FCC PART 15C TEST REPORT FOR CERTIFICATION
On Behalf of

Coroporativo Lanix S.A. de C.V.

W32

Model No.: W32

FCC ID: ZC4W32

Prepared for : Coroporativo Lanix S.A. de C.V.
Carrterera Hermosillo-Nogales Km 8.5

Prepared By : Audix Technology (Shenzhen) Co., Ltd.
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Report Number	:	ACS-F13370
Date of Test	:	Dec.22~24, 2013
Date of Report	:	Jan.20, 2014

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TEST REPORT CERTIFICATION

Applicant	:	Coroporativo Lanix S.A. de C.V.
Manufacturer	:	SHENZHEN FORTUNESHIP TECHNOLOGY., LTD
EUT Description	:	W32
FCC ID	:	ZC4W32

(A) MODEL NO. : W32
(B) SERIAL NO. : N/A
(C) POWER SUPPLY : DC 3.7V; DC 5V
(D) TEST VOLTAGE : DC 5V From Adapter Input AC 120V/60Hz

Tested for comply with:
FCC part 2, 22H & 24E

The device described above is tested by AUDIX TECHNOLOGY (SHENZHEN) CO., LTD. to confirm comply with all the FCC part 2, 22H & 24E requirements.

The test results are contained in this test report and AUDIX TECHNOLOGY (SHENZHEN) CO., LTD. is assumed full responsibility for the accuracy and completeness of these tests. This report contains data that are not covered by the NVLAP accreditation. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC and IC requirements.

This Report is made under FCC part 2, 22H & 24E. No modifications were required during testing to bring this product into compliance.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of AUDIX TECHNOLOGY (SHENZHEN) CO., LTD.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

Date of Test : Dec.22~24, 2013 Report of date: Jan.20, 2014

Prepared by : Lisa Liang
Lisa Liang / Assistant

Reviewer by :
Sunny Lu / Assistant Manager

AUDIX® 信華科技（深圳）有限公司
Audix Technology (Shenzhen) Co., Ltd.
EMC 部門報告專用章
Stamp only for EMC Dept. Report
Signature: David Jin 1.20

Approved & Authorized Signer :
David Jin / Manager

1. SUMMARY OF STANDARDS AND RESULTS

1.1.Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below.

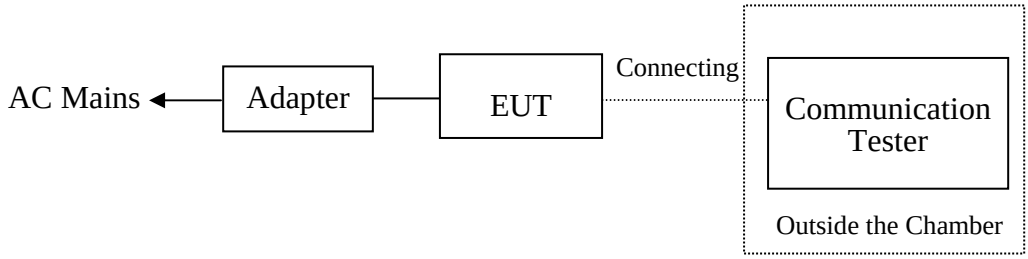
EMISSION		
Description of Test Item	**Standard**	**Results**
Effective Isotropic Radiated Power	2.1046(a) 22.913(a) 24.232(b)	PASS
Out of Band Emissions at antenna Terminals and Band Edge	2.1051 22.917(a) 24.238(a)	PASS
99% & 26dB Occupied Bandwidth	2.1049(h)	PASS
RF Output Power	2.1046(a) 22.913(a) 24.232(b)	PASS
Field Strength of Spurious Emissions	2.1053 22.917(a) 24.238(a)	PASS
Frequency Stability vs. Temperature and Voltage	2.1055	PASS

2. GENERAL INFORMATION

2.1.Description of Device (EUT)

Product Name	:	W32
Model Number	:	W32
FCC ID	:	ZC4W32
Operating Frequency	:	GSM 850 824-849MHz PCS 1900 1850-1910MHz
Antenna Assembly Gain	:	Soldered on PCB, GSM:+0.5 dBi PCS: +0.5dBi
Applicant	:	Coroporativo Lanix S.A. de C.V. Carrterera Hermosillo-Nogales Km 8.5
Manufacturer	:	SHENZHEN FORTUNESHIP TECHNOLOGY., LTD Room 401, A-B District, TCL King Electronics company, No.33. Nanhai Road Nanshan District Shenzhen Guangdong, P.R.China
Power Adapter	:	Manufacture: LANIX, M/N: W32-C Cable: Shielded, Detachable,0.8m
Earphone Cable	:	Unshielded, Detachable,1.0m
Date of Test	:	Dec.22~24, 2013
Date of Receipt	:	Dec.21, 2013
Sample Type	:	Prototype production
Note	:	The GSM part was disabled for this device

2.2.Block diagram of connection between the EUT and simulators



(EUT: W32)

2.3. Test Facility

Site Description

Name of Firm	:	Audix Technology (Shenzhen) Co., Ltd. No. 6, Ke Feng Rd., 52 Block, Shenzhen Science & Industrial Park,Nantou, Shenzhen, Guangdong, China
3m Anechoic Chamber	:	Certificated by FCC, USA Registration Number: 90454 Valid Date: Feb.22, 2015
3m & 10m Anechoic Chamber	:	Certificated by FCC, USA Registration Number: 794232 Valid Date: Dec.31, 2015
EMC Lab.	:	Certificated by Industry Canada Registration Number: IC 5183A-1 Valid Date: Jun.13, 2014 Certificated by DAkkS, Germany Registration No: D-PL-12151-01-01 Valid Date: Feb.01, 2014 Accredited by NVLAP, USA NVLAP Code: 200372-0 Valid Date: Mar.31, 2014

2.4.Measurement Uncertainty (95% confidence levels, k=2)

Test Item	Uncertainty
Uncertainty for Radiated Spurious Emission test in RF chamber	3.57dB
Uncertainty for Conduction Spurious emission test	2.00 dB
Uncertainty for Output power test	0.73 dB
Uncertainty for Bandwidth test	83 kHz
Uncertainty for DC power test	0.038 %
Uncertainty for test site temperature and humidity	0.6℃
	3%

3. EFFECTIVE ISOTROPIC RADIATED POWER

3.1.Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	Agilent	E4446A	US44300459	May.08, 13	1 Year
2.	Spectrum Analyzer	Agilent	N9030A	MY51380221	Oct.31, 13	1Year
3.	Signal Generator	HP	83732B	VS34490501	May.08, 13	1 Year
4.	Power meter	Anritsu	ML2487A	6K00002472	May.08, 13	1Year
5.	Power sensor	Anritsu	MA2491A	0033005	May.08, 13	1Year
6.	Attenuator(10dB)	Agilent	8491A	MY39264375	May.08, 13	1 Year
7.	Attenuator(20dB)	Agilent	8491B	MY39262165	May.08, 13	1 Year
8.	Universal Radio Communication Tester	R&S	CMU200	117194	Oct. 31,13	1 Year
9.	Network Analyzer	Agilent	E5071B	MY42403549	May.08, 13	1 Year
10.	Bluetooth Test set	Agilent	MT8852B	6K00005966	May.18, 13	1 Year
11.	Wireless Communication Tester	Agilent	E5515C	GB44300243	May.18. 13	1 Year
12.	DC Power supply	King	DPS-1303D	821956	N/A	N/A
13.	PreAmplifier	Agilent	8449B	3008A02495	May.08, 13	1 Year
14.	PreAmplifier	Agilent	8447D	2944A11159	May.08, 13	1Year
15.	Horn Antenna	EMCO	3115	9510-4580	May.28, 13	1 Year
16.	Bilog Antenna	Schaffner	CBL6111C	2598	Mar.14, 13	1 Year
17.	Power divider	Mini-Circuits	ZFRSC-183-S+	572800942	N/A	N/A
18.	Power divider	Mini-Circuits	ZA3PD-4-S+	347100912	N/A	N/A
19.	Power divider	Mini-Circuits	ZA4PD-4-S+	544000937	N/A	N/A
20.	Antenna and turn table controller	CT	SC100	CT-0091	N/A	N/A
21.	Temperature controller	Terchy	MHQ-120cluB	A60223	May.08, 13	1Year
22.	RF Cable	Hubersuhner	SUCOFLEX102	28620/2	May.08, 13	1 Year
23.	RF Cable	Hubersuhner	SUCOFLEX102	28618/2	May.08,13	1 Year
24.	RF Cable	Hubersuhner	SUCOFLEX102	28610/2	May.08,13	1 Year
25.	RF Cable	Hubersuhner	SUCOFLEX102	274094/4	May.08,13	1 Year
26.	Loop Antenna	Chase	HLA6120	1062	May.21, 13	1 Year
27.	Horn Antenna	EMCO	3116	00060089	Aug.28, 13	1 Year

3.1.Limit

22.913(a) Mobile station are limited to 7W ERP.
Part 24.232(b) Mobile station are Limited to 2W EIRP.

3.2.Test Procedure:

The EUT was placed on a non-conductive turntable using a non-conductive support. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer. During the measurement, the EUT was communication with the station. The highest emission was recorded with the rotation of the turntable and lowering of the test antenna from 4m to 1m. The reading was recorded and the field strength(E in dBuV/m) was calculated.

ERP in frequency band 824.2-848.8MHz were measured using substitution method. The EUT was replaced by dipole antenna connected, the S.G. output was recorded and ERP was calculated as follow:

EIRP in frequency band 1850.2-1909.8MHz were measured using a substitution method. The EUT was replaced by a horn antenna connected, the S.G. output was recorded and EIRP was calculated as follows:

ERP=S.G. output (dBm) + Antenna Gain (dBd) - Cable Loss(dB)

EIRP= S.G. output (dBm) + Antenna Gain (dBi) - Cable Loss(dB)

3.3.Test Results

EUT:W32		
M/N:W32		
Test date: 2013-12-24	Pressure: 101.2±1.0 kpa	Humidity: 48.4±3.0%
Tested by: Kevin_hu	Test site: RF site	Temperature:20.7±0.6℃

GSM 850

Test Result：

The RBW,VBW of SPA for frequency
Below 1GHz was RBW=300KHz,VBW=1MHz;
Above 1GHz was RBW=1MHz,VBW=3MHz;

Test Mode	Frequency (MHz)	CH	Antenna Pol.	SPA Reading (dBuv)	Receive Antenna Factor (dB/m)	Receive Cable Loss (dB)	Field Strength (dBuv/m)
GSM 850	824.2	128	V	106.63	22.5	3.67	132.80
			H	107.25	22.5	3.67	133.42
	836.6	190	V	104.30	22.7	3.69	130.69
			H	106.85	22.7	3.69	133.24
	848.8	251	V	103.96	22.8	3.70	130.46
			H	105.67	22.8	3.70	132.17

S.G.output (dBm)	Antenna Gain (dBd)	Tx Cable loss (dB)	Result ERP/ (dBm)	Limit ERP/(dBm)
17.65	8.60	3.20	29.45	38.45
20.79	8.60	3.20	32.59	38.45
17.22	8.82	3.52	29.56	38.45
20.61	8.82	3.52	32.95	38.45
16.41	8.96	3.79	29.16	38.45
19.82	8.96	3.79	32.57	38.45
Conclusion: PASS				

PCS 1900

Test Result：

The RBW,VBW of SPA for frequency
Below 1GHz was RBW=300KHz,VBW=1MHz;
Above 1GHz was RBW=1MHz,VBW=3MHz;

Test Mode	Frequency (MHz)	CH	Antenna Pol.	SPA Reading (dBuv)	Receive Antenna Factor (dB/m)	Receive Cable Loss (dB)	Field Strength (dBuv/m)
PCS 1900	1850.2	512	V	99.23	22.77	5.79	127.79
			H	101.65	22.77	5.79	130.21
	1880.0	661	V	99.56	22.82	5.92	128.30
			H	102.08	22.82	5.92	130.82
	1909.8	810	V	99.98	22.89	6.05	128.92
			H	102.35	22.89	6.05	131.29

S.G.output (dBm)	Antenna Gain (dBi)	Tx Cable loss (dB)	Result EIRP /(dBm)	Limit EIRP/(dBm)
14.91	7.20	5.25	27.36	33
17.09	7.20	5.25	29.54	33
14.47	7.32	5.42	27.21	33
16.52	7.32	5.42	29.26	33
14.82	7.54	5.60	27.96	33
16.26	7.54	5.60	29.40	33
Conclusion: PASS				

4. OUT OF BAND EMISSIONS AT ANTENNA TERMINALS AND BAND EDGE

4.1.Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	Agilent	E4446A	US44300459	May.08, 13	1Year
2.	Attenuator	Agilent	8491B	MY39262165	May.08, 13	1Year
3.	RF Cable	Hubersuhner	SUCOFLEX102	28618/2	May.08,13	1Year
4.	RF Cable	Hubersuhner	SUCOFLEX102	28610/2	May.08,13	1Year
5.	RF Cable	Hubersuhner	SUCOFLEX102	28620/2	May.08,13	1Year
6.	Power divider	Mini-Circuits	ZFRSC-183-S+	572800942	N/A	N/A
7.	Wireless Communication Test set	Agilent	E5515C	GB44300243	May.08,13	1Year

4.2.Limit

FCC part 22.917(a), 24.238(a) the magnitude of each spurious and harmonic emission that can be detected when the equipment is operated under the conditions specification in the instruction manual and/or alignment procedure, shall not be less than 43+10log(Mean power in watts) dBc below the mean power output outside a license's frequency block(-13dBm).

