



FCC TEST REPORT

for
47 CFR Part 24E

Equipment : PDA Phone
Trade Name : Palm
Model No. : Treo 500, Treo 500v
FCC ID : MSQ-777
Tx Frequency Range : 1850.2~1909.8MHz
Max. ERP/EIRP Power : 0.86 W
Emission Designator : 300KGXW
Applicant : **ASUSTeK COMPUTER INC.**
No. 150, Li-Te Rd., Peitou, Taipei, Taiwan, R.O.C.

- The test result refers exclusively to the test presented test model / sample.
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- **Certificate or Test Report must not be used by the applicant to claim the product in this test report endorsement by NVLAP or any agency of U.S. government.**
- The data shown in this test report were carried out during Jun. 21, 2007 at **Sporton International Inc. LAB.**
- Report No.: FG742403, Report Version: Rev. 02.

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Deputy Manager

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SPORTON International Inc.

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FAX : 886-2-2696-2255

Report Version: Rev. 02



Table of Contents

History of this test report.....ii

1. General Information 1

 1.1. Applicant1

 1.2. Manufacturer1

 1.3. Basic Description of Equipment under Test.....1

 1.4. Feature of Equipment under Test2

 1.5. Report Date.....2

2 Test Configuration of Equipment under Test2

 2.1 Test Manner2

 2.2 Test Mode2

 2.3 Connection Diagram of Test System2

 2.4 Ancillary Equipment List.....2

3. General Information of Test Site2

 3.1 Test Voltage2

 3.2 Test in Compliance with2

 3.3 Frequency Range Investigated2

 3.4 Test Distance2

4. Test Data and Test Result.....2

 4.1 List of Measurements and Examinations2

 4.2 RF Output Power2

 4.3 ERP / EIRP Measurement2

 4.4 Occupied Bandwidth and Band Edge Measurement2

 4.5 Conducted Emission2

 4.6 Field Strength of Spurious Radiation2

 4.7 Frequency Stability (Temperature Variation)2

 4.8 Frequency Stability (Voltage Variation).....2

5 List of Measurement Equipments2

6 Uncertainty Evaluation.....2

Appendix A. Photographs of Setup



1. General Information

1.1. Applicant

ASUSTeK COMPUTER INC.

No. 150, Li-Te Rd., Peitou, Taipei, Taiwan, R.O.C.

1.2 Manufacturer

ASUSTeK COMPUTER INC.

No. 150, Li-Te Rd., Peitou, Taipei, Taiwan, R.O.C.

1.3 Basic Description of Equipment under Test

Equipment : PDA Phone
Trade Name : Palm
Model No. : Treo 500, Treo 500v
FCC ID : MSQ-777
Power Supply Type : Switching, From battery 3.7 V
AC Power Cord : AC 120V, Wall-mount, 1.6 m, 2 pin
Adapter 1 : Deevan / DSC-51F 52050
Adapter 2 : PIE / A07112A
Battery : Welldone / SBP-10
Earphone : Palm / EMC219-001-01
Camera : Walton / ASUS OTTO, Liton / DCM-200MFG
USB Cable : Foxconn / CUHD004B-S17-EF
LCD Panel : WINTEK / WD-F3224VN-6FLW, TOPPOLY / TD025THED2

**1.4 Feature of Equipment under Test**

DUT Type :	PDA Phone
Trade Name :	Palm
Model Name :	Treo 500, Treo 500v
FCC ID :	MSQ-777
HW Version	DVT
SW Version	DVT-IC
Tx Frequency :	PCS1900 : 1850 ~1910 MHz Bluetooth : 2400~2483.5 MHz
Rx Frequency :	PCS1900 : 1930 ~ 1990 MHz Bluetooth : 2400~2483.5 MHz
Maximum ERP/EIRP :	PCS1900 : 0.86 W (29.33 dBm)
Type of Modulation :	PCS1900 : GMSK Bluetooth : GFSK
Antenna Type :	PCS1900 : Fixed Internal Bluetooth : PIFA Antenna
Type of Antenna Connector :	N/A
Maximum Output Power to Antenna :	PCS1900 : 30.75 dBm
Antenna Gain :	Bluetooth : -3 dBi
DUT Stage :	Identical Prototype
Power Rating :	DC 3.4V / 430mA

1.5 Report Date

EUT Received : Apr. 24, 2007

Report Date : Jun. 22, 2007

2 Test Configuration of Equipment under Test

2.1 Test Manner

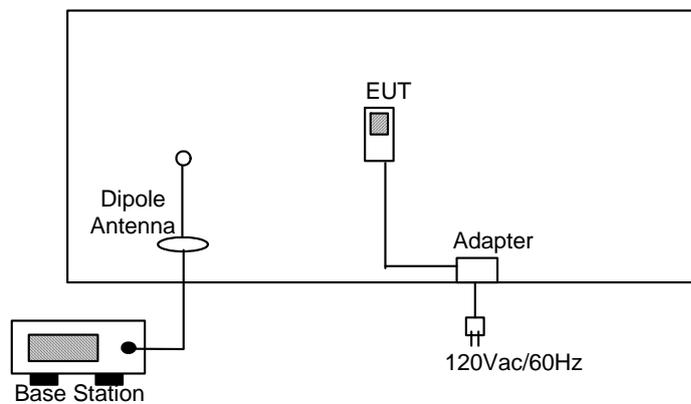
- a. The spurious emission measurements were carried out in semi-anechoic chamber with 3-meter test range.
- b. During all testings, EUT is in link mode with base station emulator at maximum power level. (PCL=0 for PCS1900)
- c. Frequency range investigated: radiated emission 30MHz to 19000 MHz for PCS1900.

2.2 Test Mode

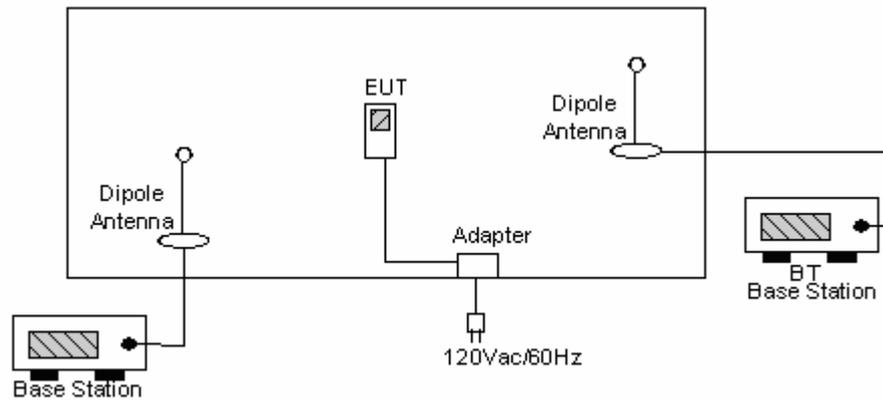
Application	PCS 1900
Radiated Emission	<input checked="" type="checkbox"/> Mode 1: PCS1900 Link Mode_CH661 + Adapter 2 + Earphone
	<input checked="" type="checkbox"/> Mode 2: PCS1900 Link Mode_CH661 + Adapter 2 + Earphone + BT Link
Conducted Measurement	<input checked="" type="checkbox"/> Mode 1: PCS1900 Link Mode_CH661

2.3 Connection Diagram of Test System

<Mode 1>



<Mode 2>



2.4 Ancillary Equipment List

Item	Asset	Model Name	Power Cord
1.	Base Station (R&S)	CMU 200	N/A
2.	BT Base Station (Anritus)	8852A	N/A
3.	Dipole Antenna (Sporton)	N/A	N/A



3. General Information of Test Site

Test Site Location : No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park,
Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.
TEL : 886-3-327-3456
FAX : 886-3-318-0055

Test Site No : 03CH06-HY

The chamber meets the characteristics of ANSI C63.4-2003. This site is on file with the FCC.

3.1 Test Voltage

120V / 60Hz

3.2 Test in Compliance with

47 CFR Part 24E

3.3 Frequency Range Investigated

a. Radiation: from 30 MHz to 19000 MHz for PCS1900.

3.4 Test Distance

The test distance of radiated emission from antenna to EUT is 3 m.



4. Test Data and Test Result

4.1 List of Measurements and Examinations

FCC Rule	DESCRIPTION OF TEST	Result	Section
§2.1046	RF Output Power	Passed	4.2
§ 22.913 §24.232	ERP / EIRP	Passed	4.3
§2.1049, § 22.917, § 24.238(b)	Occupied Bandwidth & Band Edge Measurement	Passed	4.4
§2.1051	Conducted Emission	Passed	4.5
§2.1053	Field Strength of Spurious Radiation	Passed	4.6
§2.1055, § 22.355, §24.235	Frequency Stability vs. Temperature	Passed	4.7
§2.1055, §22.355, §24.235	Frequency Stability vs. Voltage	Passed	4.8

4.2 RF Output Power

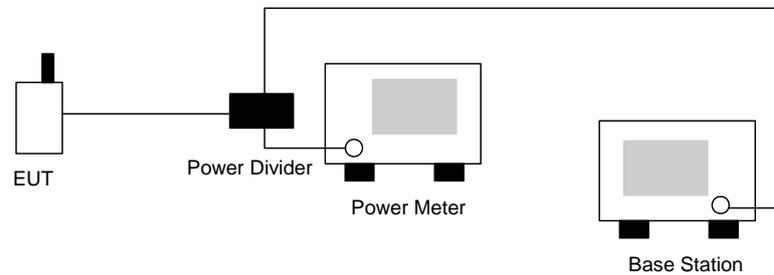
4.2.1 Measurement Instruments :

As described in chapter 5 of this test report.

4.2.2 Test Procedure :

1. The transmitter output was connected to power meter and base station through power divider.
2. Set EUT at PCL=0 for PCS1900 maximum power through base station.,
3. Select lowest, middle, and highest channels for each band.

4.2.3 Test Setup Layout :



4.2.4 Test Result :

Bands	Channel	Frequency (MHz)	Conducted Power (dBm)	Conducted Power (Watts)
PCS1900	512	1850.2 (Low)	30.49	1.119
	661	1880.0 (Mid)	30.75	1.189
	810	1909.8 (High)	30.68	1.169



4.3 ERP / EIRP Measurement

Equivalent isotropic radiated power measurements by substitution method according to ANSI/TIA/EIA-603-C.

4.3.1 Measurement Instruments

As described in chapter 5 of this test report.

4.3.2 Test Procedure

1. The EUT was placed on a rotatable table with 1.0 meter height in an fully anechoic chamber.
2. The EUT was set 1.2 meters from the receiving antenna which was mounted on the antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiated power.
4. The height of the receiving antenna is also kept at 1.0M height.
5. Taking the record of maximum ERP/EIRP.
6. A dipole antenna was substituted in place of the EUT and was driven by a signal generator.
7. The conducted power at the terminal of the dipole antenna is measured.
8. Repeat step 3 to step 5 to get the maximum ERP/EIRP of the substitution antenna.
9. $ERP/EIRP = P_s + E_t - E_s + G_s = P_s + R_t - R_s + G_s$

P_s (dBm) : Input power to substitution antenna.

G_s (dBi or dBd) : Substitution antenna Gain.

$E_t = R_t + AF$

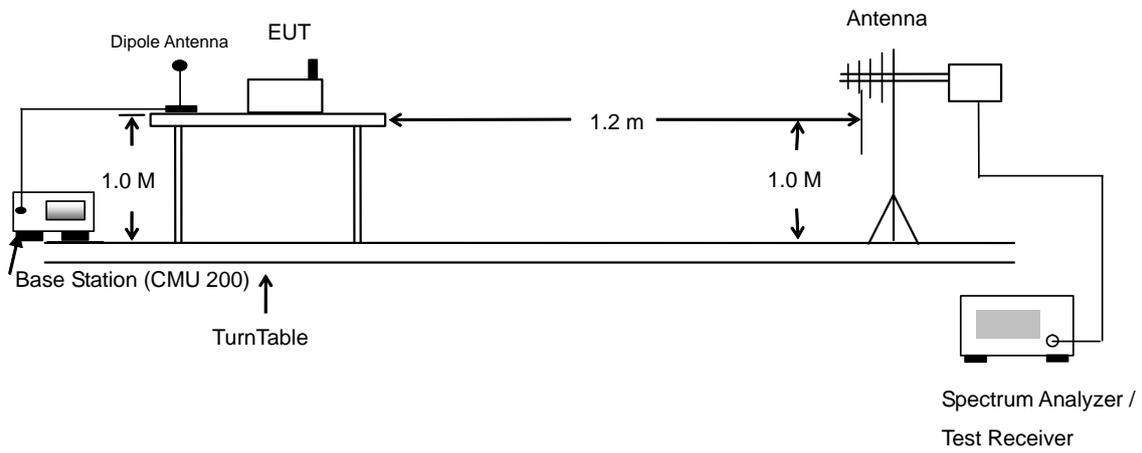
$E_s = R_s + AF$

AF (dB/m) : Receive antenna factor

R_t : The highest received signal in Spectrum Analyzer for EUT.

R_s : The highest received signal in spectrum analyzer for substitution antenna.

4.3.3 Test Setup Layout of ERP/EIRP





4.3.4 Test Result

PCS1900 Radiated Power EIRP						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-25.63	-51.88	0.00	1.96	28.21	0.66
1880.00	-25.66	-52.99	0.00	2.00	29.33	0.86
1909.80	-27.45	-54.28	0.00	1.98	28.81	0.76

4.4 Occupied Bandwidth and Band Edge Measurement

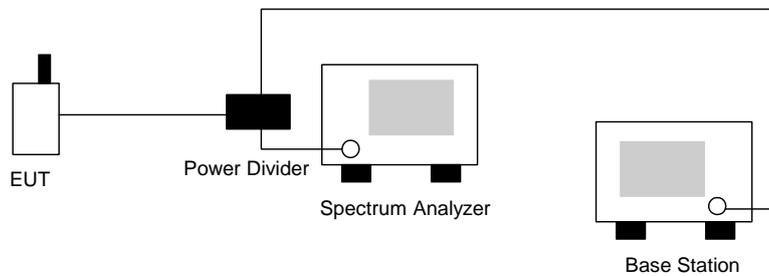
4.4.1 Measurement Instruments

As described in chapter 5 of this test report.

4.4.2 Test Procedure

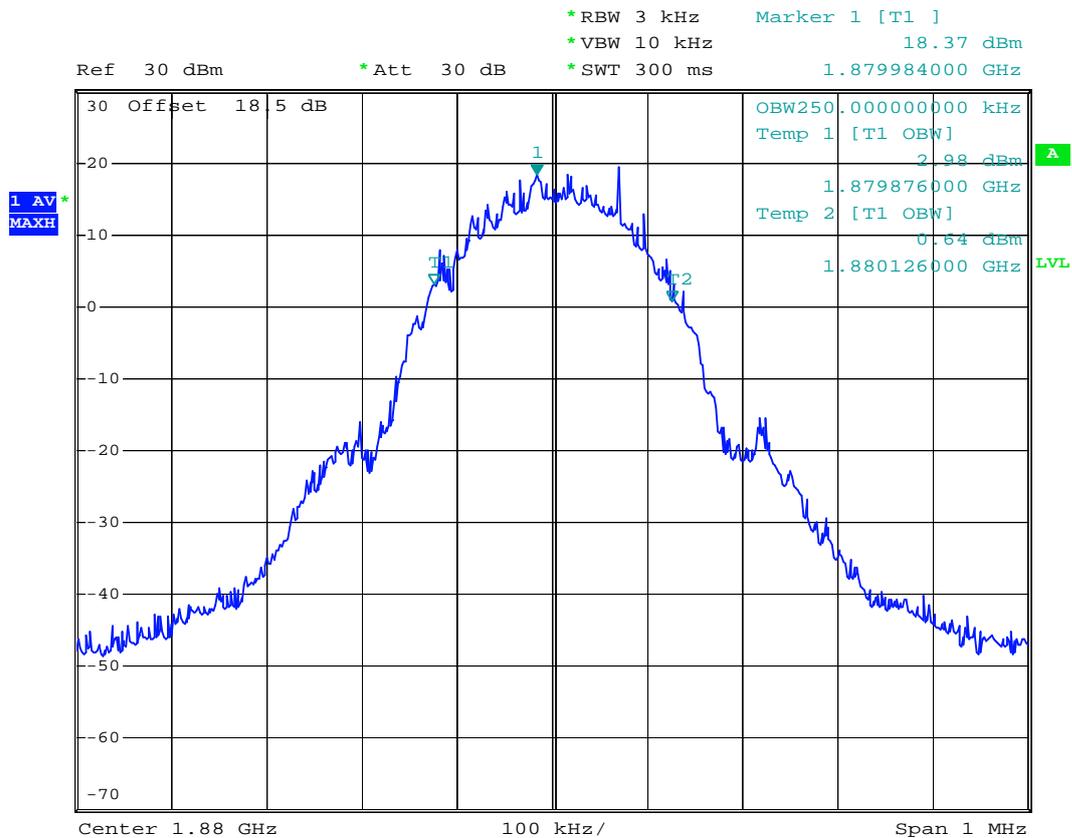
1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.
2. The occupied bandwidth of middle channel for the highest and lowest RF powers were measured.
3. The bandedge of low and high channels for the highest RF powers within the transmitting frequency band were measured. Setting RBW as roughly $BW/100$.

