EXHIBIT 2A

Test Report Provided by Nortel Networks

Applicant: Nortel Networks

For Original Equipment Certification on:

FCC: AB6NT1030VBTS
IC: 332D-VBTS1030

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Test Report for FCC Equipment Authorization

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Brad Carlson		

Revision History

Stream/issue	Revision Date	Reason for Change	Author

Change bars are not used in this document.

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Acronyms and Abbreviations

ASIC	Application Specific Integrated Circuit
BBW	Breathing, Blossoming and Wilting
BPF	Bandpass Filter
BTS	Base Station Transceiver Subsystem
BW	Bandwidth
CDMA	Code Division Multiple Access
dBFS	dB relative to Full Scale
DDS	Direct Digital Synthesizer
DPM	Duplexer Preselector Module
EEPROM	Electrically Erasable and Programmable ROM
EC	Engineering Change
ERLCE	Excess Reverse Link Capacity Estimate
HSSPC	High-Speed Serial Protocol Controller
HW	Hardware
IF	Intermediate Frequency
IIC	Inter-Integrated Circuit Bus
IS	Interim Standard
LO	Local Oscillator
LPF	Lowpass Filter
MCPA	Multi-Carrier Power Amplifier
MFRM	Multi-carrier Flexible Radio Module
NF	Noise Figure
OCNS	Orthogonal Channel Noise Source
OH	OverHead
PA	Power Amplifier
PC	Personal Computer
PPR	Peak Power Reduction
PSA	Product Specification Agreement
RBW	Resolution BandWidth
RF	Radio Frequency

Rx	Receive
SA	Spectrum Analyzer
SFRM	Single Carrier Flexible Radio Module
SW	Software
TBD	To Be Determined
TM	Triplexer Module
TPTL	Transmit Power Tracking Loop
TRM	Transmitter Receiver Module
Tx	Transmit
uP	Microprocessor
XCVR	Transceiver

1 Introduction

This test report is submitted in accordance with the FCC Rules and Regulations, Part 2, Subpart J, Sections 2.1046 through 2.1057 for equipment authorization of Northern Telecom's (Nortel Networks) CDMA Village Basestation Transceiver System (vBTS) 1030 800 MHz.

The vBTS is intended for use in the Domestic Public Cellular Radio Telecommunications Service and is designed in accordance with the following standards:

- *CFR 47, Part 22, Subpart H, Cellular Radiotelephone Service [1]*
- *CFR 47, Part 2, Subpart J, Equipment Authorization Procedures - Equipment Authorization[2]*

1.1 Test Result Summary

Table 1 summarizes the measurement results for the CDMA Village BTS 1030 800MHz.

Table 1 : Test Results Summary

FCC Measurement Specification	FCC Limit Specification	Description	Results
2.1033		PA DC current draw	
2.1046		RF Power Output	
2.1047		Modulation Characteristics	Not Applicable
2.1049		Occupied Bandwidth	
2.1051, 2.1057	22.917	Spurious Emissions at Antenna Terminals	Compliant
2.1055	22.355	Frequency Stability	Compliant

2 Engineering Declaration

The CDMA vBTS has been tested in accordance with the requirements contained in the Federal Communications Commission Rules and Regulations
Part 2 and 22.

To the best of my knowledge, these tests were performed in accordance with good engineering practices using measurement procedures consistent with industry or commission standards or previous Commission correspondence or guidance and demonstrate that this equipment complies with the appropriate standards. All tests were conducted on a representative sample of the equipment for which equipment authorization is sought.

Tested By:

9 JUN 2005

Fabian Wong
Production Design Control
Nortel Networks
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Date

Reviewed By:

June 9, 2005

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Regulatory Prime
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Date

Approved By:

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Date

3 Equipment Authorization Application Requirements

3.1 Standard Test Conditions and Test Equipment

The vBTS was tested under the following standard test conditions unless otherwise noted:

- Ambient Temperature: 20 to 35 degrees C
- Ambient Humidity: 20 to 40%
- DC Supply Voltage: -48 Vdc (nominal)

3.2 EUT Identification List

Table 2 shows the identification of the components tested in this report.

Table 2 : EUT Identification List

Equipment Description	Model / Part Number	Release Number	Serial Number
800 MHz Village BTS 1030 (comprised of the main modules below)	N/A	N/A	N/A
a) Village Digital Module	NTDV25AA	P1	Innisfail
b) Village Radio Module	NTDV30AA	N4	NNTM846004CW
c) Village Duplexer	NTDV40AA	P2	049K1100006
d) Village Customer Alarm Module	NTDV21AA	P7	NNTM74XL3YYH
e) Village Fan Module	NTDV22AA	P1	Innisfail

3.3 Test Equipment List

Table 3 shows the identification of the test equipment used in this report.

Table 3 : Test Equipment List

Description	Manufacturer	Model	Serial Number	Cal. Due Date
20Hz to 26.5 GHz Spectrum Analyzer	Rohde&Schwarz	FSEM	827602/003	Apr 11,2007
RF Power Meter	Agilent	EPM-442A	Z0059082	Dec 06, 2005
RF Power Sensor Head	Agilent	8482A	QT20446	Jun 17, 2006
Vector Signal Analyzer	Agilent	E4406A	PI006819	Jun 12, 2006
Power Supply	Agilent	6674A	3501A00835	Jun 06, 2006
30dB Attenuator	Weinschel Corp.	48-30-43	AW2699	N/A
10 dB Attenuator	Narda	769-10	04458	N/A
RF Cable	Micro-Coax	FSCM 64639	97D0232	N/A
RF Cable	Micro-Coax	FSCM 64639	98E0395	N/A

4 Transmitter Test and Measurement Results

4.1 RF Power Output

4.1.1 Power Amplifier DC Current Draw

FCC Part 2.1033 Application for certification.

(c) Applications for equipment other than that operating under parts 15 and 18 of the rules shall be accompanied by a technical report containing the following information:

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

4.1.2 Test Method

The vBTS radio module was setup to blossom at maximum power. Measurements were made in one carrier configurations. The RF output power was measured using the power meter. The soft-fail current registers were read with the BTS controller when the vBTS radio module was fully blossomed.

4.1.3 Test Setup

The set-up used for the vBTS PA DC current draw test is illustrated in Figure 1. RF output power measurements were referenced to the vBTS PA output.

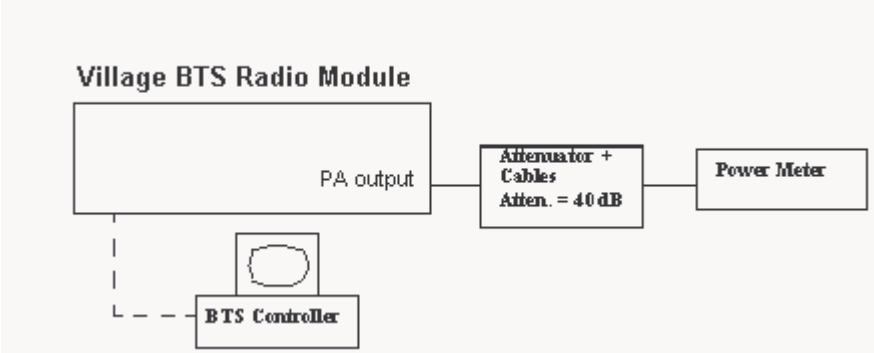


Figure 1 : Test Setup for PA DC current draw measurement

4.1.4 Test Result

The final amplifying dc voltage is 21.0 Vdc. The final dc current is shown in Table 4.

