Lab Code: 200167-0

FCC PART 27 TYPE APPROVAL

MEASUREMENT AND TEST REPORT

For

Vecima Networks Inc.

150 Cardinal Place,
Saskatoon, Saskatchewan
Canada S7L 6H7

FCC ID: OPPTRX2525Y

This Report Concerns:	Product name:
☒ Original Report	2.5 GHz Subscriber Transceiver

Test Engineer:	Oscar Au
Report Number:	R0703133
Report Date:	2007-04-04
Reviewed By:	Test Engineer: Daniel Deng
Prepared By (00):	Bay Area Compliance Laboratories Corp. (BACL) 1274 Anvilwood Ave. Sunnyvale, CA 94089, USA Tel: (408) 732-9162 Fax: (408) 732 9164

Note: This test report is for the customer shown above and their specific product only. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. This report **must not** be used by the customer to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government

TABLE OF CONTENTS

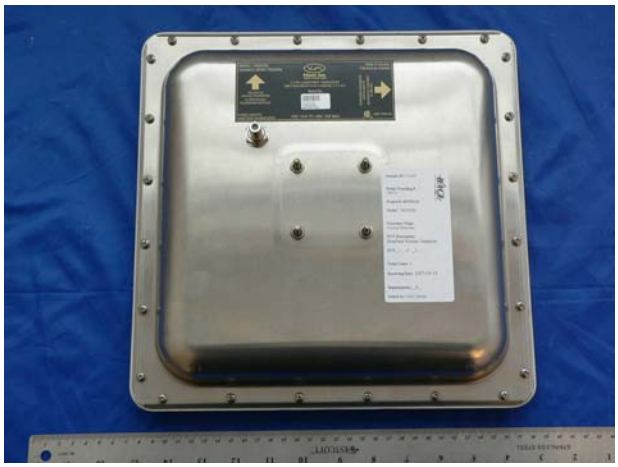
GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Vecima Networks Inc.* product, *FCC ID: OPPTRX2525Y*, model numbers: *TR2525B and TRI2525B* or the "EUT" as referred to in this report is a point to point transceiver device designed for outdoor use. The EUT operates on 2.5 GHz band (2512 MHz) and consists of two models that are sold and marketed together. Model: TR2525B is a routing device designed to be connected to a modem and to an external antenna. Model: TRI2525B is a point to point wireless transceiver with built in panel antenna with max gain 18 dBi designed to be connected to a digital device (i.e. surveillance camera, remote measurement equipment). TRI2525B transmits information to TR2525B that can then be sent via modem/router to a network; information/commands from the clients connected to the network can conversely also be transmitted back to the digital device.

EUT Photo

TR2525B



TRI2525B

Please see Exhibit C for additional EUT photos

Mechanical Description

The *Vecima Networks Inc.* product, *FCC ID: OPPTRX2525Y* consists of two models (TR2525B and TRI2525B) both of metallic construction which measure approximately *305 mmL x305 mmW x 70 mmH (weight: 2 kg)* and *200 mmL x150 mmW x 40 mmH (weight: 1 kg)* respectively.

** The test data gathered are from production sample, serial number: 738731 & 893439, provided by the manufacturer.*

Objective

This type approval report is prepared on behalf of *Vecima Networks Inc.* in accordance with Part 2, Subpart J, and Part 27 of the Federal Communication Commissions rules.

The objective of the manufacturer is to demonstrate compliance with FCC rules for Radiated Emission, Frequency Stability, Occupied bandwidth, and Power Limit.

Related Submittal(s)/Grant(s)

No Related Submittals.

Test Methodology

All measurements contained in this report were conducted with TIA 603-C.

All radiated and conducted emissions measurements were performed at Bay Area Compliance Laboratories Corp.

Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in the field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the values ranging from $\pm$2.0 dB for Conducted Emissions tests and $\pm$4.0 dB for Radiated Emissions tests are the most accurate estimates pertaining to uncertainty of EMC measurements at BACL Corp.

Detailed instrumentation measurement uncertainties can be found in BACL Corp. report QAP-018.

Test Facility

The test site used by BACL Corp. to conduct and collect safety measurement data is located at its facility in Sunnyvale, California, USA.

The test site at BACL Corp. has been fully described in reports submitted to the Federal Communication Commission (FCC) and Voluntary Control Council for Interference (VCCI). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on February 11, 1997 and December 10, 1997 and Article 8 of the VCCI regulations on December 25, 1997. The facility also complies with the test methods and procedures set forth in ANSI C63.4-2003 & TIA/EIA-603.

The Federal Communications Commission and Voluntary Control Council for Interference have the reports on file and they are listed under FCC registration number: 90464 and VCCI Registration No.: R-2463 and C-2698. The test site has been approved by the FCC and VCCI for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, BACL Corp. is a National Institute of Standards and Technology (NIST) accredited laboratory under the National Voluntary Laboratory Accredited Program (Lab Code 200167-0). The current scope of accreditations can be found at http://ts.nist.gov/ts/htdocs/210/214/scopes/2001670.htm.

SYSTEM TEST CONFIGURATION

Justification

The host system was configured for testing according to TIA 603-C.

The EUT was tested in the normal (native) operating mode to represent *worst*-case results during the final qualification test.

EUT Exercise Software

The EUT was operating in max power mode during radiated and conducted testing.

Special Accessories

NA

Equipment Modifications

No modifications were made to the EUT.

Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date
Rohde & Schwarz	Signal generator	SMIQ	849192/0085	2006-10-18
Midwest Microwave	40 dB attenuator	392	NA	NA
Hewlett Packard	50 ohm terminator	909A	012	NA

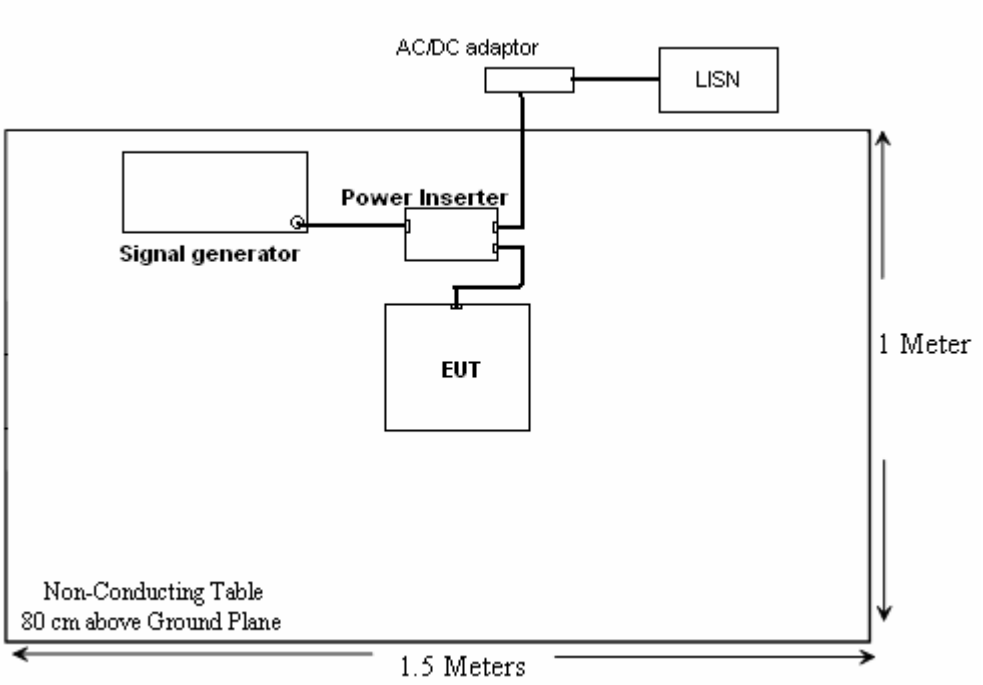
Power Supply Information

Manufacturer	Description	Model	Serial Number
I.T.E.	AC-DC adaptor	HK-B518-A24	S60640350

External I/O Cabling List and Details

Cable Description	Length (M)	Port/From	To
RG6 cable	1.5	Power Inserter (Transceiver port)	EUT (modem port)
SMA low-loss RF cable	2.0	Signal generator	Power Inserter (Modem port)

Test Setup Block Diagram



SUMMARY OF TEST RESULTS

Results reported relate only to the product tested.

FCC Rules	Description of Test	Result
§2.1046 & §27.50(h)	RF Output Power	Compliant
§2.1047	Modulation Characteristics	NA
§2.1049, §27.53 (l)	Occupied Bandwidth	Compliant
§1.1307(b)(1) & §2.1091 & §27.52	RF Safety	Compliant
§2.1051 & §27.53(l)	Spurious Emission at Antenna Terminals	Compliant
§2.1053 & §27.53(l)	Field Strength of Spurious Radiation	Compliant
§2.1055 & §27.54 (d)	Frequency Stability	Compliant

§27.52, §1.1307(b) (1) & §2.1091 - RF SAFETY

According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

According to §1.1310 and §2.1091 RF exposure is calculated.

Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Averaging Time (minute)
Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*($180/f^2$)	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30

f = frequency in MHz
* = Plane-wave equivalent power density

MPE Prediction

Prediction of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

$S = PG/4\pi R^2$

Where: S = power density
P = power input to antenna
G = power gain of the antenna in the direction of interest relative to an isotropic radiator
R = distance to the center of radiation of the antenna

18 dBi antenna

Maximum peak output power at antenna input terminal (dBm):	22.94(dBm)
Maximum peak output power at antenna input terminal (mW):	196.79 (mW)
Predication distance (cm):	73.70 cm
Predication frequency (MHz):	2512 (MHz)
Maximum Antenna Gain, typical (dBi):	18.0 (dBi)
Maximum Antenna Gain (numeric):	63.1 (numeric)
Power density of predication frequency at 73.7 cm (mW/cm^2):	0.182 (mW/cm^2)
MPE limit for uncontrolled exposure at predication frequency (mW/cm^2):	1.00 (mW/cm^2)

Test Result

The power density of predication frequency at 73.7 cm is 0.182 mW/cm^2 for the 18 dBi antenna, which is, according to calculation, under the MPE limit for uncontrolled exposure of 1.00 mW/cm^2.

§2.1047 – MODULATION CHARACTERISTICS

The EUT uses digital modulation techniques only which were employed during the tests for occupied bandwidth. Part 27 does not have a modulation characteristics requirement for digital modulation thus this section is not applicable.

§2.1051 & §27.53(l) – SPURIOUS EMISSIONS AT ANTENNA TERMINALS

Standard Applicable

§2.1051: The radio frequency voltage or powers generated within the equipment and appearing on a spurious frequency shall be checked at the equipment output terminals when properly loaded with a suitable artificial antenna. Curves or equivalent data shall show the magnitude of each harmonic and other spurious emission that can be detected when the equipment is operated under the conditions specified in §2.1049 as appropriate. The magnitude of spurious emissions which are attenuated more than 20 dB below the permissible value need not be specified.

§27.53(l): For BRS and EBS stations, the power of any emissions outside the licensee's frequency bands of operation shall be attenuated below the transmitter power (P) measured in watts.

§27.53(l): (2) 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. Provided that the complaint cannot be mutually resolved between the parties, both licensees of existing and new systems shall reduce their out-of-band emissions by at least 67 + 10 log (P) dB measured at 3 MHz from their channel's edges for distances between stations exceeding 1.5 km. For stations separated by less than 1.5 km, the new licensee shall reduce attenuation at least 67 + 10 log (P) − 20 log(Dkm/1.5), or when collocated, limit the undesired signal level at the affected licensee's base station receiver(s) at the collocation site to no more than −107 dBm. Mobile Service Satellite licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

Measurement Procedure

Spurious emissions appearing at the antenna terminals were measured with a spectrum analyzer by connecting the spectrum analyzer directly via a short cable to the antenna output terminals or across the antenna leads on the PCB as specified by the manufacturer.

Equipment Lists

Manufacturer	Description	Model	Serial Number	Calibration Date
Agilent	Analyzer, Spectrum	E4440A	MY44303352	2007-02-23

*** Statement of Traceability: BACL Corp.** attests that all calibrations have been performed per the NVLAP requirements, traceable to the NIST.

Measurement Result

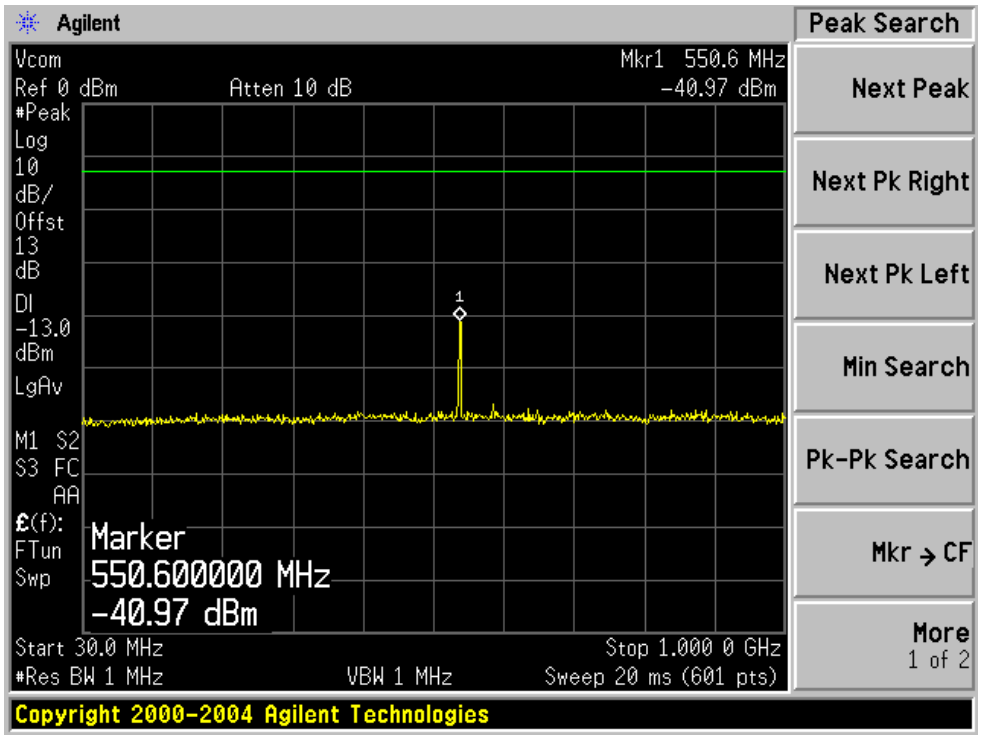
Environmental Conditions

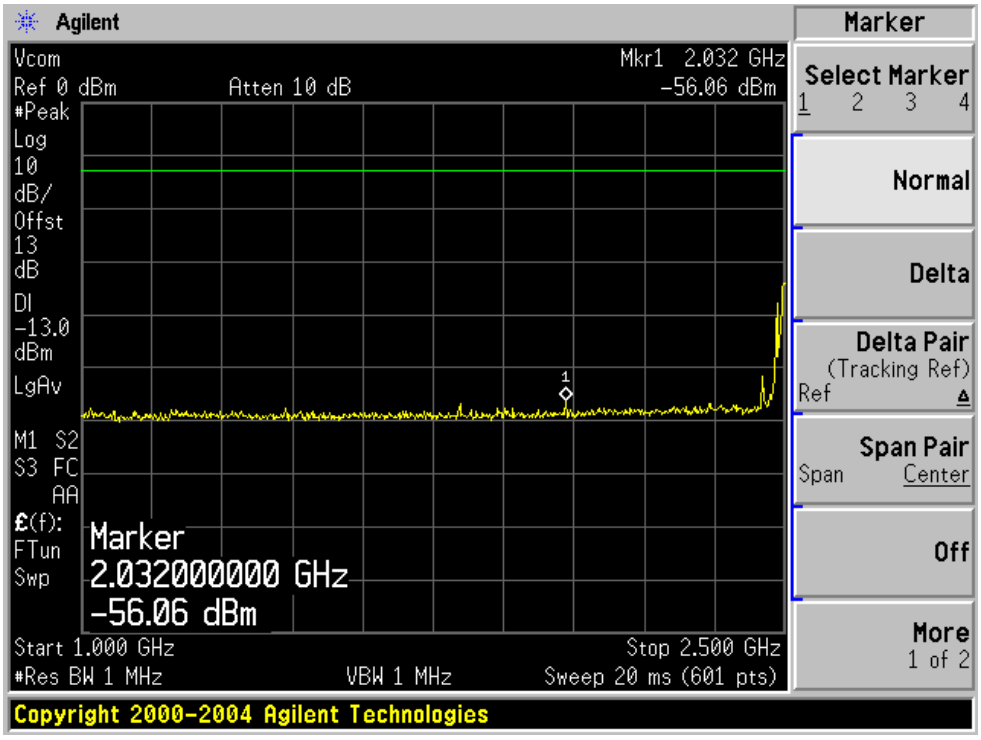
Temperature:	21 °C
Relative Humidity:	55 %
ATM Pressure:	101.1 kPa

