Variant FCC Test Report

According to

47 CFR Part 22H, 24E

Equipment	:	**PDA Phone**
Trade Name	:	**Opticon**
Model Name	:	**H-19A, H-19B**
FCC ID	:	**UFOBC0164AAA390**
Tx Frequency Range	:	**GSM850 : 824.2 ~ 848.8MHz** **GSM1900 : 1850.2 ~1909.8 MHz**
Max. ERP/EIRP Power	:	**GSM850 : 0.94W** **GSM1900 : 1.16W**
Emission Designator	:	**GSM : 300KGXW** **EDGE : 300KG7W**
Applicant	:	**OPTOELECTRONICS CO., LTD.** 12-17, Tsukagoshi 4-chome, Warabi-shi, Saitama, 335-0002, Japan

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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 on Apr. 15, 2008 at **Sporton International Inc. LAB.**
- Report No.: FG853006, Report Version: Rev. 02.

Roy Wu
Manager

SPORTON International Inc.
No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.

Table of Contents

History of This Test Report

Report Issue Date: Aug. 12, 2008

Report No.	Description
FG840402	Update Sporton Report No. FG762206-B by retesting ERP, EIRP and RSE for HW version, SW version, Bluetooth antenna, GSM Antenna, layout and chipset of main board, connector of SIM cards, and SDRAM change. SDRAM changes from 64 MB to 128 MB.

1. General Information

1.1 Applicant

OPTOELECTRONICS CO., LTD.

12-17, Tsukagoshi 4-chome, Warabi-shi, Saitama, 335-0002, Japan

1.2 Manufacturer

OPTOELECTRONICS CO., LTD.

12-17, Tsukagoshi 4-chome, Warabi-shi, Saitama, 335-0002, Japan

1.3 Basic Description of Equipment under Test

Equipment		PDA Phone
Trade Name		Opticon
Model Name		H-19A, H-19B
FCC ID		UFOBC0164AAA390
AC Adapter 1	**Brand Name**	PI Electronics Ltd.
	Model Name	AD7112B 03LF
	Power Rating	I/P:100-240Vac, 50-60Hz, 0.25A; O/P: 5Vdc, 1A
	AC Power Cord Type	1.6 meter shielded cable with ferrite core
AC Adapter 2 (for Cradle)	**Brand Name**	PI
	Model Name	AD7010-2LF
	Power Rating	I/P:100-240Vac, 50-60Hz, 0.6A; O/P: 5Vdc, 3.6A
	AC Power Cord Type	1.6 meter shielded cable without ferrite core
Battery	**Brand Name**	Opticon
	Model Name	H-19
	Power Rating	4.2Vdc, 1440mA
	Type	Li-ion
Earphone	**Brand Name**	TECHWIN Communication Co. Ltd
	Model Name	EE-624B-7EN
	Signal Line Type	1.2 meter non-shielded cable without ferrite core
USB Cable for PDA Phone	**Brand Name**	WIESON
	Model Name	G9904HT0220-002
	Signal Line Type	0.9 meter shielded cable without ferrite core
USB Cable for Cradle	**Brand Name**	WANSHIH
	Model Name	WA1Z3614B
	Signal line Type	1 meter shielded cable without ferrite core
Holster	**Brand Name**	Opticon
	Model Name	CRD-19
Scanner 1	**Brand Name**	OPTOELECTRONICS
	Model Name	MDL-2000
Scanner 2	**Brand Name**	OPTOELECTRONICS
	Model Name	MDI-1000

Remark:

1. Scanner 1 was used for H-19A, and scanner 2 was used for H-19B.
2. Above EUT's information was declared by manufacturer. Please refer to the specifications of manufacturer or User's Manual for more detailed features description.

1.4 Feature of Equipment under Test

Product Feature & Specification	
DUT Type :	PDA Phone
Trade Name :	Opticon
Model Name :	H-19A, H-19B
FCC ID :	UFOBC0164AAA390
Tx Frequency :	GSM850 : 824 MHz ~ 849 MHz GSM1900 : 1850 MHz ~1910 MHz
Rx Frequency :	GSM850 : 869 MHz ~ 894 MHz GSM1900 : 1930 MHz ~ 1990 MHz
Channel Spacing :	200 KHz
Maximum ERP/EIRP :	GSM850 : 0.94W (29.73dBm) GSM1900 : 1.16W (30.65dBm)
HW Version :	PEONY_PLUS2_MB_P3_V4.4
SW Version :	WM6: CE OS 5.2.1620 (Build 18125.0.4.2) ROM: 0.0.1.1(SVN=16)
GPRS Multislot class :	12
EGPRS Multislot class :	10
Power Rating (DC/AC , Voltage and Current of RF element or PA) :	DC 3.2V / 3.5A
Type of Modulation :	GSM : GMSK EDGE : 8PSK
Type of Emission :	GSM : 300KGXW EDGE : 300KG7W
DUT Stage :	Production Unit

1.5 Report Date

EUT Received : Apr. 04, 2008

Report Date : Aug. 12, 2008

2. Test Configuration of Equipment under Test

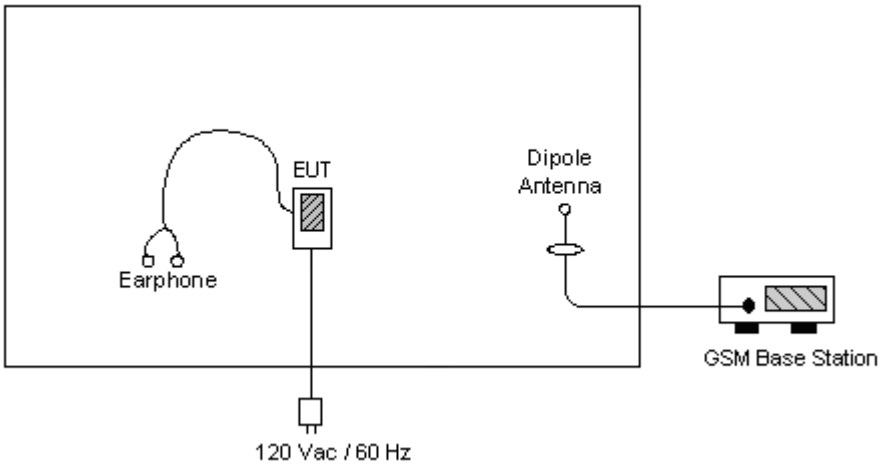
2.1 Test Manner

1. The spurious emission measurements were carried out in semi-anechoic chamber with 3-meter test range.
2. During all testings, EUT is in link mode with base station emulator at maximum power level.
3. Frequency range investigated: radiated emission 30 MHz to 9000 MHz for GSM850; 30MHz to 19000 MHz for GSM1900.

2.2 Test Mode

Application	GSM850	GSM1900
Radiated Emission	☒ Mode 1: GSM Link	☒ Mode 2: GSM Link

2.3 Connection Diagram of Test System



2.4 Ancillary Equipment List

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Code
1.	GSM Base Station	R&S	CMU200	N/A	N/A	Unshielded, 1.8m

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 : 886-3-328-4978
Test Site No	:	03CH06-HY
FCC Designation No	:	TW1022

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

3.1 Test Voltage

AC 120V / 60Hz

3.2 Test Compliance

47 CFR Part 22H, 24E, Part 2

3.3 Frequency Range

a. Radiation: from 30MHz to 9000MHz for GSM850
b. Radiation: from 30 MHz to 19000 MHz for GSM1900

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
§ 22.913 §24.232	ERP / EIRP	Passed	4.3
§2.1053	Field Strength of Spurious Radiation	Passed	4.6

Remark : The compliance is based on this report and the original report shown in appendix c.

4.2 ERP / EIRP Measurement

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

4.2.1 Measurement Instruments

As described in chapter 5 of this test report.

4.2.2 Test Procedure

a. The EUT was placed on a tutntable with 1.0 meter height in an fully anechoic chamber.

b. The EUT was set 1.2 meters from the receiving antenna which was mounted on the antenna tower.

c. The table was rotated 360 degrees to determine the position of the highest radiated power.

d. The height of the receiving antenna is also kept at 1.0M height.

e. Taking the record of maximum ERP/EIRP.

f. A dipole antenna was substituted in place of the EUT and was driven by a signal generator.

g. The conducted power at the terminal of the dipole antenna is measured.

h. Repeat step 3 to step 5 to get the maximum ERP/EIRP of the substitution antenna.

i. ERP/EIRP = Ps + Et – Es + Gs = Ps + Rt – Rs + Gs

Ps (dBm)：Input power to substitution antenna.

Gs (dBi or dBd)：Substitution antenna Gain.

Et = Rt + AF

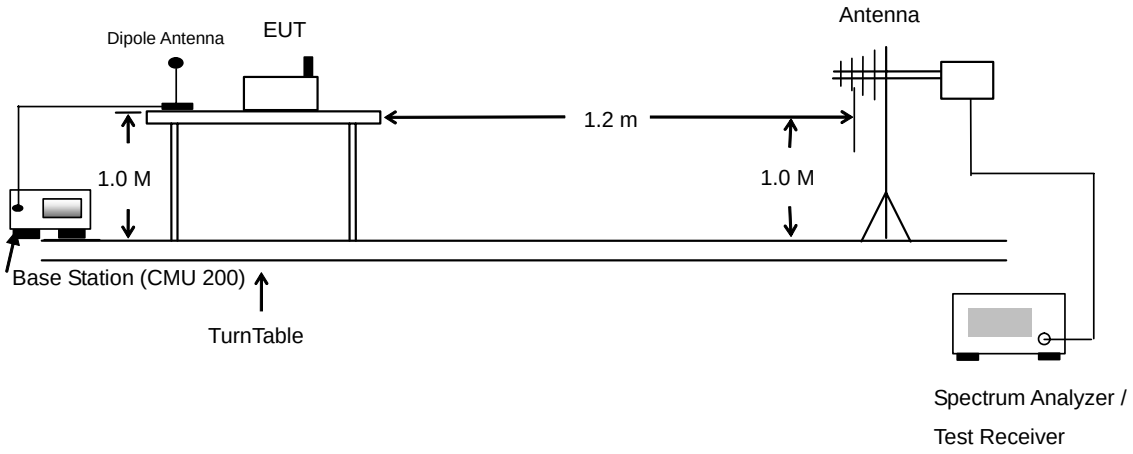
Es = Rs + AF

AF (dB/m)：Receive antenna factor

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

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

4.2.3 Test Setup Layout of ERP/EIRP



4.2.4 Test Result

GSM850 Radiated Power ERP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.20	-29.81	-48.12	0.00	-1.08	17.23	0.05
836.40	-28.71	-48.28	0.00	-0.93	18.64	0.07
848.80	-27.38	-48.35	0.00	-0.76	20.21	0.10
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.20	-20.14	-47.97	0.00	-1.08	26.75	0.47
836.40	-18.74	-48.01	0.00	-0.93	28.34	0.68
848.80	-17.56	-48.05	0.00	-0.76	29.73	0.94

GSM1900 Radiated Power EIRP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-24.34	-51.88	0.00	1.96	29.50	0.89
1880.00	-28.04	-52.99	0.00	2.00	26.95	0.50
1909.80	-30.80	-54.28	0.00	1.98	25.46	0.35
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-23.44	-52.13	0.00	1.96	30.65	1.16
1880.00	-26.45	-53.17	0.00	2.00	28.72	0.74
1909.80	-28.81	-54.13	0.00	1.98	27.30	0.54

4.3 Field Strength of Spurious Radiation

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

a. The EUT was placed on a rotatable wooden table with 0.8 meter about ground.

b. The EUT was set 3 meters from the receiving antenna which was mounted on the antenna tower.

c. The table was rotated 360 degrees to determine the position of the highest spurious emission.

d. 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.

e. Taking the record of maximum spurious emission.

f. A Horn antenna was substituted in place of the EUT and was driven by a signal generator.

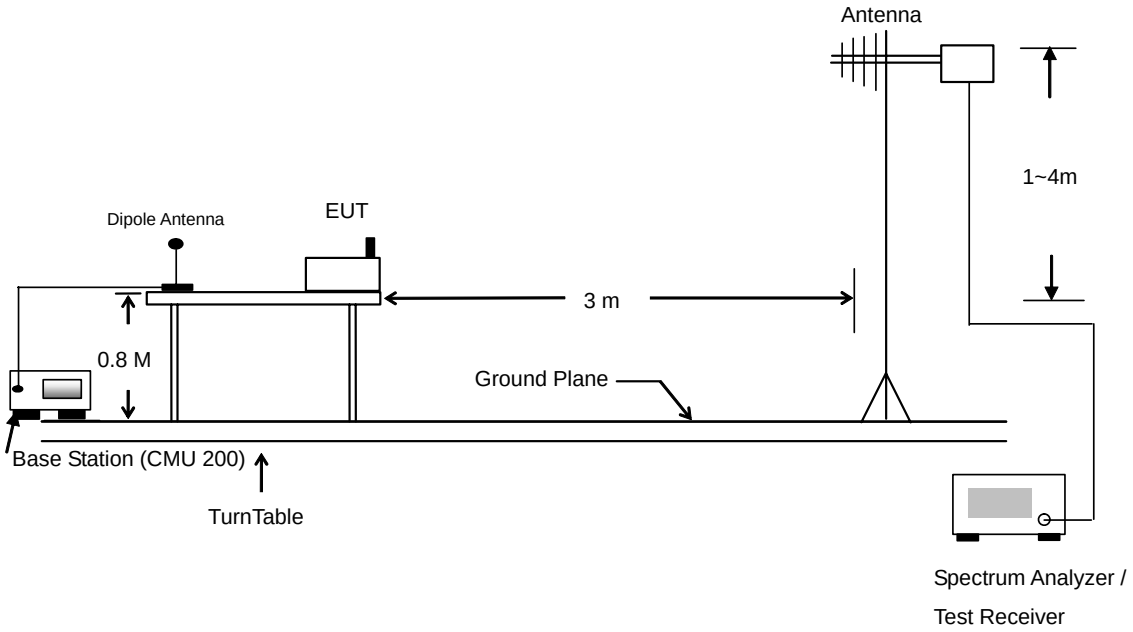
g. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.

h. Taking the recored of output power at antenna port.

i. Repeat step 7 to step 8 for another polarization.

j. Emission level (dBm) = output power + substitution Gain.

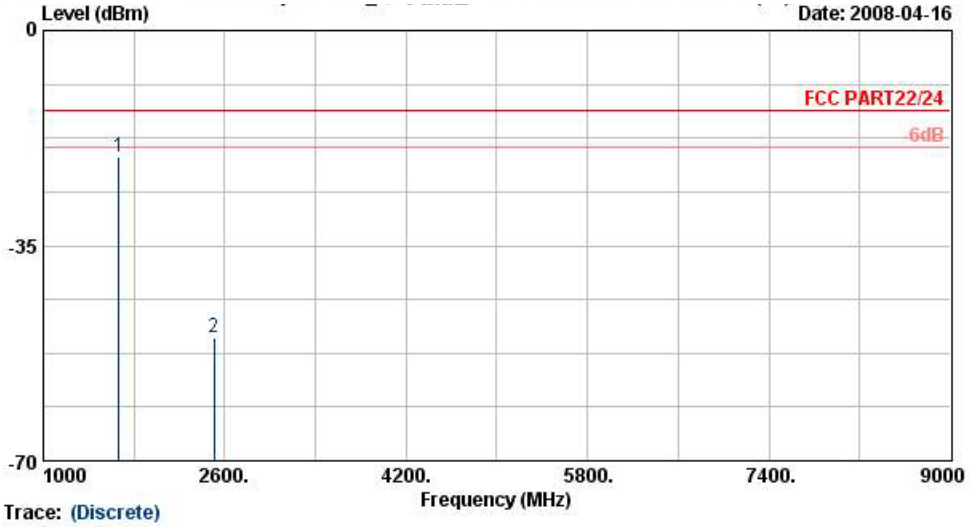
4.3.3 Test Setup Layout



4.3.4 Test Result

4.3.4.1 Test Data

- Mode 1
- Horizontal Polarization

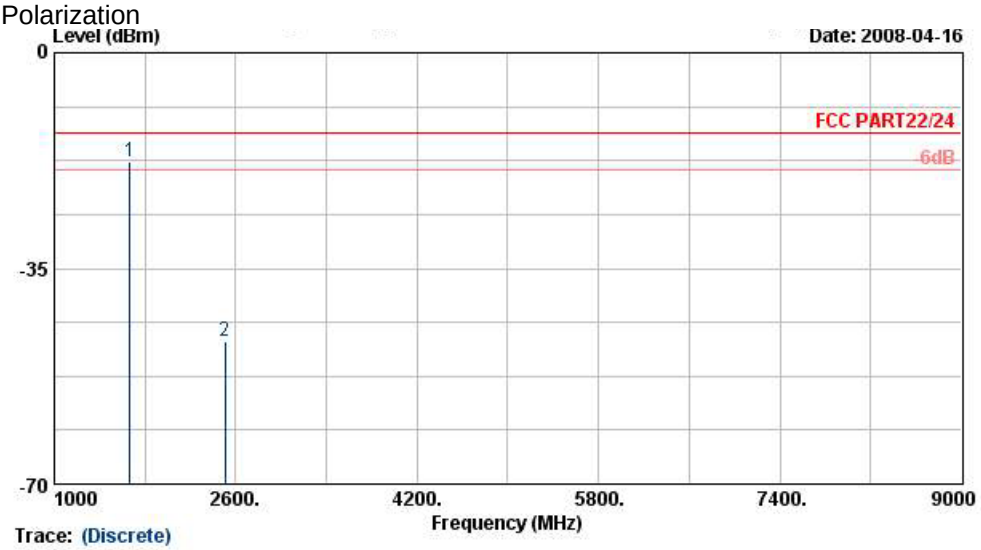


Site : 03CH07-HY
Condition : FCC PART22/24 HF-EIRP(080306) HORIZONTAL
EUT : PDA Phone
Power : 120Vac/60Hz
Model : FG840402
Mode : GSM 850 Link; Ch189 + Adaptor + Earphone
Plane : E2
IMEI : 355634002734400

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1669	-20.49	-13	-7.49	-27.33	-19.5	3.39	4.55	H	Pass
2509	-49.94	-13	-36.94	-57.85	-50.0	3.71	5.92	H	Pass

Remark : Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

- Vertical Polarization

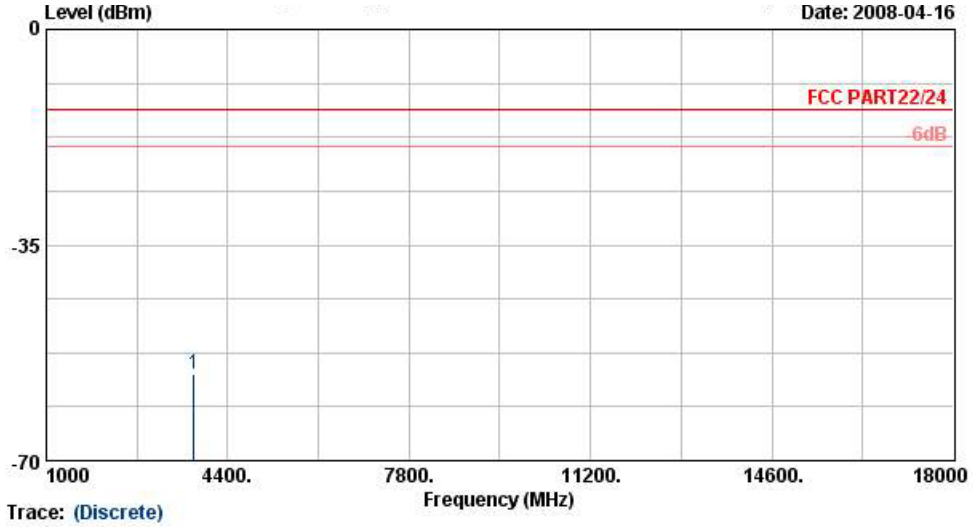


Site : 03CH07-HY
Condition : FCC PART22/24 HF-EIRP(080306) VERTICAL
EUT : PDA Phone
Power : 120Vac/60Hz
Model : FG840402
Mode : GSM 850 Link; Ch189 + Adaptor + Earphone
Plane : E2
IMEI : 355634007734400

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1669	-17.78	-13	-4.78	-25.69	-16.4	3.39	4.16	V	Pass
2509	-46.74	-13	-33.74	-57.57	-46.6	3.71	5.72	V	Pass

Remark : Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

- Mode 2
- Horizontal Polarization

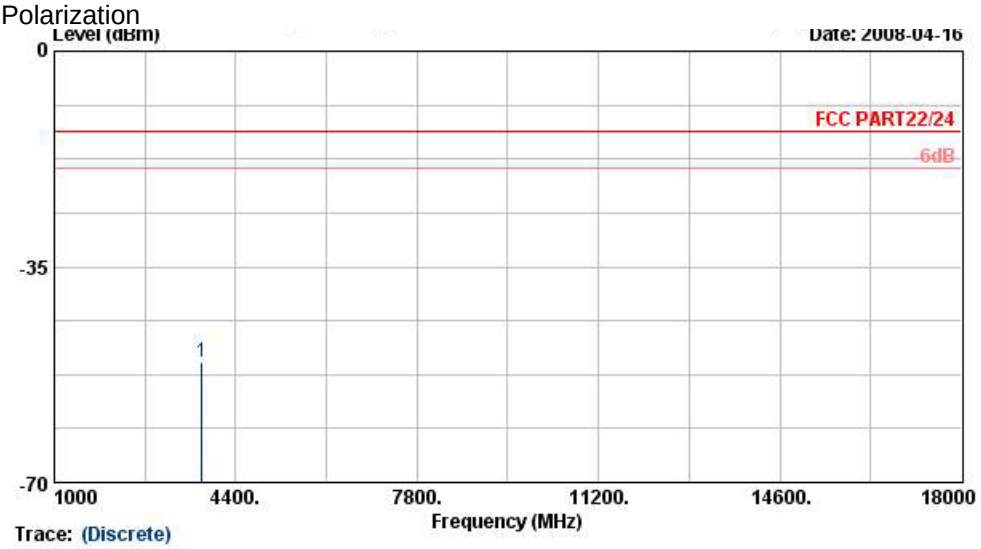


Site : 03CH07-HY
Condition : FCC PART22/24 HF-EIRP(080306) HORIZONTAL
EUT : PDA Phone
Power : 120Vac/60Hz
Model : FG 840402
Mode : PCS1900 Link; Ch661 + Adaptor + Earphone
Plane : E2
IMEI : 355634007734400

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-55.93	-13	-42.93	-65.29	-59.3	4.03	7.40	H	Pass

Remark : Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

- Vertical Polarization



Site : 03CH07-HY
Condition : FCC PART22/24 HF-EIRP(080306) VERTICAL
EUT : PDA Phone
Power : 120Vac/60Hz
Model : FG 840402
Mode : PCS1900 Link; Ch661 + Adaptor + Earphone
Plane : E2
IMEI : 355634007734400

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-50.52	-13	-37.52	-63.8	-54.4	4.03	7.91	V	Pass

Remark : Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

5. List of Measurement Equipments

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
Spectrum Analyzer	Agilent	E4408B	MY44211028	9KHz-26.5GHz	Oct. 17, 2007	Oct. 16, 2008	Radiation (03CH07-HY)
EMI Test Receiver	R&S	ESCS30	100356	9KHz-2.75GHz	Jul. 26, 2007	Jul. 25, 2008	Radiation (03CH07-HY)
Bilog Antenna	SCHAFFNER	CBL6112B	2885	30MHz -2GHz	Dec. 01, 2007	Nov. 30, 2008	Radiation (03CH07-HY)
Double Ridge Horn Antenna	EMCO	3117	00075962	1G~18G	Aug. 29, 2007	Aug. 28, 2008	Radiation (03CH07-HY)
SHF-EHF Horn	SCHWARZBECK	BBHA 9170	9170-251	14G - 40G	Oct. 17, 2007	Oct. 16, 2008	Radiation (03CH07-HY)
Pre Amplifier	Agilent	8449B	3008A01917	1G - 26.5G	Nov. 22, 2007	Nov. 21, 2008	Radiation (03CH07-HY)
Pre Amplifier	EMEC	PA303	PA303-SMA-	100K~3GHz	Nov. 26, 2007	Nov. 25, 2008	Radiation (03CH07-HY)
Base Station Simulator	R & S	CMU200	103937	Third-Band	Oct. 19, 2007	Oct. 18, 2008	Radiation (03CH07-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		$u(x_i)$	Ci	$Ci*u(x_i)$
	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 Γ1= 0.197 Antenna VSWR Γ2= 0.194 Uncertainty=20log(1-Γ1*Γ2*Γ3)	+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=2Uc(y)	**4.72**				

END OF TEST REPORT

Appendix A. Photographs of EUT

Please refer to Sporton report number EP840402 as below.

Appendix B. Setup Photographs

Please refer to Appendix B as below.

Appendix C. Original Report

Please refer to Sporton report number FG762206-B as below.

Testing Laboratory
1190

FCC TEST REPORT

for

47 CFR Part 22H, 24E

Equipment	:	**PDA Phone**
Trade Name	:	**Opticon**
Model No.	:	**H-19A, H-19B**
FCC ID	:	**UFOBC0164AAA390**
Tx Frequency Range	:	**GSM850 : 824.2~848.8 MHz** **PCS1900 : 1850.2~1909.8 MHz**
Max. ERP/EIRP Power	:	**GSM850(GSM) : 0.83W** **GSM850(EDGE) : 0.12W** **PCS1900(GSM) : 1.31W** **PCS1900(EDGE) : 0.29W**
Emission Designator	:	**GSM : 300KGXW** **EDGE : 300KG7W**
Applicant	:	**OPTOELECTRONICS CO., LTD.** 12-17, Tsukagoshi 4-chome, Warabi-shi, Saitama, 335-0002, Japan

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- The data shown in this test report were carried out on Jul. 15, 2007 at **Sporton International Inc. LAB.**
- Report No.: FG762206-B, Report Version: Rev. 01.

Jones Tsai
Manager

SPORTON International Inc.
6F, No.106, Sec. 1, Hsin Tai Wu Rd., Hsi Chih, Taipei Hsien, Taiwan, R.O.C.

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History of this test report

Report Issue Date: Jul. 23, 2007

Report No.	Description

1. General Information

1.1. Applicant

OPTOELECTRONICS CO., LTD.
12-17, Tsukagoshi 4-chome, Warabi-shi, Saitama, 335-0002, Japan

1.2 Manufacturer

OPTOELECTRONICS CO., LTD.
12-17, Tsukagoshi 4-chome, Warabi-shi, Saitama, 335-0002, Japan

1.3 Basic Description of Equipment under Test

Equipment		PDA Phone
Trade Name		Opticon
Model Name		H-19A, H-19B
AC Adapter 1	**Brand Name**	PI Electronics
	Model Name	AD7112B 03LF
	Power Rating	I/P:100-240Vac, 50-60Hz, 0.25A; O/P: 5Vdc, 1A
	AC Power Cord Type	1.6 meter shielded cable with ferrite core
AC Adapter 2	**Brand Name**	HP
	Model Name	HSTNN-P05A
	Power Rating	I/P:100-240Vac, 50-60Hz, 0.6A; O/P: 5Vdc, 3.6A
	AC Power Cord Type	1.6 meter shielded cable without ferrite core
Battery	**Brand Name**	Opticon
	Model Name	H-19
	Rating	4.2Vdc, 1440mA
	Type	Li-ion
Earphone	**Brand Name**	TECHWIN Communication Co. Ltd
	Model Name	EE-624A-8EN
	Signal line Type	1.2 meter non-shielded cable without ferrite core
USB Cable for Phone	**Brand Name**	WIESON
	Model Name	160035
	Signal line Type	0.9 meter shielded cable without ferrite core
USB Cable for Cradle	**Brand Name**	WIESON
	Model Name	160035
	Signal line Type	1 meter shielded cable without ferrite core
Cradle	**Brand Name**	Opticon
	Model Name	CRD-19
Scanner 1	**Brand Name**	OPTOELECTRONICS
	Model Name	MDL-2000
Scanner 2	**Brand Name**	OPTOELECTRONICS
	Model Name	MDI-1000

Remark : Scanner 1 was used for H-19A, and scanner 2 was used for H-19B.

1.4 Feature of Equipment under Test

DUT Type :	PDA Phone
Trade Name :	Opticon
Model Name :	H-19A, H-19B
FCC ID :	UFOBC0164AAA390
Tx Frequency :	GSM850 : 824 ~ 849 MHz PCS1900 : 1850 ~1910 MHz
Rx Frequency :	GSM850 : 869 ~ 894 MHz PCS1900 : 1930 ~ 1990 MHz
Maximum Output Power to Antenna :	**Phone with Scanner 1** GSM850 : 32.23 dBm (GSM) ; 24.21 dBm (EDGE) PCS1900 : 29.26 dBm (GSM) ; 22.84 dBm (EDGE) **Phone with Scanner 2** GSM850 : 32.61 dBm (GSM) ; 24.16 dBm (EDGE) PCS1900 : 29.29 dBm (GSM) ; 22.91 dBm (EDGE)
Maximum ERP/EIRP :	**Phone with Scanner 1** GSM850(GSM) : 0.31 W (24.86 dBm) GSM850(EDGE) : 0.07 W (18.22 dBm) PCS1900(GSM) : 0.51 W (27.08 dBm) PCS1900(EDGE) : 0.10 W (19.84 dBm) **Phone with Scanner 2** GSM850(GSM) : 0.83 W (29.18 dBm) GSM850(EDGE) : 0.12 W (20.78 dBm) PCS1900(GSM) : 1.31 W (31.18 dBm) PCS1900(EDGE) : 0.29 W (24.67 dBm)
Antenna Type :	GSM : PIFA Antenna Bluetooth : Chip Antenna WLAN : PIFA Antenna
Type of Antenna Connector	N/A
Power Rating (DC/AC ,Voltage) :	DC 3.7V
Digital Modulation Emission :	GSM : GMSK EDGE : 8PSK
Type of Emission :	GSM : 300KGXW EDGE : 300KG7W
DUT Stage :	Identical Prototype

1.5 Report Date

EUT Received : Jun. 22, 2007

Report Date : Jul. 23, 2007

2 Test Configuration of Equipment under Test

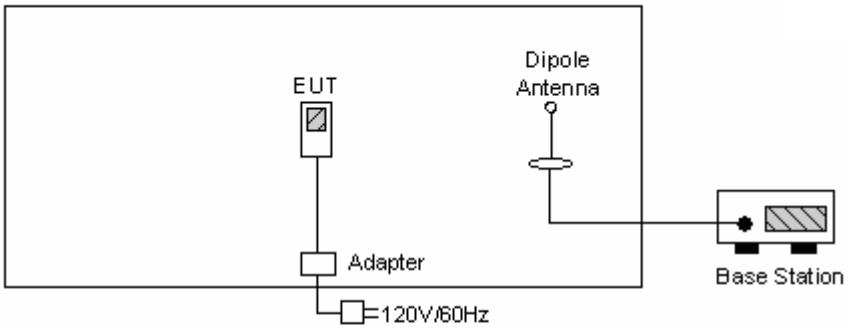
2.1 Test Manner

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.
c. Frequency range investigated: radiated emission 30 MHz to 9000 MHz for GSM850; 30MHz to 19000 MHz for PCS1900.
d. Test modes were performed with scanner 2.

2.2 Test Mode

Application	GSM850	PCS1900
Radiated Emission	☒ Mode 1: GSM Link ☒ Mode 2: EDGE Link ☒ Mode 5: GSM Link + WLAN Link	☒ Mode 3: GSM Link ☒ Mode 4: EDGE Link
Conducted Measurement	☒ Mode 1: GSM Link ☒ Mode 2: EDGE Link	☒ Mode 3: GSM Link ☒ Mode 4: EDGE Link

2.3 Connection Diagram of Test System



2.4 Ancillary Equipment List

Item	Equipment	Trade Name	Model No.	FCC ID	Serial No.
1.	Base Station	R&S	CMU200	N/A	106656

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

AC 120V / 60Hz

3.2 Test Compliance

47 CFR Part 22H, 24E, Part 2

3.3 Frequency Range

a. Radiation: from 30MHz to 9000MHz for GSM850
b. 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

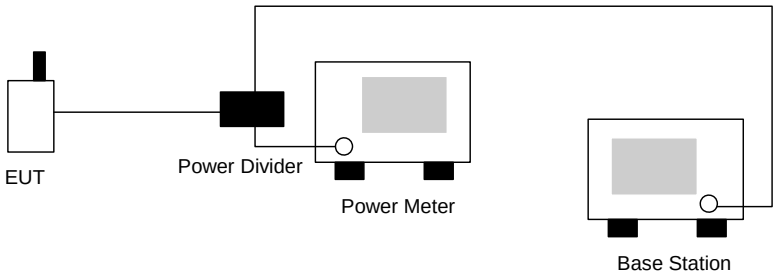
4.2.1 Measurement Instruments：

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=5 for GSM850 and/or 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 :

<Phone with Scanner 1>

Bands	Channel	Frequency (MHz)	Conducted Power (dBm)	Conducted Power (Watts)
GSM850 (GSM)	128	824.2 (Low)	32.12	1.629
	189	836.4 (Mid)	32.19	1.656
	251	848.8 (High)	32.23	1.671
GSM850 (EDGE)	128	824.2 (Low)	24.21	0.264
	189	836.4 (Mid)	24.14	0.259
	251	848.8 (High)	24.12	0.258
PCS1900 (GSM)	512	1850.2 (Low)	28.75	0.750
	661	1880.0 (Mid)	29.11	0.815
	810	1909.8 (High)	29.26	0.843
PCS1900 (EDGE)	512	1850.2 (Low)	22.84	0.192
	661	1880.0 (Mid)	22.76	0.189
	810	1909.8 (High)	22.68	0.185

<Phone with Scanner 2>

Bands	Channel	Frequency (MHz)	Conducted Power (dBm)	Conducted Power (Watts)
GSM850 (GSM)	128	824.2 (Low)	32.23	1.671
	189	836.4 (Mid)	32.44	1.754
	251	848.8 (High)	32.61	1.824
GSM850 (EDGE)	128	824.2 (Low)	24.16	0.261
	189	836.4 (Mid)	24.11	0.258
	251	848.8 (High)	24.04	0.254
PCS1900 (GSM)	512	1850.2 (Low)	28.89	0.774
	661	1880.0 (Mid)	29.28	0.847
	810	1909.8 (High)	29.29	0.849
PCS1900 (EDGE)	512	1850.2 (Low)	22.91	0.195
	661	1880.0 (Mid)	22.83	0.192
	810	1909.8 (High)	22.71	0.187

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 = Ps + Et – Es + Gs = Ps + Rt – Rs + Gs

   Ps (dBm)：Input power to substitution antenna.

   Gs (dBi or dBd)：Substitution antenna Gain.

   Et = Rt + AF

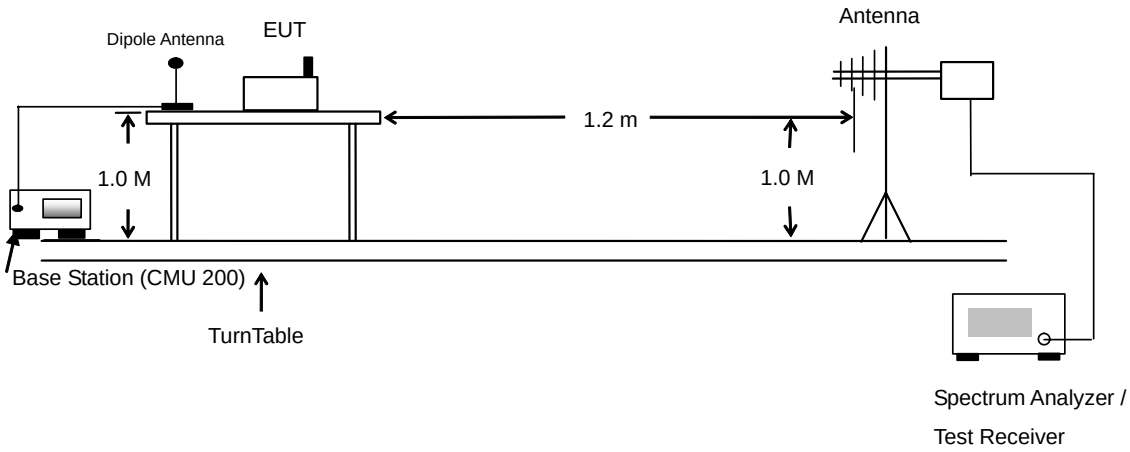
   Es = Rs + AF

   AF (dB/m)：Receive antenna factor

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

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

4.3.3 Test Setup Layout of ERP/EIRP



4.3.4 Test Result :

<Phone with Scanner 1>

GSM850 (GSM) Radiated Power ERP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.20	-34.98	-48.12	0.00	-1.08	12.06	0.02
836.40	-34.56	-48.28	0.00	-0.93	12.79	0.02
848.80	-34.90	-48.35	0.00	-0.76	12.69	0.02
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.20	-22.29	-47.97	0.00	-1.08	24.60	0.29
836.40	-22.34	-48.01	0.00	-0.93	24.74	0.30
848.80	-22.43	-48.05	0.00	-0.76	24.86	0.31

GSM850 (EDGE) Radiated Power ERP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.20	-40.89	-48.12	0.00	-1.08	6.15	0.00
836.40	-41.96	-48.28	0.00	-0.93	5.39	0.00
848.80	-42.88	-48.35	0.00	-0.76	4.71	0.00
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.20	-28.67	-47.97	0.00	-1.08	18.22	0.07
836.40	-29.46	-48.01	0.00	-0.93	17.62	0.06
848.80	-30.26	-48.05	0.00	-0.76	17.03	0.05

PCS1900 (GSM) Radiated Power EIRP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-27.05	-51.88	0.00	1.96	26.79	0.48
1880.00	-28.70	-52.99	0.00	2.00	26.29	0.43
1909.80	-32.70	-54.28	0.00	1.98	23.56	0.23
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-27.01	-52.13	0.00	1.96	27.08	0.51
1880.00	-28.69	-53.17	0.00	2.00	26.48	0.44
1909.80	-33.38	-54.13	0.00	1.98	22.73	0.19

PCS1900 (EDGE) Radiated Power EIRP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-34.65	-51.88	0.00	1.96	19.19	0.08
1880.00	-37.38	-52.99	0.00	2.00	17.61	0.06
1909.80	-39.72	-54.28	0.00	1.98	16.54	0.05
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-34.25	-52.13	0.00	1.96	19.84	0.10
1880.00	-37.51	-53.17	0.00	2.00	17.66	0.06
1909.80	-39.57	-54.13	0.00	1.98	16.54	0.05

<Phone with Scanner 2>

GSM850 (GSM) Radiated Power ERP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.20	-34.07	-48.12	0.00	-1.08	12.97	0.02
836.40	-33.19	-48.28	0.00	-0.93	14.16	0.03
848.80	-31.80	-48.35	0.00	-0.76	15.79	0.04
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.20	-20.99	-47.97	0.00	-1.08	25.90	0.39
836.40	-19.43	-48.01	0.00	-0.93	27.65	0.58
848.80	-18.11	-48.05	0.00	-0.76	29.18	0.83

GSM850 (EDGE) Radiated Power ERP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.20	-40.39	-48.12	0.00	-1.08	6.65	0.00
836.40	-40.66	-48.28	0.00	-0.93	6.69	0.00
848.80	-40.26	-48.35	0.00	-0.76	7.33	0.01
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.20	-27.39	-47.97	0.00	-1.08	19.50	0.09
836.40	-26.62	-48.01	0.00	-0.93	20.46	0.11
848.80	-26.51	-48.05	0.00	-0.76	20.78	0.12

PCS1900 (GSM) Radiated Power EIRP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-24.20	-51.88	0.00	1.96	29.64	0.92
1880.00	-24.73	-52.99	0.00	2.00	30.26	1.06
1909.80	-27.69	-54.28	0.00	1.98	28.57	0.72
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-23.49	-52.13	0.00	1.96	30.60	1.15
1880.00	-23.99	-53.17	0.00	2.00	31.18	1.31
1909.80	-26.63	-54.13	0.00	1.98	29.48	0.89

PCS1900 (EDGE) Radiated Power EIRP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-32.25	-51.88	0.00	1.96	21.59	0.14
1880.00	-31.25	-52.99	0.00	2.00	23.74	0.24
1909.80	-32.93	-54.28	0.00	1.98	23.33	0.22
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-31.10	-52.13	0.00	1.96	22.99	0.20
1880.00	-30.50	-53.17	0.00	2.00	24.67	0.29
1909.80	-32.40	-54.13	0.00	1.98	23.71	0.23

4.4 Occupied Bandwidth and Band Edge Measurement

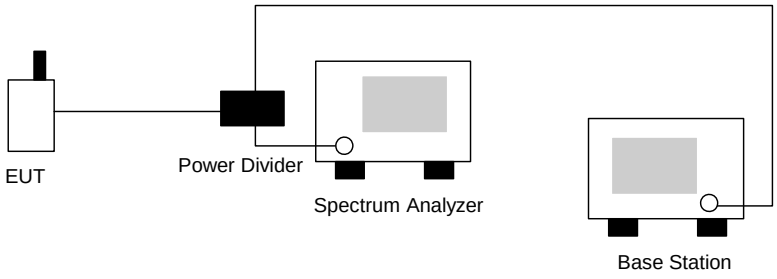
4.4.1 Measurement Instruments

As described in chapter 5 of this test report.

4.4.2 Test Procedure

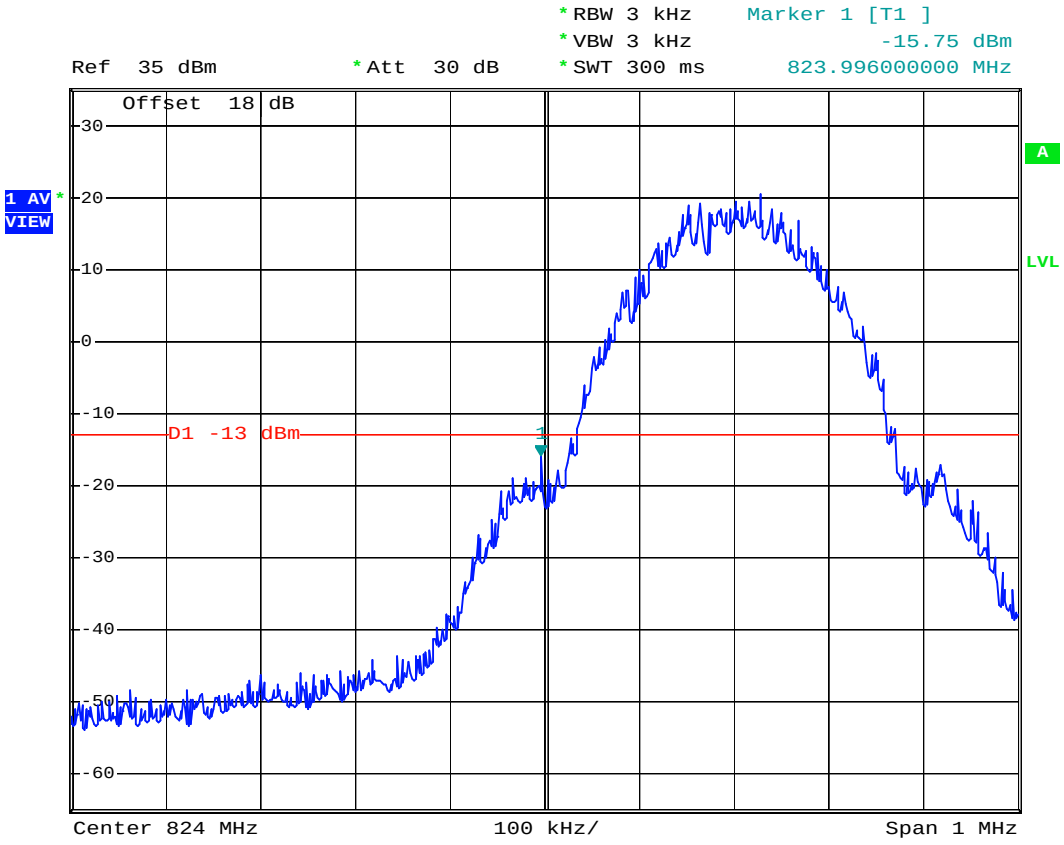
1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.
2. The 99% occupied bandwidth of middle channel for the highest and lowest RF powers were measured.
3. The bandedge of low and high channels for the highest RF powers within the transmitting frequency band were measured. Setting RBW as roughly BW/100.