Table 4: Average Current Values @ Pout = 43.8dBm

	Average Current Values @ Pout = 43.8dBm (mean Ampere)
Q5	2.34
Q6	2.30

4.1.5 RF Power Output Requirements

FCC Part 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 2.983(d)(5). The electrical characteristics of the radio frequency load attached to the output terminals when this test is made shall be stated.

(c) For measurements conducted pursuant to paragraphs (a) and (b) of this section, all calculations and methods used by the applicant for determining carrier power or peak envelope power, as appropriate, on the basis of measured power in the radio frequency load attached to the transmitter output terminals shall be shown. Under the test conditions specified, no components of the emission spectrum shall exceed the limits specified in the applicable rule parts as necessary for meeting occupied bandwidth or emission limitations.

4.1.6 Test Method

The vBTS was setup to transmit at maximum power. Measurements were made in one carrier configurations. The RF output power was measured using the power meter.

4.1.7 Test Setup

The set-up used for the vBTS RF output power test is illustrated in Figure 2. RF output power measurements were referenced to the antenna port of the duplexer.

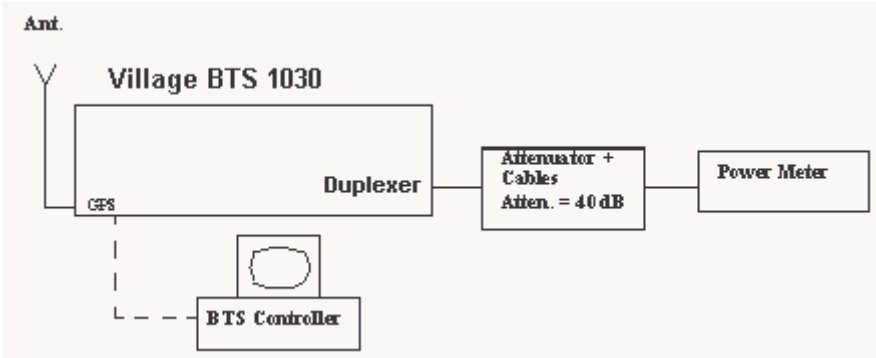


Figure 2 : Test Setup for RF Power Output Measurement

4.1.8 Test Results

The vBTS complies with the requirement. The average maximum rated RF output power from the vBTS is 43.0 dBm.

Table 5 : RF Output Power of vBTS

Channel Number (Band)	Frequency (MHz)	Measured Max. RF Output Power (dBm)	Average Max. Rated RF Output Power (dBm)
1015 (A"+A)	869.76	42.98	43.0
308 (A"+A)	879.24	42.96	43.0
358 (B)	880.74	42.97	43.0
642 (B)	889.26	42.96	43.0
692 (A')	890.76	42.98	43.0
742 (B')	892.26	42.97	43.0
775 (B')	893.25	42.96	43.0

4.2 Occupied Bandwidth

4.2.1 Occupied Bandwidth Requirements

FCC Part 2.1049

The OBW, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured under the following conditions as applicable:

(g) Transmitter in which the modulating baseband comprises not more than three independent channels - when modulated by the full complement of signals for which the transmitter is rated. The level of modulation for each channel should be set to that prescribed in rule parts applicable to the services for which the transmitter is intended. If specific modulation levels are not set forth in the rules, the tests should provide the manufacturer's maximum rated condition.

(h) Transmitters employing digital modulation techniques - when modulated by an input signal such that its amplitude and symbol rate represent the maximum rated conditions under which the equipment will be operated. The signal shall be applied through any filter networks, pseudo-random generators or other devices required in normal service. Additionally, the occupied bandwidth shall be shown for operation with any devices used for modifying the spectrum when such devices are optional at discretion of the user.

4.2.2 Test Method

The BTS controller enable the vBTS to transmit at maximum power. The occupied bandwidth was measured using the 99% channel power feature of the spectrum analyzer.

4.2.3 Test Setup

The set-up used for the vBTS Occupied bandwidth test is illustrated in Figure 3.

