TEST REPORT

of

FCC Part 22, 24
FCC ID : YP3- IT-132J001

Equipment Under Test	:	Booster
Model Name	:	Dual Band Booster
Serial No.	:	10270001
Applicant	:	INNERTRON, INC
Manufacturer	:	INNERTRON, INC
Date of Test(s)	:	2010-10-20~2011-01-13
Date of Issue	:	2011-01-14

In the configuration tested, the EUT complied with the standards specified above.

Tested By: Feel Jeong **Date** 2011-01-14

Approved By Charles Kim **Date** 2011-01-14

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1. General information

1.7. Testing laboratory

SGS Testing Korea Co., Ltd.

- 705, Dongchun-Dong Sooji-Gu, Yongin-Shi, Kyungki-Do, South Korea.
- Wireless Div. 2FL, 18-34, Sanbon-dong, Gunpo-si, Gyeonggi-do, Korea 435-040

www.electrolab.kr.sgs.com

Telephone : +82 +31 428 5700

FAX : +82 +31 427 2371

1.2. Details of applicant

Applicant : INNERTRON, INC

Address : 96 Block 5 Lot 663 Gojan-dong, Namdong-gu, Incheon-City 405-310, Korea

Contact Person : Jong U , Ha

Phone No. : 82 +31 816 1456

1.3. Description of EUT

Kind of Product	Booster
Model Name	Dual Band Booster
Serial Number	10270001
Power Supply	DC 12 V
Rated Power	13 dBm(Uplink), -5 dBm(Downlink)
Frequency Range	824 ㎒ ~ 849 ㎒(Uplink), 869 ㎒ ~ 894 ㎒(Downlink) 1 850 ㎒ ~ 1 910 ㎒(Uplink), 1 930 ㎒ ~ 1 990 ㎒(Downlink)
Antenna Gain	2.12 dBi(806 ㎒ – 894 ㎒) , 3.12 dBi (1 850 ㎒ – 1 990 ㎒)

1.5. Test equipment list

Equipment	Manufacturer	Model	Cal Due.
Signal Generator	Agilent	E4438C	Mar. 31, 2011
Spectrum Analyzer	Agilent	E4440A	Mar. 31, 2011
Attenuator	Agilent	8498A	Apr. 01, 2011
High Pass Filter	Wainwright	WHK3.0/18G-10SS	Sep. 29, 2011
Band Reject Filter	Wainwright	WRCG824/849-814/85960/10SS	Apr. 01, 2011
DC power Supply	Agilent	U8002A	Jan. 06, 2011
Preamplifier	H.P.	8447F	Jun. 05, 2011
Test Receiver	R & S	ESU26	Apr. 15, 2011
Bilog Antenna	SCHWARZBECK MESSELEKTRONIK	VULB9163	Jun. 22, 2011
Horn Antenna	Rohde & Schwarz	HF 906	Oct. 08, 2011
Horn Antenna	SCHWARZBECK	BBH 9120D	Nov. 09, 2011
Dipole Antenna	VHAP/UHAP	975/958	Oct. 10, 2011
Antenna Master	EMCO	1050	N.C.R.
Turn Table	Daeil EMC	DI-1500	N.C.R.
Anechoic Chamber	SY Corporation	L × W × H (9.6 m × 6.4 m × 6.6 m)	Jan. 27, 2011

1.6. Summary of test results

The EUT has been tested according to the following specifications:

APPLIED STANDARD : FCC Part 22,24		
Section in FCC part	**Test Item**	**Result**
§2.1053 §22.917(e) §24.238(a)	Spurious Radiated Emission	Complied
§2.1046(a)	Conducted Output Power	Complied
§2.1049(h) (i)	Occupied Bandwidth	Complied
§2.1051 §22.917(e) §24.238(a)	Spurious Emission at Antenna Terminal	Complied
§2.1055 §22.355 §24.235	Frequency Stability	Complied
§22.917(e) §24.238(a)	Band Edge	Complied
§1.1307(b)(1)	Maximum Permissible Exposure (Exposure of Humans to RF Fields)	Complied

1.7. Test report revision

Revision	Report number	Description
0	F690501/RF-RTL004287	Initial
1	F690501/RF-RTL004287-1	Additional test

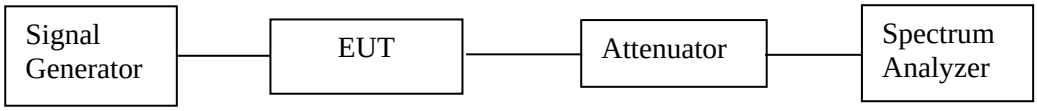
2. RF Output Power

2.1. Limit

Requirements: CFR 47, Section §2.1046

2.2. Test Procedure

1. The transmitter was tested while in a continuous transmit mode.
2. The EUT was tuned to a low, middle, and high channel in both the downlink (base to mobile) and uplink (mobile to base) directions.
3. RF power output was measured with an RF input level at the point just before the compression point of the amplifier.
4. This is the point of maximum RF output power. If the RF input level is increased beyond this point, the amplifier gain (and consequently output power) is automatically reduced.



2.3. Test Result

Ambient temperature : (24 ± 2) ℃
Relative humidity : 47 % R.H.

Cellular band

Uplink mode

Test mode	Channel No.	Frequency (㎒)	Measured Channel Power	
			dB m	㎽
Low	1013	824.70	13.61	22.96
Mid	363	835.89	13.72	23.55
High	777	848.31	13.03	20.09

Downlink mode

Test mode	Channel No.	Frequency (㎒)	Measured Channel Power	
			dB m	㎽
Low	1013	869.70	-5.06	0.31
Mid	363	880.89	-5.11	0.31
High	777	893.31	-3.40	0.46

PCS band

Uplink mode

Test mode	Channel No.	Frequency (㎒)	Measured Channel Power	
			dB m	㎽
Low	25	1 851.25	13.80	23.99
Mid	600	1 880.00	13.85	24.27
High	1175	1 908.75	11.67	14.69

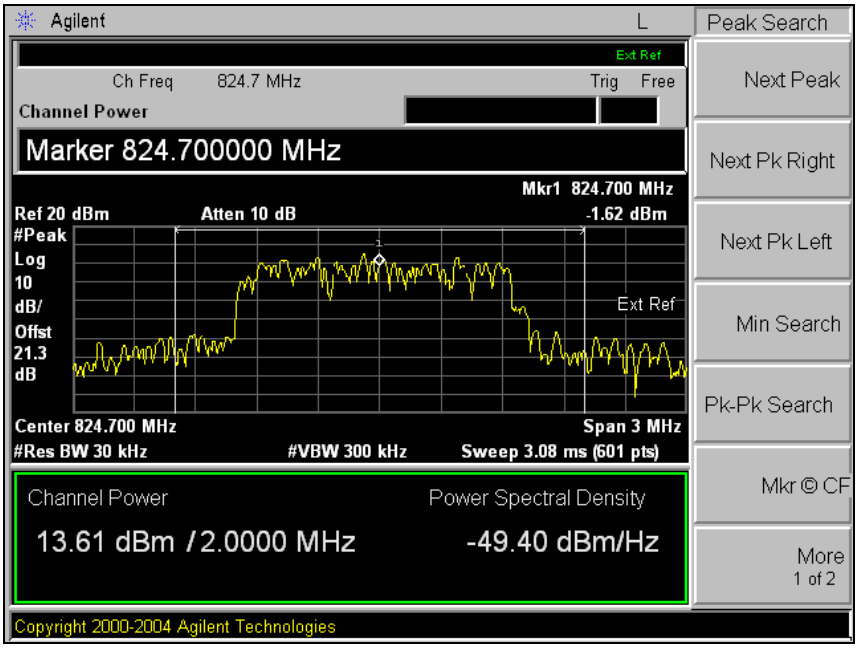
Downlink mode

	Channel No.	Frequency (㎒)	Measured Channel Power	
			dB m	㎽
Low	25	1 931.25	-6.56	0.22
Mid	600	1 960.00	-4.60	0.35
High	1175	1 988.75	-4.29	0.38

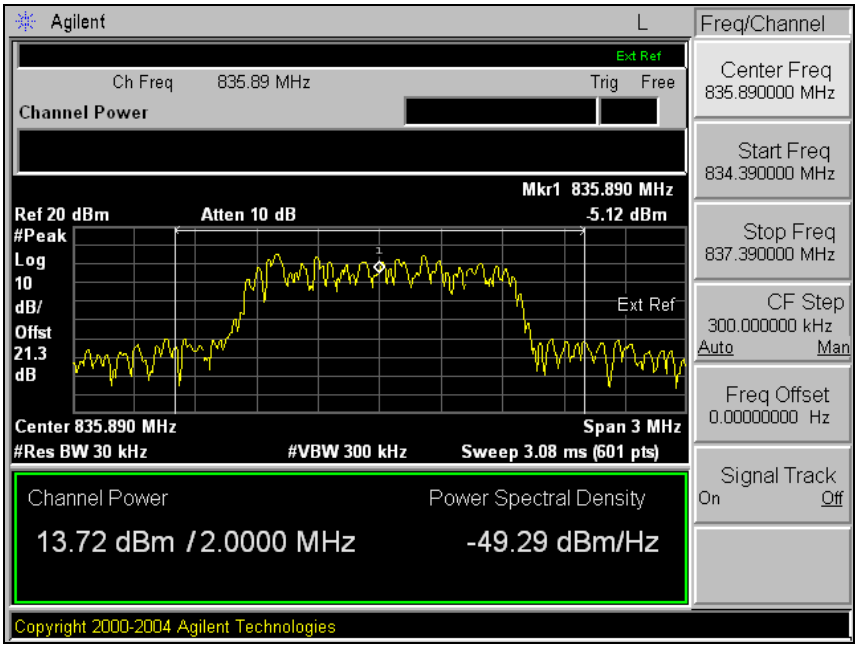
Please refer to the following plots.

Cellular(Uplink)

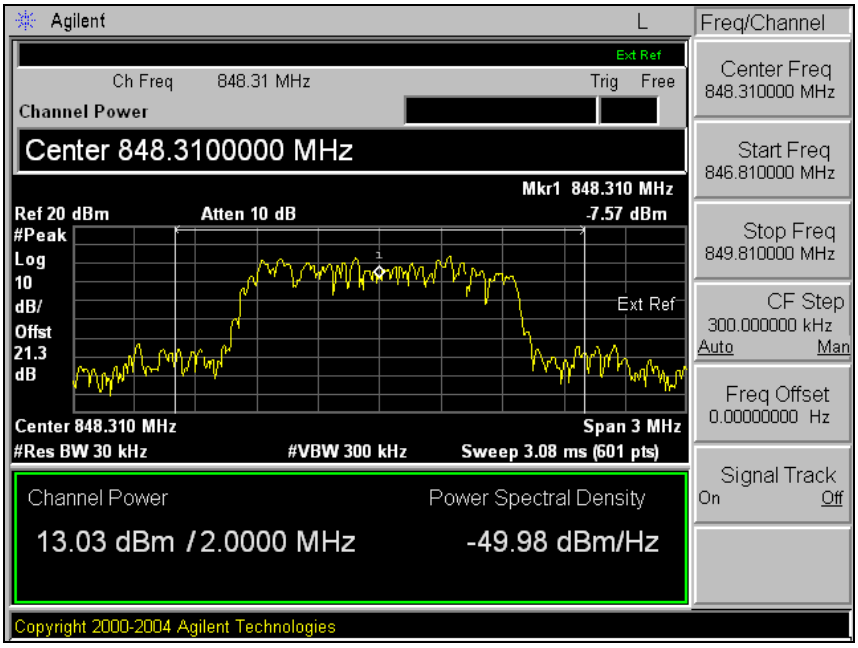
Low Channel



Middle Channel

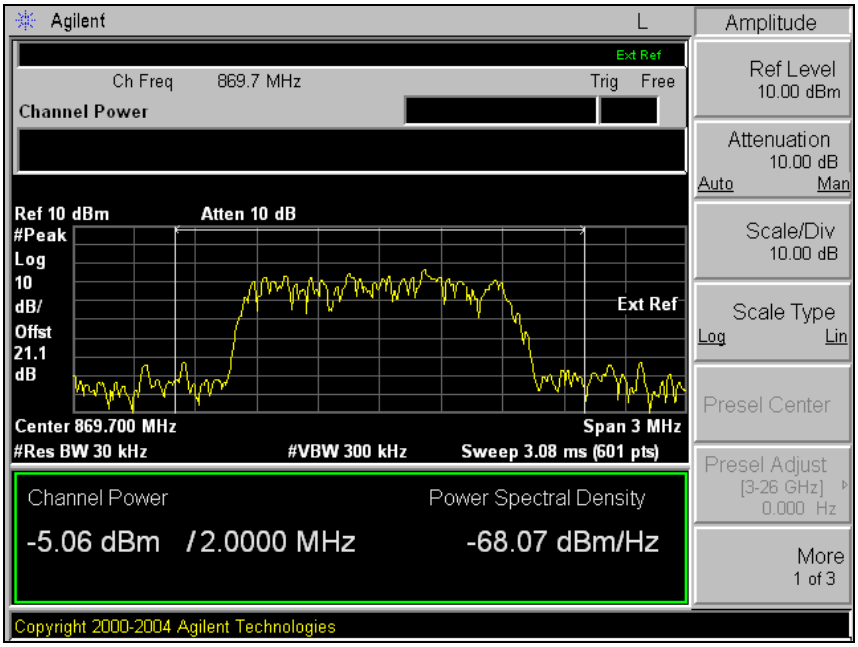


High Channel

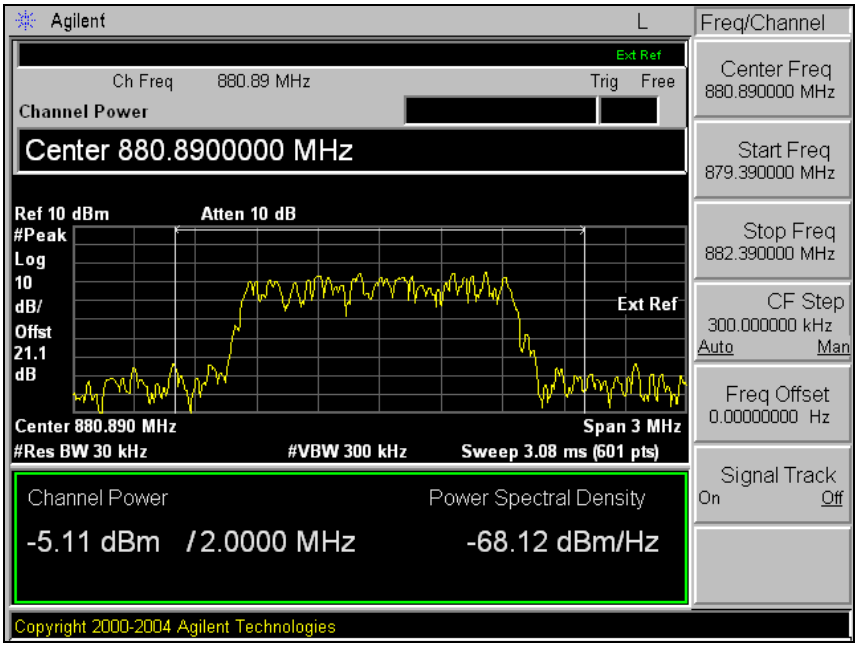


Cellular(Downlink)

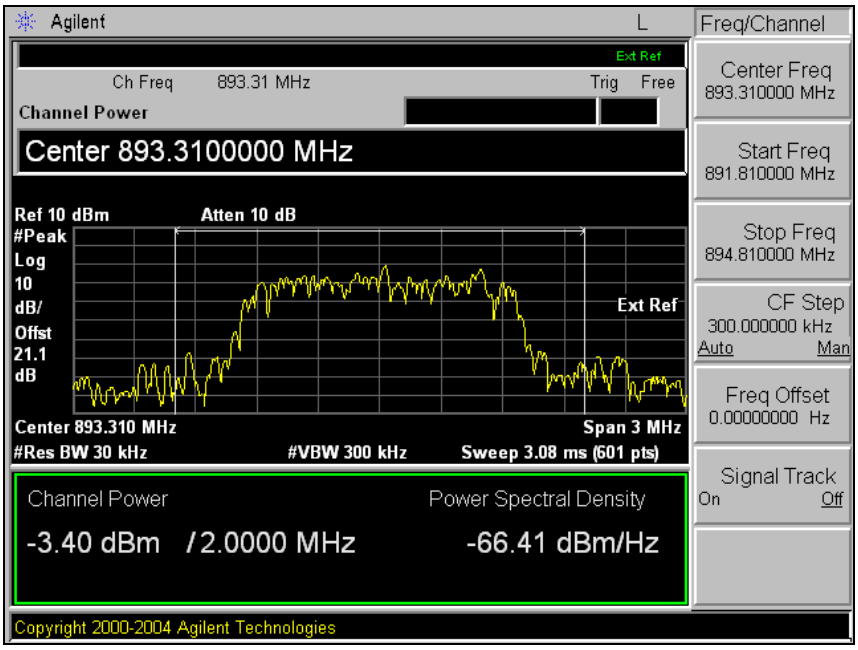
Low Channel



Middle Channel

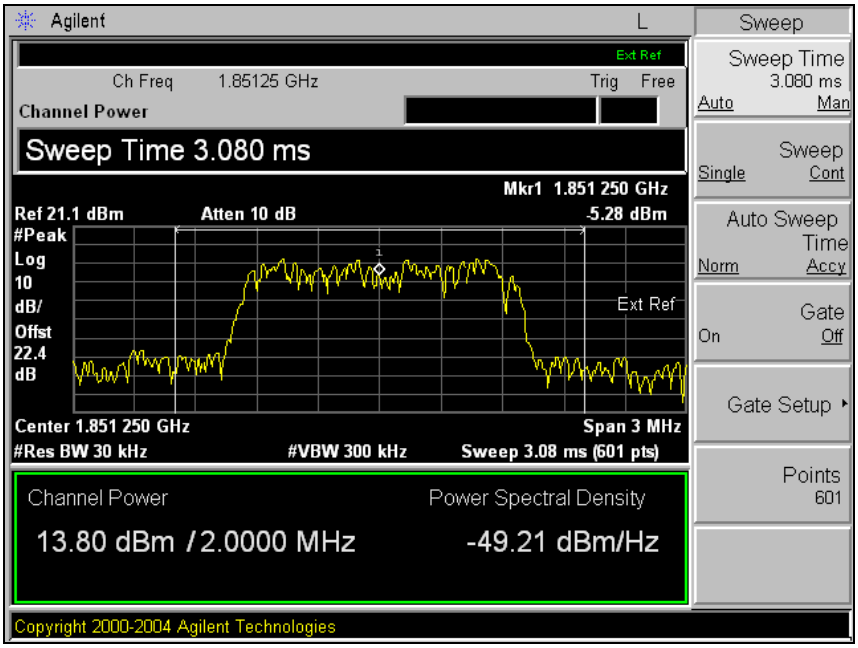


High Channel

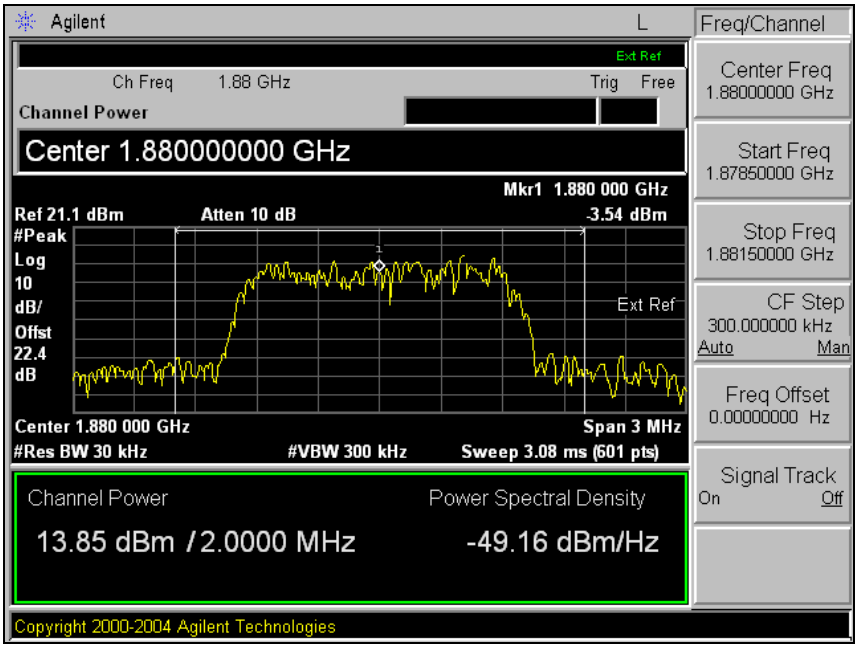


PCS(Uplink)

