MEASUREMENT AND TECHNICAL REPORT

SIEMENS INFORMATION AND COMMUNICATION MOBILE LLC
16745 West Bernardo Drive, Suite 400
San Diego, CA

DATE: 02 November 2001

This Report Concerns:	Original Grant: X	Class II Change:
Equipment Type:	Siemens S46 (TDMA 800 and TDMA 1900), S/N Ref-c-IMEI:00499951094796	
Deferred grant requested per 47 CFR 0.457(d)(1)(ii)?	Yes: **Defer until:**	No: X
Company Name **agrees to notify the Commission by: of the intended date of announcement of the product so that the grant can be issued on that date.**	N/A	
Transition Rules Request per 15.37?	Yes:	*No: X

(*) FCC Part 2, Paragraphs 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055; Part 22, Paragraphs 22.913; 22.917(b)(2); and Part 24, Paragraphs 24.232(b); 24.238(a) and (b)

Report Prepared by:

TÜV PRODUCT SERVICE
10040 Mesa Rim Road
San Diego, CA 92121-2912
Phone: 858 546 3999
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TÜV PRODUCT SERVICE 10040 Mesa Rim Road San Diego, CA 92121-2912 Phone 858 546 3999 FAX 858 546 0364

1 GENERAL INFORMATION

1.1 Product Description

SIEMENS S46

EUT Interface Ports and Cables

Interface				Shielding								
Type	Analog	Digital	Qty	Yes	No	Type	Termination	Connector Type	Port Termination	Length (In meters)	Removable	Permanent
Headset with ear piece & microphone	X	☐	1	☐	X	Jcond.	N/A	12-pin non-metalic I/O connector	Micro cable 2.2 K ohm; speaker 32 ohm ±15%	1	X	☐

EUT Operating Modes to be Tested -

GSM 1900; TDMA 800 TDMA 1900

EUT System Components -

Headset, Siemens, Part # S30880-S3025-A113-1 (see following data) Internal name of headset is UHF-P35.

Oscillator Frequencies: See following pages

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1 GENERAL INFORMATION (continued)

1.2 Related Submittal/Grant

None

1.3 Tested System Details

The FCC IDs for all equipment, plus descriptions of all cables used in the tested system are:

None

1.4 Test Methodology

Purpose of Test: To demonstrate compliance with the ANSI C63.4 setup.

TEST	FCC CFR 47 #	PASS/FAIL
Output Power	Part 2, Para 2.1046; Part 24, Para 24.232(b); Part 22, Para 22.913	Pass
Modulation	Part 2, Para 2.1047	N/A
Occupied Bandwidth	Part 2, Para 2.1049	Pass
Conducted Spurious	Part 2, Para 2.1051; Part 22, Para 22.917(b)(2)	Pass
Emission Limits (GSM 1900)	Part 24, Para 238(b)	Pass
Frequency Stability	Part 2, Para. 2.1055	Pass
Field Strength of Spurious Radiation	Part 2, Para 2.1053; Part 22, Para. 22.917(b)(2); Part 24, Para. 24.238(a)	Pass

Both Conducted and radiated testing were performed according to the procedures in FCC/ANSI C63.4 and CSA 108.8 - M1983. Radiated testing was performed at an antenna-to-EUT distance of 3 meters (1 - 25 GHz).

1.5 Test Facility

The open area test site and conducted measurement data were tested by:

TÜV PRODUCT SERVICE
10040 Mesa Rim Road
San Diego, CA 92121-2912
Phone: 858 546 3999
Fax: 858 546 0364

The Test Site Data and performance comply with ANSI 63.4 and are registered with the FCC, 7435 Oakland Mills Rd, Columbia Maryland 21046. All Measurement Data is acquired according to the content of FCC Measurement Procedure and ANSI C63.4, unless supplemented with additional requirements as noted in the test report.

1.6 Part 2 information

1. **The full name and mailing address of the manufacturer of the device and the applicant**

Applicant: SIEMENS Information and Communication Mobile LLC
16745 West Bernardo Drive
Suite 400
San Diego, CA 92127

Manufacturer: SIEMENS AG
Südstr. 9
D-47475 Kamp-Lintfort
GERMANY

Contact Persons:

David McPerson and
Peter Nevermann (for subjects: radiated effects and SAR)

SIEMENS Information and Communication Mobile LLC
Communication Devices
16745 West Bernardo Drive Suite 400
San Diego, CA 92127-1903
david.mcpherson@icm.siemens.com
David McPherson Tel.: (858) 521 3387
RF Test Engineer Fax.: (858) 521 3108

Question to Radiated Effects and SAR:

SIEMENS Information and Communication Mobile LLC
Communication Devices
16745 West Bernardo Drive Suite 400
San Diego, CA 92127-1903
peter.nevermann@icm.siemens.com
Dr. Peter Nevermann Tel.: (858) 521 3282
RF Manager EMC+Antenna Fax.: (858) 521 3105

2. **FCC Identifier**

FCC ID: PWX-S46

3. **Equipment Specifications**

The S46 is four-mode phone able to operate in TDMA 800, TDMA 1900, GSM 1900 and EGSM mode. The EGSM mode is not supported in U.S.A and so the phone will not operate in this mode outside EGSM coverage.

(5)

Frequency Range in MHz	Frequency Tolerance	Emission Designator
824.04 – 848.97	< 200 Hz	TDMA (IS-136): 30K0DXW
1850.04 – 1909.98	< 200 Hz	TDMA (IS-136): 30K0DXW
1850.2 –1909.8	< 0.1 ppm	GSM/PCS: 323KGXW

4. Types of Emission

See emission designators in table in item #3.

TDMA/IS-136: Pulsed, duty cycle 1:3, 20 ms / 6.7 ms, $\pi/4$ DQPSK non-constant envelope modulation,

GSM/PCS: Pulsed, duty cycle 1:8, 4.6 ms / 0.58 ms, GMSK modulation, BT=0.3

5. Frequency Range

Transmit: 1850-1910 and 824-849 MHz.
Receive: 1930-1990 and 869-894 MHz

Additionally the equipment is able to operate outside the U.S.A. in EGSM mode:
Transmit: 880-915 MHz and receive: 925-960 MHz.

6. Operating power levels

The actual setting of the output power is controlled by the base station the mobile phone is registered to. The device will respond to command from the base station and transmit only if required at the highest power levels stated in appropriate exhibits. The steps for power adjustments are described in the appropriate standards:

The steps and the range of the TDMA output power levels are according to TIA/EIA-136-270 section 3.2.1 and 3.2.2 respectively. It ranges from 28 dBm to -4 dBm.

The steps and the range of the GSM output power levels are according to GSM specification 45.005 section 4.11. It ranges from 30 dBm to 0 dBm and can be changed in 2 dB steps.

(6)

7. Maximum power rating

The output power conducted given in the table below is the power measured at a phone, which has the intended target power settings to be used for all phones later on in mass production. A fourth mode, EGSM class 4: 33 dBm at connector, is not usable in U.S.A.

Mode and Class	Maximum Peak Power Radiated
TDMA 800, class IV	28.1 dBm ERP
TDMA 1900, class IV	32.1 dBm EIRP
GSM 1900, class 1	32.8 dBm EIRP

8. DC voltages applied to and dc currents into several elements of the final frequency amplifying device for normal operation over the power range

The DC voltage supplied to the final radio frequency amplifying device for normal operation may ranges between: 3.2 – 4.8V. To ensure proper functionality and meet specifications such as minimum RF power requirement in GSM as well as in TDMA modes, the device is equipped with a voltage monitor and software controlling the operation. In the baseband section, IC D880, Dialog D0829BB "Schalke", monitors the supply voltage provided by the battery. If the supply voltage drops below 3.6 V during a call, but outside a transmit burst, the call will be terminated. During a TX burst, the supply voltage can drop further down to 3.2V. The maximum accepted voltage by hardware is 4.8 V, but for very short time only (typical one burst) or in test mode. At higher voltages than the maximum battery voltage the phone's software will cause the phone to be switched off too.

The equipment is powered by lithium-ion rechargeable batteries. The batteries are able to deliver an absolute maximum voltage of 4.6 V. So the applicable voltages for transmit mode supported by battery or external power supply must be in the range **3.6 – 4.6V**; otherwise the phone will switch off. The operational voltage is **3.8 V**.

See attachment for more detail.

Suppression of spurious radiation

The equipment has 5 separate shielded cans covering all sensitive and possibly radiating elements. As shown in the RF block diagram and the schematic there are additional low pass filters in the Tx path. Furthermore a number of blocking capacitors are placed on several lines, especially on those running outside the shielding, in order to reduce any unwanted radiation (see schematic).

Limiting modulation

A detailed description of how TDMA and GSM modulations are controlled can be found in a special attachment. The limitation of the modulation to the appropriate properties is secured by RF design. At least in practice every violation of the modulation quality beyond a certain accepted threshold by the base station will cause the end of the transmission.

(7)

Limiting power

TDMA power control

The RF output power is controlled from the base band by adjusting the gain of the Tx chain. The power amplifier output power is measured with a detector circuit (schematic, page 6, diodes V611, V612 and OP N9). This information is fed back to the baseband (A/D converter within D1001) for power adjustment. Each phone is calibrated in the factory individually. For more description see separate attachment.

GSM power control

The RF output power of the power amplifiers is measured with a detector circuit (schematic, page 8, diode V974 and D451) including directional couplers (page 7). An analog control loop circuit sets the power to the wanted levels by changing the gain of the power amplifiers. The information for the analog control loop is provided by the GSM base band (schematic, page 8, D800). Each phone is calibrated in the factory individually.

9. Modulation System, response characteristic and modulating wavetrain

In all modes the phone is designed to meet the appropriate digital standards ("TDMA": IS-136 and GSM).

See separate attachment: "Detailed Technical Description of SIEMENS S46 RF Part".

10. Equipment is not an AM broadcast stereophonic exciter-generator intended for interfacing with existing certified, or formerly type-accepted or notified transmitters.

(8)

IMEI / ESN Number

The IMEI (Mobile Equipment Identity) as well as the ESN (Electronic Serial Number) are unique identification numbers to each phone, which can be transmitted to the base station.

The IMEI number is used if the phone operates in GSM mode and ESN if in the TDMA (IS-136) mode.

During the manufacturing process in the factory, the assigned IMEI and ESN numbers gets stored in the flash memory of each individual phone. To prevent any types of fraudulent use or cloning, the data is stored in an encrypted way and it is also linked to the flash serial number of the flash it is stored in, as defined by the utilized encryption process.

The phone specific data, which is the IMEI, ESN and flash serial number, is send via a network connection to a secure server inside the factory. This server holds the algorithm for the encryption process, which creates out of the received data the desired encrypted data stream.

This encrypted data stream is send back to the manufacturing line and is stored in a defined way into several flash memory locations, by using a specific write function from a device driver DLL, in order to enhance the security level. The way how the data is spread is only known to a limited set of persons, which are basically responsible for the creation of the encryption mechanism, itself.

Any attempt to change the IMEI or ESN will render portable phone inoperative.

The phone complies with all requirements for ESN under Part 22.919.

Emergency call capability

The S46 is able to originate an emergency call in the idle state as long as it is connected to a network. The emergency call can be place by the short cut method (press and hold of the red "9" key then the select YES soft key) or by simply dialing 911 then the "Call" button key.

Battery-end-Point

The battery-end-point is confirmed to be 3.6 V. The battery-end-point is determined by software within the phone. The battery voltage is continuously monitored by software running on the processor Egold+ (D800) and by a dedicated hardware (D880). To ensure proper functionality and compliance with other requirements (e.g. IS-136 and GSM specifications) the battery voltage must not go below 3.6 V during the inactive time slots. If the voltage drops below 3.6 V, the handset will be powered off instantaneously.

See the Block Diagram exhibit and the Technical Description exhibit for more information.

2. SYSTEM TEST CONFIGURATION

2.1 Justification

The EUT was initially tested for FCC emission in the following configuration:

See Block Diagram.

2.2 EUT Exercise Software

None

2.3 Special Accessories

None

2.4 Modification

None

2.5 Configuration of Tested System

See Block Diagram.

3 OUTPUT POWER EQUIPMENT/DATA FCC Part 2, Paragraph 2.1046; Part 24, Paragraph 24.232(b) and Part 22, Paragraph 22.913

The following data lists the significant emission frequencies, measured levels, correction factor (which includes cable and antenna corrections), the corrected reading, and the limit.

See following page(s).

See test setup photos for test setup.

TDMA 800			
Frequency MHz	Conducted Output Peak Power dBm	Conducted Output AVG Power dBm	Radiated Output Peak dBm
Ch 991 824.06	28.8	25.7	27.3
Ch 383 836.49	28.9	25.8	28.1
Ch 799 848.97	29	25.9	28.1

TDMA 1900			
Frequency MHz	Conducted Output Peak Power dBm	Conducted Output AVG Power dBm	Radiated Output Peak dBm
Ch 2 1850.041	29	26.0	32.1
Ch1000 1879.98	29	26.0	31.9
Ch1998 1909.95	29	26.0	31.4

GSM 1900			
Frequency MHz	Conducted Output Peak Power dBm	Conducted Output AVG Power dBm	Radiated Output Peak dBm
Ch 512 1850.2	29.3	29.3	32.8
Ch 661 1880	29.3	29.3	32.8
Ch 512 1909.8	29	29.0	31.8

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A statement detailing maximum tuning range i.e. start and stop frequency for each mode. The FCC EAS "tech spec" state the high frequency range for the 1900 TDM mode is 1909.95 MHZ. However, occupied Bandwidth and band edge plots on test report pages 43-53 of 84 were only made at 1909.92 MHZ. Please clarify. Provide an additional plot as appropriate.

Maximum Tuning Range (see page 6 (2of 4) of test report)

824.04 – 848.97	TDMA	800
1850.04 – 1909.92	TDMA	1900
1850.2 – 1909.8	GSM	1900

The occupied bandwidth measurement was not centered for exactly 1909.95 since this was not a measurement of the center frequency, but a measurement of the bandwidth.

The RF signal used by devices IS-136 (TDMA) are modulated in amplitude. So there exist a difference between the maximum power and the average power during the burst. This difference is approximately 3 dB. In GSM mode there is almost no difference between maximum and average power within a burst due to the lack of amplitude modulation.

As stated in their report TUV measured maximum peak power, whereas in our technical report we considered average values during burst.

This is due to common practice: In IS-136 average power within the burst is considered. For measurements of radiated emission a peak power detector is used.

As you can see, in TDMA 800 the difference between 28.1 dBm and 25.1 dBm is 3.0 dB and for TDMA1900 32.1 dBm - 29.3 dBm = 2.8 dB.

11a

3.1 OUTPUT POWER EQUIPMENT/DATA (FCC Part 2, Paragraph 2.1046; Part 24, Paragraph 24.232(b) and Part 22, Paragraph 22.913

The measurements were performed at the following test location :

☐ - Test not applicable

SR-5, Shielded Room, 16' x 28' x 15', Metal, Semi-Anechoic Chamber

Test Equipment Used :

Model No.	Prop. No.	Description	Manufacturer	Serial No.	Cal Date
437B	572	Power Meter	Hewlett Packard	3125U19308	04/02
8481A	6608	Power Sensor	Hewlett Packard	1926A27528	08/02
85663	0823	Spectrum Analyzer	Hewlett Packard	2332A02751	07/02
CMU200	*	Universal Radio Comm. Tester	Rohde & Schwarz	8367251077	03/02

Remarks: Siemen's ID: 201618

For Radiated Emissions and Conducted Power Output –

The burst nature of the signal was considered by using the analyzer in peak/maximum hold to make the measurement.

For conducted power, the burst factor was entered into the power meter to provide the correction which for TDMA is approximately 3 dB.

4 MODULATION CHARACTERSITICS (FCC Part 2, Paragraph 2.1047)

The S46 uses digital modulation; therefore, these requirements do not apply.

5 CONDUCTED SPURIOUS; OCCUPIED BANDWIDTH; EMISSION LIMITS; FCC Part 2, Paragraph 2.1049; 2.1051; Part 22, Paragraph 22.917(b)(2); Part 24, Paragraph 24.238(b)

The following data lists the significant emission frequencies, measured levels, correction factor (which includes cable and antenna corrections), the corrected reading, and the limit.

See following page(s).

See test setup photos for test setup.

5.1 CONDUCTED SPURIOUS;OCCUPIED BANDWIDTH; EMISSION LIMITS; FCC Part 2, Paragraph 2.1049; 2.1051; Part 22, Paragraph 22.917(b)(2); Part 24, Paragraph 24.238(b)

The measurements were performed at the following test location :

☐ - Test not applicable

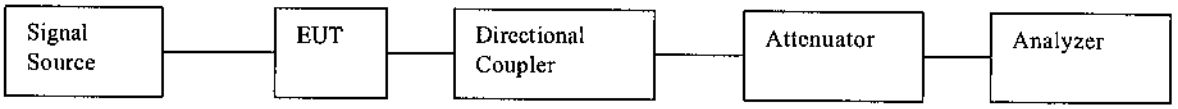
SR-5, Shielded Room, 16' x 28' x 15', Metal, Semi-Anechoic Chamber

Test Equipment Used :

Model No.	Prop. No.	Description	Manufacturer	Serial No.	Cal Date
437B	572	Power Meter	Hewlett Packard	312U19308	04/02
836640B	791	Signal Generator	Hewlett Packard	3844A00726	03/02
8566B	744	Spectrum Analyzer	Hewlett Packard	2618A02913	05/02
AA-190-06.00.0	787	Cable	United Microwave	--	*
11691D	6447	Directional Coupler	Hewlett Packard	--	*
778D	502	Directional Coupler	Hewlett Packard	1144A07633	*
47-10-34	764	Attentuator 10 dB	Weinschel	BF4000	N/A
CMU200	--	Universal Radio Comm. Tester	Rohde & Schwarz	Siemens # 201618	03/02

Remarks: (*) Verified internally.

OCCUPIED BANDWIDTH/ EMISSIONS MASK



1. The signal source provides a signal to the EUT which produced the maximum allowable output signal (for TDMA 1900 this was 29.0 dB peak, for TDMA 800 - 29 dBM and for GSM 1900 it was 29.3 dBM).
2. The signal was then measured using a spectrum analyzer with appropriate bandwidth for each signal. For TDMA a bandwidth of 300 Hz was used and for GSM a bandwidth fo 3 kHz was used.
3. If a CW signal is applied at these points, the result will be the same as the measured peak conducted output on page 11 of 84 in the report (which is attached).
4. The reason for the difference in the output levels noted is due to the smaller bandswidth of measurement.

TDMA 800		
Frequency MHz	99% Occupied BW kHz	26 dBC BW kHz
Ch 991 824.06	31.9	33.2
Ch 383 836.49	33	35.4
Ch 799 848.97	32.4	35

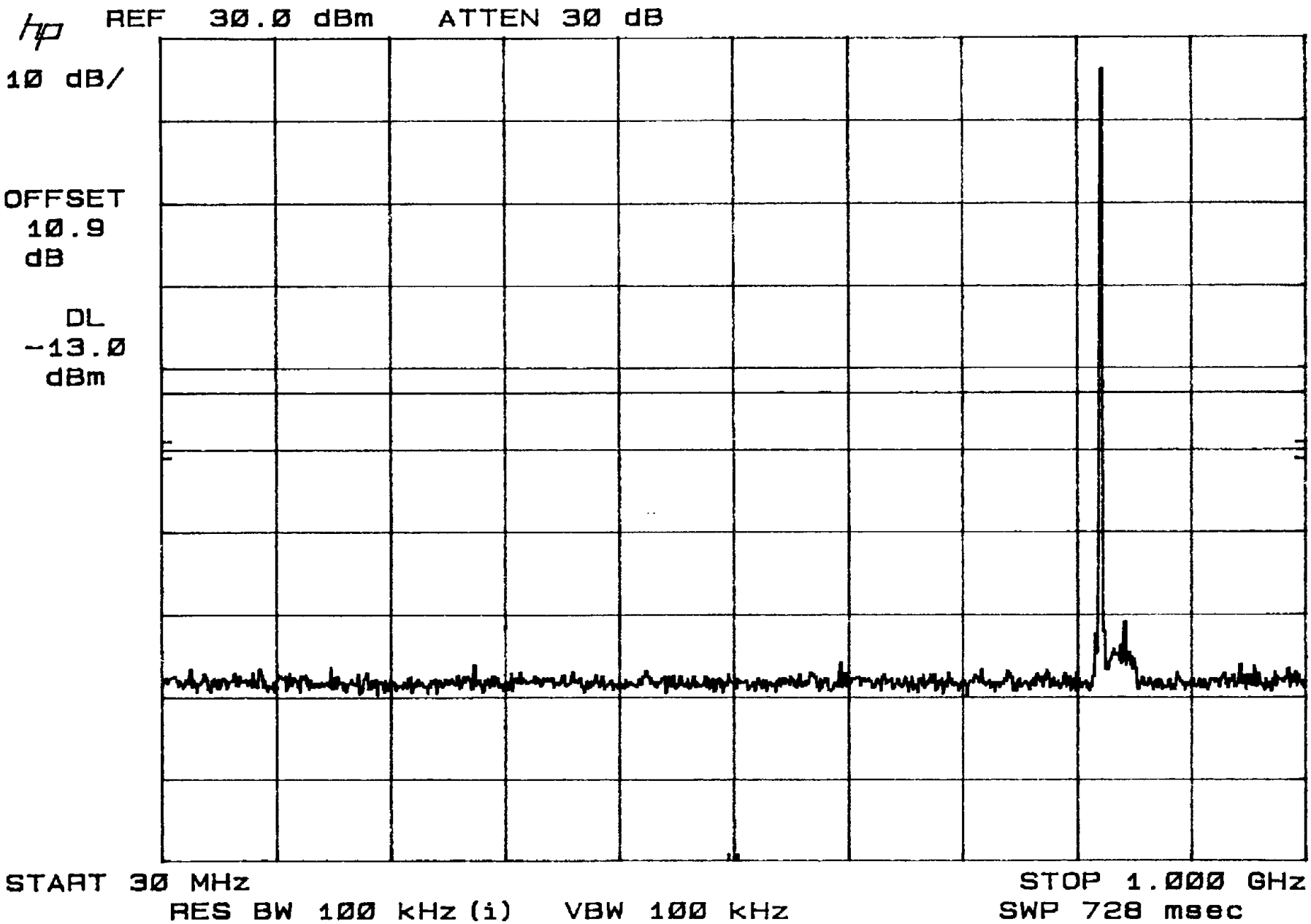
TDMA 1900		
Frequency MHz	99% Occupied BW kHz	26 dBC BW kHz
Ch 2 1850.04	34	37.8
Ch1000 1879.98	35	38.6
Ch1998 1909.96	34	35

GSM 1900		
Frequency MHz	99% Occupied BW kHz	26 dBC BW kHz
Ch 512 1850.2	305	238
Ch 661 1880	302	323
Ch 512 1909.8	298	321

CUSTOMER: SIEMENS
EUT: "S46" FCC ID:PWX S46"
TEST: Spurious Emissions At Antenna Terminals 2.1051 (TDMA 800 Low band)

Report No.: SC107139

OCT. 23, 2001
TECH/ENGR.