4.4.3 Test Setup Layout



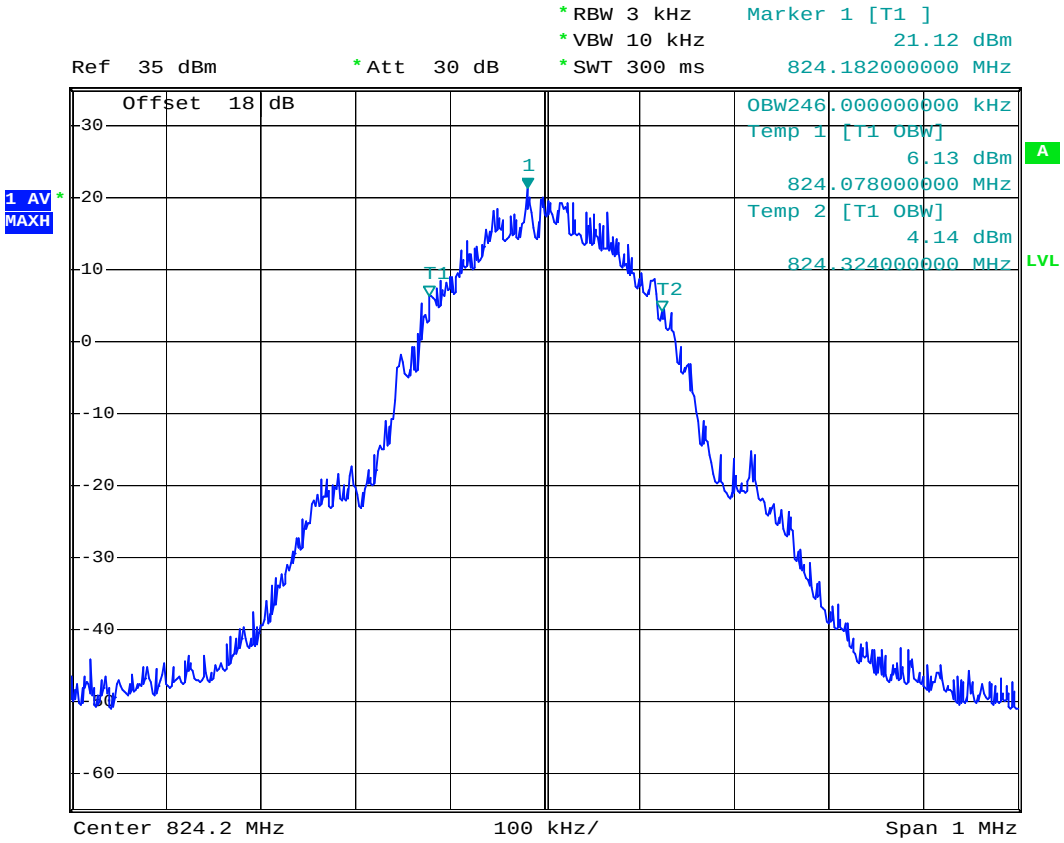
4.4.4 Test Result

- Mode 1
- Test Mode : GSM850 (GSM) CH128 Lower Band Edge
- Power State : High



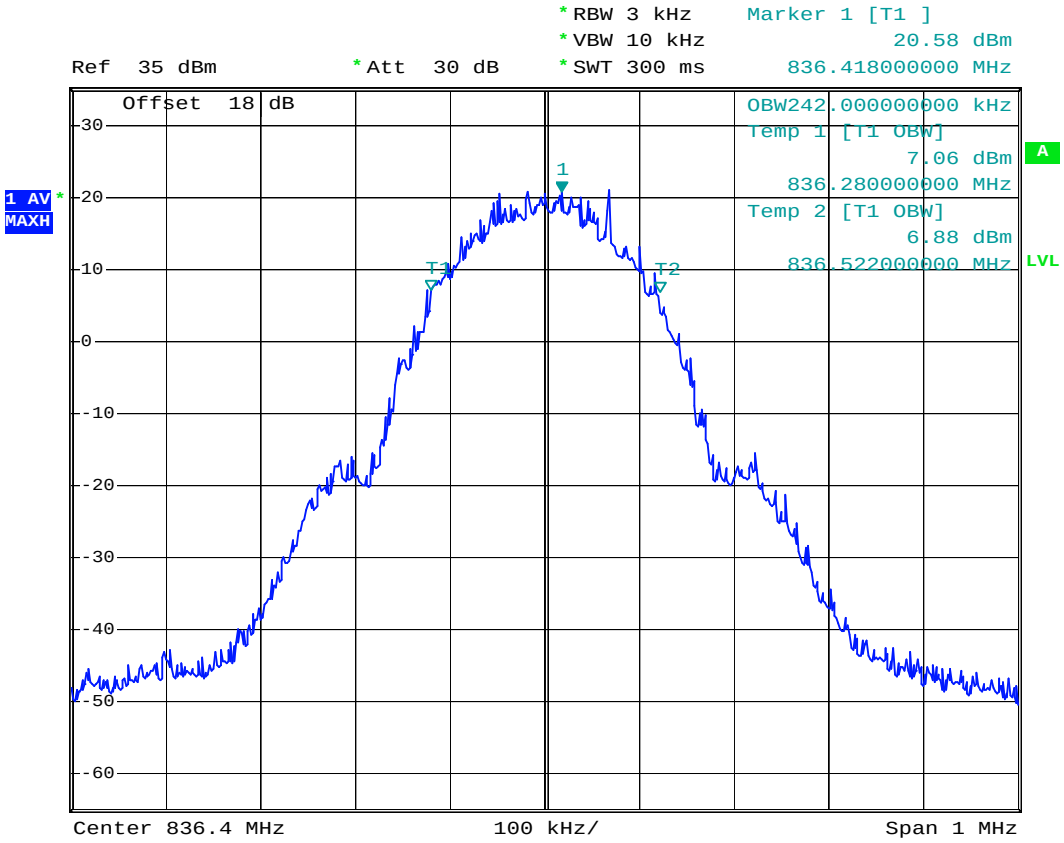
Date: 15.JUL.2007 14:26:23

- Test Mode : GSM850 (GSM) CH128 99% Occupid Bandwidth
- Power State : High



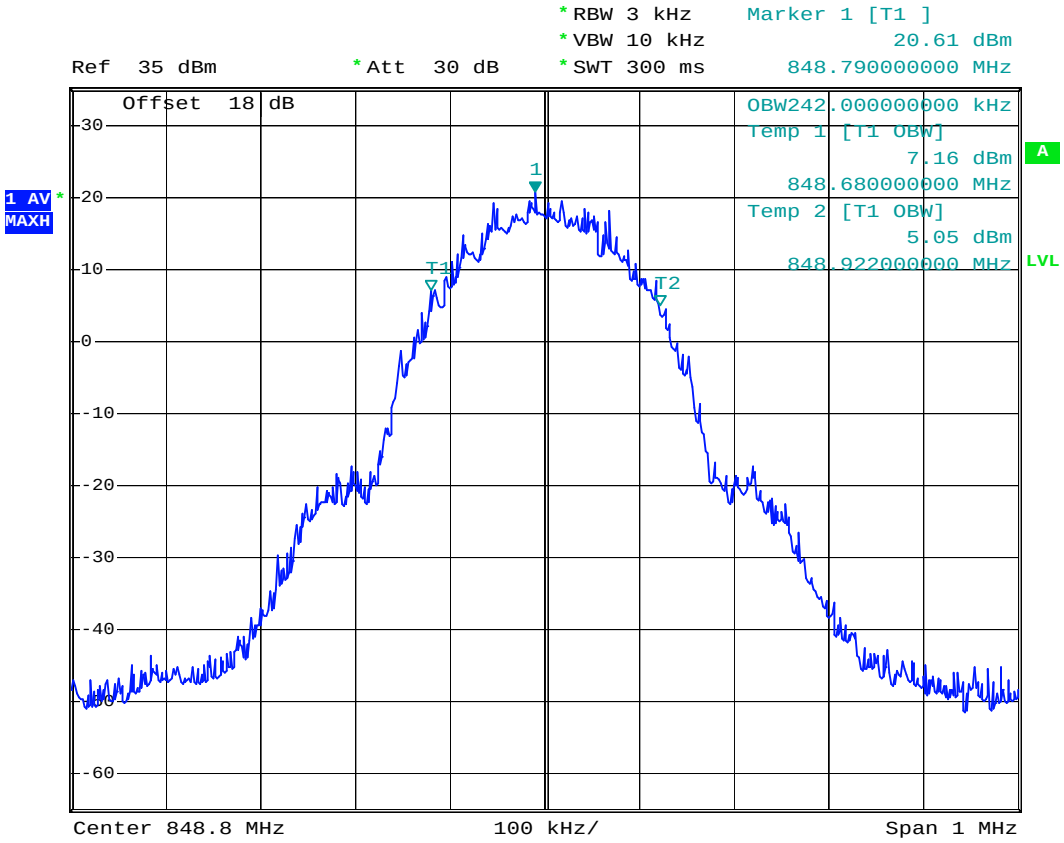
Date: 15.JUL.2007 18:10:48

- Test Mode : GSM850 (GSM) CH189 99% Occupid Bandwidth
- Power State : High



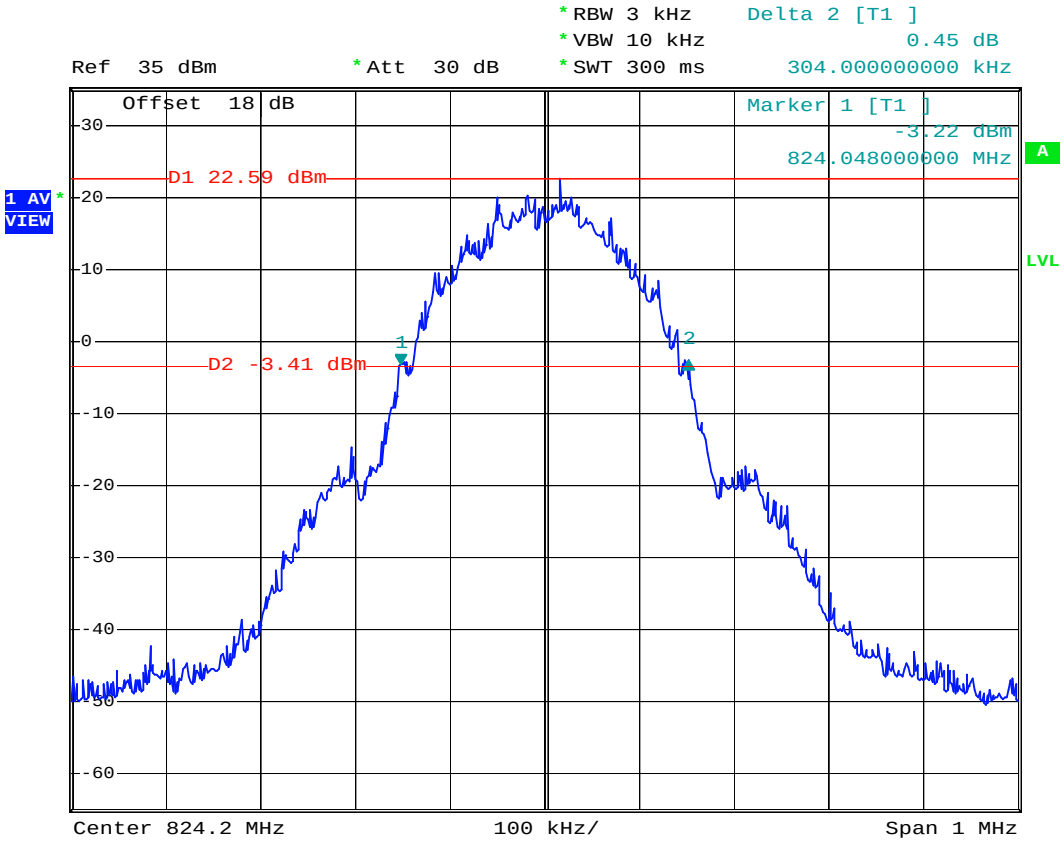
Date: 15.JUL.2007 18:10:03

- Test Mode : GSM850 (GSM) CH 251 99% Occupid Bandwidth
- Power State : High



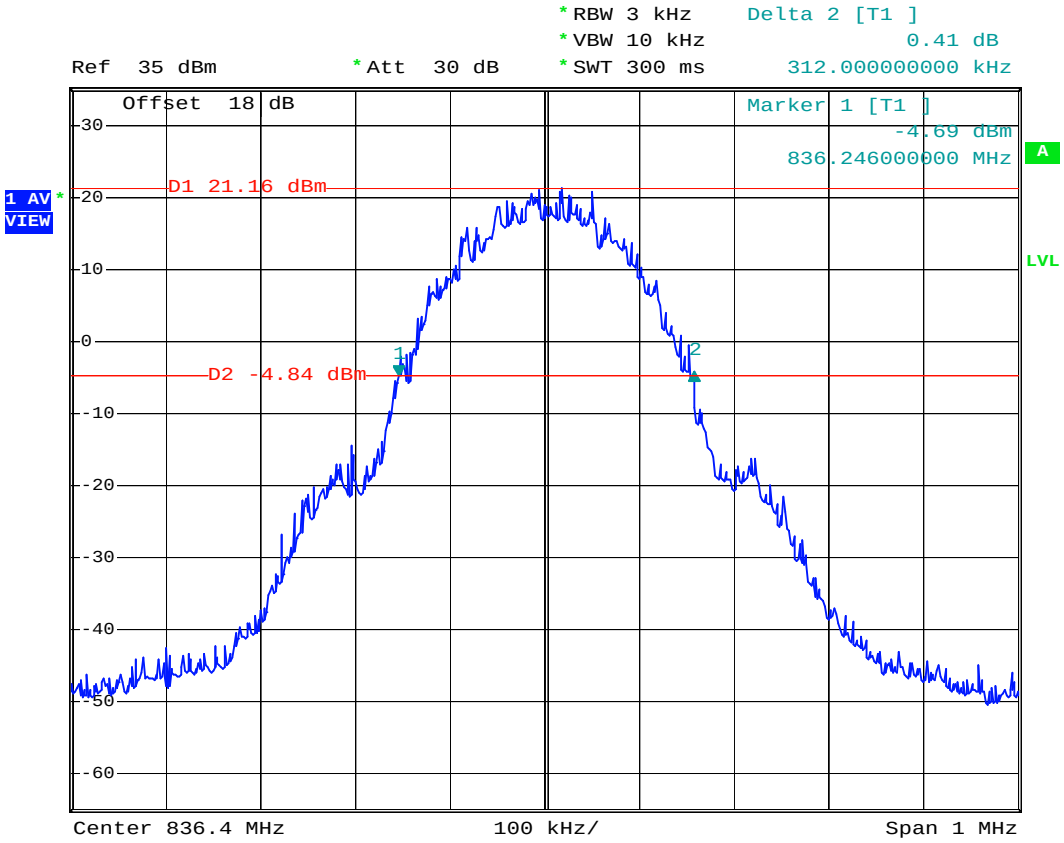
Date: 15.JUL.2007 18:11:48

- Test Mode : GSM850 (GSM) CH128 26dB Bandwidth
- Power State : High



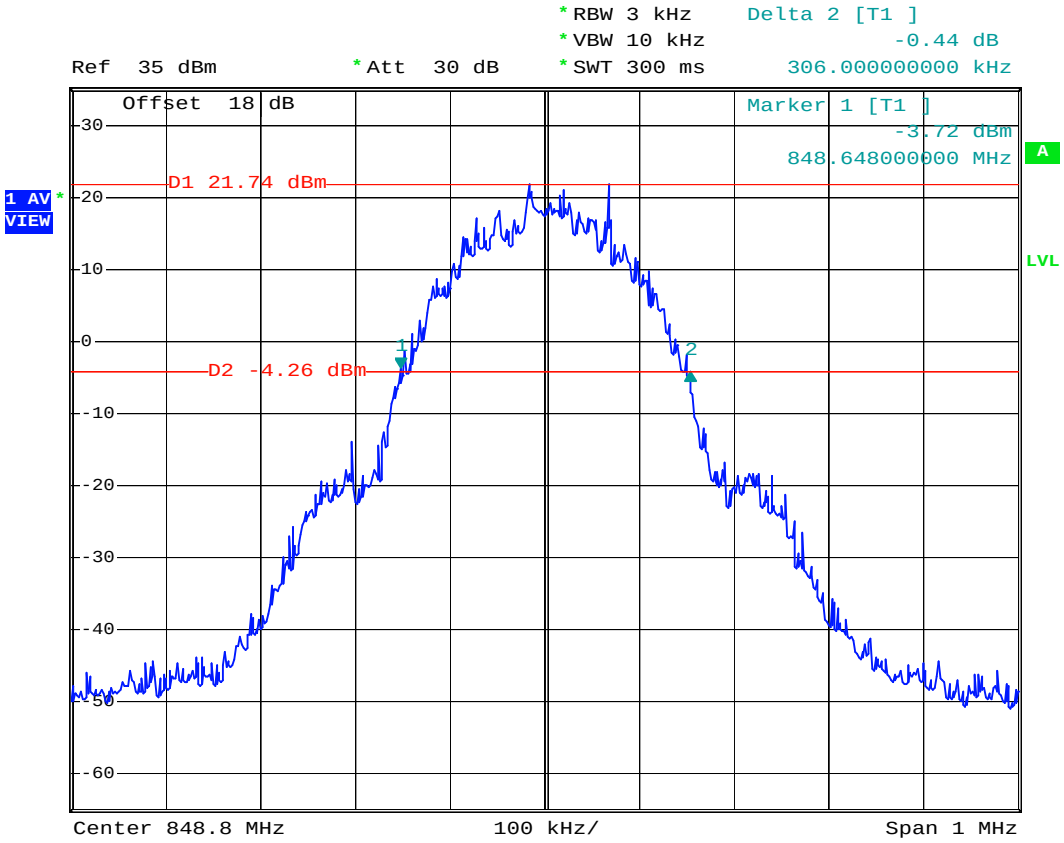
Date: 15.JUL.2007 14:18:55

- Test Mode : GSM850 (GSM) CH189 26dB Bandwidth
- Power State : High



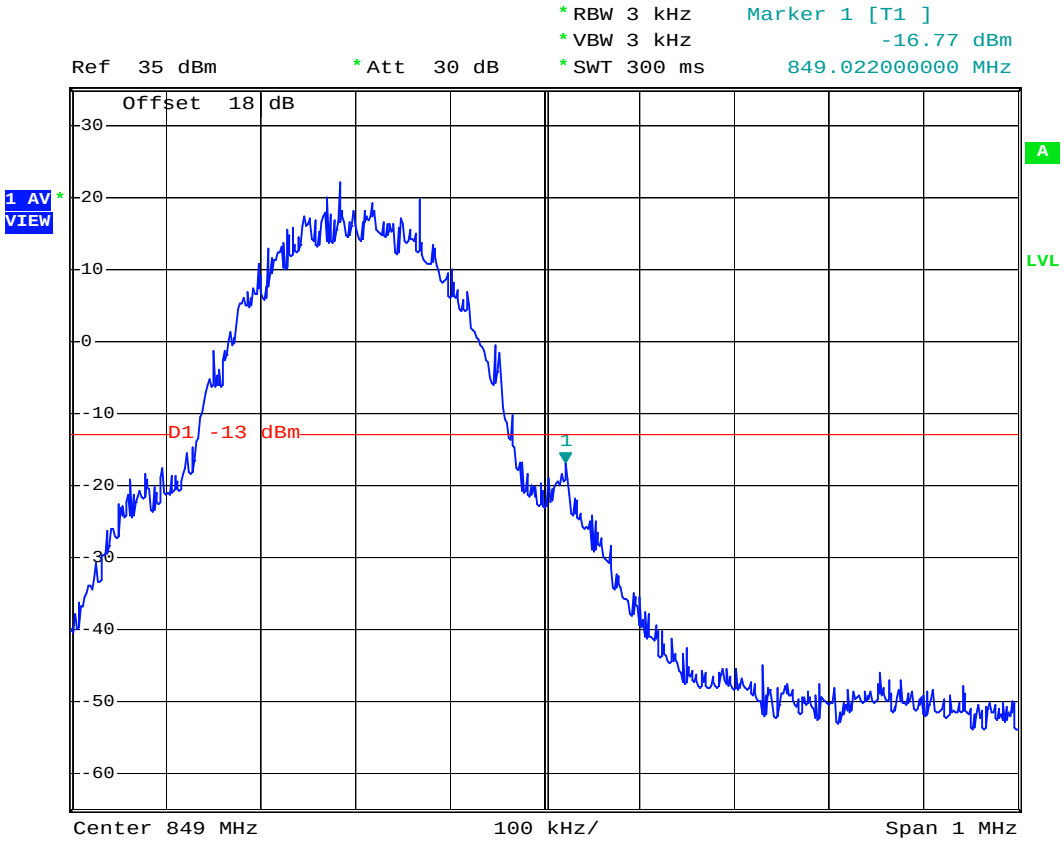
Date: 15.JUL.2007 14:21:00

- Test Mode : GSM850 (GSM) CH 251 26dB Bandwidth
- Power State : High



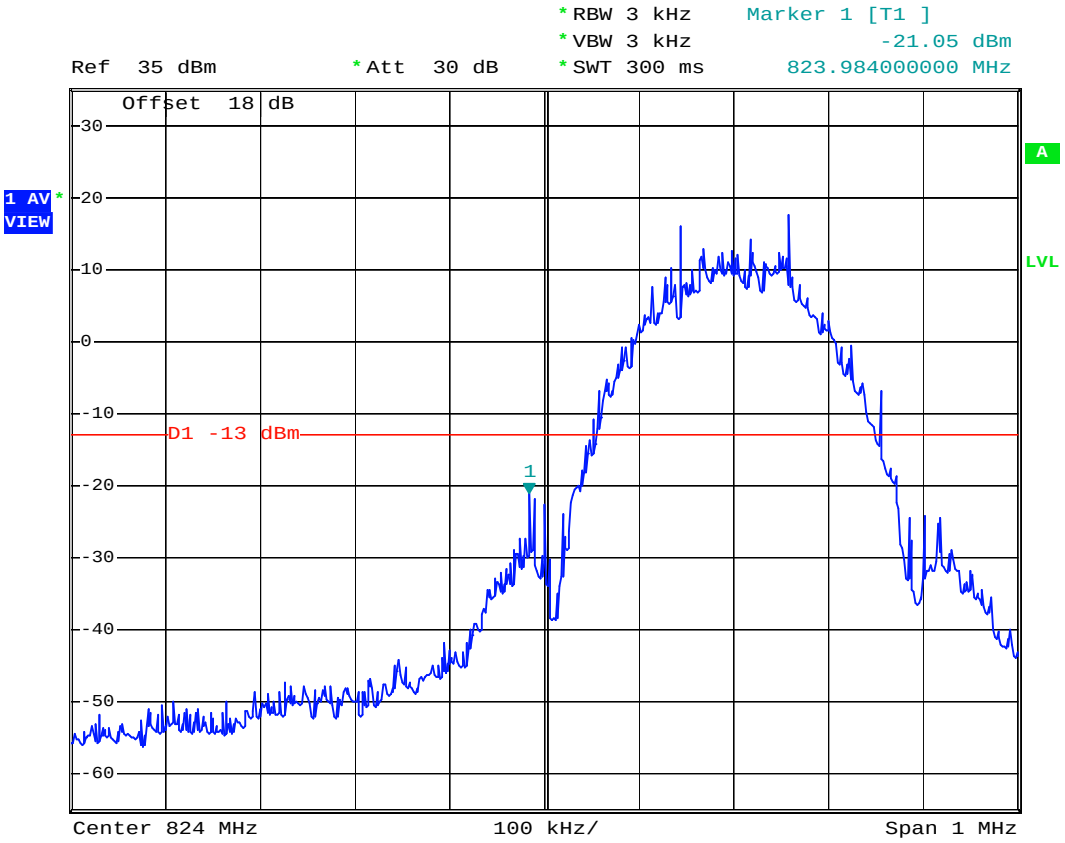
Date: 15.JUL.2007 14:23:11

- Test Mode : GSM850 (GSM) CH251 Higher Band Edge
- Power State : High



Date: 15.JUL.2007 14:27:22

- Mode 2
- Test Mode : GSM850 (EDGE) CH128 Lower Band Edge
- Power State : High

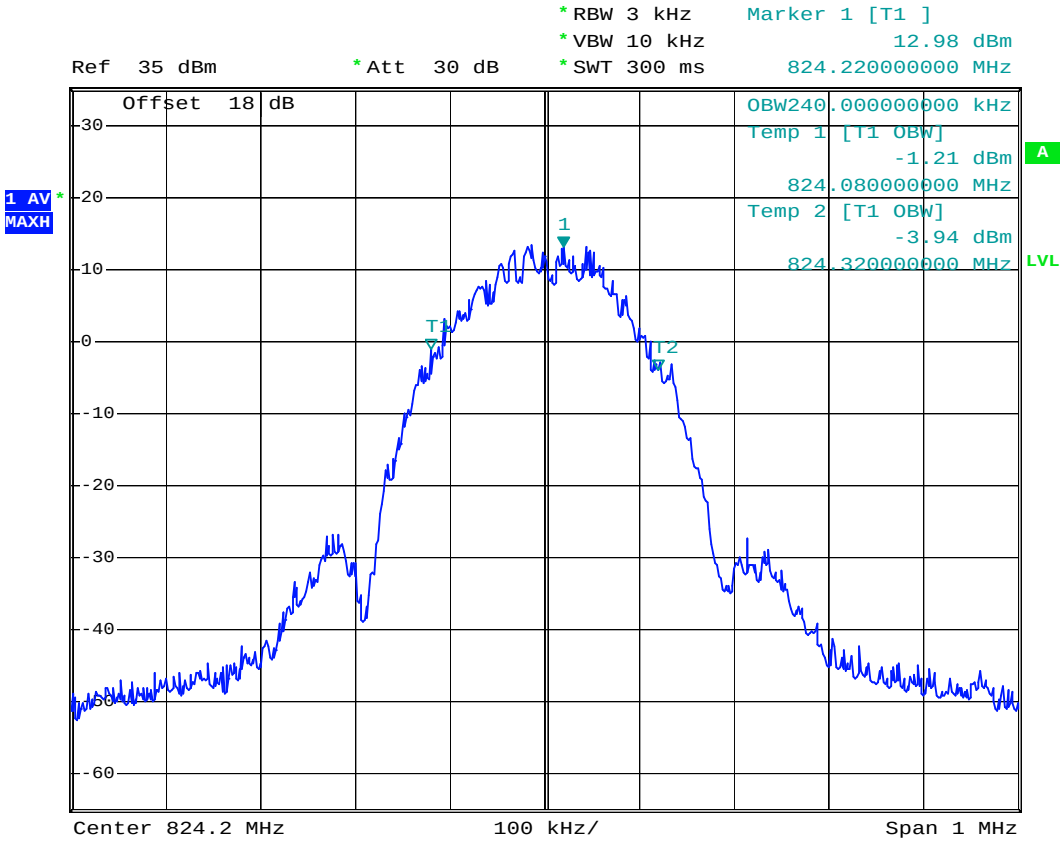


Date: 15.JUL.2007 14:45:42

-

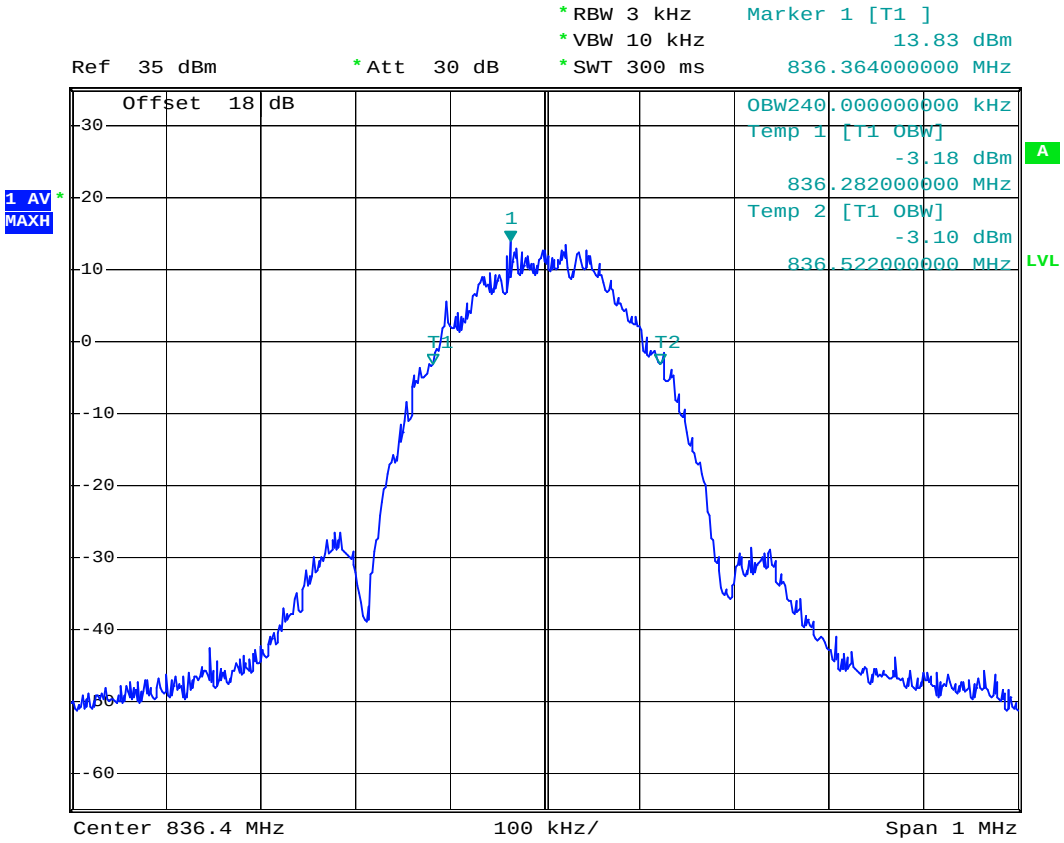
Test Mode : GSM850 (EDGE) CH128 99% Occupid Bandwidth

