



# DIGITAL EMC CO., LTD.

683-3, Yubang-Dong, Yongin-Si, Kyunggi-Do, Korea. 449-080  
Tel: +82-31-321-2664 Fax: +82-31-321-1664

<http://www.digitalemc.com>

## CERTIFICATION OF COMPLIANCE

### SEOWON INTECH CO., LTD.

689-47, Kumjung-Dong, Kunpo-City, Kyunggi-Do,  
435-862, Korea

Dates of Tests: March 9 ~ 18, 2009

Test Report S/N: DR50110903R

Test Site : DIGITAL EMC CO., LTD.

FCC ID.

**V7MSWC-3100**

APPLICANT

**SEOWON INTECH CO., LTD.**

<b>Classification</b>	: <b>Licensed Non-Broadcast Transmitter(TNB)</b>
<b>FCC Rule Part(s)</b>	: <b>§27(M), §2</b>
<b>EUT Type</b>	: <b>WIMAX Simple CPE</b>
<b>Model name</b>	: <b>SWC-3100</b>
<b>Serial number</b>	: <b>Identical prototype</b>
<b>TX Frequency Range</b>	: <b>2498.5 ~ 2687.5MHz (5MHz OBW)</b> <b>2501.0 ~ 2685.0MHz (10MHz OBW)</b>
<b>RX Frequency Range</b>	: <b>2498.5 ~ 2687.5MHz (5MHz OBW)</b> <b>2501.0 ~ 2685.0MHz (10MHz OBW)</b>
<b>Max. RF Output Power</b>	: <b>OBW: 5MHz – 1.426W EIRP (31.54 dBm)</b> <b>OBW: 10MHz – 1.795W EIRP(32.54 dBm)</b>
<b>Emission Designators:</b>	: <b>4M73G7D(QPSK)</b> <b>4M71W7D(16QAM)</b> <b>9M37G7D(QPSK)</b> <b>9M37W7D(16QAM)</b>
<b>Date of Issue</b>	: <b>March 20, 2009</b>

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## TABLE OF CONTENTS

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### ◆ MEASUREMENT REPORT

<b>1.1 SCOPE</b>	<b>3</b>
<b>2.1 GENERAL INFORMATION</b>	<b>4</b>
<b>3.1 DESCRIPTION OF TESTS</b>	<b>5</b>
<b>3.1.1 OCCUPIED BANDWIDTH EMISSION LIMITS</b>	<b>5</b>
<b>3.1.2 SPURIOUS AND HARMONICS EMISSIONS AT ANTENNA TERMINAL</b>	<b>5</b>
<b>3.1.3 RADIATED SPURIOUS AND HARMONIC EMISSIONS</b>	<b>5</b>
<b>3.1.4 FREQUENCY STABILITY / TEMPERATURE CARIATION</b>	<b>6</b>
<b>3.1 SUMMARY OF TESTS</b>	<b>7</b>
<b>4.1 TEST DATA</b>	<b>8</b>
<b>4.1.1 CONDUCTED OUTPUT POWER</b>	<b>8</b>
<b>4.1.2 EQUIVALENT ISOTROPIC RADIATED POWER OUTPUT</b>	<b>9</b>
<b>4.1.3 RADIATED MEASUREMENTS</b>	<b>11</b>
<b>4.1.4 FREQUENCY STABILITY</b>	<b>23</b>
<b>5.1 PLOTS OF EMISSIONS</b>	<b>31</b>
<b>5.1.1 OCCUPIED BANDWIDTH</b>	<b>31</b>
<b>5.1.2 BAND EDGE</b>	<b>35</b>
<b>5.1.3 CONDUCTED SPURIOUS EMISSIONS</b>	<b>43</b>
<b>5.1.4 CONDUCTED OUTPUT POWER</b>	<b>55</b>
<b>6.1 LIST OF TEST EQUIPMENT</b>	<b>79</b>
<b>7.1 EMISSION DESIGNATOR</b>	<b>81</b>
<b>8.1 CONCLUSION</b>	<b>82</b>

# MEASUREMENT REPORT

## 1.1 Scope

Measurement and determination of electromagnetic emissions (EME) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission.

## §2.1033 General Information

Applicant: **SEOWON INTECH CO., LTD.**

Address: 689-47, Kumjung-Dong, Kunpo-City, Kyunggi-Do, 435-862, Korea

Attention: CHOON-SUP, KIM

- FCC ID: V7MSWC-3100
- Quantity: Quantity production is planned
- Emission Designators: 4M73G7D(QPSK), 4M71W7D(16QAM)  
9M37G7D(QPSK), 9M37W7D(16QAM)
- Tx Freq. Range: 2498.5 ~2687.5 MHz (5MHz OBW)  
2501.0 ~2685.0 MHz (10MHz OBW)
- Rx Freq. Range: 2498.5 ~2687.5 MHz (5MHz OBW)  
2501.0 ~2685.0 MHz (10MHz OBW)
- Max. Power Rating: OBW: 5MHz – 1.426W EIRP (31.54 dBm)  
OBW: 10MHz – 1.795W EIRP (32.54 dBm)
- FCC Classification(s): Licensed Non-Broadcast Transmitter(TNB)
- Equipment (EUT) Type: Simple CPE WIMAX
- Modulation(s): QPSK, 16QAM
- Data rates: QPSK1/2, QPSK3/4, 16QAM1/2, 16QAM3/4
- Antenna Type: Dipole Antenna
- FCC Rule Part(s): §27(M), §2
- Dates of Tests: March 9 ~ 18, 2009
- Place of Tests: DIGITAL EMC
- Test Report S/N: DR50110903R

## 2.1. GENERAL INFORMATION

This report contains the result of tests performed by:

**DIGITAL EMC CO., LTD.**

Address: 683-3, Yubang-Dong, Yongin-Si, Kyunggi-Do, Korea. 449-080

<http://www.digitalemccom> E-mail : harveysung@digitalemccom

Tel: +82-31-321-2664 Fax: +82-31-321-1664

Quality control in the testing laboratory is implemented as per ISO/IEC 17025 which is the “General requirements for the competent of calibration and testing laboratory”.

**Test operator: Engineer**

March 20, 2009

Won-Jung LEE

Data

Name

Signature

**Report Reviewed By: Director**

March 20, 2009

Harvey Sung

Data

Name

Signature

### Ordering party:

Company name : SEOWON INTECH CO., LTD.

Address : 689-47, Kumjung-Dong

Zipcode : 435-862

City/town : Kunpo-City, Kyunggi-Do

Country : Korea

Date of order : October 22, 2008

### **3.1 DESCRIPTION OF TESTS**

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#### **3.1.1 Occupied Bandwidth Emission Limits**

**- Part §2.1049, §27.53.(1)(2), (6)**

- (a) For fixed and temporary fixed digital stations, the attenuation shall be not less than  $43 + 10 \log (P)$  dB, unless a documented interference complaint is received from an adjacent channel licensee.
- (b) Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz 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. 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 emission are attenuated at least 26 dB below the transmitter power.

#### **3.1.2 Spurious and Harmonic Emissions at Antenna Terminal**

**- Part §2.1051, §27.53.(1) (2), (6)**

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic.

#### **3.1.3 Radiation Spurious and Harmonic Emissions**

**- Part §2.1053, §27.53.(1) (2), (6)**

Spurious and harmonic emissions between the lowest frequency generated in this device and up to 10<sup>th</sup> harmonic of the highest generated in this device are measured at 3-meter OATS. The equipment under test is placed on a wooden turntable located at 3-meters from the receive antenna. The receive antenna height and turntable rotations are adjusted for the highest reading on the receive spectrum analyzer. A half-wave dipole is substituted in place of the EUT. This dipole antenna is driven by a vector signal generator with the level of the signal generator being adjusted to obtain the same receive spectrum analyzer reading. This level is recorded. For readings above 1GHz, the above procedure is repeated using the horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

### **3.1 DESCRIPTION OF TESTS**

(Continued...)

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#### **3.1.4 Frequency Stability/Temperature Variation.**

##### **- Part §2.1055, §27.54**

The frequency stability of the transmitter is measured by:

- a) **Temperature** : The temperature is varied from  $-30^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$  using an environmental chamber with  $10^{\circ}\text{C}$  increments.
- b) **Primary Supply Voltage** : The primary supply voltage is varied from 85% to 115% of the nominal voltage at the input to the device or at the power supply terminals if cables are not normally supplied.

**Specification – The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.**

#### **Time Period and Procedure:**

1. The carrier frequency of the transmitter is measured at room temperature. ( $20^{\circ}\text{C}$  to provide a reference).
2. The equipment is turned on in a “standby” condition for one minute before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.
3. Frequency measurements are made at  $10^{\circ}\text{C}$  intervals ranging from  $-30^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$ . A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

### 3.2 SUMMARY OF TESTS

FCC Part Section(s)	Parameter	Limit	Test Condition	Status (note 1)
I. Transmitter Test Items				
2.1049 27.53(l)(6)	Occupied Bandwidth	N/A	Conducted	C
2.1051 27.53(l)(2)(6)	Band Edge	< 43+ 10log <sub>10</sub> (P)		C
2.1051 27.53(l)(2)(6)	Conducted Spurious Emissions	< 43+ 10log <sub>10</sub> (P)		C
2.1046	Conducted Output Power	N/A		C
2.1055 27.54	Frequency Stability	Fundamental emissions must stay within the allotted band		C
27.50(h)(2)	Equivalent Isotropic Radiated Power	< 2 Watts max. EIRP	Radiated	C
2.1053 27.53(l)(2)	Radiated Spurious Emissions	< 43+ 10log <sub>10</sub> (P) for all out-of-band emissions		C
II. Additional Test Results for JBP portion				
15.107	AC Conducted Emissions	< FCC 15.107 limits	Radiated	C <sup>note 2</sup>
15.109	General Field Strength Limits	< FCC 15.109 limits	Line Conducted	C <sup>note 2</sup>
Note 1: C=Comply NC=Not Comply NT=Not Tested NA=Not Applicable Note 2: The JBP (Computing device peripheral) portion of this device was tested and approved by FCC DOC Procedure.				

## 4.1 TEST DATA

### 4.1.1 Conducted Output Power

A vector signal generator was used to supply the WiMAX signal sources to a EUT and an external trigger source to a spectrum analyzer. The trigger was set in such a way that the analyzer recorded power measurements only during the times in which the EUT was transmitting. The WiMAX conducted powers are reported below as well as a test setup diagram.

A PC(or Notebook) controlled EUT to transmit rated output power under appropriate transmission mode and specific frequency.

- Measurement data

Bandwidth	Zone Format	Frequency (MHz)	QPSK 1/2 (dBm)	QPSK 3/4 (dBm)	16QAM 1/2 (dBm)	16QAM 3/4 (dBm)
5MHz	PUSC	2498.5	26.94	27.13	27.26	26.81
		2593.0	26.74	26.86	26.91	26.64
		2687.5	26.40	26.47	26.53	26.25
	AMC	2498.5	27.40	<b>27.43</b>	<b>27.58</b>	27.34
		2593.0	27.31	<b>27.46</b>	<b>27.53</b>	27.24
		2687.5	27.00	<b>27.06</b>	<b>27.10</b>	26.95
10MHz	PUSC	2501.0	26.17	26.37	26.46	26.05
		2593.0	26.65	26.94	26.91	26.60
		2685.0	26.65	26.88	27.01	26.66
	AMC	2501.0	26.62	<b>26.89</b>	<b>27.06</b>	26.61
		2593.0	27.03	<b>27.31</b>	<b>27.49</b>	26.99
		2685.0	27.10	<b>27.33</b>	<b>27.50</b>	27.02

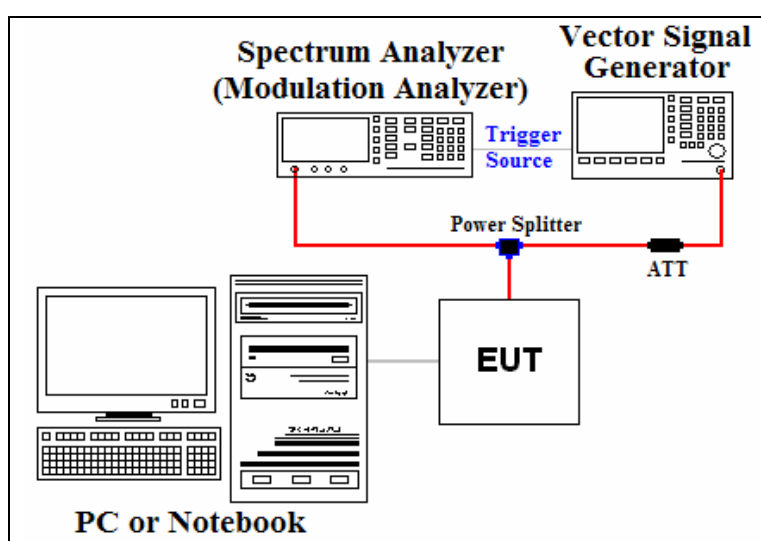


Figure1. Test Setup Diagram of WiMAX Conducted Power

**4.1 TEST DATA**

(Continued...)

**4.1.2 Equivalent Isotropic Radiated Power Output****A. POWER: Maximum (BW 5MHz)**

Frequency (MHz)	Zone Format & Modulation Type	POL (H/V)	Reading Level (dBm)	Level @ Ant. Terminal (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (W)	Supplied Power
2498.5	AMC & QPSK 3/4	V	-17.06	21.75	9.44	31.19	1.315	Adaptor
<b>2593.0</b>	<b>AMC &amp; QPSK 3/4</b>	<b>V</b>	<b>-16.72</b>	<b>22.07</b>	<b>9.47</b>	<b>31.54</b>	<b>1.426</b>	<b>Adaptor</b>
2687.5	AMC & QPSK 3/4	V	-18.63	20.24	9.49	29.73	0.940	Adaptor
2593.0	AMC & QPSK 1/2	V	-17.07	21.72	9.47	31.19	1.315	Adaptor
2593.0	PUSC & QPSK 1/2	V	-17.50	21.29	9.47	30.76	1.191	Adaptor
2593.0	PUSC & QPSK 3/4	V	-17.41	21.38	9.47	30.85	1.216	Adaptor
2498.5	AMC & 16QAM 1/2	V	-17.19	21.62	9.44	31.06	1.276	Adaptor
<b>2593.0</b>	<b>AMC &amp; 16QAM 1/2</b>	<b>V</b>	<b>-16.81</b>	<b>21.98</b>	<b>9.47</b>	<b>31.45</b>	<b>1.396</b>	<b>Adaptor</b>
2687.5	AMC & 16QAM 1/2	V	-18.84	20.03	9.49	29.52	0.895	Adaptor
2593.0	AMC & 16QAM 3/4	V	-16.90	21.89	9.47	31.36	1.368	Adaptor
2593.0	PUSC & 16QAM 1/2	V	-17.26	21.53	9.47	31.00	1.259	Adaptor
2593.0	PUSC & 16QAM 3/4	V	-17.37	21.42	9.47	30.89	1.227	Adaptor

-Note: Basically these tests were performed at low, middle, high channel with the zone format and modulation type of maximum conducted output power. And these tests repeated at the worst case channel with other zone format and modulation type.

**NOTES:**

Effective Radiated Power Output Measurements by Substitution Method  
according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden table located at 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the spectrum analyzer. A horn antenna was substituted in place of the EUT. This horn antenna was driven by a vector signal generator with WiMAX signal source and the level of the signal generator was adjusted to obtain the same spectrum analyzer's reading level when EUT existed. After that conducted power at the input terminal of the horn antenna is measured and this conducted power was corrected with antenna gain in dBi for EIRP.

## 4.1 TEST DATA

(Continued...)

### 4.1.2 Equivalent Isotropic Radiated Power Output

(Continued...)

#### A. POWER: Maximum (BW 10MHz)

Frequency (MHz)	Zone & Mod. Type	POL (H/V)	Reading Level (dBm)	Level @ Ant. Terminal (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (W)	Supplied Power
2501.0	AMC & QPSK 3/4	V	-20.75	21.76	9.44	31.20	1.318	Adaptor
<b>2593.0</b>	<b>AMC &amp; QPSK 3/4</b>	<b>V</b>	<b>-19.32</b>	<b>22.74</b>	<b>9.47</b>	<b>32.21</b>	<b>1.663</b>	<b>Adaptor</b>
2685.0	AMC & QPSK 3/4	V	-21.50	21.39	9.49	30.88	1.225	Adaptor
2593.0	AMC & QPSK 1/2	V	-19.50	22.56	9.47	32.03	1.596	Adaptor
2593.0	PUSC & QPSK 1/2	V	-19.84	22.22	9.47	31.69	1.476	Adaptor
2593.0	PUSC & QPSK 3/4	V	-20.36	21.70	9.47	31.17	1.309	Adaptor
2501.0	AMC & 16QAM 1/2	V	-20.12	22.82	9.44	32.26	1.683	Adaptor
<b>2593.0</b>	<b>AMC &amp; 16QAM 1/2</b>	<b>V</b>	<b>-19.30</b>	<b>23.07</b>	<b>9.47</b>	<b>32.54</b>	<b>1.795</b>	<b>Adaptor</b>
2685.0	AMC & 16QAM 1/2	V	-20.40	22.43	9.49	31.92	1.556	Adaptor
2593.0	AMC & 16QAM 3/4	V	-19.53	22.84	9.47	32.31	1.702	Adaptor
2593.0	PUSC & 16QAM 1/2	V	-19.79	22.58	9.47	32.05	1.603	Adaptor
2593.0	PUSC & 16QAM 3/4	V	-20.10	22.27	9.47	31.74	1.493	Adaptor

-Note: Basically these tests were performed at low, middle, high channel with the zone format and modulation type of maximum conducted output power. And these tests repeated at the worst case channel with other zone format and modulation type.

#### NOTES:

Effective Radiated Power Output Measurements by Substitution Method  
according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden table located at 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the spectrum analyzer. A horn antenna was substituted in place of the EUT. This horn antenna was driven by a vector signal generator with WiMAX signal source and the level of the signal generator was adjusted to obtain the same spectrum analyzer's reading level when EUT existed. After that conducted power at the input terminal of the horn antenna is measured and this conducted power was corrected with antenna gain in dBi for EIRP.

**4.1 TEST DATA****(Continued...)****4.1.3 Radiated Measurements**Field Strength of SPURIOUS Radiation

MODULATION SIGNAL : WiMAX  
 ZONE MODE : AMC  
 MODULATION TYPE : QPSK 3/4  
 BANDWIDTH : 5 MHz  
 OPERATING FREQUENCY : 2498.5 MHz  
 MEASURED OUTPUT POWER : 31.19 dBm = 1.315 W  
 DISTANCE : 3 meters  
 LIMIT  $43 + 10 \log_{10} (W)$  = 44.19 dBc

Freq. (MHz)	POL (H/V)	LEVEL@ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	CORRECT GENERATOR LEVEL (dBm)	(dBc)
4997.00	H	-52.17	10.56	-41.61	72.80
4997.00	V	-52.07	10.56	-41.51	72.70
-	-	-	-	-	-

**NOTE**

Radiated Spurious Emission Measurements by Substitution Method  
 according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden table located at 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the spectrum analyzer. A antenna was substituted in place of the EUT. This antenna was driven by a vector signal generator with WiMAX signal source for harmonics and with CW signal for narrow band spurious emissions. The level of the signal generator was adjusted to obtain the same spectrum analyzer's reading level when EUT existed. After that conducted power at the input terminal of the transmit antenna was measured and this conducted power was corrected with antenna gain in dBi. This spurious level was recorded.

**4.1 TEST DATA**

(Continued...)

**4.1.3 Radiated Measurements**

(Continued...)

Field Strength of SPURIOUS Radiation

MODULATION SIGNAL : WiMAX  
 ZONE MODE : AMC  
 MODULATION TYPE : QPSK 3/4  
 BANDWIDTH : 5 MHz  
 OPERATING FREQUENCY : 2593.0 MHz  
 MEASURED OUTPUT POWER : 31.54 dBm = 1.426 W  
 DISTANCE : 3 meters  
 LIMIT  $43 + 10 \log_{10} (W)$  = 44.54 dBc

Freq. (MHz)	POL (H/V)	LEVEL@ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	CORRECT GENERATOR LEVEL (dBm)	(dBc)
5186.00	H	-54.36	10.72	-43.64	75.18
5186.00	V	-54.50	10.72	-43.78	75.32
-	-	-	-	-	-

**NOTE**

Radiated Spurious Emission Measurements by Substitution Method  
according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden table located at 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the spectrum analyzer. A antenna was substituted in place of the EUT. This antenna was driven by a vector signal generator with WiMAX signal source for harmonics and with CW signal for narrow band spurious emissions. The level of the signal generator was adjusted to obtain the same spectrum analyzer's reading level when EUT existed. After that conducted power at the input terminal of the transmit antenna was measured and this conducted power was corrected with antenna gain in dBi. This spurious level was recorded.

## 4.1 TEST DATA

(Continued...)

### 4.1.3 Radiated Measurements

(Continued...)

#### Field Strength of SPURIOUS Radiation

MODULATION SIGNAL : WiMAX  
 ZONE MODE : AMC  
 MODULATION TYPE : QPSK 3/4  
 BANDWIDTH : 5 MHz  
 OPERATING FREQUENCY : 2687.5 MHz  
 MEASURED OUTPUT POWER : 29.73 dBm = 0.940 W  
 DISTANCE : 3 meters  
 LIMIT  $43 + 10 \log_{10} (W)$  = 42.73 dBc

Freq. (MHz)	POL (H/V)	LEVEL@ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	CORRECT GENERATOR LEVEL (dBm)	(dBc)
5375.00	H	-51.04	10.88	-40.16	69.89
5375.00	V	-52.01	10.88	-41.13	70.86
-	-	-	-	-	-

#### **NOTE**

Radiated Spurious Emission Measurements by Substitution Method  
according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden table located at 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the spectrum analyzer. A antenna was substituted in place of the EUT. This antenna was driven by a vector signal generator with WiMAX signal source for harmonics and with CW signal for narrow band spurious emissions. The level of the signal generator was adjusted to obtain the same spectrum analyzer's reading level when EUT existed. After that conducted power at the input terminal of the transmit antenna was measured and this conducted power was corrected with antenna gain in dBi. This spurious level was recorded.

**4.1 TEST DATA**

(Continued...)

**4.1.3 Radiated Measurements**

(Continued...)

Field Strength of SPURIOUS Radiation

MODULATION SIGNAL : WiMAX  
 ZONE MODE : AMC  
 MODULATION TYPE : 16QAM 1/2  
 BANDWIDTH : 5 MHz  
 OPERATING FREQUENCY : 2498.5 MHz  
 MEASURED OUTPUT POWER : 31.06 dBm = 1.276 W  
 DISTANCE : 3 meters  
 LIMIT  $43 + 10 \log_{10} (W)$  = 44.06 dBc

Freq. (MHz)	POL (H/V)	LEVEL@ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	CORRECT GENERATOR LEVEL (dBm)	(dBc)
4997.00	H	-52.31	10.56	-41.75	72.81
4997.00	V	-52.43	10.56	-41.87	72.93
-	-	-	-	-	-

**NOTE**

Radiated Spurious Emission Measurements by Substitution Method  
according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden table located at 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the spectrum analyzer. A antenna was substituted in place of the EUT. This antenna was driven by a vector signal generator with WiMAX signal source for harmonics and with CW signal for narrow band spurious emissions. The level of the signal generator was adjusted to obtain the same spectrum analyzer's reading level when EUT existed. After that conducted power at the input terminal of the transmit antenna was measured and this conducted power was corrected with antenna gain in dBi. This spurious level was recorded.

**4.1 TEST DATA**

(Continued...)

**4.1.3 Radiated Measurements**

(Continued...)

Field Strength of SPURIOUS Radiation

MODULATION SIGNAL : WiMAX  
 ZONE MODE : AMC  
 MODULATION TYPE : 16QAM 1/2  
 BANDWIDTH : 5 MHz  
 OPERATING FREQUENCY : 2593.0 MHz  
 MEASURED OUTPUT POWER : 31.45 dBm = 1.396 W  
 DISTANCE : 3 meters  
 LIMIT  $43 + 10 \log_{10} (W)$  = 44.45 dBc

Freq. (MHz)	POL (H/V)	LEVEL@ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	CORRECT GENERATOR LEVEL (dBm)	(dBc)
5186.00	H	-52.96	10.72	-42.24	73.69
5186.00	V	-52.50	10.72	-41.78	73.23
-	-	-	-	-	-

**NOTE**

Radiated Spurious Emission Measurements by Substitution Method  
according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden table located at 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the spectrum analyzer. A antenna was substituted in place of the EUT. This antenna was driven by a vector signal generator with WiMAX signal source for harmonics and with CW signal for narrow band spurious emissions. The level of the signal generator was adjusted to obtain the same spectrum analyzer's reading level when EUT existed. After that conducted power at the input terminal of the transmit antenna was measured and this conducted power was corrected with antenna gain in dBi. This spurious level was recorded.

**4.1 TEST DATA**

(Continued...)

**4.1.3 Radiated Measurements**

(Continued...)

Field Strength of SPURIOUS Radiation

MODULATION SIGNAL : WiMAX  
 ZONE MODE : AMC  
 MODULATION TYPE : 16QAM 1/2  
 BANDWIDTH : 5 MHz  
 OPERATING FREQUENCY : 2687.5 MHz  
 MEASURED OUTPUT POWER : 29.52 dBm = 0.895 W  
 DISTANCE : 3 meters  
 LIMIT  $43 + 10 \log_{10} (W)$  = 42.52 dBc

Freq. (MHz)	POL (H/V)	LEVEL@ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	CORRECT GENERATOR LEVEL (dBm)	(dBc)
5375.00	H	-52.03	10.88	-41.15	70.67
5375.00	V	-52.28	10.88	-41.40	70.92
-	-	-	-	-	-

**NOTE**

Radiated Spurious Emission Measurements by Substitution Method  
according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden table located at 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the spectrum analyzer. A antenna was substituted in place of the EUT. This antenna was driven by a vector signal generator with WiMAX signal source for harmonics and with CW signal for narrow band spurious emissions. The level of the signal generator was adjusted to obtain the same spectrum analyzer's reading level when EUT existed. After that conducted power at the input terminal of the transmit antenna was measured and this conducted power was corrected with antenna gain in dBi. This spurious level was recorded.

## 4.1 TEST DATA

(Continued...)

### 4.1.3 Radiated Measurements

(Continued...)

#### Field Strength of SPURIOUS Radiation

MODULATION SIGNAL : WiMAX  
 ZONE MODE : AMC  
 MODULATION TYPE : QPSK 1/2  
 BANDWIDTH : 10 MHz  
 OPERATING FREQUENCY : 2501.0 MHz  
 MEASURED OUTPUT POWER : 31.20 dBm = 1.318 W  
 DISTANCE : 3 meters  
 LIMIT  $43 + 10 \log_{10} (W)$  = 44.20 dBc

Freq. (MHz)	POL (H/V)	LEVEL@ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	CORRECT GENERATOR LEVEL (dBm)	(dBc)
5002.00	H	-51.95	10.56	-41.39	72.59
5002.00	V	-51.21	10.56	-40.65	71.85
-	-	-	-	-	-

#### **NOTE**

Radiated Spurious Emission Measurements by Substitution Method  
 according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden table located at 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the spectrum analyzer. A antenna was substituted in place of the EUT. This antenna was driven by a vector signal generator with WiMAX signal source for harmonics and with CW signal for narrow band spurious emissions. The level of the signal generator was adjusted to obtain the same spectrum analyzer's reading level when EUT existed. After that conducted power at the input terminal of the transmit antenna was measured and this conducted power was corrected with antenna gain in dBi. This spurious level was recorded.

**4.1 TEST DATA**

(Continued...)

**4.1.3 Radiated Measurements**

(Continued...)

Field Strength of SPURIOUS Radiation

MODULATION SIGNAL : WiMAX  
 ZONE MODE : AMC  
 MODULATION TYPE : QPSK 1/2  
 BANDWIDTH : 10 MHz  
 OPERATING FREQUENCY : 2593.0 MHz  
 MEASURED OUTPUT POWER : 32.21 dBm = 1.663 W  
 DISTANCE : 3 meters  
 LIMIT  $43 + 10 \log_{10} (W)$  = 45.21 dBc

Freq. (MHz)	POL (H/V)	LEVEL@ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	CORRECT GENERATOR LEVEL (dBm)	(dBc)
5186.00	H	-52.62	10.72	-41.90	74.11
5186.00	V	-52.58	10.72	-41.86	74.07
-	-	-	-	-	-

**NOTE**

Radiated Spurious Emission Measurements by Substitution Method  
according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden table located at 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the spectrum analyzer. A antenna was substituted in place of the EUT. This antenna was driven by a vector signal generator with WiMAX signal source for harmonics and with CW signal for narrow band spurious emissions. The level of the signal generator was adjusted to obtain the same spectrum analyzer's reading level when EUT existed. After that conducted power at the input terminal of the transmit antenna was measured and this conducted power was corrected with antenna gain in dBi. This spurious level was recorded.

**4.1 TEST DATA****(Continued...)****4.1.3 Radiated Measurements****(Continued...)**Field Strength of SPURIOUS Radiation

MODULATION SIGNAL : WiMAX  
 ZONE MODE : AMC  
 MODULATION TYPE : QPSK 1/2  
 BANDWIDTH : 10 MHz  
 OPERATING FREQUENCY : 2685.0 MHz  
 MEASURED OUTPUT POWER : 30.88 dBm = 1.225 W  
 DISTANCE : 3 meters  
 LIMIT  $43 + 10 \log_{10} (W)$  = 43.88 dBc

Freq. (MHz)	POL (H/V)	LEVEL@ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	CORRECT GENERATOR LEVEL (dBm)	(dBc)
5370.00	H	-52.33	10.88	-41.45	72.33
5370.00	V	-50.53	10.88	-39.65	70.53
-	-	-	-	-	-

**NOTE**

Radiated Spurious Emission Measurements by Substitution Method  
according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden table located at 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the spectrum analyzer. A antenna was substituted in place of the EUT. This antenna was driven by a vector signal generator with WiMAX signal source for harmonics and with CW signal for narrow band spurious emissions. The level of the signal generator was adjusted to obtain the same spectrum analyzer's reading level when EUT existed. After that conducted power at the input terminal of the transmit antenna was measured and this conducted power was corrected with antenna gain in dBi. This spurious level was recorded.

## 4.1 TEST DATA

(Continued...)

### 4.1.3 Radiated Measurements

(Continued...)

#### Field Strength of SPURIOUS Radiation

MODULATION SIGNAL : WiMAX  
 ZONE MODE : AMC  
 MODULATION TYPE : 16QAM 1/2  
 BANDWIDTH : 10 MHz  
 OPERATING FREQUENCY : 2501.0 MHz  
 MEASURED OUTPUT POWER : 32.26 dBm = 1.683 W  
 DISTANCE : 3 meters  
 LIMIT  $43 + 10 \log_{10} (W)$  = 45.26 dBc

Freq. (MHz)	POL (H/V)	LEVEL@ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	CORRECT GENERATOR LEVEL (dBm)	(dBc)
5002.00	H	-50.34	10.56	-39.78	72.04
5002.00	V	-51.28	10.56	-40.72	72.98
-	-	-	-	-	-

#### **NOTE**

Radiated Spurious Emission Measurements by Substitution Method  
 according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden table located at 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the spectrum analyzer. A antenna was substituted in place of the EUT. This antenna was driven by a vector signal generator with WiMAX signal source for harmonics and with CW signal for narrow band spurious emissions. The level of the signal generator was adjusted to obtain the same spectrum analyzer's reading level when EUT existed. After that conducted power at the input terminal of the transmit antenna was measured and this conducted power was corrected with antenna gain in dBi. This spurious level was recorded.

**4.1 TEST DATA**

(Continued...)

**4.1.3 Radiated Measurements**

(Continued...)

Field Strength of SPURIOUS Radiation

MODULATION SIGNAL : WiMAX  
 ZONE MODE : AMC  
 MODULATION TYPE : 16QAM 1/2  
 BANDWIDTH : 10 MHz  
 OPERATING FREQUENCY : 2593.0 MHz  
 MEASURED OUTPUT POWER : 32.54 dBm = 1.795 W  
 DISTANCE : 3 meters  
 LIMIT  $43 + 10 \log_{10} (W)$  = 45.54 dBc

Freq. (MHz)	POL (H/V)	LEVEL@ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	CORRECT GENERATOR LEVEL (dBm)	(dBc)
5186.00	H	-53.86	10.72	-43.14	75.68
5186.00	V	-52.02	10.72	-41.30	73.84
-	-	-	-	-	-

**NOTE**

Radiated Spurious Emission Measurements by Substitution Method  
according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden table located at 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the spectrum analyzer. A antenna was substituted in place of the EUT. This antenna was driven by a vector signal generator with WiMAX signal source for harmonics and with CW signal for narrow band spurious emissions. The level of the signal generator was adjusted to obtain the same spectrum analyzer's reading level when EUT existed. After that conducted power at the input terminal of the transmit antenna was measured and this conducted power was corrected with antenna gain in dBi. This spurious level was recorded.

## 4.1 TEST DATA

(Continued...)

### 4.1.3 Radiated Measurements

(Continued...)

#### Field Strength of SPURIOUS Radiation

MODULATION SIGNAL : WiMAX  
 ZONE MODE : AMC  
 MODULATION TYPE : 16QAM 1/2  
 BANDWIDTH : 10 MHz  
 OPERATING FREQUENCY : 2685.0 MHz  
 MEASURED OUTPUT POWER : 31.92 dBm = 1.556 W  
 DISTANCE : 3 meters  
 LIMIT  $43 + 10 \log_{10} (W)$  = 44.92 dBc

Freq. (MHz)	POL (H/V)	LEVEL@ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	CORRECT GENERATOR LEVEL (dBm)	(dBc)
5370.00	H	-52.48	10.88	-41.60	73.52
5370.00	V	-51.52	10.88	-40.64	72.56
-	-	-	-	-	-

#### **NOTE**

Radiated Spurious Emission Measurements by Substitution Method  
 according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden table located at 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the spectrum analyzer. A antenna was substituted in place of the EUT. This antenna was driven by a vector signal generator with WiMAX signal source for harmonics and with CW signal for narrow band spurious emissions. The level of the signal generator was adjusted to obtain the same spectrum analyzer's reading level when EUT existed. After that conducted power at the input terminal of the transmit antenna was measured and this conducted power was corrected with antenna gain in dBi. This spurious level was recorded.

**4.1 TEST DATA****(Continued...)****4.1.4 Frequency Stability**

BANDWIDTH : 5 MHz  
 ZONE MODE : AMC  
 MODULATION TYPE : QPSK 3/4  
 OPERATING FREQUENCY : 2,592,999,969 Hz  
 REFERENCE VOLTAGE : 120 VAC

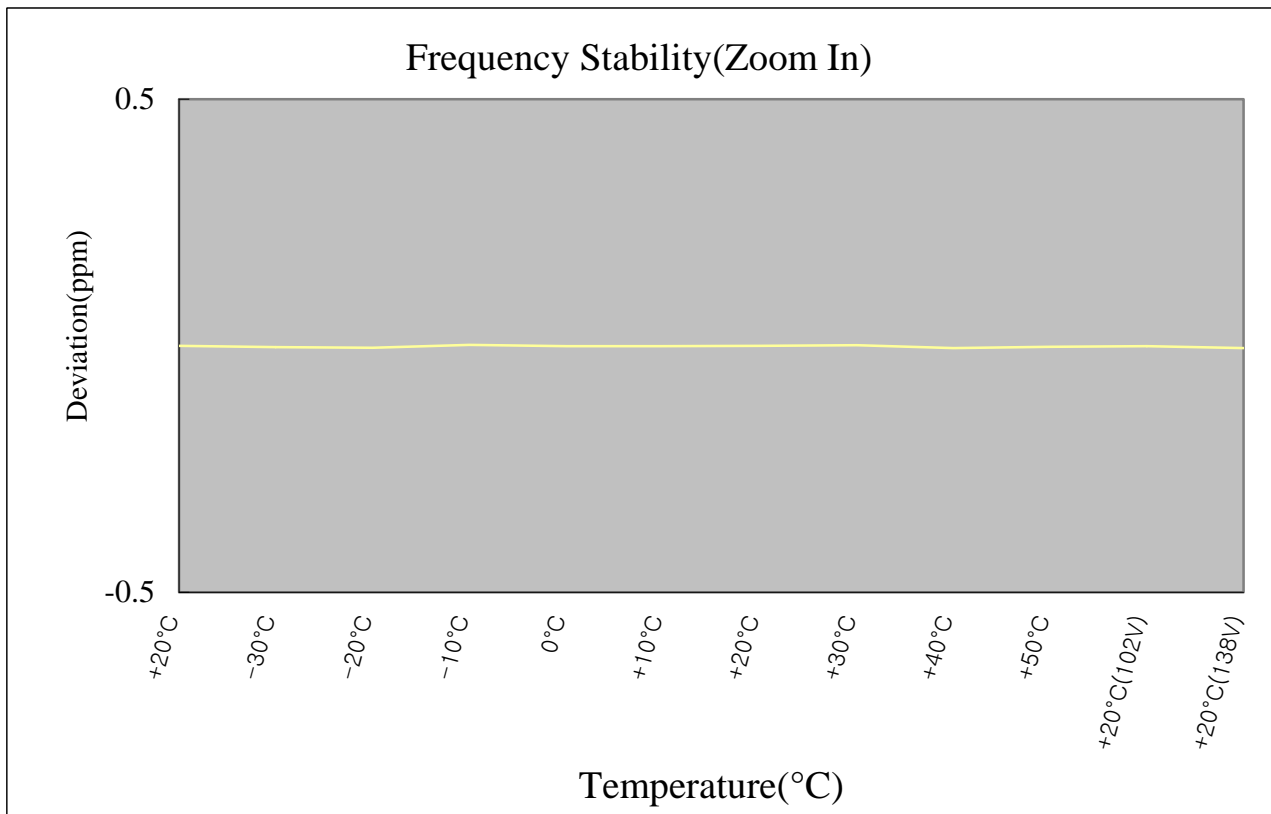
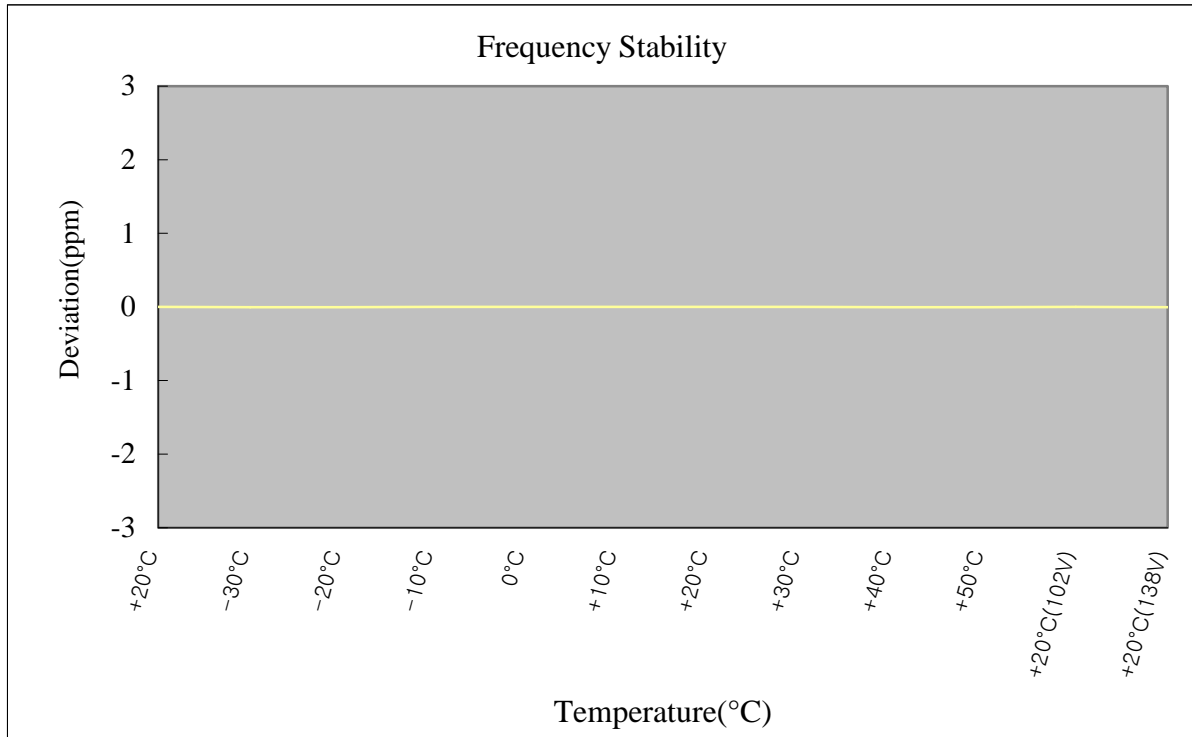
VOLTAGE (%)	POWER (VAC)	TEMP (dB)	FREQ (Hz)	Deviation (ppm)
100%	120	+20(Ref)	2,592,999,969	0.0000
100%		-30	2,592,999,961	-0.0031
100%		-20	2,592,999,958	-0.0042
100%		-10	2,592,999,973	0.0015
100%		0	2,592,999,967	-0.0008
100%		+10	2,592,999,966	-0.0012
100%		+20	2,592,999,969	0.0000
100%		+30	2,592,999,971	0.0008
100%		+40	2,592,999,956	-0.0050
100%		+50	2,592,999,963	-0.0023
85%	102	+20	2,592,999,967	-0.0008
115%	138	+20	2,592,999,956	-0.0050
BATT.ENDPOINT	-	-	-	-

## 4.1 TEST DATA

(Continued...)