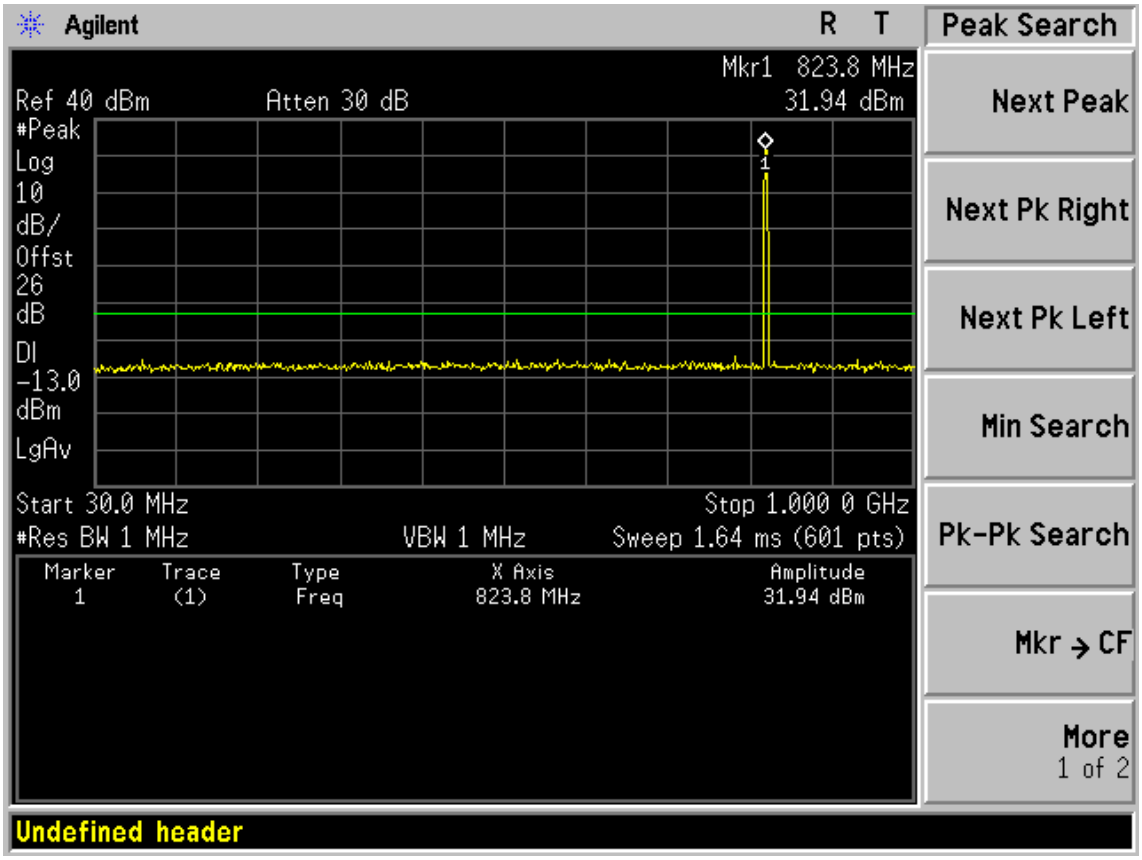
4.3.Test Procedure

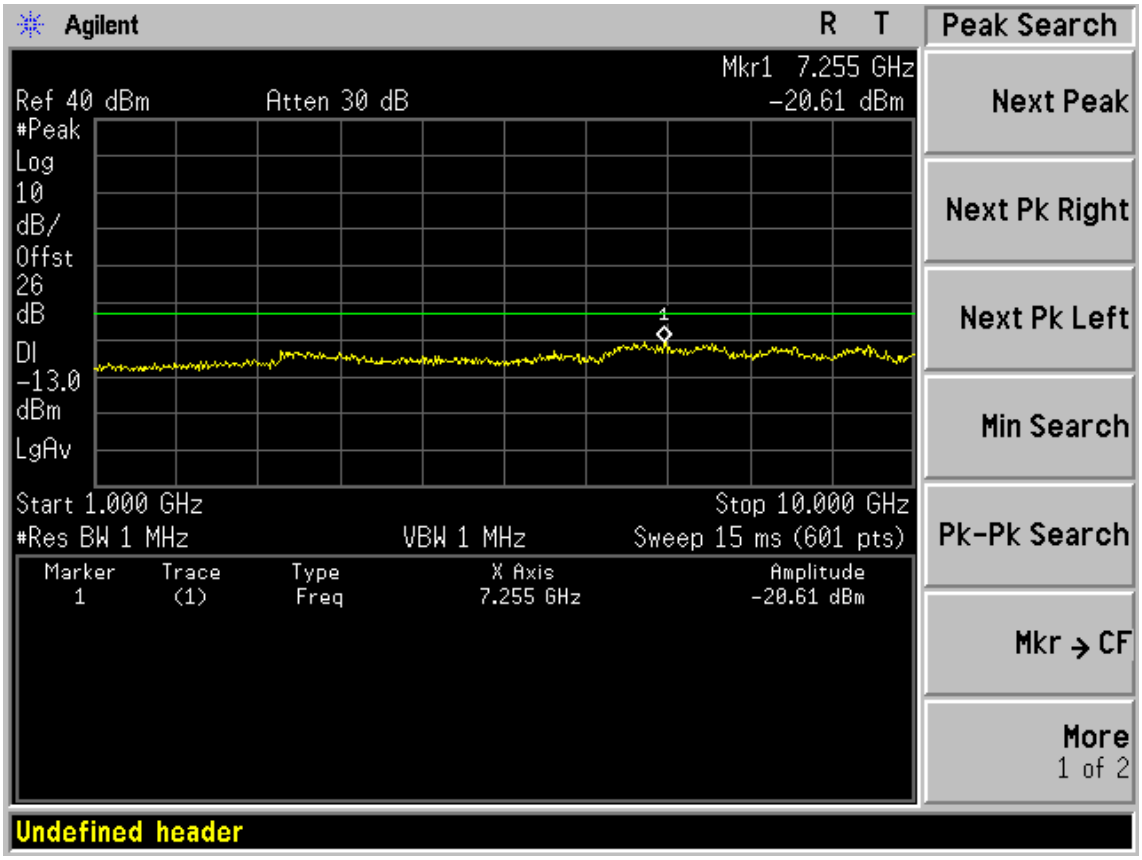
The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation. The resolution bandwidth of spectrum analyzer was set at 1MHz, sufficient scans were taken to show the out of band Emission is any up to 10th harmonic. For the out of band: set RBW, VBW=1MHz, stat=30MHz, stop= 10 th harmonic. Limit= -13dBm Band Edge requirements: In 1Mhz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1 % of bandwidth of fundamental emission of the transmitter any be employed to measure the out of band emission. Limit=-13dBm.

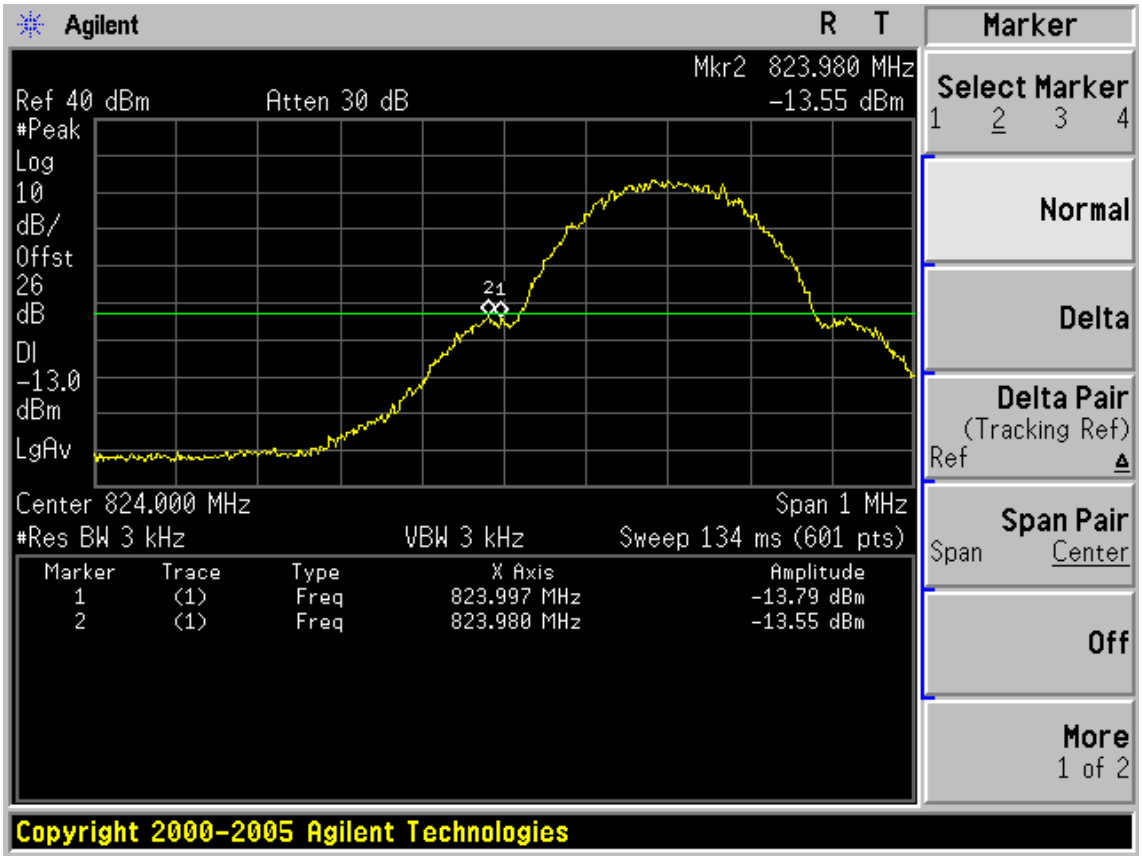
4.4.Test result

PASS (The testing data was attached in the next pages.)

Test GSM 850 CH128







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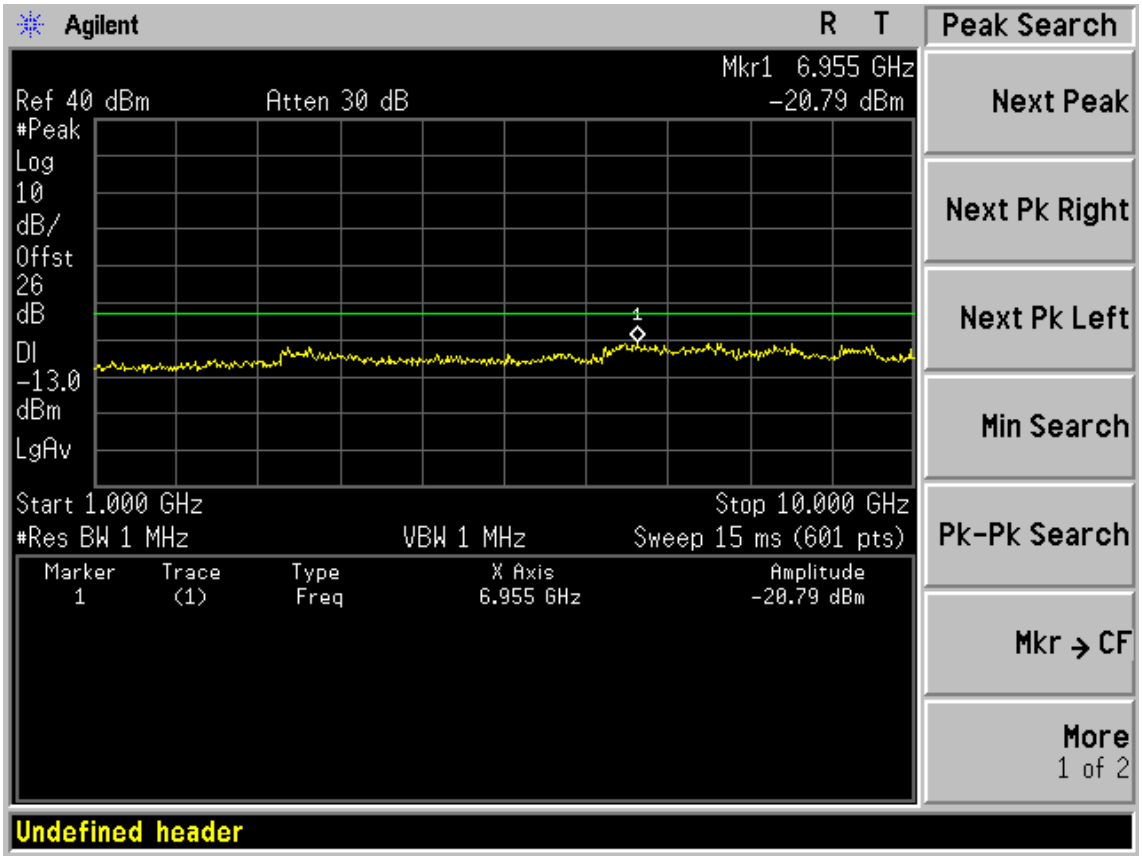

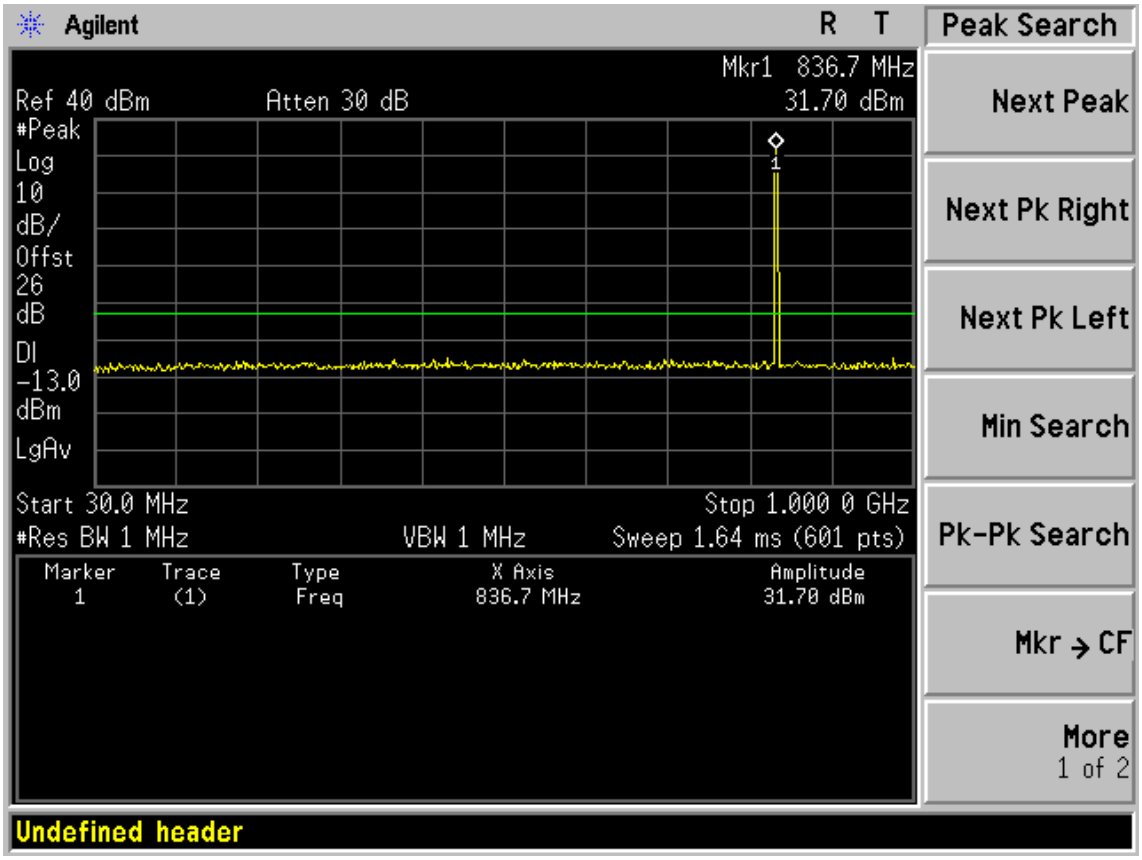

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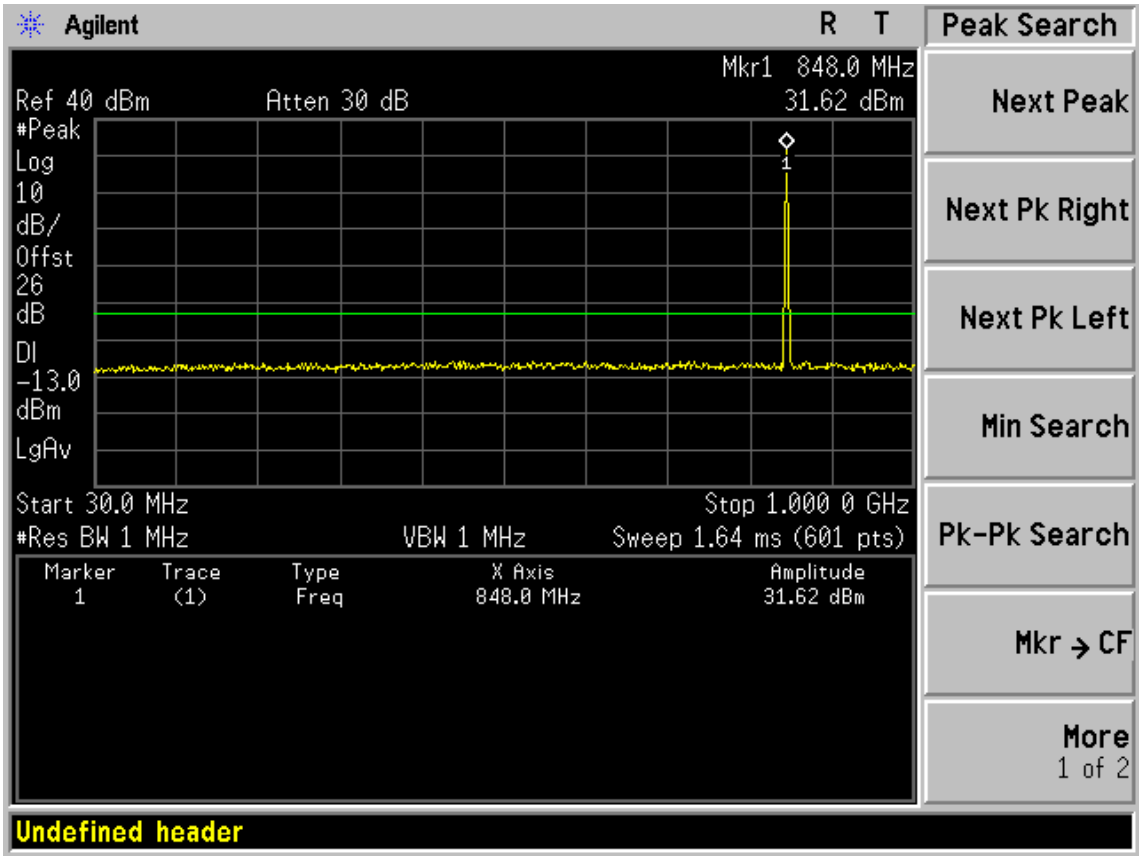