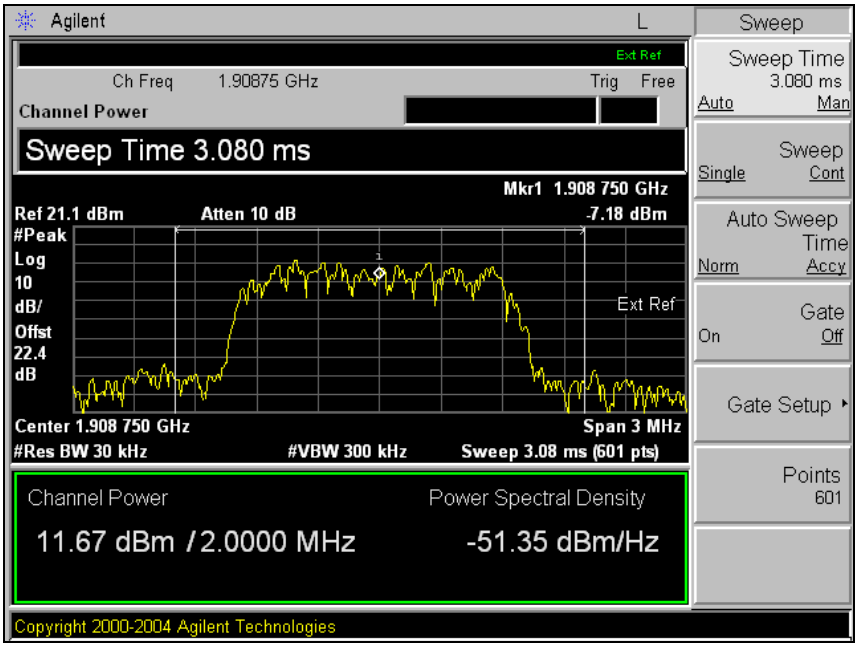
Low Channel



Middle Channel

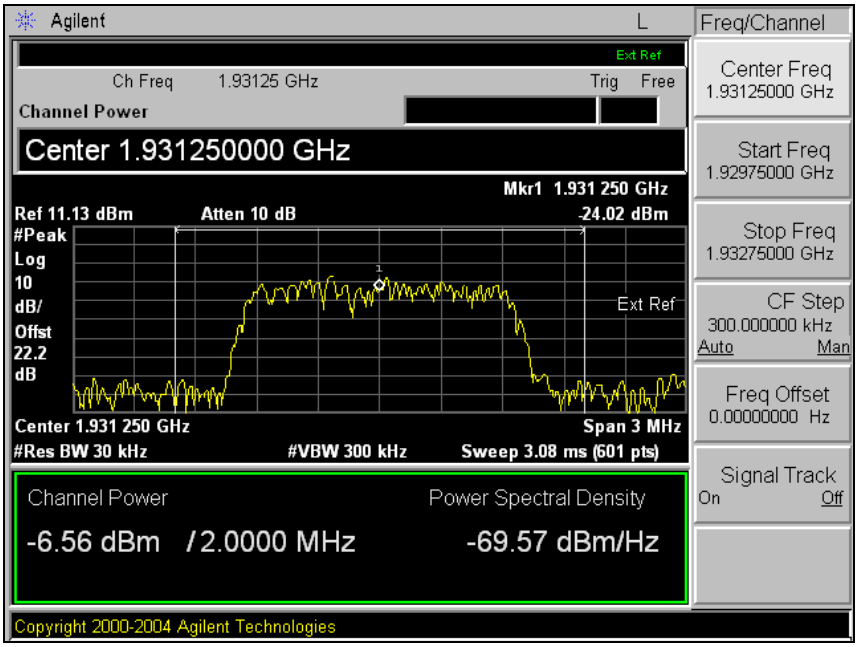


High Channel

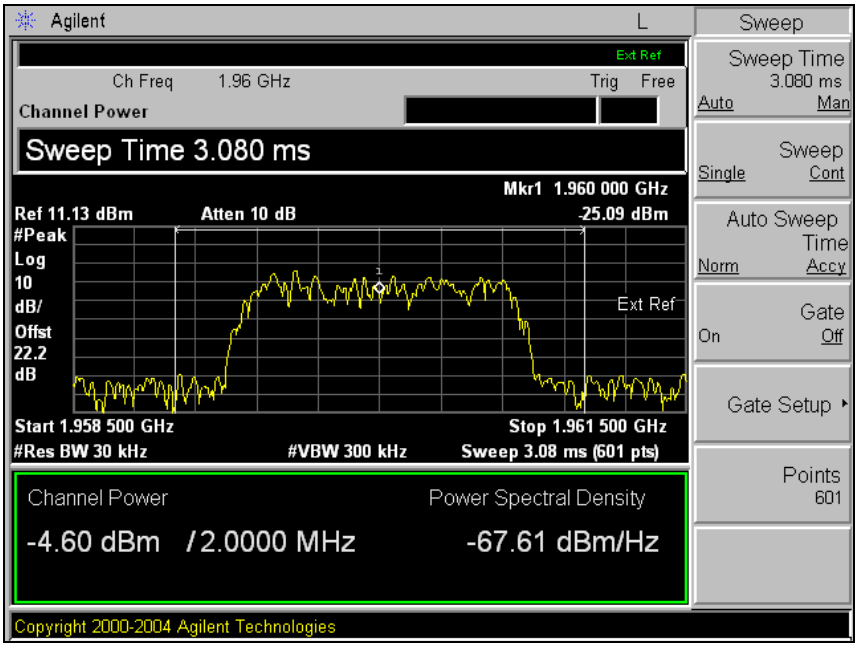


PCS(Downlink)

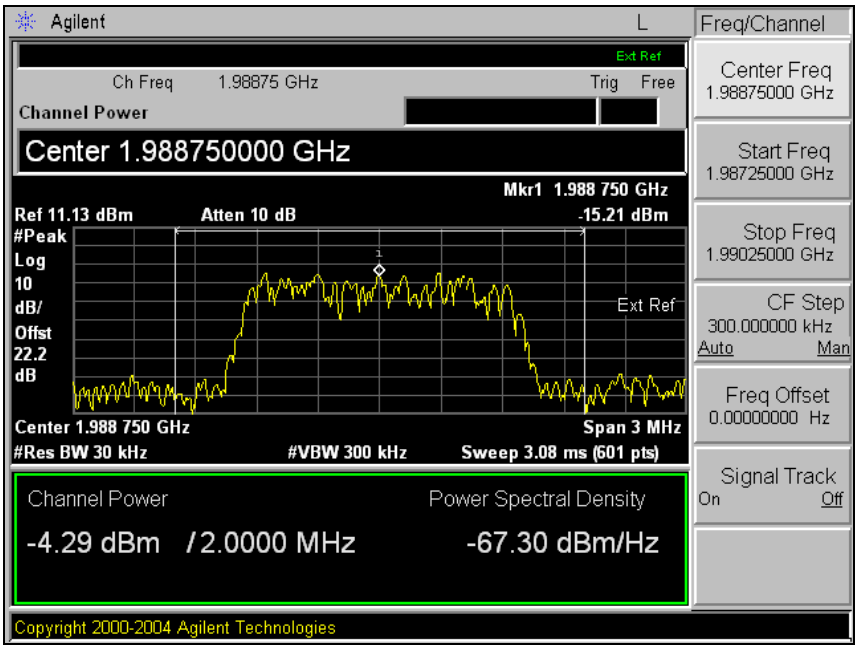
Low Channel



Middle Channel



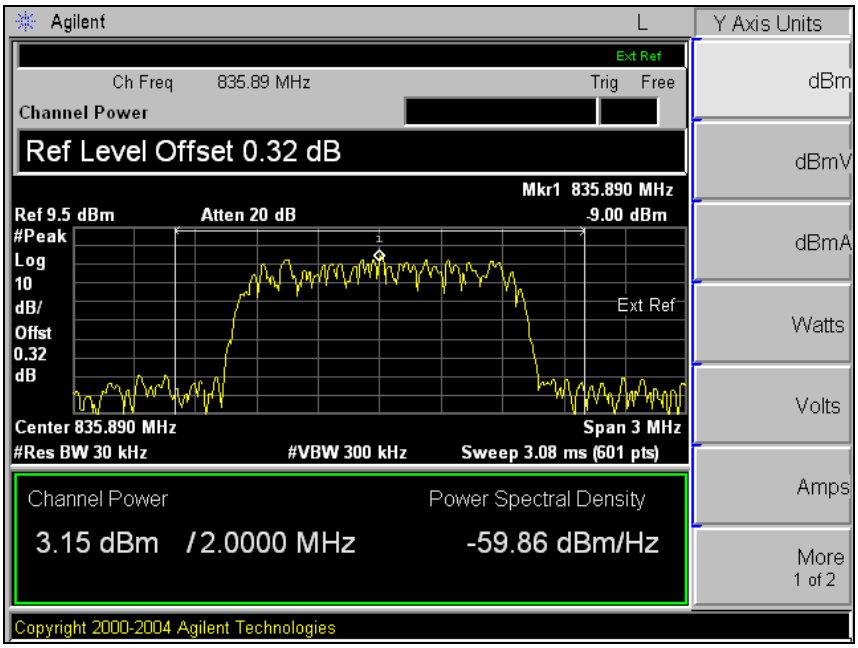
High Channel



Input Signal Output Power

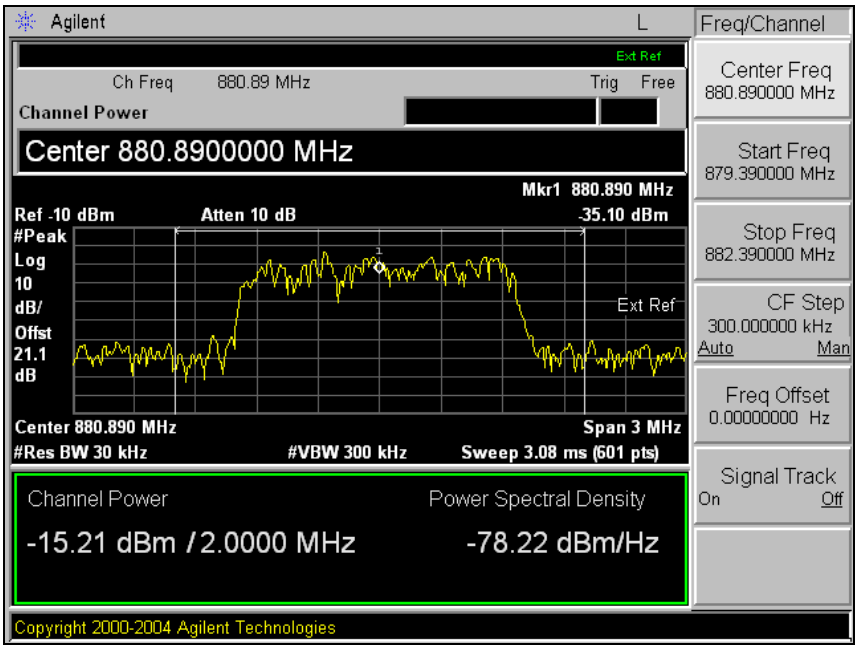
Uplink

Middle Channel



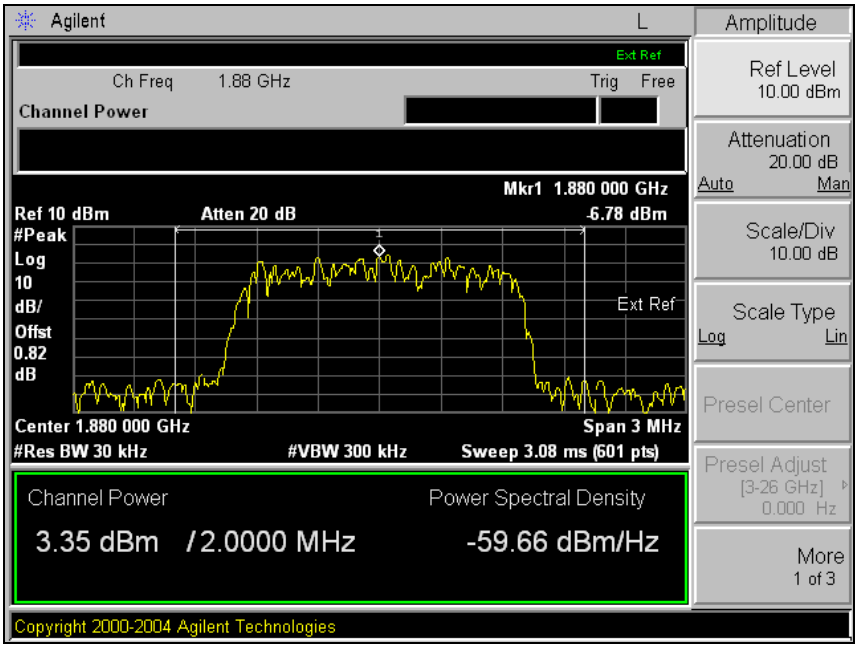
Downlink

Middle Channel



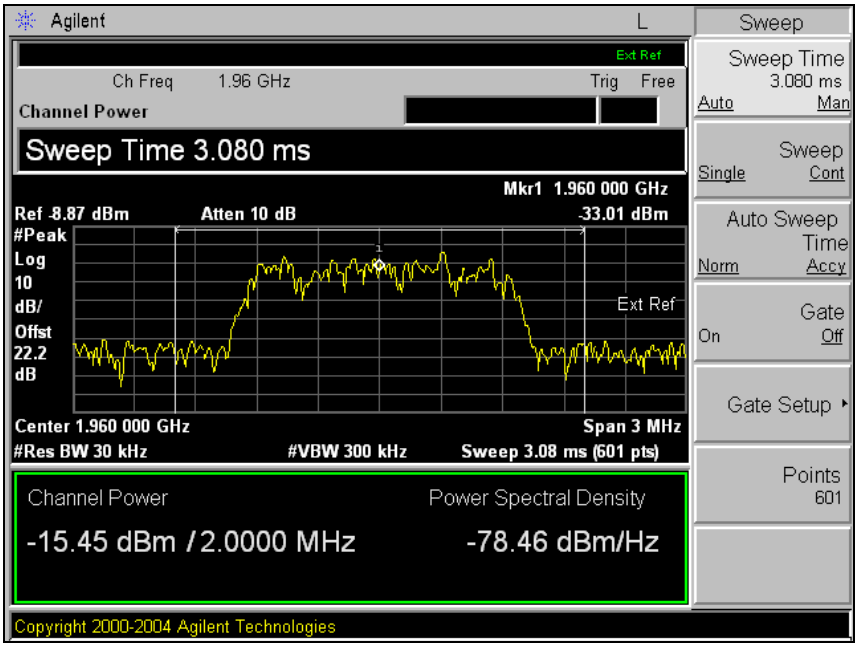
Uplink

Middle Channel



Downlink

Middle Channel



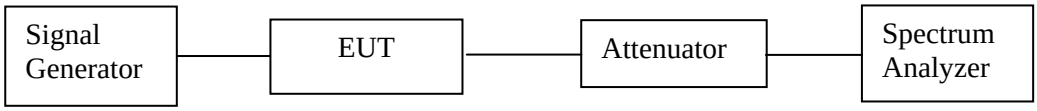
3. Occupied Bandwidth 26 dB

3.1. Limit

Requirements: CFR 47, Section §2.1049.

3.2. Test Procedure

1. The transmitter was tested while in a continuous transmit mode.
2. The EUT was tuned to a low, middle, and high channel in both the downlink (base to mobile) and uplink (mobile to base) directions.
3. The resolution bandwidth of the spectrum analyzer was set at 30 kHz.



3.3 Test Results

Ambient temperature : (24 ± 2) ℃
Relative humidity : 47 % R.H.

