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

CERTIFICATIO OF COMPLIANCE

SEOWON INTECH CO., LTD.
689-47, Kumjung-Dong, Kunpo-City, Kyunggi-Do,
435-862, Korea

Dates of Tests: December 19 ~ 30, 2008
Test Report S/N: DR50110901BE
Test Site : DIGITAL EMC CO., LTD.

FCC ID. **V7MSWC-2100**

APPLICANT **SEOWON INTECH CO., LTD.**

Classification	:	**Licensed Non-Broadcast Transmitter(TNB)**
FCC Rule Part(s)	:	**§27(M), §2**
EUT Type	:	**VoIP CPE WIMAX**
Model name	:	**SWC-2100**
Serial number	:	**Identical prototype**
TX Frequency Range	:	**2498.5 ~ 2687.5MHz (5MHz OBW)**
		2501.0 ~ 2685.0MHz (10MHz OBW)
RX Frequency Range	:	**2498.5 ~ 2687.5MHz (5MHz OBW)**
		2501.0 ~ 2685.0MHz (10MHz OBW)
Max. RF Output Power	:	**OBW: 5MHz - 0.853W EIRP (29.31 dBm)**
		OBW: 10MHz - 0.927W EIRP(29.67 dBm)
Emission Designators:	:	**4M72G7D(QPSK)**
		4M71W7D(16QAM)
		9M37G7D(QPSK)
		9M37W7D(16QAM)
Date of Issue	:	**January 21, 2009**

TABLE OF CONTENTS

◈ MEASUREMENT REPORT

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: CHOUN-SUP, KIM

- FCC ID: V7MSWC-2100
- Quantity: Quantity production is planned
- Emission Designators: 4M72G7D(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 – 0.853W EIRP (29.31 dBm)
  OBW: 10MHz - 0.927W EIRP (29.67 dBm)
- FCC Classification(s): Licensed Non-Broadcast Transmitter(TNB)
- Equipment (EUT) Type: VoIP 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: December 19 ~ 30, 2008
- Place of Tests: DIGITAL EMC
- Test Report S/N: DR50110901BE

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.digitalemc.com E-mail : harveysung@digitalemc.com
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

January 21, 2009	Won-Jung LEE	
Data	Name	Signature

Report Reviewed By: Director

January 21, 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

3.1.1 Occupied Bandwidth Emission Limits

- Part §2.1049, §27.53.(l)(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.(l) (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.(l) (2), (6)

Spurious and harmonic emissions between the lowest frequency generated in this device and up to 10^{th} 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…)

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°C to + 50°C using an environmental chamber with 10°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°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°C intervals ranging from -30°C to +50°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+ $10\log_{10}(P)$		**C**
2.1051 27.53(l)(2)(6)	Conducted Spurious Emissions	< 43+ $10\log_{10}(P)$		**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+ $10\log_{10}(P)$ 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** note 2
15.109	General Field Strength Limits	< FCC 15.109 limits	Line Conducted	**C** note 2

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..

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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	23.72	23.88	24.03	23.92
		2593.0	23.58	23.65	23.78	23.47
		2687.5	23.17	23.20	23.12	23.04
	AMC	2498.5	24.26	**24.31**	**24.41**	24.25
		2593.0	24.23	**24.39**	**24.29**	24.06
		2687.5	23.90	**24.19**	**24.08**	23.97
10MHz	PUSC	2501.0	24.09	24.07	23.99	23.97
		2593.0	24.17	24.10	24.16	24.03
		2685.0	24.01	23.91	24.01	23.99
	AMC	2501.0	**24.46**	24.31	**24.67**	24.18
		2593.0	**24.60**	24.50	**24.74**	24.39
		2685.0	**24.37**	24.23	**24.55**	24.22

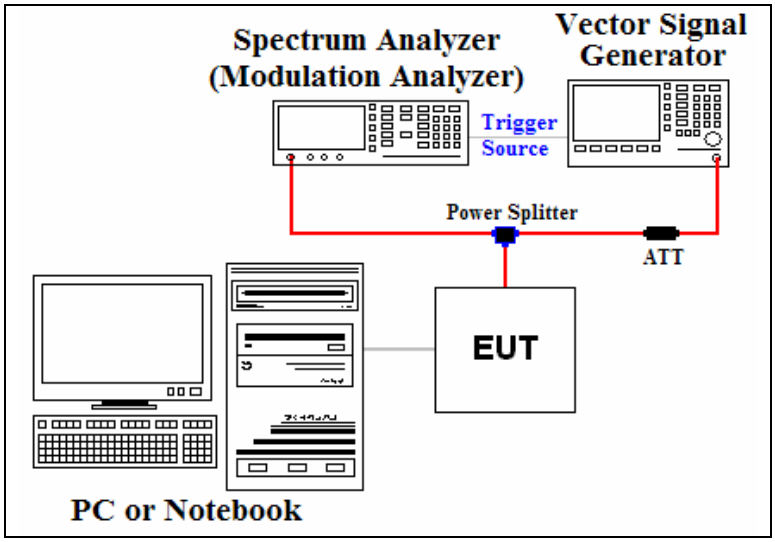


Figure1. Test Setup Diagram of WiMAX Coducted Power

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	-21.03	18.78	9.44	28.22	0.664	Adaptor
2593.0	**AMC & QPSK 3/4**	**V**	**-20.29**	**19.50**	**9.47**	**28.97**	**0.789**	**Adaptor**
2687.5	AMC & QPSK 3/4	V	-20.81	18.56	9.49	28.05	0.638	Adaptor
2593.0	AMC & QPSK 1/2	V	-20.34	19.45	9.47	28.92	0.780	Adaptor
2593.0	PUSC & QPSK 1/2	V	-20.62	19.17	9.47	28.64	0.731	Adaptor
2593.0	PUSC & QPSK 3/4	V	-20.50	19.29	9.47	28.76	0.752	Adaptor
2498.5	AMC & 16QAM 1/2	V	-20.76	18.99	9.44	28.43	0.697	Adaptor
2593.0	**AMC & 16QAM 1/2**	**V**	**-20.11**	**19.84**	**9.47**	**29.31**	**0.853**	**Adaptor**
2687.5	AMC & 16QAM 1/2	V	-20.51	18.56	9.49	28.05	0.638	Adaptor
2593.0	AMC & 16QAM 3/4	V	-20.33	19.62	9.47	29.09	0.811	Adaptor
2593.0	PUSC & 16QAM 1/2	V	-20.66	19.29	9.47	28.76	0.752	Adaptor
2593.0	PUSC & 16QAM 3/4	V	-20.79	19.16	9.47	28.63	0.729	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	-23.31	19.20	9.44	28.64	0.731	Adaptor
2593.0	**AMC & QPSK 3/4**	**V**	**-22.03**	**20.03**	**9.47**	**29.50**	**0.891**	**Adaptor**
2685.0	AMC & QPSK 3/4	V	-24.42	18.47	9.49	27.96	0.625	Adaptor
2593.0	AMC & QPSK 1/2	V	-22.36	19.70	9.47	29.17	0.826	Adaptor
2593.0	PUSC & QPSK 1/2	V	-22.12	19.94	9.47	29.41	0.873	Adaptor
2593.0	PUSC & QPSK 3/4	V	-23.00	19.06	9.47	28.53	0.713	Adaptor
2501.0	AMC & 16QAM 1/2	V	-23.61	19.33	9.44	28.77	0.753	Adaptor
2593.0	**AMC & 16QAM 1/2**	**V**	**-22.17**	**20.20**	**9.47**	**29.67**	**0.927**	**Adaptor**
2685.0	AMC & 16QAM 1/2	V	-24.20	18.63	9.49	28.12	0.649	Adaptor
2593.0	AMC & 16QAM 3/4	V	-22.48	19.89	9.47	29.36	0.863	Adaptor
2593.0	PUSC & 16QAM 1/2	V	-22.65	19.72	9.47	29.19	0.830	Adaptor
2593.0	PUSC & 16QAM 3/4	V	-22.78	19.59	9.47	29.06	0.805	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 : 28.22 dBm = 0.664 W
DISTANCE 3 meters
LIMIT 43 + 10 $\log_{10}$ (W) = 41.22 dBc

Freq. (MHz)	**POL** (H/V)	**LEVEL@ ANTENNA TERMINALS** (dBm)	**SUBSTITUTE ANTENNA GAIN** (dBi)	**CORRECT GENERATOR LEVEL** (dBm)	(dBc)
4997.00	H	-52.02	10.56	-41.46	69.68
4997.00	V	-53.93	10.56	-43.37	71.59
-	-	-	-	-	-

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 : 28.97 dBm = 0.789 W
DISTANCE 3 meters
LIMIT $43 + 10 \log_{10} (W)$ = 41.97 dBc

Freq. (MHz)	**POL** (H/V)	**LEVEL@ ANTENNA TERMINALS** (dBm)	**SUBSTITUTE ANTENNA GAIN** (dBi)	**CORRECT GENERATOR LEVEL** (dBm)	(dBc)
5186.00	H	-53.46	10.72	-42.74	71.71
5186.00	V	-54.06	10.72	-43.34	72.31
-	-	-	-	-	-

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 : 28.05 dBm = 0.638 W
DISTANCE 3 meters
LIMIT $43 + 10 \log_{10} (W)$ = 41.05 dBc

Freq. (MHz)	**POL** (H/V)	**LEVEL@ ANTENNA TERMINALS** (dBm)	**SUBSTITUTE ANTENNA GAIN** (dBi)	**CORRECT GENERATOR LEVEL** (dBm)	(dBc)
5375.00	H	-51.89	10.88	-41.01	69.06
5375.00	V	-50.79	10.88	-39.91	67.96
-	-	-	-	-	-

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 : 28.43 dBm = 0.697 W
DISTANCE 3 meters
LIMIT $43 + 10 \log_{10}$ (W) = 41.43 dBc

Freq. (MHz)	**POL** (H/V)	**LEVEL@ ANTENNA TERMINALS** (dBm)	**SUBSTITUTE ANTENNA GAIN** (dBi)	**CORRECT GENERATOR LEVEL** (dBm)	(dBc)
4997.00	H	-52.41	10.56	-41.85	70.28
4997.00	V	-52.77	10.56	-42.21	70.64
-	-	-	-	-	-

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 : 29.31 dBm = 0.853 W
DISTANCE 3 meters
LIMIT $43 + 10 \log_{10} (W)$ = 42.31 dBc

Freq. (MHz)	**POL** (H/V)	**LEVEL@ ANTENNA TERMINALS** (dBm)	**SUBSTITUTE ANTENNA GAIN** (dBi)	**CORRECT GENERATOR LEVEL** (dBm)	(dBc)
5186.00	H	-55.46	10.72	-44.74	74.05
5186.00	V	-53.15	10.72	-42.43	71.74
-	-	-	-	-	-

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 : 28.05 dBm = 0.638 W
DISTANCE 3 meters
LIMIT $43 + 10 \log_{10} (W)$ = 41.05 dBc

Freq. (MHz)	**POL** (H/V)	**LEVEL@ ANTENNA TERMINALS** (dBm)	**SUBSTITUTE ANTENNA GAIN** (dBi)	**CORRECT GENERATOR LEVEL** (dBm)	(dBc)
5375.00	H	-51.80	10.88	-40.92	68.97
5375.00	V	-51.56	10.88	-40.68	68.73
-	-	-	-	-	-

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 : 28.64 dBm = 0.731 W
DISTANCE 3 meters
LIMIT $43 + 10 \log_{10} (W)$ = 41.64 dBc

Freq. (MHz)	**POL** (H/V)	**LEVEL@ ANTENNA TERMINALS** (dBm)	**SUBSTITUTE ANTENNA GAIN** (dBi)	**CORRECT GENERATOR LEVEL** (dBm)	(dBc)
5002.00	H	-52.24	10.56	-41.68	70.32
5002.00	V	-51.97	10.56	-41.41	70.05
-	-	-	-	-	-

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 : 29.50 dBm = 0.891 W
DISTANCE 3 meters
LIMIT $43 + 10 \log_{10} (W)$ = 42.50 dBc

Freq. (MHz)	**POL** (H/V)	**LEVEL@ ANTENNA TERMINALS** (dBm)	**SUBSTITUTE ANTENNA GAIN** (dBi)	**CORRECT GENERATOR LEVEL** (dBm)	(dBc)
5186.00	H	-54.69	10.72	-43.97	73.47
5186.00	V	-53.28	10.72	-42.56	72.06
-	-	-	-	-	-

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 : 27.96 dBm = 0.625 W
DISTANCE 3 meters
LIMIT $43 + 10 \log_{10} (W)$ = 40.96 dBc

Freq. (MHz)	**POL** (H/V)	**LEVEL@ ANTENNA TERMINALS** (dBm)	**SUBSTITUTE ANTENNA GAIN** (dBi)	**CORRECT GENERATOR LEVEL** (dBm)	(dBc)
5370.00	H	-52.69	10.88	-41.81	69.77
5370.00	V	-50.43	10.88	-39.55	67.51
-	-	-	-	-	-

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 : 28.77 dBm = 0.753 W
DISTANCE 3 meters
LIMIT $43 + 10 \log_{10}$ (W) = 41.77 dBc

Freq. (MHz)	**POL** (H/V)	**LEVEL@ ANTENNA TERMINALS** (dBm)	**SUBSTITUTE ANTENNA GAIN** (dBi)	**CORRECT GENERATOR LEVEL** (dBm)	(dBc)
5002.00	H	-52.45	10.56	-41.89	70.66
5002.00	V	-51.77	10.56	-41.21	69.98
-	-	-	-	-	-

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 : 29.67 dBm = 0.927 W
DISTANCE 3 meters
LIMIT $43 + 10 \log_{10}$ (W) = 42.67 dBc

Freq. (MHz)	**POL** (H/V)	**LEVEL@ ANTENNA TERMINALS** (dBm)	**SUBSTITUTE ANTENNA GAIN** (dBi)	**CORRECT GENERATOR LEVEL** (dBm)	(dBc)
5186.00	H	-53.32	10.72	-42.60	72.27
5186.00	V	-53.12	10.72	-42.40	72.07
-	-	-	-	-	-

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 : 16QAM 1/2
BANDWIDTH : 10 MHz
OPERATING FREQUENCY : 2685.0 MHz
MEASURED OUTPUT POWER : 28.12 dBm = 0.649 W
DISTANCE 3 meters
LIMIT $43 + 10 \log_{10}$ (W) = 41.12 dBc

Freq. (MHz)	**POL** (H/V)	**LEVEL@ ANTENNA TERMINALS** (dBm)	**SUBSTITUTE ANTENNA GAIN** (dBi)	**CORRECT GENERATOR LEVEL** (dBm)	(dBc)
5370.00	H	-52.25	10.88	-41.37	69.49
5370.00	V	-50.73	10.88	-39.85	67.97
-	-	-	-	-	-

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…)

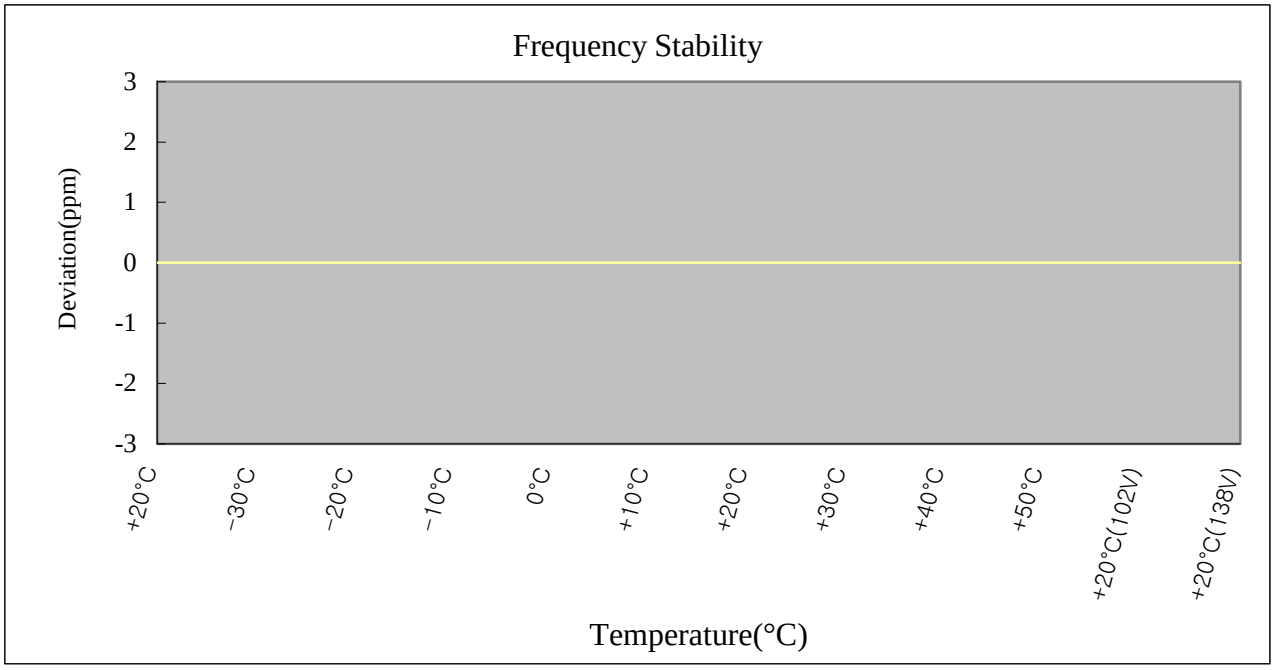
4.1.4 Frequency Stability

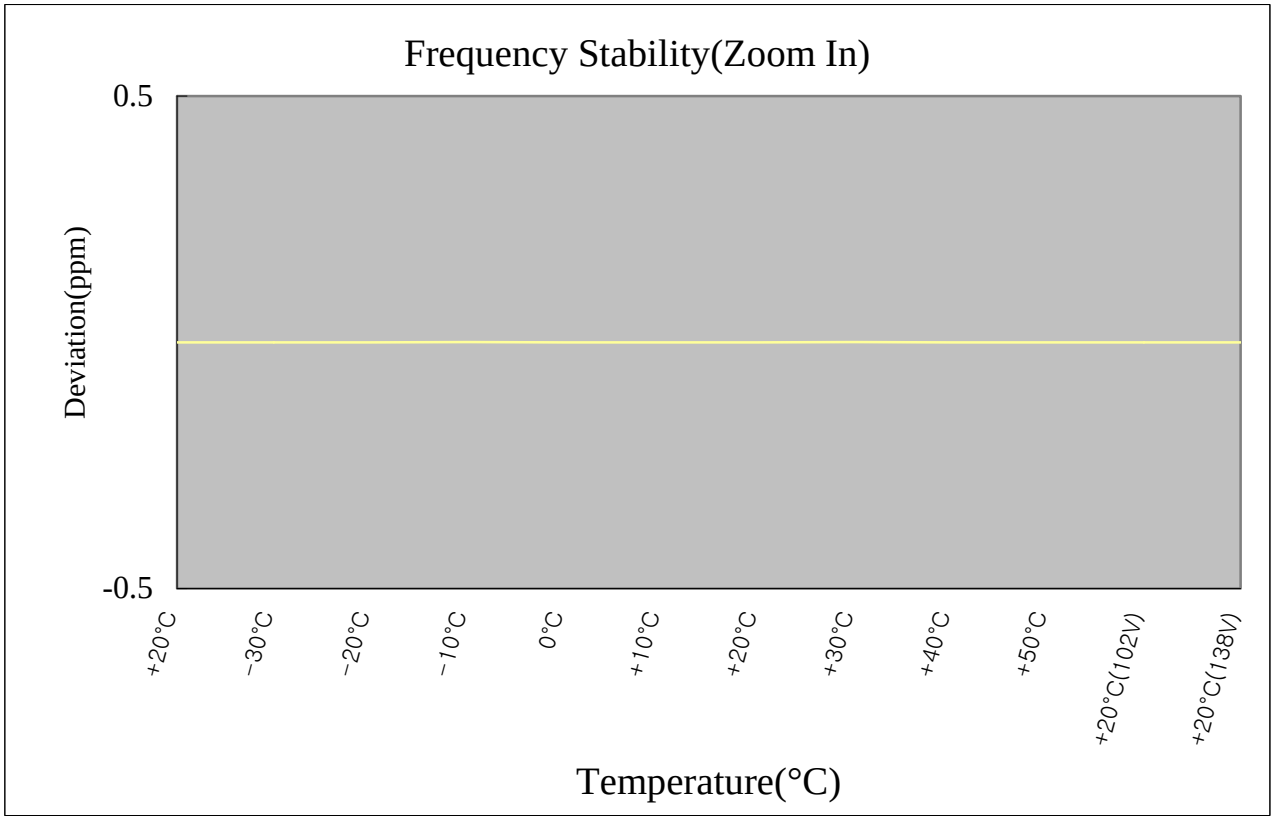
BANDWIDTH : 5 MHz
ZONE MODE : AMC
MODULATION TYPE : QPSK 3/4
OPERATING FREQUENCY : 2,592,999,949 Hz
REFERENCE VOLTAGE : 120 VAC

VOLTAGE (%)	POWER (VAC)	TEMP (dB)	FREQ (Hz)	Deviation (%)
100%	120	+20(Ref)	2,592,999,949	0.000000
100%		-30	2,592,999,941	0.000000
100%		-20	2,592,999,938	0.000000
100%		-10	2,592,999,953	0.000000
100%		0	2,592,999,947	0.000000
100%		+10	2,592,999,946	0.000000
100%		+20	2,592,999,949	0.000000
100%		+30	2,592,999,951	0.000000
100%		+40	2,592,999,936	-0.000001
100%		+50	2,592,999,943	0.000000
85%	102	+20	2,592,999,947	0.000000
115%	138	+20	2,592,999,936	-0.000001
BATT.ENDPOINT	-	-	-	-

4.1 TEST DATA (Continued…)

4.1.4 Frequency Stability (Continued…)





4.1 TEST DATA (Continued…)

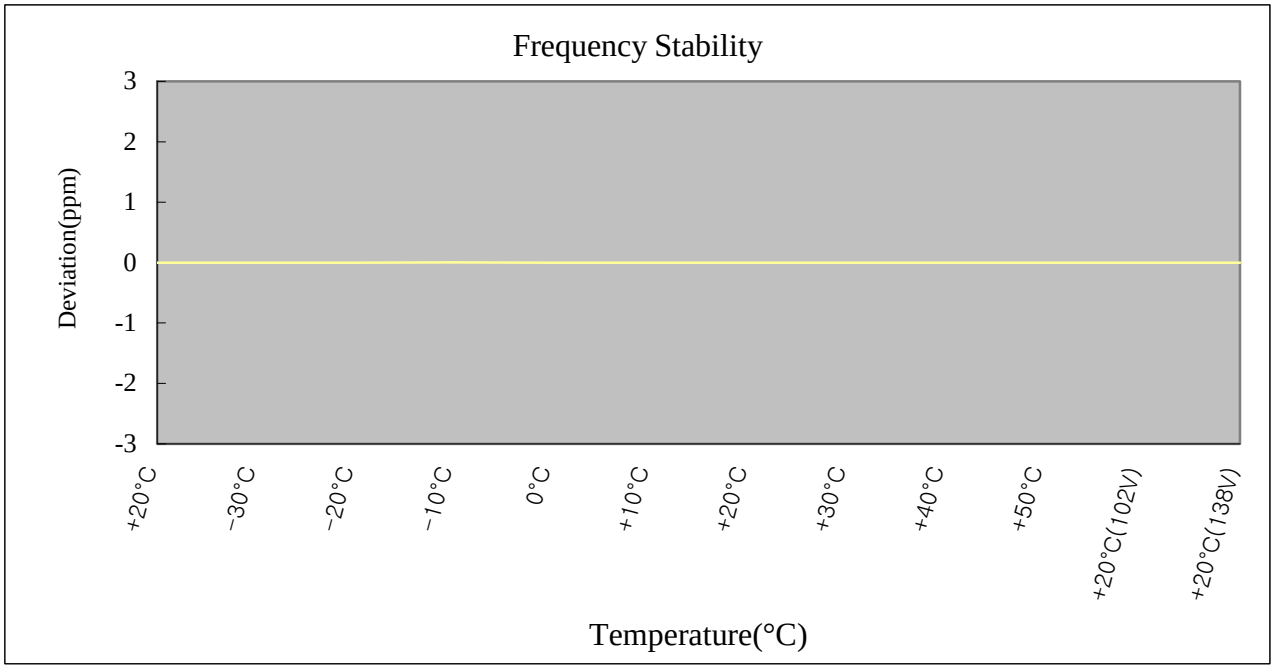
4.1.4 Frequency Stability (Continued…)

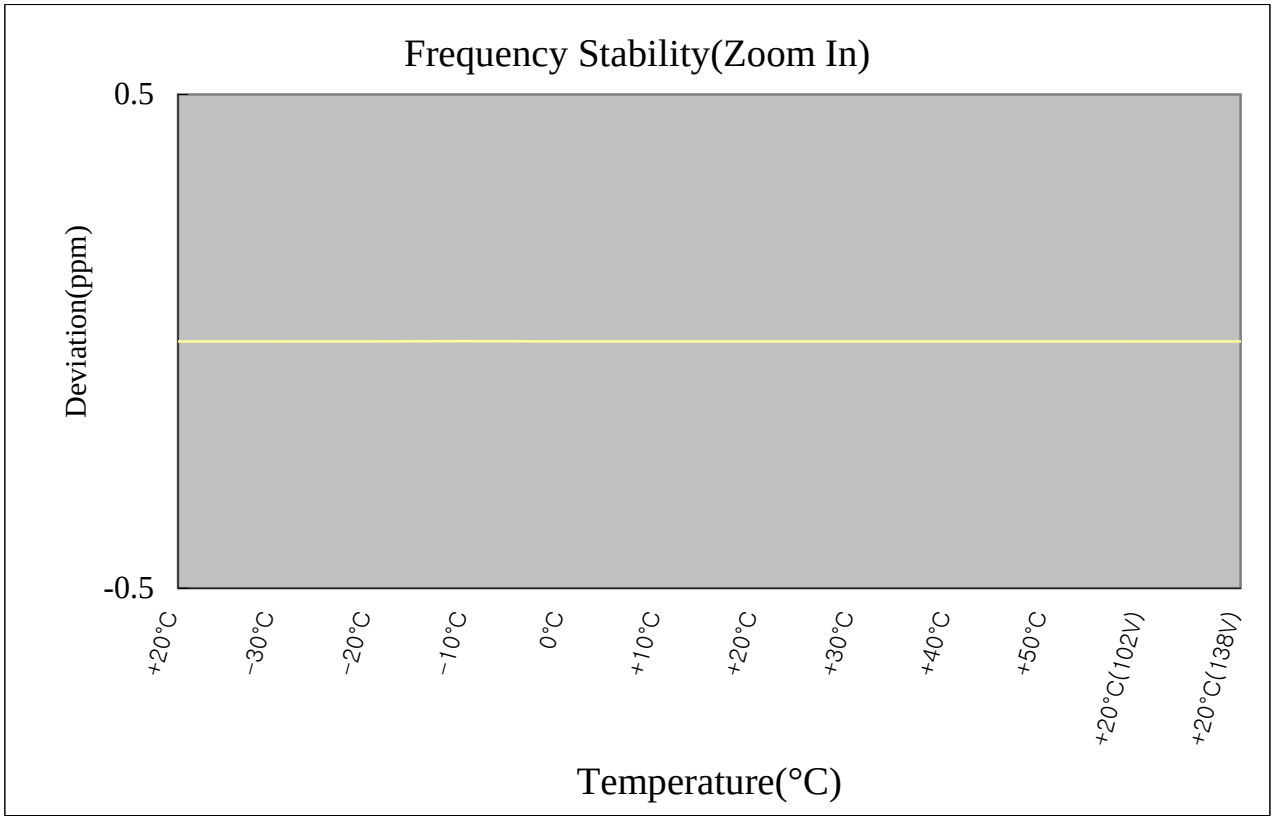
BANDWIDTH : 5 MHz
ZONE MODE AMC
MODULATION TYPE : 16QAM 1/2
OPERATING FREQUENCY : 2,592,999,953 Hz
REFERENCE VOLTAGE : 120 VAC

VOLTAGE (%)	POWER (VAC)	TEMP (dB)	FREQ (Hz)	Deviation (%)
100%	120	+20(Ref)	2,592,999,953	0.000000
100%		-30	2,592,999,948	0.000000
100%		-20	2,592,999,943	0.000000
100%		-10	2,592,999,959	0.000000
100%		0	2,592,999,951	0.000000
100%		+10	2,592,999,947	0.000000
100%		+20	2,592,999,953	0.000000
100%		+30	2,592,999,944	0.000000
100%		+40	2,592,999,952	0.000000
100%		+50	2,592,999,946	0.000000
85%	102	+20	2,592,999,941	0.000000
115%	138	+20	2,592,999,945	0.000000
BATT.ENDPOINT	-	-	-	-

4.1 TEST DATA (Continued…)

4.1.4 Frequency Stability (Continued…)





4.1 TEST DATA (Continued…)

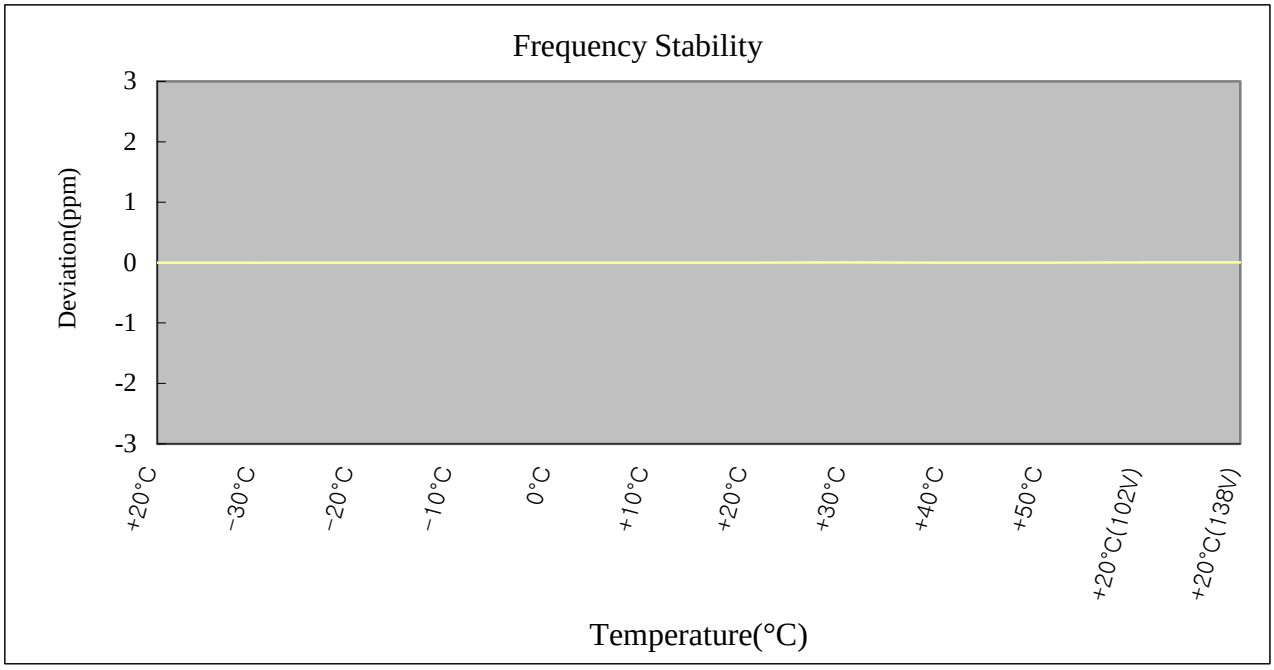
4.1.4 Frequency Stability (Continued…)

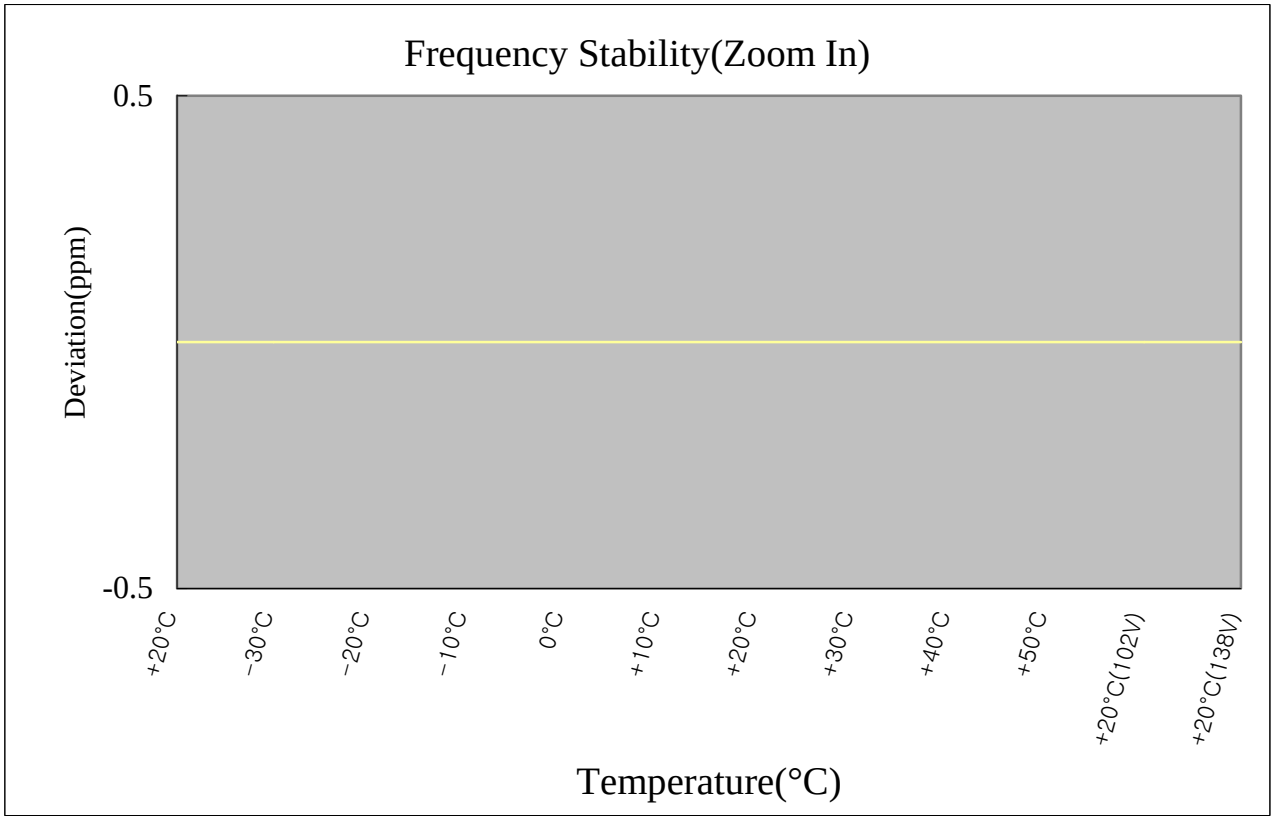
BANDWIDTH : 10 MHz
ZONE MODE : AMC
MODULATION TYPE : QPSK 1/2
OPERATING FREQUENCY : 2,592,999,976 Hz
REFERENCE VOLTAGE : 120 VAC

VOLTAGE (%)	POWER (VAC)	TEMP (dB)	FREQ (Hz)	Deviation (%)
100%	120	+20(Ref)	2,592,999,976	0.000000
100%		-30	2,592,999,969	0.000000
100%		-20	2,592,999,973	0.000000
100%		-10	2,592,999,971	0.000000
100%		0	2,592,999,966	0.000000
100%		+10	2,592,999,976	0.000000
100%		+20	2,592,999,976	0.000000
100%		+30	2,592,999,979	0.000000
100%		+40	2,592,999,970	0.000000
100%		+50	2,592,999,976	0.000000
85%	102	+20	2,592,999,979	0.000000
115%	138	+20	2,592,999,977	0.000000
BATT.ENDPOINT	-	-	-	-

