FCC Report

(Mobile Phone)

Applicant:	Dongguan Yuanfeng Technology Co., Ltd.
Address of Applicant:	No.62, South Fumin Road, Fumin Industrial Park, Dalang Town, Dongguan City, Guangdong, P.R. China

Equipment Under Test (EUT)

Product Name:	Tablet PC
Model No.:	AW986-8034, AW986-8031, AW986-8032, AW986-8033, AW986-8035, AW986-8036, AW986-8037, AW986-8038, AW986-8039
FCC ID:	YNGAW986-8034
Applicable standards:	FCC CFR Title 47 Part 2: 2012 FCC CFR Title 47 Part22 Subpart H: 2012 FCC CFR Title 47 Part24 Subpart E: 2012
Date of sample receipt:	December 19, 2013
Date of Test:	December 19-25, 2013
Date of report issued:	December 26, 2013
Test Result :	PASS *

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

Authorized Signature:

Robinson Lo
Laboratory Manager

2 Version

Version No.	Date	Description
00	*December 26, 2013*	*Original*

Prepared By:  ***Date:*** *December 26, 2013*

Project Engineer

Check By:  ***Date:*** *December 26, 2013*

Reviewer

3 Contents

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4 Test Summary

Test Item	Section in CFR 47	Result
RF Exposure (SAR)	Part 1.1307 Part 2.1093	Passed* (Please refer to SAR Report)
RF Output Power	Part 2.1046 Part 22.913 (a)(2) Part 24.232 (c)	Pass
Modulation Characteristics	Part 2.1047	Pass
99% & -26 dB Occupied Bandwidth	Part 2.1049 Part 22.917 Part 24.238	Pass
Spurious Emissions at Antenna Terminal	Part 2.1051 Part 22.917 (a) Part 24.238 (a)	Pass
Field Strength of Spurious Radiation	Part 2.1053 Part 22.917 (a) Part 24.238 (a)	Pass
Out of band emission, Band Edge	Part 22.917 (a) Part 24.238 (a)	Pass
Frequency stability vs. temperature	Part 2.1055(a)(1)(b)	Pass
Frequency stability vs. voltage	Part 2.1055(d)(1)(2)	Pass

Pass: The EUT complies with the essential requirements in the standard.

5 General Information

5.1 Client Information

Applicant:	Dongguan Yuanfeng Technology Co., Ltd.
Address of Applicant:	No.62, South Fumin Road, Fumin Industrial Park, Dalang Town, Dongguan City, Guangdong, P.R. China
Manufacturer/Factory:	Dongguan Yuanfeng Technology Co., Ltd.
Address of Manufacturer/ Factory:	No.62, South Fumin Road, Fumin Industrial Park, Dalang Town, Dongguan City, Guangdong, P.R. China

5.2 General Description of EUT

Product Name:	Tablet PC
Model No.:	AW986-8034, AW986-8031, AW986-8032, AW986-8033, AW986-8035, AW986-8036, AW986-8037, AW986-8038, AW986-8039
Support Networks:	GSM, GPRS, EGPRS
Support Bands:	GSM850, PCS1900
TX Frequency:	GSM850: 824.20MHz-848.80MHz PCS1900: 1850.20MHz-1909.80MHz
RX Frequency:	GSM850: 869.20MHz-893.80MHz PCS1900: 1930.20MHz-1989.80MHz
GPRS Class:	12
EGPRS Class:	12
Modulation type:	GSM/GPRS: GMSK EGPRS: GMSK / 8PSK
Antenna type:	Integral Antenna
Antenna gain:	GSM850: : -1.24dBi PCS1900 : 1.48dBi
Power Supply:	AC-DC Adapter: Model No.: ADS-10B-06 05010G Input: AC 100-240V, 50/60Hz, 0.3A Output: DC 5.0V, 2A Or DC 3.7V Li-ion Battery

Operation Frequency List:

GSM 850		PCS1900	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
128	824.20	512	1850.20
129	824.40	513	1850.40
⋮	⋮	⋮	⋮
189	836.40	660	1879.80
190	836.60	661	1880.00
191	836.80	662	1880.20
⋮	⋮	⋮	⋮
250	848.60	809	1909.60
251	848.80	810	1909.80

Regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Final test channel:

GSM 850		PCS1900	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
128	824.20	512	1850.20
190	836.60	661	1880.00
251	848.80	810	1909.80

5.3 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is filing to comply with Section Part 22 subpart H and Part 24 subpart E of the FCC CFR 47 Rules.

5.4 Test Methodology

Both conducted and radiated testing were performed according to the procedures document on TIA/EIA 603 and FCC CFR 47.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055 and 2.1057

5.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

● **CNAS —Registration No.: CNAS L5775**

CNAS has accredited Global United Technology Services Co., Ltd. To ISO/IEC 17025 General Requirements for the competence of testing and calibration laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

● **FCC —Registration No.: 600491**

Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fuly described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files. Registration 600491, June 28, 2013.

● **Industry Canada (IC) —Registration No.: 9079A-2**

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 9079A-2, June 26, 2013.

5.6 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.

Address: 2nd Floor, Block No.2, Laodong Industrial Zone, Xixiang Road Baoan District, Shenzhen, China

Tel: 0755-27798480

Fax: 0755-27798960

6 Test Instruments list

Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	Mar. 29 2013	Mar. 28 2014
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	Jul. 02 2013	Jul. 01 2014
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	Feb. 24 2013	Feb. 23 2014
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	9120D-829	GTS208	June 28 2013	June 27 2014
6	Horn Antenna	ETS-LINDGREN	3160	GTS217	Mar. 29 2013	Mar. 28 2014
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
8	Coaxial Cable	GTS	N/A	GTS213	Mar. 30 2013	Mar. 29 2014
9	Coaxial Cable	GTS	N/A	GTS211	Mar. 30 2013	Mar. 29 2014
10	Coaxial cable	GTS	N/A	GTS210	Mar. 30 2013	Mar. 29 2014
11	Coaxial Cable	GTS	N/A	GTS212	Mar. 30 2013	Mar. 29 2014
12	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	Jul. 02 2013	Jul. 01 2014
13	Amplifier(2GHz-20GHz)	HP	8349B	GTS206	Jul. 02 2013	Jul. 01 2014
14	Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	June 28 2013	June 27 2014
15	Band filter	Amindeon	82346	GTS219	Mar. 30 2013	Mar. 29 2014
16	Universal radio communication tester	Rohde & Schwarz	CMU200	GTS235	May 10 2013	May 09 2014
17	Signal Generator	Rohde & Schwarz	SML03	GTS236	May 10 2013	May 09 2014
18	Temp. Humidity/ Barometer	Oregon Scientific	BA-888	GTS248	May 10 2013	May 09 2014
19	D.C. Power Supply	Instek	PS-3030	GTS232	NA	NA
20	Splitter	Agilent	11636B	GTS237	May 10 2013	May 09 2014
21	Power meter	Rohde & Schwarz	NRVS	GTS238	May 10 2013	May 09 2014
22	Spectrum Analyzer	Agilent	E4440A	GTS533	Dec. 5, 2013	Dec. 4 2014

7 System test configuration

7.1 Test mode

During all testing, EUT is in link mode with base station emulator at maximum power level. The spurious emission measurements were carried out in semi-anechoic chamber with 3-meter test range, and EUT is rotated on three test planes to find out the worst emission.

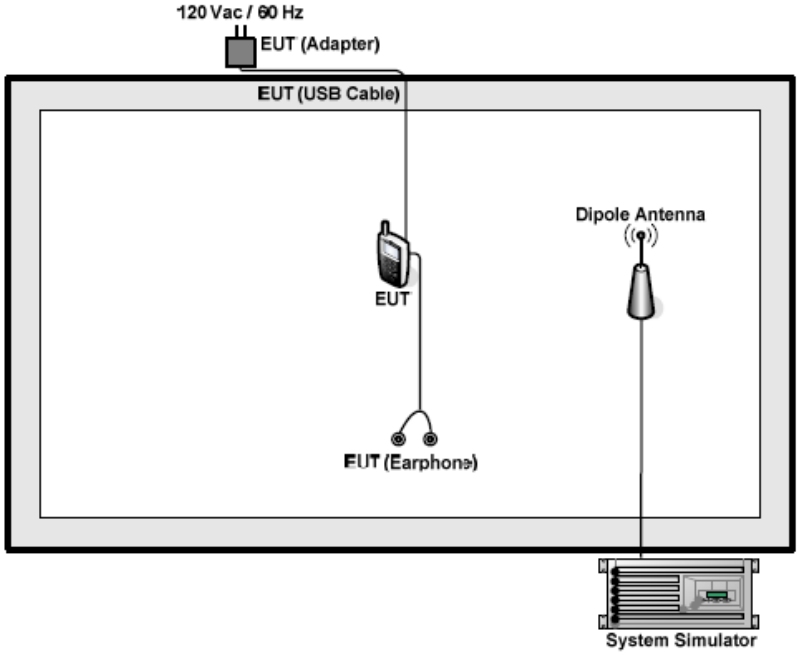
Test modes		
Band	Radiated	Conducted
GSM 850	■ GSM link ■ GPRS 8link ■ EGPRS 8 link	■ GSM link ■ GPRS 8link ■ EGPRS 8 link
PCS 1900	■ GSM link ■ GPRS 8link ■ EGPRS 8 link	■ GSM link ■ GPRS 8link ■ EGPRS 8 link

Note: The maximum power levels are GSM mode for GMSK link.

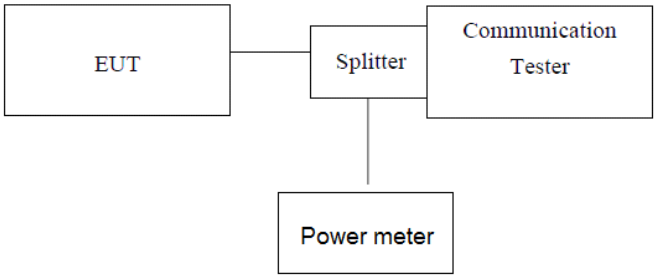
The conducted power tables are as follows:

Conducted Power (dBm)						
Band	GSM850			PCS1900		
Channel	128	190	251	512	661	810
Frequency	824.20	836.60	848.80	1850.20	1880.00	1909.80
GSM (GMSK, 1 TX slot)	32.59	32.73	32.78	28.20	28.38	28.11
GPRS (GMSK, 1 TX slot)	32.51	32.61	32.73	28.10	28.28	27.99
GPRS (GMSK, 2 TX slot)	31.59	31.68	31.85	27.48	28.19	27.76
GPRS (GMSK, 3 TX slot)	31.30	31.09	31.53	27.02	27.12	26.97
GPRS (GMSK, 4 TX slot)	29.54	29.55	29.84	25.13	25.36	25.08
EGPRS(GMSK, 1 TX slot)	32.54	32.63	32.77	28.14	28.32	27.97
EGPRS(GMSK, 2 TX slot)	31.56	31.61	31.78	27.15	27.91	27.80
EGPRS(GMSK, 3 TX slot)	29.74	29.79	29.92	25.49	25.41	26.08
EGPRS(GMSK, 4 TX slot)	28.90	28.94	29.08	25.09	25.17	25.01
EGPRS (8PSK, 1 TX slot)	32.34	32.50	32.60	28.04	28.24	27.95
EGPRS (8PSK, 2 TX slot)	31.39	31.31	31.62	26.99	27.03	26.99
EGPRS (8PSK, 3 TX slot)	29.59	29.63	29.77	24.90	24.98	24.94
EGPRS (8PSK, 4 TX slot)	28.79	28.73	29.01	24.37	24.19	24.04

7.2 Configuration of Tested System



7.3 Conducted Peak Output Power

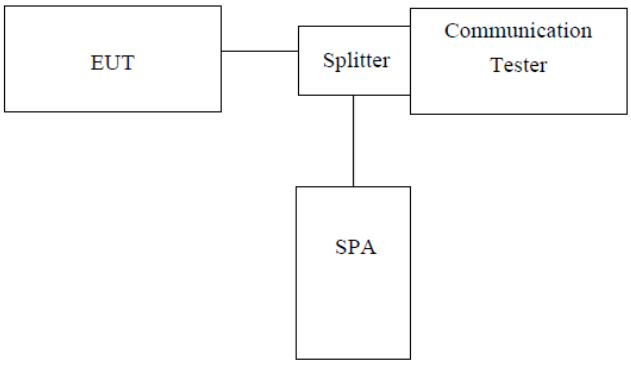
Test Requirement:	FCC part22.913(a) and FCC part24.232(b)
Test Method:	FCC part2.1046
Limit:	GSM850: 7W PCS1900: 2W
Test setup:	 *Note: Measurement setup for testing on Antenna connector*
Test Procedure:	1. The transmitter output port was connected to base station. 2. The RF output of EUT was connected to the power meter by RF cable and attenuator, the path loss was compensated to the results for each measurement. 3. Set EUT at maximum power through base station. 4. Select lowest, middle, and highest channels for each band and different modulation. 5. Measure the maximum burst average power.
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data:

Power list of worst case:

EUT Mode	Channel	Frequency (MHz)	PK power (dBm)	Limit (dBm)	Result
GSM 850 (GSM link)	128	824.20	32.59	38.45	Pass
	190	836.60	32.73		
	251	848.80	32.78		
GSM 850 (EGPRS 8 link)	128	824.20	32.54	38.45	Pass
	190	836.60	32.63		
	251	848.80	32.77		
GSM 850 (GPRS 8 link)	128	824.20	32.51	38.45	Pass
	190	836.60	32.61		
	251	848.80	32.73		
PCS 1900 (GSM link)	512	1850.20	28.20	33.01	Pass
	661	1880.00	28.38		
	810	1909.80	28.11		
PCS 1900 (EGPRS 8 link)	512	1850.20	28.14	33.01	Pass
	661	1880.00	28.32		
	810	1909.80	27.97		
PCS 1900 (GPRS 8 link)	512	1850.20	28.10	33.01	Pass
	661	1880.00	28.28		
	810	1909.80	27.99		

7.4 Occupy Bandwidth

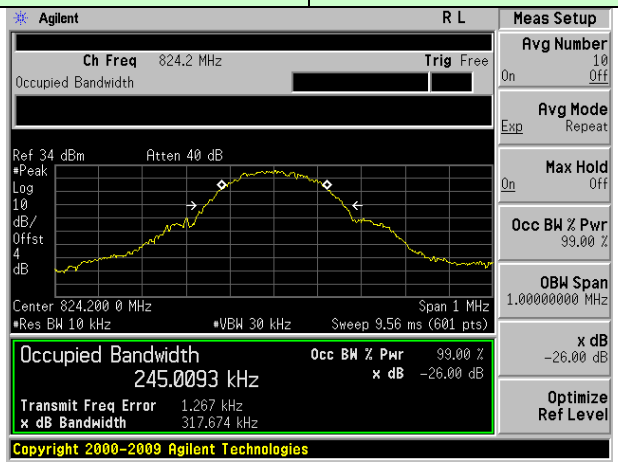
Test Requirement:	FCC part22.913(a) and FCC part24.232(b)
Test Method:	FCC part2.1049
Test setup:	 *Note: Measurement setup for testing on Antenna connector*
Test Procedure:	1. The EUT's output RF connector was connected with a short cable to the spectrum analyzer 2. RBW was set to about 1% of emission BW, VBW= 3 times RBW. 3. -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.
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data

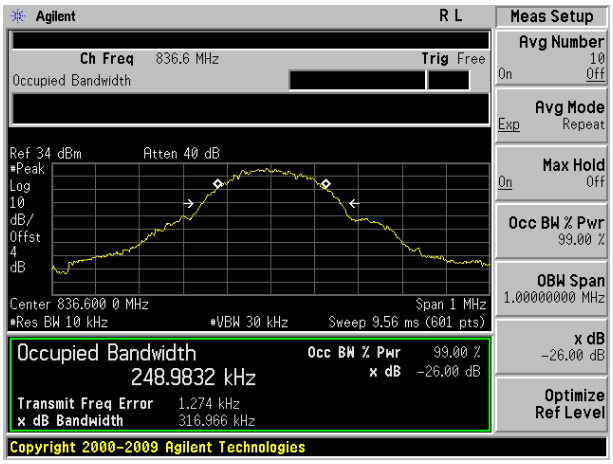
EUT Mode	Channel	Frequency (MHz)	99% Occupy bandwidth (KHz)	-26dB bandwidth (KHz)
GSM 850 (GSM link)	128	824.20	245.009	317.674
	190	836.60	248.983	316.966
	251	848.80	246.717	316.855
GSM 850 (EGPRS 8 link)	128	824.20	248.435	322.389
	190	836.60	250.510	323.986
	251	848.80	248.669	318.743
GSM 850 (GPRS 8 link)	128	824.20	246.178	306.617
	190	836.60	246.421	314.357
	251	848.80	248.189	319.579
PCS 1900 (GSM link)	512	1850.20	246.943	319.855
	661	1880.00	246.694	325.285
	810	1909.80	244.118	324.335
PCS 1900 (EGPRS 8 link)	512	1850.20	241.565	321.475
	661	1880.00	242.455	312.717
	810	1909.80	241.465	327.133
PCS 1900 (GPRS 8 link)	512	1850.20	244.106	319.991
	661	1880.00	245.283	314.206
	810	1909.80	246.103	308.234

Test plot as follows:

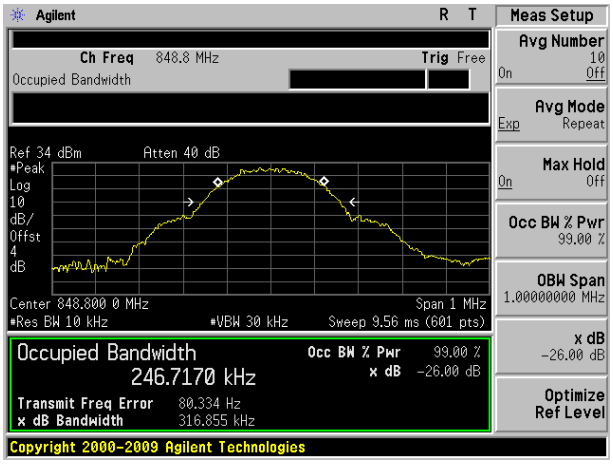
Test band:	GSM 850 (GSM link)



Lowest channel

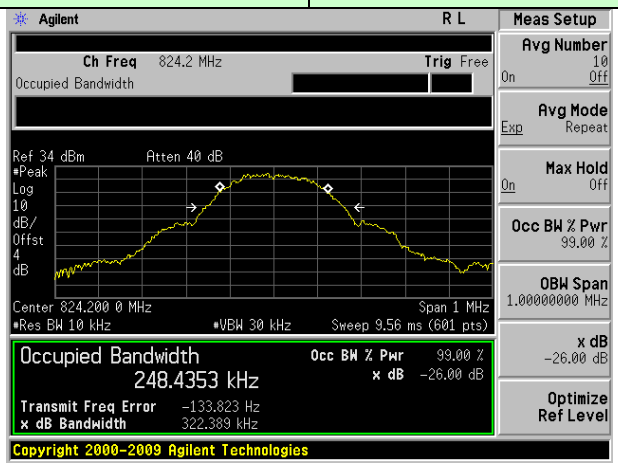


Middle channel

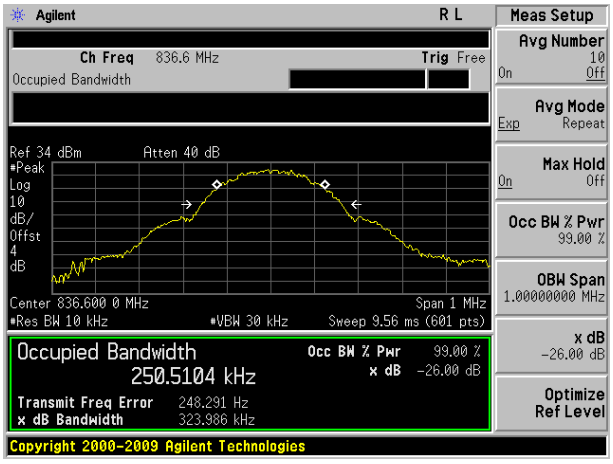


Highest channel:

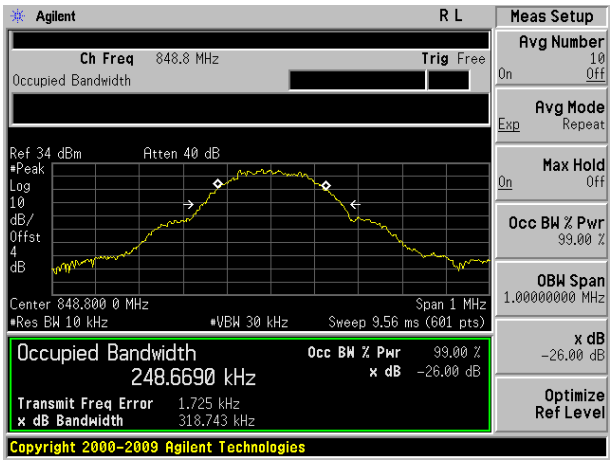
Test band:	GSM 850 (EGPRS 8 link)



Lowest channel

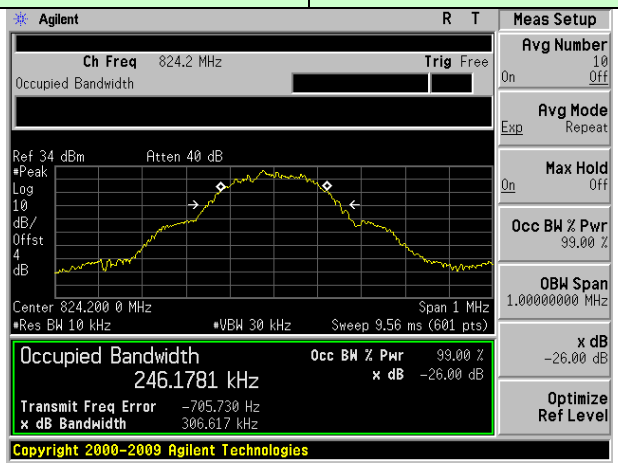


Middle channel



Highest channel:

Test band:	GSM 850 (GPRS 8 link)



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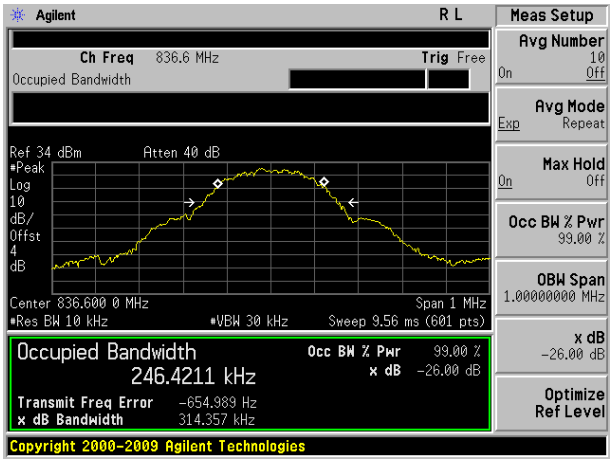
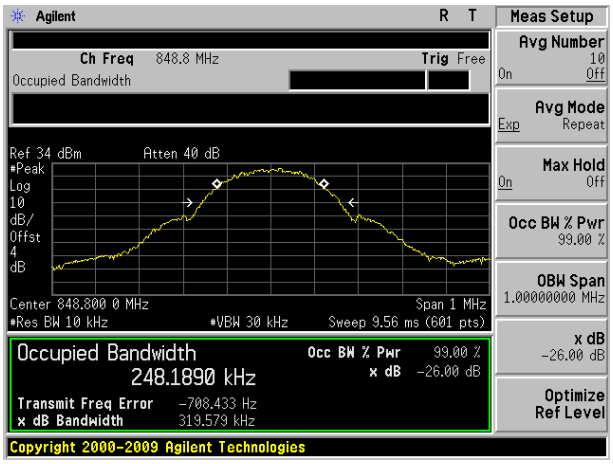
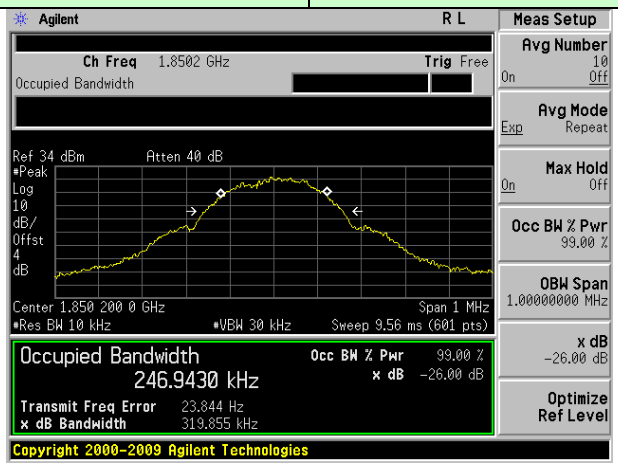


Middle channel



Highest channel:

Test band:	PCS 1900 (GSM link)



