



FCC TEST REPORT

according to

FCC 47 CFR PART 22 SUBPART H AND PART 24 SUBPART E

Applicant : EGROUP COMPUTER SYSTEMS CO., LTD.

Address : No.239, Sec. 2, Tiding Blvd., Neihu Dist, Taipei City 14, Taiwan (R.O.C)

Manufacturer : EGROUP COMPUTER SYSTEMS CO., LTD.

Address : No.239, Sec. 2, Tiding Blvd., Neihu Dist, Taipei City 14, Taiwan (R.O.C)

Equipment : Tablet PC

Model No : TE70SA3

I HEREBY CERTIFY THAT :

The measurements shown in this test report were made in accordance with the procedures given in **ANSI C63.10 – 2013 and TIA/EIA 603** and the energy emitted by this equipment was **passed** **FCC Rule FCC PART 22 Subpart H and PART 24 Subpart E** in both radiated and conducted emission limits.

Testing was carried out on Jul 30 , 2015 at **CerpPASS Technology Corp.**

Signature

Miro Chueh/ Technical director

CerpPASS Technology Corporation Test Laboratory

CerpPASS Technology(SuZhou) Co., Ltd.





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History of this test report

Attachment No.	Date	Description
1507030	2015-07-28	Initial release



1. Report of Measurements and Examinations

For GPRS 850/WCDMA Band V (FCC Part 22H & Part 2)

Performed Item	Section in CFR 47	Test Performed	Deviation
Peak Output Power	FCC Part 22.913(a)(2) and Part 2.1046	Yes	No
Modulation Characteristic	FCC Part 2.1047(d)	Yes	No
Occupied Bandwidth	FCC Part 2.1049	Yes	No
Spurious Emission At Antenna Terminals (+/- 1MHz)	FCC Part 22.917(a) and Part 2.1049	Yes	No
Spurious Emission	FCC Part 22.917(b) and Part 2.1051, 2.1053	Yes	No
Frequency Stability Under Temperature & Voltage Variations	FCC Part 22.355 and 2.1055	Yes	No

For PCS1900, and WCDMA Band II (FCC Part 24E & Part 2)

Performed Item	Section in CFR 47	Test Performed	Deviation
Peak Output Power	FCC Part 24.232(b) and Part 2.1046	Yes	No
Modulation Characteristic	FCC Part 2.1047(d)	Yes	No
Occupied Bandwidth	FCC Part 24.238(b) and Part 2.1049	Yes	No
Spurious Emission At Antenna Terminals (+/- 1MHz)	FCC Part 24.238(a) and Part 2.1049	Yes	No
Spurious Emission	FCC Part 24.238(b) and Part 2.1051, 2.1053	Yes	No
Frequency Stability Under Temperature & Voltage Variations	FCC Part 24.235 and 2.1055	Yes	No



2. Test Configuration of Equipment under Test

2.1. Feature of Equipment under Test

Product Name:	Tablet PC	
Model Name:	TE70SA3	
GPS	Class of SRD	Class 3
	Antenna Gain	PCB 1.27dBi
2G:	Support Band	GSM850/PCS1900
	GPRS Class	Class 12
	Uplink	GSM 850: 824~849MHz PCS 1900: 1850~1910MHz
	Downlink	GSM 850: 869~894MHz PCS 1900: 1930~1990MHz
	Type of modulation	GMSK for GPRS; 8PSK for EDGE
	Antenna Type	Dipole
	Antenna Gain	GSM 850: 1.17dBi PCS1900: 1.89dBi
3G	Support Band	WCDMA Band 2/WCDMA Band 5
	Uplink	WCDMA Band 2: 1850~1910MHz WCDMA Band 5: 824~849MHz
	Downlink	WCDMA Band 2: 1930~1990MHz WCDMA Band 5: 869~894MHz
	Type of modulation	QPSK for Uplink
	Antenna Type	Dipole
	Antenna Gain	Band 2: 1.98dBi Band 5: 1.34dBi
Bluetooth:	Bluetooth Specification	3.0HS + Version 4.0
	Modulation Type	V3.0+HS: GFSK, Pi/4 DQPSK, 8DPSK V4.0: GFSK
	Frequency Range	2402 - 2480 MHz
	Channel Number	V3.0+HS: 79 V4.0: 40



	Data Rate	V3.0+HS: 1Mbps(GFSK), 2Mbps(Pi/4 DQPSK), 3Mbps (8DPSK) V4.0: 1Mbps(GFSK)
	Channel Separation	V3.0+HS: 1MHz V4.0: 2MHz
	Antenna Type/ gain	PCB Antenna 1.27 dBi
Wi-Fi	Spreading	802.11b: DSSS 802.11g / n: OFDM
	Frequency Range	802.11b/g/n(20MHz): 2412-2462MHz
	Number of Channels	802.11b/g/n (20MHz):11
	Data Rate	802.11b: 11, 5.5, 2, 1 Mbps 802.11g: 54, 48, 36, 24, 18, 12, 9, 6 Mbps 802.11n: up to 300Mbps
	Antenna Type	PCB Antenna
	Peak Antenna Gain	1.27dBi
Adapter	Model No.:	WB-10E05FU
	Input	100-240V~50-60Hz 0.4A max.
	Output:	DC 5V, 2A



2.2. Test Manner

Test Manner	
a	During testing, the interface cables and equipment positions were varied according to 47 CFR, Part 2, PART 22 Subpart H and PART 24 Subpart E.
b	Adjust the EUT at the test mode and the test channel. Then test.
The test modes:	
The EUT had been tested under operating condition.	
After verification, all tests were carried out with the worst case test modes as shown below except radiated spurious emission below 1GHz and power line conducted emissions below 30MHz, which worst case was in normal link mode only.	

Test Mode
Mode 1: GSM 850 Link
Mode 2: PCS 1900 Link
Mode 3: EDGE 850 Link
Mode 4: EDGE 1900 Link
Mode 5: WCDMA Band II Link
Mode 6: WCDMA Band V Link

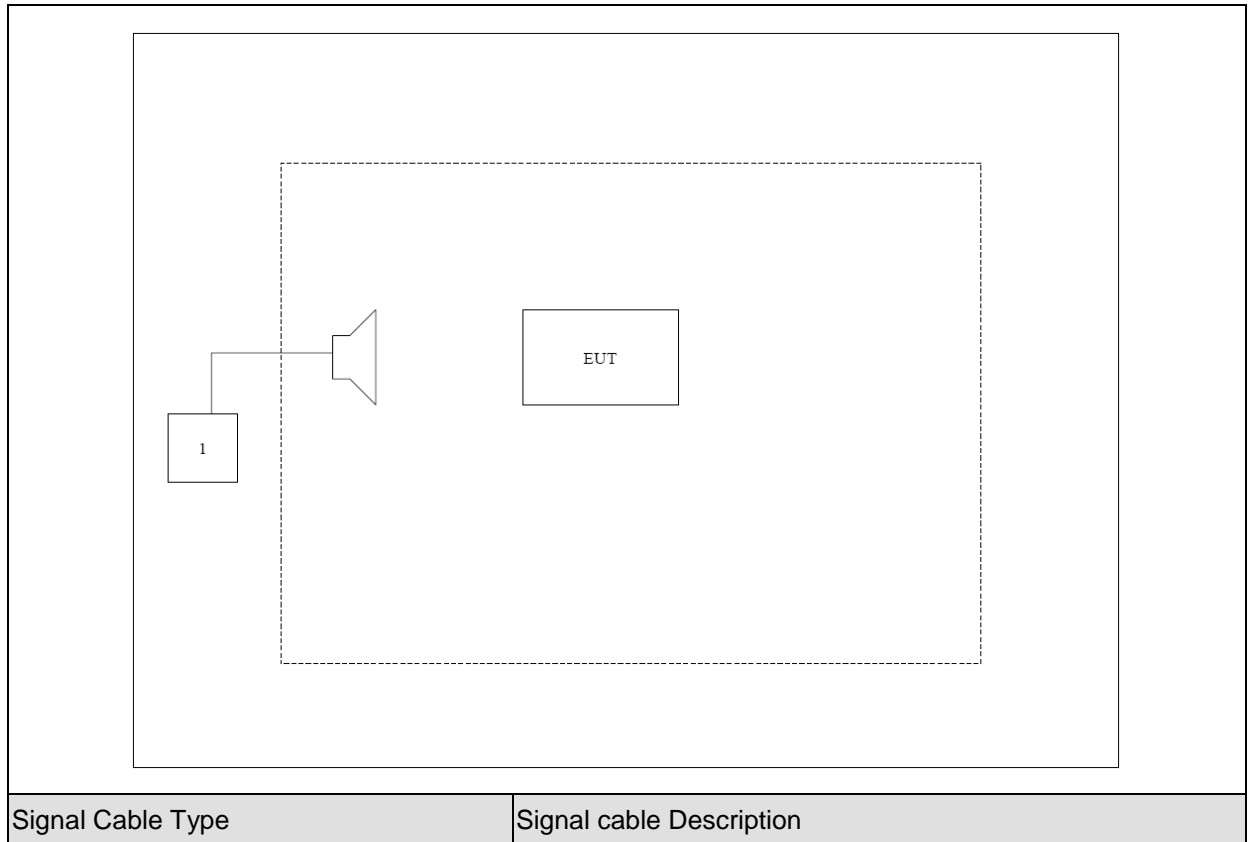


2.3. Description of Test System

	Product	Manufacturer	Model No.	Serial No.	Power Cord
1	Radio Communication Tester	R&S	CMU 200	106388	N/A



2.4. Configuration of Tested System





2.5. EUT Exercise Software

1	Setup the EUT and simulators as shown on above.
2	Turn on the power of all equipment.
3	EUT Communicate with CMU200, then select channel to test.



2.6. General Information of Test

<input type="checkbox"/>	Test Site	<p>CerpPASS Technology Corporation Test Laboratory Address: No.10, Ln. 2, Lianfu St., Luzhu Dist., Taoyuan City 33848, Taiwan (R.O.C.) Tel:+886-3-3226-888 Fax:+886-3-3226-881 Address: No.68-1, Shihbachongsi, Shihding Township, New Taipei City 223, Taiwan, R.O.C. Tel: +886-2-2663-8582</p>
	FCC	TW1079, TW1061,390316, 228391, 641184
	IC	4934B-1, 4934E-1, 4934E-2
	VCCI	T-2205 for Telecommunication Test C-4663 for Conducted emission test R-3428, R-4218 for Radiated emission test G-812, G-813 for radiated disturbance above 1GHz
<input checked="" type="checkbox"/>	Test Site	<p>CerpPASS Technology (Suzhou) Co.,Ltd Address: No.66,Tangzhuang Road, Suzhou Industrial Park, Jiangsu 215006, China Tel: +86-512-6917-5888 Fax: +86-512-6917-5666</p>
	FCC	916572, 331395
	IC	7290A-1, 7290A-2
	VCCI	T-343 for Telecommunication Test C-2919 for Conducted emission test R-2670 for Radiated emission test G-227 for radiated disturbance above 1GHz

2.7. Measurement Uncertainty

Measurement Item	Measurement Frequency	Polarization	Uncertainty
Conducted Emission	9 kHz ~ 30 MHz	LINE/NEUTRAL	±2.71 dB
Radiated Emission	30 MHz ~ 25GHz	Vertical	±4.11 dB
		Horizontal	±4.10 dB
Occupied Bandwidth	---	---	±7500 Hz
Maximum Peak Output Power	---	---	±1.4 dB
Band GPRSS	---	---	±2.2 dB
Power Spectral Density	---	---	±2.2 dB



3. Test of Conducted Emission

3.1. Test Limit

Conducted Emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 KHz on the 120 VAC power and return leads of the EUT according to the methods defined in ANSI C63.10-2013 Section 6.2. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane as shown in section 6.2.2. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

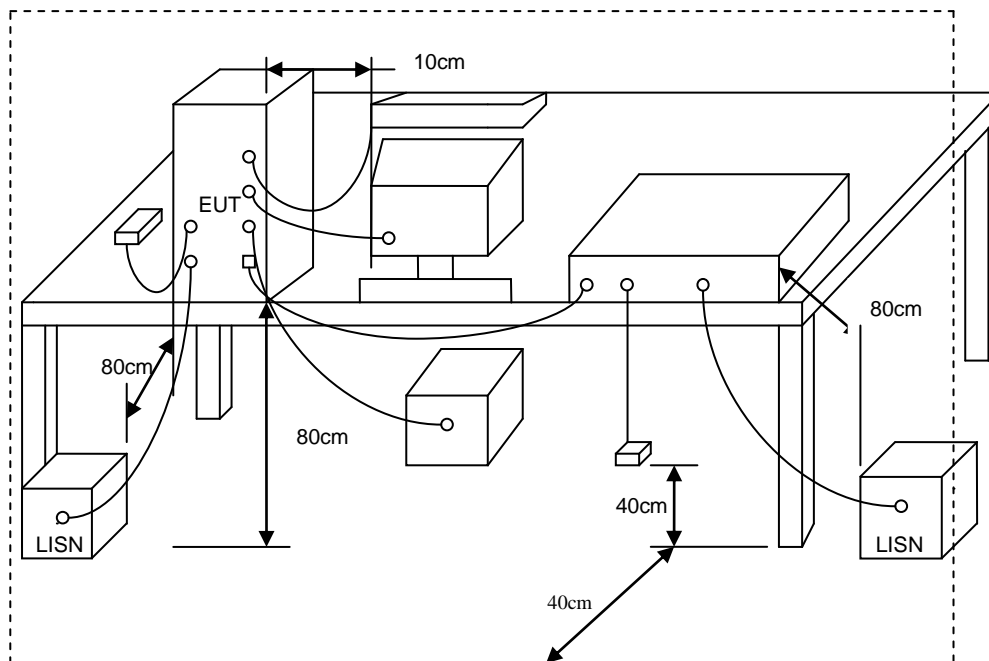
Frequency (MHz)	Quasi Peak (dB μ V)	Average (dB μ V)
0.15 – 0.5	66-56*	56-46*
0.5 – 5.0	56	46
5.0 – 30.0	60	50

*Decreases with the logarithm of the frequency.

3.2. Test Procedures

1. The EUT was placed on a table, which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured were complete.

3.3. Typical Test Setup



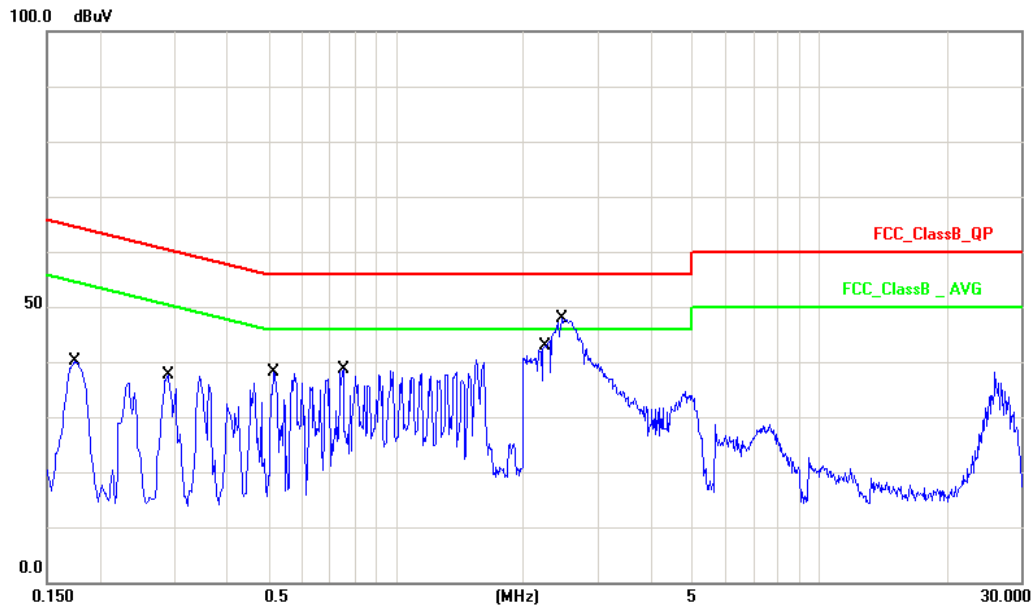
**3.4. Measurement Equipment**

Instrument/Ancillary	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date.
Test Receiver	R&S	ESCI	100565	2015.03.24	2016.03.23
Universal Radio Communication Tester	CMU200	R&S	108823	2015.03.29	2016.03.28
AMN	R&S	ESH2-Z5	100182	2014.09.04	2015.09.03
Two-Line V-Network	R&S	ENV216	100325	2014.12.04	2015.12.05
ISN	FCC	FCC-TLISN-T2-02	20379	2015.03.24	2016.03.23
ISN	FCC	FCC-TLISN-T4-02	20380	2015.03.24	2016.03.23
ISN	FCC	FCC-TLISN-T8-02	20381	2015.03.24	2016.03.23
ISN	TESEQ	ISN ST08	30175	2015.03.24	2016.03.23
Current Probe	R&S	EZ-17	100303	2015.04.04	2016.04.03
Passive Voltage Probe	R&S	ESH2-Z3	100026	2015.03.24	2016.03.23
Pulse Limiter	R&S	ESH3-Z2	100529	2015.03.24	2016.03.23
Temperature/Humidity Meter	Zhicheng	ZC1-11	CEP-TH-004	2015.03.31	2016.03.30



3.5. Test Result and Data

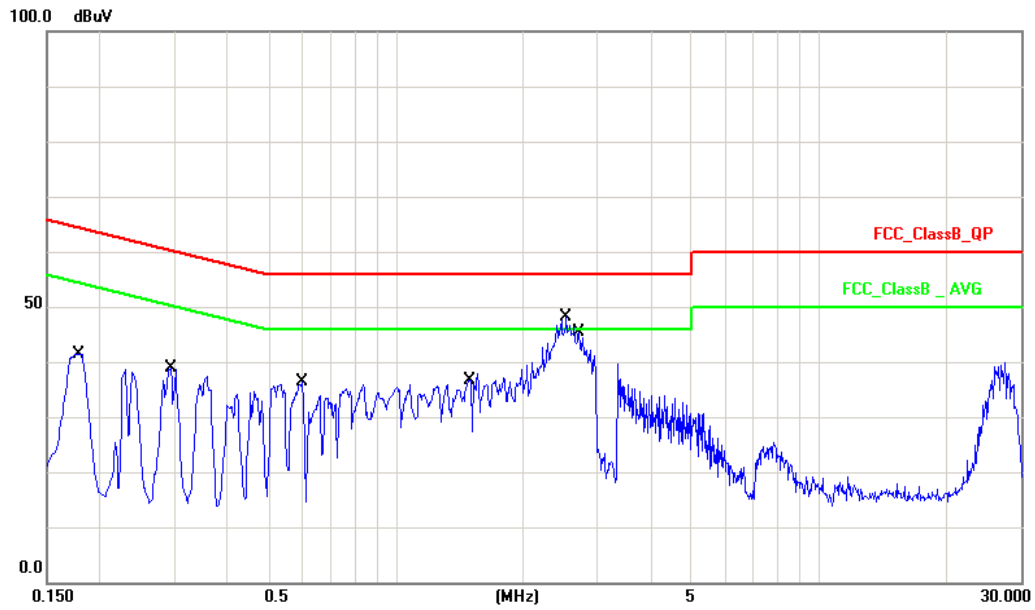
Test Item	Conduction Emission
Product	TE70SA3
Test Mode	Normal Link
Phase	Line
Test Date	2015/07/23



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1740	10.13	27.65	37.78	64.76	-26.98	QP
2	0.1740	10.13	14.63	24.76	54.76	-30.00	AVG
3	0.2900	10.14	25.36	35.50	60.52	-25.02	QP
4	0.2900	10.14	13.42	23.56	50.52	-26.96	AVG
5	0.5180	10.16	26.05	36.21	56.00	-19.79	QP
6	0.5180	10.16	12.86	23.02	46.00	-22.98	AVG
7	0.7539	10.14	25.21	35.35	56.00	-20.65	QP
8	0.7539	10.14	7.66	17.80	46.00	-28.20	AVG
9	2.2460	10.17	33.77	43.94	56.00	-12.06	QP
10	2.2460	10.17	12.83	23.00	46.00	-23.00	AVG
11	2.4860	10.18	38.90	49.08	56.00	-6.92	QP
12	2.4860	10.18	17.11	27.29	46.00	-18.71	AVG



Test Item	Conduction Emission
Product	TE70SA3
Test Mode	Normal Link
Phase	Neutral
Test Date	2015/07/23



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1780	10.13	28.57	38.70	64.57	-25.87	QP
2	0.1780	10.13	15.16	25.29	54.57	-29.28	AVG
3	0.2940	10.14	24.95	35.09	60.41	-25.32	QP
4	0.2940	10.14	7.73	17.87	50.41	-32.54	AVG
5	0.6020	10.16	23.90	34.06	56.00	-21.94	QP
6	0.6020	10.16	9.59	19.75	46.00	-26.25	AVG
7	1.5020	10.18	23.87	34.05	56.00	-21.95	QP
8	1.5020	10.18	6.59	16.77	46.00	-29.23	AVG
9	2.5300	10.19	33.85	44.04	56.00	-11.96	QP
10	2.5300	10.19	16.88	27.07	46.00	-18.93	AVG
11	2.7139	10.19	32.43	42.62	56.00	-13.38	QP
12	2.7139	10.19	15.46	25.65	46.00	-20.35	AVG

Note: Measurement Level = Reading Level + Correct Factor



4. Occupied Bandwidth

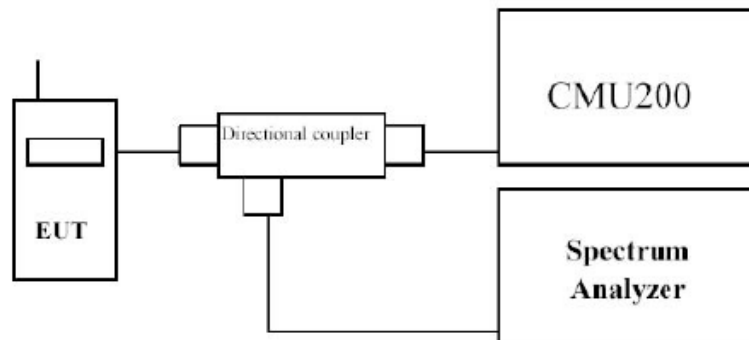
4.1. Test Limit

According to §FCC 2.1049.

4.2. Test Procedures

The EUT's output RF connector was connected with a short cable to the spectrum analyzer, RBW was set to about 1% of emission BW, VBW is set to 3 times the RBW, -26dBc display line was placed on the screen (or 99% bandwidth), the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace.

4.3. Test Setup Layout



4.4. Measurement Equipment

Instrument/Ancillary	Model No.	Manufacturer	Serial No.	Calibration Date	Valid Date
Spectrum Analyzer	Agilent	E4407B	MY44211883	2014.09.12	2015.09.11
Universal Radio Communication Tester	CMU200	R&S	108823	2015.03.29	2016.03.28
Temperature/ Humidity Meter	Zhicheng	ZC1-11	CEP-TH-002	2015.03.31	2016.03.30



4.5. Test Result and Data

Test Item	Occupied Channel Bandwidth
Test Mode	GSM 850
Test Date	2015-07-25

Channel No.	Frequency (MHz)	-26dB Occupied Bandwidth (kHz)	99% Occupied Bandwidth (kHz)
128	824.20	313.985	244.140
189	836.40	320.156	243.550
251	848.80	313.529	244.744

Figure Channel 128 (824.20MHz)

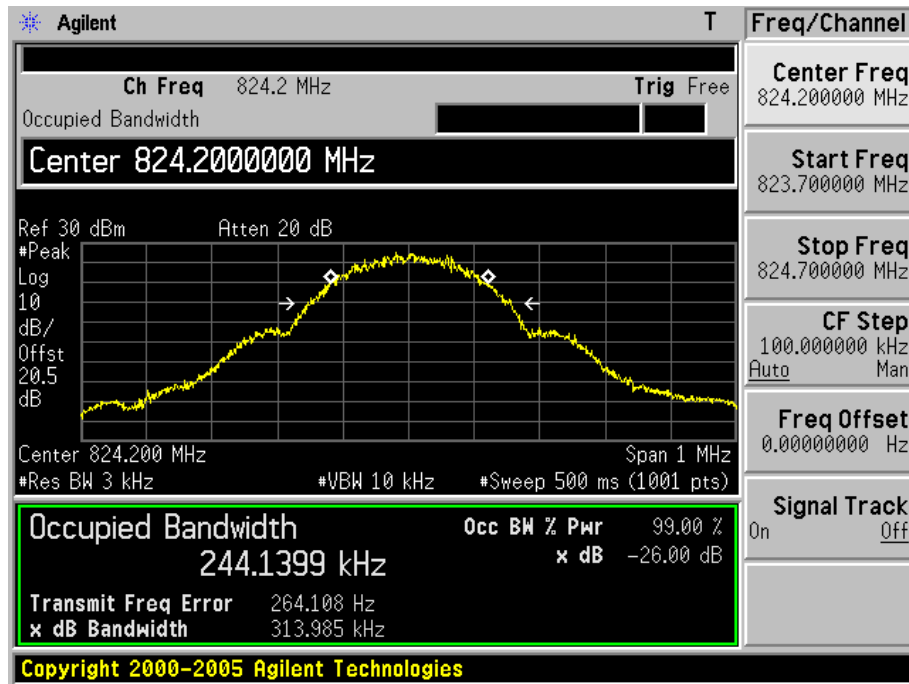




Figure Channel 189 (836.40MHz)

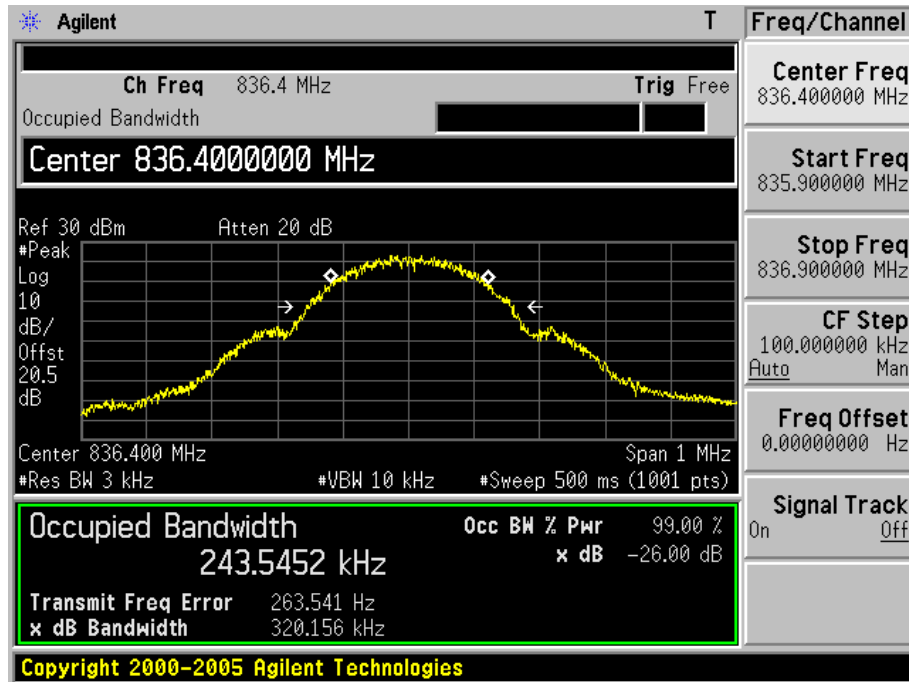
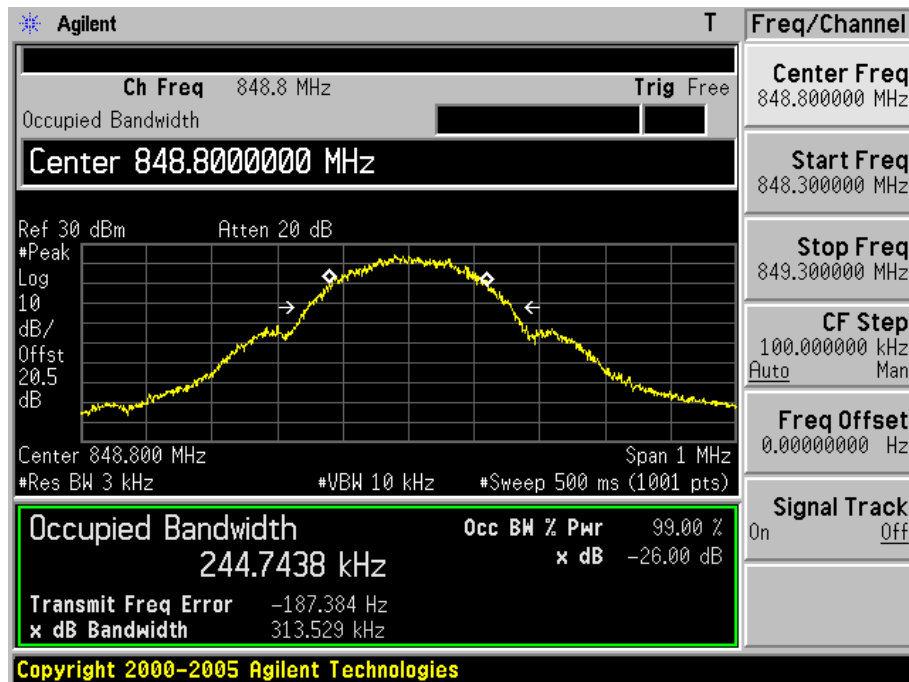


