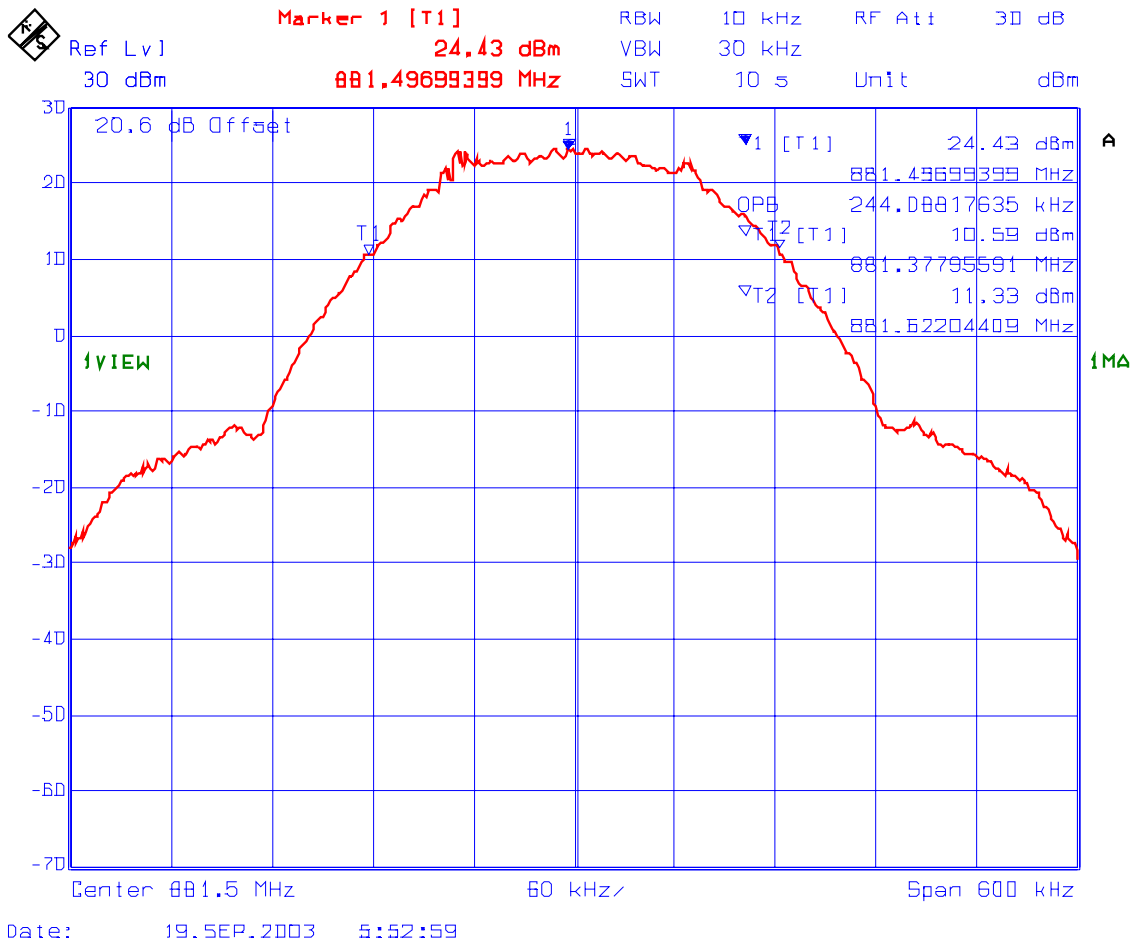
3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

File #: KT1-034FCC22-90

Oct. 17, 2003

- All test results contained in this engineering test report are traceable to National Institute of Standards and Technology (NIST)

PLOT # 123 99% Occupied Bandwidth- RF Output
Frequency: 881.5 MHz
Modulation: GSM



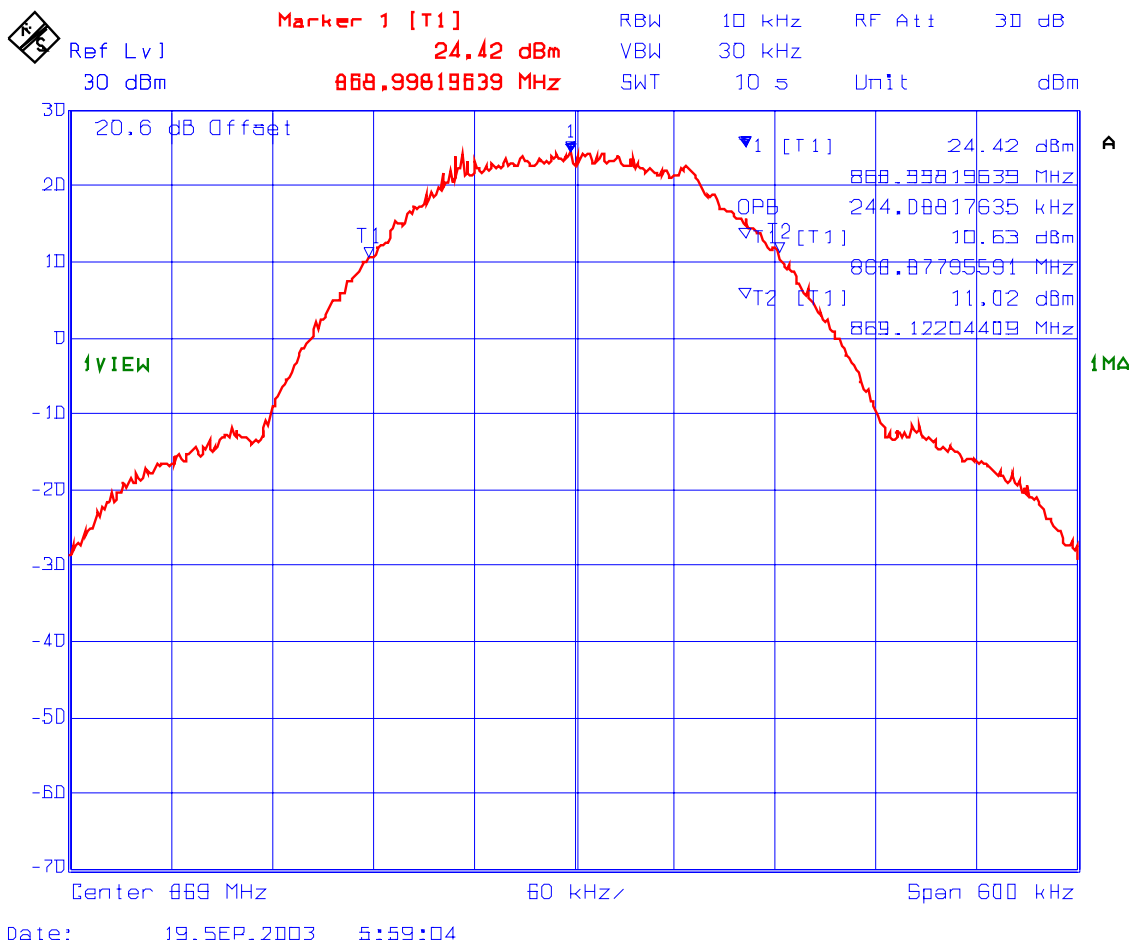
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3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

File #: KTI-034FCC22-90
 Oct. 17, 2003

- All test results contained in this engineering test report are traceable to National Institute of Standards and Technology (NIST)

PLOT # 124 99% Occupied Bandwidth- RF Output
Frequency: 881.5 MHz
Modulation: GSM



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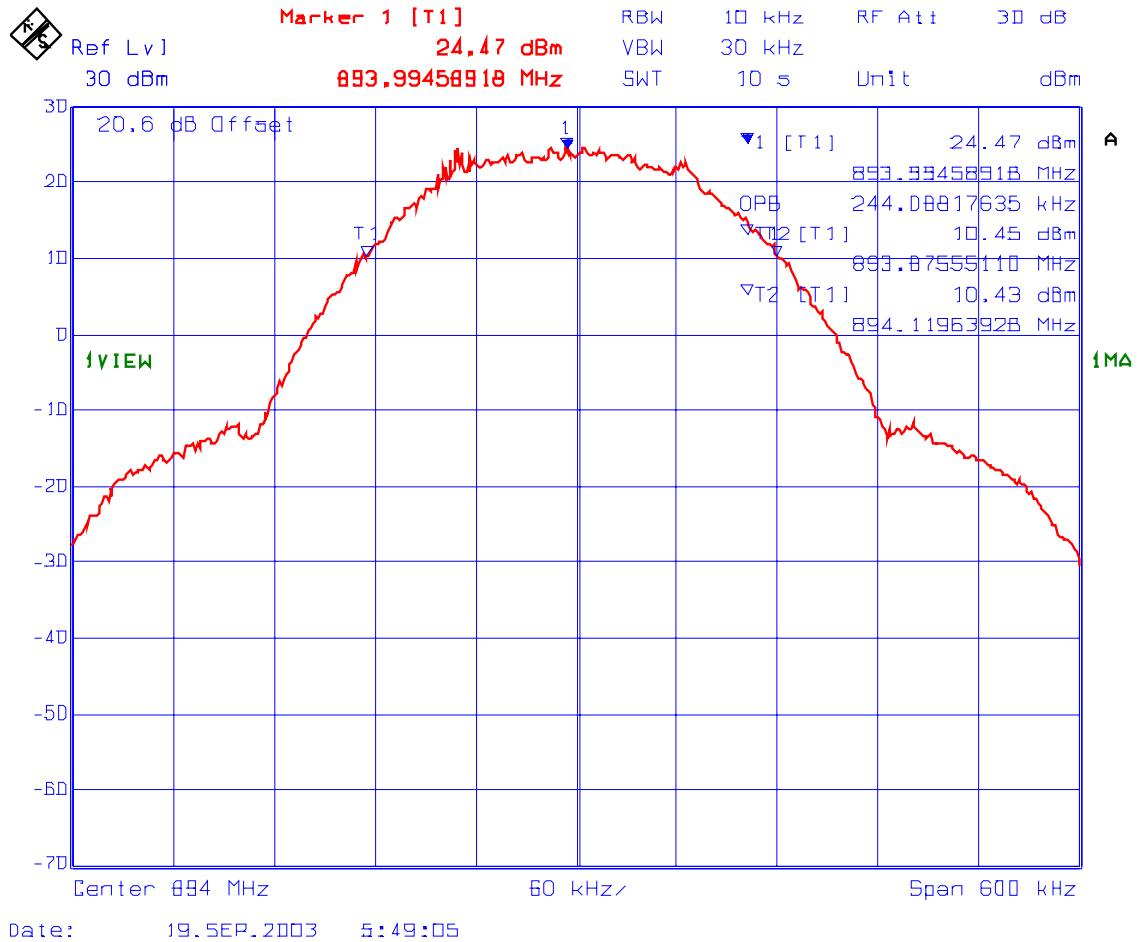
3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

File #: KT1-034FCC22-90

Oct. 17, 2003

- All test results contained in this engineering test report are traceable to National Institute of Standards and Technology (NIST)

PLOT # 125 99% Occupied Bandwidth- RF Output
Frequency: 894 MHz
Modulation: GSM



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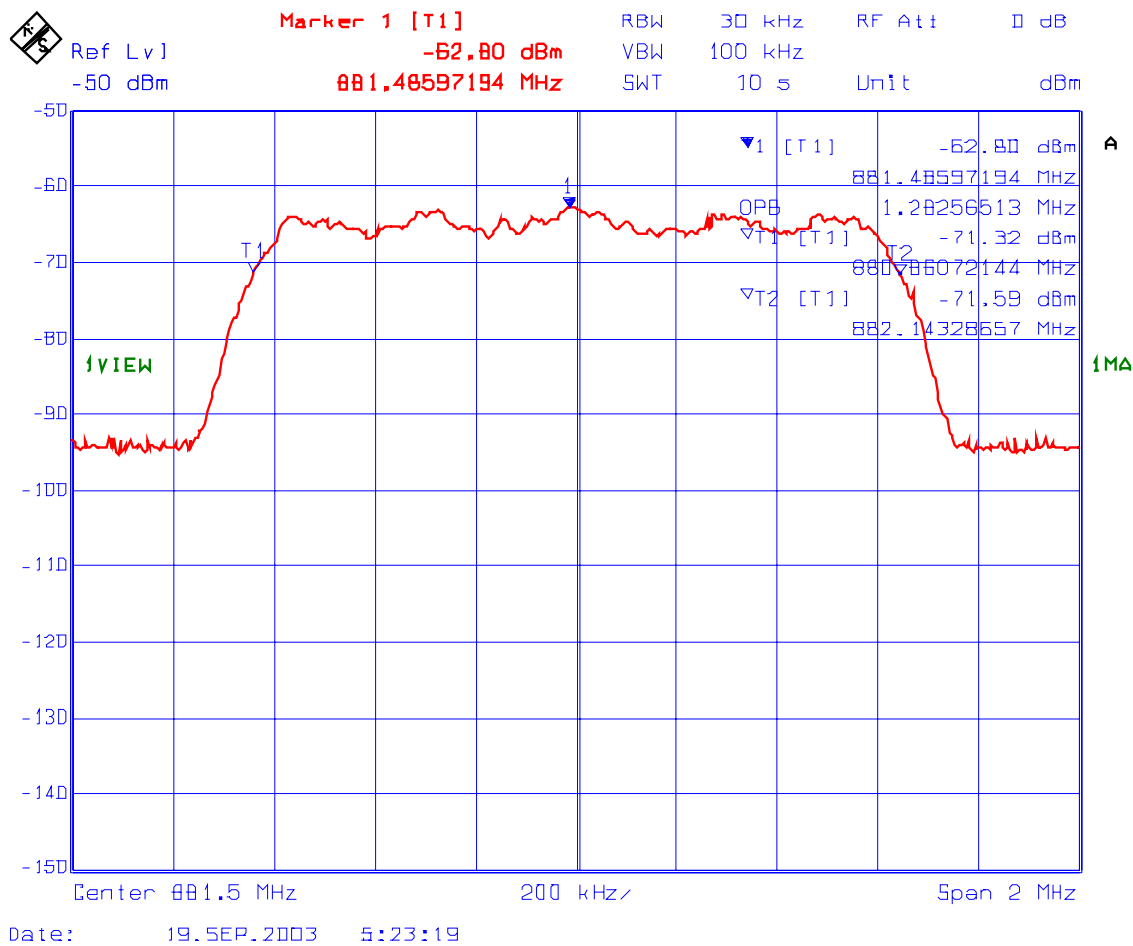
3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

File #: KT1-034FCC22-90

Oct. 17, 2003

- All test results contained in this engineering test report are traceable to National Institute of Standards and Technology (NIST)

PLOT # 126 99% Occupied Bandwidth- RF Input
Frequency: 869 MHz
Modulation: CDMA



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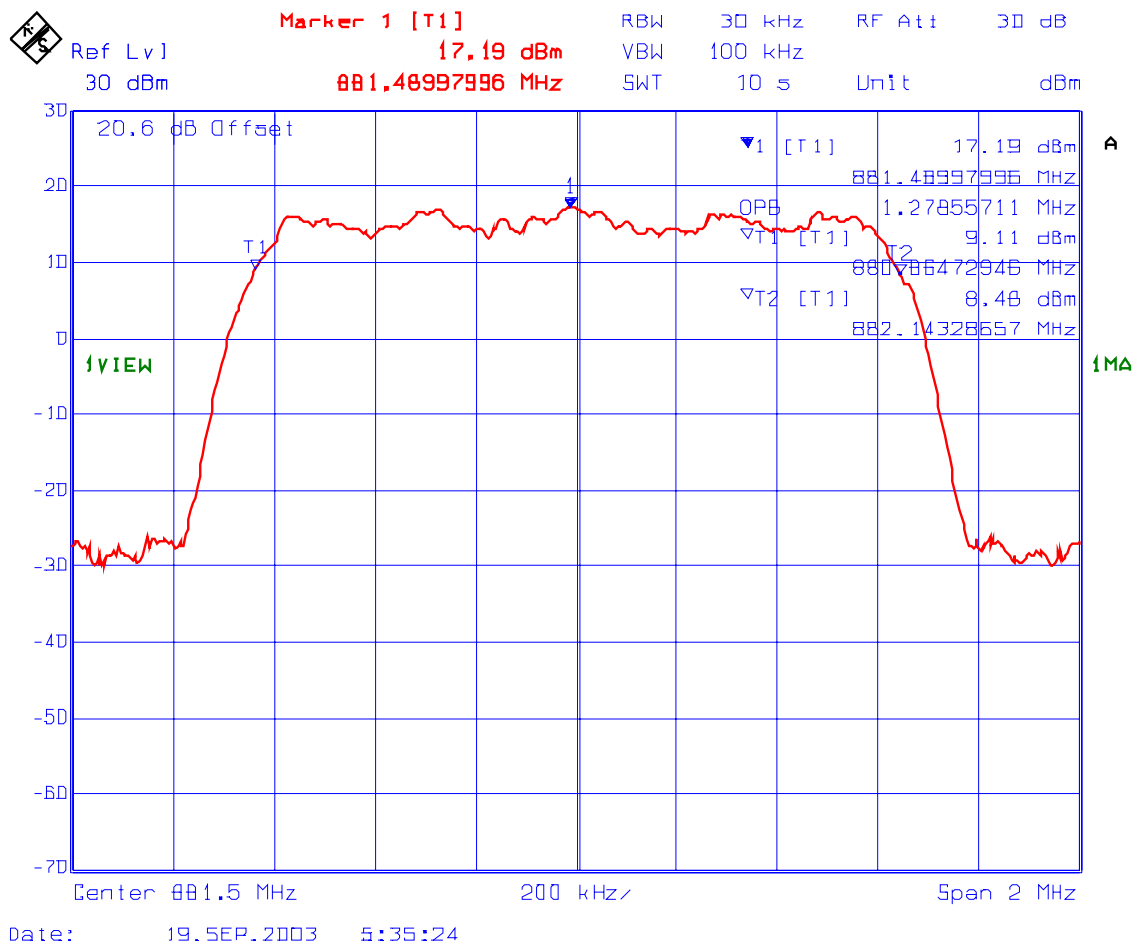
3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

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PLOT # 127 99% Occupied Bandwidth- RF Output
Frequency: 881.5 MHz
Modulation: CDMA



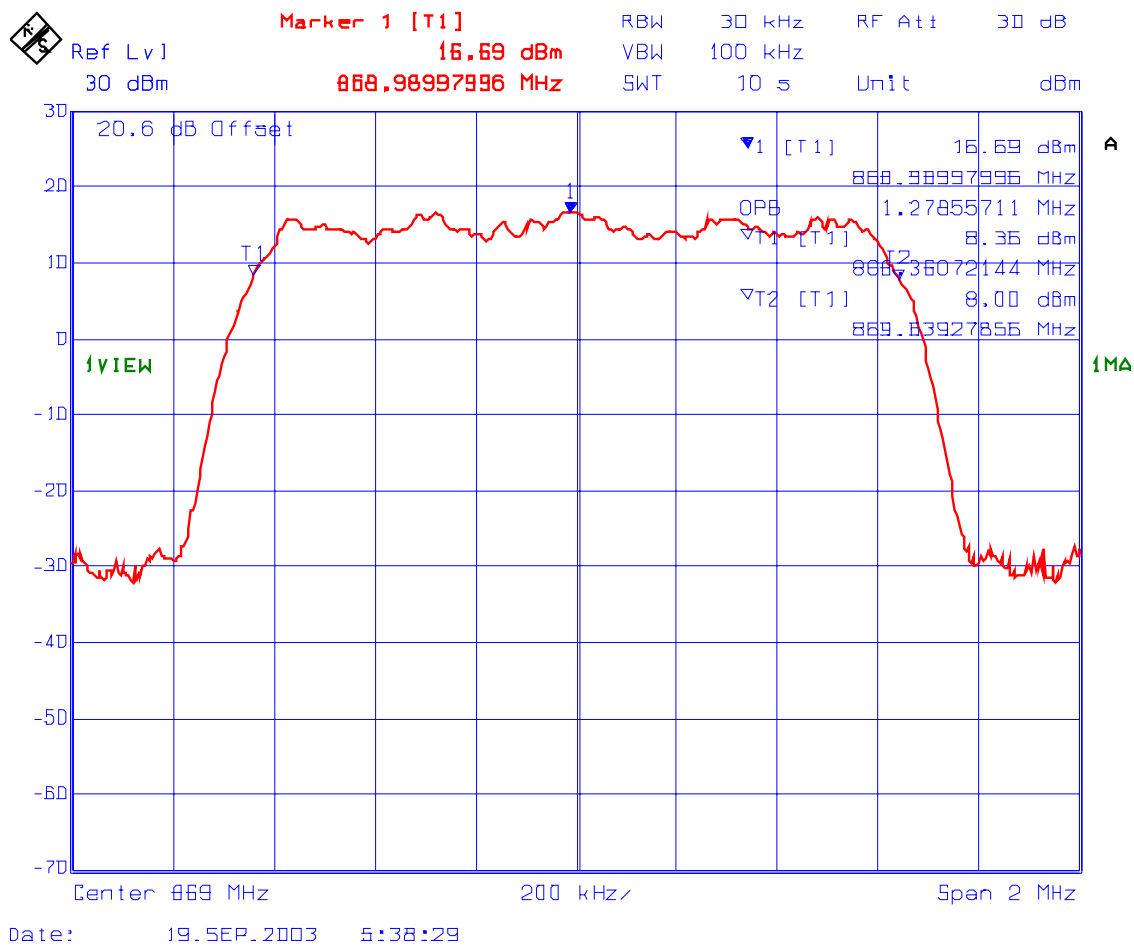
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 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

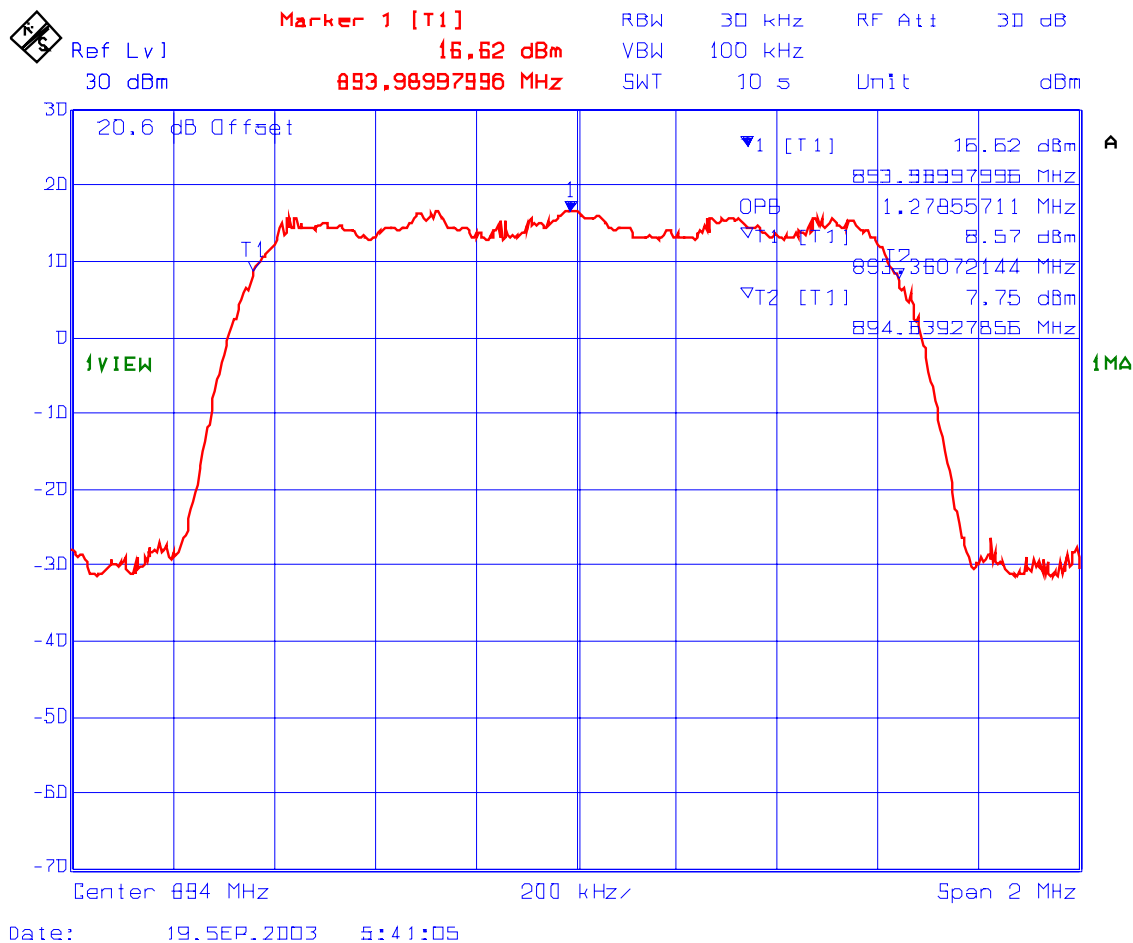
File #: KT1-034FCC22-90
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PLOT # 128 99% Occupied Bandwidth- RF Output
Frequency: 881.5 MHz
Modulation: CDMA



PLOT # 129 99% Occupied Bandwidth- RF Output
Frequency: 894 MHz
Modulation: CDMA



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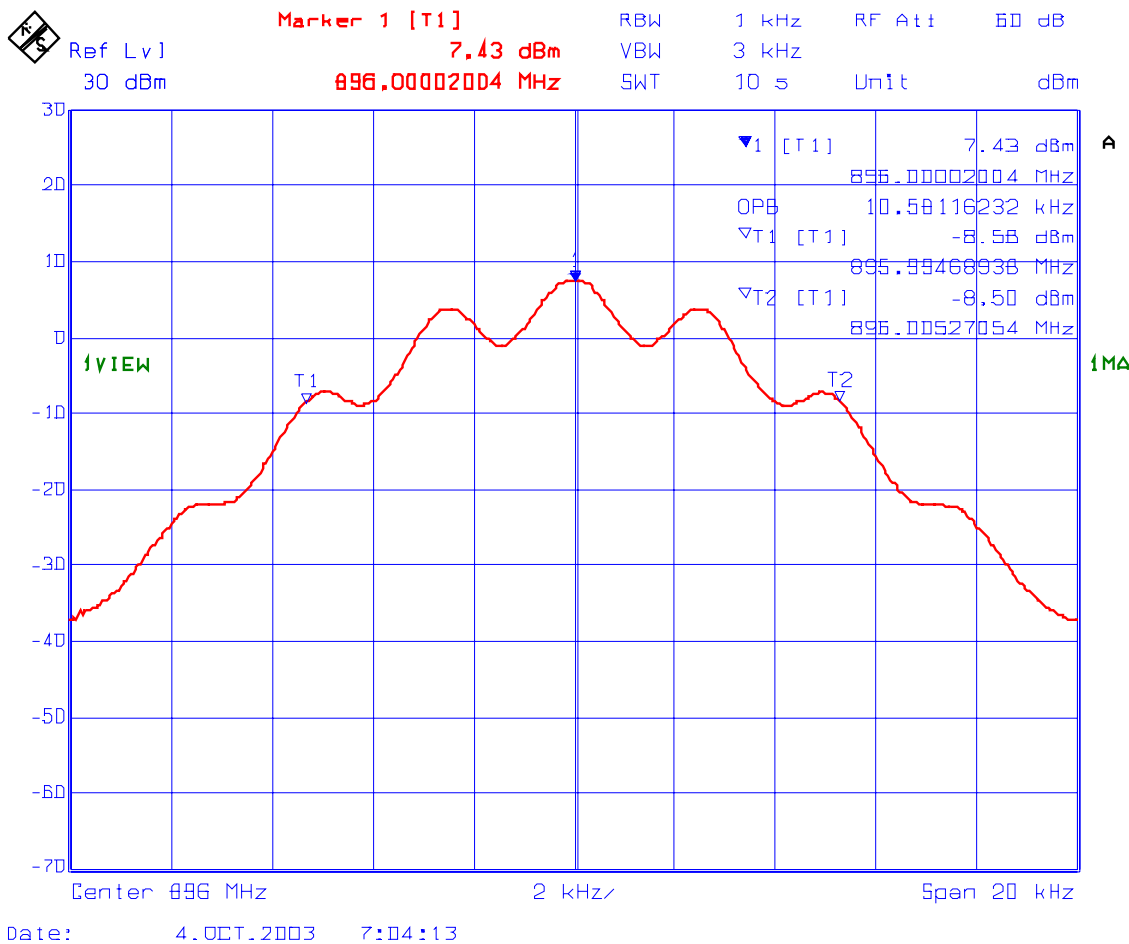
3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