- Power State : High



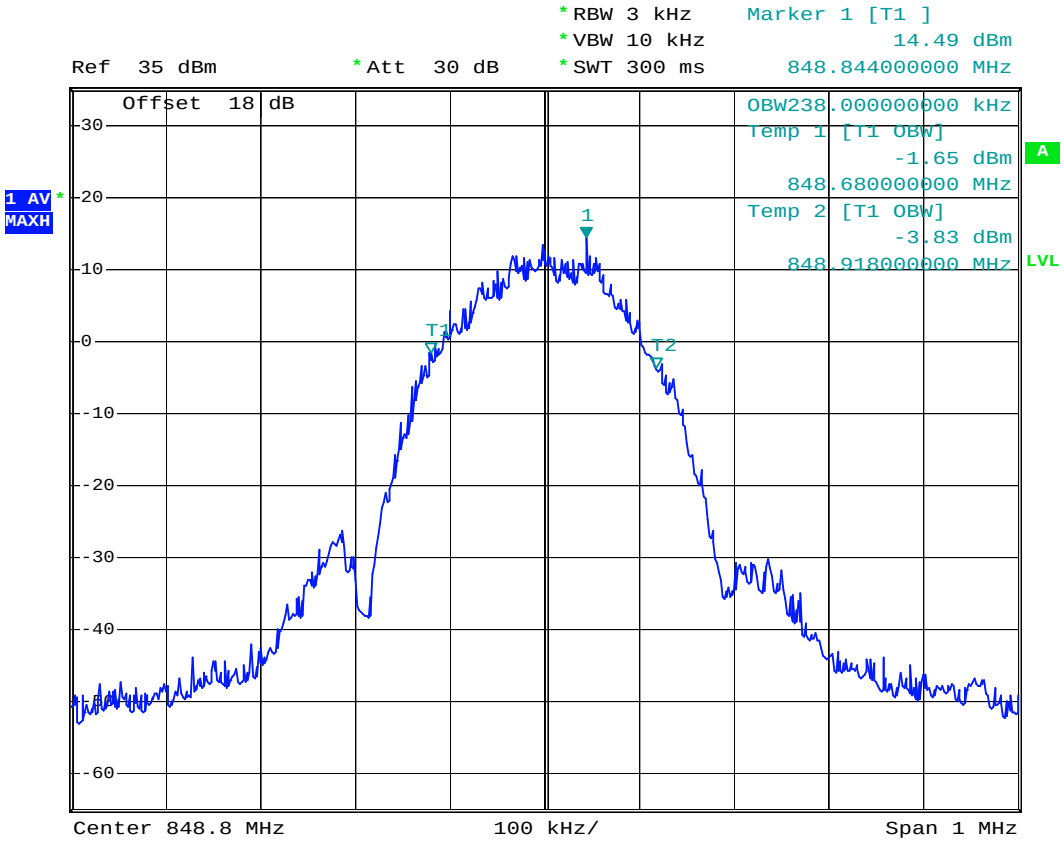
Date: 15.JUL.2007 18:14:54

- Test Mode : GSM850 (EDGE) CH189 99% Occupid Bandwidth
- Power State : High



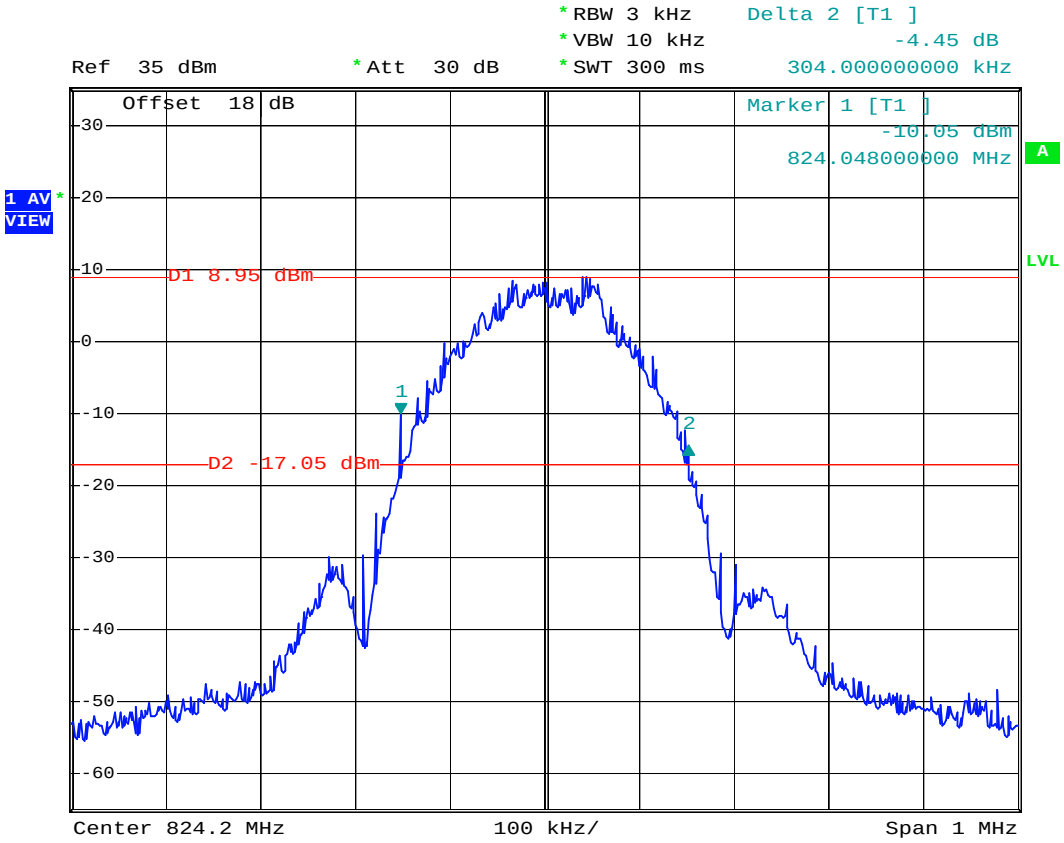
Date: 15.JUL.2007 18:14:14

- Test Mode : GSM850 (EDGE) CH 251 99% Occupid Bandwidth
- Power State : High



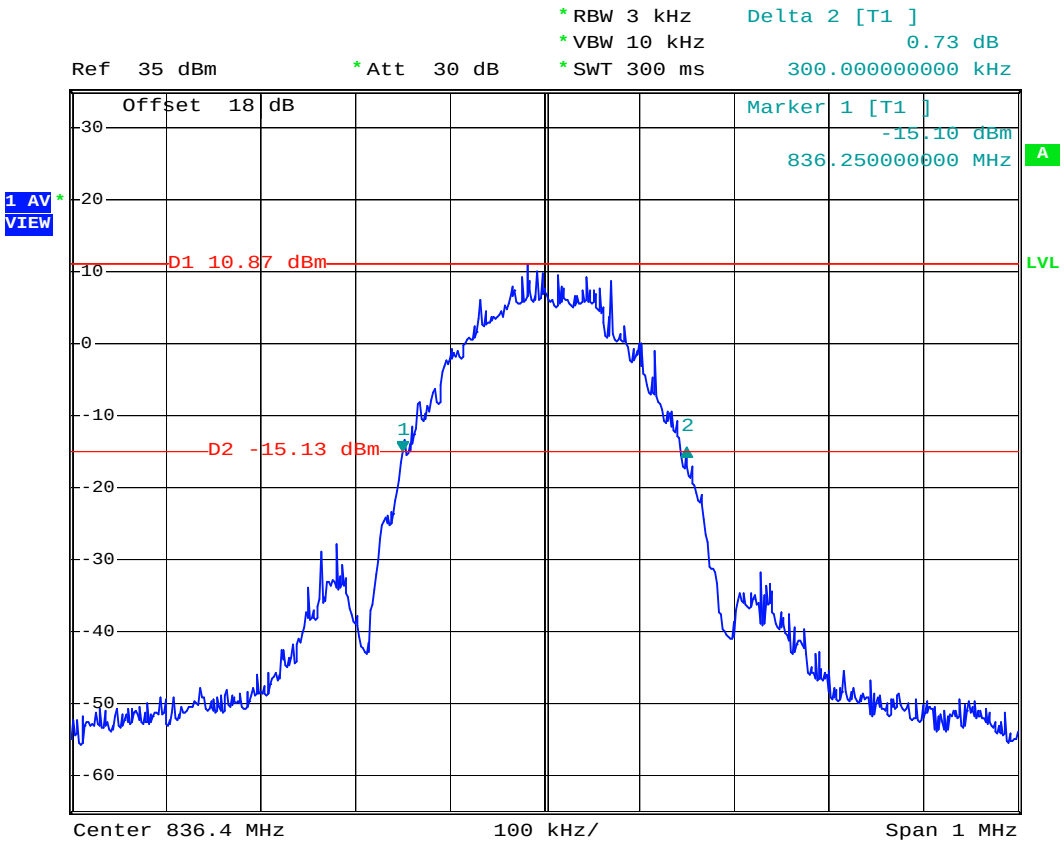
Date: 15.JUL.2007 18:13:10

- Test Mode : GSM850 (EDGE) CH128 26dB Bandwidth
- Power State : High



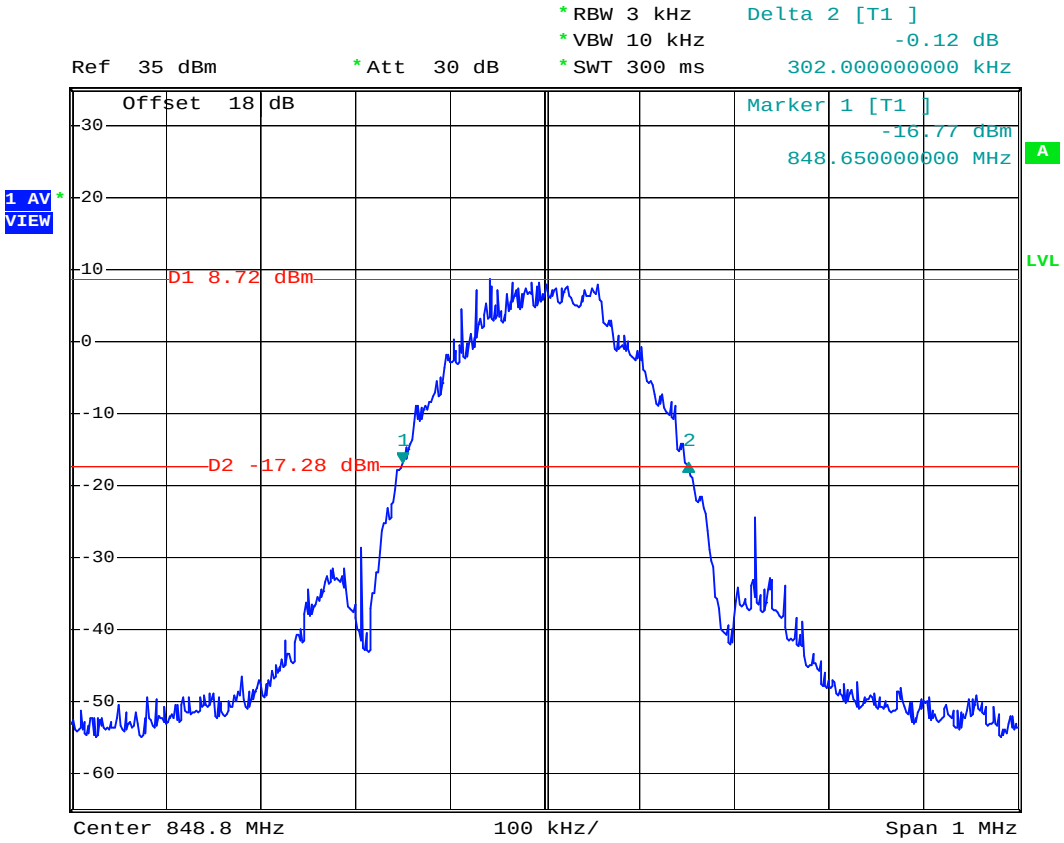
Date: 15.JUL.2007 15:03:36

- Test Mode : GSM850 (EDGE) CH189 26dB Bandwidth
- Power State : High



Date: 15.JUL.2007 15:01:32

- Test Mode : GSM850 (EDGE) CH 251 26dB Bandwidth
- Power State : High

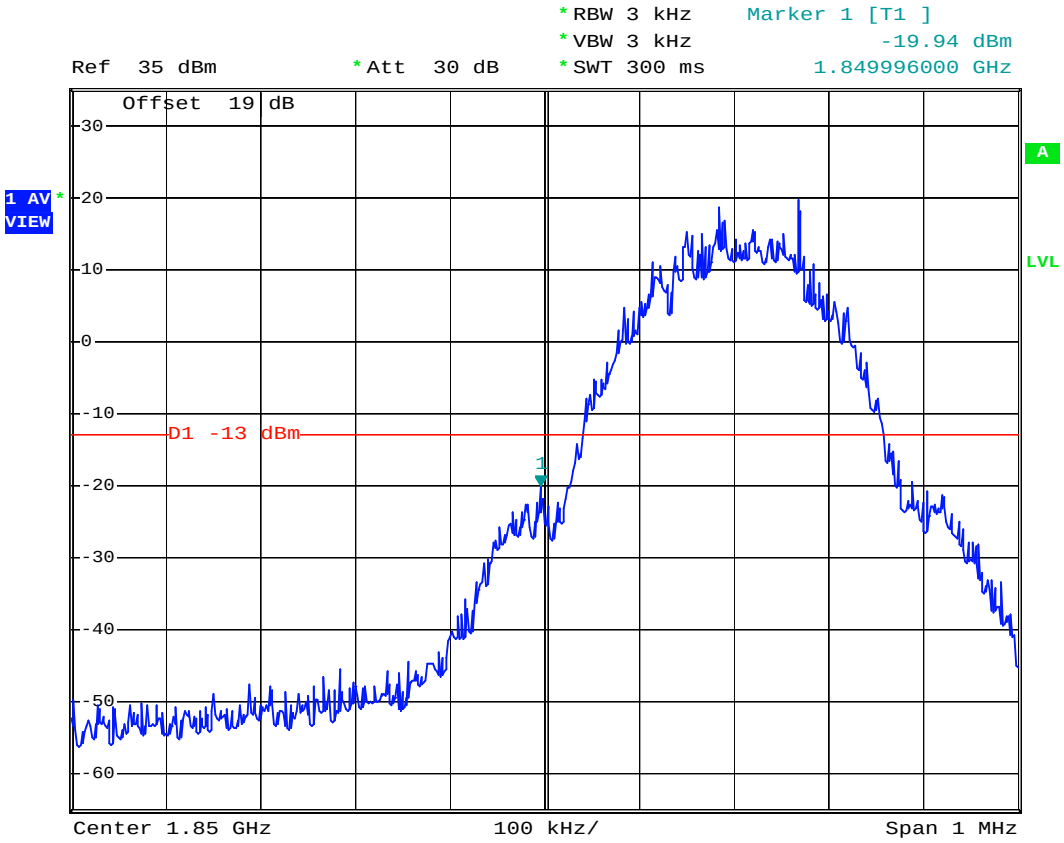


Date: 15.JUL.2007 15:00:10

- Test Mode : GSM850 (EDGE) CH251 Higher Band Edge
- Power State : High

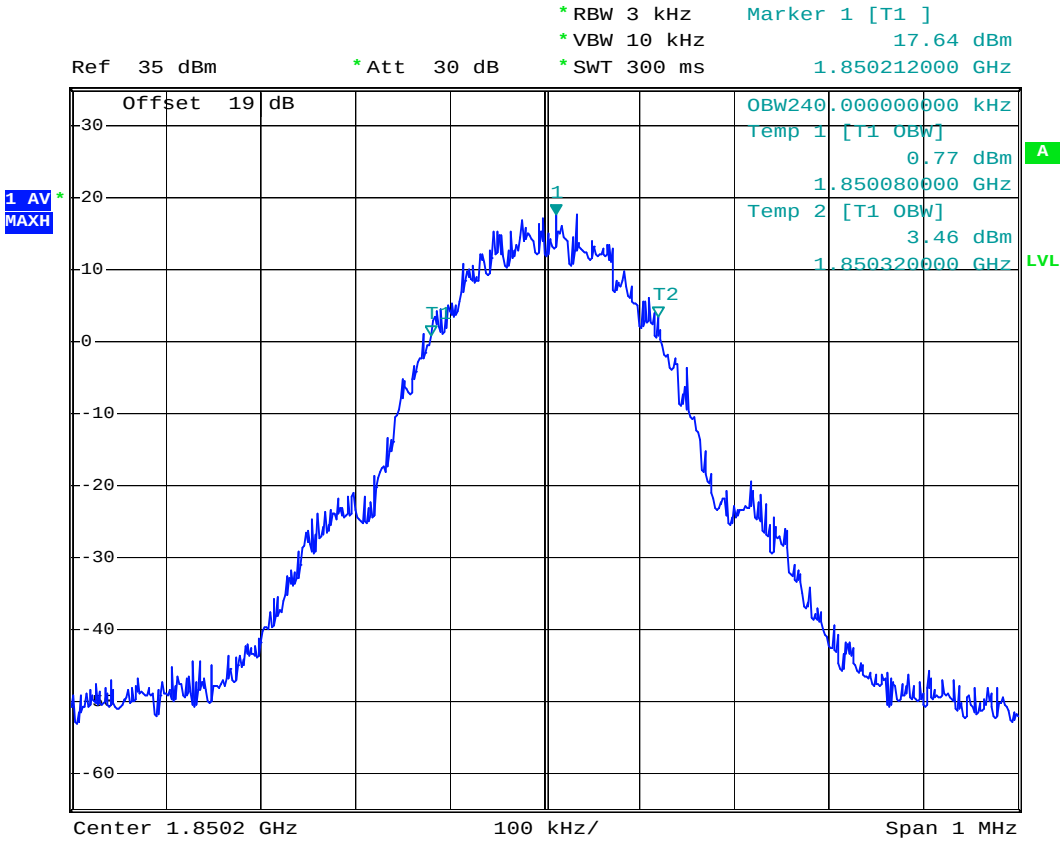
Date: 15.JUL.2007 14:44:57

- Mode 3
- Test Mode : PCS1900 (GSM) CH512 Lower Band Edge
- Power State : High



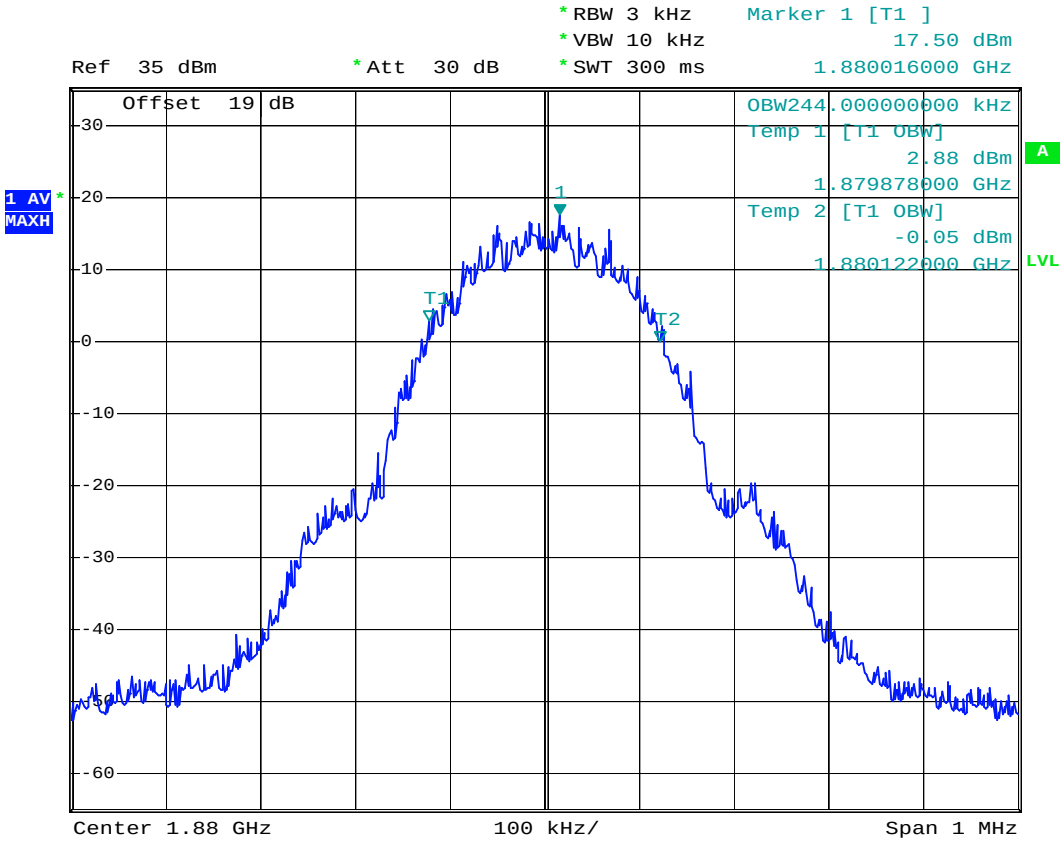
Date: 15.JUL.2007 17:33:14

- Test Mode : PCS1900 (GSM) CH512 99% Occupid Bandwidth
- Power State : High



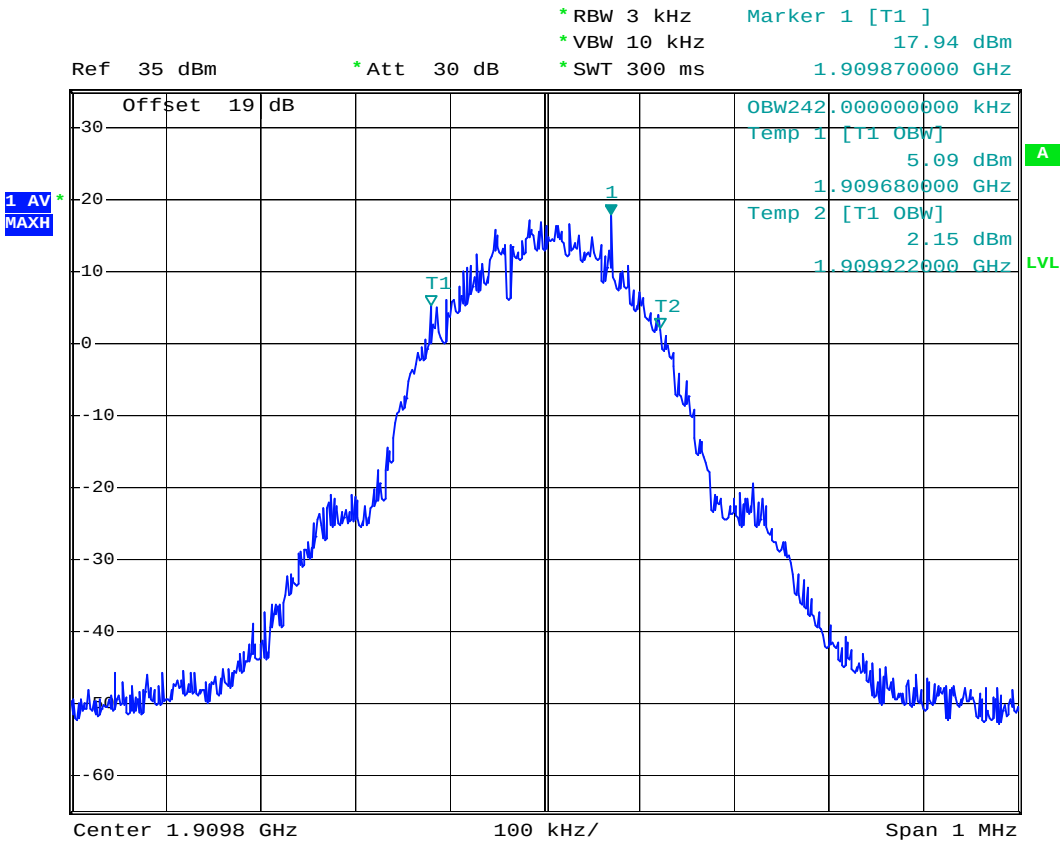
Date: 15.JUL.2007 17:35:34

- Test Mode : PCS1900 (GSM) CH661 99% Occupid Bandwidth
- Power State : High



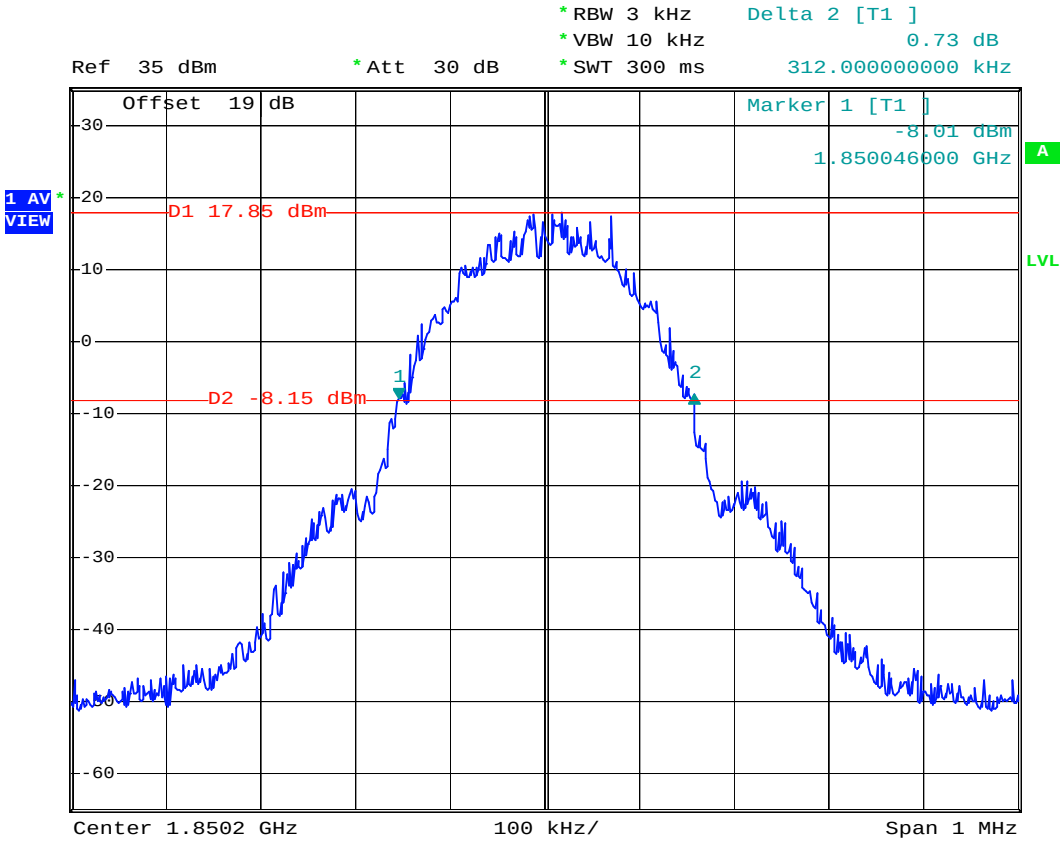
Date: 15.JUL.2007 17:36:40

- Test Mode : PCS1900 (GSM) CH810 99% Occupid Bandwidth
- Power State : High



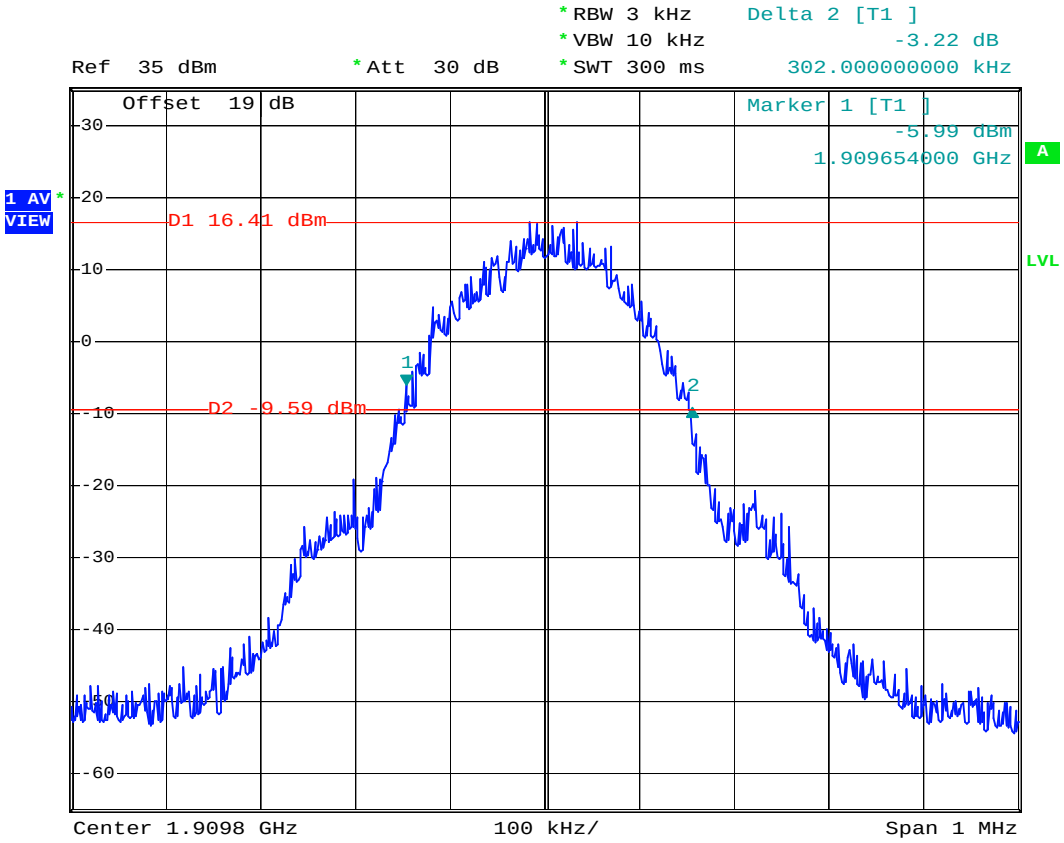
Date: 15.JUL.2007 17:38:24

- Test Mode : PCS1900 (GSM) CH512 26dB Bandwidth
- Power State : High



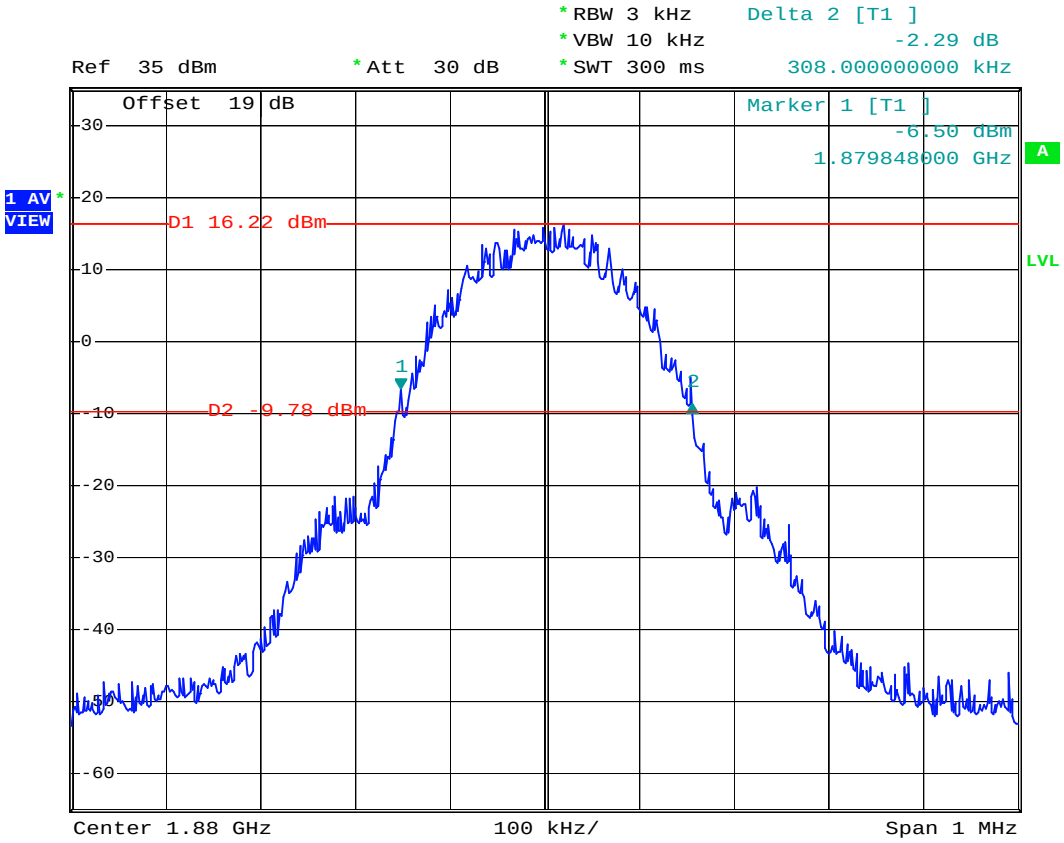
Date: 15.JUL.2007 17:48:00

- Test Mode : PCS1900 (GSM) CH661 26dB Bandwidth
- Power State : High



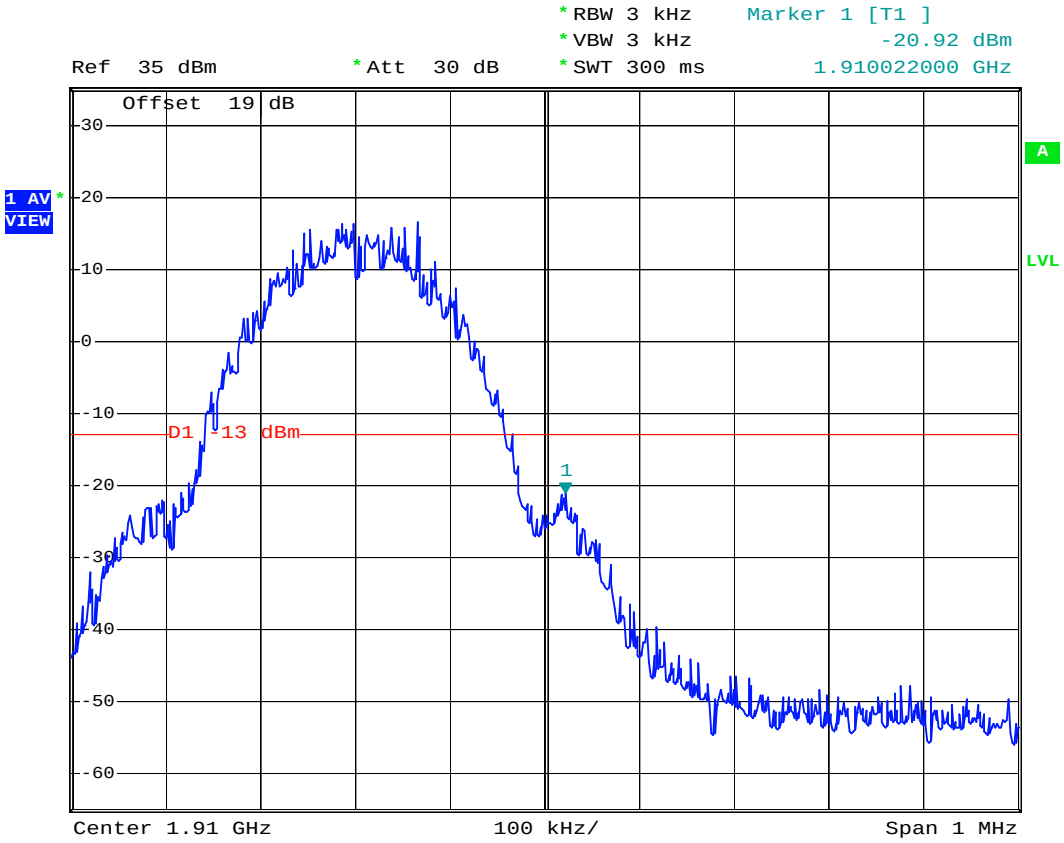
Date: 15.JUL.2007 17:46:25

- Test Mode : PCS1900 (GSM) CH810 26dB Bandwidth
- Power State : High



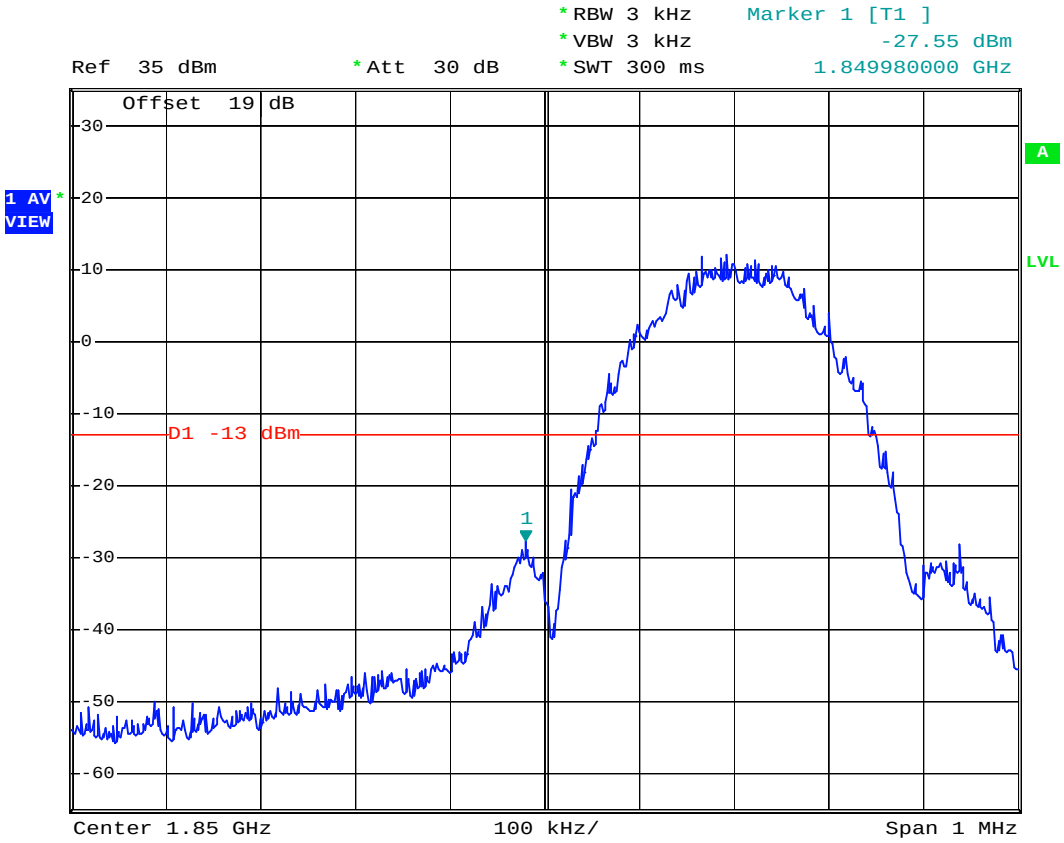
Date: 15.JUL.2007 17:41:30

- Test Mode : PCS1900 (GSM) CH810 Higher Band Edge
- Power State : High



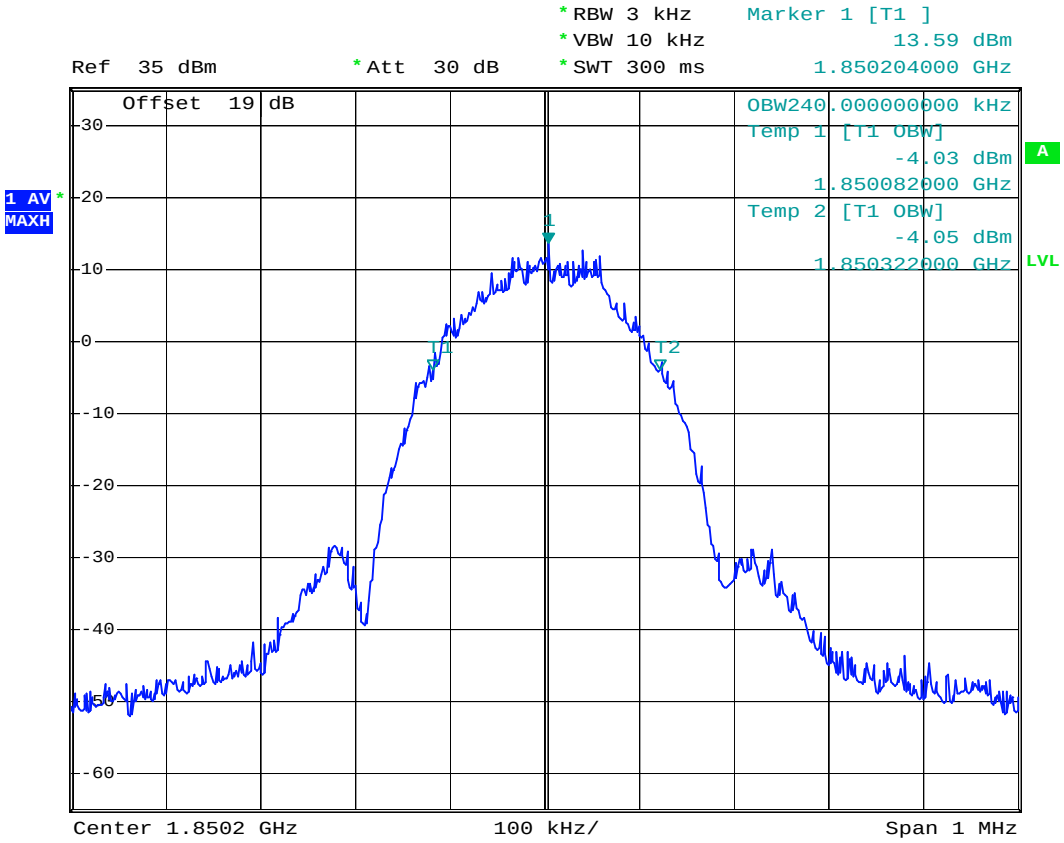
Date: 15.JUL.2007 17:33:46

- Mode 4
- Test Mode : PCS1900 (EDGE) CH512 Lower Band Edge
- Power State : High



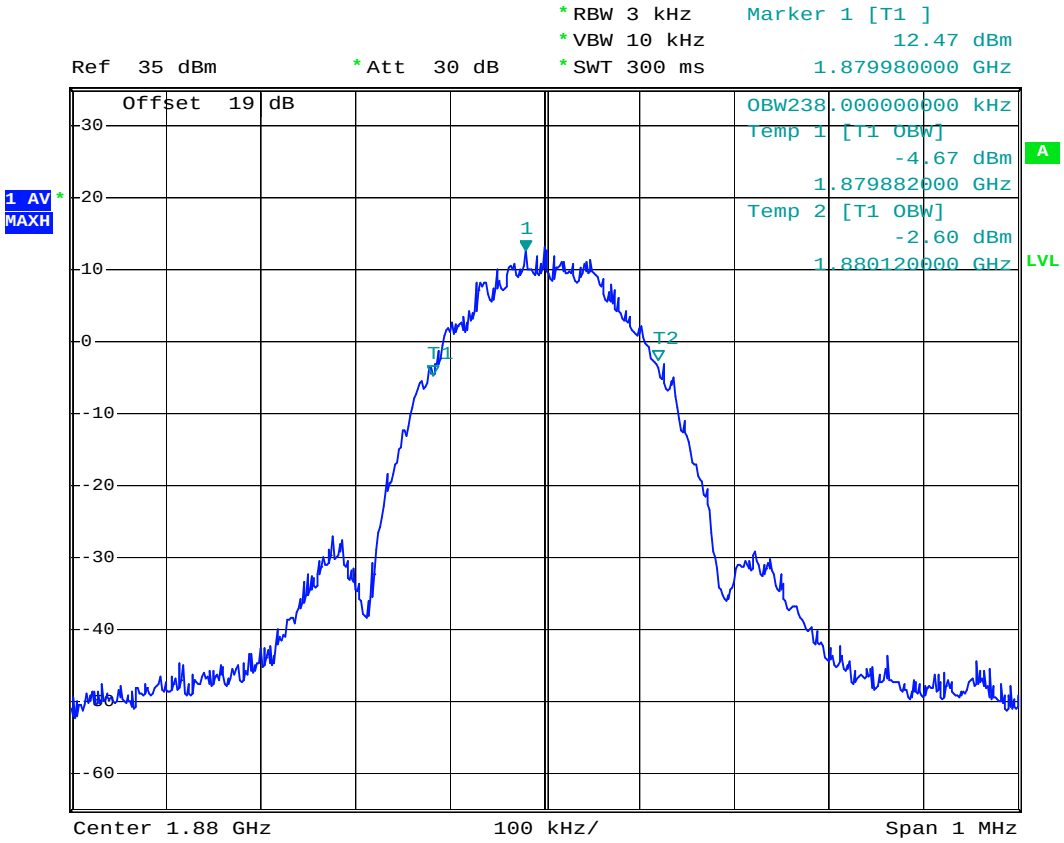
Date: 15.JUL.2007 17:13:57

- Test Mode : PCS1900 (EDGE) CH512 99% Occupid Bandwidth
- Power State : High



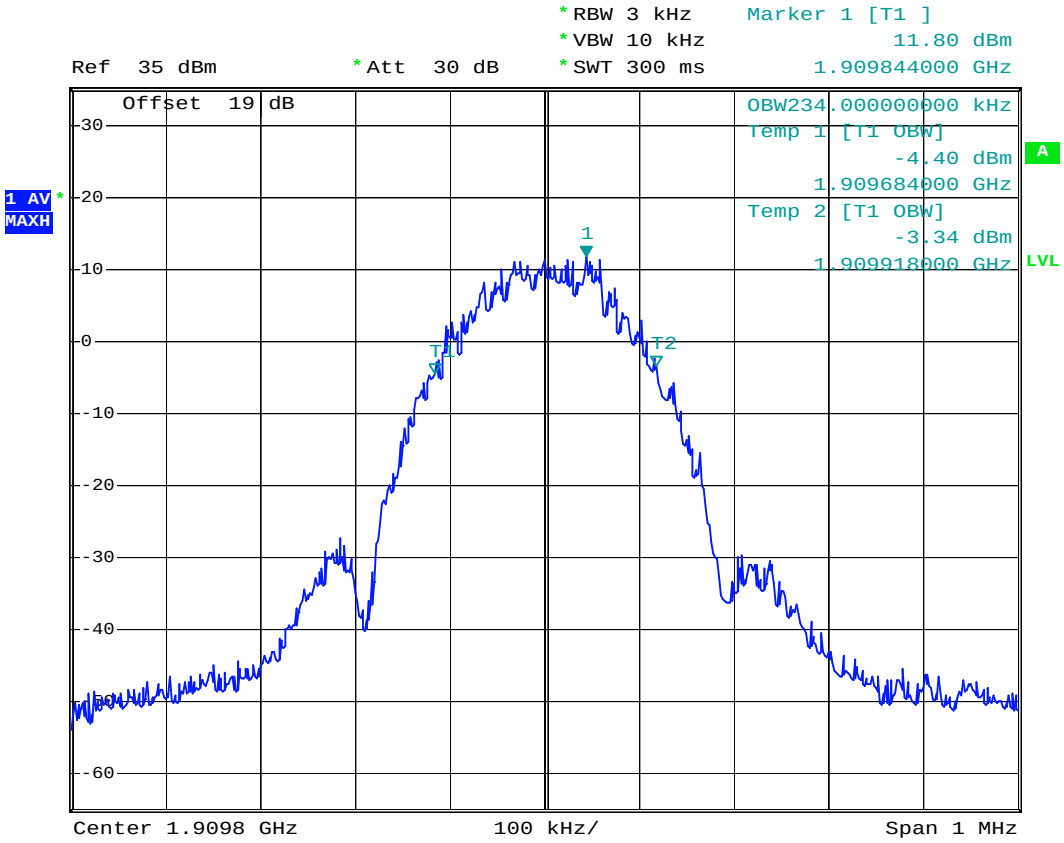
Date: 15.JUL.2007 16:53:50

- Test Mode : PCS1900 (EDGE) CH661 99% Occupid Bandwidth
- Power State : High



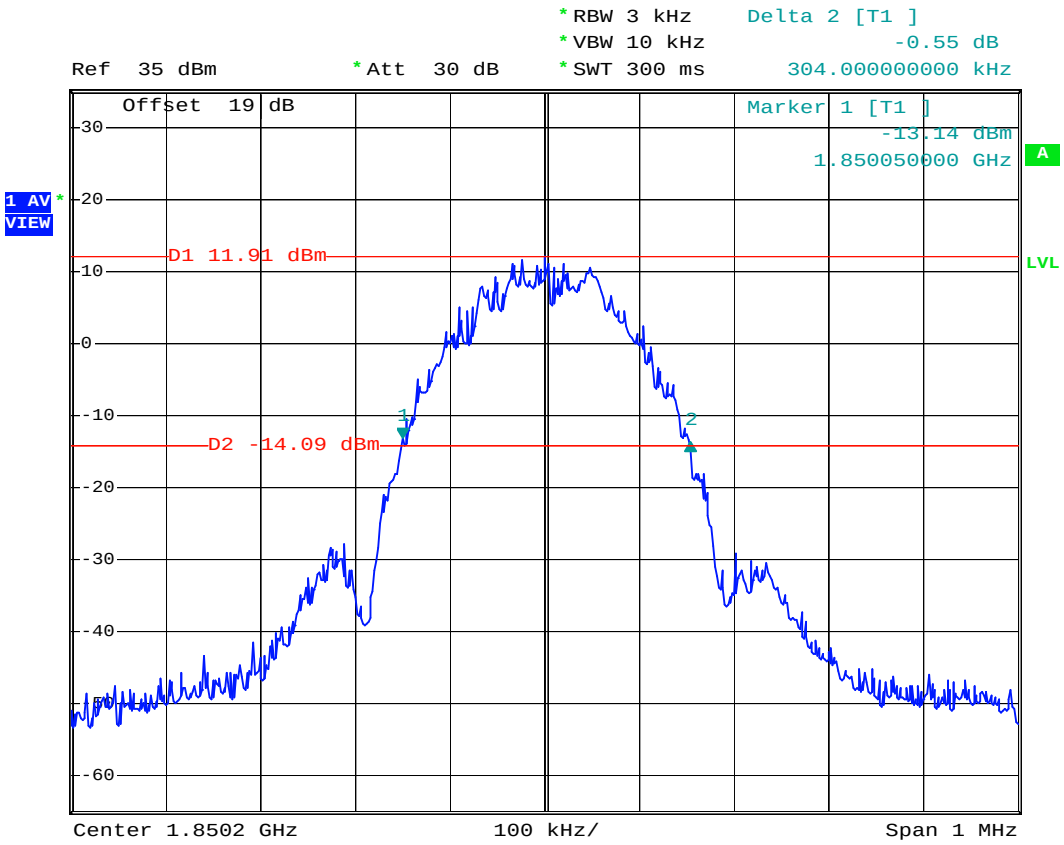
Date: 15.JUL.2007 16:52:44

- Test Mode : PCS1900 (EDGE) CH810 99% Occupid Bandwidth
- Power State : High



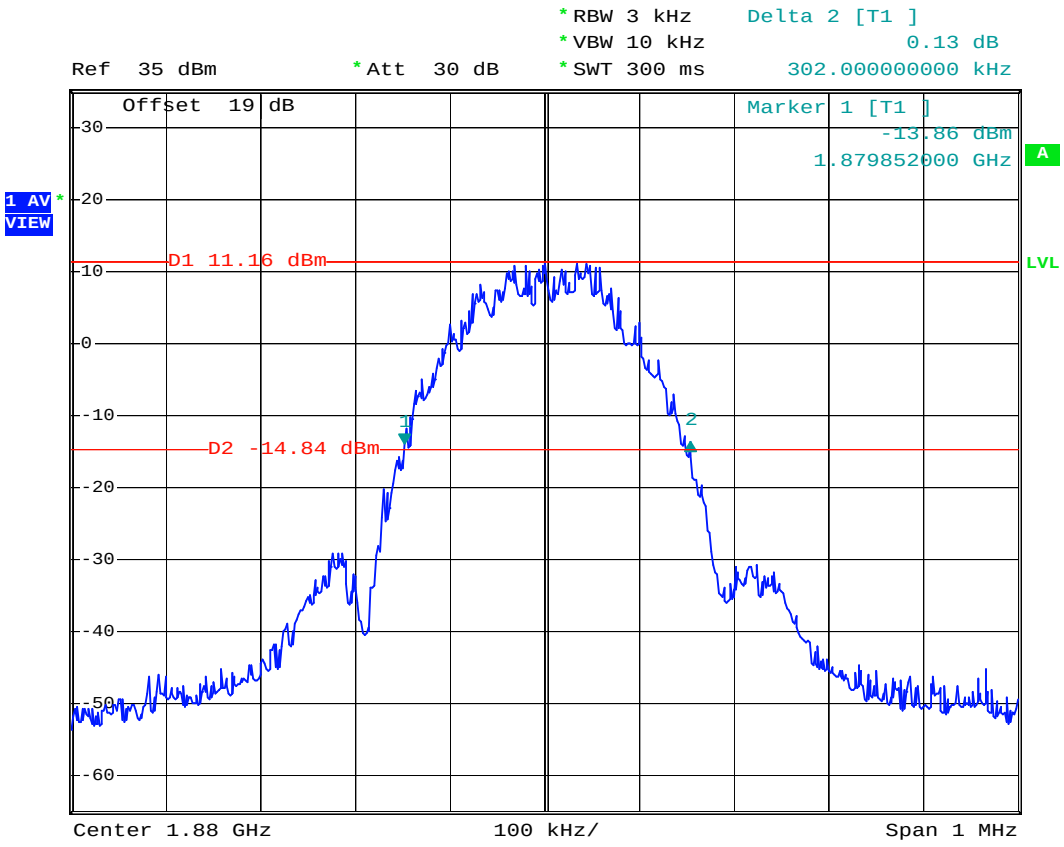
Date: 15.JUL.2007 16:54:45

- Test Mode : PCS1900 (EDGE) CH512 26dB Bandwidth
- Power State : High



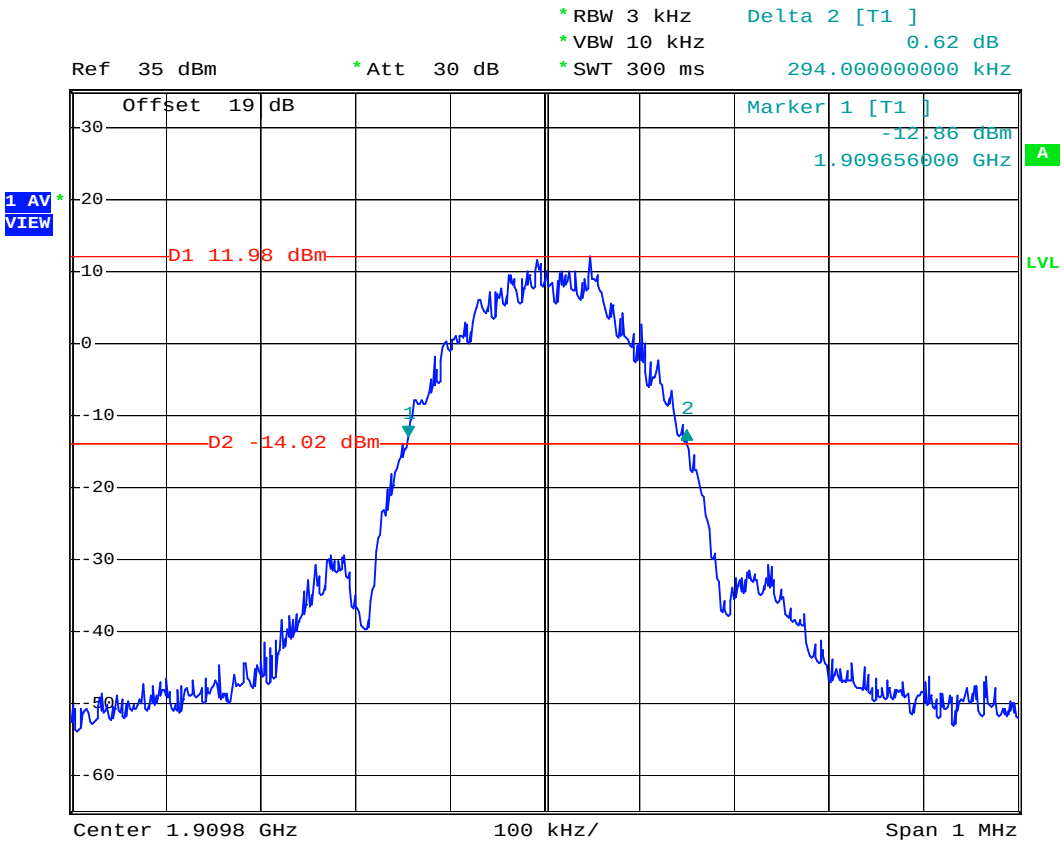
Date: 15.JUL.2007 17:11:17

- Test Mode : PCS1900 (EDGE) CH661 26dB Bandwidth
- Power State : High



Date: 15.JUL.2007 17:12:14

- Test Mode : PCS1900 (EDGE) CH810 26dB Bandwidth
- Power State : High



Date: 15.JUL.2007 17:10:05

- Test Mode : PCS1900(EDGE) CH810 Higher Band Edge
- Power State : High

Date: 15.JUL.2007 17:14:33

4.5 Conducted Emission

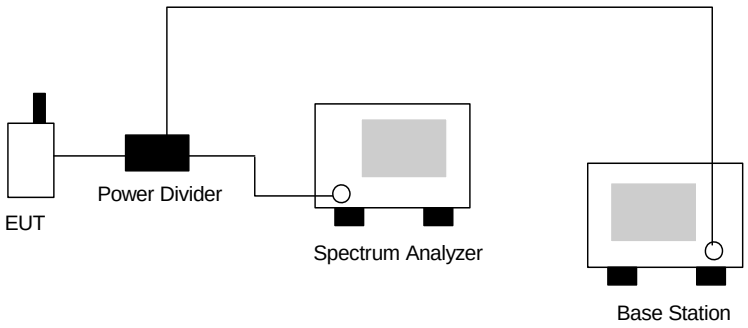
4.5.1 Measurement Instruments

As described in chapter 5 of this test report.

4.5.2 Test Procedure

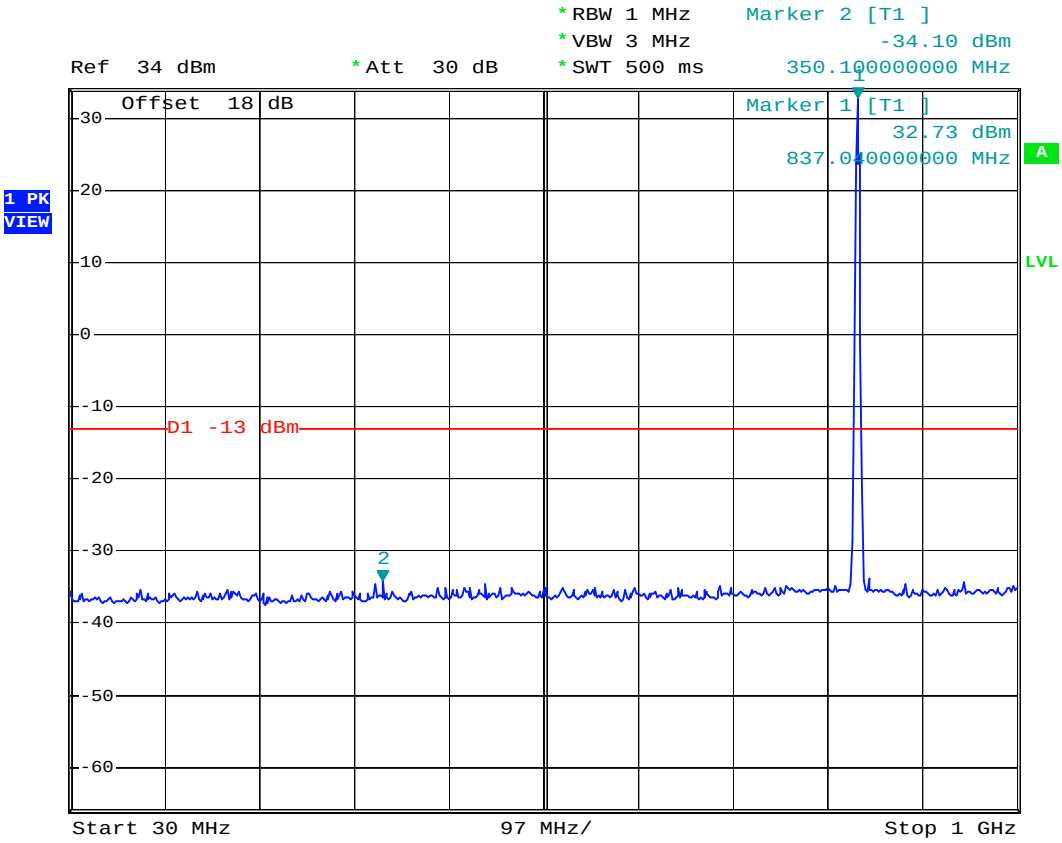
1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.
2. The middle channel for the highest RF power within the transmitting frequency was measured.
3. The conducted spurious emission for the whole frequency range was taken.