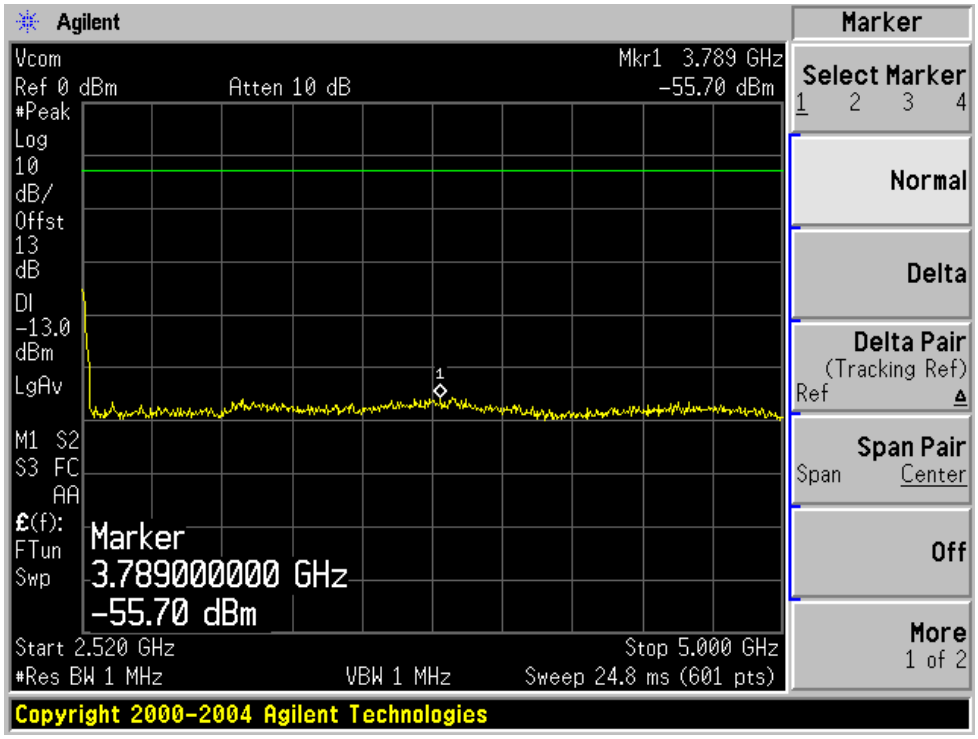
** The testing was performed by Oscar Au on 2007-03-30.*

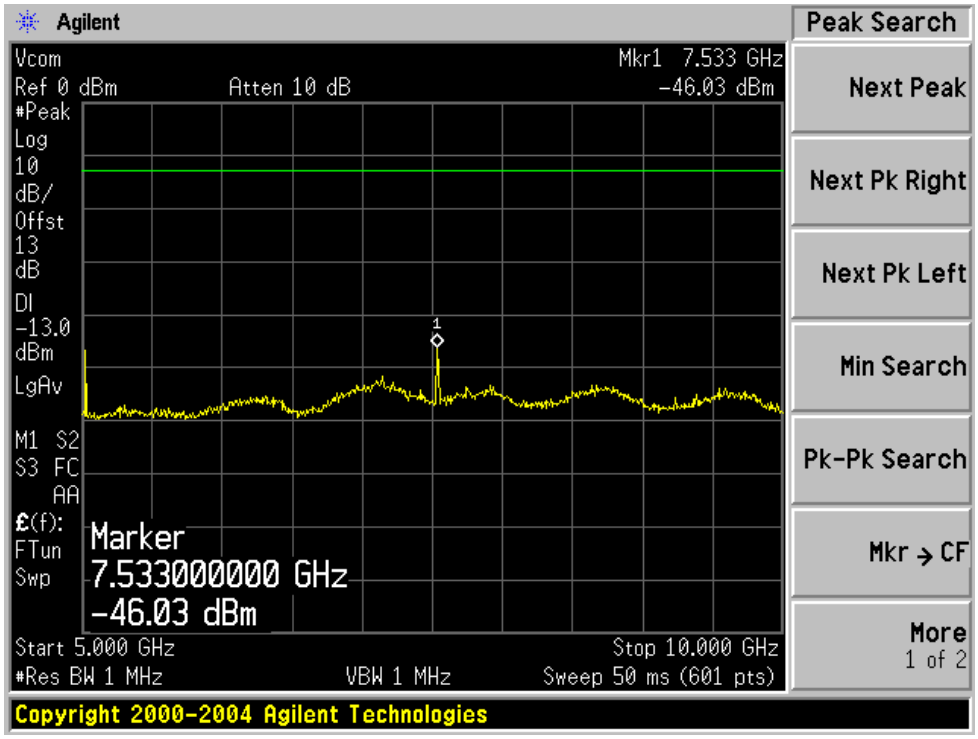
Modulation type: QPSK, Symbol rate: 2560 ksym/sec

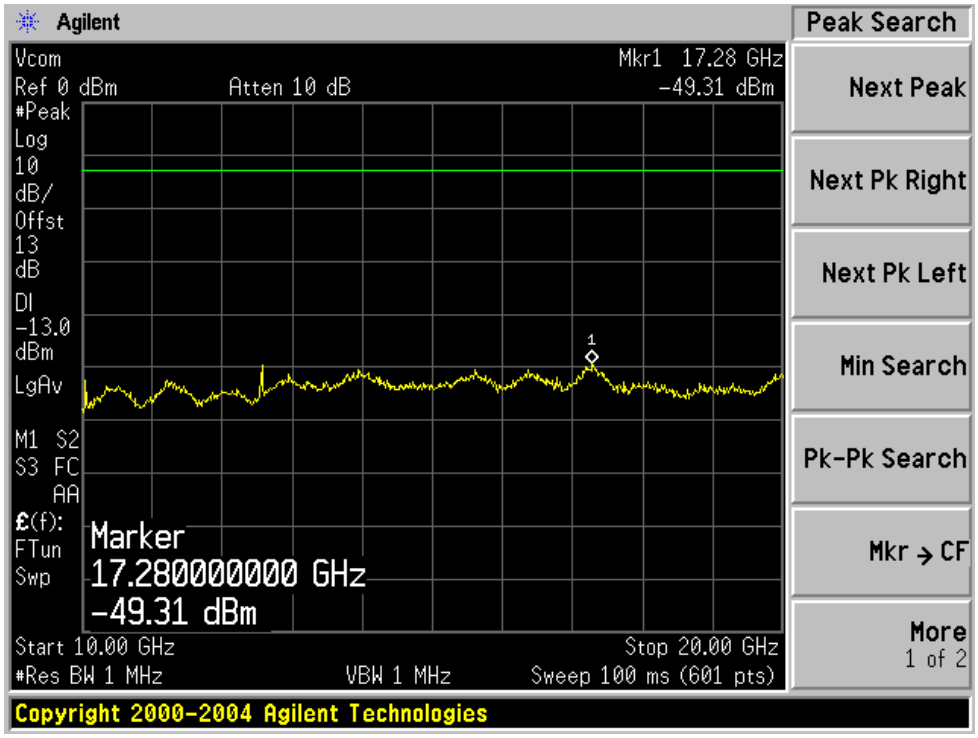
Middle Channel:

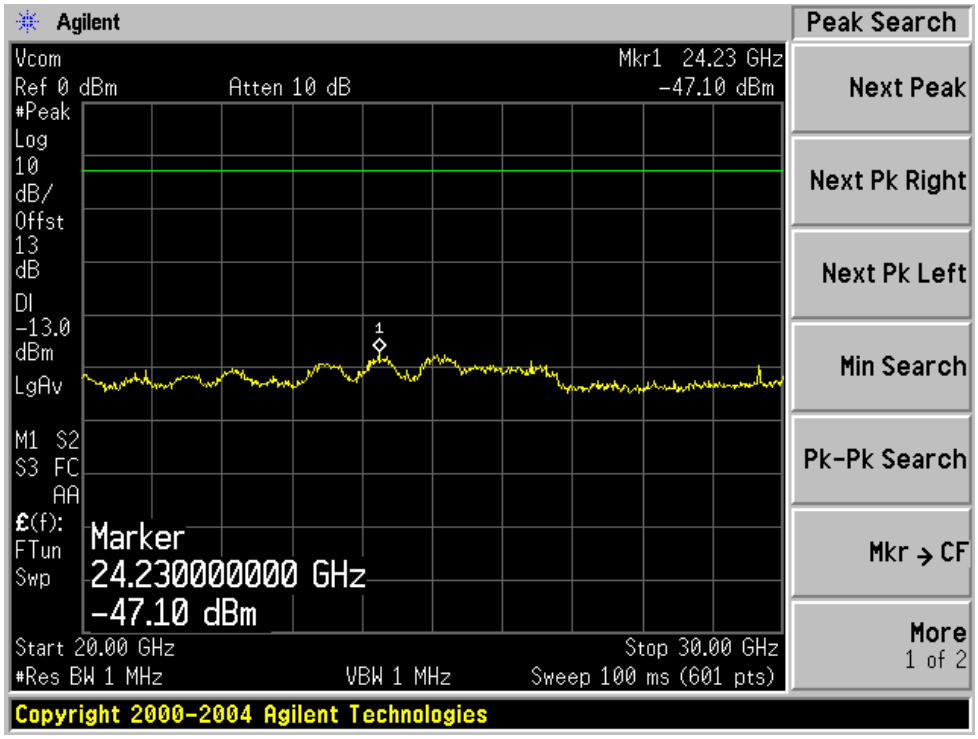





Agilent
Marker
Vcom
Mkr1 3.789 GHz
Ref 0 dBm
Atten 10 dB
-55.70 dBm
#Peak
Log
10
dB/
Offst
13
dB
Dl
-13.0
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Marker
3.789000000 GHz
-55.70 dBm
Start 2.520 GHz
Stop 5.000 GHz
#Res BW 1 MHz
VBW 1 MHz
Sweep 24.8 ms (601 pts)
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2
Copyright 2000-2004 Agilent Technologies

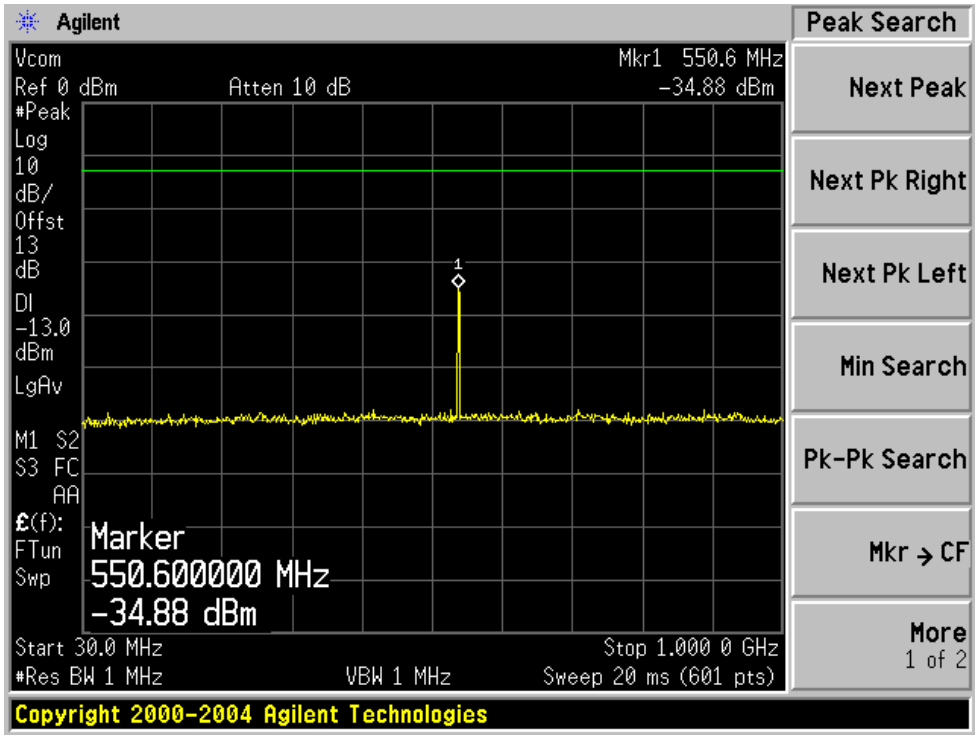

Agilent
Peak Search
Vcom
Mkr1 7.533 GHz
Ref 0 dBm
Atten 10 dB
-46.03 dBm
#Peak
Log
10
dB/
Offst
13
dB
Dl
-13.0
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Marker
7.533000000 GHz
-46.03 dBm
Start 5.000 GHz
Stop 10.000 GHz
#Res BW 1 MHz
VBW 1 MHz
Sweep 50 ms (601 pts)
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
Copyright 2000-2004 Agilent Technologies

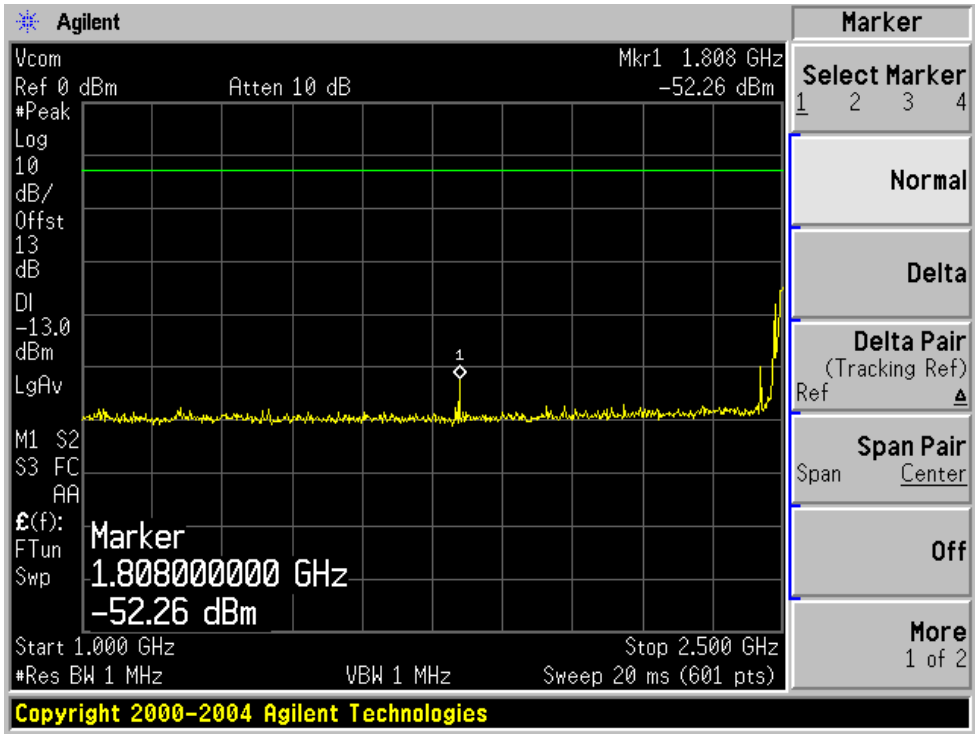

Agilent
Peak Search
Vcom
Mkr1 17.28 GHz
Ref 0 dBm
Atten 10 dB
-49.31 dBm
#Peak
Log
10
dB/
Offst
13
dB
Dl
-13.0
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Marker
17.280000000 GHz
-49.31 dBm
Start 10.00 GHz
Stop 20.00 GHz
#Res BW 1 MHz
VBW 1 MHz
Sweep 100 ms (601 pts)
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
Copyright 2000-2004 Agilent Technologies