### 4.1.4 Frequency Stability

(Continued...)



## 4.1 TEST DATA

(Continued...)

### 4.1.4 Frequency Stability

(Continued...)

BANDWIDTH : 5 MHz  
 ZONE MODE : AMC  
 MODULATION TYPE : 16QAM 1/2  
 OPERATING FREQUENCY : 2,592,999,974 Hz  
 REFERENCE VOLTAGE : 120 VAC

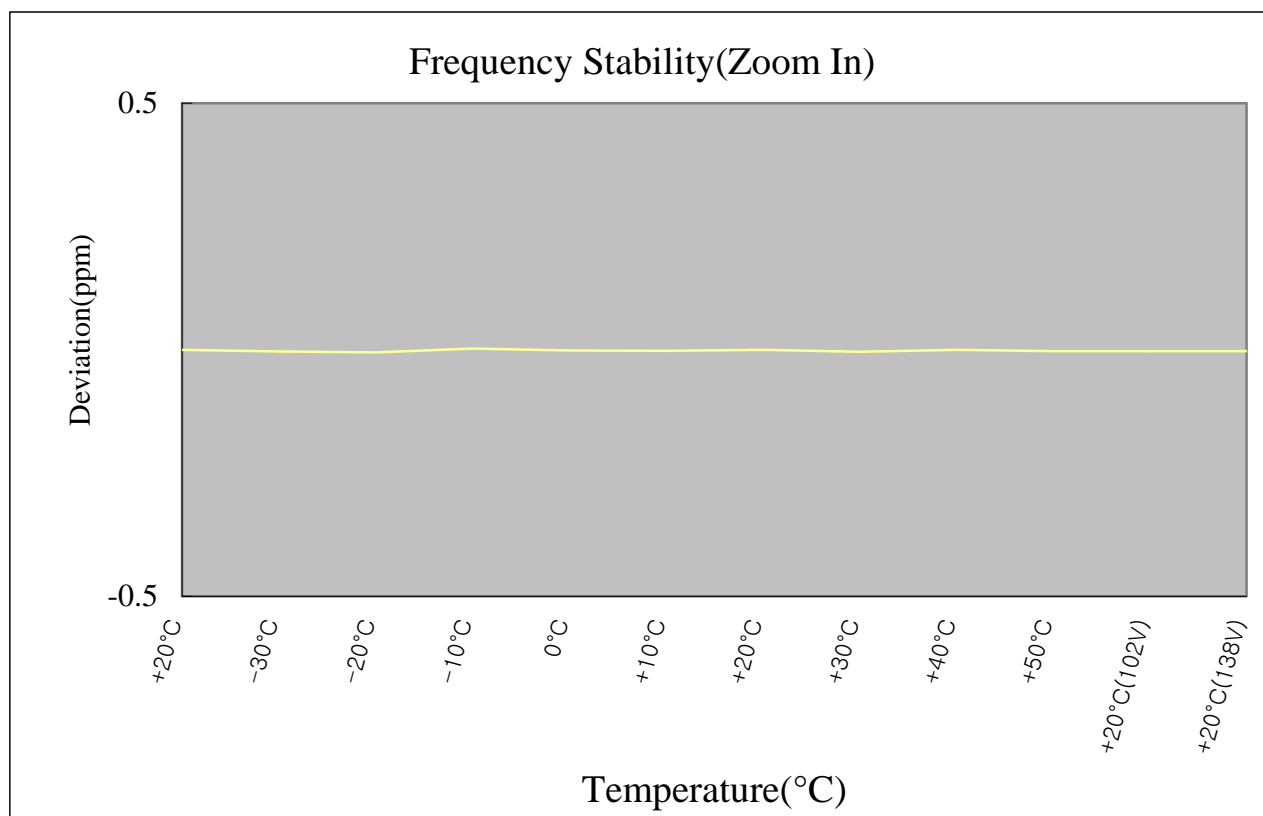
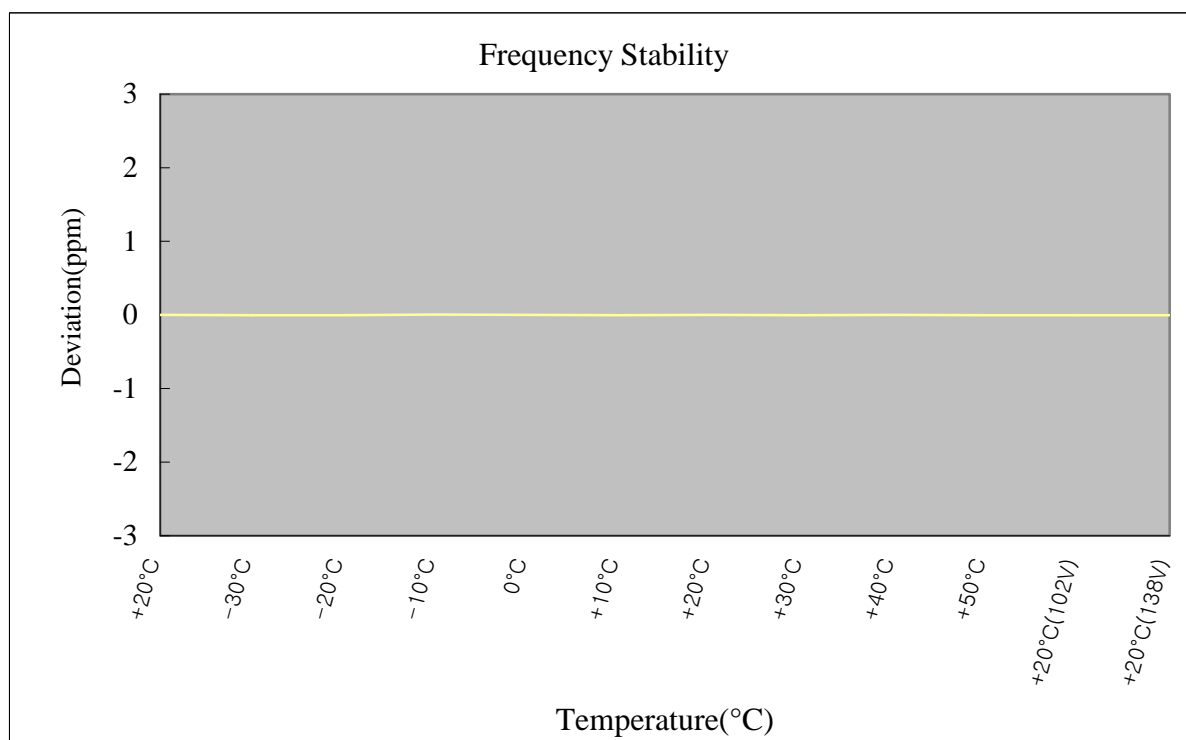
VOLTAGE (%)	POWER (VAC)	TEMP (dB)	FREQ (Hz)	Deviation (ppm)
100%	120	+20(Ref)	2,592,999,974	0.0000
100%		-30	2,592,999,964	-0.0039
100%		-20	2,592,999,960	-0.0054
100%		-10	2,592,999,980	0.0023
100%		0	2,592,999,969	-0.0019
100%		+10	2,592,999,968	-0.0023
100%		+20	2,592,999,974	0.0000
100%		+30	2,592,999,963	-0.0042
100%		+40	2,592,999,973	-0.0004
100%		+50	2,592,999,967	-0.0027
85%	102	+20	2,592,999,966	-0.0031
115%	138	+20	2,592,999,966	-0.0031
BATT.ENDPOINT	-	-	-	-

## 4.1 TEST DATA

(Continued...)

### 4.1.4 Frequency Stability

(Continued...)



**4.1 TEST DATA**

(Continued...)

**4.1.4 Frequency Stability**

(Continued...)

BANDWIDTH : 10 MHz  
 ZONE MODE : AMC  
 MODULATION TYPE : QPSK 1/2  
 OPERATING FREQUENCY : 2,592,999,968 Hz  
 REFERENCE VOLTAGE : 120 VAC

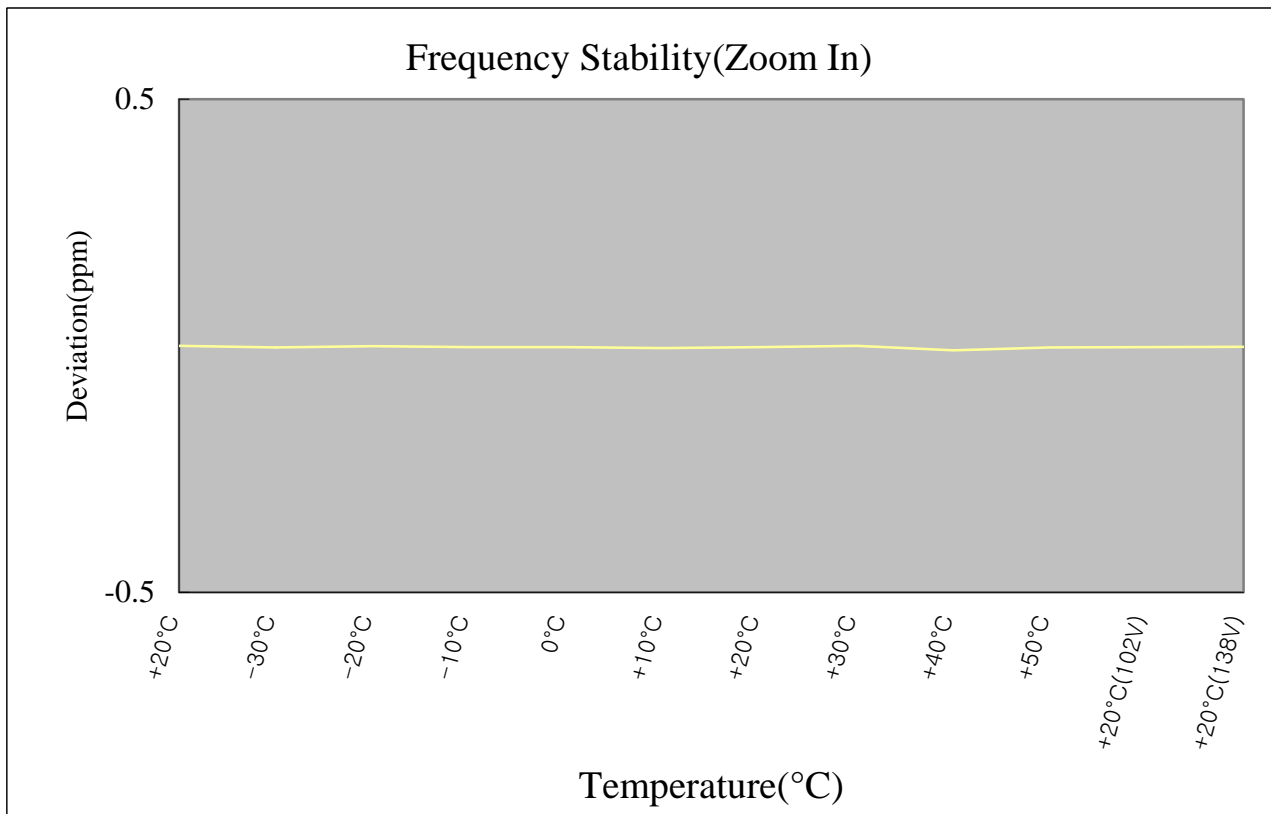
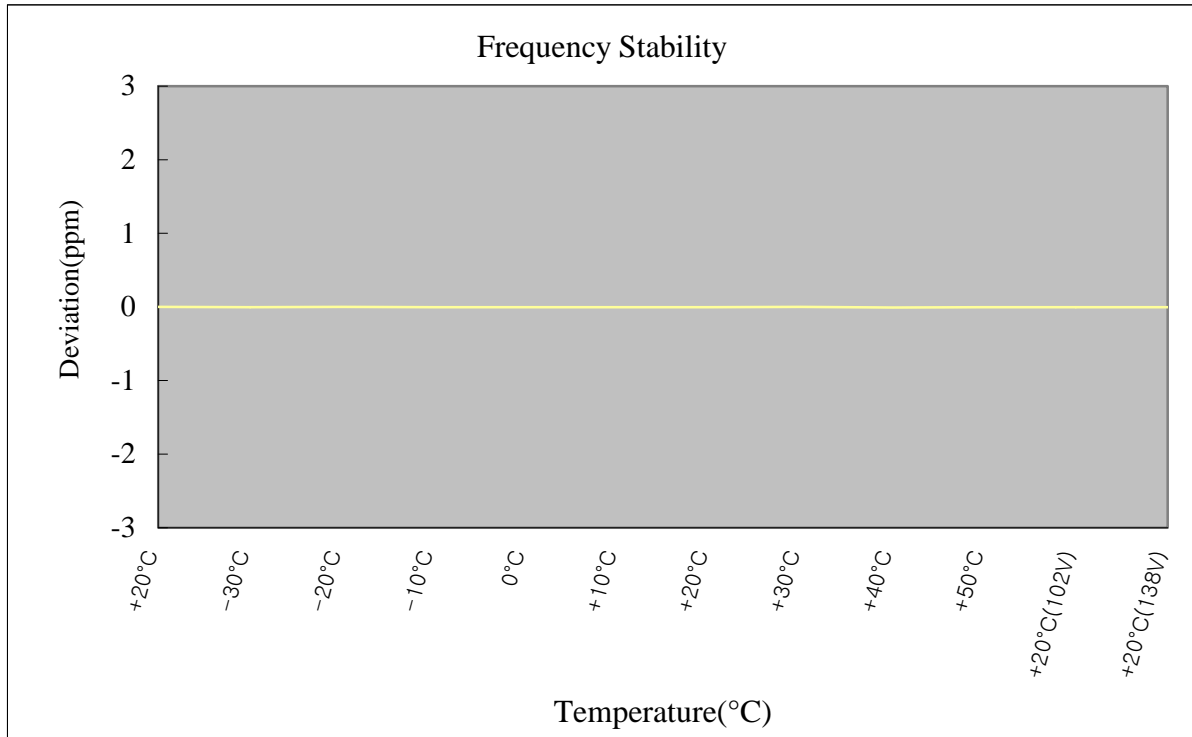
VOLTAGE (%)	POWER (VAC)	TEMP (dB)	FREQ (Hz)	Deviation (ppm)
100%	120	+20(Ref)	2,592,999,968	0.0000
100%		-30	2,592,999,959	-0.0035
100%		-20	2,592,999,966	-0.0008
100%		-10	2,592,999,960	-0.0031
100%		0	2,592,999,961	-0.0027
100%		+10	2,592,999,955	-0.0050
100%		+20	2,592,999,960	-0.0031
100%		+30	2,592,999,968	0.0000
100%		+40	2,592,999,943	-0.0096
100%		+50	2,592,999,958	-0.0039
85%	102	+20	2,592,999,961	-0.0027
115%	138	+20	2,592,999,962	-0.0023
BATT.ENDPOINT	-	-	-	-

## 4.1 TEST DATA

(Continued...)

### 4.1.4 Frequency Stability

(Continued...)



**4.1 TEST DATA****(Continued...)****4.1.4 Frequency Stability****(Continued...)**

BANDWIDTH : 10 MHz  
 ZONE MODE : AMC  
 MODULATION TYPE : 16QAM 1/2  
 OPERATING FREQUENCY : 2,592,999,965 Hz  
 REFERENCE VOLTAGE : 120 VAC

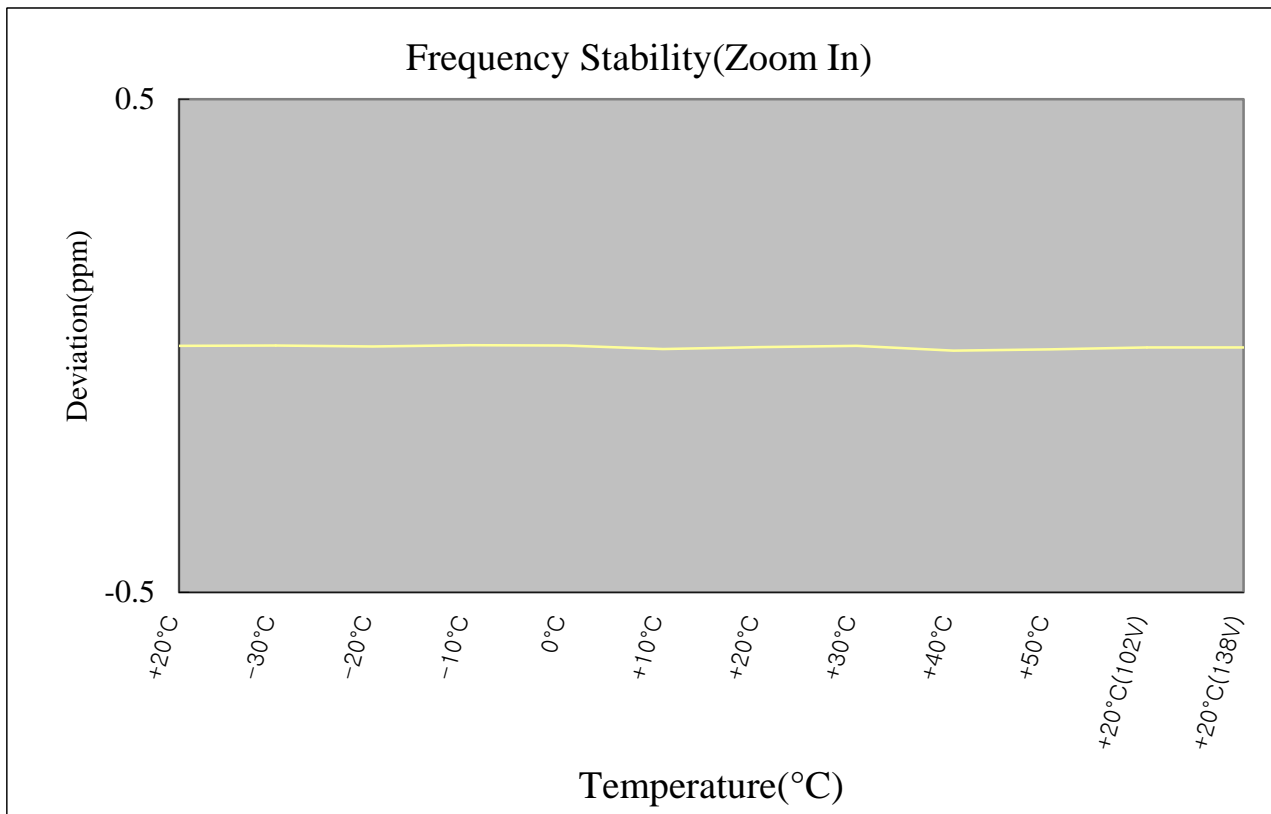
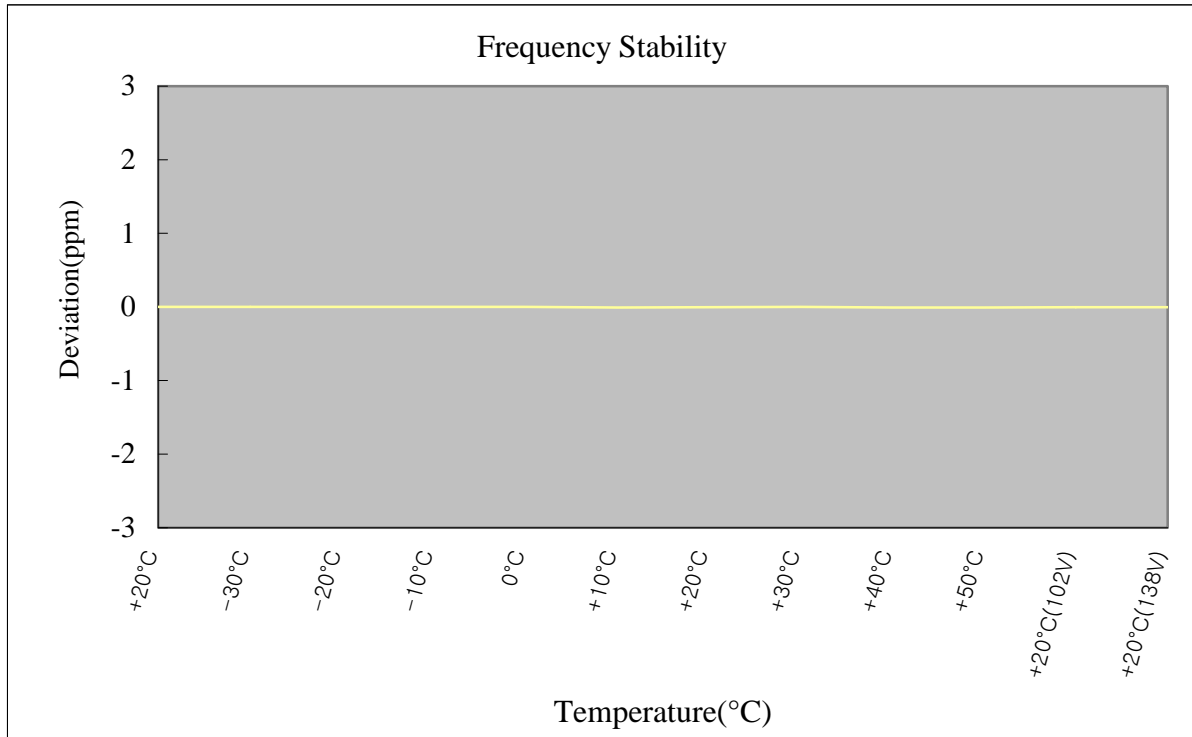
VOLTAGE (%)	POWER (VAC)	TEMP (dB)	FREQ (Hz)	Deviation (ppm)
100%	120	+20(Ref)	2,592,999,965	0.0000
100%		-30	2,592,999,966	0.0004
100%		-20	2,592,999,961	-0.0015
100%		-10	2,592,999,967	0.0008
100%		0	2,592,999,966	0.0004
100%		+10	2,592,999,948	-0.0066
100%		+20	2,592,999,957	-0.0031
100%		+30	2,592,999,964	-0.0004
100%		+40	2,592,999,939	-0.0100
100%		+50	2,592,999,946	-0.0073
85%	102	+20	2,592,999,955	-0.0039
115%	138	+20	2,592,999,956	-0.0035
BATT.ENDPOINT	-	-	-	-

## 4.1 TEST DATA

(Continued...)

### 4.1.4 Frequency Stability

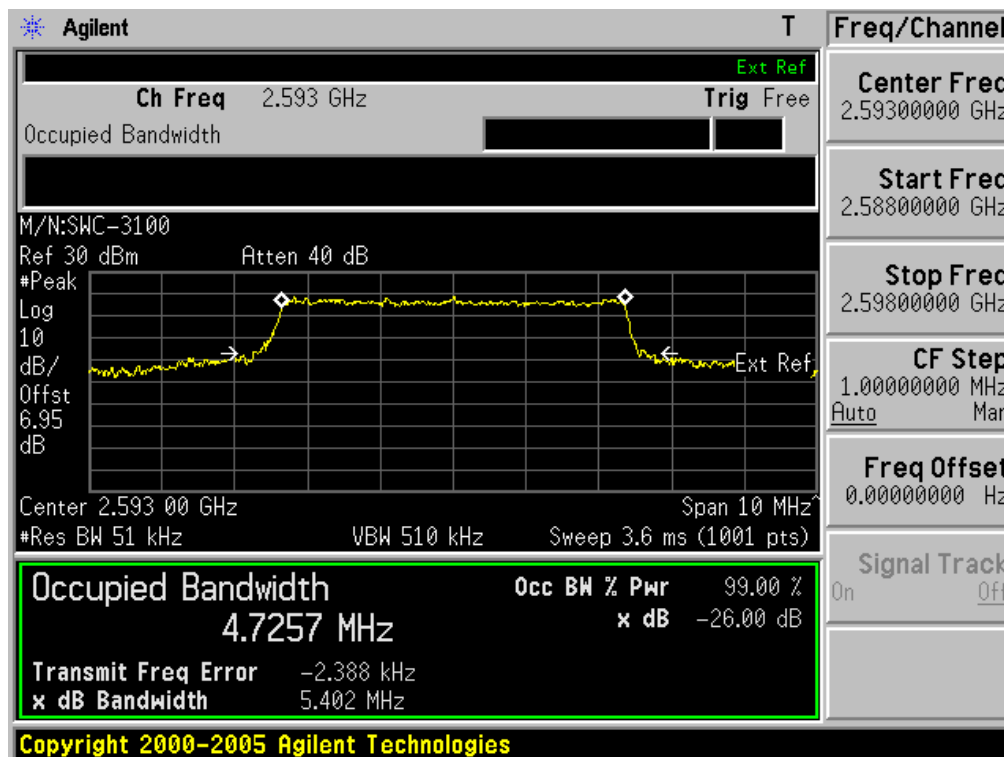
(Continued...)



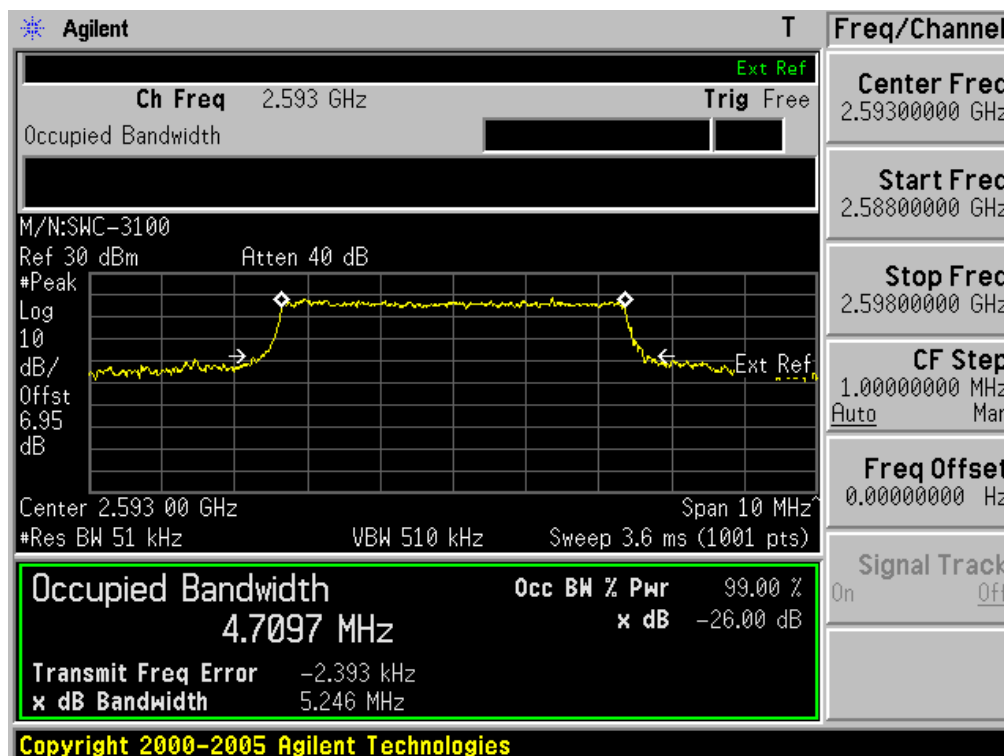
## 5.1 PLOTS OF EMISSIONS

### 5.1.1 Occupied Bandwidth(BW: 5MHz)

- Middle Channel(2593MHz) & AMC Mode & QPSK 1/2



- Middle Channel(2593MHz) & AMC Mode & QPSK 3/4



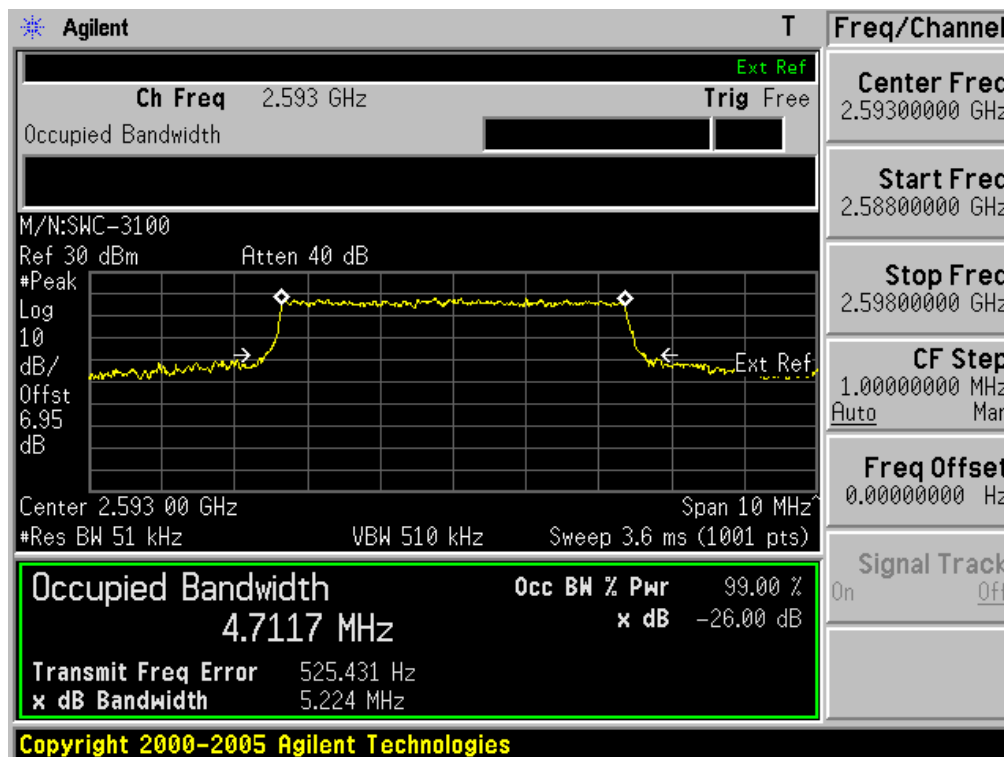
## 5.1 PLOTS OF EMISSIONS

(Continued...)

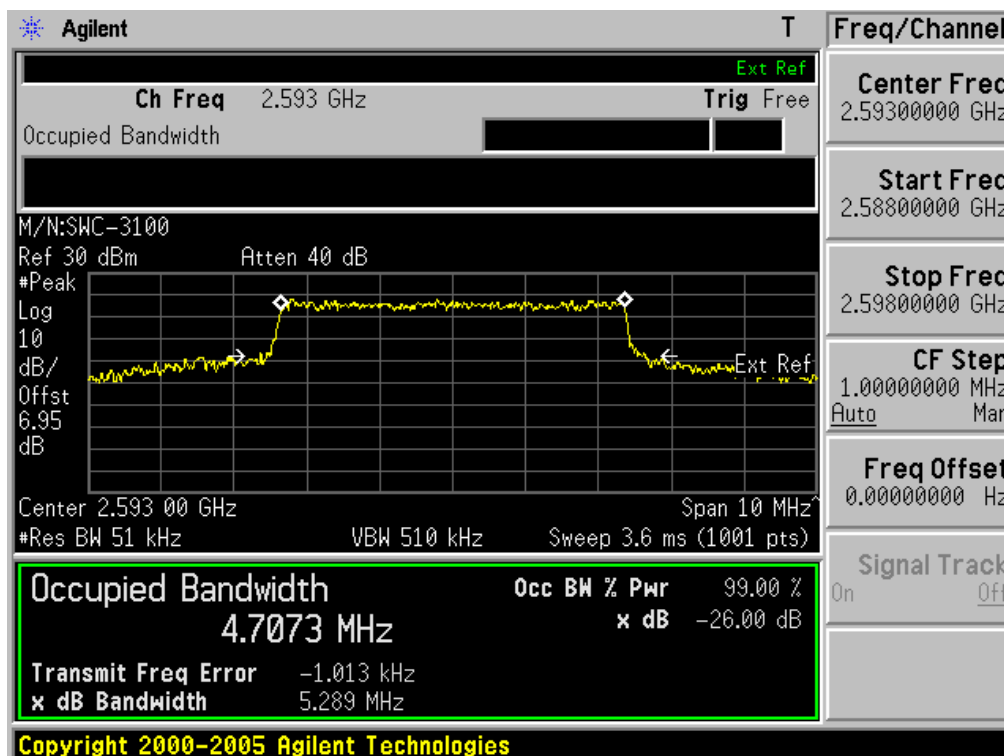
### 5.1.1 Occupied Bandwidth(BW: 5MHz)

(Continued...)

- Middle Channel(2593MHz) & AMC Mode & 16QAM 1/2



- Middle Channel(2593MHz) & AMC Mode & 16QAM 3/4



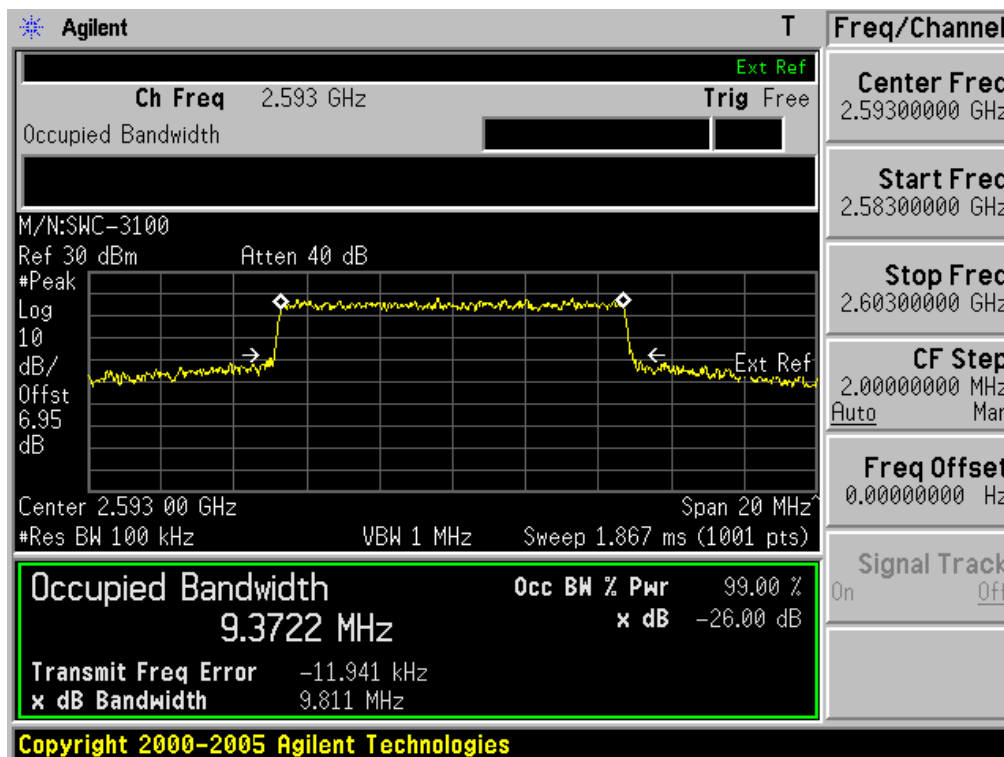
## 5.1 PLOTS OF EMISSIONS

(Continued...)

