



**APPLICATION FOR CERTIFICATION
FOR A**

Nextel Amplifier

M/N: IBA-NEX

PER FCC 47: Part 2, 90

Inteligain Corporation Inc

26500 Agoura Road

Calabasas, CA 91302

FCC ID: RCUIBANEX807

REPORT #: RV48069-003

Prepared By

DNB Engineering, Inc.

5969 Robinson Ave

Riverside CA, 92503

On

8 April 2004



TEST LAB PERSONNEL

Test Performed by:	Date	Signature
Thomas Elders	8 April 2004	<i>Thomas Elders</i>

APPROVALS

Management Approval	Date	Title	Signature
Les Payne	8 April 2004	Sr. Engineering Manager	<i>Les Payne</i>



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1 ADMINISTRATIVE DATA

1.1 Certifications and Qualifications

I certify that DNB Engineering, Inc conducted the tests performed in order to obtain the technical data presented in this application. Also, based on the results of the enclosed data, I have concluded that the equipment tested meets or exceeds the requirements of the Rules and Regulations governing this application.

DNB Engineering's Riverside 3 and 10 meter sites have been registered with the Federal Communication Commission per the requirements of Section 2.948 of the FCC Rules:

FCC Registration No. 99985

1.2 Measurement Reputability Information

The test data presented in this report has been acquired using the guidelines set forth in FCC Part 2.1031 through 2.1057, and were applicable to Part 90(see sec Test Data Required for specifics). The test results presented in this document are valid only for the equipment identified herein under the test conditions described. Repeatability of these test results will only be achieved with identical measurement conditions. These conditions include: The same test distance, EUT Height, Measurement Site Characteristics, and the same EUT System Components. The system must have the same Interconnecting Cables arranged in identical placement to that in the test set-up, with the system and/or EUT functioning in the identical mode of operation (i.e. software and so on) as on the date of the test. Any deviation from the test conditions and the environment on the date of the test may result in measurement repeatability difficulties.

All changes made to the EUT during the course of testing as identified in this test report must be incorporated into the EUT or identical models to ensure compliance with the FCC regulations.

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1.3 Test Methodology

The tests were performed in accordance with FCC Part 2 Subpart J (and Part 90 were applicable.)

Part 2	Description:	Part 90	Sec of Rept. RV48069-003
2.1046	RF Power Output	90.219	3.4
2.1047	Modulation characteristics	NA	3.5
2.1049	Occupied Bandwidth	90.209	3.6
2.1051	Spurious Emissions at Antenna terminals	90.210	3.7
2.1053	Field Strength of Spurious Emissions	90.210	3.8
2.1055	Frequency Stability	NA	3.9

1.4 Test Equipment Used

Figure 1: Test Equipment

Description	Manufacturer	M/N	S/N	Cal Date	Test Used On
Signal Generator	Agilent	E4432B	N/A	2/17/05	RF Power Out put, Emissions Lim, Cond Spur, Rad Spur, CE
Spectrum Analyzer Display	H/P	85662A	2403A06307	01/10/05	RF Power Out put, Emissions Lim, Cond Spur, Rad Spur, CE
Spectrum Analyzer	H/P	8566B	2407A03212	01/10/05	RF Power Out put, Emissions Lim, Cond Spur, Rad Spur, CE
Spec Analyzer Display	H/P	85662A	2318A05282	8/14/04	RE
Spectrum Analyzer	H/P	85680B	2049A01403	6/2/04	RE
Quasi-Peak Adapter	H/P	85650A	2043A00184	6/2/04	RE
Bicon Antenna	H/P	85650A	2043A00184	6/2/04	RE
Logarithmic Antenna	AH Systems	SAS-200/540	524	12/26/04	RE
DRG Antenna	EMCO	3146	1284	12/26/04	RE



1.5 Deviations

Deviations/Modifications to the EUT

None

Deviations/Modifications from test standard.

None

1.6 Test Description 2.1033 (b) (6)

1.6.1 RF Power Output

Per 2.1046

- (a) For transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, power output shall be measured at the RF output terminals when the transmitter is adjusted in accordance with the tune-up procedure to give the values of current and voltage on the circuit elements specified in Sec. 2.1033(c)(8). The electrical characteristics of the radio frequency load attached to the output terminals when this test is made shall be stated.
- (b) (b) For single sideband, independent sideband, and single channel, controlled carrier radiotelephone transmitters the procedure specified in paragraph (a) of this section shall be employed and, in addition, the transmitter shall be modulated during the test as follows. In all tests, the input level of the modulating signal shall be such as to develop rated peak envelope power or carrier power, as appropriate, for the transmitter.

1.6.2 Modulation Characteristics

Per 2.1047 (d)

A curve or equivalent data which shows that the equipment will meet the modulation requirements of the rules under which the equipment is to be licensed.

1.6.3 Occupied Bandwidth

Per 2.1049

1.6.4 Spurious Emissions at Antenna Terminals

Per 2.1051

The radio frequency voltage or powers generated within the equipment and appearing on a spurious frequency shall be checked at the equipment output terminals when properly loaded with a suitable artificial antenna. Curves or equivalent data shall show the magnitude of each harmonic and other spurious emission that can be detected when the equipment is operated under the conditions specified in Sec. 2.1049 as appropriate. The magnitude of spurious emissions which are attenuated more than 20 dB below the permissible value need not be specified.



1.6.5 Field Strength of Spurious radiation

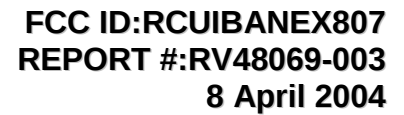
Per 2.1053

Measurements shall be made to detect spurious emissions that may be radiated directly from the cabinet, control circuits, power leads, or intermediate circuit elements under normal conditions of installation and operation. Curves or equivalent data shall be supplied showing the magnitude of each harmonic and other spurious emission. For this test, single sideband, independent sideband, and controlled carrier transmitters shall be modulated under the conditions specified in paragraph (c) of Sec. 2.1049, as appropriate. For equipment operating on frequencies below 890 MHz, an open field test is normally required, with the measuring instrument antenna located in the far-field at all test frequencies. In the event it is either impractical or impossible to make open field measurements (e.g. a broadcast transmitter installed in a building) measurements will be accepted of the equipment as installed. Such measurements must be accompanied by a description of the site where the measurements were made showing the location of any possible source of reflections which might distort the field strength measurements. Information submitted shall include the relative radiated power of each spurious emission with reference to the rated power output of the transmitter, assuming all emissions are radiated from halfwave dipole antennas.

1.6.6 Frequency Stability

Per 2.1055

The frequency stability shall be measured with variation of ambient temperature. Frequency measurements shall be made at the extremes of the specified temperature range and at intervals of not more than 10° centigrade through the range. A period of time sufficient to stabilize all of the components of the oscillator circuit at each temperature level shall be allowed prior to frequency measurement. The short term transient effects on the frequency of the transmitter due to keying (except for broadcast transmitters) and any heating element cycling normally occurring at each ambient temperature level also shall be shown. Only the portion or portions of the transmitter containing the frequency determining and stabilizing circuitry need be subjected to the temperature variation test.



2.1033 (b) 1 Name of Applicant: **Inteligain Corporation Inc**
26500 Agoura Road
Calabasas, CA 91302

Applicant is:	☒	Manufacturer
	☐	Vendor
	☐	Licensee
	☐	Prospective Licensee
	☐	Other

Applicable FCC Parts: 2, 90

2.1033 (b) 8 Input Power: 0 dBm (1mW)



2.1033 (b) 9 Tune-Up Procedure

Customer will provide.

2.1033 (b) 10 Schematic Diagram

Customer will provide.

2.1033 (b) 11 Equipment Identification Plate or Equivalent

Customer will provide.

2.1033 (b) 12 Photographs of Unit Internal & External

Customer will provide.

2.1033 (b) 13 Description of Modulation System

Customer will provide.



3 2.1033 (b) 14: Test Data

3.1 Test Result Summery

Figure 2: Test Result Summary

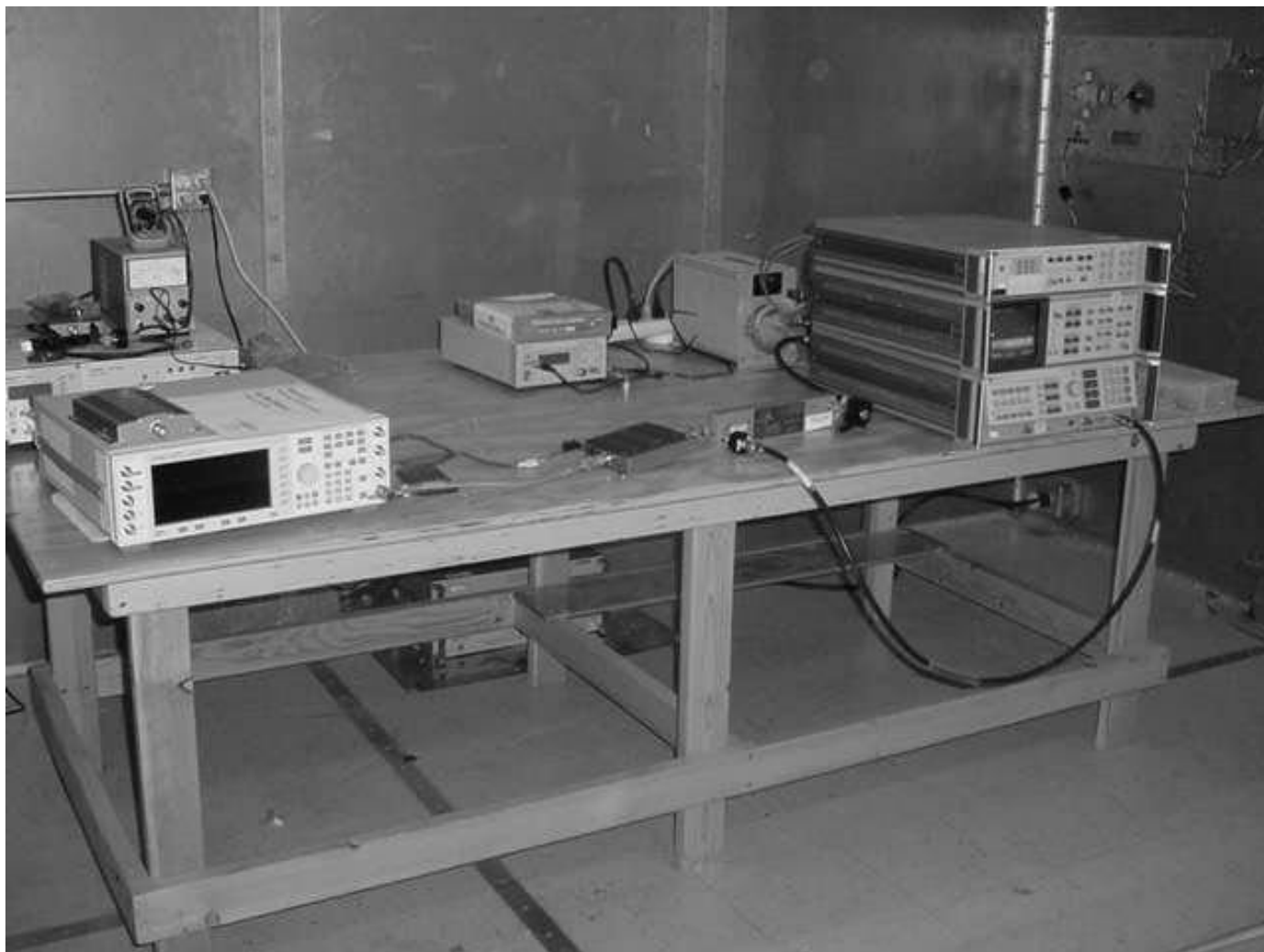
NAME OF TEST	FCC PARA. NO.	RESULTS
RF Power Output	2.1046, 90.219	Complies
Modulation Characteristics	2.1047	Complies
Occupied Bandwidth: TDMA/GSM	2.1049, 90.209	Complies
Conducted Spurious Emissions at Antenna Terminals	2.1051, 90.210	Complies
Radiated Field Strength of Spurious Emissions	2.1053, 90.210	Complies
Frequency Stability	2.1055	NA

3.1.2 Frequency Spectrum Investigated

Per 2.1057

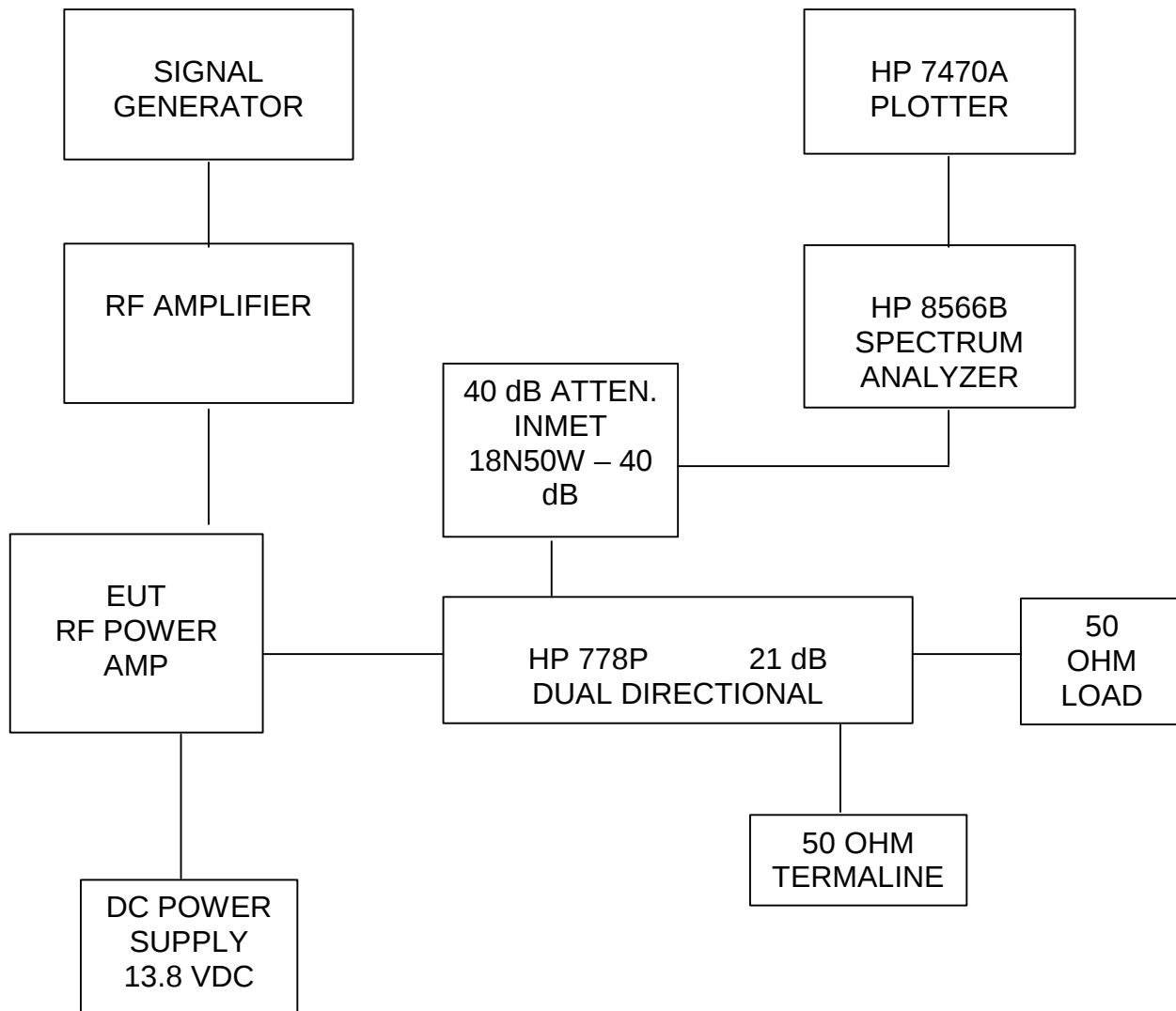
In all of the measurements set forth in Secs. 2.1051 and 2.1053, for equipment operating below 10 GHz, the spectrum shall be investigated from the lowest radio frequency signal generated in the equipment, without going below 9 kHz, to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

3.2 Test Setup Photo



3.3 Test Block Diagram

Figure 3: Test Set up Block Diagram for RF Power Output, Emissions Limitations GSM/TDMA, Occupied Bandwidth GSM/TDMA, Conducted Spurious Emissions at Antenna Terminals.





3.4 RF Power Output

Per 2.1046, 90.219

Definition: Nextel Amplifier

Test Method: See FIGURE 3.

Output Power is measured across a precision 50 ohm load with a Spectrum Analyzer. For the power measurement, CW (no modulation) is used.

Test Results:

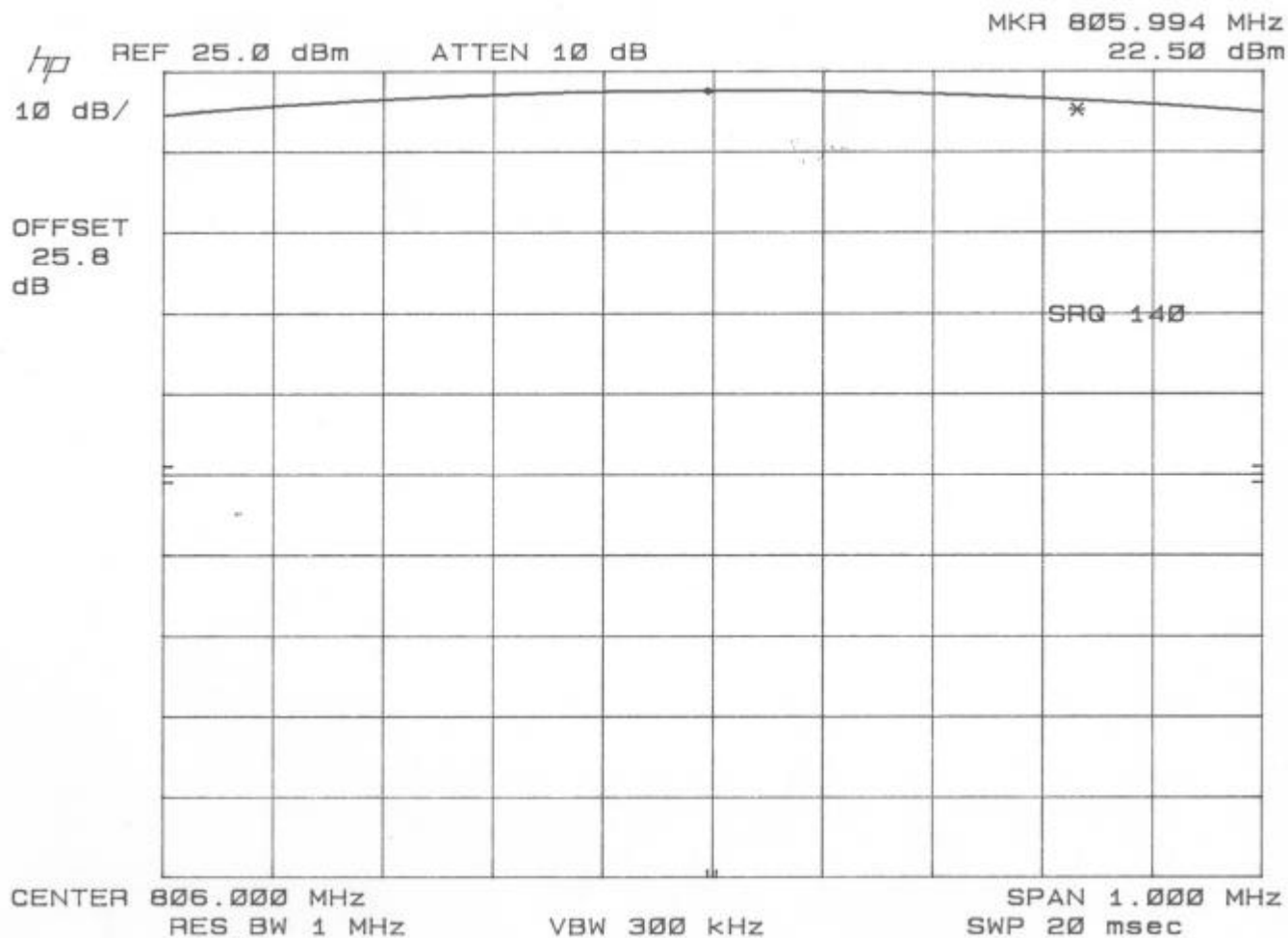
POWER OUTPUT MEASURED AT NOMINAL VOLTAGE WAS:

<u>Frequency (MHz)</u>	<u>Power (dBm)</u>	<u>Power (W)</u>
806	22.5	178mW
815.5	23.3	214mW
825	21.9	123mW
851	10.6	1mW
860.5	12.5	18mW
870	12.7	18.6mW



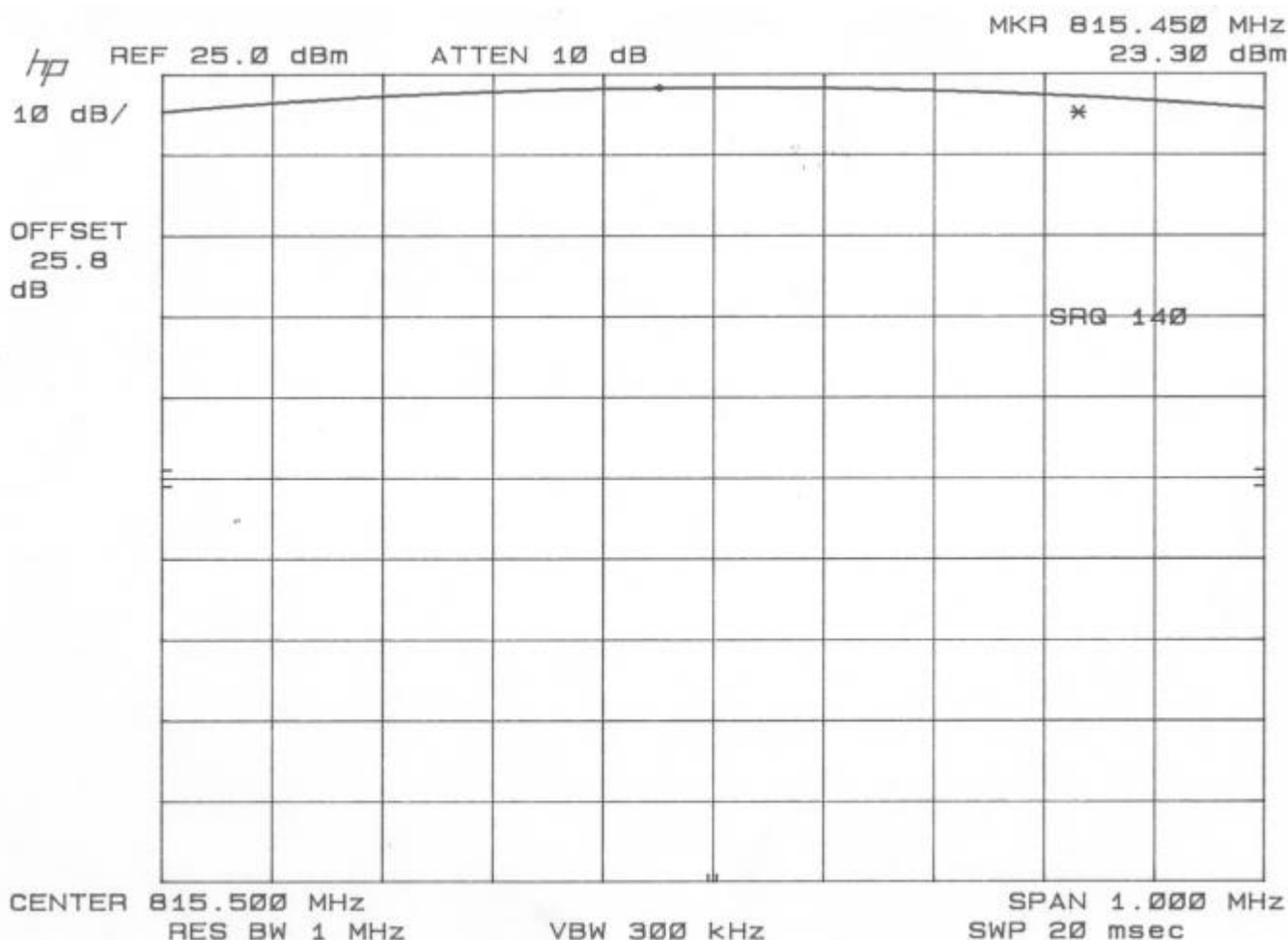
Figure 4: RF Power Output

		RF Power Output	
DNB Job Number:	RV48069-003	Date: 26 Mar 2004	Conformance Standards FCC Part 2.1046 Part 90.219
Customer:	Inteligain Corporation Inc		
Model Number:	IBX-NEX	Serial Number: n/a	
Description:	Nextel Amplifier		
	Uplink 806MHZ		



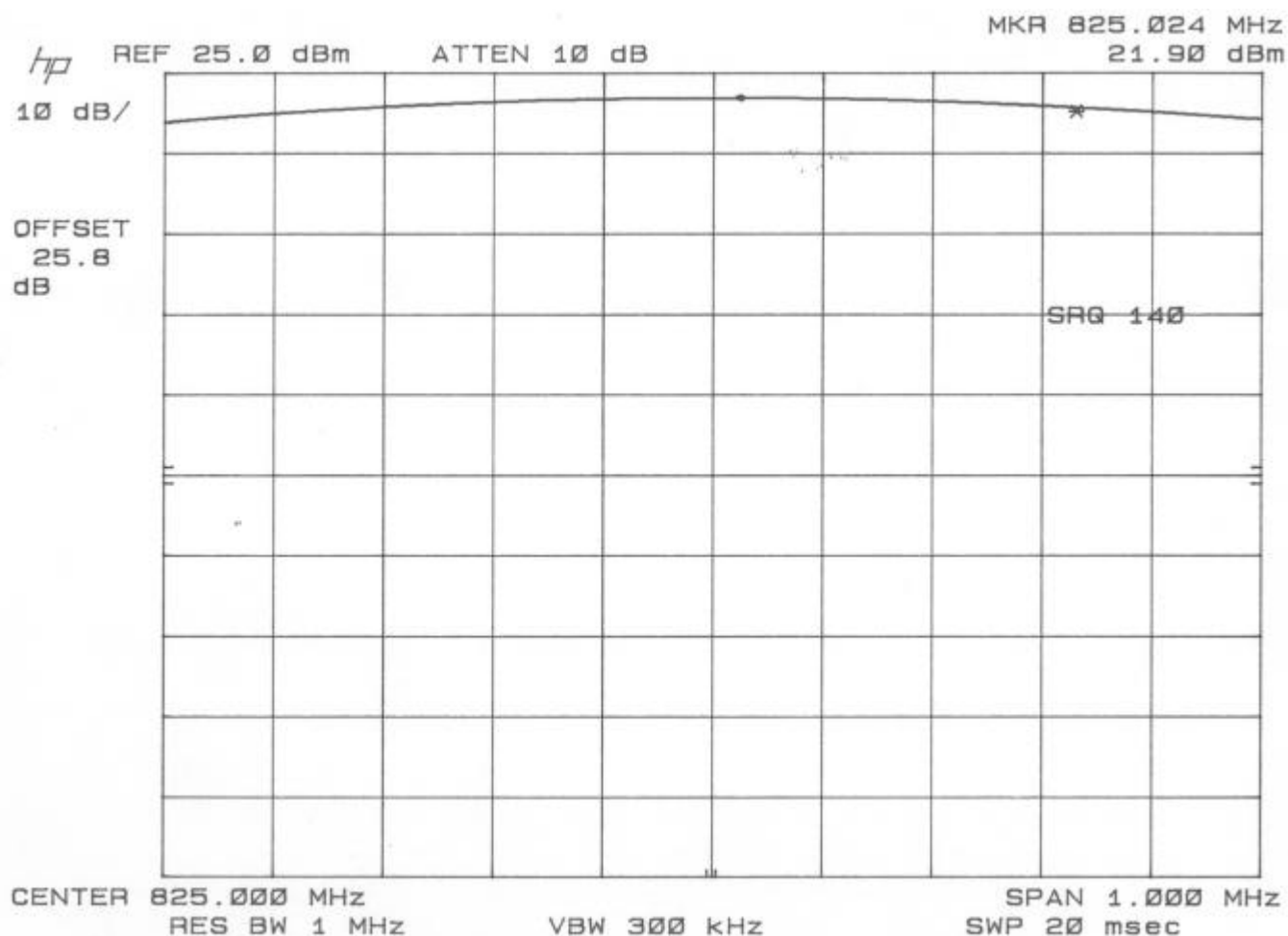


		RF Power Output	
DNB Job Number:	RV48069-003	Date: 26 Mar 2004	Conformance Standards FCC Part 2.1046 Part 90.219
Customer:	Inteligain Corporation Inc		
Model Number:	IBX-NEX	Serial Number: n/a	
Description:	Nextel Amplifier		
	Uplink 815.5 MHz		