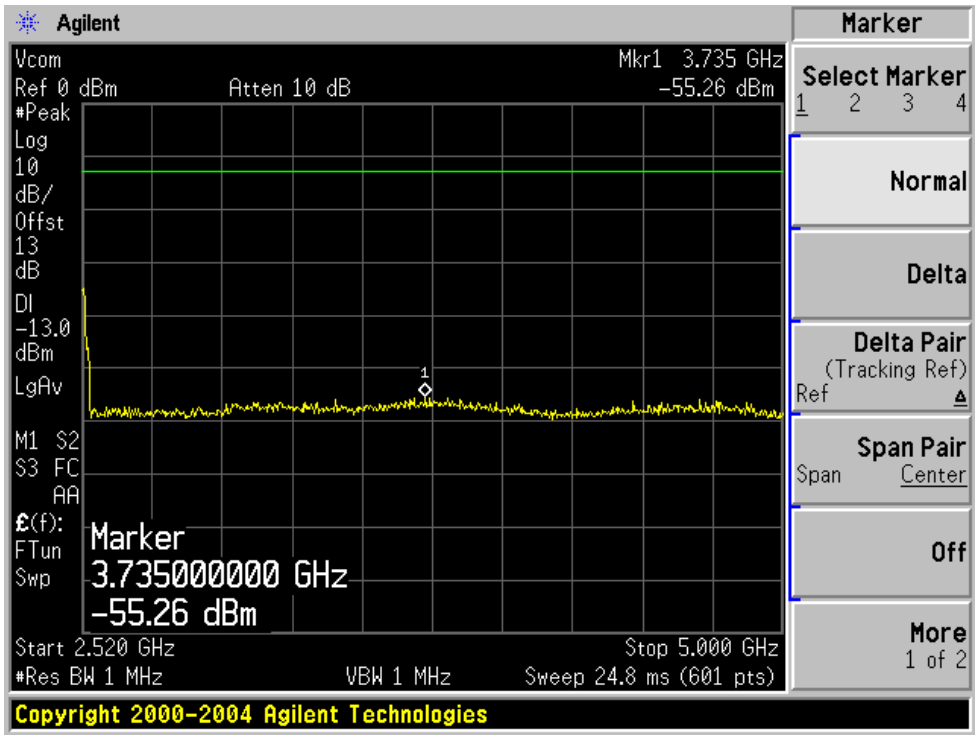

Agilent
Peak Search
Vcom
Mkr1 24.23 GHz
Ref 0 dBm
Atten 10 dB
-47.10 dBm
#Peak
Log
10
dB/
Offst
13
dB
Dl
-13.0
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Marker
24.230000000 GHz
-47.10 dBm
Start 20.00 GHz
Stop 30.00 GHz
#Res BW 1 MHz
VBW 1 MHz
Sweep 100 ms (601 pts)
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
Copyright 2000-2004 Agilent Technologies

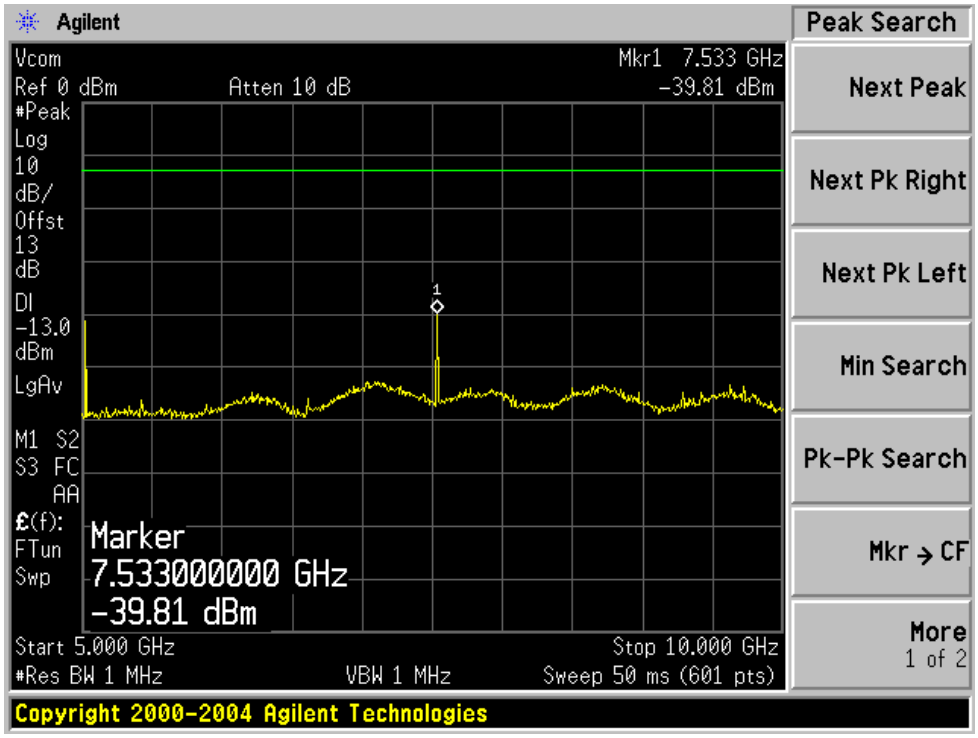
Modulation type: QPSK, Symbol rate: 640 ksym/sec

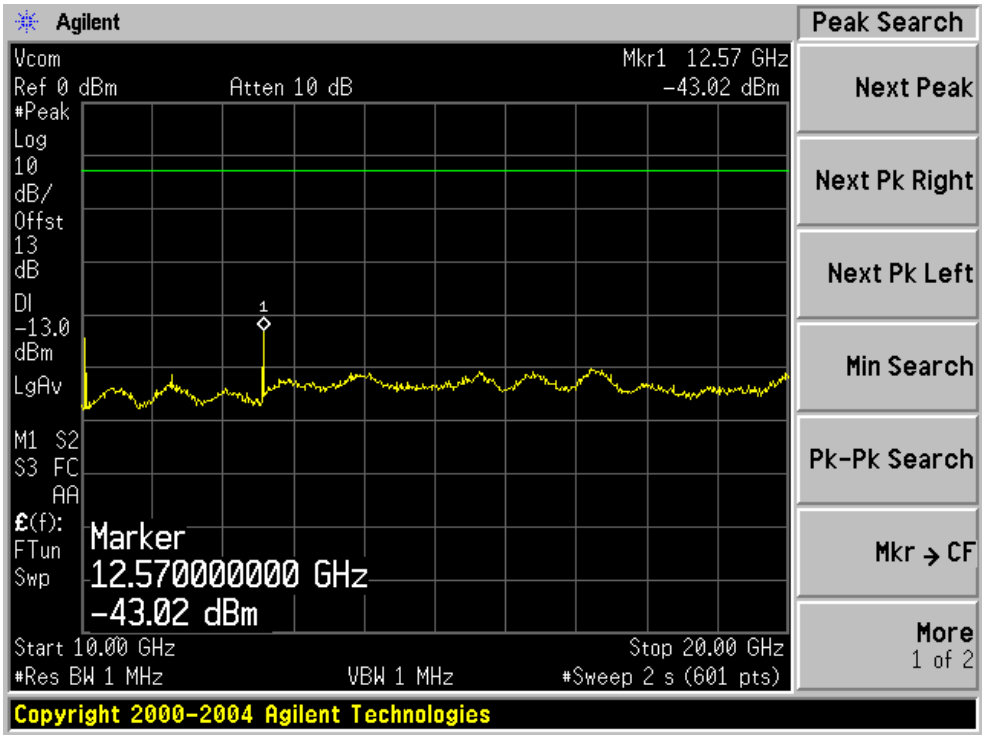
Middle Channel:

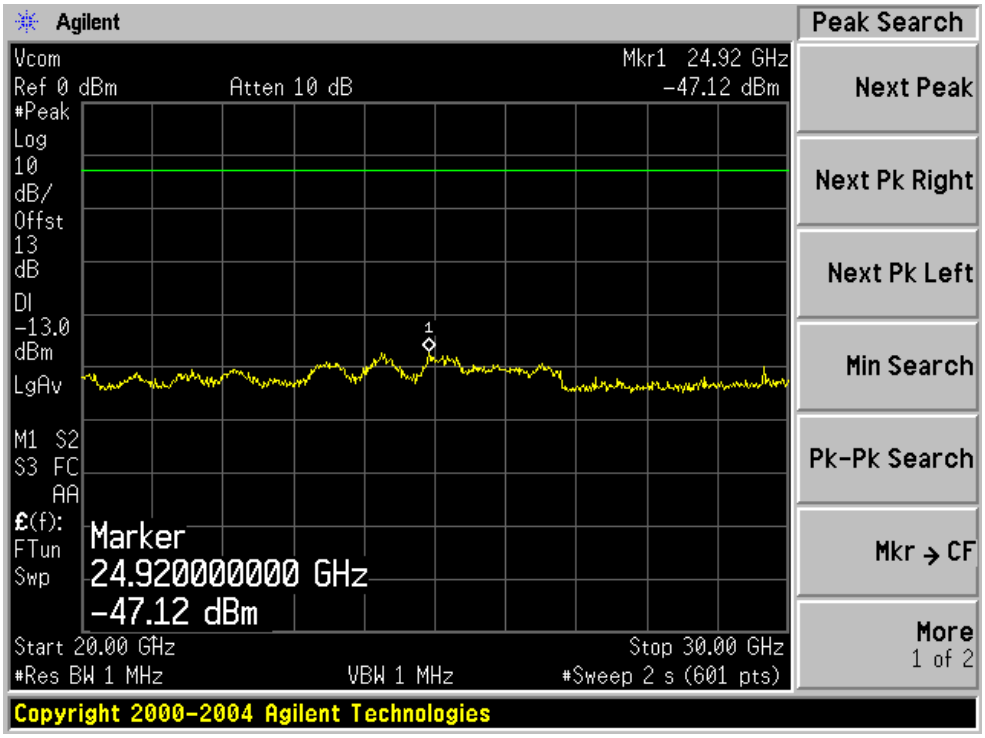





Agilent
Marker
Vcom
Mkr1 3.735 GHz
Ref 0 dBm
Atten 10 dB
-55.26 dBm
#Peak
Log
10
dB/
Offst
13
dB
Dl
-13.0
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Marker
3.735000000 GHz
-55.26 dBm
Start 2.520 GHz
Stop 5.000 GHz
#Res BW 1 MHz
VBW 1 MHz
Sweep 24.8 ms (601 pts)
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2
Copyright 2000-2004 Agilent Technologies

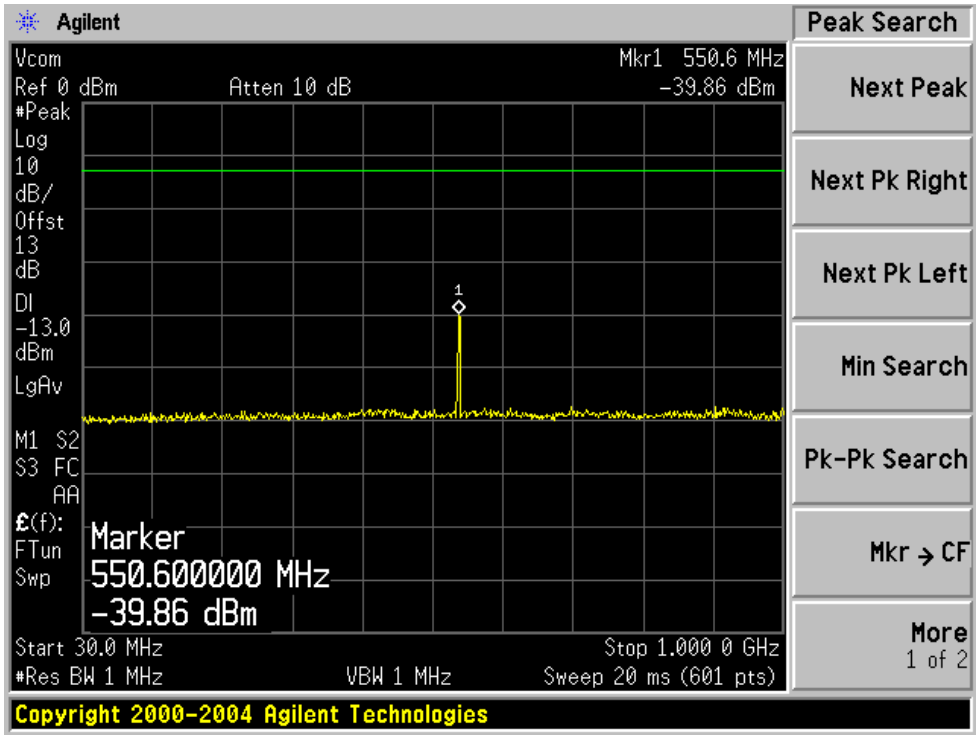

Agilent
Peak Search
Vcom
Mkr1 7.533 GHz
Ref 0 dBm
Atten 10 dB
-39.81 dBm
#Peak
Log
10
dB/
Offst
13
dB
Dl
-13.0
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Marker
7.533000000 GHz
-39.81 dBm
Start 5.000 GHz
Stop 10.000 GHz
#Res BW 1 MHz
VBW 1 MHz
Sweep 50 ms (601 pts)
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
Copyright 2000-2004 Agilent Technologies

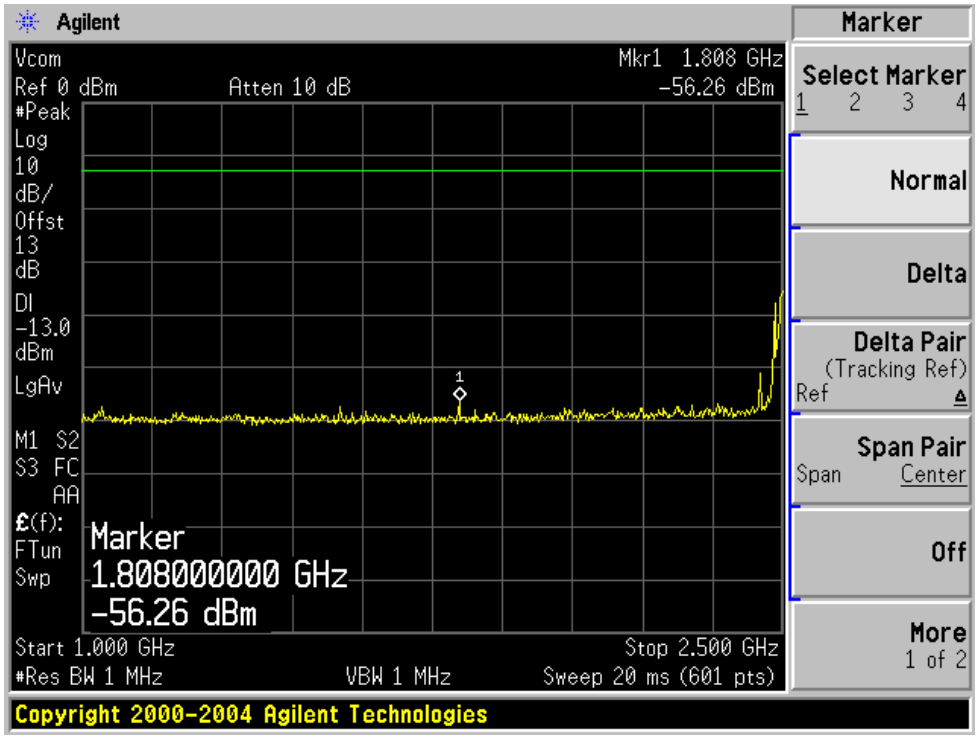

Agilent
Peak Search
Vcom
Ref 0 dBm
Atten 10 dB
Mkr1 12.57 GHz
-43.02 dBm
#Peak
Log
10
dB/
Offst
13
dB
Dl
-13.0
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Marker
12.570000000 GHz
-43.02 dBm
Start 10.00 GHz
#Res BW 1 MHz
VBW 1 MHz
Stop 20.00 GHz
#Sweep 2 s (601 pts)
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
Copyright 2000-2004 Agilent Technologies