File #: KTI-034FCC22-90

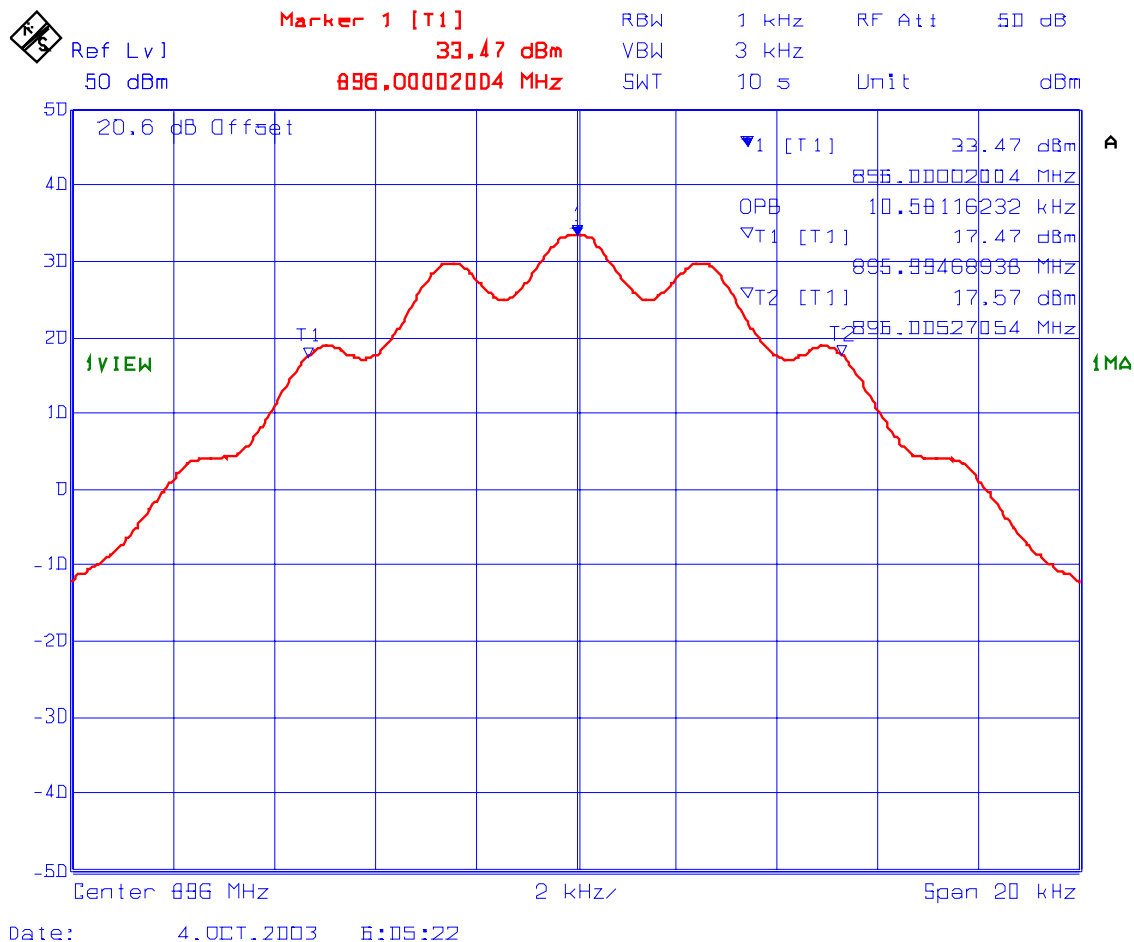
Oct. 17, 2003

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PLOT # 130 99% Occupied Bandwidth- RF Input
Frequency: 896 MHz, 12.5 kHz Channel Spacing
Modulation: FM modulation with 2.5 kHz Sine wave signal



PLOT # 131 99% Occupied Bandwidth- RF Output
Frequency: 896 MHz, 12.5 kHz Channel Spacing
Modulation: FM modulation with 2.5 kHz Sine wave signal



ULTRATECH GROUP OF LABS

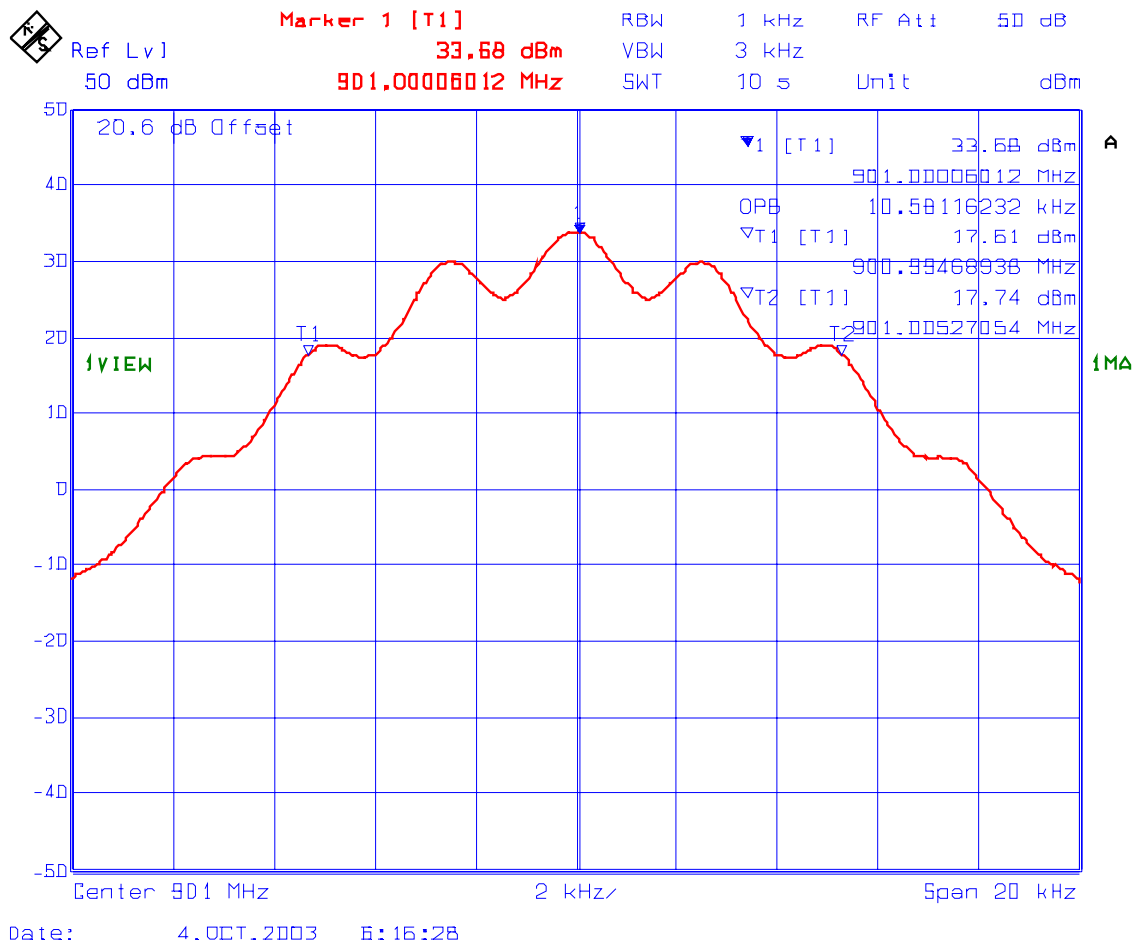
3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

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PLOT # 132 99% Occupied Bandwidth- RF Output
Frequency: 901 MHz, 12.5 kHz Channel Spacing
Modulation: FM modulation with 2.5 kHz Sine wave signal



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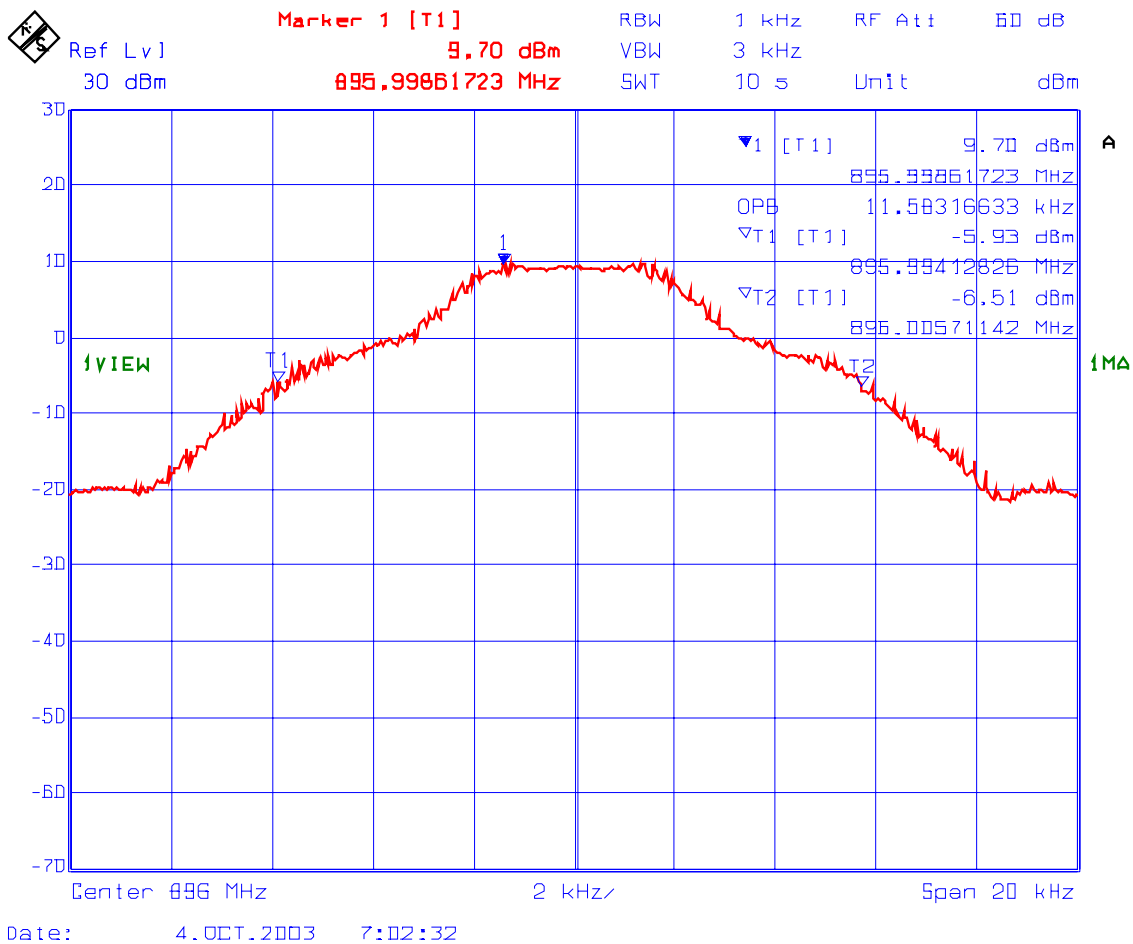
3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

File #: KT1-034FCC22-90

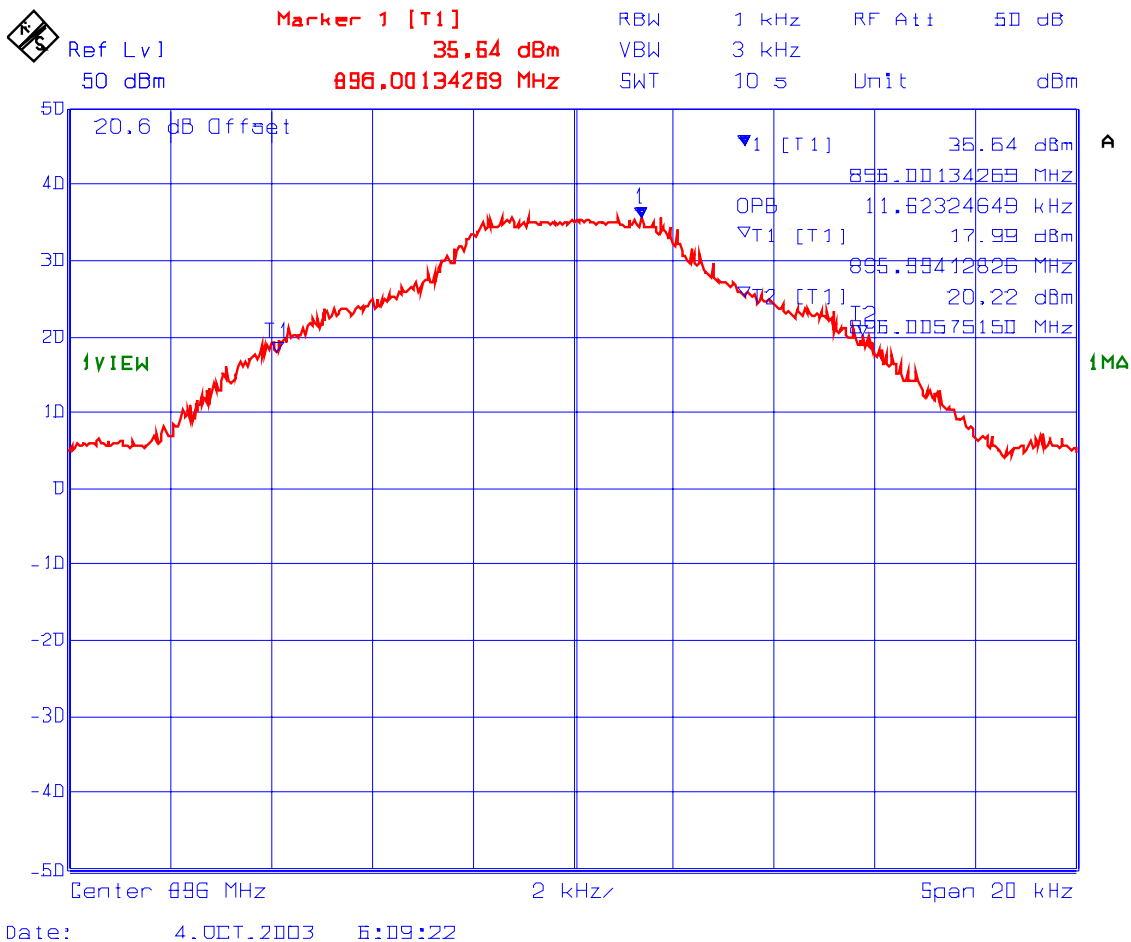
Oct. 17, 2003

- All test results contained in this engineering test report are traceable to National Institute of Standards and Technology (NIST)

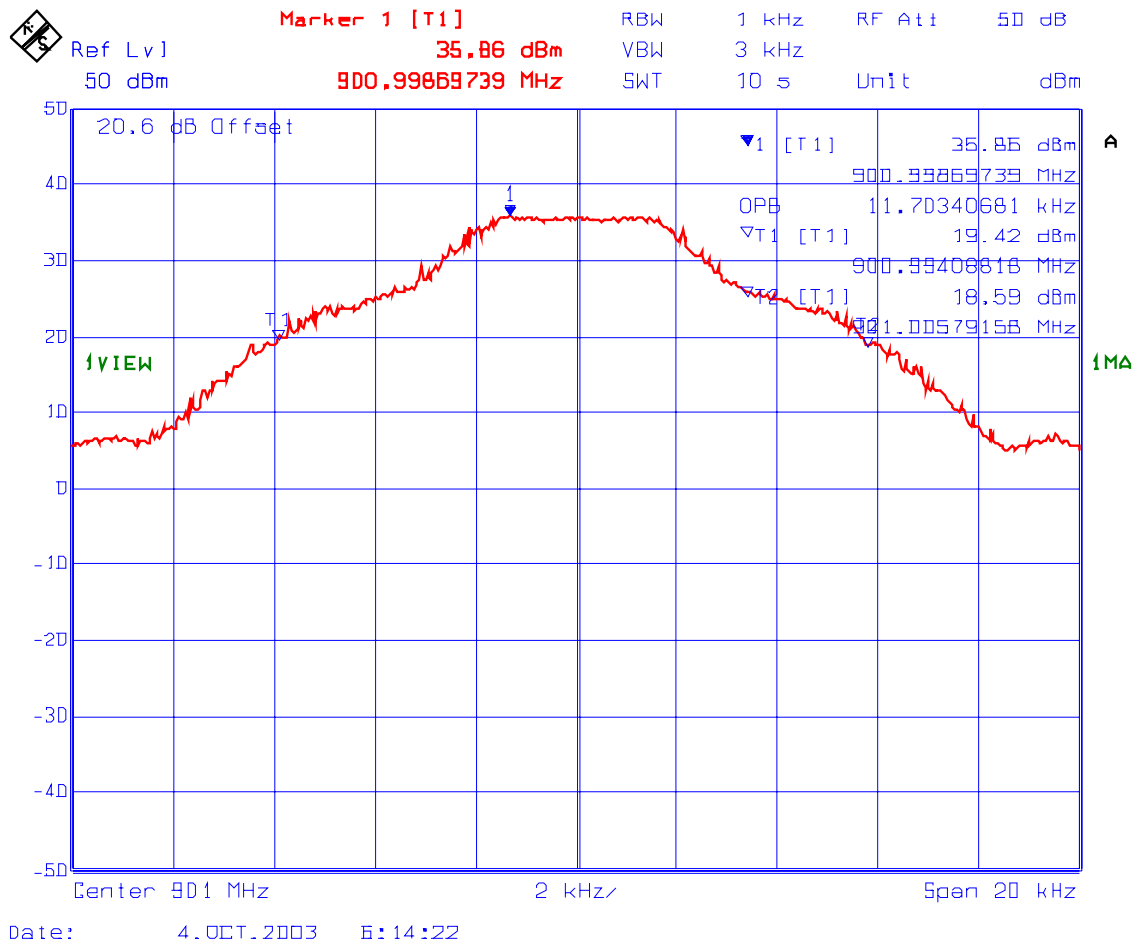
PLOT # 133 99% Occupied Bandwidth- RF Input
Frequency: 896 MHz, 12.5 kHz Channel Spacing
Modulation: FM modulation with an external 9600 b/s random data source



PLOT # 134 99% Occupied Bandwidth- RF Output
Frequency: 896 MHz, 12.5 kHz Channel Spacing
Modulation: FM modulation with an external 9600 b/s random data source



PLOT # 135 99% Occupied Bandwidth- RF Output
Frequency: 901 MHz, 12.5 kHz Channel Spacing
Modulation: FM modulation with an external 9600 b/s random data source



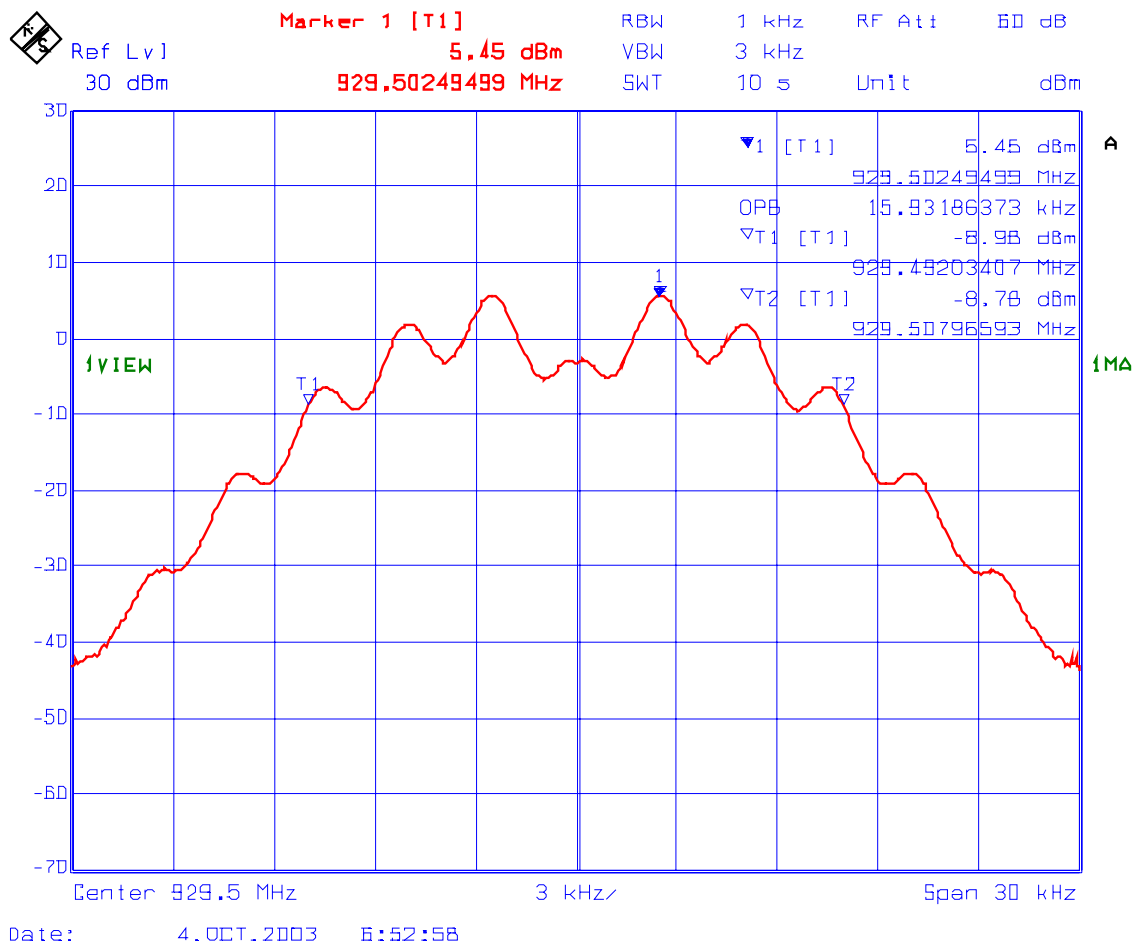
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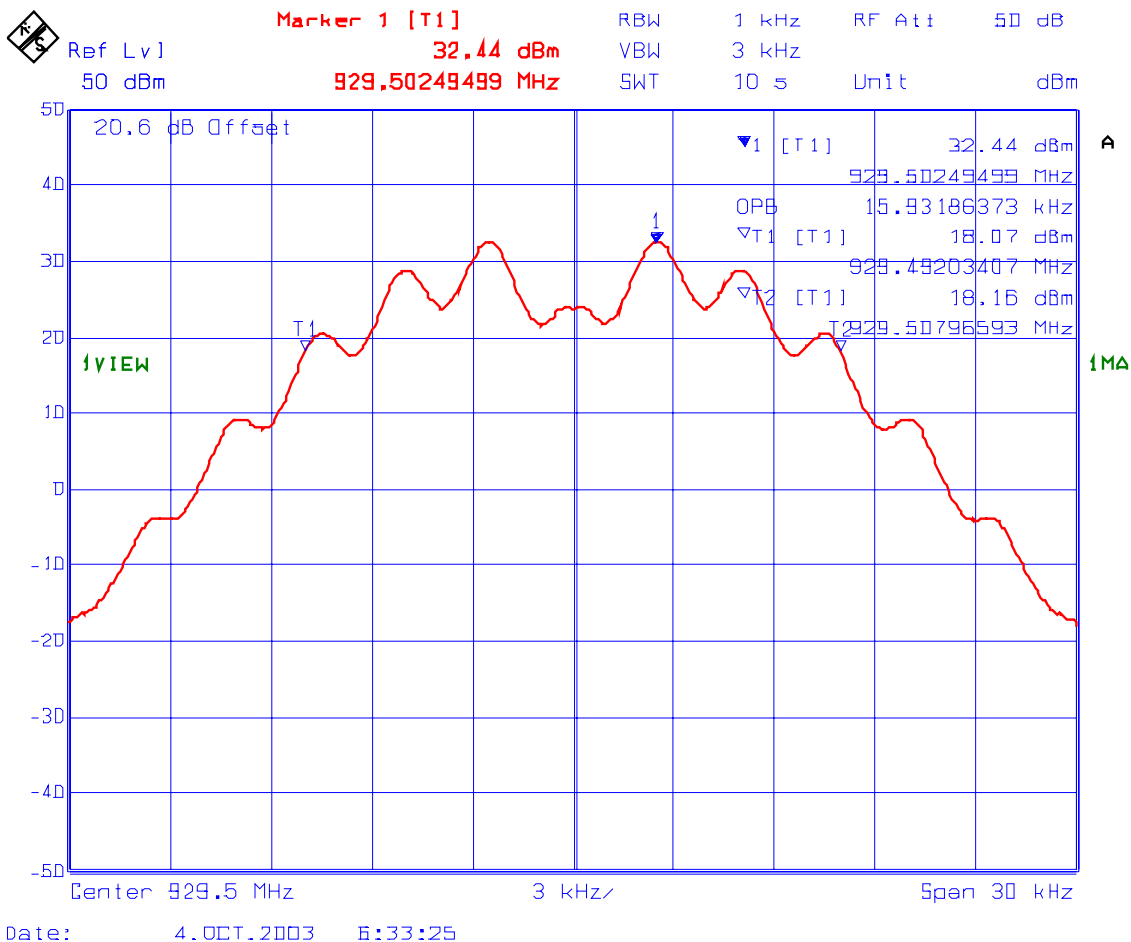
File #: KT1-034FCC22-90
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PLOT # 136 99% Occupied Bandwidth- RF Input
Frequency: 929.5 MHz, 25 kHz Channel Spacing
Modulation: FM modulation with 2.5 kHz Sine wave signal



PLOT # 137 99% Occupied Bandwidth- RF Output
Frequency: 929.5 MHz, 25 kHz Channel Spacing
Modulation: FM modulation with 2.5 kHz Sine wave signal



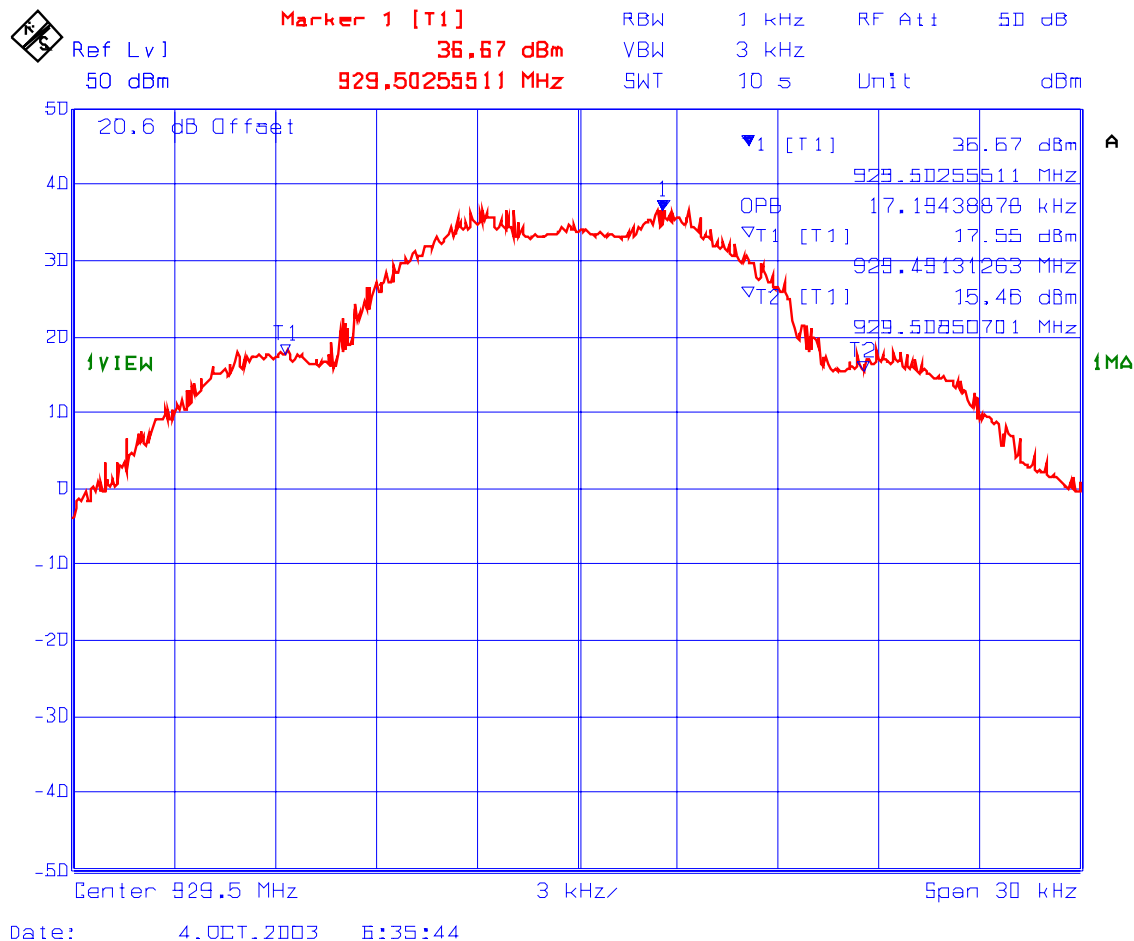
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 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

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PLOT # 138 99% Occupied Bandwidth- RF Output
Frequency: 929.5 MHz, 25 kHz Channel Spacing
Modulation: FM modulation with an external 9600 b/s random data source



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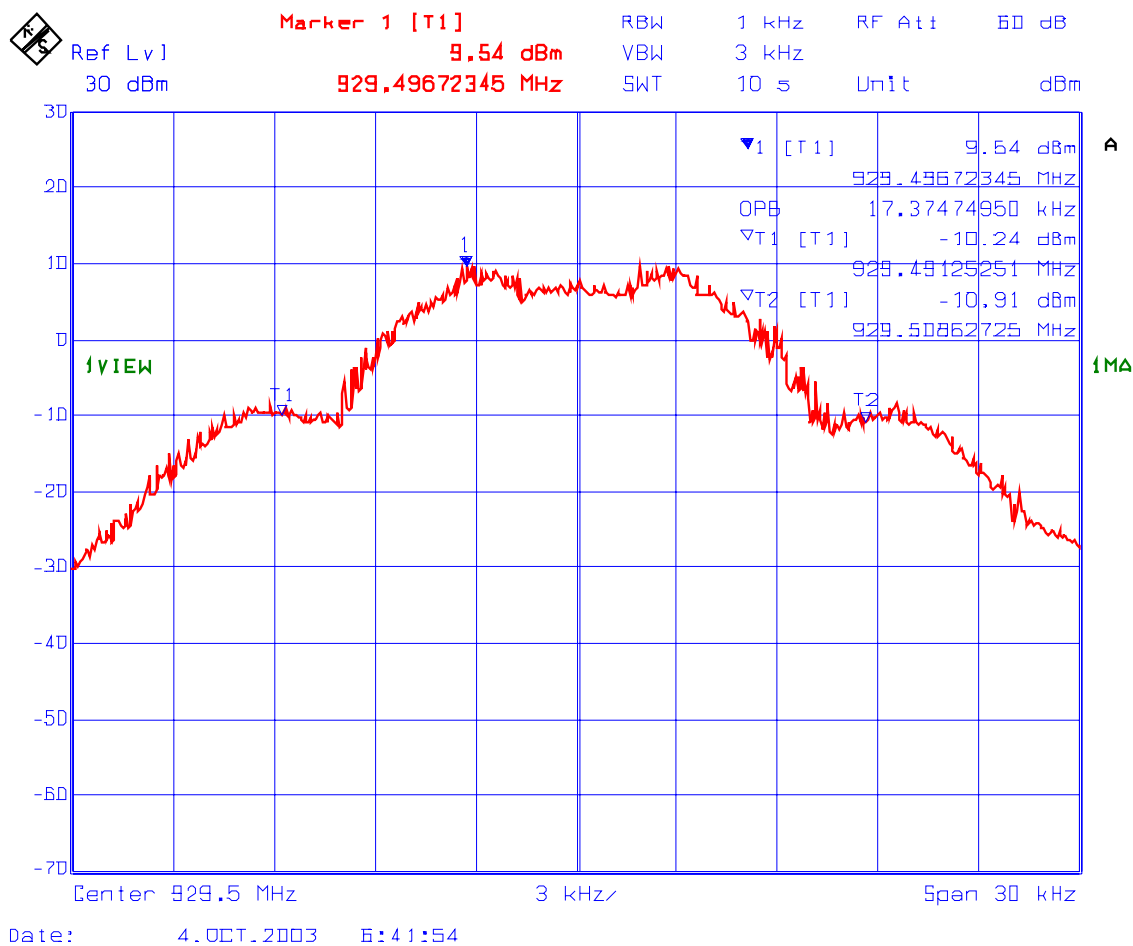
3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