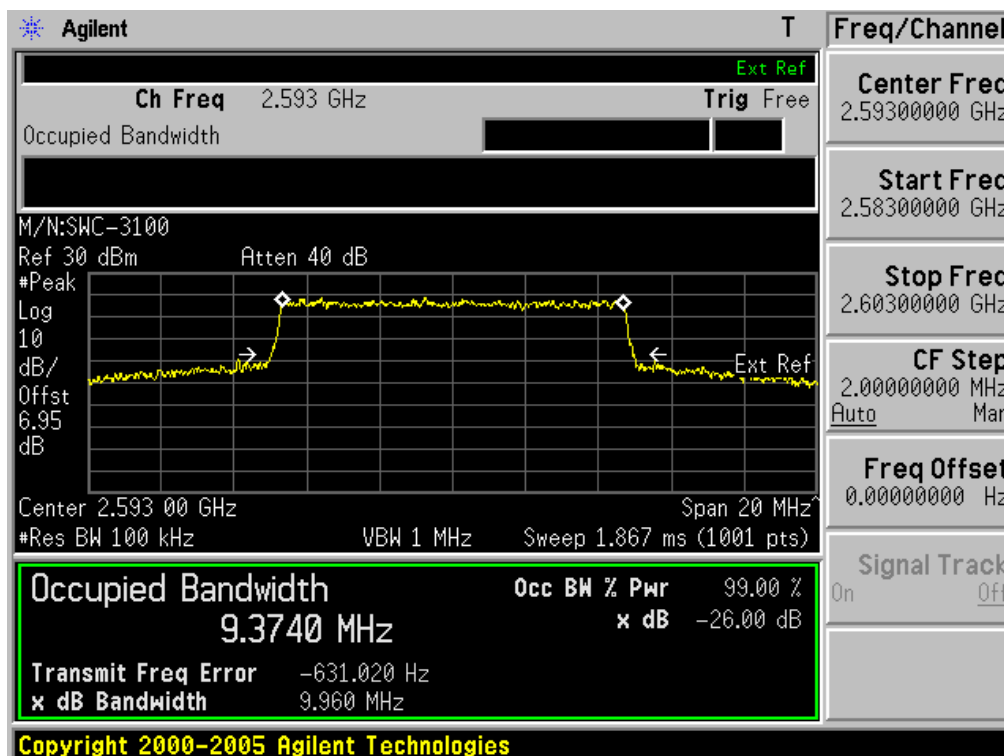
### 5.1.1 Occupied Bandwidth(BW: 10MHz)

(Continued...)

- Middle Channel(2593MHz) & AMC Mode & QPSK 1/2



- Middle Channel(2593MHz) & AMC Mode & QPSK 3/4



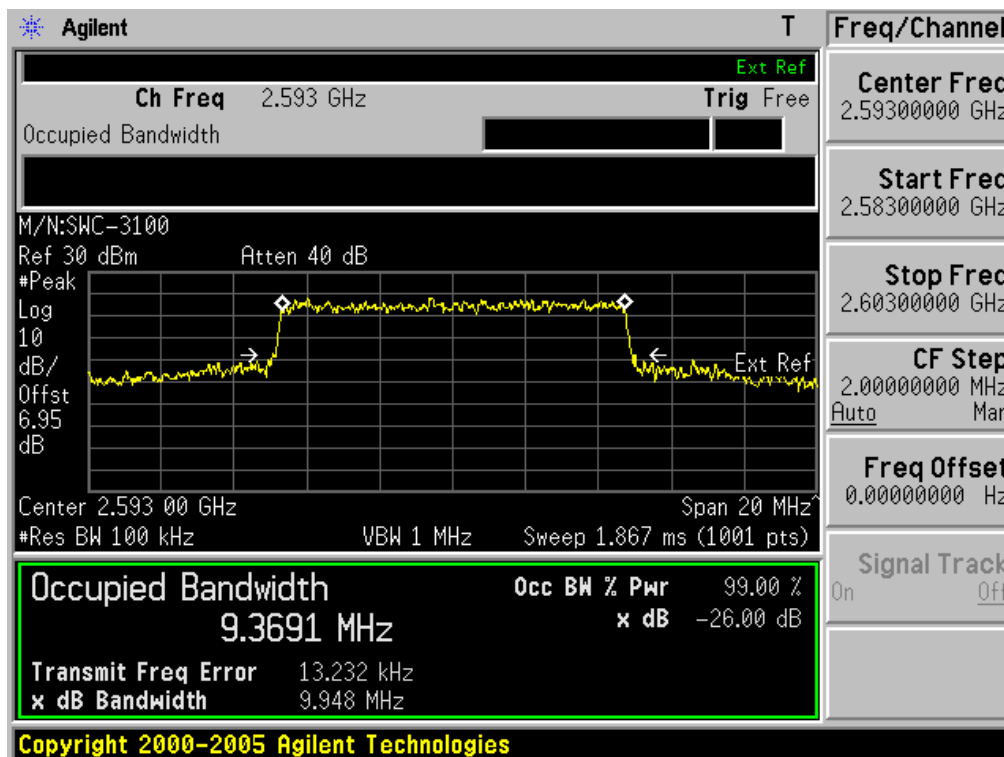
## 5.1 PLOTS OF EMISSIONS

(Continued...)

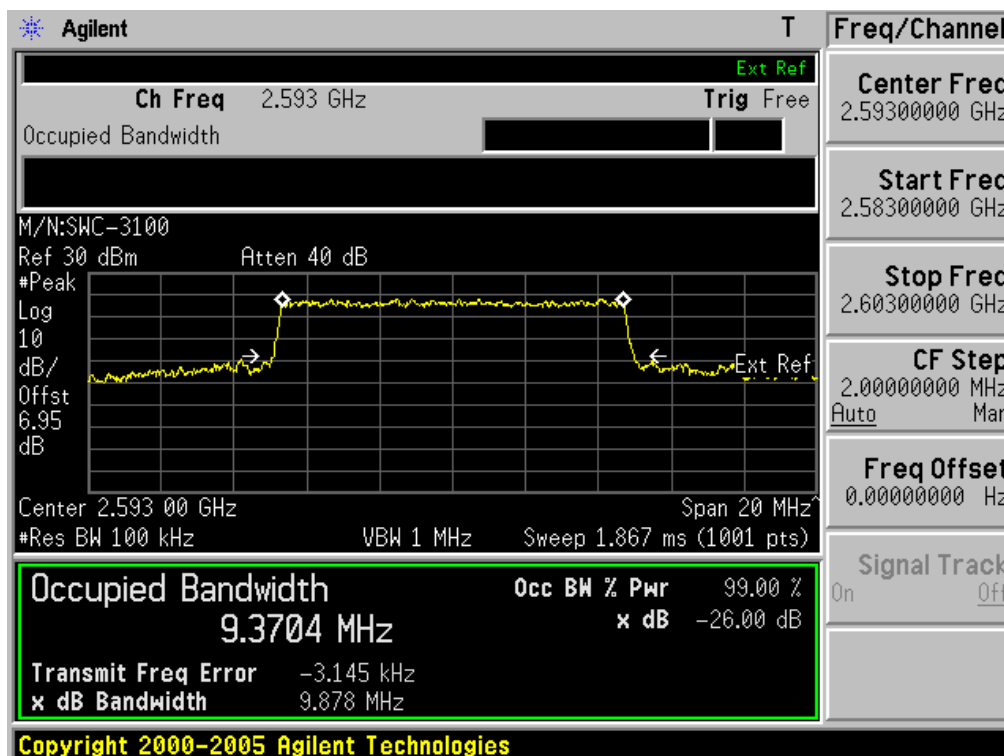
### 5.1.1 Occupied Bandwidth(BW: 10MHz)

(Continued...)

- Middle Channel(2593MHz) & AMC Mode & 16QAM 1/2



- Middle Channel(2593MHz) & AMC Mode & 16QAM 3/4

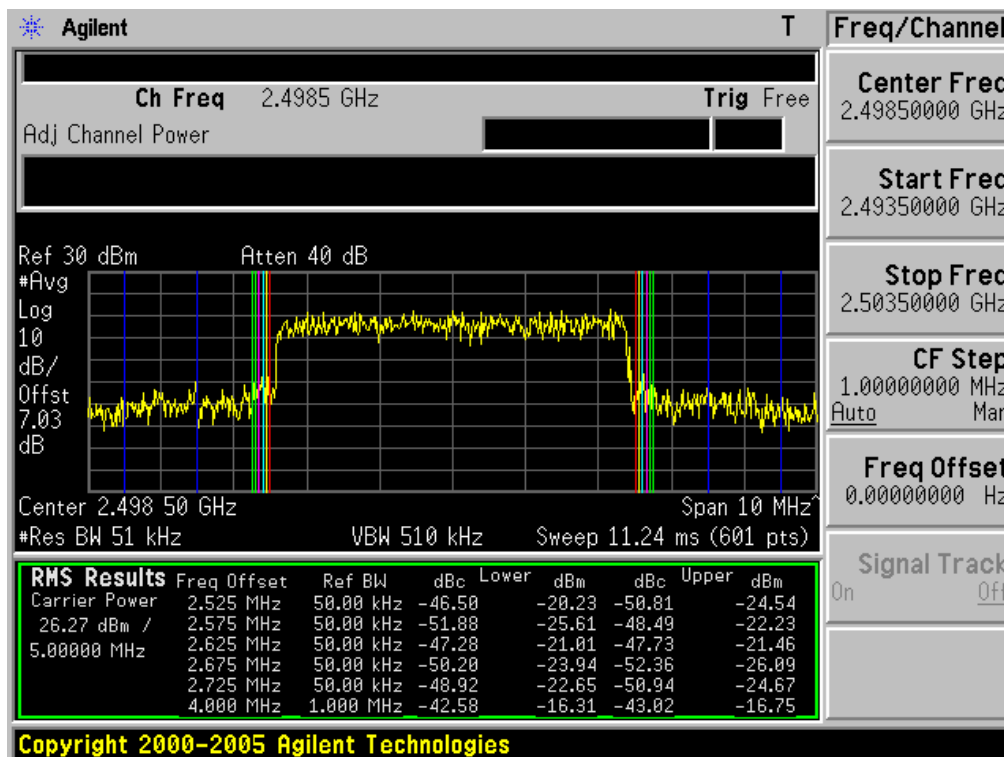


## 5.1 PLOTS OF EMISSIONS

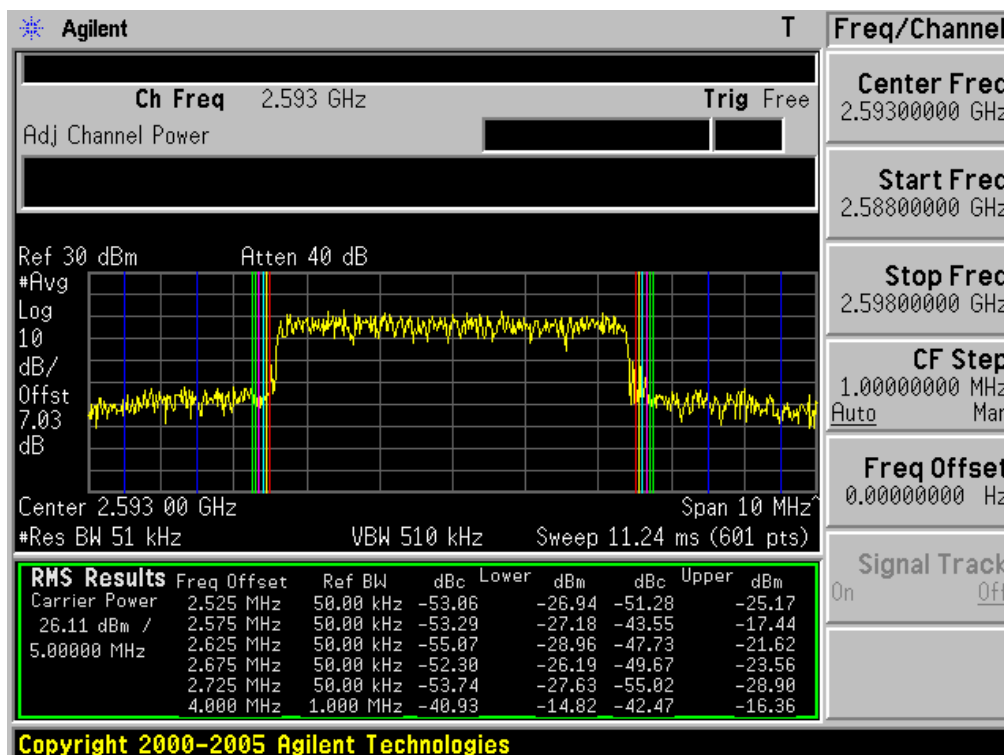
(Continued...)

### 5.1.2 Band Edge(BW: 5MHz)

- Low Channel(2498.5MHz) & AMC Mode & QPSK 3/4



- Middle Channel(2593MHz) & AMC Mode & QPSK 3/4



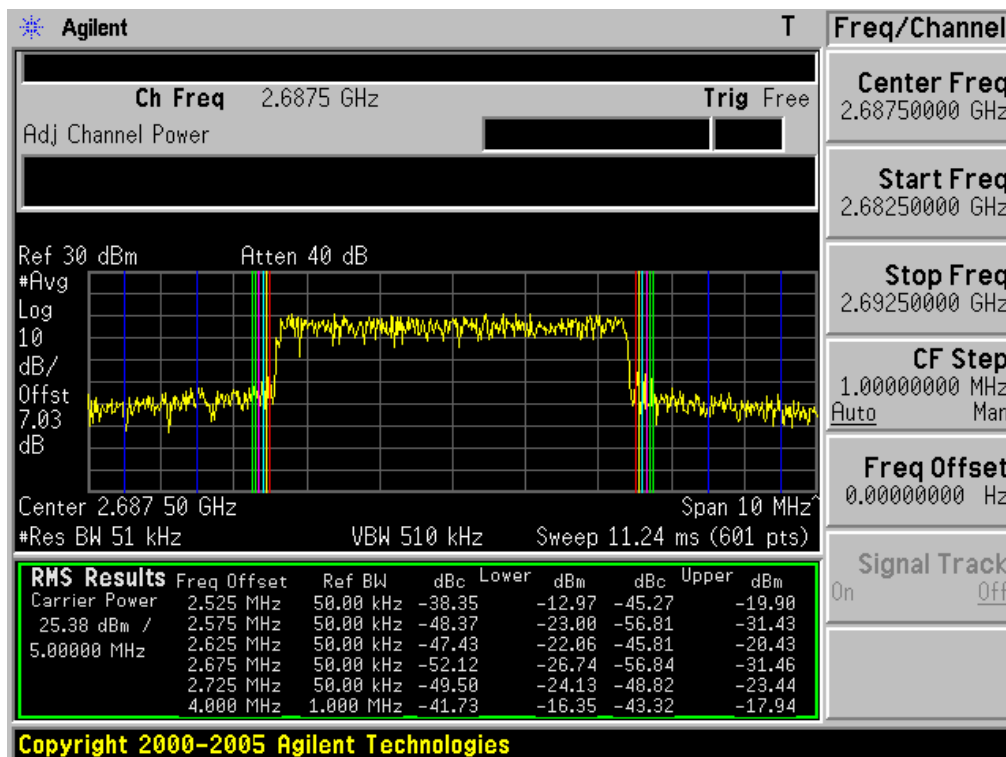
## 5.1 PLOTS OF EMISSIONS

(Continued...)

### 5.1.2 Band Edge(BW: 5MHz)

(Continued...)

- High Channel(2687.5MHz) & AMC Mode & QPSK 3/4



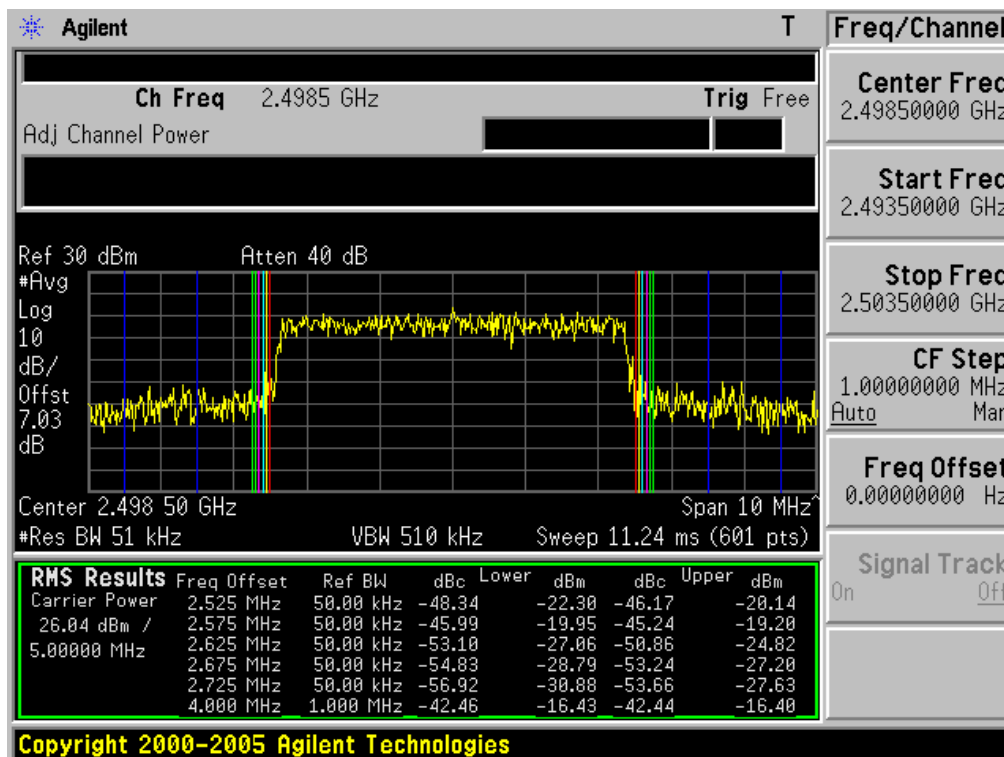
## 5.1 PLOTS OF EMISSIONS

(Continued...)

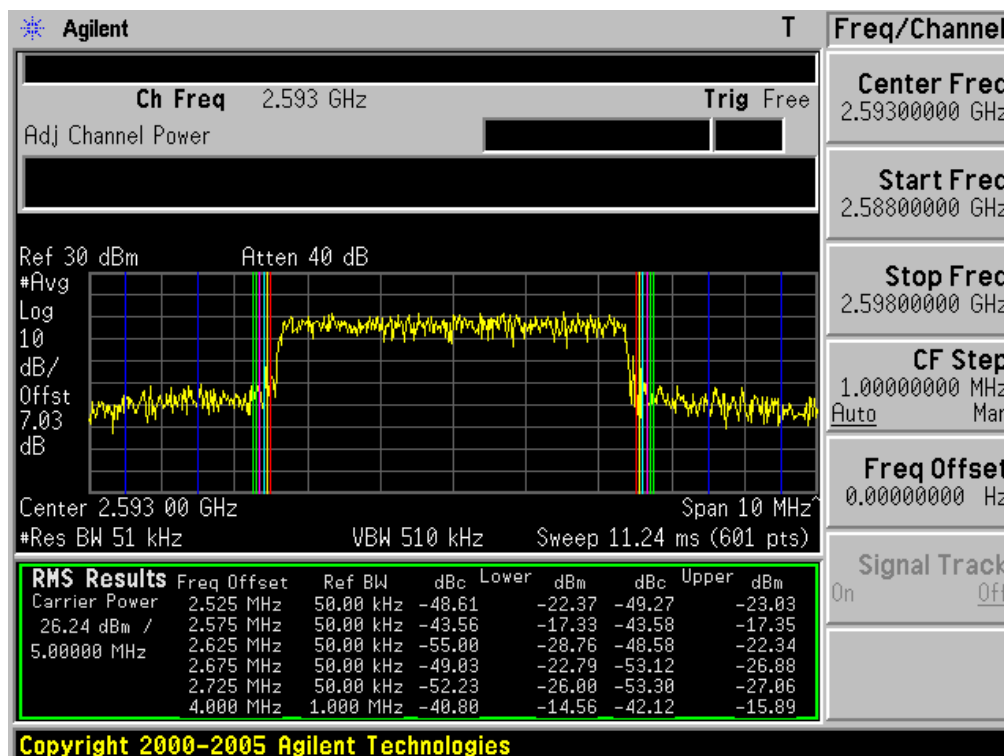
### 5.1.2 Band Edge(BW: 5MHz)

(Continued...)

- Low Channel(2498.5MHz) & AMC Mode & 16QAM 1/2



- Middle Channel(2593MHz) & AMC Mode & 16QAM 1/2



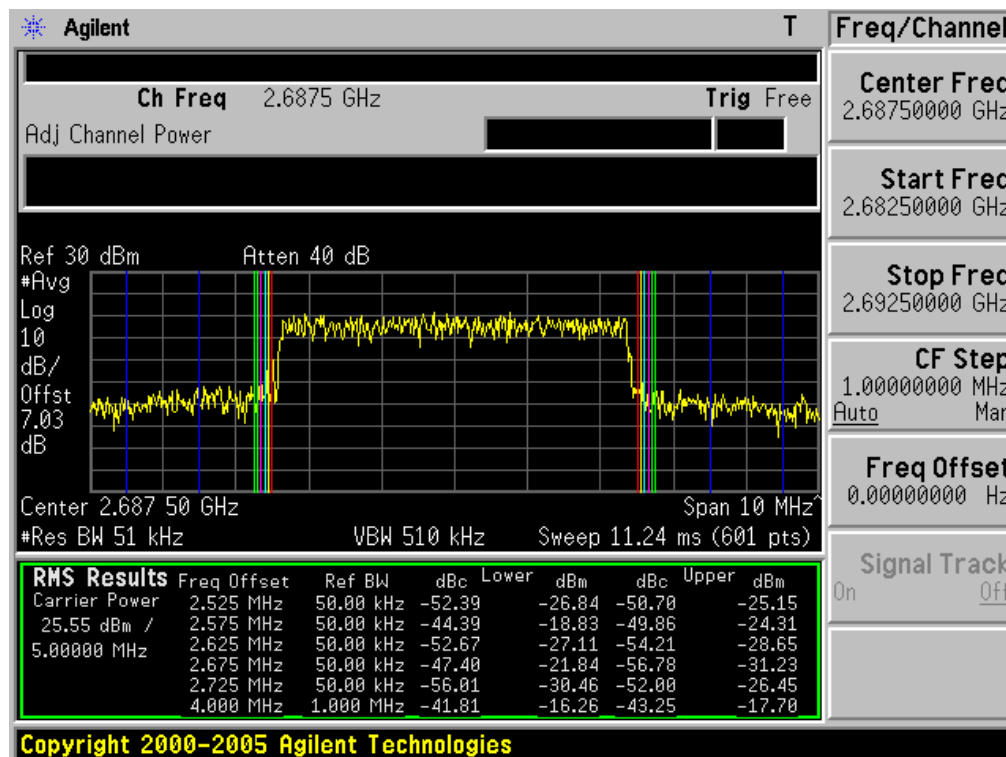
## 5.1 PLOTS OF EMISSIONS

(Continued...)

### 5.1.2 Band Edge(BW: 5MHz)

(Continued...)

- High Channel(2687.5MHz) & AMC Mode & 16QAM 1/2



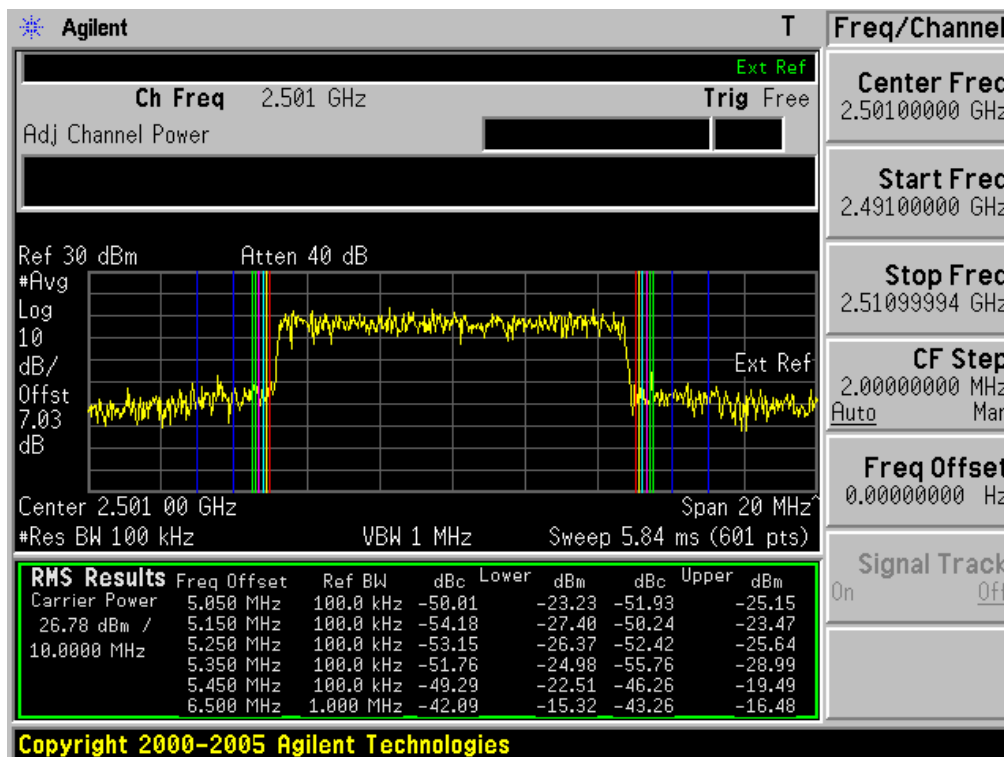
## 5.1 PLOTS OF EMISSIONS

(Continued...)

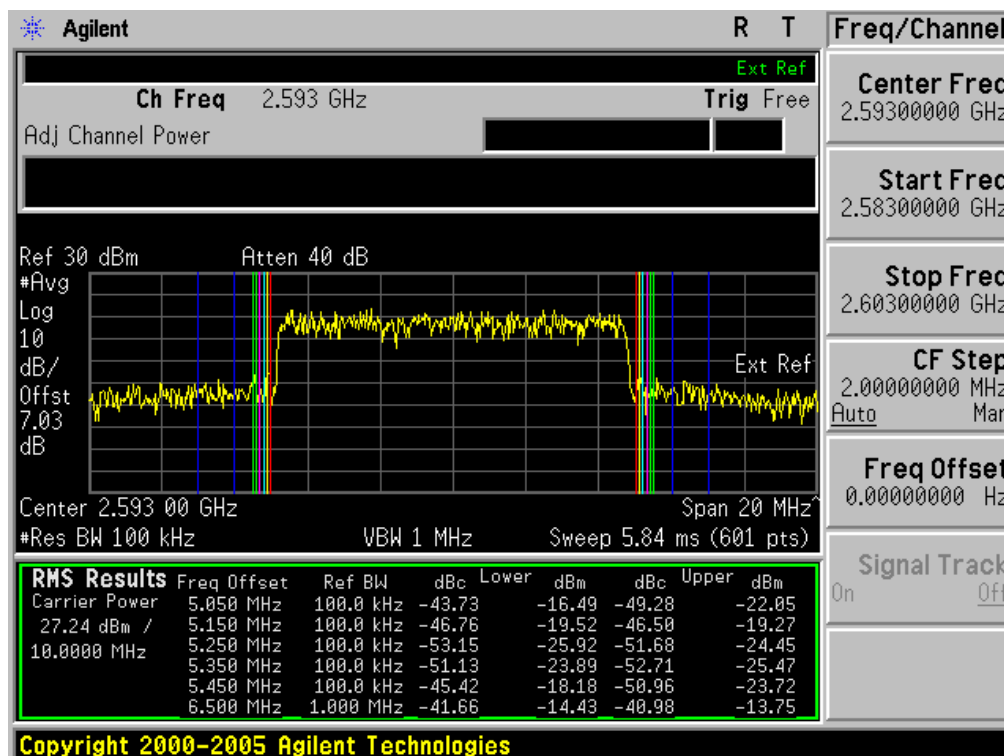
### 5.1.2 Band Edge(BW: 10MHz)

(Continued...)

- Low Channel(2501MHz) & AMC Mode & QPSK 1/2



- Middle Channel(2593MHz) & AMC Mode & QPSK 1/2



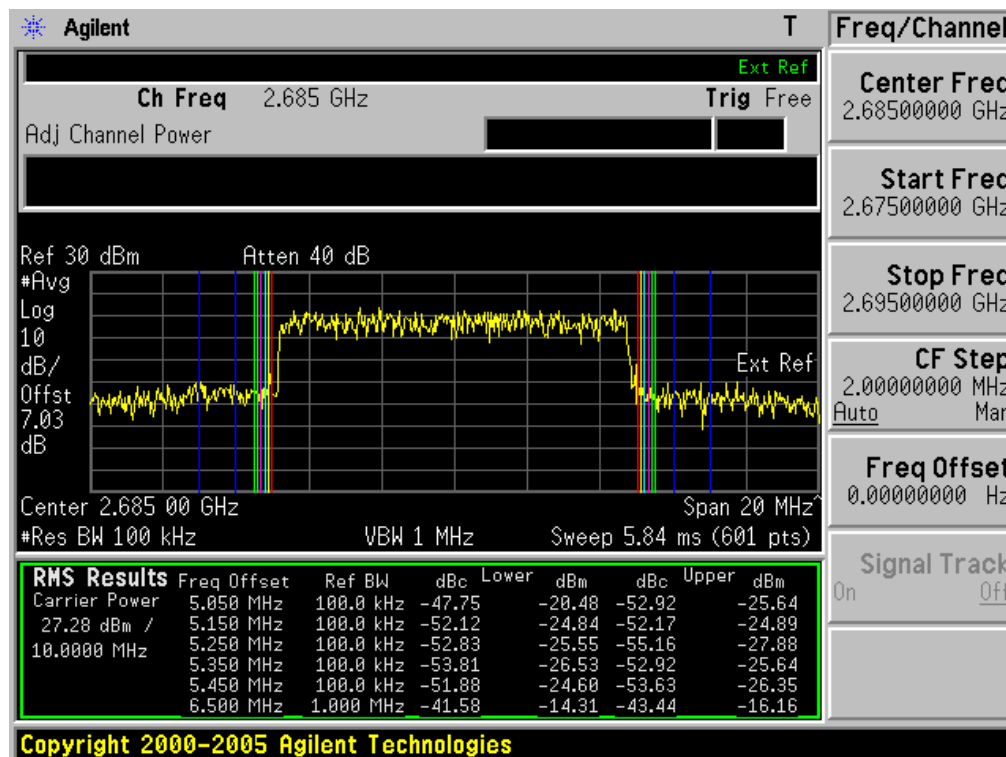
## 5.1 PLOTS OF EMISSIONS

(Continued...)

### 5.1.2 Band Edge(BW: 10MHz)

(Continued...)

- High Channel(2685MHz) & AMC Mode & QPSK 1/2



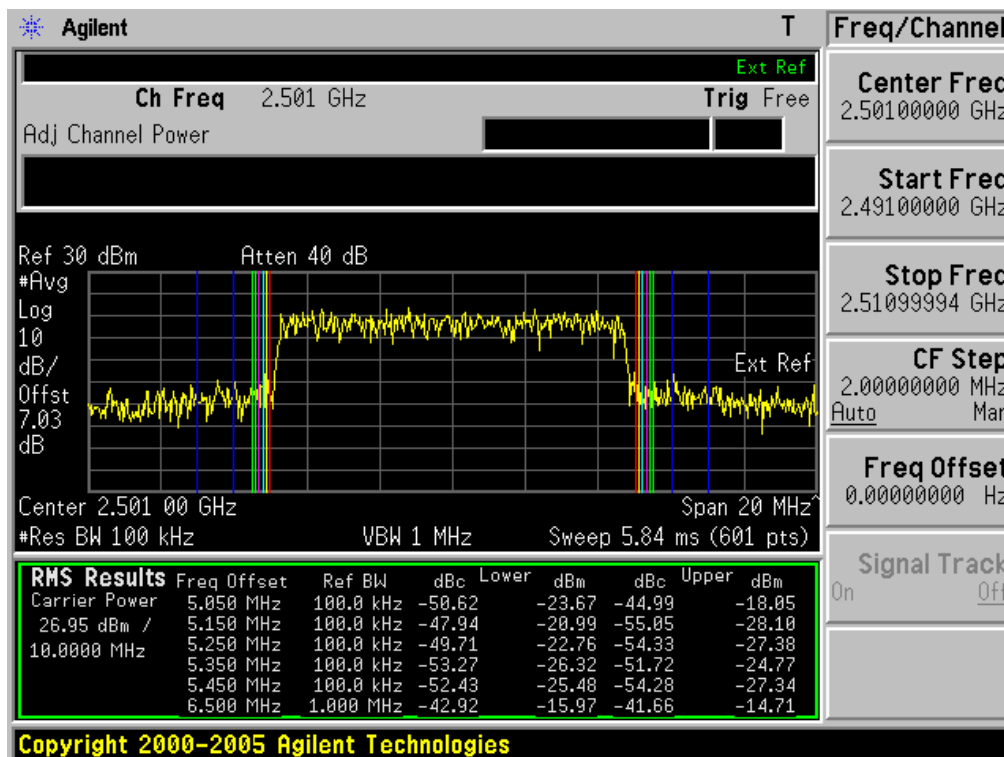
## 5.1 PLOTS OF EMISSIONS

(Continued...)

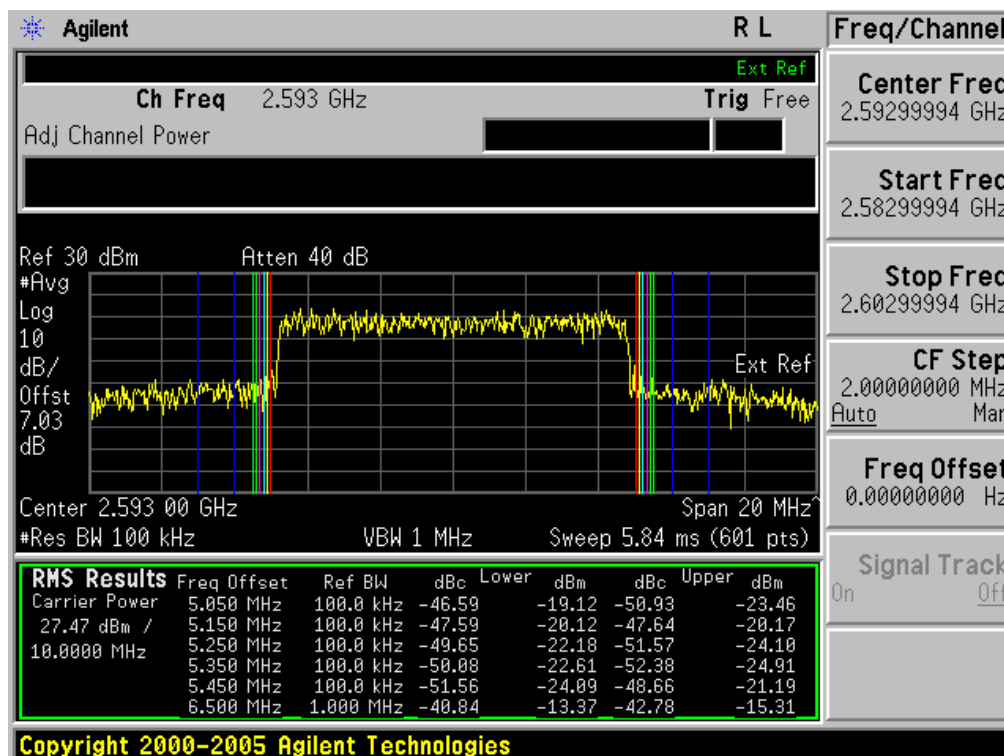
### 5.1.2 Band Edge(BW: 10MHz)

(Continued...)

- Low Channel(2501MHz) & AMC Mode & 16QAM 1/2



- Middle Channel(2593MHz) & AMC Mode & 16QAM 1/2



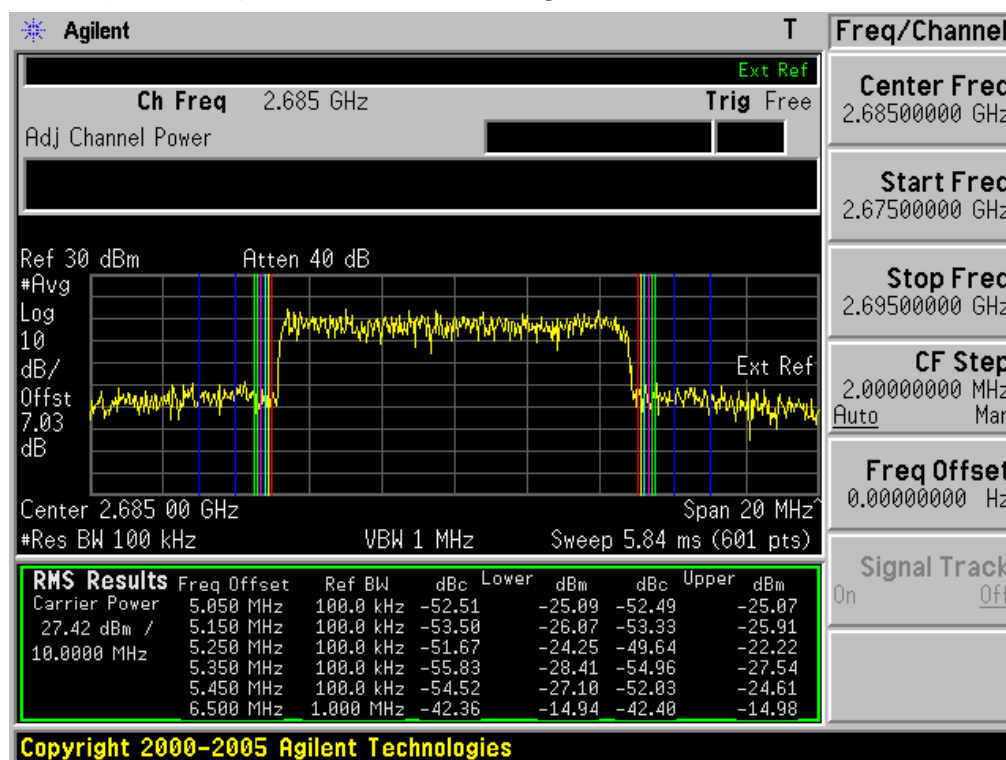
## 5.1 PLOTS OF EMISSIONS

(Continued...)

### 5.1.2 Band Edge(BW: 10MHz)

(Continued...)