4.5.3 Test Setup Layout



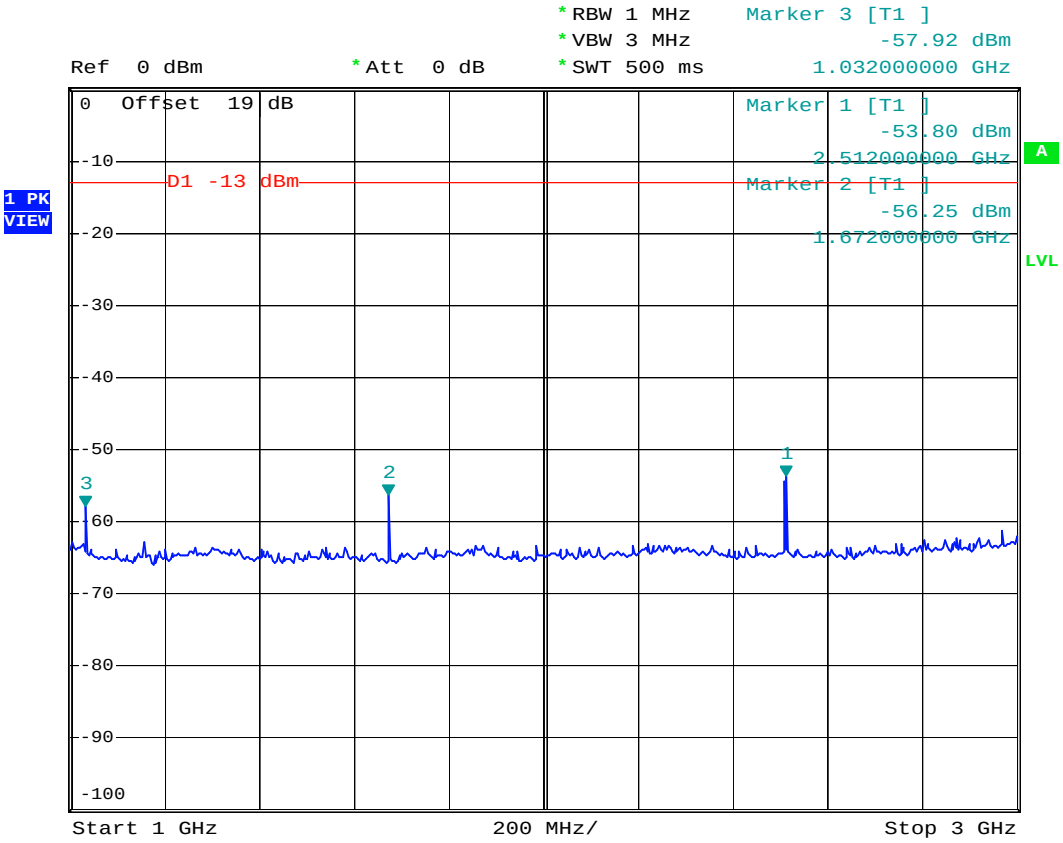
4.5.4 Test Result

- Mode 1
- Test Mode : GSM850 (GSM) CH189
- Frequency Range : 30M-1G



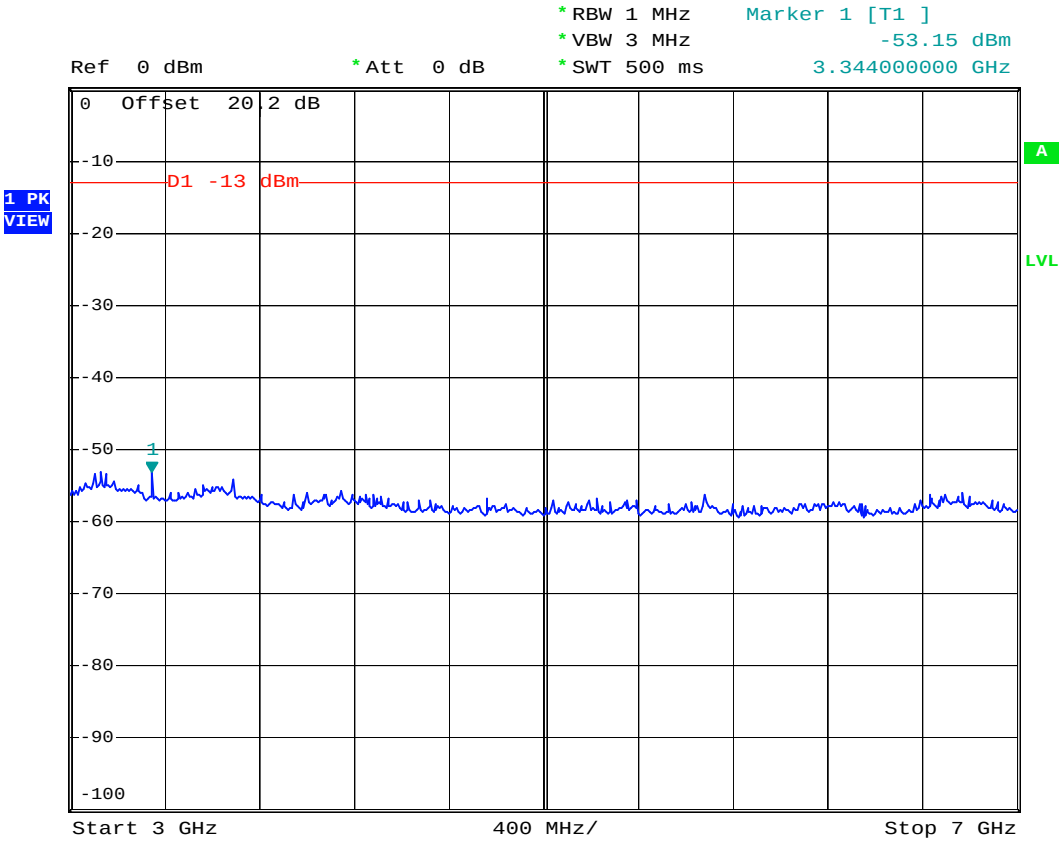
Date: 15.JUL.2007 16:04:45

- Test Mode : GSM850 (GSM) CH189
- Frequency Range : 1G-3G



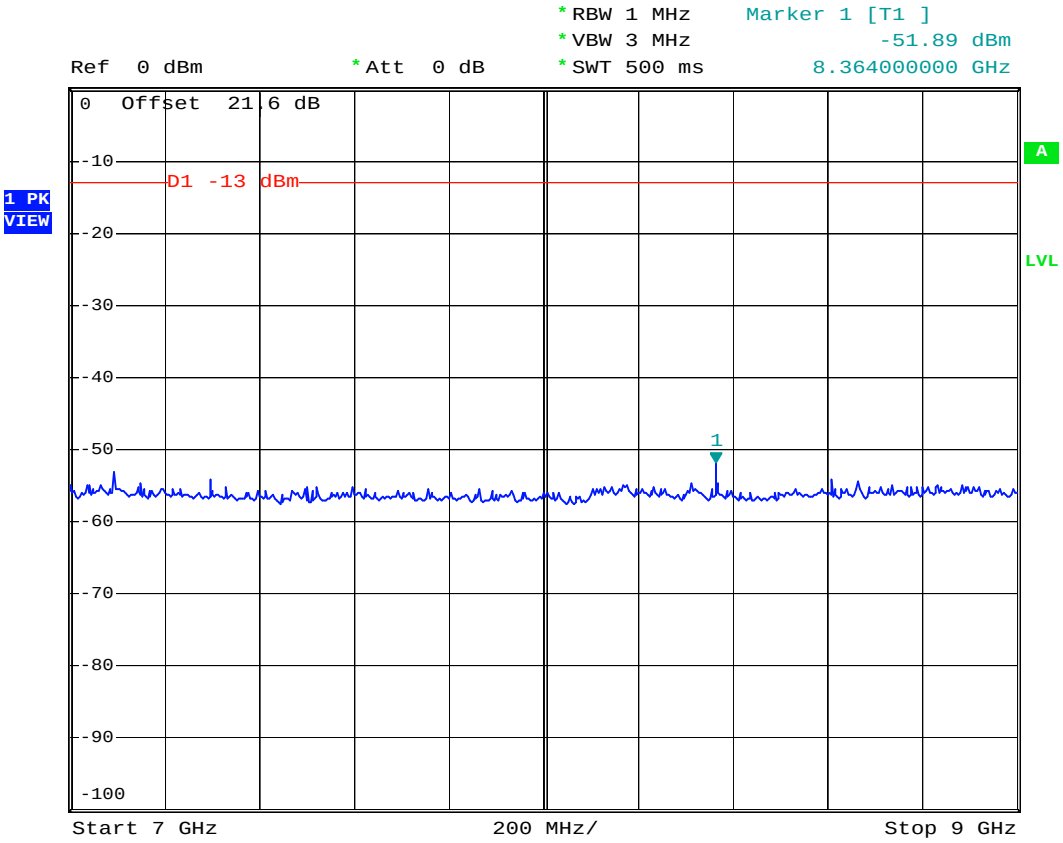
Date: 15.JUL.2007 16:03:26

- Test Mode : GSM850 (GSM) CH189
- Frequency Range : 3G-7G



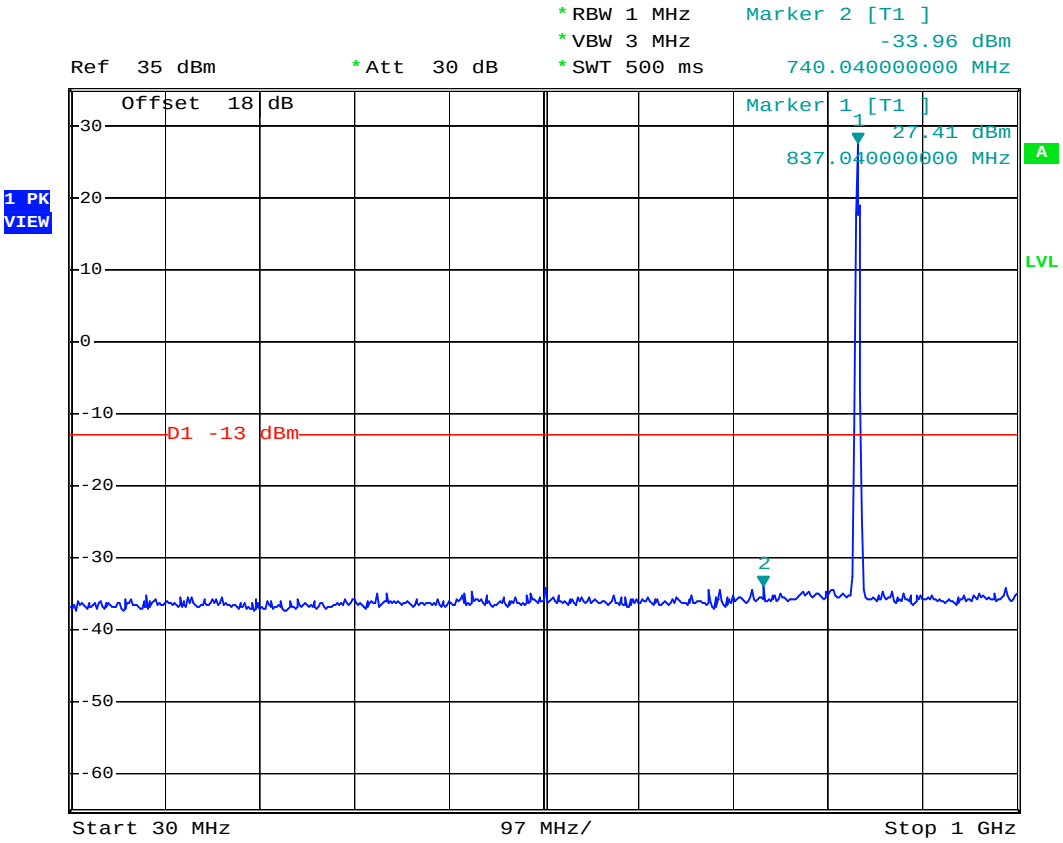
Date: 15.JUL.2007 16:02:46

- Test Mode : GSM850 (GSM) CH189
- Frequency Range : 7G-9G



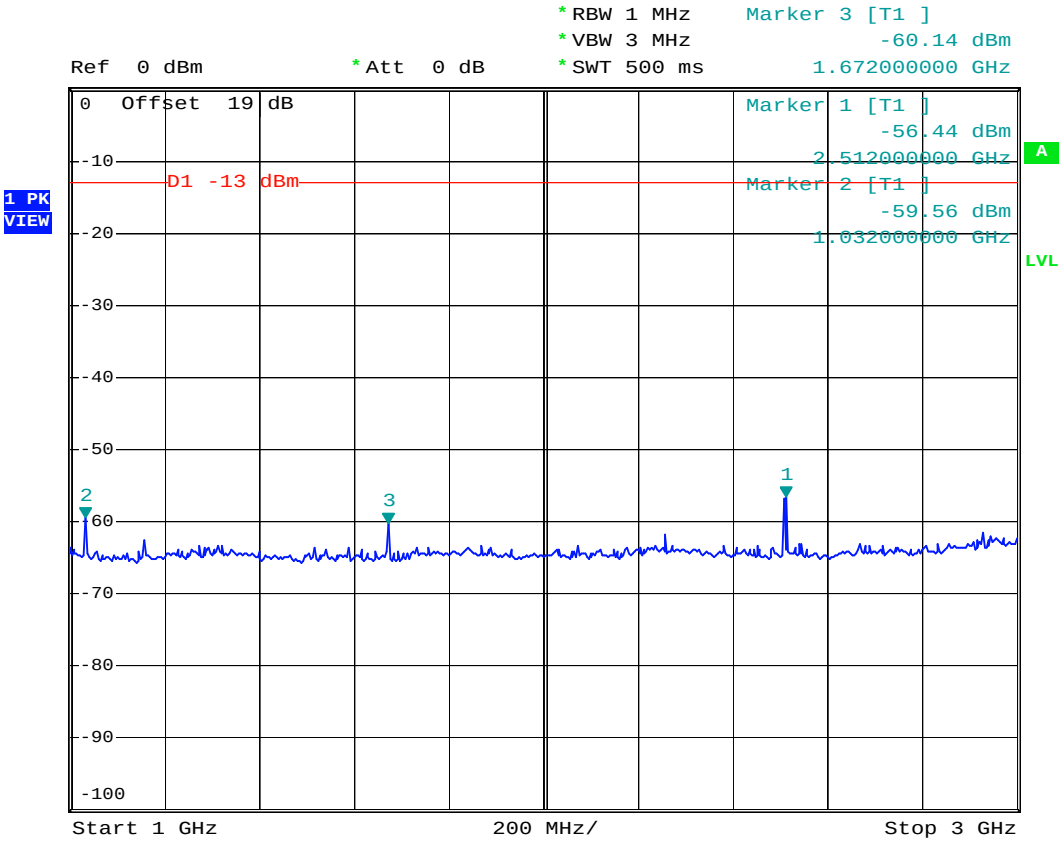
Date: 15.JUL.2007 16:02:18

- Mode 2
- Test Mode : GSM850 (EDGE) CH189
- Frequency Range : 30M-1G



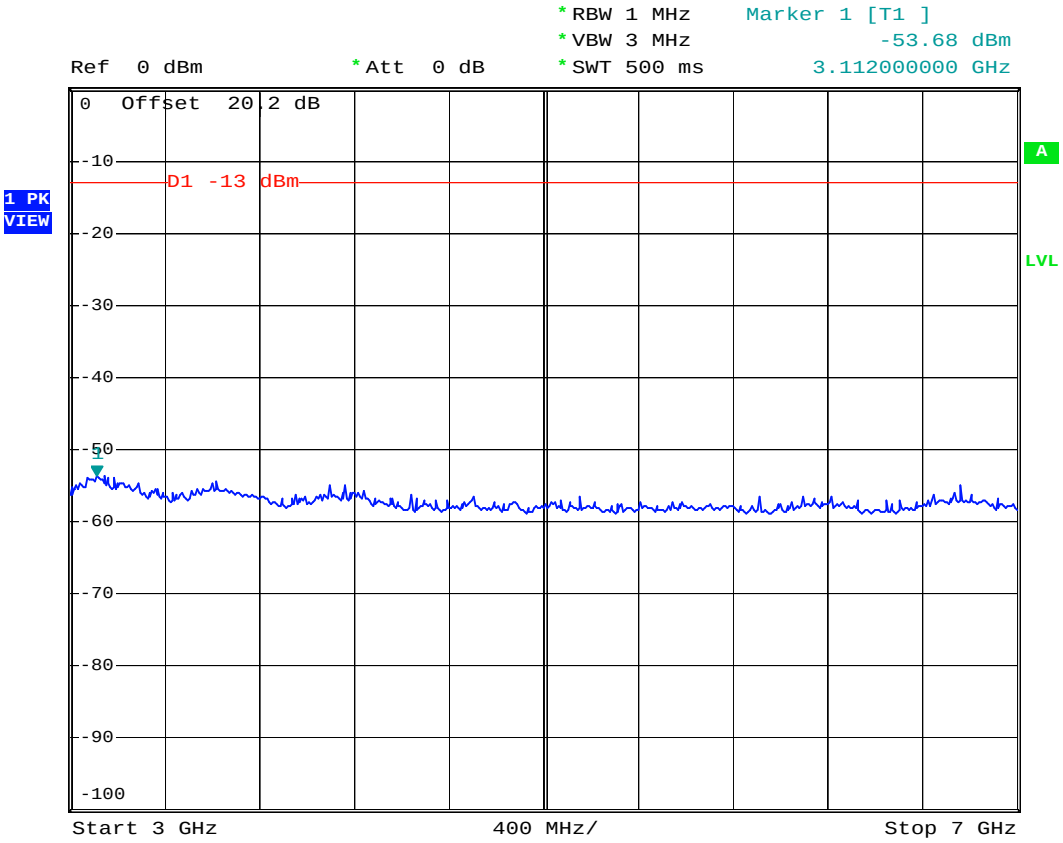
Date: 15.JUL.2007 15:54:17

- Test Mode : GSM850 (EDGE) CH189
- Frequency Range : 1G-3G



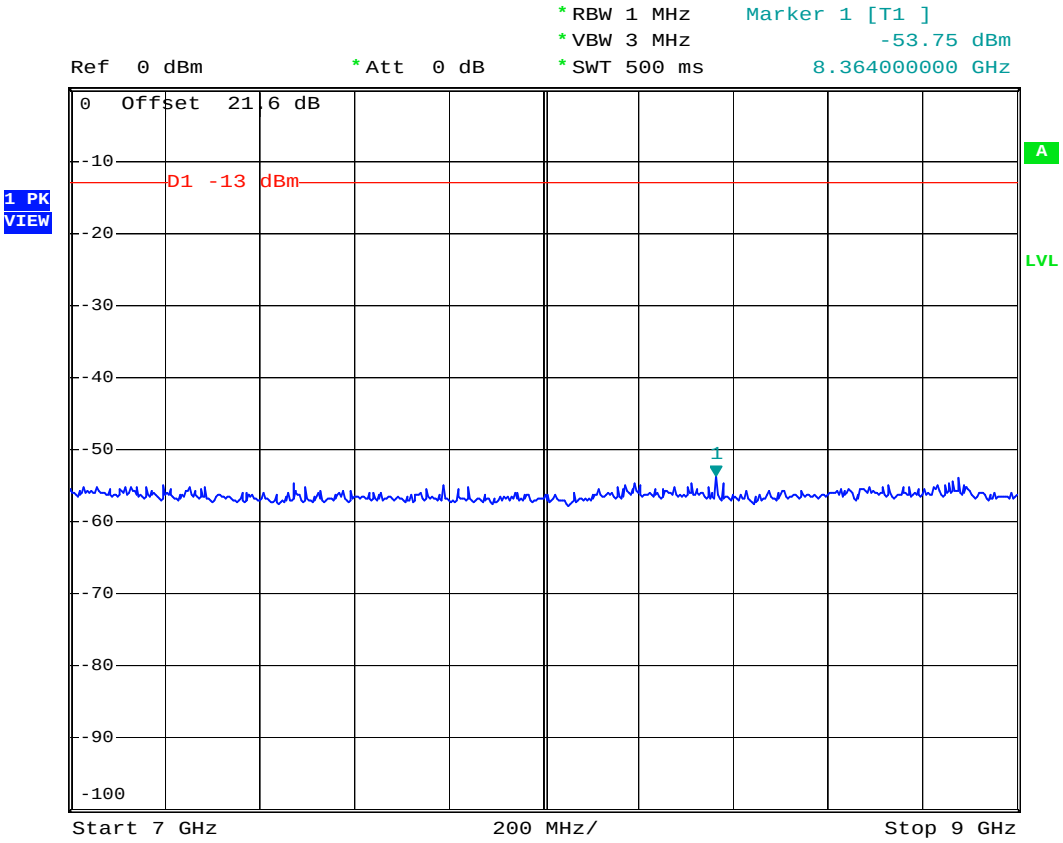
Date: 15.JUL.2007 15:56:51

- Test Mode : GSM850 (EDGE) CH189
- Frequency Range : 3G-7G



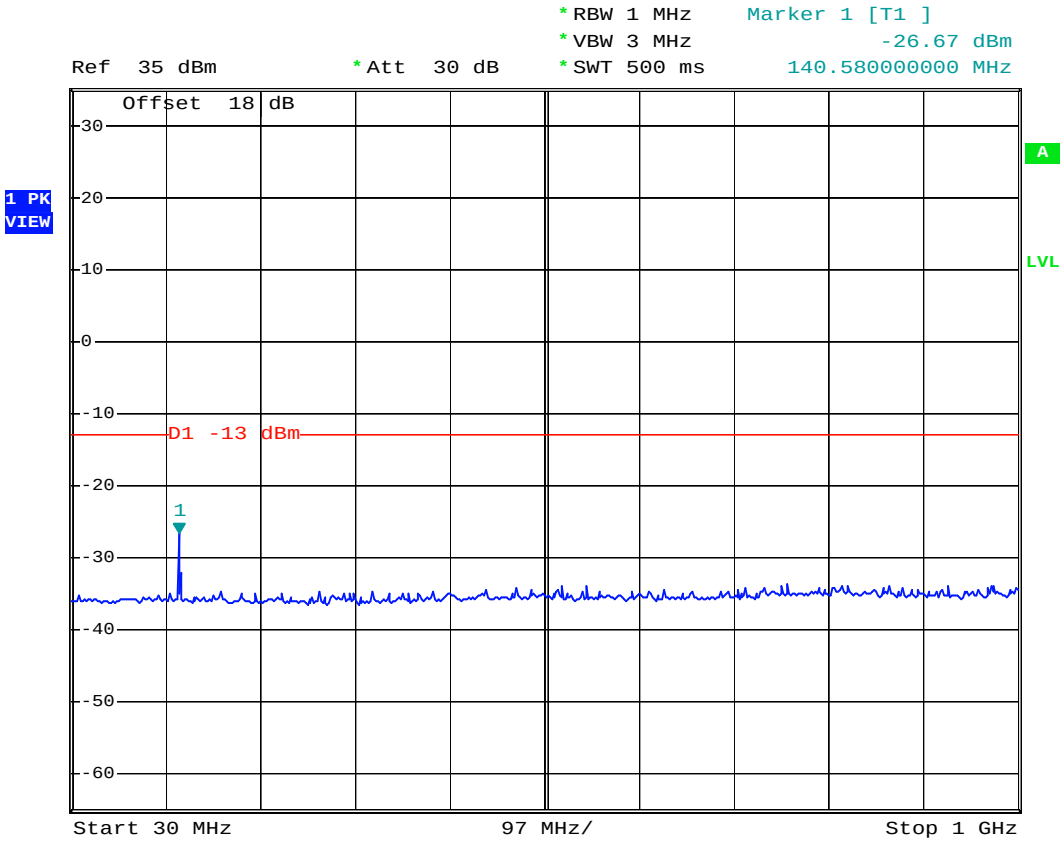
Date: 15.JUL.2007 16:00:06

- Test Mode : GSM850 (EDGE) CH189
- Frequency Range : 7G-9G



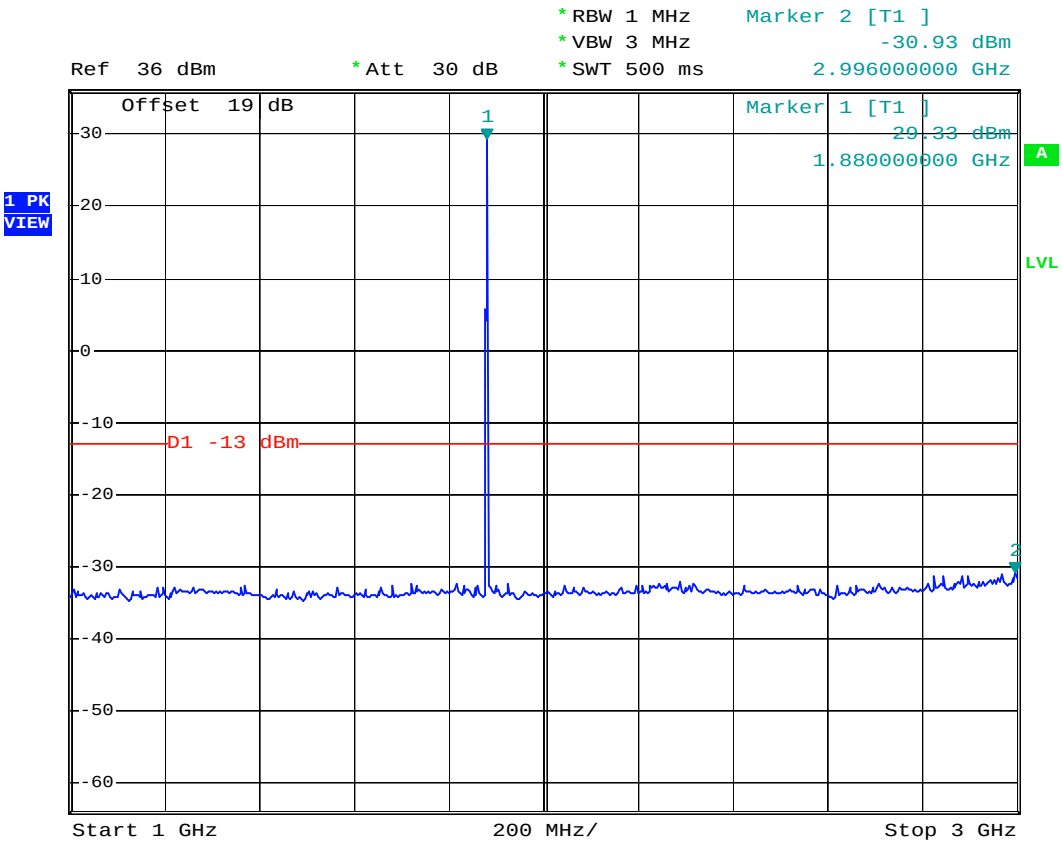
Date: 15.JUL.2007 16:01:29

- Mode 3
- Test Mode : PCS1900 (GSM) CH661
- Frequency Range : 30M-1G



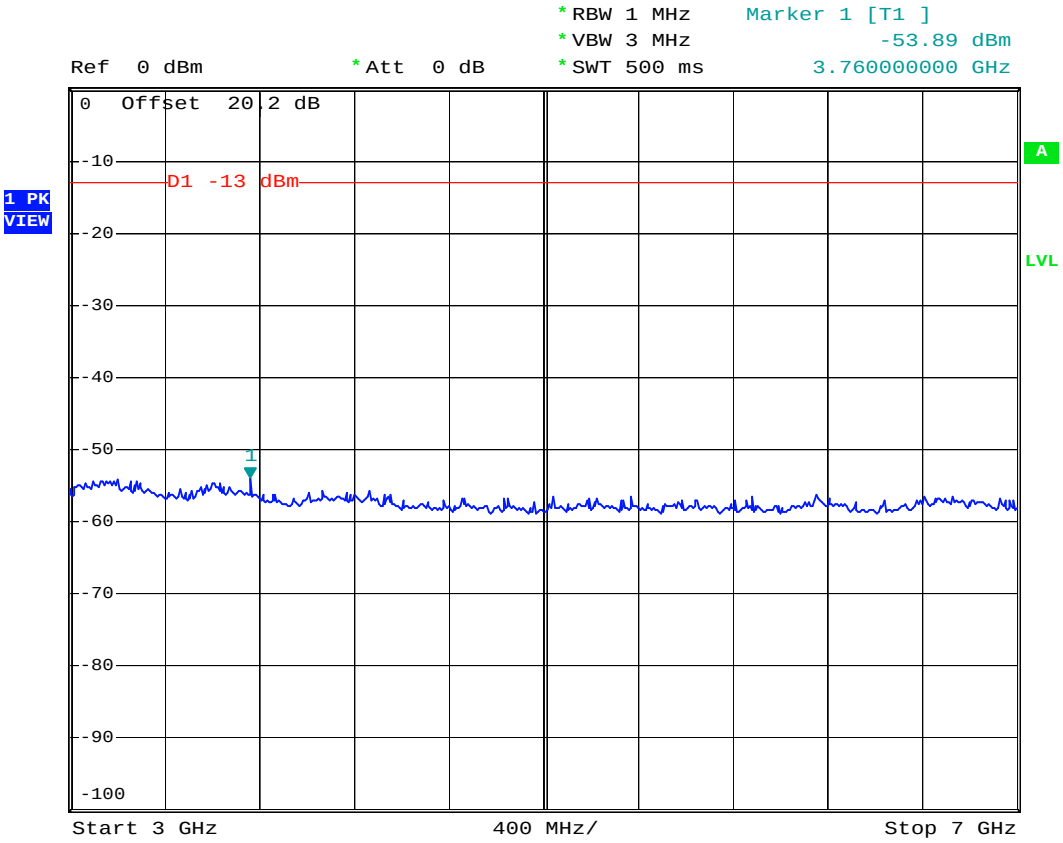
Date: 15.JUL.2007 16:19:14

- Test Mode : PCS1900 (GSM) CH661
- Frequency Range : 1G-3G



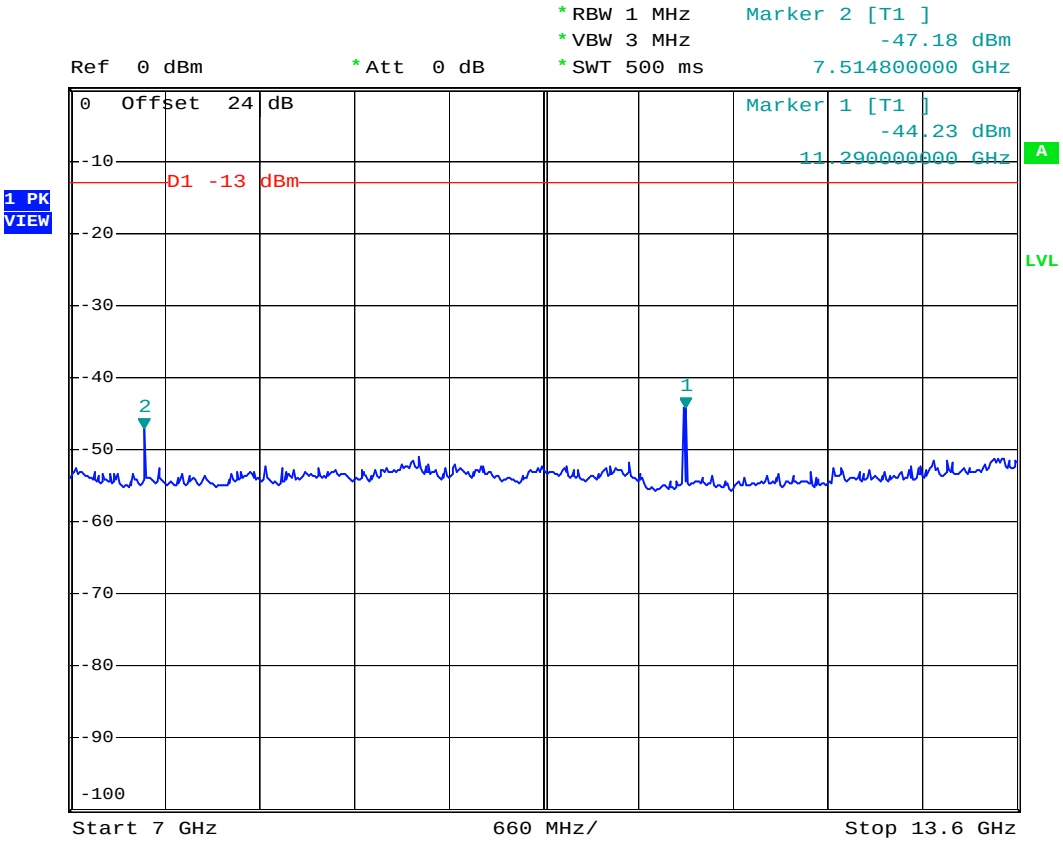
Date: 15.JUL.2007 16:20:53

- Test Mode : PCS1900 (GSM) CH661
- Frequency Range : 3G-7G



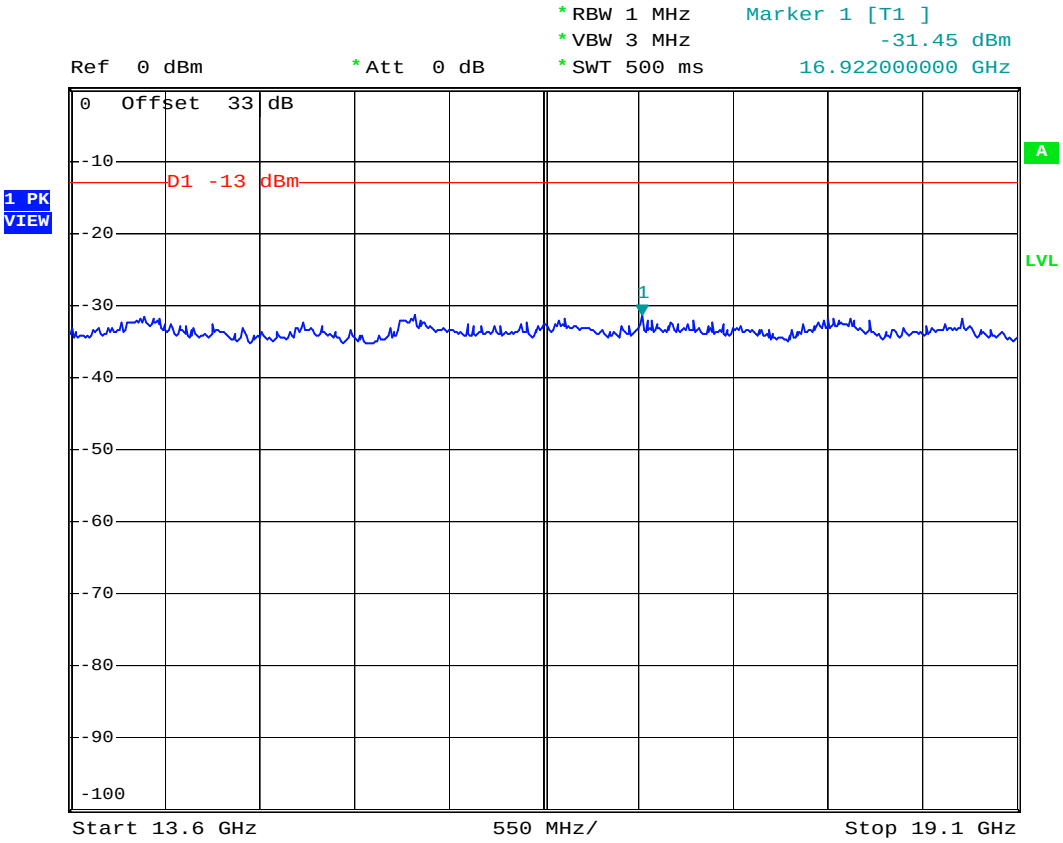
Date: 15.JUL.2007 16:22:00

- Test Mode : PCS1900 (GSM) CH661
- Frequency Range : 7G-13.6G



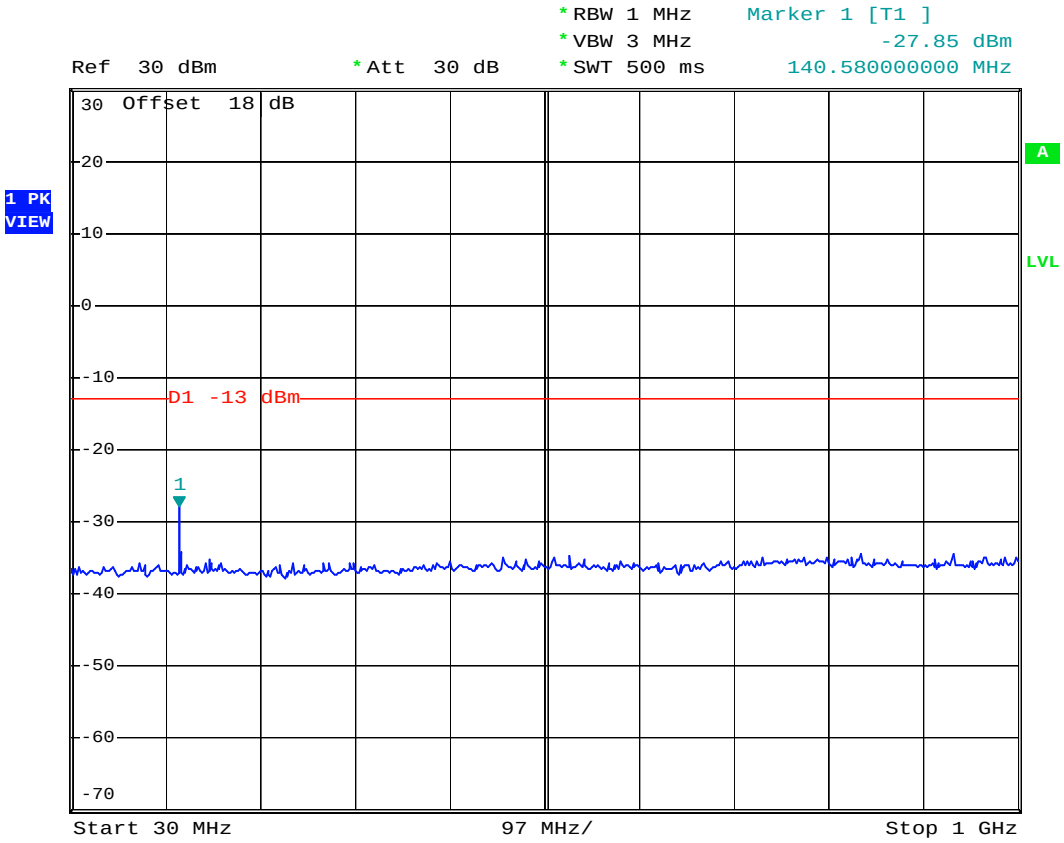
Date: 15.JUL.2007 16:24:20

- Test Mode : PCS1900 (GSM) CH661
- Frequency Range : 13.6G-19.1G



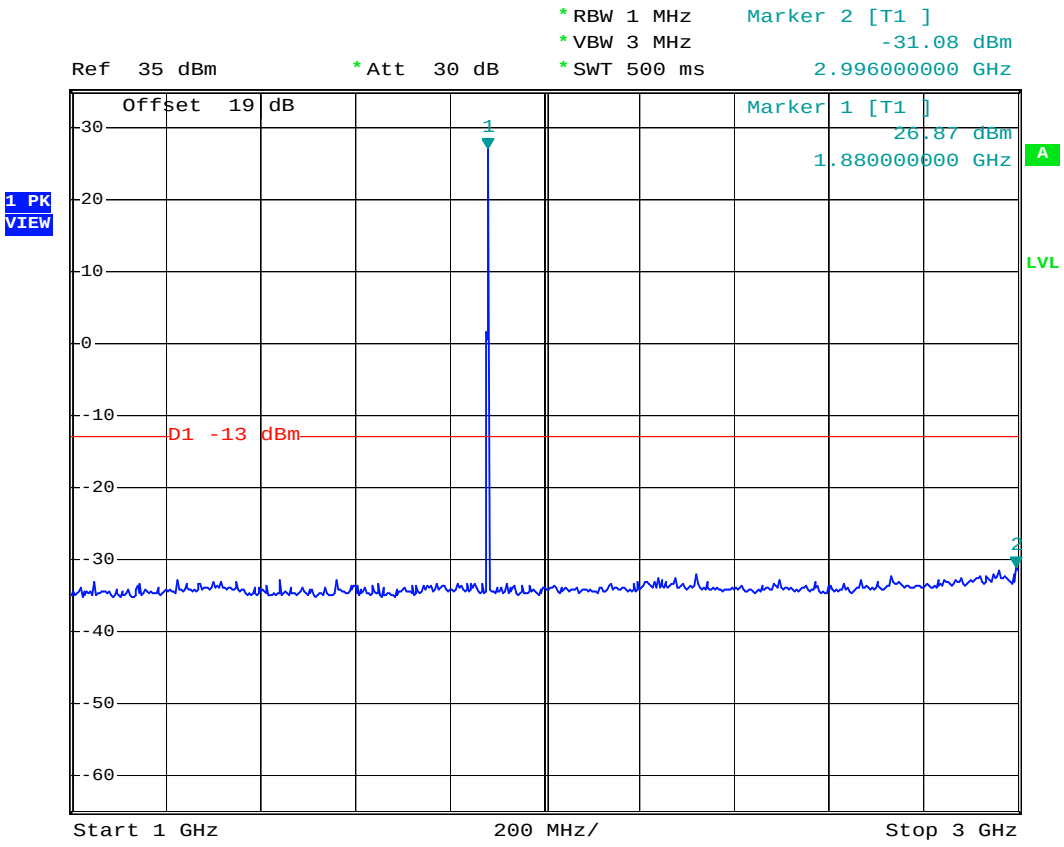
Date: 15.JUL.2007 16:25:10

- Mode 4
- Test Mode : PCS1900 (EDGE) CH661
- Frequency Range : 30M-1G



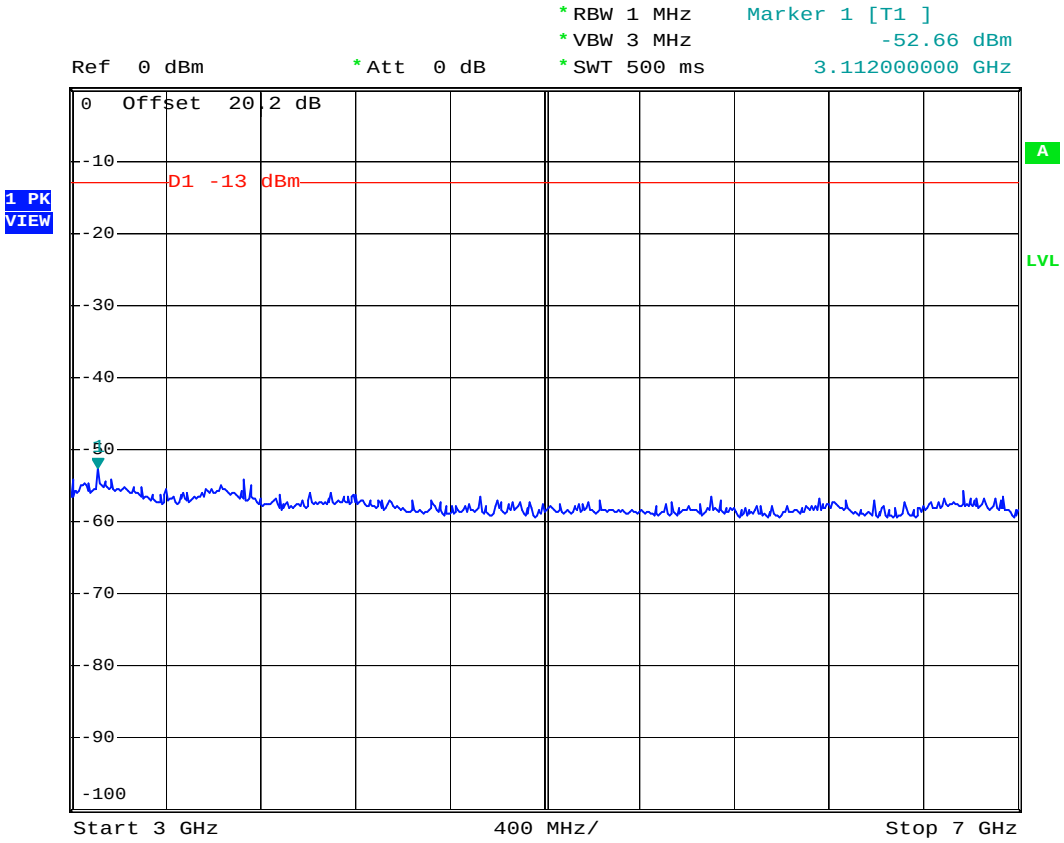
Date: 15.JUL.2007 16:30:30

- Test Mode : PCS1900 (EDGE) CH661
- Frequency Range : 1G-3G



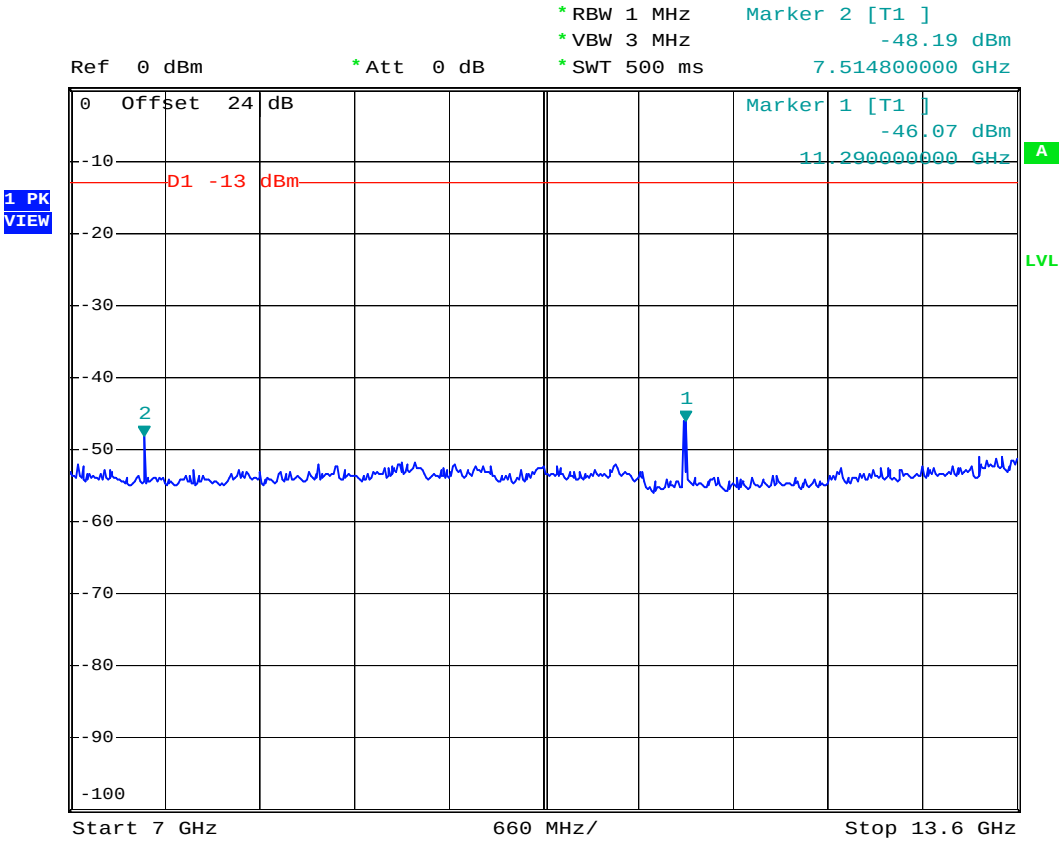
Date: 15.JUL.2007 16:38:58

- Test Mode : PCS1900 (EDGE) CH661
- Frequency Range : 3G-7G



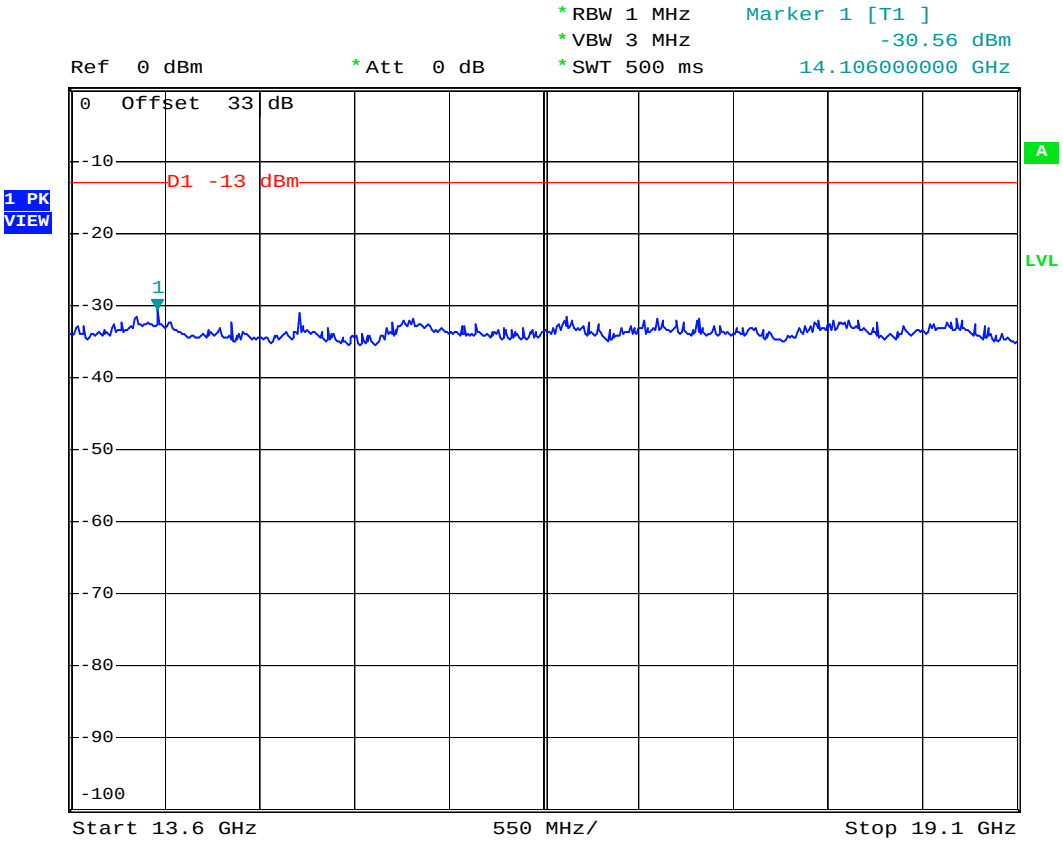
Date: 15.JUL.2007 16:27:45

- Test Mode : PCS1900 (EDGE) CH661
- Frequency Range : 7G-13.6G



Date: 15.JUL.2007 16:27:01

- Test Mode : PCS1900 (EDGE) CH661
- Frequency Range : 13.6G-19.1G



Date: 15.JUL.2007 16:26:24

4.6 Field Strength of Spurious Radiation

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

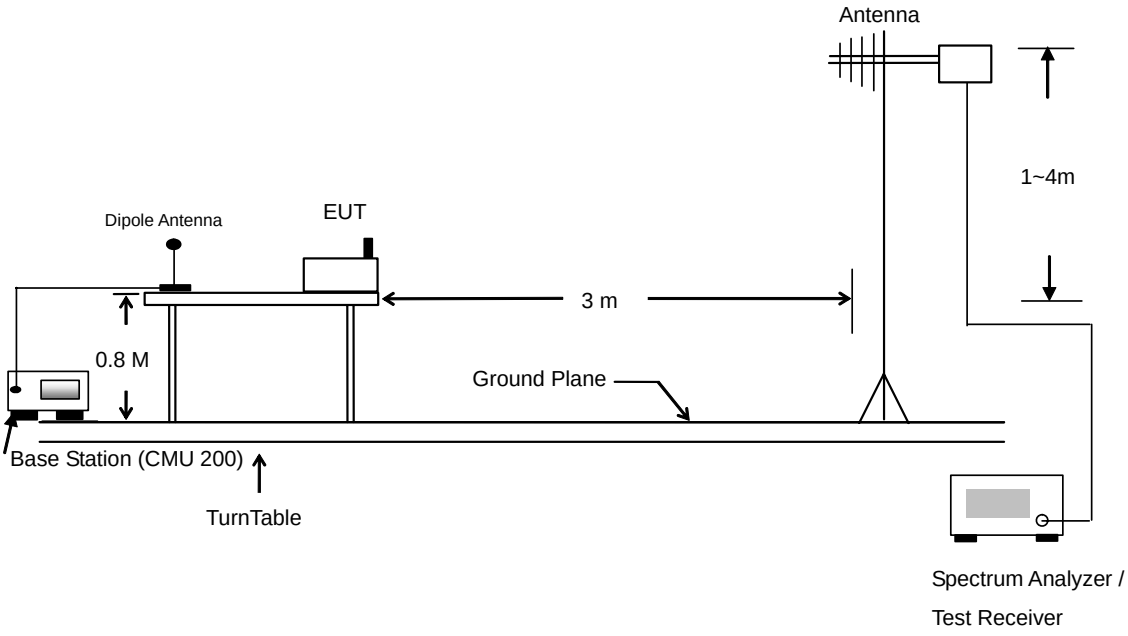
4.6.1 Measurement Instruments

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.
6. A Horn antenna was substituted in place of the EUT and was driven by a signal generator.
7. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
8. Taking the recored of output power at antenna port.
9. Repeat step 7 to step 8 for another polariztion.
10. Emission level (dBm) = output power + substitution Gain.

4.6.3 Test Setup Layout



4.6.4 Test Result

- Test Mode : Mode 1

GSM850 (GSM) Radiated Spurious ERP							
H Polarization				V Polarization			
Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)
36.480	-60.060	-13	-47.06	35.940	-56.890	-13	-43.89
214.680	-65.190	-13	-52.19	266.790	-66.440	-13	-53.44
265.980	-63.400	-13	-50.40	675.900	-60.270	-13	-47.27
995.800	-56.430	-13	-43.43	1674.000	-24.100	-13	-11.10
1674.000	-21.500	-13	-8.50	2508.000	-43.710	-13	-30.71
3344.000	-55.440	-13	-42.44	2994.000	-58.020	-13	-45.02

- Test Mode : Mode 2

GSM850 (EDGE) Radiated Spurious ERP							
H Polarization				V Polarization			
Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)
31.080	-62.160	-13	-49.16	71.580	-60.760	-13	-47.76
76.440	-69.640	-13	-56.64	101.280	-62.200	-13	-49.20
265.440	-64.730	-13	-51.73	192.540	-59.580	-13	-46.58
448.400	-66.120	-13	-53.12	675.900	-63.960	-13	-50.96
1464.000	-55.990	-13	-42.99	1674.000	-57.740	-13	-44.74

- Test Mode : Mode 3

PCS1900 (GSM) Radiated Spurious EIRP							
H Polarization				V Polarization			
Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)
31.890	-60.500	-13	-47.50	85.890	-55.570	-13	-42.57
43.230	-50.990	-13	-37.99	142.590	-59.290	-13	-46.29
266.790	-62.410	-13	-49.41	266.790	-62.520	-13	-49.52
666.800	-63.180	-13	-50.18	665.400	-62.700	-13	-49.70
798.400	-60.200	-13	-47.20	901.300	-60.620	-13	-47.62
934.900	-63.320	-13	-50.32	932.800	-59.590	-13	-46.59
5048.000	-51.350	-13	-38.35	3758.000	-49.960	-13	-36.96
7518.000	-41.960	-13	-28.96	7518.000	-44.550	-13	-31.55

- Test Mode : Mode 4

PCS1900 (EDGE) 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	-59.930	-13	-46.93	58.080	-51.210	-13	-38.21
180.930	-59.400	-13	-46.40	142.590	-62.730	-13	-49.73
220.890	-61.060	-13	-48.06	214.680	-63.080	-13	-50.08
448.400	-59.470	-13	-46.47	409.900	-45.700	-13	-32.70
637.400	-48.030	-13	-35.03	444.900	-61.290	-13	-48.29
866.300	-59.740	-13	-46.74	957.300	-61.650	-13	-48.65
1598.000	-53.930	-13	-40.93	1464.000	-57.830	-13	-44.83
1718.000	-49.870	-13	-36.87	1824.000	-58.850	-13	-45.85

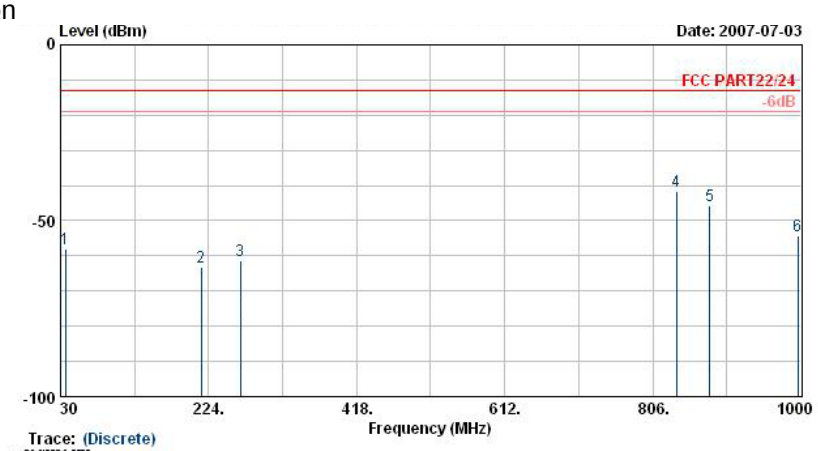
- Test Mode : Mode 5

GSM850 (GSM) with WLAN Co-location Radiated Spurious ERP							
H Polarization				V Polarization			
Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)
31.890	-62.670	-13	-49.67	65.640	-61.510	-13	-48.51
82.380	-69.700	-13	-56.70	90.480	-64.530	-13	-51.53
265.440	-65.890	-13	-52.89	265.980	-64.850	-13	-51.85
995.800	-57.460	-13	-44.46	675.900	-60.420	-13	-47.42
1674.000	-32.860	-13	-19.86	1674.000	-39.790	-13	-26.79
7378.000	-45.190	-13	-32.19				

4.6.5 Test Data

4.6.5.1 Mode 1

Horizontal Polarization



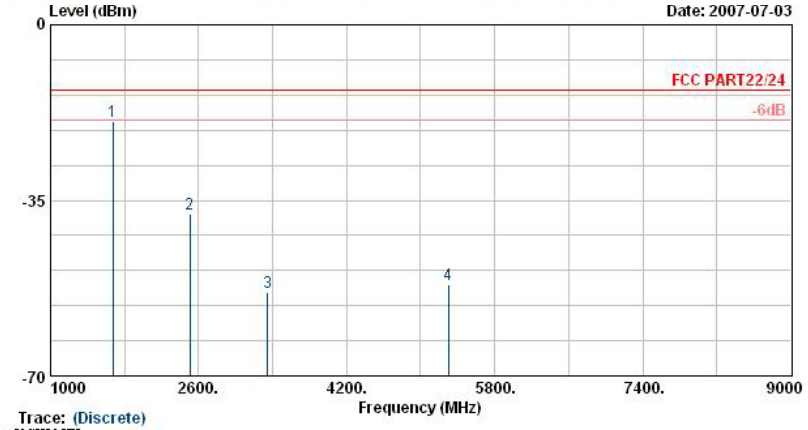
Trace: (Discrete)

Site : 03CH06-HY
Condition : LF-SPURIOUS HORIZONTAL
EUT : Mobile Phone
Power : 120Vac/60Hz
Model : FG 762206
Memo : GSM 850 Link Mode,Ch189+Earphone
: +Adaptor
Plane : E2

	Freq	Level	Over Limit	Limit Line	Read Level	Factor	Remark	Pol/Phase
	MHz	dBm	dB	dBm	dBm	dB		
1	36.5	-57.91	-44.91	-13.00	-54.01	-3.90	Peak	HORIZONTAL
2	214.7	-63.04	-50.04	-13.00	-50.15	-12.89	Peak	HORIZONTAL
3	266.0	-61.25	-48.25	-13.00	-50.14	-11.12	Peak	HORIZONTAL
4	836.9	-41.81			-40.48	-1.33	Peak	HORIZONTAL
5	881.0	-45.71			-44.80	-0.91	Peak	HORIZONTAL
6	995.8	-54.28	-41.28	-13.00	-54.48	0.20	Peak	HORIZONTAL

Remark:

1. #4: MS Signal
2. #5: BS Signal

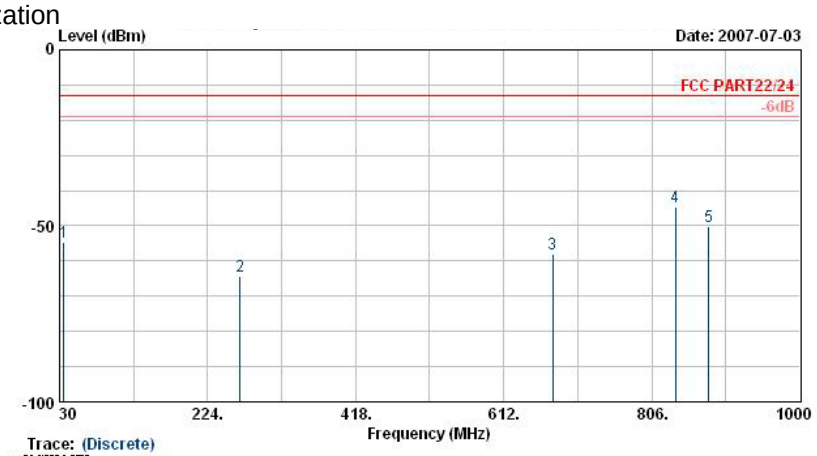


Trace: (Discrete)

Site : 03CH06-HY
Condition : HF-SPURIOUS HORIZONTAL
EUT : Mobile Phone
Power : 120Vac/60Hz
Model : FG 762206
Memo : GSM 850 Link Mode,Ch189+Earphone
: +Adaptor
Plane : E2

	Freq	Level	Over Limit	Limit Line	Read Level	Factor	Remark	Pol/Phase
	MHz	dBm	dB	dBm	dBm	dB		
1 @	1674.0	-19.35	-6.35	-13.00	-19.58	0.22	Peak	HORIZONTAL
2	2508.0	-37.63	-24.63	-13.00	-38.83	1.20	Peak	HORIZONTAL
3	3344.0	-53.29	-40.29	-13.00	-58.69	5.41	Peak	HORIZONTAL
4	5298.0	-51.76	-38.76	-13.00	-61.76	10.00	Peak	HORIZONTAL

Vertical Polarization



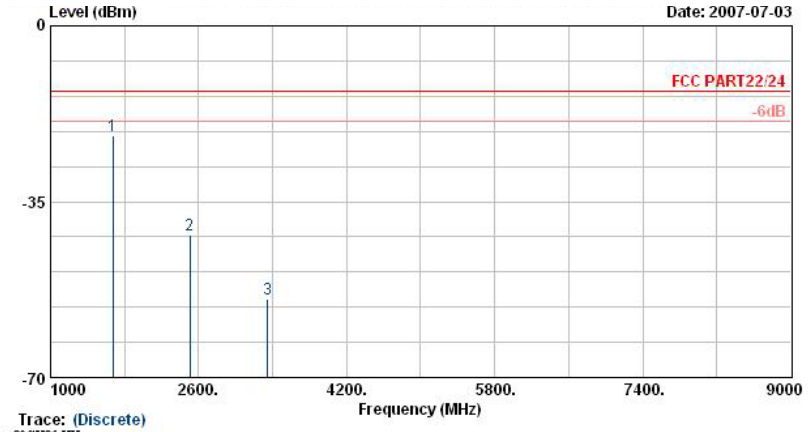
Trace: (Discrete)

Site	: 03CH06-HY
Condition	: LF-SPURIOUS VERTICAL
EUT	: Mobile Phone
Power	: 120Vac/60Hz
Model	: FG 762206
Memo	: GSM 850 Link Mode,Ch189+Earphone
	: +Adaptor
Plane	: E2