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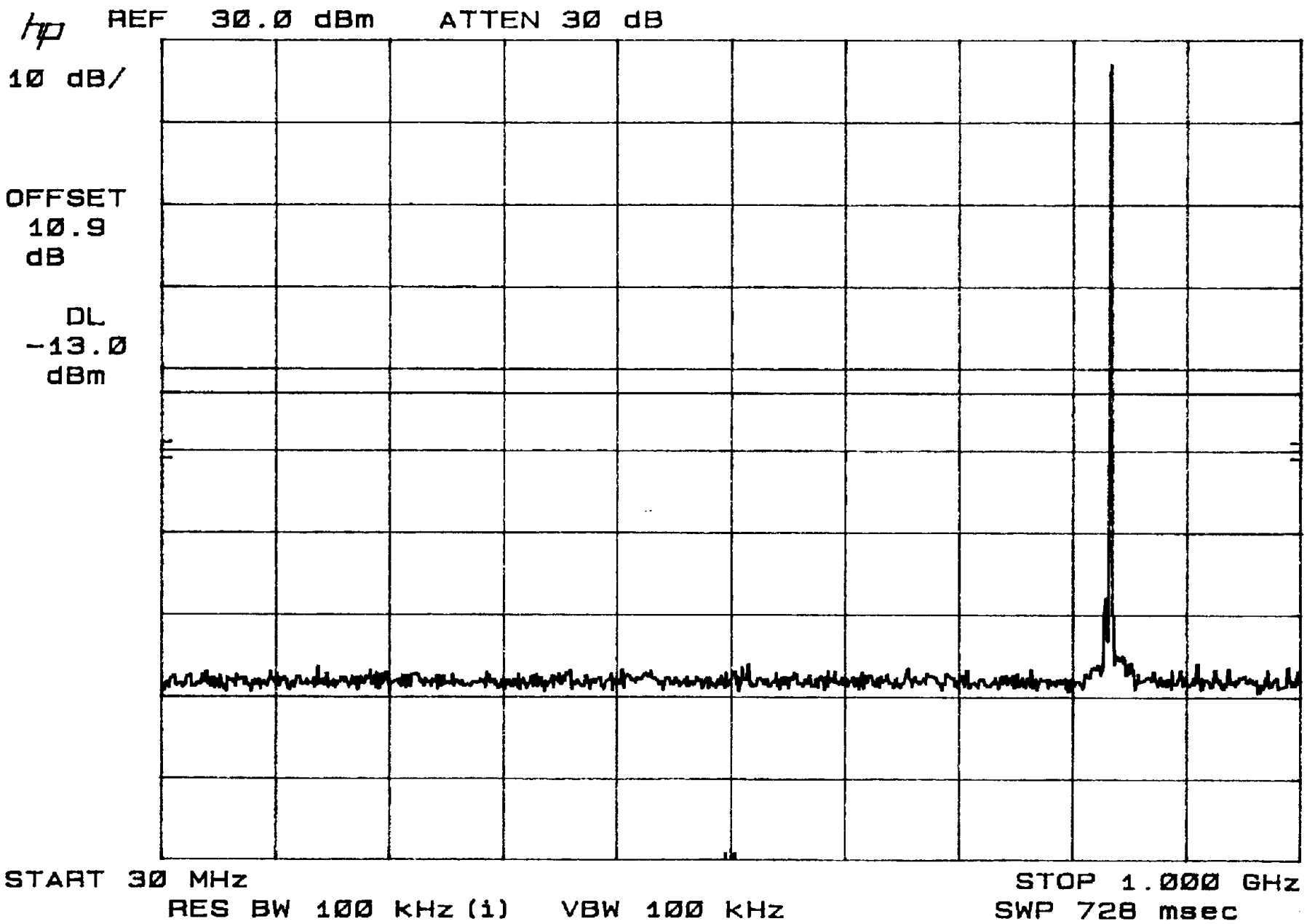

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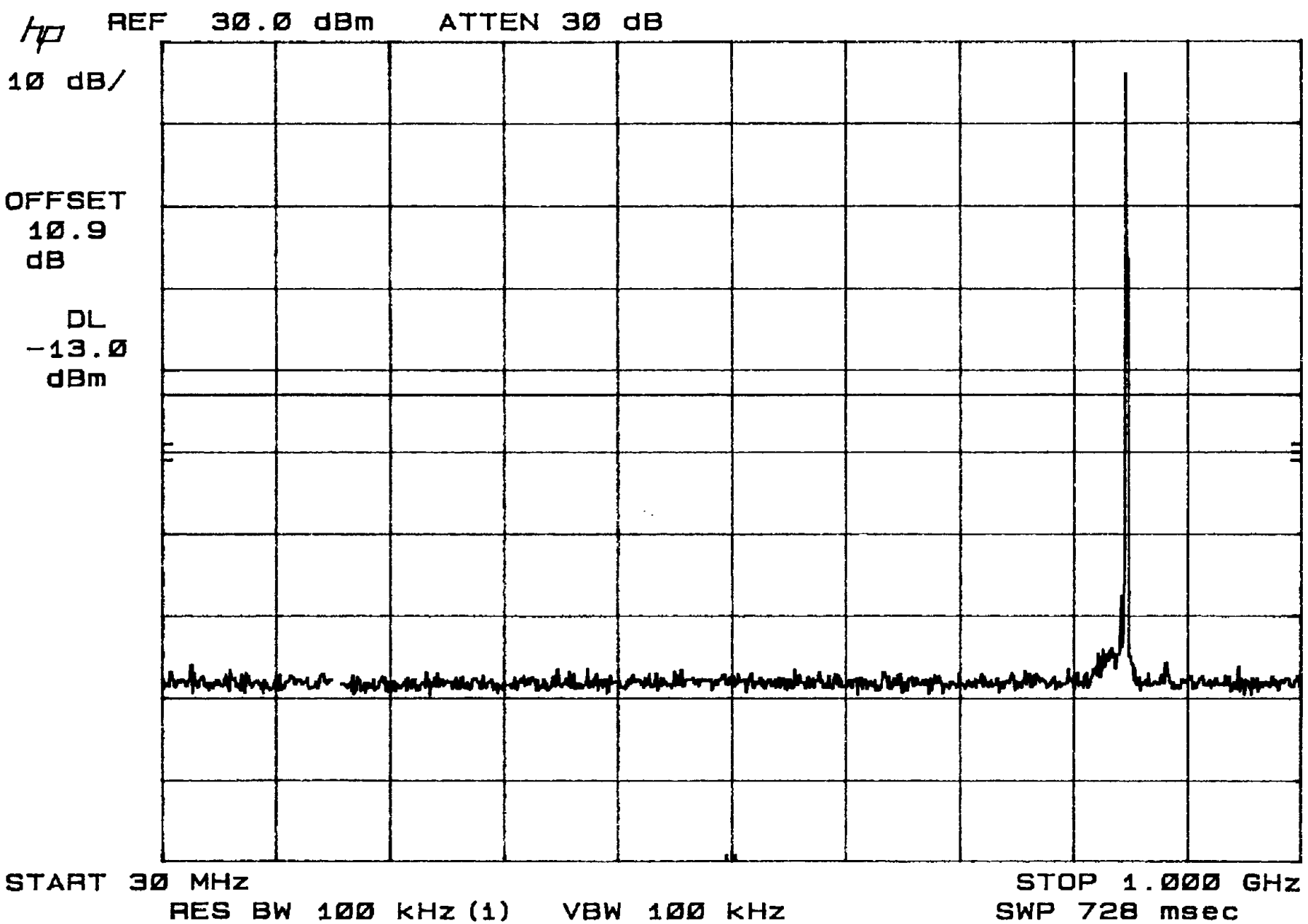

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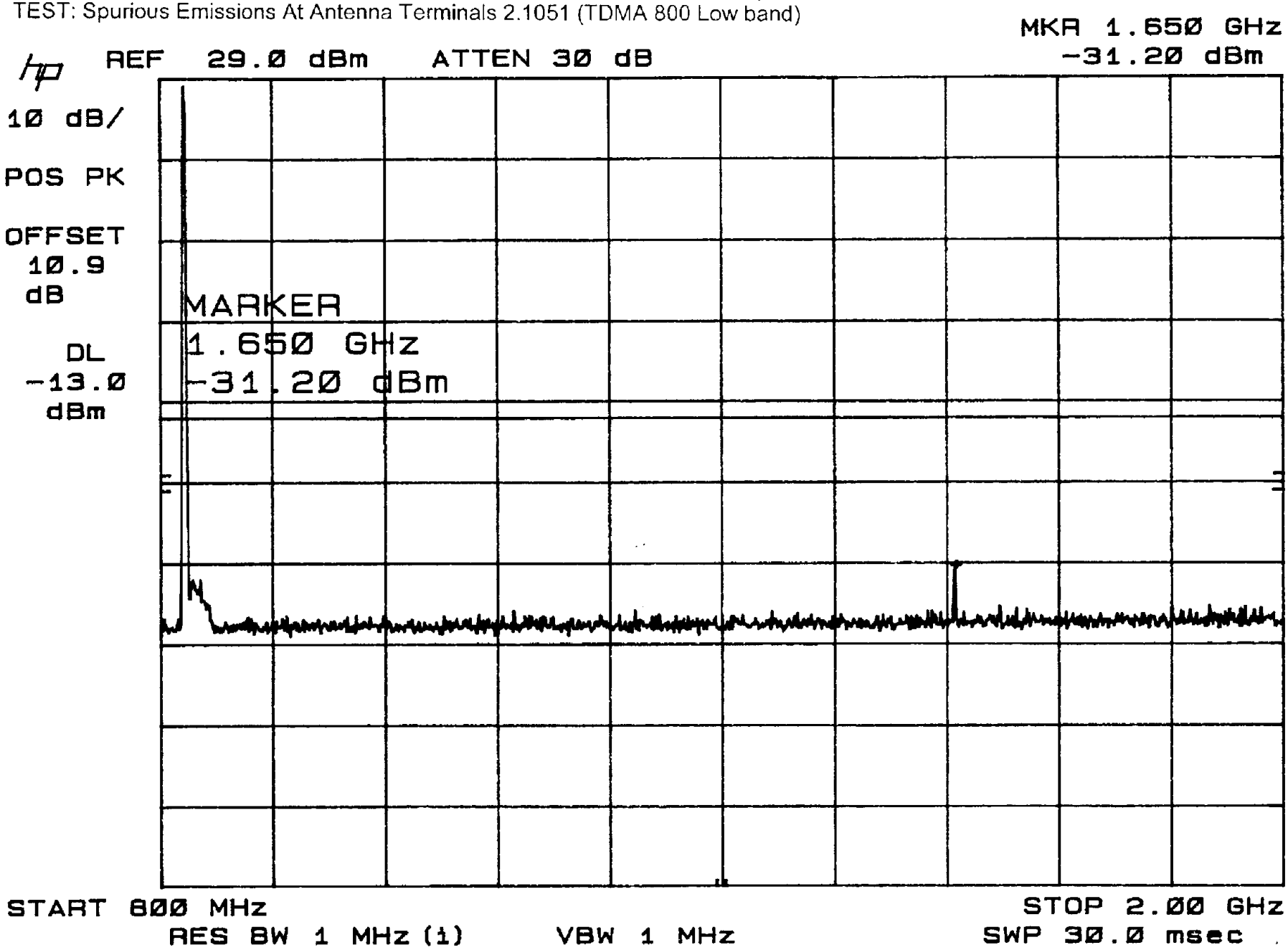

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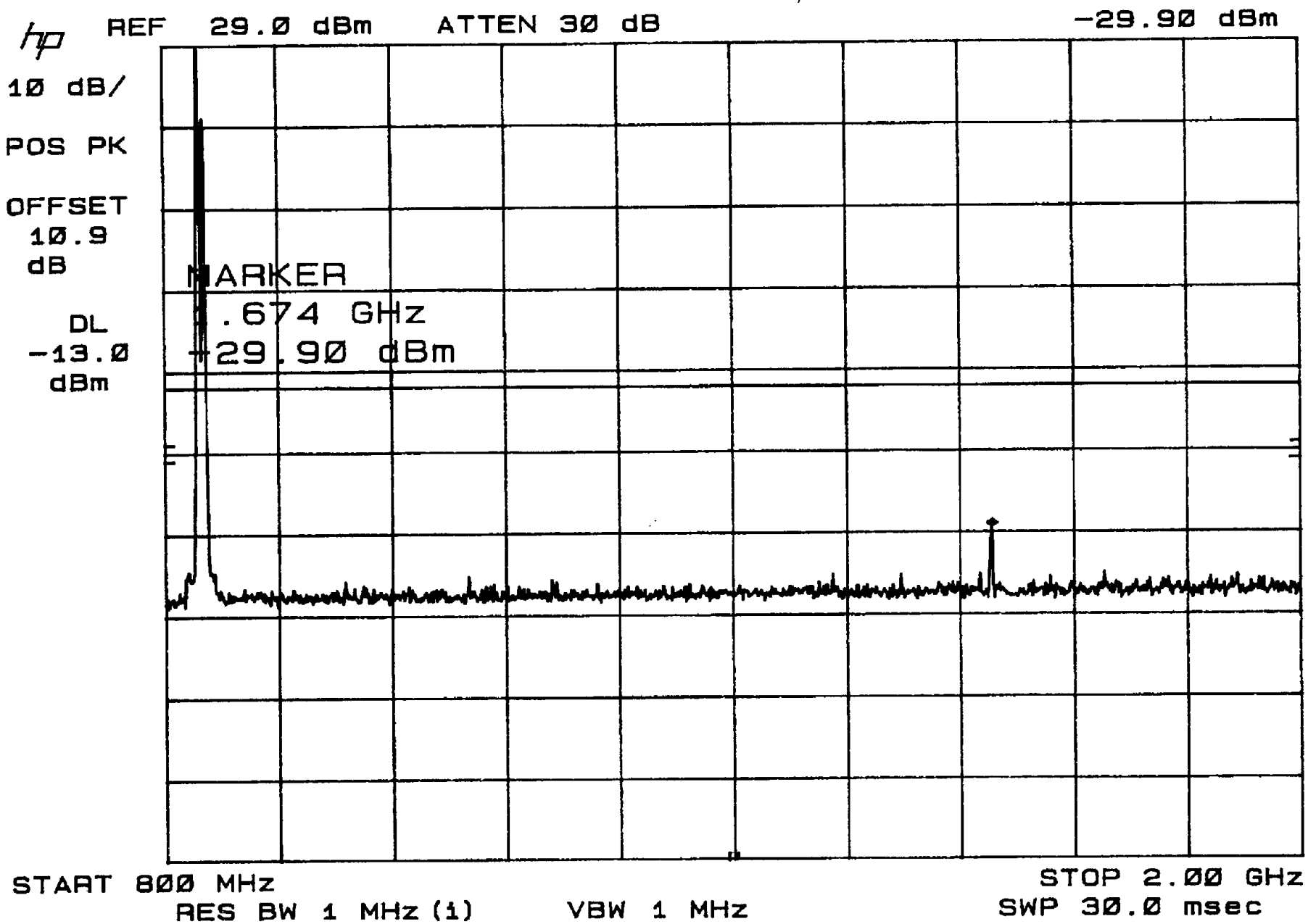

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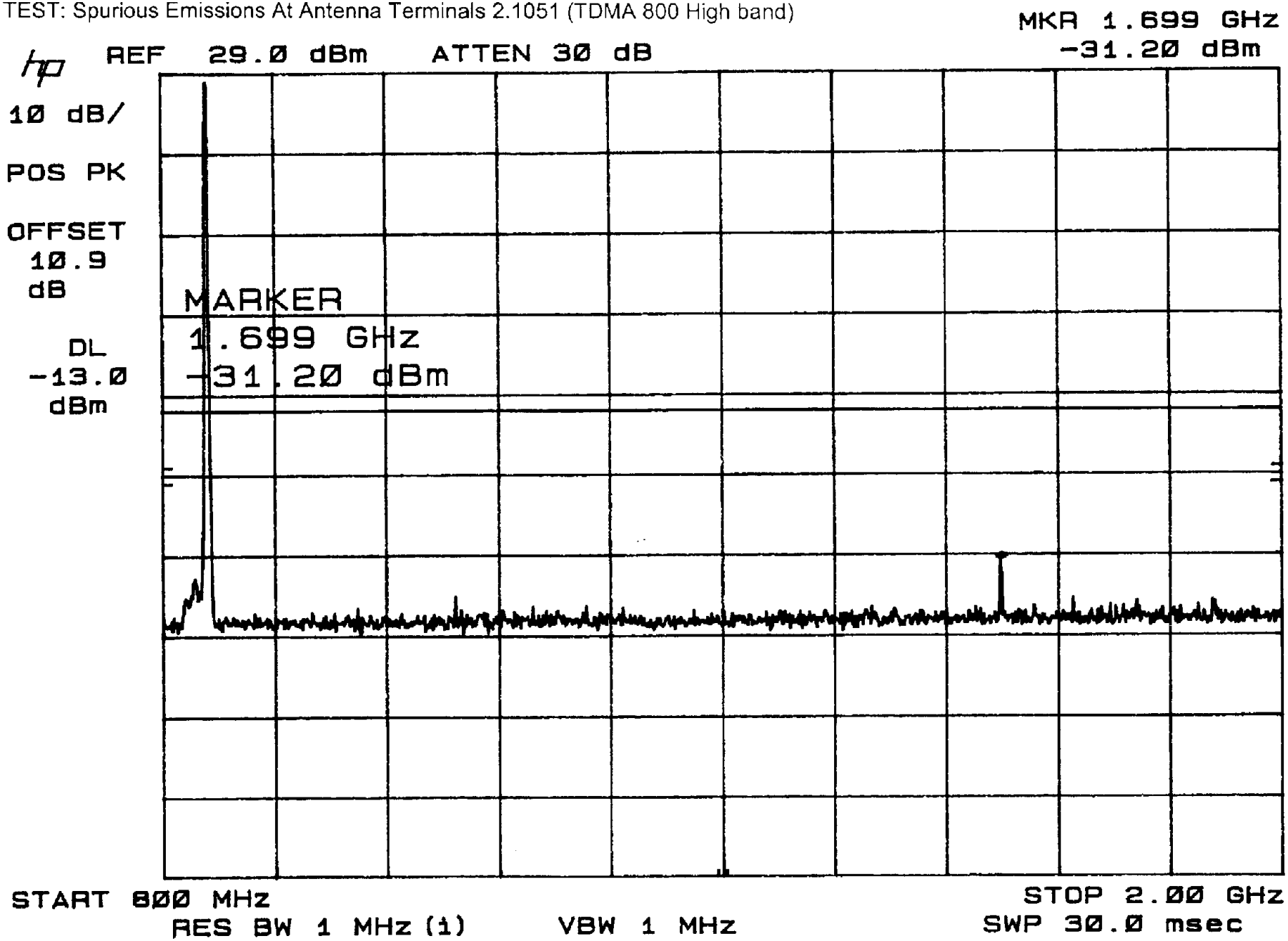

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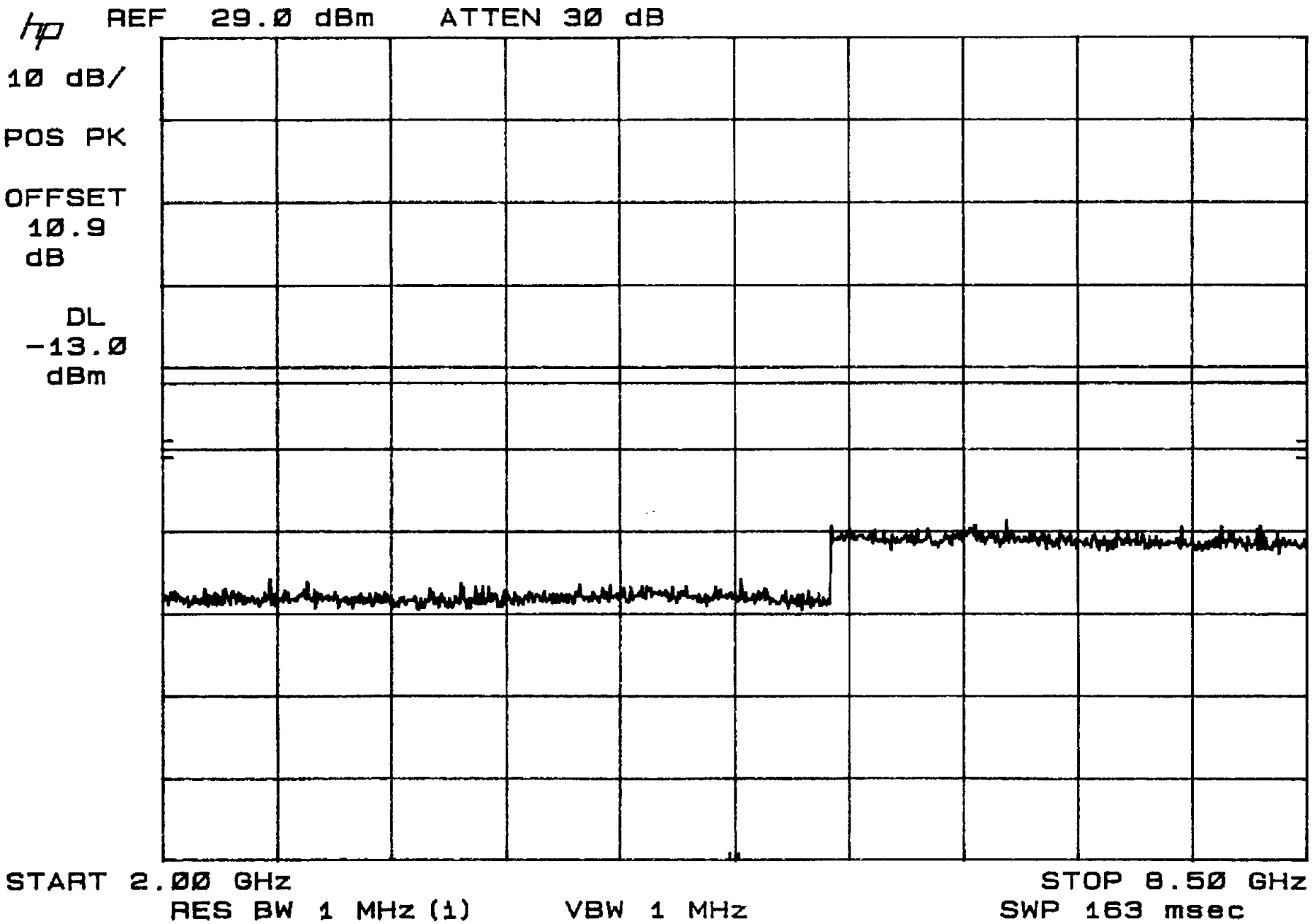