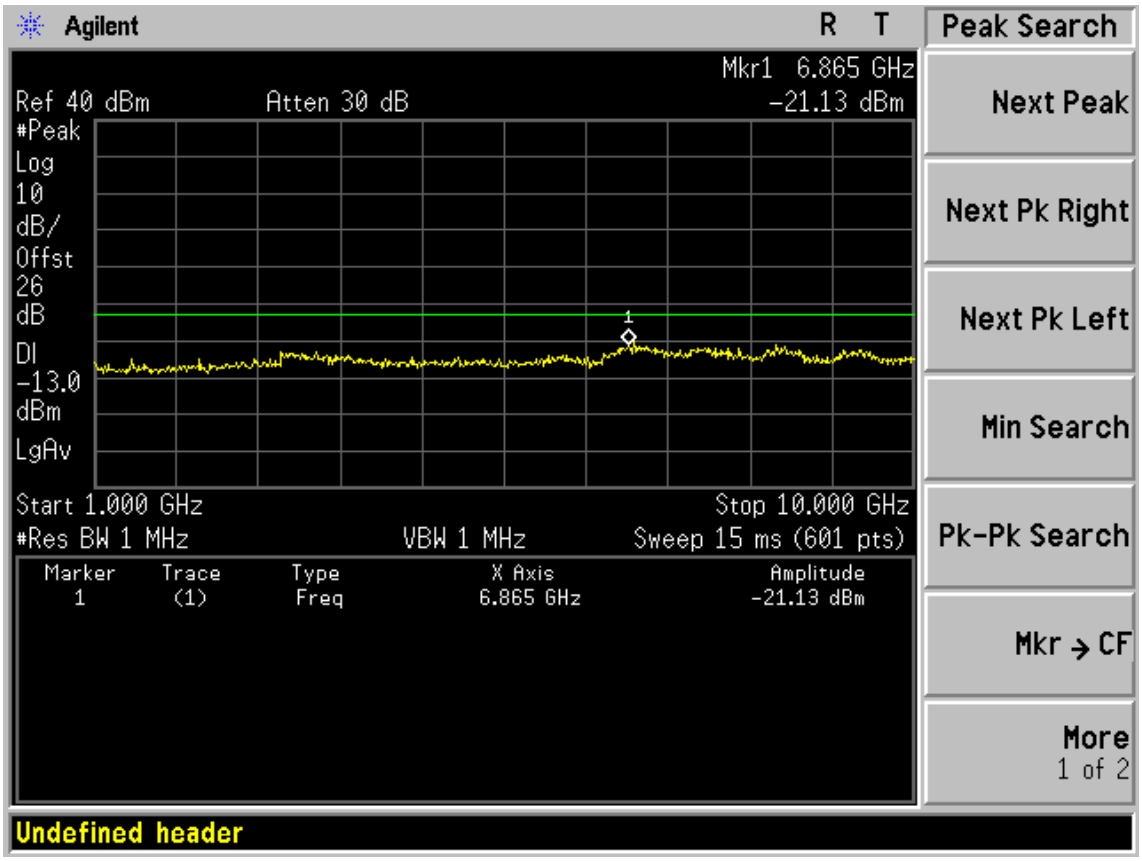
Agilent
R T
Peak Search
Mkr1 6.865 GHz
Ref 40 dBm
Atten 30 dB
-21.13 dBm
#Peak
Log
10
dB/
Offst
26
dB
Dl
-13.0
dBm
LgAv
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
Start 1.000 GHz
Stop 10.000 GHz
#Res BW 1 MHz
VBW 1 MHz
Sweep 15 ms (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 6.865 GHz -21.13 dBm
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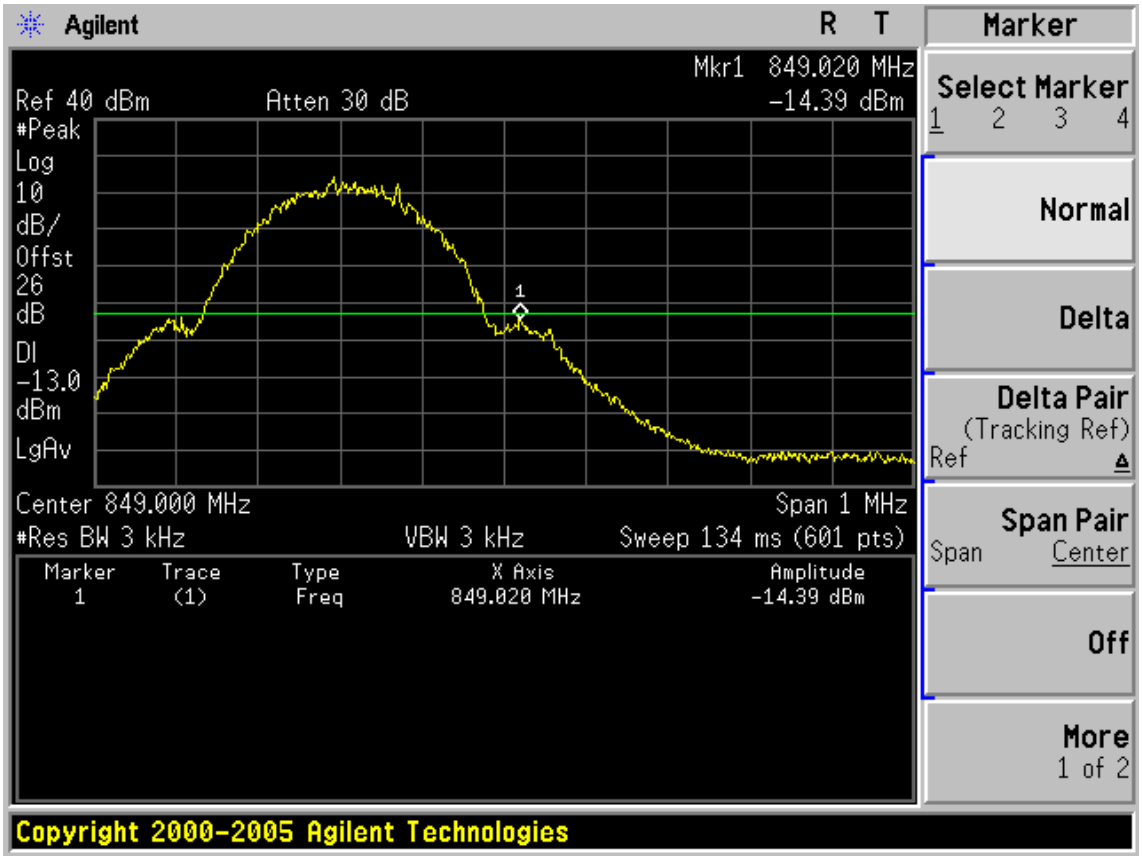
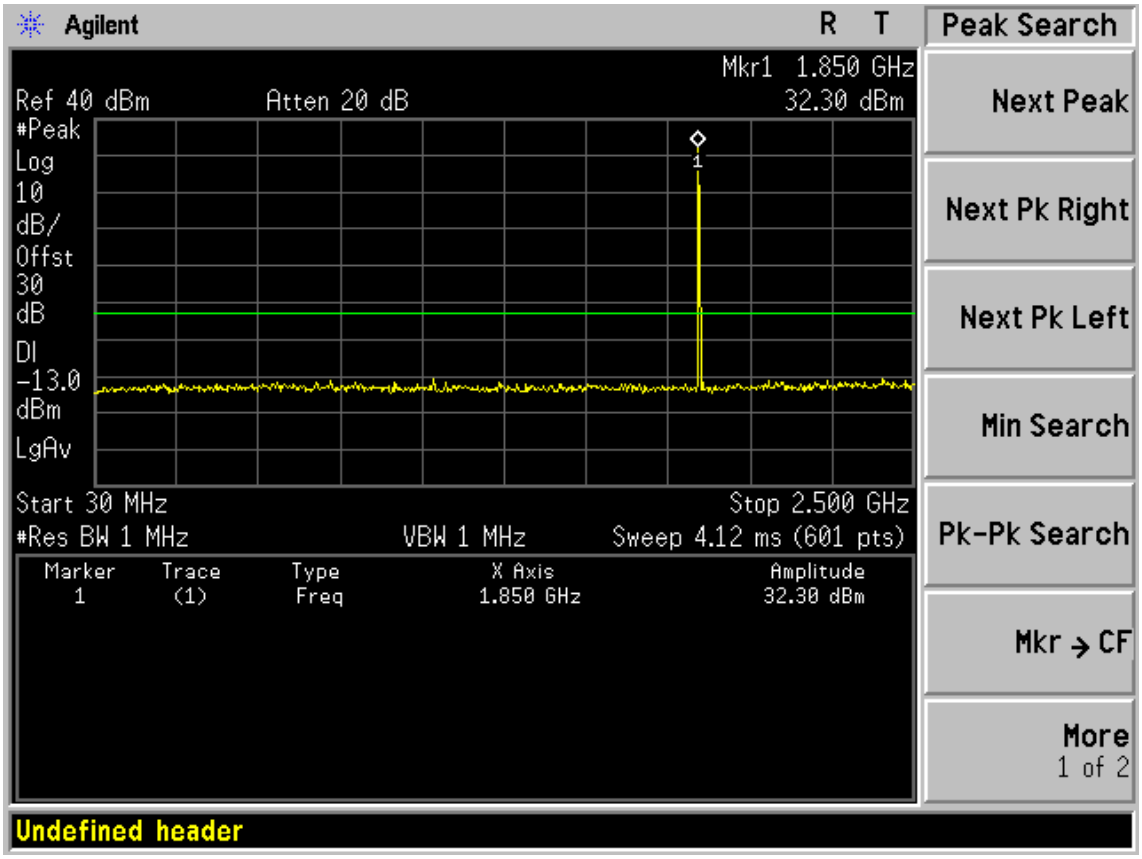
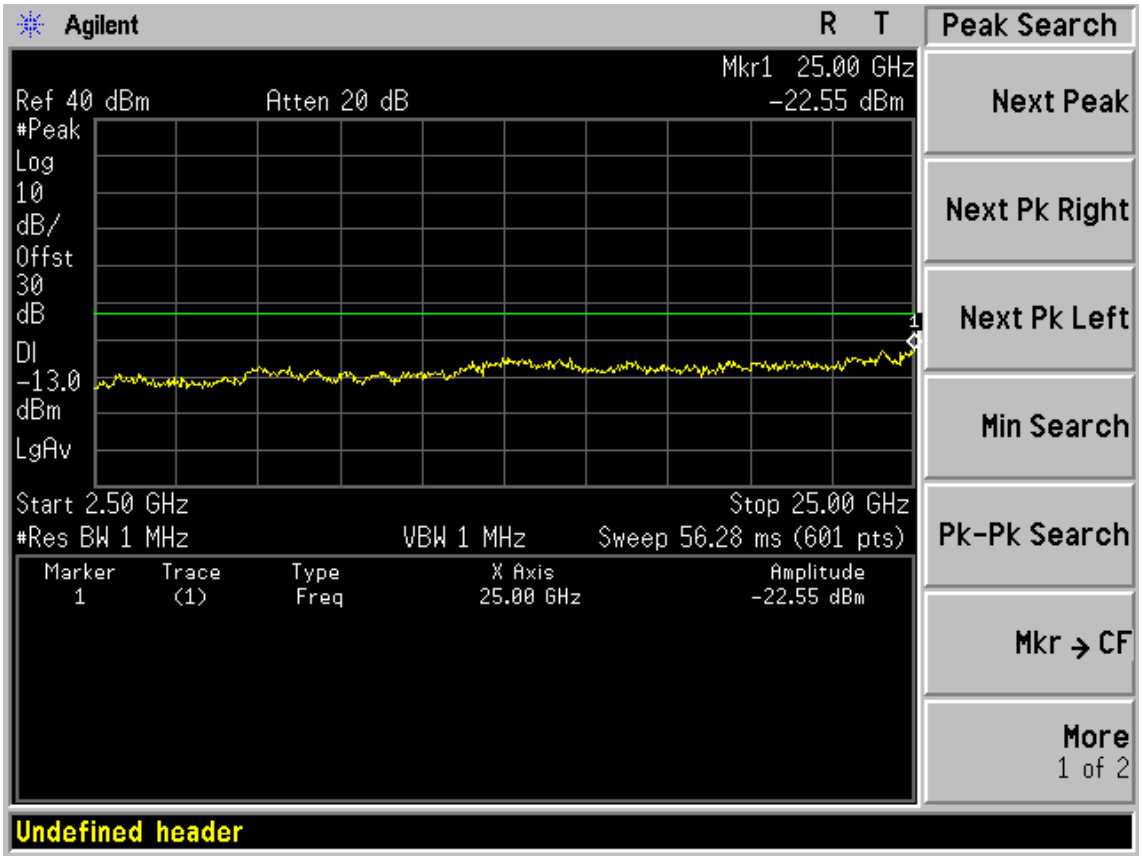
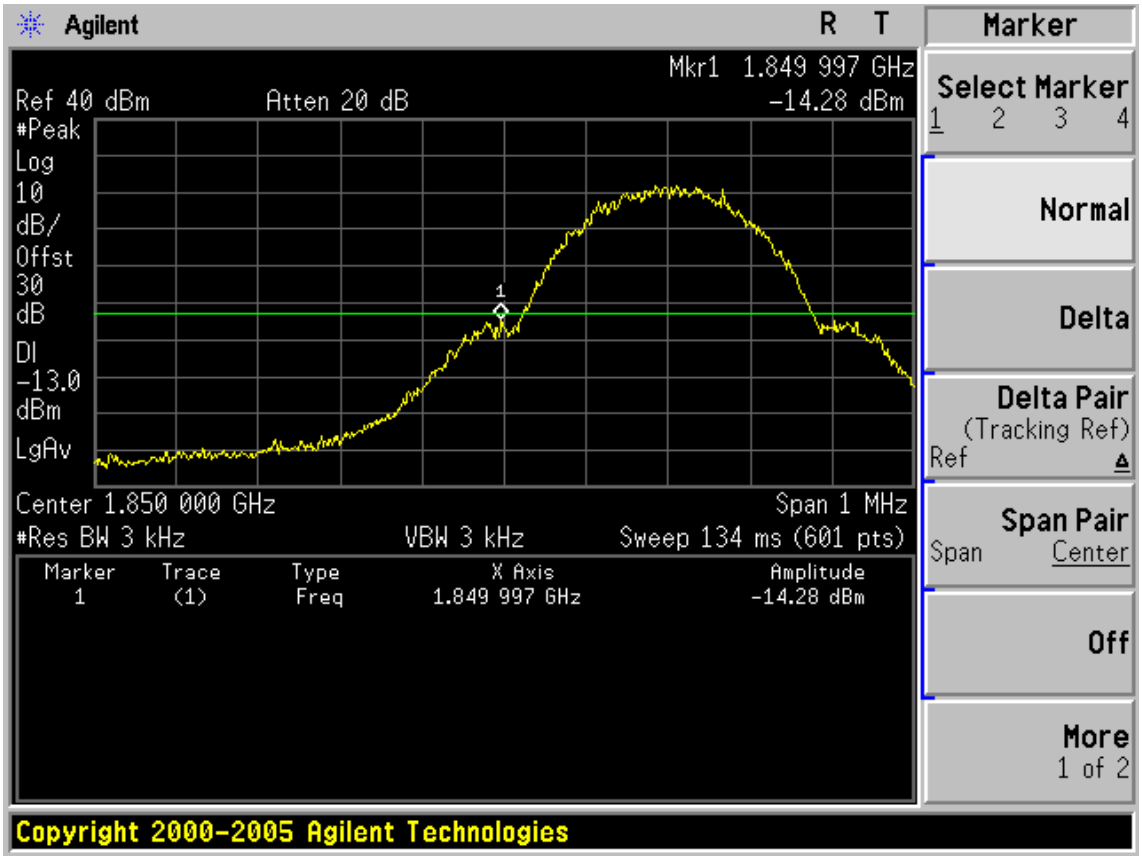

Agilent
R T
Marker
Mkr1 849.020 MHz
Ref 40 dBm
Atten 30 dB
-14.39 dBm
#Peak
Log
10
dB/
Offst
26
dB
Dl
-13.0
dBm
LgAv
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2
Center 849.000 MHz
Span 1 MHz
#Res BW 3 kHz
VBW 3 kHz
Sweep 134 ms (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 849.020 MHz -14.39 dBm
Copyright 2000-2005 Agilent Technologies

