COVER PAGE

TEST REPORT

Product	:	Tracker
Trade mark	:	CASTEL
Model/Type reference	:	PT-690
Serial Number	:	N/A
FCC ID	:	2AEPZ-PT-690
Report Number	:	EED32H000249-1
Date of Issue:	:	May 07, 2015
Test Standards	:	47 CFR Part 2(2014) 47 CFR Part 22 subpart H(2014) 47 CFR Part 24 subpart E(2014)
Test result	:	PASS

Prepared for:

China Aerospace Telecommunications (ShenZhen) Limited
9th Floor, East Wing, Building A2, Longma Tech Industry City, Shixin Community, Shiyan Street, Baoan, Shenzhen, China

Prepared by:

Centre Testing International (Shenzhen) Corporation
Hongwei Industrial Zone, 70 Area, Bao'an District,
Shenzhen, Guangdong, China
TEL: +86-755-3368 3668
FAX: +86-755-3368 3385

Tested by: Ware Xin Reviewed by: Sheek Luo

Approved by: Jimmy Li Date: May 07, 2015

Lab manager

Check No.: 1727856131

2 Version

Version No.	Date	Description
00	2015-03-01	Original

3 Test Summary

Test Item	Test Requirement	Test method	Result
GPRS 850			
Conducted output power	Part 2.1046(a)/Part 22.913(a)	ITA-603-C-2004 & KDB 971168 D01v02r02	PASS
Effective Radiated Power of Transmitter(ERP)	Part 2.1046(a)/Part 22.913(a)	ITA-603-C-2004 & KDB 971168 D01v02r02	PASS
99%&26dB Occupied Bandwidth	Part 2.1049(h)	Part 22.917(b) & KDB 971168 D01v02r02	PASS
Band Edge at antenna terminals	Part 2.1051/Part 22.917(a)	Part 22.917(b) & KDB 971168 D01v02r02	PASS
Spurious emissions at antenna terminals	Part 2.1051/ Part 2.1057/ Part 22.917(a)(b)	ITA-603-C-2004 & KDB 971168 D01v02r02	PASS
Field strength of spurious radiation	Part 2.1053/ Part 2.1057/ Part 22.917(a)(b)	ITA-603-C-2004 & KDB 971168 D01v02r02	PASS
Frequency stability	Part 2.1055/ Part 22.355	ITA-603-C-2004 & KDB 971168 D01v02r02	PASS
GPRS 1900			
Conducted output power	Part 2.1046(a) /Part 24.232(c)	ITA-603-C-2004& KDB 971168 D01v02r02	PASS
Effective Radiated Power of Transmitter(EIRP)	Part 2.1046(a) / Part 24.232(c)	ITA-603-C-2004 & KDB 971168 D01v02r02	PASS
peak-to-average ratio	Part 24.232(d)	KDB 971168 D01v02r02	PASS
99% &26dB Occupied Bandwidth	Part 2.1049(h)	Part 24.238(b) & KDB 971168 D01v02r02	PASS
Band Edge at antenna terminals	Part 2.1051/ Part 24.238(a)	Part 24.238(b) & KDB 971168 D01v02r02	PASS
Spurious emissions at antenna terminals	Part 2.1051/ Part 2.1057/ Part 24.238(a)(b)	ITA-603-C-2004 & KDB 971168 D01v02r02	PASS
Field strength of spurious radiation	Part 2.1053 /Part 2.1057 / Part 24.238(a)(b)	ITA-603-C-2004 & KDB 971168 D01v02r02	PASS
Frequency stability	Part 2.1055/Part 24.235	ITA-603-C-2004 & KDB 971168 D01v02r02	PASS

Remark:
Tx: In this whole report Tx (or tx) means transmitter.
Rx: In this whole report Rx (or rx) means receiver.
LCH: In this whole report LCH means low channel.
MCH: In this whole report LCH means middle channel.
HCH: In this whole report LCH means high channel.
VL: In this whole report Volt means low voltage. (DC 3.2V)
VN: In this whole report Volt means normal voltage. (DC 3.7V)
VH:In this whole report Volt means high voltage. (DC 4.2V)
TN: In this whole report Temp means normal temperature. (25˚C)
Humid: In this whole report Humid means humidity.
N/A: In this whole report not application.

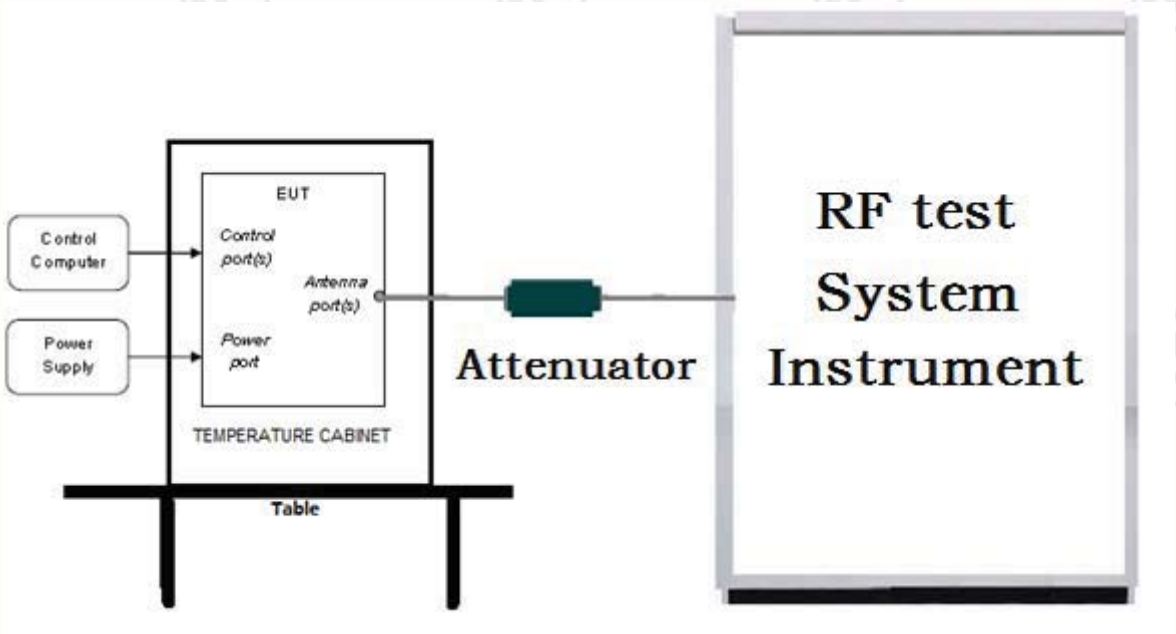
4 Content

1 COVER PAGE 1
2 VERSION 2
3 TEST SUMMARY 3
4 CONTENT 4
5 TEST REQUIREMENT 5
5.1 TEST SETUP 5
5.1.1 For Conducted test setup 5
5.1.2 For Radiated Emissions test setup 5
5.2 TEST ENVIRONMENT 6
5.3 TEST CONDITION 6
6 GENERAL INFORMATION 7
6.1 CLIENT INFORMATION 7
6.2 GENERAL DESCRIPTION OF EUT 7
6.3 PRODUCT SPECIFICATION SUBJECTIVE TO THIS STANDARD 7
6.4 DESCRIPTION OF SUPPORT UNITS 7
6.5 TEST LOCATION 7
6.6 TEST FACILITY 8
6.7 DEVIATION FROM STANDARDS 9
6.8 ABNORMALITIES FROM STANDARD CONDITIONS 9
6.9 OTHER INFORMATION REQUESTED BY THE CUSTOMER 9
7 EQUIPMENT LIST 10
8 RADIO TECHNICAL REQUIREMENTS SPECIFICATION 11
Appendix A) RF Power Output 12
Appendix B) Peak-to-Average Ratio 14
Appendix C) BandWidth 15
Appendix D) Band Edges Compliance 19
Appendix E) Spurious Emission at Antenna Terminal 21
Appendix F) Frequency Stability 36
Appendix G) Effective Radiated Power of Transmitter (ERP/EIRP) 39
Appendix H) Field strength of spurious radiation 41
PHOTOGRAPHS OF TEST SETUP 44
PHOTOGRAPHS OF EUT CONSTRUCTIONAL DETAILS 45

5 Test Requirement

5.1 Test setup

5.1.1 For Conducted test setup



5.1.2 For Radiated Emissions test setup

Radiated Emissions setup:

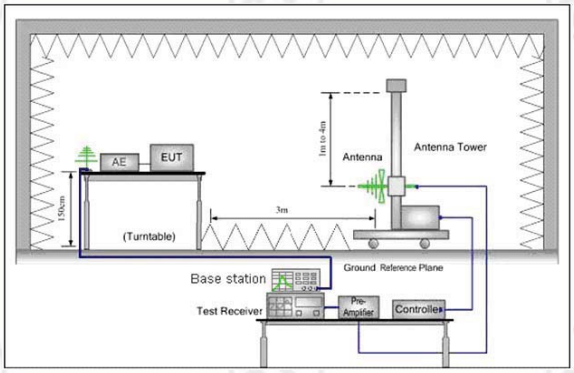


Figure 1. 30MHz to 1GHz

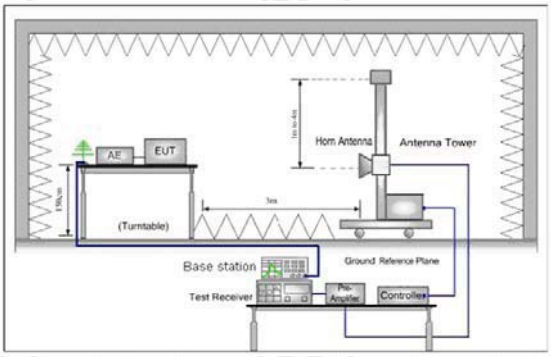


Figure 2. above 1GHz

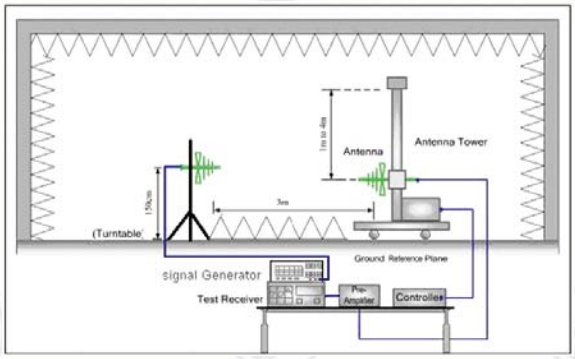


Figure 1. 30MHz to 1GHz

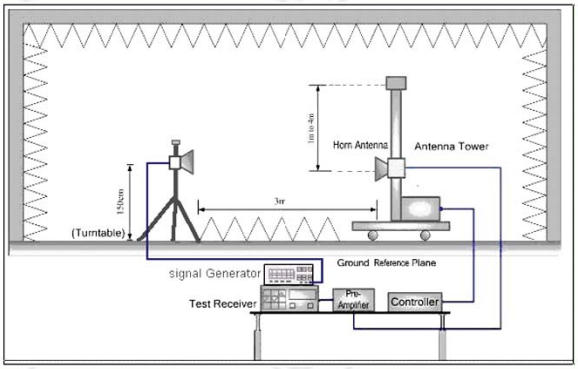


Figure 2. above 1GHz

5.2 Test Environment

Operating Environment:	
Temperature:	25.0 °C
Humidity:	53 % RH
Atmospheric Pressure:	995mbar

5.3 Test Condition

Test channel:

Test Mode	Tx/Rx	RF Channel		
		Low(L)	Middle(M)	High(H)
GPRS850	Tx (824 MHz ~849 MHz)	Channel 128	Channel 190	Channel 251
		824.2MHz	836.6 MHz	848.8 MHz
	Rx (869 MHz ~894 MHz)	Channel 128	Channel 190	Channel 251
		869.2 MHz	881.6 MHz	893.8 MHz
GPRS1900	Tx (1850 MHz ~1910 MHz)	Channel 512	Channel 661	Channel 810
		1850.2MHz	1880.0 MHz	1909.8 MHz
	Rx (1930 MHz ~1990 MHz)	Channel 512	Channel 661	Channel 810
		1930.2 MHz	1960.0 MHz	1989.8 MHz

Test mode:

Pre-scan under all rate at lowest middle and highest channel, find the transmitter power as below:

Conducted transmitter power measurement result.

band	GPRS850			GPRS1900		
Channel	128	190	251	512	661	810
Frequency(MHz)	824.2MHz	836.6MHz	848.8MHz	1850.2MHz	1880MHz	1909.8MHz
GPRS Class 8	31.87dBm	31.86dBm	31.77dBm	28.8dBm	28.8dBm	28.96dBm
GPRS Class 10	31.78dBm	31.76dBm	31.64dBm	28.56dBm	28.57dBm	28.76dBm
GPRS Class 11	31.56dBm	31.55dBm	31.45dBm	28.44dBm	28.42dBm	28.66dBm
GPRS Class 12	31.5dBm	31.43dBm	31.34dBm	28.39dBm	28.31dBm	28.42dBm

Pre-scan all mode and data rates and positions,find worse case mode are chosen to the report ,the warse case mode as below:

band	Radiated	Conducted
GPRS850	GPRS 8 Link	GPRS 8 Link
GPRS1900	GPRS 8 Link	GPRS 8 Link

6 General Information

6.1 Client Information

Applicant:	China Aerospace Telecommunications (ShenZhen) Limited
Address of Applicant:	9th Floor, East Wing, Building A2, Longma Tech Industry City, Shixin Community, Shiyan Street, Baoan, Shenzhen, China
Manufacturer:	China Aerospace Telecommunications (ShenZhen) Limited
Address of Manufacturer:	9th Floor, East Wing, Building A2, Longma Tech Industry City, Shixin Community, Shiyan Street, Baoan, Shenzhen, China

6.2 General Description of EUT

Product Name:	Tracker
Model No.(EUT):	PT-690
Trade Mark:	CASTEL
EUT Supports Radios application	GPRS900,GPRS1800
Power Supply:	Input: 5V ⎓ 600mA, Class III, IPX0 Lithium battery: DC 3.7V
Sample Received Date:	Mar. 13, 2015
Sample tested Date:	Mar. 13, 2015 to May 06, 2015

6.3 *Product Specification subjective to this standard*

Frequency Band:	GPRS850: Tx:824.20 -848.80MHz; Rx: 869.20 – 893.80MHz GPRS1900: Tx:1850.20 – 1909.80MHz; Rx:1930.20 – 1989.80MHz
Modulation Type:	GMSK
SIM	IEMI: 358888021163412
Power class	3
Antenna Type and Gain:	Type: temporary antenna Gain:0dBi
Test Voltage:	DC 3.7V

6.4 Description of Support Units

The EUT has been tested independently.

6.5 Test Location

All tests were performed at:

Centre Testing International (Shenzhen) Corporation Hongwei Industrial Zone, Bao'an 70 District, Shenzhen, Guangdong, China 518101

Telephone: +86 (0) 755 3368 3668 Fax:+86 (0) 755 3368 3385

No tests were sub-contracted.

6.6 Test Facility

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

CNAS-Lab Code: L1910

Centre Testing International (Shenzhen) Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories. .

A2LA-Lab Cert. No. 3061.01

Centre Testing International (Shenzhen) Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

FCC-Registration No.: 756231

Centre Testing International (Shenzhen) Co., Ltd. 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 our files. Registration 756231.

IC-Registration No.: 7408A

The 3m Alternate Test Site of Centre Testing International (Shenzhen) Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 7408A .

IC-Registration No.: 7408B

The 10m Alternate Test Site of Centre Testing International (Shenzhen) Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 7408B.

NEMKO-Aut. No.: ELA503

Centre Testing International (Shenzhen) Co., Ltd. has been assessed the quality assurance system, the testing facilities, qualifications and testing practices of the relevant parts of the organization. The quality assurance system of the Laboratory has been validated against ISO/IEC 17025 or equivalent. The laboratory also fulfils the conditions described in Nemko Document NLA-10.

VCCI

The Radiation 3 &10 meters site of Centre Testing International (Shenzhen) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-4096.

Main Ports Conducted Interference Measurement of Centre Testing International (Shenzhen) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: C-4563.

Telecommunication Ports Conducted Disturbance Measurement of Centre Testing International (Shenzhen) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: T-2146.

The Radiation 3 meters site of Centre Testing International (Shenzhen) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-758

6.7 Deviation from Standards

None.

6.8 Abnormalities from Standard Conditions

None.

6.9 Other Information Requested by the Customer

None.