- High Channel(2685MHz) & AMC Mode & 16QAM 1/2

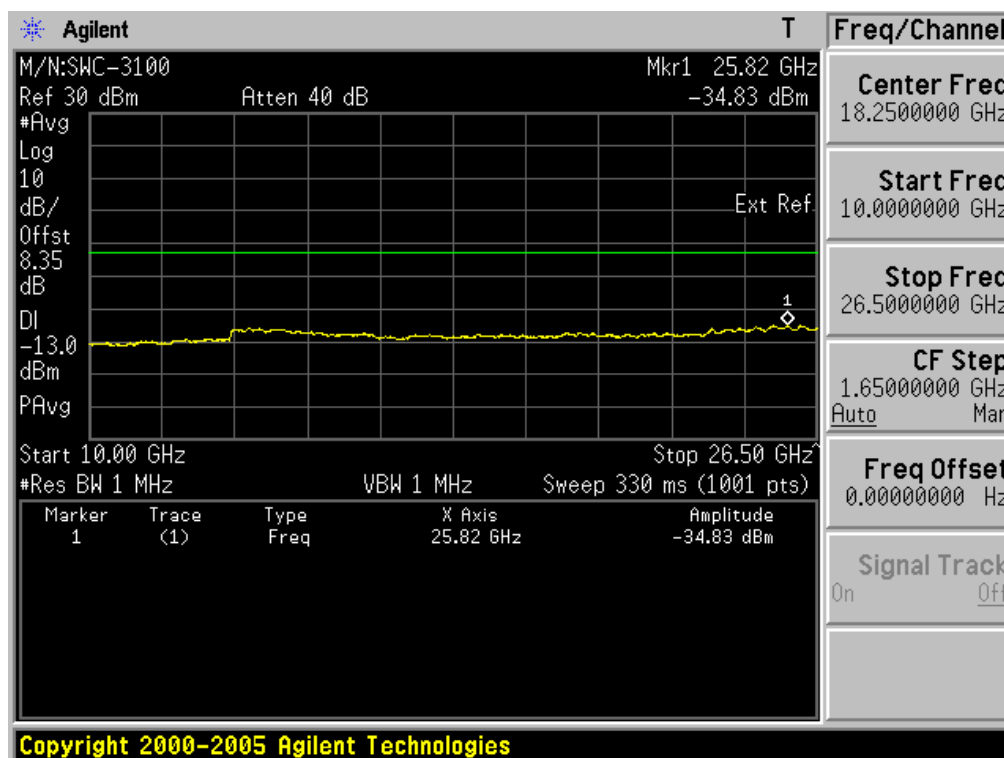
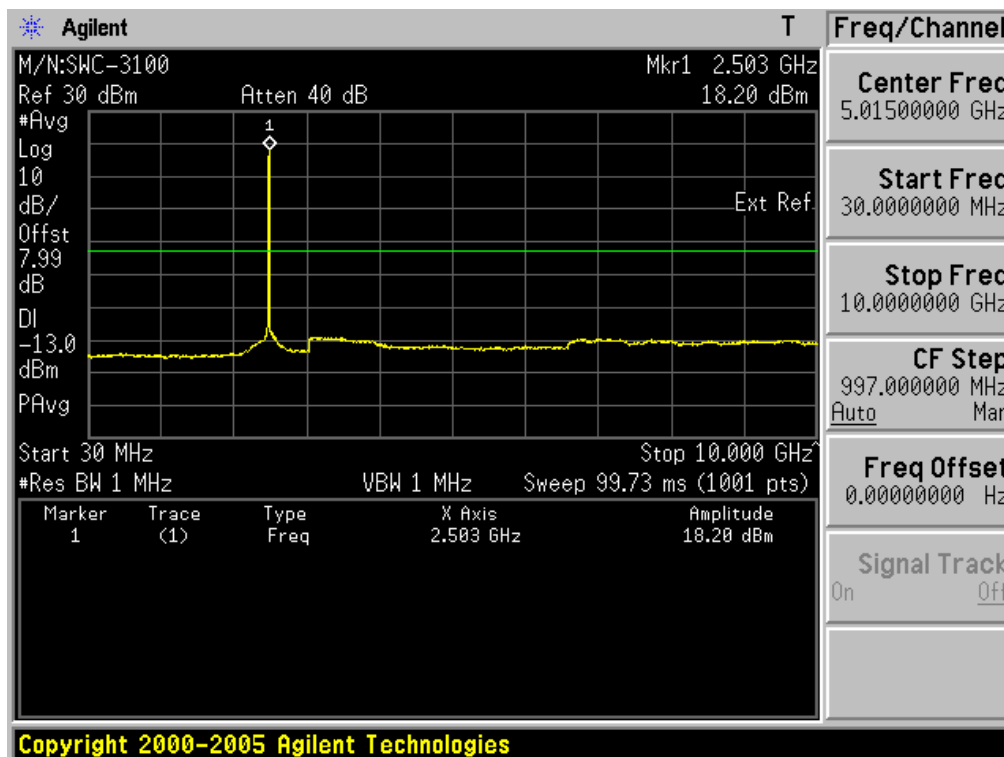


## 5.1 PLOTS OF EMISSIONS

(Continued...)

### 5.1.3 Conducted Spurious Emissions(BW: 5MHz)

- Low Channel(2498.5MHz) & AMC Mode & QPSK 3/4



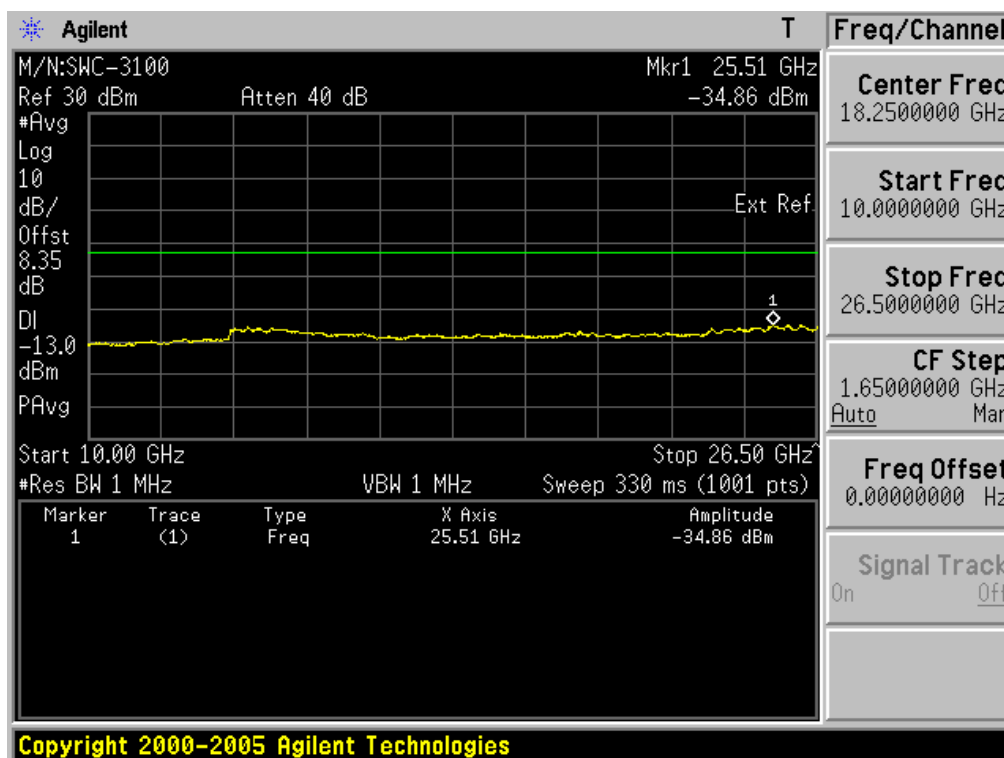
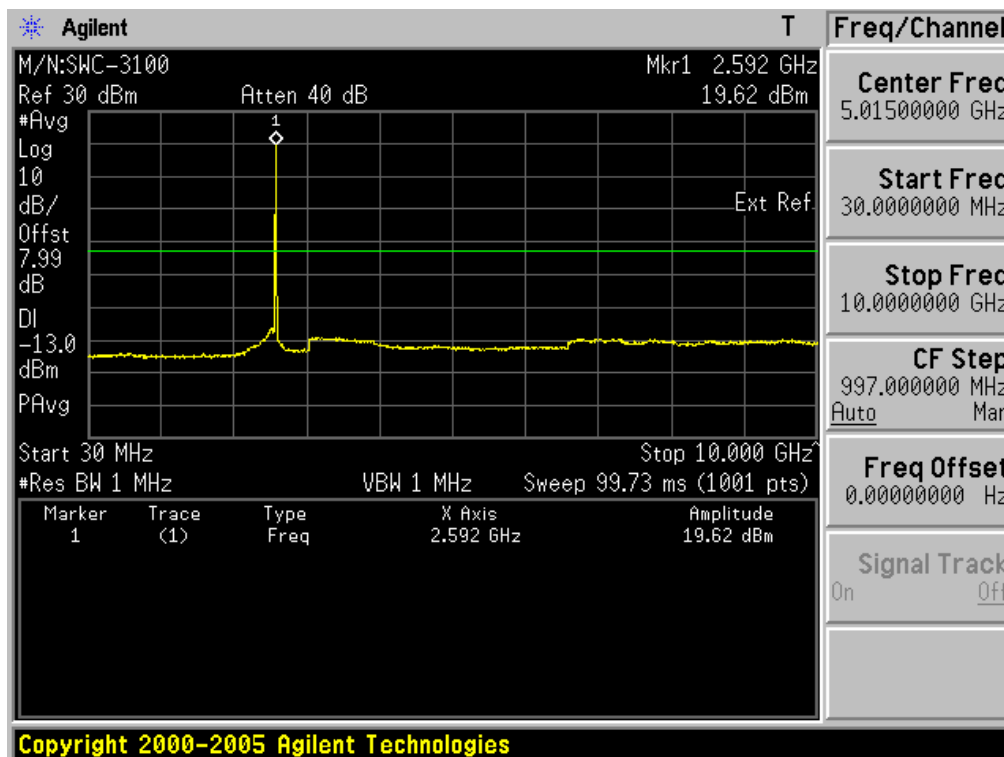
## 5.1 PLOTS OF EMISSIONS

(Continued...)

### 5.1.3 Conducted Spurious Emissions(BW: 5MHz)

(Continued...)

- Middle Channel(2593MHz) & AMC Mode & QPSK 3/4



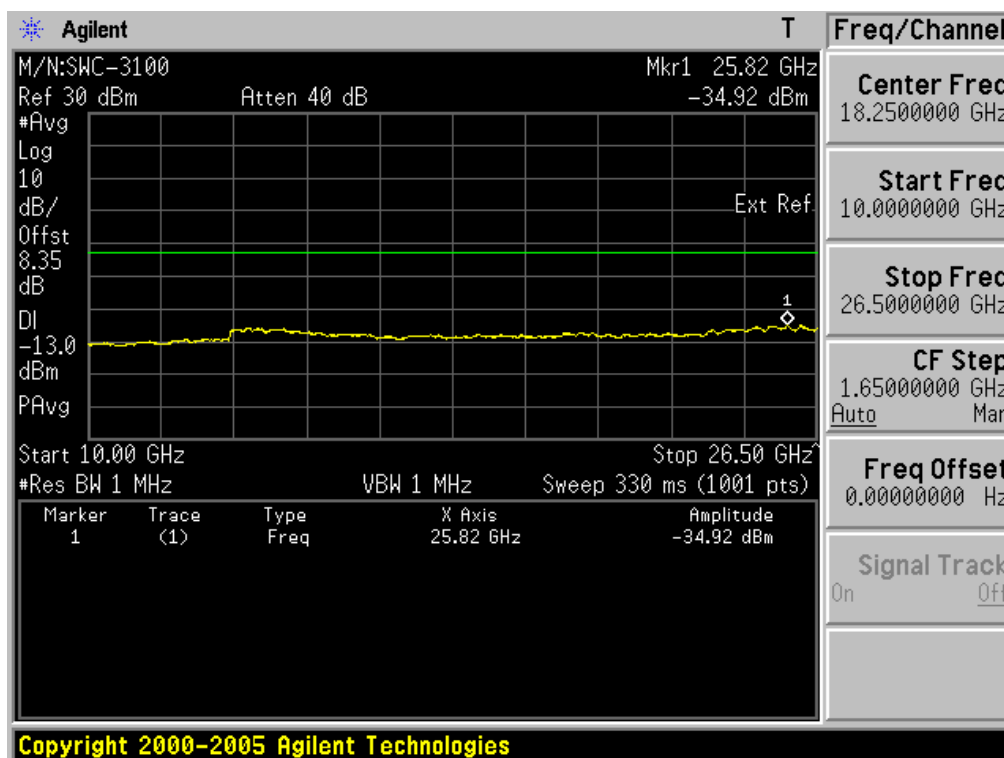
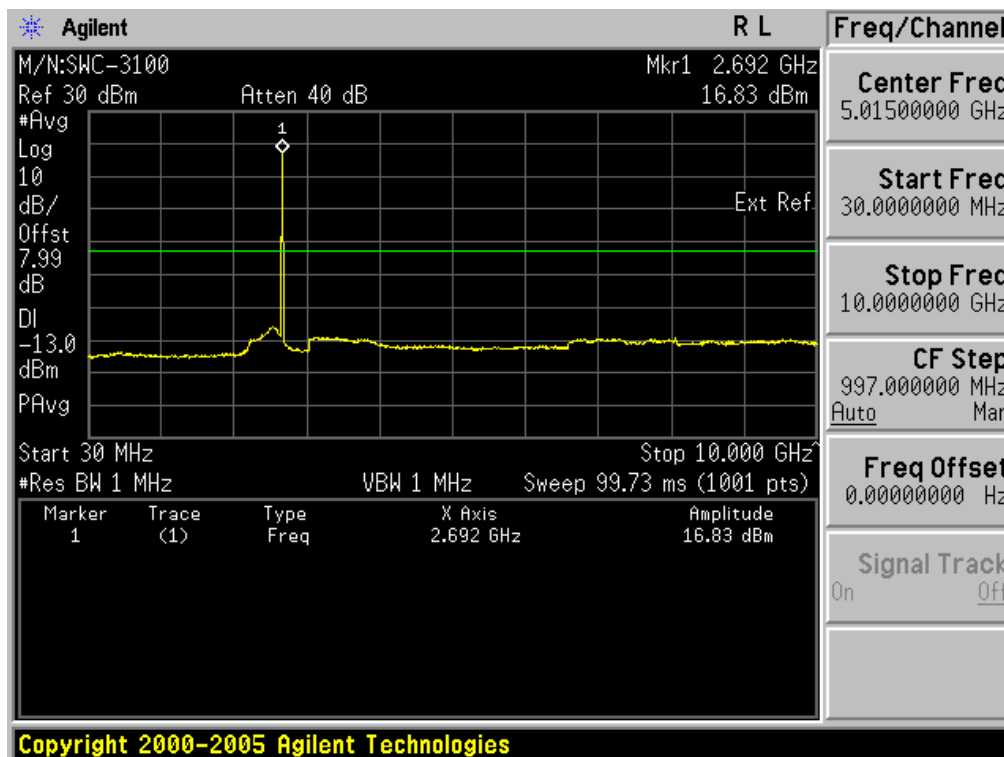
## 5.1 PLOTS OF EMISSIONS

(Continued...)

### 5.1.3 Conducted Spurious Emissions(BW: 5MHz)

(Continued...)

- High Channel(2687.5MHz) & AMC Mode & QPSK 3/4

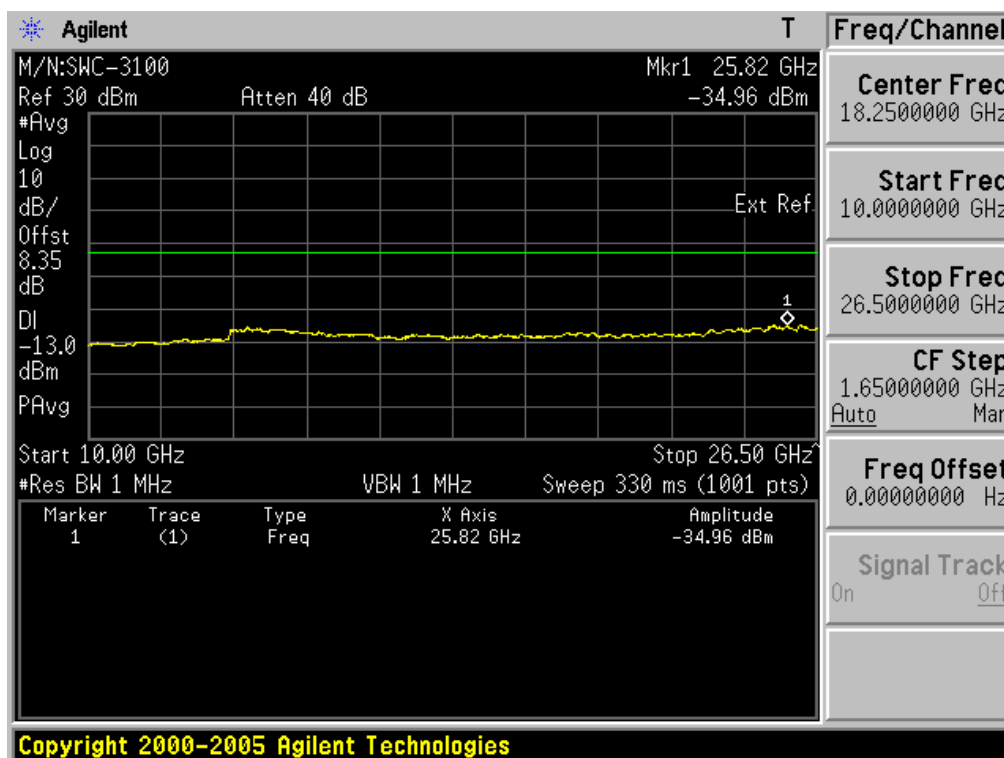
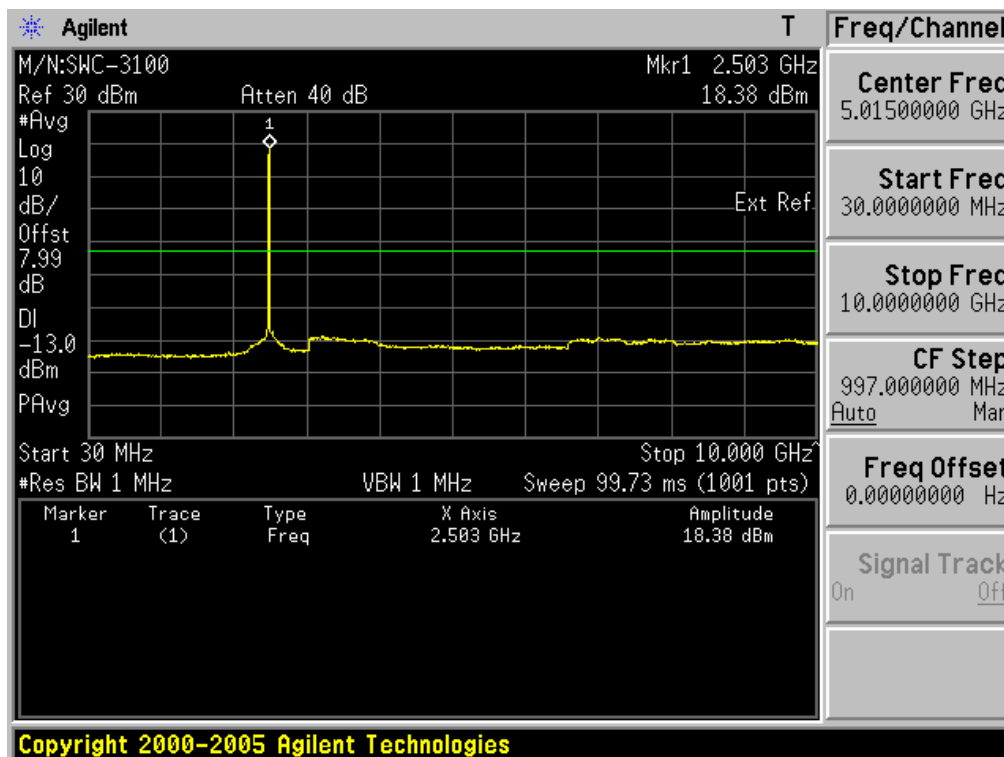


## 5.1 PLOTS OF EMISSIONS

(Continued...)

### 5.1.3 Conducted Spurious Emissions(BW: 5MHz)

- Low Channel(2498.5MHz) & AMC Mode & 16QAM 1/2



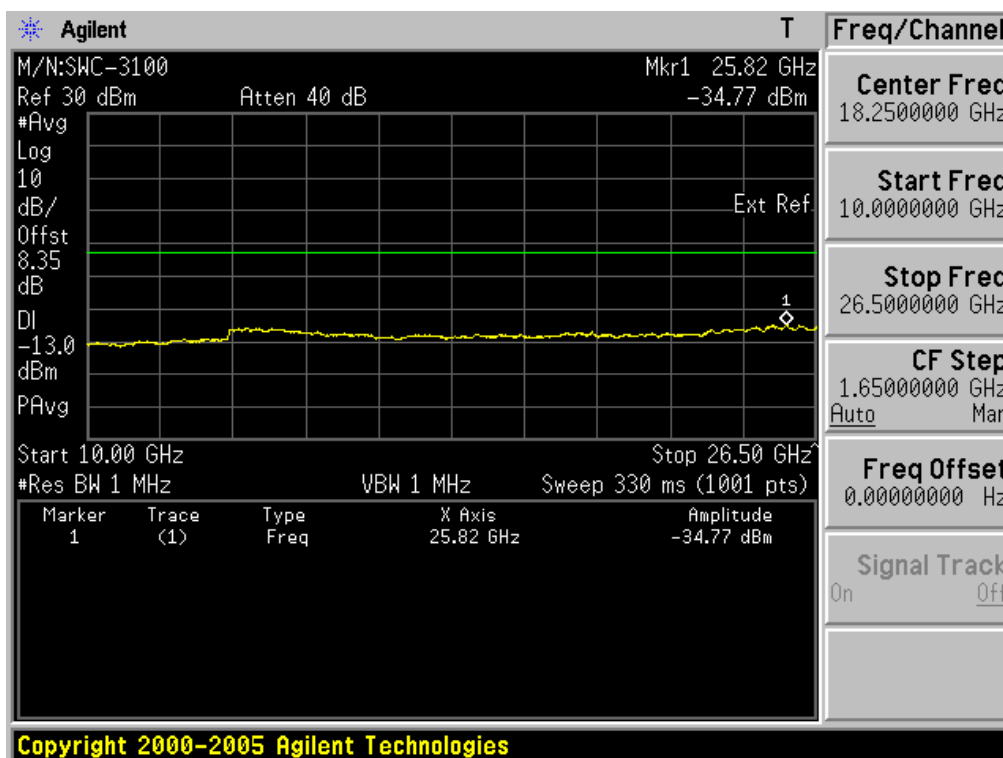
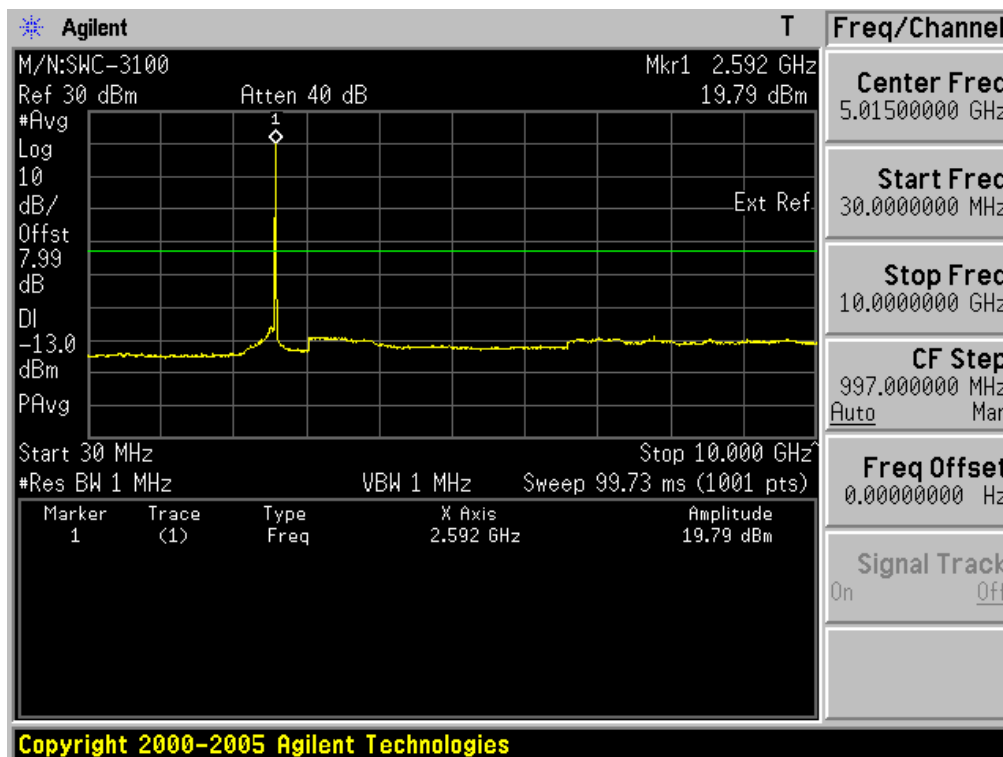
## 5.1 PLOTS OF EMISSIONS

(Continued...)

### 5.1.3 Conducted Spurious Emissions(BW: 5MHz)

(Continued...)

- Middle Channel(2593MHz) & AMC Mode & 16QAM 1/2



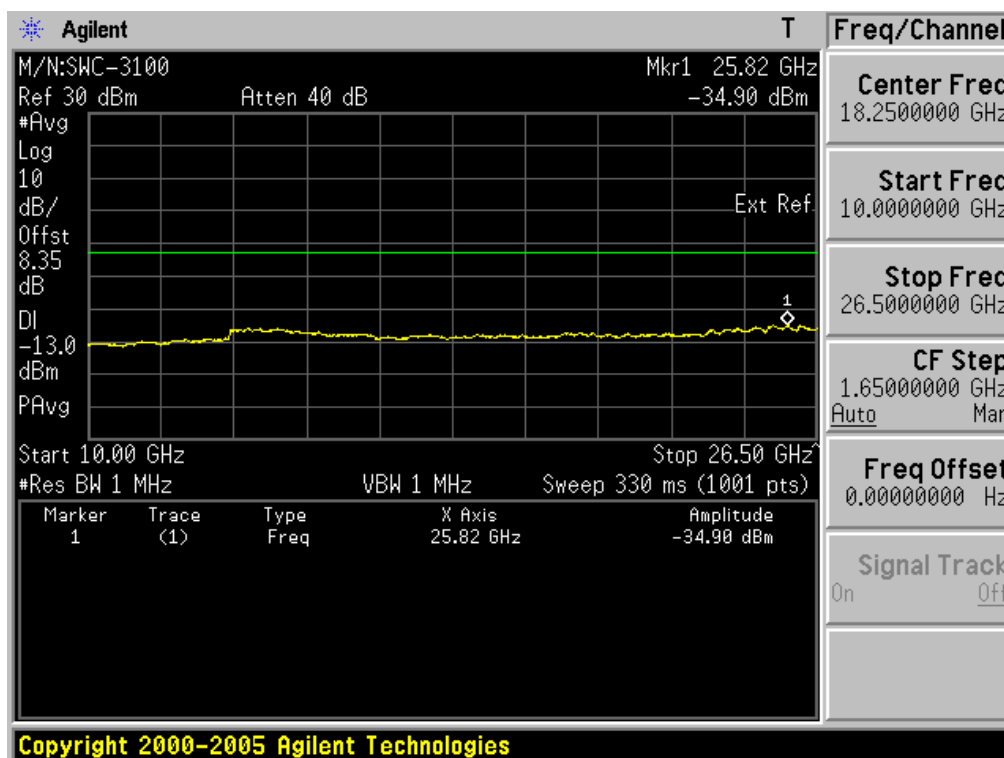
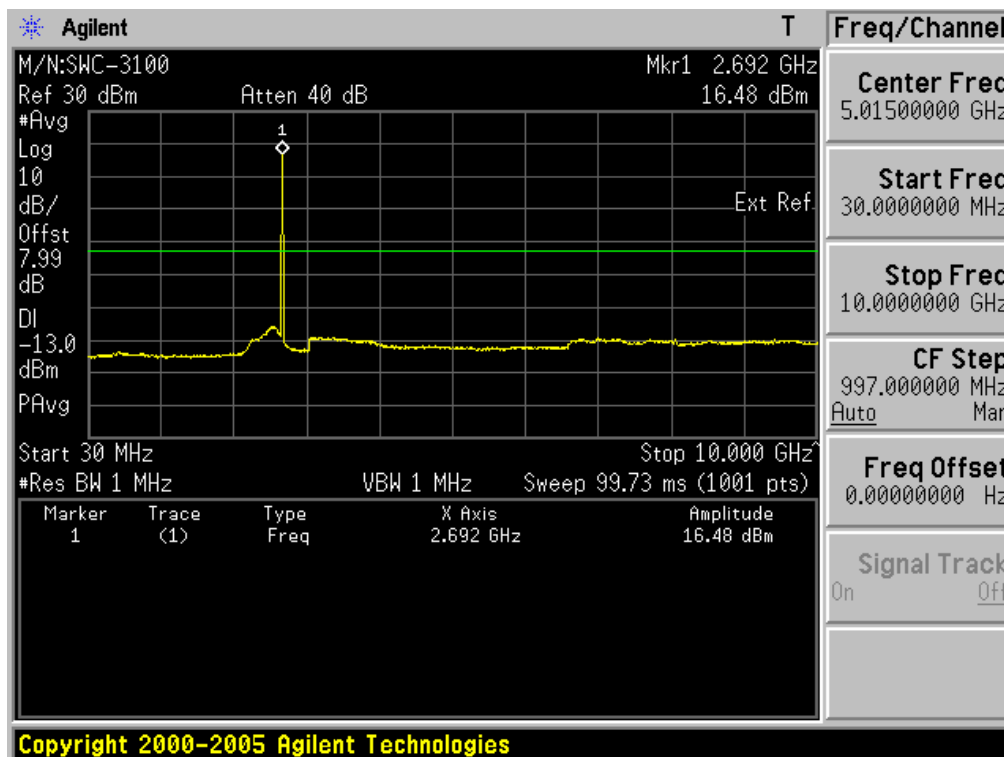
## 5.1 PLOTS OF EMISSIONS

(Continued...)

### 5.1.3 Conducted Spurious Emissions(BW: 5MHz)

(Continued...)

- High Channel(2687.5MHz) & AMC Mode & 16QAM 1/2



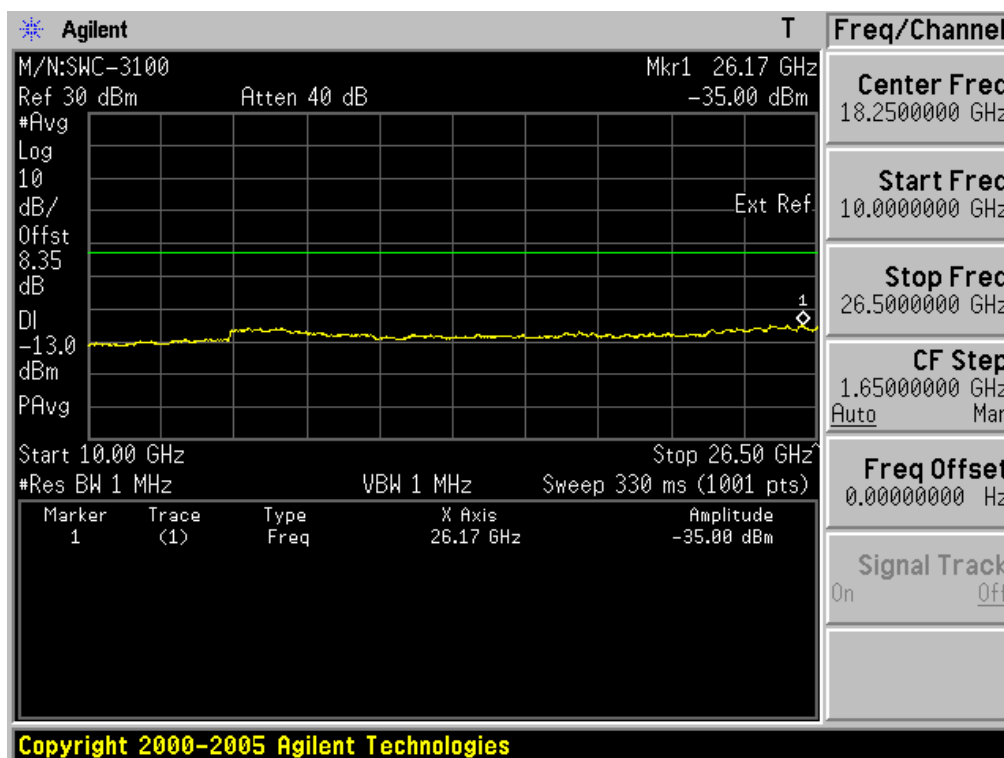
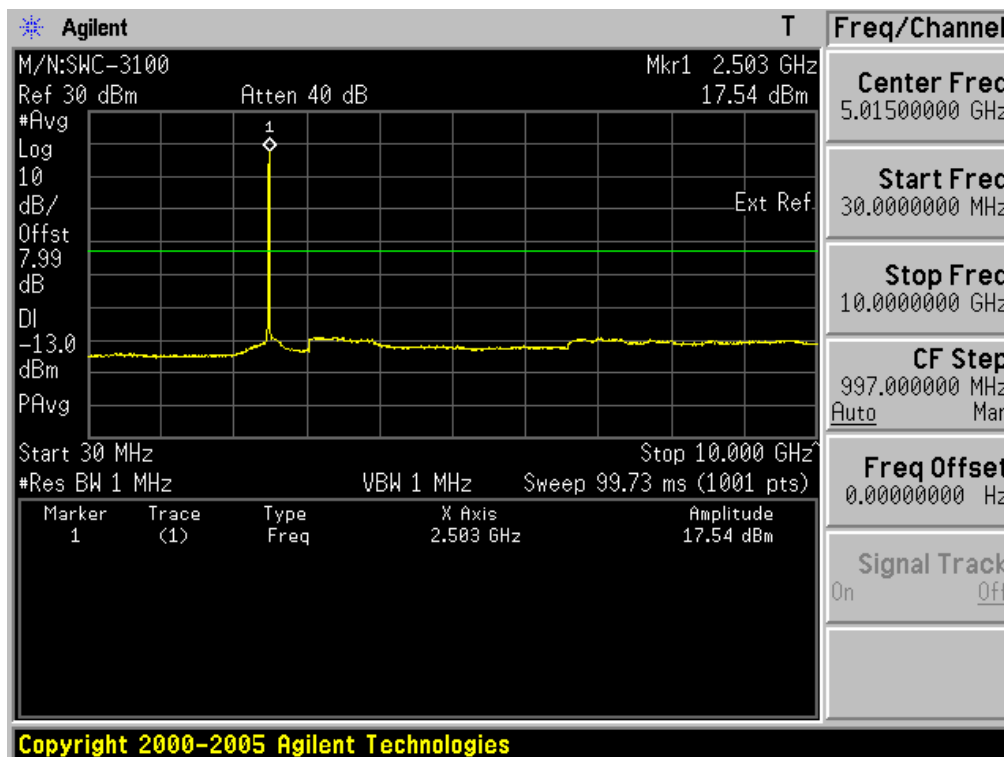
## 5.1 PLOTS OF EMISSIONS

(Continued...)

### 5.1.3 Conducted Spurious Emissions(BW: 10MHz)

(Continued...)

- Low Channel(2501MHz) & AMC Mode & QPSK 1/2



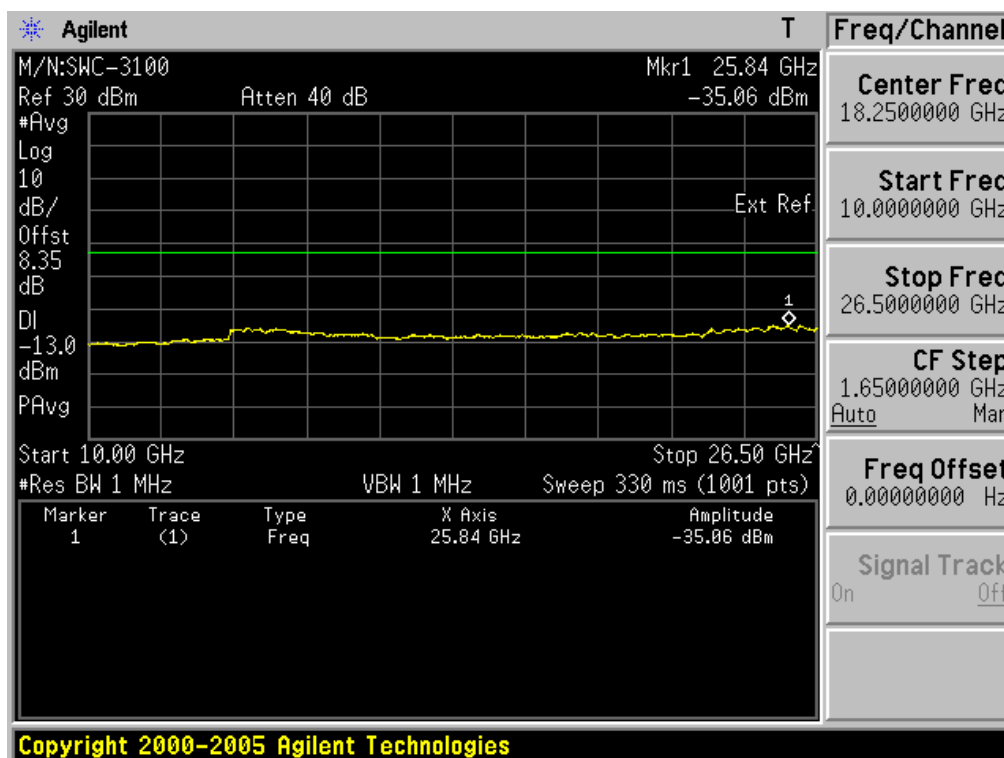
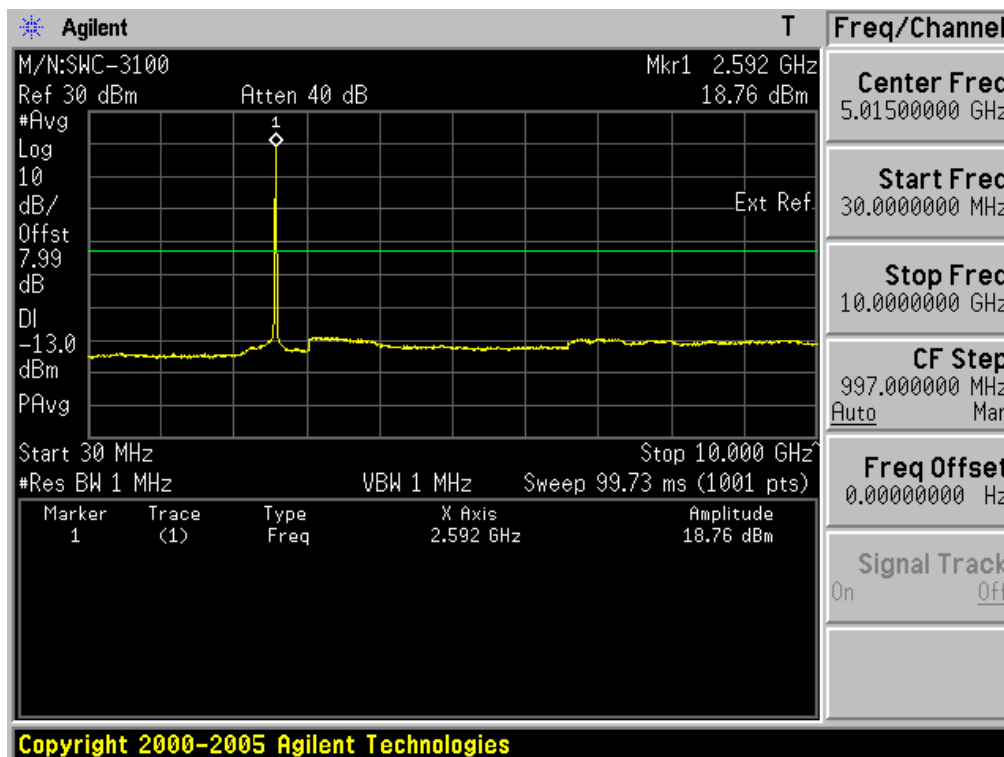
## 5.1 PLOTS OF EMISSIONS

(Continued...)