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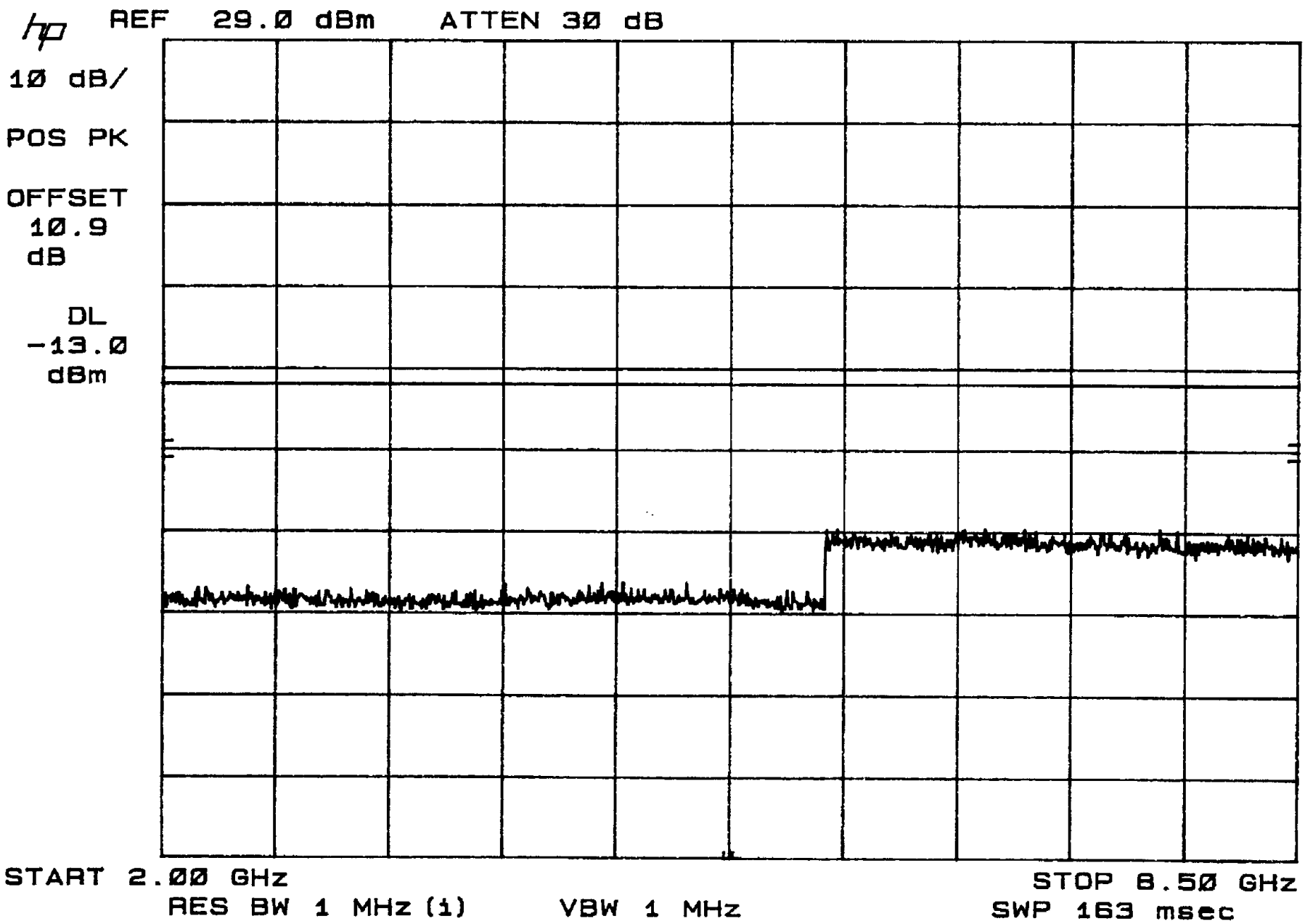

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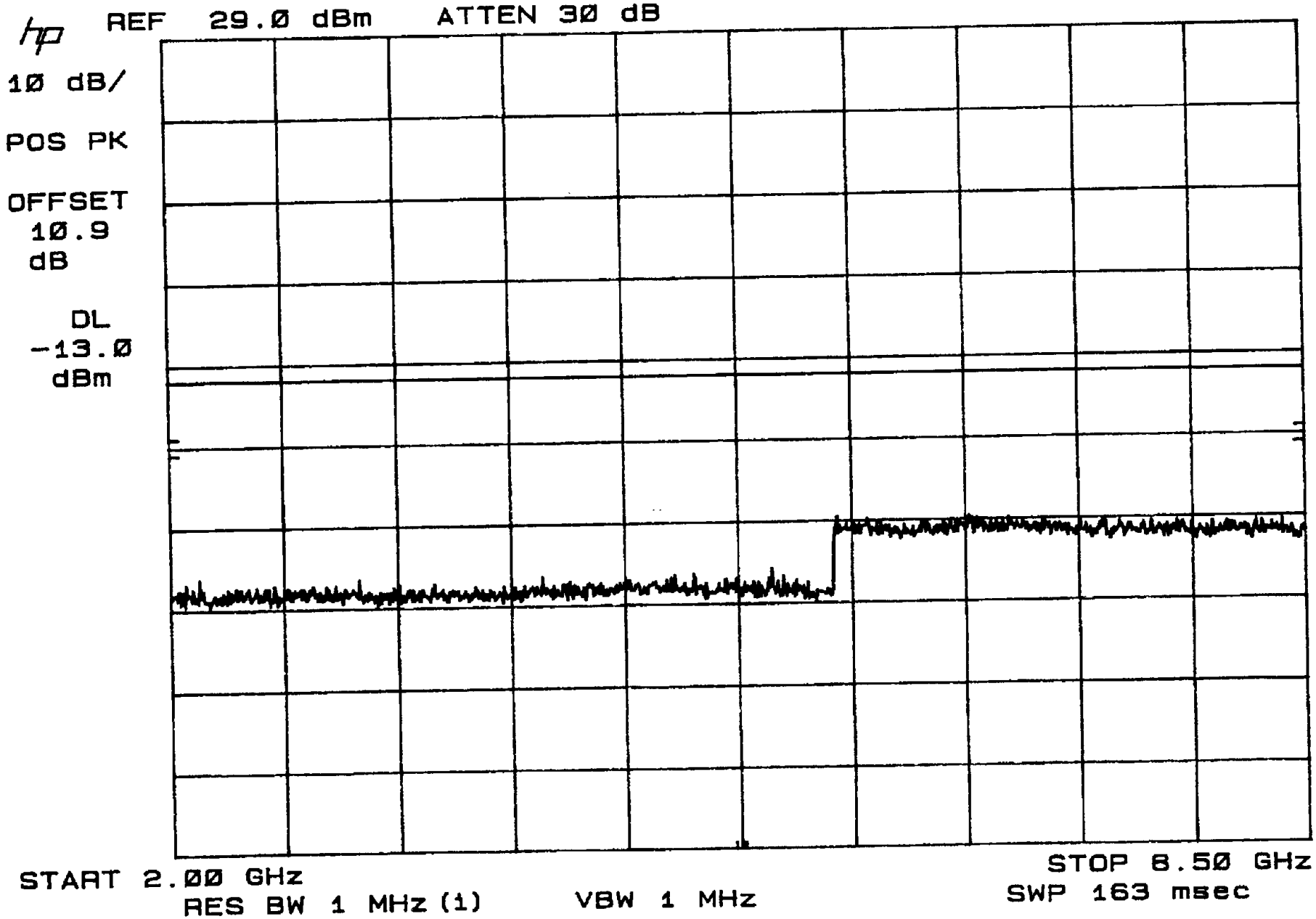

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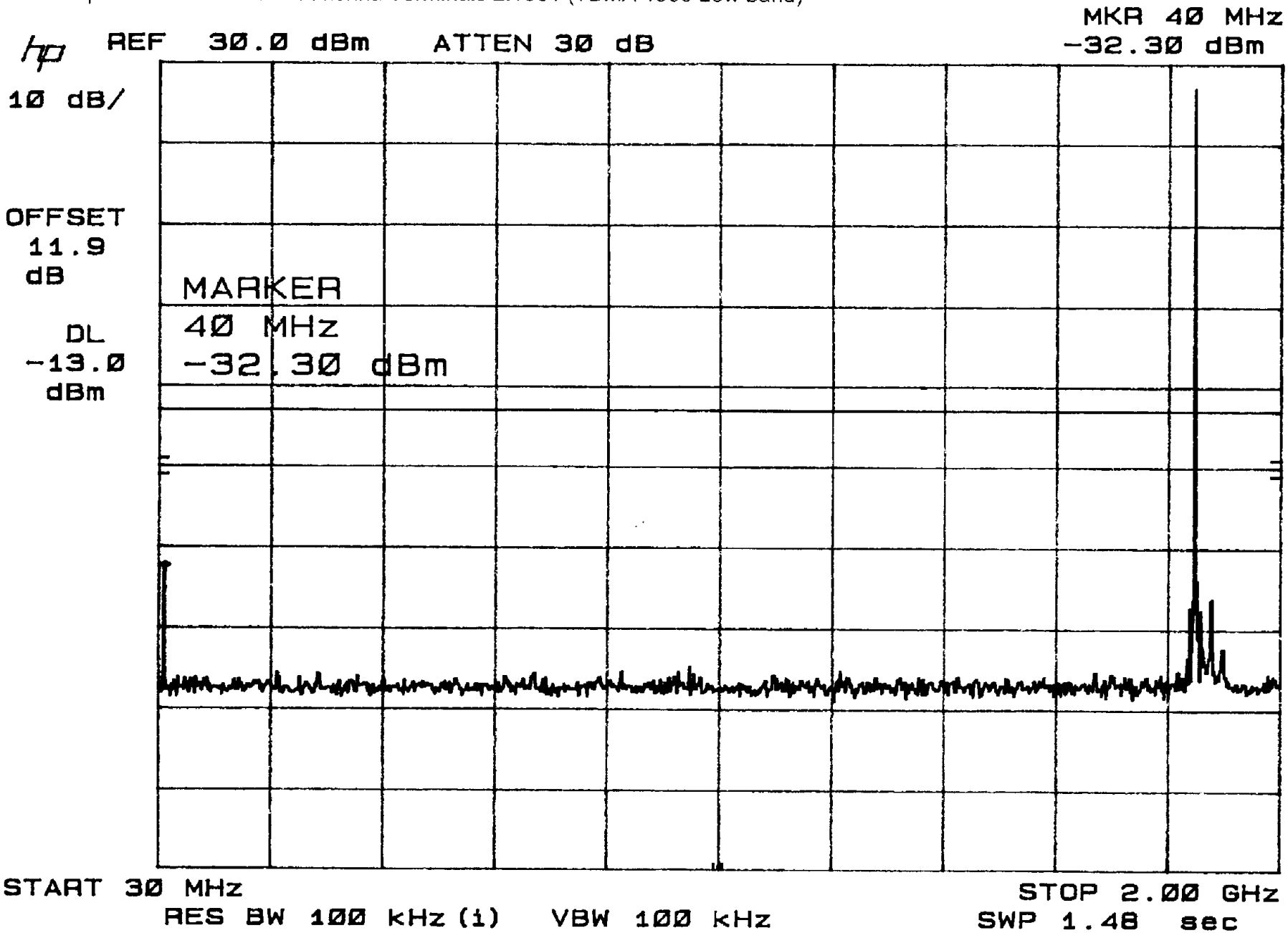

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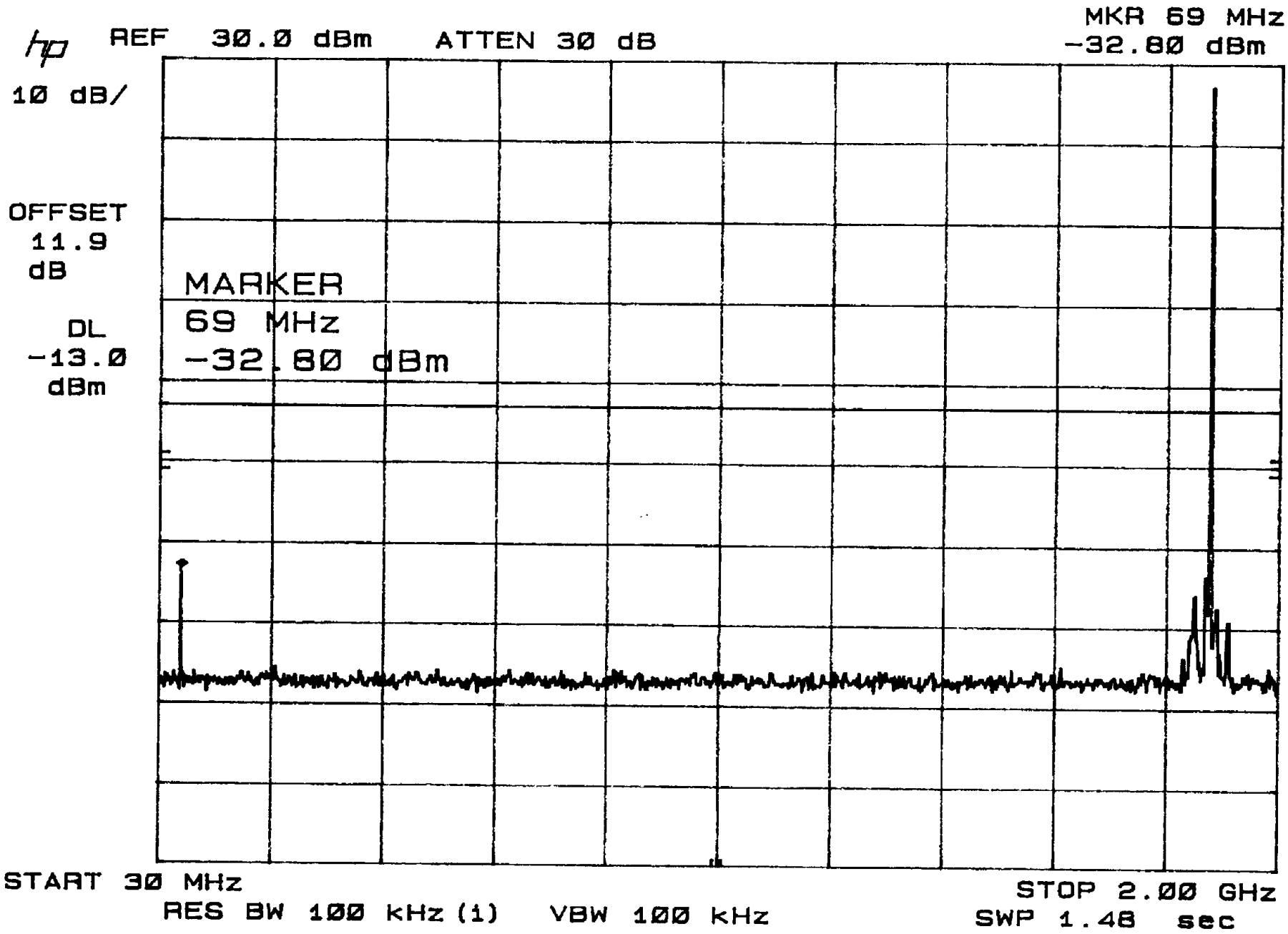

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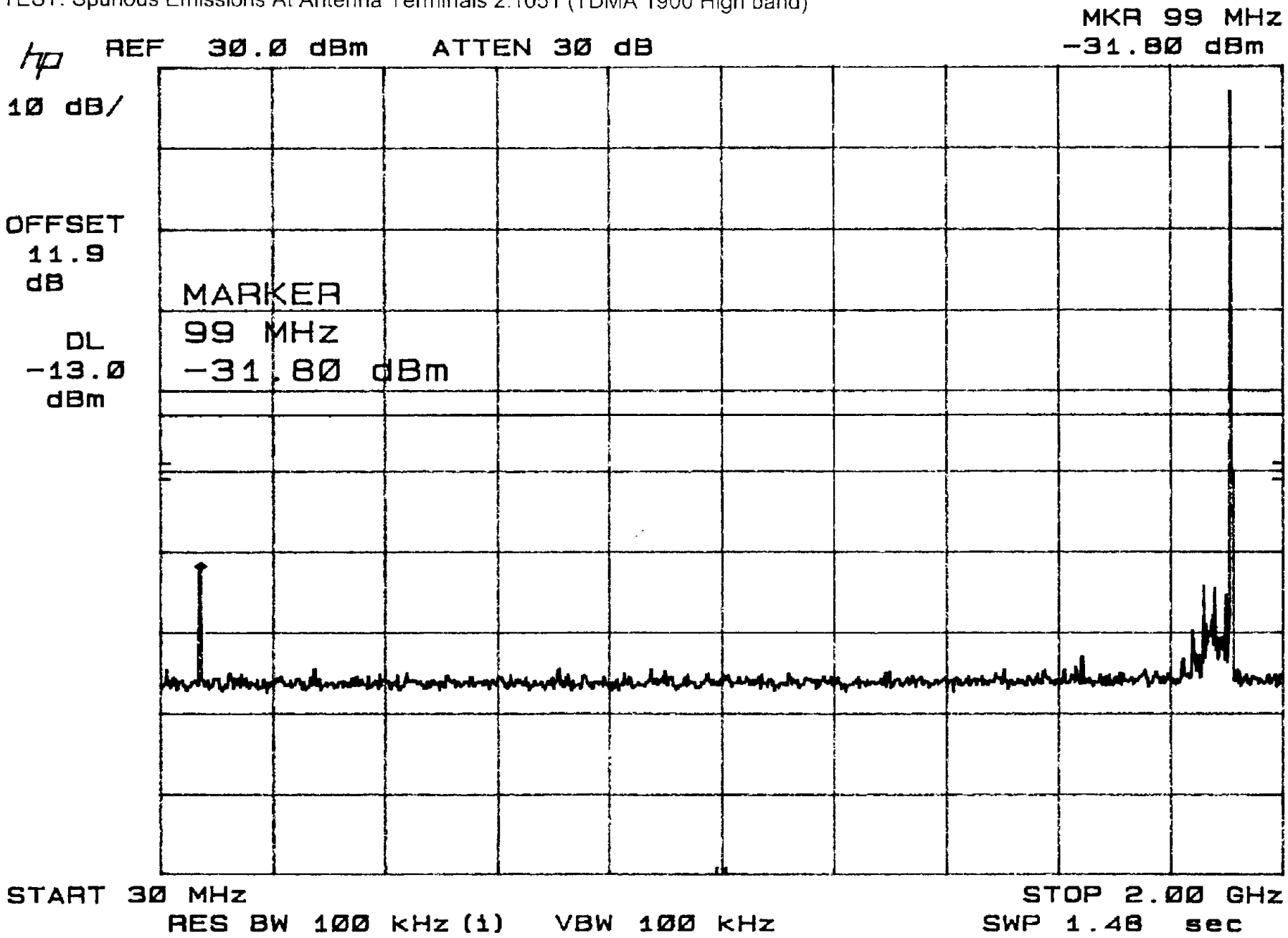