7 Equipment List

RF Test Equipments				
Equipment	**Manufacturer**	**Model**	**Serial No.**	**Due Date**
Spectrum Analyzer	Agilent	E4440A	MY46185649	08/03/2015
Signal Generator	Agilent	E4438C	MY45095744	08/03/2015
Communication test set	Agilent	E5515C	GB47050533	08/03/2015
Signal Generator	Keysight	E8257D	N/A	08/03/2015
Communication test set	Agilent	E5515C	GB47050533	08/03/2015
Temperature & Humidity Chamber	ESPEC	EL-04KA	N/A	08/03/2015
High-pass filter(3-18GHz)	Sinoscite	FL3CX03WG18NM 12-0398-002	N/A	08/03/2015
High-pass filter(5-18GHz)	MICRO-TRONICS	SPA-F-63029-4	N/A	08/03/2015
band rejection filter (GPRS900)	Sinoscite	FL5CX01CA09CL1 2-0395-001	N/A	08/03/2015
band rejection filter (GPRS850)	Sinoscite	FL5CX01CA08CL1 2-0393-001	N/A	08/03/2015
band rejection filter (GPRS1800)	Sinoscite	FL5CX02CA04CL1 2-0396-002	N/A	08/03/2015
band rejection filter (GPRS1900)	Sinoscite	FL5CX02CA03CL1 2-0394-001	N/A	08/03/2015
DC Power	Keysight	E3642A	N/A	08/03/2015
Communication Automatic control	JS Tonscend	JS0806-1	N/A	08/03/2015
LTE Automatic test software	JS Tonscend	JSTS1120-1	N/A	08/03/2015
WCDMA Automatic test software	JS Tonscend	JSTS1120-3	N/A	08/03/2015
GPRS Automatic test software	JS Tonscend	JSTS1120-3	N/A	08/03/2015
3M Chamber & Accessory Equipment	TDK	SAC-3	---	06/01/2016
Receiver	R&S	ESCI	100435	07/08/2015
Spectrum Analyzer	R&S	FSP40	100416	07/06/2015
Signal Generator	R&S	SMB 100A	3008A02145	01/15/2016
Vector Signal Generator	R&S	SMBV 100A	3636A01004	01/15/2016
Signal Analyzer	R&S	FSV	100263	01/15/2016
TRILOG Broadband Antenna	schwarzbeck	VULB 9163	618	06/17/2015
TRILOG Broadband Antenna	schwarzbeck	VULB 9163	617	07/13/2015
Multi device Controller	maturo	NCD/070/1071111 2	---	N/A
Horn Antenna	ETS-LINGREN	3117	00057407	07/07/2015
Horn Antenna	ETS-LINGREN	3117	00057362	07/07/2015
Microwave Preamplifier	Agilent	8449B	3008A02425	03/19/2016

8 Radio Technical Requirements Specification

Reference documents for testing:

No.	Identity	Document Title
1	PART 22 (2014)	PART 22 – PUBLIC MOBILE SERVICES Subpart H – Cellular Radiotelephone Service
2	PART 24 (2014)	PART 24 – PERSONAL COMMUNICATIONS SERVICES Subpart E – Broadband PCS
3	PART 2 (2014)	Frequency allocations and radio treaty matters; general rules and regulations
4	TIA-603-C-2004	Land Mobile FM or PM - Communications Equipment -Measurement and Performance Standards
5	KDB971168 D01	KDB971168 D01 Power Meas License Digital Systems v02r02

Test Results List:

Test Requirement	Test method	Test item	Verdict	Note
Part 2.1046(a)/Part 22.913(a)/ part 24.232(c)	ITA-603-C& KDB 971168 D01v02r02	Conducted output power	PASS	Appendix A)
Part 24.232(d)	KDB 971168 D01v02r02	peak-to-average ratio	PASS	Appendix B)
Part 2.1049(h)	Part 22.917(b)/ Part 24.238(b) & KDB 971168 D01v02r02	99% &26dB Occupied Bandwidth	PASS	Appendix C)
Part 2.1051/Part 22.917(a)/ Part 24.238(a)	Part 22.917(b)/ Part 24.238(b) & KDB 971168 D01v02r02	Band Edge at antenna terminals	PASS	Appendix D)
Part 2.1051/ Part 2.1057/ Part 22.917(a)(b)/ Part 24.238(a)(b)	ITA-603-C & KDB 971168 D01v02r02	Spurious emissions at antenna terminals	PASS	Appendix E)
Part 2.1055/ Part 22.355/ Part 24.235	ITA-603-C & KDB 971168 D01v02r02	Frequency stability	PASS	Appendix F)
Part 2.1053/ Part 2.1057/ Part 22.917(a)(b)/ Part 24.238(a)(b)	ITA-603-C & KDB 971168 D01v02r02	Field strength of spurious radiation	PASS	Appendix G)
Part 2.1046(a)/Part 22.913(a)/ Part 24.232(c)	ITA-603-C & KDB 971168 D01v02r02	Effective Radiated Power of Transmitter(ERP)	PASS	Appendix H)

Test Mode	Test Modes description
GPRS/TM2	GPRS,GMSK modulation

Appendix A) RF Power Output

GPRS Class 8:

Test Band	Test Mode	Test Channel	Measured (dBm)	Limit (dBm)	Verdict
GPRS850	GPRS/TM2	LCH	31.87	38.45	PASS
		MCH	31.86	38.45	PASS
		HCH	31.77	38.45	PASS

Test Band	Test Mode	Test Channel	Measured (dBm)	Limit (dBm)	Verdict
GPRS1900	GPRS/TM2	LCH	28.8	33.01	PASS
		MCH	28.8	33.01	PASS
		HCH	28.96	33.01	PASS

GPRS Class 10:

Test Band	Test Mode	Test Channel	Measured (dBm)	Limit (dBm)	Verdict
GPRS850	GPRS/TM2	LCH	31.78	38.45	PASS
		MCH	31.76	38.45	PASS
		HCH	31.64	38.45	PASS

Test Band	Test Mode	Test Channel	Measured (dBm)	Limit (dBm)	Verdict
GPRS1900	GPRS/TM2	LCH	28.56	33.01	PASS
		MCH	28.57	33.01	PASS
		HCH	28.76	33.01	PASS

GPRS Class 11:

Test Band	Test Mode	Test Channel	Measured (dBm)	Limit (dBm)	Verdict
GPRS850	GPRS/TM2	LCH	31.56	38.45	PASS
		MCH	31.55	38.45	PASS
		HCH	31.45	38.45	PASS

Test Band	Test Mode	Test Channel	Measured (dBm)	Limit (dBm)	Verdict
GPRS1900	GPRS/TM2	LCH	28.44	33.01	PASS
		MCH	28.42	33.01	PASS
		HCH	28.66	33.01	PASS

GPRS Class 12:

Test Band	Test Mode	Test Channel	Measured (dBm)	Limit (dBm)	Verdict
GPRS850	GPRS/TM2	LCH	31.5	38.45	PASS
		MCH	31.43	38.45	PASS
		HCH	31.34	38.45	PASS

Test Band	Test Mode	Test Channel	Measured (dBm)	Limit (dBm)	Verdict
GPRS1900	GPRS/TM2	LCH	28.39	33.01	PASS
		MCH	28.31	33.01	PASS
		HCH	28.42	33.01	PASS

Appendix B) Peak-to-Average Ratio

Test Band	Test Mode	Test Channel	Measured (dBm)	Limit (dBm)	Verdict
GPRS1900	GPRS/TM2	LCH	9.26	13	PASS
		MCH	8.24	13	PASS
		HCH	8.54	13	PASS

Appendix C) BandWidth

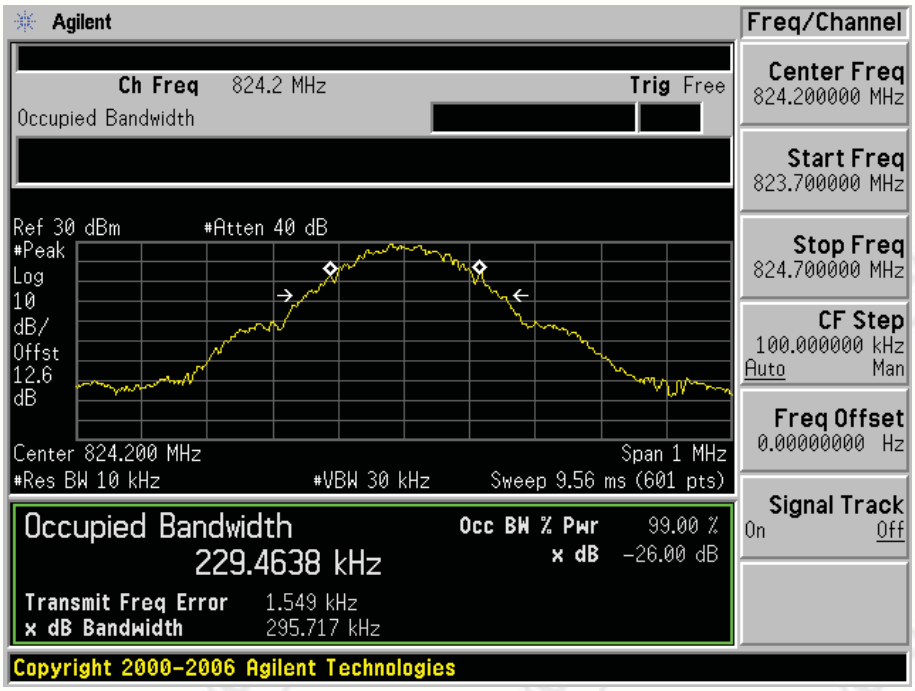
Test Band	Test Mode	Test Channel	99% Bandwidth (kHz)	26dB Bandwidth (kHz)	Verdict
GPRS850	GPRS/TM2	LCH	229.46	295.72	PASS
		MCH	248.63	307.27	PASS
		HCH	237.80	300.05	PASS

Test Band	Test Mode	Test Channel	99% Bandwidth (kHz)	26dB Bandwidth (kHz)	Verdict
GPRS 1900	GPRS/TM2	LCH	236.86	299.49	PASS
		MCH	252.38	324.77	PASS
		HCH	253.99	314.45	PASS

