CNACL
No: 0479

HUAWEI

Prüfbericht - Nr.: **17002244 001**
Test Report No.

Auftraggeber: *Client:*
Huawei Technologies Co., Ltd.
Huawei Base, Bantian
Longgang District
Shenzhen 518129, P.R. China

Gegenstand der Prüfung: *Test item:* **CDMA Base Station**

Bezeichnung: *Identification:* **BTS3606-1900**
Serien-Nr.: *Serial No.* **Pre-production Model**

Wareneingangs-Nr.: *Receipt No.:* **17002244001**
Eingangsdatum: *Date of receipt:* **15.06.2004**

Prüfort: *Testing location:*
Huawei EMC Laboratory
FCC registered test site number 97456 as of March 11. 2003.
A2LA ACCREDITED LABORATORY, the number is 2174.01

Prüfgrundlage: *Test specification:*
FCC Part 24, subpart E
FCC Part 2, subpart J, §2.1033 - §2.1057

Prüfergebnis: *Test Result*
Der vorstehend beschriebene Prüfgegenstand wurde geprüft und entspricht oben genannter Prüfgrundlage.
The a. m. test item passed.

geprüft / *tested by:*			**kontrolliert** / *reviewed by*		
22.06.2004	Deng Jiang	Deng Jiang	24.06.2004	Zhang Xinghai	Zhang Xinghai
Datum *Date*	**Name** *Name*	**Unterschrift** *Signature*	**Datum** *Date*	**Name** *Name*	**Unterschrift** *Signature*

Sonstiges / *Other Aspects:*

Abkürzungen:			Abbreviations:		
	OK, Pass	= entspricht Prüfgrundlage		OK, Pass	= passed
	Fail	= entspricht nicht Prüfgrundlage		Fail	= failed
	N/A	= nicht anwendbar		N/A	= not applicable

Dieser Prüfbericht bezieht sich nur auf den o.g. Prüfgegenstand und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.
This test report relates to the a. m. test item. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark on this or similar products.

Authorized format 16.12.1996, R.M.

1. SUMMARY

Below table summarizes the measurements and results for the CDMA base station. Detailed results and descriptions are shown in the following pages.

FCC Measurement Specification	FCC Limits Part(s)	Description	Result
2.1046	24.232	RF Output Power	PASS
2.1047		Modulation Characteristics	PASS
2.1049		Occupied Bandwidth	PASS
2.1051	24.238	Spurious Emission at Antenna Terminals	PASS
2.1053	24.238	Field Strength of Spurious Emissions	PASS
2.1055	24.235	Frequency Stability	PASS

The base station is intended for use in the licensed domestic public cellular radio service and is designed to be placed and operated under the conditions of FCC rules part 24 subpart E.

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3. PRODUCT DESCRIPTION

The BTS3606 is located between the BSC and the MS in the CDMA2000 mobile communication system.

Under the control of the BSC, the BTS3606 serves as the radio transceiver equipment of one cell or multiple logical sectors. By connecting to the BSC via the Abis interface, it assists the BSC in managing the radio resource, radio parameter and interface resource. It also implements, via the Um interface, the radio transmission between the BTS and the MS as well as related control functions.

The outdoor BTS3606 can accommodate to various climates and complex electromagnetic environments. It features low cost, fast installation and flexible environment adaptability. As an essential part of Huawei CDMA BTS series, it allows the radio network to achieve seamless coverage more easily.

4. TEST SITE DESCRIPTION

The test site of:

Huawei Technologies Co. Ltd.
P.O. Box 518129
Huawei base, bantian,
Longgang District, Shenzhen, China

The test site description has been submitted to FCC and registration granted under the registration number 97456 on March 11. 2003. The test site has been accredited by A2LA and the accredited number is 2714.01 in Jan of 2004.

4.1. Testing Period

The test have been performed during the period of

May 15, 2004 to June 15, 2004

4.2. General Set up Description

The base station BTS3606-1900 is equipped with a total of 6 identical transceivers. Although only the three transceivers have been tested, all other transceiver have been operated to produce most unfavourable conditions for the testing.

5. PRODUCT DESCRIPTION

5.1. Technical Characteristics

5.1.1. Frequency Range

Lower frequency:	1930 MHz
Upper frequency:	1990 MHz

5.1.2. Transmitter Power Rating

Minimum Power:	No level adjustment possible according to manufacturer statement
Maximum Power:	43 dBm +2/-4 dBm

5.1.3. Channel Spacing / Separation

Channel spacing:	Channel 25: 1931.25 MHz, Channel1000: 1980.00MHz, Channel 1175: 1988.75 MHz
Channel separation	Min. 1.25MHz

5.1.4. Type of Emission

Emission Designation:	**1M25F9W**

According to CFR 47 (FCC) part 2, subpart C, section 2.201 and 2.202

5.1.5. Environmental Conditions for Base station

Minimum temperature:	- 5 °C
Maximum temperature:	+ 50 °C
Relative Humidity:	Max. 90% R.H

5.1.6. Power Source

AC nominal:	-48VDC
AC voltage range	-40~-60VDC
AC current maximal:	85A

5.1.7. Tune-up Procedure

According to CFR (FCC) part 2, subpart J, section 2.1033 (9)

Please reference the document Tune-up Procedure in TCF

5.1.8. Applied DC Voltages and Currents

According to CFR (FCC) part 2, subpart J, section 2.1033 (8)

The voltage and current in the final RF stage is:

Voltage: 27VDC
Current: 10 A

5.2. EUT Identification List

Power Supply for type designation BTS3606-1900		
Equipment Designation / Description	Serial Number	Remarks
DC-DC Power Module NPSU No. 1	21022805362043000060	
DC-DC Power Module NPSU No. 2	21022805362043000088	
DC-DC Power Module NPSU No. 3	21022805362043000189	

CDDU for type designation BTS3606-1900		
Equipment Designation / Description	Serial Number	Remarks
Dual Duplexer Unit CDDU No. 1	2199052739L044000004	
Dual Duplexer Unit CDDU No. 2	2199052739L044000005	
Dual Duplexer Unit CDDU No. 3	2199052739L044000006	

Transceiver module (BTRM) for type designation BTS3606-1900		
Equipment Designation / Description	Serial Number	Remarks
Transceiver module CTRM No. 1	21023127311046000001	Transceiver Module
Transceiver module CTRM No. 2	21023127311046000002	Transceiver Module
Transceiver module CTRM No. 3	21023127311046000003	Transceiver Module
Transceiver module CTRM No. 4	21023127311046000004	Transceiver Module
Transceiver module CTRM No. 5	21023127311046000005	Transceiver Module
Transceiver module CTRM No. 6	21023127311046000006	Transceiver Module

Power Amplifier Module for type designation BTS3606-1900		
Equipment Designation / Description	Serial Number	Remarks
Transceiver Unit CHPA No. 1	21023127301046000021	Each transceiver unit consist of CTRM module a CHPA module and a fan module
Transceiver Unit CHPA No. 2	21023127301046000022	Each transceiver unit consist of CTRM module a CHPA module and a fan module
Transceiver Unit CHPA No. 3	21023127301046000023	Each transceiver unit consist

		of CTRM module a CHPA module and a fan module
Transceiver Unit CHPA No. 4	21023127301046000024	Each transceiver unit consist of CTRM module a CHPA module and a fan module
Transceiver Unit CHPA No. 5	21023127301046000025	Each transceiver unit consist of CTRM module a CHPA module and a fan module
Transceiver Unit CHPA No. 6	21023127301046000026	Each transceiver unit consist of CTRM module a CHPA module and a fan module

Controller for type designation BTS3606-1900		
Equipment Designation / Description	Serial Number	Remarks
BTS Control Interface Module BCIM No.1	036283103C000025	
BTS Control Interface Module BCIM No.2	036283103C000026	
BTS Channel Processing Module CCPM No.1	037144103C000003	
BTS Channel Processing Module CCPM No.2	037144103C000004	
BTS Channel Processing Module CCPM No.3	037144103C000005	
BTS Channel Processing Module CCPM No.4	037144103C000006	
BTS Control and Clock Module BCKM	0379191045000040	
BTS Control and Clock Module BCKM	0379191045000041	
Fan Unit No.1	N.A.	
Fan Unit No.2	N.A.	
Power Monitor Unit (PMU)	N.A.	
Base Band Fan Monitor Board	N.A.	
E1 Lighting Protect Board	N.A.	

5.2.1. FCC Identification

FCC Identification: **QISBTS3606-1900**

6. TRANSMITTER MEASUREMENTS

6.1. RF Output Power

6.1.1. Test Conditions

Preconditioning:	1 hour
Maximum Specified Transmitter Power:	43 dBm
Measured at:	CDDU Output No.1(Low frequency CDDU) and No.3(High frequency CDDU)
Ambient temperature:	23 °C
Relative humidity:	57 %
Date of Testing:	05.15.2004~05.18.2004

6.1.2. Test Specifications and Limits

6.1.2.1. Specification

CFR 47 (FCC) part 2.1046 and part 24 subpart E

Supporting Standards:

EIA/TIA-603-A: 1992	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards
EIA/TIA-102-CAAA:1999	Digital C4FM/CQPSK Transceiver Measurement Methods (ANSI/TIA/EIA-102.CAAA-1999)
EIA/TIA -95B-1999	Mobile Station-Base Station Compatibility Standard for Wideband Spread Spectrum Cellular Systems (ANSI/TIA/EIA-95-B-99)
EIA/TIA-97D-2001	Recommended Minimum Performance Standard for Base Stations Supporting Dual-Mode Spread Spectrum Cellular Mobile Stations

6.1.2.2. Limits

Compliance with 24.232 requires in no any case may the peak power of a base station transmitter exceed 100 W.

Max. peak power	100W

According to the above requires of peak power as 10*log(P)=50dBm.

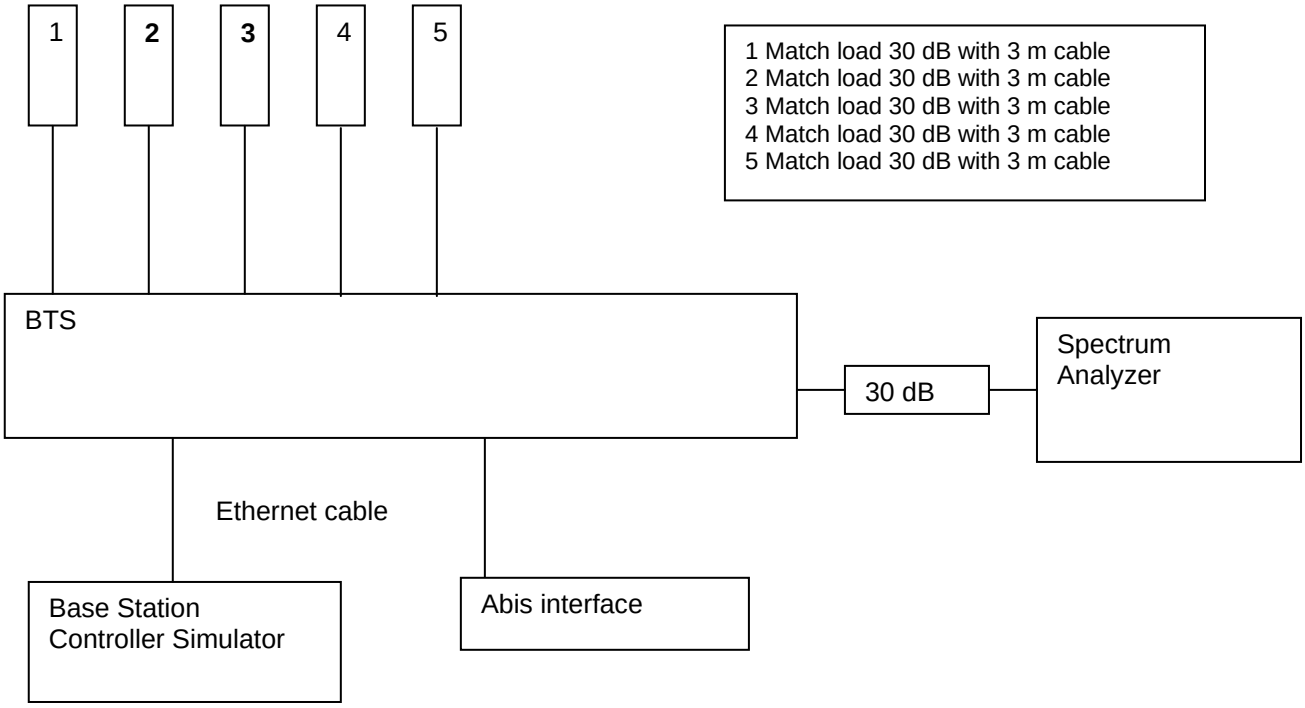
6.1.3. Test Method and Setup

(a) For transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, power output shall be measured at the RF output terminals when the transmitter is adjusted in accordance with the tune-up procedure to give the values of current and voltage on the circuit elements specified in 2.983(d)(5). The electrical characteristics of the radio frequency load attached to the output terminals when this test is made shall be stated.

Test Set up

The CDMA BTS was set up via the BTS controller simulator and operated at maximal load. The Spectrum analyzer was set with the following settings.

Resolution bandwidth: 28 kHz
Video bandwidth: 300 kHz
Max. Hold function: active



6.1.4. Measurement Results

TEST CONDITIONS		RF Output Power					
		Channel 25 1931.25 MHz		Channel 1000 1980MHz		Channel 1175 1988.75 MHz	
		dBm		dBm		dBm	
		Measured	**Limit**	**Measured**	**Limit**	**Measured**	**Limit**
T_{nom} (23.5 °C)	V_{nom} (- 48 V) *	**43.42**	**62(50)****	**43.42**	**62(50)****	**42.82**	**62(50)****
Measurement uncertainty (dB)		Equipment			Requirement		
		± 0.4 dB			N/A		

*() It is the voltage that is measured on the rack within the cabinet.
** () peak power of a base station transmitter

6.1.4.1. Conclusion

The equipment **passed** the requirement of this clause.

For the measurement results refer to appendix A with 4 pages.

6.1.4.2. Equipment List

Equipment Description	Manufacturer	Model	Serial Number	Calibrated until
PSA Series Spectrum Analyzer	Agilent	E4445A	MY41000146	24.10.2004
Attenuator	Shanghai Huaxiang	DTS100 (30dB)	15	05.06.2005
Cable	Diverse	RG58-U	n.a	Before test

6.2. Modulation Characteristics

6.2.1. Test Conditions

Preconditioning:	1 hour
Maximum Specified Transmitter Power:	43 dBm
Measured at:	CDDU Output No.1(Low frequency CDDU) and No.3(High frequency CDDU)
Ambient temperature:	24 °C
Relative humidity:	57 %
Date of Testing:	05.15.2004~05.18.2004

6.2.2. Test Specifications and Limits

6.2.2.1. Specification

CFR 47 (FCC) part 2.1047 and part 24 subpart E

Supporting Standards:

EIA/TIA-603-A: 1992 Land Mobile FM or PM Communications Equipment Measurement and Performance Standards
EIA/TIA-102-CAAA:1999 Digital C4FM/CQPSK Transceiver Measurement Methods (ANSI/TIA/EIA-102.CAAA-1999)
EIA/TIA -95B-1999 Mobile Station-Base Station Compatibility Standard for Wideband Spread Spectrum Cellular Systems (ANSI/TIA/EIA-95-B-99)
EIA/TIA-97D-2001 Recommended Minimum Performance Standard for Base Stations Supporting Dual-Mode Spread Spectrum Cellular Mobile Stations

6.2.2.2. Limits

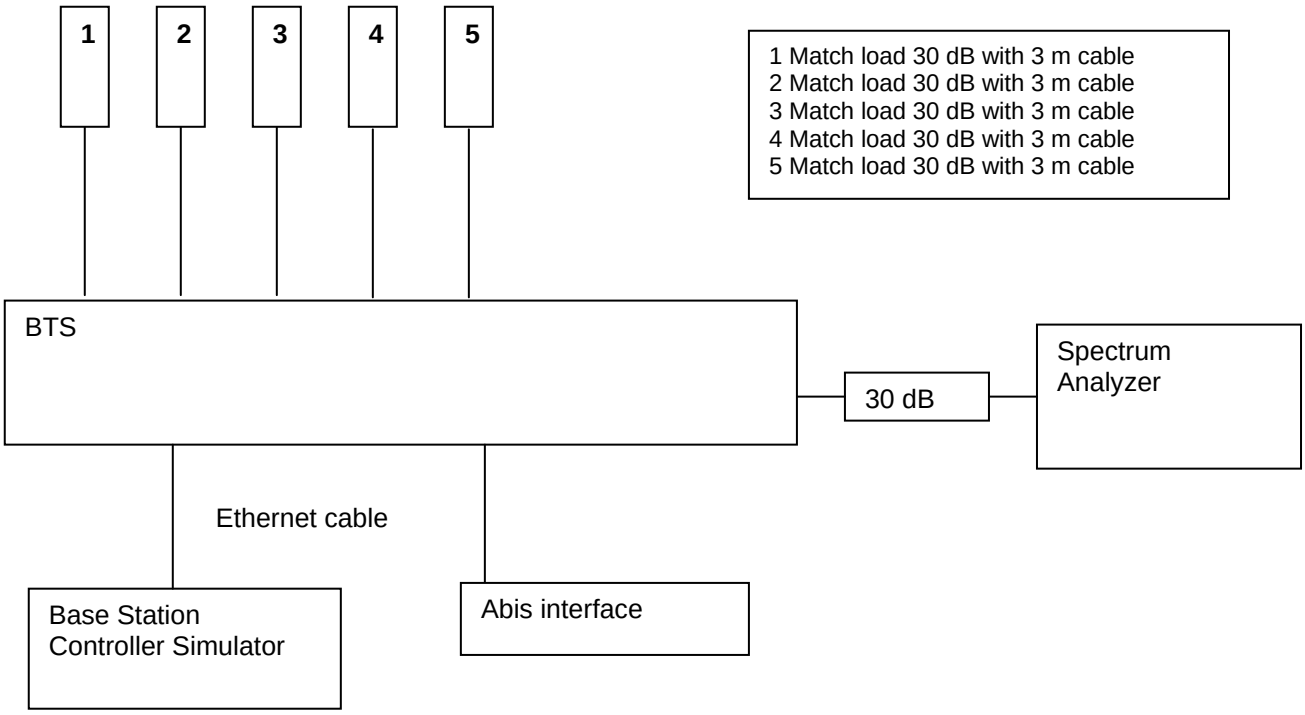
Compliance with 2.1047 requires not a specific modulation characteristic since the EUT is applied for part 24 subpart E.

Limits	Not applicable

6.2.3. Test Method and Setup

The CDMA BTS was controlled via the BTS simulator. The antenna port was connected to a 30 dB load

Test Set-up



6.2.4. Measurement Results

TEST CONDITIONS		RF Output Power					
		Channel 25 1931.25 MHz		Channel 1000 1980MHz		Channel 1175 1988.75 MHz	
		Rho		Rho		Rho	
		Measured	**Limit**	**Measured**	**Limit**	**Measured**	**Limit**
T_{nom} (23.5 °C)	V_{nom}(- 48 V)*	**0.99777**	**N.A.**	**0.99789**	**N/A**	**0.99688**	**N/A**
Measurement uncertainty		Equipment			Requirement		
		0.001			N/A		

*() It is the voltage that is measured on the rack within the cabinet.

6.2.4.1. Conclusion

The equipment **passed** the requirement of this clause.

For the measurement results refer to appendix B with 4 pages.

6.2.4.2. Equipment List

Equipment Description	Manufacturer	Model	Serial Number	Calibrated until
PSA Series Spectrum Analyzer	Agilent	E4445A	MY41000146	24.10.2004
Attenuator	Shanghai Huaxiang	DTS100 (30dB)	15	05.06.2005
Cable	Diverse	RG58-U	n.a	Before test

6.3. Occupied Bandwidth

6.3.1. Test Conditions

Preconditioning:	1 hour
Nominal Output Power:	43 dBm
Measured at:	CDDU Output No.1(Low frequency CDDU) and No.3(High frequency CDDU)
Ambient temperature:	23.5 °C
Relative humidity:	55 %
Date of Testing:	05.15.2003~05.18.2003

6.3.2. Test Specifications and Limits

6.3.2.1. Specification

CFR 47 (FCC) part 2.1049 and part 24 subpart E

Supporting Standards:

EIA/TIA-603-A: 1992 Land Mobile FM or PM Communications Equipment Measurement and Performance Standards
EIA/TIA-102-CAAA:1999 Digital C4FM/CQPSK Transceiver Measurement Methods (ANSI/TIA/EIA-102.CAAA-1999)
EIA/TIA -95B-1999 Mobile Station-Base Station Compatibility Standard for Wideband Spread Spectrum Cellular Systems (ANSI/TIA/EIA-95-B-99)
EIA/TIA-97D-2001 Recommended Minimum Performance Standard for Base Stations Supporting Dual-Mode Spread Spectrum Cellular Mobile Stations

6.3.2.2. Limits

Compliance with 2.1049 requires not a specific occupied bandwidth since the EUT is applied for part 24 subpart E and possesses a digital modulation there is no specific requirement formulated in before mentioned rules the 99% rules applies.

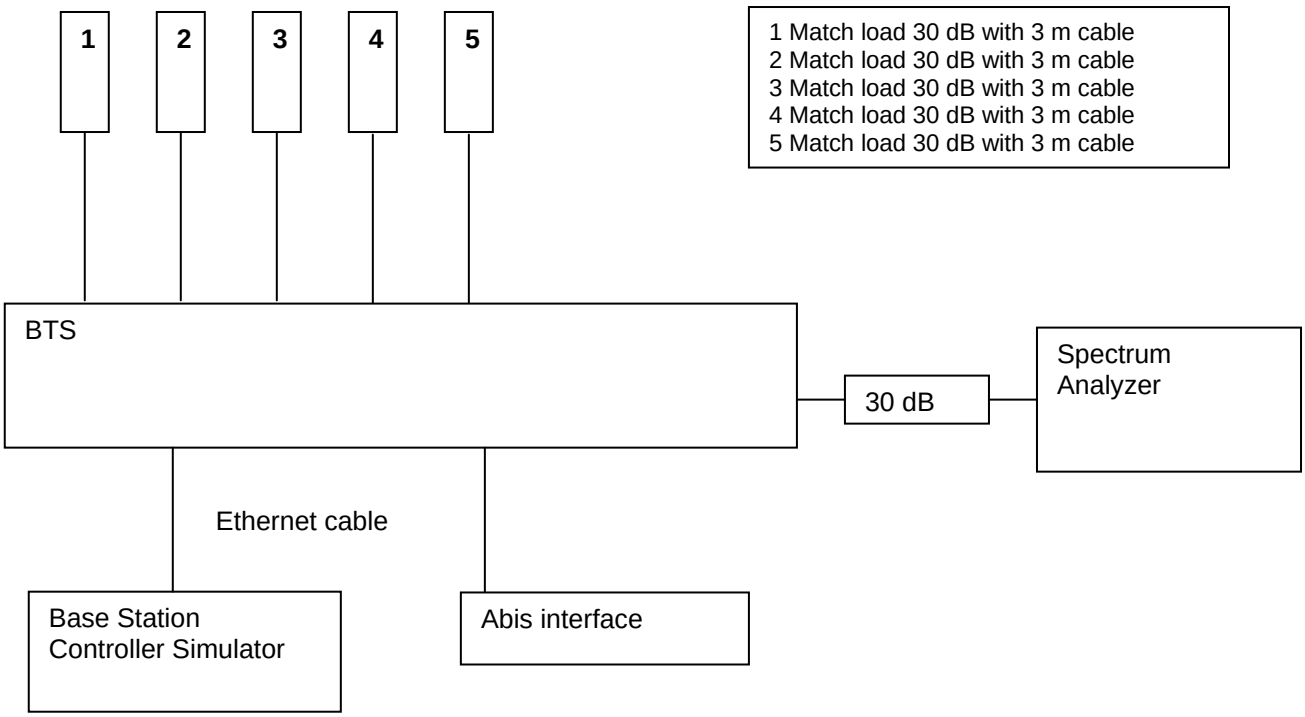
Upper /lower frequency limits	0.5% of the mean power

6.3.3. Test Method and Setup

The OBW, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured under the following conditions as applicable:
(g) Transmitter in which the modulating base band comprises not more than three independent channels - when modulated by the full complement of signals for which the transmitter is rated. The level of modulation for each channel should be set to that prescribed in rule parts applicable to the services for which the transmitter is intended. If specific modulation levels are not set forth in the rules, the tests should provide the manufacturer's maximum rated condition.
(h) Transmitters employing digital modulation techniques - when modulated by an input signal such that its amplitude and symbol rate represent the maximum rated conditions under which the equipment will be operated. The signal shall be applied through any filter networks, pseudorandom generators or other devices required in normal service. Additionally, the occupied bandwidth shall be shown for operation with any devices used for modifying the spectrum when such devices are optional at discretion of the user.

Measurement bandwidth (RBW): 30 kHz (Resolution bandwidth)
Video bandwidth (VBW): 200 kHz

Test Set-up



6.3.4. Measurement Results

TEST CONDITIONS		Occupied Bandwidth					
		Channel 25 1931.25 MHz		Channel 1000 1980 MHz		Channel 1175 1988.75. MHz	
		Measured (MHz)	**Limit**	**Measured (MHz)**	**Limit**	**Measured (MHz)**	**Limit**
T_{nom} (23.5 °C)	V_{nom} (- 48 V)*	1.2404	N/A	1.2406	N/A	1.2416	N/A
Measurement uncertainty (dB)		Equipment			Requirement		
		0.2%					

*() It is the voltage that is measured on the rack within the cabinet.

6.3.4.1. Conclusion

The equipment **passed** the requirement of this clause.

For the measurement results refer to appendix C with 4 pages.

6.3.4.2. Equipment List

Equipment Description	Manufacturer	Model	Serial Number	Calibrated until
PSA Series Spectrum Analyzer	Agilent	E4445A	MY41000146	24.10.2004
Attenuator	Shanghai Huaxiang	DTS100 (30dB)	15	05.06.2005
Cable	Diverse	RG58-U	n.a	Before test

6.4. Spurious Emission at Antenna Terminal

6.4.1. Test Conditions

Preconditioning:	1 hour
Nominal Output Power:	43 dBm
Measured at:	CDDU Output No.1(Low frequency CDDU) and No.3(High frequency CDDU)
Ambient temperature:	23.5°C
Relative humidity:	55 %
Date of Testing:	05.18.2004~05.21.2004

6.4.2. Test Specifications and Limits

6.4.2.1. Specification

CFR 47 (FCC) part 2.1051 and part 24.238

Supporting Standards:

EIA/TIA-603-A: 1992 Land Mobile FM or PM Communications Equipment Measurement and Performance Standards
EIA/TIA-102-CAAA:1999 Digital C4FM/CQPSK Transceiver Measurement Methods (ANSI/TIA/EIA-102.CAAA-1999)
EIA/TIA -95B-1999 Mobile Station-Base Station Compatibility Standard for Wideband Spread Spectrum Cellular Systems (ANSI/TIA/EIA-95-B-99)
EIA/TIA-97D-2001 Recommended Minimum Performance Standard for Base Stations Supporting Dual-Mode Spread Spectrum Cellular Mobile Stations

6.4.2.2. Limits

Compliance with 2.1051 requires that all spurious emission must be attenuated below the transmitter power by at least 43 +10 $\log_{10}$ P. (Whereas P is the rated power of the EUT).

Rated Power:	43 dBm
Required attenuation:	43+10log (20W) = 56 , 43 dBm – 56

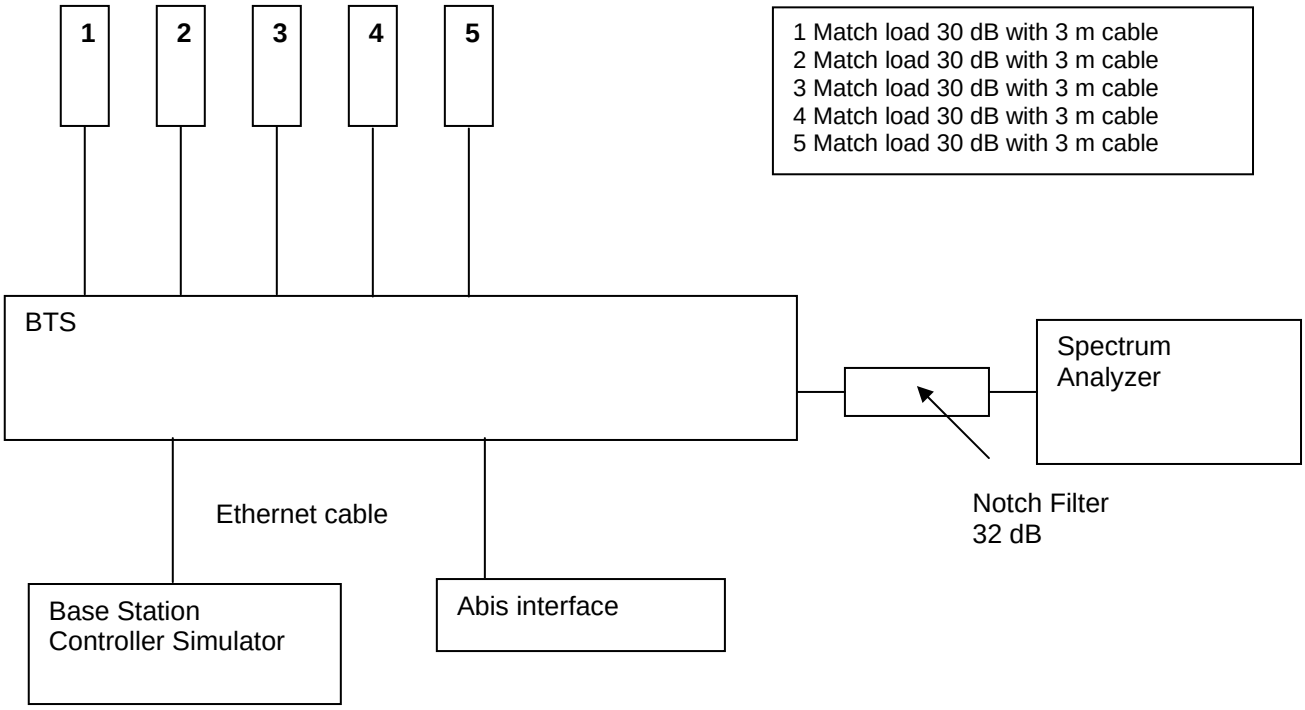
	dB
Absolute level	- 13 dBm

6.4.3. Test Method and Setup

The BTS simulator controls the CDMA base station. Every antenna port is connected to an artificial 50-Ohm load. The BTS operates two channels at a time.

Measurement bandwidth (RBW) for up to 1 MHz adjacent to carrier: 30 kHz
Measurement bandwidth (RBW) for 9 kHz up to 150 kHz: 1 kHz
Measurement bandwidth (RBW) for 150 kHz up to 30 MHz: 10 kHz
Measurement bandwidth (RBW) for 30 MHz up to 1 GHz: 100 kHz
Measurement bandwidth (RBW) for all others frequencies above 1 GHz 1 MHz

Test Set up



6.4.4. Measurement Results at Block Edges

Channel Number	Frequency of Band edge [MHz]	Power [dBm]	Spurious Level measured [dBm]	FCC limit	Result
25	1931.25MHz, Lower edge of block A	43	- 20.90	- 13 dBm	Pass
275	1943.75MHz, Higher edge of block A	43	- 21.31	- 13 dBm	Pass
325	1946.25MHz, Lower edge of block D	43	- 18.14	- 13 dBm	Pass
875	1973.75MHz, Higher edge of block F	43	- 22.87	- 13 dBm	Pass
925	1976.25MHz, Lower edge of block C	43	- 21.15	- 13 dBm	Pass
1175	1988.75MHz, Higher edge of block C	43	- 22.04	- 13 dBm	Pass

6.4.5. Measurement Results outside Band Edges

Channel Number	Test Range (Frequency)	Power [dBm]	Spurious Level measured [dBm]	FCC limit	Result
15	9 kHz ~20GHz	43	<- 13 dBm (See appendix D)	- 13 dBm	Pass
1175	9kHz ~20GHz	43	<- 13 dBm (See appendix D)	- 13 dBm	Pass

6.4.5.1. Conclusion

The equipment **passed** the requirement of this clause.

For the measurement results refer to appendix D with 23 pages.

6.4.5.2. Equipment List

Equipment Description	Manufacturer	Model	Serial Number	Calibrated until
PSA Series Spectrum Analyzer	Agilent	E4440	US40420781	26.05.2004
Attenuator	Shanghai Huaxiang	DTS100	15	05.06.2005
Notch Filter	Celecom	CCF811-1960/60-70A	SZ200069333	07.04.2004
Cable	Huber&Suhner	RG58U	--	Before test

6.5. Field Strength of Spurious Radiation

6.5.1. Test Conditions

Preconditioning:	0.5 hour
Nominal Output Power:	43 dBm
Measured at:	CDDU Output (Channel 1000, Frequency 1980MHz)
Ambient temperature:	23 °C
Relative humidity:	51 %
Date of testing:	05.30.2004

6.5.2. Test Specifications and Limits

6.5.2.1. Specification

CFR 47 (FCC) part 2.1053 and part.238

Supporting Standards:

EIA/TIA-603-A: 1992 Land Mobile FM or PM Communications Equipment Measurement and Performance Standards
EIA/TIA-102-CAAA:1999 Digital C4FM/CQPSK Transceiver Measurement Methods (ANSI/TIA/EIA-102.CAAA-1999)
EIA/TIA -95B-1999 Mobile Station-Base Station Compatibility Standard for Wideband Spread Spectrum Cellular Systems (ANSI/TIA/EIA-95-B-99)
EIA/TIA-97D-2001 Recommended Minimum Performance Standard for Base Stations Supporting Dual-Mode Spread Spectrum Cellular Mobile Stations

6.5.2.2. Limits

Compliance with 22.917 requires that all spurious emission must be attenuated below the transmitter power by at least 43 +10 $\log_{10}$ P. (Whereas P is the rated power of the EUT).

