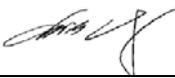


**FCC PART 22 TYPE APPROVAL**  
**EMI MEASUREMENT AND TEST REPORT**  
For  
**ZTE Corporation**

ZTE Plaza, Hi-tech Park, Nanshan District, Shenzhen, Guangdong, China

**FCC ID: Q78-CBTSI18A**

October 31, 2005

<b>This Report Concerns:</b> <input checked="" type="checkbox"/> Original Report	<b>Equipment Type:</b> CDMA2000 Compact Base Transceiver Station-I1
<b>Test Engineer:</b> Sam Lin 	
<b>Report No.:</b> RSZ05091604	
<b>Test Date:</b> September 22-30, 2005	
<b>Reviewed By:</b> Chris Zeng 	
<b>Prepared By:</b> Bay Area Compliance Lab Corp. (ShenZhen) 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone, ShenZhen, Guangdong 518038, P.R.China Tel: +86-755-33320018 Fax: +86-755-33320008	

**Note:** The test report is specially limited to the above company and this particular sample only. It may not be duplicated without prior written consent of Bay Area Compliance Lab Corp. (ShenZhen). This report **must not** be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the US Government.

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## GENERAL INFORMATION

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### Product Description for Equipment Under Test (EUT)

The ZTE Corporation's product, model number: ZXC10 CBTS I18A or the "EUT" as referred to in this report is a CDMA2000 Compact Base Transceiver Station-I1. The EUT is measured approximately 70.0 cm L x 80.0cmW x 80.0cmH, rated input voltage: DC -48 V.

*\* The test data gathered are from production sample, serial number: 0504170, provided by the manufacture, we receive the EUT on 2005-9-16.*

### Objective

This Type approval report is prepared on behalf of ZTE Corporation in accordance with Part 2, Subpart J and Part 22 Subpart H of the Federal Communication Commissions rules.

### Related Submittal(s)/Grant(s)

No related submittal(s).

### Test Methodology

All tests and measurements indicated in this document were performed in accordance with the Code of federal Regulations Title 47 Part 2,Sub-part J as well as the following parts:

Part 22 Subpart H - Public Mobile Services

Applicable Standards: TIA EIA 137-A, TIA EIA 97-D, TIA/EIA 603-B, Land Mobile FM or PM Communications Equipment Measurement and Performance Standards.

### Test Facility

The Test site used by Bay Area Compliance Lab Corp. (ShenZhen) to collect test data is located in the 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone, ShenZhen, Guangdong 518038, P.R.China.

Test site at Bay Area Compliance Lab Corp. (ShenZhen) has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on November 04, 2004. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2003.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 382179. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, Bay Area Compliance Lab Corp. (ShenZhen) is a National Institute of Standards and Technology (NIST) accredited laboratory, under the National Voluntary Laboratory Accredited Program (Lab Code 200707-0). The current scope of accreditations can be found at <http://ts.nist.gov/ts/htdocs/210/214/scopes/2007070.htm>

**External I/O Cable**

<b>Cable Description</b>	<b>Length (M)</b>	<b>From/Port</b>	<b>To</b>
Unshielded Detachable DC Power Cable	3.0	EUT	DC Power Supply

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## **SYSTEM TEST CONFIGURATION**

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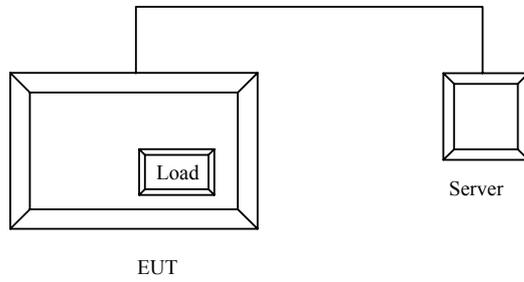
### **Description of Test Configuration**

The system was configured for testing in a typical fashion (as normally used by a typical user).

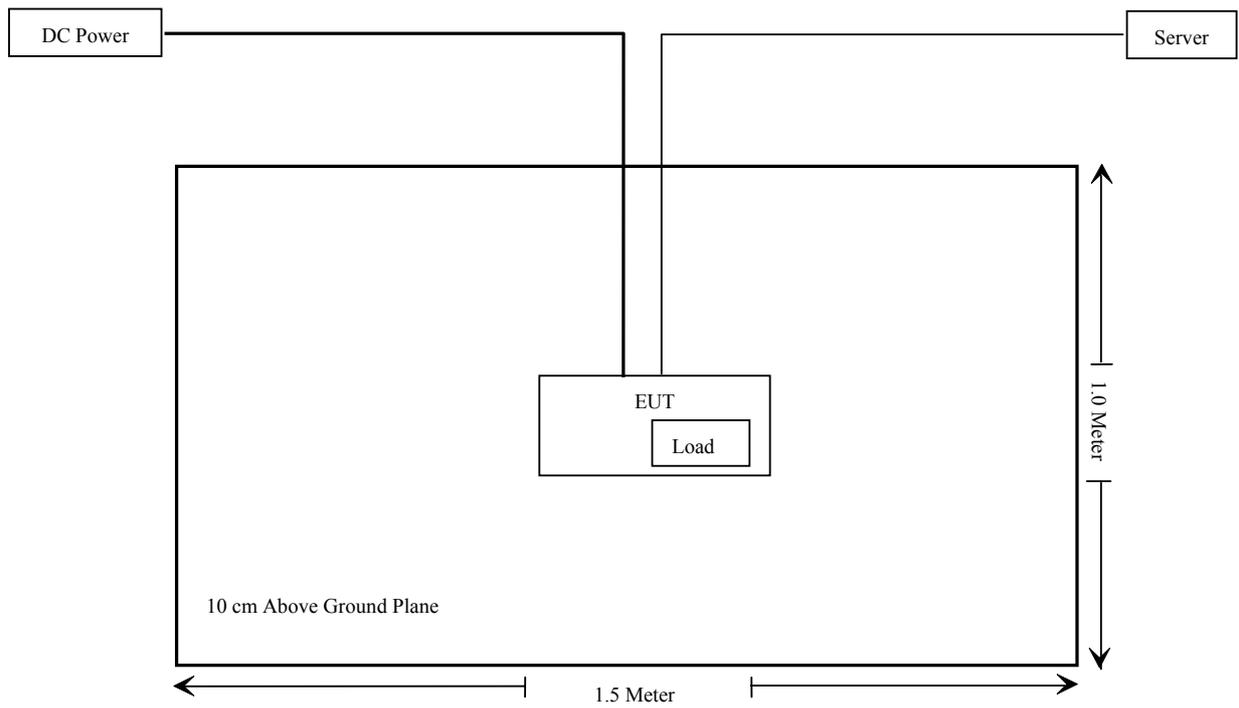
### **Equipment Modifications**

Bay Area Compliance Lab Corp. (ShenZhen) has not done any modification on the EUT.

### Configuration of Test Setup



### Block Diagram of Test Setup



**SUMMARY OF TEST RESULTS**

FCC RULES	DESCRIPTION OF TEST	RESULT
§2.1046, §22.913(a)	Effective radiated power	Compliant
§ 2.1091	RF Exposure	Compliant
§2.1047	Modulation characteristic	Compliant
§15.109(a)	Radiation Emission	Compliant
§2.1053	Spurious Radiated Emissions	Compliant
§2.1051, §22.917	Spurious Emissions AT Antenna Terminals	Compliant
§22.1049 §22.917 §22.905	Occupied Bandwidth	Compliant
§22.917	Band Edge	Compliant
§ 2.1055 (a) § 2.1055 (d) § 22.355	Frequency stability	Compliant

## §2.1091 - RF EXPOSURE

### Limit

According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

According to §1.1310 and §2.1093 RF exposure is calculated.

Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm <sup>2</sup> )	Averaging Time (minute)
Limits for Occupational/Controlled Exposures				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f <sup>2</sup> )	6
30-300	61.4	0.163	1.0	6
300-1500	/	/	f/300	6
1500-100,000	/	/	5	6

f = frequency in MHz

\* = Plane-wave equivalent power density

### Test Data

Predication of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = PG/4\pi R^2$$

Where: S = power density

P = power input to antenna

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna

Maximum peak output power at antenna input terminal: 46.80 (dBm)

Maximum peak output power at antenna input terminal: 47.86 (W)

Prediction distance: 300 (cm)

Predication frequency: 869.70 (MHz)

Antenna Gain (typical): 17 (dBi)

Power density at predication frequency at 300 cm: 0.720 (mW/cm<sup>2</sup>)

MPE limit for uncontrolled exposure at prediction frequency: 2.899 (mW/cm<sup>2</sup>)

Test Result: Pass

## **§2.1046, §22.913(a) - EFFECTIVE RADIATED POWER**

### **Applicable Standard**

According to FCC §2.1046 and §22.913 (a), the ERP of transmitters and cellular repeaters must not exceed 500 Watts.

### **Test Equipment List and Details**

<b>Manufacturer</b>	<b>Description</b>	<b>Model</b>	<b>Serial Number</b>	<b>Calibration Date</b>	<b>Calibration Due Date</b>
Agilent	PSA Spectrum Analyzer	E4445A	MY44300451	2005-6-3	2006-6-3

\* **Statement of Tractability:** Bay Area Compliance Lab Corp. (ShenZhen) attests that all calibrations have been performed per the NVLAP requirements, traceable to NIST.

### **Test Procedure**

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.

### **Test Data**

#### **Environmental Conditions**

Temperature:	18 °C
Relative Humidity:	53 %
ATM Pressure:	1009 mbar

*The testing was performed by Sam Lin on 2005-9-28.*

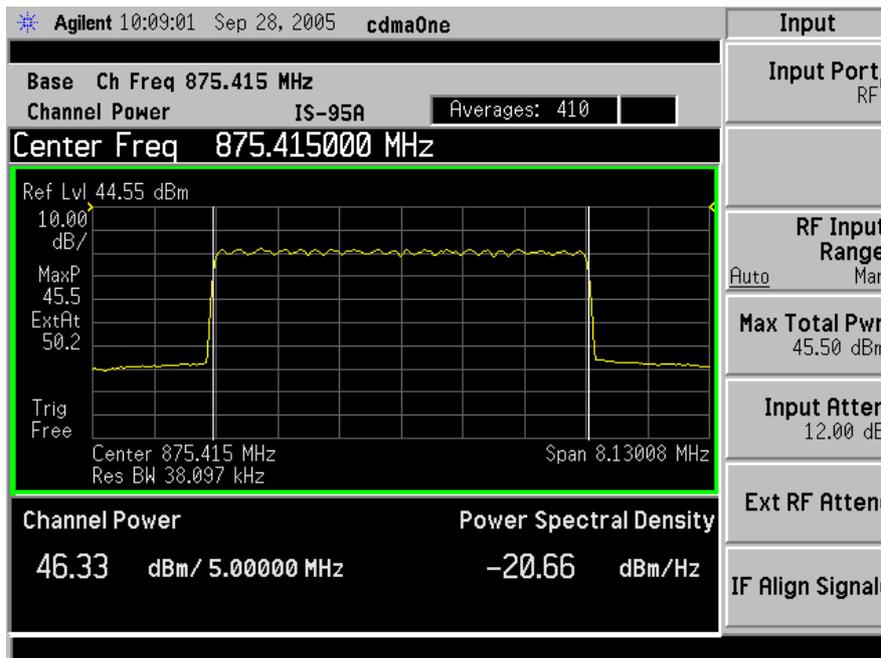
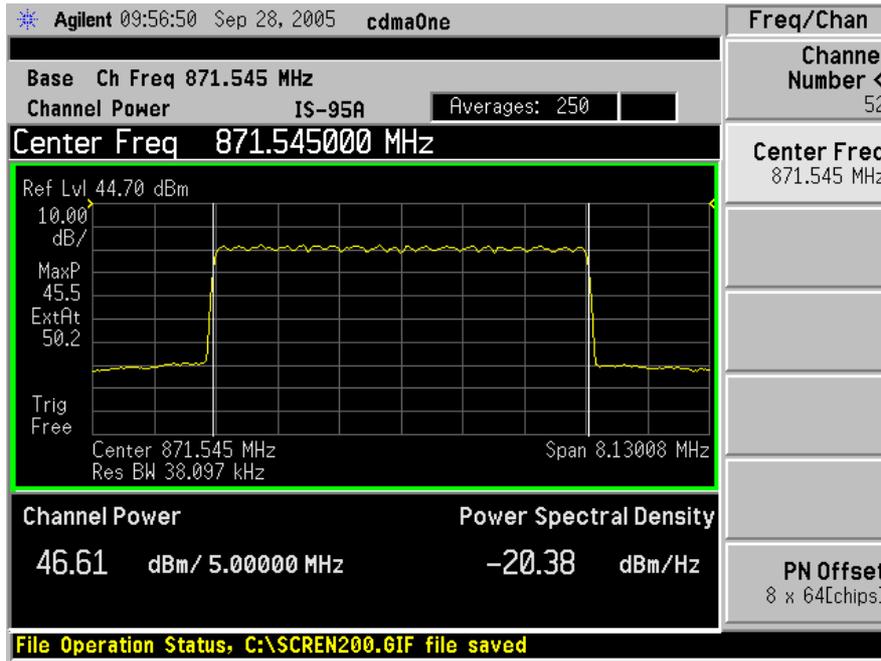
Test Result: Pass

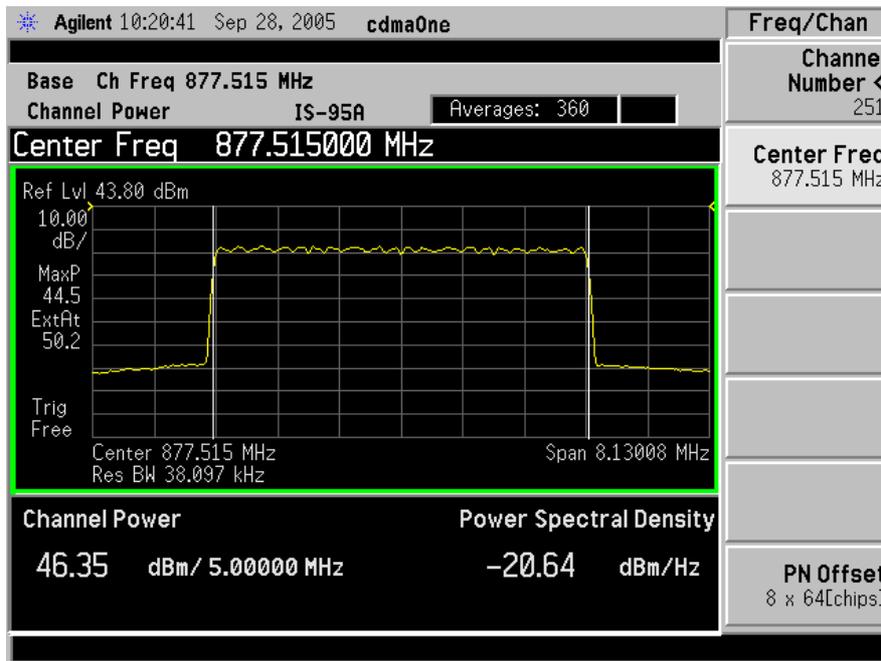
*Test Mode: Transmitting*

Digital Pre-Distortion Transceiver and Receiver Module DPA

4 Carrier

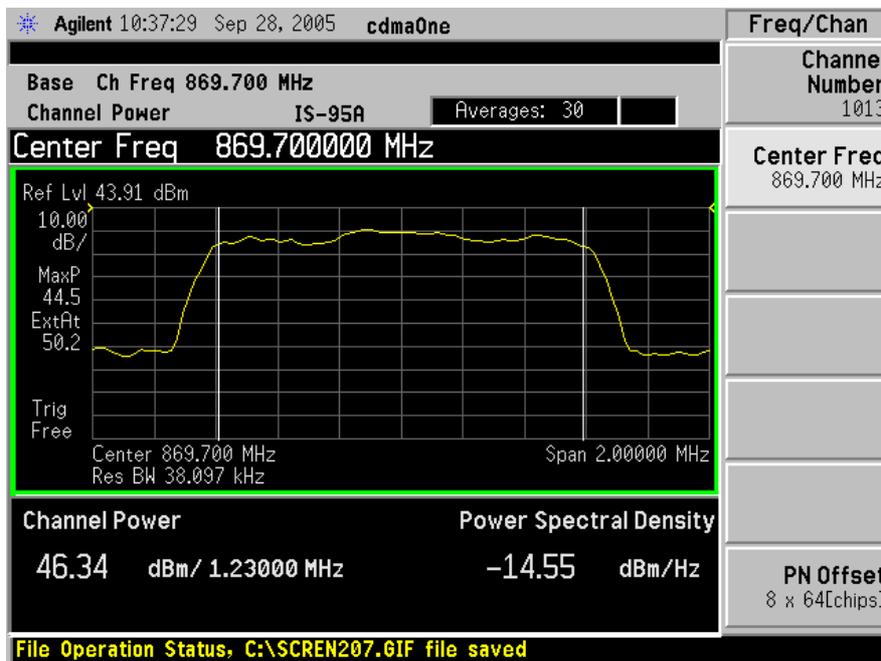
Channel	Frequency (MHz)	Total Power in dBm	Total Power in W	Limit in W
Channel 1013, 31, 72, 113	869.70	46.61	45.81	500
Channel 119, 160, 201, 242	873.57	46.33	42.95	500
Channel 189, 230, 271, 312	879.36	46.35	43.15	500

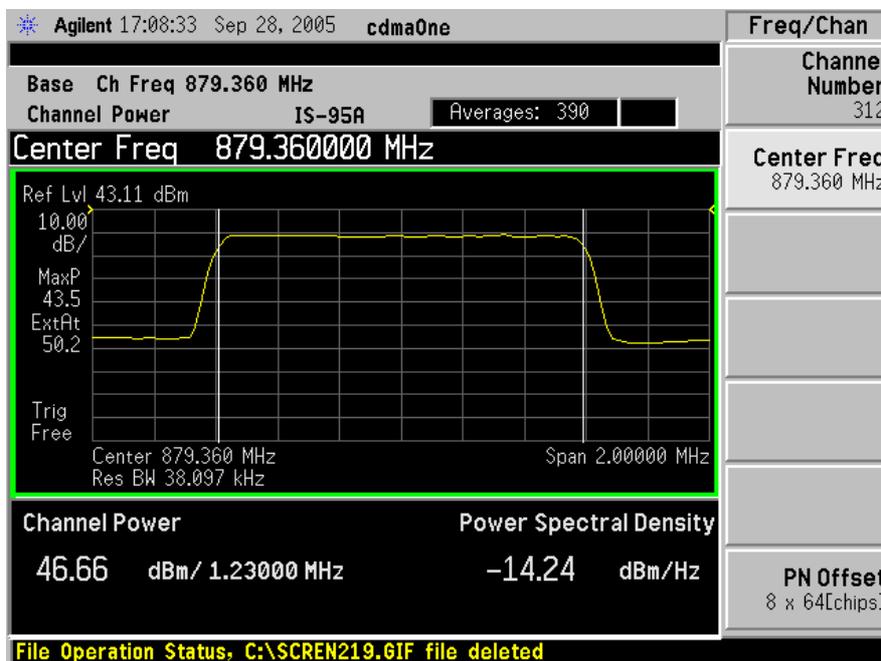
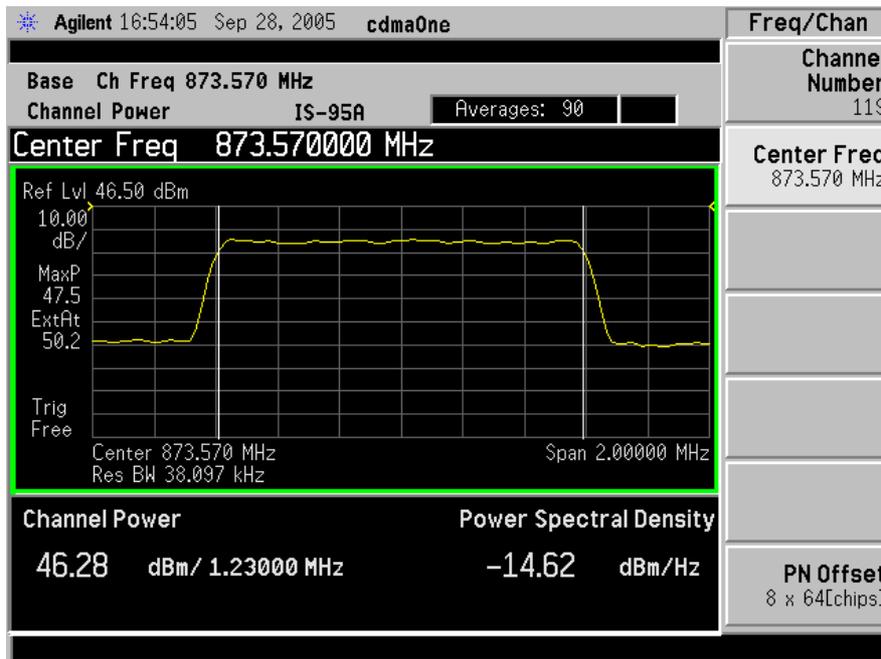




1 Carrier

Channel	Frequency (MHz)	Total Power in dBm	Total Power in W	Limit in W
Channel 1013	869.70	46.34	43.05	500
Channel 119	873.57	46.28	42.46	500
Channel 312	879.36	46.66	46.34	500

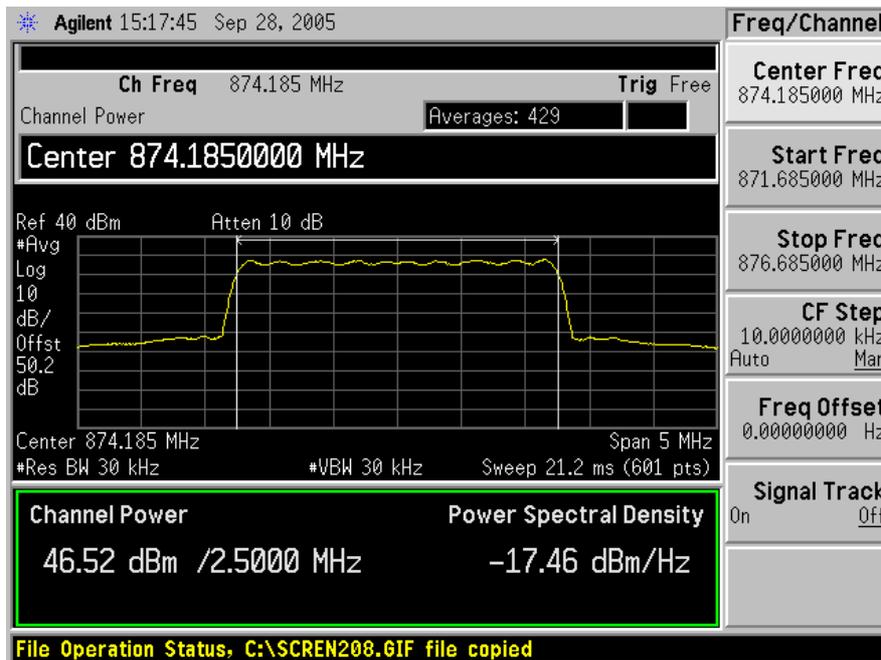
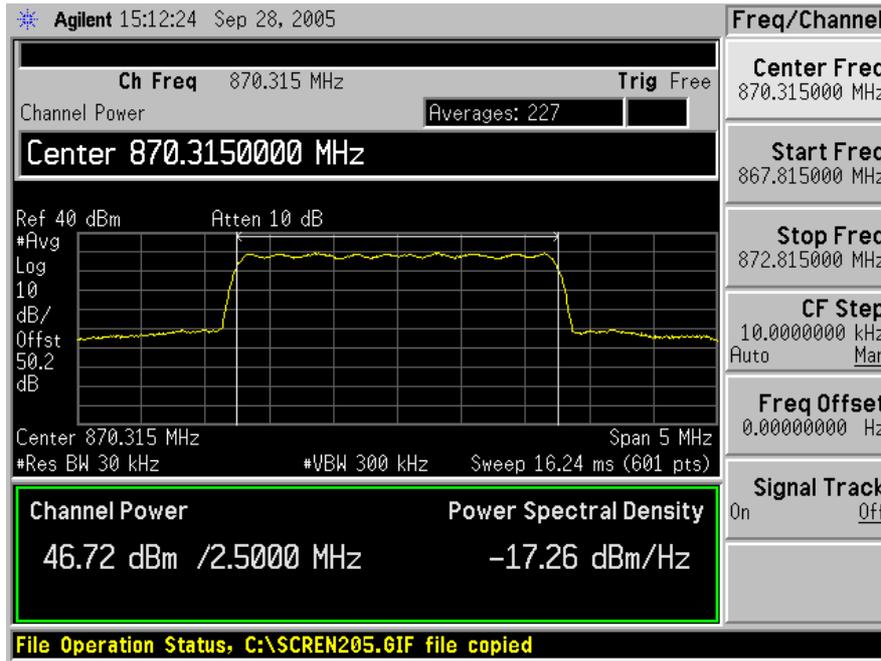


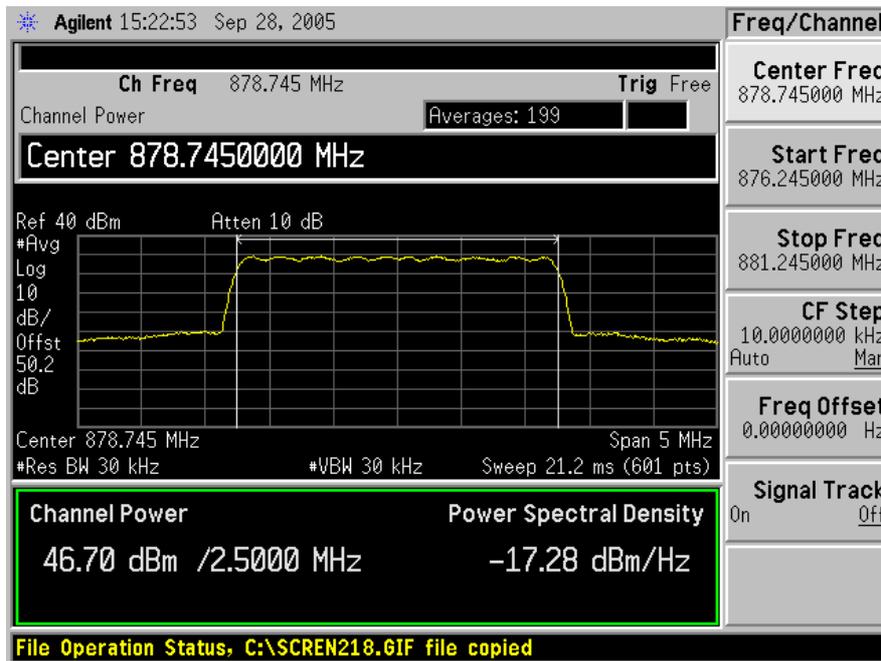


Transceiver and Receiver Module DPA

2 Carrier

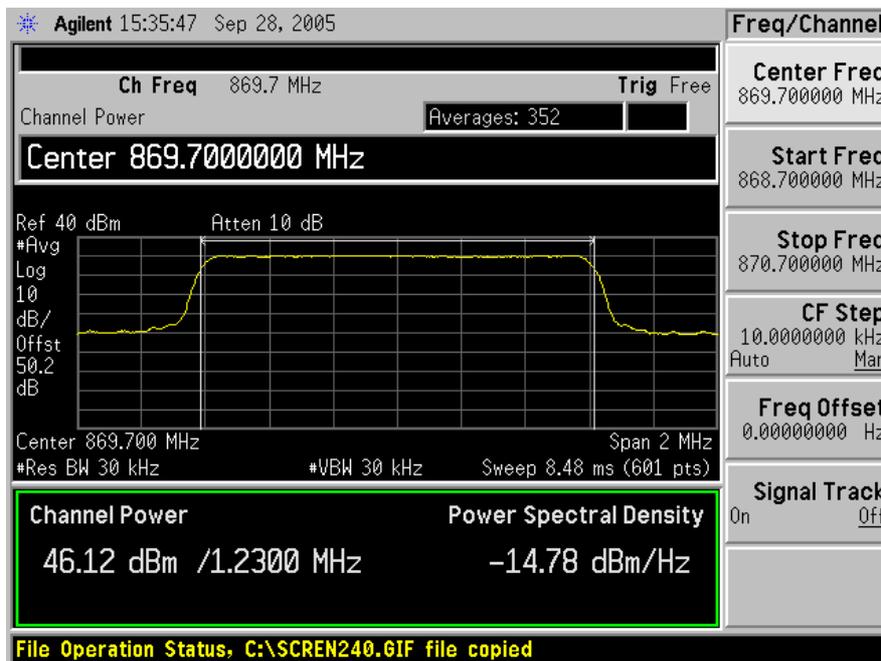
Channel	Frequency (MHz)	Total Power in dBm	Total Power in W	Limit in W
Channel 1013, 31	869.70	46.72	46.99	500
Channel 119, 160	873.57	46.52	44.87	500
Channel 271, 312	879.36	46.70	46.77	500

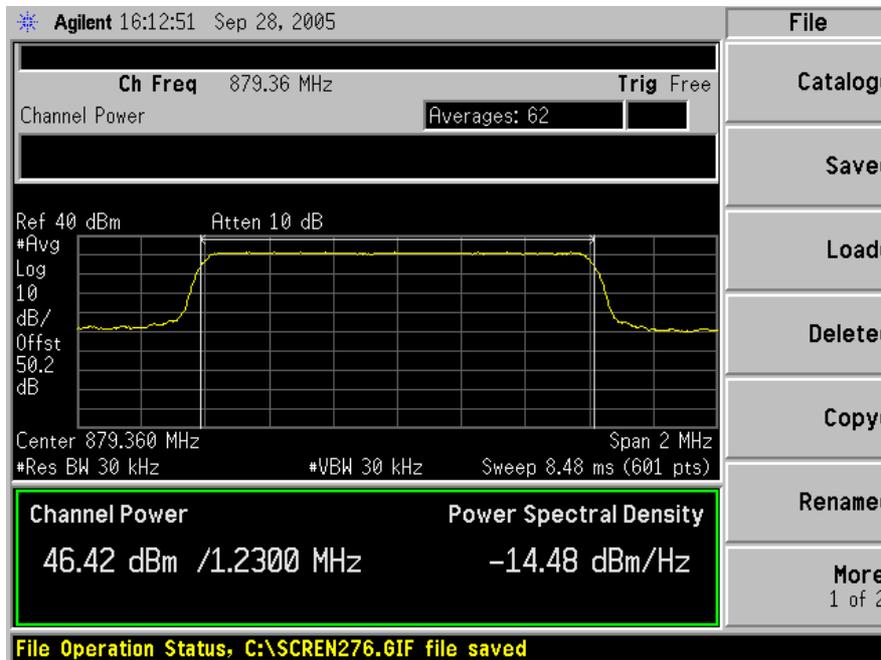
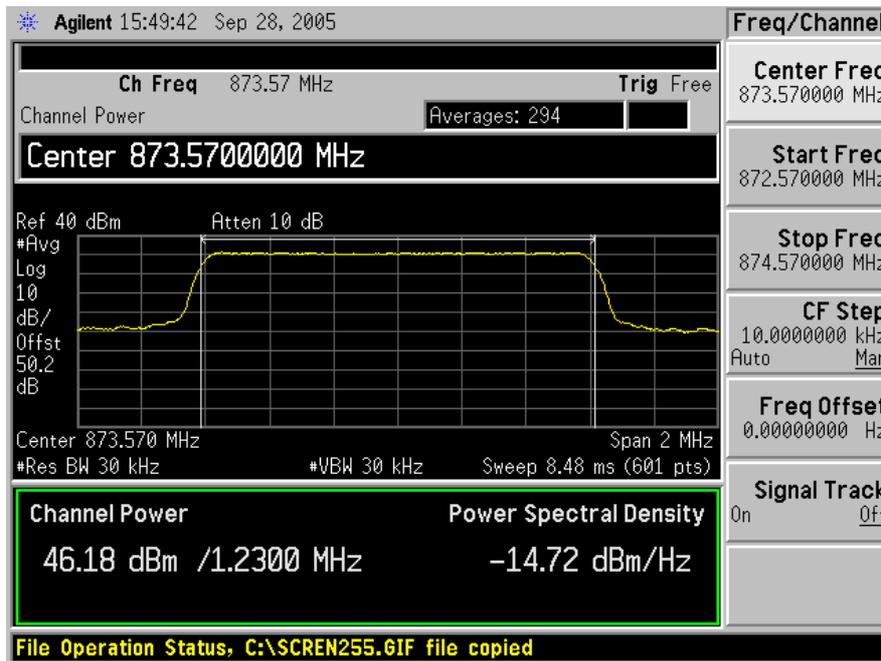




1 Carrier

Channel	Frequency (MHz)	Total Power in dBm	Total Power in W	Limit in W
Channel 1013	869.70	46.12	40.93	500
Channel 119	873.57	46.18	41.50	500
Channel 312	879.36	46.42	43.85	500

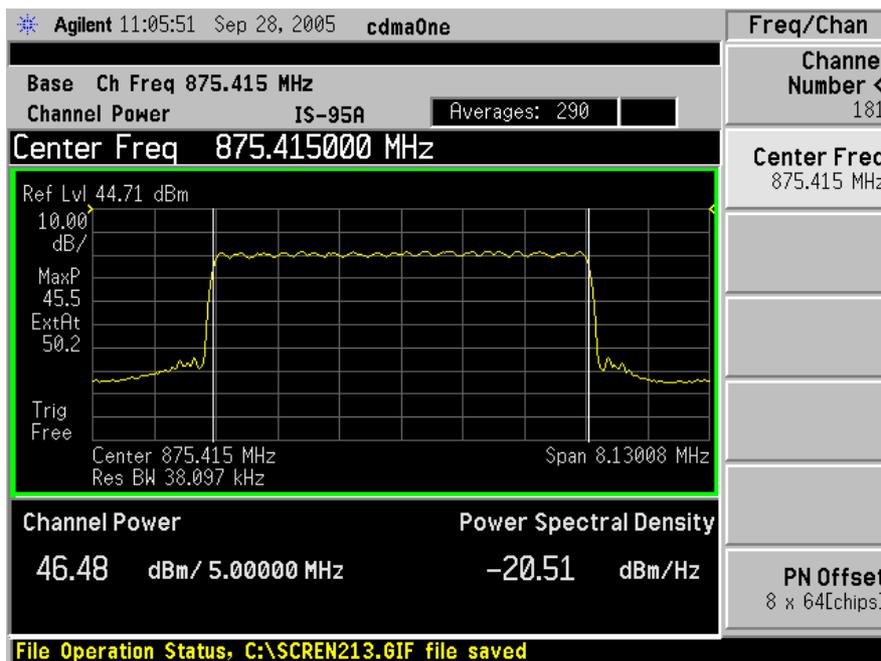
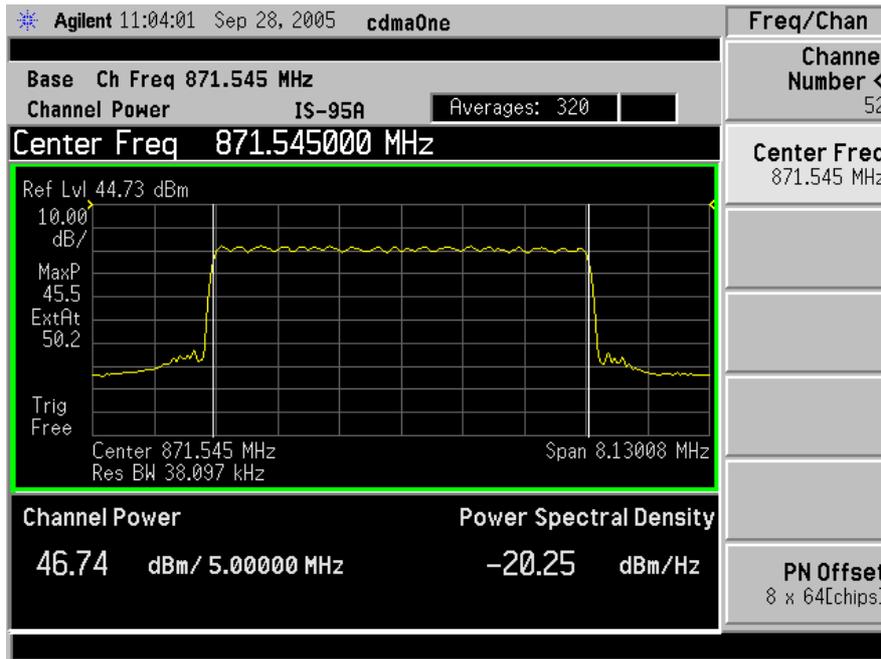


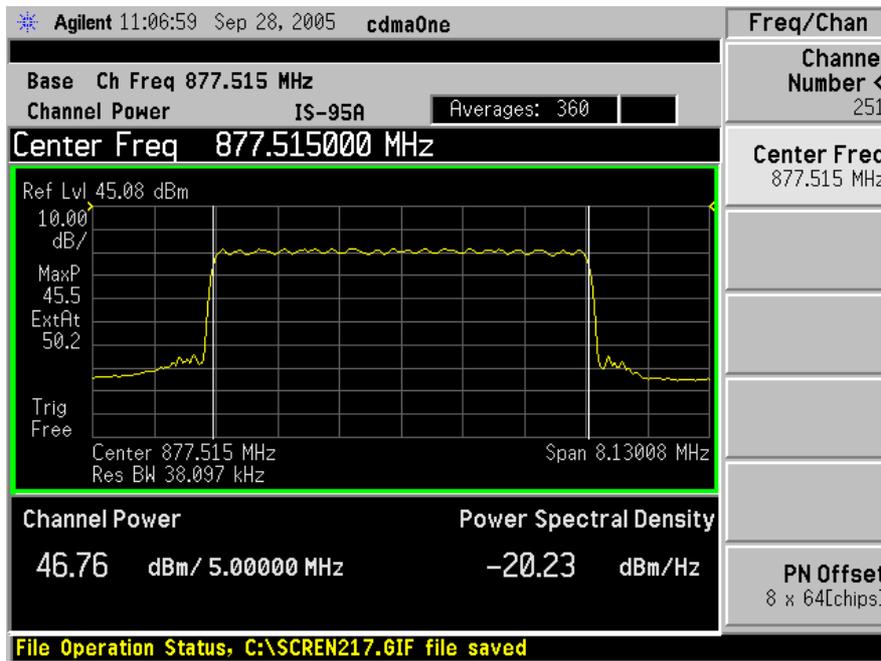


Transceiver and Receiver Module LPA1+RFE

4 Carrier

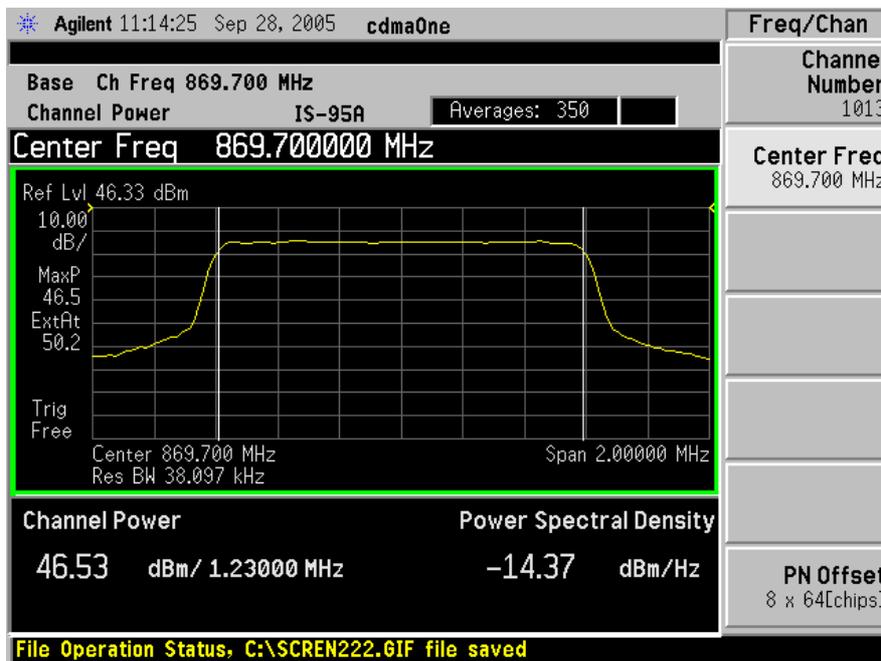
Channel	Frequency (MHz)	Total Power in dBm	Total Power in W	Limit in W
Channel 1013, 31, 72, 113	869.70	46.74	47.21	500
Channel 119, 160, 201, 242	873.57	46.48	44.46	500
Channel 189, 230, 271, 312	879.36	46.76	47.42	500

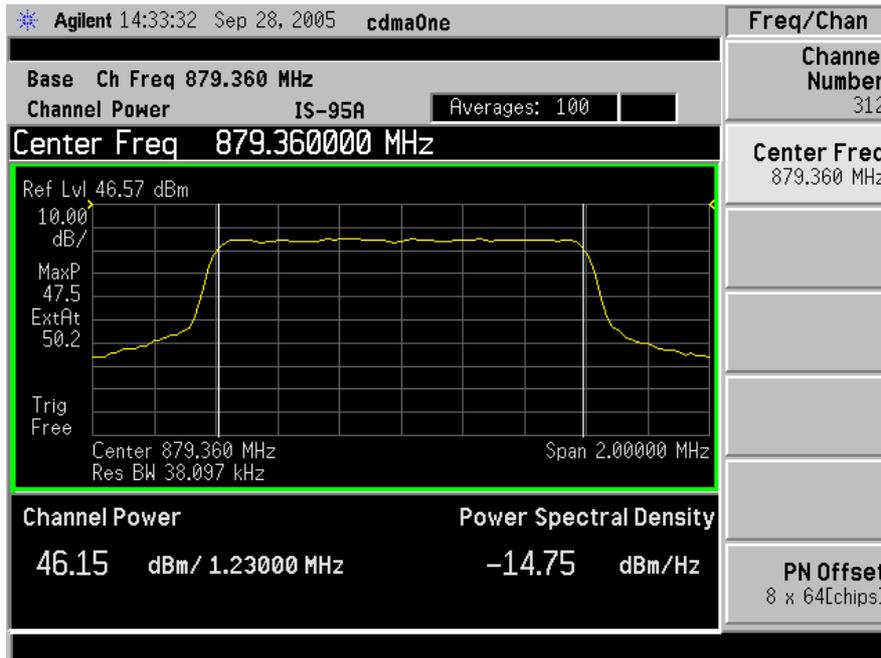
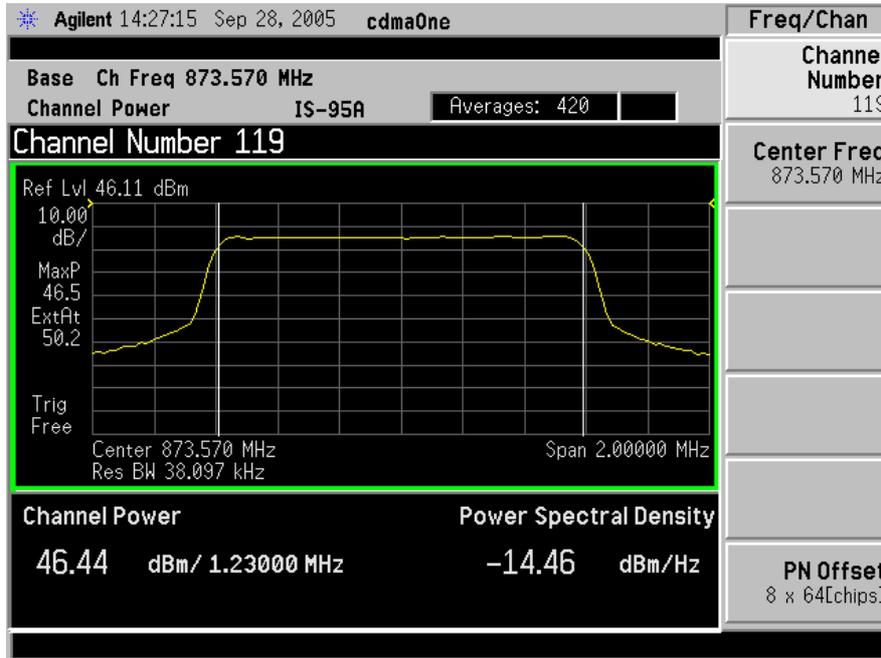




1 Carrier

Channel	Frequency (MHz)	Total Power in dBm	Total Power in W	Limit in W
Channel 1013	869.70	46.53	44.98	500
Channel 119	873.57	46.44	44.06	500
Channel 312	879.36	46.15	41.21	500

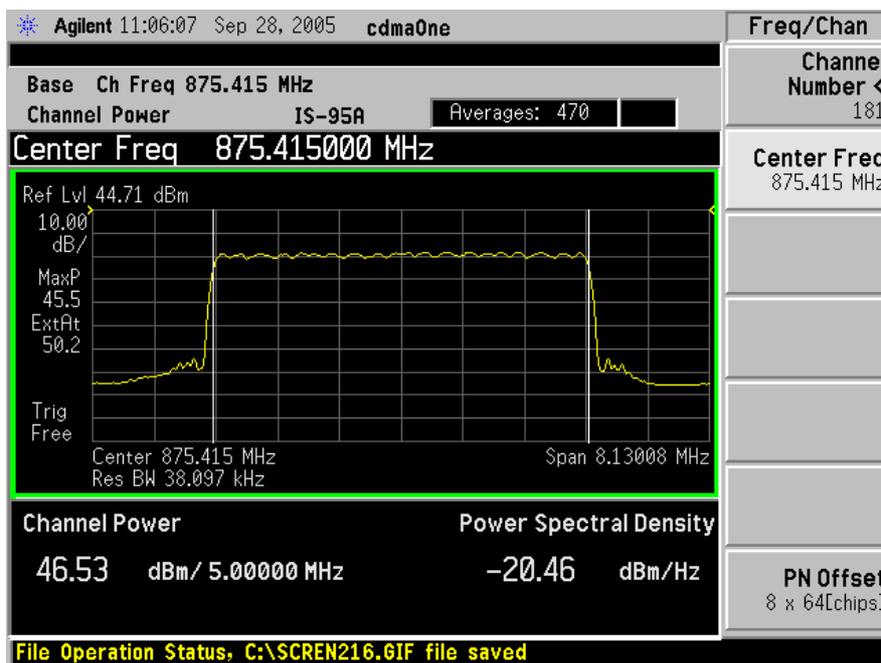
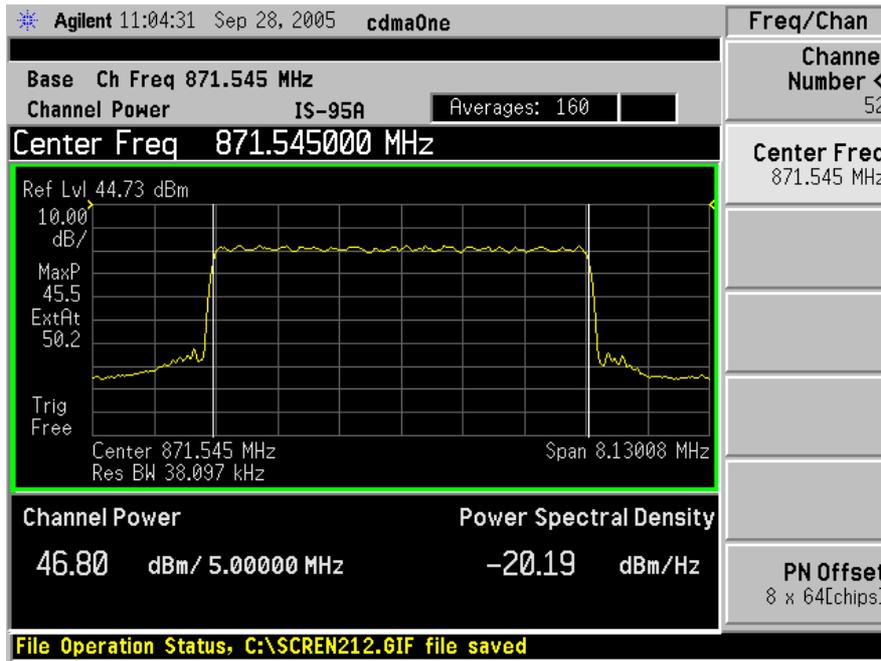


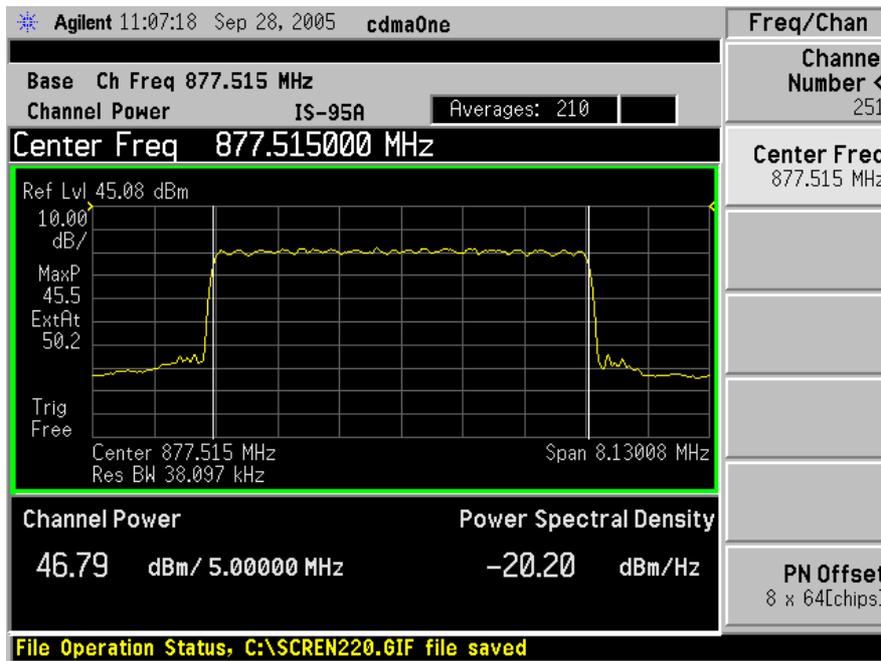


Transceiver and Receiver Module LPA2+RFE

4 Carrier

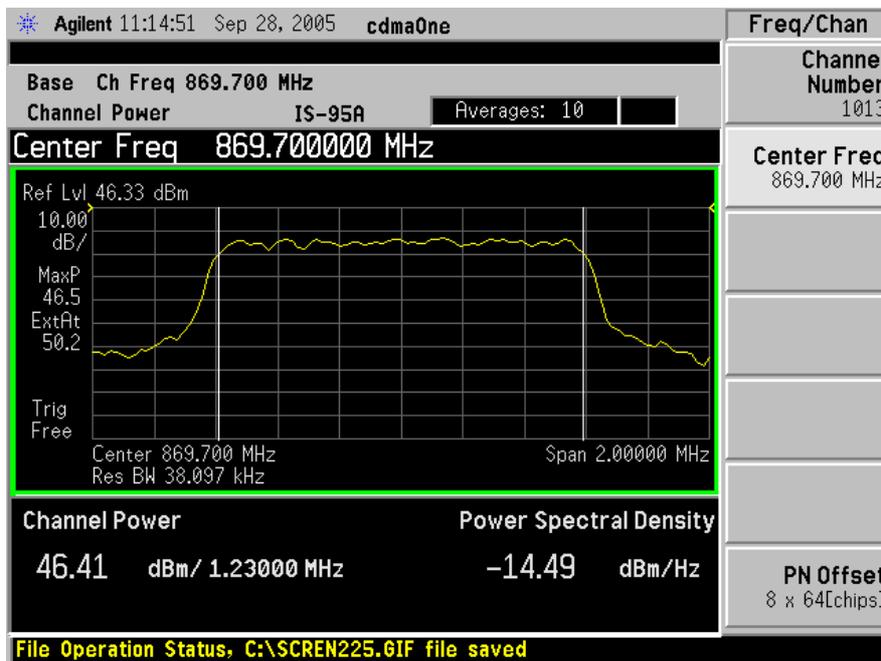
Channel	Frequency (MHz)	Total Power in dBm	Total Power in W	Limit in W
Channel 1013, 31, 72, 113	869.70	46.80	47.86	500
Channel 119, 160, 201, 242	873.57	46.53	44.98	500
Channel 189, 230, 271, 312	879.36	46.79	47.75	500

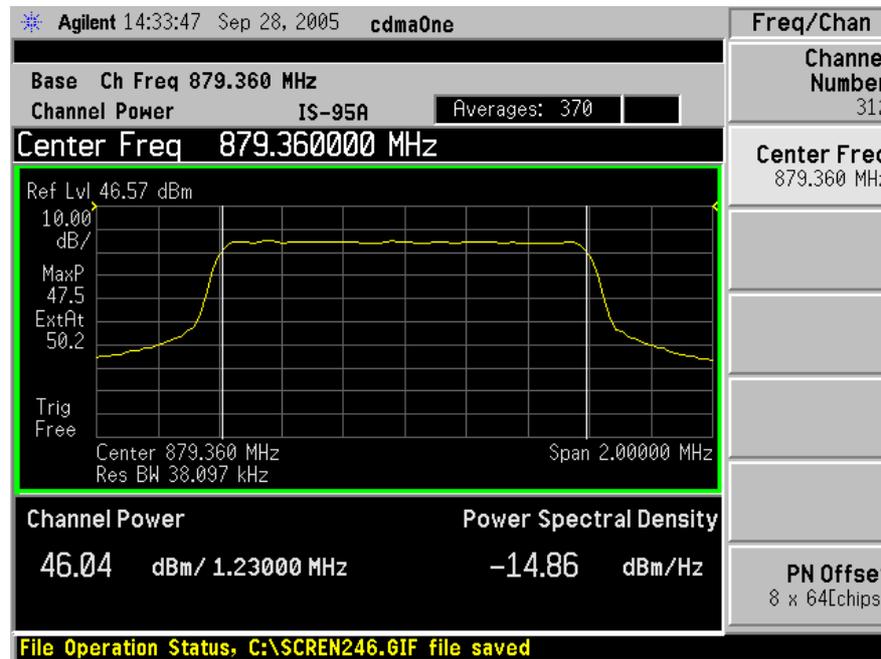
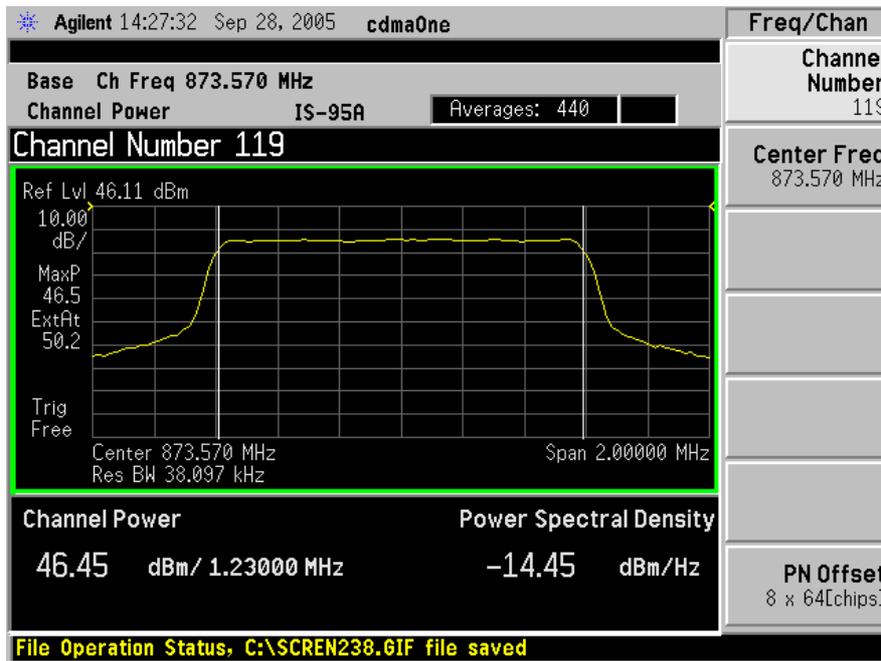




1 Carrier

Channel	Frequency (MHz)	Total Power in dBm	Total Power in W	Limit in W
Channel 1013	869.70	46.41	43.75	500
Channel 119	873.57	46.45	44.16	500
Channel 312	879.36	46.04	40.18	500





## §2.1047- MODULATION CHARACTERISTIC

### Applicable Standard

Requirement: §2.1047.

### Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	PSA Spectrum Analyzer	E4445A	MY44300451	2005-6-3	2006-6-3

\* **Statement of Traceability:** Bay Area Compliance Lab Corp. (ShenZhen) attests that all calibrations have been performed per the NVLAP requirements, traceable to NIST.

### Test Procedure

CDMA digital mode is used by EUT.

### Test Data

#### Environmental Conditions

Temperature:	18 °C
Relative Humidity:	53 %
ATM Pressure:	1009 mbar

*The testing was performed by Sam Lin on 2005-9-28, 2005-9-29, 2005-9-30.*

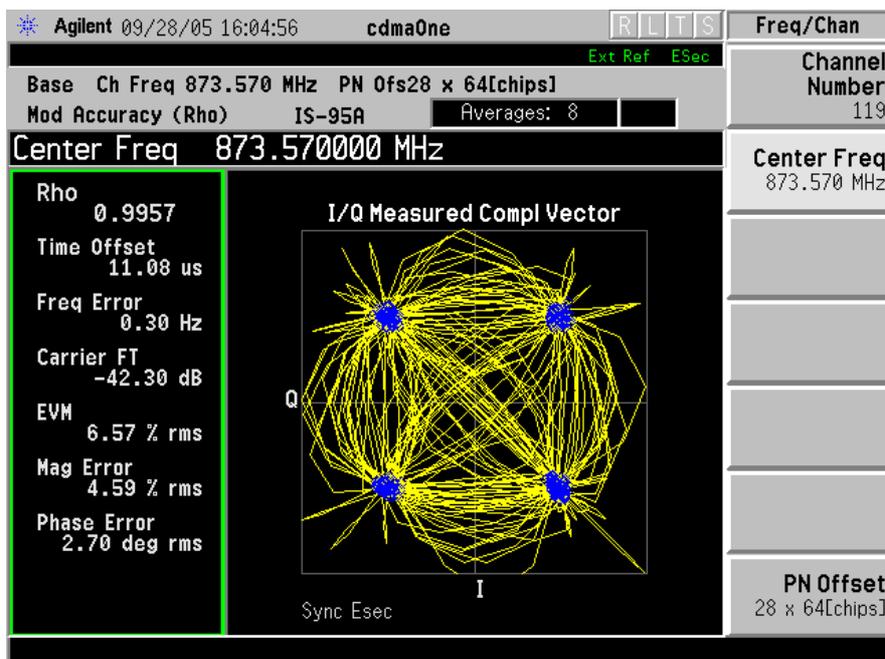
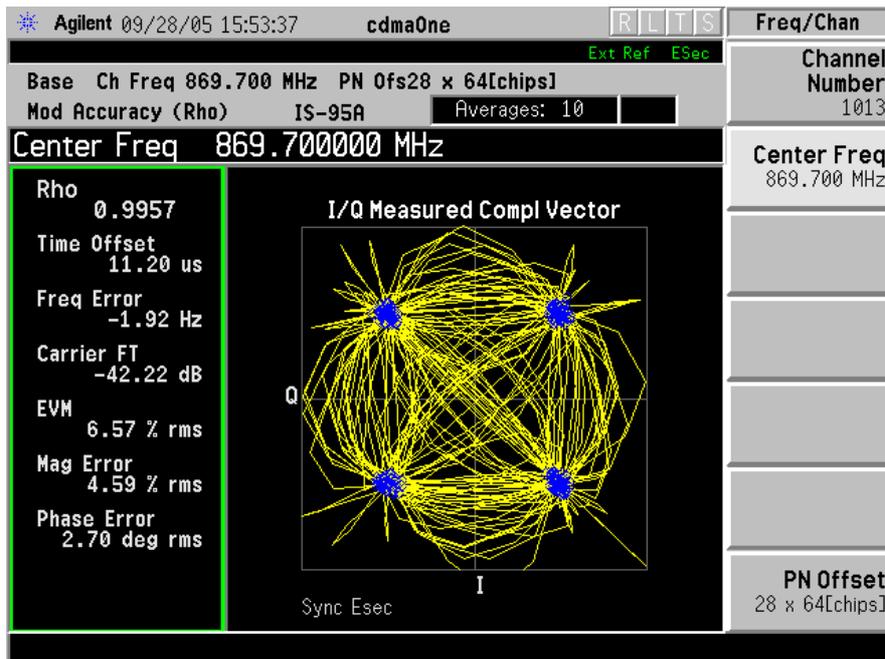
Test Result: Pass

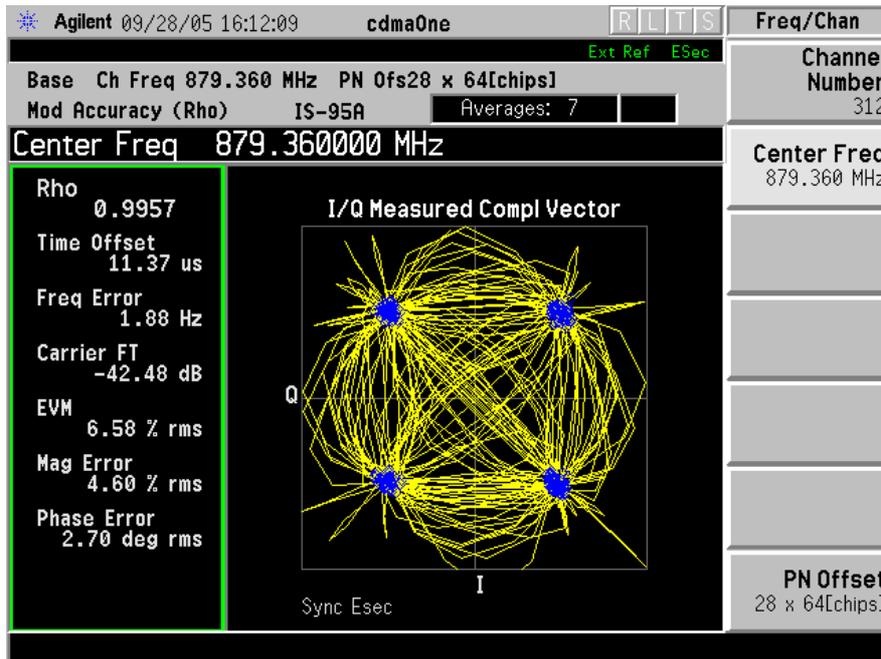
*Test Mode: Transmitting*

Digital Pre-Distortion Transceiver and Receiver Module DPA

1 Carrier

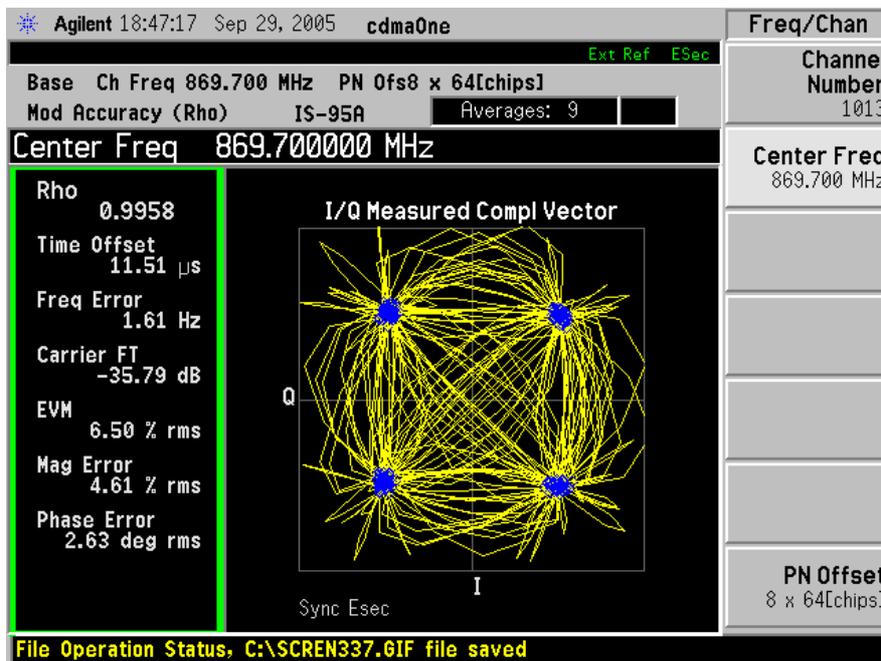
Channel	Frequency (MHz)	Rho
Channel 1013	869.70	0.9957
Channel 119	873.57	0.9957
Channel 312	879.36	0.9957

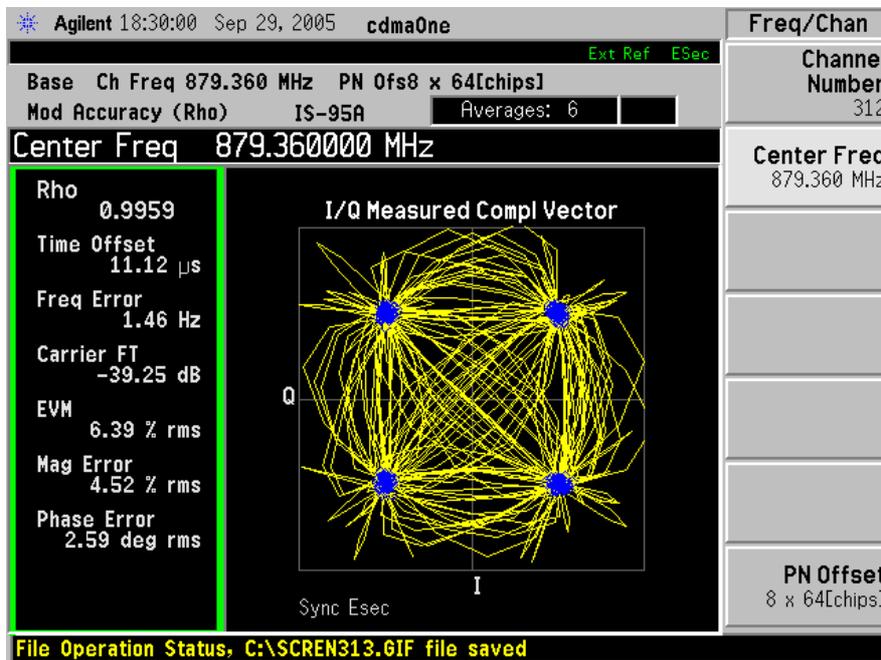
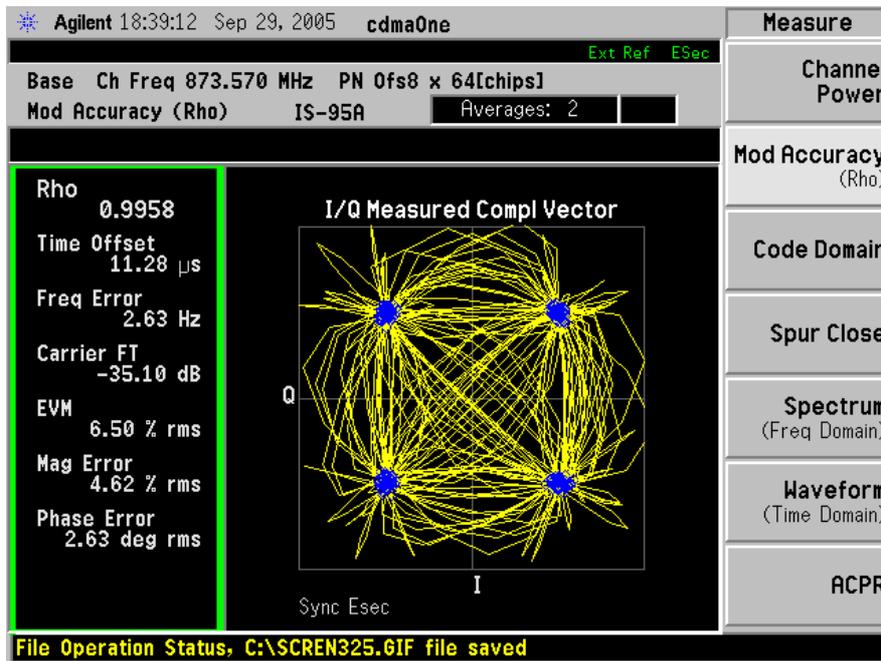




4 Carrier

Channel	Frequency (MHz)	Rho
Channel 1013, 31, 72, 113	869.70	0.9958
Channel 119, 160, 201, 242	873.57	0.9958
Channel 189, 230, 271, 312	879.36	0.9959

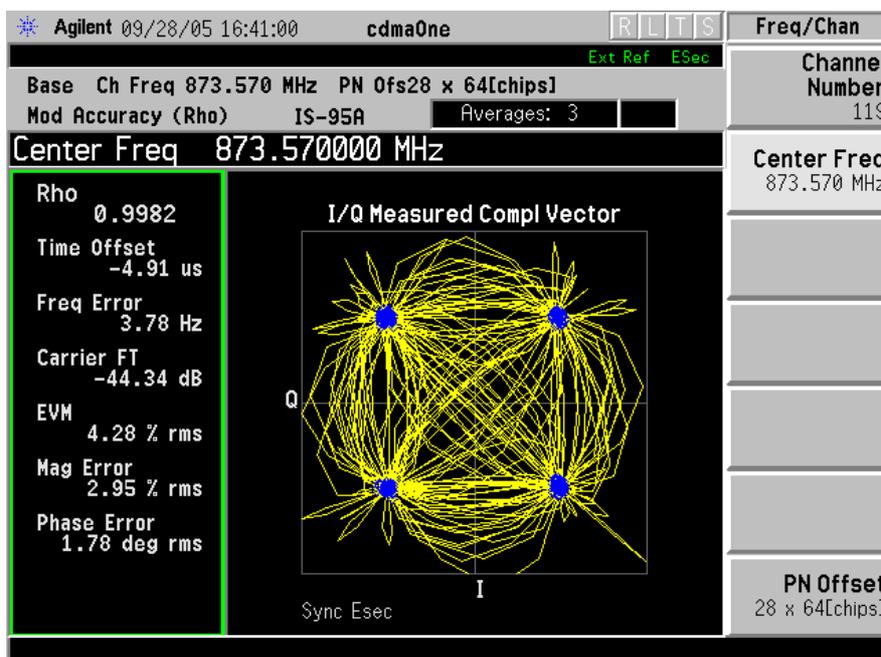
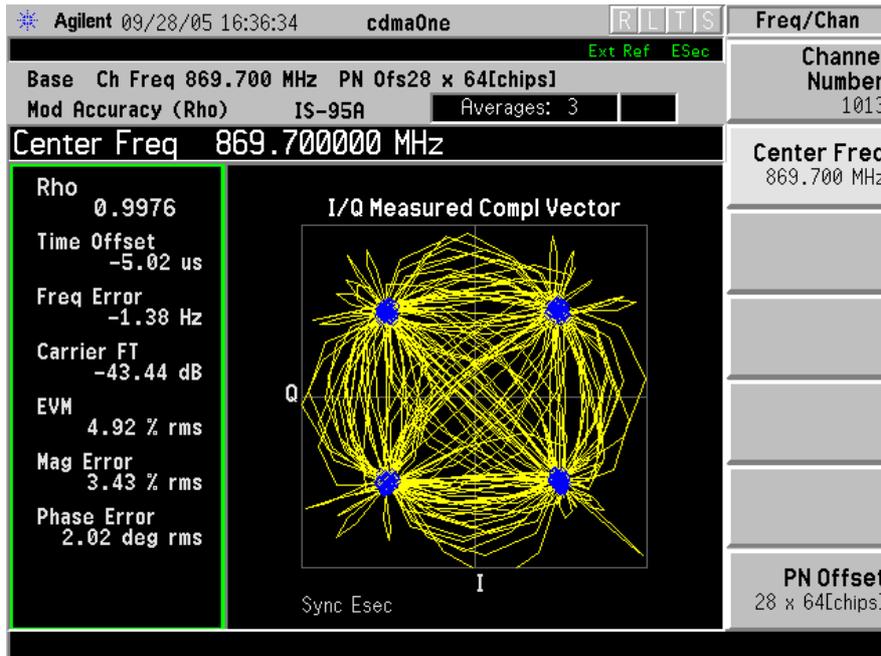


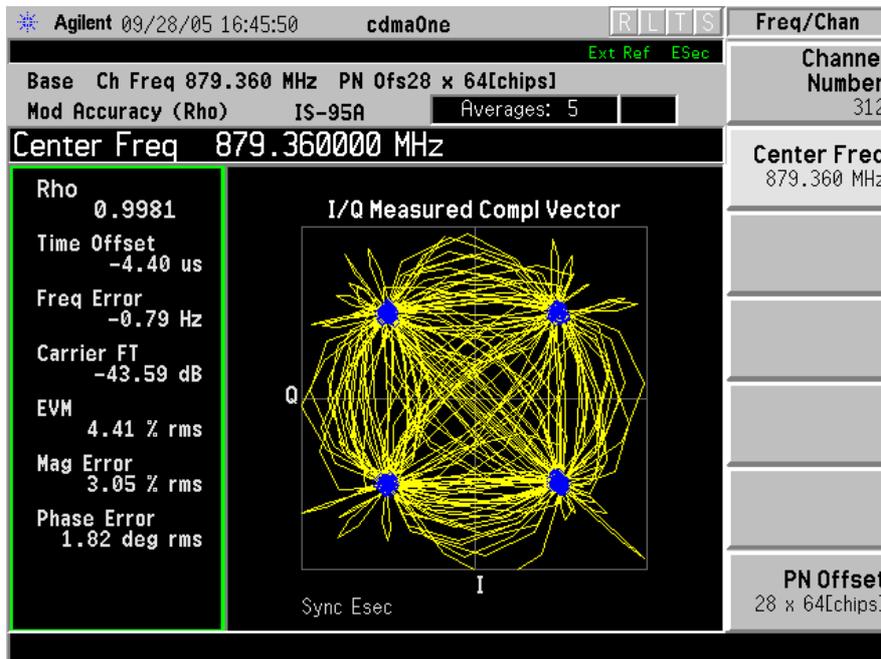


Transceiver and Receiver Module DPA

1 Carrier

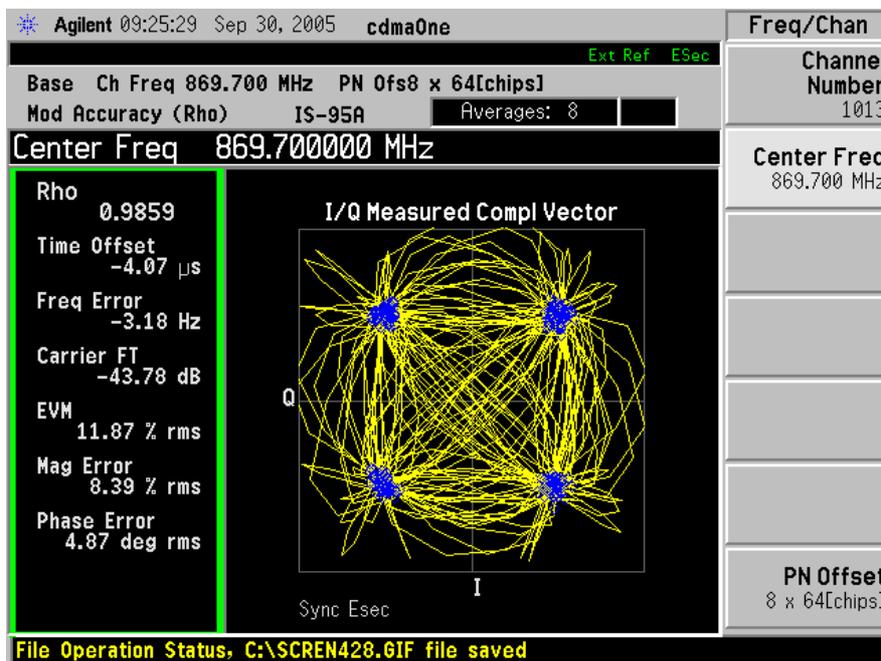
Channel	Frequency (MHz)	Rho
Channel 1013	869.70	0.9976
Channel 119	873.57	0.9982
Channel 312	879.36	0.9981

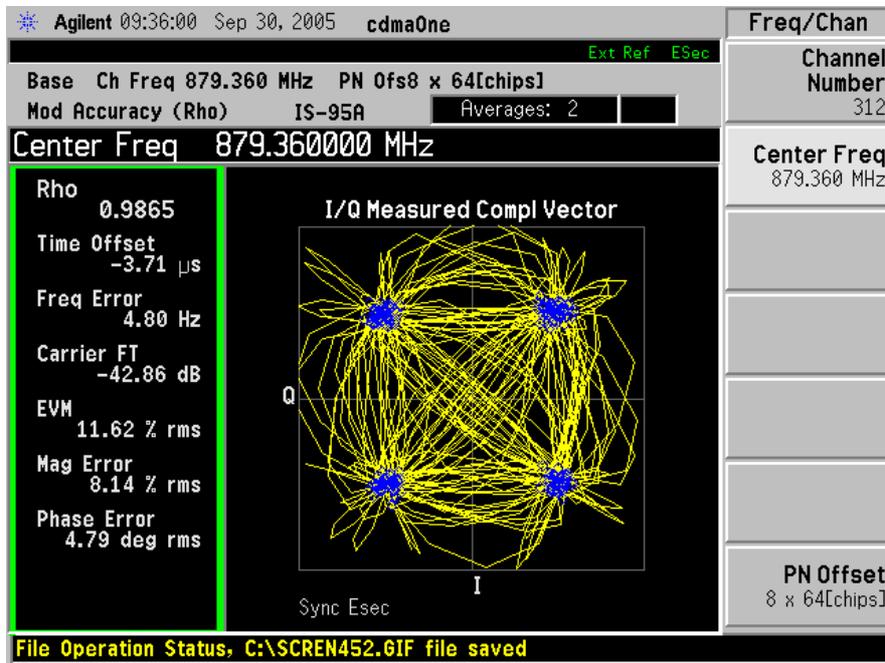
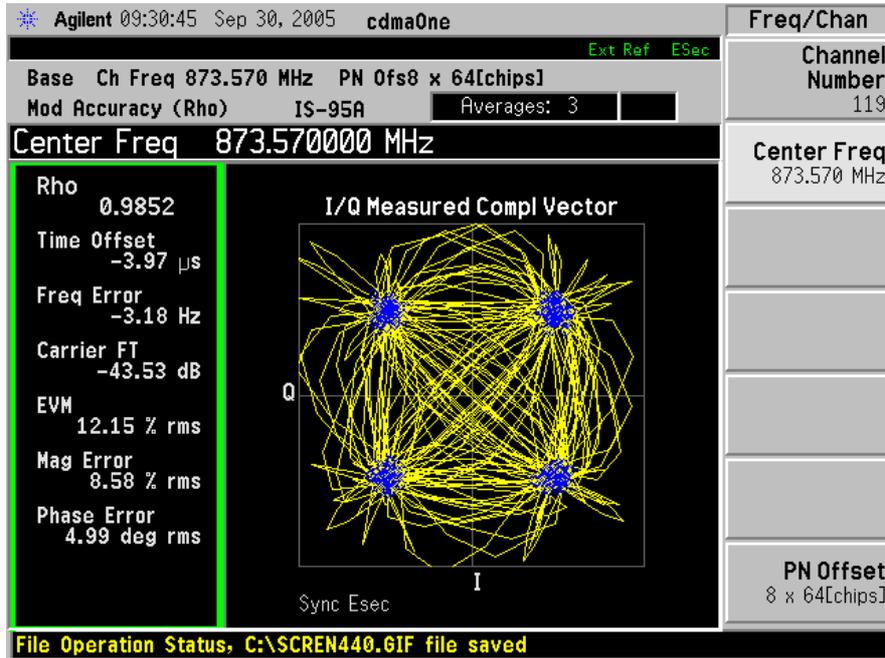




2 Carrier

Channel	Frequency (MHz)	Rho
Channel 1013, 31	869.70	0.9859
Channel 119, 160	873.57	0.9852
Channel 271, 312	879.36	0.9865

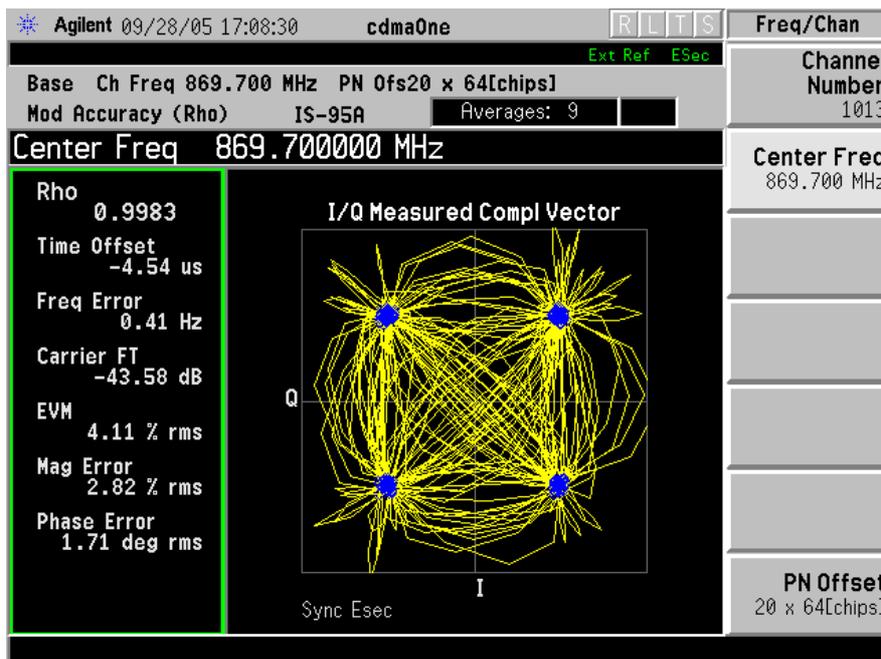
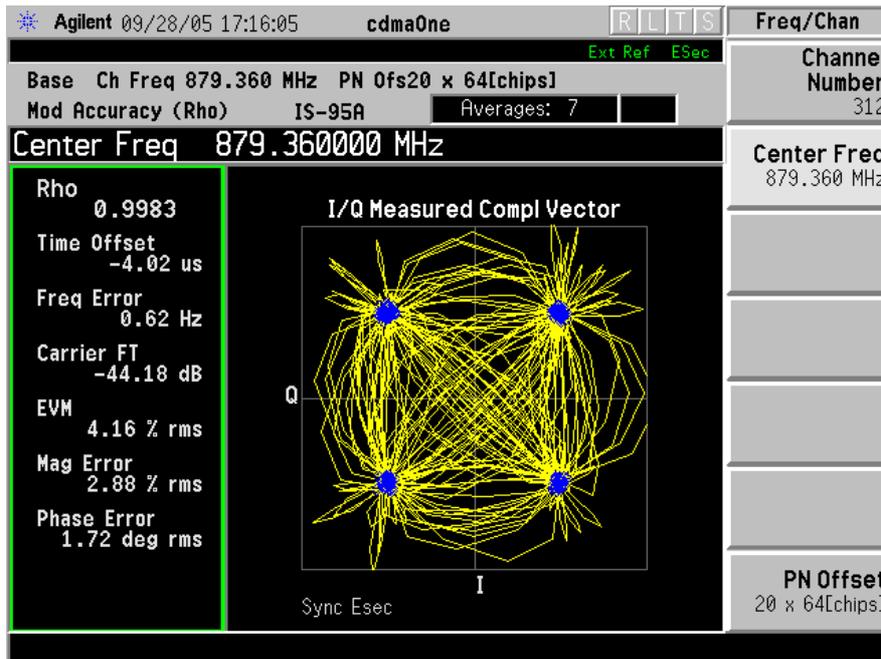


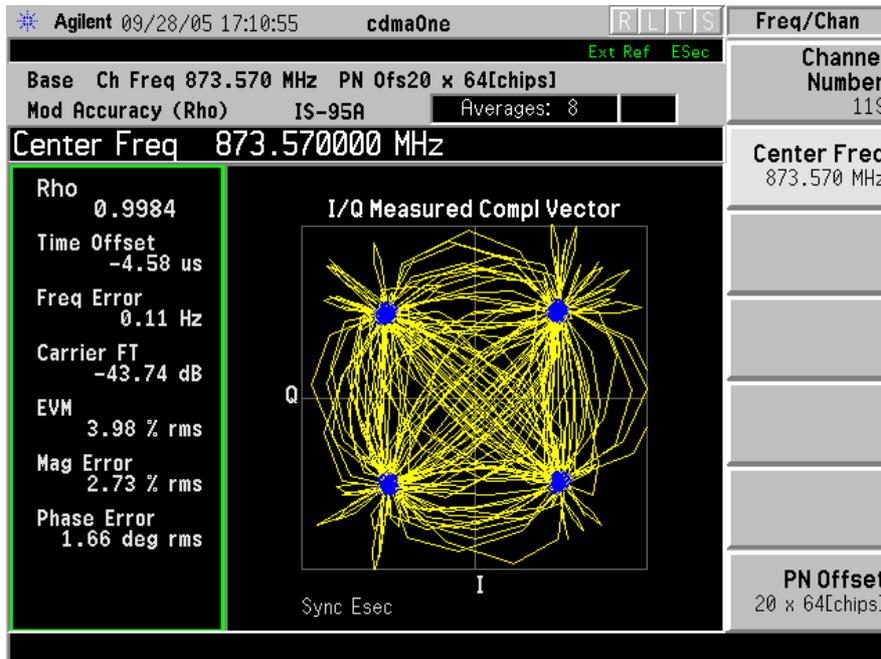


Transceiver and Receiver Module LPA1+RFE

1 Carrier

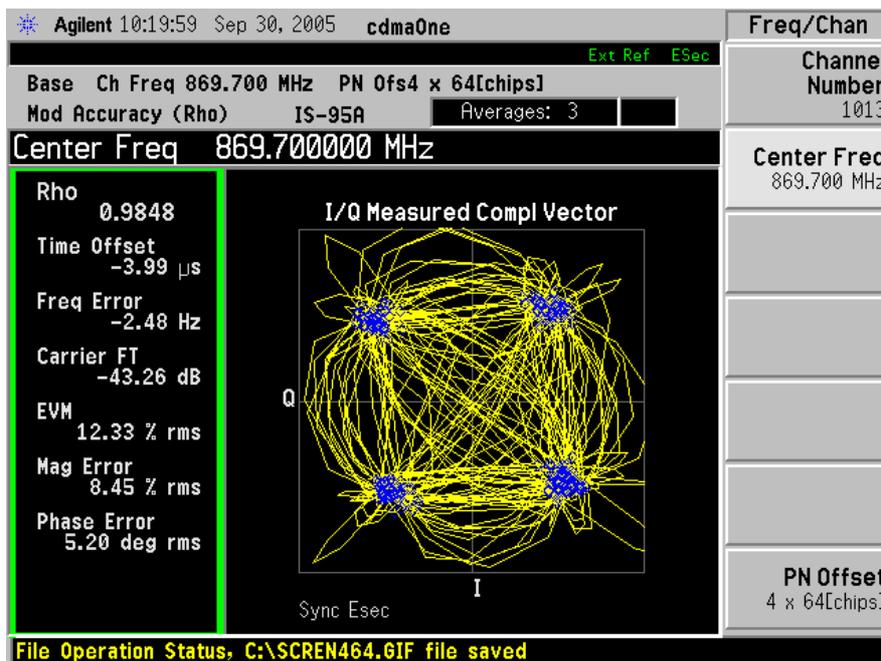
Channel	Frequency (MHz)	Rho
Channel 1013	869.70	0.9983
Channel 119	873.57	0.9983
Channel 312	879.36	0.9984

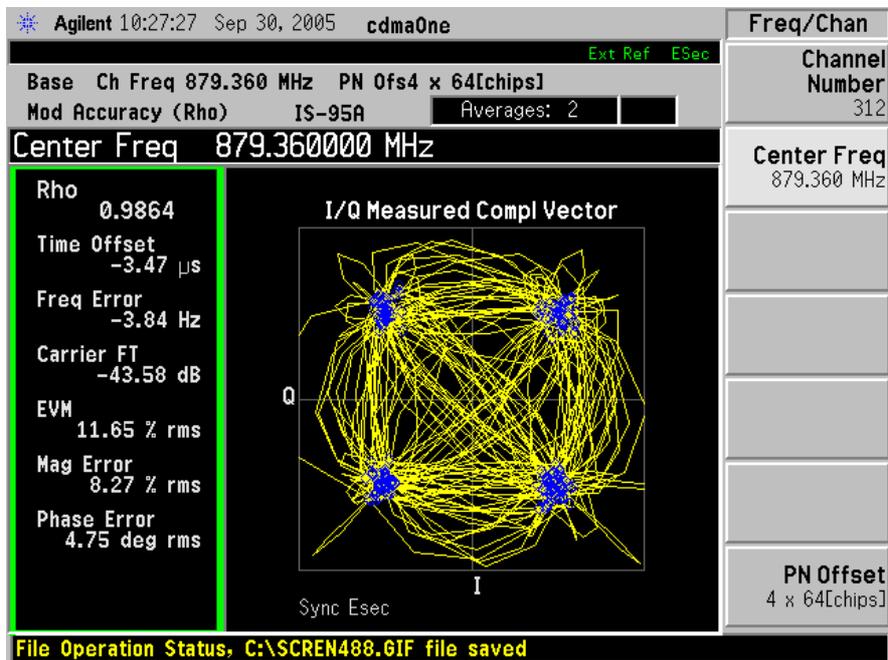
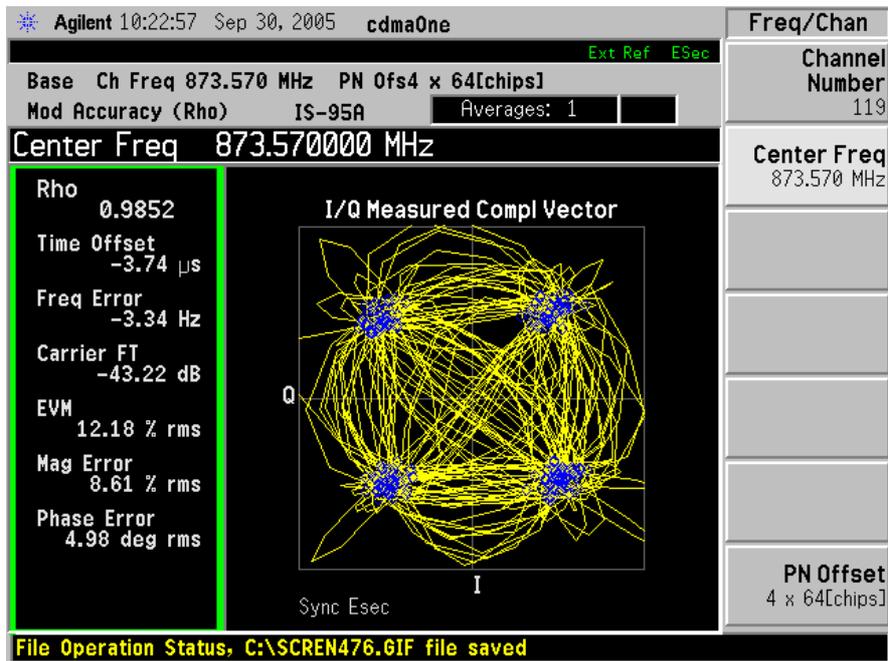




4 Carrier

Channel	Frequency (MHz)	Rho
Channel 1013, 31, 72, 113	869.70	0.9848
Channel 119, 160, 201, 242	873.57	0.9852
Channel 189, 230, 271, 312	879.36	0.9864

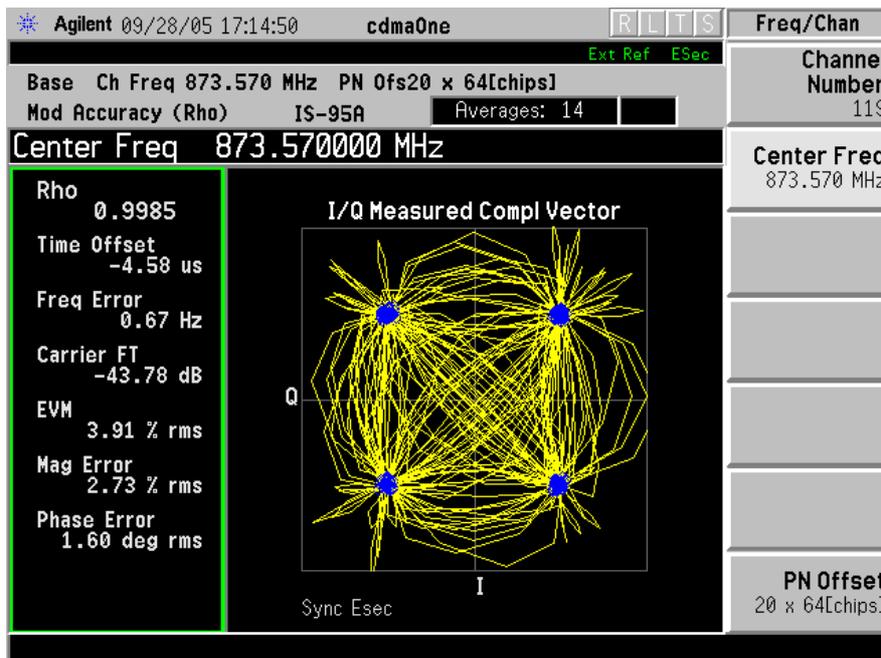
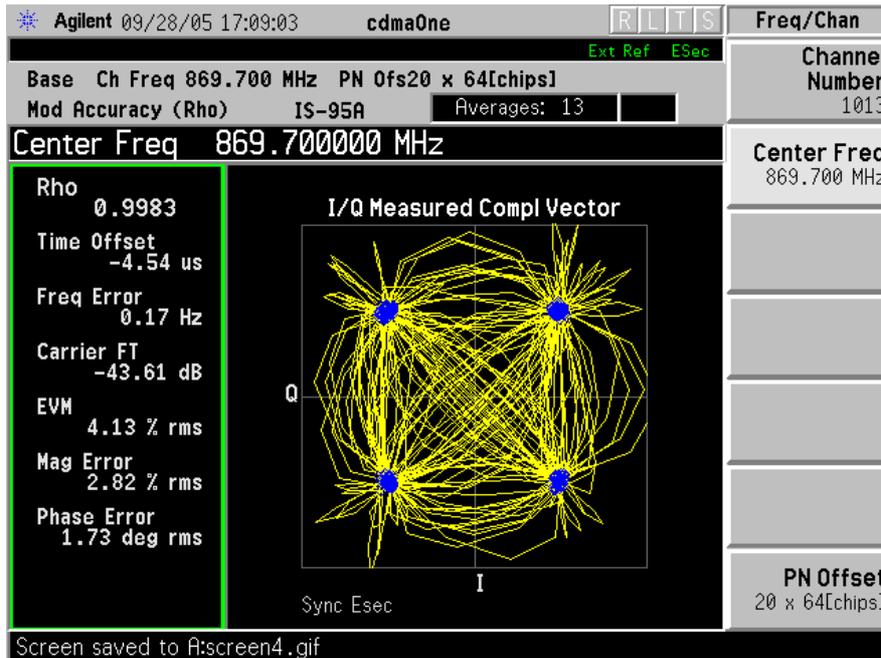


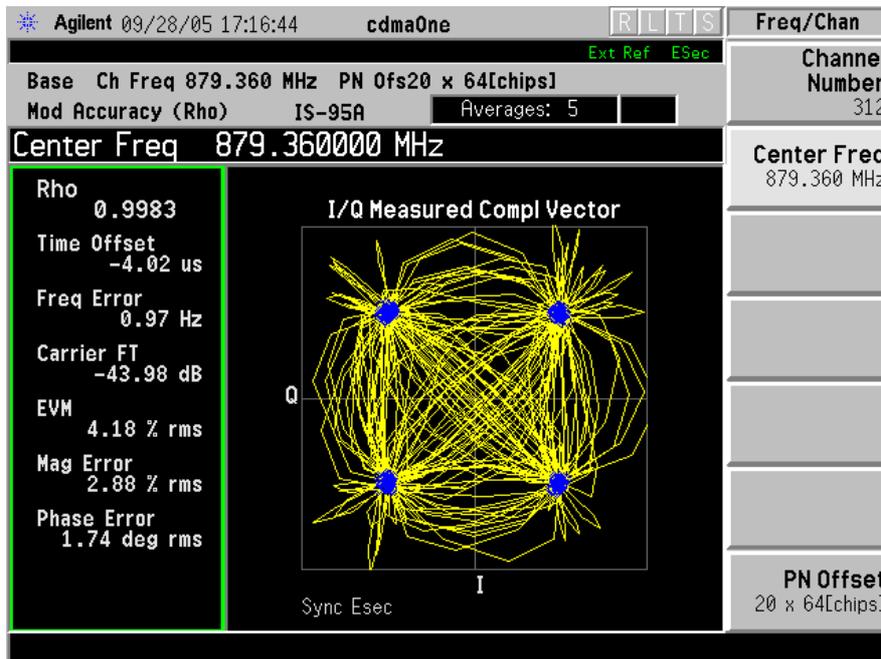


Transceiver and Receiver Module LPA2+RFE

1 Carrier

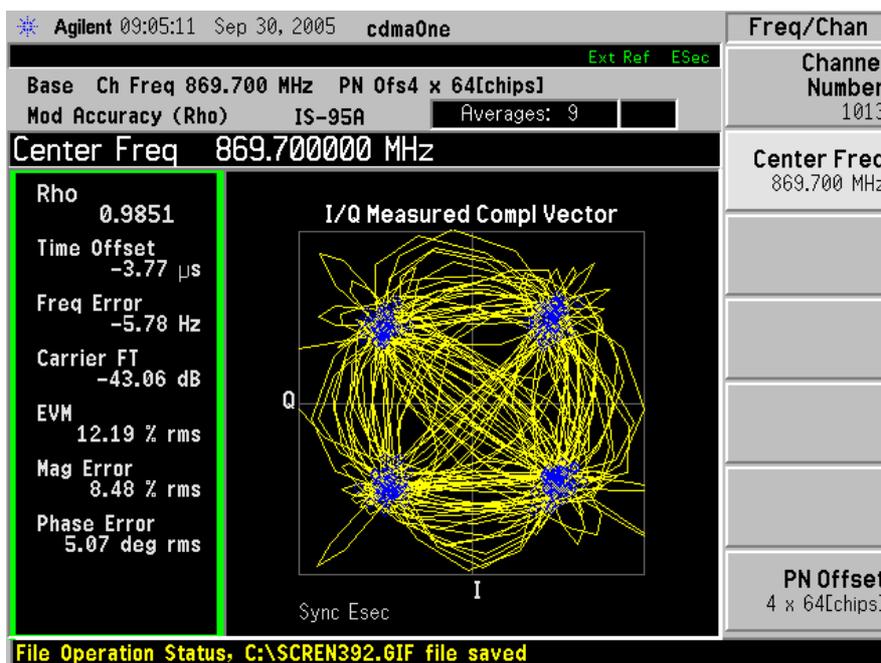
Channel	Frequency (MHz)	Rho
Channel 1013	869.70	0.9983
Channel 119	873.57	0.9985
Channel 312	879.36	0.9983

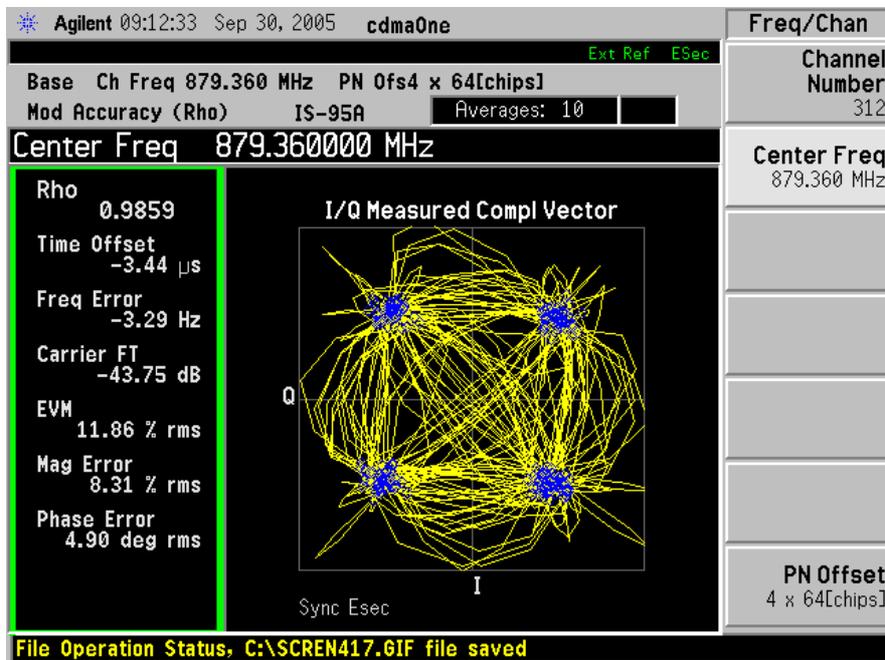
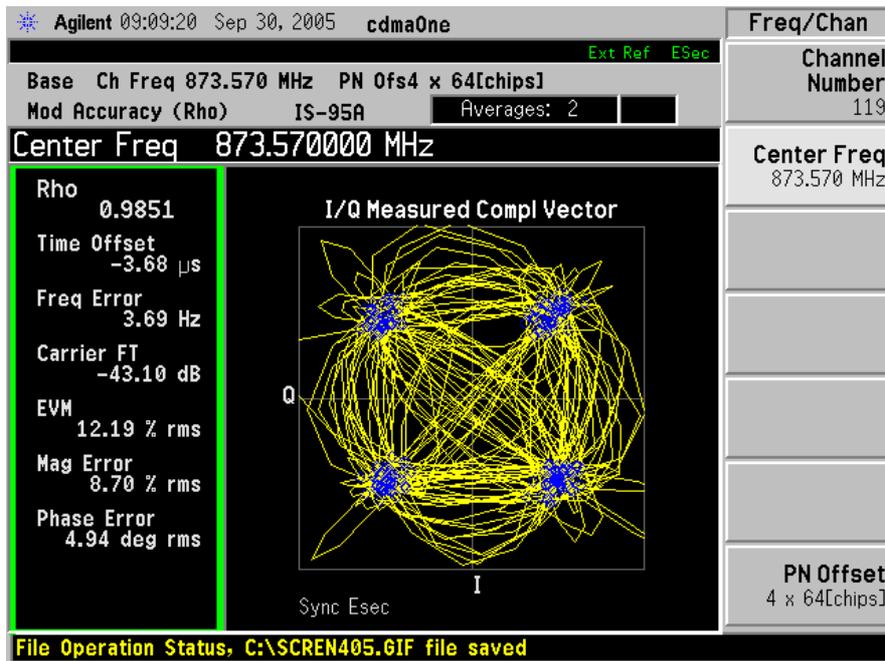




4 Carrier

Channel	Frequency (MHz)	Rho
Channel 1013, 31, 72, 113	869.70	0.9851
Channel 119, 160, 201, 242	873.57	0.9851
Channel 189, 230, 271, 312	879.36	0.9857





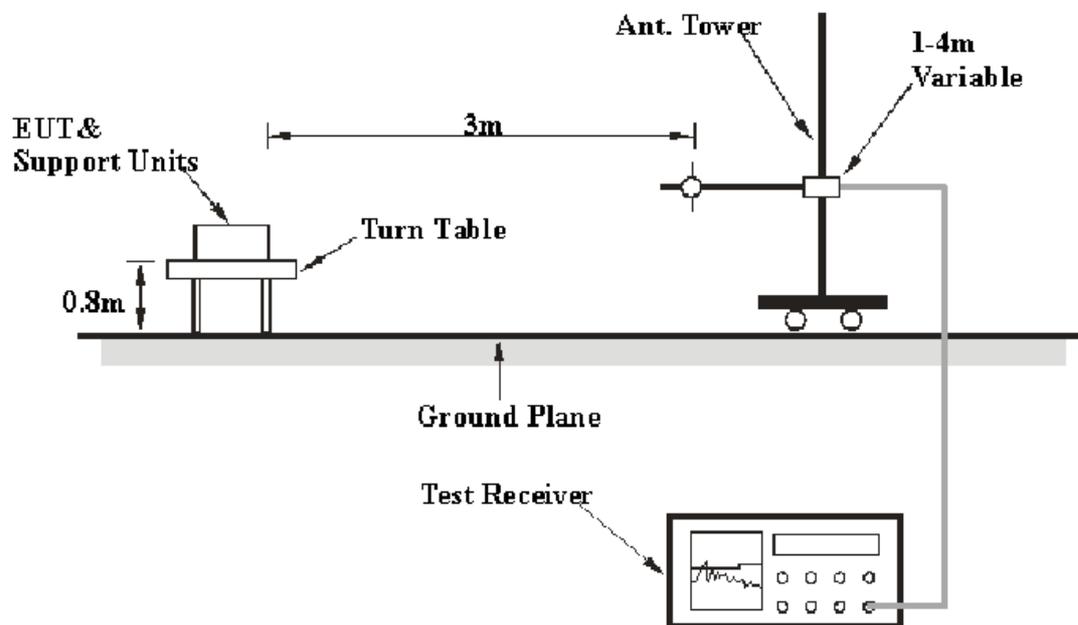
## §15.109(a)- UNINTENTIONAL RADIATED EMISSION

### Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at Bay Area Compliance Lab Corp. (ShenZhen) is  $\pm 4.0$  dB.

### EUT Setup



The radiated emission tests were performed in the 3-meter Chamber B, using the setup accordance with the ANSI C63.4-2003. The specification used was the FCC 15.109(a) limits.

### EMI Test Receiver Setup

The system was investigated from 30 MHz to 1000 MHz.

During the radiated emission test, the EMI Test Receiver was set with the following configurations:

<i>Frequency Range</i>	<i>RBW</i>	<i>Video B/W</i>	<i>IF B/W</i>
30 – 1000 MHz	100 kHz	300 kHz	120kHz

## Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
HP	Amplifier	8447D	2944A09795	2005-8-17	2006-8-17
Rohde & Schwarz	EMI Test Receiver	ESCI	100028	2005-8-17	2006-8-17
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2005-4-28	2006-4-28

\* **Statement of Traceability:** Bay Area Compliance Lab Corp. (ShenZhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

## Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

All data was recorded in the PK detection mode.

## Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Loss and Cable Loss, and subtracting the Amplifier Gain from the Meter reading. The basic equation is as follows:

$$\text{Corr. Ampl.} = \text{Meter Reading} + \text{Antenna Loss} + \text{Cable Loss} - \text{Amplifier Gain}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Corr. Ampl.} - \text{Limit}$$

## Test Results Summary

According to the data in the following table, the EUT complied with the FCC Part 15.109(a), with the worst margin reading of:

*Digital Pre-Distortion Transceiver and Receiver Module DPA :-5.6 dB at 513.63 MHz in the **Horizontal** polarization.*

*Transceiver and Receiver Module DPA :-7.6 dB at 595.13 MHz in the **Horizontal** polarization.*

*Transceiver and Receiver Module LPA1+RFE :-8.0 dB at 192.42 MHz in the **Vertical** polarization.*

*Transceiver and Receiver Module LPA2+RFE :-5.5 dB at 793.39 MHz in the **Horizontal** polarization.*

**Test Data****Environmental Conditions**

Temperature:	26 °C
Relative Humidity:	47 %
ATM Pressure:	1009 mbar

The testing was performed by Sam Lin on 2005-9-21, and the data were only for unintentional radiator and be subjected to verification.