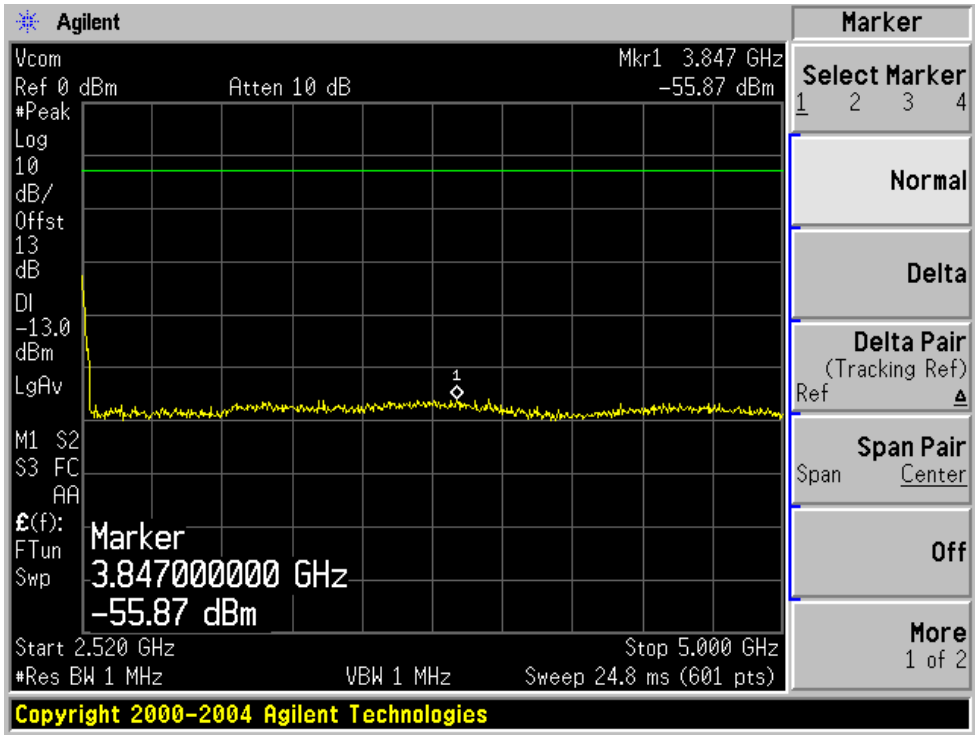

Agilent
Peak Search
Vcom
Ref 0 dBm
Atten 10 dB
Mkr1 24.92 GHz
-47.12 dBm
#Peak
Log
10
dB/
Offst
13
dB
Dl
-13.0
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Marker
24.920000000 GHz
-47.12 dBm
Start 20.00 GHz
#Res BW 1 MHz
VBW 1 MHz
Stop 30.00 GHz
#Sweep 2 s (601 pts)
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
Copyright 2000-2004 Agilent Technologies

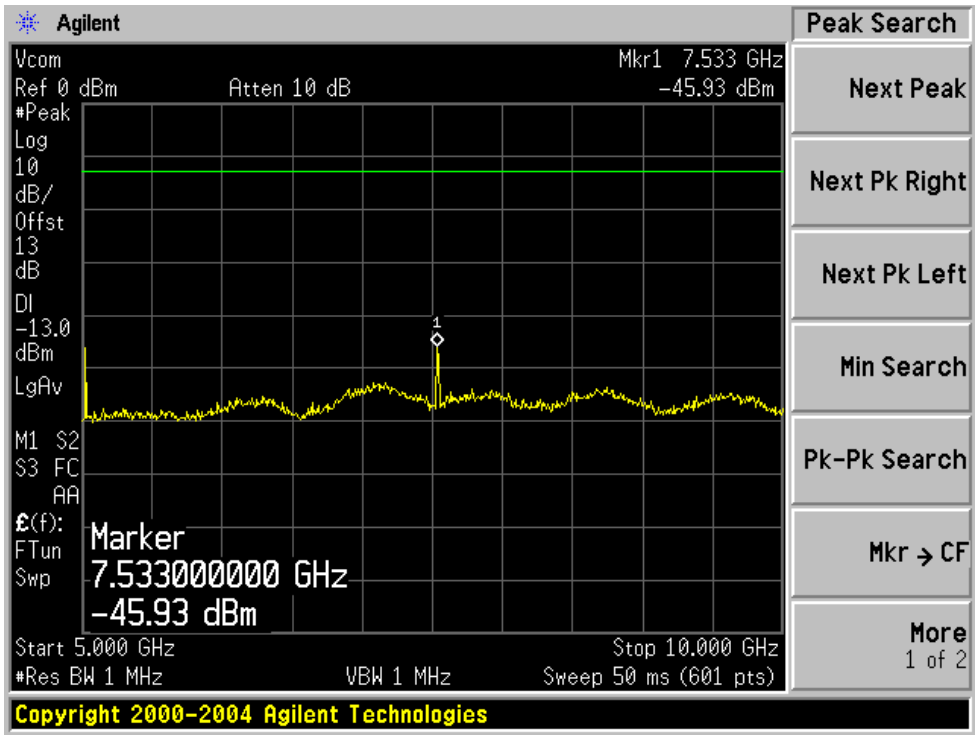
Modulation type: 16QAM, Symbol rate: 2560 ksym/sec

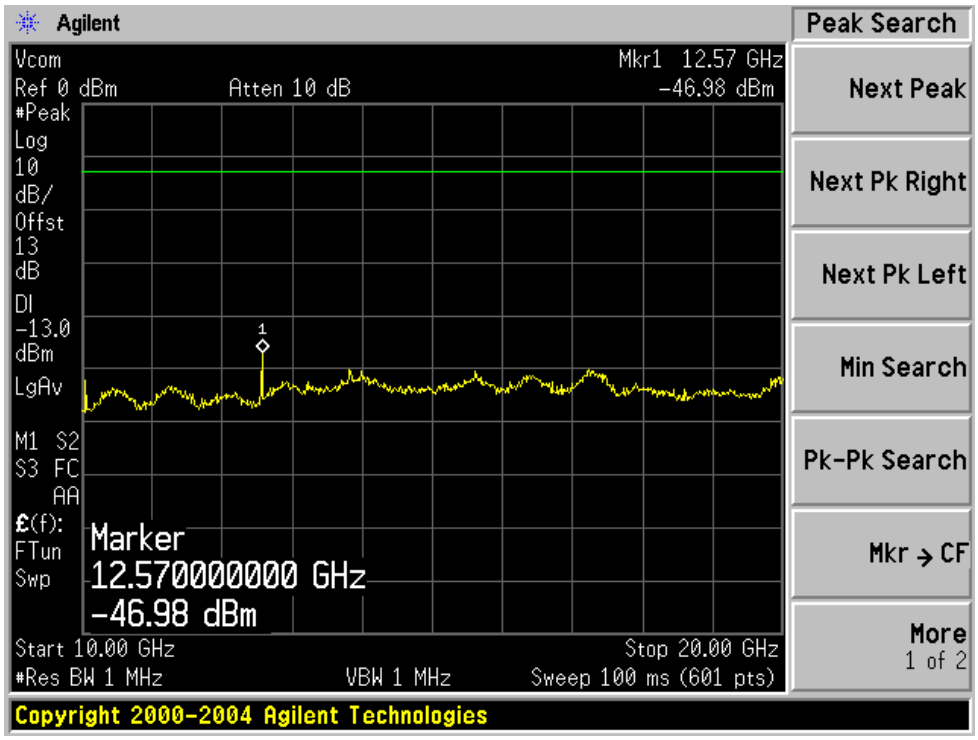
Middle Channel:

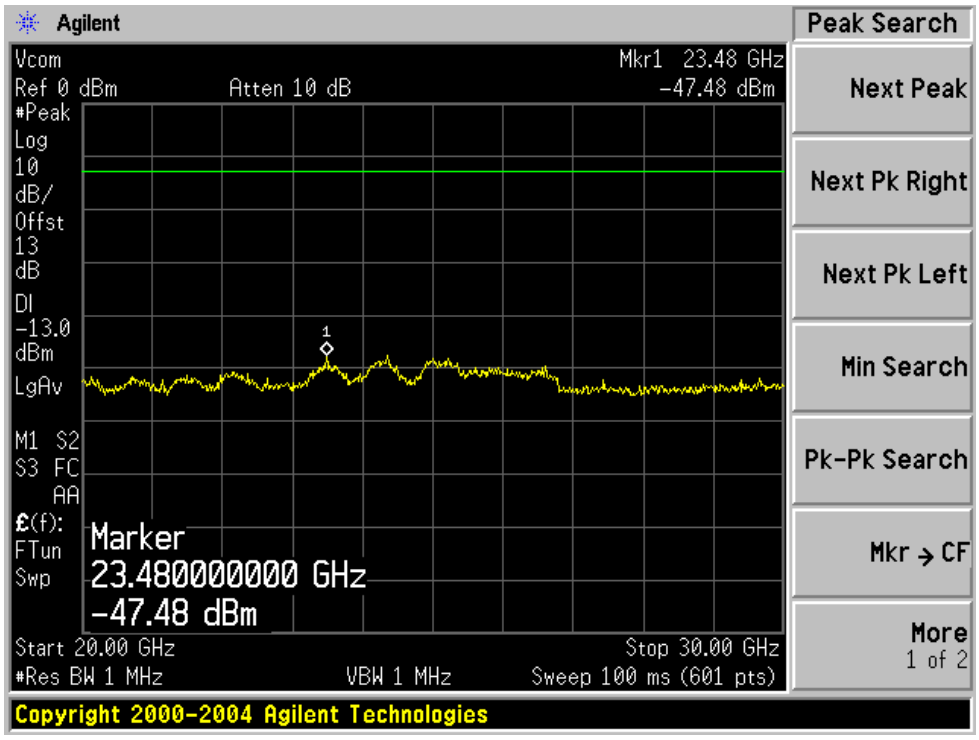





Agilent
Marker
Vcom
Ref 0 dBm
Atten 10 dB
Mkr1 3.847 GHz
-55.87 dBm
#Peak
Log
10
dB/
Offst
13
dB
Dl
-13.0
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Marker
3.847000000 GHz
-55.87 dBm
Start 2.520 GHz
#Res BW 1 MHz
VBW 1 MHz
Stop 5.000 GHz
Sweep 24.8 ms (601 pts)
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2
Copyright 2000-2004 Agilent Technologies

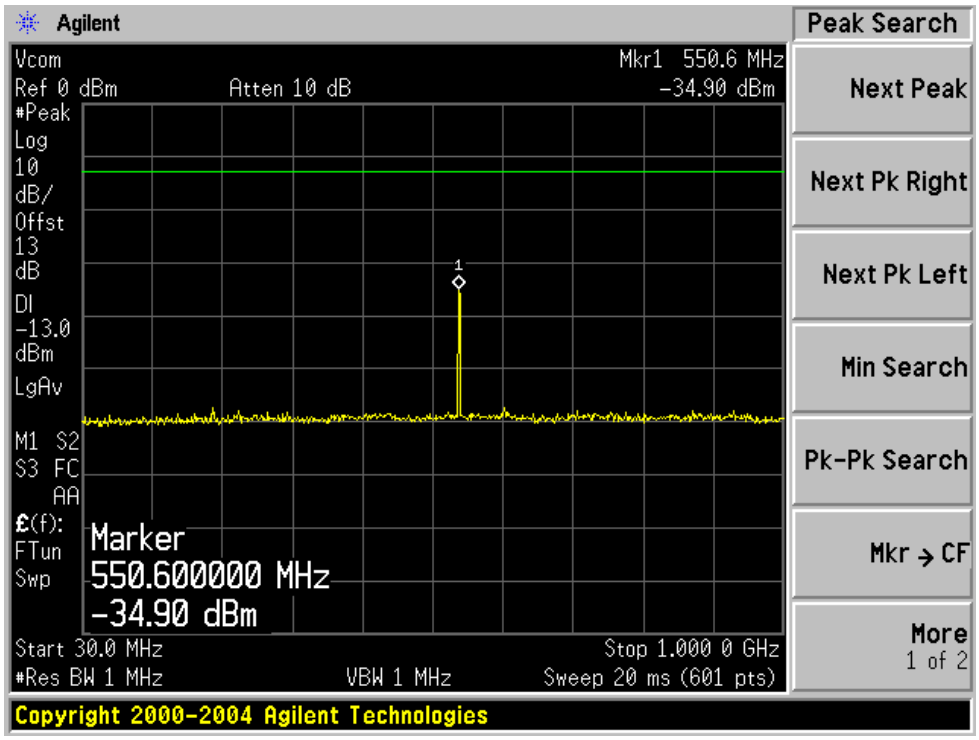

Agilent
Peak Search
Vcom
Ref 0 dBm
Atten 10 dB
Mkr1 7.533 GHz
-45.93 dBm
#Peak
Log
10
dB/
Offst
13
dB
Dl
-13.0
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Marker
7.533000000 GHz
-45.93 dBm
Start 5.000 GHz
#Res BW 1 MHz
VBW 1 MHz
Stop 10.000 GHz
Sweep 50 ms (601 pts)
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
Copyright 2000-2004 Agilent Technologies

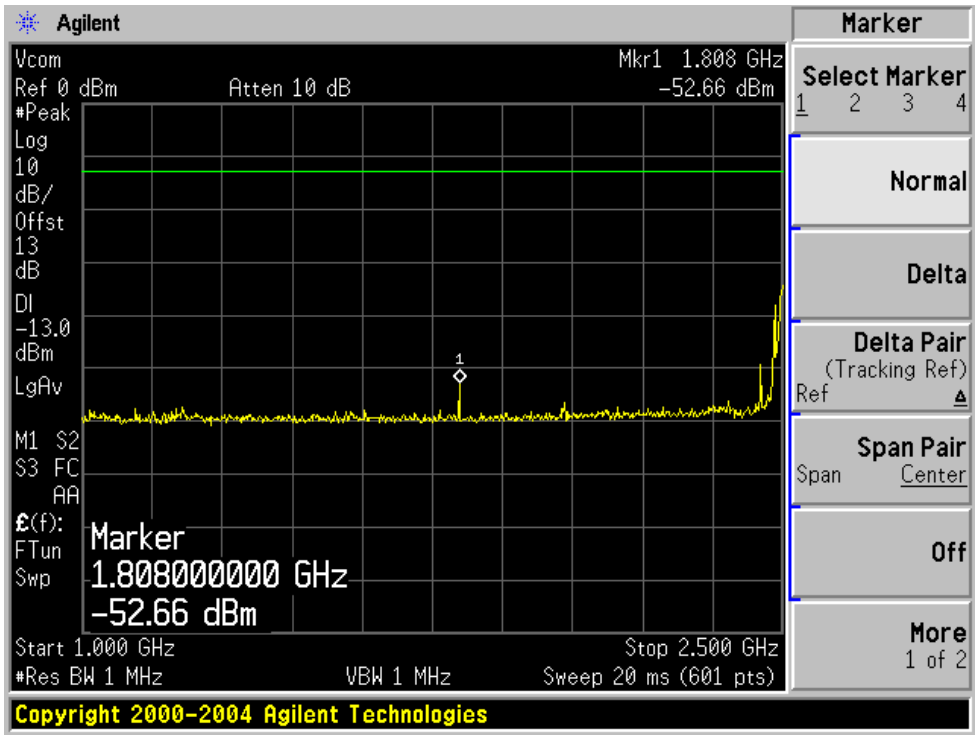

Agilent
Peak Search
Vcom
Mkr1 12.57 GHz
Ref 0 dBm
Atten 10 dB
-46.98 dBm
#Peak
Log
10
dB/
Offst
13
dB
Dl
-13.0
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Marker
12.570000000 GHz
-46.98 dBm
Start 10.00 GHz
Stop 20.00 GHz
#Res BW 1 MHz
VBW 1 MHz
Sweep 100 ms (601 pts)
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
Copyright 2000-2004 Agilent Technologies