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PLOT # 139 99% Occupied Bandwidth- RF Output
Frequency: 929.5 MHz, 25 kHz Channel Spacing
Modulation: FM modulation with an external 9600 b/s random data source



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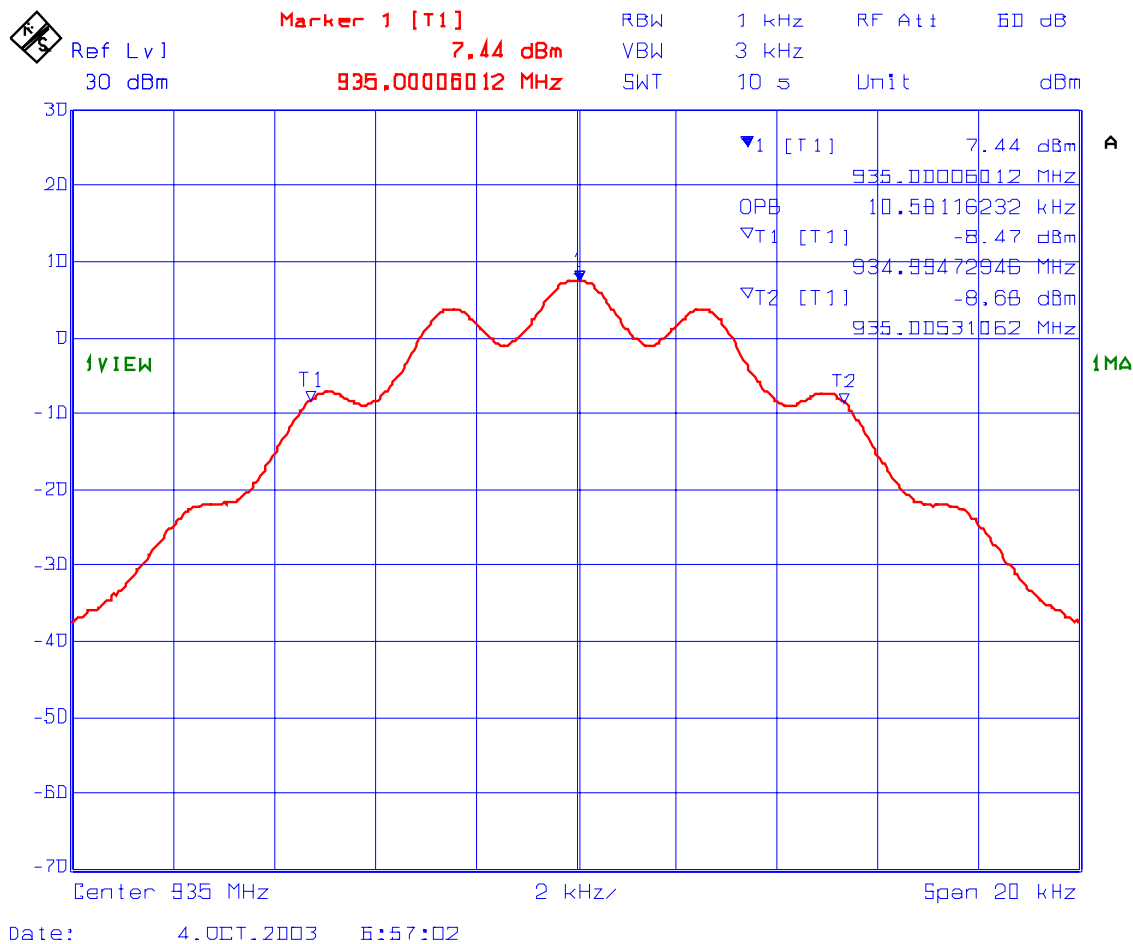
3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

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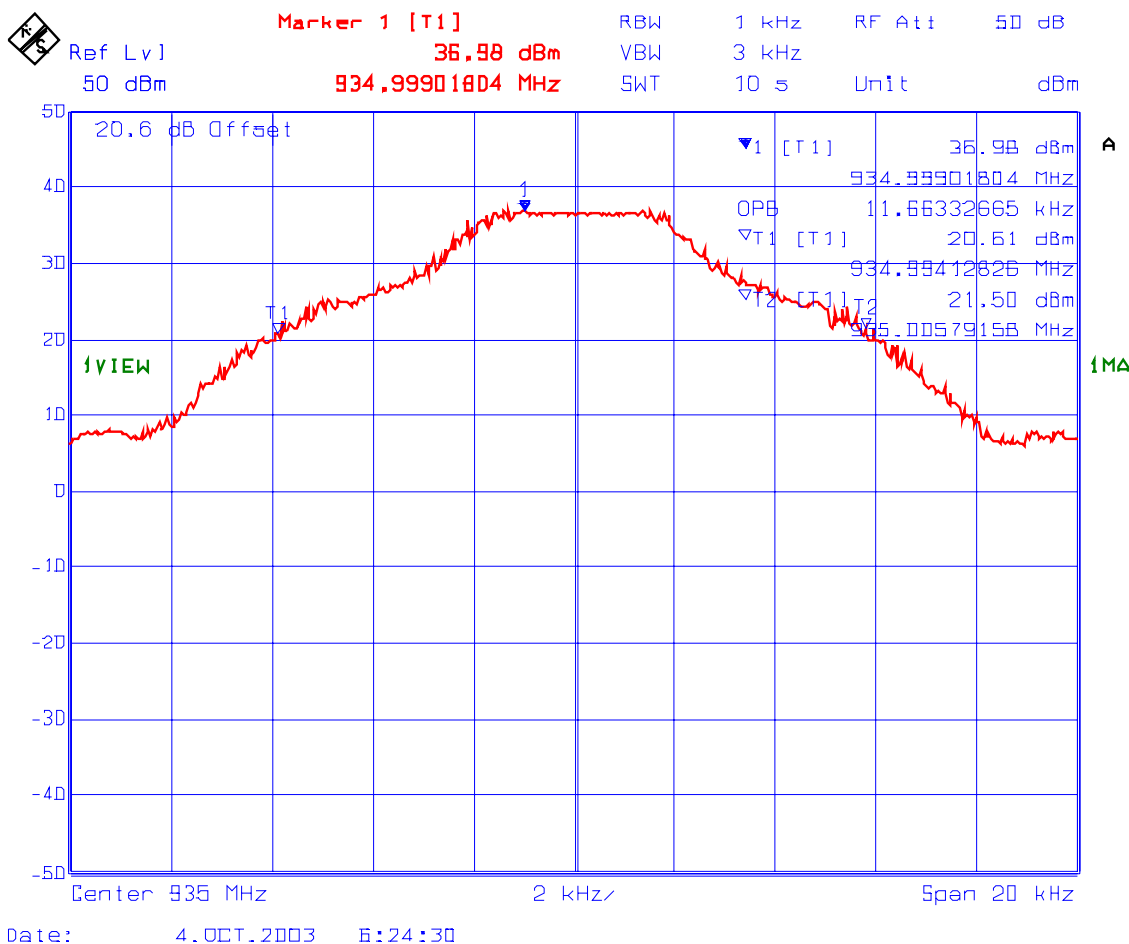
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- All test results contained in this engineering test report are traceable to National Institute of Standards and Technology (NIST)

PLOT # 140 99% Occupied Bandwidth- RF Input
Frequency: 935 MHz, 12.5 kHz Channel Spacing
Modulation: FM modulation with an external 9600 b/s random data source



PLOT # 141 99% Occupied Bandwidth- RF Output
Frequency: 935 MHz, 12.5 kHz Channel Spacing
Modulation: FM modulation with 2.5 kHz Sine wave signal



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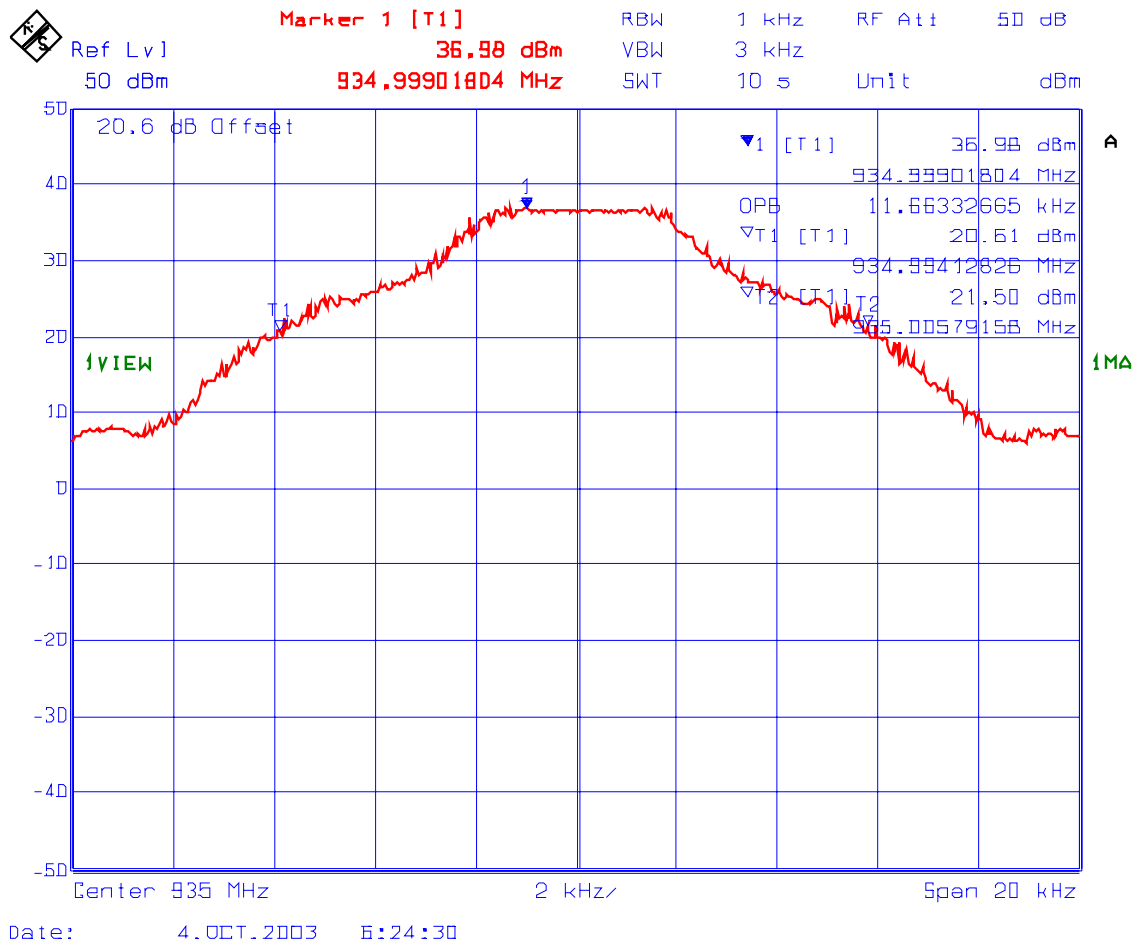
3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

File #: KTI-034FCC22-90

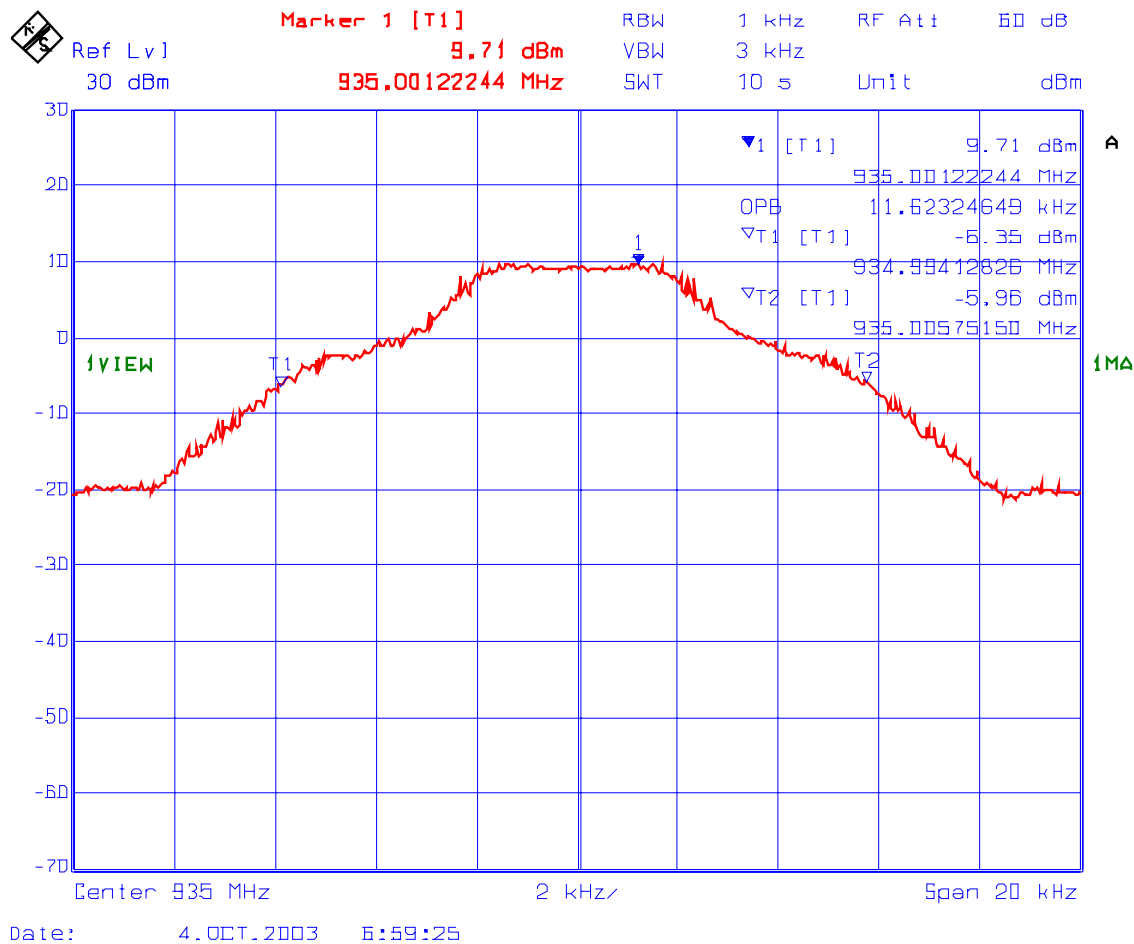
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- All test results contained in this engineering test report are traceable to National Institute of Standards and Technology (NIST)

PLOT # 142 99% Occupied Bandwidth- RF Input
Frequency: 935 MHz, 12.5 kHz Channel Spacing
Modulation: FM modulation with an external 9600 b/s random data source



PLOT # 143 99% Occupied Bandwidth- RF Output
Frequency: 935 MHz, 12.5 kHz Channel Spacing
Modulation: FM modulation with an external 9600 b/s random data source



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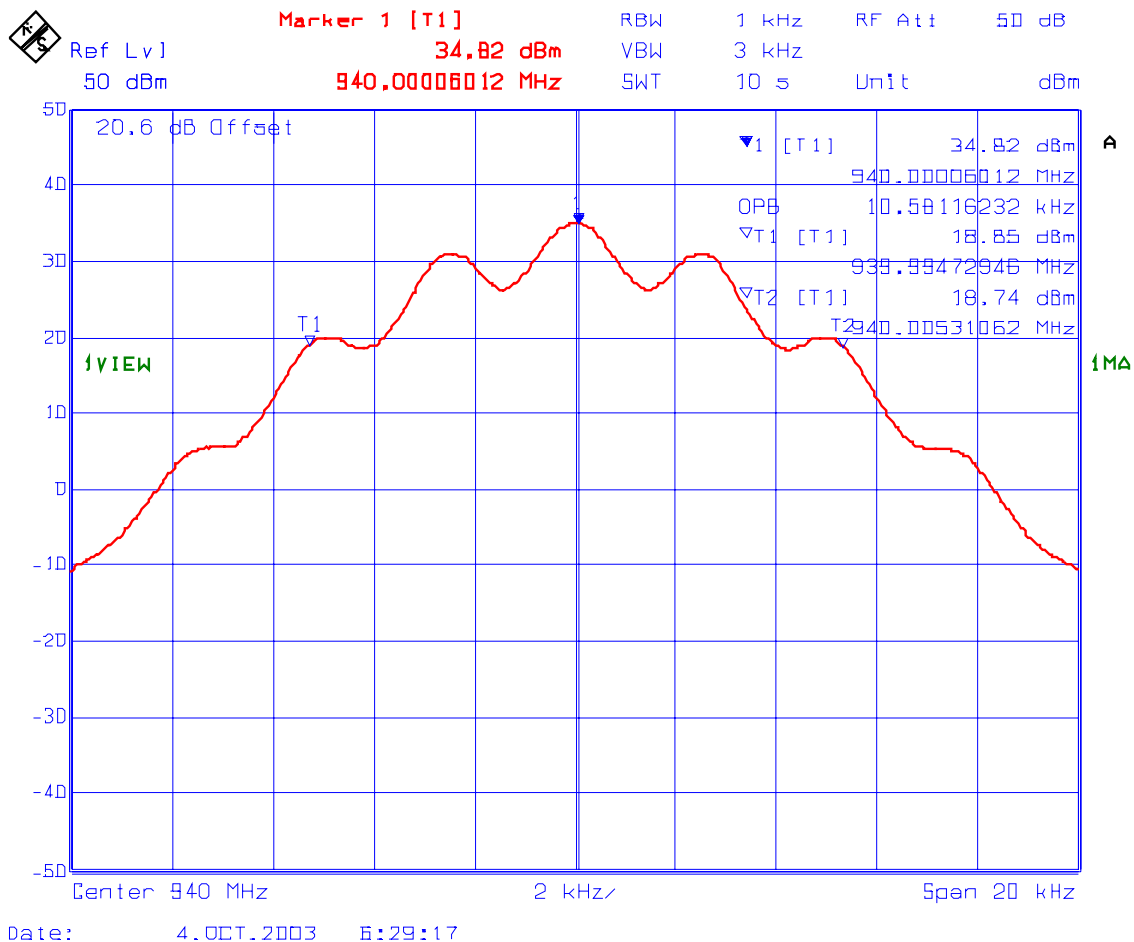
3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

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PLOT # 144 99% Occupied Bandwidth
Frequency: 940 MHz, 12.5 kHz Channel Spacing
Modulation: FM modulation with 2.5 kHz Sine wave signal



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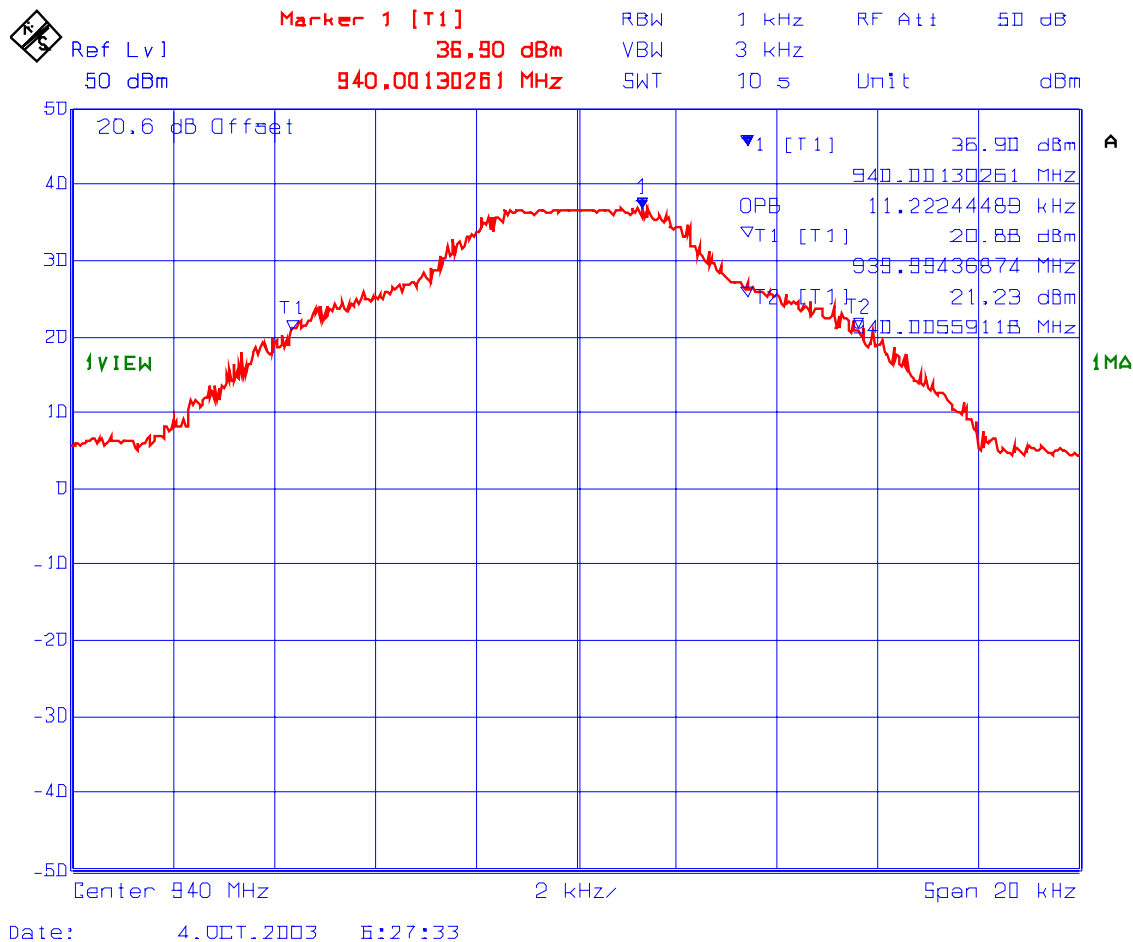
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PLOT # 145 99% Occupied Bandwidth
Frequency: 940 MHz, 12.5 kHz Channel Spacing
Modulation: FM modulation with an external 9600 b/s random data source



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6.8.5.3. Emission Masks and Band-Edge Emissions

Conform.

806-824 MHz BAND

- Emission Mask B for FM Voice Modulation with 2.5 kHz Sine Wave Signal, Permitted Band 806-821 MHz, 25 kHz Channel Spacing: refer to Plots # 146 to 149.
- Emission Mask G for FM Data Modulation with an external 9600 b/s random data source, Permitted Band 806-821 MHz, 25 kHz Channel Spacing: refer to Plots # 150 to 153.
- Emission Mask B for FM Voice Modulation with 2.5 kHz Sine Wave Signal, Permitted Band 821-824 MHz, 12.5 kHz Channel Spacing: refer to Plots # 154 to 157.
- Emission Mask H for FM Data Modulation with an external 9600 b/s random data source, Permitted Band 821-824 MHz, 12.5 kHz Channel Spacing: refer to Plots # 158 to 161.

824-849 MHz BAND

- Mask for CDMA Modulation, Permitted Band 824-849 MHz: refer to Plots # 162 to 165.
- Mask for TDMA Modulation, Permitted Lower Band-Edge 824-849 MHz: refer to Plots # 166 & 167.
- Mask for GSM Modulation, Permitted Lower Band-Edge 824-849 MHz: refer to Plots # 168 & 169.
- Emission Mask F3E for FM Voice Modulation with 2.5 kHz Sine Wave Signal, Permitted Band 824-849 MHz: refer to Plots # 170 to 173
- Emission Mask F1D for FM Data Modulation with an external 9600 b/s random data source, Permitted Band 824-849 MHz: refer to Plots # 174 to 177.
- Low Band-Edge RF Output & Input Band, Permitted Band 824-849: refer to Plots # 178 & 179
- Upper Band-Edge RF Output & Input Band, Permitted Band 824-849: refer to Plots # 180 & 181

851-869 MHz BAND

- Emission Mask B for FM Voice Modulation with 2.5 kHz Sine Wave Signal, Permitted Band 851-866 MHz, 25 kHz Channel Spacing: refer to Plots # 182 to 185
- Emission Mask G for FM Data Modulation with an external 9600 b/s random data source, Permitted Band 851-866 MHz, 25 kHz Channel Spacing: refer to Plots # 186 to 189.
- Emission Mask B for FM Voice Modulation with 2.5 kHz Sine Wave Signal, Permitted Band 866-869 MHz, 12.5 kHz Channel Spacing: refer to Plots # 190 to 193.
- Emission Mask H for FM Data Modulation with an external 9600 b/s random data source, Permitted Band 866-869 MHz, 12.5 kHz Channel Spacing: refer to Plots # 194 to 197.

869-894 MHz BAND

- Mask for CDMA Modulation, Permitted Band 869-894 MHz: refer to Plots # 198 to 201.
- Mask for TDMA Modulation, Permitted Lower Band-Edge 869-894 MHz: refer to Plots # 202 & 203.
- Mask for GSM Modulation, Permitted Lower Band-Edge 869-894 MHz: refer to Plots # 204 & 205.
- Emission Mask F3E for FM Voice Modulation with 2.5 kHz Sine Wave Signal, Permitted Band 869-894 MHz: refer to Plots # 206 to 209.
- Emission Mask F1D for FM Data Modulation with an external 9600 b/s random data source, Permitted Band 869-894 MHz, 25 kHz Channel Spacing: refer to Plots # 210 to 213.

- Low Band-Edge RF Output & Input Band, Permitted Band 869-894: refer to Plots # 214 & 215
- Upper Band-Edge RF Output & Input Band, Permitted Band 869-894: refer to Plots # 216 & 217

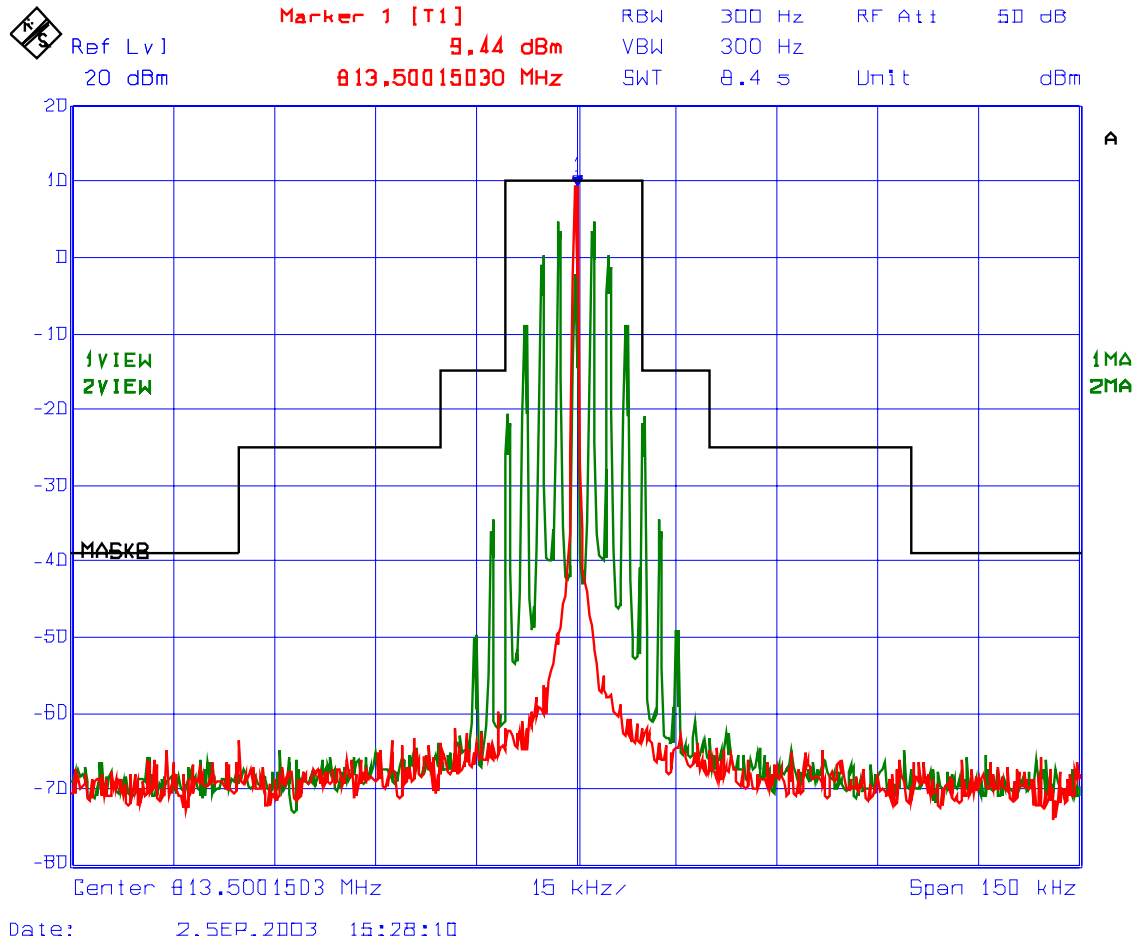
896-901 MHz BAND

- Emission Mask I for FM Voice Modulation with 2.5 kHz Sine Wave Signal, Permitted Frequency 896 & 901 MHz, 12.5 kHz Channel Spacing: refer to Plots # 218 to 220.
- Emission Mask J for FM Data Modulation with an external 9600 b/s random data source, Permitted Frequency 896 & 901MHz, 12.5 kHz Channel Spacing: refer to Plots # 221 to 223.