4.4.3 Test Setup Layout





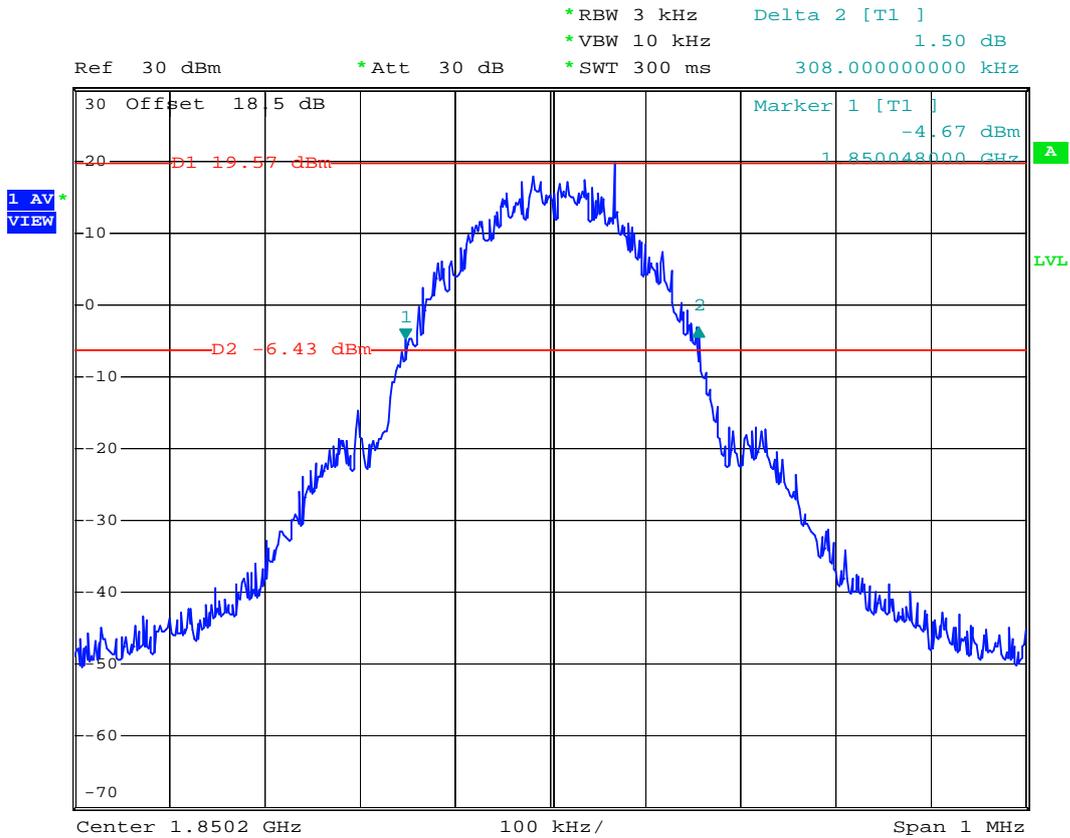
- Test Mode : PCS 1900 CH661 99% Occupied Bandwidth
- Power State : High



Date: 21.JUN.2007 01:43:31



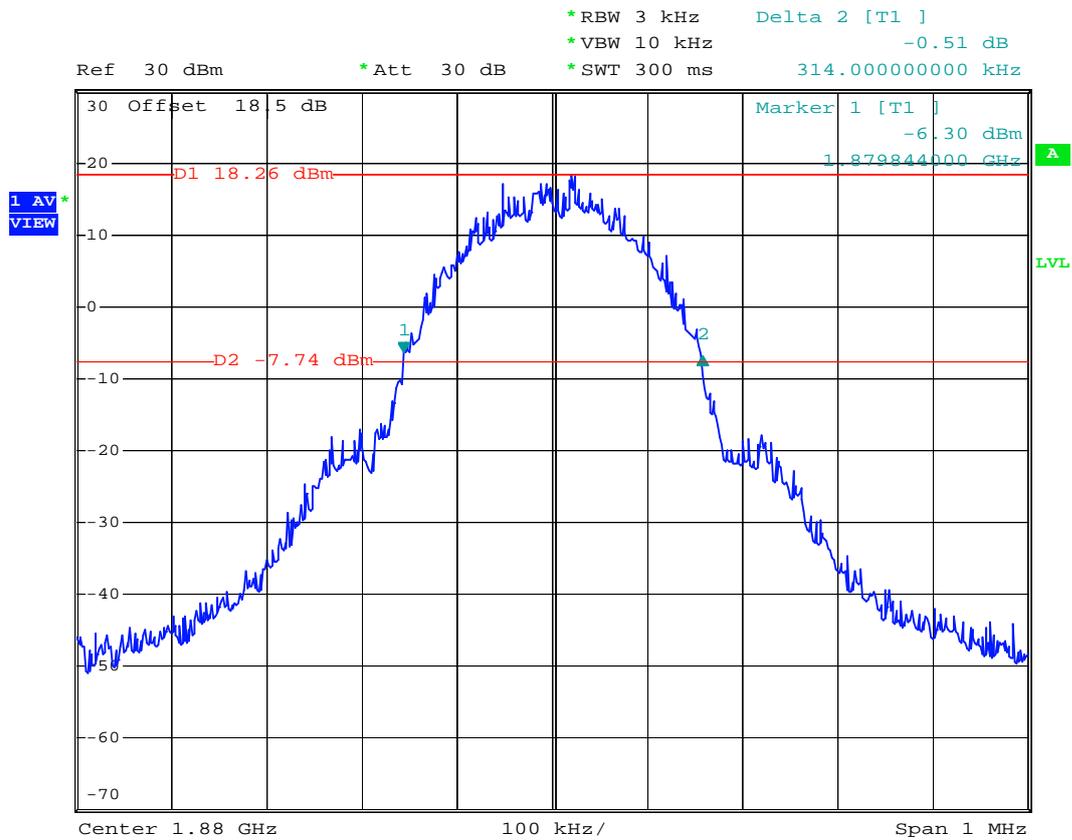
- Test Mode : PCS 1900 CH512 26dB Occupid Bandwidth
- Power State : High



Date: 21.JUN.2007 01:51:36



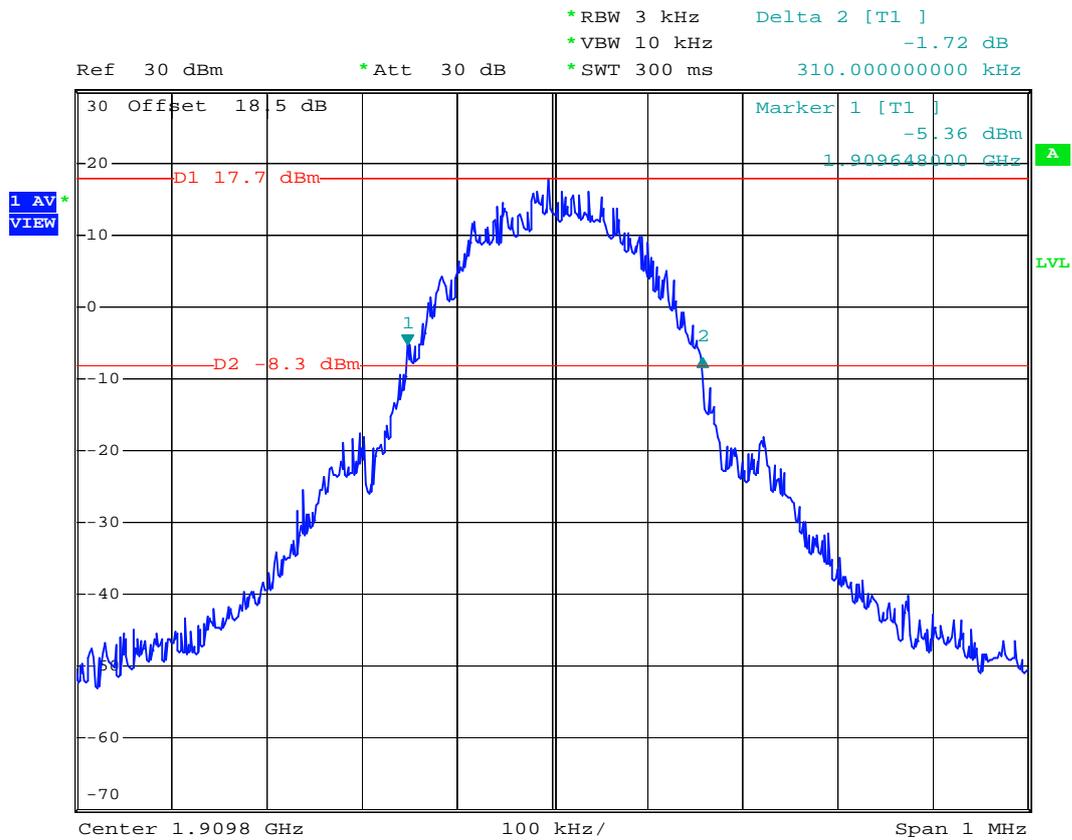
- Test Mode : PCS 1900 CH661 26dB Occupid Bandwidth
- Power State : High



Date: 21.JUN.2007 01:49:22



- Test Mode : PCS 1900 CH810 26dB Occupid Bandwidth
- Power State : High



Date: 21.JUN.2007 03:29:09

4.5 Conducted Emission

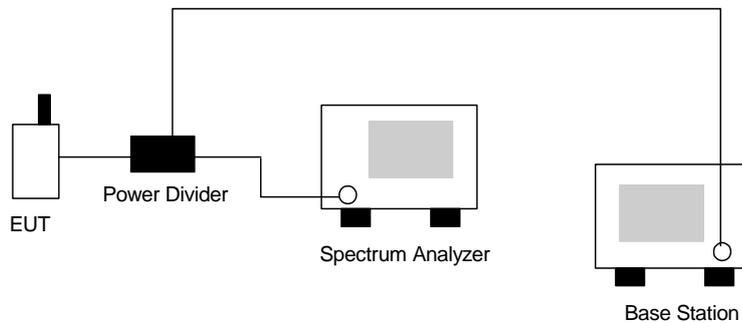
4.5.1 Measurement Instruments

As described in chapter 5 of this test report.

4.5.2 Test Procedure

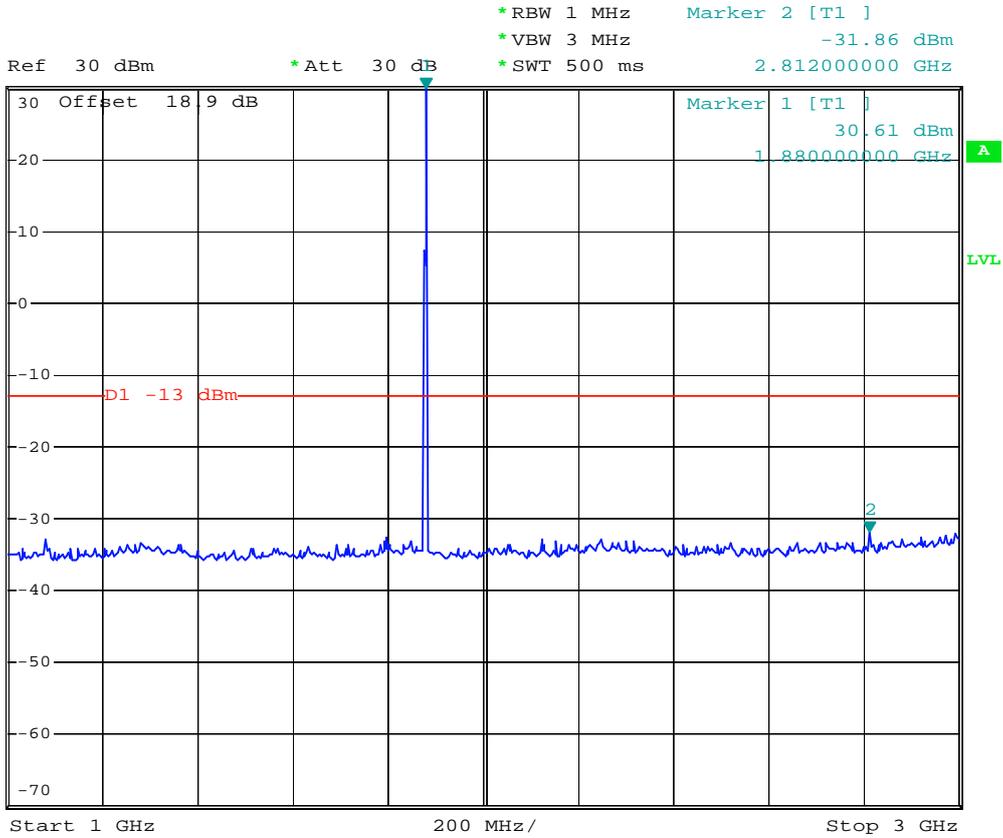
1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.
2. The middle channel for the highest RF power within the transmitting frequency was measured.
3. The conducted spurious emission for the whole frequency range was taken.

4.5.3 Test Setup Layout





- Test Mode : PCS 1900 CH661
- Frequency Range : 1G-3G



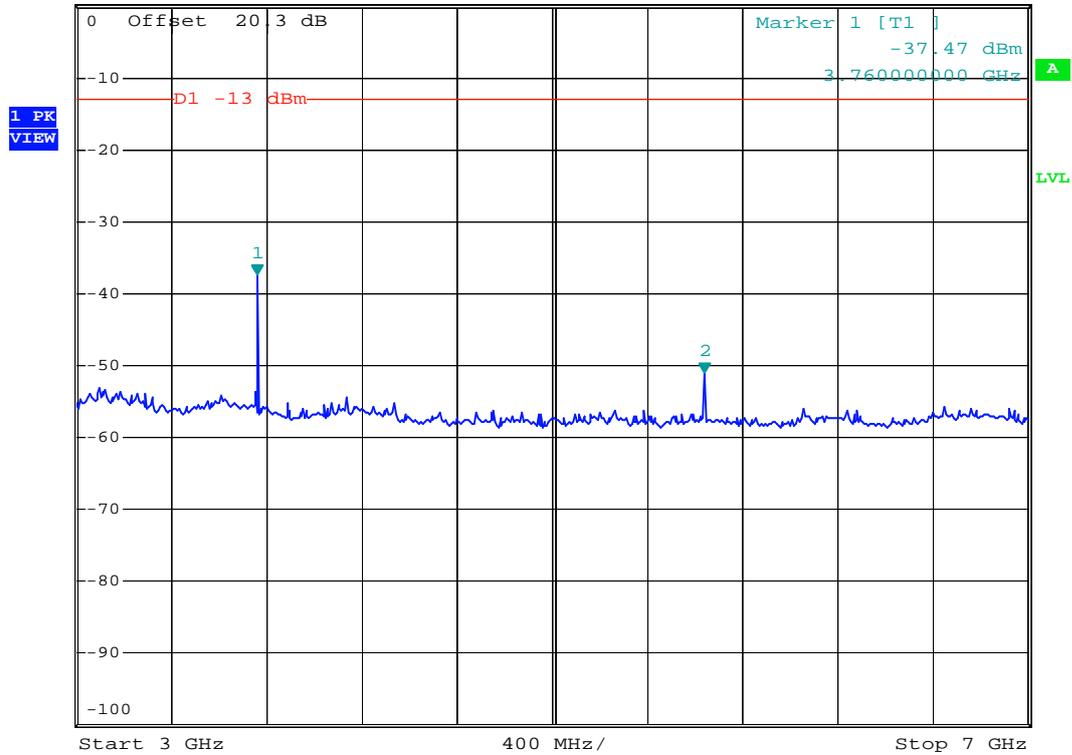
Date: 25.APR.2007 18:00:18



- Test Mode : PCS 1900 CH661
- Frequency Range : 3G-7G



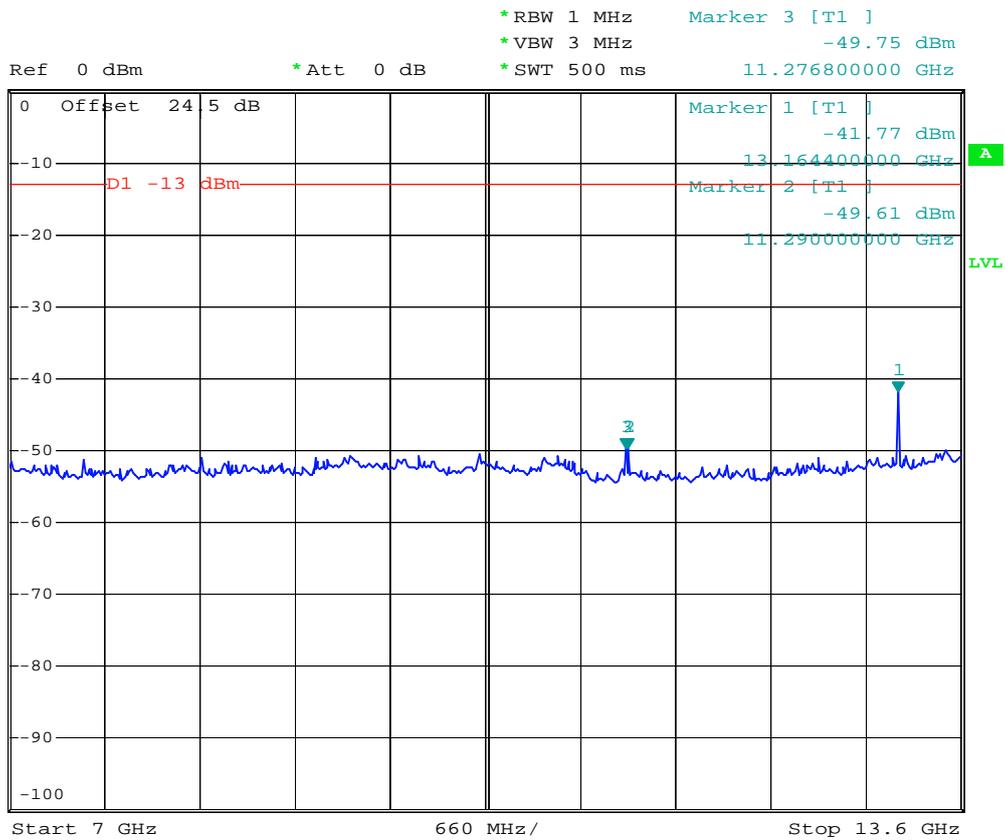
Ref 0 dBm *Att 0 dB *RBW 1 MHz Marker 2 [T1]
 *VBW 3 MHz -50.92 dBm
 *SWT 500 ms 5.640000000 GHz