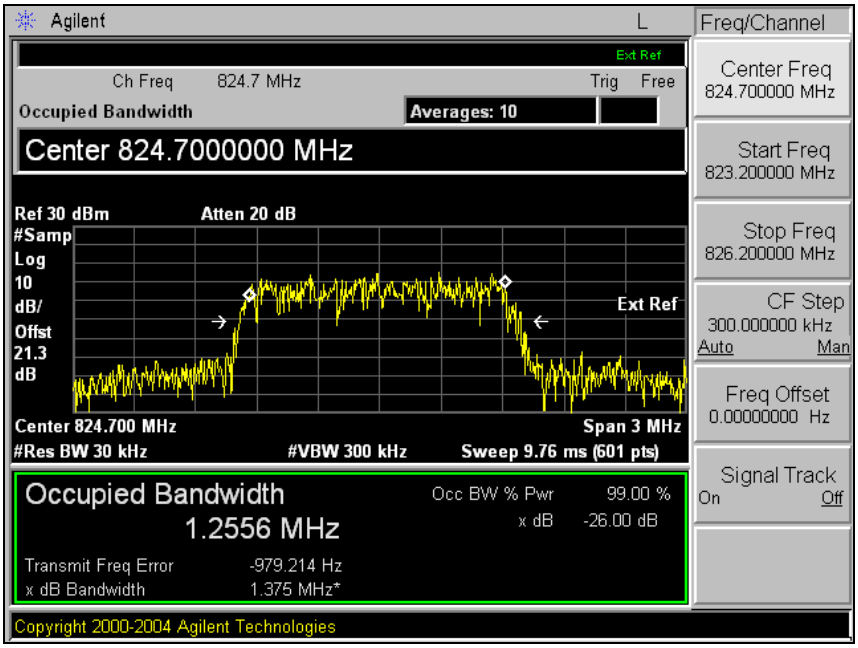
Band	Mode	Frequency (㎒)	Occupied Bandwidth 26 dB (㎒)
Cellular	Uplink	824.70	1.375
		835.89	1.378
		848.31	1.373
	Downlink	869.70	1.370
		880.89	1.371
		893.31	1.372

Band	Mode	Frequency (㎒)	Occupied Bandwidth 26 dB (㎒)
PCS	Uplink	1 851.25	1.374
		1 880.00	1.378
		1 908.75	1.375
	Downlink	1 931.25	1.373
		1 960.00	1.379
		1 988.75	1.371

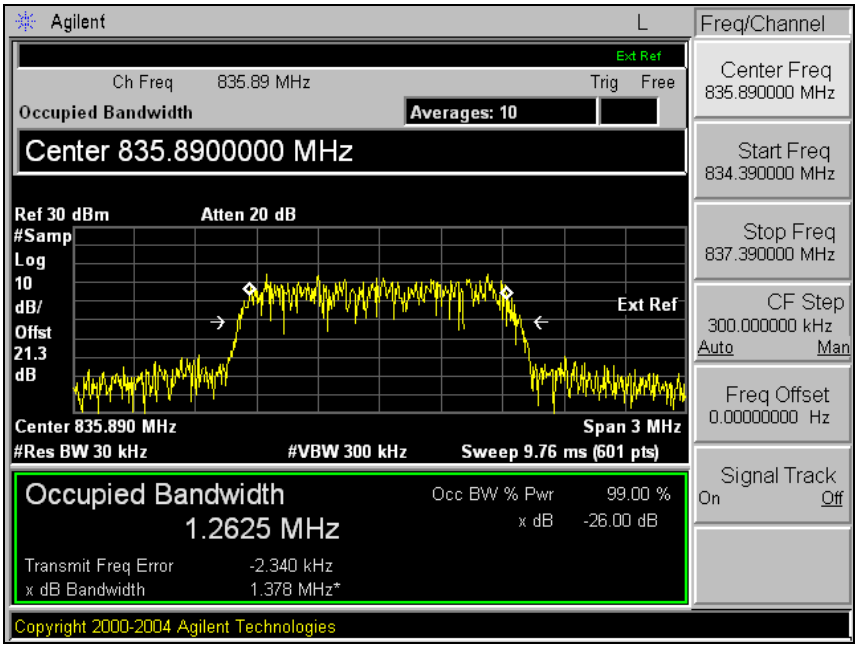
Please refer to the following plots.

Cellular(Uplink)

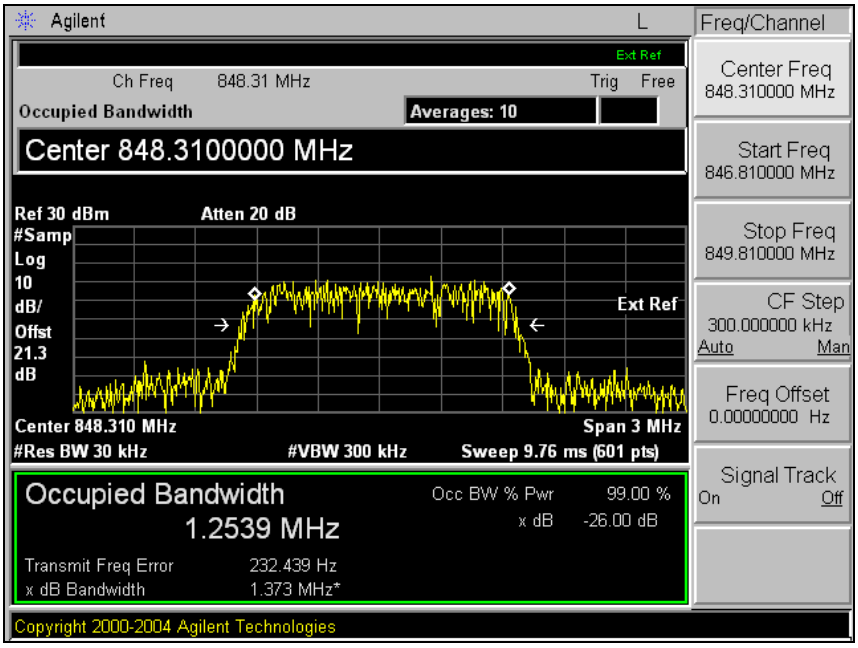
Low Channel



Middle Channel

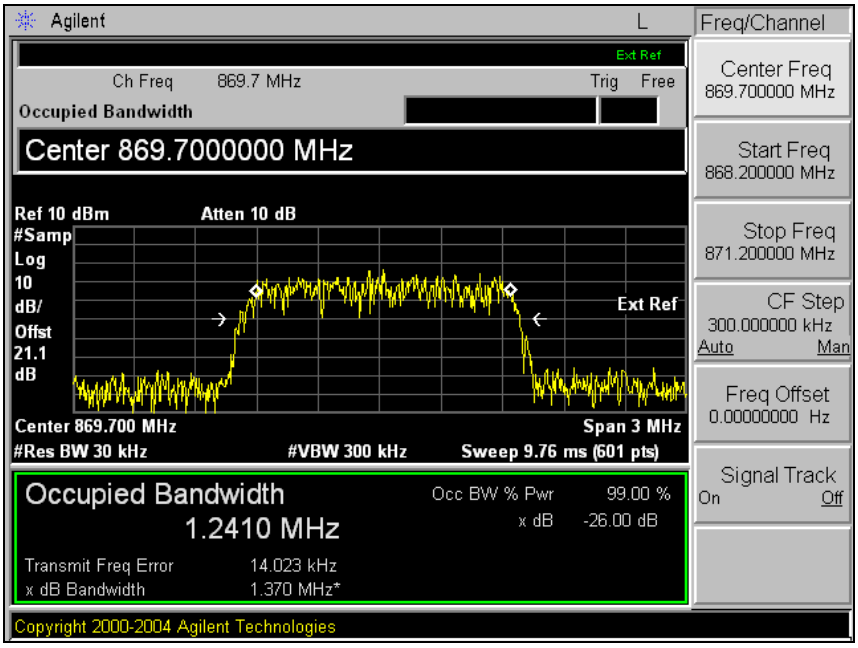


High Channel

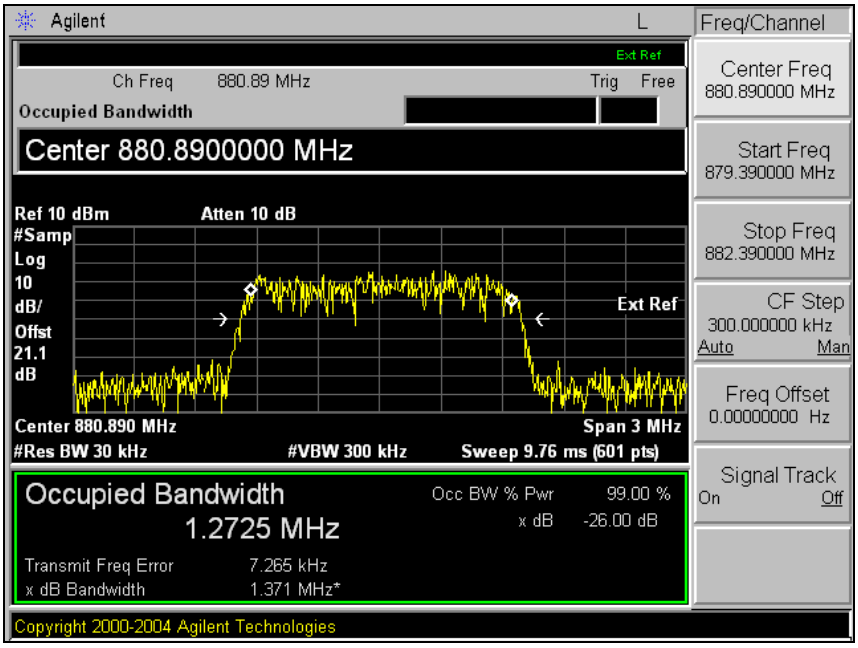


Cellular(Downlink)

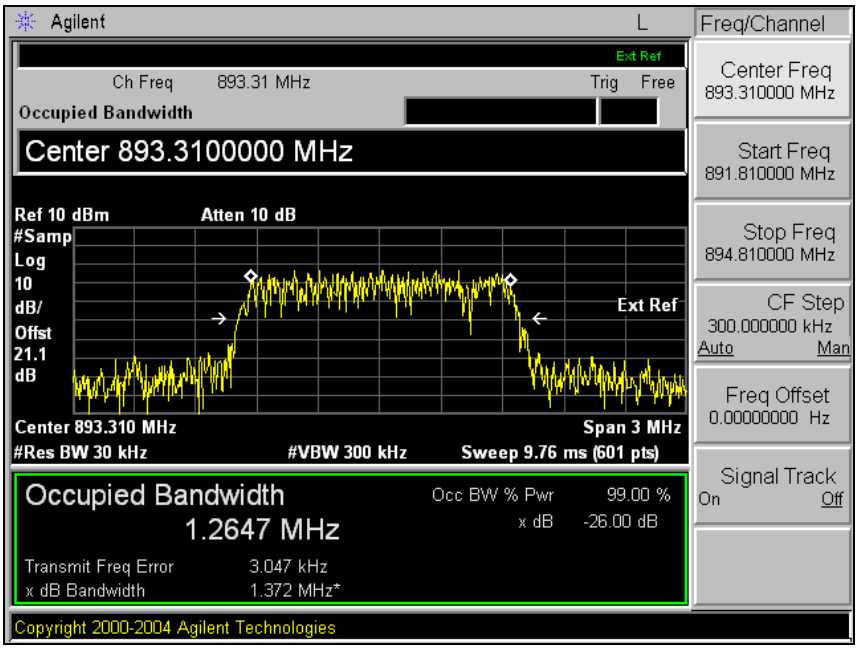
Low Channel



Middle Channel

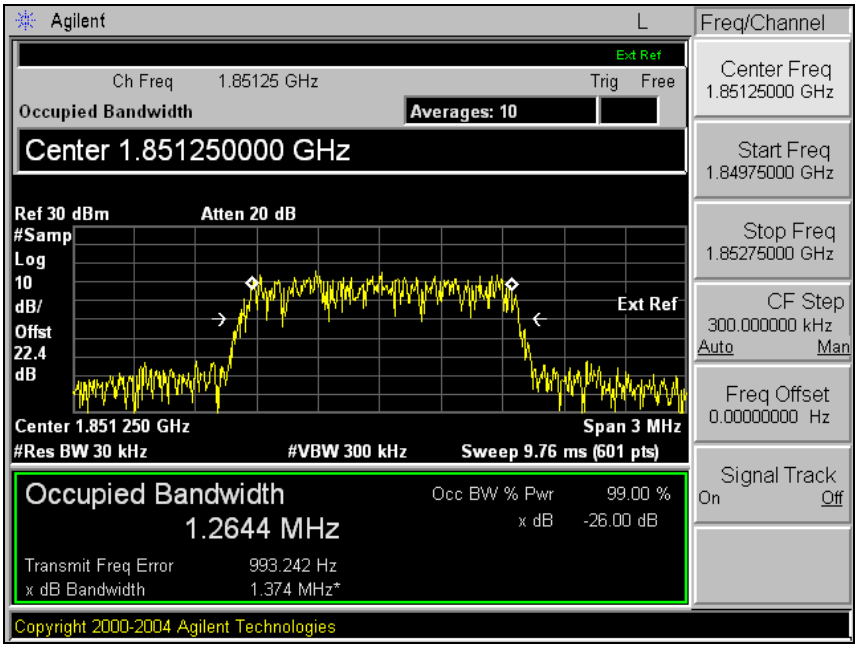


High Channel

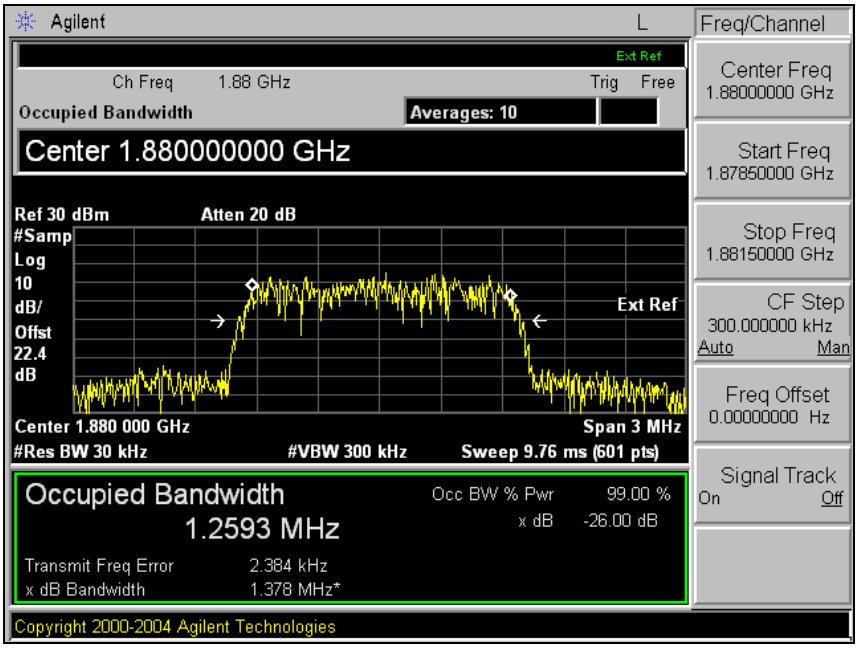


PCS(Uplink)

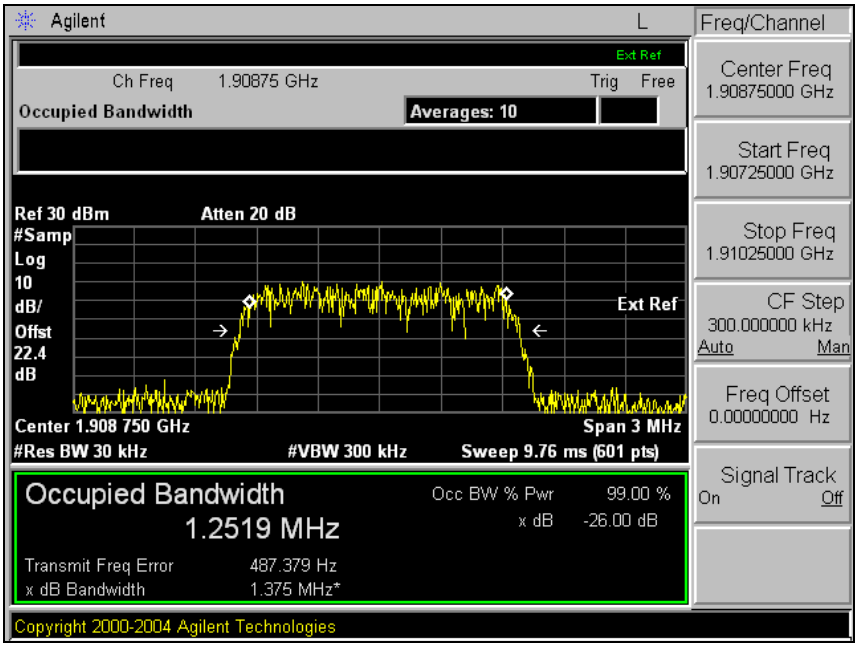
Low Channel



Middle Channel

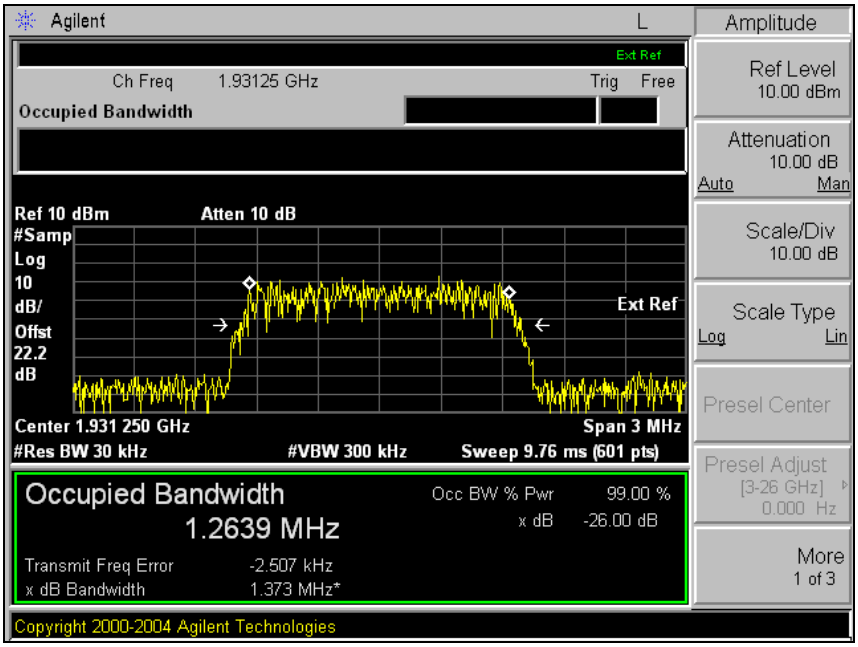


High Channel

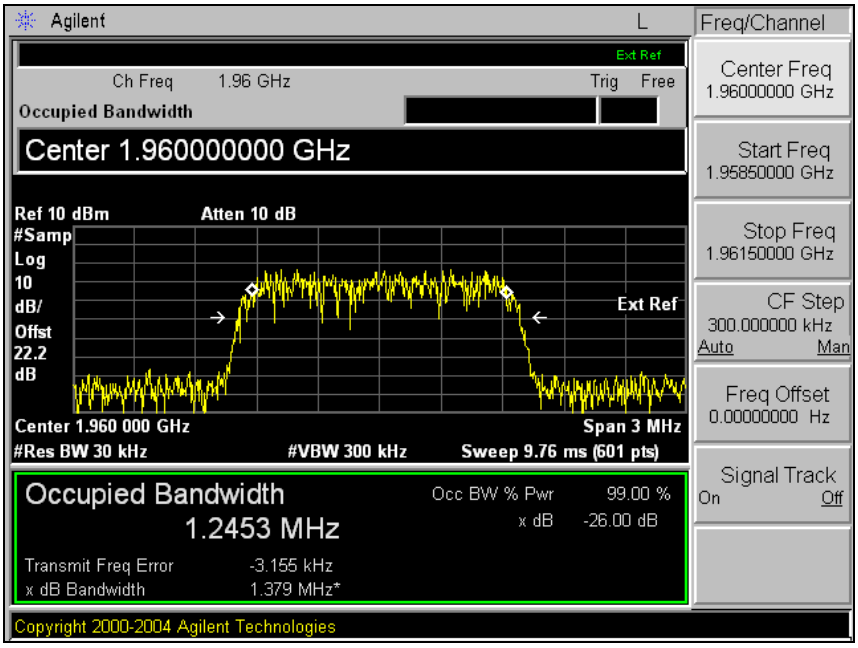


PCS(Downlink)

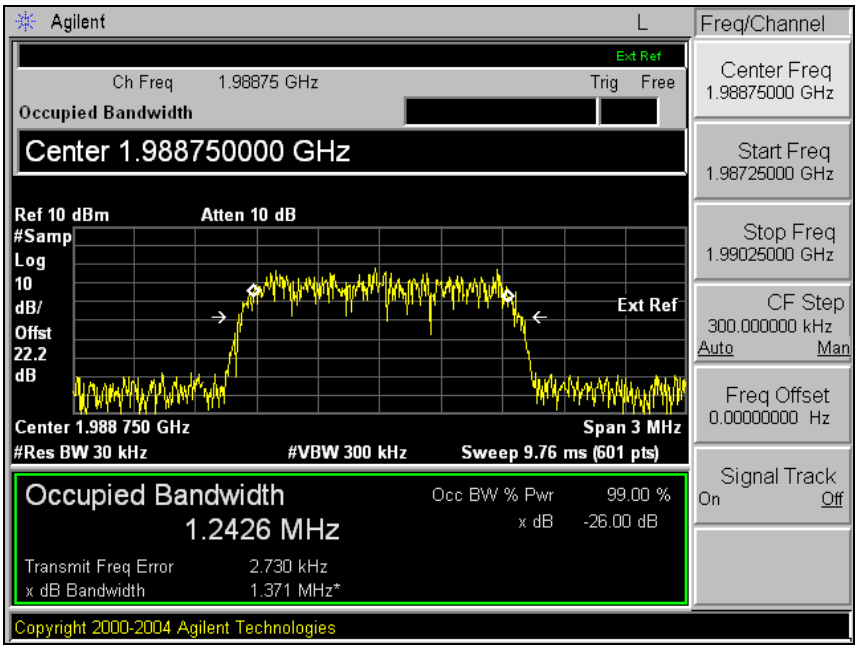
Low Channel



Middle Channel



High Channel



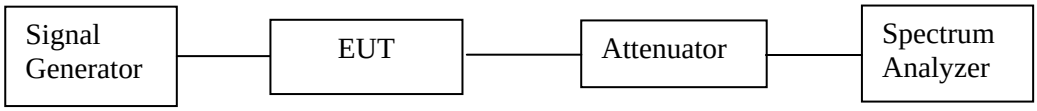
4. Spurious Emissions at Antenna Terminal

4.1. Limit

§ 22.917(e) Out of band emissions. The power of any emission outside of the authorized operating frequency must be attenuated below the transmitting (P) by a factor of at least 43 + 10log(P)㏈.
§24.238 (a) Out of band emissions. The power of any emission outside of the authorized operating frequency must be attenuated below the transmitting (P) by a factor of at least 43 + 10log(P)㏈.