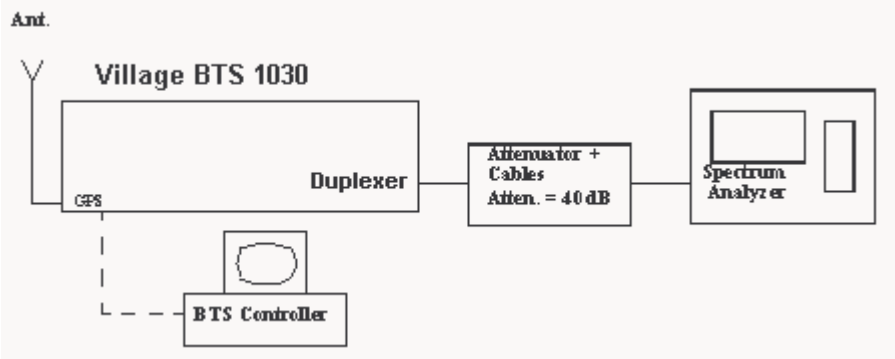


Figure 3 : Test Setup for Occupied Bandwidth Measurement

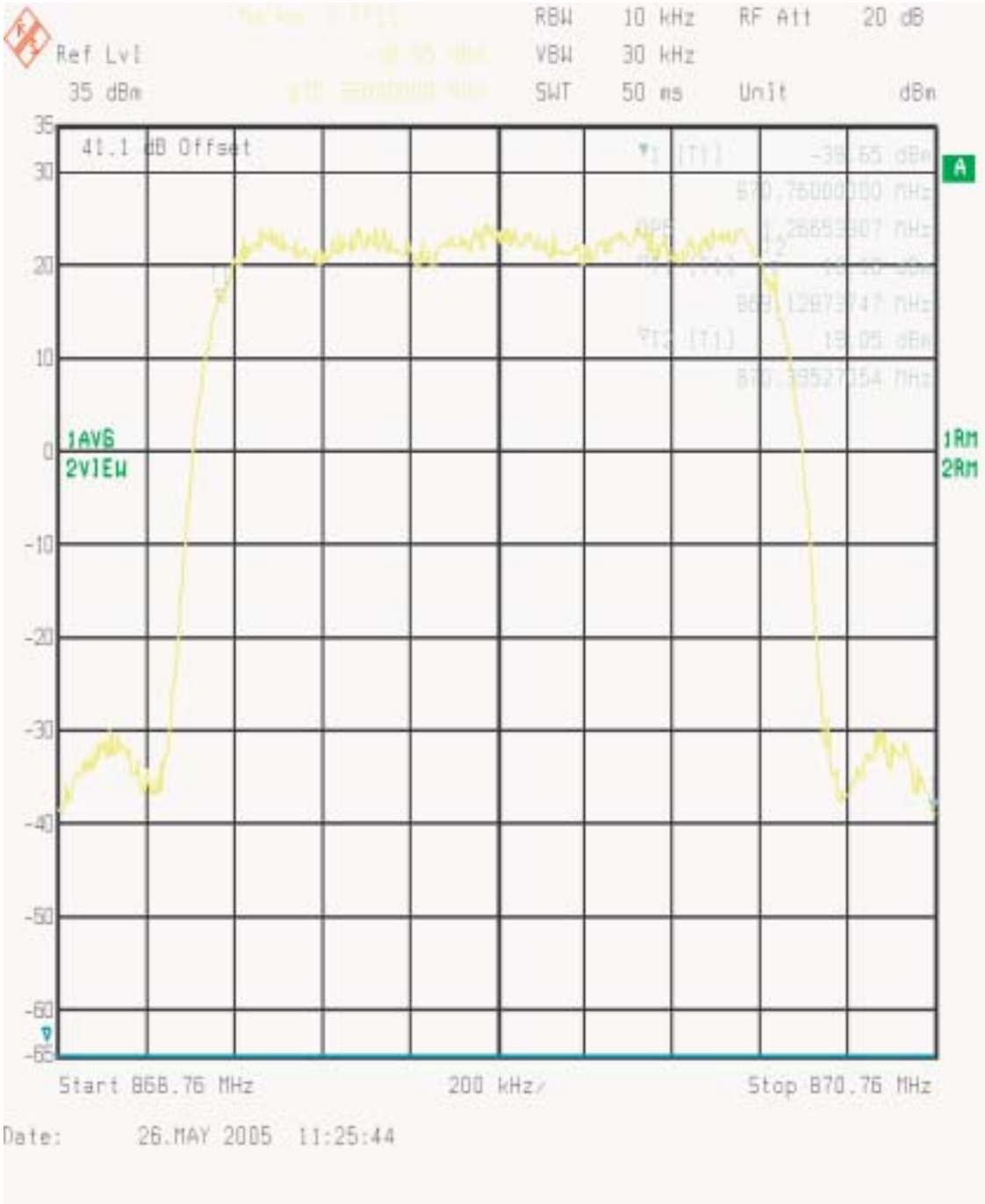
4.2.4 Test Results

The vBTS complies with the requirement. The occupied bandwidth measured in one carrier configuration for each licensed band is shown in Table 5. The plots that follow show the occupied bandwidth in one carrier configuration. (Although plots were recorded for all channels tested, only one sample plot was provided to reduce the number of figures).

Table 6 : Occupied Bandwidth, 800 vBTS

Channel Number (Band)	Frequency (MHz)	Measured Occupied Bandwidth (kHz)
1015 (A”+A)	869.76	1266.533
308 (A”+A)	879.24	1270.541
358 (B)	880.74	1266.533
642 (B)	889.26	1266.533
692 (A’)	890.76	1266.533
742 (B’)	892.26	1266.533
775 (B’)	893.25	1266.533

Figure 4 : Occupied Bandwidth - Channel 1015



4.3 Spurious Emissions at Antenna Terminals

4.3.1 Spurious Emissions Requirements

FCC Part 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 2.1049 as appropriate. The magnitude of spurious emissions which are attenuated more than 20 dB below the permissible value need not be specified.

FCC Part 2.1057 - Frequency Spectrum to be investigated

The spectrum should be investigated from the lowest radio frequency generated in the equipment up to at least the 10th harmonic of the carrier frequency or to the highest frequency practicable in the present state of the art of measuring techniques, whichever is lower. Particular attention should be paid to harmonics and subharmonics of the carrier frequency. Radiation at the frequencies of multiplier stages should be checked. The amplitude of spurious emissions which are attenuated more than 20 dB below the permissible value need not be reported.

FCC Part 22.917 Limit

Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

Measurement procedure. Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. In the 1MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 100 kHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

4.3.2 Test Method

The vBTS was configured via the vBTS controller to enable to transmit at maximum power. Measurements were made on channels at the bottom and top of the licensed sub-bands in one carrier configuration. The following spectrum analyzer settings were used for the measurement of the

antenna port spurious emissions:

Adjacent 1MHz to indicated cellular band (Upper and Lower)

Resolution Bandwidth:	20 kHz
Video Bandwidth:	50 kHz
Video Average:	10 Averages
Span:	1 MHz
Attenuation:	20 dB
Ref. Level:	35 dBm
Ref. Level Offset:	41.1 dB

All spectrum analyzer settings were coupled as per the manufacturers recommendations to improve measurement time, without compromising data.

All other Spurious Emissions up to 9 GHz

Resolution Bandwidth:	100 kHz
Video Bandwidth:	300 kHz
Video Average:	10 Averages
Span:	Set accordingly
Attenuation:	20 dB
Ref. Level:	35 dBm
Ref. Level Offset:	Vary according to calibration vs frequency

4.3.3 Test Setup

The set-up used for the vBTS Antenna Port Spurious Emission test is illustrated in Figure 5.

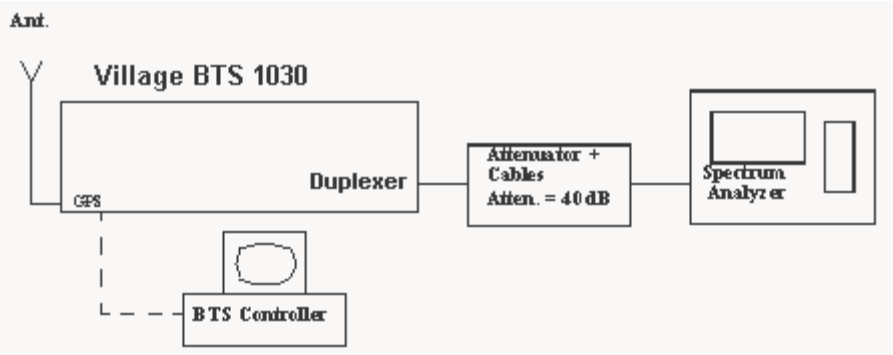


Figure 5 : Test Setup for Spurious Emissions Measurement

4.3.4 Test Results

The frequency spectrum from 50 MHz to 10 GHz was scanned for emissions using the spectrum analyzer settings outlined in the test method (Section 4.3.2). The vBTS complies with the limit of -13 dBm. Table 7 shows the spurious emissions at the antenna port of the vBTS. The plots that follow show the spurious emissions in one, carrier configuration. (For each configuration, only one sample is shown to reduce the number of figures).

Table 7 : Spurious Emissions at the vBTS Antenna Port

Frequency (MHz)	Spurious Emissions Level (dBm)	Margin to FCC Limit of -13 dBm (dB)
	1 carrier	1 carrier
869 (lower edge of band A") ch 1015	-21.59/20kHz	8.59
880 (upper edge of band A") ch 308	-20.39/20kHz	7.39
869 (lower edge of band A') ch 692	-21.59/20kHz	8.59
890 (upper edge of band A') ch 692	-21.65/20kHz	8.65
880 (lower edge of band B) ch 358	-21.67/20kHz	8.67
890 (upper edge of band B) ch 642	-20.39/20kHz	7.39
891 (lower edge of band B') ch 742	-21.67/20kHz	8.67
894 (lower edge of band B') ch 775	-21.33/20kHz	8.33
50-1000 (RBW=100KHz)[a]	-39.78	26.78
1000 - 2000 (RBW=100KHz)[a]	-34.87	21.87
2000 - 3000 (RBW=100KHz)[a]	-35.80	22.80
3000 - 4000 (RBW=100KHz)[a]	-35.77	22.77
4000 - 5000 (RBW=100KHz)[a]	-35.29	22.29
5000 - 6000 (RBW=100KHz)[a]	-32.64	19.64
6000 - 7000 (RBW=100KHz)[a]	-30.06	17.06
7000 - 8000 (RBW=100KHz)[a]	-33.43	20.43
8000 - 9000 (RBW=100KHz)[a]	-33.63	20.63
9000 - 10000 (RBW=100kHz)[a]	-28.37	15.37