Date: 25.APR.2007 18:01:16



- Test Mode : PCS 1900 CH661
- Frequency Range : 7G-13.6G



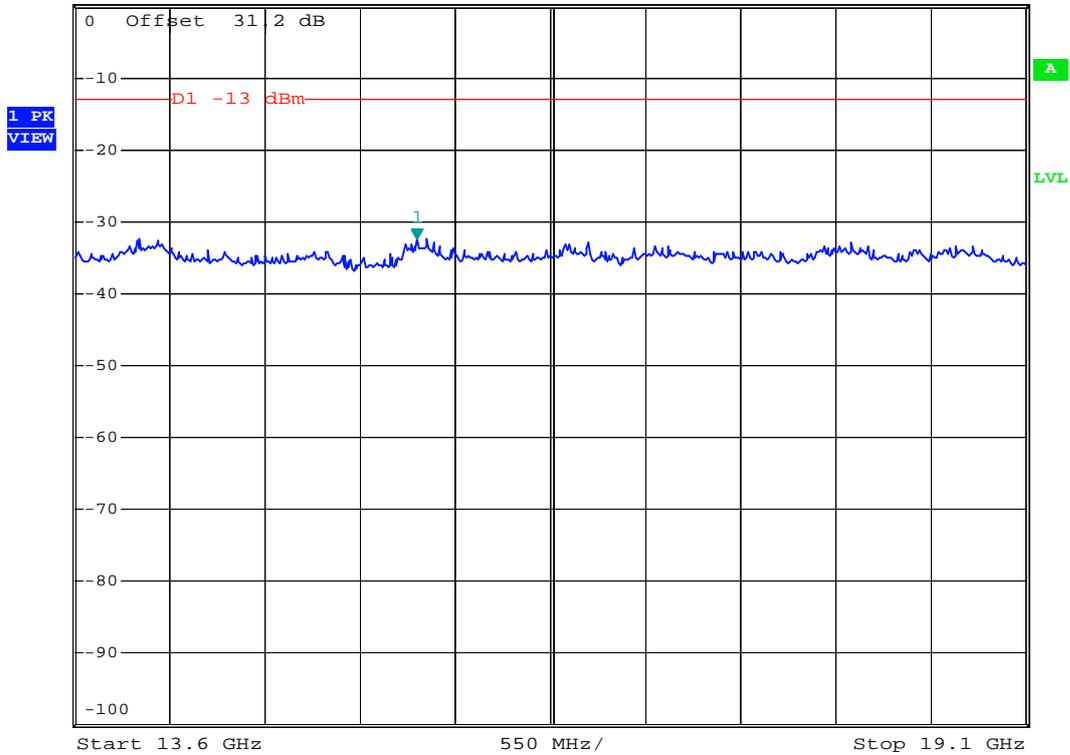
Date: 25.APR.2007 18:10:24



- Test Mode : PCS 1900 CH661
- Frequency Range : 13.6G-19.1G



Ref 0 dBm *Att 0 dB *RBW 1 MHz Marker 1 [T1]
*VBW 3 MHz -32.29 dBm
*SWT 500 ms 15.58000000 GHz



Date: 25.APR.2007 18:11:41



4.6 Field Strength of Spurious Radiation

Equivalent isotropic radiated Power Measurements by substitution method according to ANSI/TIA/EIA-603-C.

4.6.1 Measurement Instruments

As described in chapter 5 of this test report.

4.6.2 Test Procedure

1. The EUT was placed on a rotatable wooden table with 0.8 meter about ground.
2. The EUT was set 3 meters from the receiving antenna which was mounted on the antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest spurious emission.
4. The height of the receiving antenna is varied between one meter and four meters to reach the maximum spurious emission for both horizontal and vertical polarizations.
5. Taking the record of maximum spurious emission, Read level (dBm).
6. A substitution method is used at each frequencies .
7. The pre-calibration method is performed ahead of testing and saved to the test program, so as to correct the readings from the spectrum analyzer. The total correction factor is in the following formula.

$$\text{Factor}_{\text{total correction}}(\text{dB}) = R_s - (P_s + G_s)$$

Where P_s (dBm) : Input power to substitution antenna.

G_s (dBi or dBd) : Substitution antenna Gain.

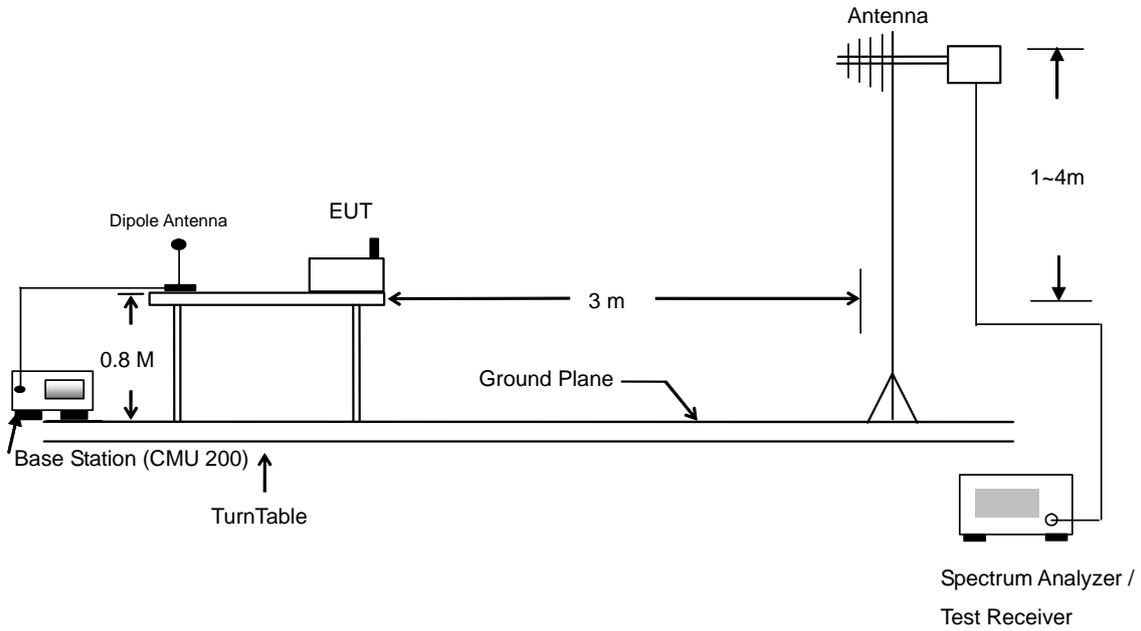
R_s : The highest received signal in spectrum analyzer for substitution antenna.

8. The final measurement results are obtained as described below:

$$\text{Level (dBm)} = \text{Read level (dBm)} + \text{Factor}_{\text{total correction}}(\text{dB})$$

Where Read level is receiver reading in unit, dBm, and the $\text{Factor}_{\text{total correction}}$ is total correction factor including cable loss, preamplifier gain and substitution correction.

4.6.3 Test Setup Layout





4.6.4 Test Result

- Test Mode : Mode 1

PCS1900 Radiated Spurious EIRP							
H Polarization				V Polarization			
Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)
31.080	-58.330	-13	-45.33	30.270	-58.540	-13	-45.54
58.080	-64.850	-13	-51.85	60.240	-62.340	-13	-49.34
146.640	-69.300	-13	-56.30	185.790	-63.650	-13	-50.65
694.800	-65.140	-13	-52.14	894.300	-62.080	-13	-49.08
913.900	-64.640	-13	-51.64	966.400	-61.770	-13	-48.77
995.800	-63.900	-13	-50.90	997.900	-61.610	-13	-48.61
2108.000	-54.150	-13	-41.15	3758.000	-53.330	-13	-40.33
3758.000	-45.360	-13	-32.36	5638.000	-51.370	-13	-38.37
5638.000	-52.220	-13	-39.22	11278.000	-39.150	-13	-26.15
11278.000	-38.600	-13	-25.60	13158.000	-44.010	-13	-31.01
13158.000	-43.650	-13	-30.65	15036.000	-44.030	-13	-31.03
15036.000	-41.090	-13	-28.09				
16917.000	-48.260	-13	-35.26				



- Test Mode : Mode 2

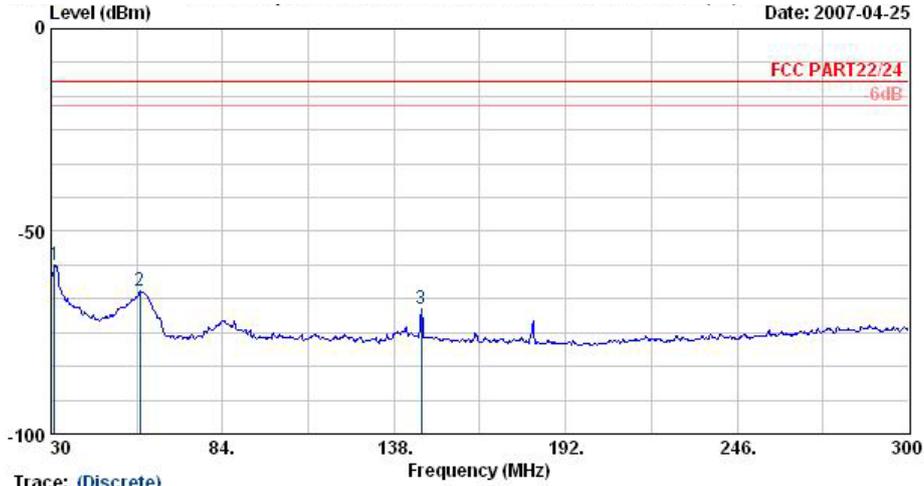
PCS1900 with Bluetooth Co-location Radiated Spurious EIRP							
H Polarization				V Polarization			
Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)
30.000	-61.820	-13	-48.82	32.430	-56.520	-13	-43.52
52.680	-68.420	-13	-55.42	58.080	-64.510	-13	-51.51
124.230	-66.500	-13	-53.50	93.990	-65.120	-13	-52.12
388.900	-65.570	-13	-52.57	717.900	-64.370	-13	-51.37
715.800	-62.640	-13	-49.64	861.400	-62.390	-13	-49.39
987.400	-64.320	-13	-51.32	964.300	-61.230	-13	-48.23
2028.000	-43.990	-13	-30.99	2028.000	-45.980	-13	-32.98
2264.000	-46.700	-13	-33.70	2264.000	-49.030	-13	-36.03
2318.000	-54.790	-13	-41.79	2318.000	-54.050	-13	-41.05
2374.000	-52.240	-13	-39.24	2374.000	-51.890	-13	-38.89
2534.000	-53.000	-13	-40.00	2534.000	-50.100	-13	-37.10
3758.000	-45.970	-13	-32.97	3758.000	-39.600	-13	-26.60
4944.000	-45.130	-13	-32.13	4944.000	-46.300	-13	-33.30
4958.000	-43.100	-13	-30.10	4958.000	-42.470	-13	-29.47
11278.000	-37.730	-13	-24.73	5638.000	-52.940	-13	-39.94
13158.000	-40.640	-13	-27.64	11278.000	-36.430	-13	-23.43
15036.000	-33.150	-13	-20.15	15036.000	-44.460	-13	-31.46



4.6.5 Test Data

4.6.5.1 Mode 1

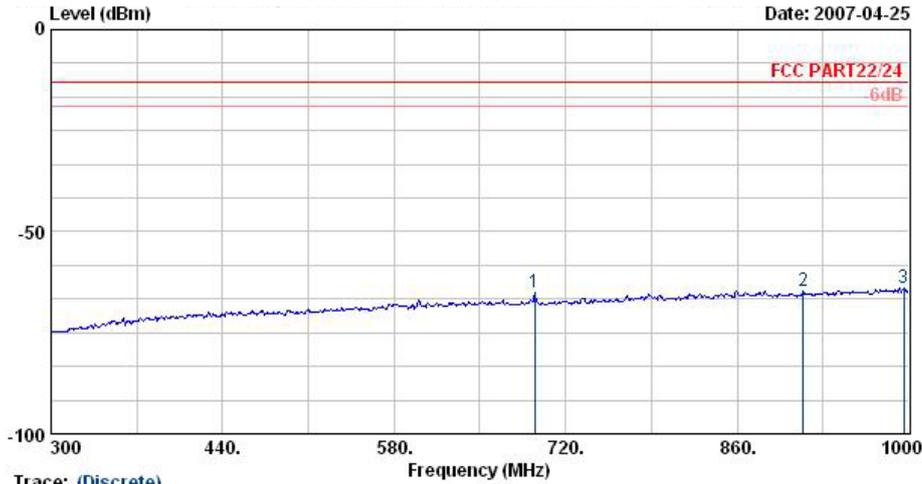
Horizontal Polarization



Trace: (Discrete)

Site : 03CH06-HY
 Condition : LP-SPURIOUS HORIZONTAL
 EUT : PDA Phone
 Power : 120Vac/60Hz
 Model : FG 742403
 Memo : PCS 1900 Link;Ch661+ Adaptor 2+ Earphone
 Plane : H
 S/N : OE2-0188

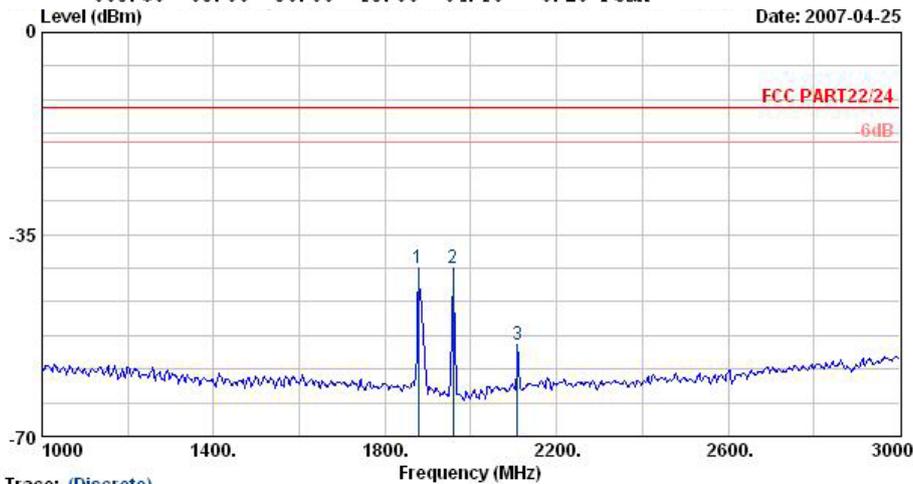
	Freq	Level	Over Limit	Limit Line	Read Level	Factor	Remark
	MHz	dBm	dB	dBm	dBm	dB	
1	31.08	-58.33	-45.33	-13.00	-58.08	-0.25	Peak
2	58.08	-64.85	-51.85	-13.00	-52.45	-12.40	Peak
3	146.64	-69.30	-56.30	-13.00	-56.52	-12.78	Peak