929.5-940 MHz BAND

- Emission Mask B for FM Voice Modulation with 2.5 kHz Sine Wave Signal, Permitted Frequency 929.5 MHz, 25 kHz Channel Spacing: refer to Plots # 224 & 225.
- Emission Mask G for FM Data Modulation with an external 9600 b/s random data source, Permitted Frequency 929.5 MHz, 25 kHz Channel Spacing: refer to Plots # 226 & 227.
- Emission Mask I for FM Voice Modulation with 2.5 kHz Sine Wave Signal, Permitted Frequency 935 & 940 MHz, 12.5 kHz Channel Spacing: refer to Plots # 228 to 230.
- Emission Mask J for FM Data Modulation with an external 9600 b/s random data source, Permitted Frequency 935 & 940 MHz, 12.5 kHz Channel Spacing: refer to Plots # 231 to 233.

PLOT # 146 Emission Mask B, frequency 806-821 MHz- RF Input
Frequency: 813.5 MHz, 25 kHz Channel Spacing
Modulation: FM modulation with 2.5 kHz Sine wave signal



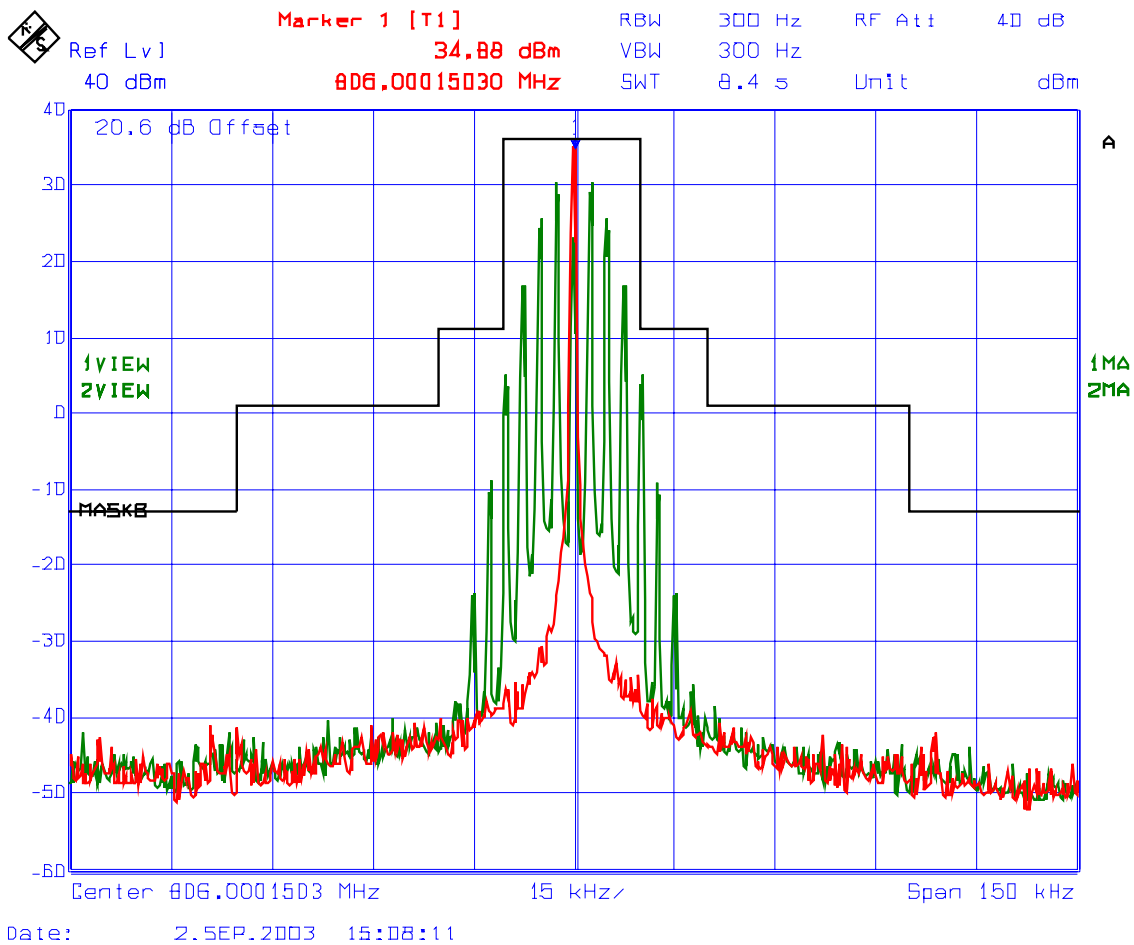
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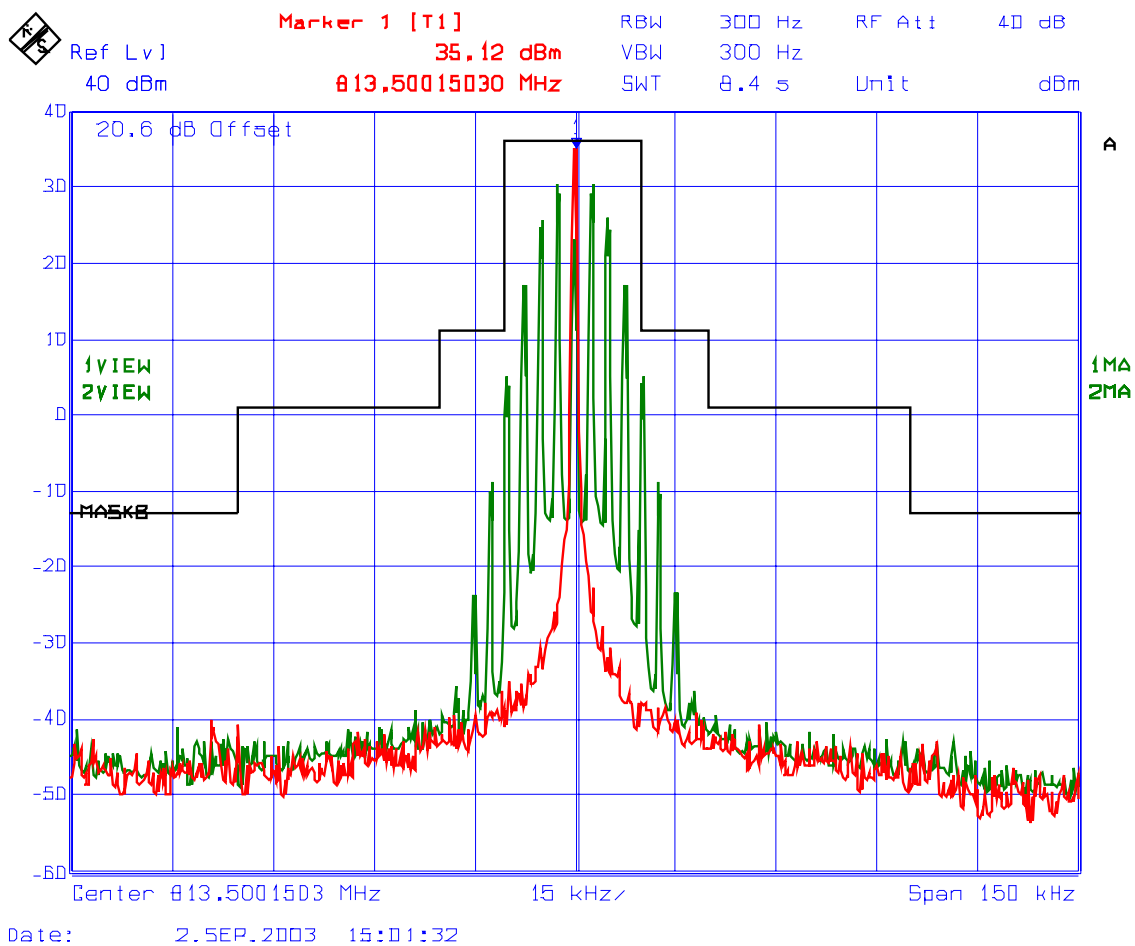
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PLOT # 147 Emission Mask B, frequency 806-821 MHz- RF Output
Frequency: 806 MHz, 25 kHz Channel Spacing
Modulation: FM modulation with 2.5 kHz Sine wave signal



PLOT # 148 Emission Mask B, frequency 806-821 MHz- RF Output
Frequency: 813.5 MHz, 25 kHz Channel Spacing
Modulation: FM modulation with 2.5 kHz Sine wave signal



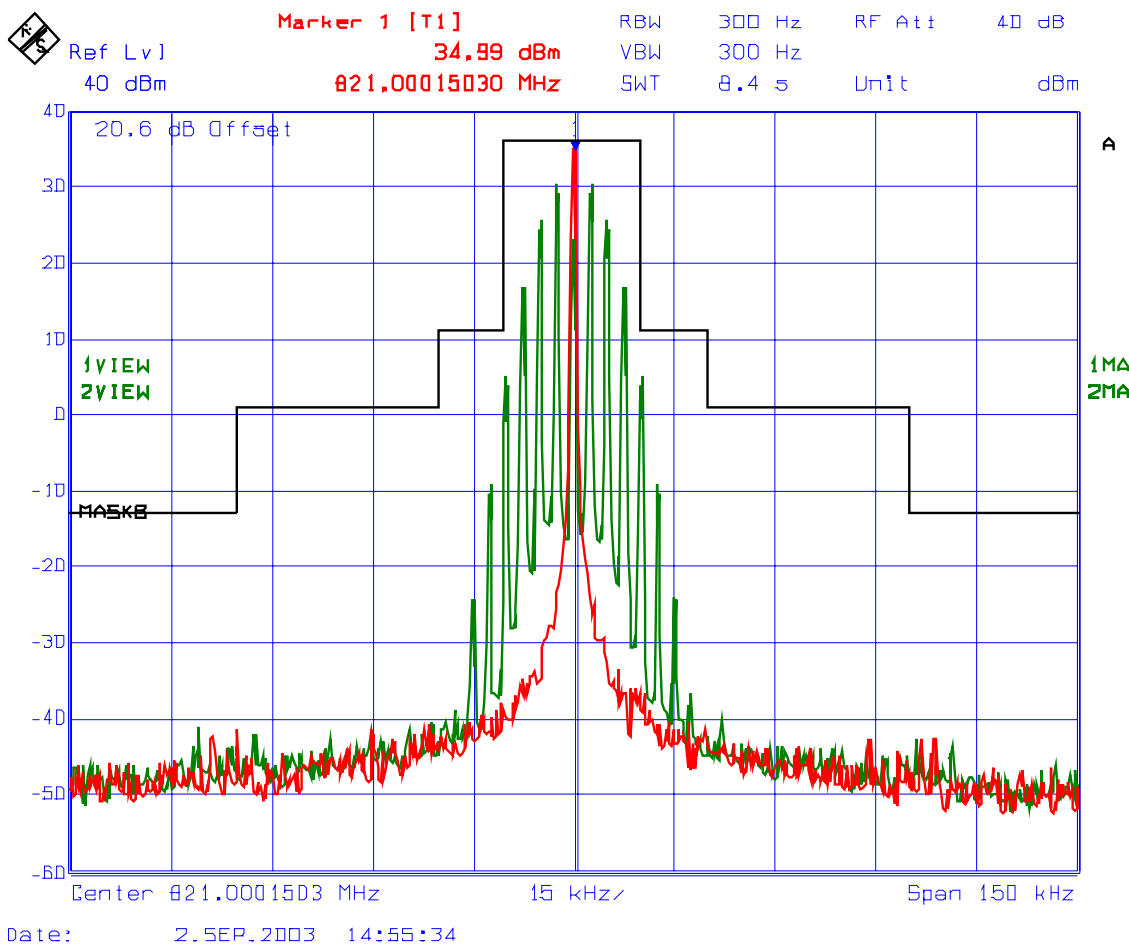
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PLOT # 149 Emission Mask B, frequency 806-821 MHz- RF Output
Frequency: 821 MHz, 25 kHz Channel Spacing
Modulation: FM modulation with 2.5 kHz Sine wave signal



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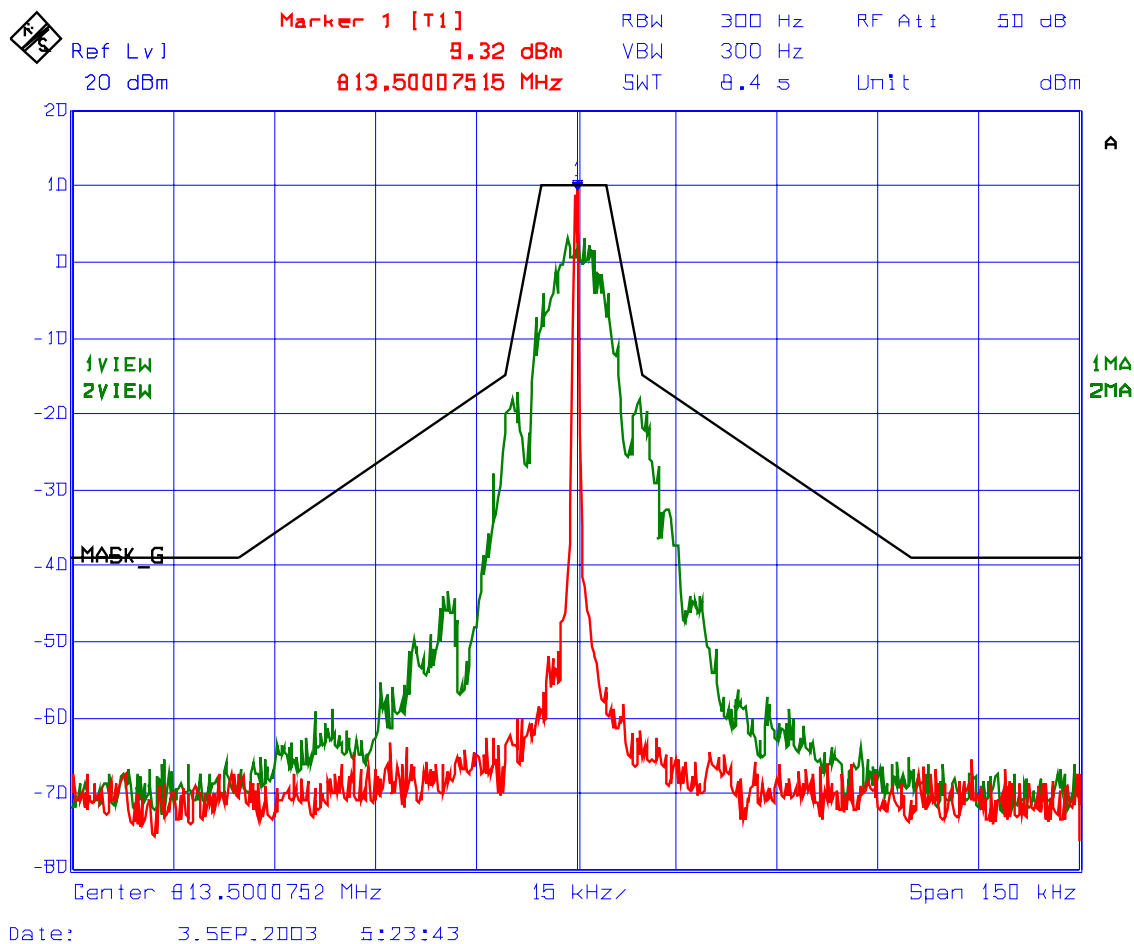
3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

File #: KTI-034FCC22-90

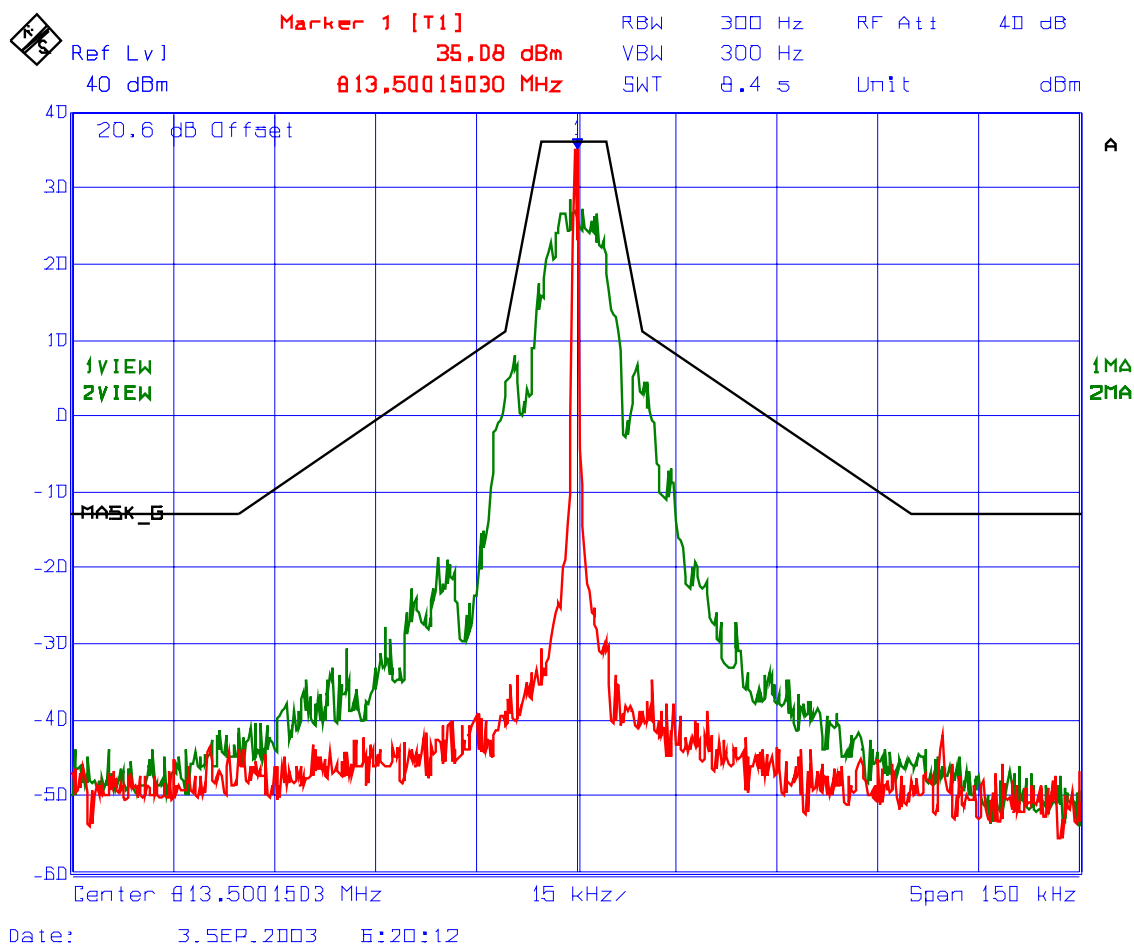
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PLOT # 150 Emission Mask G, frequency 806-821 MHz- RF Input
Frequency: 806 MHz, 25 kHz Channel Spacing
Modulation: FM modulation with an external 9600 b/s random data source



PLOT # 151 Emission Mask G, frequency 806-821 MHz- RF Output
Frequency: 813.5 MHz, 25 kHz Channel Spacing
Modulation: FM modulation with an external 9600 b/s random data source



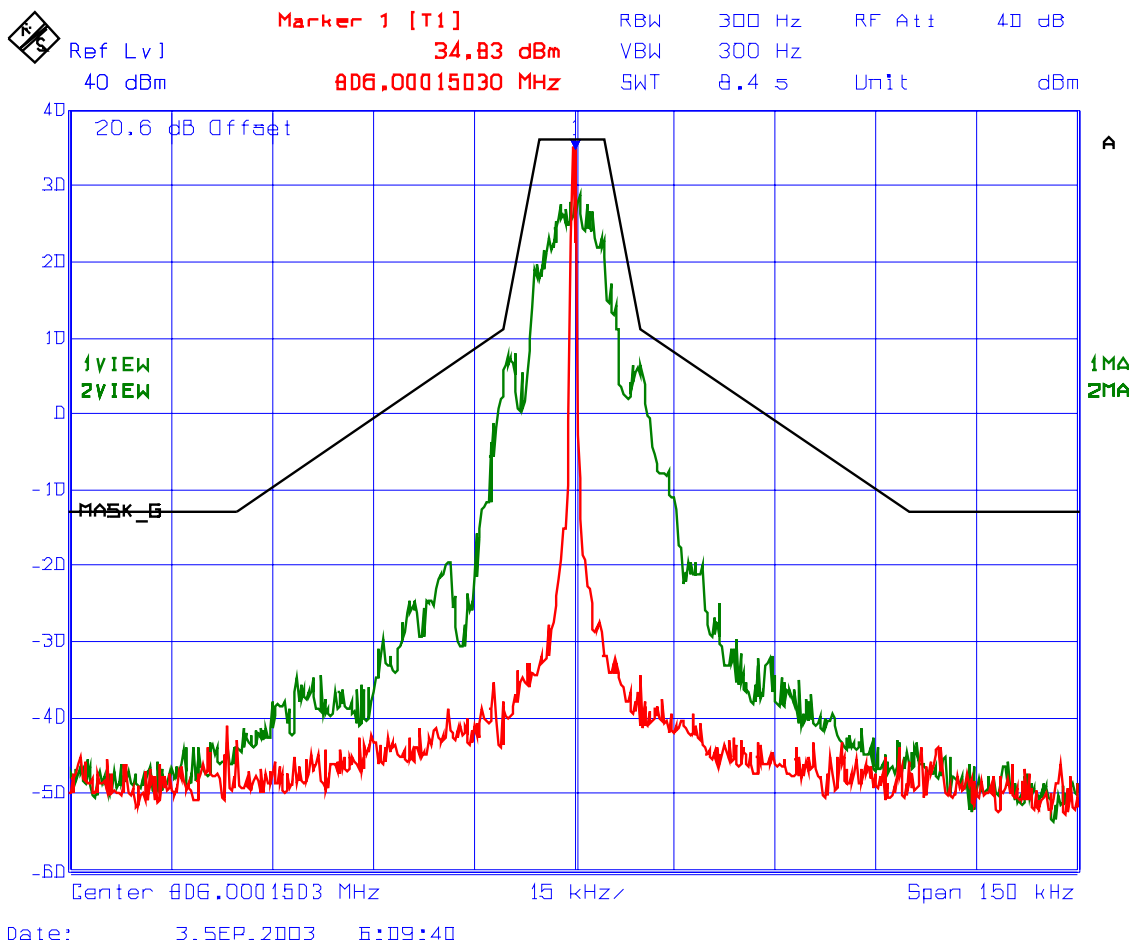
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PLOT # 152 Emission Mask G, frequency 806-821 MHz- RF Output
Frequency: 813.5 MHz, 25 kHz Channel Spacing
Modulation: FM modulation with an external 9600 b/s random data source



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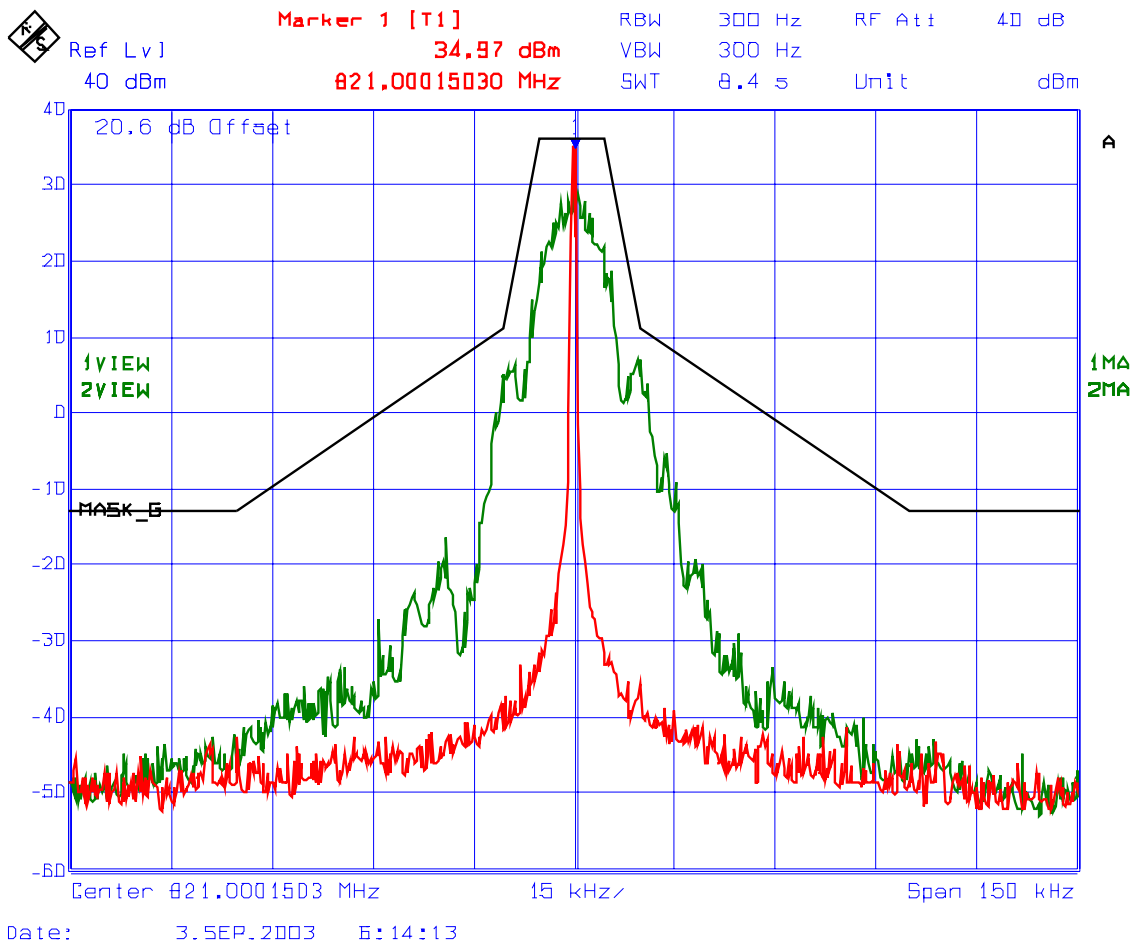
3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

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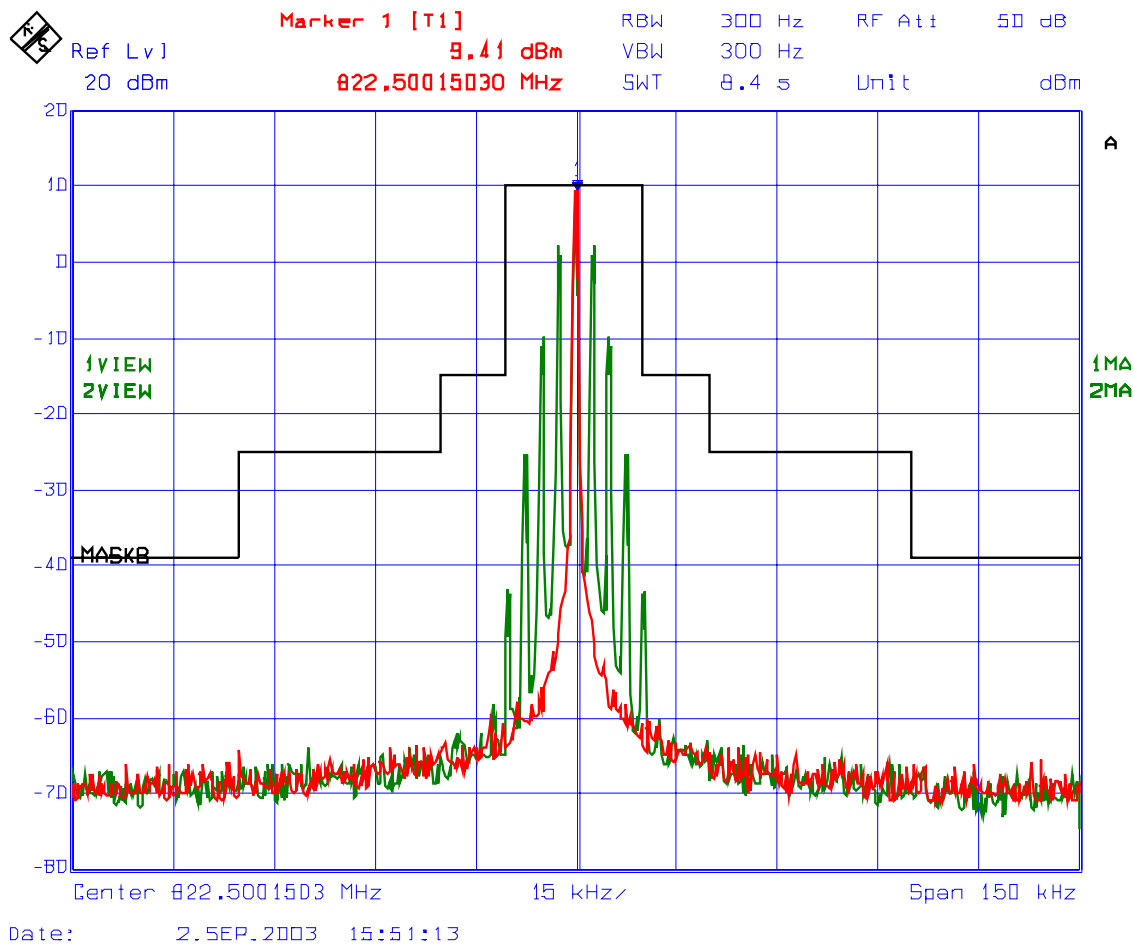
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- All test results contained in this engineering test report are traceable to National Institute of Standards and Technology (NIST)