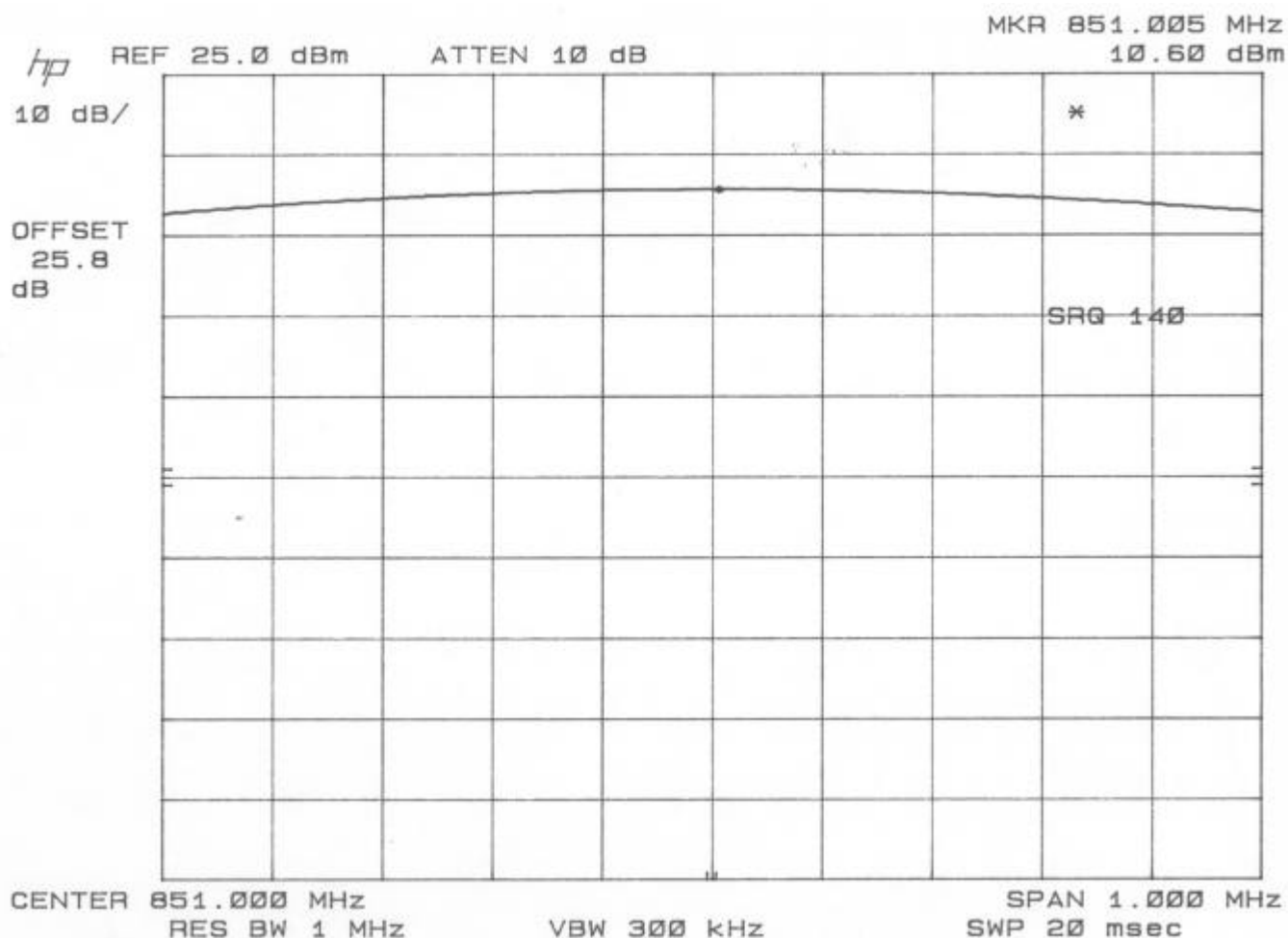


			RF Power Output	
DNB Job Number:	RV48069-003	Date: 26 Mar 2004		Conformance Standards FCC Part 2.1046 Part 90.219
Customer:	Inteligain Corporation Inc			
Model Number:	IBX-NEX	Serial Number: n/a		
Description:	Nextel Amplifier			
	Uplink 825 MHz			



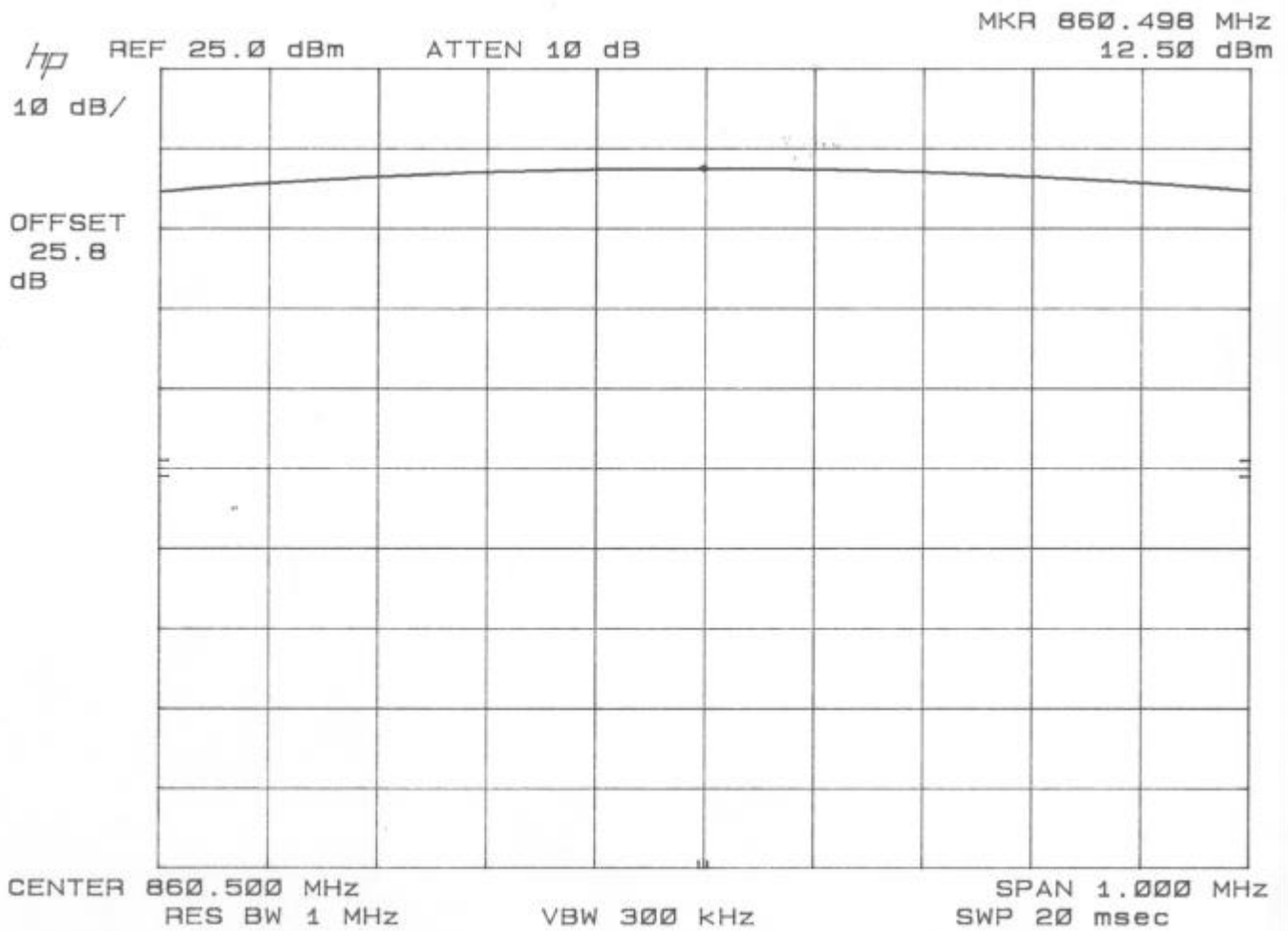


		RF Power Output	
DNB Job Number:	RV48069-003	Date: 26 Mar 2004	Conformance Standards FCC Part 2.1046 Part 90.219
Customer:	Inteligain Corporation Inc		
Model Number:	IBX-NEX	Serial Number: n/a	
Description:	Nextel Amplifier		
	Downlink 851 MHz		



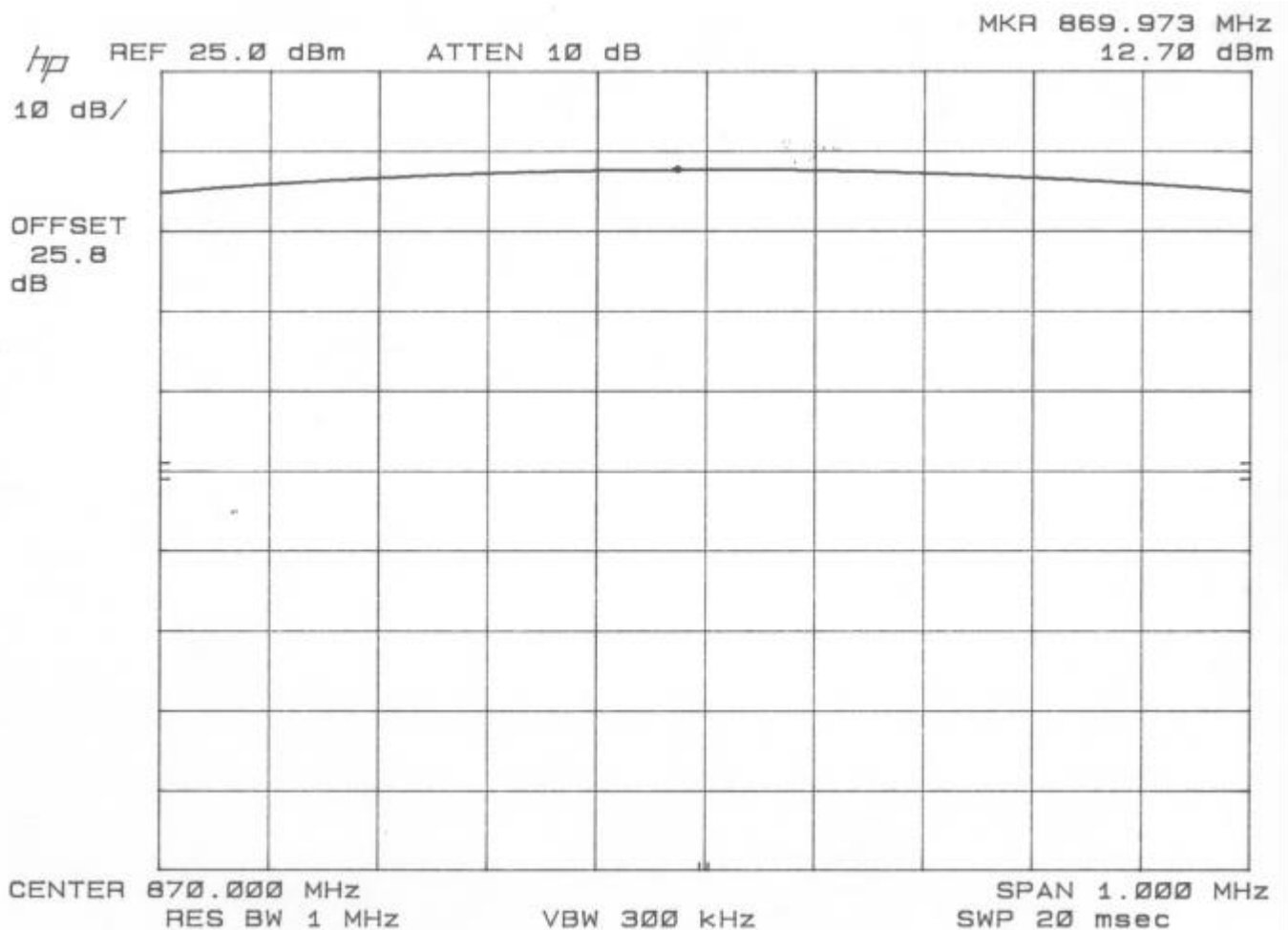


		RF Power Output	
DNB Job Number:	RV48069-003	Date: 26 Mar 2004	Conformance Standards FCC Part 2.1046 Part 90.219
Customer:	Inteligain Corporation Inc		
Model Number:	IBX-NEX	Serial Number: n/a	
Description:	Nextel Amplifier		
	Downlink 860.5 MHz		





		RF Power Output	
DNB Job Number:	RV48069-003	Date: 26 Mar 2004	Conformance Standards FCC Part 2.1046 Part 90.219
Customer:	Inteligain Corporation Inc		
Model Number:	IBX-NEX	Serial Number: n/a	
Description:	Nextel Amplifier		
	Downlink 870MHz		





3.5 Modulation Characteristics

Per 2.1047 (d)

The EUT is compliant as seen in Occupied Bandwidth data input and output signals. The amplified signal does not distort the modulation.



3.6 Occupied Bandwidth

Per 2.1049, 90.209

Definition:

Occupied Bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are equal to 0.5 percent of the total mean power radiated by a given emission.

Test Method: Connect the Equipment per FIGURE 3.

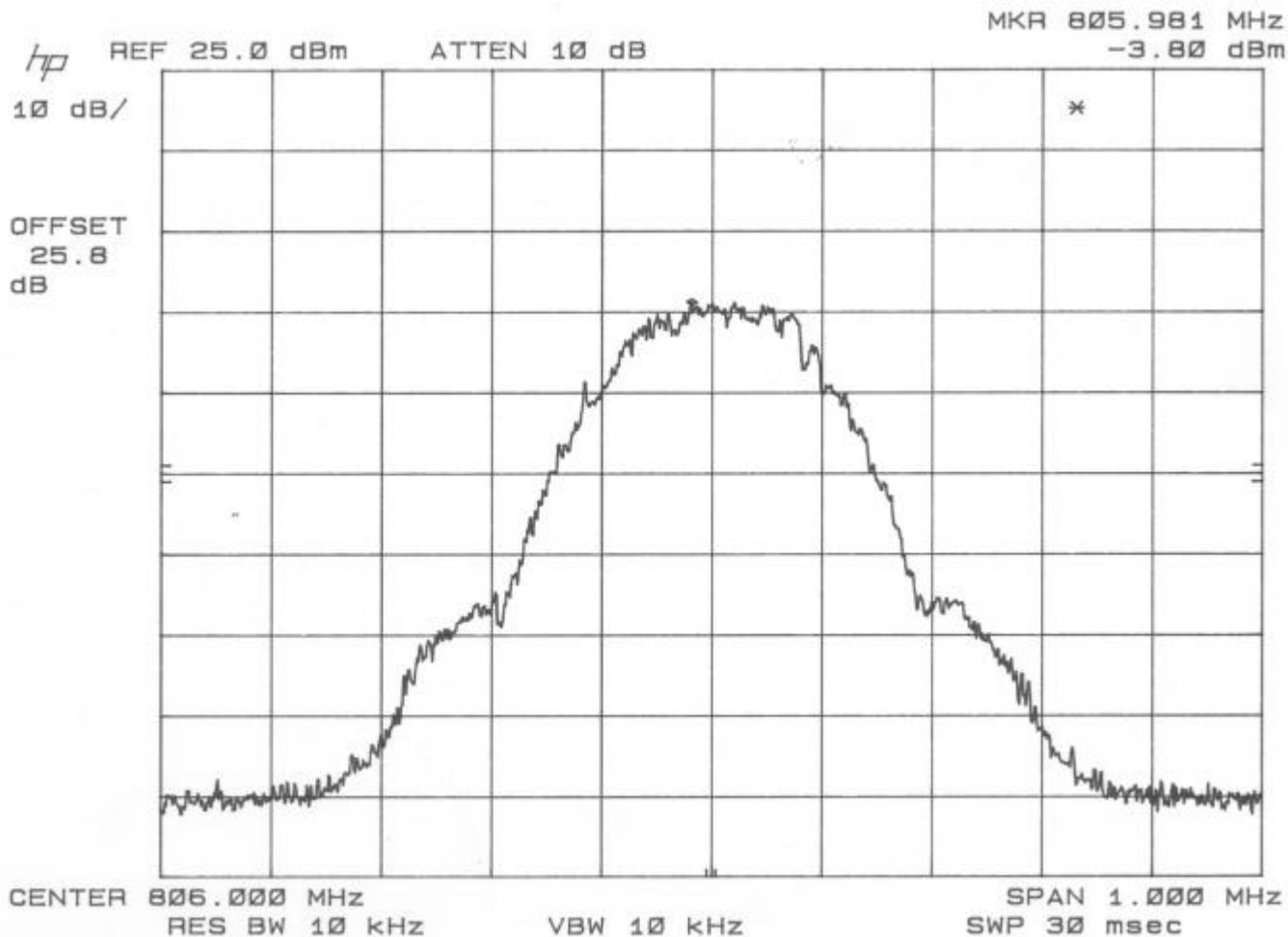
Measurements were made while modulating the driving source with specified modulations.

Test Results: See Plots



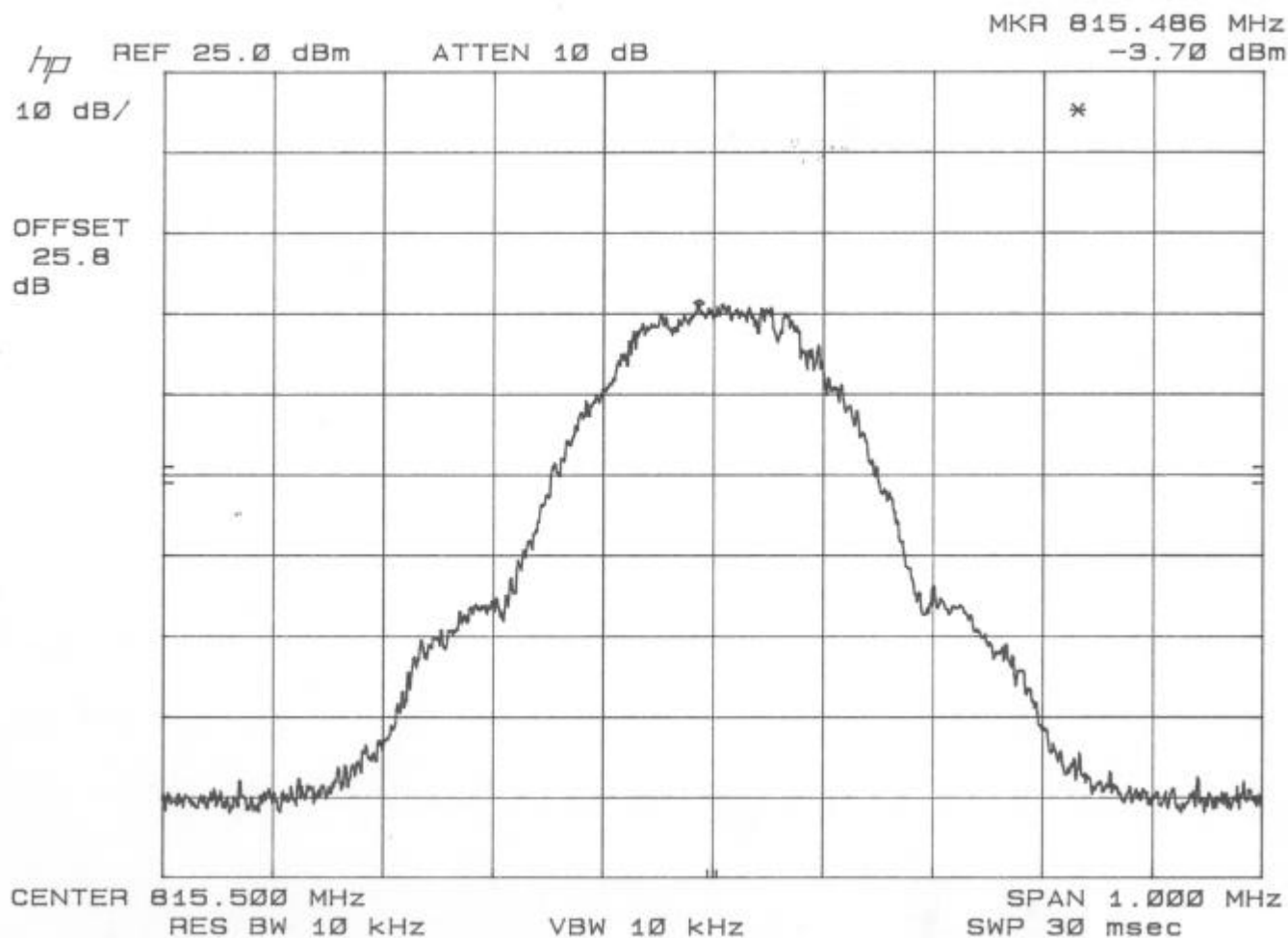
Figure 5: Occupied Bandwidth

		Occupied Bandwidth	
DNB Job Number:	RV48069-003	Date: 26 Mar 2004	Conformance Standards FCC Part 2.1049 Part 90.209
Customer:	Inteligain Corporation Inc		
Model Number:	IBX-NEX	Serial Number: n/a	
Description:	Nextel Amplifier		
	Input GSM Uplink 806 MHz		



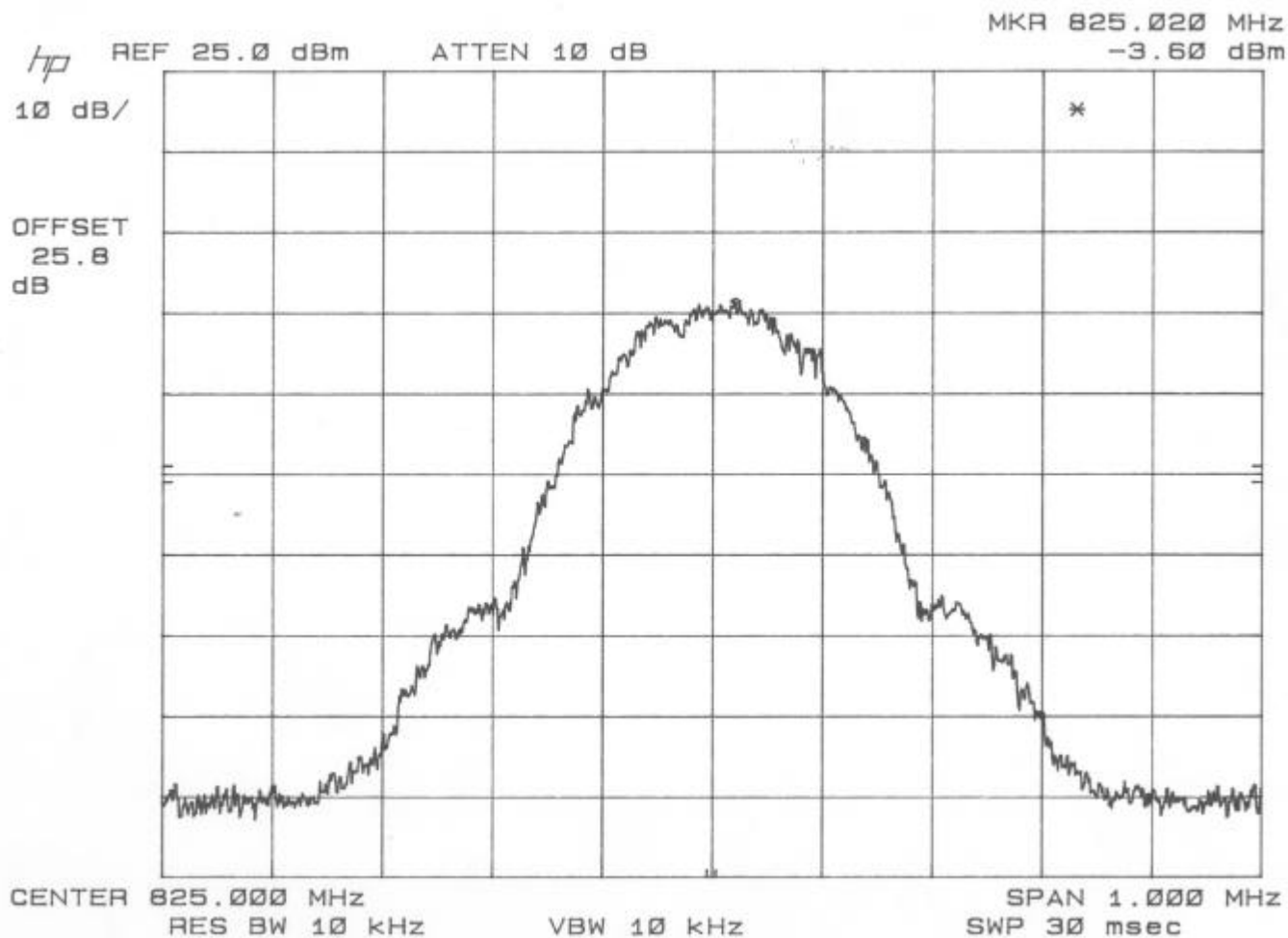


			Occupied Bandwidth
DNB Job Number:	RV48069-003	Date: 26 Mar 2004	Conformance Standards FCC Part 2.1049 Part 90.209
Customer:	Inteligain Corporation Inc		
Model Number:	IBX-NEX	Serial Number: n/a	
Description:	Nextel Amplifier		
	Input GSM Uplink 815.5 MHz		