Trace: (Discrete)

Site : 03CH06-HY
 Condition : LP-SPURIOUS HORIZONTAL
 EUT : PDA Phone
 Power : 120Vac/60Hz
 Model : FG 742403
 Memo : PCS 1800 Link;Ch661+ Adaptor 2+ Earphone
 Plane : H
 S/N : OE2-0188

	Freq	Level	Over	Limit	Read	Factor	Remark
	MHz	dBm	dB	dBm	dBm	dB	
1	694.80	-65.14	-52.14	-13.00	-62.37	-2.77	Peak
2	913.90	-64.64	-51.64	-13.00	-64.05	-0.59	Peak
3	995.80	-63.90	-50.90	-13.00	-64.10	0.20	Peak



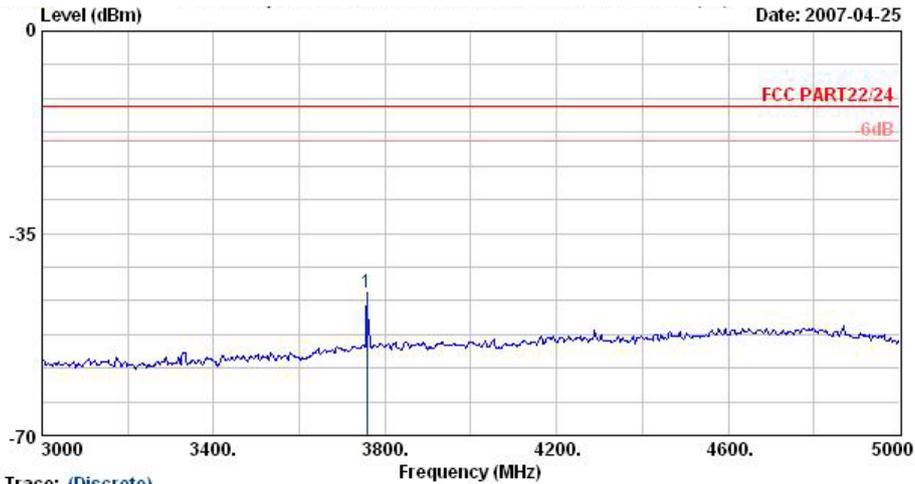
Trace: (Discrete)

Site : 03CH06-HY
 Condition : HP-SPURIOUS HORIZONTAL
 EUT : PDA Phone
 Power : 120Vac/60Hz
 Model : FG 742403
 Memo : PCS 1800 Link;Ch661+ Adaptor 2+ Earphone
 Plane : H
 S/N : OE2-0188

	Freq	Level	Over	Limit	Read	Factor	Remark
	MHz	dBm	dB	dBm	dBm	dB	
1	1878.00	-40.88			-40.37	-0.51	Peak
2	1958.00	-40.86			-39.75	-1.11	Peak
3	2108.00	-54.15	-41.15	-13.00	-53.86	-0.30	Peak

Remark:

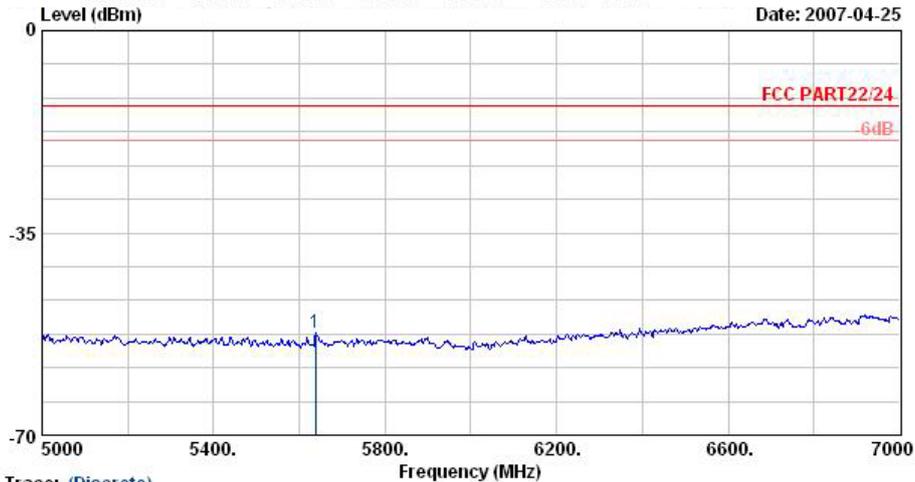
- #1: MS TCH Signal
- #2: BS Signal



Trace: (Discrete)

Site : 03CH06-HY
 Condition : HF-SPURIOUS HORIZONTAL
 EUT : PDA Phone
 Power : 120Vac/60Hz
 Model : FG 742403
 Memo : PCS 1900 Link;Ch661+ Adaptor 2+ Earphone
 Plane : H
 S/N : OE2-0168

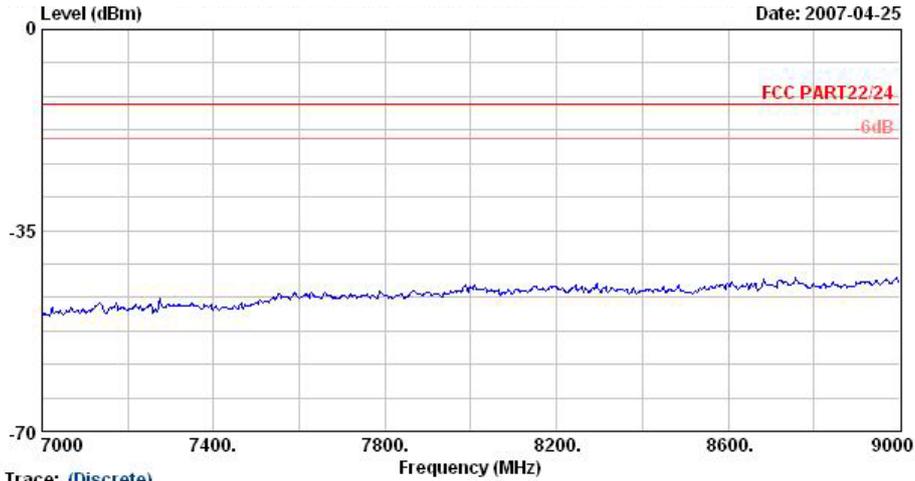
	Freq	Level	Over	Limit	Read	Factor	Remark
	MHz	dBm	dB	dBm	dBm	dB	
1	3758.00	-45.36	-32.36	-13.00	-53.28	7.92	Peak



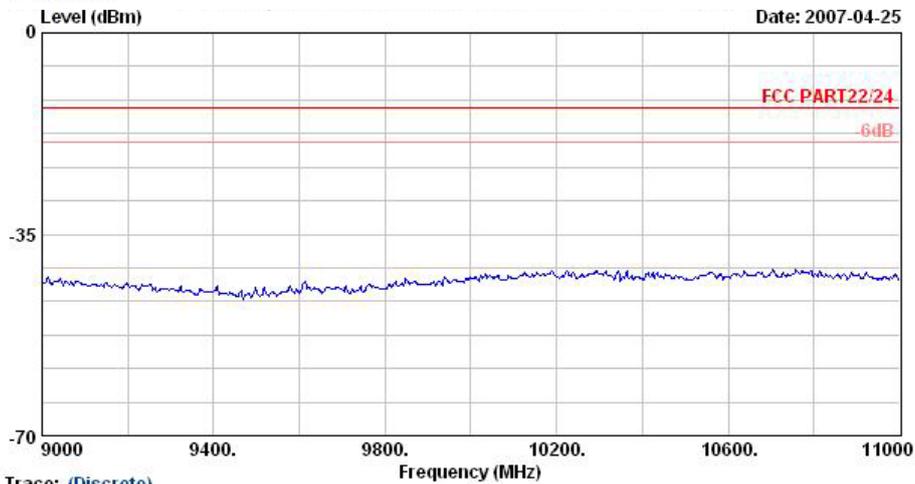
Trace: (Discrete)

Site : 03CH06-HY
 Condition : HF-SPURIOUS HORIZONTAL
 EUT : PDA Phone
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 Plane : H
 S/N : OE2-0168

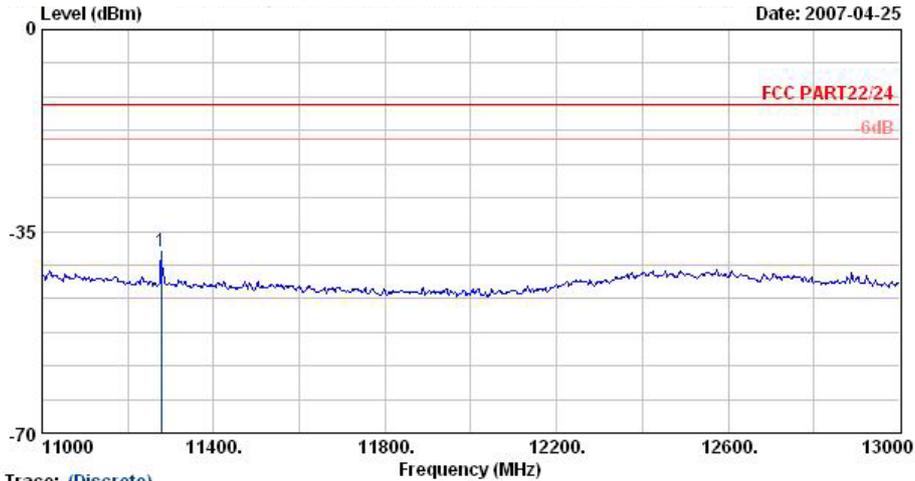
	Freq	Level	Over	Limit	Read	Factor	Remark
	MHz	dBm	dB	dBm	dBm	dB	
1	5638.00	-52.22	-39.22	-13.00	-62.19	9.97	Peak



Trace: (Discrete)
Site : 03CH06-HY
Condition : HF-SPURIOUS HORIZONTAL
EUT : PDA Phone
Power : 120Vac/60Hz
Model : FG 742403
Memo : PCS 1900 Link;Ch661+ Adaptor 2+ Earphone
Plane : H
S/N : OE2-0188



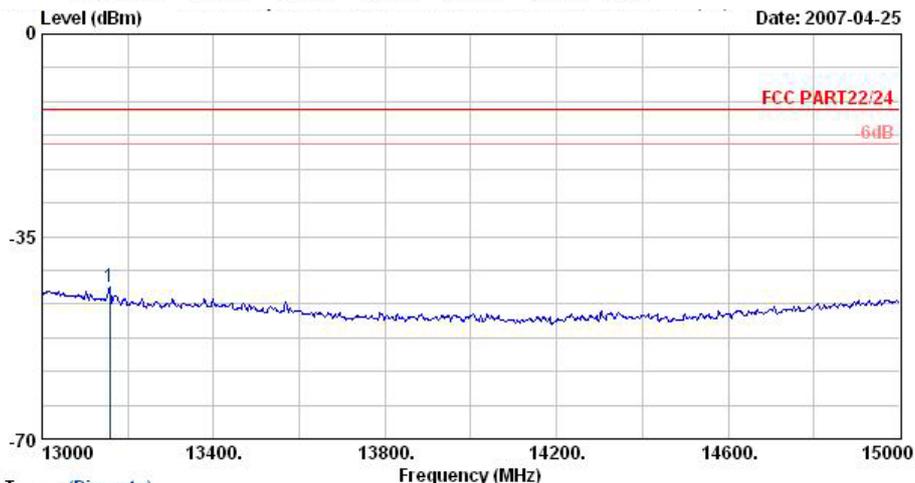
Trace: (Discrete)
Site : 03CH06-HY
Condition : HF-SPURIOUS HORIZONTAL
EUT : PDA Phone
Power : 120Vac/60Hz
Model : FG 742403
Memo : PCS 1900 Link;Ch661+ Adaptor 2+ Earphone
Plane : H
S/N : OE2-0188



Trace: (Discrete)
 Site : 03CH06-WY
 Condition : HF-SPURIOUS HORIZONTAL
 EUT : PDA Phone
 Power : 120Vac/60Hz
 Model : FG 742403
 Memo : PCS 1800 Link;Ch661+ Adaptor 2+ Earphone
 Plane : H
 S/N : 0E2-0188

Freq	Level	Over	Limit	Read	Factor	Remark
MHz	dBm	dB	dBm	dBm	dB	

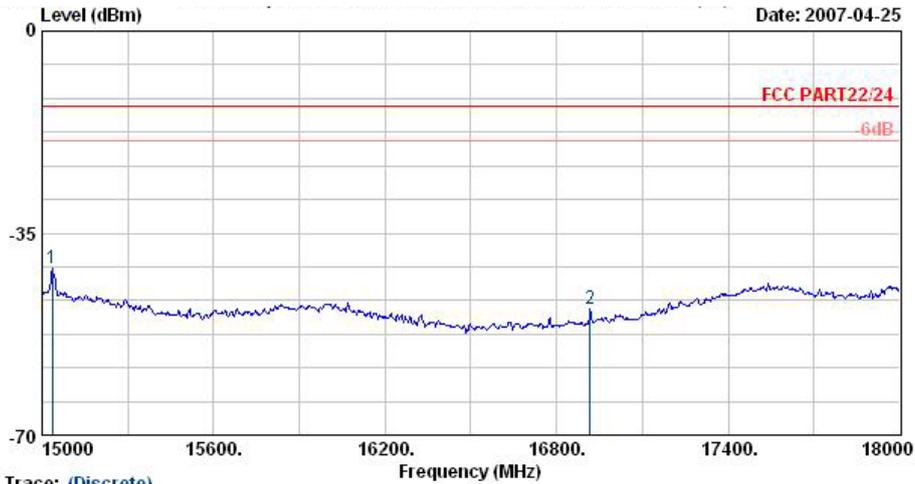
1 @	11278.00	-38.60	-25.60	-13.00	-58.90	20.30 Peak
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Trace: (Discrete)
 Site : 03CH06-WY
 Condition : HF-SPURIOUS HORIZONTAL
 EUT : PDA Phone
 Power : 120Vac/60Hz
 Model : FG 742403
 Memo : PCS 1800 Link;Ch661+ Adaptor 2+ Earphone
 Plane : H
 S/N : 0E2-0188

Freq	Level	Over	Limit	Read	Factor	Remark
MHz	dBm	dB	dBm	dBm	dB	

1	13158.00	-43.65	-30.65	-13.00	-62.36	18.71 Peak
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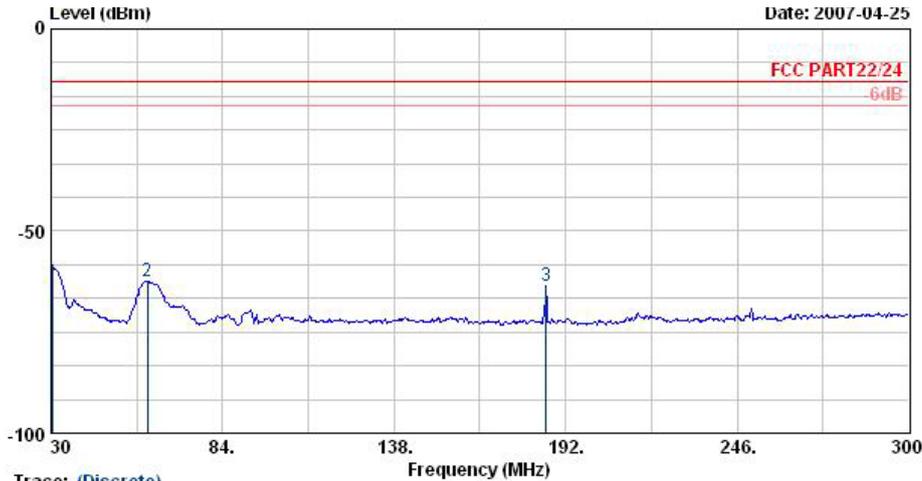
Trace: (Discrete)

Site : 03CH06-HY
 Condition : HF-SPURIOUS HORIZONTAL
 EUT : PDA Phone
 Power : 120Vac/60Hz
 Model : FG 742403
 Memo : PCS 1900 Link;Ch661+ Adaptor 2+ Earphone
 Plane : H
 S/N : OE2-0188

	Freq	Level	Over Limit	Limit Line	Read Level	Factor	Remark
	MHz	dBm	dB	dBm	dBm	dB	
1	15036.00	-41.09	-28.09	-13.00	-58.85	17.76	Peak
2	16917.00	-48.26	-35.26	-13.00	-62.07	13.81	Peak