4.2. Test Procedure

1. The transmitter was tested while in a continuous transmit mode.
2. The EUT was tuned to a low, middle, and high channel in both the downlink (base to mobile) and uplink (mobile to base) directions.
3. Spurious Emission was tested under



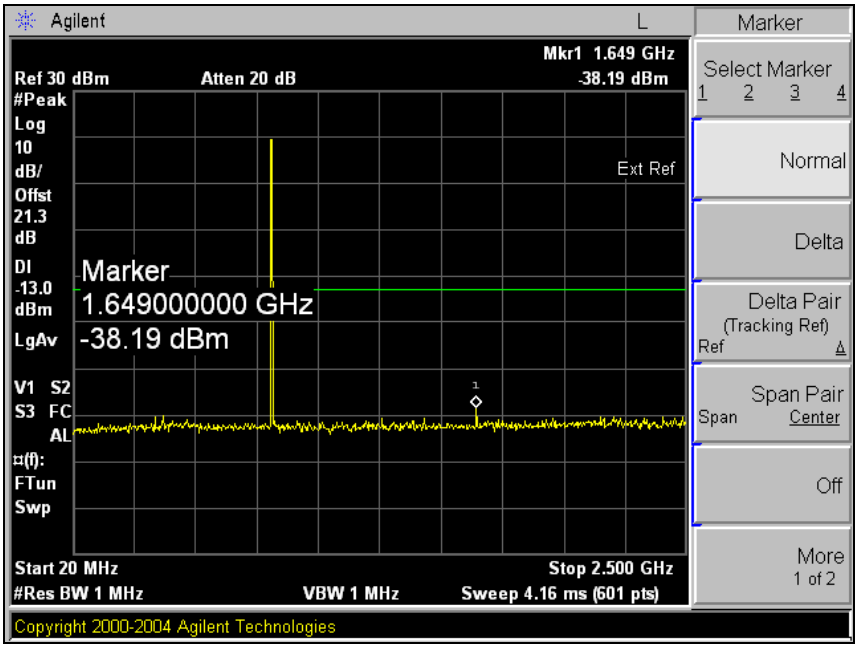
4.3. Test Results

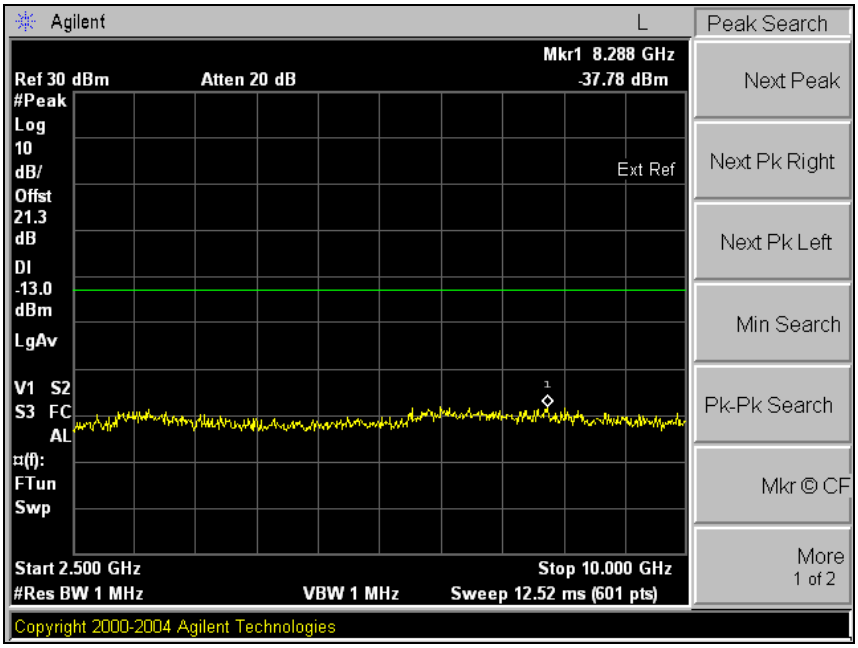
Ambient temperature	:	(24 ± 2) ℃
Relative humidity	:	47 % R.H.

Please refer to the following plots.

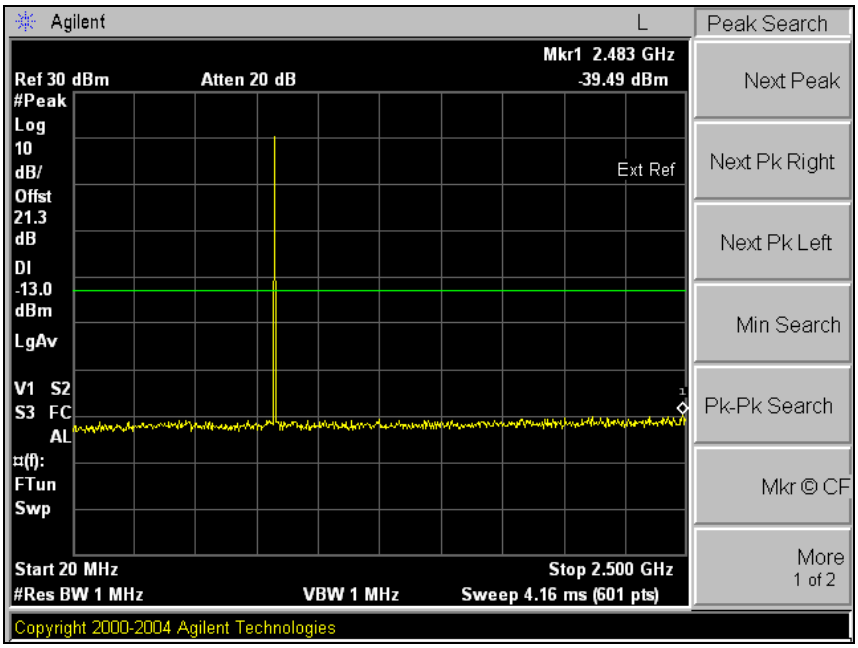
Cellular(Uplink)

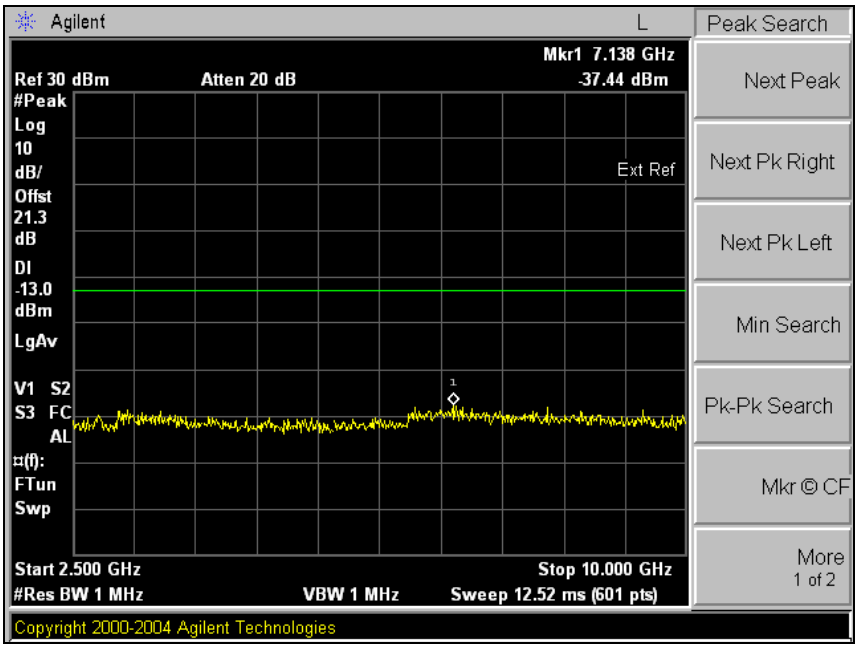
Low Channel



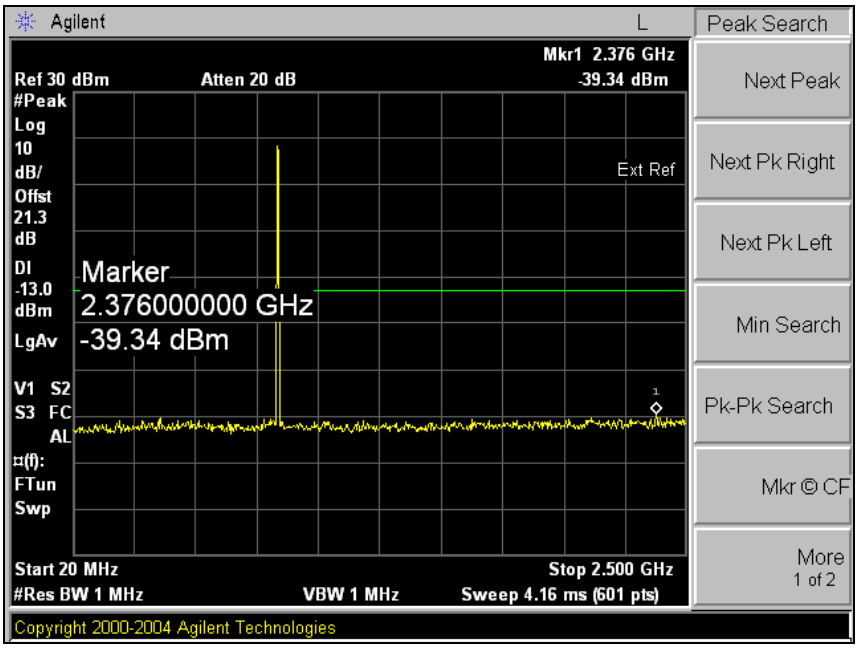


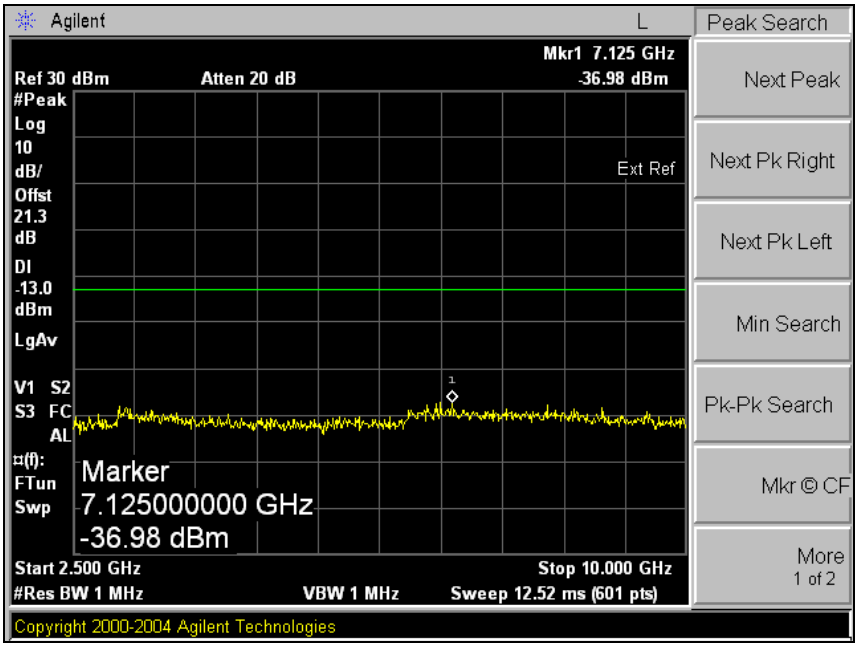
Middle Channel





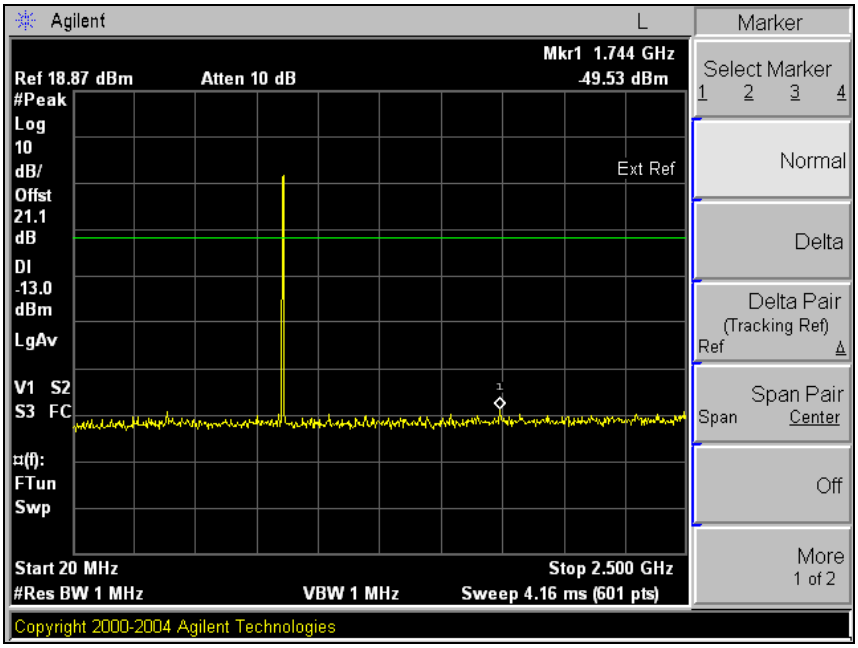
High Channel

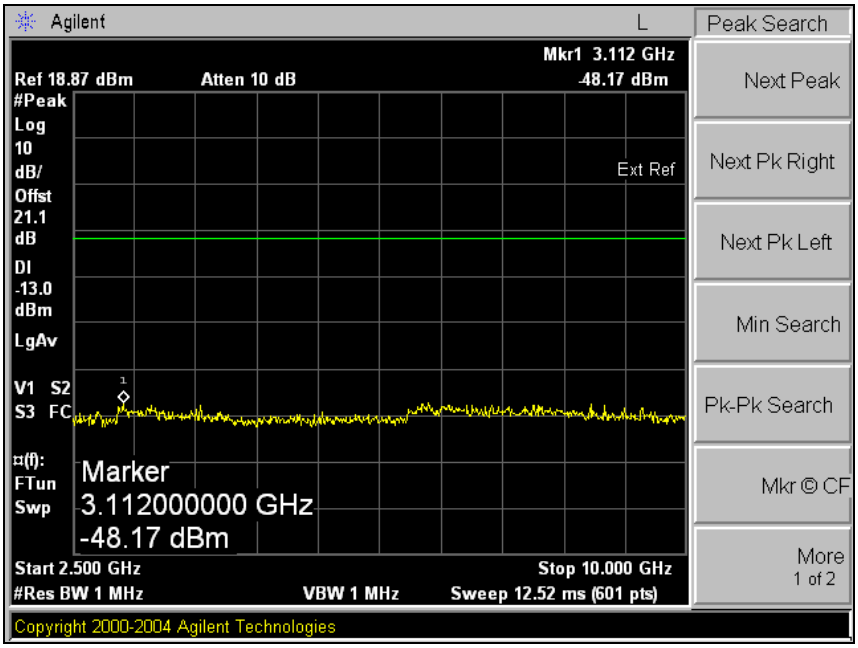




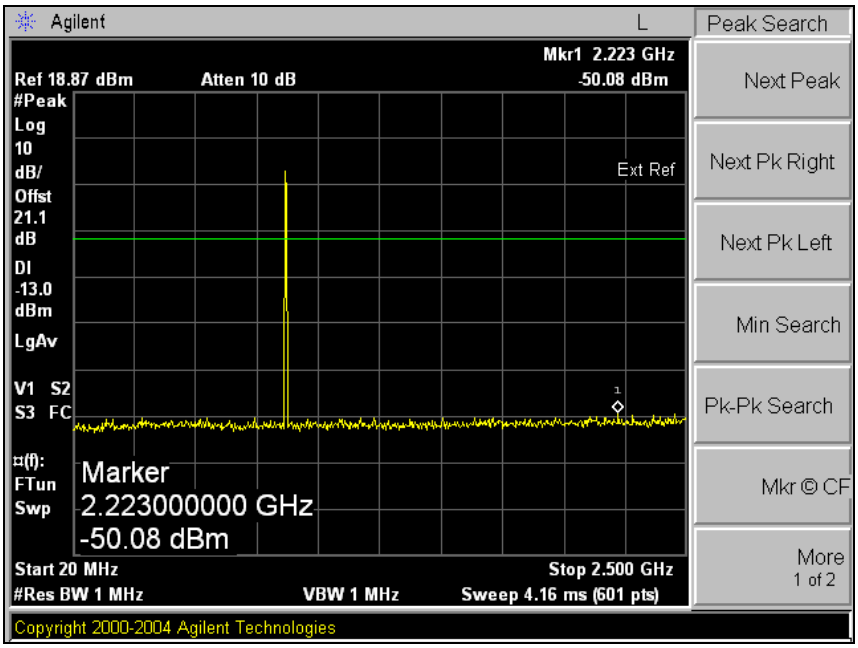
Cellular(Downlink)