Rated Power:	43 dBm
Required attenuation:	43 +10 log10 (20W) = 56 dB

Absolute level	43 dBm – 56 dB= - 13 dBm

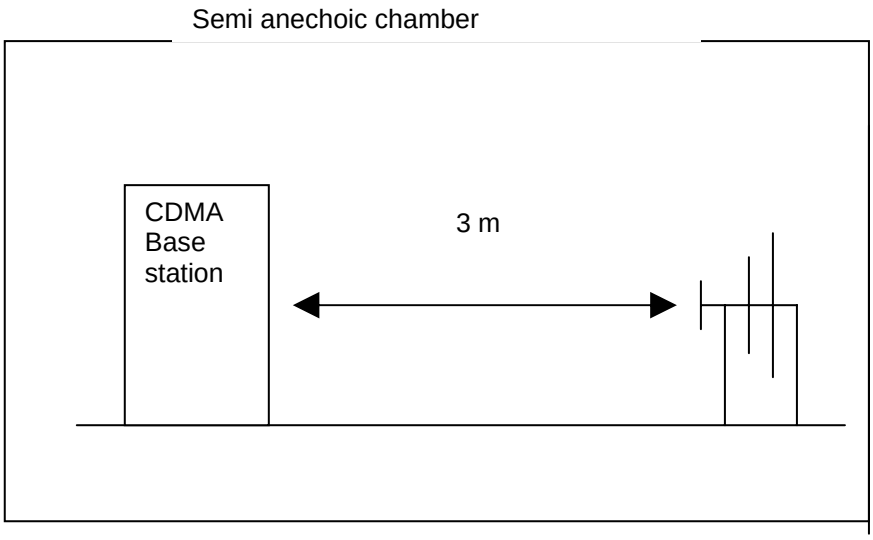
6.5.3. Test Method and Setup

(a) Measurements were made to detect spurious emissions radiated directly from the cabinet, control circuits, power leads, or intermediate circuit elements under normal conditions of installation and operation. Curves or equivalent data were supplied showing the magnitude of each harmonic and other spurious emission. For this test, single sideband, independent sideband, and controlled carrier transmitters shall be modulated under the conditions specified in paragraph 2.989(c) as appropriate. For equipment operating on frequencies below 1990 MHz, an Open Field Test is normally required with the measuring instrument antenna located in the far field at all test frequencies. In event it is either impractical or impossible to make open field measurements (e.g. a broadcast transmitter installed in a building) measurement will be accepted of the equipment as installed. Such measurements must be accompanied by a description of the site where the measurements were made showing the location of any possible source of reflections, which might distort the field strength measurements. Information submitted shall include the relative radiated power of each spurious emission with the reference to the rated power output of the transmitter, assuming all emissions are radiated from half-wave dipole antennas.
(b) Measurements specified in paragraph (a) of this section shall be made for the following equipment:
(1) Those in which the spurious emission are required to be 60 dB or more below the mean power of the transmitter.
(2) All equipment operating on frequencies higher than 25 MHz
(3) All equipment where the antenna is an integral part of, and attached directly to the transmitter.
(4) Other types of equipment as required, when deemed necessary by the Commission.

The BSC simulator controls the CDMA base station. Every antenna port is connected to an artificial 50-Ohm load. The BTS operates two channels at a time.

Measurement bandwidth: 30 MHz – 1000 MHz: 120 kHz
Measurement bandwidth: 1GHz – 10 GHz: 1 MHz

Test set up



6.5.4. Measurement Results

Frequency in [MHz]	Spurious Emission measurement reading In [dBm]	Signal Generator Level [dBm]	Cable loss [dB]	Antenna gain [dB]	Effective Power ERP [in dBm]	Power in [dBc]	Spurious Emission Limits [dBm]
3964.444	-36.17	-40	-4.7	10.0	-34.7	77.7	-13dBm
7548.888	-35.41	-38	-7.9	10.1	-35.8	78.8	-13dBm

Measurement Uncertainty: +/- 6 dB

6.5.4.1. Conclusion

The equipment **passed** the requirement of this clause.

For the measurement results refer to appendix E with 7 pages.

6.5.4.2. Equipment List

Equipment Description	Manufacturer	Model	Serial Number	Calibrated until
Signal Generator	R&S	SMT 06 1039.2000.06	830723/007	15-06-2004
Test Receiver Display Unit	R&S	ESMI 804.8932.52	829214/011	15.06.2004
Test Receiver RF Unit	R&S	ESMI 1032.5640.53	829550/008	15.06.2004
BiLog Antenna	Schaffner	CBL 6111B	2536	01.08.2004
Pre-Amplifier	Agilent	83017A	3950M00246	16.10.2004
Horn Antenna	R&S	HF906 4044.4507.02	359287/005	04.08.2004
Attenuator	HP	8491A (3dB)	36239	Calibrated with setup
Horn Antenna	R&S	HF906 4044.4507.02	359287/006	04.08.2004
Notch Filter	Celecom	CCF811-1960/60-70A	SZ200069333	07.04.2004
Match load	Shanghai Huaxiang	TF100 (30dB)	03062357	02.07.2004
Match load	Shanghai Huaxiang	TF100 (30dB)	03062310	02.07.2004
Match load	Shanghai	TF100 (30dB)	03062311	02.07.2004

	Huaxiang			
Match load	Shanghai Huaxiang	TF100 (30dB)	03062318	02.07.2004
Match load	Shanghai Huaxiang	TF100 (30dB)	03062328	02.07.2004

6.6. Frequency Stability

6.6.1. Test Conditions

Preconditioning:	1 hour
Nominal Output Power:	-43 dBm
Measured at:	CDDU Output No.1(Low frequency CDDU) and No.3(High frequency CDDU)
Ambient temperature:	See below
Relative humidity:	55 % at 20 °C
Date of Testing:	05.23.2004 – 05.23.2004 & 05.25.2004 – 05.25.2004*

* The date is about frequency stability various with voltage.

6.6.2. Test Specifications and Limits

CFR 47 (FCC) part 2.1055 and part 24.235

Supporting Standards:

EIA/TIA-603-A: 1992 Land Mobile FM or PM Communications Equipment Measurement and Performance Standards
EIA/TIA-102-CAAA:1999 Digital C4FM/CQPSK Transceiver Measurement Methods (ANSI/TIA/EIA-102.CAAA-1999)
EIA/TIA -95B-1999 Mobile Station-Base Station Compatibility Standard for Wideband Spread Spectrum Cellular Systems (ANSI/TIA/EIA-95-B-99)
EIA/TIA-97D-2001 Recommended Minimum Performance Standard for Base Stations Supporting Dual-Mode Spread Spectrum Cellular Mobile Stations

6.6.3. Test Method and Setup

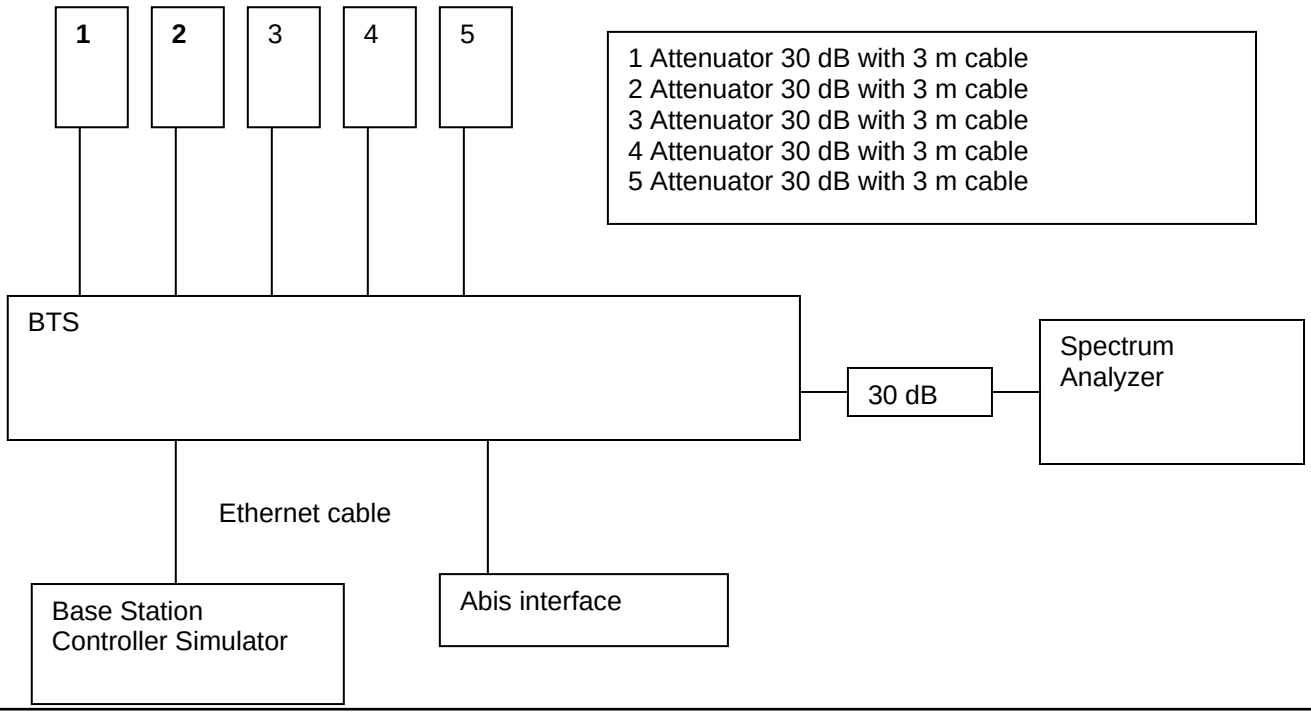
The frequency stability shall be measured with variation of ambient temperature as follows:
(1) From –30 ° to +50 ° centigrade for all equipment except that specified in subparagraphs
(2) and (3) of paragraph 2.1055

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

(d) The frequency stability shall be measured with variation of primary supply voltage as follows:
(1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment.
(2) For hand carried, battery powered equipment, reduce primary supply voltage to the battery operating end point, which shall be specified by the manufacturer.
(3) The supply voltage shall be measured at the input to the cable normally provided with the equipment, or at the power supply terminals if cables are not normally provided. Effects on frequency of transmitter keying (except for broadcast transmitters) and any heating element cycling at the nominal supply voltage and at each extreme also shall be shown.
(e) When deemed necessary, the Commission may require tests of frequency stability under conditions in addition to those specifically set out in paragraphs (a), (b), (c) and (d) of this section. (For example, measurements showing the effect of proximity to large metal objects, or of various types of antennas, may be required for portable equipment.)

Test Set up

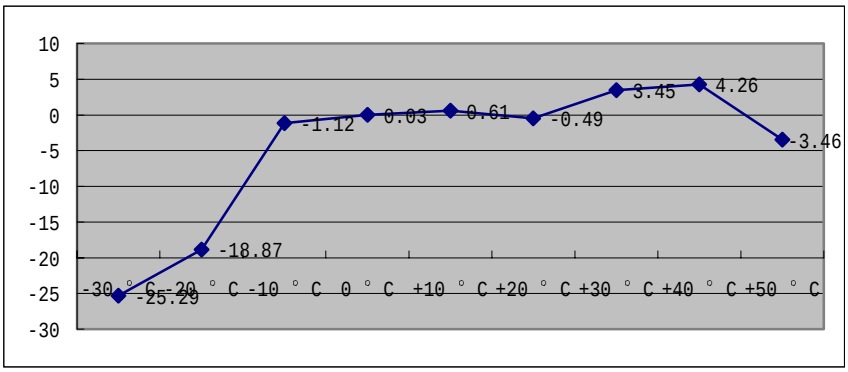
Measurement Bandwidth: 30 kHz



6.6.4. Measurement Results vs. Variation of Temperature

- TRX1: Channel No. 25(1931.25MHz)

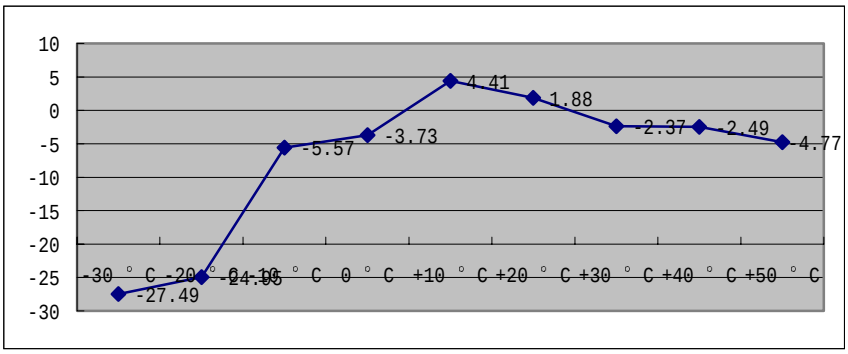
Temperature	Power (dBm)	Nominal Frequency	Measured Frequency Error	Result
-30 °C	43	1931.25MHz	-25.29	Pass
-20 °C	43	1931.25MHz	-18.87	Pass
-10 °C	43	1931.25MHz	-1.12	Pass
0 °C	43	1931.25MHz	0.03	Pass
+10 °C	43	1931.25MHz	0.61	Pass
+20 °C	43	1931.25MHz	-0.49	Pass
+30 °C	43	1931.25MHz	3.45	Pass
+40 °C	43	1931.25MHz	4.26	Pass
+50 °C	43	1931.25MHz	-3.46	Pass



- TRX2: Channel No. 1175(1988.75MHz)

Temperature	Power (dBm)	Nominal Frequency	Measured Frequency Error	Result
-30 °C	43	1988.75MHz	-27.49	Pass
-20 °C	43	1988.75MHz	-24.95	Pass
-10 °C	43	1988.75MHz	-5.57	Pass
0 °C	43	1988.75MHz	-3.73	Pass
+10 °C	43	1988.75MHz	4.41	Pass
+20 °C	43	1988.75MHz	1.88	Pass
+30 °C	43	1988.75MHz	-2.37	Pass

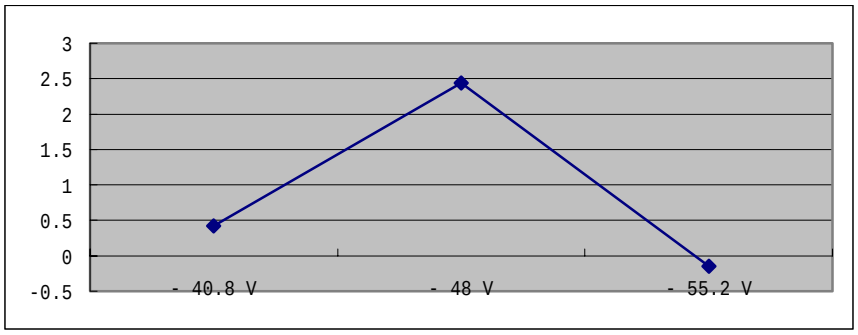
+40 °C	43	1988.75MHz	-2.49	Pass
+50 °C	43	1988.75MHz	-4.77	Pass



6.6.5. Measurement Results vs. Variation of Voltage

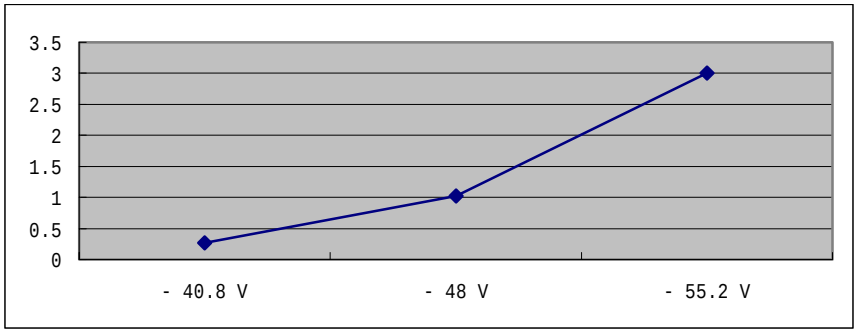
- TRX1: Channel No. 25(1931.25MHz)

Voltage	Power (dBm)	Nominal Frequency	Measured Frequency Error	Result
- 40.8 V	43	1931.25MHz	0.42	Pass
- 48 V	43	1931.25MHz	2.44	Pass
- 55.2 V	43	1931.25MHz	-0.15	Pass



- TRX2: Channel No. 1175(1988.75MHz)

Voltage	Power (dBm)	Nominal Frequency	Measured Frequency Error	Result
- 40.8 V	43	1988.75MHz	0.27	Pass
- 48 V	43	1988.75MHz	1.02	Pass
- 55.2 V	43	1988.75MHz	3.00	Pass


3.5
3
2.5
2
1.5
1
0.5
0
- 40.8 V
- 48 V
- 55.2 V

6.6.5.1. Conclusion

The equipment **passed** the requirement of this clause.

For the measurement results refer to appendix F with 31 pages.

6.6.5.2. Equipment List

Equipment Description	Manufacturer	Model	Serial Number	Calibrated until
PSA Series Spectrum Analyzer	Agilent	E4445A	MY41000146	24.10.2004
Attenuator	Shanghai Huaxiang	DTS100 (30dB)	15	05.06.2005
Cable	Diverse	RG58-U	n.a.	Before test
Climatic Chamber	Weiss	SB2/1500/80	222/21262	10.12.2004

6.7. Conducted Emission at Power Supply Terminal Port

6.7.1. Test Conditions

Preconditioning:	0.5 hour
Nominal Output Power:	43 dBm
Measured at:	CDDU Output
Ambient temperature:	22.5 °C
Relative humidity:	50 %
Power Supply:	220 VAC
Date of Testing:	06.05.2004

6.7.2. Test Specifications and Limits

6.7.2.1. Specification

CFR 47 (FCC) part 15.207

Supporting Standards:

ANSI C63.4-1992 Methods of Measurement of Radio-Noise Emissions from Low Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz

6.7.2.2. Limits

Compliance with 15.207 requires that all spurious emission must be below the specified limits in clause 15.207.

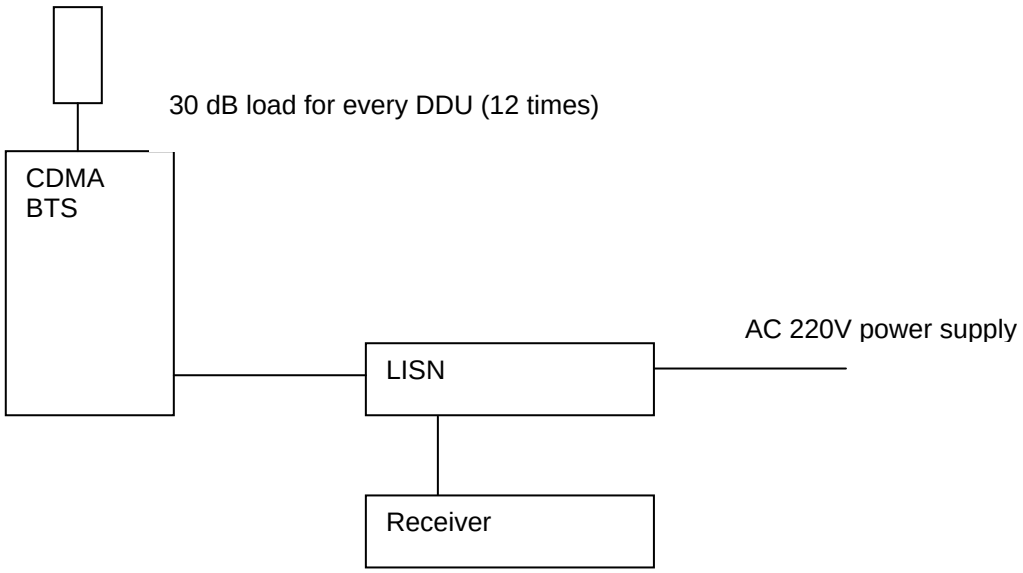
Frequency of Emission	Conducted Limit (dBμV)	
	QP	AV
150 kHz – 0.5 MHz	66-56	56-46
0.5 MHz – 5 MHz	56	46
5 MHz – 30 MHz	60	50

6.7.3. Test Method and Setup

The CDMA BTS was setup in the anechoic chamber and operated under nominal conditions.

Measurement Bandwidth: 150 kHz – 30 MHz: 10 kHz

Test set up



6.7.4. Measurement Results

Frequency in [MHz]	Measured Conducted Emission [dBµV]	Conducted Emission Limits [dBµV]	Remarks
0.253500	38.70	62	QP
0.510000	26.70	56	QP
1.536000	38.30	56	QP
3.070500	37.40	56	QP
9.217500	38.70	60	QP
13.312500	46.60	60	QP
0.253500	38.60	52	AV
0.798000	25.50	46	AV
1.536000	33.80	46	AV
3.070500	33.20	46	AV
9.213000	35.00	50	AV
13.312500	41.00	50	AV

6.7.4.1. Conclusion

The equipment **passed** the requirement of this clause.

For the measurement results refer to appendix G with 3 pages.

6.7.4.2. Equipment List

Equipment Description	Manufacturer	Model	Serial Number	Calibrated until
LISN	R&S	ENV4200	100001	15.06.2004
Test Receiver	R&S	ESMI-DU 1032.5510.53 ESMI-RF 1032.5640.53	829214/011 829550/008	15.06.2004
Attenuator	Shanghai Huaxiang	DTS100 (30dB)	15	05.06.2005
Cable	Diverse	RG58-U	n.a	Before test
Match load	Shanghai	TF100 (30dB)	03062357	02.07.2004

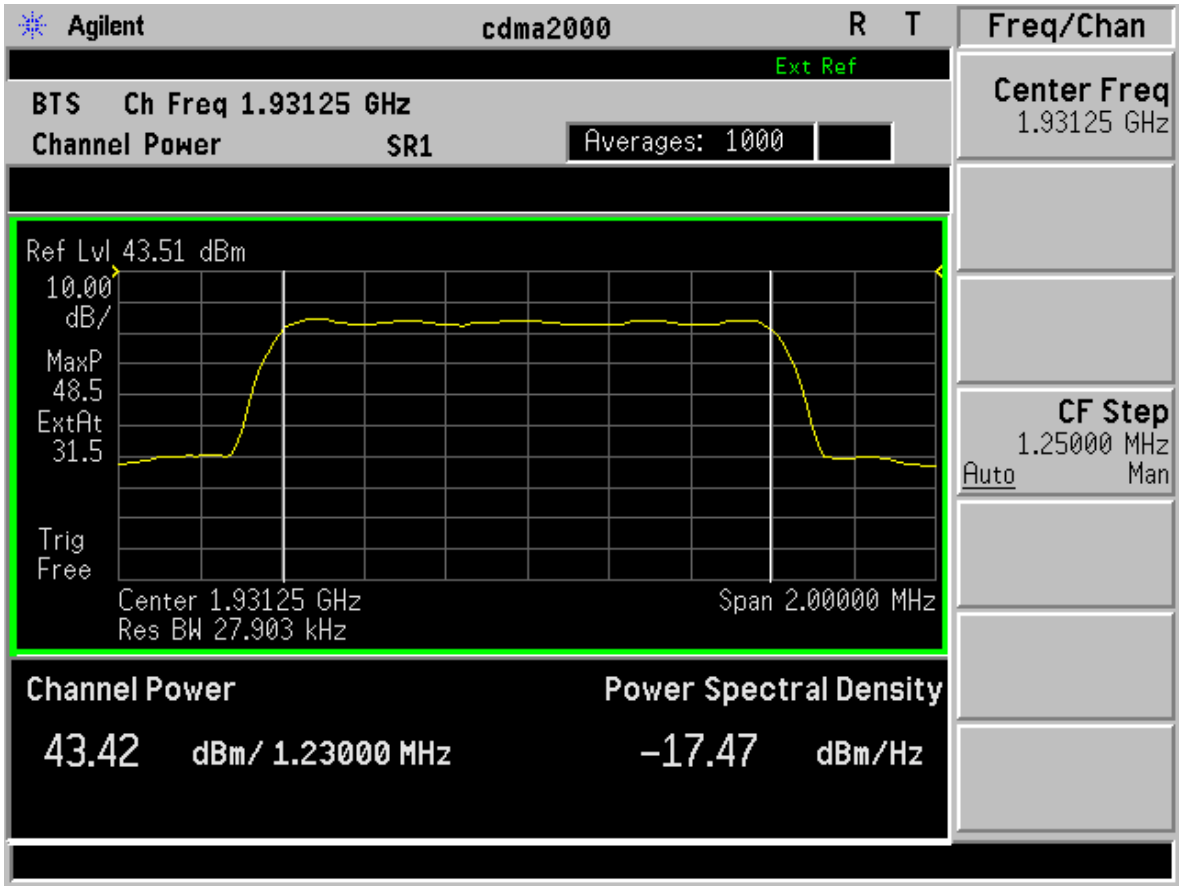
	Huaxiang			
Match load	Shanghai Huaxiang	TF100 (30dB)	03062310	02.07.2004
Match load	Shanghai Huaxiang	TF100 (30dB)	03062311	02.07.2004
Match load	Shanghai Huaxiang	TF100 (30dB)	03062318	02.07.2004
Match load	Shanghai Huaxiang	TF100 (30dB)	03062328	02.07.2004

7. APPENDIXES

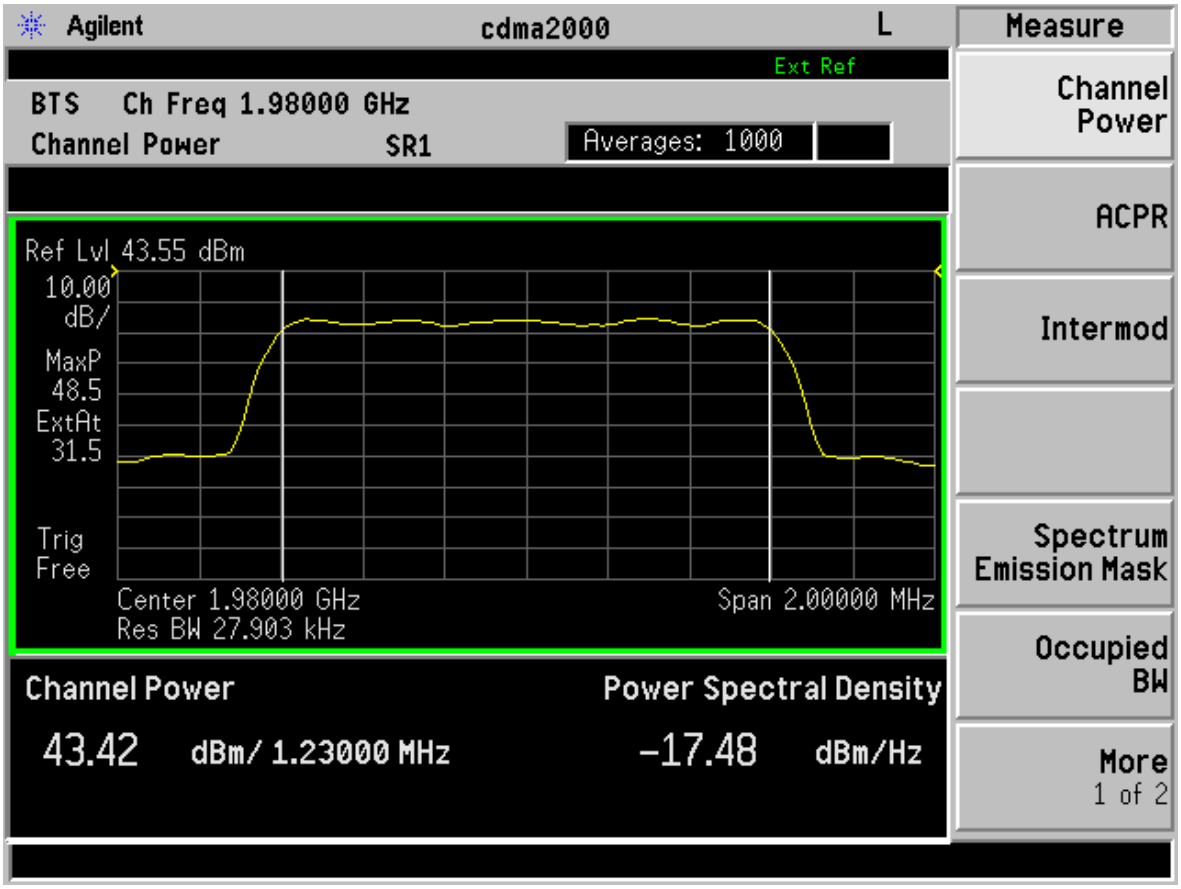
Appendix A	Measurement Results RF Output Power	4 pages
Appendix B	Measurement Results Modulation Characteristics	4 pages
Appendix C	Measurement Results Occupied Bandwidth	4 pages
Appendix D	Measurement Results Spurious Emission at Antenna Terminal	23 pages
Appendix E	Measurement Results Field Strength of Spurious Radiation	7 pages
Appendix F	Measurement Results Frequency Stability versus Temperature and Voltage	25 pages
Appendix G	Measurement Results Conducted Emission at Power Port	3 pages
Appendix H	Photos of Test Setup	5 pages

Appendix A
Channel Power Measurement
According to CFR 47 (FCC) part 2.1046

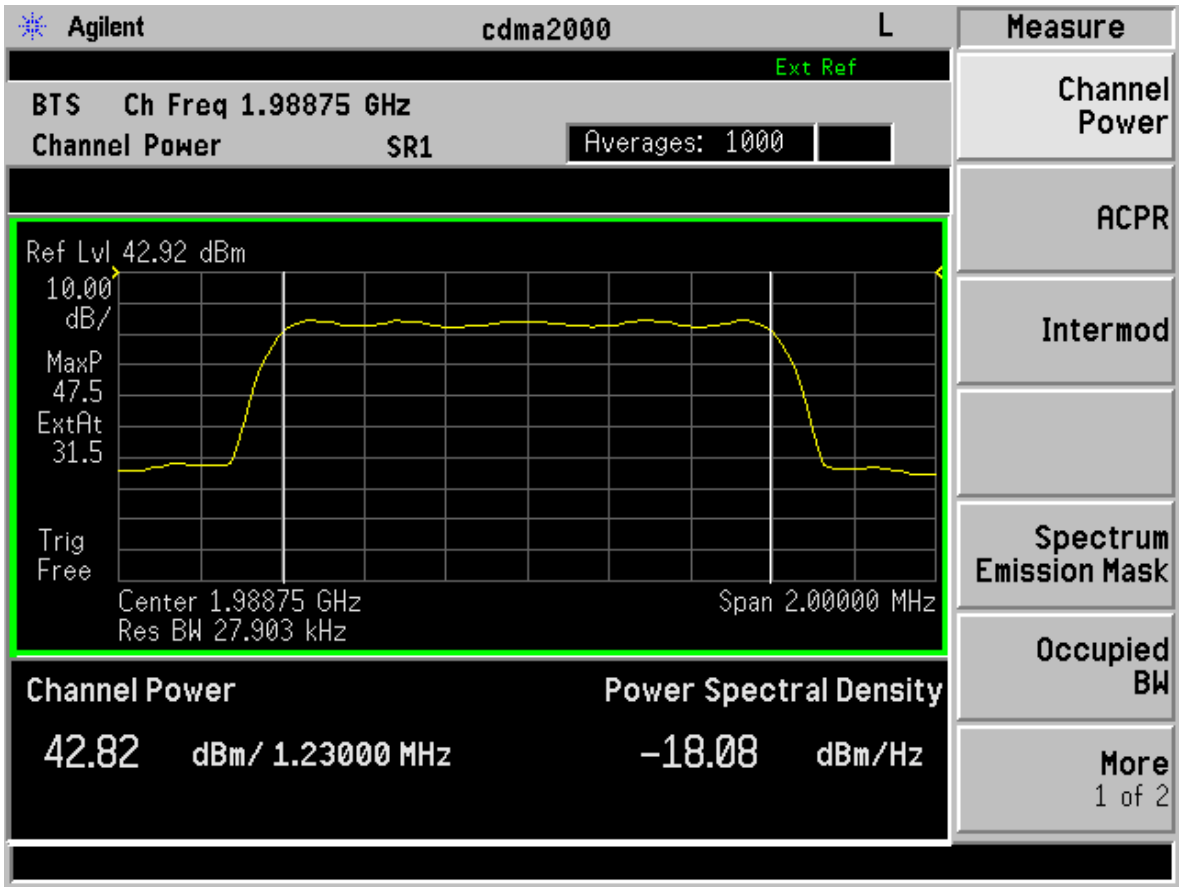
Channel 25


Agilent
cdma2000
R T
Freq/Chan
Ext Ref
BTS Ch Freq 1.93125 GHz
Channel Power
SR1
Averages: 1000
Center Freq
1.93125 GHz
Ref Lvl 43.51 dBm
10.00
dB/
MaxP
48.5
ExtAt
31.5
Trig
Free
Center 1.93125 GHz
Res BW 27.903 kHz
Span 2.00000 MHz
CF Step
1.25000 MHz
Auto
Man
Channel Power
43.42 dBm/ 1.23000 MHz
Power Spectral Density
-17.47 dBm/Hz