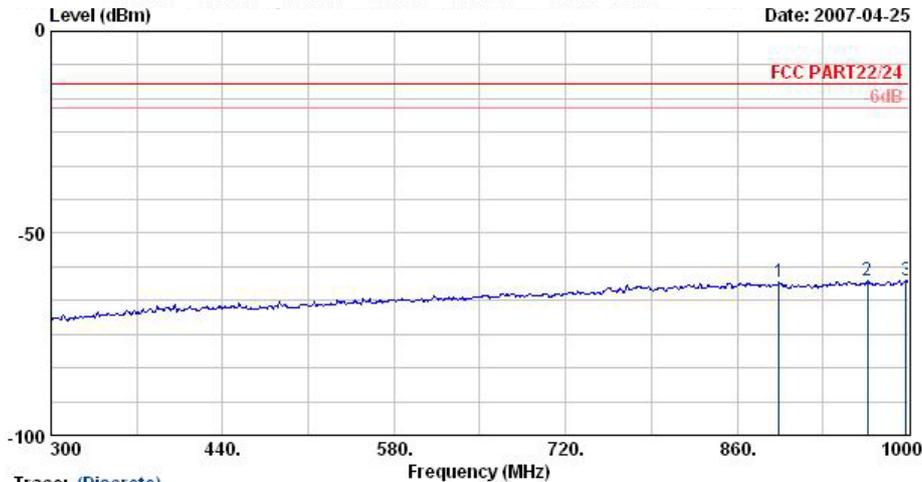
Vertical Polarization



Trace: (Discrete)

Site : 03CH06-HY
 Condition : LF-SPURIOUS VERTICAL
 EUT : PDA Phone
 Power : 120Vac/60Hz
 Model : FG 742403
 Memo : PCS 1900 Link;Ch661+ Adaptor 2+ Earphone
 Plane : H
 S/N : 0E2-0188

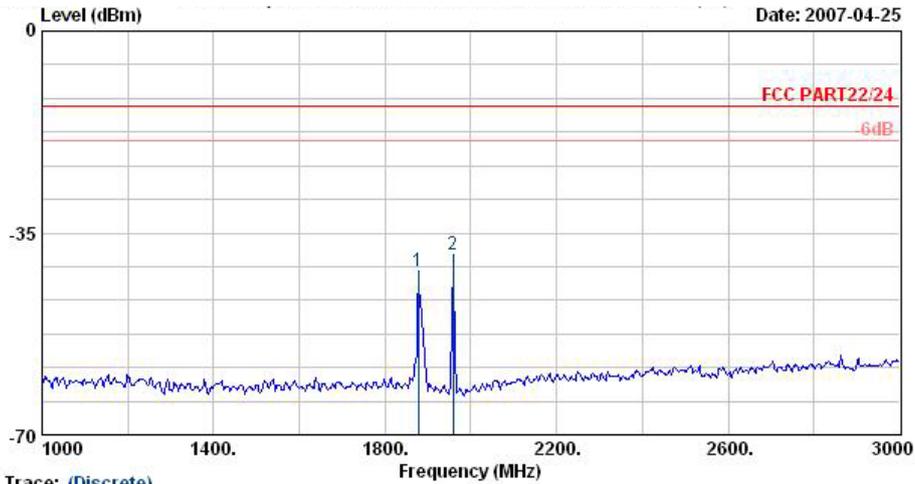
	Freq	Level	Over	Limit	Read	Factor	Remark
	MHz	dBm	dB	dBm	dBm	dB	
1	30.27	-58.54	-45.54	-13.00	-49.47	-9.07	Peak
2	60.24	-62.34	-49.34	-13.00	-48.92	-13.42	Peak
3	185.79	-63.65	-50.65	-13.00	-55.18	-8.47	Peak



Trace: (Discrete)

Site : 03CH06-HY
 Condition : LF-SPURIOUS VERTICAL
 EUT : PDA Phone
 Power : 120Vac/60Hz
 Model : FG 742403
 Memo : PCS 1900 Link;Ch661+ Adaptor 2+ Earphone
 Plane : H
 S/N : 0E2-0188

	Freq	Level	Over	Limit	Read	Factor	Remark
	MHz	dBm	dB	dBm	dBm	dB	
1	894.30	-62.08	-49.08	-13.00	-63.90	1.82	Peak
2	966.40	-61.77	-48.77	-13.00	-64.16	2.39	Peak
3	997.90	-61.61	-48.61	-13.00	-64.25	2.64	Peak



Date: 2007-04-25

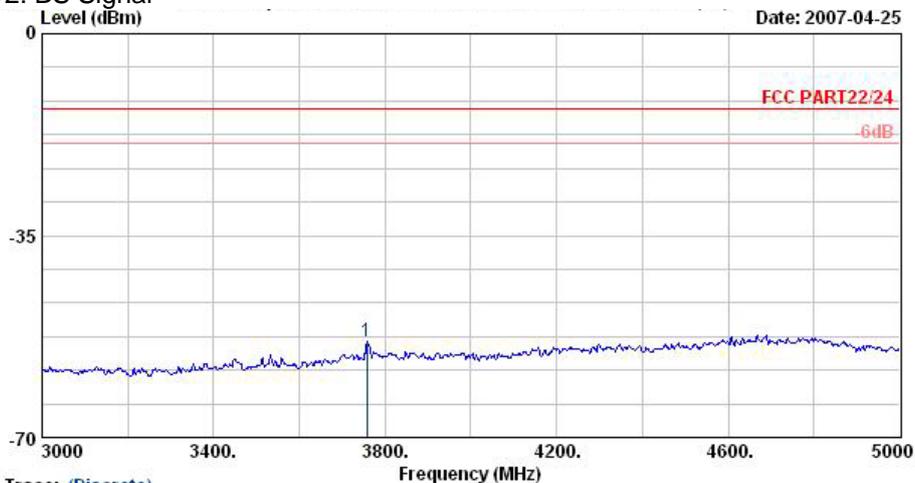
Trace: (Discrete)

Site : 03CH06-HY
 Condition : HF-SPURIOUS VERTICAL
 EUT : PDA Phone
 Power : 120Vac/60Hz
 Model : FG 742403
 Memo : PCS 1900 Link;Ch661+ Adaptor 2+ Earphone
 Plane : H
 S/N : OE2-0188

	Freq	Level	Over Limit	Limit Line	Read Level	Factor	Remark
	MHz	dBm	dB	dBm	dBm	dB	
1	1878.00	-41.71			-41.31	-0.40	Peak
2 @	1958.00	-38.76			-38.16	-0.60	Peak

Remark:

- #1: MS TCH Signal
- #2: BS Signal

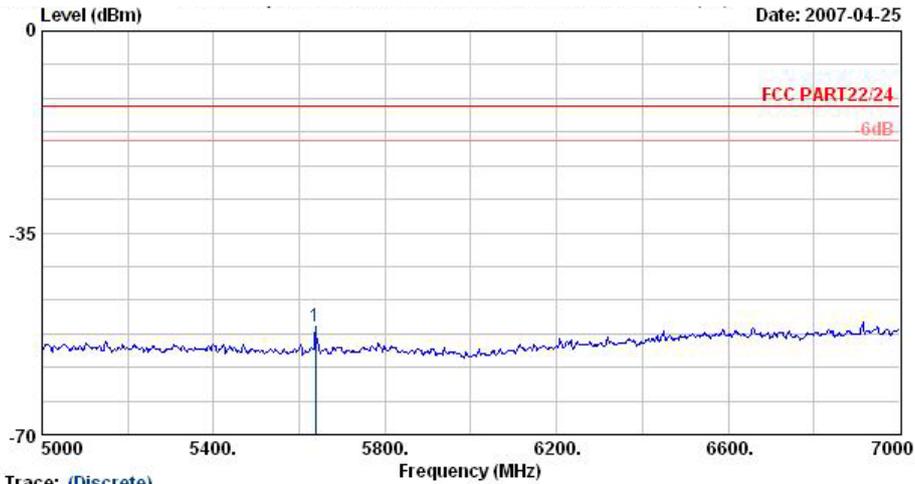


Date: 2007-04-25

Trace: (Discrete)

Site : 03CH06-HY
 Condition : HF-SPURIOUS VERTICAL
 EUT : PDA Phone
 Power : 120Vac/60Hz
 Model : FG 742403
 Memo : PCS 1900 Link;Ch661+ Adaptor 2+ Earphone
 Plane : H
 S/N : OE2-0188

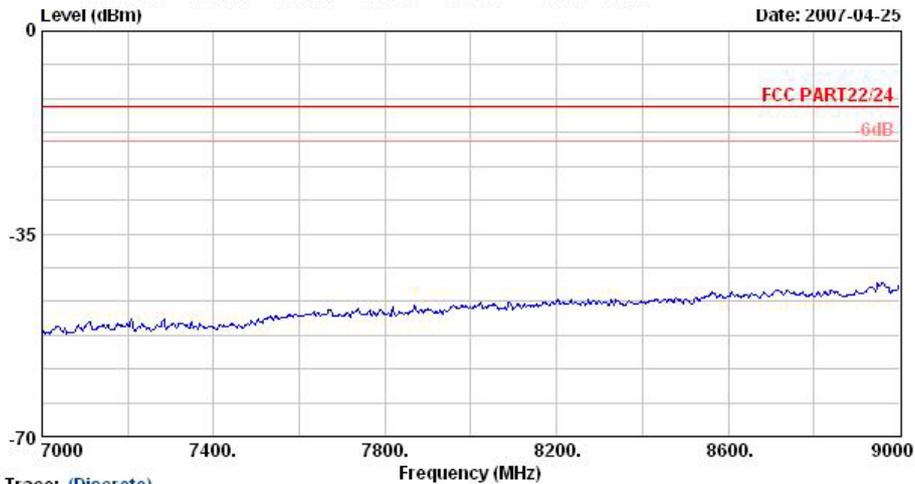
	Freq	Level	Over Limit	Limit Line	Read Level	Factor	Remark
	MHz	dBm	dB	dBm	dBm	dB	
1	3758.00	-53.33	-40.33	-13.00	-59.96	6.64	Peak



Trace: (Discrete)

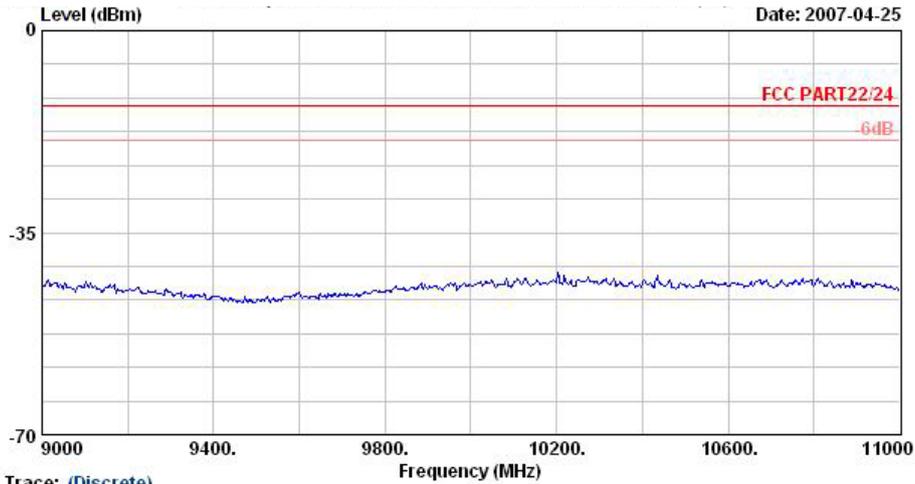
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 Condition : HF-SPURIOUS VERTICAL
 EUT : PDA Phone
 Power : 120Vac/60Hz
 Model : FG 742403
 Memo : PCS 1900 Link;Ch661+ Adaptor 2+ Earphone
 Plane : H
 S/N : OE2-0188

	Freq	Level	Over	Limit	Read	Factor	Remark
	MHz	dBm	dB	dBm	dBm	dB	
1	5638.00	-51.37	-38.37	-13.00	-60.02	8.65	Peak



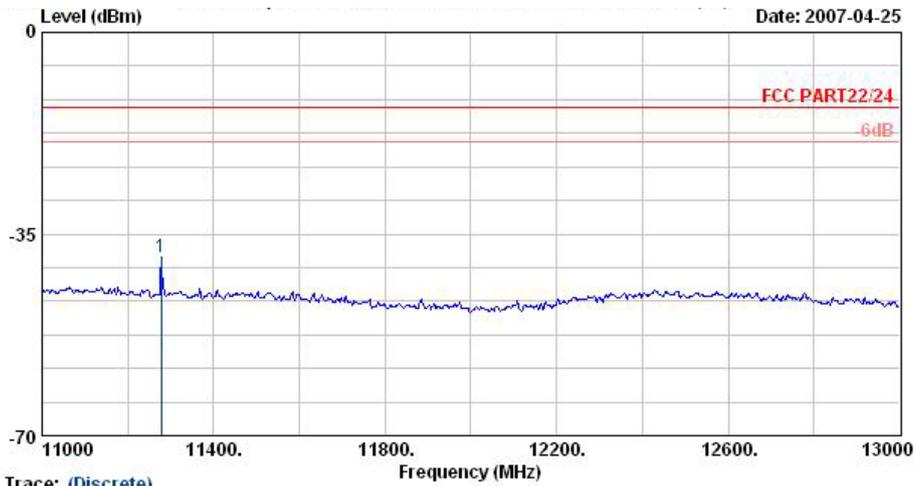
Trace: (Discrete)

Site : 03CH06-HY
 Condition : HF-SPURIOUS VERTICAL
 EUT : PDA Phone
 Power : 120Vac/60Hz
 Model : FG 742403
 Memo : PCS 1900 Link;Ch661+ Adaptor 2+ Earphone
 Plane : H
 S/N : OE2-0188



Trace: (Discrete)

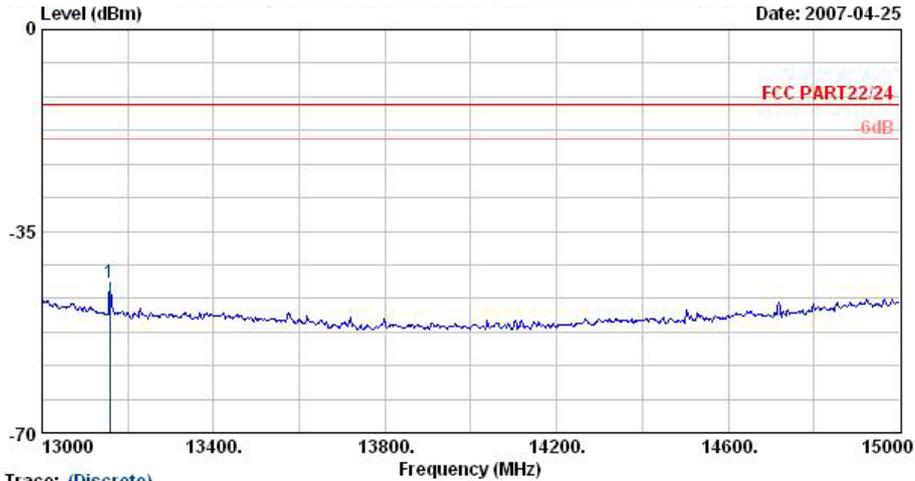
Site : 03CH06-HY
 Condition : HF-SPURIOUS VERTICAL
 EUT : PDA Phone
 Power : 120Vac/60Hz
 Model : FG 742403
 Memo : PCS 1900 Link;Ch661+ Adaptor 2+ Earphone
 Plane : H
 S/N : OE2-0188



Trace: (Discrete)

Site : 03CH06-HY
 Condition : HF-SPURIOUS VERTICAL
 EUT : PDA Phone
 Power : 120Vac/60Hz
 Model : FG 742403
 Memo : PCS 1900 Link;Ch661+ Adaptor 2+ Earphone
 Plane : H
 S/N : OE2-0188

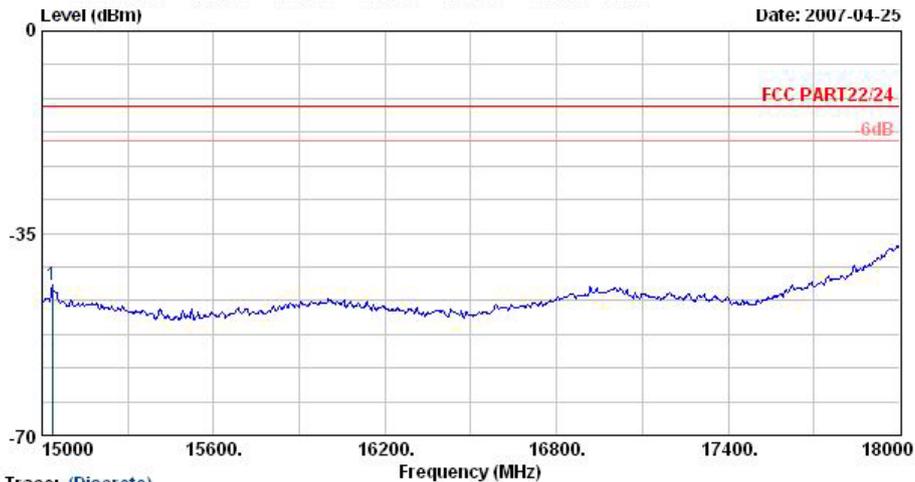
	Freq	Level	Over Limit	Limit Line	Read Level	Factor	Remark
	MHz	dBm	dB	dBm	dBm	dB	
1 @	11278.00	-39.15	-26.15	-13.00	-58.03	18.87	Peak