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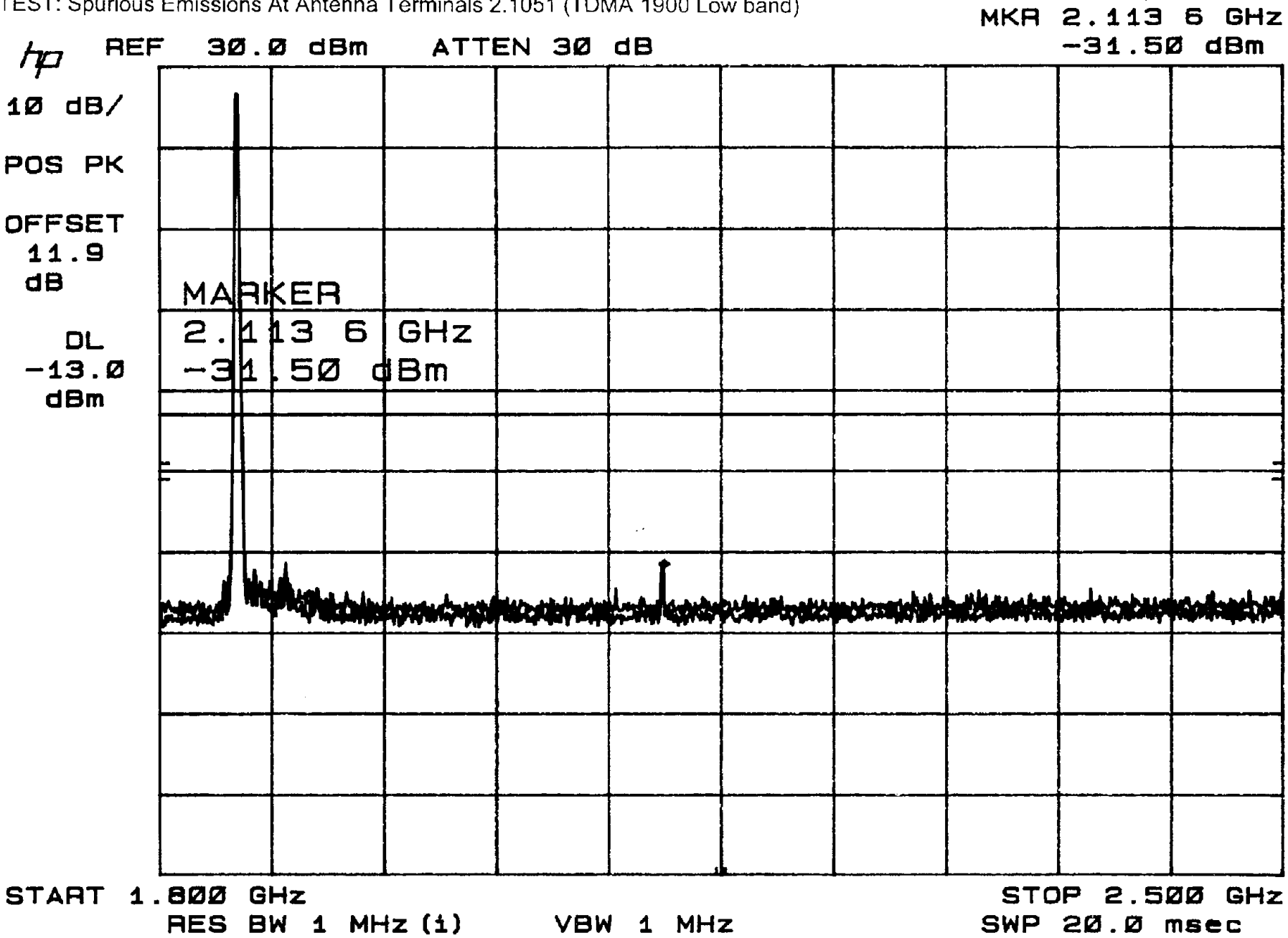
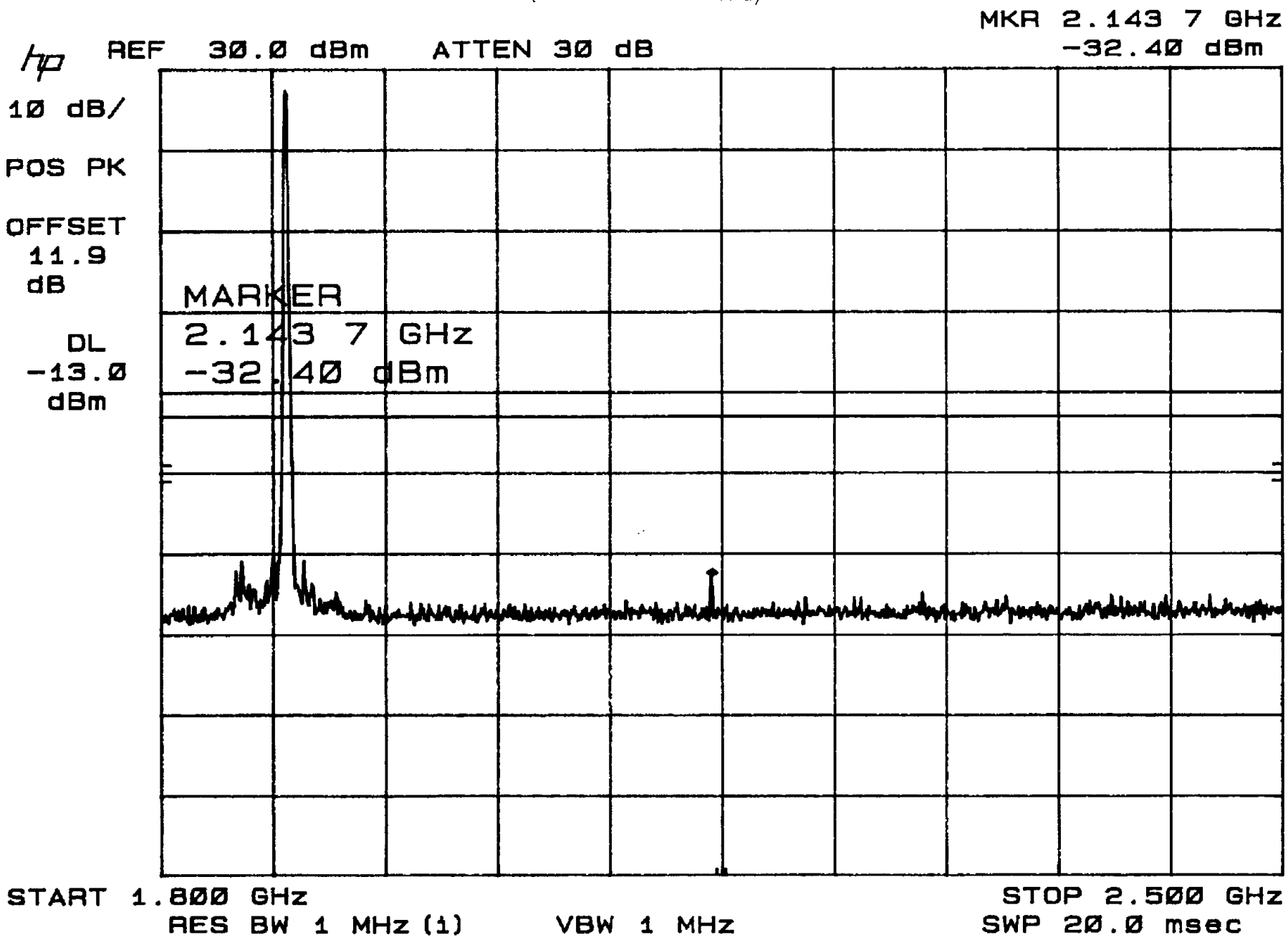
OCT. 22, 2001
TECH/ENGR.



CUSTOMER: SIEMENS
EUT: "S46" FCC ID:PWX S46"
TEST: Spurious Emissions At Antenna Terminals 2.1051 (TDMA 1900 Mid band)

Report No.: SC107139

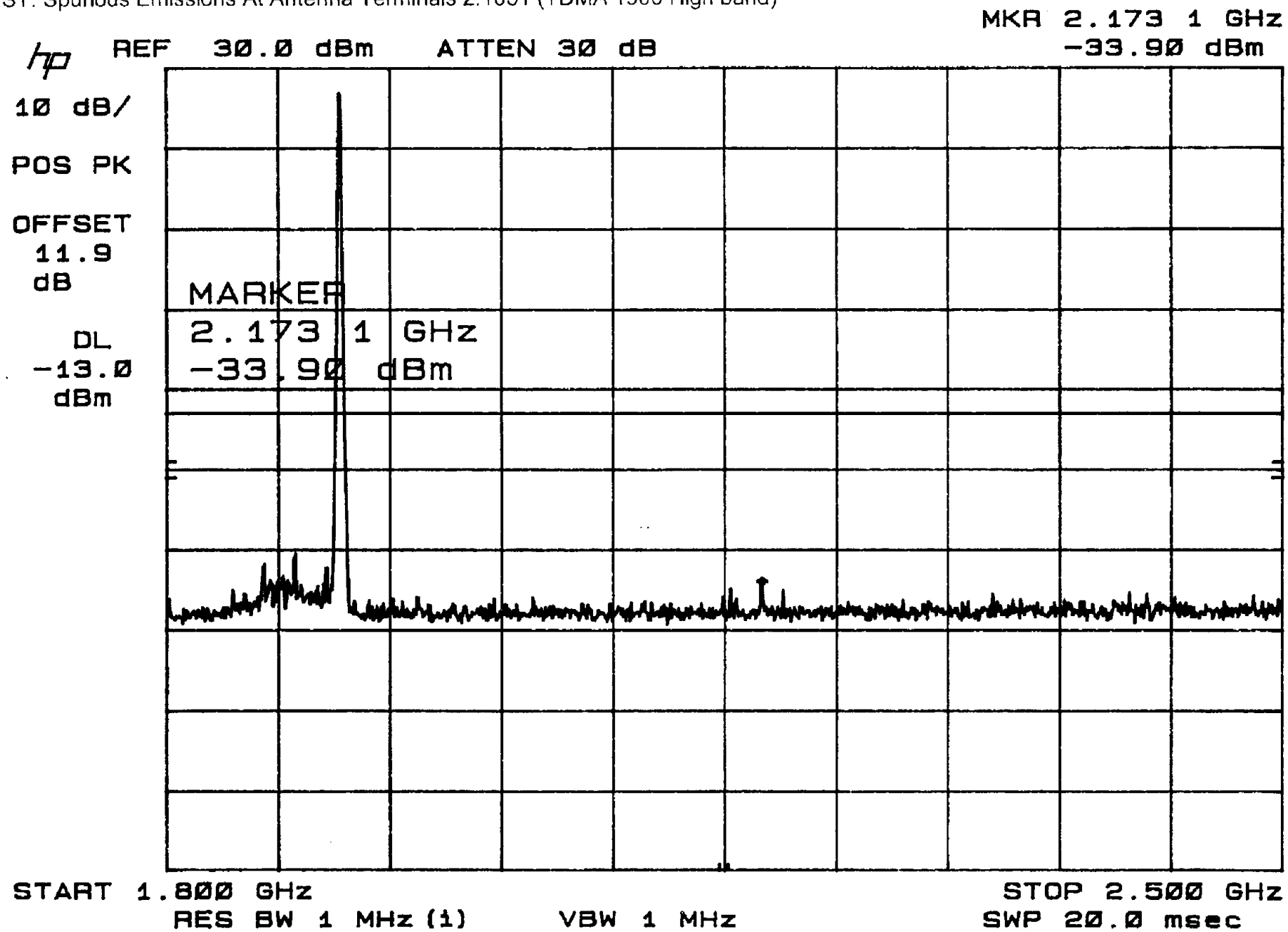
OCT. 22, 2001
TECH/ENGR.



CUSTOMER: SIEMENS
EUT: "S46" FCC ID:PWX S46"
TEST: Spurious Emissions At Antenna Terminals 2.1051 (TDMA 1900 High band)

Report No.: SC107139

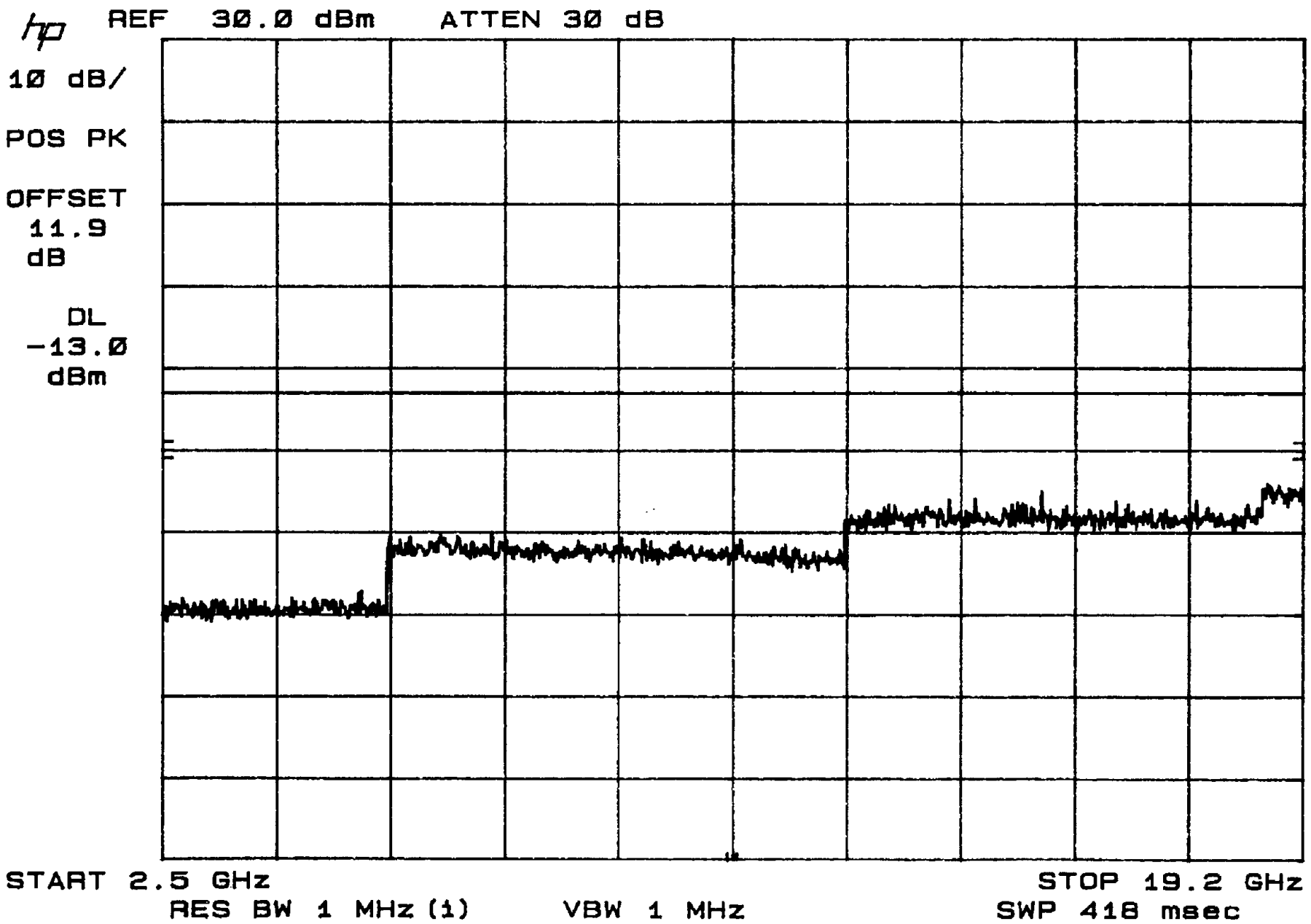
OCT. 22, 2001
TECH/ENGR.



CUSTOMER: SIEMENS
EUT: "S46" FCC ID:PWX S46"
TEST: Spurious Emissions At Antenna Terminals 2.1051 (TDMA 1900 Low band)

Report No.: SC107139

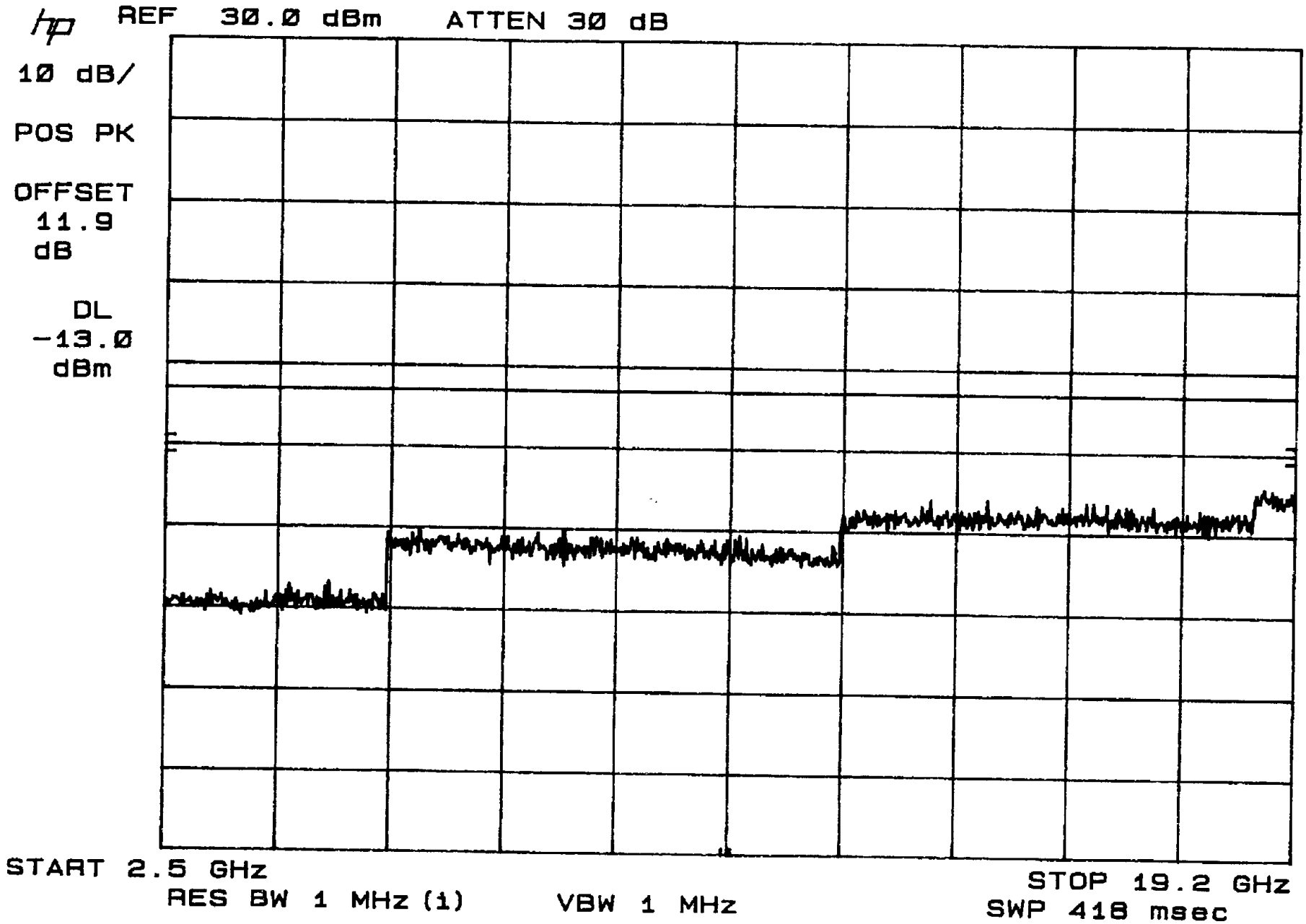
OCT. 22, 2001
TECH/ENGR.



CUSTOMER: SIEMENS
EUT: "S46" FCC ID:PWX S46"
TEST: Spurious Emissions At Antenna Terminals 2.1051 (TDMA 1900 Mid band)

Report No.: SC107139

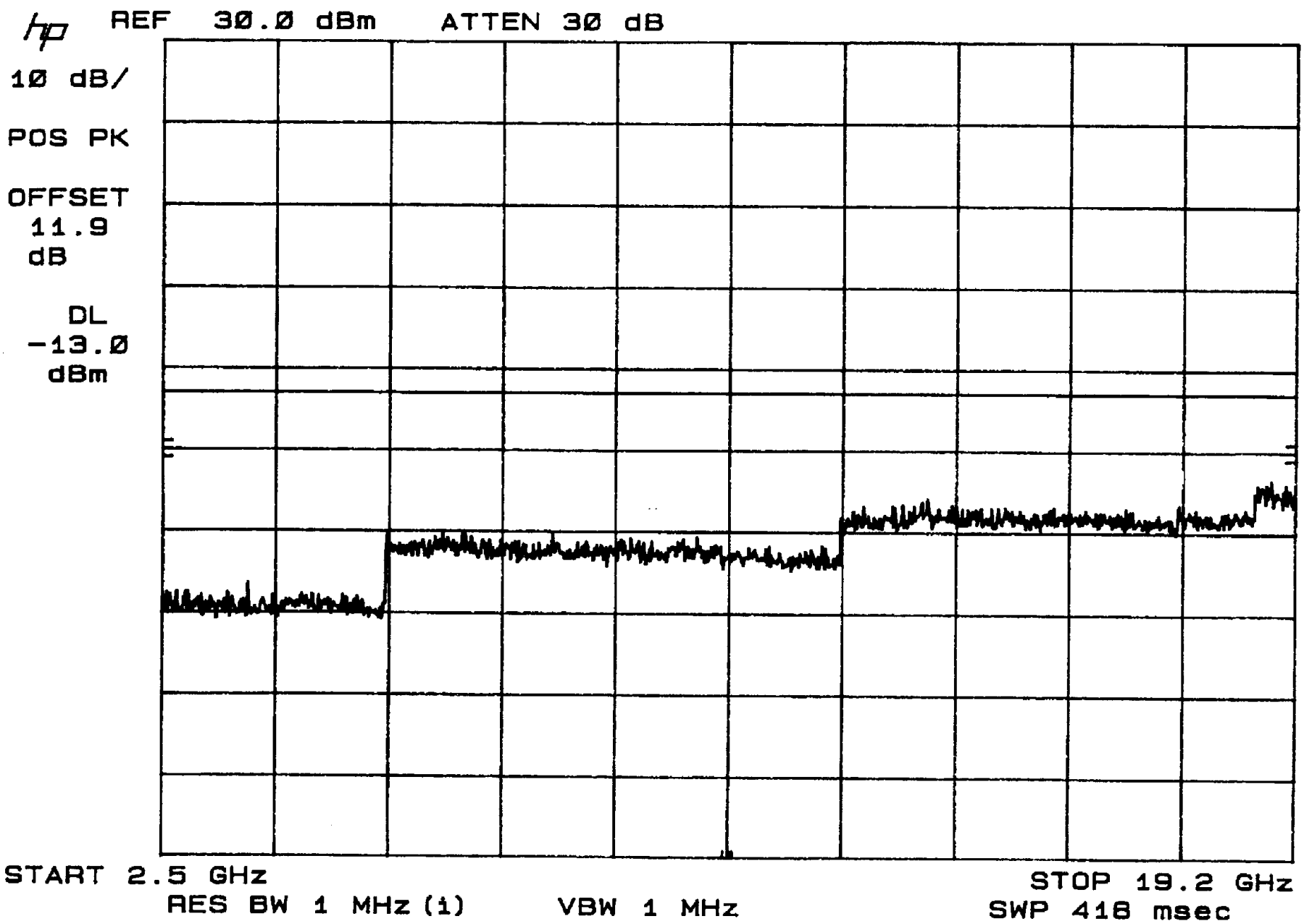
OCT. 22, 2001
TECH/ENGR.



CUSTOMER: SIEMENS
EUT: "S46" FCC ID:PWX S46"
TEST: Spurious Emissions At Antenna Terminals 2.1051 (TDMA 1900 High band)

Report No.: SC107139

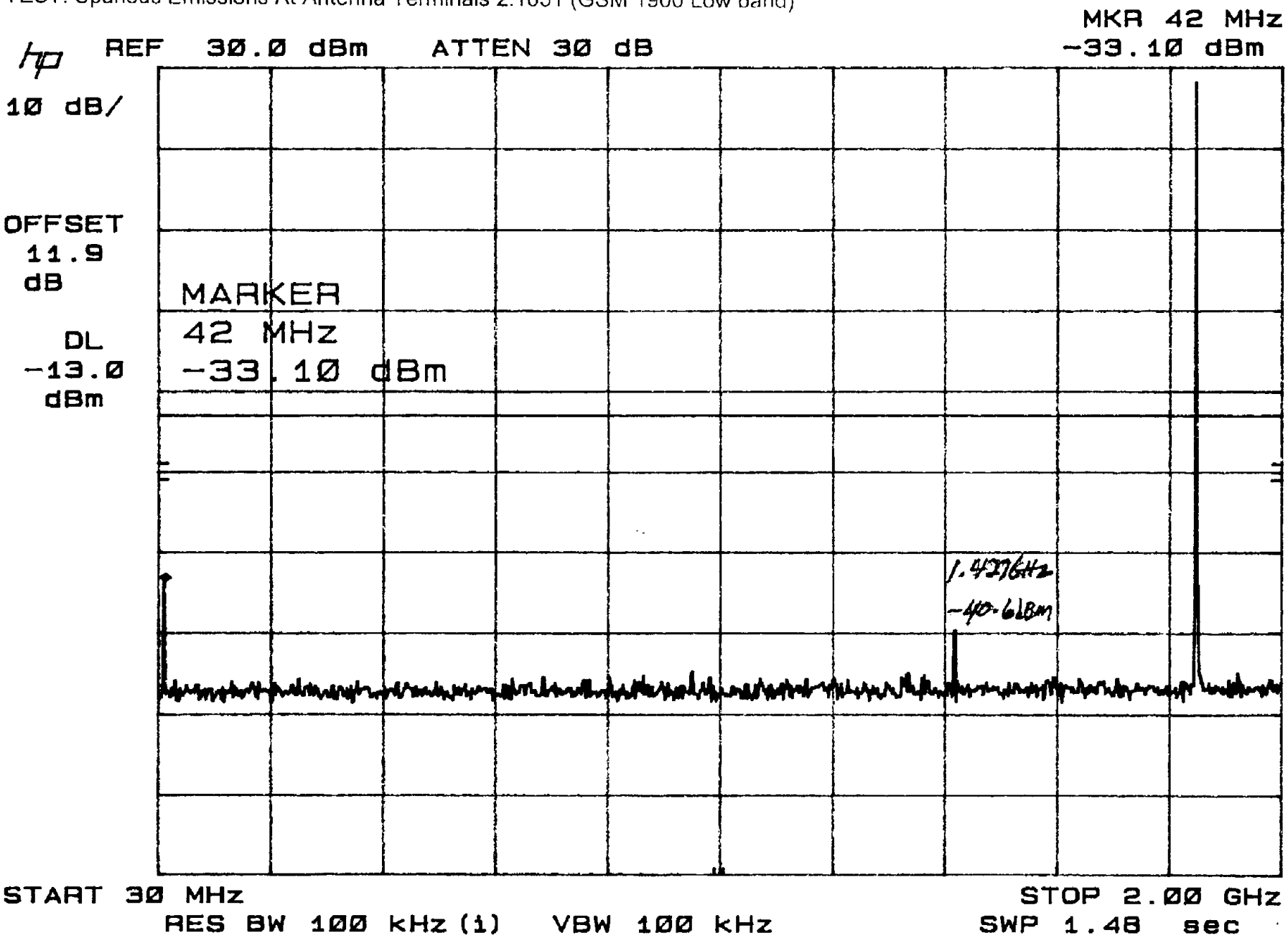
OCT. 22, 2001
TECH/ENGR.