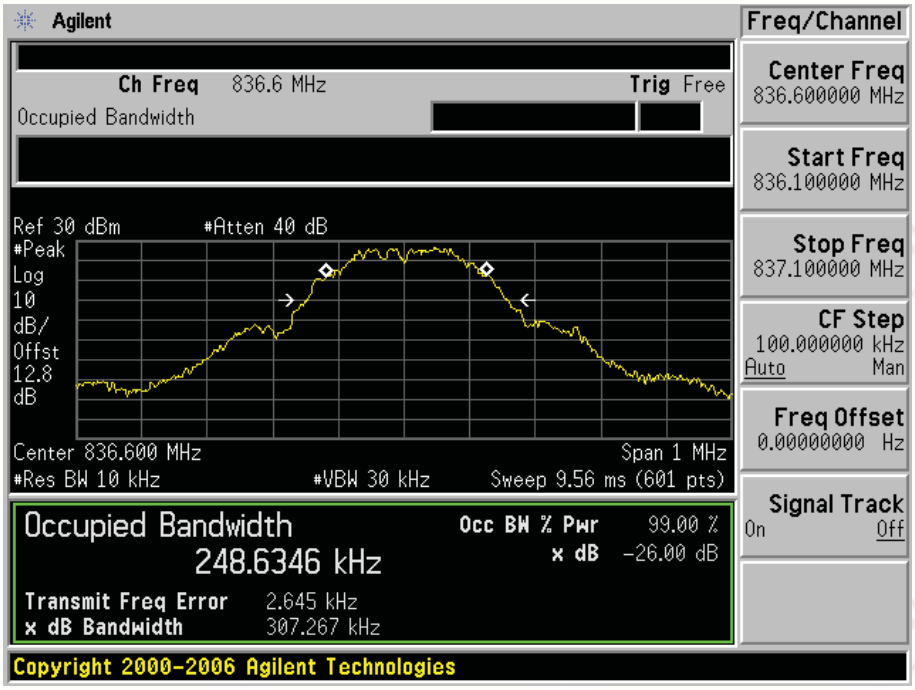
Test Band=GPRS850

Test Mode=GPRS/TM2

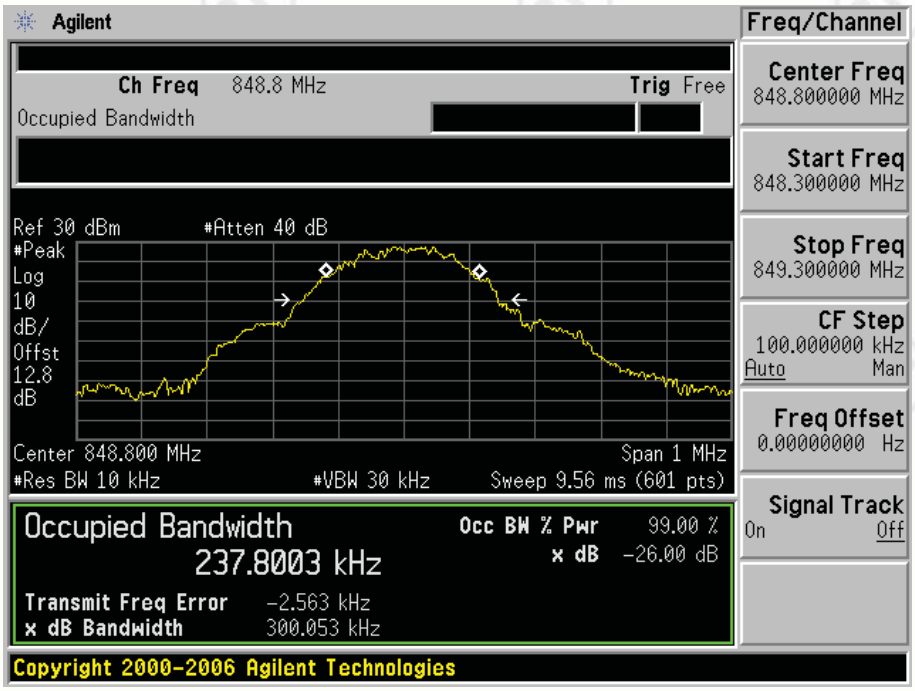
Test Channel=LCH



Test Channel=MCH



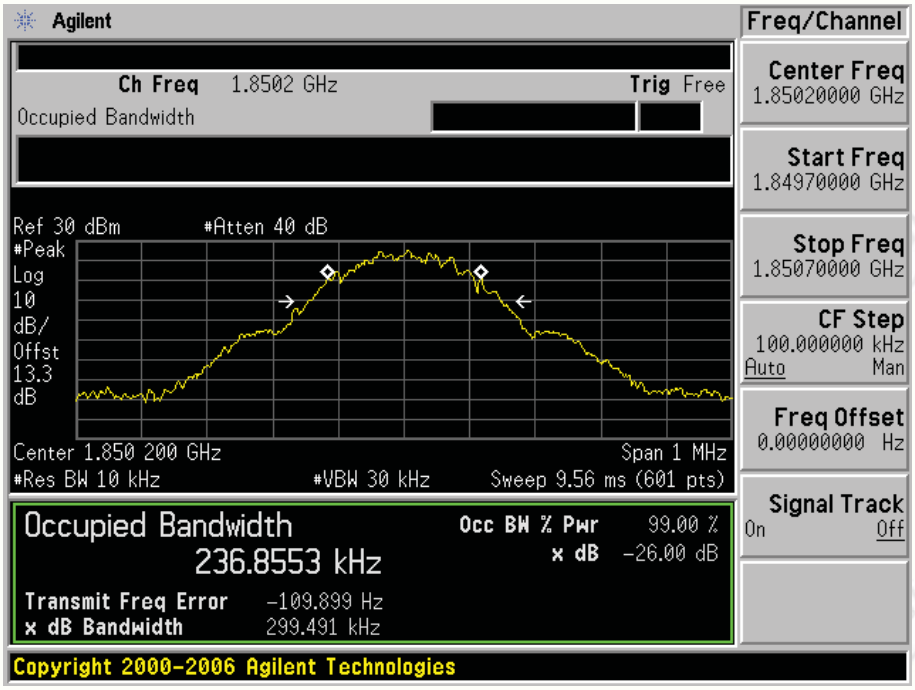
Test Channel=HCH



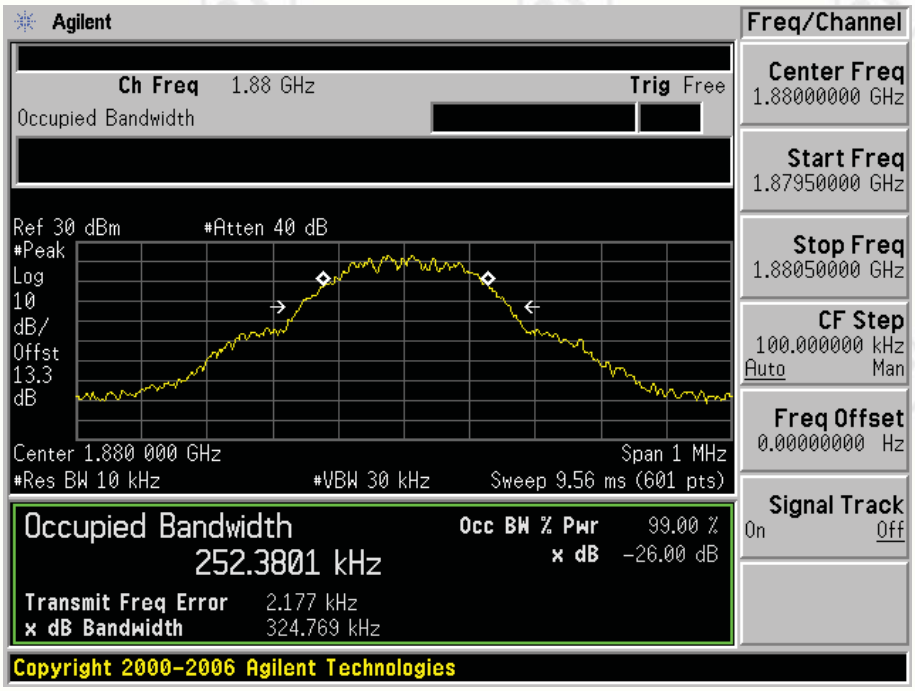
Test Band=GPRS1900

Test Mode=GPRS/TM2

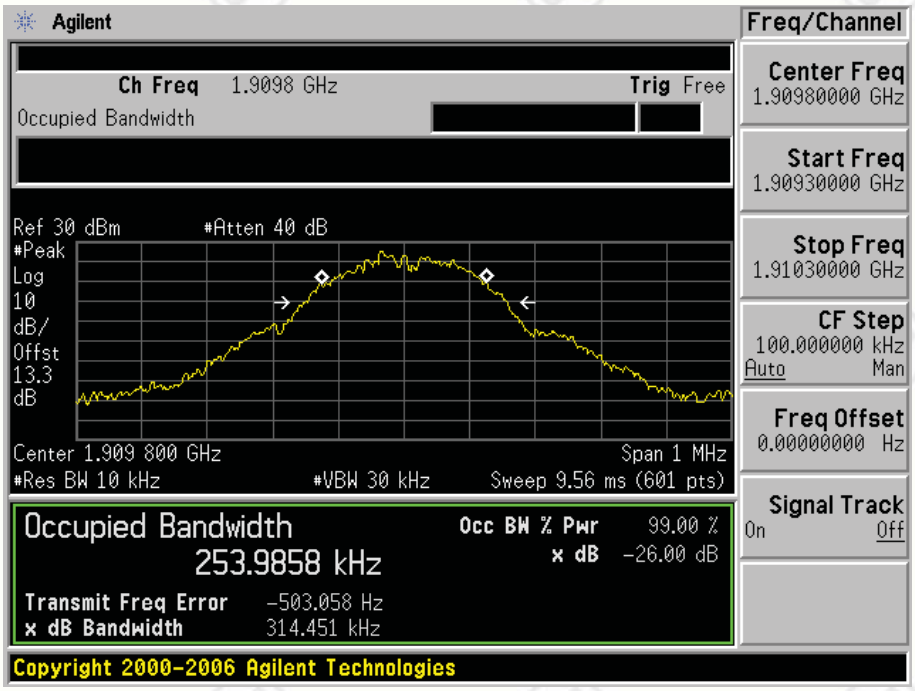
Test Channel=LCH



Test Channel=MCH



Test Channel=HCH

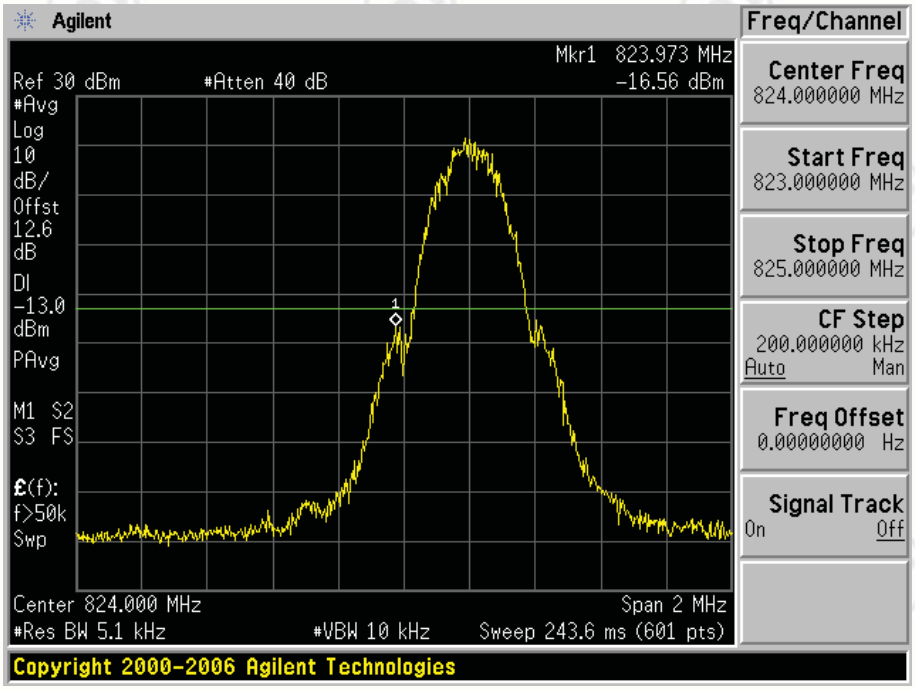


Appendix D) Band Edges Compliance

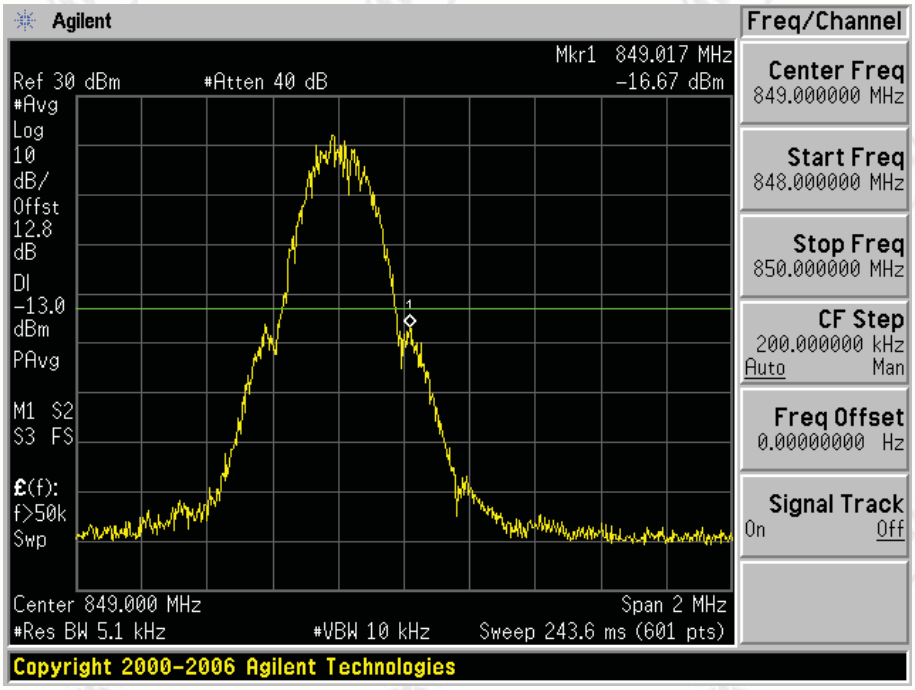
Test Band=GPRS850

Test Mode=GPRS/TM2

Test Channel=LCH



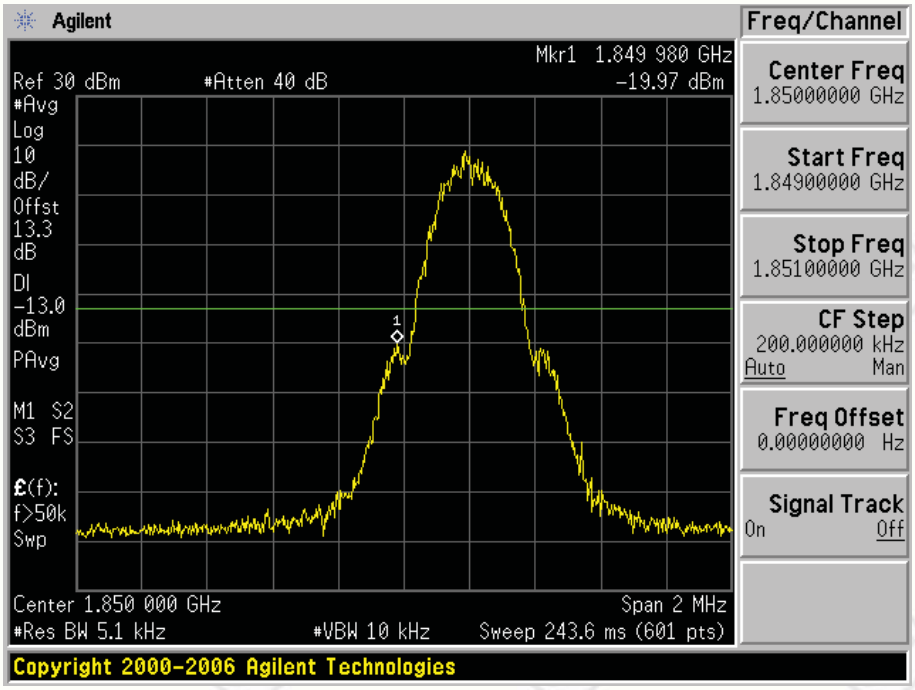
Test Channel=HCH



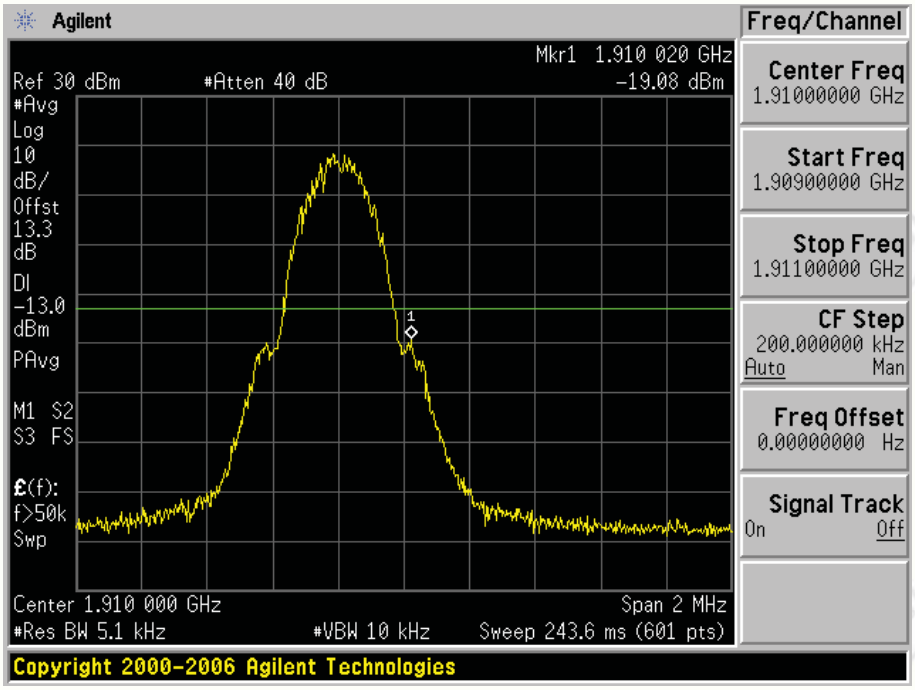
Test Band=GPRS1900

Test Mode=GPRS/TM2

Test Channel=LCH



Test Channel=HCH

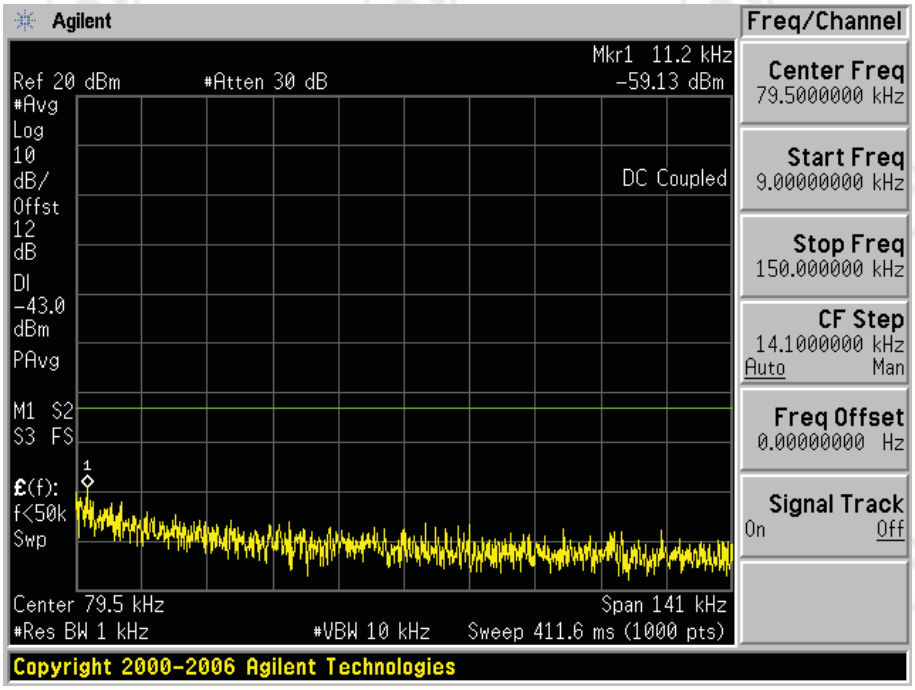


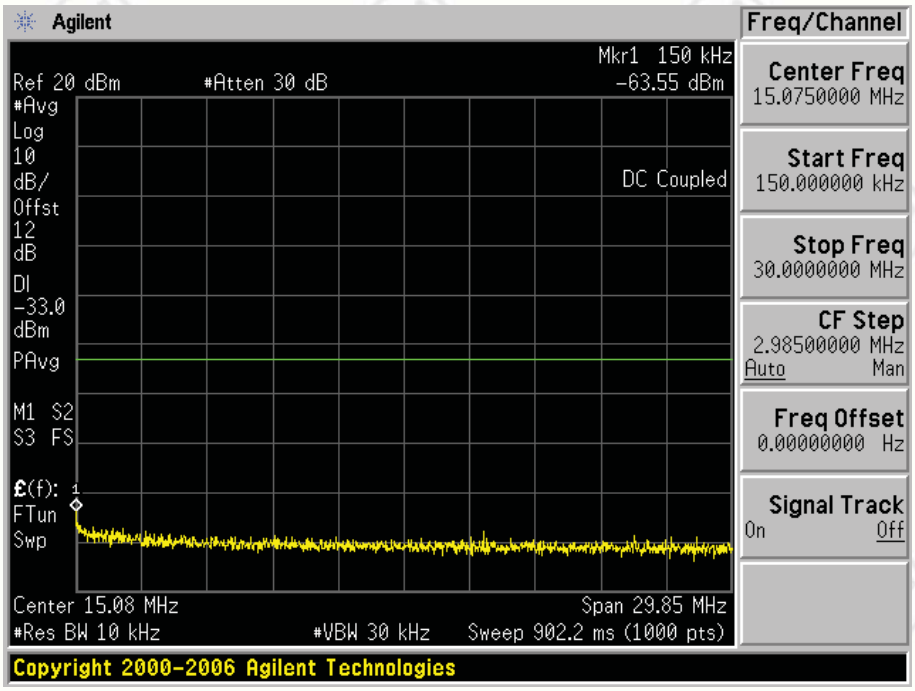
Appendix E) Spurious Emission at Antenna Terminal