Notes: [a] Emission levels given in these ranges represents the worst case value over all the tested channels

Figure 6 : Conducted Spurious Emissions - Channel 1015 (Lower adjacent 1 MHz)

Figure 7 : Conducted Spurious Emissions - Channel 308 (Upper adjacent 1 MHz)

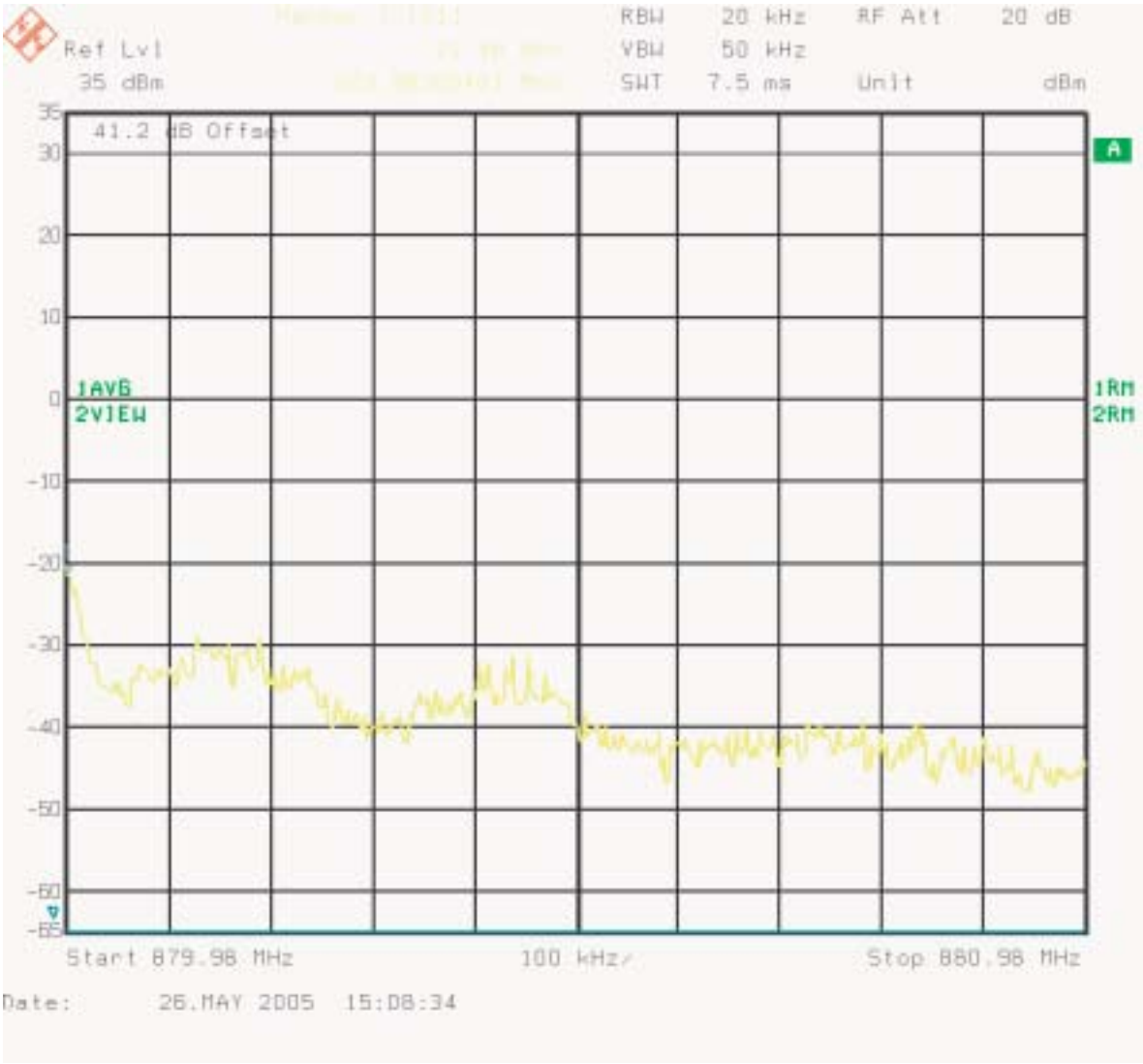


Figure 8 : Conducted Spurious Emissions - Channel 308 (50 MHz - 1 GHz)

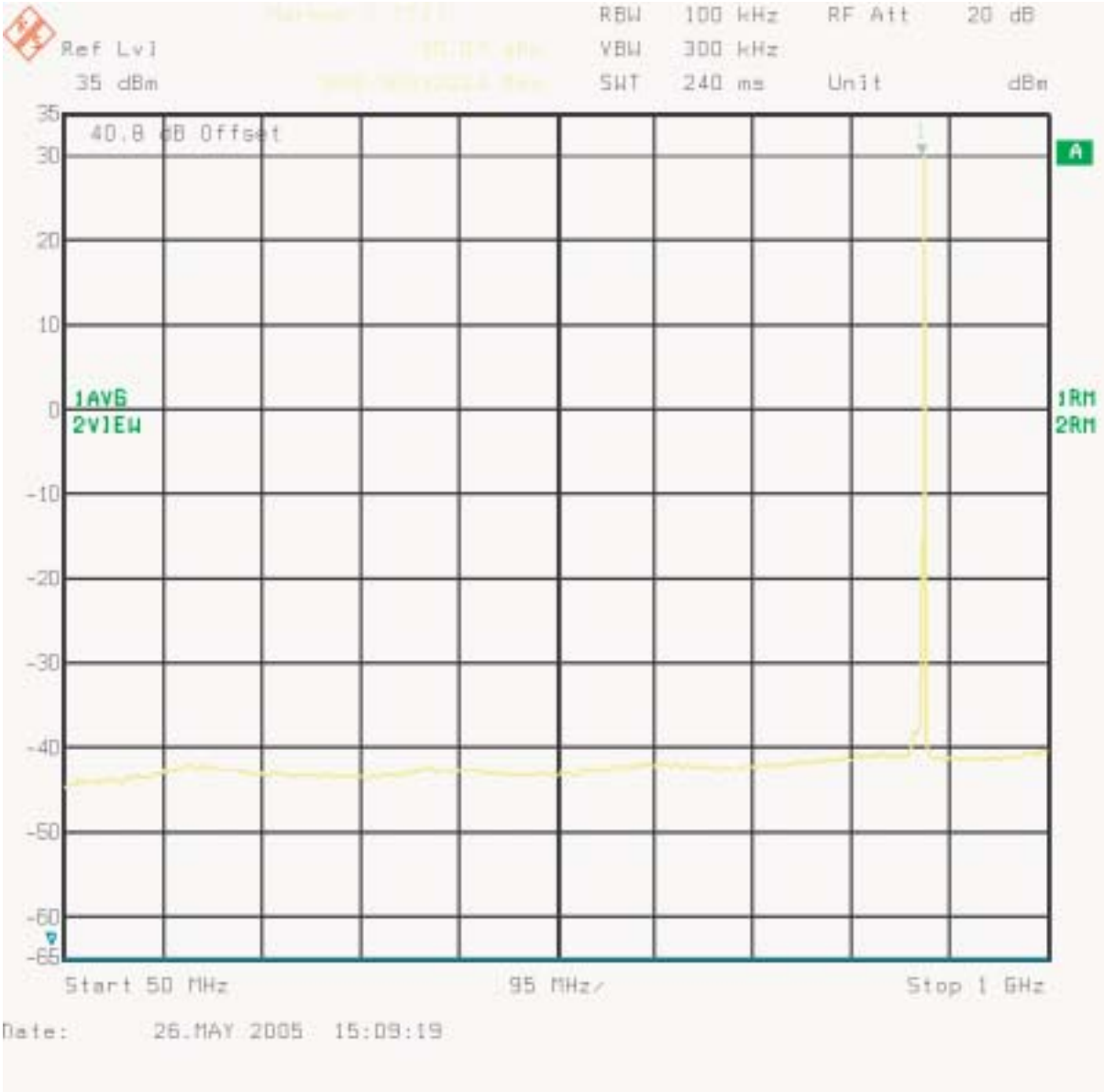


Figure 9 : Conducted Spurious Emissions - Channel 308 (1 GHz - 2 GHz)

