

Nemko Test Report: 5L0126RUS1Rev1

Applicant: Siemens Subscriber Networks, Inc.
4849 Alpha Rd.
Dallas, Texas 75244

**Equipment Under Test:
(E.U.T.)** SpeedStream 6520EX / 6515EX

In Accordance With: **FCC Part 15, Subpart C, 15.247**
Spread Spectrum Transmitters

Tested By: Nemko Dallas Inc.
802 N. Kealy
Lewisville, Texas 75057-3136

Authorized By:



Tom Tidwell, Frontline Manager

Date: 10 June 2005

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EQUIPMENT:SpeedStream 6520EX /6515EXPROJECT NO. 5L0126RUS1Rev1**Section 1. Summary of Test Results**

Manufacturer: Siemens Subscriber Networks, Inc.
Model No.: SpeedStream 6520EX (Model Tested)
SpeedStream 6515EX
Serial No.: MAE:00:0B:23:FE:6D:99

REMARKS:

This report contains the test results for the Siemens Subscribers Networks Model Speedstream 6520/ Speedstream 6515. An external power adapter provided power.

Model No's:	Part No's:
Speedstream 6520EX	060-R651-AXX
Speedstream 6515EX	060-R551-AXX

Small black box with SpeedStream written in black on the top front bezel. Back part of modem has DSL, USB, Ethernet ports 4-1, Power connection, Antenna and on/off push switch

General: **All measurements are traceable to national standards.**

These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15, Subpart C, Paragraph 15.247 for Direct Sequence Spread Spectrum devices. Radiated tests were conducted in accordance with ANSI C63.4-1992. Radiated emissions are made on an open area test site. A description of the test facility is on file with the FCC.



New Submission



Production Unit



Class II Permissive Change



Pre-Production Unit

THIS TEST REPORT RELATES ONLY TO THE ITEM(S) TESTED.

THE FOLLOWING DEVIATIONS FROM, ADDITIONS TO, OR EXCLUSIONS FROM THE TEST
SPECIFICATIONS HAVE BEEN MADE. NONE

See “ Summary of Test Data”.



NVLAP LAB CODE: 100426-0

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Summary Of Test Data

NAME OF TEST	PARA. NO.	RESULT
Powerline Conducted Emissions	15.207(a)	Complies
Minimum 6 dB Bandwidth	15.247(a)(2)	Complies
Maximum Peak Power Output	15.247(b)(1)	Complies
Spurious Emissions (Antenna Conducted)	15.247(c)	Complies
Spurious Emissions (Restricted Bands)	15.247(c)	Complies
Peak Power Spectral Density	15.247(d)	Complies

Footnotes:

Section 2. Equipment Under Test (E.U.T.)

General Equipment Information

Frequency Band: 2412 to 2462 MHz

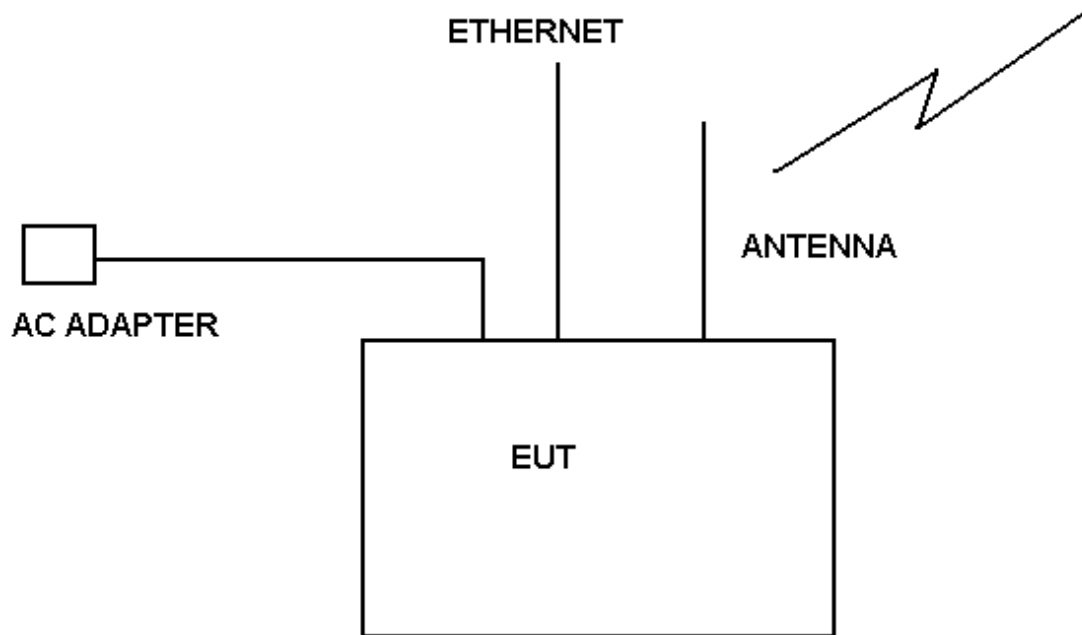
Channel Spacing: 5 MHz

User Frequency Adjustment: Software controlled

Description of EUT

The device is a DSL/wireless 802.11b/g modem.

System Diagram



Section 3. Powerline Conducted Emissions

NAME OF TEST: Powerline Conducted Emissions	PARA. NO.: 15.207(a)
TESTED BY: Kevin Rose	DATE: 03/16/05

Test Results: Complies.

Measurement Data: See attached plots.

Measurement Uncertainty: +/- 1.7 dB

Generic Description	Manufacturer	Model No.	Serial #
AC Adapter (WallWart)Domestic	Ten Pao	S024AU1200150	7

Test Data – Powerline Conducted Emissions



NEMKO Dallas, Inc.

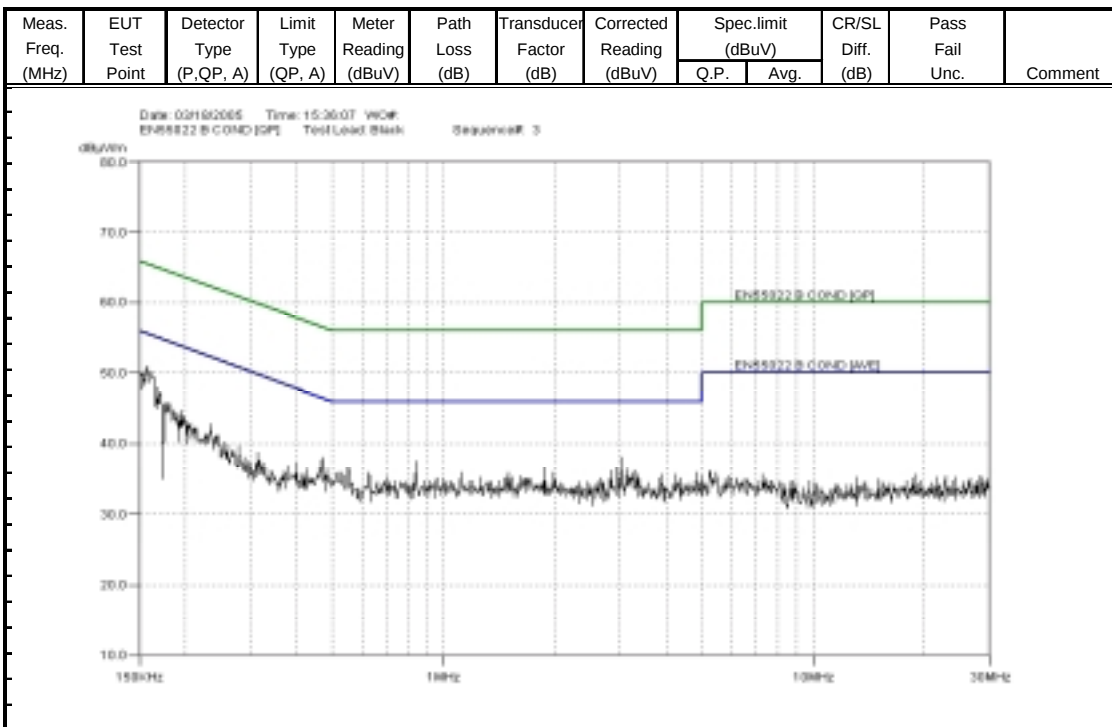
Dallas Headquarters:

802 N. Kealy
Lewisville, TX 75057
Tel: (972) 436-9600
Fax: (972) 436-2667

Conducted Emissions

Powerline Voltage Measurement

Complete	<u>x</u>	Job # : <u>5L0126E</u>	Test # : <u>CEPV-01</u>
Preliminary	<u> </u>	Page <u>1</u>	of <u>2</u>
Client Name : <u>Siemens</u>			
EUT Name : <u>Compact Wireless Gateway</u>			
EUT Model # : <u>SpeedStream 6520EX / 6515EX Annex A</u>			
EUT Part # : <u>060-R651-AXX / 060-R551-AXX</u>			
EUT Serial # : <u>MAE:00:0B:23:FE:6D:99</u>			
EUT Config. : <u>CHANNEL 6 MAX TRANSMIT</u>			
Specification : <u>PART 15.247</u>			
Transducer # :	<u>545</u>	Temp. (deg. C) :	<u>23</u>
HP Filter # :	<u>958</u>	Humidity (%) :	<u>56</u>
Cable 1 # :	<u>1113</u>	EUT Voltage :	<u>120VAC</u>
Cable 2 # :	<u>1019</u>	EUT Frequency :	<u>60Hz</u>
Detector 1 # :	<u>716</u>	Peak Bandwidth:	<u>10kHz</u>
Detector 2 # :	<u>1464</u>	QP Bandwidth	<u>9kHz</u>
Limiter # :	<u>674</u>	Avg. Bandwidth	<u>9kHz</u>
Reference : <u>PART 15 SUB B CLASS B</u>		Date : <u>03/18/05</u>	
		Time : <u>15:00</u>	
		Staff : <u>Kevin Rose</u>	
		Location : <u>Lab 2</u>	
		Photo ID: <u>5L0126ECEPV-01</u>	



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Dallas Headquarters:

802 N. Kealy
Lewisville, TX 75057
Tel: (972) 436-9600
Fax: (972) 436-2667

Conducted Emissions
Powerline Voltage Measurement

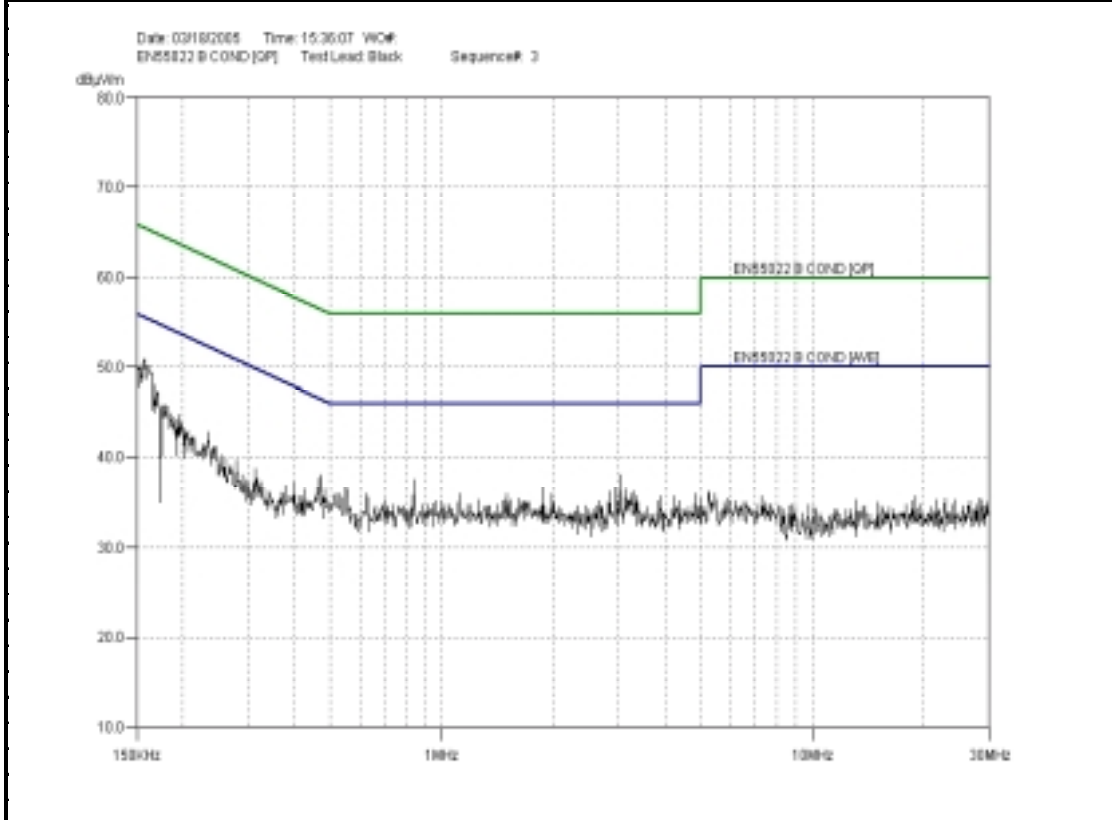
Complete x
Preliminary

Job # : 5I0126E Test # : CEPV-01
Page 2 of 2

Client Name : Siemens
EUT Name : Compact Wireless Gateway
EUT Model # : SpeedStream 6520EX / 6515EX Annex A
EUT Part # : 060-R651-AXX / 060-R551-AXX
EUT Serial # : MAE:00:0B:23:FE:6D:99
EUT Config. : CHANNEL 6 MAX TRANSMIT