### 5.1.3 Conducted Spurious Emissions(BW: 10MHz)

(Continued...)

- Middle Channel(2593MHz) & AMC Mode & QPSK 1/2



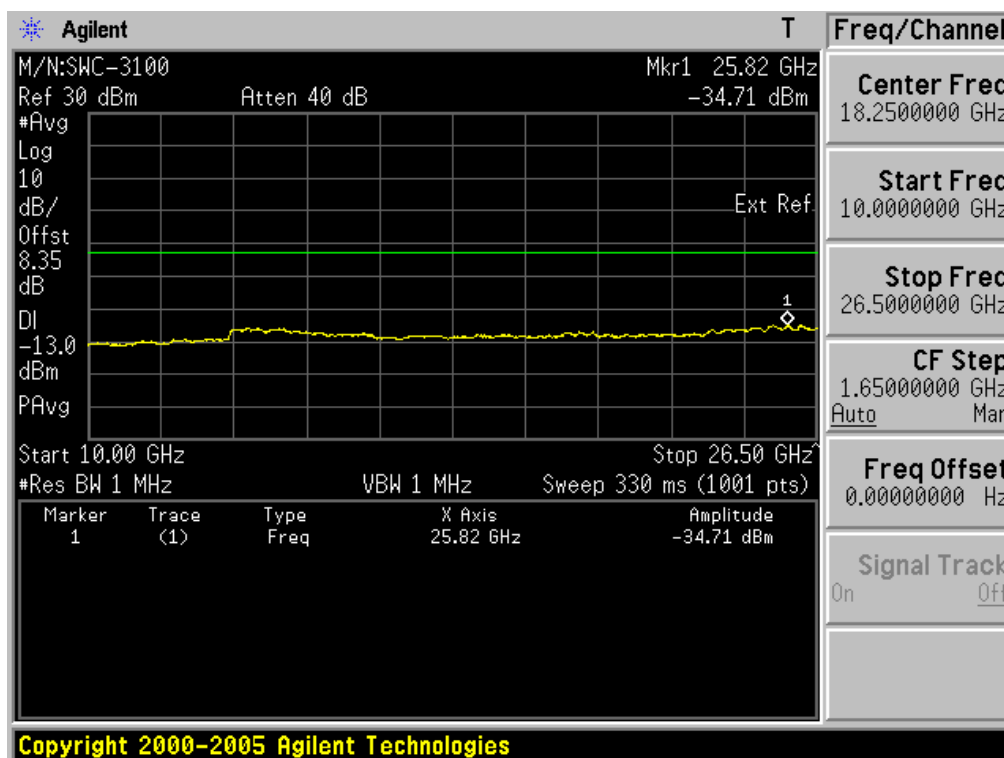
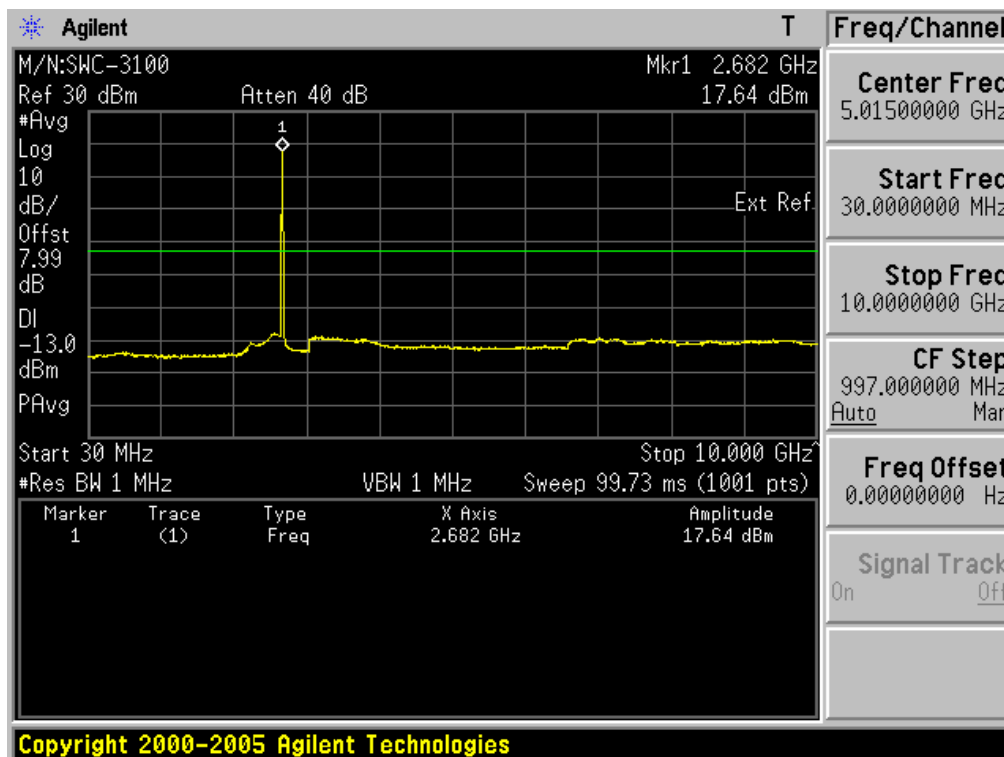
## 5.1 PLOTS OF EMISSIONS

(Continued...)

### 5.1.3 Conducted Spurious Emissions(BW: 10MHz)

(Continued...)

- High Channel(2685MHz) & AMC Mode & QPSK 1/2



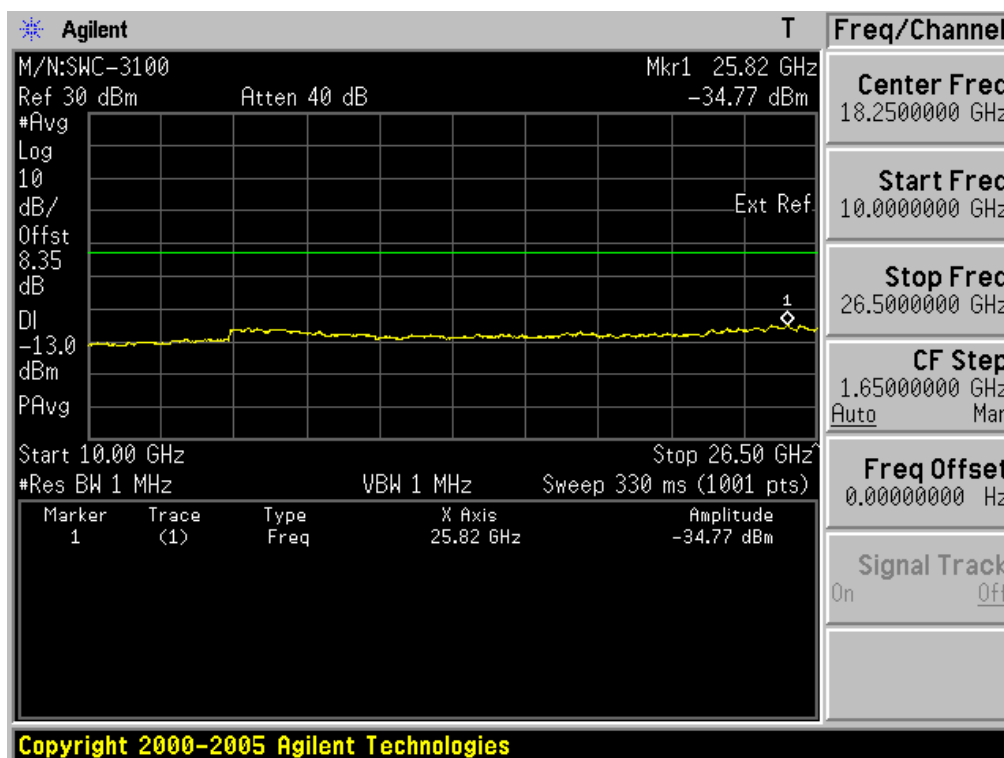
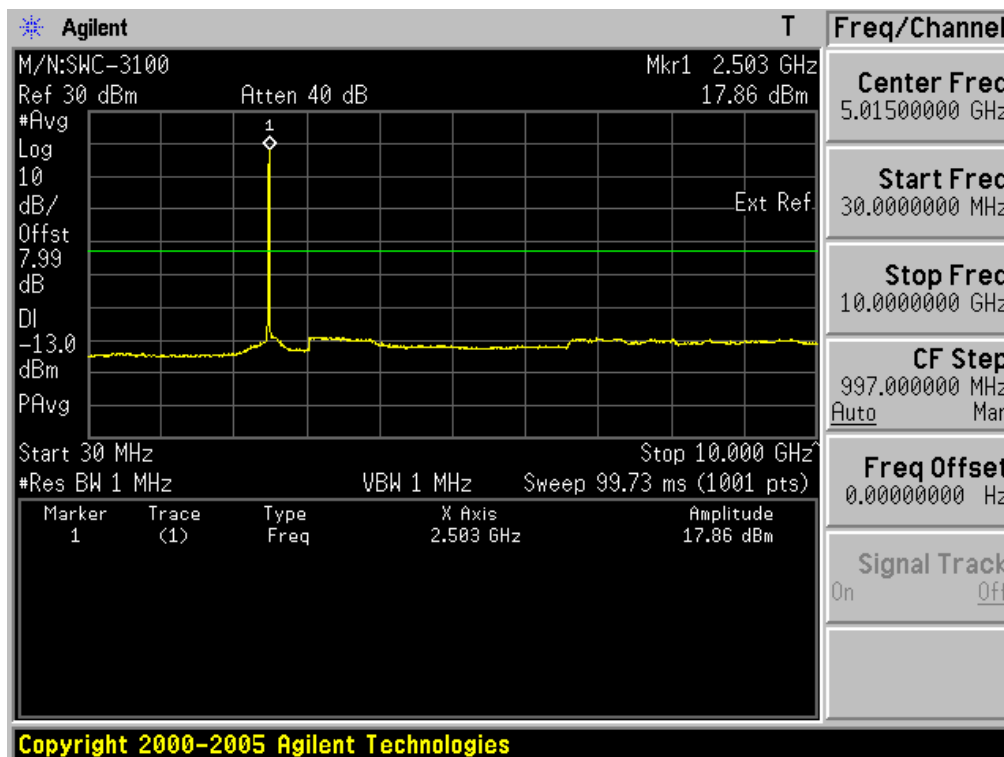
## 5.1 PLOTS OF EMISSIONS

(Continued...)

### 5.1.3 Conducted Spurious Emissions(BW: 10MHz)

(Continued...)

- Low Channel(2501MHz) & AMC Mode & 16QAM 1/2



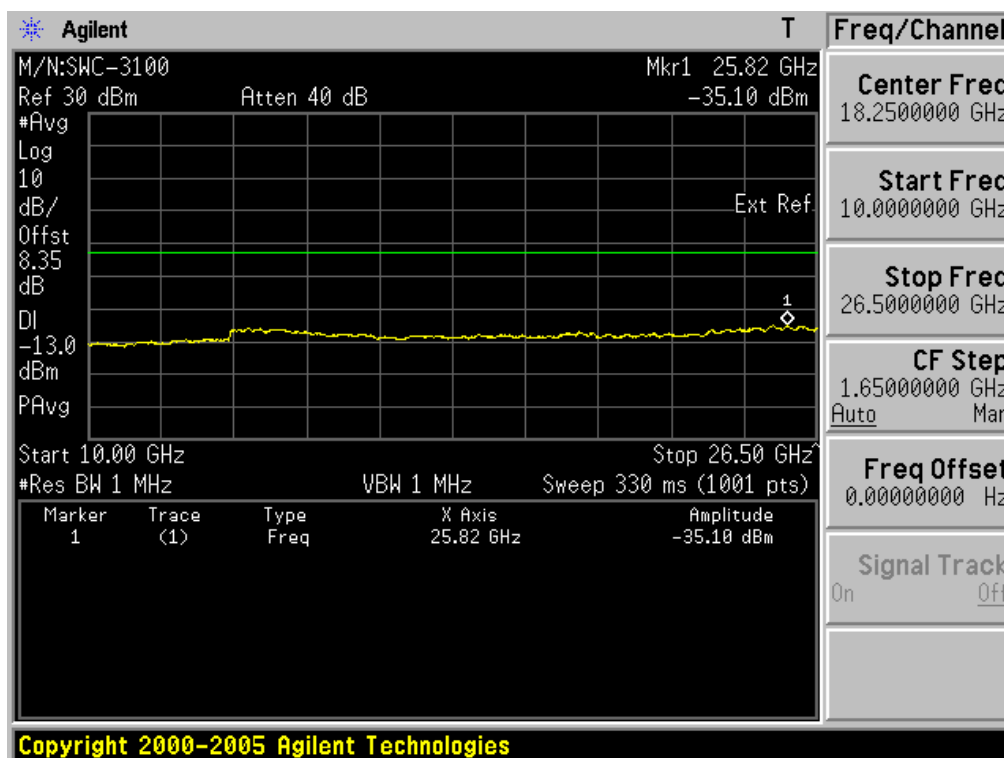
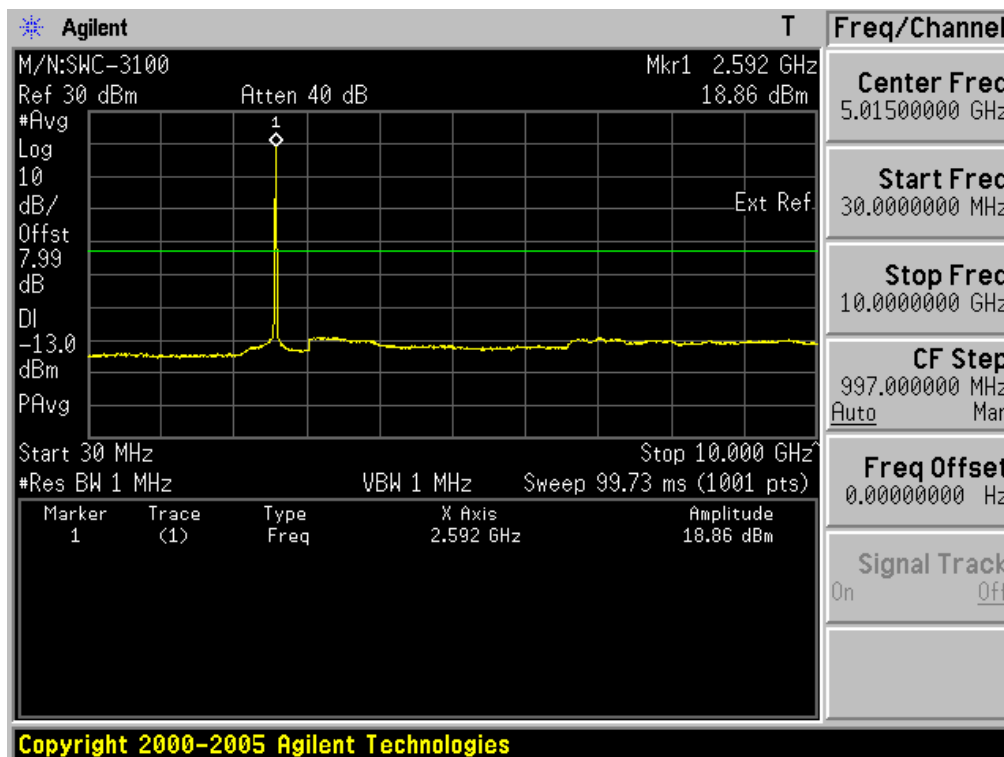
## 5.1 PLOTS OF EMISSIONS

(Continued...)

### 5.1.3 Conducted Spurious Emissions(BW: 10MHz)

(Continued...)

- Middle Channel(2593MHz) & AMC Mode & 16QAM 1/2



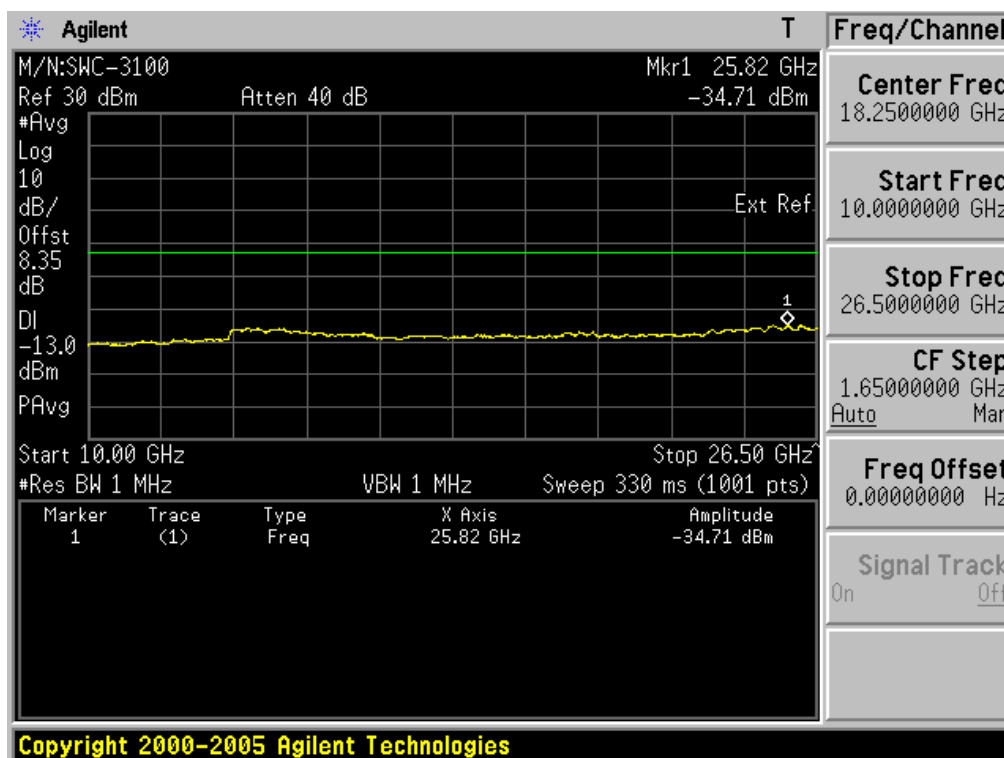
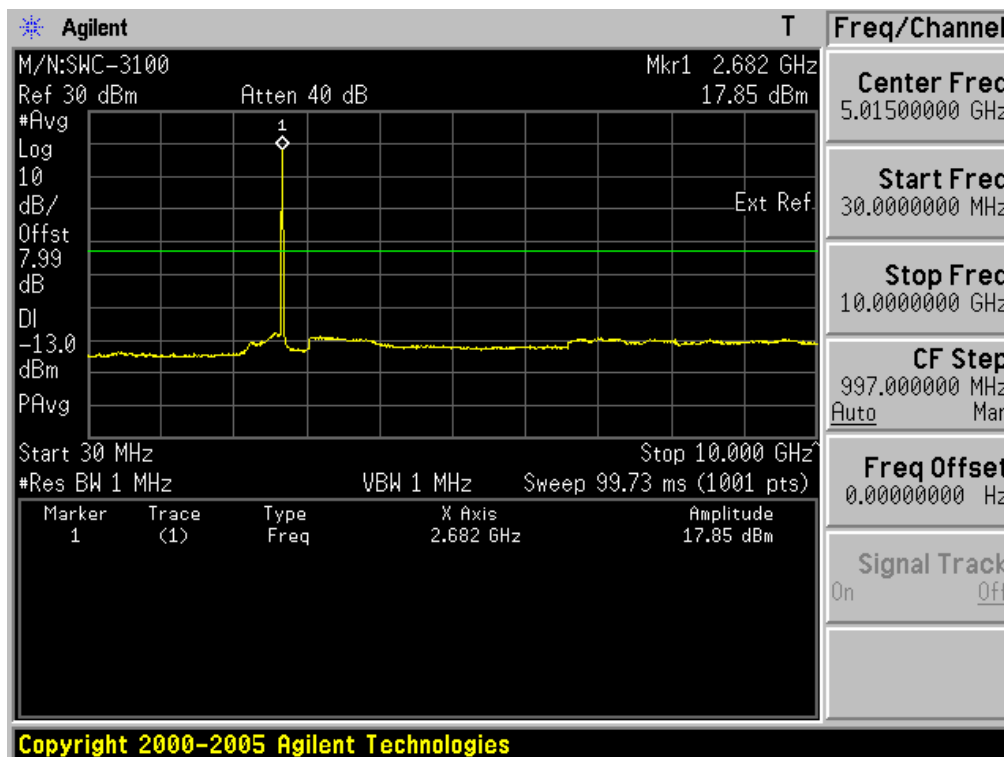
## 5.1 PLOTS OF EMISSIONS

(Continued...)

### 5.1.3 Conducted Spurious Emissions(BW: 10MHz)

(Continued...)

- High Channel(2685MHz) & AMC Mode & 16QAM 1/2

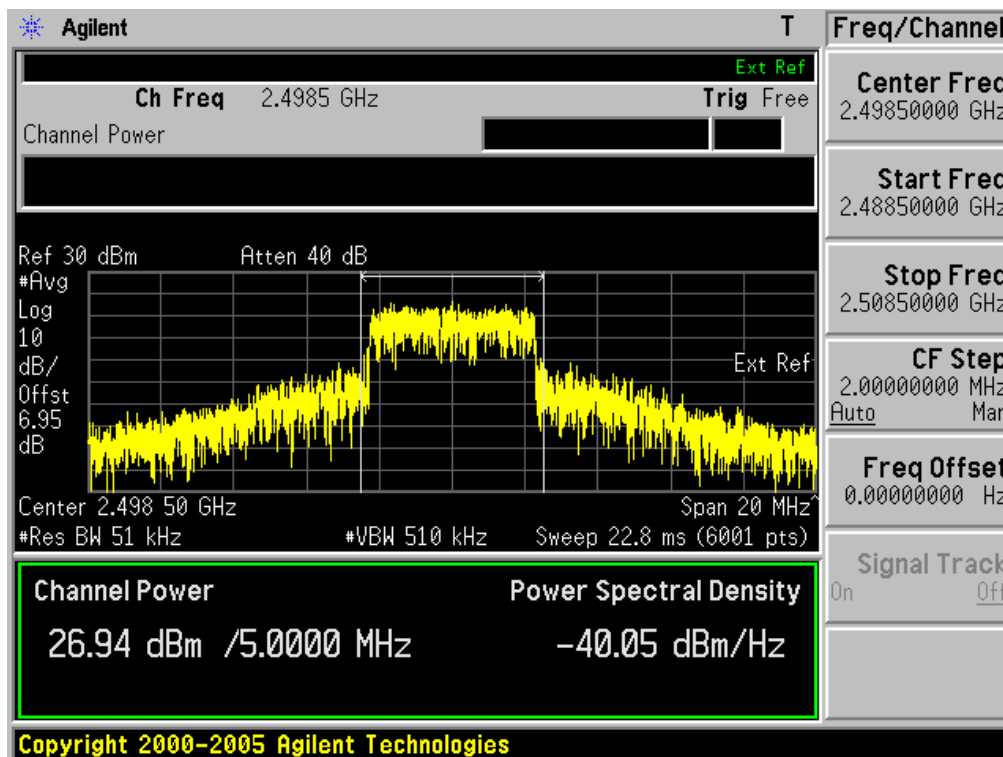


## 5.1 PLOTS OF EMISSIONS

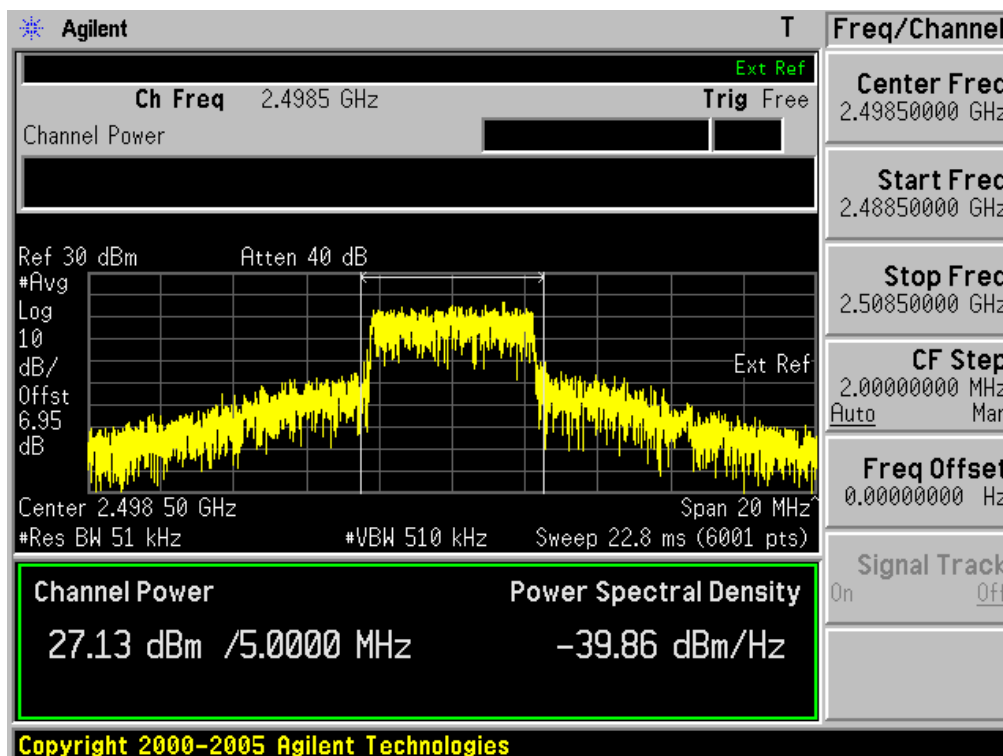
(Continued...)

### 5.1.4 Conducted Output Power(BW: 5MHz)

- Low Channel(2498.5MHz) & PUSC Mode & QPSK 1/2



- Low Channel(2498.5MHz) & PUSC Mode & QPSK 3/4



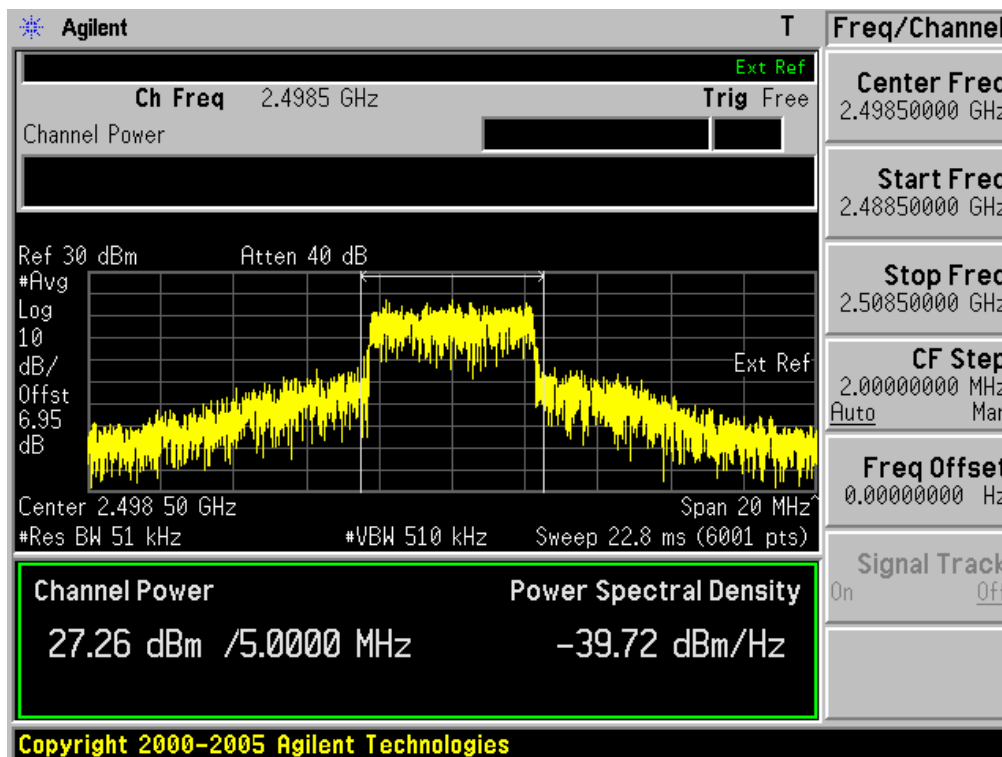
## 5.1 PLOTS OF EMISSIONS

(Continued...)

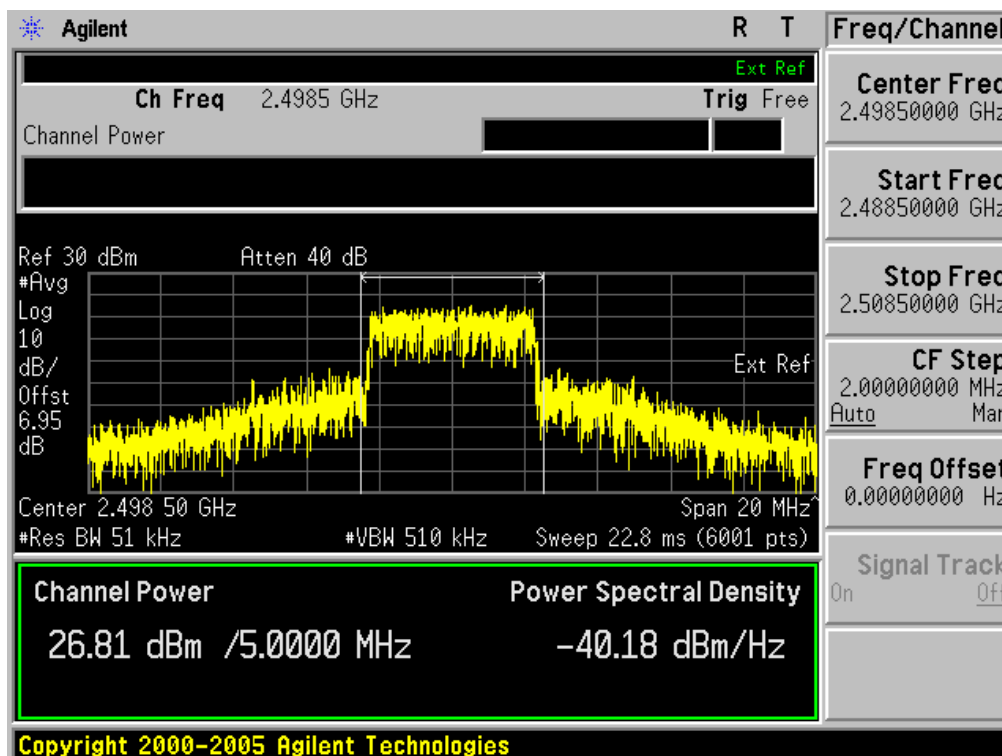
### 5.1.4 Conducted Output Power(BW: 5MHz)

(Continued...)

- Low Channel(2498.5MHz) & PUSC Mode & 16QAM 1/2



- Low Channel(2498.5MHz) & PUSC Mode & 16QAM 3/4

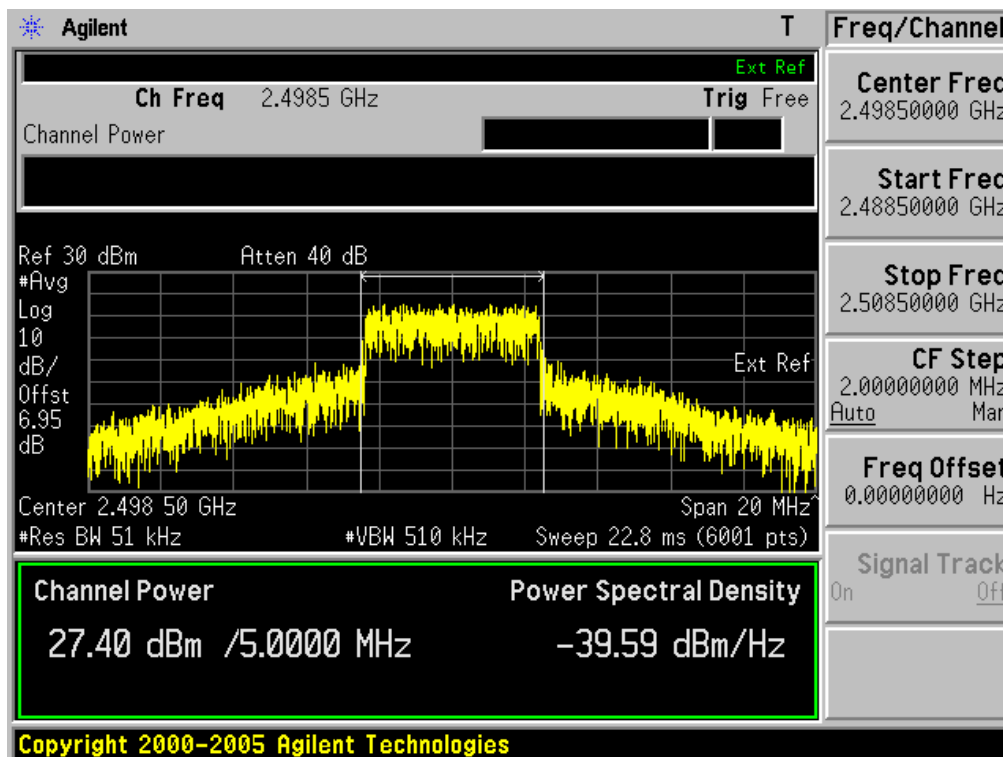


## 5.1 PLOTS OF EMISSIONS

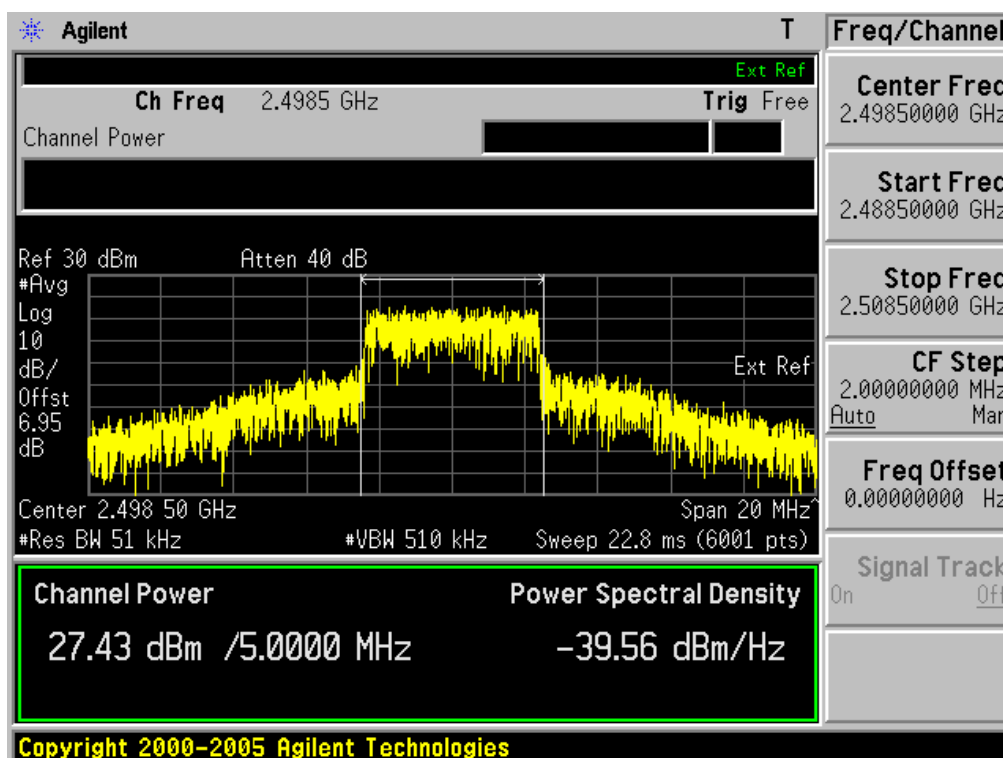
(Continued...)

### 5.1.4 Conducted Output Power(BW: 5MHz)

- Low Channel(2498.5MHz) & AMC Mode & QPSK 1/2



- Low Channel(2498.5MHz) & AMC Mode & QPSK 3/4



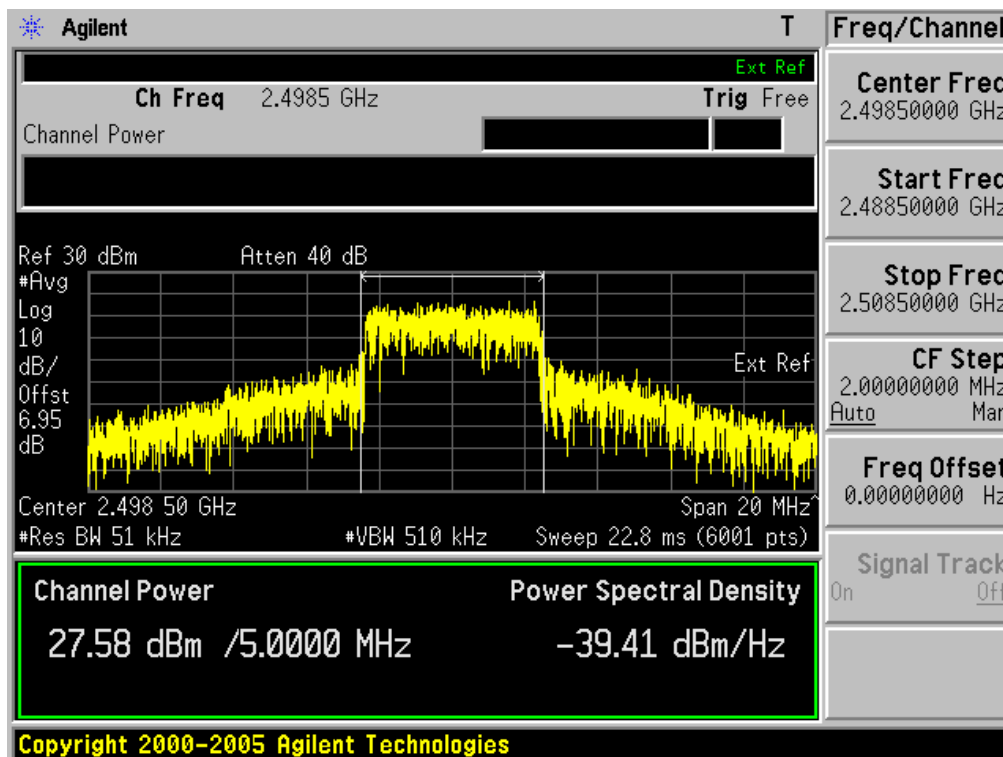
## 5.1 PLOTS OF EMISSIONS

(Continued...)