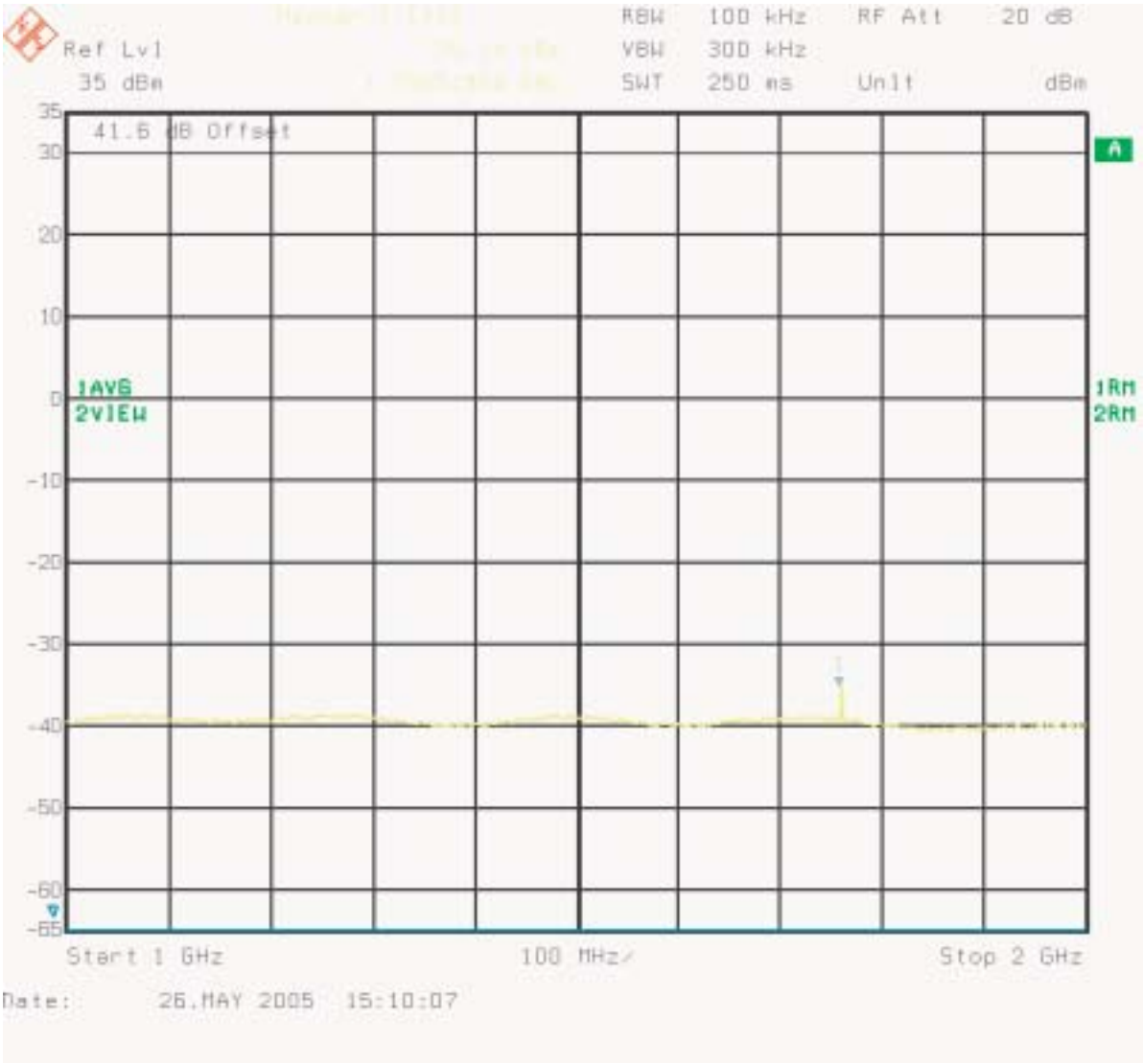


Figure 10 : Conducted Spurious Emissions - Channel 308 (2 GHz - 3 GHz)