Specification : PART 15.247 Reference : PART 15 SUB B CLASS B

Meas.	EUT	Detector	Limit	Meter	Path	Transducer	Corrected	Spec. limit	CR/SL	Pass	
Freq.	Test	Type	Type	Reading	Loss	Factor	Reading	(dBuV)	Diff.	Fail	
(MHz)	Point	(P,Q,P, A)	(Q,P, A)	(dBuV)	(dB)	(dB)	(dBuV)	Q.P.	Avg.	(dB)	Unc.
											Comment



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Photos – Powerline Conducted Emissions



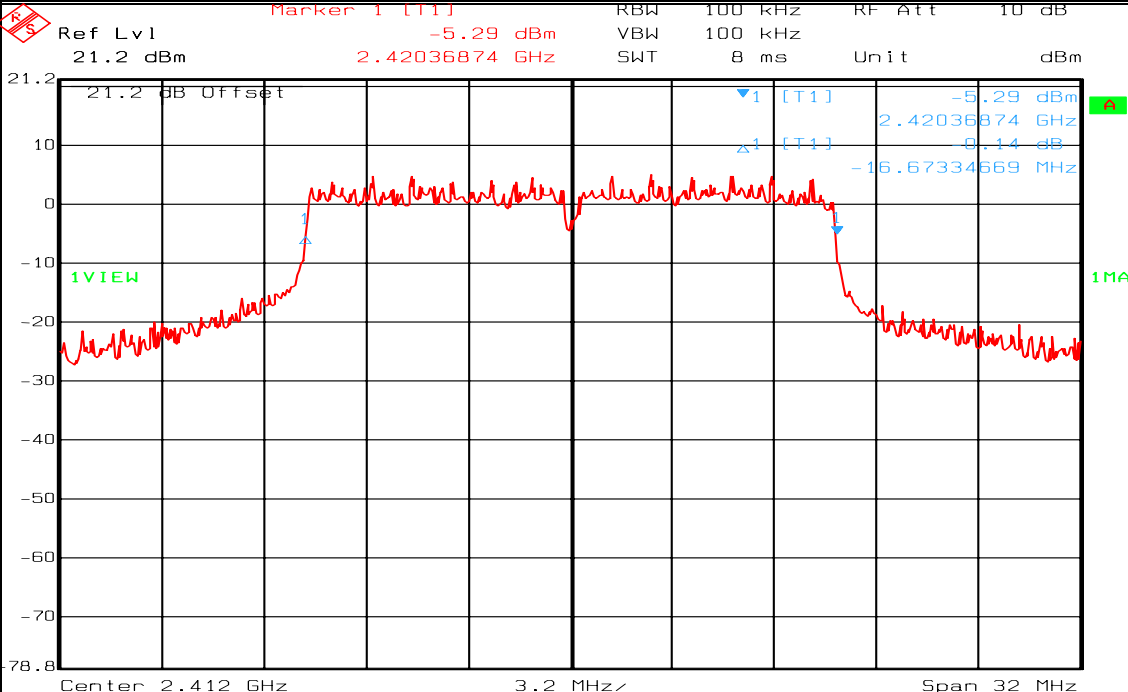
Section 4. Minimum 6 dB Bandwidth

NAME OF TEST: Minimum 6 dB Bandwidth	PARA. NO.: 15.247(a)(2)
TESTED BY: Kevin Rose	DATE: 03/15/05

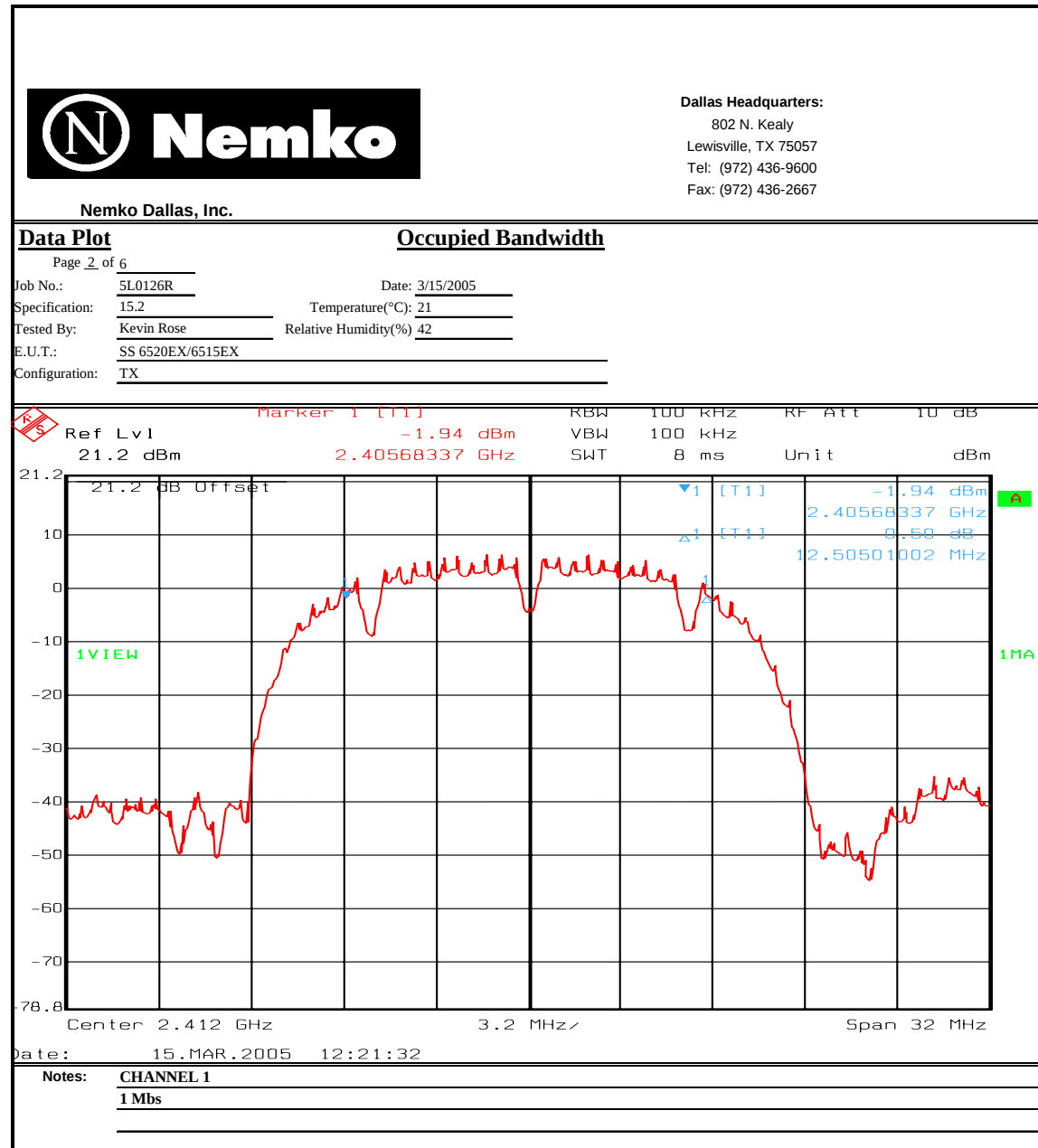
Test Results: Complies.

Measurement Data: See 6 dB BW plot
Measured 6 dB bandwidth: 16.6 MHz Max
Channel Separation: 5 MHz

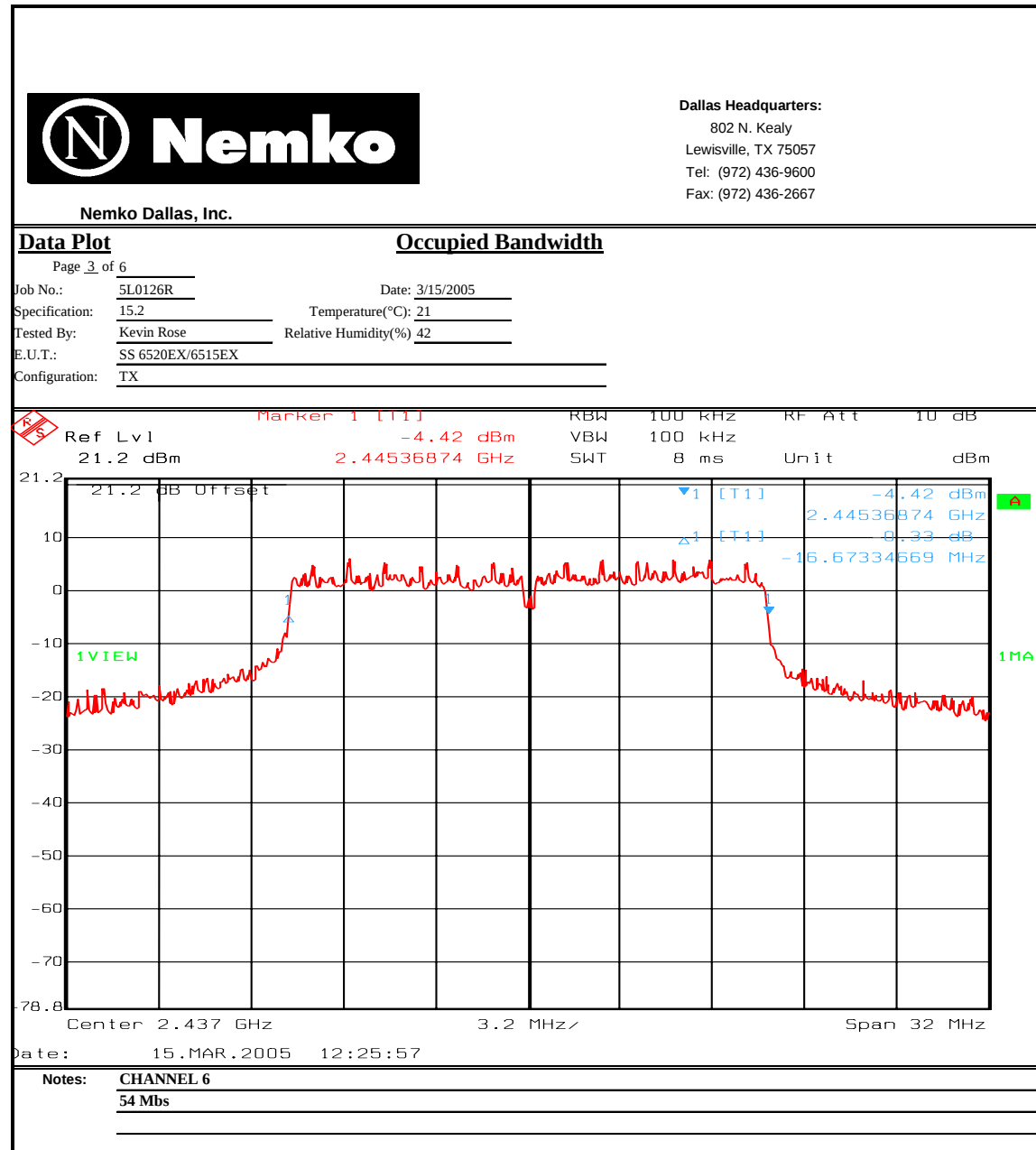
Test Data – Occupied Bandwidth

 Nemko Dallas, Inc.		Dallas Headquarters: 802 N. Kealy Lewisville, TX 75057 Tel: (972) 436-9600 Fax: (972) 436-2667	
Data Plot			
Page 1 of 6		Occupied Bandwidth	
Job No.: 5L0126R	Date: 3/15/2005	Complete: ☒	
Specification: 15.247	Temperature(°C): 21	Preliminary: ☐	
Tested By: Kevin Rose	Relative Humidity(%): 42		
E.U.T.: SS 6520EX/6515EX			
Configuration: TX			
Sample Number: 1			
Location: Lab 2	RBW: 100 kHz	Measurement	
Detector Type: Peak	VBW: 100 kHz	Distance: NA m	
Test Equipment Used			
Antenna:	Directional Coupler:		
Pre-Amp:	Cable #1: 1081		
Filter:	Cable #2:		
Receiver: 1036	Cable #3:		
Attenuator #1: 1472	Cable #4:		
Attenuator #2:	Mixer:		
Additional equipment used:			
Measurement Uncertainty: +/-1.7 dB			
			