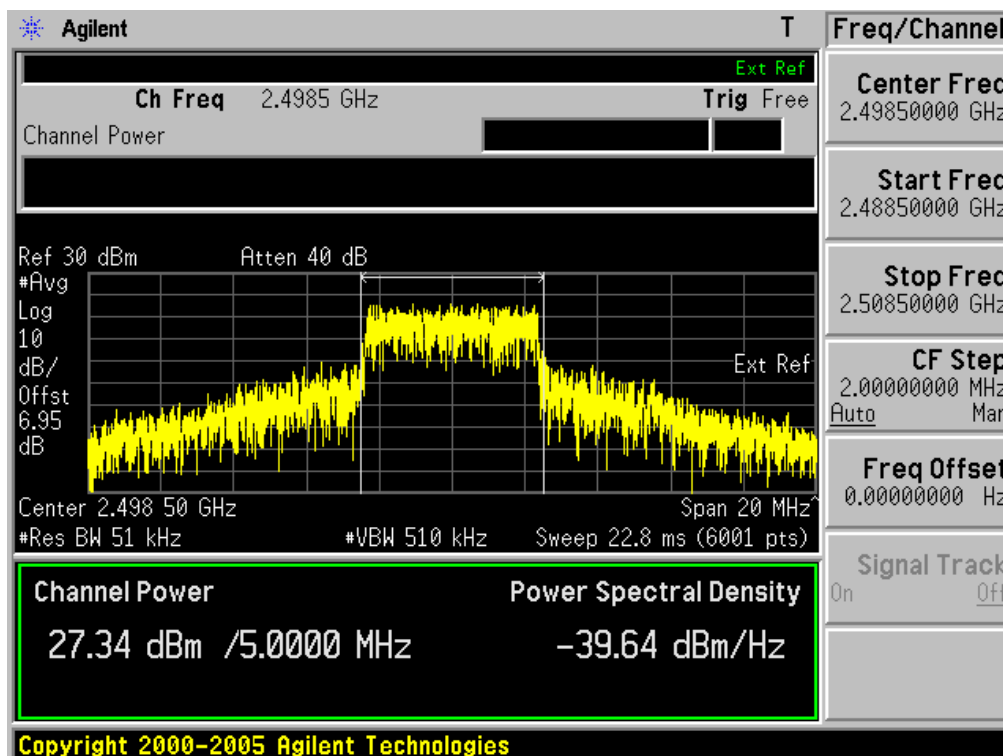
### 5.1.4 Conducted Output Power(BW: 5MHz)

(Continued...)

- Low Channel(2498.5MHz) & AMC Mode & 16QAM 1/2



- Low Channel(2498.5MHz) & AMC Mode & 16QAM 3/4



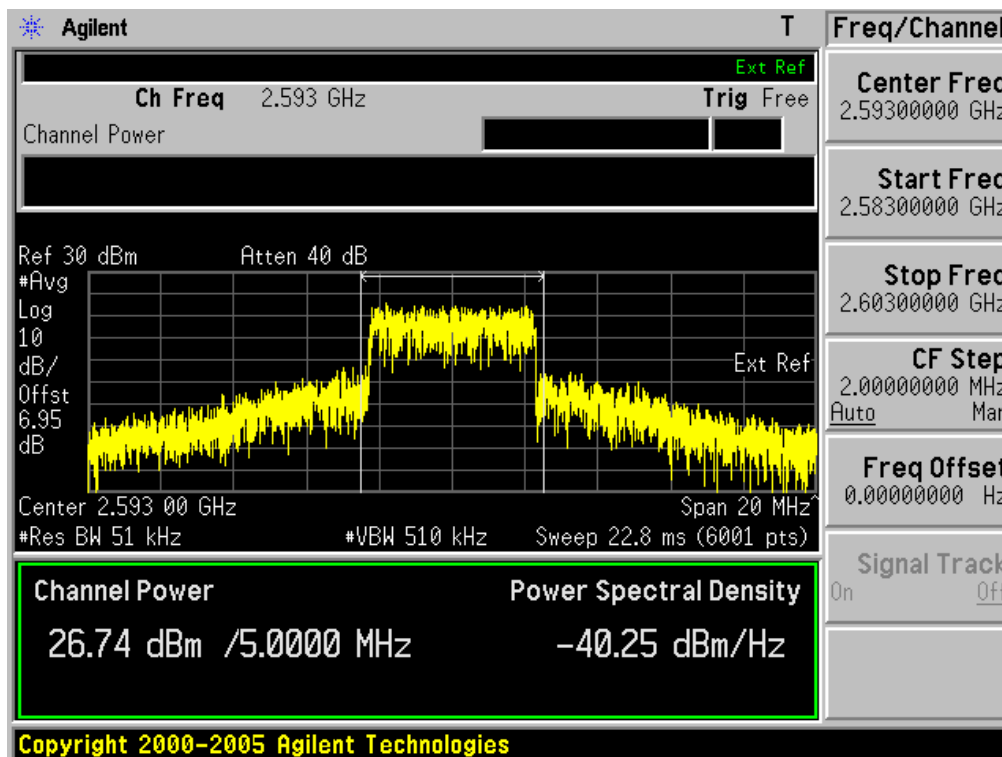
## 5.1 PLOTS OF EMISSIONS

(Continued...)

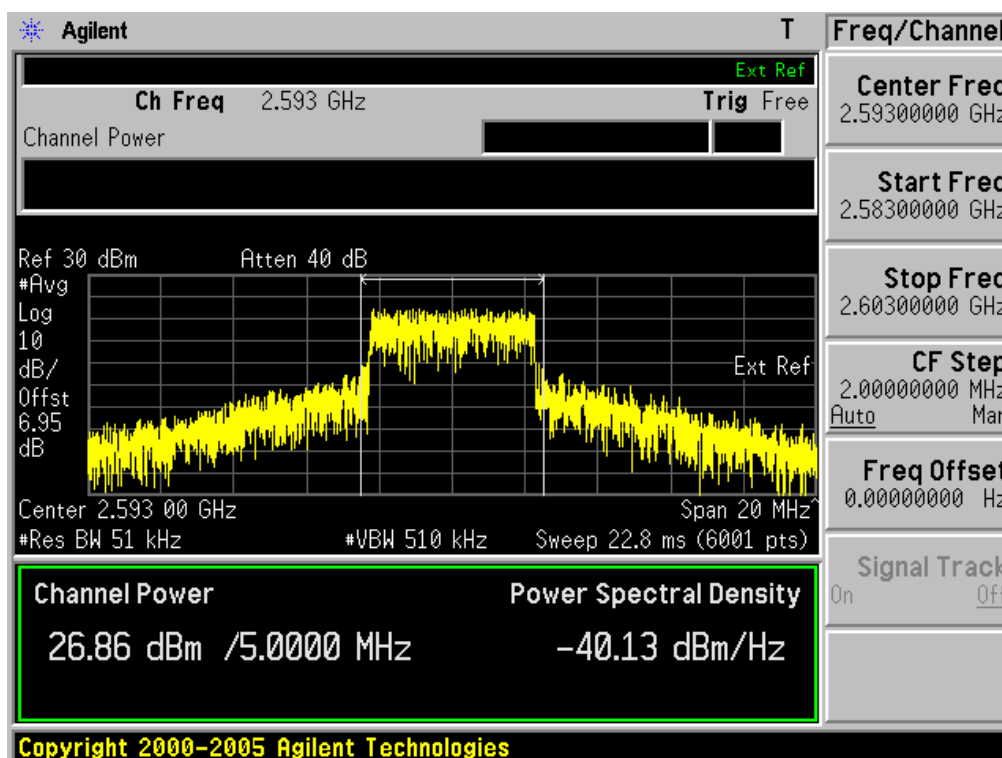
### 5.1.4 Conducted Output Power(BW: 5MHz)

(Continued...)

- Middle Channel(2593MHz) & PUSC Mode & QPSK 1/2



- Middle Channel(2593MHz) & PUSC Mode & QPSK 3/4



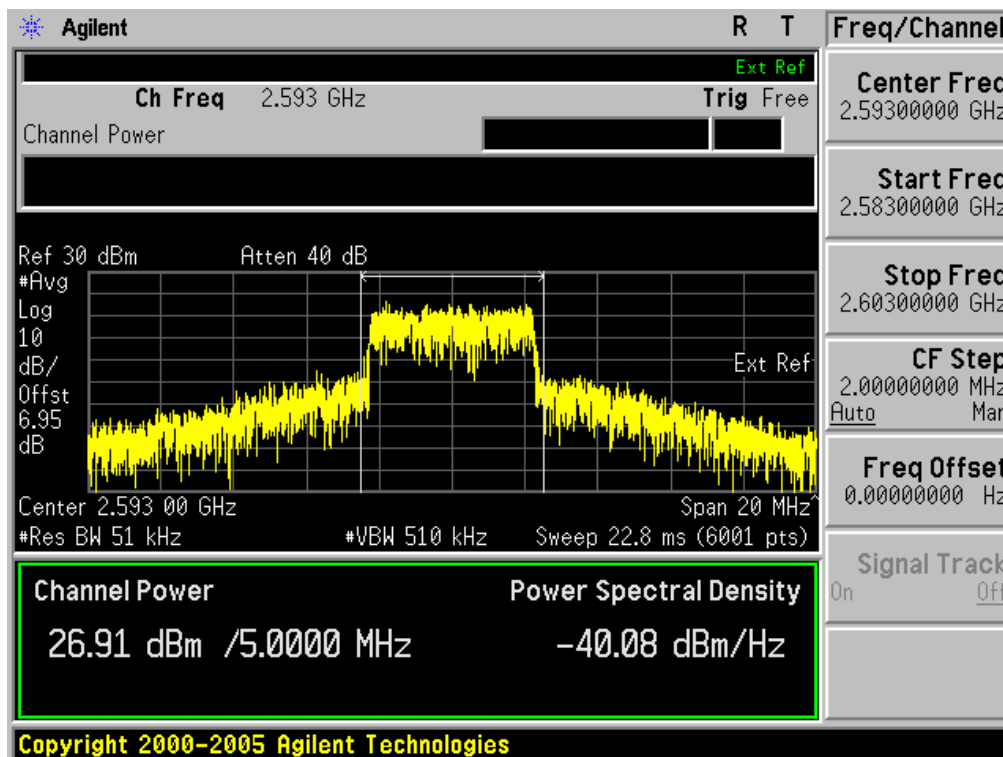
## 5.1 PLOTS OF EMISSIONS

(Continued...)

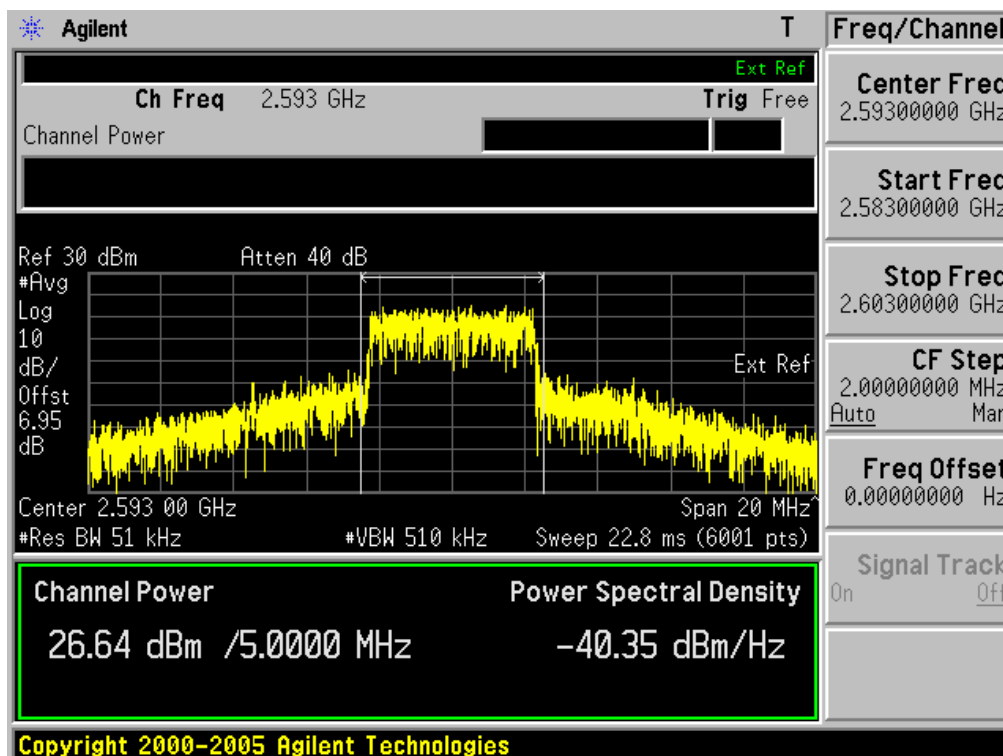
### 5.1.4 Conducted Output Power(BW: 5MHz)

(Continued...)

- Middle Channel(2593MHz) & PUSC Mode & 16QAM 1/2



- Middle Channel(2593MHz) & PUSC Mode & 16QAM 3/4



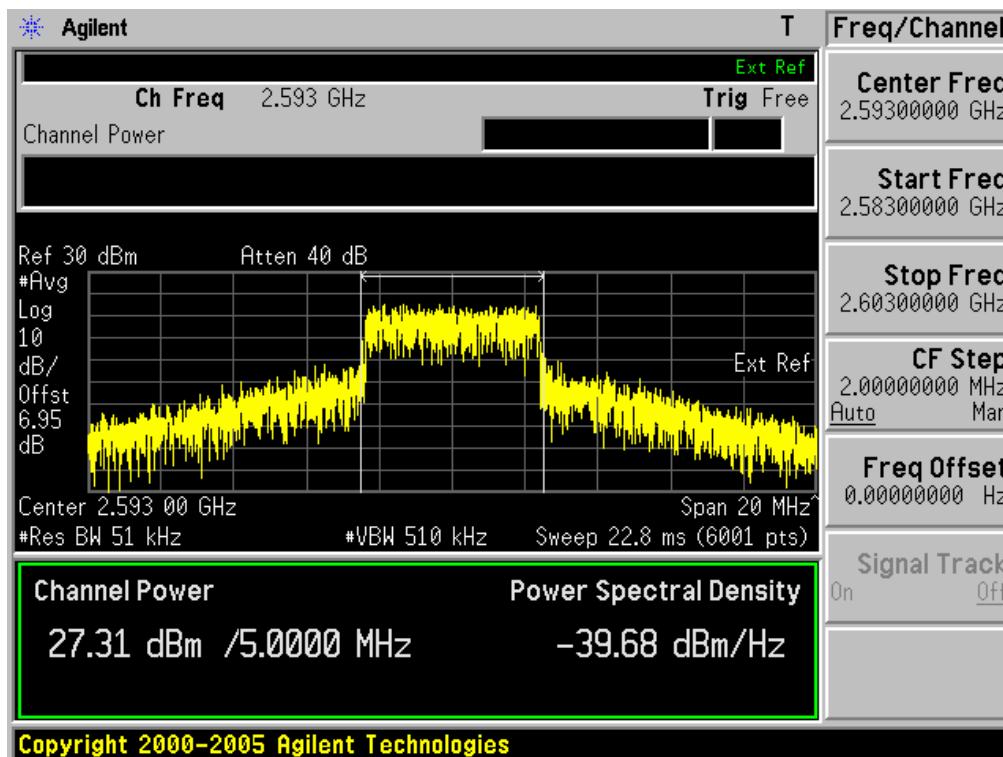
## 5.1 PLOTS OF EMISSIONS

(Continued...)

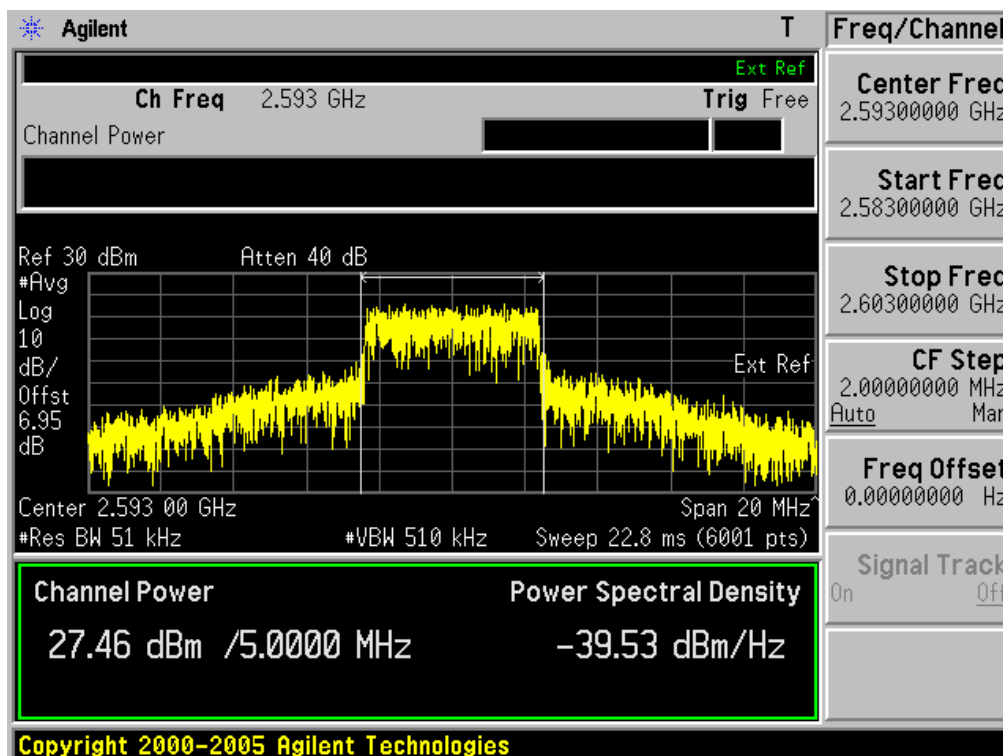
### 5.1.4 Conducted Output Power(BW: 5MHz)

(Continued...)

- Middle Channel(2593MHz) & AMC Mode & QPSK 1/2



- Middle Channel(2593MHz) & AMC Mode & QPSK 3/4



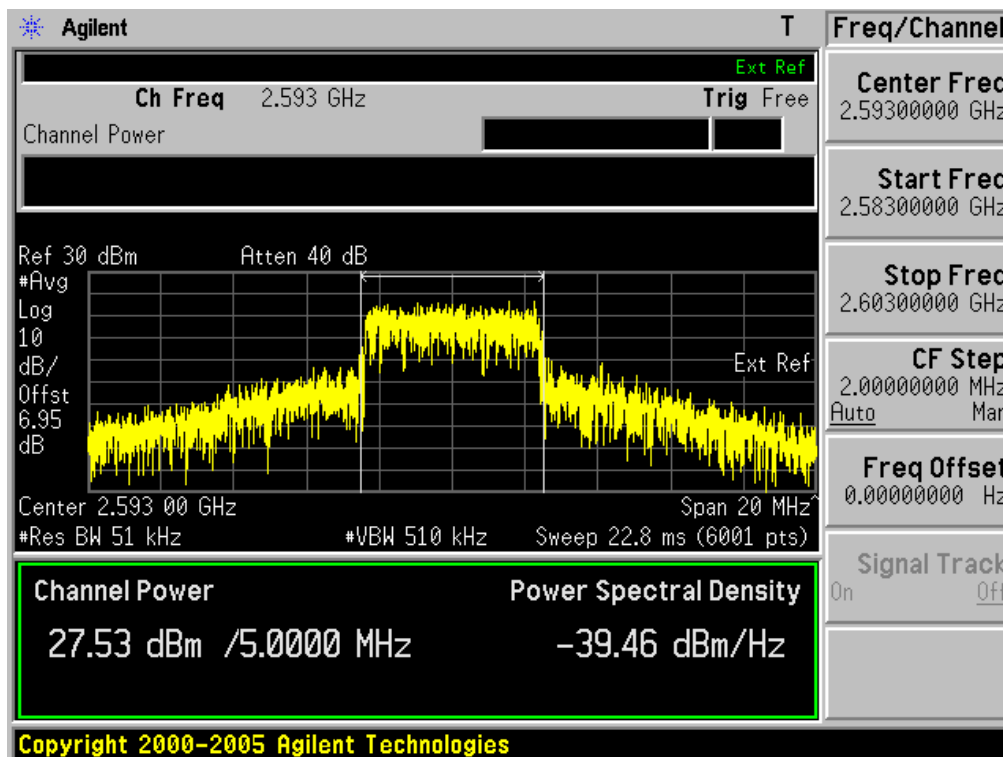
## 5.1 PLOTS OF EMISSIONS

(Continued...)

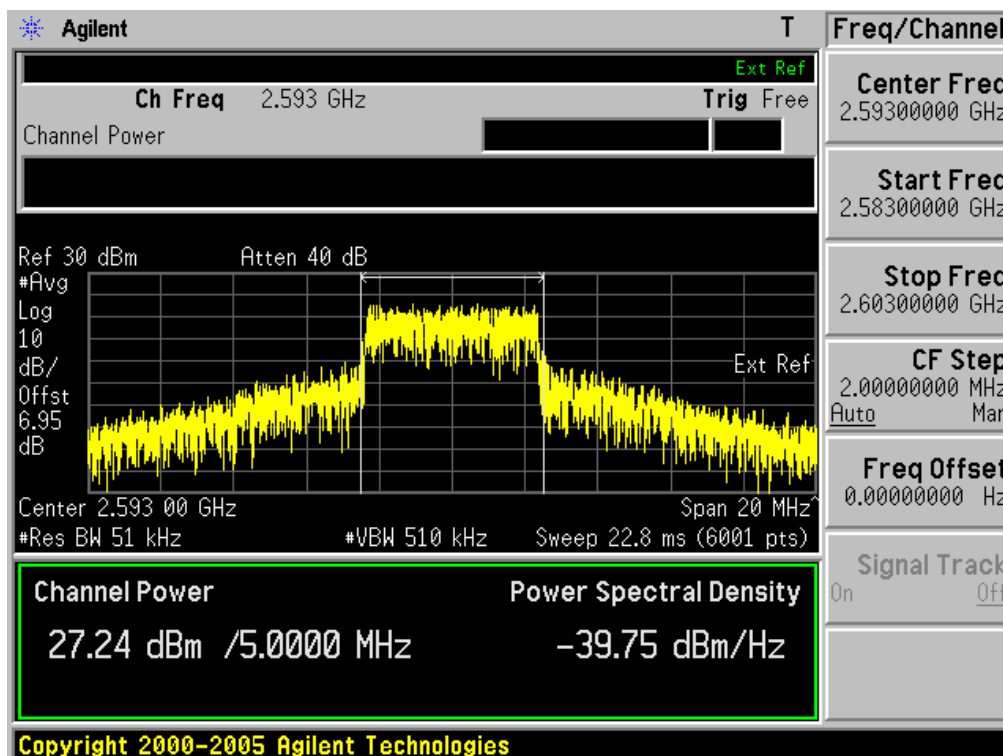
### 5.1.4 Conducted Output Power(BW: 5MHz)

(Continued...)

- Middle Channel(2593MHz) & AMC Mode & 16QAM 1/2



- Middle Channel(2593MHz) & AMC Mode & 16QAM 3/4



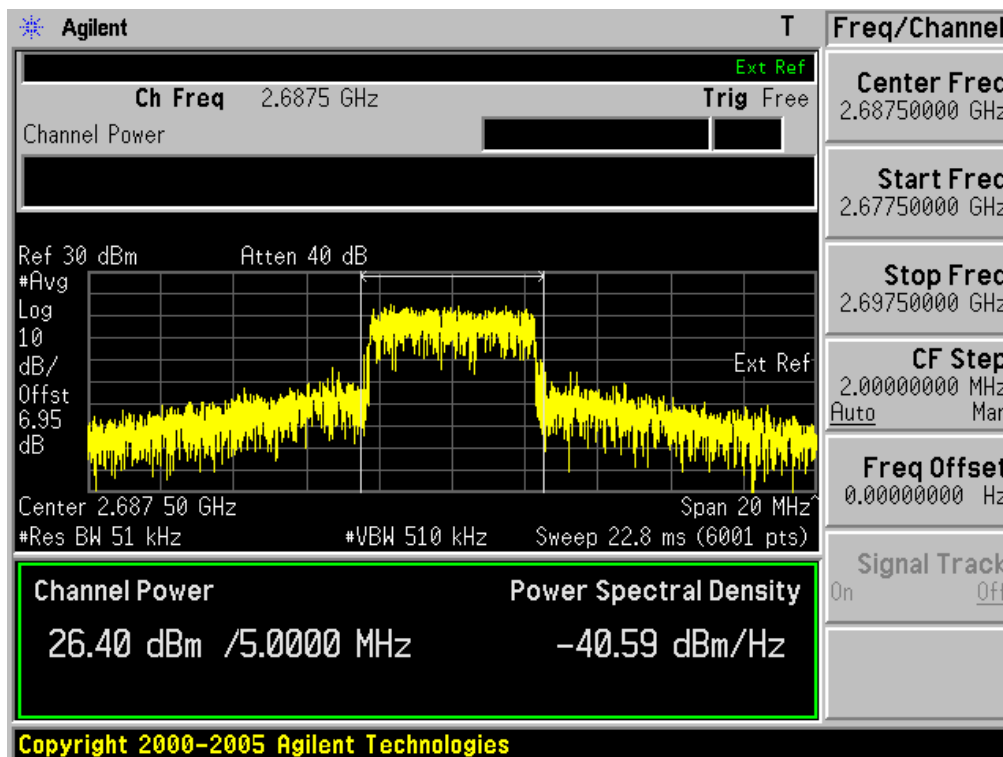
## 5.1 PLOTS OF EMISSIONS

(Continued...)

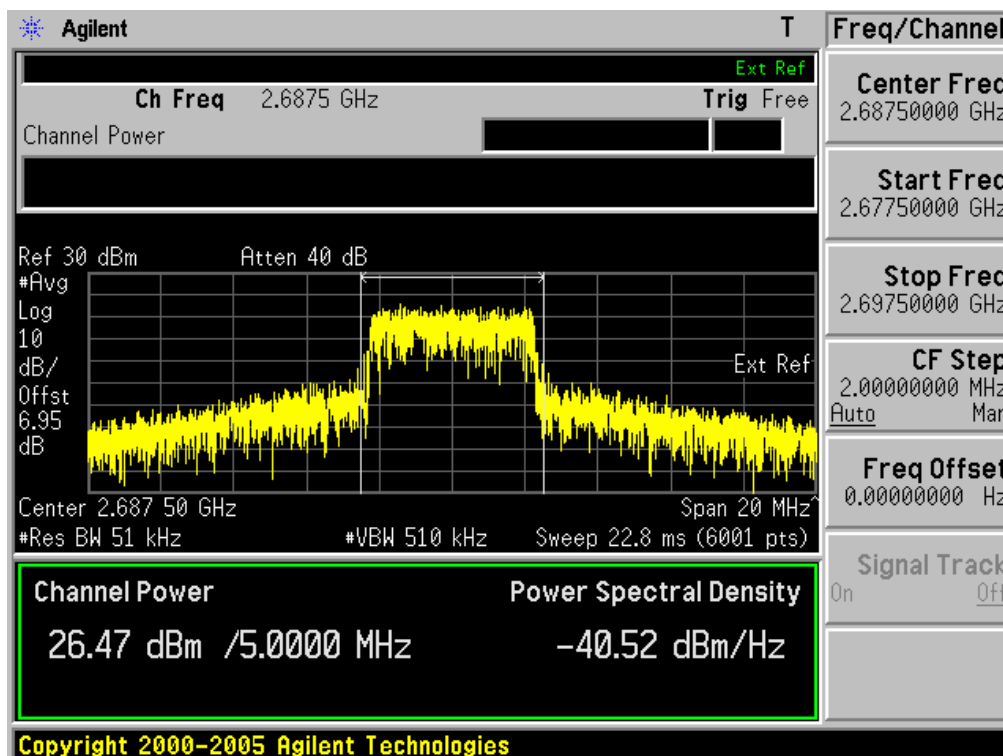
### 5.1.4 Conducted Output Power(BW: 5MHz)

(Continued...)

- High Channel(2687.5MHz) & PUSC Mode & QPSK 1/2



- High Channel(2687.55MHz) & PUSC Mode & QPSK 3/4



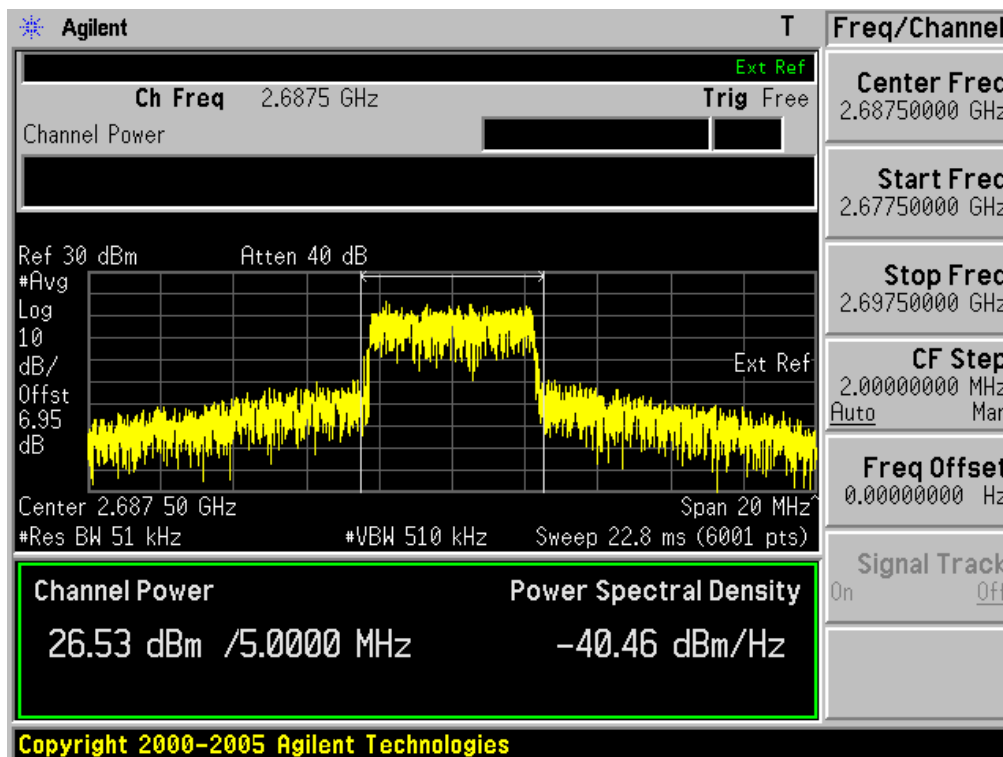
## 5.1 PLOTS OF EMISSIONS

(Continued...)

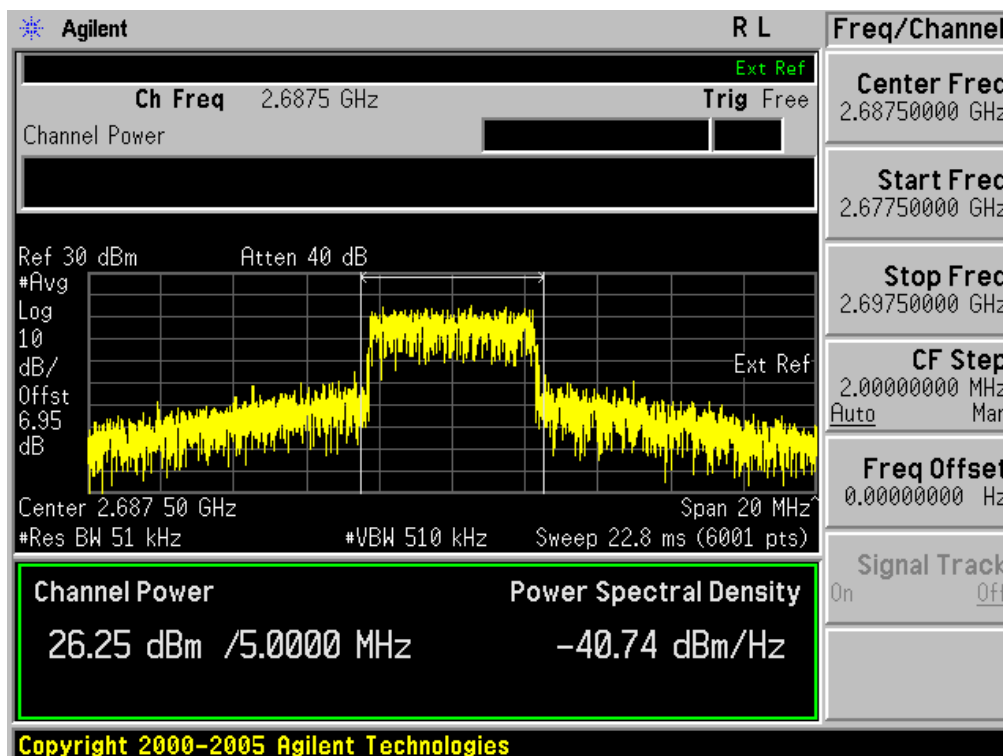
### 5.1.4 Conducted Output Power(BW: 5MHz)

(Continued...)

- High Channel(2687.5MHz) & PUSC Mode & 16QAM 1/2



- High Channel(2687.5MHz) & PUSC Mode & 16QAM 3/4



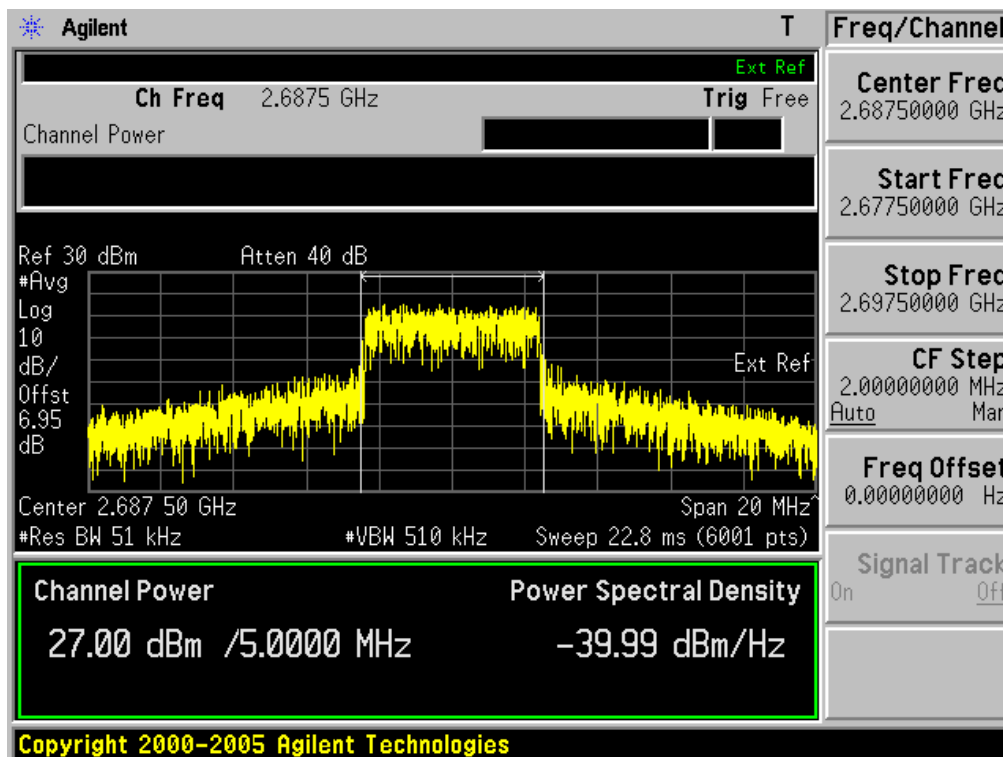
## 5.1 PLOTS OF EMISSIONS

(Continued...)

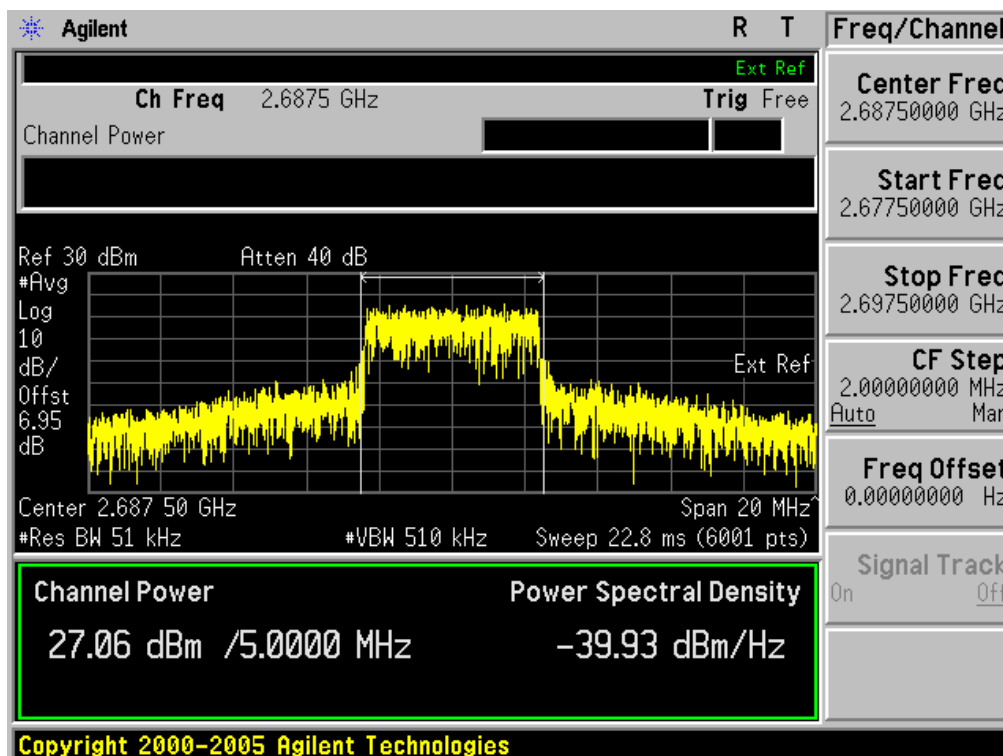
### 5.1.4 Conducted Output Power(BW: 5MHz)

(Continued...)