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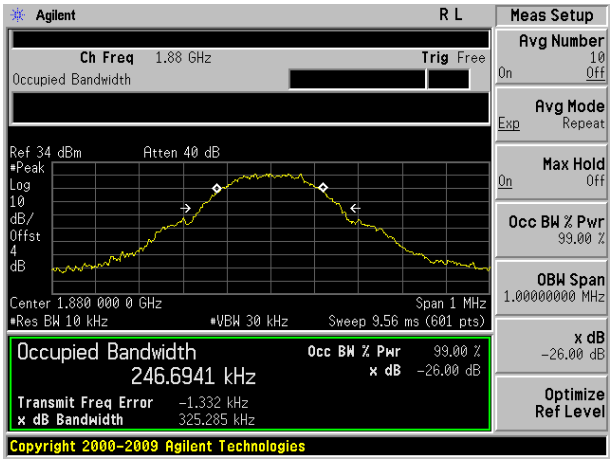

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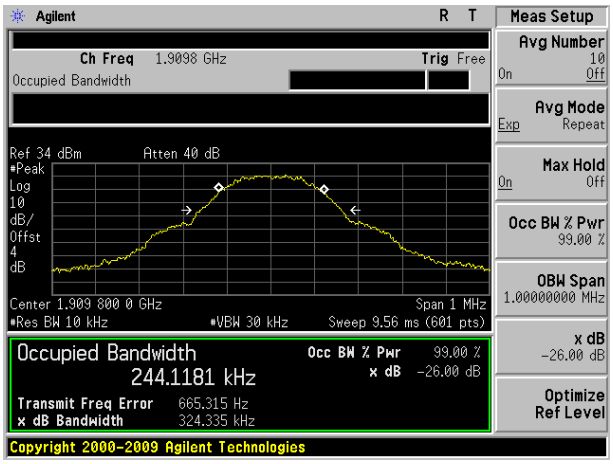
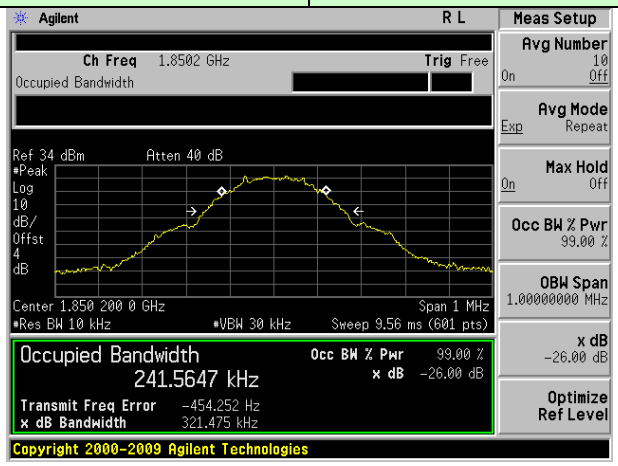
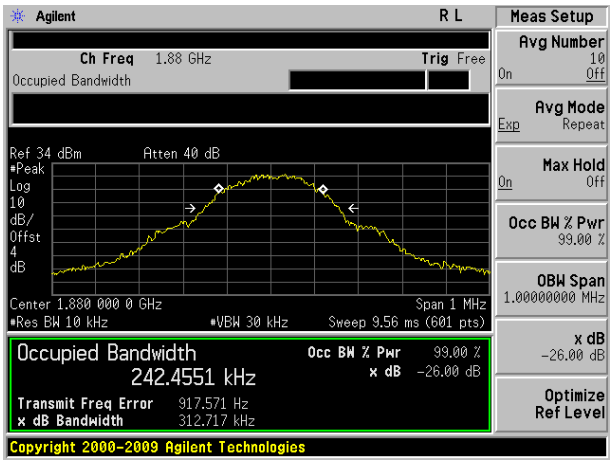


Highest channel:

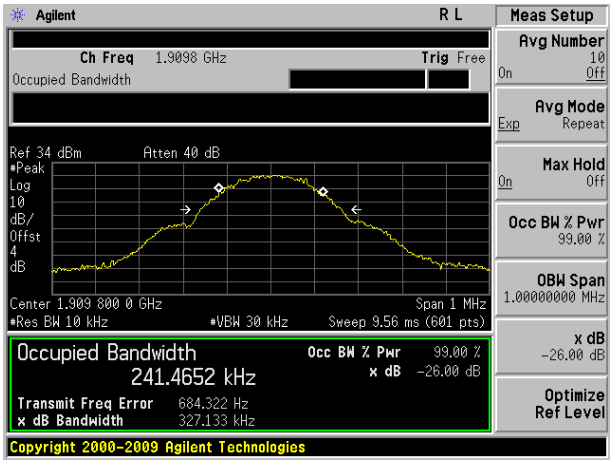
Test band:	PCS 1900 (EGPRS 8 link)



Lowest channel

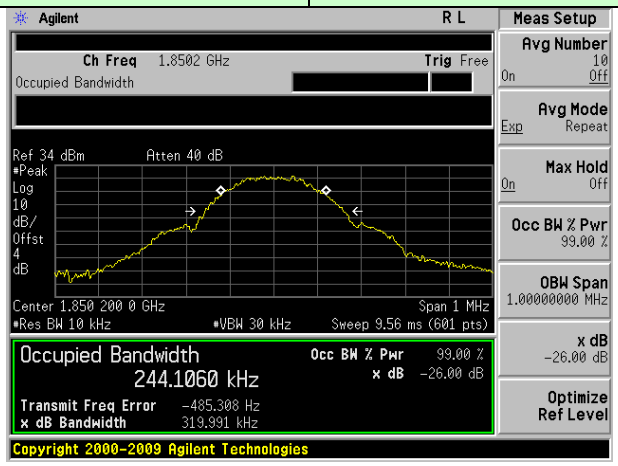


Middle channel

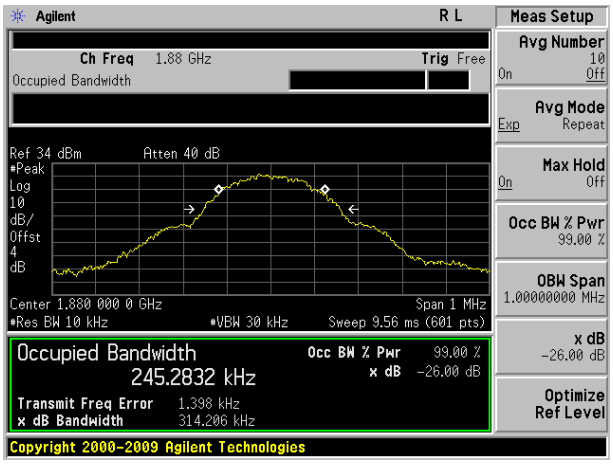


Highest channel:

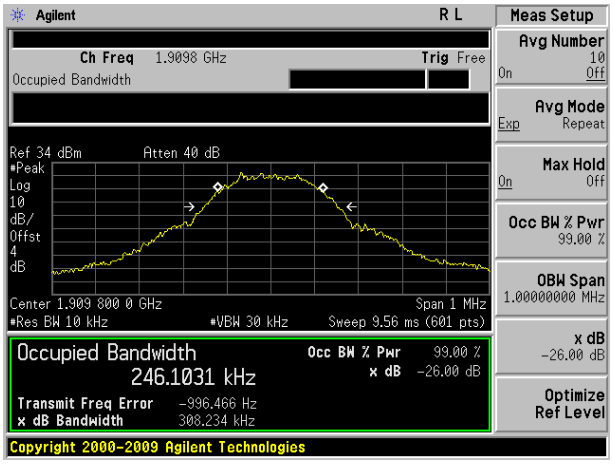
Test band:	PCS 1900 (GPRS 8 link)



Lowest channel



Middle channel

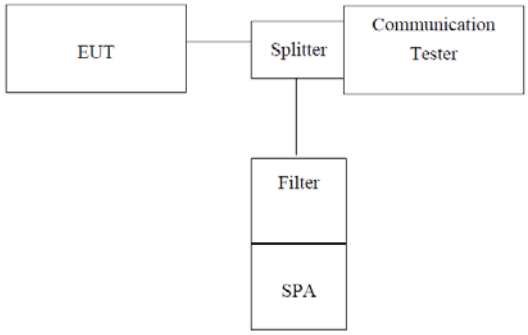


Highest channel:

7.5 MODULATION CHARACTERISTIC

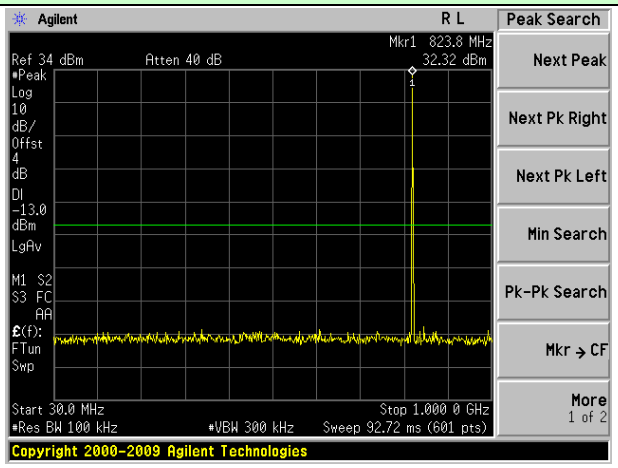
According to FCC § 2.1047(d), Part 22H & 24E there is no specific requirement for digital modulation, therefore modulation characteristic is not presented.

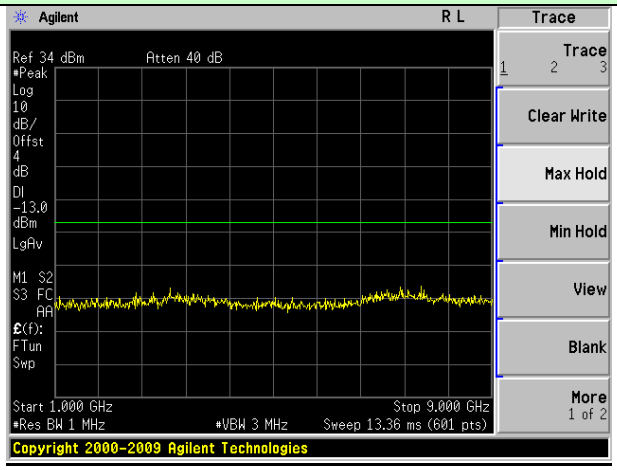
7.6 Out of band emission at antenna terminals

Test Requirement:	FCC part22.917(a) and FCC part24.238(a)
Test Method:	FCC part2.1051
Limit:	-13dBm
Test setup:	 *Note: Measurement setup for testing on Antenna connector*
Test Procedure:	1 The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation. 2 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. 3 For the out of band: Set the RBW, VBW = 1MHz, Start=30MHz, Stop= 10th harmonic. 4 Band Edge Requirements: 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.
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

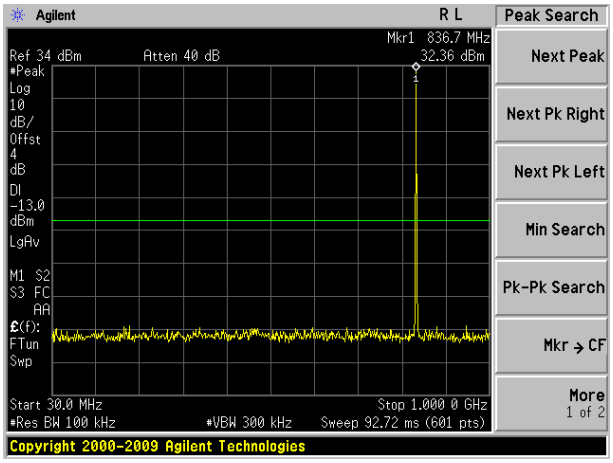
Test plot as follows:

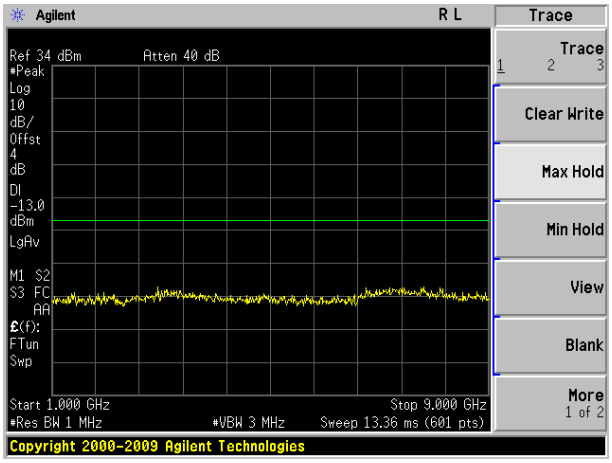
Test Mode:	GSM 850 (GSM link)