Figure Channel 251 (848.80MHz)





Test Item	Occupied Channel Bandwidth
Test Mode	GSM 1900
Test Date	2015-07-25

Channel No.	Frequency (MHz)	-26dB Occupied Bandwidth (kHz)	99% Occupied Bandwidth (kHz)
512	1850.20	314.034	242.895
661	1880.00	313.907	240.752
810	1909.80	315.476	246.991

Figure Channel 512 (1850.20MHz)

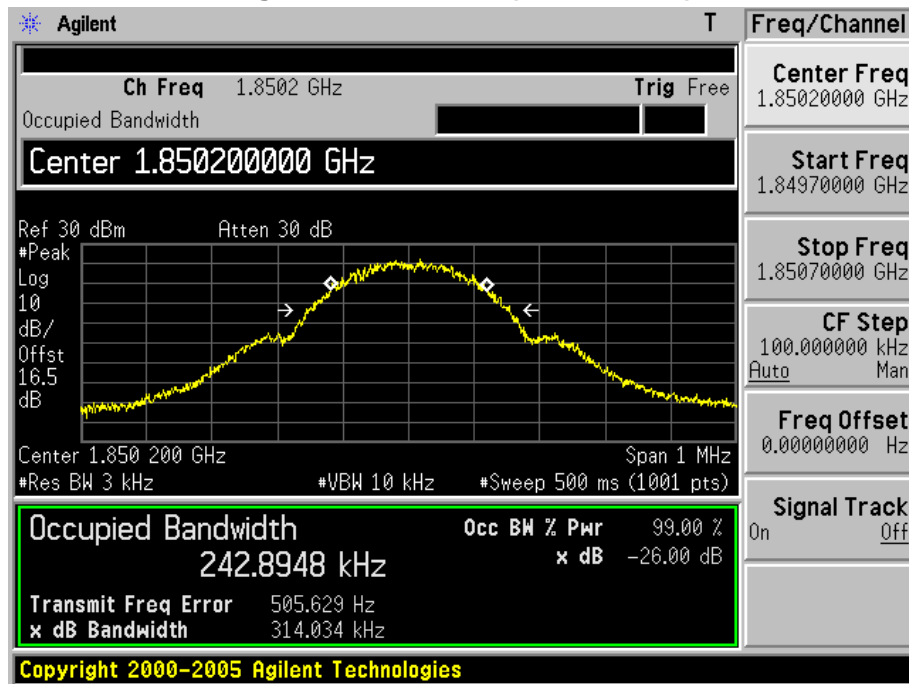




Figure Channel 661 (1880.00MHz)

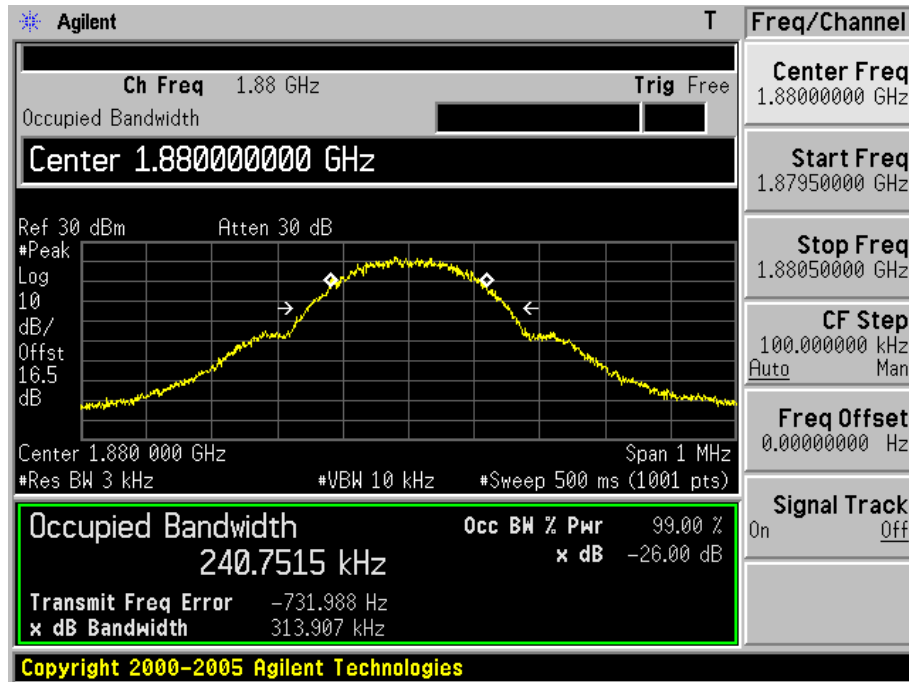
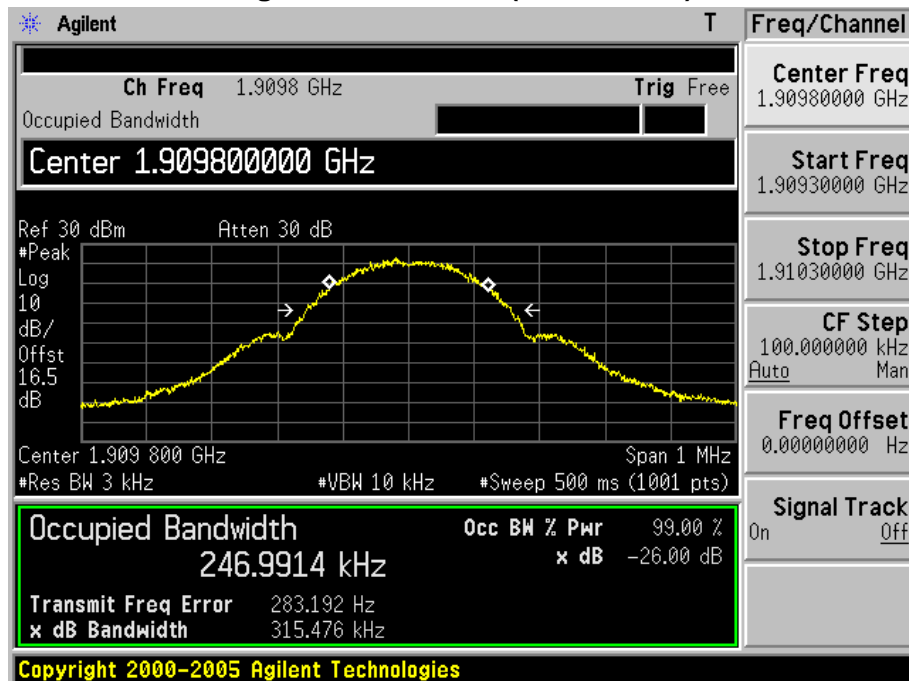


Figure Channel 810 (1909.80MHz)





Test Item	Occupied Channel Bandwidth
Test Mode	EDGE 850
Test Date	2015-07-25

Channel No.	Frequency (MHz)	-26dB Occupied Bandwidth (kHz)	99% Occupied Bandwidth (kHz)
128	824.20	310.529	245.022
189	836.40	312.128	244.699
251	848.80	313.640	236.606

Figure Channel 128 (824.20MHz)

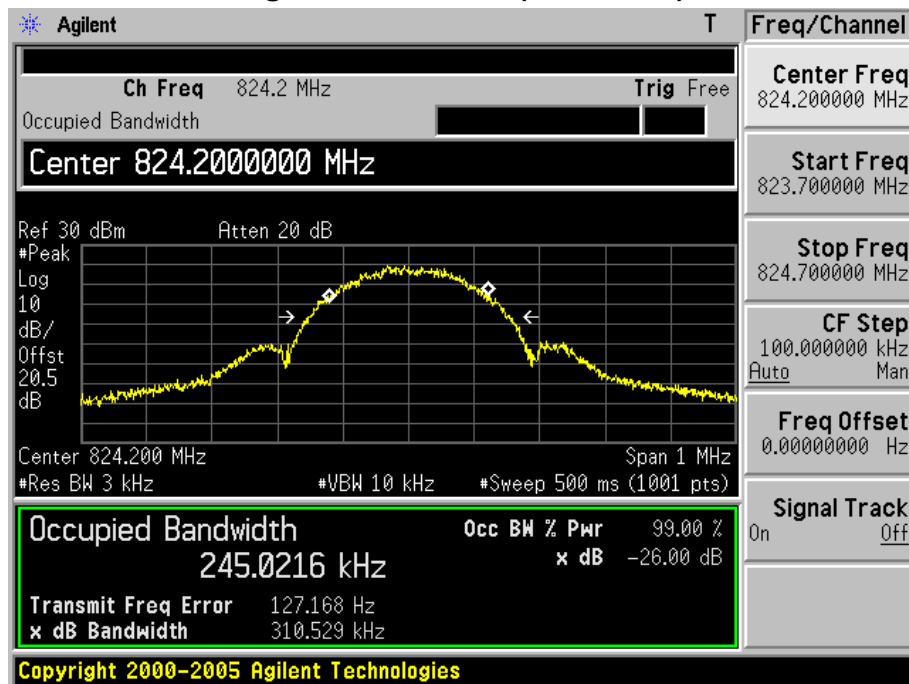




Figure Channel 189 (836.40MHz)

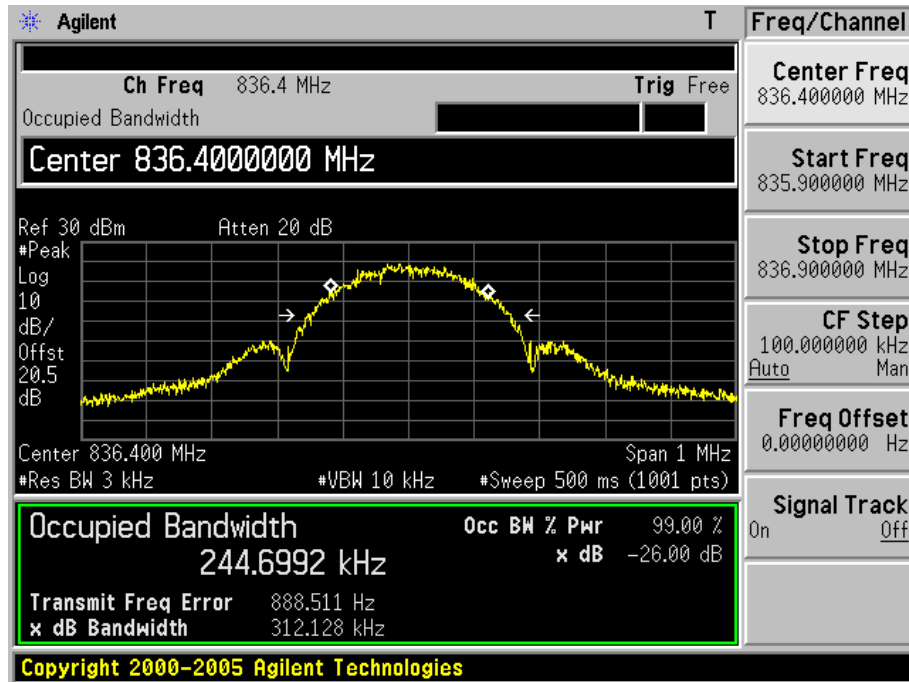
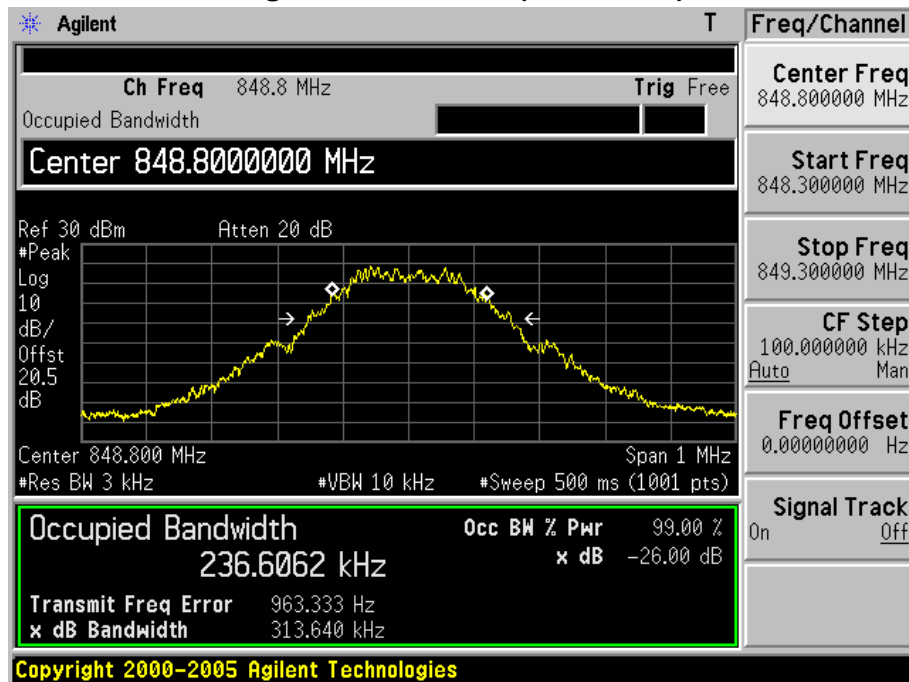


Figure Channel 251 (848.80MHz)





Test Item	Occupied Channel Bandwidth
Test Mode	EDGE 1900
Test Date	2015-07-25

Channel No.	Frequency (MHz)	-26dB Occupied Bandwidth (kHz)	99% Occupied Bandwidth (kHz)
512	1850.20	315.763	237.846
661	1880.00	315.651	238.706
810	1909.80	313.396	238.854

Figure Channel 512 (1850.20MHz)

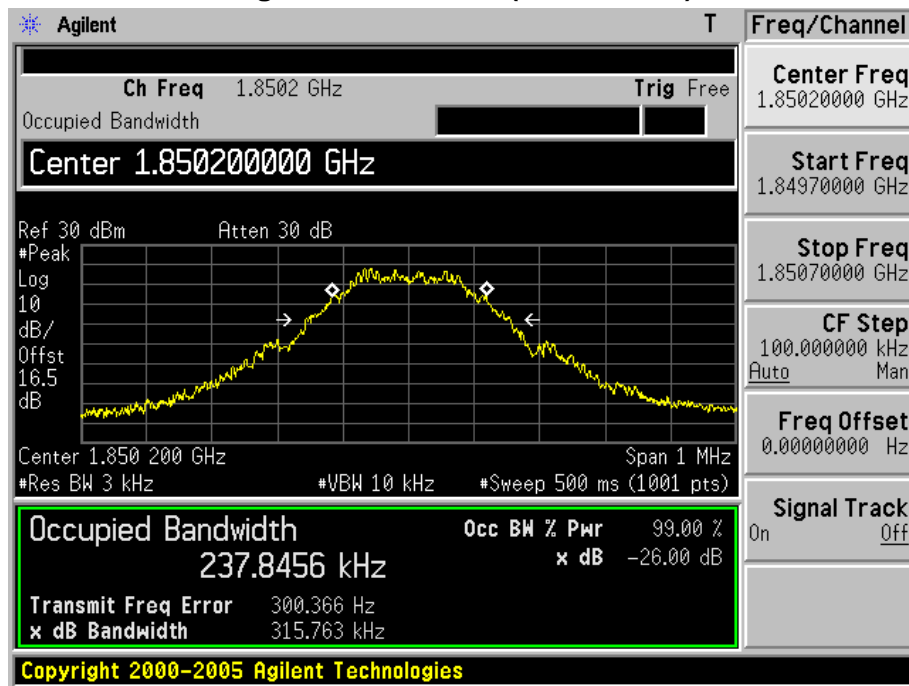




Figure Channel 661 (1880.00MHz)

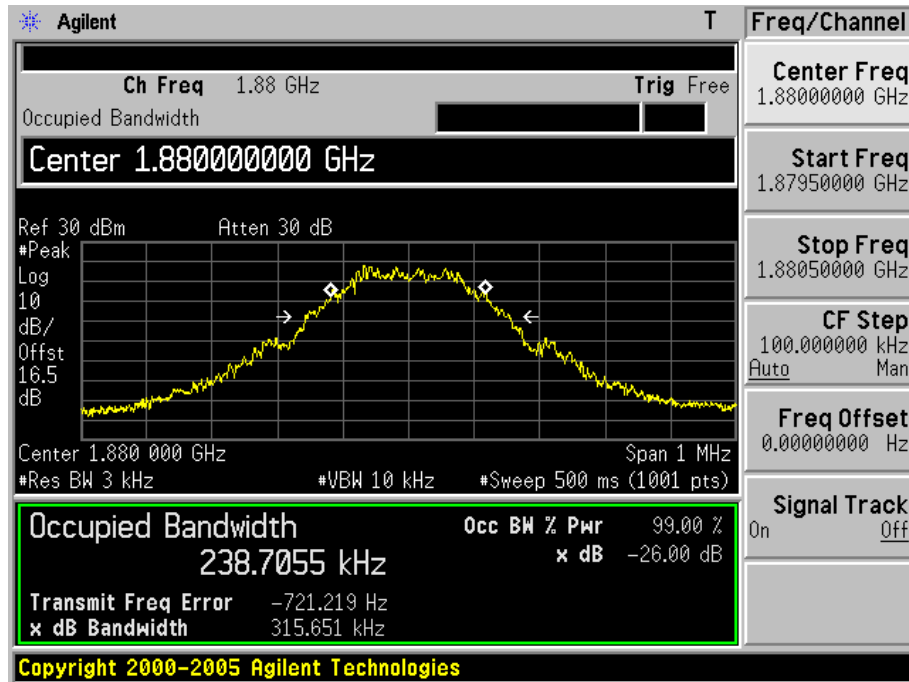
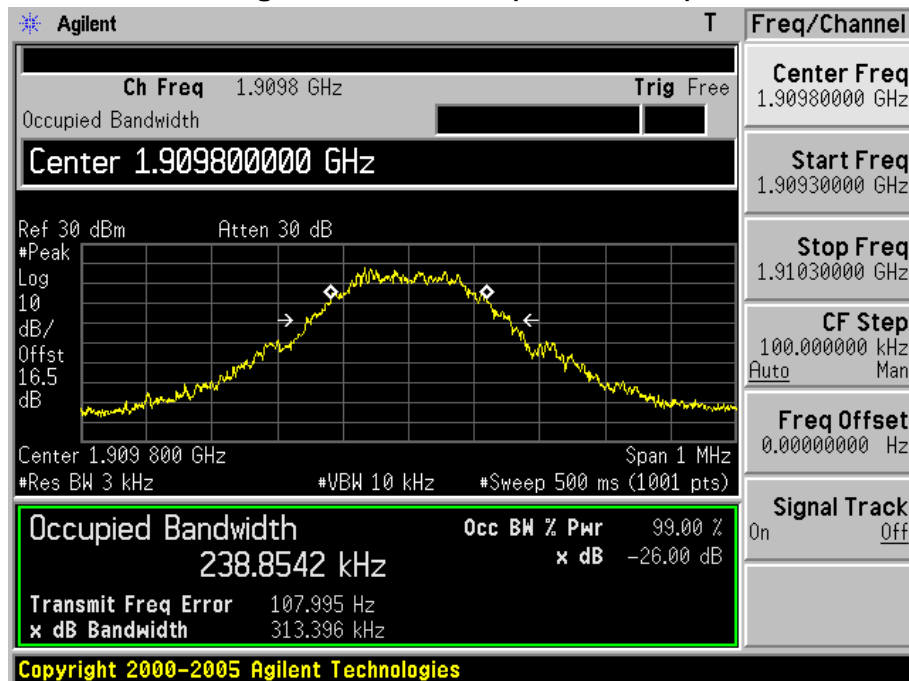


Figure Channel 810 (1909.80MHz)

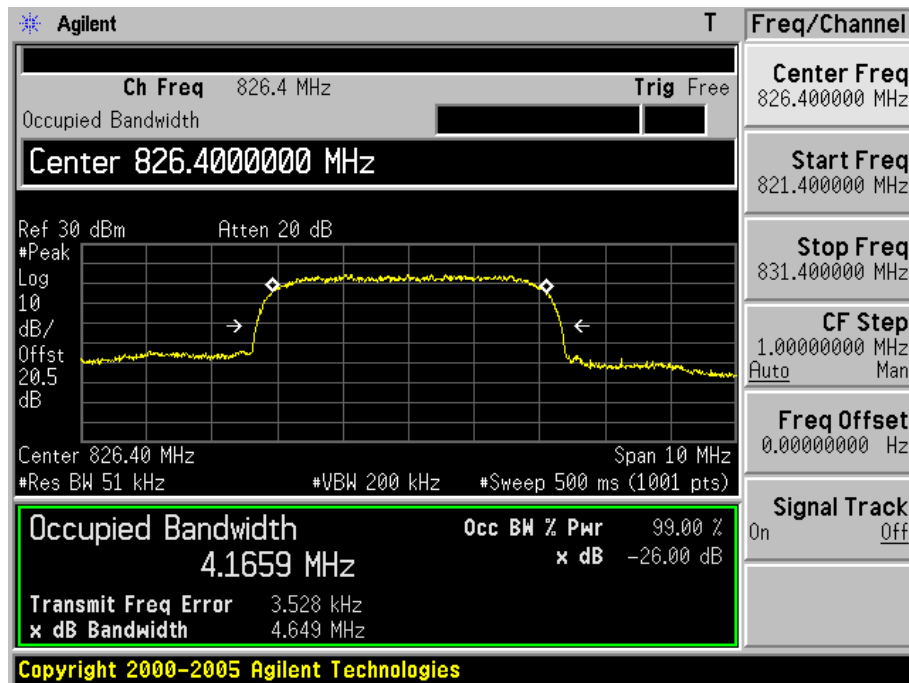




Test Item	Occupied Channel Bandwidth
Test Mode	WCDMA 850
Test Date	2015-07-25

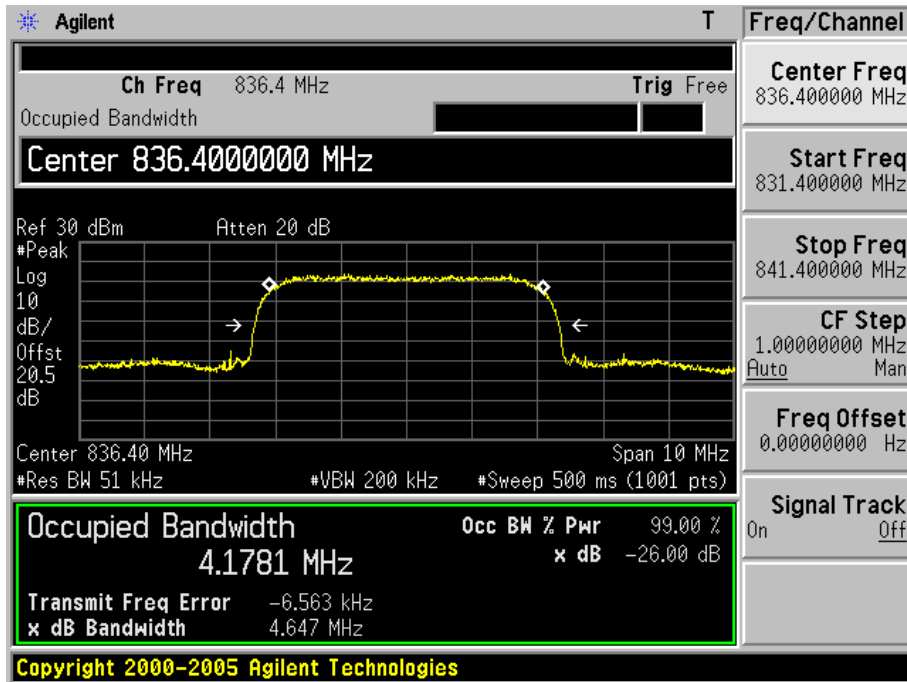
Channel No.	Frequency (MHz)	-26dB Occupied Bandwidth (kHz)	99% Occupied Bandwidth (kHz)
4132	826.4	4649.0	4165.9
4182	836.4	4647.0	4178.1
4233	846.6	4636.0	4182.7