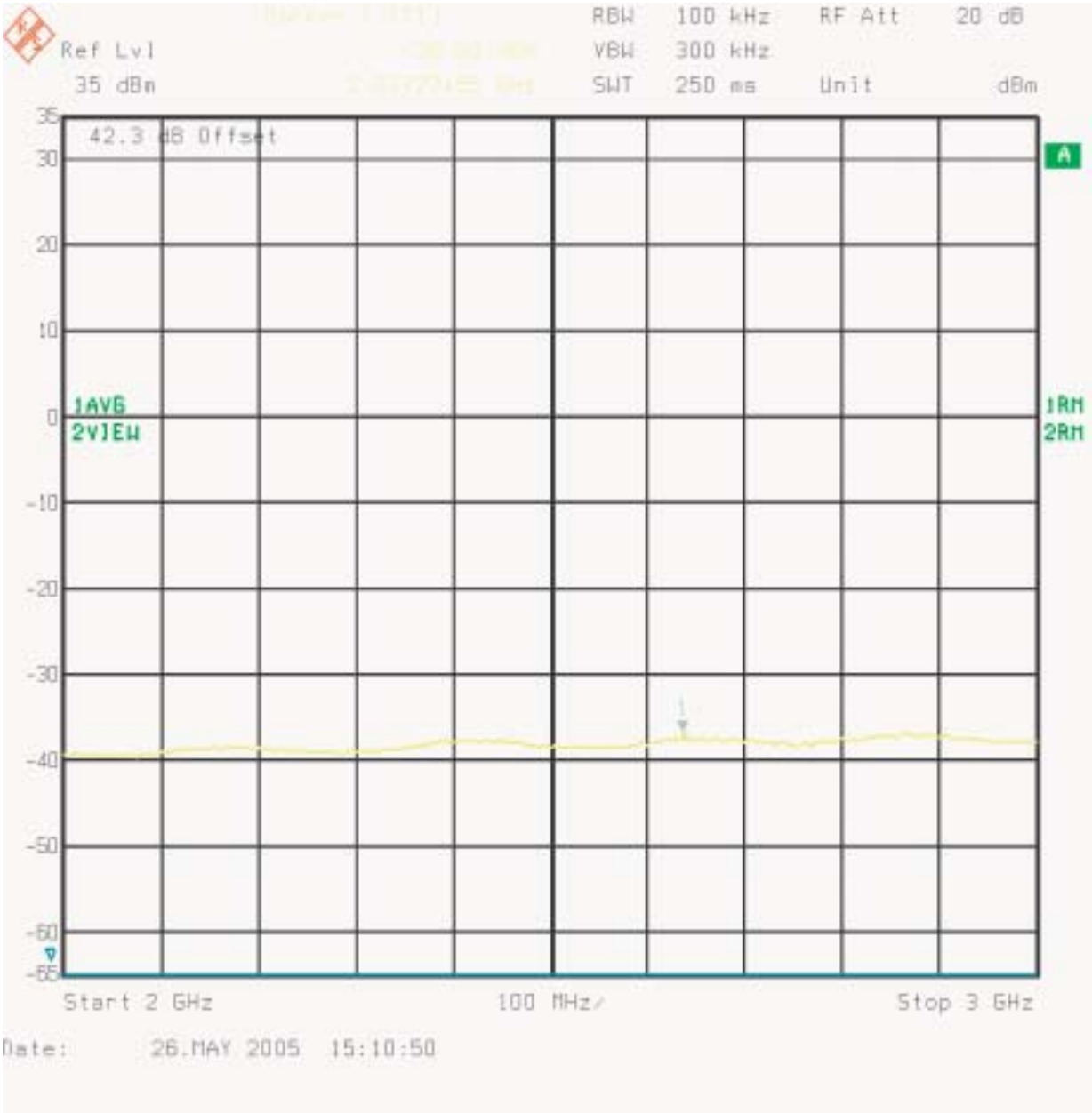


Figure 11 : Conducted Spurious Emissions - Channel 308 (3 GHz - 4 GHz)

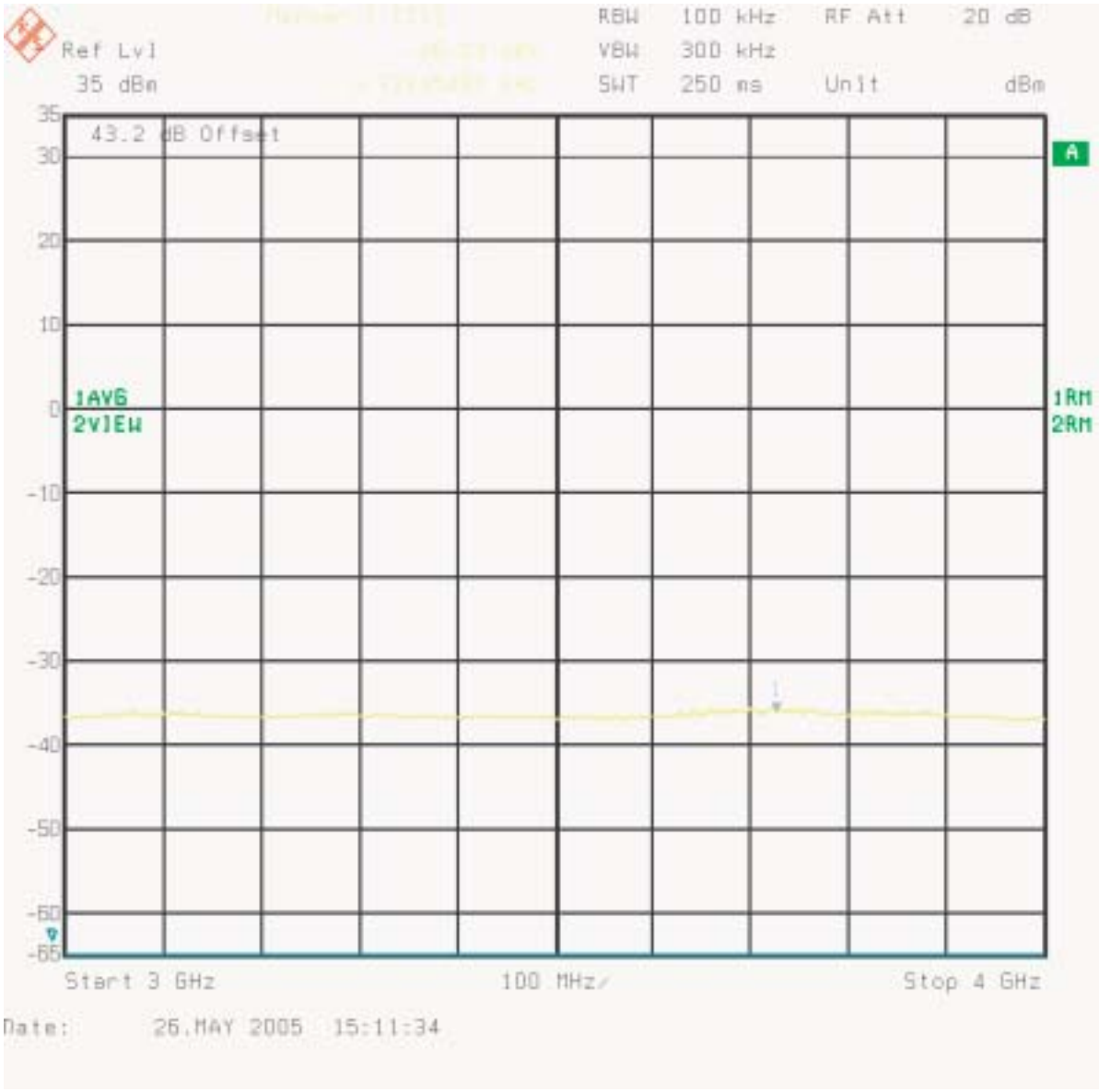


Figure 12 : Conducted Spurious Emissions - Channel 308 (4 GHz - 5 GHz)