Date: 15.MAR.2005 12:18:57			
Notes: CHANNEL 1 - 54 Mbs			

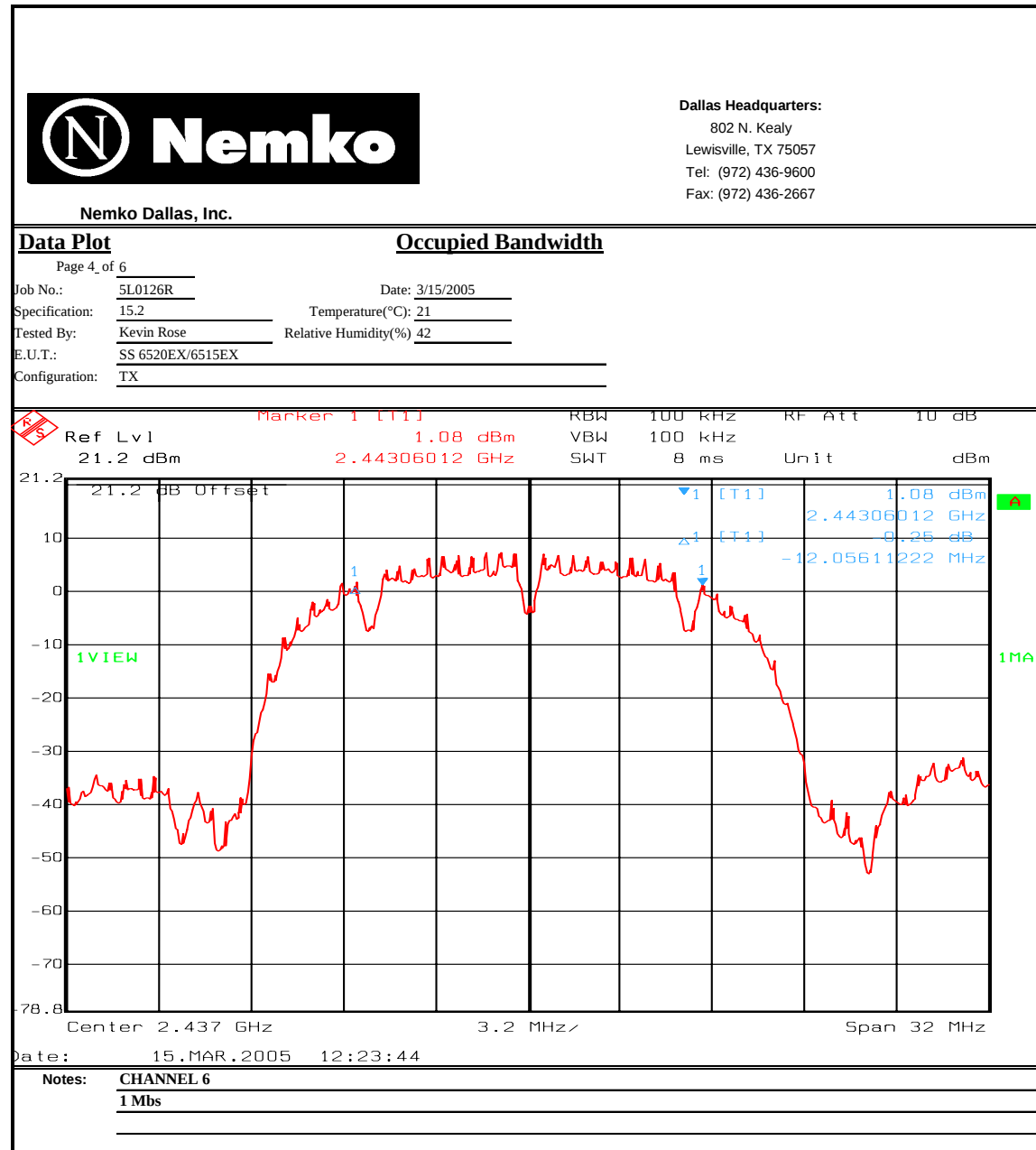
Test Data – Occupied Bandwidth



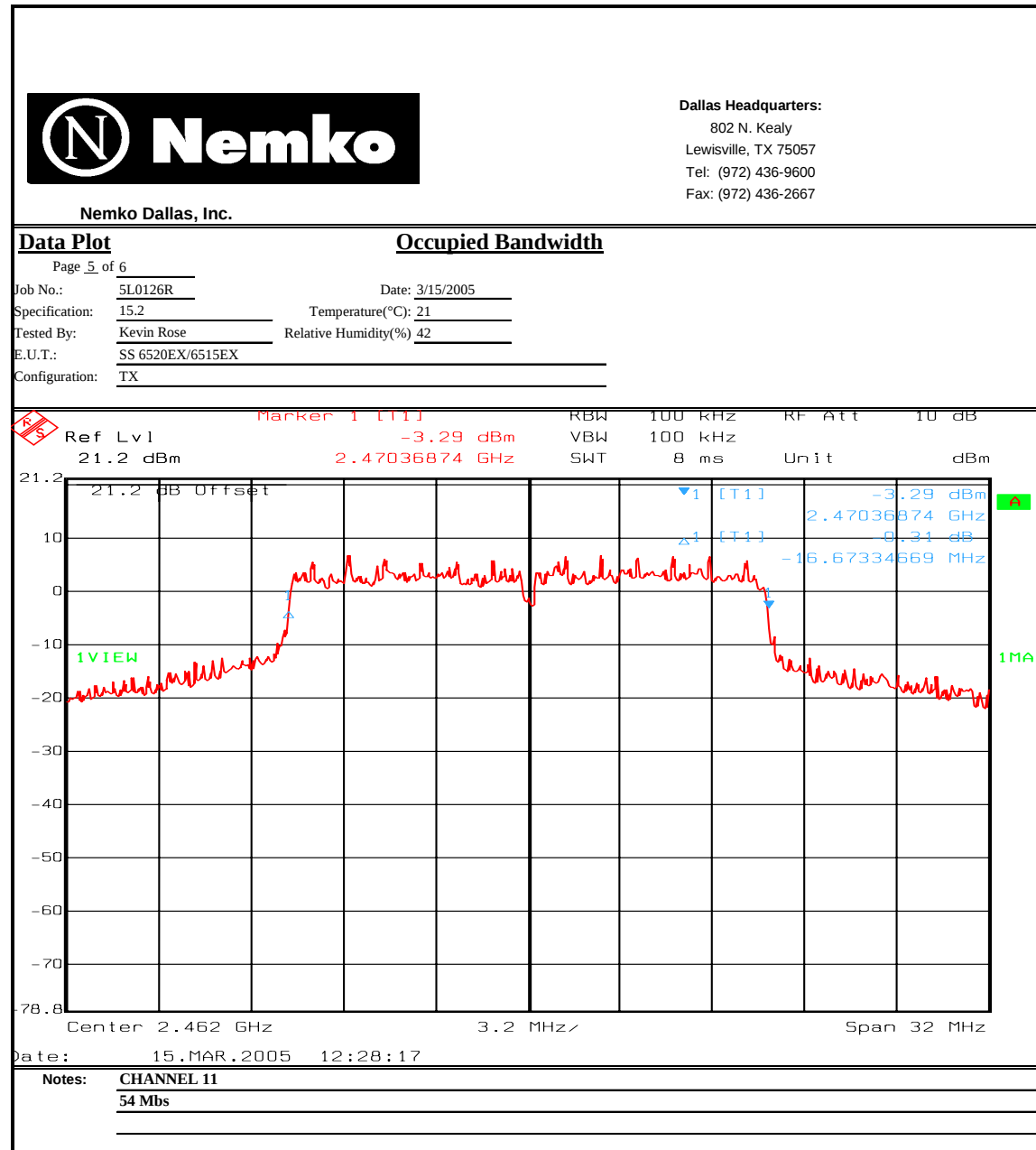
Test Data – Occupied Bandwidth



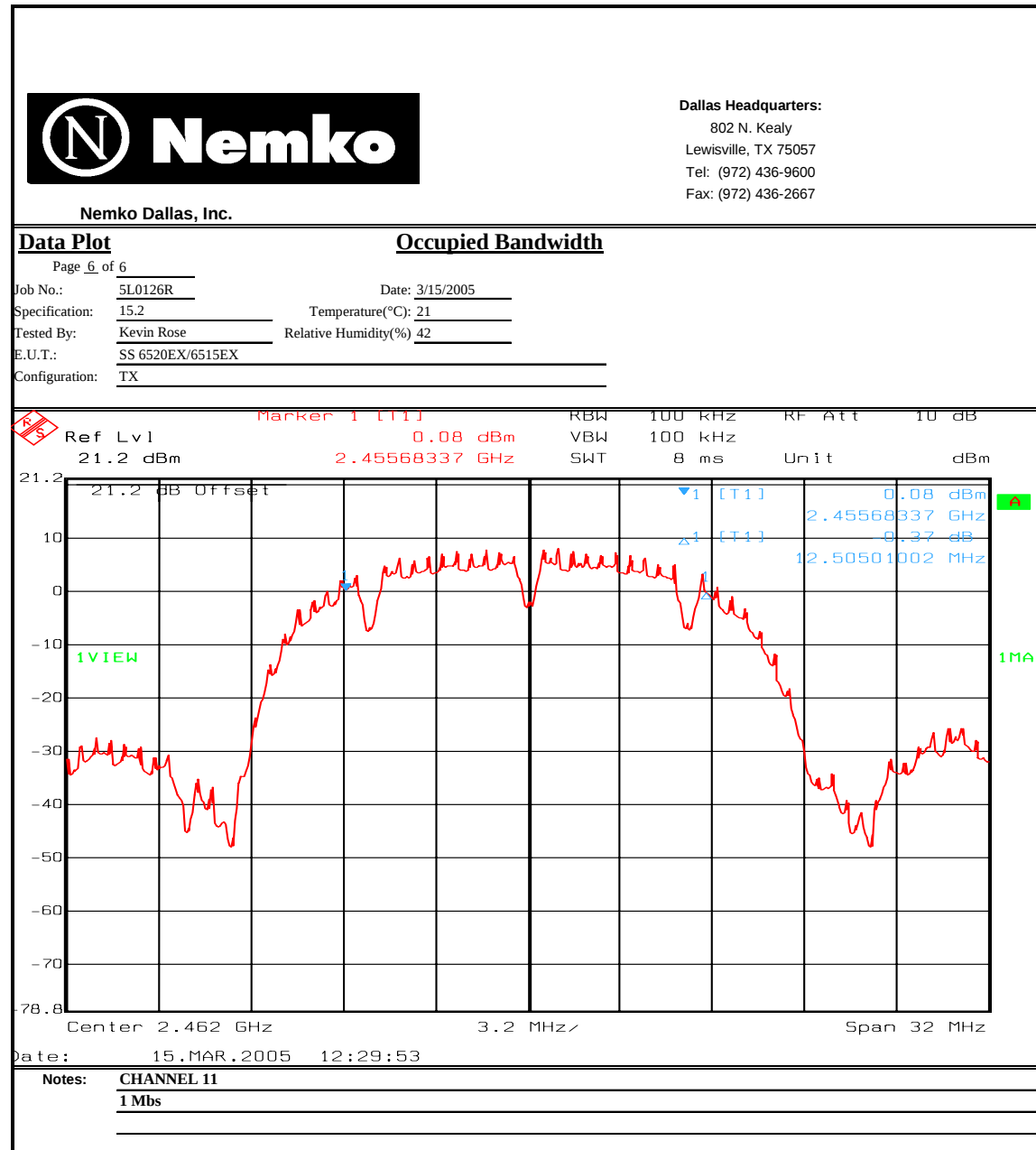
Test Data – Occupied Bandwidth



Test Data – Occupied Bandwidth



Test Data – Occupied Bandwidth



Section 5. Maximum Peak Output Power

NAME OF TEST: Maximum Peak Output power	PARA. NO.: 15.247(b)(1)
TESTED BY: Kevin Rose	DATE: 03/15/05

Test Results: Complies.