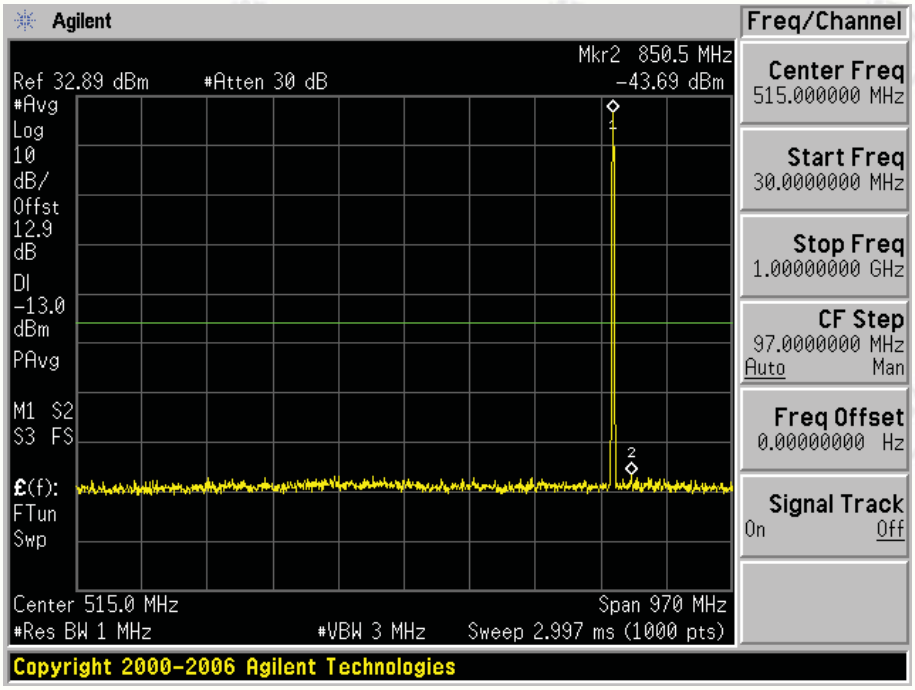
Test Band=GPRS850

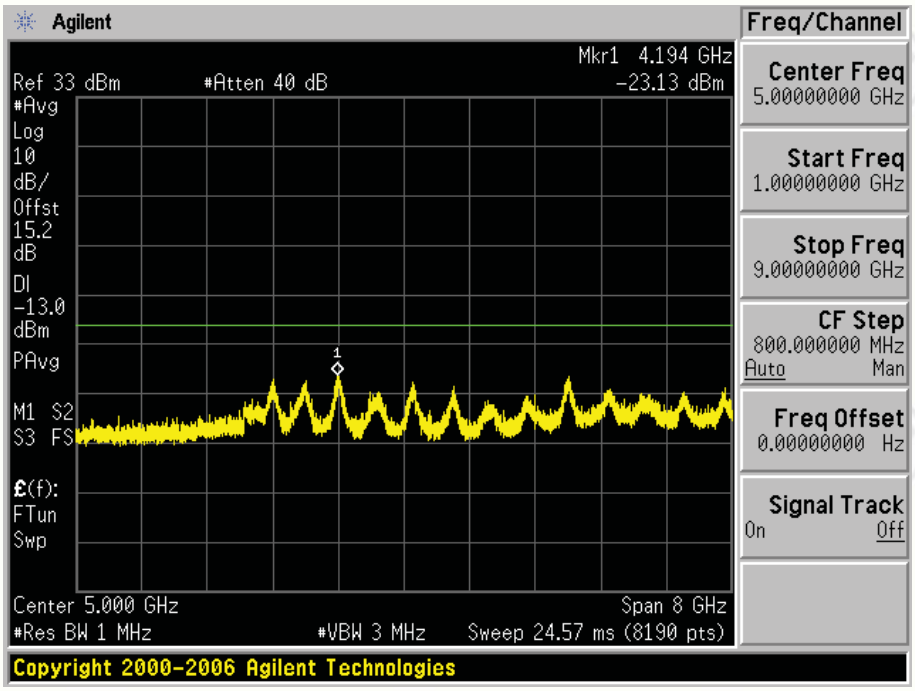
Test Mode=GPRS/TM2

Test Channel=LCH

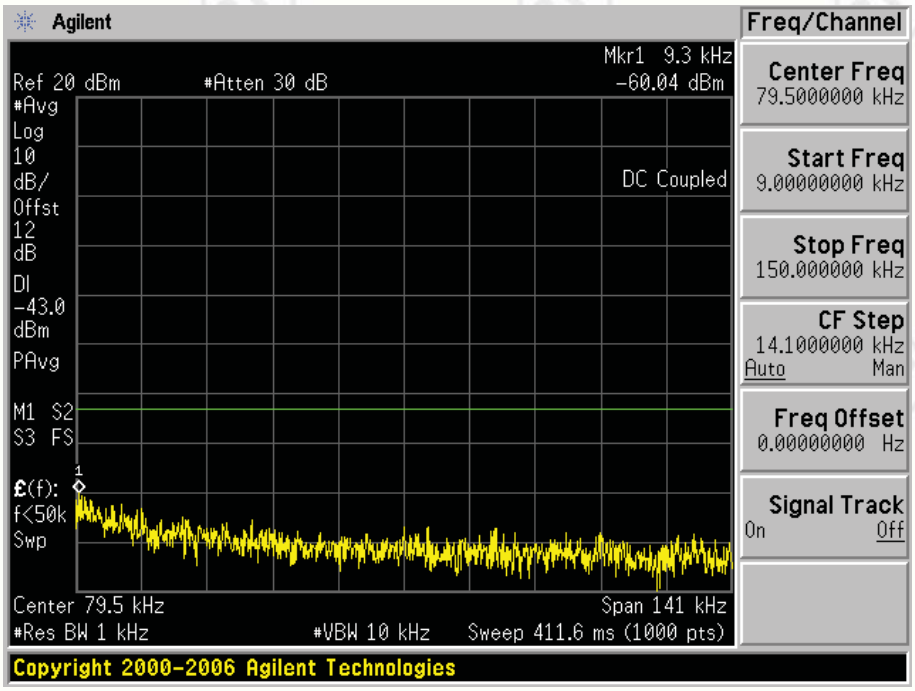


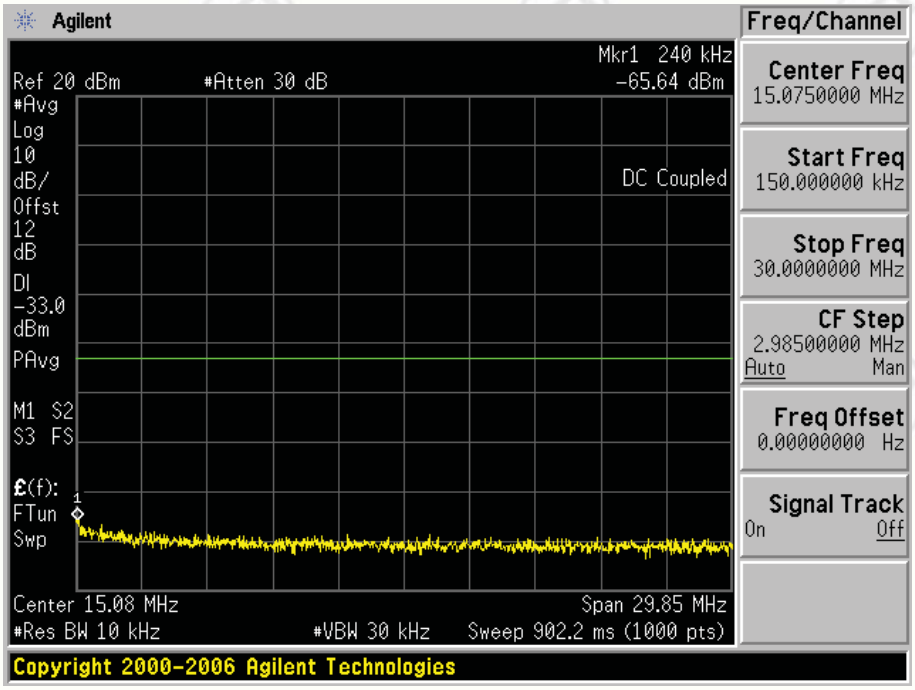


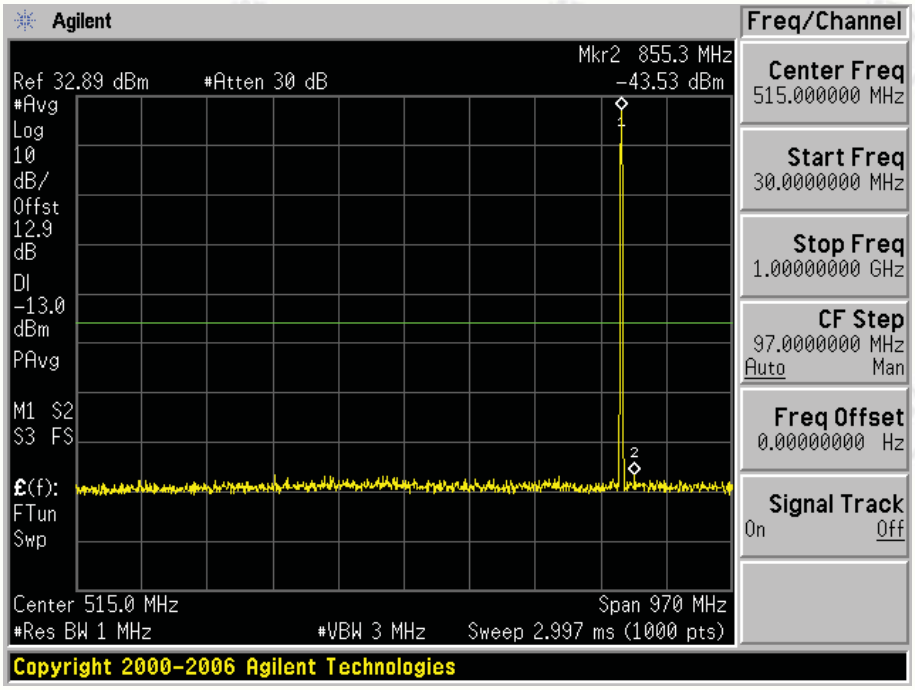

Agilent
Freq/Channel
Mkr2 850.5 MHz
Ref 32.89 dBm
#Atten 30 dB
-43.69 dBm
#Avg
Log
10
dB/
Offst
12.9
dB
Dl
-13.0
dBm
PAvg
M1 S2
S3 FS
£(f):
FTun
Swp
Center Freq
515.000000 MHz
Start Freq
30.0000000 MHz
Stop Freq
1.00000000 GHz
CF Step
97.0000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 515.0 MHz
Span 970 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 2.997 ms (1000 pts)
Copyright 2000-2006 Agilent Technologies

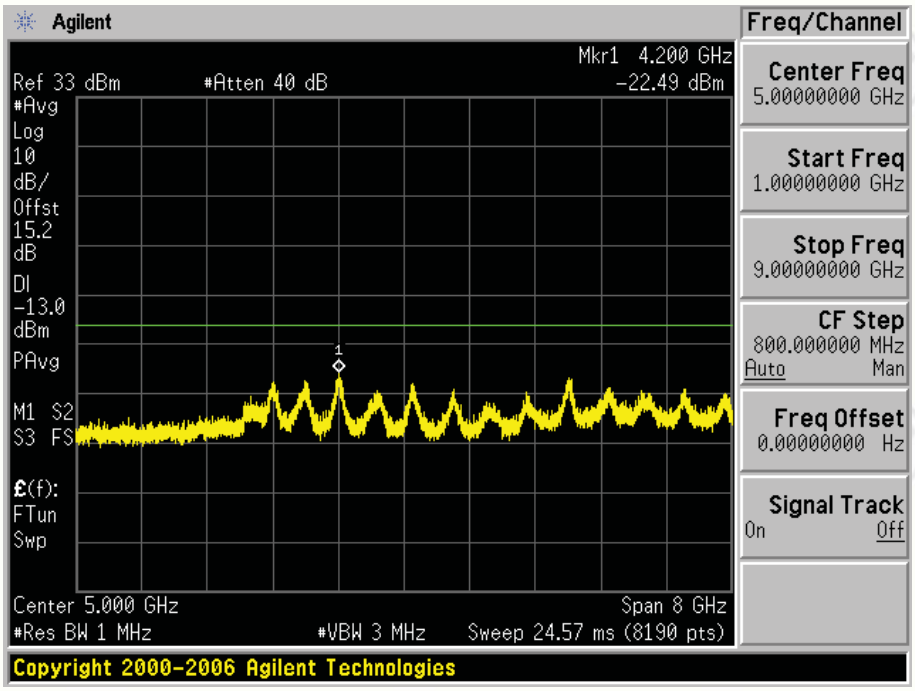

Agilent
Freq/Channel
Mkr1 4.194 GHz
Ref 33 dBm
#Atten 40 dB
-23.13 dBm
#Avg
Log
10
dB/
Offst
15.2
dB
Dl
-13.0
dBm
PAvg
M1 S2
S3 FS
£(f):
FTun
Swp
Center Freq
5.00000000 GHz
Start Freq
1.00000000 GHz
Stop Freq
9.00000000 GHz
CF Step
800.000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 5.000 GHz
Span 8 GHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 24.57 ms (8190 pts)
Copyright 2000-2006 Agilent Technologies

Test Channel=MCH

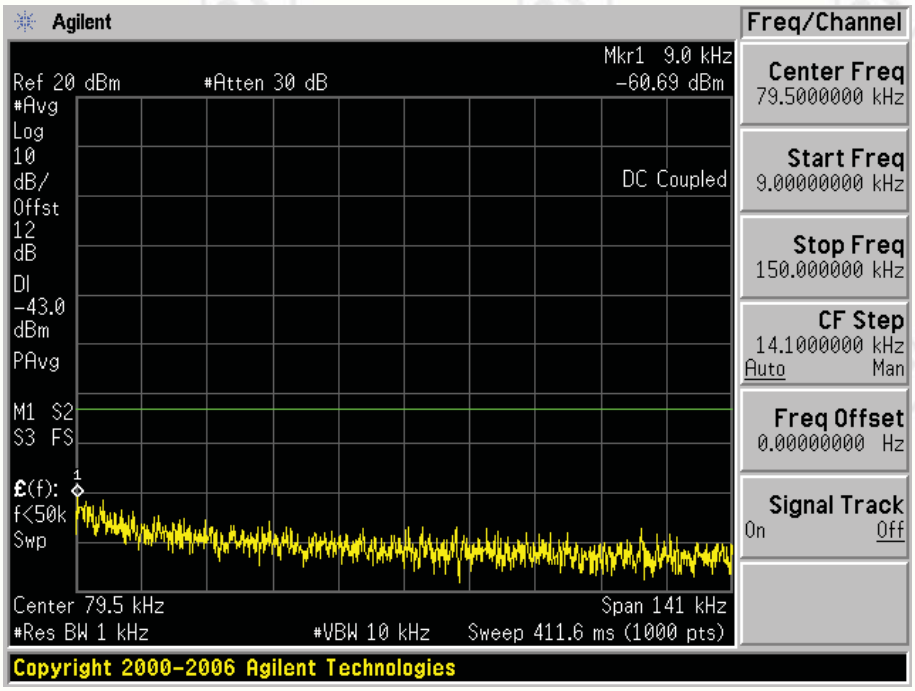


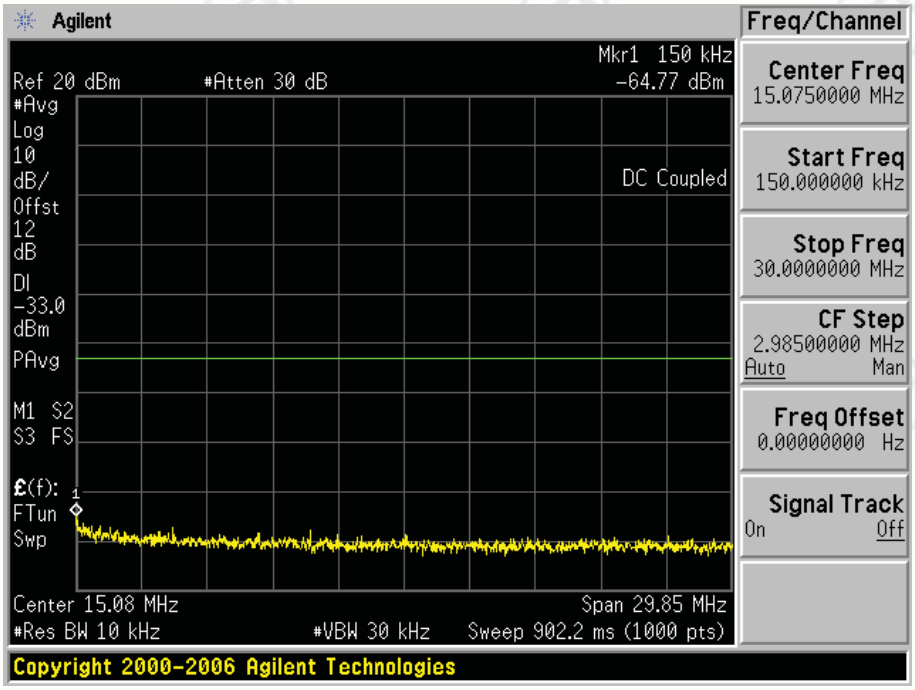


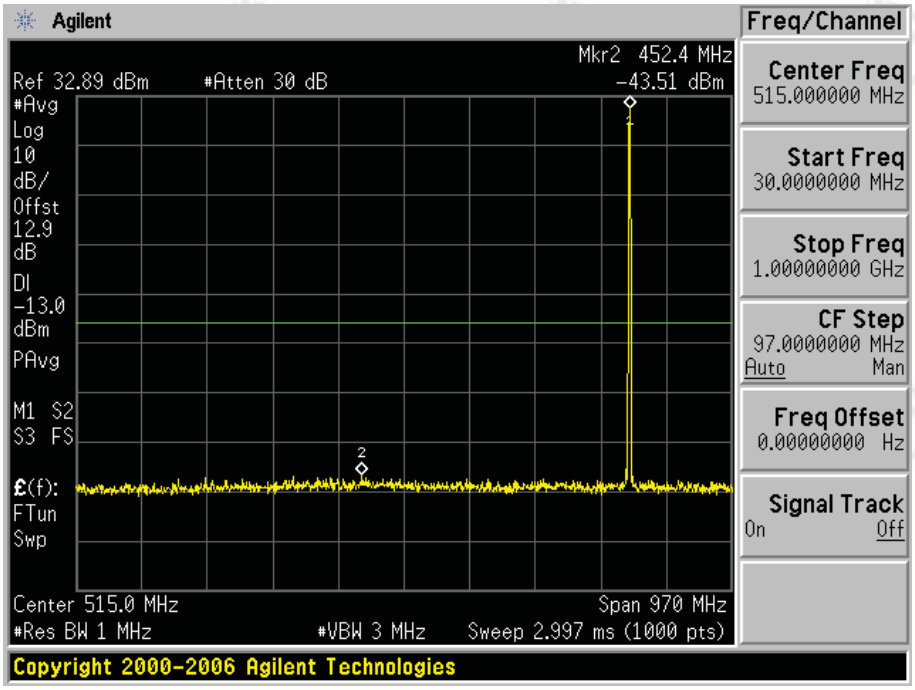

Agilent
Freq/Channel
Mkr2 855.3 MHz
Ref 32.89 dBm
#Atten 30 dB
-43.53 dBm
#Avg
Log
10
dB/
Offst
12.9
dB
Dl
-13.0
dBm
PAvg
M1 S2
S3 FS
£(f):
FTun
Swp
Center Freq
515.000000 MHz
Start Freq
30.0000000 MHz
Stop Freq
1.00000000 GHz
CF Step
97.0000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 515.0 MHz
Span 970 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 2.997 ms (1000 pts)
Copyright 2000-2006 Agilent Technologies

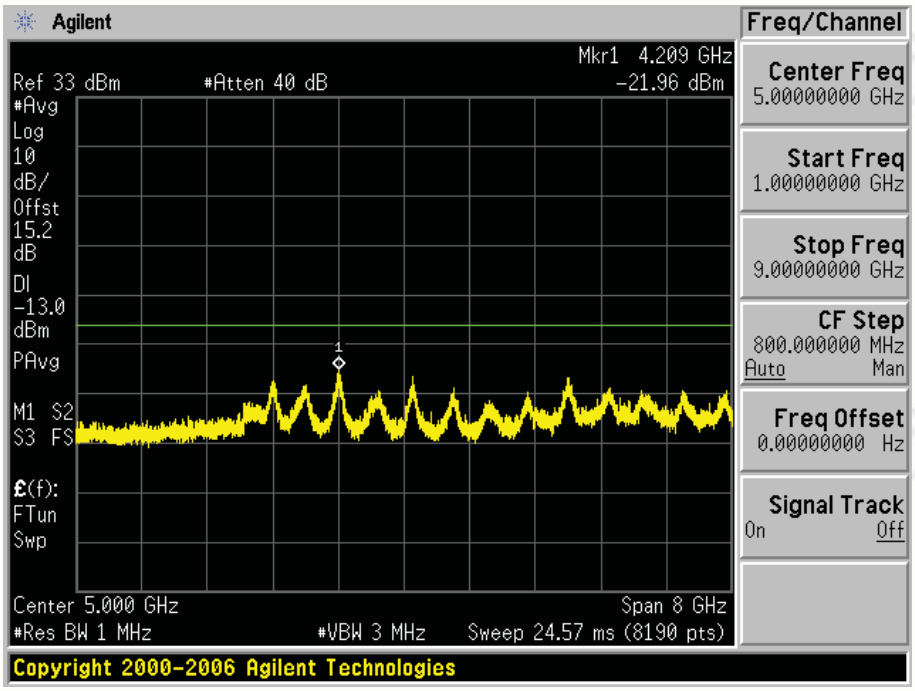

Agilent
Freq/Channel
Mkr1 4.200 GHz
Ref 33 dBm
#Atten 40 dB
-22.49 dBm
#Avg
Log
10
dB/
Offst
15.2
dB
Dl
-13.0
dBm
PAvg
M1 S2
S3 FS
£(f):
FTun
Swp
Center Freq
5.00000000 GHz
Start Freq
1.00000000 GHz
Stop Freq
9.00000000 GHz
CF Step
800.000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 5.000 GHz
Span 8 GHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 24.57 ms (8190 pts)
Copyright 2000-2006 Agilent Technologies