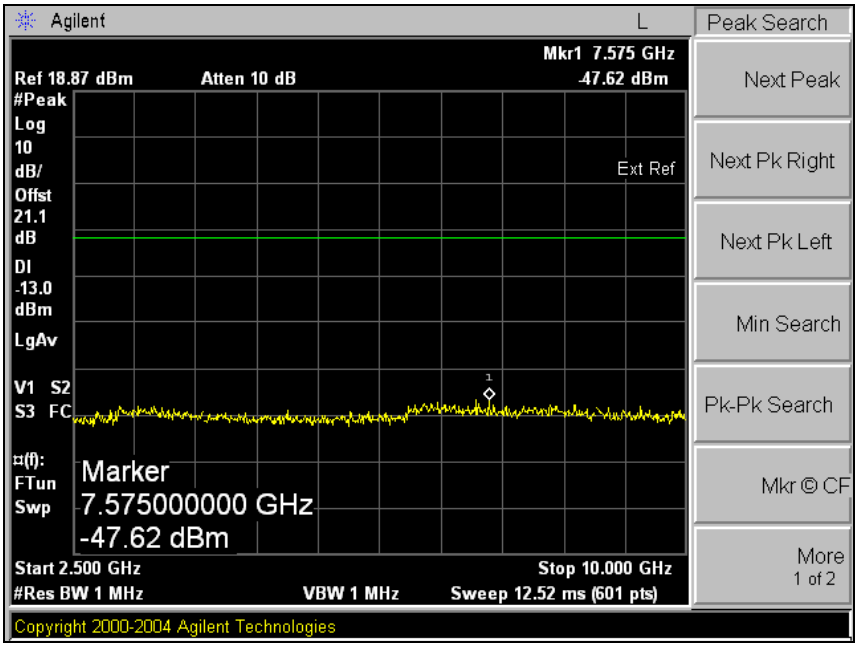
Low Channel



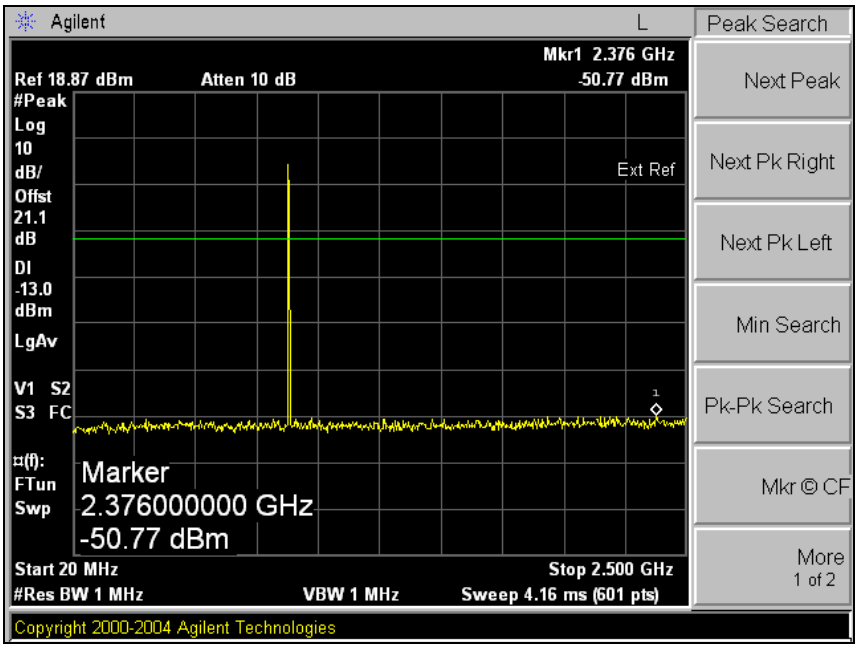


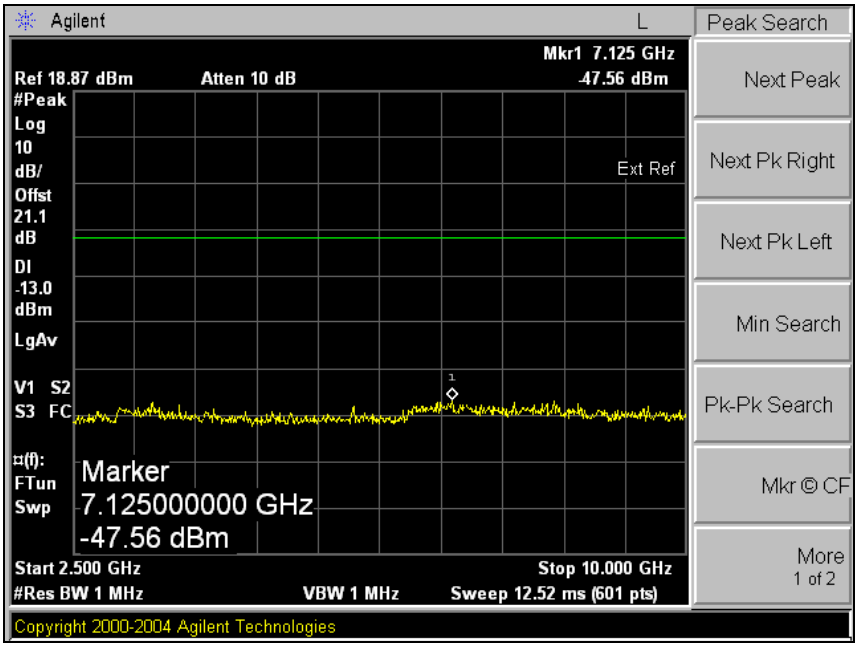
Middle Channel





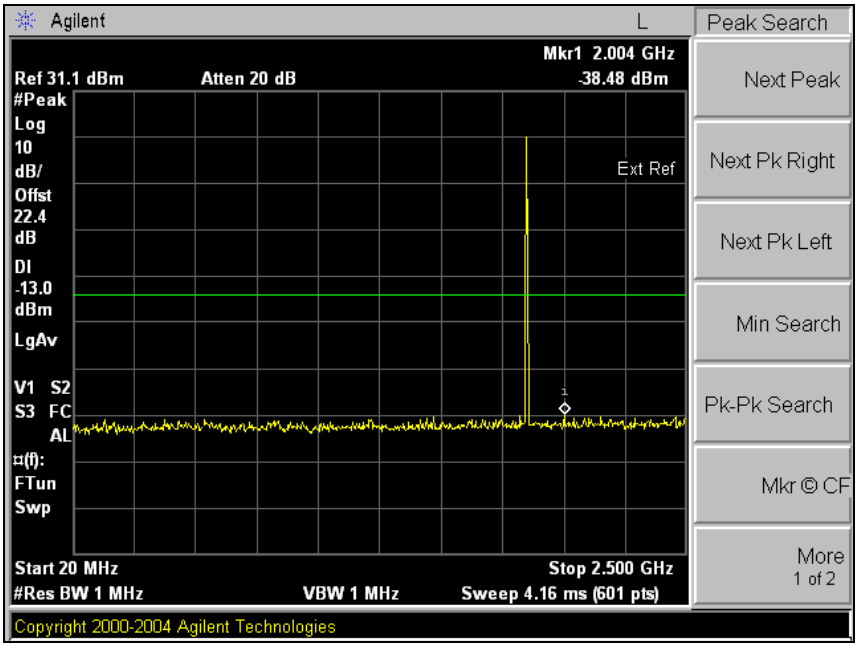
High Channel

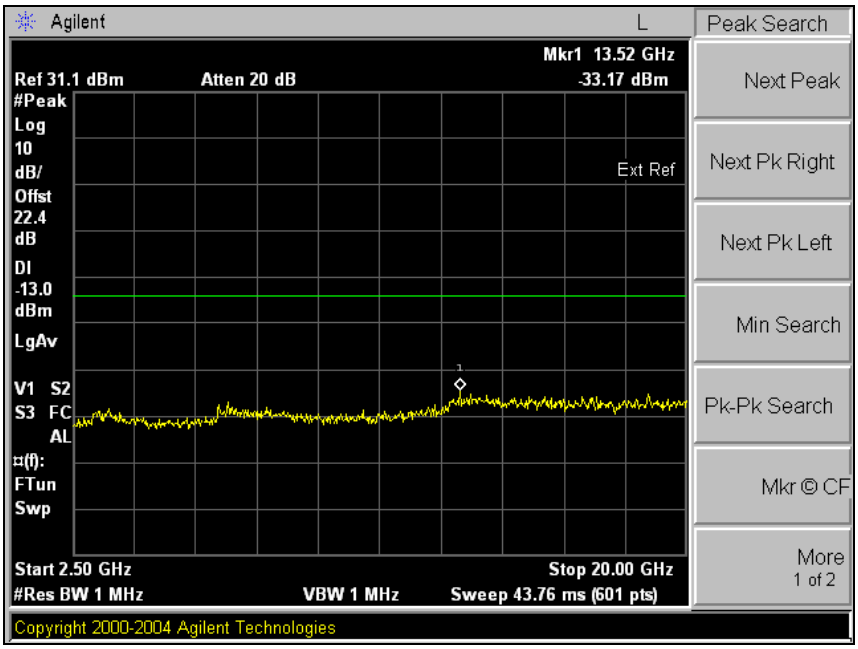




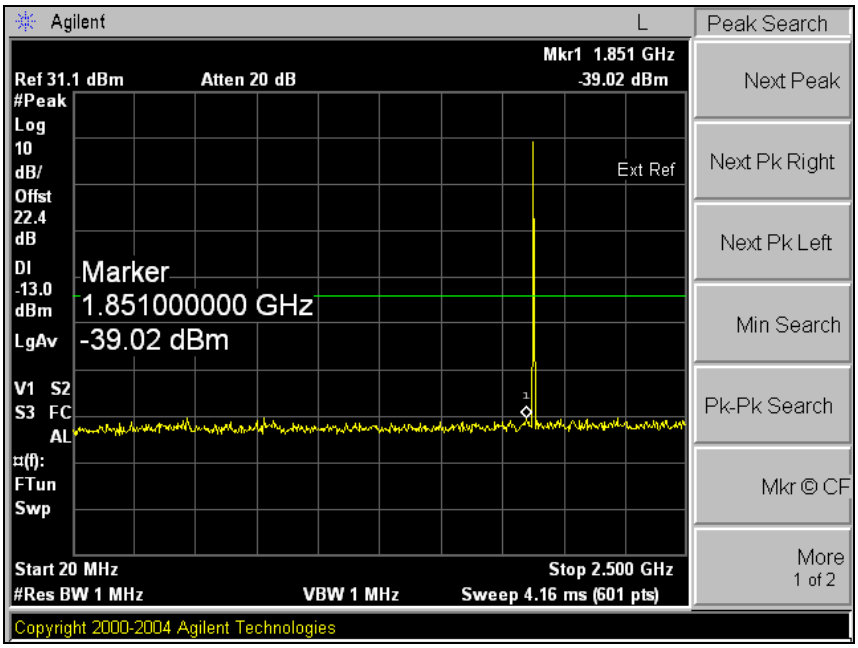
PCS(Uplink)

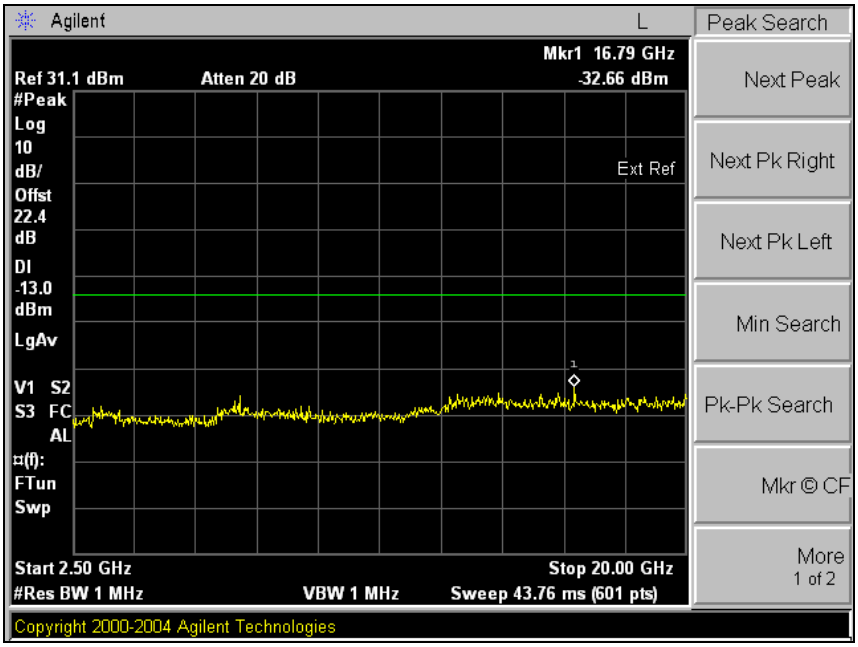
Low Channel



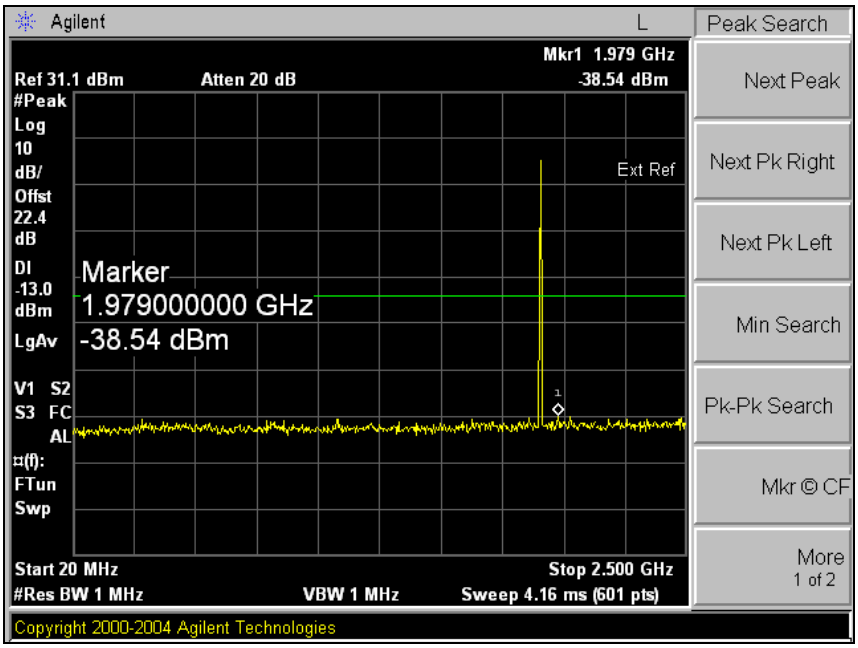


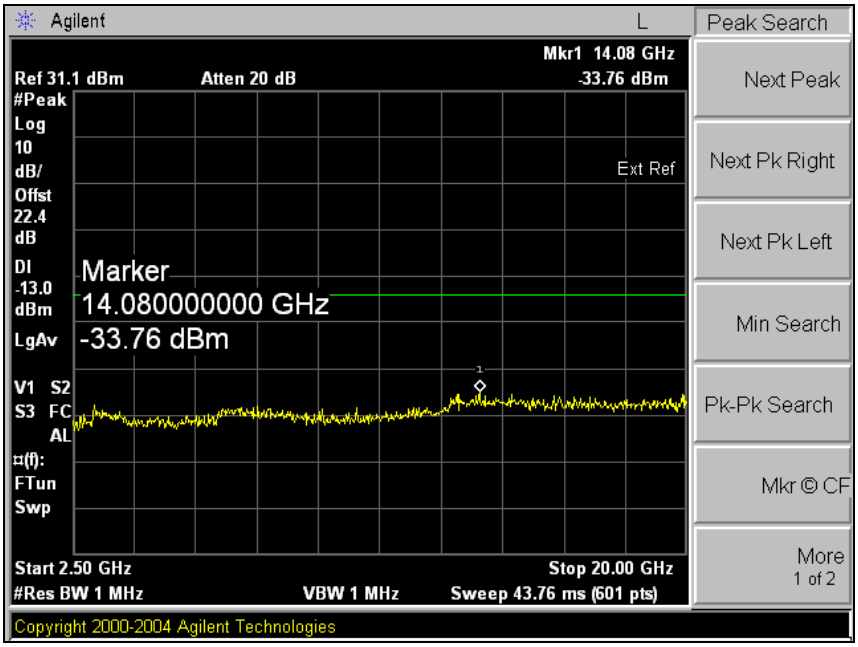
Middle Channel





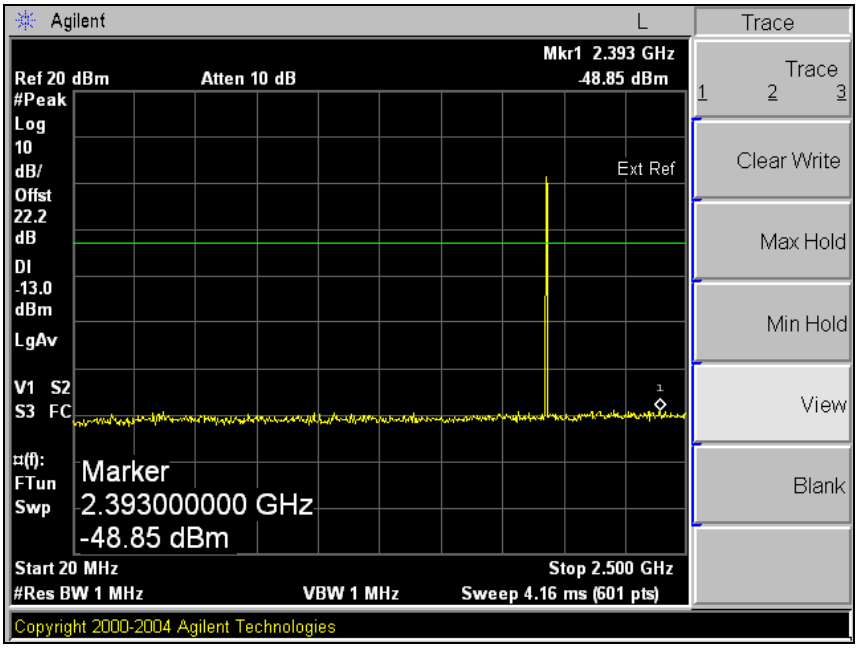
High Channel

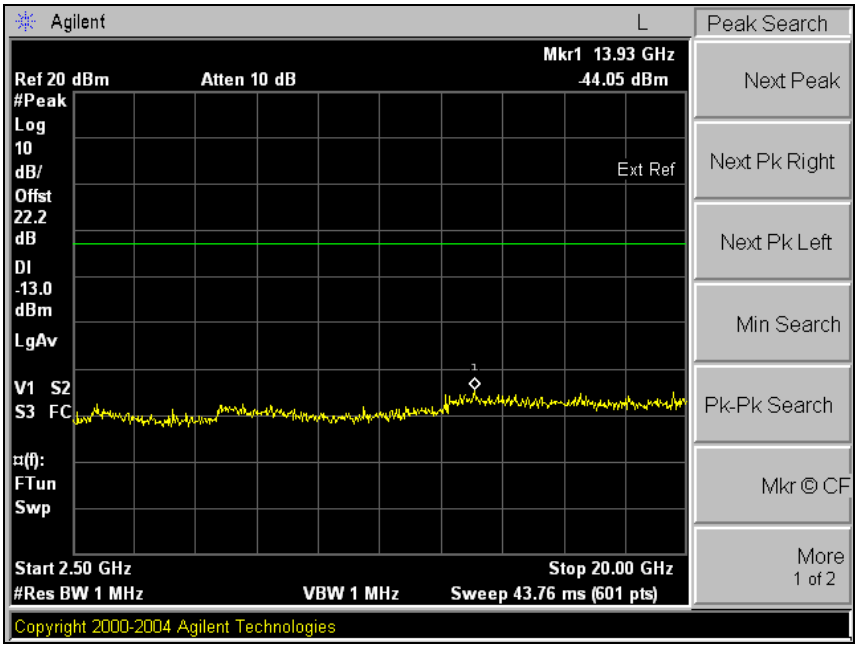




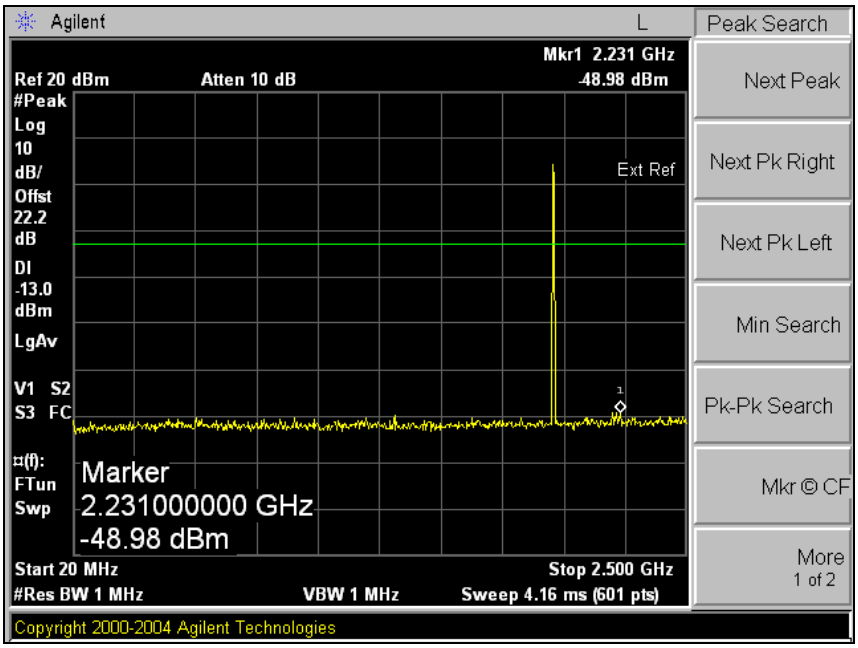
PCS(Downlink)