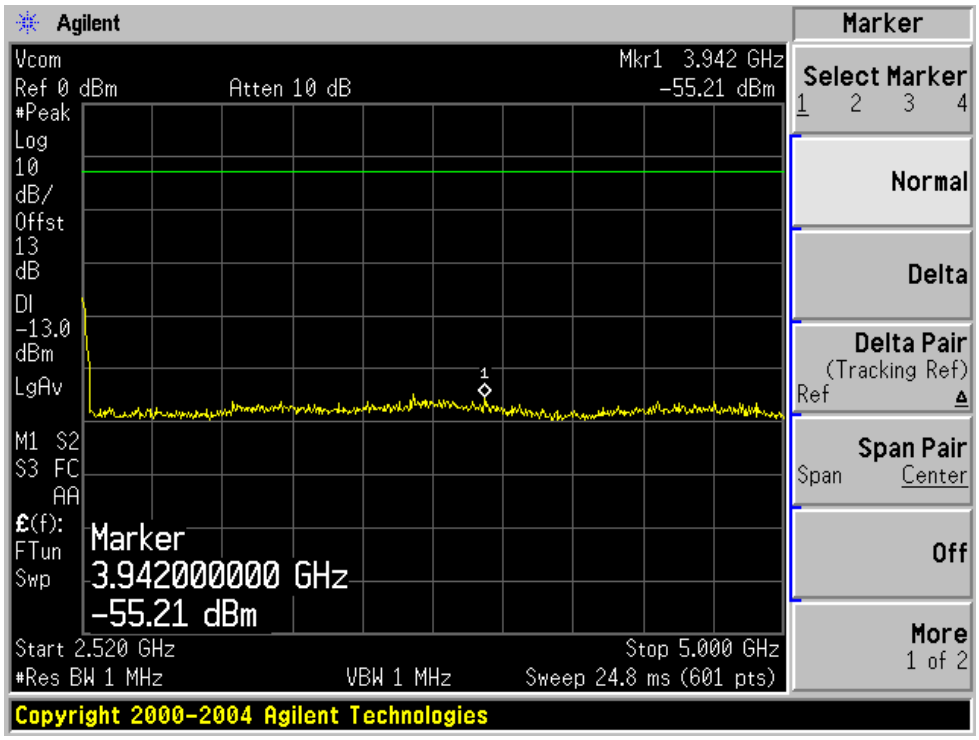

Agilent
Peak Search
Vcom
Mkr1 23.48 GHz
Ref 0 dBm
Atten 10 dB
-47.48 dBm
#Peak
Log
10
dB/
Offst
13
dB
Dl
-13.0
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Marker
23.480000000 GHz
-47.48 dBm
Start 20.00 GHz
Stop 30.00 GHz
#Res BW 1 MHz
VBW 1 MHz
Sweep 100 ms (601 pts)
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
Copyright 2000-2004 Agilent Technologies

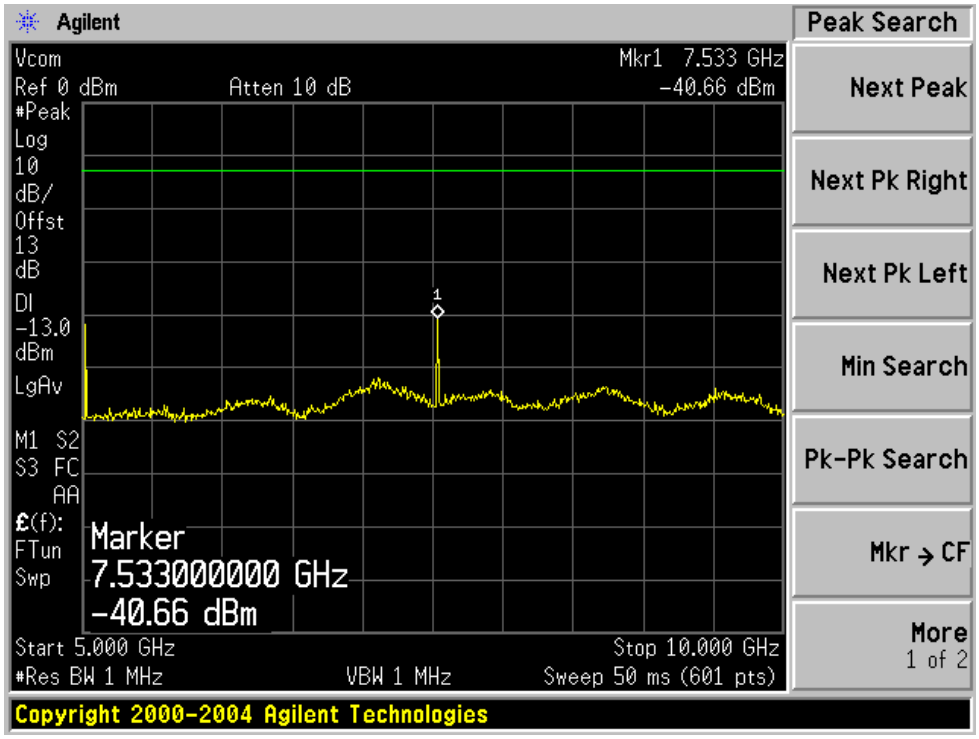
Modulation type: 16QAM, Symbol rate: 640 ksym/sec

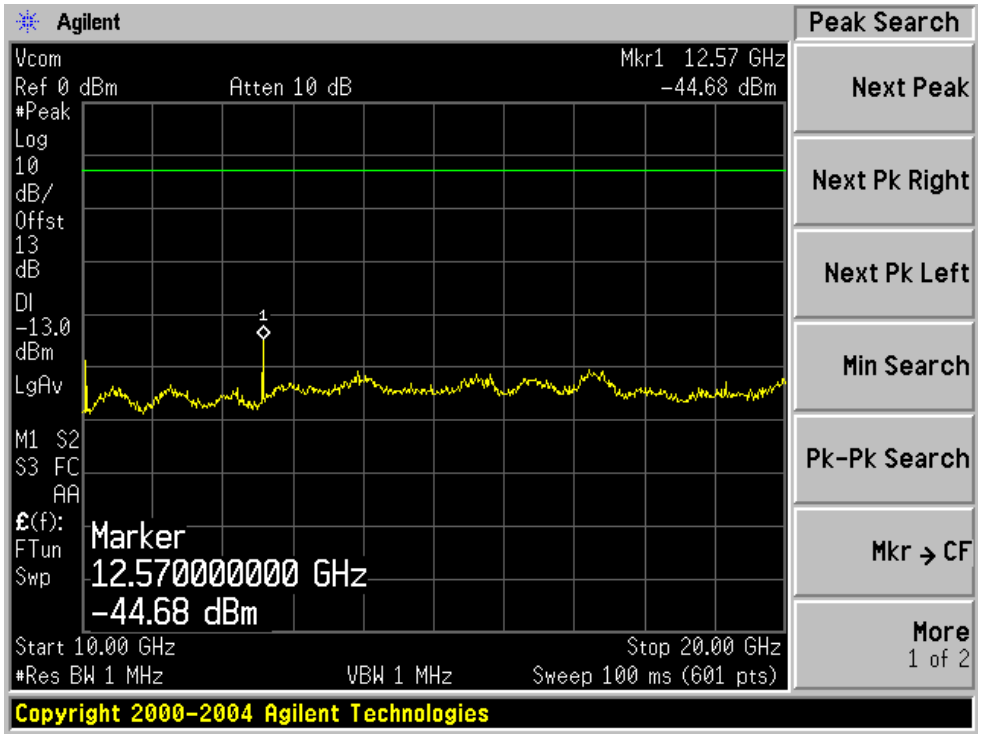
Middle Channel:

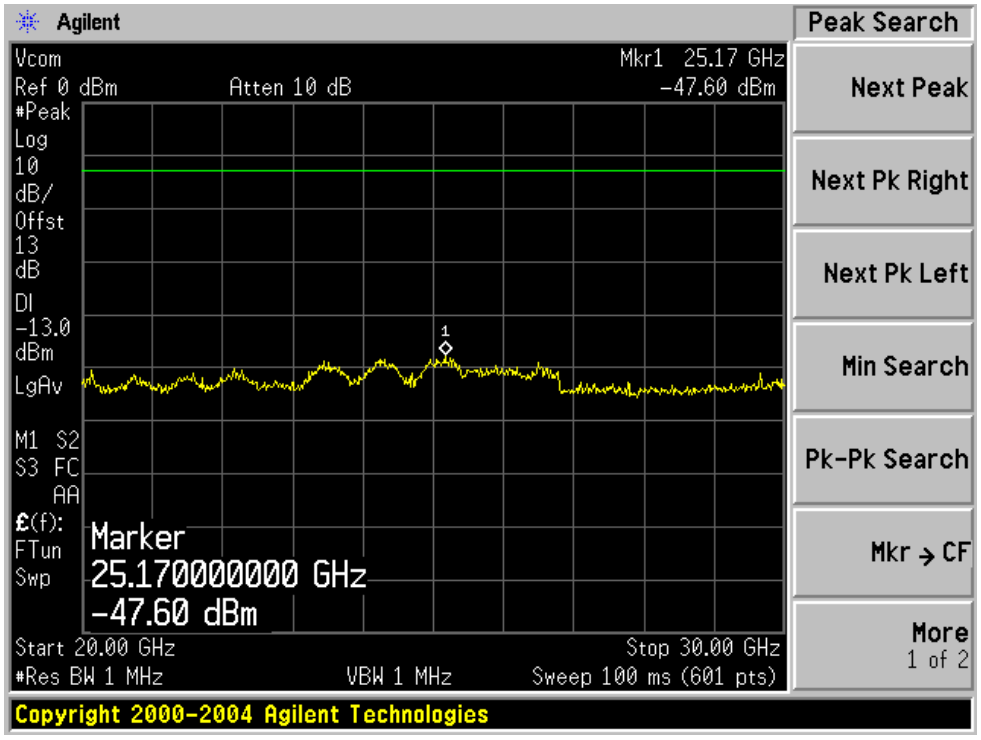





Agilent
Marker
Vcom
Mkr1 3.942 GHz
Ref 0 dBm
Atten 10 dB
-55.21 dBm
#Peak
Log
10
dB/
Offst
13
dB
Dl
-13.0
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Marker
3.942000000 GHz
-55.21 dBm
Start 2.520 GHz
Stop 5.000 GHz
#Res BW 1 MHz
VBW 1 MHz
Sweep 24.8 ms (601 pts)
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2
Copyright 2000-2004 Agilent Technologies


Agilent
Peak Search
Vcom
Mkr1 7.533 GHz
Ref 0 dBm
Atten 10 dB
-40.66 dBm
#Peak
Log
10
dB/
Offst
13
dB
Dl
-13.0
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Marker
7.533000000 GHz
-40.66 dBm
Start 5.000 GHz
Stop 10.000 GHz
#Res BW 1 MHz
VBW 1 MHz
Sweep 50 ms (601 pts)
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
Copyright 2000-2004 Agilent Technologies


Agilent
Peak Search
Vcom
Mkr1 12.57 GHz
Ref 0 dBm
Atten 10 dB
-44.68 dBm
#Peak
Log
10
dB/
Offst
13
dB
Dl
-13.0
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Marker
12.570000000 GHz
-44.68 dBm
Start 10.00 GHz
Stop 20.00 GHz
#Res BW 1 MHz
VBW 1 MHz
Sweep 100 ms (601 pts)
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
Copyright 2000-2004 Agilent Technologies


Agilent
Peak Search
Vcom
Mkr1 25.17 GHz
Ref 0 dBm
Atten 10 dB
-47.60 dBm
#Peak
Log
10
dB/
Offst
13
dB
Dl
-13.0
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Marker
25.170000000 GHz
-47.60 dBm
Start 20.00 GHz
Stop 30.00 GHz
#Res BW 1 MHz
VBW 1 MHz
Sweep 100 ms (601 pts)
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
Copyright 2000-2004 Agilent Technologies

§ 2.1053 & §27.53 (l) – FIELD STRENGTH OF SPURIOUS RADIATION

Standard Applicable

Requirement: §27.53(l): For BRS and EBS stations, the power of any emissions outside the licensee's frequency bands of operation shall be attenuated below the transmitter power (P) measured in watts.

Measurement Procedure

The testing procedure was set according to TIA 603-C.

Equipment Lists

Manufacturer	Description	Model	Serial Number	Calibration Date
Agilent	Analyzer, Spectrum	E4440A	MY44303352	2007-02-23
HP	Pre, Amplifier (1 ~ 26.5 GHz)	8449B	3147A00400	2006-08-21
Sonoma Instrument	Amplifier Broadband (10 kHz - 2500 MHz)	317	260407	2006-03-20
Sunol Science	30MHz ~ 3 GHz Antenna	JB3	A020106-3/S006628	2006-02-14
HP	Generator, Signal	83650B	3614A00276	2006-05-10
A.R.A	Antenna, Horn, DRG	DRG-118/A	1132	2005-08-17*

**Two year calibration cycle*

Statement of Traceability: BACL Corp. attests that all calibrations have been performed per the NVLAP requirements, traceable to the NIST.

Measurement Result

Environmental Conditions

Temperature:	22 °C
Relative Humidity:	55 %
ATM Pressure:	101.3 kPa

** The testing was performed by Oscar Au on 2007-03-30.*

Test Results Summary

According to the data in the following table, the EUT was found compliant with the FCC Standard part 27.53, and had the worst margin reading(s) of:

Model: TRI2525B

1-15GHz

Modulation type: QPSK, Symbol rate: 2560 ksym/sec

-33.47 dB at 4064.00 MHz at the **Horizontal** polarization

Modulation type: QPSK, Symbol rate: 640 ksym/sec

-34.07 dB at 4064.00 MHz at the **Horizontal** polarization

Modulation type: 16QAM, Symbol rate: 2560 ksym/sec

-34.37 dB at 4064.00 MHz at the **Horizontal** polarization

Modulation type: 16QAM, Symbol rate: 640 ksym/sec

-33.97 dB at 4064.00 MHz at the **Horizontal** polarization

Model: TR2525B

1-15GHz

Emissions at noise floor level

Model: TRI2525B

Antenna Gain = 18 dBi

Modulation type: QPSK, Symbol rate: 2560 ksym/sec

Indicated Freq. (MHz)	Amplitude (dBuV)	Table Angle Degree	Test Antenna Height (m)	Polar H/V	Substituted					Limit (dBm)	Margin (dB)
					Freq. (MHz)	Level (dBm)	Ant. Gain (dBi)	Cable Loss (dB)	Absolute Level (dBm)		
4064.00	56.10	190.00	1.90	H	4064.00	-54.90	10.47	2.04	-46.47	-13.00	-33.47
4064.00	55.40	180.00	1.90	V	4064.00	-55.80	10.47	2.04	-47.37	-13.00	-34.37
5024.00	49.80	210.00	1.70	V	5024.00	-62.30	10.23	2.36	-54.43	-13.00	-41.43
5024.00	45.60	30.00	1.80	H	5024.00	-66.50	10.23	2.36	-58.63	-13.00	-45.63

Modulation type: QPSK, Symbol rate: 640 ksym/sec

Indicated Freq. (MHz)	Amplitude (dBuV)	Table Angle Degree	Test Antenna Height (m)	Polar H/V	Substituted					Limit (dBm)	Margin (dB)
					Freq. (MHz)	Level (dBm)	Ant. Gain (dBi)	Cable Loss (dB)	Absolute Level (dBm)		
4064.00	55.90	190.00	1.80	H	4064.00	-55.50	10.47	2.04	-47.07	-13.00	-34.07
4064.00	54.80	190.00	1.90	V	4064.00	-56.70	10.47	2.04	-48.27	-13.00	-35.27
5024.00	54.00	210.00	1.80	V	5024.00	-58.20	10.23	2.36	-50.33	-13.00	-37.33
5024.00	50.00	30.00	1.70	H	5024.00	-62.40	10.23	2.36	-54.53	-13.00	-41.53

Modulation type: 16QAM, Symbol rate: 2560 ksym/sec

Indicated Freq. (MHz)	Amplitude (dBuV)	Table Angle Degree	Test Antenna Height (m)	Polar H/V	Substituted					Limit (dBm)	Margin (dB)
					Freq. (MHz)	Level (dBm)	Ant. Gain (dBi)	Cable Loss (dB)	Absolute Level (dBm)		
4064.00	55.70	185.00	1.70	H	4064.00	-55.80	10.47	2.04	-47.37	-13.00	-34.37
4064.00	55.20	190.00	1.80	V	4064.00	-56.30	10.47	2.04	-47.87	-13.00	-34.87
5024.00	46.50	205.00	1.80	V	5024.00	-65.70	10.23	2.36	-57.83	-13.00	-44.83
5024.00	45.40	45.00	1.70	H	5024.00	-66.80	10.23	2.36	-58.93	-13.00	-45.93

Modulation type: 16QAM, Symbol rate: 640 ksym/sec

Final Scan 1GHz – 16.5GHz (Middle Channel: 2512 MHz)

Indicated Freq. (MHz)	Amplitude (dBuV)	Table Angle Degree	Test Antenna Height (m)	Polar H/V	Substituted					Limit (dBm)	Margin (dB)
					Freq. (MHz)	Level (dBm)	Ant. Gain (dBi)	Cable Loss (dB)	Absolute Level (dBm)		
4064.00	56.00	180.00	1.60	H	4064.00	-55.40	10.47	2.04	-46.97	-13.00	-33.97
4064.00	55.30	170.00	1.50	V	4064.00	-56.20	10.47	2.04	-47.77	-13.00	-34.77
5024.00	51.00	210.00	1.80	V	5024.00	-61.40	10.23	2.36	-53.53	-13.00	-40.53
5024.00	46.80	40.00	1.70	H	5024.00	-65.40	10.23	2.36	-57.53	-13.00	-44.53

Model: TR2525B

Antenna port: terminated

Modulation type: QPSK, Symbol rate: 2560 ksym/sec

Emissions are at noise floor level

Modulation type: QPSK, Symbol rate: 640 ksym/sec

Emissions are at noise floor level

Modulation type: 16QAM, Symbol rate: 2560 ksym/sec

Emissions are at noise floor level

Modulation type: 16QAM, Symbol rate: 640 ksym/sec

Emissions are at noise floor level

§2.1049, §27.53 (l) – Occupied Bandwidth

Standard Applicable

Requirements: CFR 47, Section 2.1049, and Section 27.53 (l)

Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. Measure the frequency difference of two frequencies that were attenuated 20 dB from the reference level. Record the frequency difference as the emissions bandwidth.
4. Repeat above procedures until all frequencies measured were complete.

