Test Report

Applicant:	Darmuoba, S.A. de C.V
Address of Applicant:	Mar Negro 1, Col. Tacuba, CDMX. C.P 11410 Miguel Hidalgo, Distrito Federal, Mexico
Manufacturer/Factory:	Z-TECH COMMUNICATION(SZ)CO;LTD
Address of Manufacturer/Factory:	7L BLK D BAO'AN ZHIGU YIN'TIAN ROAD NO.4 XI'XIANG, BAO'AN DISTRICT SZ CHINA

Equipment Under Test (EUT)

Product Name:	MOBIE PHONES
Model No.:	SD70
Trade mark:	UNEONE
FCC ID:	2AIFYSD70
Applicable standards:	FCC CFR Title 47 Part 2
	FCC CFR Title 47 Part 22 Subpart H
	FCC CFR Title 47 Part 24 Subpart E
Date of sample receipt:	May 20, 2019
Date of Test:	May 21-June 28, 2019
Date of report issued:	June 28, 2019
Test Result :	PASS *

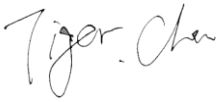
* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

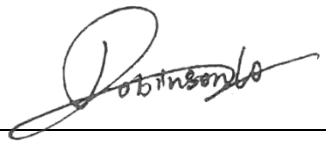
Robinson Lo
Laboratory Manager

1 Version

Version No.	Date	Description
00	*June 28, 2019*	*Original*

Prepared By:  ***Date:*** *June 28, 2019*

Project Engineer

Check By:  ***Date:*** *June 28, 2019*

Reviewer

2 Contents

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3 Test Summary

Test Item	Section in CFR 47	Result
RF Exposure (SAR)	Part 1.1307 Part 2.1093	Pass* (Please refer to SAR Report)
RF Output Power	Part 2.1046 Part 22.913 (a) Part 24.232 (c)	Pass
Peak-to-Average Ratio	Part 2.1046 Part 24.232	Pass
Modulation Characteristics	Part 2.1047	Pass
99% & -26 dB Occupied Bandwidth	Part 2.1049 Part 22.917(b) Part 24.238(b)	Pass
Spurious Emissions at Antenna Terminal	Part 2.1051 Part 22.917 Part 24.238	Pass
Field Strength of Spurious Radiation	Part 2.1053 Part 22.917 Part 24.238	Pass
Out of band emission, Band Edge	Part 2.1051 Part 22.917 Part 24.238	Pass
Frequency stability vs. temperature	Part 2.1055(a)(1)(b) Part 22.355 Part 24.235	Pass
Frequency stability vs. voltage	Part 2.1055(d)(1)(2) Part 22.355 Part 24.235	Pass

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

4 General Information

4.1 General Description of EUT

Product Name:	MOBIE PHONES
Model No.:	SD70
Test sample(s) ID:	GTS201905000145-1
Sample(s) Status	Engineer sample
Serial No.:	352968090000839
Hardware version:	SD70_V1.1
Software version:	SD70_002R
Support Networks:	GSM, GPRS, EGPRS, WCDMA
Support Bands:	GSM850, PCS1900, WCDMA Band V, WCDMA Band II
TX Frequency:	GSM850: 824.20MHz-848.80MHz PCS1900: 1850.20MHz-1909.80MHz WCDMA Band V: 826.40MHz-846.60MHz WCDMA Band II: 1852.40MHz-1907.60MHz
Modulation type:	GSM/GPRS: GMSK EGPRS: GMSK/8PSK WCDMA Band II/V: QPSK
Antenna type:	PIFA antenna
Antenna gain:	GSM850:1.1dBi PCS1900:1.3dBi WCDMA Band V: 1.5dBi WCDMA Band II: 1.2dBi
Power supply:	Adaptor Model:SD70-A Input: AC 100-240V, 50-60Hz, 200mA Output: DC 5V, 1A Or Battery: DC 3.8V, 2300mAh, 8.74W

Operation Frequency List:

GSM 850		PCS1900		WCDMA Band V		WCDMA Band II	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
128	824.20	512	1850.20	4132	826.40	9262	1852.40
129	824.40	513	1850.40	4133	826.60	9263	1852.60
· ⋮	· ⋮	· ⋮	· ⋮	· ⋮	· ⋮	· ⋮	· ⋮
189	836.40	660	1879.80	4181	836.20	9399	1879.80
190	836.60	661	1880.00	4182	836.40	9400	1880.00
191	836.80	662	1880.20	4183	836.60	9401	1880.20
· ⋮	· ⋮	· ⋮	· ⋮	· ⋮	· ⋮	· ⋮	· ⋮
250	848.60	809	1909.60	4232	846.40	9537	1907.40
251	848.80	810	1909.80	4233	846.60	9538	1907.60

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		WCDMA Band V		WCDMA Band II	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
128	824.20	512	1850.20	4132	826.40	9262	1852.40
190	836.60	661	1880.00	4183	836.60	9400	1880.00
251	848.80	810	1909.80	4233	846.60	9538	1907.60

4.2 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.

4.3 Test Methodology

Both conducted and radiated testing were performed according to the procedures document on ANSI C63.26:2015 and FCC CFR 47.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055 and 2.1057

4.4 Test Facility

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

● **FCC —Registration No.: 381383**

Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files. Registration 381383.

● **NVLAP (LAB CODE:600179-0)**

Global United Technology Services Co., Ltd., is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP). LAB CODE:600179-0

4.5 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.

Address: No. 301-309, 3/F., Jinyuan Business Building, No.2, Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, Guangdong, China 518102

Tel: 0755-27798480

Fax: 0755-27798960

5 Test Instruments list

Radiated Emission:						
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	July. 03 2015	July. 02 2020
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	June. 26 2019	June. 25 2020
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	June. 26 2019	June. 25 2020
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120 D	GTS208	June. 26 2019	June. 25 2020
6	Horn Antenna	ETS-LINDGREN	3160	GTS217	June. 26 2019	June. 25 2020
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
8	Coaxial Cable	GTS	N/A	GTS213	June. 26 2019	June. 25 2020
9	Coaxial Cable	GTS	N/A	GTS211	June. 26 2019	June. 25 2020
10	Coaxial cable	GTS	N/A	GTS210	June. 26 2019	June. 25 2020
11	Coaxial Cable	GTS	N/A	GTS212	June. 26 2019	June. 25 2020
12	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	June. 26 2019	June. 25 2020
13	Amplifier(2GHz-20GHz)	HP	84722A	GTS206	June. 26 2019	June. 25 2020
14	Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	June. 26 2019	June. 25 2020
15	Band filter	Amindeon	82346	GTS219	June. 26 2019	June. 25 2020
16	Power Meter	Anritsu	ML2495A	GTS540	June. 26 2019	June. 25 2020
17	Power Sensor	Anritsu	MA2411B	GTS541	June. 26 2019	June. 25 2020
18	Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	GTS575	June. 26 2019	June. 25 2020
19	Splitter	Agilent	11636B	GTS237	June. 26 2019	June. 25 2020
20	Loop Antenna	ZHINAN	ZN30900A	GTS534	June. 26 2019	June. 25 2020
21	Breitband hornantenne	SCHWARZBECK	BBHA 9170	GTS579	Oct. 20 2018	Oct. 19 2019
22	Amplifier	TDK	PA-02-02	GTS574	Oct. 20 2018	Oct. 19 2019
23	Amplifier	TDK	PA-02-03	GTS576	Oct. 20 2018	Oct. 19 2019
24	PSA Series Spectrum Analyzer	Rohde & Schwarz	FSP	GTS578	June. 26 2019	June. 25 2020

General used equipment:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	Humidity/ Temperature Indicator	KTJ	TA328	GTS243	June. 26 2019	June. 25 2020
2	Barometer	ChangChun	DYM3	GTS255	June. 26 2019	June. 25 2020

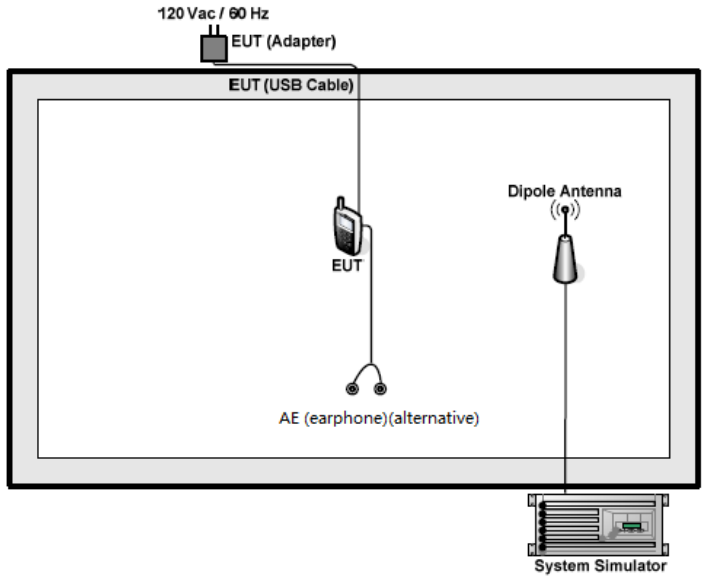
6 System test configuration

6.1 Test mode

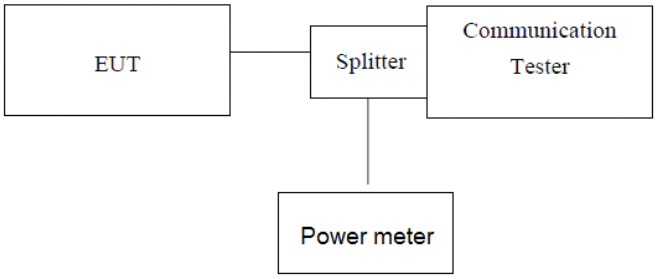
During all testing, EUT is in link mode with base station emulator at maximum power level. The spurious emission measurements were carried out in semi-anechoic chamber with 3-meter test range, and EUT is rotated on three test planes to find out the worst emission.

Test modes		
Band	Radiated	Conducted
GSM 850	■ GSM link ■ GPRS 1 link ■ EPRS 1 link	■ GSM link ■ GPRS 1 link ■ EGPRS 1 link
PCS 1900	■ GSM link ■ GPRS 1 link ■ EGPRS 1 link	■ GSM link ■ GPRS 1 link ■ EGPRS 1 link
WCDMA II	■ RMC 12.2Kbps link	■ RMC 12.2Kbps link
WCDMA Band V	■ RMC 12.2Kbps link	■ RMC 12.2Kbps link

6.2 Configuration of Tested System



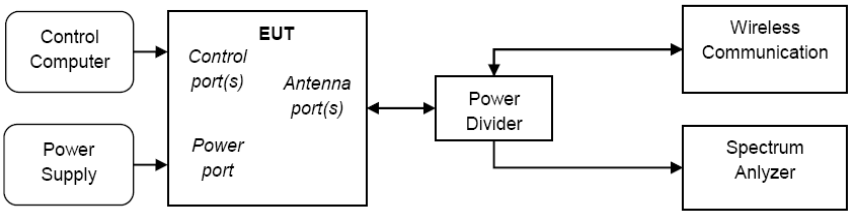
6.3 Conducted Output Power and Effective (Isotropic) Radiated output power

Test Requirement:	FCC part 22.913(a) and FCC part 24.232(c)
Test Method:	FCC part2.1046
Limit:	GSM850, WCDMA Band V: 7W(38.45dBm) PCS1900, WCDMA Band II: 2W(33dBm)
Test setup:	 *Note: Measurement setup for testing on Antenna connector*
Test Instruments:	Refer to section 5.0 for details
Test mode:	Refer to section 6.1 for details
Test results:	Pass

Measurement Data

EUT Mode	Channel	Measured [dBm]	ERP/EIRP [dBm]	Limit[dBm]	Verdict
WCDMA Band V (RMC 12.2Kbps link)	LCH	21.67	23.17	38.45	Pass
	MCH	21.73	23.23	38.45	Pass
	HCH	21.90	23.4	38.45	Pass
WCDMA Band II (RMC 12.2Kbps link)	LCH	20.30	21.5	33	Pass
	MCH	20.07	21.27	33	Pass
	HCH	20.70	21.9	33	Pass
GSM 850	LCH	32.61	33.71	38.45	Pass
	MCH	32.69	33.79	38.45	Pass
	HCH	32.64	33.74	38.45	Pass
GSM 850 (GPRS 1 link)	LCH	32.59	33.69	38.45	Pass
	MCH	32.68	33.78	38.45	Pass
	HCH	32.64	33.74	38.45	Pass
GSM 850 (EGPRS 1 link)	LCH	28.55	29.65	38.45	Pass
	MCH	28.47	29.57	38.45	Pass
	HCH	28.31	29.41	38.45	Pass
PCS 1900	LCH	29.58	30.88	33	Pass
	MCH	29.50	30.8	33	Pass
	HCH	29.46	30.76	33	Pass
PCS 1900 (GPRS 1 link)	LCH	29.64	30.94	33	Pass
	MCH	29.54	30.84	33	Pass
	HCH	29.50	30.8	33	Pass
PCS 1900 (EGPRS 1 link)	LCH	28.47	29.77	33	Pass
	MCH	28.78	30.08	33	Pass
	HCH	28.62	29.92	33	Pass

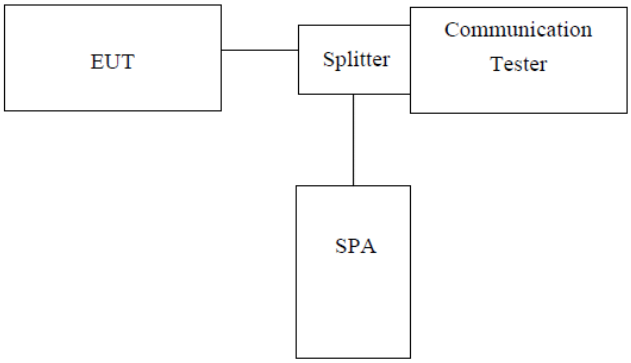
6.4 Peak-to-Average Ratio

Test Requirement:	FCC part24.232
Test Method:	FCC part2.1046
Limit:	13db
Test setup:	
Test Instruments:	Refer to section 5.0 for details
Test mode:	Refer to section 6.1 for details
Test results:	Pass

Measurement data

Test Band	Test mode	Peak to Average Ratio (dB)			Limit (dB)	Result
		Low Ch.	Middle Ch.	High Ch.		
GSM850	GSM/TMI	5.69	4.32	5.17	13	PASS
GSM1900	GSM/TMI	5.18	4.28	3.92	13	PASS
WCDMA850	UMTS/TMI	5.87	4.30	3.73	13	PASS
WCDMA1900	UMTS/TMI	3.03	5.58	5.93	13	PASS