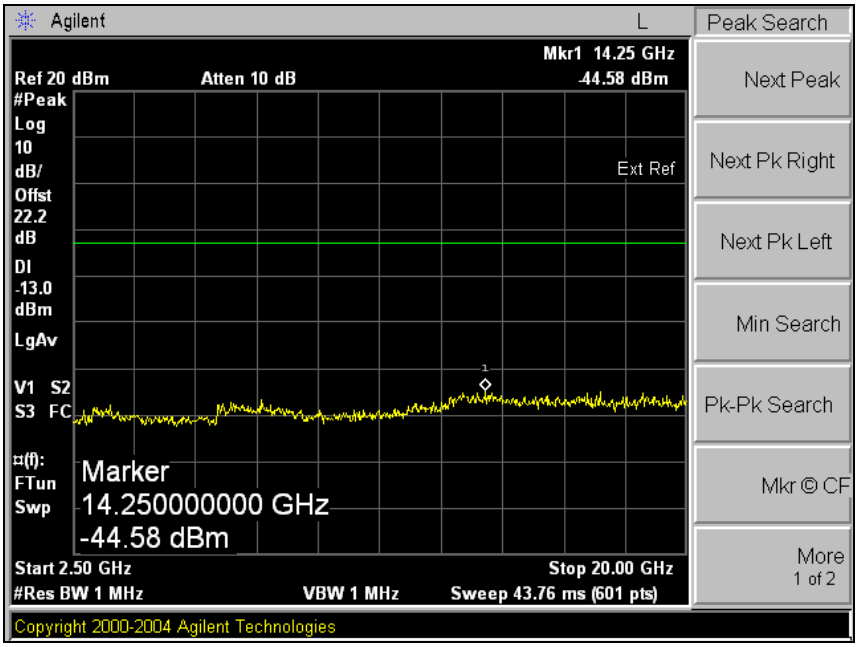
Low Channel



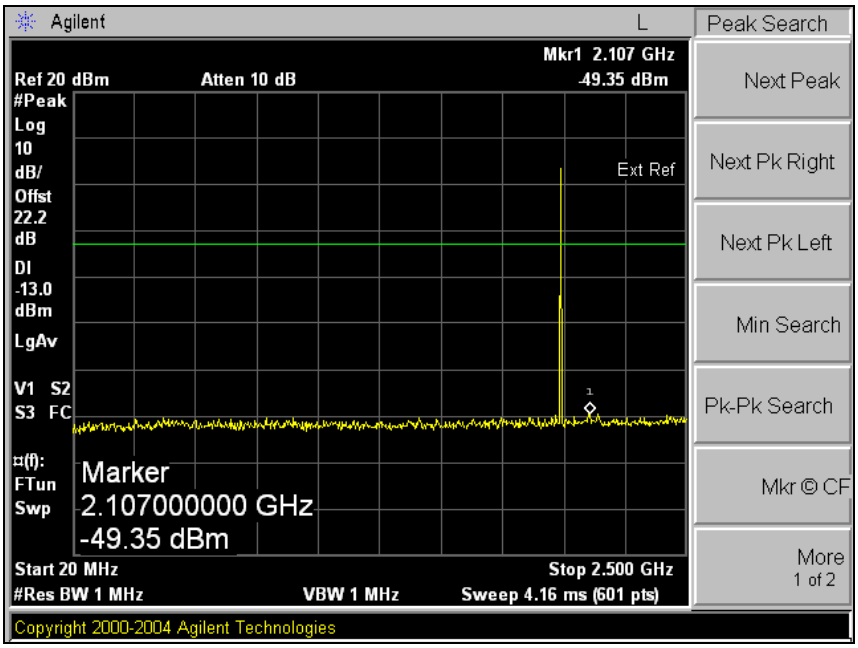


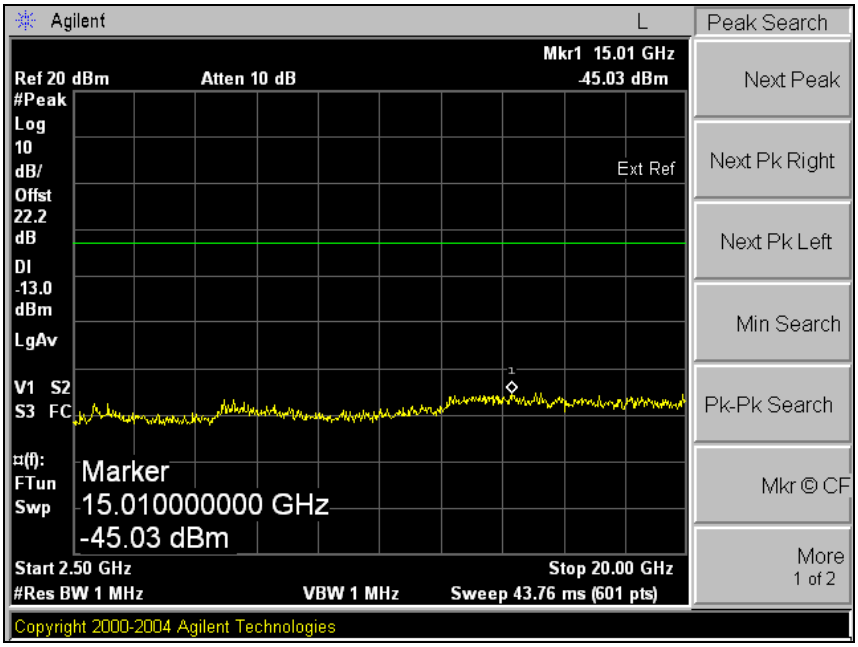
Middle Channel





High Channel





5. Band Edge

5.1. Limit

§ 22.917(e) Out of band emissions. The power of any emission outside of the authorized operating frequency must be attenuated below the transmitting (P) by a factor of at least 43+10log(P)㏈.
§24.238 (a) Out of band emissions. The power of any emission outside of the authorized operating frequency must be attenuated below the transmitting (P) by a factor of at least 43+10log(P)㏈.

5.2. Test Procedure

1. The transmitter was tested while in a continuous transmit mode.
2. The EUT was tuned to a low, middle, and high channel in both the downlink (base to mobile) and uplink (mobile to base) directions.
3. Spurious Emission was tested under

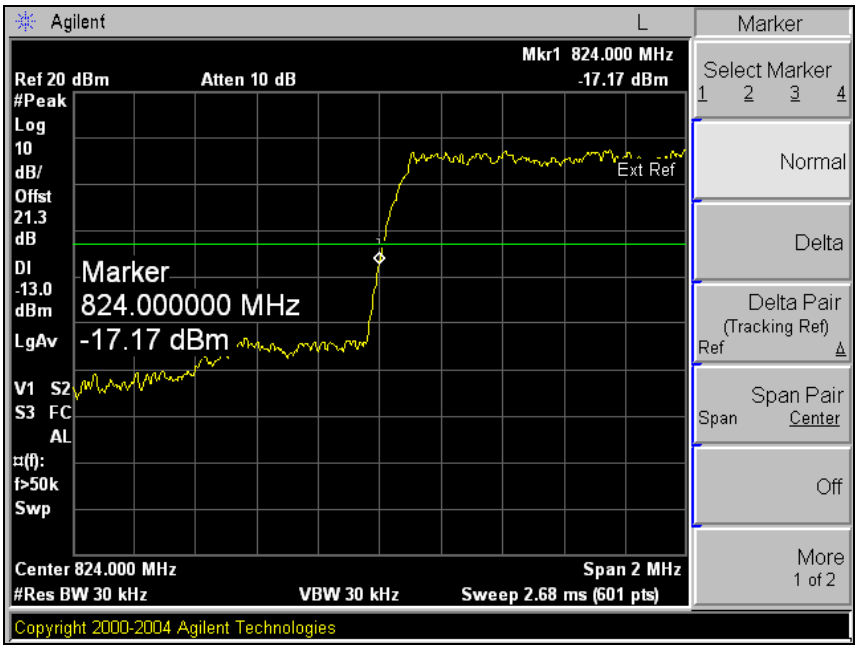
5.3. Test Results

Ambient temperature	:	(24 ± 2) ℃
Relative humidity	:	47 % R.H.

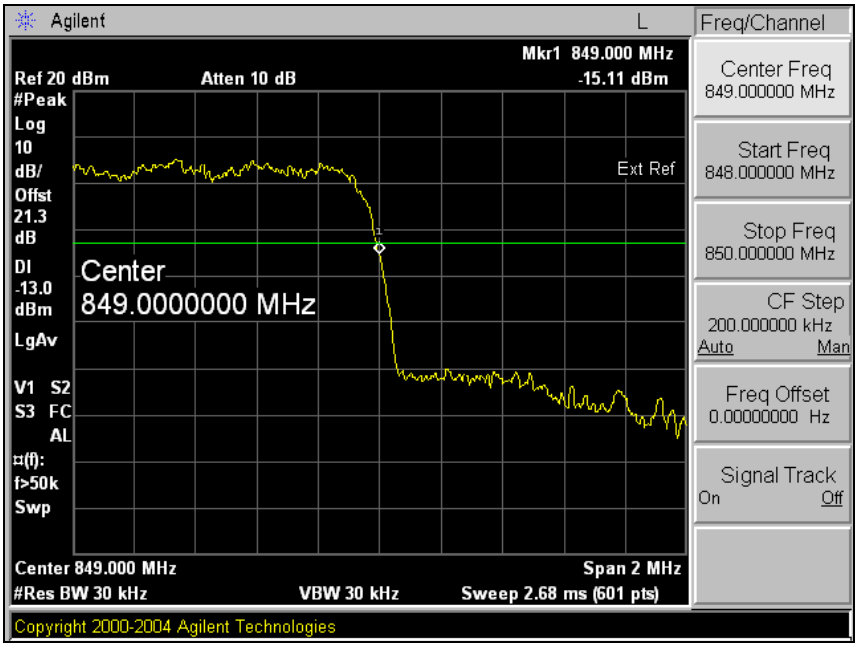
Please refer to the following plots.

Cellular(Uplink)

Low Channel

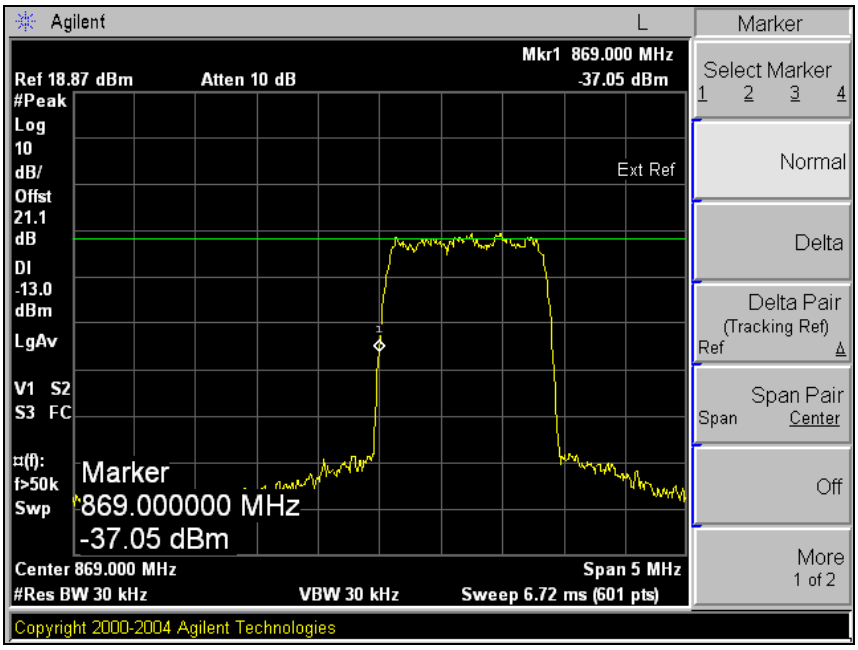


High Channel

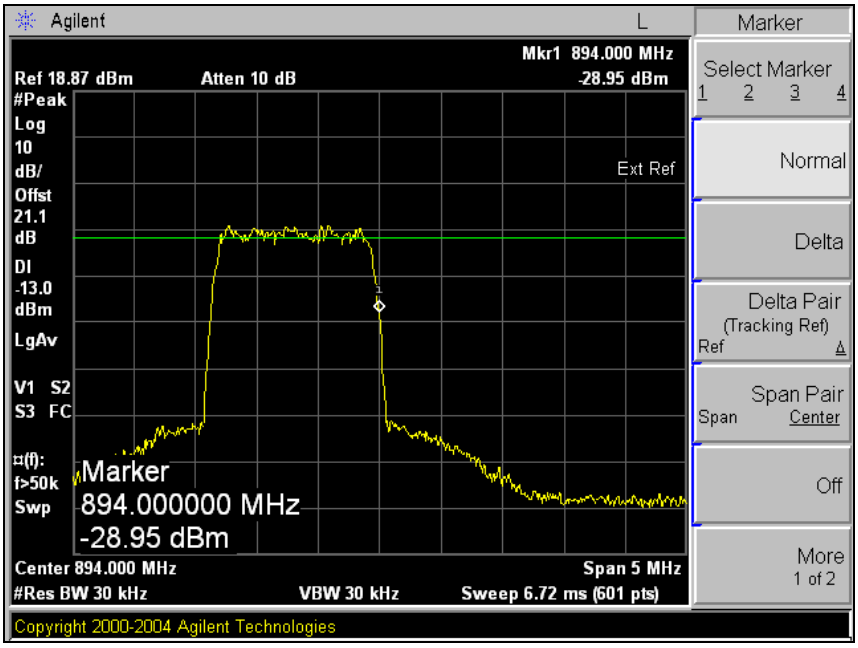


Cellular(Downlink)