Channel 4132

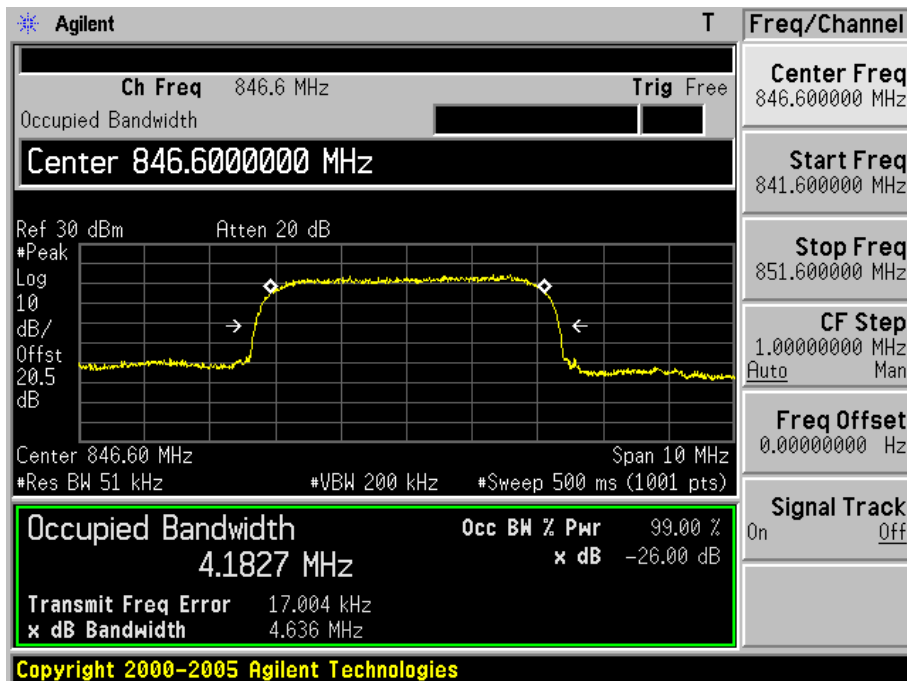




Channel 4182



Channel 4233

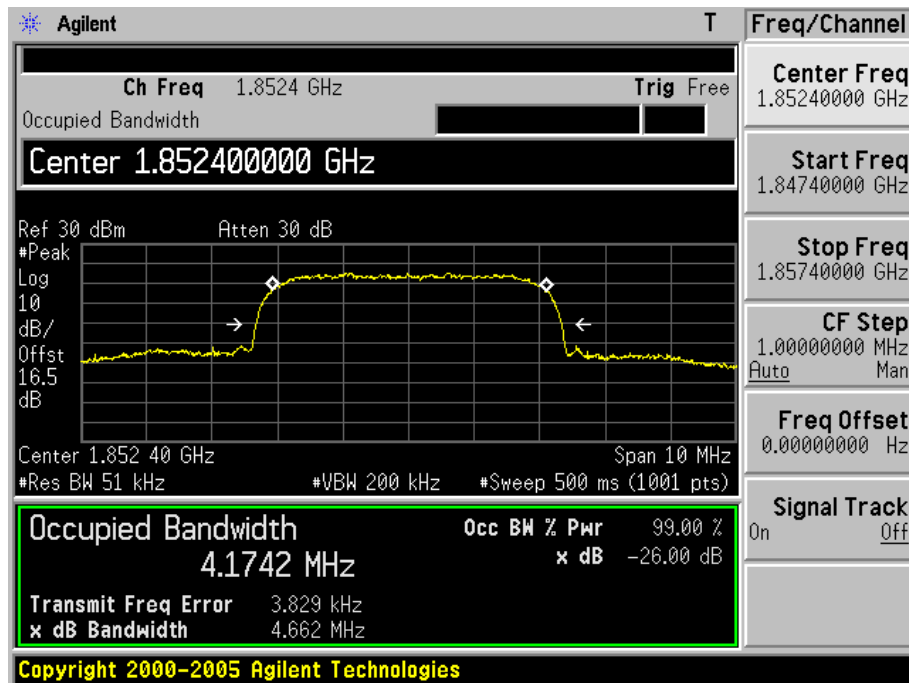




Test Item	Occupied Channel Bandwidth
Test Mode	WCDMA 1900
Test Date	2015-07-25

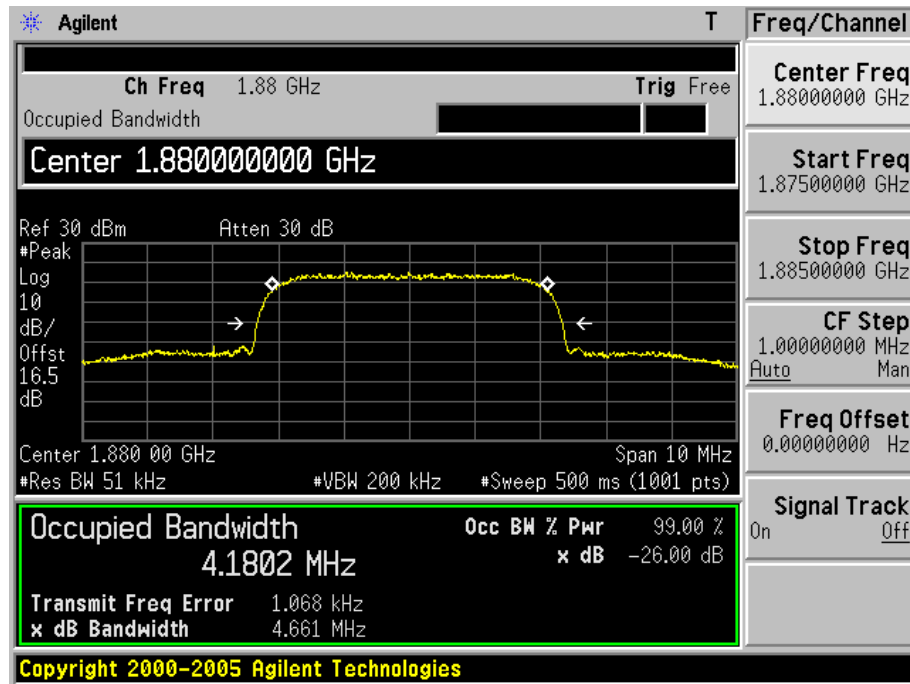
Channel No.	Frequency (MHz)	-26dB Occupied Bandwidth (kHz)	99% Occupied Bandwidth (kHz)
9262	1852.4	4662.0	4174.2
9400	1880.0	4661.0	4180.2
9538	1907.6	4653.0	4169.2

Channel 9262

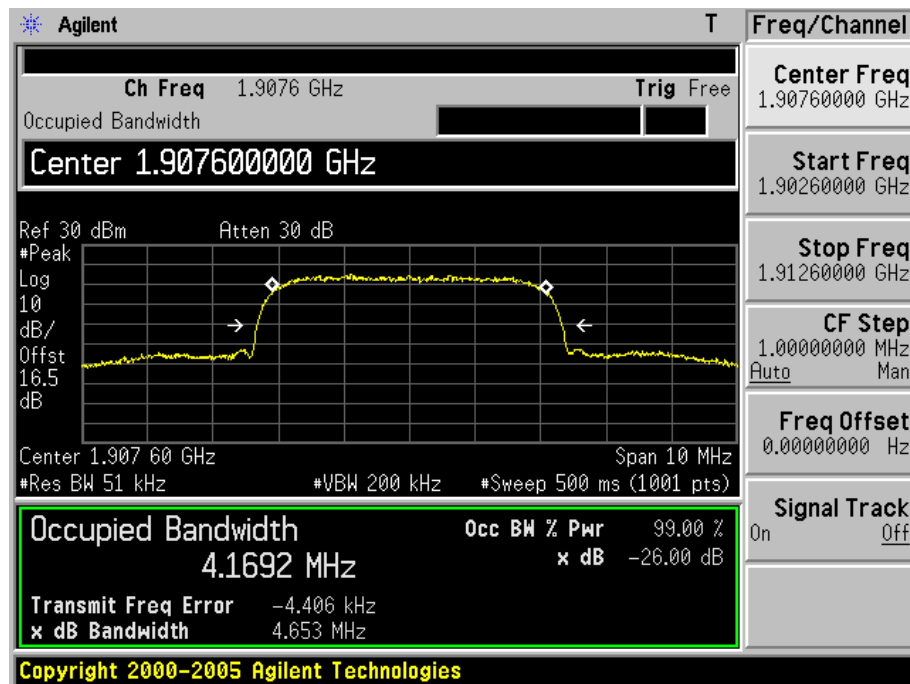




Channel 9400



Channel 9538

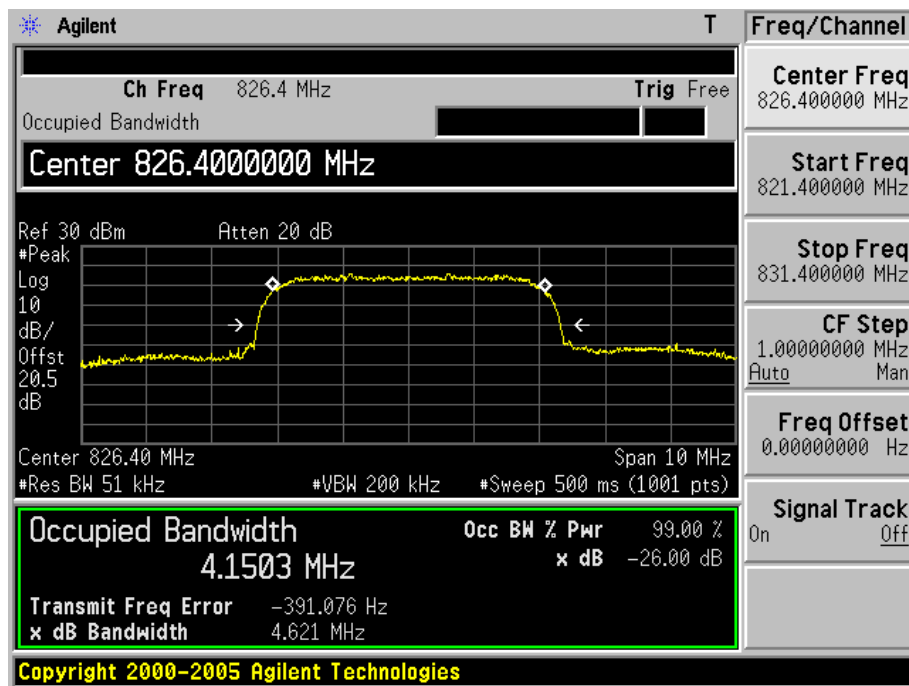




Test Item	Occupied Bandwidth
Test Mode	HSUPA 850
Test Date	2015-07-25

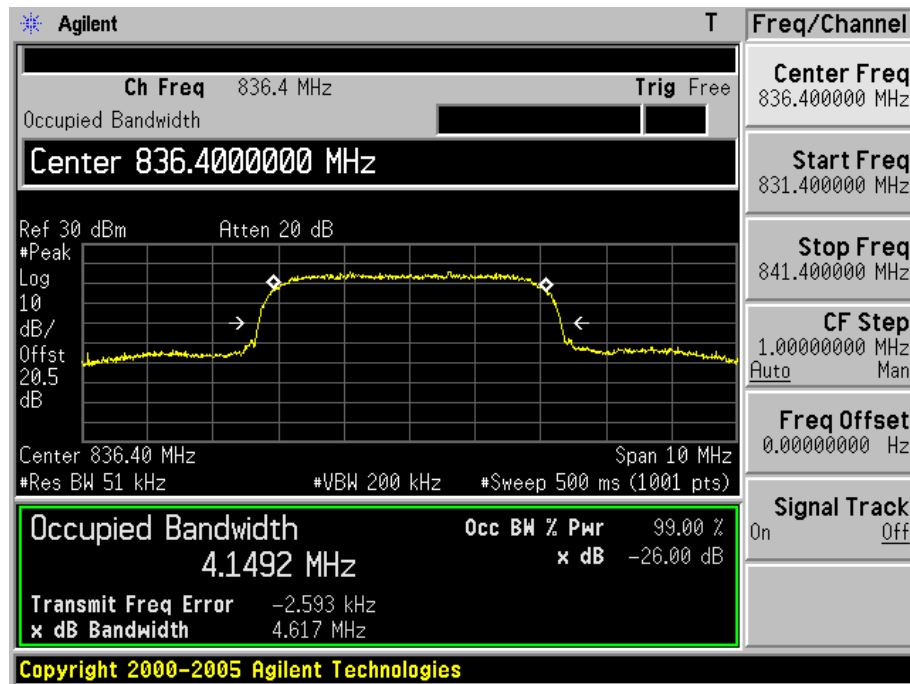
Channel No.	Frequency (MHz)	-26dB Occupied Bandwidth (kHz)	99% Occupied Bandwidth (kHz)
4132	826.4	4621.0	4150.3
4182	836.4	4617.0	4149.2
4233	846.6	4618.0	4148.0

Channel 4132

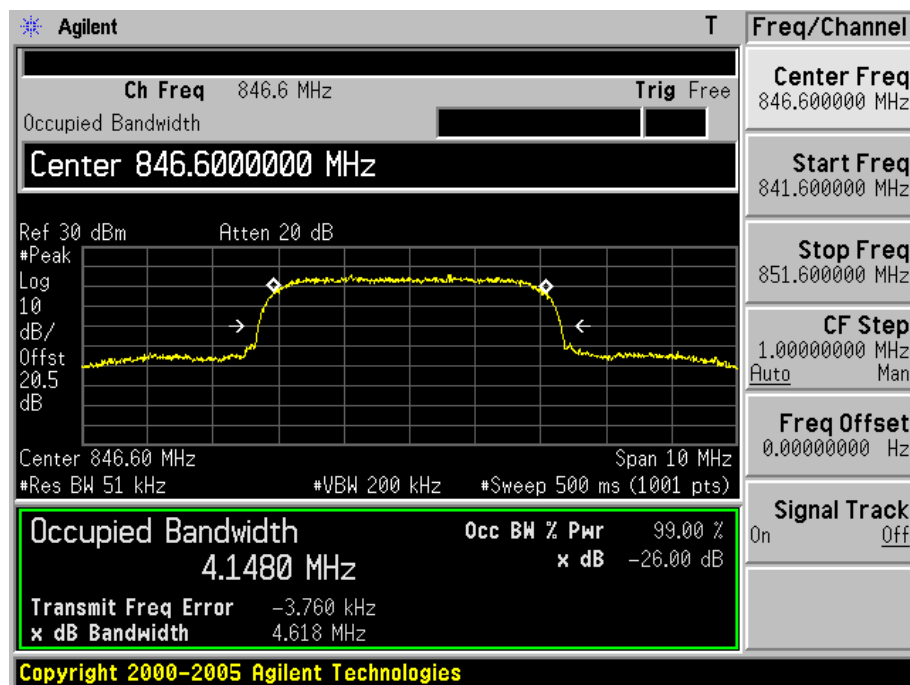




Channel 4182



Channel 4233

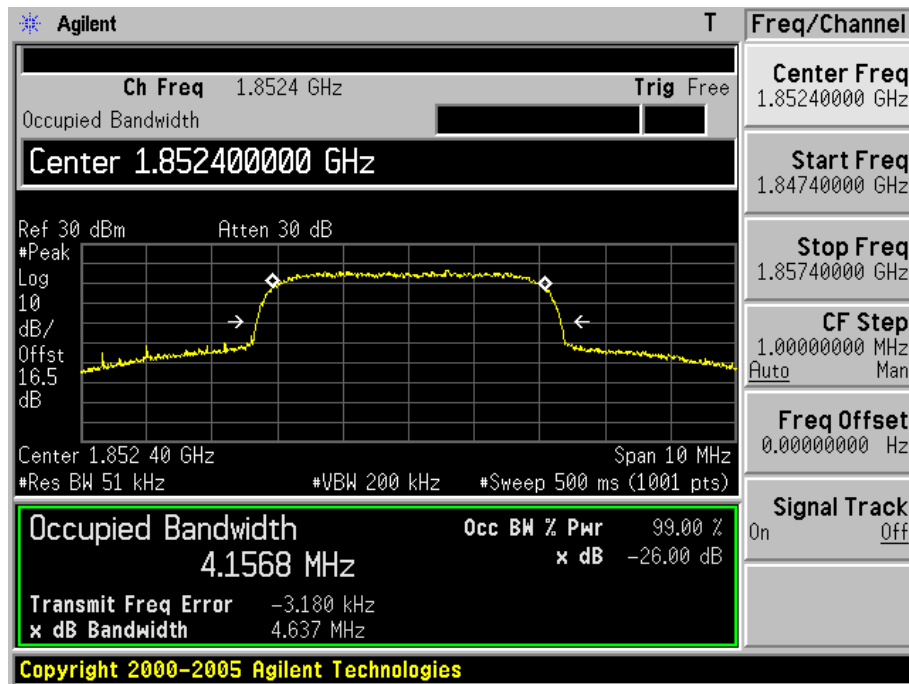




Test Item	Occupied Bandwidth
Test Mode	HSUPA 1900
Test Date	2015-07-25

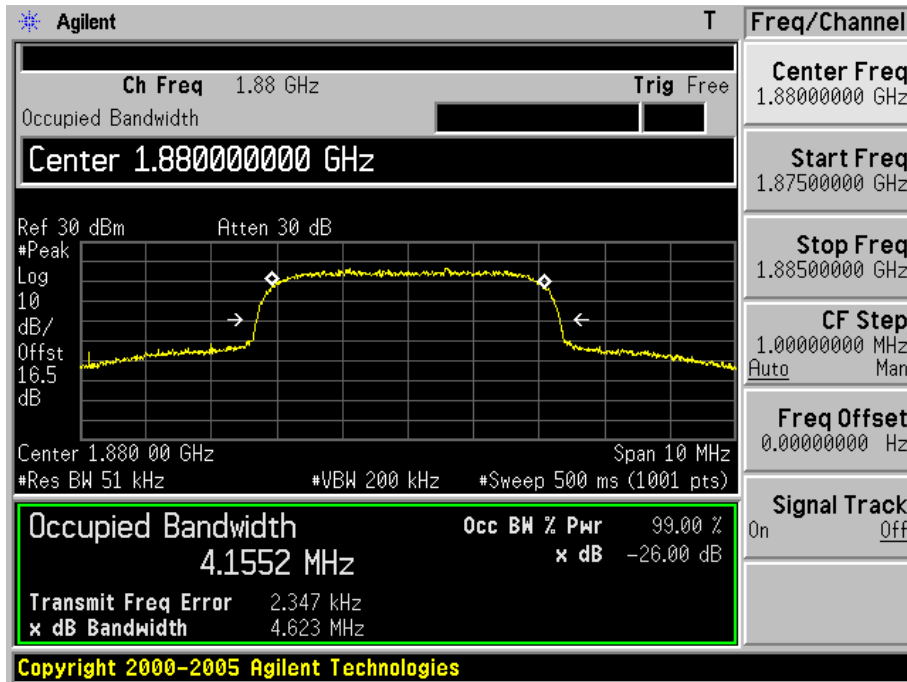
Channel No.	Frequency (MHz)	Measurement Level (kHz)	99% Occupied Bandwidth (kHz)
9262	1852.4	4637.0	4156.8
9400	1880.0	4623.0	4155.2
9538	1907.6	4626.0	4145.2

Channel 9262

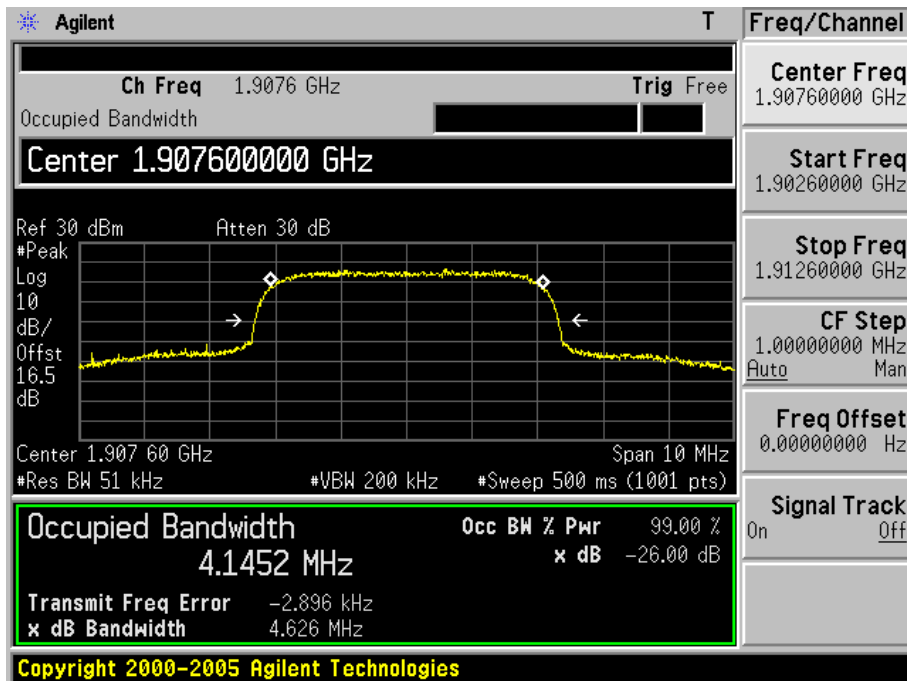




Channel 9400



Channel 9538

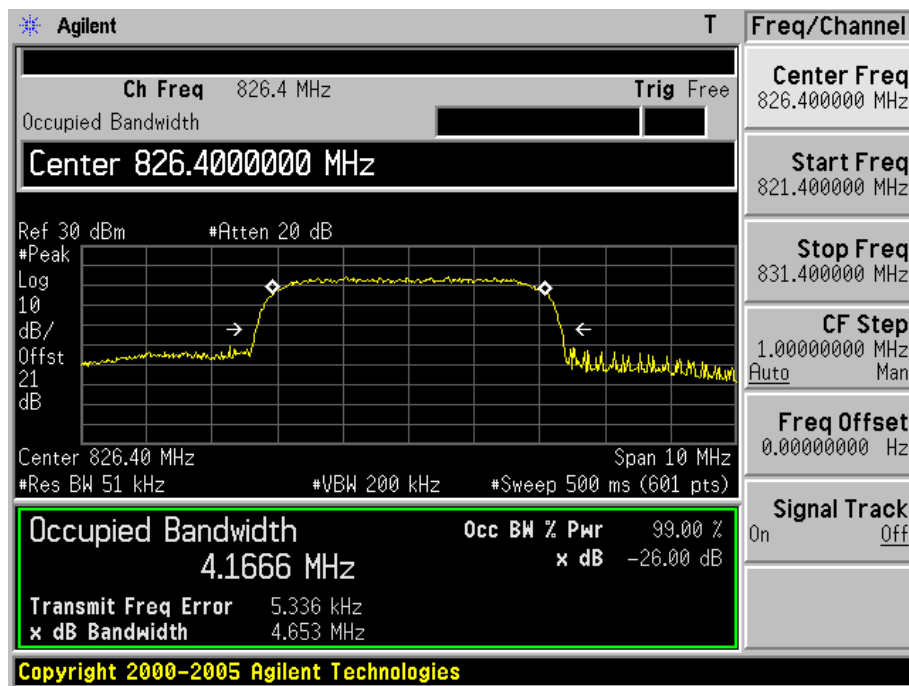




Test Item	Occupied Bandwidth
Test Mode	HSDPA 850
Test Date	2015-07-25

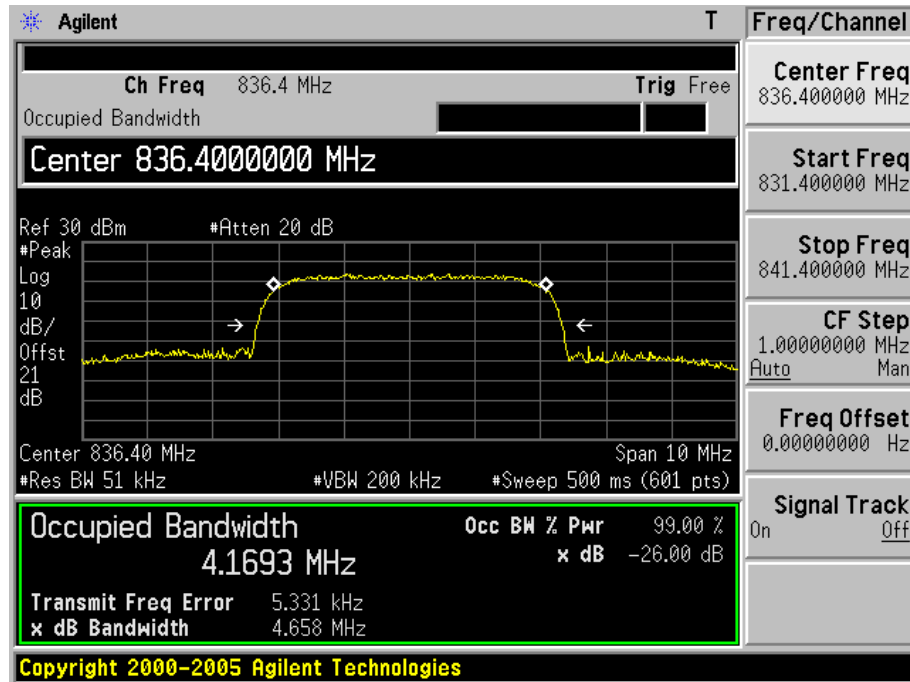
Channel No.	Frequency (MHz)	Measurement Level (kHz)	99% Occupied Bandwidth (kHz)
4132	826.4	4653	4166.6
4182	836.4	4658	4169.3
4233	846.6	4650	4165.5

Channel 4132

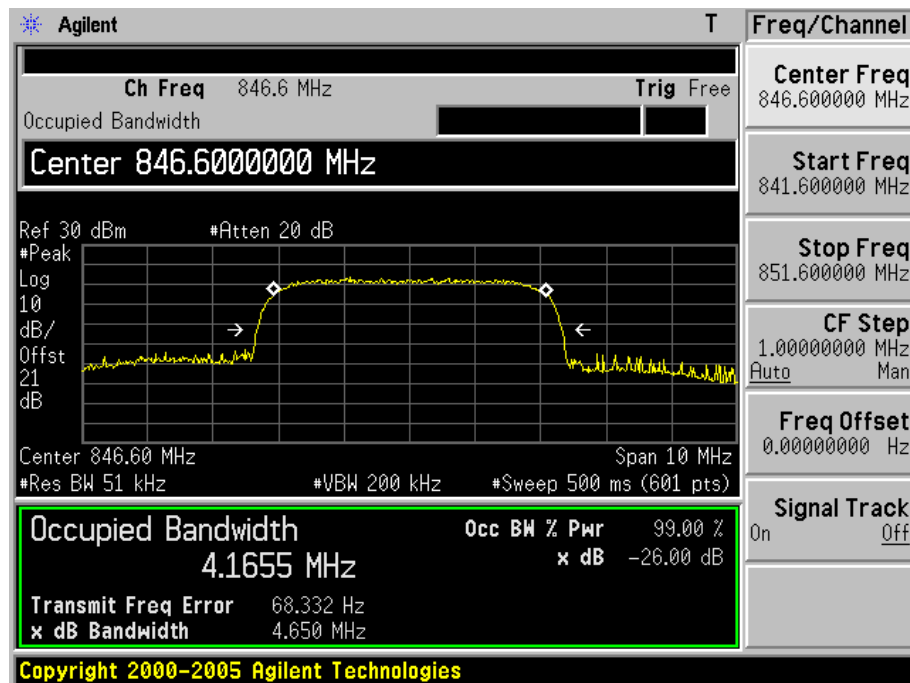




Channel 4183



Channel 4233

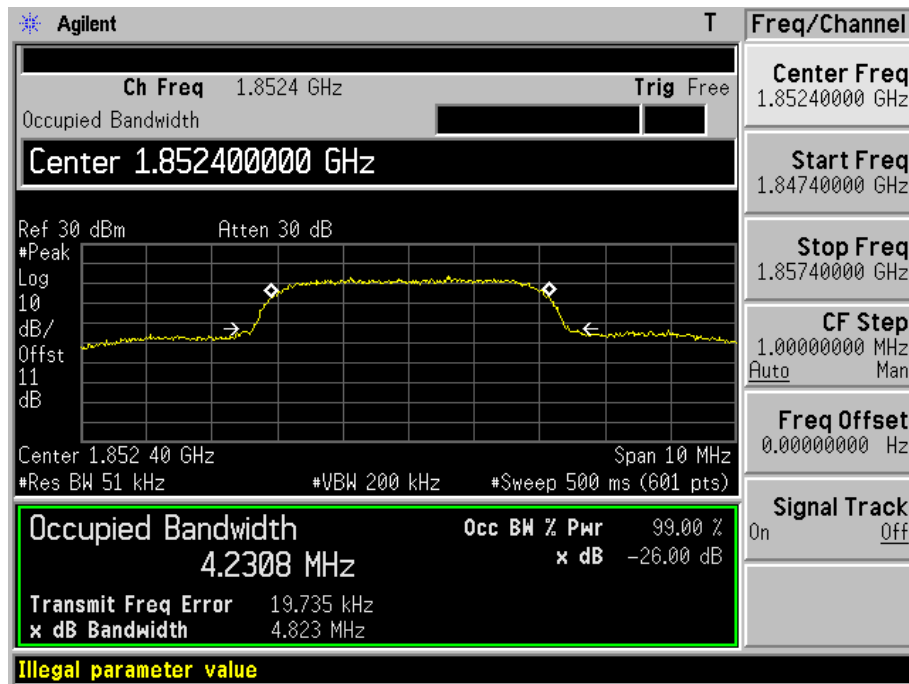




Test Item	Occupied Bandwidth
Test Mode	HSDPA 1900
Test Date	2015-07-25

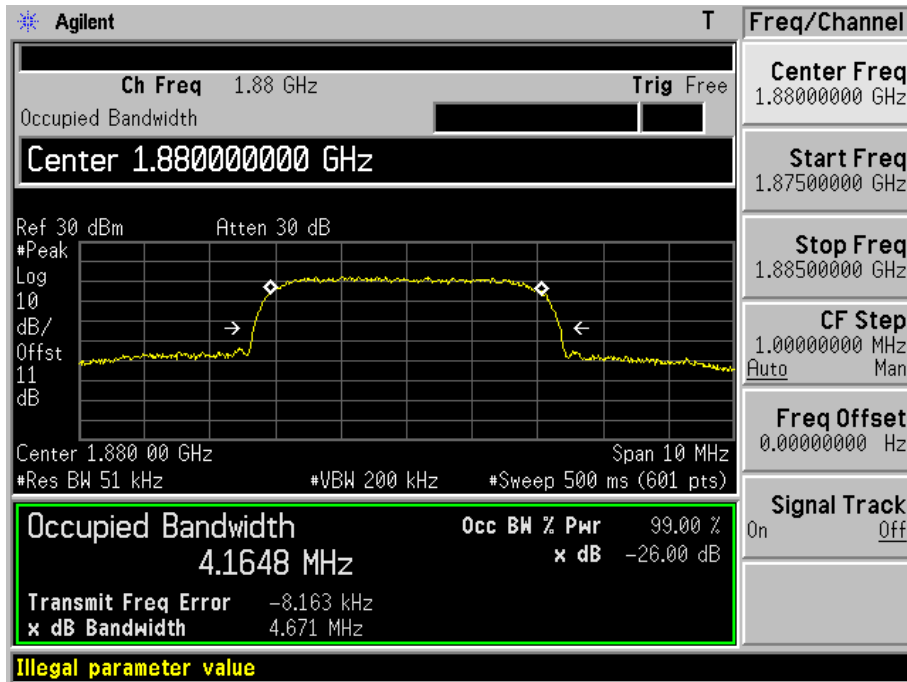
Channel No.	Frequency (MHz)	Measurement Level (kHz)	99% Occupied Bandwidth (kHz)
9262	1852.4	4823	4230.8
9400	1880.0	4671	4164.8
9538	1907.6	4659	4158.1