4.1 TEST DATA (Continued…)

4.1.4 Frequency Stability (Continued…)





4.1 TEST DATA (Continued…)

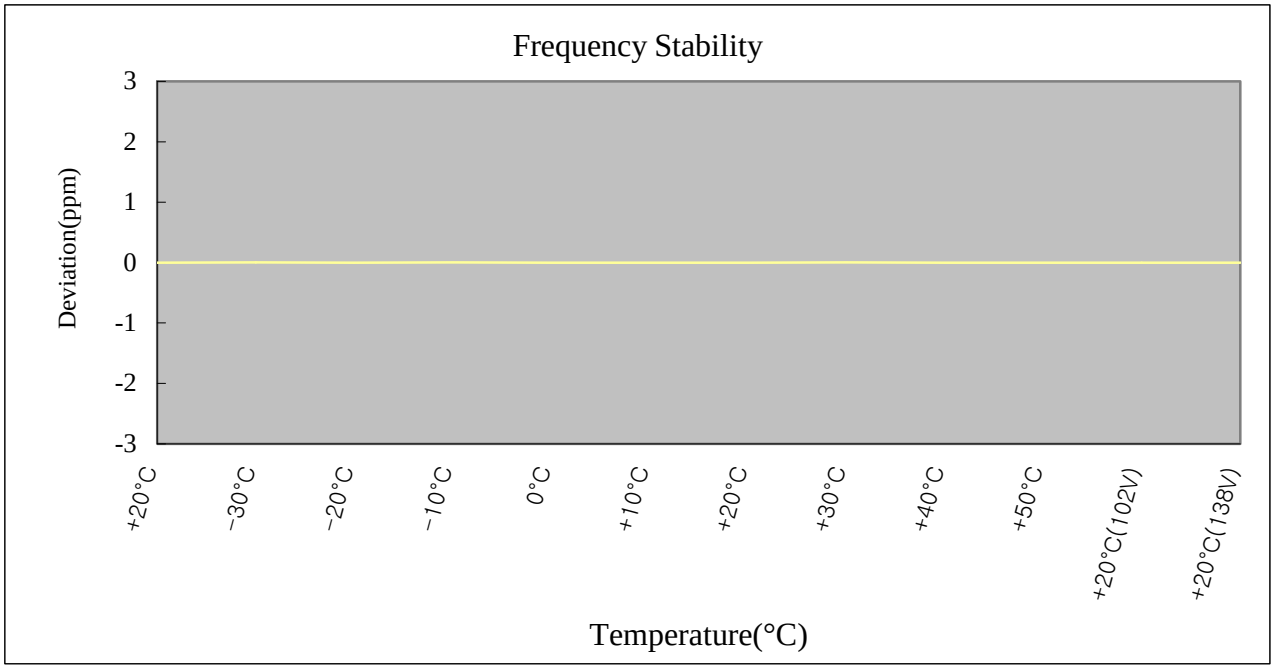
4.1.4 Frequency Stability (Continued…)

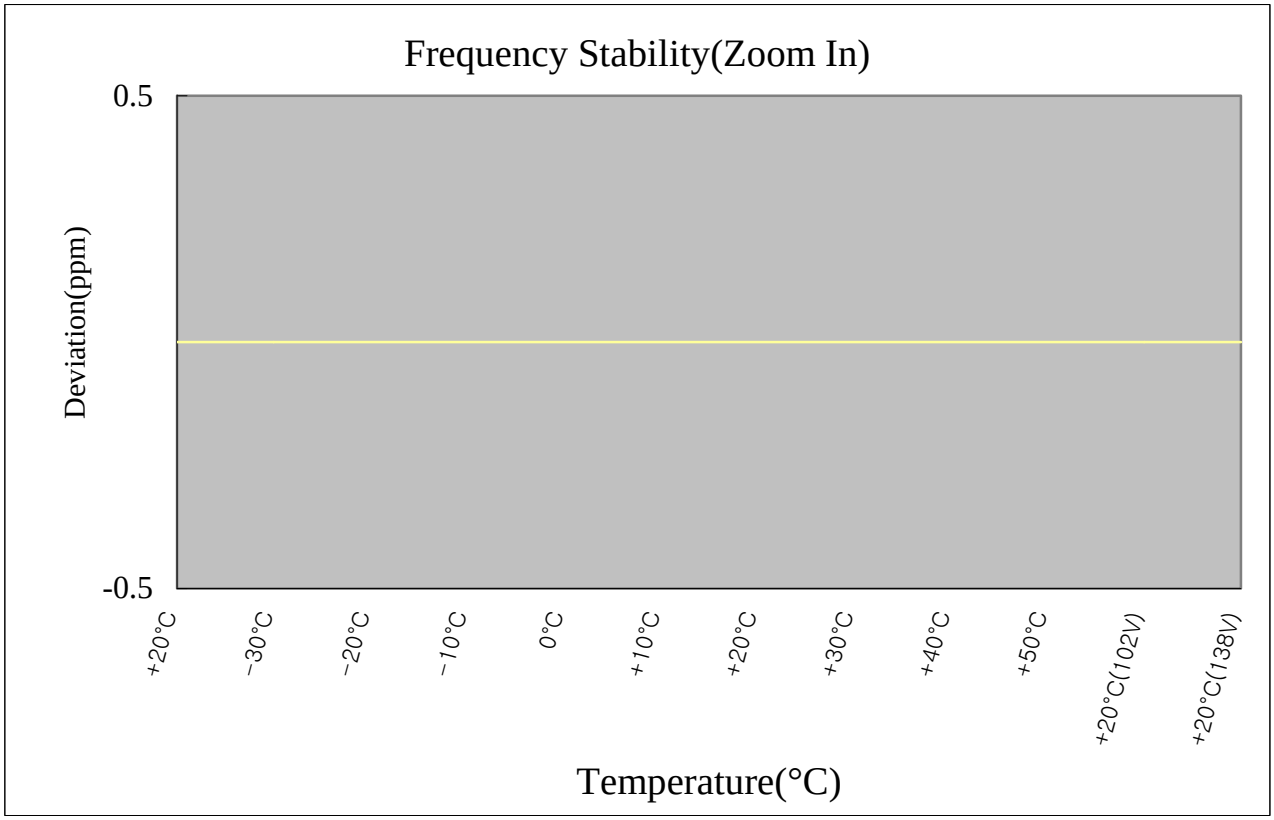
BANDWIDTH : 10 MHz
ZONE MODE AMC
MODULATION TYPE : 16QAM 1/2
OPERATING FREQUENCY : 2,592,999,973 Hz
REFERENCE VOLTAGE : 120 VAC

VOLTAGE (%)	POWER (VAC)	TEMP (dB)	FREQ (Hz)	Deviation (%)
100%	120	+20(Ref)	2,592,999,973	0.000000
100%		-30	2,592,999,976	0.000000
100%		-20	2,592,999,968	0.000000
100%		-10	2,592,999,978	0.000000
100%		0	2,592,999,971	0.000000
100%		+10	2,592,999,969	0.000000
100%		+20	2,592,999,973	0.000000
100%		+30	2,592,999,975	0.000000
100%		+40	2,592,999,966	0.000000
100%		+50	2,592,999,964	0.000000
85%	102	+20	2,592,999,973	0.000000
115%	138	+20	2,592,999,971	0.000000
BATT.ENDPOINT	-	-	-	-

4.1 TEST DATA (Continued…)

4.1.4 Frequency Stability (Continued…)

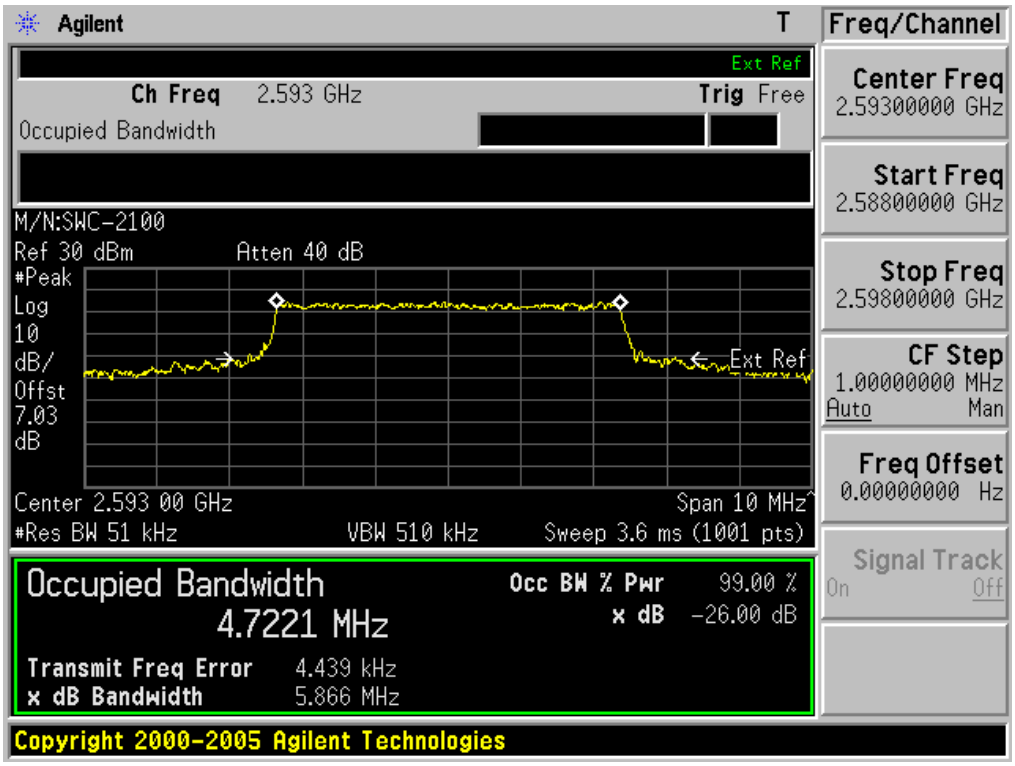




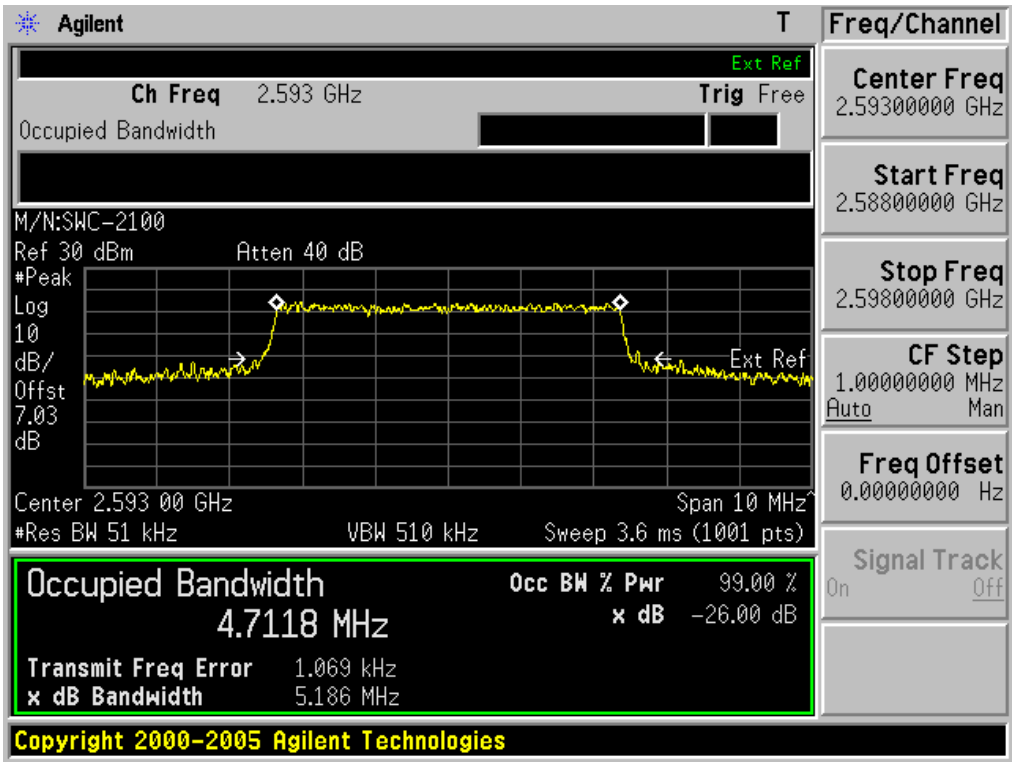
5.1 PLOTS OF EMISSIONS

5.1.1 Occupied Bandwidth(BW: 5MHz)

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



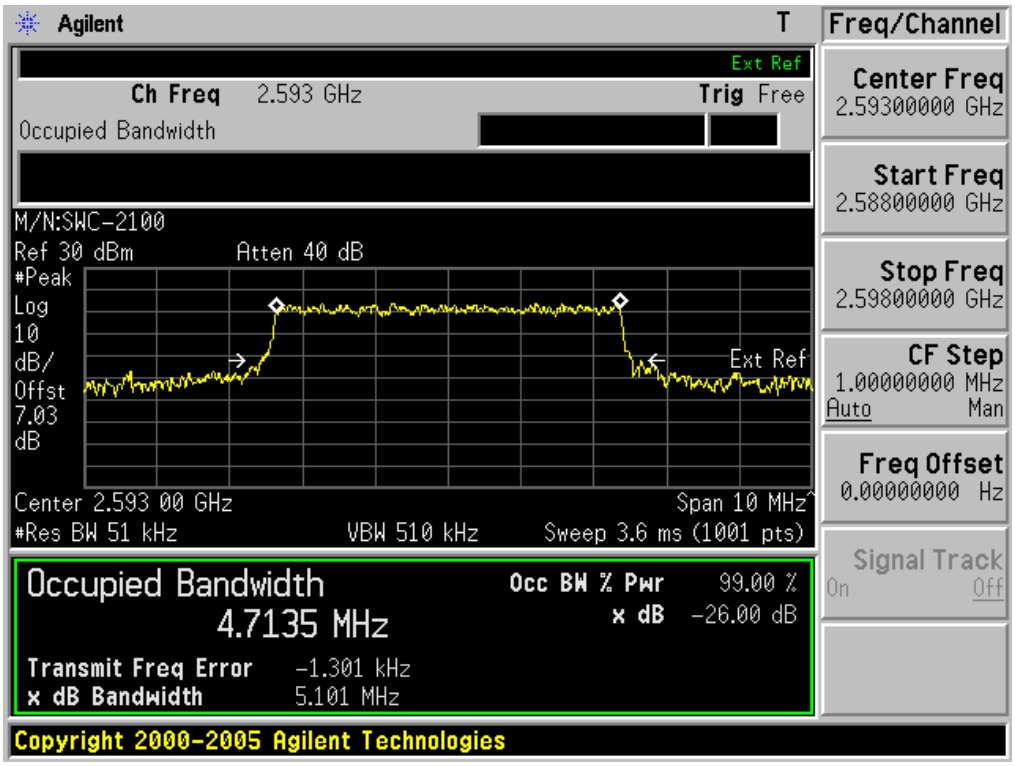
- Middle Channel(2593MHz) & AMC Mode & QPSK 3/4



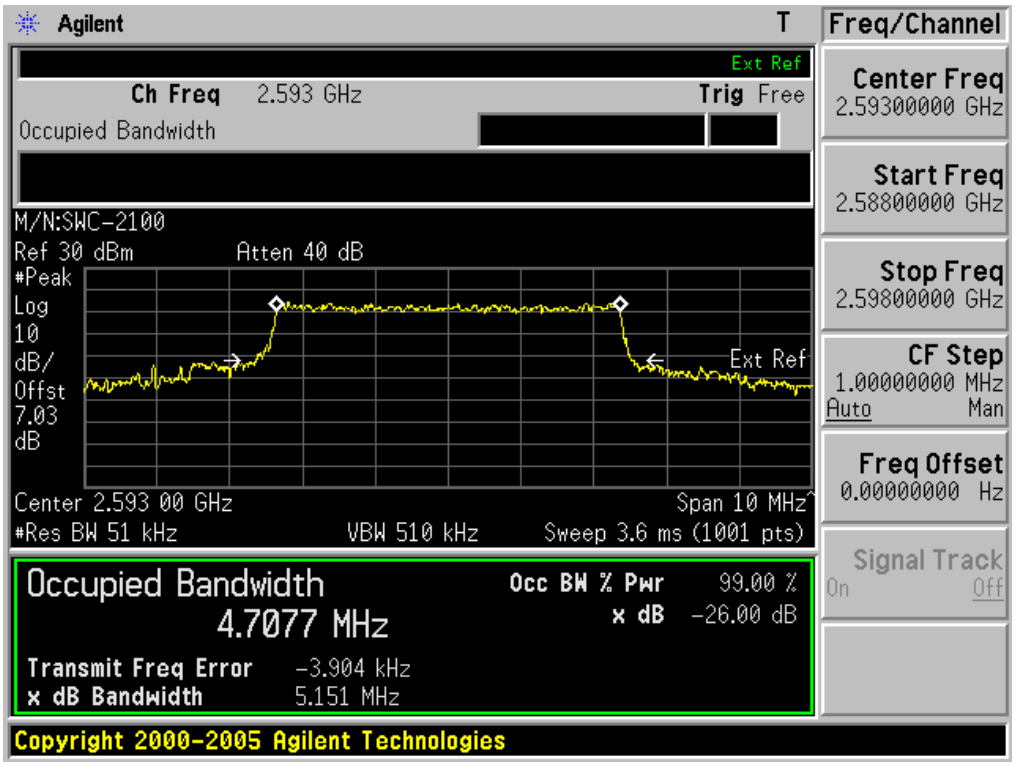
5.1 PLOTS OF EMISSIONS (Continued…)

5.1.1 Occupied Bandwidth(BW: 5MHz) (Continued…)

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



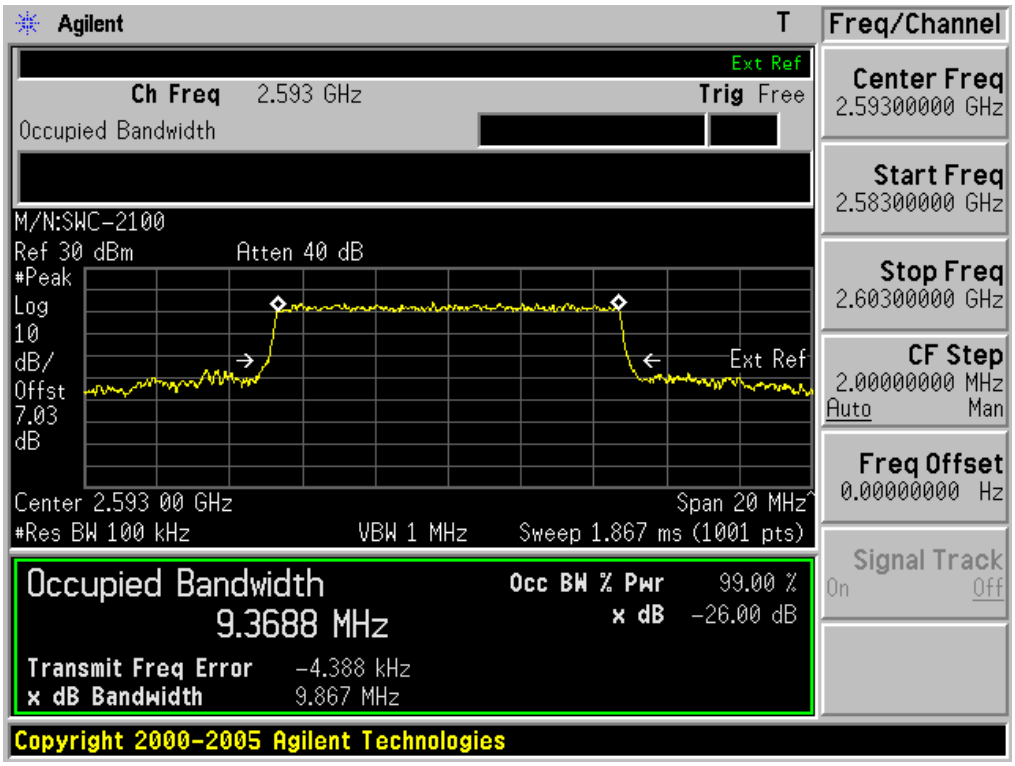
- Middle Channel(2593MHz) & AMC Mode & 16QAM 3/4



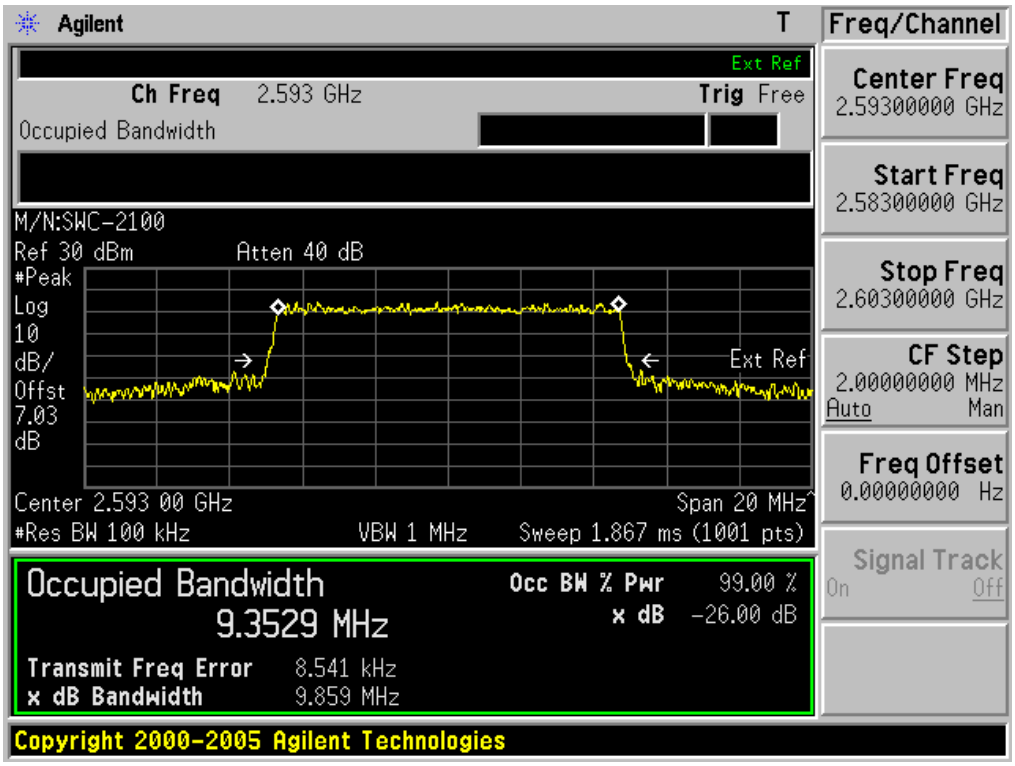
5.1 PLOTS OF EMISSIONS (Continued…)

5.1.1 Occupied Bandwidth(BW: 10MHz) (Continued…)

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



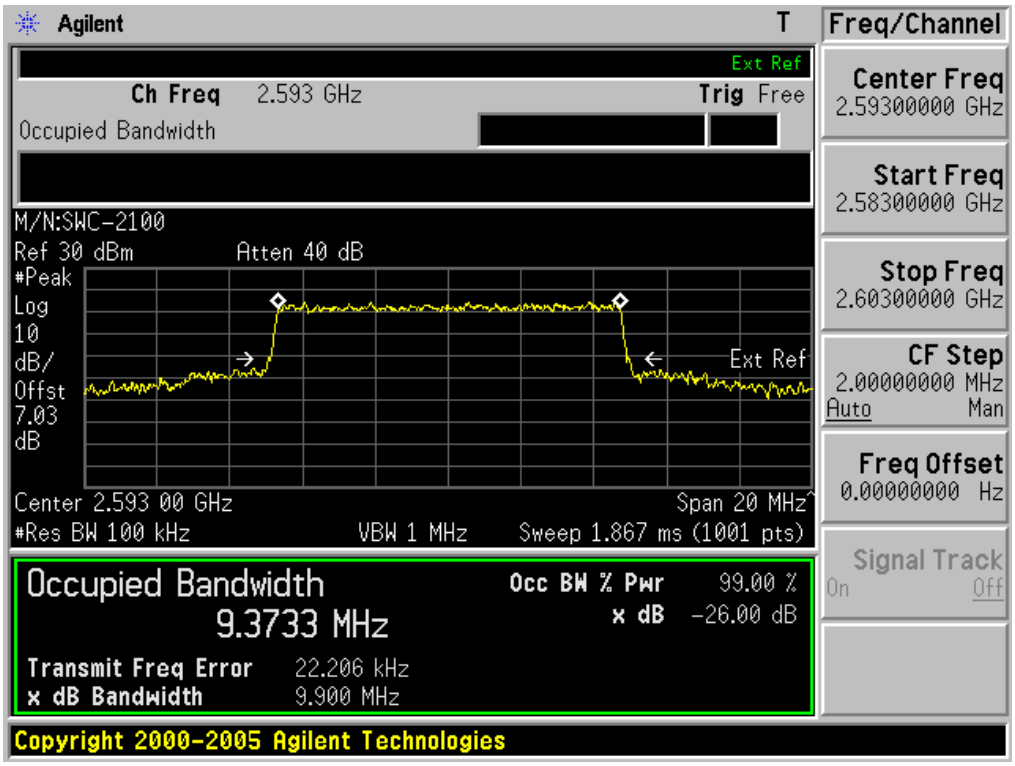
- Middle Channel(2593MHz) & AMC Mode & QPSK 3/4



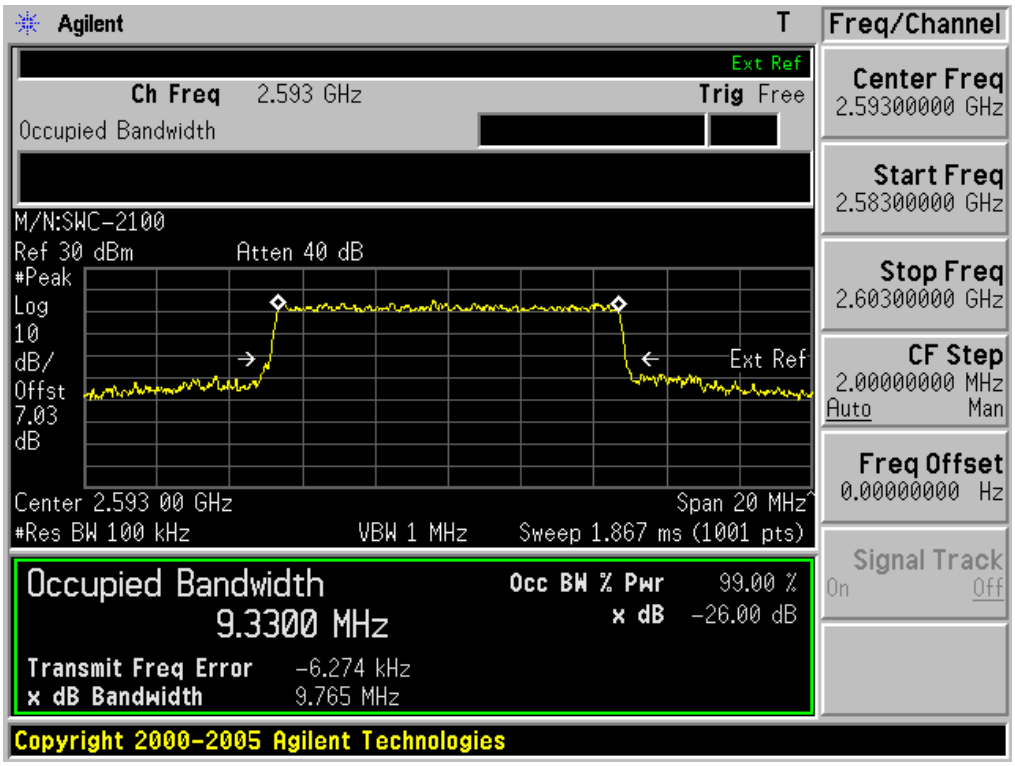
5.1 PLOTS OF EMISSIONS (Continued…)

5.1.1 Occupied Bandwidth(BW: 10MHz) (Continued…)

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



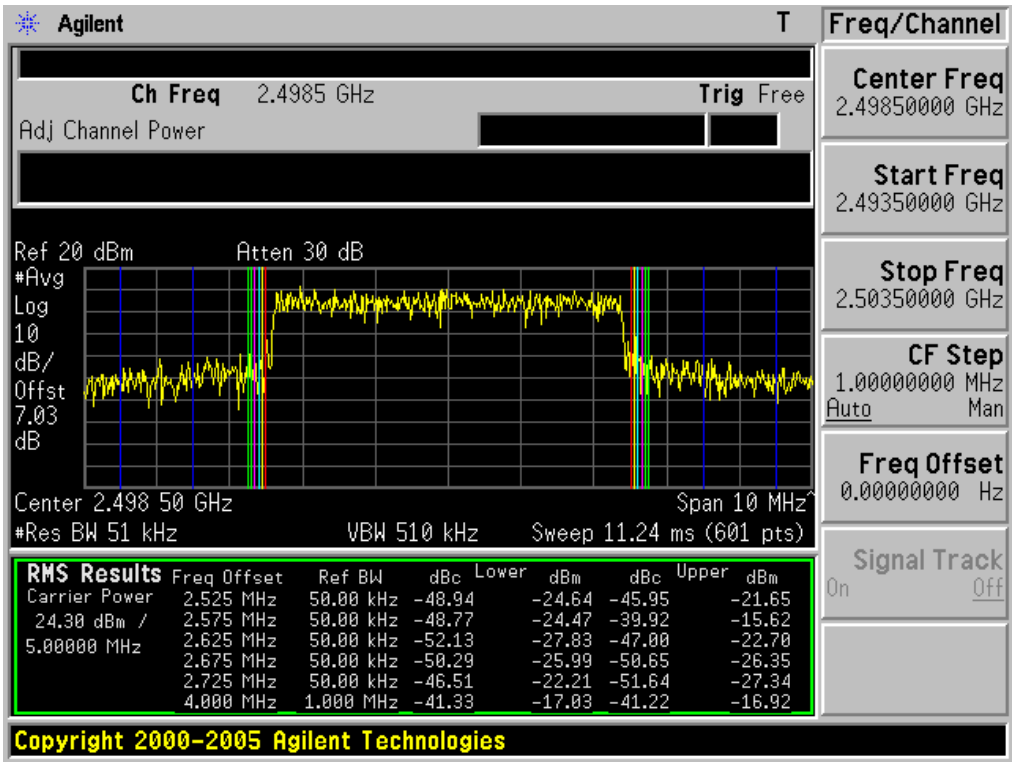
- Middle Channel(2593MHz) & AMC Mode & 16QAM 3/4



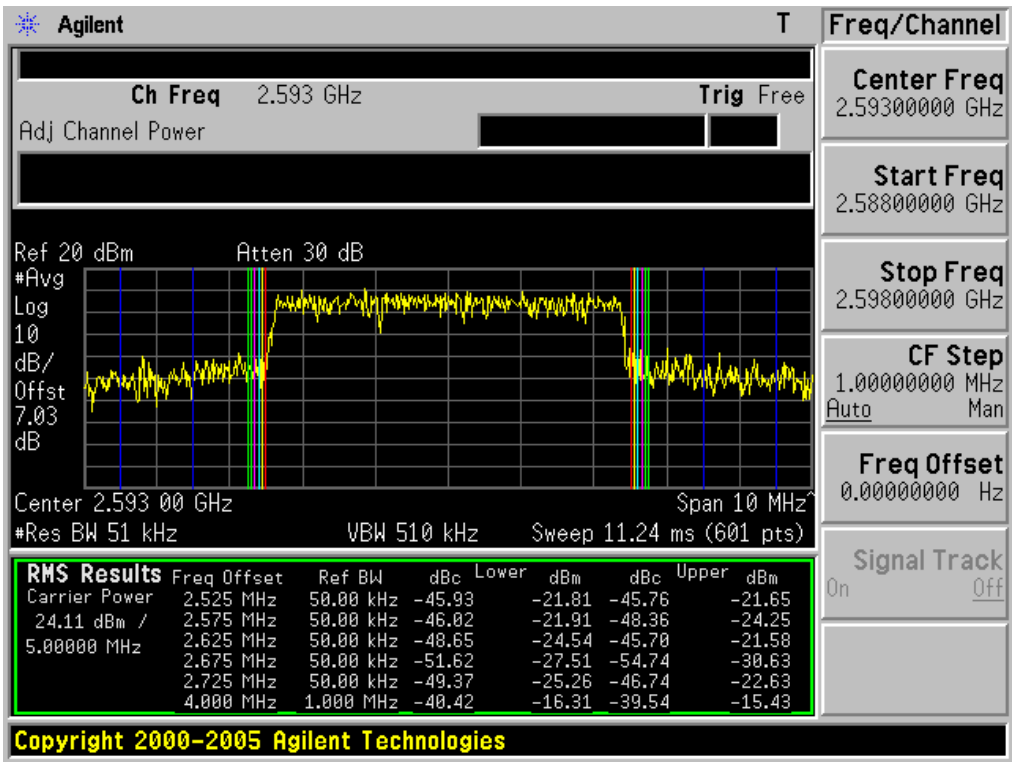
5.1 PLOTS OF EMISSIONS (Continued…)

5.1.2 Band Edge(BW: 5MHz)

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



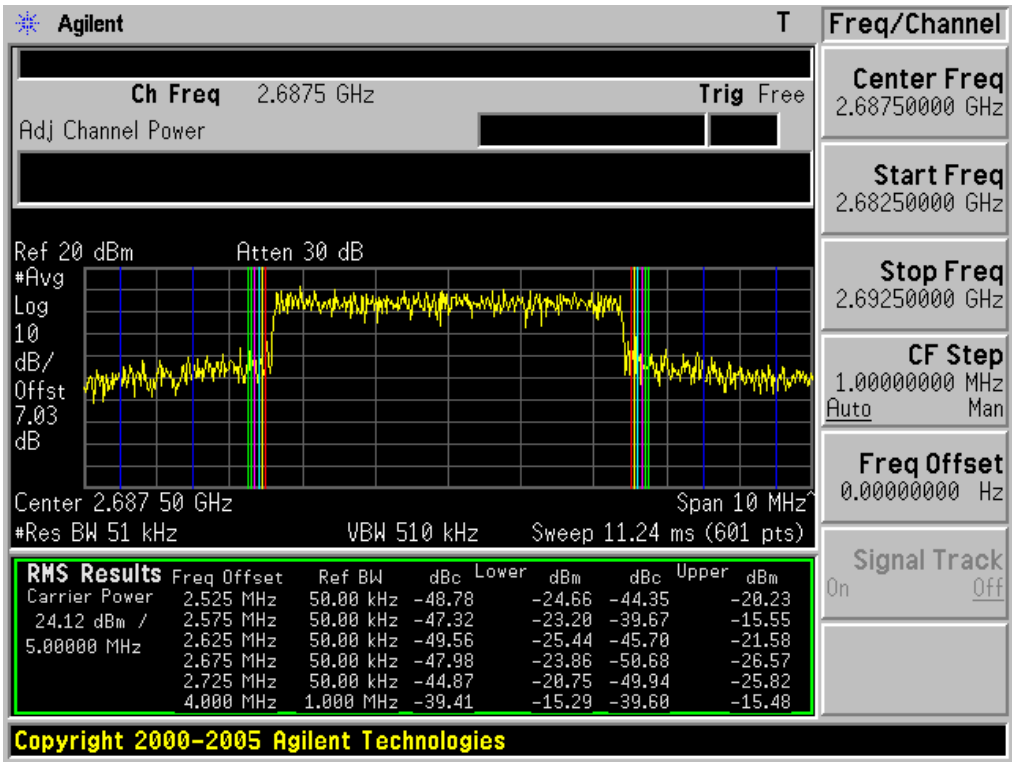
- Middle Channel(2593MHz) & AMC Mode & QPSK 3/4