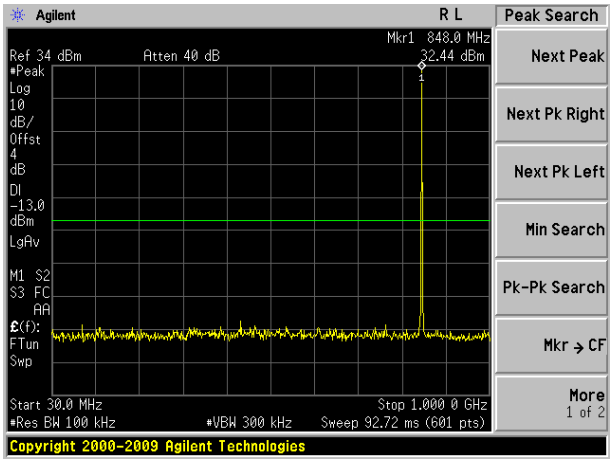


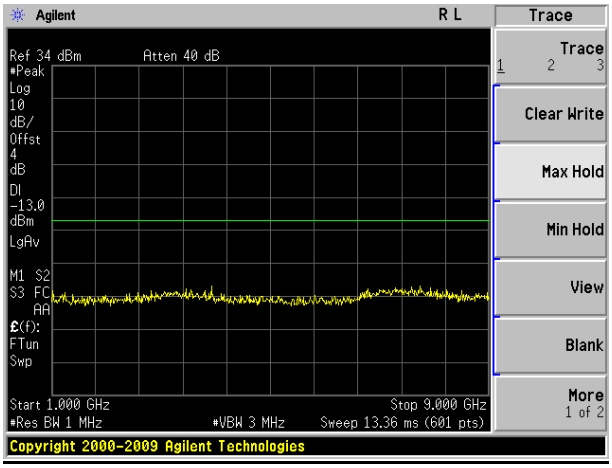
Lowest channel





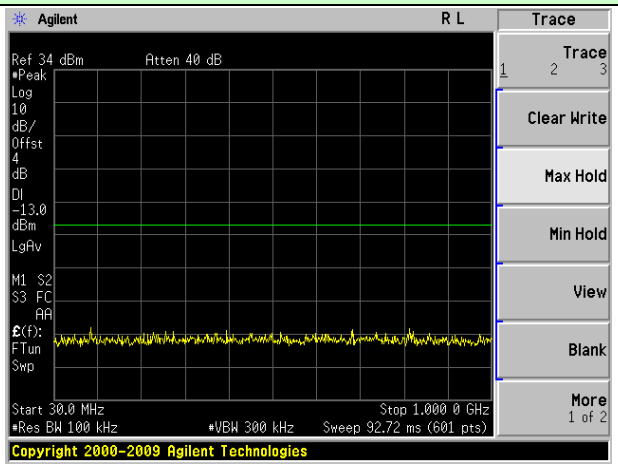
Middle channel

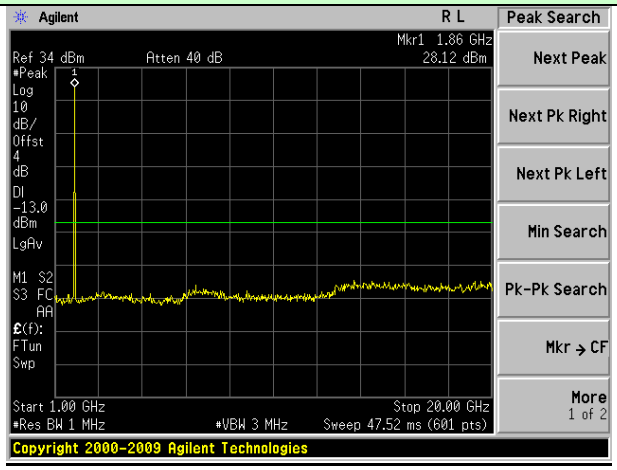




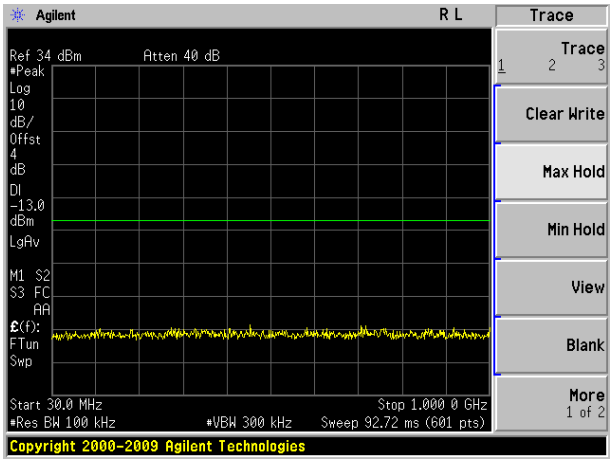
Highest channel

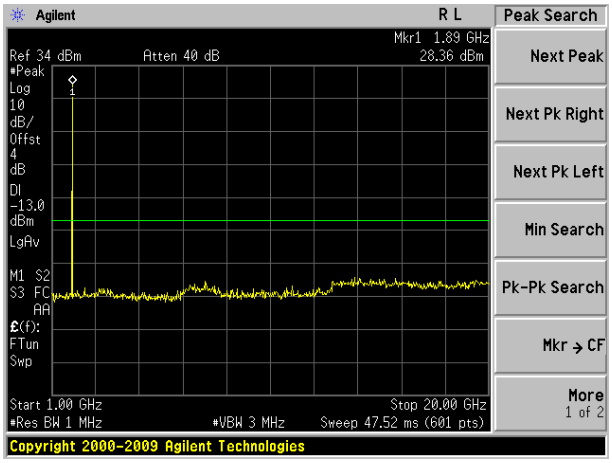
Test Mode:	PCS1900 (GSM link)



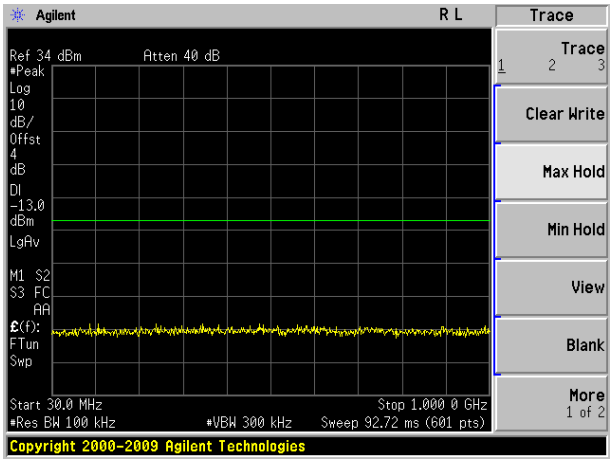


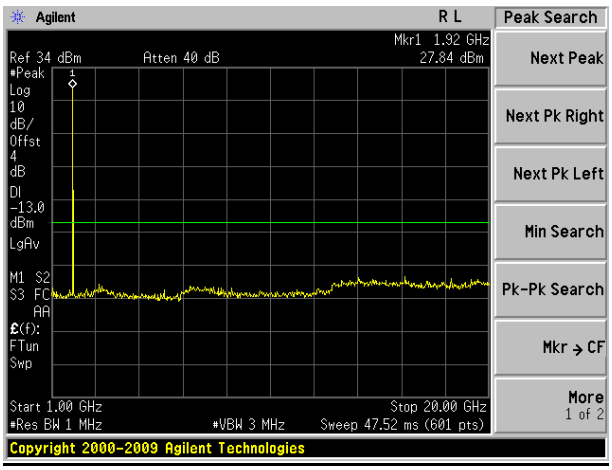
Lowest channel





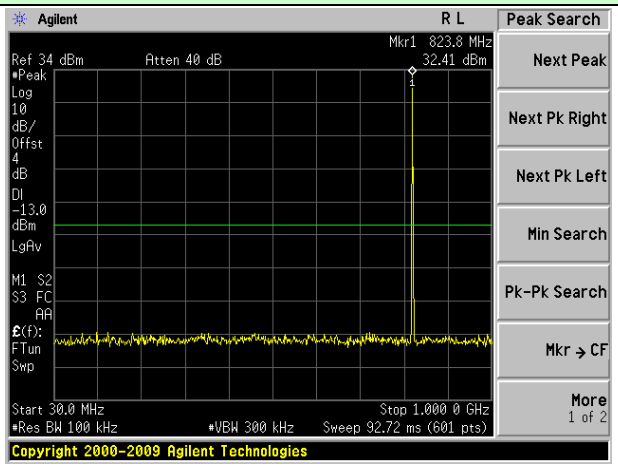
Middle channel

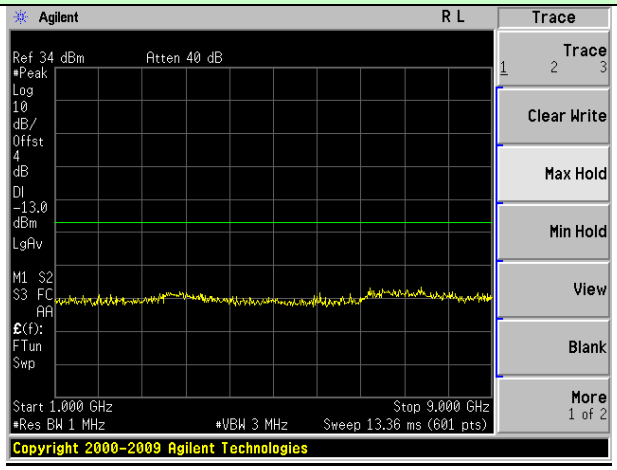




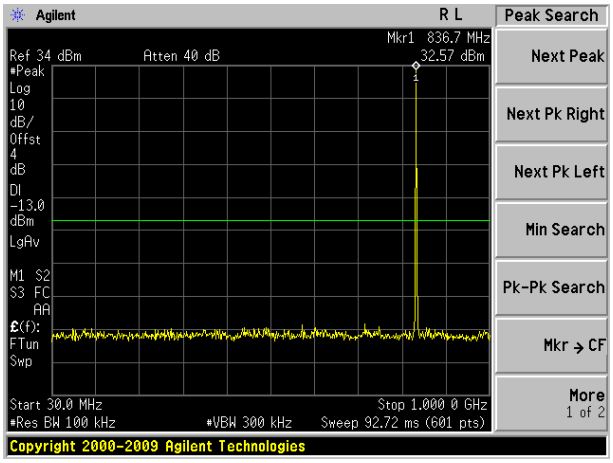
Highest channel

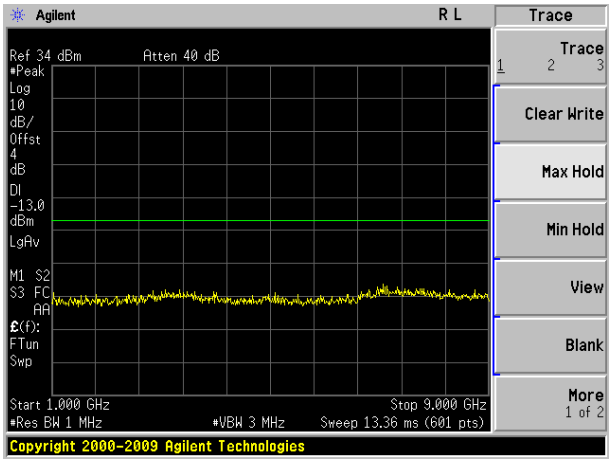
Test Mode:	EGPRS 850 (Class 8)