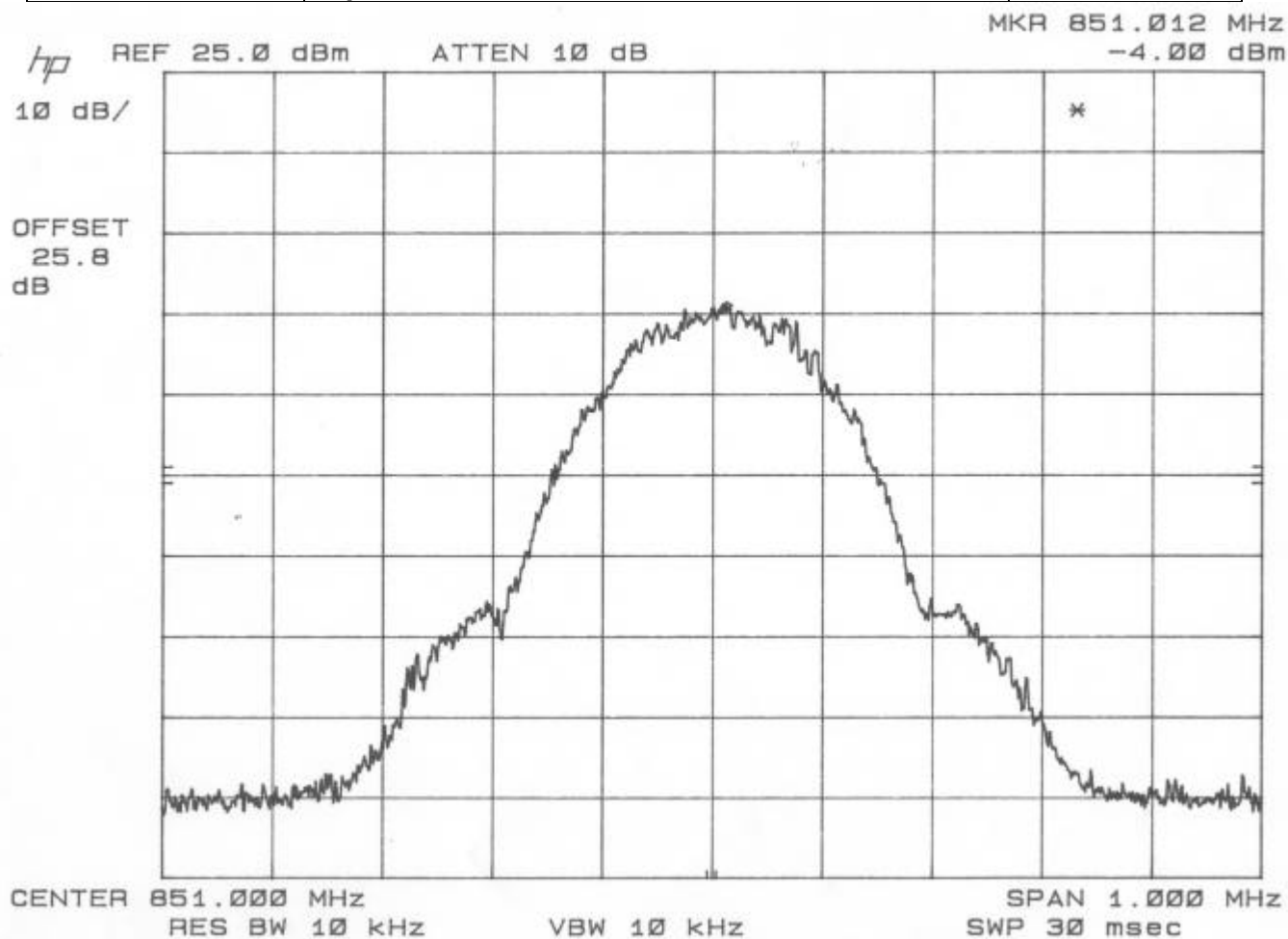


			Occupied Bandwidth
DNB Job Number:	RV48069-003	Date: 26 Mar 2004	Conformance Standards FCC Part 2.1049 Part 90.209
Customer:	Inteligain Corporation Inc		
Model Number:	IBX-NEX	Serial Number: n/a	
Description:	Nextel Amplifier		
	Input GSM Uplink 825 MHz		



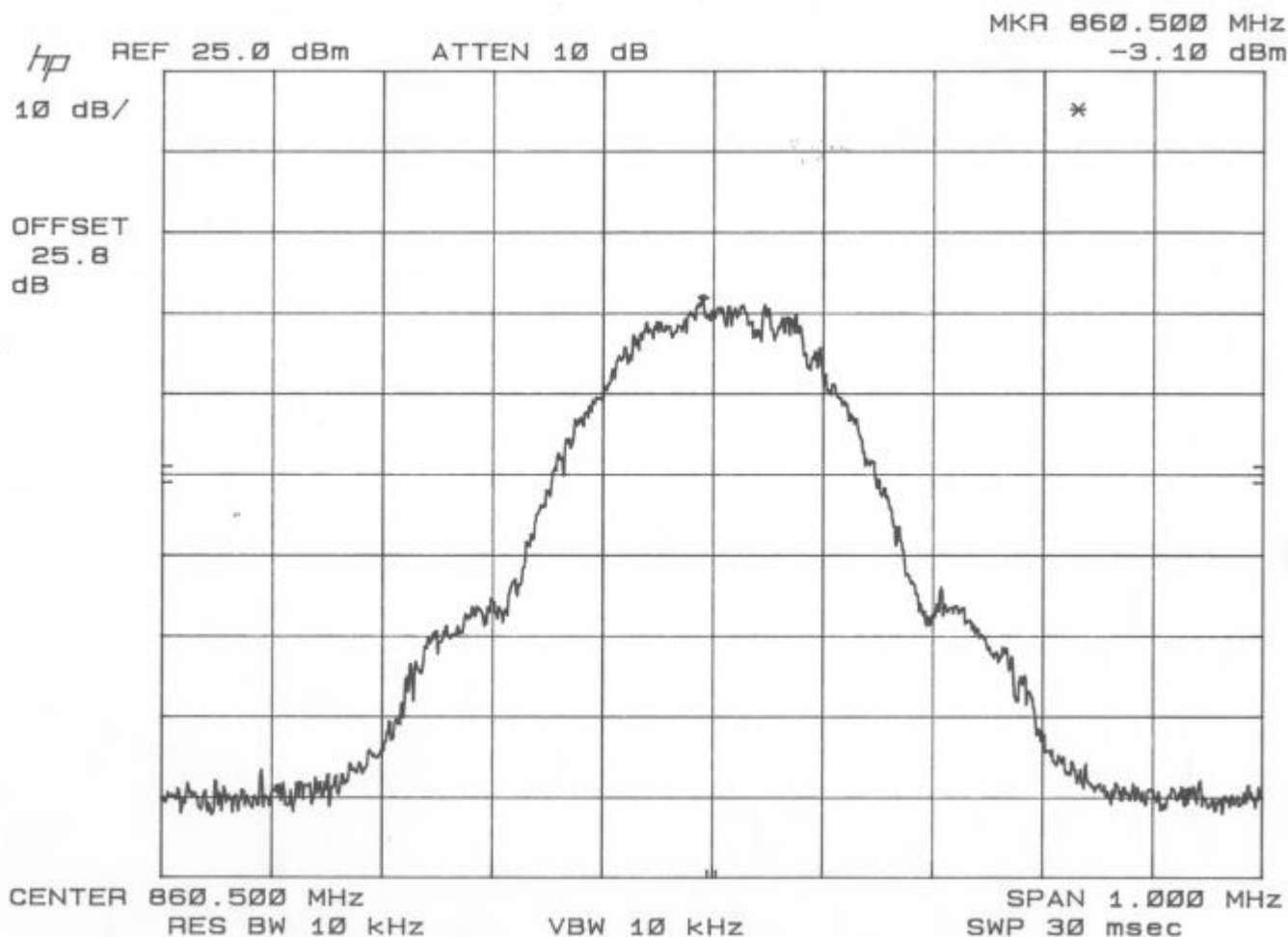


			Occupied Bandwidth	
DNB Job Number:	RV48069-003		Date: 26 Mar 2004	Conformance Standards FCC Part 2.1049 Part 90.209
Customer:	Inteligain Corporation Inc			
Model Number:	IBX-NEX	Serial Number: n/a		
Description:	Nextel Amplifier			
	Input GSM Downlink 851 MHz			



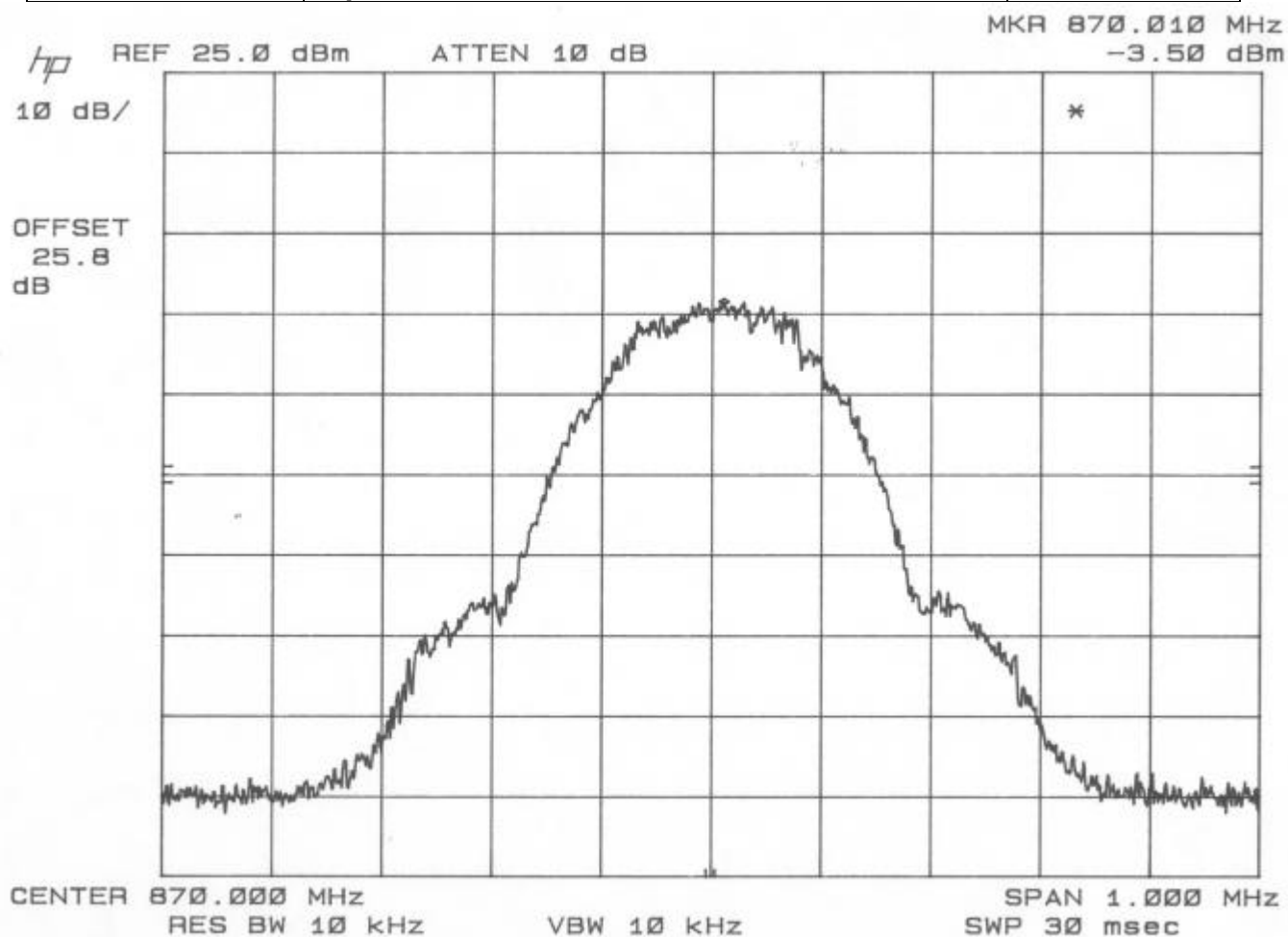


		Occupied Bandwidth	
DNB Job Number:	RV48069-003	Date: 26 Mar 2004	Conformance Standards FCC Part 2.1049 Part 90.209
Customer:	Inteligain Corporation Inc		
Model Number:	IBX-NEX	Serial Number: n/a	
Description:	Nextel Amplifier		
	Input GSM Downlink 860.5 MHz		



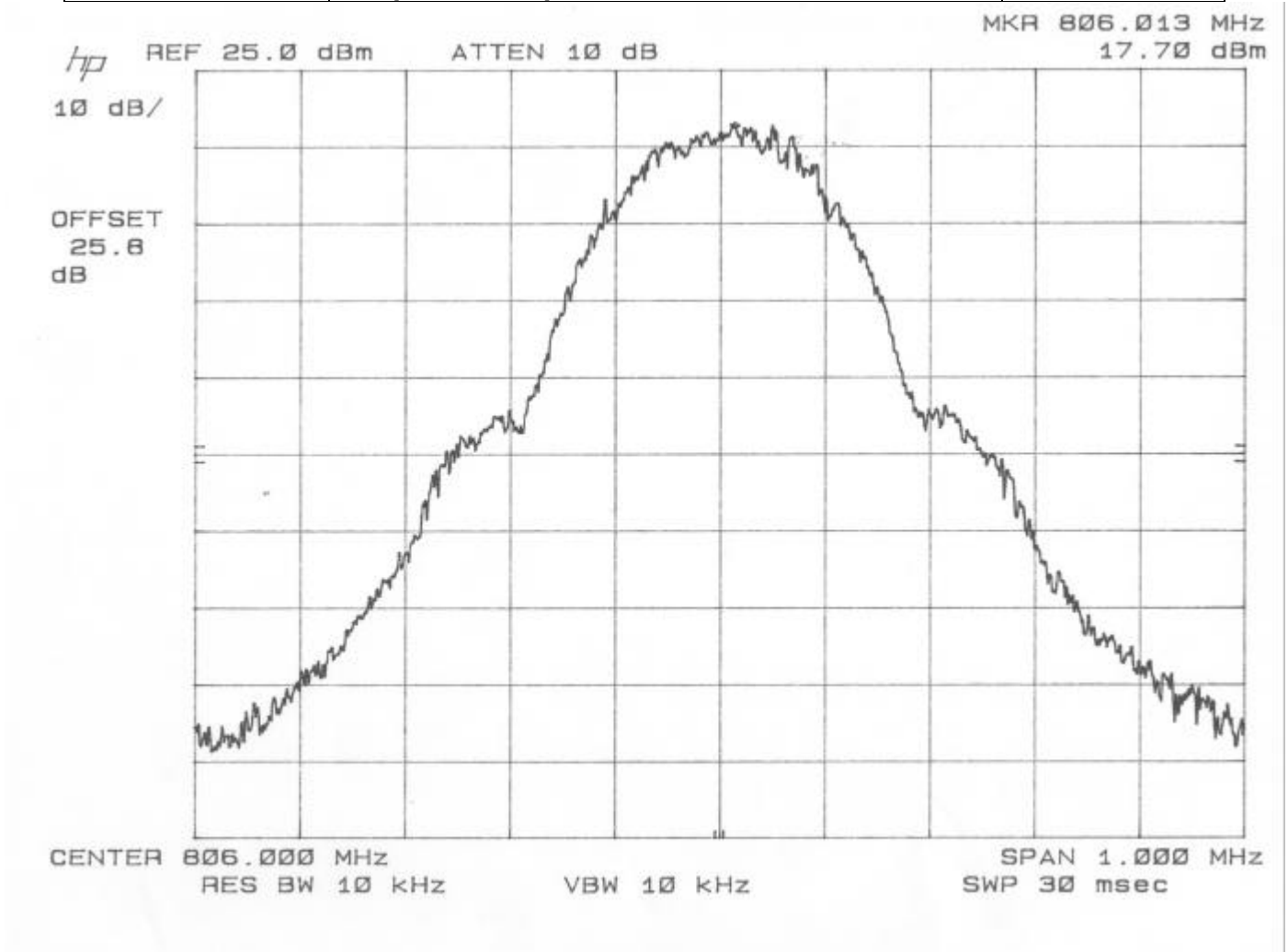


			Occupied Bandwidth	
DNB Job Number:	RV48069-003		Date: 26 Mar 2004	Conformance Standards FCC Part 2.1049 Part 90.209
Customer:	Inteligain Corporation Inc			
Model Number:	IBX-NEX	Serial Number: n/a		
Description:	Nextel Amplifier			
	Input GSM Downlink 870 MHz			



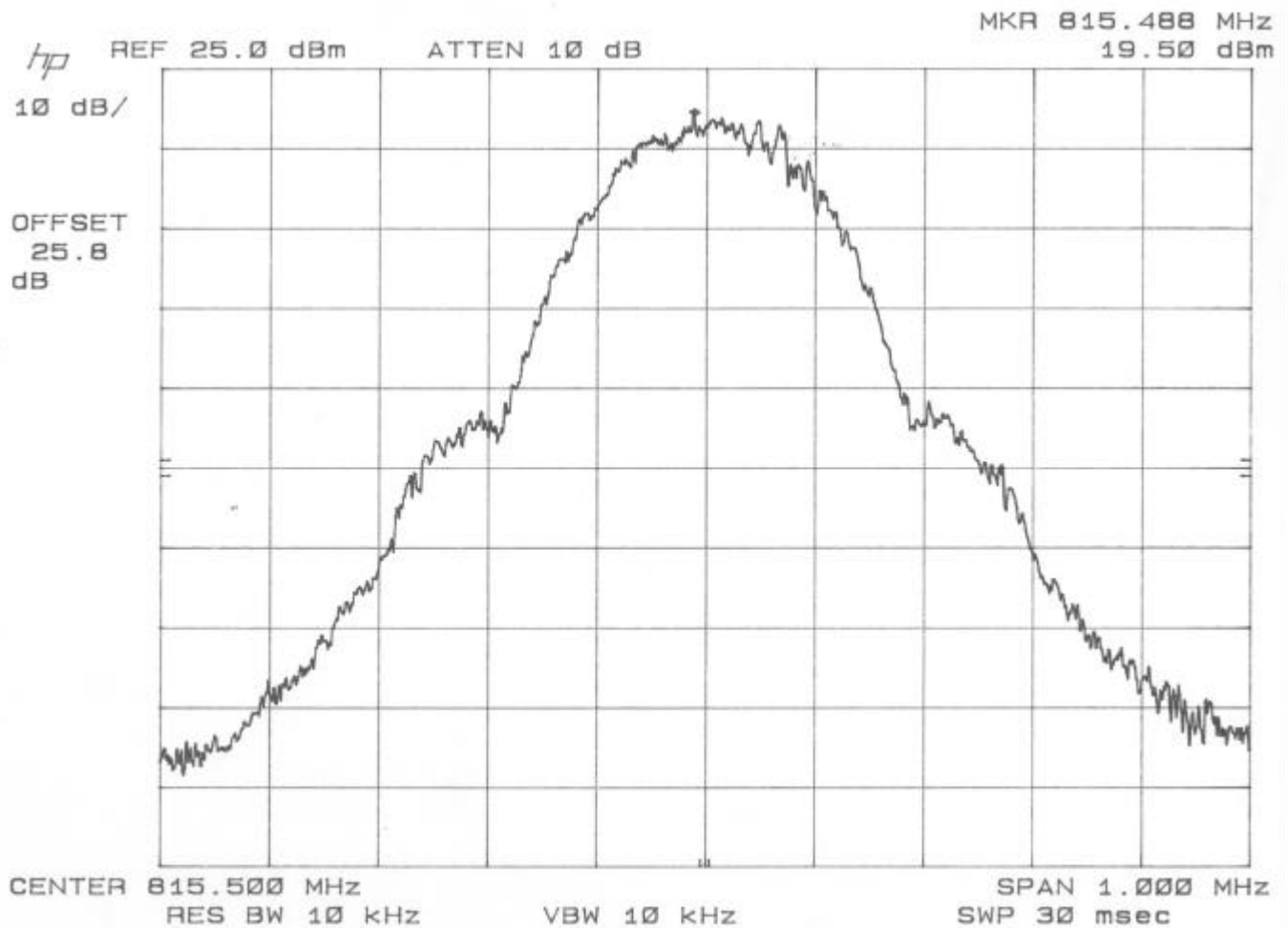


			Occupied Bandwidth	
DNB Job Number:	RV48069-003	Date: 26 Mar 2004		Conformance Standards FCC Part 2.1049 Part 90.209
Customer:	Inteligain Corporation Inc			
Model Number:	IBX-NEX	Serial Number: n/a		
Description:	Nextel Amplifier			
	Output GSM Uplink 806 MHz			



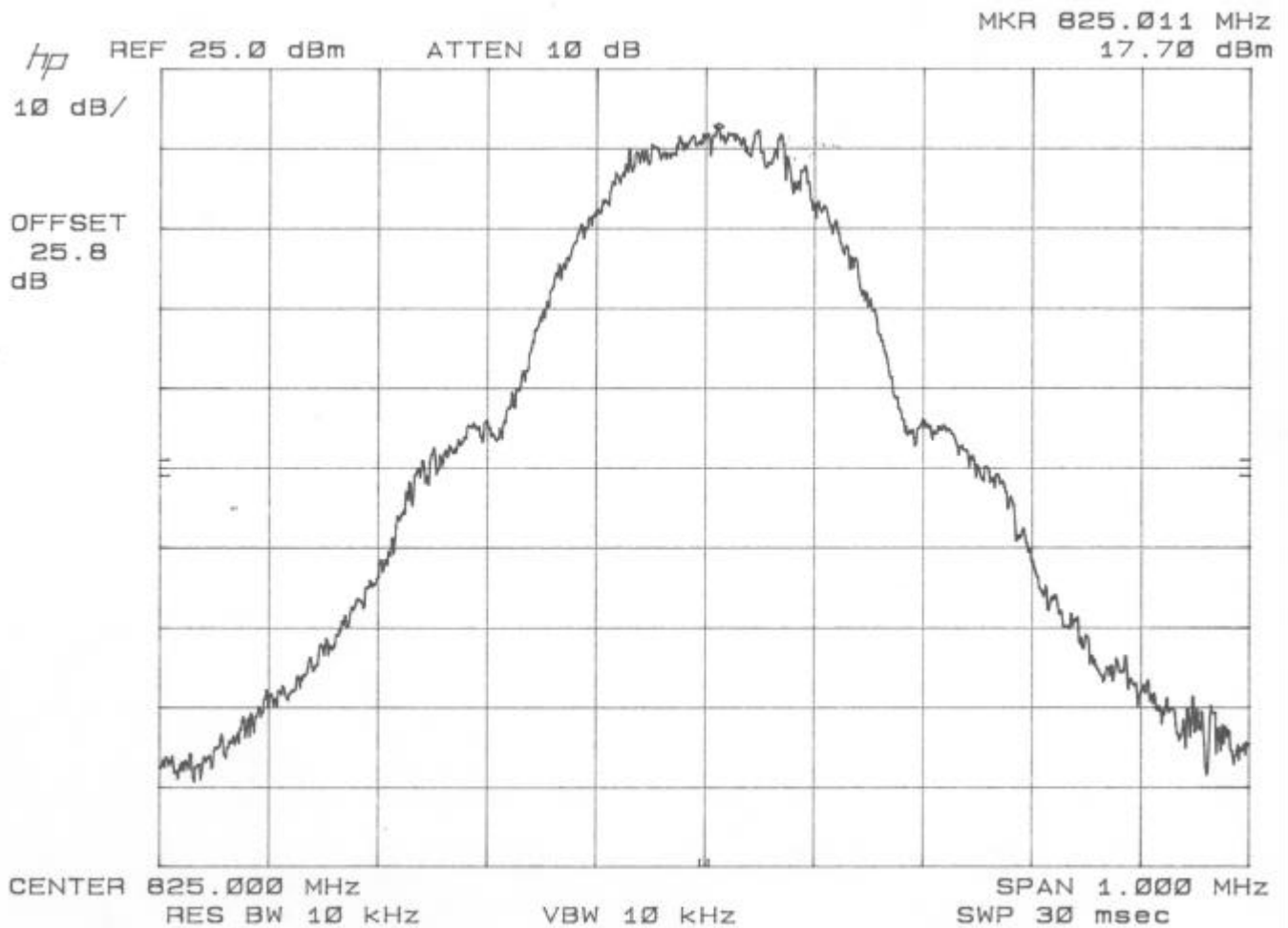


		Occupied Bandwidth	
DNB Job Number:	RV48069-003	Date: 26 Mar 2004	Conformance Standards FCC Part 2.1049 Part 90.209
Customer:	Inteligain Corporation Inc		
Model Number:	IBX-NEX	Serial Number: n/a	
Description:	Nextel Amplifier		
	Output GSM Uplink 815.5 MHz		



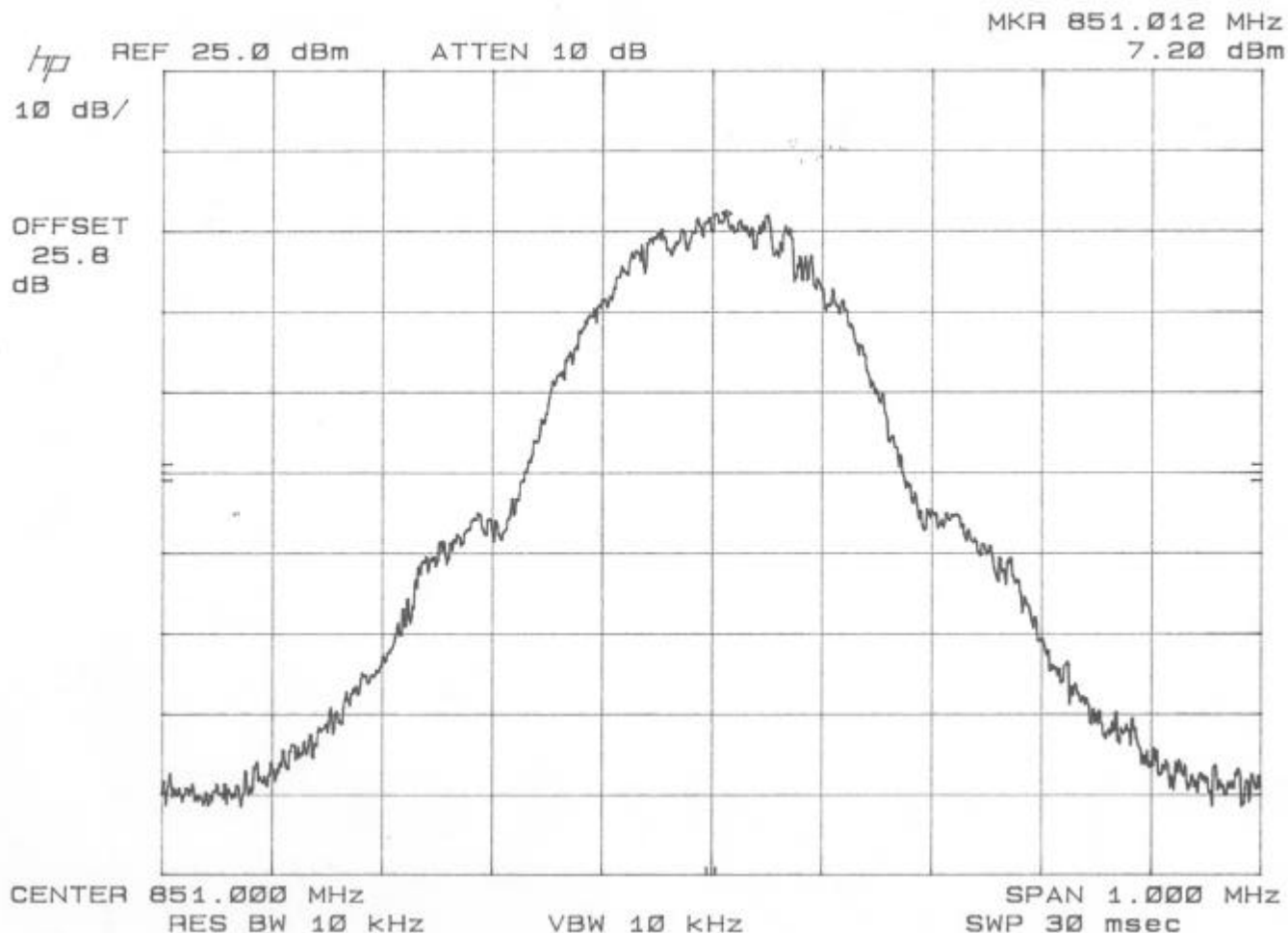


			Occupied Bandwidth	
DNB Job Number:	RV48069-003	Date: 26 Mar 2004		Conformance Standards FCC Part 2.1049 Part 90.209
Customer:	Inteligain Corporation Inc			
Model Number:	IBX-NEX	Serial Number: n/a		
Description:	Nextel Amplifier			
	Output GSM Uplink 825 MHz			