6.5 Occupy Bandwidth

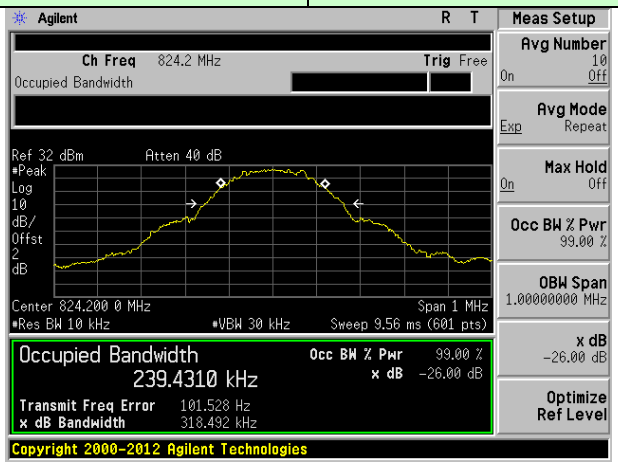
Test Requirement:	FCC part 22.917(b) and FCC part 24.238(b)
Test Method:	FCC part2.1049
Test setup:	 *Note: Measurement setup for testing on Antenna connector*
Test Instruments:	Refer to section 5.0 for details
Test mode:	Refer to section 6.1 for details
Test results:	Pass

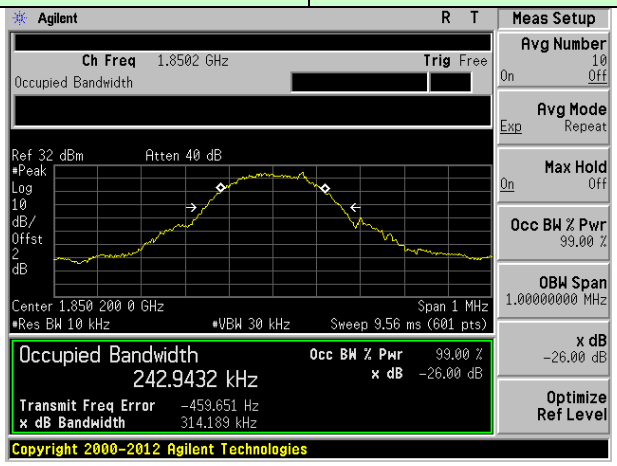
Measurement Data

EUT Mode	Channel	Frequency (MHz)	99% Occupy bandwidth (KHz)	-26dB bandwidth (KHz)
GSM 850 (GSM link)	128	824.20	239.431	318.492
	190	836.60	247.509	315.964
	251	848.80	242.433	315.973
GSM 850 (GPRS 1 link)	128	824.20	238.501	318.219
	190	836.60	238.251	310.559
	251	848.80	236.894	316.034
GSM 850 (EGPRS 1 link)	128	824.20	229.671	295.499
	190	836.60	245.565	299.946
	251	848.80	241.896	303.481
PCS 1900 (GSM link)	512	1850.20	242.943	314.189
	661	1880.00	248.120	313.910
	810	1909.80	248.839	319.459
PCS 1900 (GPRS 1 link)	512	1850.20	246.226	319.325
	661	1880.00	243.811	320.866
	810	1909.80	247.783	317.177
PCS 1900 (EGPRS 1 link)	512	1850.20	252.516	317.357
	661	1880.00	249.489	318.819
	810	1909.80	239.532	314.786
WCDMA Band V (RMC 12.2Kbps link)	4132	826.40	4141.4	4753.0
	4183	836.60	4120.6	4720.0
	4233	846.60	4139.5	4724.0
WCDMA Band II (RMC 12.2Kbps link)	9262	1852.4	4178.7	4825.0
	9400	1880.0	4117.2	4713.0
	9538	1907.6	4132.6	4767.0

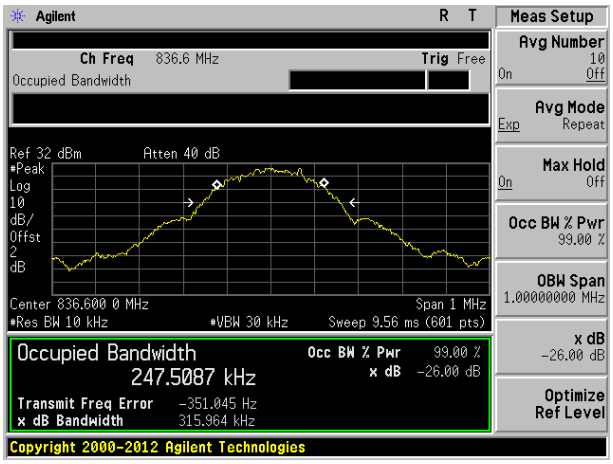
Test plot as follows:

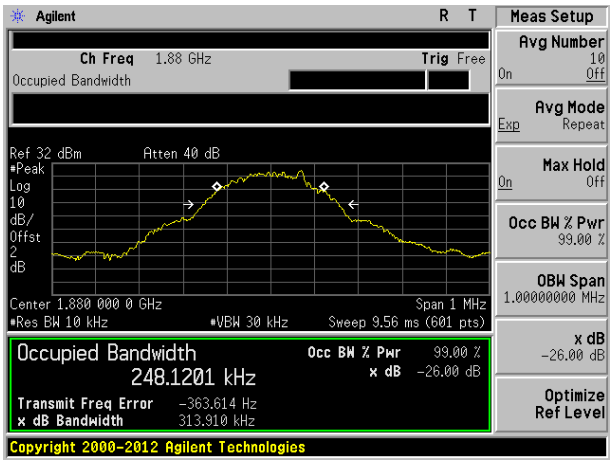
Test band:	GSM 850 (GSM link)	Test band:	PCS 1900 (GSM link)



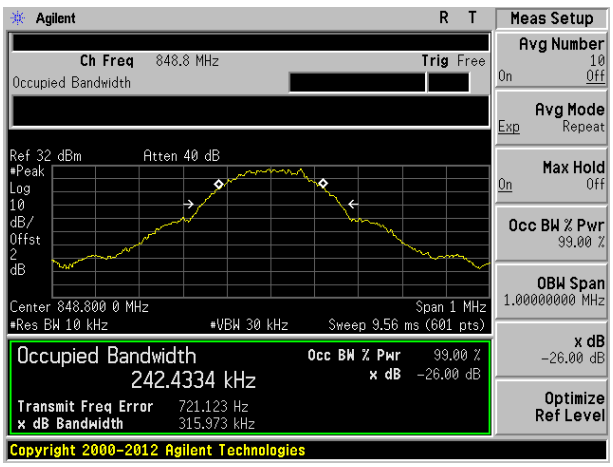


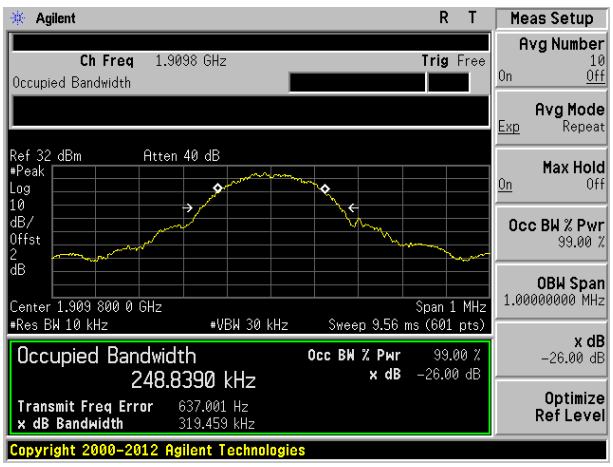
Lowest channel





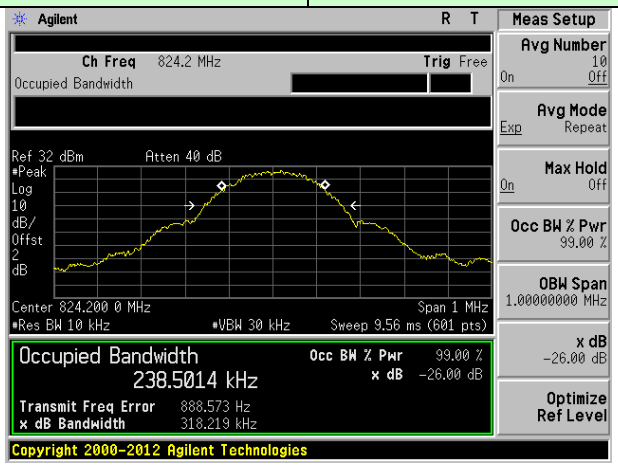
Middle channel

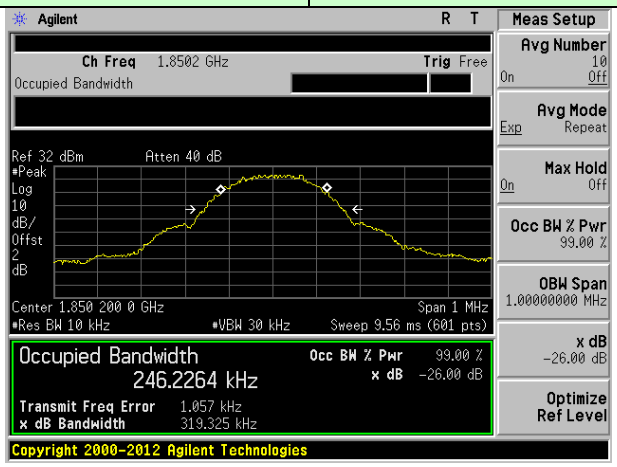




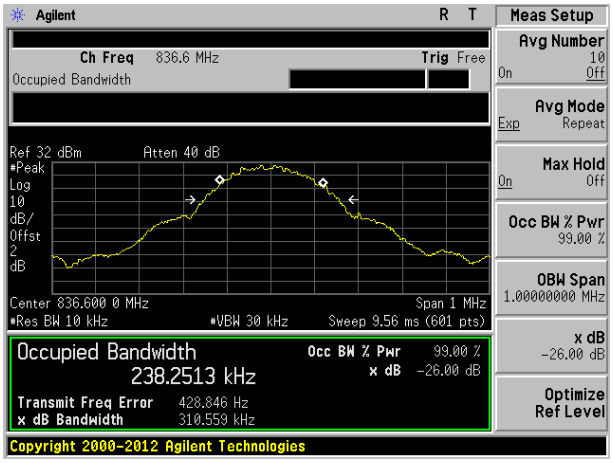
Highest channel

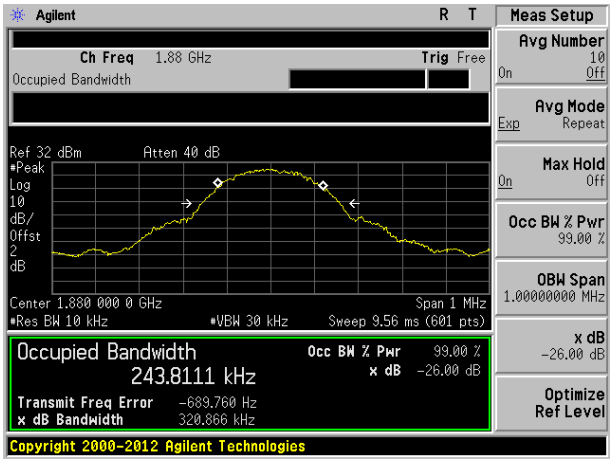
Test band:	GSM 850 (GPRS 1 link)	Test band:	PCS 1900 (GPRS 1 link)