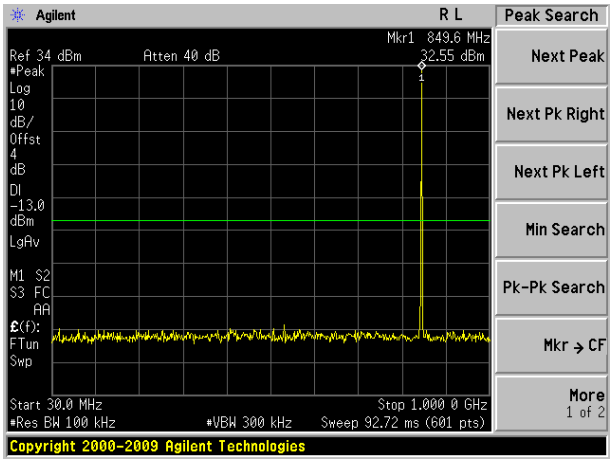


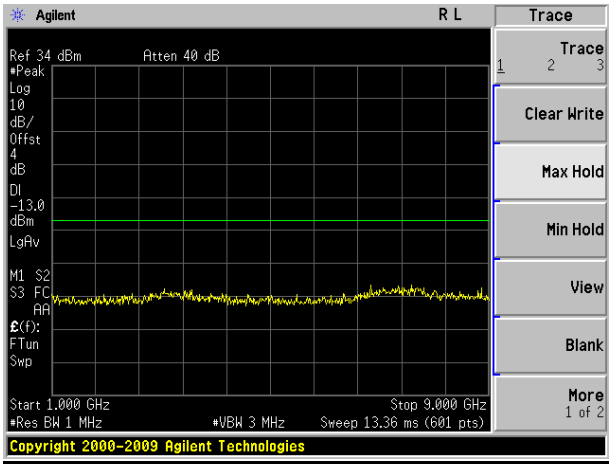
Lowest channel





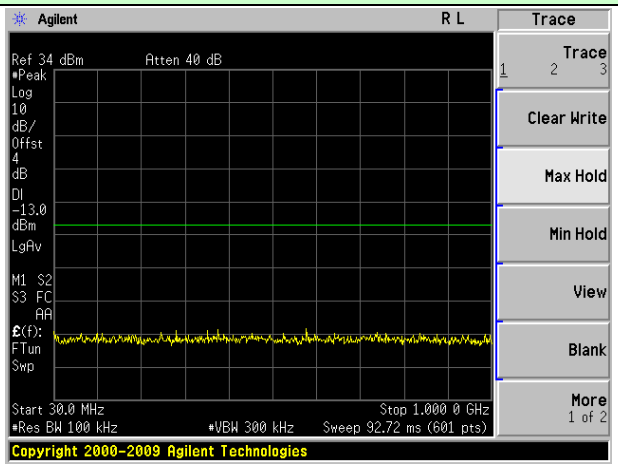
Middle channel

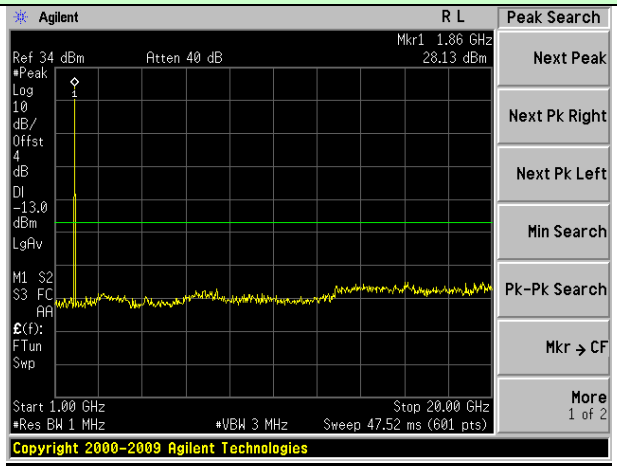




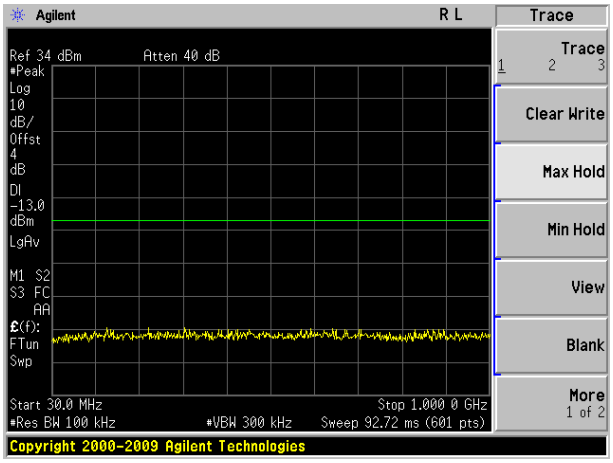
Highest channel

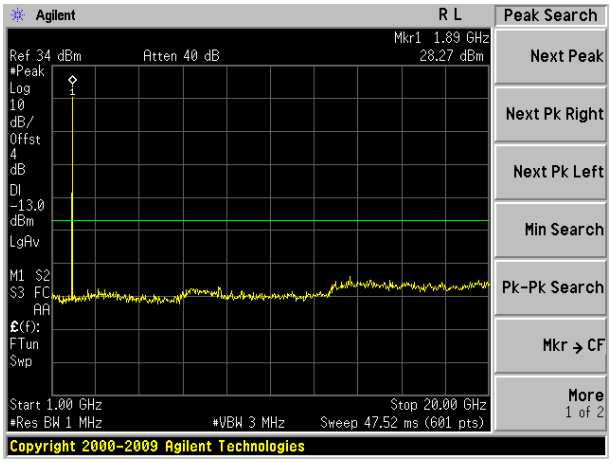
Test Mode:	EGPRS 1900 (Class 8)



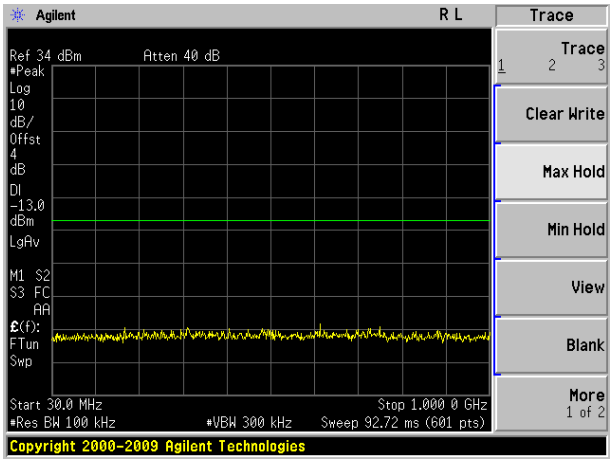


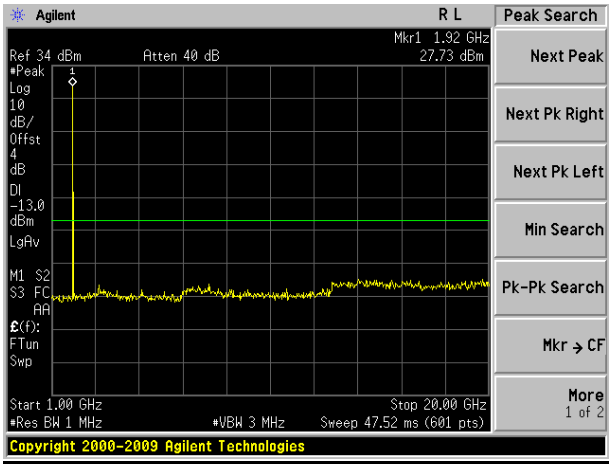
Lowest channel





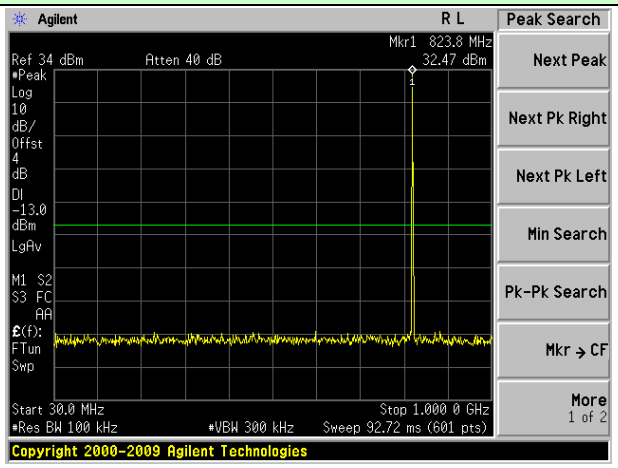
Middle channel

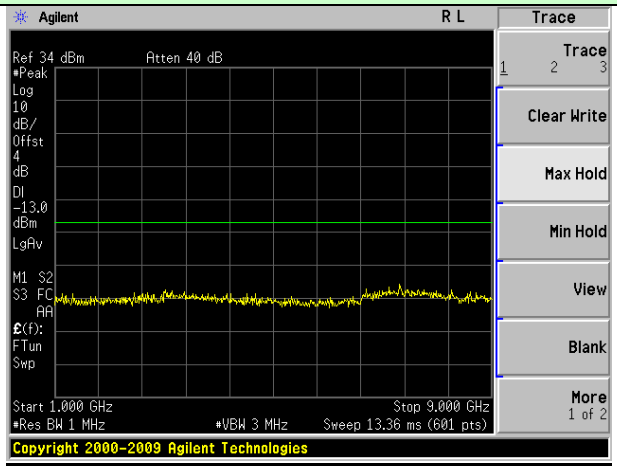




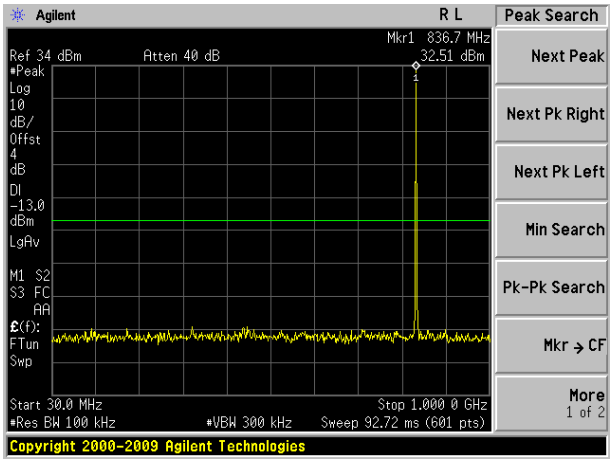
Highest channel

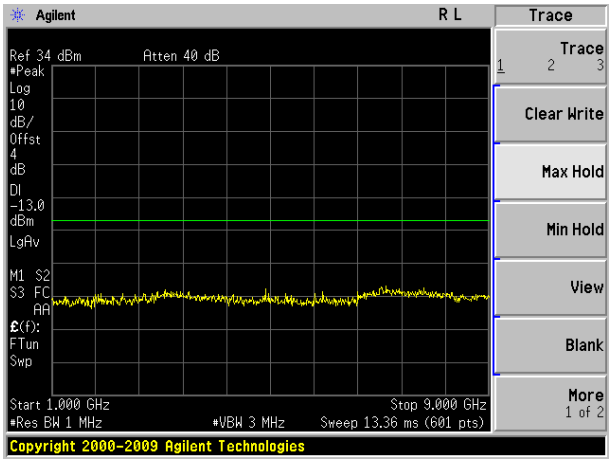
Test Mode:	GPRS 850 (Class 8)