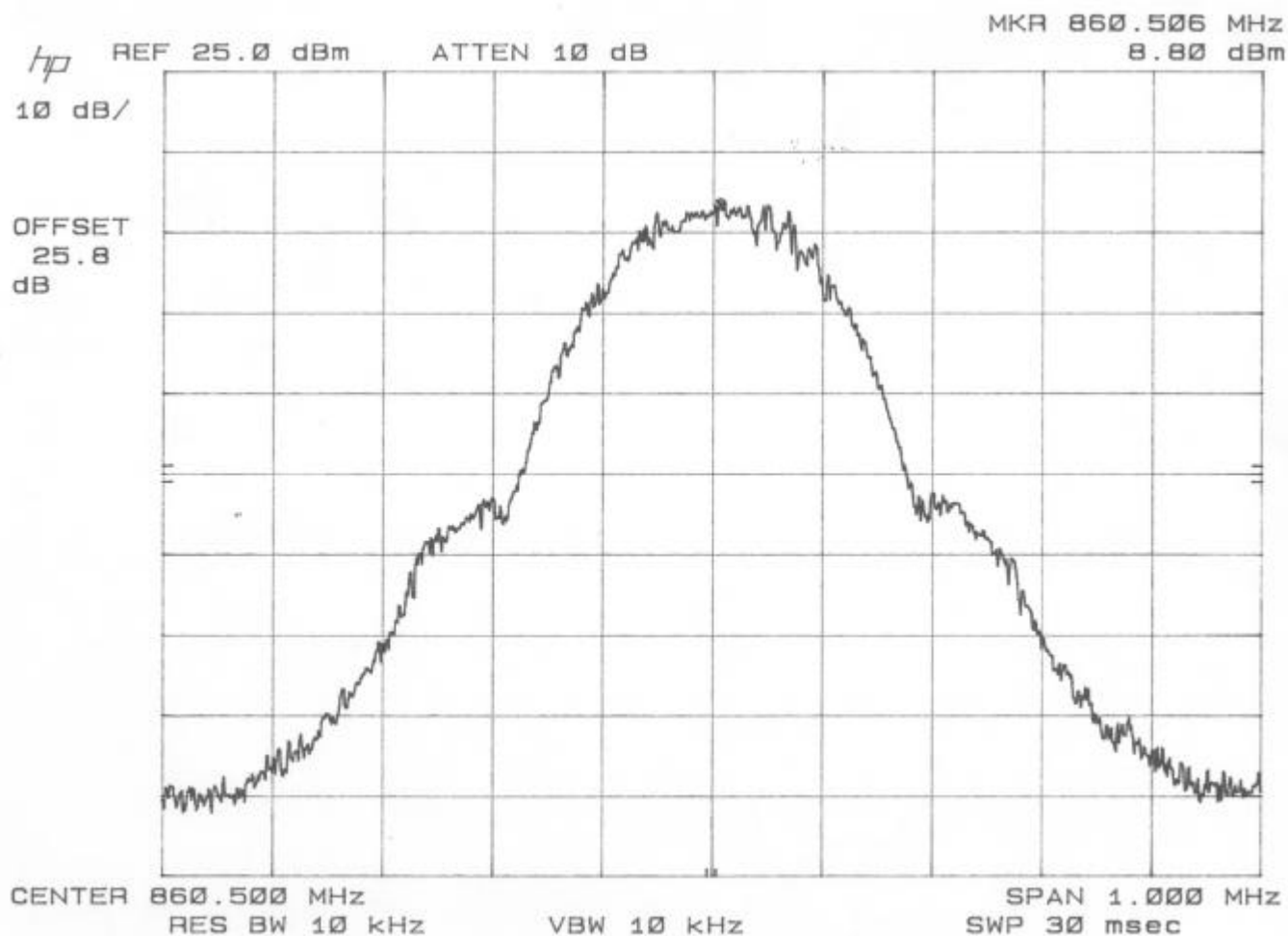


			Occupied Bandwidth	
DNB Job Number:	RV48069-003	Date: 26 Mar 2004		Conformance Standards FCC Part 2.1049 Part 90.209
Customer:	Inteligain Corporation Inc			
Model Number:	IBX-NEX	Serial Number: n/a		
Description:	Nextel Amplifier			
	Output GSM downlink 851 MHz			



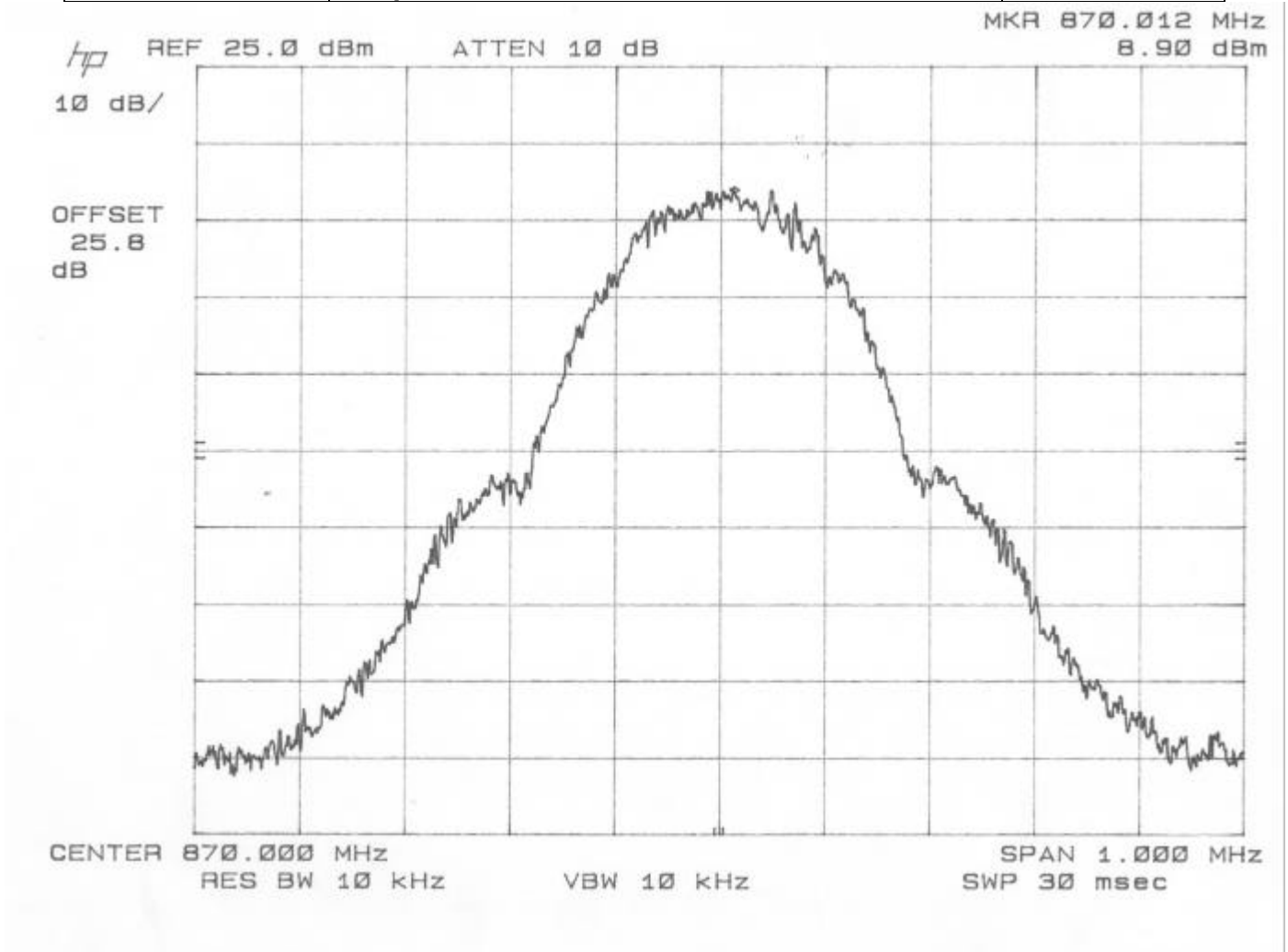


		Occupied Bandwidth	
DNB Job Number:	RV48069-003	Date: 26 Mar 2004	Conformance Standards FCC Part 2.1049 Part 90.209
Customer:	Inteligain Corporation Inc		
Model Number:	IBX-NEX	Serial Number: n/a	
Description:	Nextel Amplifier		
	Output GSM downlink 860.5 MHz		



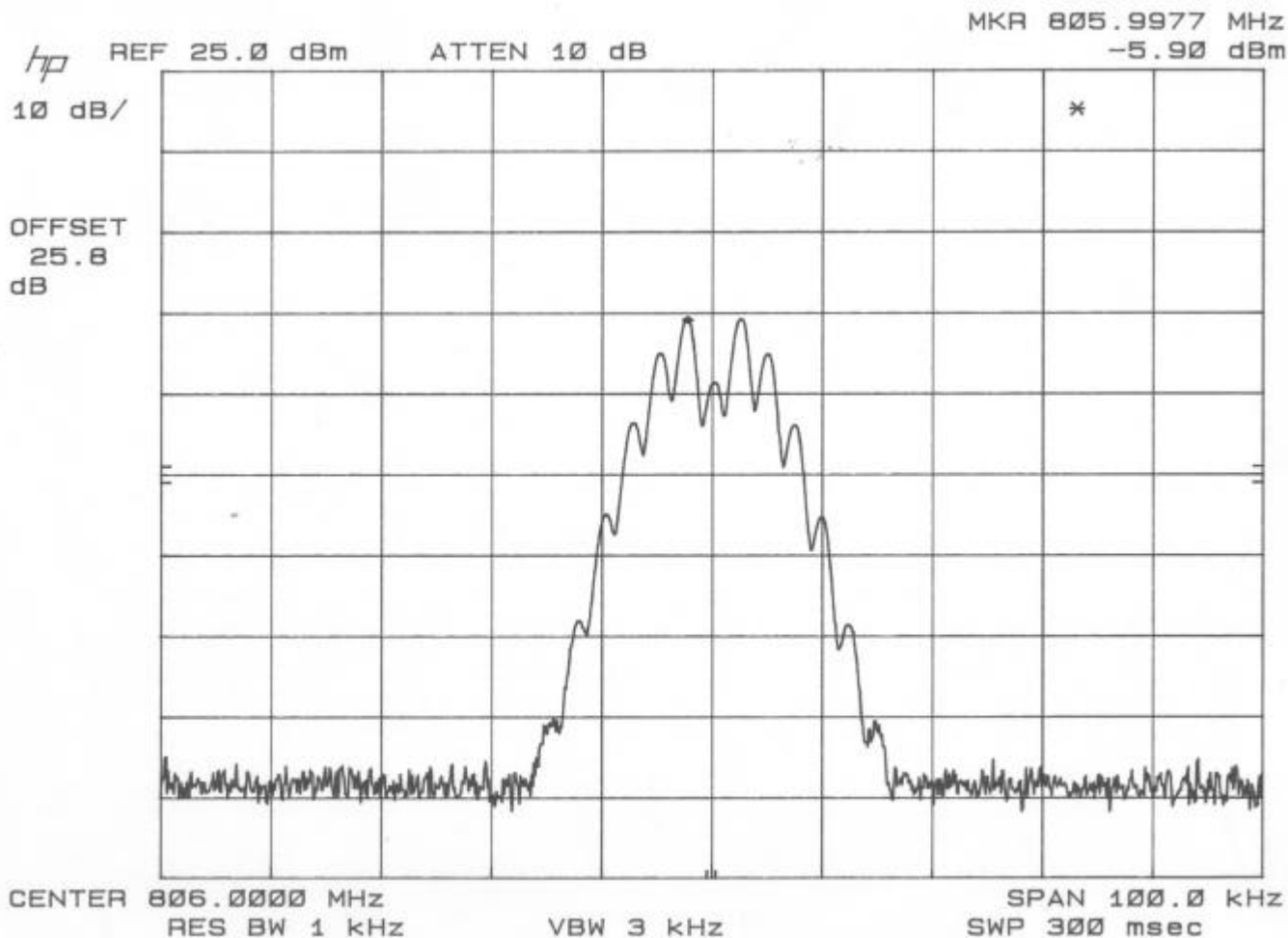


		Occupied Bandwidth	
DNB Job Number:	RV48069-003	Date: 26 Mar 2004	Conformance Standards FCC Part 2.1049 Part 90.209
Customer:	Inteligain Corporation Inc		
Model Number:	IBX-NEX	Serial Number: n/a	
Description:	Nextel Amplifier		
	Output GSM downlink 870 MHz		



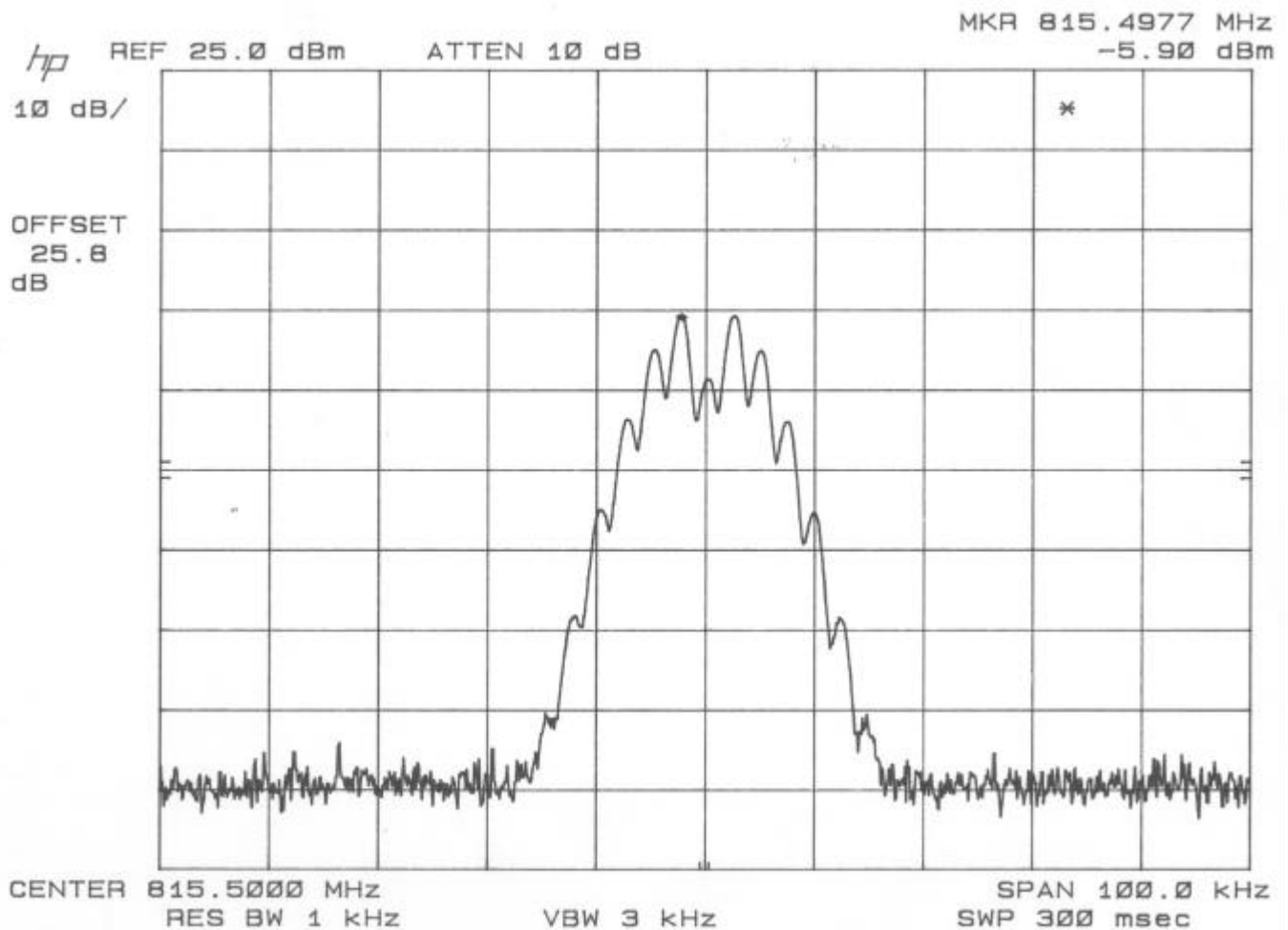


			Occupied Bandwidth
DNB Job Number:	RV48069-003	Date: 26 Mar 2004	Conformance Standards FCC Part 2.1049 Part 90.209
Customer:	Inteligain Corporation Inc		
Model Number:	IBX-NEX	Serial Number: n/a	
Description:	Nextel Amplifier		
	Input TDMA Uplink 806 MHz		



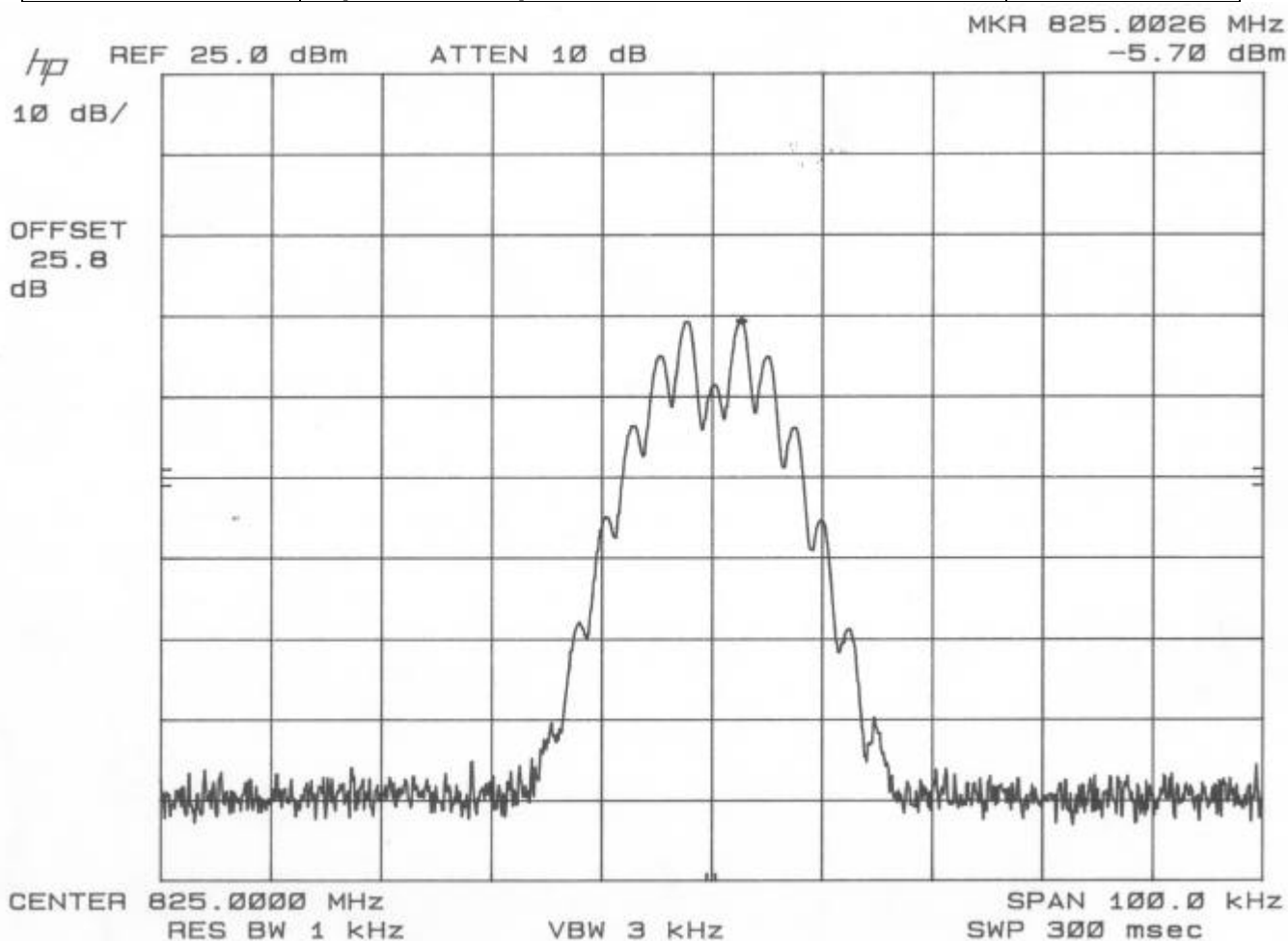


		Occupied Bandwidth	
DNB Job Number:	RV48069-003	Date: 26 Mar 2004	Conformance Standards FCC Part 2.1049 Part 90.209
Customer:	Inteligain Corporation Inc		
Model Number:	IBX-NEX	Serial Number: n/a	
Description:	Nextel Amplifier		
	Input TDMA Uplink 815.5 MHz		



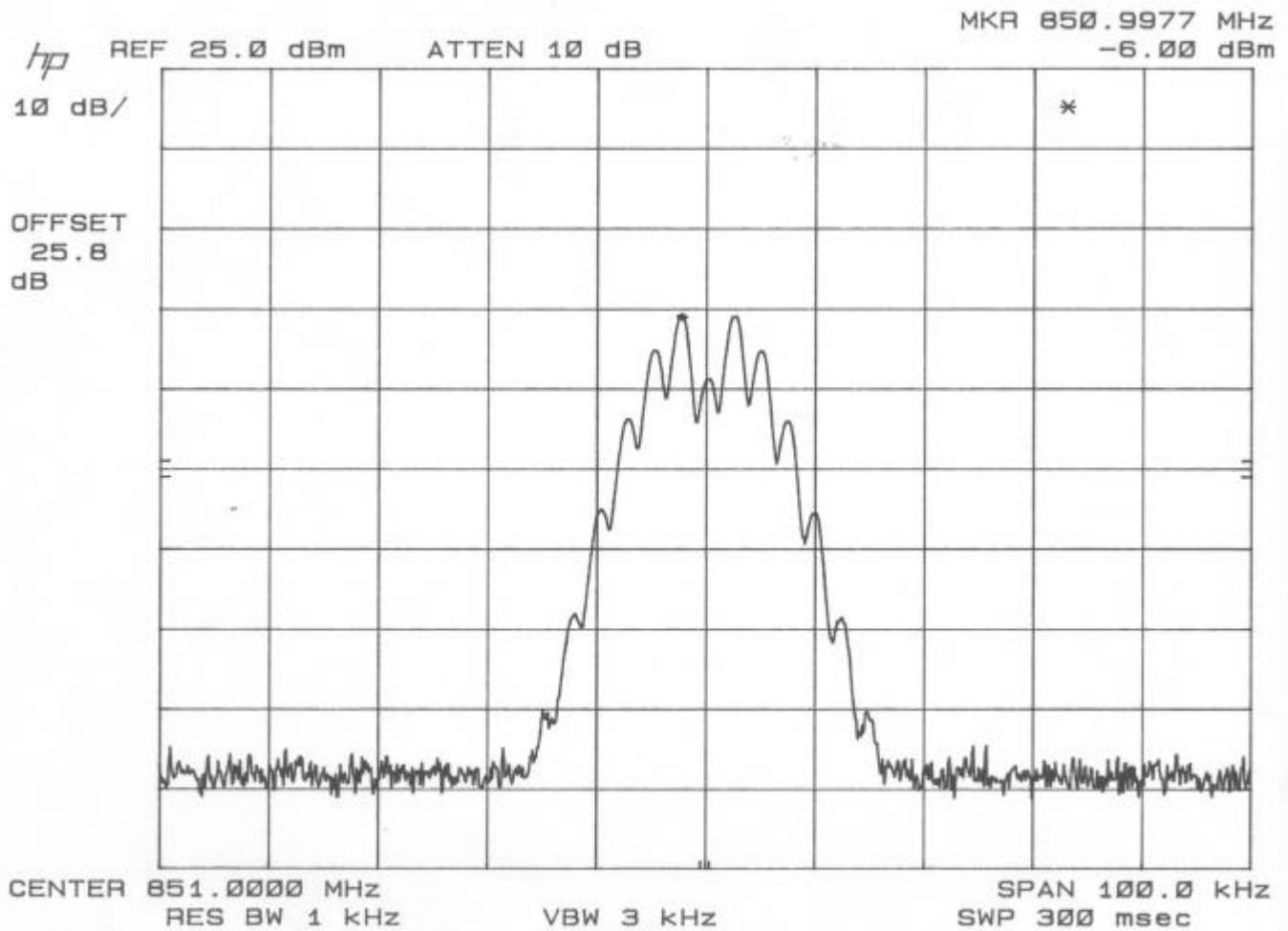


			Occupied Bandwidth
DNB Job Number:	RV48069-003	Date: 26 Mar 2004	Conformance Standards FCC Part 2.1049 Part 90.209
Customer:	Inteligain Corporation Inc		
Model Number:	IBX-NEX	Serial Number: n/a	
Description:	Nextel Amplifier		
	Input TDMA Uplink 825 MHz		



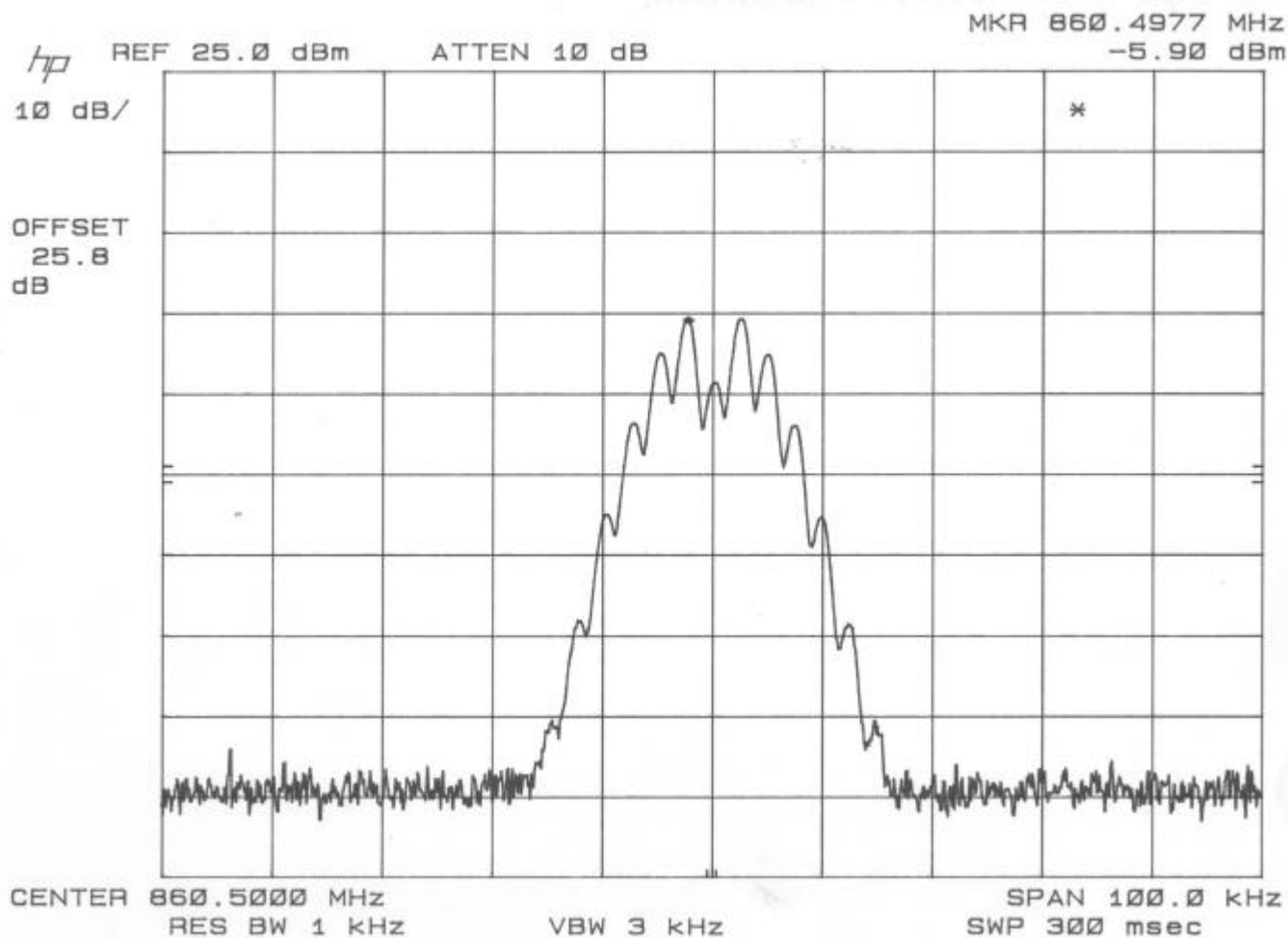


		Occupied Bandwidth	
DNB Job Number:	RV48069-003	Date: 26 Mar 2004	Conformance Standards FCC Part 2.1049 Part 90.209
Customer:	Inteligain Corporation Inc		
Model Number:	IBX-NEX	Serial Number: n/a	
Description:	Nextel Amplifier		
	Input TDMA Downlink 851 MHz		