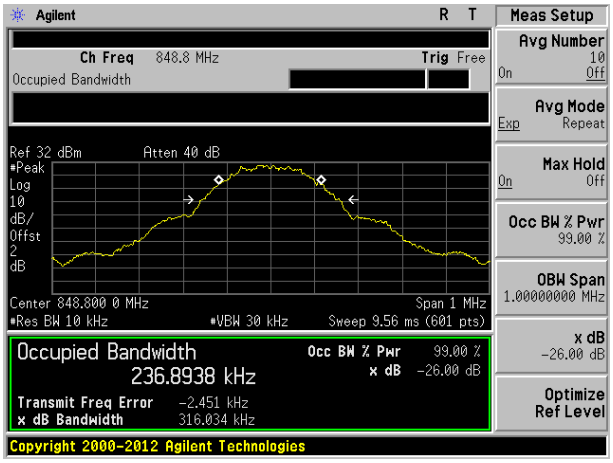


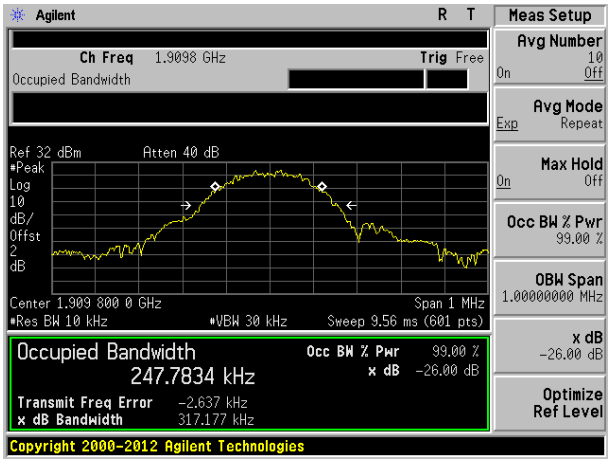
Lowest channel





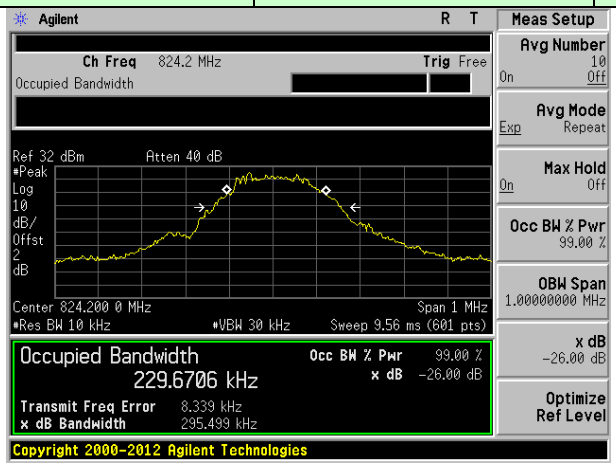
Middle channel

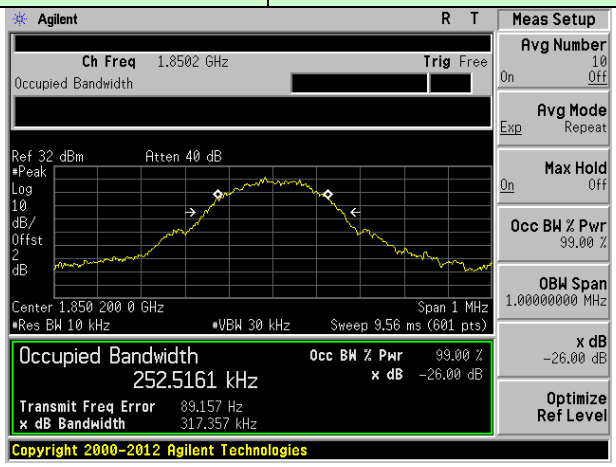




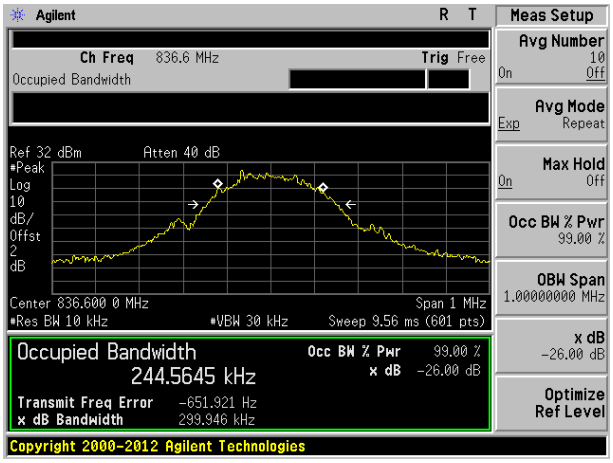
Highest channel

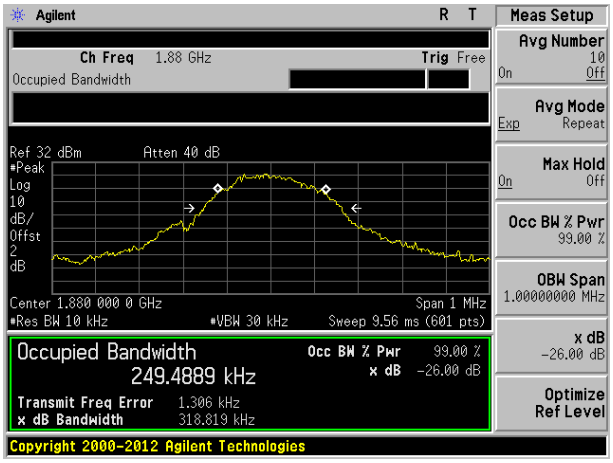
Test band:	GSM 850 (EGPRS 1 link)	Test band:	PCS 1900 (EGPRS 1 link)



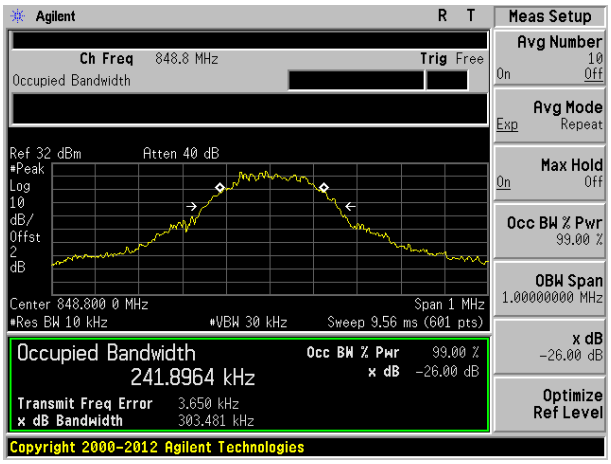


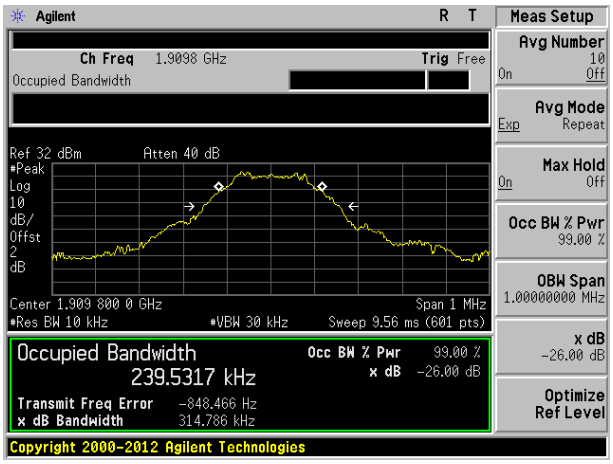
Lowest channel





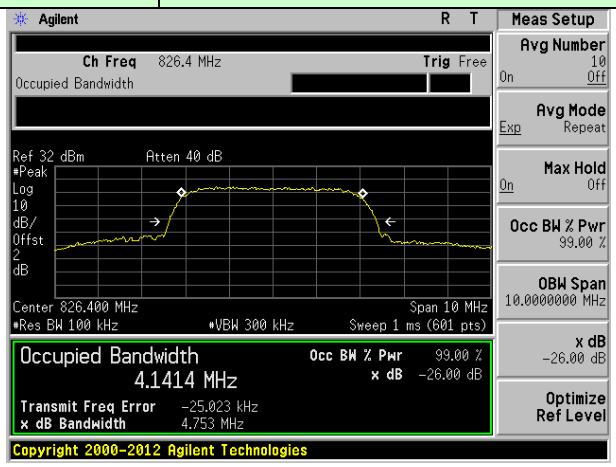
Middle channel

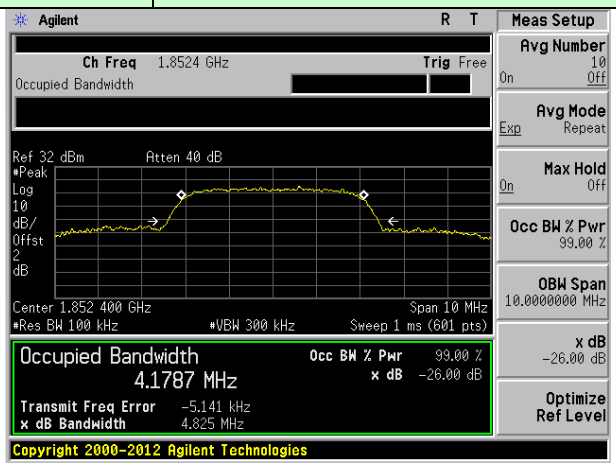




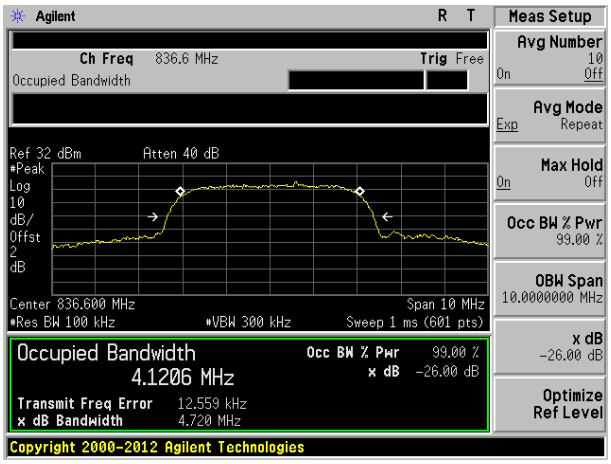
Highest channel

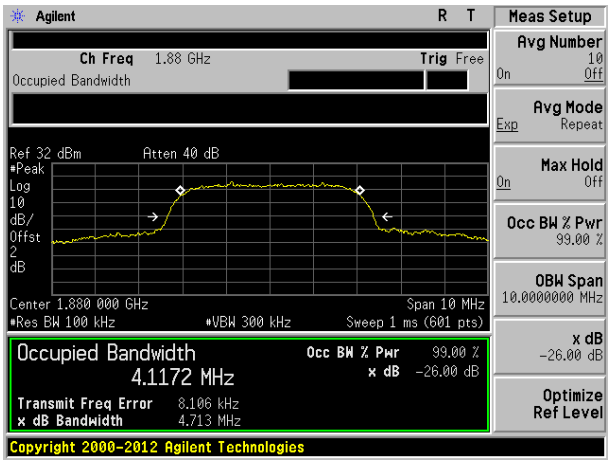
Test band:	WCDMA Band V (RMC 12.2Kbps)	Test band:	WCDMA Band II (RMC 12.2Kbps link)



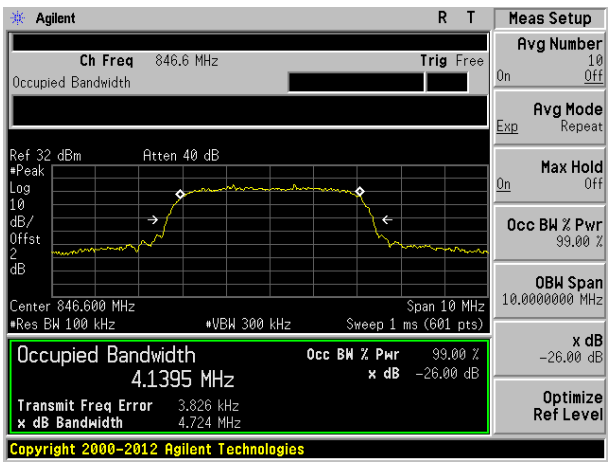


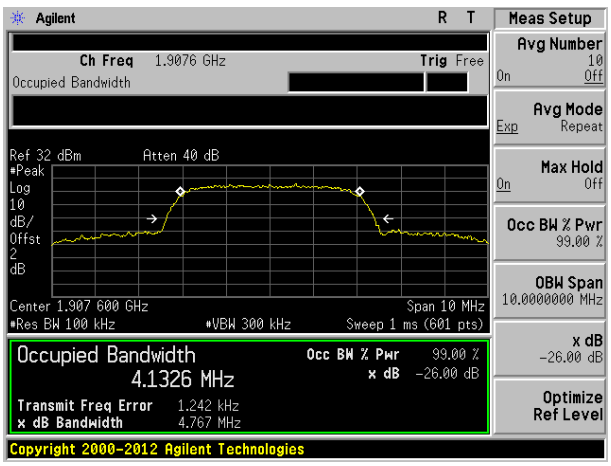
Lowest channel





Middle channel



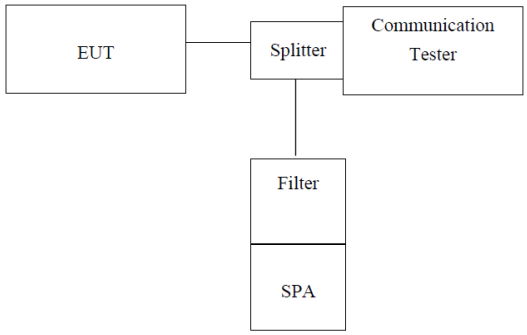


Highest channel

6.6 MODULATION CHARACTERISTIC

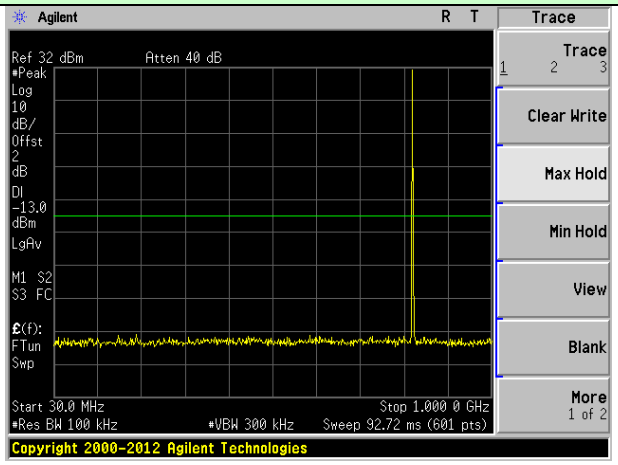
According to FCC § 2.1047(d), Part 22H & 24E there is no specific requirement for digital modulation, therefore modulation characteristic is not presented.

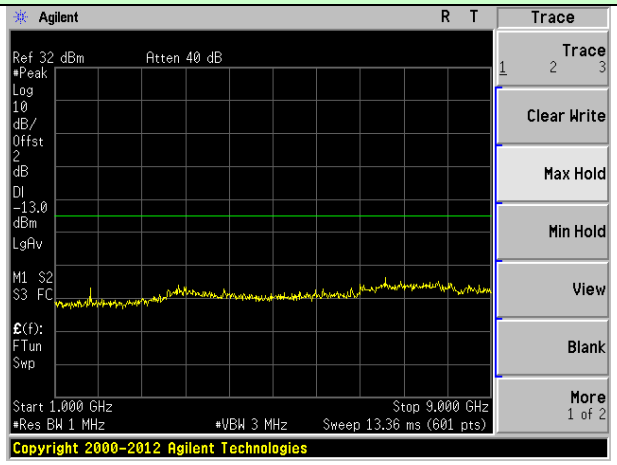
6.7 Out of band emission at antenna terminals

Test Requirement:	FCC part 22.917 and FCC part 24.238
Test Method:	FCC part2.1051
Limit:	-13dBm
Test setup:	 *Note: Measurement setup for testing on Antenna connector*
Test Instruments:	Refer to section 5.0 for details
Test mode:	Refer to section 6.1 for details
Test results:	Pass

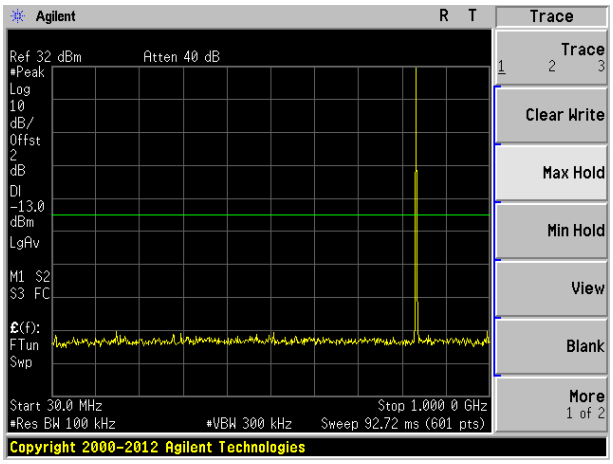
Test plot as follows:

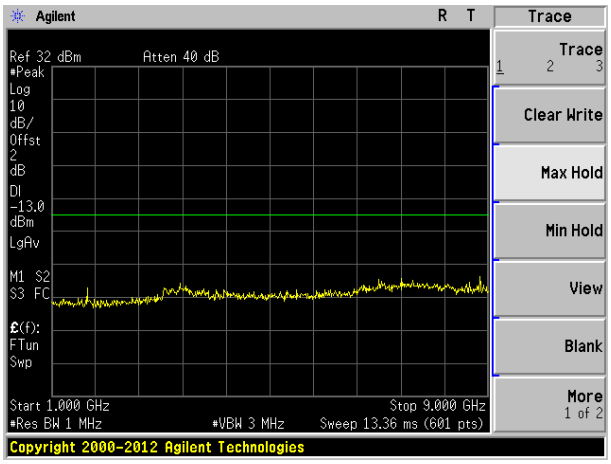
Test Mode: Traffic mode	GSM 850 (GSM link)