- High Channel(2687.5MHz) & AMC Mode & QPSK 1/2



- High Channel(2687.55MHz) & AMC Mode & QPSK 3/4



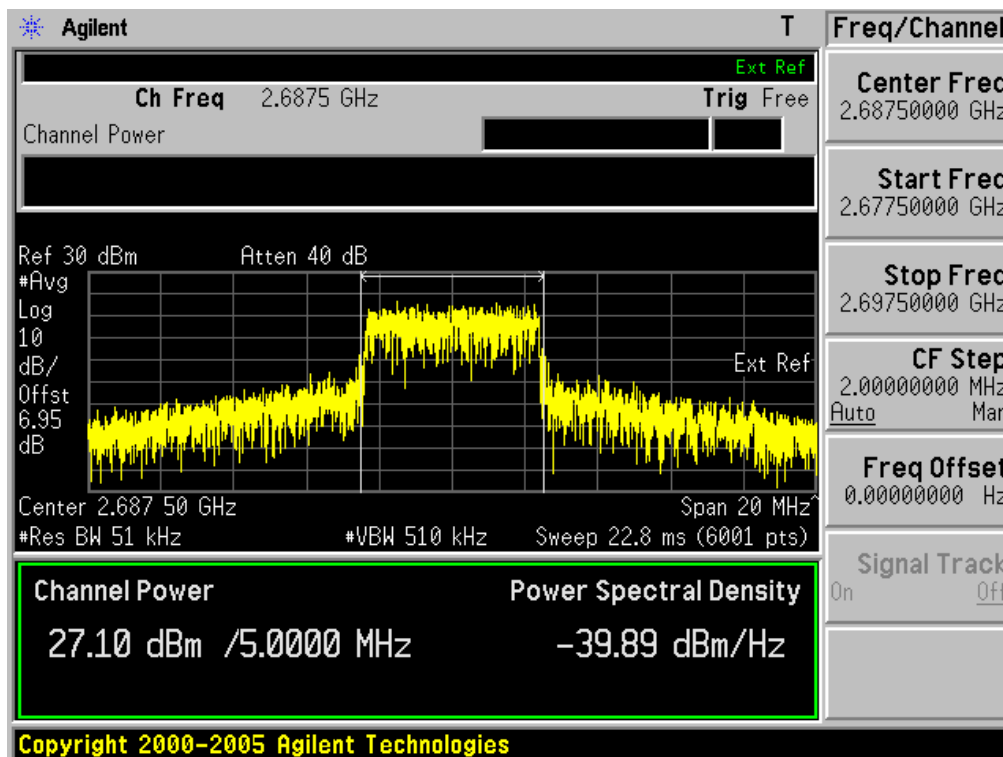
## 5.1 PLOTS OF EMISSIONS

(Continued...)

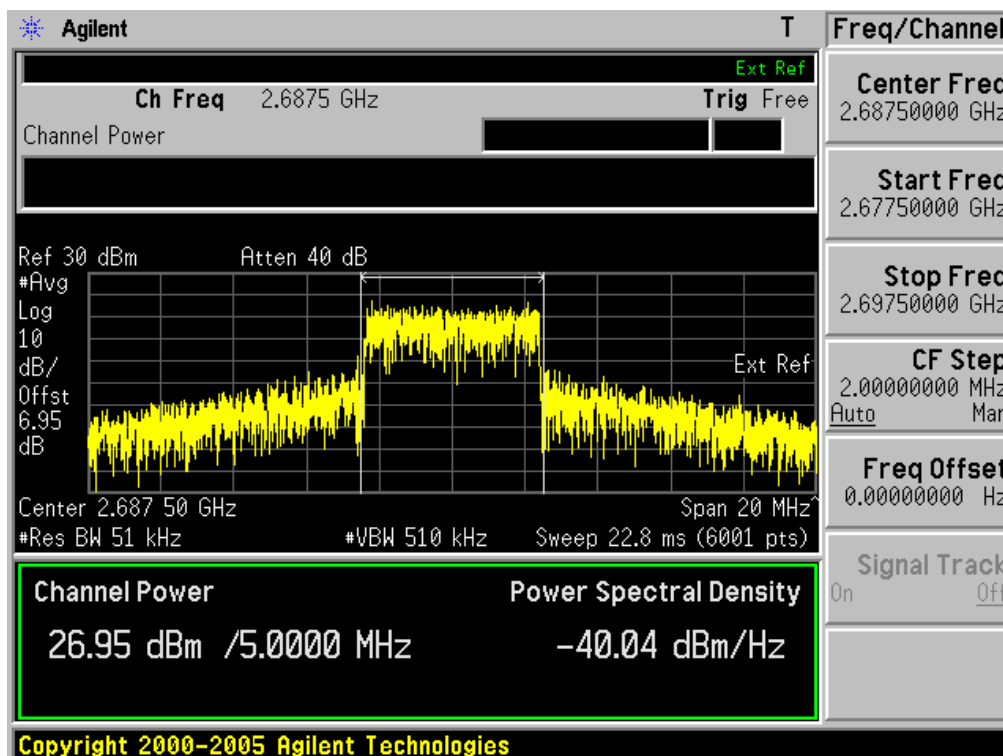
### 5.1.4 Conducted Output Power(BW: 5MHz)

(Continued...)

- High Channel(2687.5MHz) & AMC Mode & 16QAM 1/2



- High Channel(2687.5MHz) & AMC Mode & 16QAM 3/4



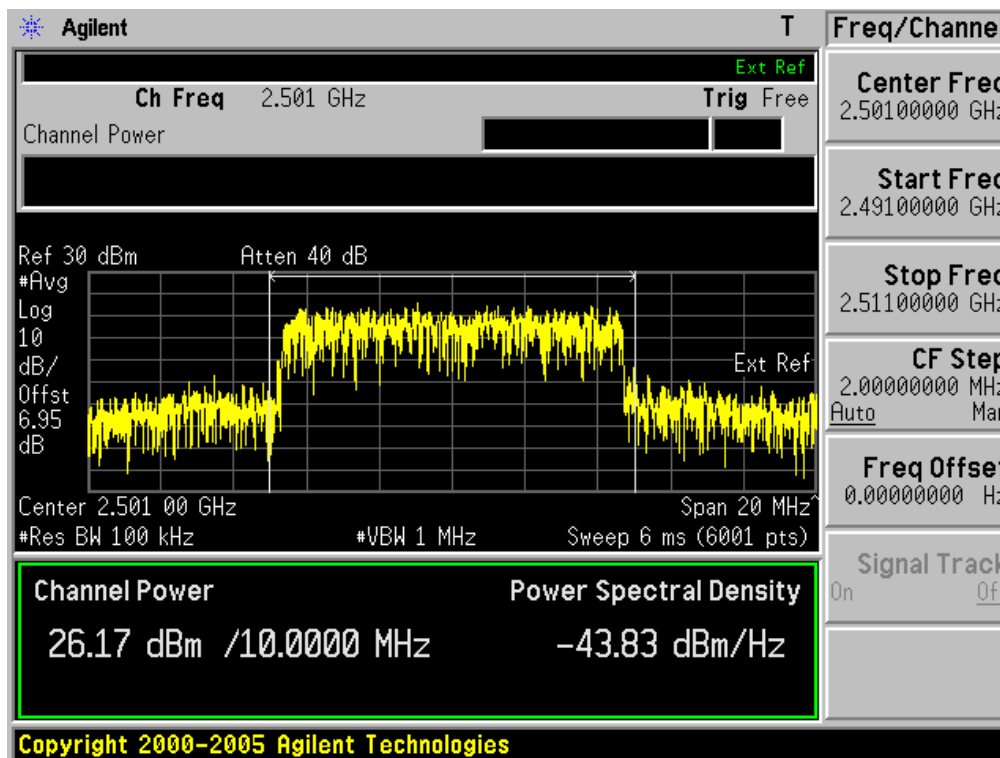
## 5.1 PLOTS OF EMISSIONS

(Continued...)

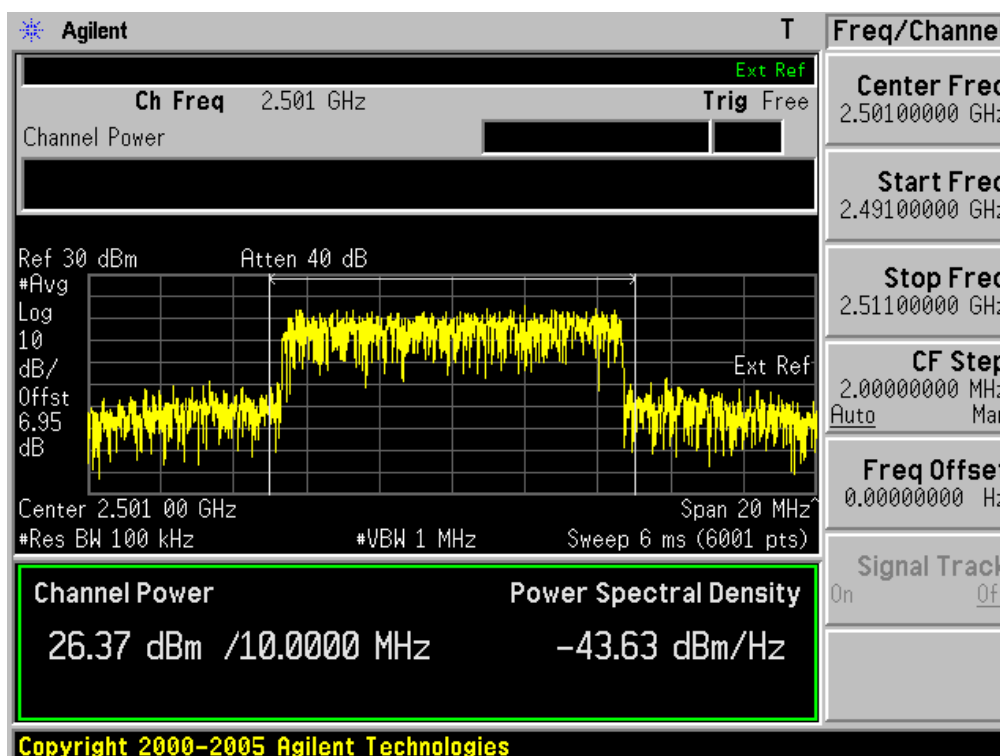
### 5.1.4 Conducted Output Power(BW: 10MHz)

(Continued...)

- Low Channel(2501MHz) & PUSC Mode & QPSK 1/2



- Low Channel(2501MHz) & PUSC Mode & QPSK 3/4



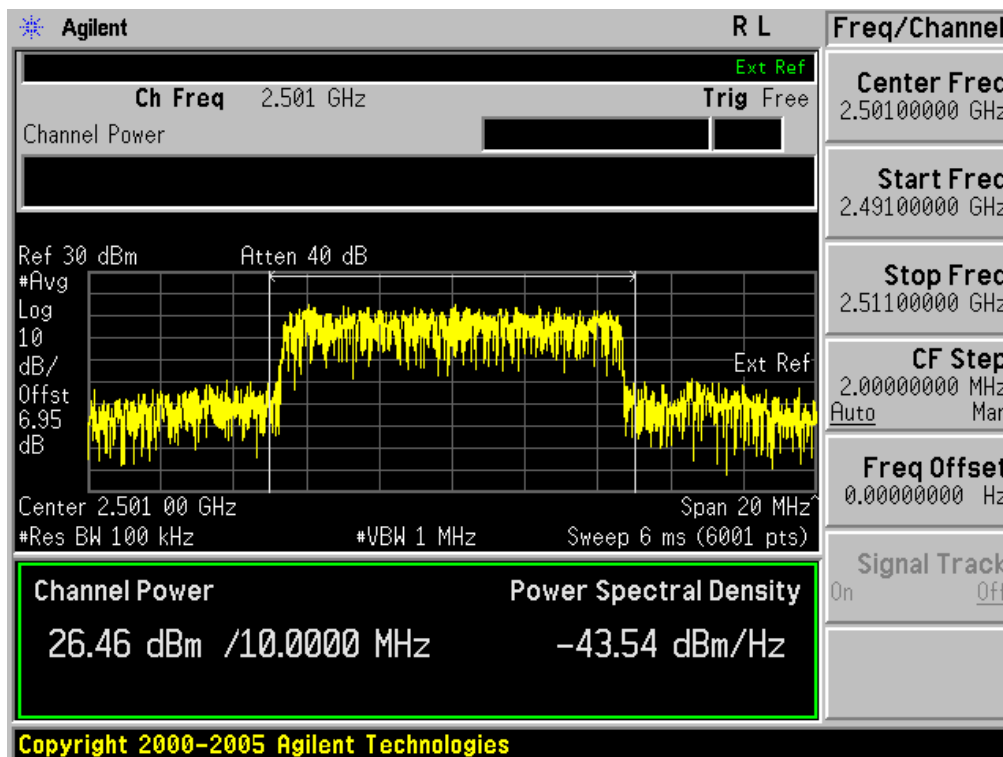
## 5.1 PLOTS OF EMISSIONS

(Continued...)

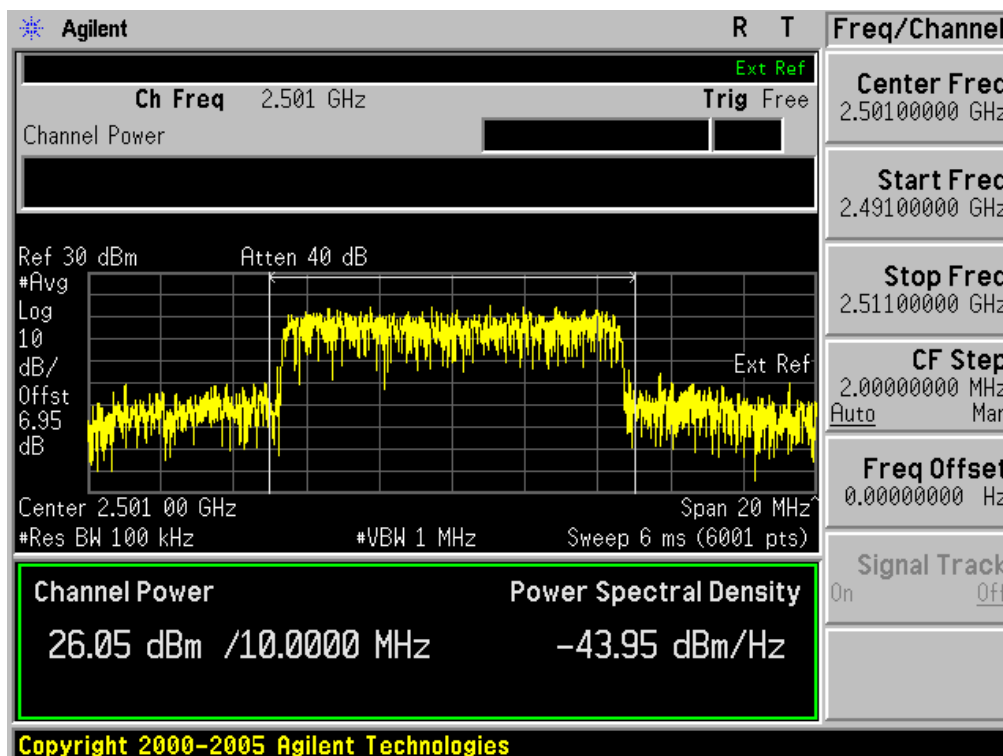
### 5.1.4 Conducted Output Power(BW: 10MHz)

(Continued...)

- Low Channel(2501MHz) & PUSC Mode & 16QAM 1/2



- Low Channel(2501MHz) & PUSC Mode & 16QAM 3/4



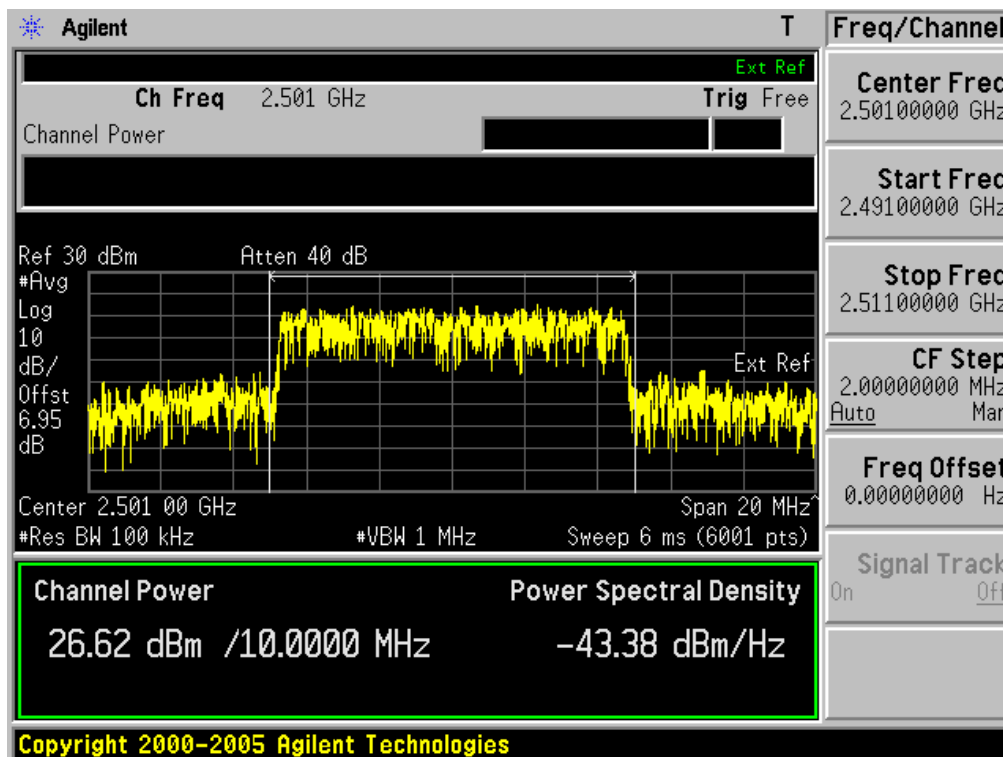
## 5.1 PLOTS OF EMISSIONS

(Continued...)

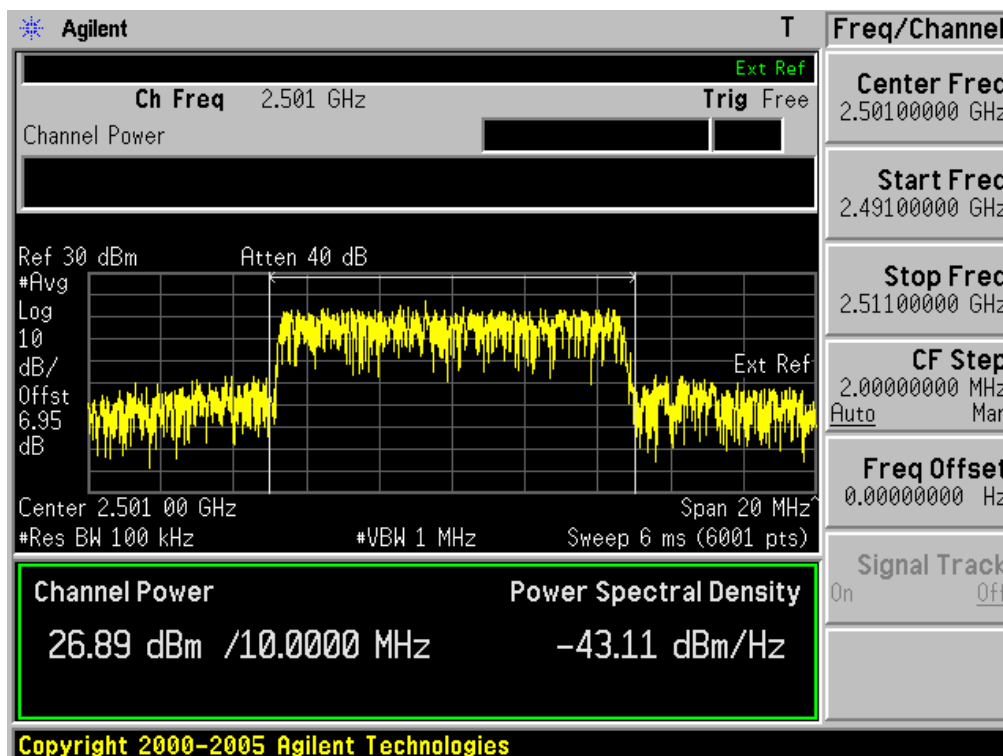
### 5.1.4 Conducted Output Power(BW: 10MHz)

(Continued...)

- Low Channel(2501MHz) & AMC Mode & QPSK 1/2



- Low Channel(2501MHz) & AMC Mode & QPSK 3/4



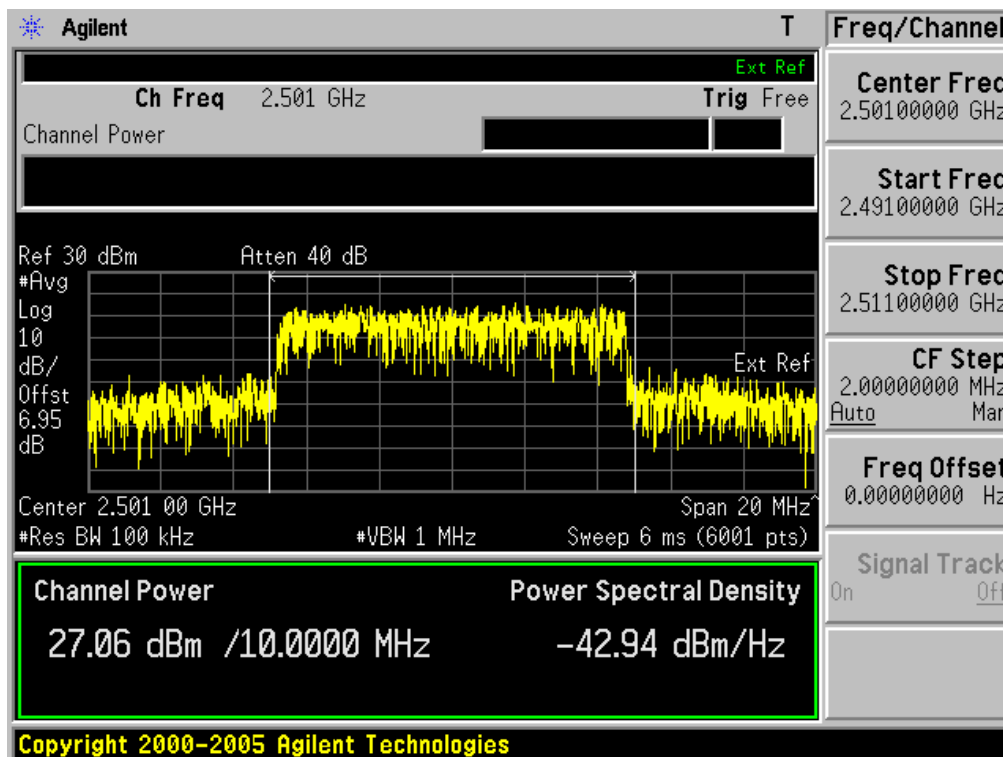
## 5.1 PLOTS OF EMISSIONS

(Continued...)

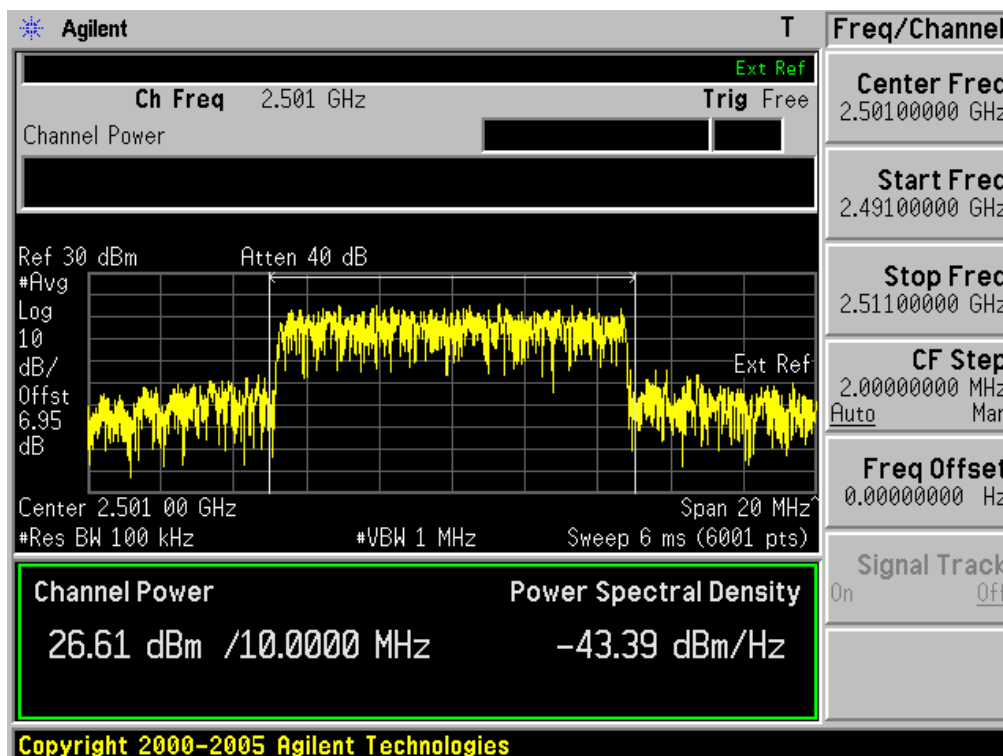
### 5.1.4 Conducted Output Power(BW: 10MHz)

(Continued...)

- Low Channel(2501MHz) & AMC Mode & 16QAM 1/2



- Low Channel(2501MHz) & AMC Mode & 16QAM 3/4



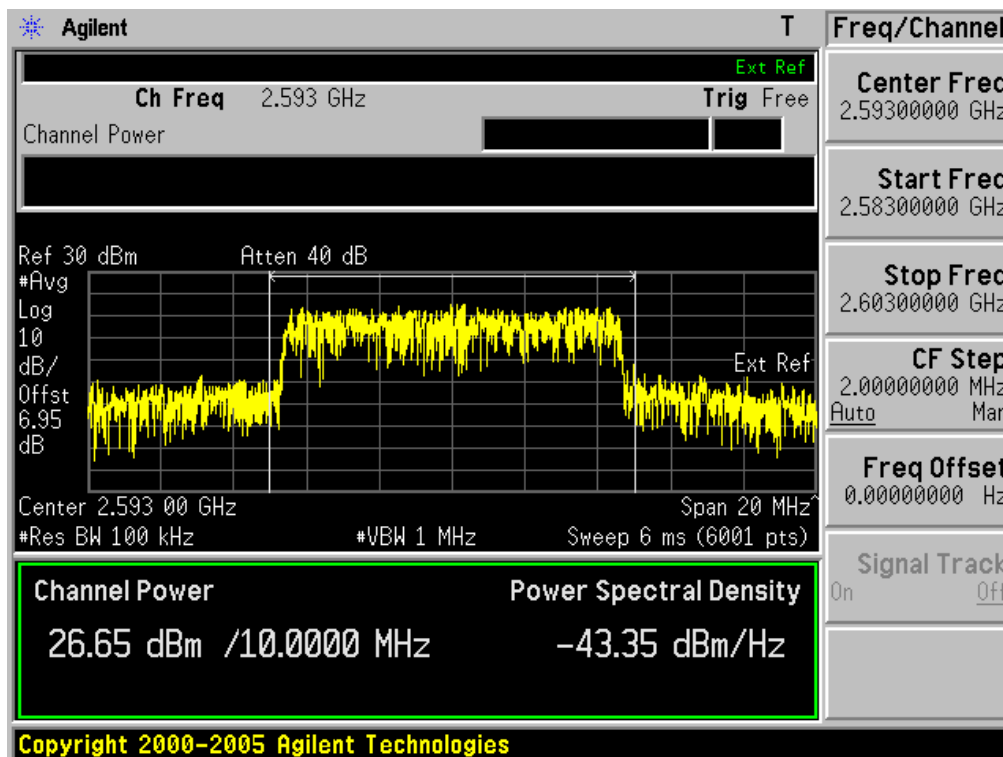
## 5.1 PLOTS OF EMISSIONS

(Continued...)

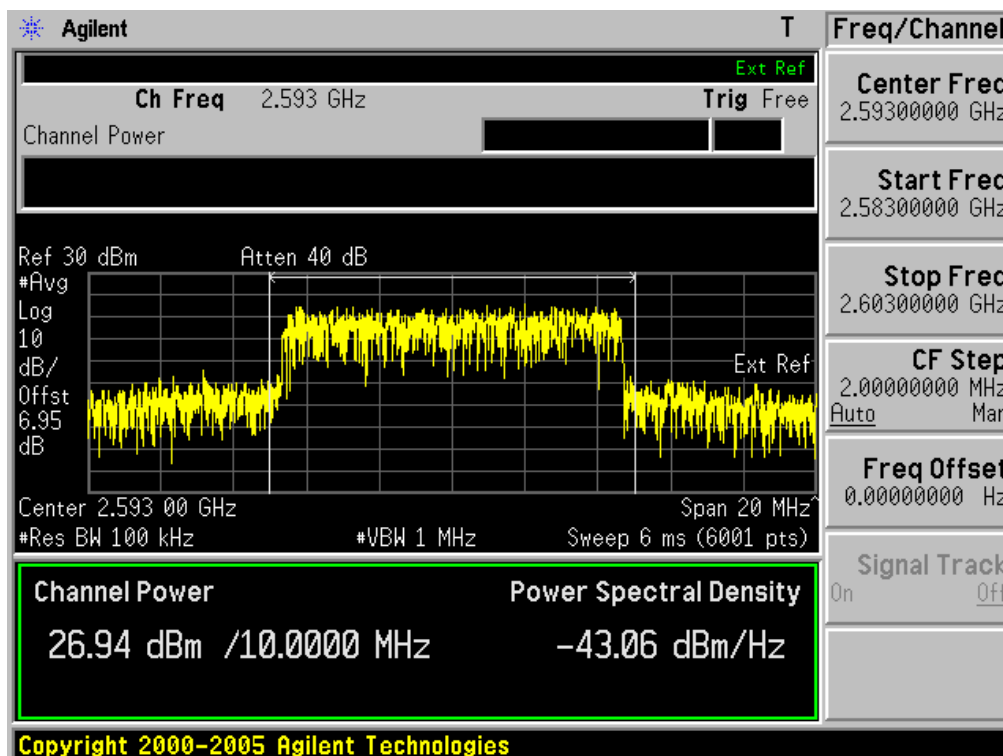
### 5.1.4 Conducted Output Power(BW: 10MHz)

(Continued...)

- Middle Channel(2593MHz) & PUSC Mode & QPSK 1/2



- Middle Channel(2593MHz) & PUSC Mode & QPSK 3/4



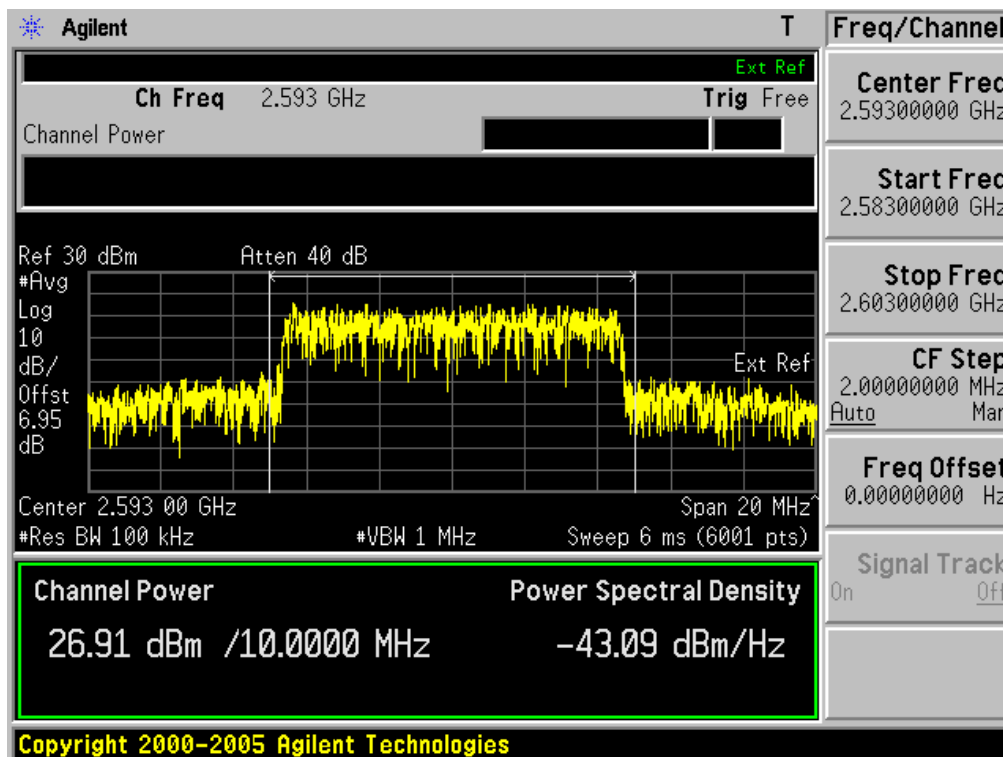
## 5.1 PLOTS OF EMISSIONS

(Continued...)

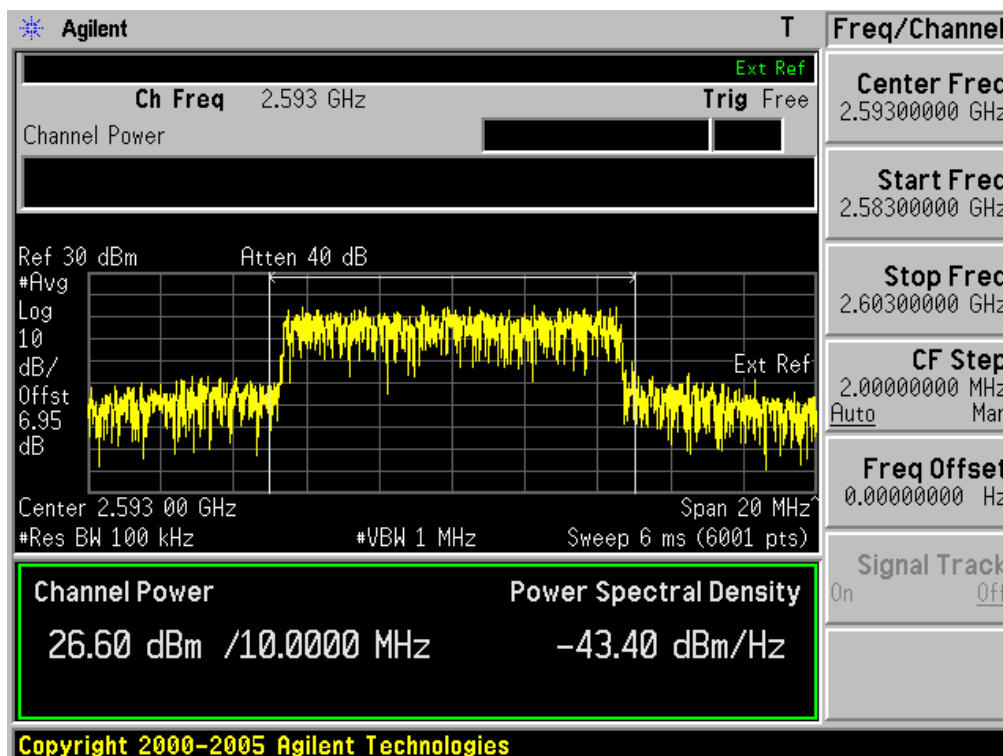
### 5.1.4 Conducted Output Power(BW: 10MHz)

(Continued...)

- Middle Channel(2593MHz) & PUSC Mode & 16QAM 1/2



- Middle Channel(2593MHz) & PUSC Mode & 16QAM 3/4



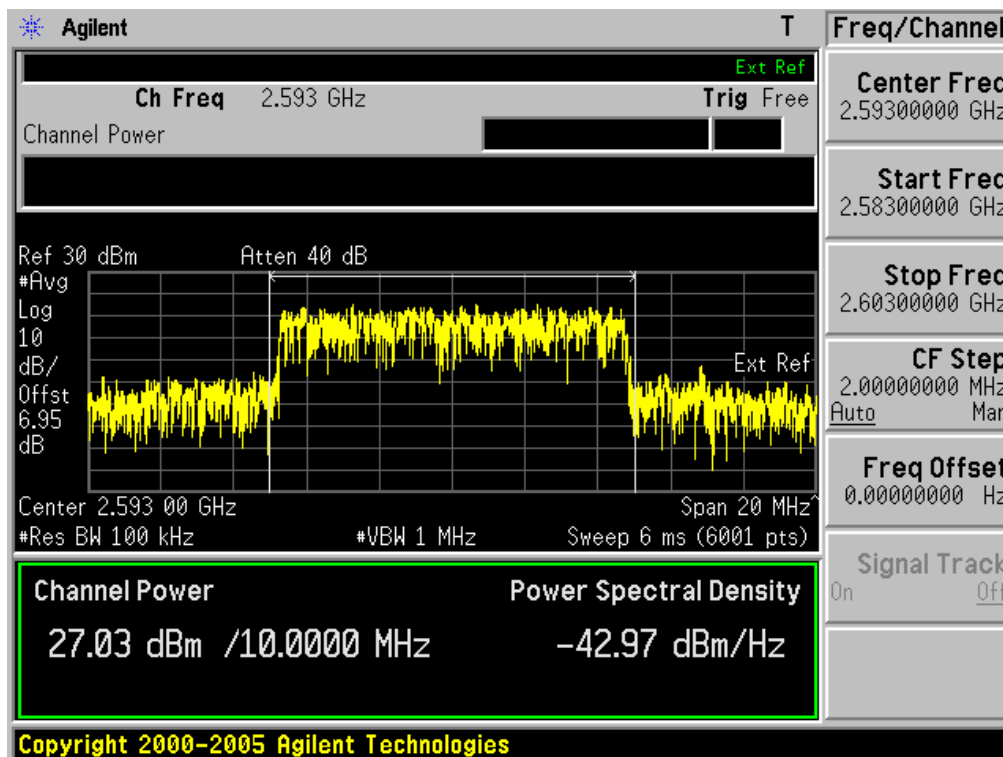
## 5.1 PLOTS OF EMISSIONS

(Continued...)