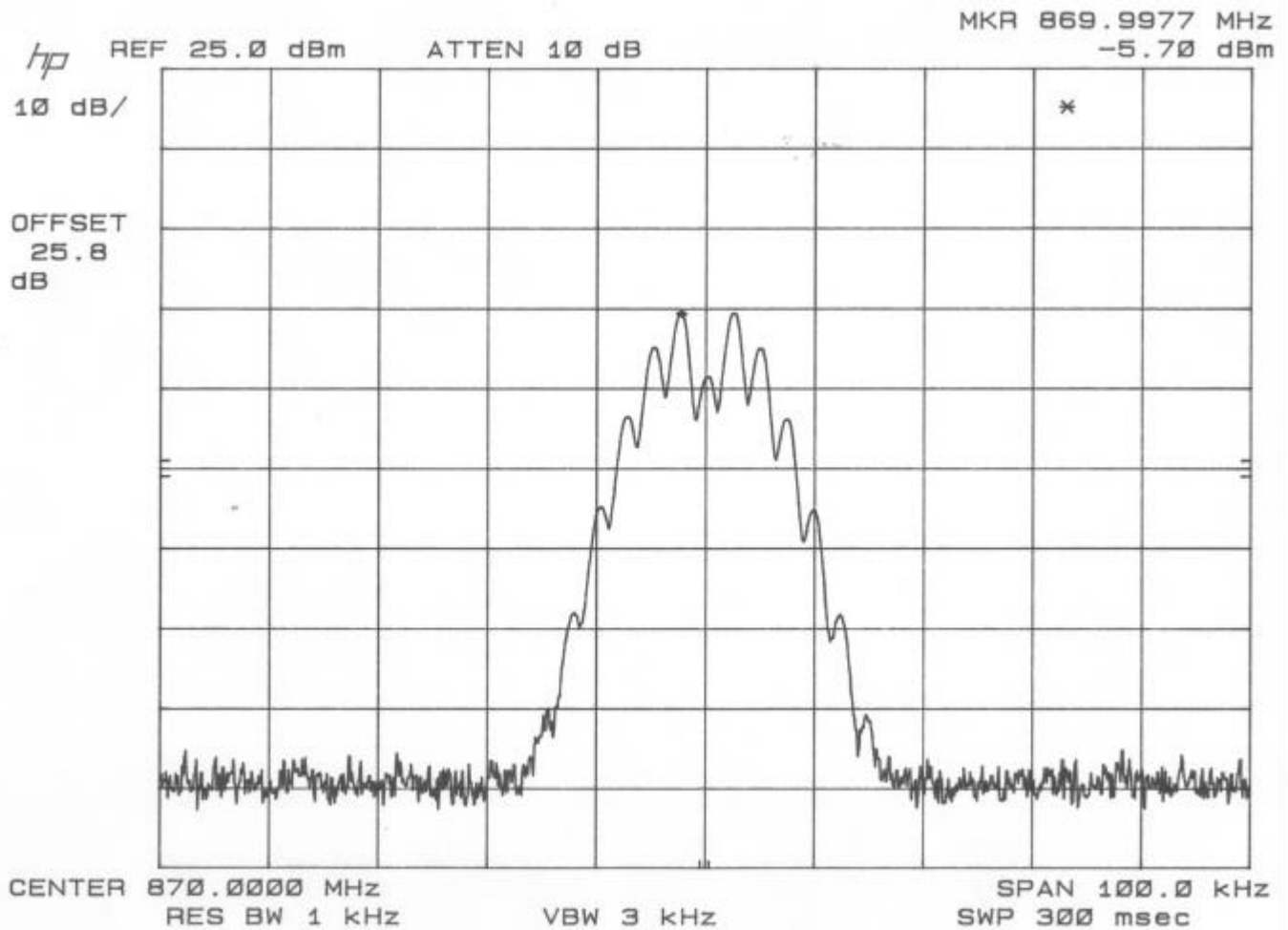


			Occupied Bandwidth	
DNB Job Number:	RV48069-003	Date: 26 Mar 2004		Conformance Standards FCC Part 2.1049 Part 90.209
Customer:	Inteligain Corporation Inc			
Model Number:	IBX-NEX	Serial Number: n/a		
Description:	Nextel Amplifier			
	Input TDMA Downlink 860.5 MHz			



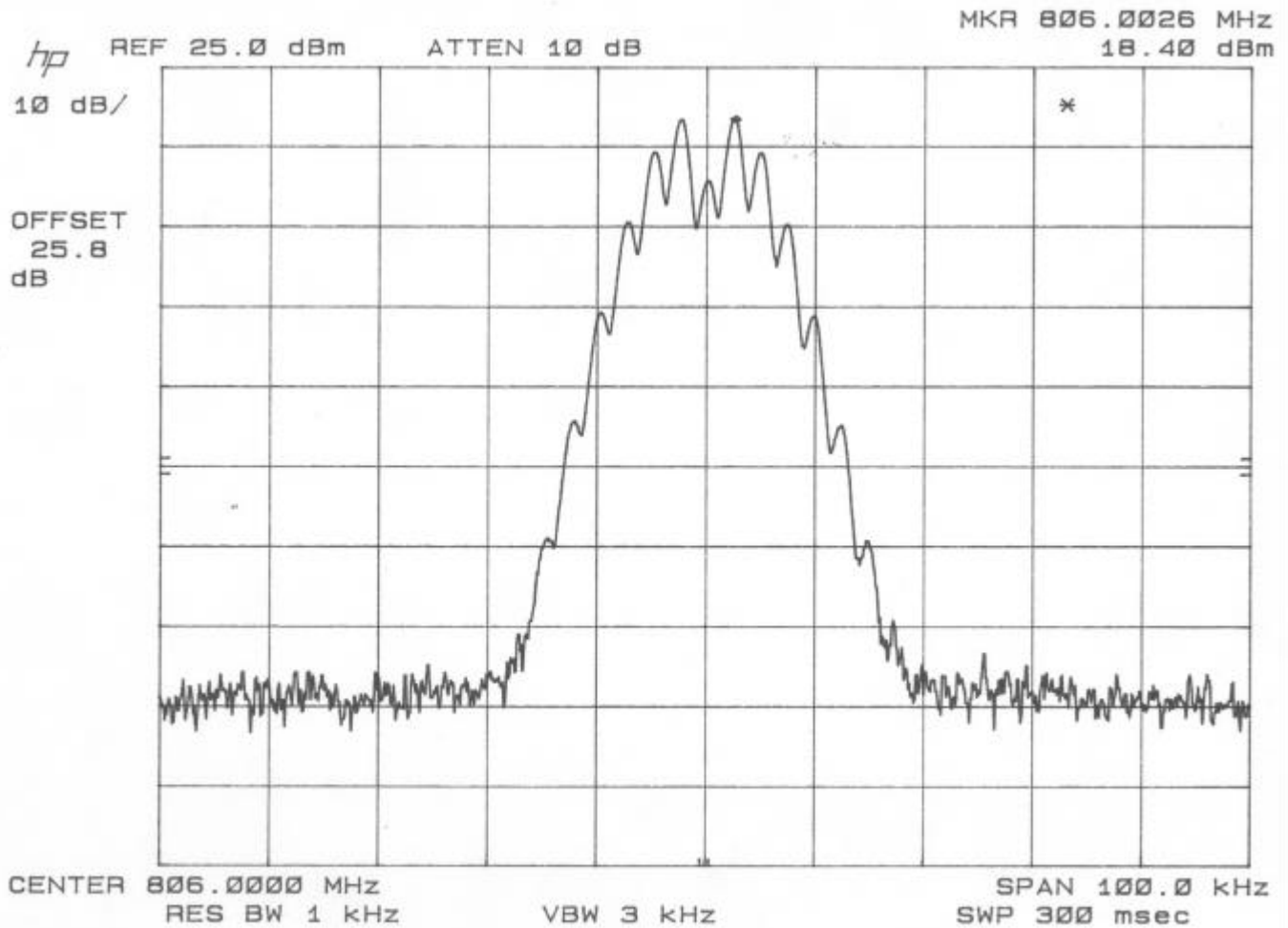


		Occupied Bandwidth	
DNB Job Number:	RV48069-003	Date: 26 Mar 2004	Conformance Standards FCC Part 2.1049 Part 90.209
Customer:	Inteligain Corporation Inc		
Model Number:	IBX-NEX	Serial Number: n/a	
Description:	Nextel Amplifier		
	Input TDMA Downlink 870 MHz		



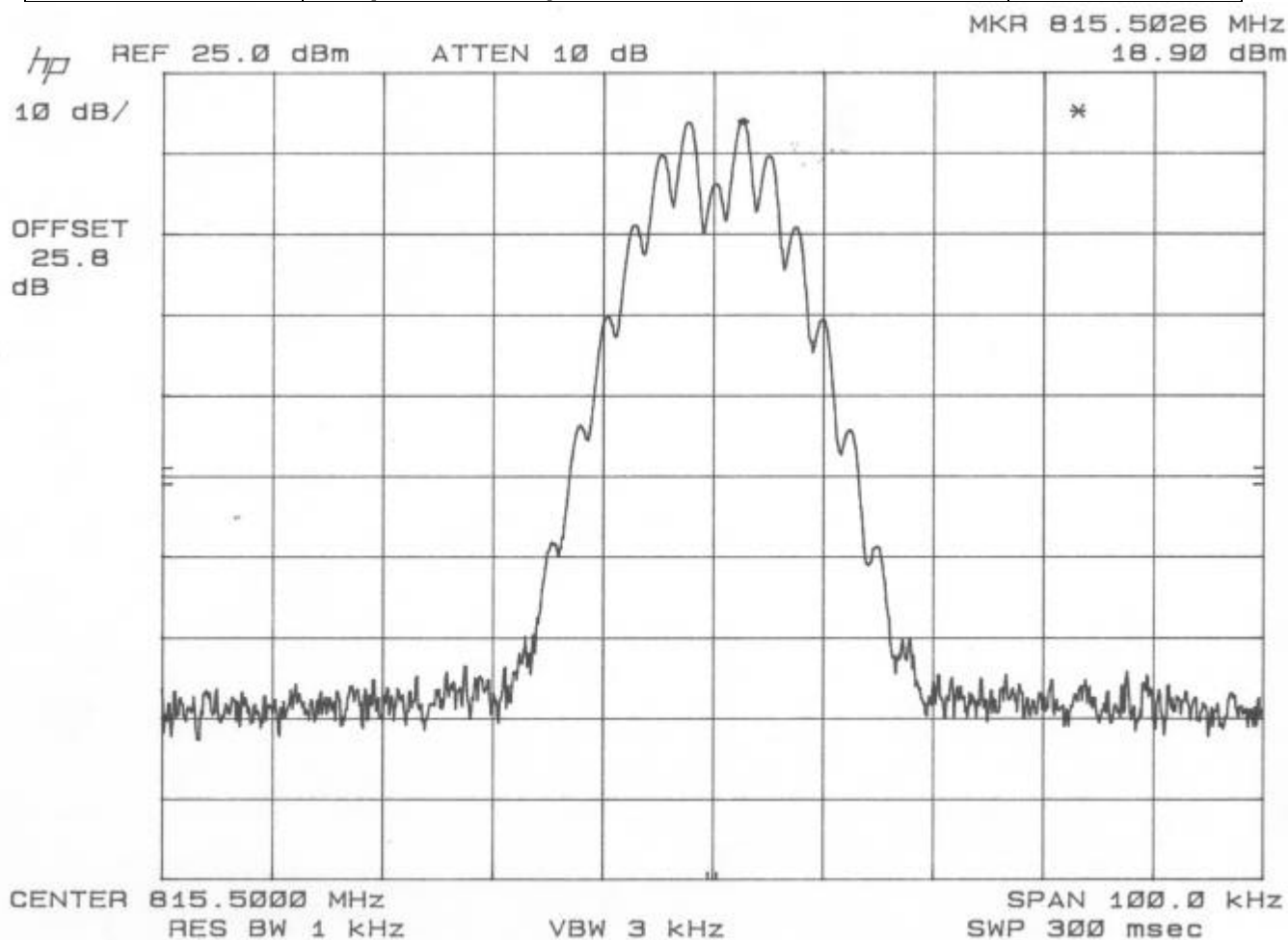


		Occupied Bandwidth	
DNB Job Number:	RV48069-003	Date: 26 Mar 2004	Conformance Standards FCC Part 2.1049 Part 90.209
Customer:	Inteligain Corporation Inc		
Model Number:	IBX-NEX	Serial Number: n/a	
Description:	Nextel Amplifier		
	Output TDMA Uplink 806 MHz		



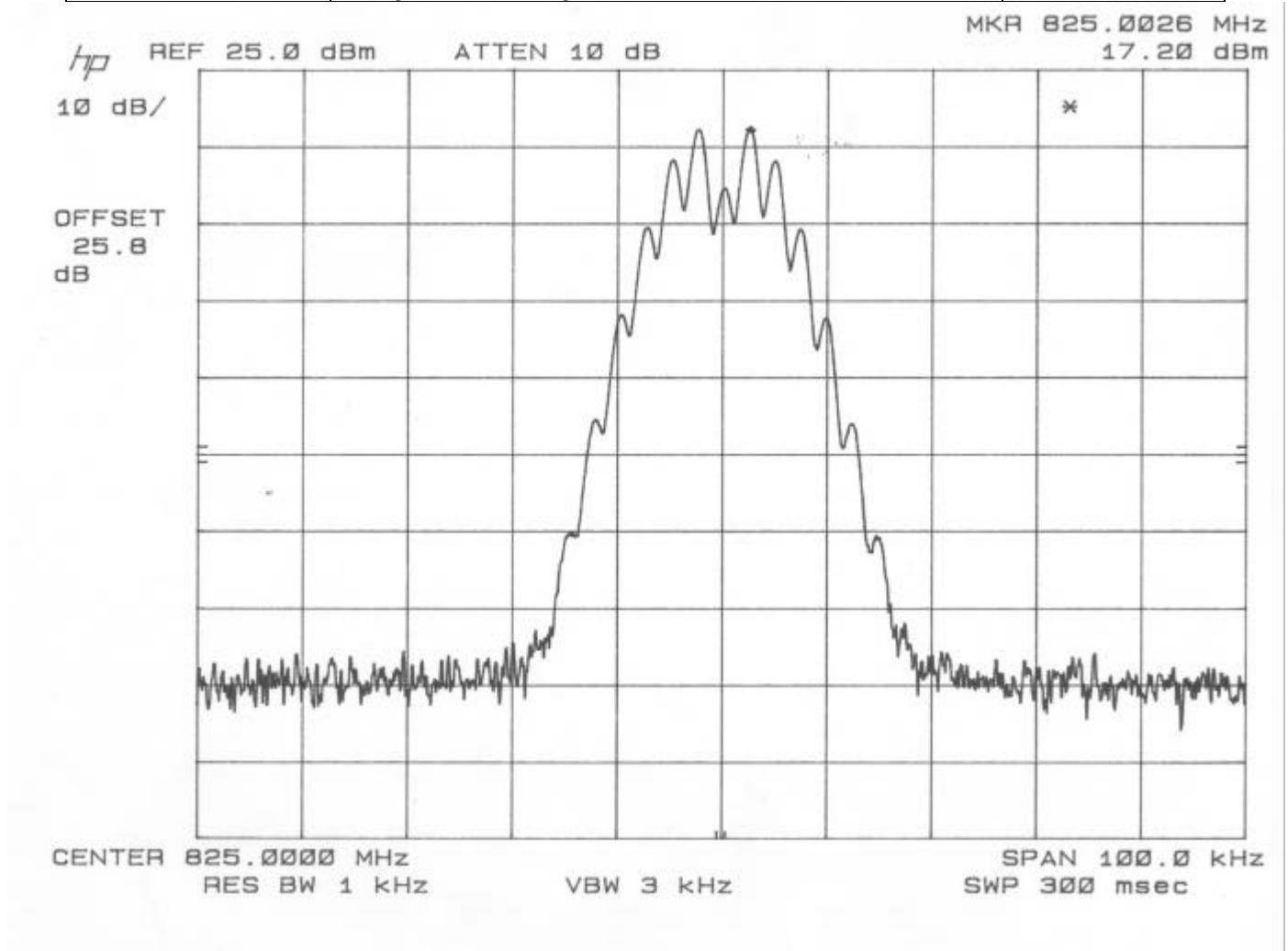


			Occupied Bandwidth	
DNB Job Number:	RV48069-003	Date: 26 Mar 2004		Conformance Standards FCC Part 2.1049 Part 90.209
Customer:	Inteligain Corporation Inc			
Model Number:	IBX-NEX	Serial Number: n/a		
Description:	Nextel Amplifier			
	Output TDMA Uplink 815.5 MHz			



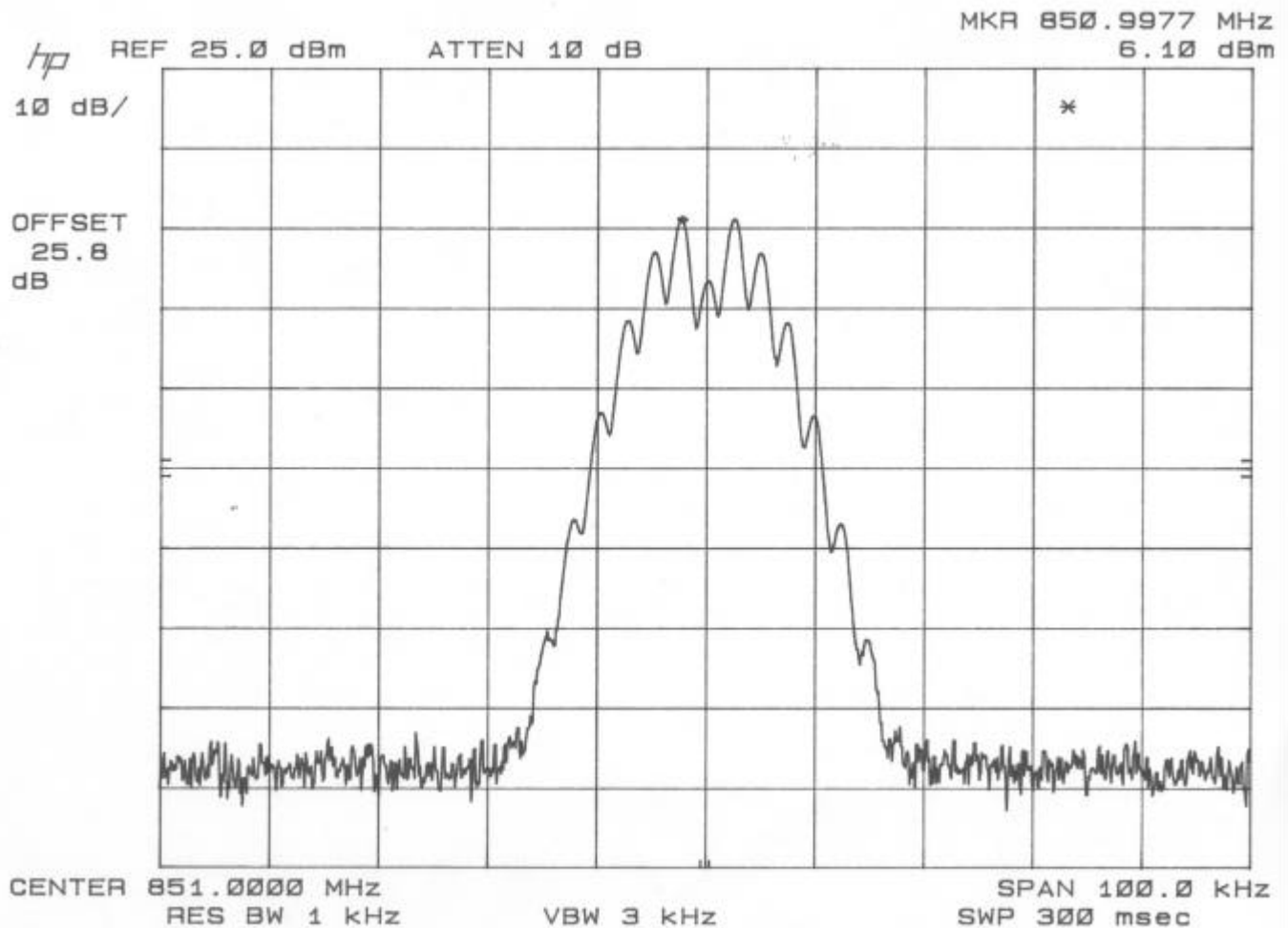


			Occupied Bandwidth	
DNB Job Number:	RV48069-003	Date: 26 Mar 2004		Conformance Standards FCC Part 2.1049 Part 90.209
Customer:	Inteligain Corporation Inc			
Model Number:	IBX-NEX	Serial Number: n/a		
Description:	Nextel Amplifier			
	Output TDMA Uplink 825 MHz			



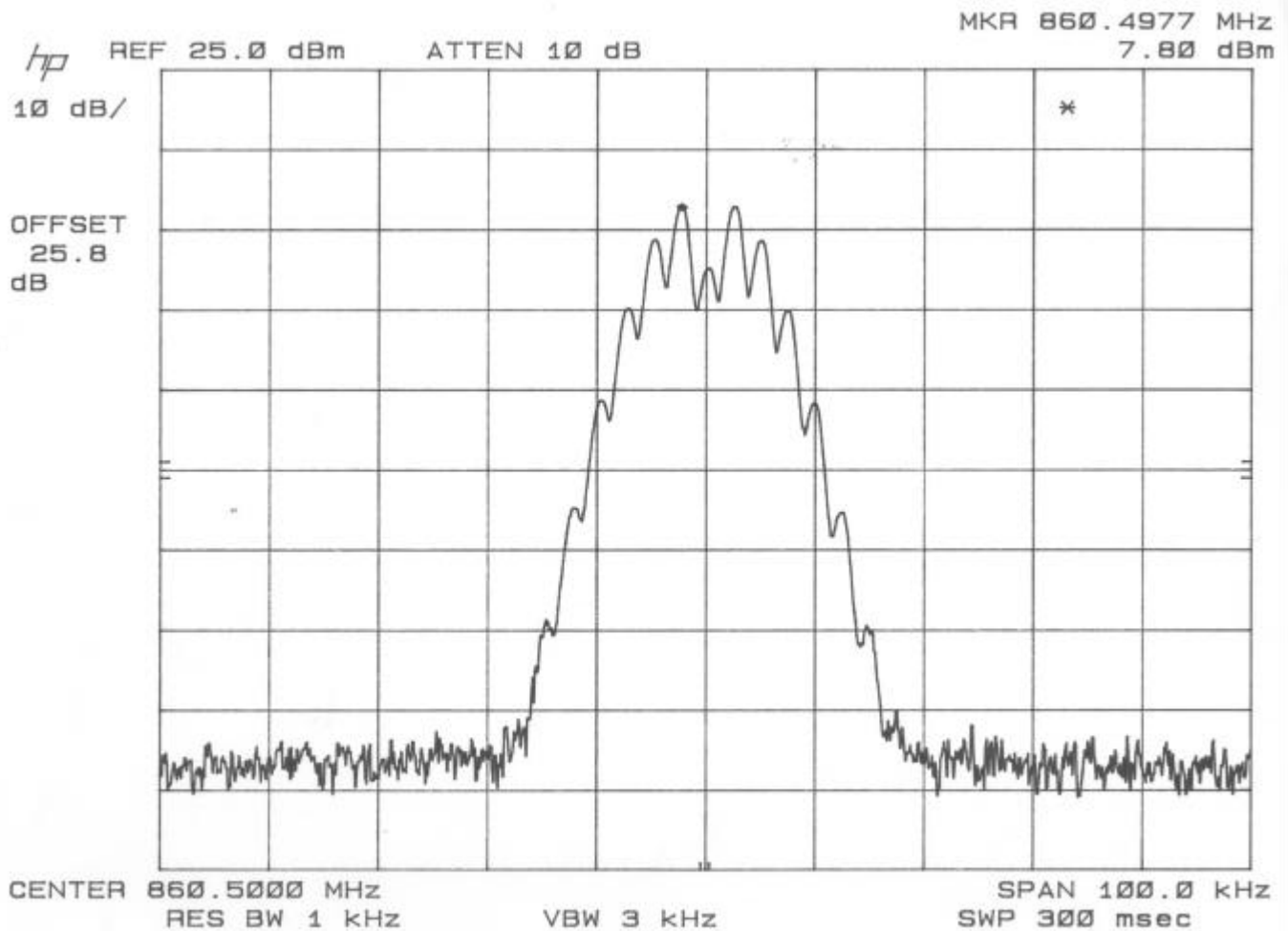


		Occupied Bandwidth	
DNB Job Number:	RV48069-003	Date: 26 Mar 2004	Conformance Standards FCC Part 2.1049 Part 90.209
Customer:	Inteligain Corporation Inc		
Model Number:	IBX-NEX	Serial Number: n/a	
Description:	Nextel Amplifier		
	Output TDMA Downlink 851 MHz		



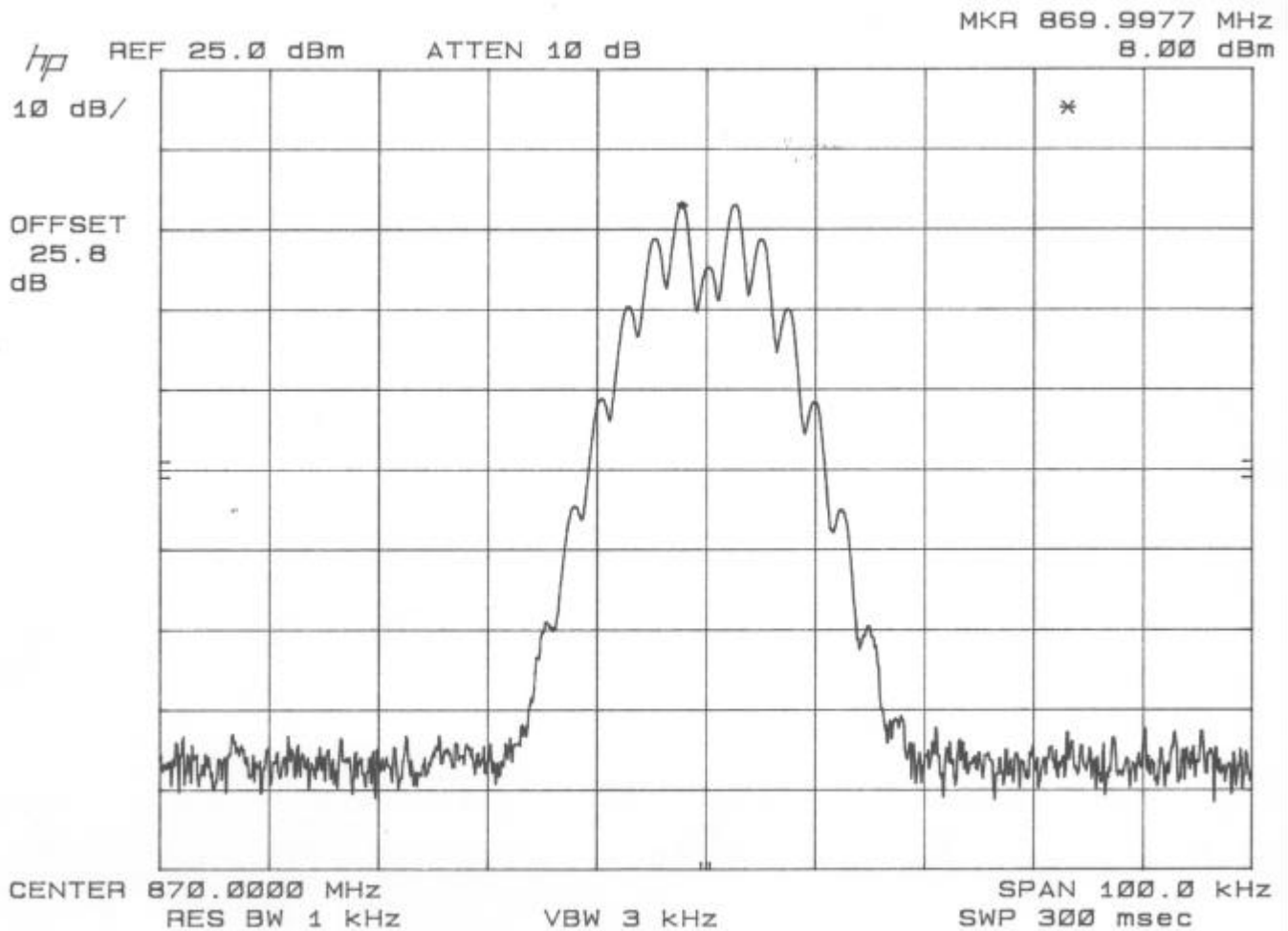


			Occupied Bandwidth	
DNB Job Number:	RV48069-003	Date: 26 Mar 2004		Conformance Standards FCC Part 2.1049 Part 90.209
Customer:	Inteligain Corporation Inc			
Model Number:	IBX-NEX	Serial Number: n/a		
Description:	Nextel Amplifier			
	Output TDMA Downlink 860.5 MHz			