CUSTOMER: SIEMENS
EUT: "S46" FCC ID:PWX S46"
TEST: Spurious Emissions At Antenna Terminals 2.1051 (GSM 1900 Low band)

Report No.: SC107139

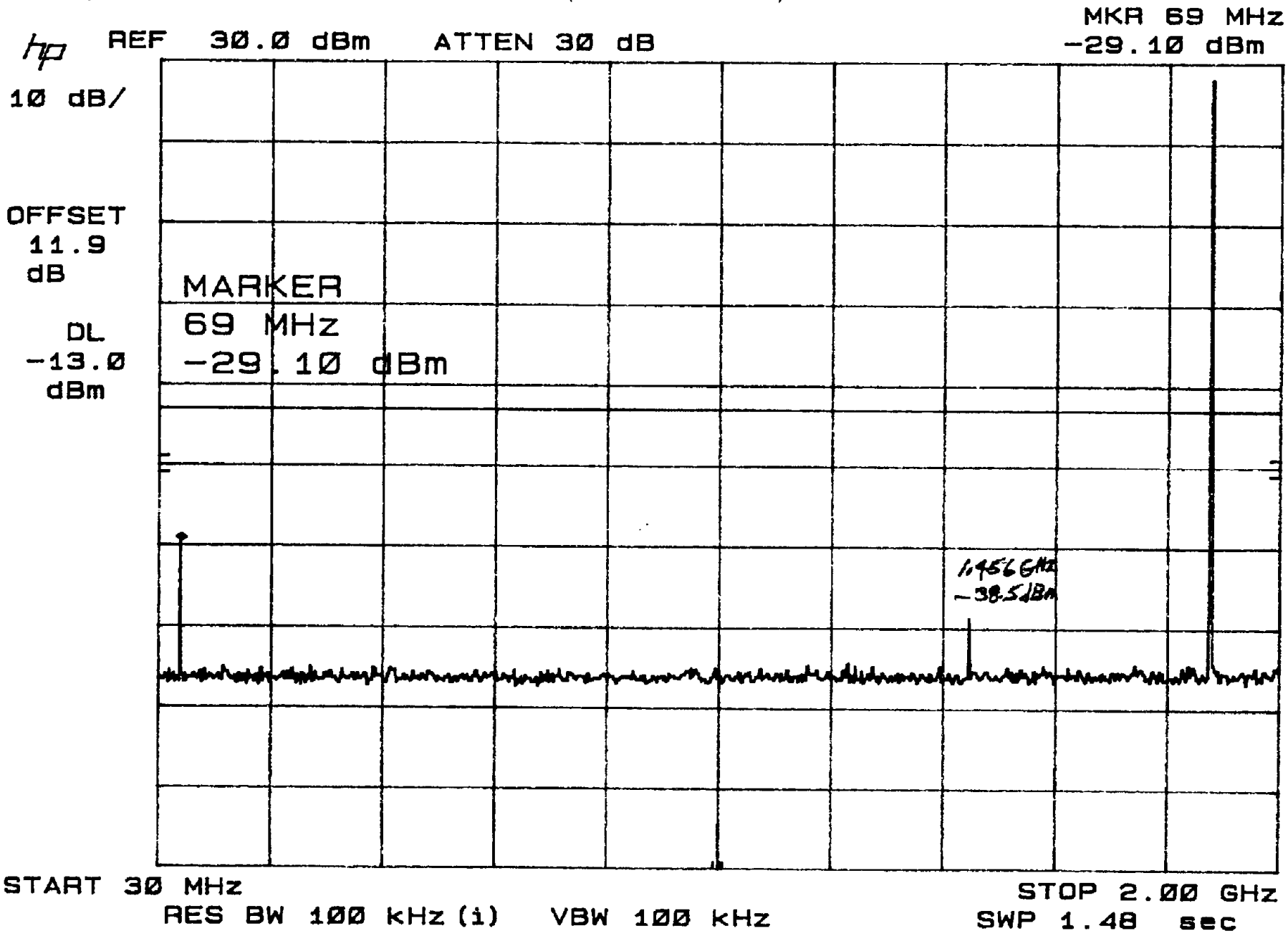
OCT. 23, 2001
TECH/ENGR.



CUSTOMER: SIEMENS
EUT: "S46" FCC ID:PWX S46"
TEST: Spurious Emissions At Antenna Terminals 2.1051 (GSM 1900 Mid band)

Report No.: SC107139

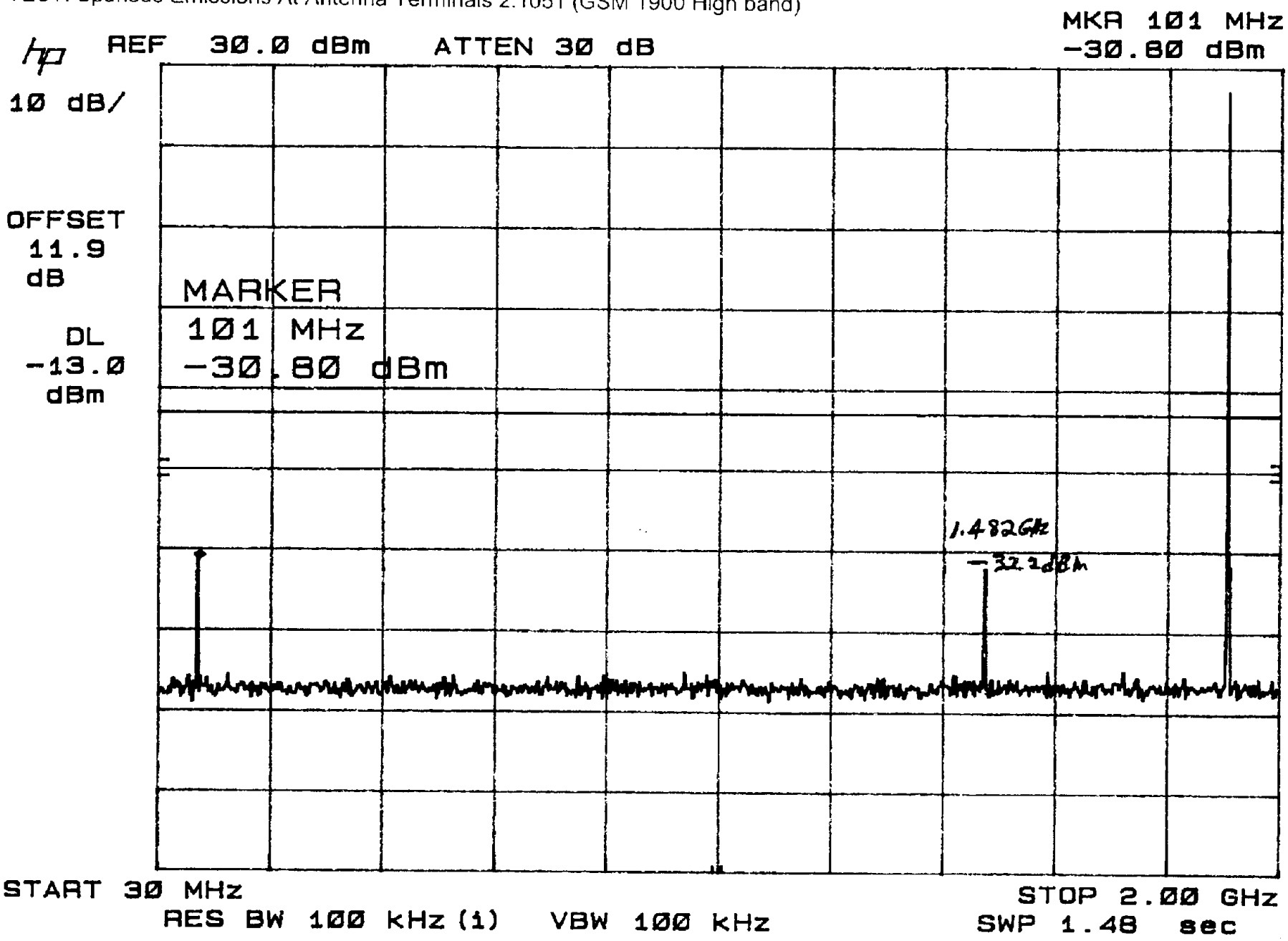
OCT. 23, 2001
TECH/ENGR.



CUSTOMER: SIEMENS
EUT: "S46" FCC ID:PWX S46"
TEST: Spurious Emissions At Antenna Terminals 2.1051 (GSM 1900 High band)

Report No.: SC107139

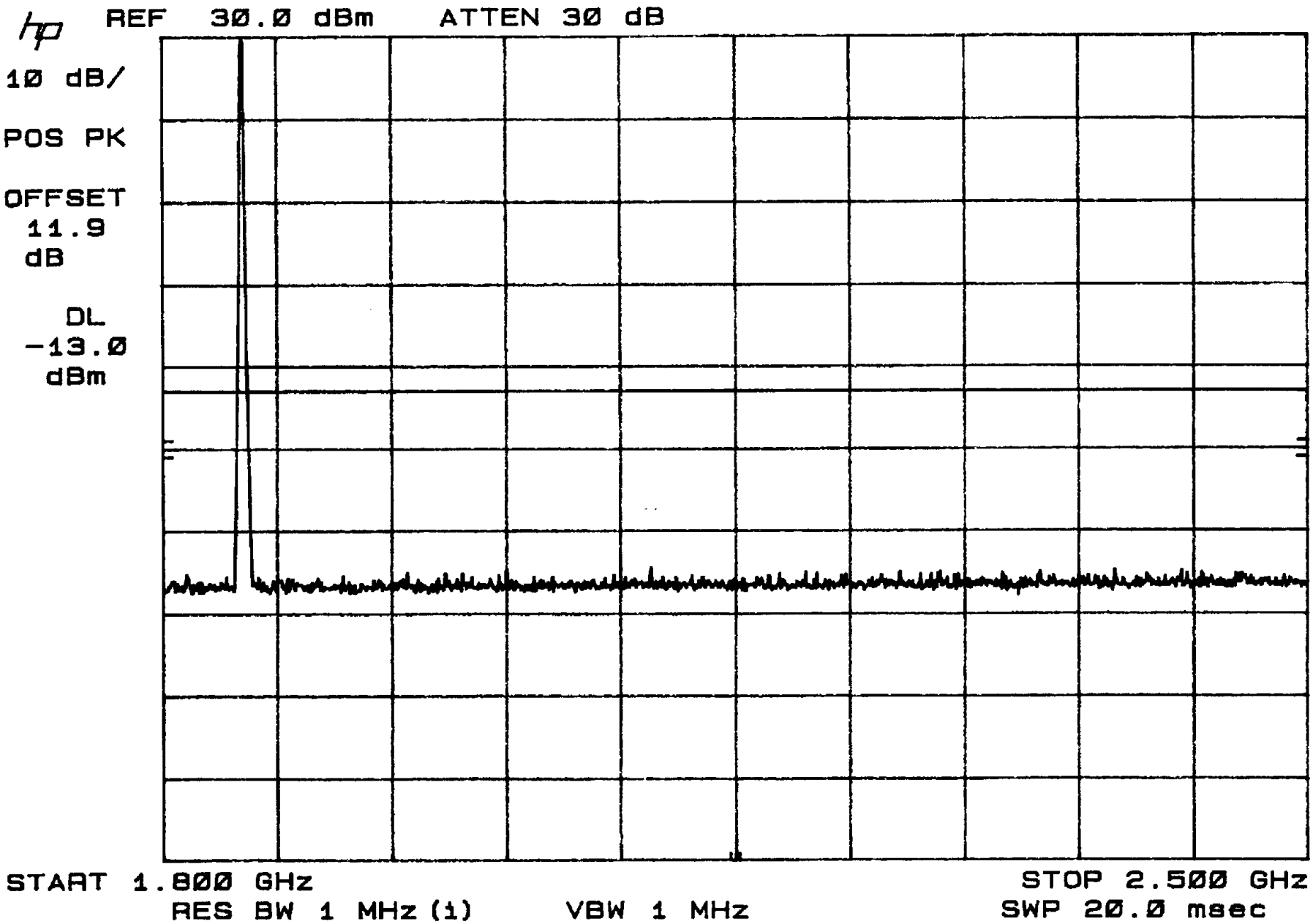
OCT. 23, 2001
TECH/ENGR.



CUSTOMER: SIEMENS
EUT: "S46" FCC ID:PWX S46"
TEST: Spurious Emissions At Antenna Terminals 2.1051 (GSM 1900 Low band)

Report No.: SC107139

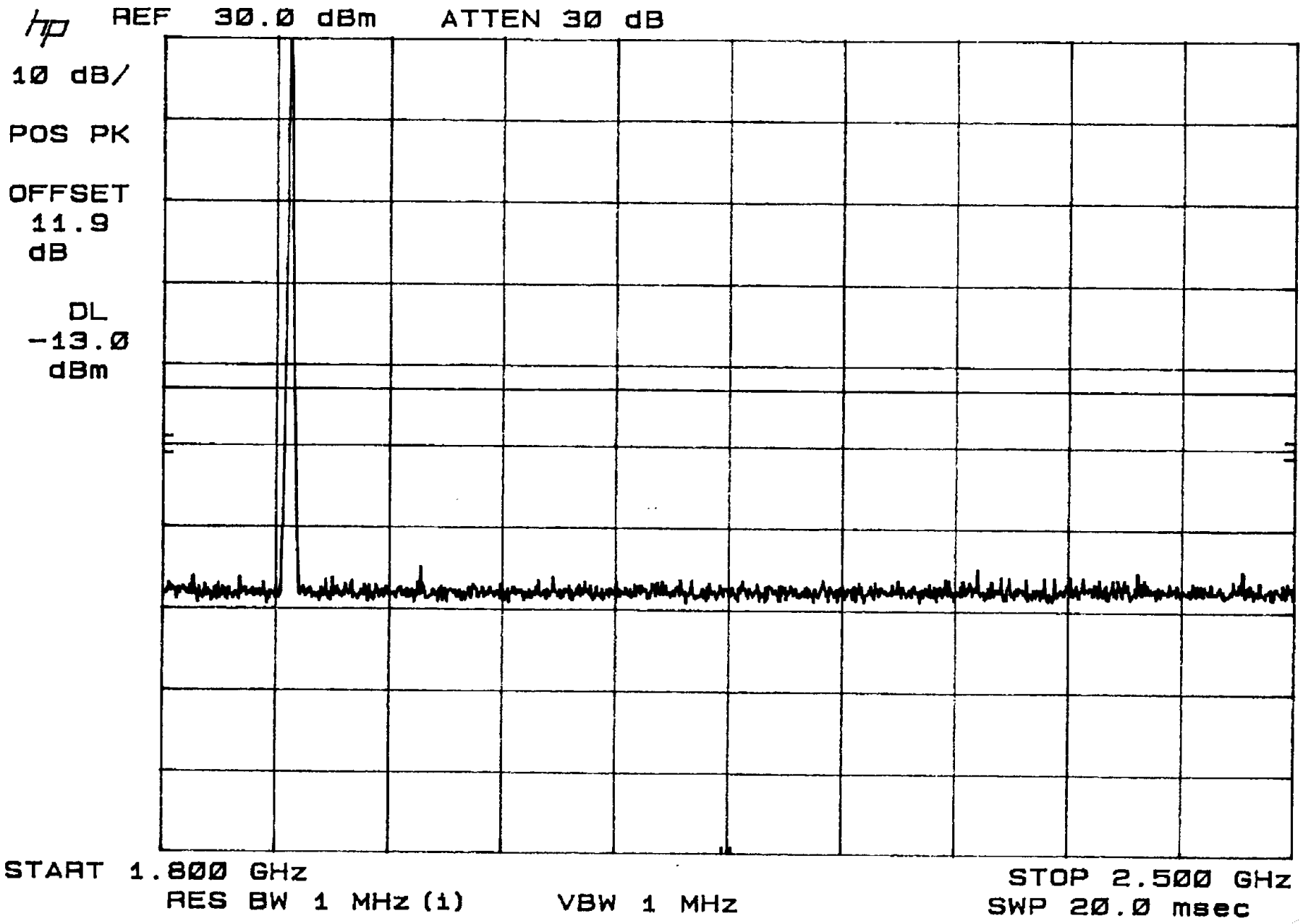
OCT. 22, 2001
TECH/ENGR. DKB



CUSTOMER: SIEMENS
EUT: "S46" FCC ID:PWX S46"
TEST: Spurious Emissions At Antenna Terminals 2.1051 (GSM 1900 Mid band)

Report No.: SC107139

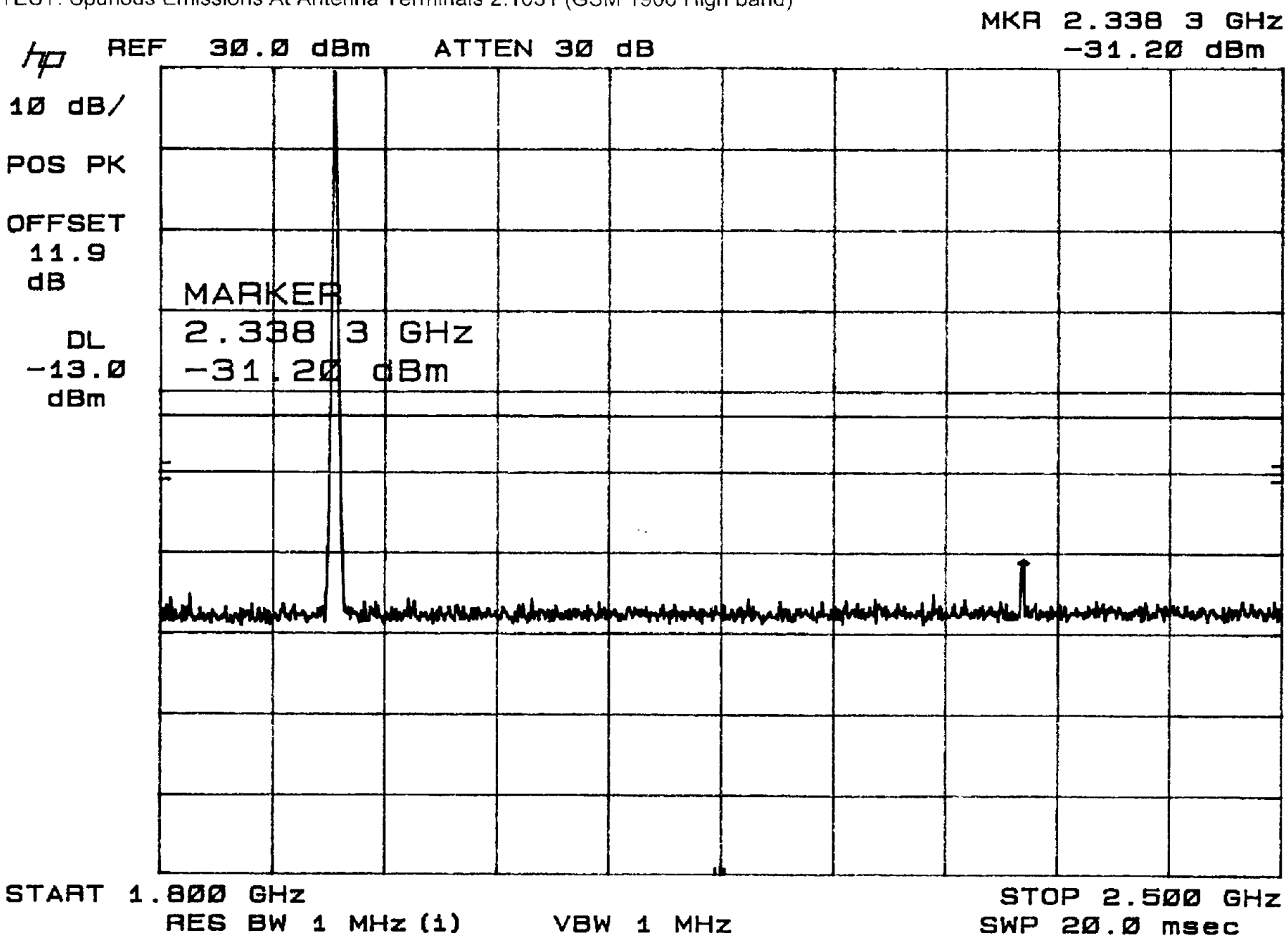
OCT. 22, 2001
TECH/ENGR. GSM



CUSTOMER: SIEMENS
EUT: "S46" FCC ID:PWX S46"
TEST: Spurious Emissions At Antenna Terminals 2.1051 (GSM 1900 High band)

Report No.: SC107139

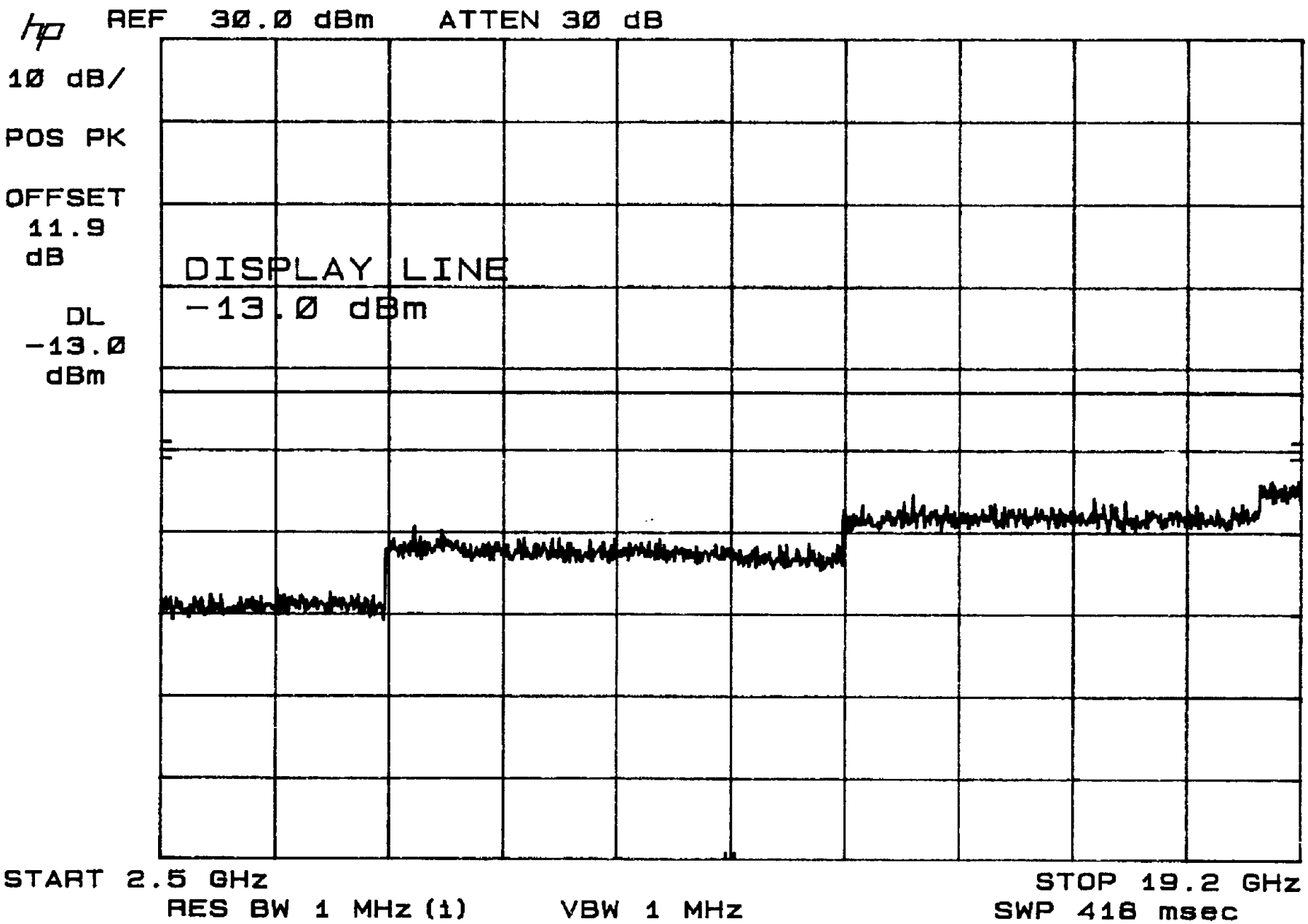
OCT. 22, 2001
TECH/ENGR.