5.1 PLOTS OF EMISSIONS (Continued…)

5.1.2 Band Edge(BW: 5MHz) (Continued…)

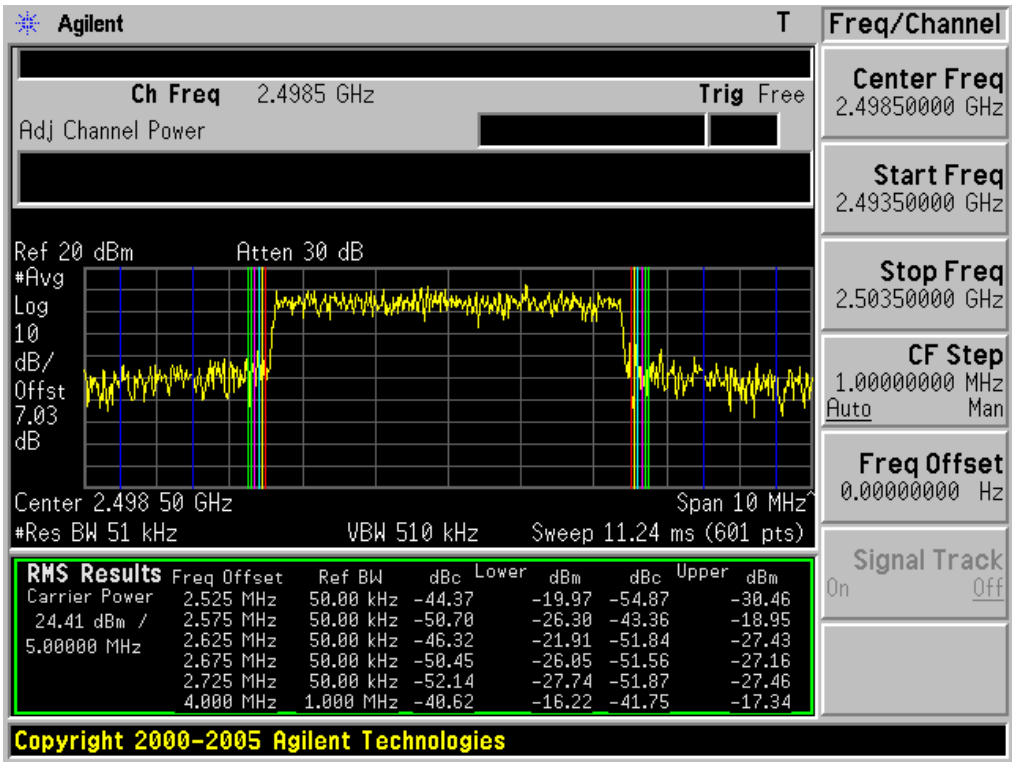
- High Channel(2687.5MHz) & AMC Mode & QPSK 3/4



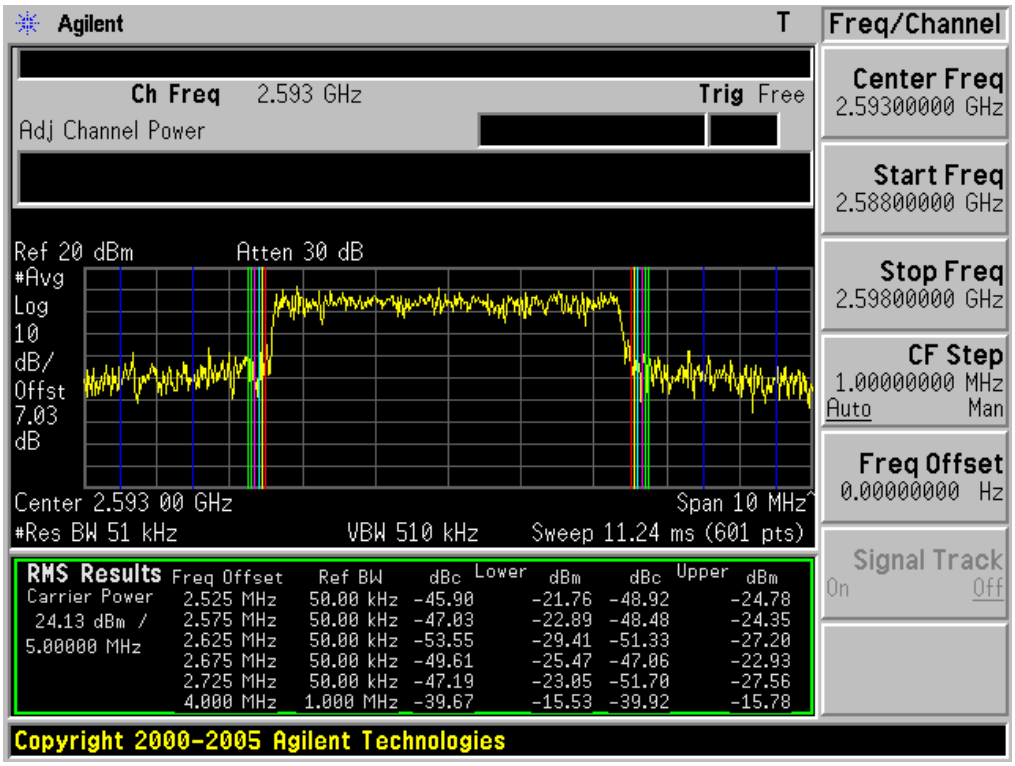
5.1 PLOTS OF EMISSIONS (Continued…)

5.1.2 Band Edge(BW: 5MHz) (Continued…)

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



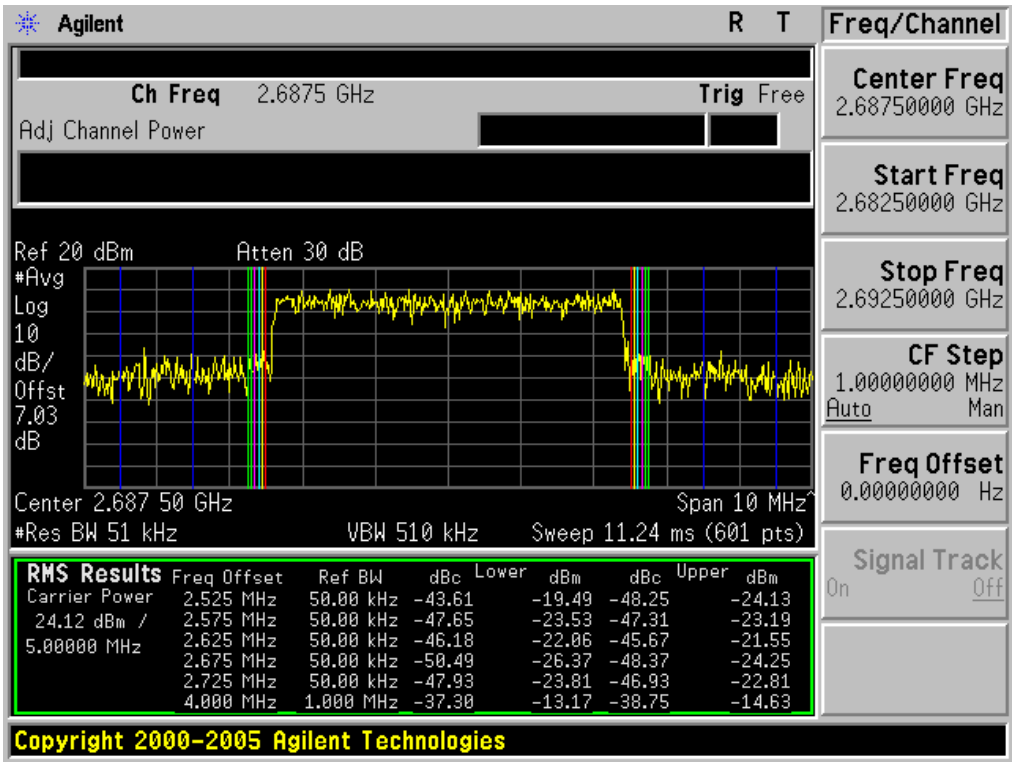
- Middle Channel(2593MHz) & AMC Mode & 16QAM 1/2



5.1 PLOTS OF EMISSIONS (Continued…)

5.1.2 Band Edge(BW: 5MHz) (Continued…)

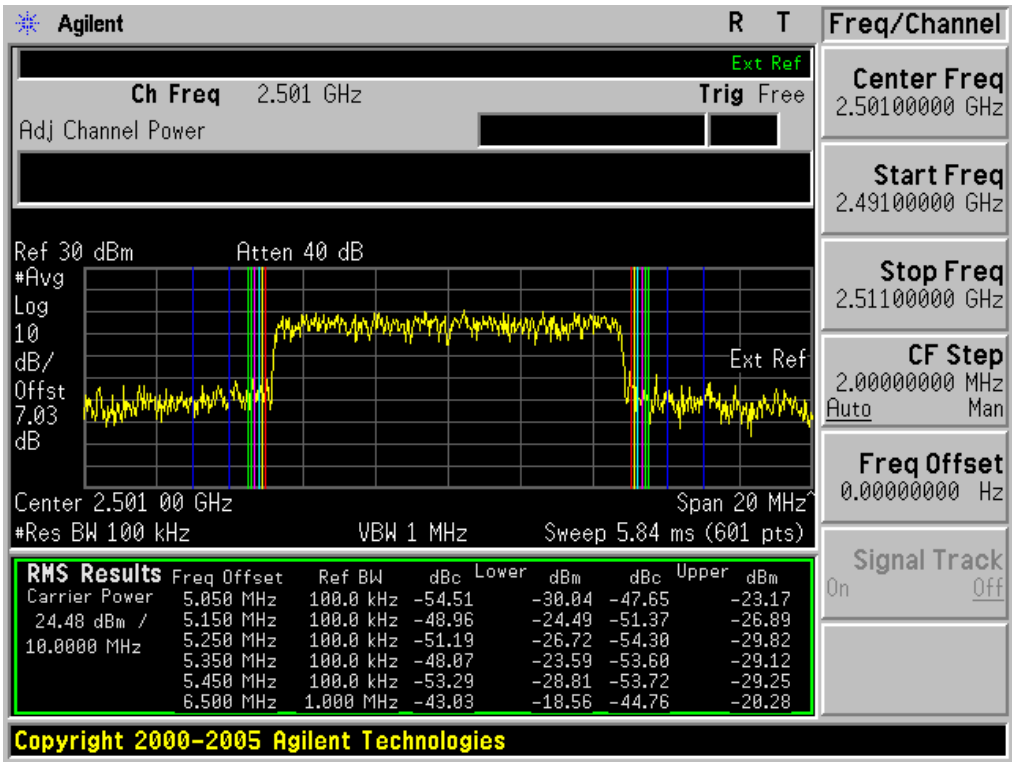
- High Channel(2687.5MHz) & AMC Mode & 16QAM 1/2



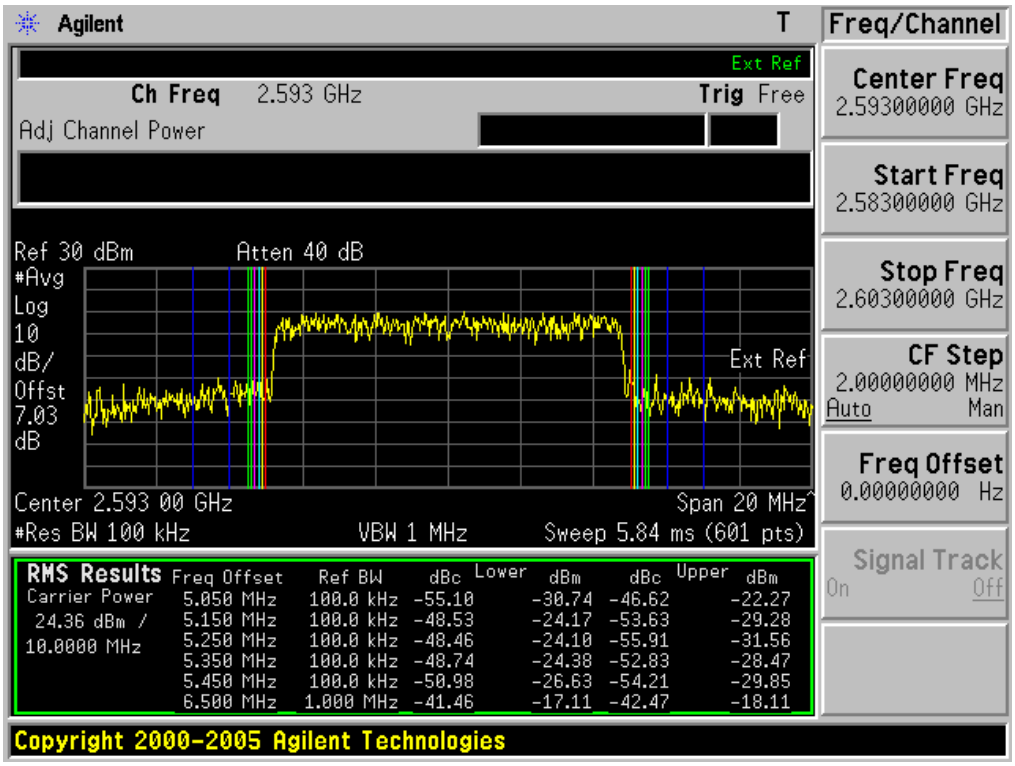
5.1 PLOTS OF EMISSIONS (Continued…)

5.1.2 Band Edge(BW: 10MHz) (Continued…)

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



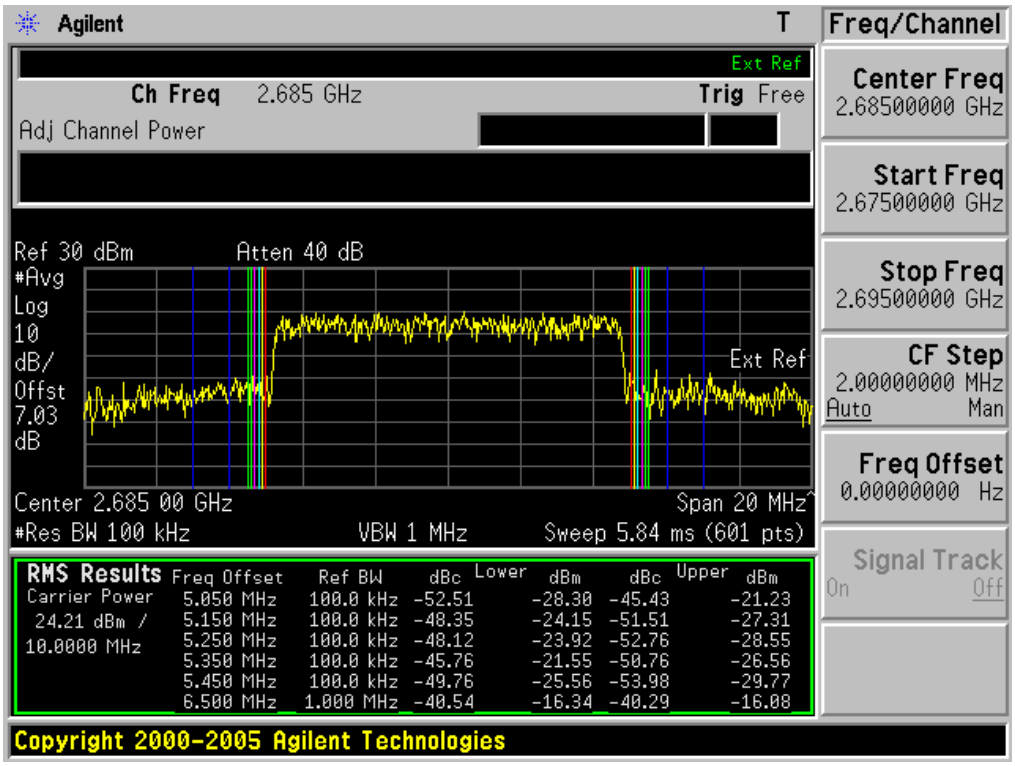
- Middle Channel(2593MHz) & AMC Mode & QPSK 1/2



5.1 PLOTS OF EMISSIONS (Continued…)

5.1.2 Band Edge(BW: 10MHz) (Continued…)

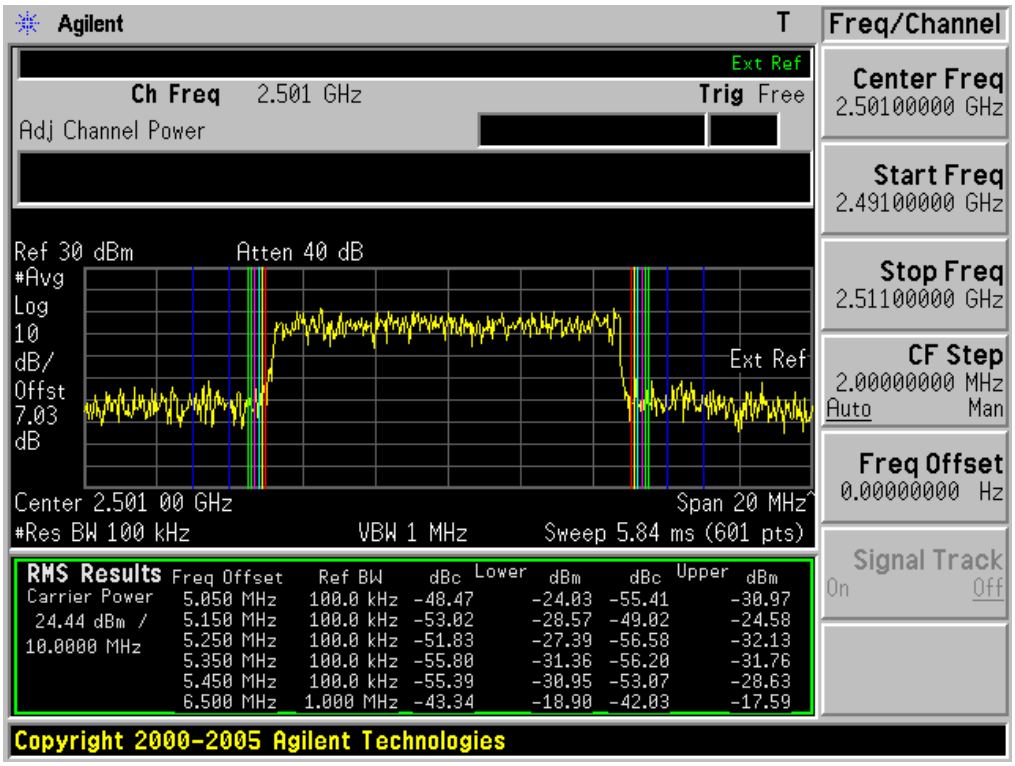
- High Channel(2685MHz) & AMC Mode & QPSK 1/2



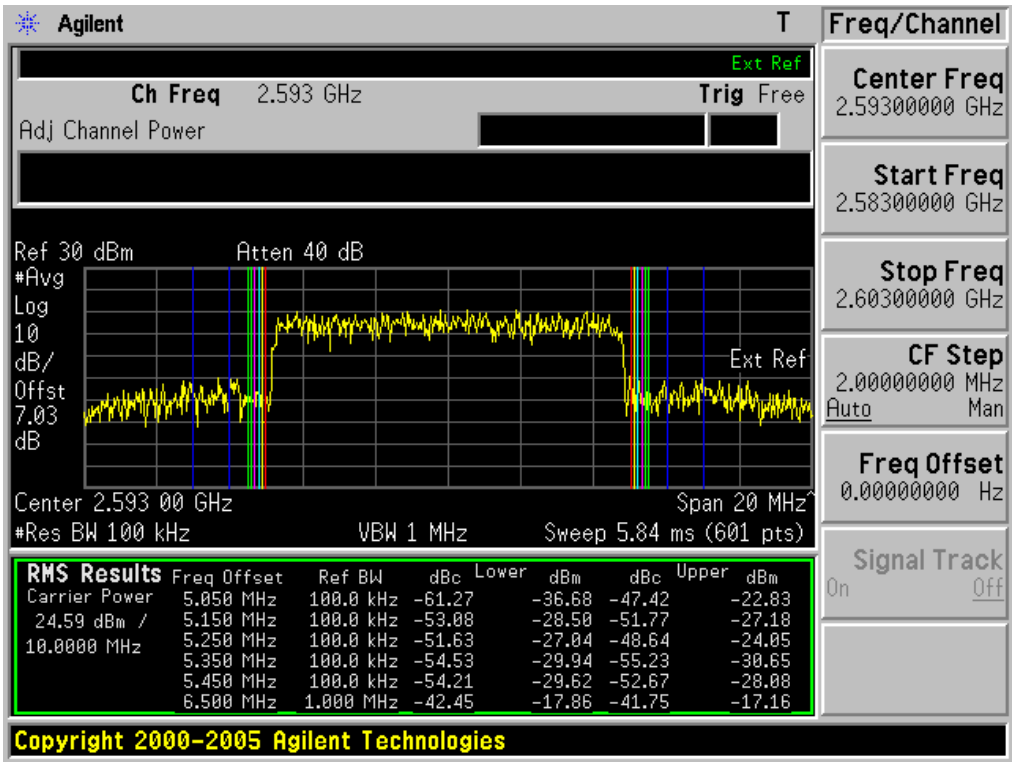
5.1 PLOTS OF EMISSIONS (Continued…)

5.1.2 Band Edge(BW: 10MHz) (Continued…)

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



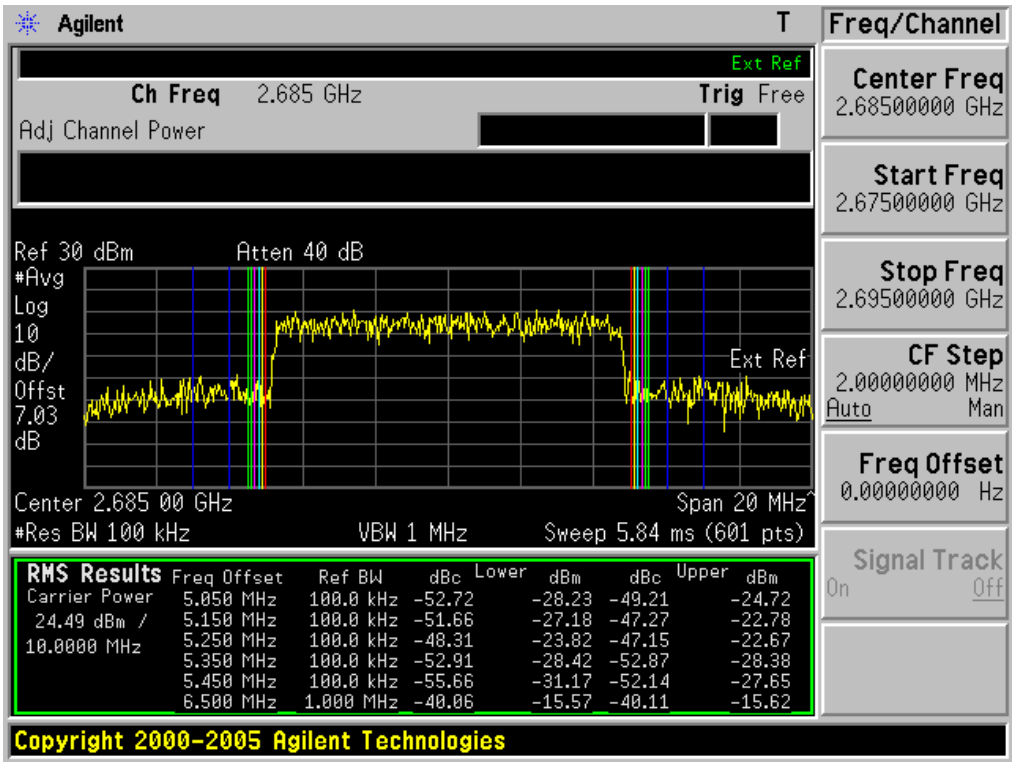
- Middle Channel(2593MHz) & AMC Mode & 16QAM 1/2



5.1 PLOTS OF EMISSIONS (Continued…)

5.1.2 Band Edge(BW: 10MHz) (Continued…)

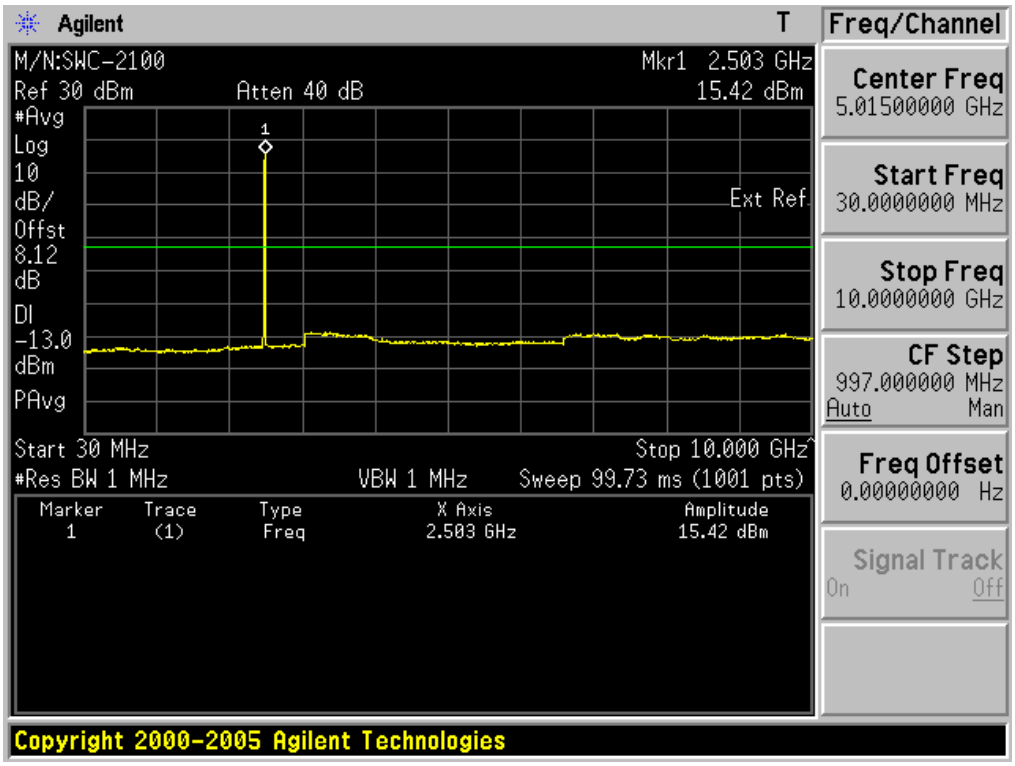
- High Channel(2685MHz) & AMC Mode & 16QAM 1/2