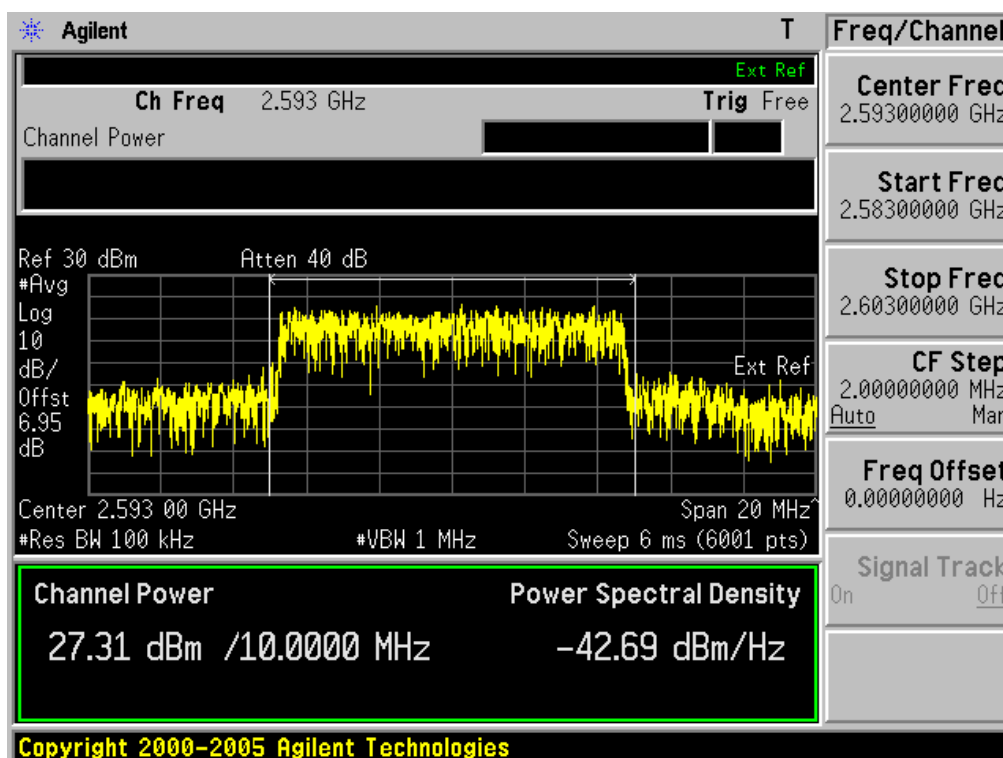
### 5.1.4 Conducted Output Power(BW: 10MHz)

(Continued...)

- Middle Channel(2593MHz) & AMC Mode & QPSK 1/2



- Middle Channel(2593MHz) & AMC Mode & QPSK 3/4



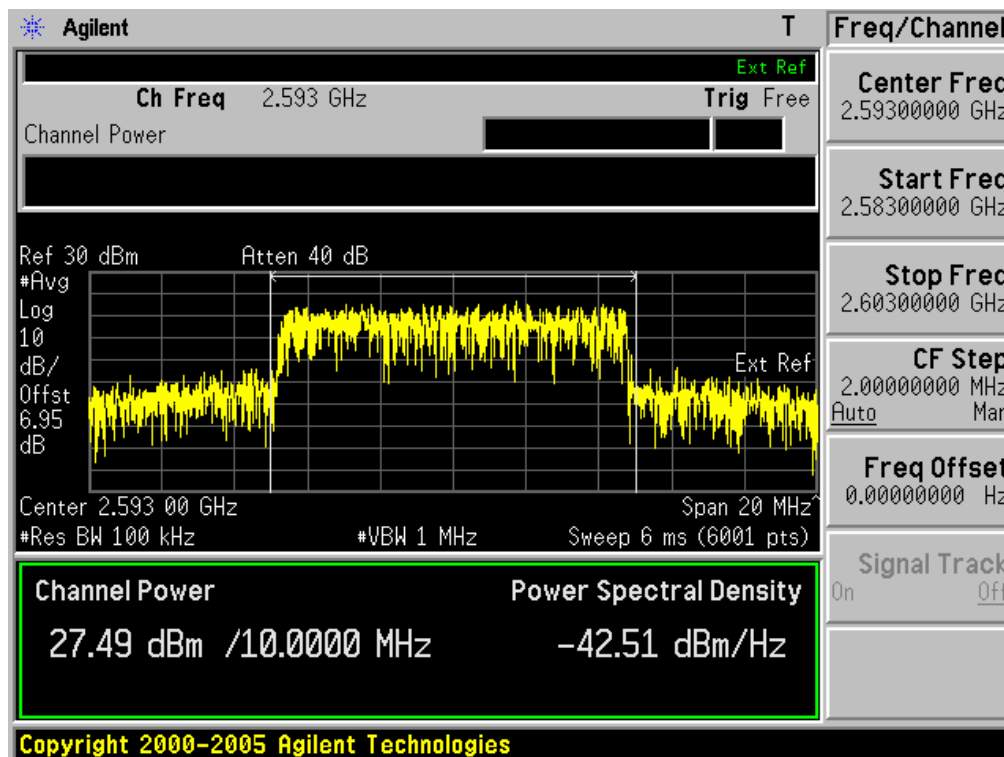
## 5.1 PLOTS OF EMISSIONS

(Continued...)

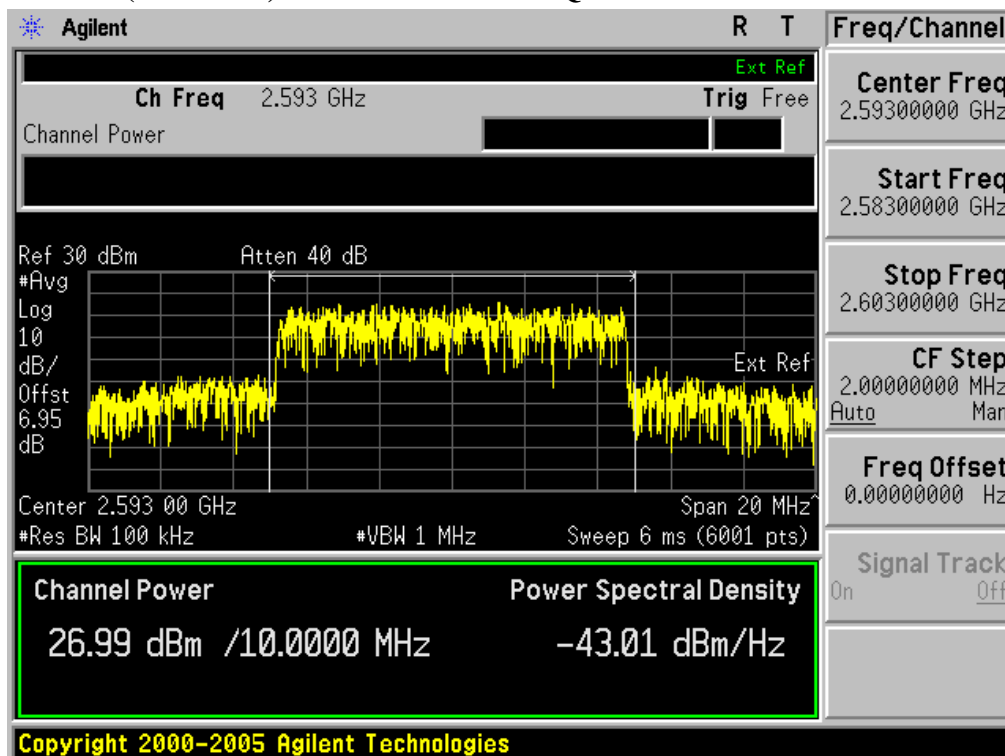
### 5.1.4 Conducted Output Power(BW: 10MHz)

(Continued...)

- Middle Channel(2593MHz) & AMC Mode & 16QAM 1/2



- Middle Channel(2593MHz) & AMC Mode & 16QAM 3/4



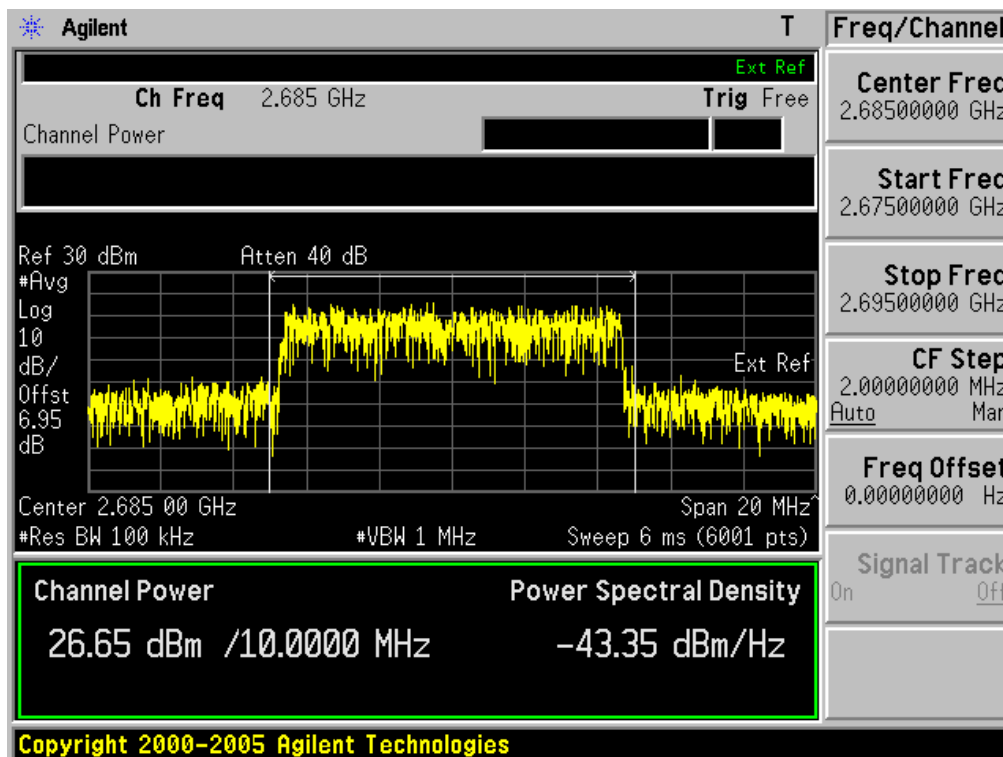
## 5.1 PLOTS OF EMISSIONS

(Continued...)

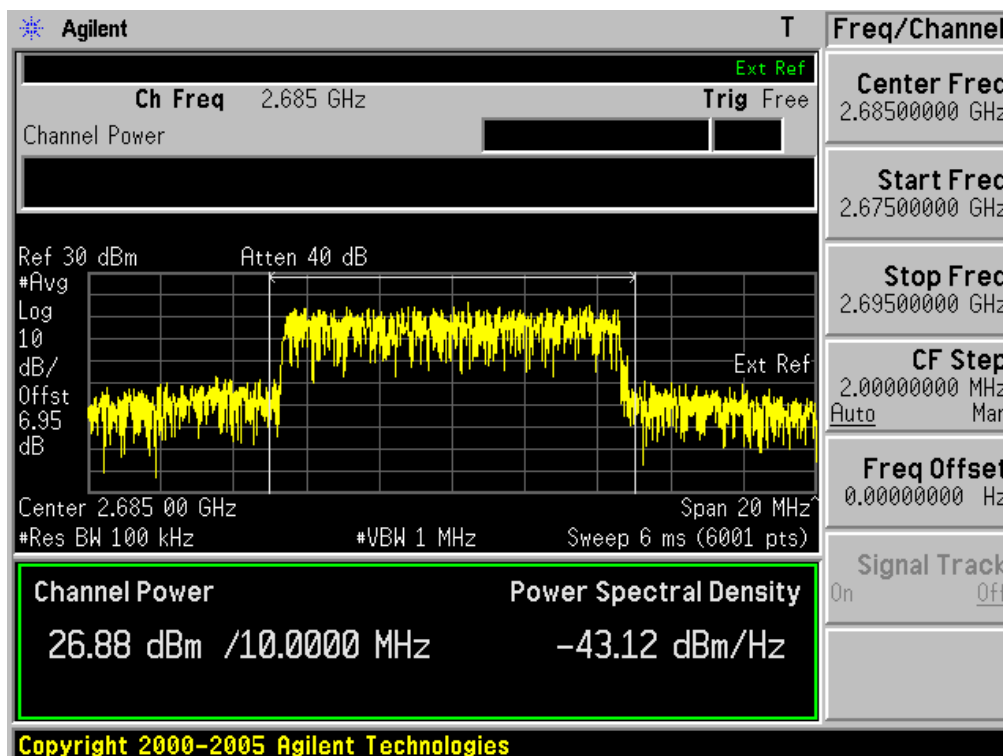
### 5.1.4 Conducted Output Power(BW: 10MHz)

(Continued...)

- High Channel(2685MHz) & PUSC Mode & QPSK 1/2



- High Channel(2685MHz) & PUSC Mode & QPSK 3/4



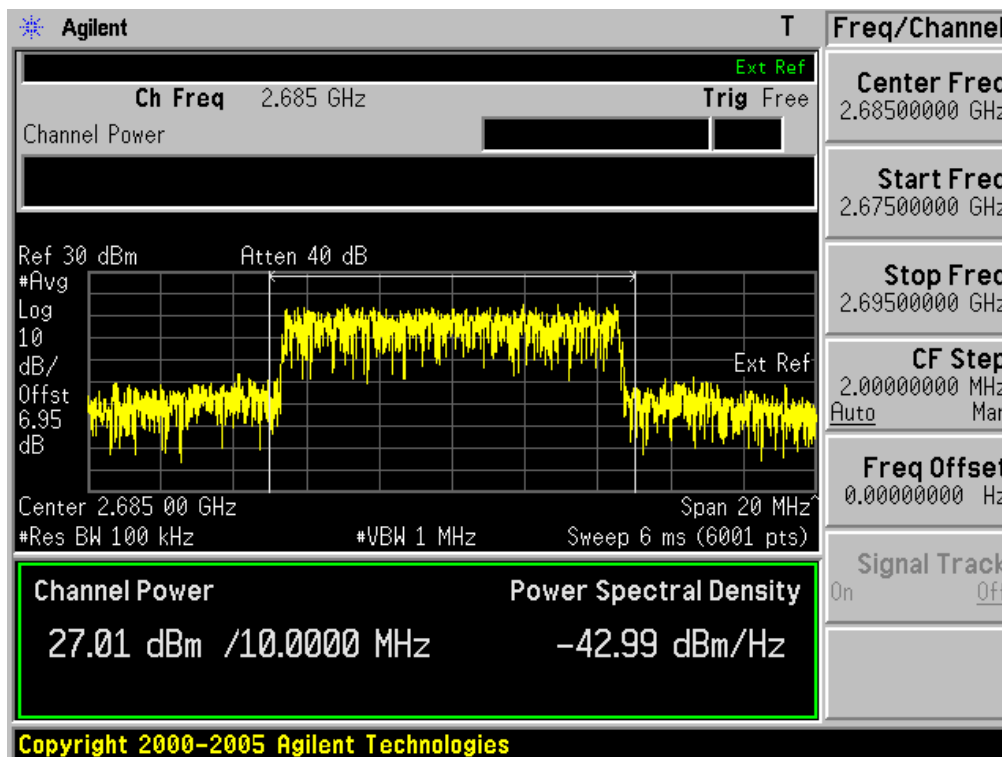
## 5.1 PLOTS OF EMISSIONS

(Continued...)

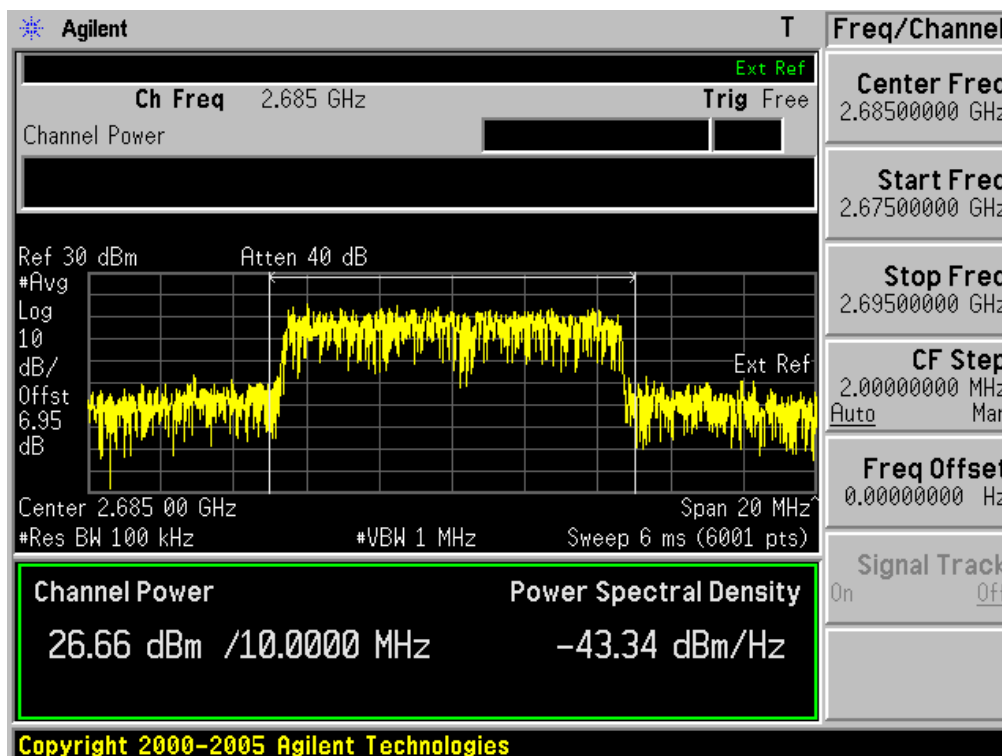
### 5.1.4 Conducted Output Power(BW: 10MHz)

(Continued...)

- High Channel(2685MHz) & PUSC Mode & 16QAM 1/2



- High Channel(2685MHz) & PUSC Mode & 16QAM 3/4



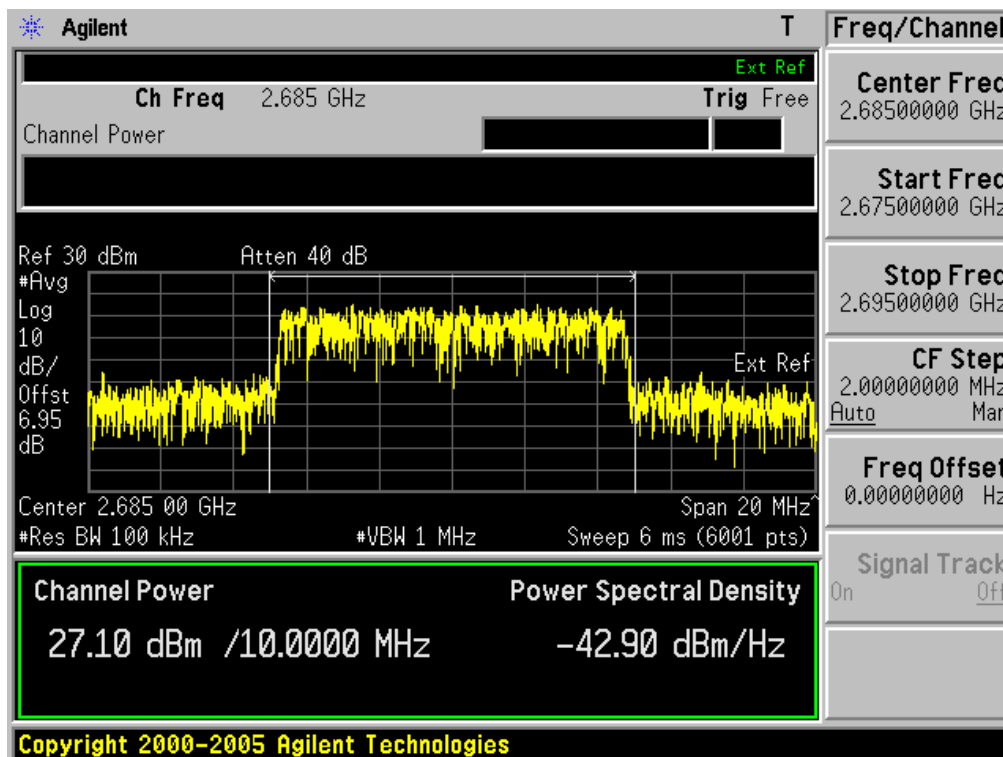
## 5.1 PLOTS OF EMISSIONS

(Continued...)

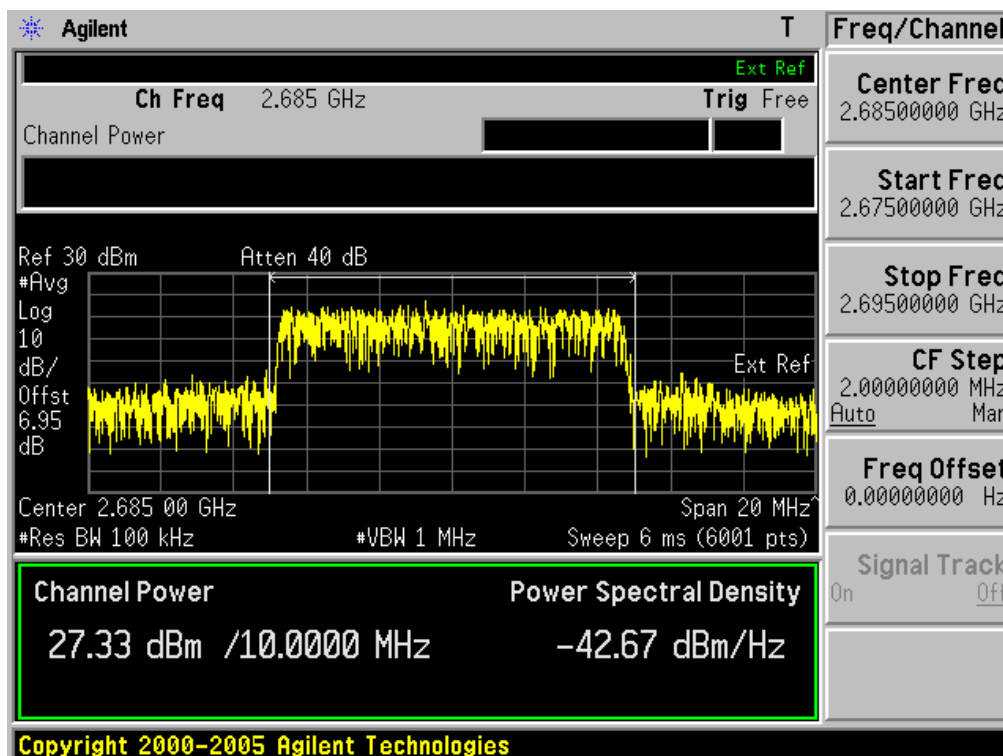
### 5.1.4 Conducted Output Power(BW: 10MHz)

(Continued...)

- High Channel(2685MHz) & AMC Mode & QPSK 1/2



- High Channel(2685MHz) & AMC Mode & QPSK 3/4



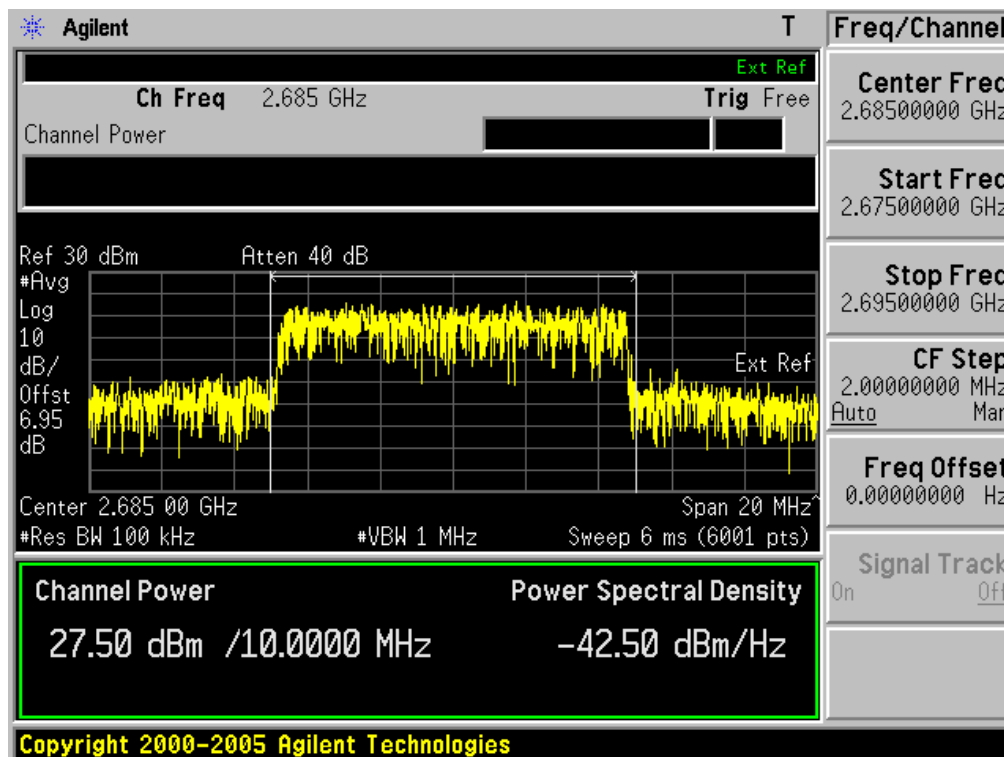
## 5.1 PLOTS OF EMISSIONS

(Continued...)

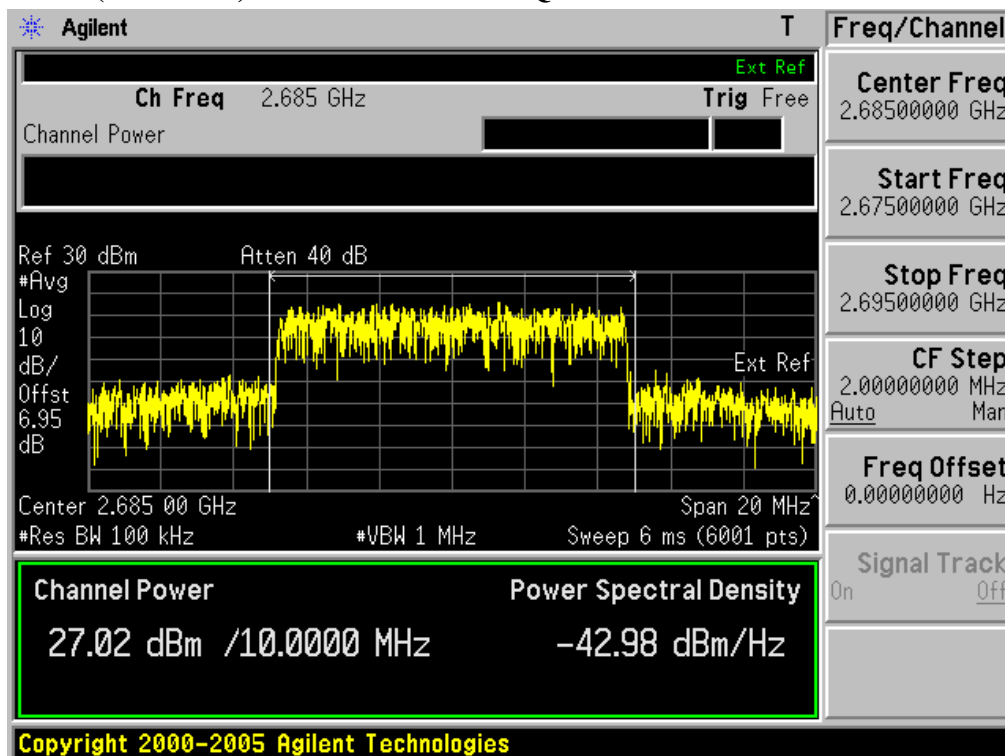
### 5.1.4 Conducted Output Power(BW: 10MHz)

(Continued...)

- High Channel(2685MHz) & AMC Mode & 16QAM 1/2



- High Channel(2685MHz) & AMC Mode & 16QAM 3/4



## 6.1 LIST OF TEST EQUIPMENT

	Type	Manufacturer	Model	Cal.Due.Date (dd/mm/yy)	Next.Due.Date (dd/mm/yy)	S/N
<input checked="" type="checkbox"/>	Spectrum Analyzer	Agilent	E4440A	06/11/08	06/11/09	MY45304199
<input type="checkbox"/>	Spectrum Analyzer(RE)	H.P	8563E	13/10/08	13/10/09	3551A04634
<input type="checkbox"/>	Spectrum Analyzer	Rohde Schwarz	FSP	09/09/08	09/09/09	100385
<input type="checkbox"/>	Power Meter	H.P	EMP-442A	10/07/08	10/07/09	GB37170413
<input type="checkbox"/>	Power Sensor	H.P	8481A	14/07/08	14/07/09	3318A96332
<input type="checkbox"/>	Power Divider	Agilent	11636B	04/12/08	04/12/09	56471
<input type="checkbox"/>	Power Splitter	Anritsu	K241B	14/10/08	14/10/09	020611
<input type="checkbox"/>	Frequency Counter	H.P	5342A	16/09/08	16/09/09	2119A04450
<input type="checkbox"/>	TEMP & HUMIDITY Chamber	JISCO	KR-100/J-RHC2	10/10/08	10/10/09	30604493/021031
<input checked="" type="checkbox"/>	Digital Multimeter	H.P	34401A	13/03/09	13/03/10	3146A13475
<input type="checkbox"/>	Thermo hygrometer	BODYCOM	BJ5478	06/02/09	06/02/10	090205-3
<input checked="" type="checkbox"/>	Thermo hygrometer	BODYCOM	BJ5478	06/02/09	06/02/10	090205-2
<input type="checkbox"/>	Thermo hygrometer	BODYCOM	BJ5478	06/02/09	06/02/10	090205-4
<input type="checkbox"/>	Multifunction Synthesizer	HP	8904A	06/10/08	06/10/09	3633A08404
<input checked="" type="checkbox"/>	Signal Generator	Rohde Schwarz	SMR20	13/03/09	13/03/10	101251
<input checked="" type="checkbox"/>	Signal Generator	H.P	ESG-3000A	09/07/08	09/07/09	US37230529
<input type="checkbox"/>	Amplifier	EMPOWER	BBS3Q7ELU	02/02/09	02/02/10	1020
<input checked="" type="checkbox"/>	Vector Signal Generator	Rohde Schwarz	SMJ100A	02/02/09	02/02/10	100148
<input type="checkbox"/>	Audio Analyzer	H.P	8903B	09/07/08	09/07/09	3011A09448
<input type="checkbox"/>	Modulation Analyzer	H.P	8901B	18/07/08	18/07/09	3028A03029
<input type="checkbox"/>	8960 Series 10 Wireless Comms. Test Set	Agilent	E5515C	31/07/08	31/07/09	GB43461134
<input type="checkbox"/>	Universal Radio communication Tester	Rohde Schwarz	CMU 200	13/03/09	13/03/10	107631
<input type="checkbox"/>	Bluetooth Tester	TESCOM	TC-3000A	16/12/08	16/12/09	3000A4A0121
<input type="checkbox"/>	BAND Reject Filter	Microwave Circuits	N0308372	06/10/08	06/10/09	3125-01DC0352
<input type="checkbox"/>	BAND Reject Filter	Wainwright	WRCG1750	06/10/08	06/10/09	2
<input type="checkbox"/>	High-Pass Filter	ANRITSU	MP526D	06/10/08	06/10/09	MP27756
<input type="checkbox"/>	High-pass filter	Wainwright	WHKX2.1	N/A	N/A	1
<input checked="" type="checkbox"/>	High-Pass Filter	Wainwright	WHKX3.0	N/A	N/A	9
<input type="checkbox"/>	Tunable Notch Filter	Wainwright	WRCT800.0/960.0-0.2/40-8SSK	N/A	N/A	10
<input type="checkbox"/>	Tunable Notch Filter	Wainwright	WRCD1700.0/2000.0-0.2/40-10SSK	N/A	N/A	27
<input type="checkbox"/>	Tunable Notch Filter	Wainwright	WRCT1900.0/2200.0-5/40-10SSK	N/A	N/A	7
<input checked="" type="checkbox"/>	AC Power supply	DAEKWANG	5KVA	13/03/09	13/03/10	20060321-1
<input type="checkbox"/>	DC Power Supply	HP	6622A	13/03/09	13/03/10	3448A03760
<input type="checkbox"/>	DC Power Supply	HP	6633A	13/03/09	13/03/10	3524A06634
<input checked="" type="checkbox"/>	HORN ANT	ETS	3115	13/06/08	13/06/09	6419
<input checked="" type="checkbox"/>	HORN ANT	ETS	3115	10/09/08	10/09/09	21097
<input type="checkbox"/>	HORN ANT	A.H.Systems	SAS-574	13/06/08	13/06/09	154
<input type="checkbox"/>	HORN ANT	A.H.Systems	SAS-574	13/06/08	13/06/09	155

**6.1 LIST OF TEST EQUIPMENT****(Continued...)**

	Type	Manufacturer	Model	Cal.Due.Date (dd/mm/yy)	Next.Due.Date (dd/mm/yy)	S/N
<input checked="" type="checkbox"/>	Dipole Antenna	Schwarzbeck	VHA9103	25/11/08	25/11/09	2116
<input checked="" type="checkbox"/>	Dipole Antenna	Schwarzbeck	VHA9103	25/11/08	25/11/09	2117
<input checked="" type="checkbox"/>	Dipole Antenna	Schwarzbeck	UHA9105	25/11/08	25/11/09	2261
<input checked="" type="checkbox"/>	Dipole Antenna	Schwarzbeck	UHA9105	25/11/08	25/11/09	2262
<input type="checkbox"/>	Coaxial Fixed Attenuators	Agilent	8491B	01/08/08	01/08/09	MY39260700
<input type="checkbox"/>	Coaxial Fixed Attenuators	Agilent	8491B	15/07/08	15/07/09	MY39260699
<input type="checkbox"/>	Attenuator (10dB)	WEINSCHL	23-10-34	01/10/08	01/10/09	BP4386
<input type="checkbox"/>	Attenuator (20dB)	WEINSCHL	86-20-11	06/10/08	06/10/09	432
<input checked="" type="checkbox"/>	Attenuator (10dB)	WEINSCHL	86-10-11	06/10/08	06/10/09	446
<input type="checkbox"/>	Attenuator (10dB)	WEINSCHL	86-10-11	06/10/08	06/10/09	408
<input type="checkbox"/>	Attenuator (40dB)	WEINSCHL	57-40-33	01/10/08	01/10/09	NN837
<input type="checkbox"/>	Attenuator (30dB)	JFW	50FH-030-300	13/03/09	13/03/10	060320-1
<input type="checkbox"/>	Type N Coaxial CIRCULATOR	NOVA MICROWAVE	0088CAN	11/07/08	11/07/09	788
<input type="checkbox"/>	Type N Coaxial CIRCULATOR	NOVA MICROWAVE	0185CAN	11/07/08	11/07/09	790
<input type="checkbox"/>	Type N Coaxial CIRCULATOR	NOVA MICROWAVE	0215CAN	11/07/08	11/07/09	112
<input checked="" type="checkbox"/>	Amplifier (30dB)	Agilent	8449B	13/10/08	13/10/09	3008A01590
<input type="checkbox"/>	EMI TEST RECEIVER	R&S	ESU	02/02/09	02/02/10	100014
<input type="checkbox"/>	BILOG ANTENNA	SCHAFFNER	CBL6112B	13/06/08	13/06/09	2737
<input type="checkbox"/>	Amplifier (22dB)	H.P	8447E	05/02/09	05/02/10	2945A02865
<input type="checkbox"/>	Position Controller	TOKIN	5905A	N/A	N/A	N/A
<input type="checkbox"/>	Software	ToYo EMI	EP5/RE	N/A	N/A	Ver 2.0.800
<input type="checkbox"/>	EMI TEST RECEIVER	R&S	ESCI	13/05/08	13/05/09	100364
<input checked="" type="checkbox"/>	Log Periodic Antenna	Schwarzbeck	UHALP9108A1	30/09/08	30/09/09	1098
<input checked="" type="checkbox"/>	Biconical Antenna	Schwarzbeck	VHA9103	13/06/08	13/06/09	2233
<input type="checkbox"/>	Low Noise Pre Amplifier	TSJ	MLA-100K01-B01-2	13/03/09	13/03/10	1252741
<input checked="" type="checkbox"/>	Amplifier (25dB)	Agilent	8447D	18/08/08	18/08/09	2648A04922
<input checked="" type="checkbox"/>	Position Controller	TOKIN	5901T	N/A	N/A	14173
<input type="checkbox"/>	Software	AUDIX	e3	N/A	N/A	Ver 3.0
<input type="checkbox"/>	Driver	TOKIN	5902T2	N/A	N/A	14174
<input type="checkbox"/>	Spectrum Analyzer(CE)	H.P	8591E	26/04/08	26/04/09	3649A05889
<input type="checkbox"/>	LISN	Kyoritsu	KNW-407	04/08/08	04/08/09	8-317-8
<input type="checkbox"/>	LISN	Kyoritsu	KNW-242	11/09/08	11/09/09	8-654-15
<input type="checkbox"/>	CVCF	NF Electronic	4420	N/A	N/A	304935/337980
<input type="checkbox"/>	Software	ToYo EMI	EP5/CE	N/A	N/A	Ver 2.0.801
<input type="checkbox"/>	DC BLOCK	Hyuplip	KEL-007	N/A	N/A	7-1581-5
<input type="checkbox"/>	50 ohm Terminator	HME	CT-01	22/01/09	22/01/10	N/A
<input type="checkbox"/>	RFI/FIELD Intensity Meter	Kyoritsu	KNM-2402	11/09/08	11/09/09	4N-170-3

## 7.1 EMISSION DESIGNATOR

### A. Emission Designator

#### - Bandwidth: 5MHz

##### **QPSK Modulation**

Emission Designator = 4M73G7D

WiMAX BW = 4.7257 MHz

G = Phase Modulation

7 = Quantized/Digital Information

D = Data Transmission

##### **16QAM Modulation**

Emission Designator = 4M71W7D

WiMAX BW = 4.7117 MHz

W = Composite – Quadrature Amplitude Modulation

7 = Quantized/Digital Information

D = Data Transmission

#### - Bandwidth: 10MHz

##### **QPSK Modulation**

Emission Designator = 9M37G7D

WiMAX BW = 9.3740 MHz

G = Phase Modulation

7 = Quantized/Digital Information

D = Data Transmission

##### **16QAM Modulation**

Emission Designator = 9M37W7D

WiMAX BW = 9.3704 MHz

W = Composite – Quadrature Amplitude Modulation

7 = Quantized/Digital Information

D = Data Transmission

## **8.1 CONCLUSION**

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The data collected shows that the **SEOWONINTECH CO., LTD.** Simple CPE WIMAX (**FCC ID: V7MSWC-3100**) complies with all the requirements of Parts 2 and 27 of the FCC rules.