Test PCS 1900 CH512







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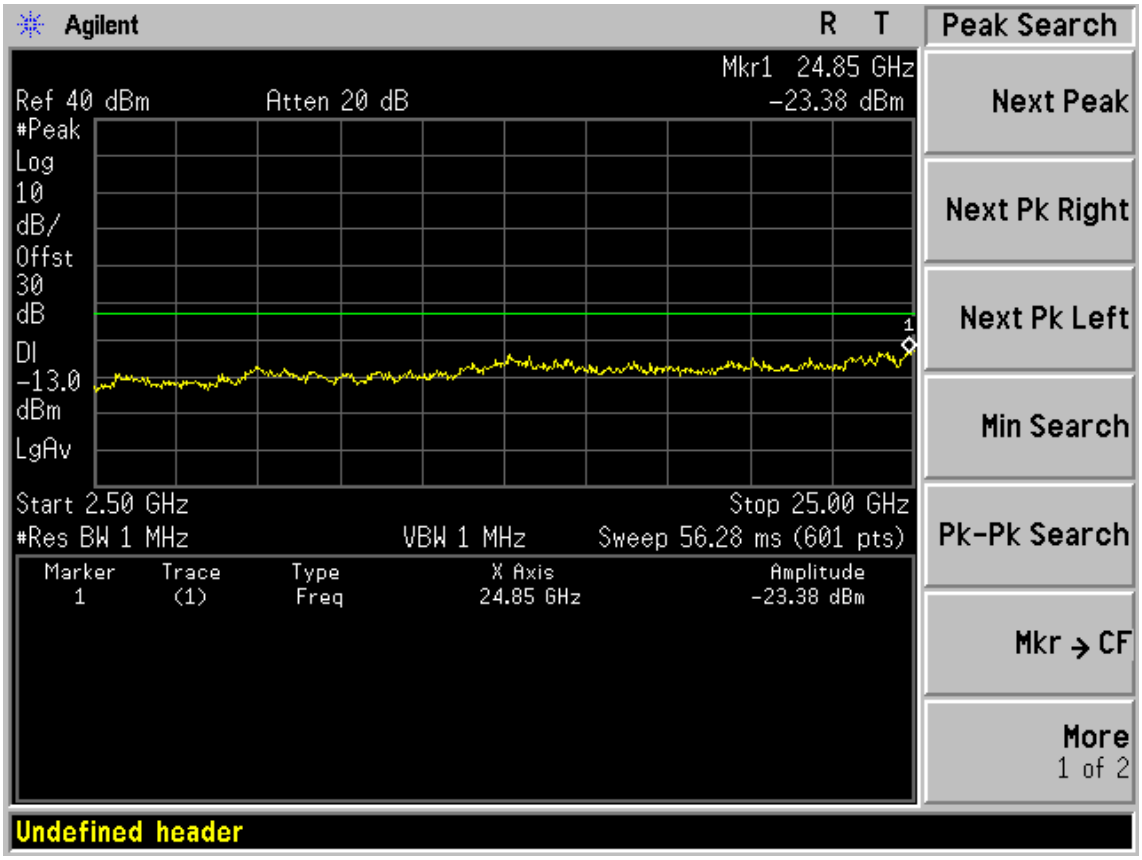

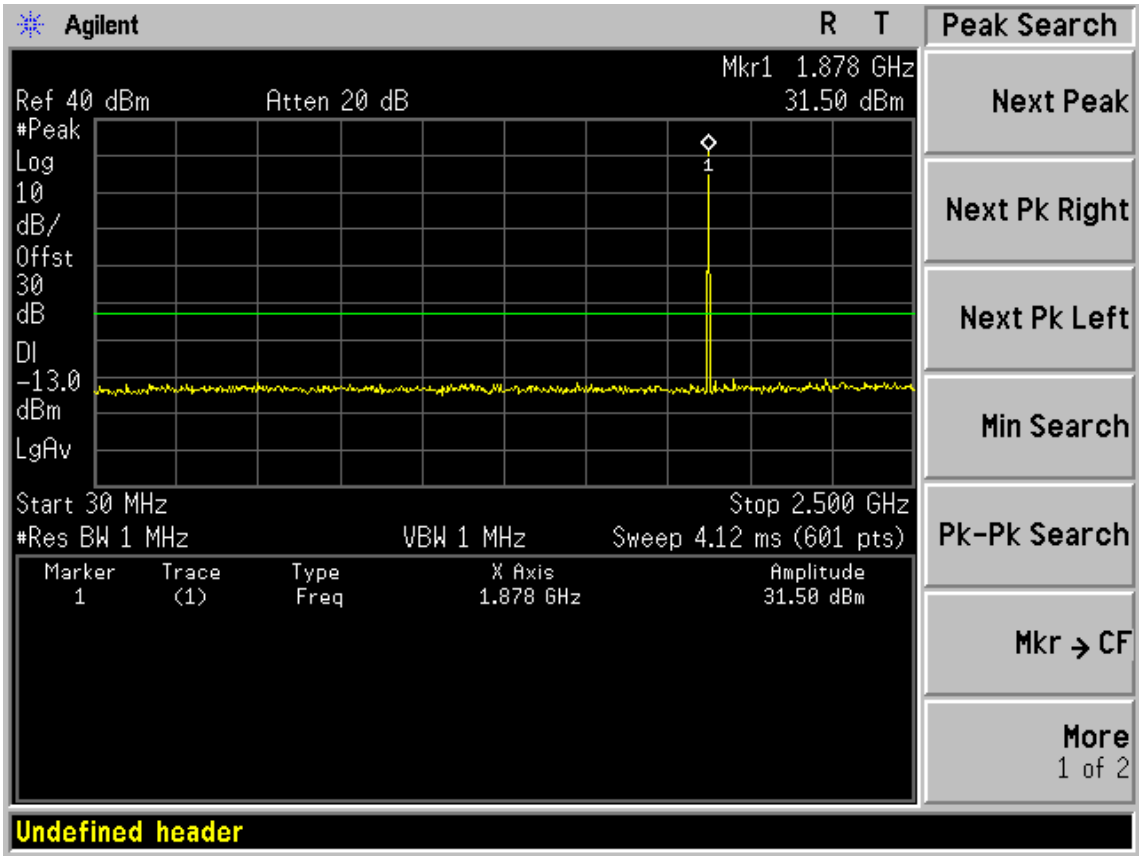

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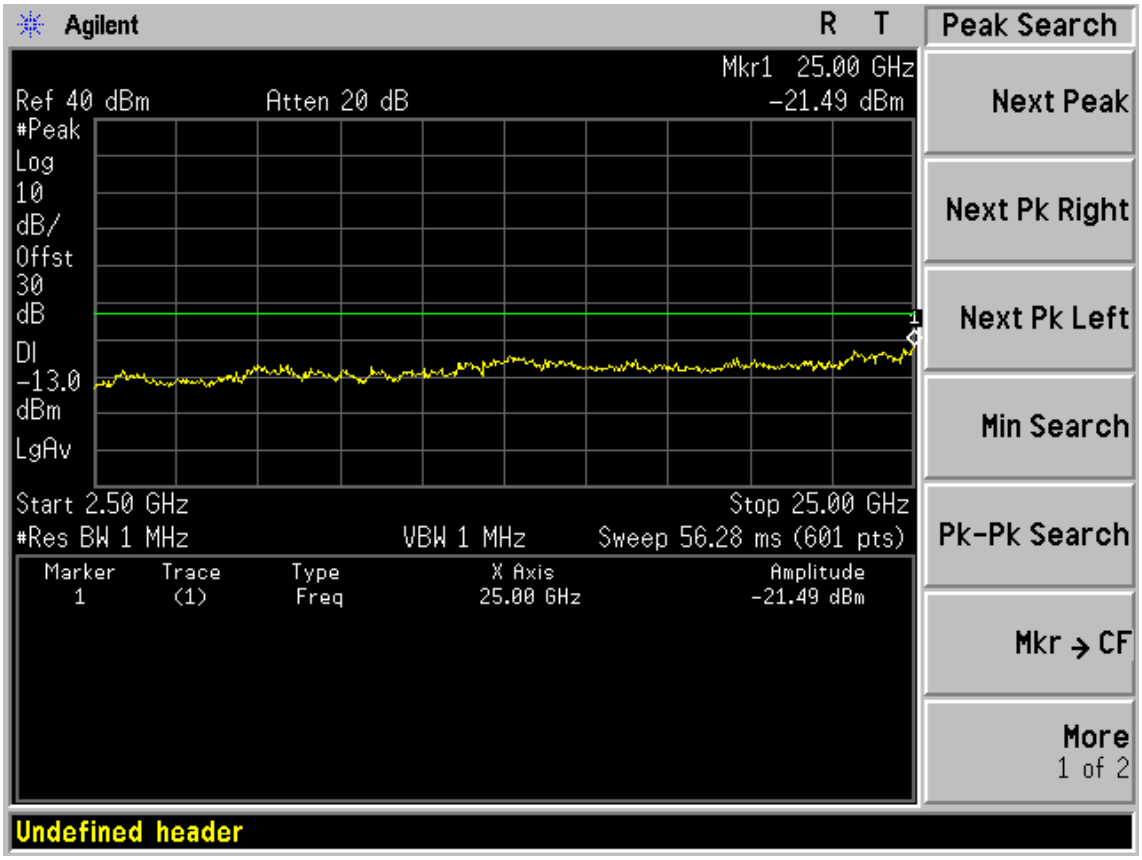

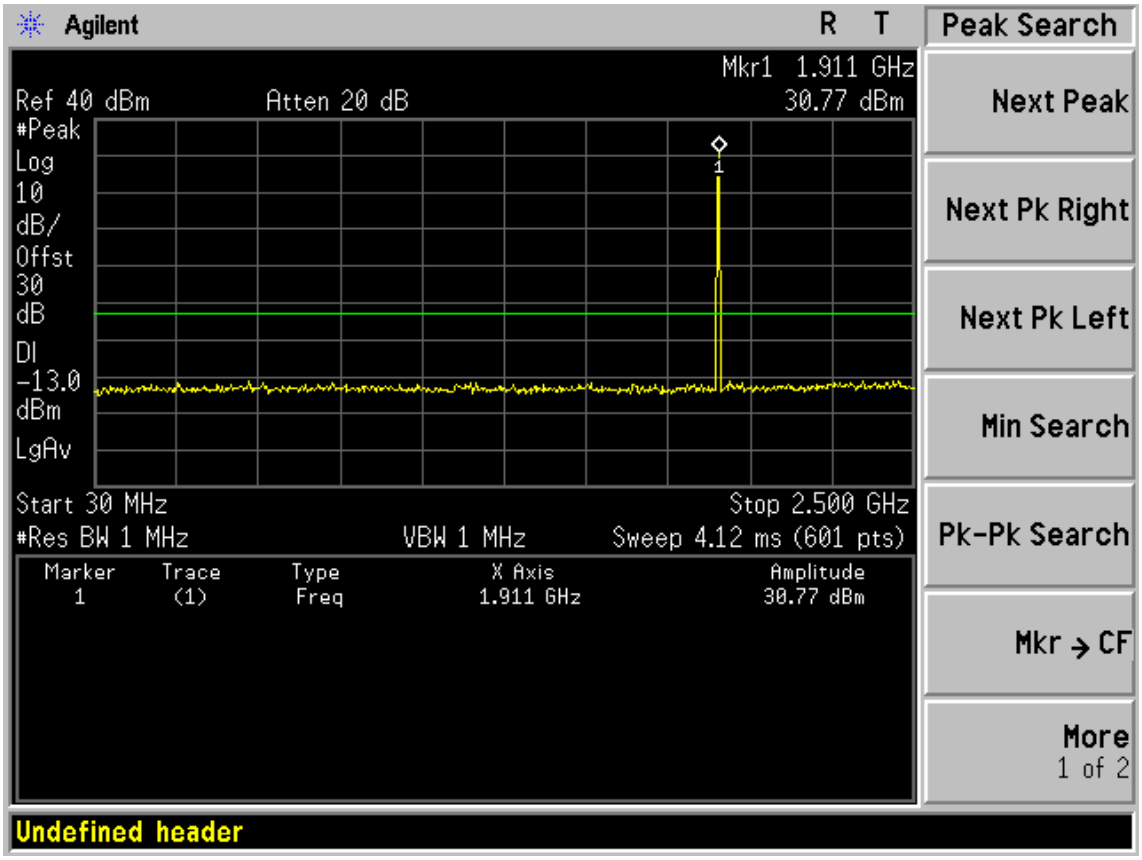
Agilent
R T
Peak Search
Mkr1 1.911 GHz
Ref 40 dBm
Atten 20 dB
30.77 dBm
#Peak
Log
10
dB/
Offst
30
dB
Dl
-13.0
dBm
LgAv
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
Start 30 MHz
Stop 2.500 GHz
#Res BW 1 MHz
VBW 1 MHz
Sweep 4.12 ms (601 pts)
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1 (1) Freq 1.911 GHz 30.77 dBm
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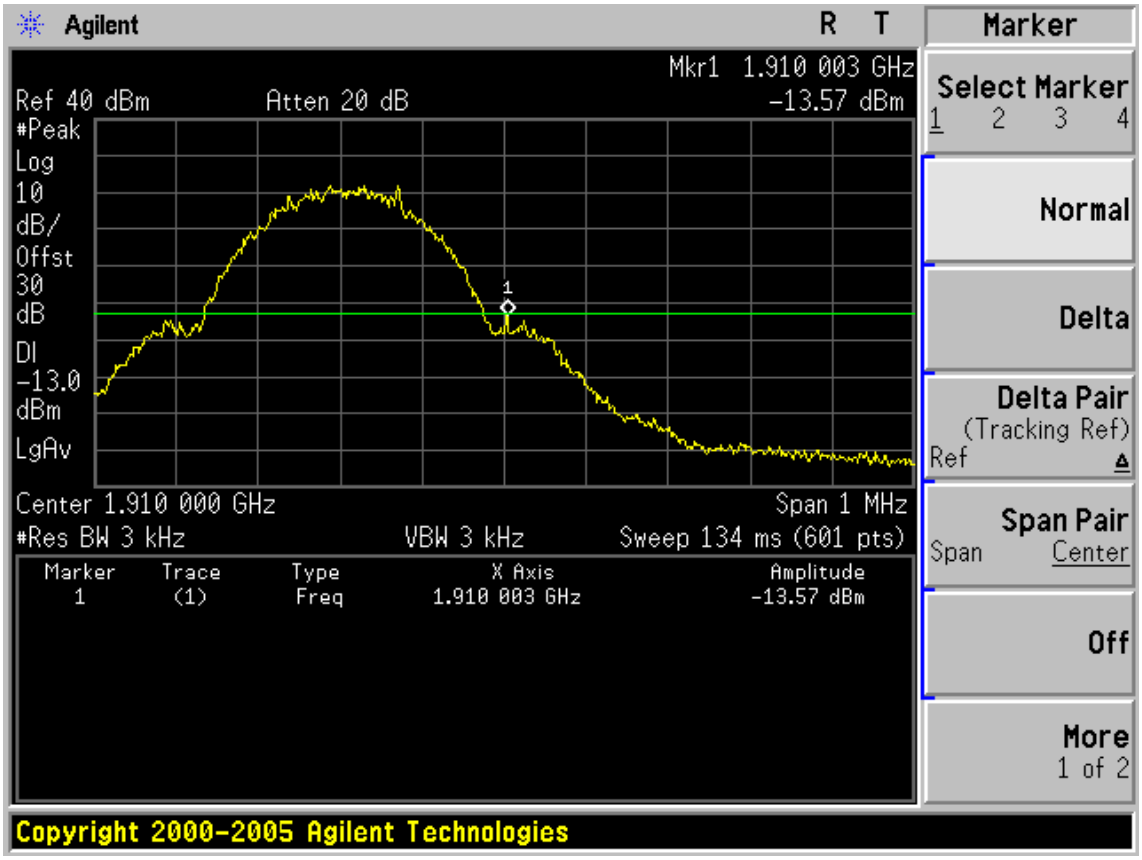

Agilent
R T
Marker
Mkr1 1.910 003 GHz
Ref 40 dBm
Atten 20 dB
-13.57 dBm
#Peak
Log
10
dB/
Offst
30
dB
Dl
-13.0
dBm
LgAv
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2
Center 1.910 000 GHz
Span 1 MHz
#Res BW 3 kHz
VBW 3 kHz
Sweep 134 ms (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 1.910 003 GHz -13.57 dBm
Copyright 2000-2005 Agilent Technologies

5. 99% & 26dB Occupied Bandwidth Test

5.1.Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	Agilent	E4446A	US44300459	May.08, 13	1Year
2.	Attenuator	Agilent	8491B	MY39262165	May.08, 13	1Year
3.	RF Cable	Hubersuhner	SUCOFLEX102	28618/2	May.08,13	1Year
4.	RF Cable	Hubersuhner	SUCOFLEX102	28610/2	May.08,13	1Year
5.	RF Cable	Hubersuhner	SUCOFLEX102	28620/2	May.08,13	1Year
6.	Power divider	Mini-Circuits	ZFRSC-183-S+	572800942	N/A	N/A
7.	Wireless Communication Test set	Agilent	E5515C	GB44300243	May.08,13	1Year

5.2.Test Procedure

The EUT output RF connector was connected with a short a cable to the spectrum analyzer, RBW was set to about 1% of emission BW, VBW>=3 times RBW, 99% bandwidth were measured, the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace.