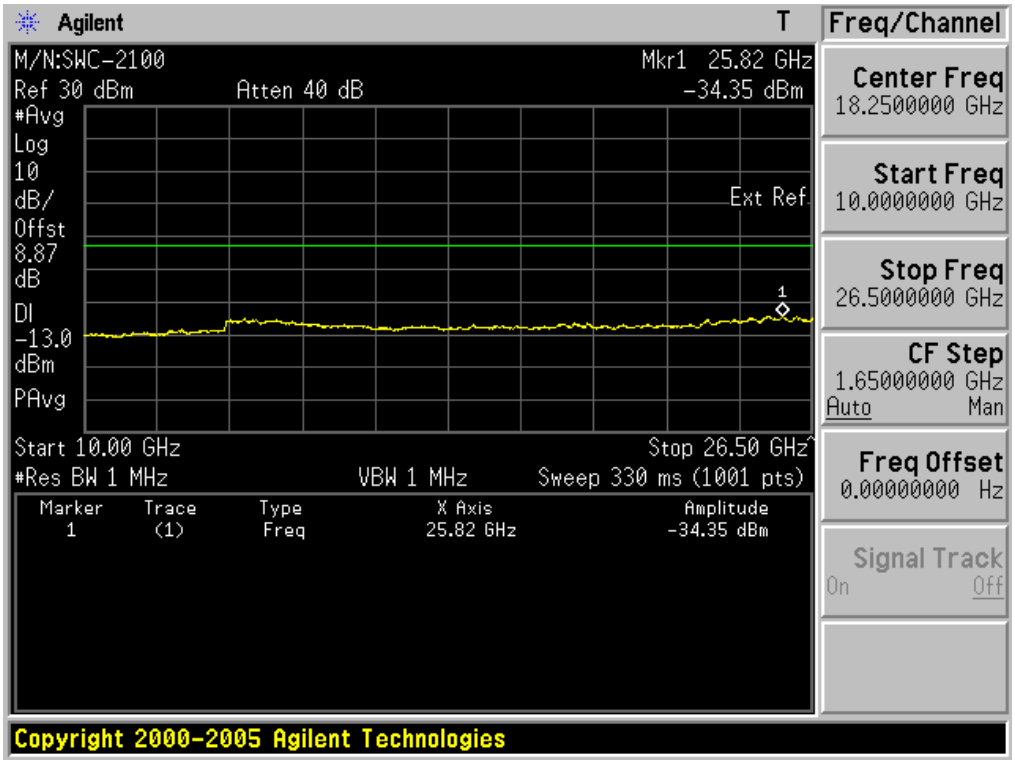


5.1 PLOTS OF EMISSIONS (Continued…)

5.1.3 Conducted Spurious Emissions(BW: 5MHz)

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

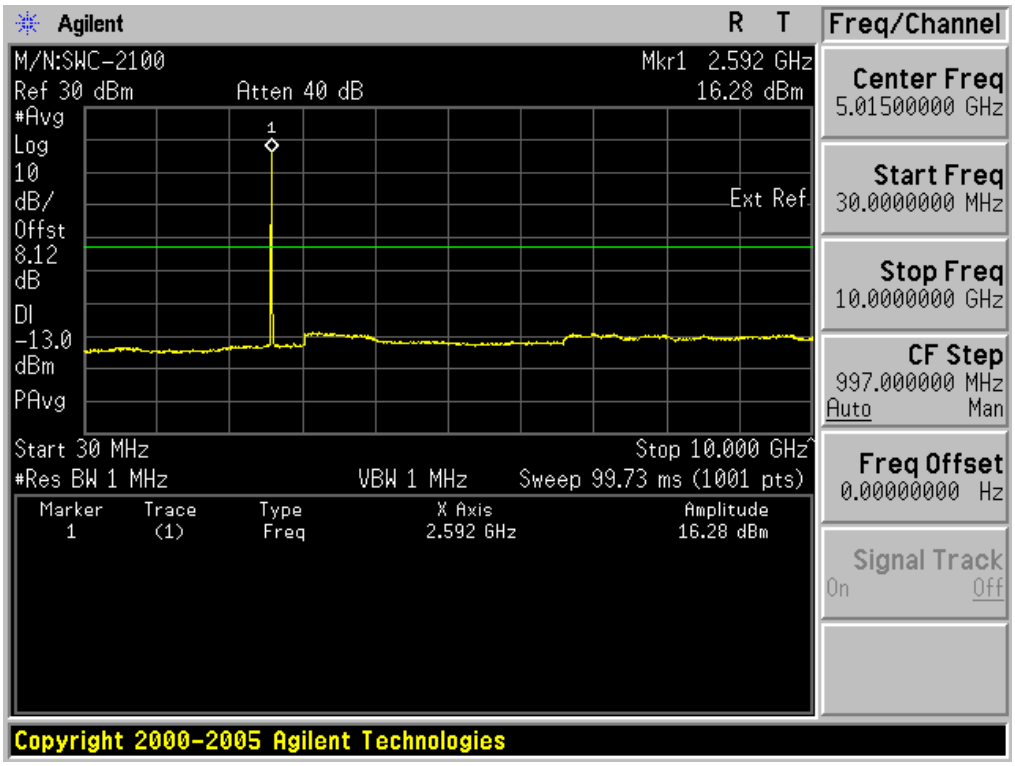


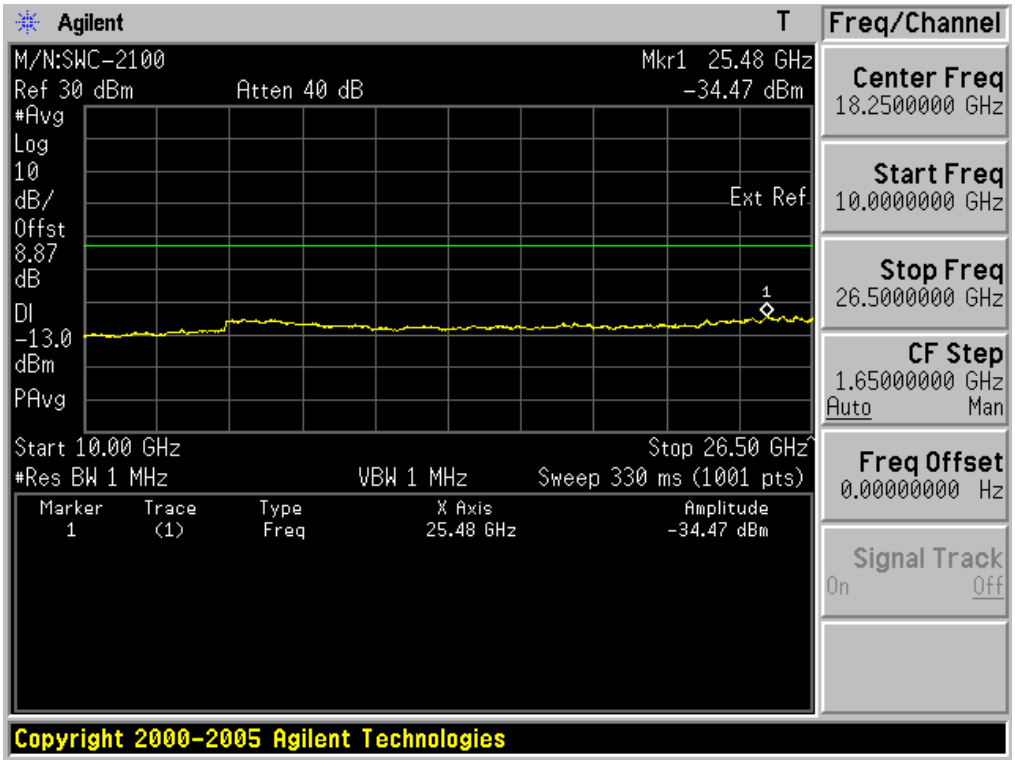


5.1 PLOTS OF EMISSIONS (Continued…)

5.1.3 Conducted Spurious Emissions(BW: 5MHz) (Continued…)

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

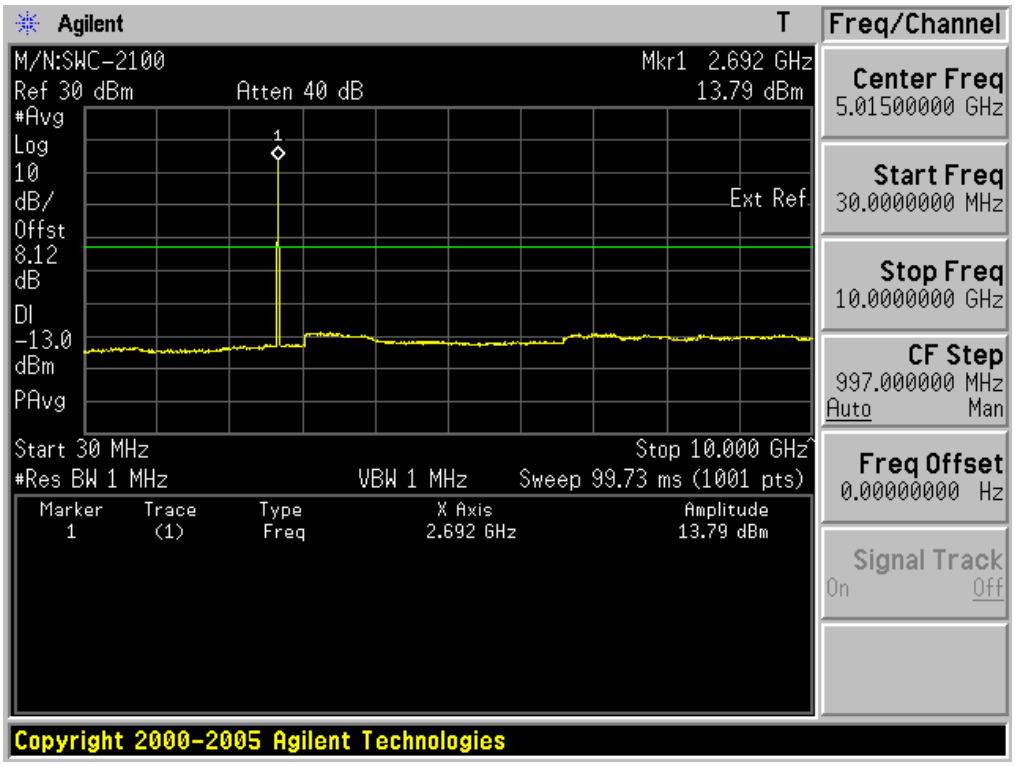


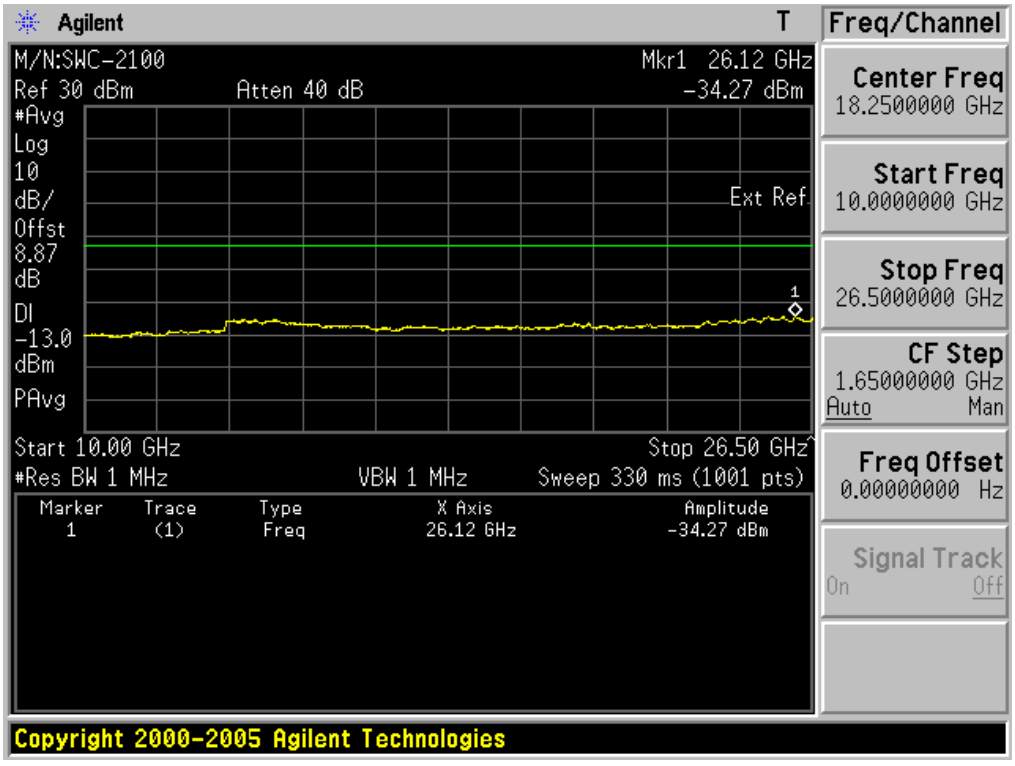


5.1 PLOTS OF EMISSIONS (Continued…)

5.1.3 Conducted Spurious Emissions(BW: 5MHz) (Continued…)

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

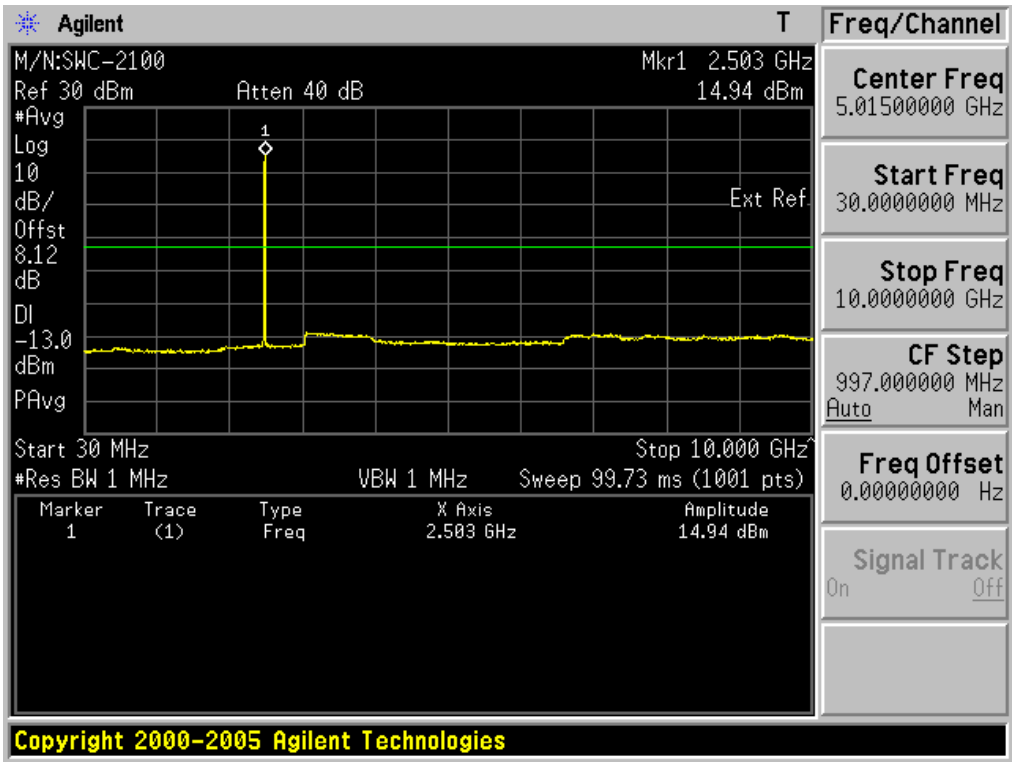


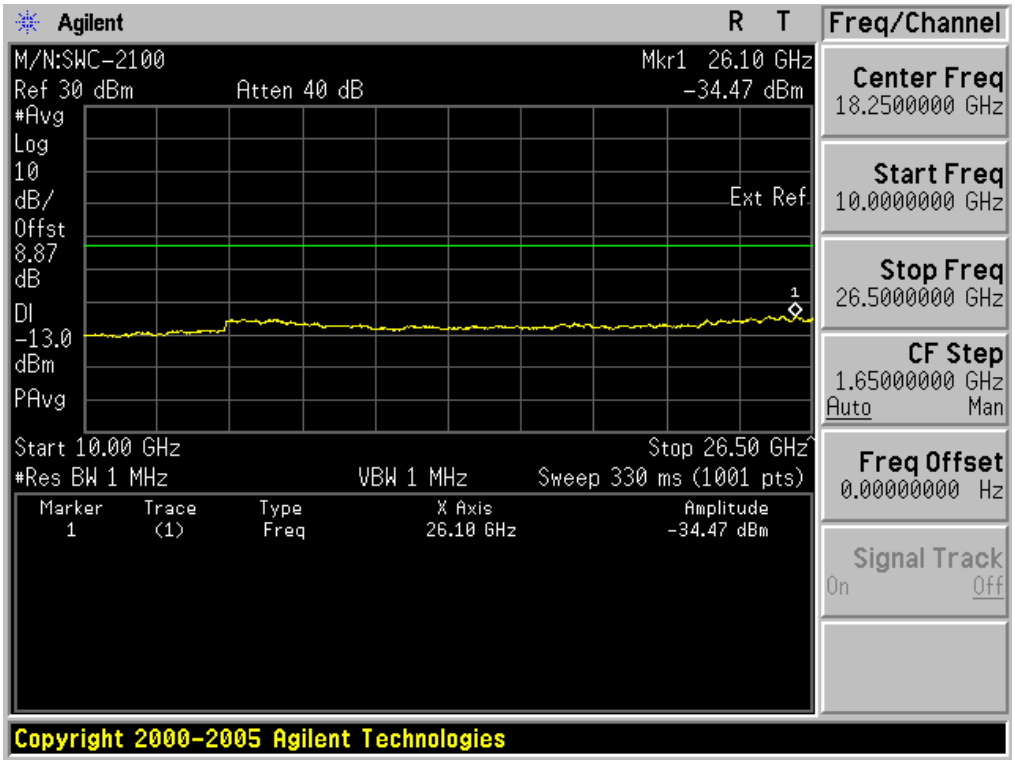


5.1 PLOTS OF EMISSIONS (Continued…)

5.1.3 Conducted Spurious Emissions(BW: 5MHz)

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

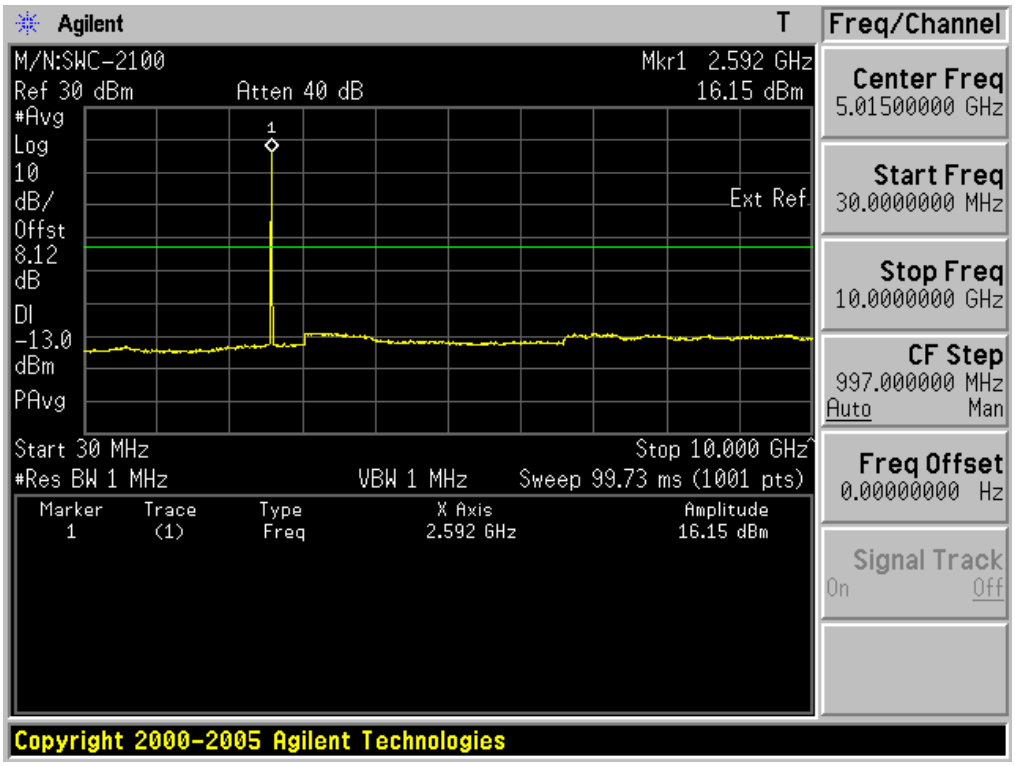


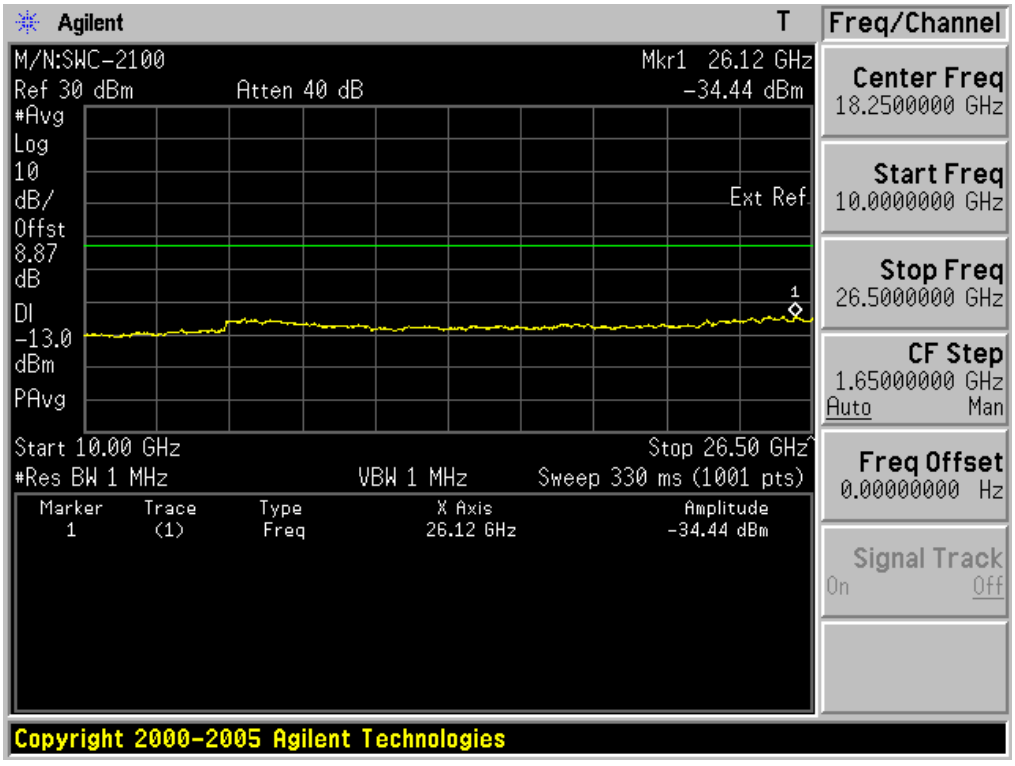


5.1 PLOTS OF EMISSIONS (Continued…)

5.1.3 Conducted Spurious Emissions(BW: 5MHz) (Continued…)

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

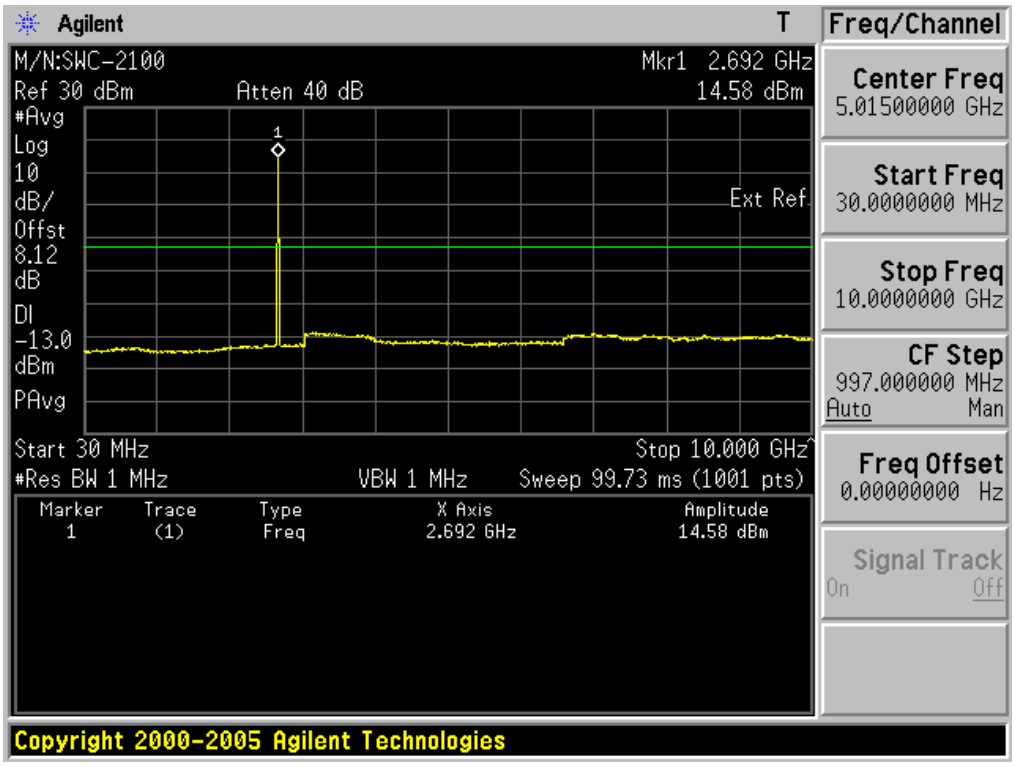


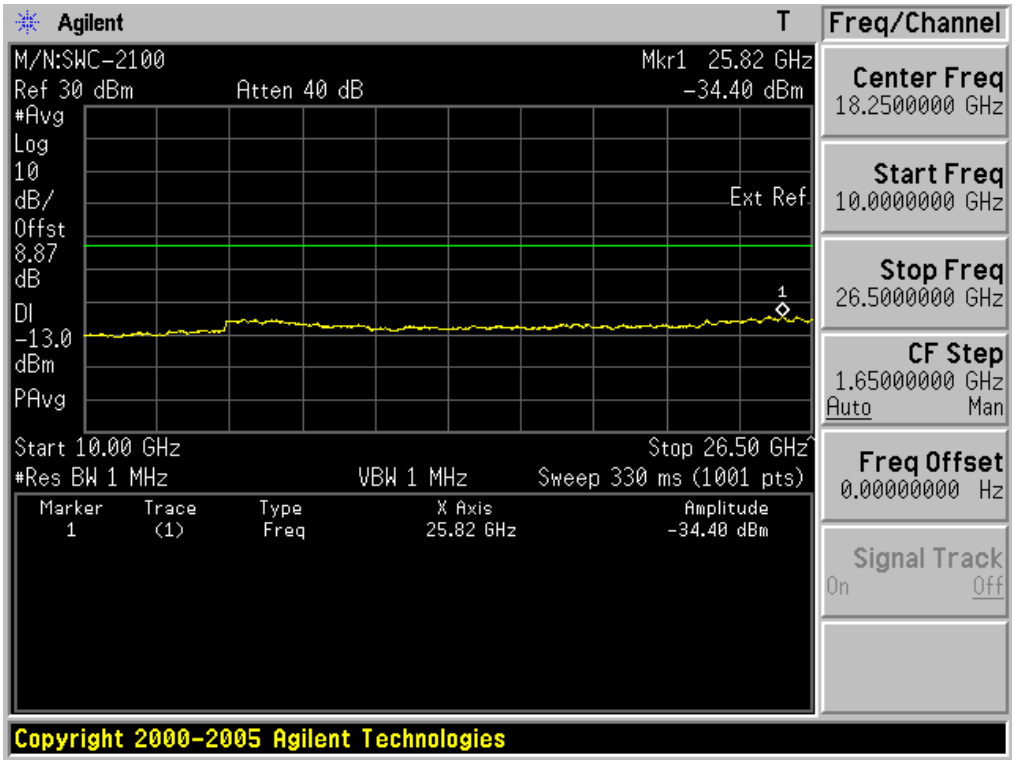


5.1 PLOTS OF EMISSIONS (Continued…)

5.1.3 Conducted Spurious Emissions(BW: 5MHz) (Continued…)

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

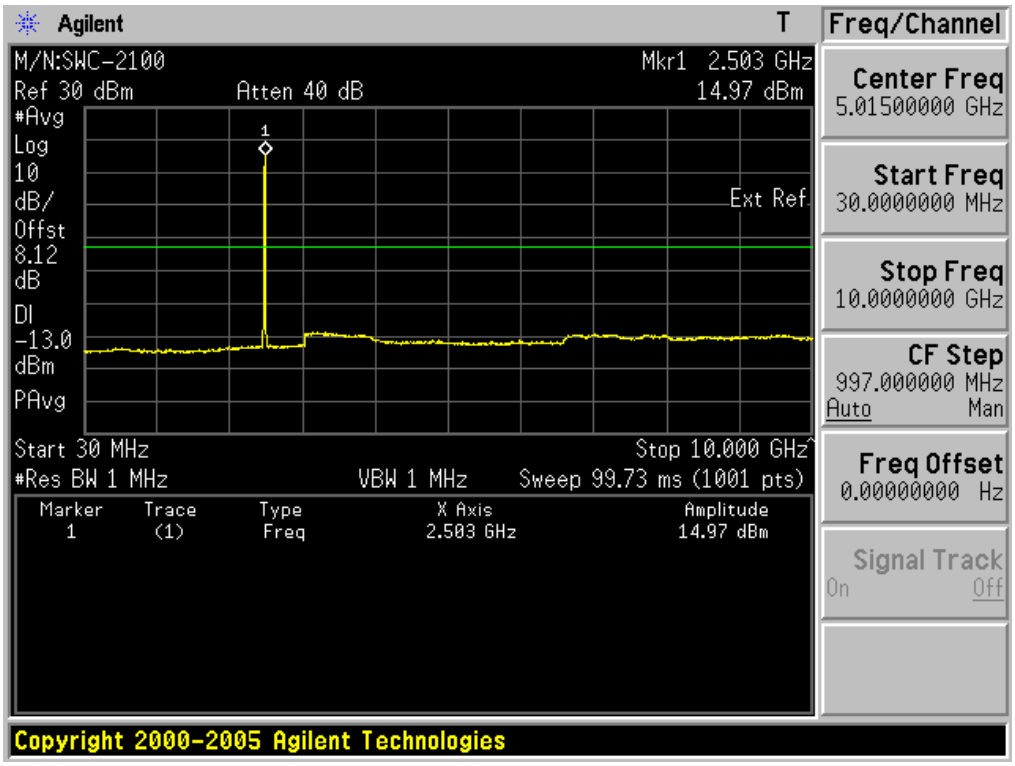


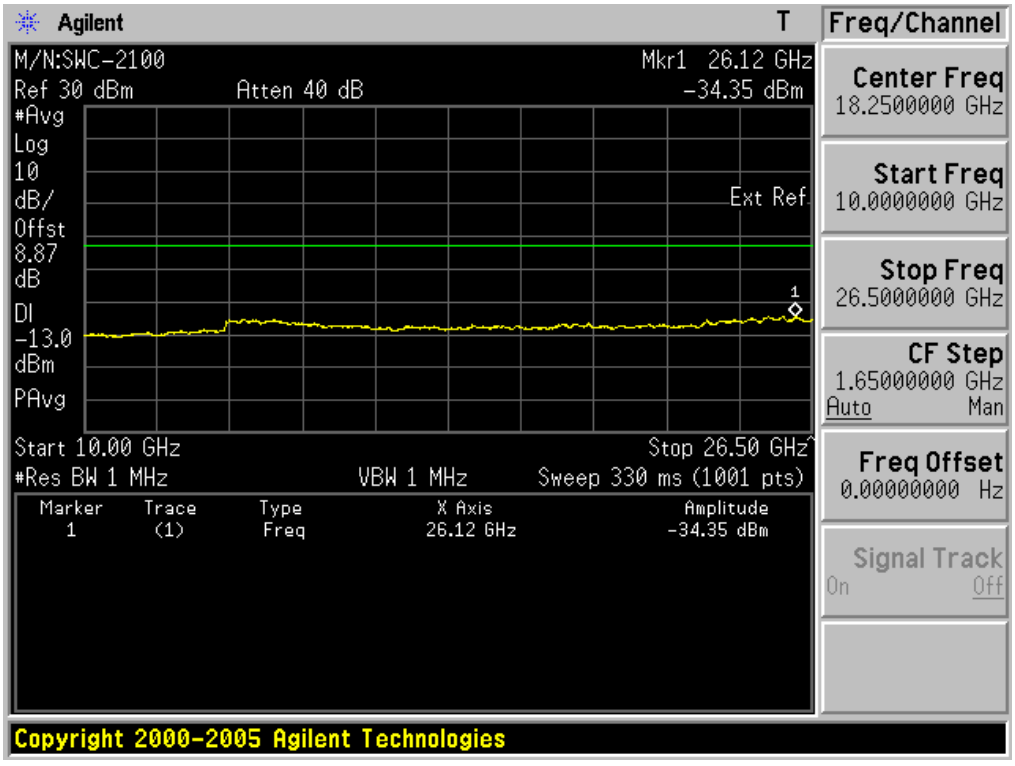


5.1 PLOTS OF EMISSIONS (Continued…)

5.1.3 Conducted Spurious Emissions(BW: 10MHz) (Continued…)

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

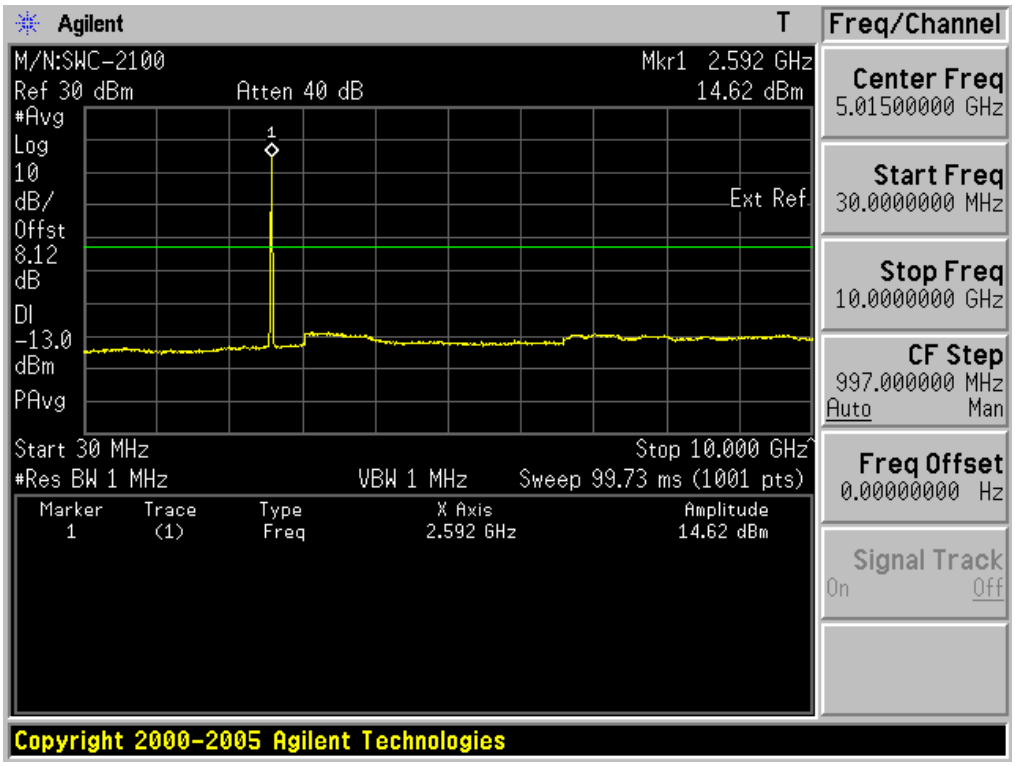


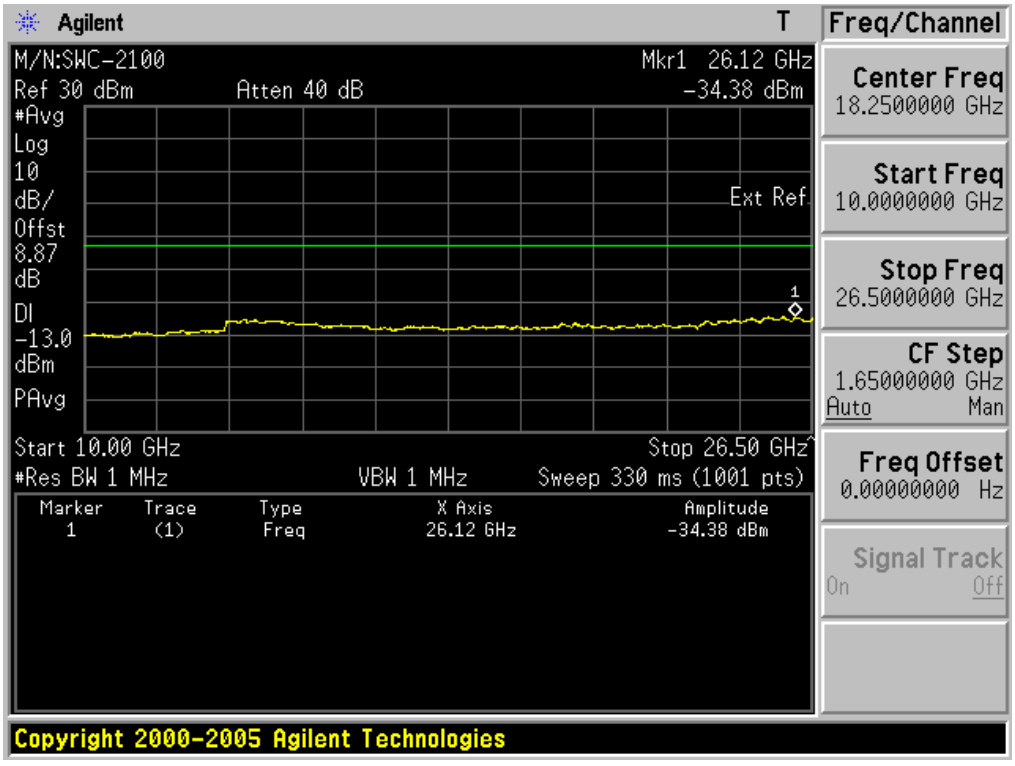


5.1 PLOTS OF EMISSIONS (Continued…)

5.1.3 Conducted Spurious Emissions(BW: 10MHz) (Continued…)

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

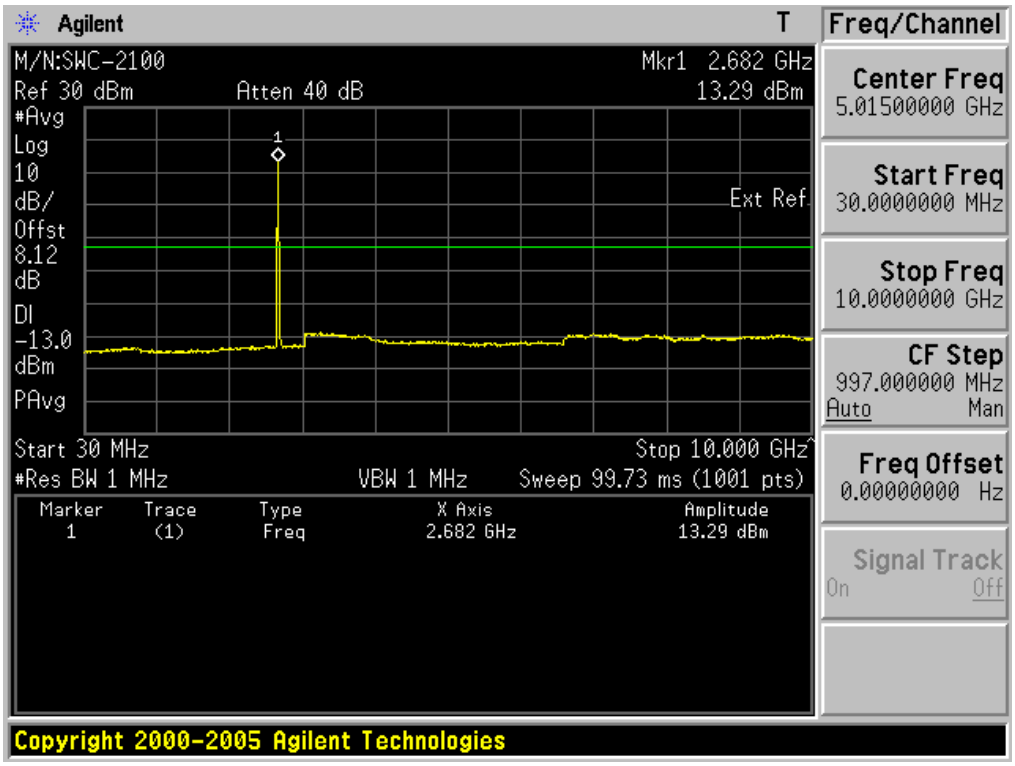


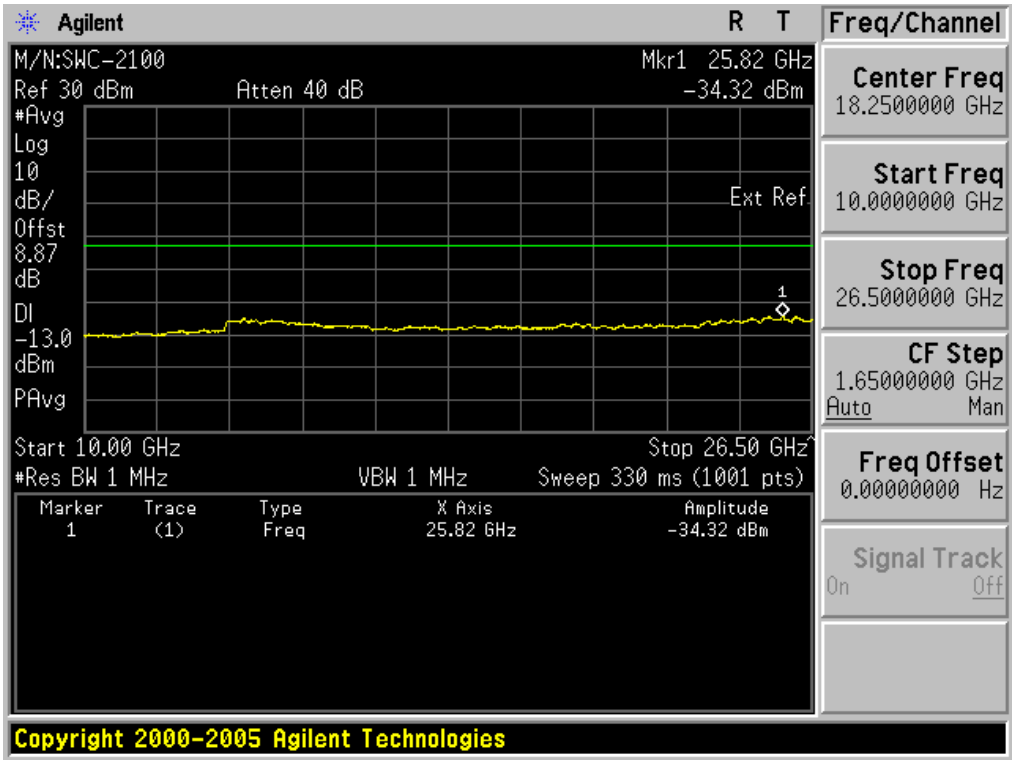


5.1 PLOTS OF EMISSIONS (Continued…)