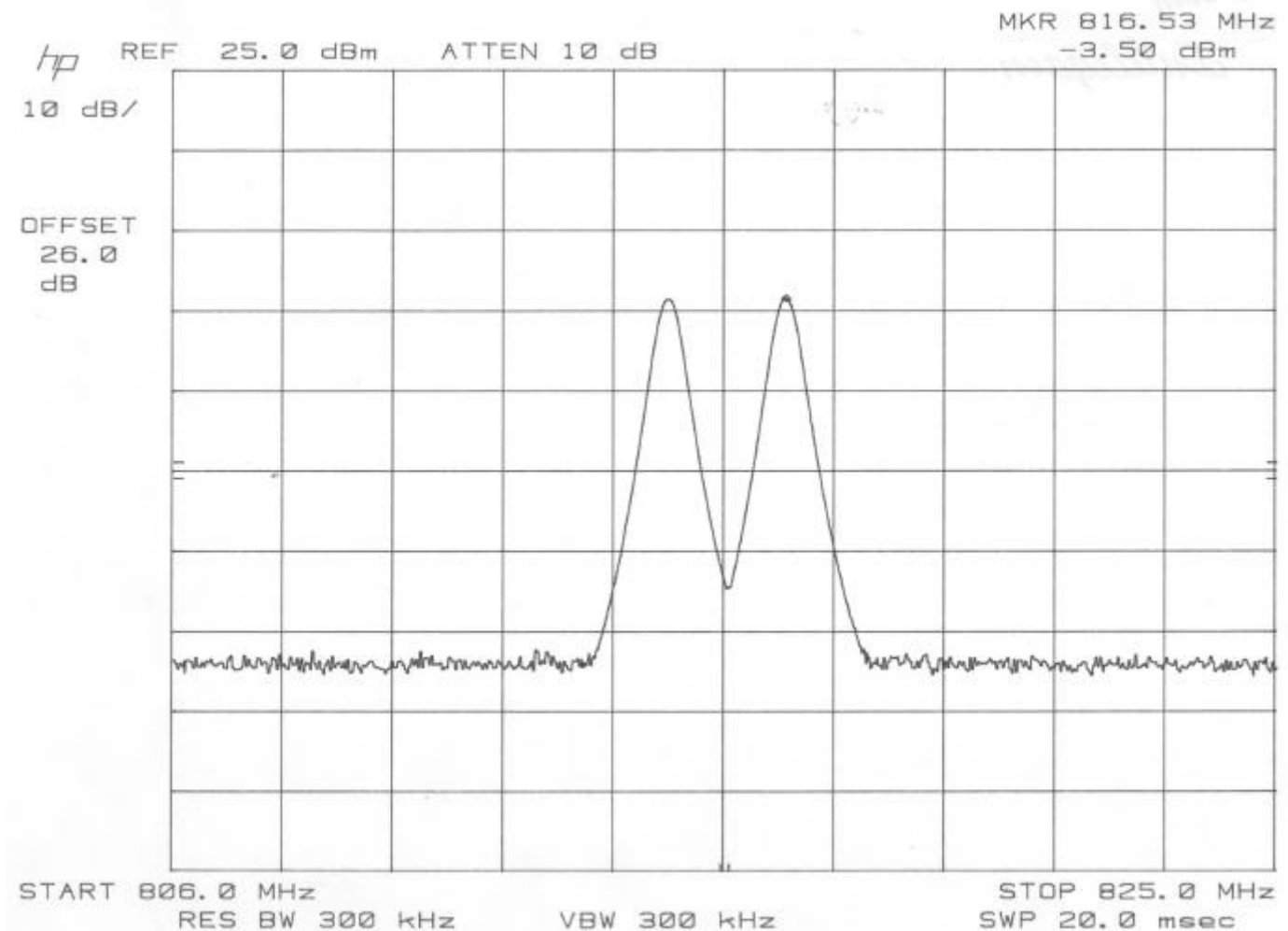


		Occupied Bandwidth	
DNB Job Number:	RV48069-003	Date: 26 Mar 2004	Conformance Standards FCC Part 2.1049 Part 90.209
Customer:	Inteligain Corporation Inc		
Model Number:	IBX-NEX	Serial Number: n/a	
Description:	Nextel Amplifier		
	Output TDMA Downlink 870 MHz		



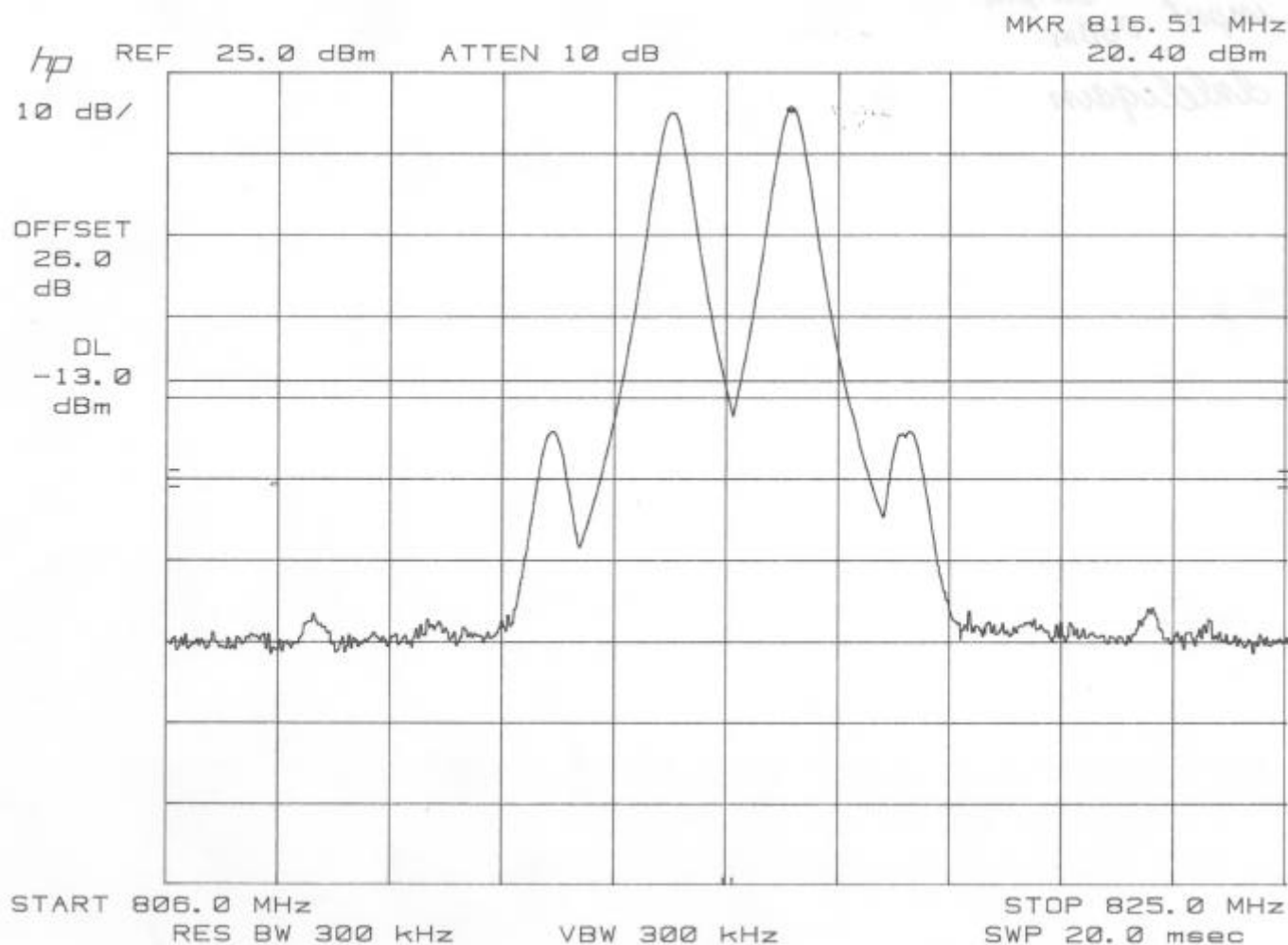


		Inter-modulation	
DNB Job Number:	RV48069-003	Date: 26 Mar 2004	Conformance Standards FCC Part 2.1049
Customer:	Inteligain Corporation Inc		
Model Number:	IBX-NEX	Serial Number: n/a	
Description:	Nextel Amplifier		
	Input Uplink 806-825MHz		



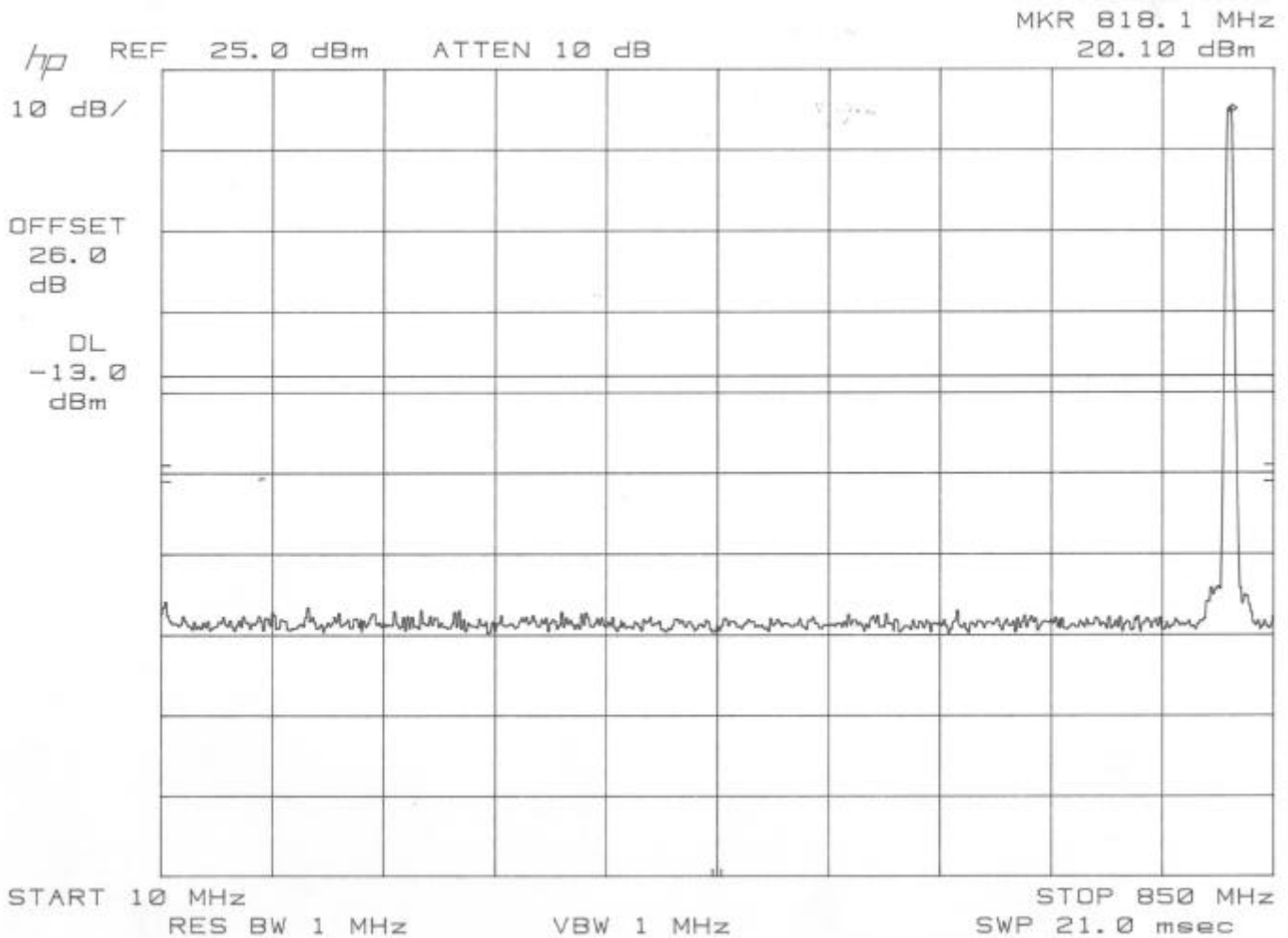


		Inter-modulation	
DNB Job Number:	RV48069-003	Date: 26 Mar 2004	Conformance Standards FCC Part 2.1049
Customer:	Inteligain Corporation Inc		
Model Number:	IBX-NEX	Serial Number: n/a	
Description:	Nextel Amplifier		
	Output Uplink 806-825MHz		



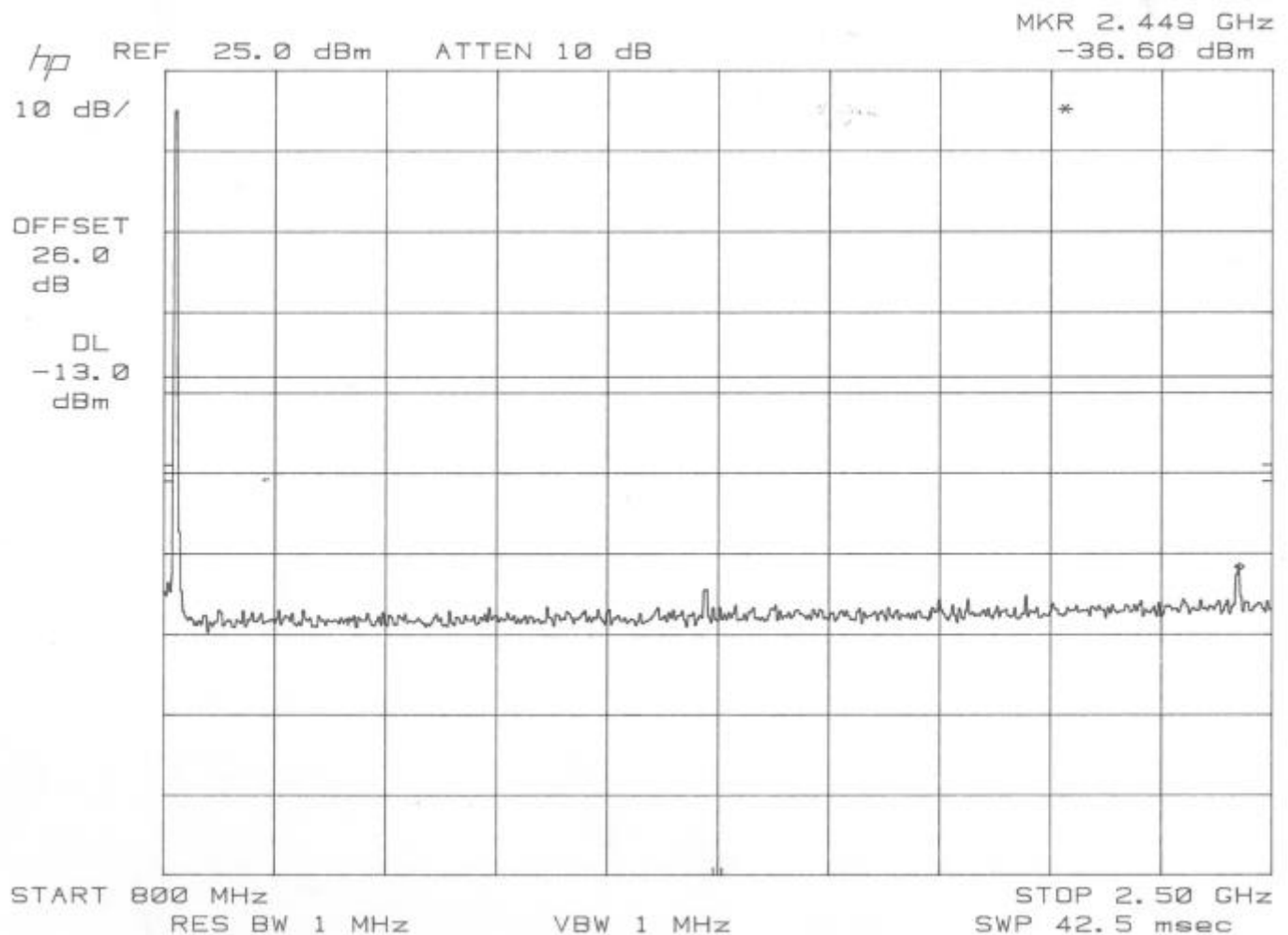


		Inter-modulation	
DNB Job Number:	RV48069-003	Date: 26 Mar 2004	Conformance Standards FCC Part 2.1049
Customer:	Inteligain Corporation Inc		
Model Number:	IBX-NEX	Serial Number: n/a	
Description:	Nextel Amplifier		
	Output Uplink 10-850 MHz		



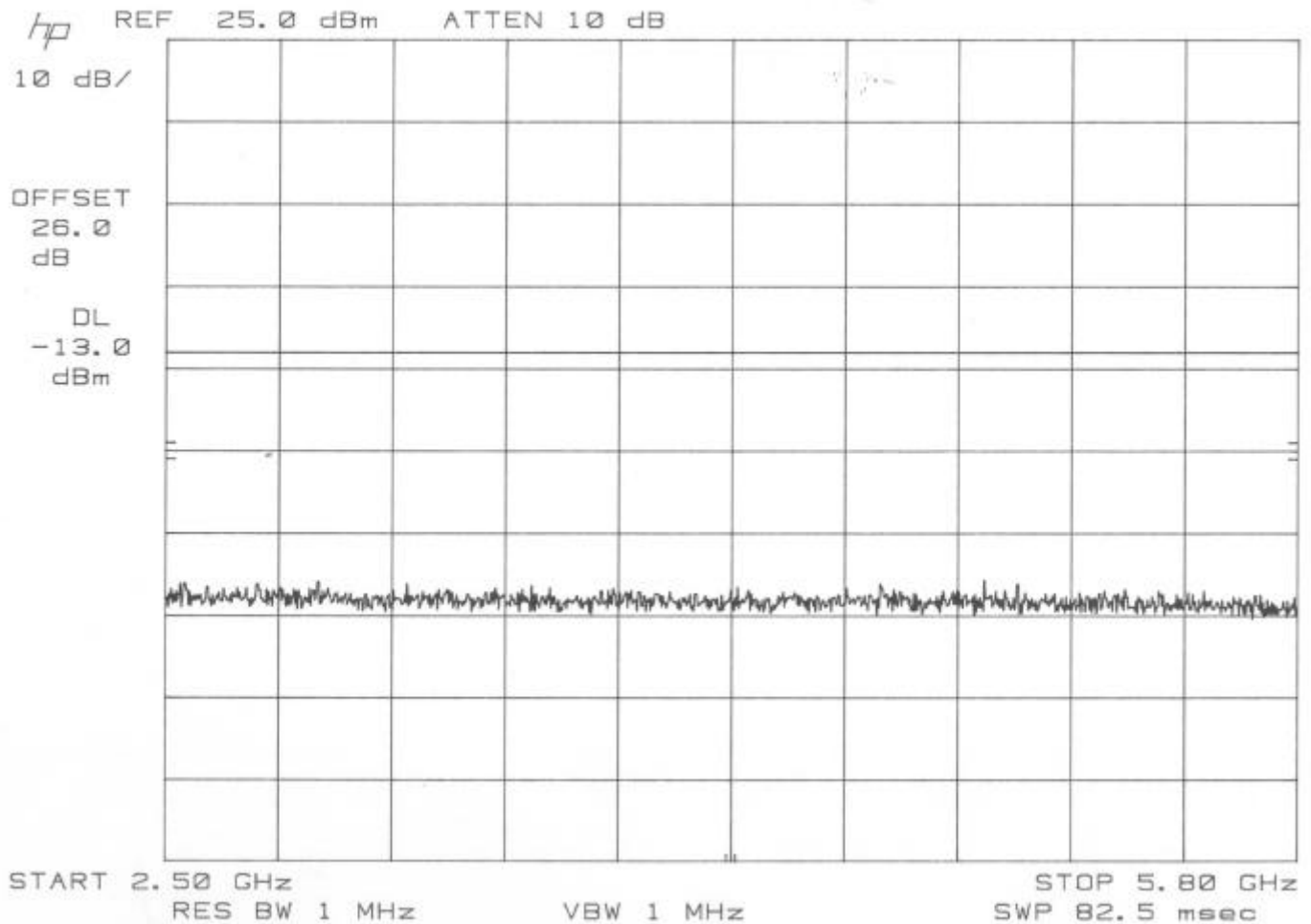


		Inter-modulation	
DNB Job Number:	RV48069-003	Date: 26 Mar 2004	Conformance Standards FCC Part 2.1049
Customer:	Inteligain Corporation Inc		
Model Number:	IBX-NEX	Serial Number: n/a	
Description:	Nextel Amplifier		
	Output Uplink 800-2.5 GHz		



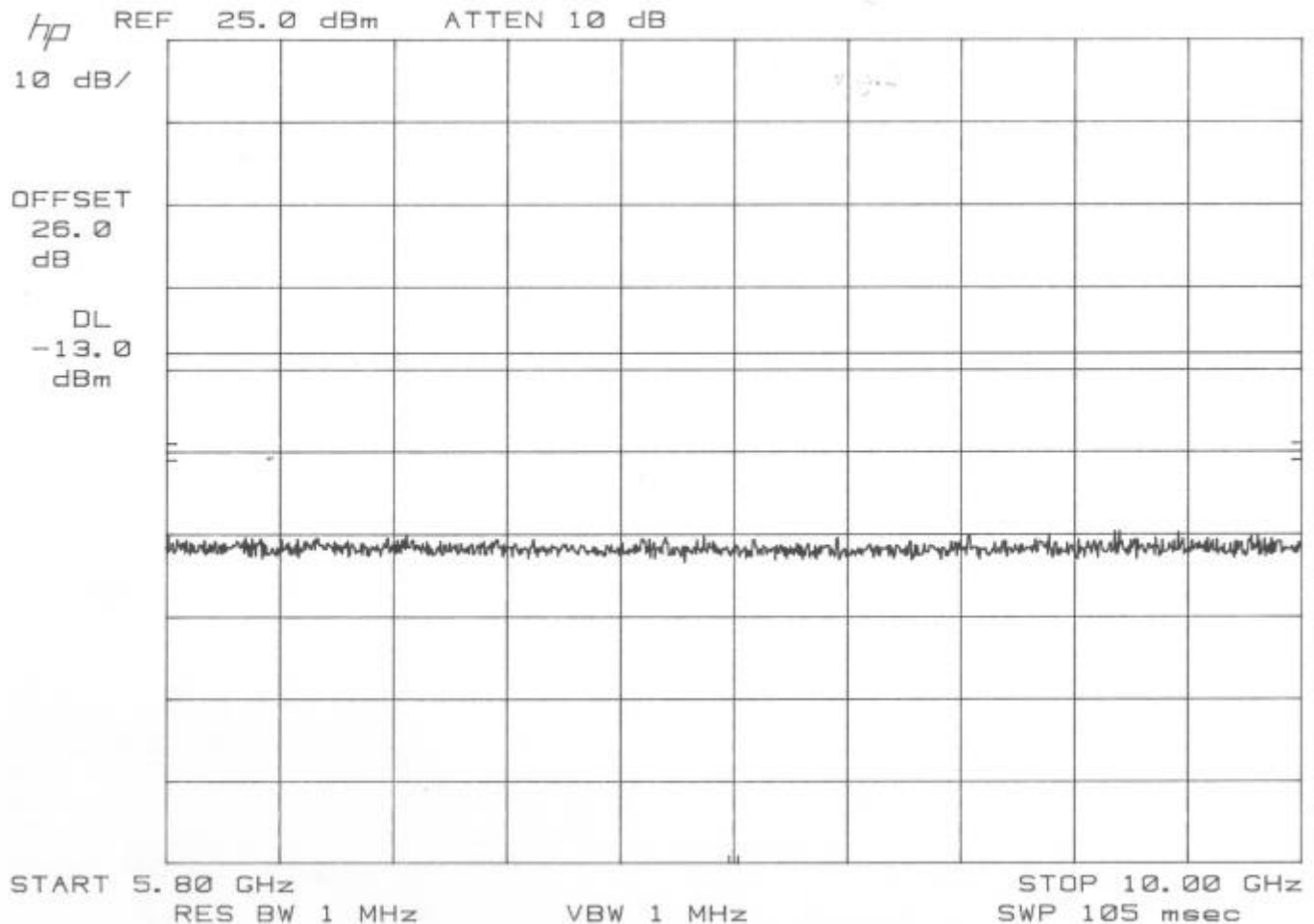


		Inter-modulation	
DNB Job Number:	RV48069-003	Date: 26 Mar 2004	Conformance Standards FCC Part 2.1049
Customer:	Inteligain Corporation Inc		
Model Number:	IBX-NEX	Serial Number: n/a	
Description:	Nextel Amplifier		
	Output Uplink 2.5-5.8 GHz		



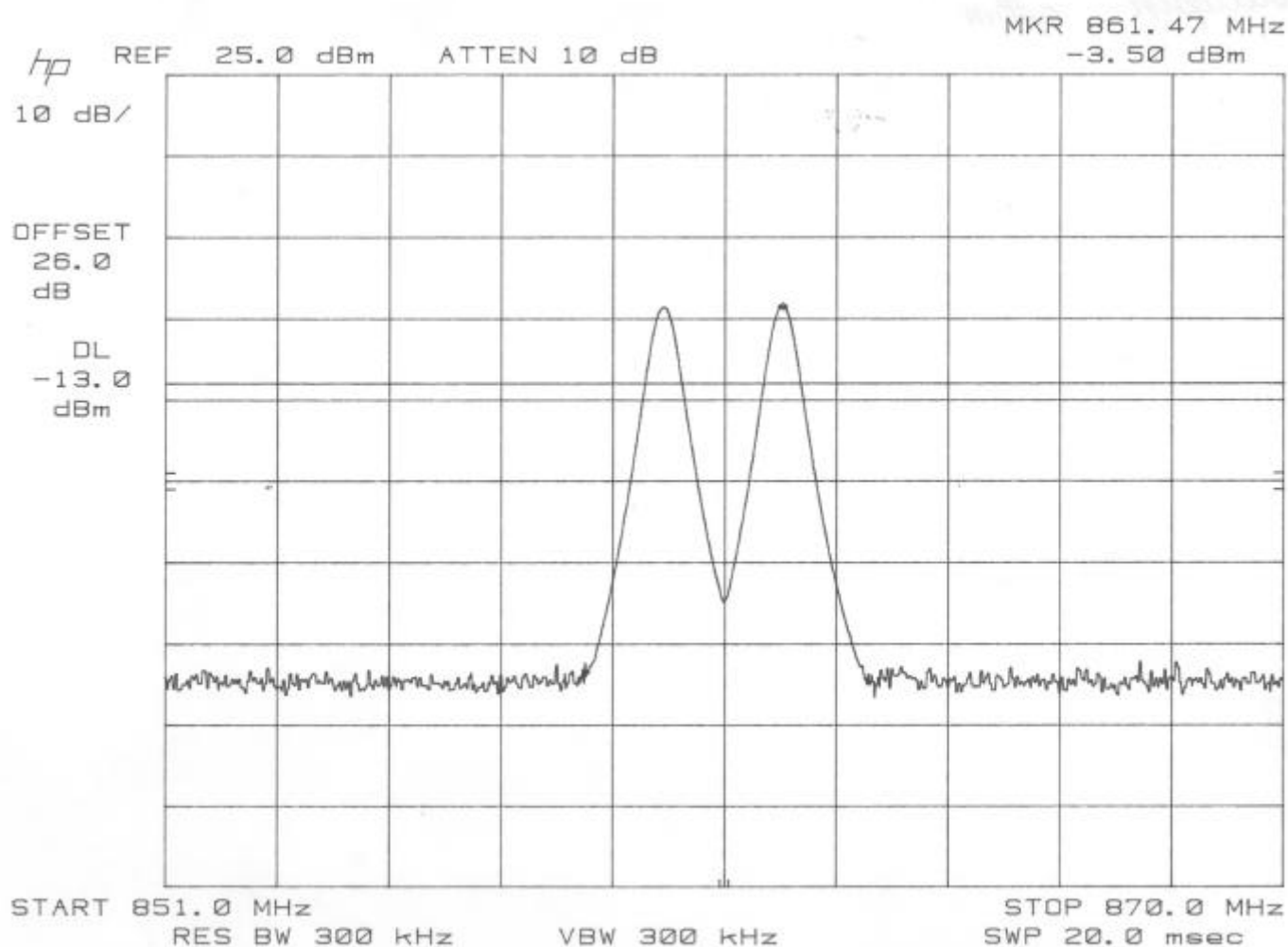


		Inter-modulation	
DNB Job Number:	RV48069-003	Date: 26 Mar 2004	Conformance Standards FCC Part 2.1049
Customer:	Inteligain Corporation Inc		
Model Number:	IBX-NEX	Serial Number: n/a	
Description:	Nextel Amplifier		
	Output Uplink 5.8-10 GHz		