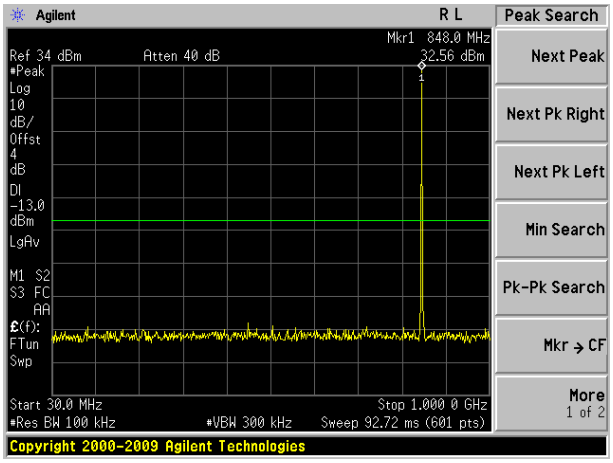


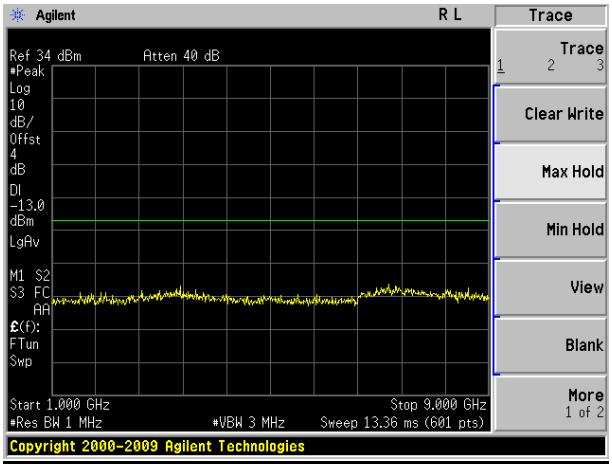
Lowest channel





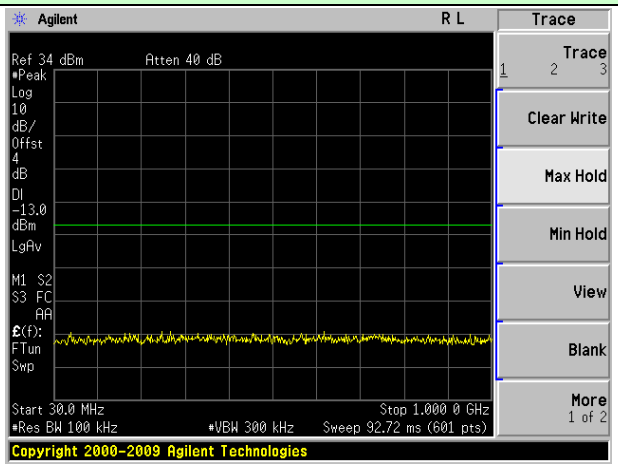
Middle channel

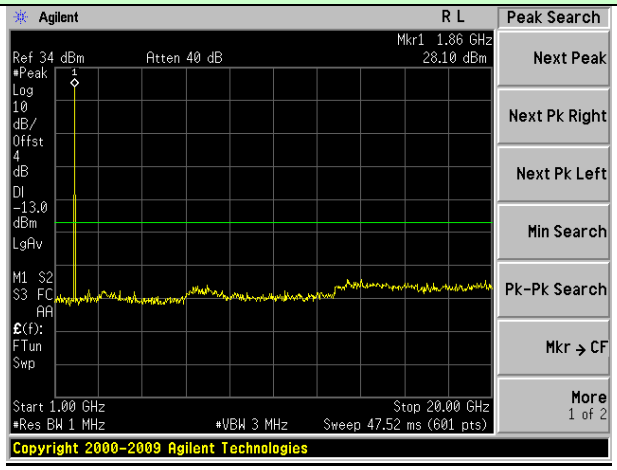




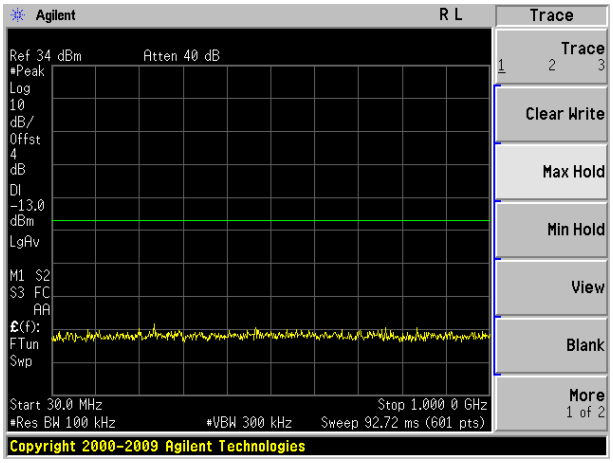
Highest channel

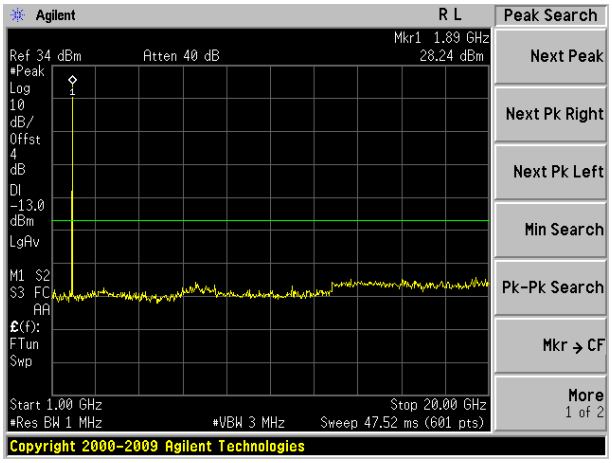
Test Mode:	GPRS 1900 (Class 8)



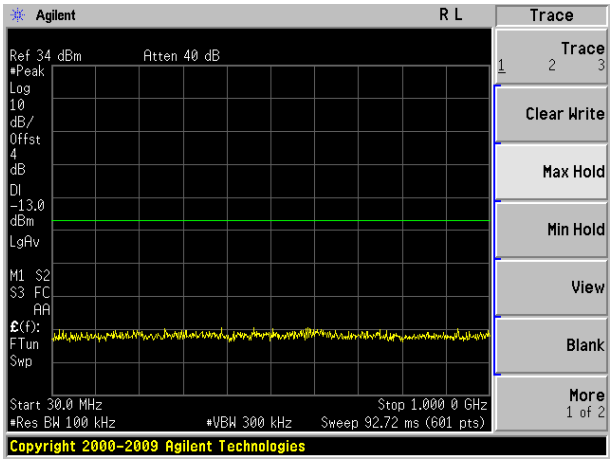


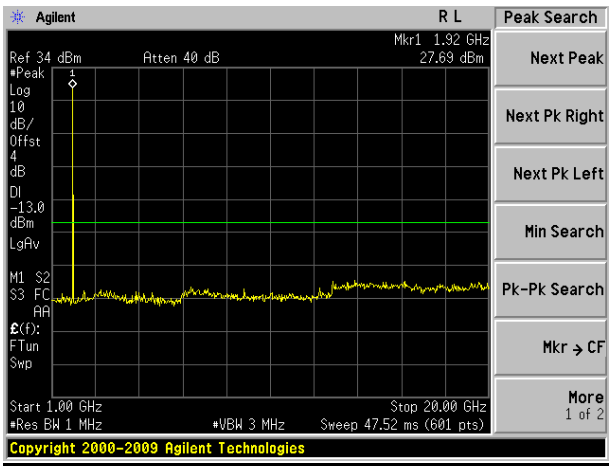
Lowest channel





Middle channel

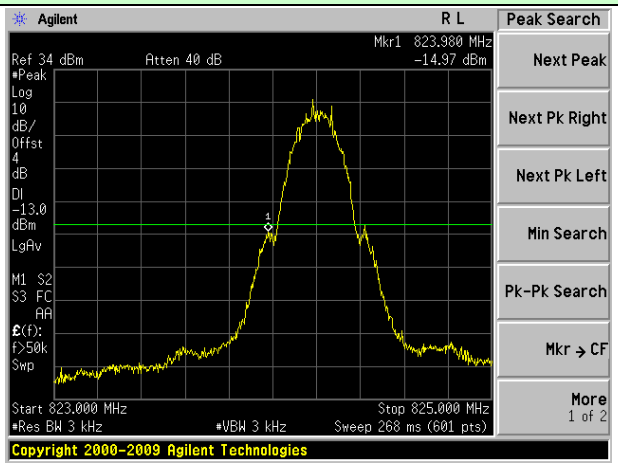




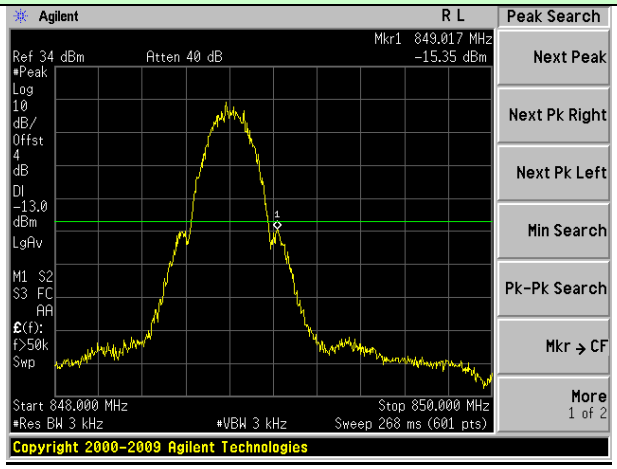
Highest channel

Band edge:

Test Mode:	GSM850 (GSM link)

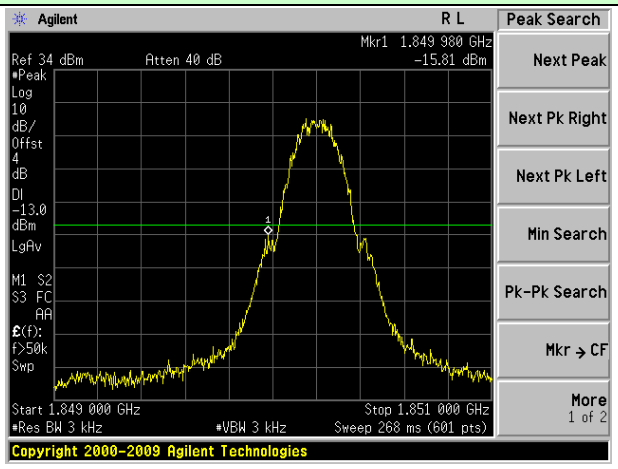


Lowest channel

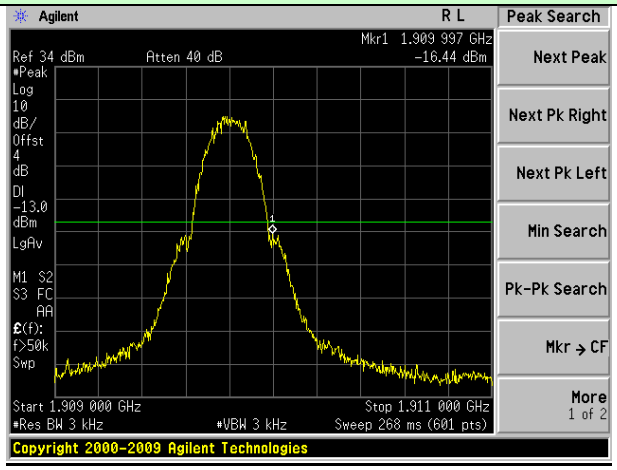


Highest channel

Test Mode:	PCS1900 (GSM link)

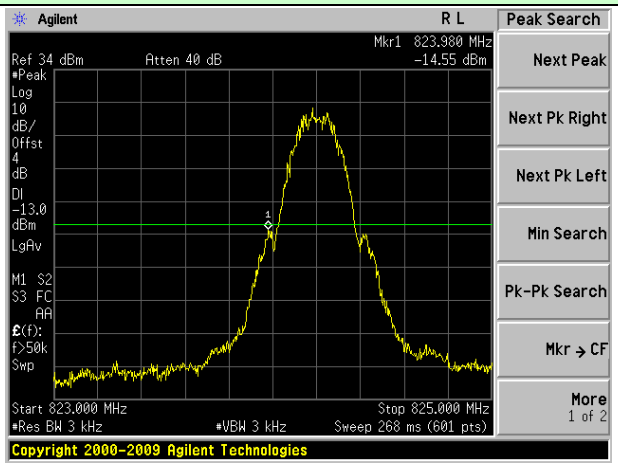


Lowest channel

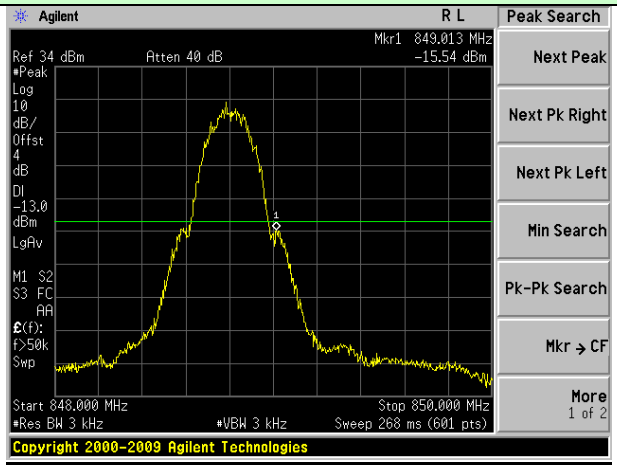


Highest channel

Test Mode:	EGPRS850 (Class 8)

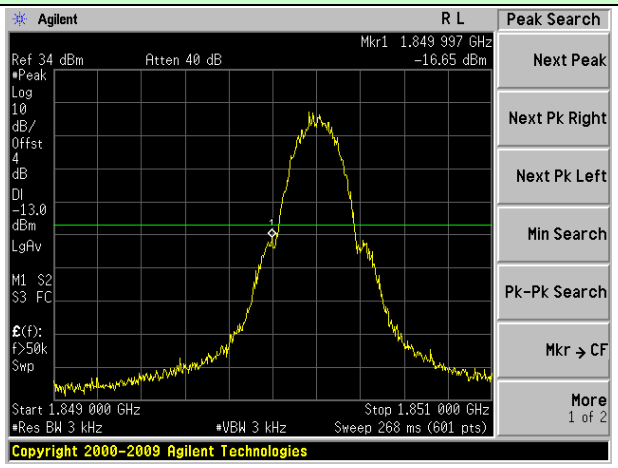


Lowest channel

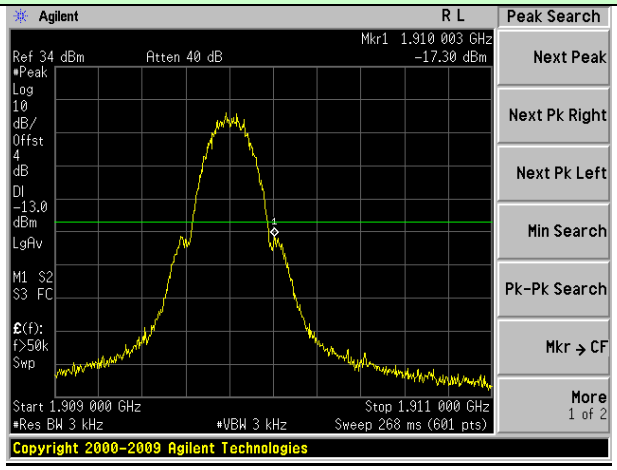


Highest channel

Test Mode:	EGPRS1900 (Class 8)