5.1.3 Conducted Spurious Emissions(BW: 10MHz) (Continued…)

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

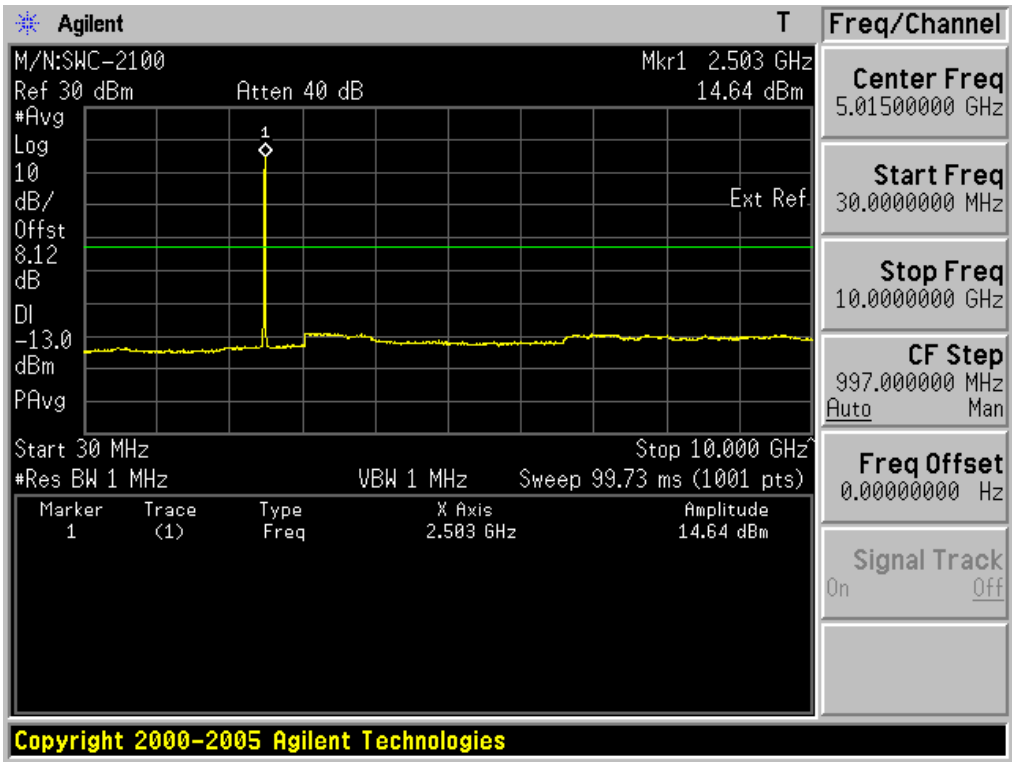


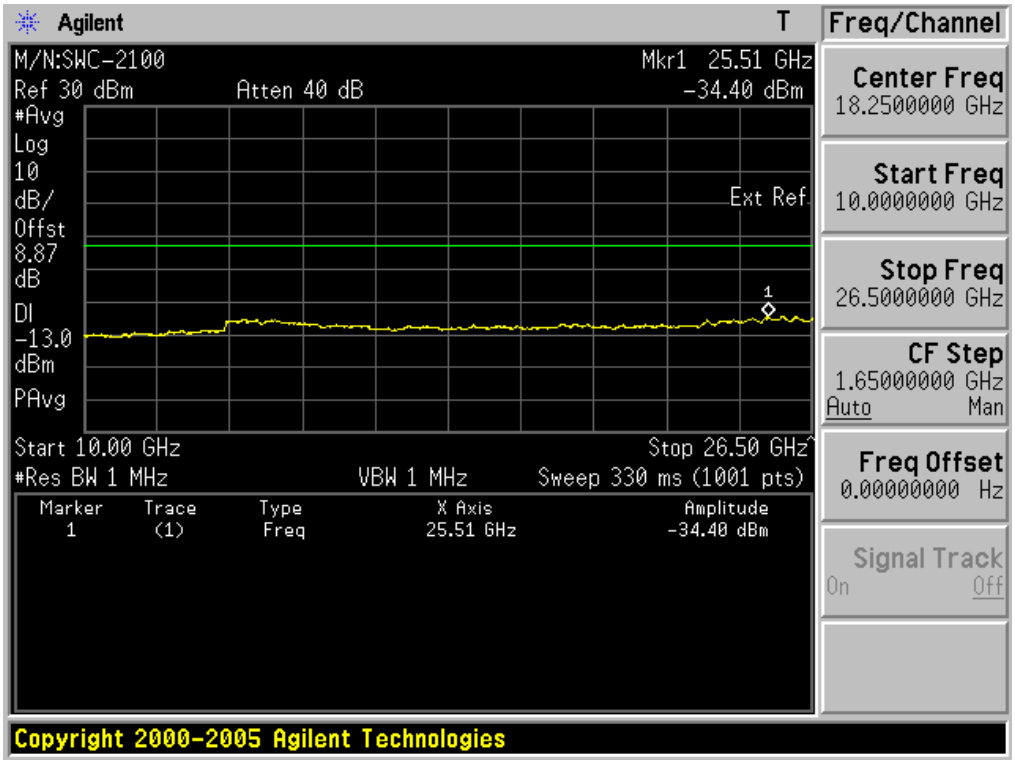


5.1 PLOTS OF EMISSIONS (Continued…)

5.1.3 Conducted Spurious Emissions(BW: 10MHz) (Continued…)

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

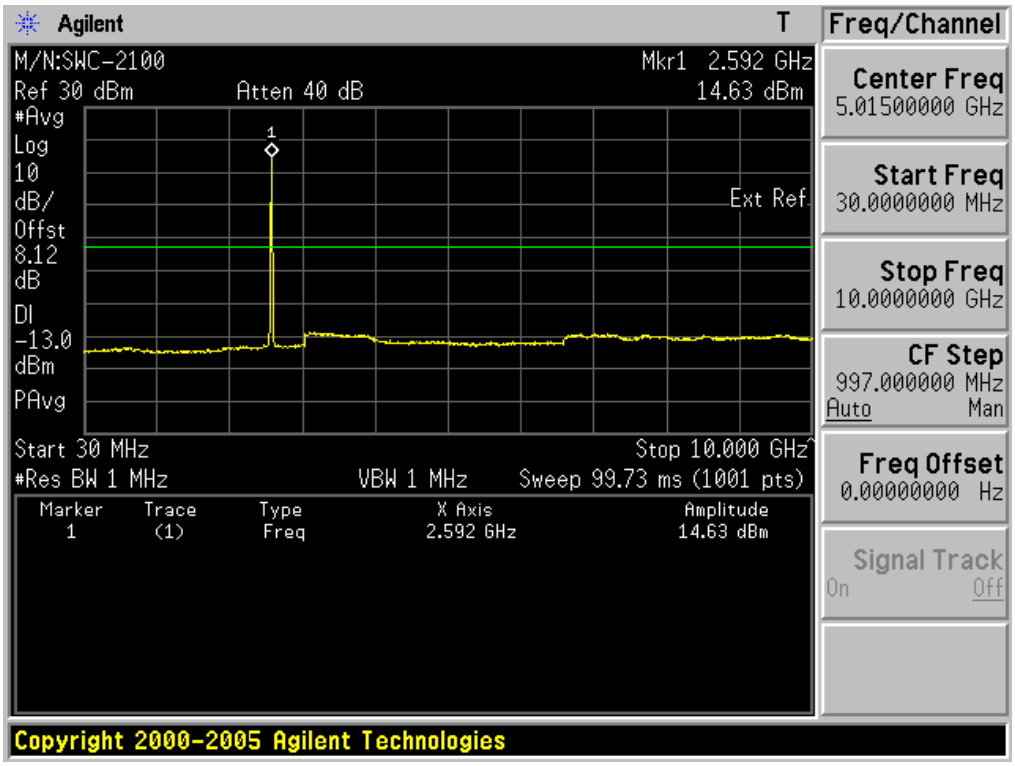


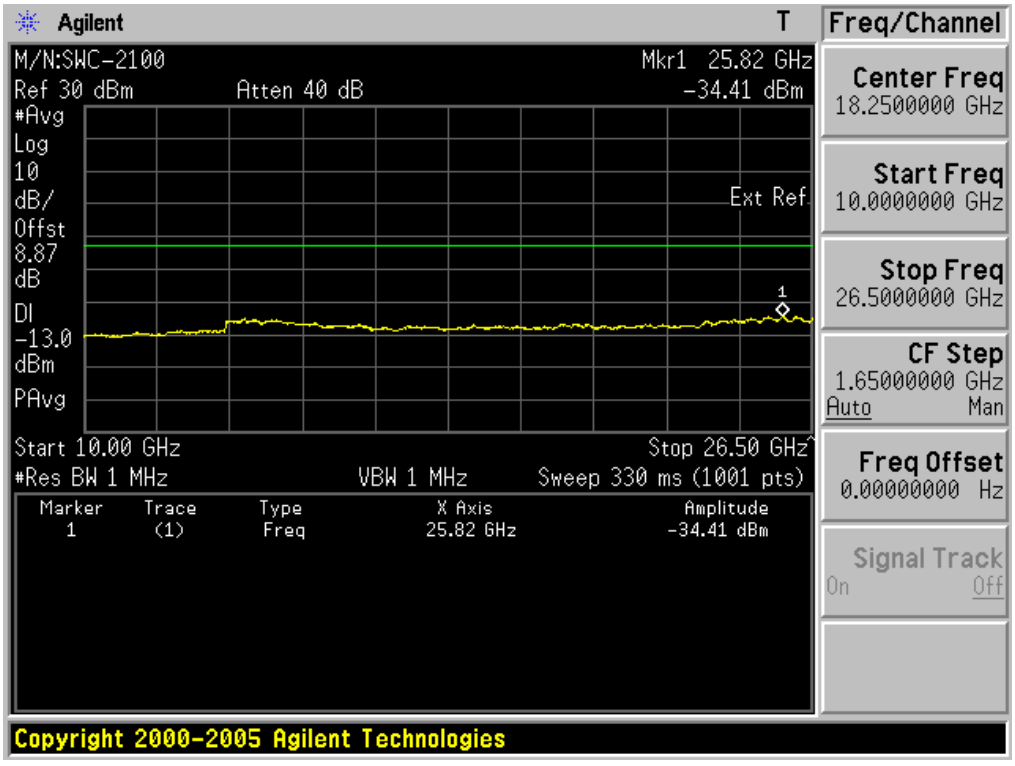


5.1 PLOTS OF EMISSIONS (Continued…)

5.1.3 Conducted Spurious Emissions(BW: 10MHz) (Continued…)

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

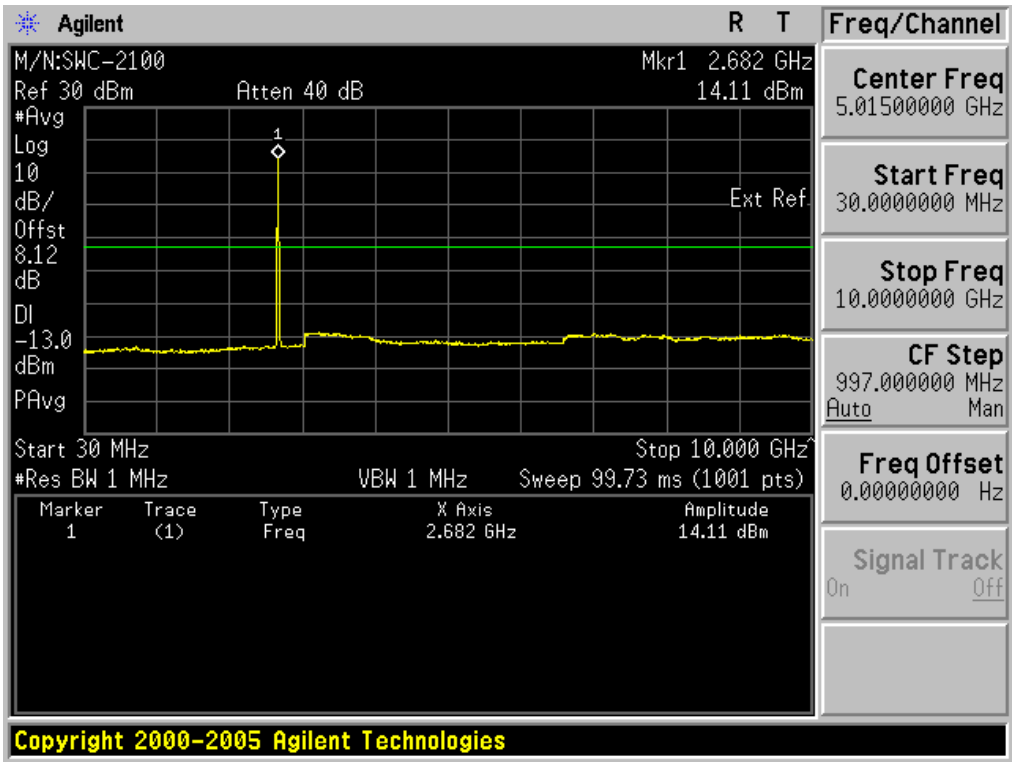


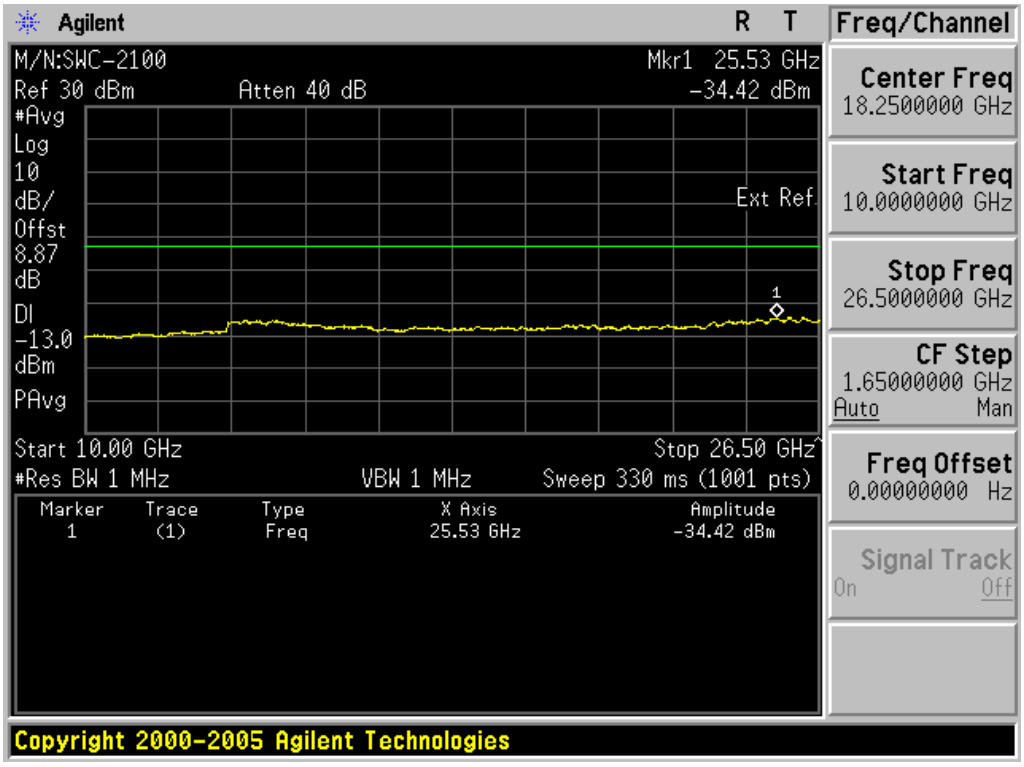


5.1 PLOTS OF EMISSIONS (Continued…)

5.1.3 Conducted Spurious Emissions(BW: 10MHz) (Continued…)

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

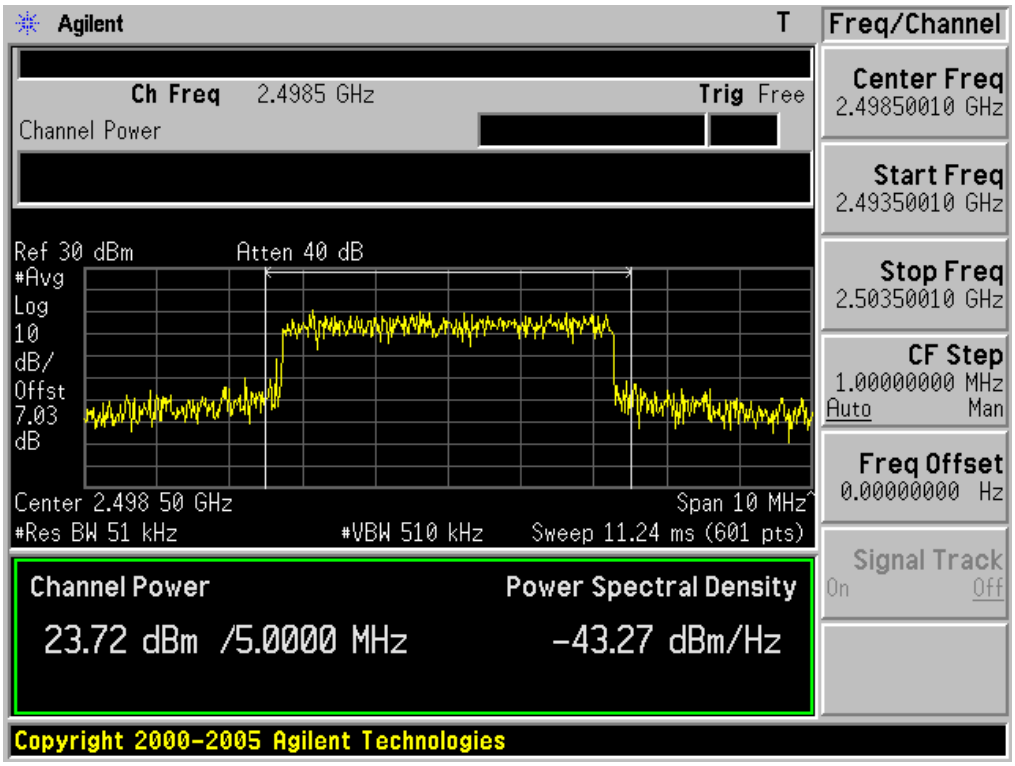




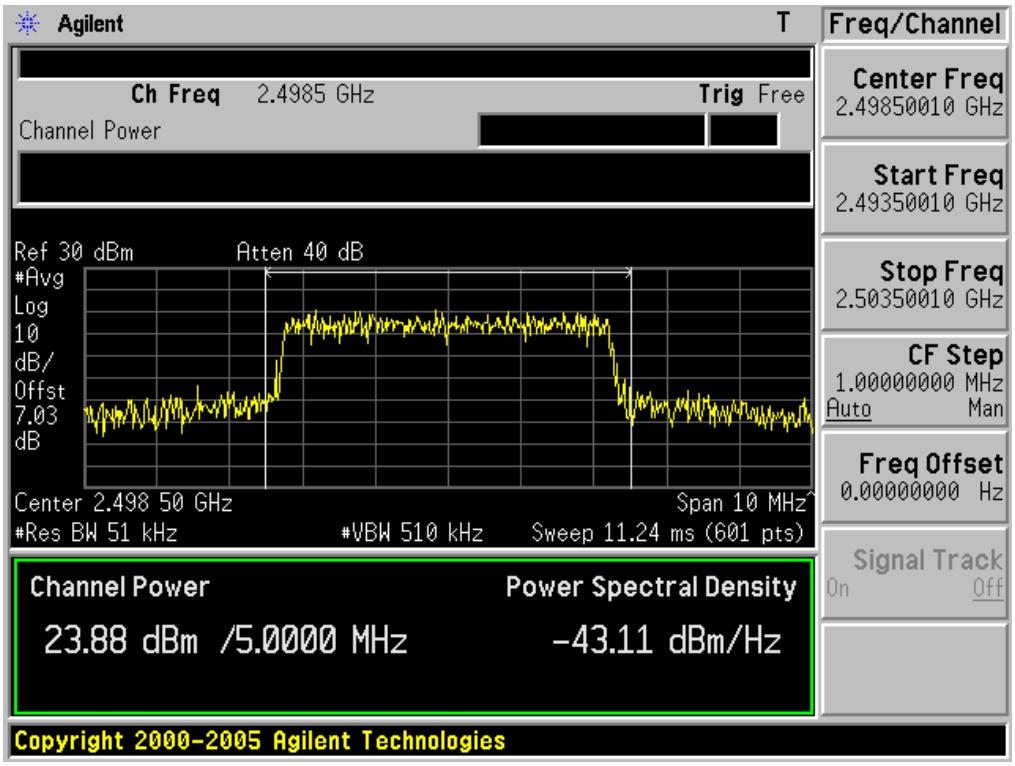
5.1 PLOTS OF EMISSIONS (Continued…)

5.1.4 Conducted Output Power(BW: 5MHz)

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



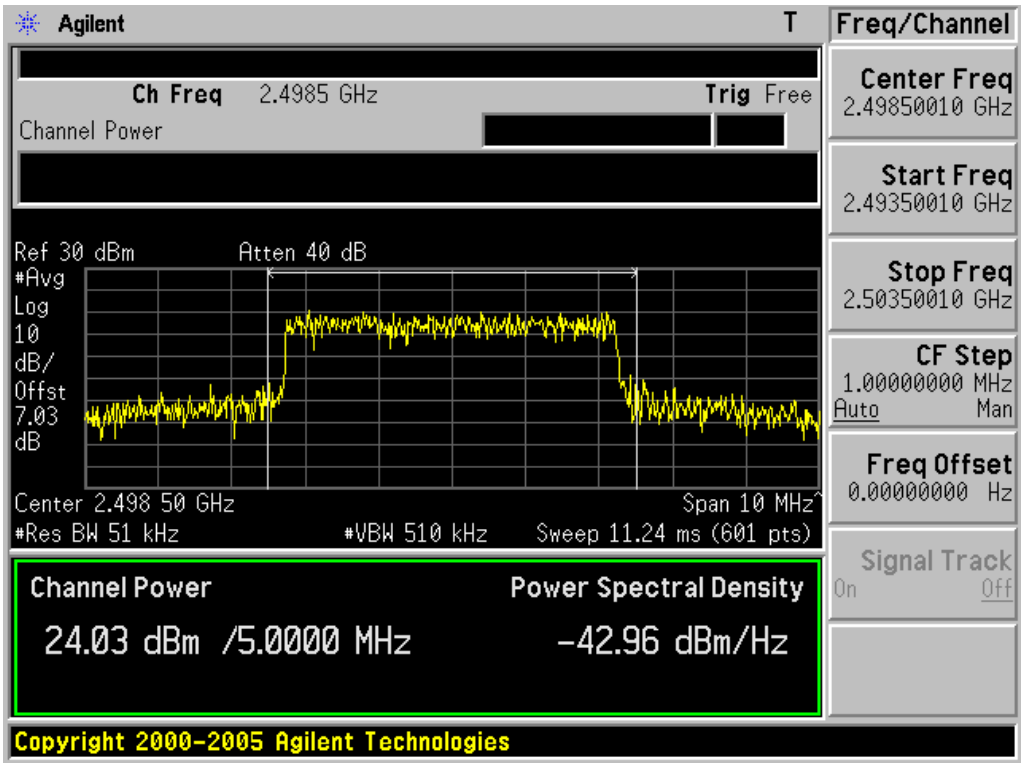
- Low Channel(2498.5MHz) & PUSC Mode & QPSK 3/4



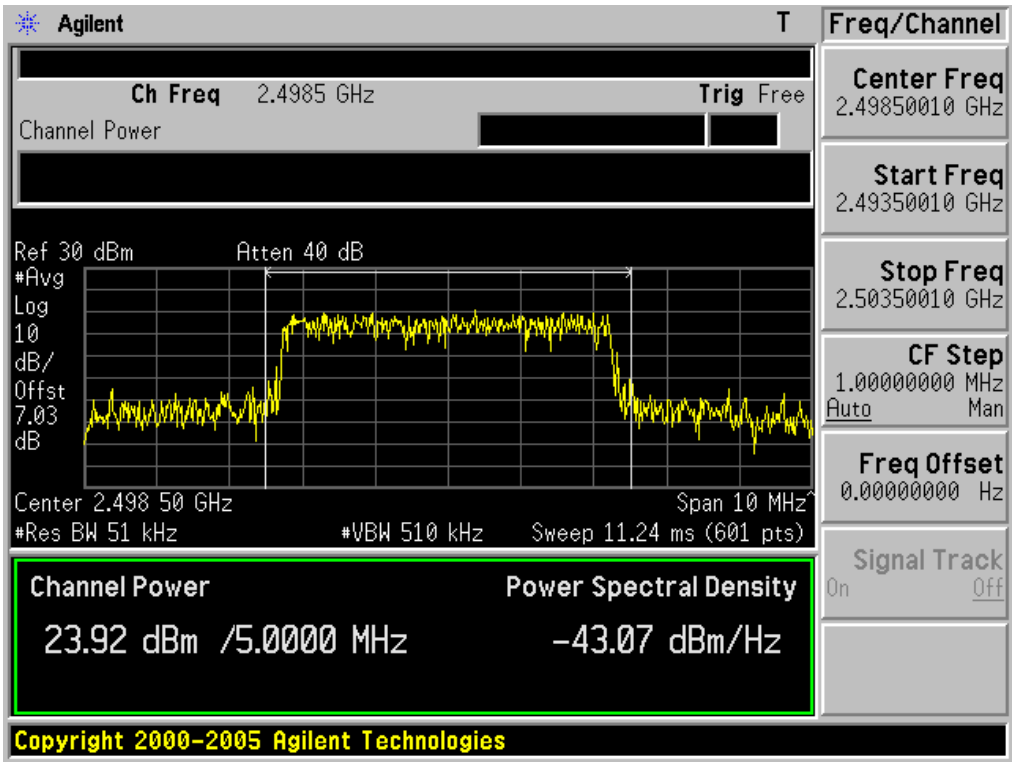
5.1 PLOTS OF EMISSIONS (Continued…)

5.1.4 Conducted Output Power(BW: 5MHz) (Continued…)

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



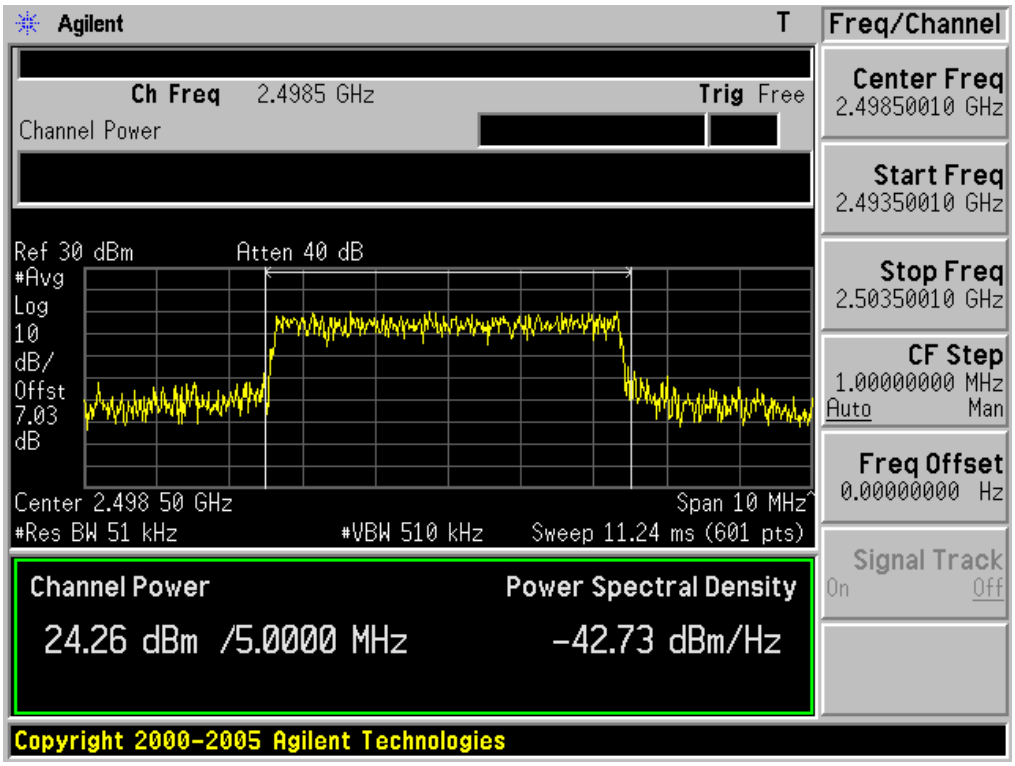
- Low Channel(2498.5MHz) & PUSC Mode & 16QAM 3/4



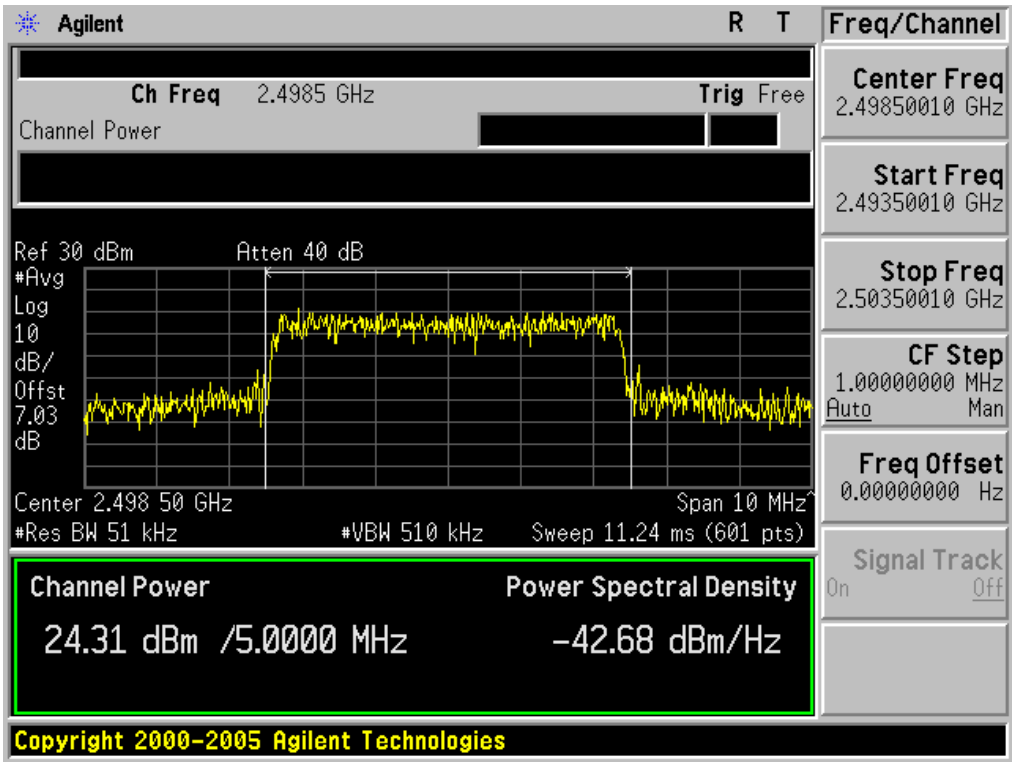
5.1 PLOTS OF EMISSIONS (Continued…)

5.1.4 Conducted Output Power(BW: 5MHz)

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



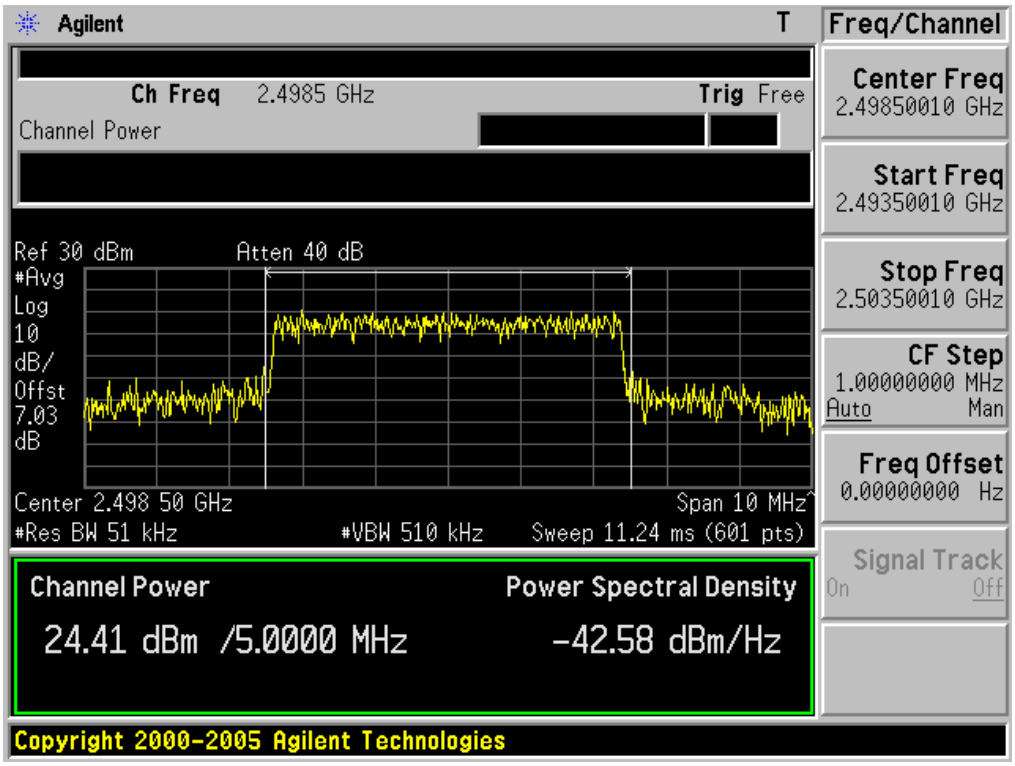
- Low Channel(2498.5MHz) & AMC Mode & QPSK 3/4



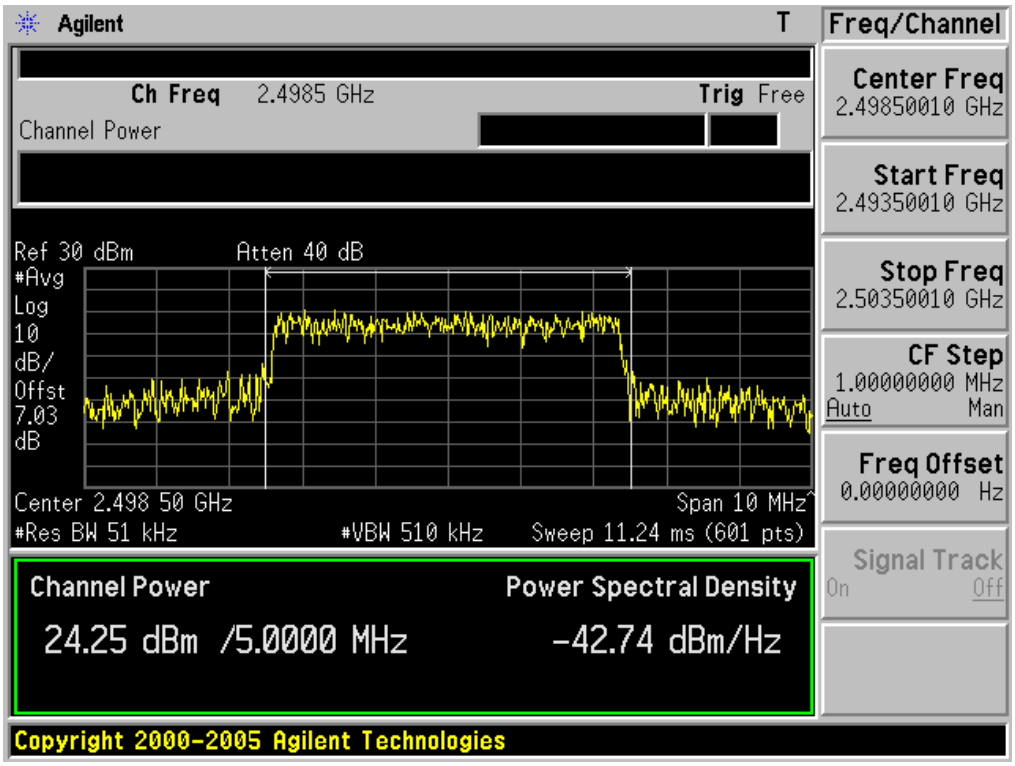
5.1 PLOTS OF EMISSIONS (Continued…)

5.1.4 Conducted Output Power(BW: 5MHz) (Continued…)

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



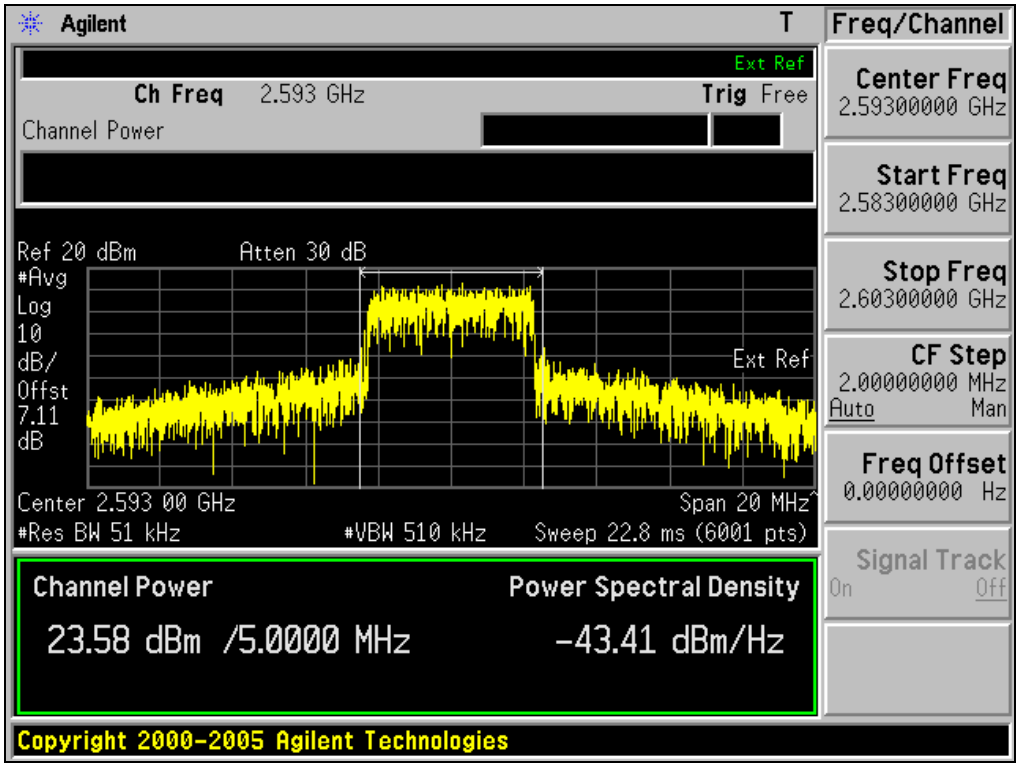
- Low Channel(2498.5MHz) & AMC Mode & 16QAM 3/4