	Freq	Level	Over Limit	Limit Line	Read Level	Factor	Remark	Pol/Phase
	MHz	dBm	dB	dBm	dBm	dB		
1	35.9	-54.74	-41.74	-13.00	-44.02	-10.71	Peak	VERTICAL
2	266.8	-64.29	-51.29	-13.00	-57.12	-7.16	Peak	VERTICAL
3	675.9	-58.12	-45.12	-13.00	-57.32	-0.79	Peak	VERTICAL
4	836.9	-44.53			-45.90	1.36	Peak	VERTICAL
5	880.3	-50.37			-52.08	1.71	Peak	VERTICAL

Remark:

1. #4: MS Signal
2. #5: BS Signal

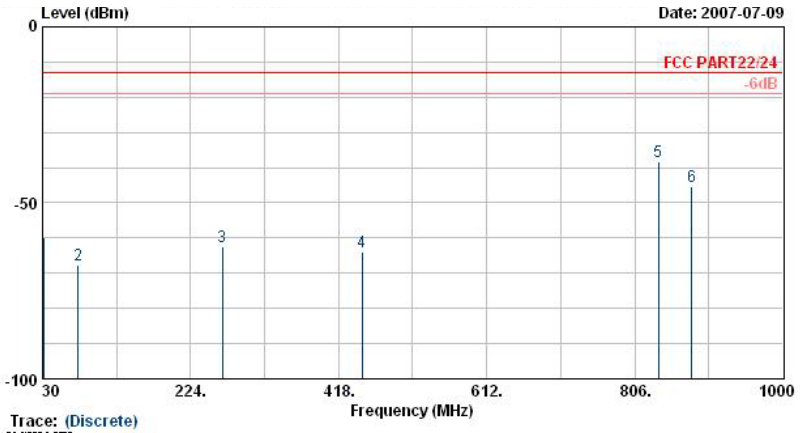


Trace: (Discrete)

Site	: 03CH06-HY
Condition	: HF-SPURIOUS VERTICAL
EUT	: Mobile Phone
Power	: 120Vac/60Hz
Model	: FG 762206
Memo	: GSM 850 Link Mode,Ch189+Earphone
	: +Adaptor
Plane	: E2

	Freq	Level	Over Limit	Limit Line	Read Level	Factor	Remark	Pol/Phase
	MHz	dBm	dB	dBm	dBm	dB		
1 @	1674.0	-21.95	-8.95	-13.00	-21.47	-0.48	Peak	VERTICAL
2	2508.0	-41.56	-28.56	-13.00	-43.83	2.27	Peak	VERTICAL
3	3344.0	-54.33	-41.33	-13.00	-58.80	4.47	Peak	VERTICAL

4.6.5.2 Mode 2
Horizontal Polarization



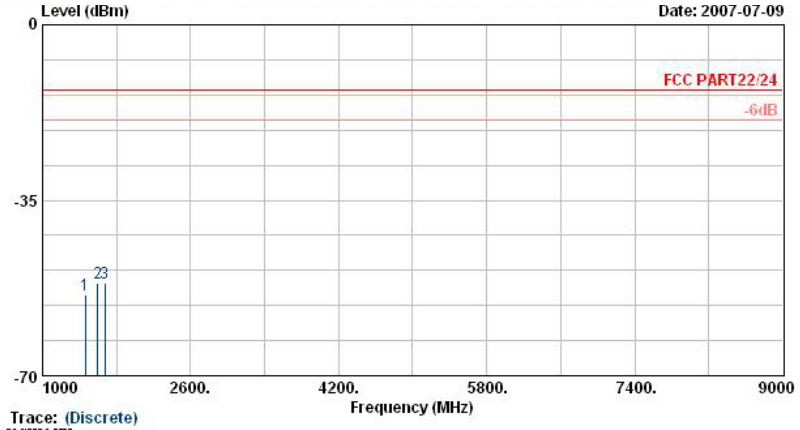
Trace: (Discrete)

Site	: 03CH06-HY
Condition	: LF-SPURIOUS HORIZONTAL
EUT	: Mobile Phone
Power	: 120Vac/60Hz
Model	: FG 762206
Memo	: EDGE(GSM850) Link Mode,Ch189+Earphone
	: +Adaptor
Plane	: E2

	Freq	Level	Over Limit	Limit Line	Read Level	Factor	Remark	Pol/Phase
	MHz	dBm	dB	dBm	dBm	dB		
1	31.1	-60.01	-47.01	-13.00	-59.76	-0.25	Peak	HORIZONTAL
2	76.4	-67.49	-54.49	-13.00	-55.16	-12.33	Peak	HORIZONTAL
3	265.4	-62.58	-49.58	-13.00	-51.47	-11.12	Peak	HORIZONTAL
4	448.4	-63.97	-50.97	-13.00	-58.14	-5.83	Peak	HORIZONTAL
5 @	836.9	-38.41			-37.08	-1.33	Peak	HORIZONTAL
6	880.3	-45.22			-44.31	-0.91	Peak	HORIZONTAL

Remark:

1. #5: MS Signal
2. #6: BS Signal

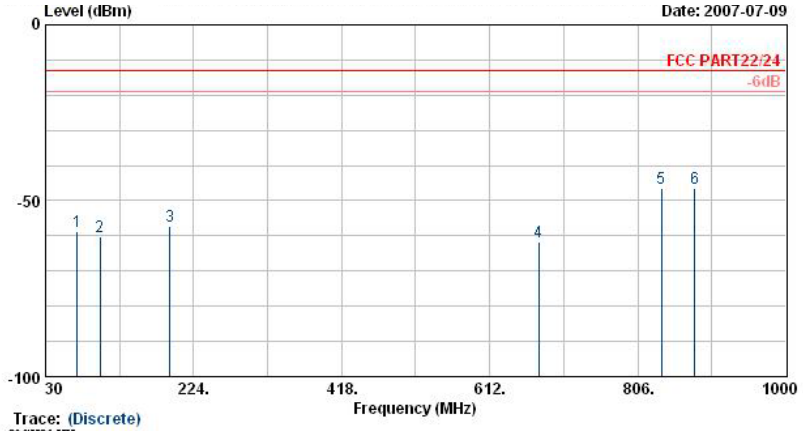


Trace: (Discrete)

Site	: 03CH06-HY
Condition	: HF-SPURIOUS HORIZONTAL
EUT	: Mobile Phone
Power	: 120Vac/60Hz
Model	: FG 762206
Memo	: EDGE(GSM850) Link Mode,Ch189+Earphone
	: +Adaptor
Plane	: E2

	Freq	Level	Over Limit	Limit Line	Read Level	Factor	Remark	Pol/Phase
	MHz	dBm	dB	dBm	dBm	dB		
1	1464.0	-53.84	-40.84	-13.00	-54.37	0.53	Peak	HORIZONTAL
2	1598.0	-51.51	-38.51	-13.00	-51.89	0.37	Peak	HORIZONTAL
3	1674.0	-51.53	-38.53	-13.00	-51.75	0.22	Peak	HORIZONTAL

Vertical Polarization



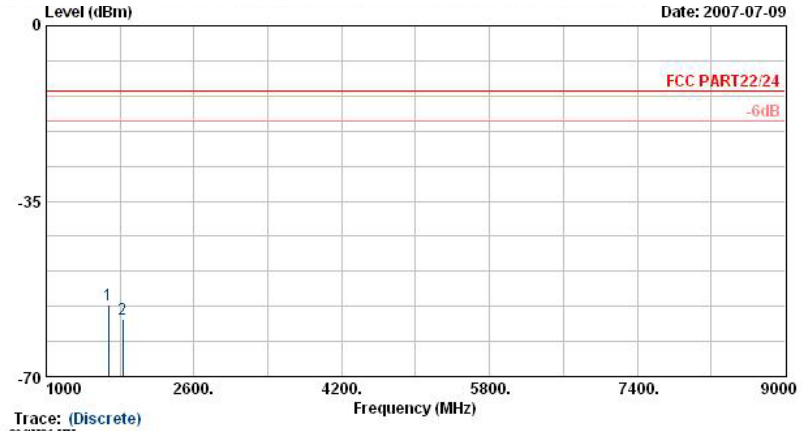
Trace: (Discrete)

Site : 03CH06-HY
Condition : LF-SPURIOUS VERTICAL
EUT : Mobile Phone
Power : 120Vac/60Hz
Model : FG 762206
Memo : EDGE(GSM850) Link Mode,Ch189+Earphone
: +Adaptor
Plane : E2

	Freq	Level	Over Limit	Limit Line	Read Level	Factor	Remark	Pol/Phase
	MHz	dBm	dB	dBm	dBm	dB		
1	71.6	-58.61	-45.61	-13.00	-46.86	-11.74	Peak	VERTICAL
2	101.3	-60.05	-47.05	-13.00	-52.35	-7.70	Peak	VERTICAL
3	192.5	-57.43	-44.43	-13.00	-48.90	-8.53	Peak	VERTICAL
4	675.9	-61.81	-48.81	-13.00	-61.02	-0.79	Peak	VERTICAL
5	836.9	-46.38			-47.74	1.36	Peak	VERTICAL
6	880.3	-46.48			-48.19	1.71	Peak	VERTICAL

Remark:

1. #5: MS Signal
2. #6: BS Signal

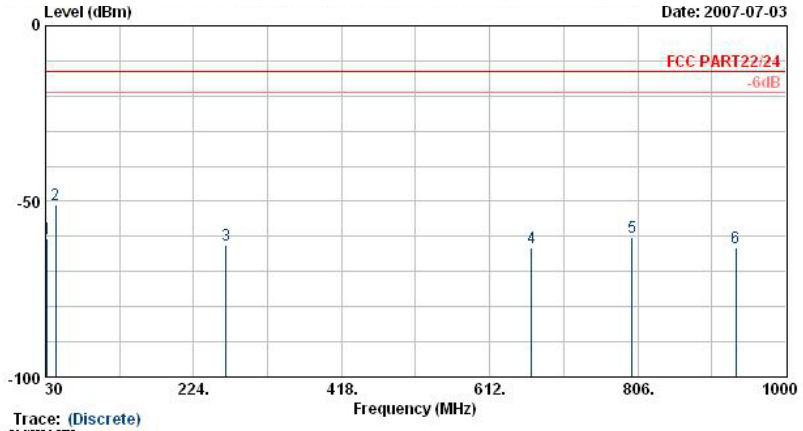


Trace: (Discrete)

Site : 03CH06-HY
Condition : HF-SPURIOUS VERTICAL
EUT : Mobile Phone
Power : 120Vac/60Hz
Model : FG 762206
Memo : EDGE(GSM850) Link Mode,Ch189+Earphone
: +Adaptor
Plane : E2

	Freq	Level	Over Limit	Limit Line	Read Level	Factor	Remark	Pol/Phase
	MHz	dBm	dB	dBm	dBm	dB		
1	1674.0	-55.59	-42.59	-13.00	-55.11	-0.48	Peak	VERTICAL
2	1828.0	-58.53	-45.53	-13.00	-58.22	-0.31	Peak	VERTICAL

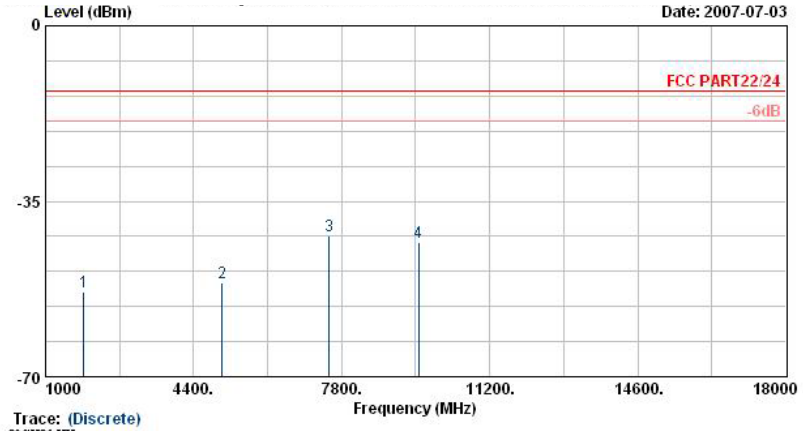
4.6.5.3 Mode 3
Horizontal Polarization



Trace: (Discrete)

Site	: 03CH06-HY
Condition	: LF-SPURIOUS HORIZONTAL
EUT	: Mobile Phone
Power	: 120Vac/60Hz
Model	: FG 762206
Memo	: PCS 1900 Link Mode,Ch661+Earphone
Plane	: +Adaptor
	: E2

	Freq	Level	Over Limit	Limit Line	Read Level	Factor	Remark	Pol/Phase
	MHz	dBm	dB	dBm	dBm	dB		
1	31.9	-60.50	-47.50	-13.00	-59.65	-0.86	Peak	HORIZONTAL
2	43.2	-50.99	-37.99	-13.00	-42.83	-8.17	Peak	HORIZONTAL
3	266.8	-62.41	-49.41	-13.00	-51.32	-11.08	Peak	HORIZONTAL
4	666.8	-63.18	-50.18	-13.00	-60.12	-3.06	Peak	HORIZONTAL
5	798.4	-60.20	-47.20	-13.00	-58.49	-1.71	Peak	HORIZONTAL
6	934.9	-63.32	-50.32	-13.00	-62.94	-0.39	Peak	HORIZONTAL



Trace: (Discrete)

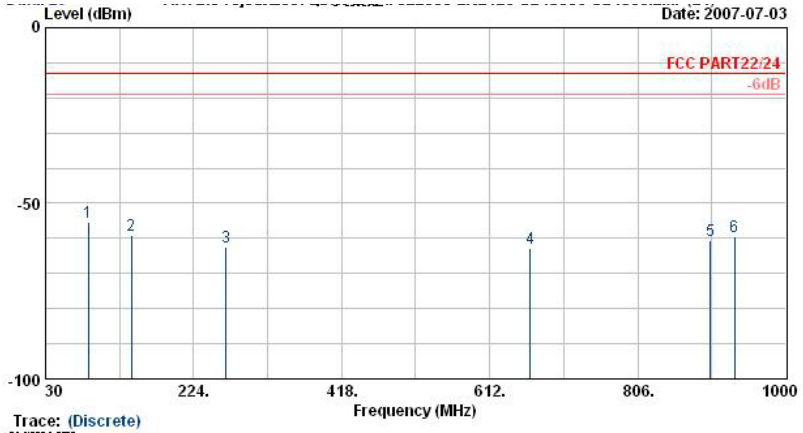
Site	: 03CH06-HY
Condition	: HF-SPURIOUS HORIZONTAL
EUT	: Mobile Phone
Power	: 120Vac/60Hz
Model	: FG 762206
Memo	: PCS 1900 Link Mode,Ch661+Earphone
Plane	: +Adaptor
	: E2

	Freq	Level	Over Limit	Limit Line	Read Level	Factor	Remark	Pol/Phase
	MHz	dBm	dB	dBm	dBm	dB		
1	1878.0	-53.12			-52.61	-0.51	Peak	HORIZONTAL
2	5048.0	-51.35	-38.35	-13.00	-61.53	10.18	Peak	HORIZONTAL
3	7518.0	-41.96	-28.96	-13.00	-57.77	15.80	Peak	HORIZONTAL
4	9564.0	-43.31	-30.31	-13.00	-61.60	18.28	Peak	HORIZONTAL

Remark:

1. #1: MS Signal

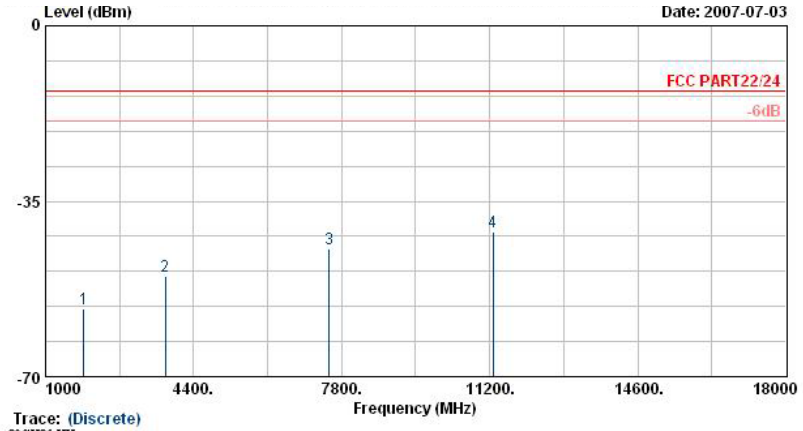
Vertical Polarization



Trace: (Discrete)

Site : 03CH06-HY
Condition : LF-SPURIOUS VERTICAL
EUT : Mobile Phone
Power : 120Vac/60Hz
Model : FG 762206
Memo : PCS 1900 Link Mode,Ch661+Earphone
Plane : +Adaptor
: E2

	Freq	Level	Over Limit	Limit Line	Read Level	Factor	Remark	Pol/Phase
	MHz	dBm	dB	dBm	dBm	dB		
1	85.9	-55.57	-42.57	-13.00	-45.93	-9.65	Peak	VERTICAL
2	142.6	-59.29	-46.29	-13.00	-51.21	-8.07	Peak	VERTICAL
3	266.8	-62.52	-49.52	-13.00	-55.36	-7.16	Peak	VERTICAL
4	665.4	-62.70	-49.70	-13.00	-61.75	-0.95	Peak	VERTICAL
5	901.3	-60.62	-47.62	-13.00	-62.49	1.87	Peak	VERTICAL
6	932.8	-59.59	-46.59	-13.00	-61.72	2.13	Peak	VERTICAL



Trace: (Discrete)

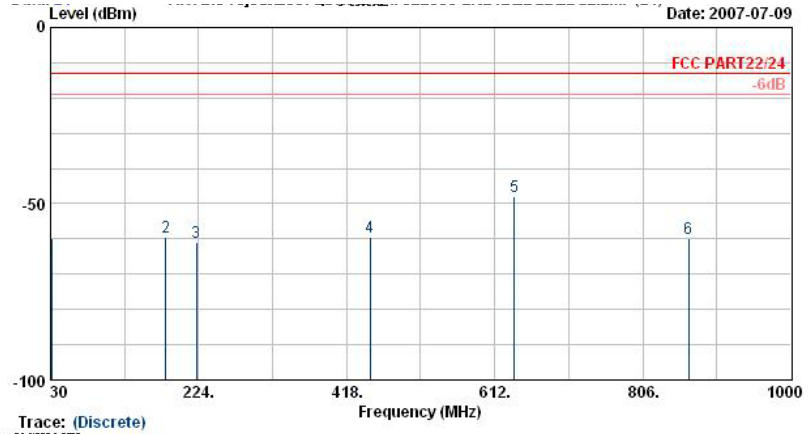
Site : 03CH06-HY
Condition : HF-SPURIOUS VERTICAL
EUT : Mobile Phone
Power : 120Vac/60Hz
Model : FG 762206
Memo : PCS 1900 Link Mode,Ch661+Earphone
Plane : +Adaptor
: E2

	Freq	Level	Over Limit	Limit Line	Read Level	Factor	Remark	Pol/Phase
	MHz	dBm	dB	dBm	dBm	dB		
1	1878.0	-56.50			-56.10	-0.40	Peak	VERTICAL
2	3758.0	-49.96	-36.96	-13.00	-56.60	6.64	Peak	VERTICAL
3	7518.0	-44.55	-31.55	-13.00	-57.91	13.37	Peak	VERTICAL
4 @	11278.0	-41.22	-28.22	-13.00	-60.10	18.87	Peak	VERTICAL

Remark:

1. #1: MS Signal

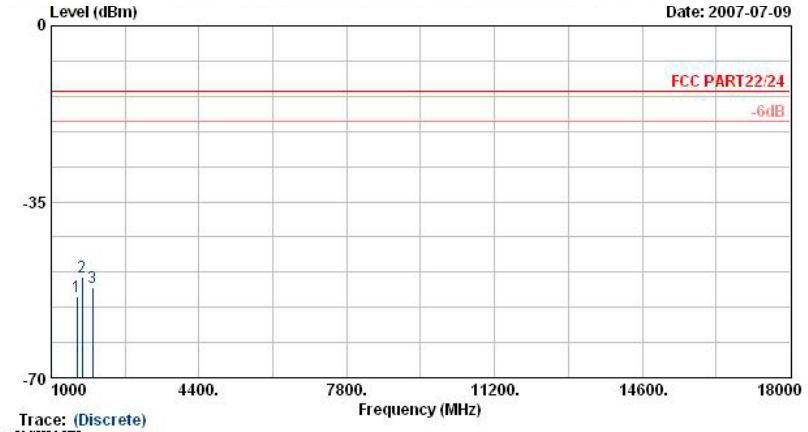
4.6.5.4 Mode 4
Horizontal Polarization



Trace: (Discrete)

Site : 03CH06-HY
Condition : LF-SPURIOUS HORIZONTAL
EUT : Mobile Phone
Power : 120Vac/60Hz
Model : FG 762206
Memo : EDGE(PCS 1900) Link Mode,Ch661+Earphone
: +Adaptor
Plane : E2

	Freq	Level	Over Limit	Limit Line	Read Level	Factor	Remark	Pol/Phase
	MHz	dBm	dB	dBm	dBm	dB		
1	31.1	-59.93	-46.93	-13.00	-59.68	-0.25	Peak	HORIZONTAL
2	180.9	-59.40	-46.40	-13.00	-46.22	-13.18	Peak	HORIZONTAL
3	220.9	-61.06	-48.06	-13.00	-48.41	-12.65	Peak	HORIZONTAL
4	448.4	-59.47	-46.47	-13.00	-53.64	-5.83	Peak	HORIZONTAL
5 @	637.4	-48.03	-35.03	-13.00	-44.67	-3.36	Peak	HORIZONTAL
6	866.3	-59.74	-46.74	-13.00	-58.69	-1.05	Peak	HORIZONTAL



Trace: (Discrete)

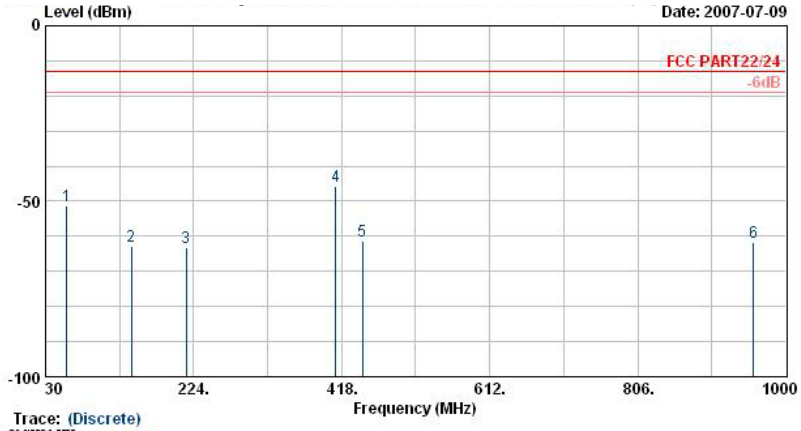
Site : 03CH06-HY
Condition : HF-SPURIOUS HORIZONTAL
EUT : Mobile Phone
Power : 120Vac/60Hz
Model : FG 762206
Memo : EDGE(PCS 1900) Link Mode,Ch661+Earphone
: +Adaptor
Plane : E2

	Freq	Level	Over Limit	Limit Line	Read Level	Factor	Remark	Pol/Phase
	MHz	dBm	dB	dBm	dBm	dB		
1 @	1598.0	-53.93	-40.93	-13.00	-54.30	0.37	Peak	HORIZONTAL
2 @	1718.0	-49.87	-36.87	-13.00	-49.94	0.08	Peak	HORIZONTAL
3 @	1958.0	-52.10			-50.99	-1.11	Peak	HORIZONTAL

Remark:

1. #3: BS Signal

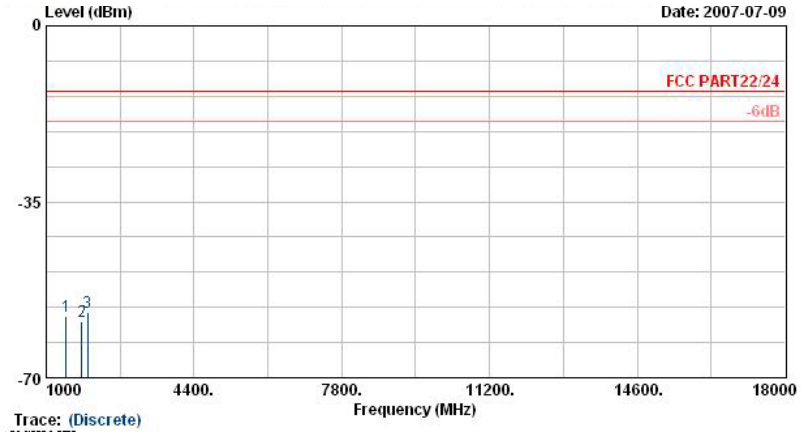
Vertical Polarization



Trace: (Discrete)