Test Mode: Transmitting

Digital Pre-Distortion Transceiver and Receiver Module DPA

INDICATED		TABLE Angle Degree	ANTENNA		CORRECTION FACTOR			CORRECTED AMPLITUDE Corr. Ampl. dB $\mu$ V/m	FCC Part 15.109(a)	
Frequency MHz	Meter Reading dB $\mu$ V/m		Height Meter	Polar H/ V	Antenna Loss dB	Cable Loss dB	Amplifier Gain dB		Limit dB $\mu$ V/m	Margin dB
513.63	55.3	45	1.0	H	18.0	4.6	27.1	50.8	56.4	-5.60
595.13	50.8	90	1.2	H	19.3	5.0	27.1	48.0	56.4	-8.40
210.78	54.4	60	1.2	H	11.4	2.6	26.0	42.4	53.5	-11.10
78.41	54.2	289	1.0	V	8.6	1.8	26.8	37.7	49.1	-11.40
78.41	54.1	35	3.8	H	8.6	1.8	26.8	37.7	49.1	-11.40
90.22	59.1	35	3.8	H	7.7	1.9	26.8	41.9	53.5	-11.60
330.19	48.1	45	1.2	H	14.6	3.4	25.8	40.2	56.4	-16.20
495.93	43.6	289	1.0	V	18.2	4.6	26.5	39.9	56.4	-16.50
595.13	41.9	45	1.0	V	19.3	5.0	27.1	39.1	56.4	-17.30
90.22	51.6	45	1.2	V	7.7	1.9	26.8	34.4	53.5	-19.10
393.47	42.4	60	1.0	V	16.0	3.8	25.8	36.4	56.4	-20.00
271.32	45.8	180	1.2	V	12.6	3.2	26.0	35.6	56.4	-20.80

*Transceiver and Receiver Module DPA*

INDICATED		TABLE Angle Degree	ANTENNA		CORRECTION FACTOR			CORRECTED AMPLITUDE Corr. Ampl. dB $\mu$ V/m	FCC Part 15.109(a)	
Frequency MHz	Meter Reading dB $\mu$ V/m		Height Meter	Polar H/ V	Antenna Loss dB	Cable Loss dB	Amplifier Gain dB		Limit dB $\mu$ V/m	Margin dB
595.13	51.6	45	1.0	H	19.3	5.0	27.1	48.8	56.4	-7.60
90.22	62.8	35	3.8	H	7.7	1.9	26.8	45.6	53.5	-7.90
528.25	51.4	60	1.2	H	18.3	4.7	27.1	47.3	56.4	-9.10
78.41	55.2	90	1.2	H	8.6	1.8	26.8	38.8	49.1	-10.30
210.79	54.4	45	1.2	H	11.4	2.6	26	42.4	53.5	-11.10
271.32	55.1	35	3.8	H	12.6	3.2	26	44.8	56.4	-11.60
271.32	53.8	60	1.0	V	12.6	3.2	26	43.5	56.4	-12.90
90.22	56.1	289	1.0	V	7.7	1.9	26.8	38.9	53.5	-14.60
78.41	50.4	289	1.0	V	8.6	1.8	26.8	33.9	49.1	-15.20
42.30	43.7	45	1.0	V	14.3	1.3	26.8	32.5	49.1	-16.60
106.01	48.5	45	1.2	V	11.0	2.0	26.6	35.0	53.5	-18.50
120.27	43.4	180	1.2	V	14.0	2.3	26.6	33.1	53.5	-20.40

*Transceiver and Receiver Module LPA1+RFE*

INDICATED		TABLE Angle Degree	ANTENNA		CORRECTION FACTOR			CORRECTED AMPLITUDE Corr. Ampl. dB $\mu$ V/m	FCC Part 15.109(a)	
Frequency MHz	Meter Reading dB $\mu$ V/m		Height Meter	Polar H/ V	Antenna Loss dB	Cable Loss dB	Amplifier Gain dB		Limit dB $\mu$ V/m	Margin dB
192.42	58.0	289	1.0	V	11.8	2.4	26.6	45.5	53.5	-8.00
192.41	57.7	35	3.8	H	11.8	2.4	26.6	45.3	53.5	-8.20
528.24	51.7	45	1.0	H	18.3	4.7	27.1	47.6	56.4	-8.80
90.22	61.7	35	3.8	H	7.7	1.9	26.8	44.6	53.5	-8.90
513.63	51.8	60	1.2	H	18.0	4.6	27.1	47.3	56.4	-9.10
78.41	56.4	90	1.2	H	8.6	1.8	26.8	39.9	49.1	-9.20
78.41	55.0	180	1.2	V	8.6	1.8	26.8	38.6	49.1	-10.50
271.32	53.8	45	1.2	H	12.6	3.2	26	43.6	56.4	-12.80
90.22	55.8	45	1.2	V	7.7	1.9	26.8	38.7	53.5	-14.80
271.32	51.5	289	1.0	V	12.6	3.2	26	41.3	56.4	-15.10
495.93	43.5	60	1.0	V	18.2	4.6	26.5	39.8	56.4	-16.60
595.13	41.8	45	1.0	V	19.3	5.0	27.1	39.0	56.4	-17.40

*Transceiver and Receiver Module LPA2+RFE*

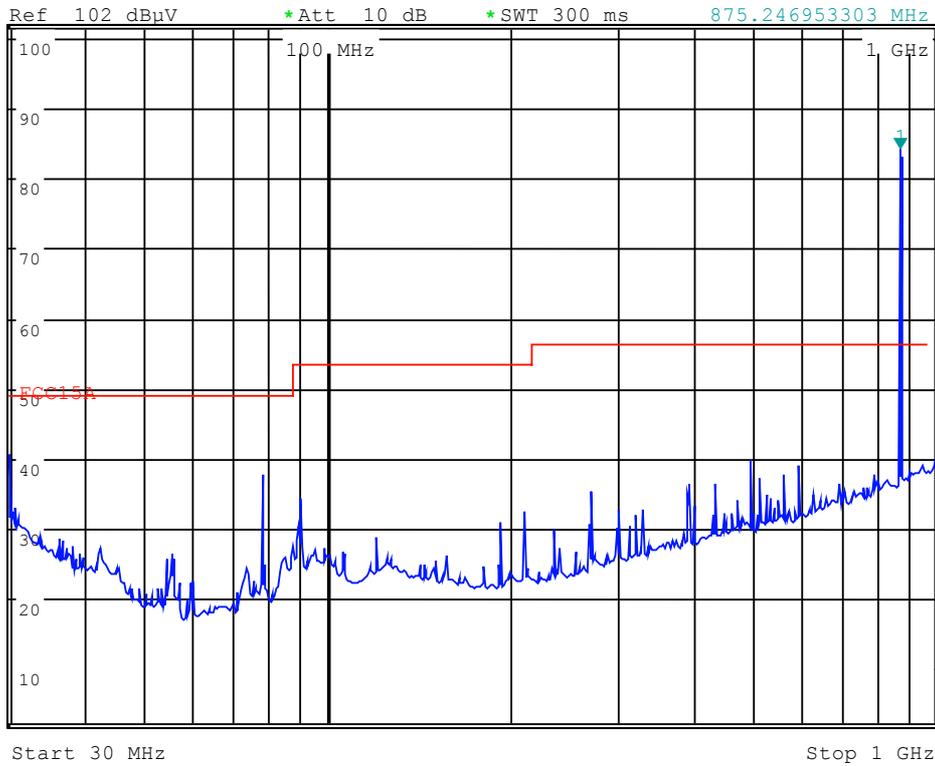
INDICATED		TABLE Angle Degree	ANTENNA		CORRECTION FACTOR			CORRECTED AMPLITUDE Corr. Ampl. dB $\mu$ V/m	FCC Part 15.109(a)	
Frequency MHz	Meter Reading dB $\mu$ V/m		Height Meter	Polar H/ V	Antenna Loss dB	Cable Loss dB	Amplifier Gain dB		Limit dB $\mu$ V/m	Margin dB
793.39	49.9	45	1.0	H	21.9	6.0	26.9	50.9	56.4	-5.50
396.24	51.9	45	1.2	H	16.0	3.8	25.8	45.9	56.4	-10.50
495.93	49.0	35	3.8	H	18.2	4.6	26.5	45.2	56.4	-11.20
562.66	47.5	35	3.8	H	19.0	4.9	27.1	44.3	56.4	-12.10
629.47	46.7	60	1.2	H	19.3	5.2	27.1	44.1	56.4	-12.30
396.24	42.1	45	1.2	V	16.0	3.8	25.8	36.1	56.4	-20.30
240.83	46.8	90	1.2	H	12.3	2.9	26	36.0	56.4	-20.40
157.00	44.7	289	1.0	V	12.8	2.1	26.6	33.0	53.5	-20.50
180.65	43.6	180	1.2	V	11.8	2.3	26.6	31.1	53.5	-22.40
78.41	42.0	289	1.0	V	8.6	1.8	26.8	25.6	49.1	-23.50
240.83	42.9	60	1.0	V	12.3	2.9	26	32.1	56.4	-24.30
90.22	40.9	45	1.0	V	7.7	1.9	26.8	23.7	53.5	-29.80

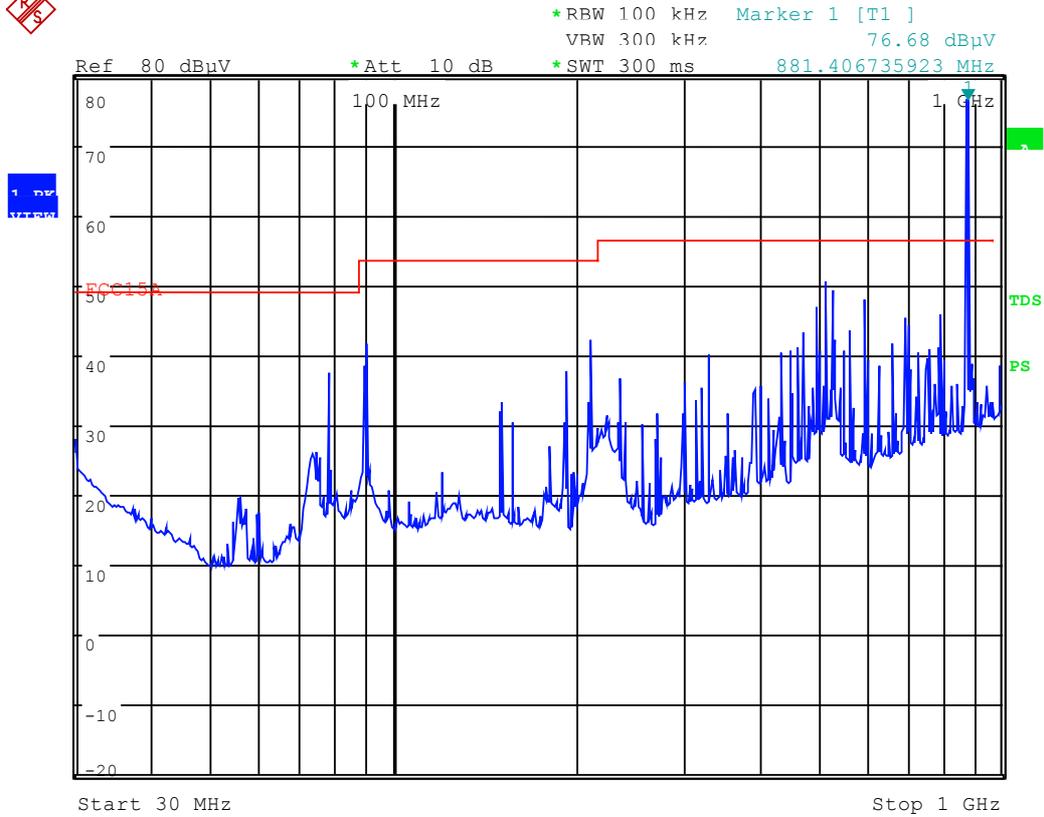
**Plot(s) of Test Data**

Plot(s) of Test Data is presented hereinafter as reference.

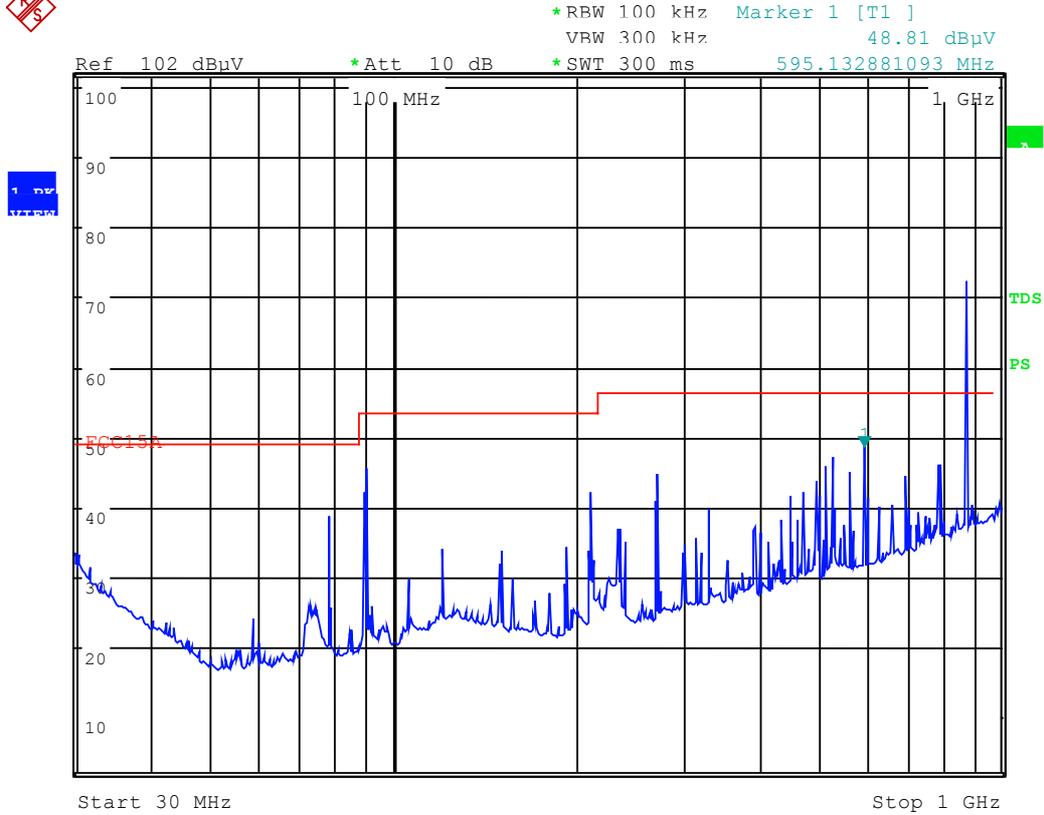


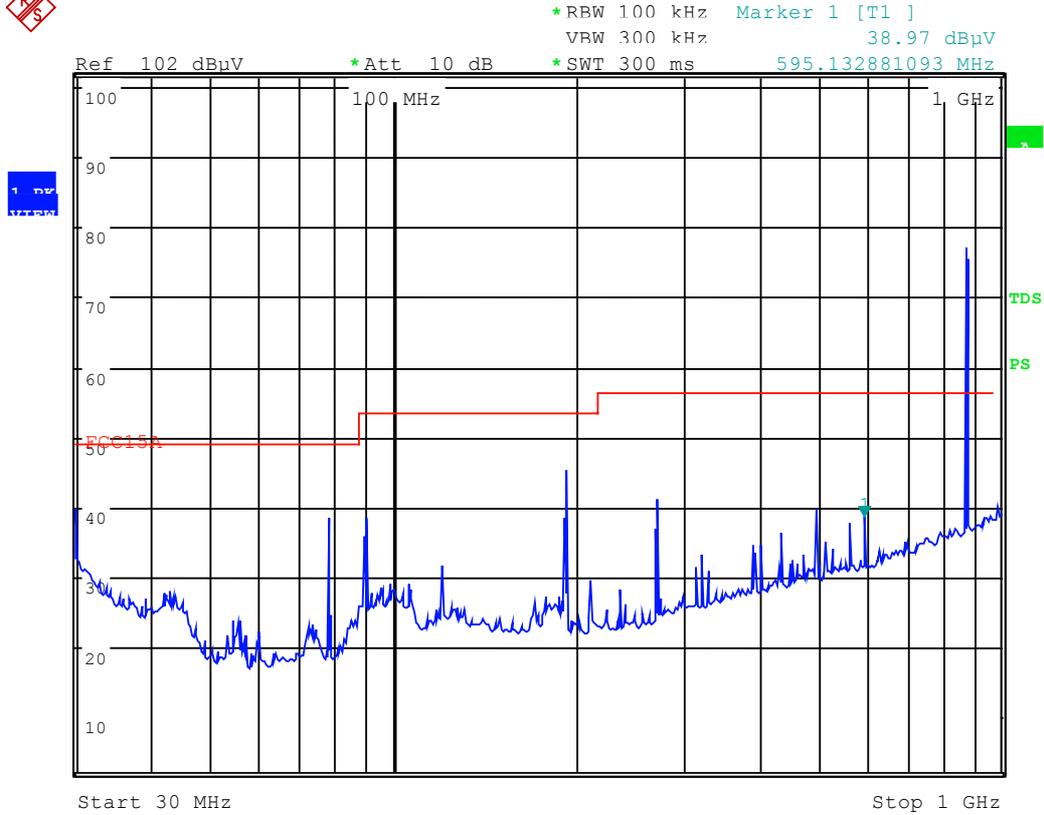
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VBW 300 kHz 84.57 dBμV  
\*SWT 300 ms 875.246953303 MHz

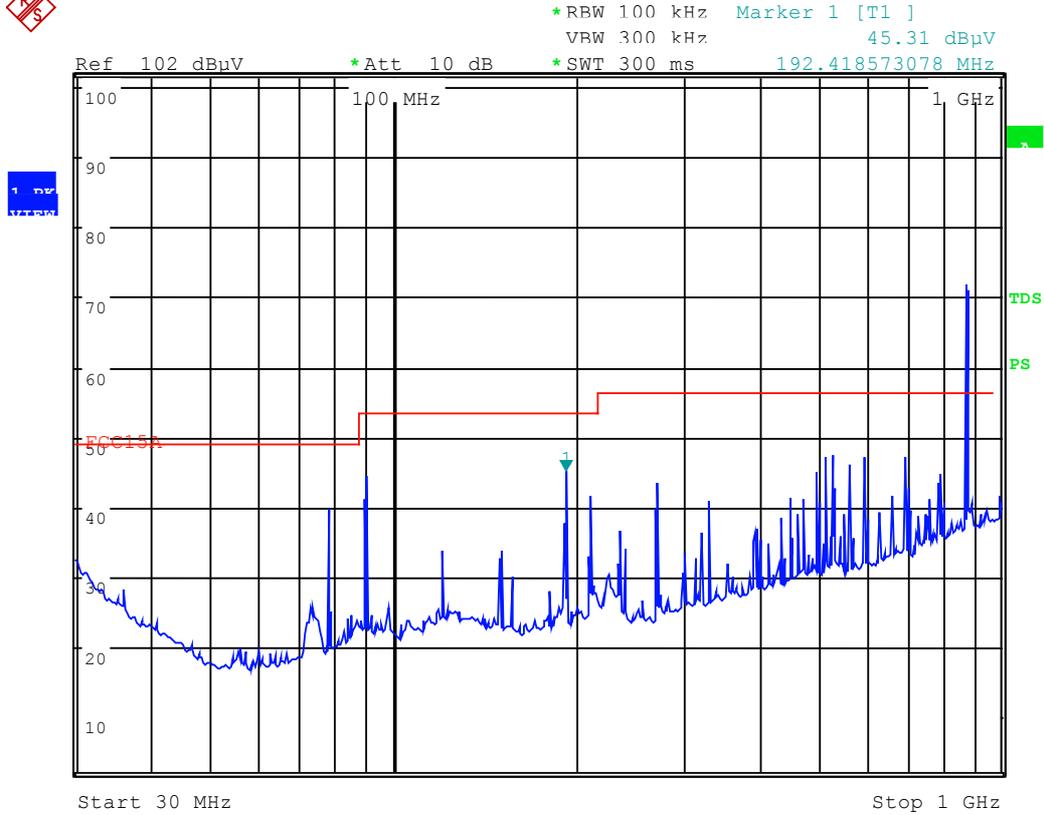


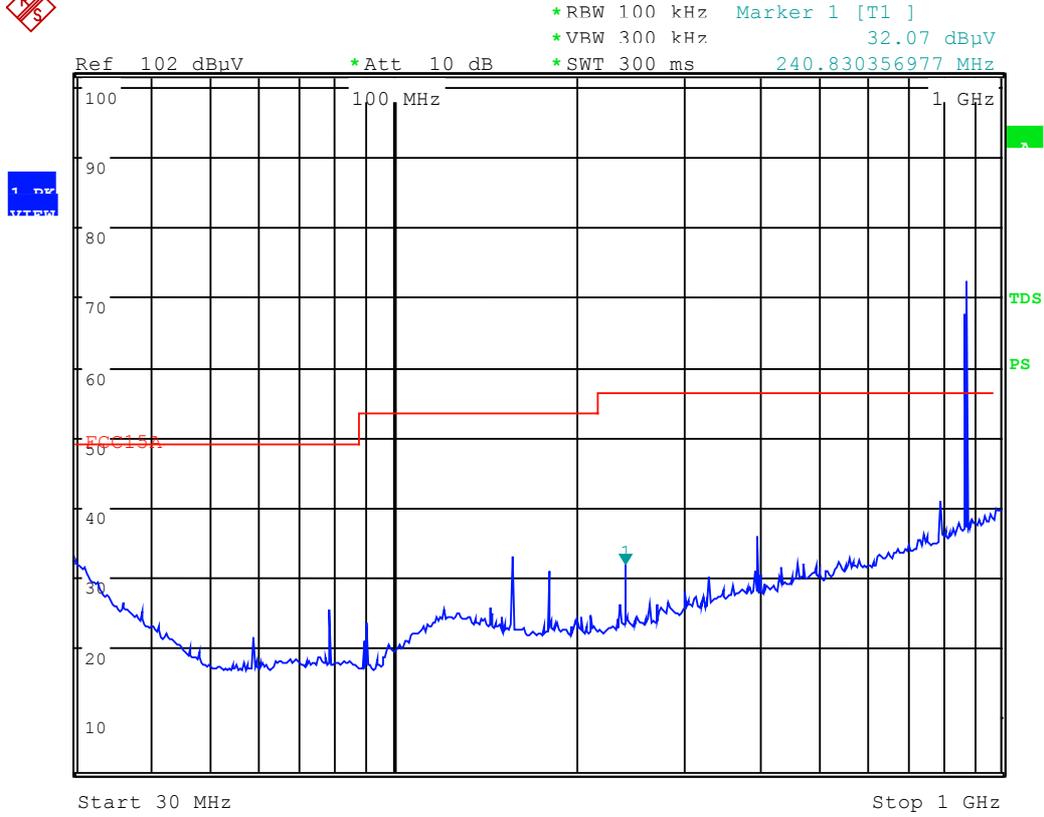


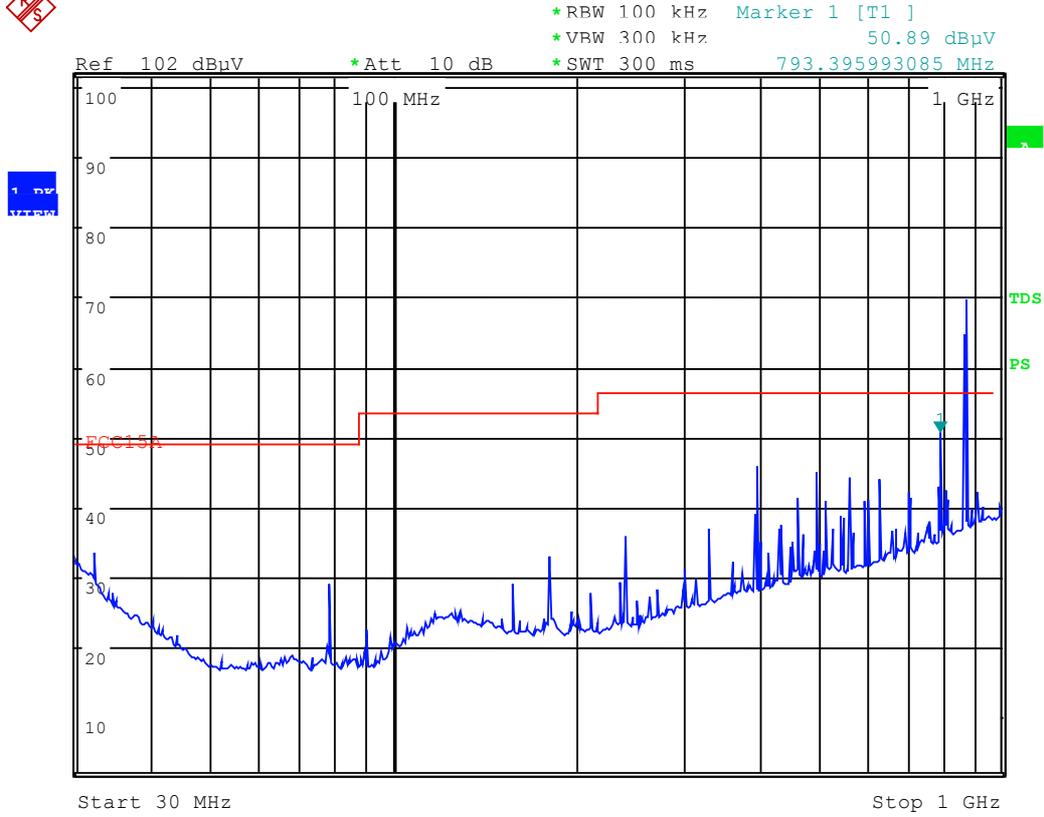












## §2.1053- SPURIOUS RADIATED EMISSIONS

### Applicable Standard

Requirements: CFR 47, §2.1053

### Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
A.H. System	Horn Antenna	SAS-200/571	135	2005-4-28	2006-4-28
Giga-tronics	Signal Generator	1026	270801	2005-2-28	2006-2-28
HP	Preamplifier	8449B	3008A00277	2005-8-17	2006-8-17
Rohde & Schwarz	Spectrum Analyzer	FSEM30	849720/019	2004-11-10	2005-11-10
SUNOL SCIENCES	Horn Antenna	DRH-118	A052604	2005-7-20	2006-7-20

\* **Statement of Traceability:** Bay Area Compliance Lab Corp. (ShenZhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

### Test Procedure

The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load, which was also placed on the turntable.

The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.

The frequency range up to teeth harmonic of the fundamental frequency was investigated.

Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

Spurious emissions in dB = 10 lg (TXpwr in Watts/0.001)-the absolute level

Spurious attenuation limit in dB = 43 + 10 Log<sub>10</sub> (power out in Watts)

### Test Results Summary

Digital Pre-Distortion Transceiver and Receiver Module DPA

Channel 1013: -30.57 dB at 1072.14 MHz

Channel 119: -32.99 dB at 1747.14 MHz

Channel 312: -32.37 dB at 1132.26 MHz

Transceiver and Receiver Module DPA

Channel 1013: -31.30 dB at 1739.4 MHz

Channel 119: -33.24 dB at 5241.42MHz

Channel 312: -33.30 dB at 1132.26 MHz

## Transceiver and Receiver Module LPA1+RFE

Channel 1013: -32.28 dB at 1132.26 MHz  
 Channel 119: -32.34 dB at 1747.14 MHz  
 Channel 312: -32.84 dB at 1072.14 MHz

## Transceiver and Receiver Module LPA2+RFE

Channel 1013: -33.05 dB at 1072.26 MHz  
 Channel 119: -38.72 dB at 1072.14MHz  
 Channel 312: -39.94 dB at 1758.72 MHz

**Test Data****Environmental Conditions**

Temperature:	18 °C
Relative Humidity:	53 %
ATM Pressure:	1009 mbar

*The testing was performed by Sam Lin on 2005-9-22*

*Test Mode: Transmitting*

## Digital Pre-Distortion Transceiver and Receiver Module DPA

Indicated Frequency MHz	Meter Reading dBuV/m	Table	Test Antenna			Substituted			Antenna Gain Correction dBi	Cable Loss dB	Absolute Level dBm	Limit dBm	Margin dB
		Angle Degree	Height Meter	Polar H/V	Frequency MHz	Level dBm	Polar H/V						
Channel 1013 f=869.70MHz													
1072.14	47.54	79	1.0	V	1072.14	-51.06	V	8.0	0.51	-43.57	-13.00	-30.57	
1060.12	46.06	150	1.0	H	1060.12	-52.64	H	8.0	0.51	-45.15	-13.00	-32.15	
5218.20	44.18	270	1.0	H	5218.20	-54.22	H	8.0	0.92	-47.14	-13.00	-34.14	
2609.10	44.69	48	1.0	V	2609.10	-53.51	V	7.0	0.7	-47.21	-13.00	-34.21	
5218.20	44.36	180	1.2	V	5218.20	-54.74	V	8.0	0.92	-47.66	-13.00	-34.66	
3478.80	44.09	180	1.2	H	3478.80	-53.51	H	6.7	1.01	-47.82	-13.00	-34.82	
2609.10	44.27	95	1.0	H	2609.10	-54.13	H	7.0	0.7	-47.83	-13.00	-34.83	
1739.40	45.02	256	1.2	H	1739.40	-53.58	H	6.1	0.56	-48.04	-13.00	-35.04	
4348.49	44.05	131	1.0	H	4348.49	-55.45	H	8.1	0.95	-48.30	-13.00	-35.30	
4348.51	43.86	90	1.2	V	4348.51	-55.74	V	8.1	0.95	-48.59	-13.00	-35.59	
1739.40	45.26	283	1.0	V	1739.40	-54.24	V	6.1	0.56	-48.70	-13.00	-35.70	
3478.80	43.91	330	1.2	V	3478.80	-54.39	V	6.7	1.01	-48.70	-13.00	-35.70	

Continues

Indicated Frequency MHz	Meter Reading dBuV/m	Table	Test Antenna		Substituted			Antenna Gain Correction dBi	Cable Loss dB	Absolute Level dBm	Limit dBm	Margin dB
		Angle Degree	Height Meter	Polar H/V	Frequency MHz	Level dBm	Polar H/V					
Channel 119 f=873.57MHz												
1747.14	46.27	202	1.0	H	1747.14	-51.53	H	6.1	0.56	-45.99	-13.00	-32.99
2620.17	44.18	248	1.0	V	2620.17	-53.92	V	7.0	0.7	-47.62	-13.00	-34.62
4367.85	43.75	1.80	1.2	H	4367.85	-54.85	H	8.1	0.95	-47.70	-13.00	-34.70
4367.85	43.17	134	1.0	V	4367.85	-55.23	V	8.1	0.95	-48.08	-13.00	-35.08
1132.26	44.23	270	1.2	H	1132.26	-53.37	H	5.7	0.51	-48.18	-13.00	-35.18
2620.17	44.00	272	1.2	H	2620.17	-54.60	H	7.0	0.7	-48.30	-13.00	-35.30
5241.42	43.26	187	1.0	H	5241.42	-55.54	H	8.0	0.92	-48.46	-13.00	-35.46
5241.42	43.12	112	1.0	V	5241.42	-55.58	V	8.0	0.92	-48.50	-13.00	-35.50
1360.72	45.61	100	1.0	V	1360.72	-53.69	V	5.7	0.51	-48.50	-13.00	-35.50
3494.28	43.95	120	1.0	H	3494.28	-54.45	H	6.7	1.01	-48.76	-13.00	-35.76
3494.28	43.96	184	1.2	V	3494.28	-54.64	V	6.7	1.01	-48.95	-13.00	-35.95
1747.14	44.30	247	1.0	V	1747.14	-54.80	V	6.1	0.56	-49.26	-13.00	-36.26
Channel 312 f=879.36MHz												
1132.26	48.04	180	1.2	H	1132.26	-51.06	H	6.2	0.51	-45.37	-13.00	-32.37
1120.24	46.06	300	1.0	V	1120.24	-52.34	V	5.7	0.51	-47.15	-13.00	-34.15
4396.80	44.26	270	1.2	H	4396.80	-54.34	H	8.1	0.95	-47.19	-13.00	-34.19
2638.08	45.02	90	1.2	V	2638.08	-53.58	V	7.0	0.70	-47.28	-13.00	-34.28
5276.16	43.81	180	1.0	H	5276.16	-54.39	H	8.0	0.92	-47.31	-13.00	-34.31
2638.08	45.02	330	1.0	H	2638.08	-53.88	H	7.0	0.70	-47.58	-13.00	-34.58
1758.72	45.57	180	1.2	V	1758.72	-53.33	V	6.1	0.56	-47.79	-13.00	-34.79
1758.72	45.57	180	1.0	H	1758.72	-53.43	H	6.1	0.56	-47.89	-13.00	-34.89
3517.44	44.38	180	1.2	H	3517.44	-54.32	H	7.2	1.01	-48.13	-13.00	-35.13
4396.80	43.14	240	1.0	V	4396.80	-55.56	V	8.1	0.95	-48.41	-13.00	-35.41
3517.44	43.66	175	1.0	V	3517.44	-54.64	V	7.2	1.01	-48.45	-13.00	-35.45
5276.16	43.80	220	1.2	V	5276.16	-55.80	V	8.0	0.92	-48.72	-13.00	-35.72

Transceiver and Receiver Module *DPA*

Indicated Frequency MHz	Meter Reading dBuV/m	Table	Test Antenna		Substituted			Antenna Gain Correction dBi	Cable Loss dB	Absolute Level dBm	Limit dBm	Margin dB
		Angle Degree	Height Meter	Polar H/V	Frequency MHz	Level dBm	Polar H/V					
Channel 1013 f=869.70MHz												
1739.40	48.66	180	1.2	H	1739.40	-49.84	H	6.1	0.56	-44.30	-13.00	-31.30
1132.26	48.56	270	1.0	V	1132.26	-50.04	V	6.2	0.51	-44.35	-13.00	-31.35
2609.10	47.39	45	1.2	H	2609.10	-51.21	H	7.0	0.70	-44.91	-13.00	-31.91
1739.40	46.55	45	1.0	V	1739.40	-52.15	V	6.1	0.56	-46.61	-13.00	-33.61
4348.51	45.65	90	1.2	H	4348.51	-53.95	H	8.1	0.95	-46.80	-13.00	-33.80
2609.10	44.79	60	1.2	V	2609.10	-53.51	V	7.0	0.70	-47.21	-13.00	-34.21
5218.20	44.9	90	1.2	V	5218.20	-54.50	V	8.0	0.92	-47.42	-13.00	-34.42
4348.49	43.89	270	1.0	V	4348.49	-54.71	V	8.1	0.95	-47.56	-13.00	-34.56
5218.20	44.23	270	1.2	H	5218.20	-55.07	H	8.0	0.92	-47.99	-13.00	-34.99
1024.04	45.43	270	1.2	H	1024.04	-53.37	H	5.7	0.51	-48.18	-13.00	-35.18
3478.80	44.33	180	1.2	V	3478.80	-54.37	V	6.7	1.01	-48.68	-13.00	-35.68
3478.80	44.62	45	1.0	H	3478.80	-54.58	H	6.7	1.01	-48.89	-13.00	-35.89
Channel 119 f=873.57MHz												
5241.42	44.98	90	1.2	V	5241.42	-53.32	V	8.0	0.92	-46.24	-13.00	-33.24
1747.14	46.59	270	1.0	H	1747.14	-51.91	H	6.1	0.56	-46.37	-13.00	-33.37
1072.14	46.98	90	1.2	H	1072.14	-51.62	H	5.7	0.51	-46.43	-13.00	-33.43
2620.17	45.37	45	1.2	H	2620.17	-53.03	H	7.0	0.70	-46.73	-13.00	-33.73
1036.07	46.76	180	1.0	V	1036.07	-51.94	V	5.7	0.51	-46.75	-13.00	-33.75
2620.17	45.70	180	1.2	V	2620.17	-53.70	V	7.0	0.70	-47.40	-13.00	-34.40
4367.85	43.61	45	1.0	V	4367.85	-54.99	V	8.1	0.95	-47.84	-13.00	-34.84
4367.85	44.30	180	1.0	H	4367.85	-55.10	H	8.1	0.95	-47.95	-13.00	-34.95
1747.14	45.53	270	1.0	V	1747.14	-53.57	V	6.1	0.56	-48.03	-13.00	-35.03
5241.42	44.48	180	1.2	H	5241.42	-55.12	H	8.0	0.92	-48.04	-13.00	-35.04
3494.28	44.35	270	1.0	V	3494.28	-54.15	V	6.7	1.01	-48.46	-13.00	-35.46
3494.28	44.12	270	1.2	H	3494.28	-55.18	H	6.7	1.01	-49.49	-13.00	-36.49
Channel 312 f=879.36MHz												
1132.26	47.01	90	1.0	H	1132.26	-51.99	H	6.2	0.51	-46.30	-13.00	-33.30
2638.08	44.88	360	1.0	H	2638.08	-53.72	H	7.0	0.7	-47.42	-13.00	-34.42
5276.16	44.25	90	1.0	H	5276.16	-54.75	H	8.0	0.92	-47.67	-13.00	-34.67
1758.72	45.88	180	1.2	H	1758.72	-53.22	H	6.1	0.56	-47.68	-13.00	-34.68
1758.72	45.29	45	1.2	V	1758.72	-53.31	V	6.1	0.56	-47.77	-13.00	-34.77
4396.80	43.75	45	1.2	H	4396.80	-54.95	H	8.1	0.95	-47.80	-13.00	-34.80
2638.08	44.14	90	1.0	V	2638.08	-54.26	V	7.0	0.7	-47.96	-13.00	-34.96
4396.80	43.32	270	1.0	V	4396.80	-55.38	V	8.1	0.95	-48.23	-13.00	-35.23
1036.07	45.42	270	1.2	V	1036.07	-53.48	V	5.7	0.51	-48.29	-13.00	-35.29
5276.16	43.81	270	1.2	V	5276.16	-55.39	V	8.0	0.92	-48.31	-13.00	-35.31
3517.44	43.65	180	1.2	V	3517.44	-54.65	V	7.2	1.01	-48.46	-13.00	-35.46
3517.44	43.88	270	1.0	H	3517.44	-54.72	H	7.2	1.01	-48.53	-13.00	-35.53

Transceiver and Receiver Module *LPAI+RFE*

Indicated Frequency MHz	Meter Reading dBuV/m	Table			Substituted			Antenna Gain Correction dBi	Cable Loss dB	Absolute Level dBm	Limit dBm	Margin dB
		Angle Degree	Height Meter	Polar H/V	Frequency MHz	Level dBm	Polar H/V					
Channel 1013 f=869.70MHz												
1132.26	48.33	270	1.2	H	1132.26	-50.97	V	6.2	0.51	-45.28	-13.00	-32.28
2609.10	45.87	90	1.0	H	2609.10	-52.83	H	8.0	0.92	-45.75	-13.00	-32.75
1739.40	46.69	180	1.2	H	1739.40	-51.91	H	6.1	0.56	-46.37	-13.00	-33.37
5218.20	44.62	270	1.0	V	5218.20	-53.58	V	8.1	0.95	-46.43	-13.00	-33.43
4348.49	44.63	180	1.2	V	4348.49	-53.67	V	8.0	0.92	-46.59	-13.00	-33.59
1739.40	46.60	45	1.0	V	1739.40	-52.30	V	6.1	0.56	-46.76	-13.00	-33.76
2609.10	45.64	180	1.2	V	2609.10	-53.06	V	7.0	0.70	-46.76	-13.00	-33.76
1168.33	46.79	150	1.2	V	1024.04	-52.31	H	5.7	0.51	-47.12	-13.00	-34.12
5218.20	44.12	180	1.2	H	5218.20	-53.98	H	7.0	0.70	-47.68	-13.00	-34.68
4348.51	43.76	270	1.2	H	4348.51	-55.64	H	8.1	0.95	-48.49	-13.00	-35.49
3478.80	44.61	60	1.0	H	3478.80	-54.99	H	6.7	1.01	-49.30	-13.00	-36.30
3478.80	44.35	330	1.0	V	3478.80	-55.15	V	6.7	1.01	-49.46	-13.00	-36.46
Channel 119 f=873.57MHz												
1747.14	48.22	270	1.0	H	1747.14	-50.88	H	6.1	0.56	-45.34	-13.00	-32.34
1132.26	48.18	90	1.2	H	1132.26	-51.12	H	5.7	0.51	-45.93	-13.00	-32.93
2620.17	45.19	45	1.2	H	2620.17	-53.51	H	7.0	0.70	-47.21	-13.00	-34.21
4367.85	43.90	180	1.0	V	4367.85	-54.40	V	8.1	0.95	-47.25	-13.00	-34.25
5241.42	44.27	270	1.0	H	5241.42	-54.33	H	8.0	0.92	-47.25	-13.00	-34.25
1747.14	45.29	270	1.2	V	1747.14	-52.91	V	6.1	0.56	-47.37	-13.00	-34.37
2620.17	44.78	45	1.0	V	2620.17	-53.82	V	7.0	0.7	-47.52	-13.00	-34.52
5241.42	43.87	270	1.2	V	5241.42	-54.63	V	8.0	0.92	-47.55	-13.00	-34.55
3494.28	44.88	90	1.0	H	3494.28	-53.32	H	6.7	1.01	-47.63	-13.00	-34.63
4367.85	43.67	180	1.2	H	4367.85	-54.93	H	8.1	0.95	-47.78	-13.00	-34.78
1108.21	46.18	45	1.0	V	1108.21	-53.02	V	5.7	0.51	-47.83	-13.00	-34.83
3494.28	44.02	90	1.2	V	3494.28	-54.18	V	6.7	1.01	-48.49	-13.00	-35.49
Channel 312 f=879.36MHz												
1072.14	47.07	300	1.2	V	1036.07	-51.03	V	5.7	0.51	-45.84	-13.00	-32.84
1132.26	47.48	270	1.0	H	1132.26	-52.12	H	6.2	0.51	-46.43	-13.00	-33.43
5276.16	44.30	280	1.2	H	5276.16	-54.00	H	8.0	0.92	-46.92	-13.00	-33.92
2638.08	44.87	270	1.2	V	2638.08	-53.53	V	7.0	0.70	-47.23	-13.00	-34.23
4396.80	43.94	180	1.2	H	4396.80	-54.46	H	8.1	0.95	-47.31	-13.00	-34.31
2638.08	44.88	45	1.2	H	2638.08	-53.72	H	7.0	0.70	-47.42	-13.00	-34.42
1758.72	45.32	180	1.0	V	1758.72	-52.98	V	6.1	0.56	-47.44	-13.00	-34.44
3517.44	44.85	45	1.0	V	3517.44	-53.75	V	7.2	1.01	-47.56	-13.00	-34.56
5276.16	44.33	180	1.2	V	5276.16	-54.97	H	8.0	0.92	-47.89	-13.00	-34.89
4396.80	43.50	90	1.2	V	4396.80	-55.20	V	8.1	0.95	-48.05	-13.00	-35.05
1758.72	44.95	270	1.2	H	1758.72	-53.75	H	6.1	0.56	-48.21	-13.00	-35.21
3517.44	44.16	90	1.0	H	3517.44	-54.54	H	7.2	1.01	-48.35	-13.00	-35.35

Transceiver and Receiver Module *LPA2+RFE*

Indicated Frequency MHz	Meter Reading dBuV/m	Table	Test Antenna			Substituted			Antenna Gain Correction dBi	Cable Loss dB	Absolute Level dBm	Limit dBm	Margin dB
		Angle Degree	Height Meter	Polar H/V	Frequency MHz	Level dBm	Polar H/V						
Channel 1013 f=869.70MHz													
1072.26	46.56	270	1.0	V	1132.26	-51.74	V	6.2	0.51	-46.05	-13.00	-33.05	
1739.40	46.21	270	1.0	V	1739.40	-51.69	V	6.1	0.56	-46.15	-13.00	-33.15	
1739.40	45.75	60	1.2	H	1739.40	-51.85	H	6.1	0.56	-46.31	-13.00	-33.31	
2609.10	45.22	180	1.2	V	2609.10	-52.98	V	7.0	0.70	-46.68	-13.00	-33.68	
4348.49	45.10	270	1.0	V	4348.49	-53.80	V	8.0	0.92	-46.72	-13.00	-33.72	
5218.20	44.67	90	1.0	V	5218.20	-53.93	V	8.1	0.95	-46.78	-13.00	-33.78	
4348.51	44.38	270	1.0	H	4348.51	-54.22	H	8.1	0.95	-47.07	-13.00	-34.07	
3478.80	45.26	175	1.2	V	3478.80	-53.44	V	6.7	1.01	-47.75	-13.00	-34.75	
2609.10	44.26	330	1.2	H	2609.10	-54.94	H	8.0	0.92	-47.86	-13.00	-34.86	
5218.20	44.27	195	1.2	H	5218.20	-54.43	H	7.0	0.70	-48.13	-13.00	-35.13	
3478.80	44.68	60	1.0	H	3478.80	-54.92	H	6.7	1.01	-49.23	-13.00	-36.23	
1060.04	45.12	150	1.2	H	1024.04	-54.68	H	5.7	0.51	-49.49	-13.00	-36.49	
Channel 119 f=873.57MHz													
1072.14	46.88	270	1.2	H	1072.14	-51.72	H	5.7	0.51	-46.53	-13.00	-38.72	
1747.14	47.26	202	1.0	H	1747.14	-51.74	H	6.1	0.56	-46.20	-13.00	-38.74	
1108.21	45.78	270	1.0	V	1108.21	-52.72	V	5.7	0.51	-47.53	-13.00	-39.72	
1747.14	45.29	250	1.0	V	1747.14	-53.31	V	6.1	0.56	-47.77	-13.00	-40.31	
3494.28	44.12	180	1.0	V	3494.28	-53.48	V	6.7	1.01	-47.79	-13.00	-40.48	
2620.17	44.51	270	1.2	V	2620.17	-53.69	V	7.0	0.70	-47.39	-13.00	-40.69	
4367.85	43.68	90	1.0	V	4367.85	-54.22	V	8.1	0.95	-47.07	-13.00	-41.22	
5241.42	43.98	195	1.2	V	5241.42	-54.32	V	8.0	0.92	-47.24	-13.00	-41.32	
2620.17	43.68	195	1.2	H	2620.17	-55.42	H	7.0	0.70	-49.12	-13.00	-42.42	
3494.28	44.15	270	1.0	H	3494.28	-55.85	H	6.7	1.01	-50.16	-13.00	-42.85	
5241.42	43.78	187	1.0	H	5241.42	-56.02	H	8.0	0.92	-48.94	-13.00	-43.02	
4367.85	44.29	180	1.2	H	4367.85	-57.01	H	8.1	0.95	-49.86	-13.00	-44.01	
Channel 312 f=879.36MHz													
1758.72	44.76	270	1.2	H	1758.72	-52.94	H	6.1	0.56	-47.40	-13.00	-39.94	
1758.72	45.98	180	1.0	V	1758.72	-53.32	V	6.1	0.56	-47.78	-13.00	-40.32	
1132.26	45.41	195	1.0	H	1132.26	-53.39	H	6.2	0.51	-47.70	-13.00	-40.39	
2638.08	44.38	330	1.0	H	2638.08	-53.92	H	7.0	0.70	-47.62	-13.00	-40.92	
3517.44	44.57	175	1.2	V	3517.44	-54.03	V	7.2	1.01	-47.84	-13.00	-41.03	
2638.08	45.02	97	1.0	V	2638.08	-54.38	V	7.0	0.70	-48.08	-13.00	-41.38	
4396.80	44.23	241	1.0	V	4396.80	-54.47	V	8.1	0.95	-47.32	-13.00	-41.47	
5276.16	44.03	220	1.2	V	5276.16	-54.57	H	8.0	0.92	-47.49	-13.00	-41.57	
1036.07	44.84	300	1.0	V	1036.07	-54.76	V	5.7	0.51	-49.57	-13.00	-41.76	
5276.16	43.76	280	1.2	H	5276.16	-54.84	H	8.0	0.92	-47.76	-13.00	-41.84	
4396.80	44.02	180	1.0	H	4396.80	-55.38	H	8.1	0.95	-48.23	-13.00	-42.38	
3517.44	43.27	90	1.0	H	3517.44	-56.33	H	7.2	1.01	-50.14	-13.00	-43.33	

**§2.1051, §22.917(a)- SPURIOUS EMISSIONS AT ANTENNA TERMINALS****Applicable Standard**

Requirements: CFR 47§ 2.1051. §22.917(a)

The spectrum was to be investigated to the tenth harmonics of the highest fundamental frequency as specified in §2.1057

**Test Equipment List and Details**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Spectrum Analyzer	FSEM30	849720/019	2004-11-10	2005-11-10

\* **Statement of Traceability:** Bay Area Compliance Lab Corp. (ShenZhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

**Test Procedure**

The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set at 100 kHz. Sufficient scans were taken to show any out of band emissions up to 10<sup>th</sup> harmonic.

**Test Data****Environmental Conditions**

Temperature:	18 °C
Relative Humidity:	53 %
ATM Pressure:	1009 mbar

*The testing was performed by Sam Lin on 2005-9-23.*

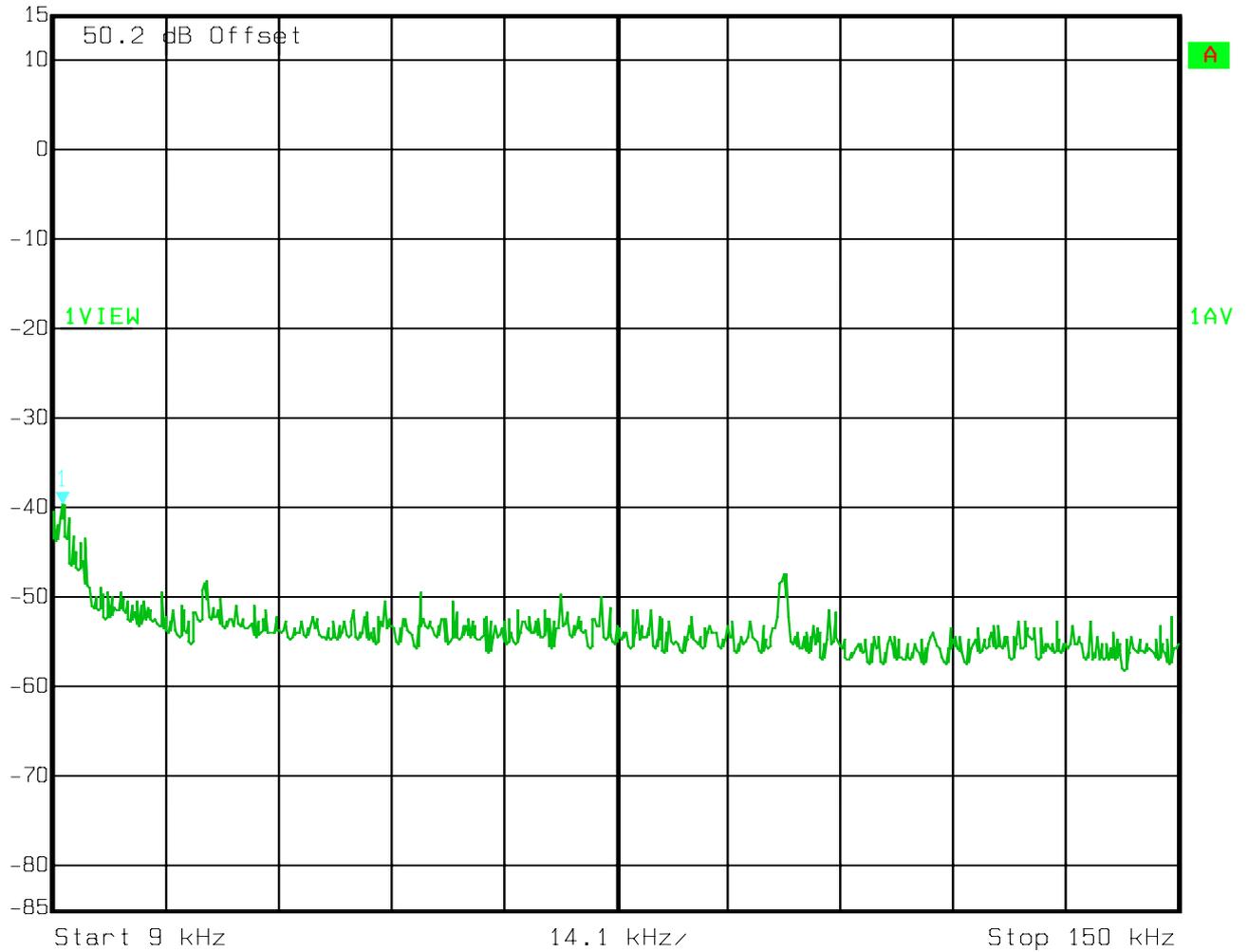
Test Result: Pass

*Test Mode: Transmitting*

Digital Pre-Distortion Transceiver and Receiver Module DPA

Channel 1013

 Ref Lvl 15 dBm      Marker 1 [T1] -39.50 dBm      RBW 1 kHz      RF Att 10 dB  
10.13026052 kHz      VBW 1 kHz      Unit dBm  
SWT 1 s



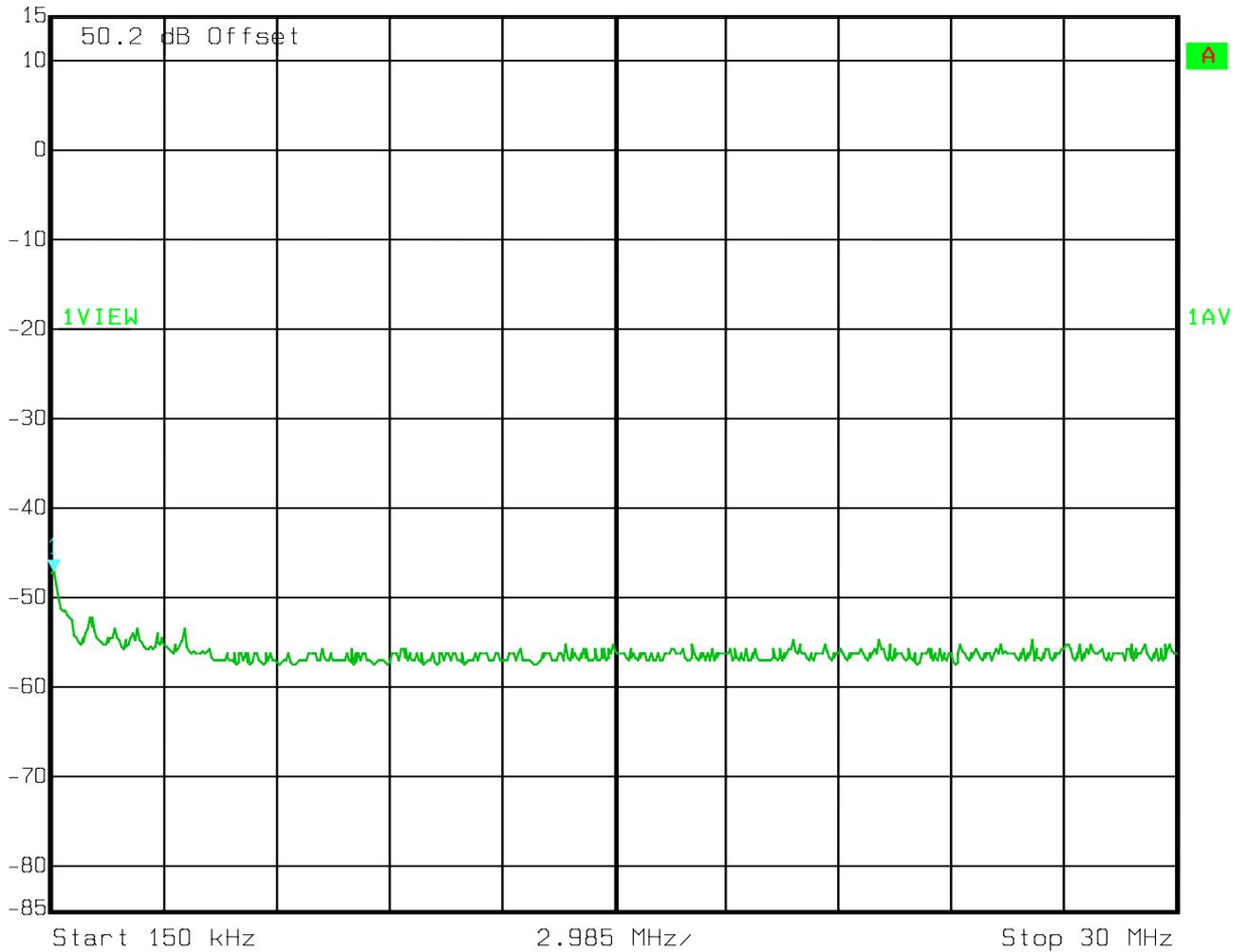
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Ref Lvl  
15 dBm