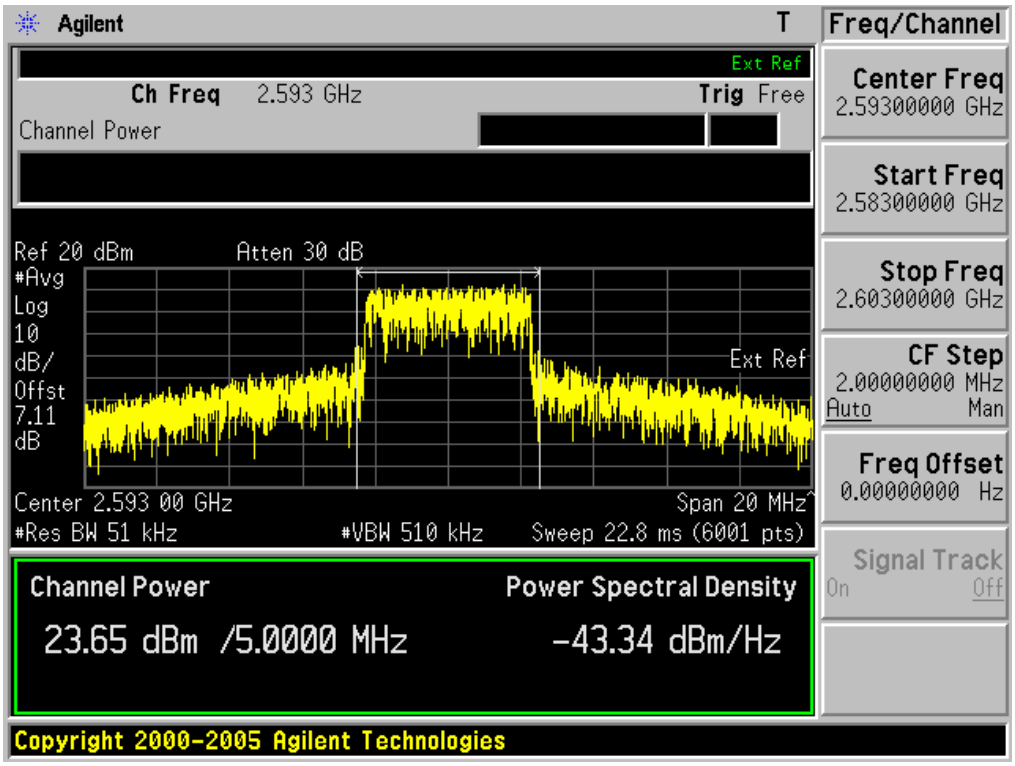
5.1 PLOTS OF EMISSIONS (Continued…)

5.1.4 Conducted Output Power(BW: 5MHz) (Continued…)

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



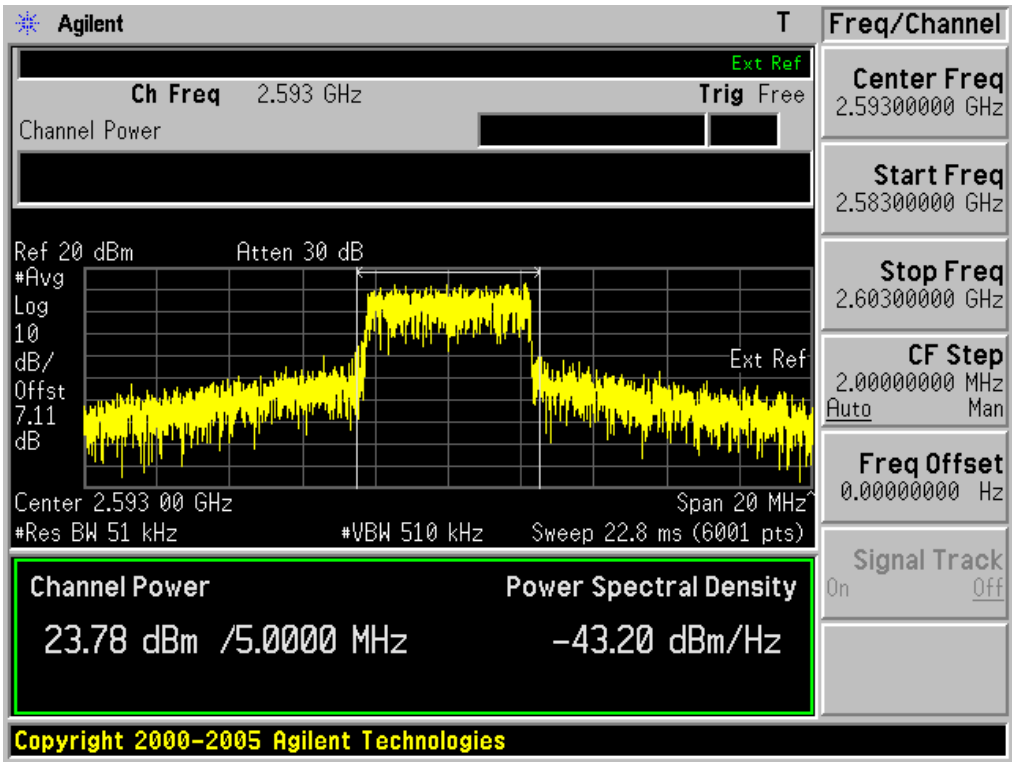
- Middle Channel(2593MHz) & PUSC Mode & QPSK 3/4



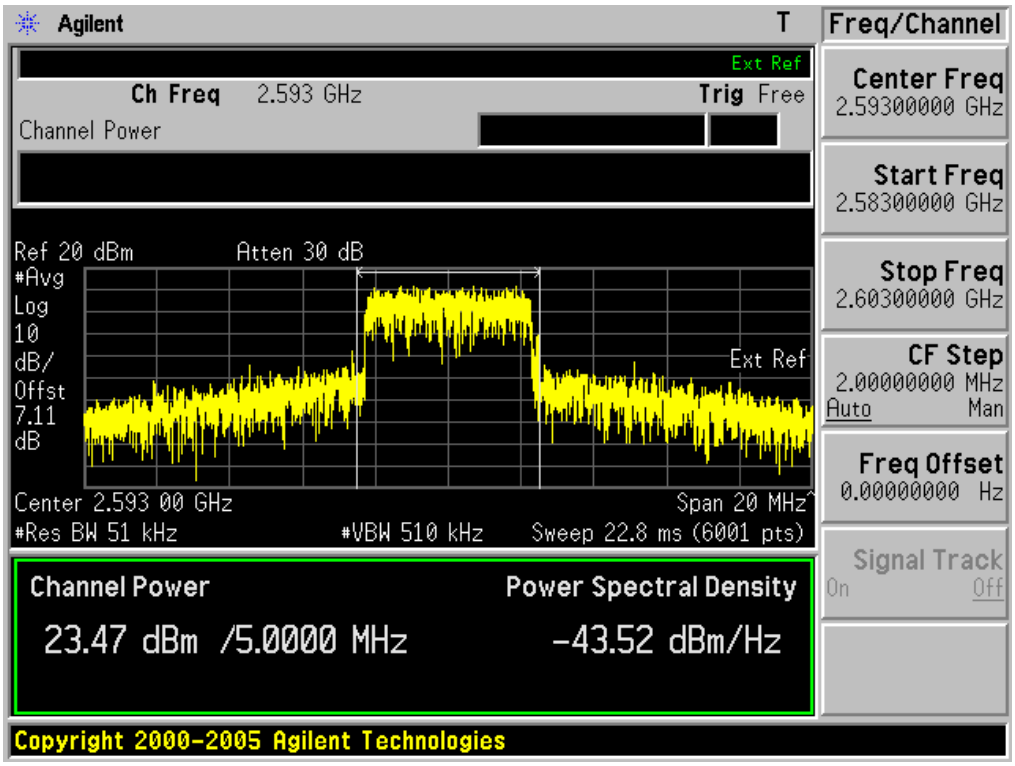
5.1 PLOTS OF EMISSIONS (Continued…)

5.1.4 Conducted Output Power(BW: 5MHz) (Continued…)

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



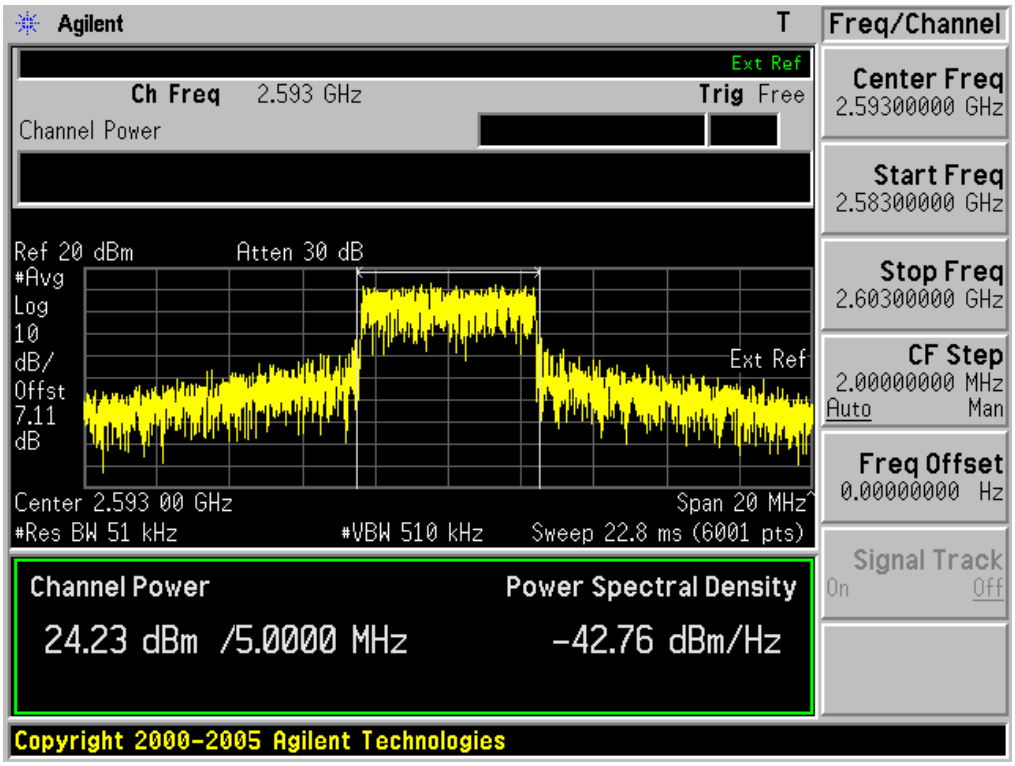
- Middle Channel(2593MHz) & PUSC Mode & 16QAM 3/4



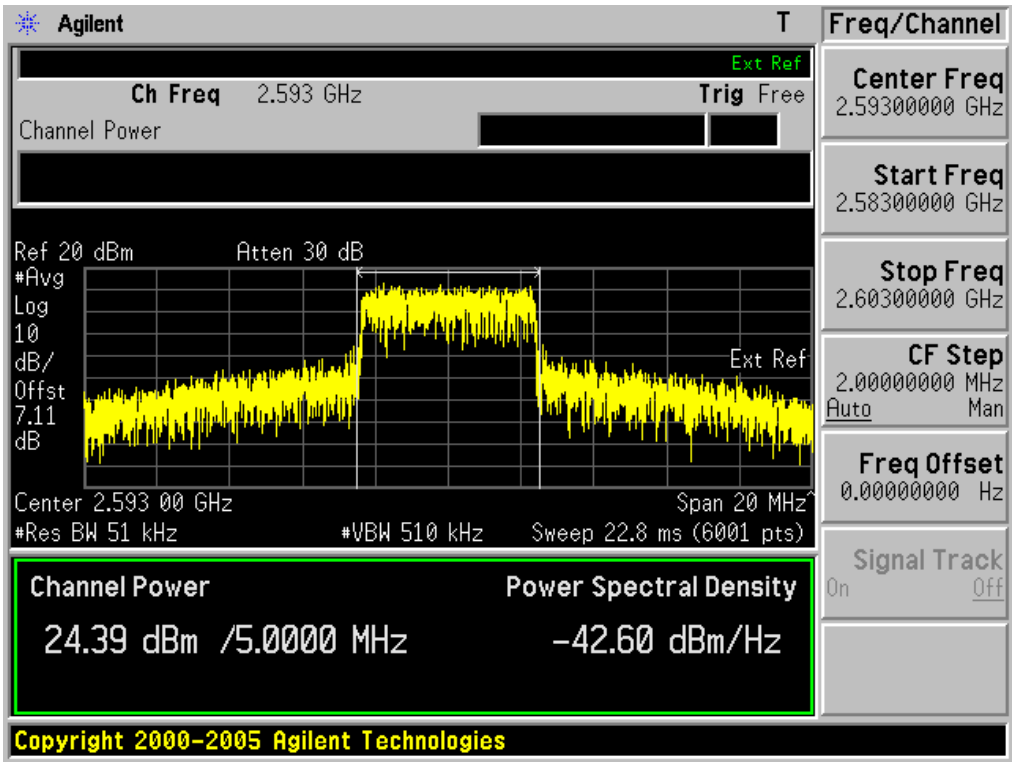
5.1 PLOTS OF EMISSIONS (Continued…)

5.1.4 Conducted Output Power(BW: 5MHz) (Continued…)

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



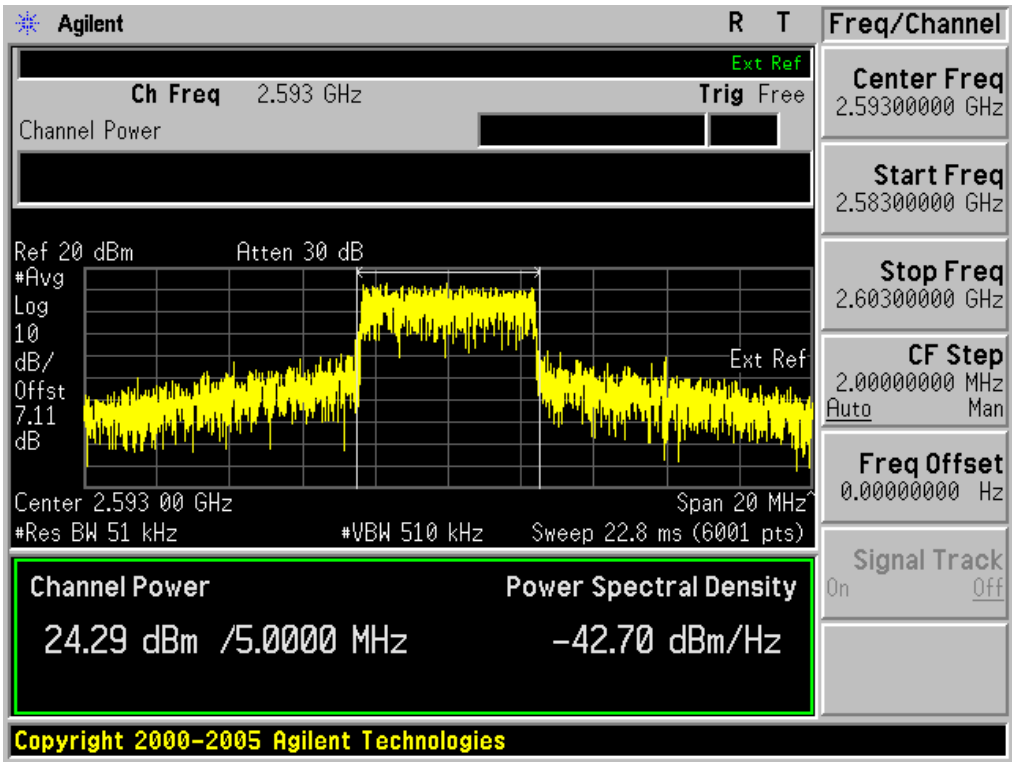
- Middle Channel(2593MHz) & AMC Mode & QPSK 3/4



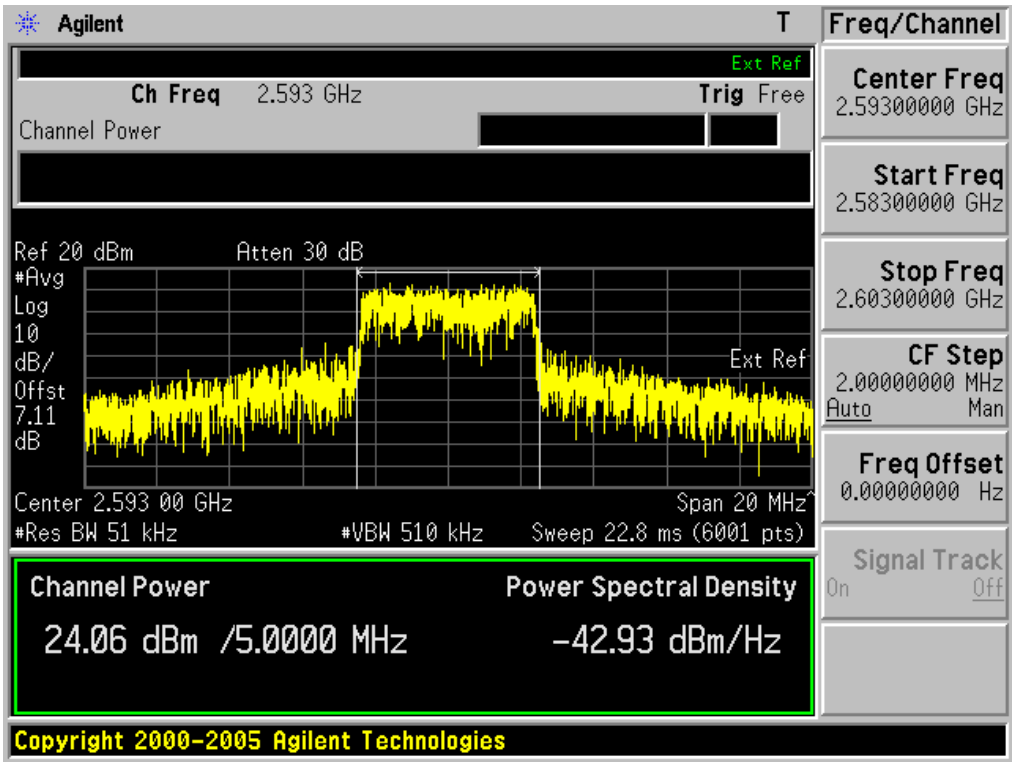
5.1 PLOTS OF EMISSIONS (Continued…)

5.1.4 Conducted Output Power(BW: 5MHz) (Continued…)

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



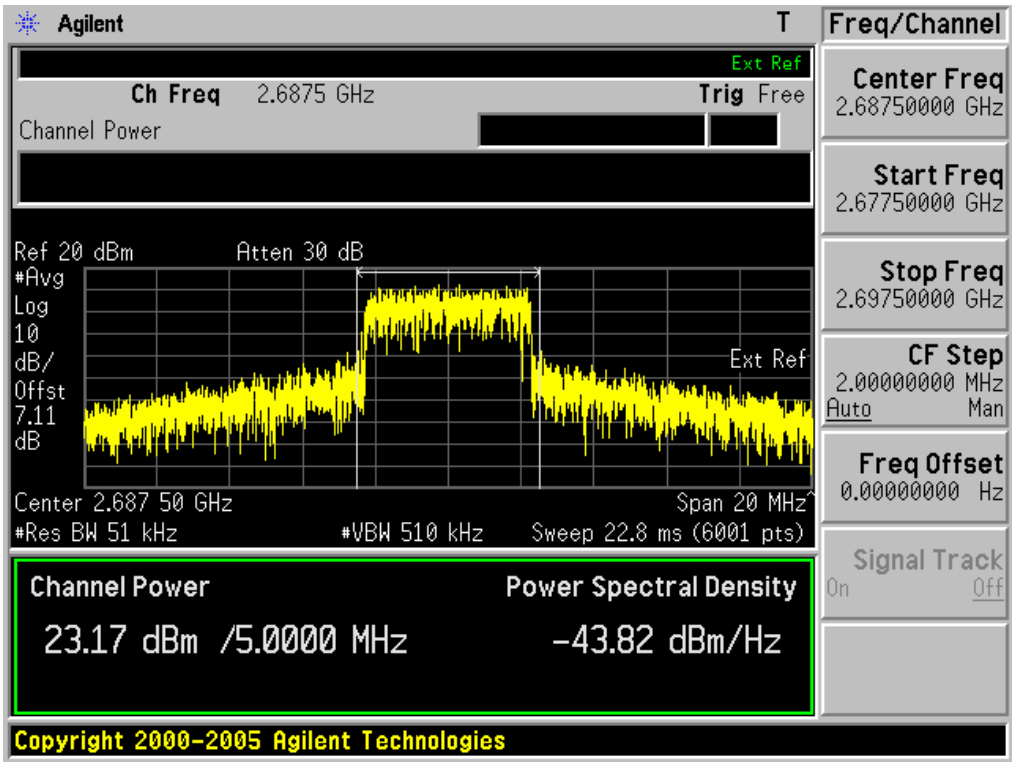
- Middle Channel(2593MHz) & AMC Mode & 16QAM 3/4



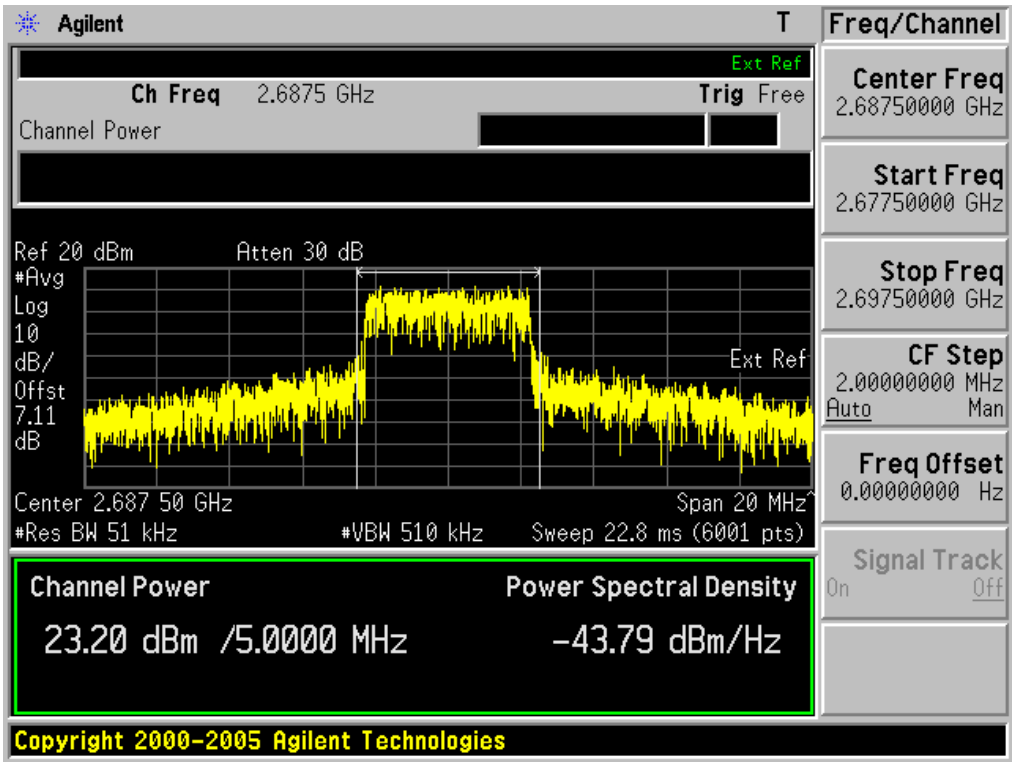
5.1 PLOTS OF EMISSIONS (Continued…)

5.1.4 Conducted Output Power(BW: 5MHz) (Continued…)

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



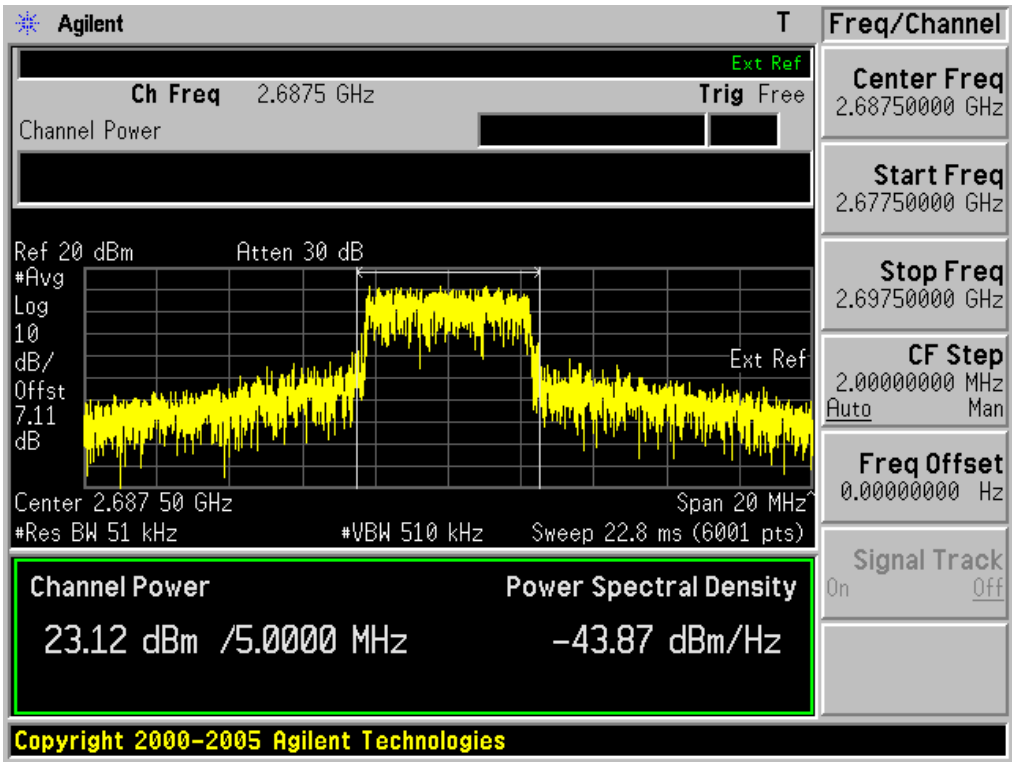
- High Channel(2687.55MHz) & PUSC Mode & QPSK 3/4



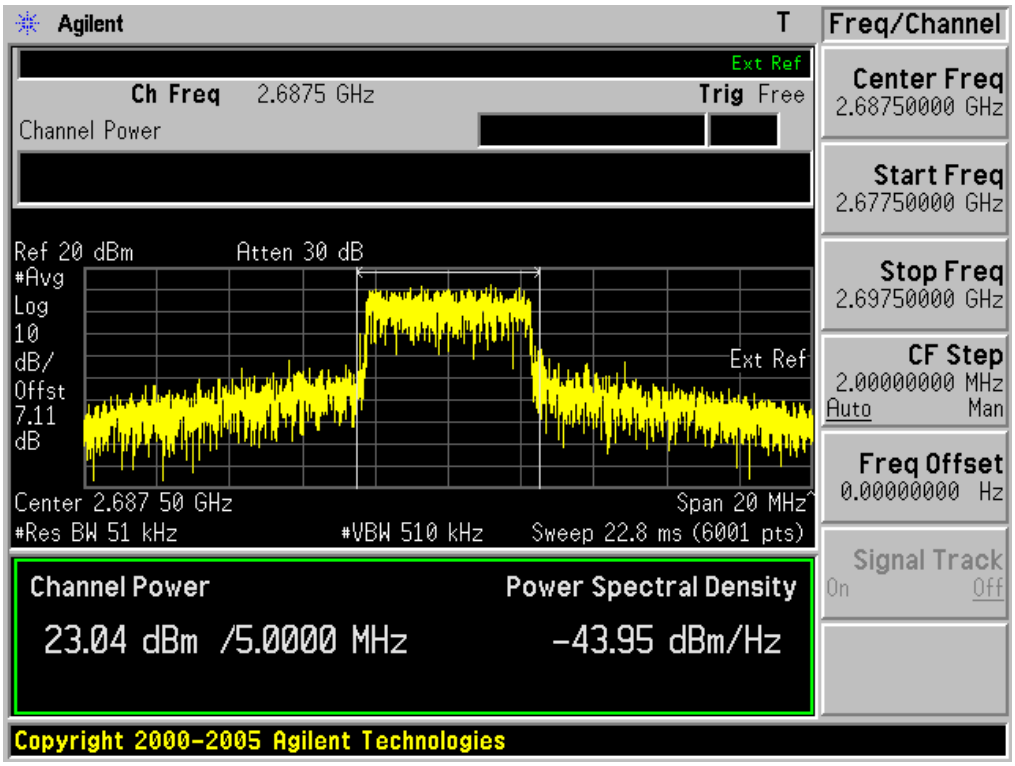
5.1 PLOTS OF EMISSIONS (Continued…)

5.1.4 Conducted Output Power(BW: 5MHz) (Continued…)

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



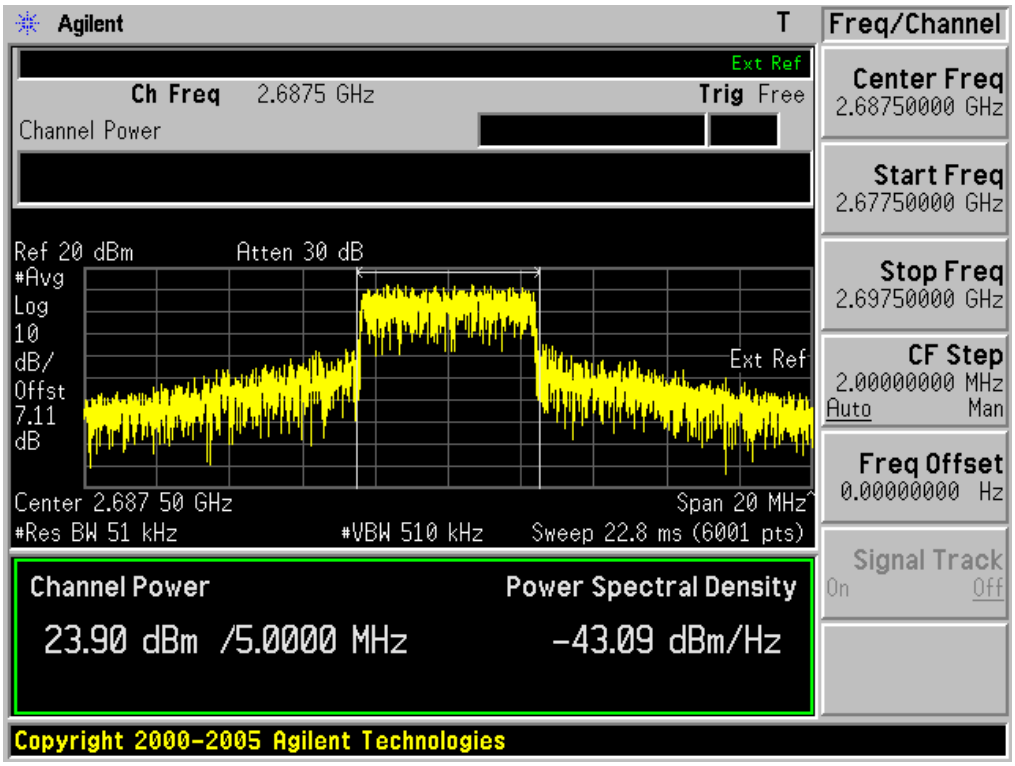
- High Channel(2687.5MHz) & PUSC Mode & 16QAM 3/4



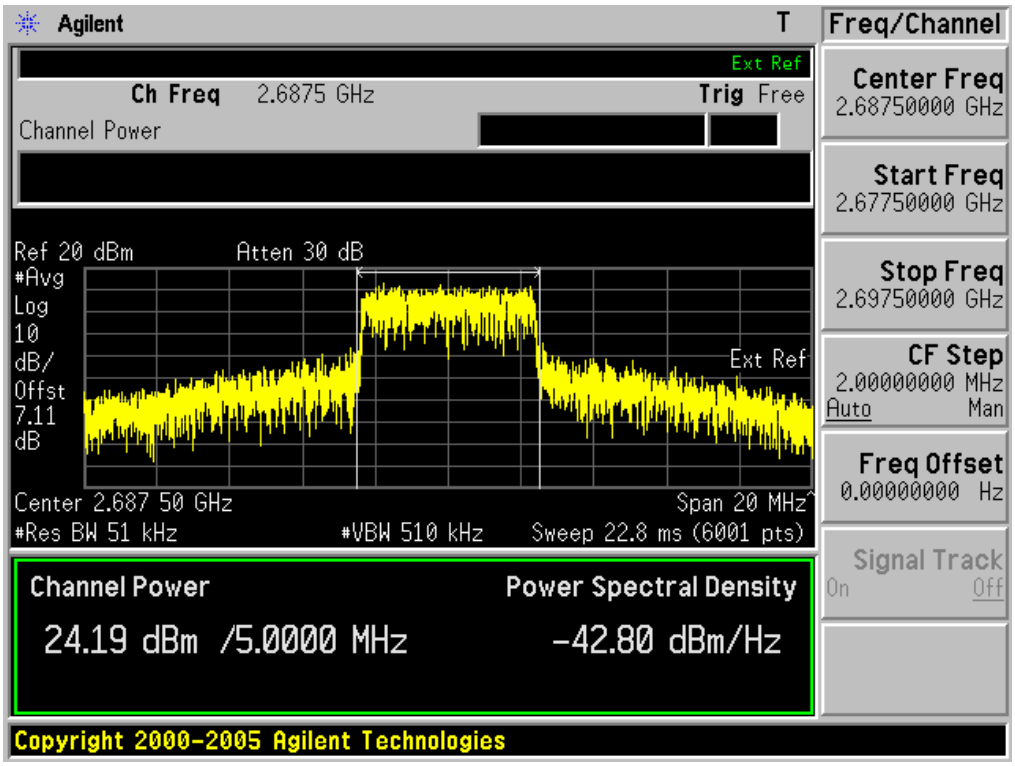
5.1 PLOTS OF EMISSIONS (Continued…)

5.1.4 Conducted Output Power(BW: 5MHz) (Continued…)

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



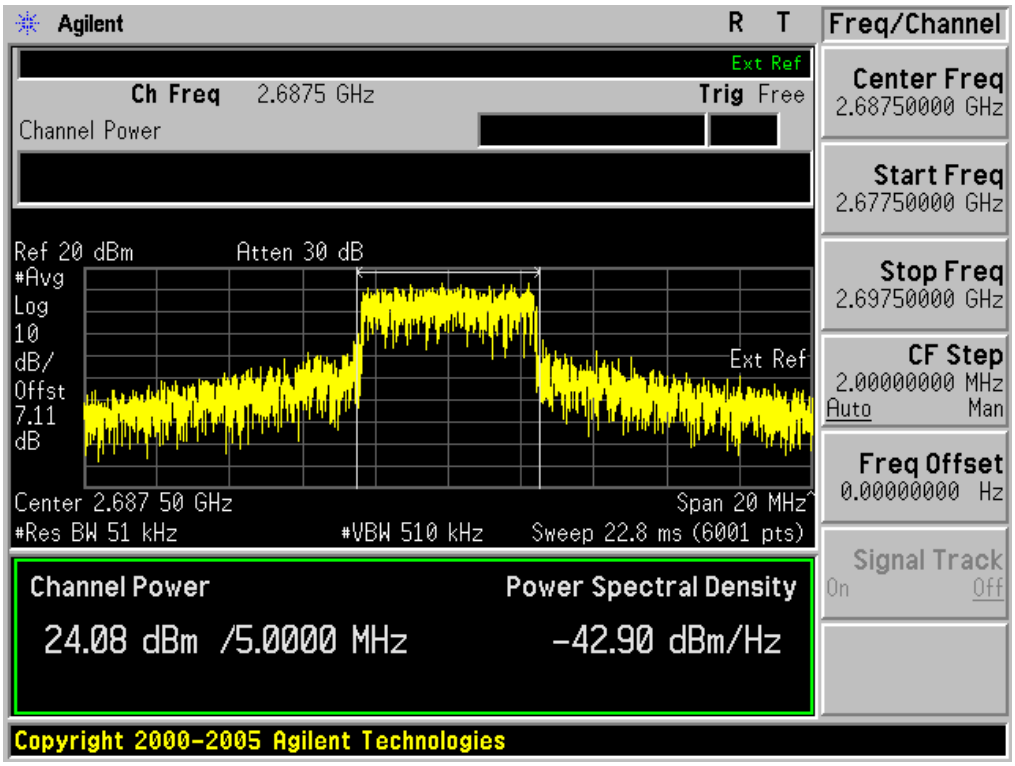
- High Channel(2687.55MHz) & AMC Mode & QPSK 3/4