Channel 1000



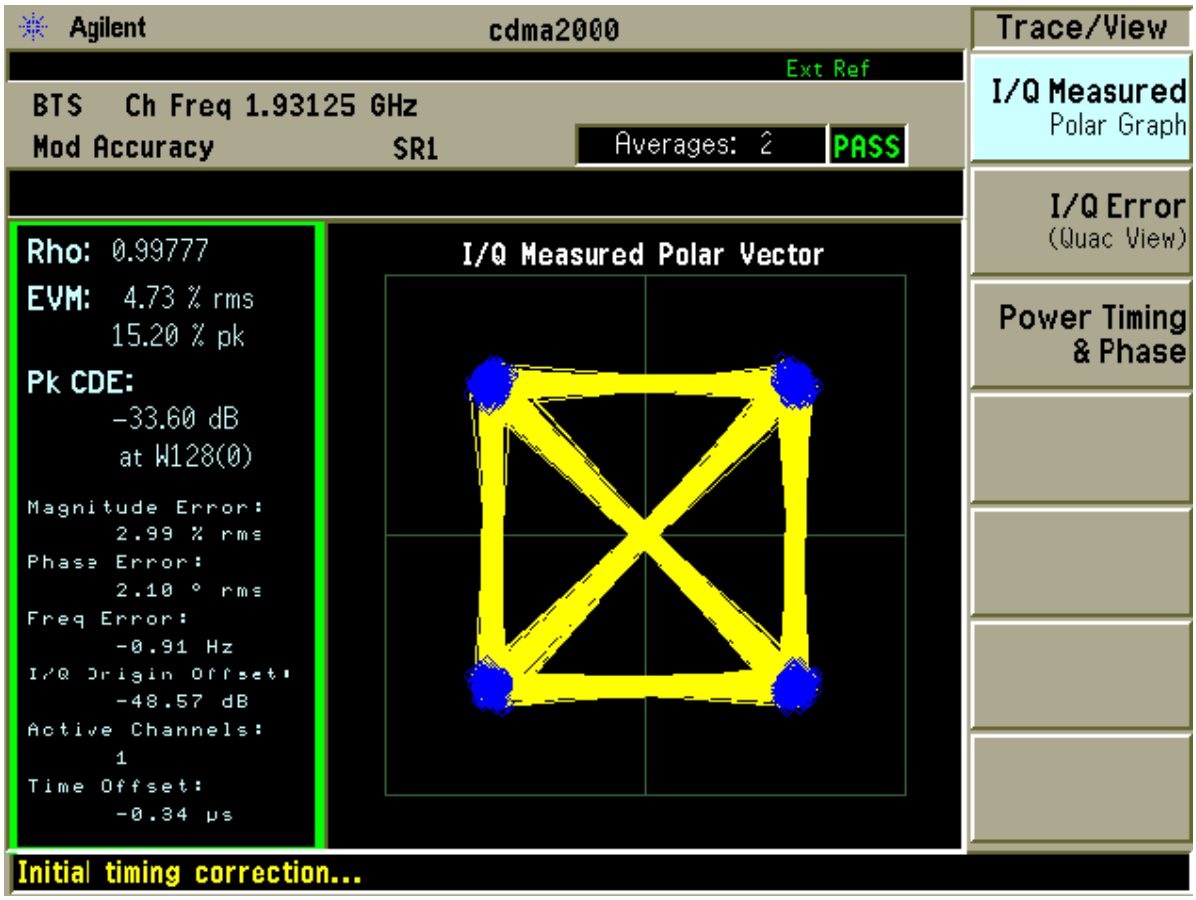
Channel 1175



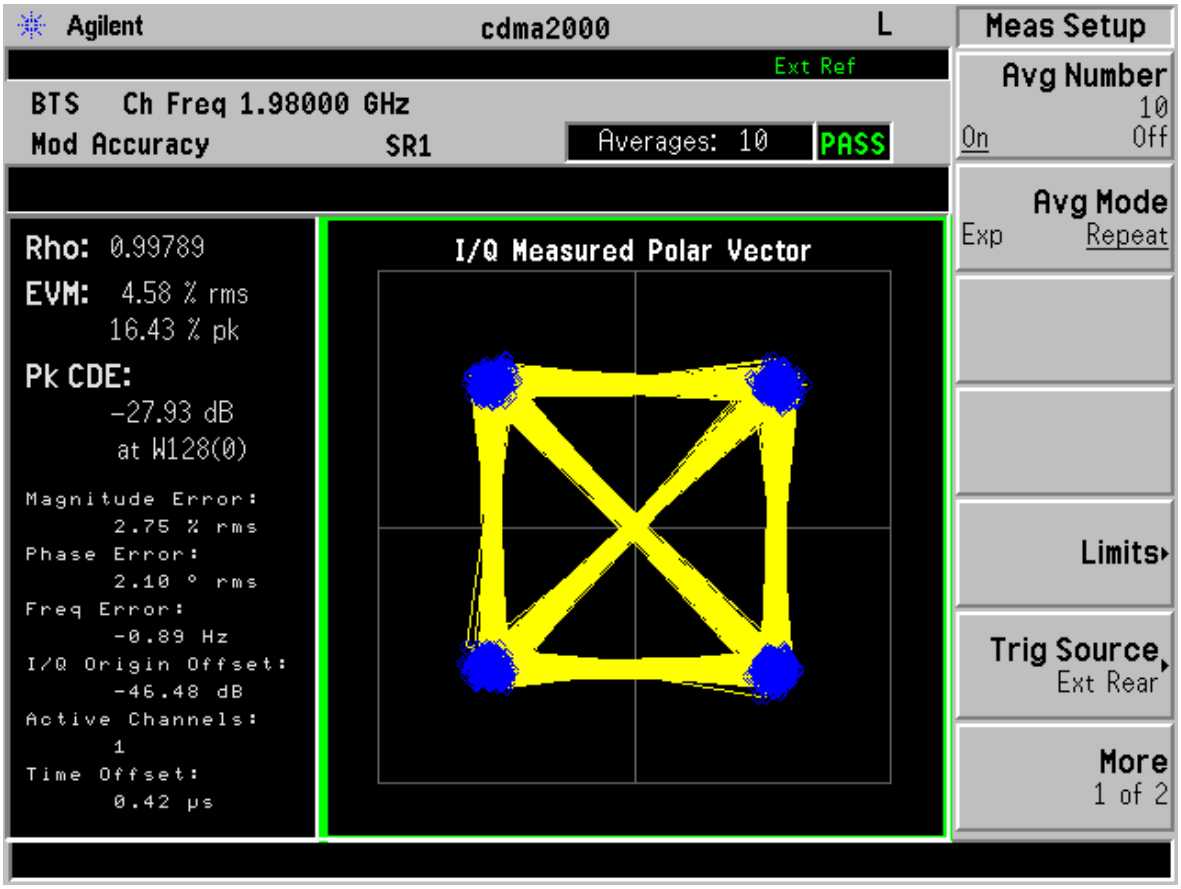
Appendix B
Modulation Characteristic Measurement

According to CFR 47 (FCC) part 2.1047

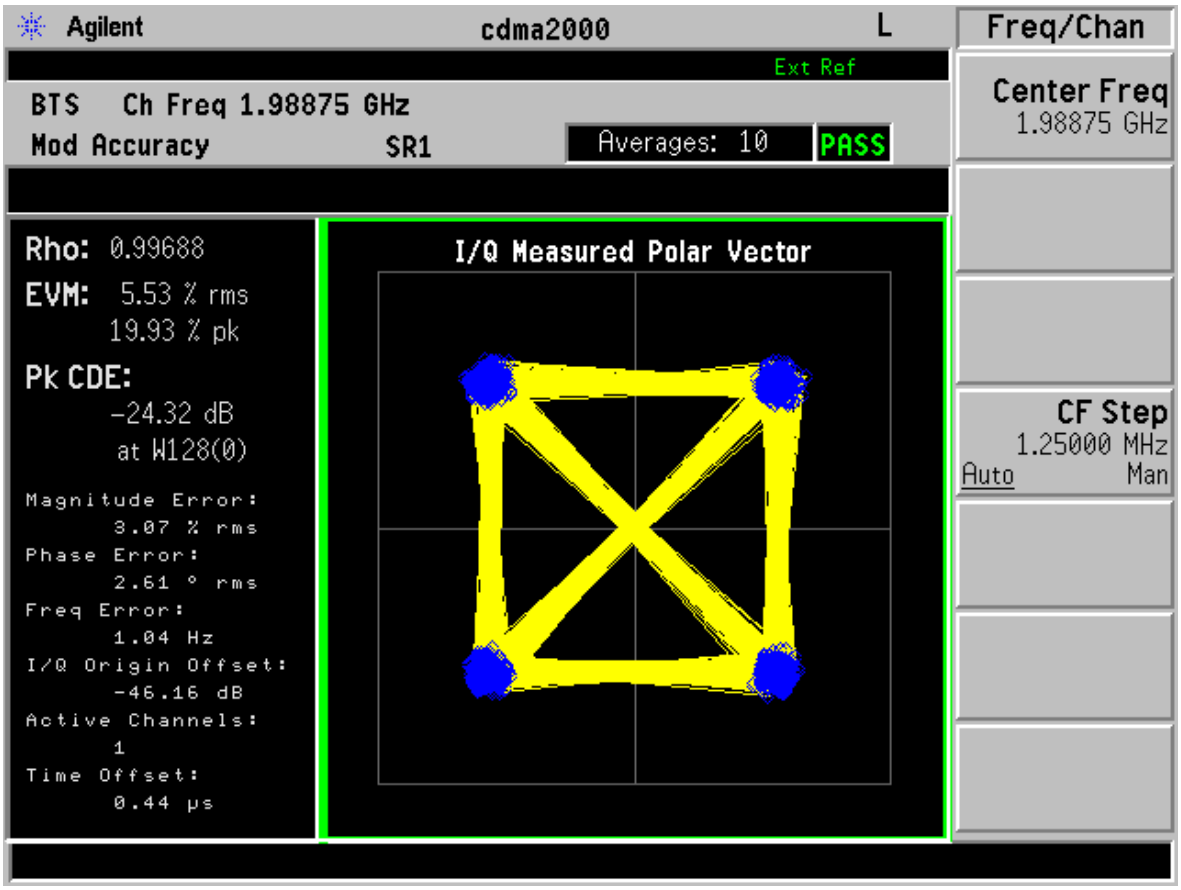
Channel 25


Agilent
cdma2000
Trace/View
Ext Ref
BTS Ch Freq 1.93125 GHz
Mod Accuracy
SR1
Averages: 2
PASS
I/Q Measured
Polar Graph
I/Q Error
(Quac View)
Power Timing
& Phase
Rho: 0.99777
EVM: 4.73 % rms
15.20 % pk
Pk CDE:
-33.60 dB
at W128(0)
Magnitude Error:
2.99 % rms
Phase Error:
2.10 ° rms
Freq Error:
-0.91 Hz
I/Q Origin Offset:
-48.57 dB
Active Channels:
1
Time Offset:
-0.34 µs
I/Q Measured Polar Vector
Initial timing correction...

Channel 1000



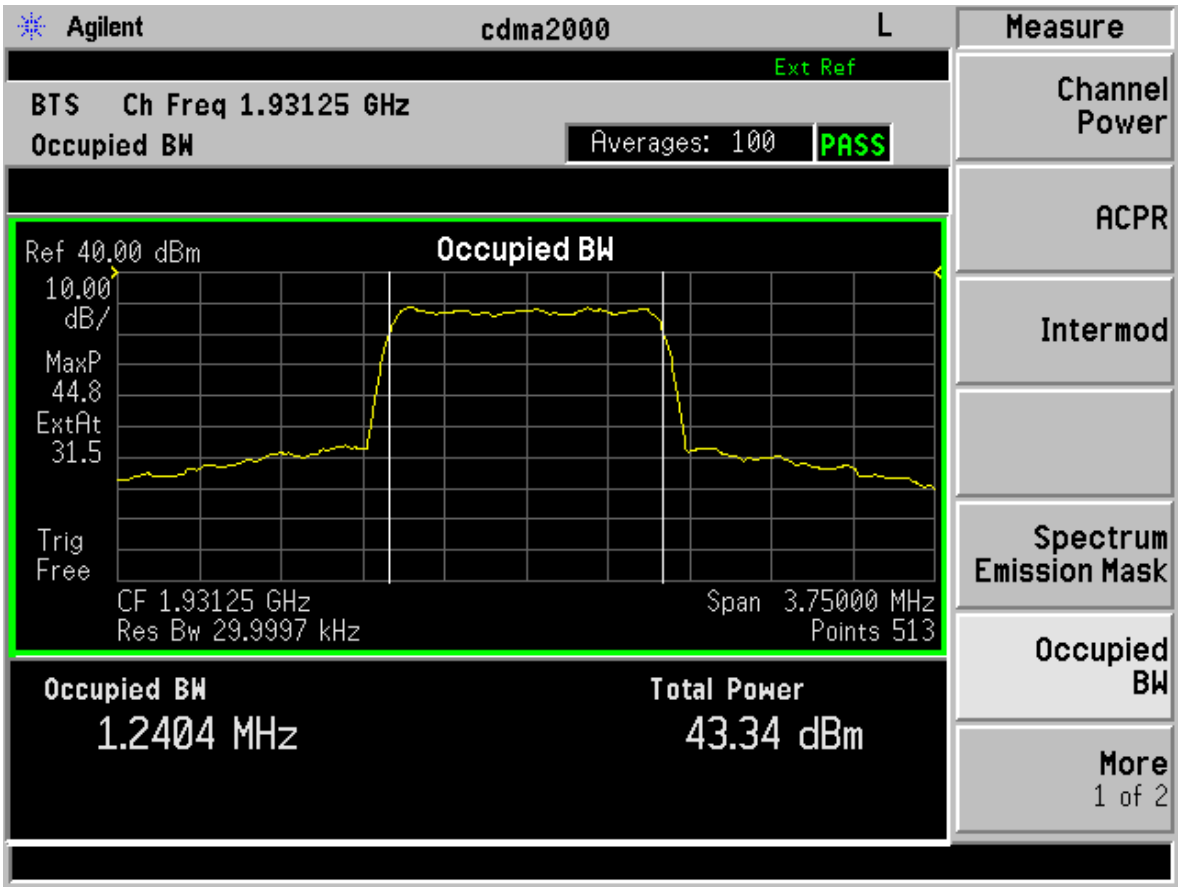
Channel 1175



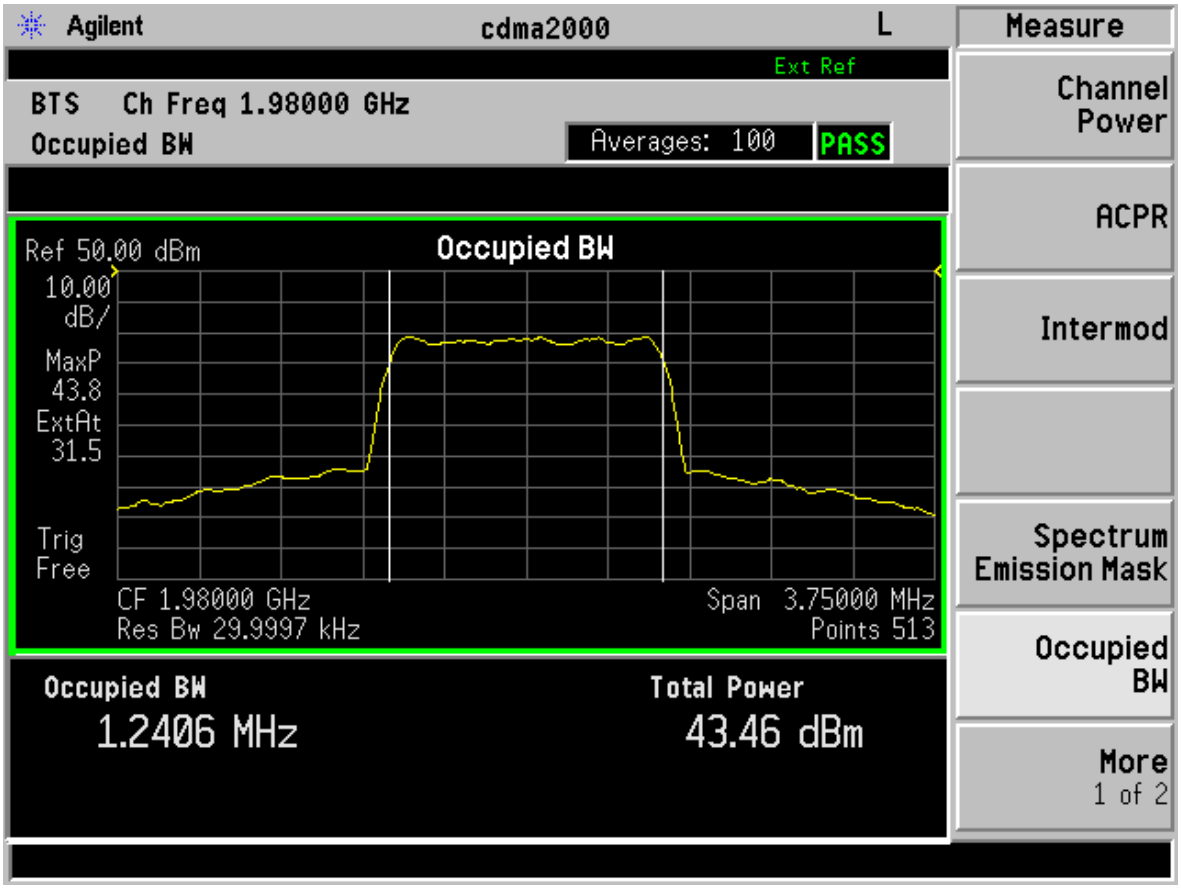
Appendix C
Occupied Bandwidth Measurement

According to CFR 47 (FCC) part 2.1049

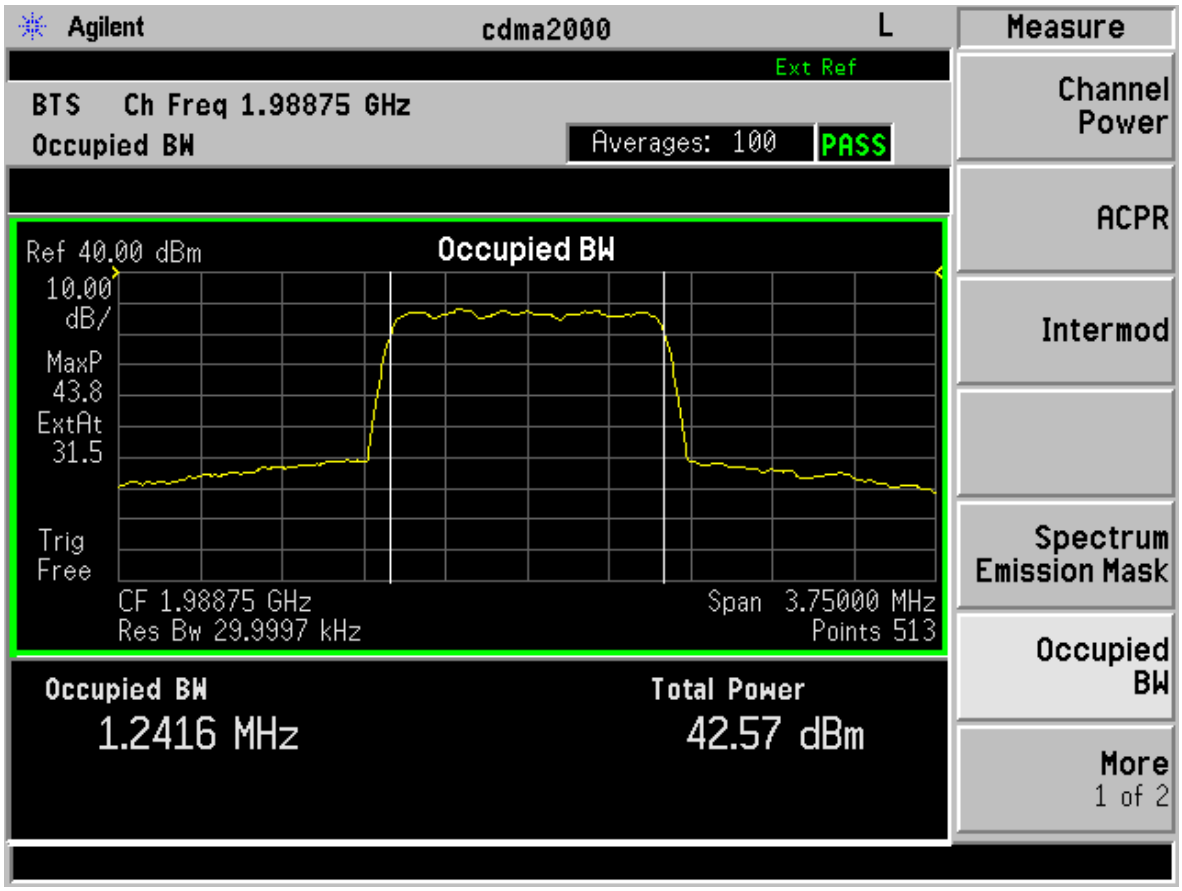
Channel 25


Agilent
cdma2000
L
Measure
Ext Ref
BTS Ch Freq 1.93125 GHz
Occupied BW
Averages: 100
PASS
Channel Power
ACPR
Intermod
Ref 40.00 dBm
Occupied BW
10.00
dB/
MaxP
44.8
ExtAt
31.5
Trig
Free
CF 1.93125 GHz
Res Bw 29.9997 kHz
Span 3.75000 MHz
Points 513
Spectrum Emission Mask
Occupied BW
Occupied BW
1.2404 MHz
Total Power
43.34 dBm
More
1 of 2

Channel 1000



Channel 1175

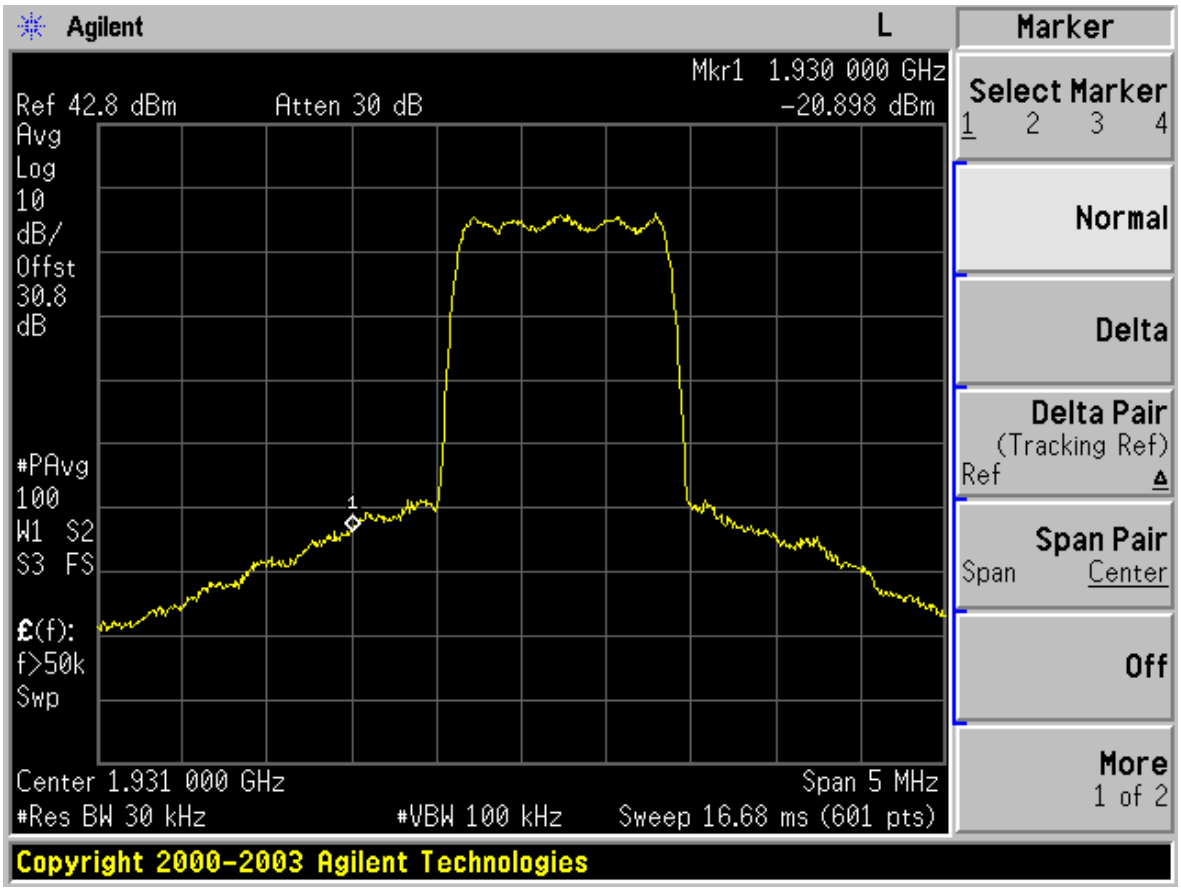


Appendix D
Spurious Emission at Antenna Terminal Measurements

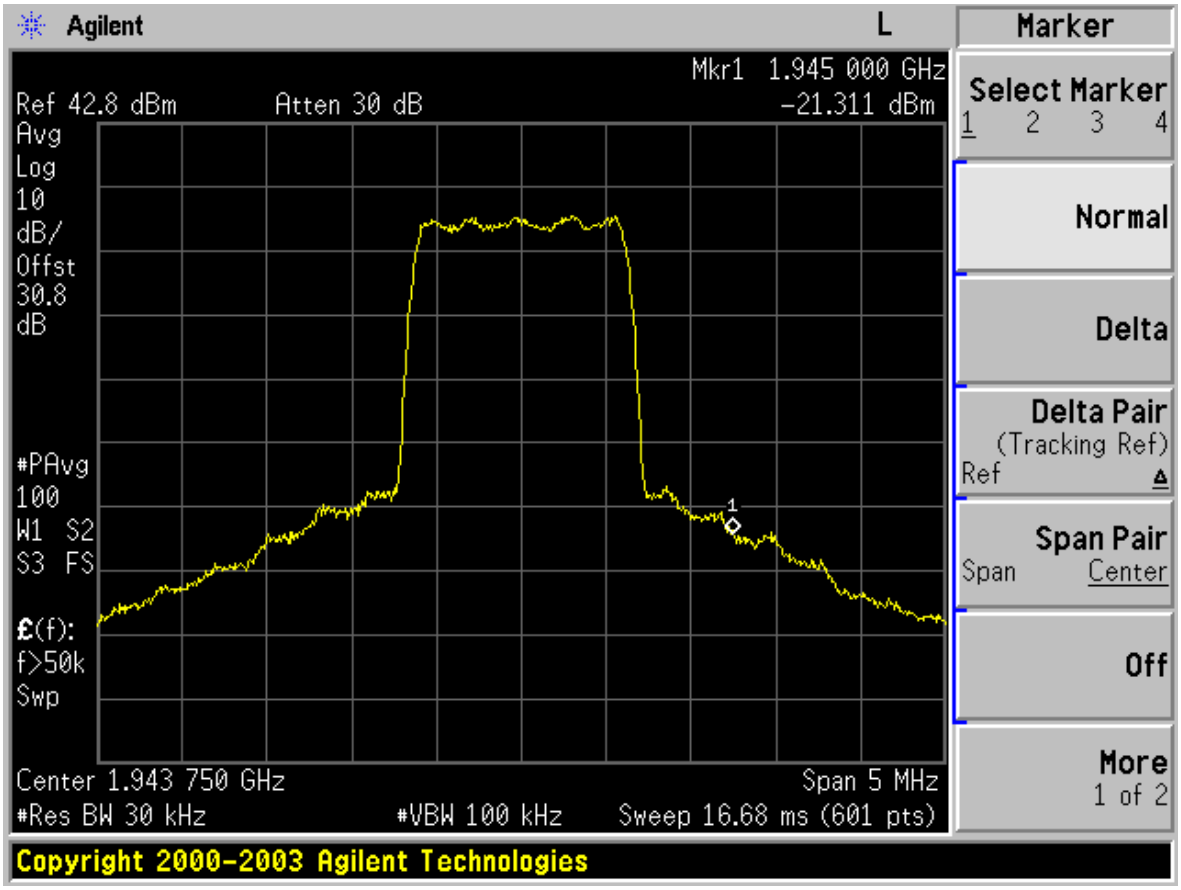
According to CFR 47 (FCC) part 2.1051

Measurement Result at Block Edge

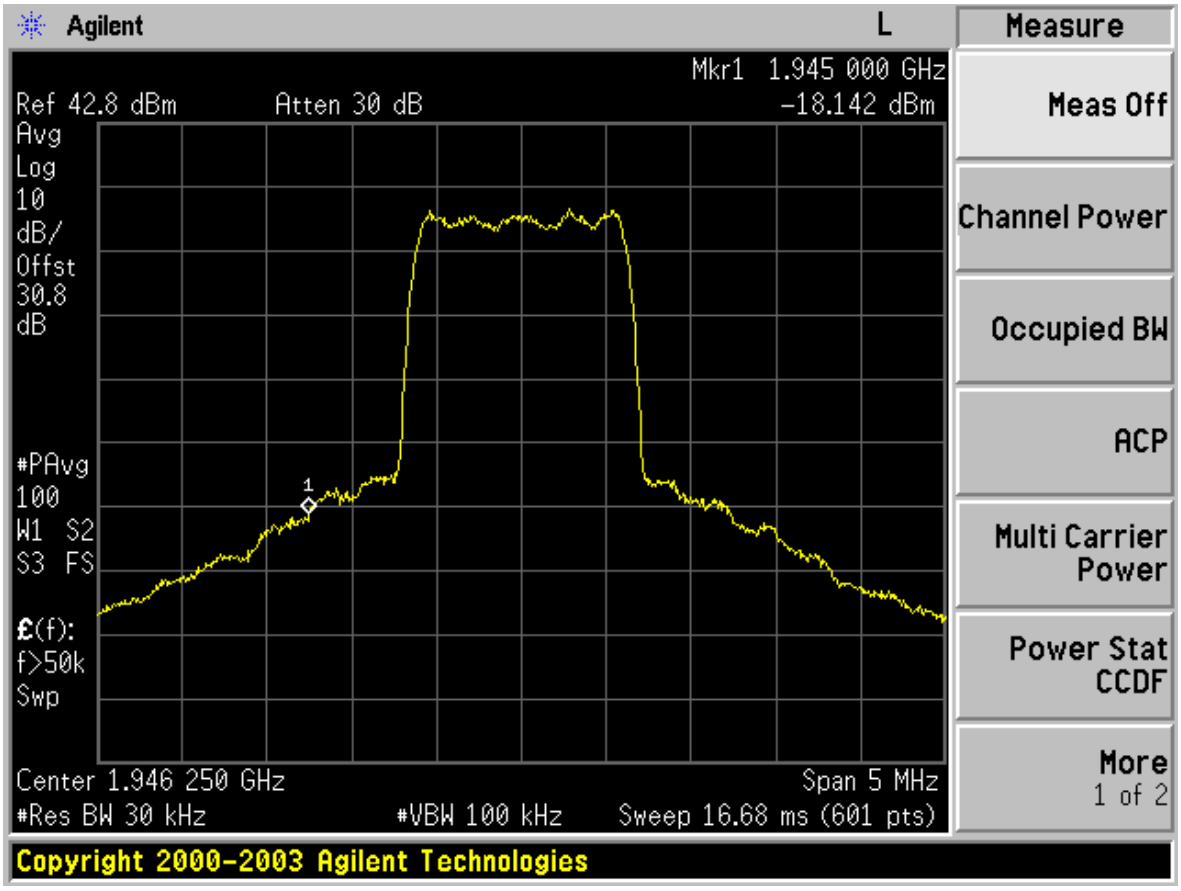
Channel 25(1931.25MHz)



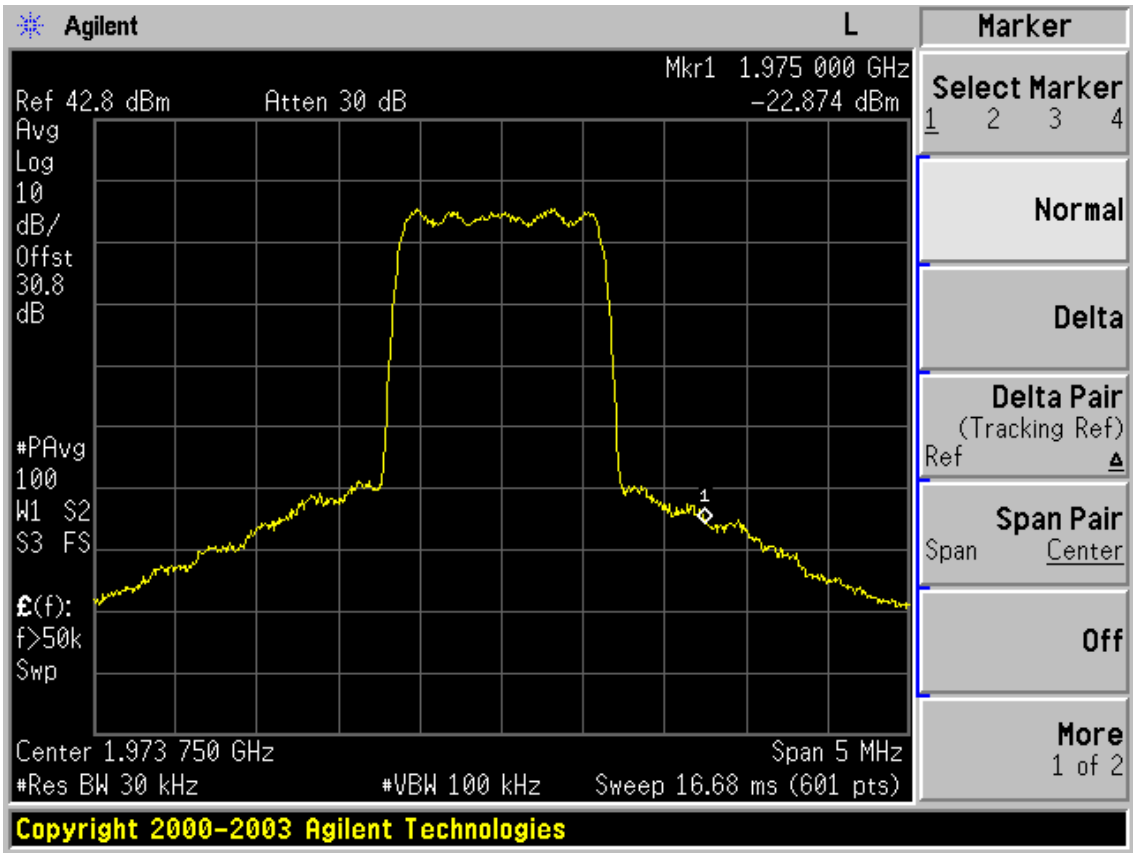
Channel 275(1943.75MHz)



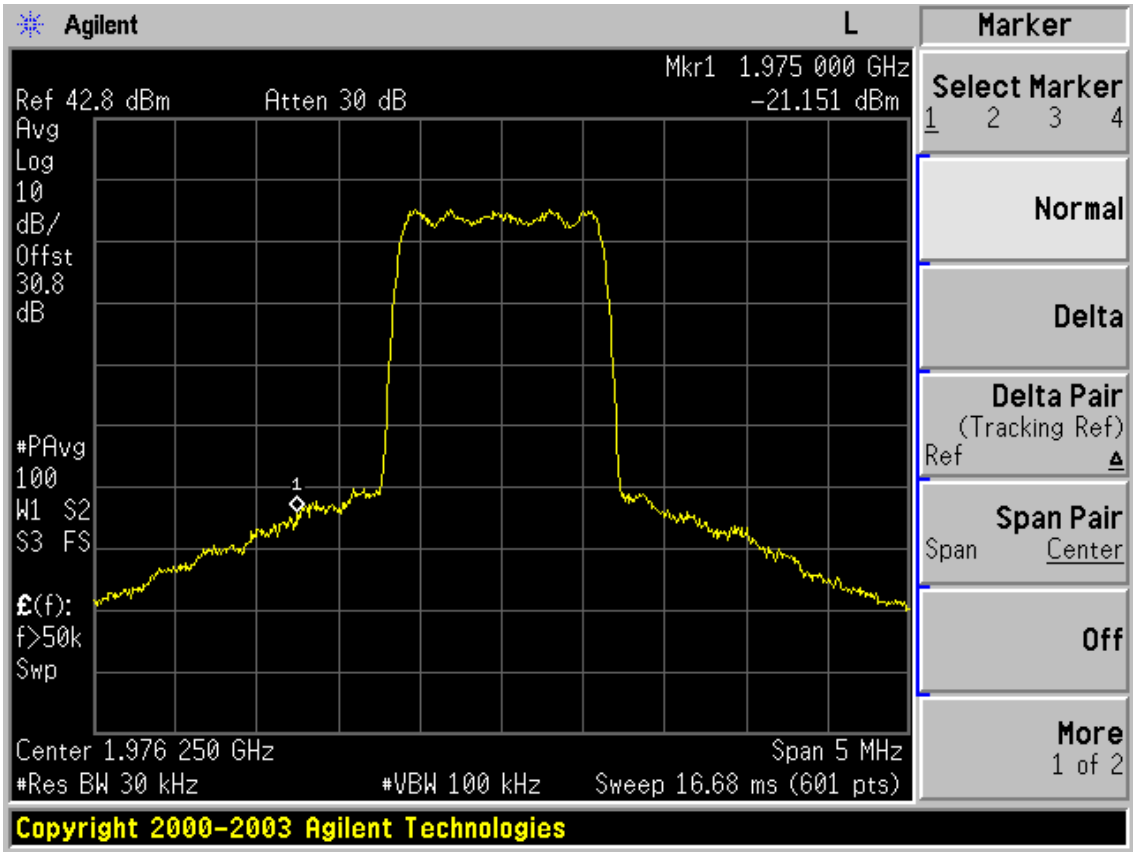
Channel 325(1946.25MHz)