CUSTOMER: SIEMENS
EUT: "S46" FCC ID:PWX S46"
TEST: Spurious Emissions At Antenna Terminals 2.1051 (GSM 1900 Low band)

Report No.: SC107139

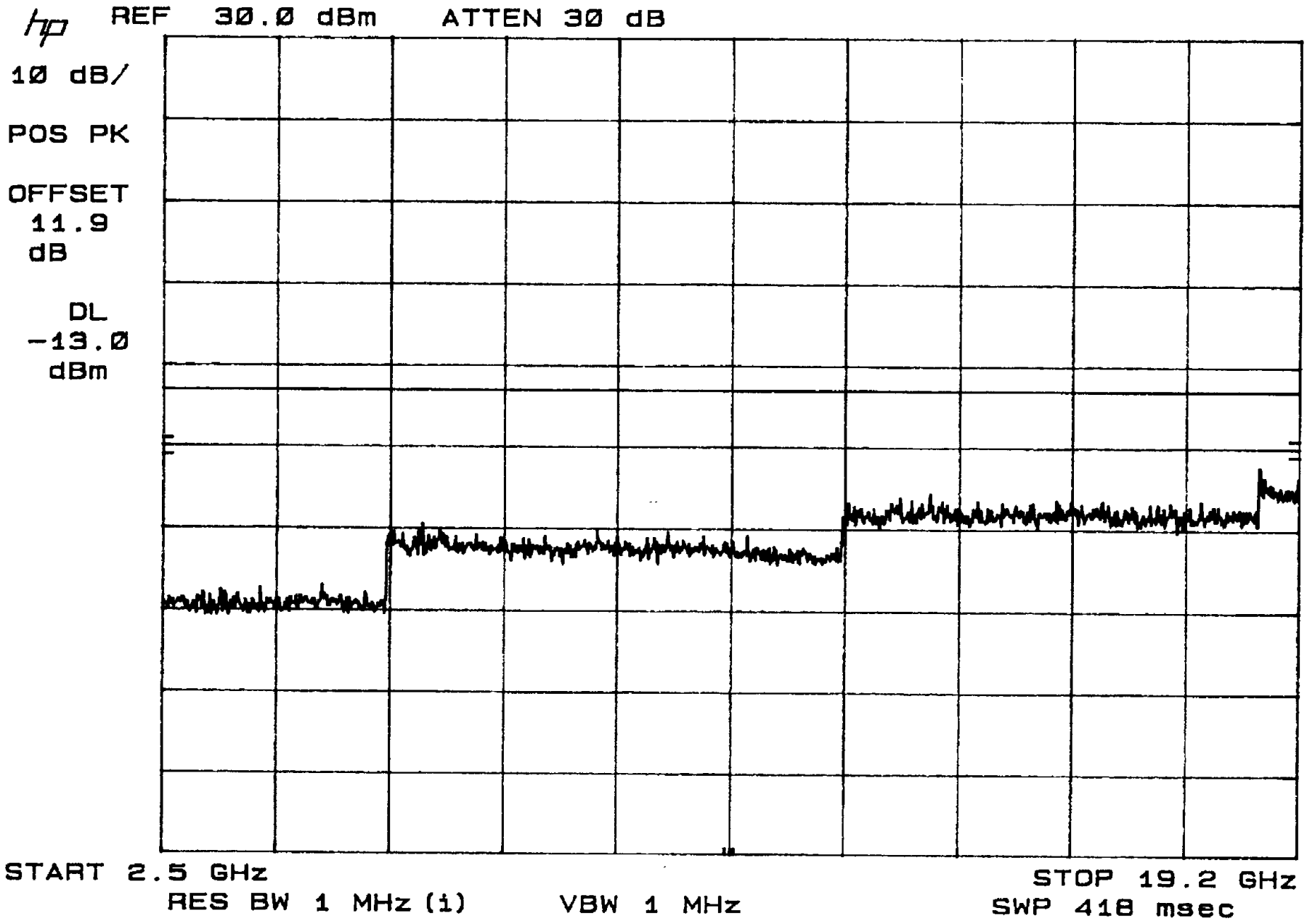
OCT. 22, 2001
TECH/ENGR.



CUSTOMER: SIEMENS
EUT: "S46" FCC ID:PWX S46"
TEST: Spurious Emissions At Antenna Terminals 2.1051 (GSM 1900 Mid band)

Report No.: SC107139

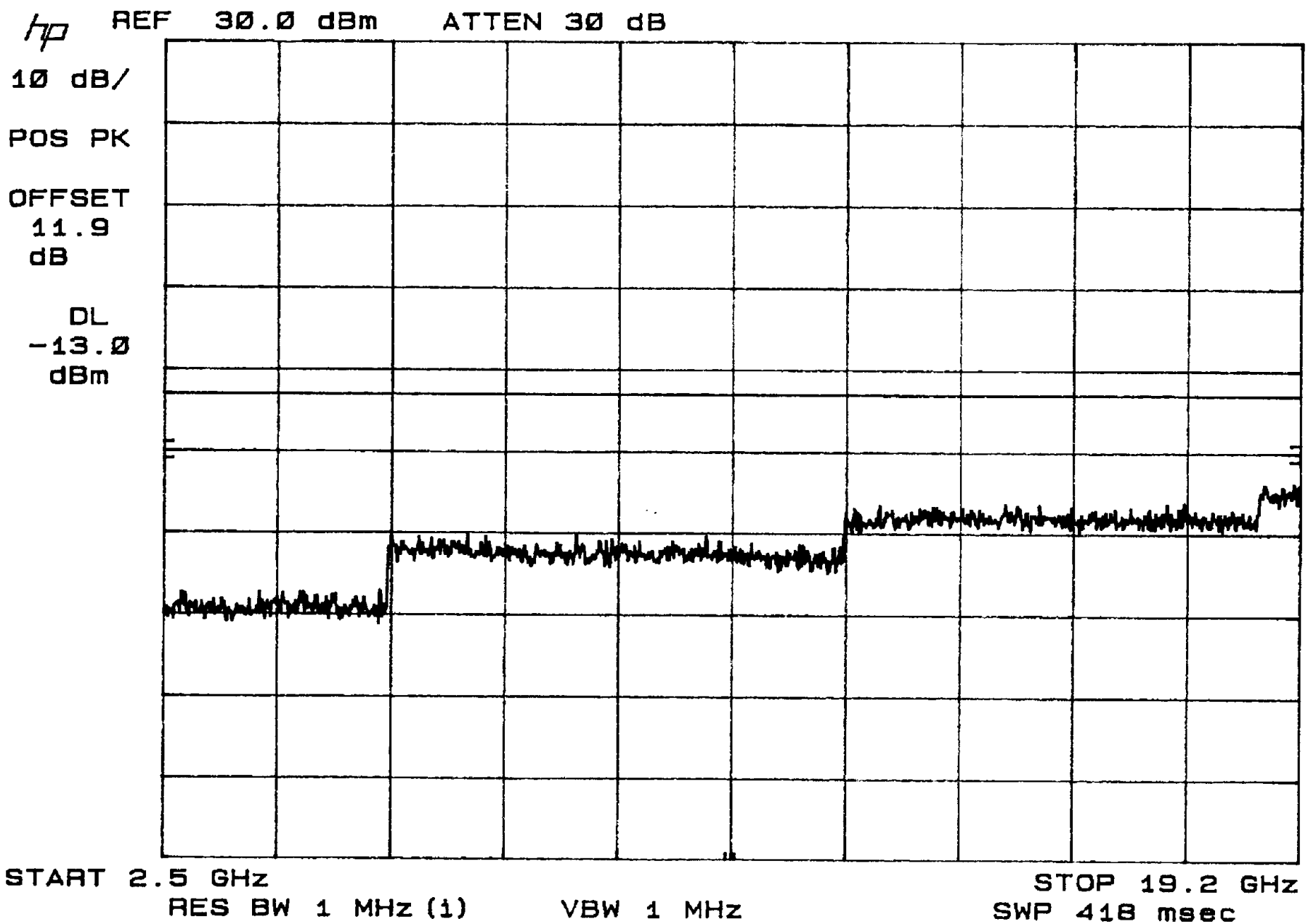
OCT. 22, 2001
TECH/ENGR.



CUSTOMER: SIEMENS
EUT: "S46" FCC ID:PWX S46"
TEST: Spurious Emissions At Antenna Terminals 2.1051 (GSM 1900 High band)

Report No.: SC107139

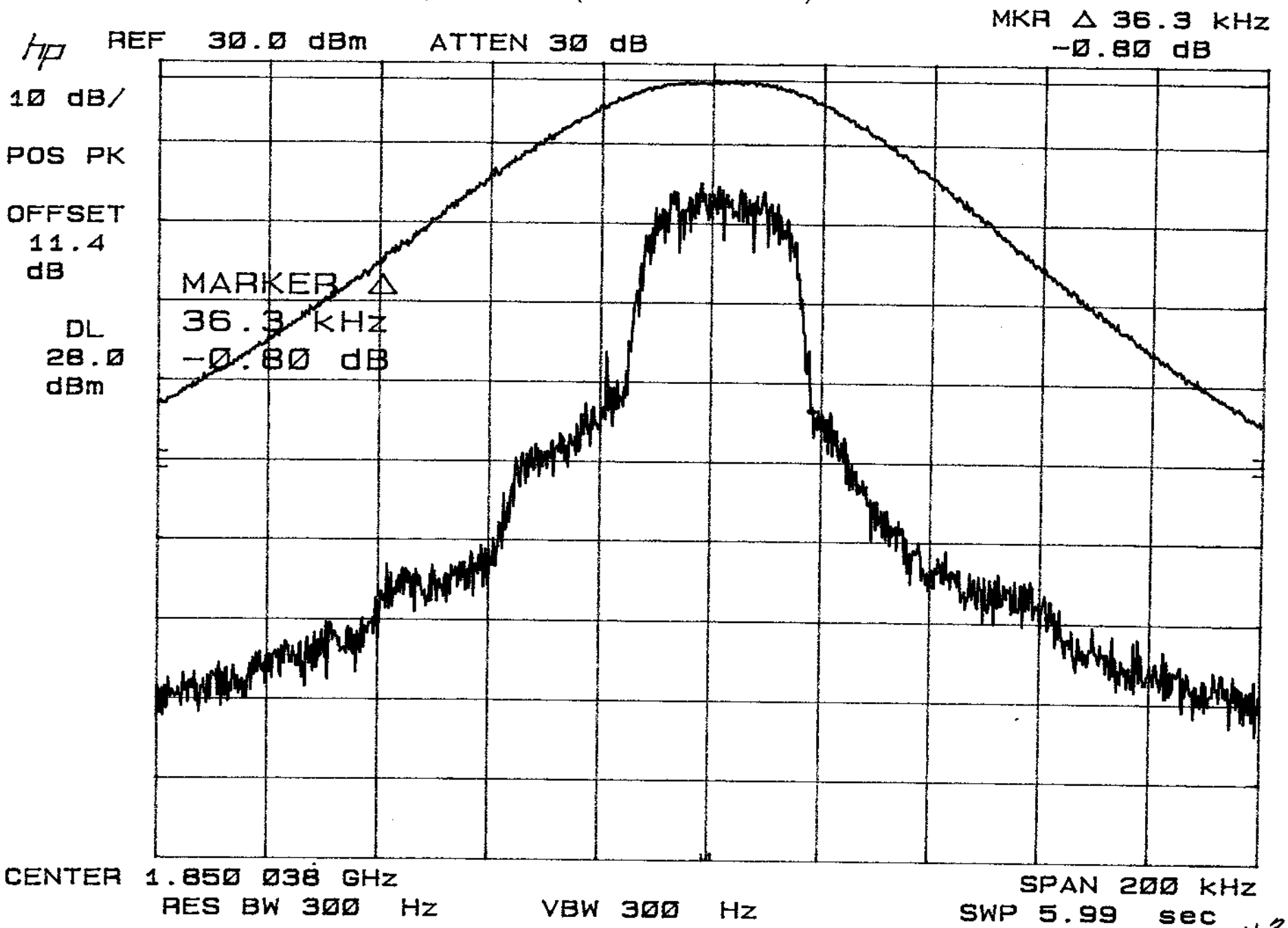
OCT. 22, 2001
TECH/ENGR.



CUSTOMER: SIEMENS
EUT: "S46" FCC ID:PWX S46
TEST: OCCUPIED BANDWIDTH FCC Part 2, Para. 2.1049 (TDMA1900 Low Band)

Report No.: SC107139

JAN. 22, 2002
TECH/ENGR.



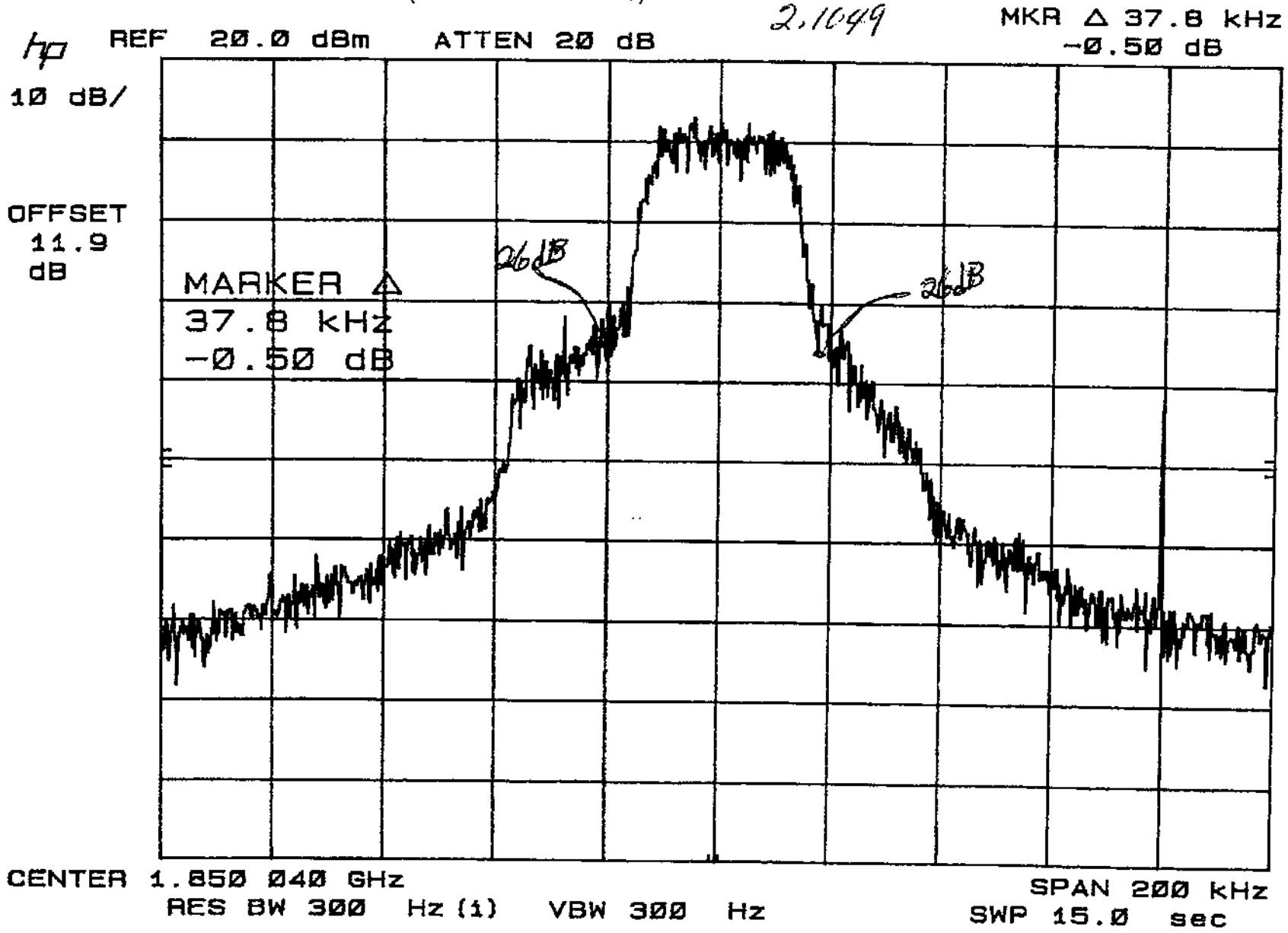
43

CUSTOMER: SIEMENS
EUT: "S46" FCC ID:PWX S46"
TEST: OCCUPIED BANDWIDTH 2.1049 (TDMA 1900 Low band)

Report No.: SC107139

OCT. 22, 2001
TECH/ENGR.