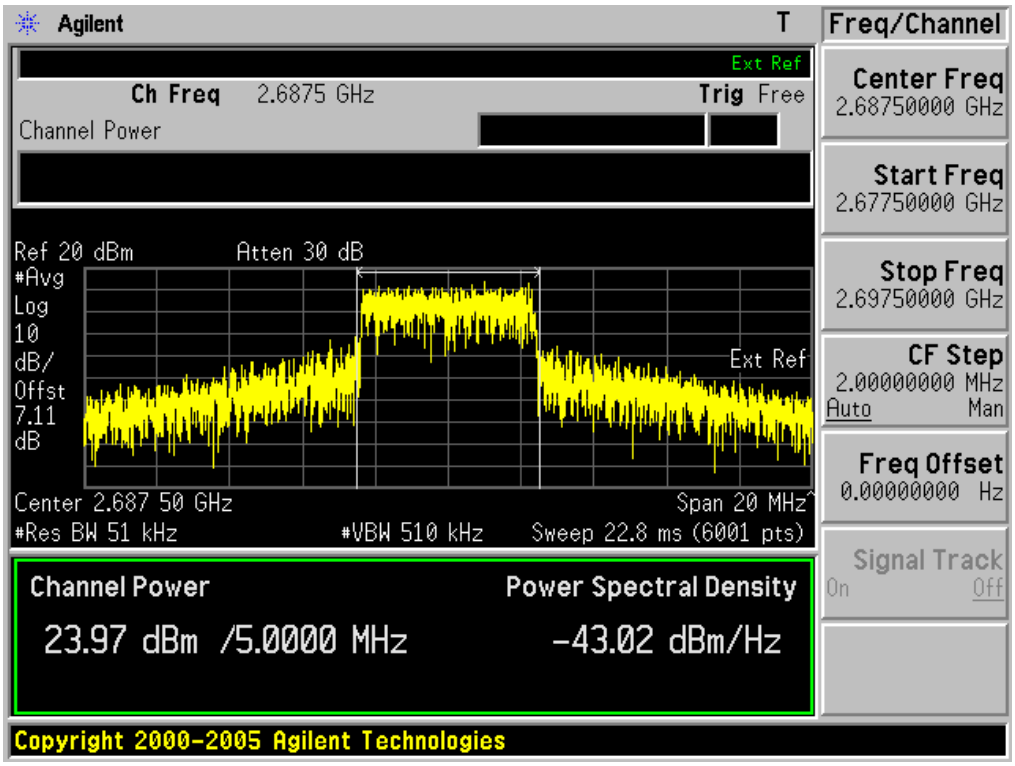
5.1 PLOTS OF EMISSIONS (Continued…)

5.1.4 Conducted Output Power(BW: 5MHz) (Continued…)

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



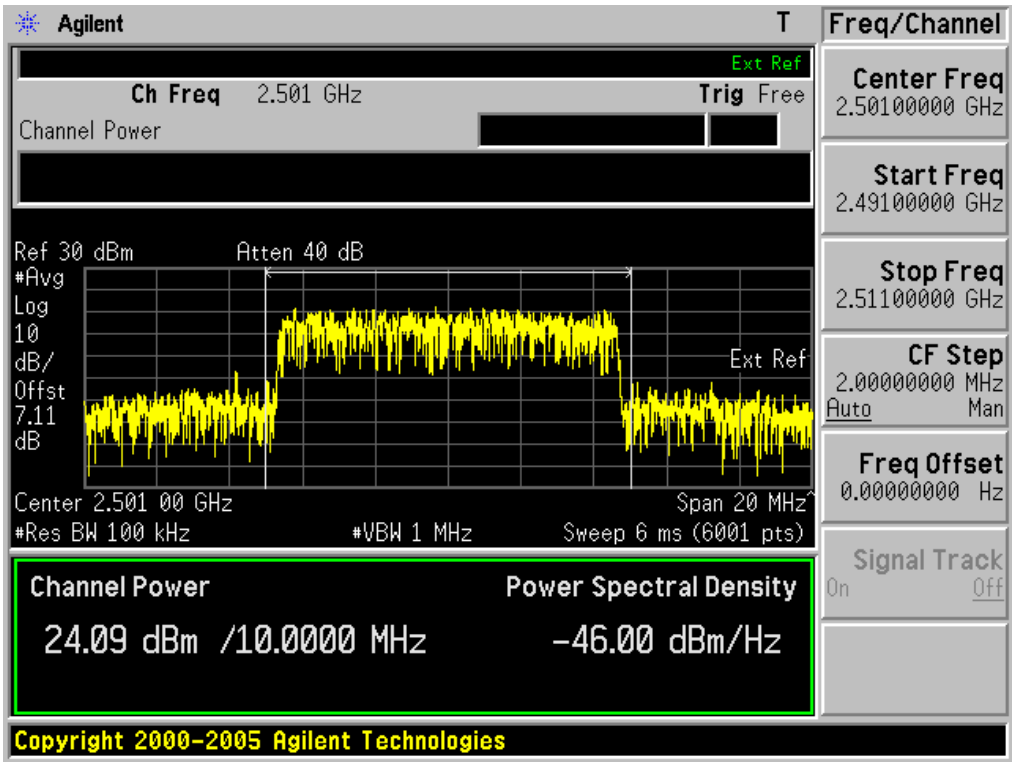
- High Channel(2687.5MHz) & AMC Mode & 16QAM 3/4



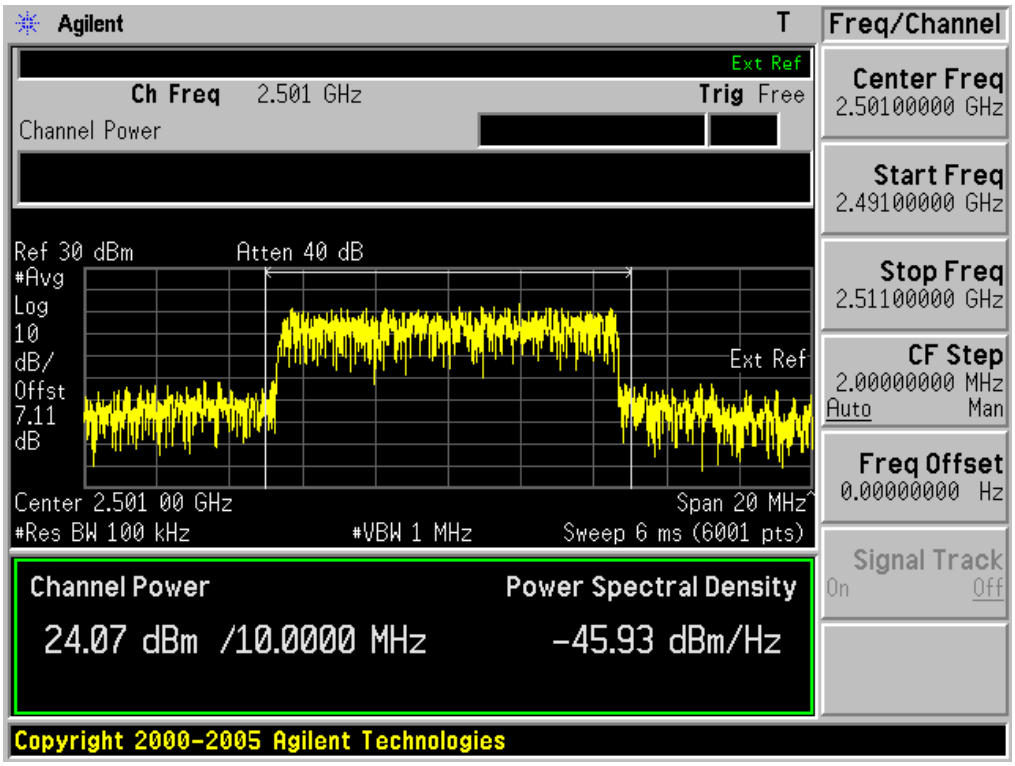
5.1 PLOTS OF EMISSIONS (Continued…)

5.1.4 Conducted Output Power(BW: 10MHz) (Continued…)

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



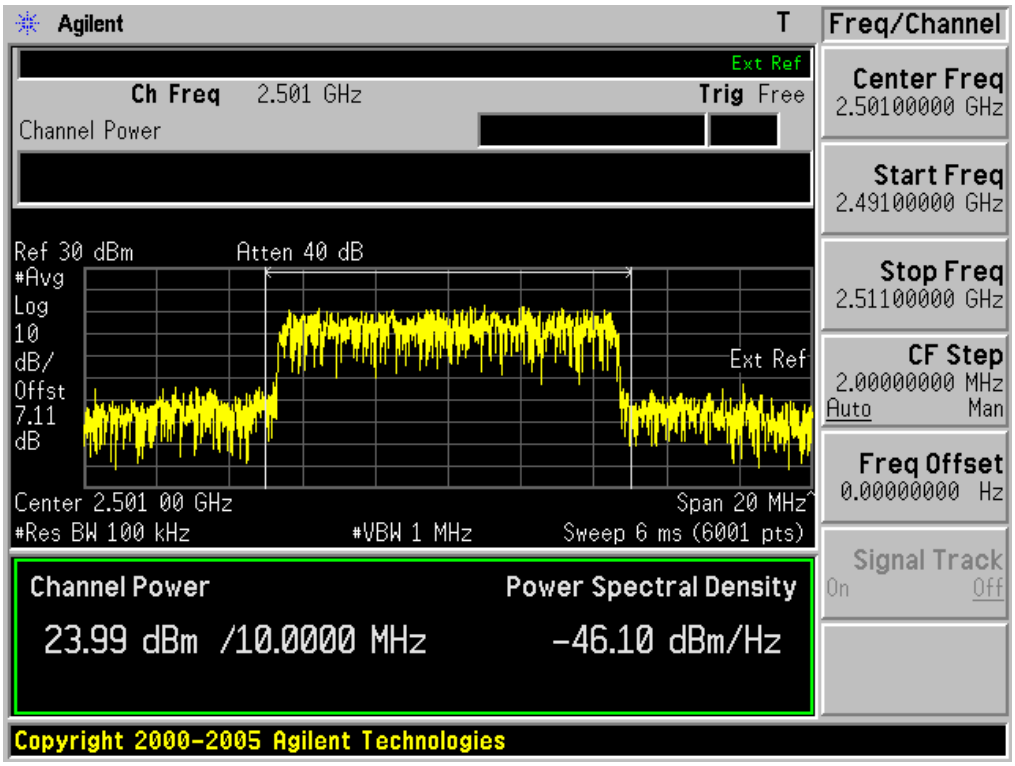
- Low Channel(2501MHz) & PUSC Mode & QPSK 3/4



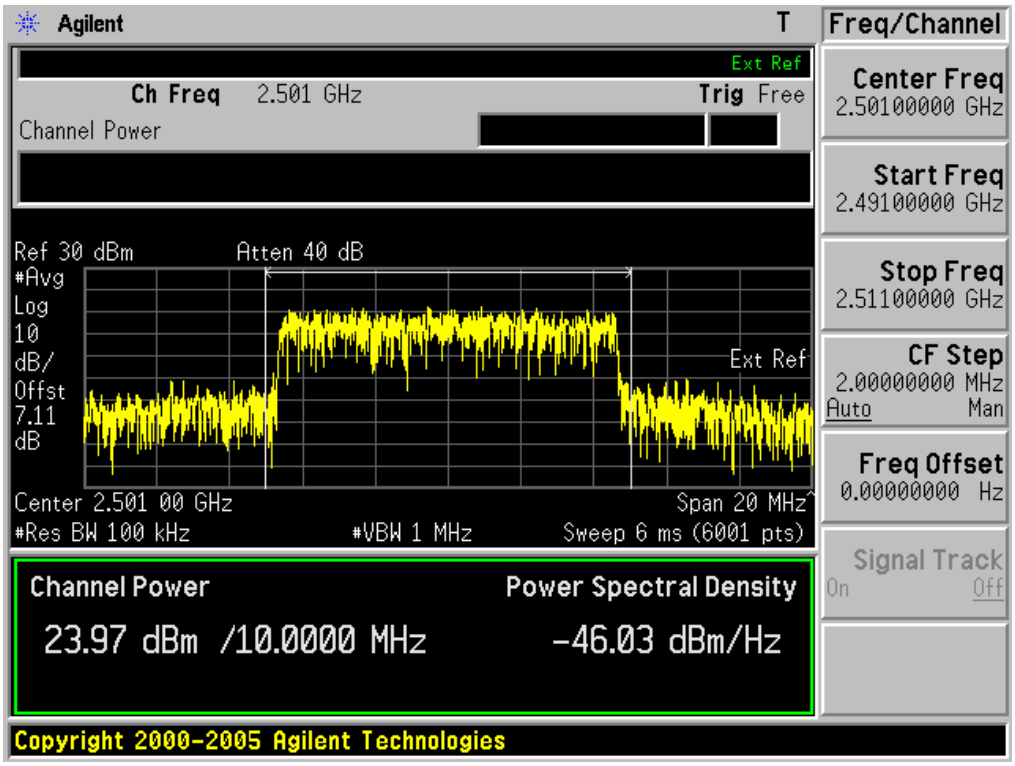
5.1 PLOTS OF EMISSIONS (Continued…)

5.1.4 Conducted Output Power(BW: 10MHz) (Continued…)

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



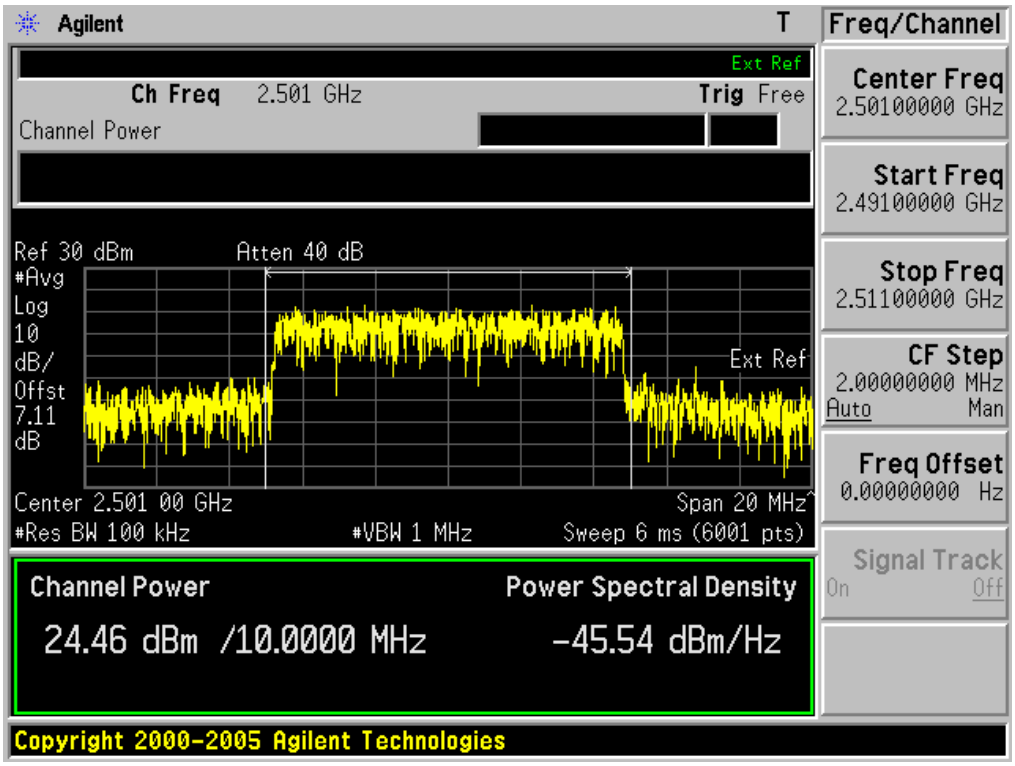
- Low Channel(2501MHz) & PUSC Mode & 16QAM 3/4



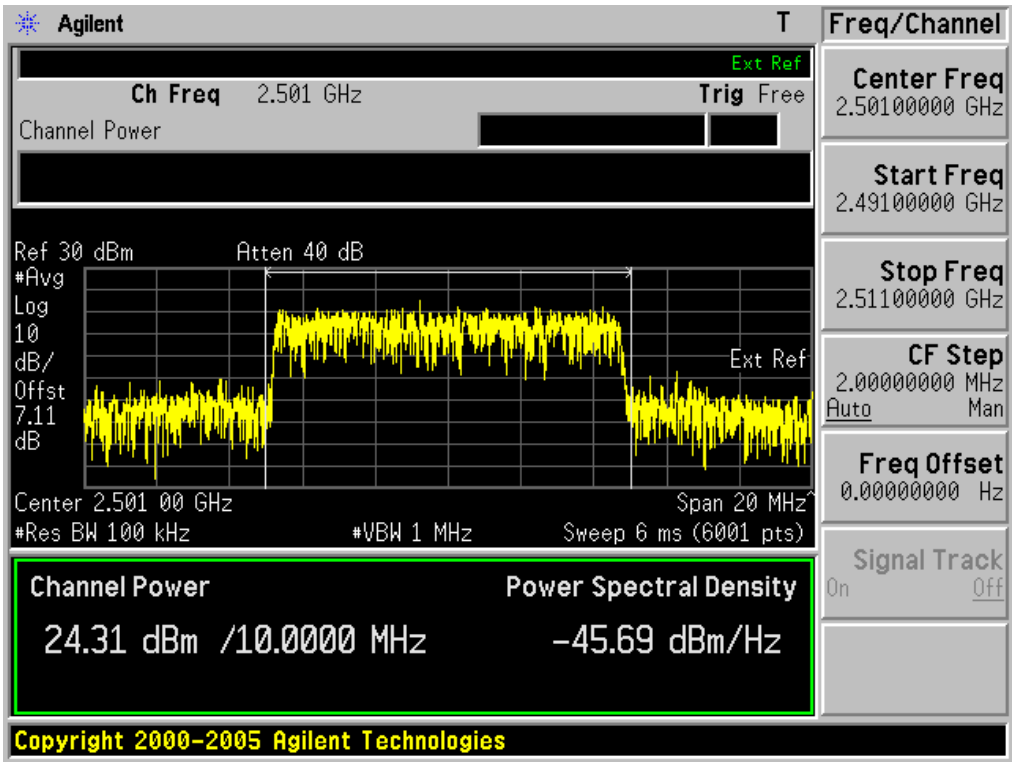
5.1 PLOTS OF EMISSIONS (Continued…)

5.1.4 Conducted Output Power(BW: 10MHz) (Continued…)

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



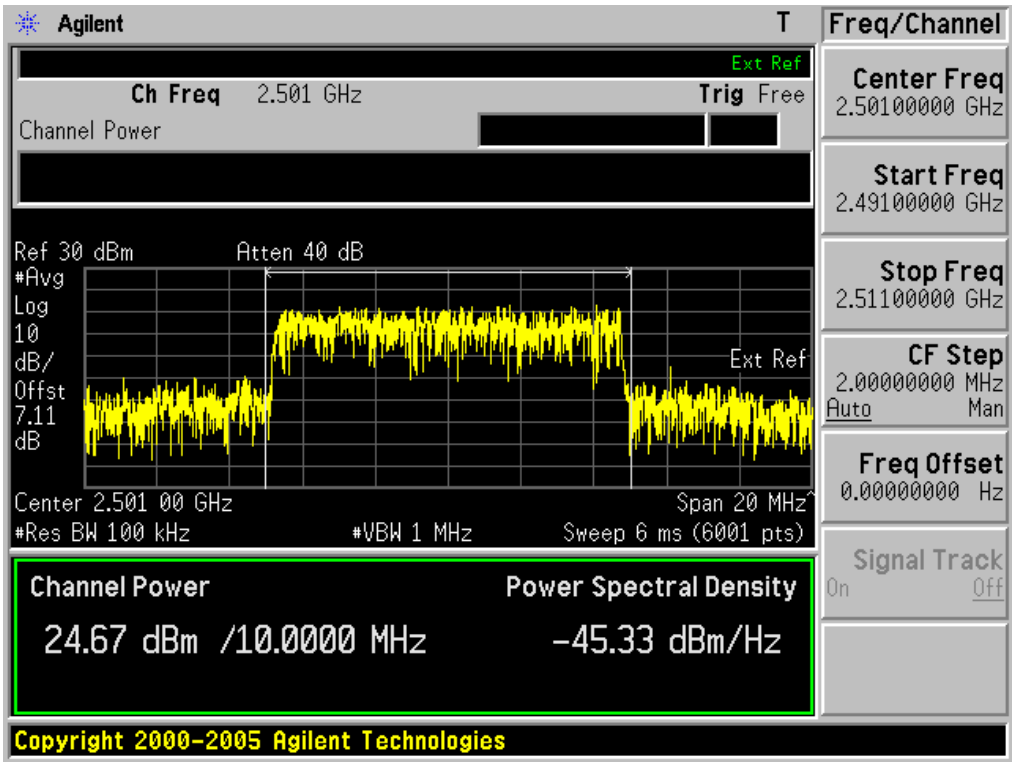
- Low Channel(2501MHz) & AMC Mode & QPSK 3/4



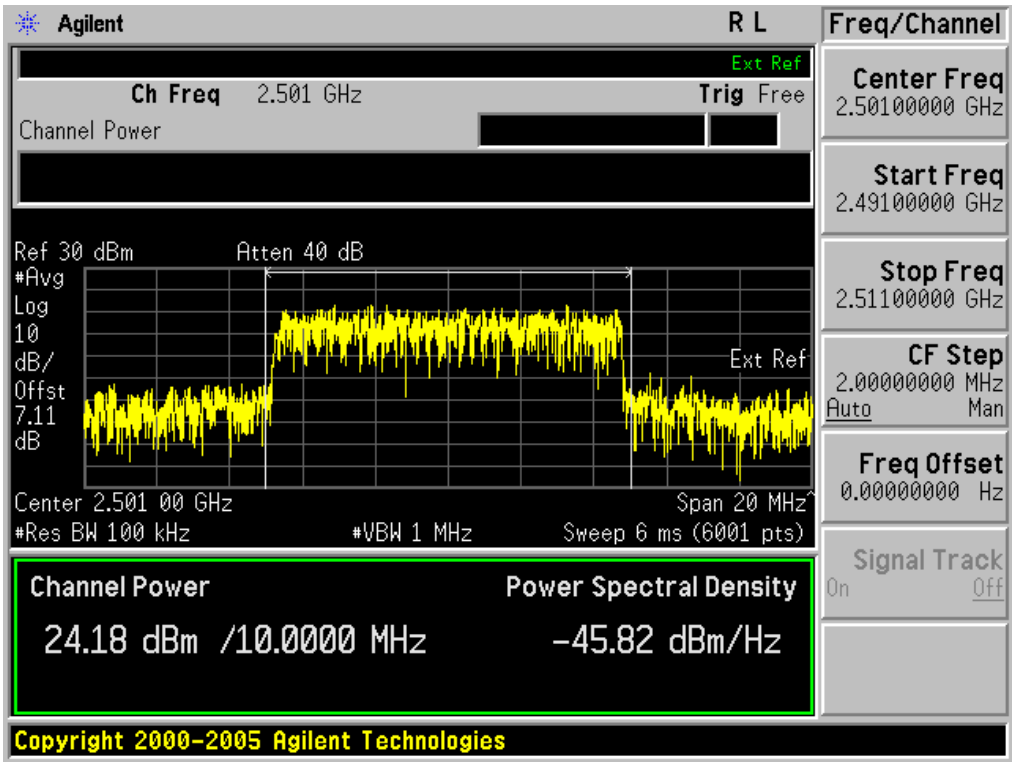
5.1 PLOTS OF EMISSIONS (Continued…)

5.1.4 Conducted Output Power(BW: 10MHz) (Continued…)

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



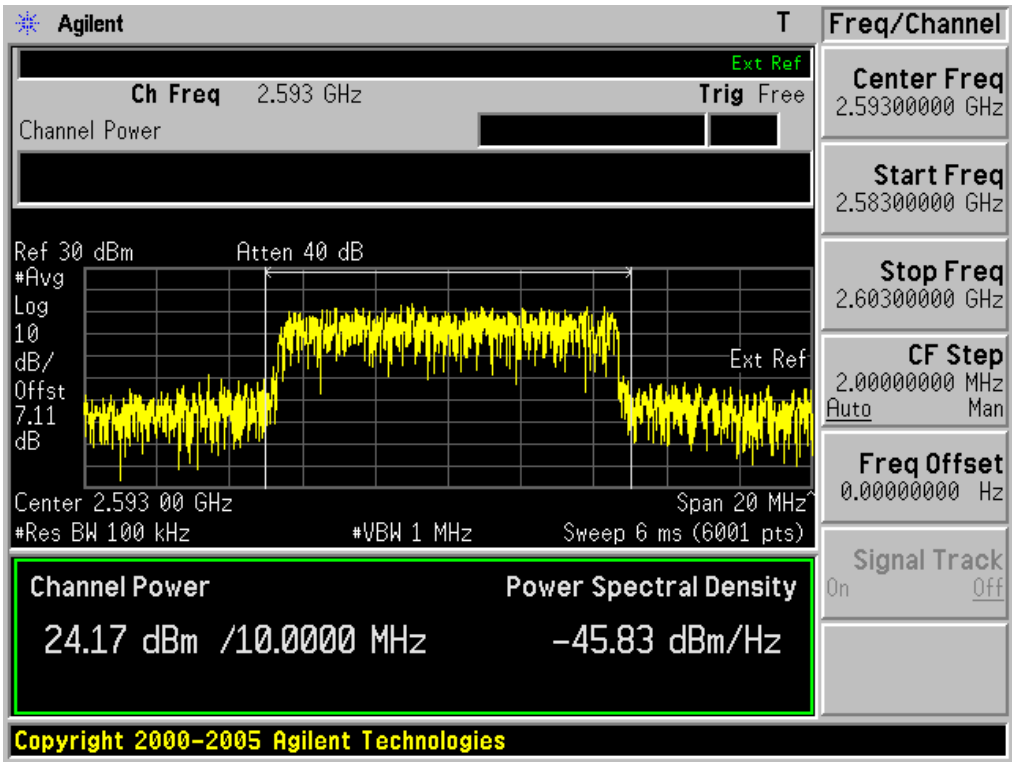
- Low Channel(2501MHz) & AMC Mode & 16QAM 3/4



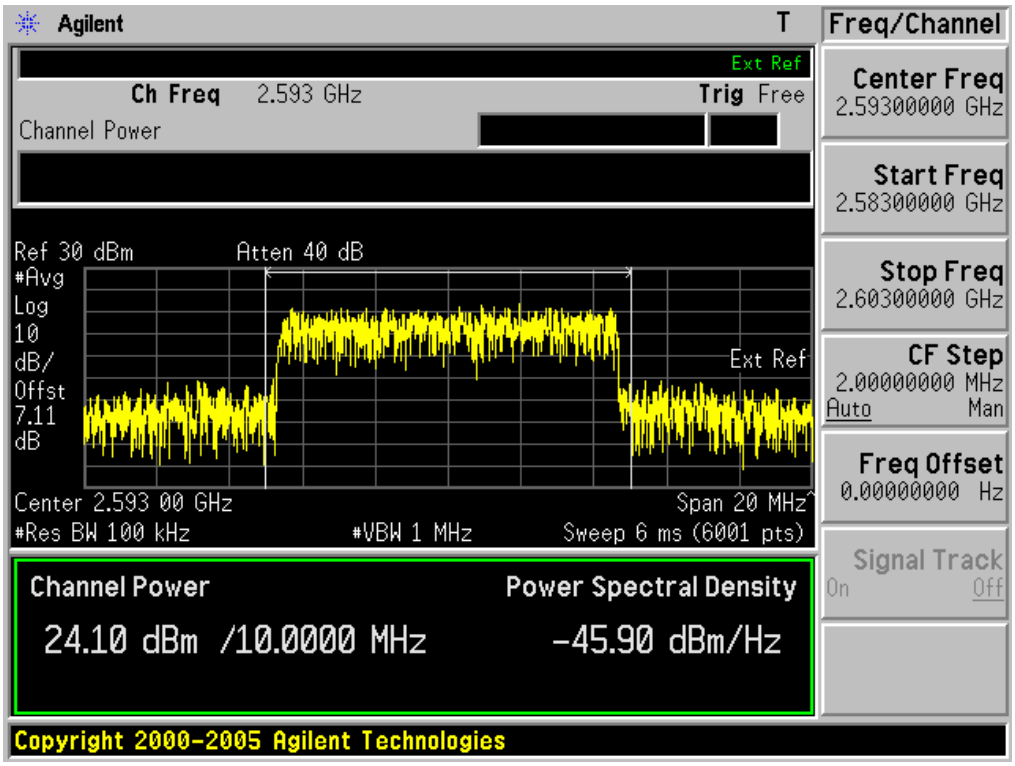
5.1 PLOTS OF EMISSIONS (Continued…)

5.1.4 Conducted Output Power(BW: 10MHz) (Continued…)

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



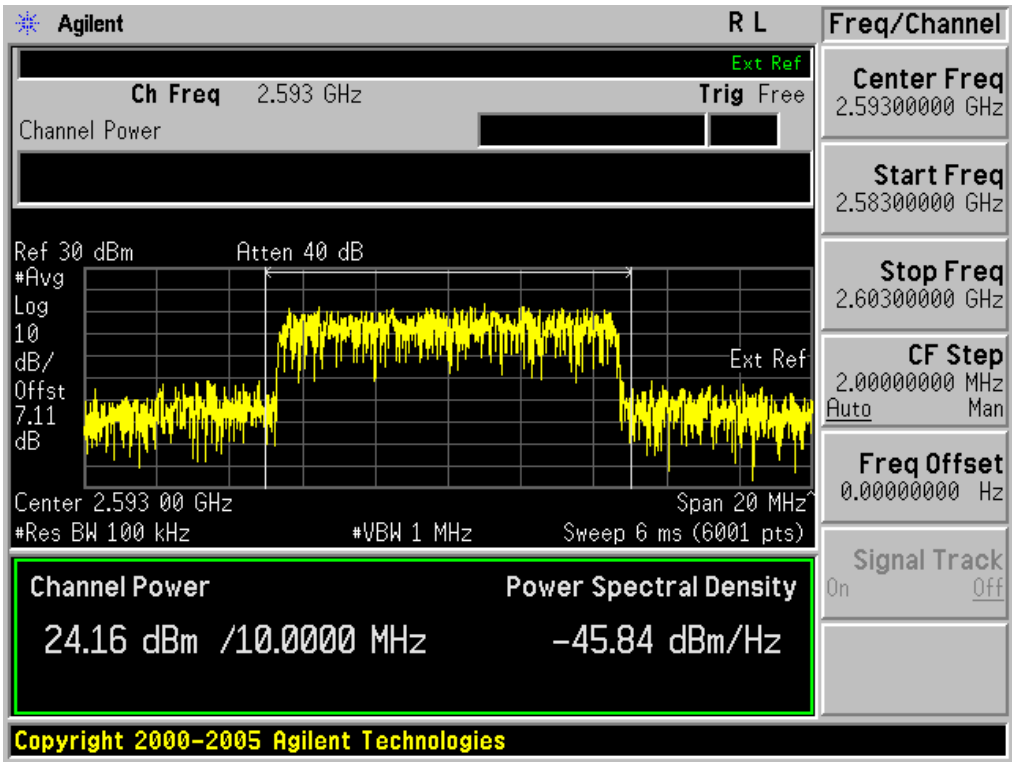
- Middle Channel(2593MHz) & PUSC Mode & QPSK 3/4



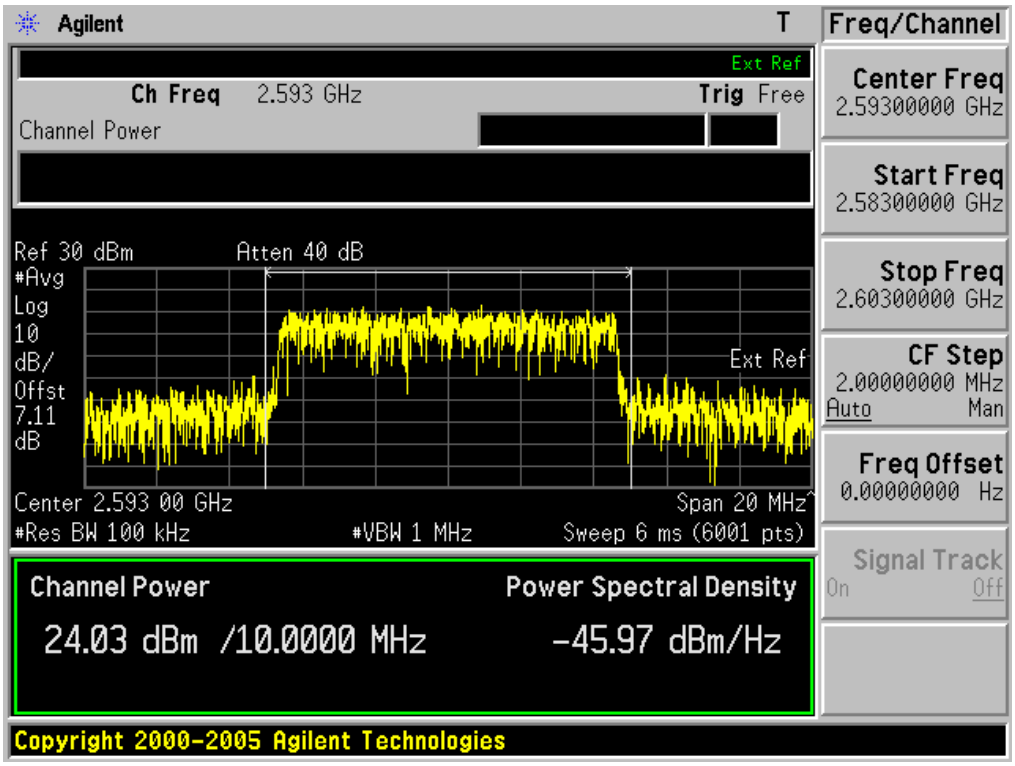
5.1 PLOTS OF EMISSIONS (Continued…)

5.1.4 Conducted Output Power(BW: 10MHz) (Continued…)

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



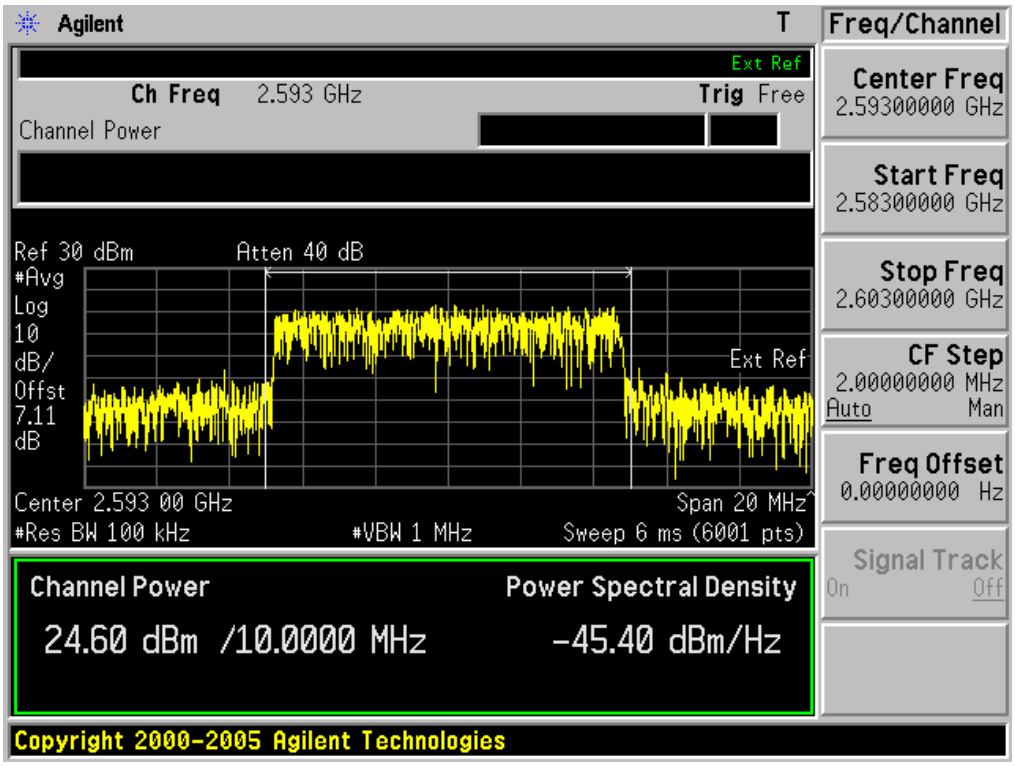
- Middle Channel(2593MHz) & PUSC Mode & 16QAM 3/4