PLOT # 153 Emission Mask G, frequency 806-821 MHz- RF Output
Frequency: 821 MHz, 25 kHz Channel Spacing
Modulation: FM modulation with an external 9600 b/s random data source



PLOT # 154 Emission Mask B, frequency 821-824 MHz- RF Input
Frequency: 821 MHz, 12.5 kHz Channel Spacing
Modulation: FM modulation with 2.5 kHz Sine wave signal



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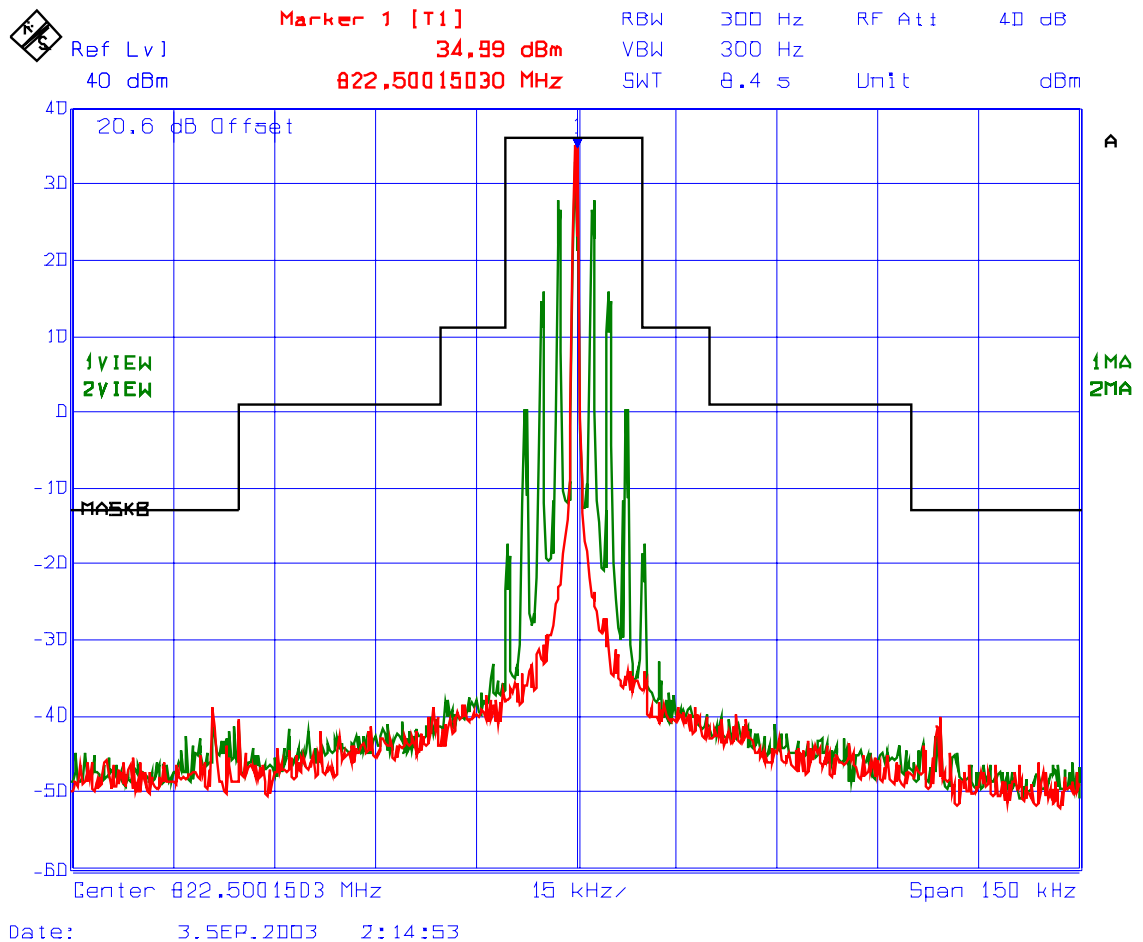
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Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

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PLOT # 155 Emission Mask B, frequency 821-824 MHz- RF Output
Frequency: 822.5 MHz, 12.5 kHz Channel Spacing
Modulation: FM modulation with 2.5 kHz Sine wave signal



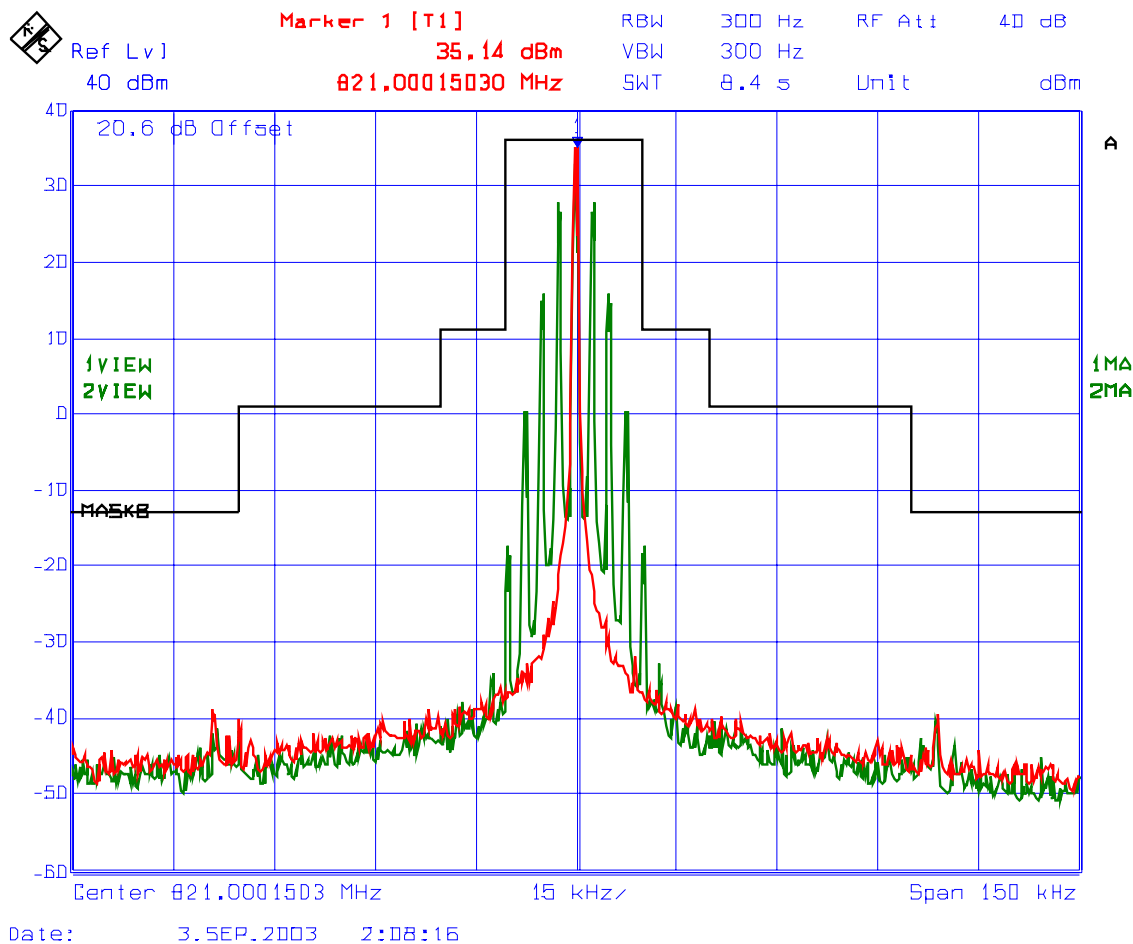
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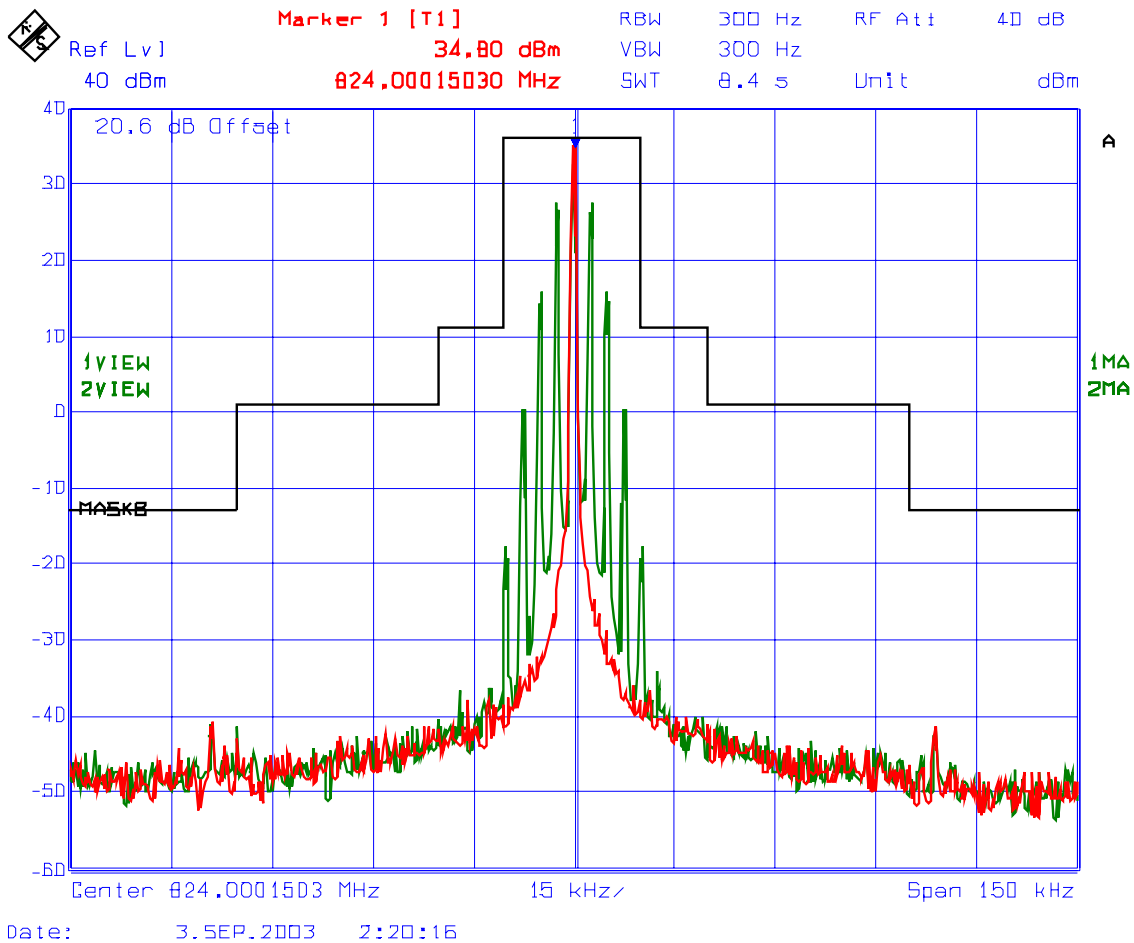
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Oct. 17, 2003

- All test results contained in this engineering test report are traceable to National Institute of Standards and Technology (NIST)

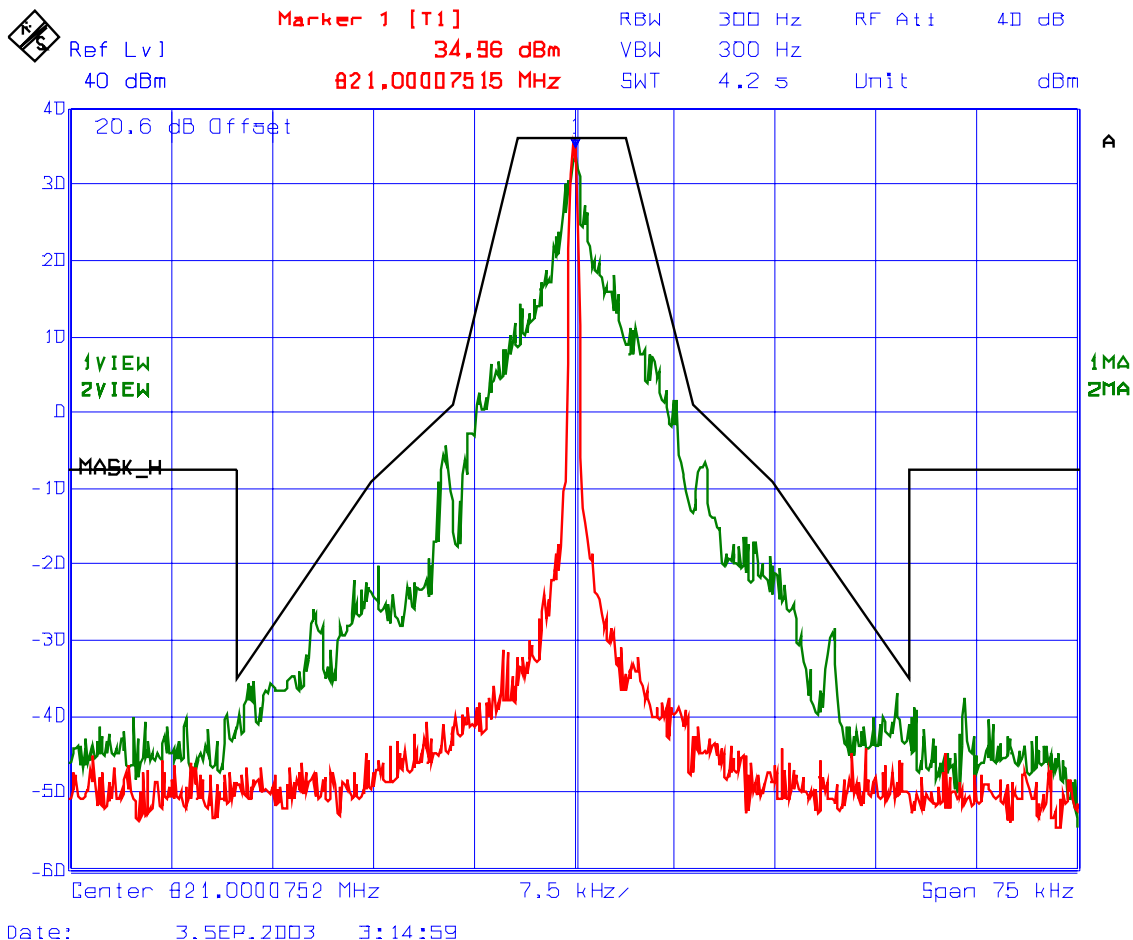
PLOT # 156 Emission Mask B, frequency 821-824 MHz- RF Output
Frequency: 822.5 MHz, 12.5 kHz Channel Spacing
Modulation: FM modulation with 2.5 kHz Sine wave signal



PLOT # 157 Emission Mask B, frequency 821-824 MHz- RF Output
Frequency: 824 MHz, 12.5 kHz Channel Spacing
Modulation: FM modulation with 2.5 kHz Sine wave signal



PLOT # 158 Emission Mask H, frequency 821-824 MHz- RF Input
Frequency: 821 MHz, 12.5 kHz Channel Spacing
Modulation: FM modulation with an external 9600 b/s random data source



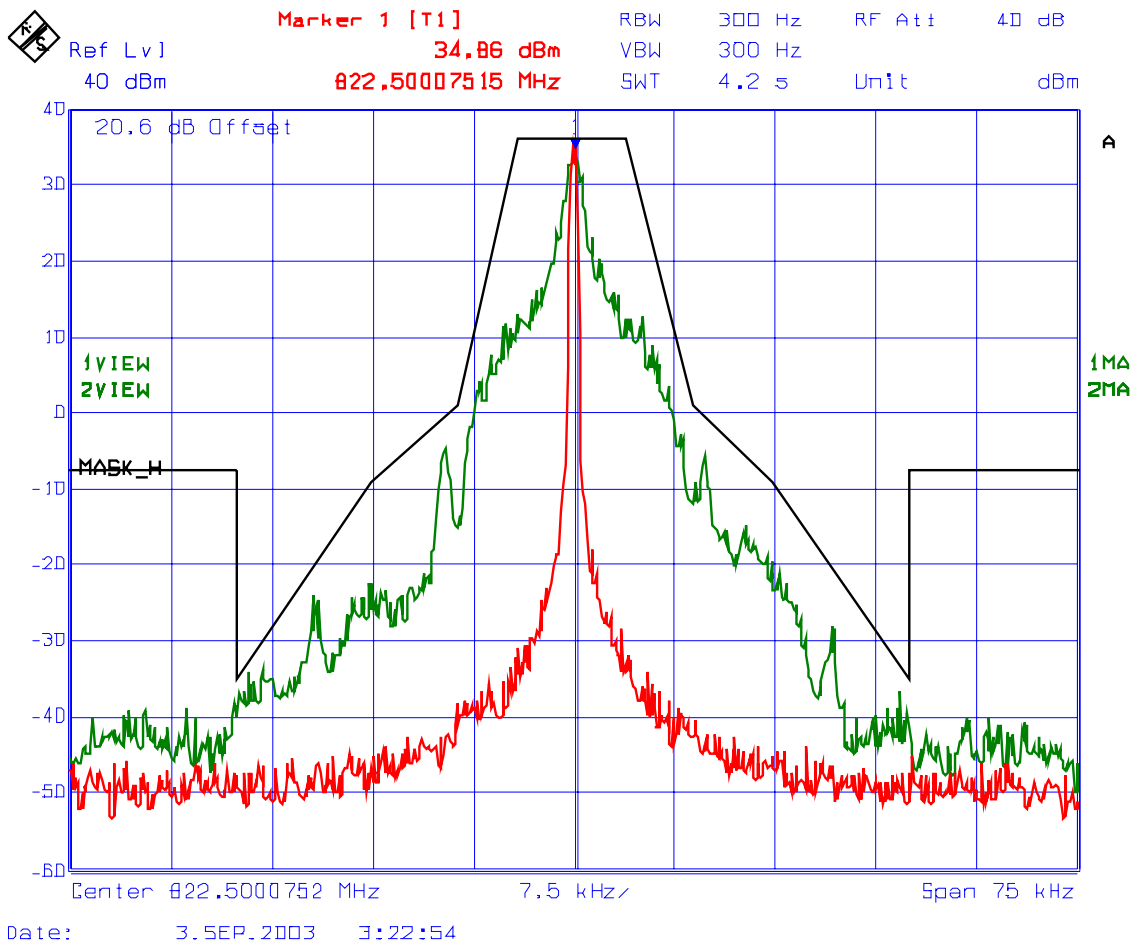
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3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

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PLOT # 159 Emission Mask H, frequency 821-824 MHz- RF Output
Frequency: 822.5 MHz, 12.5 kHz Channel Spacing
Modulation: FM modulation with an external 9600 b/s random data source



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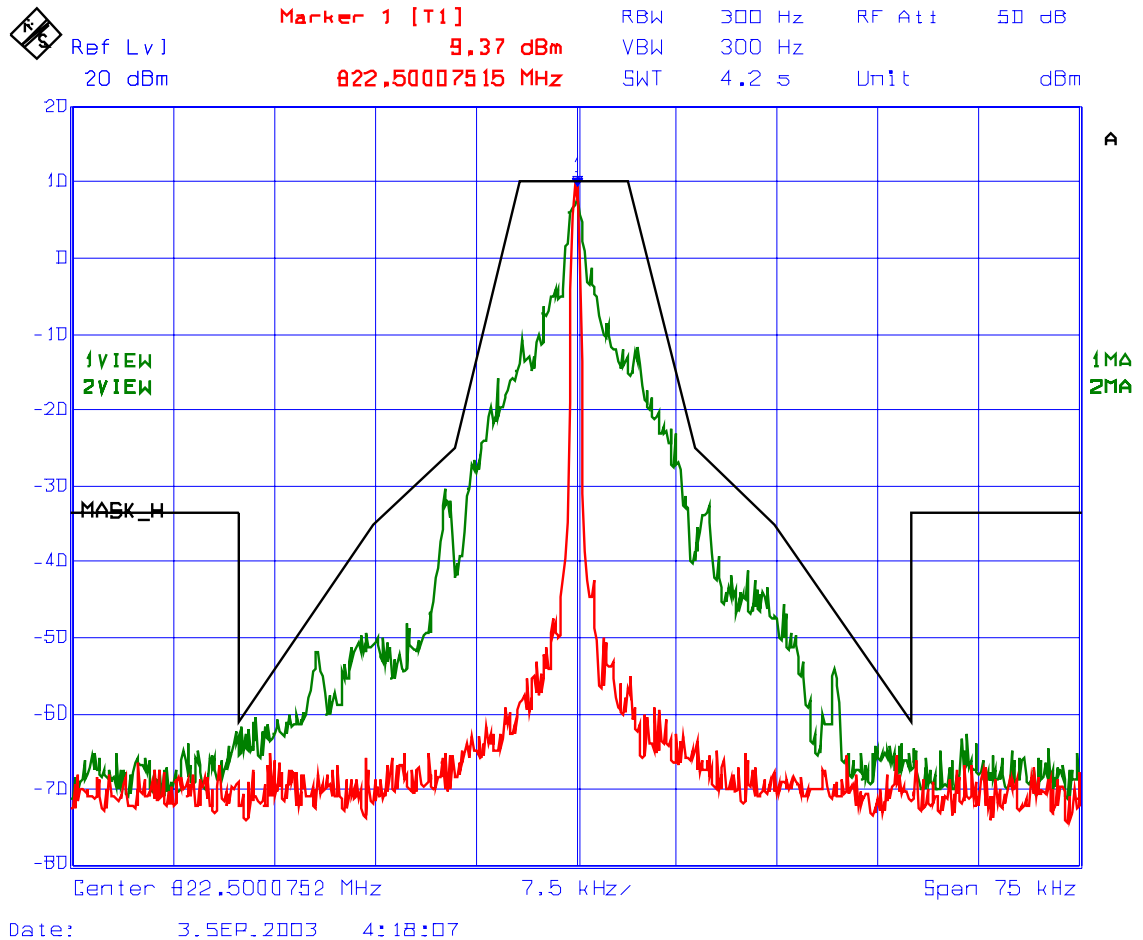
3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

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PLOT # 160 Emission Mask H, frequency 821-824 MHz- RF Output
Frequency: 822.5 MHz, 12.5 kHz Channel Spacing
Modulation: FM modulation with an external 9600 b/s random data source



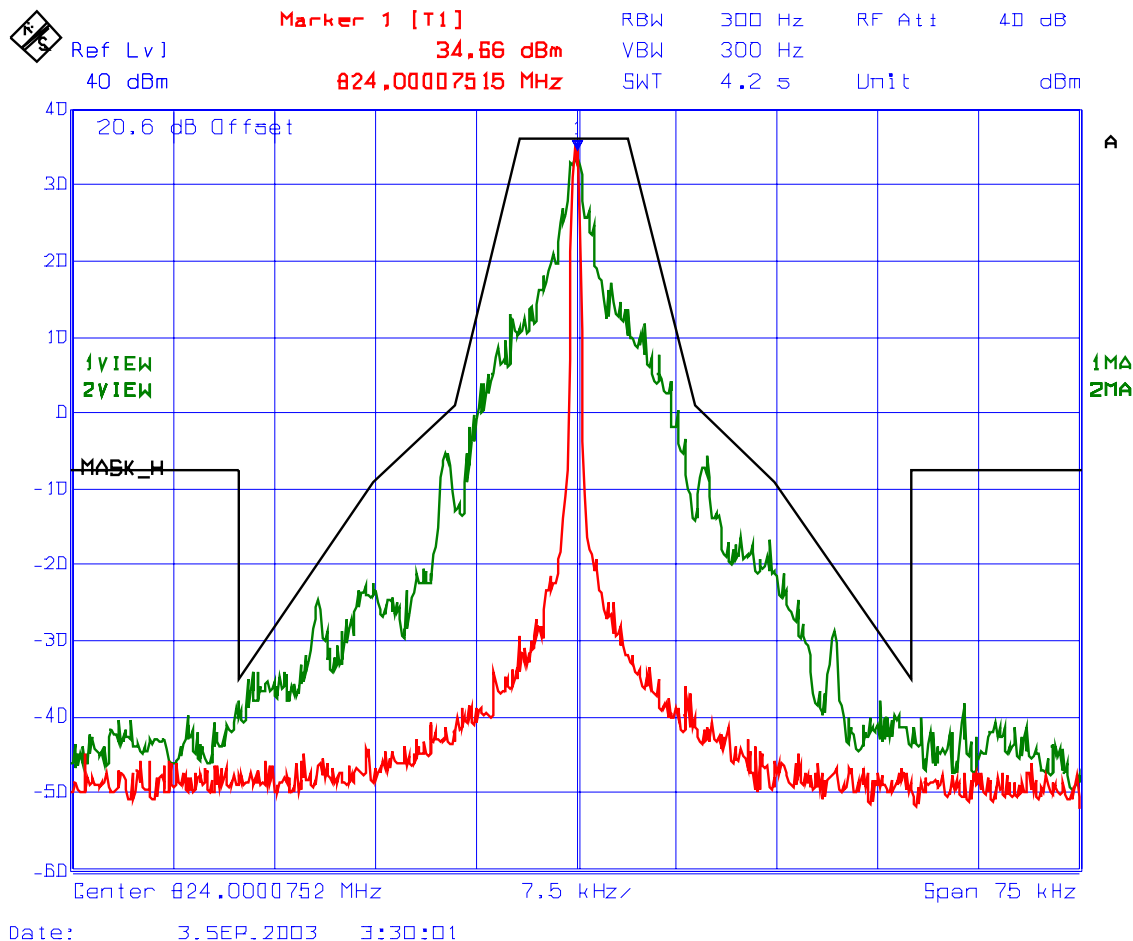
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PLOT # 161 Emission Mask H, frequency 821-824 MHz- RF Output
Frequency: 824 MHz, 12.5 kHz Channel Spacing
Modulation: FM modulation with an external 9600 b/s random data source



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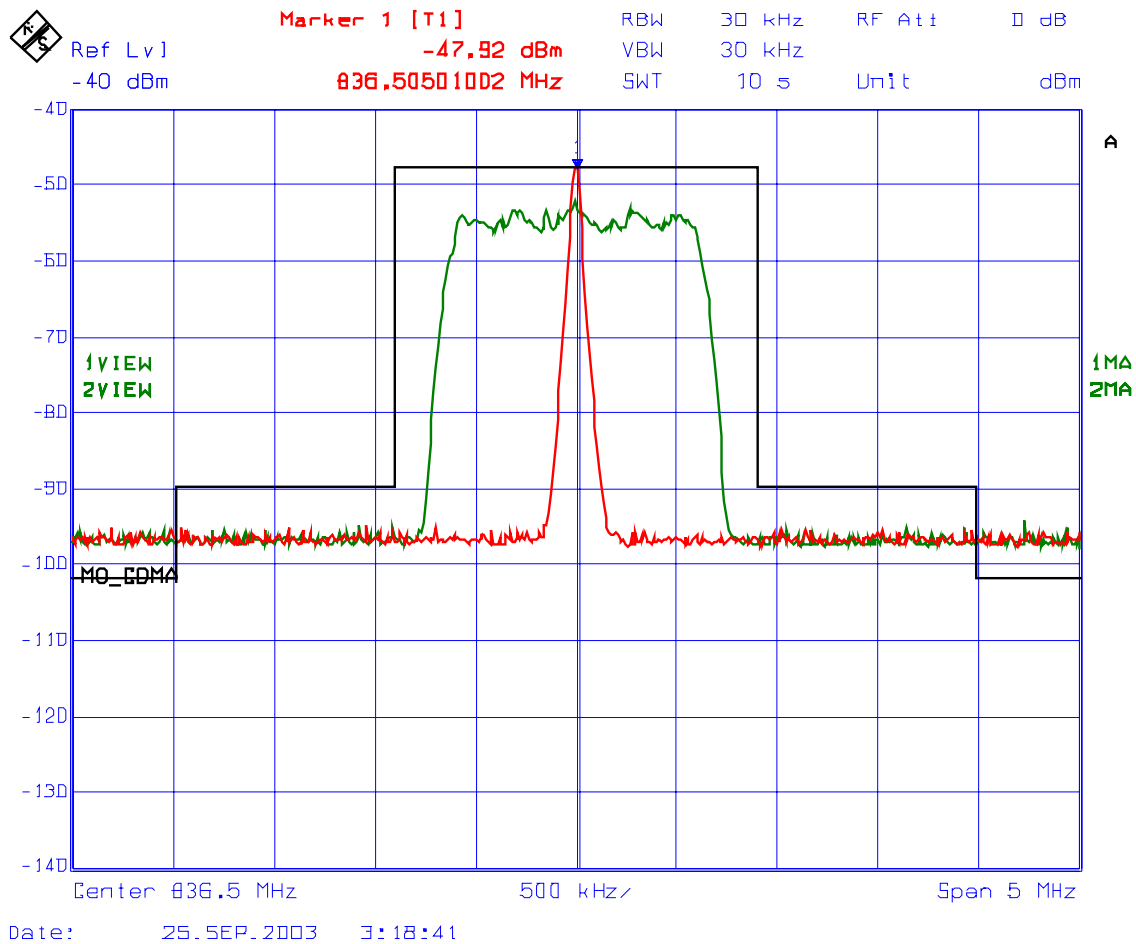
3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