Test Channel=HCH

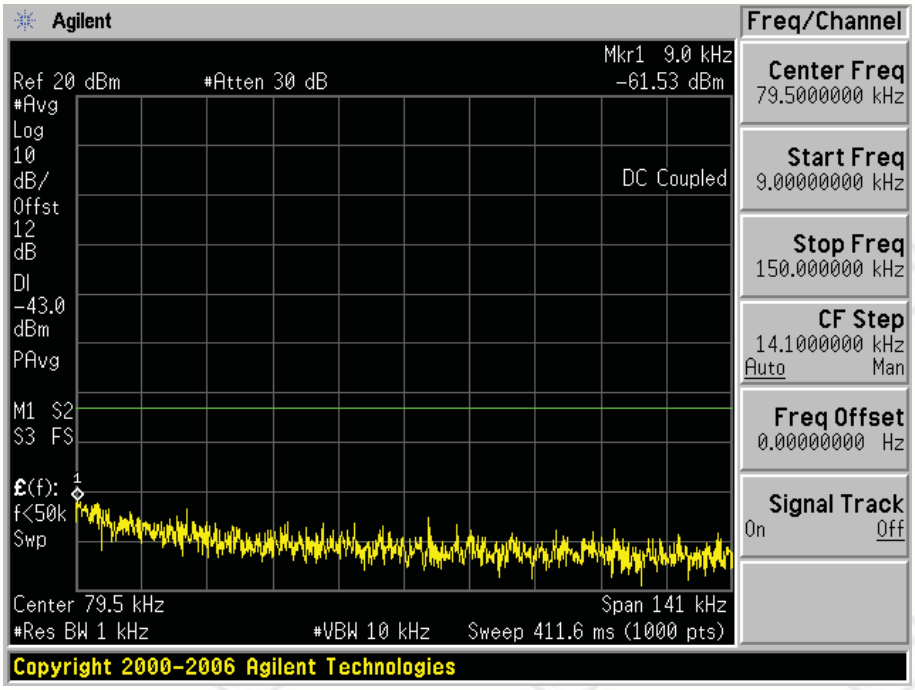


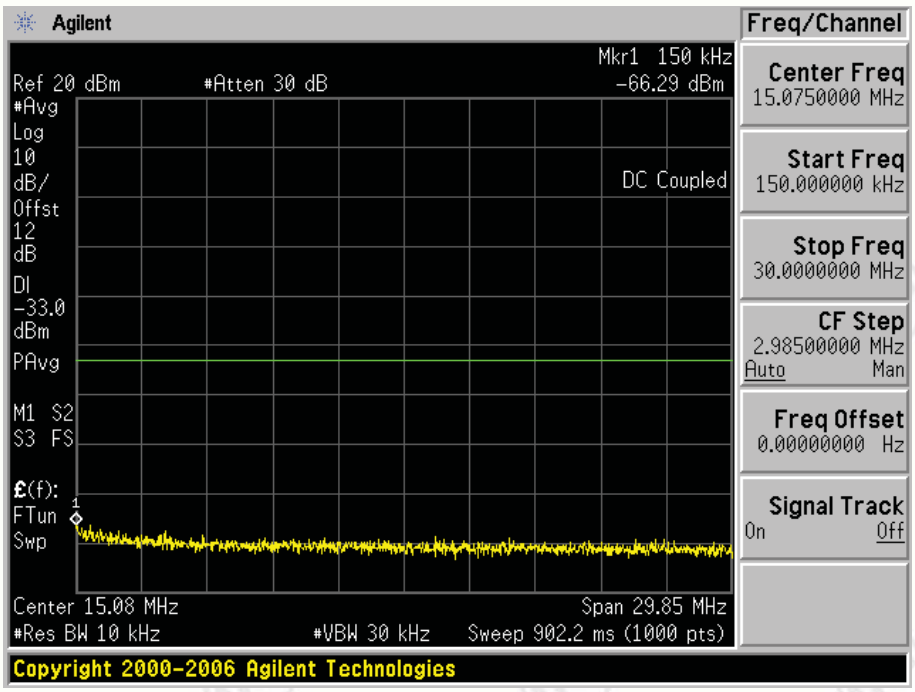


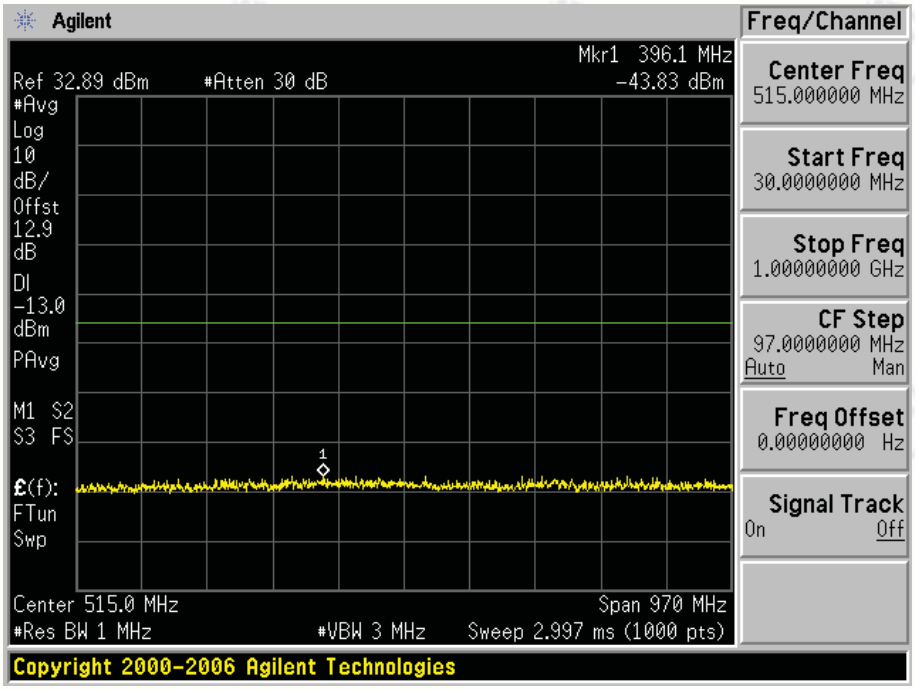

Agilent
Freq/Channel
Mkr2 452.4 MHz
Ref 32.89 dBm
#Atten 30 dB
-43.51 dBm
#Avg
Log
10
dB/
Offst
12.9
dB
Dl
-13.0
dBm
PAvg
M1 S2
S3 FS
£(f):
FTun
Swp
Center Freq
515.000000 MHz
Start Freq
30.0000000 MHz
Stop Freq
1.00000000 GHz
CF Step
97.0000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 515.0 MHz
Span 970 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 2.997 ms (1000 pts)
Copyright 2000-2006 Agilent Technologies

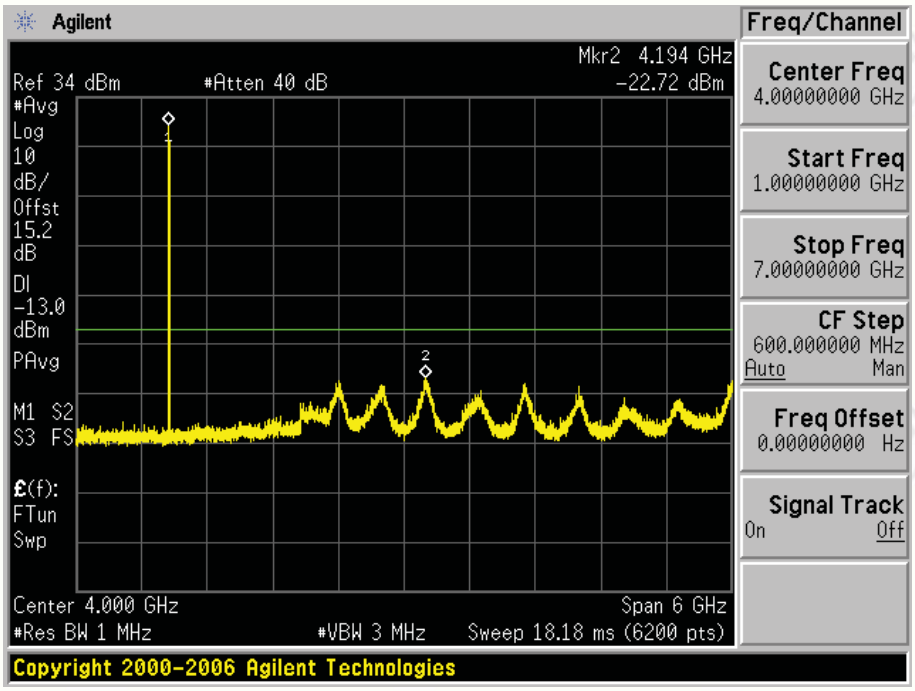

Agilent
Freq/Channel
Mkr1 4.209 GHz
Ref 33 dBm
#Atten 40 dB
-21.96 dBm
#Avg
Log
10
dB/
Offst
15.2
dB
Dl
-13.0
dBm
PAvg
M1 S2
S3 FS
£(f):
FTun
Swp
Center Freq
5.00000000 GHz
Start Freq
1.00000000 GHz
Stop Freq
9.00000000 GHz
CF Step
800.000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 5.000 GHz
Span 8 GHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 24.57 ms (8190 pts)
Copyright 2000-2006 Agilent Technologies

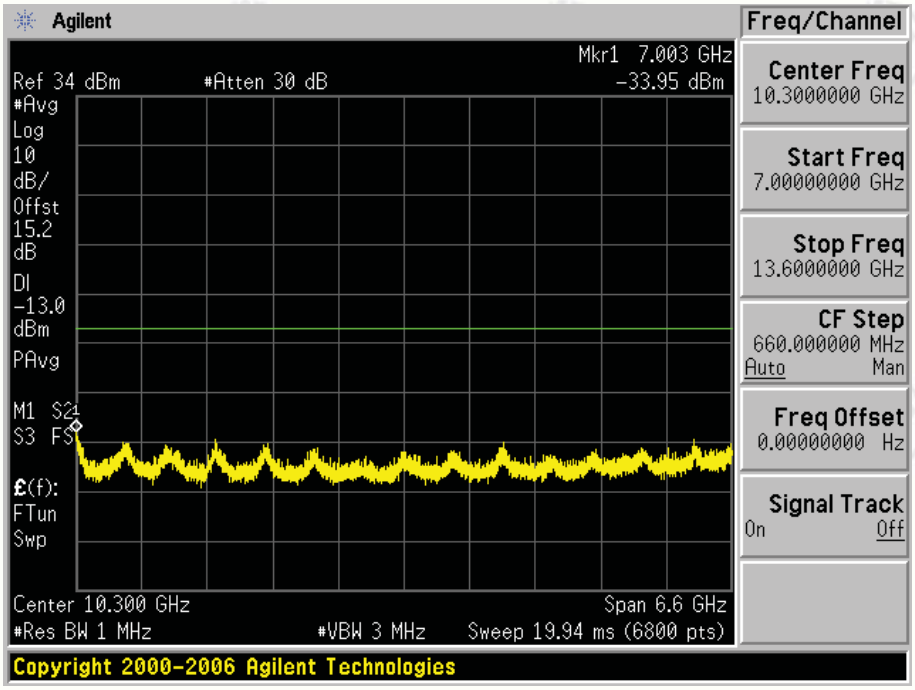
Test Band=GPRS1900
Test Mode=GPRS/TM2
Test Channel=LCH

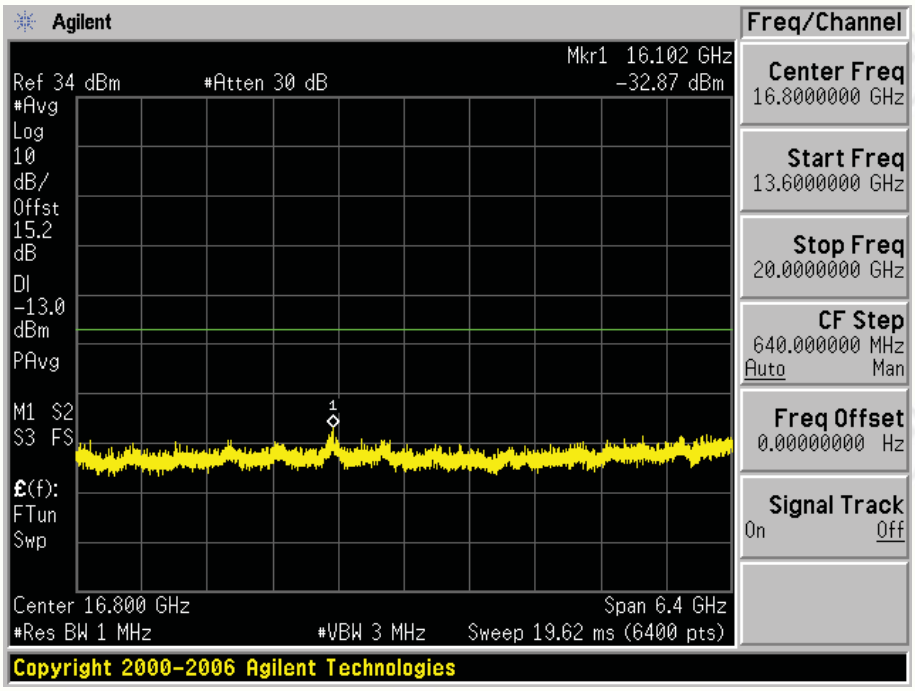




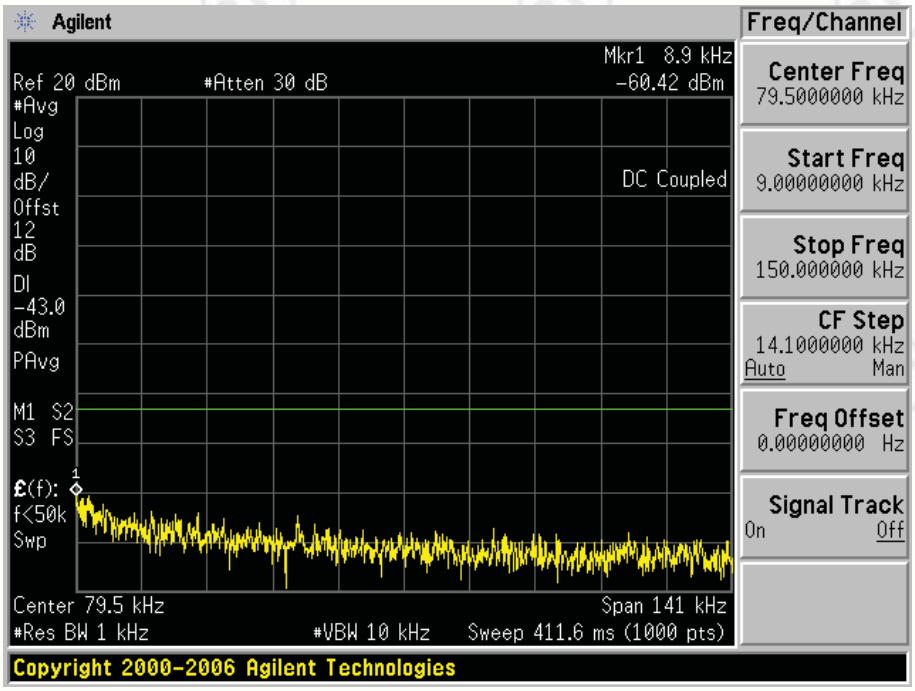

Agilent
Freq/Channel
Mkr1 396.1 MHz
Ref 32.89 dBm
#Atten 30 dB
-43.83 dBm
#Avg
Log
10
dB/
Offst
12.9
dB
Dl
-13.0
dBm
PAvg
M1 S2
S3 FS
£(f):
FTun
Swp
Center Freq
515.000000 MHz
Start Freq
30.0000000 MHz
Stop Freq
1.00000000 GHz
CF Step
97.0000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 515.0 MHz
Span 970 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 2.997 ms (1000 pts)
Copyright 2000-2006 Agilent Technologies

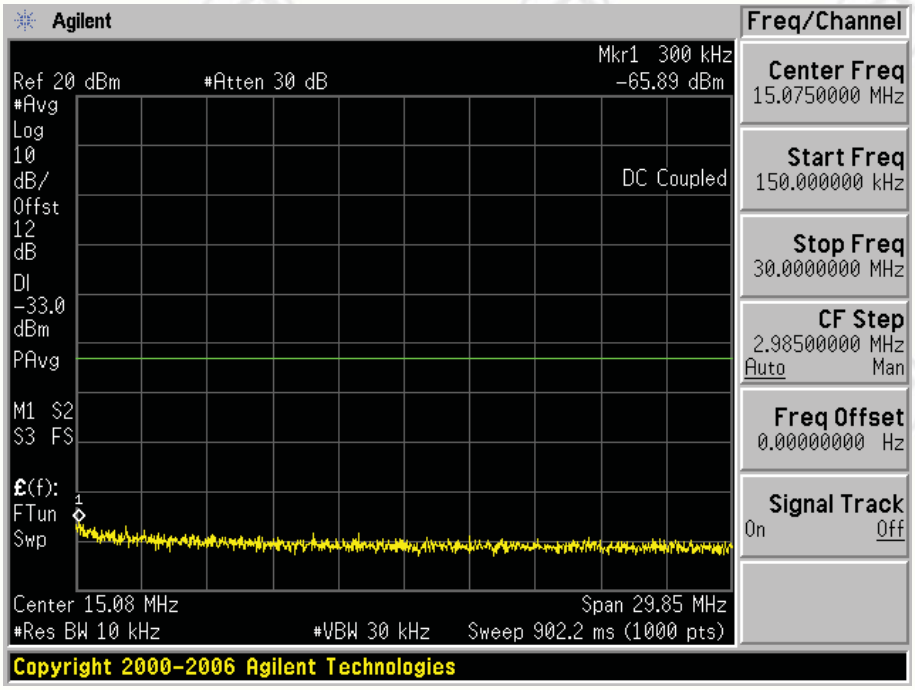

Agilent
Freq/Channel
Mkr2 4.194 GHz
Ref 34 dBm
#Atten 40 dB
-22.72 dBm
#Avg
Log
10
dB/
Offst
15.2
dB
Dl
-13.0
dBm
PAvg
M1 S2
S3 FS
£(f):
FTun
Swp
Center Freq
4.00000000 GHz
Start Freq
1.00000000 GHz
Stop Freq
7.00000000 GHz
CF Step
600.000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 4.000 GHz
Span 6 GHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 18.18 ms (6200 pts)
Copyright 2000-2006 Agilent Technologies