Measurement Data:

Antennas: Monopole

Frequency (MHz)	Data Rate (Bps)	Antenna Gain (dBi)	Peak Power (dBm)	Peak Power (W)	EIRP (dBm)
2412	1	2.5	27.12	.515	29.6
2437	1	2.5	27.50	.562	30.0
2462	1	2.5	28.01	.633	30.5
2412	54	2.5	29.38	.867	31.9
2437	54	2.5	29.38	.867	31.9
2462	54	2.5	29.26	.843	31.8

Note: The AC supply to the device was varied from 102 Vac to 138 Vac will rf output power was monitored. There was no variation of rf output power noted.

Equipment Used: 1029-1081-1474

Measurement Uncertainty: +/- 0.7 dB

Temperature: 21 °C

Relative Humidity: 42 %

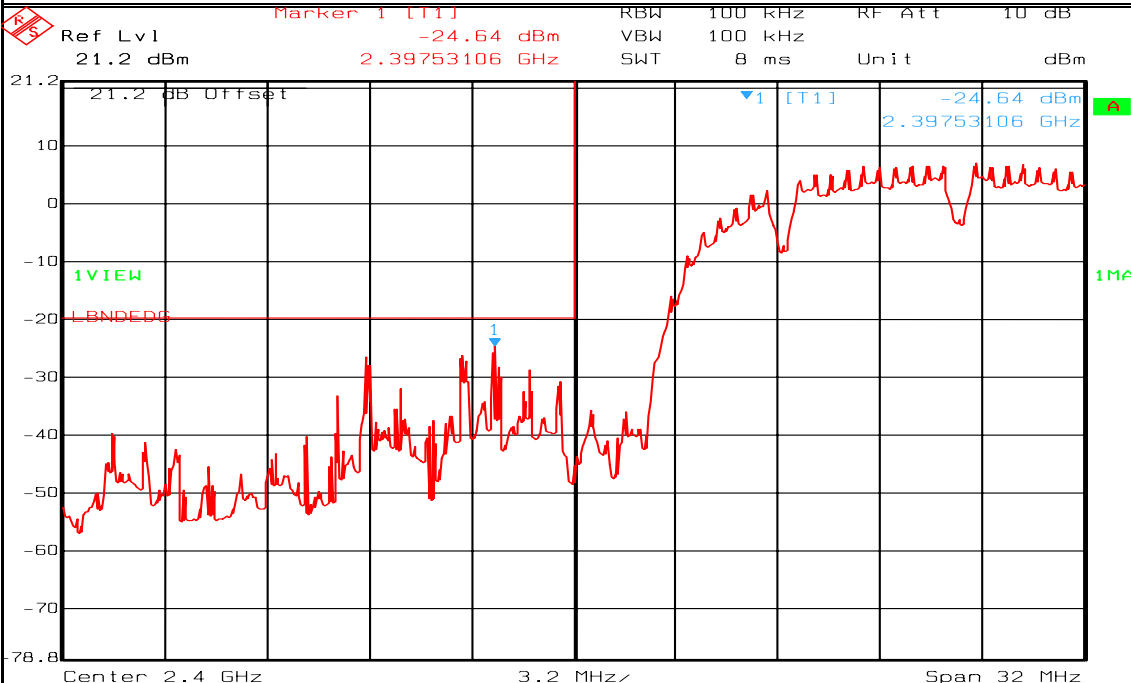
Section 6. Spurious Emissions (conducted)

NAME OF TEST: Spurious Emissions (conducted)	PARA. NO.: 15.247(c)
TESTED BY: Kevin Rose	DATE: 03/15/05

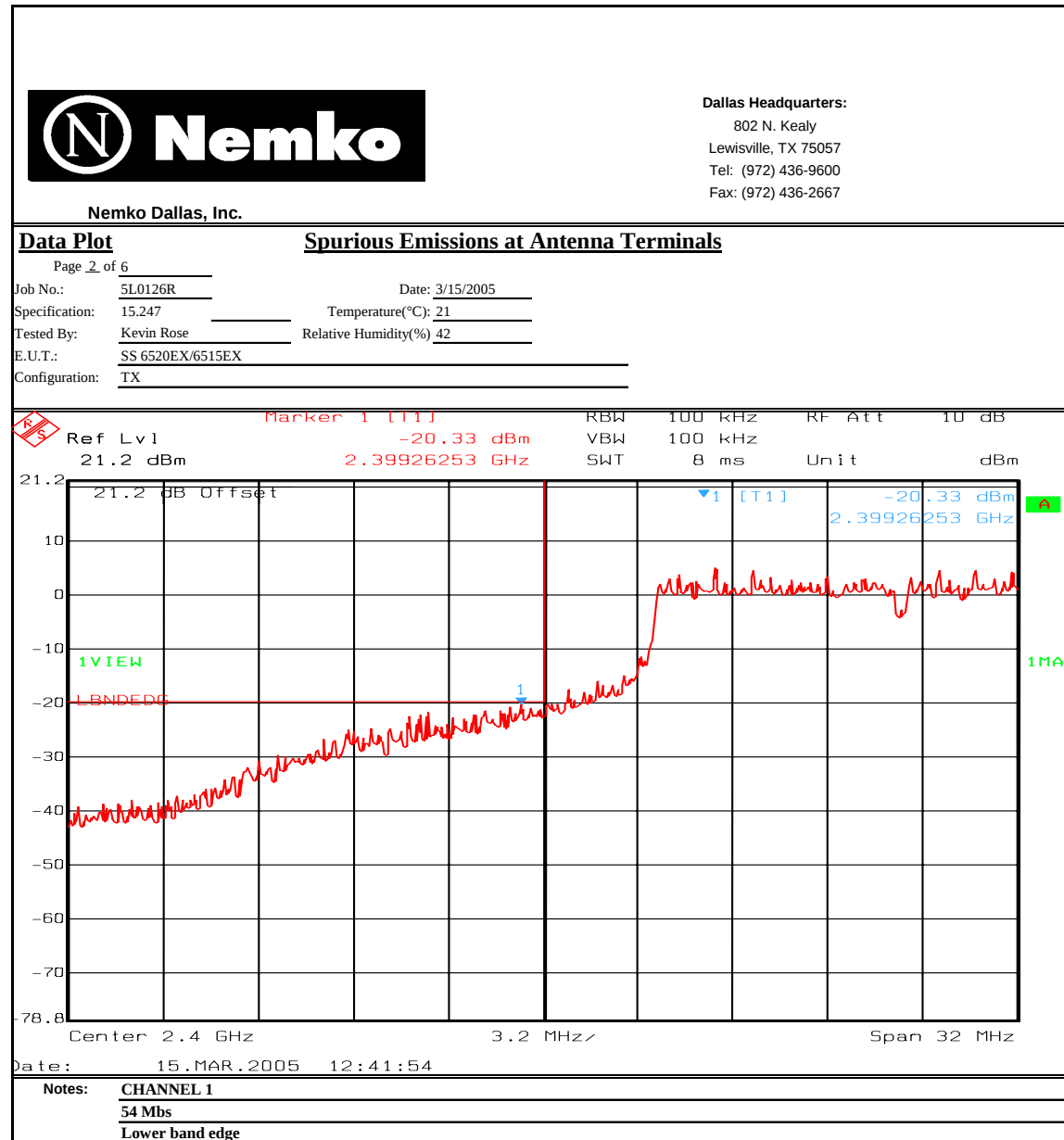
Test Results: Complies.

Measurement Data: See attached plots.

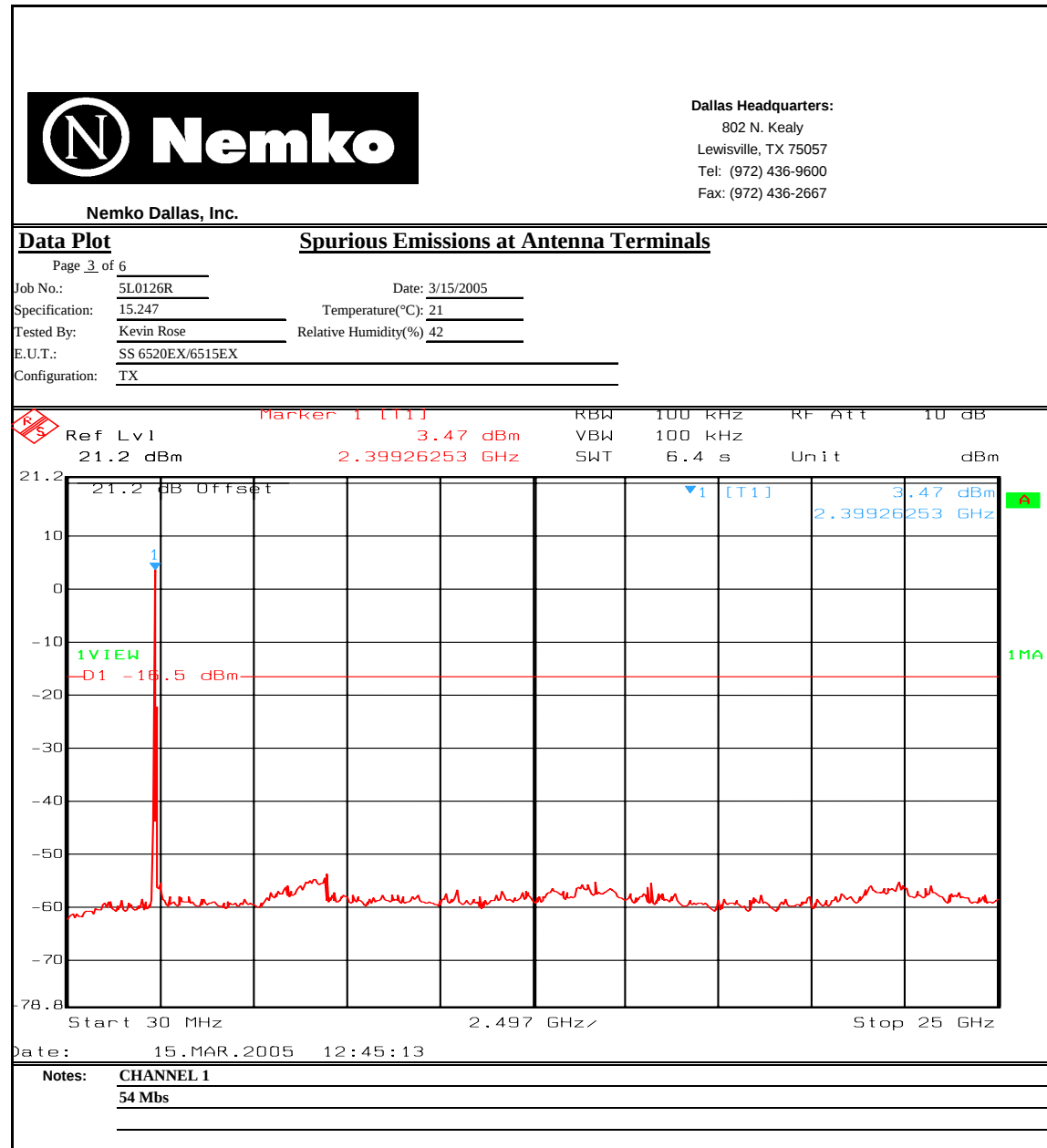
Test Data – Spurious Emissions at Antenna Terminals