File #: KT1-034FCC22-90

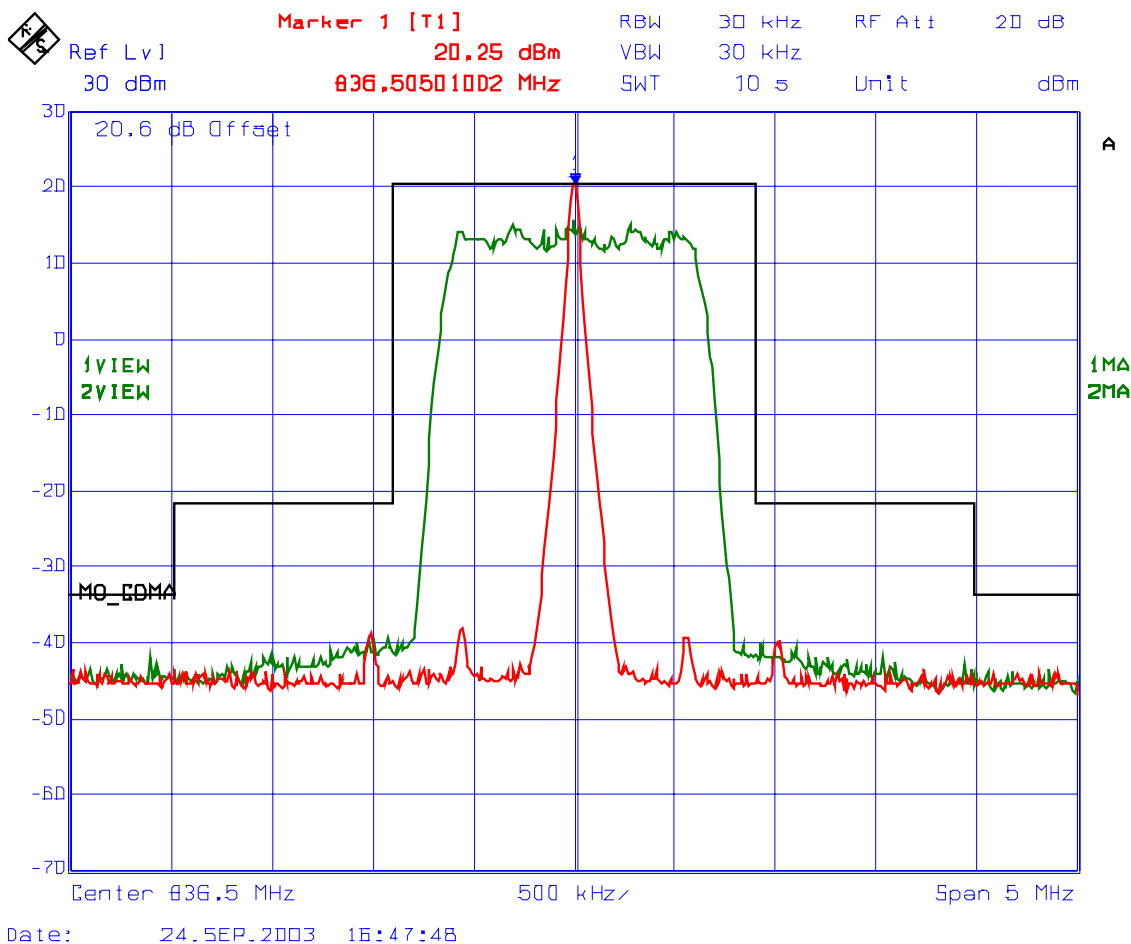
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PLOT # 162 Mobile (Uplink) CDMA Mask, frequency 824-849 MHz- RF Input
Frequency: 824 MHz
Modulation: CDMA



PLOT # 163 Mobile (Uplink) CDMA Mask, frequency 824-849 MHz- RF Output
Frequency: 836.5 MHz
Modulation: CDMA



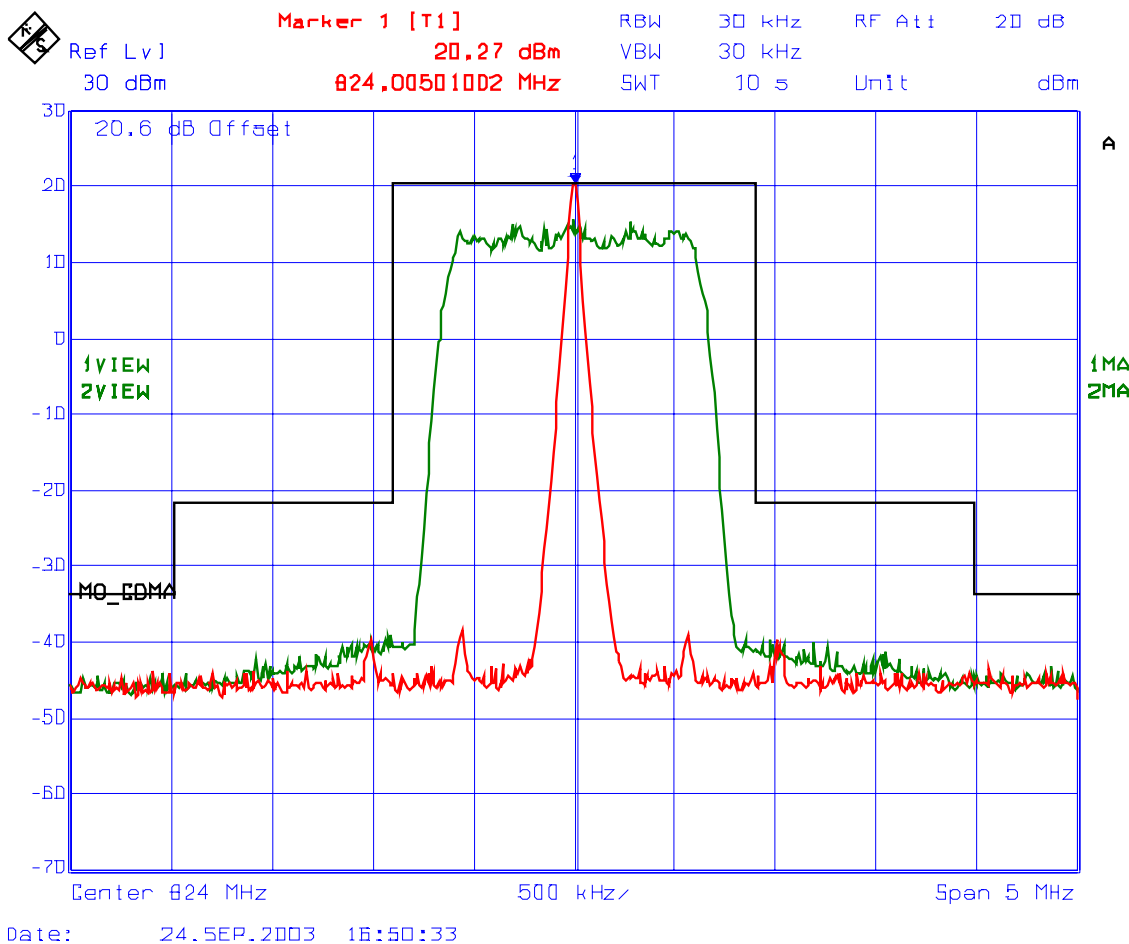
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Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

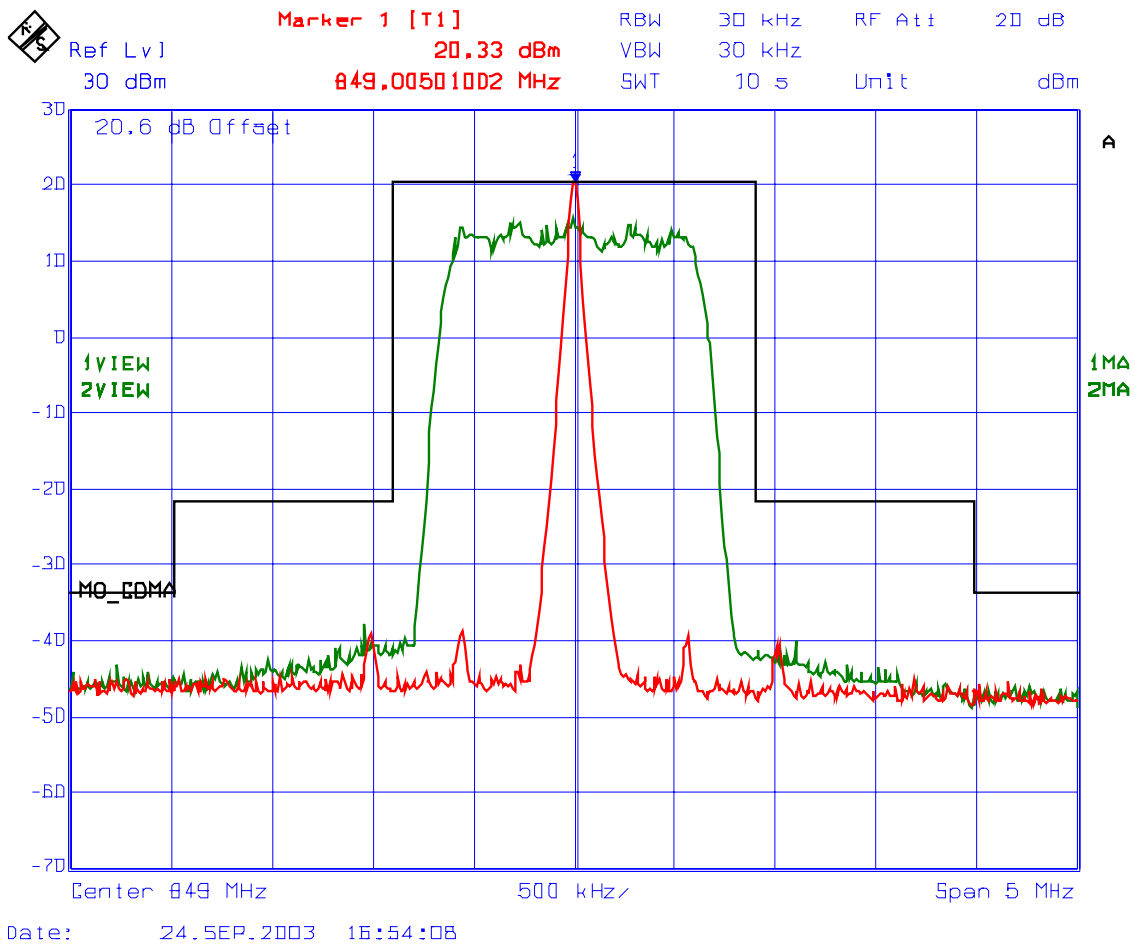
File #: KTI-034FCC22-90
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PLOT # 164 Mobile (Uplink) CDMA Mask, frequency 824-849 MHz- RF Output
Frequency: 836.5 MHz
Modulation: CDMA
The Spectrum was inside the Mask, because the level was too low therefore higher than limit level



PLOT # 165 Mobile (Uplink) CDMA Mask, frequency 824-849 MHz- RF Output
Frequency: 849 MHz
Modulation: CDMA



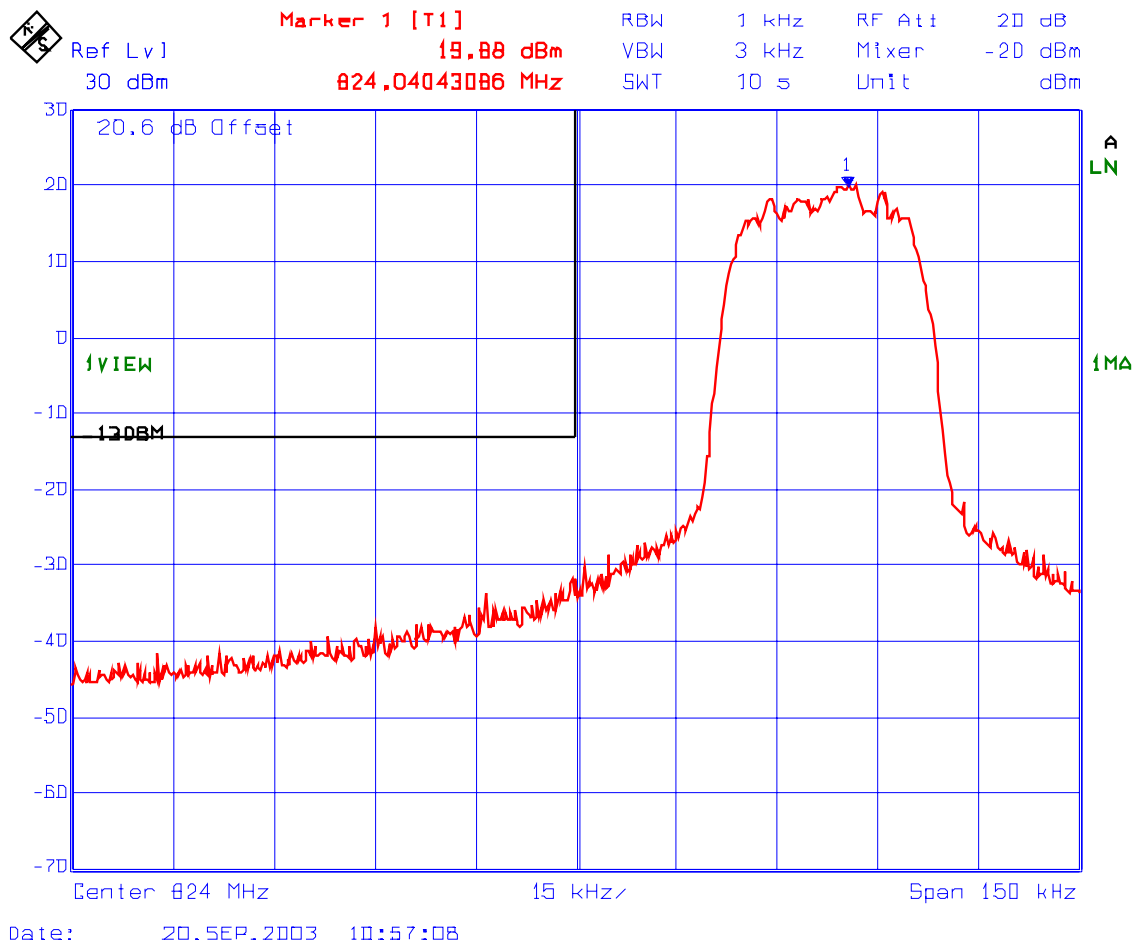
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PLOT # 166 Lower Band-Edge 824-849 MHz
Frequency: 824 MHz
Modulation: TDMA



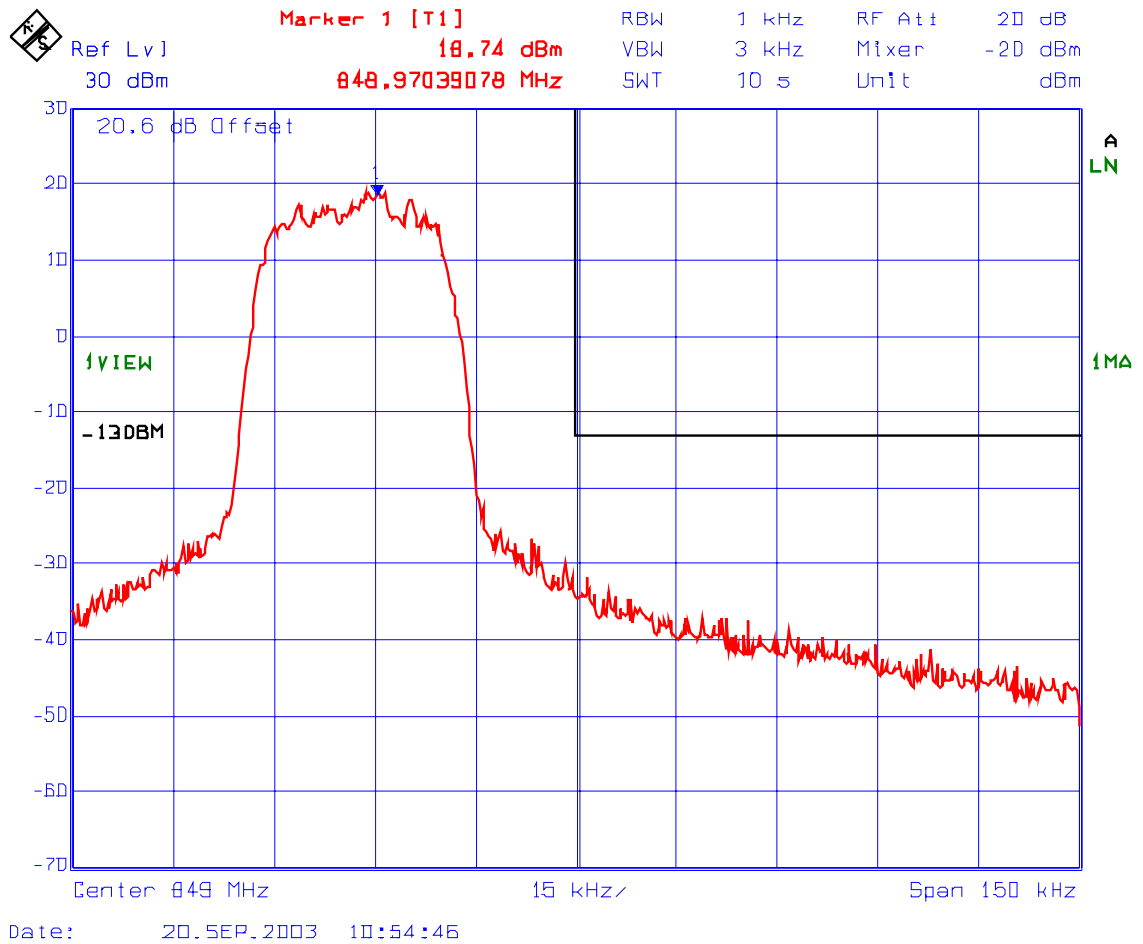
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PLOT # 167 Upper Band-Edge 824-849 MHz
Frequency: 849 MHz
Modulation: TDMA



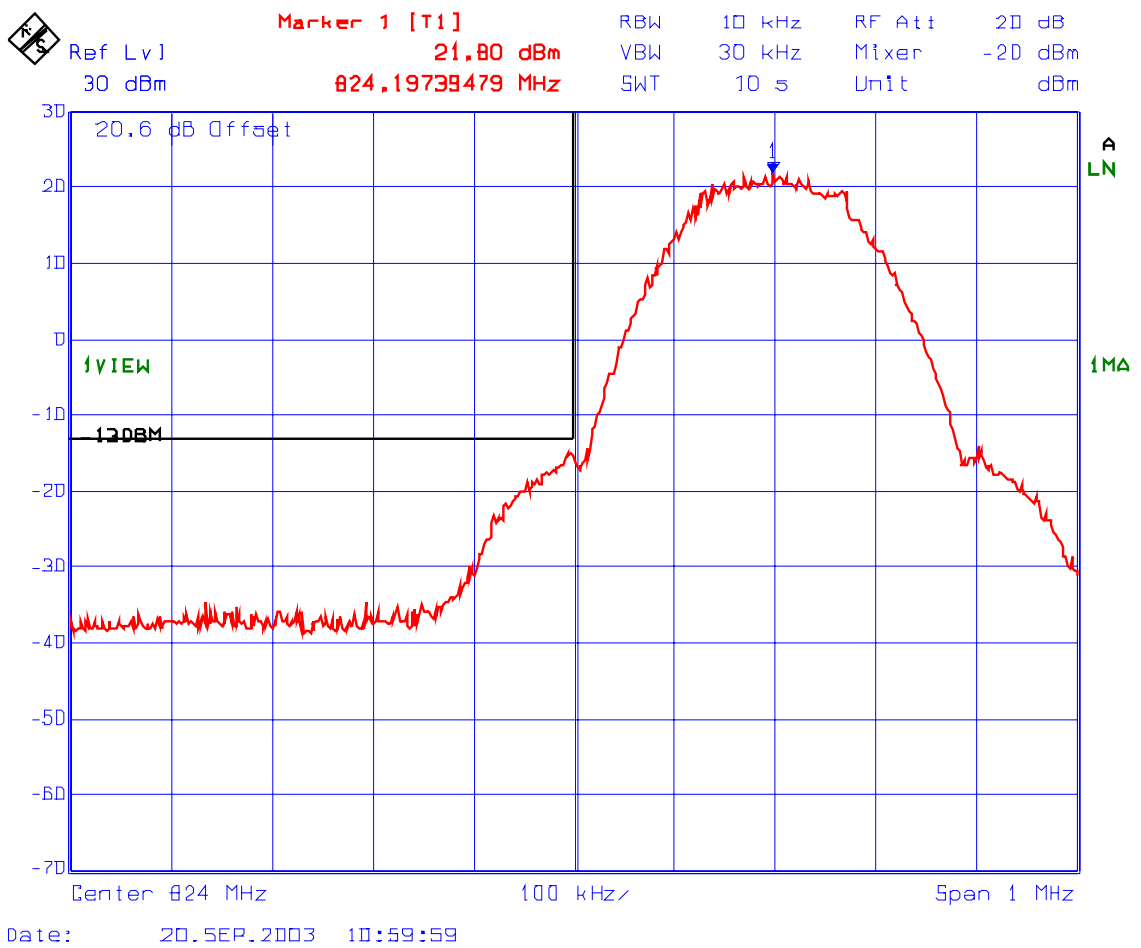
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PLOT # 168 Lower Band-Edge 824-849 MHz
Frequency: 824 MHz
Modulation: GSM



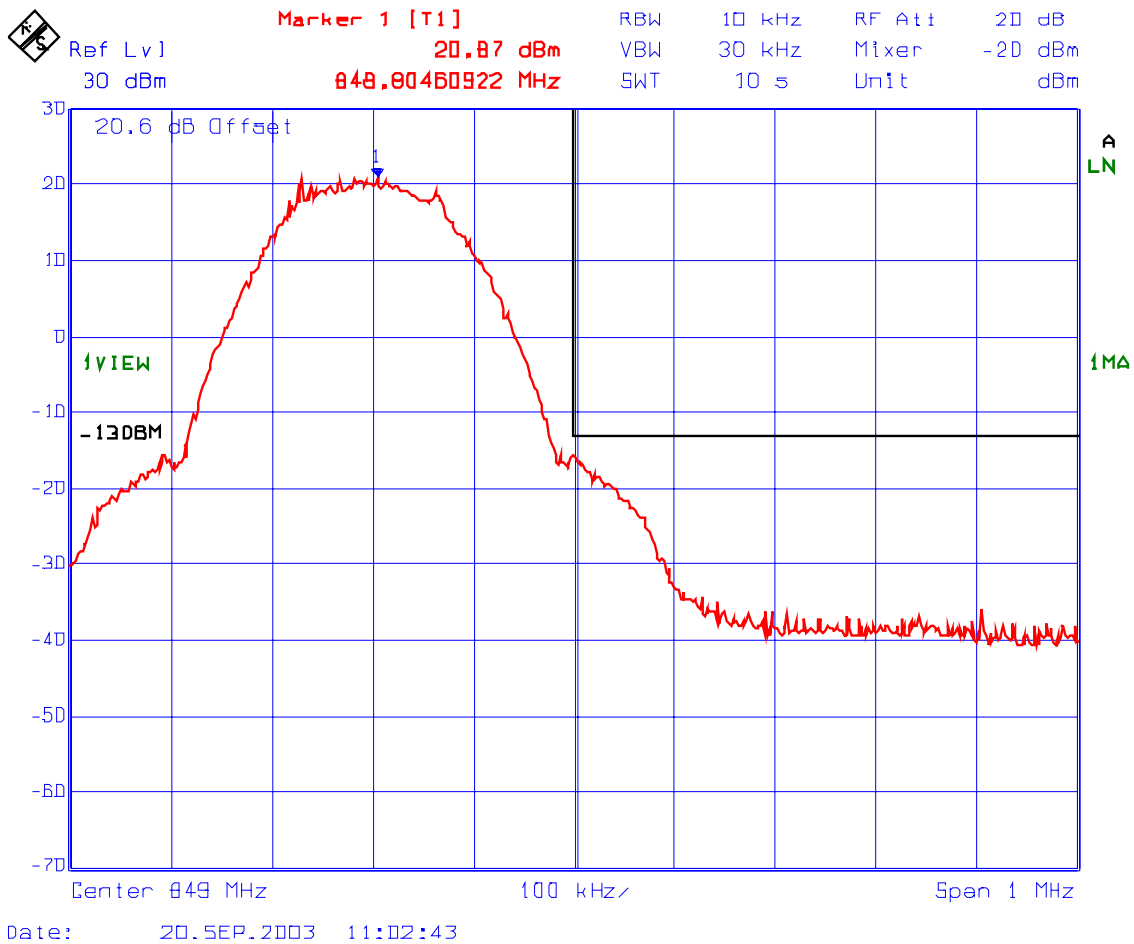
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PLOT # 169 Upper Band-Edge 824-849 MHz
Frequency: 849 MHz
Modulation: GSM



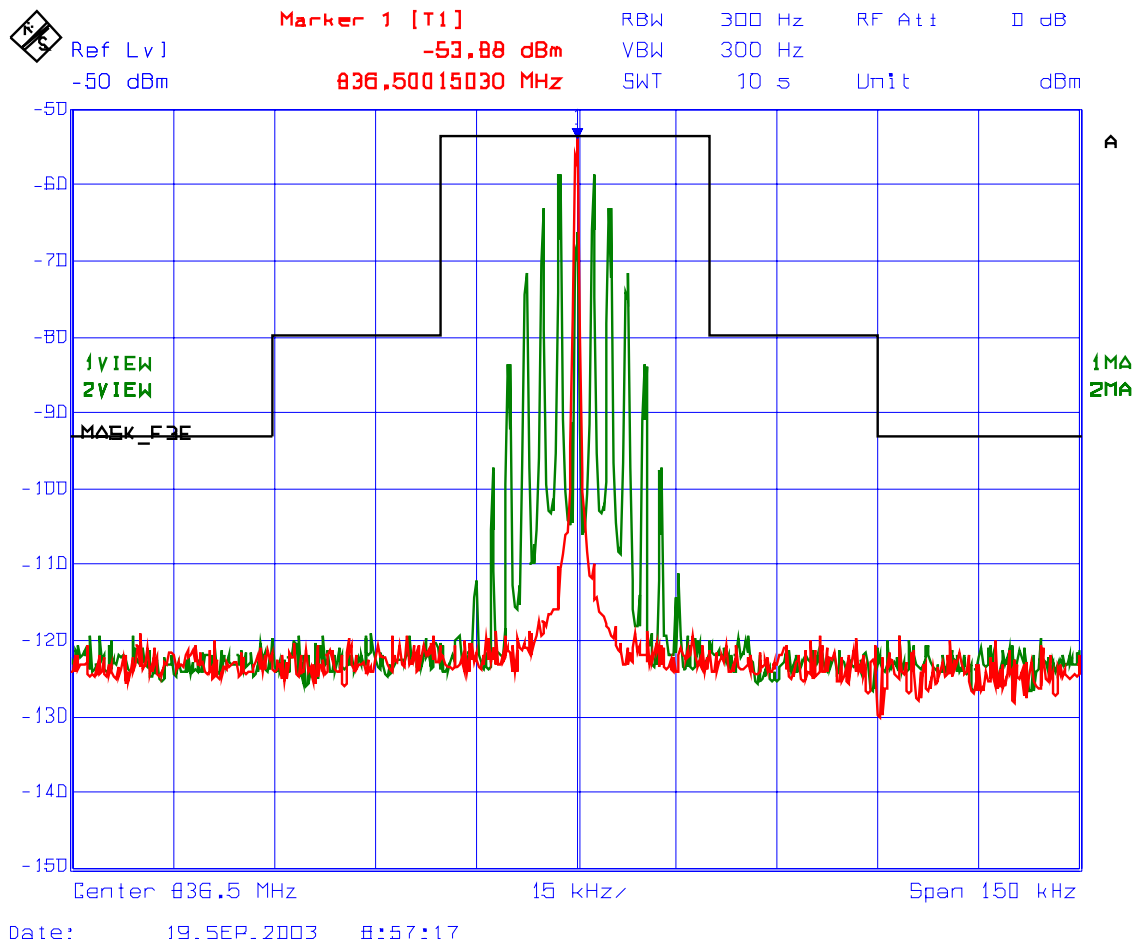
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PLOT # 170 Emission Mask F3E, frequency 824-849 MHz- RF Input
Frequency: 824 MHz
Modulation: FM Modulation with 2.5 kHz Sine Wave Signal