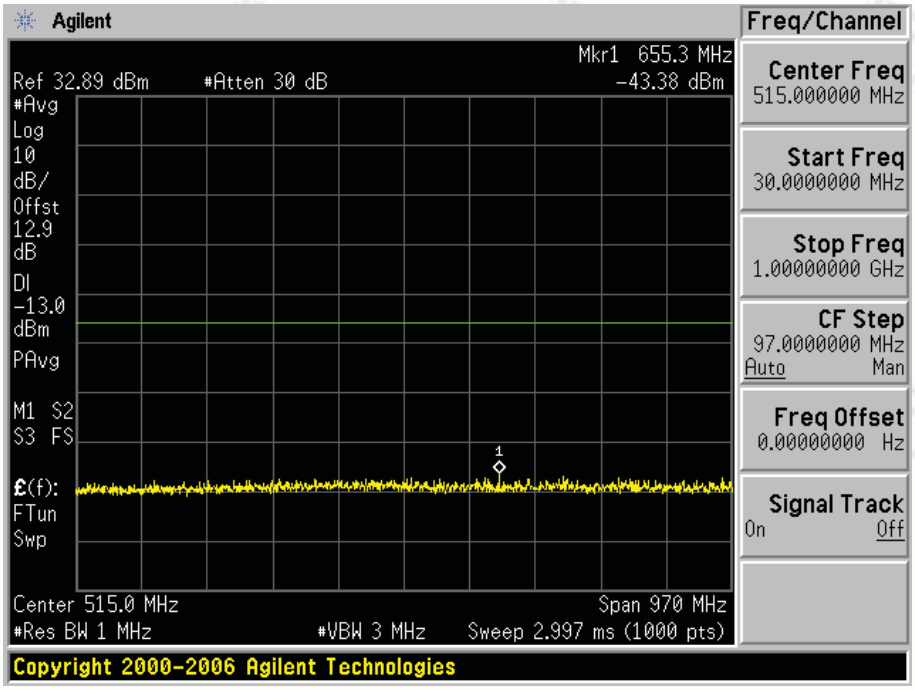

Agilent
Freq/Channel
Mkr1 7.003 GHz
Ref 34 dBm
#Atten 30 dB
-33.95 dBm
#Avg
Log
10
dB/
Offst
15.2
dB
Dl
-13.0
dBm
PAvg
M1 S2
S3 FS
£(f):
FTun
Swp
Center Freq
10.3000000 GHz
Start Freq
7.00000000 GHz
Stop Freq
13.6000000 GHz
CF Step
660.000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 10.300 GHz
Span 6.6 GHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 19.94 ms (6800 pts)
Copyright 2000-2006 Agilent Technologies

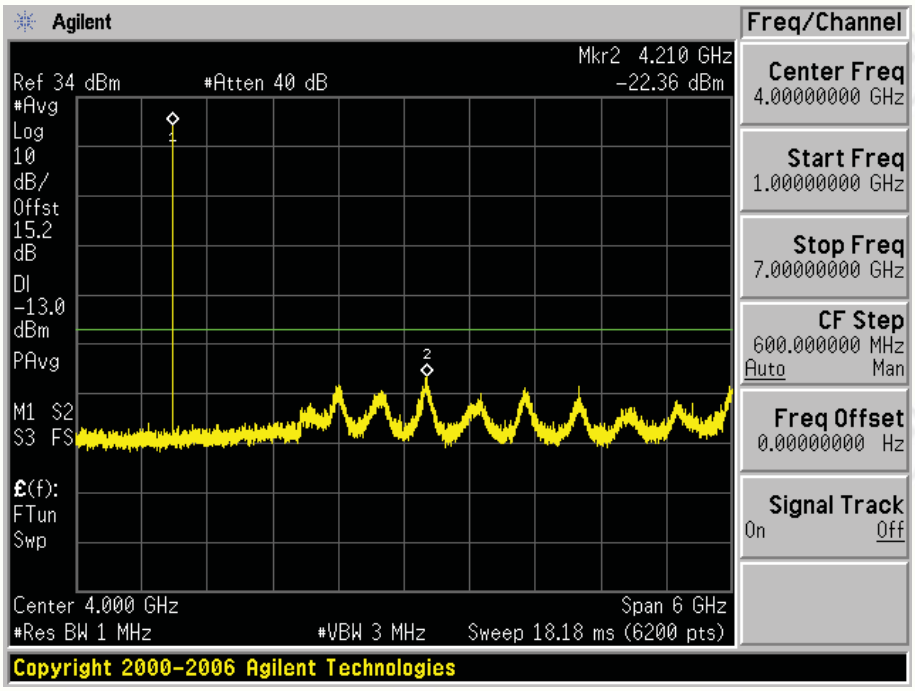

Agilent
Freq/Channel
Mkr1 16.102 GHz
Ref 34 dBm
#Atten 30 dB
-32.87 dBm
#Avg
Log
10
dB/
Offst
15.2
dB
Dl
-13.0
dBm
PAvg
M1 S2
S3 FS
£(f):
FTun
Swp
Center Freq
16.8000000 GHz
Start Freq
13.6000000 GHz
Stop Freq
20.0000000 GHz
CF Step
640.000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 16.800 GHz
Span 6.4 GHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 19.62 ms (6400 pts)
Copyright 2000-2006 Agilent Technologies

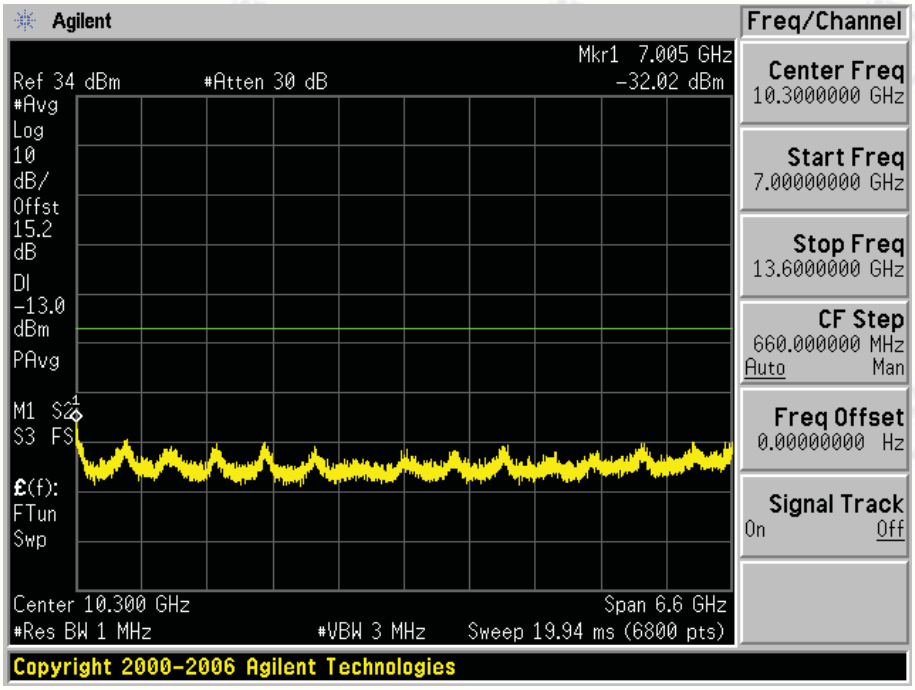
Test Channel=MCH

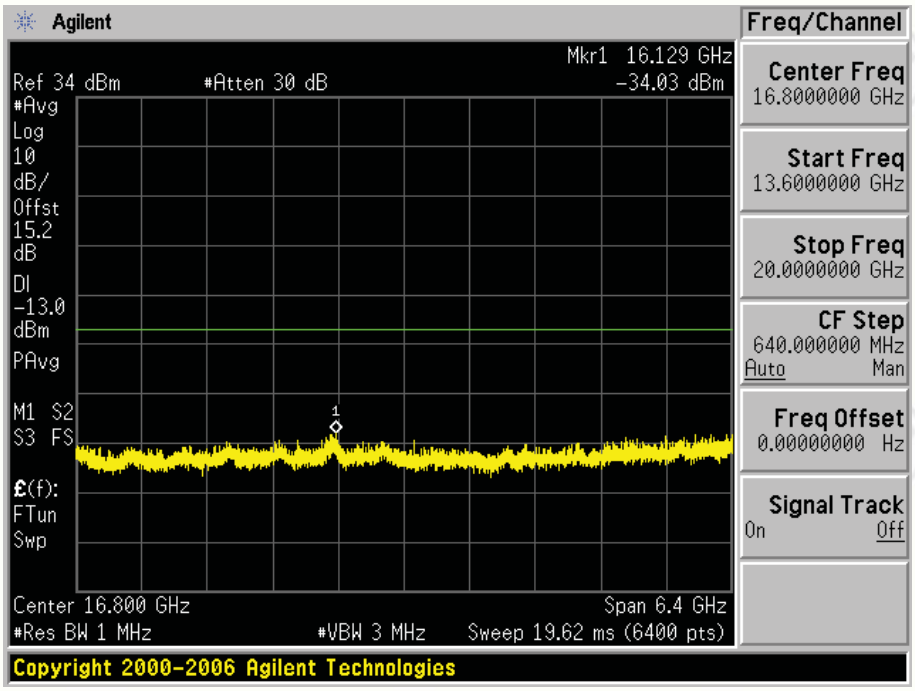




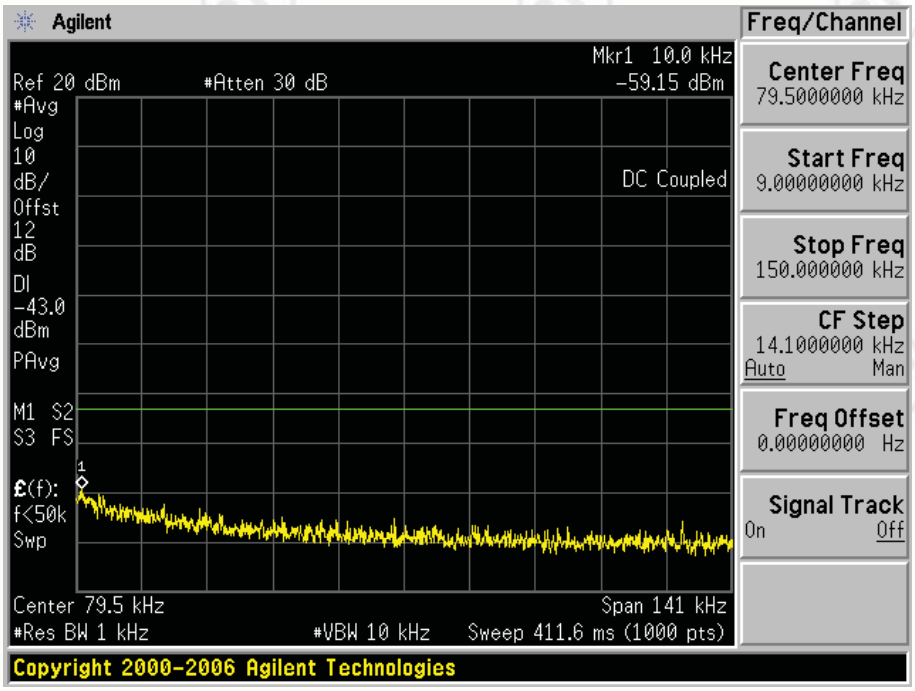

Agilent
Freq/Channel
Mkr1 655.3 MHz
Ref 32.89 dBm
#Atten 30 dB
-43.38 dBm
#Avg
Log
10
dB/
Offst
12.9
dB
Dl
-13.0
dBm
PAvg
M1 S2
S3 FS
£(f):
FTun
Swp
Center Freq
515.000000 MHz
Start Freq
30.0000000 MHz
Stop Freq
1.00000000 GHz
CF Step
97.0000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 515.0 MHz
Span 970 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 2.997 ms (1000 pts)
Copyright 2000-2006 Agilent Technologies

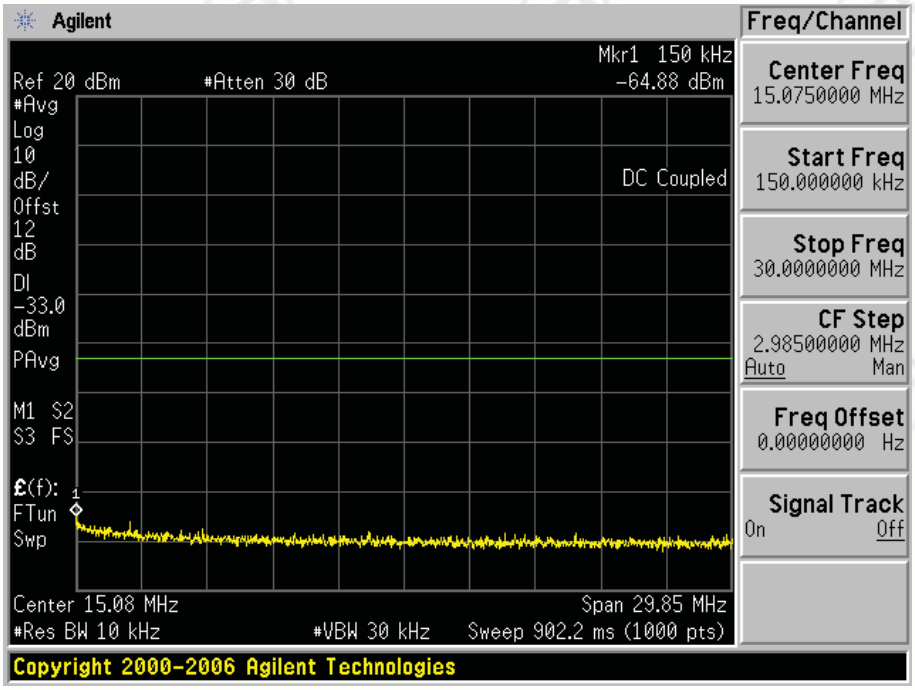

Agilent
Freq/Channel
Mkr2 4.210 GHz
Ref 34 dBm
#Atten 40 dB
-22.36 dBm
#Avg
Log
10
dB/
Offst
15.2
dB
Dl
-13.0
dBm
PAvg
M1 S2
S3 FS
£(f):
FTun
Swp
Center Freq
4.00000000 GHz
Start Freq
1.00000000 GHz
Stop Freq
7.00000000 GHz
CF Step
600.000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 4.000 GHz
Span 6 GHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 18.18 ms (6200 pts)
Copyright 2000-2006 Agilent Technologies

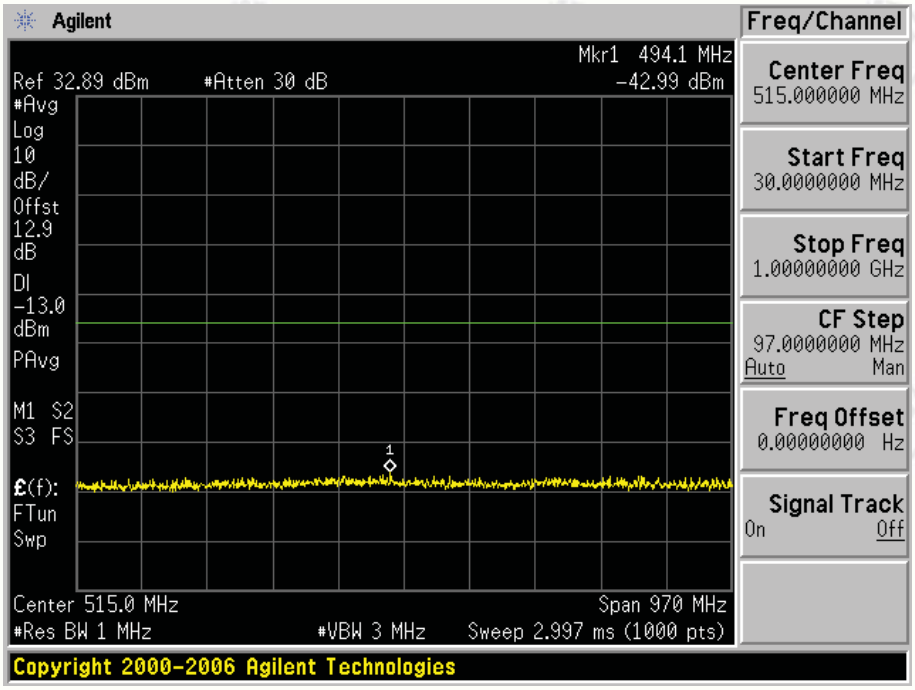

Agilent
Freq/Channel
Mkr1 7.005 GHz
Ref 34 dBm
#Atten 30 dB
-32.02 dBm
#Avg
Log
10
dB/
Offst
15.2
dB
Dl
-13.0
dBm
PAvg
M1 S2
S3 FS
£(f):
FTun
Swp
Center Freq
10.3000000 GHz
Start Freq
7.00000000 GHz
Stop Freq
13.6000000 GHz
CF Step
660.000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 10.300 GHz
Span 6.6 GHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 19.94 ms (6800 pts)
Copyright 2000-2006 Agilent Technologies