2.1049



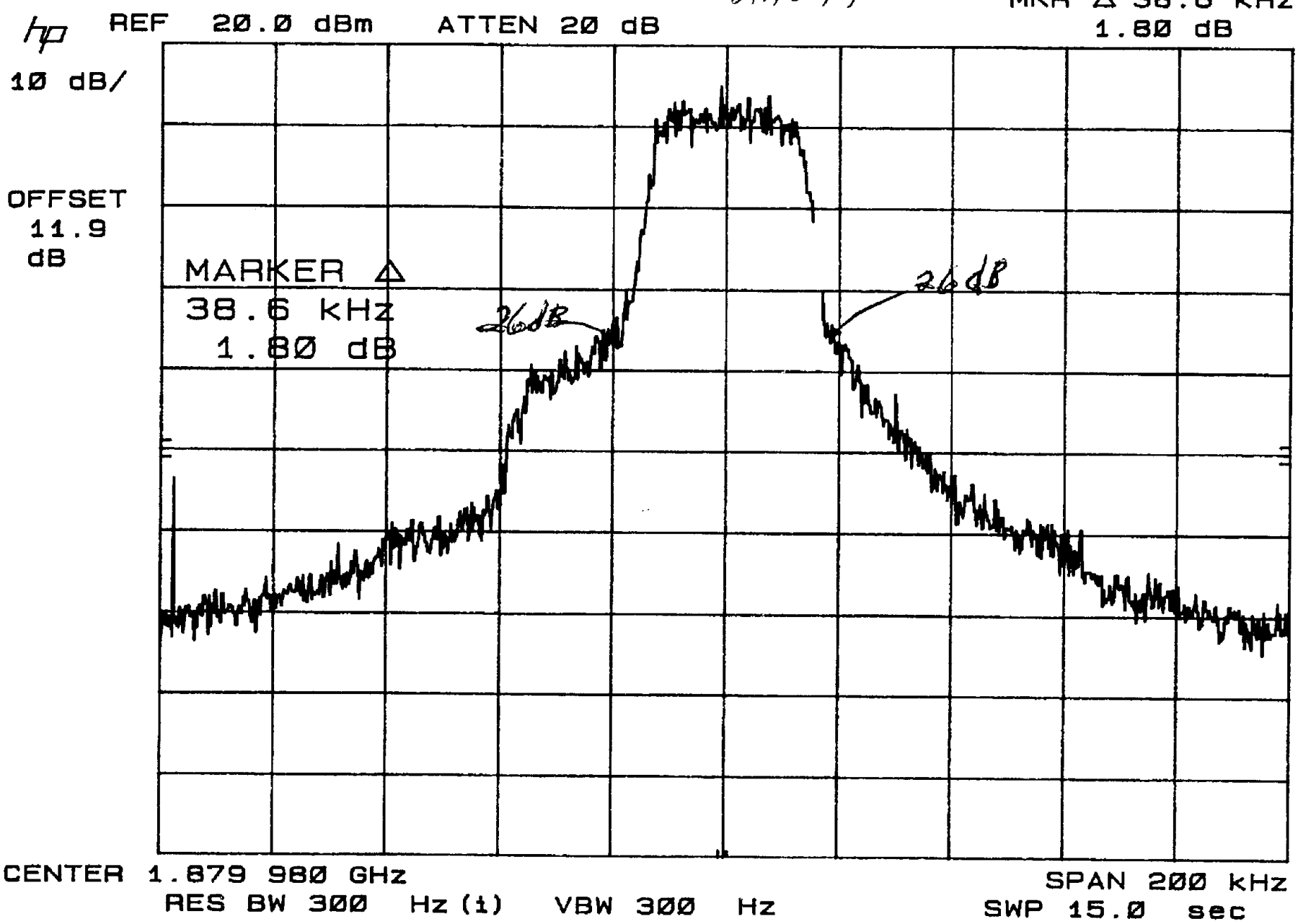
43(a)

CUSTOMER: SIEMENS
EUT: "S46" FCC ID:PWX S46"
TEST: OCCUPIED BANDWIDTH 2.1049 (TDMA 1900 Mid band)

Report No.: SC107139

OCT. 22, 2001
TECH/ENGR. [illegible]

2.1049

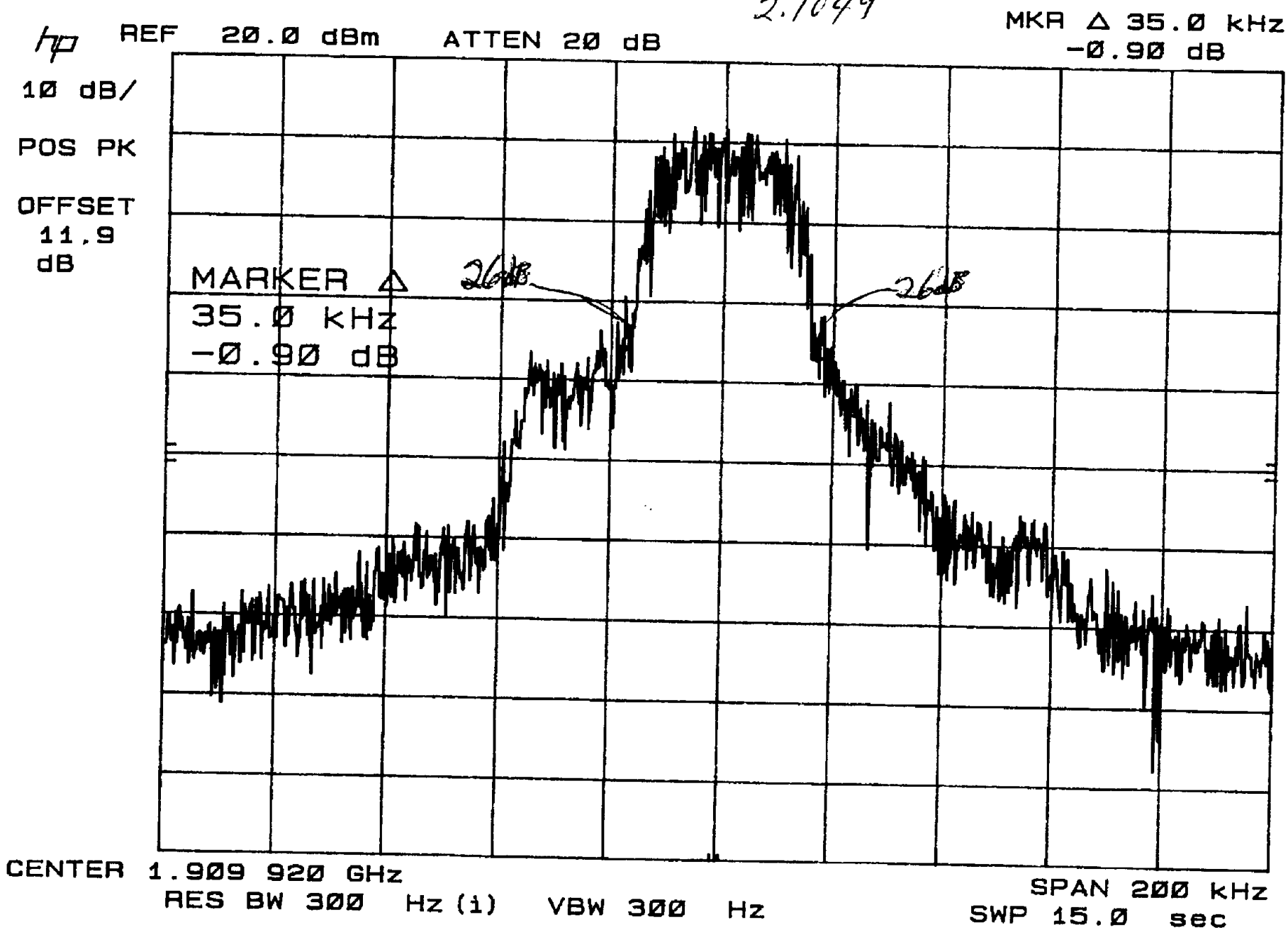


CUSTOMER: SIEMENS
EUT: "S46" FCC ID:PWX S46"
TEST: OCCUPIED BANDWIDTH 2.1049 (TDMA 1900 High band)

Report No.: SC107139

OCT. 22, 2001
TECH/ENGR. PKB

2.1049



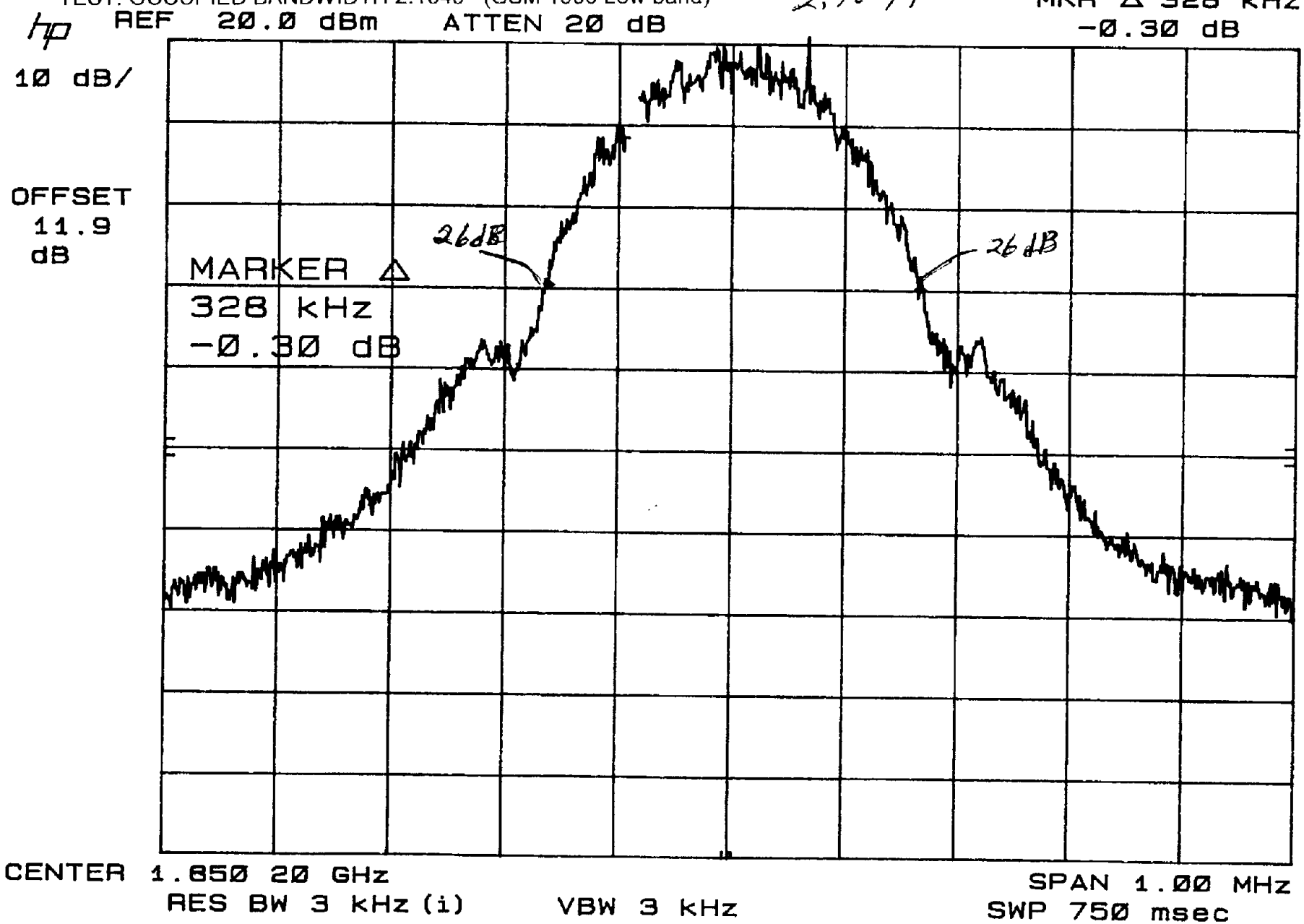
CUSTOMER: SIEMENS
EUT: "S46" FCC ID:PWX S46"

Report No.: SC107139

OCT. 22, 2001
TECH/ENGR.

TEST: OCCUPIED BANDWIDTH 2.1049 (GSM 1900 Low band)

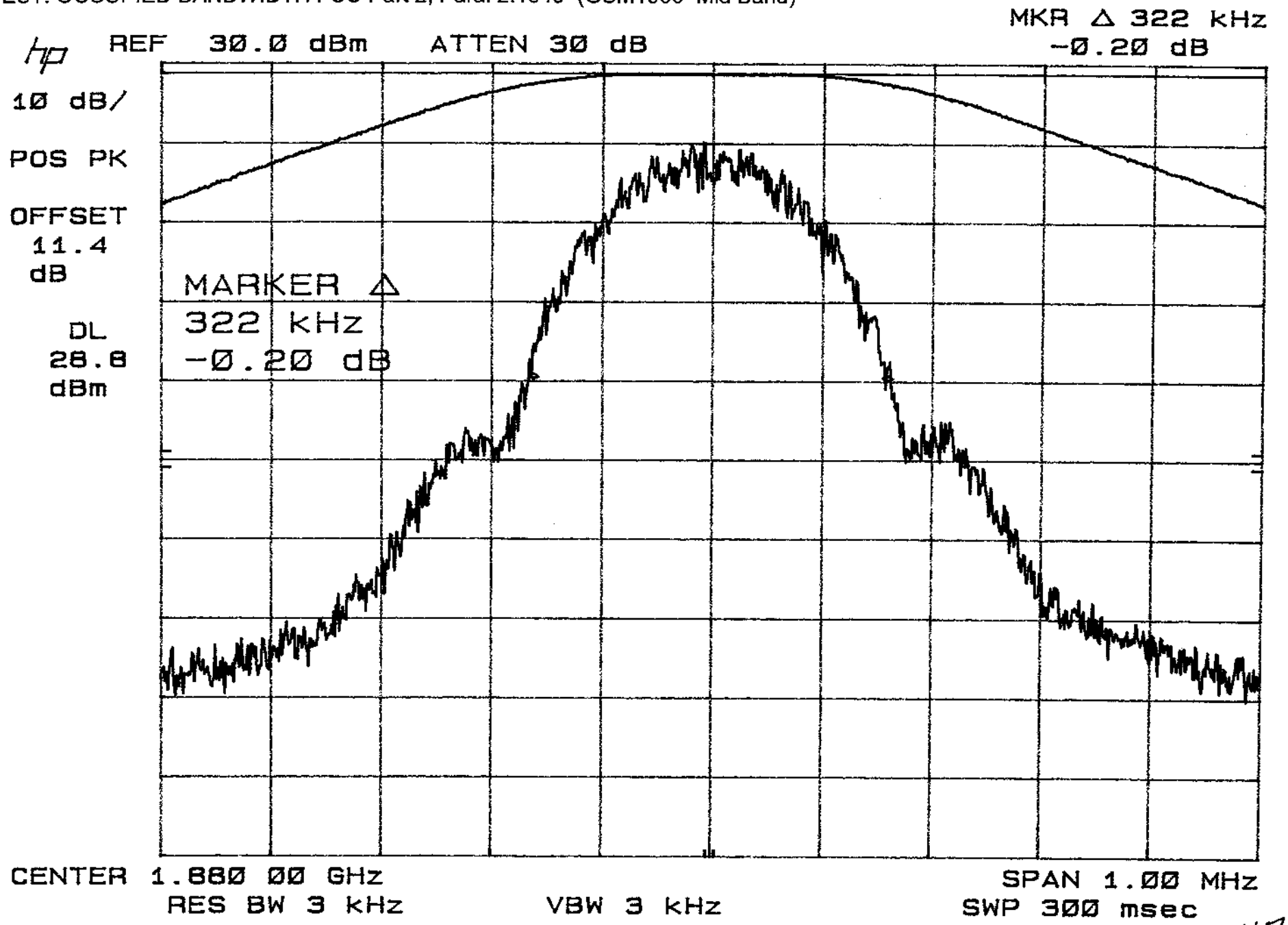
2.1049



CUSTOMER: SIEMENS
EUT: "S46" FCC ID:PWX S46
TEST: OCCUPIED BANDWIDTH FCC Part 2, Para. 2.1049 (GSM1900 Mid Band)

Report No.: SC107139

JAN. 22, 2002
TECH/ENGR.



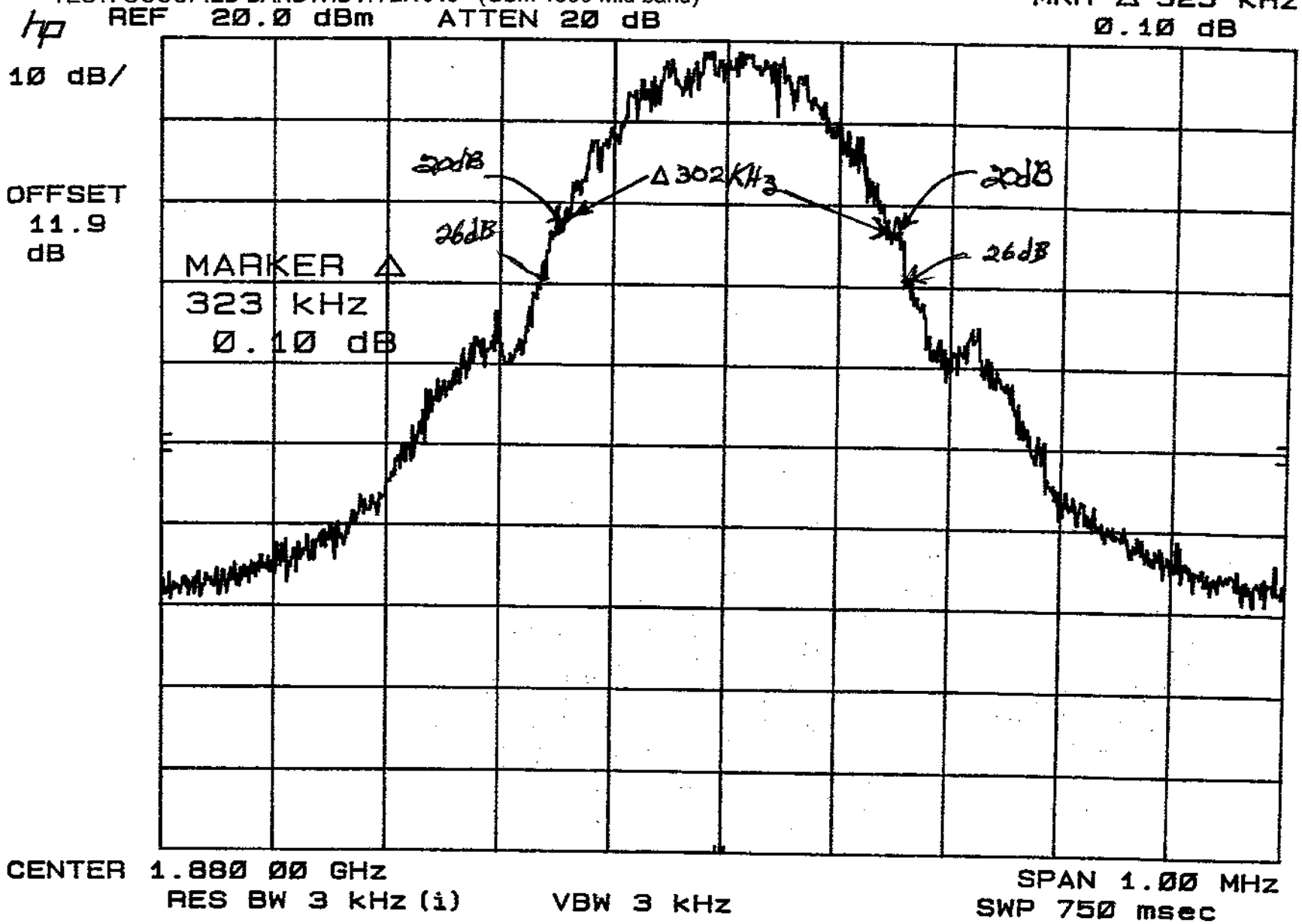
47

CUSTOMER: SIEMENS
EUT: "S46" FCC ID:PWX S46"

Report No.: SC107139

OCT. 22, 2001
TECH/ENGR. MAB

TEST: OCCUPIED BANDWIDTH 2.1049 (GSM 1900 Mid band) 2.1049



47(a)

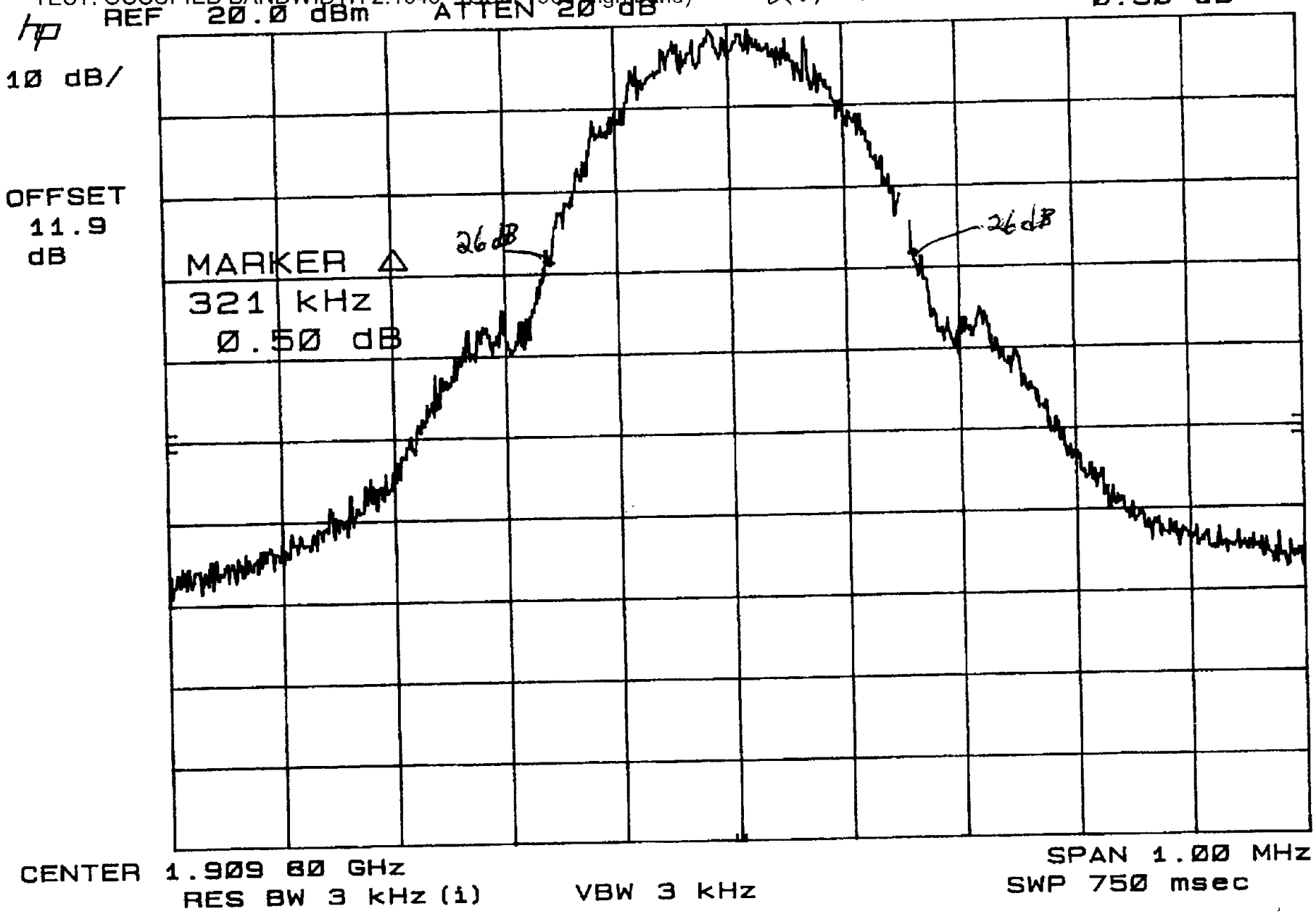
CUSTOMER: SIEMENS
EUT: "S46" FCC ID:PWX S46"

Report No.: SC107139

OCT. 22, 2001
TECH/ENGR.