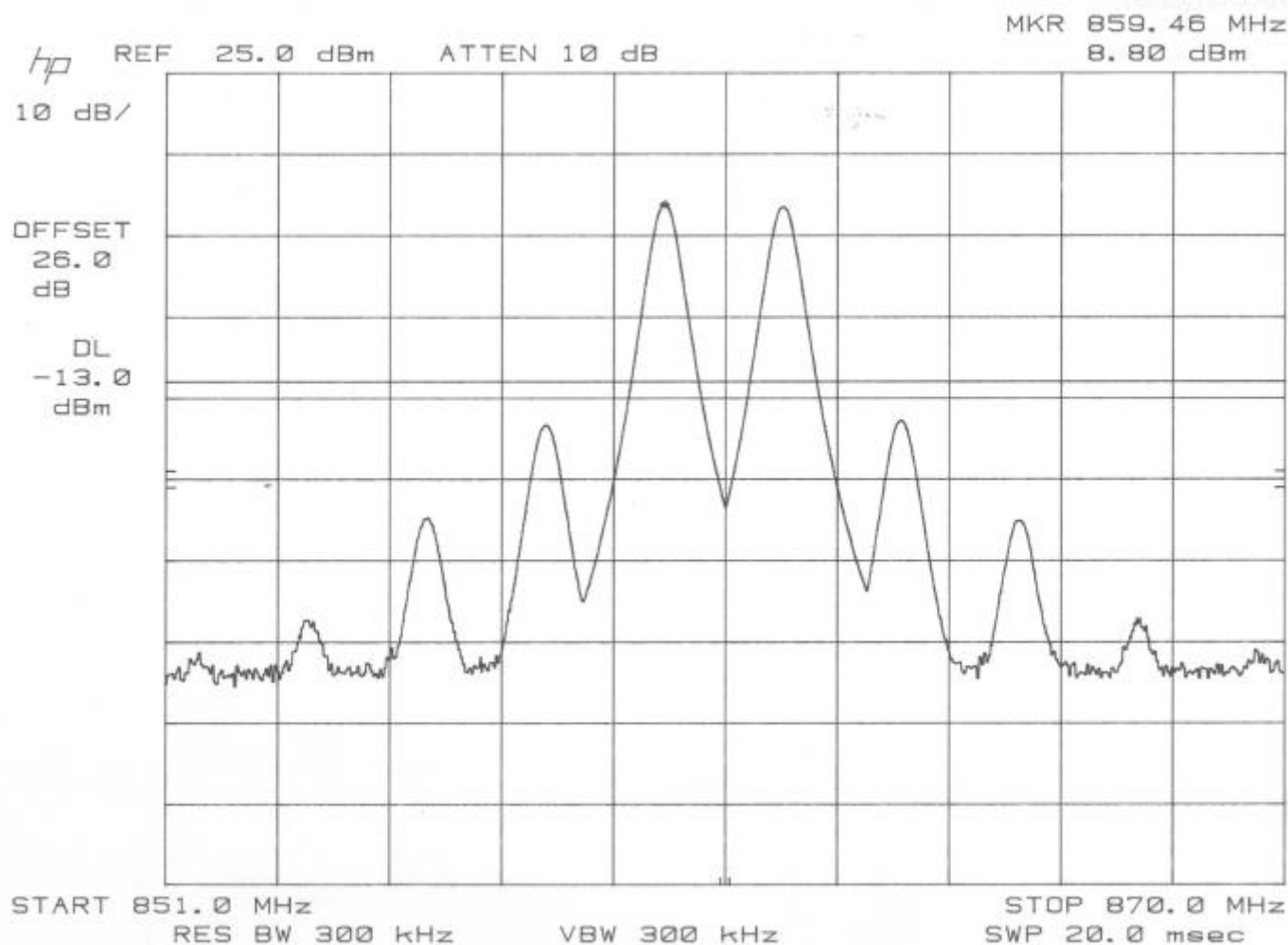


		Inter-modulation	
DNB Job Number:	RV48069-003	Date: 26 Mar 2004	Conformance Standards FCC Part 2.1049
Customer:	Inteligain Corporation Inc		
Model Number:	IBX-NEX	Serial Number: n/a	
Description:	Nextel Amplifier		
	Input Downlink 851-870 MHz		



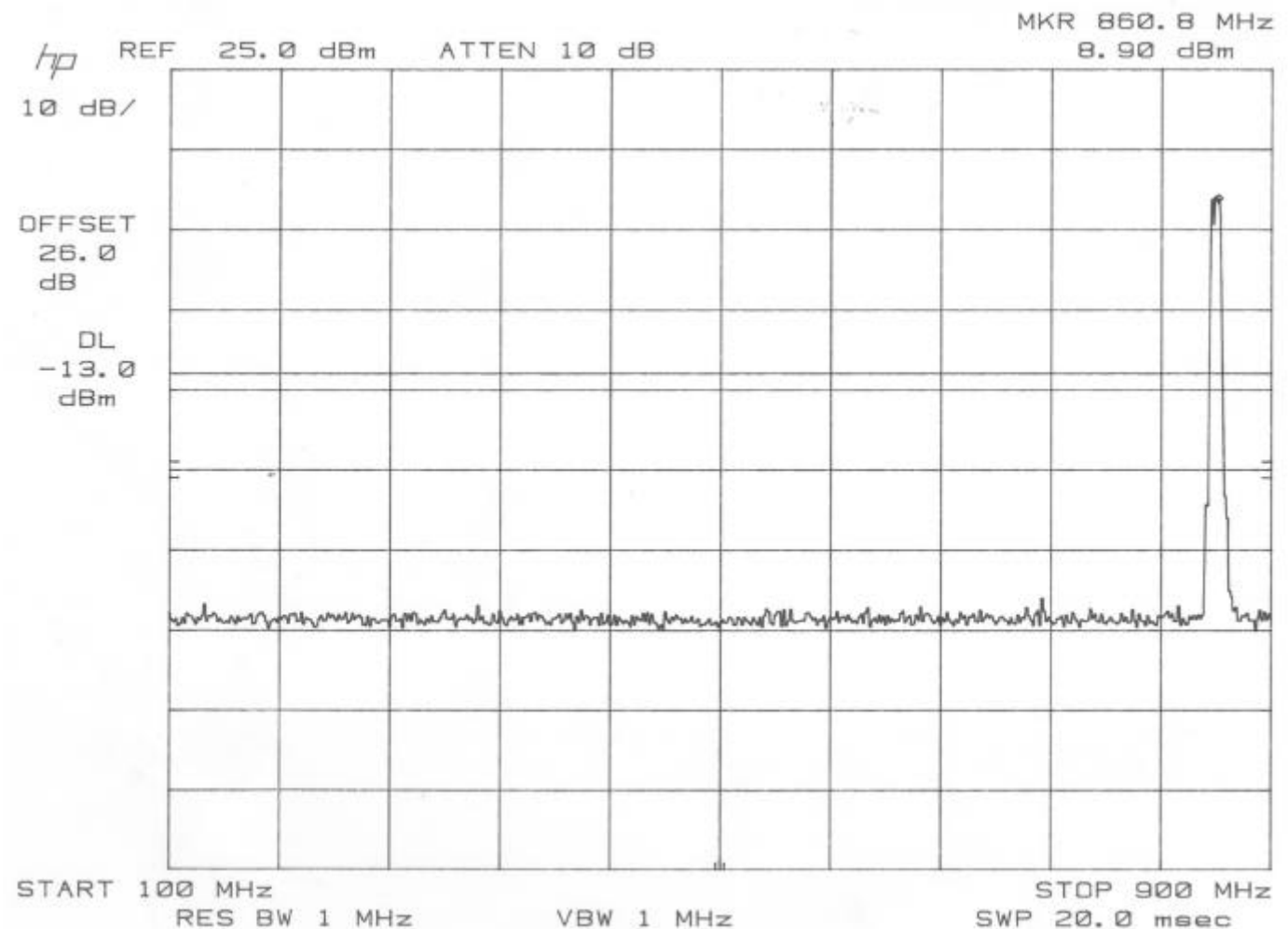


		Inter-modulation	
DNB Job Number:	RV48069-003	Date: 26 Mar 2004	Conformance Standards FCC Part 2.1049
Customer:	Inteligain Corporation Inc		
Model Number:	IBX-NEX	Serial Number: n/a	
Description:	Nextel Amplifier		
	Output Downlink 851-870 MHz		



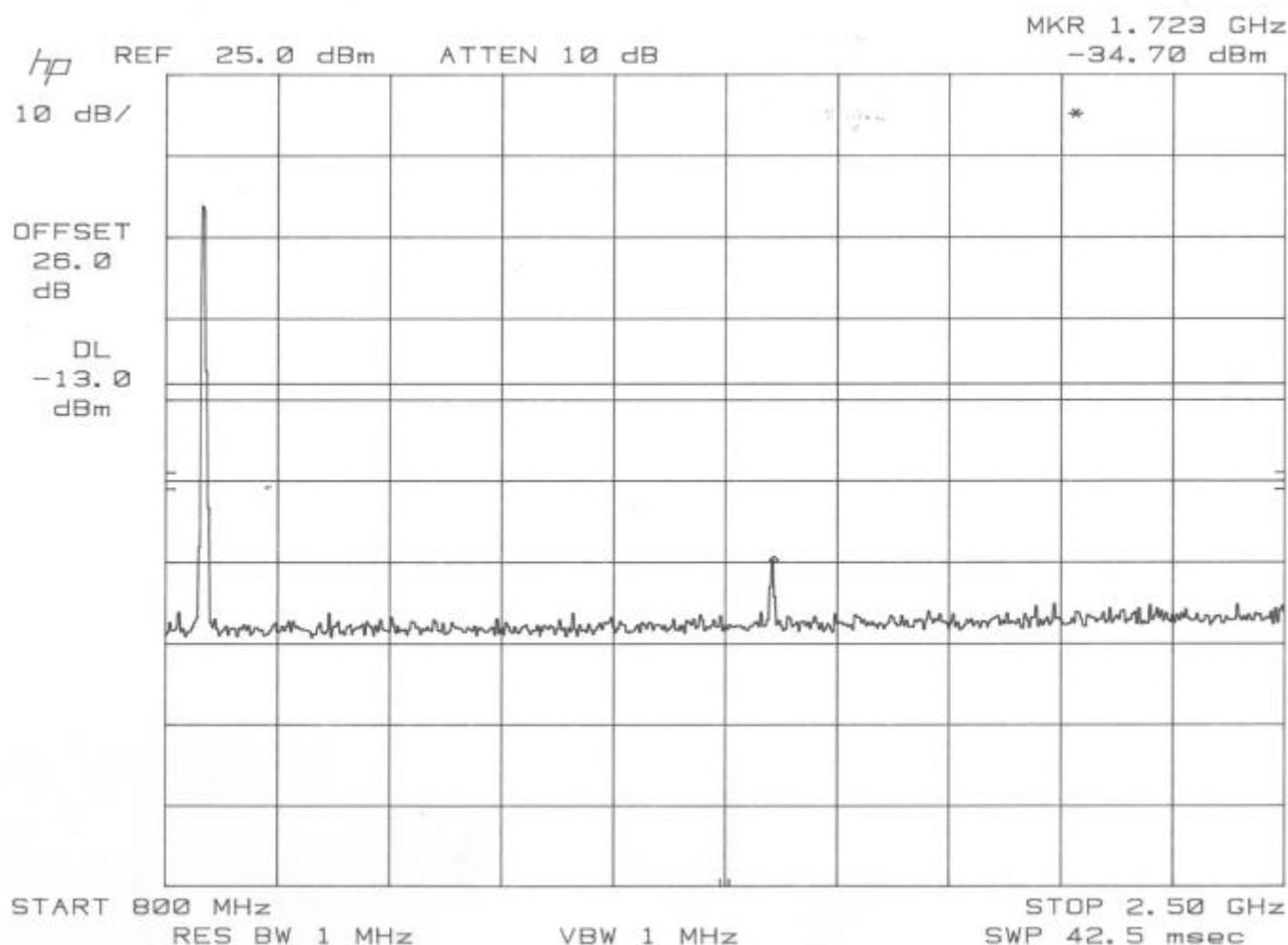


		Inter-modulation	
DNB Job Number:	RV48069-003	Date: 26 Mar 2004	Conformance Standards FCC Part 2.1049
Customer:	Inteligain Corporation Inc		
Model Number:	IBX-NEX	Serial Number: n/a	
Description:	Nextel Amplifier		
	Output Downlink 100-900MHz		



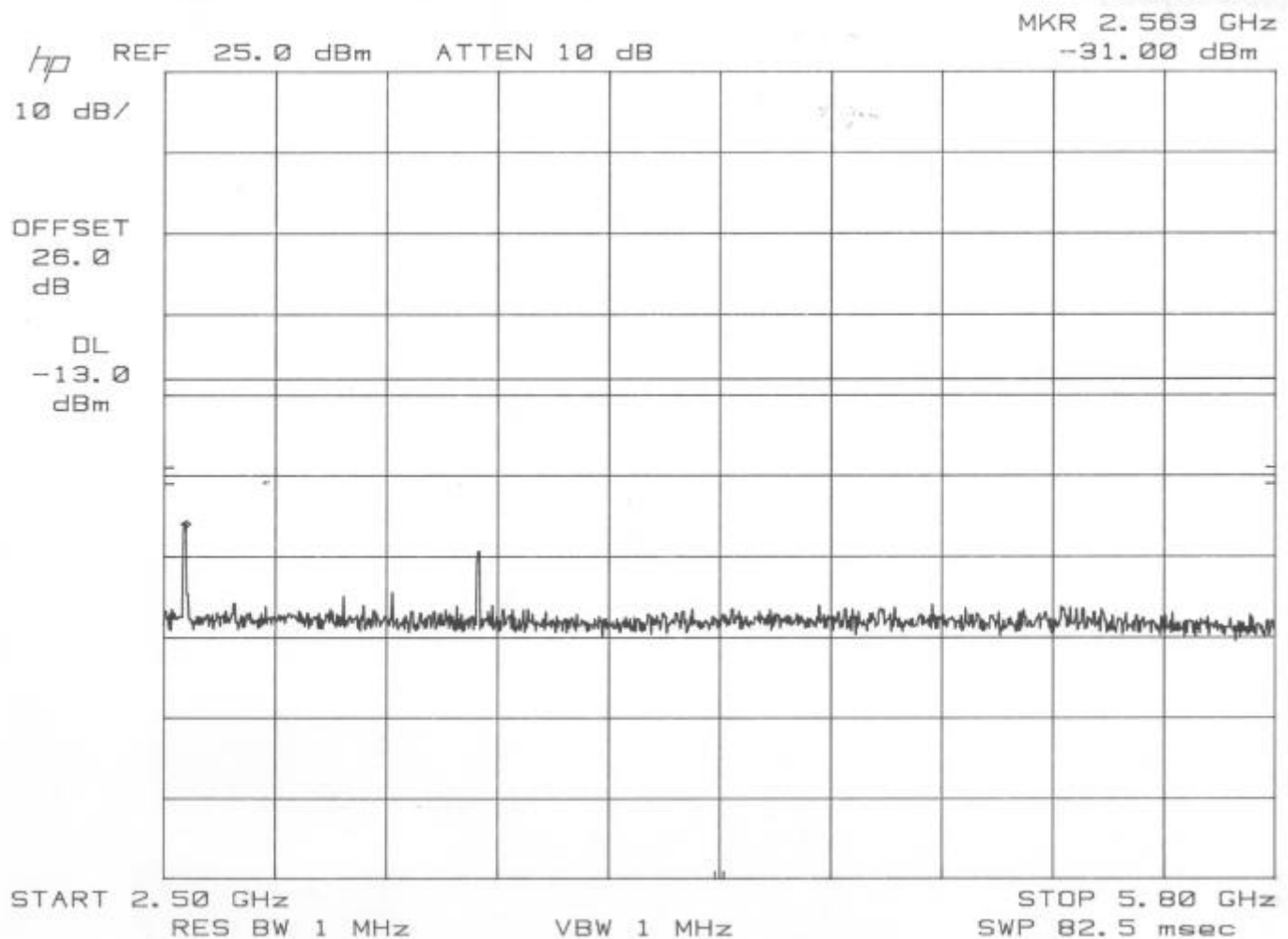


		Inter-modulation	
DNB Job Number:	RV48069-003	Date: 26 Mar 2004	Conformance Standards FCC Part 2.1049
Customer:	Inteligain Corporation Inc		
Model Number:	IBX-NEX	Serial Number: n/a	
Description:	Nextel Amplifier		
	Output Downlink 800 MHz-2.5GHz		



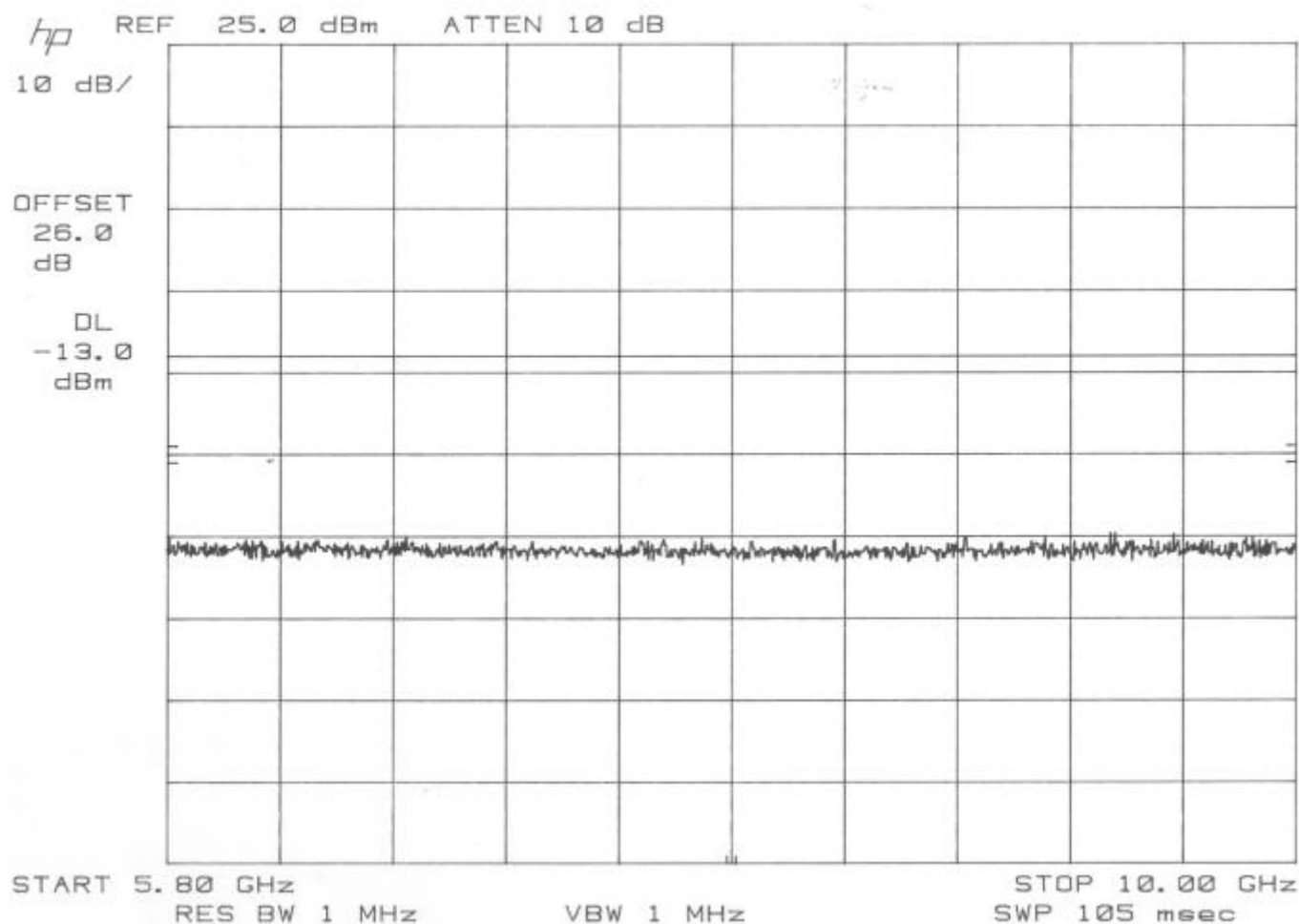


		Inter-modulation	
DNB Job Number:	RV48069-003	Date: 26 Mar 2004	Conformance Standards FCC Part 2.1049
Customer:	Inteligain Corporation Inc		
Model Number:	IBX-NEX	Serial Number: n/a	
Description:	Nextel Amplifier		
	Output Downlink 2.5-5.8GHz		





		Inter-modulation	
DNB Job Number:	RV48069-003	Date: 26 Mar 2004	Conformance Standards FCC Part 2.1049
Customer:	Inteligain Corporation Inc		
Model Number:	IBX-NEX	Serial Number: n/a	
Description:	Nextel Amplifier		
	Output Downlink 5.8-10GHz		





3.7 Spurious Emissions at Antenna Terminals.

Per 2.1051

Definition:

Conducted Spurious Emissions are emissions at the antenna terminals on a frequency or frequencies which are outside an occupied band sufficient to ensure transmission of information of required quality for the class of communication desired. The reduction in the level of these spurious emissions will not affect the quality of the information being transmitted.

Conducted Spurious Emissions shall be attenuated below the maximum level of the carrier frequency in accordance with the following formula:

$$-13\text{dB} = \text{Measured Power} - (43 + 10 \log_{10} (\text{Rated Power}))$$

Test Method: Per EIA RS 152-B, Paragraph 4 as modified below.

Connect the equipment as shown in FIGURE 3.

Adjust the drive source to produce FM modulation. Adjust the Spectrum Analyzer to display the Modulated Carrier.

Scan the frequency spectrum from the lowest radio frequency generated in the equipment through the 10th harmonic of the carrier frequency.

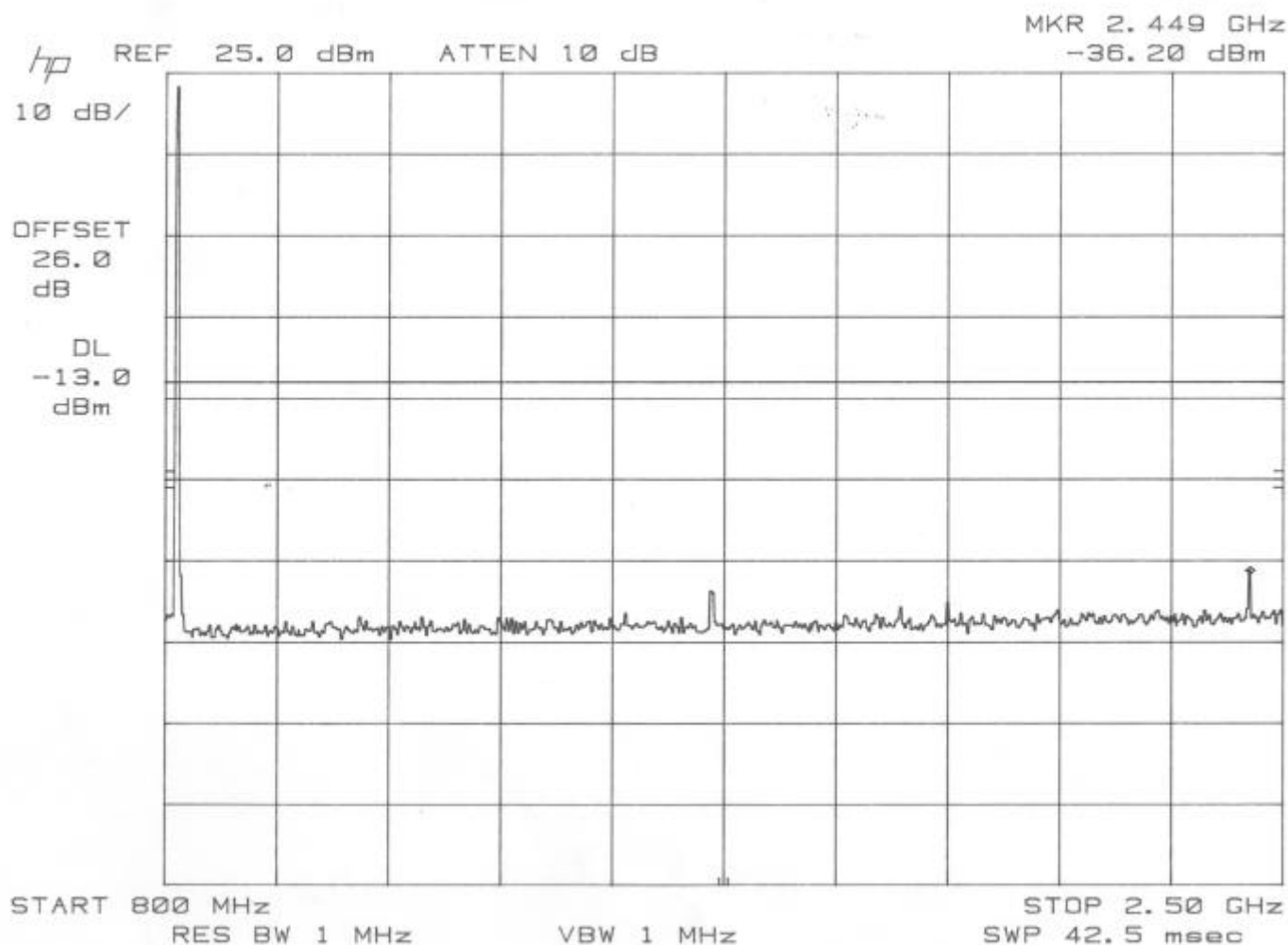
Test Results: See Plots

All spurious emissions at the antenna terminals are below the FCC specifications



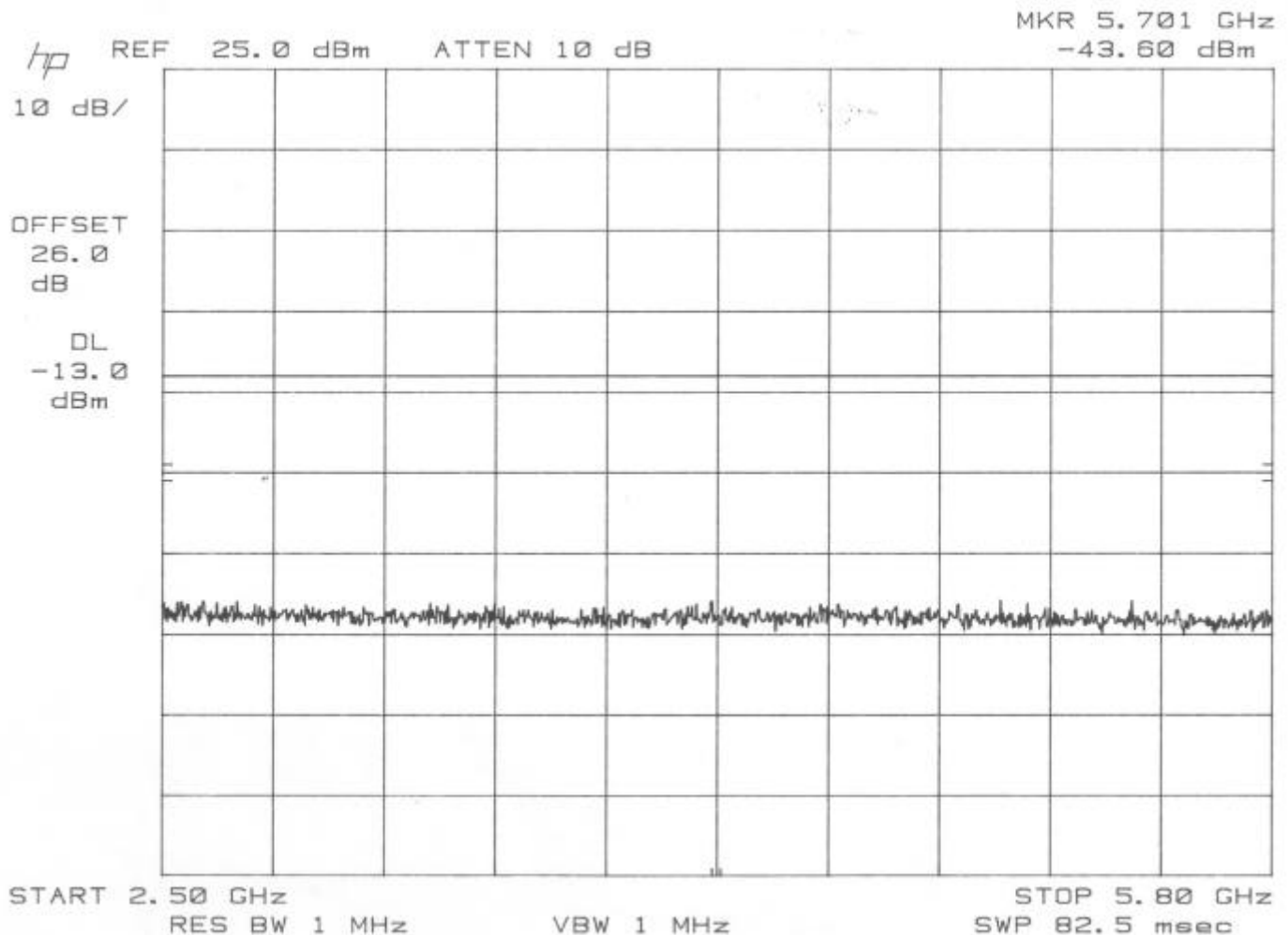
Figure 6: Spurious Emissions at Terminals