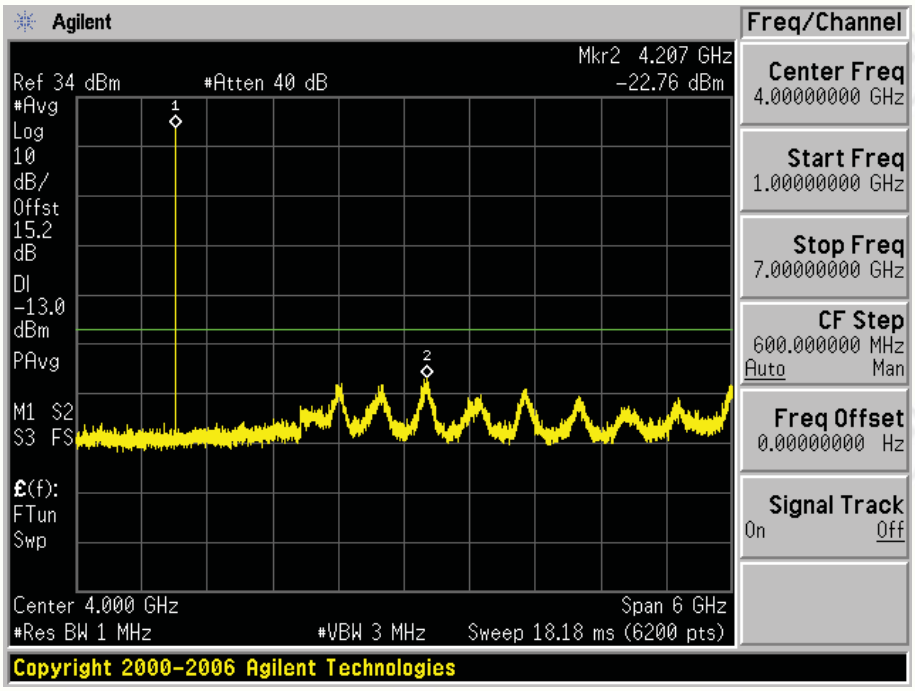

Agilent
Freq/Channel
Mkr1 16.129 GHz
Ref 34 dBm
#Atten 30 dB
-34.03 dBm
#Avg
Log
10
dB/
Offst
15.2
dB
Dl
-13.0
dBm
PAvg
M1 S2
S3 FS
£(f):
FTun
Swp
Center Freq
16.8000000 GHz
Start Freq
13.6000000 GHz
Stop Freq
20.0000000 GHz
CF Step
640.000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 16.800 GHz
Span 6.4 GHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 19.62 ms (6400 pts)
Copyright 2000-2006 Agilent Technologies

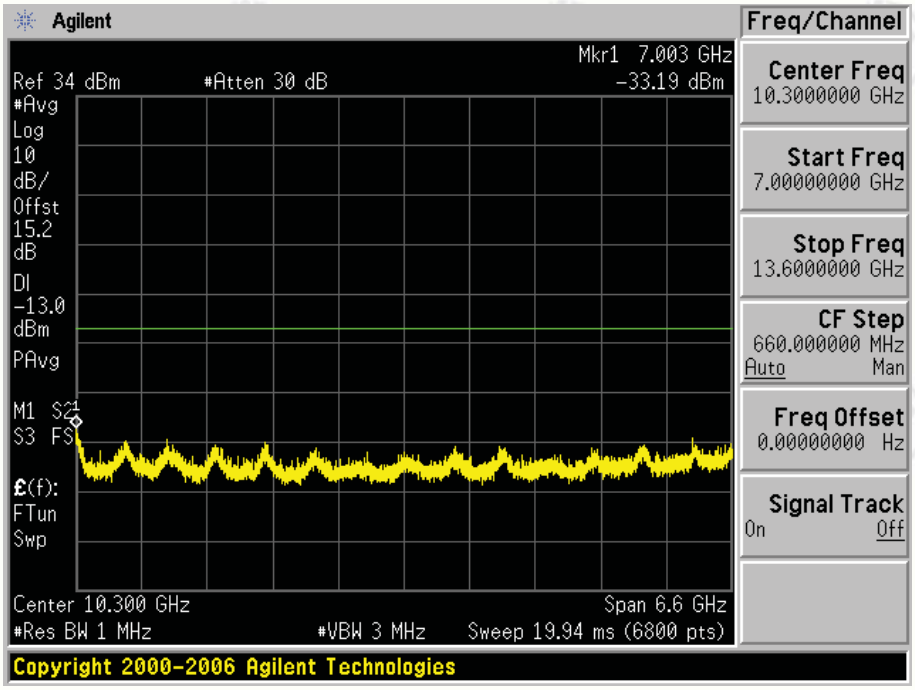
Test Channel=HCH

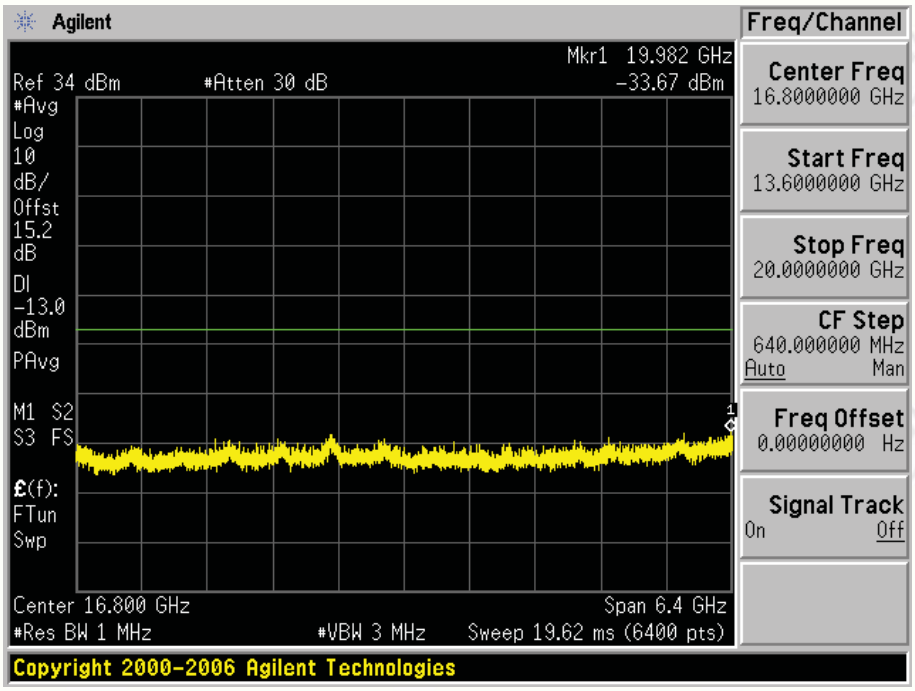





Agilent
Freq/Channel
Mkr1 494.1 MHz
Ref 32.89 dBm
#Atten 30 dB
-42.99 dBm
#Avg
Log
10
dB/
Offst
12.9
dB
Dl
-13.0
dBm
PAvg
M1 S2
S3 FS
£(f):
FTun
Swp
Center Freq
515.000000 MHz
Start Freq
30.0000000 MHz
Stop Freq
1.00000000 GHz
CF Step
97.0000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 515.0 MHz
Span 970 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 2.997 ms (1000 pts)
Copyright 2000-2006 Agilent Technologies


Agilent
Freq/Channel
Mkr2 4.207 GHz
Ref 34 dBm
#Atten 40 dB
-22.76 dBm
#Avg
Log
10
dB/
Offst
15.2
dB
Dl
-13.0
dBm
PAvg
M1 S2
S3 FS
£(f):
FTun
Swp
Center Freq
4.00000000 GHz
Start Freq
1.00000000 GHz
Stop Freq
7.00000000 GHz
CF Step
600.000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 4.000 GHz
Span 6 GHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 18.18 ms (6200 pts)
Copyright 2000-2006 Agilent Technologies


Agilent
Freq/Channel
Mkr1 7.003 GHz
Ref 34 dBm
#Atten 30 dB
-33.19 dBm
#Avg
Log
10
dB/
Offst
15.2
dB
Dl
-13.0
dBm
PAvg
M1 S2
S3 FS
£(f):
FTun
Swp
Center Freq
10.3000000 GHz
Start Freq
7.00000000 GHz
Stop Freq
13.6000000 GHz
CF Step
660.000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 10.300 GHz
Span 6.6 GHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 19.94 ms (6800 pts)
Copyright 2000-2006 Agilent Technologies


Agilent
Freq/Channel
Mkr1 19.982 GHz
Ref 34 dBm
#Atten 30 dB
-33.67 dBm
#Avg
Log
10
dB/
Offst
15.2
dB
Dl
-13.0
dBm
PAvg
M1 S2
S3 FS
£(f):
FTun
Swp
Center Freq
16.8000000 GHz
Start Freq
13.6000000 GHz
Stop Freq
20.0000000 GHz
CF Step
640.000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 16.800 GHz
Span 6.4 GHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 19.62 ms (6400 pts)
Copyright 2000-2006 Agilent Technologies

Appendix F) Frequency Stability

Frequency Error vs. Voltage:

Test Band	Test Mode	Test Channel	Test Temp.	Test Volt.	Freq.Error (Hz)	Freq.vs.rated (ppm)	Limit (ppm)	Verdict
GPRS850	TM2	LCH	TN	VL	25.27	0.03	±2.5	PASS
			TN	VN	15.99	0.02	±2.5	PASS
			TN	VH	23.19	0.03	±2.5	PASS
		MCH	TN	VL	12.76	0.02	±2.5	PASS
			TN	VN	10.89	0.01	±2.5	PASS
			TN	VH	1.82	0.00	±2.5	PASS
		HCH	TN	VL	19.92	0.02	±2.5	PASS
			TN	VN	10.29	0.01	±2.5	PASS
			TN	VH	16.34	0.02	±2.5	PASS

Test Band	Test Mode	Test Channel	Test Temp.	Test Volt.	Freq.Error (Hz)	Freq.vs.rated (ppm)	Limit (ppm)	Verdict
GPRS 1900	TM2	LCH	TN	VL	51.99	0.03	±2.5	PASS
			TN	VN	22.16	0.01	±2.5	PASS
			TN	VH	26.91	0.01	±2.5	PASS
		MCH	TN	VL	15.39	0.01	±2.5	PASS
			TN	VN	17.56	0.01	±2.5	PASS
			TN	VH	15.67	0.01	±2.5	PASS
		HCH	TN	VL	14.39	0.01	±2.5	PASS
			TN	VN	1.08	0.00	±2.5	PASS
			TN	VH	0.62	0.00	±2.5	PASS

Frequency Error vs. Temperature:

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp. (℃)	Freq.Error (Hz)	Freq.vs.rated (ppm)	Limit (ppm)	Verdict
GPRS850	TM2	LCH	VN	-30	16.23	0.02	±2.5	PASS
			VN	-20	12.13	0.01	±2.5	PASS
			VN	-10	13.66	0.02	±2.5	PASS
			VN	0	14.56	0.02	±2.5	PASS
			VN	10	27.07	0.03	±2.5	PASS
			VN	20	21.34	0.03	±2.5	PASS
			VN	30	14.54	0.02	±2.5	PASS
			VN	40	27.30	0.03	±2.5	PASS
			VN	50	21.59	0.03	±2.5	PASS
GPRS850	TM2	MCH	VN	-30	19.32	0.02	±2.5	PASS
			VN	-20	5.66	0.01	±2.5	PASS
			VN	-10	7.57	0.01	±2.5	PASS
			VN	0	16.53	0.02	±2.5	PASS
			VN	10	8.83	0.01	±2.5	PASS
			VN	20	13.08	0.02	±2.5	PASS
			VN	30	16.45	0.02	±2.5	PASS
			VN	40	19.48	0.02	±2.5	PASS
			VN	50	18.28	0.02	±2.5	PASS
GPRS850	TM2	HCH	VN	-30	15.07	0.02	±2.5	PASS
			VN	-20	8.12	0.01	±2.5	PASS
			VN	-10	11.14	0.01	±2.5	PASS
			VN	0	12.15	0.01	±2.5	PASS
			VN	10	1.28	0.00	±2.5	PASS
			VN	20	15.89	0.02	±2.5	PASS
			VN	30	13.50	0.02	±2.5	PASS
			VN	40	9.31	0.01	±2.5	PASS
			VN	50	9.20	0.01	±2.5	PASS

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp. (℃)	Freq.Error (Hz)	Freq.vs.rated (ppm)	Limit (ppm)	Verdict
GPRS 1900	TM2	LCH	VN	-30	9.90	0.01	±2.5	PASS
			VN	-20	12.59	0.01	±2.5	PASS
			VN	-10	6.14	0.00	±2.5	PASS
			VN	0	-4.06	0.00	±2.5	PASS
			VN	10	36.40	0.02	±2.5	PASS
			VN	20	35.58	0.02	±2.5	PASS
			VN	30	-16.02	-0.01	±2.5	PASS
			VN	40	0.77	0.00	±2.5	PASS
			VN	50	1.32	0.00	±2.5	PASS
GPRS 1900	TM2	MCH	VN	-30	3.15	0.00	±2.5	PASS
			VN	-20	9.81	0.01	±2.5	PASS
			VN	-10	7.92	0.00	±2.5	PASS
			VN	0	19.03	0.01	±2.5	PASS
			VN	10	10.40	0.01	±2.5	PASS
			VN	20	29.17	0.02	±2.5	PASS
			VN	30	-23.77	-0.01	±2.5	PASS
			VN	40	-32.22	-0.02	±2.5	PASS
			VN	50	-7.83	0.00	±2.5	PASS
GPRS 1900	TM2	HCH	VN	-30	15.75	0.01	±2.5	PASS
			VN	-20	5.36	0.00	±2.5	PASS
			VN	-10	15.79	0.01	±2.5	PASS
			VN	0	18.06	0.01	±2.5	PASS
			VN	10	30.95	0.02	±2.5	PASS
			VN	20	24.73	0.01	±2.5	PASS
			VN	30	0.81	0.00	±2.5	PASS
			VN	40	-8.46	0.00	±2.5	PASS
			VN	50	-15.47	-0.01	±2.5	PASS

Appendix G) Effective Radiated Power of Transmitter (ERP/EIRP)

Receiver Setup:

Frequency	Detector	RBW	VBW	Remark
30MHz-1GHz	peak	100 kHz	300kHz	Peak
Above 1GHz	Peak	1MHz	3MHz	Peak

Measurement Procedure:

Test procedure as below:

1) The EUT was powered ON and placed on a 1.5m hight table at a 3 meter fully Anechoic Chamber. The antenna of the transmitter was extended to its maximum length. modulation mode and the measuring receiver shall be tuned to the frequency of the transmitter under test.
2) The EUT was set 3 meters(above 18GHz the distance is 1 meter) away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
3) The disturbance of the transmitter was maximized on the test receiver display by raising and lowering from 1m to 4m the receive antenna and by rotating through 360° the turntable. After the fundamental emission was maximized, a field strength measurement was made.
4) Steps 1) to 3) were performed with the EUT and the receive antenna in both vertical and horizontal polarization.
5) The transmitter was then removed and replaced with another antenna. The center of the antenna was approximately at the same location as the center of the transmitter.
6) A signal at the disturbance was fed to the substitution antenna by means of a non-radiating cable. With both the substitution and the receive antennas horizontally polarized, the receive antenna was raised and lowered to obtain a maximum reading at the test receiver. The level of the signal generator was adjusted until the measured field strength level in step 3) is obtained for this set of conditions.
7) The output power into the substitution antenna was then measured.
8) Steps 6) and 7)were repeated with both antennas polarized.
9) Calculate power in dBm by the following formula:

ERP(dBm) = Pg(dBm) – cable loss (dB) + antenna gain (dBd)
EIRP(dBm) = Pg(dBm) – cable loss (dB) + antenna gain (dBi)
EIRP=ERP+2.15dB

where:

Pg is the generator output power into the substitution antenna.

10) Test the EUT in the lowest channel, the middle channel the Highest channel
11) The radiation measurements are performed in X, Y, Z axis positioning for EUT operation mode,And found the X axis positioning which it is worse case.
12) Repeat above procedures until all frequencies measured was complete.

Limit:

Mode	GPRS 850/WCDMA/HSDPA /HSUPA Band V	GPRS 1900/WCDMA/HSDPA /HSUPA Band V
Frequency	824 – 849MHz	1850 – 1910MHz
Limit	38.45dBm（7W）	33.01dBm（2W）

Measurement Data

GPRS 850 Class 8							
Channel/fc (MHz)	Height (cm)	Azimuth (deg)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
128/824.2	150	182	32.67	38.45	-5.78	Pass	H
	150	190	32.09	38.45	-6.36	Pass	V
190/836.6	150	187	32.45	38.45	-6	Pass	H
	150	195	32.35	38.45	-6.1	Pass	V
251/848.8	150	174	32.47	38.45	-5.98	Pass	H
	150	181	32.41	38.45	-6.04	Pass	V

GPRS 1900 Class 8							
Channel/fc (MHz)	Height (cm)	Azimuth (deg)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
512/1850.2	150	254	29.24	33.01	-3.77	Pass	H
	150	246	29.09	33.01	-3.92	Pass	V
661/1880.0	150	249	29.11	33.01	-3.90	Pass	H
	150	238	29.32	33.01	-3.69	Pass	V
810/1909.8	150	244	29.32	33.01	-3.69	Pass	H
	150	252	29.39	33.01	-3.62	Pass	V

Appendix H) Field strength of spurious radiation

Receiver Setup:

Frequency	Detector	RBW	VBW	Remark
0.009MHz-30MHz	Peak	10kHz	30kHz	Peak
30MHz-1GHz	Peak	100 kHz	300kHz	Peak
Above 1GHz	Peak	1MHz	3MHz	Peak

Measurement Procedure:

1. Scan up to 10th harmonic, find the maximum radiation frequency to measure.
2. The technique used to find the Spurious Emissions of the transmitter was the antenna substitution method. Substitution method was performed to determine the actual ERP/EIRP emission levels of the EUT.