TEST: OCCUPIED BANDWIDTH 2.1049 (GSM 1900 High band)

2.1049

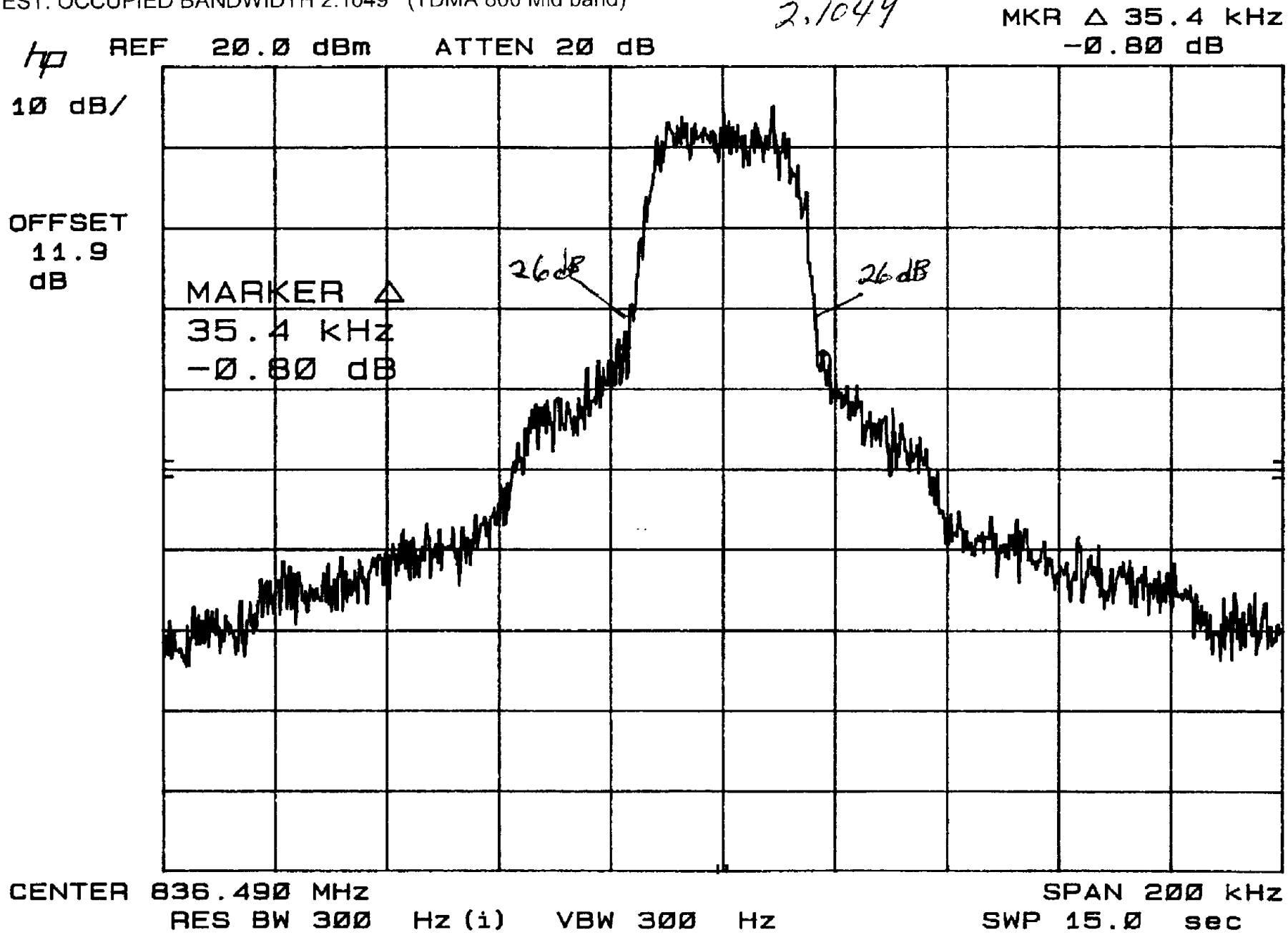


CUSTOMER: SIEMENS
EUT: "S46" FCC ID:PWX S46"
TEST: OCCUPIED BANDWIDTH 2.1049 (TDMA 800 Mid band)

Report No.: SC107139

OCT. 22, 2001
TECH/ENGR.

2.1049



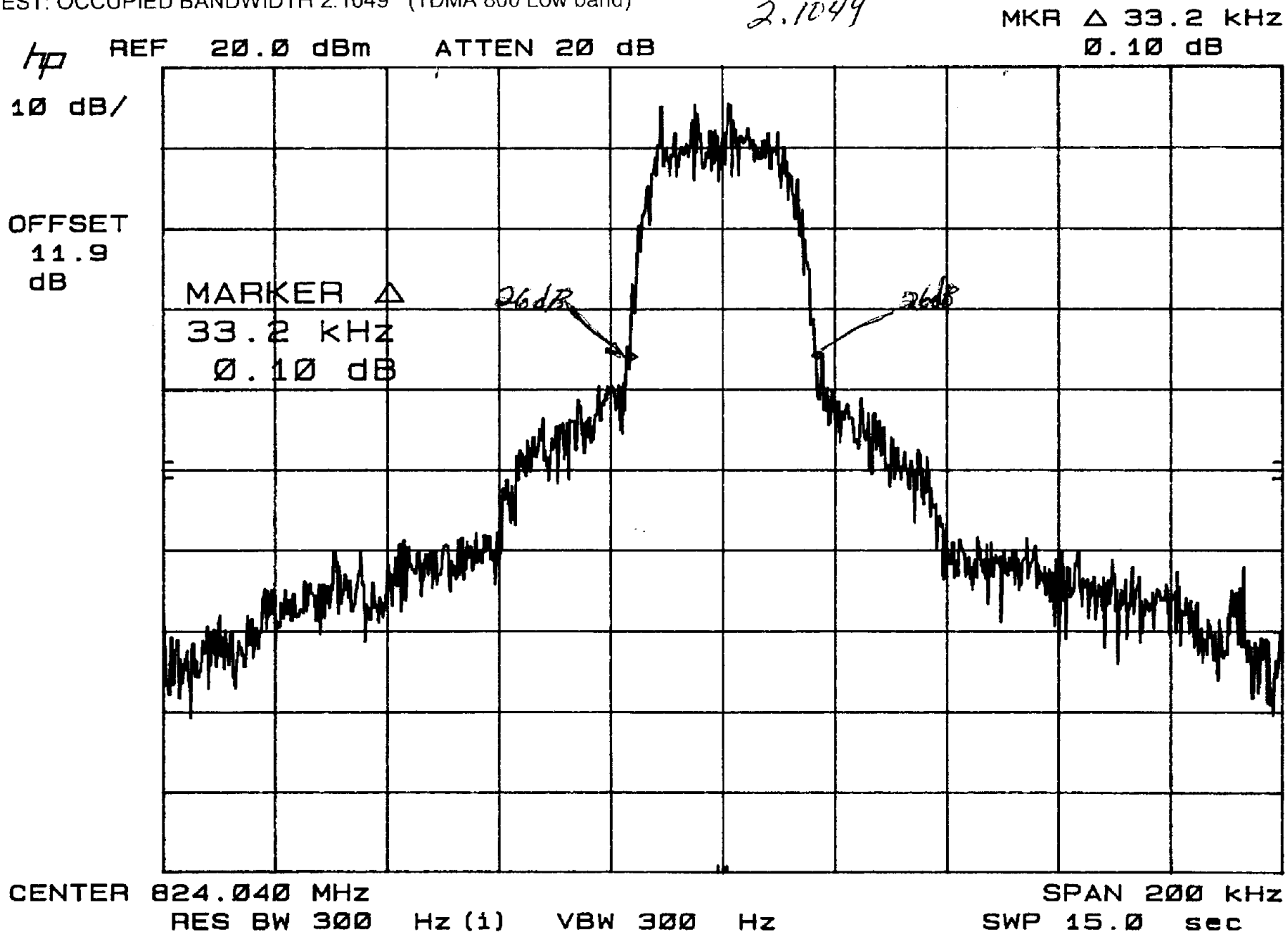
49

CUSTOMER: SIEMENS
EUT: "S46" FCC ID:PWX S46"
TEST: OCCUPIED BANDWIDTH 2.1049 (TDMA 800 Low band)

Report No.: SC107139

OCT. 22, 2001
TECH/ENGR.

2.1049

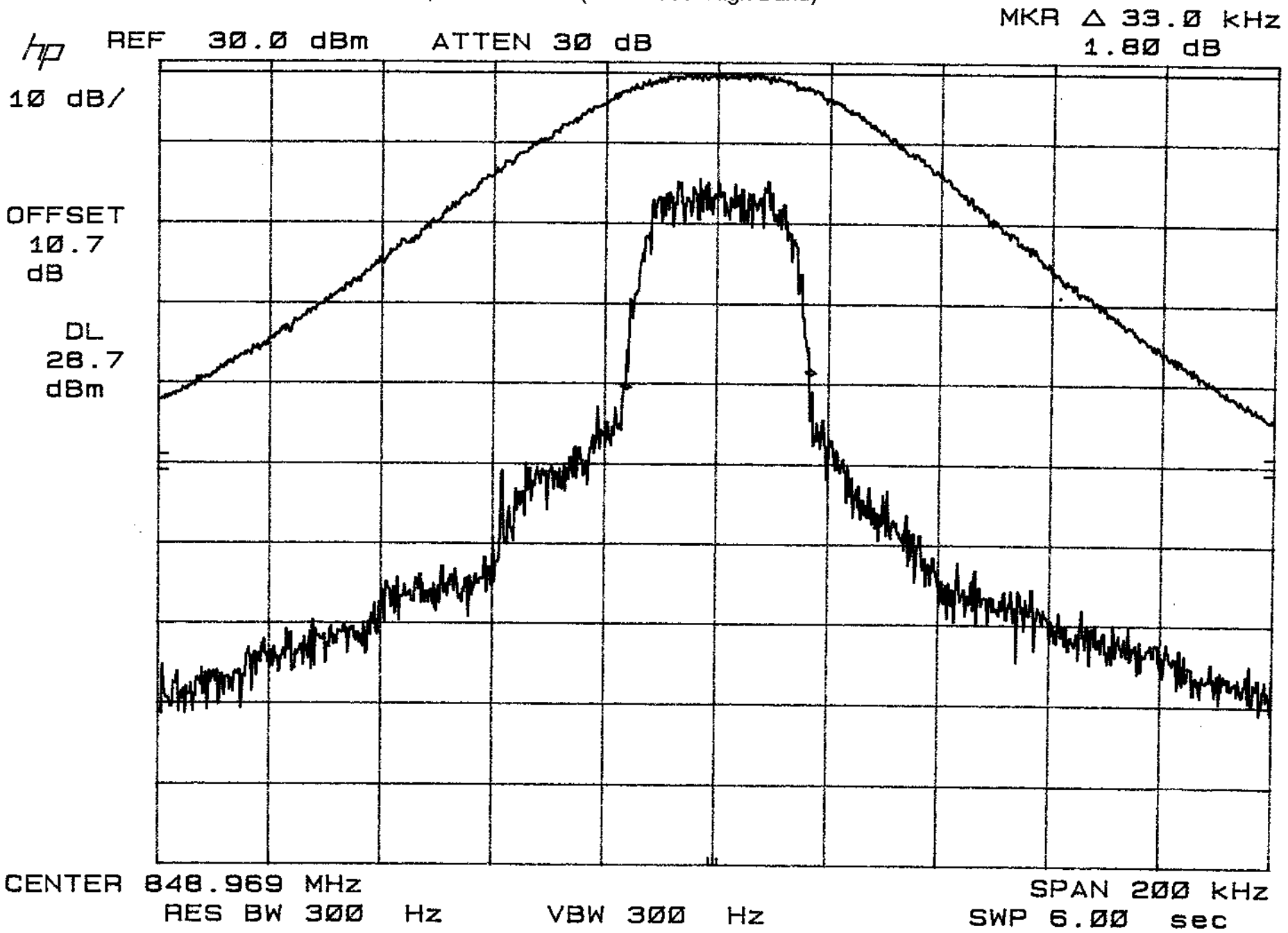


50

CUSTOMER: SIEMENS
EUT: "S46" FCC ID:PWX S46
TEST: OCCUPIED BANDWIDTH FCC Part 2, Para. 2.1049 (TDMA 800 High Band)

Report No.: SC107139

JAN. 22, 2002
TECH/ENGR.



51

CUSTOMER: SIEMENS
EUT: "S46" FCC ID:PWX S46"
TEST: OCCUPIED BANDWIDTH 2.1049 (TDMA 800 High band)

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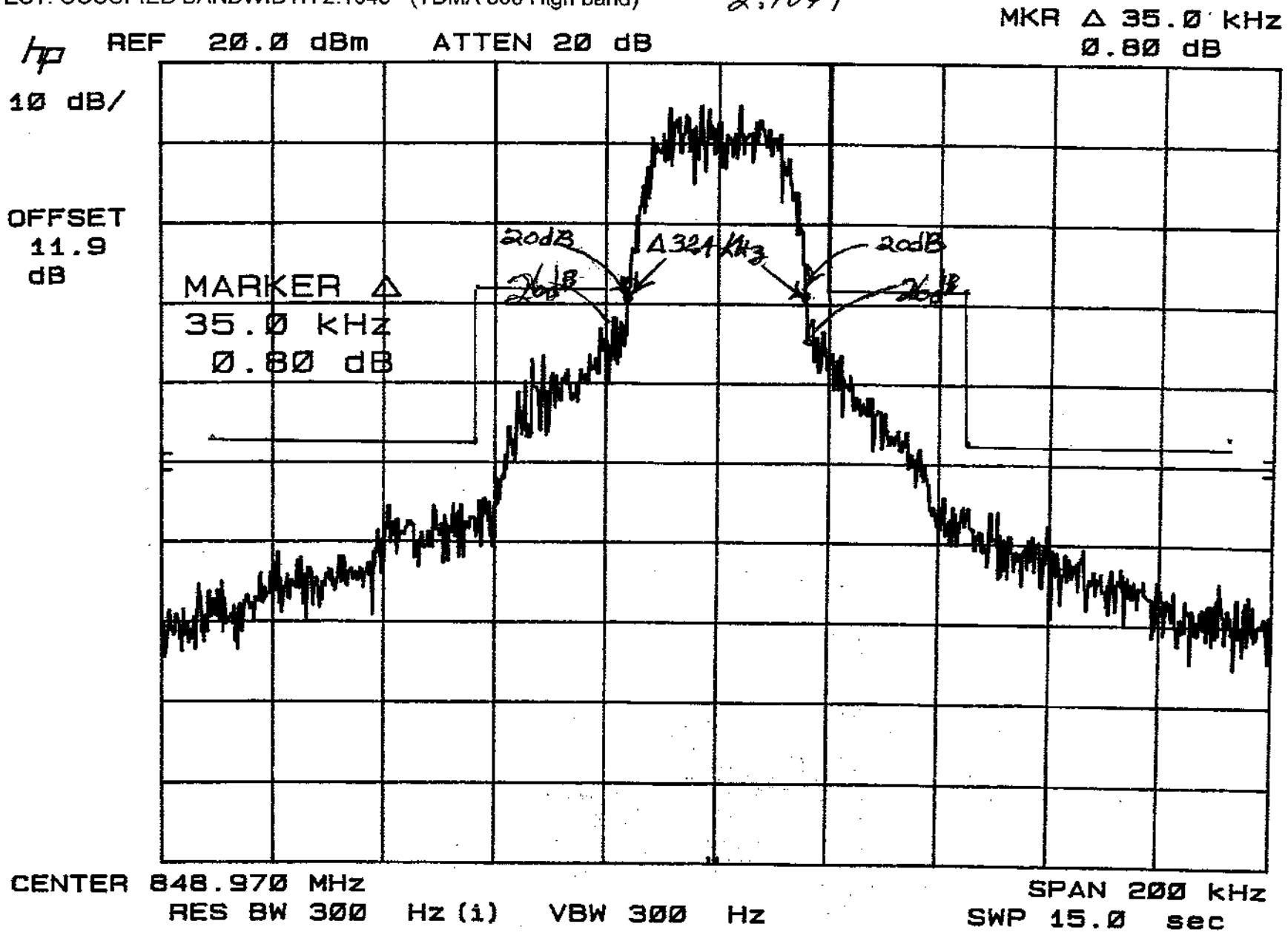
2.1049

OCT. 22, 2001
TECH/ENGR. DPSB

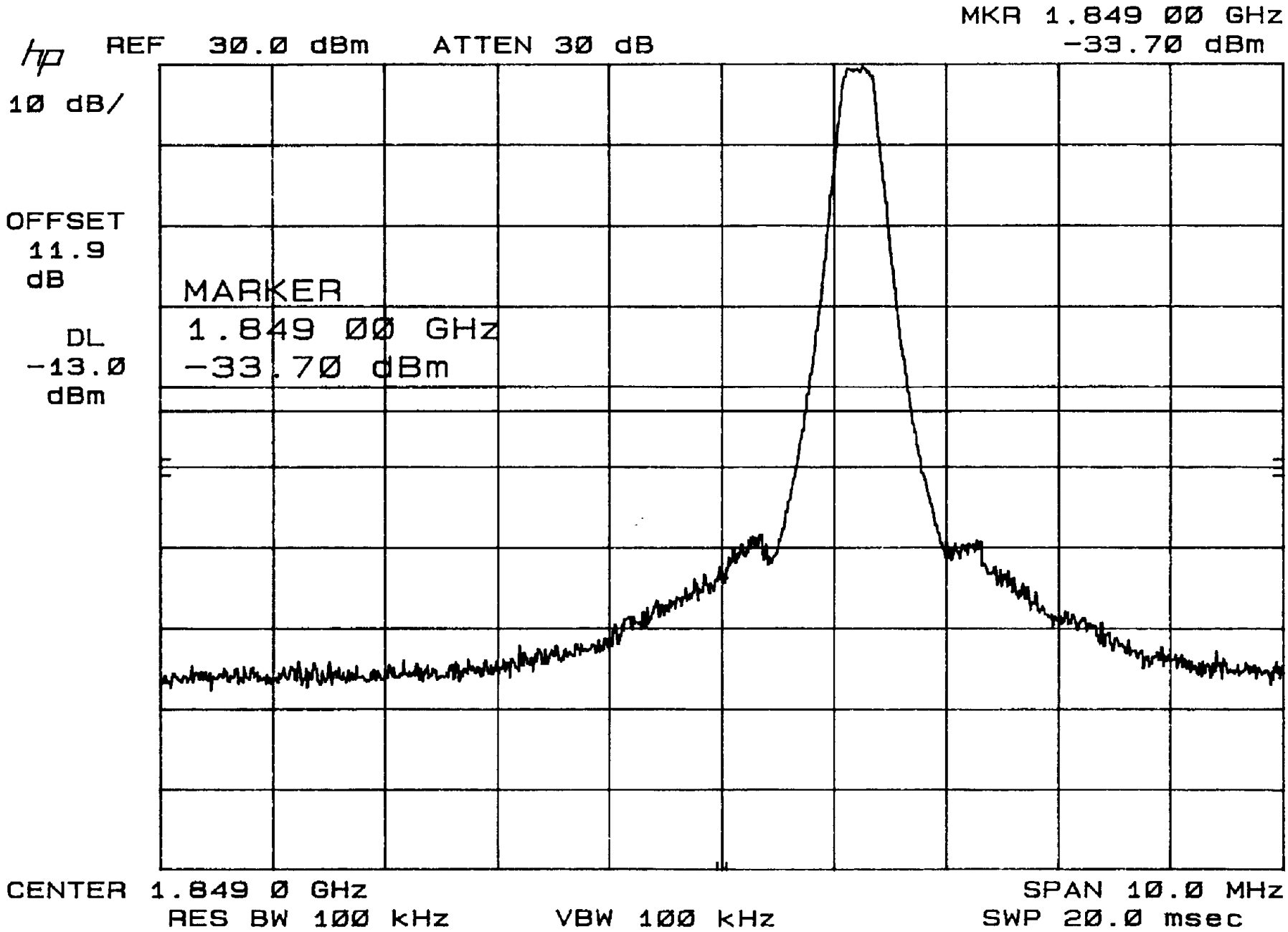


51(a)

CUSTOMER: SIEMENS
EUT: "S46" GSM 1900 (Low Band)
TEST: FCC Part 24, Para. 24.238(b) Emission Limits

Report No.: SC107139

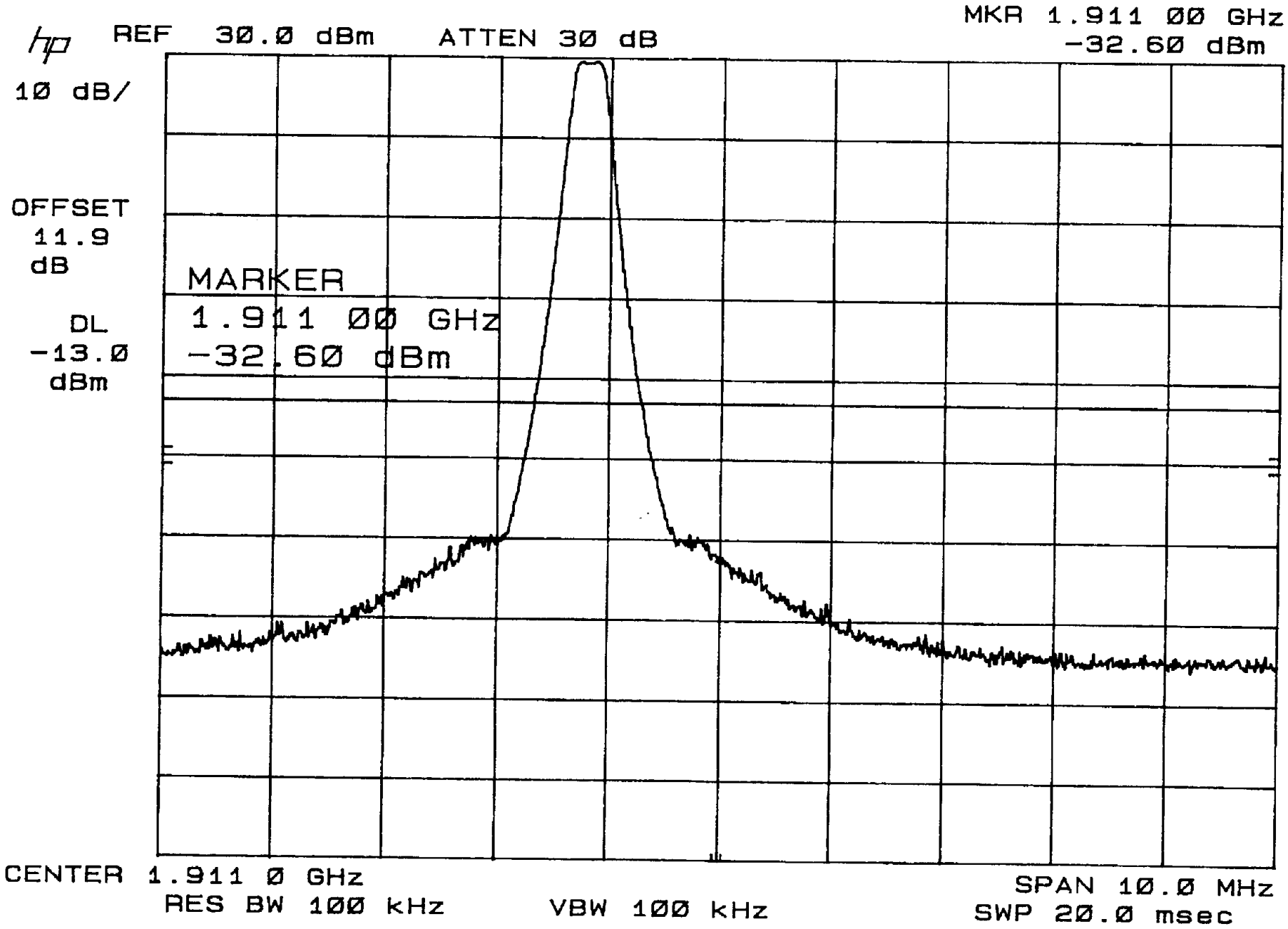
OCT. 26, 2001
TECH/ENGR.



CUSTOMER: SIEMENS
EUT: "S46" GSM 1900 (High Band)
TEST: FCC Part 24, Para. 24.238(b) Emission Limits

Report No.: SC107139

OCT. 26, 2001
TECH/ENGR.



53