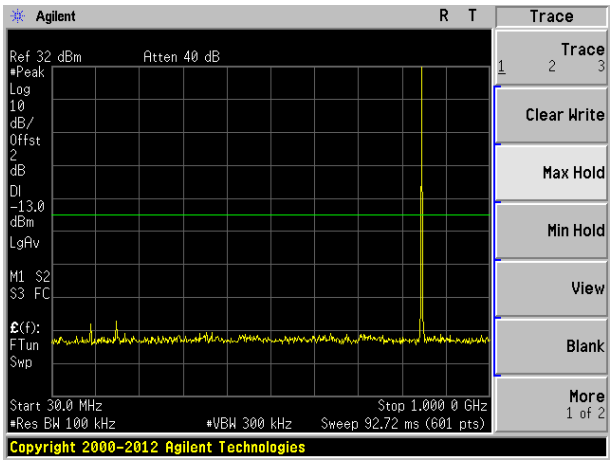


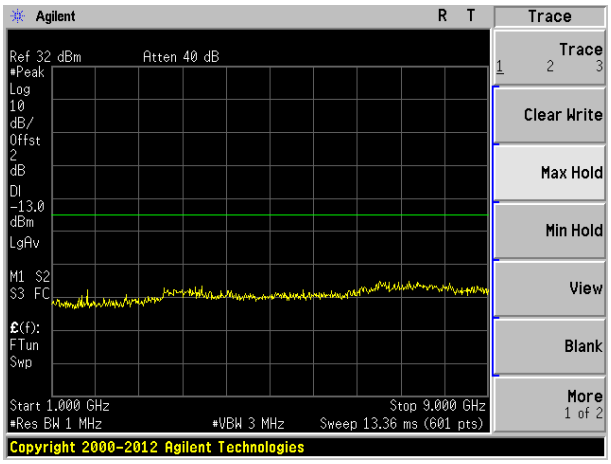
Lowest channel





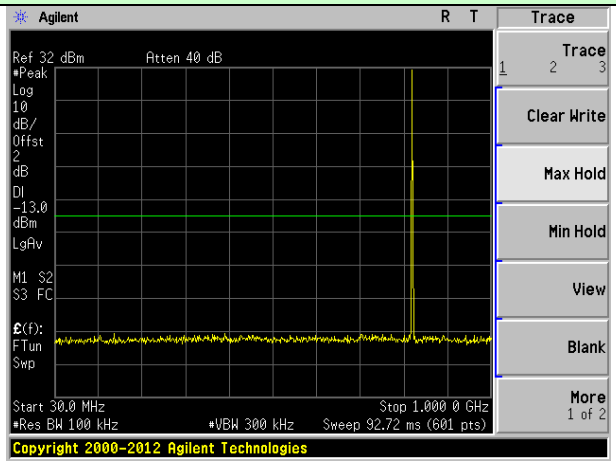
Middle channel

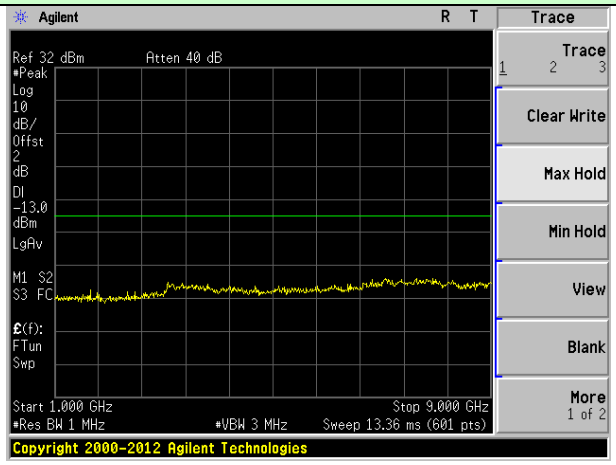




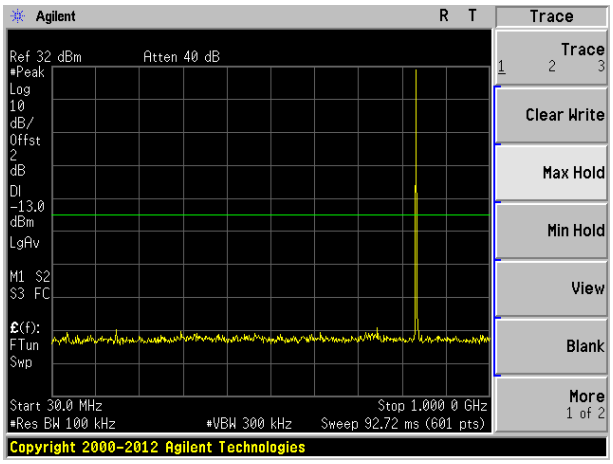
Highest channel

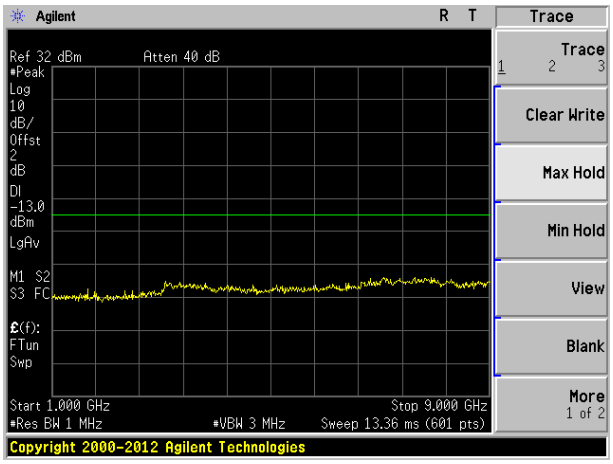
Test Mode: Traffic mode	GSM 850 (GPRS 1 link)



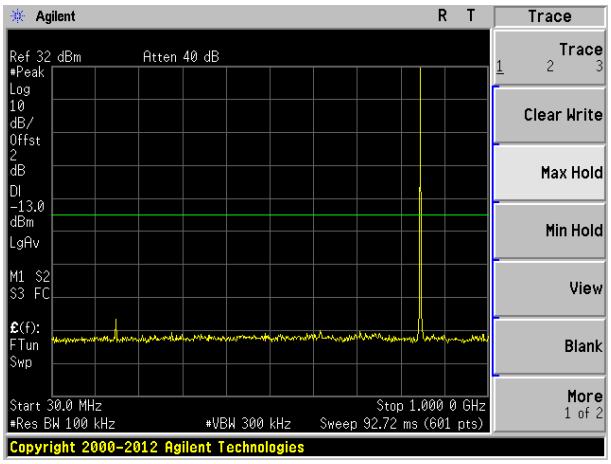


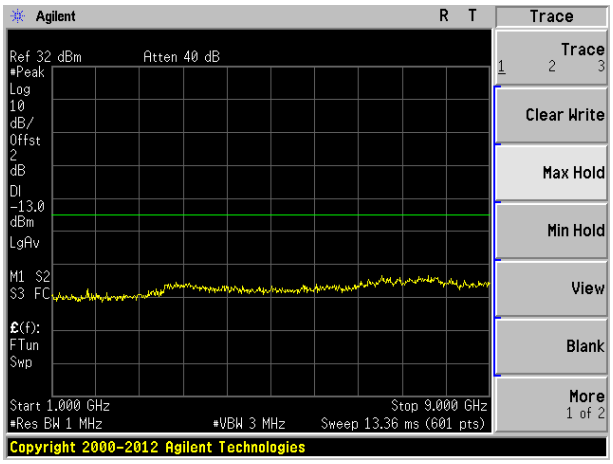
Lowest channel





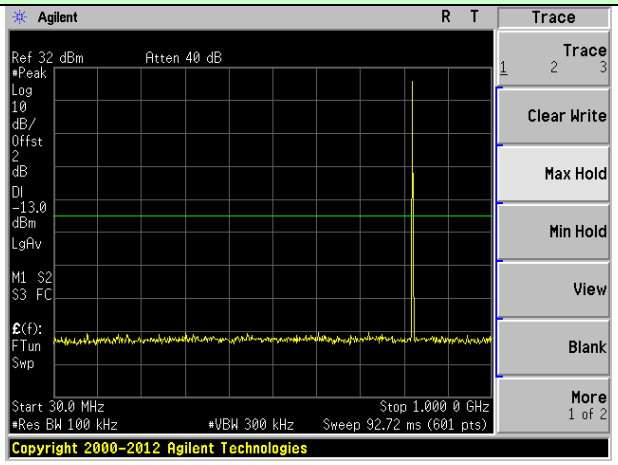
Middle channel

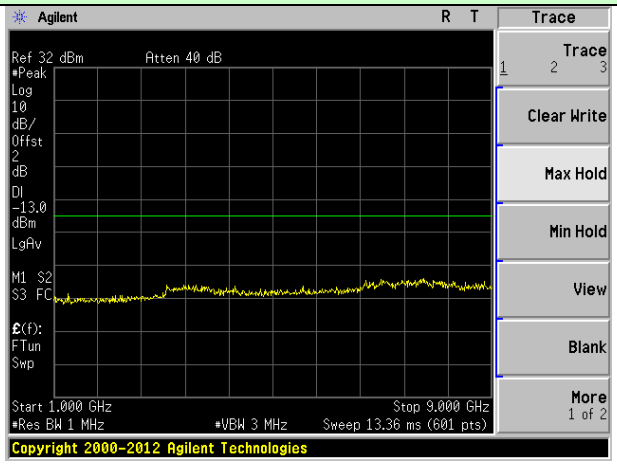




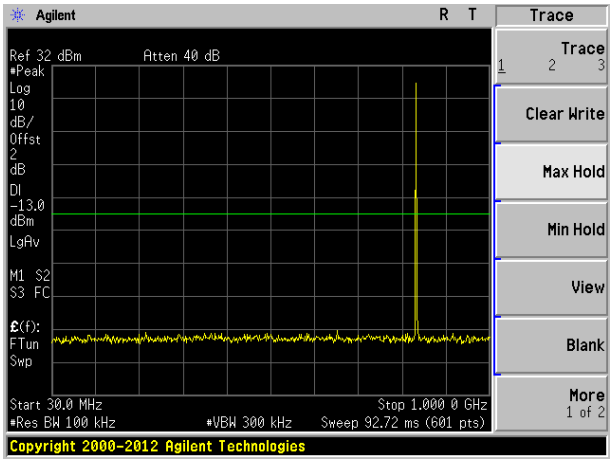
Highest channel

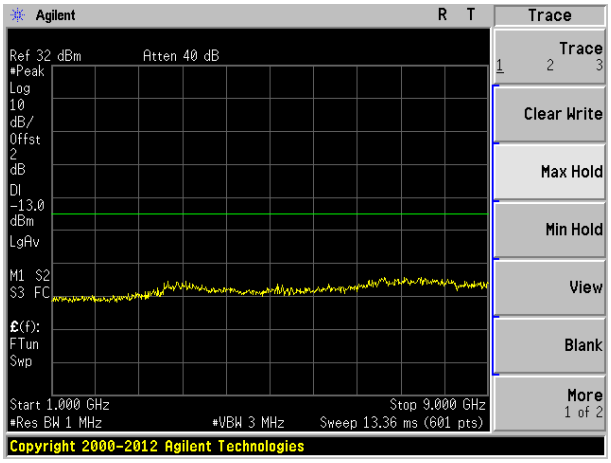
Test Mode: Traffic mode	GSM 850 (EGPRS 1 link)