			Spurious Emissions at Antenna Terminals	
DNB Job Number:	RV48069-003	Date: 26 Mar 2004		Conformance Standards FCC Part 2.1051 Part 90.210
Customer:	Inteligain Corporation Inc			
Model Number:	IBX-NEX	Serial Number: n/a		
Description:	Nextel Amplifier			
	Uplink 800 MHz-2.5GHz			



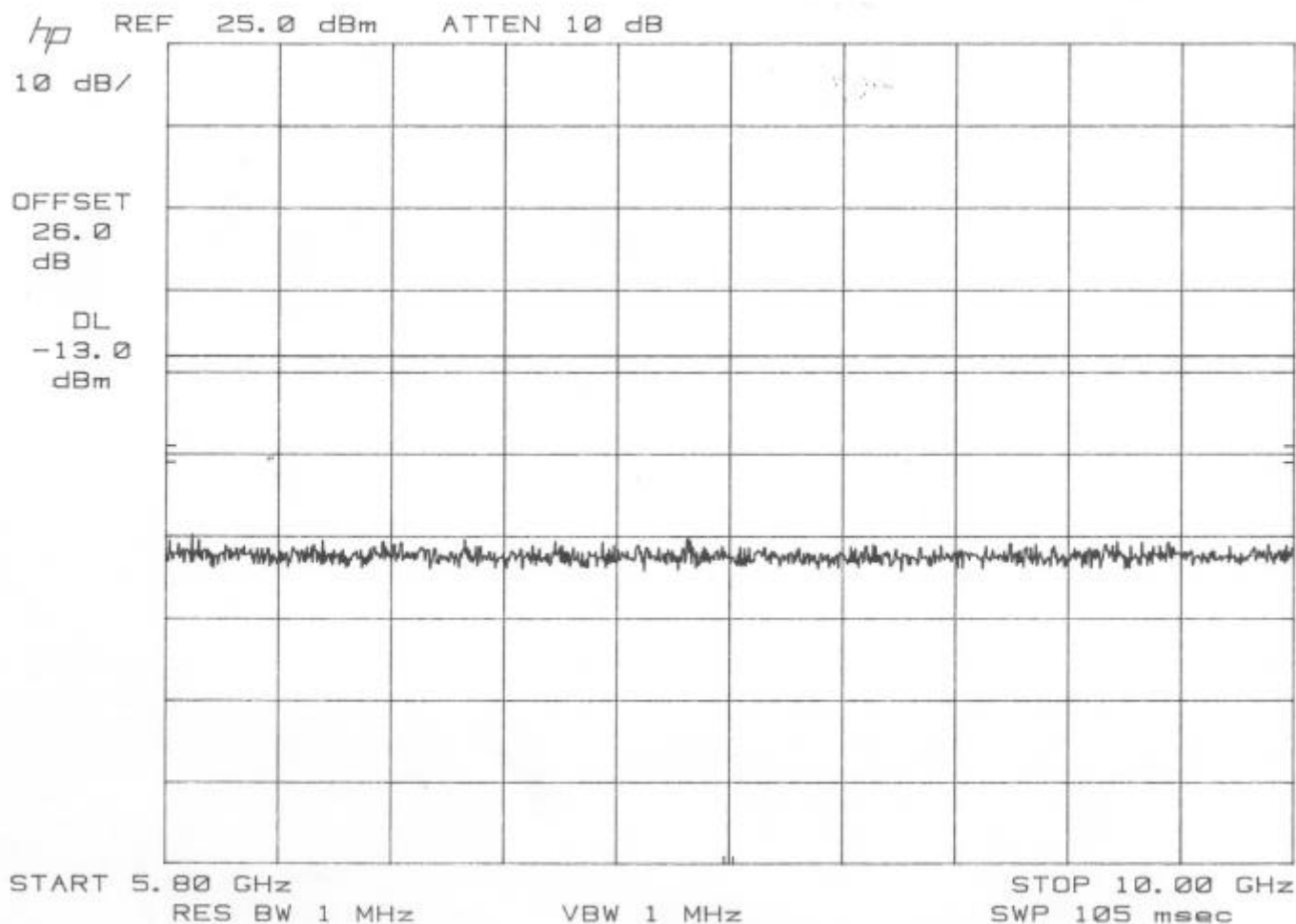


		Spurious Emissions at Antenna Terminals	
DNB Job Number:	RV48069-003	Date: 26 Mar 2004	Conformance Standards FCC Part 2.1051 Part 90.210
Customer:	Inteligain Corporation Inc		
Model Number:	IBX-NEX	Serial Number: n/a	
Description:	Nextel Amplifier		
	Uplink 2.5-5.8GHz		



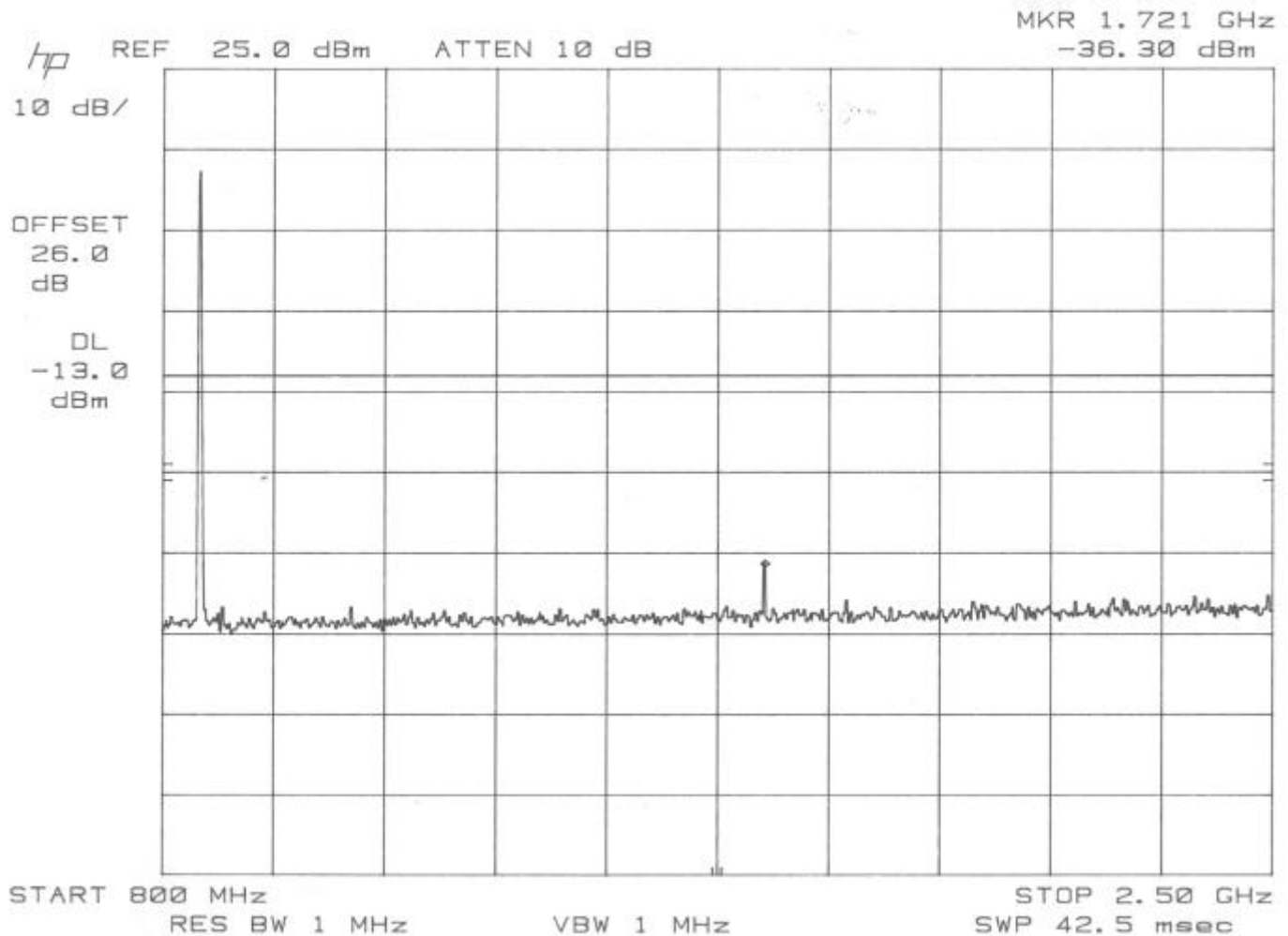


		Spurious Emissions at Antenna Terminals	
DNB Job Number:	RV48069-003	Date: 26 Mar 2004	Conformance Standards FCC Part 2.1051 Part 90.210
Customer:	Inteligain Corporation Inc		
Model Number:	IBX-NEX	Serial Number: n/a	
Description:	Nextel Amplifier		
	Uplink 5.8-10GHz		



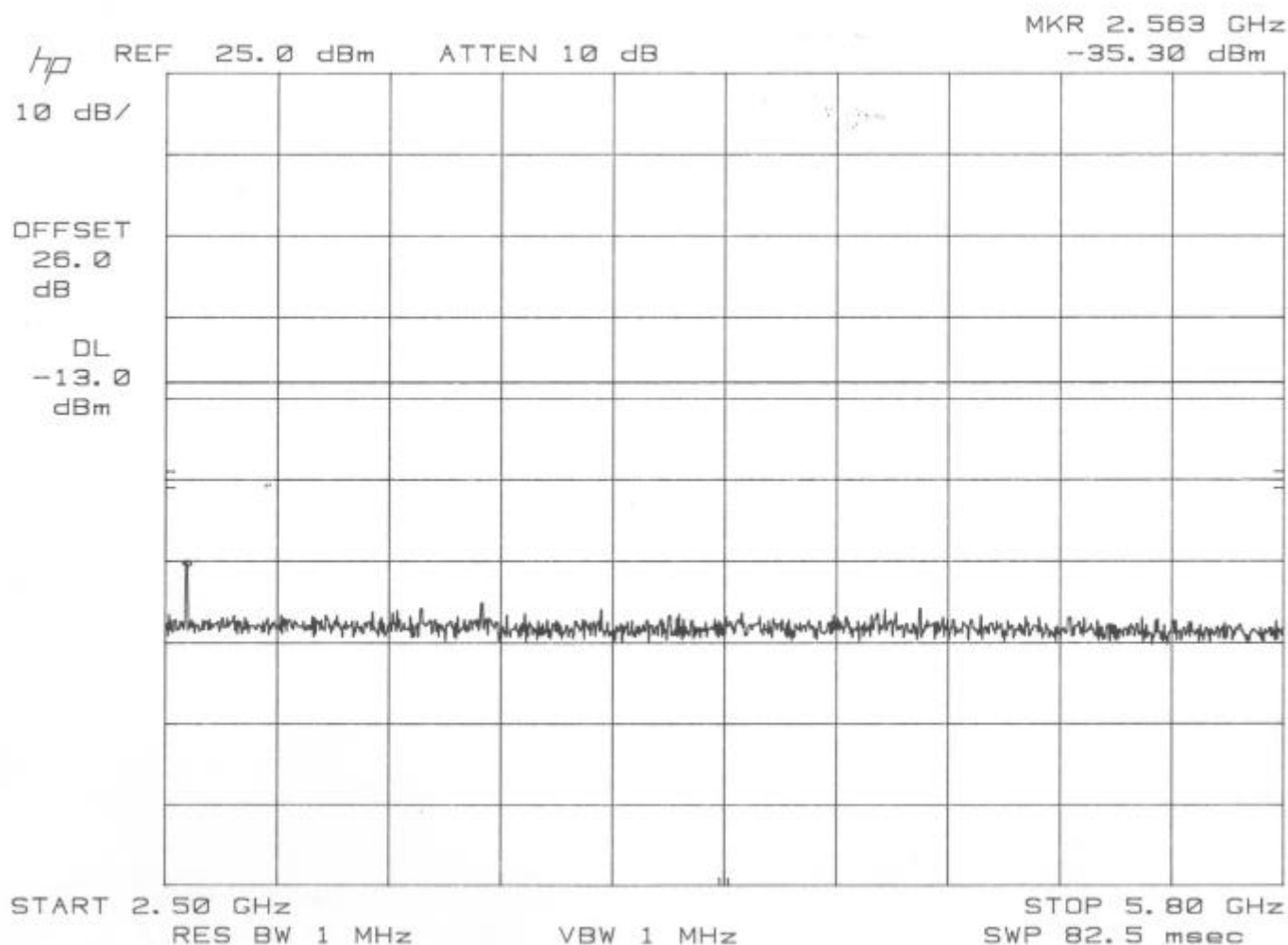


		Spurious Emissions at Antenna Terminals	
DNB Job Number:	RV48069-003	Date: 26 Mar 2004	Conformance Standards FCC Part 2.1051 Part 90.210
Customer:	Inteligain Corporation Inc		
Model Number:	IBX-NEX	Serial Number: n/a	
Description:	Nextel Amplifier		
	Downlink 800 MHz- 2.5GHz		



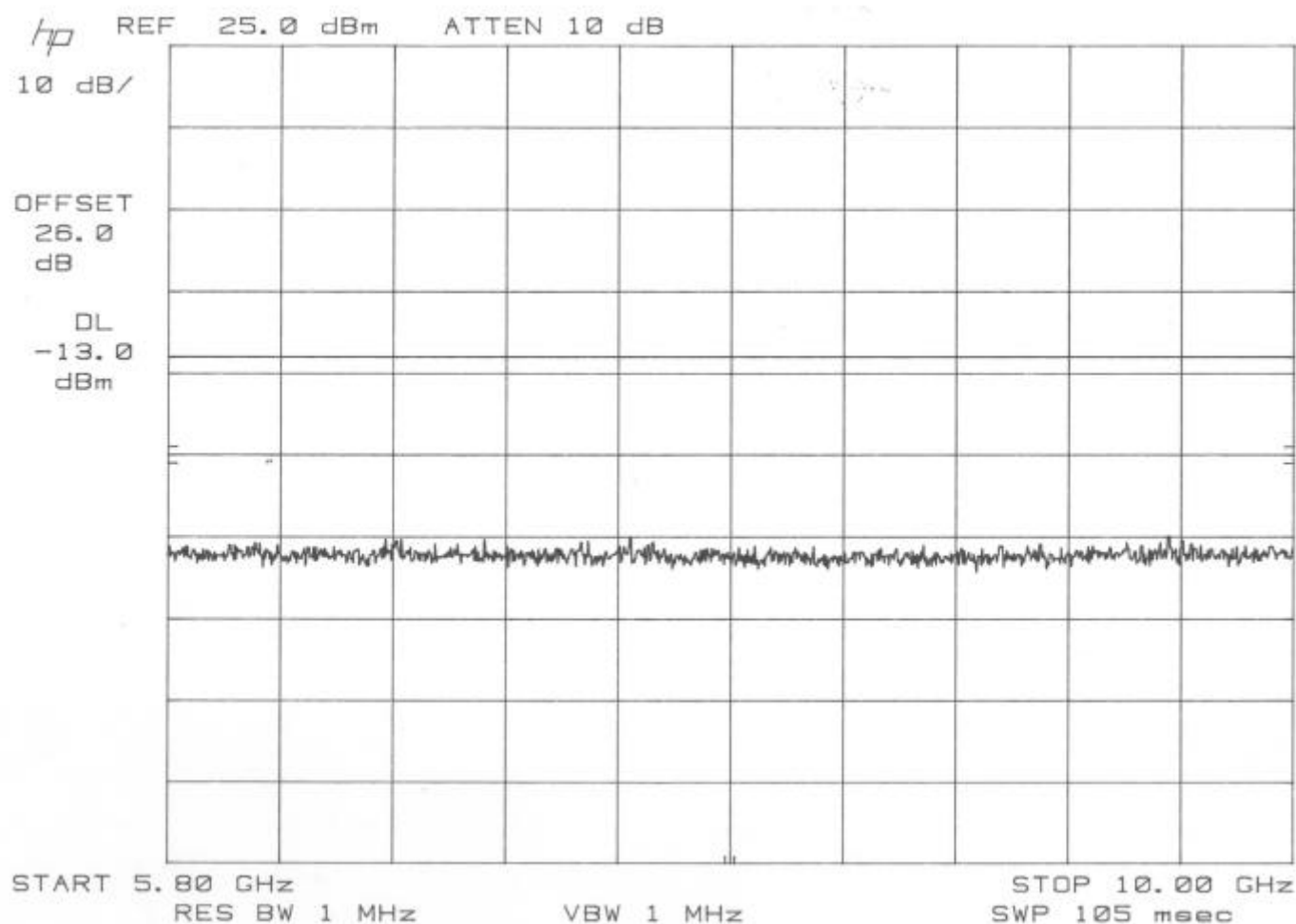


		Spurious Emissions at Antenna Terminals	
DNB Job Number:	RV48069-003	Date: 26 Mar 2004	Conformance Standards FCC Part 2.1051 Part 90.210
Customer:	Inteligain Corporation Inc		
Model Number:	IBX-NEX	Serial Number: n/a	
Description:	Nextel Amplifier		
	Downlink 2.5-5.8 GHz		





		Spurious Emissions at Antenna Terminals	
DNB Job Number:	RV48069-003	Date: 26 Mar 2004	Conformance Standards FCC Part 2.1051 Part 90.210
Customer:	Inteligain Corporation Inc		
Model Number:	IBX-NEX	Serial Number: n/a	
Description:	Nextel Amplifier		
	Downlink 5.8-10 GHz		





3.8 Field Strength of Spurious Radiation

Per 2.1053

Definition:

Emissions from the equipment when connected into a non-radiating load on a frequency or frequencies which are outside an occupied band sufficient to ensure transmission of information of required quality for the class of communication desired. The reduction in the level of these spurious emissions will not affect the quality of the information being transmitted.

Test Method: Per TIA /EIA 603.

Connect the equipment and follow the procedure described in TIA/EIA 603 for radiated spurious emissions. Measure the amplitude of each spurious radiated signal through the 10th harmonic. The spurious signals are then measured on the 3 meter range. First the EUT is measured using a tuned reference dipole below 1GHz and a double ridge guide Horn antenna above 1GHz. If the DRG antenna is used the appropriate gain factor for the antenna is subtracted from the final measurement. Then a dipole to dipole (or drg to drg) measurement is conducted to determine the actual power at each harmonic being generated by the EUT. If no noticeable emission can be observed the ground floor is recorded in the data sheets.

Test Results: All readings were at the spectrum analyzer ground floor above the fundamental.

All radiated spurious emissions are below the FCC Specifications.

Formula for calculated spurious emissions.

Corrected reading (dBm) = Reading (dBm) + Antenna Gain (in dB)

Where reading is the measured power at the transmit antenna directly measured with a power meter



Figure 7: Field Strength Spurious Radiation

		Field Strength of Spurious Radiation	
DNB Job Number:	RV48069-003	Date: 24 Nov 2003	Conformance Standards FCC Part 2.1053 Part 90.210
Customer:	Inteligain Corporation Inc		
Model Number:	IBX-NEX	Serial Number: n/a	
Description:	Nextel Amplifier		

806 MHz							
Harmonics	MHz	Polar	dBm Reading	Antenna Gain	dBm Corrected	-13dB Limit	Margin
2nd	1612	H	-89.31	8.7	-80.61	-13	-67.61
	1612	V	-89.31	8.7	-80.61	-13	-67.61
3rd	2418	H	-82.69	9.1	-73.59	-13	-60.59
	2418	V	-82.69	9.1	-73.59	-13	-60.59
4th	3224	H	-92.85	9.5	-83.35	-13	-70.35
	3224	V	-92.85	9.5	-83.35	-13	-70.35
5th	4300	H	-87.55	9.2	-78.35	-13	-65.35
	4300	V	-87.55	9.2	-78.35	-13	-65.35
6th	4836	H	-87.48	10.6	-76.88	-13	-63.88
	4836	V	-87.48	10.6	-76.88	-13	-63.88
7th	5642	H	-87.29	11	-76.29	-13	-63.29
	5642	V	-87.29	11	-76.29	-13	-63.29
8th	6448	H	-86.59	11.7	-74.89	-13	-61.89
	6448	V	-86.59	11.7	-74.89	-13	-61.89
9th	7254	H	-84.02	11.1	-72.92	-13	-59.92
	7254	V	-84.02	11.1	-72.92	-13	-59.92
10th	8060	H	-79.83	11	-68.83	-13	-55.83
	8060	V	-79.83	11	-68.83	-13	-55.83



		Field Strength of Spurious Radiation	
DNB Job Number:	RV48069-003	Date: 24 Nov 2003	Conformance Standards FCC Part 2.1053 Part 90.210
Customer:	Inteligain Corporation Inc		
Model Number:	IBX-NEX	Serial Number: n/a	
Description:	Nextel Amplifier		

813 MHz							
Harmonics	MHz	Polar	dBm Reading	Antenna Gain	dBm Corrected	-13dB Limit	Margin
2nd	1626	H	-89.31	8.7	-80.61	-13	-67.61
	1626	V	-89.31	8.7	-80.61	-13	-67.61
3rd	2439	H	-82.79	9.2	-73.59	-13	-60.59
	2439	V	-82.79	9.2	-73.59	-13	-60.59
4th	3252	H	-92.85	9.5	-83.35	-13	-70.35
	3252	V	-92.85	9.5	-83.35	-13	-70.35
5th	4065	H	-87.65	9.3	-78.35	-13	-65.35
	4065	V	-87.65	9.3	-78.35	-13	-65.35
6th	4878	H	-87.48	10.6	-76.88	-13	-63.88
	4878	V	-87.48	10.6	-76.88	-13	-63.88
7th	5691	H	-87.29	11	-76.29	-13	-63.29
	5691	V	-87.29	11	-76.29	-13	-63.29
8th	6504	H	-86.69	11.8	-74.89	-13	-61.89
	6504	V	-86.69	11.8	-74.89	-13	-61.89
9th	7317	H	-83.92	11	-72.92	-13	-59.92
	7317	V	-83.92	11	-72.92	-13	-59.92
10th	8130	H	-79.83	11	-68.83	-13	-55.83
	8130	V	-79.83	11	-68.83	-13	-55.83



		Field Strength of Spurious Radiation	
DNB Job Number:	RV48069-003	Date: 24 Nov 2003	Conformance Standards FCC Part 2.1053 Part 90.210
Customer:	Inteligain Corporation Inc		
Model Number:	IBX-NEX	Serial Number: n/a	
Description:	Nextel Amplifier		

821 MHz							
Harmonics	MHz	Polar	dBm Reading	Antenna Gain	dBm Corrected	-13dB Limit	Margin
2nd	1642	H	-89.31	8.7	-80.61	-13	-67.61
	1642	V	-89.31	8.7	-80.61	-13	-67.61
3rd	2462	H	-82.79	9.2	-73.59	-13	-60.59
	2462	V	-82.79	9.2	-73.59	-13	-60.59
4th	3284	H	-92.85	9.5	-83.35	-13	-70.35
	3284	V	-92.85	9.5	-83.35	-13	-70.35
5th	4105	H	-87.75	9.4	-78.35	-13	-65.35
	4105	V	-87.75	9.4	-78.35	-13	-65.35
6th	4926	H	-87.48	10.6	-76.88	-13	-63.88
	4926	V	-87.48	10.6	-76.88	-13	-63.88
7th	5747	H	-87.39	11.1	-76.29	-13	-63.29
	5747	V	-87.39	11.1	-76.29	-13	-63.29
8th	6568	H	-86.59	11.7	-74.89	-13	-61.89
	6568	V	-86.59	11.7	-74.89	-13	-61.89
9th	7389	H	-83.82	10.9	-72.92	-13	-59.92
	7389	V	-83.82	10.9	-72.92	-13	-59.92
10th	8210	H	-79.83	11	-68.83	-13	-55.83
	8210	V	-79.83	11	-68.83	-13	-55.83



3.8.1 RF Exposure – MPE Calculations

Input

Transmitter Power: 250 mW

Antenna Gain: 3 dB

Cable loss: 2 dB @ 806– 825 MHz
2 dB @ 851 – 870 MHz

Frequency range: 806-825 MHz and MHz

Assumptions

1. A single $\frac{1}{4}$ wavelength radiating antenna is assumed.
2. Closest exposure distance is assumed to be 20 cm



RF Exposure – MPE Calculations

Calculations

The following results shall be assumed to be accurate for the far-field only. These predictions will over-estimate power density in the near-field. Based on the use of a $\frac{1}{4}$ wavelength radiator, a distance of 20 cm is considered to be in the far-field for all cases.

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

@ 806-825 MHz

P is 250mW

G is 2 dB (Antenna gain – loss) or $10^{(2/20)}$ or 1.25

R is 20 cm

$$\underline{S = 0.056 \text{ mW/cm}^2}$$

For Occupational/Controlled Exposure

From 300 to 1500 MHz, power density limit is $f/300 \text{ mW/cm}^2$

@ 806MHz, power density limit is 2.69 mW/cm^2

For General Population/Uncontrolled Exposure

From 300 to 1500 MHz, power density limit is $f/1500 \text{ mW/cm}^2$

@ 806MHz, Power density limit is 0.54 mW/cm^2

Conclusion: Meets MPE limits



3.9 Frequency Stability

Per 2.1055

Definition:

The measurement of frequency stability with variation of the ambient temperature.

Test Method: Frequency measurements shall be made at the extremes of the specified temperature range and at intervals of not more than 10[deg] centigrade through the range. A period of time sufficient to stabilize all of the components of the oscillator circuit at each temperature level shall be allowed prior to frequency measurement.

Test Results: Not Applicable



4 **Appendix: Photos**

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4.1 Photo: RF Power Output, Emissions Limitations GSM/TDMA, Occupied Bandwidth GSM/TDMA, Conducted Spurious Emissions at Antenna Terminals.



4.2 Field Strength of Spurious Radiation



END of Test Report