Marker 1 [T1]  
-47.12 dBm  
209.81963928 kHz

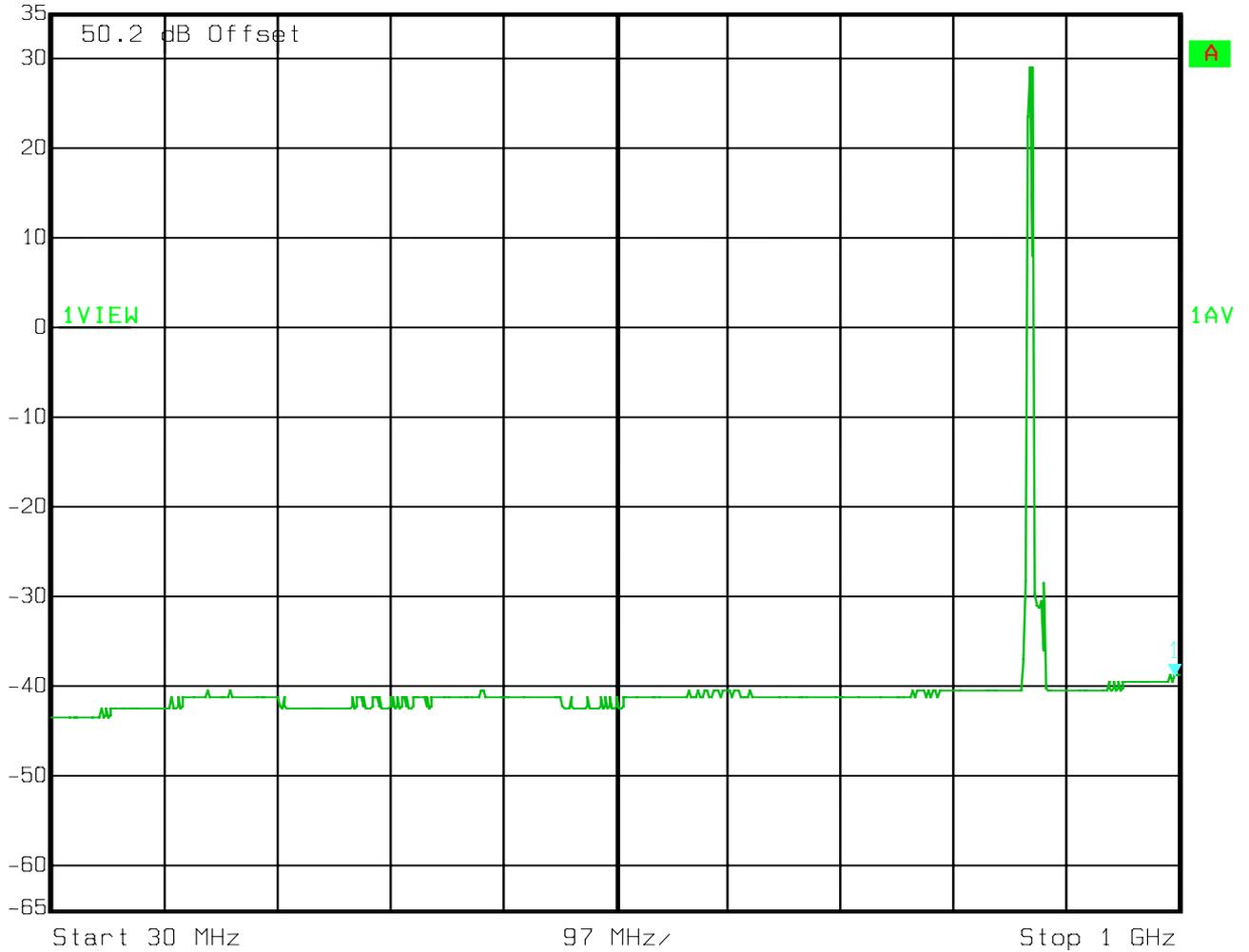
RBW 10 kHz RF Att 10 dB  
VBW 10 kHz  
SWT 1 s Unit dBm



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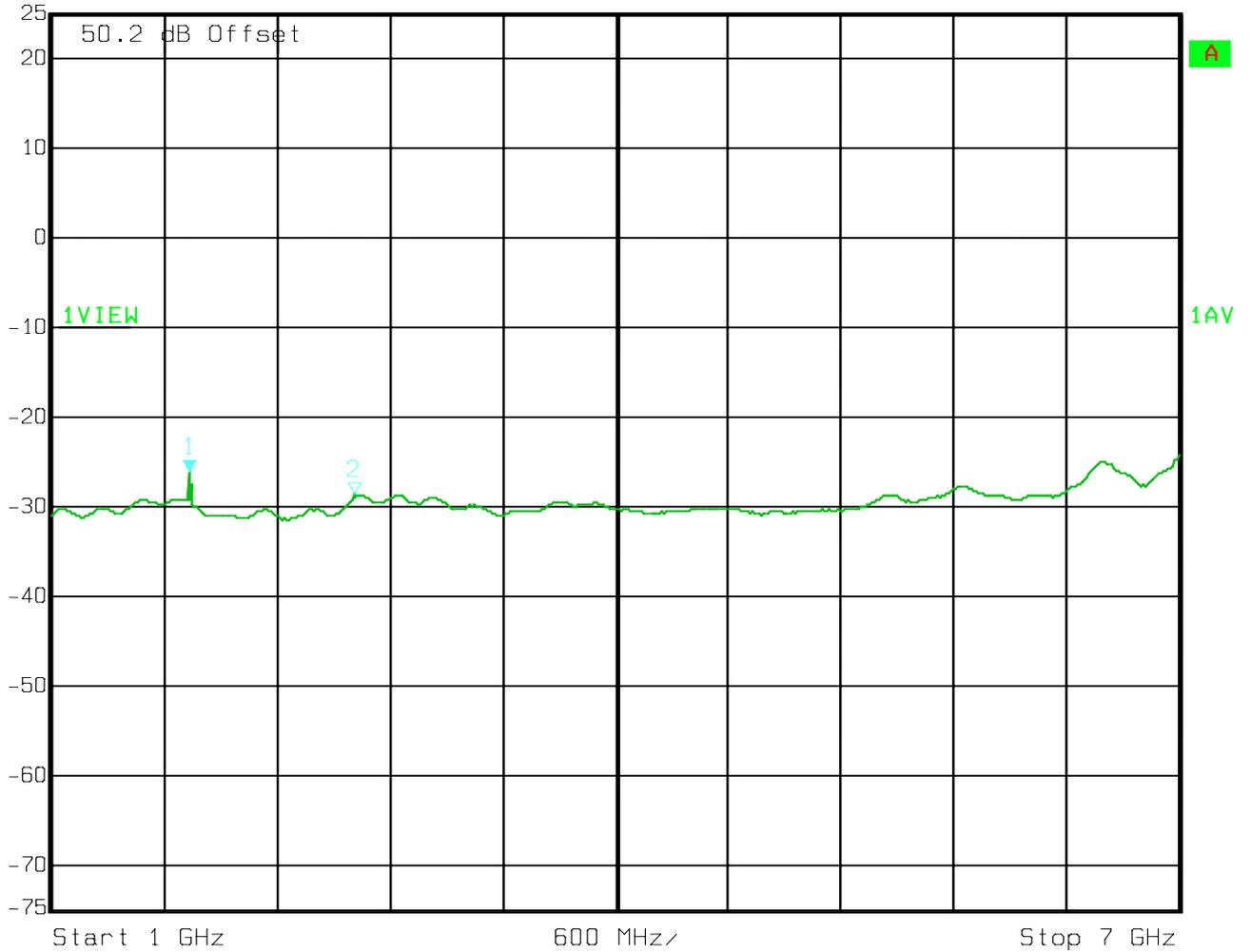
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Marker 1 [T1] 996.11222445 MHz  
RBW 100 kHz  
RF Att 10 dB  
VBW 100 kHz  
SWT 1 s  
Unit dBm



Date: 23.SEP.2005 14:12:27



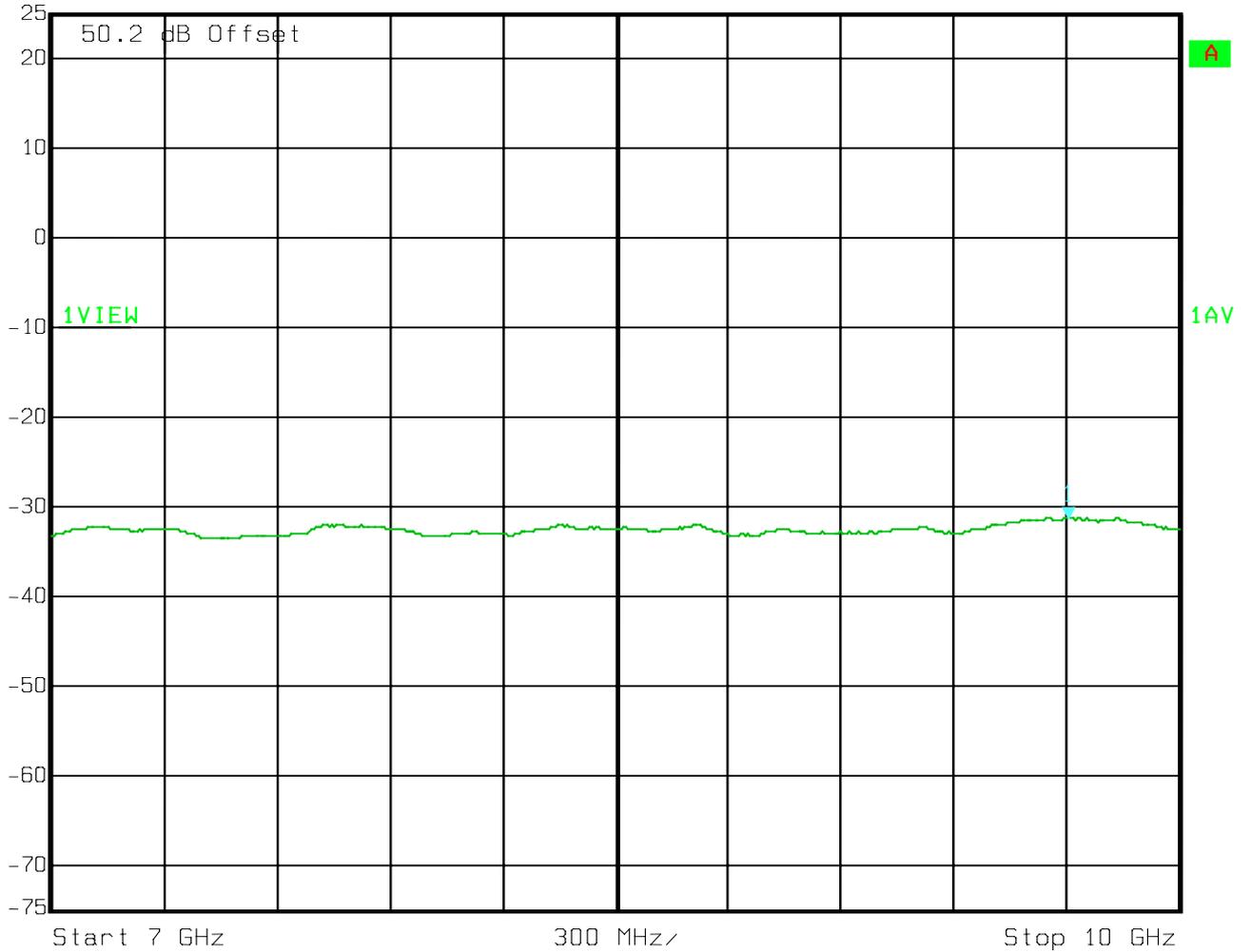
Ref Lvl 25 dBm  
Marker 1 [T1] -26.06 dBm  
1.73346693 GHz  
RBW 1 MHz  
RF Att 10 dB  
VBW 1 MHz  
SWT 1 s  
Unit dBm



Date: 23.SEP.2005 14:14:51



Ref Lvl 25 dBm  
Marker 1 [T1] -31.38 dBm  
9.70541082 GHz  
RBW 1 MHz  
RF Att 10 dB  
VBW 1 MHz  
SWT 1 s  
Unit dBm

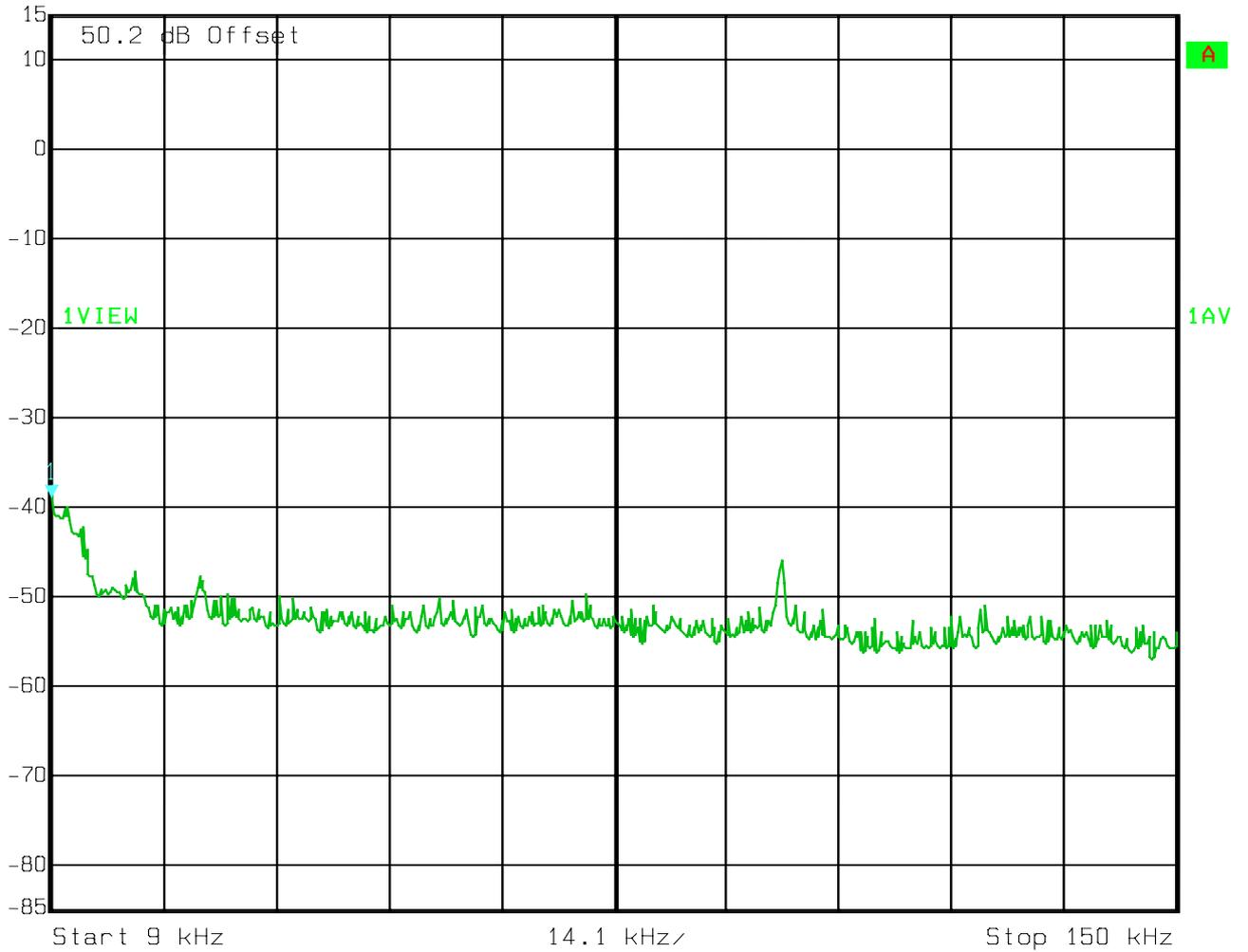


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Channel 119



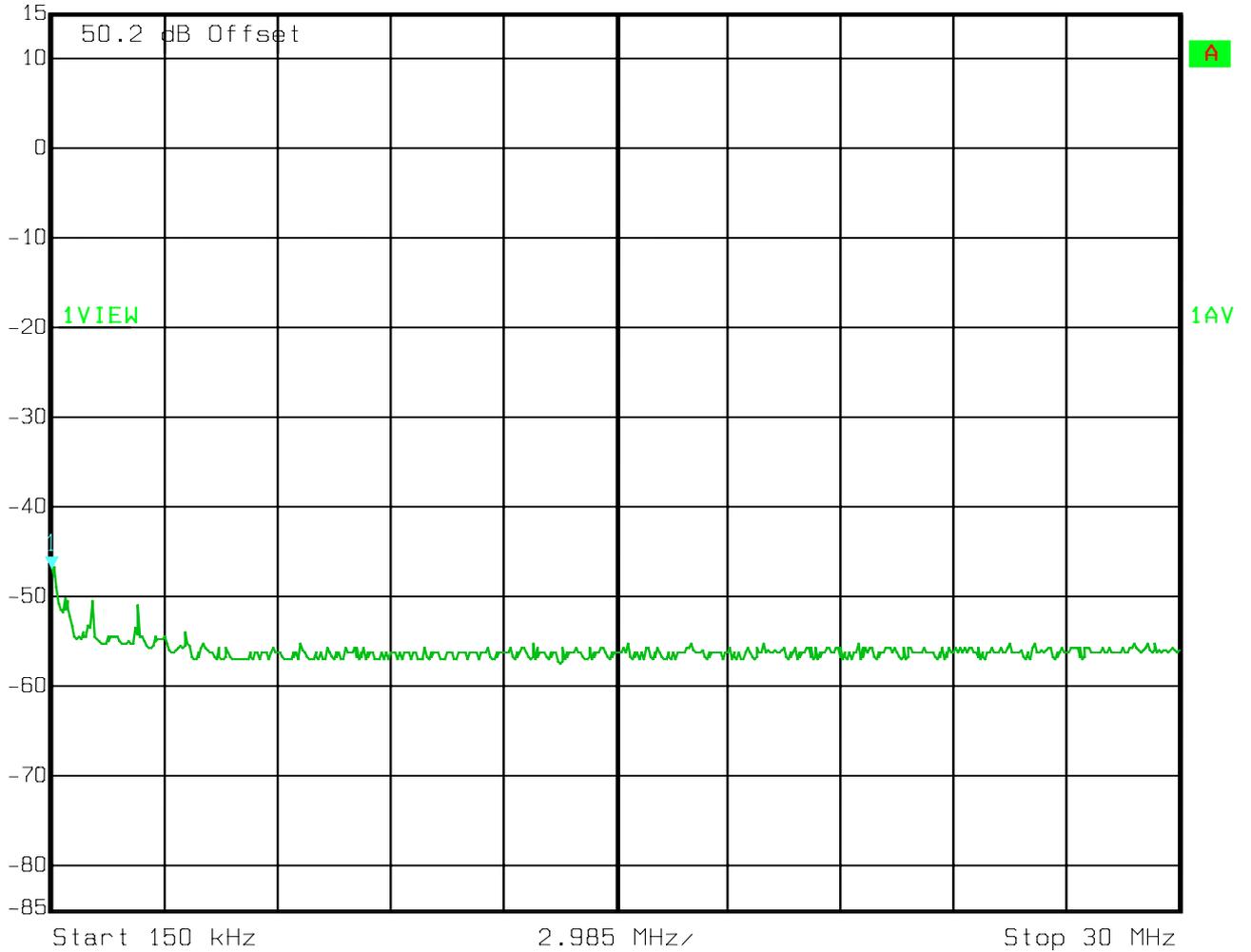
Ref Lvl 15 dBm  
Marker 1 [T1] -38.98 dBm  
9.00000000 kHz  
RBW 1 kHz  
RF Att 10 dB  
VBW 1 kHz  
SWT 1 s  
Unit dBm



Date: 23.SEP.2005 14:38:17



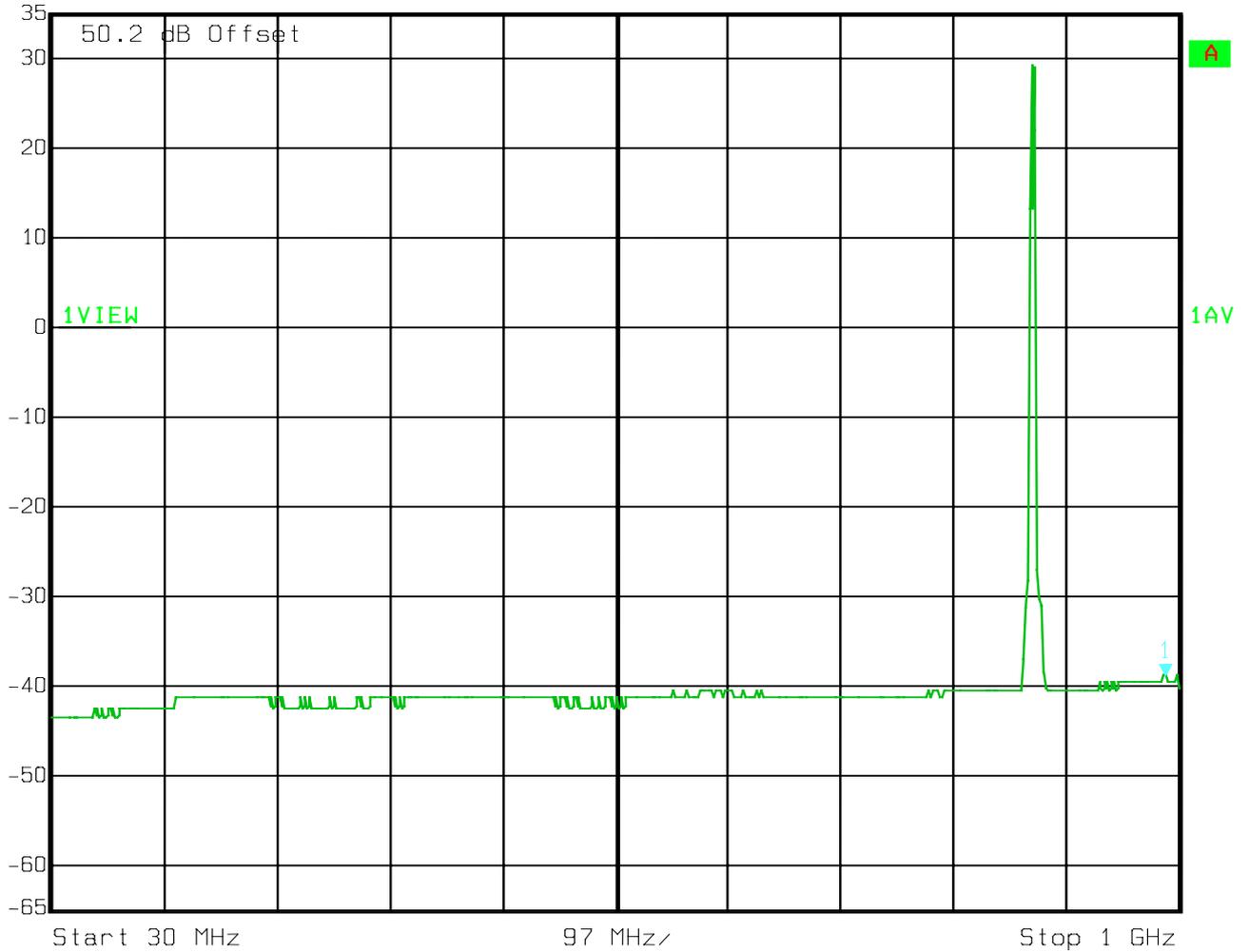
Ref Lvl 15 dBm  
Marker 1 [T1] -46.76 dBm  
150.00000000 kHz  
RBW 10 kHz  
RF Att 10 dB  
VBW 10 kHz  
SWT 1 s  
Unit dBm



Date: 23.SEP.2005 14:39:51



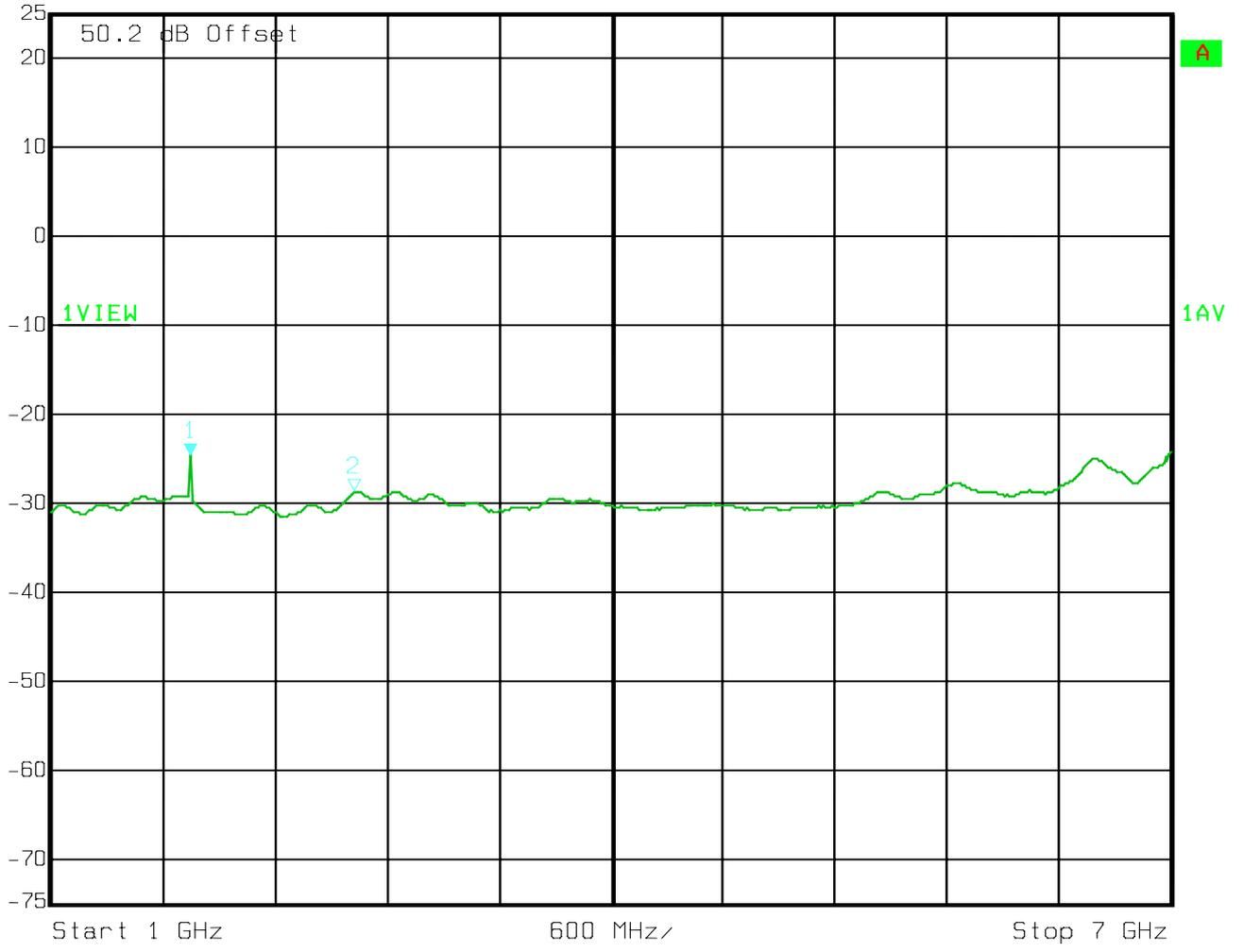
Ref Lvl 35 dBm  
Marker 1 [T1] 988.33667335 MHz  
RBW 100 kHz RF Att 10 dB  
VBW 100 kHz  
SWT 1 s Unit dBm



Date: 23.SEP.2005 14:42:24



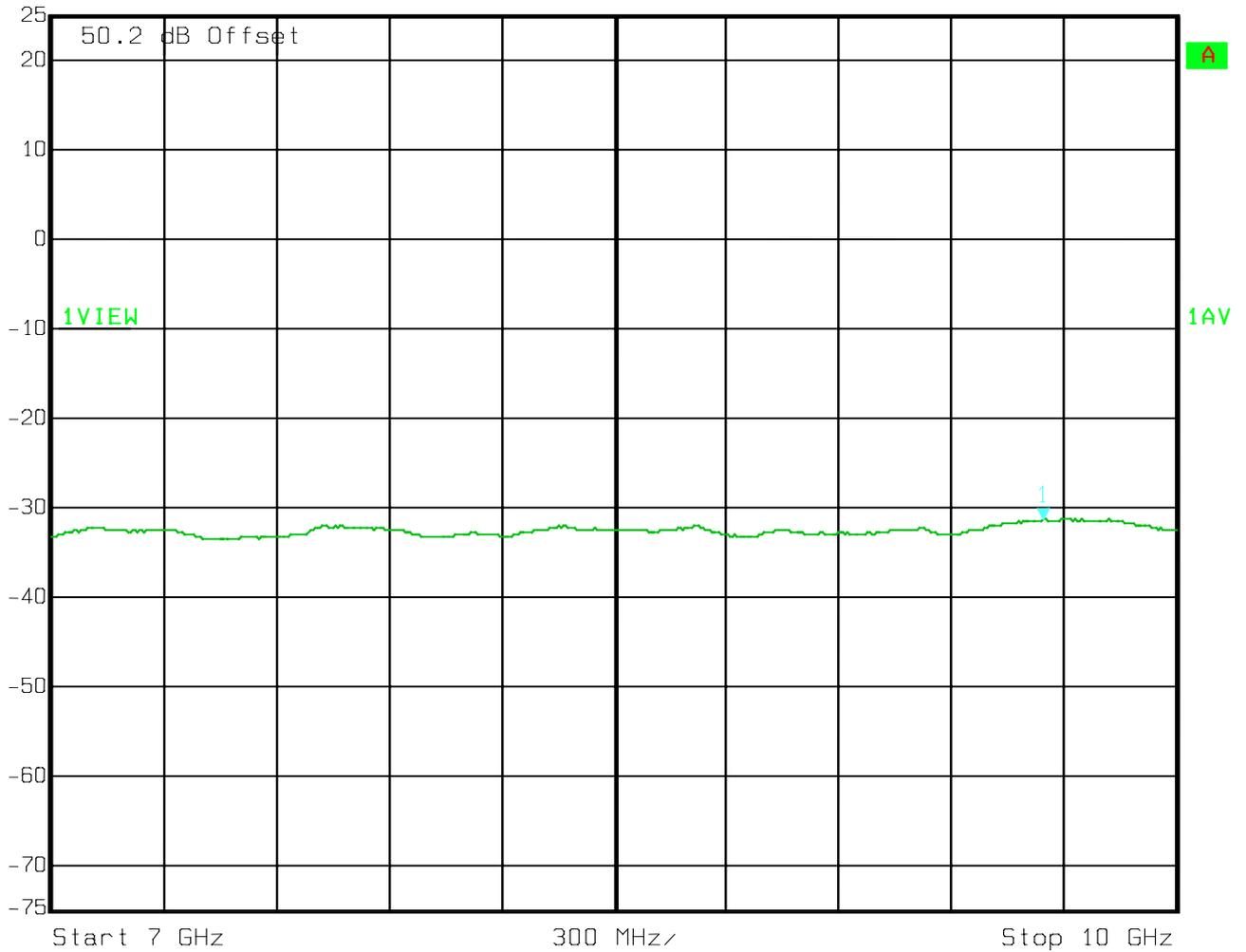
Ref Lvl 25 dBm  
Marker 1 [T1] -24.72 dBm  
1.74549098 GHz  
RBW 1 MHz  
RF Att 10 dB  
VBW 1 MHz  
SWT 1 s  
Unit dBm



Date: 23.SEP.2005 14:44:24



Ref Lvl 25 dBm  
Marker 1 [T1] -31.48 dBm  
9.64529058 GHz  
RBW 1 MHz  
RF Att 10 dB  
VBW 1 MHz  
SWT 1 s  
Unit dBm

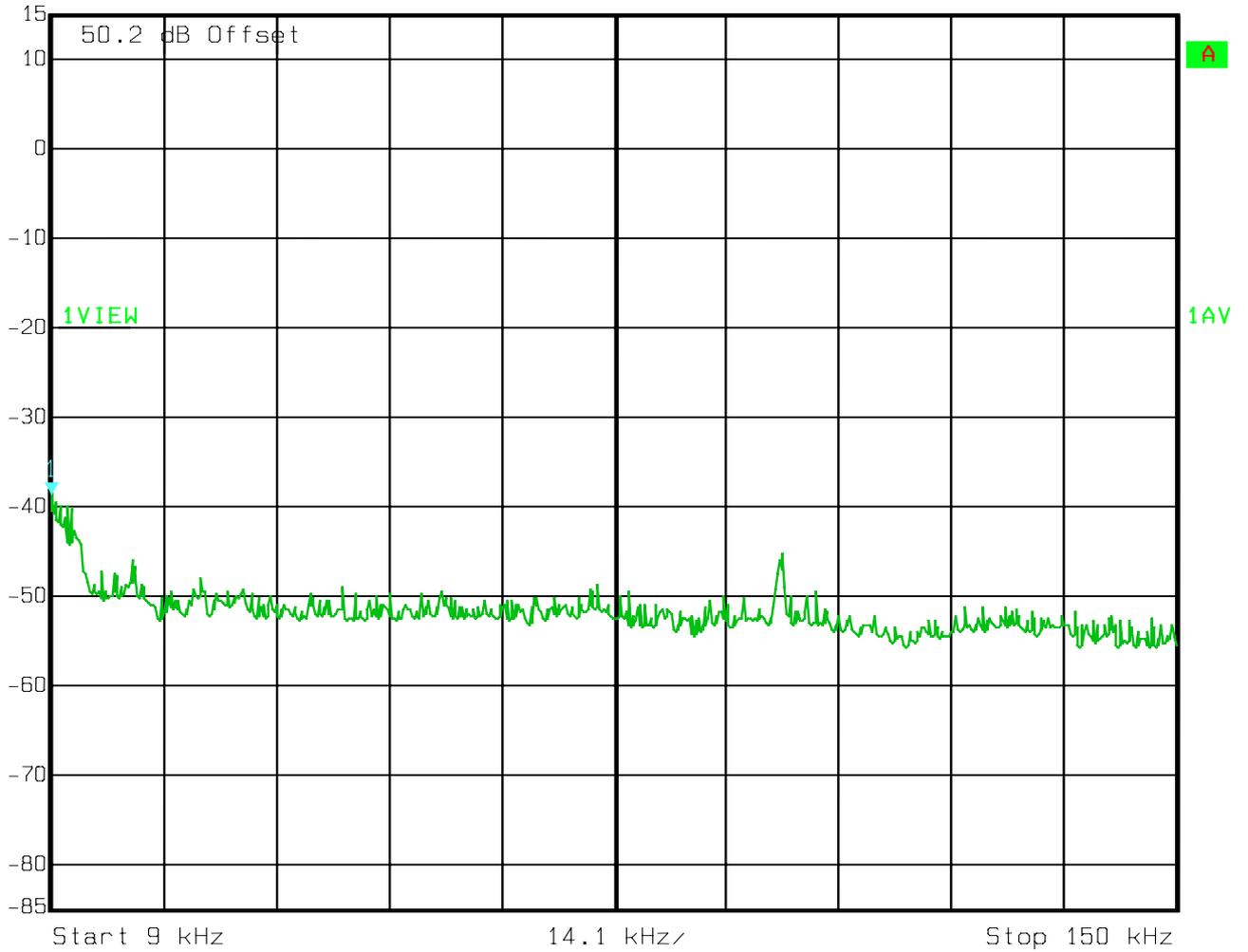


Date: 23.SEP.2005 14:46:10

Channel 312



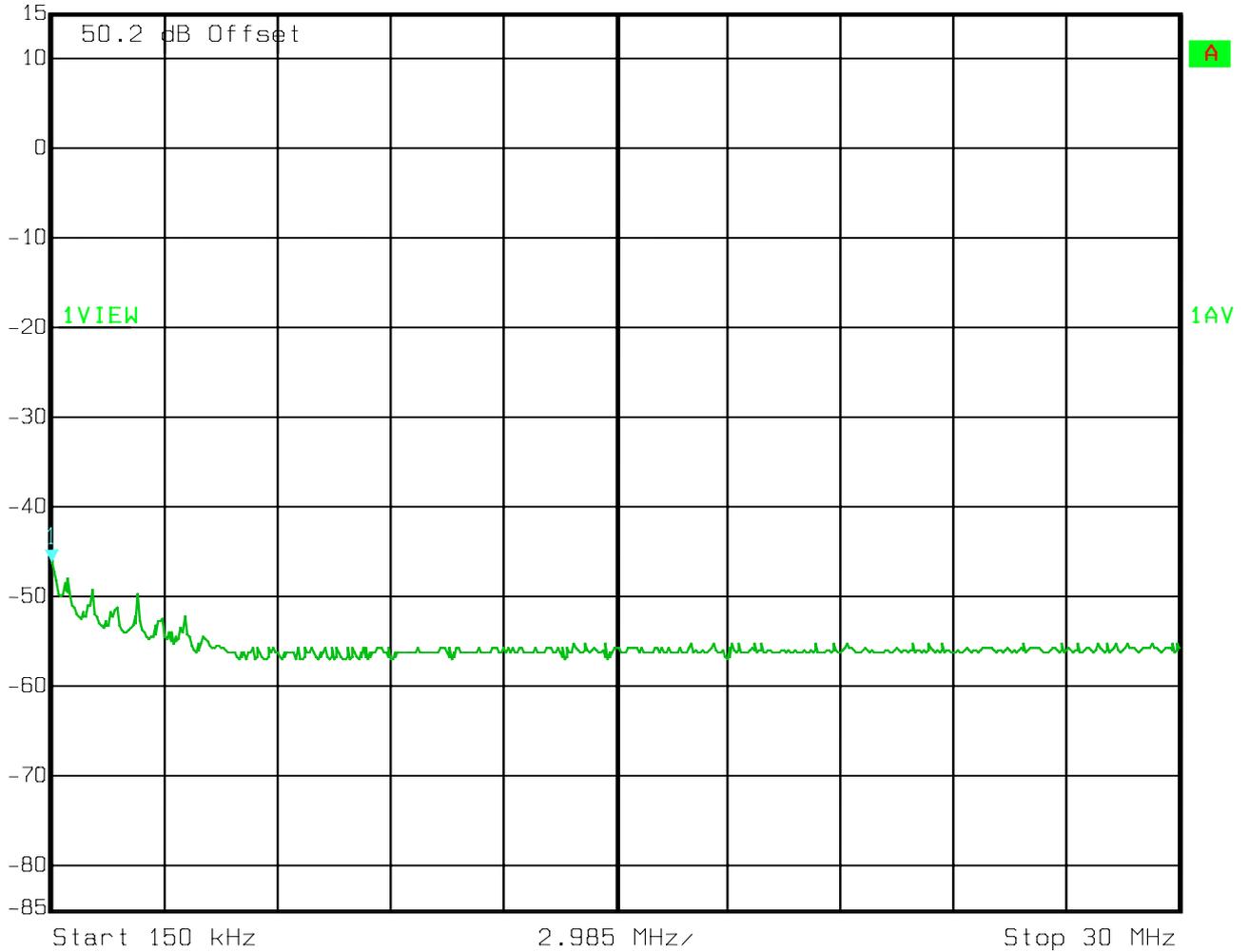
Ref Lvl 15 dBm  
Marker 1 [T1] -38.63 dBm  
9.00000000 kHz  
RBW 1 kHz  
RF Att 10 dB  
VBW 1 kHz  
SWT 1 s  
Unit dBm



Date: 23.SEP.2005 15:09:05



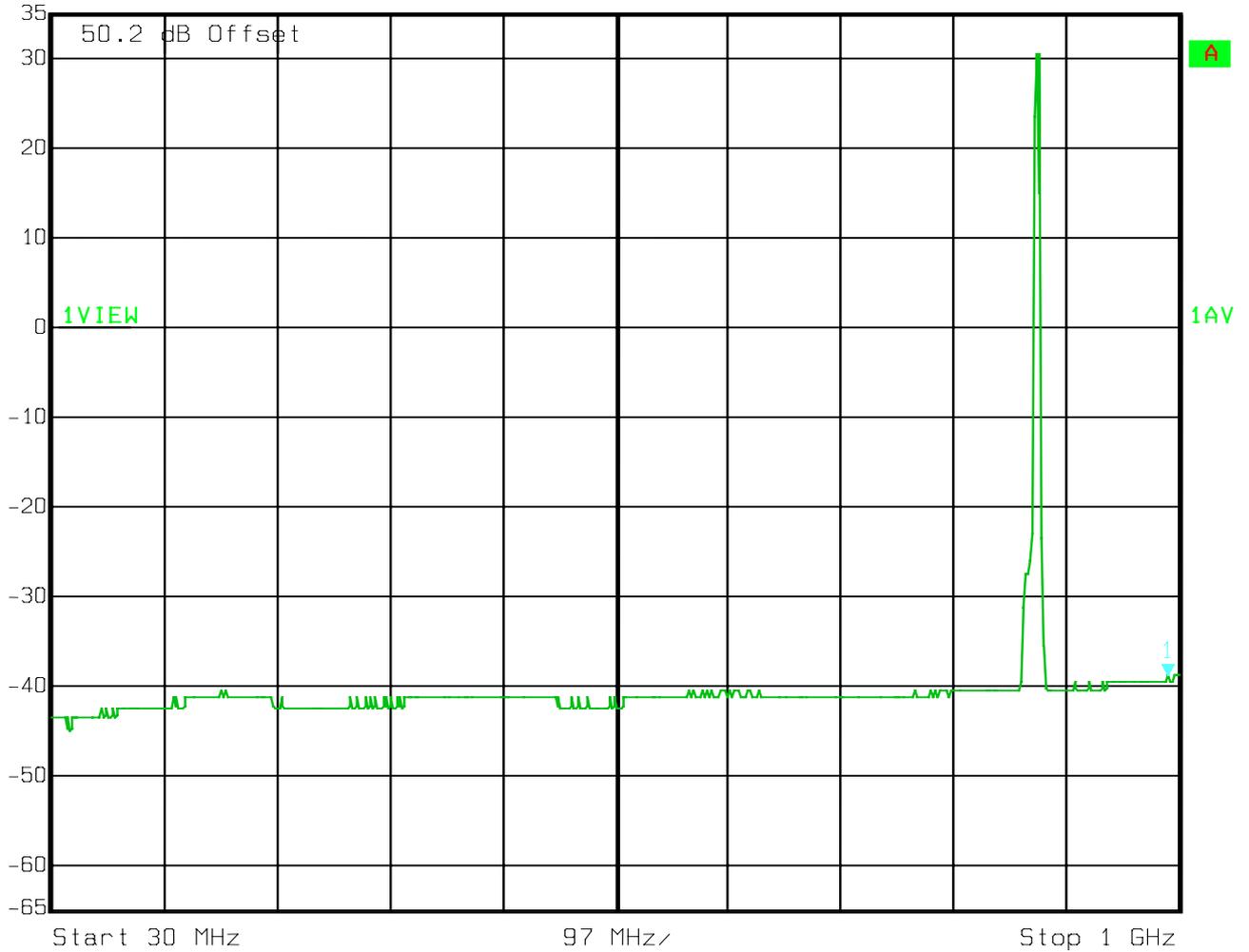
Ref Lvl 15 dBm  
Marker 1 [T1] -46.08 dBm  
150.00000000 kHz  
RBW 10 kHz RF Att 10 dB  
VBW 10 kHz  
SWT 1 s Unit dBm



Date: 23.SEP.2005 15:11:03



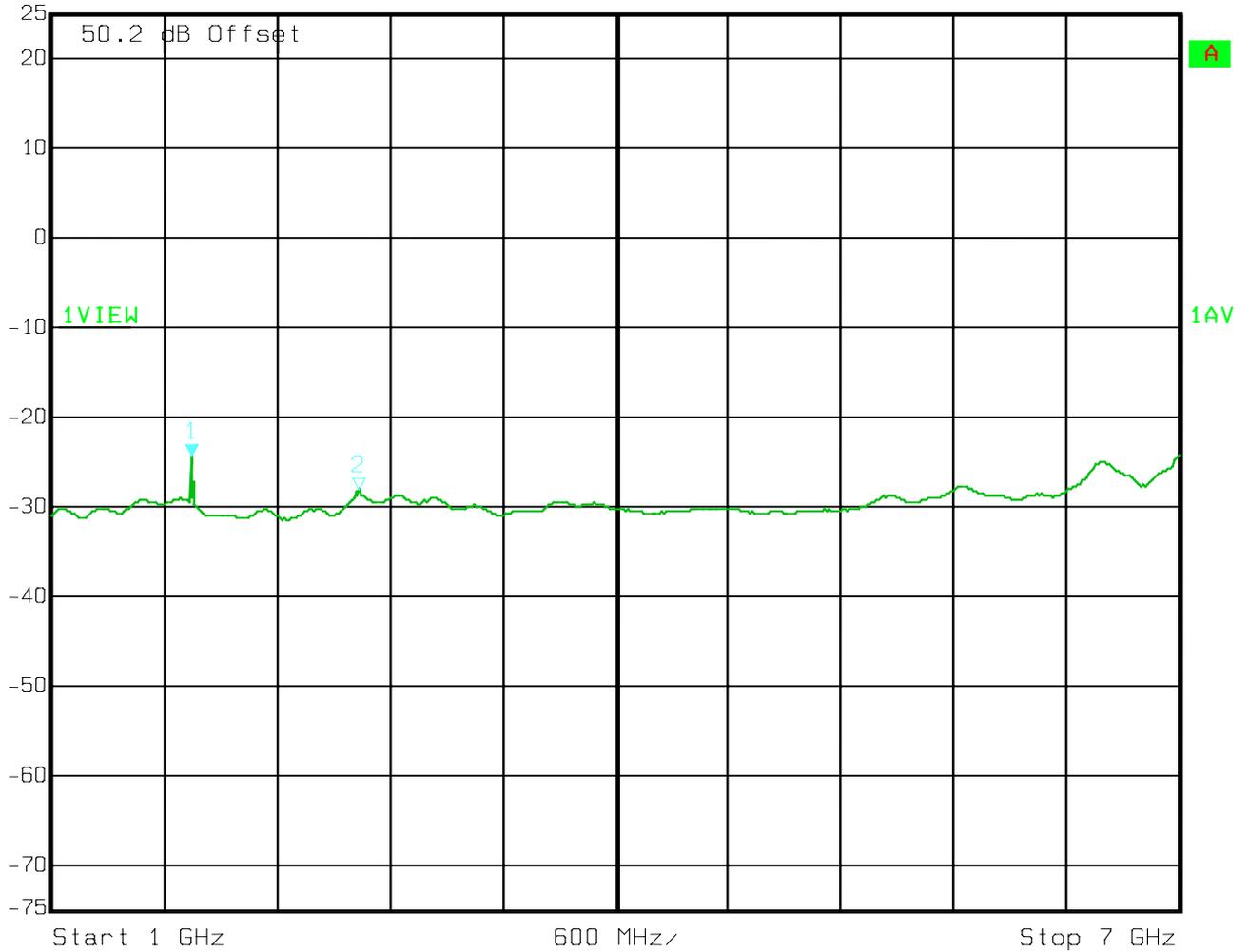
Ref Lvl 35 dBm  
Marker 1 [T1] 990.28056112 MHz -38.98 dBm  
RBW 100 kHz RF Att 10 dB  
VBW 100 kHz  
SWT 1 s Unit dBm



Date: 23.SEP.2005 15:12:50



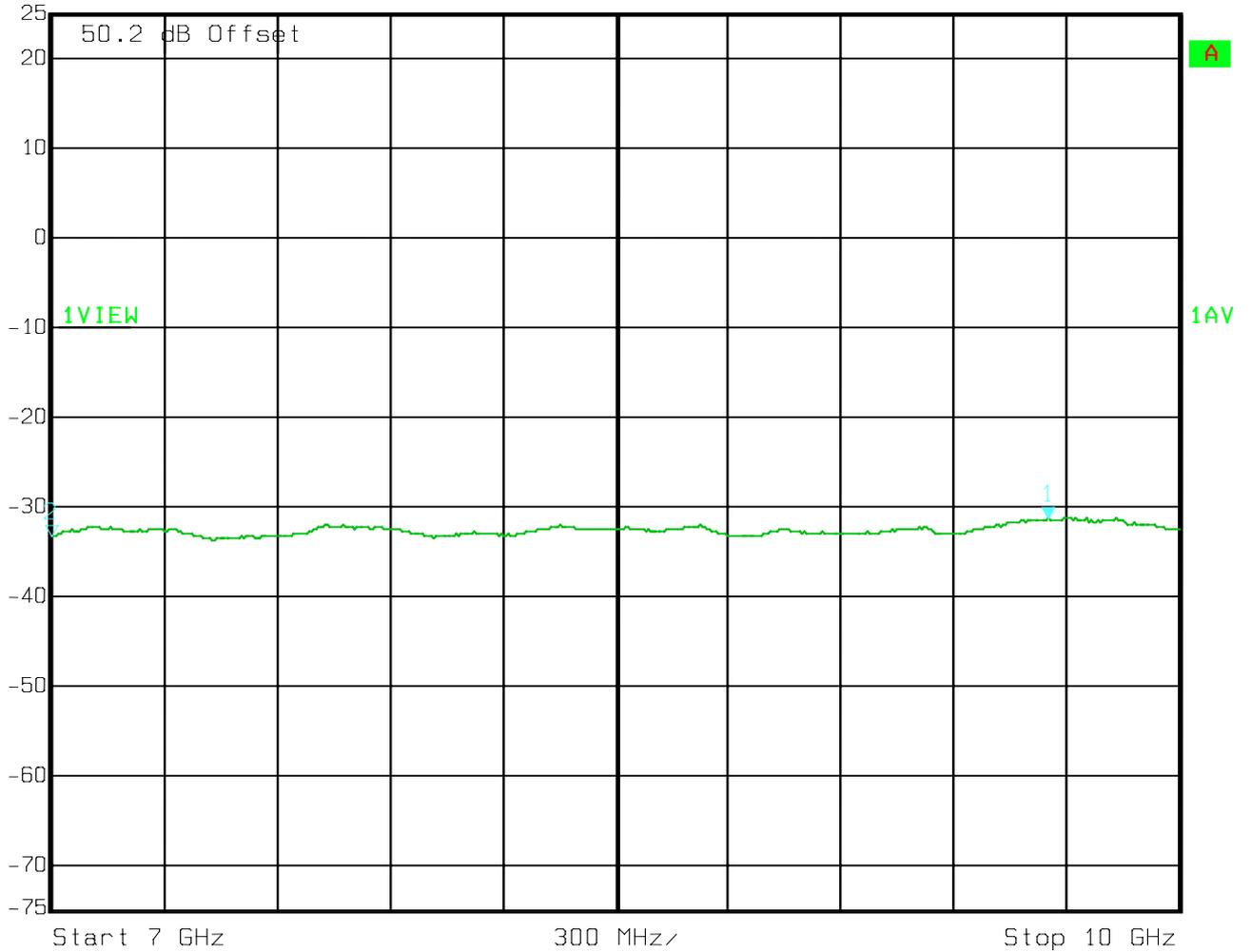
Ref Lvl 25 dBm  
Marker 1 [T1] -24.33 dBm  
1.74549098 GHz  
RBW 1 MHz  
RF Att 10 dB  
VBW 1 MHz  
SWT 1 s  
Unit dBm



Date: 23.SEP.2005 15:15:21



Ref Lvl 25 dBm  
Marker 1 [T1] -31.48 dBm  
9.65130261 GHz  
RBW 1 MHz  
RF Att 10 dB  
VBW 1 MHz  
SWT 1 s  
Unit dBm

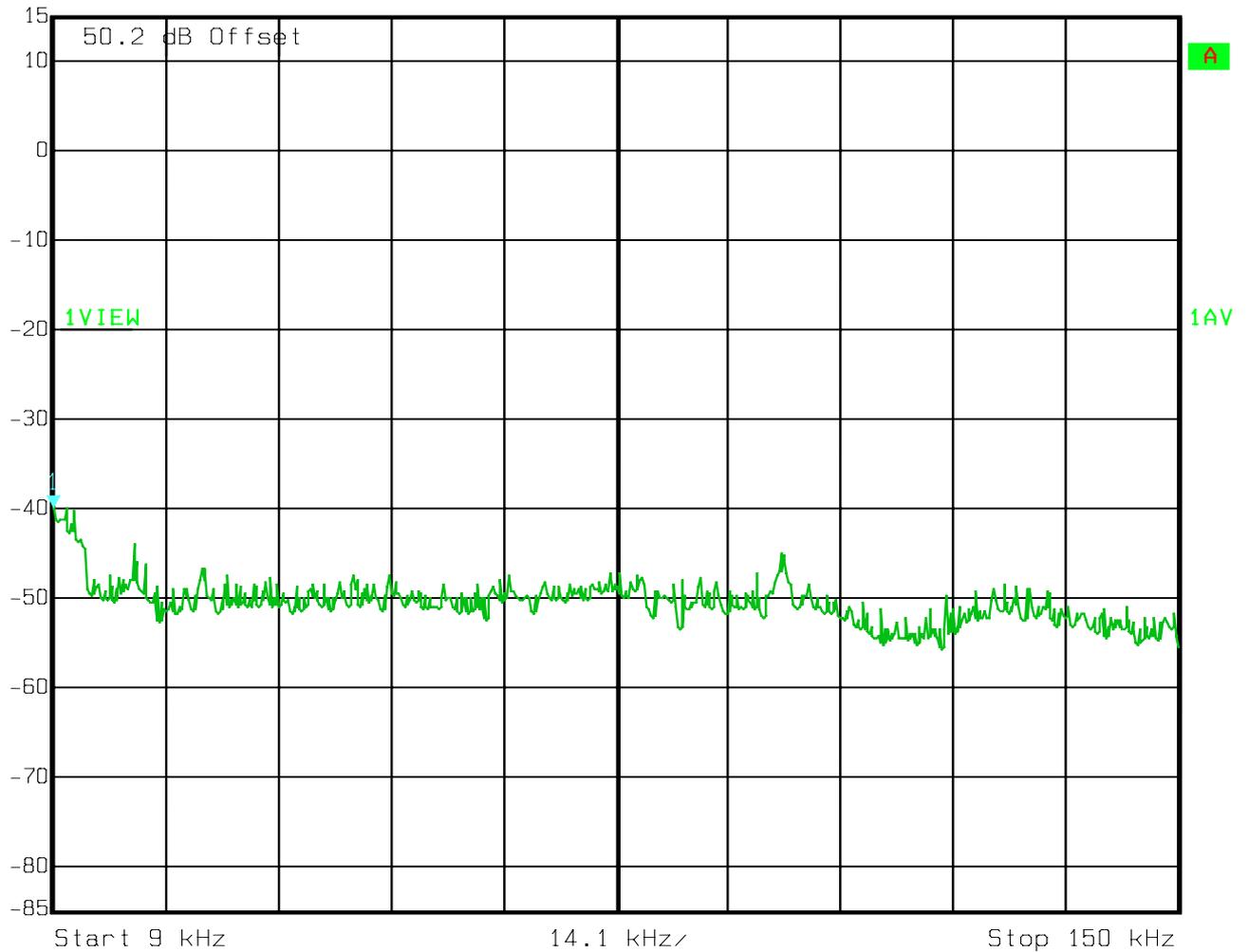


Date: 23.SEP.2005 15:18:06

Transceiver and Receiver Module *DPA*

Channel 1013

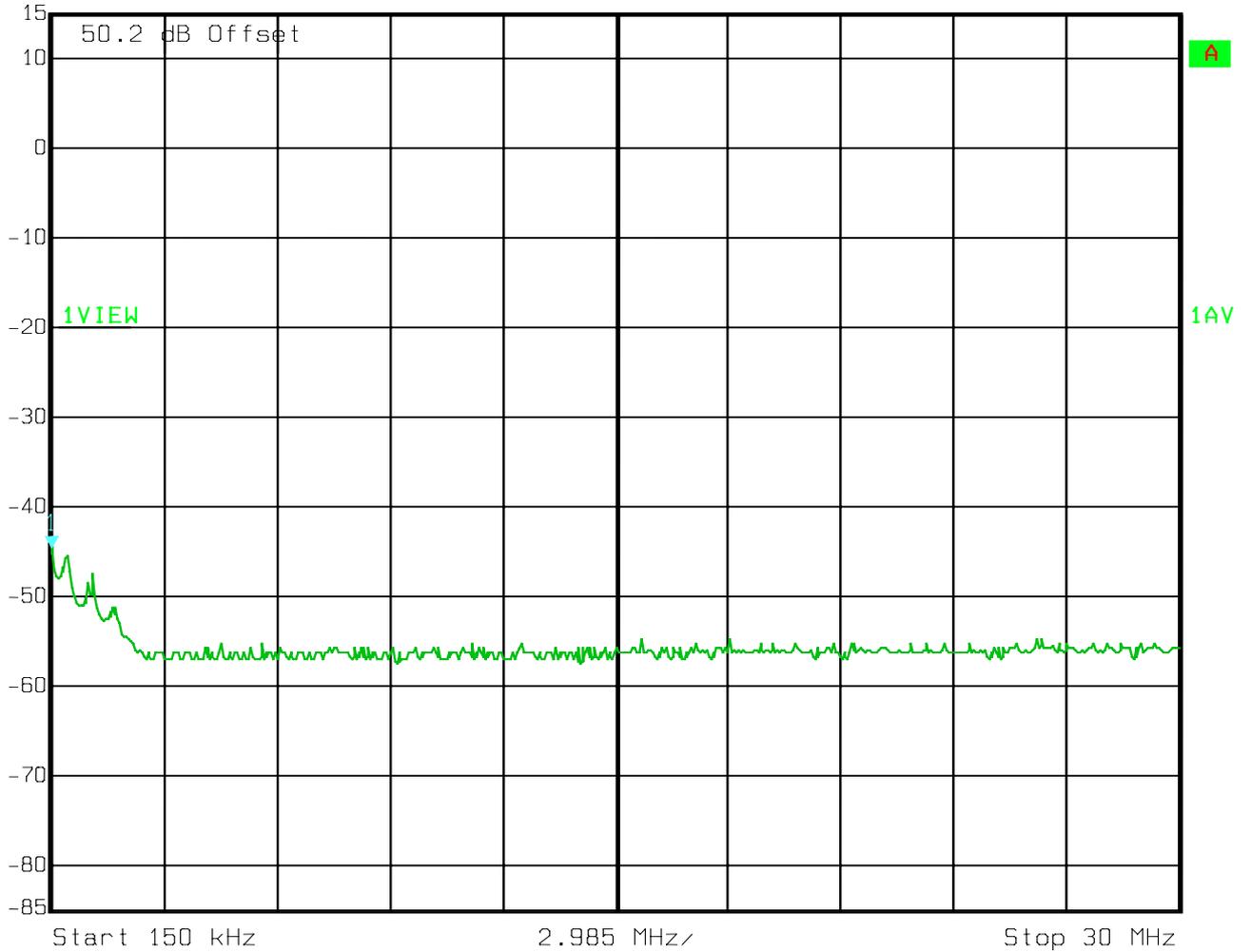
 Ref Lvl 15 dBm      Marker 1 [T1] -39.90 dBm      RBW 1 kHz      RF Att 10 dB  
9.00000000 kHz      VBW 1 kHz      Unit dBm  
SWT 1 s