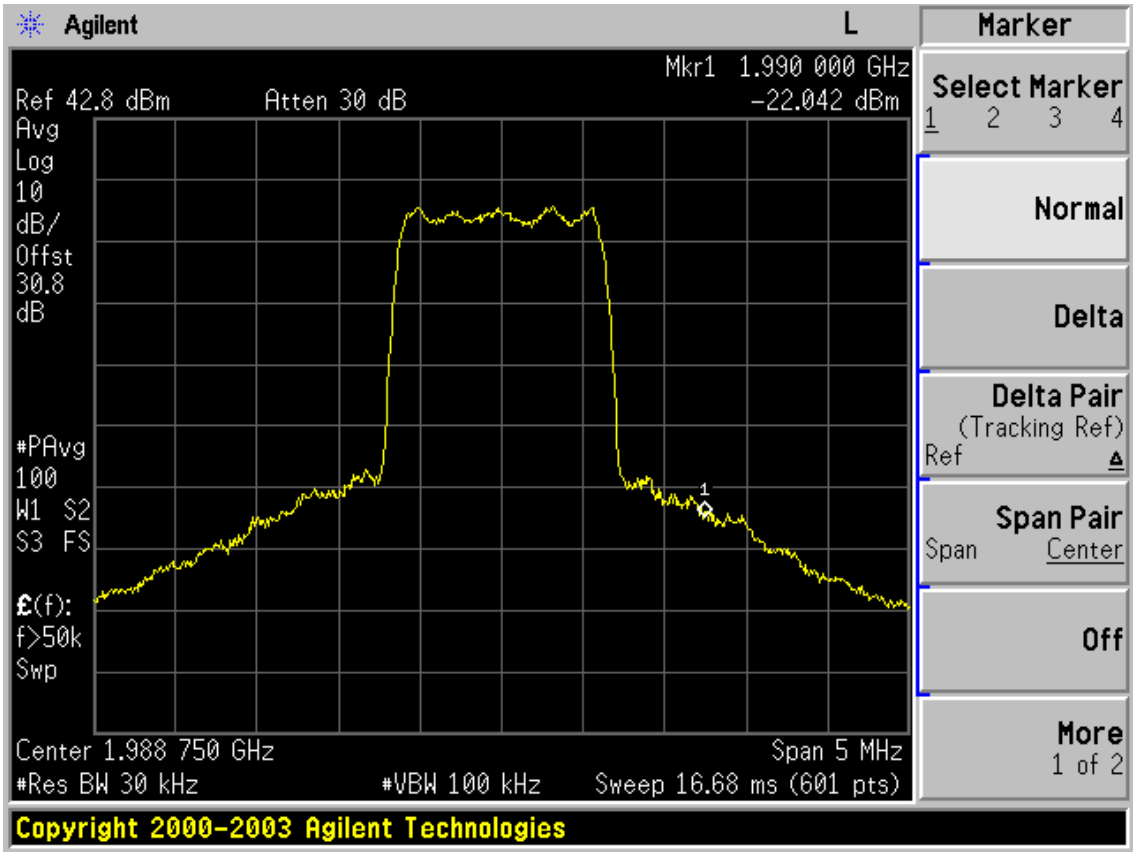
Channel 875(1973.75MHz)



Channel 925(1976.25MHz)

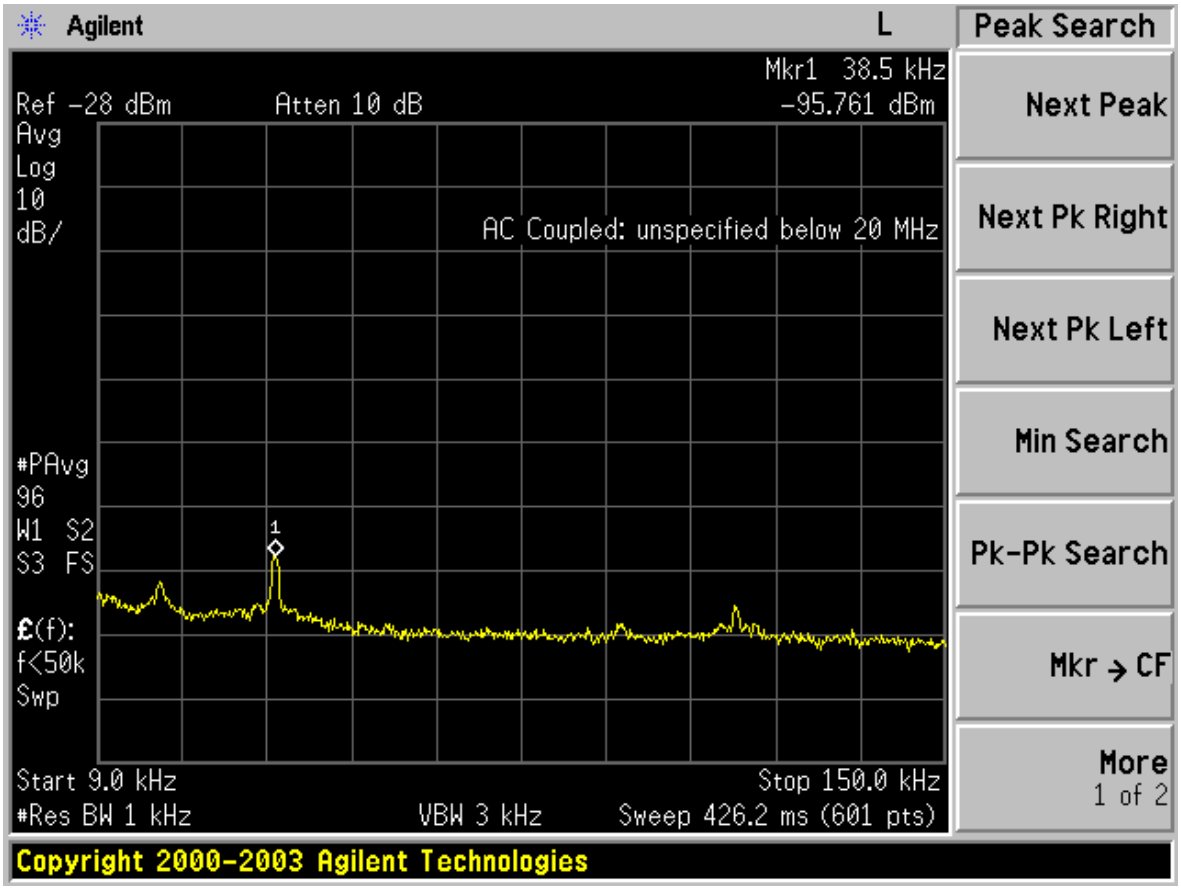


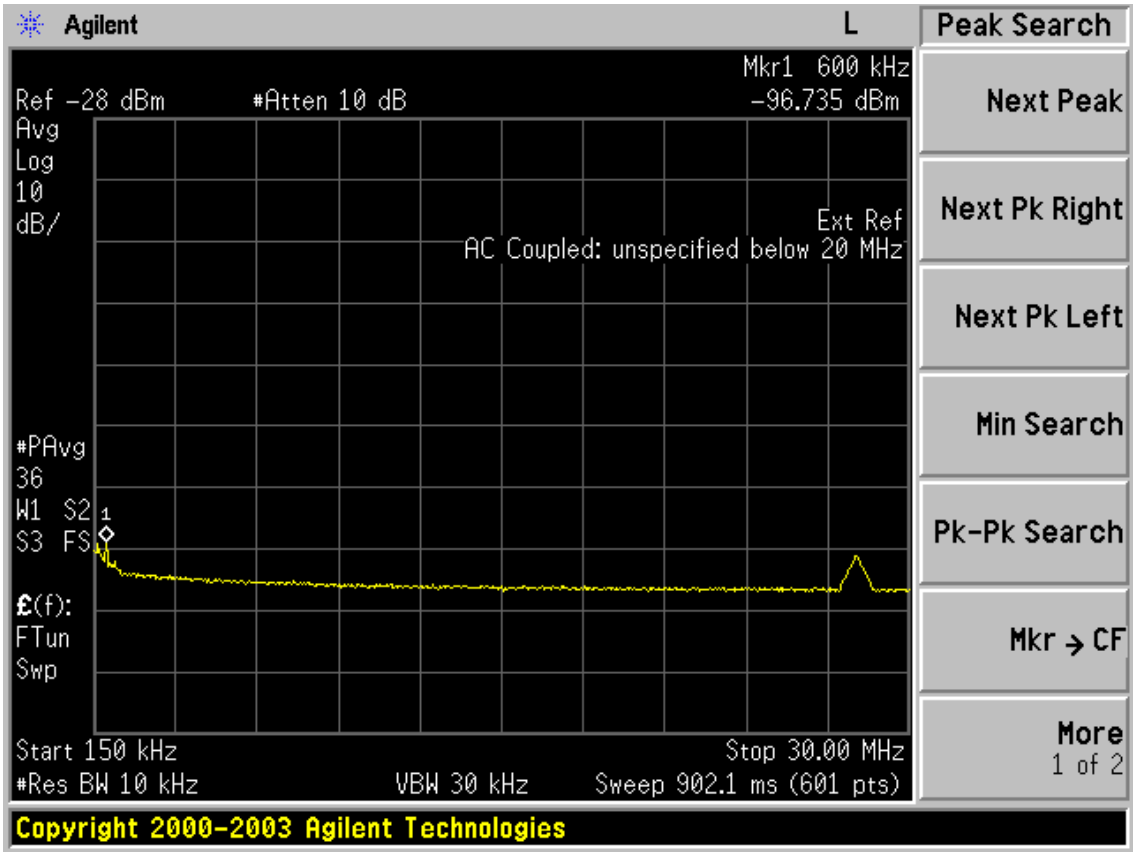
Channel 1175(1988.75MHz)

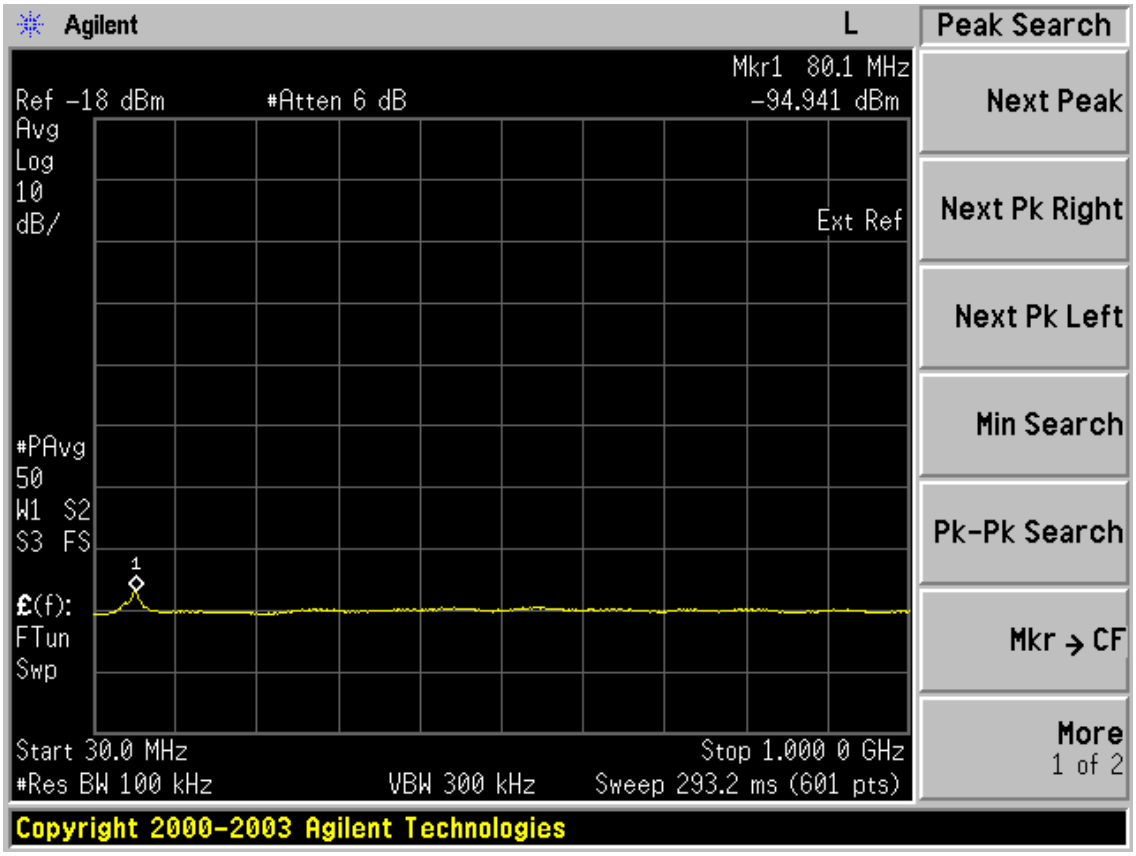


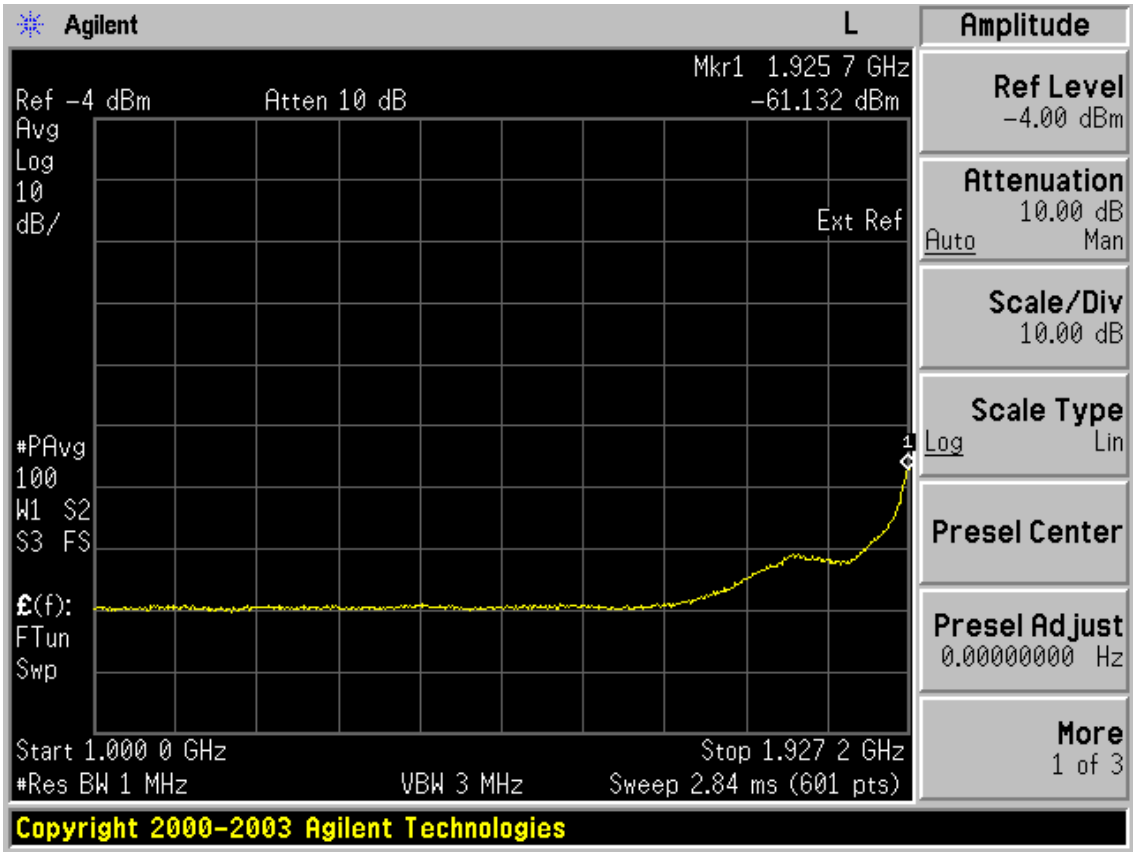
Measurement Result Outband Band Edge

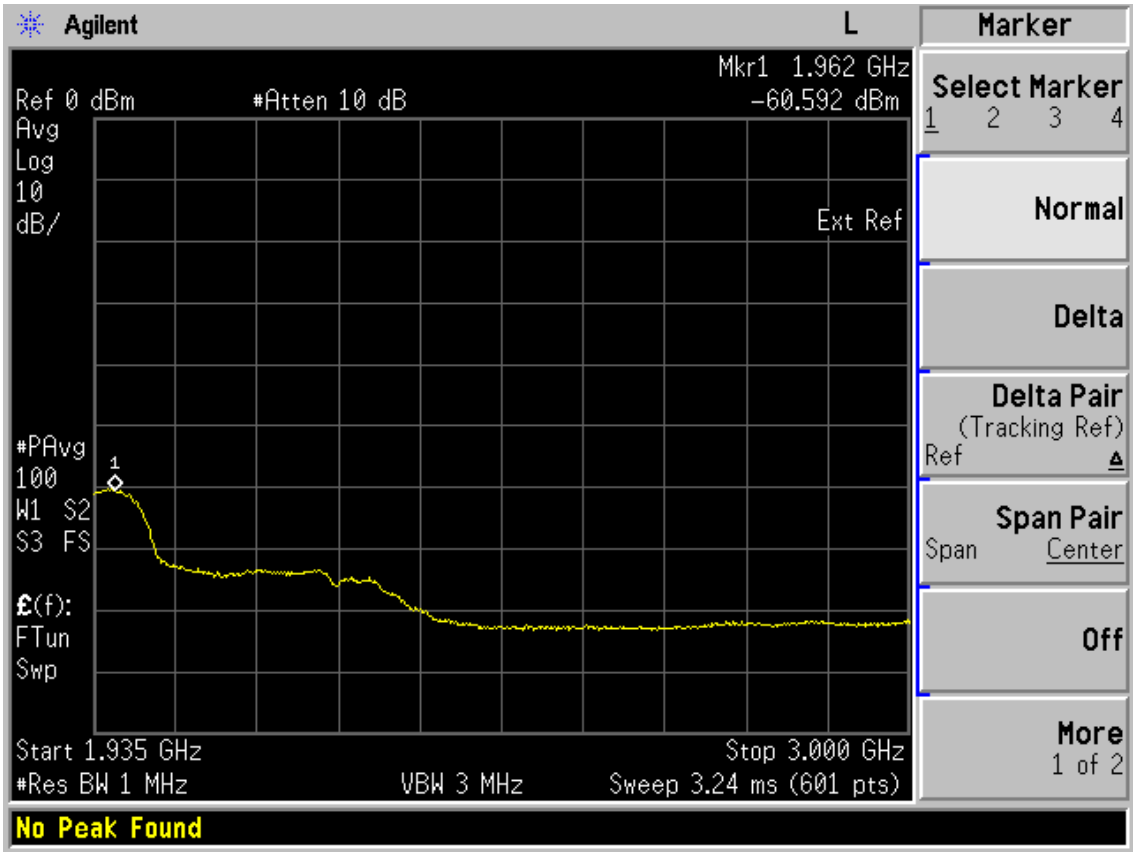
Channel 25

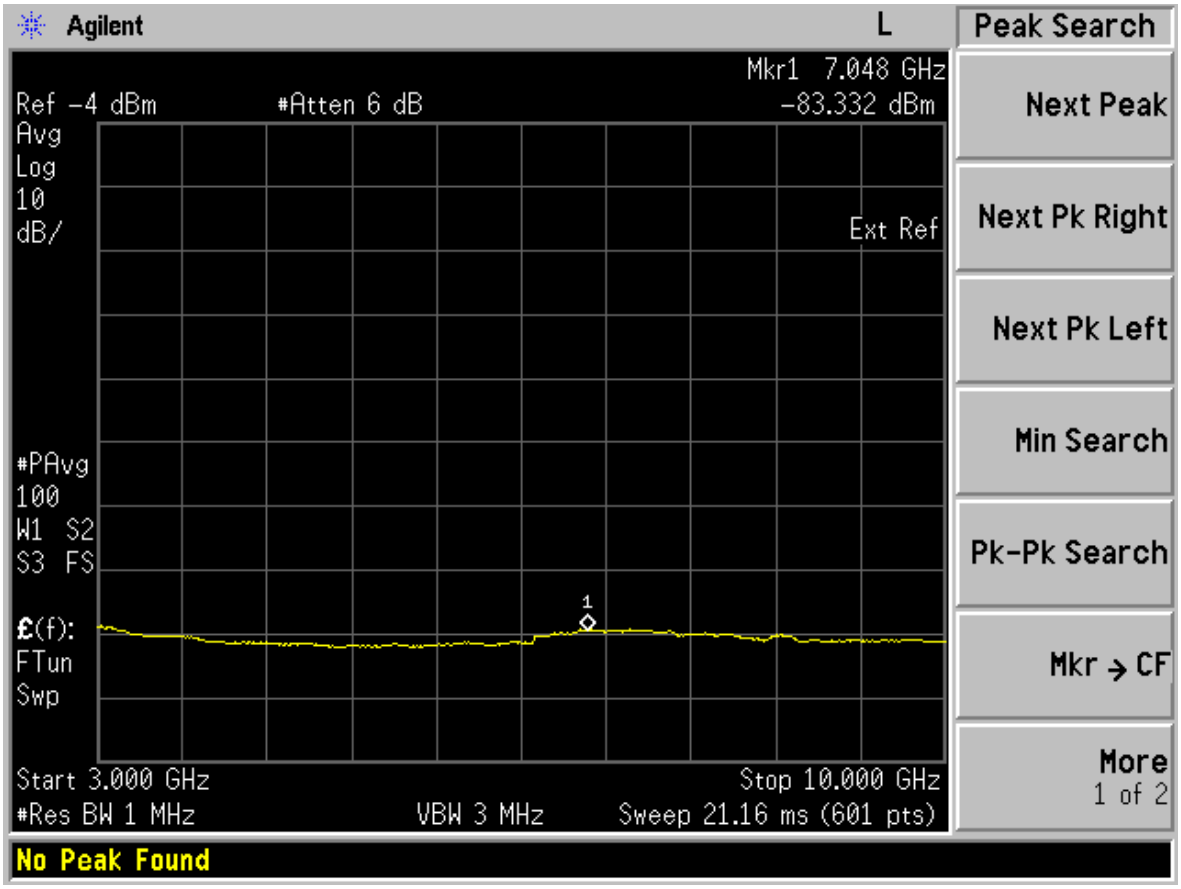


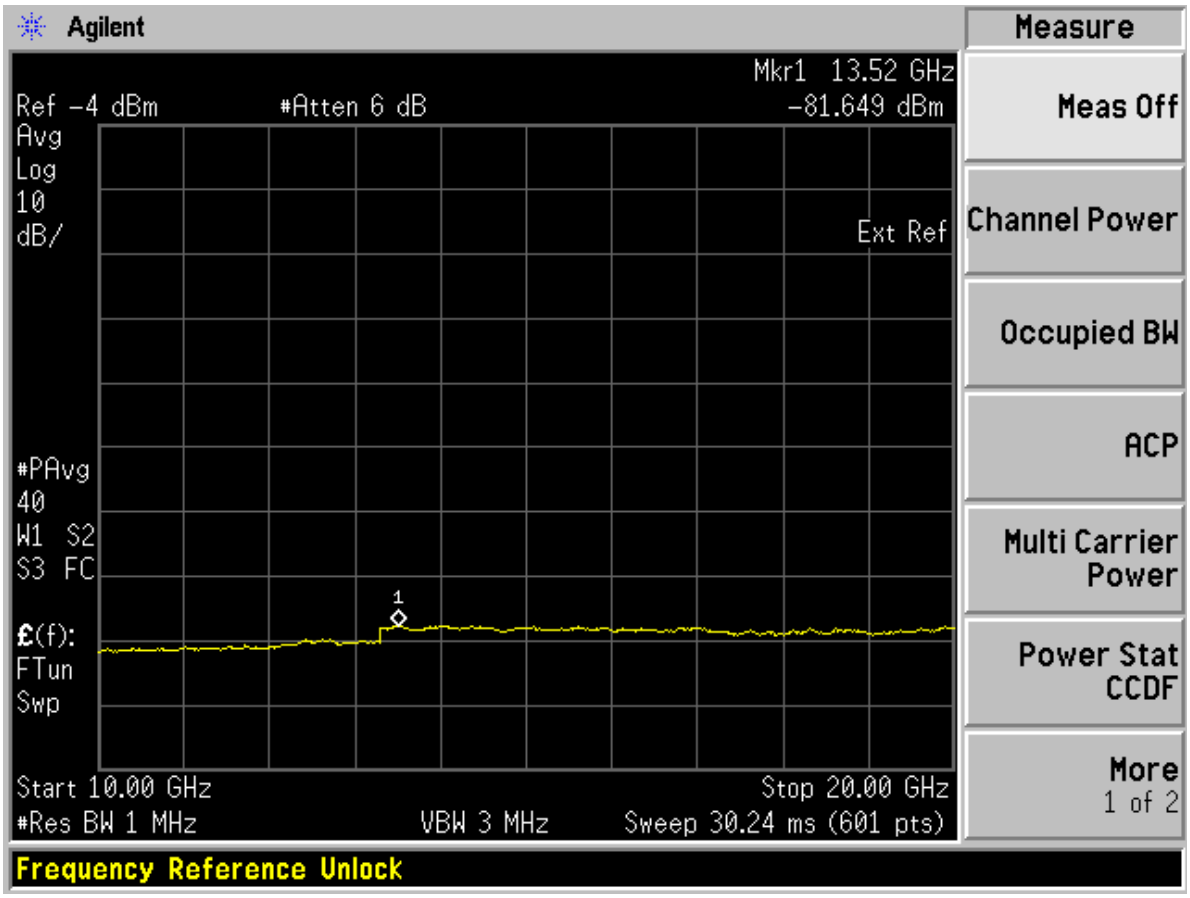

Agilent
L
Peak Search
Mkr1 600 kHz
Ref -28 dBm
#Atten 10 dB
-96.735 dBm
Next Peak
Avg
Log
10
dB/
Ext Ref
AC Coupled: unspecified below 20 MHz
Next Pk Right
Next Pk Left
Min Search
#PAvg
36
W1 S2
S3 FS
1
Pk-Pk Search
£(f):
FTun
Swp
Mkr → CF
More
1 of 2
Start 150 kHz
Stop 30.00 MHz
#Res BW 10 kHz
VBW 30 kHz
Sweep 902.1 ms (601 pts)
Copyright 2000-2003 Agilent Technologies


Agilent
L
Peak Search
Mkr1 80.1 MHz
Ref -18 dBm
#Atten 6 dB
-94.941 dBm
Next Peak
Avg
Log
10
dB/
Ext Ref
Next Pk Right
Next Pk Left
Min Search
#PAvg
50
W1 S2
S3 FS
Pk-Pk Search
£(f):
FTun
Swp
Mkr → CF
More
1 of 2
Start 30.0 MHz
Stop 1.000 0 GHz
#Res BW 100 kHz
VBW 300 kHz
Sweep 293.2 ms (601 pts)
Copyright 2000-2003 Agilent Technologies

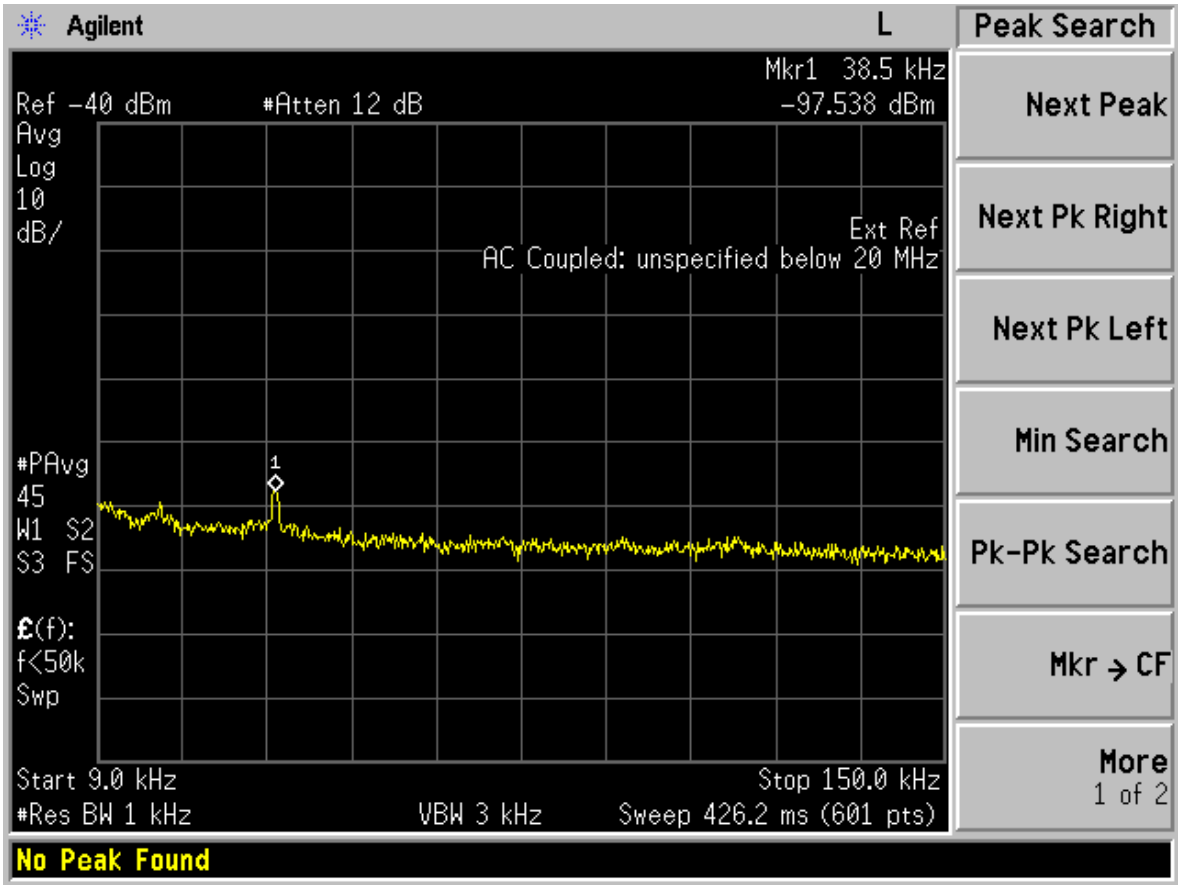

Agilent
L
Mkr1 1.925 7 GHz
Ref -4 dBm
Atten 10 dB
-61.132 dBm
Avg
Log
10
dB/
Ext Ref
#PAvg
100
W1 S2
S3 FS
£(f):
FTun
Swp
1
Start 1.000 0 GHz
Stop 1.927 2 GHz
#Res BW 1 MHz
VBW 3 MHz
Sweep 2.84 ms (601 pts)
Amplitude
Ref Level
-4.00 dBm
Attenuation
10.00 dB
Auto
Man
Scale/Div
10.00 dB
Scale Type
Log
Lin
Presel Center
Presel Adjust
0.00000000 Hz
More
1 of 3
Copyright 2000-2003 Agilent Technologies

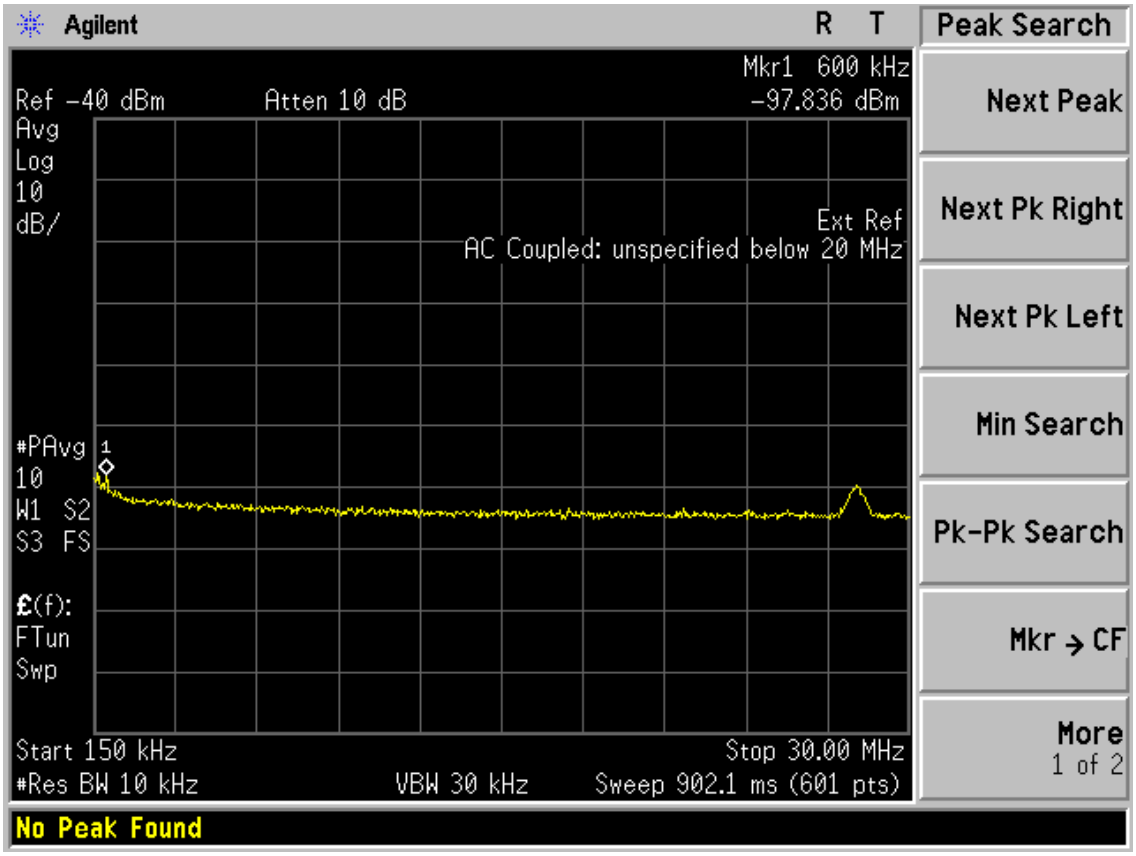

Agilent
L
Marker
Mkr1 1.962 GHz
Ref 0 dBm
#Atten 10 dB
-60.592 dBm
Avg
Log
10
dB/
Ext Ref
#PAvg
100
W1 S2
S3 FS
£(f):
FTun
Swp
Start 1.935 GHz
Stop 3.000 GHz
#Res BW 1 MHz
VBW 3 MHz
Sweep 3.24 ms (601 pts)
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2
No Peak Found