Equipment Lists

Manufacturer	Description	Model	Serial Number	Calibration Date
Agilent	Analyzer, Spectrum	E4440A	MY44303352	2007-02-23

*** Statement of Traceability: BACL Corp.** attests that all calibrations have been performed per the NVLAP requirements, traceable to the NIST.

Measurement Result

Environmental Conditions

Temperature:	22 °C
Relative Humidity:	55 %
ATM Pressure:	101.3 kPa

** The testing was performed by Oscar Au on 2007-03-30.*

Modulation type: QPSK, Symbol rate: 2560 ksym/sec

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Mid	2512	2.9290

Modulation type: QPSK, Symbol rate: 640 ksym/sec

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Mid	2512	0.7332

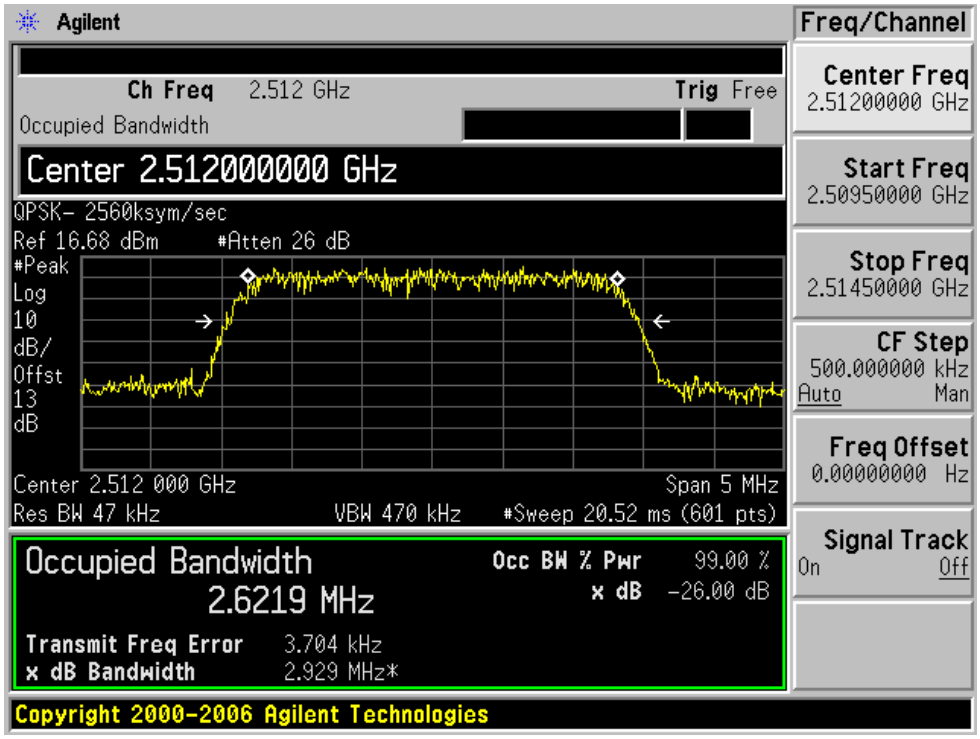
Modulation type: 16QAM, Symbol rate: 2560 ksym/sec

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Mid	2512	2.900

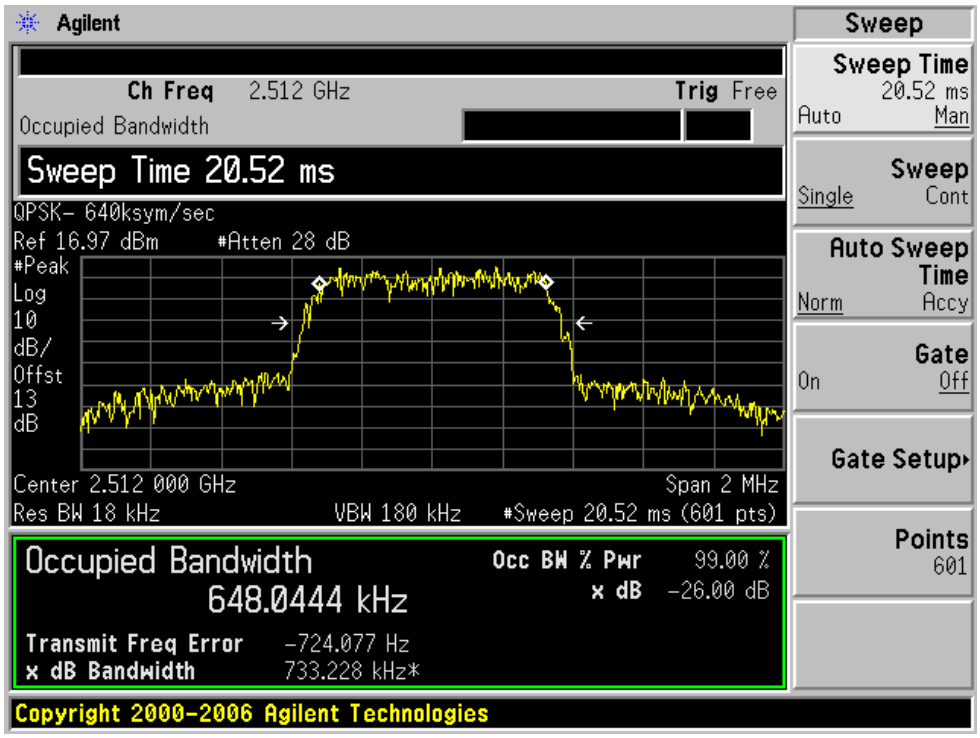
Modulation type: 16QAM, Symbol rate: 640 ksym/sec

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Mid	2512	0.7286

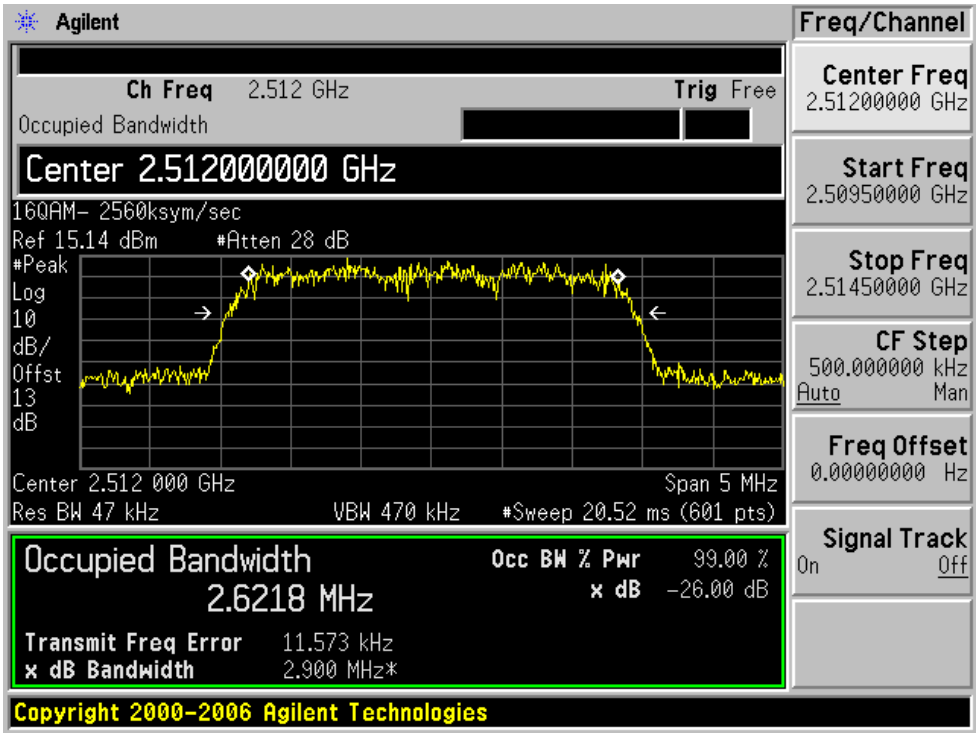
Modulation type: QPSK, Symbol rate: 2560 ksym/sec



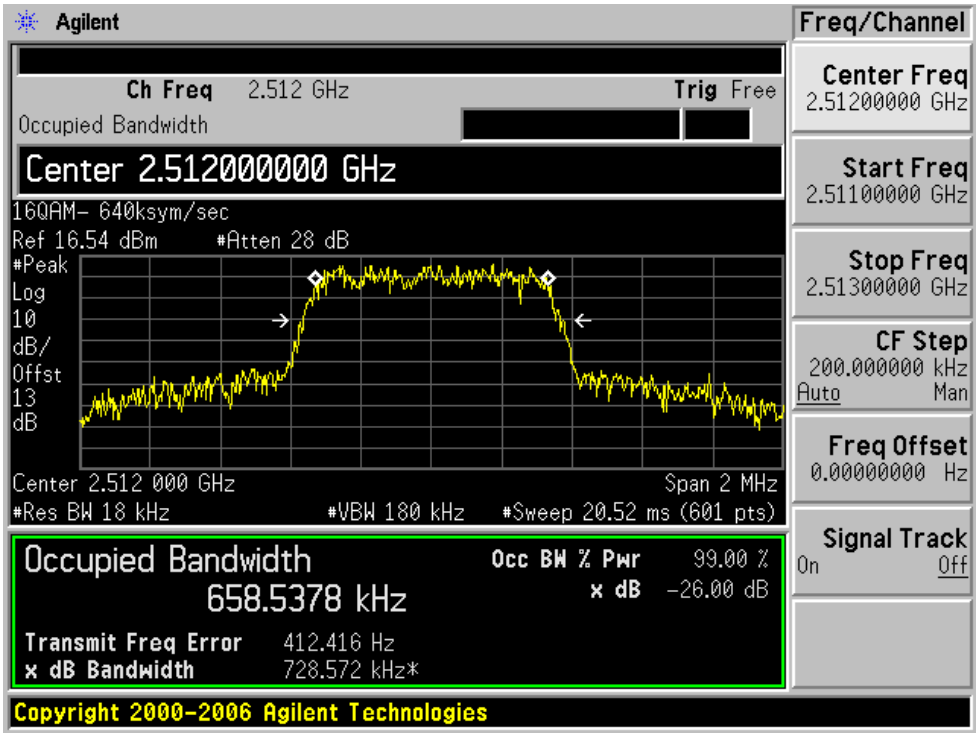
Modulation type: QPSK, Symbol rate: 640 ksym/sec



Modulation type: 16QAM, Symbol rate: 2560 ksym/sec



Modulation type: 16QAM, Symbol rate: 640 ksym/sec



§2.1046 & §27.50(h) – RF OUTPUT POWER

Standard Applicable

(1) Main, booster and base stations. (i) The maximum EIRP of a main, booster or base station shall not exceed 33 dBW + 10log(X/Y) dBW, where X is the actual channel width in MHz and Y is either 6 MHz if prior to transition or the station is in the MBS following transition or 5.5 MHz if the station is in the LBS and UBS following transition, except as provided in paragraph (h)(1)(ii) of this section.

Measurement Procedure

1. Place the EUT on a bench and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to a spectrum analyzer.

Equipment Lists

Manufacturer	Description	Model	Serial Number	Calibration Date
Agilent	Analyzer, Spectrum	E4440A	MY44303352	2007-02-23

*** Statement of Traceability: BACL Corp.** attests that all calibrations have been performed per the NVLAP requirements, traceable to the NIST.

Measurement Result

Environmental Conditions

Temperature:	21 °C
Relative Humidity:	45 %
ATM Pressure:	101.3 kPa

** The testing was performed by Oscar Au on 2007-03-30.*

Modulation type: QPSK, Symbol rate: 2560 ksym/sec

Channel	Frequency (MHz)	Conducted Output Power (dBm)	Limit (dBm)
Mid	2512	22.94	59.75

Modulation type: QPSK, Symbol rate: 640 ksym/sec

Channel	Frequency (MHz)	Conducted Output Power (dBm)	Limit (dBm)
Mid	2512	22.91	53.66

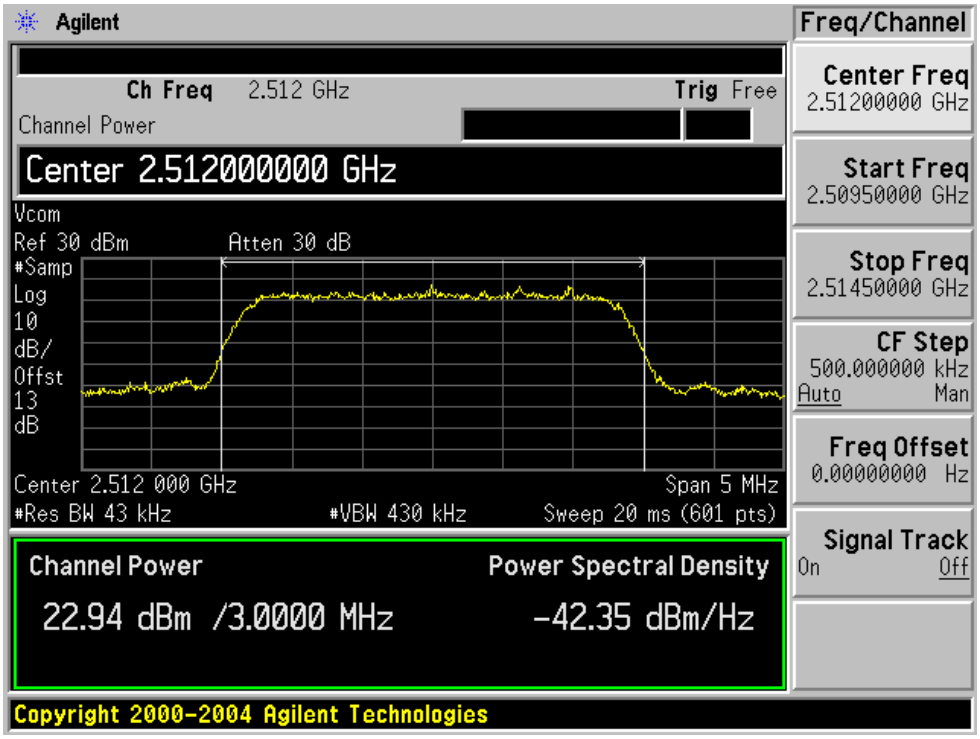
Modulation type: 16QAM, Symbol rate: 2560 ksym/sec

Channel	Frequency (MHz)	Conducted Output Power (dBm)	Limit (dBm)
Mid	2512	20.95	59.75