		Dallas Headquarters: 802 N. Kealy Lewisville, TX 75057 Tel: (972) 436-9600 Fax: (972) 436-2667	
		Nemko Dallas, Inc.	
Data Plot Spurious Emissions at Antenna Terminals			
Page <u>1</u> of <u>6</u>		Complete <u>X</u>	
Job No.: 5L0126R	Date: 3/15/2005	Preliminary: <u> </u>	
Specification: 15.247	Temperature(°C): 21		
Tested By: Kevin Rose	Relative Humidity(%): 42		
E.U.T.: SS 6520EX/6515EX			
Configuration: TX			
Sample Number: 1			
Location: Lab 2	RBW: 100 kHz	Measurement	
Detector Type: Peak	VBW: 100 kHz	Distance: <u>NA</u> m	
Test Equipment Used			
Antenna: <u> </u>	Directional Coupler: <u> </u>		
Pre-Amp: <u> </u>	Cable #1: 1081		
Filter: <u> </u>	Cable #2: <u> </u>		
Receiver: 1036	Cable #3: <u> </u>		
Attenuator #1: 1472	Cable #4: <u> </u>		
Attenuator #2: <u> </u>	Mixer: <u> </u>		
Additional equipment used: <u> </u>			
Measurement Uncertainty: +/-1.7 dB			
			
Date: 15.MAR.2005 12:36:28			
Notes: CHANNEL 1			
1 Mbs			
Lower band edge			

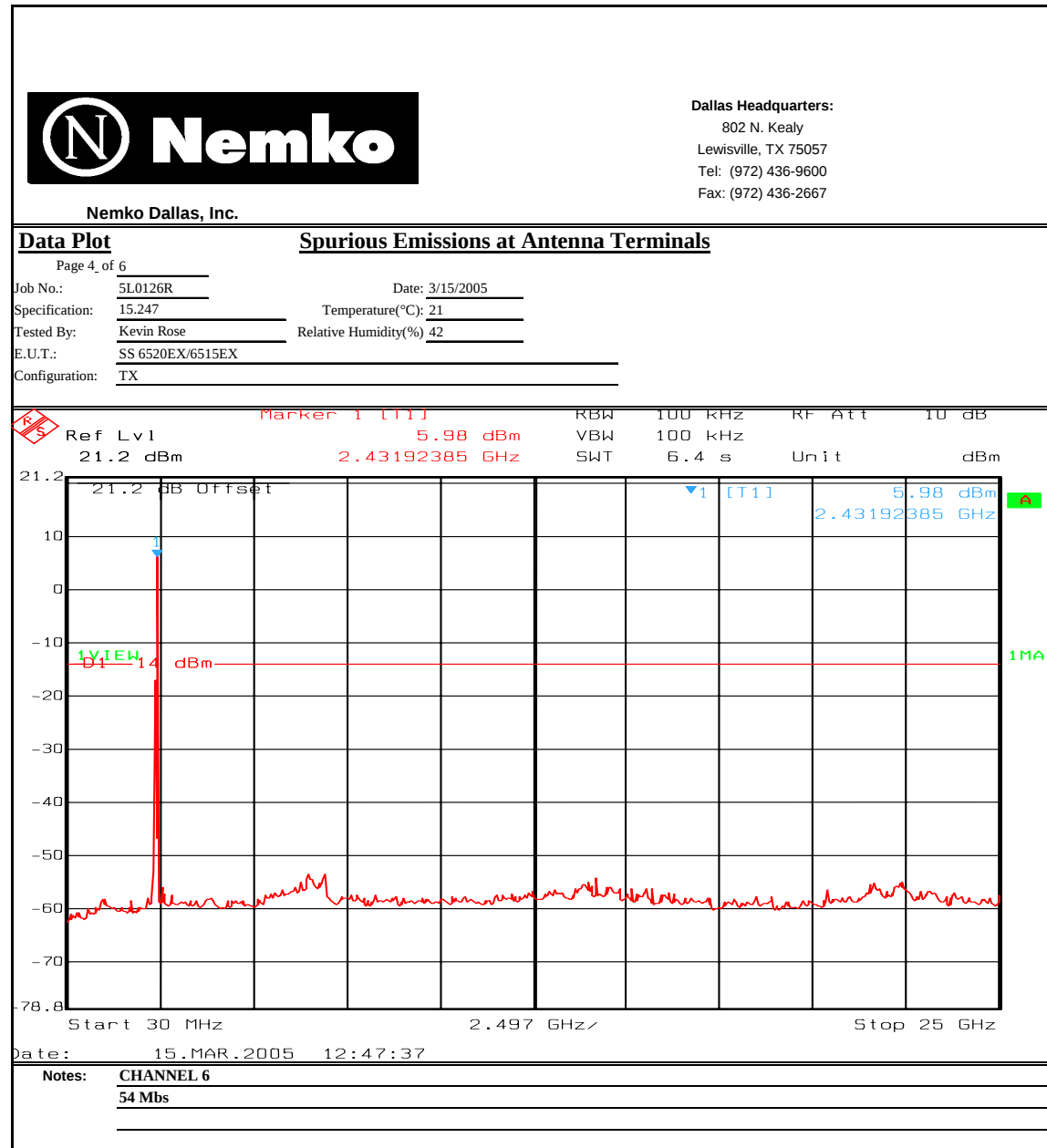
Test Data – Spurious Emissions at Antenna Terminals



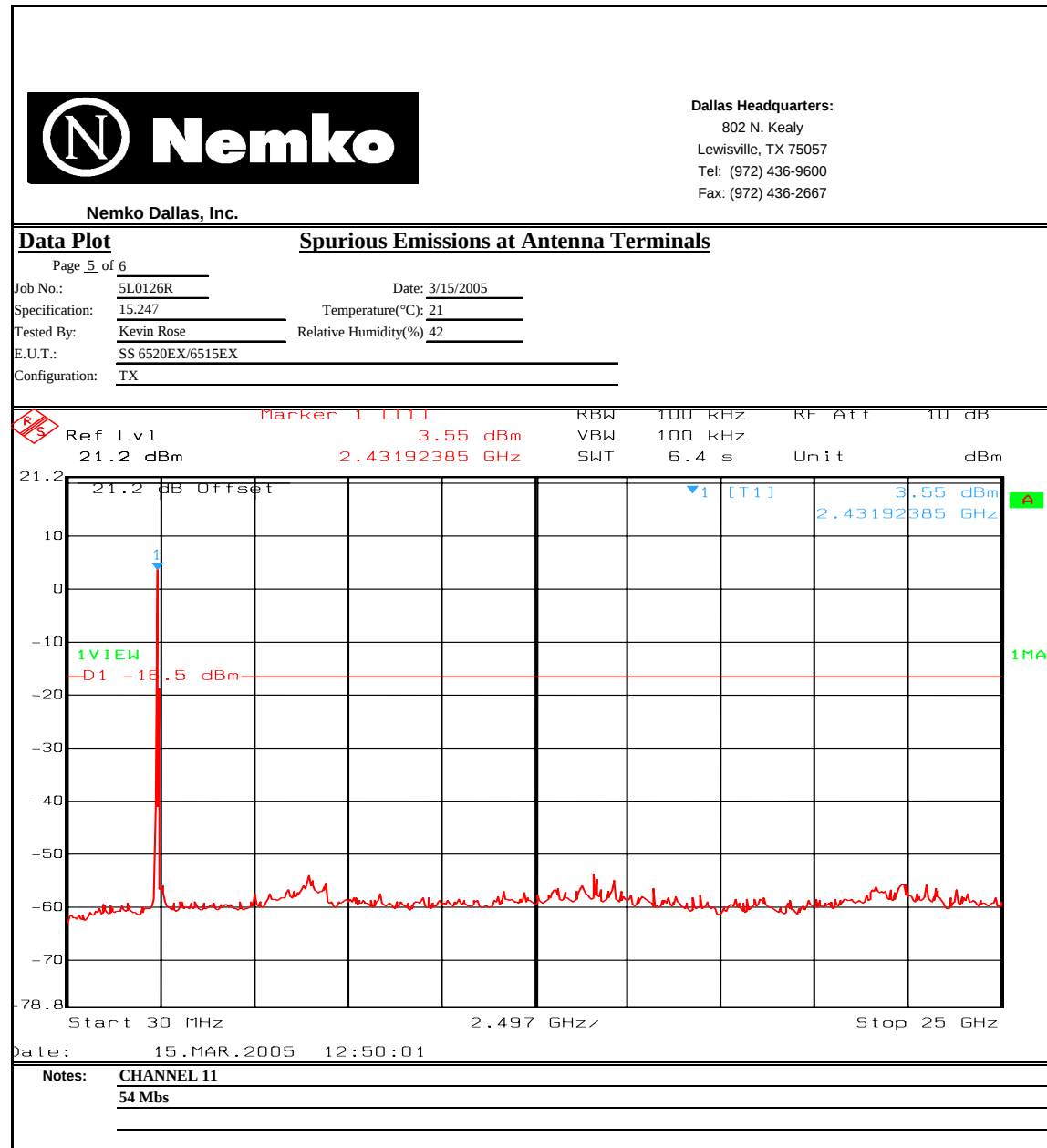
Test Data – Spurious Emissions at Antenna Terminals



Test Data – Spurious Emissions at Antenna Terminals



Test Data – Spurious Emissions at Antenna Terminals



Section 7. Spurious Emissions (Restricted Bands)

NAME OF TEST: Spurious Emissions (Restricted Bands)	PARA. NO.: 15.247 (c)
TESTED BY: Kevin Rose	DATE: 03/15/05

Test Results: Complies.

Measurement Data: See attached table.

Test Data – Radiated Emissions

		Dallas Headquarters: 802 N. Kealy Lewisville, TX 75057 Tel: (972) 436-9600 Fax: (972) 436-2667						
Nemko Dallas,								
Radiated Emissions								
Page 1 of 1								
Job No.:	5L0126R	Date:	3/15/2005					
Specification:	15.247	Temperature(°C):	21					
Tested By:	Kevin Rose	Relative Humidity(%):	42					
E.U.T.:	SS 6520EX/6515EX							
Configuration:	TX							
Sample Number:	1							
Location:	AC 3	RBW:	1 MHz Pk / 1 MHz Avg.					
Detector Type:	Peak	VBW:	1 MHz Pk / 10 Hz Avg					
Test Equipment Used								
Antenna:	1304	Directional Coupler:	#N/A					
Pre-Amp:	#N/A	Cable #1:	1484					
Filter:	#N/A	Cable #2:	1485					
Receiver:	1036	Cable #3:	1081					
Attenuator #1:	#N/A	Cable #4:	#N/A					
Attenuator #2:	#N/A	Mixer:	#N/A					
Measurement Uncertainty: +/- 3.6 dB								
Frequency (GHz)	Meter Reading (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Pre-Amp Gain (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Detector /
2.4835	41.7	28.2	3.1	0.0	73.0	74	54	Peak - / Vertical
2.4835	20.3	28.2	3.1	0.0	51.6	74	54	Average - / Vertical
2.4835	40.5	28.2	3.1	0.0	71.8	74	54	Peak - / Horizontal
2.4835	21.4	28.2	3.1	0.0	52.7	74	54	Average - NF / Horizontal
Notes:	The spectrum was searched to 25 GHz measurement							
	The device was tested at 2.412, 2.437 and 2.462 MHz and no emissions were found above the Data presented is to demonstrate upper bandedge compliance on							