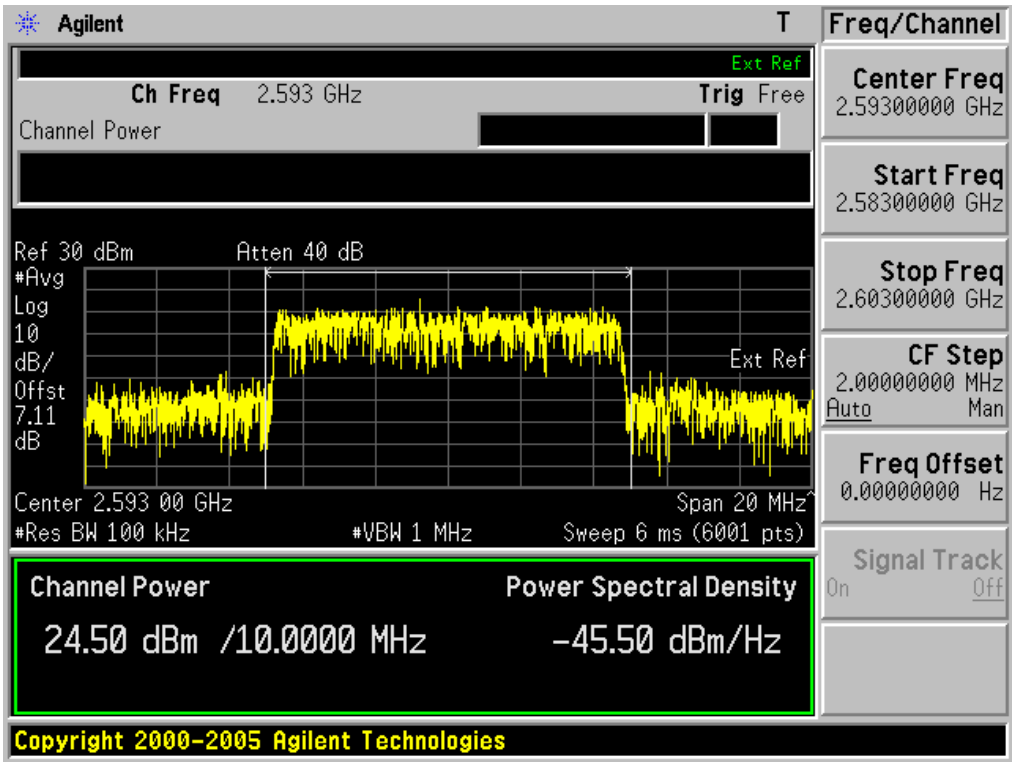
5.1 PLOTS OF EMISSIONS (Continued…)

5.1.4 Conducted Output Power(BW: 10MHz) (Continued…)

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



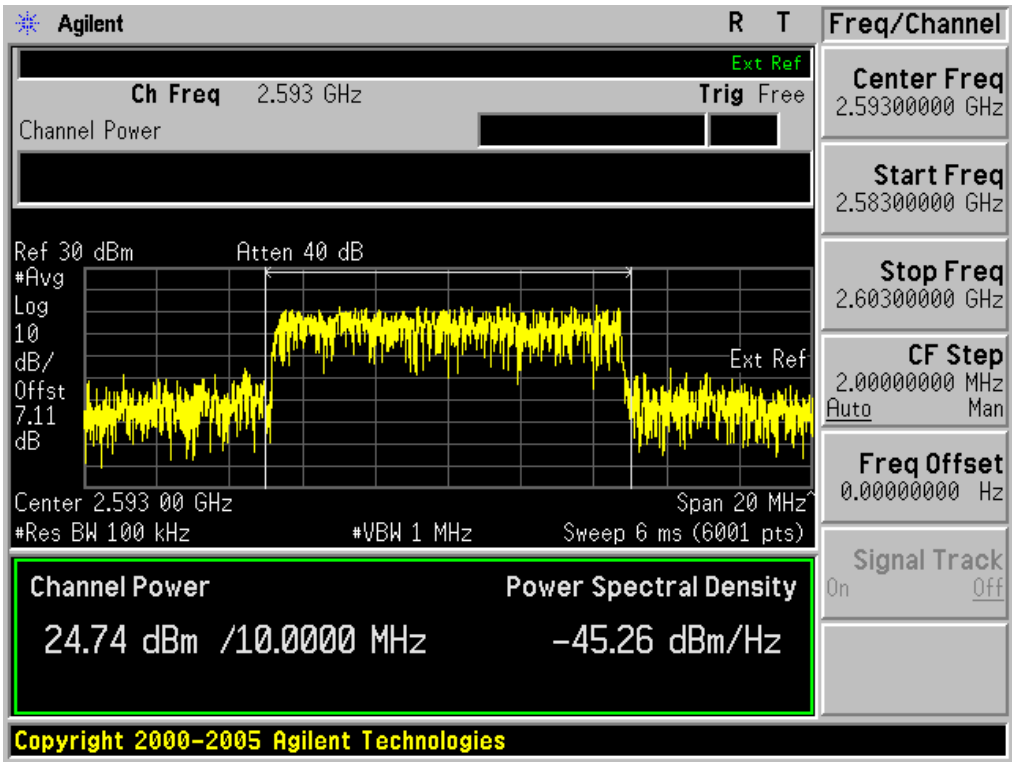
- Middle Channel(2593MHz) & AMC Mode & QPSK 3/4



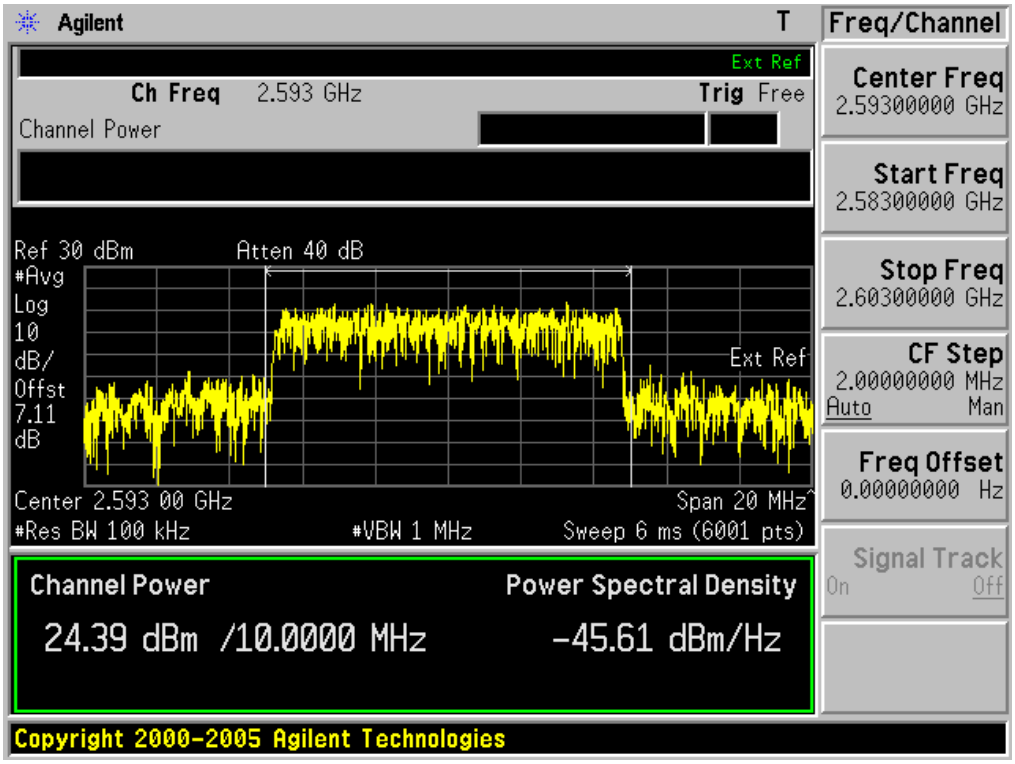
5.1 PLOTS OF EMISSIONS (Continued…)

5.1.4 Conducted Output Power(BW: 10MHz) (Continued…)

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



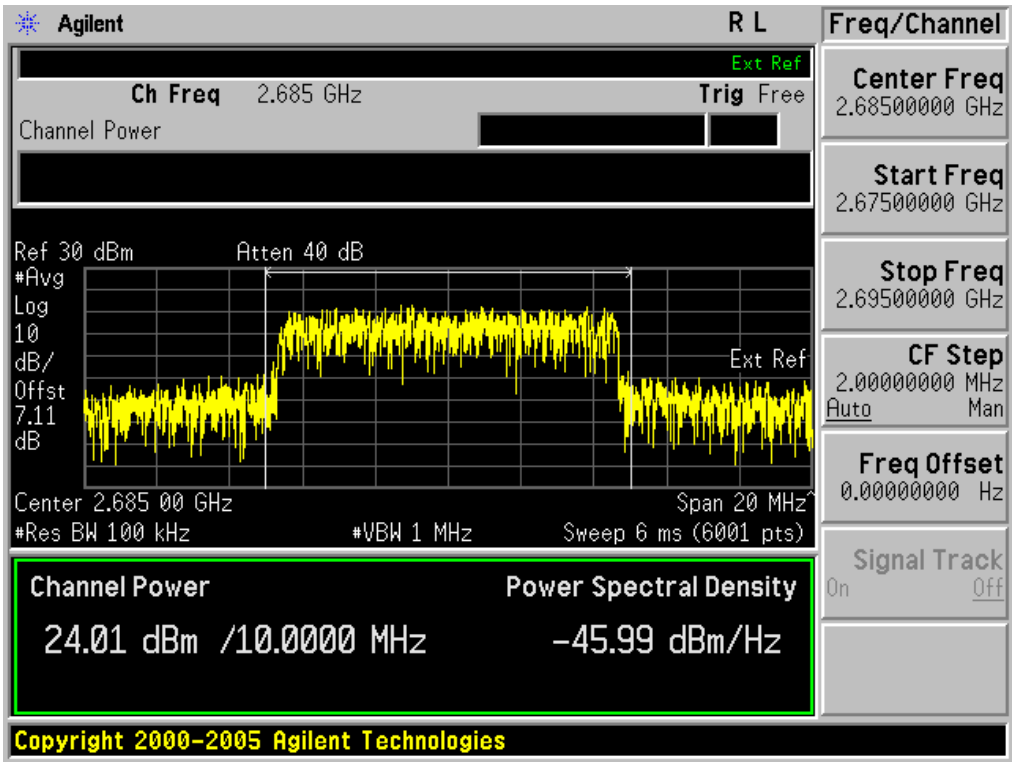
- Middle Channel(2593MHz) & AMC Mode & 16QAM 3/4



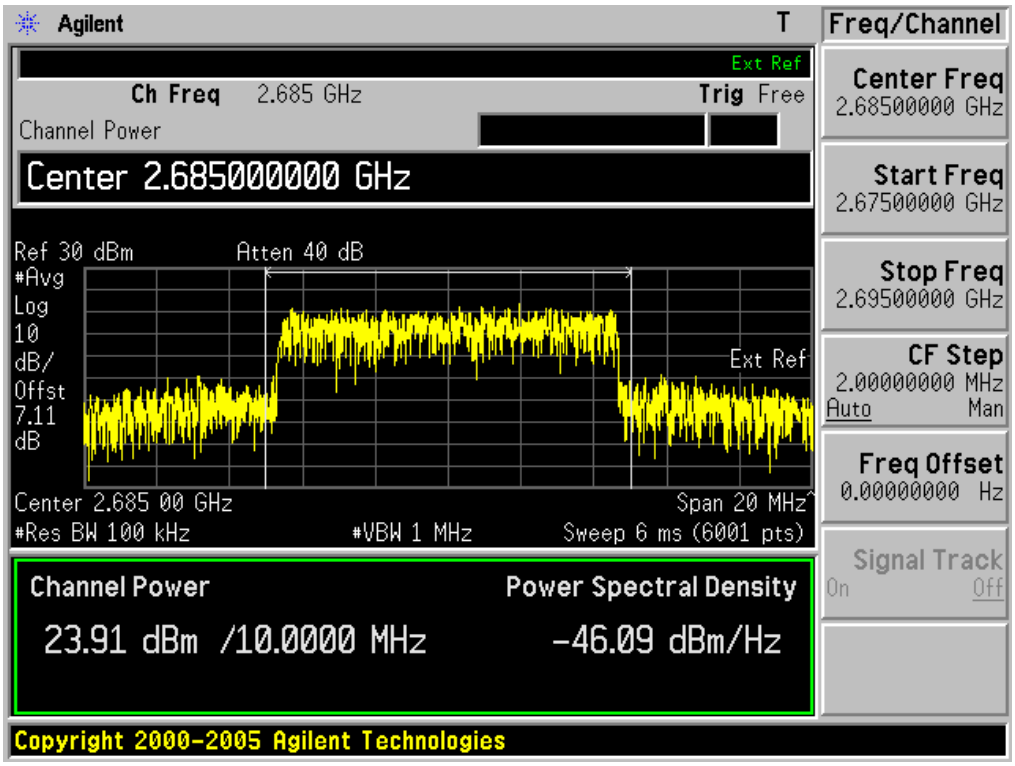
5.1 PLOTS OF EMISSIONS (Continued…)

5.1.4 Conducted Output Power(BW: 10MHz) (Continued…)

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



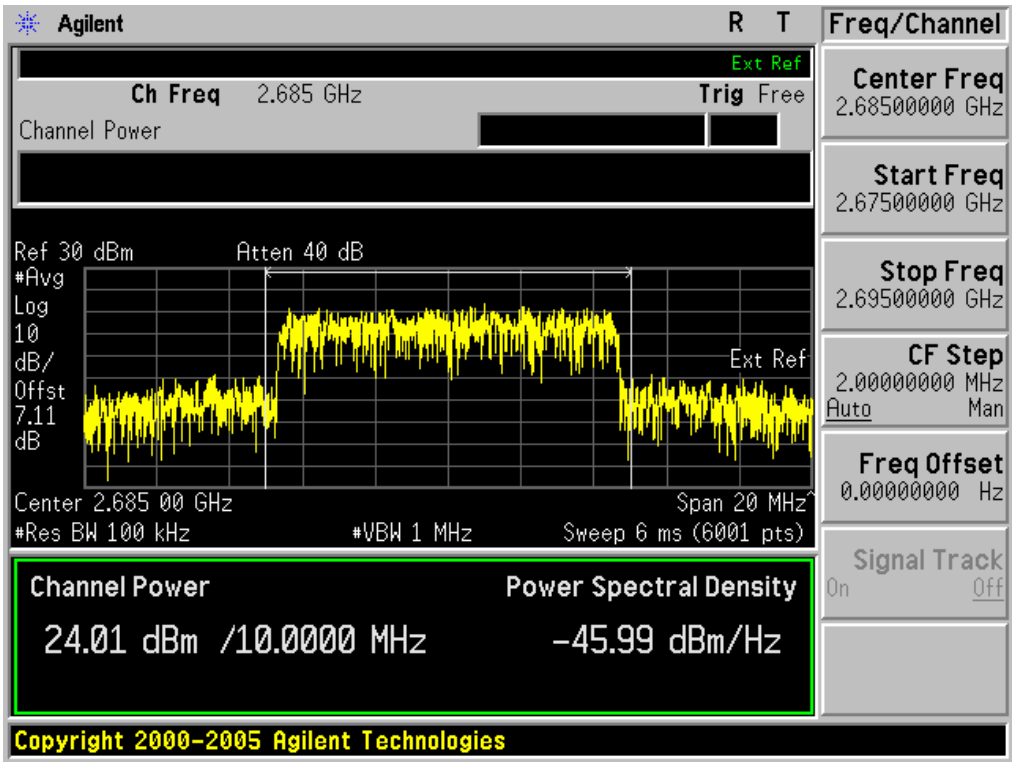
- High Channel(2685MHz) & PUSC Mode & QPSK 3/4



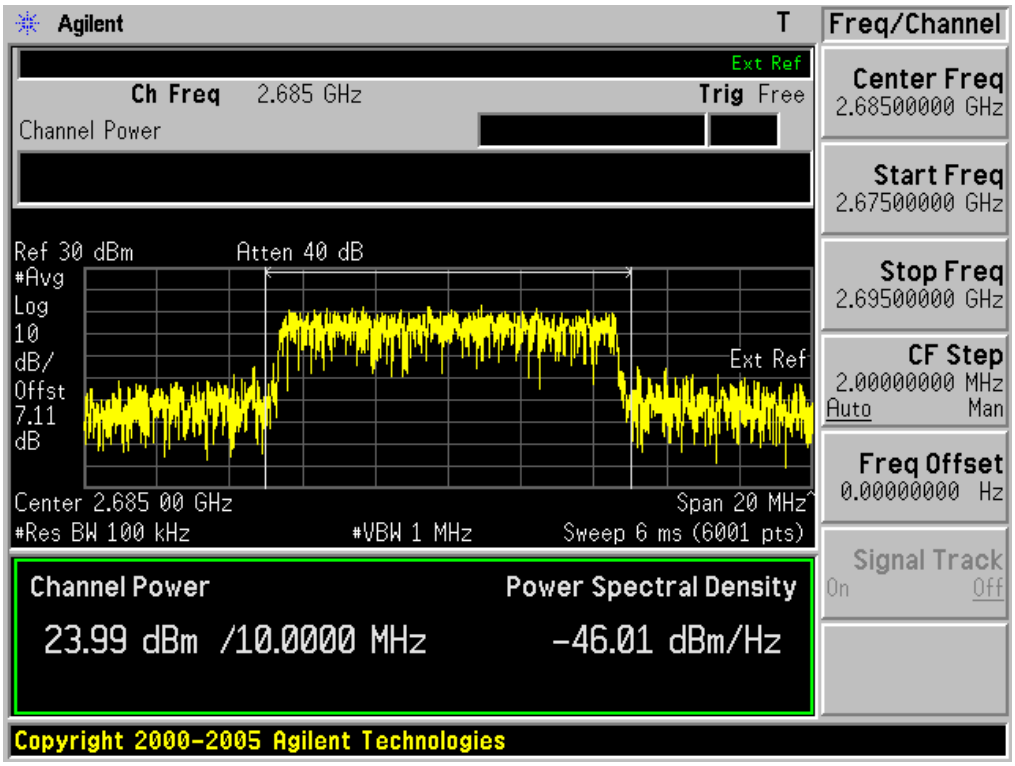
5.1 PLOTS OF EMISSIONS (Continued…)

5.1.4 Conducted Output Power(BW: 10MHz) (Continued…)

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



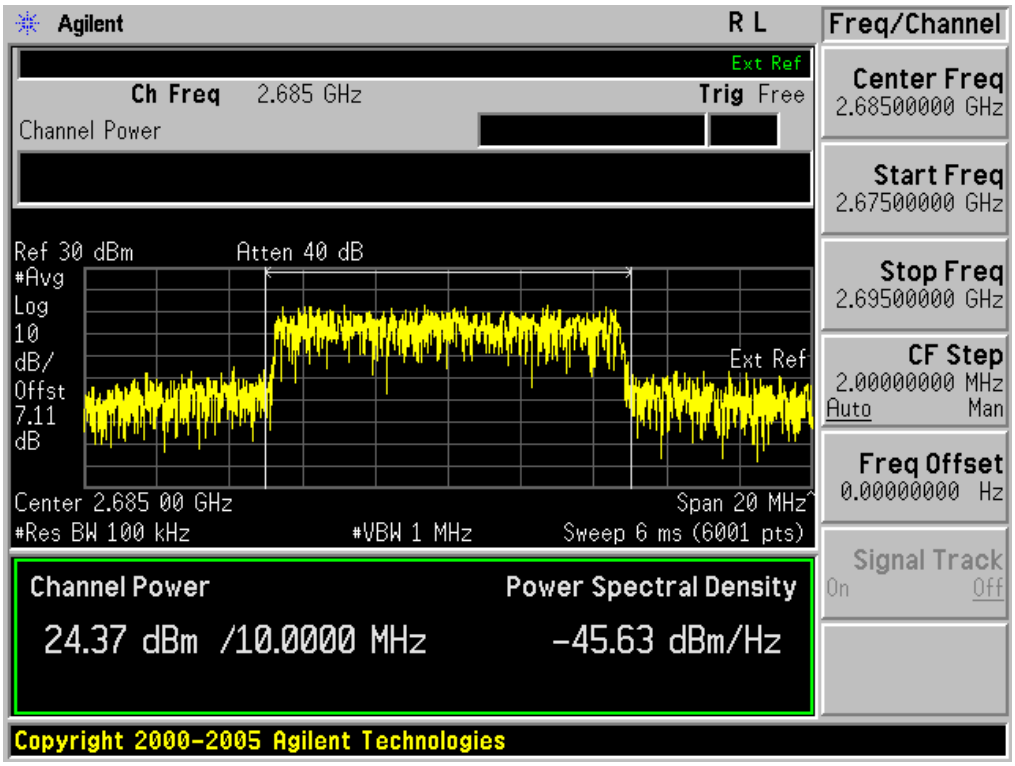
- High Channel(2685MHz) & PUSC Mode & 16QAM 3/4



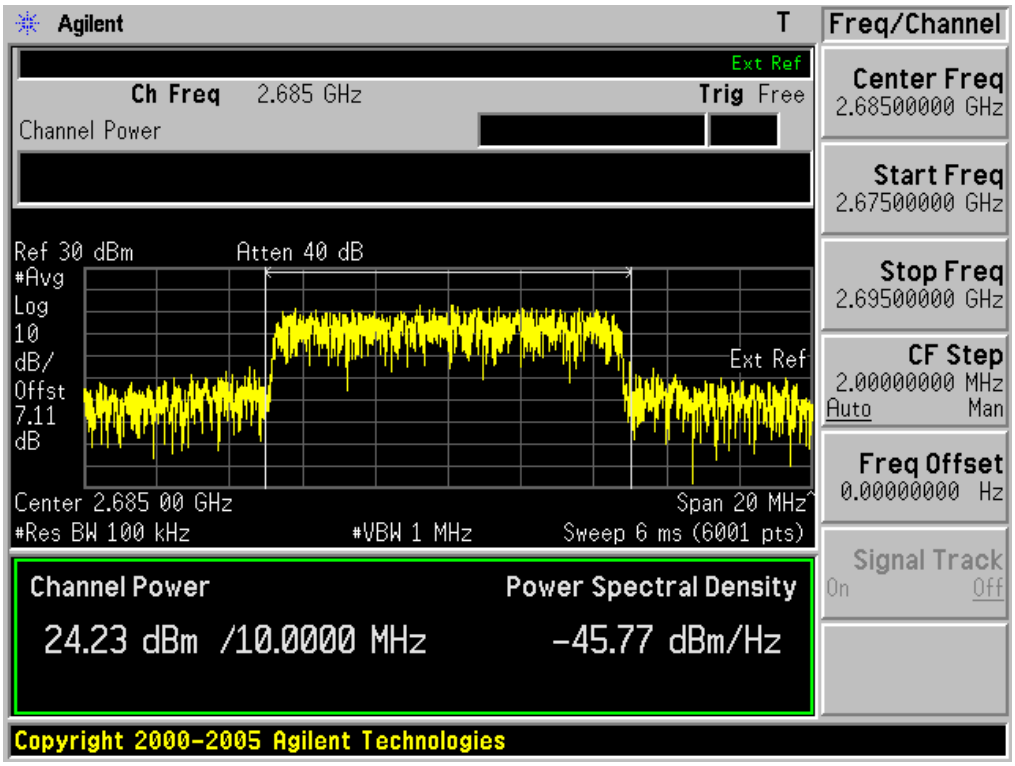
5.1 PLOTS OF EMISSIONS (Continued…)

5.1.4 Conducted Output Power(BW: 10MHz) (Continued…)

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



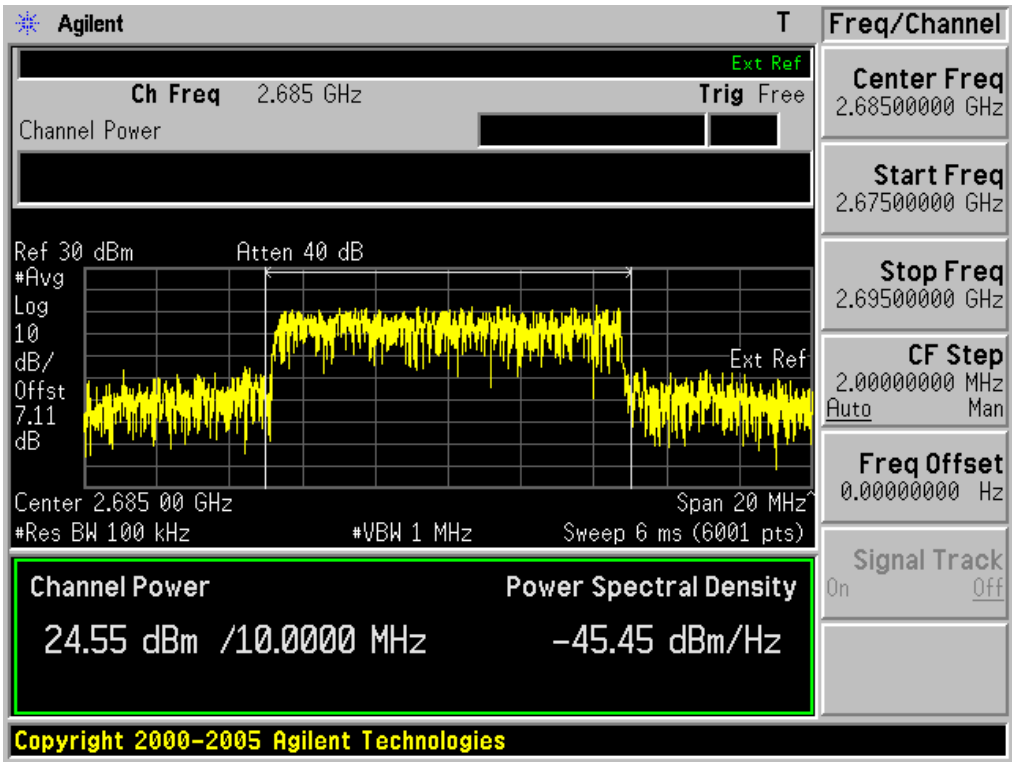
- High Channel(2685MHz) & AMC Mode & QPSK 3/4



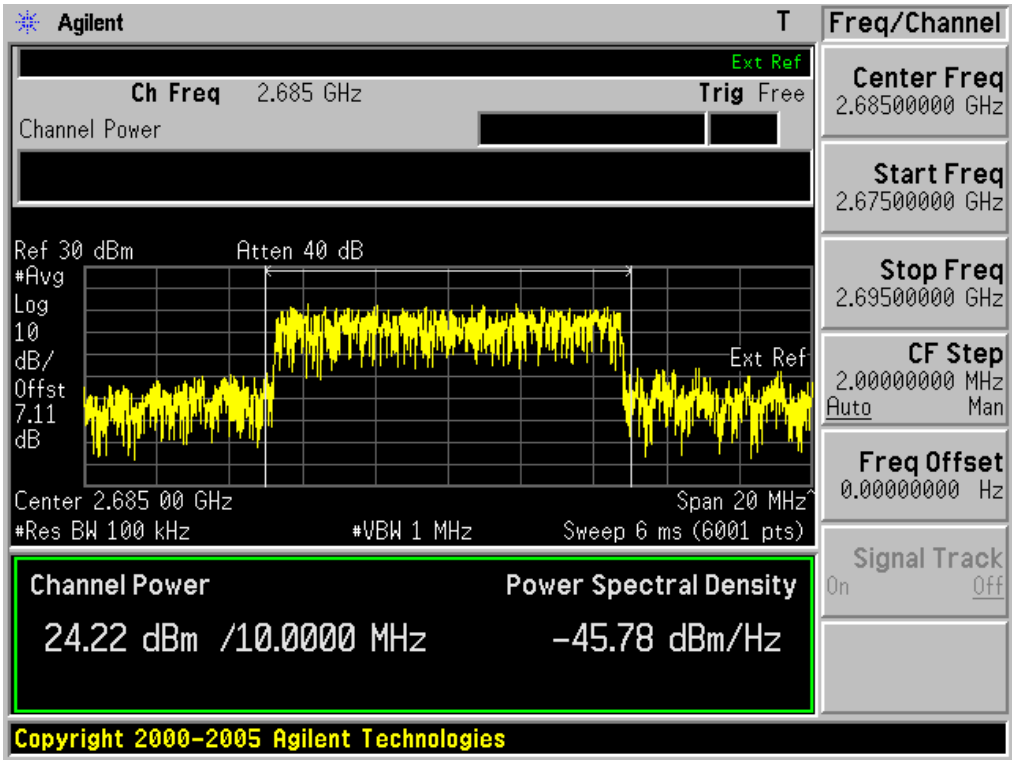
5.1 PLOTS OF EMISSIONS (Continued…)

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
☒	Spectrum Analyzer	Agilent	E4440A	06/11/08	06/11/09	MY45304199
☐	Spectrum Analyzer(RE)	H.P	8563E	13/10/08	13/10/09	3551A04634
☒	Spectrum Analyzer	Rohde Schwarz	FSP	09/09/08	09/09/09	100385
☒	Power Meter	H.P	EMP-442A	10/07/08	10/07/09	GB37170413
☒	Power Sensor	H.P	8481A	14/07/08	14/07/09	3318A96332
☐	Power Divider	Agilent	11636B	04/12/08	04/12/09	56471
☒	Power Splitter	Anritsu	K241B	14/10/08	14/10/09	020611
☐	Frequency Counter	H.P	5342A	16/09/08	16/09/09	2119A04450
☒	TEMP & HUMIDITY Chamber	JISCO	KR-100/J-RHC2	10/10/08	10/10/09	30604493/021031
☒	Digital Multimeter	H.P	34401A	20/03/08	20/03/09	3146A13475
☒	Thermo hygrograph	SATO	NS II-Q	06/10/08	06/10/09	1503512
☐	Thermo hygrograph	SATO	NS II-Q	17/10/08	17/10/09	1506426
☐	Multifuction Synthesizer	HP	8904A	06/10/08	06/10/09	3633A08404
☒	Signal Generator	Rohde Schwarz	SMR20	02/04/08	02/04/09	101251
☒	Signal Generator	H.P	ESG-3000A	09/07/08	09/07/09	US37230529
☒	Vector Signal Generator	Rohde Schwarz	SMJ100A	17/01/10	17/01/10	100148
☐	Audio Analyzer	H.P	8903B	09/07/08	09/07/09	3011A09448
☐	Modulation Analyzer	H.P	8901B	18/07/08	18/07/09	3028A03029
☐	8960 Series 10 Wireless Comms. Test Set	Agilent	E5515C	31/07/08	31/07/09	GB43461134
☐	Universal Radio communication Tester	Rohde Schwarz	CMU 200	02/04/08	02/04/09	107631
☐	Bluetooth Tester	TESCOM	TC-3000A	16/12/08	16/12/09	3000A4A0121
☐	BAND Reject Filter	Microwave Circuits	N0308372	06/10/08	06/10/09	3125-01DC0352
☐	BAND Reject Filter	Wainwright	WRCG1750	06/10/08	06/10/09	2
☐	High-Pass Filter	ANRITSU	MP526D	06/10/08	06/10/09	MP27756
☐	High-pass filter	Wainwright	WHKX2.1	N/A	N/A	1
☒	High-Pass Filter	Wainwright	WHKX3.0	N/A	N/A	9
☐	Tunable Notch Filter	Wainwright	WRCT800.0 /960.0-0.2/40-8SSK	N/A	N/A	10
☐	Tunable Notch Filter	Wainwright	WRCD1700.0 /2000.0-0.2/40-10SSK	N/A	N/A	27
☐	Tunable Notch Filter	Wainwright	WRCT1900.0/ 2200.0-5/40-10SSK	N/A	N/A	7
☒	AC Power supply	DAEKWANG	5KVA	20/03/08	20/03/09	20060321-1
☐	DC Power Supply	HP	6622A	20/03/08	20/03/09	3448A03760
☐	DC Power Supply	HP	6633A	20/03/08	20/03/09	3524A06634
☒	HORN ANT	ETS	3115	13/06/08	13/06/09	6419
☒	HORN ANT	ETS	3115	10/09/08	10/09/09	21097
☒	HORN ANT	A.H.Systems	SAS-574	13/06/08	13/06/09	154
☒	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
☒	Dipole Antenna	Schwarzbeck	VHA9103	25/11/08	25/11/09	2116
☒	Dipole Antenna	Schwarzbeck	VHA9103	25/11/08	25/11/09	2117
☒	Dipole Antenna	Schwarzbeck	UHA9105	25/11/08	25/11/09	2261
☒	Dipole Antenna	Schwarzbeck	UHA9105	25/11/08	25/11/09	2262
☒	Coaxial Fixed Attenuators	Agilent	8491B	01/08/08	01/08/09	MY39260700
☐	Coaxial Fixed Attenuators	Agilent	8491B	15/07/08	15/07/09	MY39260699
☒	Attenuator (10dB)	WEINSCHEL	23-10-34	01/10/08	01/10/09	BP4386
☐	Attenuator (20dB)	WEINSCHEL	86-20-11	06/10/08	06/10/09	432
☐	Attenuator (10dB)	WEINSCHEL	86-10-11	06/10/08	06/10/09	446
☐	Attenuator (10dB)	WEINSCHEL	86-10-11	06/10/08	06/10/09	408
☐	Attenuator (40dB)	WEINSCHEL	57-40-33	01/10/08	01/10/09	NN837
☐	Attenuator (30dB)	JFW	50FH-030-300	24/03/08	24/03/09	060320-1
☐	CIRCULATOR	NOVA MICROWAVE	0088CAN	11/07/08	11/07/09	788
☐	CIRCULATOR	NOVA MICROWAVE	0185CAN	11/07/08	11/07/09	790
☐	CIRCULATOR	NOVA MICROWAVE	0215CAN	11/07/08	11/07/09	112
☒	Amplifier (30dB)	Agilent	8449B	13/10/08	13/10/09	3008A01590
☐	RF Power Amplifier	OPHIRRF	5069F	09/07/08	09/07/08	1006
☒	Amplifier	EMPOWER	BBS3Q7ELU	01/31/08	01/31/09	1020
☐	Software	Agilent	Benchlink	N/A	N/A	A.01.09 021211
☐	EMI TEST RECEIVER	R&S	ESU	Calibrating	Calibrating	100014
☐	BILOG ANTENNA	SCHAFFNER	CBL6112B	13/06/08	13/06/09	2737
☐	Amplifier (22dB)	H.P	8447E	27/02/08	27/02/09	2945A02865
☐	Position Controller	TOKIN	5905A	N/A	N/A	N/A
☐	Software	ToYo EMI	EP5/RE	N/A	N/A	Ver 2.0.800
☒	EMI TEST RECEIVER	R&S	ESCI	13/05/08	13/05/09	100364
☒	Log Periodic Antenna	Schwarzbeck	UHALP9108A1	30/09/08	30/09/09	1098
☒	Biconical Antenna	Schwarzbeck	VHA9103	13/06/08	13/06/09	2233
☒	Amplifier (25dB)	Agilent	8447D	21/05/08	21/05/09	2944A10144
☒	Position Controller	TOKIN	5901T	N/A	N/A	14173
☒	Software	AUDIX	e3	N/A	N/A	Ver 3.0
☒	Driver	TOKIN	5902T2	N/A	N/A	14174
☐	Spectrum Analyzer(CE)	H.P	8591E	26/04/08	26/04/09	3649A05889
☐	LISN	Kyorits	KNW-407	04/08/08	04/08/09	8-317-8
☐	LISN	Kyorits	KNW-242	11/09/08	11/09/09	8-654-15
☐	CVCF	NF Electronic	4420	21/03/08	21/03/09	304935/337980
☐	Software	ToYo EMI	EP5/CE	N/A	N/A	Ver 2.0.801
☐	DC BLOCK	Hyuplip	KEL-007	N/A	N/A	7-1581-5
☐	50 ohm Terminator	HME	CT-01	30/01/08	30/01/09	N/A
☐	RFI/FIELD Intensity Meter	Kyorits	KNW-2402	11/09/08	11/09/09	4N-170-3

7.1 SAMPLE CALCULATIONS

A. Emission Designator

- Bandwidth: 5MHz

QPSK Modulation

Emission Designator = 4M72G7D

WiMAX BW = 4.7221 MHz
G = Phase Modulation
7 = Quantized/Digital Information
D = Data Transmission

16QAM Modulation

Emission Designator = 4M71W7D

WiMAX BW = 4.7135 MHz
W = Composite – Quadrature Amplitude Modulation
7 = Quantized/Digital Information
D = Data Transmission

- Bandwidth: 10MHz

QPSK Modulation

Emission Designator = 9M37G7D

WiMAX BW = 9.3688 MHz
G = Phase Modulation
7 = Quantized/Digital Information
D = Data Transmission

16QAM Modulation

Emission Designator = 9M37W7D

WiMAX BW = 9.3733 MHz
W = Composite – Quadrature Amplitude Modulation
7 = Quantized/Digital Information
D = Data Transmission

8.1 CONCLUSION

The data collected shows that the **SEOWONINTECH CO., LTD.** VoIP CPE WIMAX (**FCC ID: V7MSWC-2100)** complies with all the requirements of Parts 2 and 27 of the FCC rules.