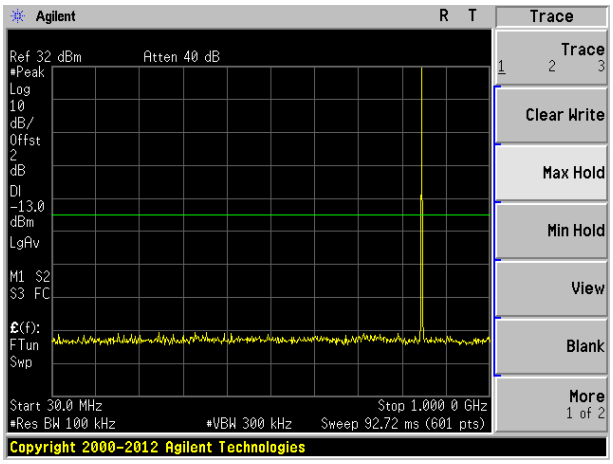


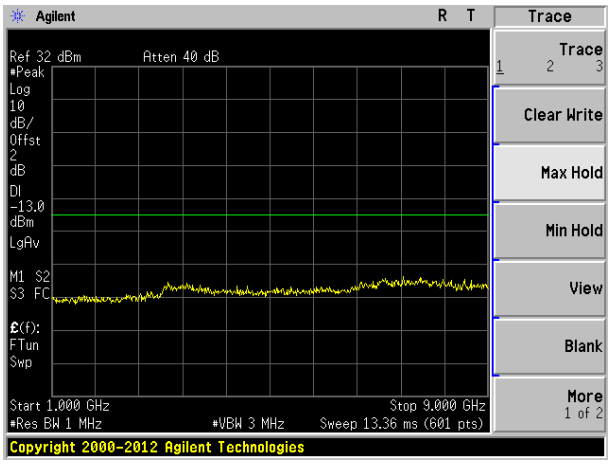
Lowest channel





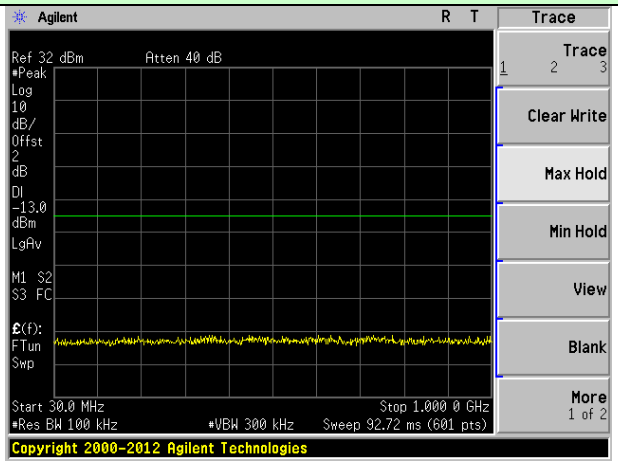
Middle channel

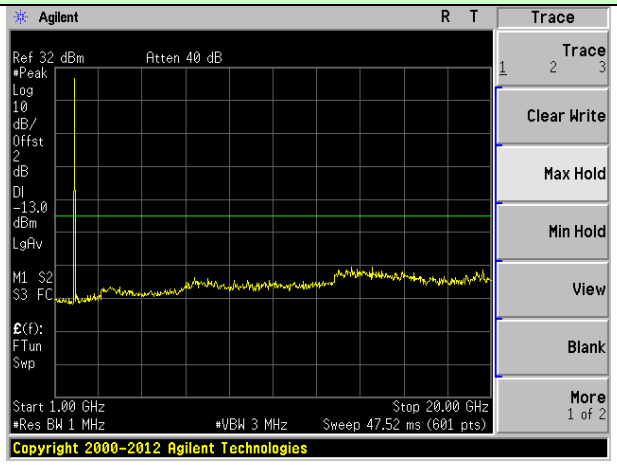




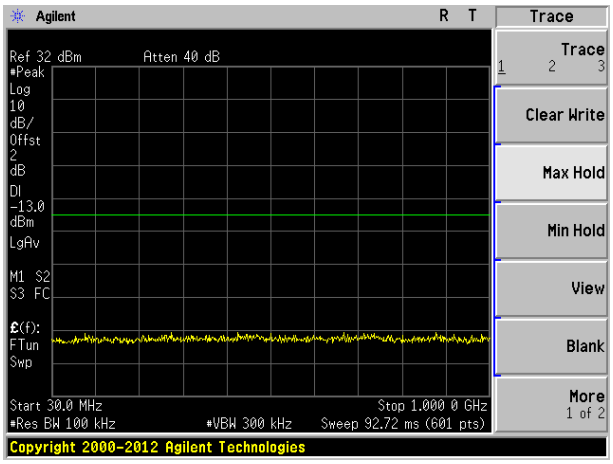
Highest channel

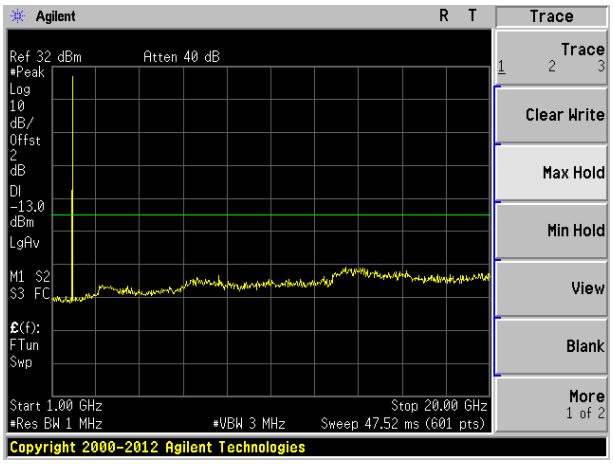
Test Mode: Traffic mode	PCS1900 (GSM link)



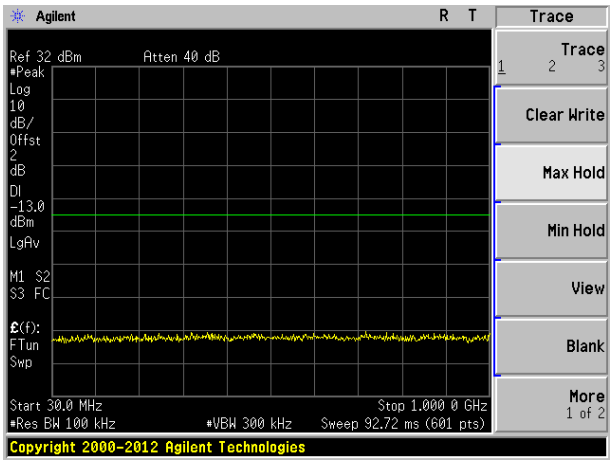


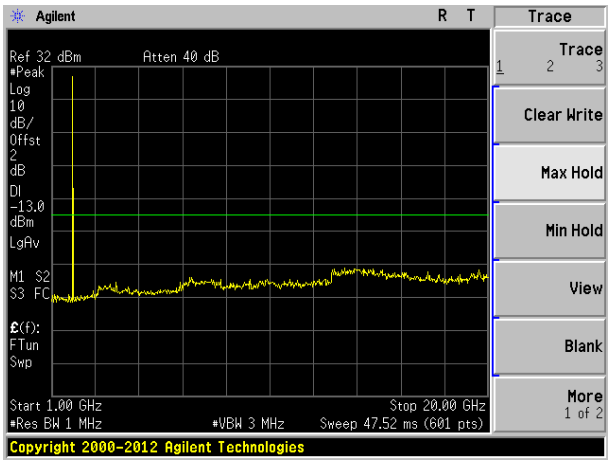
Lowest channel





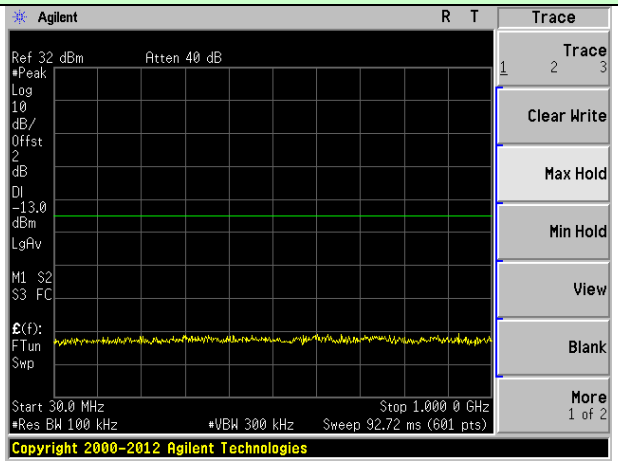
Middle channel

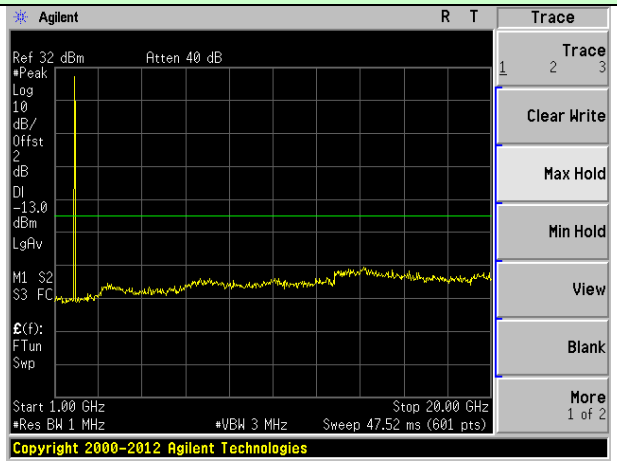




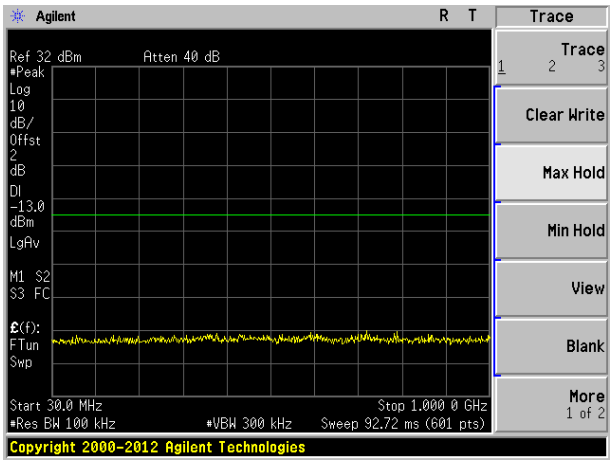
Highest channel

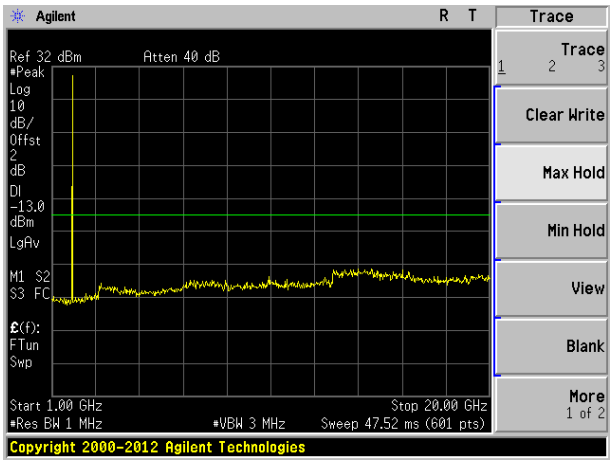
Test Mode: Traffic mode	PCS1900 (GPRS 1 link)



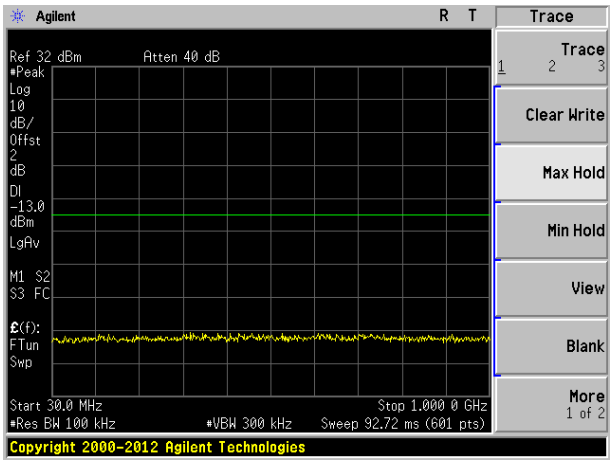


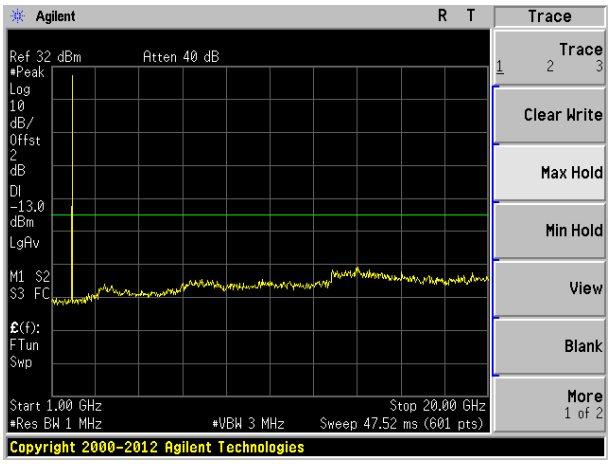
Lowest channel





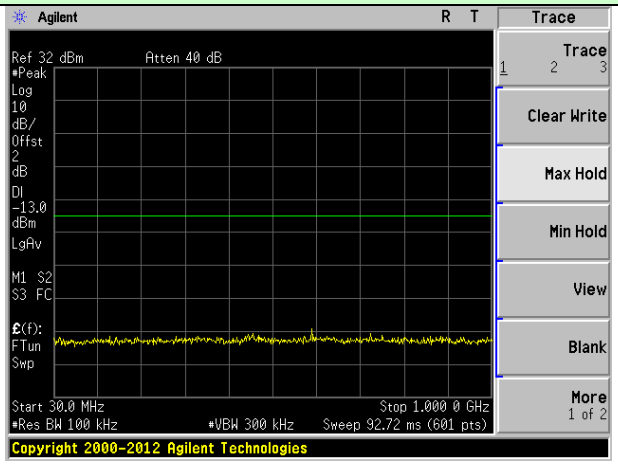
Middle channel

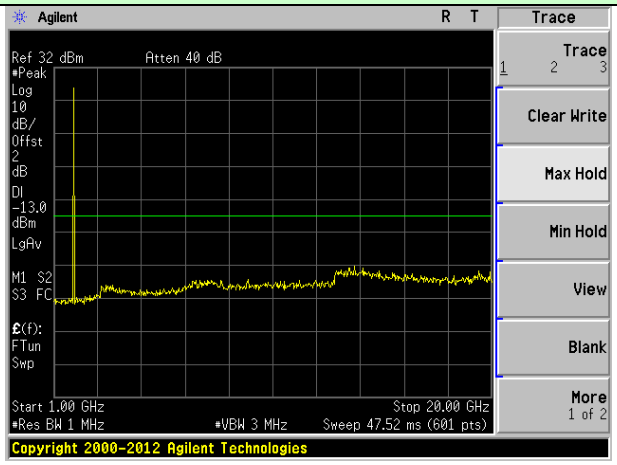




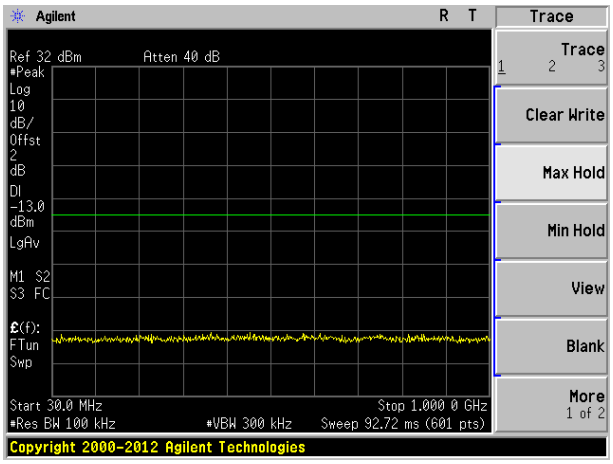
Highest channel

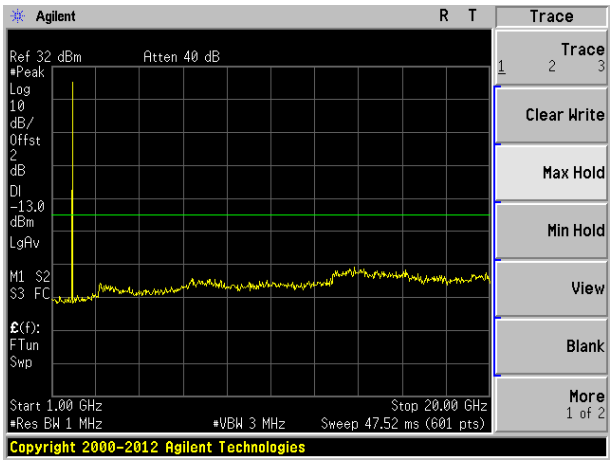
Test Mode: Traffic mode	PCS1900 (EGPRS 1 link)