Setup Photos



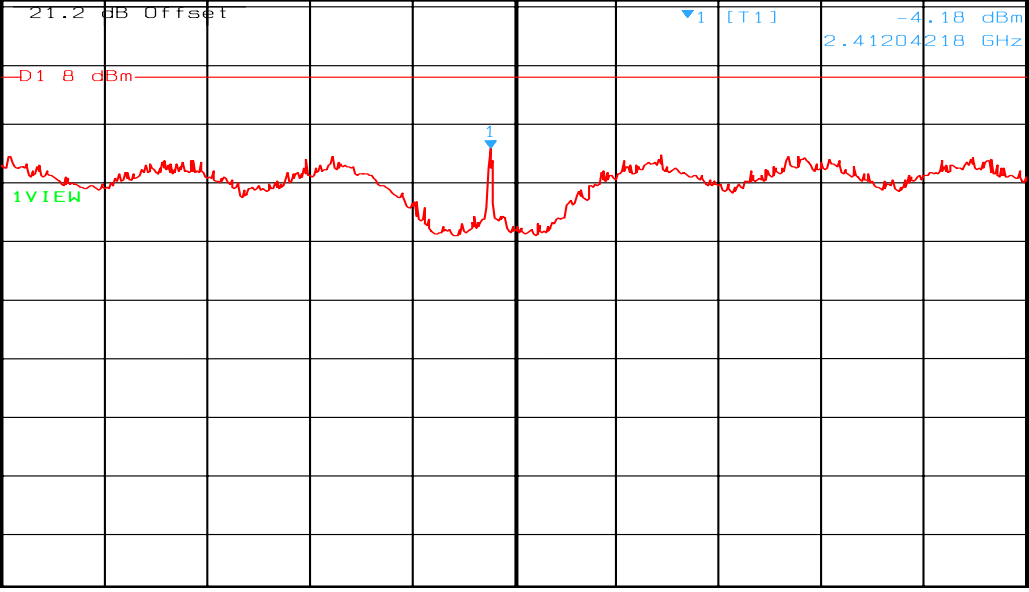
Section 8. Peak Power Spectral Density

NAME OF TEST: Peak Power Spectral Density	PARA. NO.: 15.247(d)
TESTED BY: Kevin Rose	DATE: 03/16/05

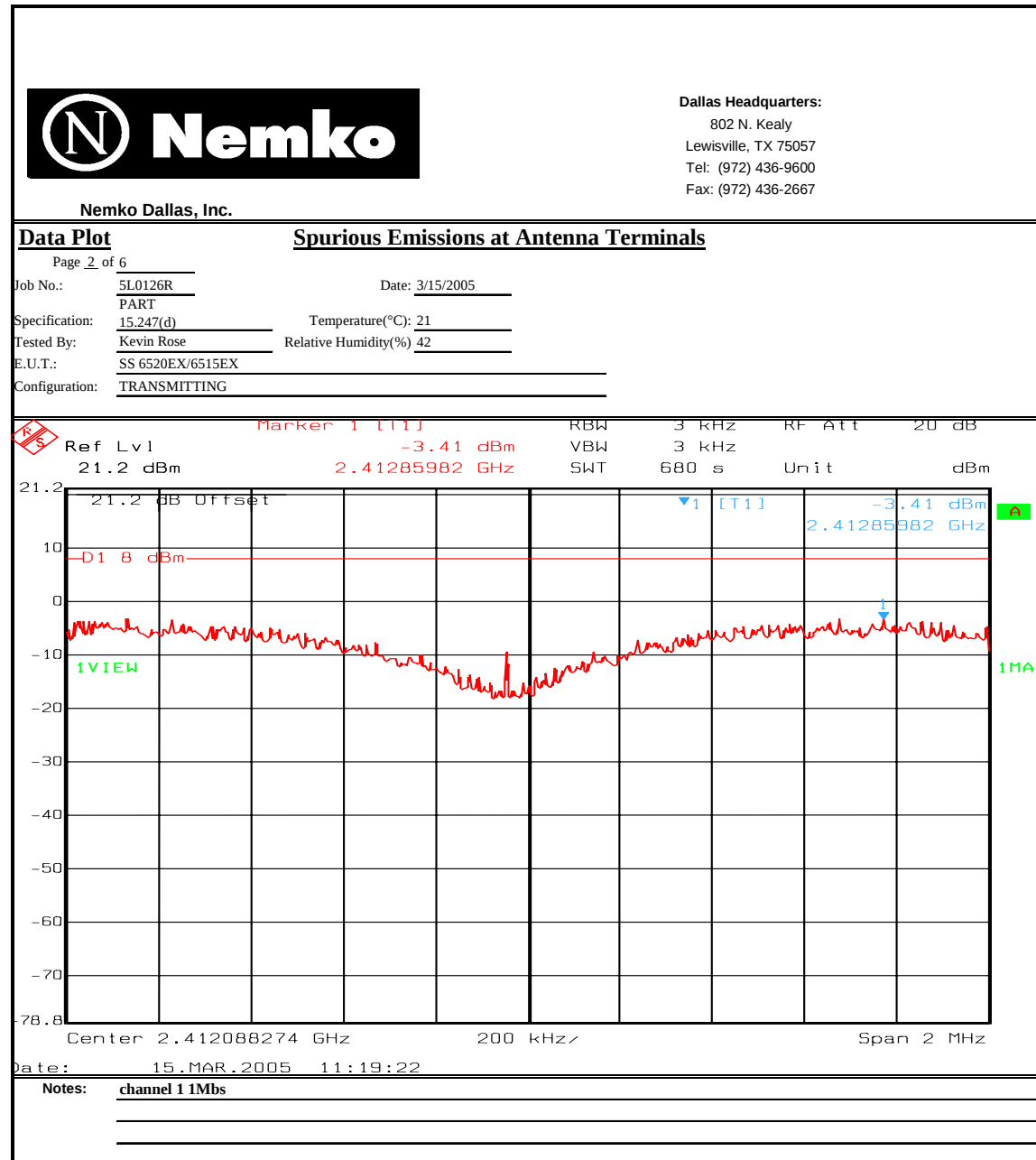
Test Results: Complies.

Measurement Data: See attached plots.

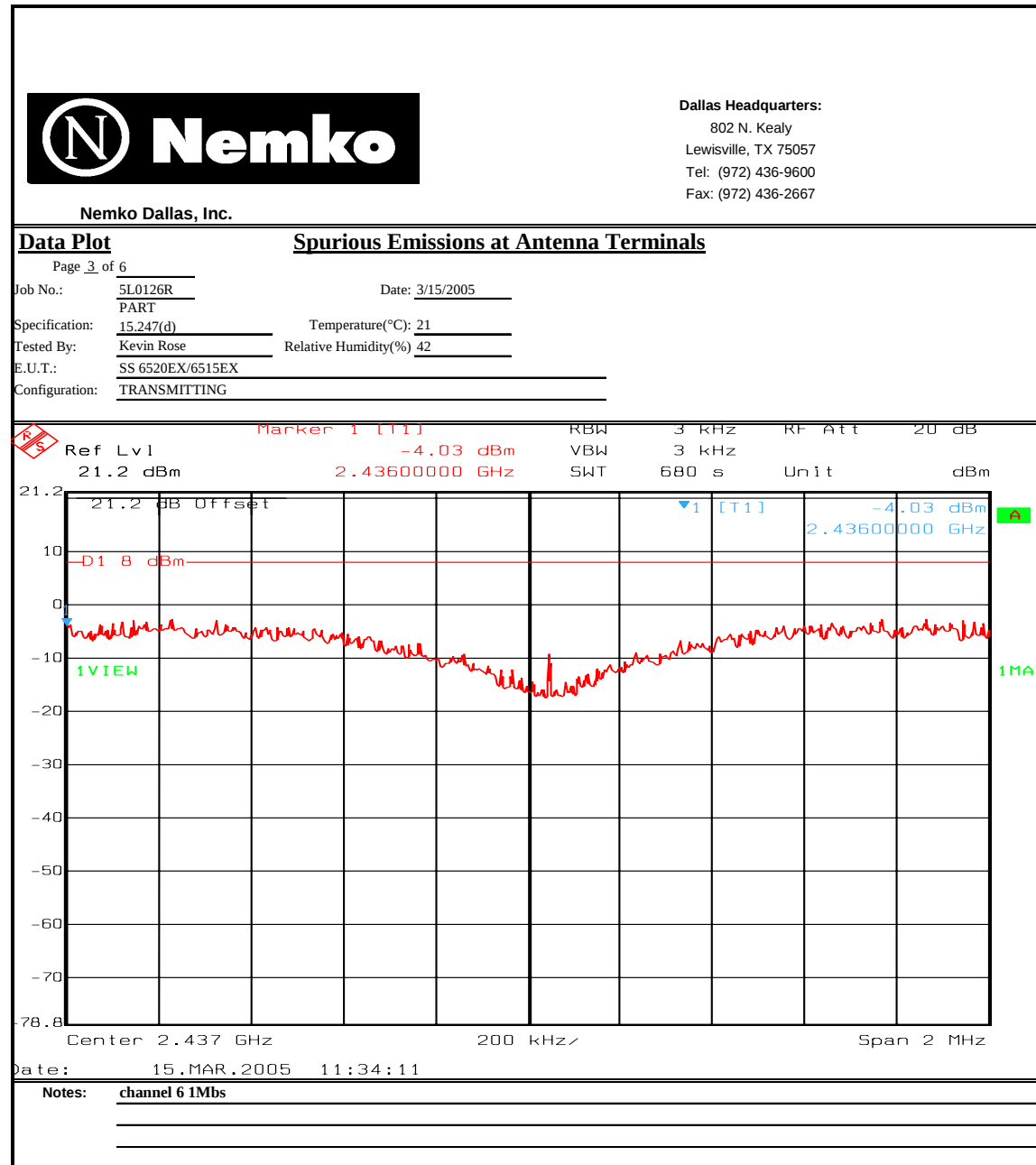
Test Data – Spectral Density

 Nemko Dallas, Inc.		Dallas Headquarters: 802 N. Kealy Lewisville, TX 75057 Tel: (972) 436-9600 Fax: (972) 436-2667	
Data Plot Spurious Emissions at Antenna Terminals			
Page <u>1</u> of <u>6</u>		Complete <u>X</u>	
Job No.: 5L0126R	Date: 3/15/2005	Preliminary: _____	
Specification: PART 15.247(d)	Temperature(°C): 21		
Tested By: Kevin Rose	Relative Humidity(%): 42		
E.U.T.: SS 6520EX/6515EX			
Configuration: TRANSMITTING			
Sample Number: 1			
Location: Lab 2		RBW: Refer to plots	
Detector Type: Peak		VBW: Refer to plots	
Test Equipment Used			
Antenna: _____	Directional Coupler: _____		
Pre-Amp: _____	Cable #1: 1081		
Filter: _____	Cable #2: _____		
Receiver: 1036	Cable #3: _____		
Attenuator #1: 1472	Cable #4: _____		
Attenuator #2: _____	Mixer: _____		
Additional equipment used: _____			
Measurement Uncertainty: +/-1.7 dB			
RBW 3 kHz RF Att 20 dB VBW 3 kHz SWT 680 s Unit dBm Marker 1 [T1] -4.18 dBm 2.41204218 GHz Ref Lvl 21.2 dBm 21.2 dB Offset 1VIEW 1MA ▼1 [T1] -4.18 dBm 2.41204218 GHz  Center 2.412088274 GHz 200 kHz / Span 2 MHz Date: 15.MAR.2005 11:05:54 Notes: channel 1 54Mbps			