Trace: (Discrete)

Site : 03CH06-HY
 Condition : HF-SPURIOUS VERTICAL
 EUT : PDA Phone
 Power : 120Vac/60Hz
 Model : FG 742403
 Memo : PCS 1800 Link;Ch661+ Adaptor 2+ Earphone
 Plane : H
 S/N : OE2-0188

	Freq	Level	Over	Limit	Read	Factor	Remark
	MHz	dBm	dB	dBm	dBm	dB	
1	13158.00	-44.01	-31.01	-13.00	-59.80	15.79	Peak



Trace: (Discrete)

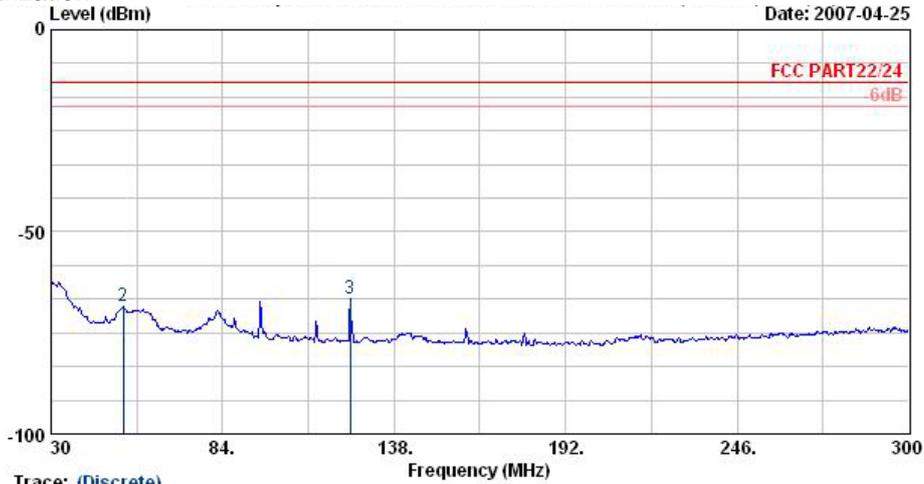
Site : 03CH06-HY
 Condition : HF-SPURIOUS VERTICAL
 EUT : PDA Phone
 Power : 120Vac/60Hz
 Model : FG 742403
 Memo : PCS 1800 Link;Ch661+ Adaptor 2+ Earphone
 Plane : H
 S/N : OE2-0188

	Freq	Level	Over	Limit	Read	Factor	Remark
	MHz	dBm	dB	dBm	dBm	dB	
1	15036.00	-44.03	-31.03	-13.00	-60.81	16.78	Peak

Remark : There is no more obvious emission except the listings above.



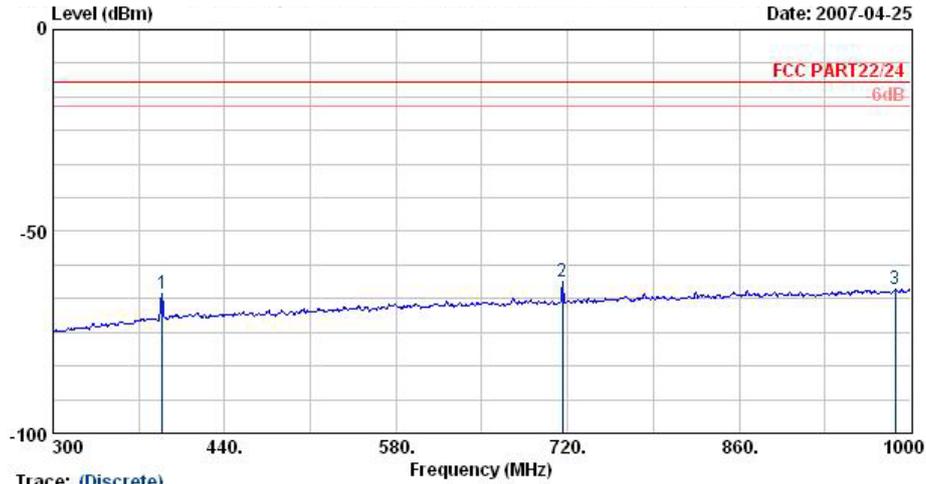
4.6.5.2 Mode 2
Horizontal Polarization



Trace: (Discrete)

Site : 03CH06-HY
 Condition : LP-SPURIOUS HORIZONTAL
 EUT : PDA Phone
 Power : 120Vac/60Hz
 Model : FG 742403
 Memo : PCS 1900 Link; Ch661 + BT Tx_CH78
 Memo : + Adaptor 2 + Earphone
 Plane : H
 S/N : OE2-0188

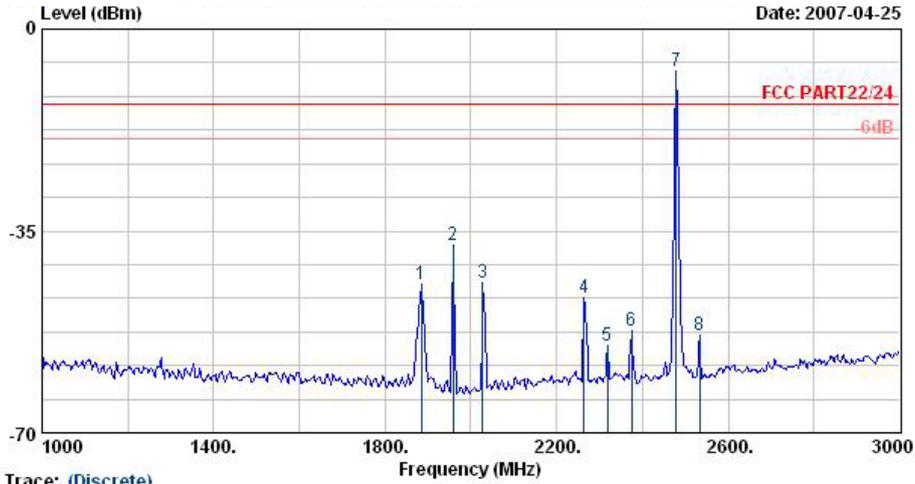
	Freq	Level	Over	Limit	Read	Factor	Remark
	MHz	dBm	dB	dBm	dBm	dB	
1	30.00	-61.82	-48.82	-13.00	-62.18	0.36	Peak
2	52.68	-68.42	-55.42	-13.00	-55.99	-12.42	Peak
3	124.23	-66.50	-53.50	-13.00	-53.98	-12.52	Peak



Trace: (Discrete)

Site : 03CH06-HY
 Condition : LF-SPURIOUS HORIZONTAL
 EUT : PDA Phone
 Power : 120Vac/60Hz
 Model : FG 742403
 Memo : PCS 1800 Link; Ch661 + BT Tx_CH78
 + Adaptor 2 + Earphone
 Plane : H
 S/N : OE2-0188

	Freq	Level	Over	Limit	Read	Factor	Remark
	MHz	dBm	dB	dBm	dBm	dB	
1	388.90	-65.57	-52.57	-13.00	-58.70	-6.87	Peak
2	715.80	-62.64	-49.64	-13.00	-60.08	-2.56	Peak
3	987.40	-64.32	-51.32	-13.00	-64.43	0.12	Peak



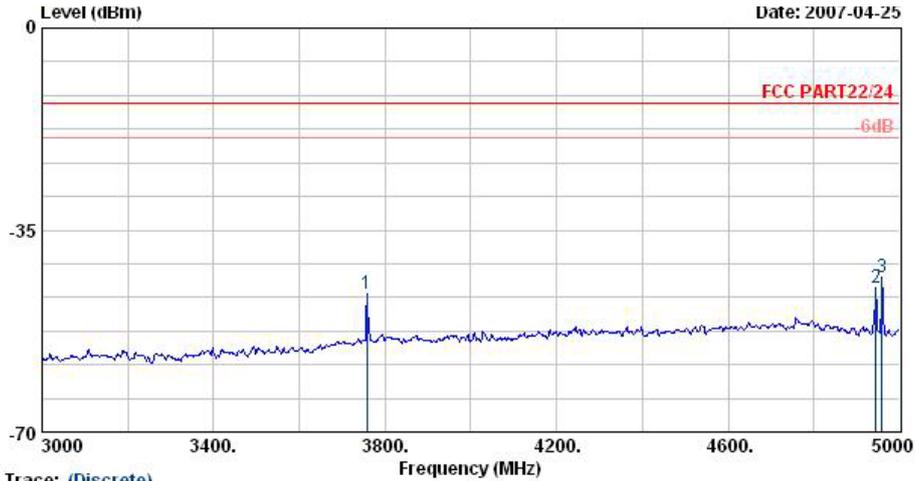
Trace: (Discrete)

Site : 03CH06-HY
 Condition : HF-SPURIOUS HORIZONTAL
 EUT : PDA Phone
 Power : 120Vac/60Hz
 Model : FG 742403
 Memo : PCS 1900 Link; Ch661 + BT Tx_CH78
 Memo : + Adaptor 2 + Earphone
 Plane : H
 S/N : OE2-0188

	Freq	Level	Over	Limit	Read	Factor	Remark
	MHz	dBm	dB	dBm	dBm	dB	
1 @	1884.00	-44.19			-43.52	-0.68	Peak
2 @	1958.00	-37.43			-36.32	-1.11	Peak
3 @	2028.00	-43.99	-30.99	-13.00	-42.97	-1.02	Peak
4	2264.00	-46.70	-33.70	-13.00	-47.49	0.80	Peak
5	2318.00	-54.79	-41.79	-13.00	-55.61	0.82	Peak
6	2374.00	-52.24	-39.24	-13.00	-53.09	0.85	Peak
7 @	2478.00	-7.25			-8.40	1.16	Peak
8	2534.00	-53.00	-40.00	-13.00	-54.40	1.41	Peak

Remark:

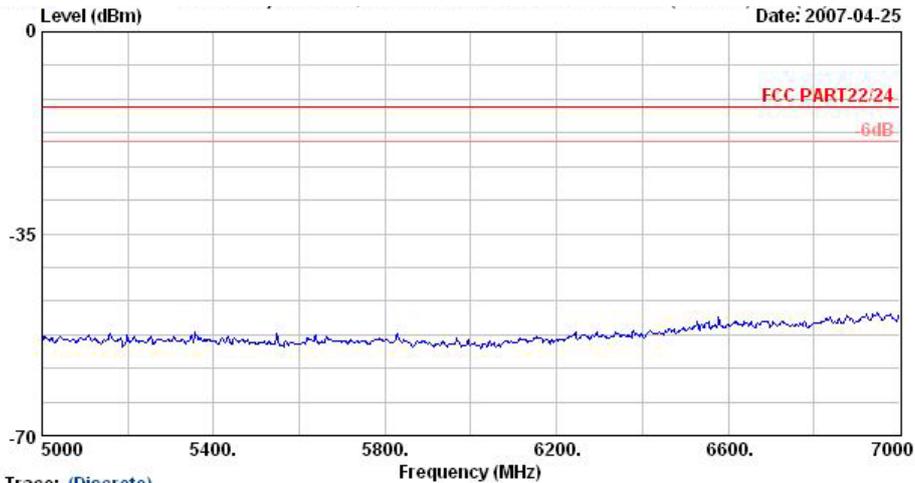
- #1: MS TCH Signal
- #2: BS Signal
- #7: BT Signal



Trace: (Discrete)

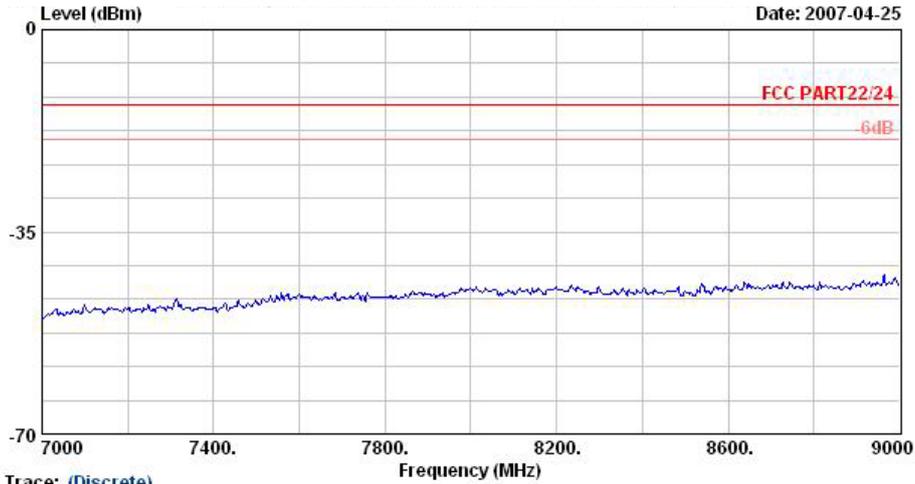
Site : 03CH06-HY
 Condition : HF-SPURIOUS HORIZONTAL
 EUT : PDA Phone
 Power : 120Vac/60Hz
 Model : FG 742403
 Memo : PCS 1900 Link; Ch661 + BT Tx_CH78
 Memo : + Adaptor 2 + Earphone
 Plane : H
 S/N : OE2-0188

	Freq MHz	Level dBm	Over Limit dB	Limit Line dBm	Read Level dBm	Factor dB	Remark
1	3758.00	-45.97	-32.97	-13.00	-53.89	7.92	Peak
2	4944.00	-45.13	-32.13	-13.00	-55.76	10.63	Peak
3 @	4958.00	-43.10	-30.10	-13.00	-53.73	10.63	Peak



Trace: (Discrete)

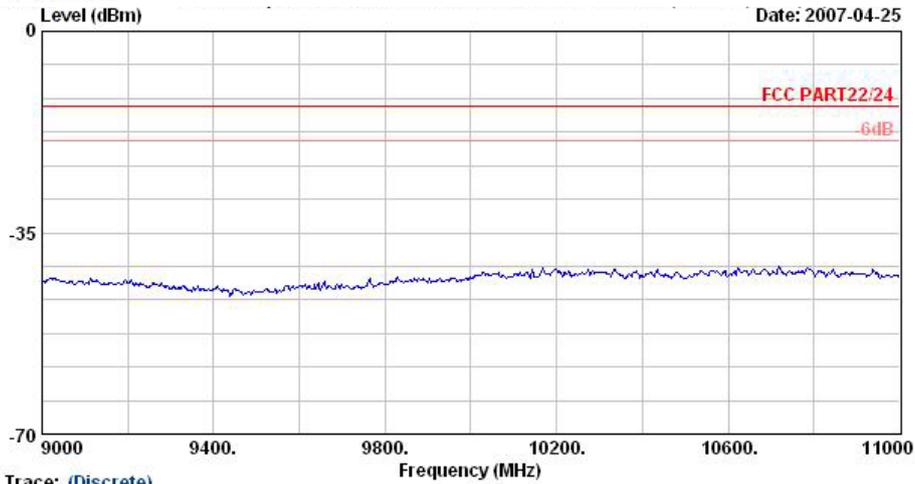
Site : 03CH06-HY
 Condition : HF-SPURIOUS HORIZONTAL
 EUT : PDA Phone
 Power : 120Vac/60Hz
 Model : FG 742403
 Memo : PCS 1900 Link; Ch661 + BT Tx_CH78
 Memo : + Adaptor 2 + Earphone
 Plane : H
 S/N : OE2-0188



Date: 2007-04-25

Trace: (Discrete)

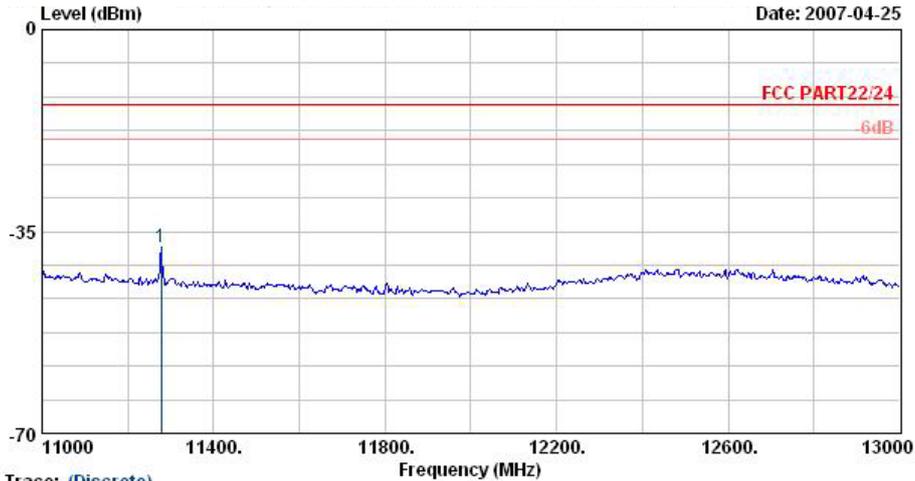
Site : 03CH06-HY
Condition : HF-SPURIOUS HORIZONTAL
EUT : PDA Phone
Power : 120Vac/60Hz
Model : FG 742403
Memo : PCS 1900 Link; Ch661 + BT Tx_CH78
Memo : + Adaptor 2 + Earphone
Plane : H
S/N : OE2-0188