Date: 23.SEP.2005 15:39:23



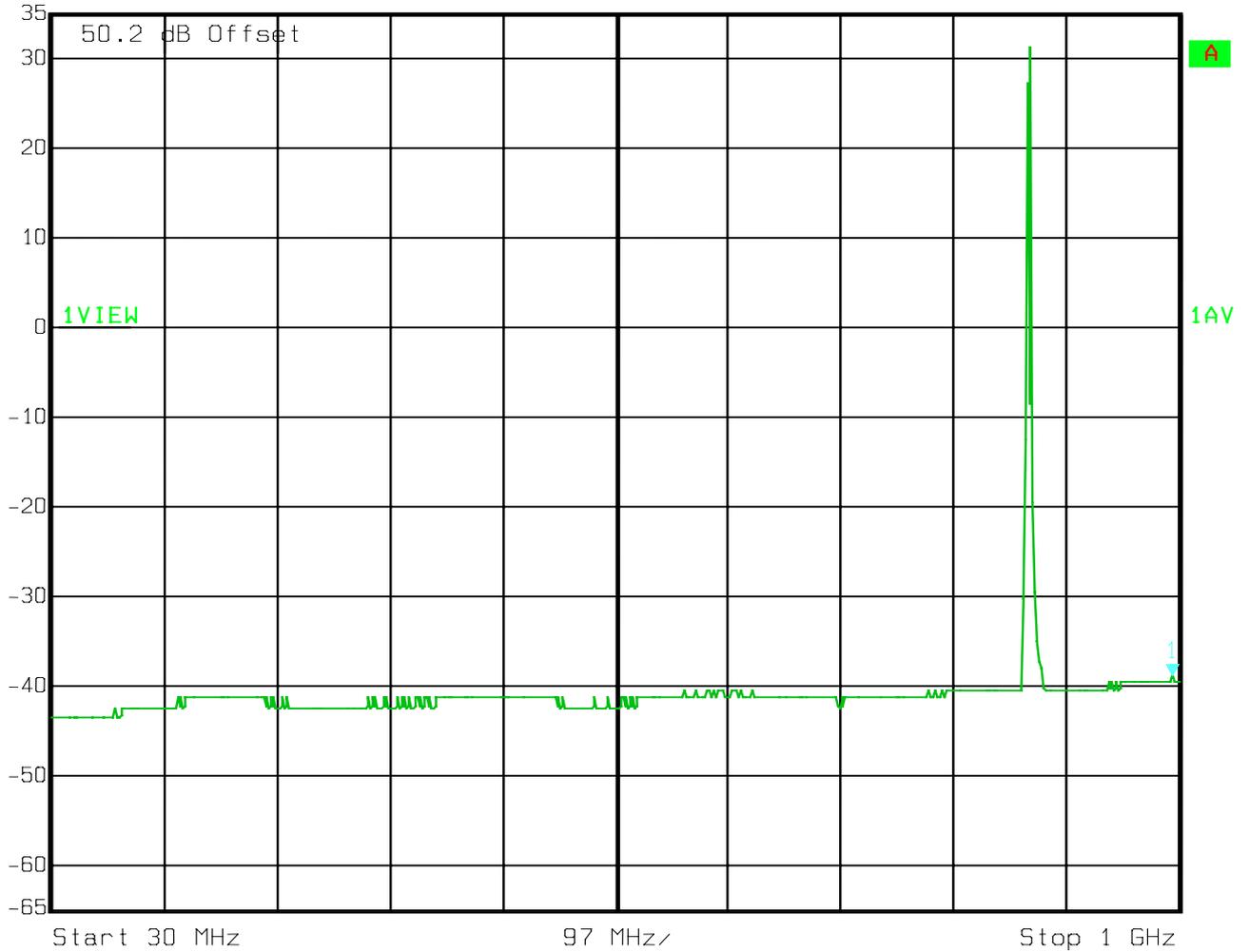
Ref Lvl 15 dBm  
Marker 1 [T1] -44.72 dBm  
150.00000000 kHz  
RBW 10 kHz RF Att 10 dB  
VBW 10 kHz  
SWT 1 s Unit dBm



Date: 23.SEP.2005 15:41:05



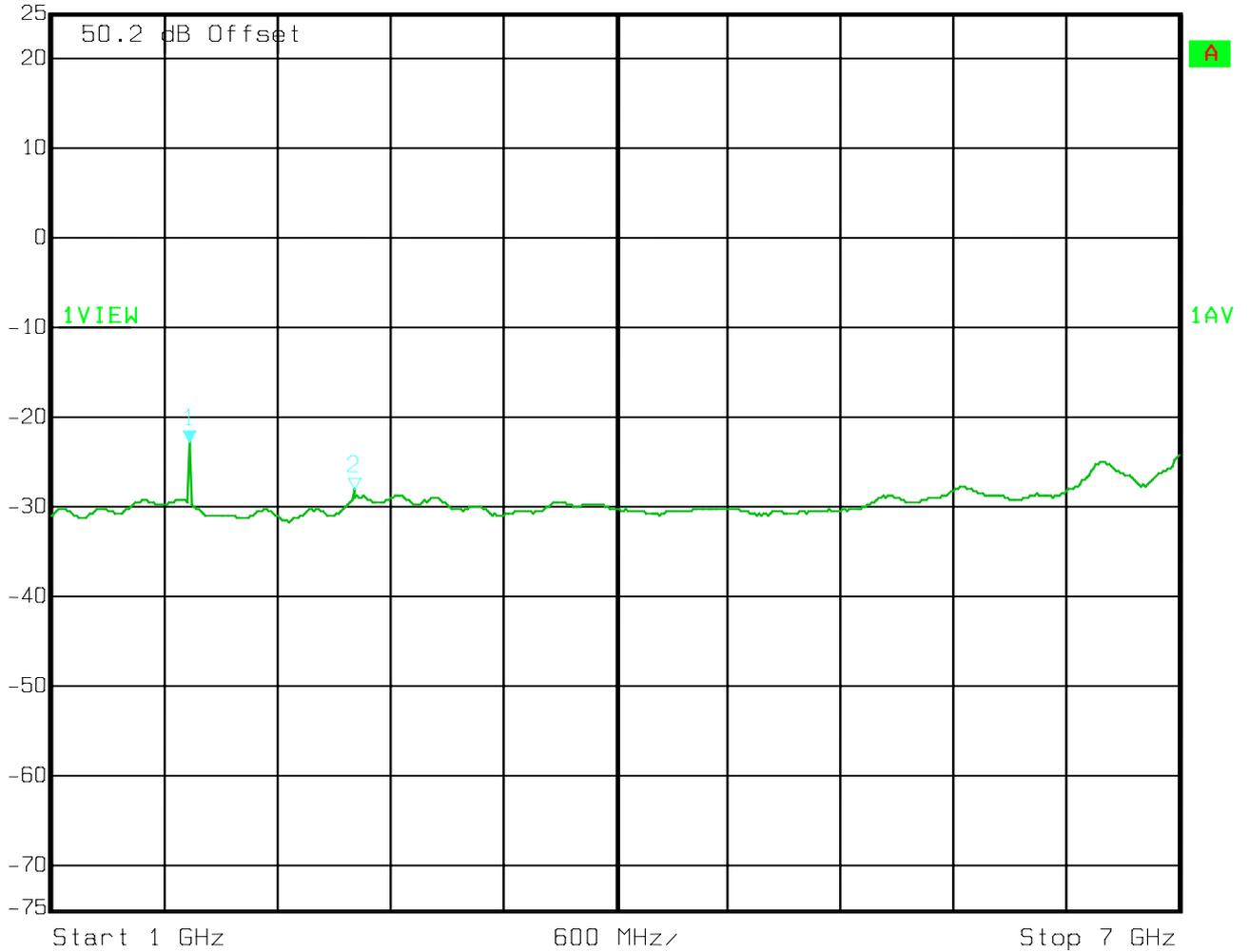
Ref Lvl 35 dBm  
Marker 1 [T1] 994.16833667 MHz  
RBW 100 kHz  
RF Att 10 dB  
VBW 100 kHz  
SWT 1 s  
Unit dBm



Date: 23.SEP.2005 15:42:39



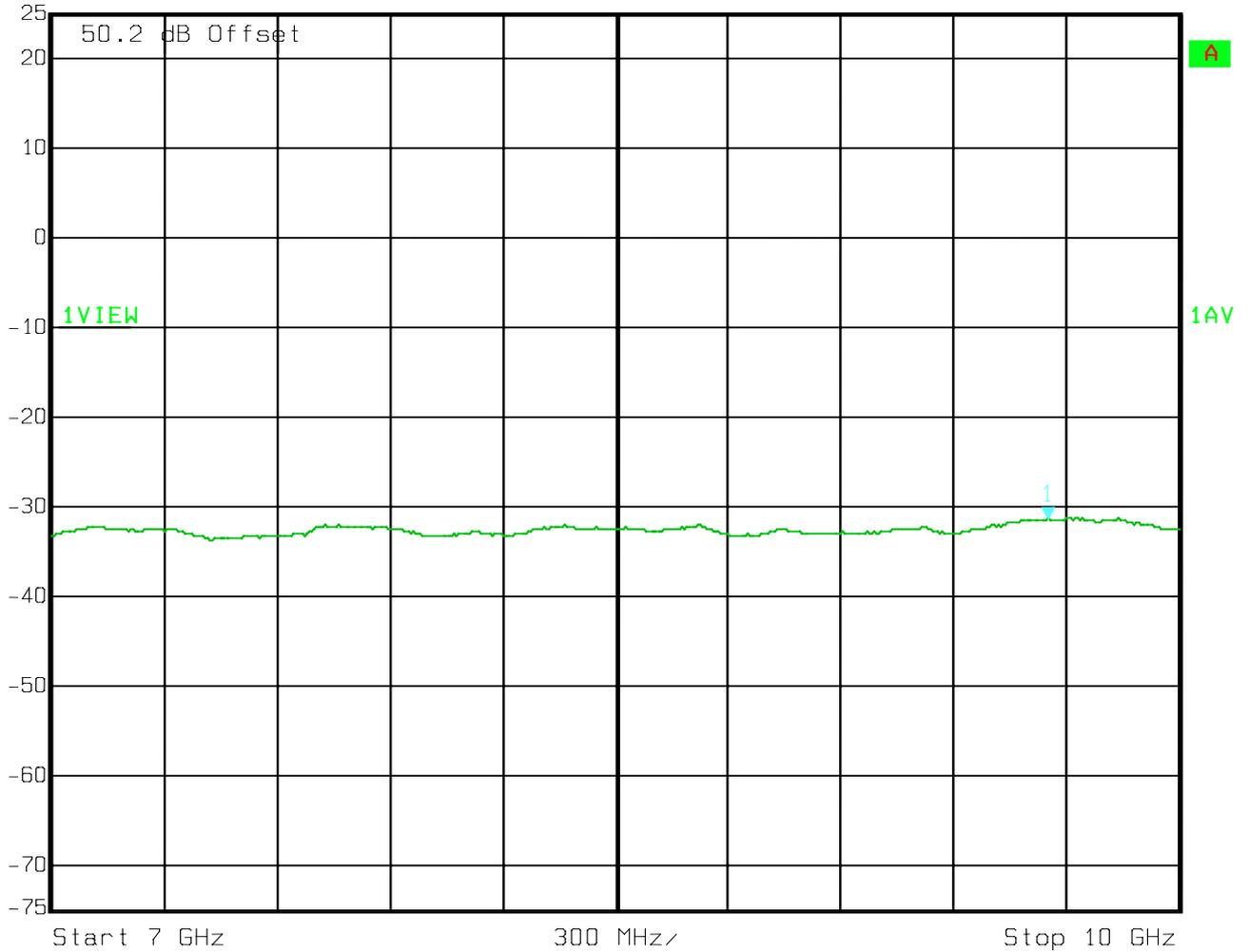
Ref Lvl 25 dBm  
Marker 1 [T1] 1.73346693 GHz -23.00 dBm  
RBW 1 MHz RF Att 10 dB  
VBW 1 MHz  
SWT 1 s Unit dBm



Date: 23.SEP.2005 15:44:17



Ref Lvl 25 dBm  
Marker 1 [T1] -31.48 dBm  
9.65130261 GHz  
RBW 1 MHz  
RF Att 10 dB  
VBW 1 MHz  
SWT 1 s  
Unit dBm

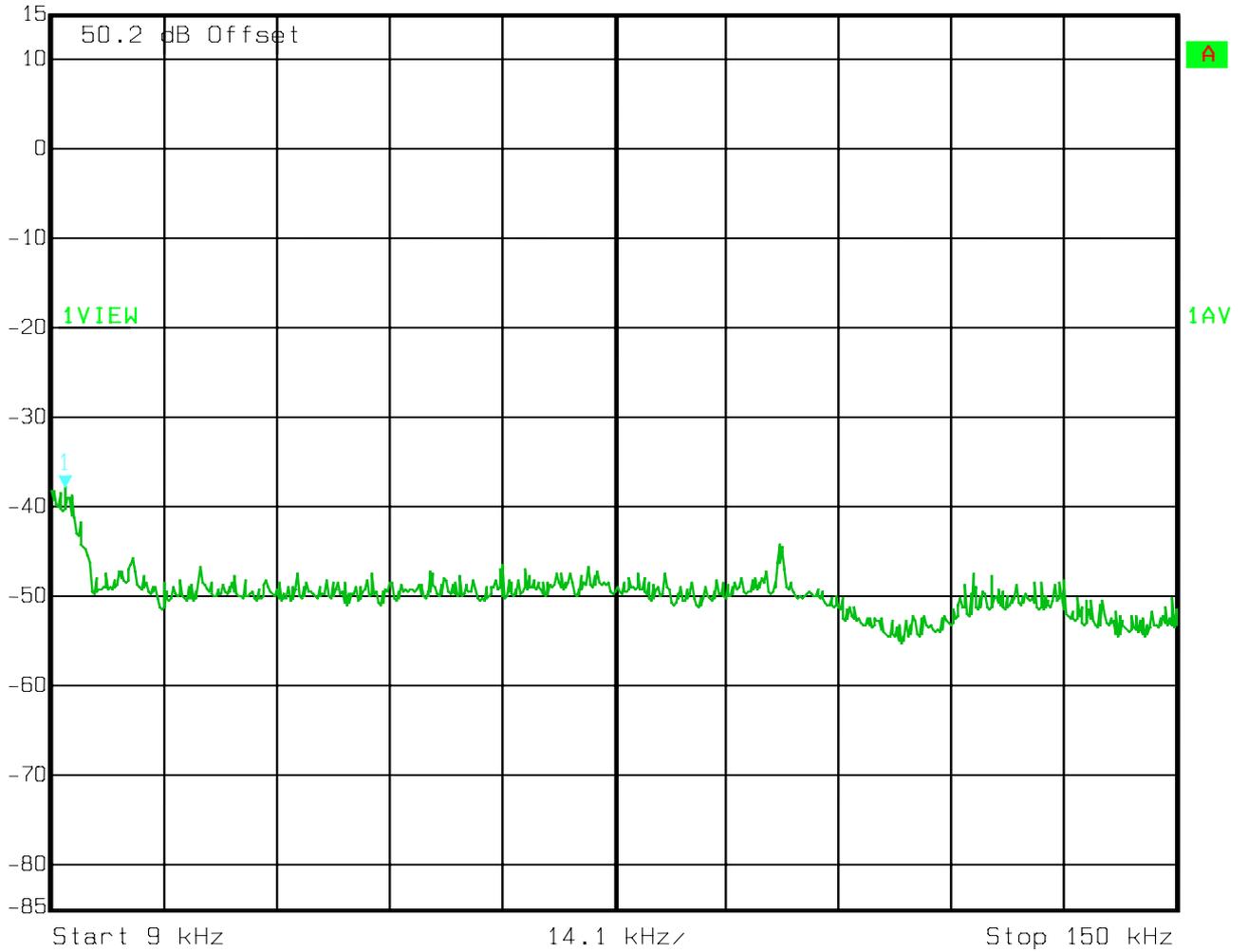


Date: 23.SEP.2005 15:46:00

Channel 119



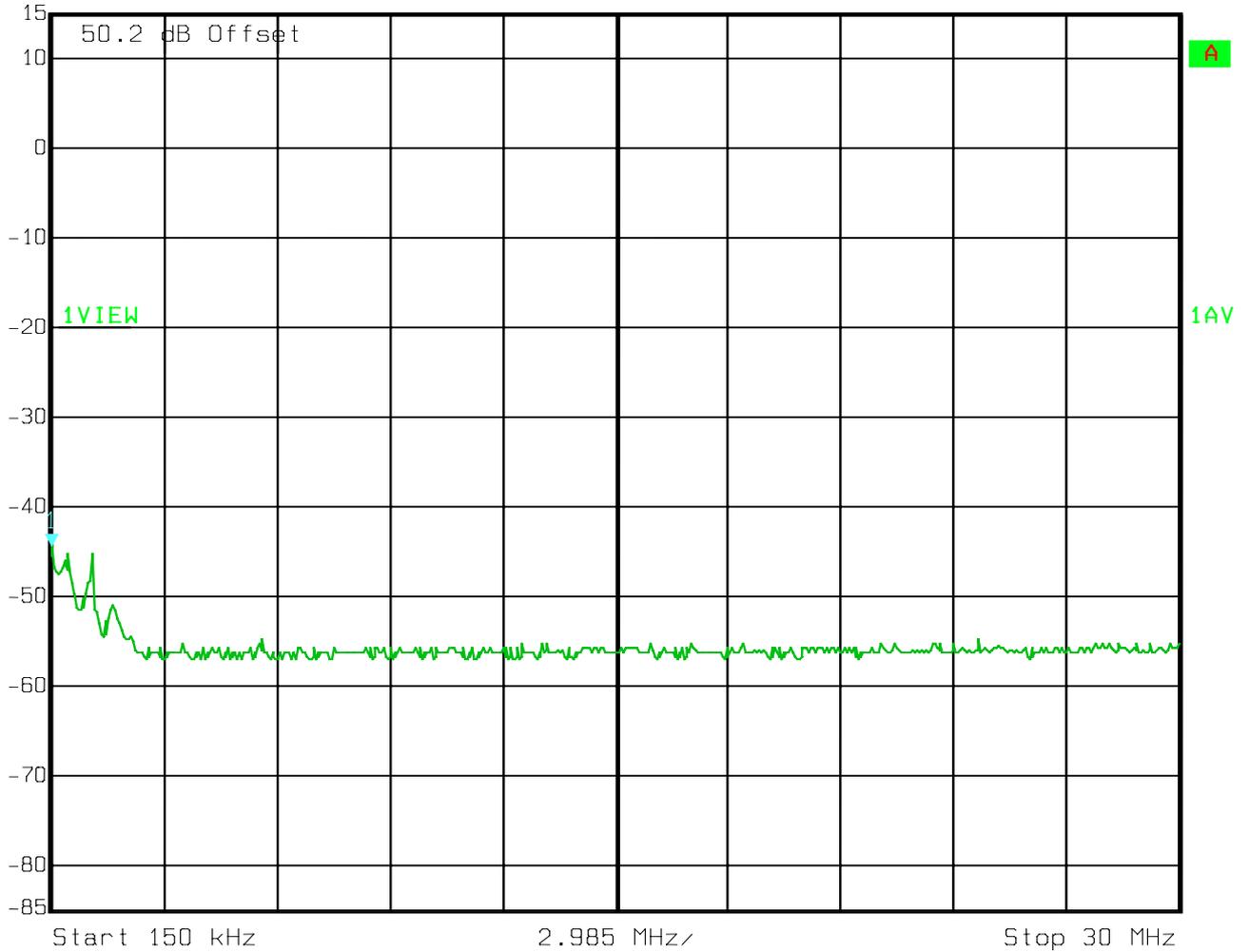
Ref Lvl 15 dBm  
Marker 1 [T1] -37.83 dBm  
10.69539078 kHz  
RBW 1 kHz  
RF Att 10 dB  
VBW 1 kHz  
SWT 1 s  
Unit dBm



Date: 23.SEP.2005 16:03:51



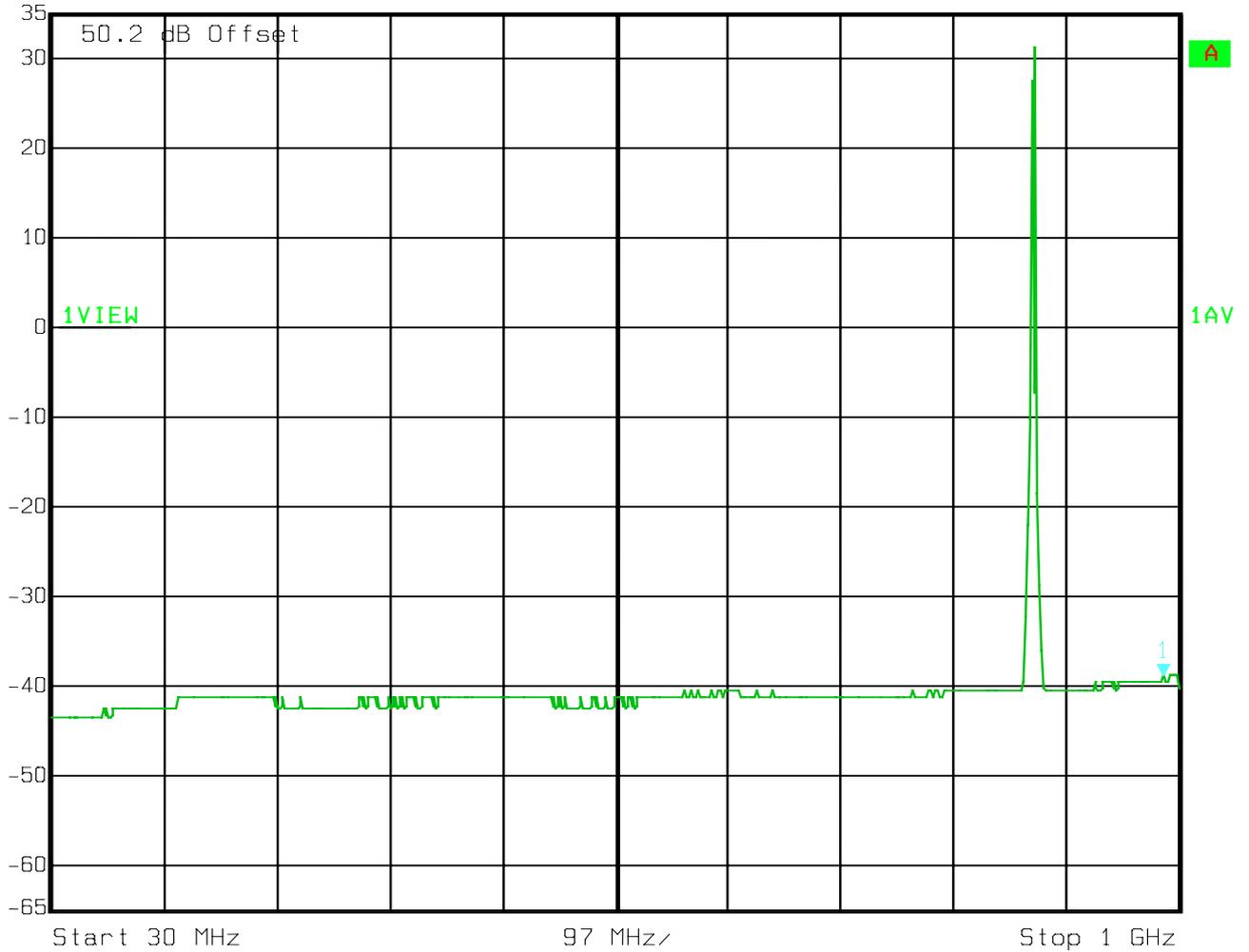
Ref Lvl 15 dBm  
Marker 1 [T1] -44.31 dBm  
150.00000000 kHz  
RBW 10 kHz RF Att 10 dB  
VBW 10 kHz  
SWT 1 s Unit dBm



Date: 23.SEP.2005 16:05:55



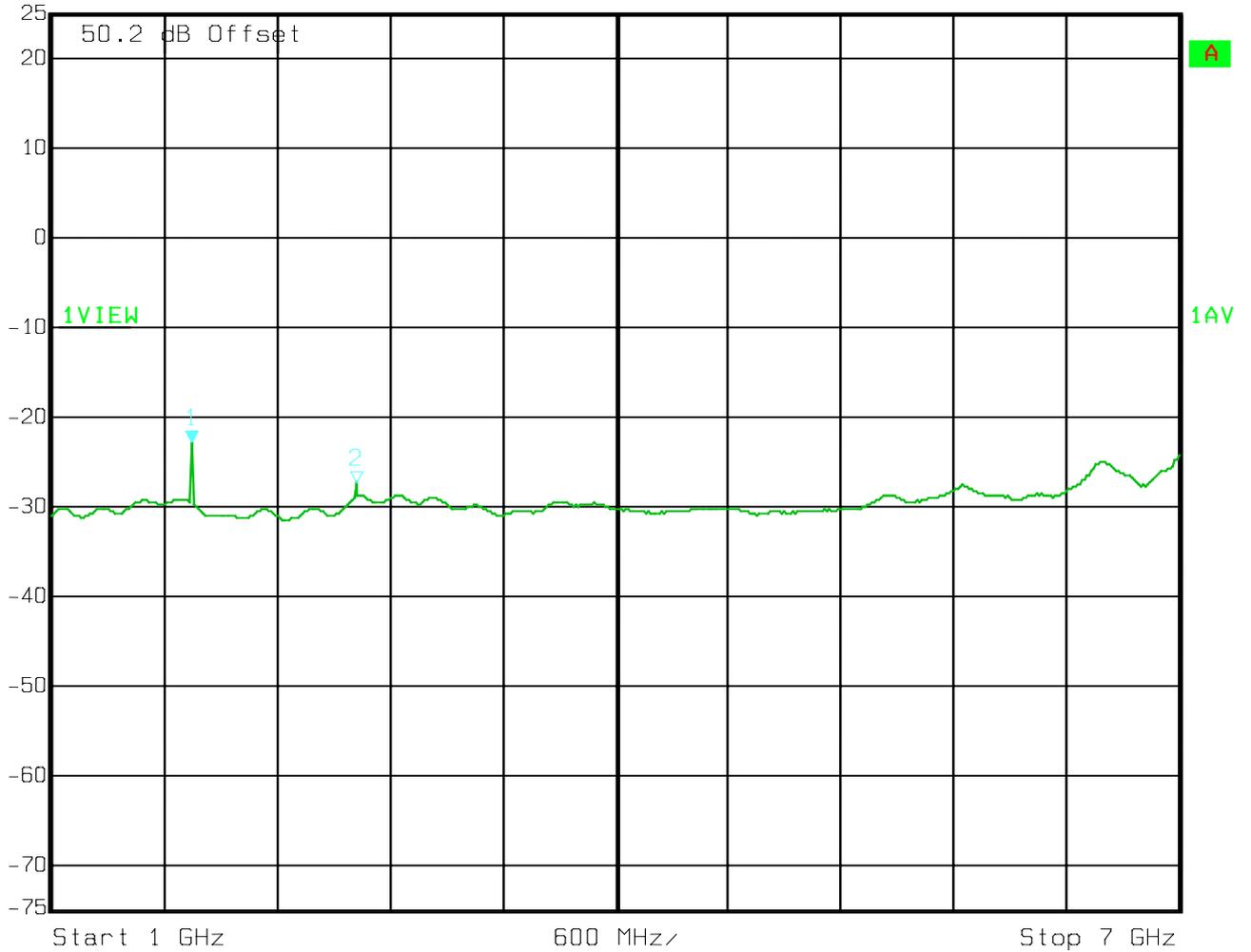
Ref Lvl 35 dBm  
Marker 1 [T1] 986.39278557 MHz -38.98 dBm  
RBW 100 kHz RF Att 10 dB  
VBW 100 kHz  
SWT 1 s Unit dBm



Date: 23.SEP.2005 16:07:57



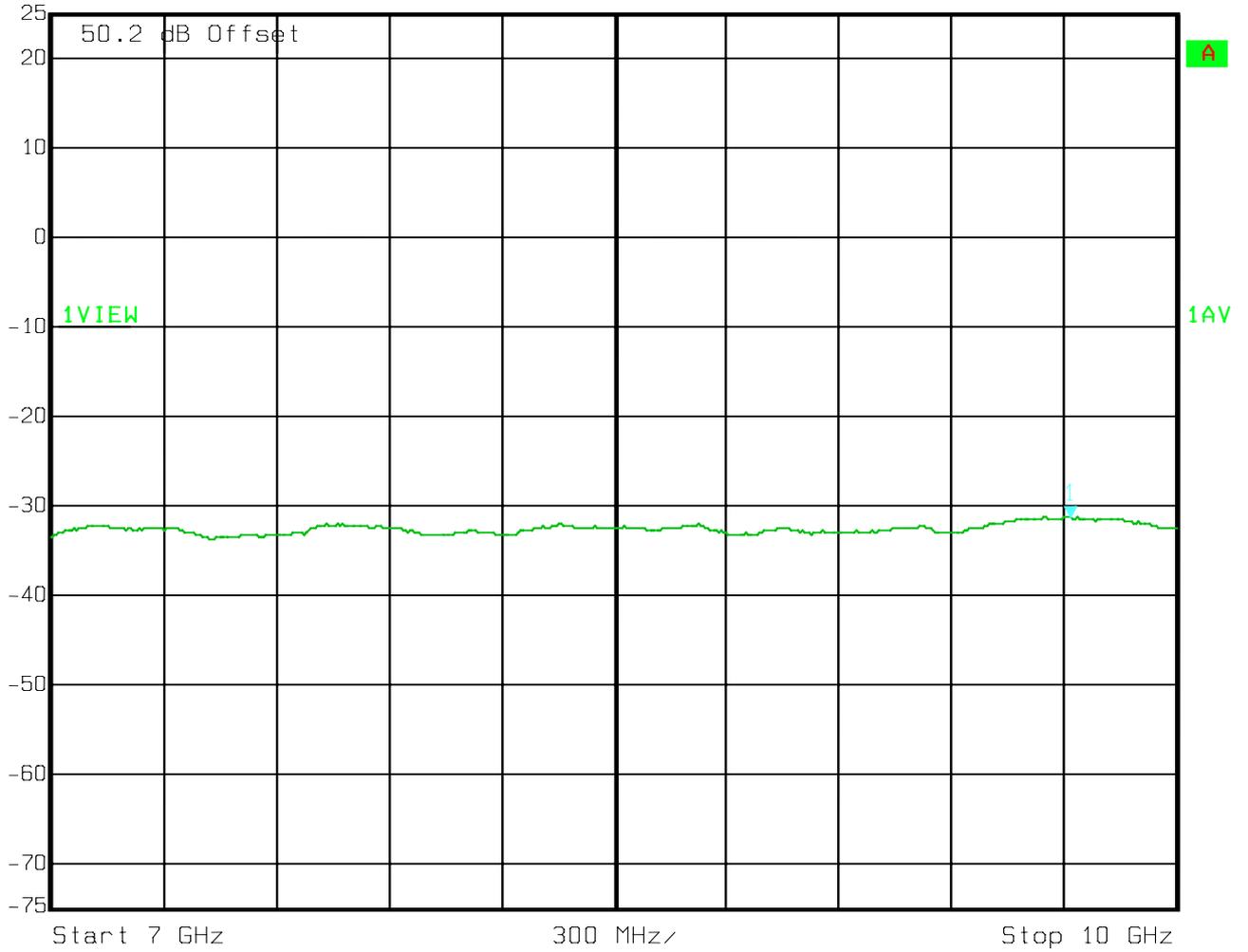
Ref Lvl 25 dBm  
Marker 1 [T1] 1.74549098 GHz -22.78 dBm  
RBW 1 MHz RF Att 10 dB  
VBW 1 MHz  
SWT 1 s Unit dBm



Date: 23.SEP.2005 16:09:58



Ref Lvl 25 dBm  
Marker 1 [T1] -31.38 dBm  
9.71743487 GHz  
RBW 1 MHz  
RF Att 10 dB  
VBW 1 MHz  
SWT 1 s  
Unit dBm

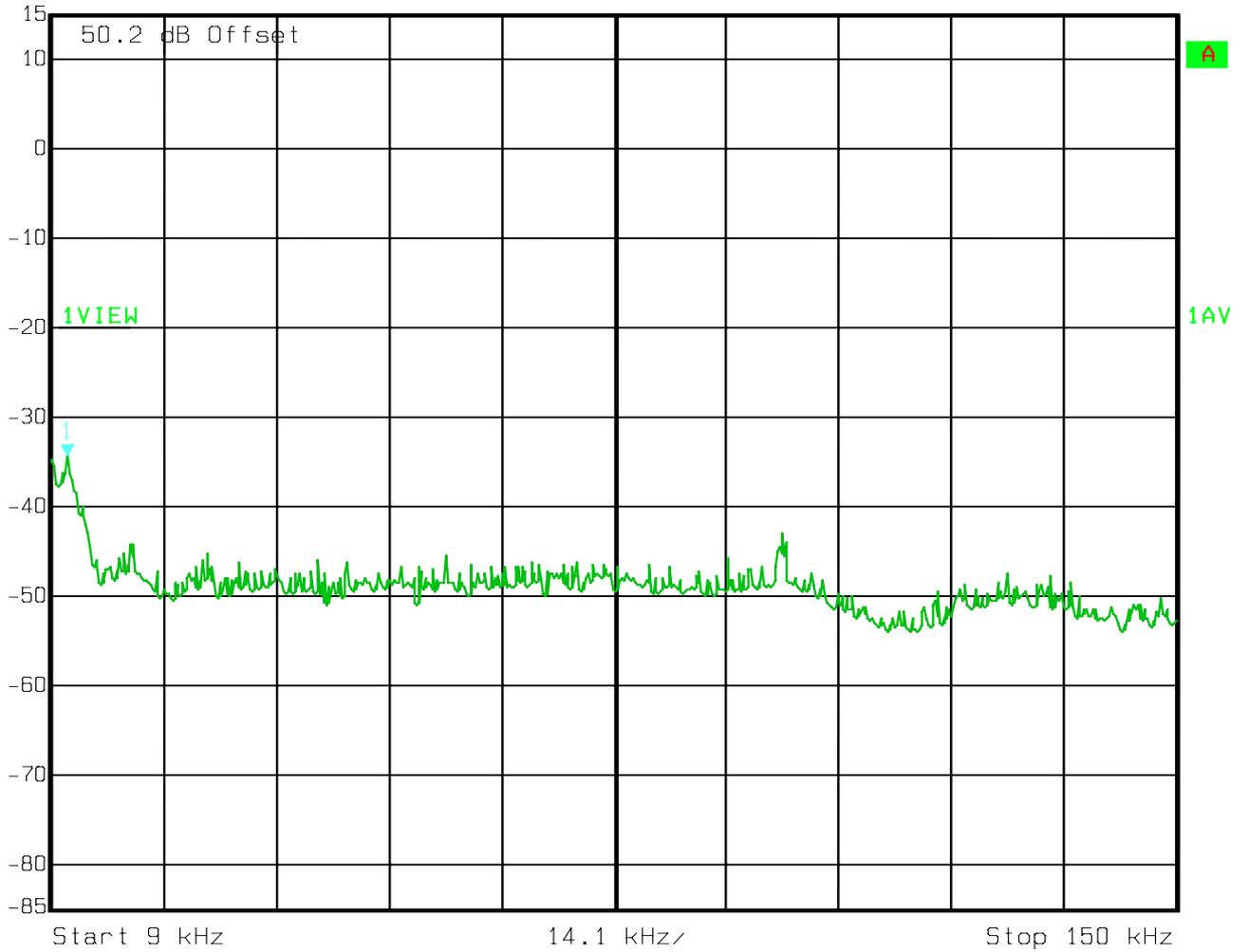


Date: 23.SEP.2005 16:11:11

Channel 312



Ref Lvl 15 dBm  
Marker 1 [T1] -34.42 dBm  
10.97795591 kHz  
RBW 1 kHz  
RF Att 10 dB  
VBW 1 kHz  
SWT 1 s  
Unit dBm



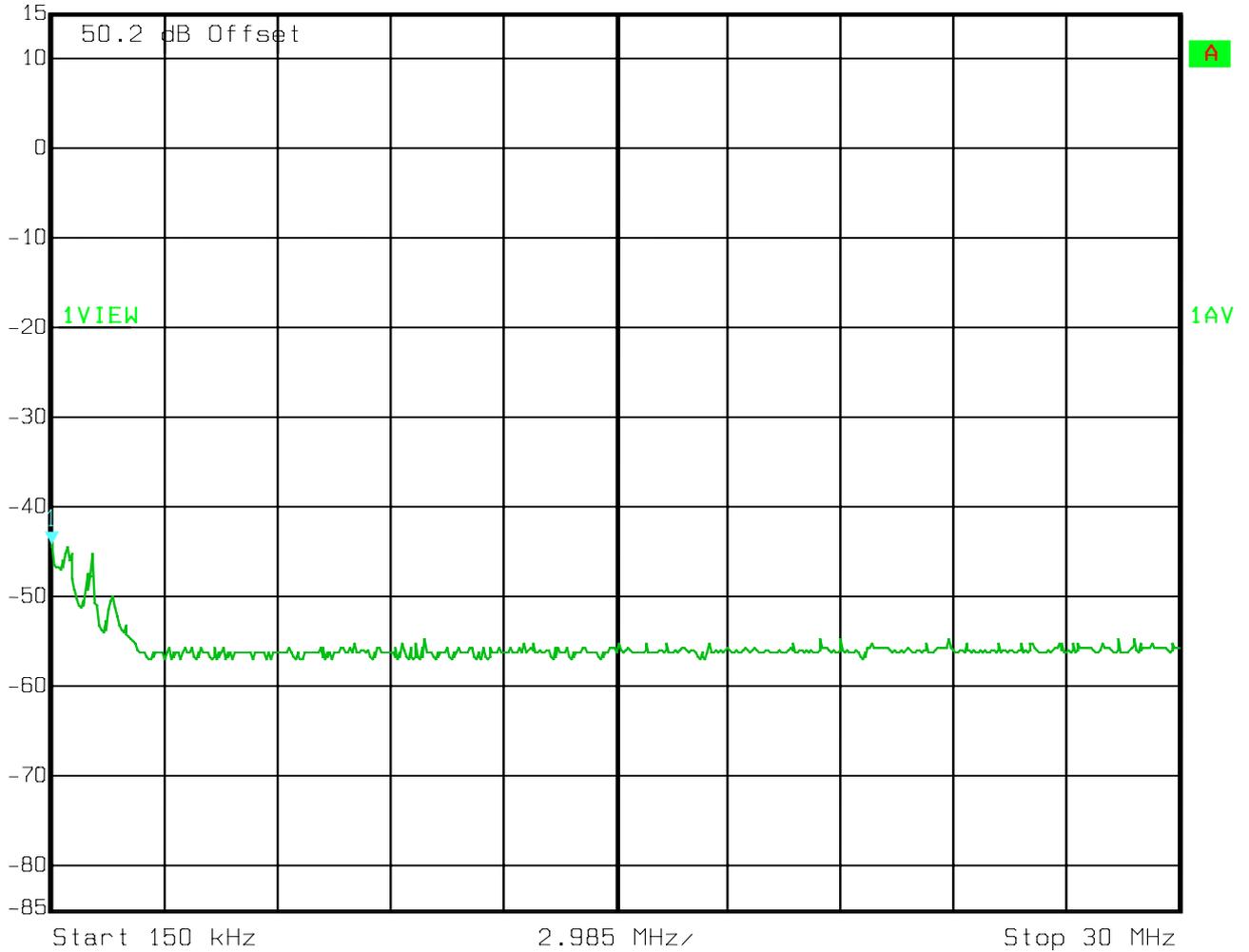
Date: 23.SEP.2005 16:39:24



Ref Lvl  
15 dBm

Marker 1 [T1]  
-44.17 dBm  
150.00000000 kHz

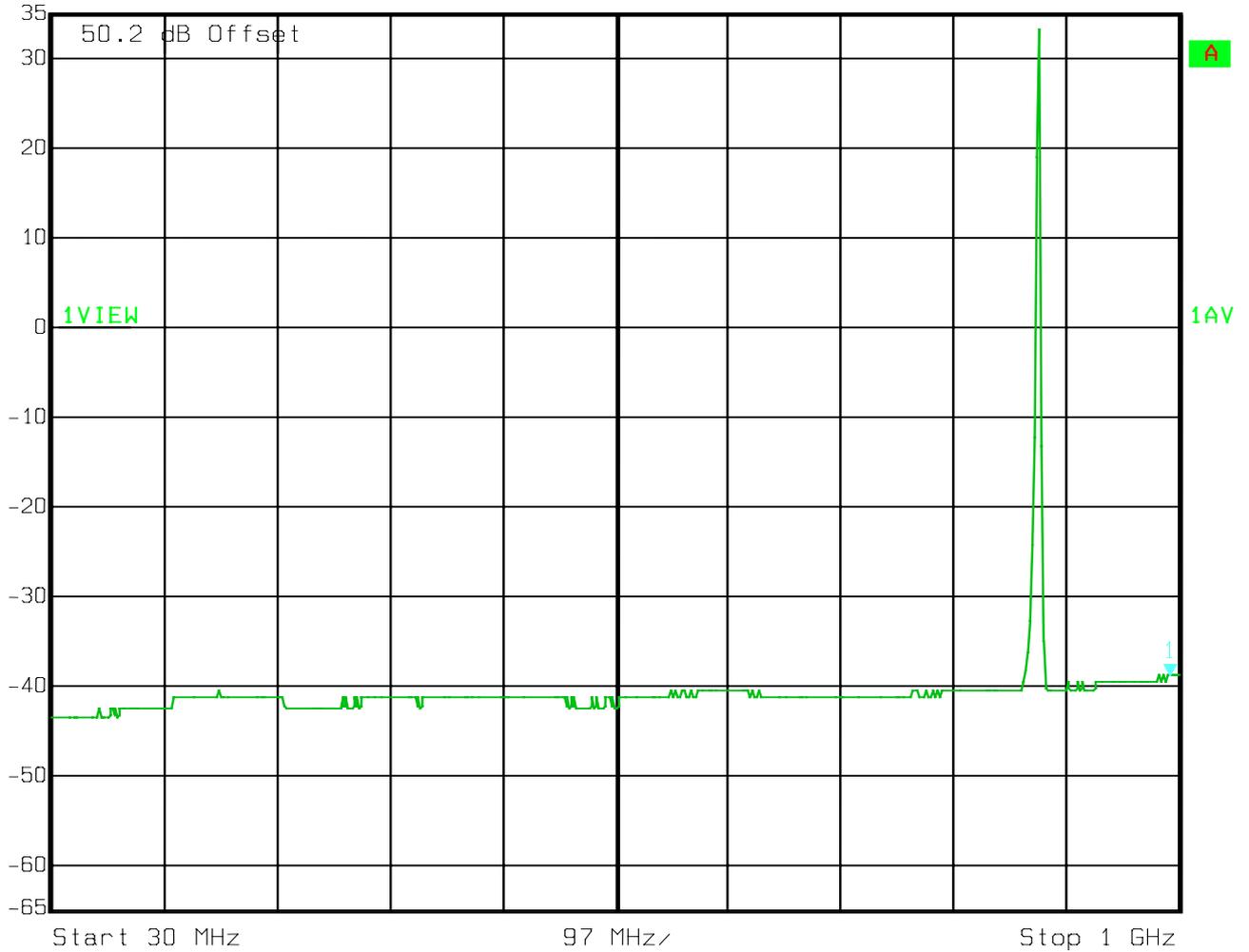
RBW 10 kHz RF Att 10 dB  
VBW 10 kHz  
SWT 1 s Unit dBm



Date: 23.SEP.2005 16:37:36



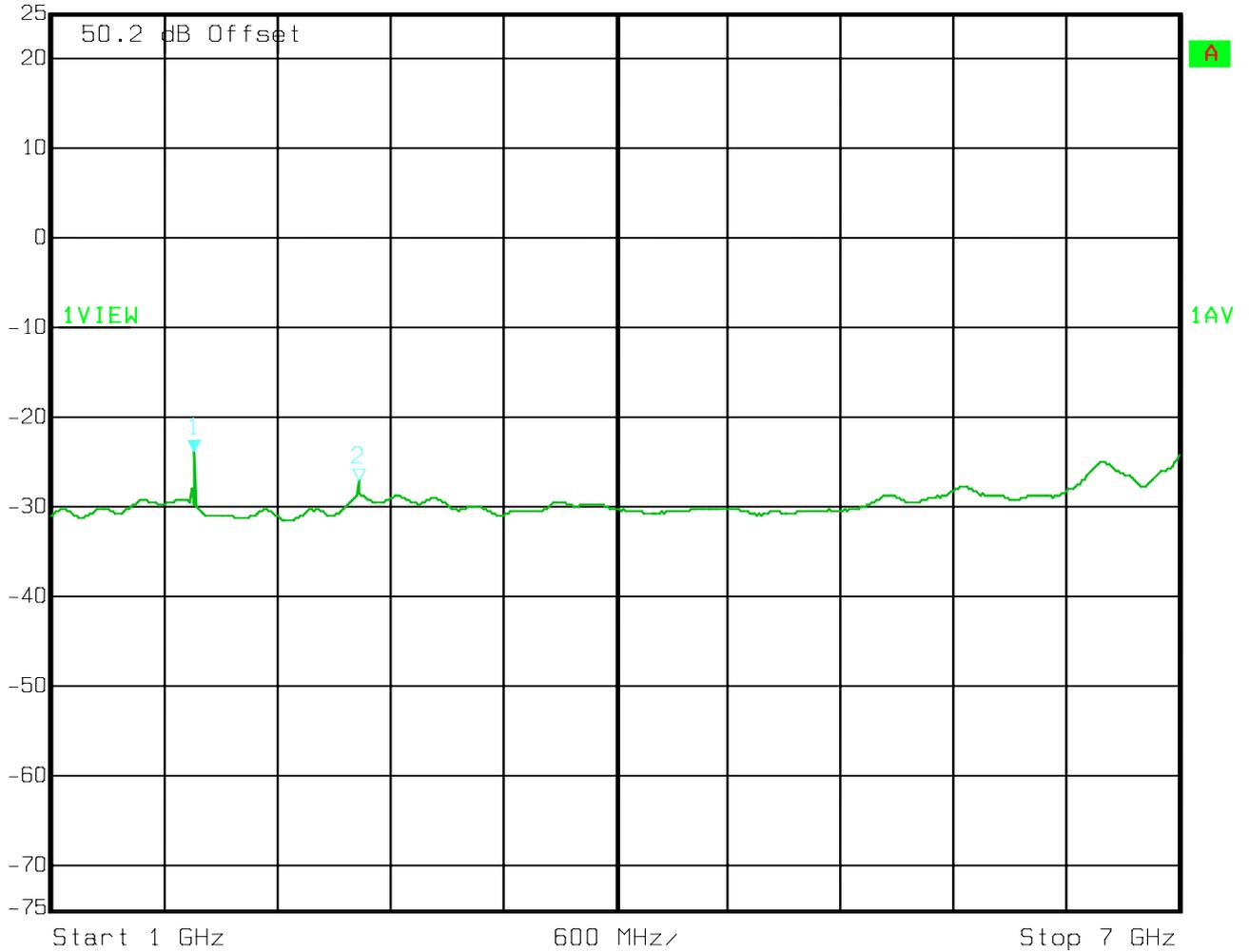
Ref Lvl 35 dBm  
Marker 1 [T1] 992.22444890 MHz  
RBW 100 kHz  
RF Att 10 dB  
VBW 100 kHz  
SWT 1 s  
Unit dBm



Date: 23.SEP.2005 16:31:27



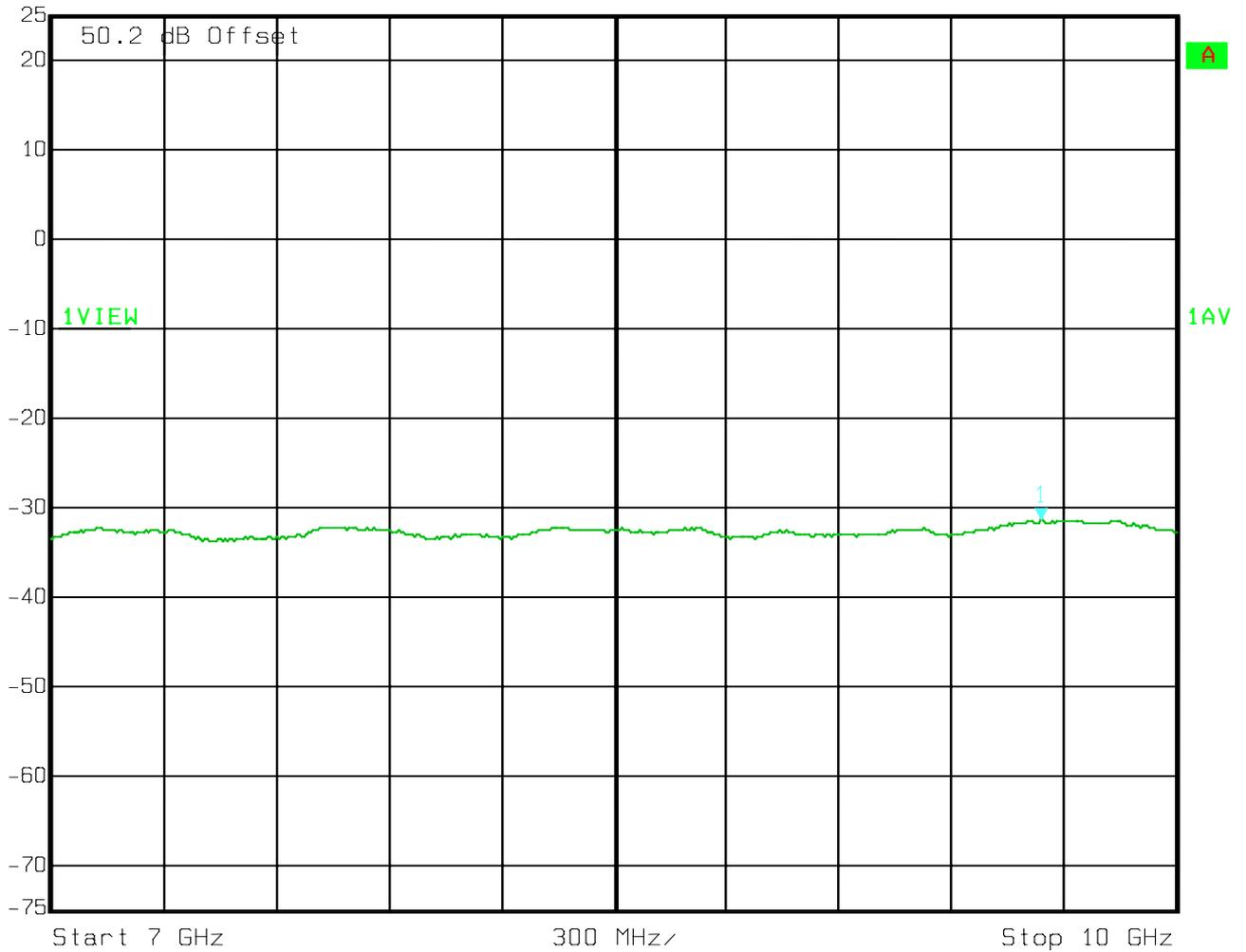
Ref Lvl 25 dBm  
Marker 1 [T1] -23.92 dBm  
1.75751503 GHz  
RBW 1 MHz  
RF Att 10 dB  
VBW 1 MHz  
SWT 1 s  
Unit dBm



Date: 23.SEP.2005 16:28:54



Ref Lvl 25 dBm  
Marker 1 [T1] -31.48 dBm  
9.63927856 GHz  
RBW 1 MHz  
RF Att 10 dB  
VBW 1 MHz  
SWT 1 s  
Unit dBm