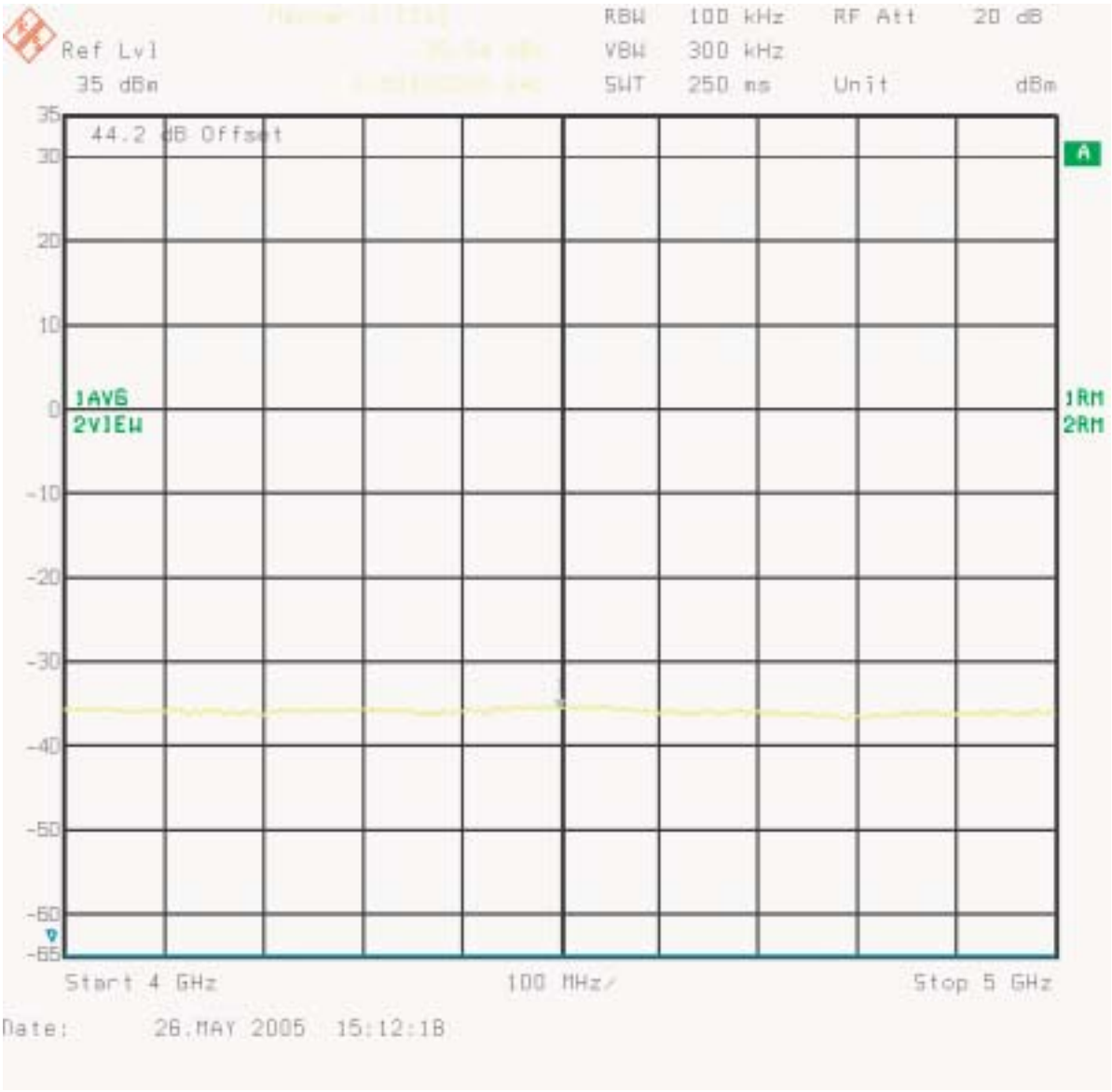


Figure 13 : Conducted Spurious Emissions - Channel 308 (5 GHz - 6 GHz)

Figure 14 : Conducted Spurious Emissions - Channel 308 (6 GHz - 7 GHz)

Figure 15 : Conducted Spurious Emissions - Channel 308 (7 GHz - 8 GHz)

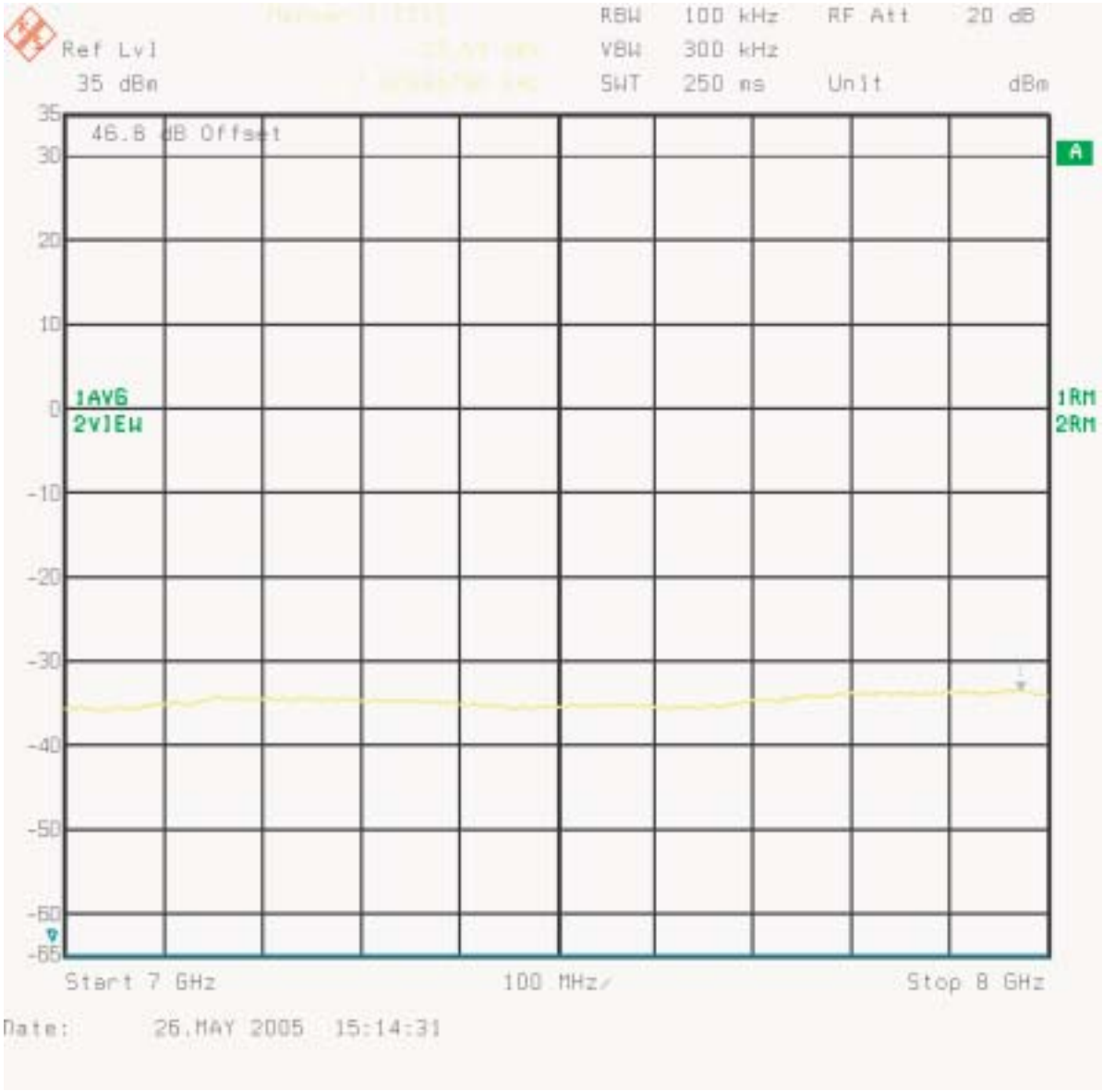


Figure 16 : Conducted Spurious Emissions - Channel 308 (8 GHz - 9GHz)