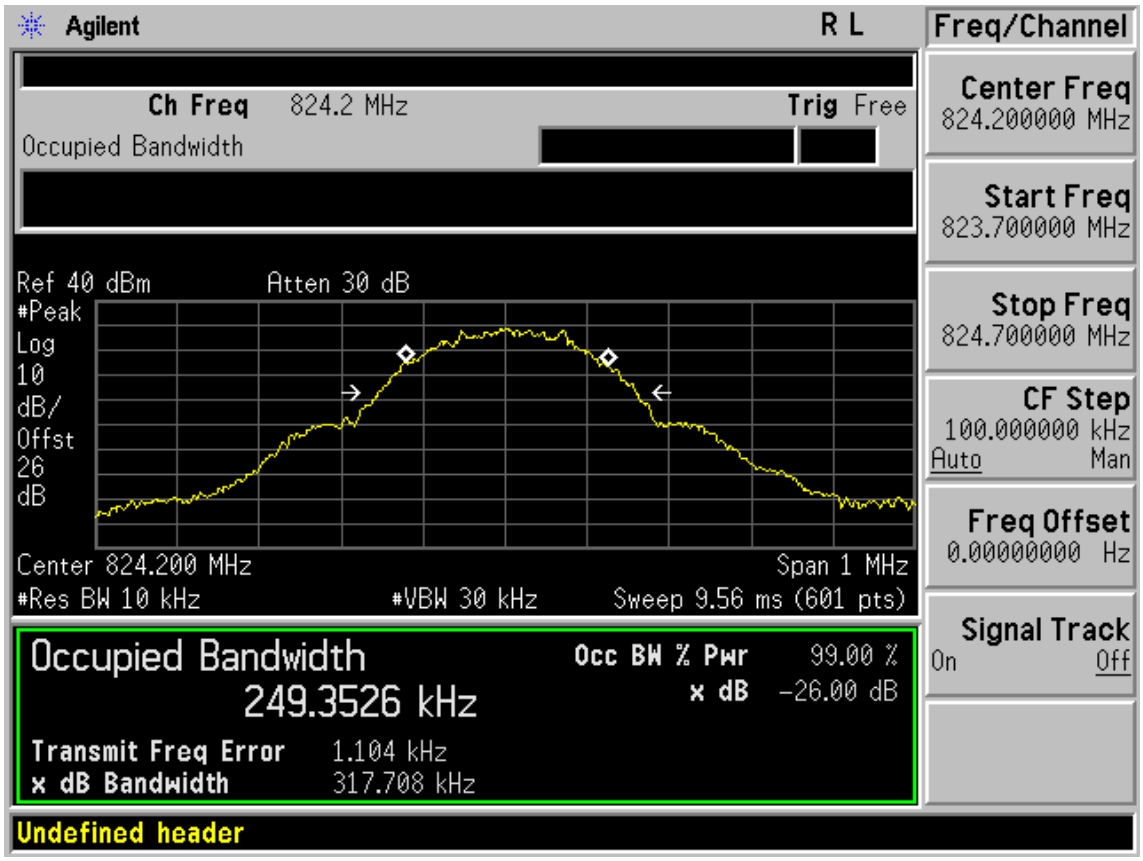
5.3.Test Results

99% Bandwidth

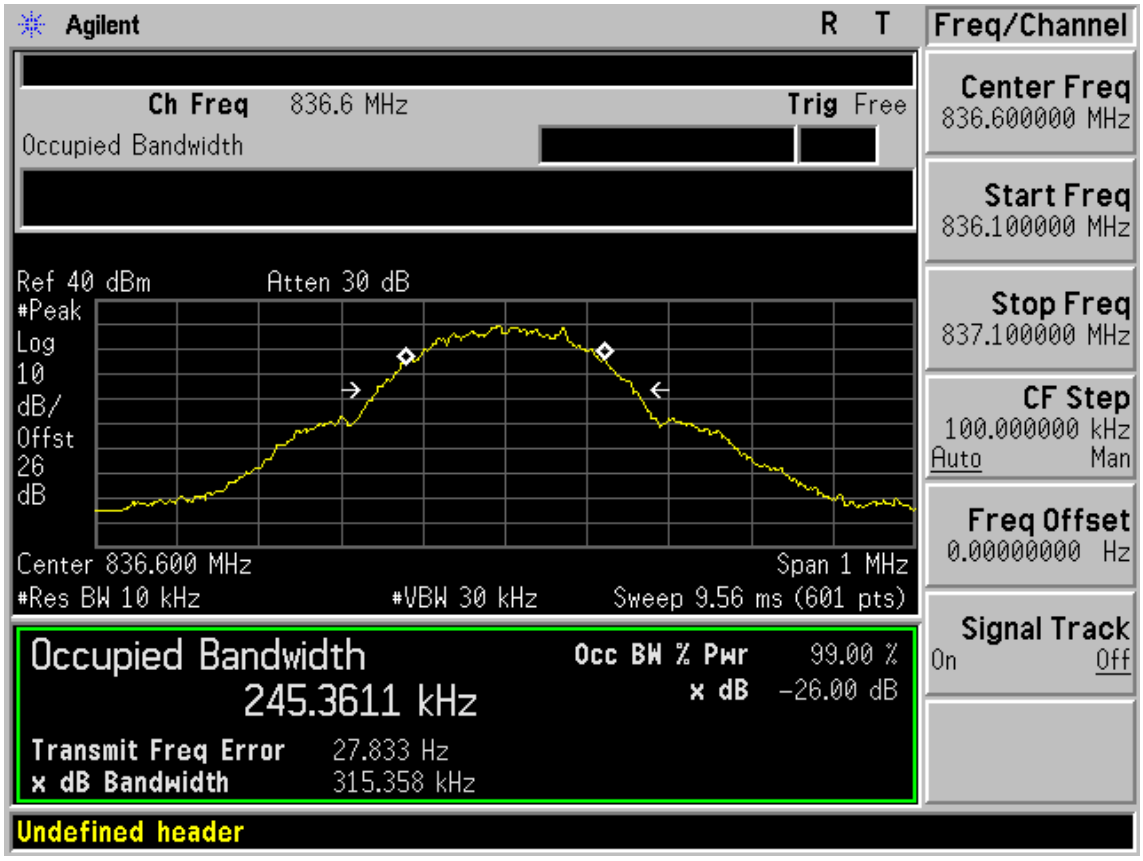
EUT:W32		
M/N:W32		
Test date: 2013-12-22	Pressure: 101.5±1.0 kpa	Humidity: 52.2±3.0%
Tested by: Kevin_hu	Test site: RF Site	Temperature:22.5±0.6℃

Test Mode	Frequency (MHz)	CH	99% bandwidth (KHz)	Limit (KHz)
GSM 850	824.2	128	249.3526	N/A
	836.6	190	245.3611	N/A
	848.8	251	246.3195	N/A
PCS 1900	1850.2	512	241.3605	N/A
	1880.0	661	246.1258	N/A
	1909.8	810	245.5202	N/A
Conclusion：PASS				