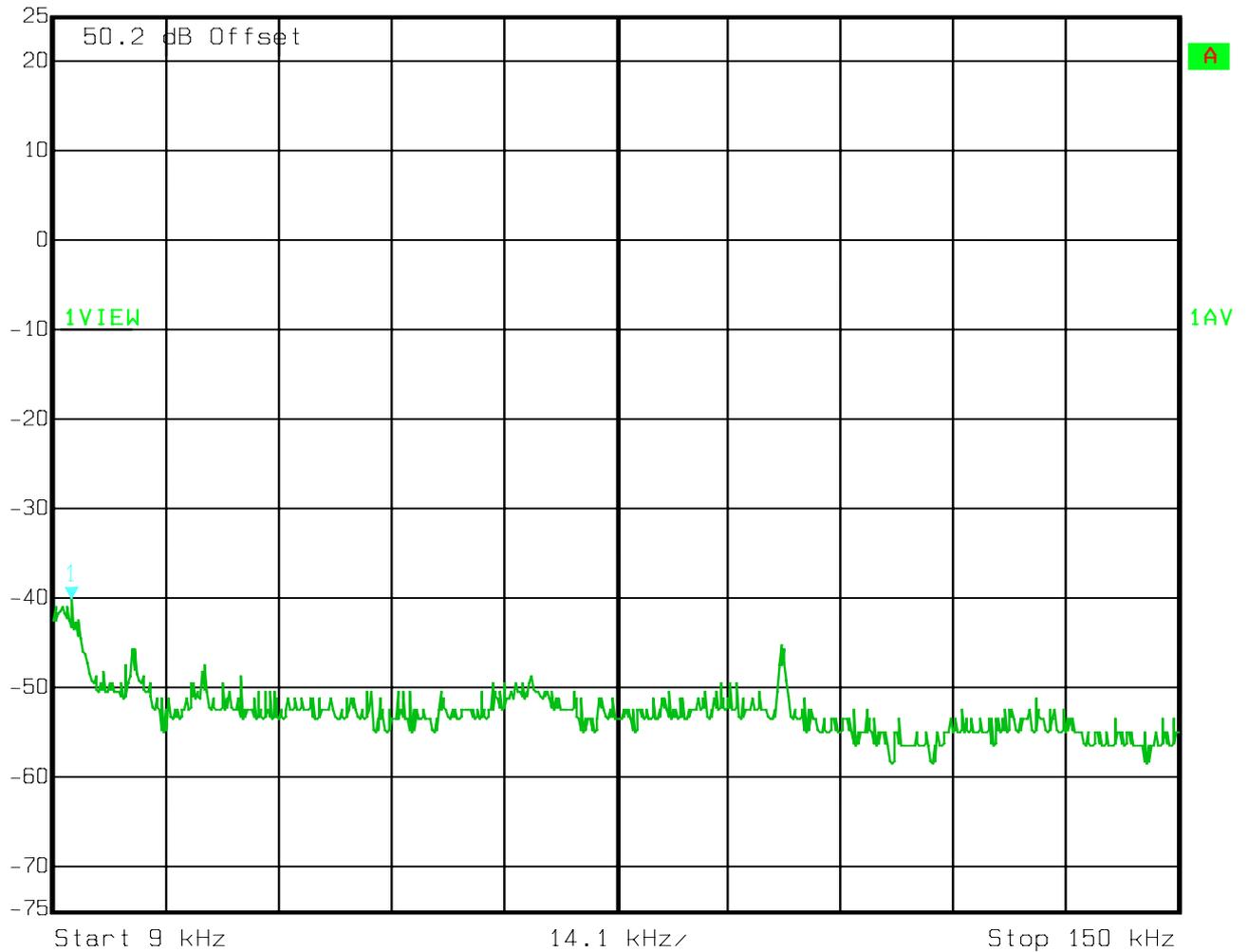


Date: 23.SEP.2005 16:27:19

Transceiver and Receiver Module *LPA+RFE*

Channel 1013

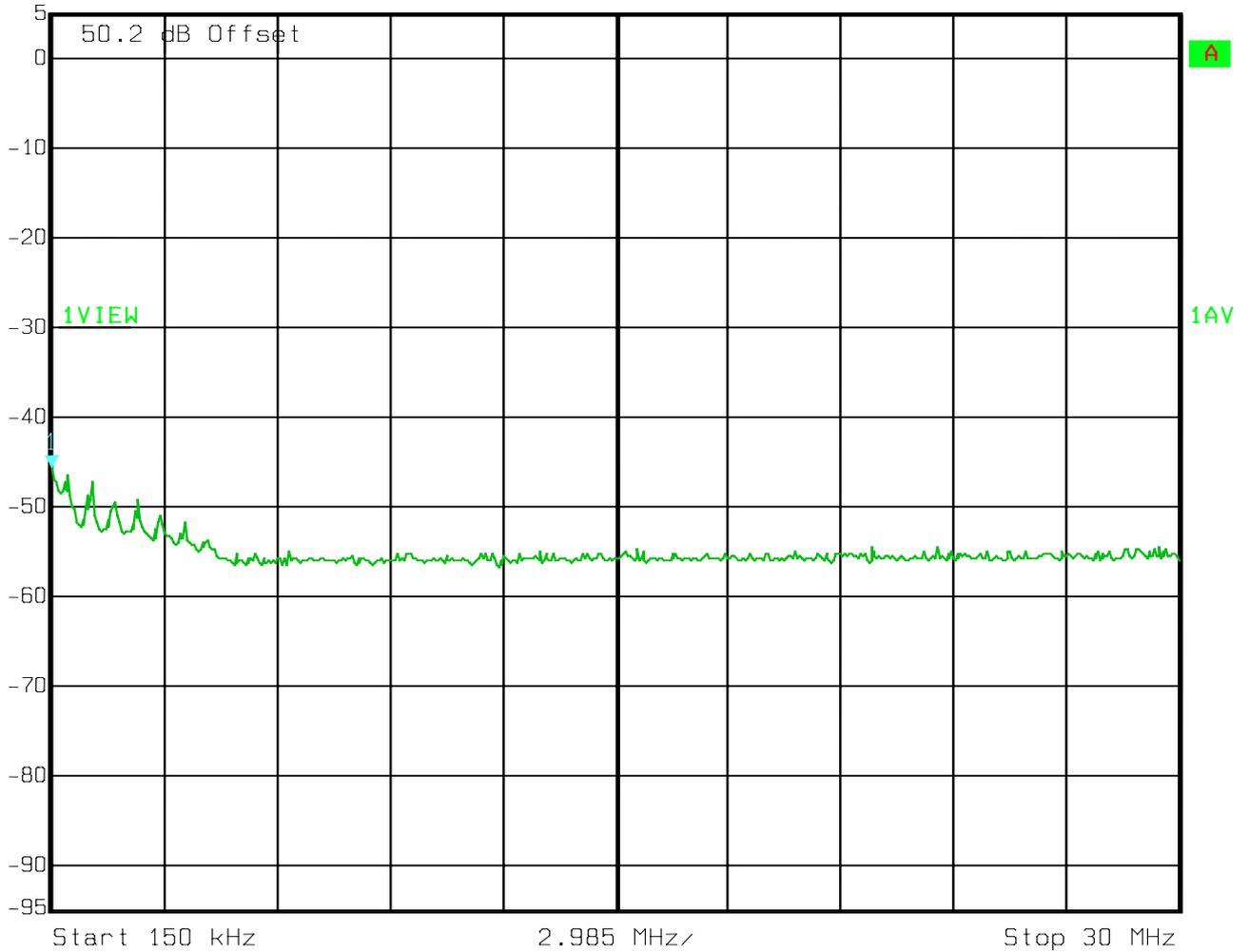
 Ref Lvl 25 dBm      Marker 1 [T1] -40.20 dBm      RBW 1 kHz      RF Att 10 dB  
11.26052104 kHz      VBW 1 kHz      Unit dBm  
SWT 1 s



Date: 23.SEP.2005 10:46:50



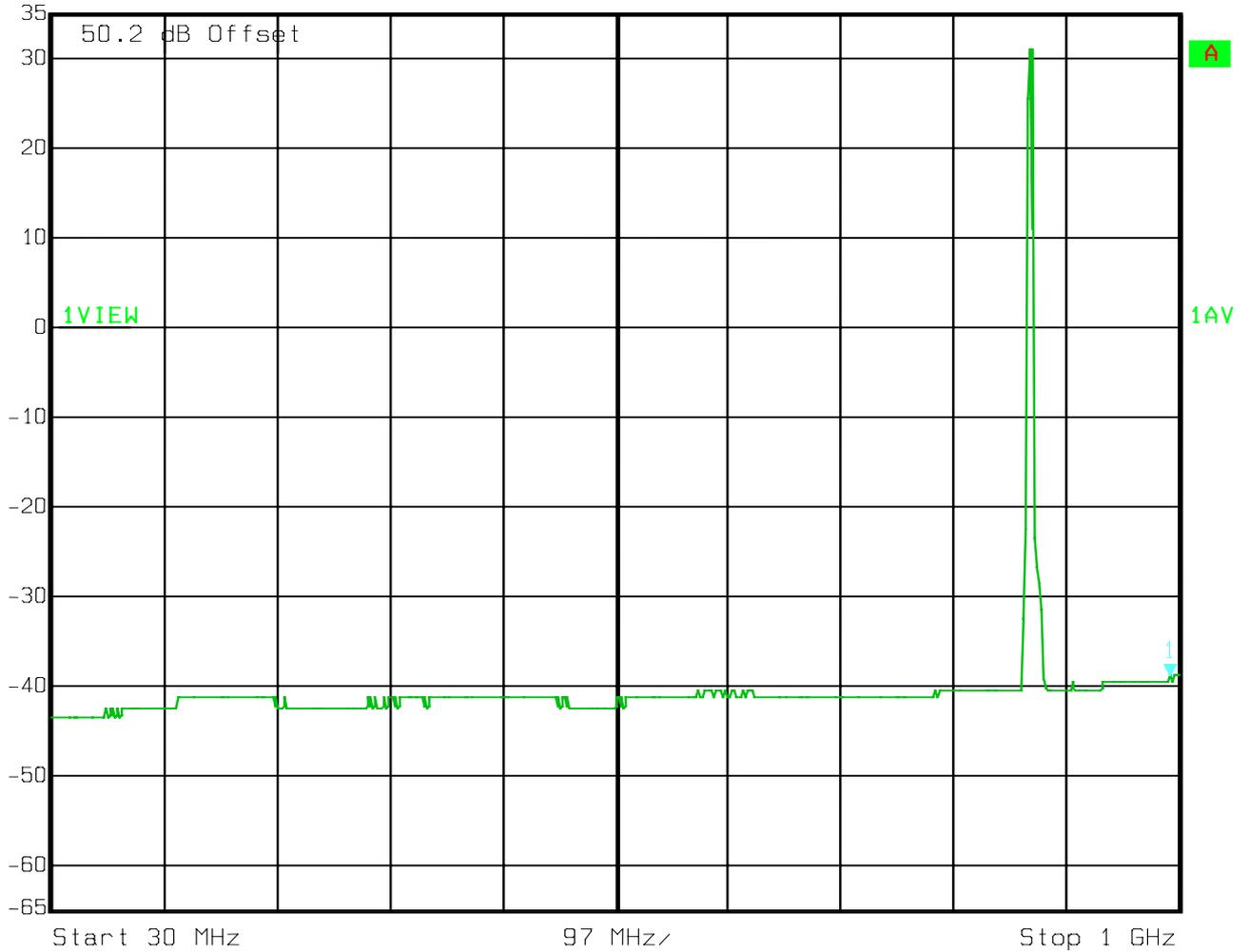
Ref Lvl 5 dBm  
Marker 1 [T1] -45.51 dBm  
150.00000000 kHz  
RBW 10 kHz  
RF Att 10 dB  
VBW 10 kHz  
SWT 1 s  
Unit dBm



Date: 23.SEP.2005 10:50:05



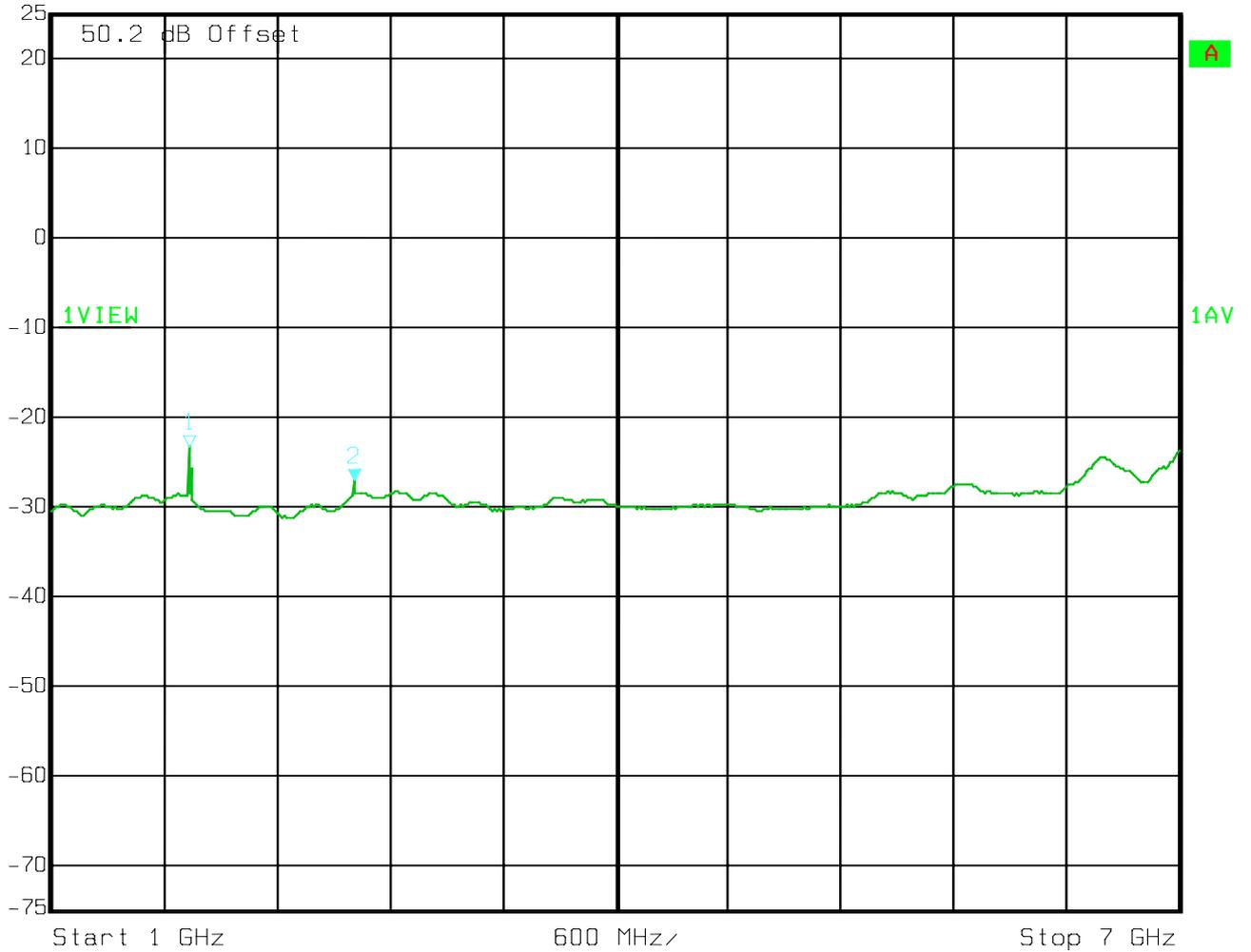
Ref Lvl 35 dBm  
Marker 1 [T1] 992.22444890 MHz -38.98 dBm  
RBW 100 kHz RF Att 10 dB  
VBW 100 kHz  
SWT 1 s Unit dBm



Date: 23.SEP.2005 10:52:26



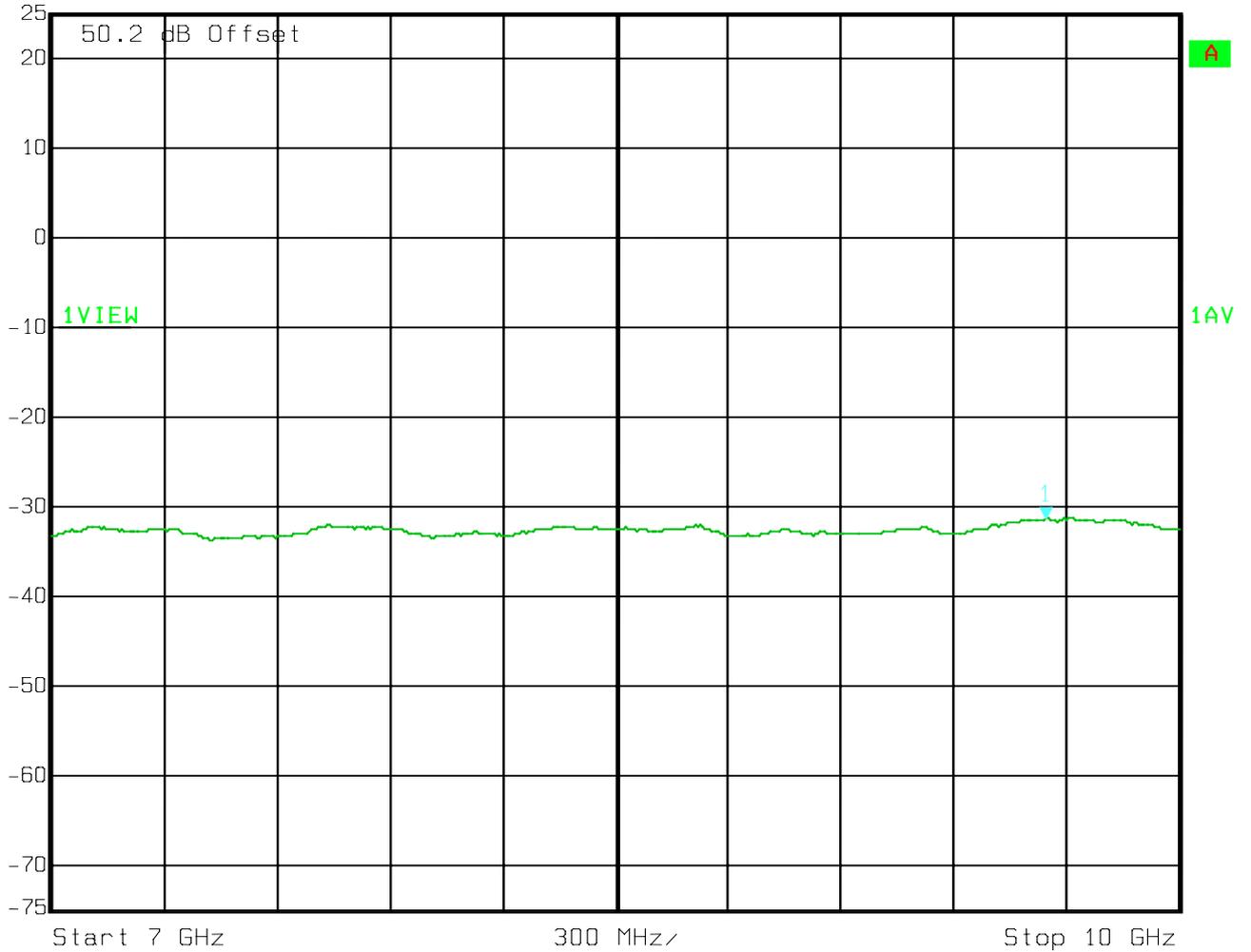
Ref Lvl 25 dBm  
Marker 2 [T1] -27.12 dBm  
2.61122244 GHz  
RBW 1 MHz RF Att 10 dB  
VBW 1 MHz  
SWT 1 s Unit dBm



Date: 23.SEP.2005 10:54:09



Ref Lvl 25 dBm  
Marker 1 [T1] -31.48 dBm  
9.64529058 GHz  
RBW 1 MHz  
RF Att 10 dB  
VBW 1 MHz  
SWT 1 s  
Unit dBm

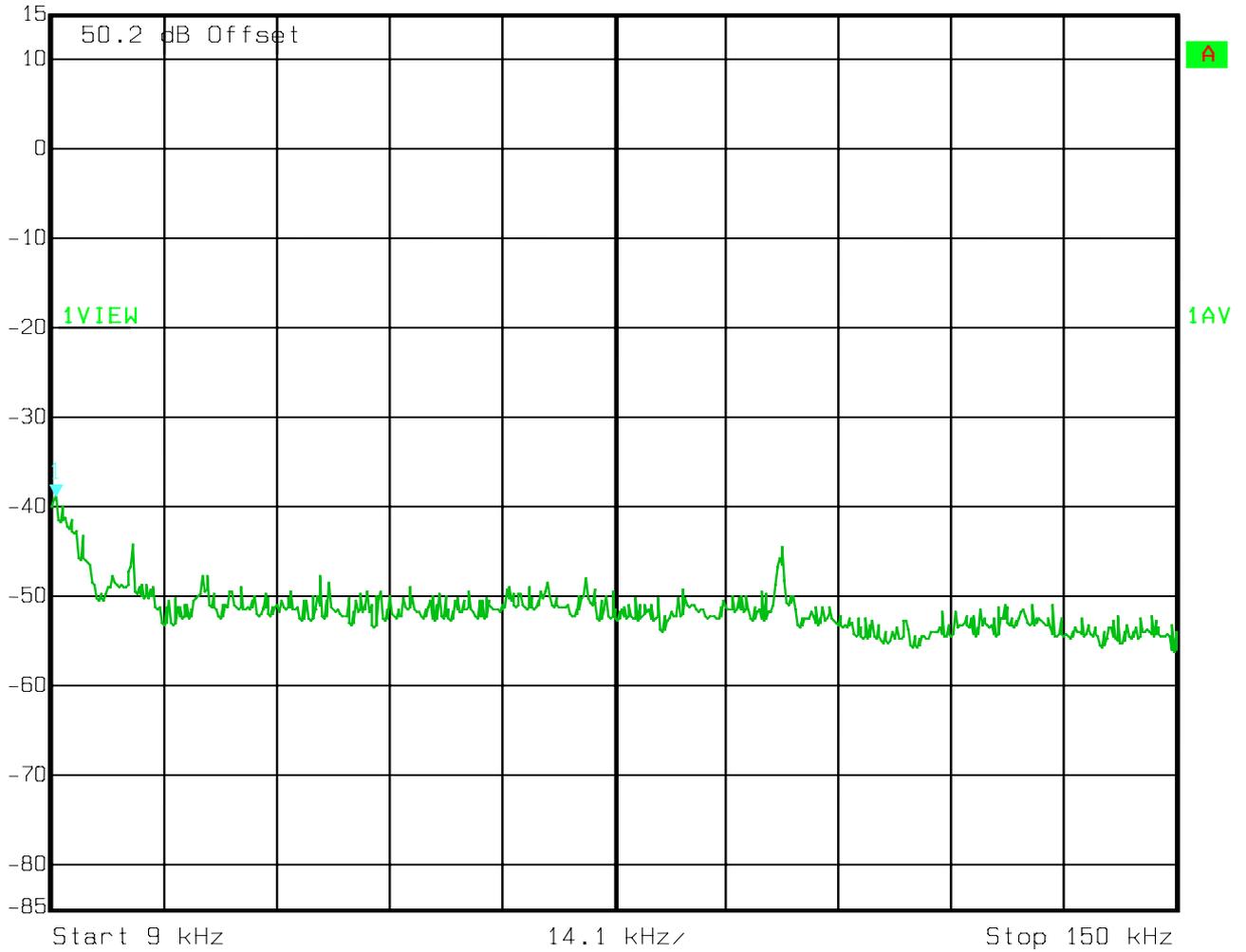


Date: 23.SEP.2005 10:55:20

Channel 119



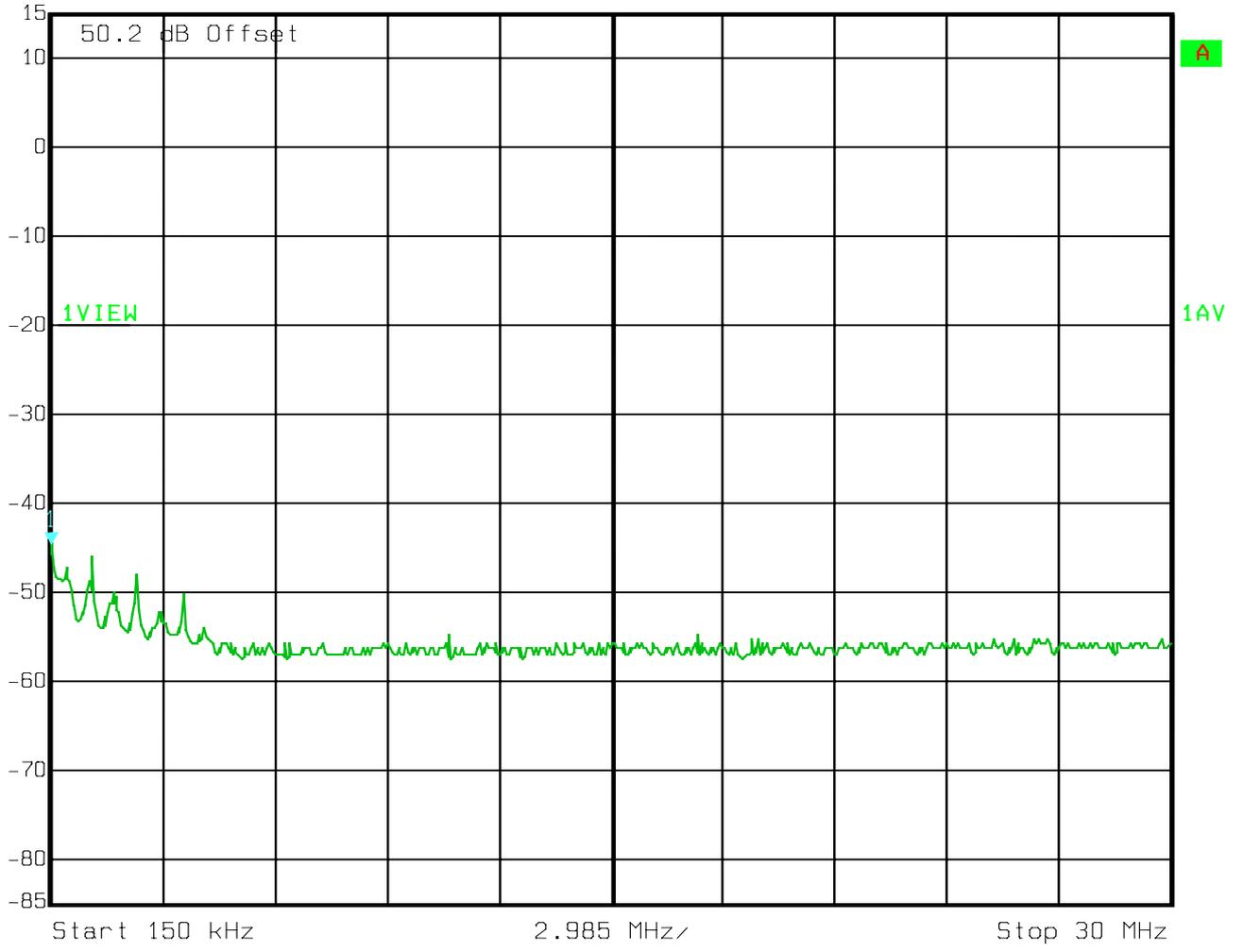
Ref Lvl 15 dBm  
Marker 1 [T1] -38.98 dBm  
9.56513026 kHz  
RBW 1 kHz  
RF Att 10 dB  
VBW 1 kHz  
SWT 1 s  
Unit dBm



Date: 23.SEP.2005 11:07:46



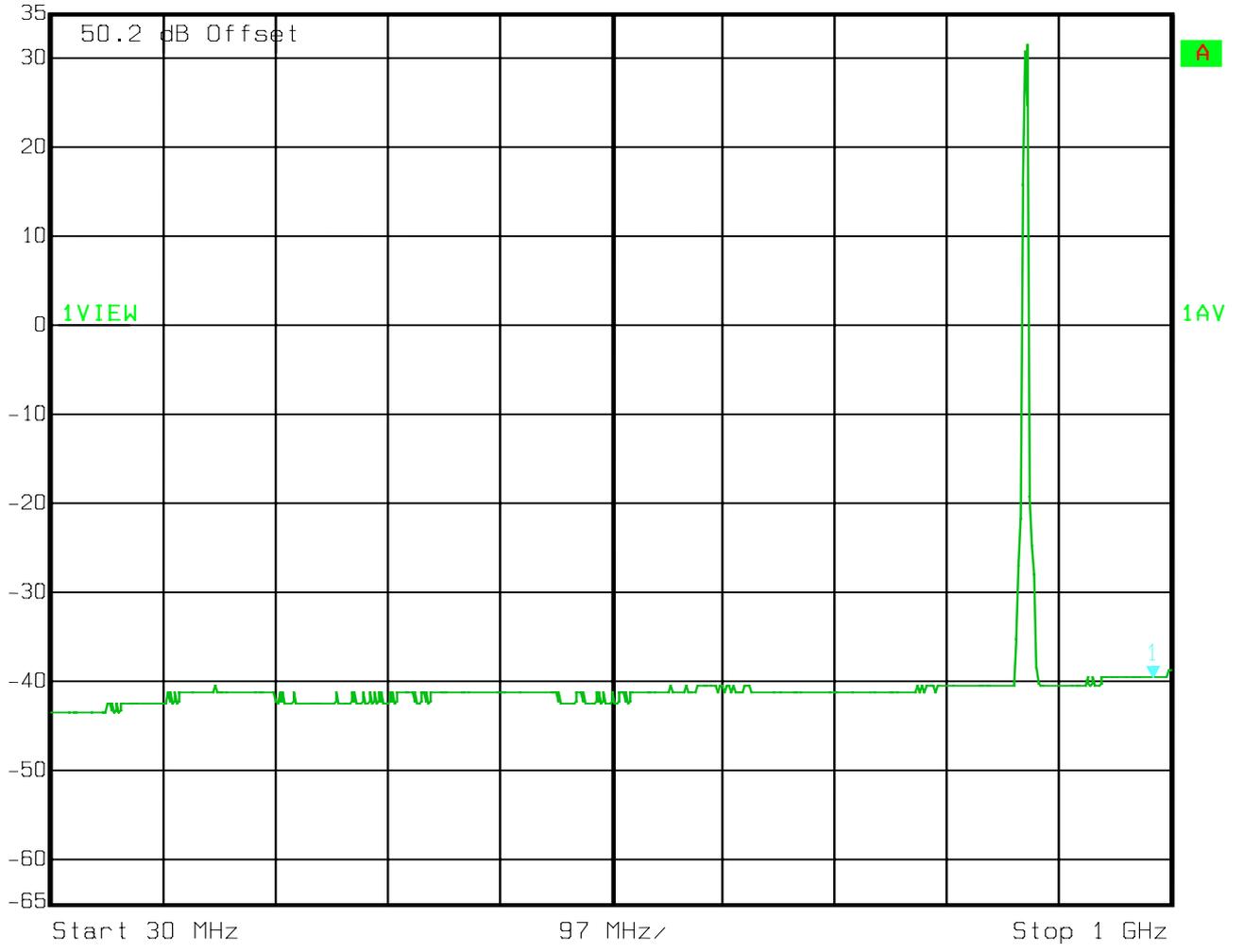
Ref Lvl 15 dBm  
Marker 1 [T1] -44.72 dBm  
150.00000000 kHz  
RBW 10 kHz RF Att 10 dB  
VBW 10 kHz  
SWT 1 s Unit dBm



Date: 23.SEP.2005 11:06:06



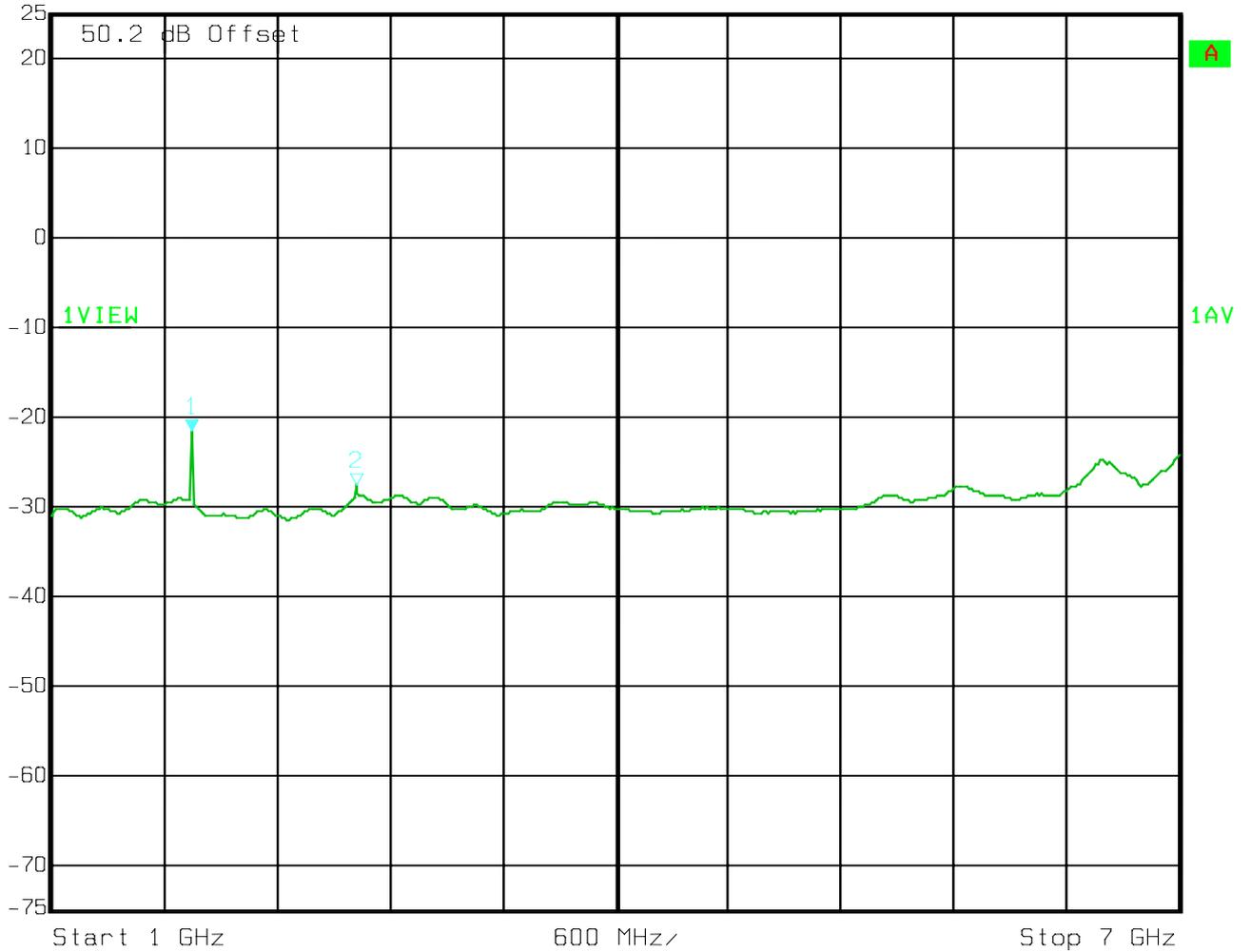
Ref Lvl 35 dBm  
Marker 1 [T1] 984.44889780 MHz  
RBW 100 kHz  
RF Att 10 dB  
VBW 100 kHz  
SWT 1 s  
Unit dBm



Date: 23.SEP.2005 11:04:05



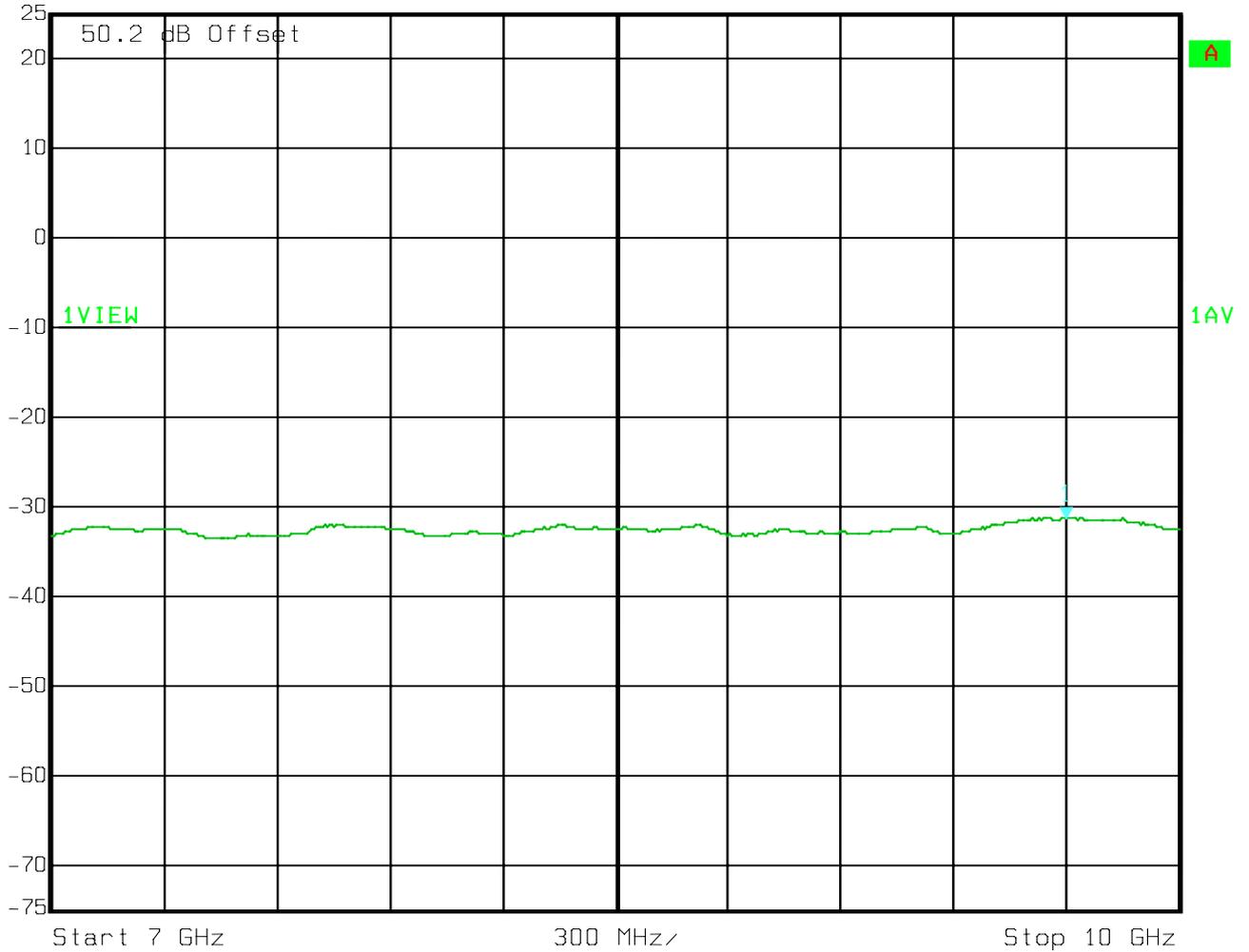
Ref Lvl 25 dBm  
Marker 1 [T1] -21.72 dBm  
1.74549098 GHz  
RBW 1 MHz  
RF Att 10 dB  
VBW 1 MHz  
SWT 1 s  
Unit dBm



Date: 23.SEP.2005 11:01:35



Ref Lvl 25 dBm  
Marker 1 [T1] -31.38 dBm  
9.69939880 GHz  
RBW 1 MHz  
RF Att 10 dB  
VBW 1 MHz  
SWT 1 s  
Unit dBm

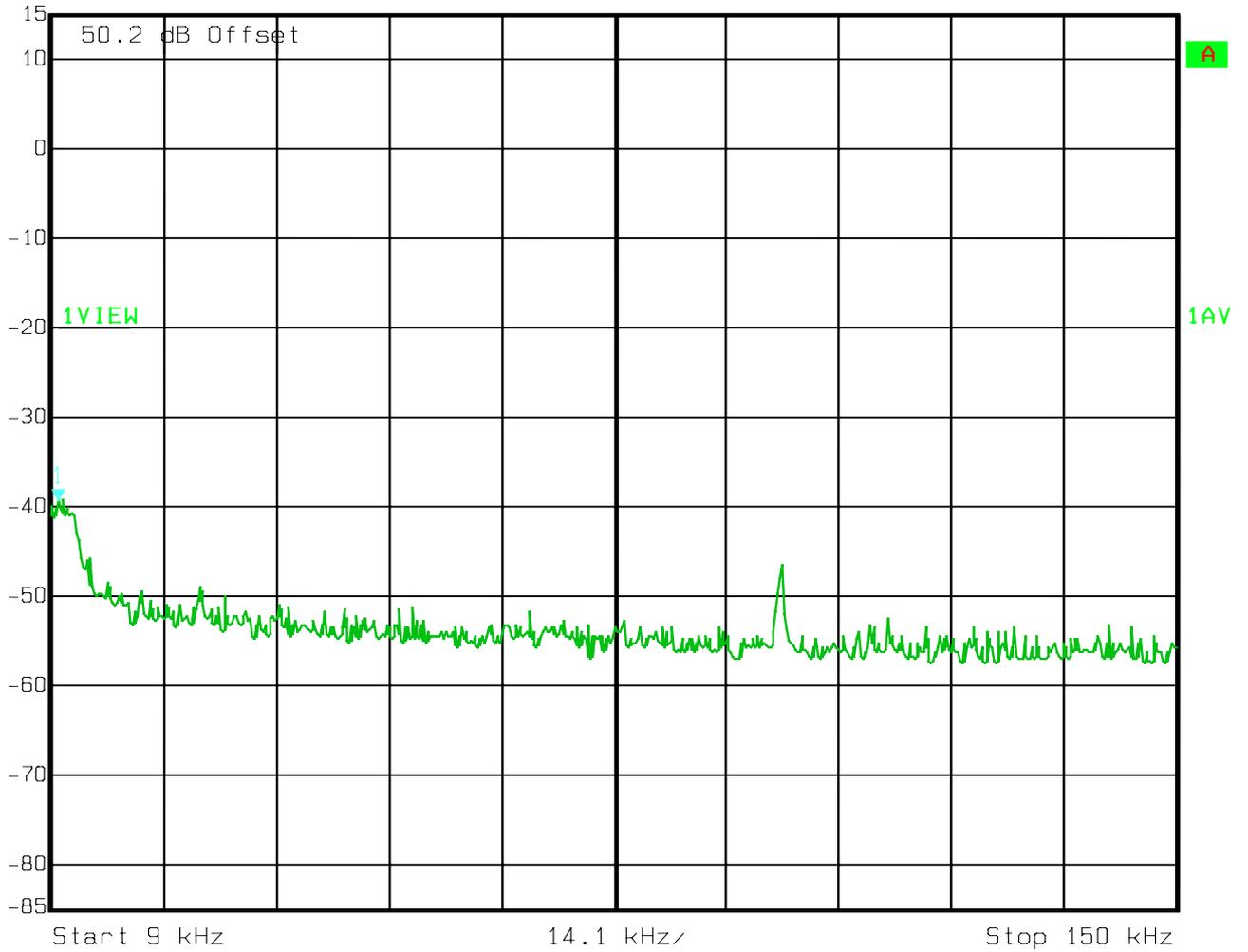


Date: 23.SEP.2005 10:59:27

Channel 312



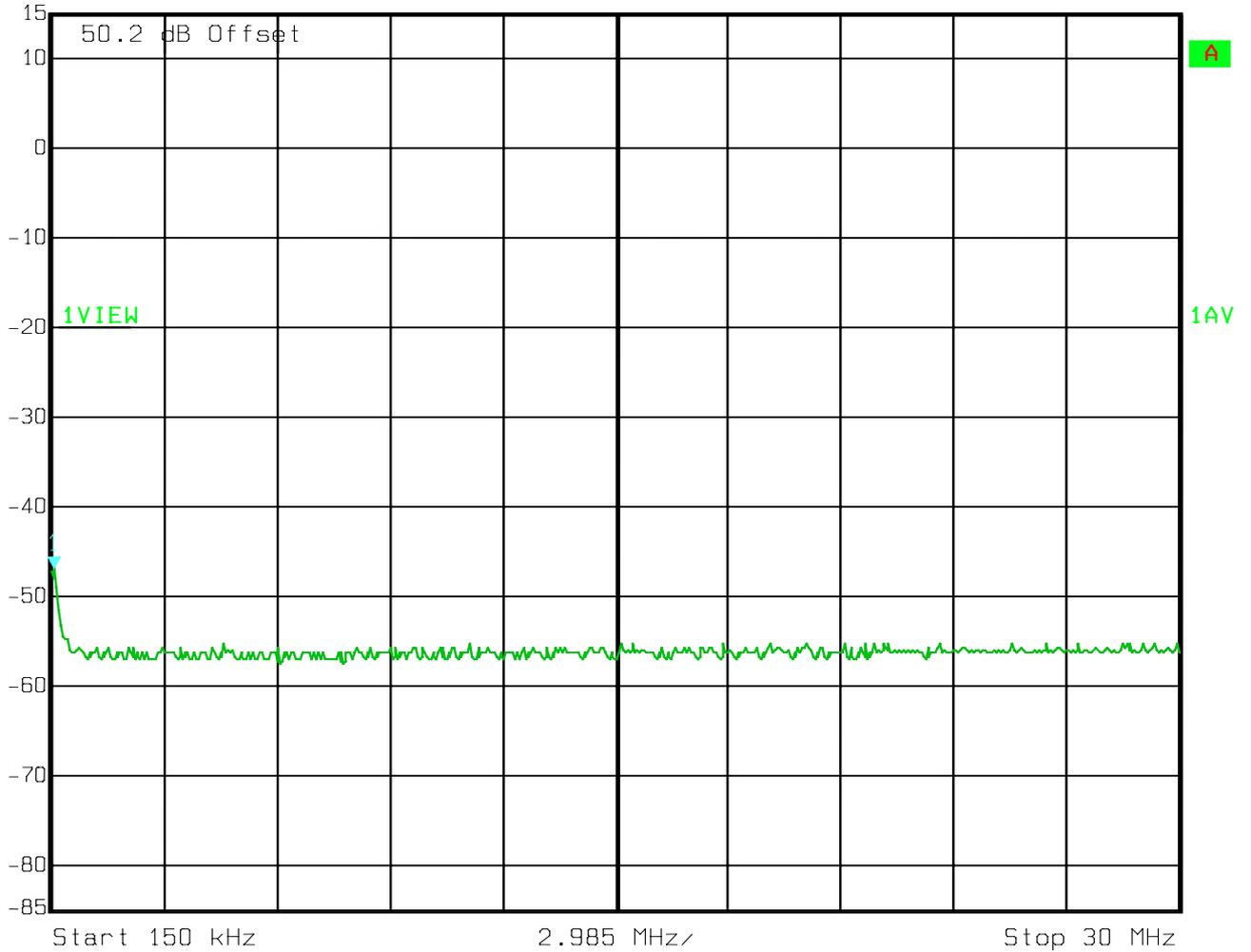
Ref Lvl 15 dBm  
Marker 1 [T1] -39.35 dBm  
9.84769539 kHz  
RBW 1 kHz  
RF Att 10 dB  
VBW 1 kHz  
SWT 1 s  
Unit dBm



Date: 23.SEP.2005 11:16:29



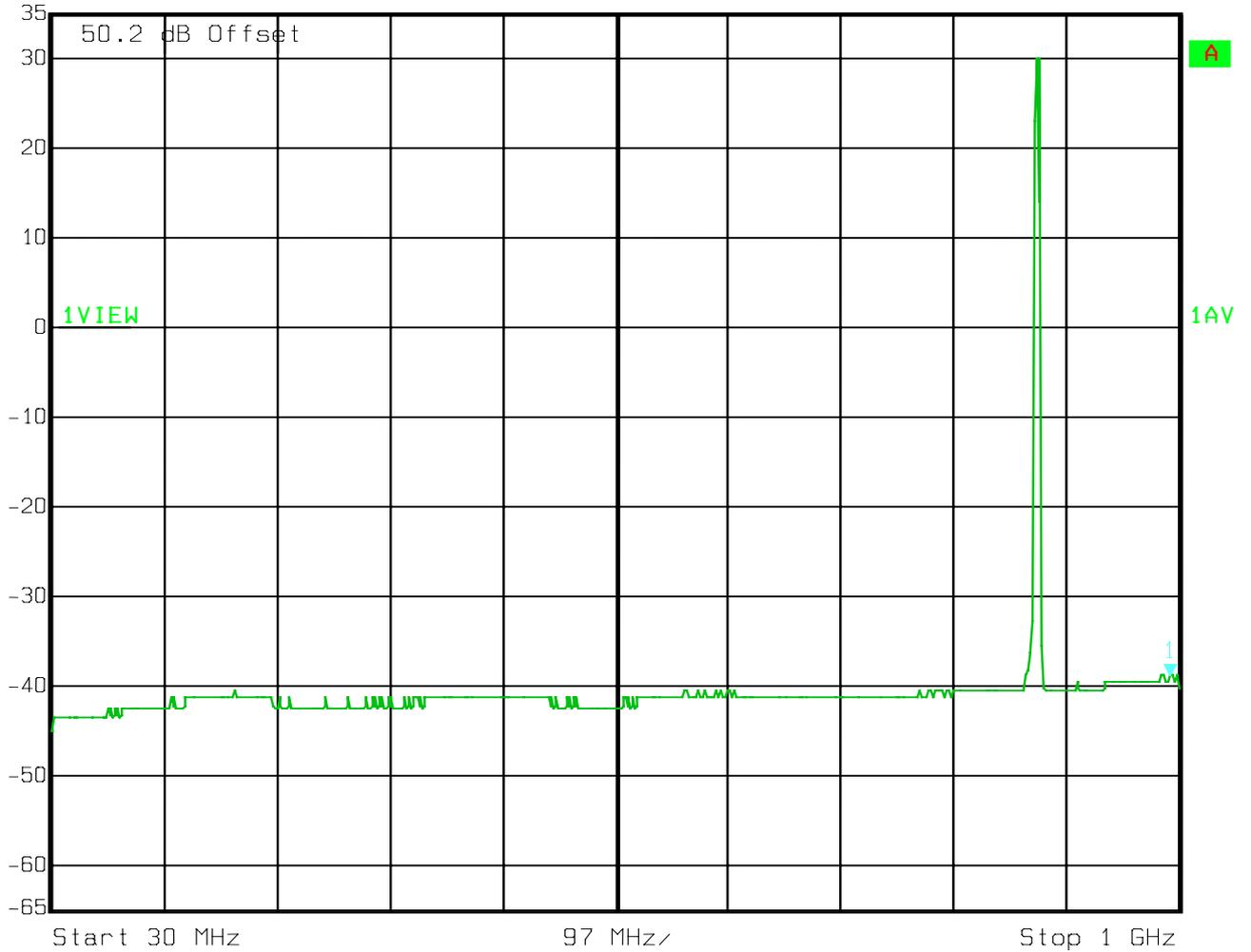
Ref Lvl 15 dBm  
Marker 1 [T1] -46.94 dBm  
209.81963928 kHz  
RBW 10 kHz RF Att 10 dB  
VBW 10 kHz  
SWT 1 s Unit dBm



Date: 23.SEP.2005 11:21:00



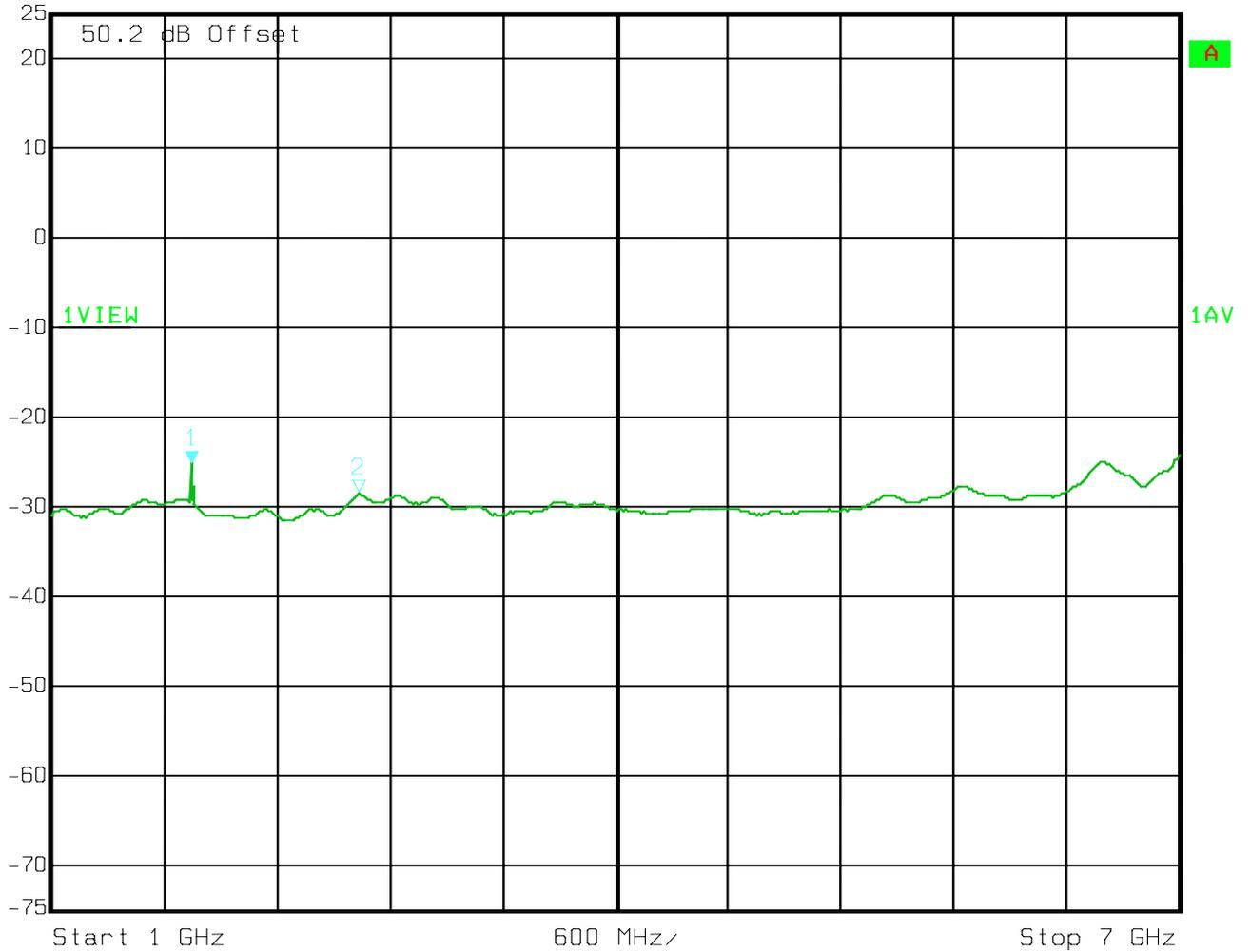
Ref Lvl 35 dBm  
Marker 1 [T1] 992.22444890 MHz  
RBW 100 kHz RF Att 10 dB  
VBW 100 kHz  
SWT 1 s Unit dBm