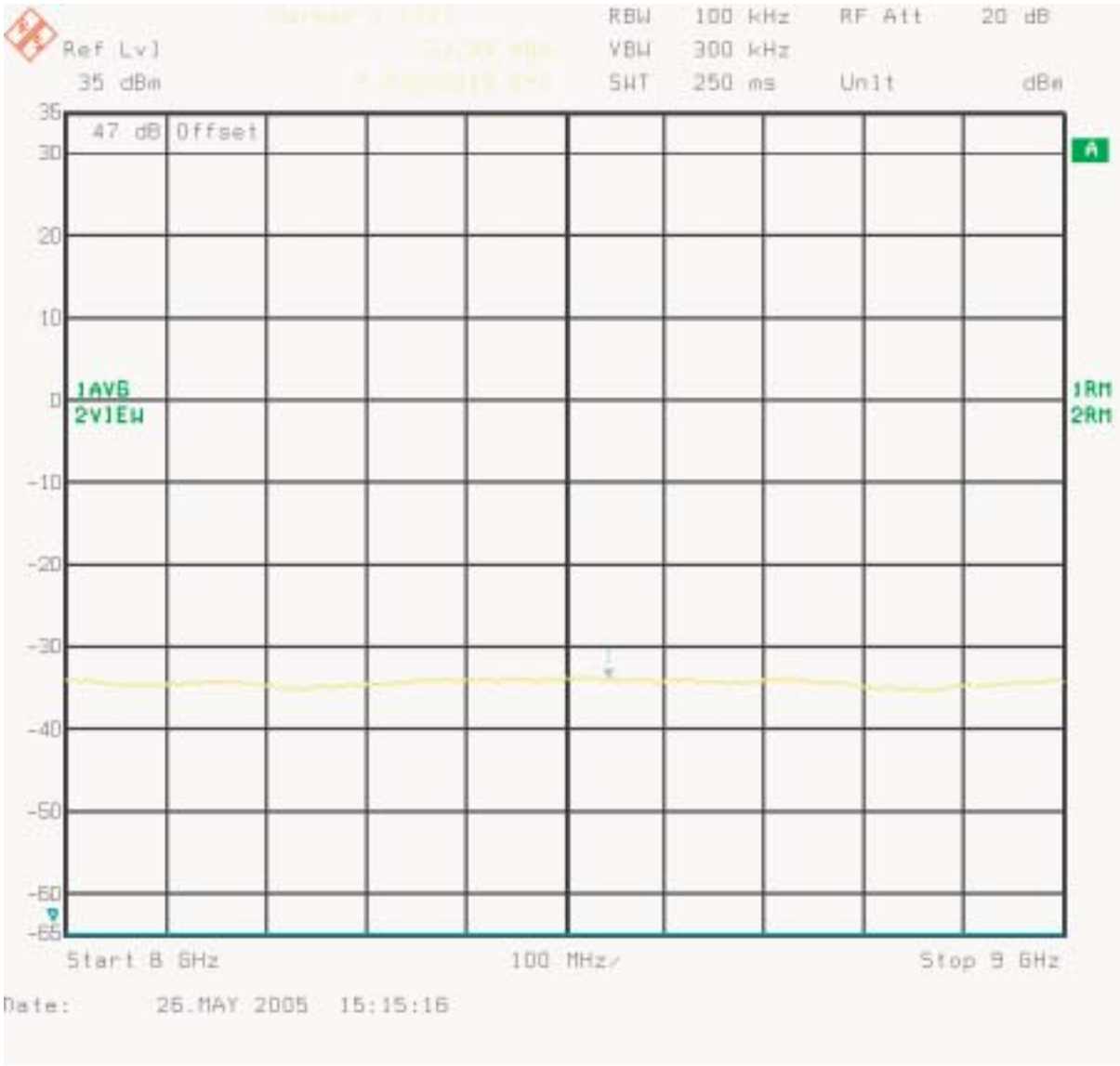


Figure 17 : Conducted Spurious Emissions - Channel 308 (9 GHz - 10 GHz)

4.4 Frequency Stability

4.4.1 Frequency Stability Requirements

FCC Part 2.1055

(a) The frequency stability shall be measured with variation of ambient temperature as follows:

(1) From -30 to +50 centigrade for all equipment except that specified in subparagraphs (2) and (3) of this paragraph.

(b) 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.

(d) The frequency stability shall be measured with variation of primary supply voltage as follows:

(1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment.
(2) For hand carried, battery powered equipment, reduce primary supply voltage to the battery operating end point which shall be specified by the manufacturer.
(3) The supply voltage shall be measured at the input to the cable normally provided with the equipment, or at the power supply terminals if cables are not normally provided. Effects on frequency of transmitter keying (except for broadcast transmitters) and any heating element cycling at the nominal supply voltage and at each extreme also shall be shown.

(e) When deemed necessary, the Commission may require tests of frequency stability under conditions in addition to those specifically set out in paragraphs (a), (b), (c) and (d) of this section. (For example, measurements showing the effect of proximity to large metal objects, or of various types of antennas, may be required for portable equipment.)

FCC Part 22.355 Limit

The carrier frequency of each transmitter in the 821-896 MHz Frequency range, must be maintained within 1.5ppm tolerance, according to table C-1 of this section.

4.4.2 Test Procedure

The test equipment was configured as shown below. The vBTS was put inside the temperature chamber. The vBTS was blossomed with full transmit power. The transmit Frequency Tolerance was read from the VSA. The frequency tolerance was read over temperature from -5C to 50C in 10C steps and over voltage.

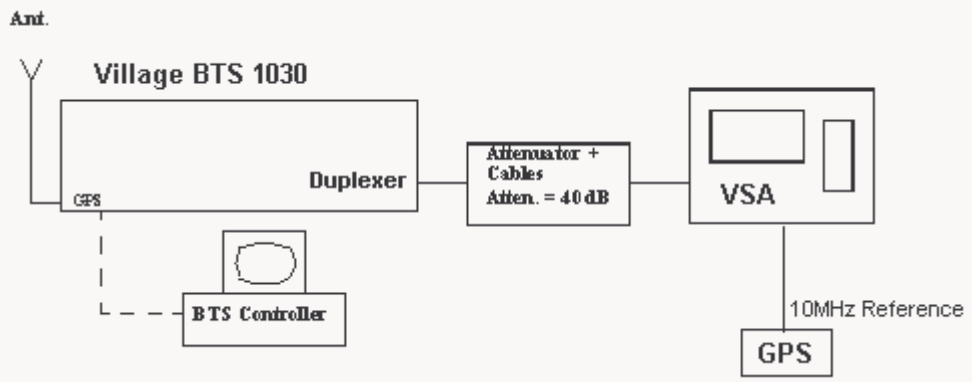


Figure 18 : Test Setup for Frequency Stability Measurement

4.4.3 Results

Table 8: Test Results for Frequency Stability versus Temperature

Channel	Temperature (Celcius)	Maximum Carrier Frequency Deviation (Hz)	Maximum Carrier Frequency Deviation (ppm)
283 (878.49MHz)	-5	2.01	0.00229
283 (878.49MHz)	-10	3.29	0.00375
283 (878.49MHz)	0	1.84	0.00210
283 (878.49MHz)	10	2.76	0.00314
283 (878.49MHz)	20	0.69	0.00078
283 (878.49MHz)	30	1.18	0.00134
283 (878.49MHz)	40	4.49	0.00511
283 (878.49MHz)	50	10.1	0.01151

Table 9: Test Results for Frequency Stability versus Voltage

Channel	Voltage (V)	Maximum Carrier Frequency Deviation (Hz)	Maximum Carrier Frequency Deviation (ppm)
283 (878.49MHz)	-44	3.56	0.00405
283 (878.49MHz)	-48 (nominal)	4.21	0.00479
283 (878.49MHz)	-57	2.78	0.00316

References

[1] FCC Part 22 Subpart H, “Cellular Radiotelephone Service”, http://www.access.gpo.gov/nara/cfr/waisidx_00/47cfr22_00.html

[2] FCC Part 2 Subpart J, “Frequency allocations and radio treaty matters; general rules and regulations”, http://www.access.gpo.gov/nara/cfr/waisidx_00/47cfr2_00.html

[3] FCC Part 24 Subpart E, “Personal Communications Services”, http://www.access.gpo.gov/nara/cfr/waisidx_00/47cfr24_00.html

[4] TIA/EIA-97-D “Recommended Minimum Performance Standards for Base Stations Supporting Dual Mode Spread Spectrum Systems”, June 2001

END OF DOCUMENT