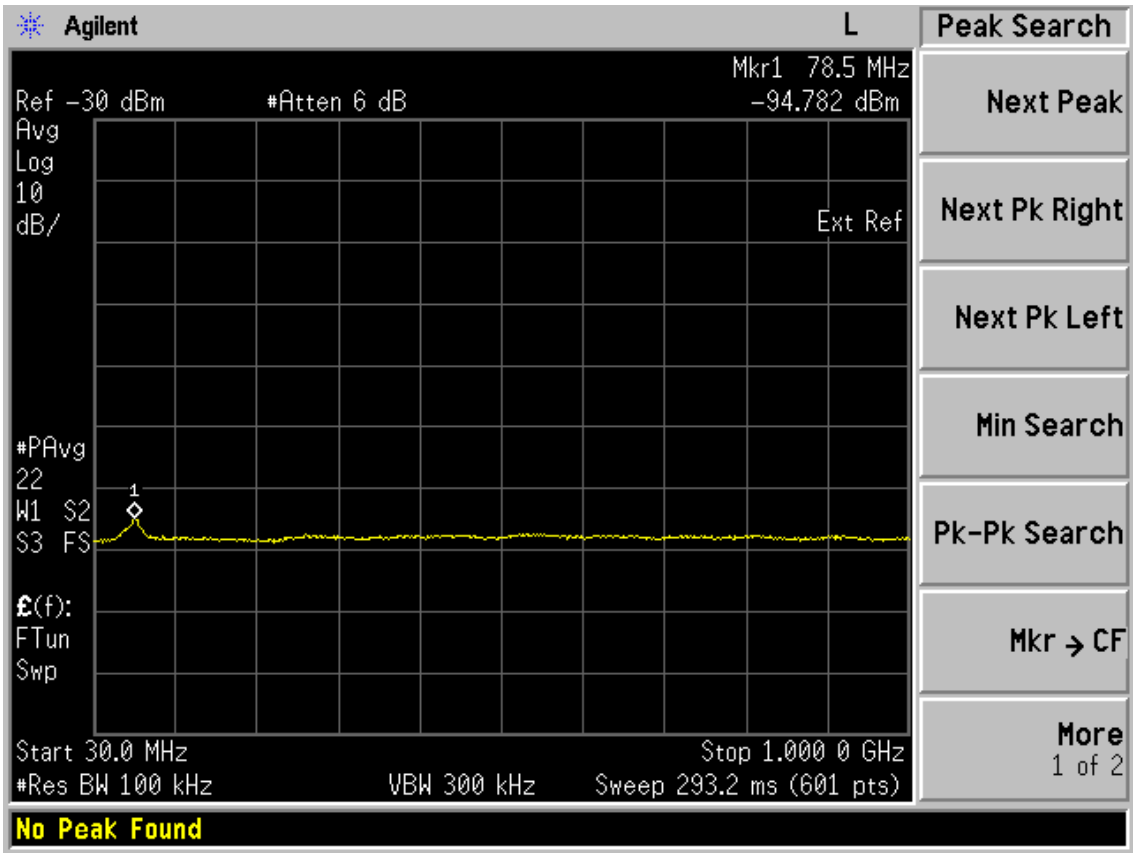

Agilent
L
Peak Search
Mkr1 7.048 GHz
Ref -4 dBm
#Atten 6 dB
-83.332 dBm
Next Peak
Avg
Log
10
dB/
Ext Ref
Next Pk Right
Next Pk Left
Min Search
#PAvg
100
W1 S2
S3 FS
Pk-Pk Search
£(f):
FTun
Swp
Mkr → CF
More
1 of 2
Start 3.000 GHz
Stop 10.000 GHz
#Res BW 1 MHz
VBW 3 MHz
Sweep 21.16 ms (601 pts)
No Peak Found

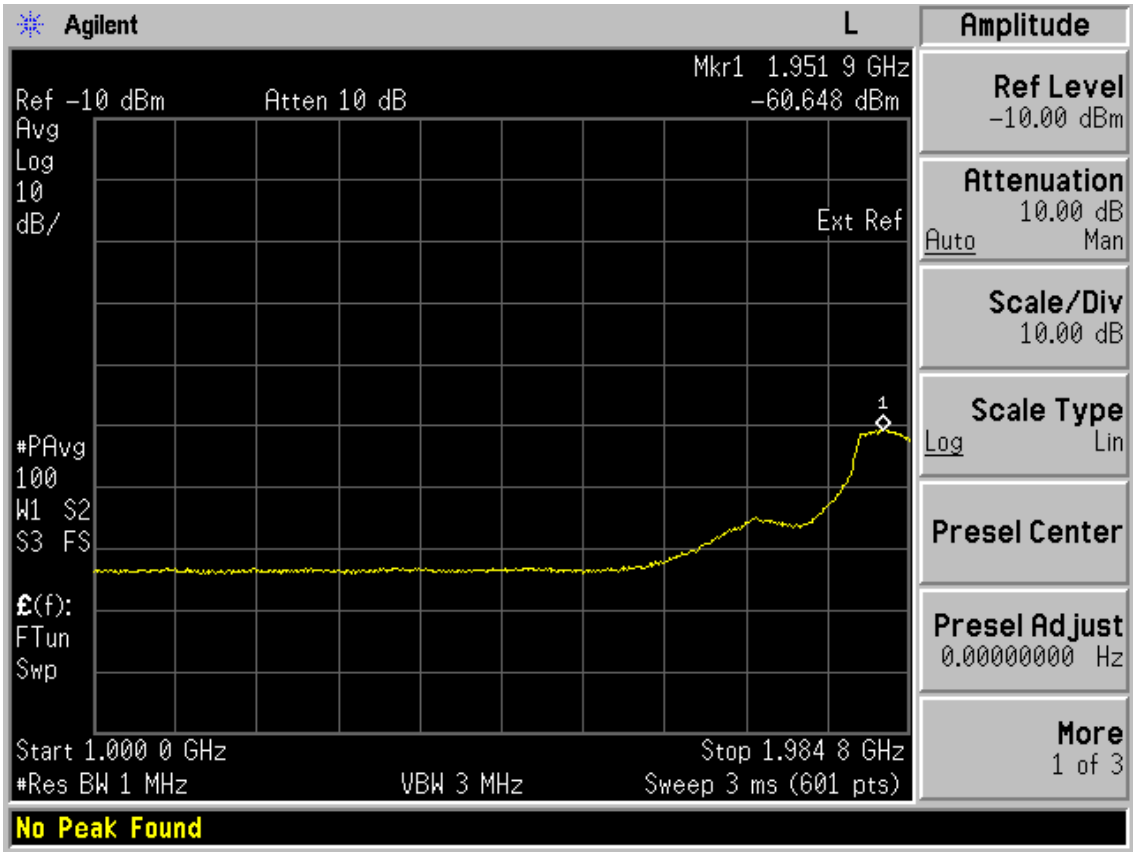

Agilent
Measure
Mkr1 13.52 GHz
Ref -4 dBm
#Atten 6 dB
-81.649 dBm
Avg
Log
10
dB/
Ext Ref
#PAvg
40
W1 S2
S3 FC
£(f):
FTun
Swp
1
Start 10.00 GHz
Stop 20.00 GHz
#Res BW 1 MHz
VBW 3 MHz
Sweep 30.24 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More
1 of 2
Frequency Reference Unlock

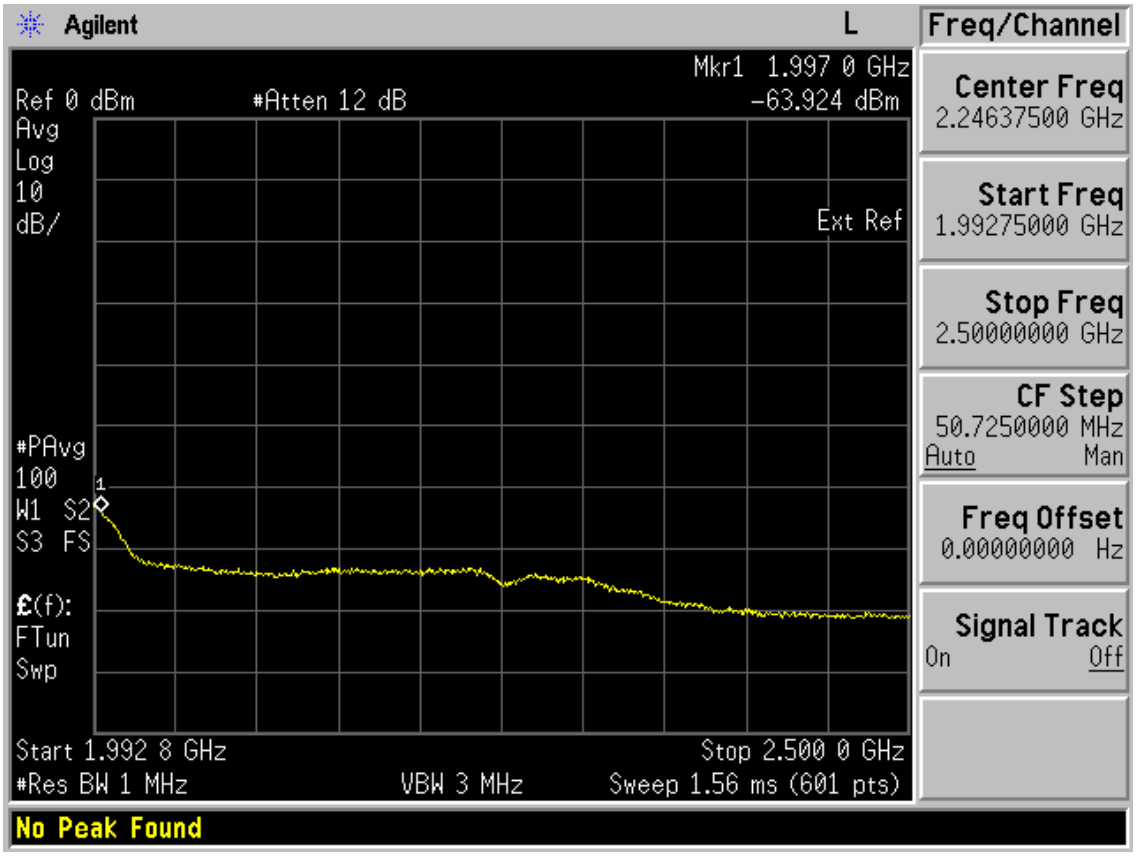
Channel 1175

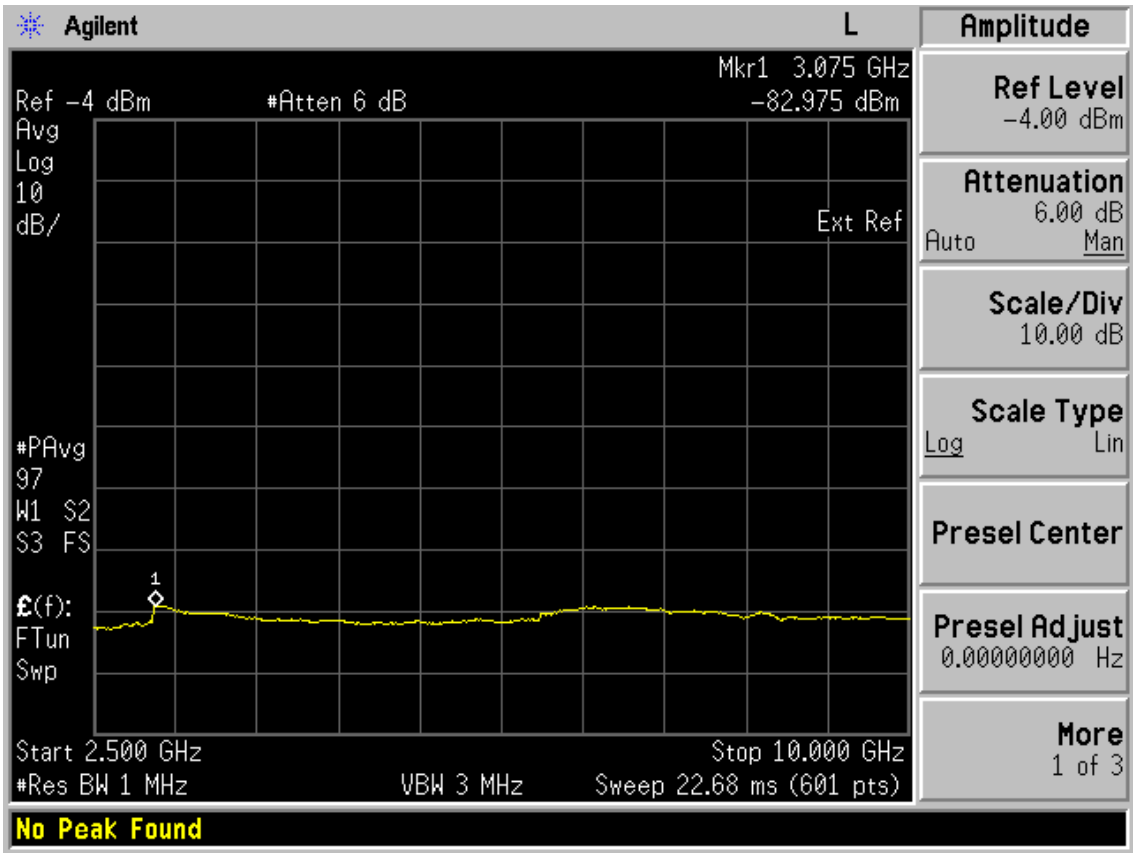


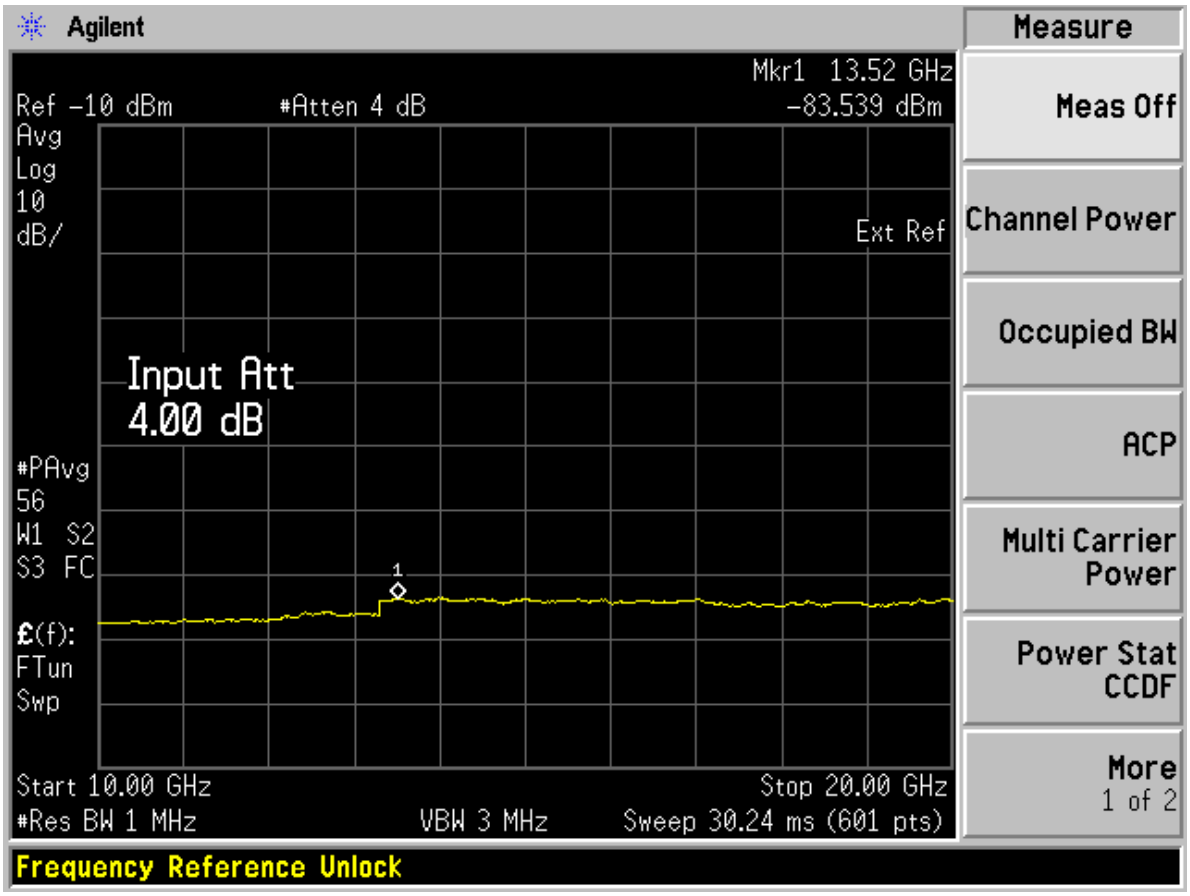

Agilent
R T
Peak Search
Mkr1 600 kHz
Ref -40 dBm
Atten 10 dB
-97.836 dBm
Next Peak
Avg
Log
10
dB/
Ext Ref
AC Coupled: unspecified below 20 MHz
Next Pk Right
Next Pk Left
Min Search
#PAvg
10
W1 S2
S3 FS
Pk-Pk Search
£(f):
FTun
Swp
Mkr → CF
More
1 of 2
Start 150 kHz
Stop 30.00 MHz
#Res BW 10 kHz
VBW 30 kHz
Sweep 902.1 ms (601 pts)
No Peak Found


Agilent
L
Peak Search
Mkr1 78.5 MHz
Ref -30 dBm
#Atten 6 dB
-94.782 dBm
Next Peak
Avg
Log
10
dB/
Ext Ref
Next Pk Right
Next Pk Left
Min Search
#PAvg
22
W1 S2
S3 FS
Pk-Pk Search
£(f):
FTun
Swp
Mkr → CF
More
1 of 2
Start 30.0 MHz
Stop 1.000 0 GHz
#Res BW 100 kHz
VBW 300 kHz
Sweep 293.2 ms (601 pts)
No Peak Found


Agilent
L
Amplitude
Mkr1 1.951 9 GHz
Ref -10 dBm
Atten 10 dB
-60.648 dBm
Avg
Log
10
dB/
Ext Ref
Ref Level
-10.00 dBm
Attenuation
10.00 dB
Auto
Man
Scale/Div
10.00 dB
Scale Type
Log
Lin
#PAvg
100
W1 S2
S3 FS
Presel Center
£(f):
FTun
Swp
Presel Adjust
0.00000000 Hz
More
1 of 3
Start 1.000 0 GHz
Stop 1.984 8 GHz
#Res BW 1 MHz
VBW 3 MHz
Sweep 3 ms (601 pts)
No Peak Found

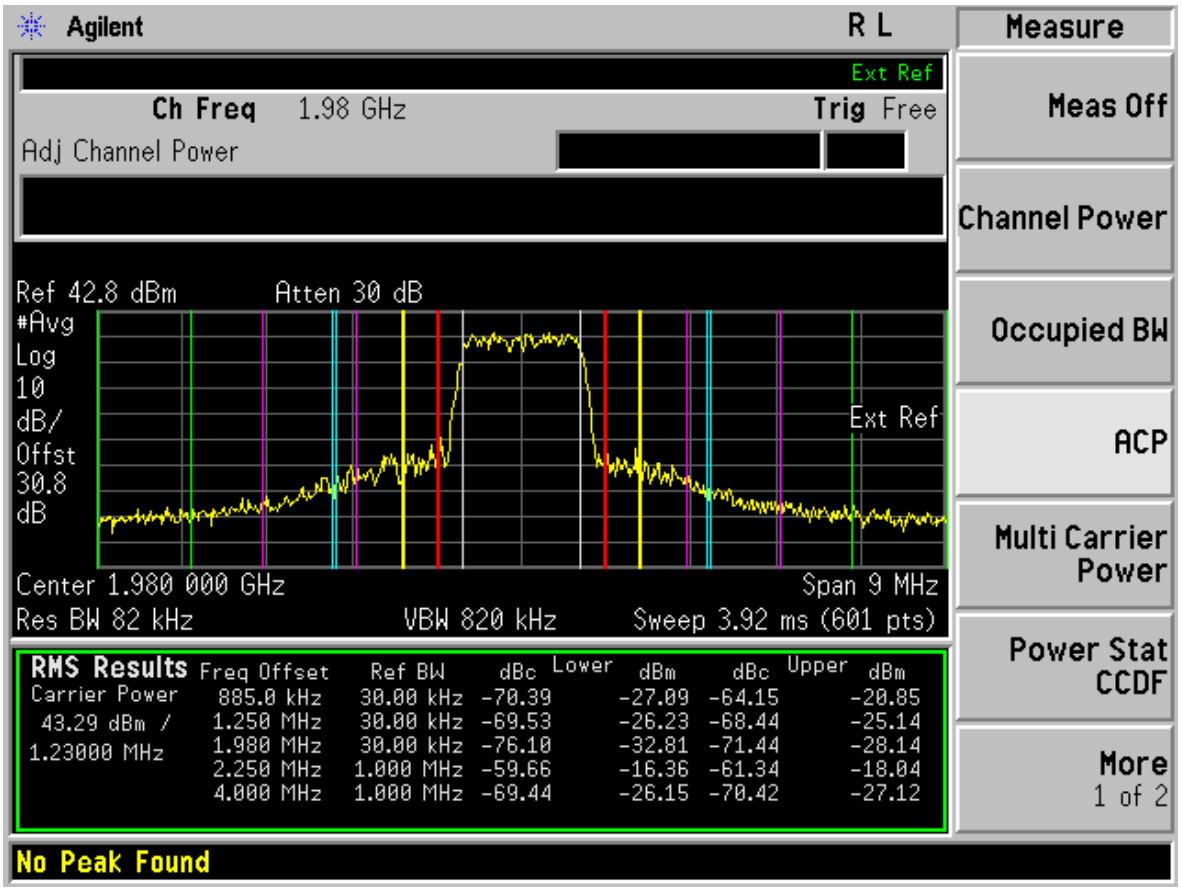

Agilent
L
Freq/Channel
Mkr1 1.997 0 GHz
Ref 0 dBm
#Atten 12 dB
-63.924 dBm
Avg
Log
10
dB/
Ext Ref
#PAvg
100
W1 S2
S3 FS
£(f):
FTun
Swp
Start 1.992 8 GHz
Stop 2.500 0 GHz
#Res BW 1 MHz
VBW 3 MHz
Sweep 1.56 ms (601 pts)
Center Freq
2.24637500 GHz
Start Freq
1.99275000 GHz
Stop Freq
2.50000000 GHz
CF Step
50.7250000 MHz
Auto
Man
Freq Offset
0.00000000 Hz
Signal Track
On
Off
No Peak Found

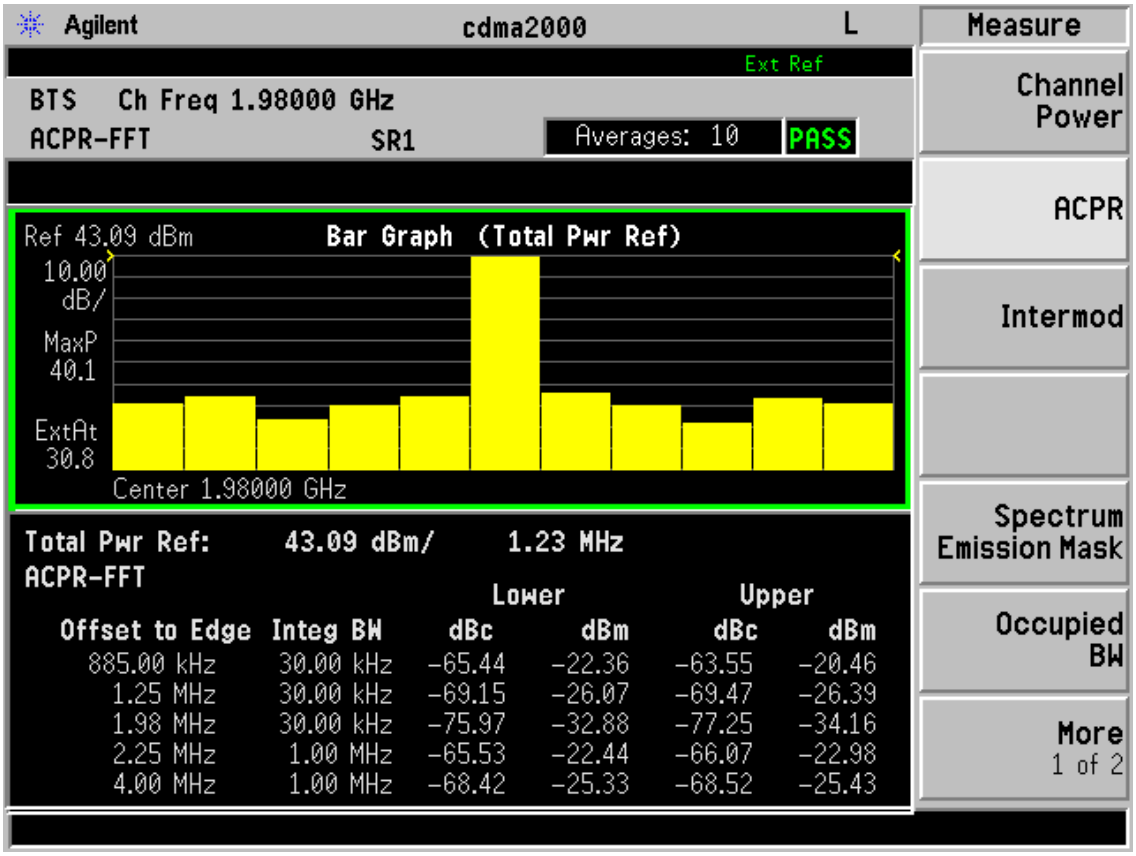

Agilent
L
Amplitude
Mkr1 3.075 GHz
Ref -4 dBm
#Atten 6 dB
-82.975 dBm
Avg
Log
10
dB/
Ext Ref
Ref Level
-4.00 dBm
Attenuation
6.00 dB
Auto
Man
Scale/Div
10.00 dB
Scale Type
Log
Lin
#PAvg
97
W1 S2
S3 FS
Presel Center
1
£(f):
FTun
Swp
Presel Adjust
0.00000000 Hz
More
1 of 3
Start 2.500 GHz
Stop 10.000 GHz
#Res BW 1 MHz
VBW 3 MHz
Sweep 22.68 ms (601 pts)
No Peak Found


Agilent
Measure
Mkr1 13.52 GHz
Ref -10 dBm
#Atten 4 dB
-83.539 dBm
Avg
Log
10
dB/
Ext Ref
Input Att
4.00 dB
#PAvg
56
W1 S2
S3 FC
£(f):
FTun
Swp
Start 10.00 GHz
Stop 20.00 GHz
#Res BW 1 MHz
VBW 3 MHz
Sweep 30.24 ms (601 pts)
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More
1 of 2
Frequency Reference Unlock

ACPR Test according to EIA/TIA 97D-2001

Channel 1000



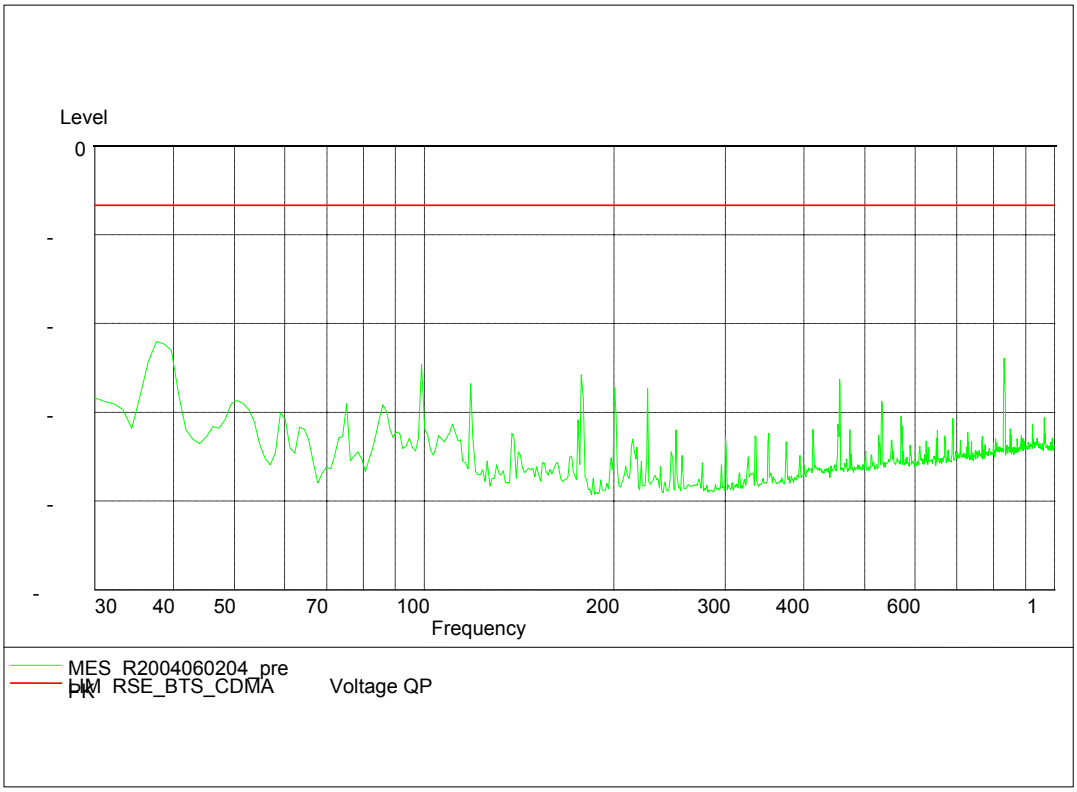

Agilent
cdma2000
L
Ext Ref
BTS Ch Freq 1.98000 GHz
ACPR-FFT
SR1
Averages: 10
PASS
Ref 43.09 dBm
Bar Graph (Total Pwr Ref)
10.00
dB/
MaxP
40.1
ExtAt
30.8
Center 1.98000 GHz
Total Pwr Ref: 43.09 dBm/ 1.23 MHz
ACPR-FFT
Lower
Upper
Offset to Edge Integ BW dBc dBm dBc dBm
885.00 kHz 30.00 kHz -65.44 -22.36 -63.55 -20.46
1.25 MHz 30.00 kHz -69.15 -26.07 -69.47 -26.39
1.98 MHz 30.00 kHz -75.97 -32.88 -77.25 -34.16
2.25 MHz 1.00 MHz -65.53 -22.44 -66.07 -22.98
4.00 MHz 1.00 MHz -68.42 -25.33 -68.52 -25.43
Measure
Channel Power
ACPR
Intermod
Spectrum Emission Mask
Occupied BW
More
1 of 2

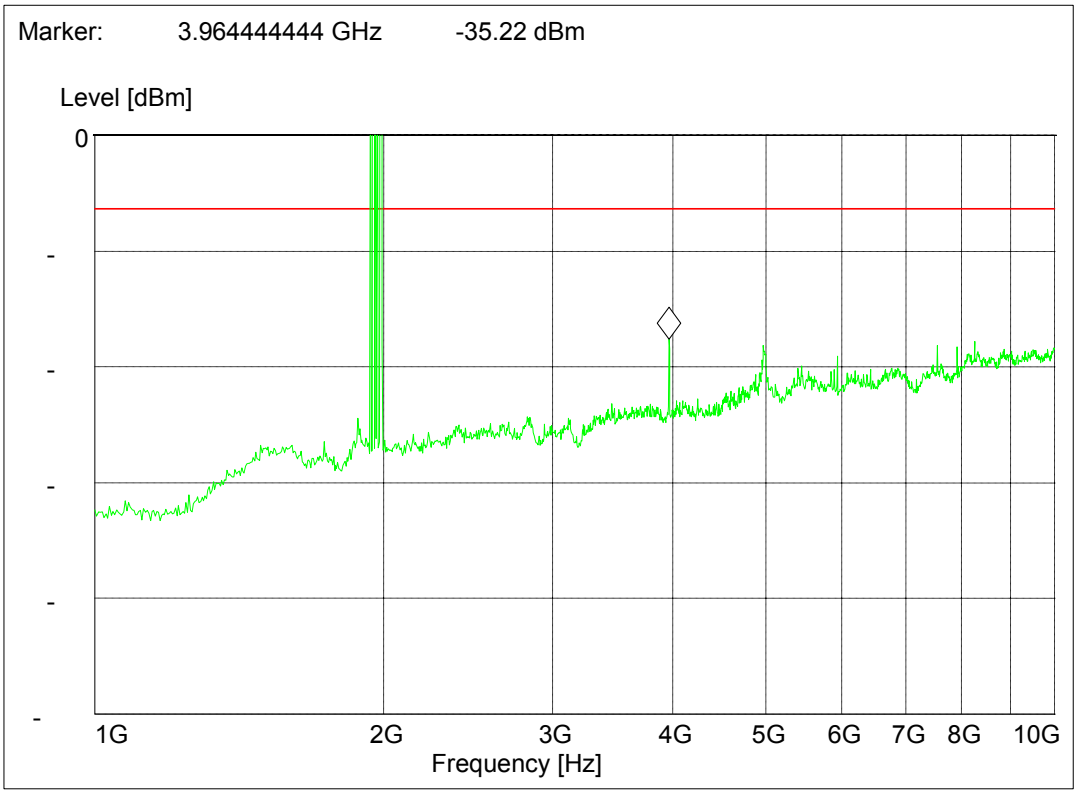
Appendix E
Field Strength of Spurious Radiation Measurements

According to CFR 47 (FCC) part 2.1053

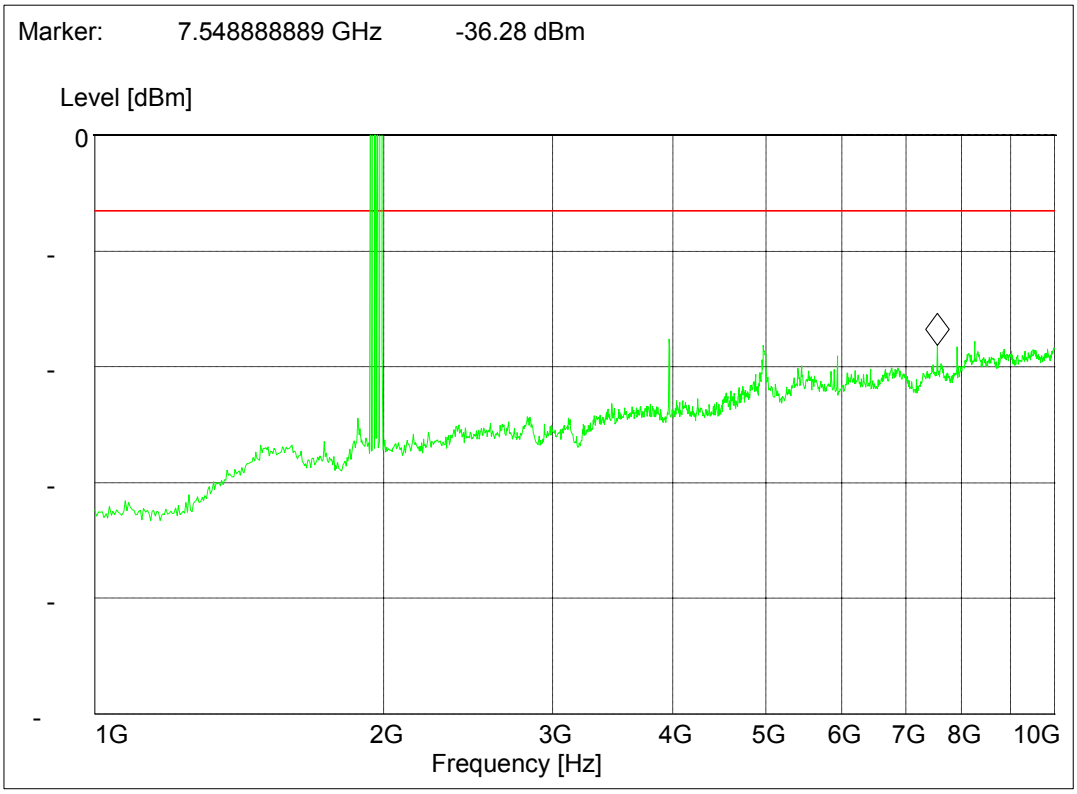
The Result of Spurious Radiation Test

1 carriers have been work normally. BTS work at frequency No.25(1931.25MHz), No.300(1945MHz), No.600(1960MHz), No.1000(1980MHz), No.1100(1985MHz), No.1175(1988.75MHz).