Channel 9262

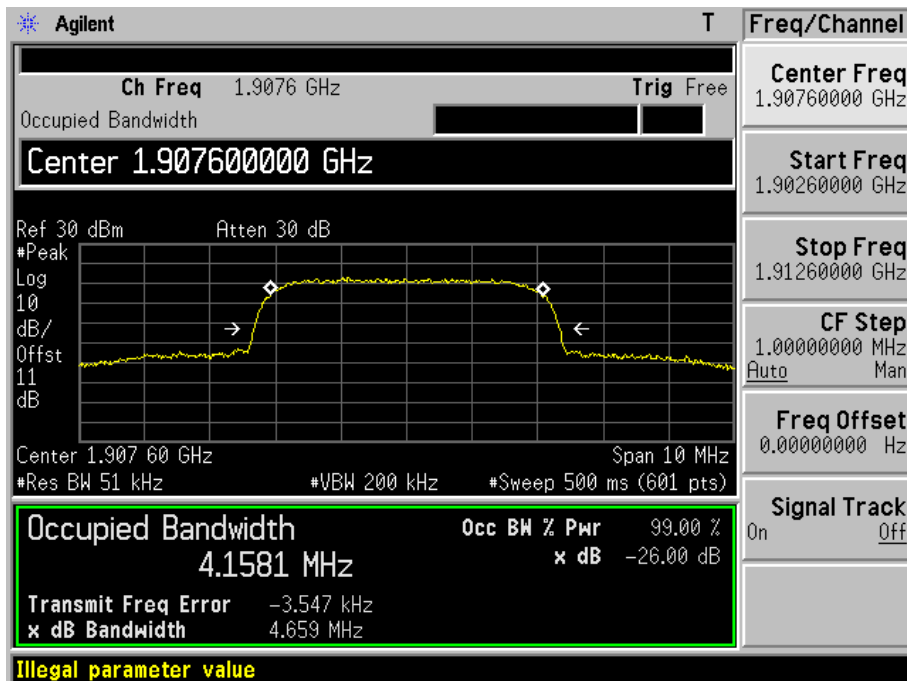




Channel 9400



Channel 9538





5. Maximum Output Power and Effective Isotropic Radiated Power Measurement

5.1. Test Limit

According to FCC §2.1046.

5.2. Test Procedure

For Conducted Power Measurement:

- a) The RF output of the transmitter was connected to base station simulator.
- b) The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement..
- c) Set EUT at maximum average power by base station simulator.
- d) Measure lowest, middle, and highest channels for each bandwidth and different modulation.

For Effective Isotropic Radiated Power Measurement:

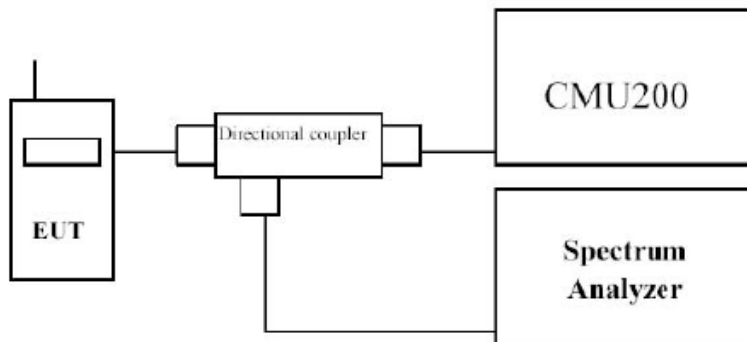
Radiated Power Measurement:

- a) The EUT shall be placed at the specified height on a support, and in the position closest to normal use as declared by provider.
- b) The test antenna shall be oriented initially for vertical polarization and shall be chosen to correspond to the frequency of the transmitter
- c) The output of the test antenna shall be connected to the measuring receiver.
- d) The transmitter shall be switched on and the measuring receiver shall be tuned to the frequency of the transmitter under test.
- e) 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.
- f) The transmitter shall then be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
- g) 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.
- h) The maximum signal level detected by the measuring receiver shall be noted.
- i) The transmitter shall be replaced by a substitution antenna.
- j) The substitution antenna shall be orientated for vertical polarization and the length of the substitution antenna shall be adjusted to correspond to the frequency of the transmitter.
- k) The substitution antenna shall be connected to a calibrated signal generator.
- l) If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
- m) The test antenna shall be raised and lowered through the specified range of height to ensure



- that the maximum signal is received.
- n) The input signal to the substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, that 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.
 - o) The measurement shall be repeated with the test antenna and the substitution antenna orientated for horizontal polarization.
 - p) The measure of the effective radiated power is the larger of the two levels recorded at the input to the substitution antenna, corrected for gain of the substitution antenna if necessary.
 - q) Test site anechoic chamber refer to ANSI C63.4: 2009.

5.3. Test Setup Layout



5.4. Measurement Equipment

Instrument/Ancillary	Model No.	Manufacturer	Serial No.	Calibration Date	Valid Date
Spectrum Analyzer	E4407B	Agilent	MY44211883	2014.09.12	2015.09.11
Universal Radio Communication Tester	CMU200	R&S	108823	2015.03.29	2016.03.28
Temperature/Humidity Meter	Zhicheng	ZC1-11	CEP-TH-002	2015.03.31	2016.03.30
Universal Radio Communication Tester	R&S	CMU200	108823	2015.03.24	2016.03.23



5.5. Test Result and Data

GSM/GPRS/EDGE

Band	Channel No.	Frequency (MHz)	Modulation	Conducted Power (dBm)
GSM850	128	824.2	GMSK	31.44
	189	836.4	GMSK	31.38
	251	848.8	GMSK	29.42
GSM1900	512	1850.2	GMSK	29.04
	661	1880.0	GMSK	29.08
	810	1909.8	GMSK	28.71
GPRS850	128	824.2	GMSK	31.41
	189	836.4	GMSK	31.37
	251	848.8	GMSK	29.41
GPRS1900	512	1850.2	GMSK	29.02
	661	1880.0	GMSK	29.07
	810	1909.8	GMSK	28.68
EDGE850	128	824.2	8PSK	29.19
	189	836.4	8PSK	28.32
	251	848.8	8PSK	28.51
EDGE1900	512	1850.2	8PSK	28.84
	661	1880.0	8PSK	29.07
	810	1909.8	8PSK	28.43

Note: All conducted measurements are based on a RMS detector.



WCDMA/HSDPA/HSUPA

Mode	3GPP Subtest	Band II (1900MHz) Channel			MPR
		Conducted Power (dBm)			
		9262	9400	9538	
WCDMA R99	1	22.33	22.39	22.23	N/A
Rel5 HSDPA	1	22.09	22.11	22.13	0
	2	20.86	20.92	20.81	0
	3	20.34	20.37	20.26	0.5
	4	20.08	20.15	20.12	0.5
Rel6 HSUPA	1	22.26	22.29	22.18	0.0
	2	21.19	21.24	21.12	2.0
	3	20.36	20.39	20.23	1.0
	4	19.82	19.89	19.71	2.0
	5	19.26	19.29	19.16	0.0

Mode	3GPP Subtest	Band V (850MHz) Channel			MPR
		Conducted Power (dBm)			
		4132	4182	4233	
WCDMA R99	1	22.17	22.23	22.28	N/A
Rel5 HSDPA	1	22.06	22.13	22.09	0
	2	21.34	21.42	21.46	0
	3	20.22	20.27	20.23	0.5
	4	20.08	20.13	20.15	0.5
Rel6 HSUPA	1	22.07	22.20	22.28	0.0
	2	21.27	21.31	21.26	2.0
	3	20.33	20.45	20.32	1.0
	4	19.97	19.89	19.84	2.0
	5	19.34	19.42	19.32	0.0

Note: All conducted measurements are based on a RMS detector.



GSM 850 TEST DATA

Channel	Frequency (MHz)	Reading level (Peak) (dB)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Pol.
128	824.2	28.54	1.01	29.55	38.5	-8.95	V
	824.2	27.65	0.96	28.61	38.5	-9.89	H
190	836.6	29.34	1.77	31.11	38.5	-7.39	V
	836.6	27.76	1.46	29.22	38.5	-9.28	H
251	848.8	30.14	1.85	31.99	38.5	-6.51	V
	848.8	29.78	1.54	31.32	38.5	-7.18	H

GSM 1900 TEST DATA

Channel	Frequency (MHz)	Reading level (Peak) (dB)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Pol.
512	1852.4	25.66	2.34	28	33	-5.00	V
	1852.4	26.37	1.88	28.25	33	-4.75	H
661	1880	27.49	2.12	29.61	33	-3.39	V
	1880	26.14	2.41	28.55	33	-4.45	H
810	1907.6	25.97	2.34	28.31	33	-4.69	V
	1907.6	24.11	1.98	26.09	33	-6.91	H



EDGE 850 TEST DATA

Channel	Frequency (MHz)	Reading level (Peak) (dB)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Pol.
128	824.2	28.64	1.01	29.65	38.5	-8.85	V
	824.2	27.82	0.96	28.78	38.5	-9.72	H
190	836.6	28.94	1.77	30.71	38.5	-7.79	V
	836.6	27.15	1.46	28.61	38.5	-9.89	H
251	848.8	27.36	1.85	29.21	38.5	-9.29	V
	848.8	27.11	1.54	28.65	38.5	-9.85	H

EDGE 1900 TEST DATA

Channel	Frequency (MHz)	Reading level (Peak) (dB)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Pol.
512	1852.4	25.41	2.34	27.75	33	-5.25	V
	1852.4	23.92	1.88	25.8	33	-7.20	H
661	1880	24.01	2.12	26.13	33	-6.87	V
	1880	23.54	2.41	25.95	33	-7.05	H
810	1907.6	24.09	2.34	26.43	33	-6.57	V
	1907.6	23.87	1.98	25.85	33	-7.15	H



WCDMA 850 TEST DATA

Channel	Frequency (MHz)	Reading level (Peak) (dB)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Pol.
4132	826.4	20.73	1.01	21.74	38.5	-16.76	V
	826.4	19.76	0.96	20.72	38.5	-17.78	H
4182	836.6	20.55	1.77	22.32	38.5	-16.18	V
	836.6	18.75	1.46	20.21	38.5	-18.29	H
4233	846.6	19.09	1.85	20.94	38.5	-17.56	V
	846.6	19.17	1.54	20.71	38.5	-17.79	H

WCDMA1900 TEST DATA

Channel	Frequency (MHz)	Reading level (Peak) (dB)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Pol.
9262	1852.4	20.49	2.34	22.83	33	-10.17	V
	1852.4	19.37	1.88	21.25	33	-11.75	H
9400	1880	20.13	2.12	22.25	33	-10.75	V
	1880	19.54	2.41	21.95	33	-11.05	H
9538	1907.6	20.27	2.34	22.61	33	-10.39	V
	1907.6	19.56	1.98	21.54	33	-11.46	H



HSUPA 850 TEST DATA

Channel	Frequency (MHz)	Reading level (Peak) (dB)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Pol.
4132	826.4	19.76	1.01	20.77	38.5	-17.73	V
	826.4	19.21	0.96	20.17	38.5	-18.33	H
4182	836.6	20.63	1.77	22.4	38.5	-16.1	V
	836.6	20.05	1.46	21.51	38.5	-16.99	H
4233	846.6	20.66	1.85	22.51	38.5	-15.99	V
	846.6	19.54	1.54	21.08	38.5	-17.42	H

HSUPA 1900 TEST DATA

Channel	Frequency (MHz)	Reading level (Peak) (dB)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Pol.
9262	1852.4	20.2	2.34	22.54	33	-10.46	V
	1852.4	20.03	1.88	21.91	33	-11.09	H
9400	1880	18.33	2.12	20.45	33	-12.55	V
	1880	17.29	2.41	19.7	33	-13.3	H
9538	1907.6	20.18	2.34	22.52	33	-10.48	V
	1907.6	18.42	1.98	20.4	33	-12.6	H



HSDPA 850 TEST DATA

Channel	Frequency (MHz)	Reading level (Peak) (dB)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Pol.
4132	826.4	19.65	1.01	20.66	38.5	-17.84	V
	826.4	19.56	0.96	20.52	38.5	-17.98	H
4182	836.6	20.32	1.77	22.09	38.5	-16.41	V
	836.6	18.06	1.46	19.52	38.5	-18.98	H
4233	846.6	20.63	1.85	22.48	38.5	-16.02	V
	846.6	18.32	1.54	19.86	38.5	-18.64	H

HADPA 1900 TEST DATA

Channel	Frequency (MHz)	Reading level (Peak) (dB)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Pol.
9262	1852.4	20.38	2.34	22.72	33	-10.28	V
	1852.4	20.24	1.88	22.12	33	-10.88	H
9400	1880	20.77	2.12	22.89	33	-10.11	V
	1880	19.39	2.41	21.8	33	-11.2	H
9538	1907.6	20.43	2.34	22.77	33	-10.23	V
	1907.6	20.76	1.98	22.74	33	-10.26	H

**PEAK-TO-AVERAGE RATIO**

Band	Mode	Channel	Frequency (MHz)	Peak Channel Power (dBm)	AV Channel Power (dBm)	PAR	Limit	Result
Band V (850MHz) Channel	WCDMA R99	4132	826.4	21.74	22.17	0.98	13	Pass
		4182	836.4	22.32	22.23	1.00	13	Pass
		4233	846.6	20.94	22.28	0.94	13	Pass
	Rel5 HSDPA	4132	826.4	20.66	22.06	0.94	13	Pass
		4182	836.4	22.09	22.13	1.00	13	Pass
		4233	846.6	22.48	22.09	1.02	13	Pass
	Rel6 HSUPA	4132	826.4	20.77	22.07	0.94	13	Pass
		4182	836.4	22.4	22.20	1.01	13	Pass
		4233	846.6	22.51	22.28	1.01	13	Pass
Band II (1900MHz) Channel	WCDMA R99	9262	1852.4	22.83	22.33	1.02	13	Pass
		9400	1880	22.25	22.39	0.99	13	Pass
		9538	1907.6	22.61	22.23	1.02	13	Pass
	Rel5 HSDPA	9262	1852.4	22.72	22.09	1.03	13	Pass
		9400	1880	22.89	22.11	1.04	13	Pass
		9538	1907.6	22.77	22.13	1.03	13	Pass
	Rel6 HSUPA	9262	1852.4	22.54	22.26	1.01	13	Pass
		9400	1880	20.45	22.29	0.92	13	Pass
		9538	1907.6	22.52	22.18	1.02	13	Pass



6. Spurious Emission

6.1. Test Limit

According to FCC §2.1051, FCC §22.917, FCC §24.238(a)

Out of Band Emissions: The mean power of emission must be attenuated below the mean power of the non-modulated carrier (P) on any frequency twice or more than twice the fundamental frequency by at least $43 + 10 \log P$ dB.

Mobile Emissions in Base Frequency Range: The mean power of any emissions appearing in the base station frequency range from cellular mobile transmitters operated must be attenuated to a level not exceed -80 dBm at the transmit antenna connector.

Band GPRS Requirements: In the 1MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1% of the emission bandwidth of the fundamental emission of the transmitter may be employed to measure the Out of band Emission.

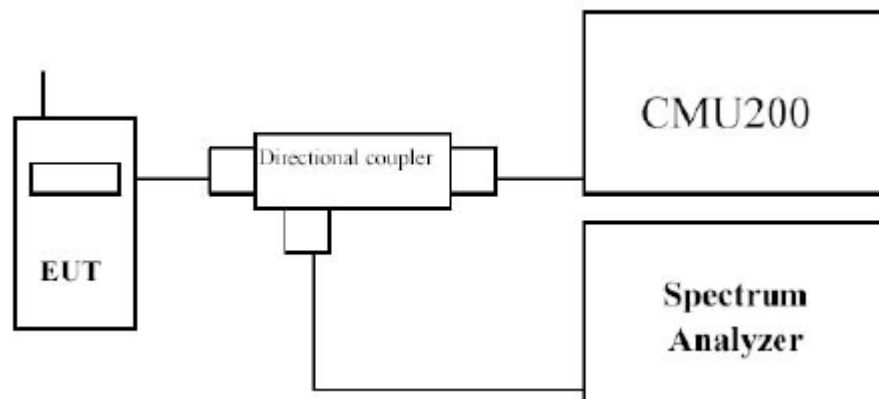
6.2. Test Procedure

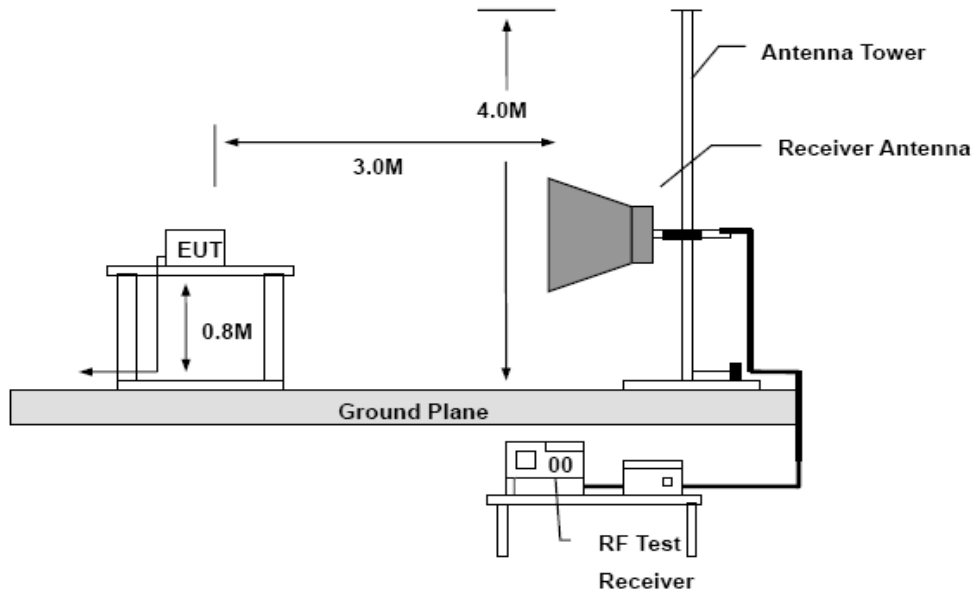
The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set at 1MHz, sufficient scans were taken to show the out of band Emissions if any up to 10th harmonic.

For the out of band: Set the RBW, VBW = 1MHz, Start=30MHz, Stop= 10 th harmonic. Limit = -13dBm

Band GPRS Requirements (824 MHz and 849 MHz /1850MHz and 1910MHz): In the 1 MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to measure the out of band Emissions. Limit is -13dBm.

6.3. Test Setup Layout





6.4. Measurement Equipment

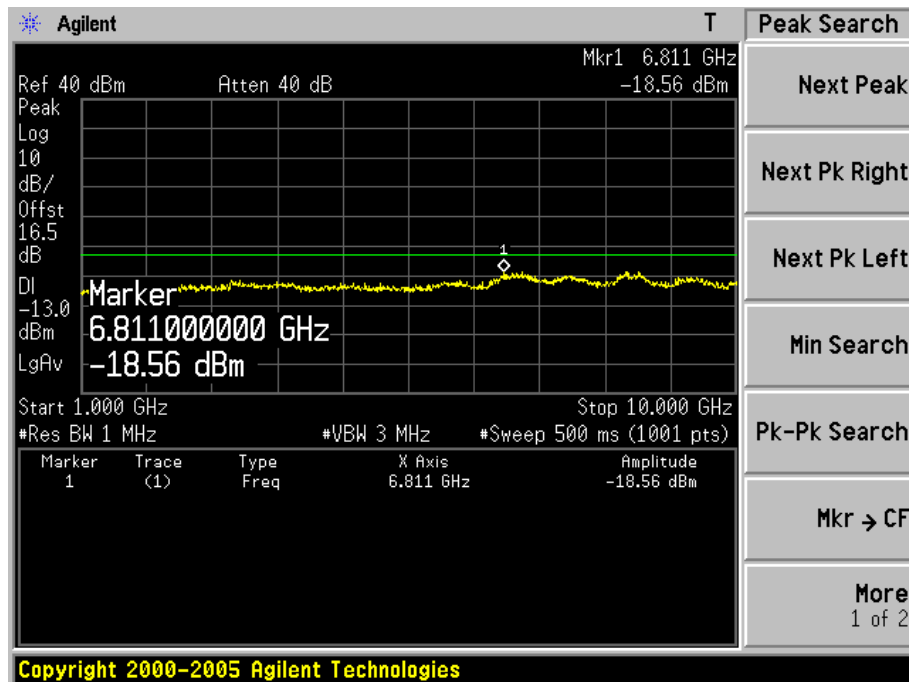
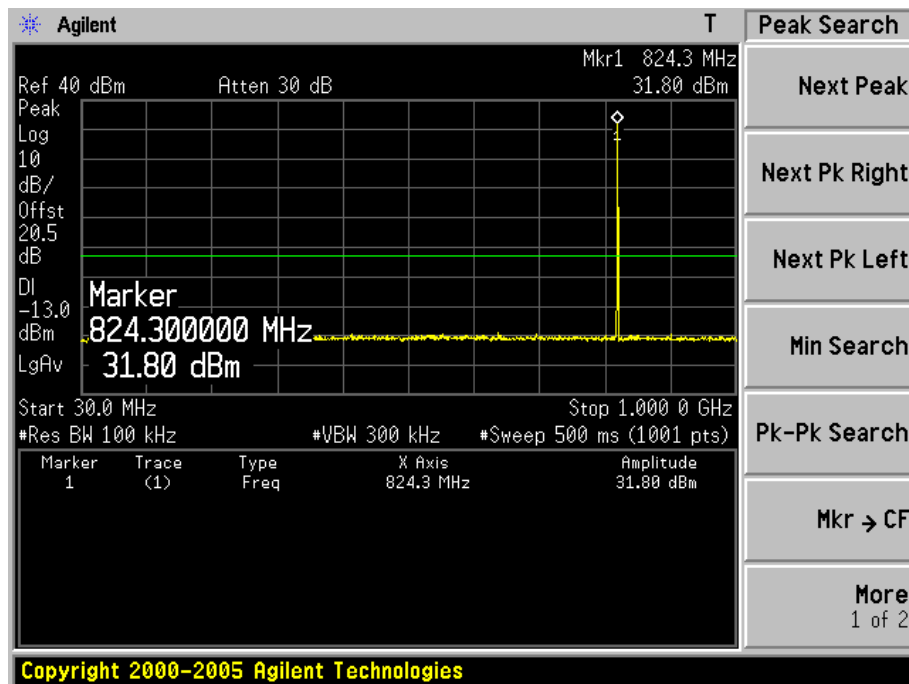
Instrument	Model No.	Manufacturer	Serial No.	Calibration Date	Valid Date.
EMI Test Receiver	R&S	ESCI	100563	2015.03.24	2016.03.23
Universal Radio Communication Tester	CMU200	R&S	108823	2015.03.29	2016.03.28
Spectrum Analyzer	Agilent	E4407B	MY44211883	2014.09.12	2015.09.11
H64 Preamplifier	HP	8447F	3113A05582	2015.03.24	2016.03.23
Preamplifier	Agilent	8449B	3008A02342	2015.03.24	2016.03.23
Ultra Broadband Antenna	R&S	HL562	100362	2015.05.24	2016.05.23
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	9120D-619	2015.05.24	2016.05.23
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	9170-348	2015.05.24	2016.05.23
Spectrum Analyzer	R&S	FSP40	100324	2015.03.23	2016.03.24
Temperature/Humidity Meter	Zhicheng	ZC1-11	CEP-TH-002	2015.03.31	2016.03.30