Date: 23.SEP.2005 11:59:03



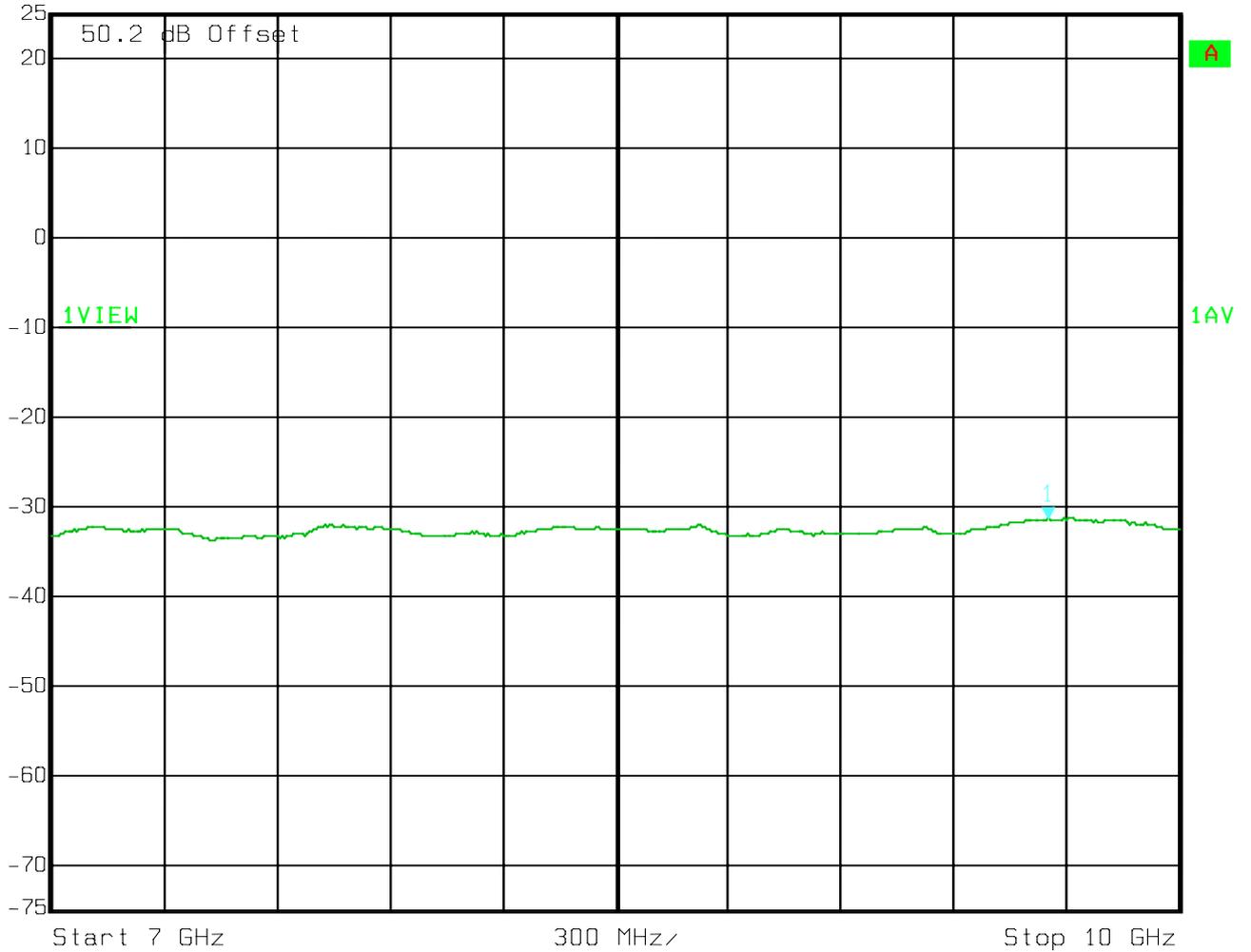
Ref Lvl 25 dBm  
Marker 1 [T1] -25.22 dBm  
1.74549098 GHz  
RBW 1 MHz  
RF Att 10 dB  
VBW 1 MHz  
SWT 1 s  
Unit dBm



Date: 23.SEP.2005 12:00:31



Ref Lvl 25 dBm  
Marker 1 [T1] -31.48 dBm  
9.65130261 GHz  
RBW 1 MHz  
RF Att 10 dB  
VBW 1 MHz  
SWT 1 s  
Unit dBm

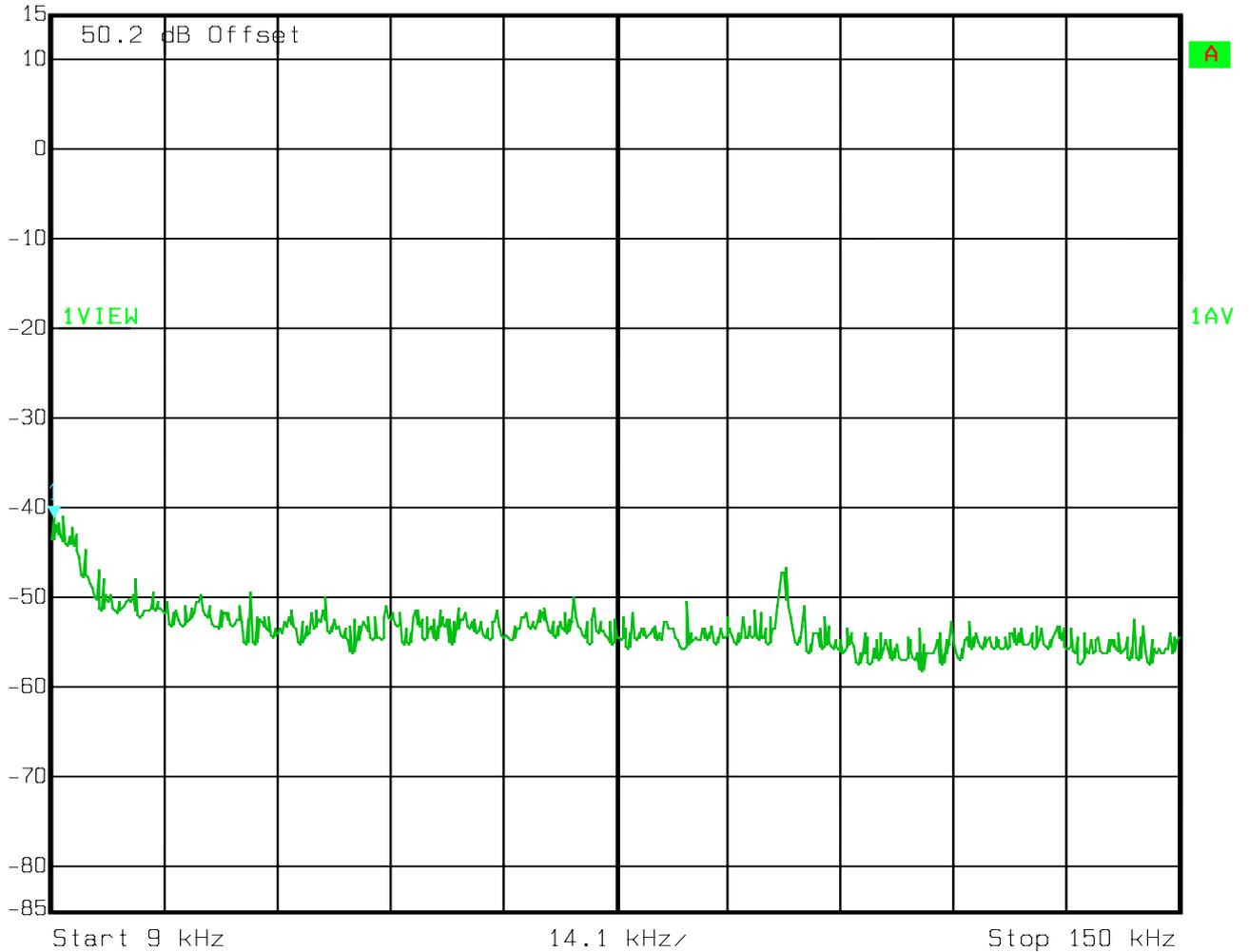


Date: 23.SEP.2005 12:02:14

Transceiver and Receiver Module *LPA2+RFE*

Channel 1013

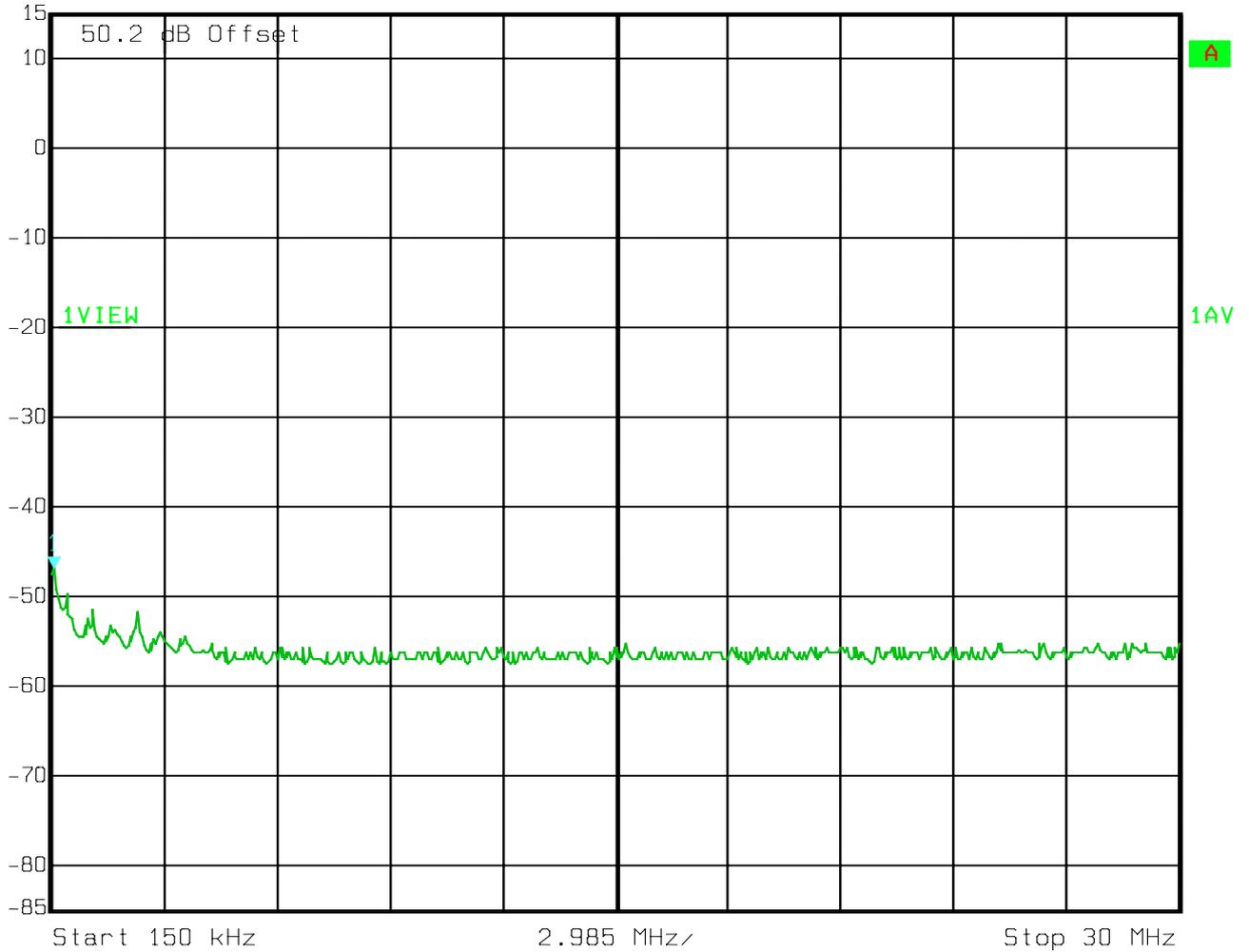
	Ref Lvl	Marker 1 [T1]	RBW	1 kHz	RF Att	10 dB
	15 dBm	-41.20 dBm	VBW	1 kHz		
		9.28256513 kHz	SWT	1 s	Unit	dBm



Date: 23.SEP.2005 12:24:29



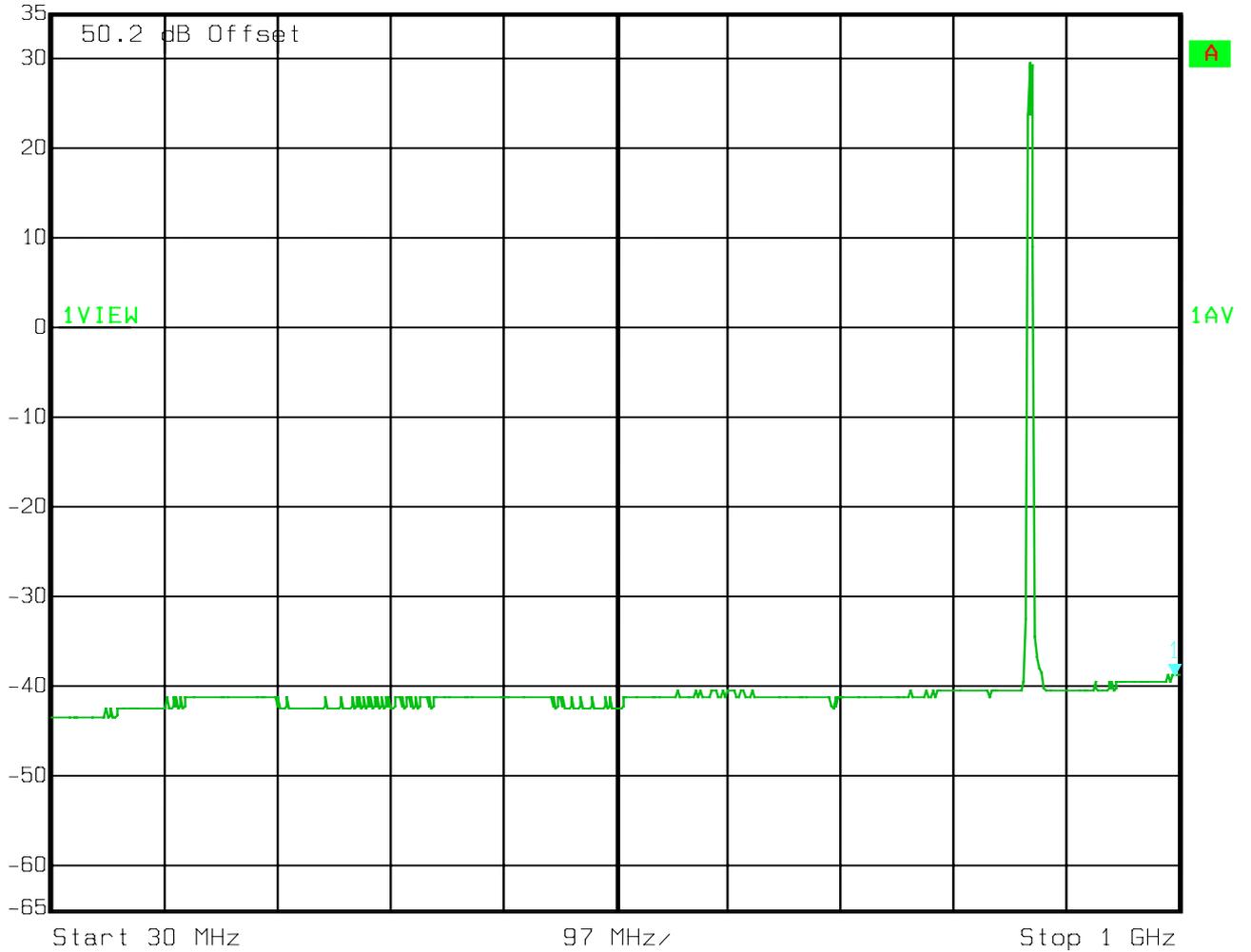
Ref Lvl 15 dBm  
Marker 1 [T1] -46.94 dBm  
209.81963928 kHz  
RBW 10 kHz RF Att 10 dB  
VBW 10 kHz  
SWT 1 s Unit dBm



Date: 23.SEP.2005 12:25:52



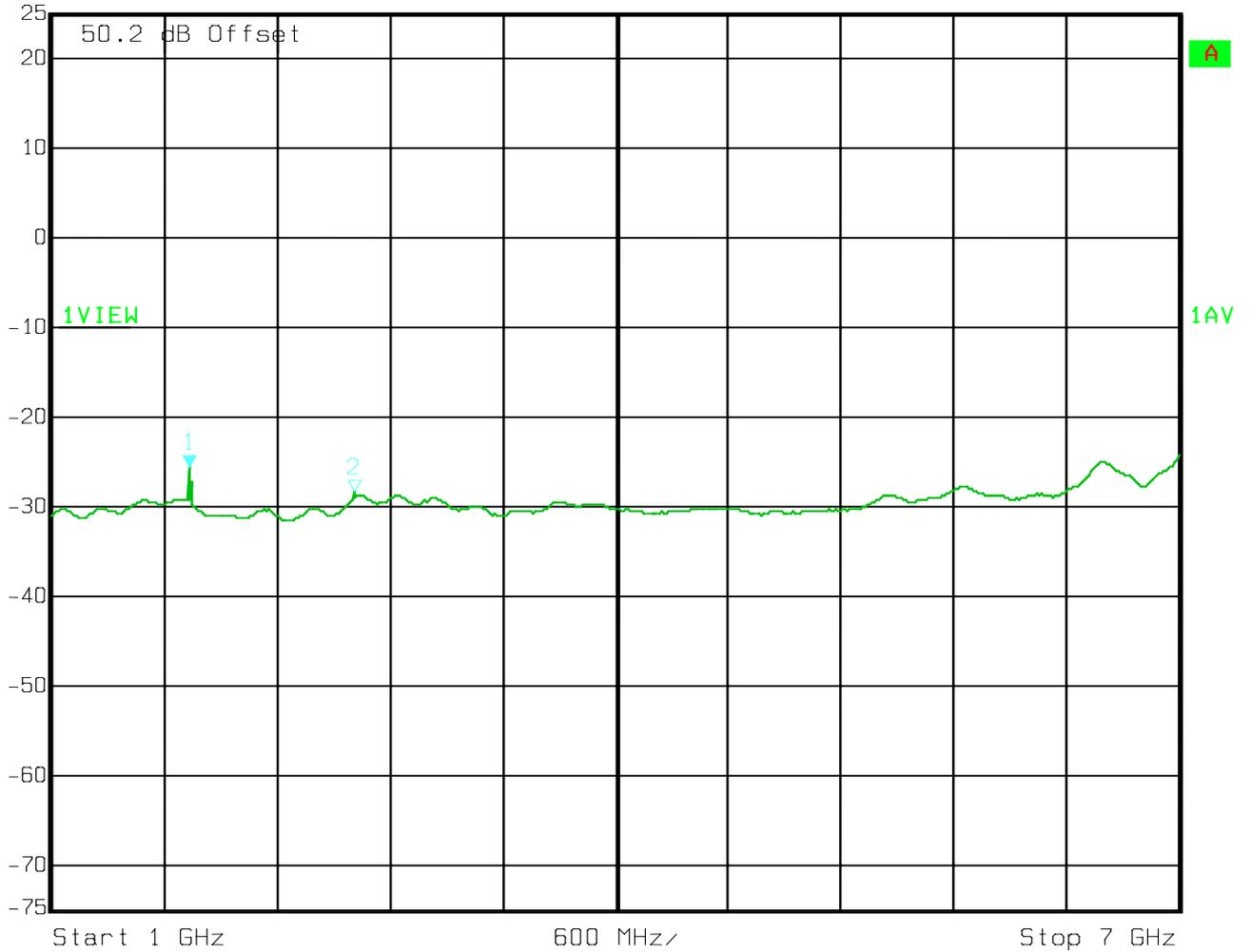
Ref Lvl 35 dBm  
Marker 1 [T1] 996.11222445 MHz -38.98 dBm  
RBW 100 kHz RF Att 10 dB  
VBW 100 kHz  
SWT 1 s Unit dBm



Date: 23.SEP.2005 12:28:02



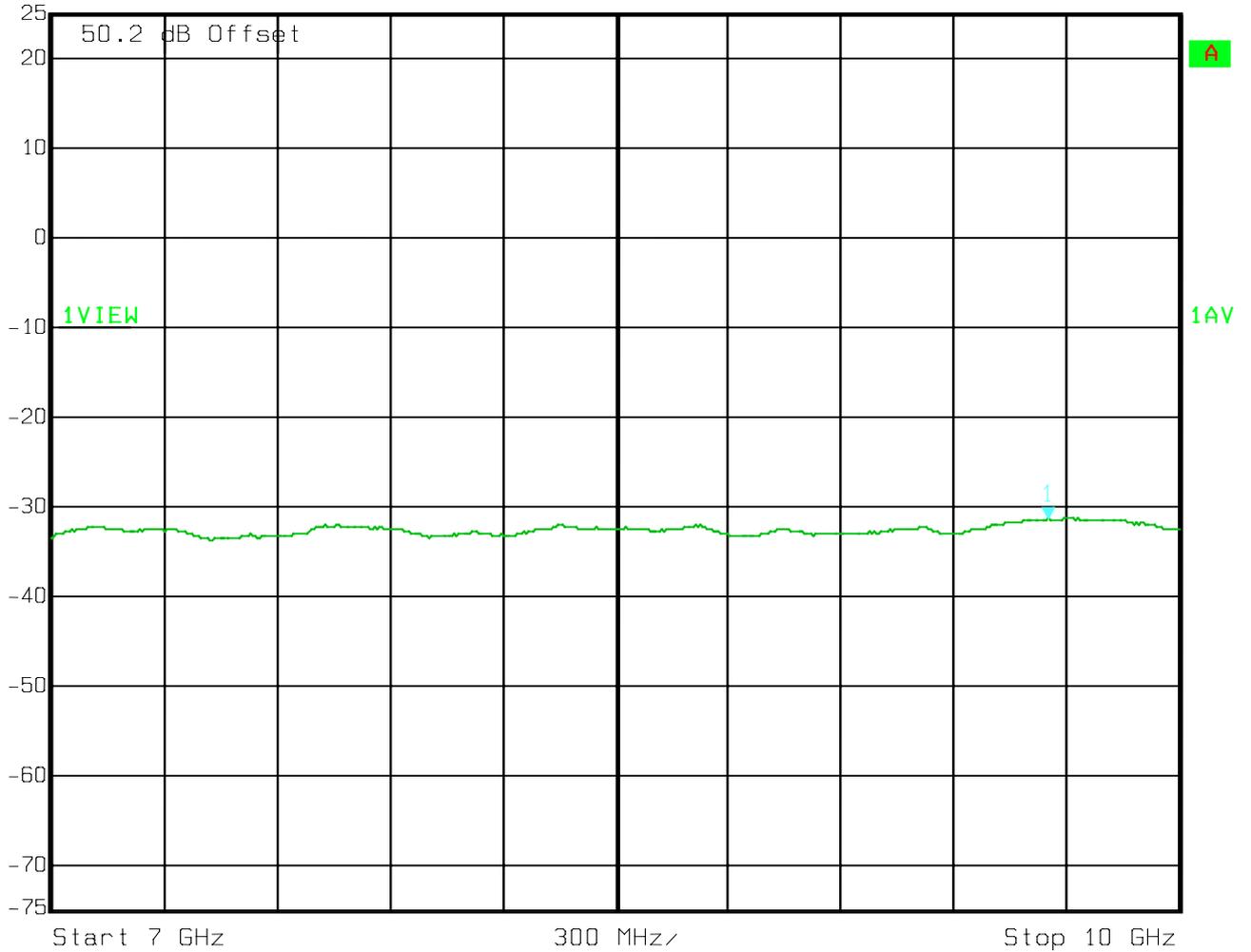
Ref Lvl 25 dBm  
Marker 1 [T1] -25.61 dBm  
1.73346693 GHz  
RBW 1 MHz  
RF Att 10 dB  
VBW 1 MHz  
SWT 1 s  
Unit dBm



Date: 23.SEP.2005 12:29:58



Ref Lvl 25 dBm  
Marker 1 [T1] -31.48 dBm  
9.65130261 GHz  
RBW 1 MHz  
RF Att 10 dB  
VBW 1 MHz  
SWT 1 s  
Unit dBm

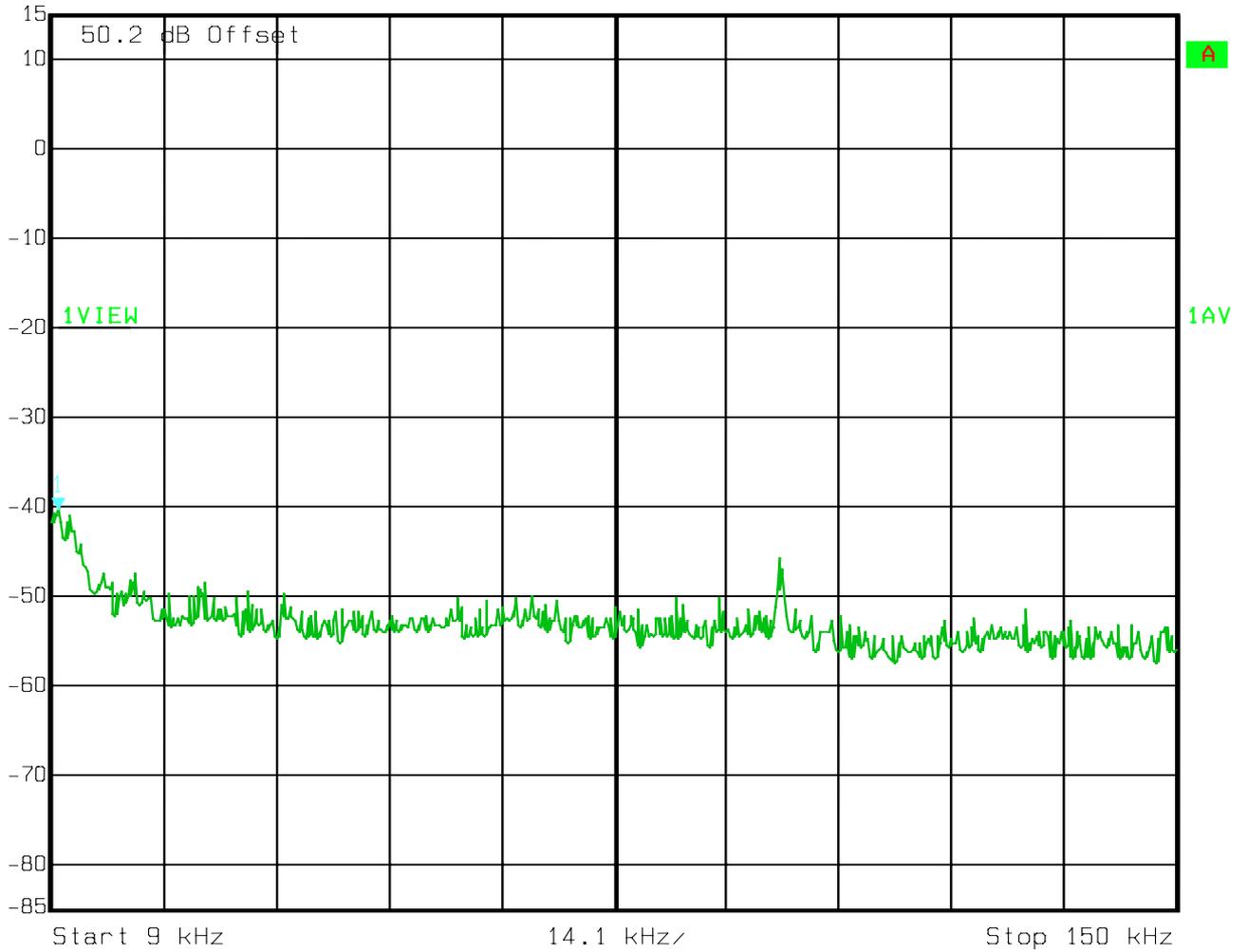


Date: 23.SEP.2005 12:32:24

Channel 119



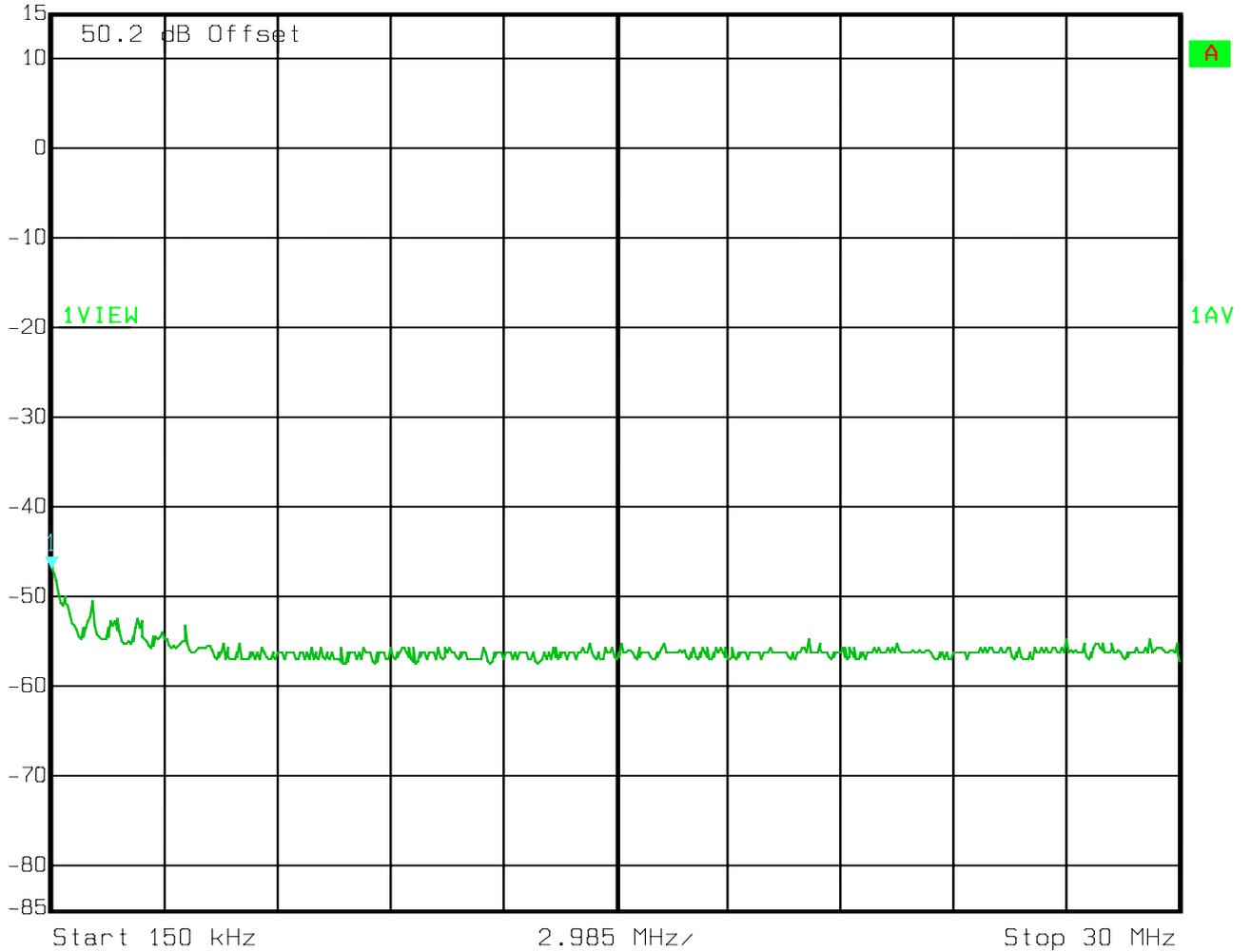
Ref Lvl 15 dBm  
Marker 1 [T1] -40.31 dBm  
9.84769539 kHz  
RBW 1 kHz  
RF Att 10 dB  
VBW 1 kHz  
SWT 1 s  
Unit dBm



Date: 23.SEP.2005 12:22:23



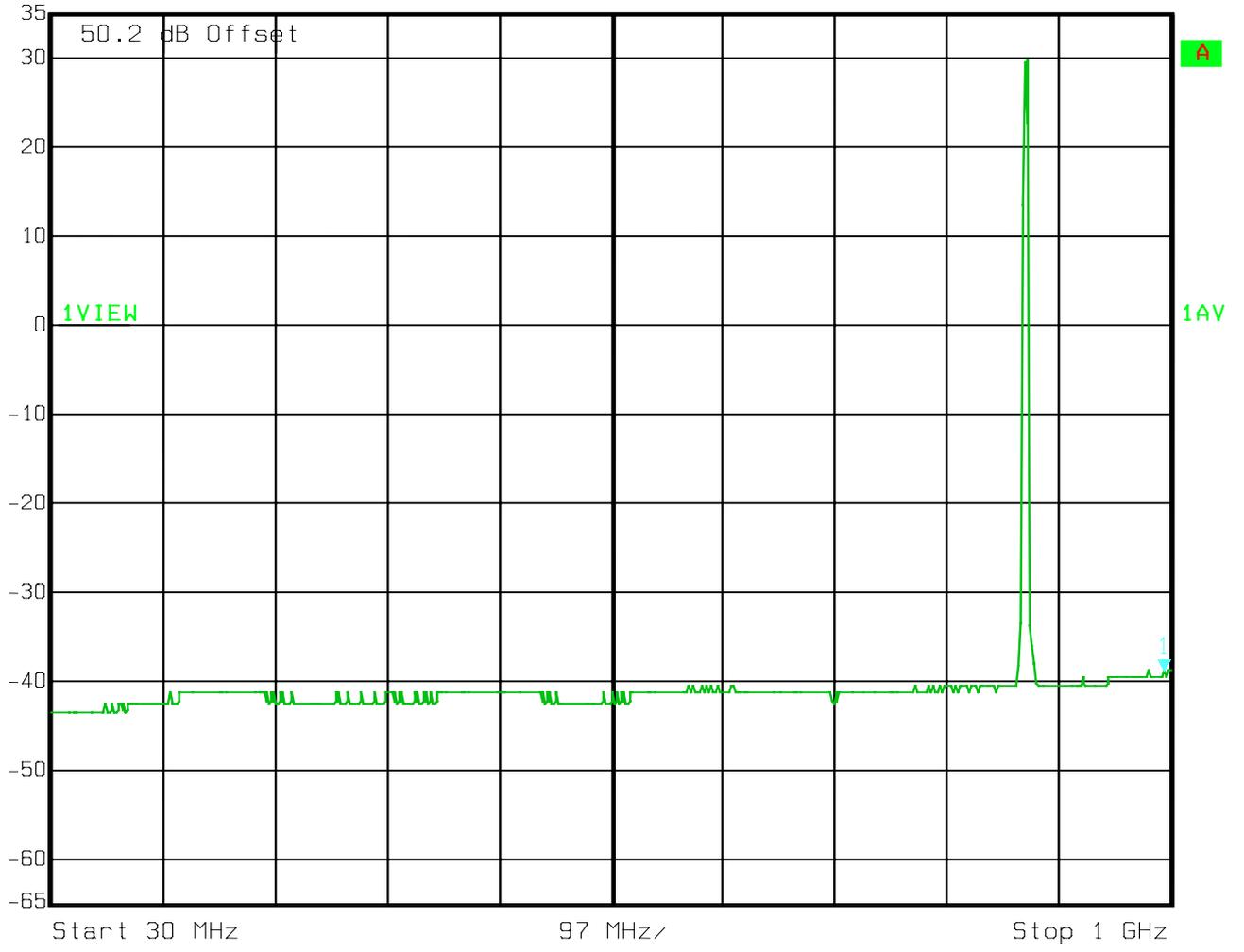
Ref Lvl 15 dBm  
Marker 1 [T1] -46.94 dBm  
150.00000000 kHz  
RBW 10 kHz  
RF Att 10 dB  
VBW 10 kHz  
SWT 1 s  
Unit dBm



Date: 23.SEP.2005 12:21:05



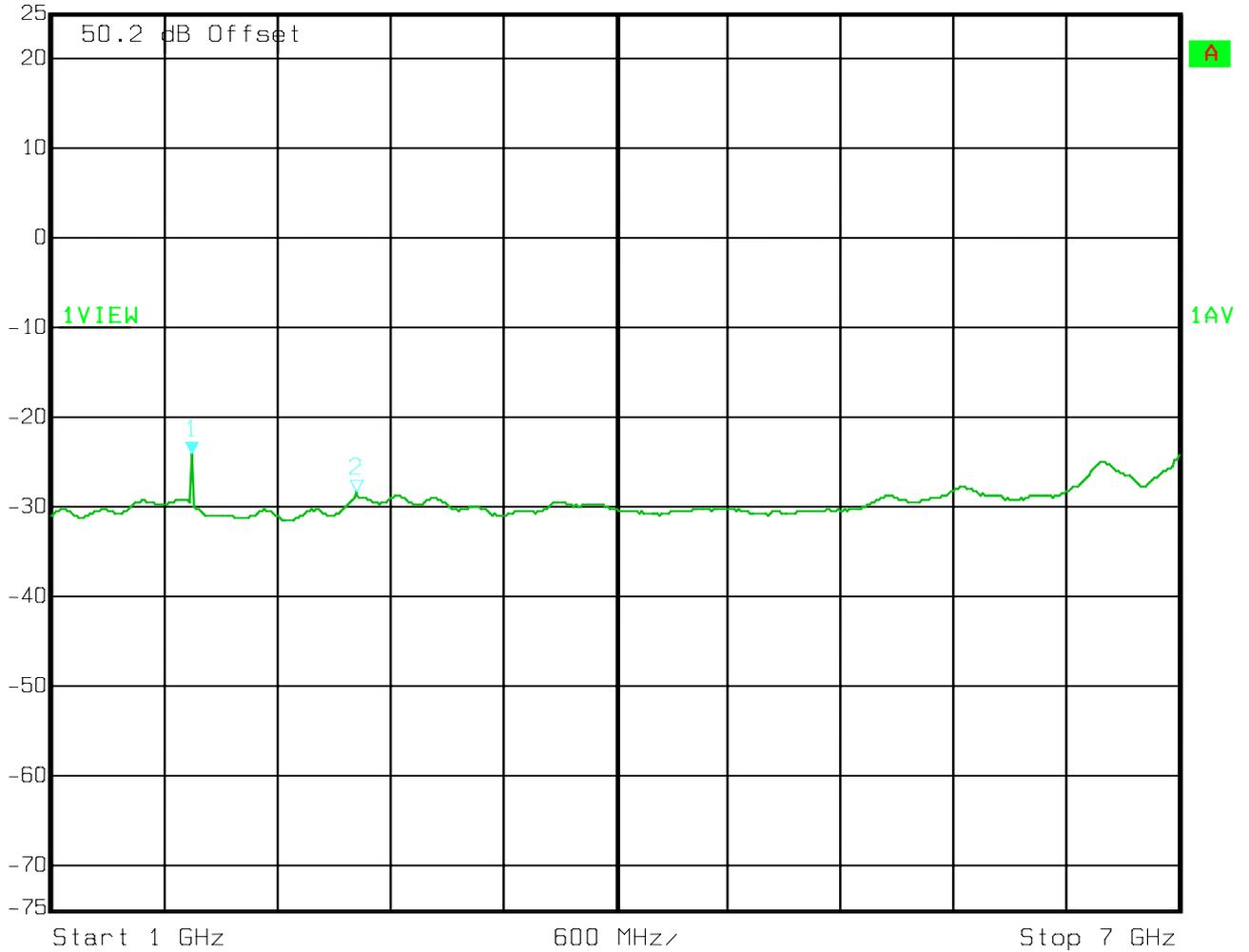
Ref Lvl 35 dBm  
Marker 1 [T1] 994.16833667 MHz  
RBW 100 kHz  
RF Att 10 dB  
VBW 100 kHz  
SWT 1 s  
Unit dBm



Date: 23.SEP.2005 12:19:43



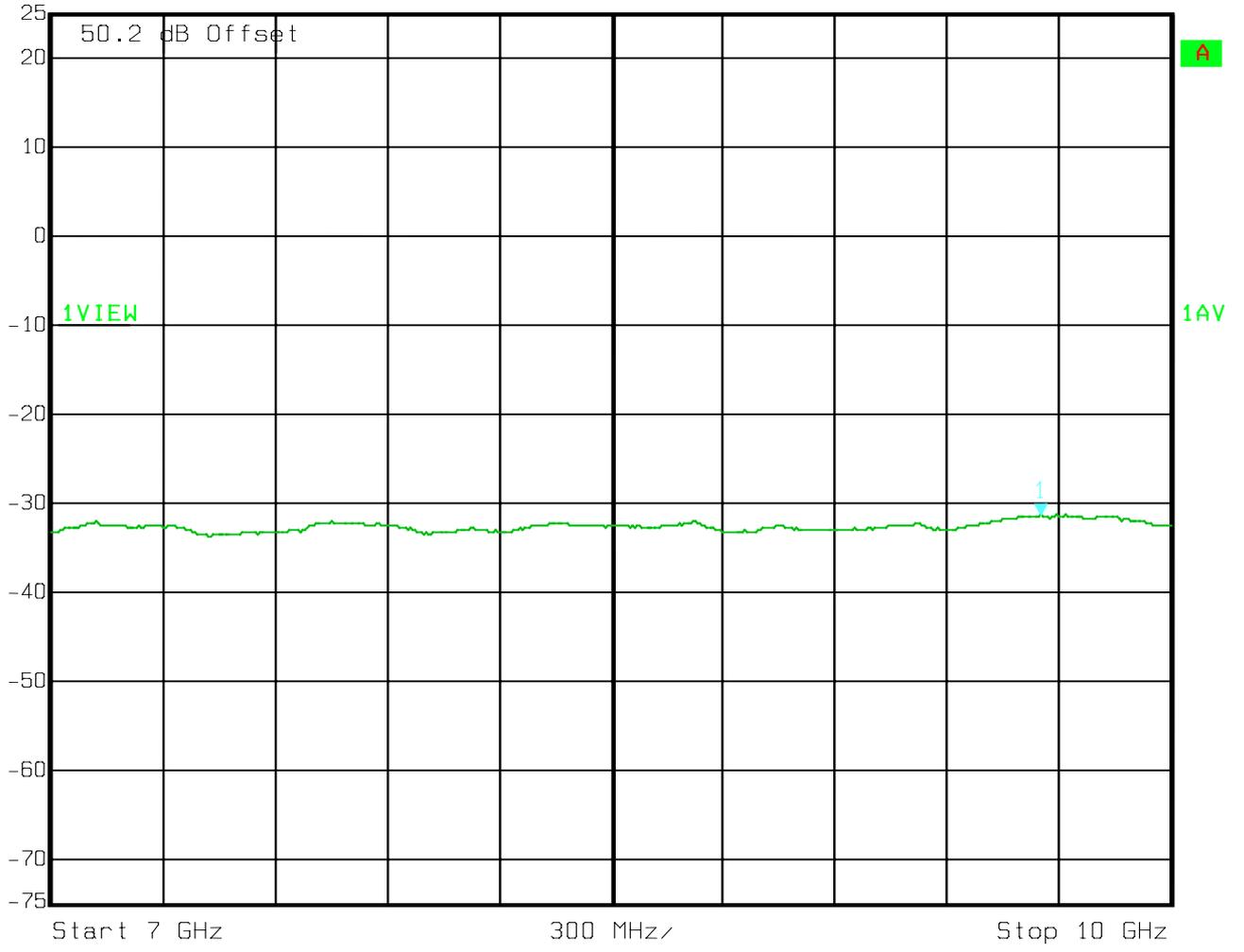
Ref Lvl 25 dBm  
Marker 1 [T1] -24.04 dBm  
1.74549098 GHz  
RBW 1 MHz  
RF Att 10 dB  
VBW 1 MHz  
SWT 1 s  
Unit dBm



Date: 23.SEP.2005 12:18:04



Ref Lvl 25 dBm  
Marker 1 [T1] -31.48 dBm  
9.65130261 GHz  
RBW 1 MHz  
RF Att 10 dB  
VBW 1 MHz  
SWT 1 s  
Unit dBm

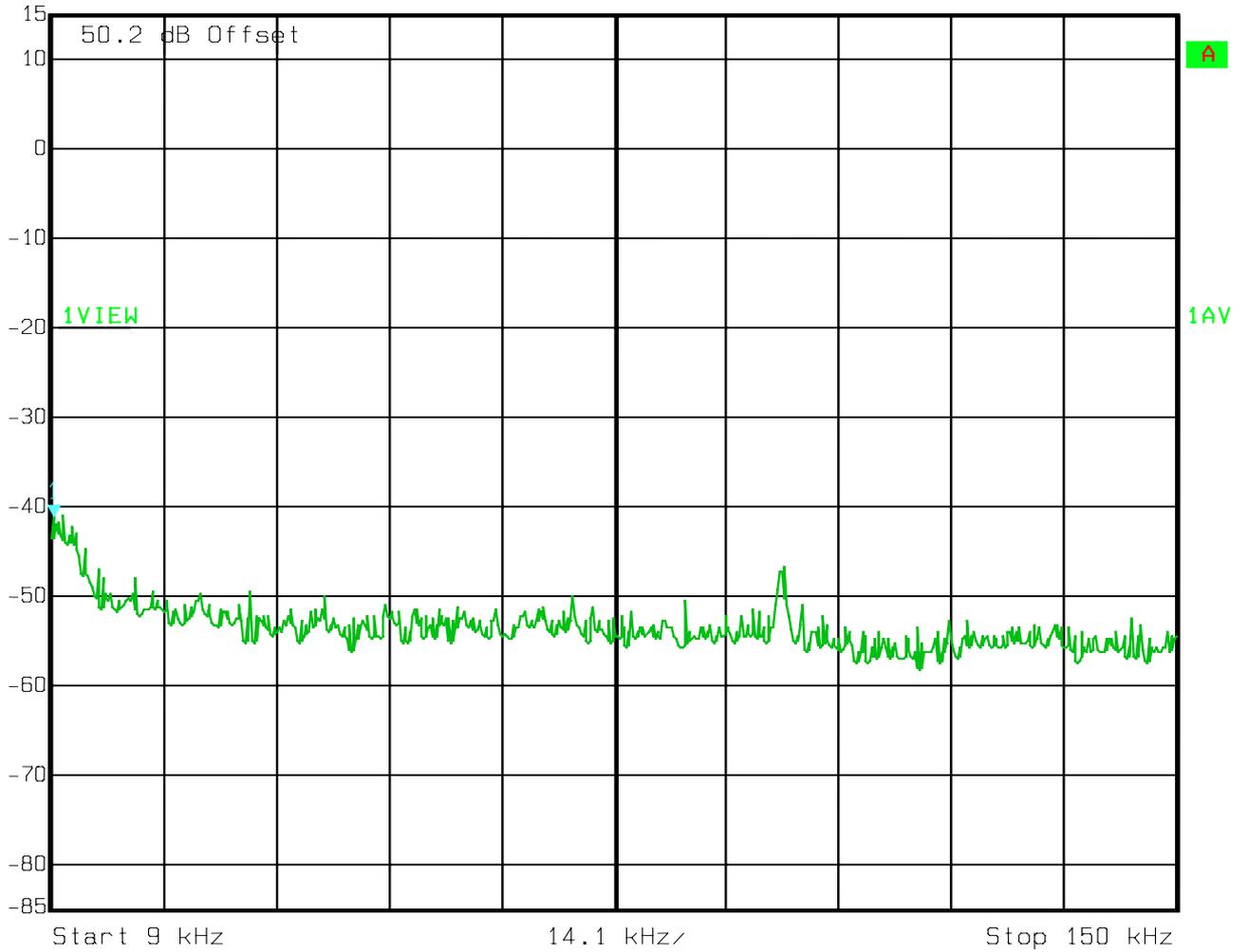


Date: 23.SEP.2005 12:16:49

Channel 312



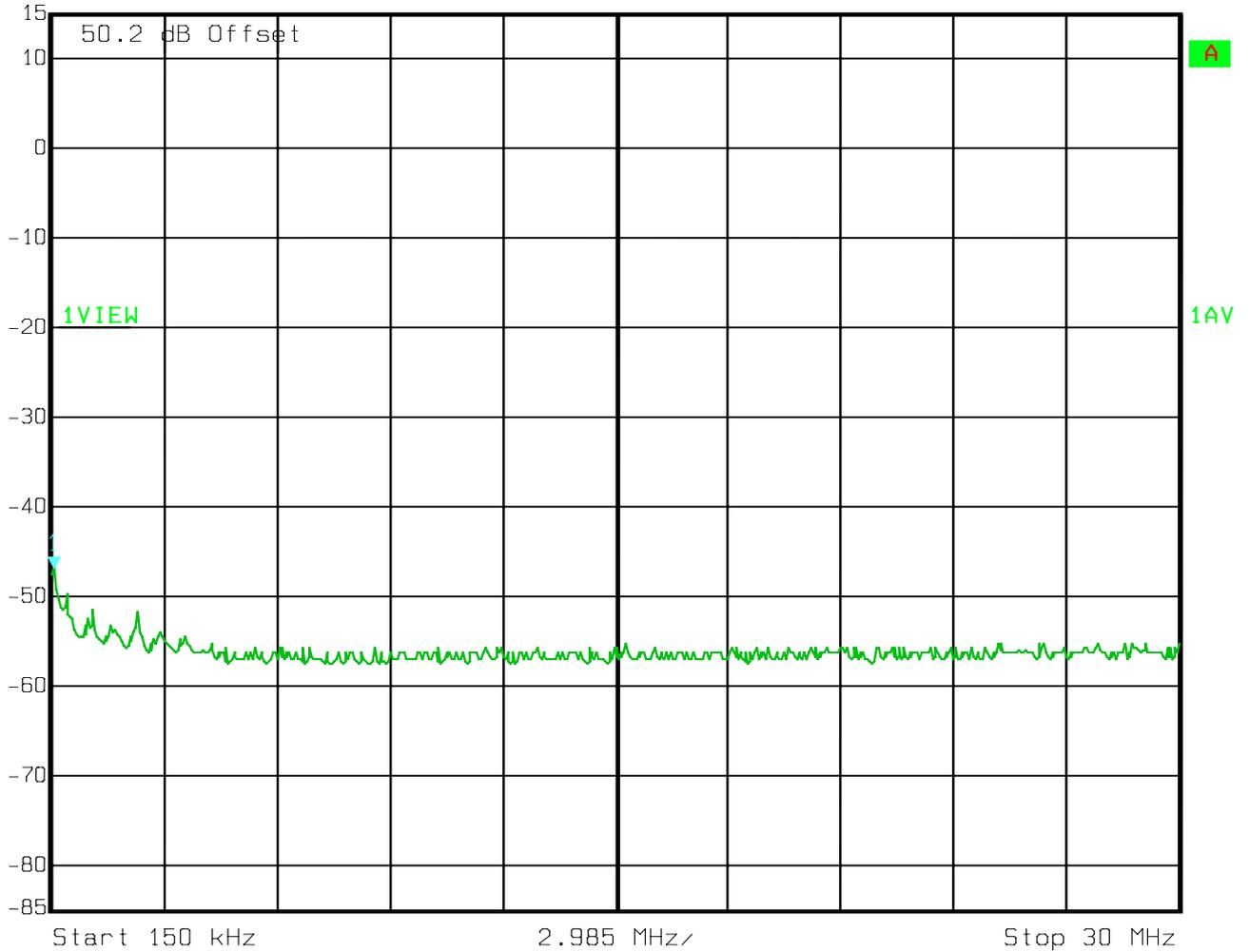
Ref Lvl 15 dBm  
Marker 1 [T1] -41.20 dBm  
9.28256513 kHz  
RBW 1 kHz  
RF Att 10 dB  
VBW 1 kHz  
SWT 1 s  
Unit dBm



Date: 23.SEP.2005 12:24:29



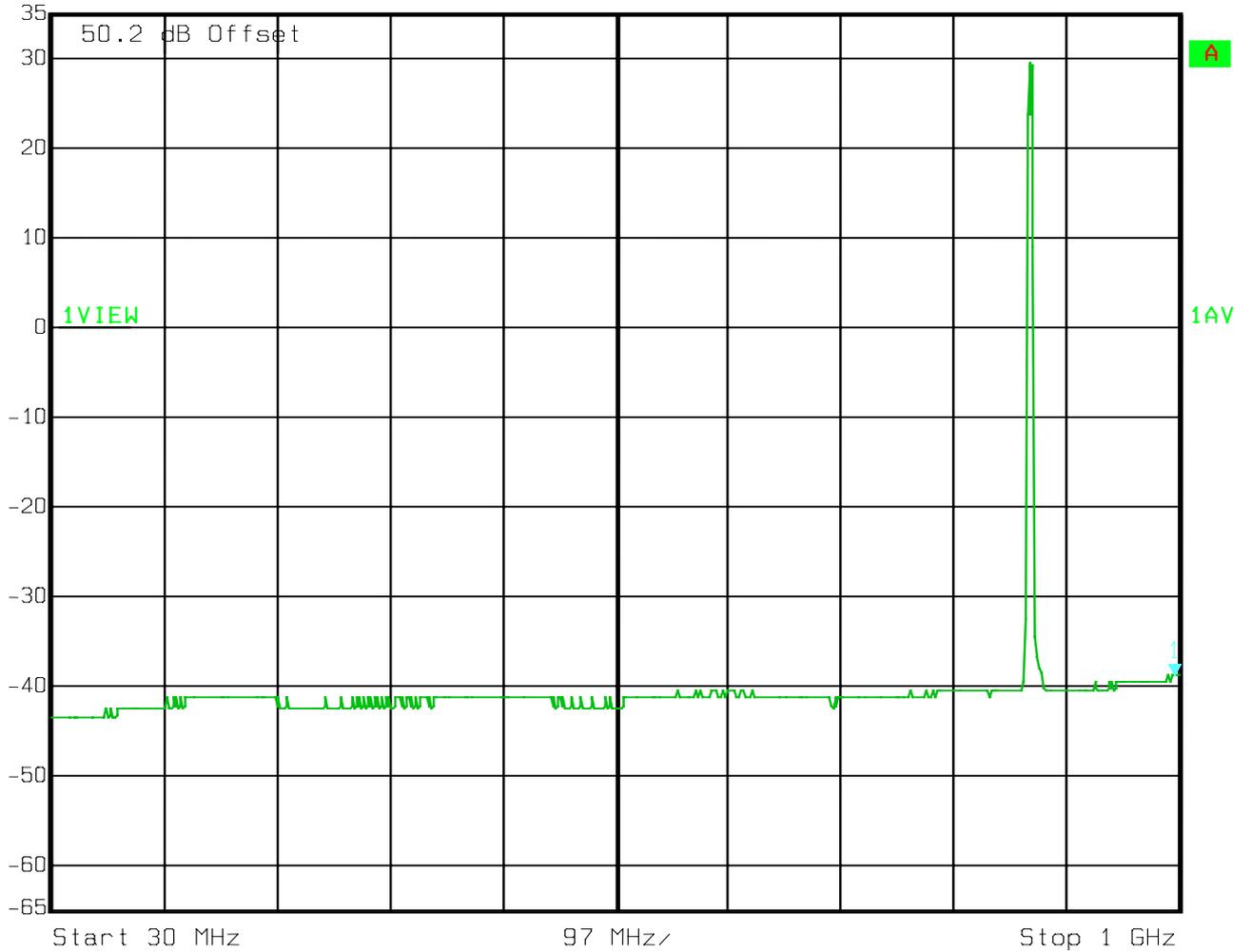
Ref Lvl 15 dBm  
Marker 1 [T1] -46.94 dBm  
209.81963928 kHz  
RBW 10 kHz RF Att 10 dB  
VBW 10 kHz  
SWT 1 s Unit dBm



Date: 23.SEP.2005 12:25:52



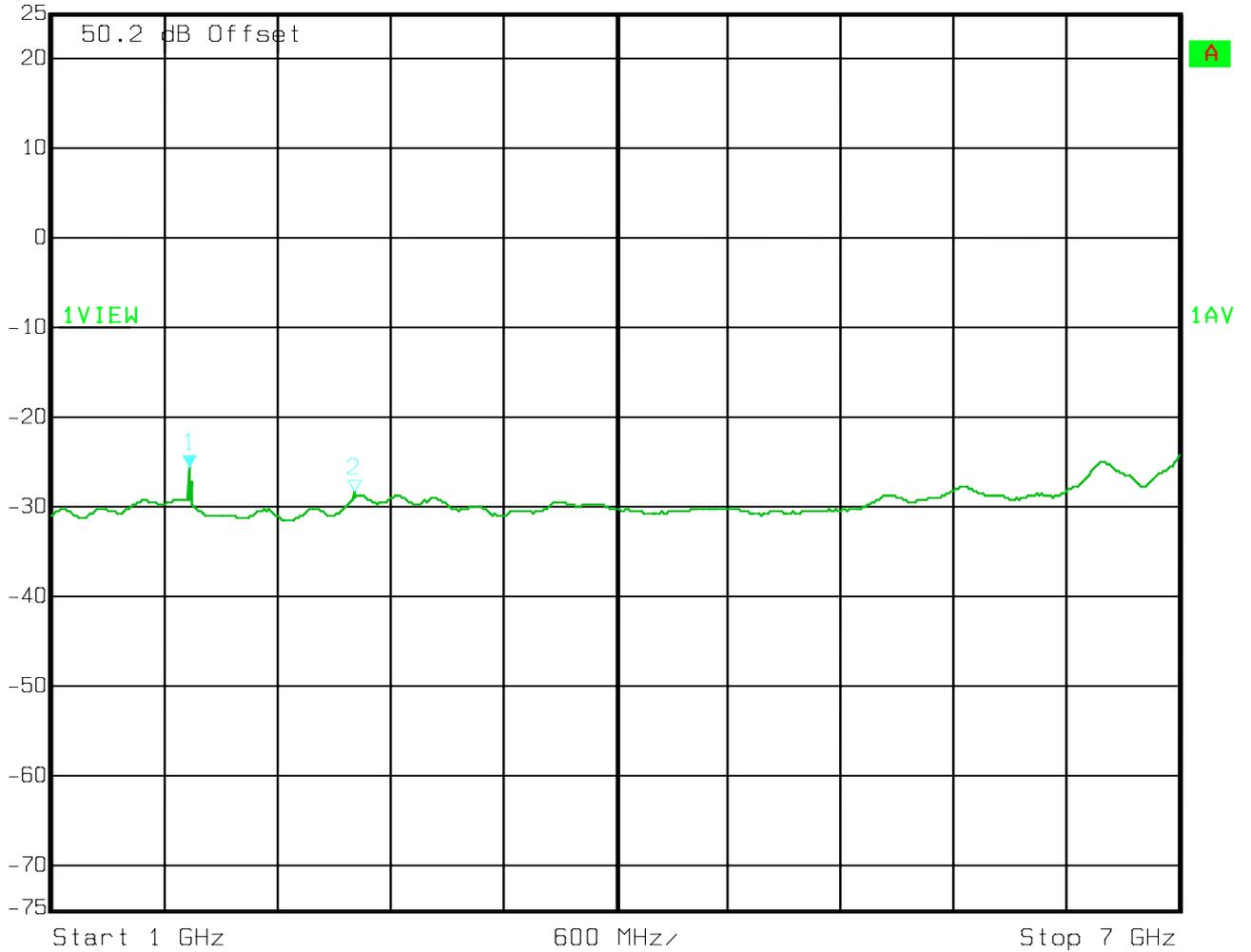
Ref Lvl 35 dBm  
Marker 1 [T1] 996.11222445 MHz -38.98 dBm  
RBW 100 kHz RF Att 10 dB  
VBW 100 kHz  
SWT 1 s Unit dBm



Date: 23.SEP.2005 12:28:02



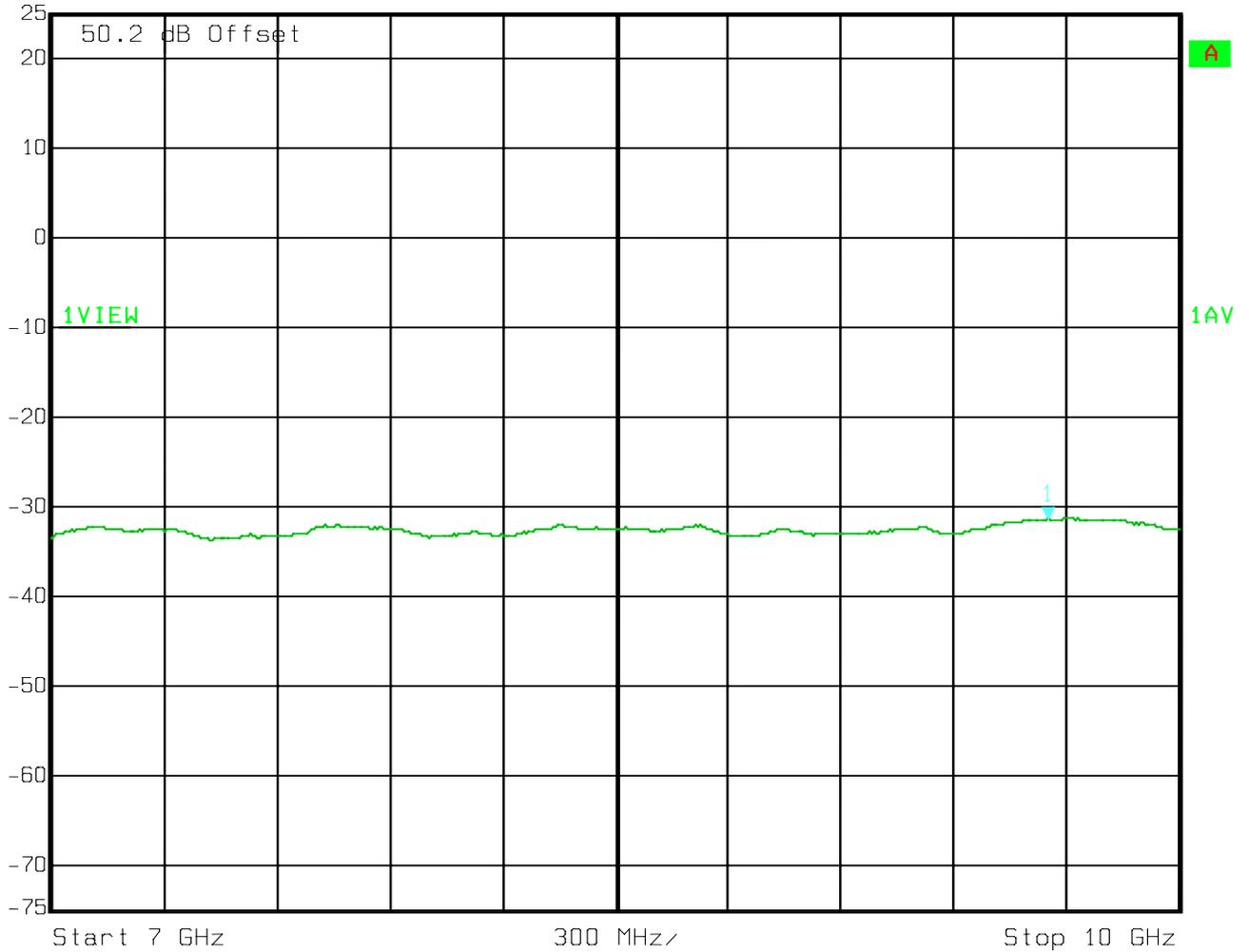
Ref Lvl 25 dBm  
Marker 1 [T1] -25.61 dBm  
1.73346693 GHz  
RBW 1 MHz  
RF Att 10 dB  
VBW 1 MHz  
SWT 1 s  
Unit dBm



Date: 23.SEP.2005 12:29:58



Ref Lvl 25 dBm  
Marker 1 [T1] -31.48 dBm  
9.65130261 GHz  
RBW 1 MHz  
RF Att 10 dB  
VBW 1 MHz  
SWT 1 s  
Unit dBm



Date: 23.SEP.2005 12:32:24

**§2.1049, §22.917, §22.905 -OCCUPIED BANDWIDTH****Applicable Standard**

Requirements: CFR 47, Section 2.1049, Section 22.901 and Section 22.917.