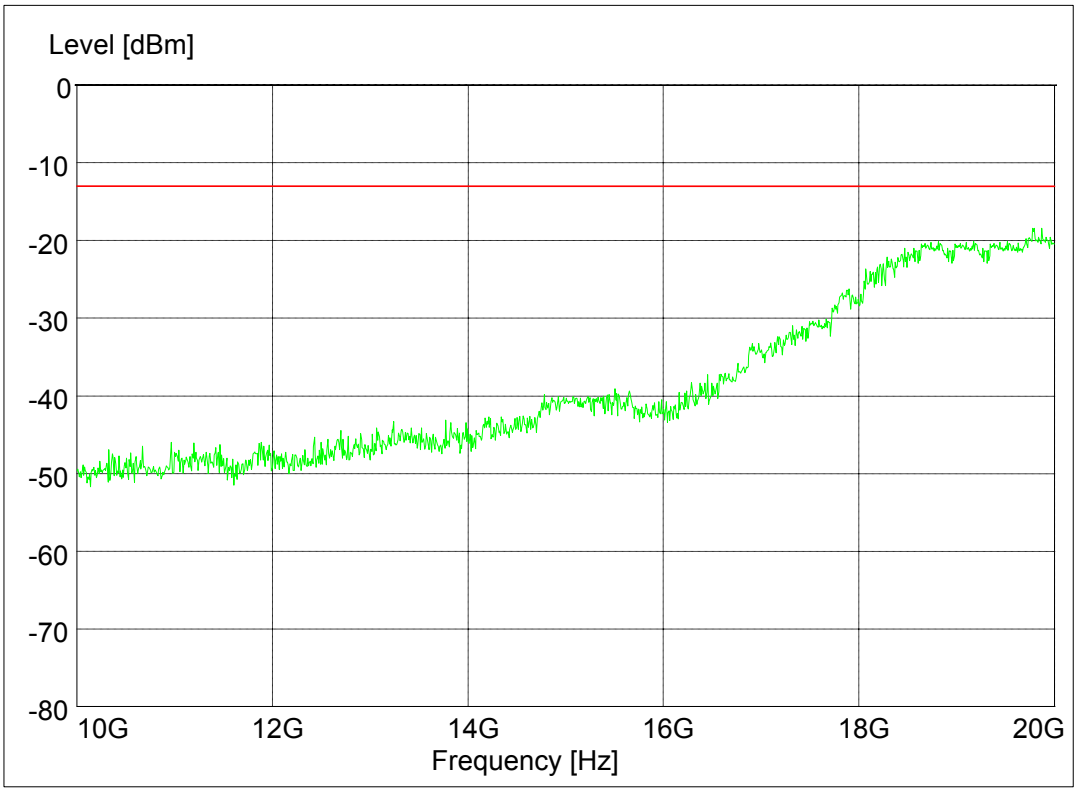




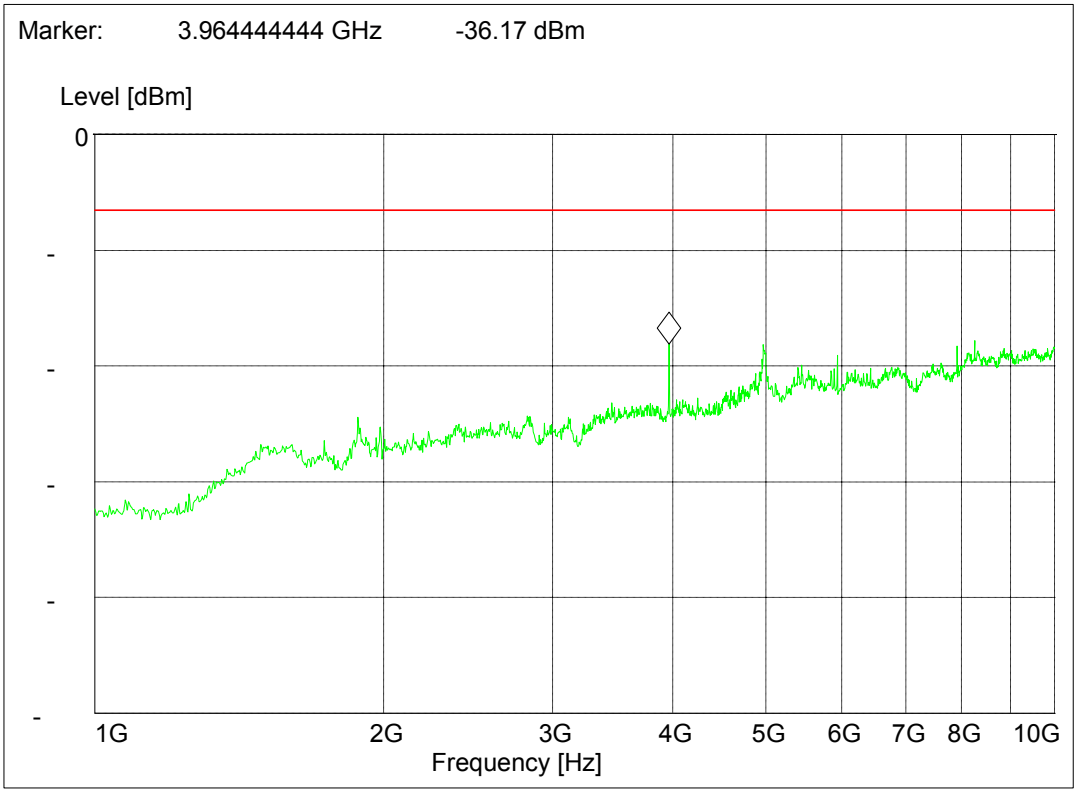
The point which excesses the limit line is the carrier frequency.

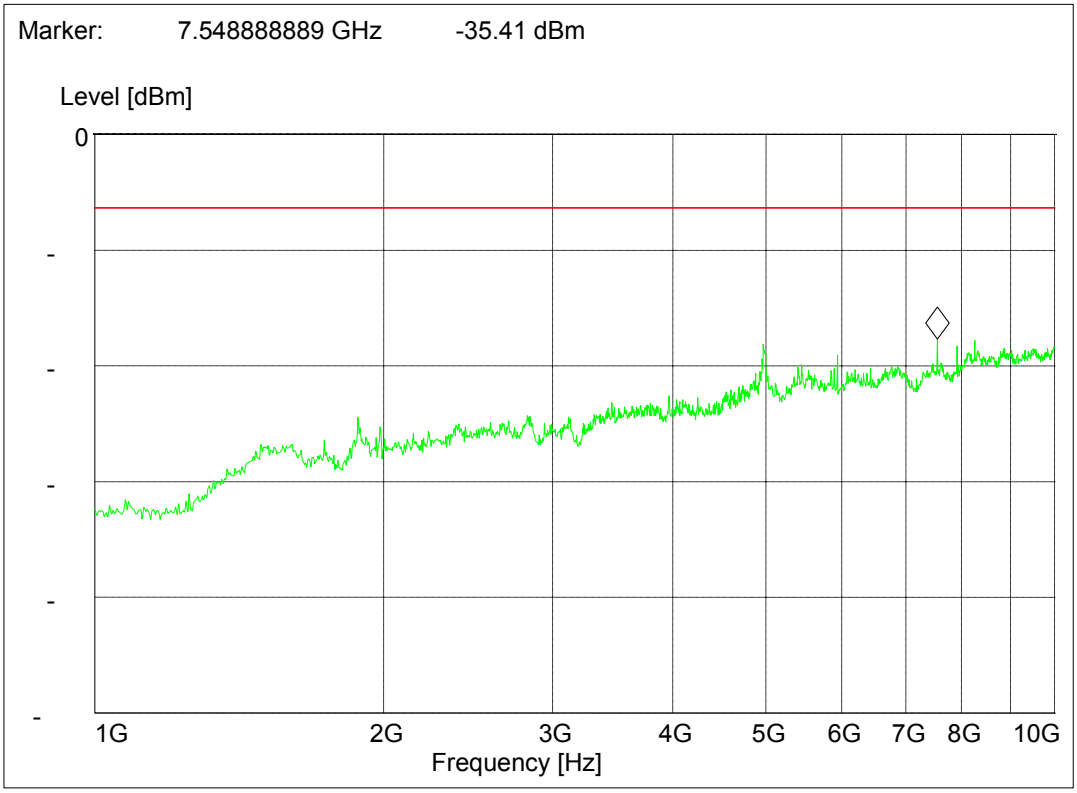


The point which excesses the limit line is the carrier frequency.


Level [dBm]
0
-10
-20
-30
-40
-50
-60
-70
-80
10G
12G
14G
16G
18G
20G
Frequency [Hz]

The Result of Substitute Test



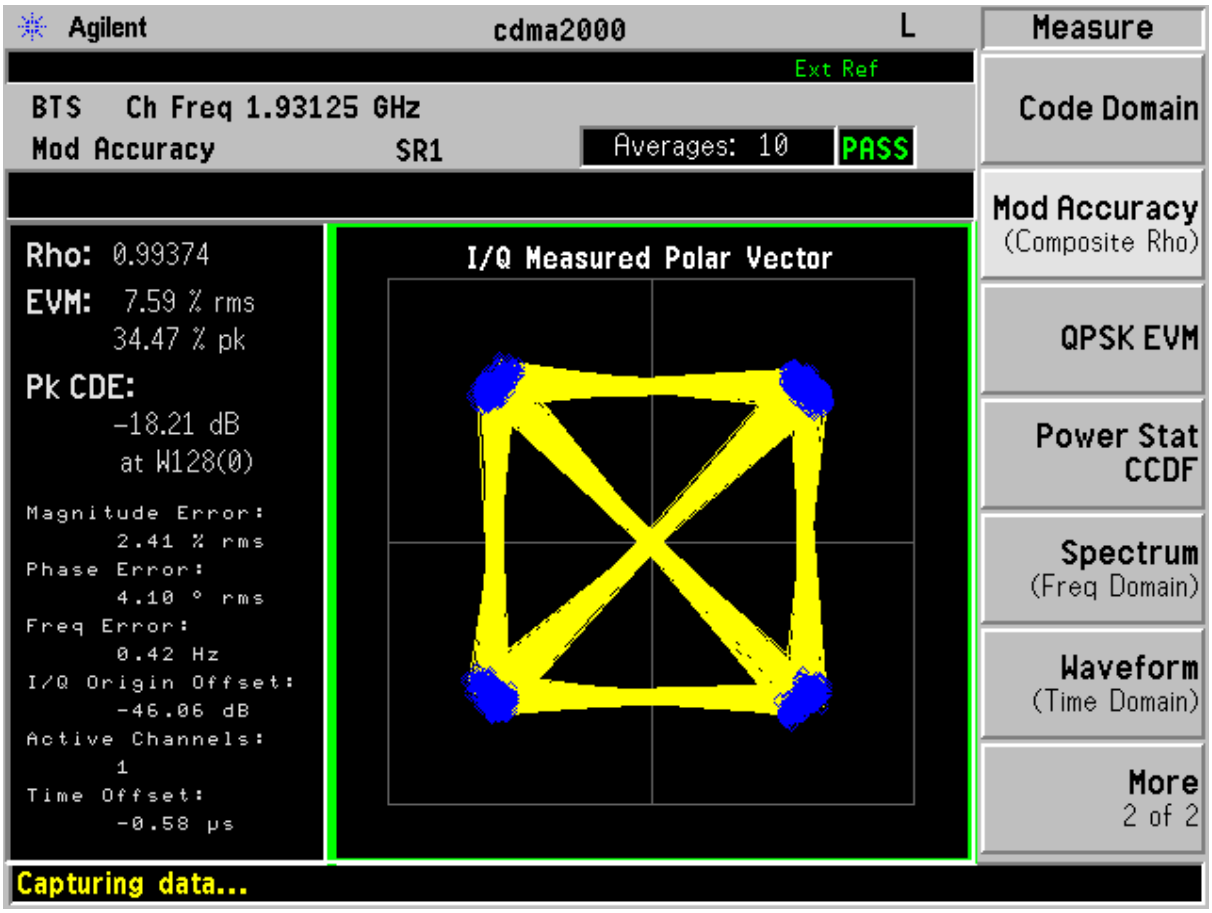

Marker: 7.548888889 GHz -35.41 dBm
Level [dBm]
0
-
-
-
-
-
1G
2G
3G
4G
5G
6G
7G
8G
10G
Frequency [Hz]

Appendix F
Frequency Stability Measurements
According to CFR 47 (FCC) part 2.1055

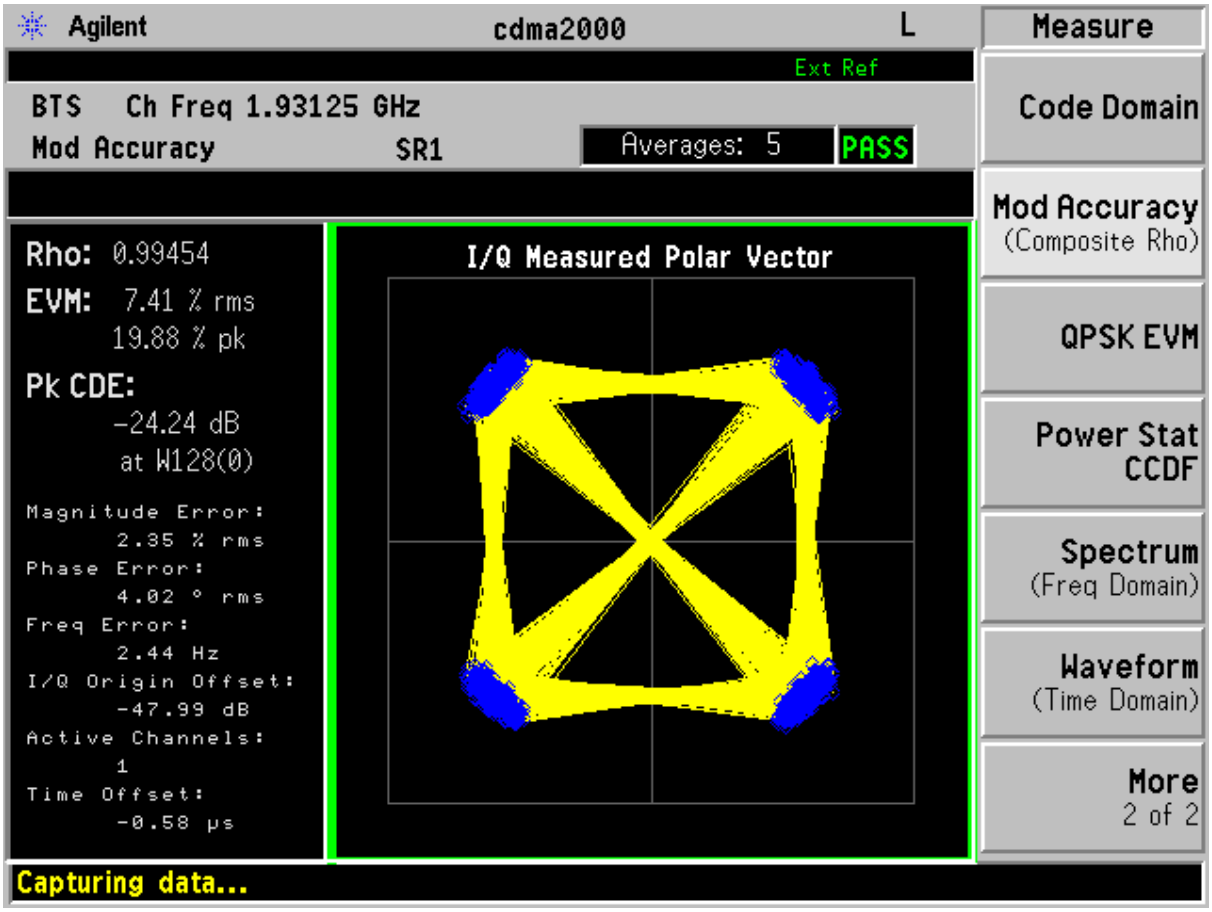
Frequency Stability versus Voltage

TRX1: Channel No. 25(1931.25MHz)

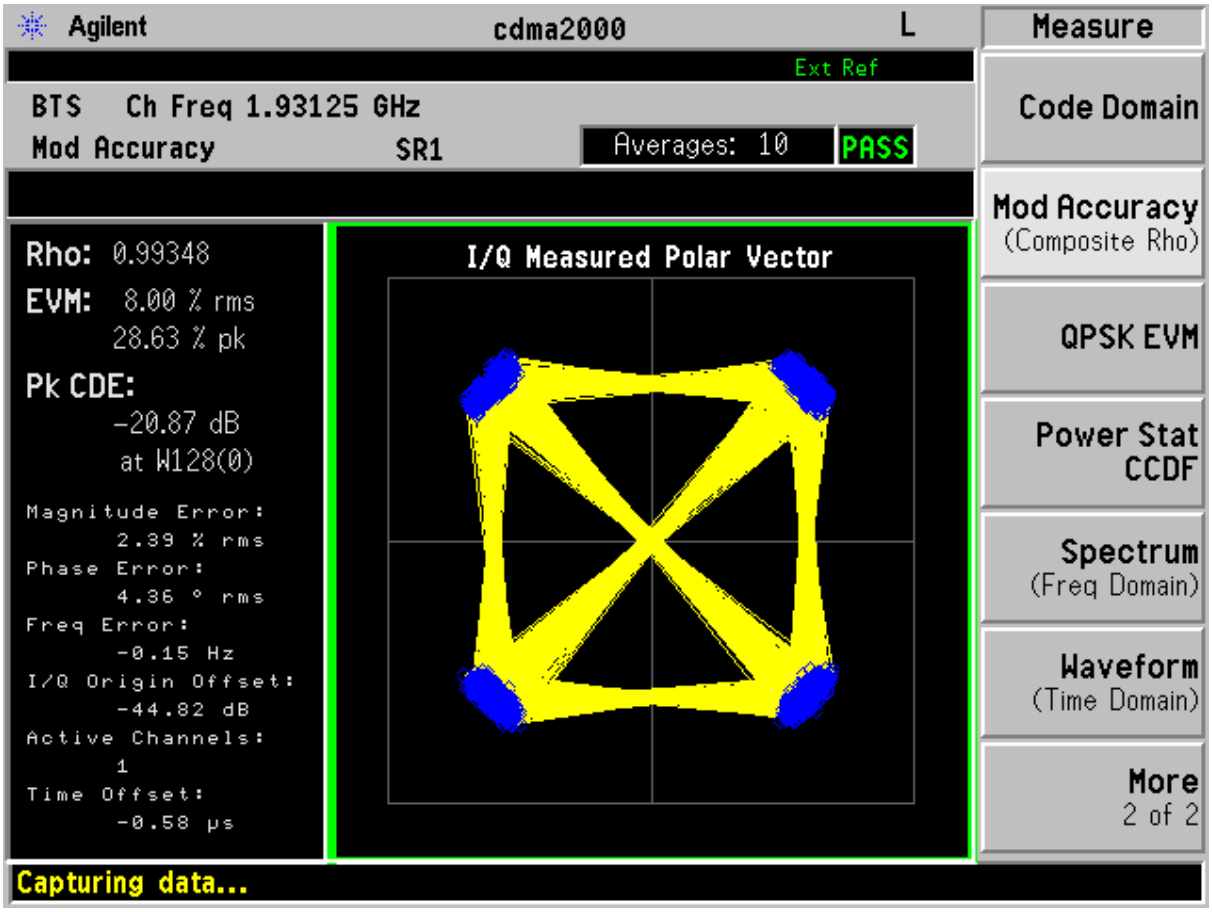
Voltage= -40.8V



Voltage= -48V

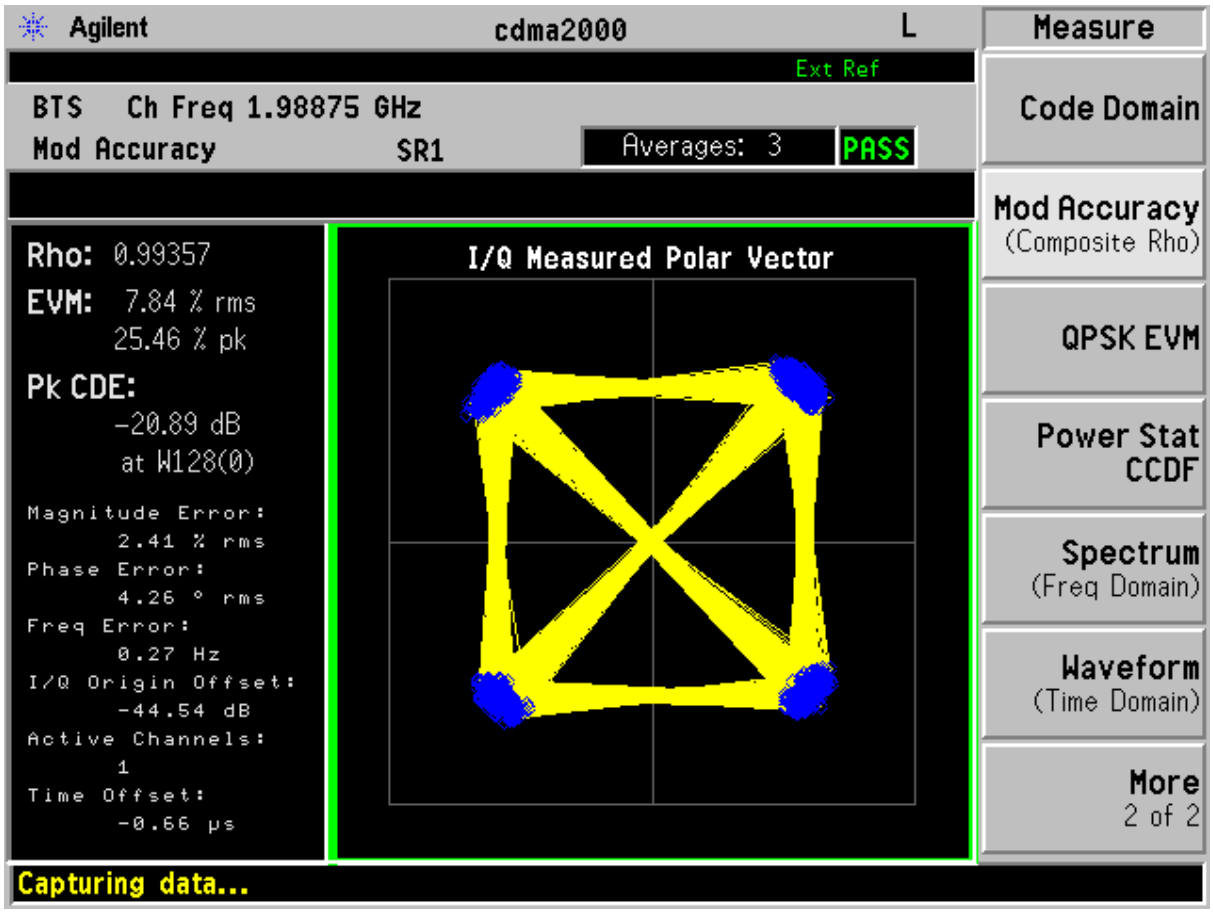

Agilent
cdma2000
L
Ext Ref
BTS Ch Freq 1.93125 GHz
Mod Accuracy
SR1
Averages: 5
PASS
Rho: 0.99454
EVM: 7.41 % rms
19.88 % pk
Pk CDE:
-24.24 dB
at W128(0)
Magnitude Error:
2.35 % rms
Phase Error:
4.02 ° rms
Freq Error:
2.44 Hz
I/Q Origin Offset:
-47.99 dB
Active Channels:
1
Time Offset:
-0.58 µs
I/Q Measured Polar Vector
Measure
Code Domain
Mod Accuracy
(Composite Rho)
QPSK EVM
Power Stat
CCDF
Spectrum
(Freq Domain)
Waveform
(Time Domain)
More
2 of 2
Capturing data...

Voltage= -55.2V

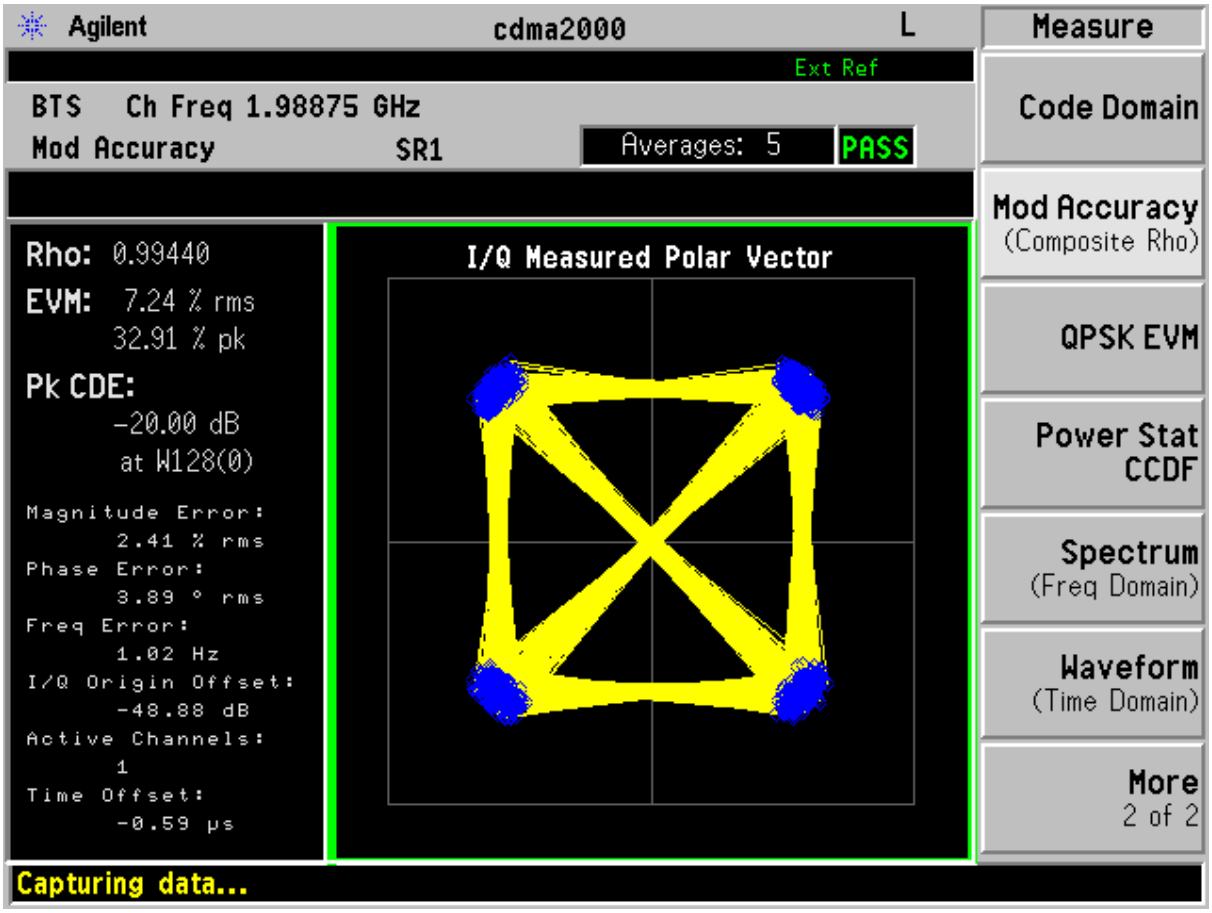


TRX2: Channel No. 1175(1988.75MHz)

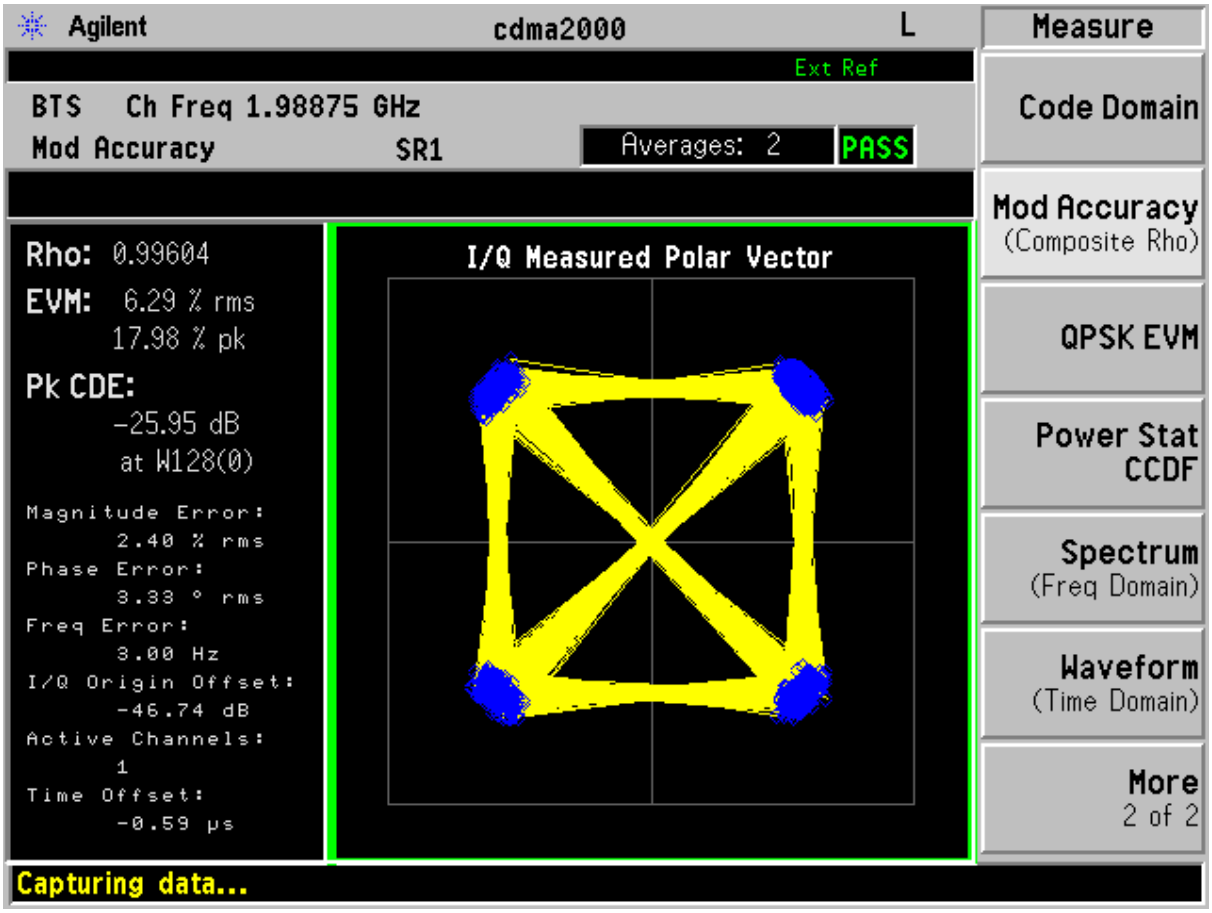
Voltage= -40.8V



Voltage= -48V


Agilent
cdma2000
L
Ext Ref
BTS Ch Freq 1.98875 GHz
Mod Accuracy
SR1
Averages: 5
PASS
Rho: 0.99440
EVM: 7.24 % rms
32.91 % pk
Pk CDE:
-20.00 dB
at W128(0)
Magnitude Error:
2.41 % rms
Phase Error:
3.89 ° rms
Freq Error:
1.02 Hz
I/Q Origin Offset:
-48.88 dB
Active Channels:
1
Time Offset:
-0.59 µs
I/Q Measured Polar Vector
Measure
Code Domain
Mod Accuracy
(Composite Rho)
QPSK EVM
Power Stat
CCDF
Spectrum
(Freq Domain)
Waveform
(Time Domain)
More
2 of 2
Capturing data...