Low Channel

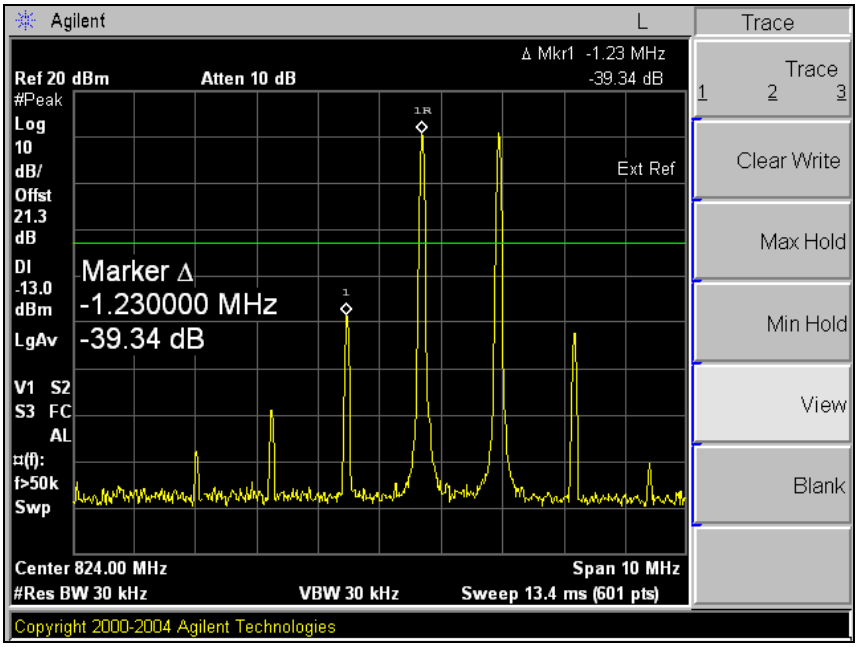


High Channel

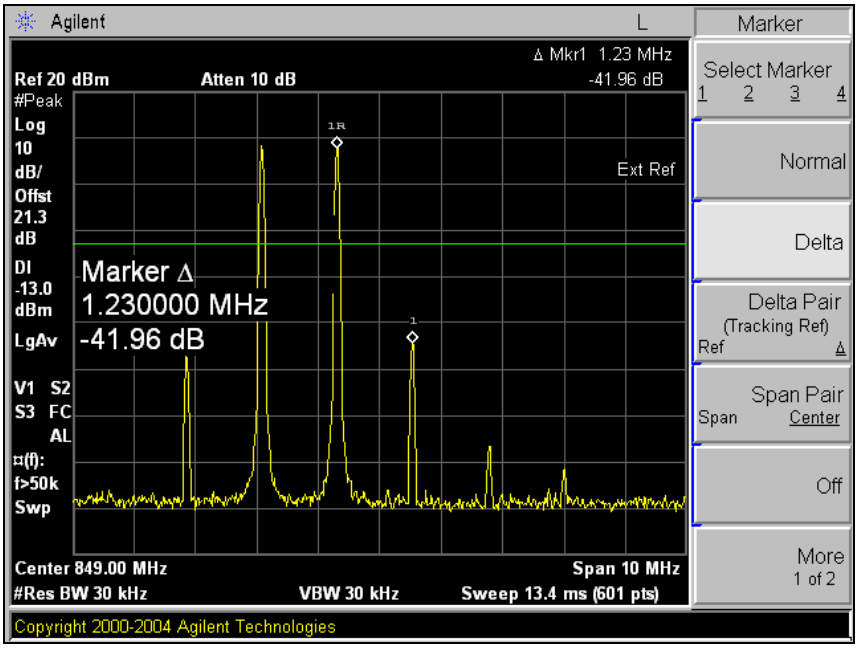


Cellular(Uplink)_IMD

Low Channel

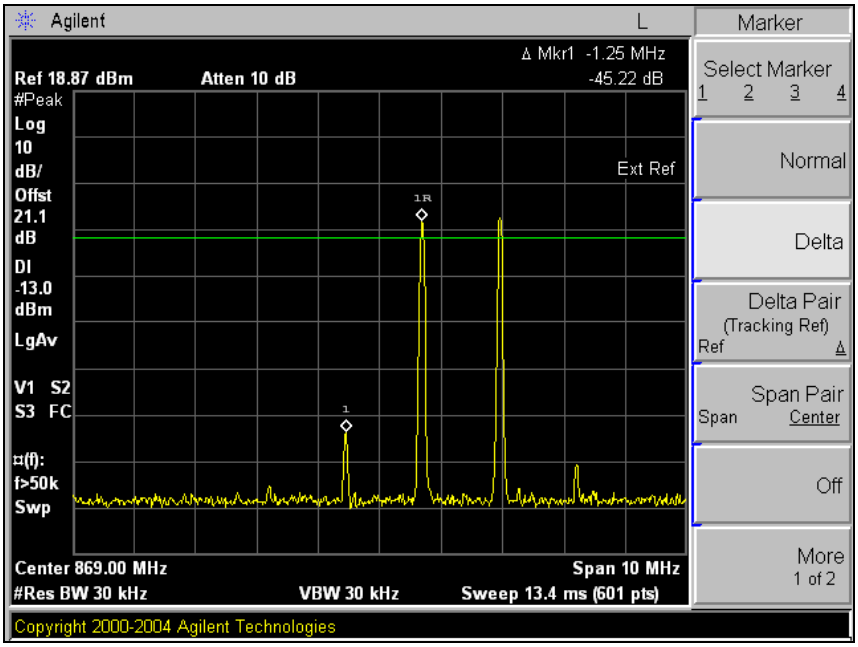


High Channel

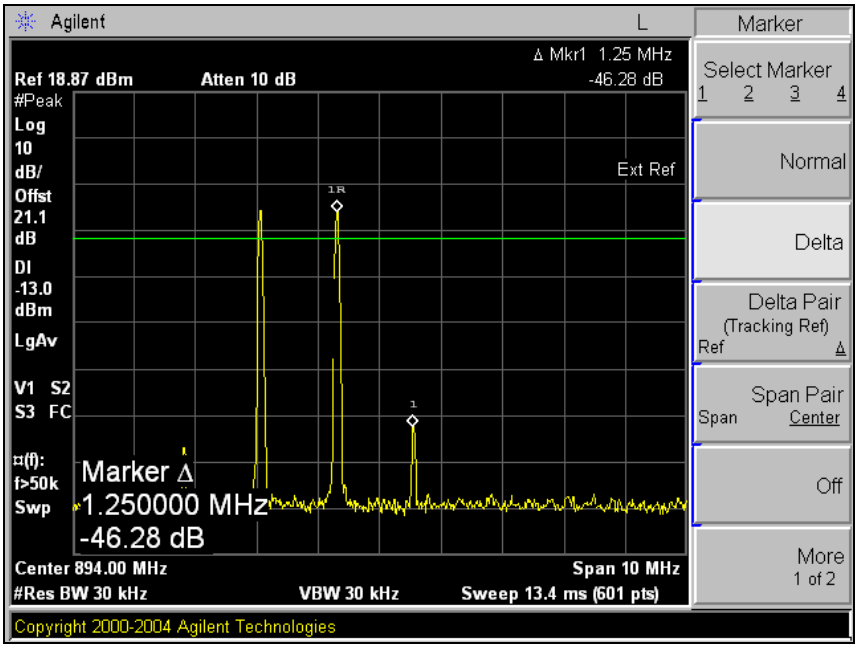


Cellular(Downlink)_IMD

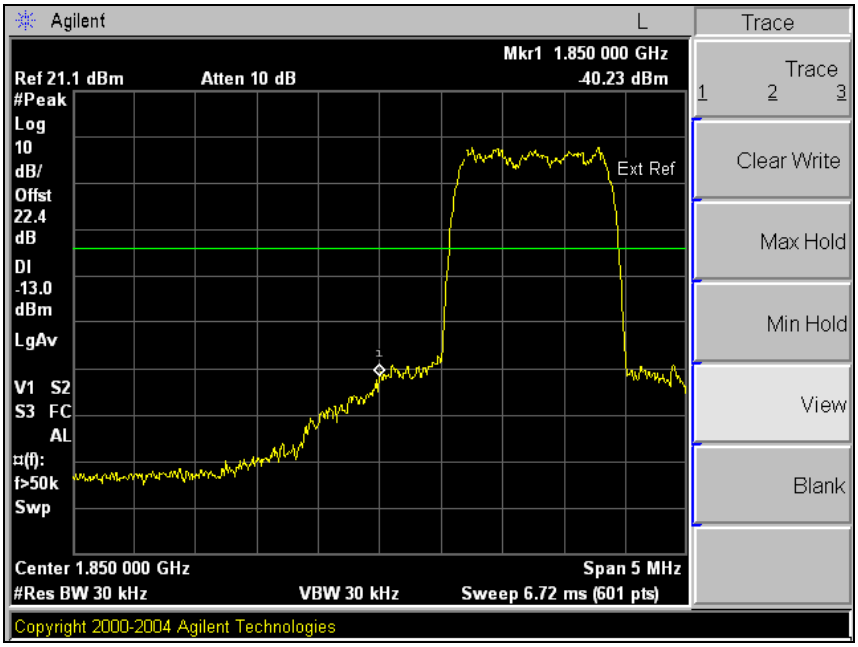
Low Channel



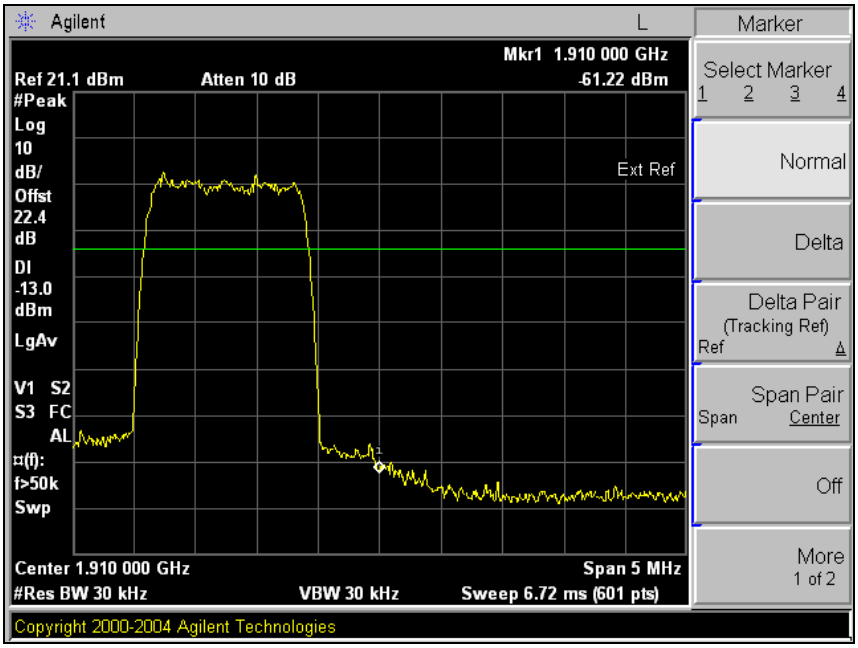
High Channel



PCS(Uplink)
Low Channel

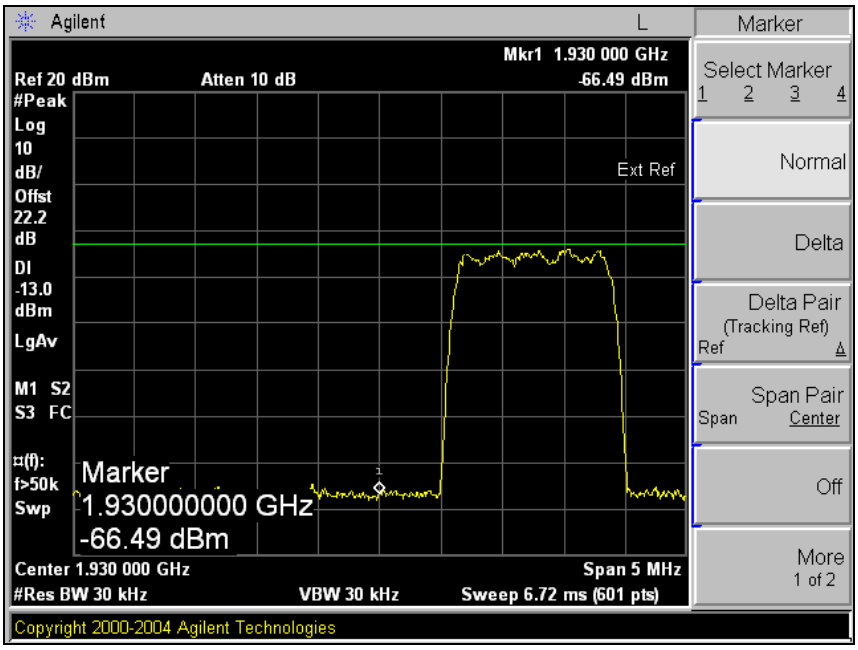


High Channel

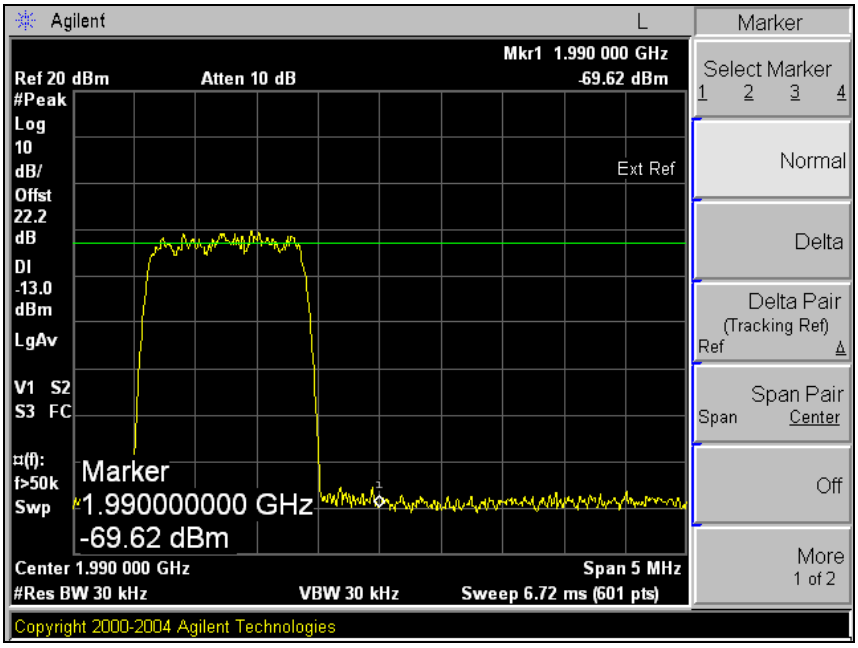


PCS(Downlink)