**Test Equipment List and Details**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	PSA Spectrum Analyzer	E4445A	MY44300451	2005-6-3	2006-6-3

\* **Statement of Traceability:** Bay Area Compliance Lab Corp. (ShenZhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

**Test Procedure**

The RF out of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.

The resolution bandwidth of the spectrum analyzer was set at 30 kHz and the 26 dB and 99% Power bandwidth was recorded.

**Test Data****Environmental Conditions**

Temperature:	25 ° C
Relative Humidity:	50%
ATM Pressure:	1009mbar

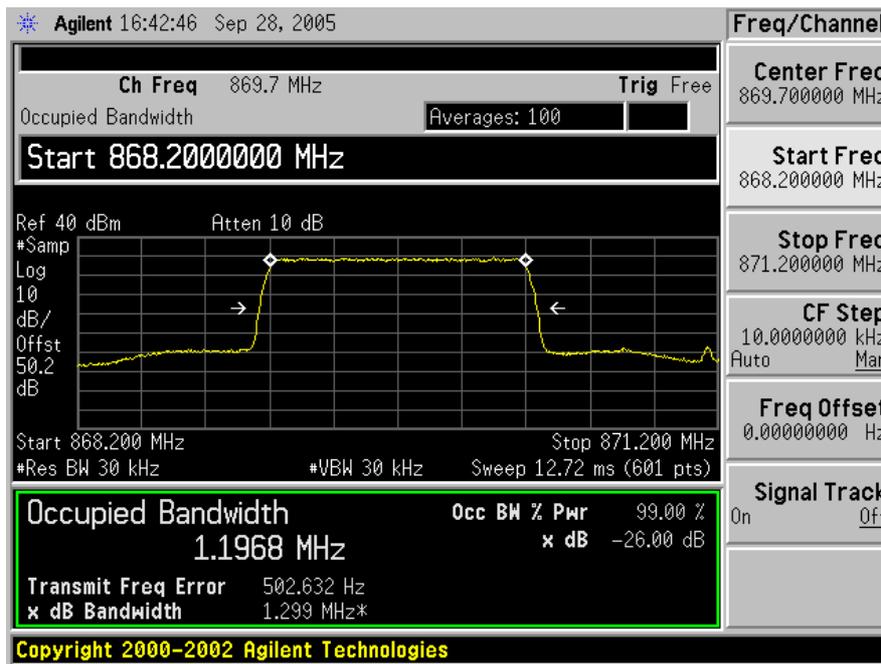
*The testing was performed by Sam Lin on 2005-9-28.*

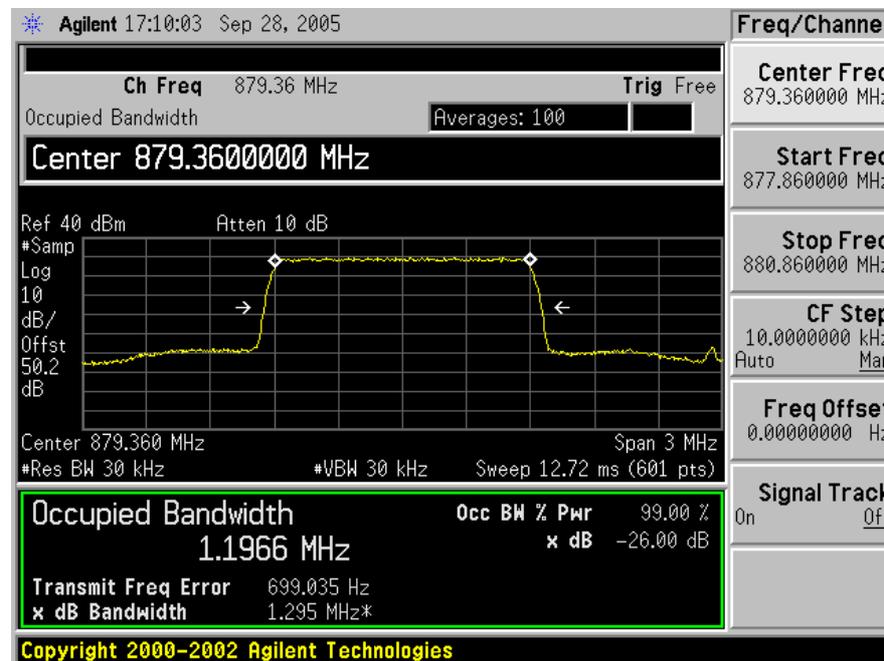
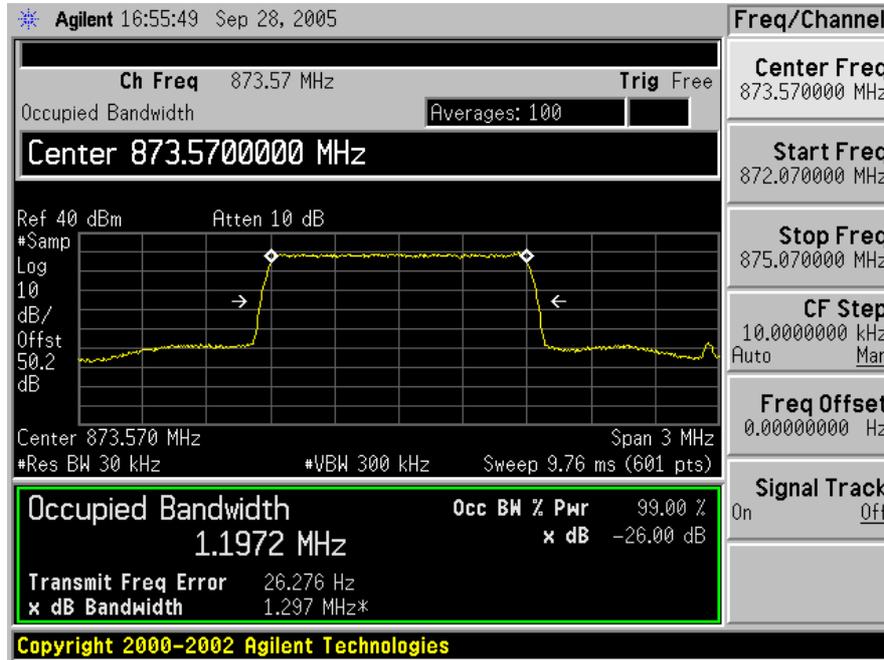
Test Result: Pass

*Test Mode: Transmitting*

Digital Pre-Distortion Transceiver and Receiver Module DPA

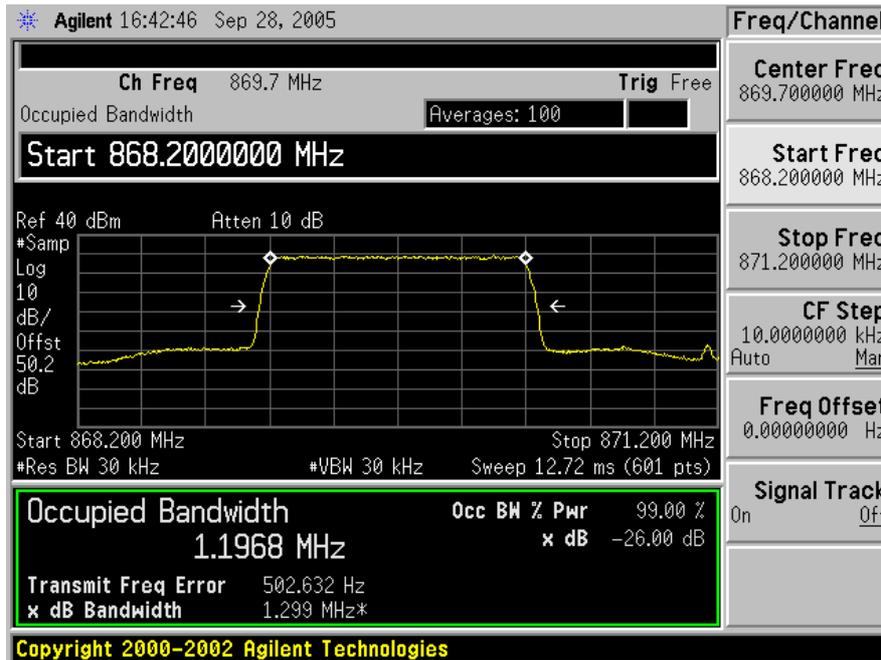
Channel	Channel frequency (MHz)	99% Power Bandwidth (MHz)
Channel 1013	869.70	1.1968
Channel 119	873.57	1.1972
Channel 312	879.36	1.1966

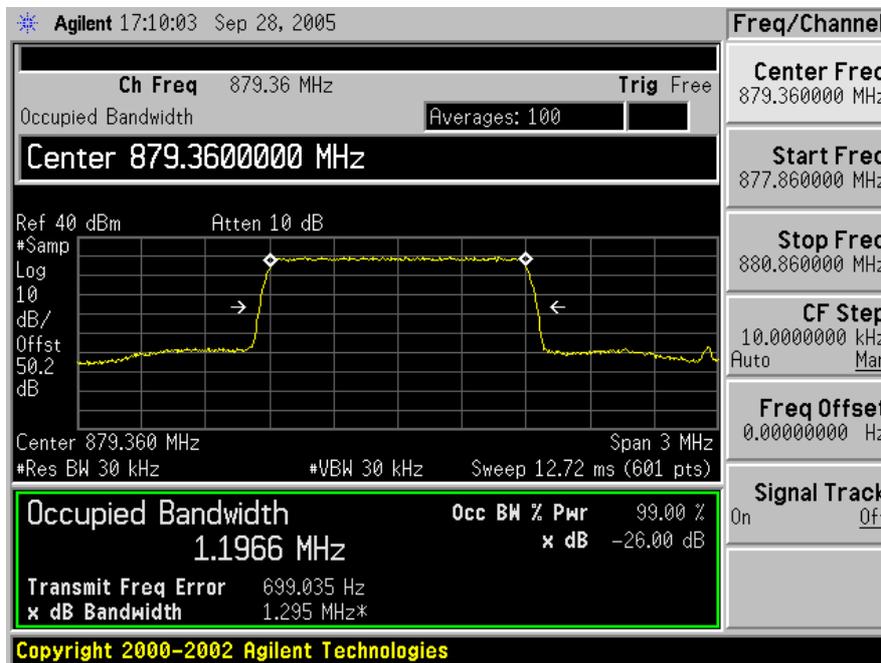
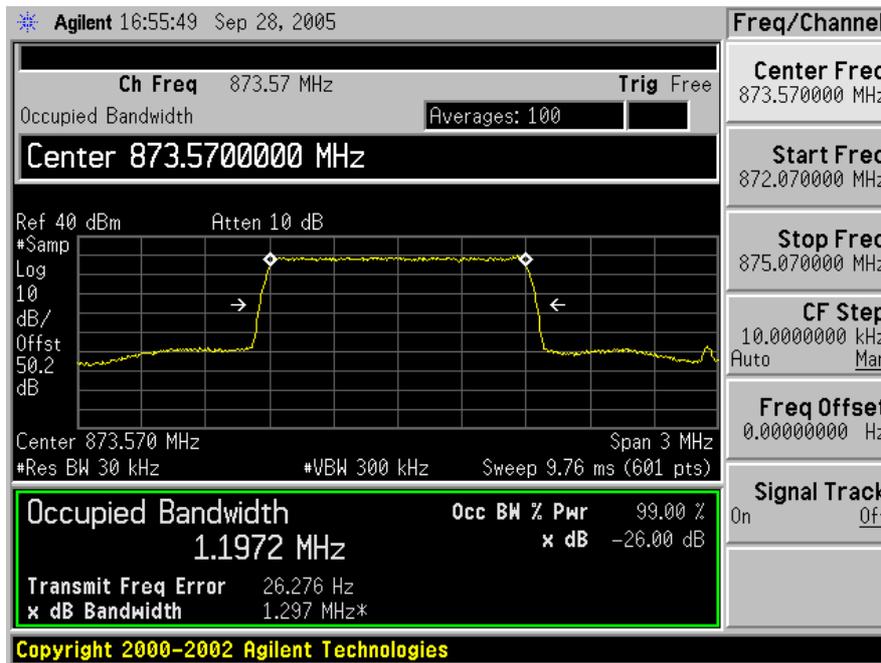




Transceiver and Receiver Module *DPA*

Channel	Channel frequency (MHz)	99% Power Bandwidth (MHz)
Channel 1013	869.70	1.1968
Channel 119	873.57	1.1972
Channel 312	879.36	1.1966

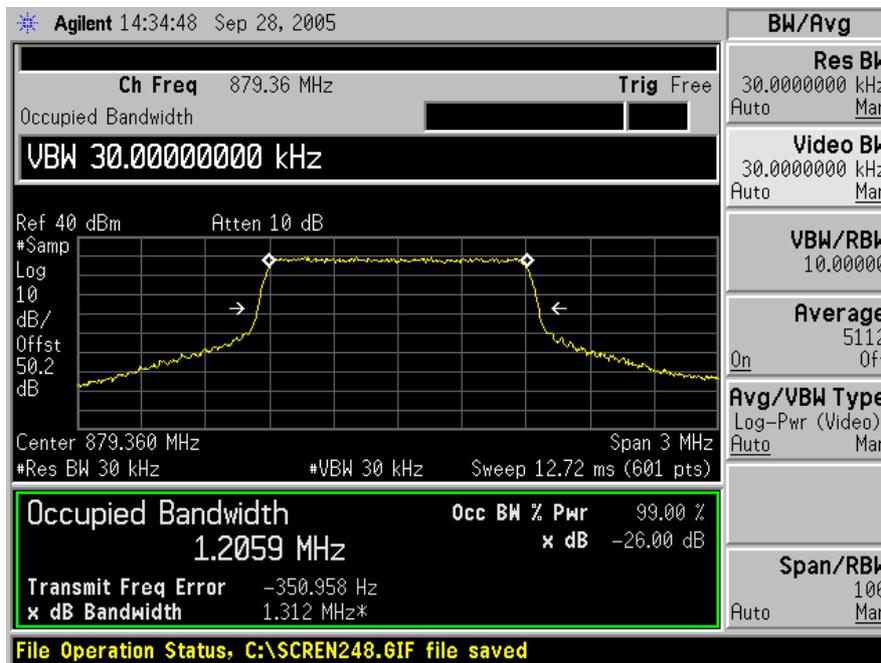
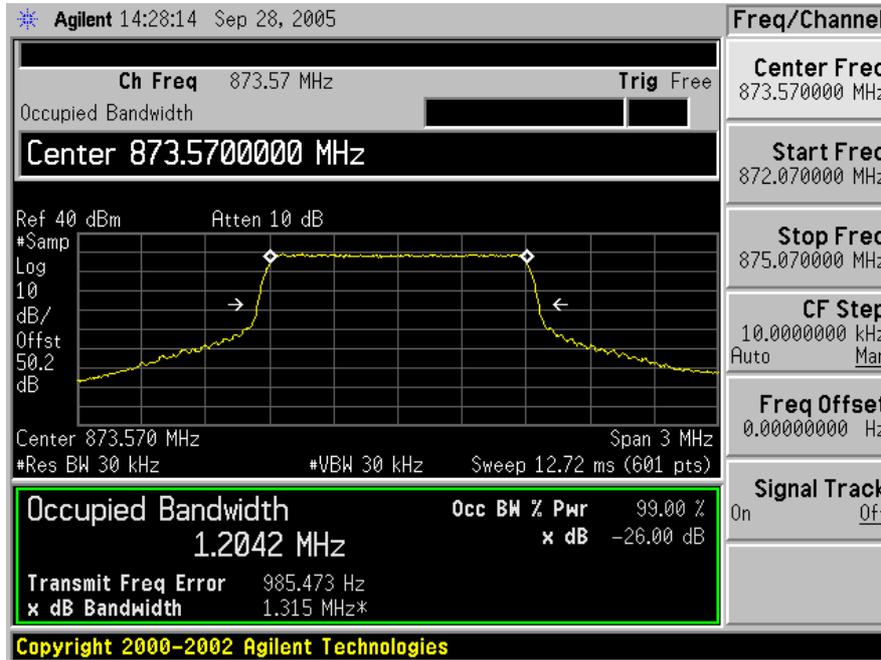




Transceiver and Receiver Module *LPA1+RFE*

Channel	Channel frequency (MHz)	99% Power Bandwidth (MHz)
Channel 1013	869.70	1.2060
Channel 119	873.57	1.2042
Channel 312	879.36	1.2059

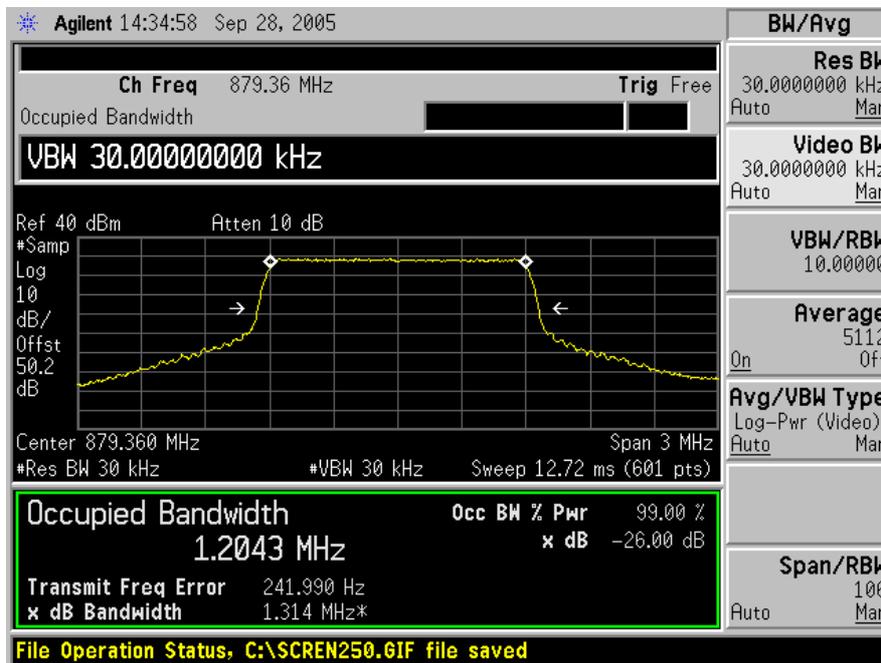
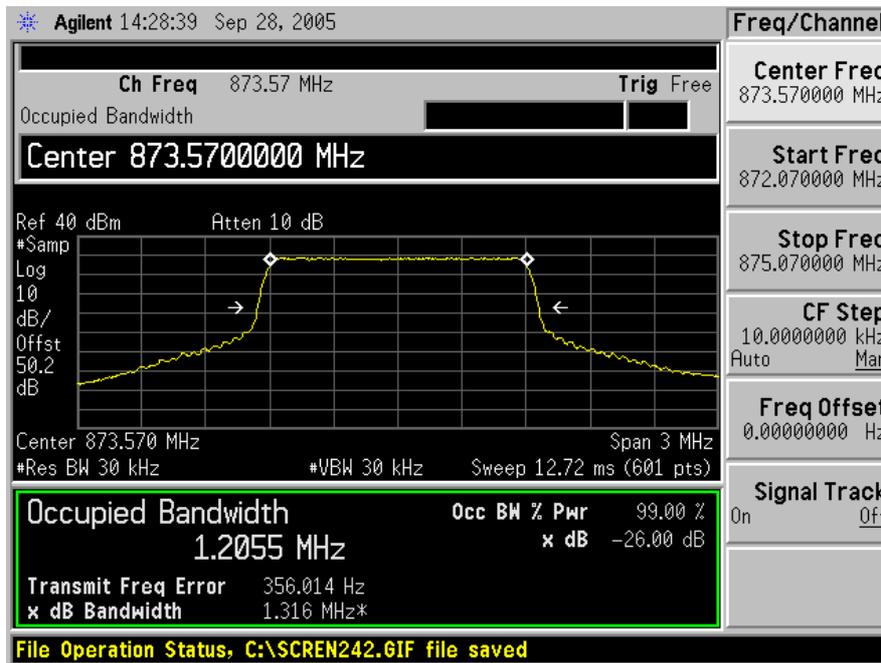




Transceiver and Receiver Module *LPA2+RFE*

Channel	Channel frequency (MHz)	99% Power Bandwidth (MHz)
Channel 1013	869.70	1.2061
Channel 119	873.57	1.2055
Channel 312	879.36	1.2043





## §22.917- BAND EDGES

### Applicable Standard

According to §22.917, the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (p) by a factor of at least  $43 + 10 \log (p)$  dB.

### Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	PSA Spectrum Analyzer	E4445A	MY44300451	2005-6-3	2006-6-3

\* **Statement of Traceability:** Bay Area Compliance Lab Corp. (ShenZhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

### Test Procedure

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.

The center of the spectrum analyzer was set to block edge frequency, RBW set to 30 kHz.

### Test Data

#### Environmental Conditions

Temperature:	24 °C
Relative Humidity:	59%
ATM Pressure:	1009mbar

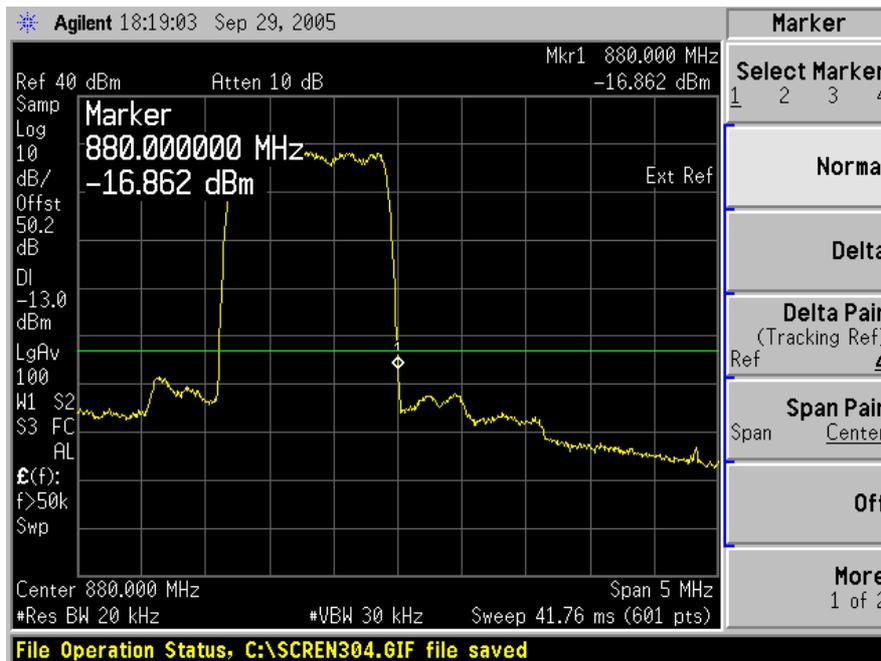
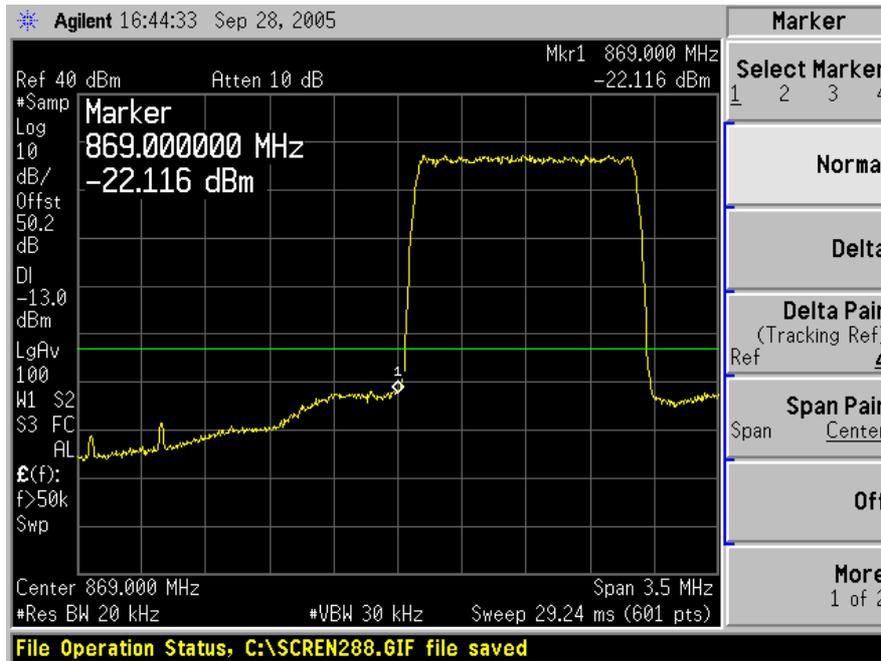
*The testing was performed by Sam Lin on 2005-9-28*

Test Result: Pass

*Test Mode: Transmitting*

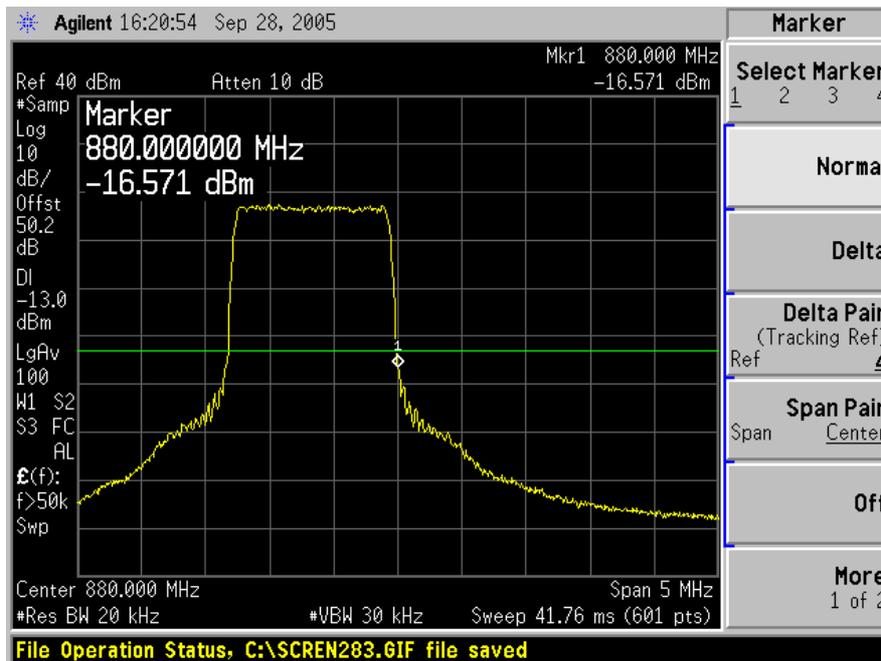
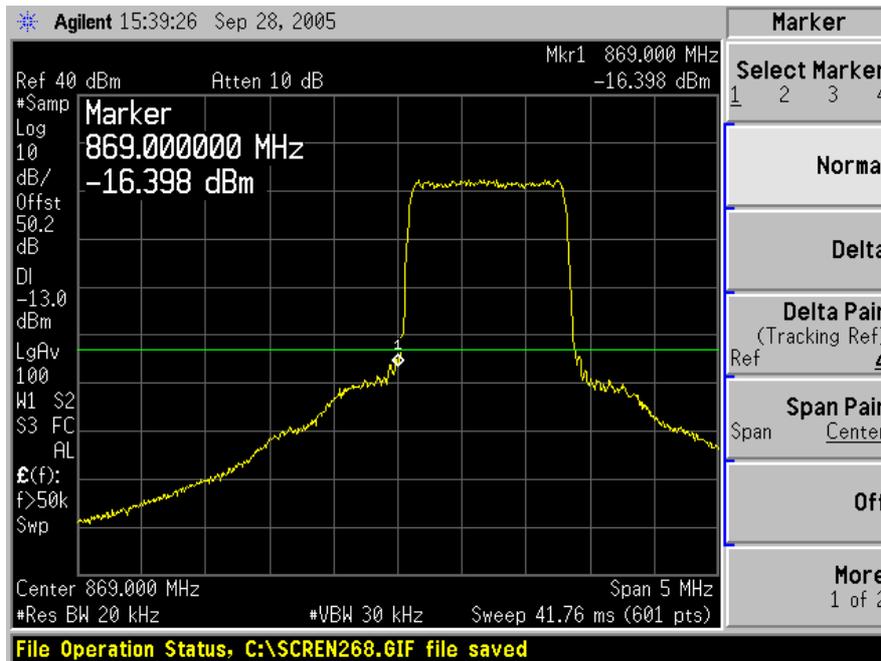
Digital Pre-Distortion Transceiver and Receiver Module DPA

Frequency MHz	Emission dBm	Limit dBm
869.00	-22.116	-13.00
880.00	-16.862	-13.00



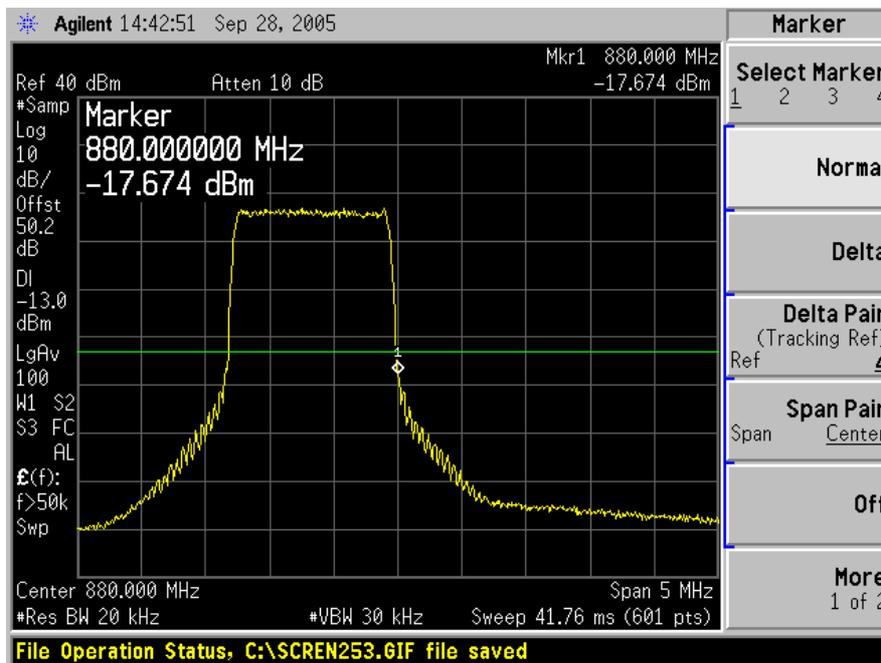
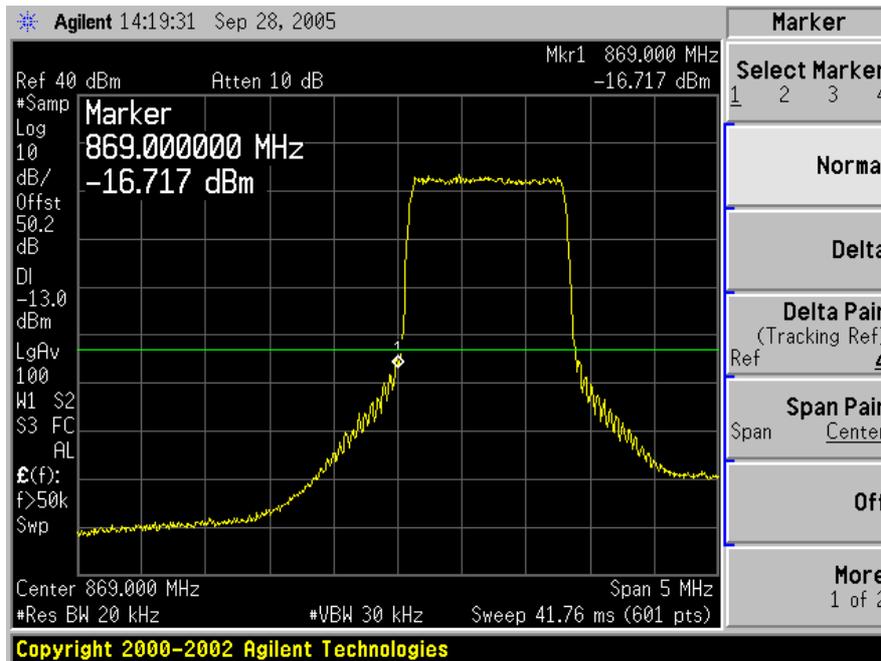
Transceiver and Receiver Module *DPA*

Frequency MHz	Emission dBm	Limit dBm
869.00	-16.398	-13.00
880.00	-16.571	-13.00



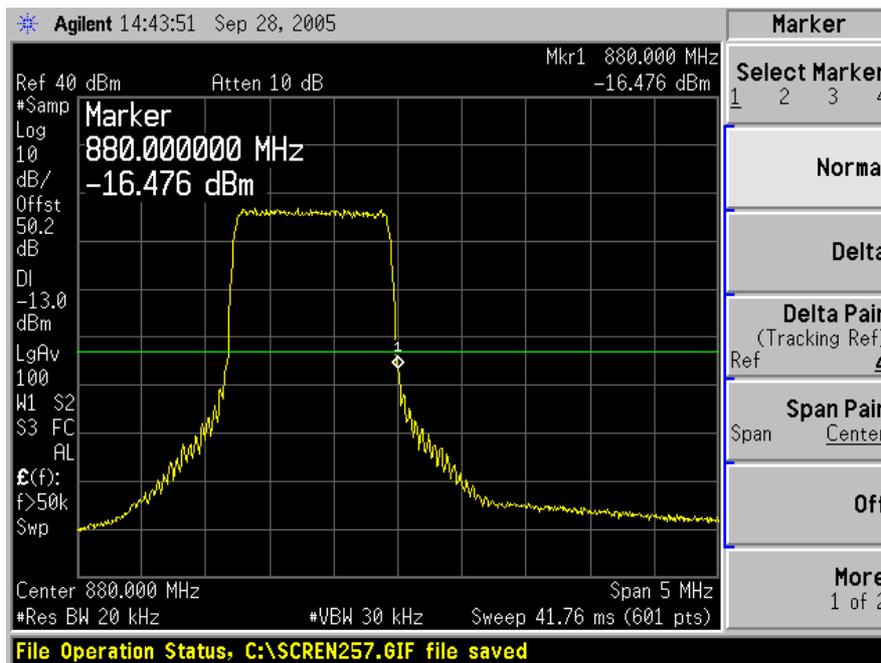
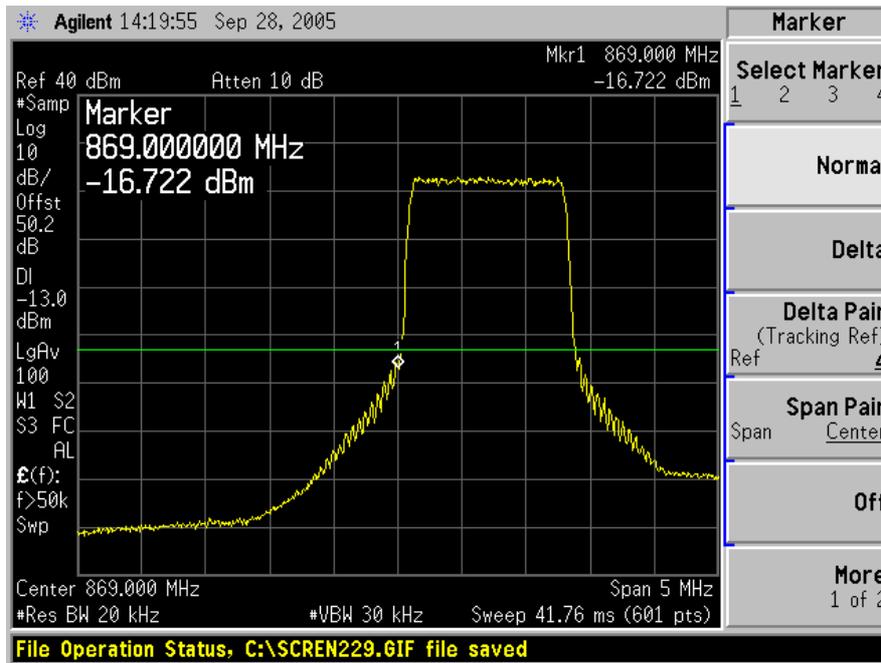
Transceiver and Receiver Module *LPA1+RFE*

Frequency MHz	Emission dBm	Limit dBm
869.00	-16.717	-13.00
880.00	-17.647	-13.00



Transceiver and Receiver Module *LPA2+RFE*

Frequency MHz	Emission dBm	Limit dBm
869.00	-16.722	-13.00
880.00	-16.476	-13.00



## **§2.1055 (a), §2.1055 (d), §22.355 - FREQUENCY STABILITY**

### **Applicable Standard**

Requirements: FCC § 2.1055 (a), § 2.1055 (d) & following:

According to §22.355, the carrier frequency of each transmitter in the Public Mobile Services must be maintained within the tolerances given in Table C-1 of this section.

Table C-1\_Frequency Tolerance for Transmitters in the Public Mobile Services

Frequency range (MHz)	Mobile Base, fixed		Mobile
	[SU][le]/ (ppm)	[SU][le]/ (ppm)	SU]3 watts [le]3 watts (ppm)
25 to 50.....	20.0	20.0	50.0
50 to 450.....	5.0	5.0	50.0
450 to 512.....	2.5	5.0	5.0
821 to 896.....	1.5	2.5	2.5
928 to 929.....	5.0	n/a	n/a
929 to 960.....	1.5	n/a	n/a
2110 to 2220.....	10.0	n/a	n/a

### **Test Equipment List and Details**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	PSA Spectrum Analyzer	E4445A	MY44300451	2005-6-3	2006-6-3
GZ-ESPEC	Temperature Chamber	GRW-120	00020268	2005-3-8	2006-3-8
Chroma	DC Power	6230K-80	N/A	2005-8-11	2006-8-11

\* **Statement of Traceability:** Bay Area Compliance Lab Corp. (ShenZhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

### **Test Procedure**

Frequency Stability vs. Temperature: The equipment under test was connected to an external DC power supply and the RF output was connected to a f Spectrum Analyzer via feed-through attenuators. The EUT was placed inside the temperature chamber. The DC leads and RF output cable exited the chamber through an opening made for the purpose.

After the temperature stabilized for approximately 20 minutes, the frequency output was recorded from the Spectrum Analyzer.

Frequency Stability vs. Voltage: An external variable DC power supply Source. The voltage was set to 115% of the nominal value and was then decreased until the transmitter light no longer illuminated; i.e., the end point. The output frequency was recorded for each voltage.

**Test Data****Environmental Conditions**

Temperature:	20° C
Relative Humidity:	49%
ATM Pressure:	1009 mbar

The testing was performed by Sam Lin on 2005-9-30.

Test Result: Pass

Test Mode: Transmitting

Digital Pre-Distortion Transceiver and Receiver Module DPA

Frequency Stability vs. Temperature				
Temperature °C	Power Supplied Vdc	Frequency Measure Error Hz	Error ppm	Limit 1.5ppm
CH1013 f=869.70MHz				
-5	-48	-3.63	0.004174	1.5
5	-48	3.57	0.0041049	1.5
15	-48	3.10	0.0035644	1.5
25	-48	4.33	0.0049787	1.5
35	-48	-3.22	0.003702	1.5
45	-48	-1.76	0.002024	1.5
CH119 f=873.57MHz				
-5	-48	-2.87	0.003285	1.5
5	-48	-3.82	0.004373	1.5
15	-48	3.57	0.0040867	1.5
25	-48	-3.61	0.004132	1.5
35	-48	1.10	0.0012592	1.5
45	-48	-1.04	0.001191	1.5
CH312 f=879.36MHz				
-5	-48	3.68	0.0041849	1.5
5	-48	-3.39	0.003855	1.5
15	-48	-3.67	0.004173	1.5
25	-48	3.44	0.0039119	1.5
35	-48	-1.67	0.001899	1.5
45	-48	-1.69	0.001922	1.5

Frequency Stability vs. Voltage				
Voltage Vdc	Temperature °C	Frequency Measure Error Hz	Error ppm	Limit 1.5ppm
CH1013 f=869.70MHz				
-42	20	-2.62	0.003013	1.5
-46	20	-1.14	0.001311	1.5
-48	20	1.61	0.0018512	1.5
-50	20	-3.89	0.004473	1.5
-54	20	-2.55	0.002932	1.5
-58	20	-1.72	0.001978	1.5
CH119 f=873.57MHz				
-42	20	1.44	0.0016484	1.5
-46	20	-0.99	0.001133	1.5
-48	20	2.63	0.0030106	1.5
-50	20	-3.07	0.003514	1.5
-54	20	2.03	0.0023238	1.5
-58	20	-2.09	0.002392	1.5
CH312 f=879.36MHz				
-42	20	3.25	0.0036959	1.5
-46	20	4.30	0.0048899	1.5
-48	20	1.46	0.0016603	1.5
-50	20	-0.65	0.000739	1.5
-54	20	-1.99	0.002263	1.5
-58	20	-2.42	0.002752	1.5

Transceiver and Receiver Module *DPA*

Frequency Stability vs. Temperature				
Temperature °C	Power Supplied Vdc	Frequency Measure Error Hz	Error ppm	Limit 1.5ppm
CH1013 f=869.70MHz				
-5	-48	-4.25	0.004887	1.5
5	-48	3.67	0.0042198	1.5
15	-48	-3.29	0.003783	1.5
25	-48	-3.40	0.003909	1.5
35	-48	-2.33	0.002679	1.5
45	-48	1.98	0.0022766	1.5
CH119 f=873.57MHz				
-5	-48	3.12	0.0035716	1.5
5	-48	-4.42	0.00506	1.5
15	-48	-3.73	0.00427	1.5
25	-48	3.29	0.0037662	1.5
35	-48	-3.64	0.004167	1.5
45	-48	2.41	0.0027588	1.5
CH312 f=879.36MHz				
-5	-48	2.23	0.0025359	1.5
5	-48	-3.97	0.004515	1.5
15	-48	3.63	0.004128	1.5
25	-48	3.56	0.0040484	1.5
35	-48	-1.54	0.001751	1.5
45	-48	2.27	0.0025814	1.5

Frequency Stability vs. Voltage				
Voltage Vdc	Temperature °C	Frequency Measure Error Hz	Error ppm	Limit 1.5ppm
CH1013 f=869.7MHz				
-42	20	4.68	0.0053812	1.5
-46	20	3.74	0.0043003	1.5
-48	20	-3.18	0.003656	1.5
-50	20	-3.52	0.004047	1.5
-54	20	-2.56	0.002944	1.5
-58	20	3.55	0.0040819	1.5
CH119 f=873.57MHz				
-42	20	-2.15	0.002461	1.5
-46	20	2.06	0.0023581	1.5
-48	20	-3.18	0.00364	1.5
-50	20	-1.52	0.00174	1.5
-54	20	-7.43	0.008505	1.5
-58	20	-4.69	0.005369	1.5
CH312 f=879.36MHz				
-42	20	-4.07	0.004628	1.5
-46	20	-4.72	0.005368	1.5
-48	20	4.80	0.0054585	1.5
-50	20	4.10	0.0046625	1.5
-54	20	5.43	0.0061749	1.5
-58	20	3.04	0.0034571	1.5

Transceiver and Receiver Module *LPA1+RFE*

Frequency Stability vs. Temperature				
Temperature °C	Power Supplied Vdc	Frequency Measure Error Hz	Error ppm	Limit 1.5ppm
CH1013 f=869.70MHz				
-5	-48	-3.44	0.003955	1.5
5	-48	-4.00	0.004599	1.5
15	-48	-3.08	0.003541	1.5
25	-48	-3.00	0.003449	1.5
35	-48	3.57	0.0041049	1.5
45	-48	-3.86	0.004438	1.5
CH119 f=873.57MHz				
-5	-48	-3.12	0.003572	1.5
5	-48	-3.32	0.0038	1.5
15	-48	3.18	0.0036402	1.5
25	-48	-2.97	0.0034	1.5
35	-48	-2.41	0.002759	1.5
45	-48	-3.07	0.003514	1.5
CH312 f=879.36MHz				
-5	-48	-4.22	0.004799	1.5
5	-48	3.83	0.0043554	1.5
15	-48	-3.54	0.004026	1.5
25	-48	-2.19	0.00249	1.5
35	-48	-3.72	0.00423	1.5
45	-48	2.28	0.0025928	1.5

Frequency Stability vs. Voltage				
Voltage Vdc	Temperature °C	Frequency Measure Error Hz	Error ppm	Limit 1.5ppm
CH1013 f=869.70MHz				
-42	20	-6.14	0.00706	1.5
-46	20	5.86	0.006738	1.5
-48	20	-5.78	0.006646	1.5
-50	20	-3.62	0.004162	1.5
-54	20	-6.62	0.007612	1.5
-58	20	-4.63	0.005324	1.5
CH119 f=876.57MHz				
-42	20	-2.57	0.002942	1.5
-46	20	-2.36	0.002702	1.5
-48	20	-3.35	0.003835	1.5
-50	20	-2.58	0.002953	1.5
-54	20	-3.65	0.004178	1.5
-58	20	4.95	0.0056664	1.5
CH312 f=879.36MHz				
-42	20	-6.66	0.007574	1.5
-46	20	-2.79	0.003173	1.5
-48	20	-3.23	0.003673	1.5
-50	20	-3.25	0.003696	1.5
-54	20	-3.03	0.003446	1.5
-58	20	-2.71	0.003082	1.5

Transceiver and Receiver Module *LPA2+RFE*

Frequency Stability vs. Temperature				
Temperature °C	Power Supplied Vdc	Frequency Measure Error Hz	Error ppm	Limit 1.5ppm
CH1013 f=869.70MHz				
-5	-48	3.69	0.0042428	1.5
5	-48	-3.80	0.004369	1.5
15	-48	-4.46	0.005128	1.5
25	-48	-3.80	0.004369	1.5
35	-48	-2.43	0.002794	1.5
45	-48	-2.57	0.002955	1.5
CH119 f=873.57MHz				
-5	-48	3.73	0.0042698	1.5
5	-48	2.03	0.0023238	1.5
15	-48	3.77	0.0043156	1.5
25	-48	-2.22	0.002541	1.5
35	-48	-2.00	0.002289	1.5
45	-48	-2.89	0.003308	1.5
CH312 f=879.36MHz				
-5	-48	-5.60	0.006368	1.5
5	-48	-3.34	0.003798	1.5
15	-48	-3.19	0.003628	1.5
25	-48	-2.66	0.003025	1.5
35	-48	-3.48	0.003957	1.5
45	-48	2.39	0.0027179	1.5

Frequency Stability vs. Voltage				
Voltage Vdc	Temperature °C	Frequency Measure Error Hz	Error ppm	Limit 1.5ppm
CH1013 f=869.70MHz				
-42	20	-4.48	0.005151	1.5
-46	20	-3.10	0.003564	1.5
-48	20	-2.90	0.003334	1.5
-50	20	-4.79	0.005508	1.5
-54	20	4.02	0.0046223	1.5
-58	20	-2.30	0.002645	1.5
CH119 f=876.57MHz				
-42	20	-3.10	0.003549	1.5
-46	20	-5.17	0.005918	1.5
-48	20	-3.21	0.003675	1.5
-50	20	-1.21	0.001385	1.5
-54	20	-4.95	0.005666	1.5
-58	20	-2.69	0.003079	1.5
CH312 f=879.36MHz				
-42	20	-2.93	0.003332	1.5
-46	20	-2.37	0.002695	1.5
-48	20	4.06	0.004617	1.5
-50	20	2.07	0.002354	1.5
-54	20	-2.29	0.002604	1.5
-58	20	-2.19	0.002490	1.5