6.5. Test Result and Data

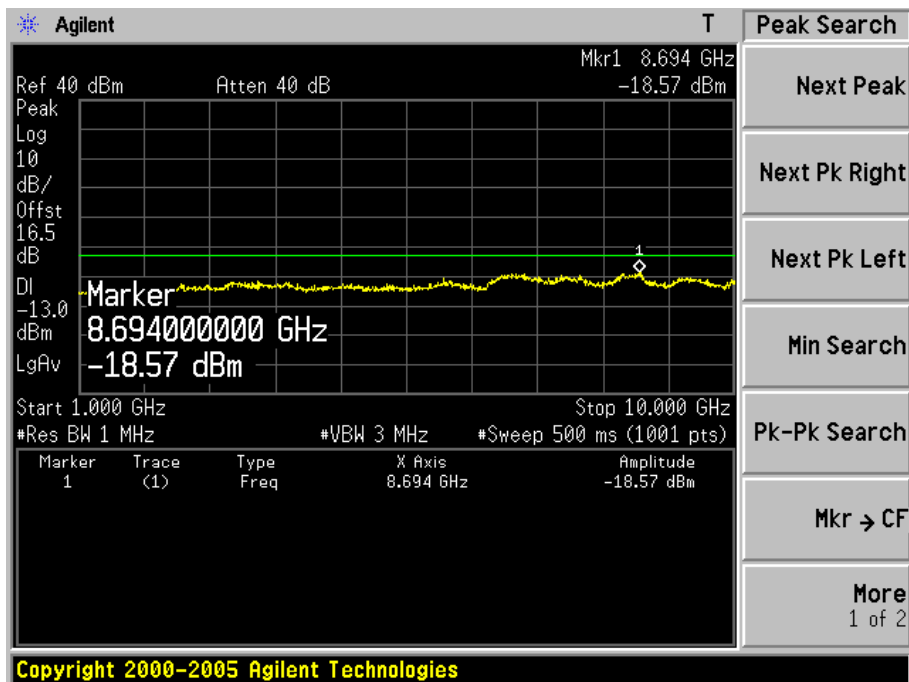
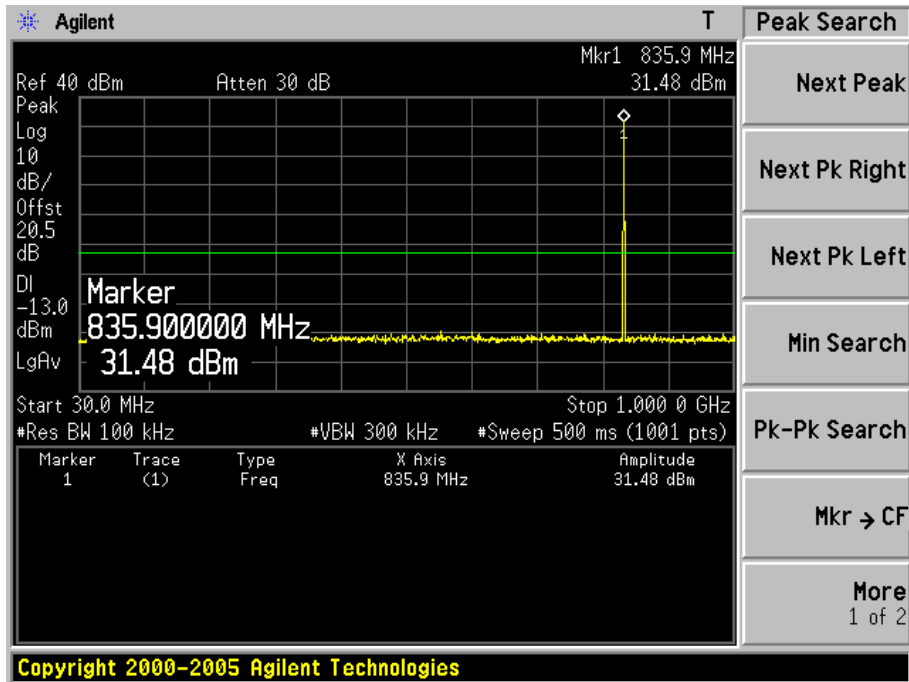
Test Item	Conducted spurious emissions, 30MHz - 20GHz
Test Mode	GSM 850
Test Date	2015-07-27

Channel 128



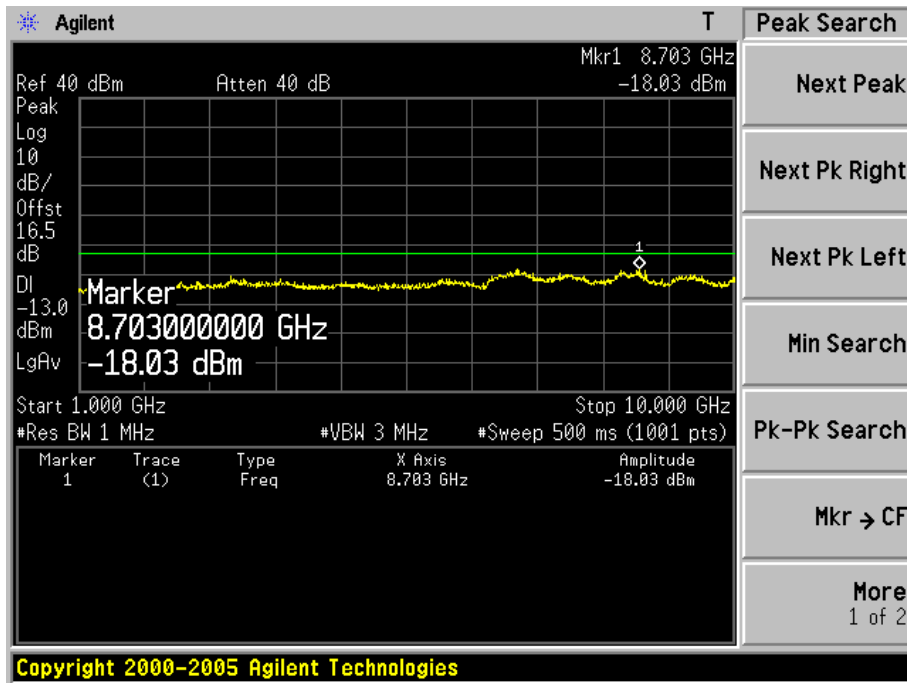
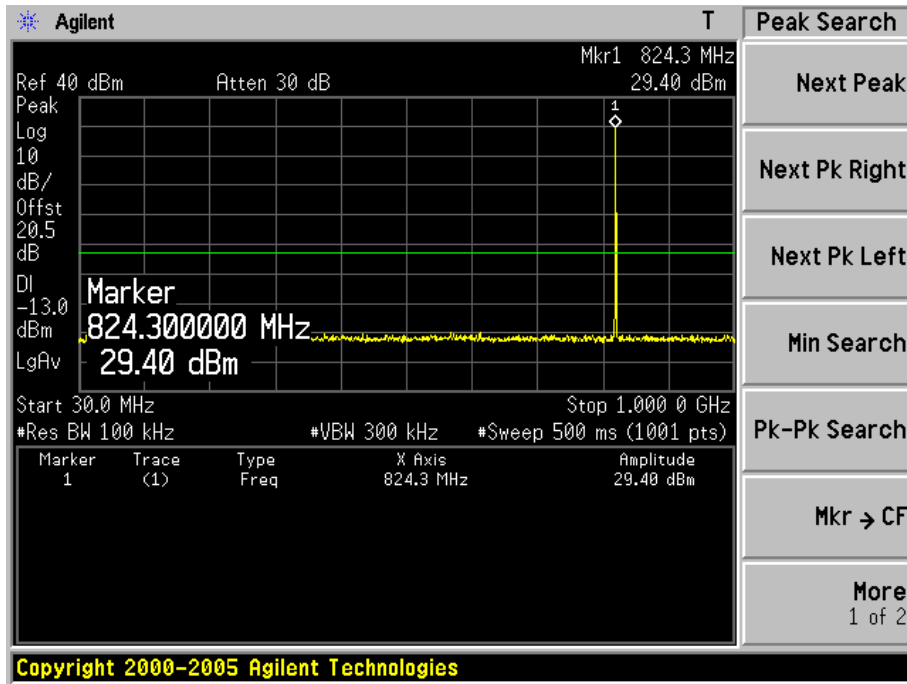


Channel 190





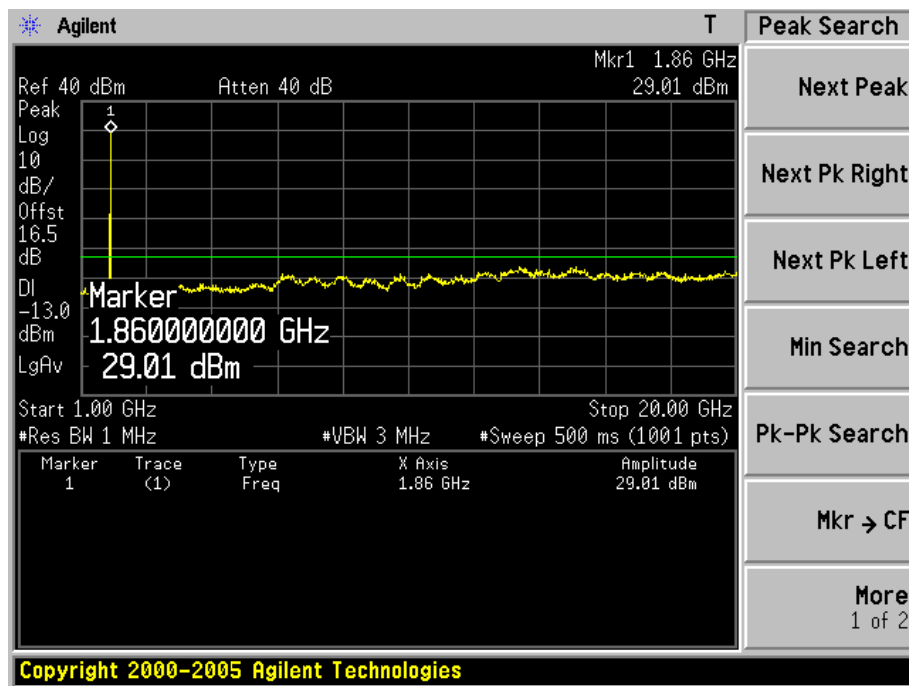
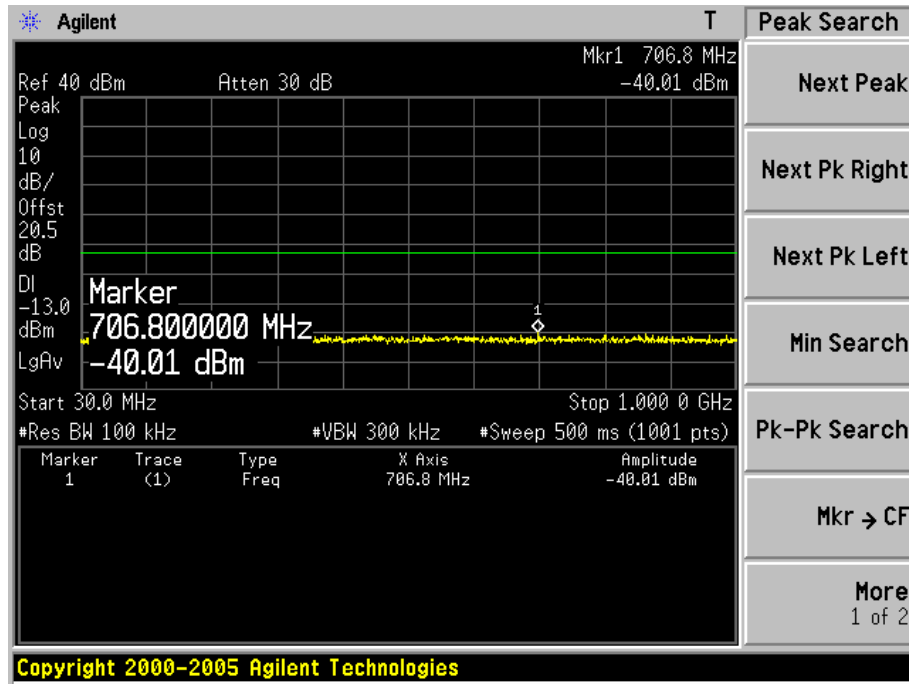
Channel 251





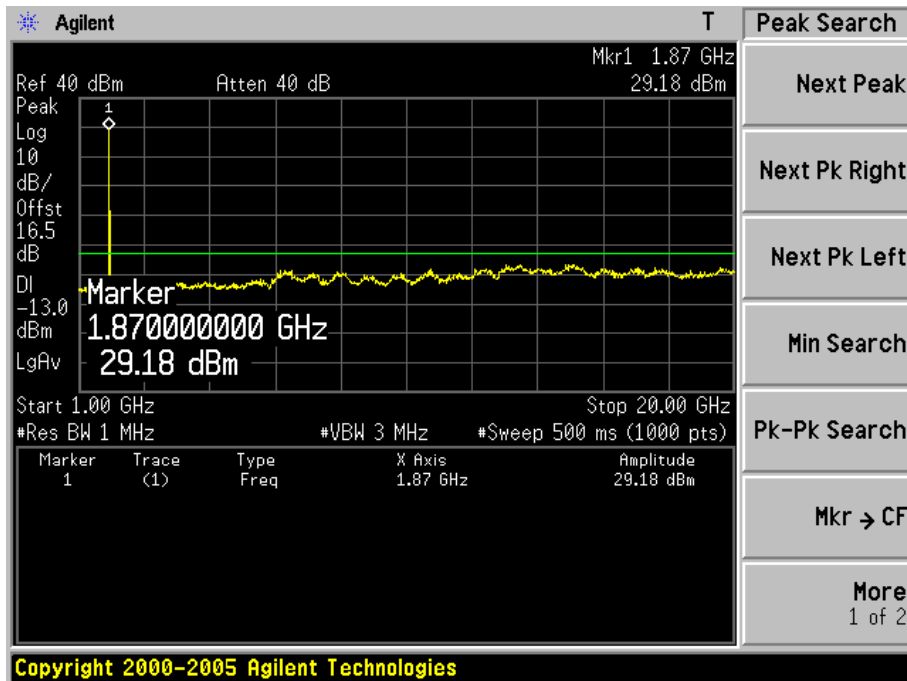
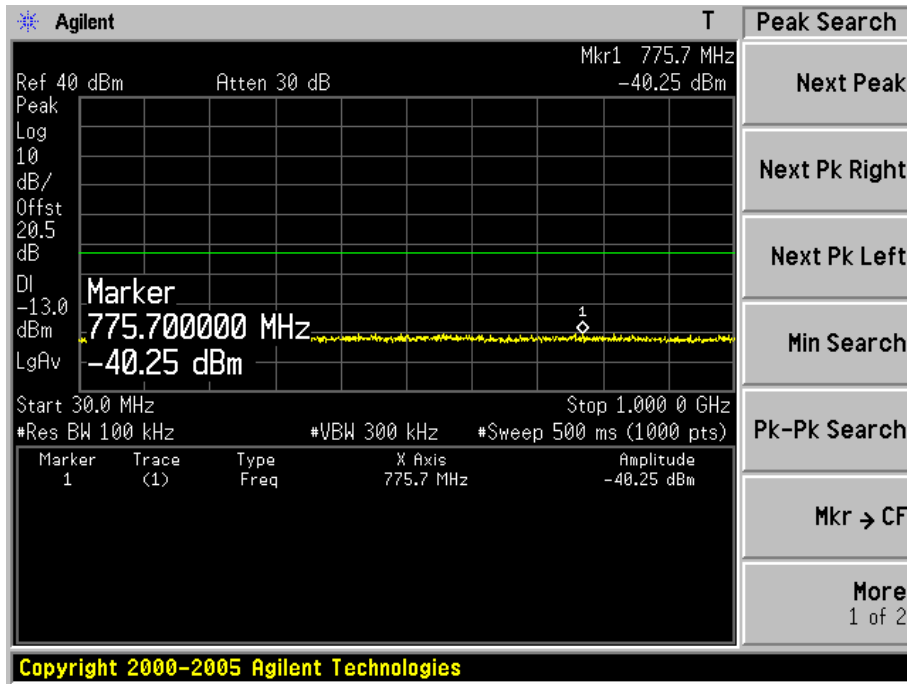
Test Item	Conducted spurious emissions, 30MHz - 20GHz
Test Mode	GSM 1900
Test Date	2015-07-27

Channel 512



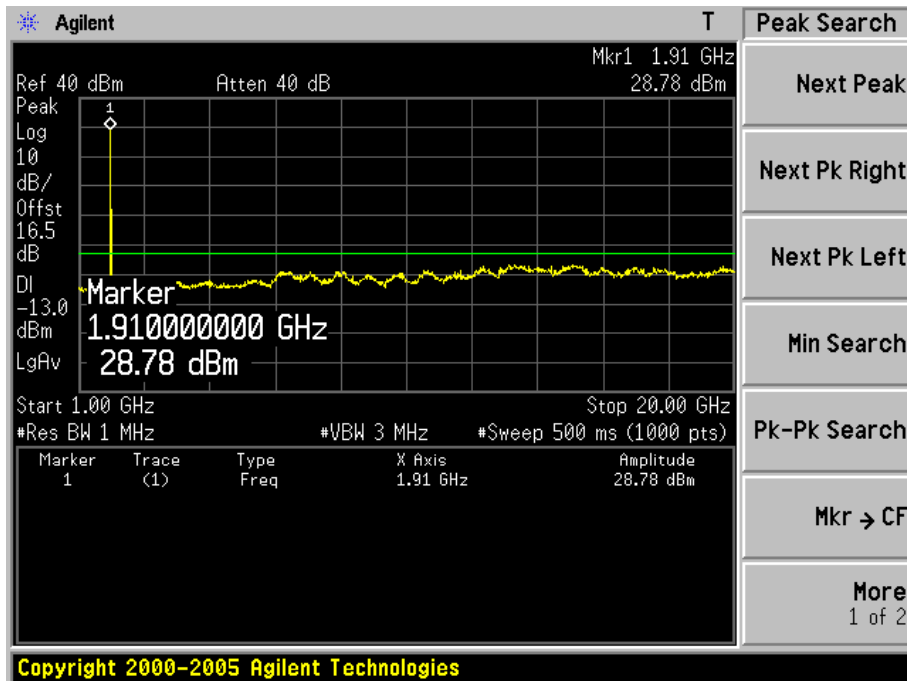
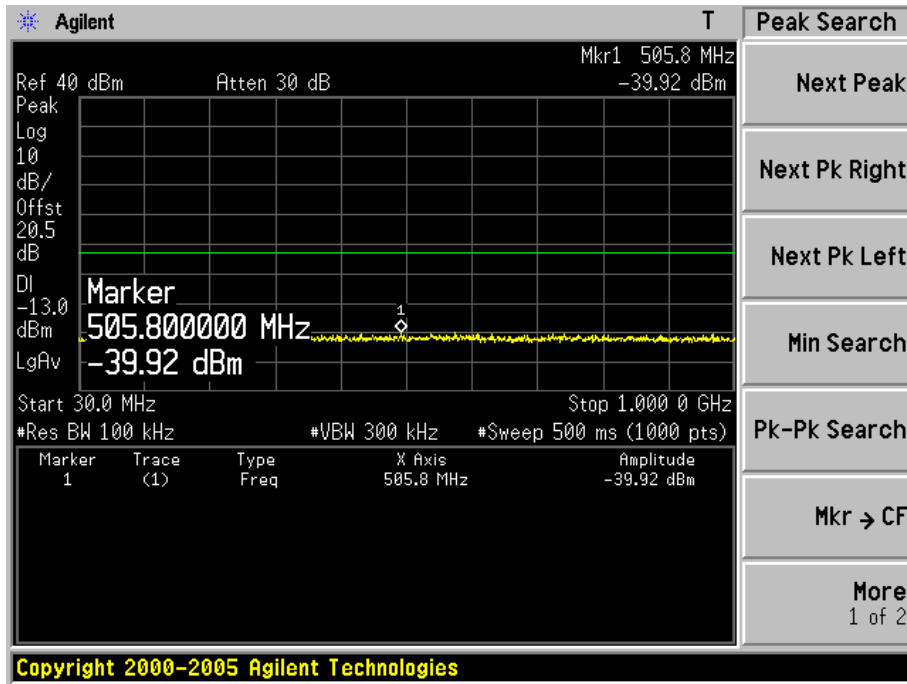


Channel 661





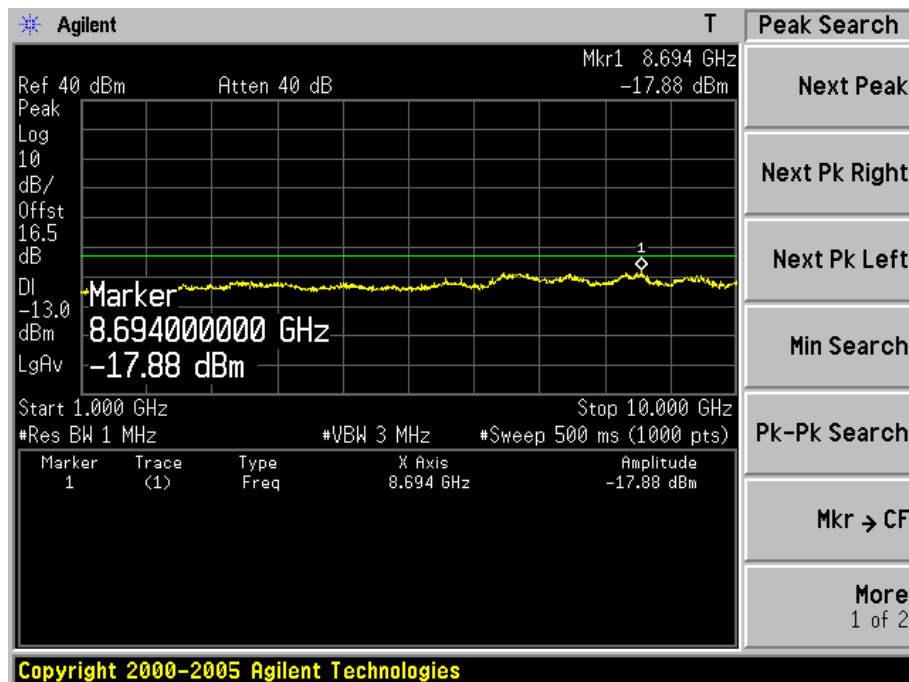
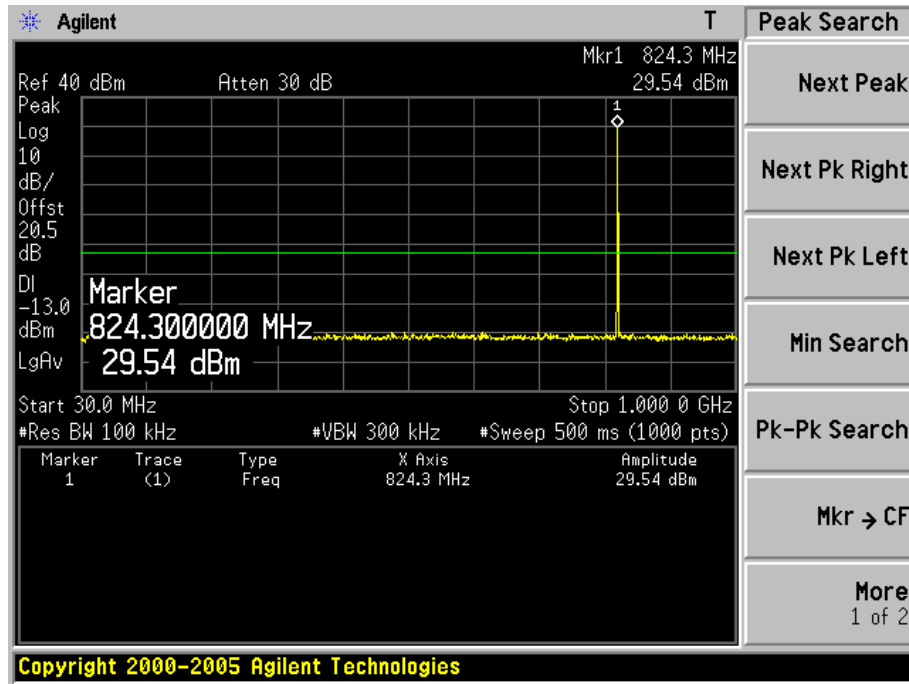
Channel 810





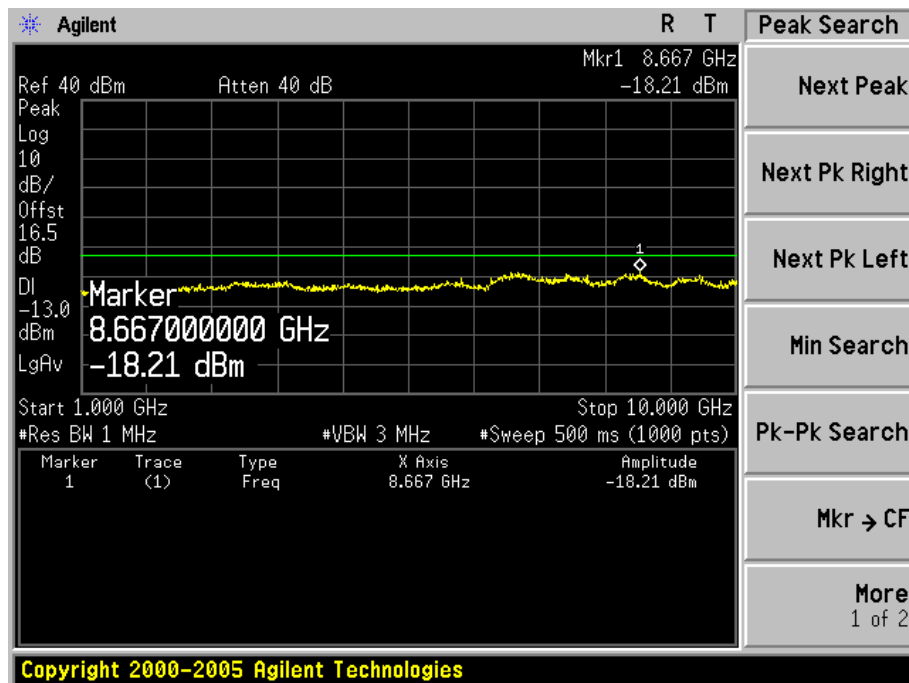
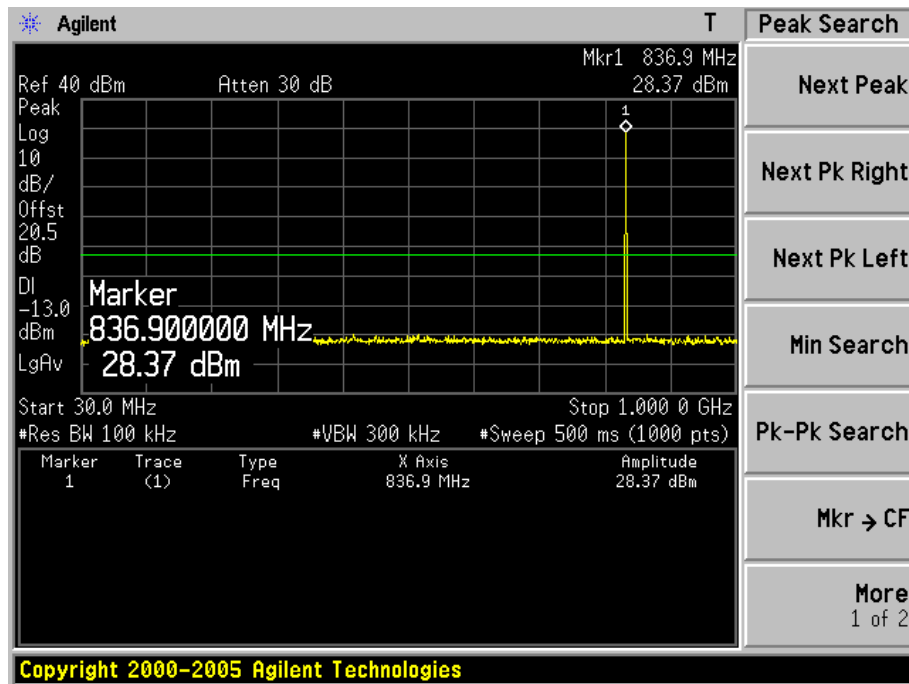
Test Item	Conducted spurious emissions, 30MHz - 20GHz
Test Mode	EDGE 850
Test Date	2015-07-27