Low Channel

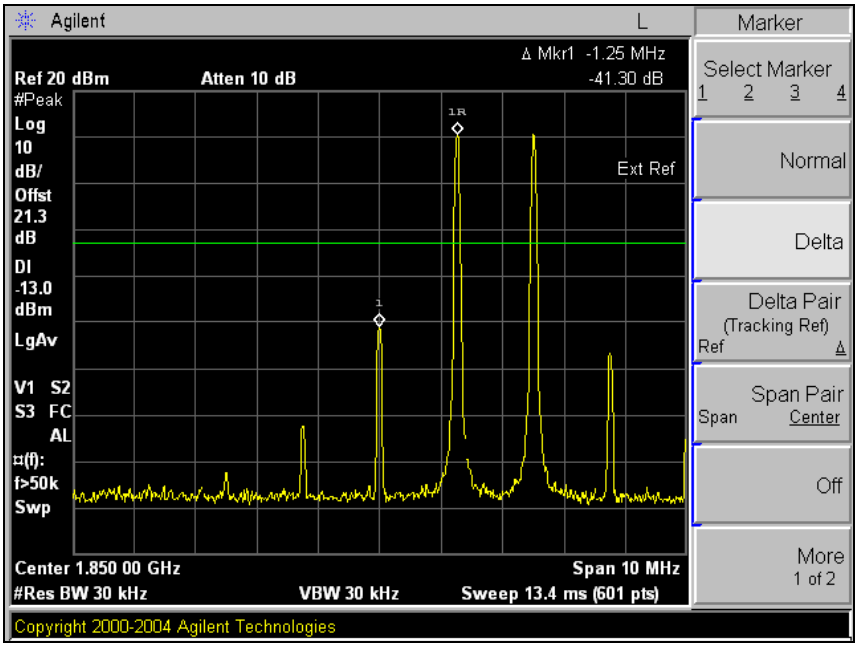


High Channel

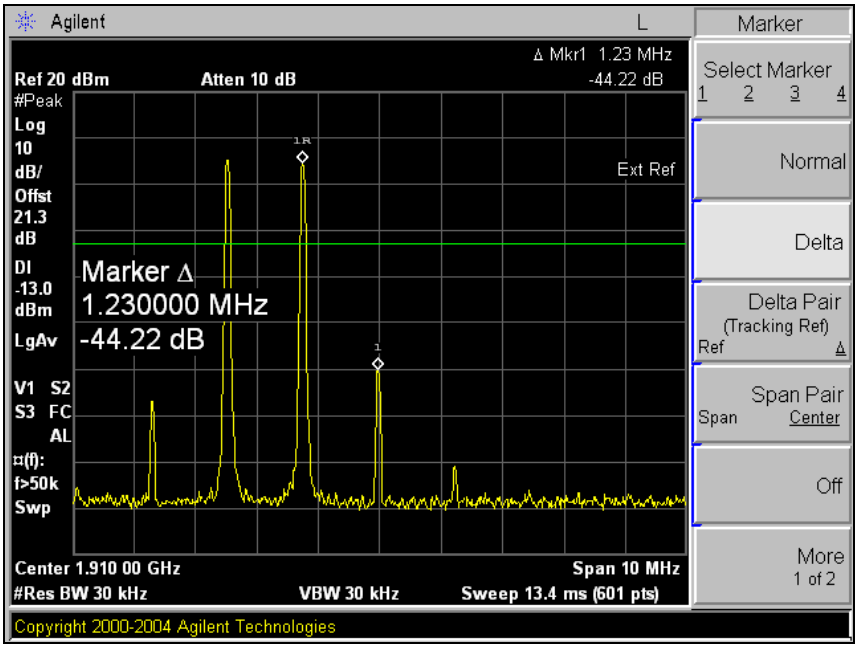


PCS(Uplink)_IMD

Low Channel

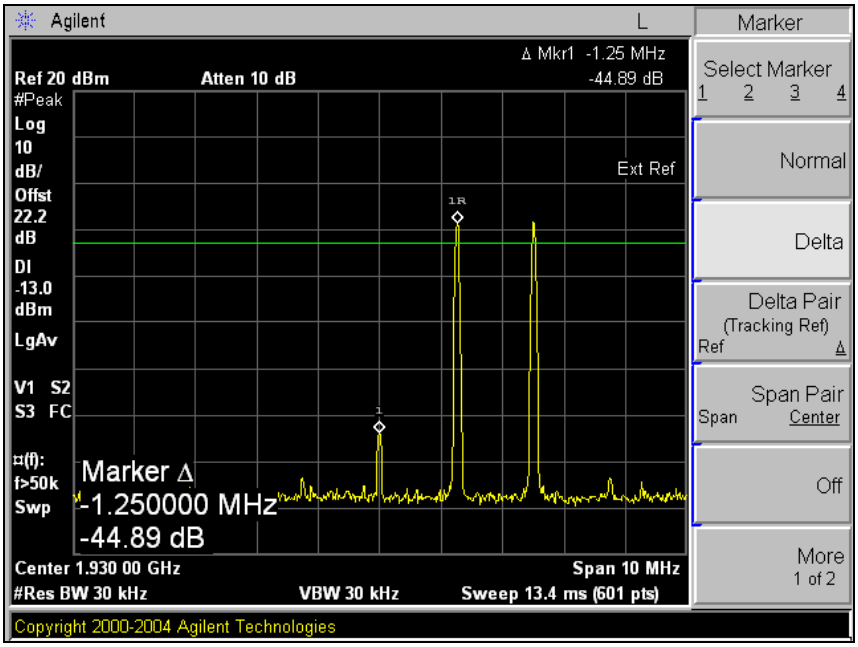


High Channel

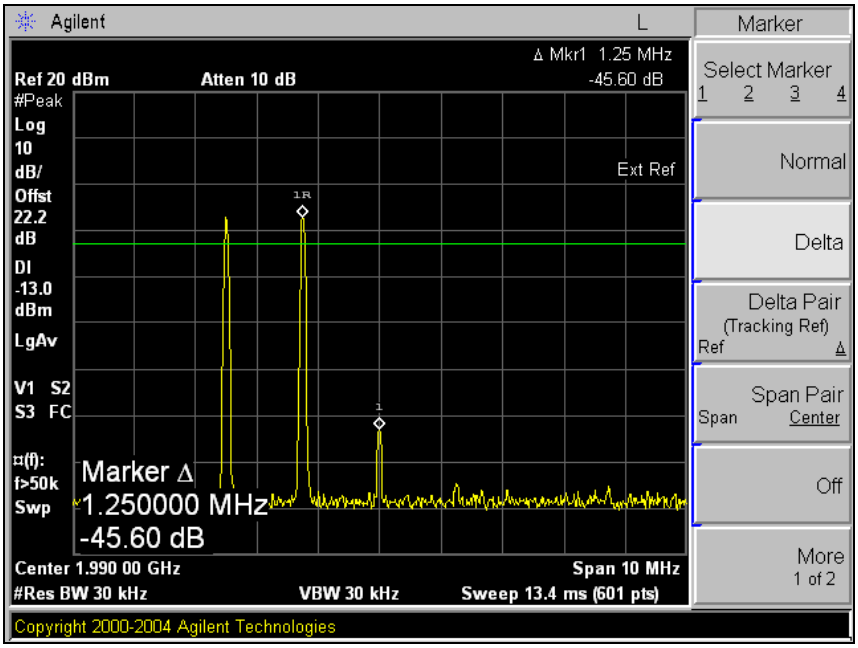


PCS(Downlink)_IMD

Low Channel



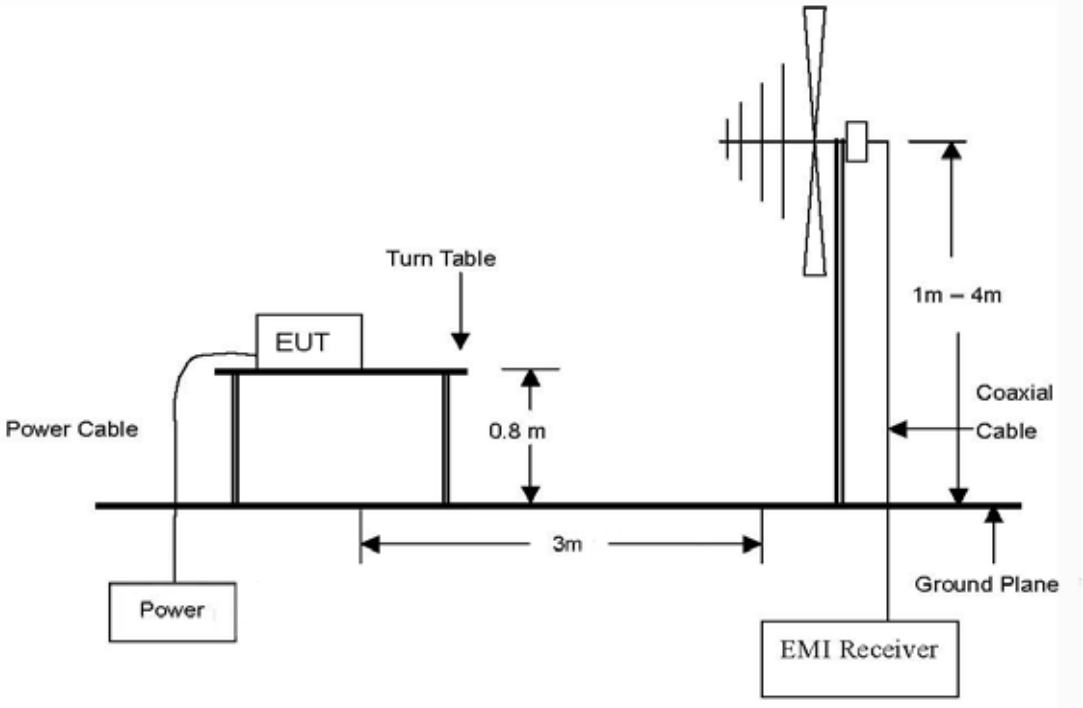
High Channel



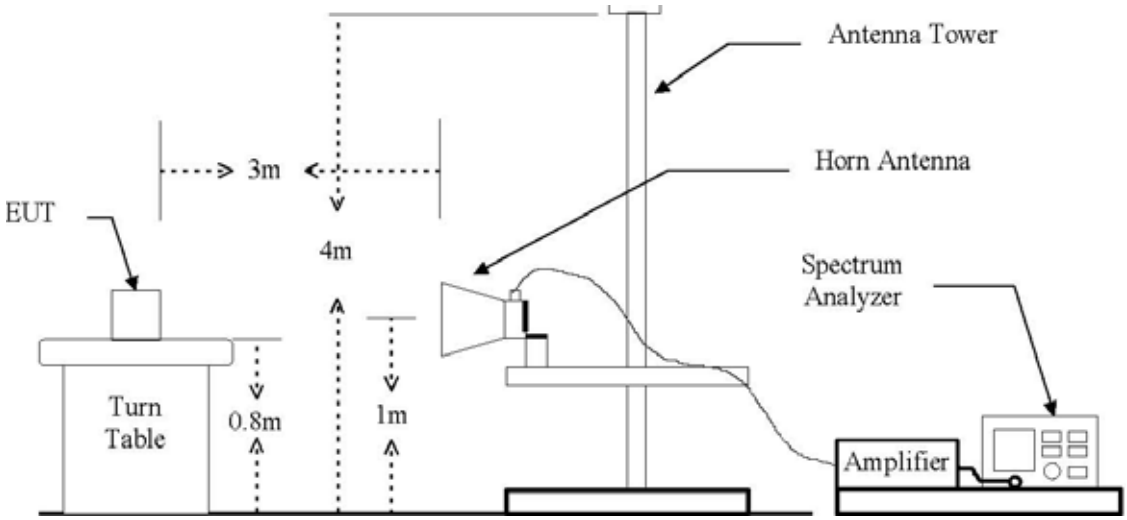
6. Spurious radiated emission

6.1. Test setup

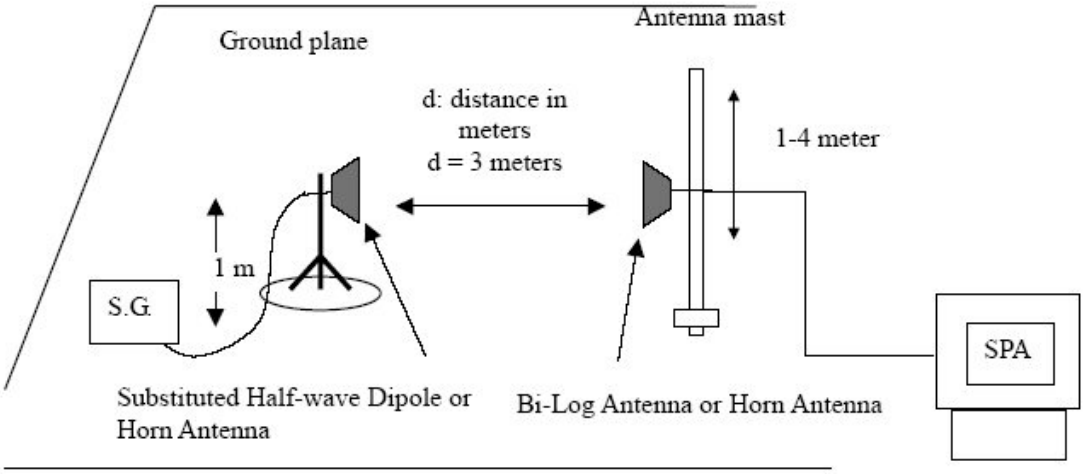
The diagram below shows the test setup that is utilized to make the measurements for emission from 30 ㎒ to 1 ㎓ Emissions.



The diagram below shows the test setup that is utilized to make the measurements for emission from 1 ㎓ to 40 ㎓ Emissions.



The diagram below shows the test setup for substituted method



6.2. Limit

§ 22.917(e) Out of band emissions. The power of any emission outside of the authorized operating frequency must be attenuated below the transmitting (P) by a factor of at least 43 + 10log(P)㏈.
§24.238 (a) Out of band emissions. The power of any emission outside of the authorized operating frequency

6.3. Test procedure: Based on ANSI/TIA 603C: 2004

1. On a test site, the EUT shall be placed at 80cm height on a turn table, and in the position closest to normal use as declared by the applicant.
2. The test antenna shall be oriented initially for vertical polarization located 3 m from EUT to correspond to he fundamental frequency of the transmitter.
3. The output of the test antenna shall be connected to the measuring receiver and the peak detector is used for the measurement.
4. During the measurement of the EUT, the resolution bandwidth was to 1 ㎒ and the average bandwidth was set to 1 ㎒.
5. The transmitter shall be switched on, the measuring receiver shall be tuned to the frequency of the transmitter under test.
6. The test antenna shall be raised and lowered through the specified range of height until a maximum signal level is detected by the measuring receiver.
7. The transmitter shall then the rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
8. The test antenna shall be raised and lowered again through the specified range of height until a maximum signal level is detected by the measuring receiver.
9. The maximum signal level detected by the measuring receiver shall be noted.
10. The EUT was replaced by half-wave dipole or horn antenna connected to a signal generator.
11. In necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase he sensitivity of the measuring receiver.
12. The test antenna shall be raised and lowered through the specified range of height to ensure that the maximum signal is received.
13. The input signal to the substitution antenna shall be adjusted to the level that produces a level detected by the measuring received, which is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuator setting of the measuring receiver.
14. The input level to the substitution antenna shall be recorded as power level in ㏈m, corrected for any change of input attenuator setting of the measuring receiver.
15. The measurement shall be repeated with the test antenna and the substitution antenna orientated for horizontal polarization.

6.4. Spurious radiated emission

Cellular(Uplink)

Frequency (㎒)	Ant. Pol. (H/V)	S.G level (dB m)	Cable loss (dB)	Ant. gain (dB d)	E.R.P. (dB m)	Margin (dB)
Low Channel (824.70 ㎒)						
1 649.40	V	-44.71	4.54	6.44	-42.81	29.81
1 649.40	H	-56.03	4.54	6.44	-54.13	41.13
2 474.10	V	-48.75	5.68	7.98	-46.45	33.45
2 474.10	H	-47.89	5.68	7.98	-45.59	32.59
Middle Channel (835.89 ㎒)						
1 671.78	V	-48.43	4.57	6.50	-46.50	33.50
1 671.78	H	-58.42	4.57	6.50	-56.49	43.49
2 507.67	V	-50.33	5.72	8.02	-48.03	35.03
2 507.67	H	-49.94	5.72	8.02	-47.64	34.64
High Channel (848.31 ㎒)						
1 696.62	V	-44.31	4.61	6.57	-42.36	29.36
1 696.62	H	-57.13	4.61	6.57	-55.18	42.18
2 544.93	V	-52.79	5.75	8.07	-50.47	37.47
2 544.93	H	-52.13	5.75	8.07	-49.81	36.81

Cellular(Downlink)

Frequency (㎒)	Ant. Pol. (H/V)	S.G level (dB m)	Cable loss (dB)	Ant. gain (dB d)	E.R.P. (dB m)	Margin (dB)
Low Channel (869.70 ㎒)						
1 739.40	V	-51.63	4.69	6.68	-49.64	62.64
1 739.40	H	-56.61	4.69	6.68	-54.62	67.62
Middle Channel (880.89 ㎒)						
1 761.78	V	-52.20	4.74	6.74	-50.20	63.20
1 761.78	H	-55.61	4.74	6.74	-53.61	66.61
High Channel (893.31 ㎒)						
1 786.62	V	-52.71	4.78	6.80	-50.69	63.69
1 786.62	H	-56.37	4.78	6.80	-54.35	67.35

Remark:

1. E.R.P. & E.I.R.P. = S.G level (dBm) - Cable loss (dB) + Ant. gain (dBd/dBi)

2. No more spurious emissions above 1 800 ㎒ for all channel.

PCS(Uplink)

Frequency (㎒)	Ant. Pol. (H/V)	S.G level (dB m)	Cable loss (dB)	Ant. gain (dB i)	E.I.R.P. (dB m)	Margin (dB)
Low Channel (1 851.25 ㎒)						
3 702.50	V	-48.42	7.13	11.85	-43.70	30.70
3 702.50	H	-48.38	7.13	11.85	-43.66	30.66
Middle Channel (1 880.00 ㎒)						
3 760.00	V	-48.52	7.23	11.85	-43.91	30.91
3 760.00	H	-50.33	7.23	11.85	-45.72	32.72
High Channel (1 908.75 ㎒)						
3 817.50	V	-47.15	7.33	11.84	-42.64	29.64
3 817.50	H	-50.99	7.33	11.84	-46.48	33.48

PCS(Downlink)

Frequency (㎒)	Ant. Pol. (H/V)	S.G level (dB m)	Cable loss (dB)	Ant. gain (dB i)	E.I.R.P. (dB m)	Margin (dB)
Low Channel (1 931.25 ㎒)						
3 862.50	V	-46.54	7.41	11.84	-42.11	29.11
3 862.50	H	-49.53	7.41	11.84	-45.10	32.10
Middle Channel (1 960.00 ㎒)						
3 920.00	V	-46.13	7.48	11.84	-41.77	28.77
3 920.00	H	-47.88	7.48	11.84	-43.52	30.52
High Channel (1 988.75 ㎒)						
3 977.50	V	-47.84	7.51	11.83	-43.52	30.52
3 977.50	H	-45.79	7.51	11.83	-41.47	28.47

Remark:
1. E.R.P. & E.I.R.P. = S.G level (dBm) - Cable loss (dB) + Ant. gain (dBd/dBi)
2. No more spurious emissions above 4 000 ㎒ for all channel.

7. Frequency Stability

7.1. Limit

Requirements: FCC § 2.1055 (a), § 2.1055 (d) & following:
According to §22.355, the carrier frequency of each transmitter in the Public Mobile Services must be maintained within the tolerances given in Table of this section.
For Mobile devices operating in the 824 to 849 ㎒ band at a power level less than or equal to 3 Watts, the limit specified in Table C-1 is +/- 2.5 ppm.
§24.235 The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

7.2. Test Procedure

1. Frequency Stability vs. Temperature: The equipment under test was connected to an external AC power supply and the RF output was connected to a frequency counter via feed-through attenuators.
2. The EUT was placed inside the temperature chamber. The AC leads and RF output cable exited the chamber through an opening made for the purpose.
3. After the temperature stabilized for approximately 20 minutes, the frequency output was recorded from the counter.
4. Frequency Stability vs. Voltage: An external variable AC power supply was connected to the battery terminals of the equipment under test. The voltage was set to 115% of the nominal value and was then decreased until the transmitter light no longer illuminated; i.e., the AC end point. The output frequency was recorded for each AC.

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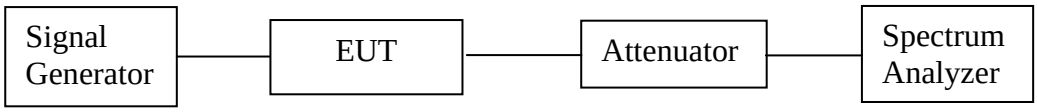

7.3. Test Results

Ambient temperature : (24 ± 2) ℃
Relative humidity : 47 % R.H.

Cellular(Uplink) mode at middle channel

Reference Frequency: 835.89 ㎒, Limit: 2.5 ppm			
Frequency Stability versus Temperature			
Environment Temperature (℃)	**Power Supplied (Vdc)**	**Frequency Measure with Time Elapse**	
		Frequency Error (㎐)	**ppm**
50	12	1	0.001
40		1	0.001
30		-1	-0.001
24		-1	-0.001
10		1	0.001
0		1	0.001
-10		-1	-0.001
-20		-2	-0.002
-30		-2	-0.002
Frequency Stability versus power Supply			
Environment Temperature (℃)	**Power Supplied (Vdc)**	**Frequency Measure with Time Elapse**	
		Frequency Error (㎐)	**ppm**
24	13.8	1	0.001
	10.2	-1	-0.001
	8.5(End point)	-1	-0.001

Cellular(Downlink) mode at middle channel

Reference Frequency: 880.89 ㎒, Limit: 2.5 ppm			
Frequency Stability versus Temperature			
Environment Temperature (℃)	**Power Supplied (Vdc)**	**Frequency Measure with Time Elapse**	
		Frequency Error (㎐)	**ppm**
50	12	-3	-0.003
40		-1	-0.001
30		-1	-0.001
24		1	0.001
10		1	0.001
0		-2	-0.002
-10		-1	-0.001
-20		-1	-0.001
-30		-3	-0.003
Frequency Stability versus power Supply			
Environment Temperature (℃)	**Power Supplied (Vdc)**	**Frequency Measure with Time Elapse**	
		Frequency Error (㎐)	**ppm**
24	13.8	1	0.001
	10.2	1	0.001
	8.5(End point)	1	0.001

PCS(Uplink) mode at middle channel

Reference Frequency: 1 880.00 ㎒, Limit: 2.5 ppm			
Frequency Stability versus Temperature			
Environment Temperature (℃)	**Power Supplied (Vdc)**	**Frequency Measure with Time Elapse**	
		Frequency Error (㎐)	**ppm**
50	12	-2	-0.001
40		-1	-0.001
30		-1	-0.001
24		-1	-0.001
10		1	0.001
0		-2	-0.001
-10		-1	-0.001
-20		-1	-0.001
-30		-4	-0.002
Frequency Stability versus power Supply			
Environment Temperature (℃)	**Power Supplied (Vdc)**	**Frequency Measure with Time Elapse**	
		Frequency Error (㎐)	**ppm**
24	13.8	1	0.001
	10.2	1	0.001
	8.5(End point)	1	0.001

PCS(Downlink) mode at middle channel

Reference Frequency: 1 960.00 ㎒, Limit: 2.5 ppm			
Frequency Stability versus Temperature			
Environment Temperature (℃)	**Power Supplied (Vdc)**	**Frequency Measure with Time Elapse**	
		Frequency Error (㎐)	**ppm**
50	12	-2	-0.001
40		-2	-0.001
30		-1	-0.001
24		1	0.001
10		1	0.001
0		1	0.001
-10		2	0.001
-20		2	0.001
-30		1	0.001
Frequency Stability versus power Supply			
Environment Temperature (℃)	**Power Supplied (Vdc)**	**Frequency Measure with Time Elapse**	
		Frequency Error (㎐)	**ppm**
24	13.8	1	0.001
	10.2	1	0.001
	8.5(End point)	1	0.001

8. RF Exposure Evaluation

According to FCC 1.1310 : The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in § 1.1307(b)

LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength(V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Average Time
(A) Limits for Occupational /Control Exposures				
300 – 1 500	--	--	F/300	6
1 500 – 100 000	--	--	5	6
(B) Limits for General Population/Uncontrol Exposures				
300 – 1 500	--	--	F/1500	6
1 500 – 100 000	--	--	1	30

8.1 Friis transmission formula : Pd = (Pout*G)/(4*pi*R^2)

Where
Pd = power density in mW/cm^2
Pout = output power to antenna in mW
G = gain of antenna in linear scale
Pi = 3.1416
R = distance between observation point and center of the radiator in cm
Pd the limit of MPE, 1 mW/cm^2. If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

8.2 Test Result of RF Exposure Evaluation

Test Item : RF Exposure Evaluation Data
Test Mode : Normal Operation

8.2.1 Output Power into Antenna & RF Exposure Evaluation Distance

Cellular band

Uplink mode

Test mode	Frequency (㎒)	Output Power to Antenna (dB m)	Antenna Gain (dB i)	R (㎝)
Low	824.70	13.61	2.12	2.328
Mid	835.89	13.72	2.12	2.341
High	848.31	13.03	2.12	2.147

Downlink mode

Test mode	Frequency (㎒)	Output Power to Antenna (dB m)	Antenna Gain (dB i)	R (㎝)
Low	869.70	-5.06	2.12	0.201
Mid	880.89	-5.11	2.12	0.200
High	893.31	-3.40	2.12	0.244

PCS band

Uplink mode

Test mode	Frequency (㎒)	Output Power to Antenna (dB m)	Antenna Gain (dB i)	R (㎝)
Low	1 851.25	13.80	3.12	1.782
Mid	1 880.00	13.85	3.12	1.778
High	1 908.75	11.67	3.12	1.373

Downlink mode

Channel	Frequency (㎒)	Output Power to Antenna (dB m)	Antenna Gain (dB i)	R (㎝)
Low	1 931.25	-6.56	3.12	0.167
Mid	1 960.00	-4.60	3.12	0.208
High	1 988.75	-4.29	3.12	0.214