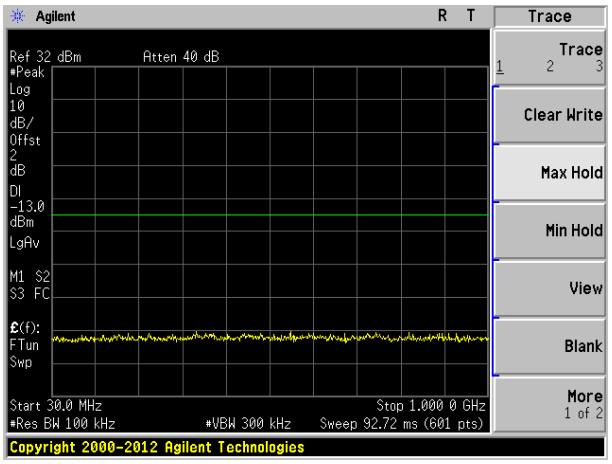


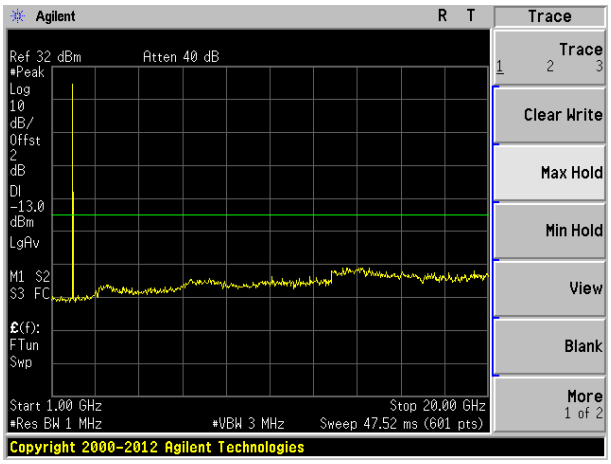
Lowest channel





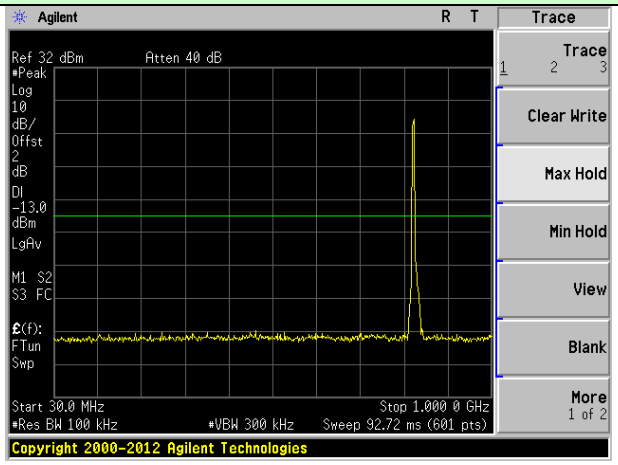
Middle channel

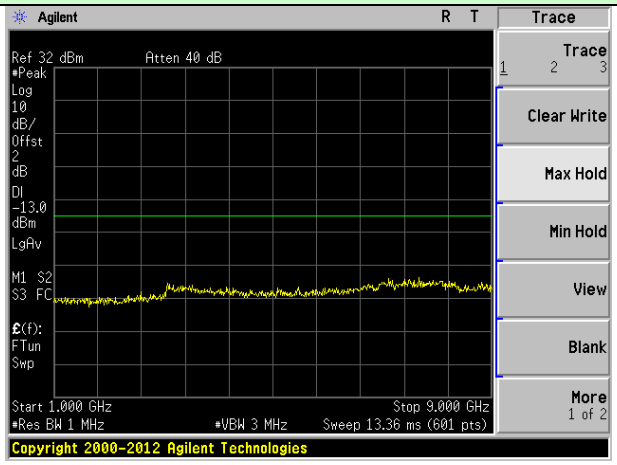




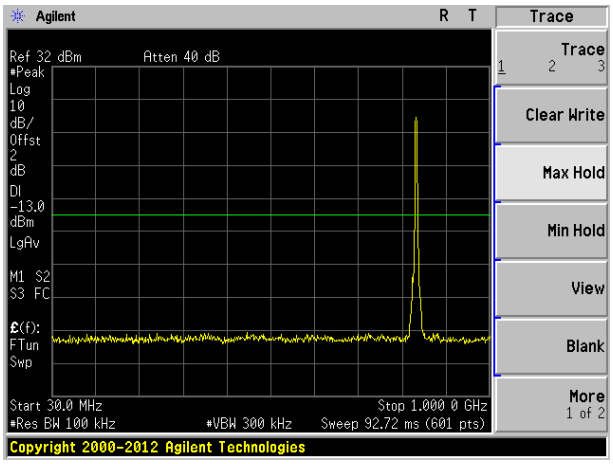
Highest channel

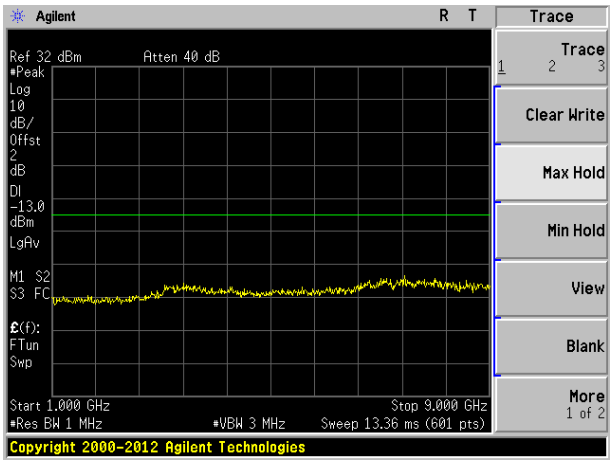
Test Mode: Traffic mode	WCDMA Band V (RMC 12.2Kbps link)



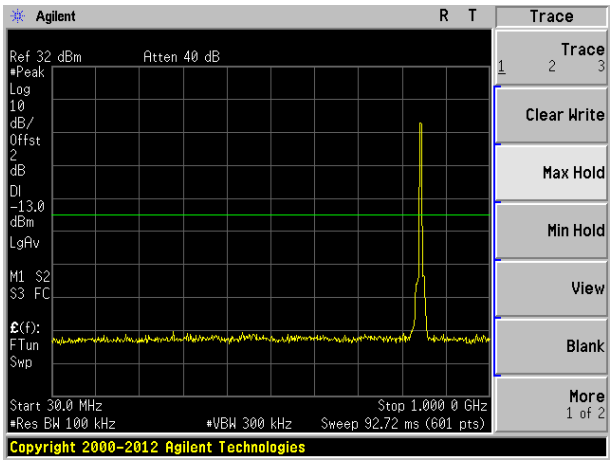


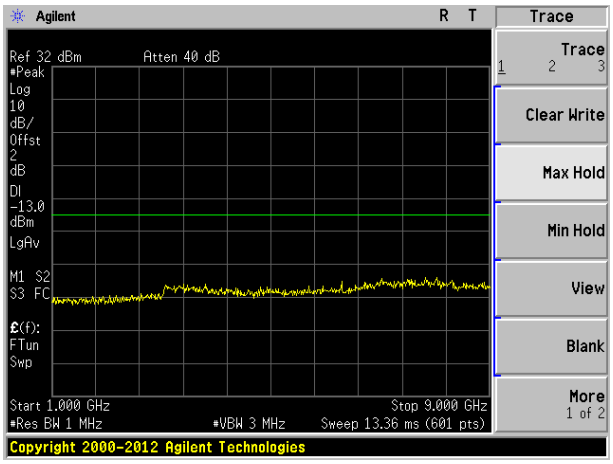
Lowest channel





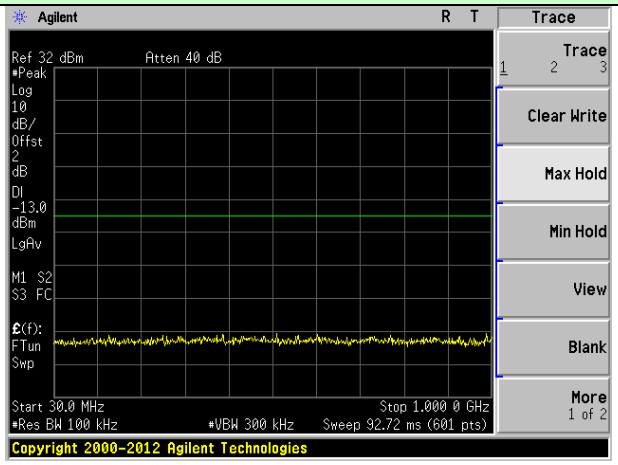
Middle channel

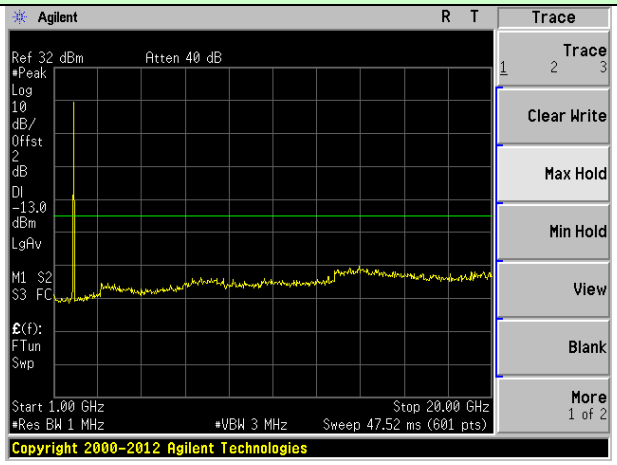




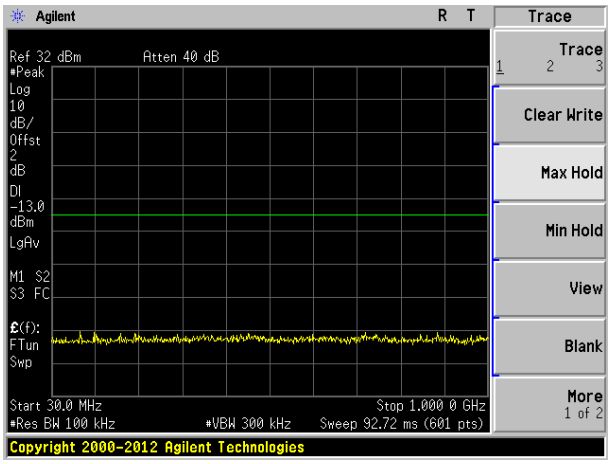
Highest channel

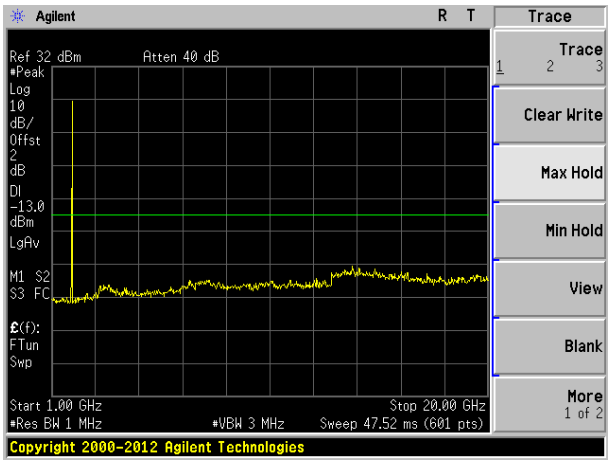
Test Mode: Traffic mode	WCDMA Band II (RMC 12.2Kbps link)



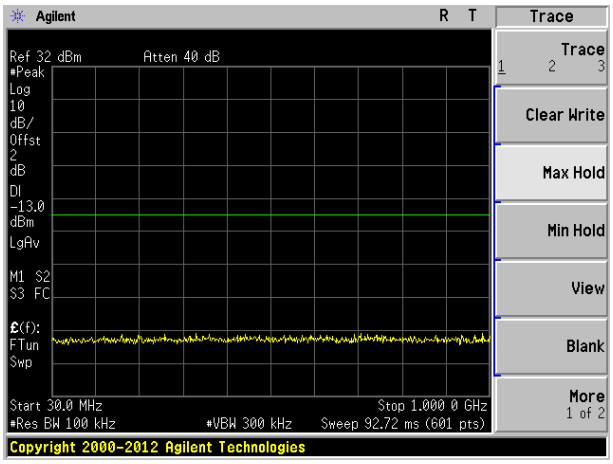


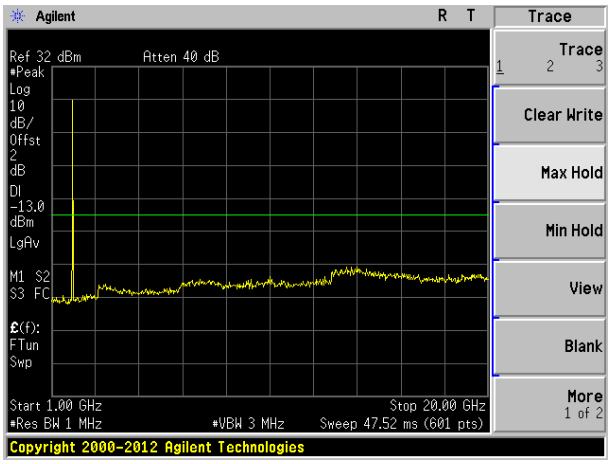
Lowest channel





Middle channel

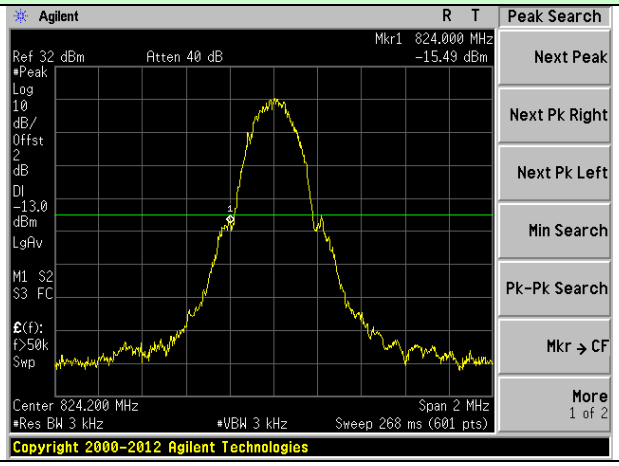




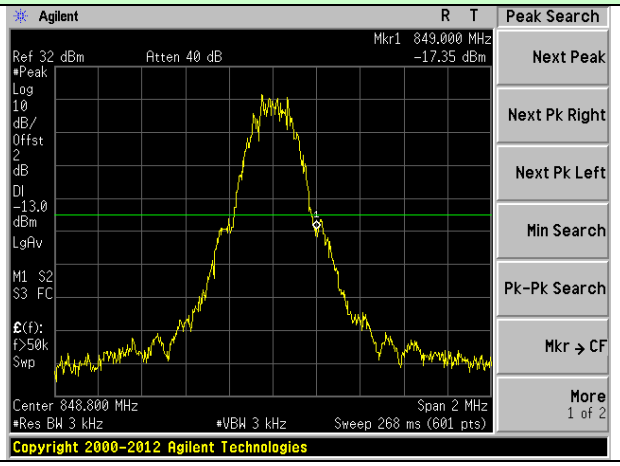
Highest channel

Band Edge:

Test Mode: Traffic mode	GSM850 (GSM link)

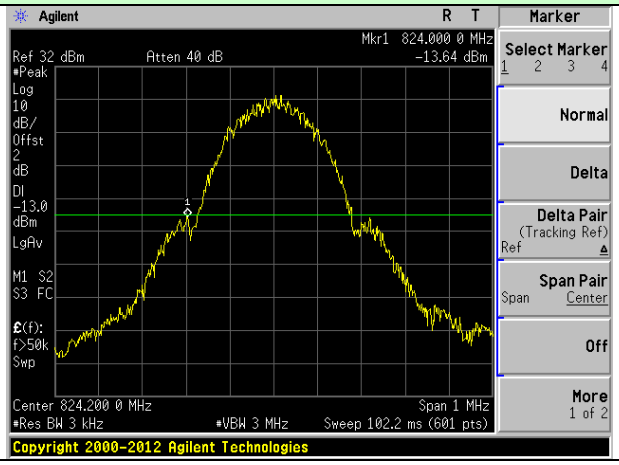


Lowest channel

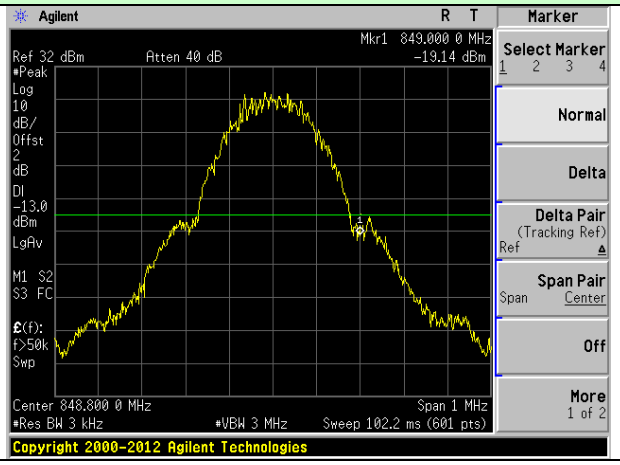


Highest channel

Test Mode: Traffic mode	GSM850 (GPRS 1 link)

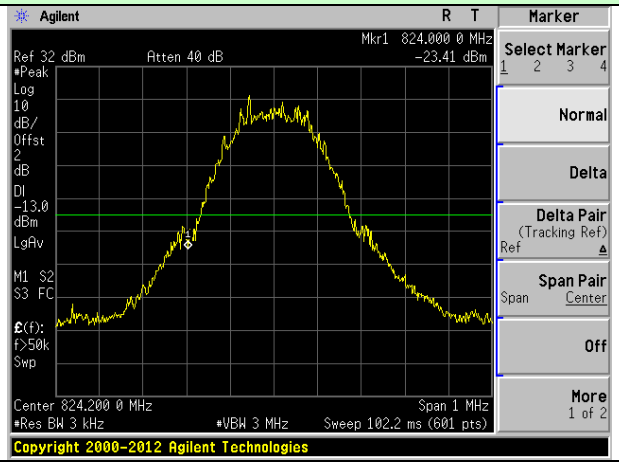


Lowest channel

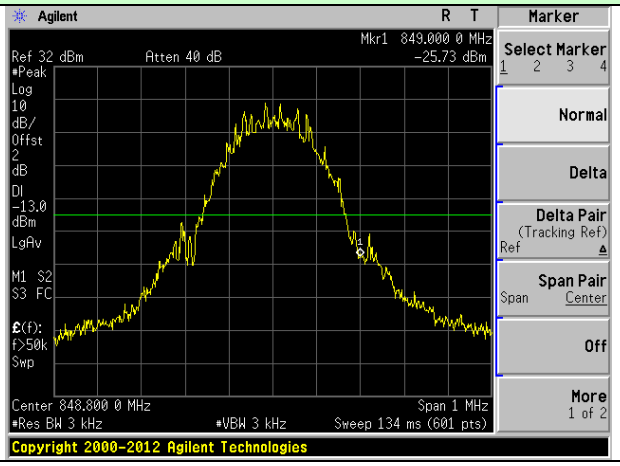


Highest channel

Test Mode: Traffic mode	GSM850 (EGPRS 1 link)

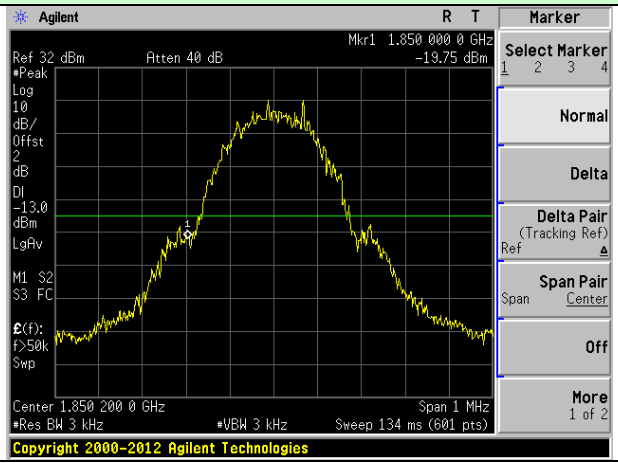


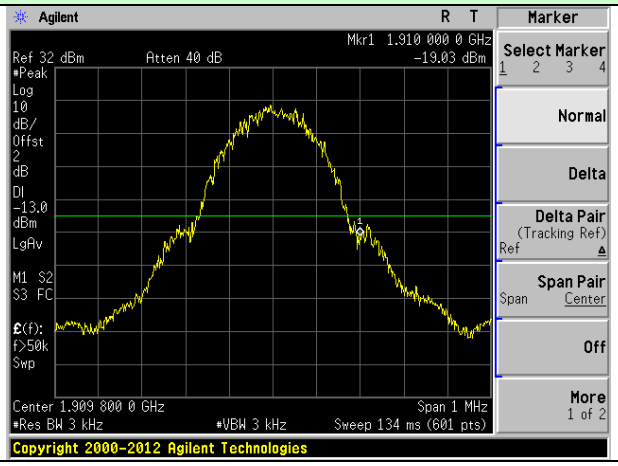
Lowest channel



Highest channel

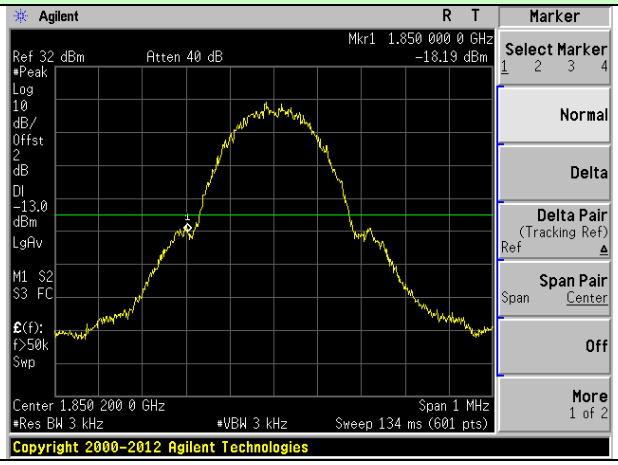
Test Mode: Traffic mode	PCS1900 (GSM link)

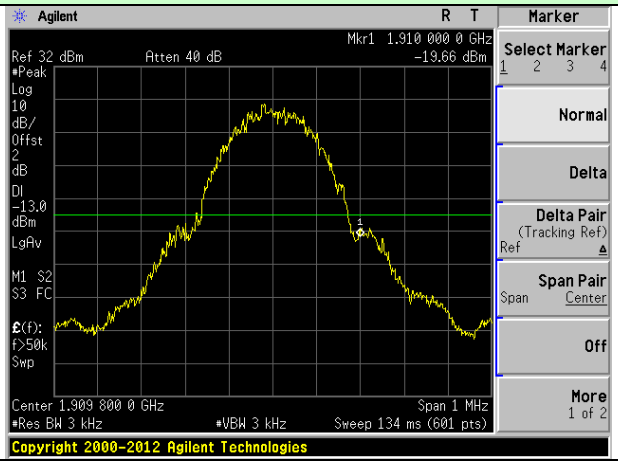




Lowest channel | Highest channel

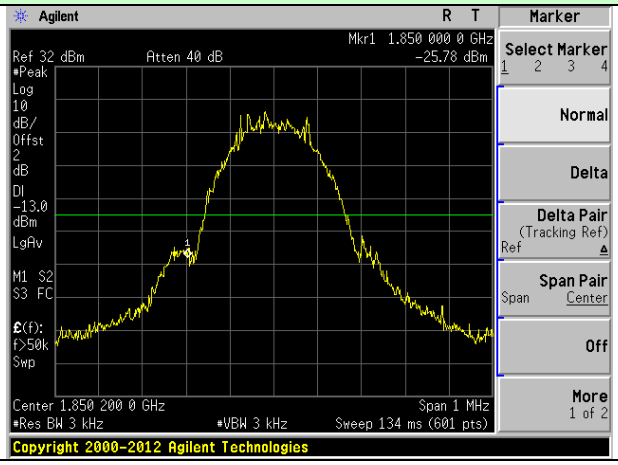
Test Mode: Traffic mode	PCS1900 (GPRS 1 link)

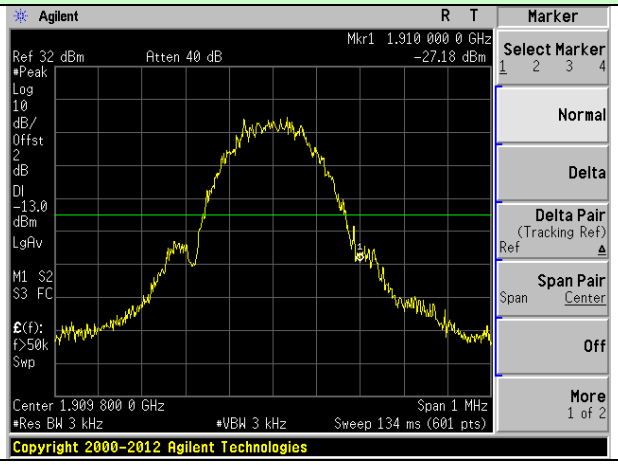




Lowest channel | Highest channel

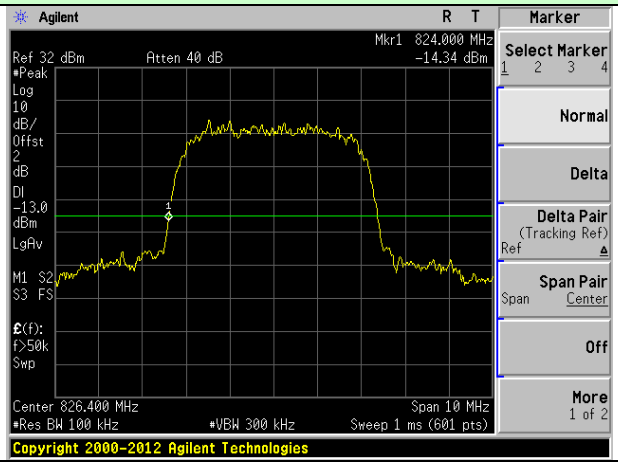
Test Mode: Traffic mode	PCS1900 (EGPRS 1 link)

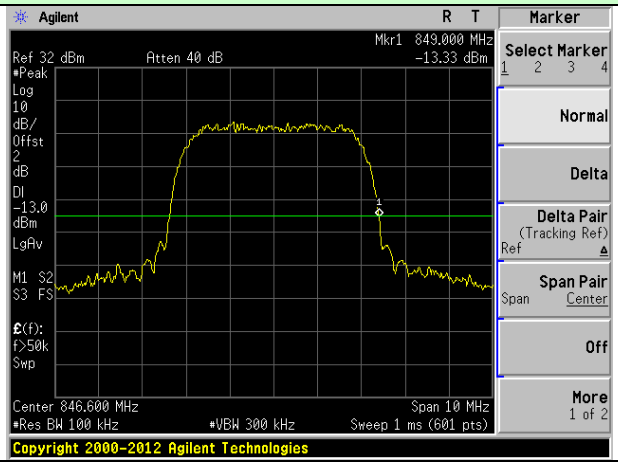




Lowest channel | Highest channel

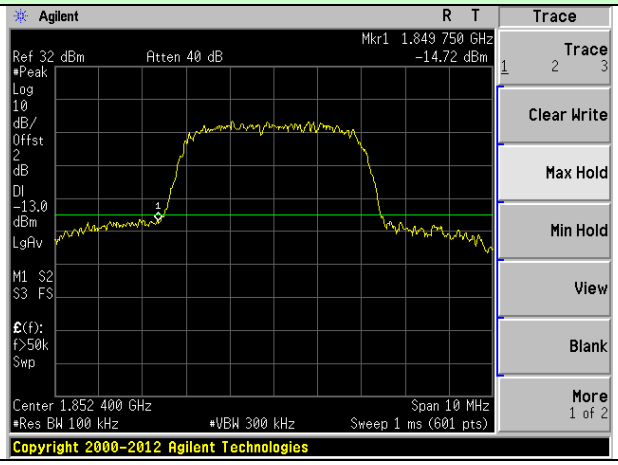
Test Mode: Traffic mode	WCDMA Band V (RMC 12.2Kbps link)