Channel 128



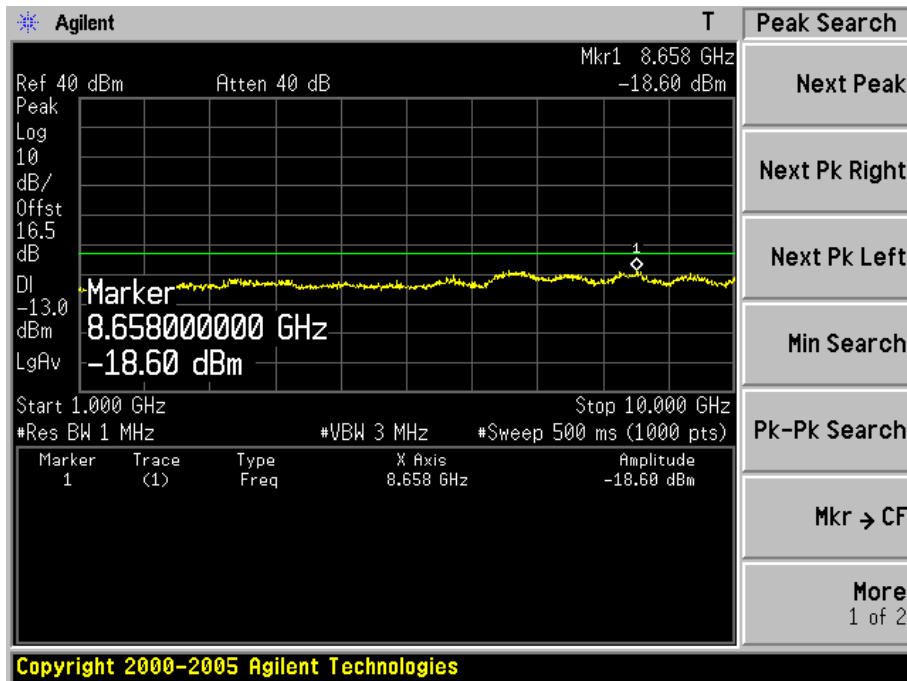
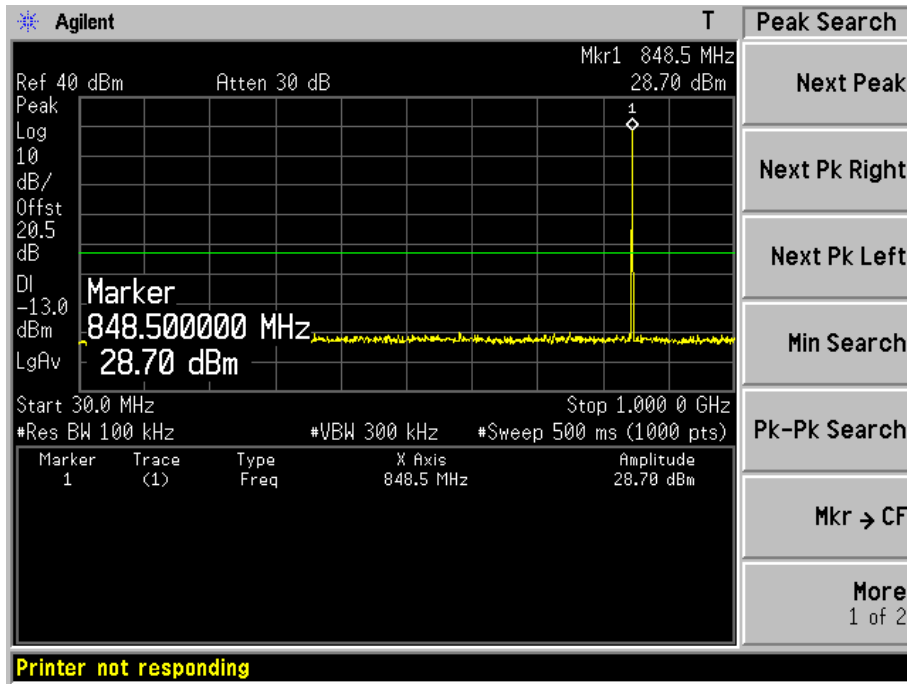


Channel 190





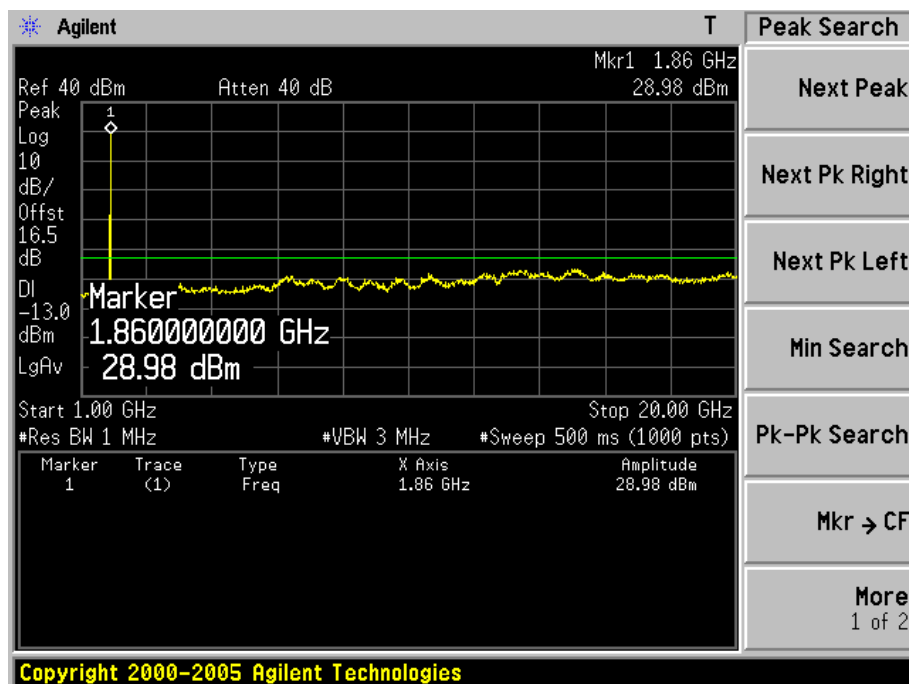
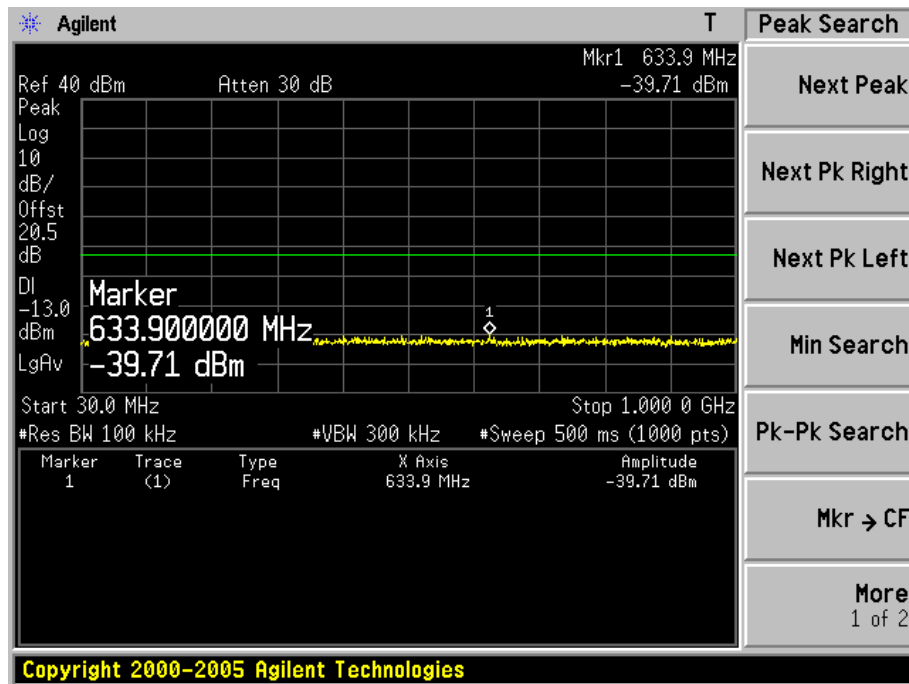
Channel 251





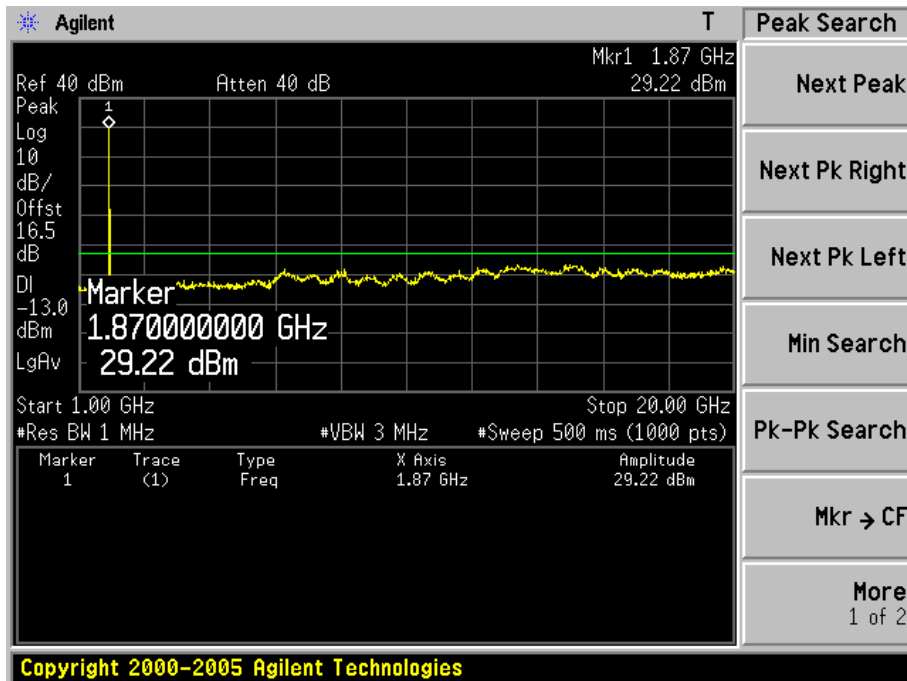
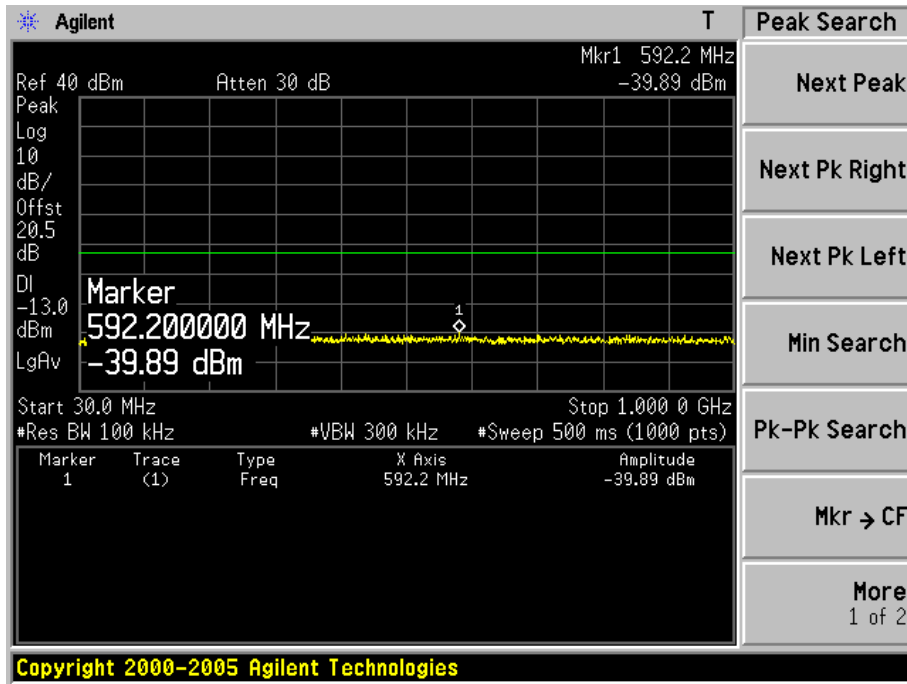
Test Item	Conducted spurious emissions, 30MHz - 20GHz
Test Mode	EDGE 1900
Test Date	2015-07-27

Channel 512



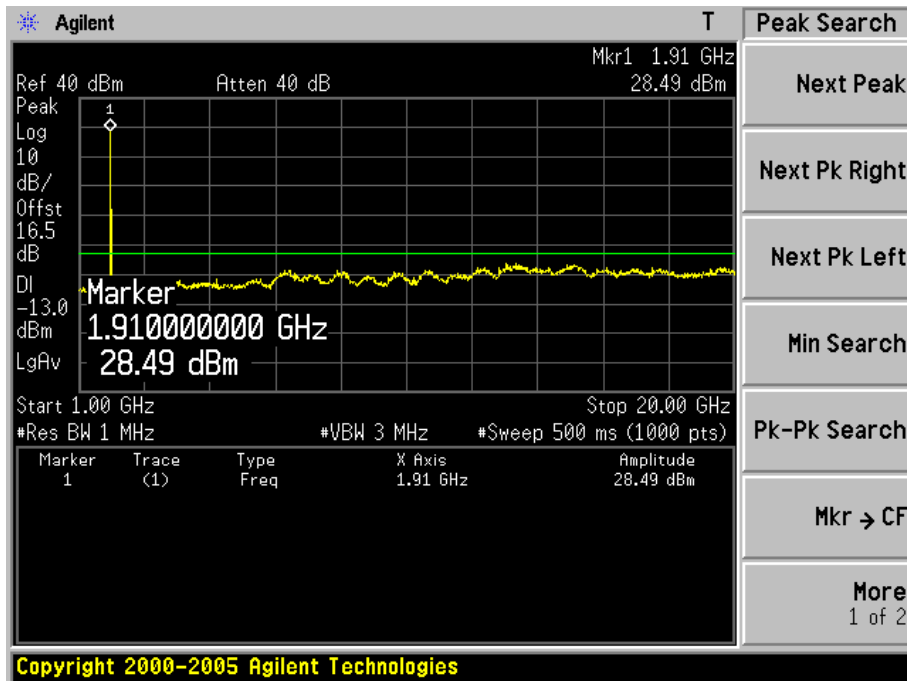
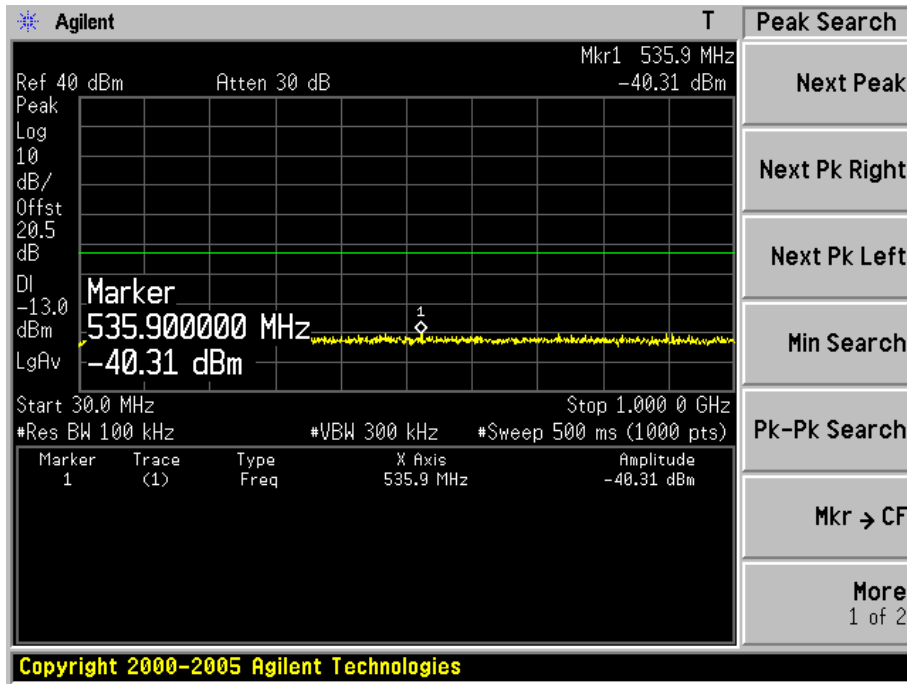


Channel 661





Channel 810





Test Item	Band Edge emissions
Test Mode	GSM 850
Test Date	2015-07-27

Figure Channel 128 (824.20MHz)

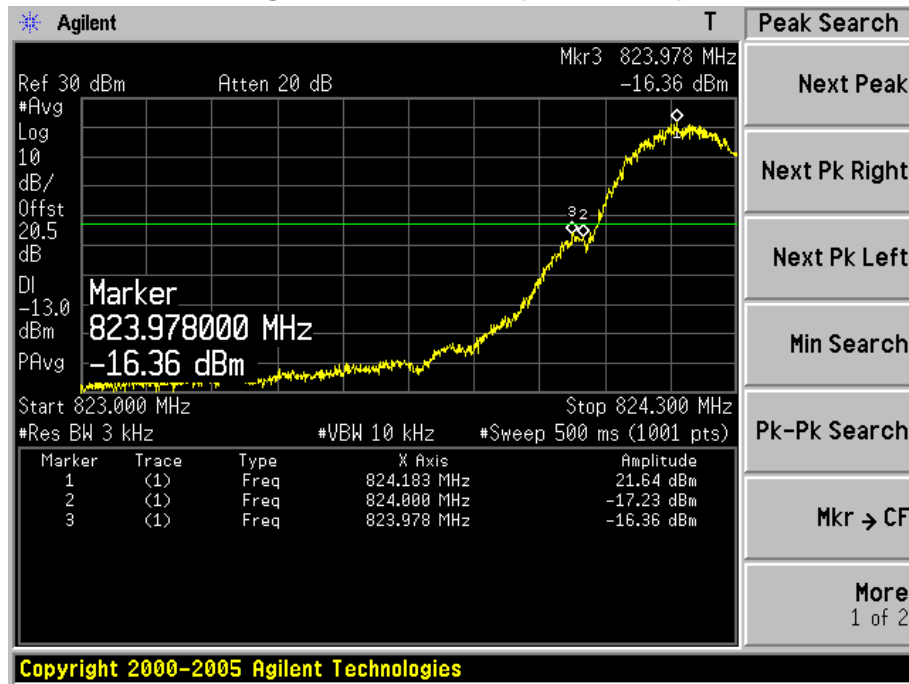
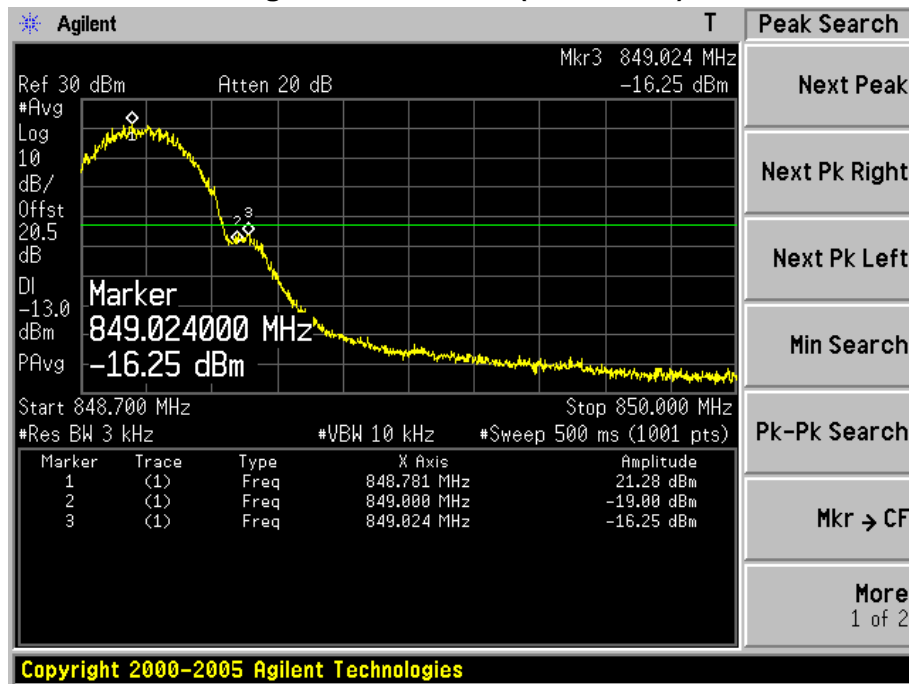


Figure Channel 251 (848.80MHz)





Test Item	Band Edge emissions
Test Mode	GSM 1900
Test Date	2015-07-27

Figure Channel 512 (1850.20MHz)

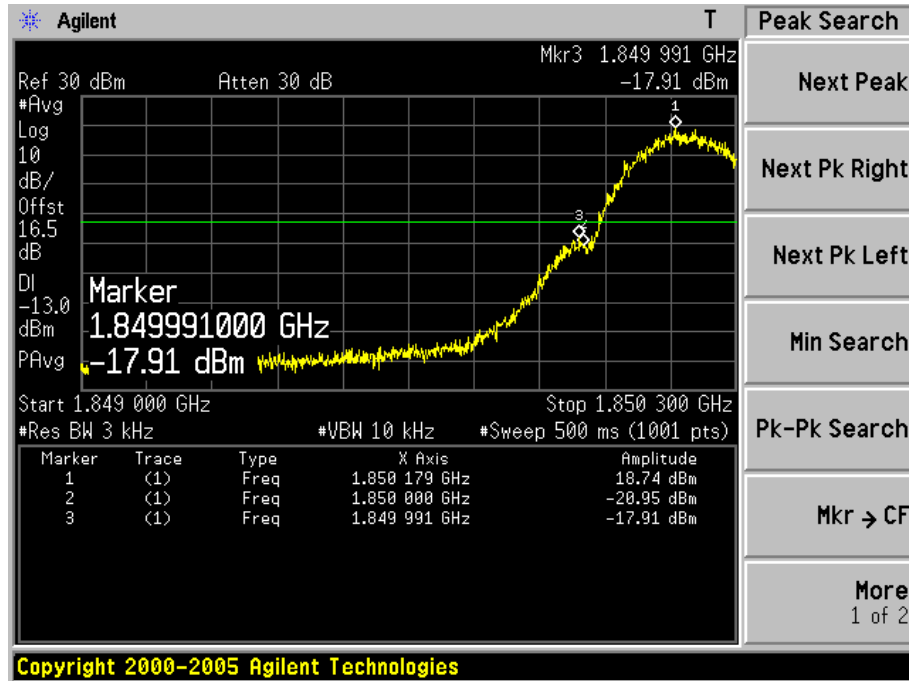
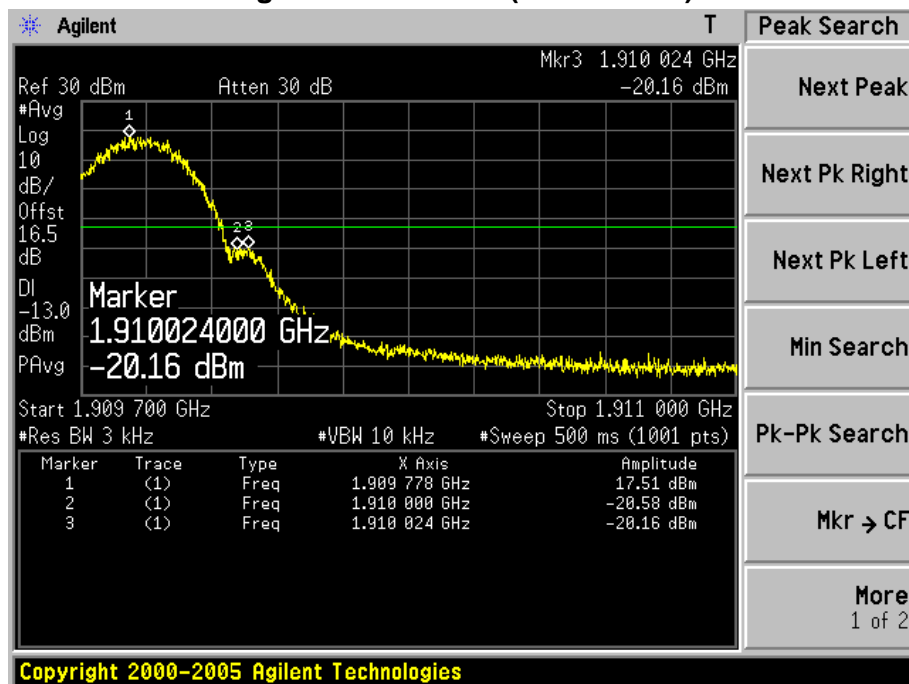


Figure Channel 810 (1909.80MHz)





Test Item	Band Edge emissions
Test Mode	EDGE 850
Test Date	2015-07-27

Figure Channel 128 (824.20MHz)

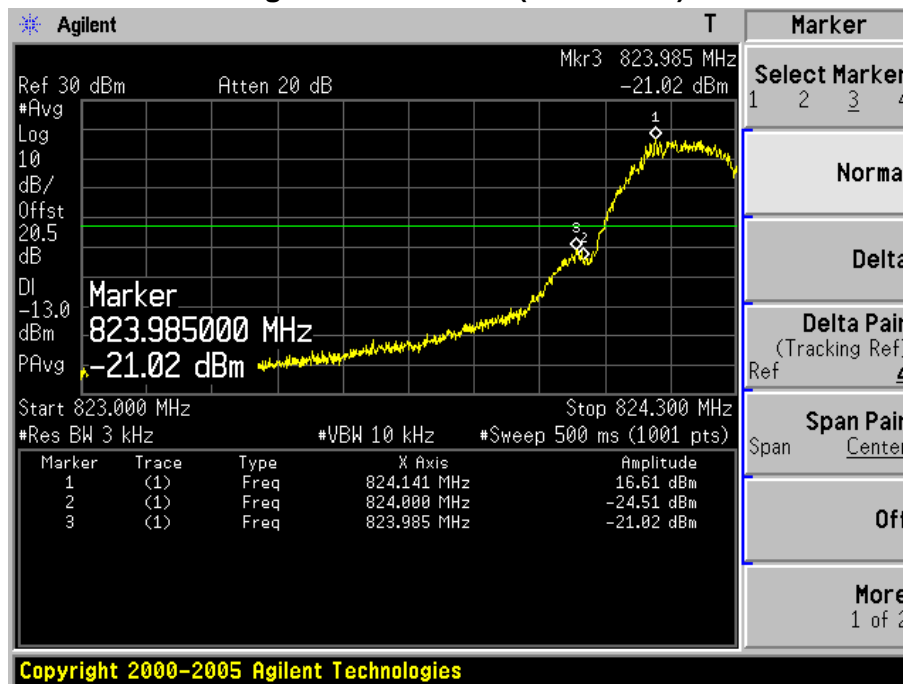
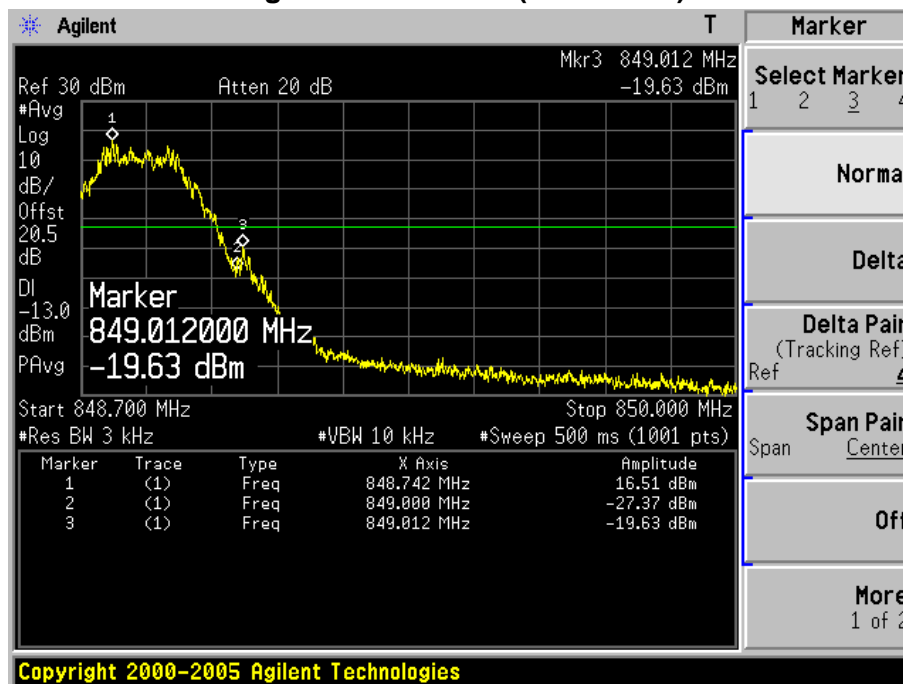