Site : 03CH06-HY
Condition : LF-SPURIOUS VERTICAL
EUT : Mobile Phone
Power : 120Vac/60Hz
Model : FG 762206
Memo : EDGE(PCS 1900) Link Mode,Ch661+Earphone
: +Adaptor
Plane : E2

	Freq	Level	Over Limit	Limit Line	Read Level	Factor	Remark	Pol/Phase
	MHz	dBm	dB	dBm	dBm	dB		
1 @	58.1	-51.21	-38.21	-13.00	-37.51	-13.70	Peak	VERTICAL
2	142.6	-62.73	-49.73	-13.00	-54.65	-8.07	Peak	VERTICAL
3	214.7	-63.08	-50.08	-13.00	-54.80	-8.28	Peak	VERTICAL
4 @	409.9	-45.70	-32.70	-13.00	-41.50	-4.20	Peak	VERTICAL
5	444.9	-61.29	-48.29	-13.00	-57.50	-3.79	Peak	VERTICAL
6	957.3	-61.65	-48.65	-13.00	-63.97	2.32	Peak	VERTICAL



Trace: (Discrete)

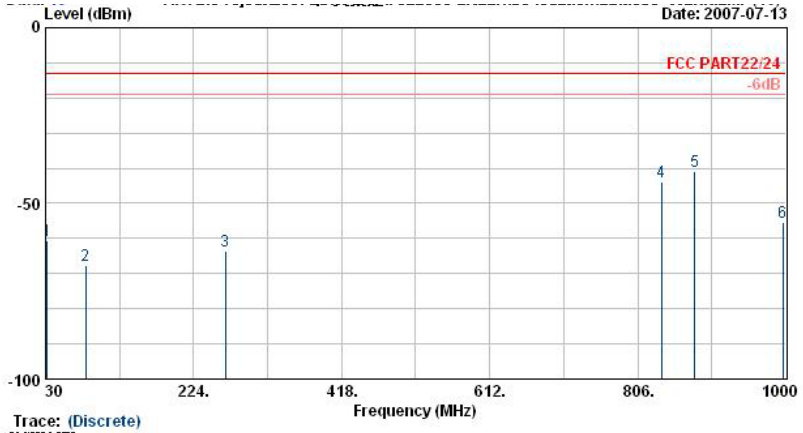
Site : 03CH06-HY
Condition : HF-SPURIOUS VERTICAL
EUT : Mobile Phone
Power : 120Vac/60Hz
Model : FG 762206
Memo : EDGE(PCS 1900) Link Mode,Ch661+Earphone
: +Adaptor
Plane : E2

	Freq	Level	Over Limit	Limit Line	Read Level	Factor	Remark	Pol/Phase
	MHz	dBm	dB	dBm	dBm	dB		
1	1464.0	-57.83	-44.83	-13.00	-56.90	-0.93	Peak	VERTICAL
2	1824.0	-58.85	-45.85	-13.00	-58.55	-0.31	Peak	VERTICAL
3 @	1958.0	-57.10			-56.51	-0.60	Peak	VERTICAL

Remark:

1. #3: BS Signal

4.6.5.5 Mode 5
Horizontal Polarization



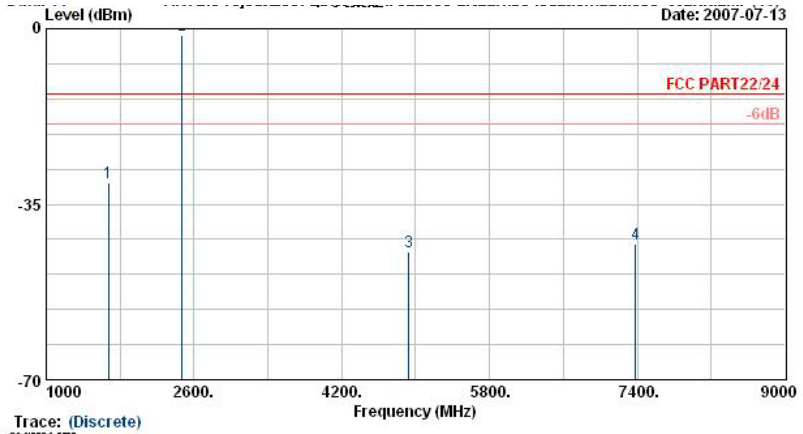
Trace: (Discrete)

Site	: 03CH06-HY
Condition	: LF-SPURIOUS HORIZONTAL
EUT	: Mobile Phone
Power	: 120Vac/60Hz
Model	: FG 761327
Memo	: GSM 850 Link Mode,Ch189+Earphone
	: +WLAN 11g Tx_Ch11,2462MHz+Adaptor
	: E2
Plane	:

	Freq	Level	Over Limit	Limit Line	Read Level	Factor	Remark	Pol/Phase
	MHz	dBm	dB	dBm	dBm	dB		
1	31.9	-60.52	-47.52	-13.00	-59.67	-0.86	Peak	HORIZONTAL
2	82.4	-67.55	-54.55	-13.00	-55.24	-12.31	Peak	HORIZONTAL
3	265.4	-63.74	-50.74	-13.00	-52.62	-11.12	Peak	HORIZONTAL
4	836.9	-43.91			-42.58	-1.33	Peak	HORIZONTAL
5 @	880.3	-40.75			-39.84	-0.91	Peak	HORIZONTAL
6	995.8	-55.31	-42.31	-13.00	-55.51	0.20	Peak	HORIZONTAL

Remark:

1. #4: MS Signal
2. #5: BS Signal



Trace: (Discrete)

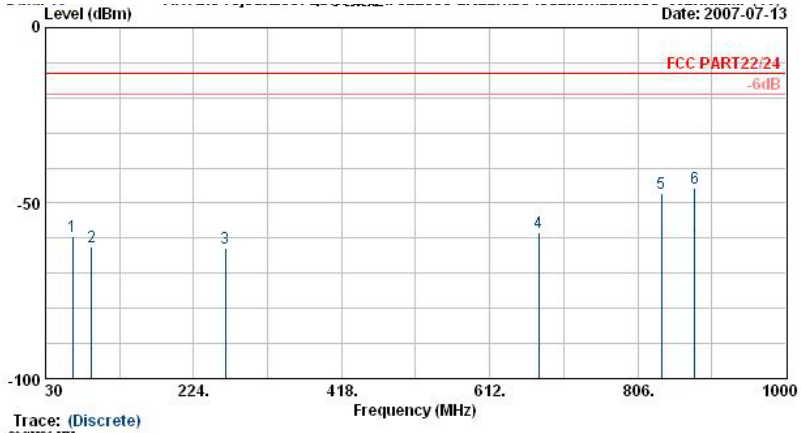
Site	: 03CH06-HY
Condition	: HF-SPURIOUS HORIZONTAL
EUT	: Mobile Phone
Power	: 120Vac/60Hz
Model	: FG 761327
Memo	: GSM 850 Link Mode,Ch189+Earphone
	: +WLAN 11g Tx_Ch11,2462MHz+Adaptor
	: E2
Plane	:

	Freq	Level	Over Limit	Limit Line	Read Level	Factor	Remark	Pol/Phase
	MHz	dBm	dB	dBm	dBm	dB		
1 @	1674.0	-30.71	-17.71	-13.00	-30.93	0.22	Peak	HORIZONTAL
2 @	2468.0	-1.30			-2.46	1.16	Peak	HORIZONTAL
3	4928.0	-44.42	-31.42	-13.00	-55.24	10.83	Peak	HORIZONTAL
4	7378.0	-43.04	-30.04	-13.00	-57.86	14.82	Peak	HORIZONTAL

Remark:

1. #2: WLAN Signal

Vertical Polarization



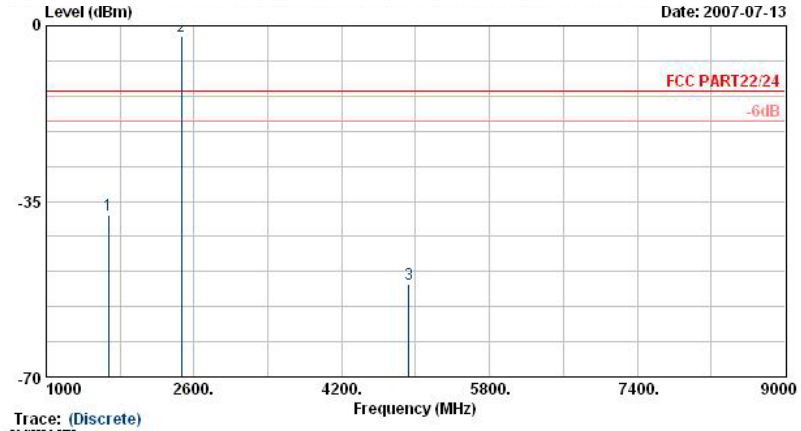
Trace: (Discrete)

Site : 03CH06-HY
Condition : LF-SPURIOUS VERTICAL
EUT : Mobile Phone
Power : 120Vac/60Hz
Model : FG 761327
Memo : GSM 850 Link Mode,Ch189+Earphone
: +WLAN 11g Tx_Ch11,2462MHz+Adaptor
: E2
Plane :

	Freq	Level	Over Limit	Limit Line	Read Level	Factor	Remark	Pol/Phase
	MHz	dBm	dB	dBm	dBm	dB		
1	65.6	-59.36	-46.36	-13.00	-46.78	-12.58	Peak	VERTICAL
2	90.5	-62.38	-49.38	-13.00	-53.29	-9.09	Peak	VERTICAL
3	266.0	-62.70	-49.70	-13.00	-55.51	-7.18	Peak	VERTICAL
4	675.9	-58.27	-45.27	-13.00	-57.48	-0.79	Peak	VERTICAL
5	836.9	-47.11			-48.48	1.36	Peak	VERTICAL
6	880.3	-45.58			-47.29	1.71	Peak	VERTICAL

Remark:

1. #5: MS Signal
2. #6: BS Signal



Trace: (Discrete)

Site : 03CH06-HY
Condition : HF-SPURIOUS VERTICAL
EUT : Mobile Phone
Power : 120Vac/60Hz
Model : FG 761327
Memo : GSM 850 Link Mode,Ch189+Earphone
: +WLAN 11g Tx_Ch11,2462MHz+Adaptor
: E2
Plane :

	Freq	Level	Over Limit	Limit Line	Read Level	Factor	Remark	Pol/Phase
	MHz	dBm	dB	dBm	dBm	dB		
1 @	1674.0	-37.64	-24.64	-13.00	-37.16	-0.48	Peak	VERTICAL
2 @	2464.0	-2.06			-4.21	2.16	Peak	VERTICAL
3	4928.0	-51.48	-38.48	-13.00	-60.94	9.46	Peak	VERTICAL

Remark:

1. #2: WLAN Signal

4.7 Frequency Stability (Temperature Variation)

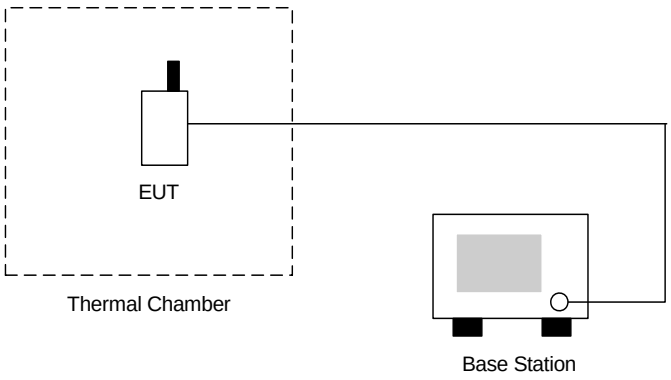
4.7.1 Measurement Instrument

As decribed 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 note 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 ws 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 : GSM850 (GSM) CH189

Temperature(°C)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
-30	-55	-0.03	2.5	Passed
-20	37	0.04		
-10	35	0.04		
0	-28	-0.03		
10	-26	-0.03		
20	-33	-0.04		
30	-36	-0.04		
40	42	0.05		
50	-45	-0.05		

- Test Mode : GSM850 (EDGE) CH189

Temperature(°C)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
-30	-66	-0.03	2.5	Passed
-20	-62	-0.07		
-10	57	0.07		
0	-28	-0.03		
10	31	0.04		
20	27	0.03		
30	-41	-0.05		
40	46	0.05		
50	48	0.06		

- Test Mode : PCS1900 (GSM) CH661

Temperature(°C)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
-30	38	0.02	2.5	Passed
-20	-26	-0.01		
-10	33	0.02		
0	-20	-0.01		
10	-25	-0.01		
20	21	0.01		
30	16	0.01		
40	-28	-0.01		
50	-27	-0.01		

- Test Mode : PCS1900 (EDGE) CH661

Temperature(°C)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
-30	-33	-0.02	2.5	Passed
-20	28	0.01		
-10	24	0.01		
0	-22	-0.01		
10	-25	-0.01		
20	31	0.02		
30	-33	-0.02		
40	35	0.02		
50	-42	-0.02		

4.8 Frequency Stability (Voltage Variation)

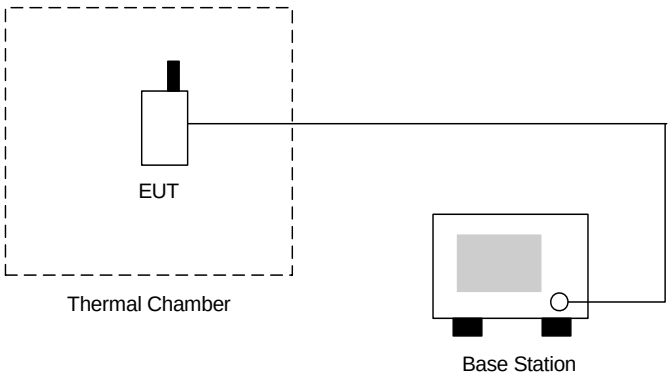
4.8.1 Measurement Instrument

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±5 °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 : GSM850 (GSM) CH189

Voltage(Volt)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
3.7	22.0	0.03	2.5	Passed
BEP	24.0	0.03		
4.2	25.0	0.03		

- Test Mode : GSM850 (EDGE) CH189

Voltage(Volt)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
3.7	-15.0	-0.02	2.5	Passed
BEP	-18.0	-0.02		
4.2	-27.0	-0.03		

- Test Mode : PCS1900 (GSM) CH661

Voltage(Volt)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
3.7	22.0	0.01	2.5	Passed
BEP	18.0	0.01		
4.2	-20.0	-0.01		

- Test Mode : PCS1900 (EDGE) CH661

Voltage(Volt)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
3.7	21.0	0.01	2.5	Passed
BEP	-25.0	-0.01		
4.2	16.0	0.01		

Remark:

Normal Voltage=3.7V.
Battery End Point (BEP)= 3.4 V.

5 List of Measurement Equipments

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
Thermal Chamber	Ten Million	TTH-D35P	TBN-930701	N/A	Jul. 24, 2006	Jul. 23, 2007	TH02-HY
Spectrum	R&S	FSP40	100055	9KHz~40GHz	Jun. 25, 2007	Jun. 24, 2008	TH02-HY
Bluetooth Test	ANRITSU	MT8852A	6K00003939	N/A	N/A	N/A	TH02-HY
POWER DIVIDER	ARRA	5200-1	3871	N/A	Oct. 07, 2006	Oct. 06, 2007	TH02-HY
DC POWER SUPPLY	TOPWARD	3303D	740889	N/A	May 25, 2005	May 24, 2009	TH02-HY
Power Meter	Agilent	E4416A	GB41292344	N/A	Feb. 08, 2007	Feb. 07, 2008	TH02-HY
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, 2007	Jul. 12, 2008	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	071025	1G~18G	Jun. 04, 2007	Jun. 03, 2008	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)
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		$u(x_i)$	Ci	$Ci*u(x_i)$
	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 Γ1= 0.197 Antenna VSWR Γ2= 0.194 Uncertainty=20log(1-Γ1*Γ2*Γ3)	+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

Appendix A. External Photographs of EUT

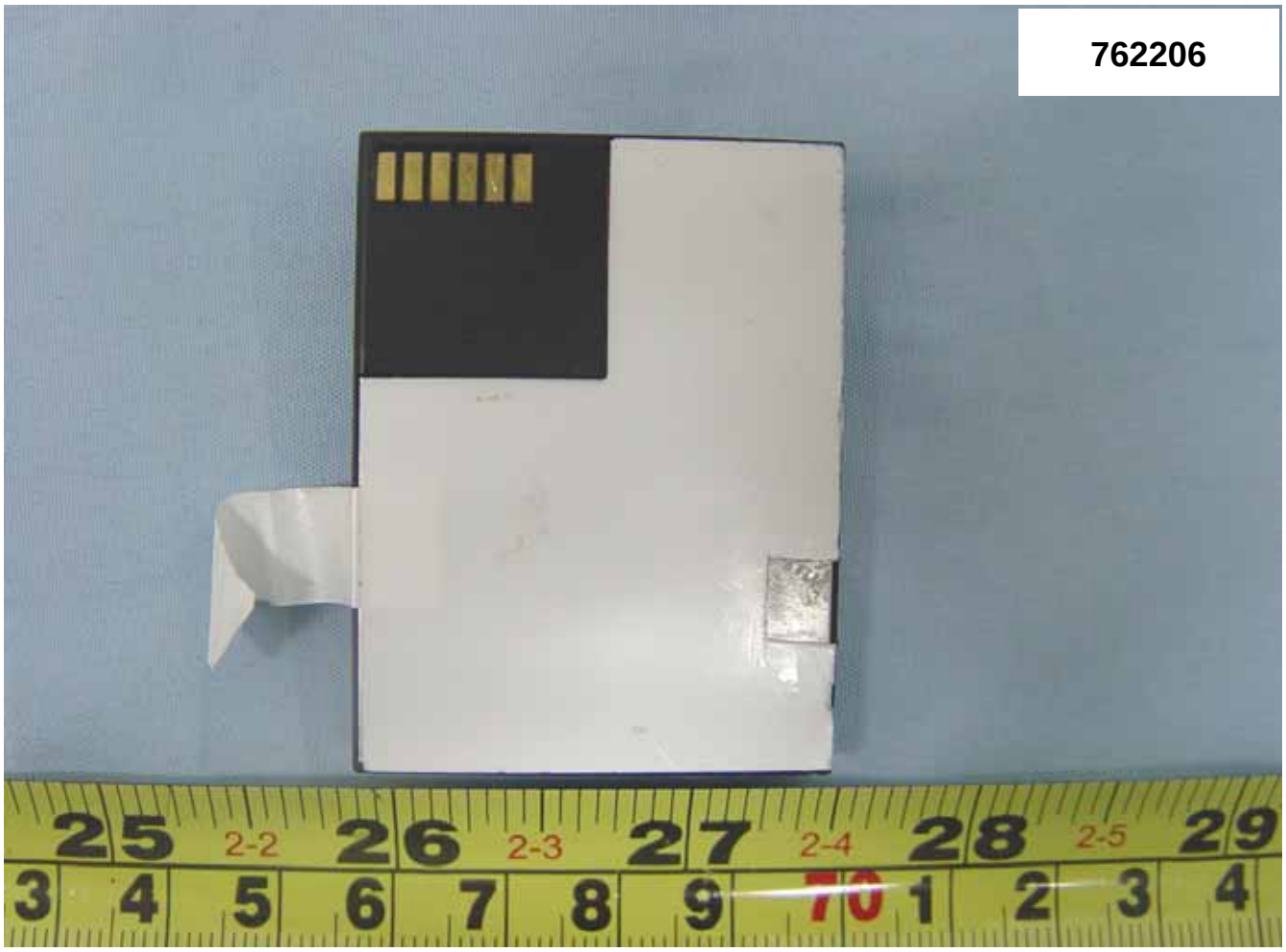

762206

➢ **Scanner 1**

➢ **Scanner 2**

762206


761417
OPTICON H-19
Rechargeable LiIon 4.2 VDC 1440mAh
PLEASE KEEP THE EARTH CLEAN:
RECYCLE OR DISPOSE OF PROPERLY!
Caution:
to reduce the risk of injuries and accidents:
• Do not attempt to open, disassemble or tamper with this battery in any way.
• Do not dispose of in fire or water
• Do not heat above 60°C (140°F)
• Replace only with original part from a trusted supplier
Made in Taiwan


762206


762206
P/N: 367044-001
SPS: 367870-001
MODEL: HSTNN-P05A
INPUT: 100-240V~50/60Hz 0.6A
OUTPUT: 5V 3.6A
OPERATION TEMPERATURE 40℃
LR101771
Pour matériel de informatique technologique
POWER SUPPLY
LISTED LPS
N20336
AD7010
PRODUCT OF CHINA PIE 0610A


762206


762206


762206


762206


762206


762206


762206
AC ADAPTOR
INPUT: 100-240V ~ 50/60Hz 0.25A
OUTPUT: 5V ⎓ 1A
MODEL: AD7112B
TYPE: 03LF
IV
c UL us
LISTED
I.T.E. POWER SUPPLY
LPS
E186735
MADE IN CHINA
PIE

762206

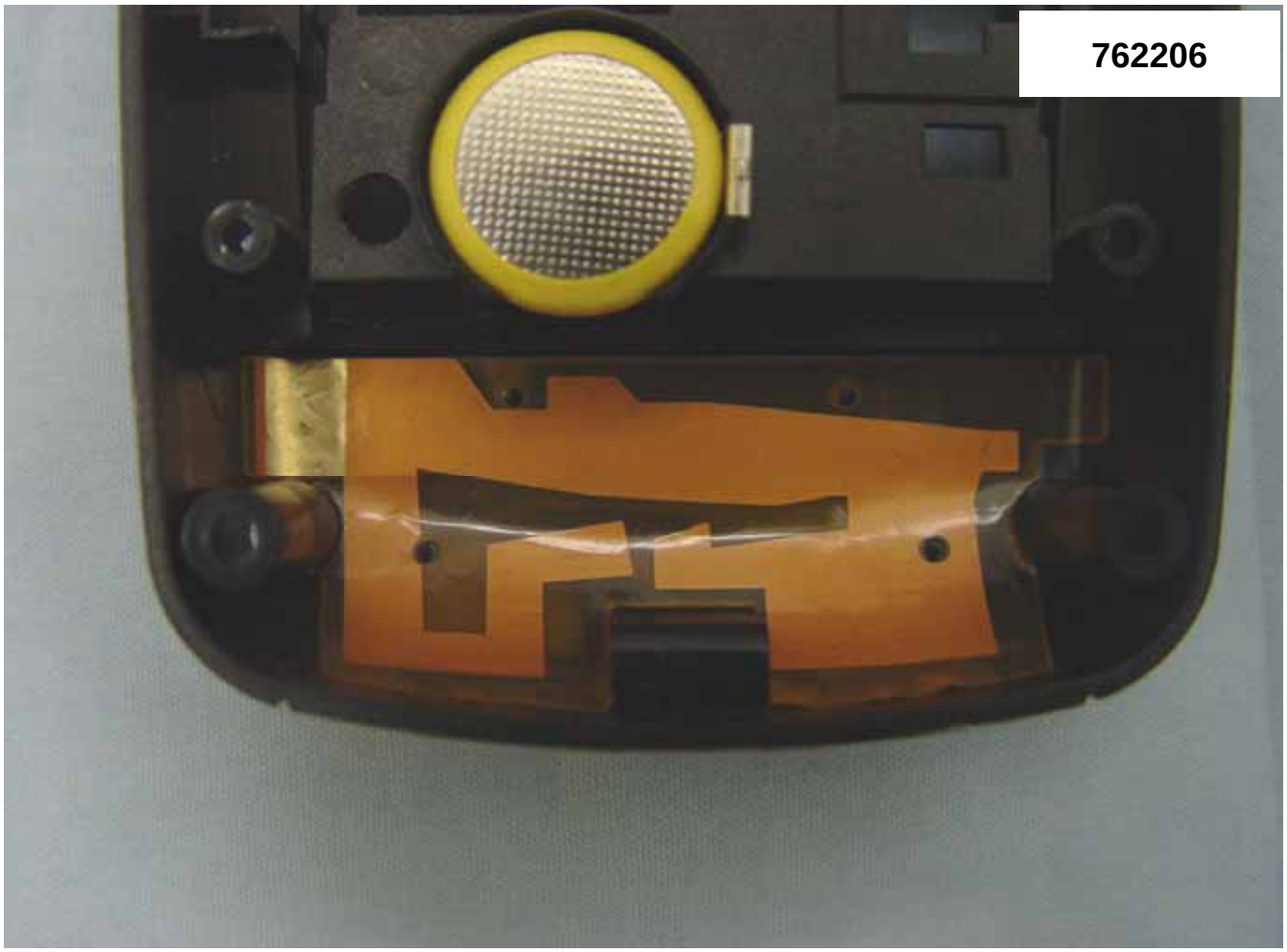
SPORTON International Inc.
TEL : 886-2-2696-2468
FAX : 886-2-2696-2255
FCC ID : UFOBC0164AAA390