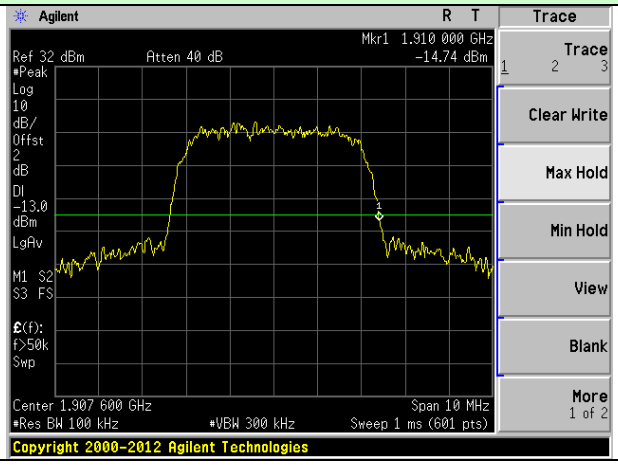




Lowest channel | Highest channel

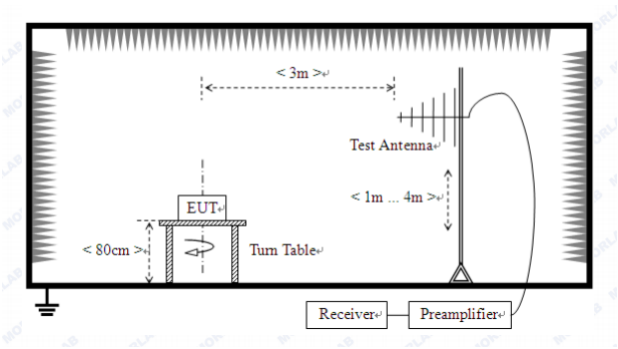
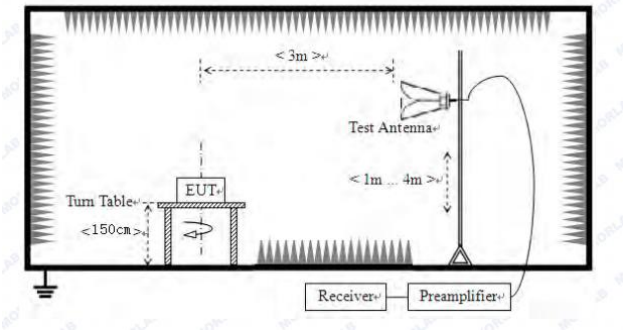
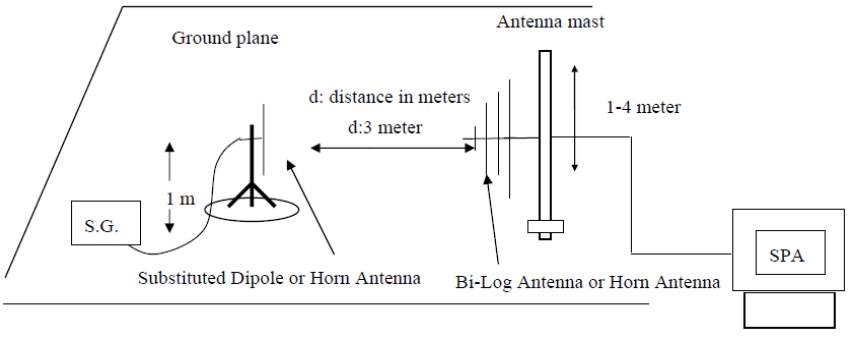
Test Mode: Traffic mode	WCDMA Band II (RMC 12.2Kbps link)





Lowest channel | Highest channel

6.8 Field strength of spurious radiation measurement

Test Requirement:	FCC part22.917 and FCC part24.238
Test Method:	FCC part 2.1053 and ANSI C63.26:2015
Limit:	-13dBm
Test setup:	Below 1GHz  Above 1GHz  Substituted method: 
Test Instruments:	Refer to section 5.0 for details
Test mode:	Refer to section 6.1 for details
Test results:	Pass

Measurement Data

Test mode:	GSM850		Test channel:	Lowest
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1648.40	Vertical	-51.29	-13.00	Pass
2472.60	V	-53.06		
3296.80	V	-51.35		
4121.00	V	-53.52		
4945.20	V	-51.26		
1648.40	Horizontal	-52.58	-13.00	Pass
2472.60	H	-53.49		
3296.80	H	-52.82		
4121.00	H	-51.61		
4945.20	H	-51.81		
Test mode:	**GSM850**		**Test channel:**	**Middle**
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1673.20	Vertical	-53.78	-13.00	Pass
2509.80	V	-53.08		
3346.40	V	-54.00		
4183.00	V	-52.81		
5019.60	V	-51.59		
1673.20	Horizontal	-52.19	-13.00	Pass
2509.80	H	-52.45		
3346.40	H	-52.78		
4183.00	H	-52.09		
5019.60	H	-52.64		
Test mode:	**GSM850**		**Test channel:**	**Highest**
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1697.60	Vertical	-57.11	-13.00	Pass
2546.40	V	-53.16		
3395.20	V	-50.85		
4244.00	V	-52.47		
5092.80	V	-53.50		
1697.60	Horizontal	-51.03	-13.00	Pass
2546.40	H	-53.93		
3395.20	H	-55.11		
4244.00	H	-57.16		
5092.80	H	-52.96		

Remarks：

1. The emission behavior belongs to narrowband spurious emission.
2. 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	-56.03	-13.00	Pass
5550.60	V	-58.45		
7400.80	V	-50.47		
9251.00	V	-52.39		
11101.20	V	-52.25		
3700.40	Horizontal	-50.68	-13.00	Pass
5550.60	H	-54.12		
7400.80	H	-55.51		
9251.00	H	-57.94		
11101.20	H	-53.82		
Test mode:	**PCS1900**		**Test channel:**	**Middle**
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3760.00	Vertical	-53.20	-13.00	Pass
5640.00	V	-55.73		
7520.00	V	-57.84		
9400.00	V	-49.83		
11280.00	V	-51.89		
3760.00	Horizontal	-48.05	-13.00	Pass
5640.00	H	-51.63		
7520.00	H	-53.11		
9400.00	H	-55.66		
11280.00	H	-52.37		
Test mode:	**PCS1900**		**Test channel:**	**Highest**
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3819.60	Vertical	-54.66	-13.00	Pass
5729.40	V	-57.10		
7639.20	V	-49.14		
9549.00	V	-51.06		
11458.80	V	-51.53		
3819.60	Horizontal	-49.34	-13.00	Pass
5729.40	H	-52.80		
7639.20	H	-54.21		
9549.00	H	-56.67		
11458.80	H	-52.59		

Remarks：

1. The emission behavior belongs to narrowband spurious emission.
2. The emission levels of below 1 GHz are very lower than the limit and not show in test report.

Test mode:	WCDMA Band V		Test channel:	Lowest
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1652.80	Vertical	-51.84	-13.00	Pass
2479.20	V	-49.65		
3305.60	V	-52.47		
4132.00	V	-50.02		
4958.40	V	-51.83		
1652.80	Horizontal	-51.76	-13.00	Pass
2479.20	H	-51.55		
3305.60	H	-57.03		
4132.00	H	-54.75		
4958.40	H	-52.57		
Test mode:	**WCDMA Band V**		**Test channel:**	**Middle**
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1672.80	Vertical	-52.16	-13.00	Pass
2509.20	V	-50.53		
3345.60	V	-53.21		
4182.00	V	-55.69		
5018.40	V	-58.09		
1672.80	Horizontal	-50.71	-13.00	Pass
2509.20	H	-52.69		
3345.60	H	-57.44		
4182.00	H	-53.91		
5018.40	H	-51.43		
Test mode:	**WCDMA Band V**		**Test channel:**	**Highest**
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1693.20	Vertical	-50.89	-13.00	Pass
2539.80	V	-53.37		
3386.40	V	-52.05		
4233.00	V	-54.96		
5079.60	V	-51.91		
1693.20	Horizontal	-50.32	-13.00	Pass
2539.80	H	-52.80		
3386.40	H	-54.22		
4233.00	H	-52.47		
5079.60	H	-53.24		

Remarks：

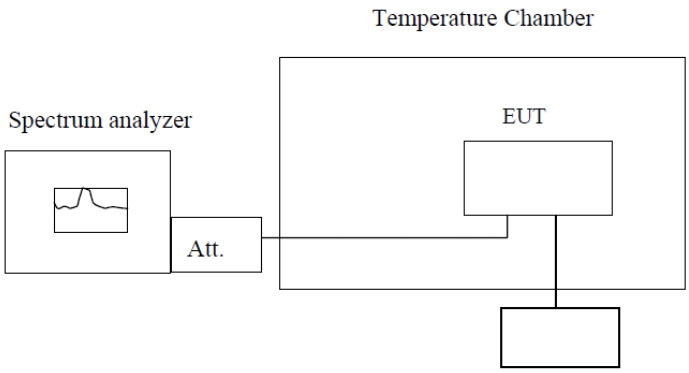
1. The emission behavior belongs to narrowband spurious emission.
2. The emission levels of below 1 GHz are very lower than the limit and not show in test report.

Test mode:	WCDMA Band II		Test channel:	Lowest
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3704.46	Vertical	-56.57	-13.00	Pass
5556.86	V	-49.75		
7409.26	V	-52.40		
9261.66	V	-54.89		
11114.40	V	-50.28		
3704.46	Horizontal	-52.65	-13.00	Pass
5556.86	H	-57.14		
7409.26	H	-49.00		
9261.66	H	-52.21		
11114.40	H	-51.85		
Test mode:	**WCDMA Band II**		**Test channel:**	**Middle**
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3759.83	Vertical	-47.74	-13.00	Pass
5639.83	V	-50.74		
7519.83	V	-53.24		
9399.83	V	-55.59		
11280.00	V	-53.27		
3759.83	Horizontal	-53.49	-13.00	Pass
5639.83	H	-57.73		
7519.83	H	-49.48		
9399.83	H	-52.50		
11280.00	H	-49.81		
Test mode:	**WCDMA Band II**		**Test channel:**	**Highest**
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3815.03	Vertical	-57.32	-13.00	Pass
5722.63	V	-50.11		
7630.23	V	-52.42		
9537.83	V	-54.62		
11445.60	V	-51.81		
3815.03	Horizontal	-52.66	-13.00	Pass
5722.63	H	-56.60		
7630.23	H	-58.22		
9537.83	H	-51.02		
11445.60	H	-52.04		

Remarks：

1. The emission behavior belongs to narrowband spurious emission.
2. The emission levels of below 1 GHz are very lower than the limit and not show in test report.

6.9 Frequency stability V.S. Temperature measurement

Test Requirement:	FCC part 22.355 and FCC part 24.235
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 5.0 for details
Test mode:	Refer to section 6.1 for details
Test results:	Pass

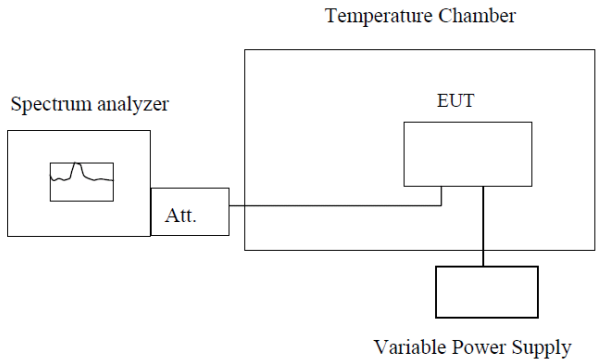
Measurement Data

Reference Frequency: GSM850 Middle channel=190 channel=836.6MHz									
Power supplied (Vdc)	Temp. (°C)	GSM		GPRS		EGPRS		Limit (ppm)	Result
		Error(Hz)	ppm	Error(Hz)	ppm	Error(Hz)	ppm		
3.80	-30	96	0.1143	43	0.0520	104	0.1242	2.5	Pass
	-20	108	0.1295	48	0.0575	120	0.1434		
	-10	91	0.1092	41	0.0492	101	0.1202		
	0	74	0.0890	36	0.0436	88	0.1047		
	10	87	0.1042	39	0.0464	98	0.1171		
	20	74	0.0890	34	0.0408	85	0.1022		
	30	125	0.1497	60	0.0715	144	0.1716		
	40	113	0.1345	50	0.0603	125	0.1496		
	50	108	0.1295	48	0.0575	119	0.1417		

Reference Frequency: PCS1900 Middle channel=661 channel=1880MHz									
Power supplied (Vdc)	Temp. (°C)	GSM		GPRS		EGPRS		Limit (ppm)	Result
		Error(Hz)	ppm	Error(Hz)	ppm	Error(Hz)	ppm		
3.80	-30	45	0.0239	74	0.0391	96	0.0511	2.5	Pass
	-20	53	0.0281	85	0.0453	112	0.0598		
	-10	45	0.0239	69	0.0366	92	0.0491		
	0	38	0.0203	57	0.0305	77	0.0408		
	10	45	0.0239	71	0.0379	93	0.0497		
	20	40	0.0210	57	0.0305	79	0.0420		
	30	62	0.0331	97	0.0515	126	0.0669		
	40	54	0.0288	81	0.0428	106	0.0563		
	50	52	0.0274	85	0.0453	111	0.0590		

Reference Frequency: WCDMA Band V Middle channel=4183 channel=836.6MHz					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
3.80	-30	176	0.0938	2.5	Pass
	-20	157	0.0837		
	-10	136	0.0725		
	0	128	0.0680		
	10	117	0.0624		
	20	103	0.0545		
	30	128	0.0680		
	40	143	0.0758		
	50	136	0.0725		
Reference Frequency: WCDMA Band II Middle channel=9400 channel=1880.0MHz					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
3.80	-30	35	0.0422	2.5	Pass
	-20	50	0.0596		
	-10	56	0.0675		
	0	26	0.0312		
	10	39	0.0470		
	20	43	0.0517		
	30	64	0.0769		
	40	60	0.0722		
	50	72	0.0864		

6.10 Frequency stability V.S. Voltage measurement

Test Requirement:	FCC part 22.355 and FCC part 24.235
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 5.0 for details
Test mode:	Refer to section 6.1 for details
Test results:	Pass

Measurement Data

Reference Frequency: GSM850 Middle channel=190 channel=836.6MHz									
Temp. (°C)	Power supplied (Vdc)	GSM		GPRS		EGPRS		Limit (ppm)	Result
		Error(Hz)	ppm	Error(Hz)	ppm	Error(Hz)	ppm		
25	4.37	59	0.0707	118	0.1406	115	0.1375	2.5	Pass
	3.80	68	0.0816	85	0.1017	131	0.1566		
	3.23	77	0.0925	96	0.1147	147	0.1751		

Reference Frequency: PCS1900 Middle channel=661 channel=1880MHz									
Temp. (°C)	Power supplied (Vdc)	GSM		GPRS		EGPRS		Limit (ppm)	Result
		Error(Hz)	ppm	Error(Hz)	ppm	Error(Hz)	ppm		
25	4.37	28	0.0151	86	0.0460	73	0.0388	2.5	Pass
	3.80	34	0.0183	64	0.0342	84	0.0445		
	3.23	34	0.0183	69	0.0365	84	0.0448		

Reference Frequency: WCDMA Band V Middle channel=4183 channel=836.6MHz					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.37	109	0.0581	2.5	Pass
	3.80	93	0.0495		
	3.23	102	0.0544		
Reference Frequency: WCDMA Band II Middle channel=940 channel=1880.0MHz					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.37	56	0.0667	2.5	Pass
	3.80	71	0.0843		
	3.23	41	0.0491		

7 Test Setup Photo

Reference to the **appendix I** for details.

8 EUT Constructional Details

Reference to the **appendix II** for details.

-----End------