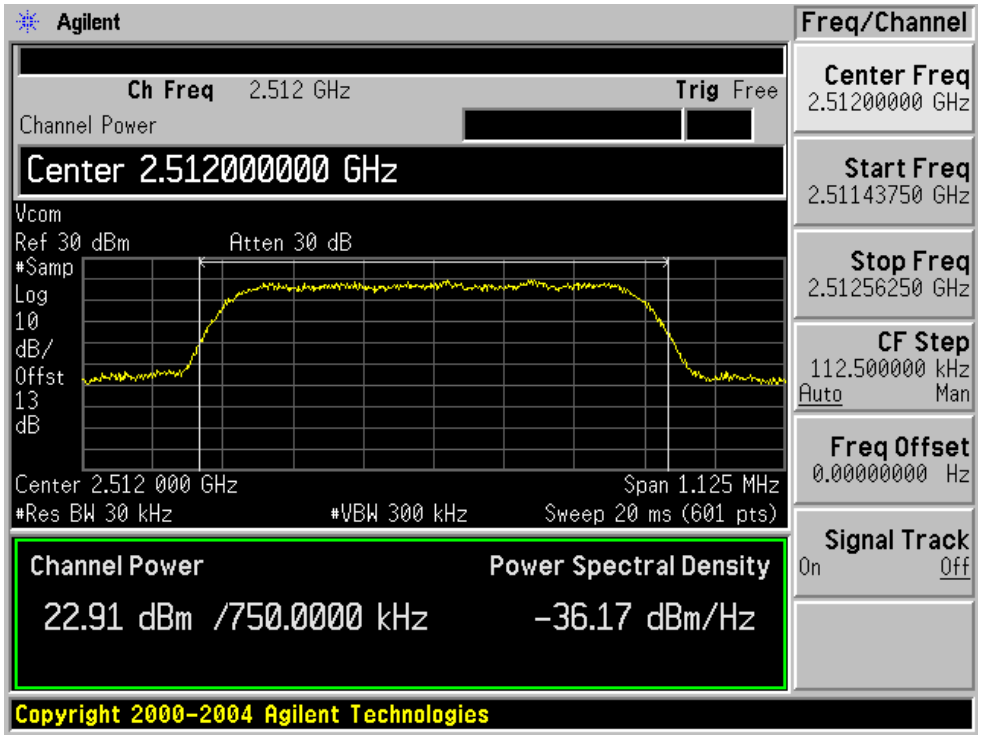
Modulation type: 16QAM, Symbol rate: 640 ksym/sec

Channel	Frequency (MHz)	Conducted Output Power (dBm)	Limit (dBm)
Mid	2512	20.94	53.66

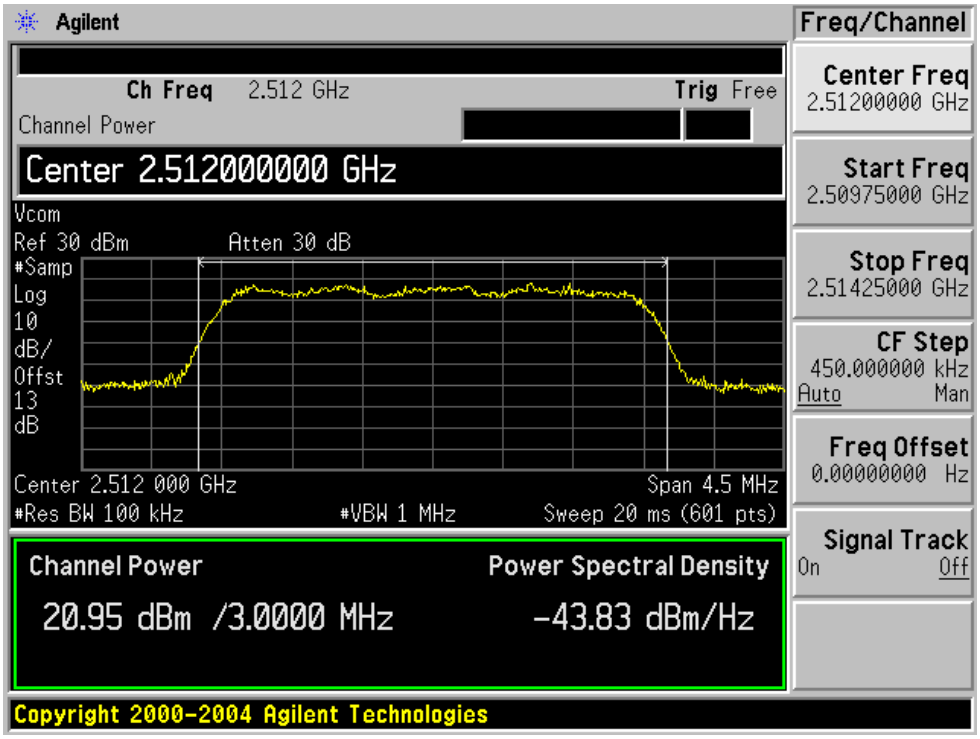
Modulation type: QPSK, Symbol rate: 2560 ksym/sec



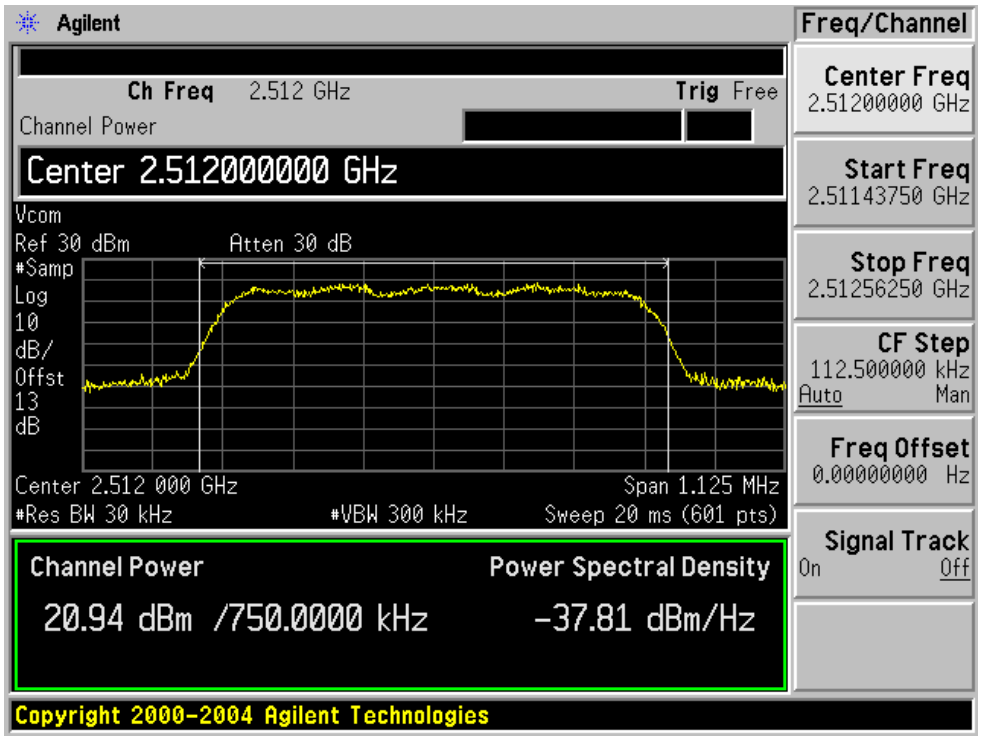
Modulation type: QPSK, Symbol rate: 640 ksym/sec



Modulation type: 16QAM, Symbol rate: 2560 ksym/sec



Modulation type: 16QAM, Symbol rate: 640 ksym/sec



§2.1055, §27.54(d) – FREQUENCY STABILITY

Standard Applicable

According to §27.54(d), the frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date
HP	Microwave Frequency Counter	5342A	2232A06380	2006-09-07
ESPEC	Temp/Humidity Chamber With chart recorder	ESL-4CA	018010	2006-11-15
Agilent	Analyzer, Spectrum	E4440A	MY44303352	2007-02-23

*** Statement of Traceability: BACL Corp.** attests that all calibrations have been performed per the NVLAP requirements, traceable to the NIST.

Measurement Result

Environmental Conditions

Temperature:	22 °C
Relative Humidity:	53 %
ATM Pressure:	101.2 kPa

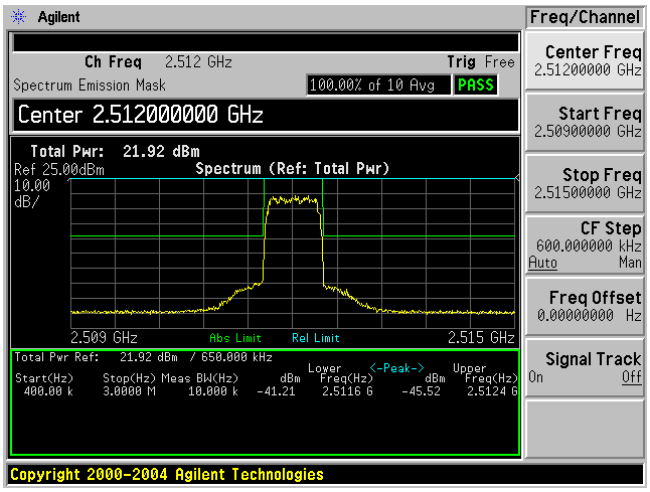
** The testing was performed by Oscar Au on 2007-04-02.*

Measurement Result

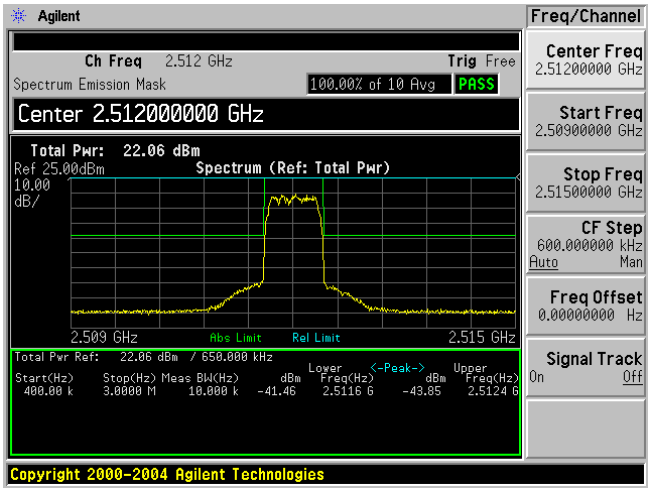
Please refer to the plots.

Frequency Stability vs. Temperature

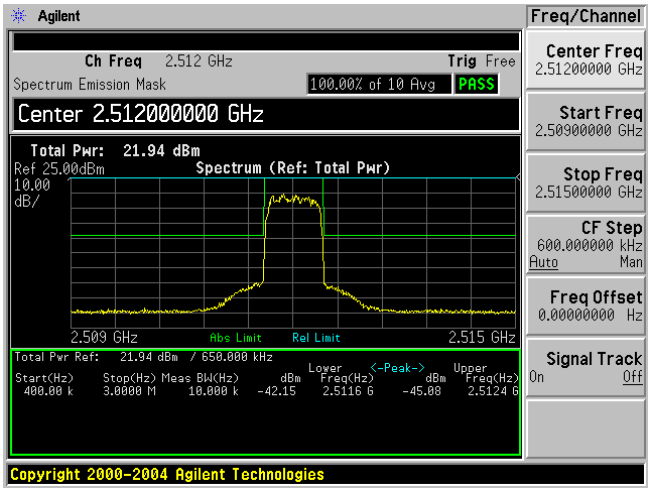
Reference Frequency: 2512 MHz, Symbol rate: 640 ksym/sec