Date: 2007-04-25

Trace: (Discrete)

Site : 03CH06-HY
Condition : HF-SPURIOUS HORIZONTAL
EUT : PDA Phone
Power : 120Vac/60Hz
Model : FG 742403
Memo : PCS 1900 Link; Ch661 + BT Tx_CH78
Memo : + Adaptor 2 + Earphone
Plane : H
S/N : OE2-0188

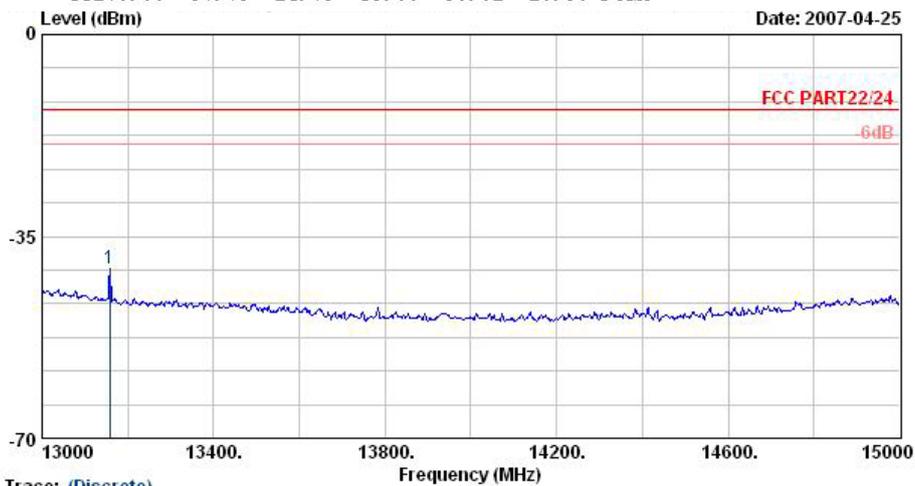


Trace: (Discrete)

```

Site      : 03CH06-HY
Condition : HF-SPURIOUS HORIZONTAL
EUT      : PDA Phone
Power     : 120Vac/60Hz
Model    : FG 742403
Memo     : PCS 1900 Link; Ch661 + BT Tx_CH78
Memo     : + Adaptor 2 + Earphone
Plane    : H
S/N      : OE2-0188
  
```

	Freq	Level	Over	Limit	Read	Factor	Remark
	MHz	dBm	dB	dBm	dBm	dB	
1 @	11278.00	-37.73	-24.73	-13.00	-58.02	20.30	Peak

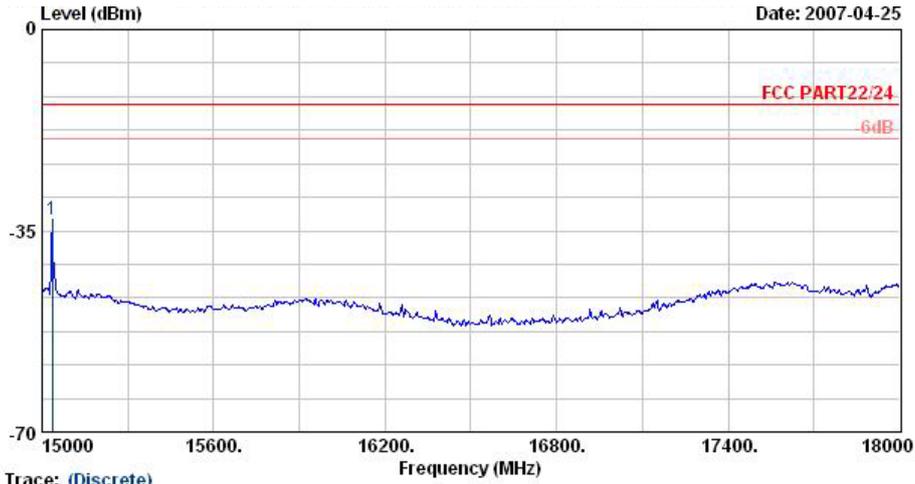


Trace: (Discrete)

```

Site      : 03CH06-HY
Condition : HF-SPURIOUS HORIZONTAL
EUT      : PDA Phone
Power     : 120Vac/60Hz
Model    : FG 742403
Memo     : PCS 1900 Link; Ch661 + BT Tx_CH78
Memo     : + Adaptor 2 + Earphone
Plane    : H
S/N      : OE2-0188
  
```

	Freq	Level	Over	Limit	Read	Factor	Remark
	MHz	dBm	dB	dBm	dBm	dB	
1 @	13158.00	-40.64	-27.64	-13.00	-59.35	18.71	Peak

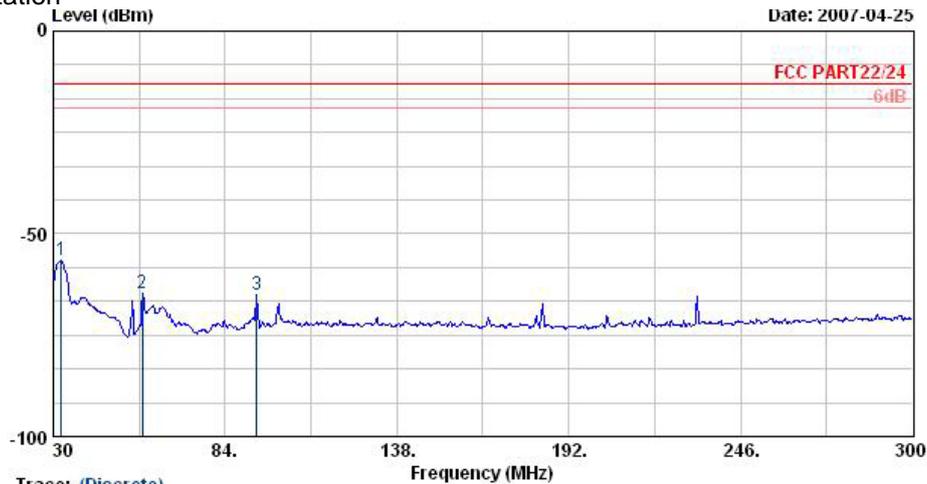


Trace: (Discrete)
 Site : 03CH06-HY
 Condition : HF-SPURIOUS HORIZONTAL
 EUT : PDA Phone
 Power : 120Vac/60Hz
 Model : FG 742403
 Memo : PCS 1900 Link; Ch661 + BT Tx_CH76
 Memo : + Adaptor 2 + Earphone
 Plane : H
 S/N : 0E2-0188

	Freq	Level	Over	Limit	Read	Factor	Remark
	MHz	dBm	dB	dBm	dBm	dB	
1 @	15036.00	-33.15	-20.15	-13.00	-50.91	17.76	Peak



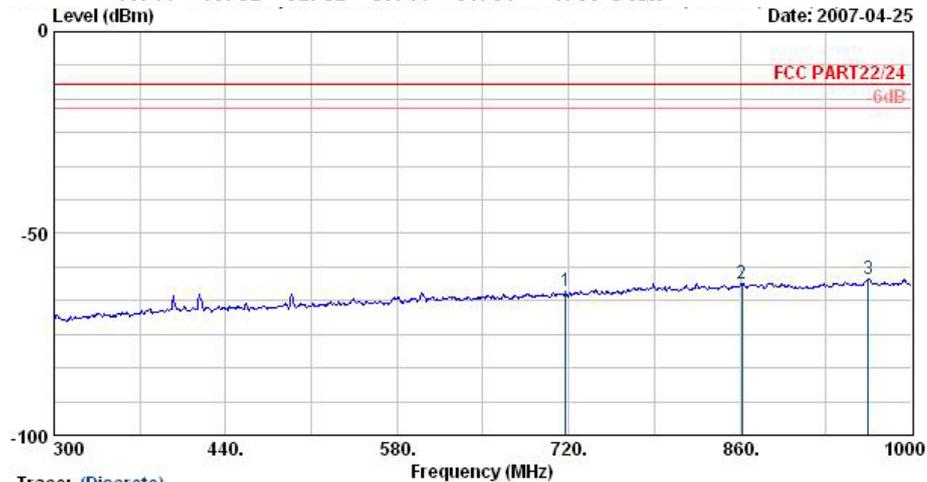
Vertical Polarization



Trace: (Discrete)

Site : 03CH06-HY
 Condition : LF-SPURIOUS VERTICAL
 EUT : PDA Phone
 Power : 120Vac/60Hz
 Model : FG 742403
 Memo : PCS 1900 Link; Ch661 + BT Tx_CH76
 Memo : + Adaptor 2 + Earphone
 Plane : H
 S/N : OE2-0188

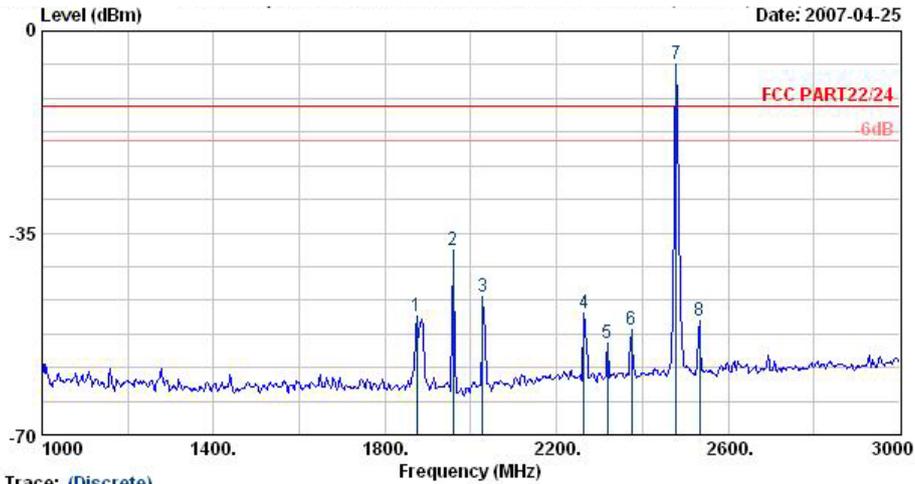
	Freq MHz	Level dBm	Over Limit dB	Limit Line dBm	Read Level dBm	Factor dB	Remark
1	32.43	-56.52	-43.52	-13.00	-46.63	-9.89	Peak
2	58.08	-64.51	-51.51	-13.00	-50.80	-13.70	Peak
3	93.99	-65.12	-52.12	-13.00	-56.59	-8.53	Peak



Trace: (Discrete)

Site : 03CH06-HY
 Condition : LF-SPURIOUS VERTICAL
 EUT : PDA Phone
 Power : 120Vac/60Hz
 Model : FG 742403
 Memo : PCS 1900 Link; Ch661 + BT Tx_CH76
 Memo : + Adaptor 2 + Earphone
 Plane : H
 S/N : OE2-0188

	Freq MHz	Level dBm	Over Limit dB	Limit Line dBm	Read Level dBm	Factor dB	Remark
1	717.90	-64.37	-51.37	-13.00	-64.21	-0.17	Peak
2	861.40	-62.39	-49.39	-13.00	-63.94	1.56	Peak
3	964.30	-61.23	-48.23	-13.00	-63.61	2.37	Peak



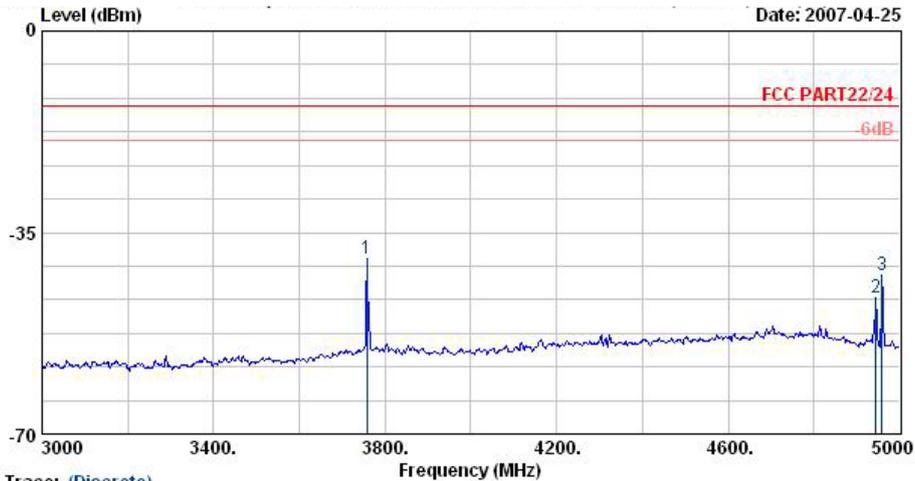
Trace: (Discrete)

Site : 03CH06-HY
 Condition : HF-SPURIOUS VERTICAL
 EUT : PDA Phone
 Power : 120Vac/60Hz
 Model : FG 742403
 Memo : PCS 1900 Link; Ch661 + BT Tx_CH78
 Memo : + Adaptor 2 + Earphone
 Plane : H
 S/N : OE2-0188

	Freq	Level	Over	Limit	Read	Factor	Remark
	MHz	dBm	dB	dBm	dBm	dB	
1	1874.00	-49.36			-48.96	-0.40	Peak
2 @	1958.00	-38.09			-37.49	-0.60	Peak
3	2028.00	-45.98	-32.98	-13.00	-45.62	-0.36	Peak
4	2264.00	-49.03	-36.03	-13.00	-50.71	1.68	Peak
5	2318.00	-54.05	-41.05	-13.00	-55.80	1.75	Peak
6	2374.00	-51.89	-38.89	-13.00	-53.71	1.81	Peak
7 @	2478.00	-5.81			-8.03	2.21	Peak
8	2534.00	-50.10	-37.10	-13.00	-52.44	2.34	Peak

Remark:

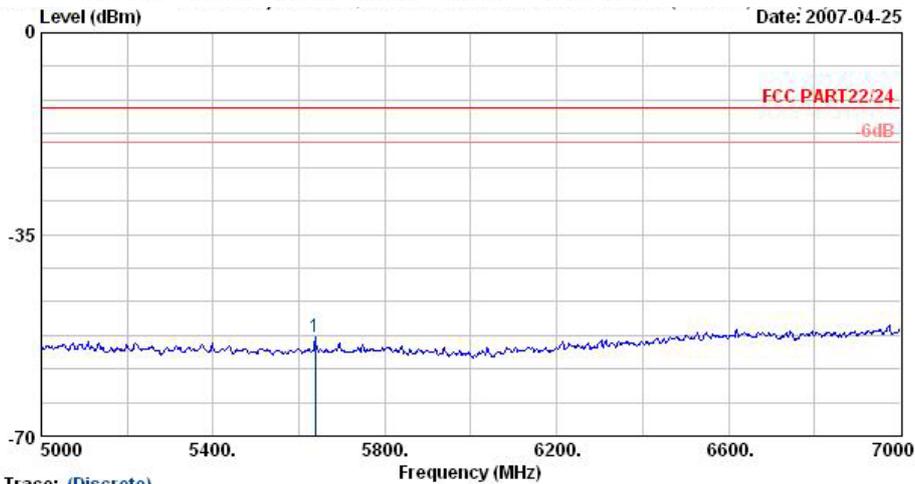
- #1: MS TCH Signal
- #2: BS Signal
- #7: BT Signal



Trace: (Discrete)

Site : 03CH06-HY
 Condition : HP-SPURIOUS VERTICAL
 EUT : PDA Phone
 Power : 120Vac/60Hz
 Model : FG 742403
 Memo : PCS 1900 Link; Ch661 + BT Tx_CH76
 Memo : + Adaptor 2 + Earphone
 Plane : H
 S/N : OE2-0188