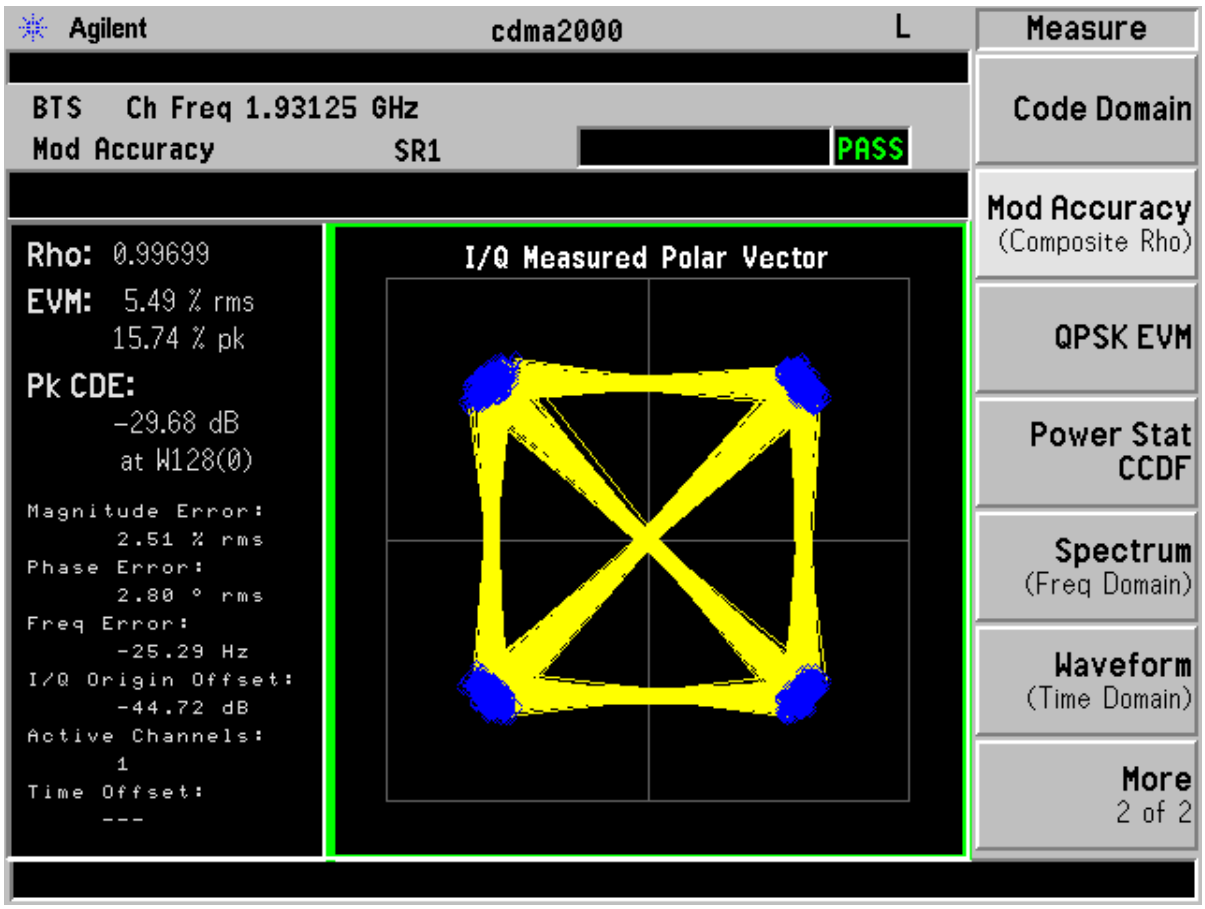
Voltage= -55.2V



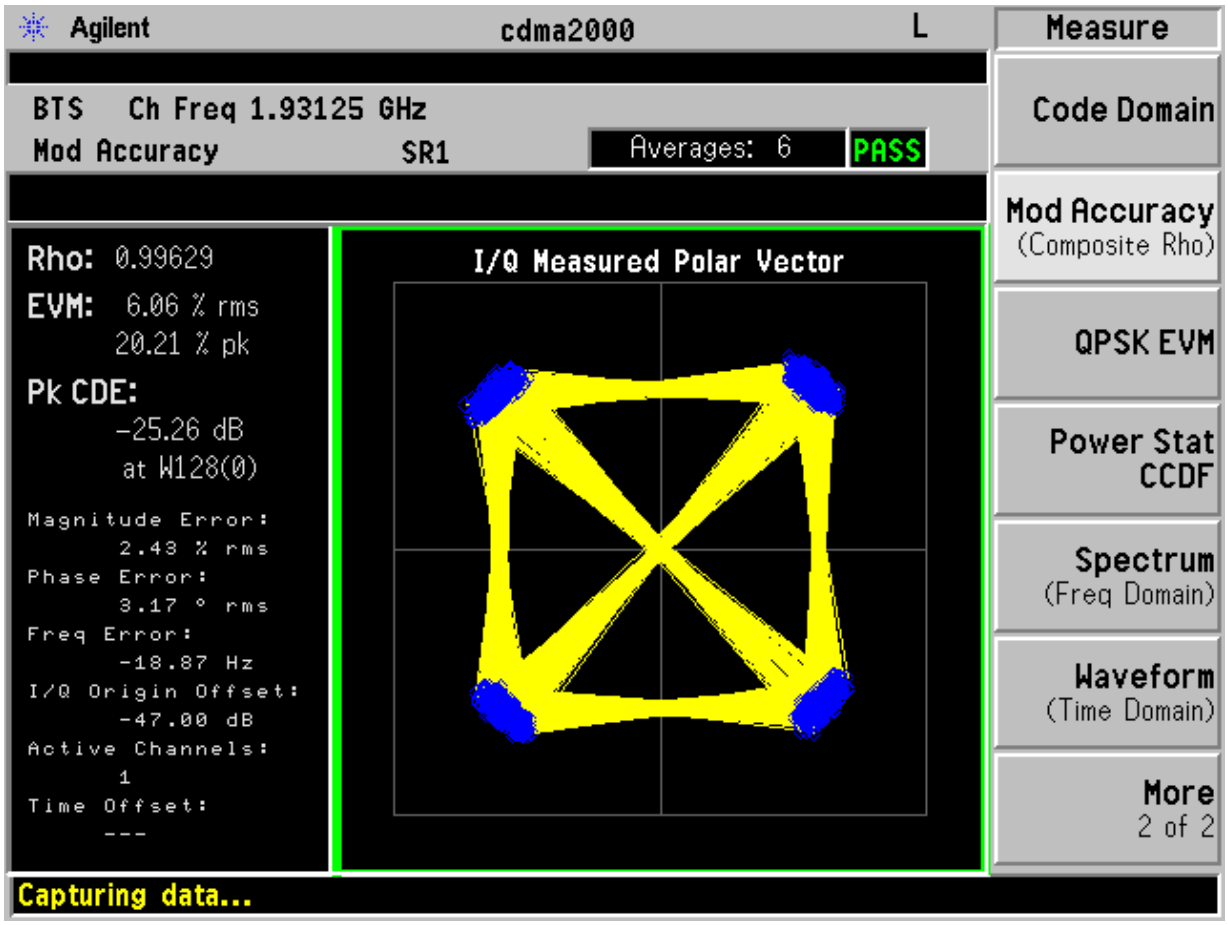
Frequency Stability versus Temperature

TRX1: Channel No. 25(1931.25MHz)

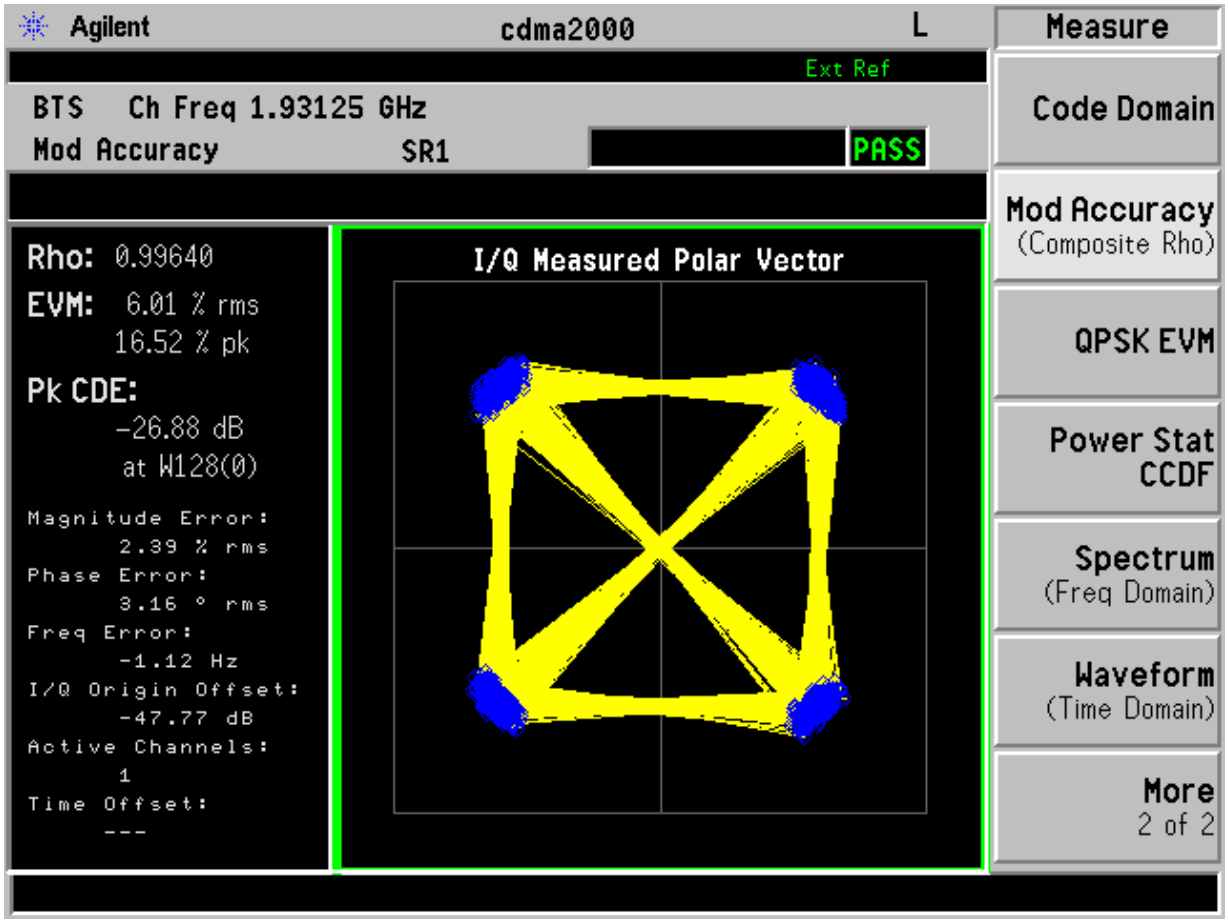
Temperature = - 30℃



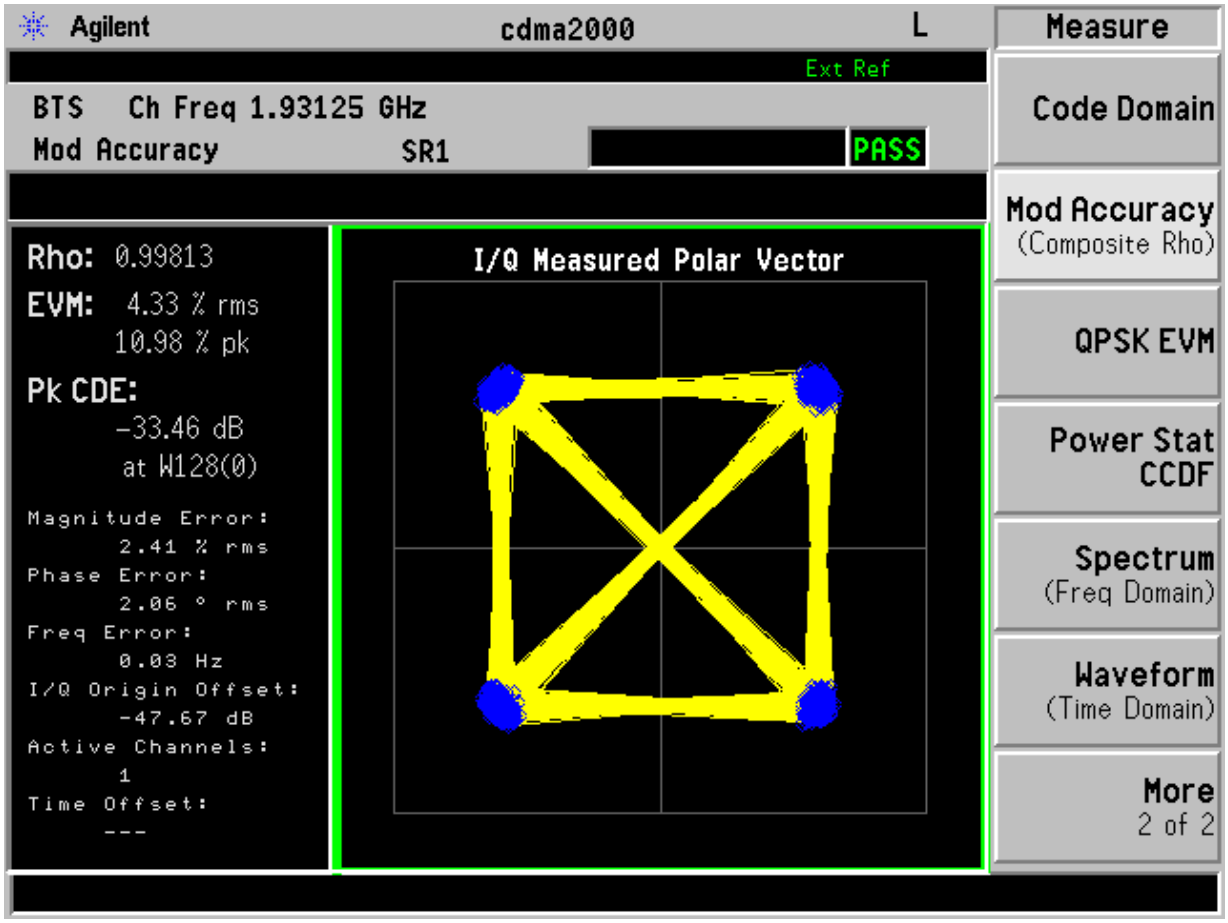
Temperature = - 20℃



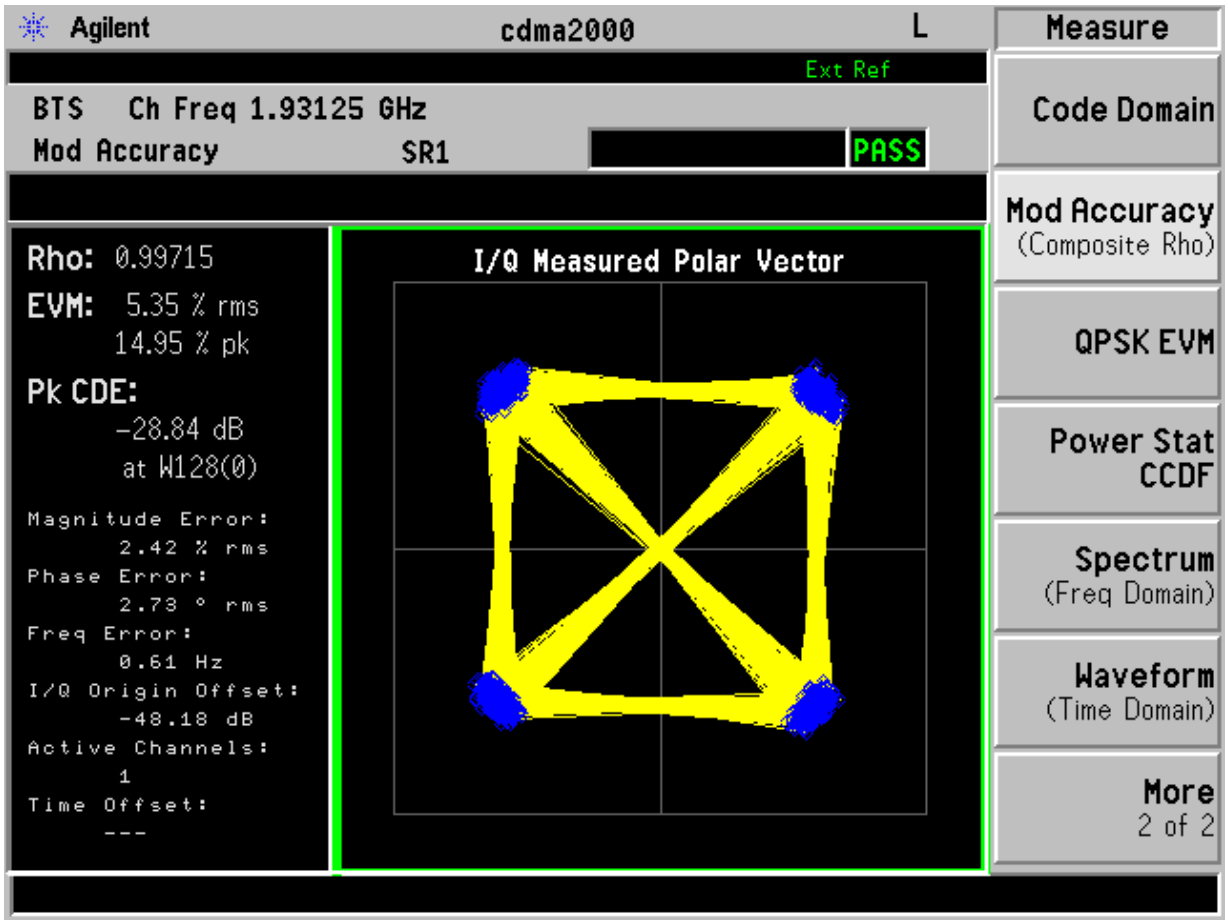
Temperature = - 10℃



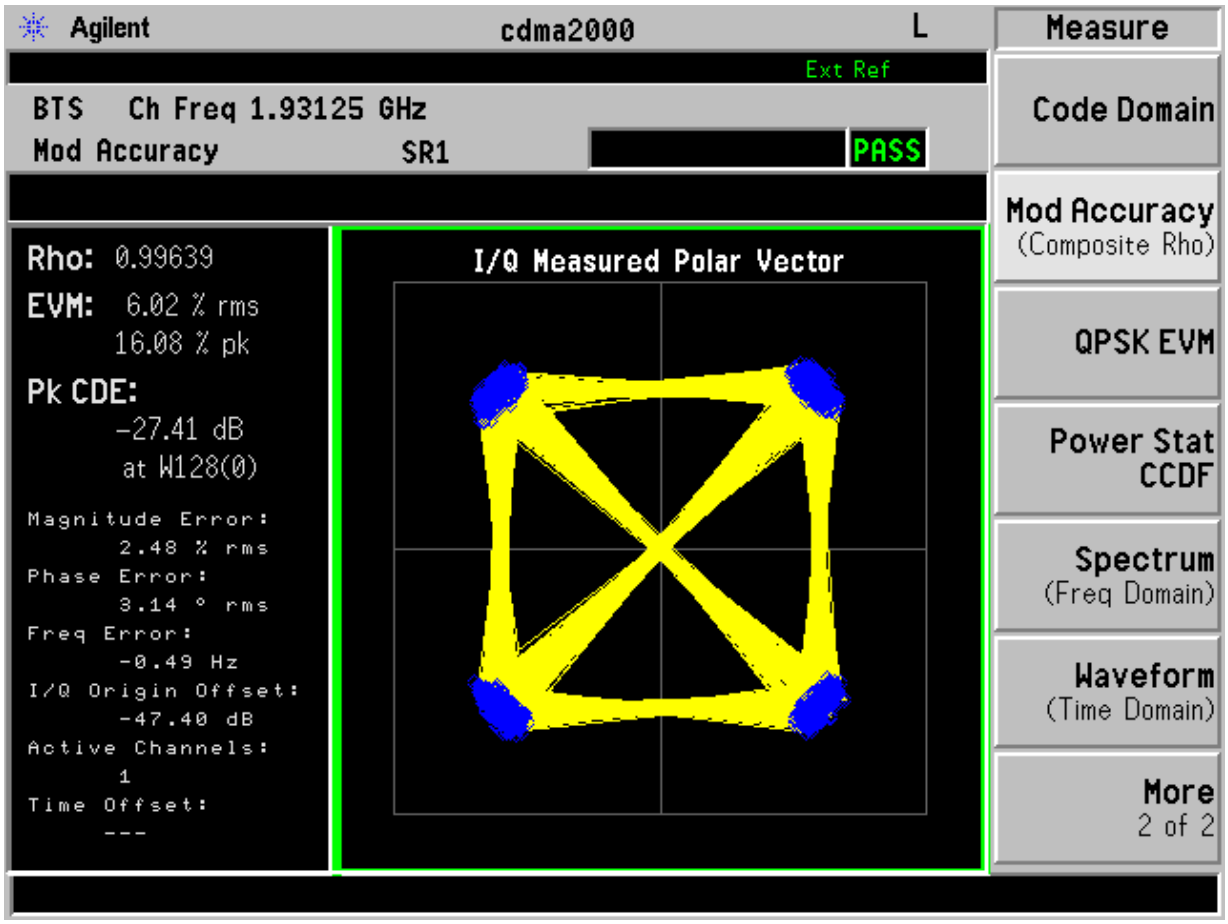
Temperature = 0℃



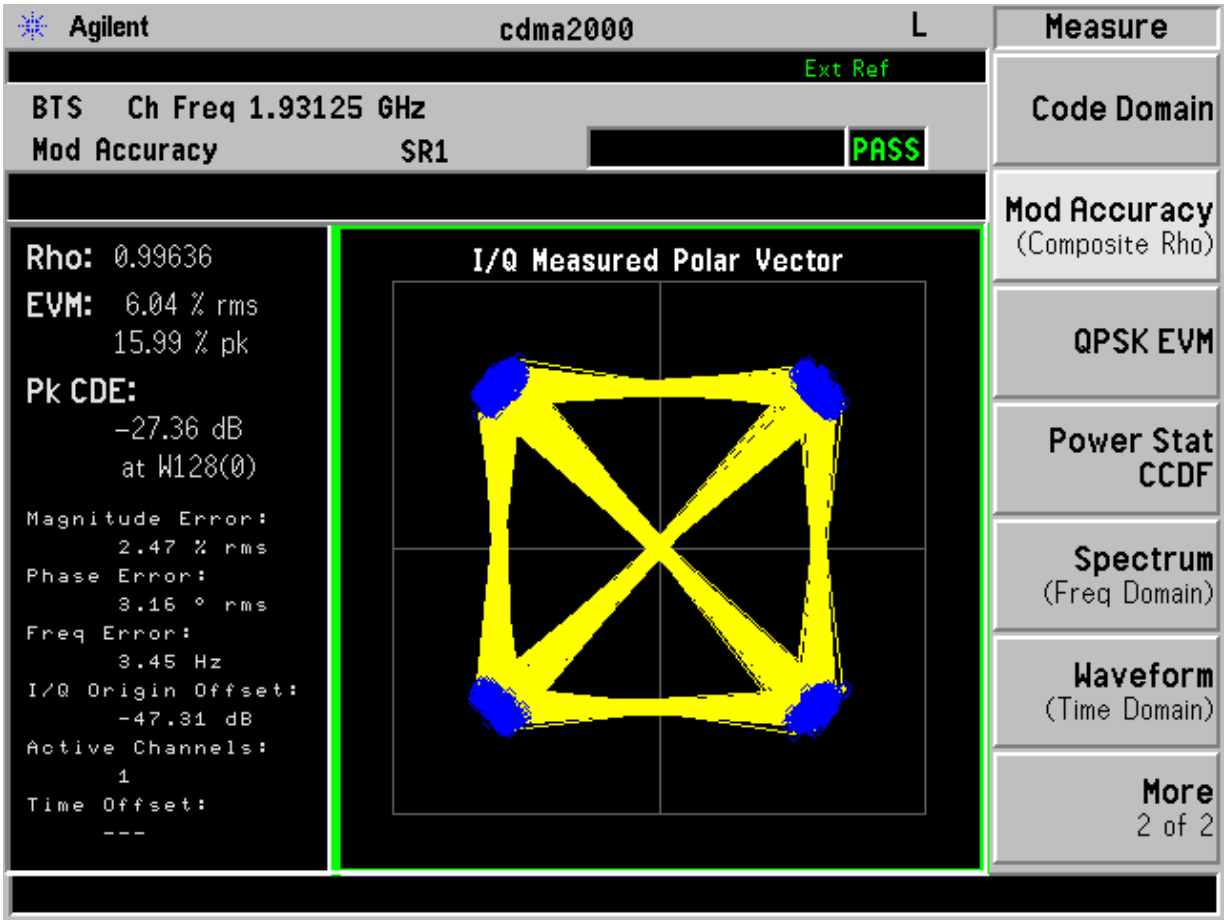
Temperature = 10℃



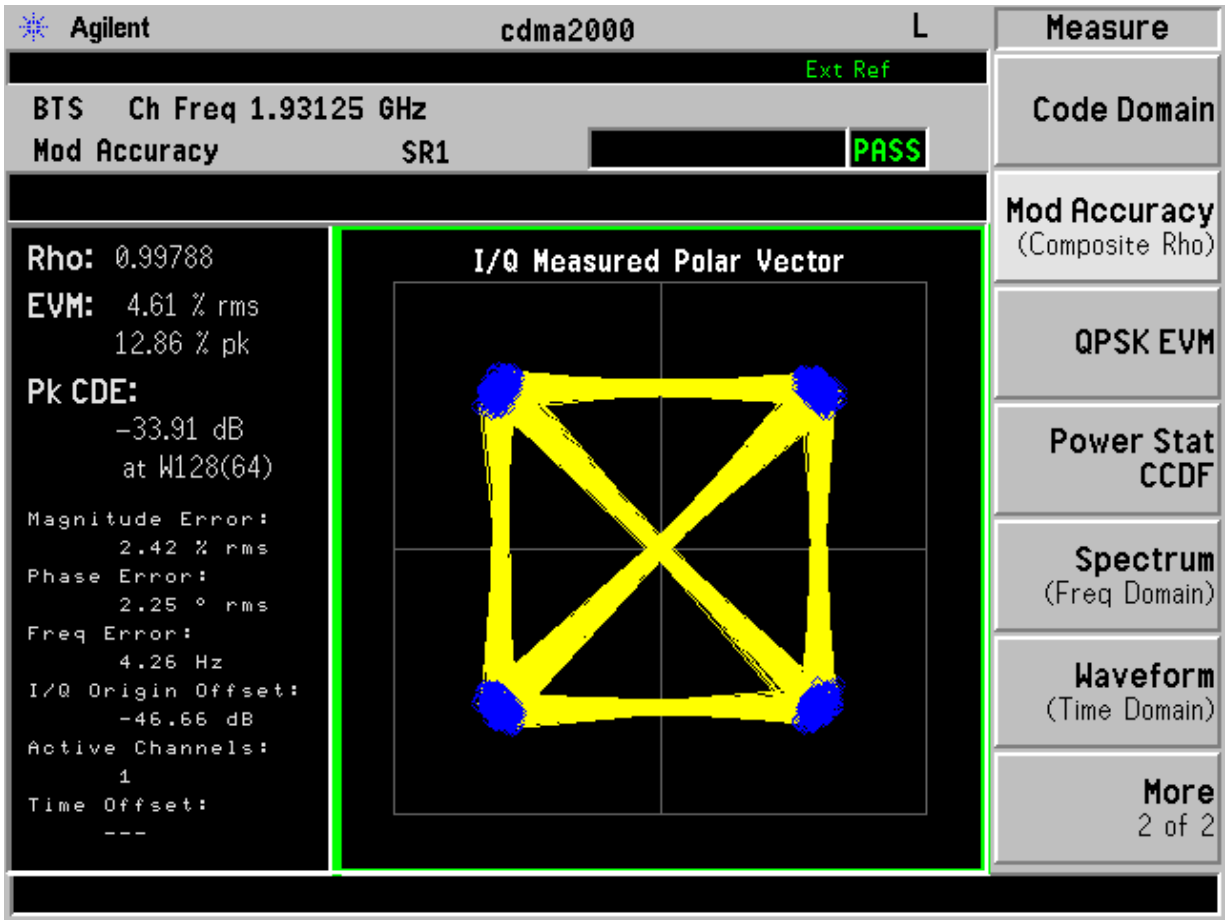
Temperature = 20℃



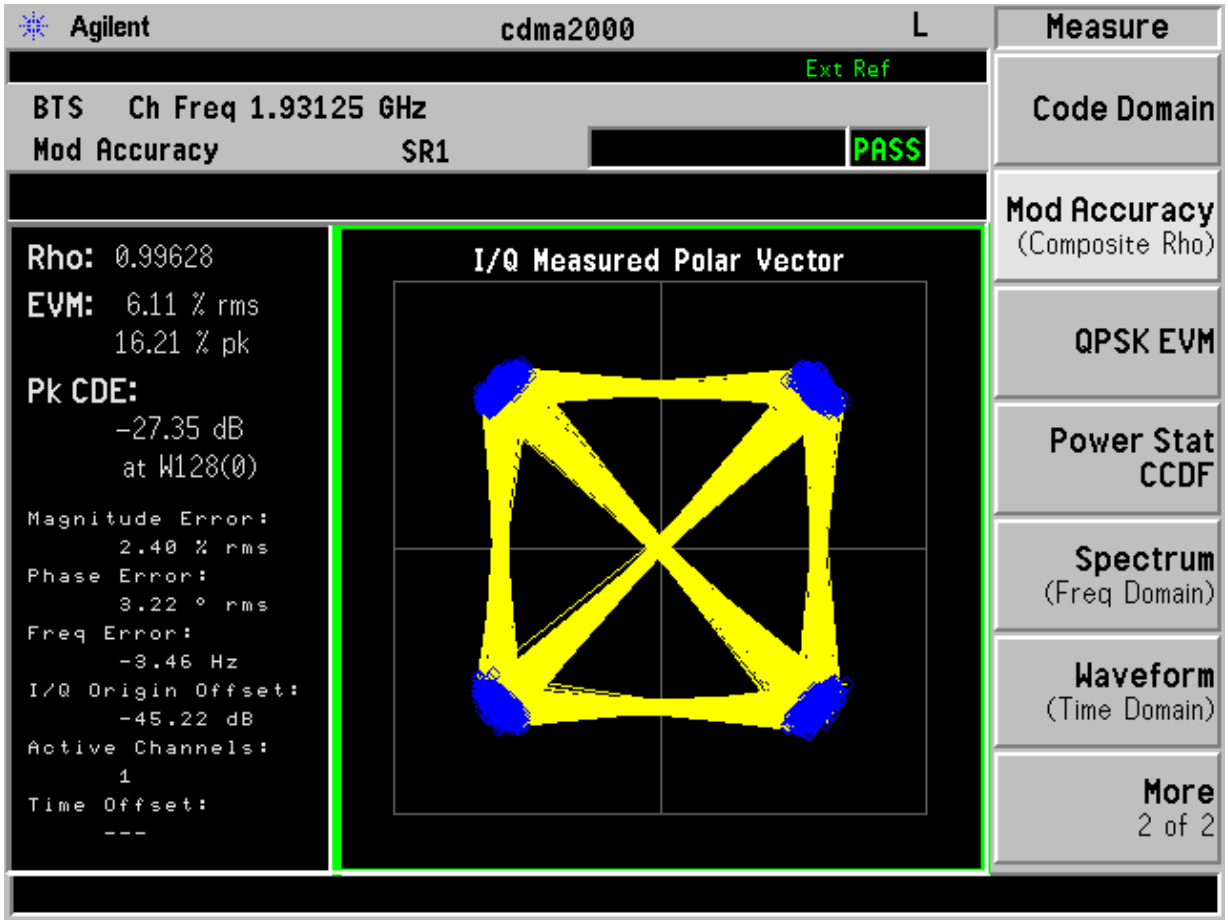
Temperature = 30℃



Temperature = 40℃



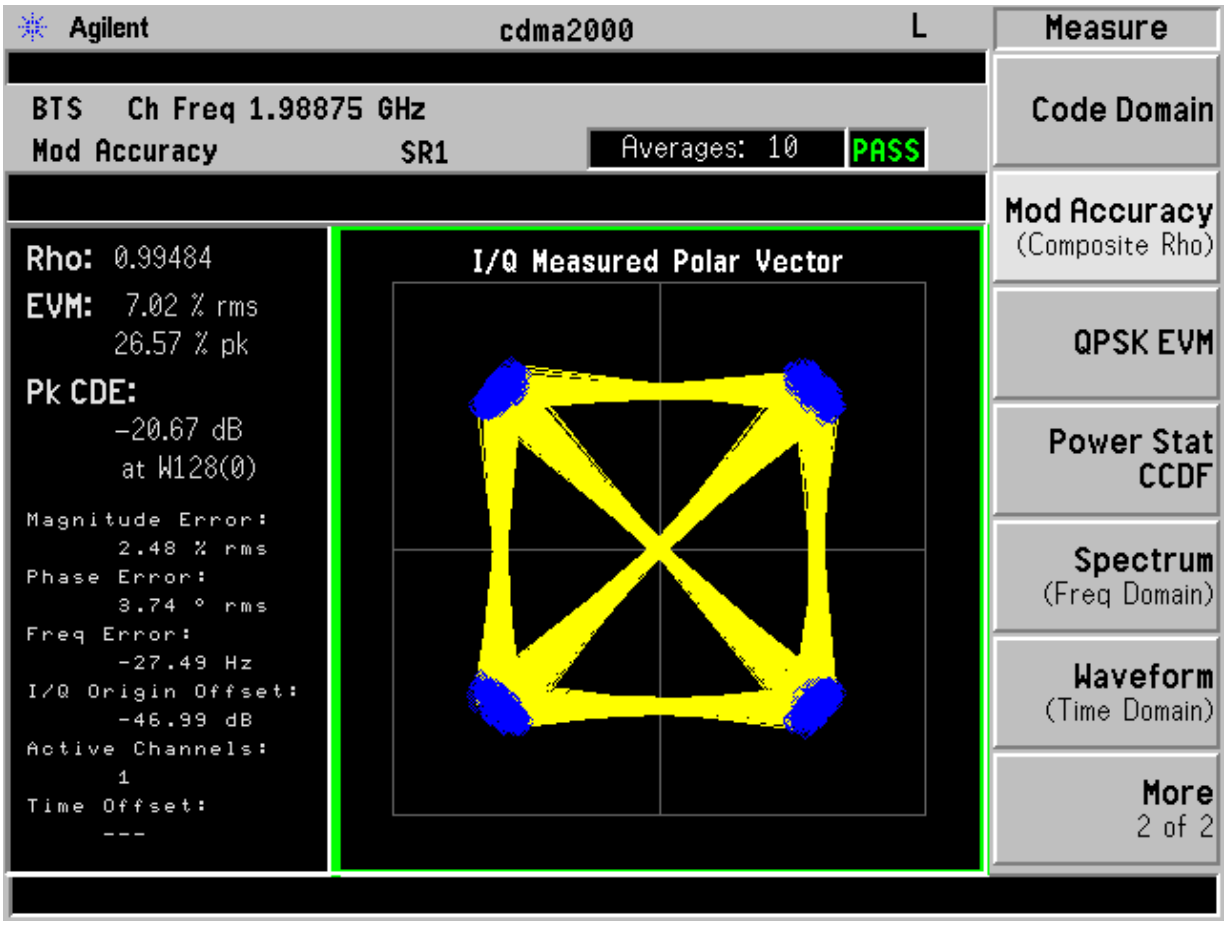
Temperature = 50℃



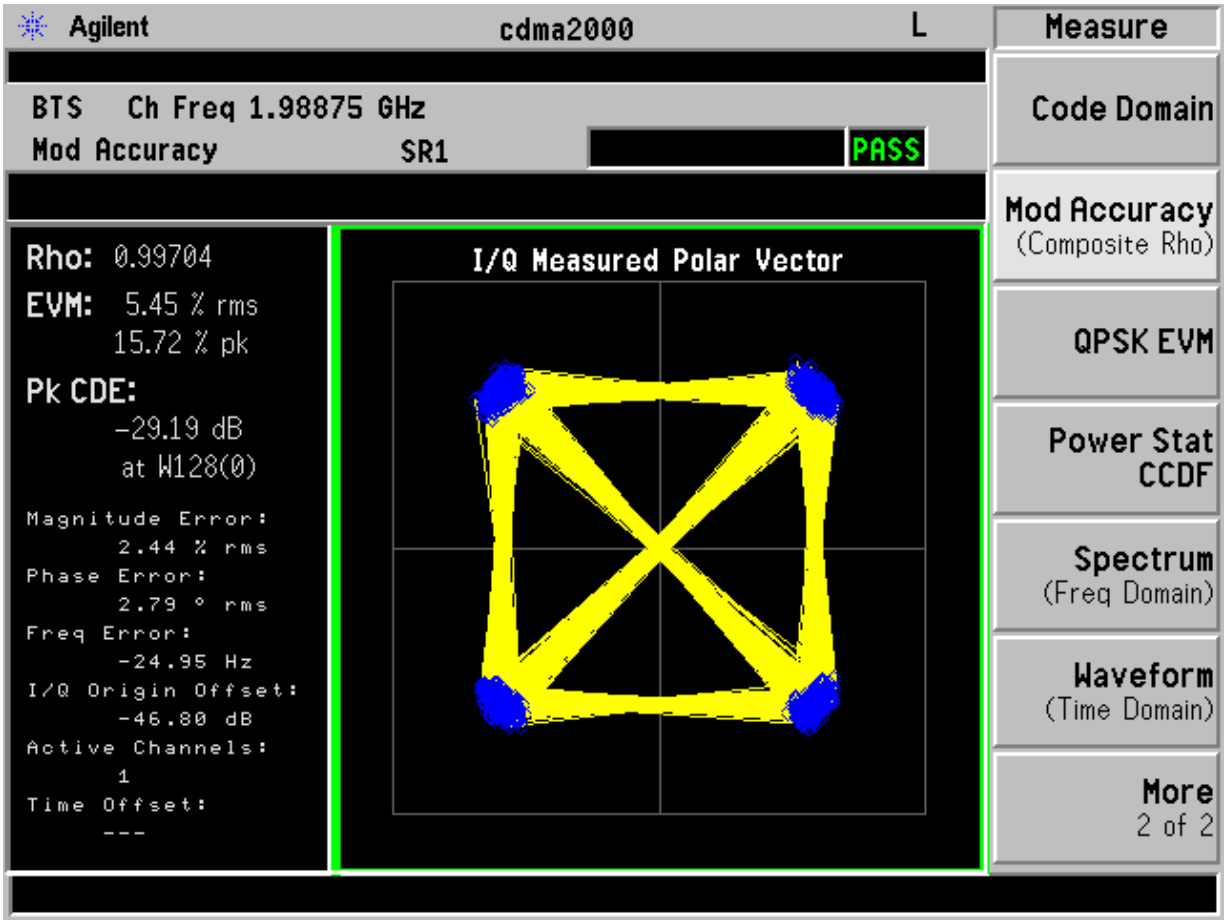
Frequency Stability versus Temperature

TRX1: Channel No. 1175(1988.75MHz)