Figure Channel 251 (848.80MHz)





Test Item	Band Edge emissions
Test Mode	EDGE 1900
Test Date	2015-07-27

Figure Channel 512 (1850.20MHz)

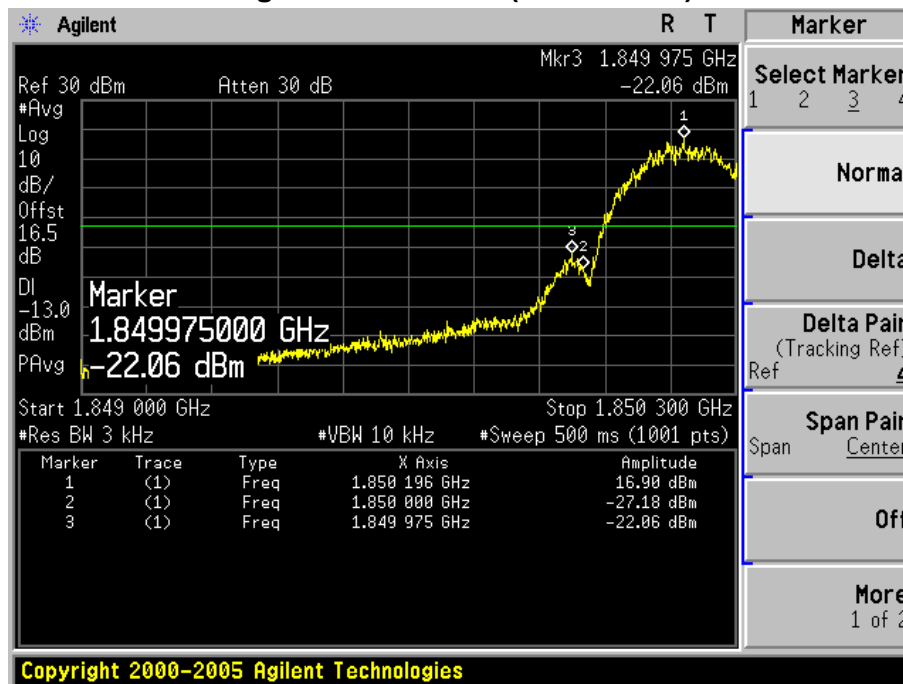
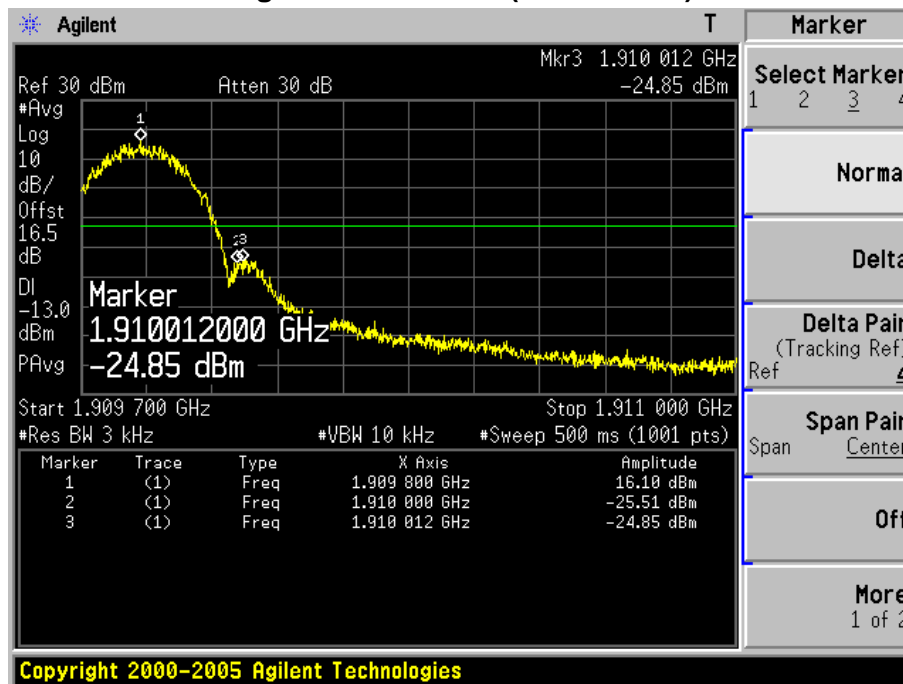


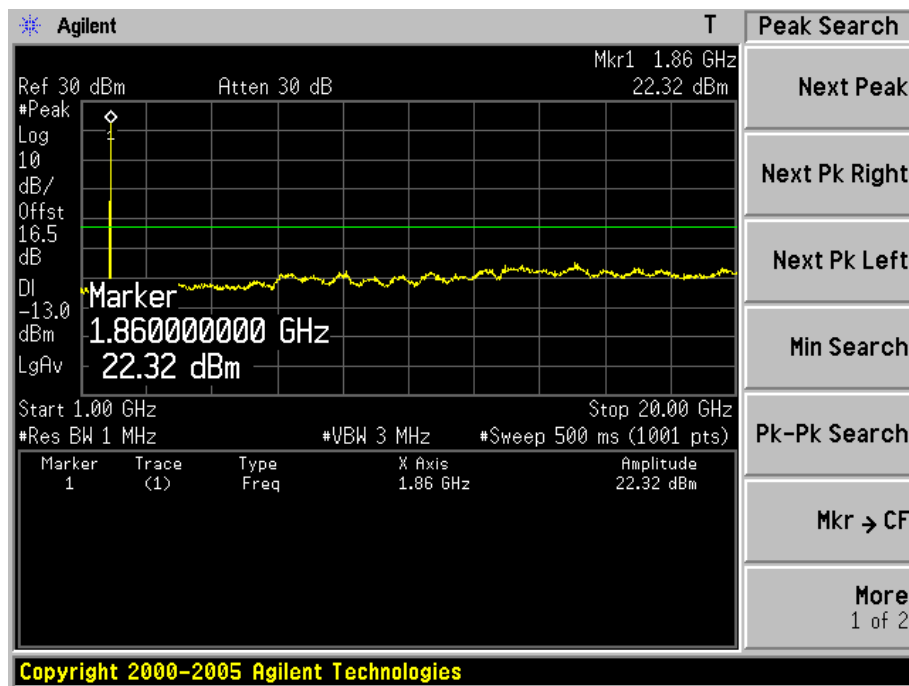
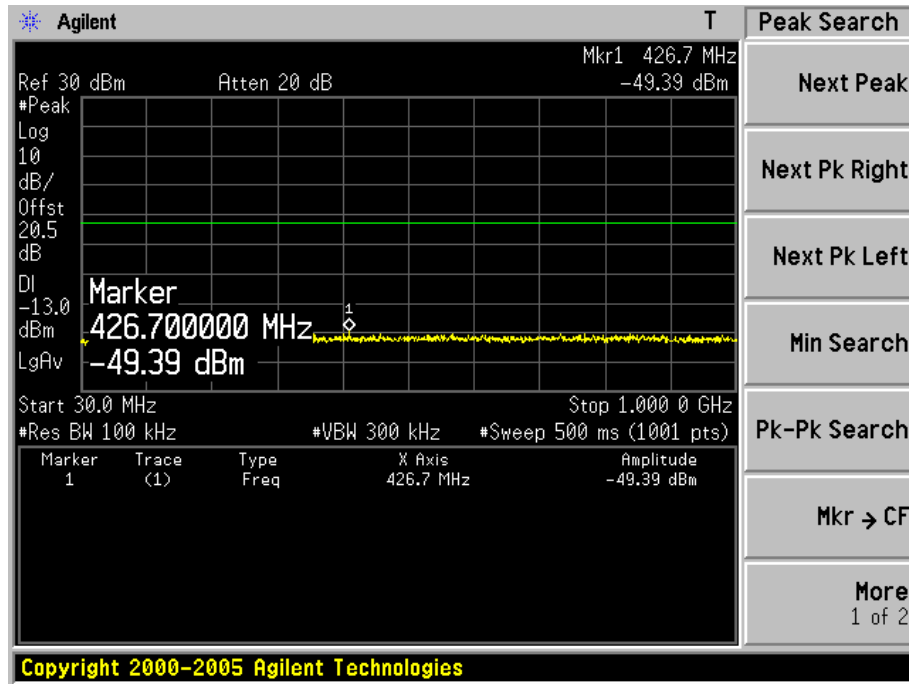
Figure Channel 810 (1909.80MHz)





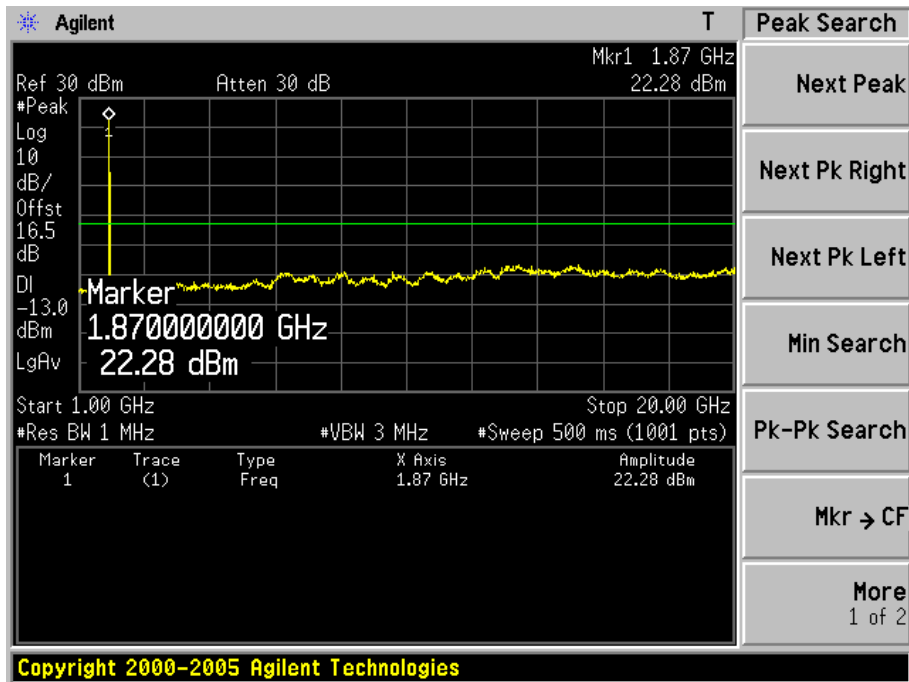
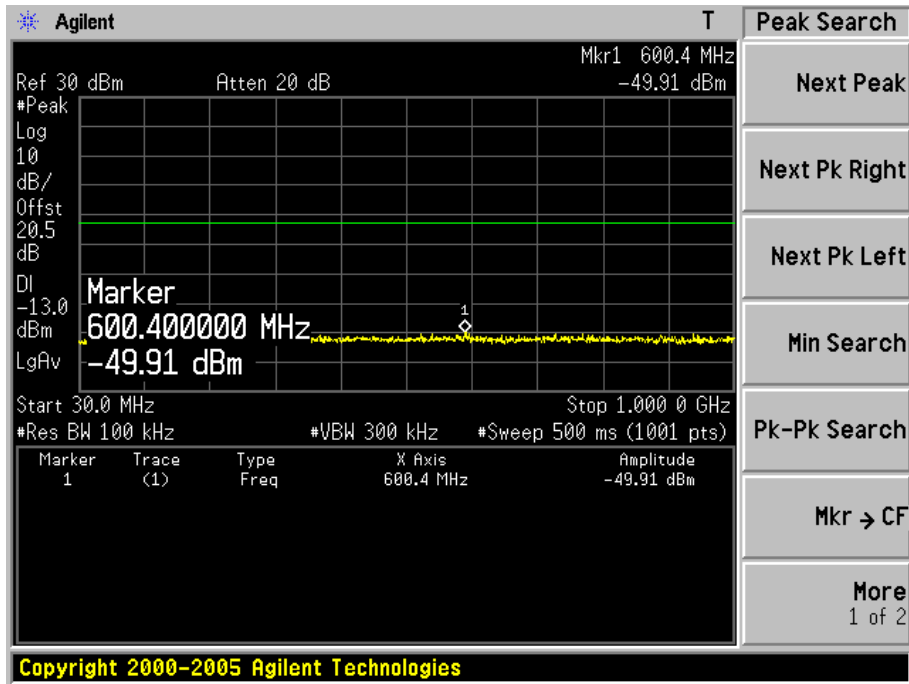
Test Item	Conducted spurious emissions, 30MHz - 20GHz
Test Mode	WCDMA Band II Link
Test Date	2015-07-27

Channel 9262



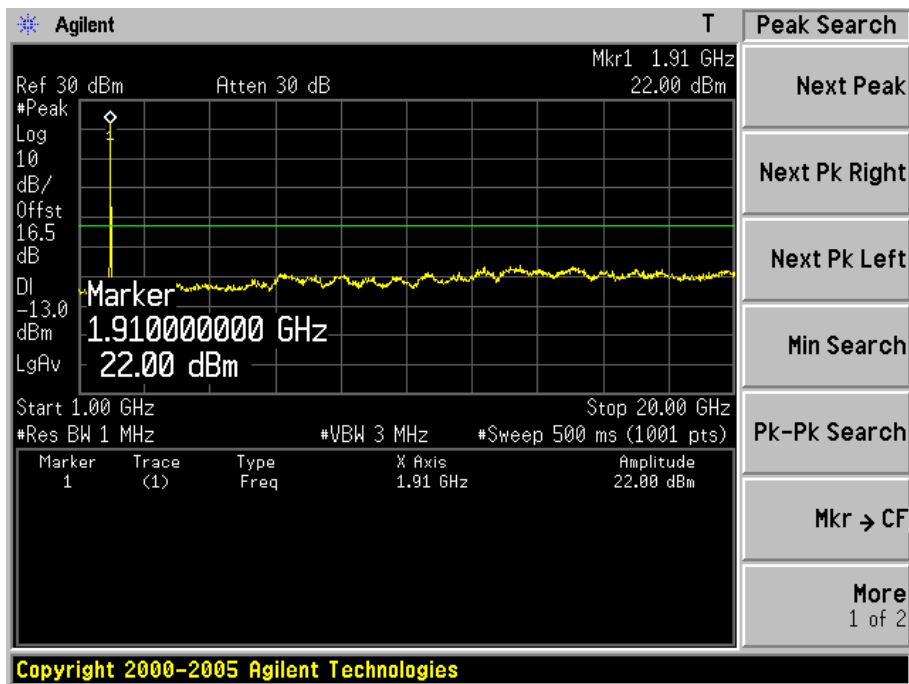
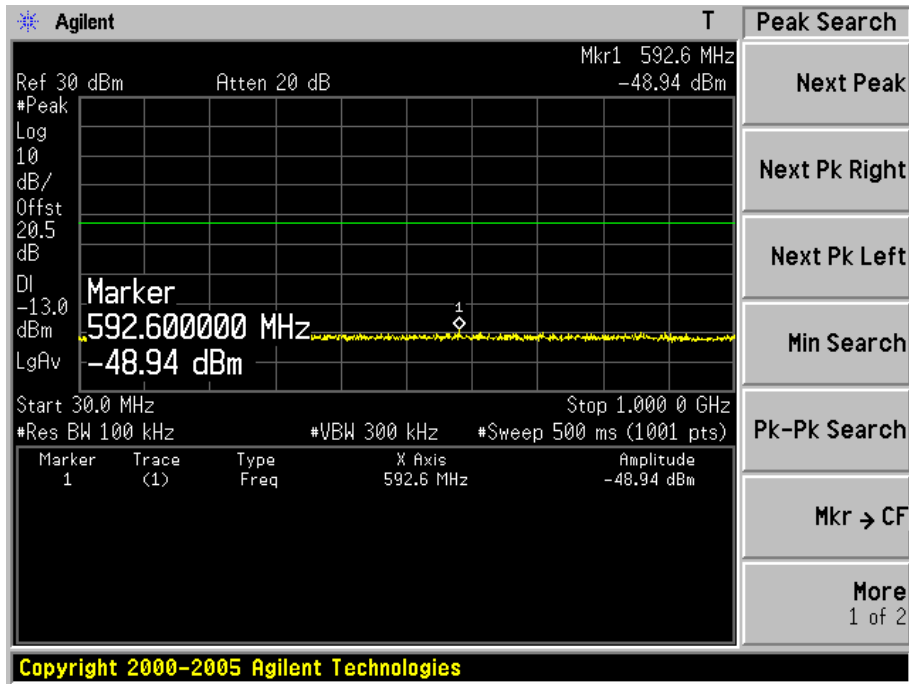


Channel 9400





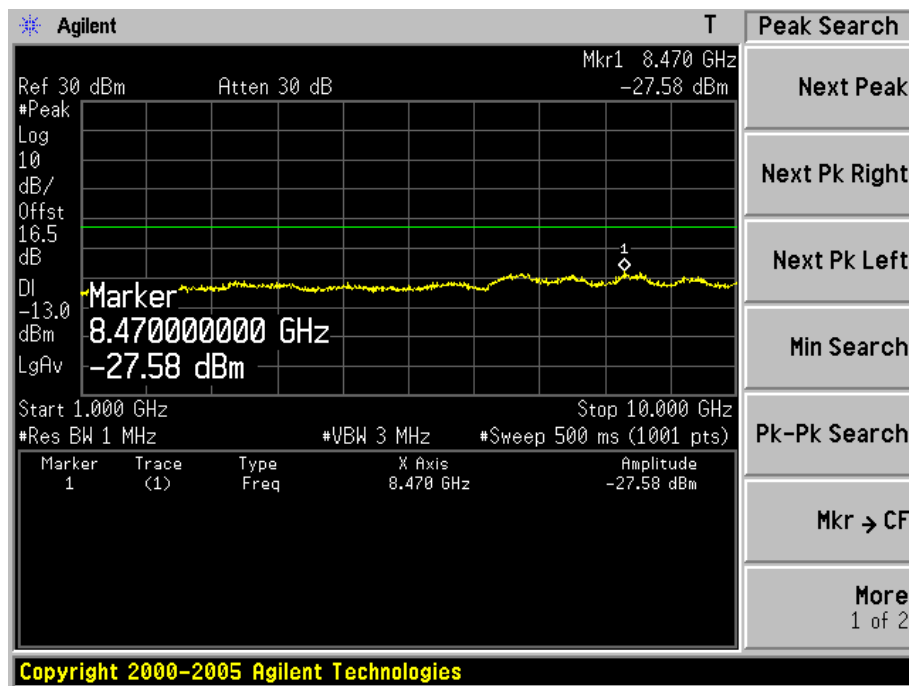
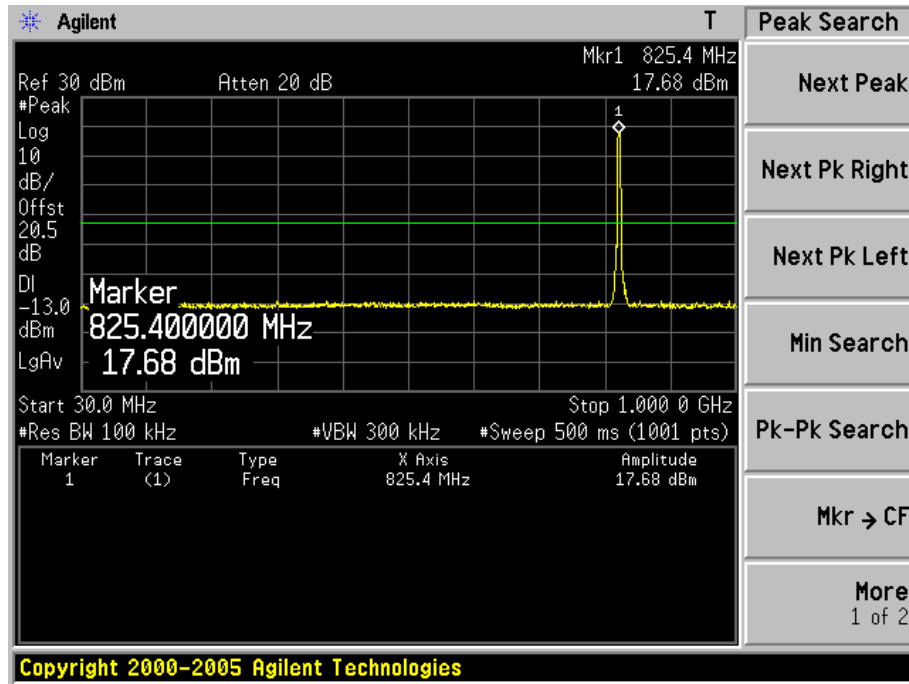
Channel 9538





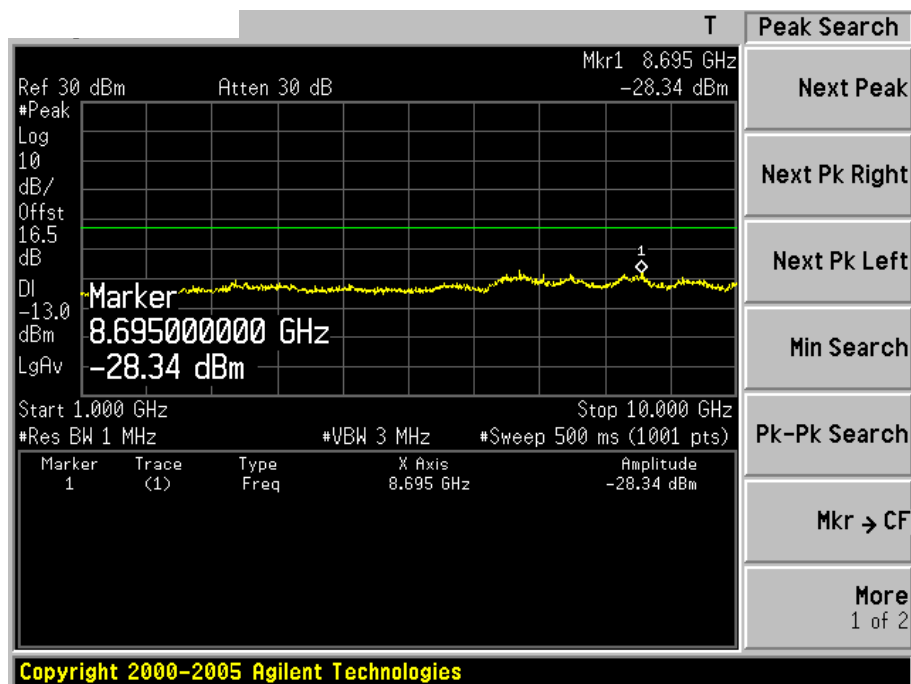
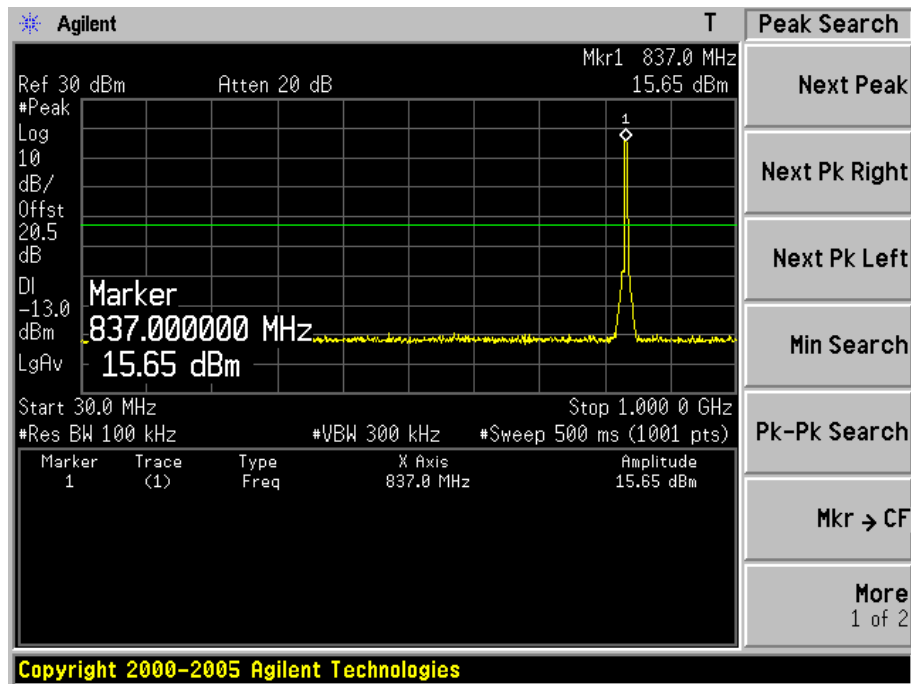
Test Item	Conducted spurious emissions, 30MHz - 20GHz
Test Mode	WCDMA Band V Link
Test Date	2015-07-27

Channel 4132



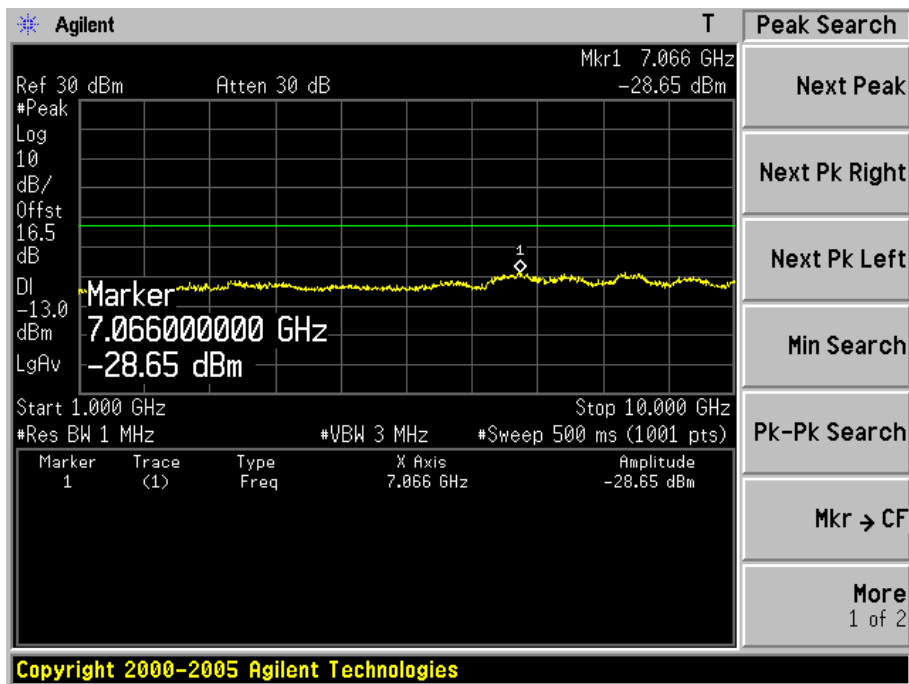
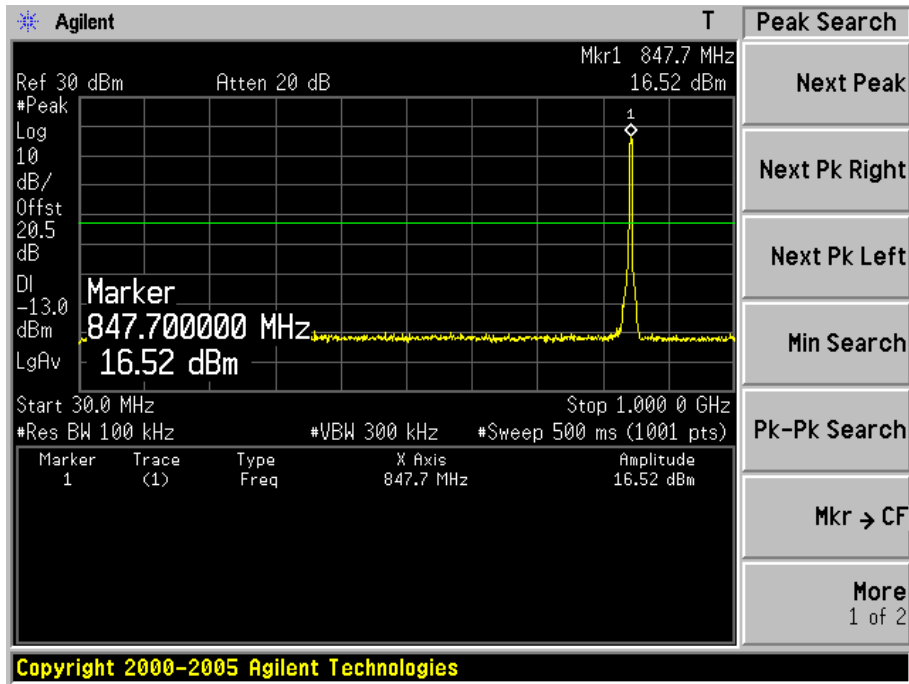