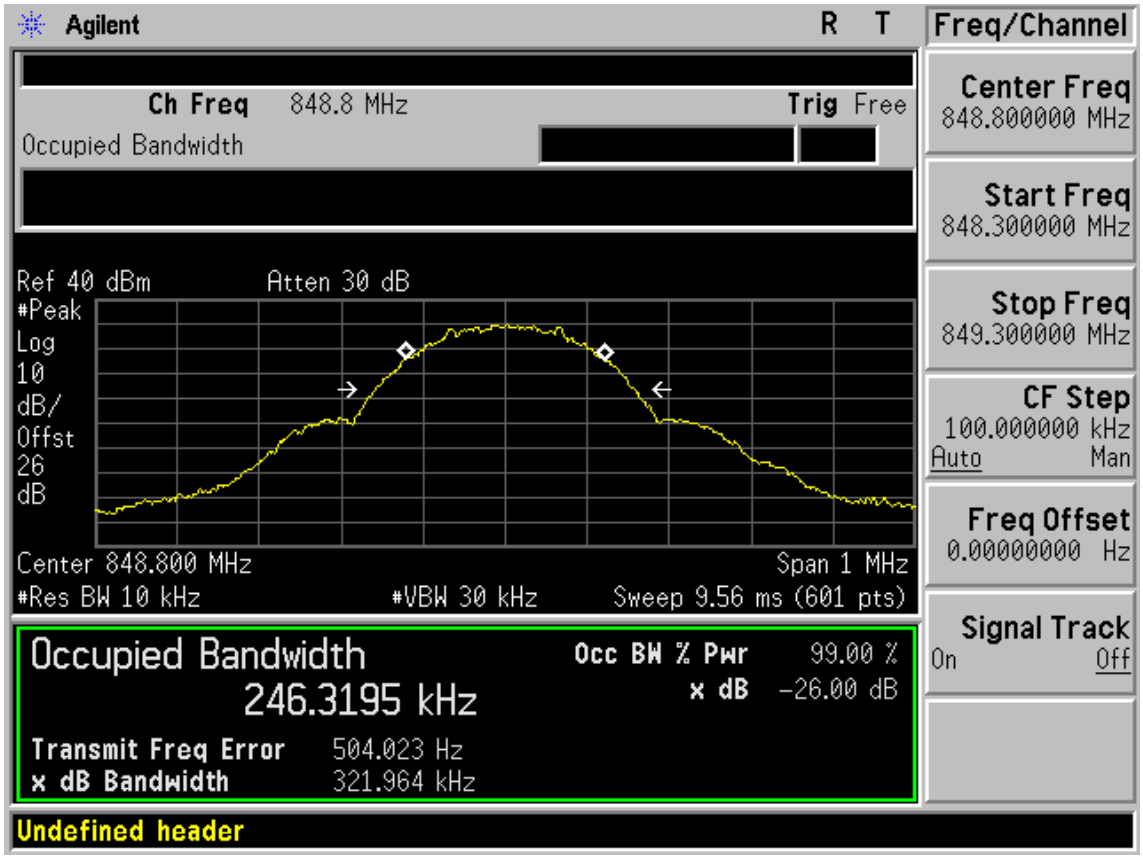
Test GSM 850 CH128



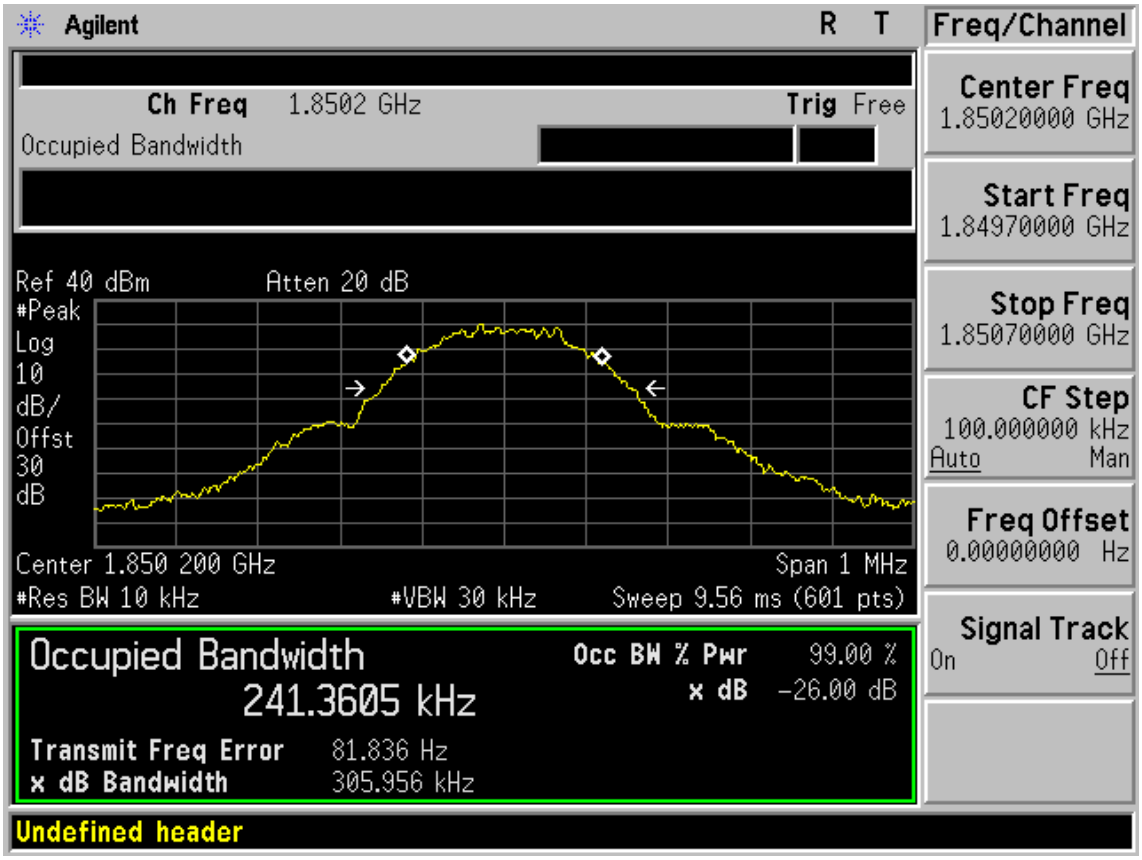
Test GSM 850 CH190



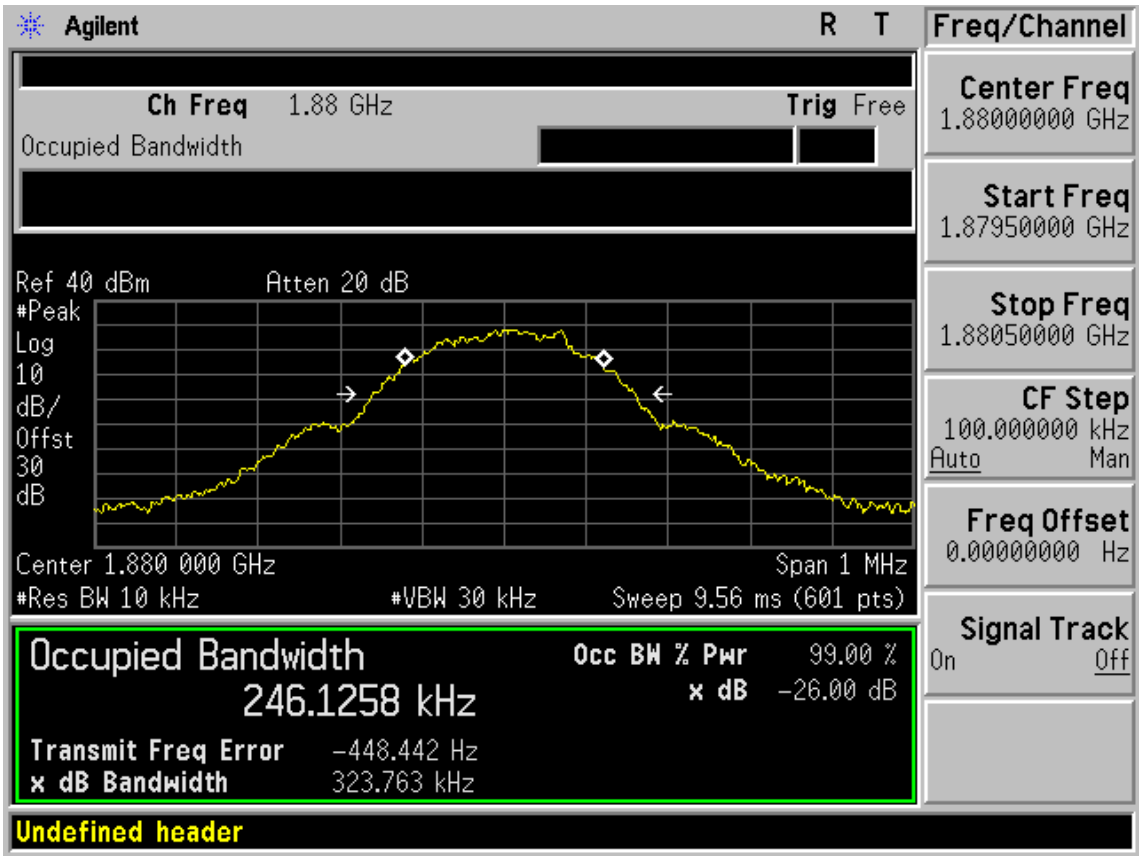
Test GSM 850 CH251



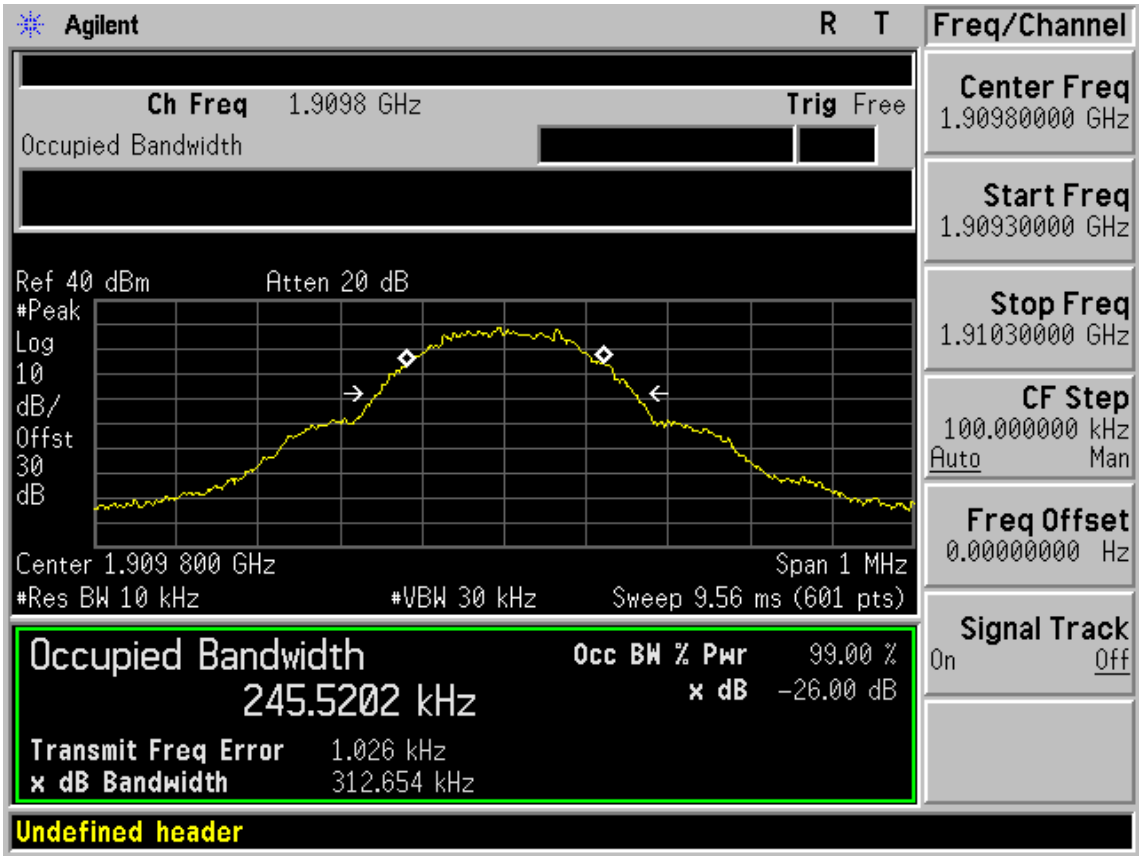
Test PCS 1900 CH512



Test PCS 1900 CH661



Test PCS 1900 CH810

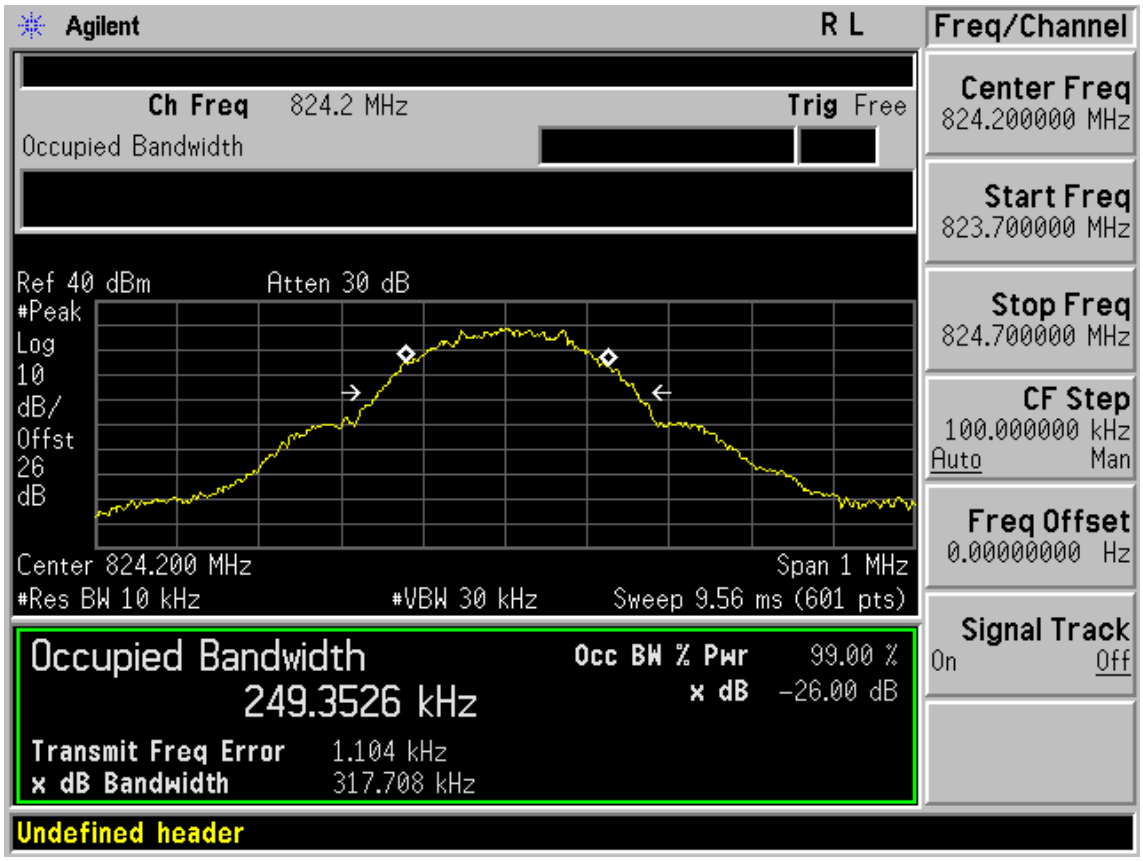


26dB Bandwidth

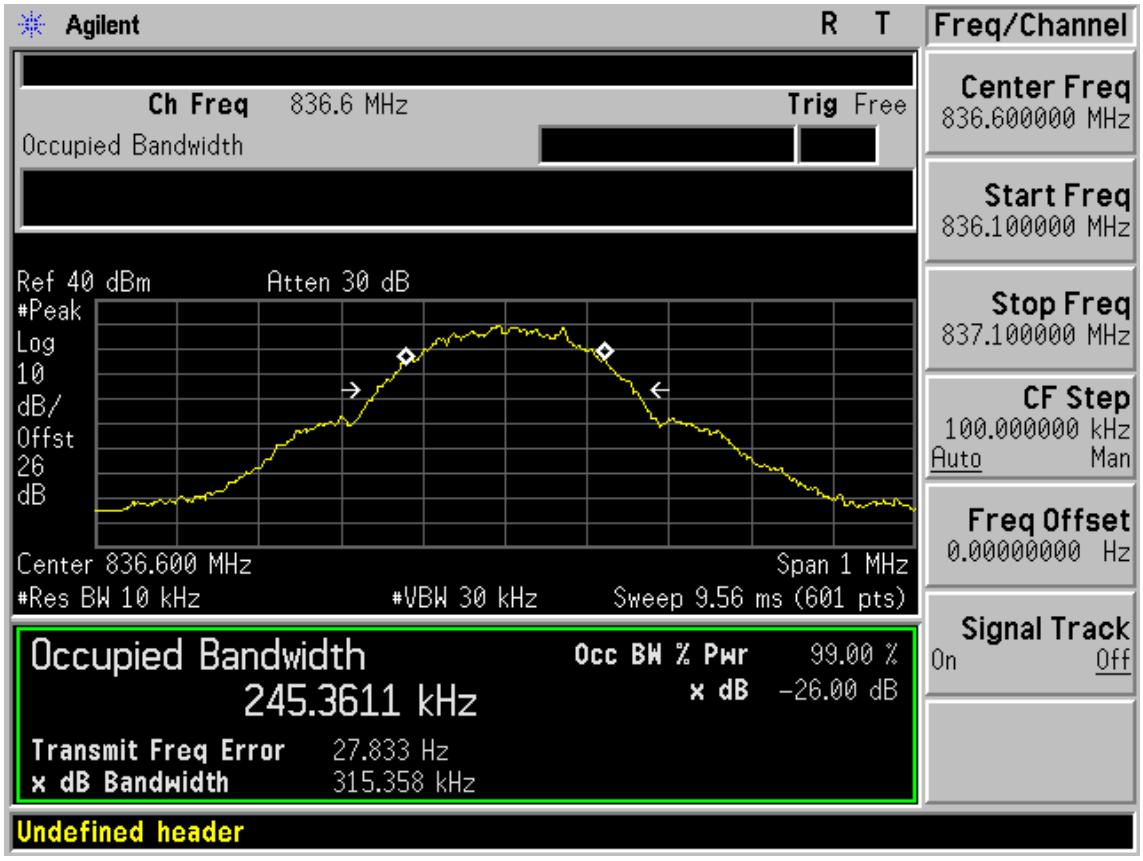
EUT:W32		
M/N:W32		
Test date: 2013-12-22	Pressure: 101.5±1.0 kpa	Humidity: 52.2±3.0%
Tested by: Kevin_hu	Test site: RF Site	Temperature: 22.5±0.6℃

Test Mode	Frequency (MHz)	CH	99% bandwidth (KHz)	Limit (KHz)
GSM 850	824.2	128	317.708	N/A
	836.6	190	315.358	N/A
	848.8	251	321.964	N/A
PCS 1900	1850.2	512	305.956	N/A
	1880.0	661	323.763	N/A
	1909.8	810	312.654	N/A
Conclusion：PASS				