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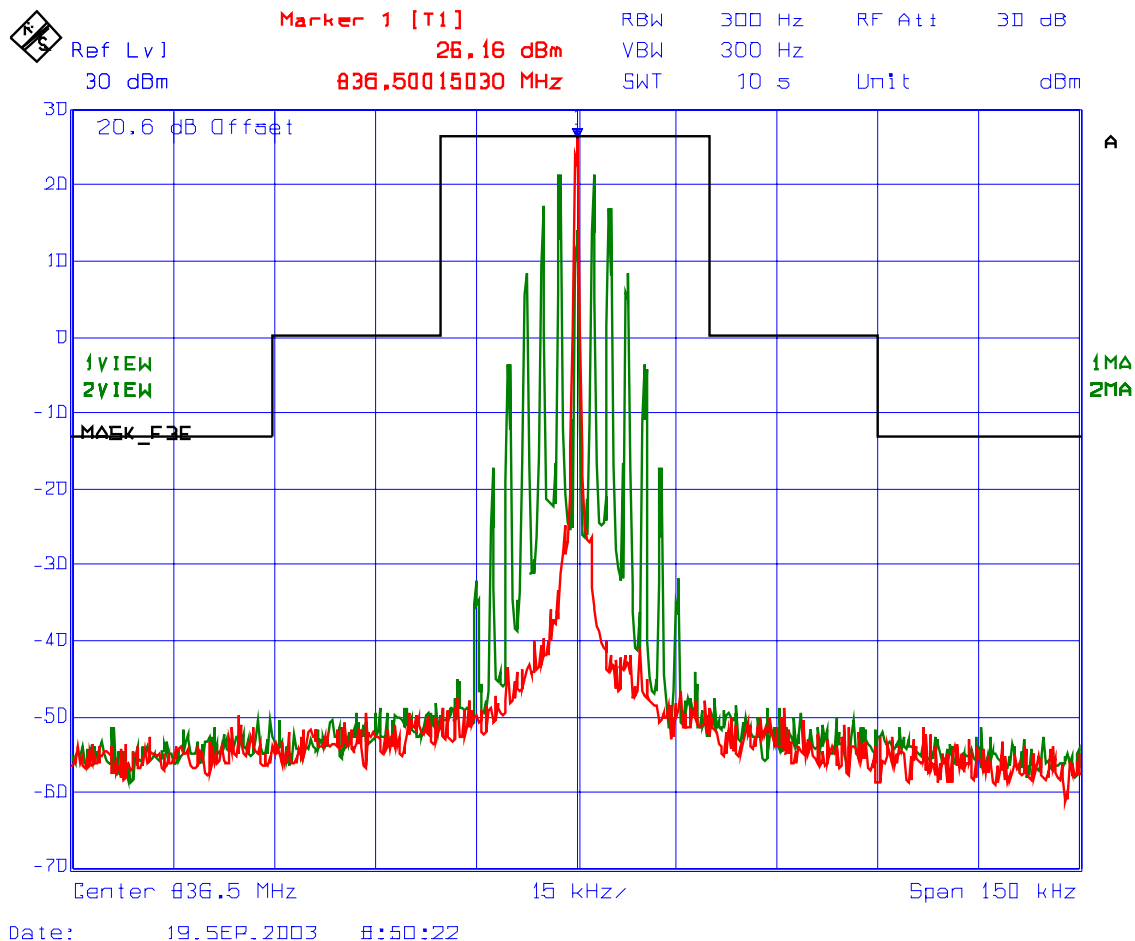
3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

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PLOT # 171 Emission Mask F3E, frequency 824-849 MHz- RF Output
Frequency: 836.5 MHz
Modulation: FM Modulation with 2.5 kHz Sine Wave Signal



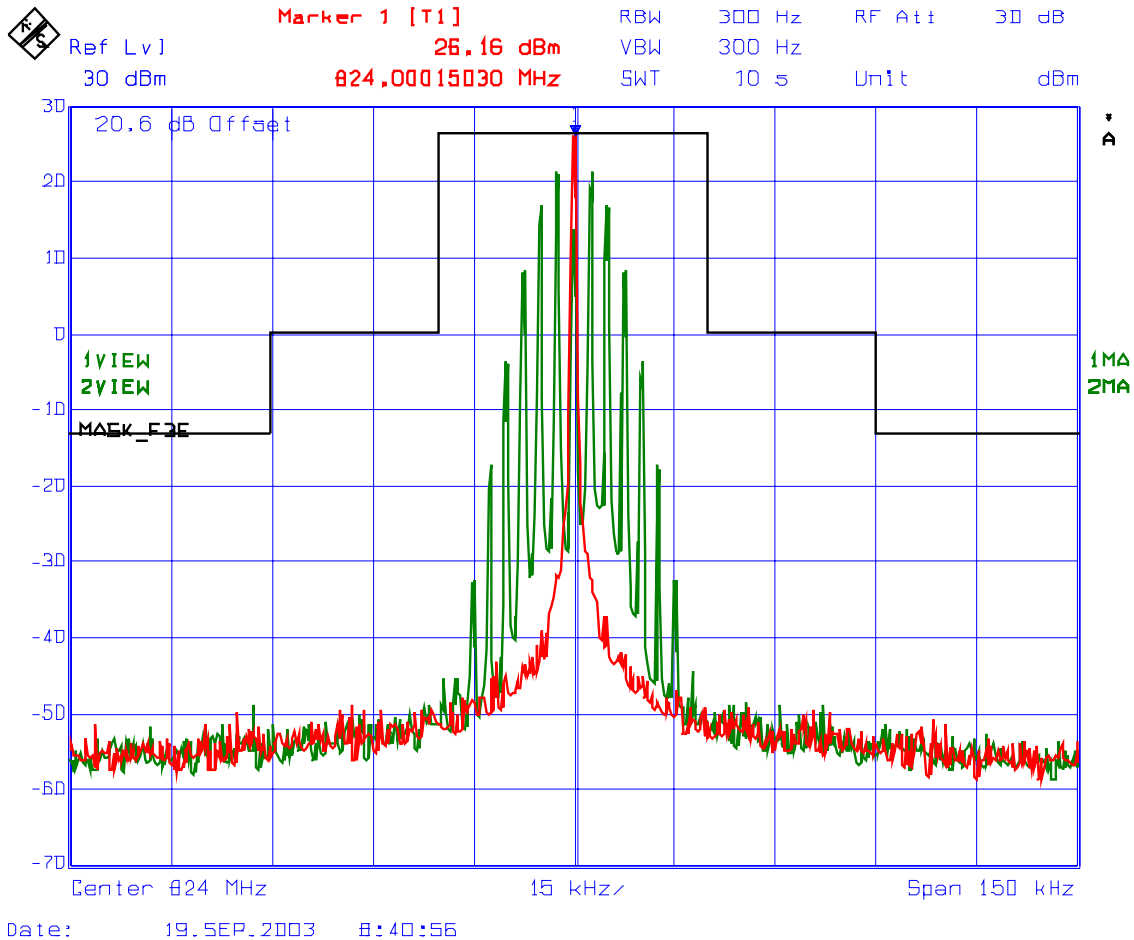
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PLOT # 172 Emission Mask F3E, frequency 824-849 MHz- RF Output
Frequency: 836.5 MHz
Modulation: FM Modulation with 2.5 kHz Sine Wave Signal



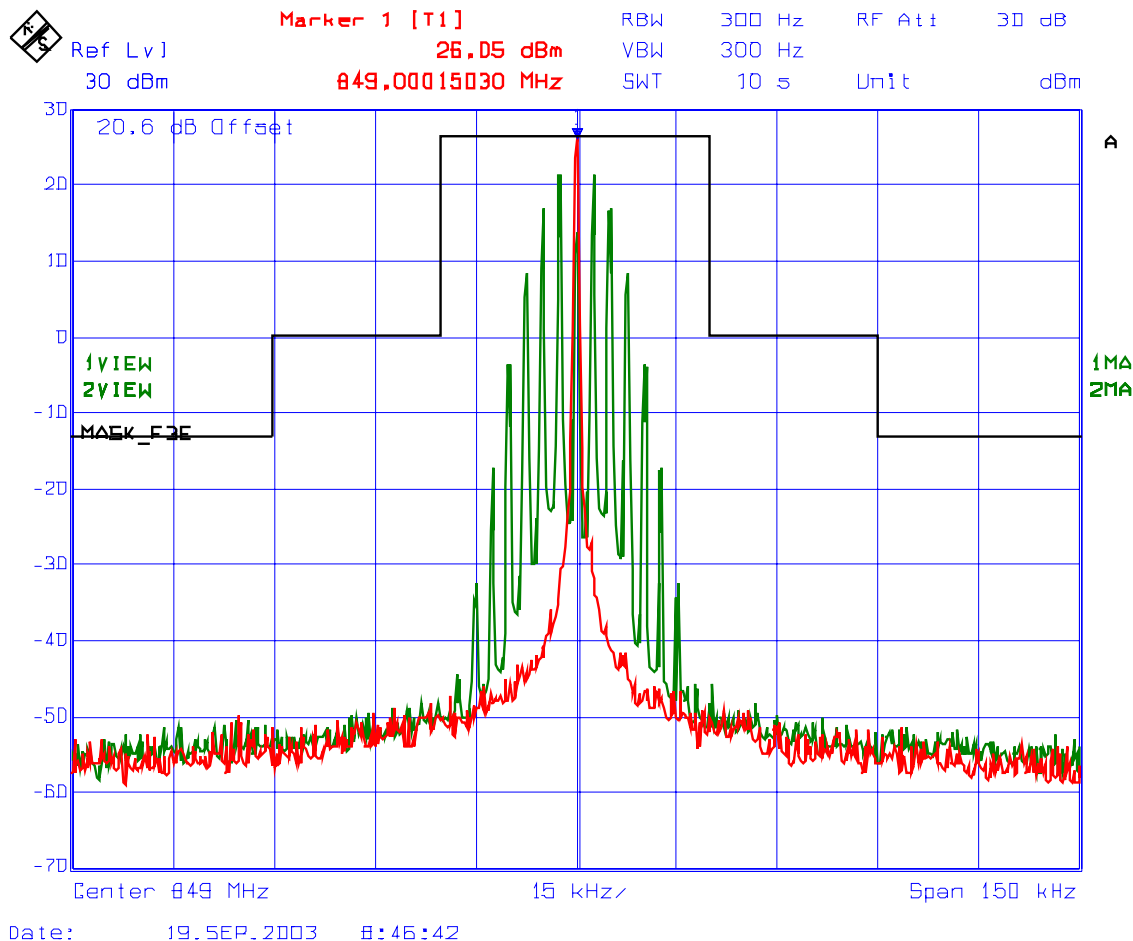
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Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

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PLOT # 173 Emission Mask F3E, frequency 824-849 MHz- RF Output
Frequency: 849 MHz
Modulation: FM Modulation with 2.5 kHz Sine Wave Signal



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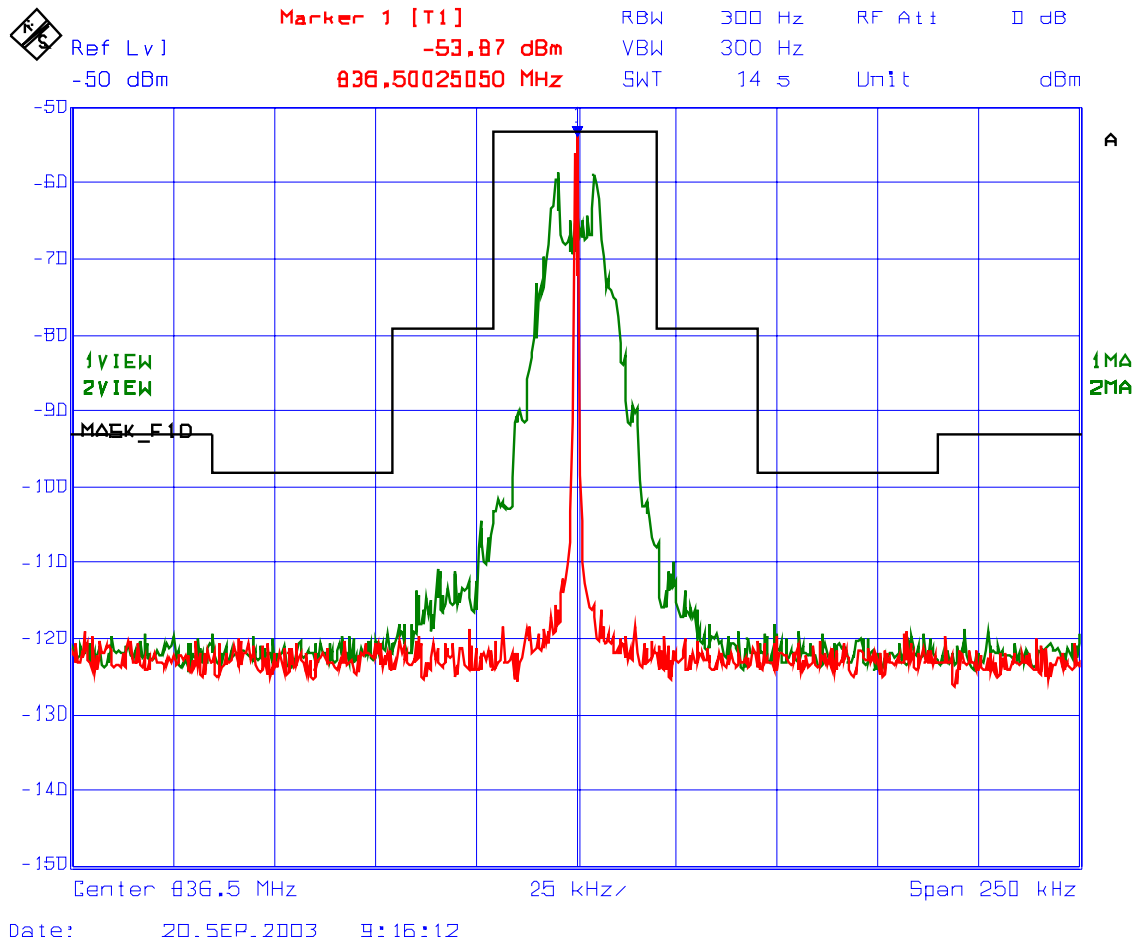
3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

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PLOT # 174 Emission Mask F1D, frequency 824-849 MHz- RF Input
Frequency: 824 MHz
Modulation: FM Modulation with an external 9600 b/s random data source



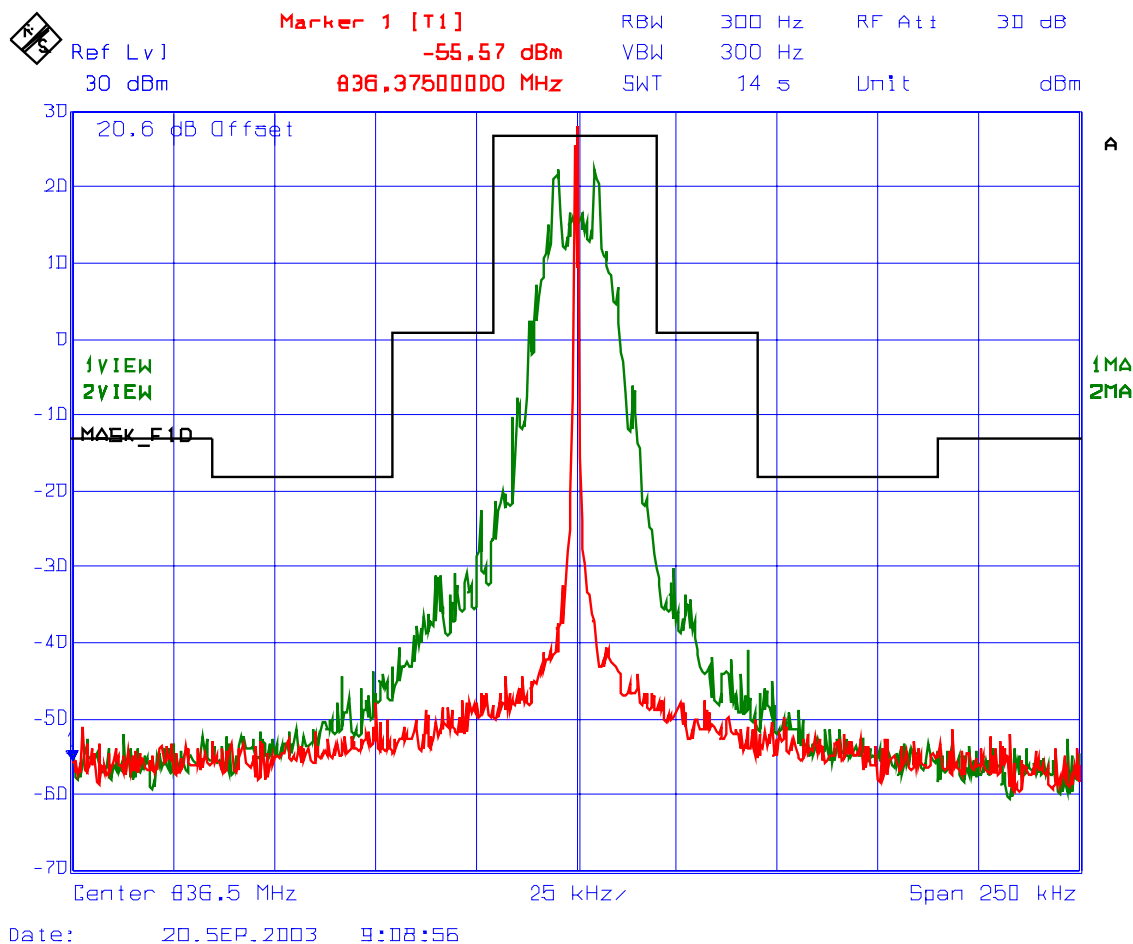
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PLOT # 175 Emission Mask F1D, frequency 824-849 MHz- RF Output
Frequency: 836.5 MHz
Modulation: FM Modulation with an external 9600 b/s random data source



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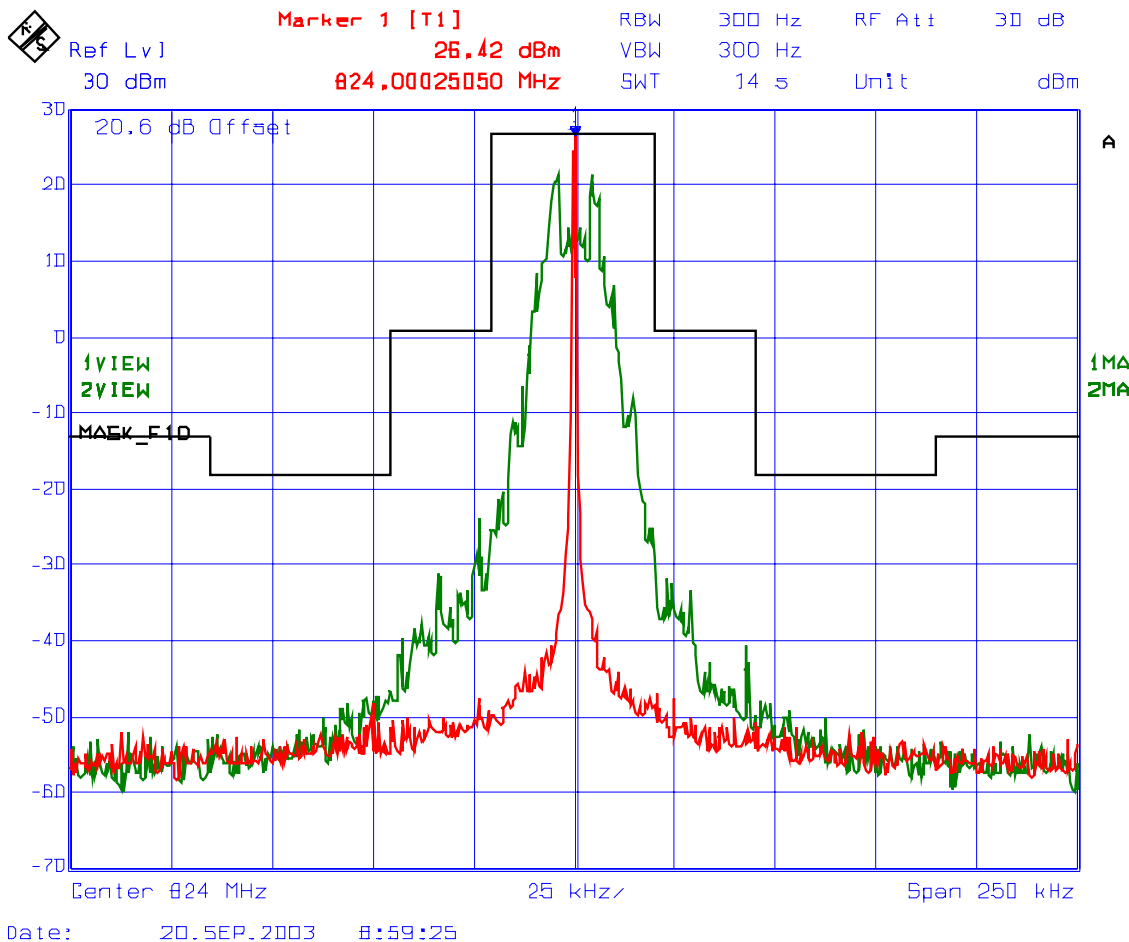
3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

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PLOT # 176 Emission Mask F1D, frequency 824-849 MHz- RF Output
Frequency: 836.5 MHz
Modulation: FM Modulation with an external 9600 b/s random data source



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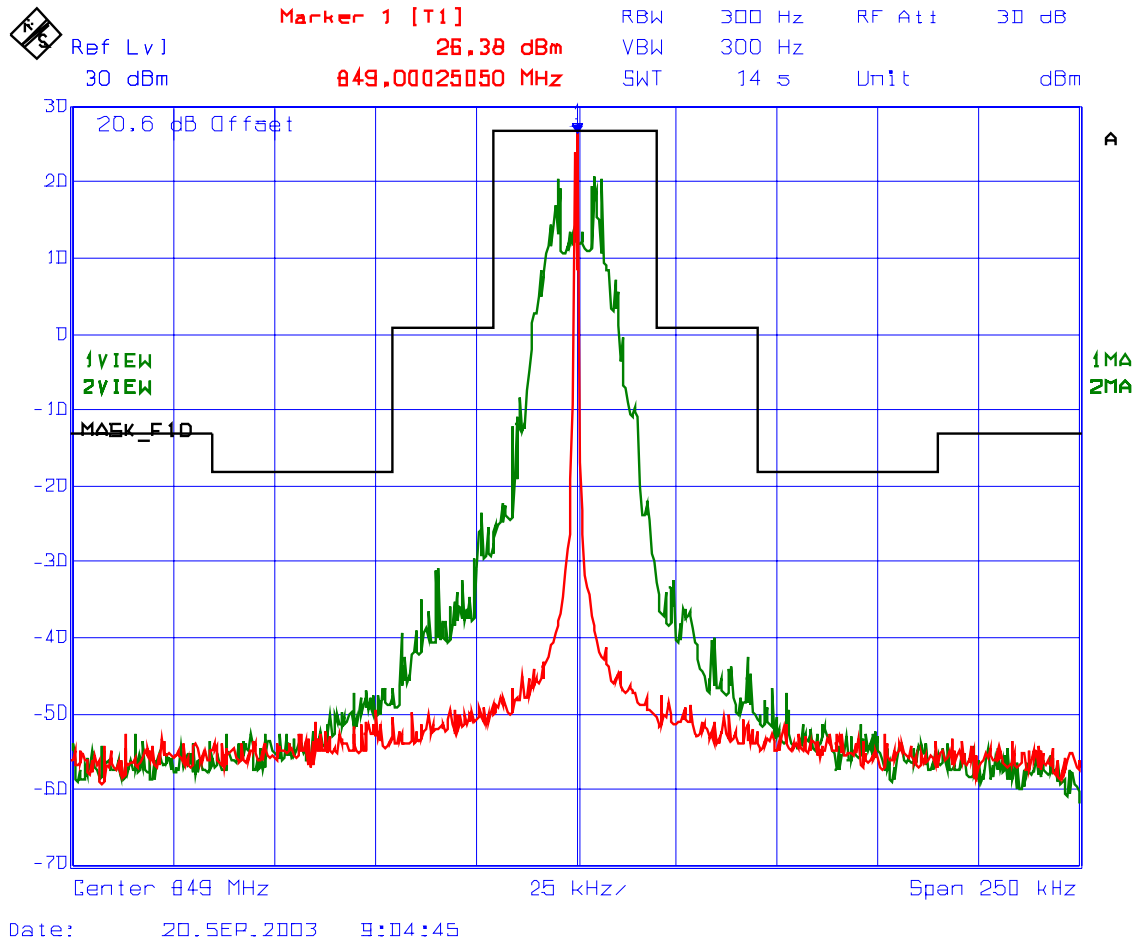
3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

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PLOT # 177 Emission Mask F1D, frequency 824-849 MHz- RF Output
Frequency: 849 MHz
Modulation: FM Modulation with an external 9600 b/s random data source



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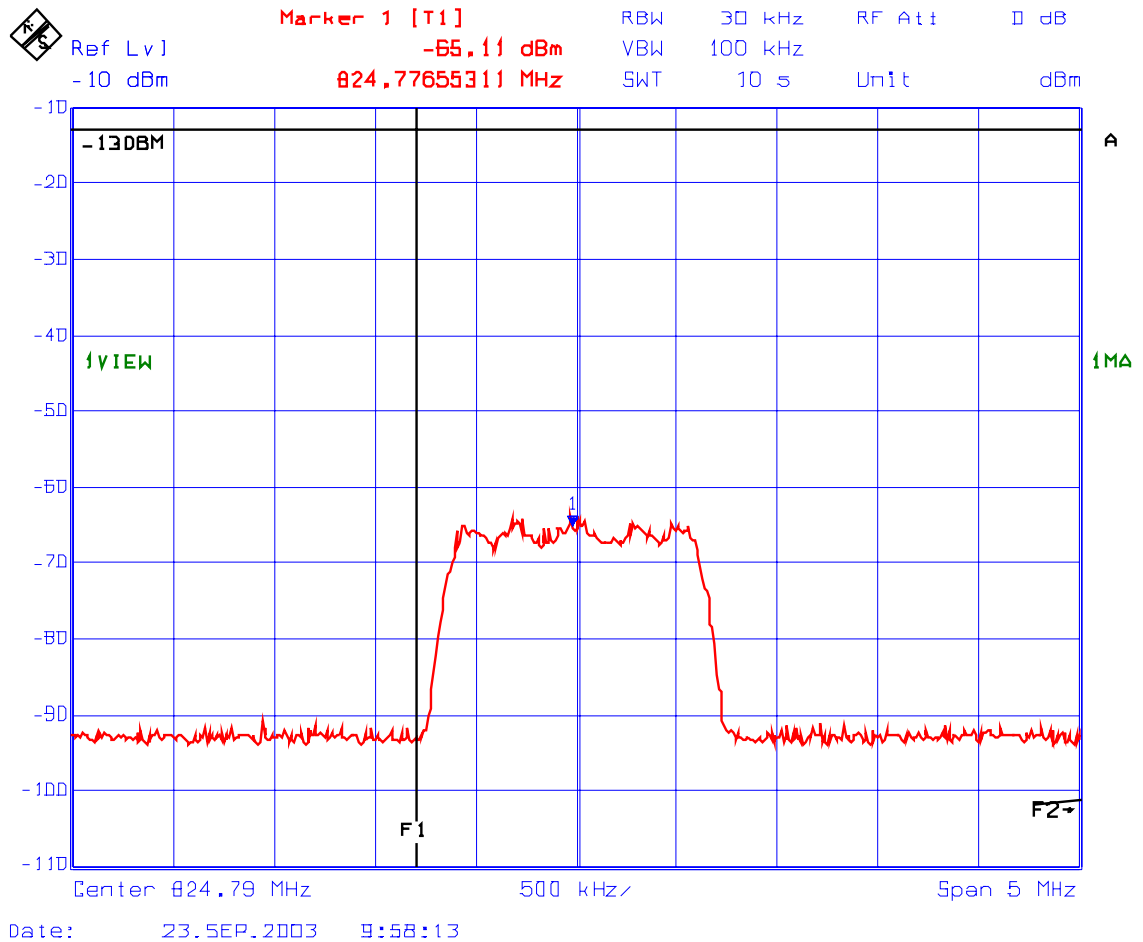
3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

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PLOT # 178 Lower Band-Edge RF Input band 824 - 849 MHz
Fc: 824.79 MHz



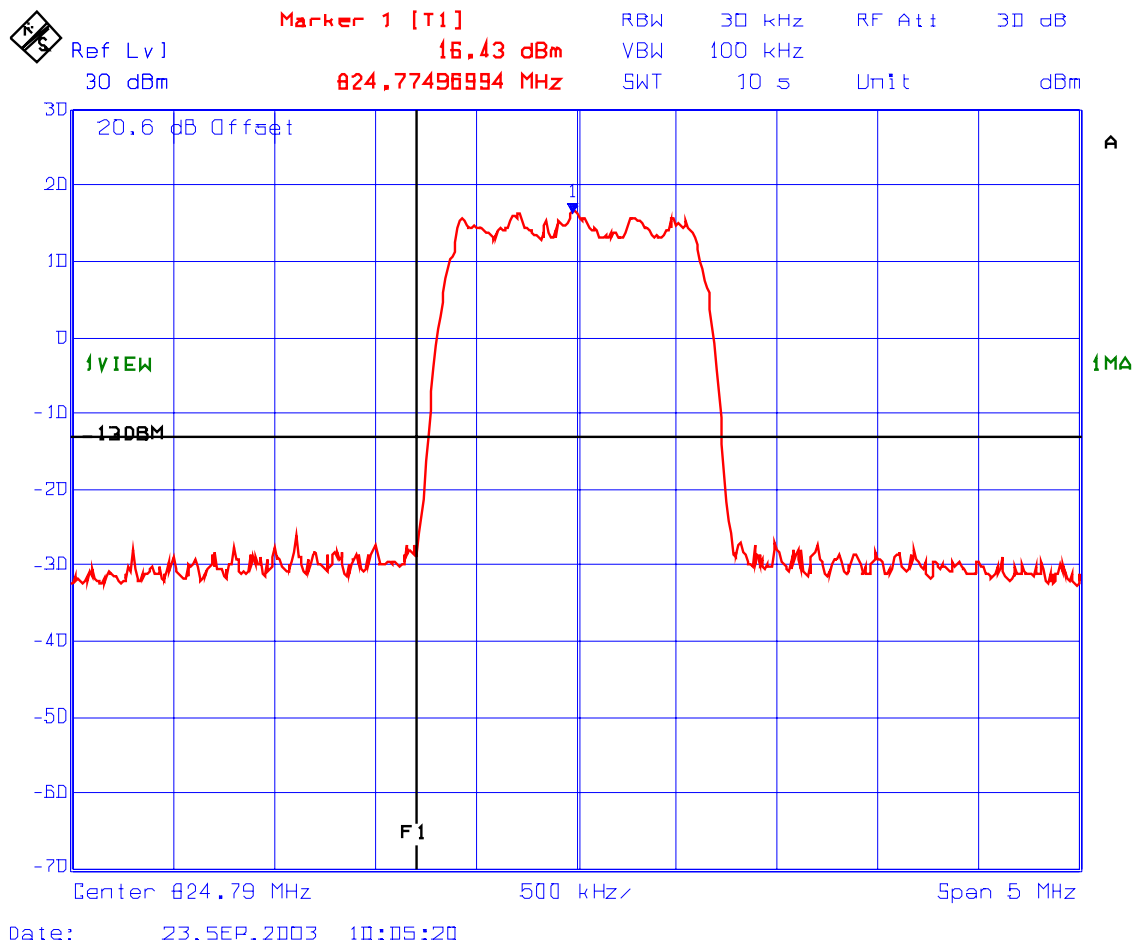
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PLOT # 179 Lower Band-Edge RF Output band 824 - 849 MHz
Fc: 824.79 MHz