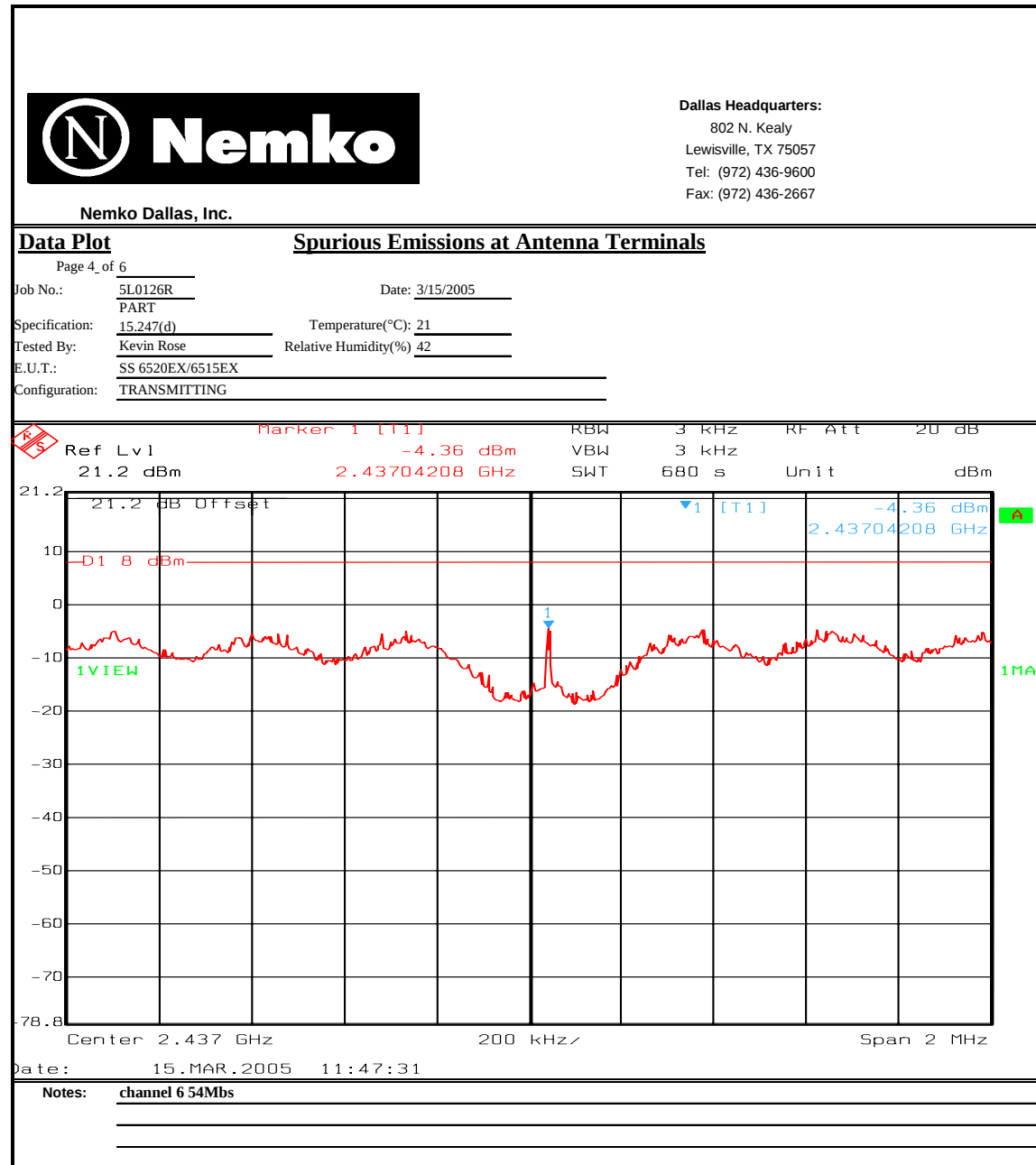
Test Data – Spectral Density



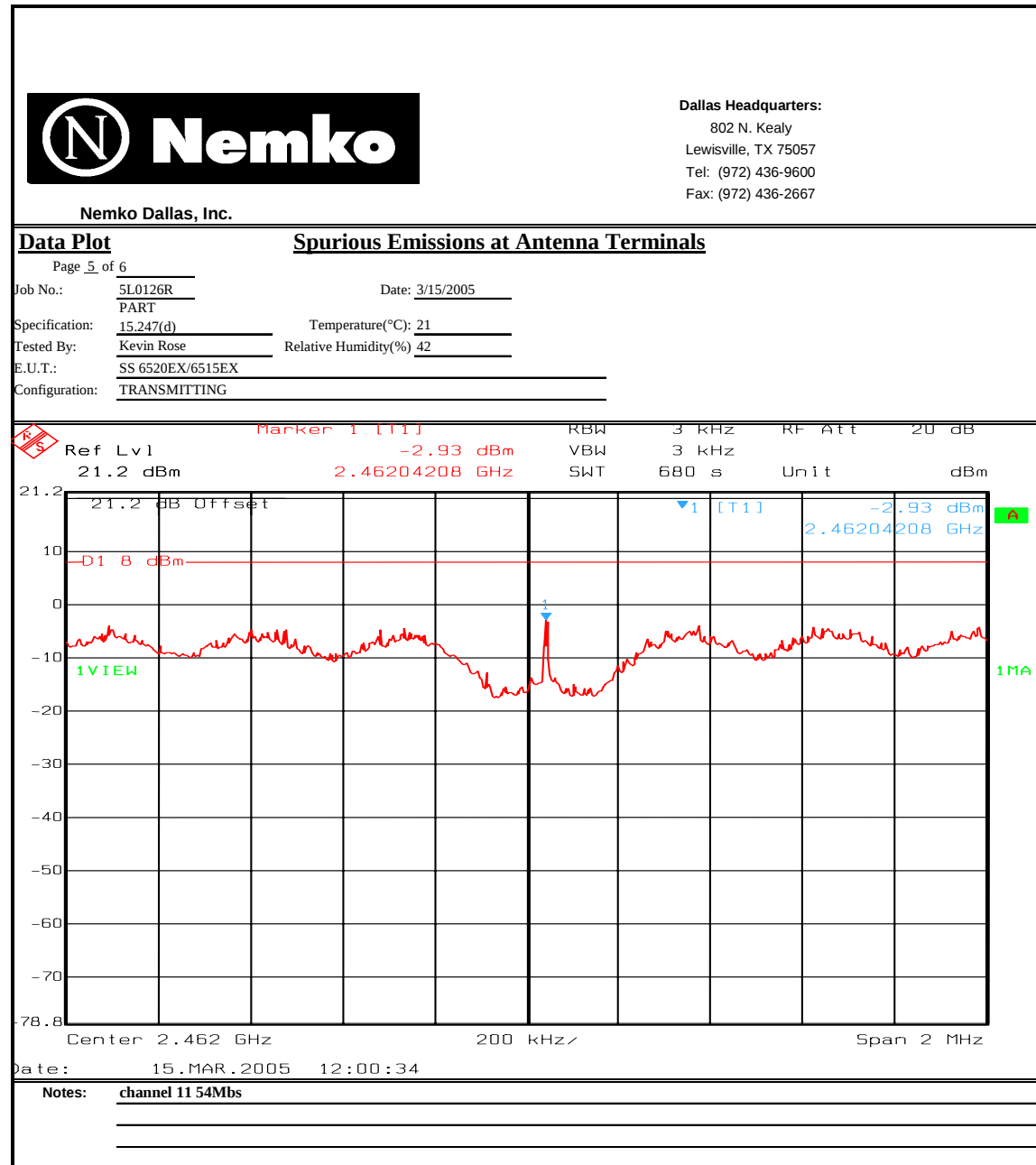
Test Data – Spectral Density



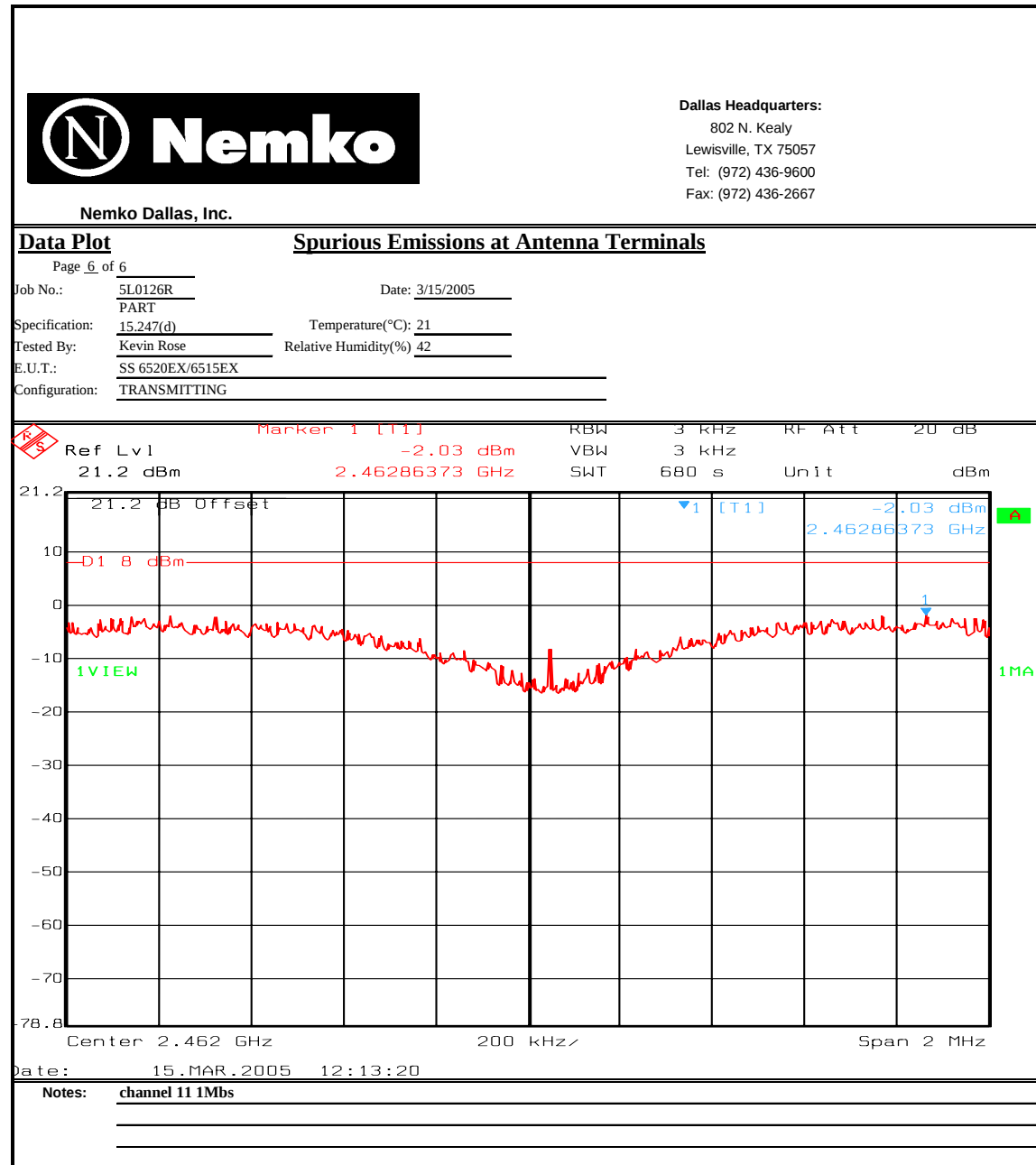
Test Data – Spectral Density



Test Data – Spectral Density



Test Data – Spectral Density



EQUIPMENT: SpeedStream 6520EX /6515EXPROJECT NO. 5L0126RUS1Rev1**Section 9. Test Equipment List**

Nemko ID	Description	Manufacturer Model Number	Serial Number	Calibration Date	Calibration Due
1484	Cable 2.0-18.0 Ghz	Storm PR90-010-072	N/A	08/26/04	08/26/05
1485	Cable 2.0-18.0 Ghz	Storm PR90-010-216	N/A	08/02/04	08/02/05
1081	CABLE 2m	Astrolab 32027-2-29094-72TC	N/A	08/26/04	08/26/05
1036	SPECTRUM ANALYZER	ROHDE & SCHWARZ FSEK30	830844/006	03/22/04	03/23/06
1472	20db Attenuator DC 18 Ghz	Omni Spectra 20600-20db	NONE	CBU	N/A
1304	HORN ANTENNA	ELECTRO METRICS RGA-60	6151	09/22/03	09/22/05
545	LISN	Schwarz Beck 8120	8120350	09/17/04	09/17/05
958	#N/A	#N/A #N/A	#N/A	#N/A	#N/A
1113	CABLE, 1m	KTL RG223	N/A	06/09/04	06/09/05
1019	CABLE, 9.5m	KTL RG223	N/A	07/27/04	07/27/05
1464	Spectrum analyzer	Hewlett Packard 8563E	3551A04428	07/30/04	07/31/06
716	Receiver cal extension	Polorad ESH2	879342/005	02/02/04	08/01/05
674	LIMITER	HP 11947A	3107A02200	CBU	CBU
1016	Pre-Amp	HEWLETT PACKARD 8449A	2749A00159	11/12/04	11/12/05
1480	Bilog Antenna	Schaffner-Chase CBL6111C	2572	CalNotReq	N/A
1029	PEAK POWER METER	HP 8900D	3303U0012	12/23/04	12/22/05
1081	CABLE 2m	Astrolab 32027-2-29094-72TC	N/A	08/26/04	08/26/05
1474	20db Attenuator DC 18 Ghz	MCL Inc. BW-S20W2	NONE	CBU	N/A

ANNEX A - TEST DETAILS

EQUIPMENT: SpeedStream 6520EX /6515EX

PROJECT NO. 5L0126RUS1Rev1

NAME OF TEST: Powerline Conducted Emissions	PARA. NO.: 15.207(a)
---	----------------------

Minimum Standard:

The R.F. that is conducted back onto the AC power line on any frequency within the band 0.15 to 30 MHz shall not exceed 250 μ V (48 dB μ V) across 50 ohms.