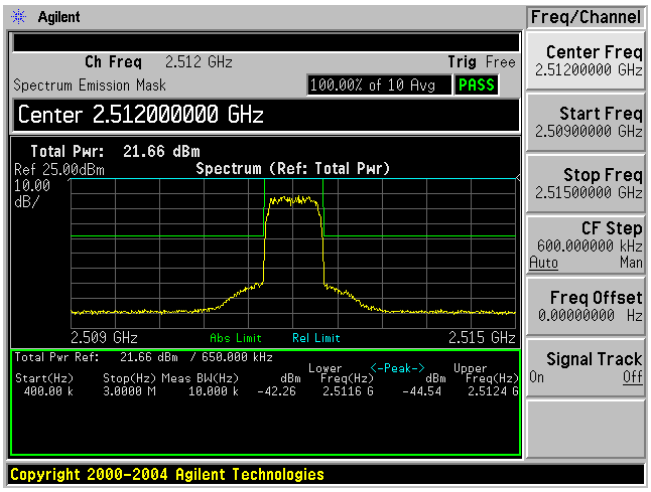
Temp = -30 °C, V = 120 Vac



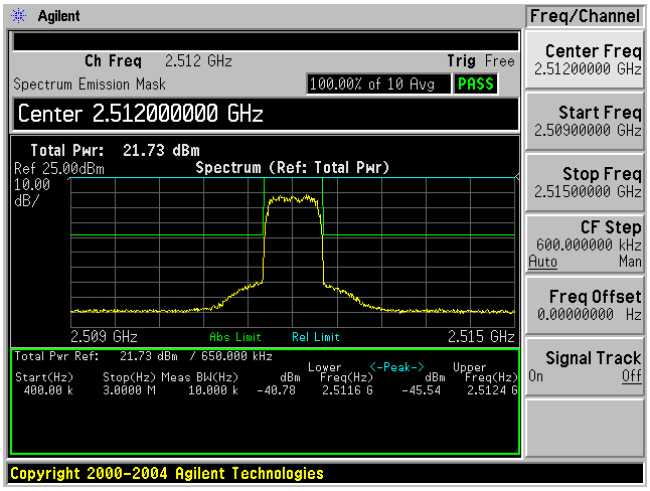
Temp = -20 °C, V = 120 Vac



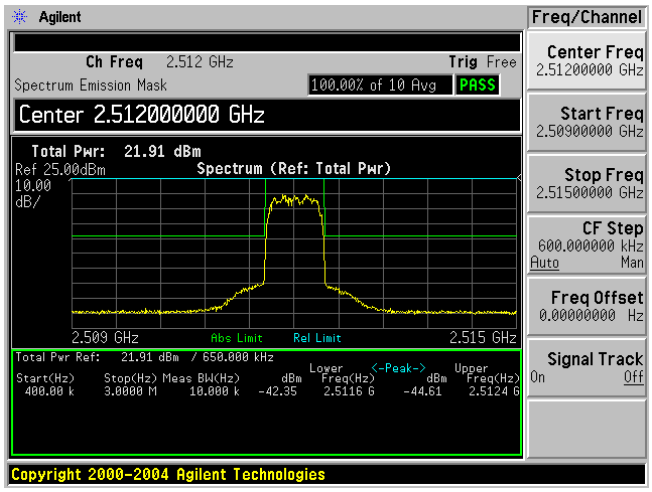
Temp = -10 °C, V = 120 Vac



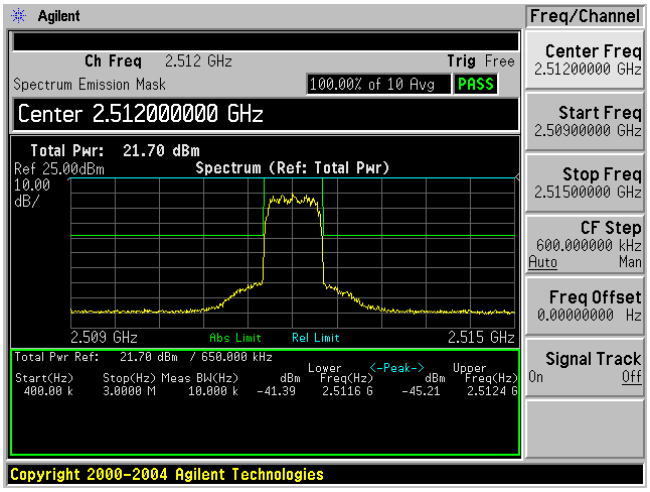
Temp = 0 °C, V = 120 Vac



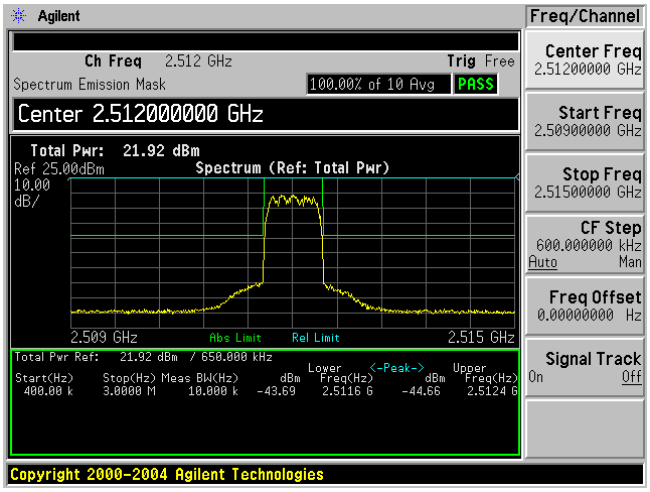
Temp = 10 °C, V = 120 Vac



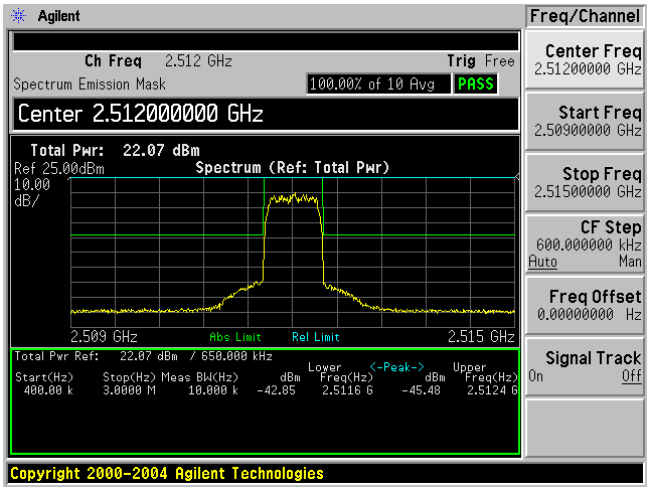
Temp = 20 °C, V = 120 Vac



Temp = 30 °C, V = 120 Vac



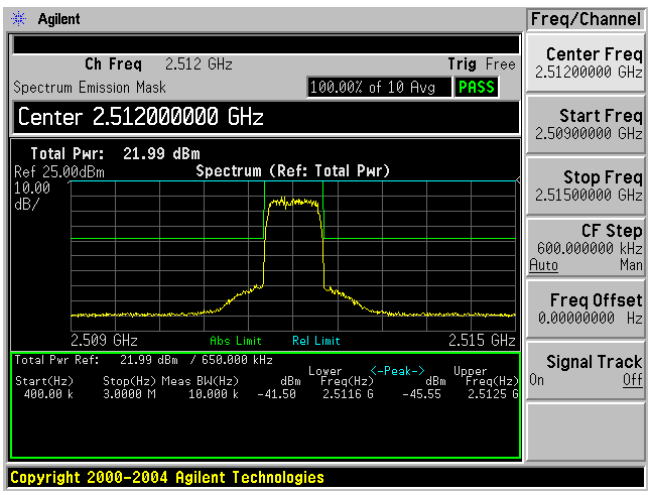
Temp = 40 °C, V = 120 Vac



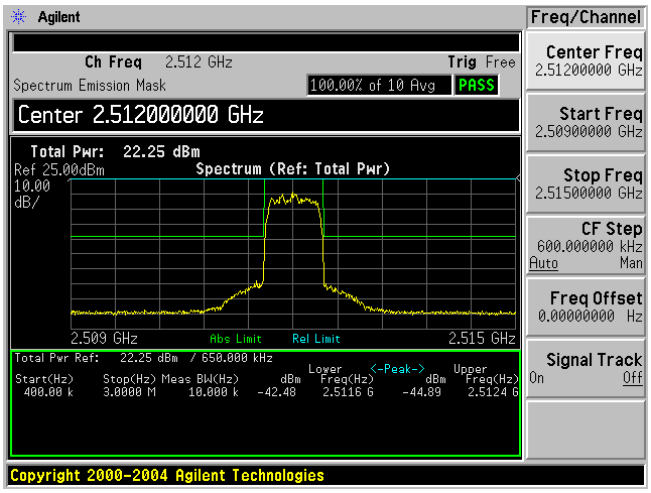
Temp = 50 °C, V = 120 Vac

Frequency Stability vs. Extreme Voltage

Reference Frequency: 2512 MHz, Symbol rate: 640 ksym/sec

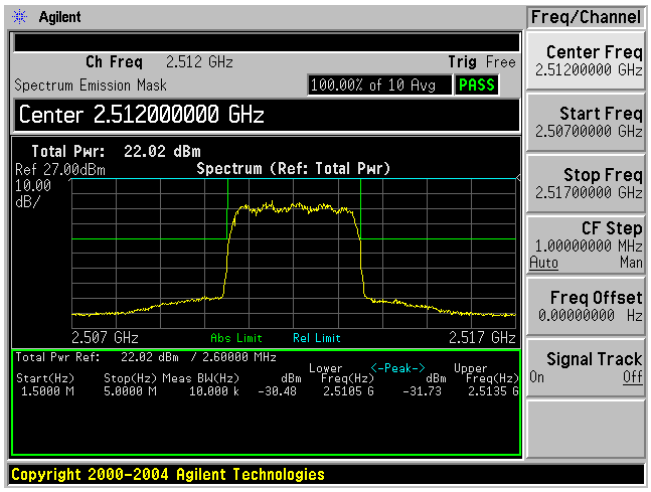


Temp = 20 °C, V = 138 Vac

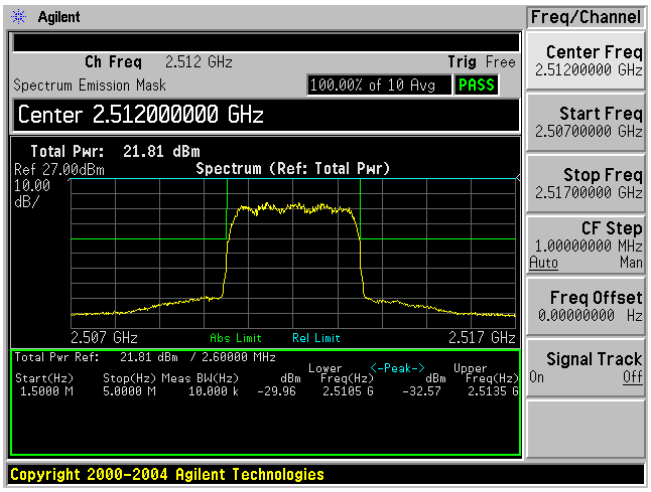


Temp = 20 °C, V = 102 Vac

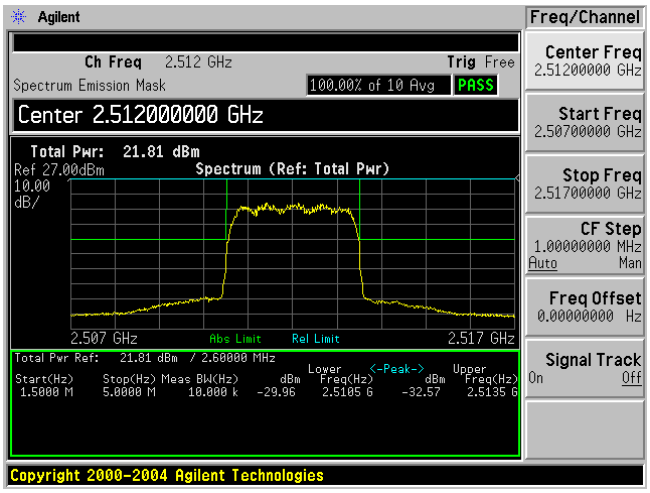
Reference Frequency: 2512 MHz, Symbol rate: 2560 ksym/sec



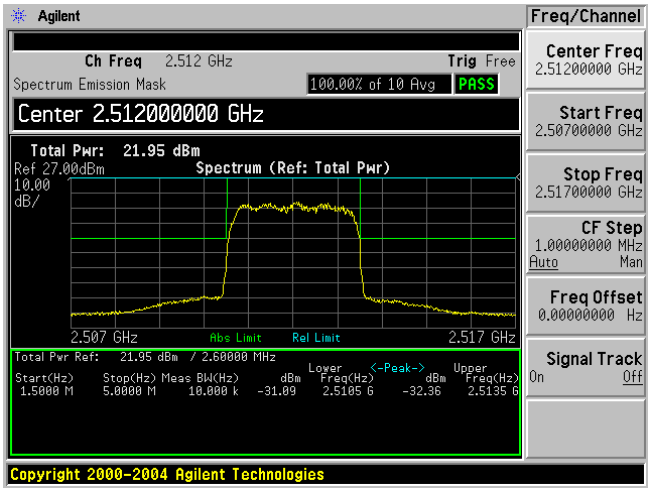
Temp = -30 °C, V = 120 Vac



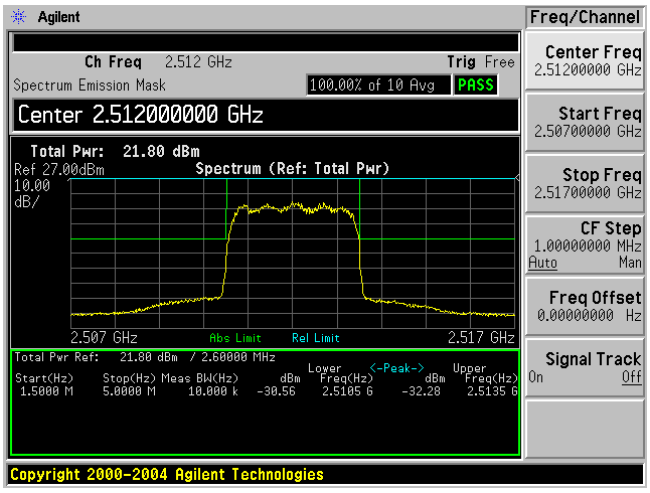
Temp = -20 °C, V = 120 Vac



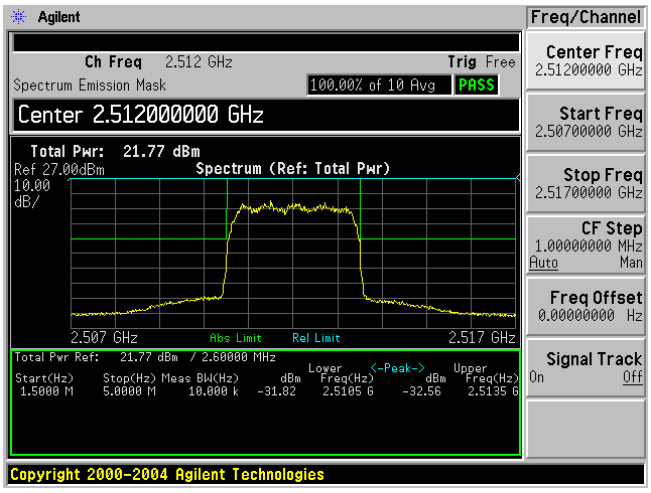
Temp = -10 °C, V = 120 Vac



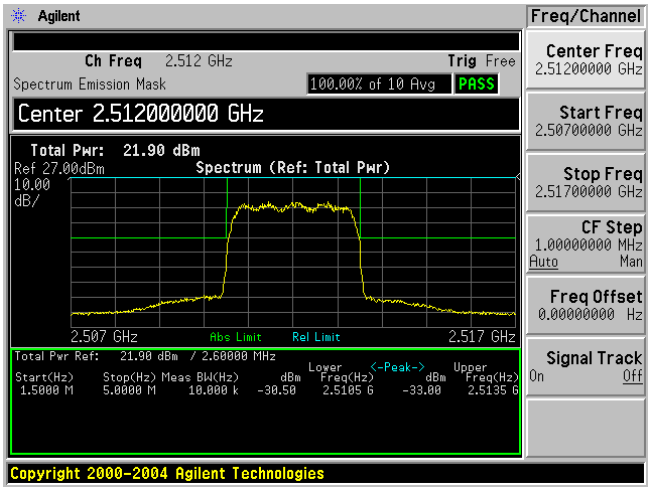
Temp = 0 °C, V = 120 Vac



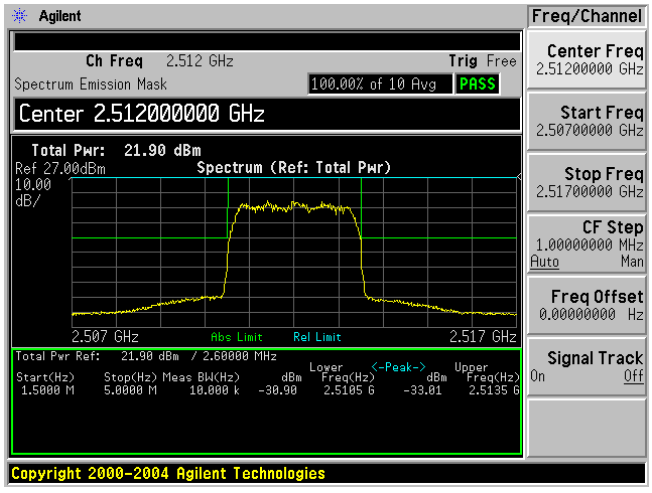
Temp = 10 °C, V = 120 Vac



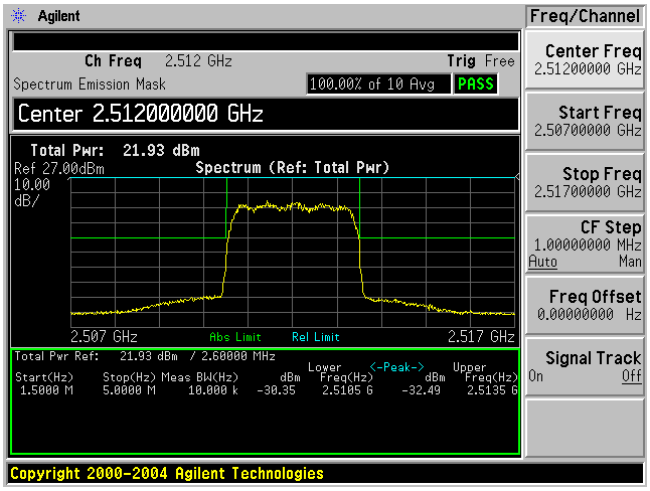
Temp = 20 °C, V = 120 Vac



Temp = 30 °C, V = 120 Vac



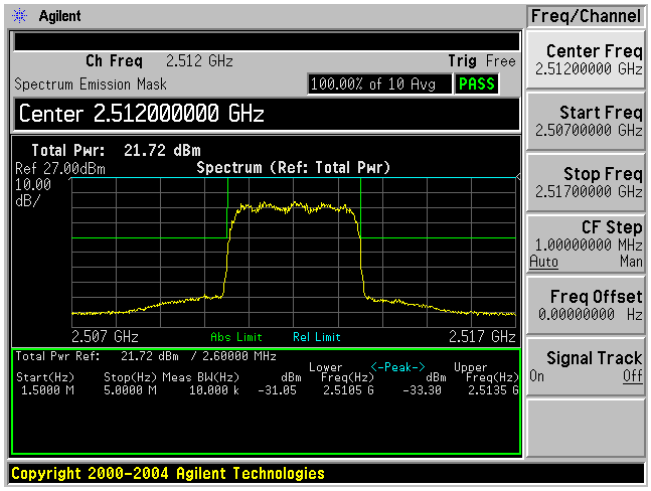
Temp = 40 °C, V = 120 Vac



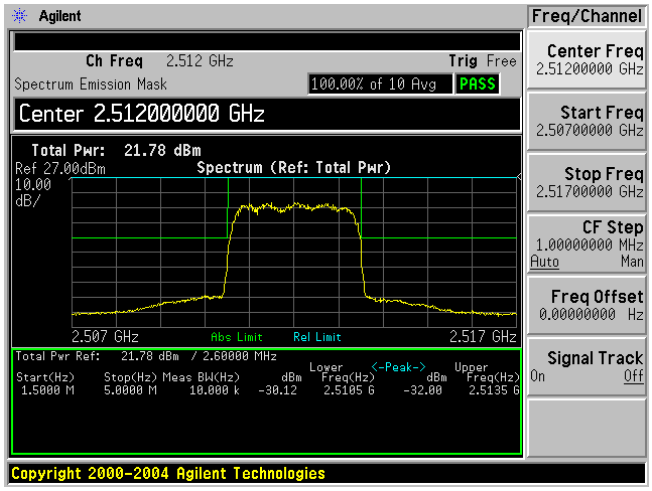
Temp = 50 ^{o}C, V = 120 Vac

Frequency Stability vs. Extreme Voltage

Reference Frequency: 2512 MHz, Symbol rate: 2560 ksym/sec



Temp = 20 ^{o}C, V = 138 Vac



Temp = 20 ^{o}C, V = 102 Vac