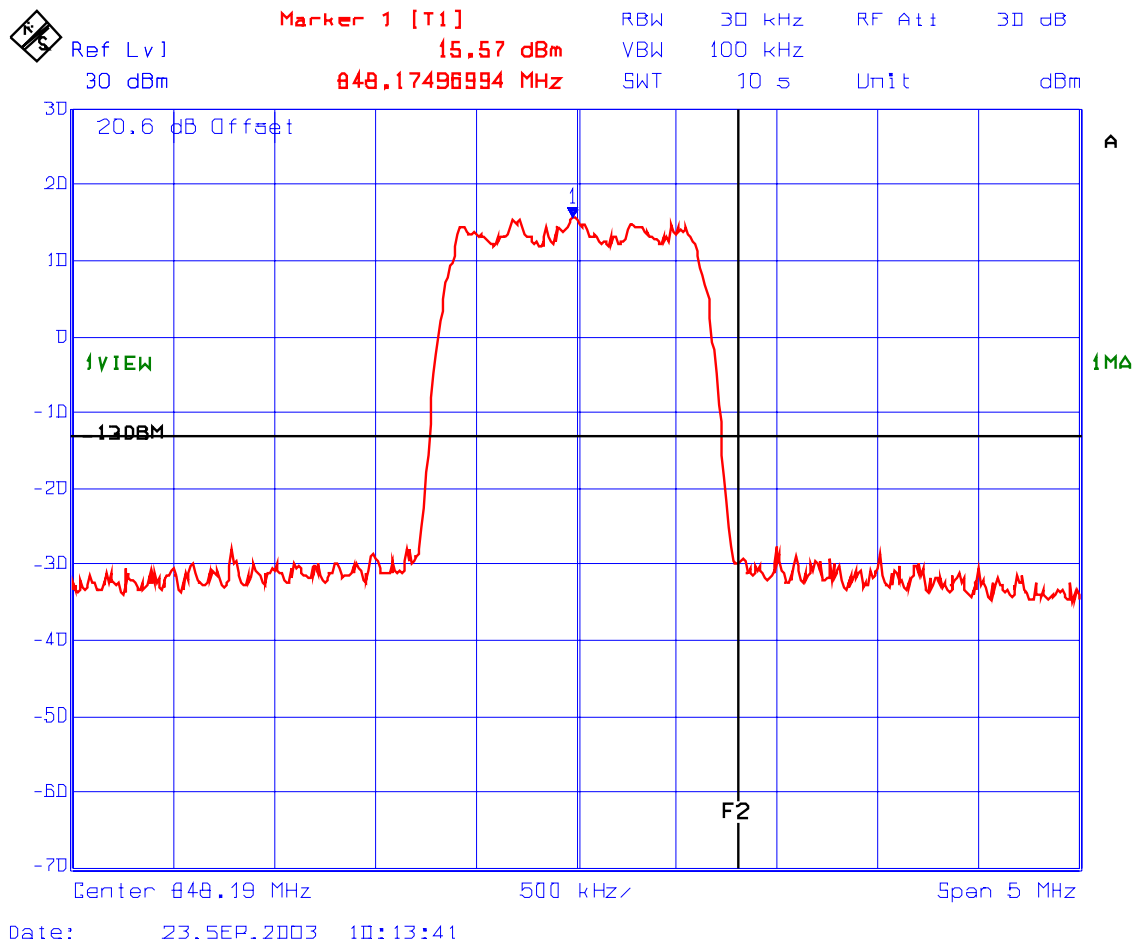
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PLOT # 180 Upper Band-Edge RF Output band 824 - 849 MHz
Fc: 848.19 MHz



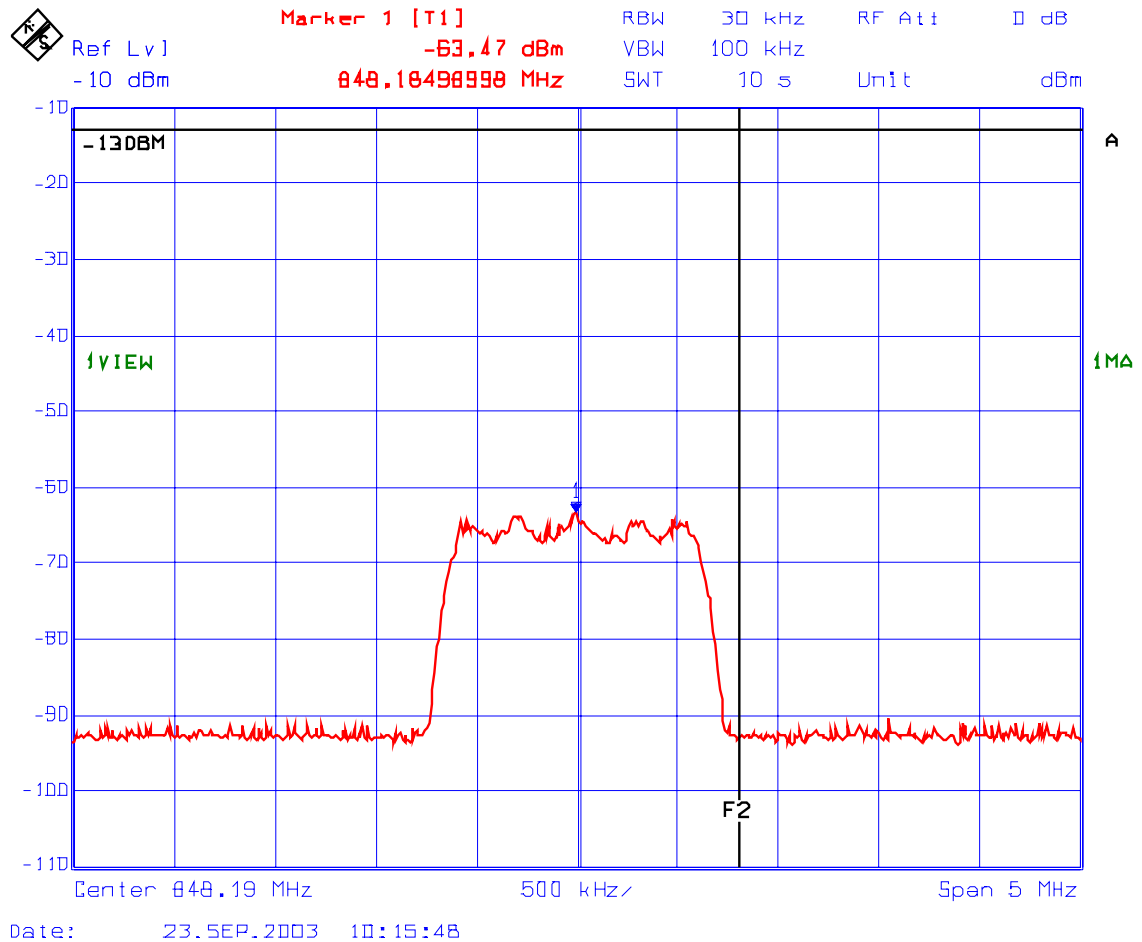
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PLOT # 181 Upper Band-Edge RF Input band 824 - 849 MHz
Fc: 848.19 MHz



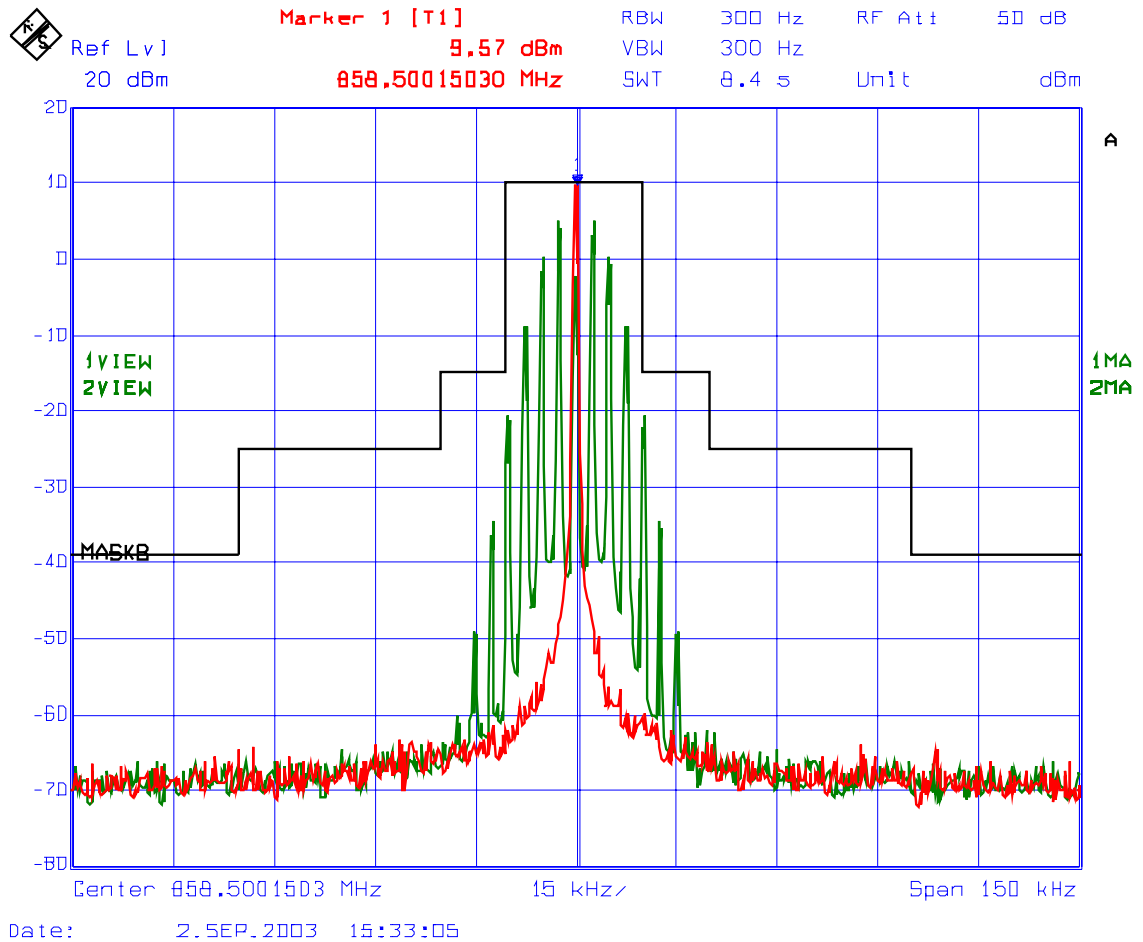
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PLOT # 182 Emission Mask B, frequency 851-866 MHz- RF Input
Frequency: 851 MHz, 25 kHz Channel Spacing
Modulation: FM modulation with 2.5 kHz Sine wave signal



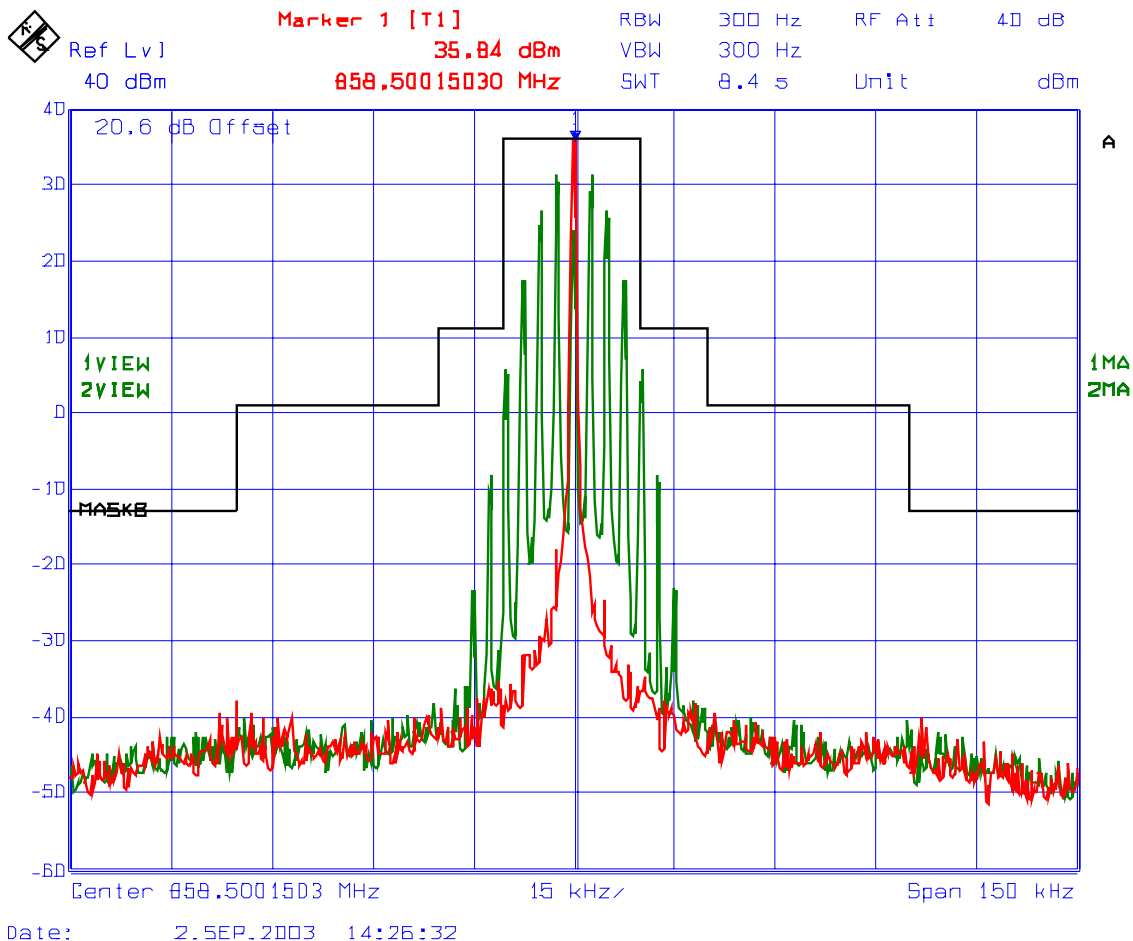
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Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

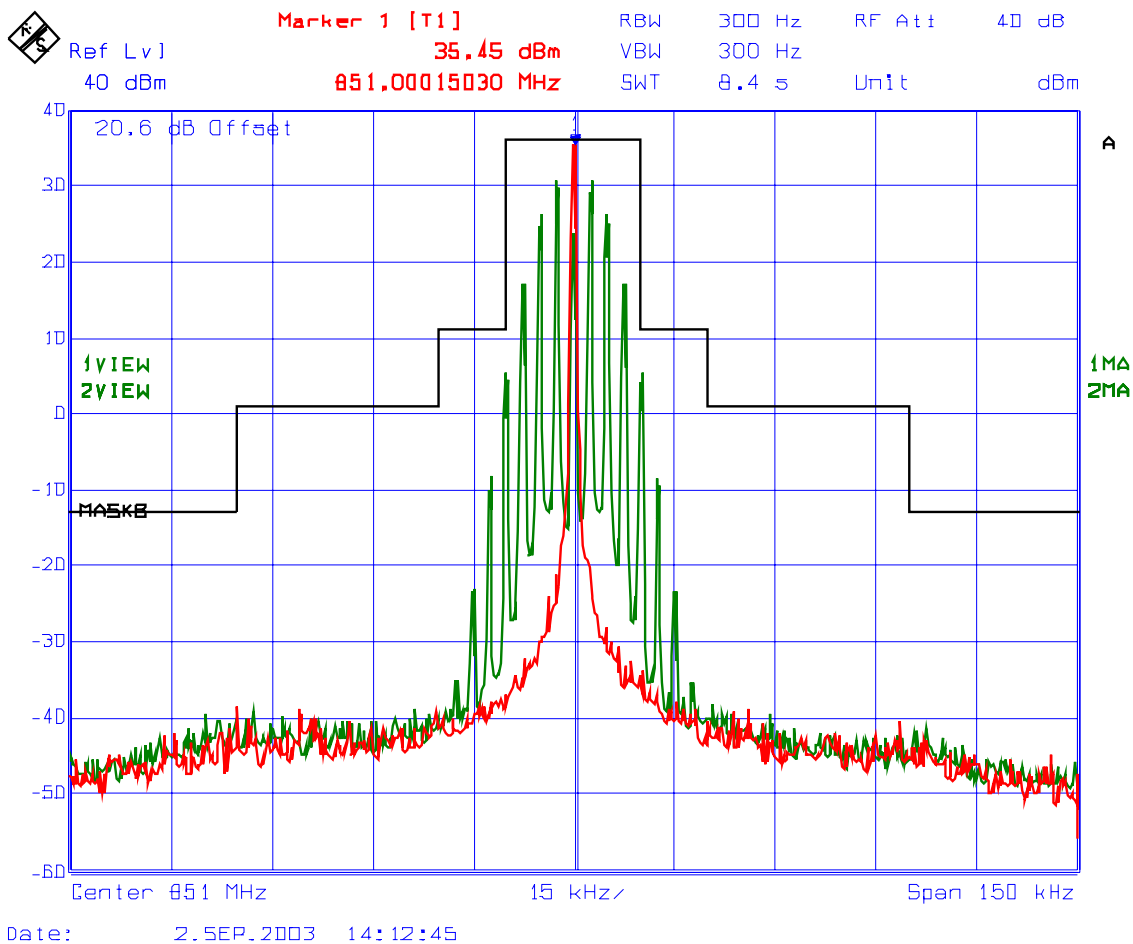
File #: KT1-034FCC22-90
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PLOT # 183 Emission Mask B, frequency 851-866 MHz- RF Output
Frequency: 858.5 MHz, 25 kHz Channel Spacing
Modulation: FM modulation with 2.5 kHz Sine wave signal



PLOT # 184 Emission Mask B, frequency 851-866 MHz- RF Output
Frequency: 858.5 MHz, 25 kHz Channel Spacing
Modulation: FM modulation with 2.5 kHz Sine wave signal



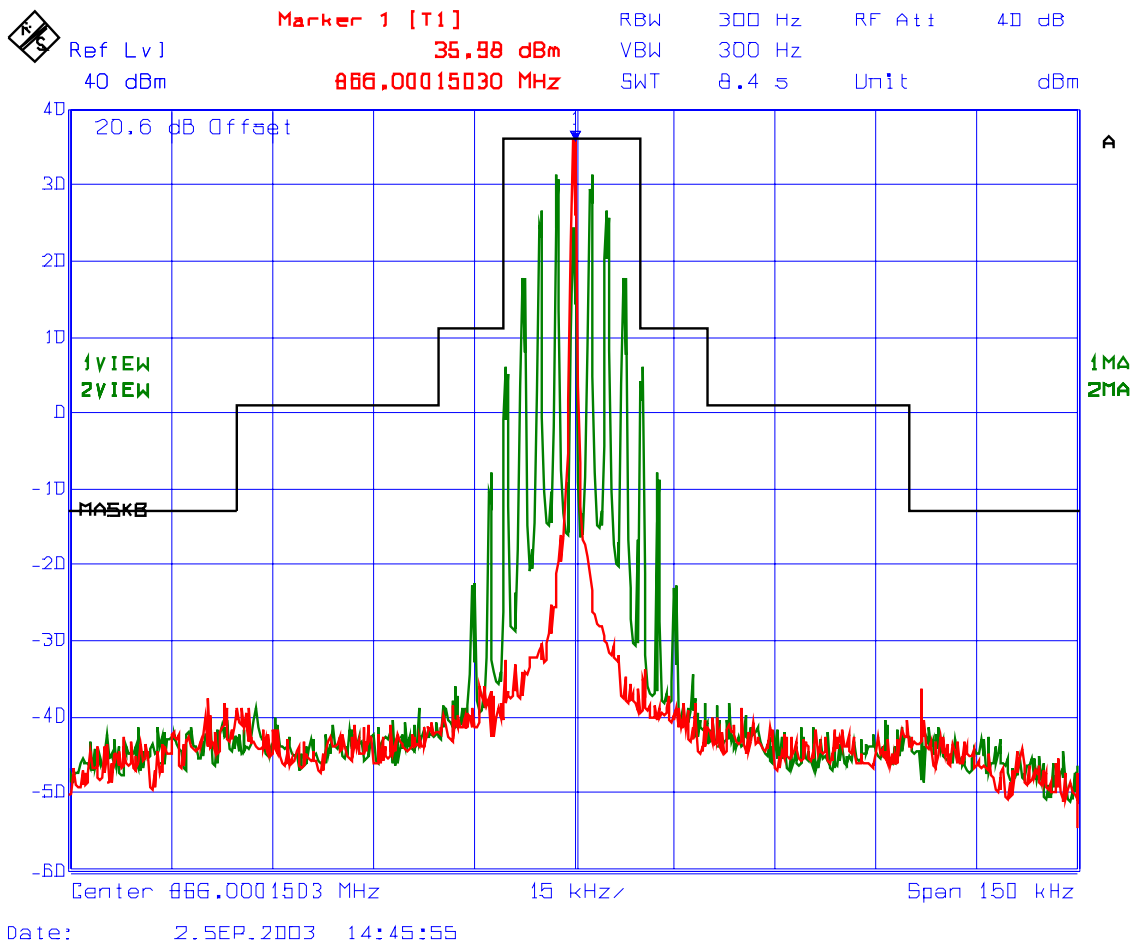
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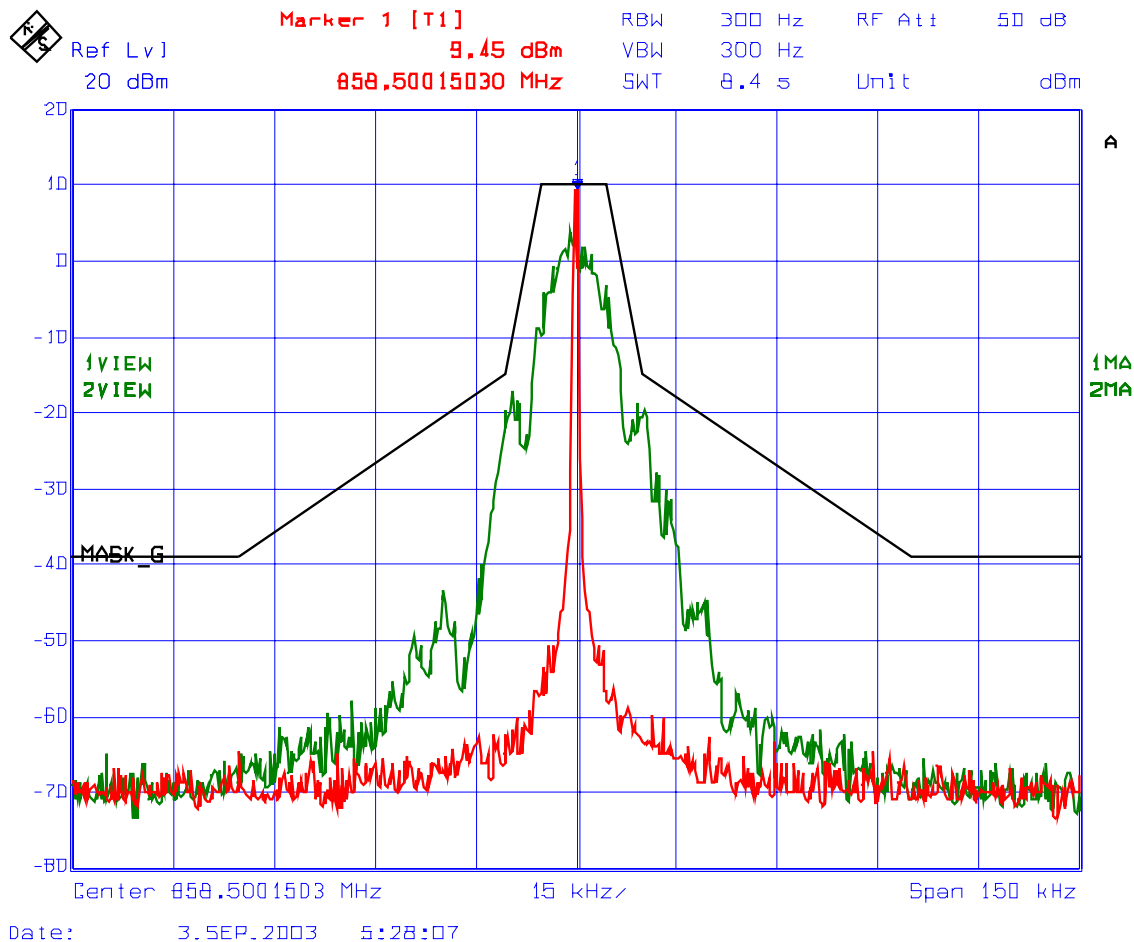
File #: KT1-034FCC22-90
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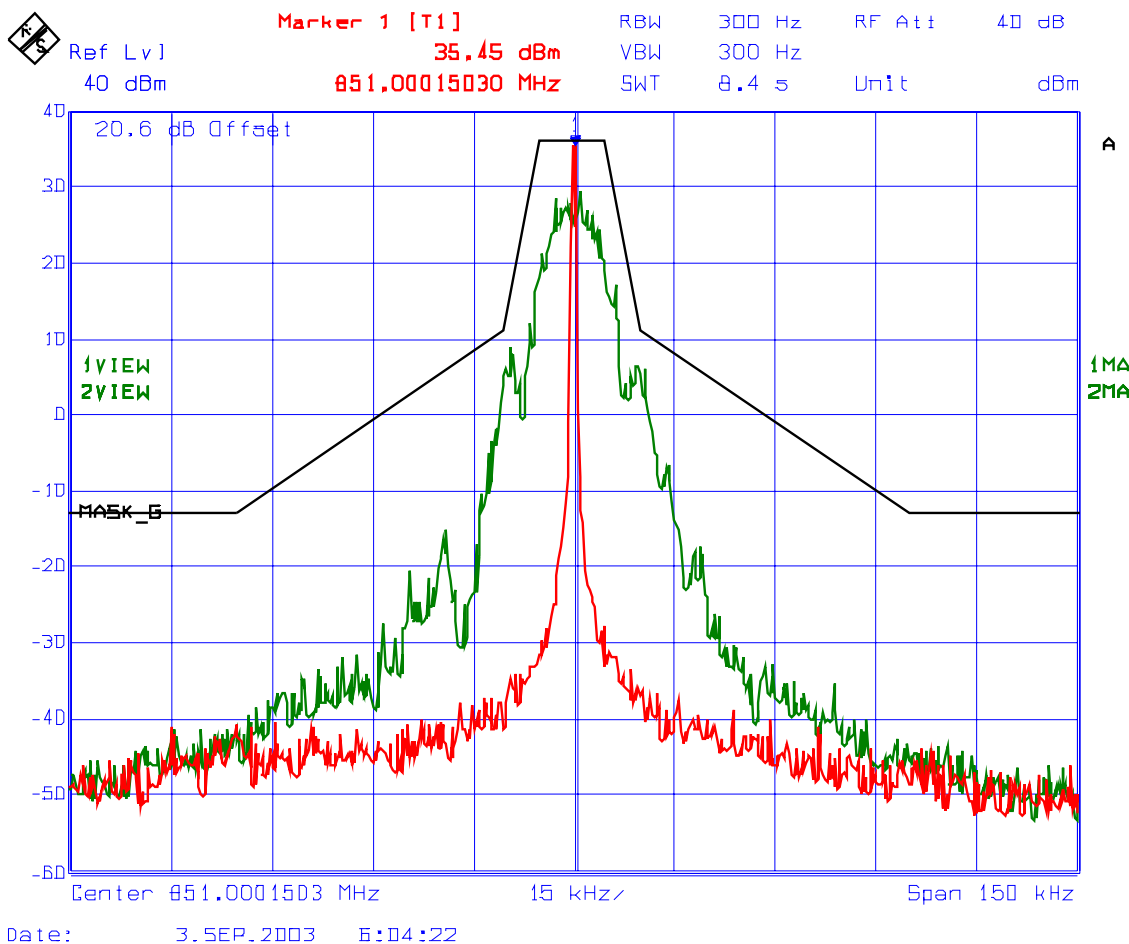
PLOT # 185 Emission Mask B, frequency 851-866 MHz- RF Output
Frequency: 866 MHz, 25 kHz Channel Spacing
Modulation: FM modulation with 2.5 kHz Sine wave signal



PLOT # 186 Emission Mask, G frequency 851-866 MHz- RF Input
Frequency: 851 MHz, 25 kHz Channel Spacing
Modulation: FM modulation with an external 9600 b/s random data source



PLOT # 187 Emission Mask G, frequency 851-866 MHz- RF Output
Frequency: 858.5 MHz, 25 kHz Channel Spacing
Modulation: FM modulation with an external 9600 b/s random data source



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