EQUIPMENT: SpeedStream 6520EX /6515EX

PROJECT NO. 5L0126RUS1Rev1

NAME OF TEST: Minimum 6 dB bandwidth	PARA. NO.: 15.247(a)(2)
--------------------------------------	-------------------------

Minimum Standard: The minimum 6 dB bandwidth shall be at least 500 kHz

NAME OF TEST: Maximum Peak Output Power

PARA. NO.: 15.247(b)(1)

Minimum Standard:

The maximum peak output power shall not exceed 1 watt.

If transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Systems operating in the 2400-2483.5 MHz band that are used exclusively for fixed, point to point operation may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum peak output power is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceed 6 dBi.

Systems operating in the 5725 – 5850 MHz band that are used exclusively for fixed, point-to-point operation may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter peak output power.

Direct Measurement Method For Detachable Antennas:

If the antenna is detachable, a peak power meter is used to measure the power output with the transmitter operating into a 50 ohm load. The dBi gain of the antenna(s) employed shall be reported.

Calculation Of EIRP For Integral Antenna:

If the antenna is not detachable from the circuit then the Peak Power Output is derived from the peak radiated field strength of the fundamental emission by using the plane wave relation $GP/4\pi R^2 = E^2/120\pi$ and proceeding as follows:

$$P = \frac{E^2 R^2}{30G} = \frac{E^2 3^2}{30G}$$

where,

P = the equivalent isotropic radiated power in watts

E = the maximum measured field strength in V/m

R = the measurement range (3 meters)

G = the numeric gain of the transmit antenna in relation to an isotropic radiator

The RBW of the spectrum analyzer shall be set to a value greater than the measured 6 dB occupied bandwidth of the E.U.T.

Number of channels tested:

Tuning range	Number of channels tested	Channel location in band
1 MHz or less	1	middle
1 to 10 MHz	2	top and bottom
more than 10 MHz	3	top, middle, bottom

NAME OF TEST: Spurious Emissions(conducted)

PARA. NO.: 15.247(c)

Minimum Standard:

In any 100kHz bandwidth outside the frequency band in which the transmitter is operating, emissions shall be at least 20 dB below the fundamental emission or shall not exceed the following field strength limits. Emissions falling in the restricted bands of 15.205 shall not exceed the following field strength limits:

Frequency (MHz)	Field Strength ($\mu\text{V/m}$ @ 3m)	Field Strength (dB @ 3m)
30 - 88	100	40.0
88 - 216	150	43.5
216 - 960	200	46.0
Above 960	500	54.0

THE SPECTRUM IS SEARCHED TO THE 10th HARMONIC OF THE HIGHEST FREQUENCY GENERATED IN THE EUT.

Method Of Measurement:30 MHz - 10th harmonic plot

RBW: 100 kHz

VBW: 300 kHz

Sweep: Auto

Display line: -20 dBc

Lower Band Edge

RBW: At least 1% of span/div.

VBW: >RBW

Span: As necessary to display any spurious at band edge.

Sweep: Auto

Center Frequency: 902 MHz, 2400 MHz, or 5725 MHz

Marker: Peak of fundamental emission

Marker Δ : Peak of highest spurious level below center frequency.Upper Band Edge

RBW: At least 1% of span/div.

VBW: >RBW

Span: As necessary to display any spurious at band edge.

Sweep: Auto

Center Frequency: 928 MHz, 2483.5 MHz, or 5850 MHz

Marker: Peak of fundamental emission

Marker Δ : Peak of highest spurious level above center frequency.

Number of channels tested:

Tuning range	Number of channels tested	Channel location in band
1 MHz or less	1	middle
1 to 10 MHz	2	top and bottom
more than 10 MHz	3	top, middle, bottom

EQUIPMENT: SpeedStream 6520EX /6515EXPROJECT NO. 5L0126RUS1Rev1

NAME OF TEST: Radiated Spurious Emissions

PARA. NO.: 15.247(c)

Minimum Standard:

In any 100kHz bandwidth outside the frequency band in which the transmitter is operating, emissions shall be at least 20 dB below the fundamental emission or shall not exceed the following field strength limits:

Emissions falling in the restricted bands of 15.205 shall not exceed the following field strength limits:

Frequency (MHz)	Field Strength ($\mu\text{V/m}$ @ 3m)	Field Strength (dB @ 3m)
30 - 88	100	40.0
88 - 216	150	43.5
216 - 960	200	46.0
Above 960	500	54.0

THE SPECTRUM WAS SEARCHED TO THE 10th HARMONIC**15.205 Restricted Bands**

MHz	MHz	MHz	GHz
0.09-0.11	16.42-16.423	399.9-410	4.5-5.25
0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.125-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2655-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	Above 38.6
13.36-13.41	1718		

Number of channels tested:

Tuning range	Number of channels tested	Channel location in band
1 MHz or less	1	middle
1 to 10 MHz	2	top and bottom
more than 10 MHz	3	top, middle, bottom

NAME OF TEST: Transmitter Power Density

PARA. NO.: 15.247(d)

Minimum Standard: The transmitted power density averaged over any 1 second interval shall not be greater than +8 dBm in any 3 kHz bandwidth.

Method Of Measurement: The spectrum analyzer is set as follows:

RBW: 3 kHz

VBW: >3 kHz

Span: => measured 6 dB bandwidth

Sweep: Span(kHz)/3 (i.e. for a span of 1.5 MHz the sweep rate is 1500/3 = 500 sec.

LOG dB/div.: 2 dB

Note: For devices with spectrum line spacing ≤ 3 kHz, the RBW of the analyzer is reduced until the spectral lines are resolved. The measurement data is normalized to 3 kHz by summing the power of all the individual spectral lines within a 3 kHz band in linear power units.

For Devices With Integral Antenna:

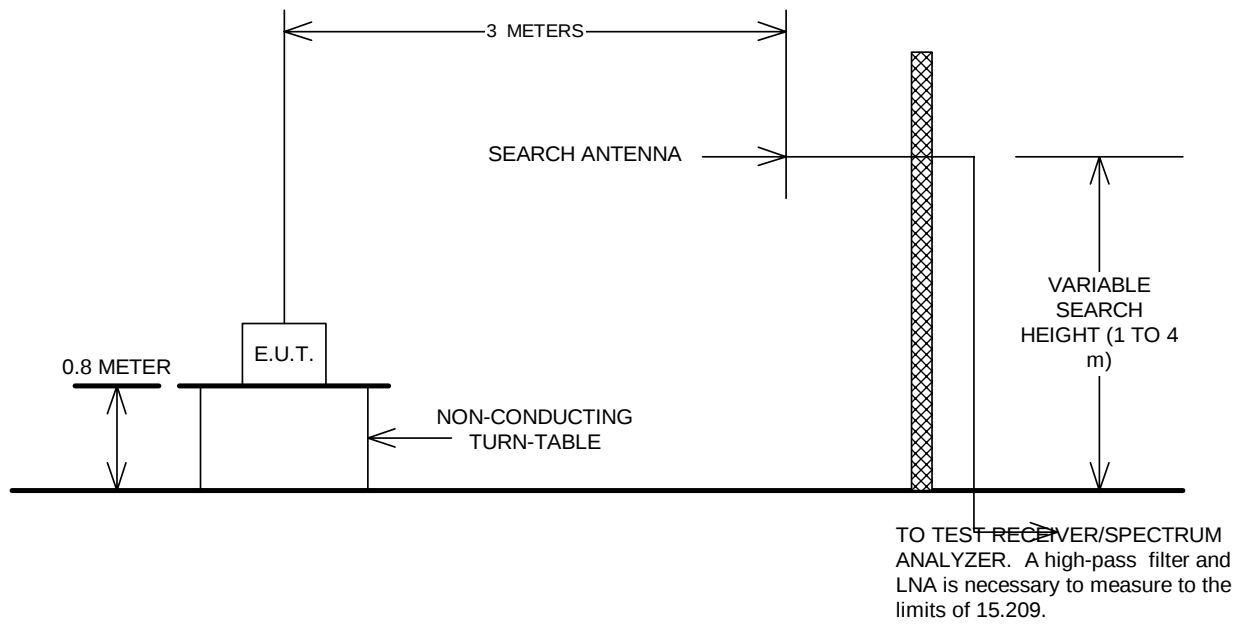
For devices with non-detachable antennas, the received field strength is peaked and the spectrum analyzer is set as above. The peak emission level is then measured and converted to a field strength by adding the appropriate antenna factor and cable loss. This field strength is then converted to an equivalent isotropic radiated power using the same method as described for Peak Power output.

Number of channels tested:

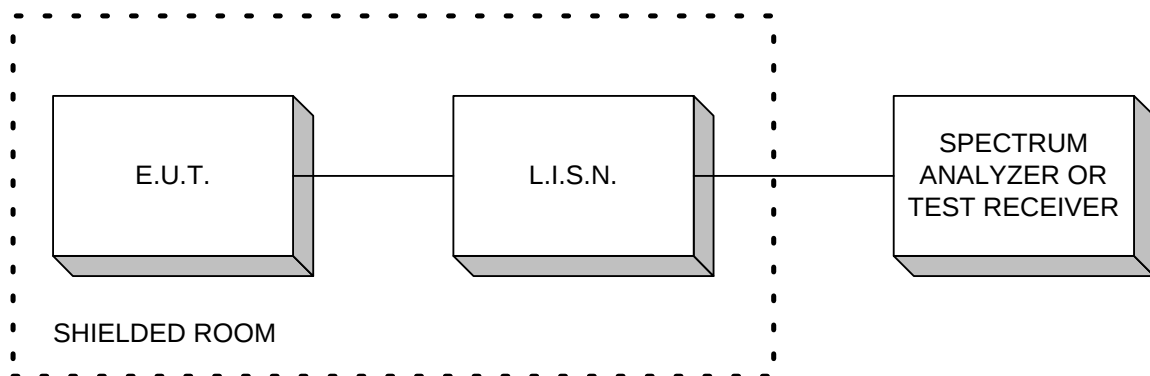
Tuning Range	Number Of Channels Tested	Channel Location In Band
1 MHz or Less	1	Middle
1 to 10 MHz	2	Top And Bottom
More Than 10 MHz	3	Top, Middle, Bottom

ANNEX B - TEST DIAGRAMS

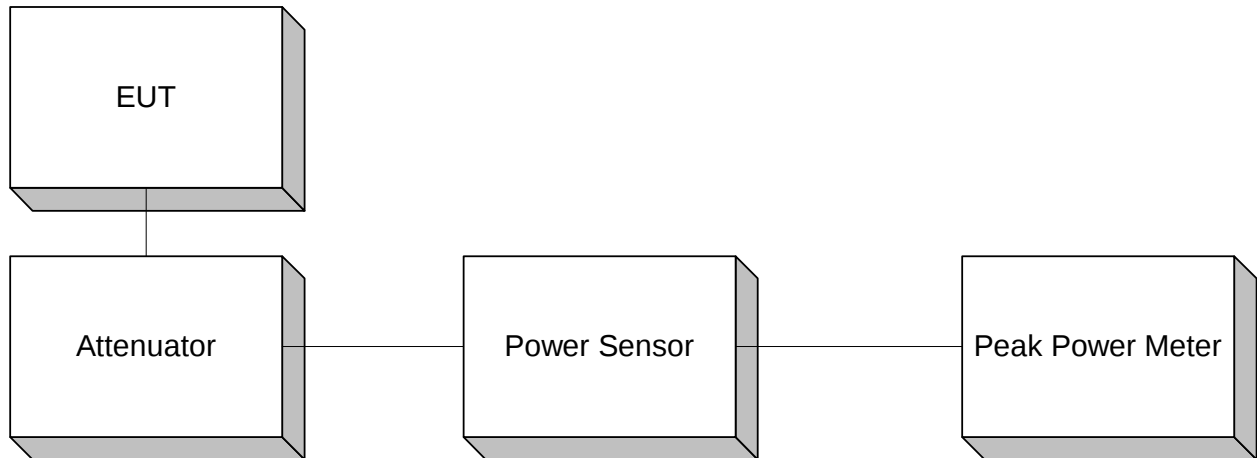
Test Site For Radiated Emissions



Conducted Emissions



Peak Power At Antenna Terminals



**Minimum 6 dB Bandwidth
Peak Power Spectral Density
Spurious Emissions (conducted)**