Test procedure as below:

1) The EUT was powered ON and placed on a 1.5m hight table at a 3 meter fully Anechoic Chamber. The antenna of the transmitter was extended to its maximum length. modulation mode and the measuring receiver shall be tuned to the frequency of the transmitter under test.
2) The EUT was set 3 meters(above 18GHz the distance is 1 meter) away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
3) The disturbance of the transmitter was maximized on the test receiver display by raising and lowering from 1m to 4m the receive antenna and by rotating through 360° the turntable. After the fundamental emission was maximized, a field strength measurement was made.
4) Steps 1) to 3) were performed with the EUT and the receive antenna in both vertical and horizontal polarization.
5) The transmitter was then removed and replaced with another antenna. The center of the antenna was approximately at the same location as the center of the transmitter.
6) A signal at the disturbance was fed to the substitution antenna by means of a non-radiating cable. With both the substitution and the receive antennas horizontally polarized, the receive antenna was raised and lowered to obtain a maximum reading at the test receiver. The level of the signal generator was adjusted until the measured field strength level in step 3) is obtained for this set of conditions.
7) The output power into the substitution antenna was then measured.
8) Steps 6) and 7)were repeated with both antennas polarized.
9) Calculate power in dBm by the following formula:

ERP(dBm) = Pg(dBm) – cable loss (dB) + antenna gain (dBd)
EIRP(dBm) = Pg(dBm) – cable loss (dB) + antenna gain (dBi)
EIRP=ERP+2.15dB

where:

Pg is the generator output power into the substitution antenna.

10) Test the EUT in the lowest channel, the middle channel the Highest channel
11) The radiation measurements are performed in X, Y, Z axis positioning for EUT operation mode,And found the X axis positioning which it is worse case.
12) Repeat above procedures until all frequencies measured was complete.

Limit: Attenuated at least 43+10log(P)

Measurement Data

GPRS 850 (Class 8) 128 channel/824.2 MHz(lower channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1648.4	182	184	-38.56	-13	-25.56	Pass	H
2472.6	150	192	-37.12	-13	-24.12	Pass	H
3296.8	175	172	-38.09	-13	-25.09	Pass	H
1648.4	185	198	-35.47	-13	-22.47	Pass	V
2472.6	170	211	-39.56	-13	-26.56	Pass	V
3296.8	184	206	-38.12	-13	-25.12	Pass	V

GPRS 850 (Class 8) 190 channel/836.6MHz (middle channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1673.2	170	207	-37.34	-13	-24.34	Pass	H
2509.8	171	220	-36.23	-13	-23.23	Pass	H
3346.4	180	195	-38.23	-13	-25.23	Pass	H
1673.2	175	210	-37.23	-13	-24.23	Pass	V
2509.8	180	212	-39.23	-13	-26.23	Pass	V
3346.4	173	181	-38.44	-13	-25.44	Pass	V

GPRS 850 (Class 8) 251 channel/848.8MHz(highest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1697.6	174	224	-37.34	-13	-24.34	Pass	H
2546.4	175	201	-38.12	-13	-25.12	Pass	H
3395.2	180	212	-38.33	-13	-25.33	Pass	H
1697.6	180	196	-36.98	-13	-23.98	Pass	V
2546.4	184	197	-39.12	-13	-26.12	Pass	V
3395.2	192	213	-39.49	-13	-26.49	Pass	V

GPRS 1900 (Class 8) 512 channel/1850.2MHz(lower channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
3701.4	170	222	-36.89	-13	-23.89	Pass	H
5550.6	177	201	-36.13	-13	-23.13	Pass	H
7400.8	180	212	-37.29	-13	-24.29	Pass	H
3701.4	180	190	-37.45	-13	-24.45	Pass	V
5550.6	180	190	-37.29	-13	-24.29	Pass	V
7400.8	192	210	-38.23	-13	-25.23	Pass	V

GPRS 1900(Class 8) 661 channel/1880.0MHz(middle channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
3760	170	245	-36.45	-13	-23.45	Pass	H
5640	175	251	-37.23	-13	-24.23	Pass	H
7520	180	238	-38.23	-13	-25.23	Pass	H
3760	174	257	-37.12	-13	-24.12	Pass	V
5640	182	245	-37.33	-13	-24.33	Pass	V
7520	170	249	-38.45	-13	-25.45	Pass	V

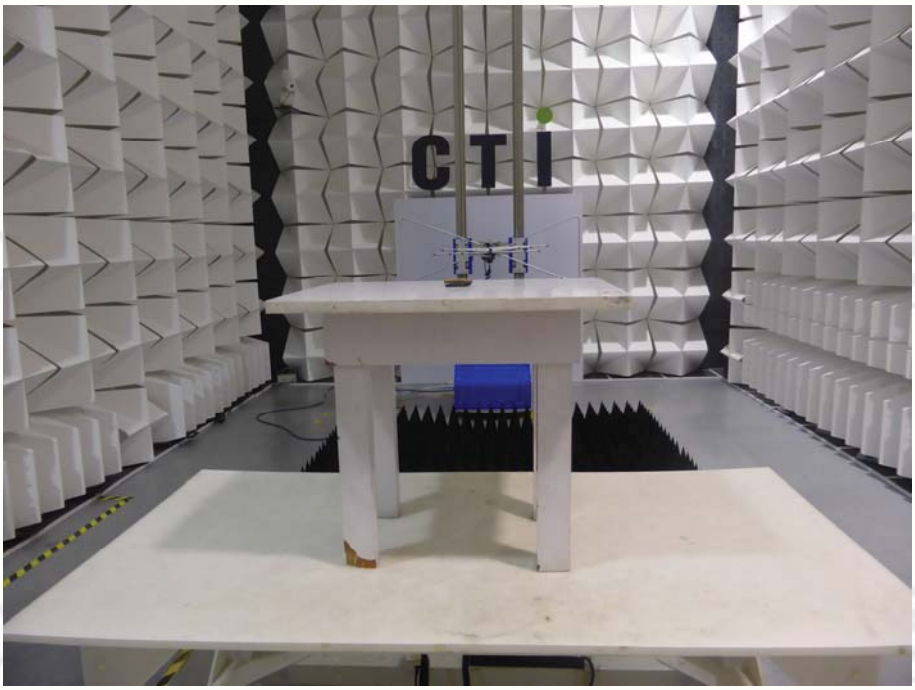
GPRS 1900(Class 8) 810 channel/1909.8MHz(highest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
3819.6	180	217	-37.45	-13	-24.45	Pass	H
5729.4	170	243	-37.22	-13	-24.22	Pass	H
7639.2	178	258	-36.98	-13	-23.98	Pass	H
3819.6	180	239	-36.88	-13	-23.88	Pass	V
5729.4	175	237	-37.34	-13	-24.34	Pass	V
7639.2	182	244	-39.45	-13	-26.45	Pass	V

Note:

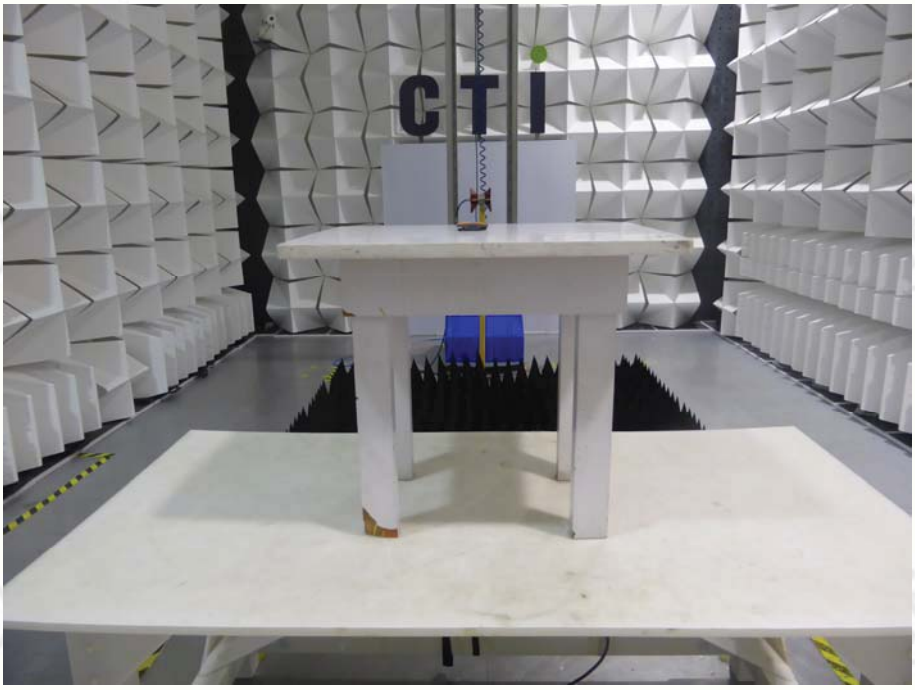
1) Scan from 9kHz to 25GHz, the disturbance above 13GHz and below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

2) All class have been tested, Only worst case is reported.

PHOTOGRAPHS OF TEST SETUP



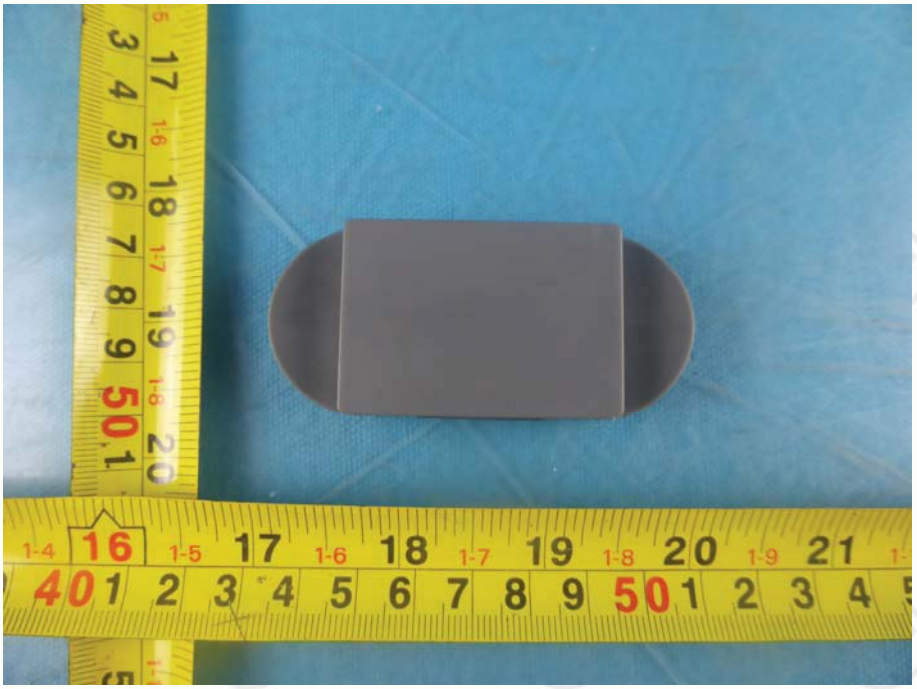
Radiated spurious emission Test Setup-1 (Below 1GHz)



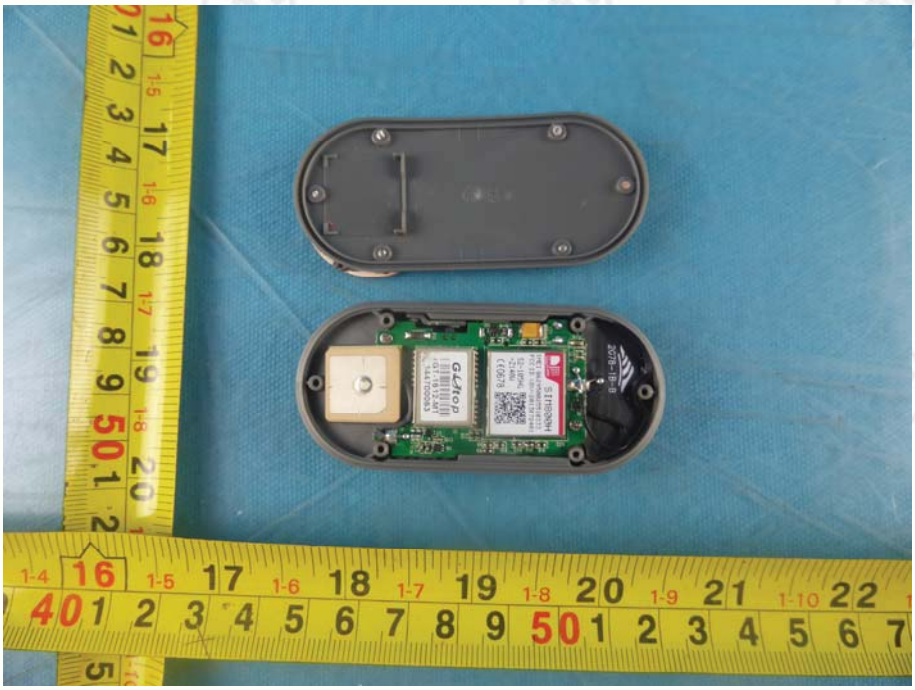
Radiated spurious emission Test Setup-2(Above 1GHz)

PHOTOGRAPHS OF EUT CONSTRUCTIONAL DETAILS

View of external EUT-1



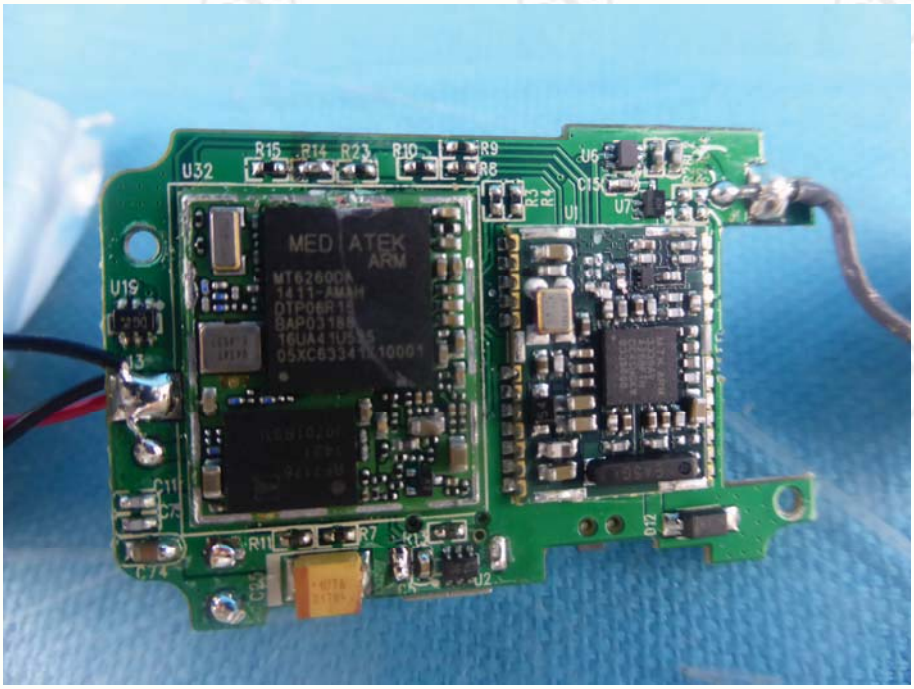
View of external EUT-2



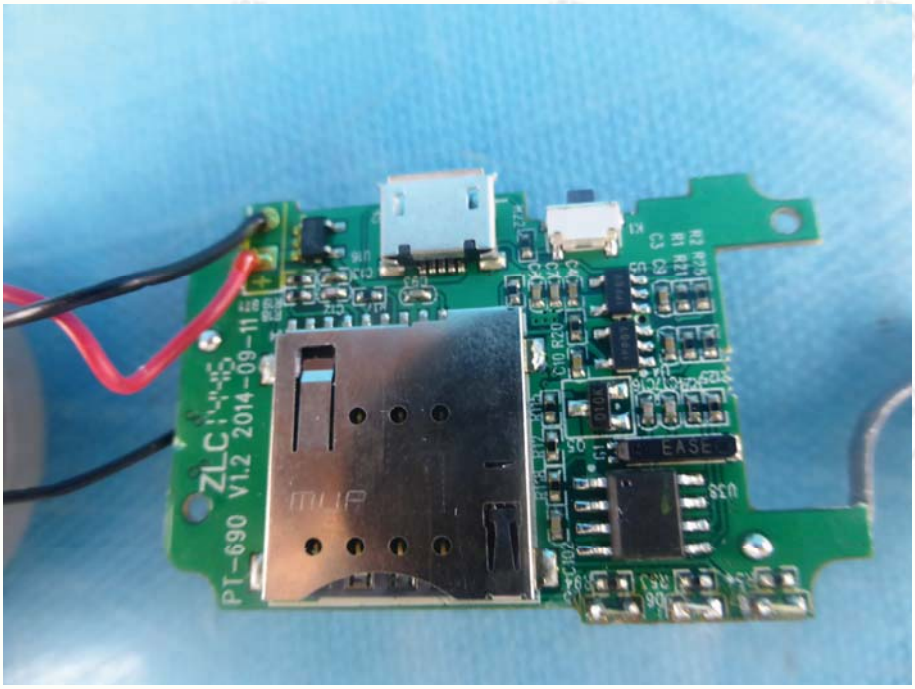
View of internal EUT-1

View of internal EUT-2

View of internal EUT-3



View of internal EUT-4



View of internal EUT-5

View of internal EUT-6

*** End of Report ***