Appendix B. External Photographs of EUT

➢ **Scanner 1**


762206


762206
WWAN Antenna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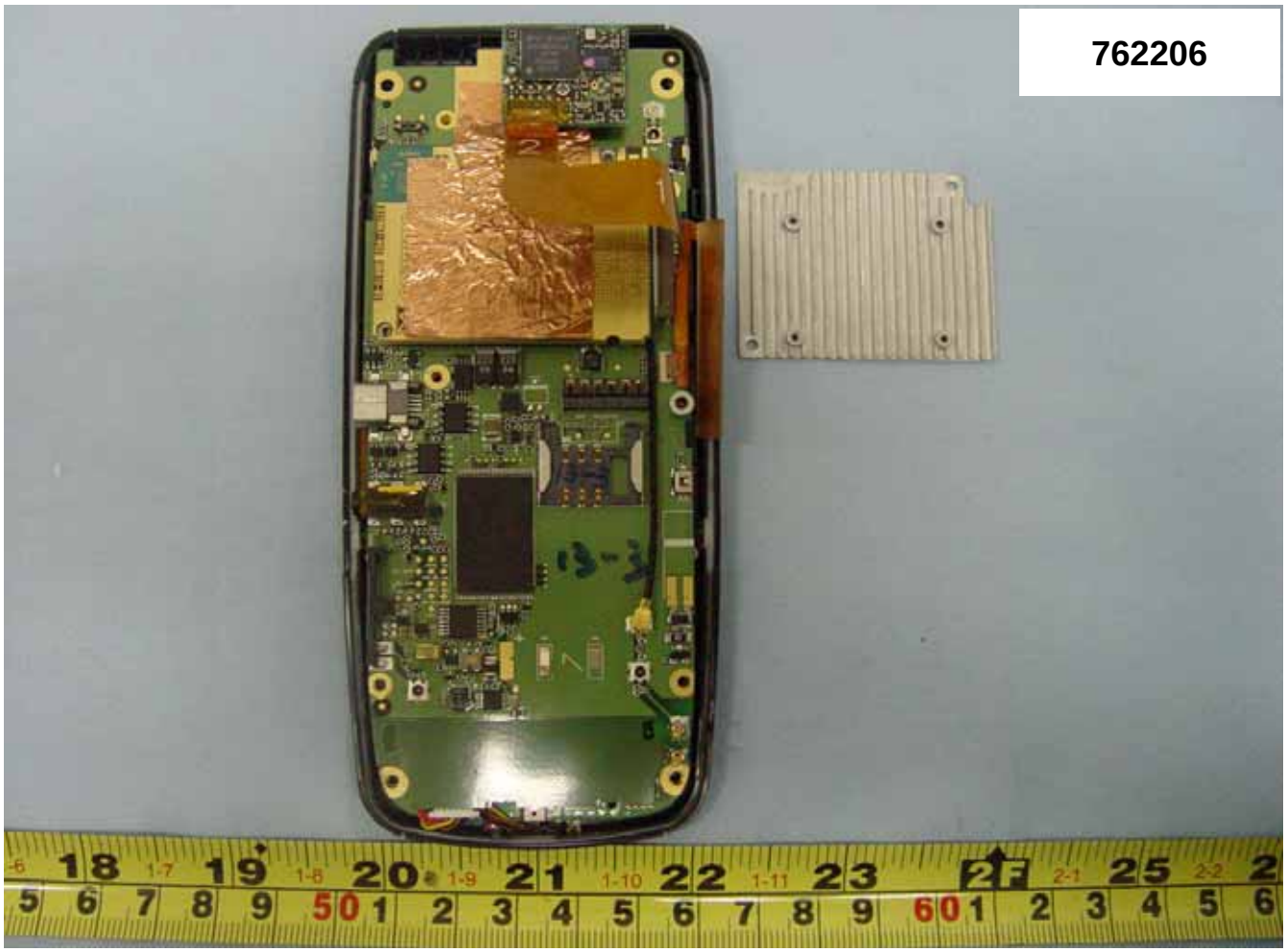
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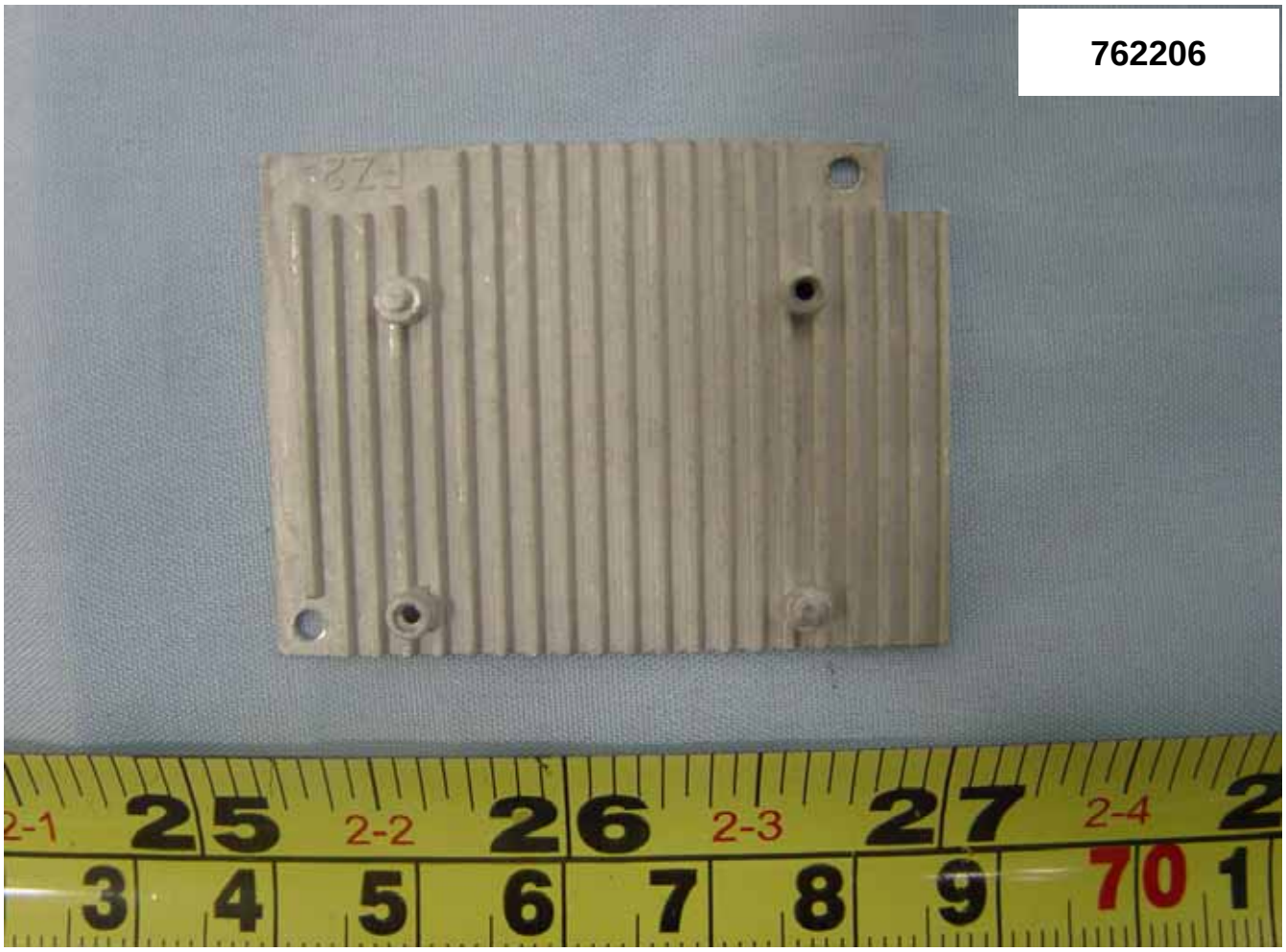
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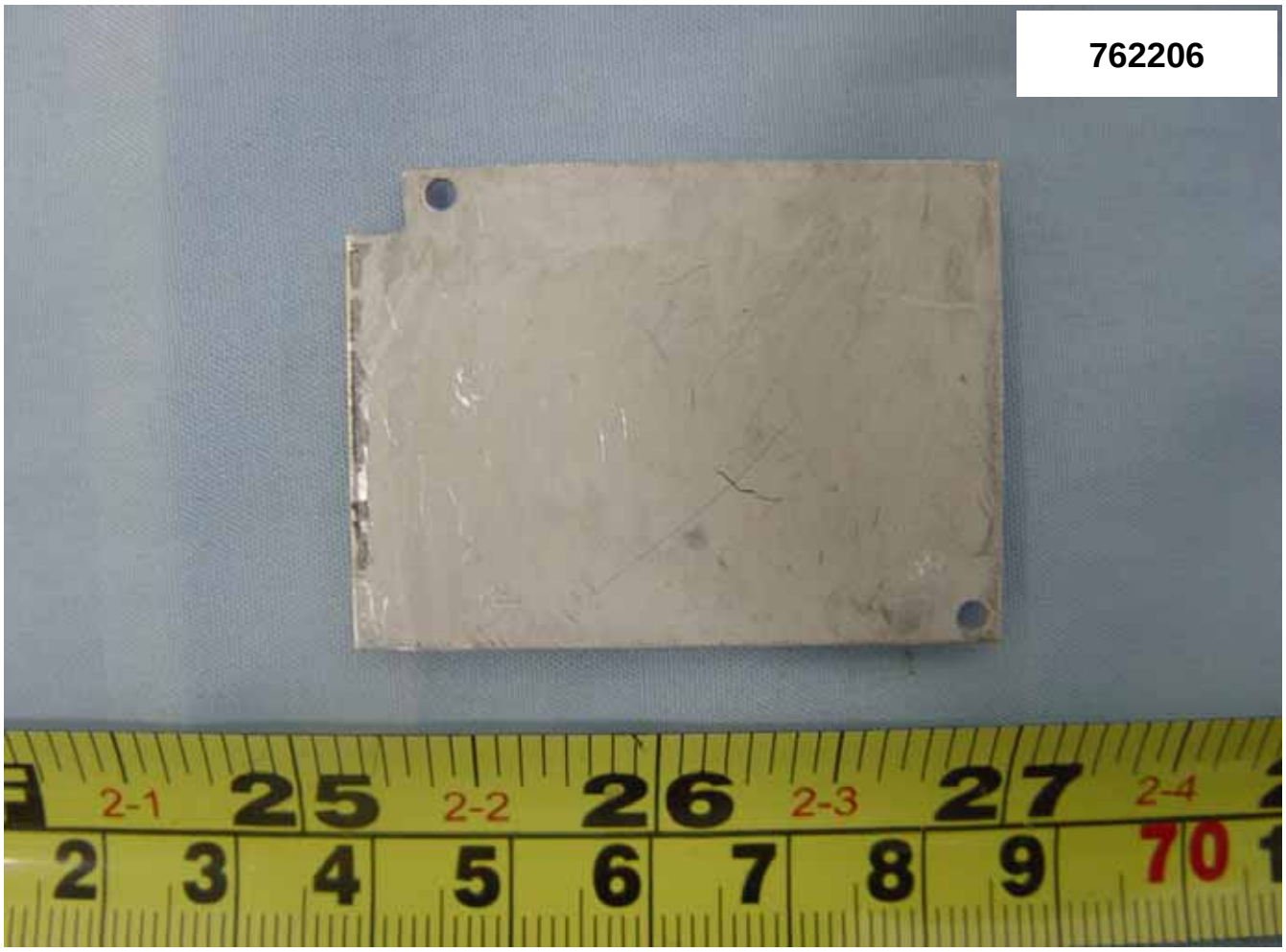
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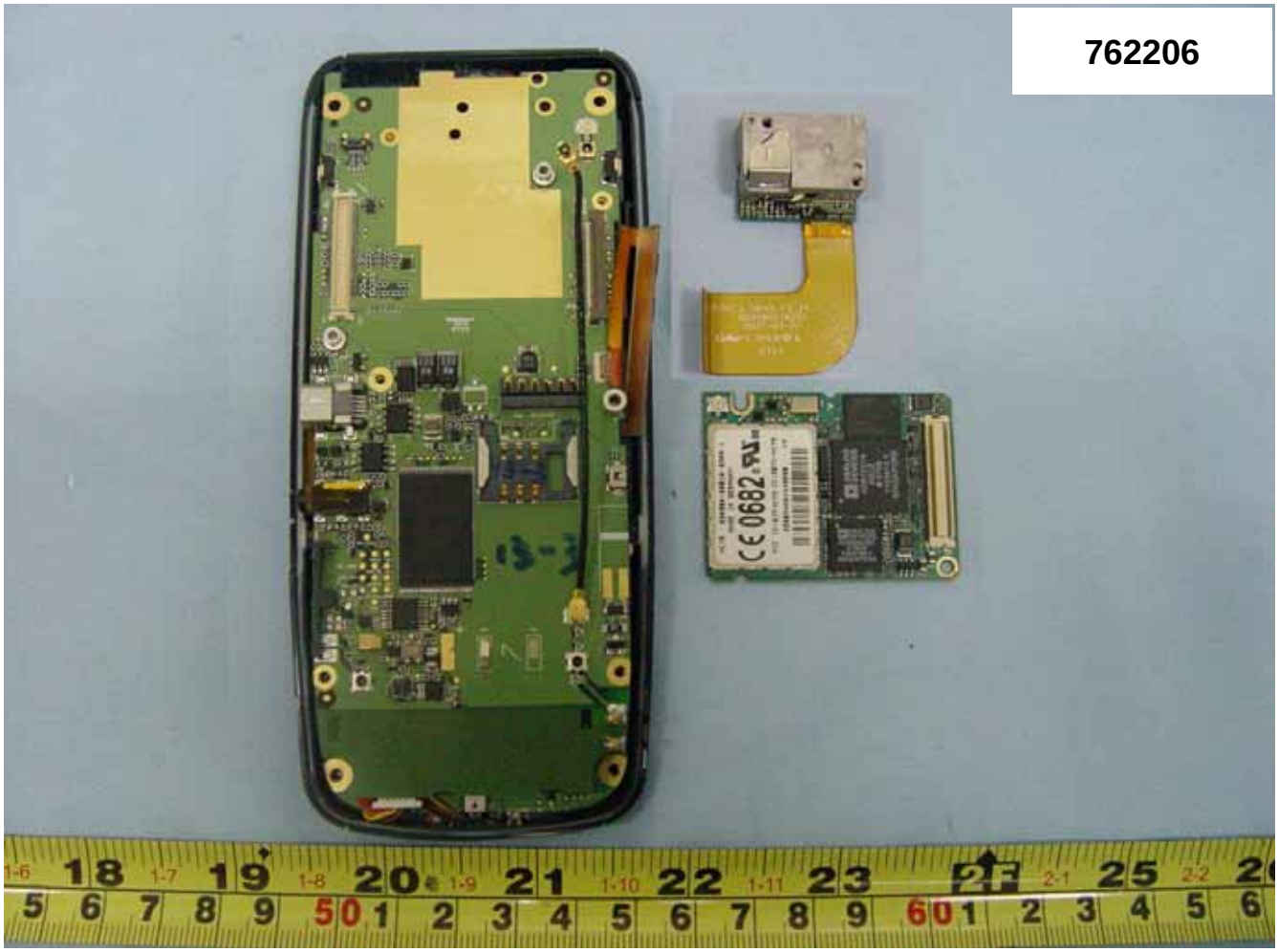
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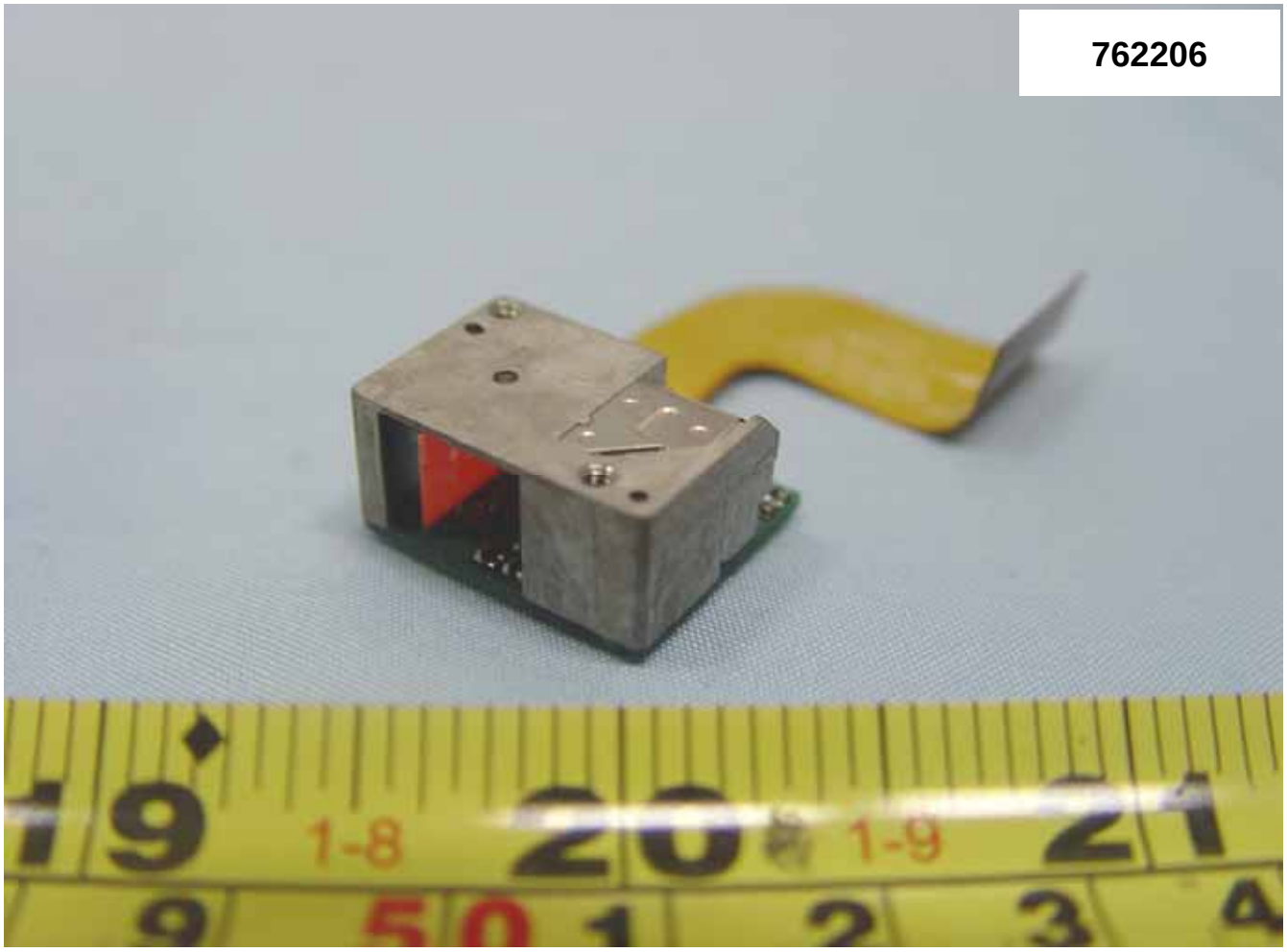
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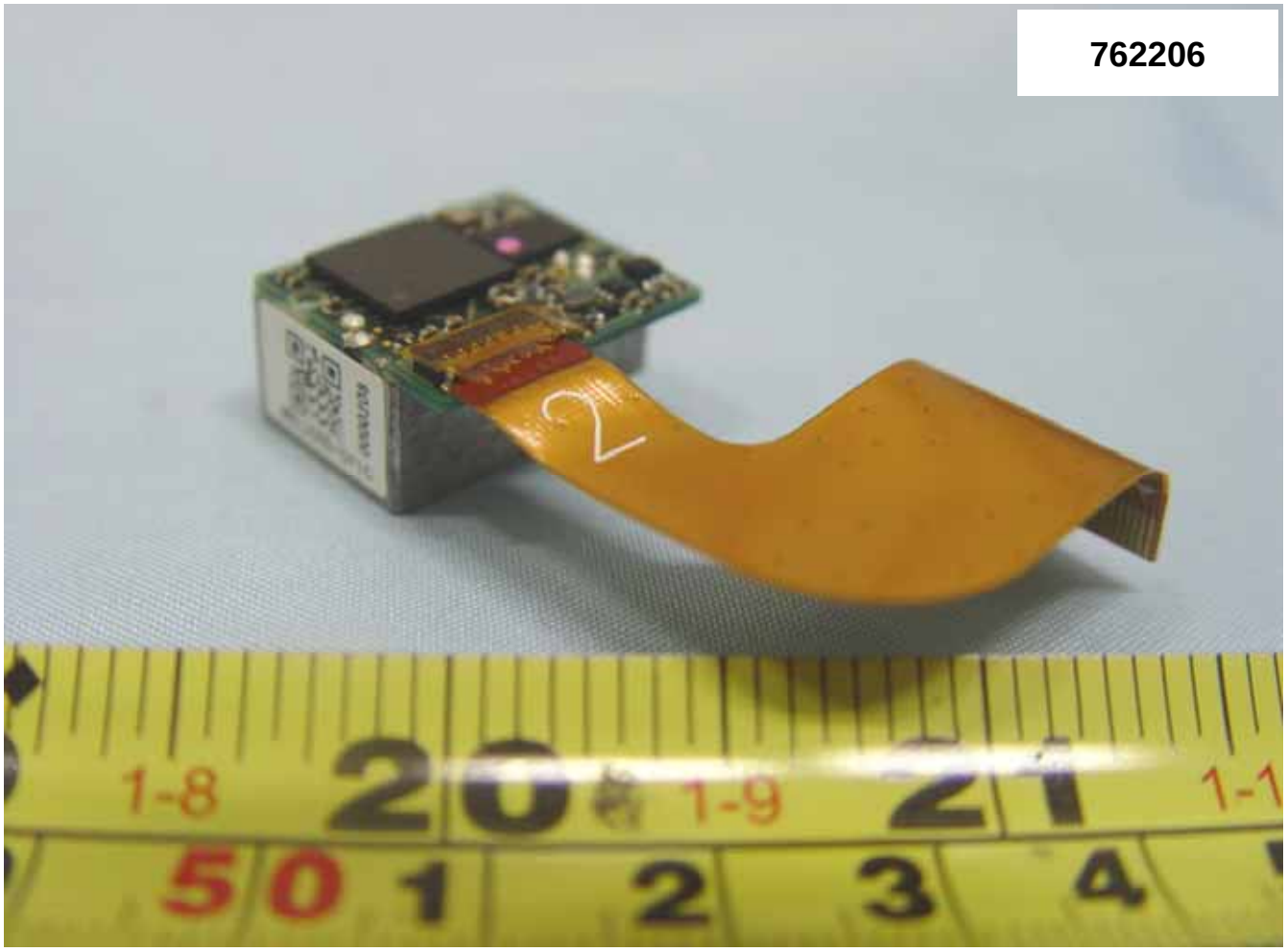
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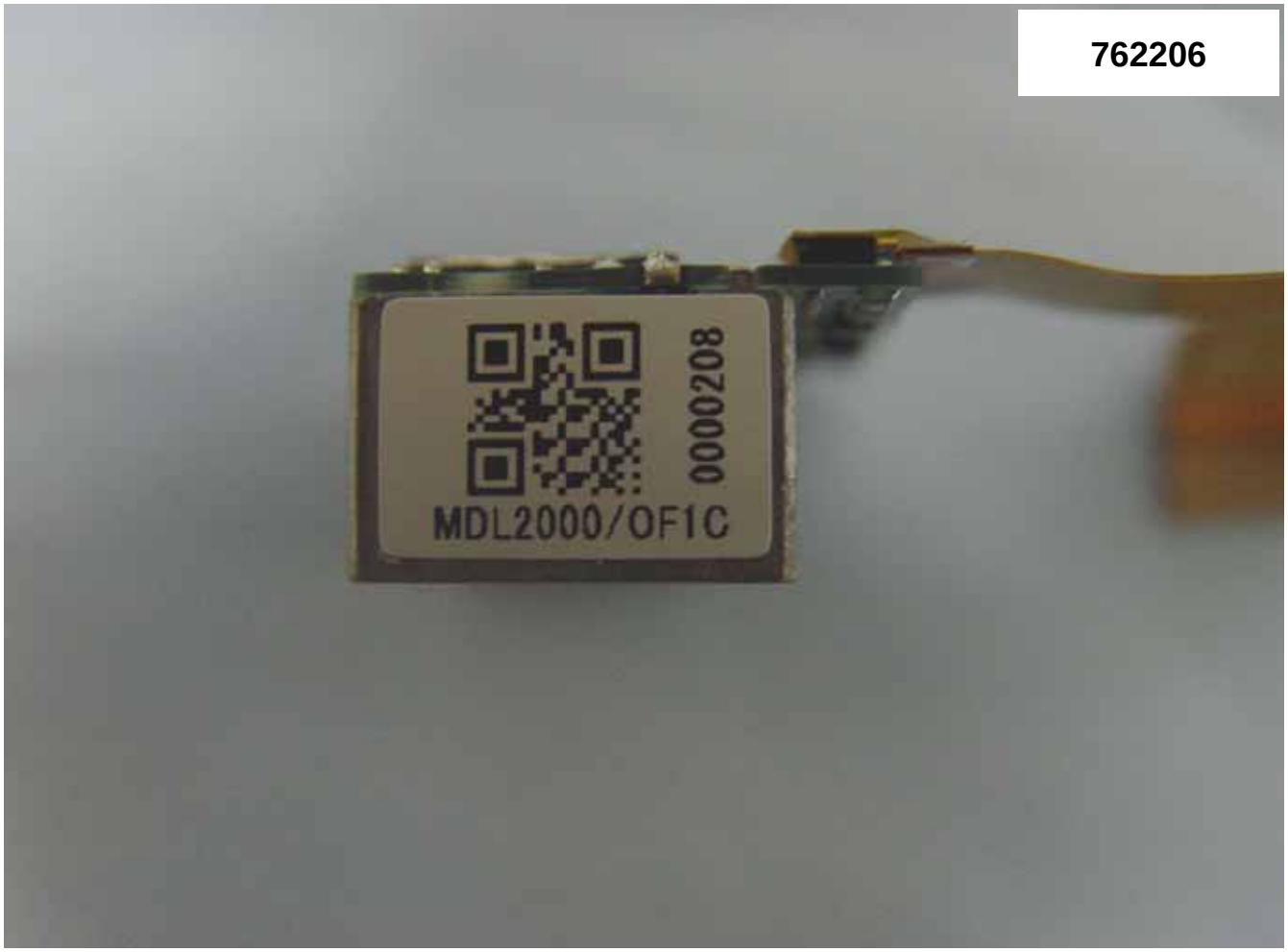
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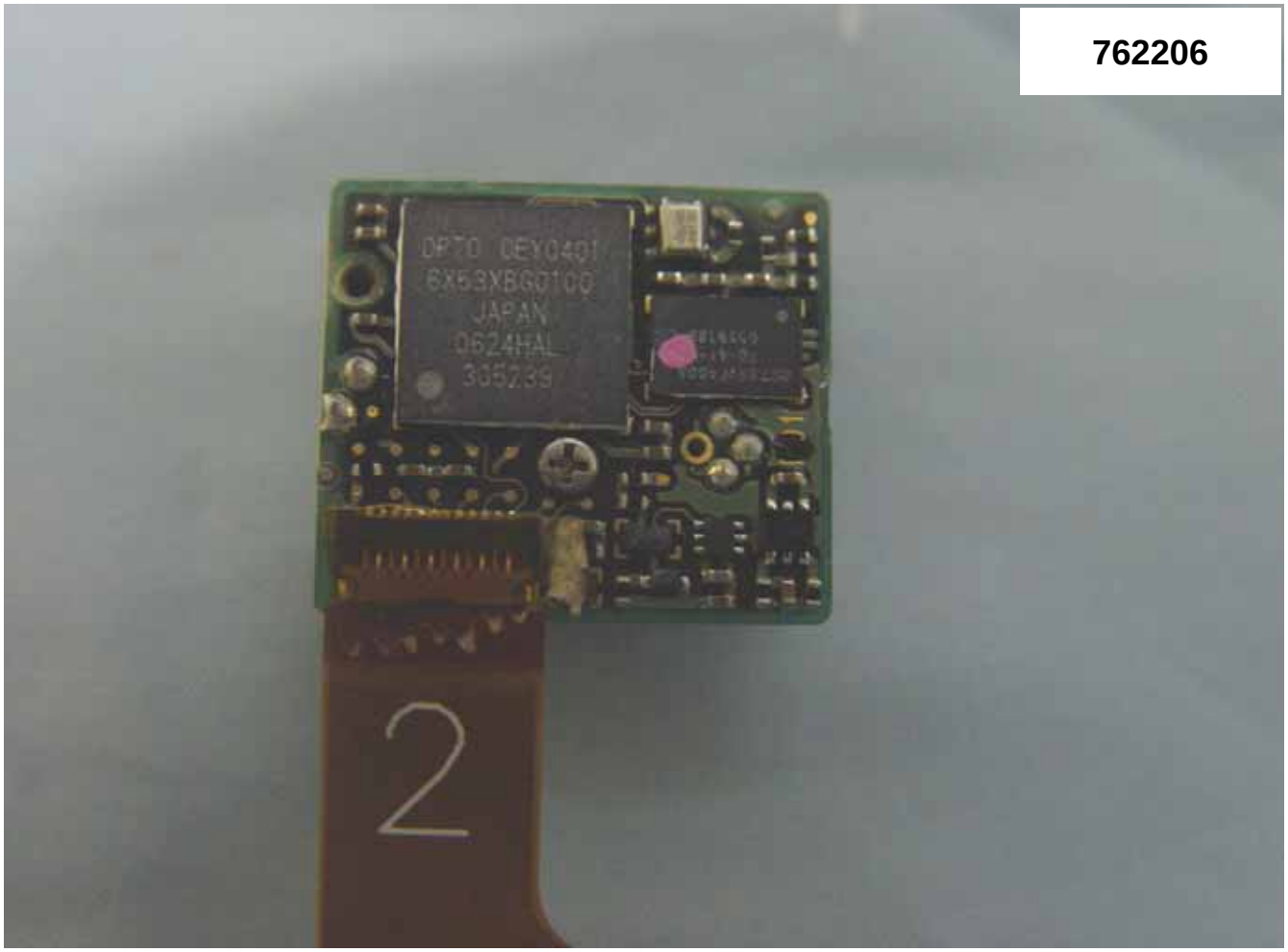
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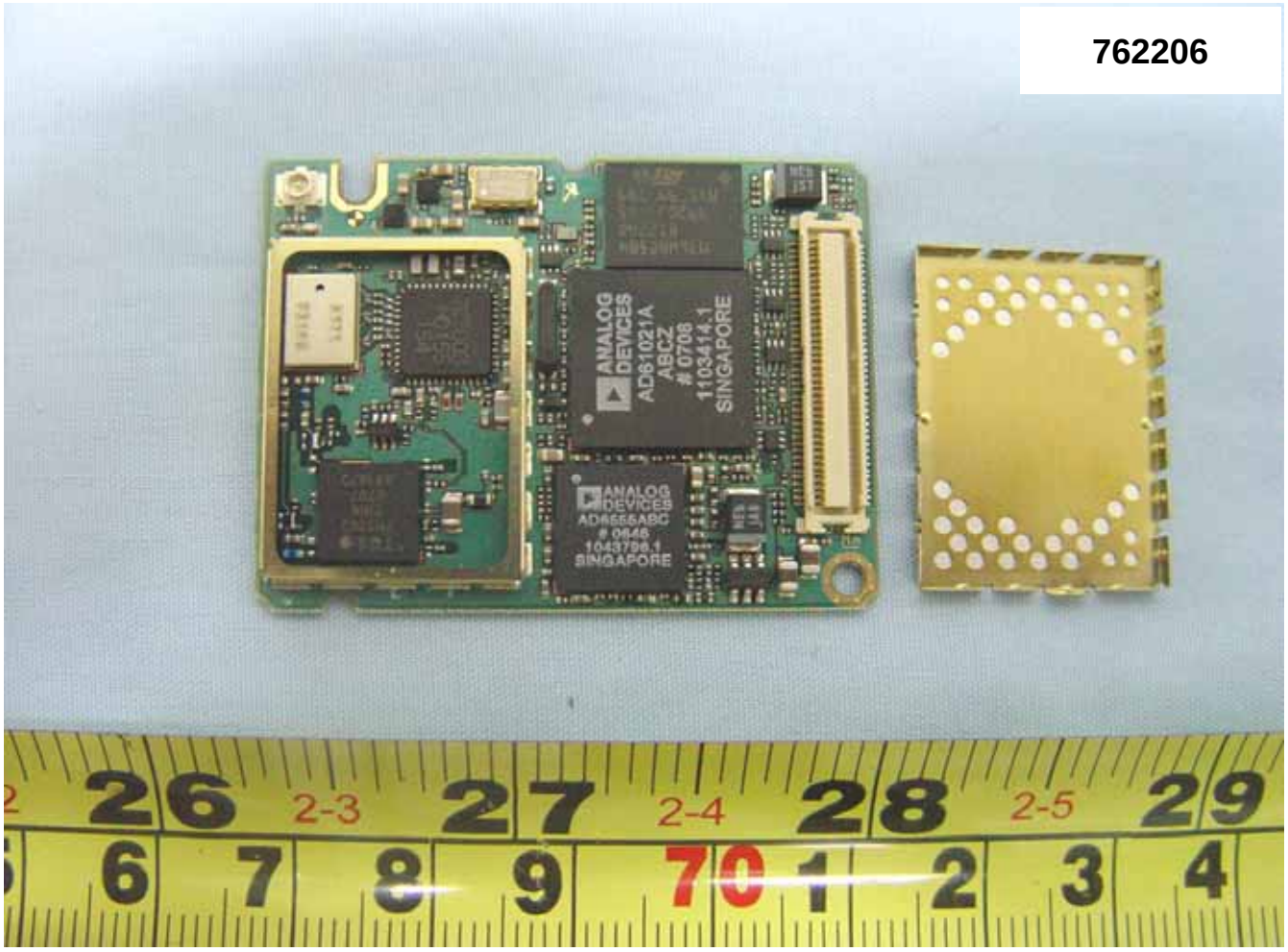
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ANALOG DEVICES
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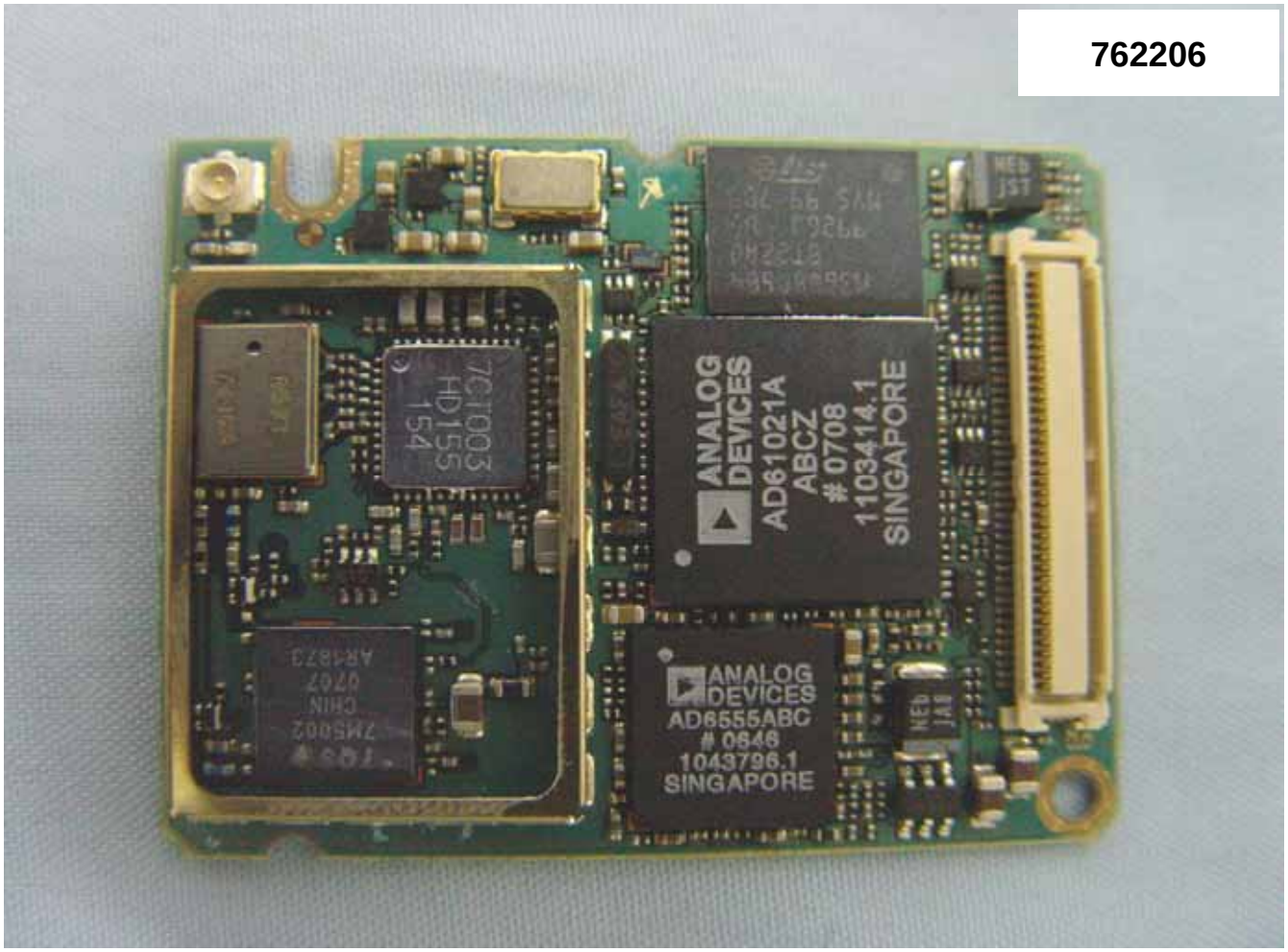
SINGAPORE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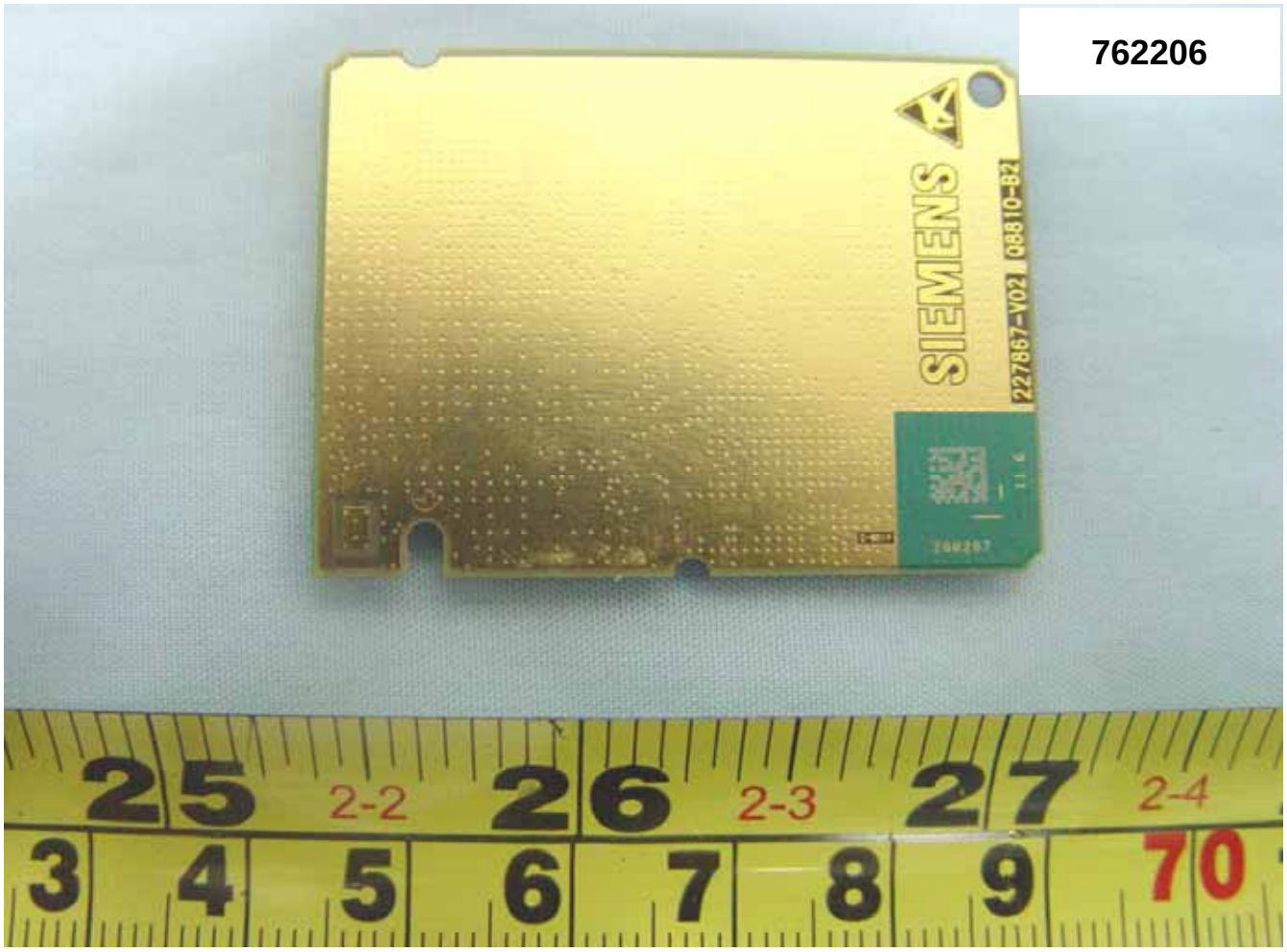
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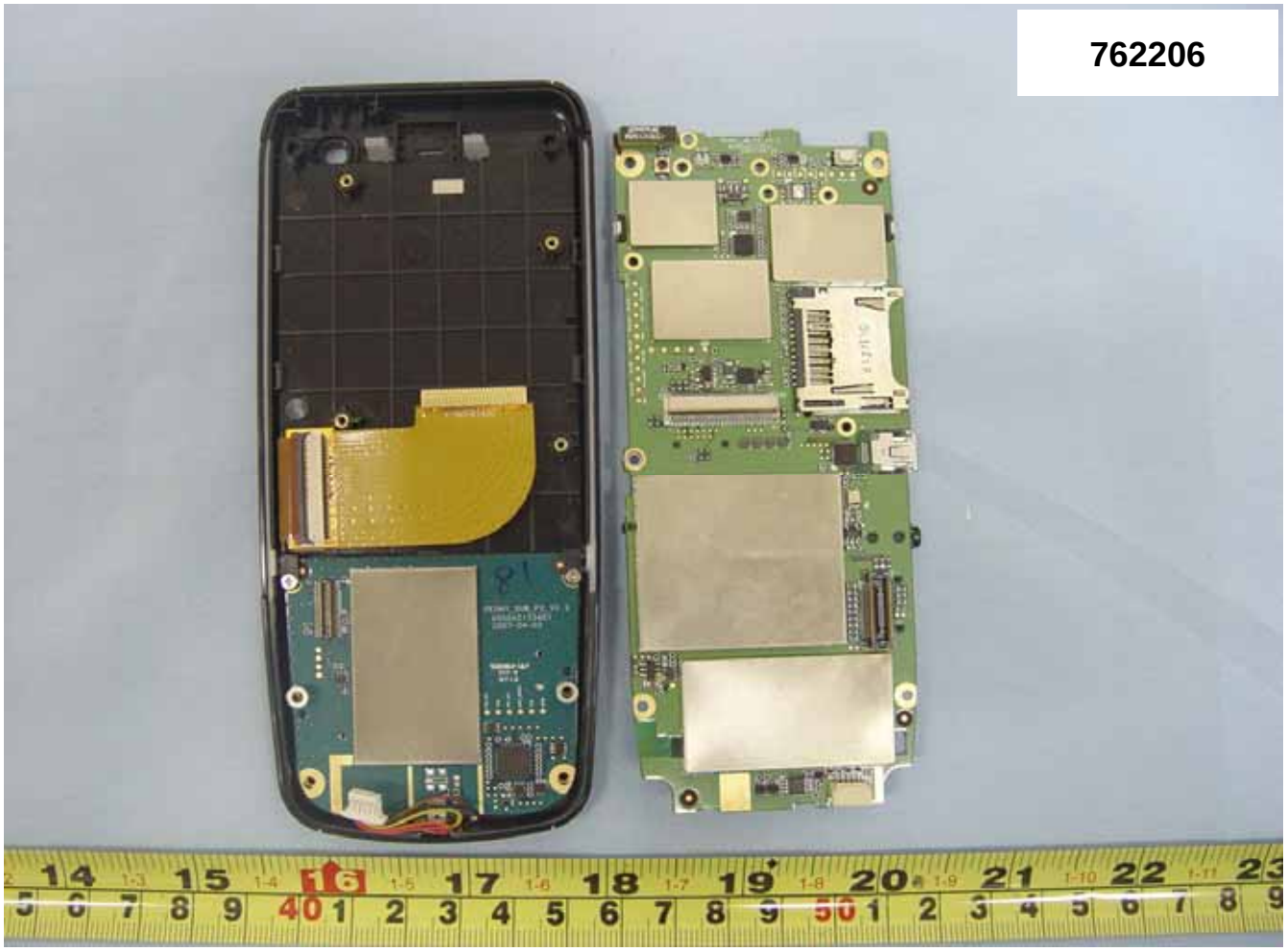
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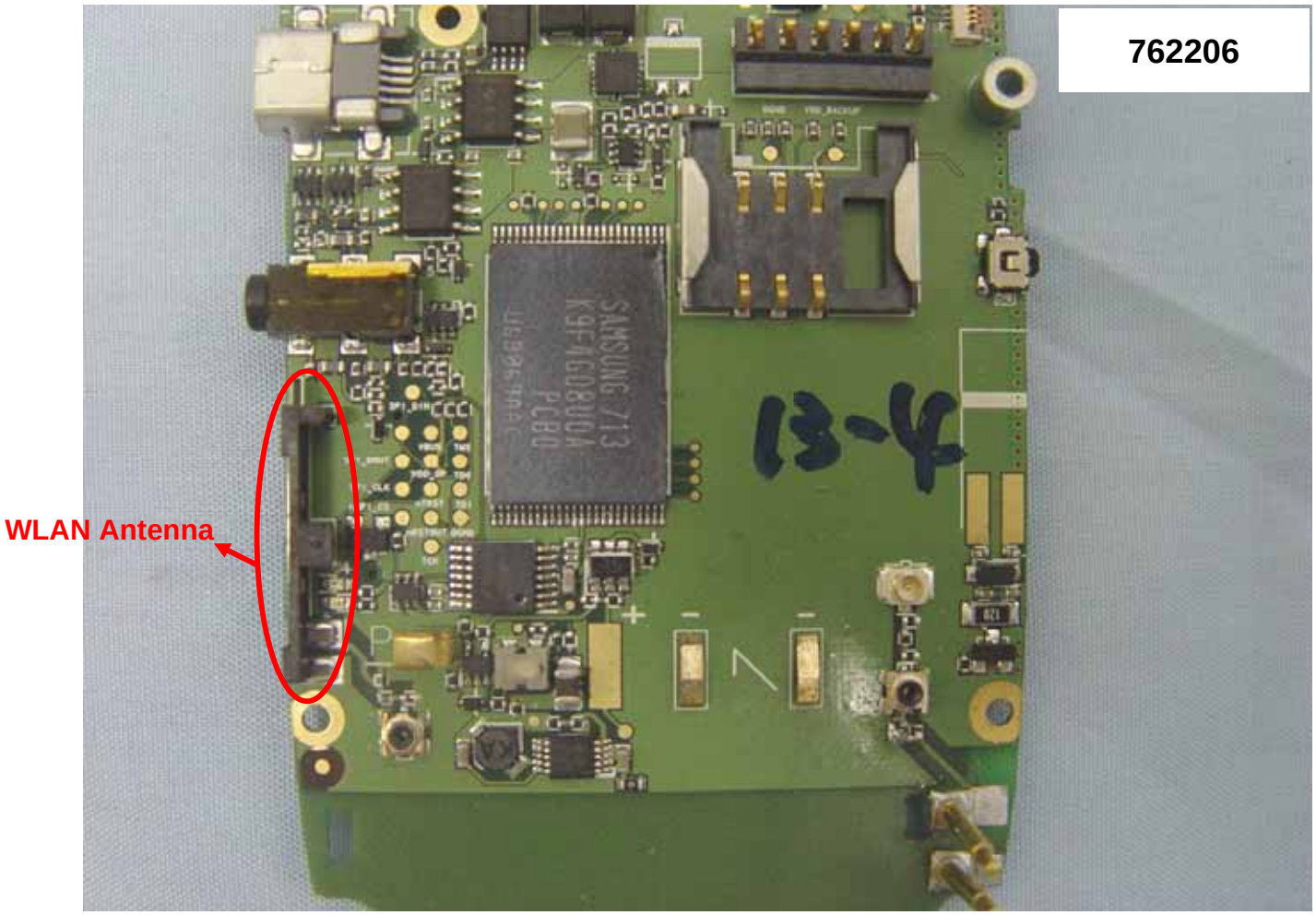
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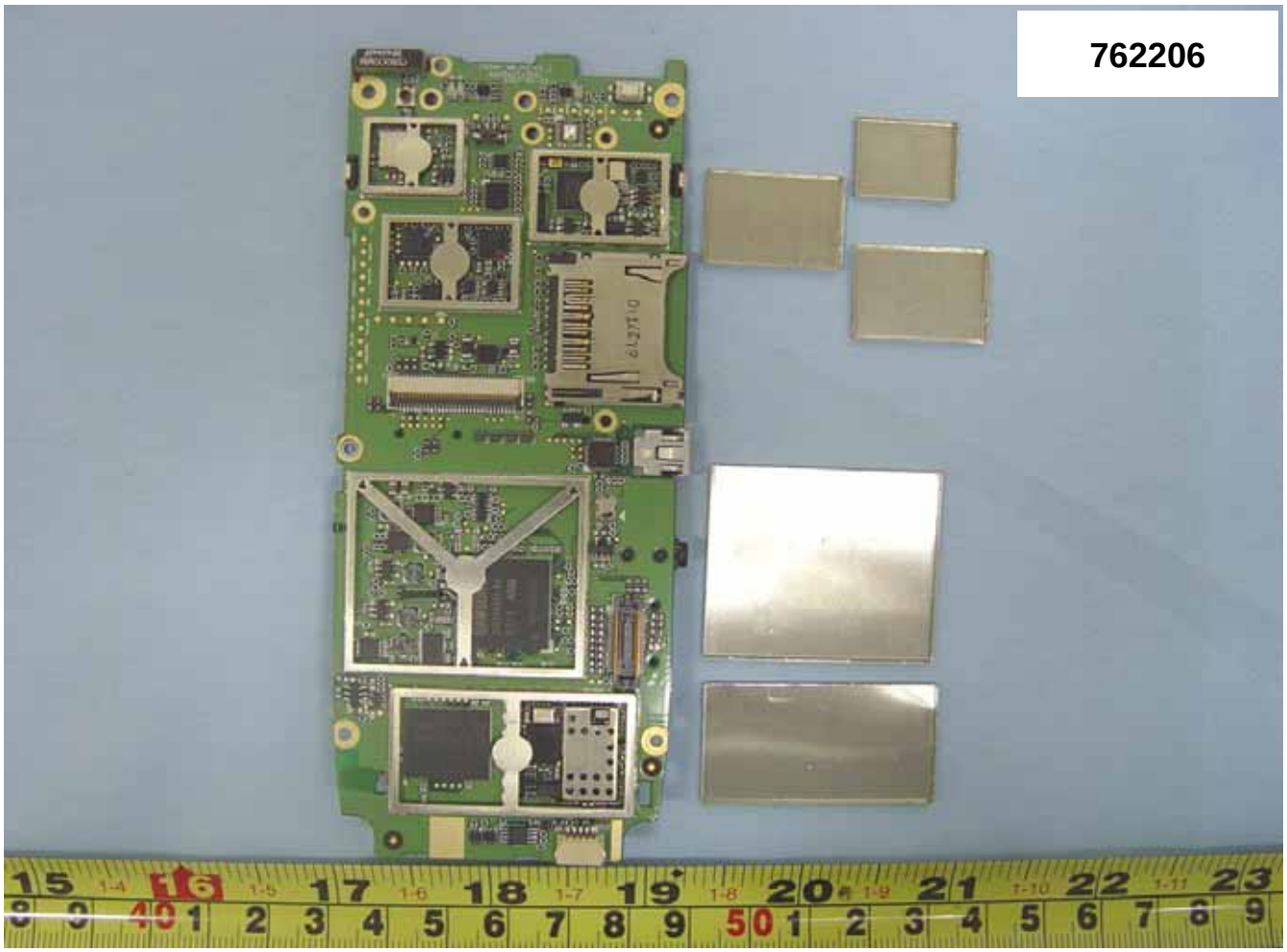
WLAN Antenna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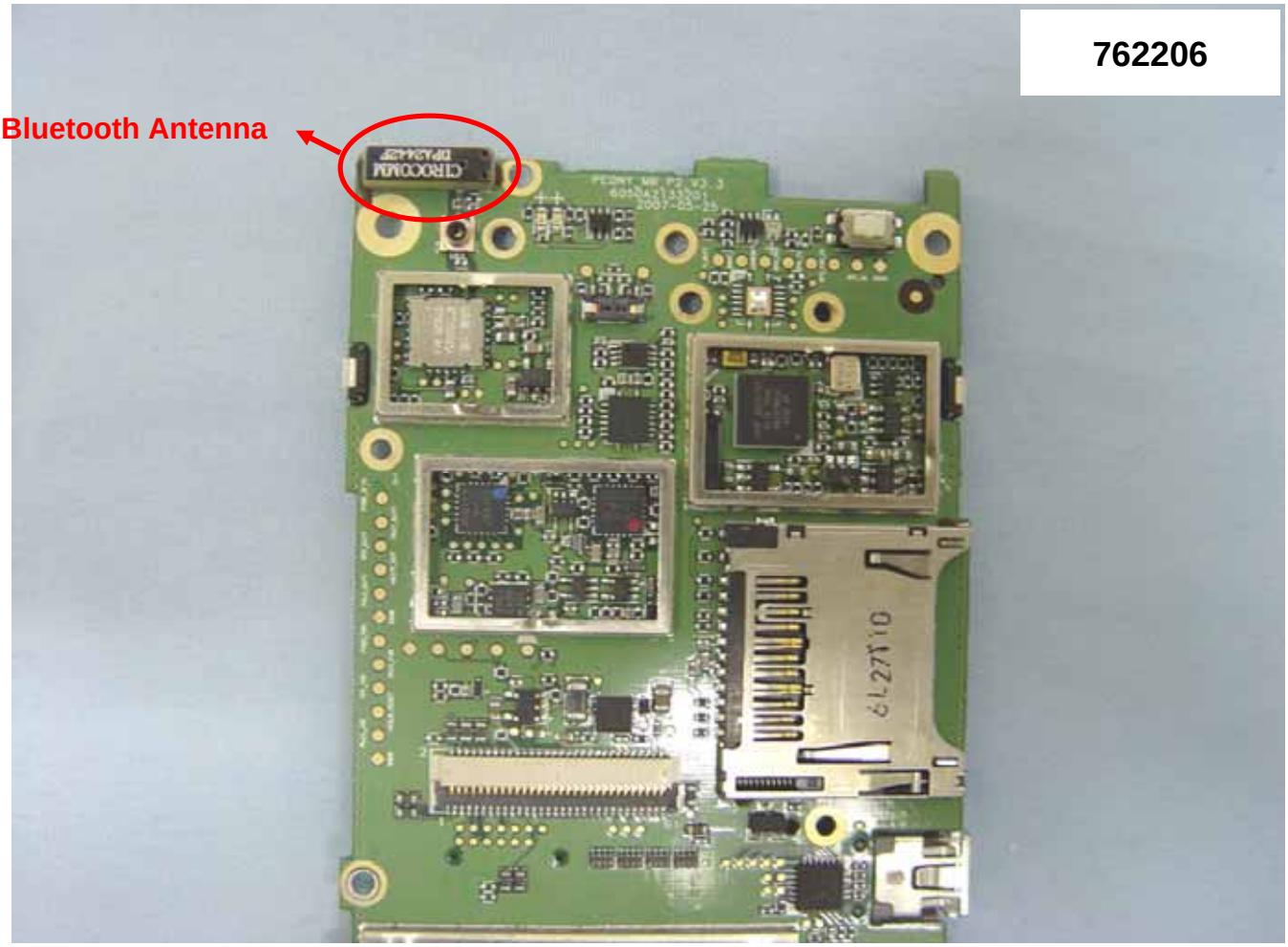
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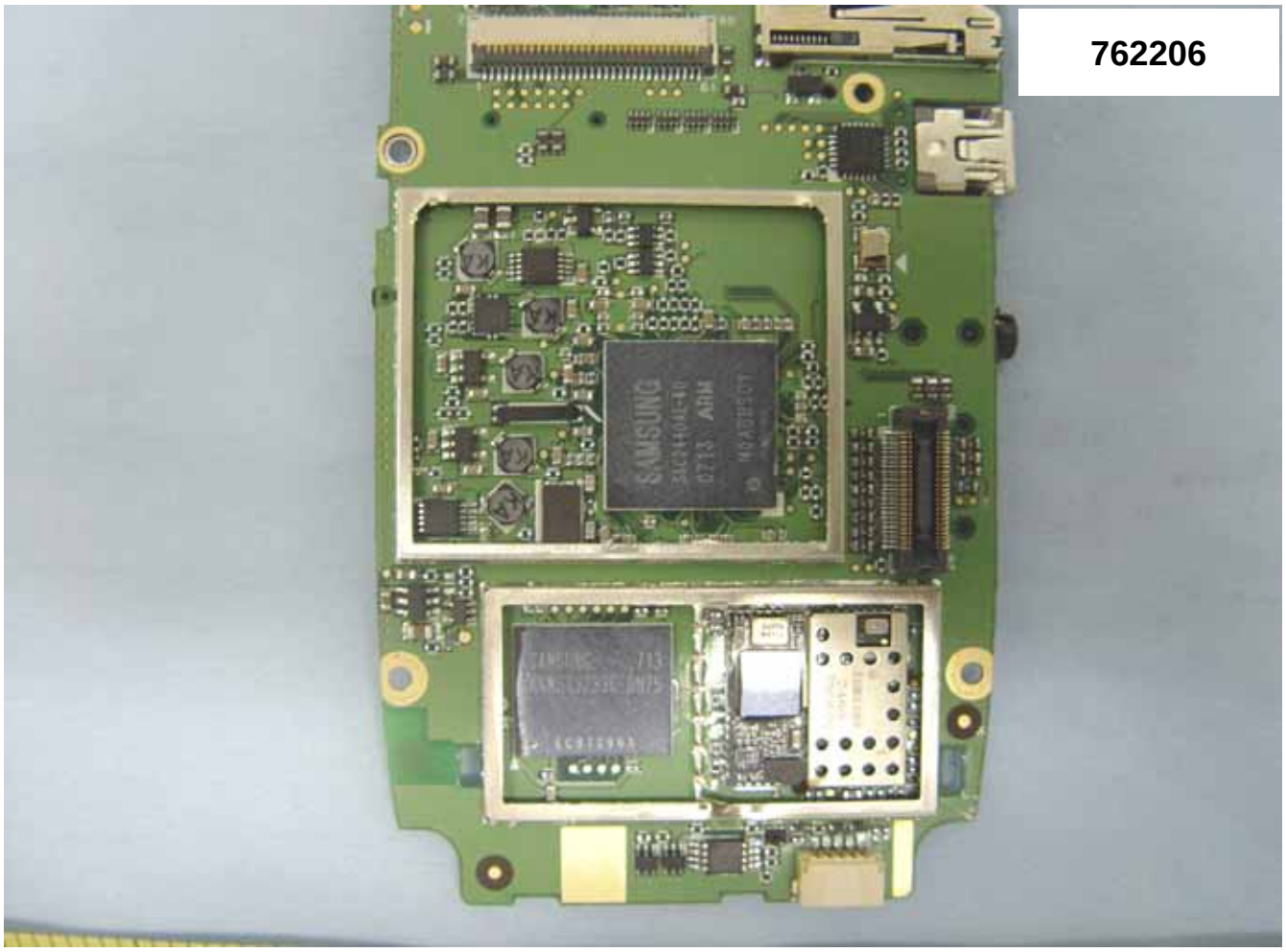
Bluetooth Antenna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SAMSUNG