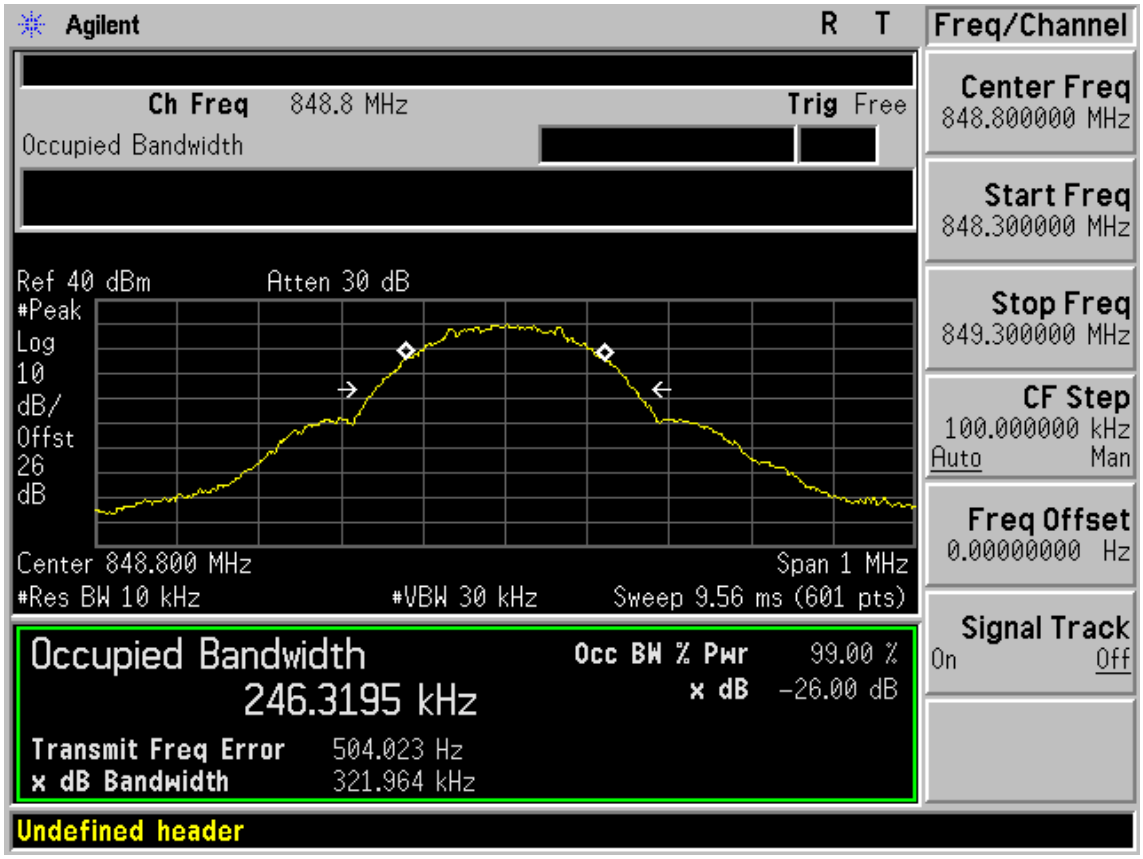
Test GSM 850 CH128



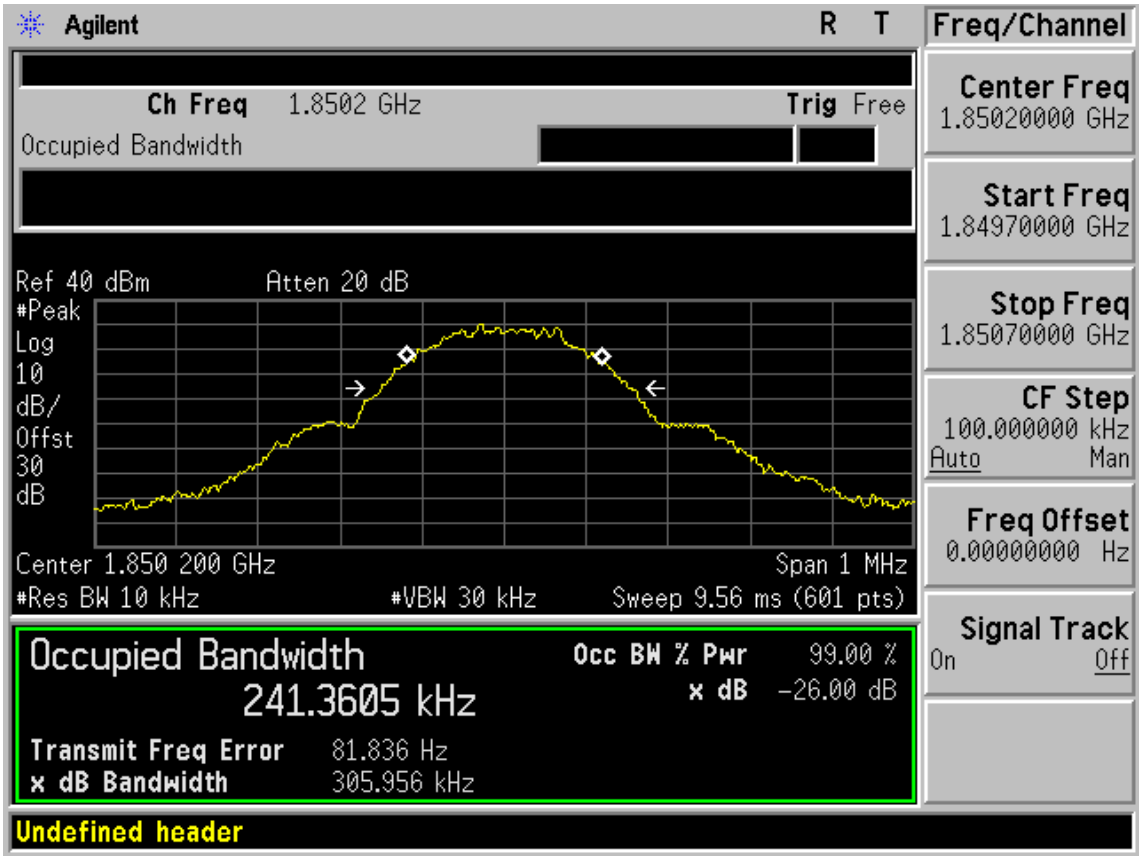
Test GSM 850 CH190



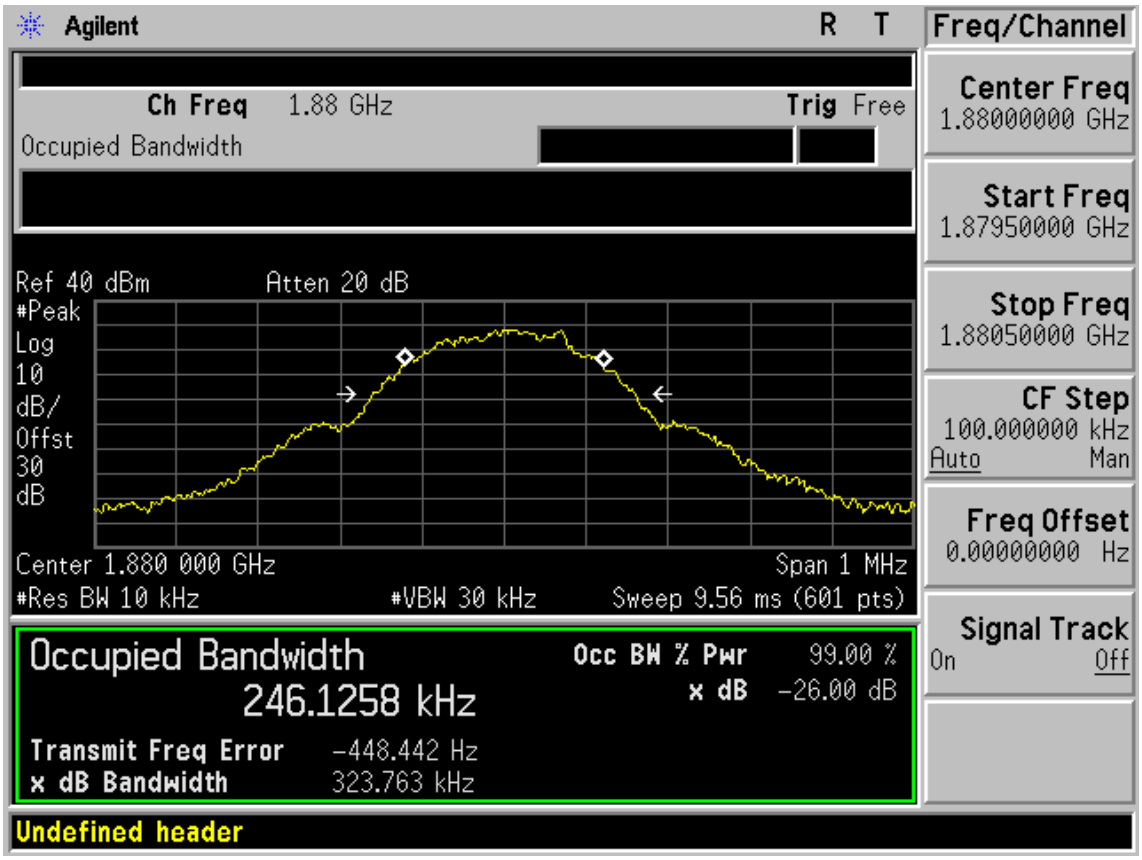
Test GSM 850 CH251



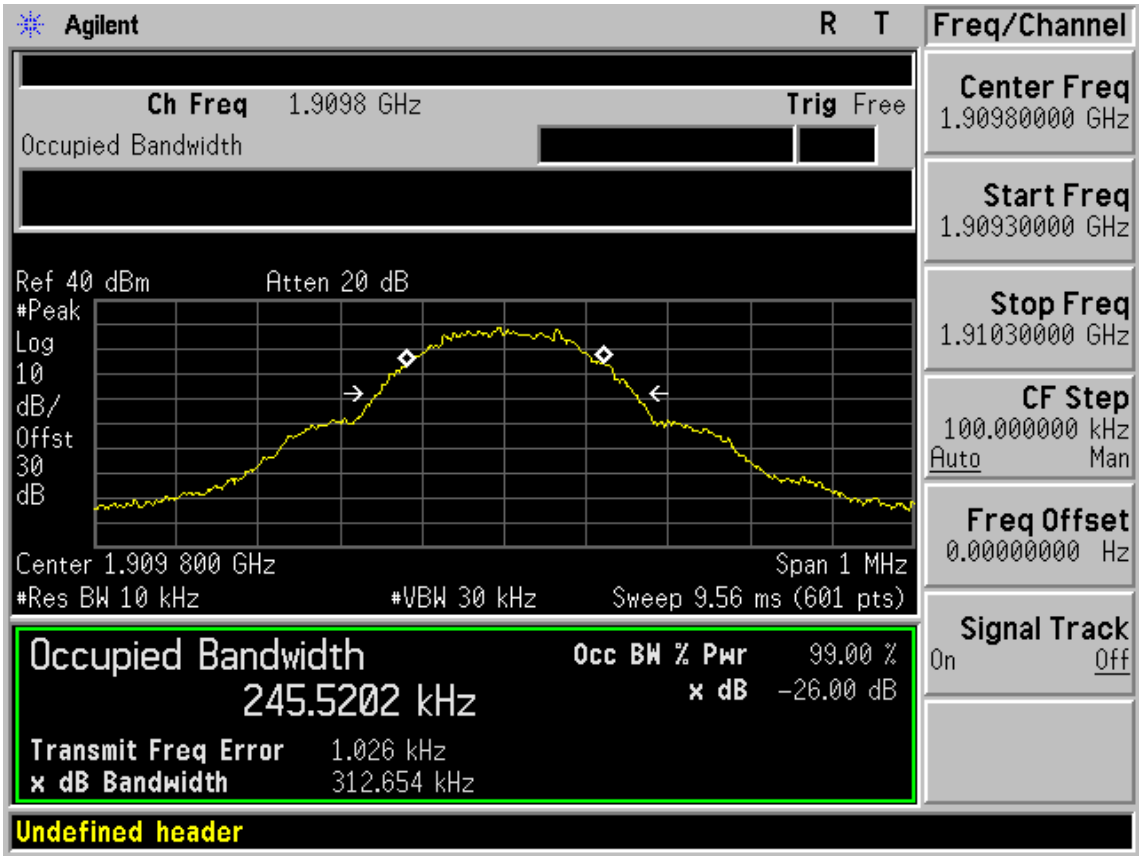
Test PCS 1900 CH512



Test PCS 1900 CH661



Test PCS 1900 CH810



6. RF POWER OUTPUT TEST

6.1.Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	Agilent	E4446A	US44300459	May.08, 13	1Year
2.	Attenuator	Agilent	8491B	MY39262165	May.08, 13	1Year
3.	RF Cable	Hubersuhner	SUCOFLEX102	28618/2	May.08,13	1Year
4.	RF Cable	Hubersuhner	SUCOFLEX102	28610/2	May.08,13	1Year
5.	RF Cable	Hubersuhner	SUCOFLEX102	28620/2	May.08,13	1Year
6.	Power divider	Mini-Circuits	ZFRSC-183-S+	572800942	N/A	N/A
7.	Wireless Communication Test set	Agilent	E5515C	GB44300243	May.08,13	1Year

6.2.Limit

Compliance with part 22.913.in no any case may the peak power of a mobile station transm Itter exceed 7W(38.5dBm).The calculated longitude ERP by following formula:
ERP(dBm)=10*log($ERP_{\text{in watts}}$)
And for conducted power, We can use antenna gain to calculate the limit, so the conducted Power: P_{con}.(dBm)=ERP(dBm)-Gain(dBd) and Gain(dBd)=Gain(dBi)-2.15dB
The antenna gain of GSM850 is 0.5dBi, The Gain(dBd)= -1.65dBd
So the conducted power limit for GSM850 is 40.15dBm.

Compliance with part 24.232.in no any case may the peak power of a mobile station transm Itter exceed 2W(33dBm).The calculated longitude EIRP by following formula:
EIRP(dBm)=10*log($EIRP_{\text{in watts}}$)
And for conducted power, We can use antenna gain to calculate the limit, so the conducted Power: P_{con}.(dBm)=EIRP(dBm)-Gain(dBi) and Gain(dBi)=Gain(dBd)+2.15dB
The antenna gain of PCS1900 is 0.5dBi.
So the conducted power limit for PCS1900 is 32.5dBm

6.3.Test Procedure

The transmitter output was connected to calibrated attenuator, the other end of which was connected to a power meter. Transmitter output was read off the power in dBm. The power output at the transmitter antenna port was determined by adding the value of attenuator to the power meter reading.

6.4.Test Results

EUT:W32		
M/N:W32		
Test date: 2013-12-22	Pressure: 101.5±1.0 kpa	Humidity: 52.2±3.0%
Tested by: Kevin_hu	Test site: RF Site	Temperature: 22.5±0.6 ℃
Cable loss: 2dB	Attenuator loss: 20 dB	Spliter attenuation: 6dB

Mode	Frequency (MHz)	CH	Output power (dBm)	Limit (dBm)
GSM 850	824.2	128	31.96	40.15
	836.6	190	31.99	40.15
	848.8	251	31.87	40.15
PCS 1900	1850.2	512	28.57	32.5
	1880.0	661	28.79	32.5
	1909.8	810	28.36	32.5
Conclusion：PASS				

7. FIELD STRENGTH OF RADIATED SPURIOUS EMISSIONS

7.1.Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
28.	Spectrum Analyzer	Agilent	E4446A	US44300459	May.08, 13	1 Year
29.	Spectrum Analyzer	Agilent	N9030A	MY51380221	Oct.31, 13	1Year
30.	Signal Generator	HP	83732B	VS34490501	May.08, 13	1 Year
31.	Power meter	Anritsu	ML2487A	6K00002472	May.08, 13	1Year
32.	Power sensor	Anritsu	MA2491A	0033005	May.08, 13	1Year
33.	Attenuator(10dB)	Agilent	8491A	MY39264375	May.08, 13	1 Year
34.	Attenuator(20dB)	Agilent	8491B	MY39262165	May.08, 13	1 Year
35.	Universal Radio Communication Tester	R&S	CMU200	117194	Oct. 31,13	1 Year
36.	Network Analyzer	Agilent	E5071B	MY42403549	May.08, 13	1 Year
37.	Bluetooth Test set	Agilent	MT8852B	6K00005966	May.18, 13	1 Year
38.	Wireless Communication Tester	Agilent	E5515C	GB44300243	May.18. 13	1 Year
39.	DC Power supply	King	DPS-1303D	821956	N/A	N/A
40.	PreAmplifier	Agilent	8449B	3008A02495	May.08, 13	1 Year
41.	PreAmplifier	Agilent	8447D	2944A11159	May.08, 13	1Year
42.	Horn Antenna	EMCO	3115	9510-4580	May.28, 13	1 Year
43.	Bilog Antenna	Schaffner	CBL6111C	2598	Mar.14, 13	1 Year
44.	Power divider	Mini-Circuits	ZFRSC-183-S+	572800942	N/A	N/A
45.	Power divider	Mini-Circuits	ZA3PD-4-S+	347100912	N/A	N/A
46.	Power divider	Mini-Circuits	ZA4PD-4-S+	544000937	N/A	N/A
47.	Antenna and turn table controller	CT	SC100	CT-0091	N/A	N/A
48.	Temperature controller	Terchy	MHQ-120cluB	A60223	May.08, 13	1Year
49.	RF Cable	Hubersuhner	SUCOFLEX102	28620/2	May.08, 13	1 Year
50.	RF Cable	Hubersuhner	SUCOFLEX102	28618/2	May.08,13	1 Year
51.	RF Cable	Hubersuhner	SUCOFLEX102	28610/2	May.08,13	1 Year
52.	RF Cable	Hubersuhner	SUCOFLEX102	274094/4	May.08,13	1 Year
53.	Loop Antenna	Chase	HLA6120	1062	May.21, 13	1 Year
54.	Horn Antenna	EMCO	3116	00060089	Aug.28, 13	1 Year

7.2. Limit

FCC part 22.917(a), 24.238(a) the magnitude of each spurious and harmonic emission that can be detected when the equipment is operated under the conditions specification in the instruction manual and/or alignment procedure, shall not be less than 43+10log(Mean power in watts) dBc below the mean power output outside a license's frequency block(-13dBm).

7.3. Test Procedure

The EUT was placed on a non-conductive turntable using a non-conductive support. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer. During the measurement, the EUT was communication with the station. The highest emission was recorded with the rotation of the turntable and lowering of the test antenna from 4m to 1m.

ERP in frequency band 824.2-848.8MHz were measured using substitution method. The EUT was replaced by dipole antenna connected, the S.G. output was recorded and ERP was calculated as follow: EIRP in frequency band 1850.5-1909.8MHz were measured using a substitution method. The EUT was replaced by a horn antenna connected, the S.G. output was recorded and EIRP was calculated as follows:
ERP=S.G. output (dBm) + Antenna Gain (dBd)-Cable Loss (dB)
EIRP=S.G. output (dBm) + Antenna Gain (dBi)-Cable Loss (dB)

7.4.Test Results

GSM 850 Mode

Spurious emissions								
EUT：W32								
M/N：W32								
Power: DC 5V From Adapter input AC 120V/60Hz								
Test Date: 2013-12-22		Test site: RF Chamber			Tested by: Kevin_hu			
Temperature: 22.8±0.6℃		Humidity: 50.3±3.0%			Pressure: 100.7±1.0kpa			
Test result								
Test Mode：GSM 850 TX CH Low Mode 824.2MHz								
Frequency (MHz)	Antenna polarization	S.G Output (dBm)	Antenna Gain (dBi/dBd)	Cable Loss (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Conclusion
154	H	-57.53	2.41	1.2	-56.32	-13	43.32	PASS
180	H	-58.25	2.80	1.4	-56.85	-13	43.85	PASS
296	H	-56.48	2.84	1.5	-55.14	-13	42.14	PASS
427	H	-55.92	2.99	1.7	-54.63	-13	41.63	PASS
1600	H	-53.92	6.96	2.4	-49.36	-13	36.36	PASS
2190	H	-49.92	7.20	2.9	-45.62	-13	32.62	PASS
2825	H	-45.18	8.20	3.3	-40.28	-13	27.28	PASS
136	V	-56.45	2.09	1.0	-55.36	-13	42.36	PASS
154	V	-57.33	2.41	1.2	-56.12	-13	43.12	PASS
180	V	-55.82	2.80	1.4	-54.42	-13	41.42	PASS
427	V	-56.31	2.99	1.7	-55.02	-13	42.02	PASS
1600	V	-53.08	6.96	2.4	-48.52	-13	35.52	PASS
2190	V	-51.42	7.20	2.9	-47.12	-13	34.12	PASS
2825	V	-47.08	8.20	3.3	-42.18	-13	29.18	PASS

Test Mode：GSM 850 TX CH Mid Mode 836.6MHz								
154	H	-56.99	2.41	1.2	-55.78	-13	42.78	PASS
180	H	-56.52	2.80	1.4	-55.12	-13	42.12	PASS
296	H	-57.57	2.84	1.5	-56.23	-13	43.23	PASS
427	H	-56.87	2.99	1.7	-55.58	-13	42.58	PASS
1610	H	-52.91	7.05	2.4	-48.26	-13	35.26	PASS
2195	H	-51.78	7.23	2.9	-47.45	-13	34.45	PASS
2826	H	-46.53	8.20	3.3	-41.63	-13	28.63	PASS
136	V	-54.34	2.09	1.0	-53.25	-13	40.25	PASS
154	V	-55.46	2.41	1.2	-54.25	-13	41.25	PASS
180	V	-57.72	2.80	1.4	-56.32	-13	43.32	PASS
427	V	-55.41	2.99	1.7	-54.12	-13	41.12	PASS
1610	V	-49.88	7.05	2.4	-45.23	-13	32.23	PASS
2195	V	-46.72	7.23	2.9	-42.39	-13	29.39	PASS
2826	V	-46.79	8.20	3.3	-41.89	-13	28.89	PASS
Test Mode：GSM 850 TX CH High Mode 848.8MHz								
154	H	-56.45	2.41	1.2	-55.24	-13	42.24	PASS
180	H	-55.66	2.80	1.4	-54.26	-13	41.26	PASS
296	H	-57.55	2.84	1.5	-56.21	-13	43.21	PASS
427	H	-53.47	2.99	1.7	-52.18	-13	39.18	PASS
1650	H	-48.30	7.11	2.5	-43.69	-13	30.69	PASS
2190	H	-46.31	7.20	2.9	-42.01	-13	29.01	PASS
2825	H	-44.09	8.20	3.3	-39.19	-13	26.19	PASS
136	V	-57.34	2.09	1.0	-56.25	-13	43.25	PASS
154	V	-55.49	2.41	1.2	-54.28	-13	41.28	PASS
180	V	-57.57	2.80	1.4	-56.17	-13	43.17	PASS
427	V	-54.76	2.99	1.7	-53.47	-13	40.47	PASS
1650	V	-50.86	7.11	2.5	-46.25	-13	33.25	PASS
2190	V	-49.44	7.20	2.9	-45.14	-13	32.14	PASS
2825	V	-48.48	8.20	3.3	-43.58	-13	30.58	PASS
Remark:All the emission were detected belong to narrowband spurious emission								