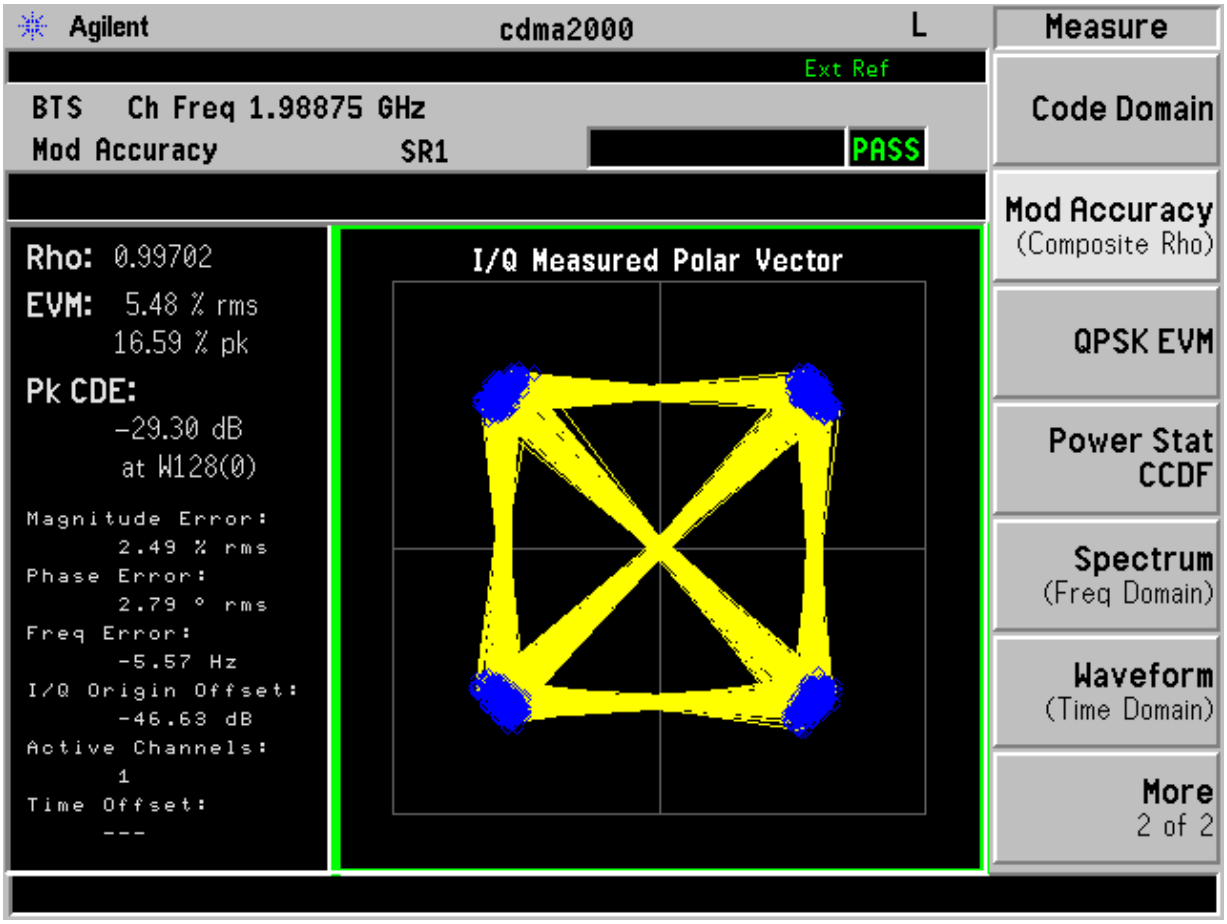
Temperature = - 30℃



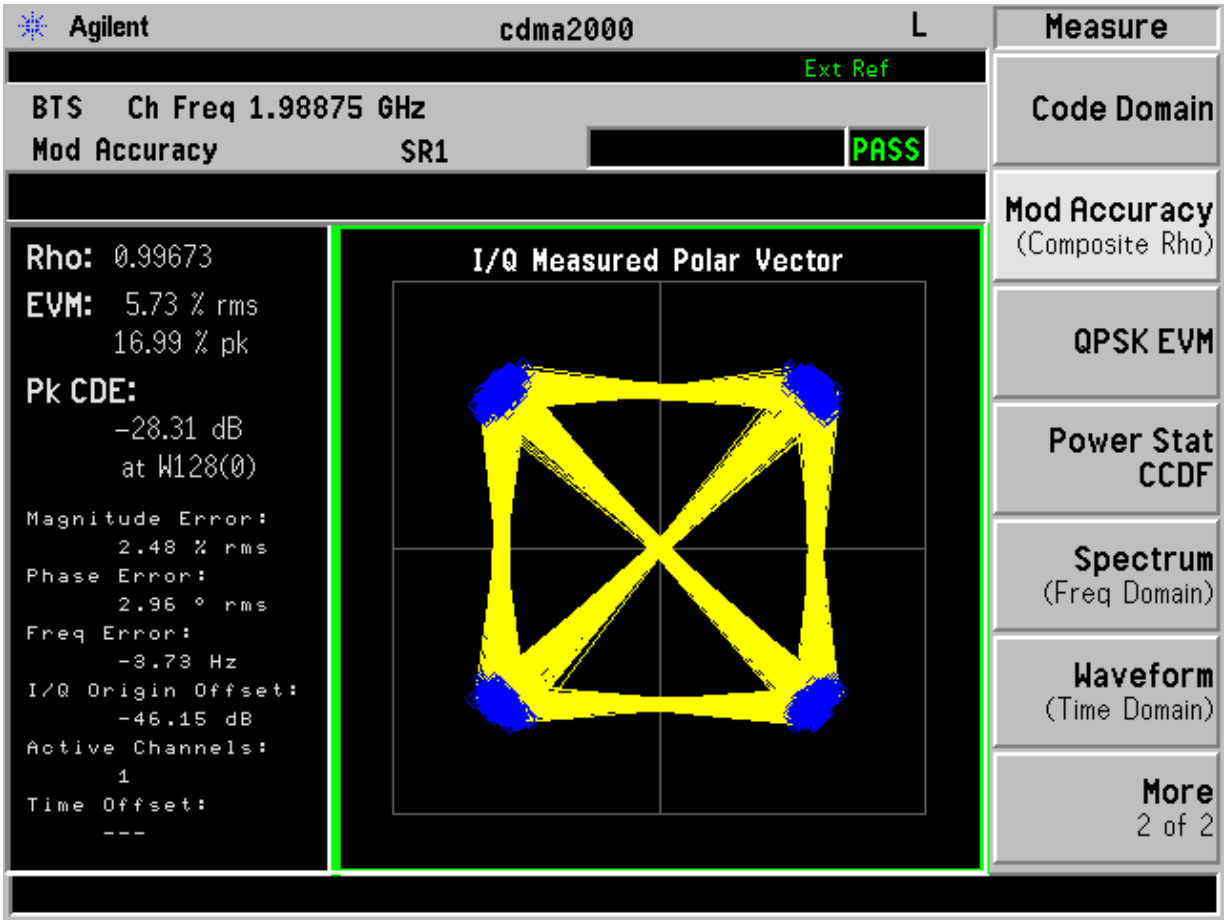
Temperature = - 20℃



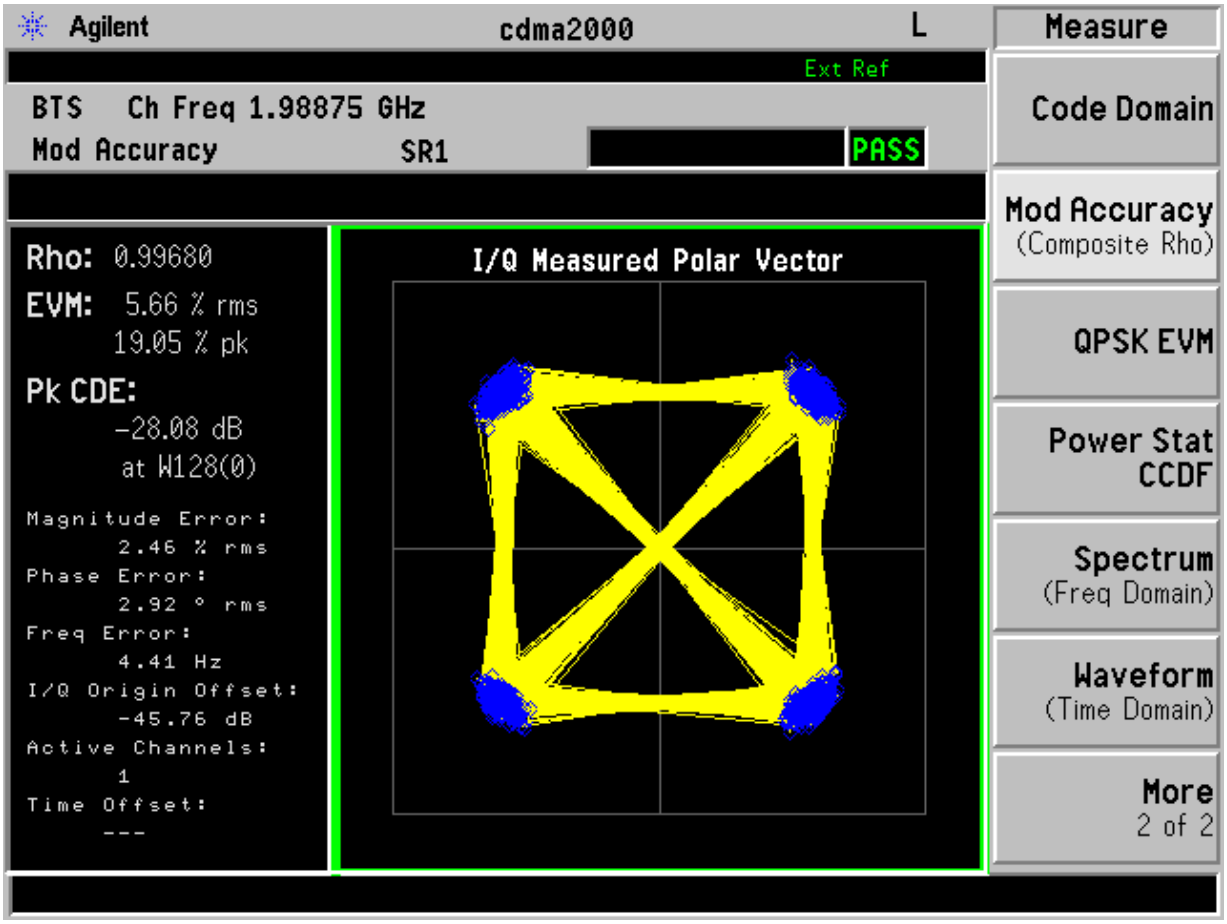
Temperature = - 10℃



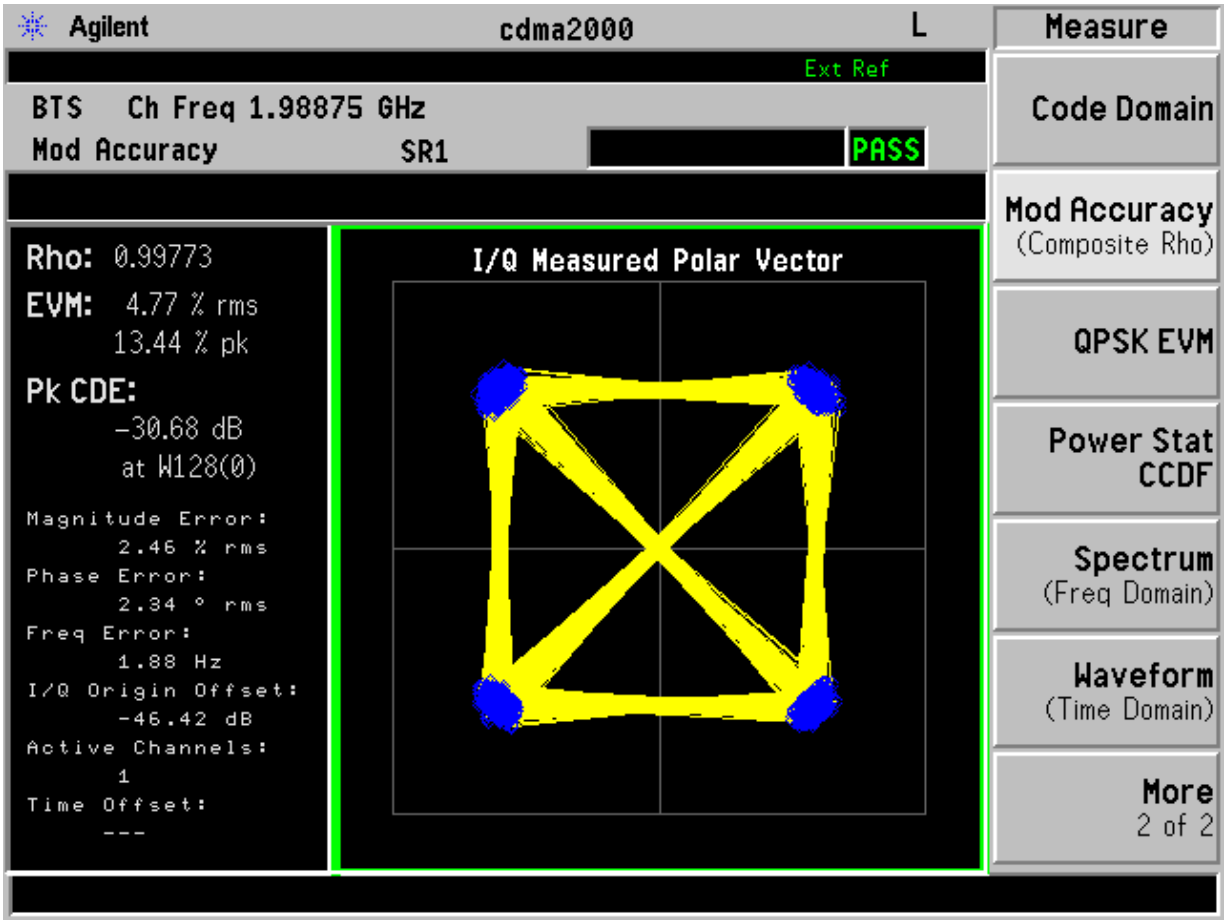
Temperature = 0℃



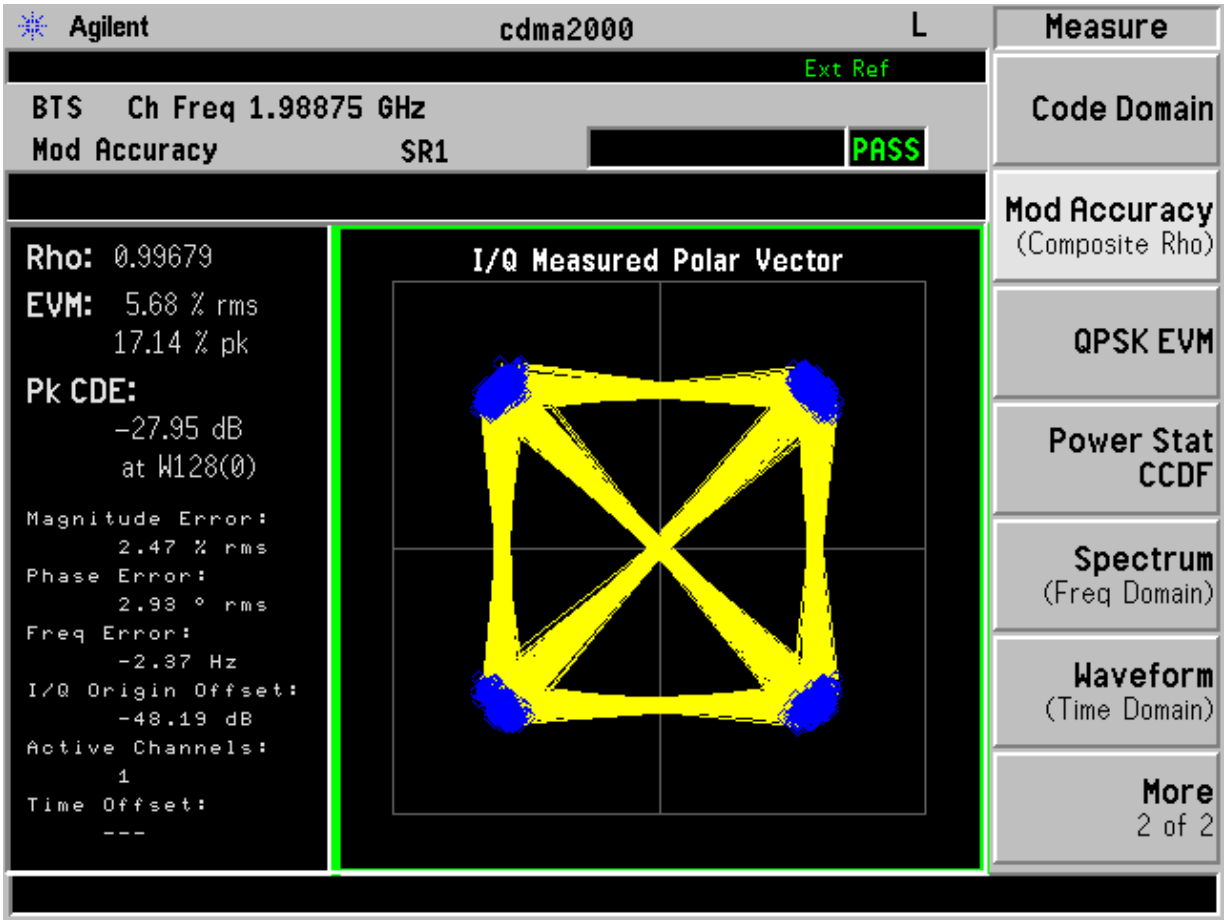
Temperature = 10℃



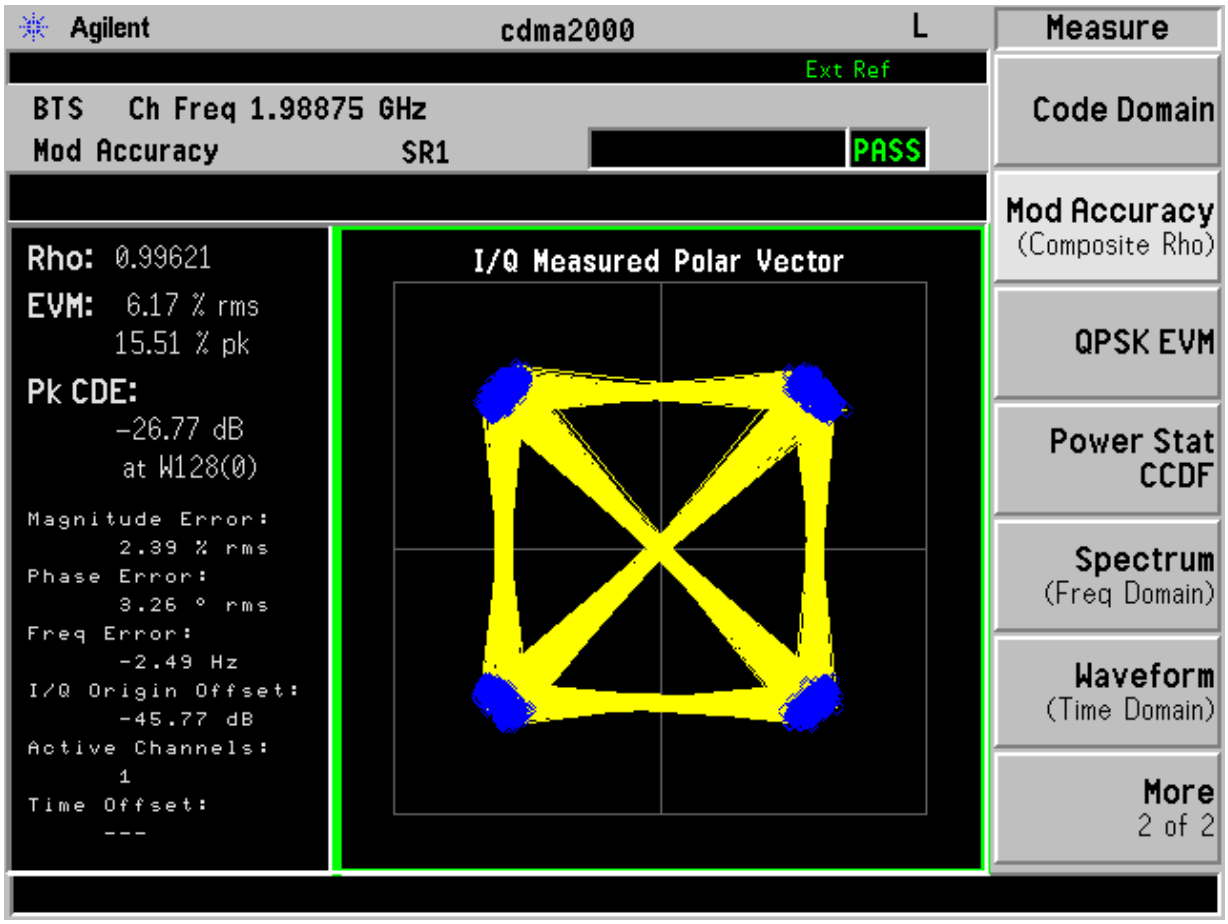
Temperature = 20℃



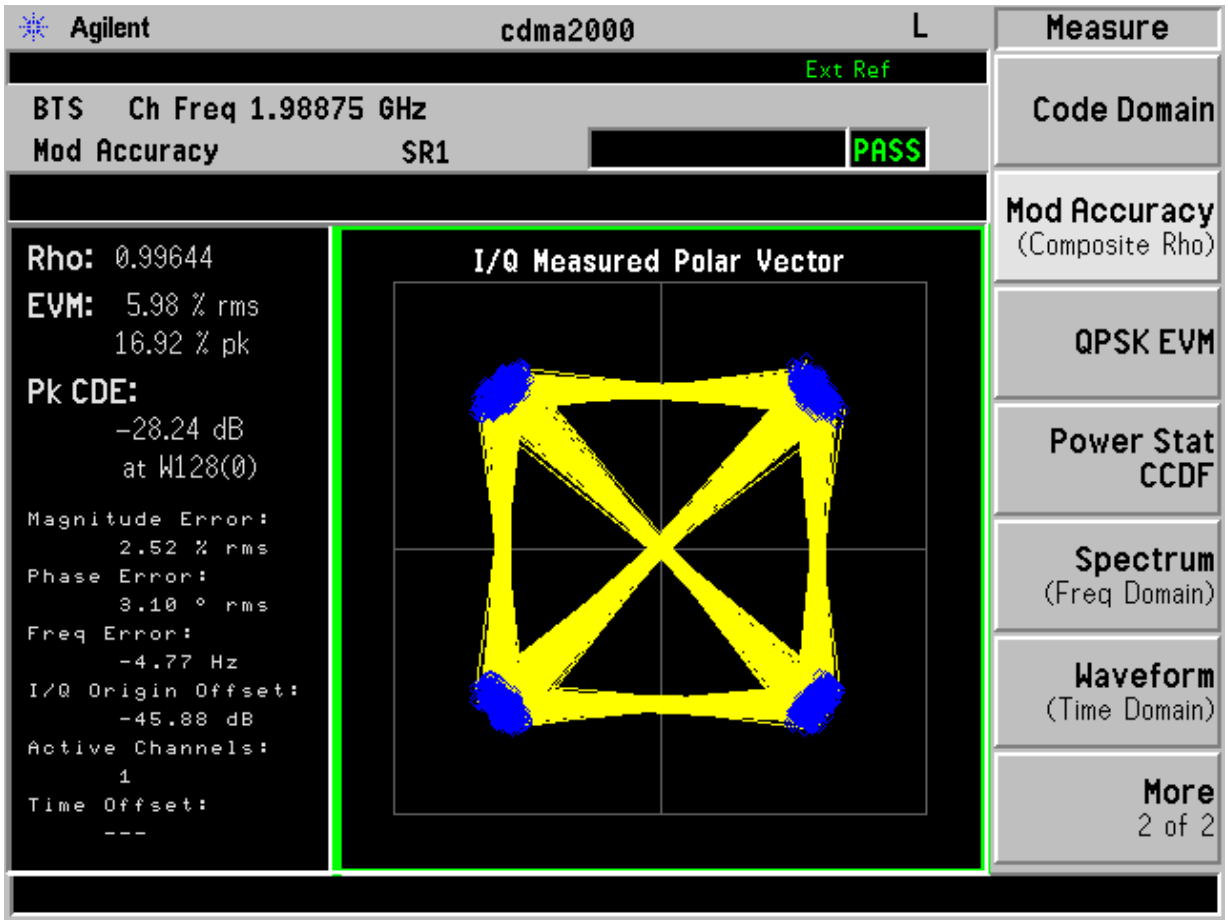
Temperature = 30℃



Temperature = 40℃



Temperature = 50℃



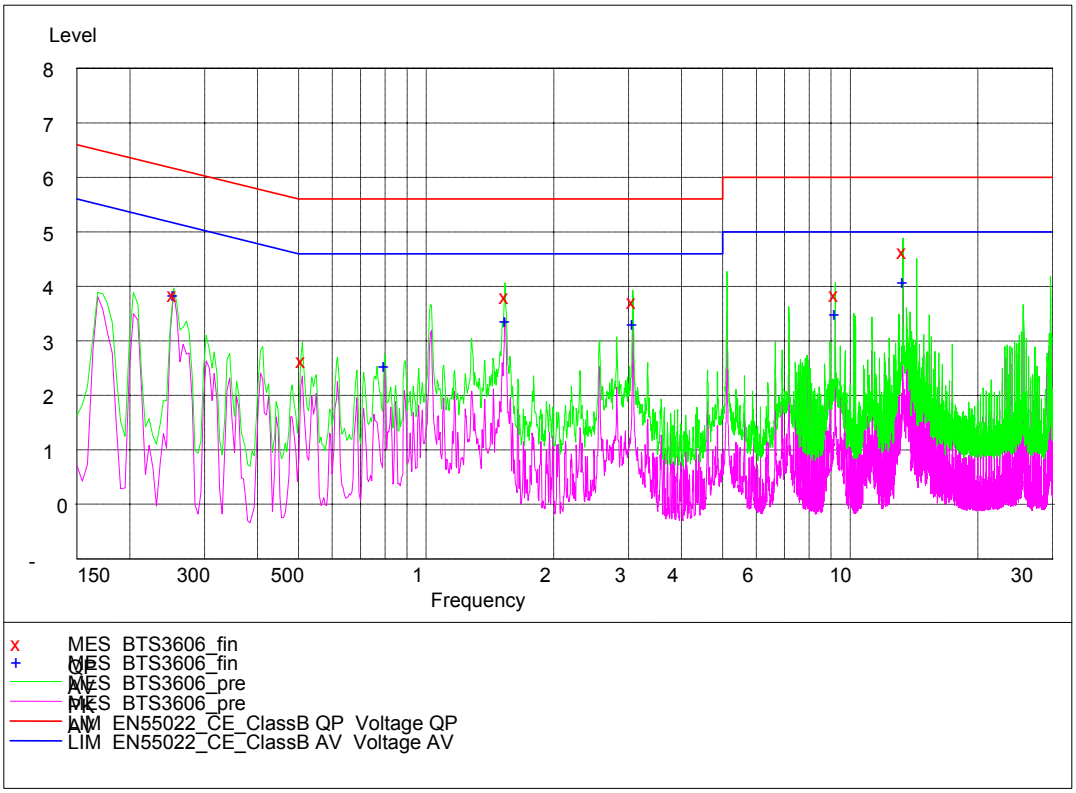
Appendix G
Conducted Emission Measurements
According to CFR 47 (FCC) part 15.207

Conducted Emission
Voltage Mains Test

EUT: BTS3606
Manufacturer: Huawei Technologies. Co., Ltd.
Operating Condition: 27.4degree 45%RH
Test Site: Shielding room,
Operator: Yu Huichun
Test Specification: EN55022 Class B
Comment: 5 TRM & 1POWER-COMP
Start of Test: 6/5/04 / 4:02:43PM

SCAN TABLE: "CE_ENV4200"
Short Description: EN 55022 Voltage

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	30.0 MHz	4.5 kHz	MaxPeak	20.0 ms	9 kHz	ENV 4200
			Average			



MEASUREMENT RESULT: "BTS3606_fin QP"
06/05/04 4:30PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.253500	38.70	10.2	62	22.9	L2	GND
0.510000	26.70	10.2	56	29.3	N	GND
1.536000	38.30	10.2	56	17.7	N	GND
3.070500	37.40	10.1	56	18.6	N	GND
9.217500	38.70	10.1	60	21.3	N	GND
13.312500	46.60	10.2	60	13.4	N	GND

MEASUREMENT RESULT: "BTS3606_fin AV"
06/05/04 4:30PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.253500	38.60	10.2	52	13.0	L2	GND
0.798000	25.50	10.2	46	20.5	N	GND
1.536000	33.80	10.2	46	12.2	N	GND
3.070500	33.20	10.1	46	12.8	N	GND
9.213000	35.00	10.1	50	15.0	N	GND
13.312500	41.00	10.2	50	9.0	N	GND

Appendix H

Photos of Test Set-up

Photo ERP Measurement 30 MHz – 1 GHz

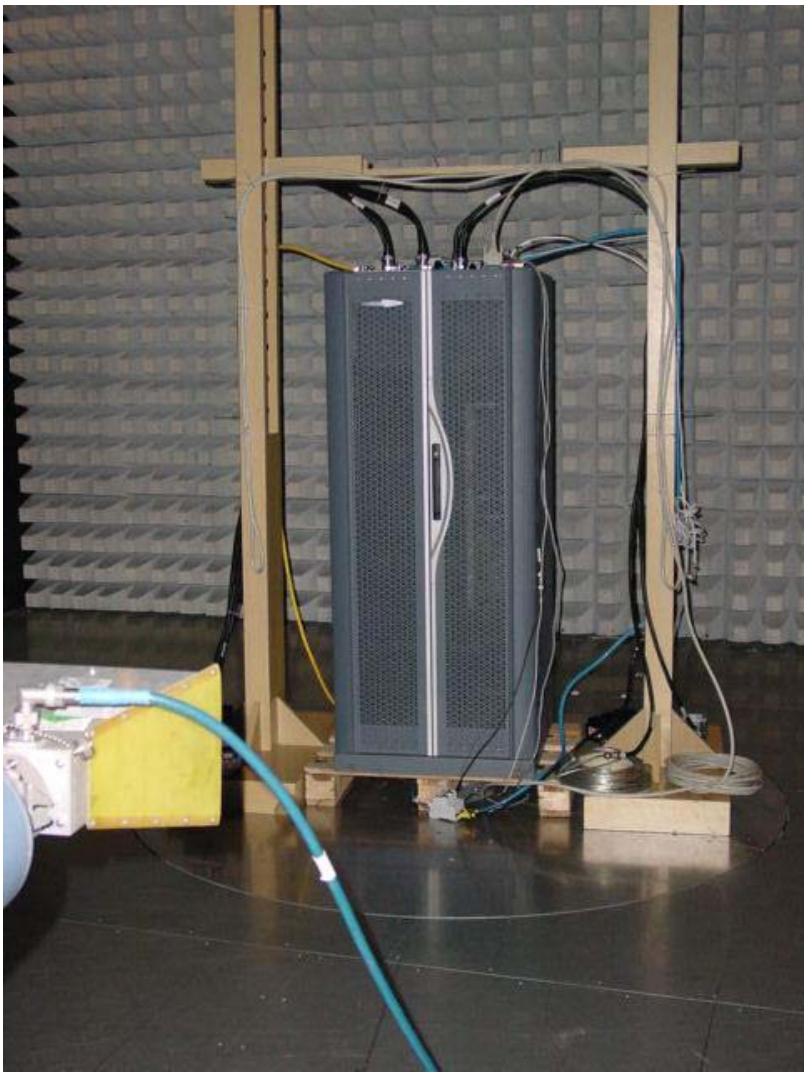


Photo ERP measurement 1 GHz – 10 GHz

Photo Conducted Emission Measurement

Photo, Radio Measurement