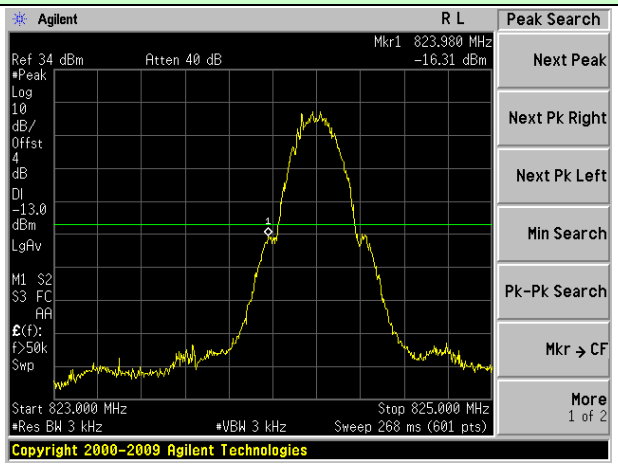


Lowest channel

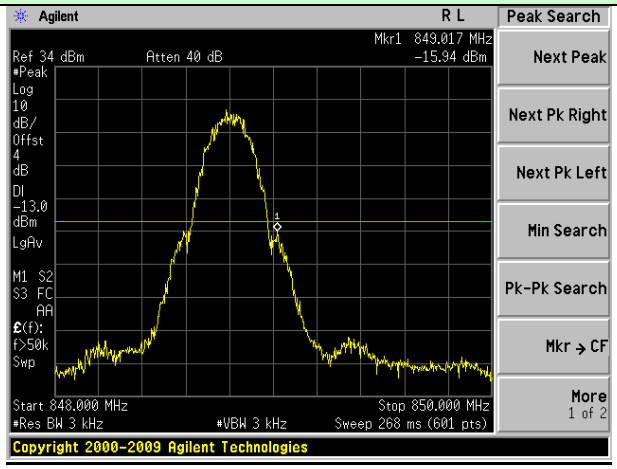


Highest channel

Test Mode:	GPRS850 (Class 8)

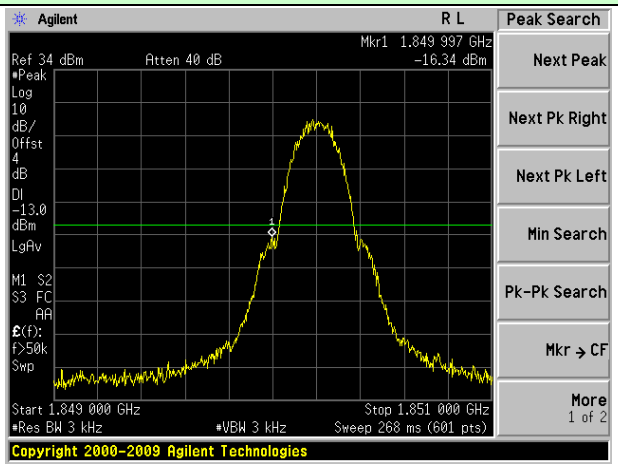


Lowest channel

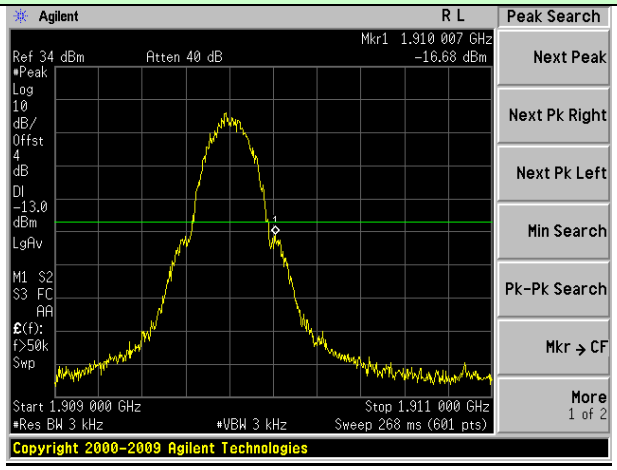


Highest channel

Test Mode:	GPRS1900 (Class 8)

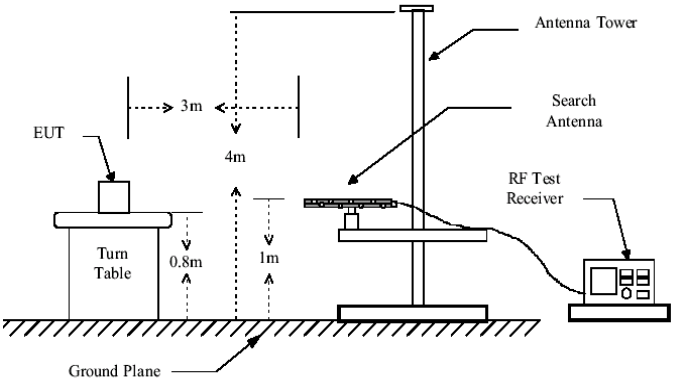
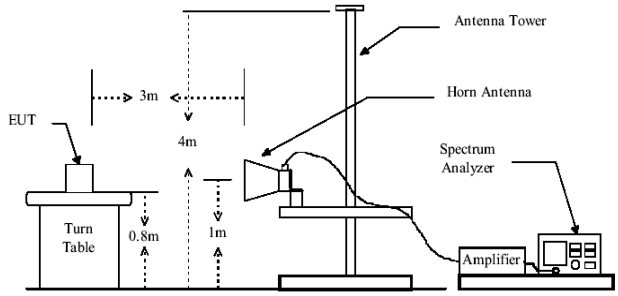
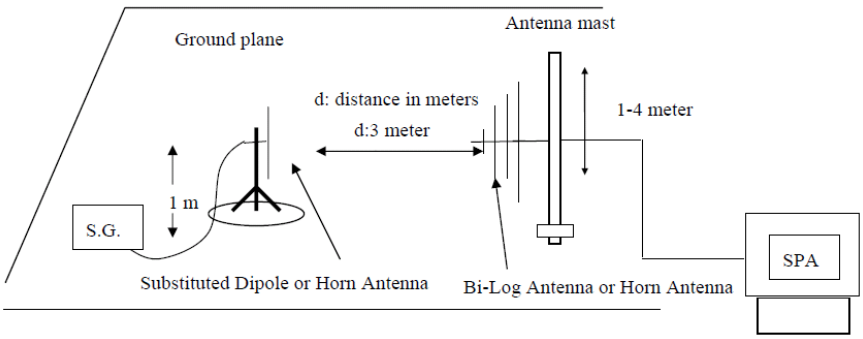


Lowest channel



Highest channel

7.7 ERP, EIRP Measurement

Test Requirement:	FCC part22.913(a) and FCC part24.232(b)
Test Method:	FCC part2.1046
Limit:	GSM850 7W ERP PCS1900 2W EIRP
Test setup:	Below 1GHz  Above 1GHz  Substituted method: 

Test Procedure:	1. The EUT was placed on an non-conductive turntable using a non-conductive support. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer. 2. During the measurement, the EUT was communication with the station. The highest emission was recorded with the rotation of the turntable and the lowering of the test antenna from 4m to 1m. The reading was recorded and the field strength (E in dBuV/m) was calculated. 3. ERP in frequency band 824.2 –848.80.8MHz were measured using a substitution method. The EUT was replaced by dipole antenna connected, the S.G. output was recorded and ERP was calculated asfollows: ERP = S.G. output (dBm) + Antenna Gain (dBd) – Cable Loss (dB) 4. EIRP in frequency band 1850.2 –1909.8MHz were measured using a substitution method. The EUT was replaced by or horn antenna connected, the S.G. output was recorded and EIRP was calculated as follows: EIRP = S.G. output (dBm) + Antenna Gain (dBi) – Cable Loss (dB)
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data

EUT mode	Channel	EUT Pol.	Antenna Pol.	ERP(dBm)	Limit (dBm)	Result
GSM850 (GSM link)	Lowest	H	V	30.71	38.45	Pass
			H	26.56		
		E1	V	24.25		
			H	27.25		
		E2	V	23.70		
			H	25.75		
	Middle	H	V	30.67	38.45	Pass
			H	26.85		
		E1	V	24.67		
			H	27.69		
		E2	V	25.08		
			H	26.28		
	Highest	H	V	31.26	38.45	Pass
			H	26.89		
		E1	V	24.83		
			H	27.47		
		E2	V	23.54		
			H	26.84		

EUT mode	Channel	EUT Pol.	Antenna Pol.	ERP(dBm)	Limit (dBm)	Result
GSM850 (EGPRS 8 link)	Lowest	H	V	26.71	38.45	Pass
			H	22.45		
		E1	V	19.10		
			H	23.22		
		E2	V	18.42		
			H	21.30		
	Middle	H	V	26.87	38.45	Pass
			H	22.71		
		E1	V	19.51		
			H	23.66		
		E2	V	20.03		
			H	21.86		
	Highest	H	V	27.10	38.45	Pass
			H	22.48		
		E1	V	19.44		
			H	23.00		
		E2	V	17.87		
			H	22.26		

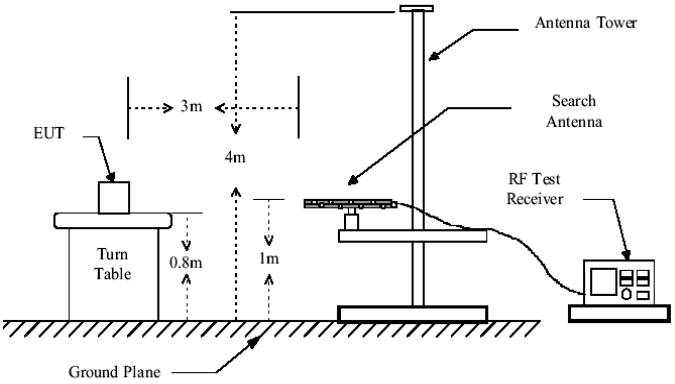
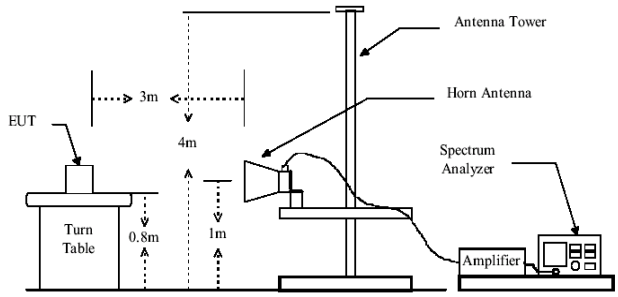
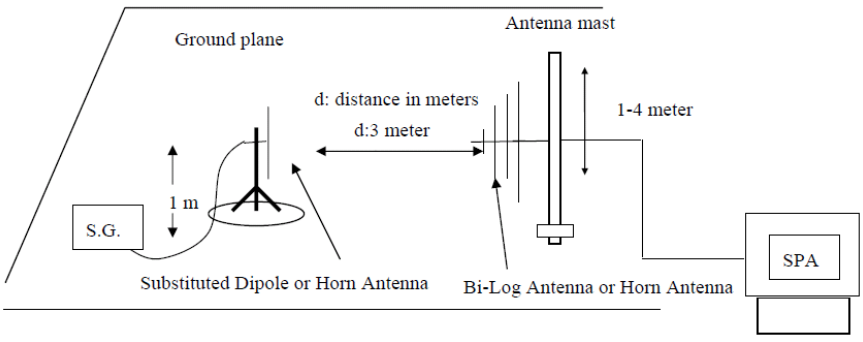
EUT mode	Channel	EUT Pol.	Antenna Pol.	ERP(dBm)	Limit (dBm)	Result
GSM850 (GPRS 8 link)	Lowest	H	V	26.64	38.45	Pass
			H	22.38		
		E1	V	19.03		
			H	23.15		
		E2	V	18.35		
			H	21.23		
	Middle	H	V	26.80	38.45	Pass
			H	22.64		
		E1	V	19.44		
			H	23.59		
		E2	V	19.96		
			H	21.79		
	Highest	H	V	27.03	38.45	Pass
			H	22.41		
		E1	V	19.37		
			H	22.93		
		E2	V	17.80		
			H	22.19		