PCS 1900 Mode

Spurious emissions		
EUT：W32		
M/N： W32		
Power: DC 5V From Adapter input AC 120V/60Hz		
Test Date: 2013-12-22	Test site: RF Chamber	Tested by:Kevin_Hu
Temperature: 22.8±0.6℃	Humidity: 50.3±3.0%	Pressure: 100.7±1.0kpa

Test result

Test Mode：PCS 1900 TX CH Low Mode 1850.2MHz

Frequency (MHz)	Antenna polarization	S.G Output (dBm)	Antenna Gain (dBi/dBd)	Cable Loss (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Conclusion
154	H	-57.66	2.41	1.2	-56.45	-13	43.45	PASS
180	H	-55.63	2.80	1.4	-54.23	-13	41.23	PASS
296	H	-54.90	2.84	1.5	-53.56	-13	40.56	PASS
427	H	-55.41	2.99	1.7	-54.12	-13	41.12	PASS
2190	H	-49.64	7.20	2.9	-45.34	-13	32.34	PASS
2825	H	-51.66	8.20	3.3	-46.76	-13	33.76	PASS
3650	H	-43.49	8.95	3.8	-38.34	-13	25.34	PASS
136	V	-56.21	2.09	1.0	-55.12	-13	42.12	PASS
154	V	-57.56	2.41	1.2	-56.35	-13	43.35	PASS
180	V	-56.07	2.80	1.4	-54.67	-13	41.67	PASS
427	V	-54.15	2.99	1.7	-52.86	-13	39.86	PASS
2190	V	-50.89	7.20	2.9	-46.59	-13	33.59	PASS
2825	V	-51.24	8.20	3.3	-46.34	-13	33.34	PASS
3650	V	-44.29	8.95	3.8	-39.14	-13	26.14	PASS

Test Mode：PCS 1900 TX CH Mid Mode 1880.0MHz								
154	H	-56.66	2.41	1.2	-55.45	-13	42.45	PASS
180	H	-57.16	2.80	1.4	-55.76	-13	42.76	PASS
296	H	-55.46	2.84	1.5	-54.12	-13	41.12	PASS
427	H	-54.63	2.99	1.7	-53.34	-13	40.34	PASS
1800	H	-46.70	7.15	2.7	-42.25	-13	29.25	PASS
2195	H	-51.56	7.23	2.9	-47.23	-13	34.23	PASS
3700	H	-45.46	9.01	3.9	-40.35	-13	27.35	PASS
136	V	-54.21	2.09	1.0	-53.12	-13	40.12	PASS
154	V	-53.49	2.41	1.2	-52.28	-13	39.28	PASS
180	V	-52.16	2.80	1.4	-50.76	-13	37.76	PASS
427	V	-52.63	2.99	1.7	-51.34	-13	38.34	PASS
1800	V	-46.72	7.15	2.7	-42.27	-13	29.27	PASS
2195	V	-44.89	7.23	2.9	-40.56	-13	27.56	PASS
3700	V	-43.46	9.01	3.9	-38.35	-13	25.35	PASS
Test Mode：PCS 1900 TX CH High Mode 1909.8MHz								
154	H	-54.48	2.41	1.2	-53.27	-13	40.27	PASS
180	H	-53.60	2.80	1.4	-52.20	-13	39.20	PASS
296	H	-56.79	2.84	1.5	-55.45	-13	42.45	PASS
427	H	-54.07	2.99	1.7	-52.78	-13	39.78	PASS
1900	H	-45.02	7.17	2.8	-40.65	-13	27.65	PASS
2190	H	-45.75	7.22	2.9	-41.43	-13	28.43	PASS
3800	H	-42.24	9.08	4.0	-37.16	-13	24.16	PASS
136	V	-55.32	2.09	1.0	-54.23	-13	41.23	PASS
154	V	-53.7	2.41	1.2	-52.49	-13	39.49	PASS
180	V	-52.85	2.80	1.4	-51.45	-13	38.45	PASS
427	V	-54.16	2.99	1.7	-52.87	-13	39.87	PASS
1900	V	-46.66	7.17	2.8	-42.29	-13	29.29	PASS
2190	V	-47.97	7.22	2.9	-43.65	-13	30.65	PASS
3800	V	-47.36	9.08	4.0	-42.28	-13	29.28	PASS
Remark:All the emission were detected belong to narrowband spurious emission								

8. FREQUENCY STABILITY V.S. TEMPERATURE AND VOLTAGE

8.1.Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
55.	Spectrum Analyzer	Agilent	E4446A	US44300459	May.08, 13	1 Year
56.	Spectrum Analyzer	Agilent	N9030A	MY51380221	Oct.31, 13	1Year
57.	Signal Generator	HP	83732B	VS34490501	May.08, 13	1 Year
58.	Power meter	Anritsu	ML2487A	6K00002472	May.08, 13	1Year
59.	Power sensor	Anritsu	MA2491A	0033005	May.08, 13	1Year
60.	Attenuator(10dB)	Agilent	8491A	MY39264375	May.08, 13	1 Year
61.	Attenuator(20dB)	Agilent	8491B	MY39262165	May.08, 13	1 Year
62.	Universal Radio Communication Tester	R&S	CMU200	117194	Oct. 31,13	1 Year
63.	Network Analyzer	Agilent	E5071B	MY42403549	May.08, 13	1 Year
64.	Bluetooth Test set	Agilent	MT8852B	6K00005966	May.18, 13	1 Year
65.	Wireless Communication Tester	Agilent	E5515C	GB44300243	May.18. 13	1 Year
66.	DC Power supply	King	DPS-1303D	821956	N/A	N/A
67.	PreAmplifier	Agilent	8449B	3008A02495	May.08, 13	1 Year
68.	PreAmplifier	Agilent	8447D	2944A11159	May.08, 13	1Year
69.	Horn Antenna	EMCO	3115	9510-4580	May.28, 13	1 Year
70.	Bilog Antenna	Schaffner	CBL6111C	2598	Mar.14, 13	1 Year
71.	Power divider	Mini-Circuits	ZFRSC-183-S+	572800942	N/A	N/A
72.	Power divider	Mini-Circuits	ZA3PD-4-S+	347100912	N/A	N/A
73.	Power divider	Mini-Circuits	ZA4PD-4-S+	544000937	N/A	N/A
74.	Antenna and turn table controller	CT	SC100	CT-0091	N/A	N/A
75.	Temperature controller	Terchy	MHQ-120cluB	A60223	May.08, 13	1Year
76.	RF Cable	Hubersuhner	SUCOFLEX102	28620/2	May.08, 13	1 Year
77.	RF Cable	Hubersuhner	SUCOFLEX102	28618/2	May.08,13	1 Year
78.	RF Cable	Hubersuhner	SUCOFLEX102	28610/2	May.08,13	1 Year
79.	RF Cable	Hubersuhner	SUCOFLEX102	274094/4	May.08,13	1 Year
80.	Loop Antenna	Chase	HLA6120	1062	May.21, 13	1 Year
81.	Horn Antenna	EMCO	3116	00060089	Aug.28, 13	1 Year

8.1.Limit

Frequency Tolerance: +/-2.5ppm for 850MHz band
+/-2.5ppm for 1900MHz band

8.2.Test procedure:

The equipment under test was connected to an external DC power supply and input rated voltage. Reference power supply voltage for these tests is DC 4.0V. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the Spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 25 degree operating frequency as reference frequency. Turn EUT off and set the chamber temperature to -30 degree. After the temperature stabilized for approximately 30 minutes record the frequency. Repeat step measure with 10 degree per stage until the highest temperature of 50 degree reached.

Frequency Stability						
EUT:W32						
M/N:W32						
Power: DC 5V From Adapter input AC 120V/60Hz						
Test Date: 2013-12-22		Test site: RF Chamber			Tested by:Kevin_hu	
Temperature: 22.8±0.6℃		Humidity: 50.3±3.0%			Pressure: 100.7±1.0kpa	
Frequency stability VS Voltage (Temperature:25℃)						
Test Mode: GSM 850 CH 128 824.2MHz						
Supply Voltage（V）	CH	Frequency（MHz）	Test result (MHz)	Deviation (ppm)	Limit (ppm)	Conclusion
102	128	824.2	824.1985	1.8	+/- 2.5	PASS
112	128	824.2	824.1986	1.7	+/- 2.5	PASS
120	128	824.2	824.1989	1.3	+/- 2.5	PASS
130	128	824.2	824.1996	0.5	+/- 2.5	PASS
138	128	824.2	824.1992	1.0	+/- 2.5	PASS
Test Mode: GSM 850 CH190 836.6MHz						
Supply Voltage（V）	CH	Frequency（MHz）	Test result (MHz)	Deviation (ppm)	Limit (ppm)	Conclusion
102	190	836.6	836.5996	0.5	+/- 2.5	PASS
112	190	836.6	836.5989	1.3	+/- 2.5	PASS
120	190	836.6	836.5992	1.0	+/- 2.5	PASS
130	190	836.6	836.5995	0.6	+/- 2.5	PASS
138	190	836.6	836.5991	1.1	+/- 2.5	PASS
Test Mode: GSM 850 CH251 848.8MHz						
Supply Voltage（V）	CH	Frequency（MHz）	Test result (MHz)	Deviation (ppm)	Limit (ppm)	Conclusion
102	251	848.8	848.7995	0.6	+/-2.5	PASS
112	251	848.8	848.7992	0.9	+/-2.5	PASS
120	251	848.8	848.7989	1.3	+/-2.5	PASS
130	251	848.8	848.7990	1.2	+/-2.5	PASS
138	251	848.8	848.7994	0.7	+/-2.5	PASS

Test Mode: PCS 1900 CH 512 1850.2MHz						
Supply Voltage （V）	CH	Frequency （MHz）	Test result (MHz)	Deviation (ppm)	Limit (ppm)	Conclusion
102	512	1850.2	1850.1996	0.2	+/- 2.5	PASS
112	512	1850.2	1850.1992	0.4	+/- 2.5	PASS
120	512	1850.2	1850.1990	0.5	+/- 2.5	PASS
130	512	1850.2	1850.1899	0.5	+/- 2.5	PASS
138	512	1850.2	1850.1994	0.3	+/- 2.5	PASS
Test Mode: PCS 1900 CH 661 1880.0MHz						
Supply Voltage （V）	CH	Frequency （MHz）	Test result (MHz)	Deviation (ppm)	Limit (ppm)	Conclusion
102	661	1880.0	1879.9986	0.7	+/- 2.5	PASS
112	661	1880.0	1879.9979	1.1	+/- 2.5	PASS
120	661	1880.0	1879.9989	0.6	+/- 2.5	PASS
130	661	1880.0	1879.9992	0.4	+/- 2.5	PASS
138	661	1880.0	1879.9987	0.7	+/- 2.5	PASS
Test Mode: PCS 1900 CH 810 1909.8MHz						
Supply Voltage （V）	CH	Frequency （MHz）	Test result (MHz)	Deviation (ppm)	Limit (ppm)	Conclusion
102	810	1909.8	1909.7982	0.9	+/- 2.5	PASS
112	810	1909.8	1909.7980	1.0	+/- 2.5	PASS
120	810	1909.8	1909.7985	0.8	+/- 2.5	PASS
130	810	1909.8	1909.7979	1.1	+/- 2.5	PASS
138	810	1909.8	1909.7988	0.6	+/- 2.5	PASS

Frequency stability VS Temperature (Voltage:120V)						
Test Mode: GSM 850 CH 128 824.2MHz						
Temperature (℃)	CH	Frequency (MHz)	Test result (MHz)	Deviation (ppm)	Limit (ppm)	Conclusion
-30	128	824.2	824.1992	1.0	+/- 2.5	PASS
-20	128	824.2	824.1998	0.2	+/- 2.5	PASS
-10	128	824.2	824.1995	0.6	+/- 2.5	PASS
10	128	824.2	824.1996	0.5	+/- 2.5	PASS
20	128	824.2	824.1994	0.7	+/- 2.5	PASS
30	128	824.2	824.1991	1.0	+/- 2.5	PASS
40	128	824.2	824.1997	0.4	+/- 2.5	PASS
50	128	824.2	824.1999	0.1	+/- 2.5	PASS
Test Mode: GSM 850 CH190 836.6MHz						
-30	190	836.6	836.5998	0.2	+/- 2.5	PASS
-20	190	836.6	836.5994	0.7	+/- 2.5	PASS
-10	190	836.6	836.5995	0.6	+/- 2.5	PASS
10	190	836.6	836.5997	0.4	+/- 2.5	PASS
20	190	836.6	836.5993	0.8	+/- 2.5	PASS
30	190	836.6	836.5996	0.5	+/- 2.5	PASS
40	190	836.6	836.5992	1.0	+/- 2.5	PASS
50	190	836.6	836.5999	0.1	+/- 2.5	PASS
Test Mode: GSM 850 CH251 848.8MHz						
-30	251	848.8	848.7992	0.9	+/-2.5	PASS
-20	251	848.8	848.7995	0.6	+/-2.5	PASS
-10	251	848.8	848.7997	0.4	+/-2.5	PASS
10	251	848.8	848.7993	0.8	+/-2.5	PASS
20	251	848.8	848.7999	0.1	+/-2.5	PASS
30	251	848.8	848.7996	0.5	+/-2.5	PASS
40	251	848.8	848.7998	0.2	+/-2.5	PASS
50	251	848.8	848.7994	0.7	+/-2.5	PASS

Test Mode: PCS 1900 CH 512 1850.2MHz						
-30	512	1850.2	1850.1995	0.3	+/- 2.5	PASS
-20	512	1850.2	1850.1998	0.1	+/- 2.5	PASS
-10	512	1850.2	1850.1996	0.2	+/- 2.5	PASS
10	512	1850.2	1850.1997	0.2	+/- 2.5	PASS
20	512	1850.2	1850.1992	0.4	+/- 2.5	PASS
30	512	1850.2	1850.1991	0.5	+/- 2.5	PASS
40	512	1850.2	1850.1993	0.4	+/- 2.5	PASS
50	512	1850.2	1850.1994	0.3	+/- 2.5	PASS
Test Mode: PCS 1900 CH 661 1880.0MHz						
-30	661	1880.0	1879.9986	0.7	+/- 2.5	PASS
-20	661	1880.0	1879.9975	1.3	+/- 2.5	PASS
-10	661	1880.0	1879.9965	1.7	+/- 2.5	PASS
10	661	1880.0	1879.9962	2.0	+/- 2.5	PASS
20	661	1880.0	1879.9958	2.2	+/- 2.5	PASS
30	661	1880.0	1879.9964	1.9	+/- 2.5	PASS
40	661	1880.0	1879.9971	1.5	+/- 2.5	PASS
50	661	1880.0	1879.9982	1.0	+/- 2.5	PASS
Test Mode: PCS 1900 CH 810 1909.8MHz						
-30	810	1909.8	1909.7984	0.8	+/- 2.5	PASS
-20	810	1909.8	1909.7957	2.2	+/- 2.5	PASS
-10	810	1909.8	1909.7973	1.4	+/- 2.5	PASS
10	810	1909.8	1909.7982	0.9	+/- 2.5	PASS
20	810	1909.8	1909.7955	2.3	+/- 2.5	PASS
30	810	1909.8	1909.7963	1.9	+/- 2.5	PASS
40	810	1909.8	1909.7969	1.6	+/- 2.5	PASS
50	810	1909.8	1909.7966	1.8	+/- 2.5	PASS

9. DEVIATION TO TEST SPECIFICATIONS

[NONE]