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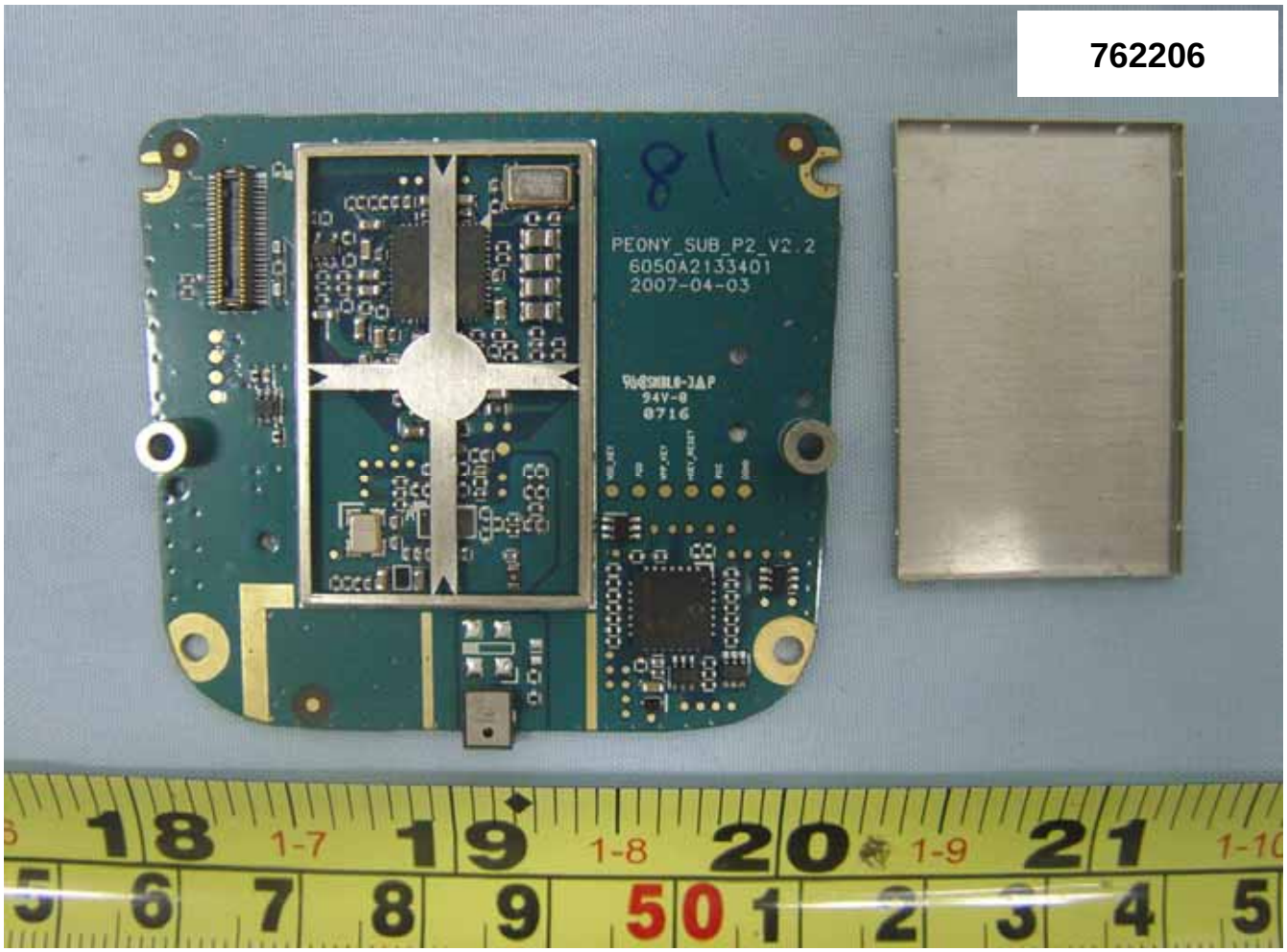
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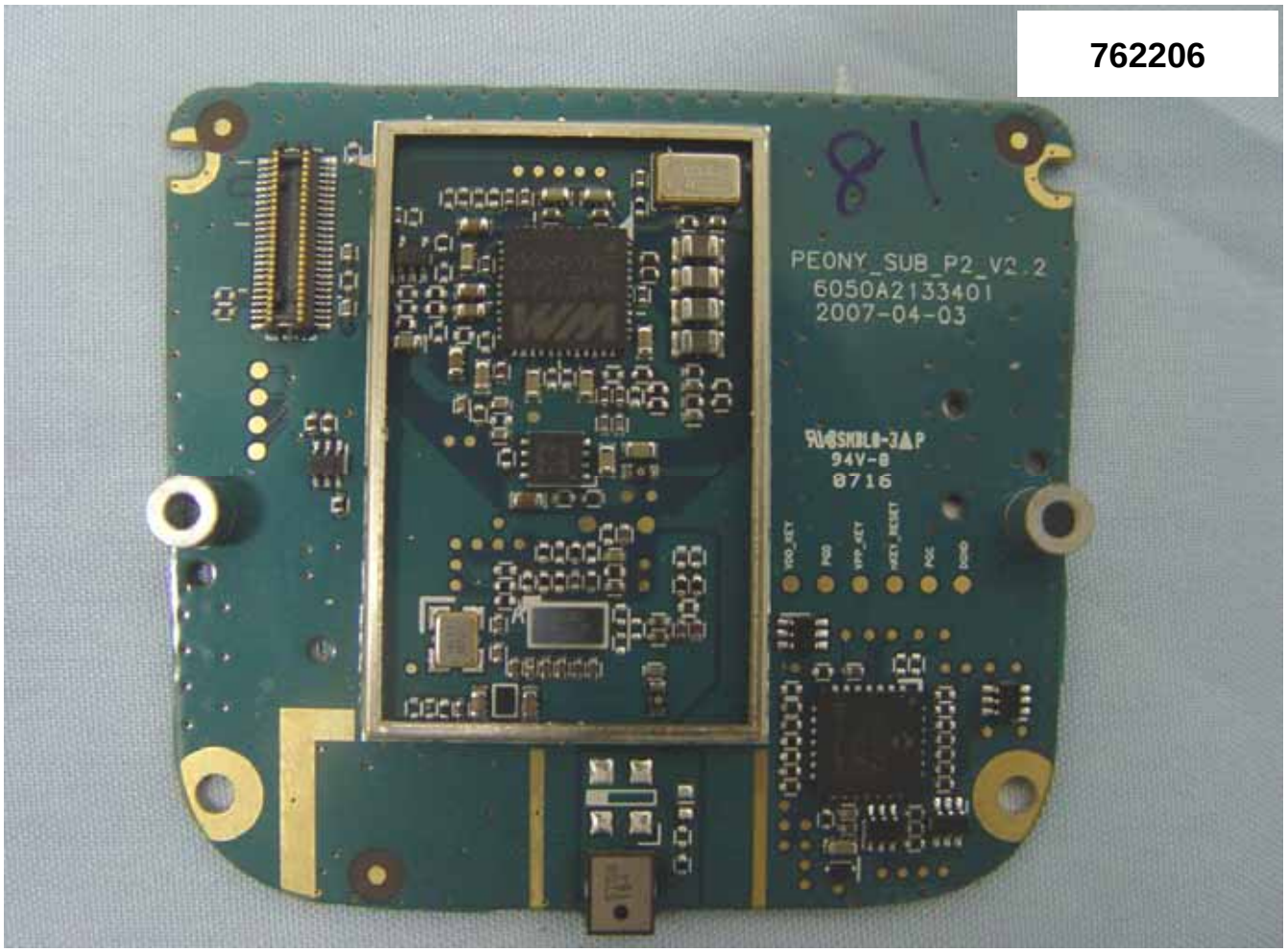
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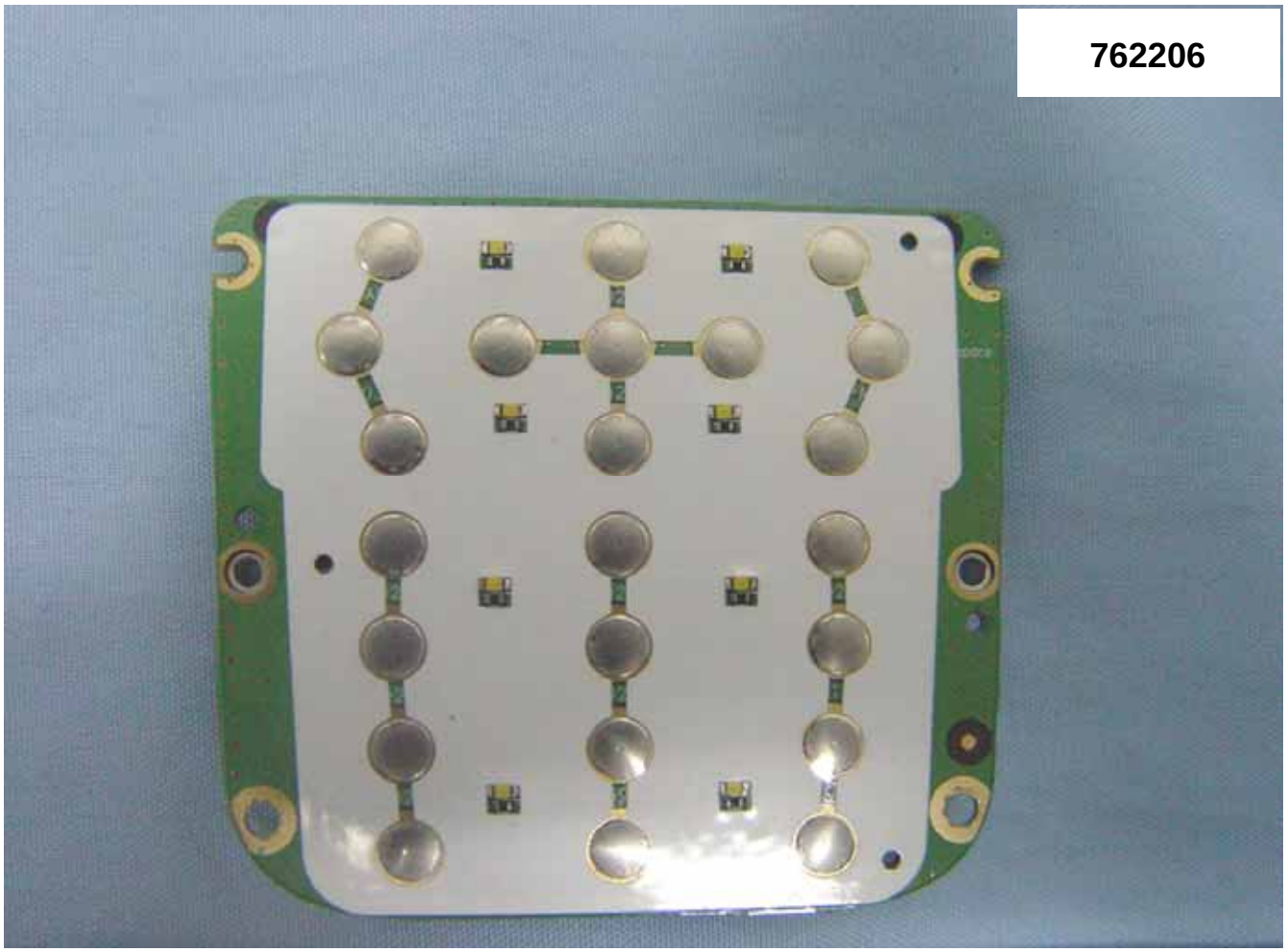
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➢ **Scanner 2**

762206


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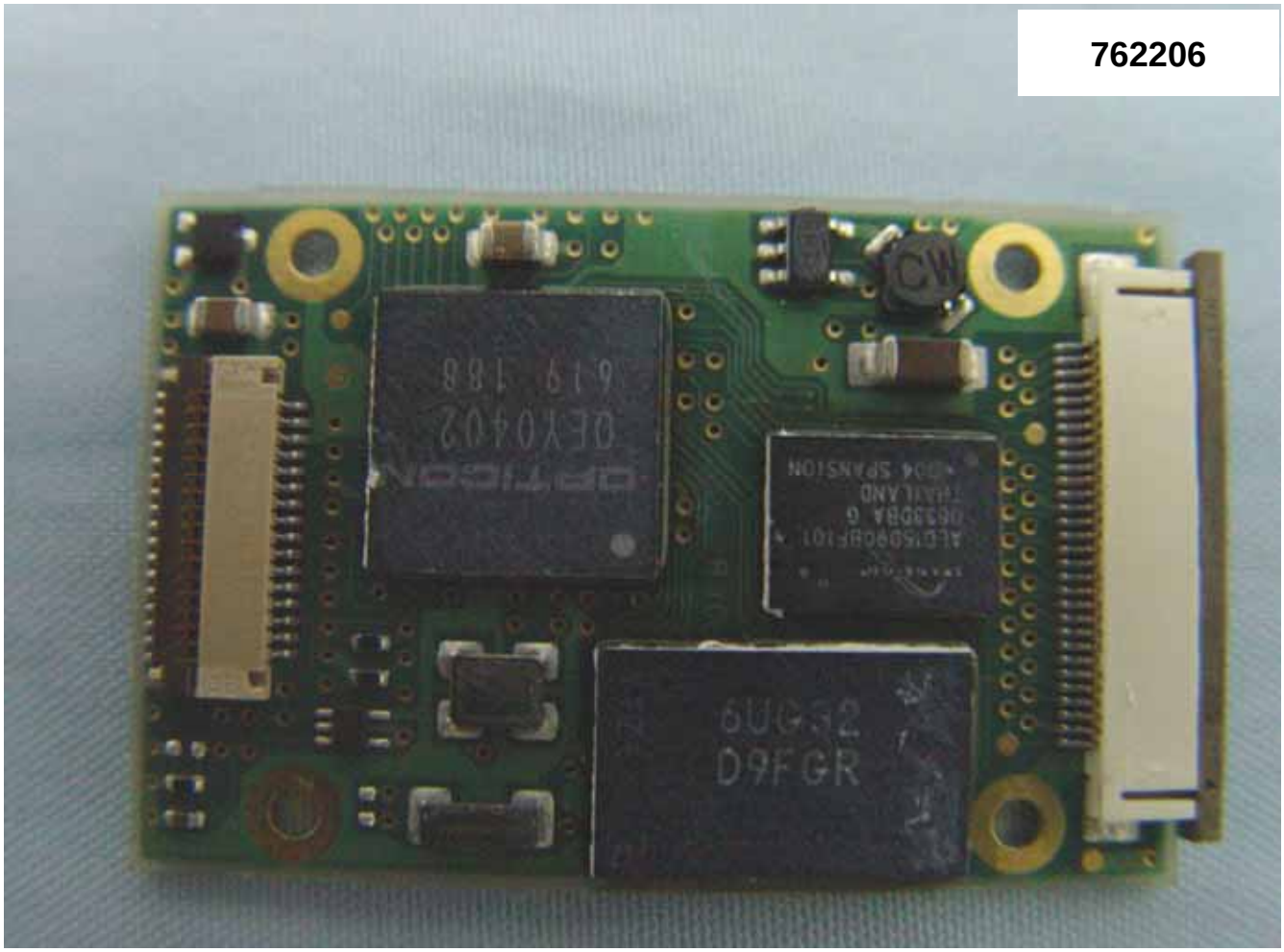
WWAN Antenna


762206



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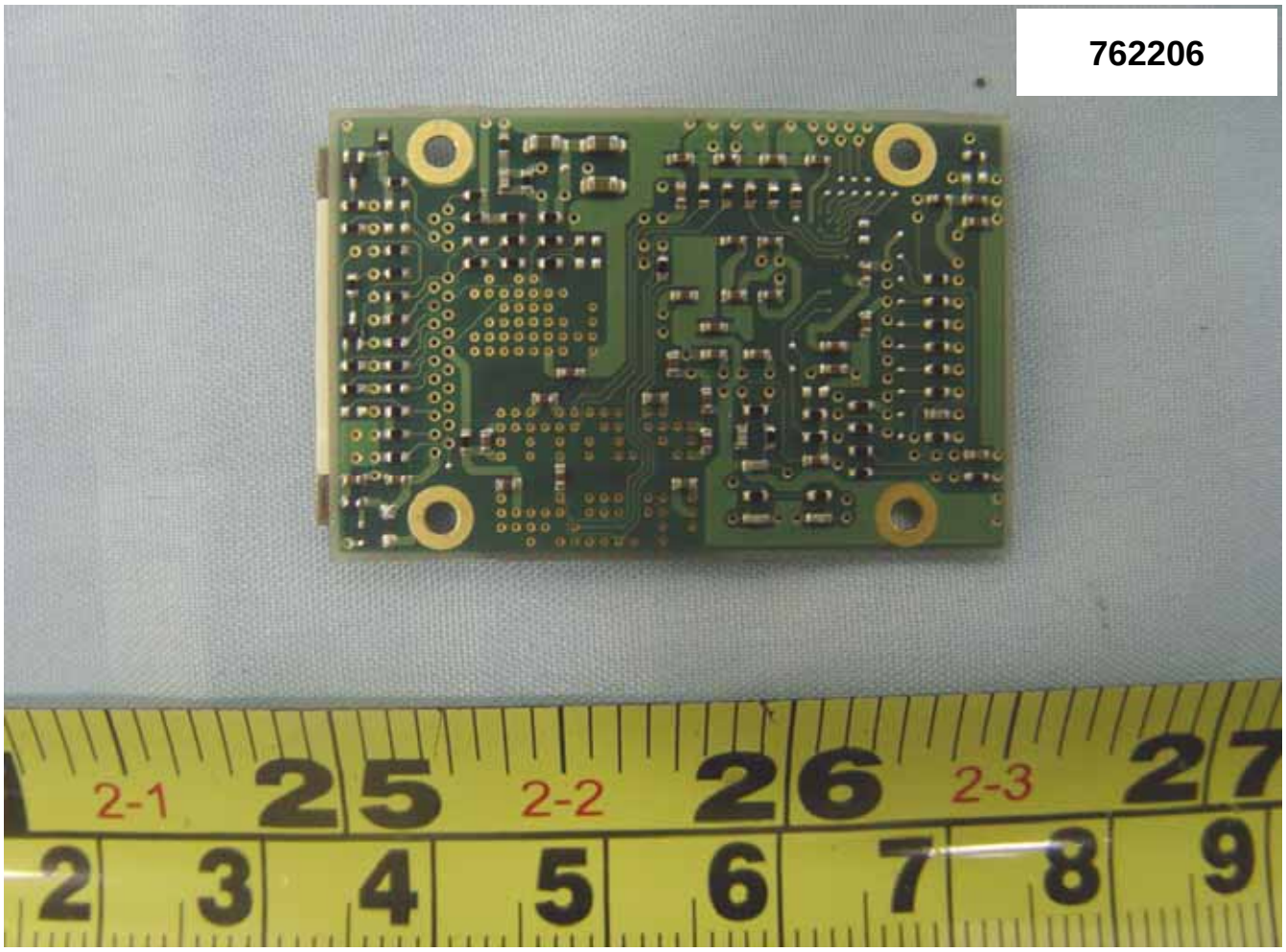
FAX : 886-2-2696-2255
FCC ID : UFOBC0164AAA390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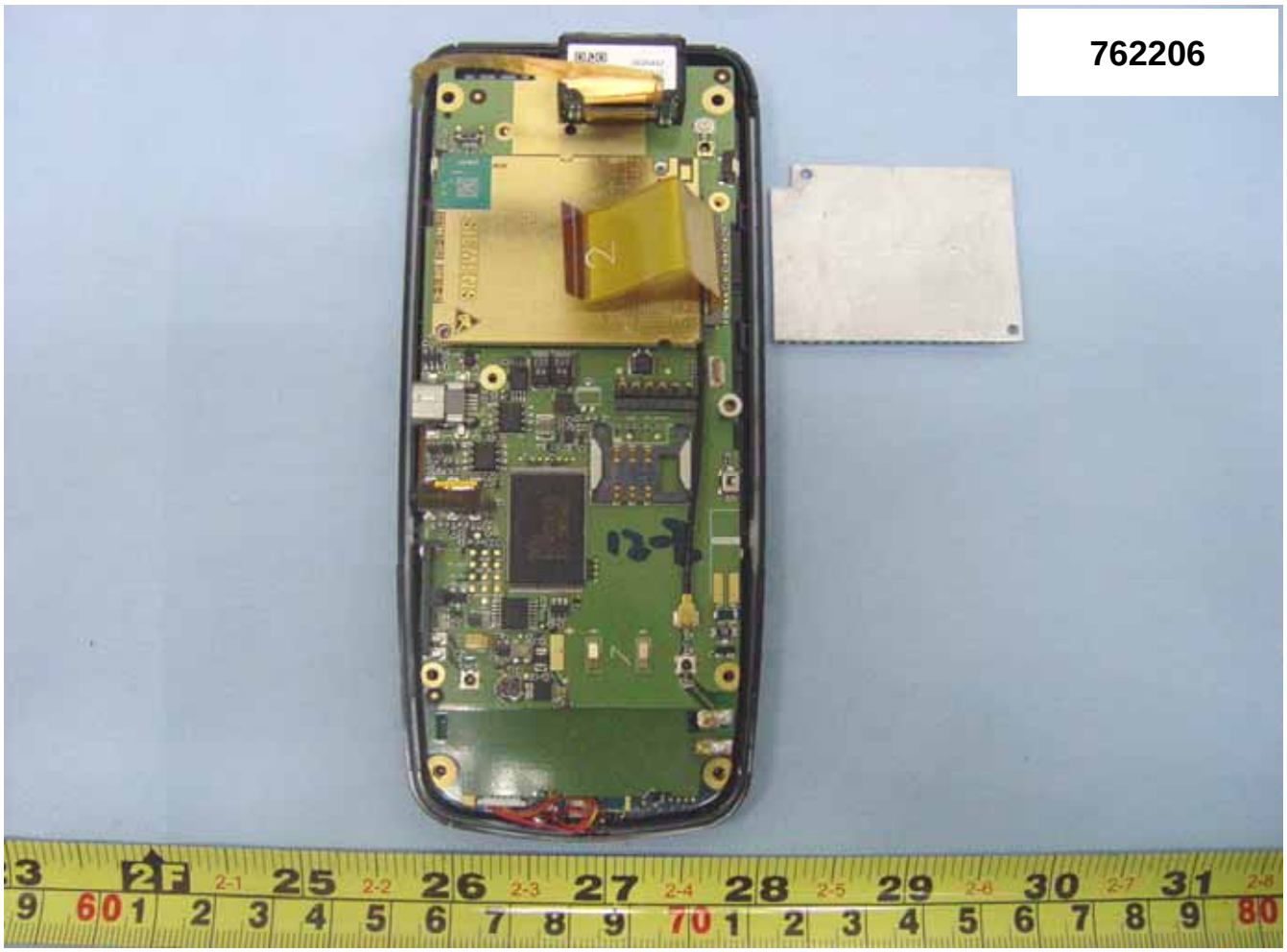
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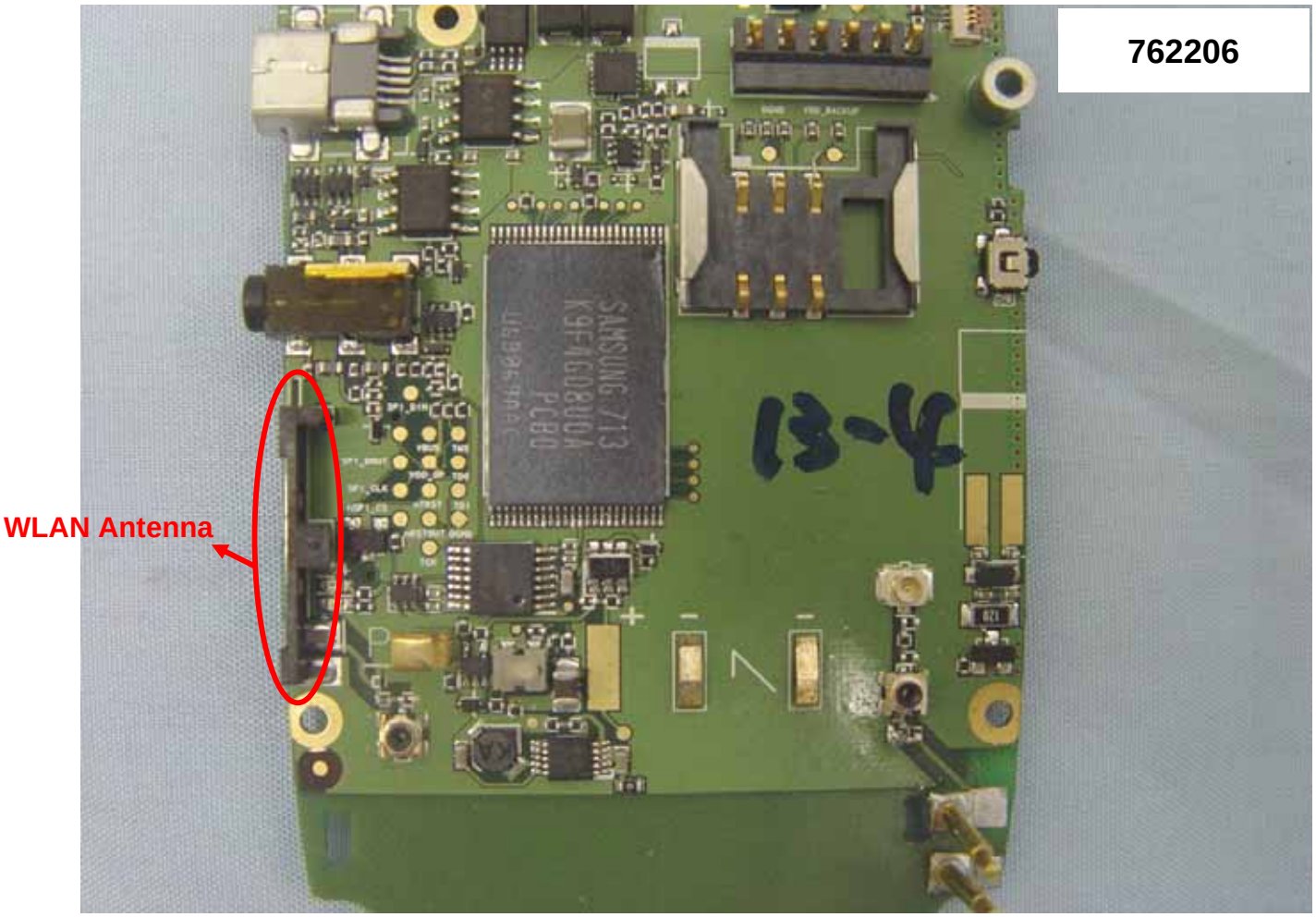
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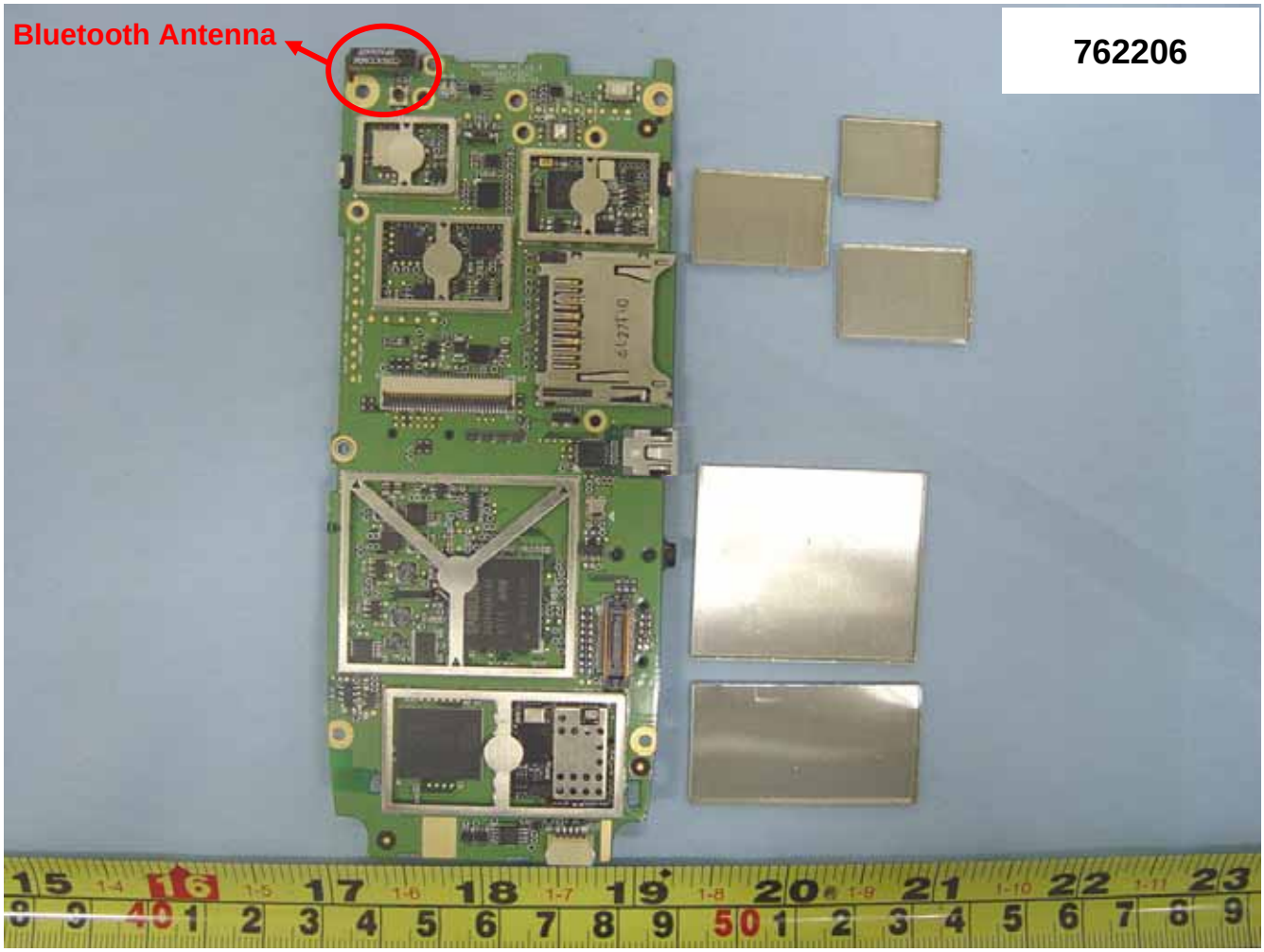
WLAN Antenna


Bluetooth Antenna
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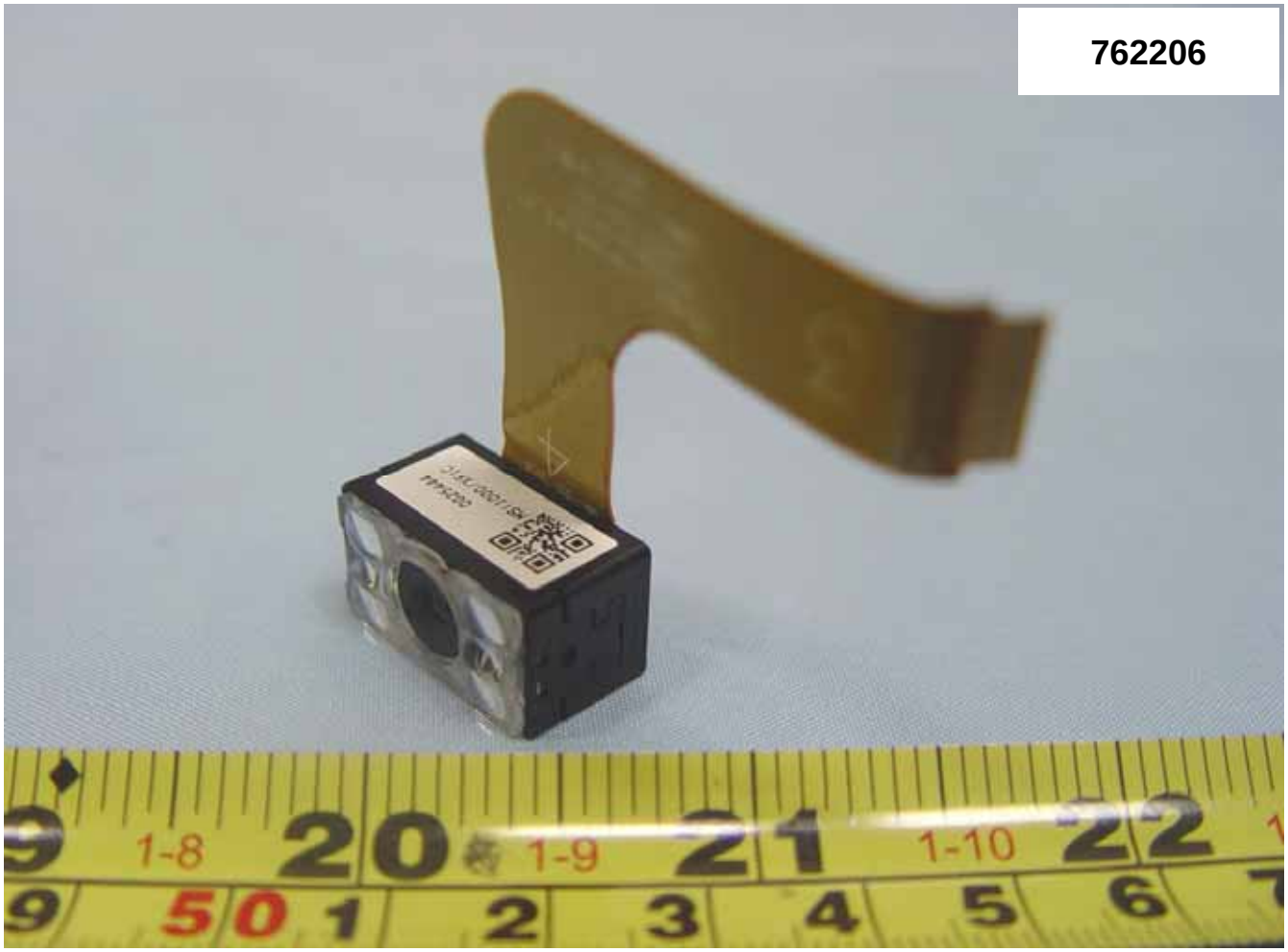
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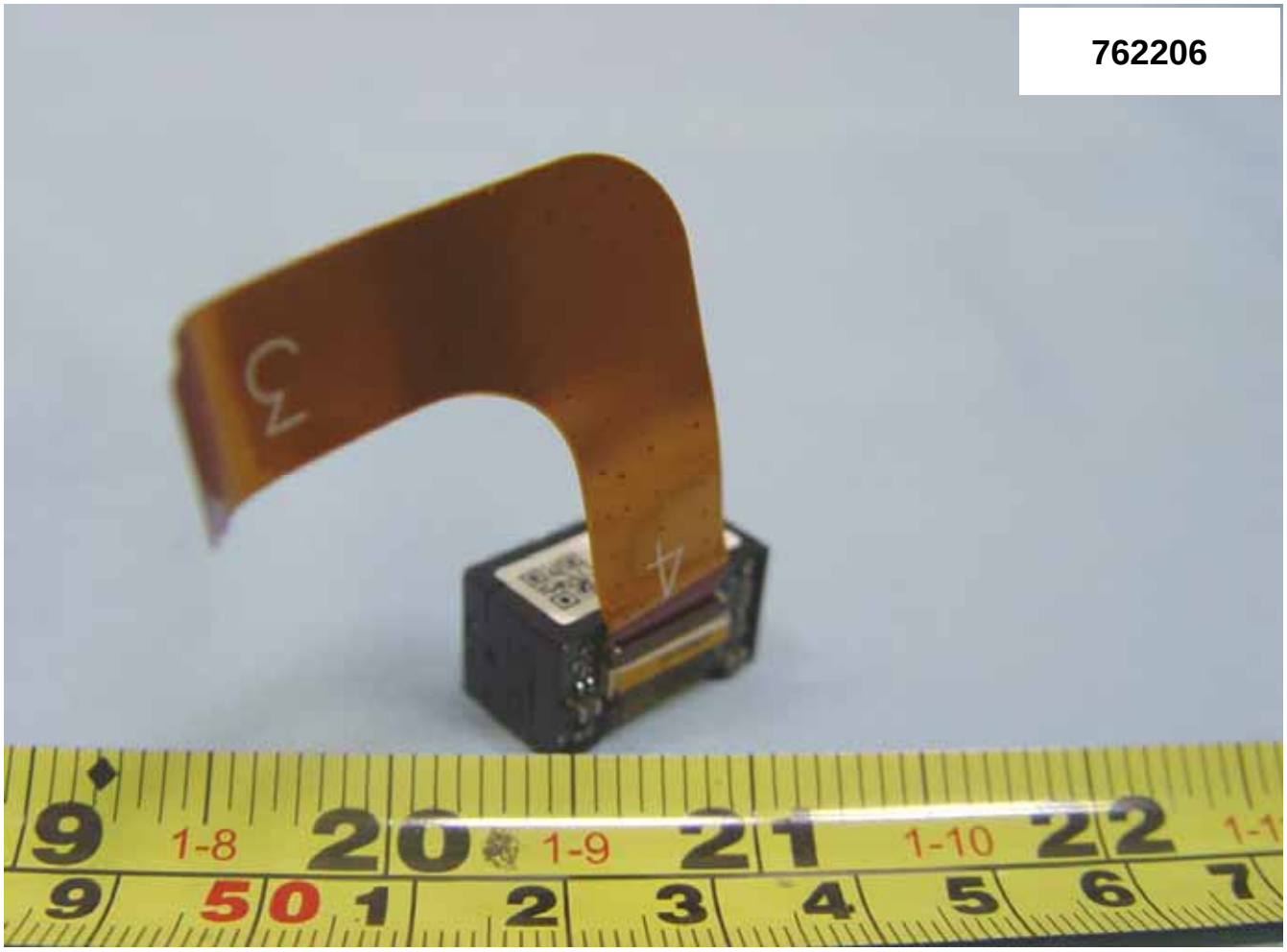
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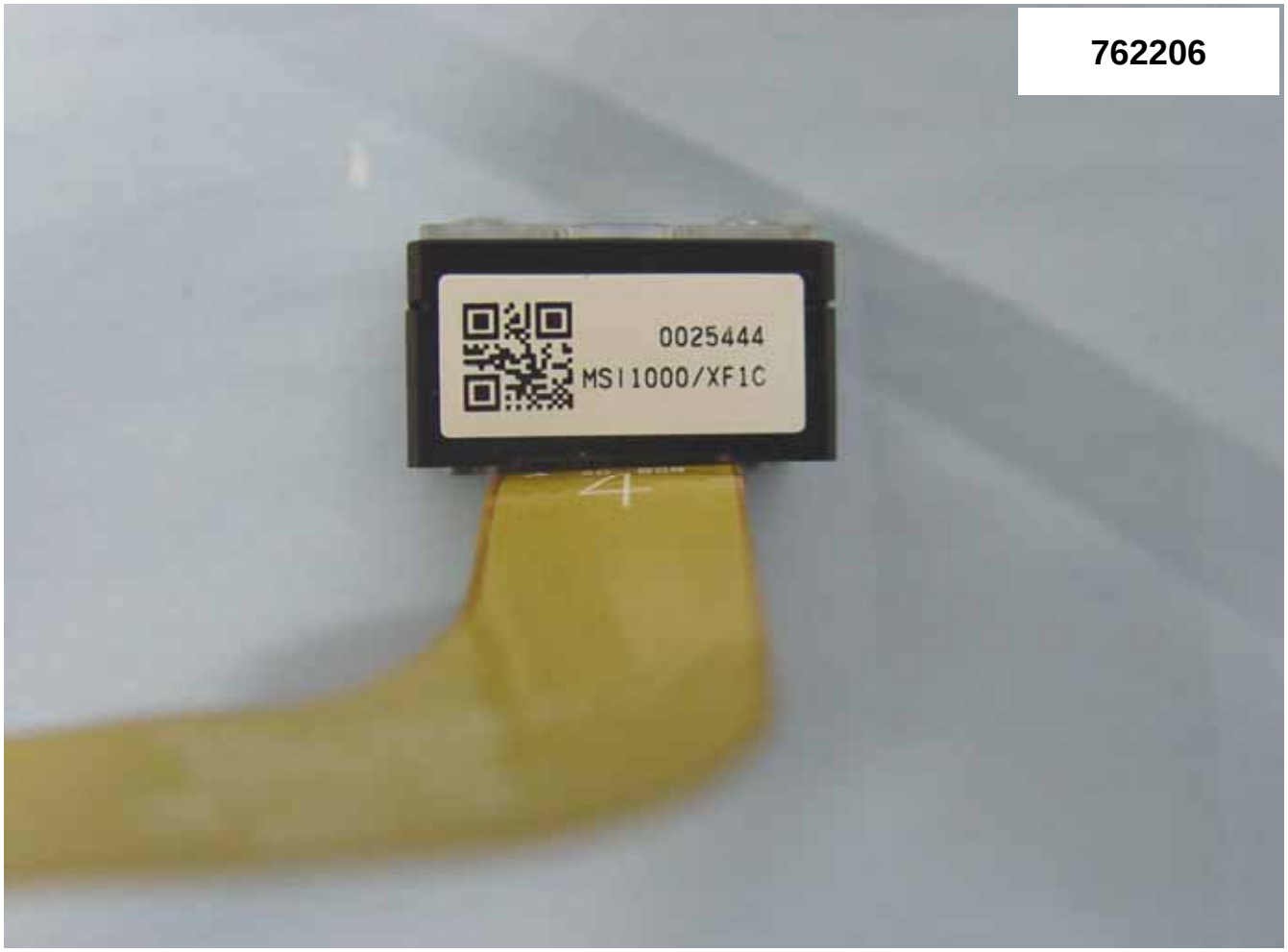
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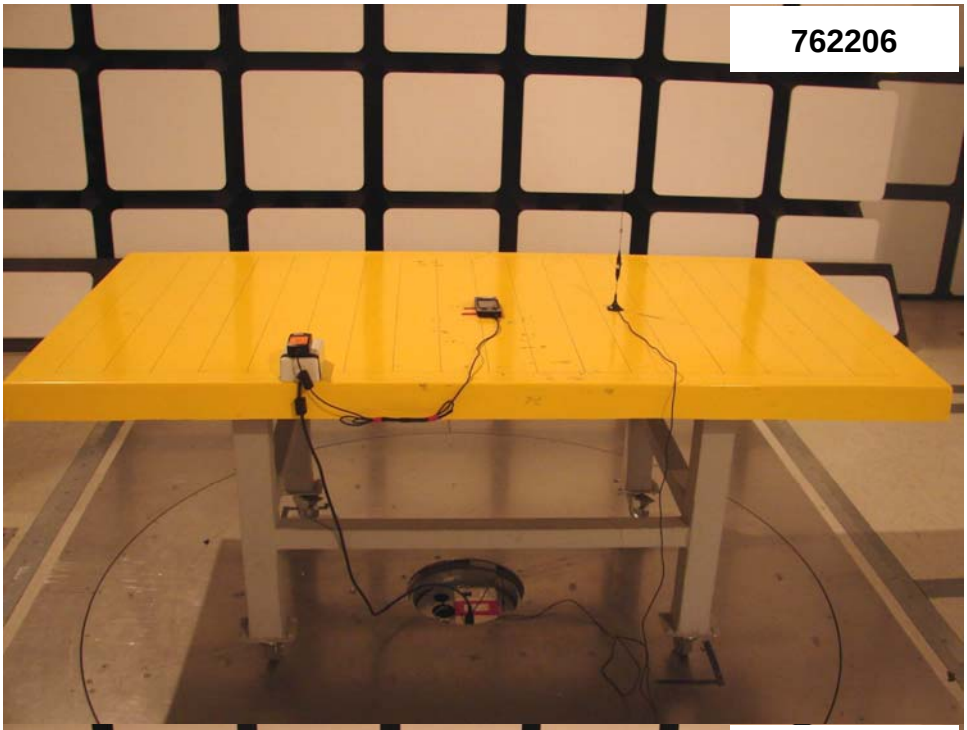
762206
0014357

Appendix C. Set up Photograph

Spurious Radiation

Model 1

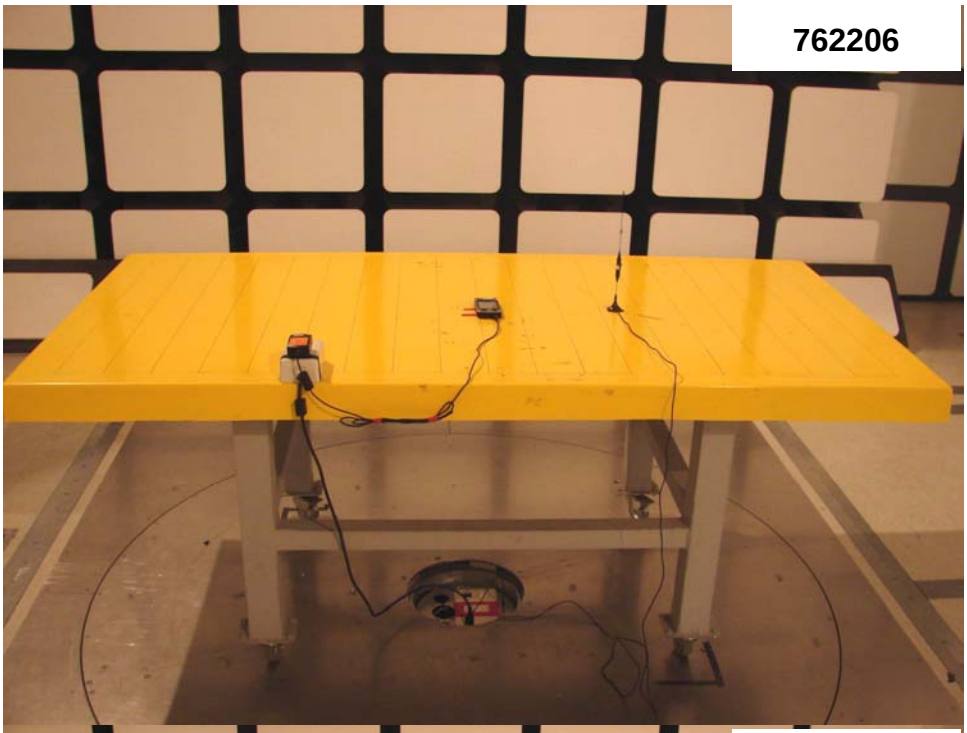
FRONT VIEW



REAR VIEW

Spurious Radiation
Model 2

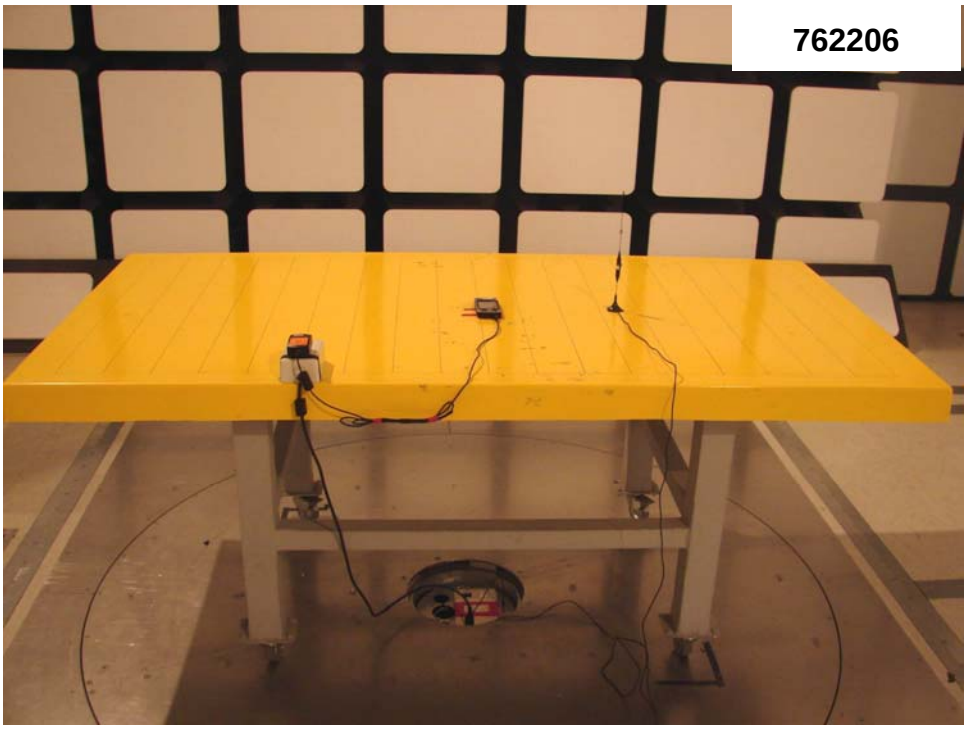
FRONT VIEW



REAR VIEW

Spurious Radiation
Model 3

FRONT VIEW



REAR VIEW