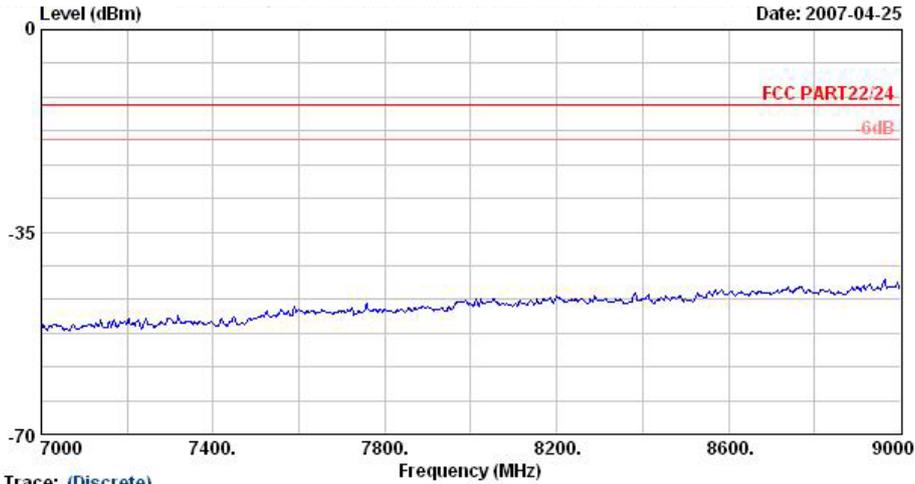
	Freq	Level	Over	Limit	Read	Factor	Remark
	MHz	dBm	dB	dBm	dBm	dB	
1 @	3758.00	-39.60	-26.60	-13.00	-46.23	6.64	Peak
2	4944.00	-46.30	-33.30	-13.00	-55.55	9.25	Peak
3 @	4958.00	-42.47	-29.47	-13.00	-51.73	9.25	Peak



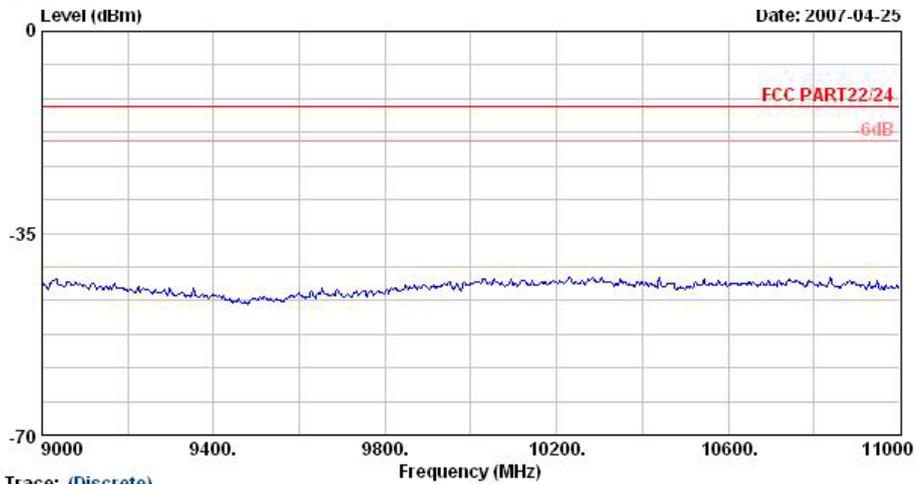
Trace: (Discrete)

Site : 03CH06-HY
 Condition : HP-SPURIOUS VERTICAL
 EUT : PDA Phone
 Power : 120Vac/60Hz
 Model : FG 742403
 Memo : PCS 1900 Link; Ch661 + BT Tx_CH76
 Memo : + Adaptor 2 + Earphone
 Plane : H
 S/N : OE2-0188

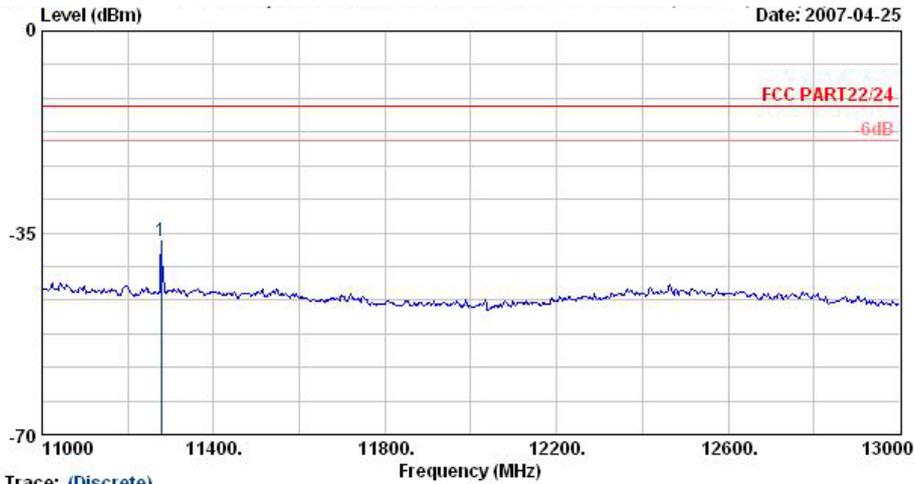
	Freq	Level	Over	Limit	Read	Factor	Remark
	MHz	dBm	dB	dBm	dBm	dB	
1	5638.00	-52.94	-39.94	-13.00	-61.59	8.65	Peak



Trace: (Discrete)
Site : 03CH06-HY
Condition : HP-SPURIOUS VERTICAL
EUT : PDA Phone
Power : 120Vac/60Hz
Model : FG 742403
Memo : PCS 1900 Link; Ch661 + BT Tx_CH78
Memo : + Adaptor 2 + Earphone
Plane : H
S/N : OE2-0188



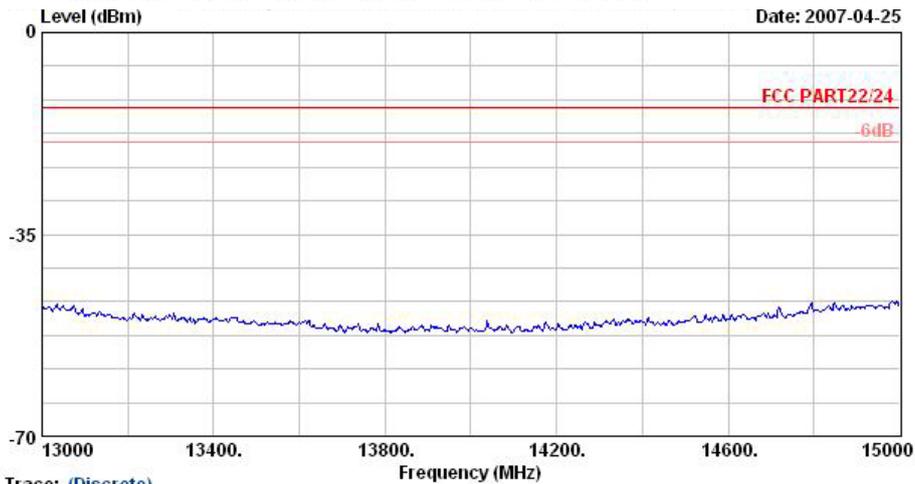
Trace: (Discrete)
Site : 03CH06-HY
Condition : HP-SPURIOUS VERTICAL
EUT : PDA Phone
Power : 120Vac/60Hz
Model : FG 742403
Memo : PCS 1900 Link; Ch661 + BT Tx_CH78
Memo : + Adaptor 2 + Earphone
Plane : H
S/N : OE2-0188



Trace: (Discrete)

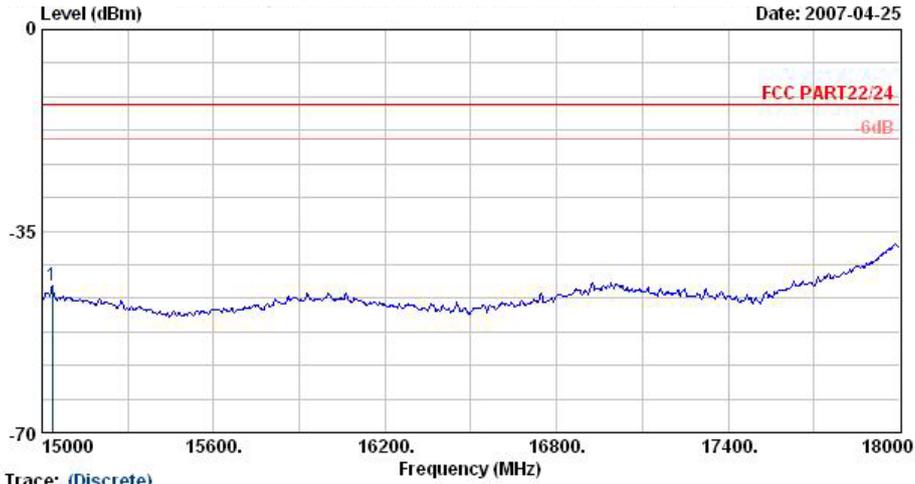
Site : 03CH06-HY
 Condition : HP-SPURIOUS VERTICAL
 EUT : PDA Phone
 Power : 120Vac/60Hz
 Model : FG 742403
 Memo : PCS 1900 Link; Ch661 + BT Tx_CH78
 Memo : + Adaptor 2 + Earphone
 Plane : H
 S/N : OE2-0188

	Freq	Level	Over	Limit	Read	Factor	Remark
	MHz	dBm	dB	dBm	dBm	dB	
1 @	11278.00	-36.43	-23.43	-13.00	-55.30	18.87	Peak



Trace: (Discrete)

Site : 03CH06-HY
 Condition : HP-SPURIOUS VERTICAL
 EUT : PDA Phone
 Power : 120Vac/60Hz
 Model : FG 742403
 Memo : PCS 1900 Link; Ch661 + BT Tx_CH78
 Memo : + Adaptor 2 + Earphone
 Plane : H
 S/N : OE2-0188



Trace: (Discrete)

Site : 03CH06-HY
 Condition : HF-SPURIOUS VERTICAL
 EUT : PDA Phone
 Power : 120Vac/60Hz
 Model : FG 742403
 Memo : PCS 1900 Link; Ch661 + BT Tx_CH76
 Memo : + Adaptor 2 + Earphone
 Plane : H
 S/N : 0E2-0188

	Freq	Level	Over Limit	Limit Line	Read Level	Factor	Remark
	MHz	dBm	dB	dBm	dBm	dB	
1 @	15036.00	-44.46	-31.46	-13.00	-61.24	16.78	Peak

Remark : There is no more obvious emission except the listings above.

4.7 Frequency Stability (Temperature Variation)

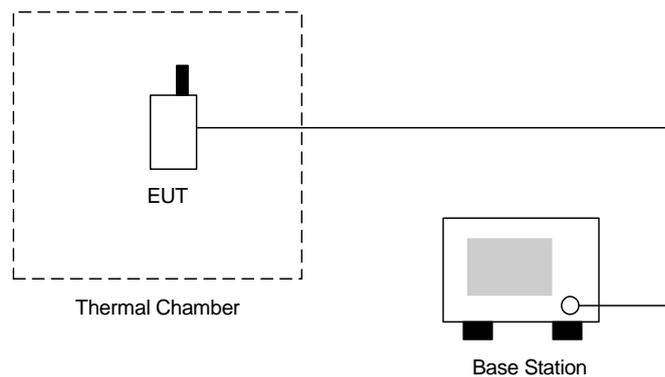
4.7.1 Measurement Instrument

As described in chapter 5 of this test report.

4.7.2 Test Procedure

1. The EUT and test equipment were set up as shown on the following section.
2. With all power removed, the temperature was decreased to -30°C and permitted to stabilize for three hours. Power was applied and the maximum change in frequency was noted within one minute.
3. With power OFF, the temperature was raised in 10°C steps. The sample was permitted to stabilize at each step for at least one-half hour. Power was applied and the maximum frequency change was noted within one minute.
4. The temperature tests were performed for the worst case.
5. Test data was recorded.

4.7.3 Test Setup Layout





4.7.4 Test Result

- Test Mode : PCS1900 CH661

Temperature(°C)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
-30	NA	NA	2.5	Passed
-20	83	0.04		
-10	74	0.04		
0	53	0.03		
10	32	0.02		
20	11	0.01		
30	-24	-0.01		
40	23	0.01		
50	19	0.01		

Remark: The device cannot operating properly at Temperature -30 °C

4.8 Frequency Stability (Voltage Variation)

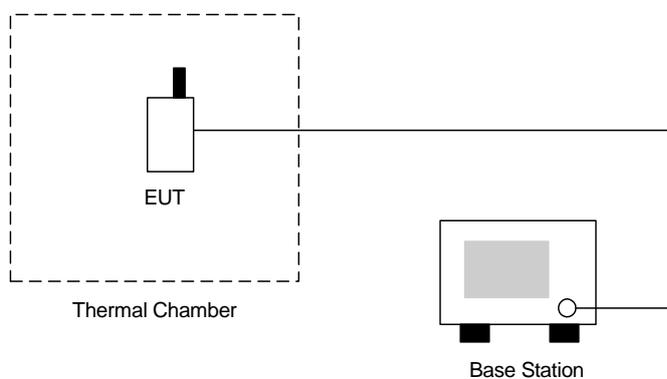
4.8.1 Measurement Instrument

As described in chapter 5 of this test report.

4.8.2 Test Procedure

1. The EUT was placed in a temperature chamber at $25\pm 5^{\circ}\text{C}$ and connected as the following section.
2. The power supply voltage to the EUT was varied from BEP to 115% of the nominal value measured at the input to the EUT.
3. The variation in frequency was measured for the worst case.

4.8.3 Test Setup Layout



4.8.4 Test Result

- Test Mode : PCS (GSM) CH661

Voltage(Volt)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
3.7	13.0	0.01	2.5	Passed
BEP	11.0	0.01		
4.2	-10.0	-0.01		

Remark:

1. Normal Voltage=3.7 V.
2. Battery End Point (BEP)=3.2 V.



5 List of Measurement Equipments

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
Spectrum analyzer	Agilent	E4408B	MY44211030	9KHz-26.5GHz	Oct. 05, 2006	Oct. 04, 2007	Radiation (03CH06-HY)
EMI Test Receiver	R&S	ESCS30	100356	9KHz-2.75GHz	Jul. 13, 2006	Jul. 12, 2007	Radiation (03CH06-HY)
Controller	INN-CO	CO2000	N/A	N/A	N/A	N/A	Radiation (03CH06-HY)
Bilog Antenna	SCHAFFNER	CBL6112B	2885	30MHz -2GHz	Nov. 20, 2006	Nov. 19, 2007	Radiation (03CH06-HY)
Double Ridge Horn Antenna	Com-Power	AH118	10094	1G~18G	Dec. 26, 2006	Dec. 25, 2007	Radiation (03CH06-HY)
SHF-EHF Horn	SCHWARZBECK	BBHA 9170	9170-249	14G - 40G	Nov. 20, 2006	Nov. 19, 2008	Radiation (03CH06-HY)
Pre Amplifier	Agilent	8449B	3008A01917	1G - 26.5G	Nov. 15, 2006	Nov. 14, 2007	Radiation (03CH06-HY)
Pre Amplifier	Mini Circuits	ZKL-2	D092004-1	10~2500MHz	Nov. 15, 2006	Nov. 14, 2007	Radiation (03CH06-HY)
Turn Table	INN-CO	DS2000	420/650/00	0 ~ 360 degree	N/A	N/A	Radiation (03CH06-HY)
Antenna Mast	INN-CO	MM3000	114/8000604/L	1 m - 4 m	N/A	N/A	Radiation (03CH06-HY)
Base Station Simulator	R & S	CMU200	106656	WCDMA	Nov. 20, 2006	Nov. 19, 2007	Radiation (03CH06-HY)



6 Uncertainty Evaluation

Uncertainty of Radiated Emission Measurement (30MHz ~ 1000MHz)

Contribution	Uncertainty of x_i		$u(x_i)$
	dB	Probability Distribution	
Receiver reading	0.41	Normal(k=2)	0.21
Antenna factor calibration	0.83	Normal(k=2)	0.42
Cable loss calibration	0.25	Normal(k=2)	0.13
Pre Amplifier Gain calibration	0.27	Normal(k=2)	0.14
RCV/SPA specification	2.50	Rectangular	0.72
Antenna Factor Interpolation for Frequency	1.00	Rectangular	0.29
Site imperfection	1.43	Rectangular	0.83
Mismatch	+0.39/-0.41	U-shaped	0.28
combined standard uncertainty Uc(y)	1.27		
Measuring uncertainty for a level of confidence of 95% U=2Uc(y)	2.54		

Uncertainty of Radiated Emission Measurement (1GHz ~ 40GHz)

Contribution	Uncertainty of x_i		$u(x_i)$	C_i	$C_i * u(x_i)$
	dB	Probability Distribution			
Receiver reading	±0.10	Normal(k=1)	0.10	1	0.10
Antenna factor calibration	±1.70	Normal(k=2)	0.85	1	0.85
Cable loss calibration	±0.50	Normal(k=2)	0.25	1	0.25
Receiver Correction	±2.00	Rectangular	1.15	1	1.15
Antenna Factor Directional	±1.50	Rectangular	0.87	1	0.87
Site imperfection	±2.80	Triangular	1.14	1	1.14
Mismatch Receiver VSWR $\Gamma_1 = 0.197$ Antenna VSWR $\Gamma_2 = 0.194$ Uncertainty = $20 \log(1 - \Gamma_1 * \Gamma_2 * \Gamma_3)$	+0.34/-0.35	U-shaped	0.244	1	0.244
Combined standard uncertainty Uc(y)	2.36				
Measuring uncertainty for a level of confidence of 95% U=2Ue(y)	4.72				

END OF TEST REPORT