Channel 4183





Channel 4233





Test Item	Band Edge emissions
Test Mode	WCDMA Band II Link
Test Date	2015-07-27

Figure Channel 9262

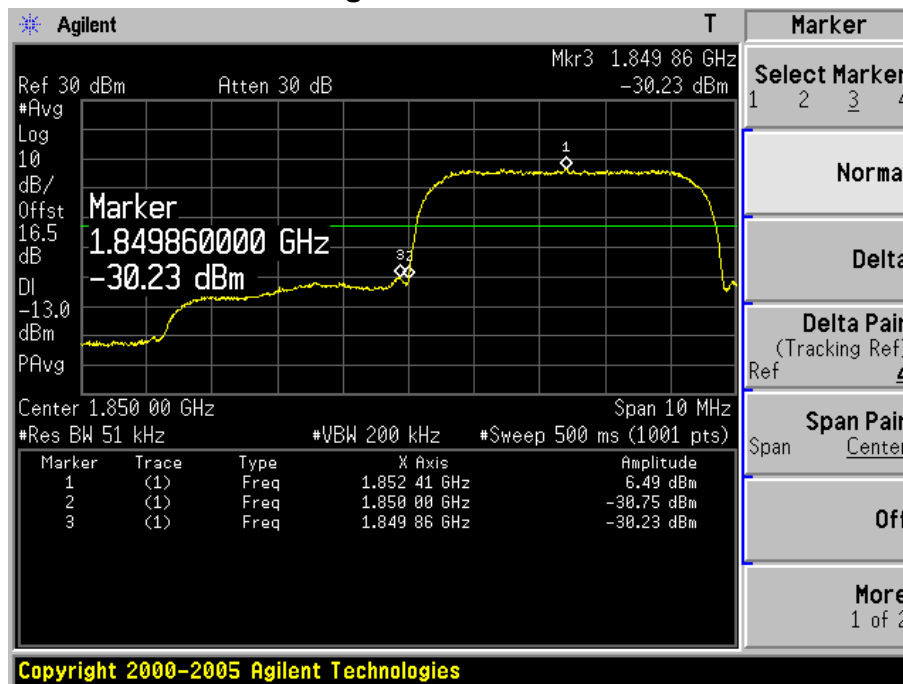
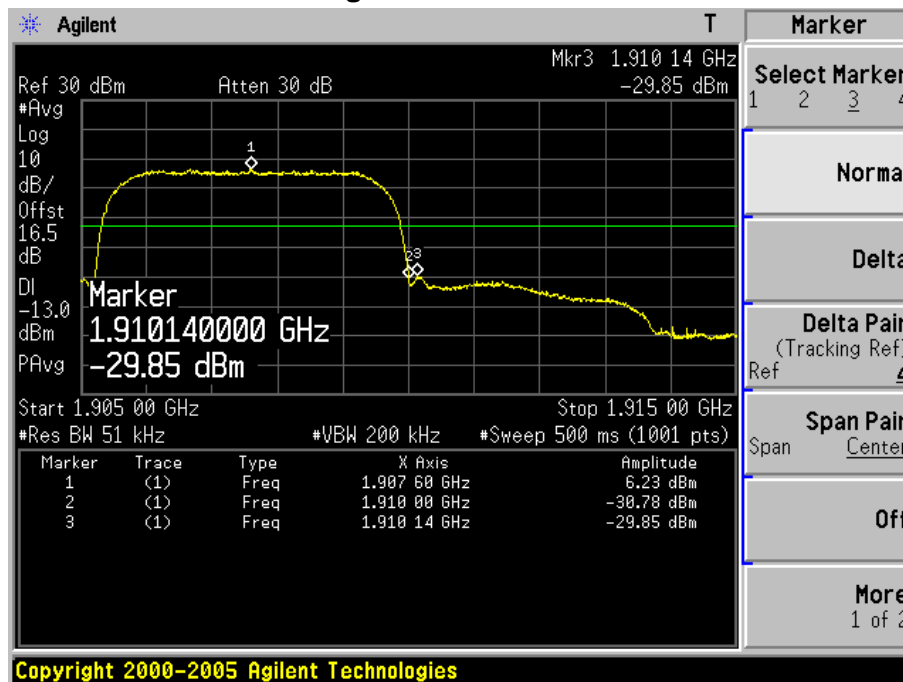


Figure Channel 9538





Test Item	Band Edge emissions
Test Mode	WCDMA Band V Link
Test Date	2015-07-27

Figure Channel 4132

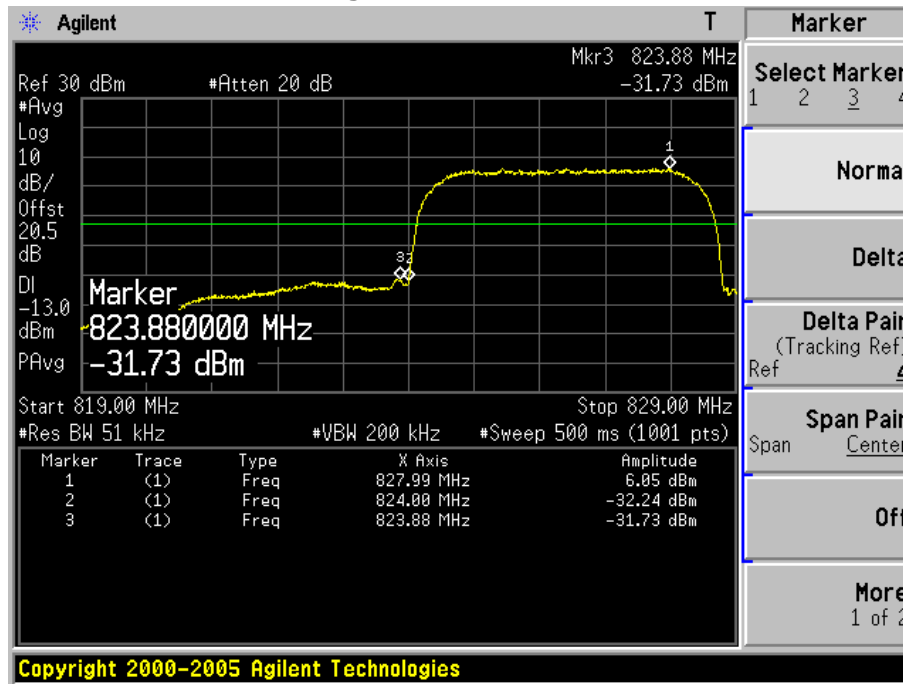
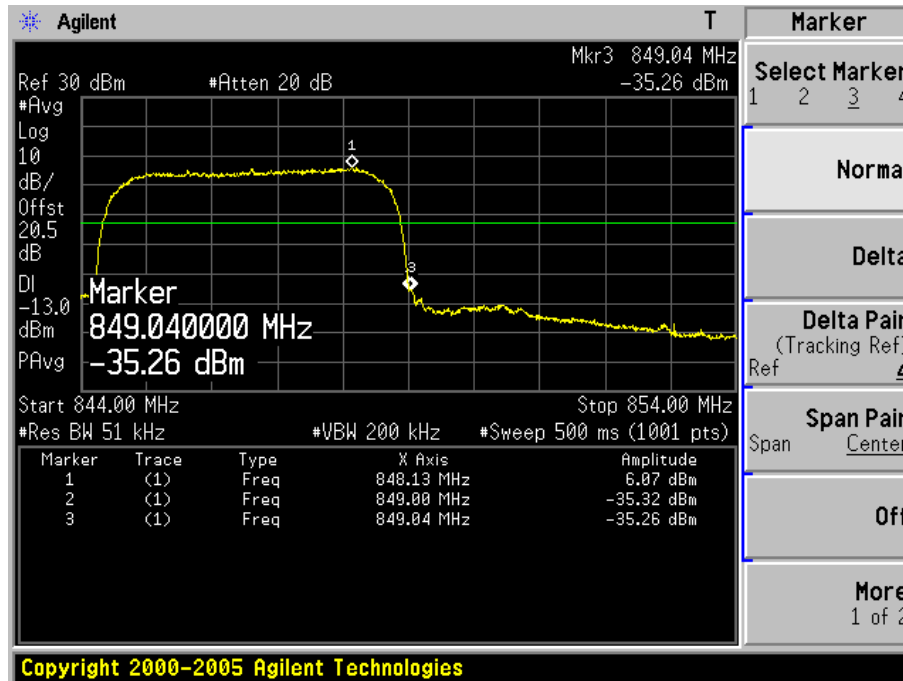


Figure Channel 4233





Product	Tablet PC		
Test Item	Radiated Spurious Emission		
Test Mode	Mode 1: GSM 850 Link		
Date of Test	2015/07/22	Test Site	AC102

Frequency (MHz)	SA Reading (dBm)	Ant.Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
Low Channel 128 (824.20MHz)								
1646	-49.54	V	-52.20	2.5	9.75	-44.95	-13	-31.95
2470.5	-40.72	V	-39.13	3.12	10.48	-31.77	-13	-18.77
1646	-49.60	H	-52.17	2.5	9.75	-44.92	-13	-31.92
2470.5	-49.94	H	-48.79	3.12	10.48	-41.43	-13	-28.43
Middle Channel 189 (836.40MHz)								
1671.5	-53.71	V	-56.37	2.52	9.95	-48.94	-13	-35.94
2513	-45.05	V	-44.16	3.18	10.62	-36.72	-13	-23.72
1671.5	-53.37	H	-55.79	2.52	9.95	-48.36	-13	-35.36
2513	-46.46	H	-45.77	3.18	10.62	-38.33	-13	-25.33
High Channel 251 (848.80MHz)								
1697	-51.52	V	-54.25	2.54	10.06	-46.73	-13	-33.73
2547	-47.64	V	-46.07	3.14	10.68	-38.53	-13	-25.53
1697	-49.57	H	-51.57	2.54	10.06	-44.05	-13	-31.05
2547	-51.78	H	-49.96	3.14	10.68	-42.42	-13	-29.42



Product	Tablet PC		
Test Item	Radiated Spurious Emission		
Test Mode	Mode 2: PCS 1900 Link		
Date of Test	2015/07/22	Test Site	AC102

Frequency (MHz)	SA Reading (dBm)	Ant.Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
Low Channel 512 (1850.20MHz)								
3700	-57.28	V	-53.82	3.84	12.69	-44.97	-13	-31.97
5550	-55.49	V	-46.99	4.82	13.15	-38.66	-13	-25.66
3700	-58.87	H	-55.49	3.84	12.69	-46.64	-13	-33.64
5550	-63.00	H	-55.12	4.82	13.15	-46.79	-13	-33.79
Middle Channel 661 (1880.00MHz)								
3760	-52.45	V	-49.23	3.73	12.72	-40.24	-13	-27.24
5640	-56.40	V	-48.47	4.93	13.14	-40.26	-13	-27.26
3760	-55.47	H	-52.17	3.73	12.72	-43.18	-13	-30.18
5640	-60.77	H	-53.16	4.93	13.14	-44.95	-13	-31.95
High Channel 810 (1909.80MHz)								
3818	-53.19	V	-49.47	4.02	12.73	-40.76	-13	-27.76
5727	-59.25	V	-50.63	4.87	13.11	-42.39	-13	-29.39
3818	-53.81	H	-49.94	4.02	12.73	-41.23	-13	-28.23
5727	-59.06	H	-50.82	4.87	13.11	-42.58	-13	-29.58



Product	Tablet PC		
Test Item	Radiated Spurious Emission		
Test Mode	Mode 3: EDGE S850 Link		
Date of Test	2015/07/22	Test Site	AC102

Frequency (MHz)	SA Reading (dBm)	Ant.Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
Low Channel 128 (824.20MHz)								
1646	-37.74	V	-40.89	2.5	9.75	-33.64	-13	-20.64
2470.5	-51.69	V	-50.72	3.12	10.48	-43.36	-13	-30.36
1646	-56.79	H	-59.45	2.5	9.75	-52.20	-13	-39.20
2470.5	-53.44	H	-52.33	3.12	10.48	-44.97	-13	-31.97
Middle Channel 189 (836.40MHz)								
1671.5	-57.18	V	-59.84	2.52	9.95	-52.41	-13	-39.41
2513	-51.72	V	-51.03	3.18	10.62	-43.59	-13	-30.59
1671.5	-51.93	H	-53.84	2.52	9.95	-46.41	-13	-33.41
2513	-58.34	H	-57.27	3.18	10.62	-49.83	-13	-36.83
High Channel 251 (848.80MHz)								
1697	-59.11	V	-61.84	2.54	10.06	-54.32	-13	-41.32
2547	-52.10	V	-50.54	3.14	10.68	-43.00	-13	-30.00
1697	-54.46	H	-56.46	2.54	10.06	-48.94	-13	-35.94
2547	-51.32	H	-49.50	3.14	10.68	-41.96	-13	-28.96



Product	Tablet PC		
Test Item	Radiated Spurious Emission		
Test Mode	Mode 4: EDGE 1900 Link		
Date of Test	2015/07/22	Test Site	AC102

Frequency (MHz)	SA Reading (dBm)	Ant.Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
Low Channel 512 (1850.20MHz)								
3700	-60.95	V	-57.49	3.84	12.69	-48.64	-13	-35.64
5550	-62.64	V	-54.29	4.82	13.15	-45.96	-13	-32.96
3700	-62.33	H	-58.95	3.84	12.69	-50.10	-13	-37.10
5550	-64.09	H	-55.79	4.82	13.15	-47.46	-13	-34.46
Middle Channel 661 (1880.00MHz)								
3760	-53.82	V	-50.60	3.73	12.72	-41.61	-13	-28.61
5640	-61.98	V	-54.05	4.93	13.14	-45.84	-13	-32.84
3760	-61.15	H	-57.85	3.73	12.72	-48.86	-13	-35.86
5640	-65.12	H	-57.10	4.93	13.14	-48.89	-13	-35.89
High Channel 810 (1909.80MHz)								
3818	-56.70	V	-53.24	4.02	12.73	-44.53	-13	-31.53
5727	-64.06	V	-55.08	4.87	13.11	-46.84	-13	-33.84
3818	-59.72	H	-55.85	4.02	12.73	-47.14	-13	-34.14
5727	-62.81	H	-54.57	4.87	13.11	-46.33	-13	-33.33



Product	Tablet PC		
Test Item	Radiated Spurious Emission		
Test Mode	Mode5: WCDMA Band II Link		
Date of Test	2015/07/22	Test Site	AC102

Frequency (MHz)	SA Reading (dBm)	Ant.Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
Low Channel 9262 (1852.40MHz)								
3704.8	-56.45	V	-51.92	4.78	12.69	-44.01	-13	-31.01
5557.2	-66.52	V	-58.01	4.82	13.15	-49.68	-13	-36.68
3704.8	-61.10	H	-56.40	4.78	12.69	-48.49	-13	-35.49
5557.2	-66.52	H	-58.64	4.82	13.15	-50.31	-13	-37.31
Middle Channel 9400 (1880.00MHz)								
3760	-55.24	V	-50.72	5.03	12.72	-43.03	-13	-30.03
5640	-66.10	V	-57.16	5.93	13.14	-49.95	-13	-36.95
3760	-58.91	H	-54.31	5.03	12.72	-46.62	-13	-33.62
5640	-66.12	H	-57.50	5.93	13.14	-50.29	-13	-37.29
High Channel 9538 (1907.60MHz)								
3815.2	-56.89	V	-52.15	5.03	12.73	-44.45	-13	-31.45
5722.8	-65.36	V	-56.79	4.87	13.11	-48.55	-13	-35.55
3815.2	-61.66	H	-56.75	5.03	12.73	-49.05	-13	-36.05
5722.8	-65.98	H	-57.75	4.87	13.11	-49.51	-13	-36.51



Product	Tablet PC		
Test Item	Radiated Spurious Emission		
Test Mode	Mode 6: WCDMA Band V Traffic		
Date of Test	2015/07/22	Test Site	AC102

Frequency (MHz)	SA Reading (dBm)	Ant.Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
Low Channel 4132 (826.40MHz)								
1654.5	-40.20	V	-41.95	3.28	9.75	-35.48	-13	-22.48
2479.2	-59.27	V	-57.49	4.1	10.48	-51.11	-13	-38.11
1654.5	-46.09	H	-47.84	3.28	9.75	-41.37	-13	-28.37
2479	-60.39	H	-58.38	4.1	10.48	-52.00	-13	-39.00
Middle Channel 4182 (836.40MHz)								
1671.5	-42.16	V	-44.03	3.32	9.95	-37.40	-13	-24.40
2513	-59.05	V	-57.23	4.31	10.62	-50.92	-13	-37.92
1671.5	-46.09	H	-47.71	3.32	9.95	-41.08	-13	-28.08
2513	-61.68	H	-59.48	4.31	10.62	-53.17	-13	-40.17
High Channel 4233 (846.60MHz)								
1697	-38.03	V	-39.96	3.35	10.06	-33.25	-13	-20.25
2539.8	-50.26	V	-47.57	3.91	10.33	-41.15	-13	-28.15
1697	-42.93	H	-44.07	4.19	10.68	-37.58	-13	-24.58
2538.5	-60.68	H	-57.78	4.33	10.79	-51.32	-13	-38.32



7. Frequency Stability Under Temperature & Voltage Variations

7.1. Test Limit

According to FCC §2.1055, FCC §22.355, .FCC §24.235.

Frequency Tolerance: 2.5 ppm

7.2. Test Procedure

Frequency Stability Under Temperature Variations:

The equipment under test was connected to an external AC or DC power supply and input rated voltage. 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 20oC operating frequency as reference frequency. Turn EUT off and set the chamber temperature to –30oC. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10oC increased per stage until the highest temperature of +50oC reached.

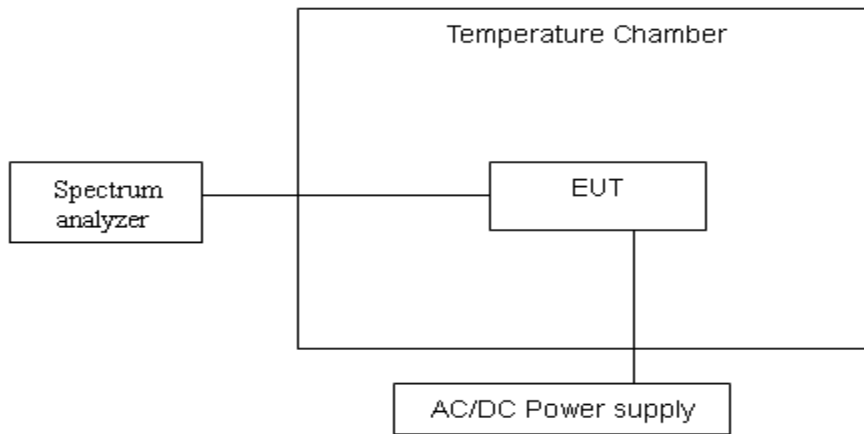
Frequency Stability Under Voltage Variations:

Set chamber temperature to 20°C. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.

Reduce the input voltage to specify extreme voltage variation ($\pm 10\%$) and endpoint, record the maximum frequency change.



7.3. Test Setup Layout



7.4. Measurement Equipment

Instrument/Ancillary	Model No.	Manufacturer	Serial No.	Calibration Date	Valid Date
Spectrum Analyzer	Agilent	E4407B	MY44211883	2014.09.12	2015.09.11
Universal Radio Communication Tester	CMU200	R&S	108823	2015.03.29	2016.03.28
Temperature/ Humidity Meter	Zhicheng	ZC1-11	CEP-TH-002	2015.03.31	2016.03.30



7.5. Test Result and Data

Test Item	Frequency Stability Under Temperature & Voltage Variations
Test Mode	Mode 1: GSM 850 Link
Date of Test	2015/07/27

Frequency Stability under Temperature

Temperature Interval (°C)	Test Frequency (MHz)	Deviation (Hz)	Limit (Hz)
-30	836.40	58	± 2091
-20	836.40	-12	± 2091
-10	836.40	43	± 2091
0	836.40	32	± 2091
10	836.40	54	± 2091
20	836.40	22	± 2091
30	836.40	65	± 2091
40	836.40	52	± 2091
50	836.40	-47	± 2091

Frequency Stability under Voltage

DC Voltage (V)	Test Frequency (MHz)	Deviation (Hz)	Limit (Hz)
3.4	836.40	33	± 2091
3.7	836.40	52	± 2091
4.2	836.40	-19	± 2091



Test Item	Frequency Stability Under Temperature & Voltage Variations
Test Mode	Mode 2: PCS1900 Link
Date of Test	2015/07/27

Frequency Stability under Temperature

Temperature Interval (°C)	Test Frequency (MHz)	Deviation (Hz)	Limit (Hz)
-30	1880.00	43	± 4700
-20	1880.00	57	± 4700
-10	1880.00	32	± 4700
0	1880.00	36	± 4700
10	1880.00	44	± 4700
20	1880.00	39	± 4700
30	1880.00	59	± 4700
40	1880.00	-23	± 4700
50	1880.00	50	± 4700

Frequency Stability under Voltage

DC Voltage (V)	Test Frequency (MHz)	Deviation (Hz)	Limit (Hz)
3.4	1880.00	62	± 4700
3.7	1880.00	-32	± 4700
4.2	1880.00	-47	± 4700



Test Item	Frequency Stability Under Temperature & Voltage Variations
Test Mode	Mode 3: GPRS 850 Link
Date of Test	2015/07/27

Frequency Stability under Temperature

Temperature Interval (°C)	Test Frequency (MHz)	Deviation (Hz)	Limit (Hz)
-30	836.40	40	± 2091
-20	836.40	30	± 2091
-10	836.40	34	± 2091
0	836.40	62	± 2091
10	836.40	-31	± 2091
20	836.40	15	± 2091
30	836.40	33	± 2091
40	836.40	-13	± 2091
50	836.40	34	± 2091

Frequency Stability under Voltage

DC Voltage (V)	Test Frequency (MHz)	Deviation (Hz)	Limit (Hz)
3.4	836.40	29	± 2091
3.7	836.40	-18	± 2091
4.2	836.40	43	± 2091



Test Item	Frequency Stability Under Temperature & Voltage Variations
Test Mode	Mode 4: GPRS 1900 Link
Date of Test	2015/07/27

Frequency Stability under Temperature

Temperature Interval (°C)	Test Frequency (MHz)	Deviation (Hz)	Limit (Hz)
-30	1880.00	11	± 4700
-20	1880.00	-20	± 4700
-10	1880.00	43	± 4700
0	1880.00	50	± 4700
10	1880.00	-44	± 4700
20	1880.00	-10	± 4700
30	1880.00	74	± 4700
40	1880.00	30	± 4700
50	1880.00	-29	± 4700

Frequency Stability under Voltage

DC Voltage (V)	Test Frequency (MHz)	Deviation (Hz)	Limit (Hz)
3.4	1880.00	-32	± 4700
3.7	1880.00	43	± 4700
4.2	1880.00	-36	± 4700



Product	TE70SA3
Test Item	Frequency Stability Under Temperature & Voltage Variations
Test Mode	Mode 3: EDGE 850 Link
Date of Test	2015/07/27

Frequency Stability under Temperature

Temperature Interval (°C)	Test Frequency (MHz)	Deviation (Hz)	Limit (Hz)
-30	836.40	38	± 2091
-20	836.40	29	± 2091
-10	836.40	33	± 2091
0	836.40	61	± 2091
10	836.40	-30	± 2091
20	836.40	17	± 2091
30	836.40	32	± 2091
40	836.40	-15	± 2091
50	836.40	30	± 2091

Frequency Stability under Voltage

DC Voltage (V)	Test Frequency (MHz)	Deviation (Hz)	Limit (Hz)
3.4	836.40	28	± 2091
3.7	836.40	-15	± 2091
4.2	836.40	34	± 2091



Product	TE70SA3
Test Item	Frequency Stability Under Temperature & Voltage Variations
Test Mode	Mode 4: EDGE1900 Link
Date of Test	2015/07/27

Frequency Stability under Temperature

Temperature Interval (°C)	Test Frequency (MHz)	Deviation (Hz)	Limit (Hz)
-30	1880.00	17	± 4700
-20	1880.00	-21	± 4700
-10	1880.00	42	± 4700
0	1880.00	51	± 4700
10	1880.00	-46	± 4700
20	1880.00	-11	± 4700
30	1880.00	73	± 4700
40	1880.00	31	± 4700
50	1880.00	-26	± 4700

Frequency Stability under Voltage

DC Voltage (V)	Test Frequency (MHz)	Deviation (Hz)	Limit (Hz)
3.4	1880.00	-33	± 4700
3.7	1880.00	41	± 4700
4.2	1880.00	-33	± 4700



Product	TE70SA3
Test Item	Frequency Stability Under Temperature & Voltage Variations
Test Mode	Mode 5: WCDMA Band II Link
Date of Test	2015/07/27

Frequency Stability under Temperature

Temperature Interval (°C)	Test Frequency (MHz)	Deviation (Hz)	Limit (Hz)
-30	1880.00	26	± 4700
-20	1880.00	29	± 4700
-10	1880.00	25	± 4700
0	1880.00	34	± 4700
10	1880.00	28	± 4700
20	1880.00	35	± 4700
30	1880.00	43	± 4700
40	1880.00	77	± 4700
50	1880.00	-7	± 4700

Frequency Stability under Voltage

DC Voltage (V)	Test Frequency (MHz)	Deviation (Hz)	Limit (Hz)
3.4	1880.00	20	± 4700
3.7	1880.00	-15	± 4700
4.2	1880.00	29	± 4700



Product	TE70SA3
Test Item	Frequency Stability Under Temperature & Voltage Variations
Test Mode	Mode 6: WCDMA Band V Link
Date of Test	2015/07/27

Frequency Stability under Temperature

Temperature Interval (°C)	Test Frequency (MHz)	Deviation (Hz)	Limit (Hz)
-30	836.40	19	± 2091
-20	836.40	45	± 2091
-10	836.40	-33	± 2091
0	836.40	41	± 2091
10	836.40	23	± 2091
20	836.40	34	± 2091
30	836.40	45	± 2091
40	836.40	50	± 2091
50	836.40	-47	± 2091

Frequency Stability under Voltage

DC Voltage (V)	Test Frequency (MHz)	Deviation (Hz)	Limit (Hz)
3.4	836.40	-64	± 2091
3.7	836.40	44	± 2091
4.2	836.40	30	± 2091