EUT mode	Channel	EUT Pol.	Antenna Pol.	EIRP (dBm)	Limit (dBm)	Result
PCS1900 (GSM link)	Lowest	H	V	29.91	33.01	Pass
			H	28.65		
		E1	V	22.88		
			H	28.63		
		E2	V	22.38		
			H	26.85		
	Middle	H	V	31.35	33.01	Pass
			H	30.12		
		E1	V	24.40		
			H	30.19		
		E2	V	24.85		
			H	28.50		
	Highest	H	V	31.12	33.01	Pass
			H	29.11		
		E1	V	23.55		
			H	28.10		
		E2	V	22.60		
			H	27.82		

EUT mode	Channel	EUT Pol.	Antenna Pol.	EIRP (dBm)	Limit (dBm)	Result
PCS1900 (EGPRS 8 link)	Lowest	H	V	26.90	33.01	Pass
			H	25.66		
		E1	V	19.37		
			H	25.68		
		E2	V	18.81		
			H	23.69		
	Middle	H	V	27.00	33.01	Pass
			H	25.89		
		E1	V	19.67		
			H	26.01		
		E2	V	20.18		
			H	24.13		
	Highest	H	V	26.99	33.01	Pass
			H	24.92		
		E1	V	18.89		
			H	23.89		
		E2	V	17.79		
			H	23.55		

EUT mode	Channel	EUT Pol.	Antenna Pol.	EIRP (dBm)	Limit (dBm)	Result
PCS1900 (GPRS 8 link)	Lowest	H	V	26.83	33.01	Pass
			H	25.59		
		E1	V	19.30		
			H	25.61		
		E2	V	18.74		
			H	23.62		
	Middle	H	V	26.93	33.01	Pass
			H	25.82		
		E1	V	19.60		
			H	25.94		
		E2	V	20.11		
			H	24.06		
	Highest	H	V	26.92	33.01	Pass
			H	24.85		
		E1	V	18.82		
			H	23.82		
		E2	V	17.72		
			H	23.48		

7.8 Field strength of spurious radiation measurement

Test Requirement:	FCC part22.917(a) and FCC part24.238(a)
Test Method:	FCC part2.1053
Limit:	-13dBm
Test setup:	Below 1GHz  Above 1GHz  Substituted method: 

Test Procedure:	1. The EUT was placed on an non-conductive turntable using a non-conductive support. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer. 2. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations. 3. The frequency range up to tenth harmonic was investigated for each of three fundamental frequency (low, middle and high channels). Once spurious emission was identified, the power of the emission was determined using the substitution method. 4. The spurious emissions attenuation was calculated as the difference between radiated power at the fundamental frequency and the spurious emissions frequency. ERP / EIRP = S.G. output (dBm) + Antenna Gain(dB/dBi) – Cable Loss (dB)
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data

Test mode:	GSM850		Test channel:	Lowest
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1648.40	Vertical	-35.77	-13.00	Pass
2472.60	V	-38.52		
3296.80	V	-40.79		
4121.00	V	-42.95		
4945.20	V	---		
1648.40	Horizontal	-41.03	-13.00	Pass
2472.60	H	-44.91		
3296.80	H	-46.48		
4121.00	H	-49.23		
4945.20	H	---		
Test mode:	**GSM850**		**Test channel:**	**Middle**
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1673.20	Vertical	-37.17	-13.00	Pass
2509.80	V	-39.46		
3346.40	V	-41.35		
4183.00	V	-43.16		
5019.60	V	---		
1673.20	Horizontal	-41.56	-13.00	Pass
2509.80	H	-44.79		
3346.40	H	-46.10		
4183.00	H	-48.39		
5019.60	H	---		
Test mode:	**GSM850**		**Test channel:**	**Highest**
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1697.60	Vertical	-37.43	-13.00	Pass
2546.40	V	-38.97		
3395.20	V	-42.05		
4244.00	V	-43.65		
5092.80	V	---		
1697.60	Horizontal	-42.25	-13.00	Pass
2546.40	H	-44.52		
3395.20	H	-45.67		
4244.00	H	-47.68		
5092.80	H	---		

Remark：

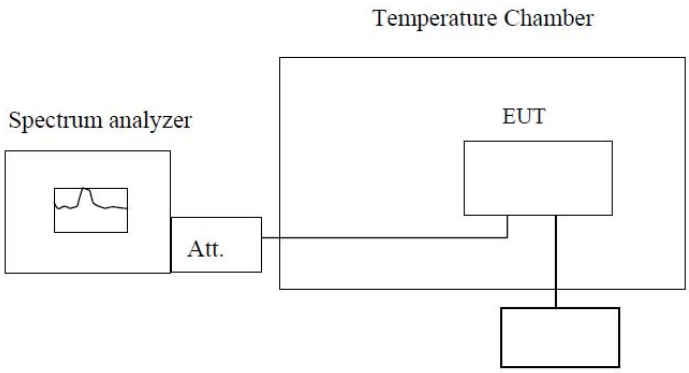
1. The emission behaviour belongs to narrowband spurious emission.
2. Remark"---" means that the emission level is too low to be measured
3. The emission levels of below 1 GHz are very lower than the limit and not show in test report.

Test mode:	PCS1900		Test channel:	Lowest
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3700.40	Vertical	-36.22	-13.00	Pass
5550.60	V	-38.63		
7400.80	V	-40.64		
9251.00	V	-42.55		
11101.20	V	---		
3700.40	Horizontal	-40.86	-13.00	Pass
5550.60	H	-44.28		
7400.80	H	-45.67		
9251.00	H	-48.09		
11101.20	H	---		
Test mode:	**PCS1900**		**Test channel:**	**Middle**
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3760.00	Vertical	-33.49	-13.00	Pass
5640.00	V	-36.01		
7520.00	V	-38.10		
9400.00	V	-40.09		
11280.00	V	---		
3760.00	Horizontal	-38.32	-13.00	Pass
5640.00	H	-41.88		
7520.00	H	-43.35		
9400.00	H	-45.88		
11280.00	H	---		
Test mode:	**PCS1900**		**Test channel:**	**Highest**
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3819.60	Vertical	-34.90	-13.00	Pass
5729.40	V	-37.33		
7639.20	V	-39.35		
9549.00	V	-41.27		
11458.80	V	---		
3819.60	Horizontal	-39.56	-13.00	Pass
5729.40	H	-43.00		
7639.20	H	-44.41		
9549.00	H	-46.85		
11458.80	H	---		

Remark：

1. The emission behaviour belongs to narrowband spurious emission.
2. Remark"---" means that the emission level is too low to be measured
3. The emission levels of below 1 GHz are very lower than the limit and not show in test report.

7.9 Frequency stability V.S. Temperature measurement

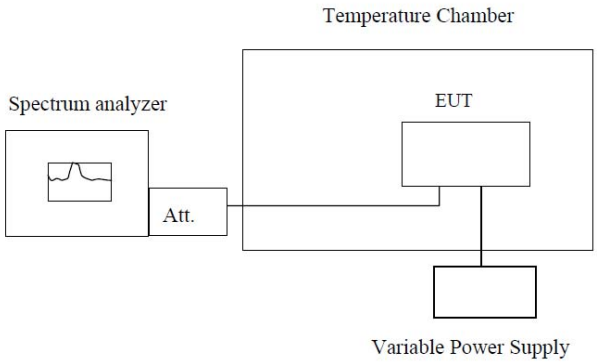
Test Requirement:	FCC Part2.1055(a)(1)(b)
Test Method:	FCC Part2.1055(a)(1)(b)
Limit:	2.5ppm
Test setup:	 **Note :** Measurement setup for testing on Antenna connector
Test procedure:	1. The equipment under test was connected to an external DC power supply and input rated voltage. 2. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. 3. The EUT was placed inside the temperature chamber. 4. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 25˚C operating frequency as reference frequency. 5. Turn EUT off and set the chamber temperature to –20˚C. After the temperature stabilized for approximately 30 minutes recorded the frequency. 6. Repeat step measure with 10˚C increased per stage until the highest temperature of +50˚C reached.
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data

Reference Frequency: GSM850 (GSM link) Middle channel=190 channel=836.6MHz					
Power supplied (Vdc)	Temperature (˚C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
3.70	-30	50	0.0602	2.5	Pass
	-20	57	0.0681		
	-10	49	0.0580		
	0	41	0.0494		
	10	47	0.0556		
	20	40	0.0473		
	30	66	0.0794		
	40	60	0.0711		
	50	57	0.0681		
Reference Frequency: GSM850 (EGPRS 8 link) Middle channel=190 channel=836.6MHz					
Power supplied (Vdc)	Temperature (˚C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
3.70	-30	45	0.0537	2.5	Pass
	-20	51	0.0614		
	-10	43	0.0518		
	0	38	0.0454		
	10	42	0.0502		
	20	37	0.0440		
	30	61	0.0729		
	40	54	0.0639		
	50	51	0.0605		
Reference Frequency: GSM850 (GPRS 8 link) Middle channel=190 channel=836.6MHz					
Power supplied (Vdc)	Temperature (˚C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
3.70	-30	46	0.0550	2.5	Pass
	-20	53	0.0631		
	-10	45	0.0533		
	0	39	0.0467		
	10	44	0.0520		
	20	38	0.0457		
	30	63	0.0751		
	40	55	0.0657		
	50	52	0.0624		

Reference Frequency: PCS1900 (GSM link) Middle channel=661 channel=1880MHz					
Power supplied (Vdc)	Temperature (˚C)	Frequency error			Result
		Hz	ppm		
3.70	-30	81	0.0432	2.5	Pass
	-20	95	0.0504		
	-10	80	0.0424		
	0	68	0.0360		
	10	81	0.0431		
	20	70	0.0374		
	30	110	0.0583		
	40	97	0.0516		
	50	95	0.0507		
Reference Frequency: PCS1900 (EGPRS 8 link) Middle channel=661 channel=1880MHz					
Power supplied (Vdc)	Temperature (˚C)	Frequency error			Result
		Hz	ppm		
3.70	-30	79	0.0420	2.5	Pass
	-20	92	0.0489		
	-10	76	0.0403		
	0	63	0.0337		
	10	77	0.0407		
	20	65	0.0345		
	30	102	0.0545		
	40	87	0.0460		
	50	91	0.0482		
Reference Frequency: PCS1900 (GPRS 8 link) Middle channel=661 channel=1880MHz					
Power supplied (Vdc)	Temperature (˚C)	Frequency error			Result
		Hz	ppm		
3.70	-30	80	0.0426	2.5	Pass
	-20	93	0.0497		
	-10	77	0.0410		
	0	64	0.0343		
	10	78	0.0415		
	20	66	0.0352		
	30	104	0.0554		
	40	88	0.0468		
	50	92	0.0490		

7.10 Frequency stability V.S. Voltage measurement

Test Requirement:	FCC Part2.1055(d)(1)(2)
Test Method:	FCC Part2.1055(d)(1)(2)
Limit:	2.5ppm
Test setup:	 **Note :** Measurement setup for testing on Antenna connector
Test procedure:	1. Set chamber temperature to 25˚C. Use a variable DC power source to power the EUT and set the voltage to rated voltage. 2. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency. 3. Reduce the input voltage to specified extreme voltage variation (+/- 15%) and endpoint, record the maximum frequency change.
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data

Reference Frequency: GSM850 (GSM link) Middle channel=190 channel=836.6MHz					
Temperature (˚C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.25	34	0.0405	2.5	Pass
	3.70	39	0.0464		
	3.40	43	0.0518		
Reference Frequency: GSM850 (EGPRS 8 link) Middle channel=190 channel=836.6MHz					
Temperature (˚C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.25	56	0.0665	2.5	Pass
	3.70	42	0.0496		
	3.40	46	0.0547		
Reference Frequency: GSM850 (GPRS 8 link) Middle channel=190 channel=836.6MHz					
Temperature (˚C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.25	30	0.0353	2.5	Pass
	3.70	33	0.0397		
	3.40	37	0.0440		

Reference Frequency: PCS1900 (GSM link) Middle channel=661 channel=1880MHz					
Temperature (˚C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.25	59	0.0315	2.5	Pass
	3.70	70	0.0370		
	3.40	69	0.0369		
Reference Frequency: PCS1900 (EGPRS 8 link) Middle channel=661 channel=1880MHz					
Temperature (˚C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.25	95	0.0506	2.5	Pass
	3.70	72	0.0380		
	3.40	76	0.0405		
Reference Frequency: PCS1900 (GPRS 8 link) Middle channel=661 channel=1880MHz					
Temperature (˚C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.25	54	0.0286	2.5	Pass
	3.70	61	0.0326		
	3.40	62	0.0327		