FCC TEST REPORT

for

47 CFR Part 24E

Equipment	**: GSM Mobile Phone with GPRS**
Trade Name	**: NEC**
Model No.	**: KMP6J1S1-1F/ KMP6J1S1-1G**
FCC ID	**: HFS-KMP6J1S1**
Tx Frequency Range	**: 1850.2~1909.8MHz**
Max. RF Output Power	**: 0.2W**
Emission Designator	**: 300 KGXW**
Applicant	**: Quanta Computer Inc.** No. 188, Wen Hwa 2nd Road, Kuei Shan Hsiang, Tao Yuan Shien, Taiwan

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- The data shown in this test report were carried out on Nov. 10, 2004 at **Sporton International Inc. LAB.**

Daniel Lee 11/15/2004

Dr. Daniel Lee
EMC/SAR 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

Original Report Issue Date: Nov. 15, 2004

■ No additional attachment.

☐ Additional attachment were issued as following record:

Attachment No.	Issue Date	Description

1. General Information

1.1. Applicant

Quanta Computer Inc.
No. 188, Wen Hwa 2nd Road, Kuei Shan Hsiang, Tao Yuan Shien, Taiwan

1.2 Manufacturer

Quanta Computer Inc.
No. 188, Wen Hwa 2nd Road, Kuei Shan Hsiang, Tao Yuan Shien, Taiwan

1.3 Basic Description of Equipment under Test

Equipment	: GSM Mobile Phone with GPRS
Trade Name	: NEC
Model No.	: KMP6J1S1-1F/ KMP6J1S1-1G
FCC ID	: HFS-KMP6J1S1
Accessory	: charger, and headset

1.4 Feature of Equipment under Test

DUT Type :	GSM Mobile Phone with GPRS
Trade Name :	NEC
Model Name :	KMP6J1S1-1F/ KMP6J1S1-1G
FCC ID :	HFS-KMP6J1S1
Tx Frequency :	1850.2-1909.8MHz
Rx Frequency :	1930.2-1989.8MHz
Antenna Type :	Fixed Internal
Maximum Output Power to Antenna :	0.871 W (29.4 dBm)
Maximum EIRP	0.20 W (23.040 dBm)
HW Version :	B3A
SW Version :	041101n-08.00RK1.KEN-0.01DDTCW-CN0
Digital Modulation Emission :	GMSK
Type of Emission :	300 KGXW
DUT Stage :	Production Unit

1.5 Report Date

EUT Received : Nov. 03, 2004

Report Date : Nov. 15, 2004

2 Test Configuration of Equipment under Test

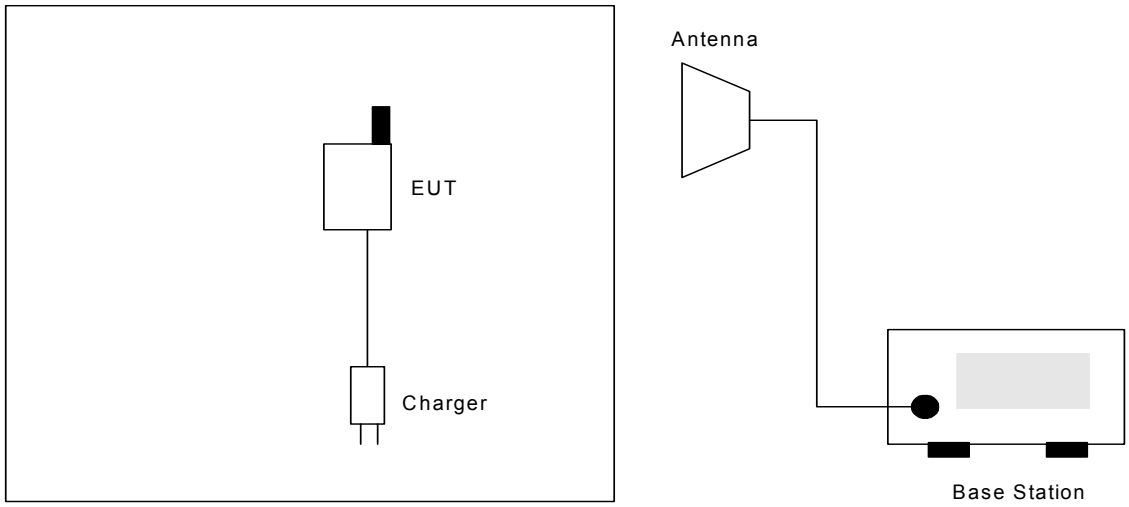
2.1 Test Manner

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 PCS 1900)
c. Frequency range investigated: radiated emission 30 MHz to 19000MHz.

2.2 Test Mode

Application	**PCS 1900**
Radiated Emission	☒ Mode 1: CH 661
Conducted Measurement	☒ Mode 1: CH 661

2.3 Connection Diagram of Test System



2.4 Ancillary Equipment List

Item	Equipment	Model No.	Serial No.
1.	Base Station	CMU200	105934
2.	Base Station	E5515C	GB43460754

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. The Industry Canada file number for this site is IC 4088.

3.1 Test Voltage

110V/ 60Hz

3.2 Test in Compliance with

47 CFR Part 24E and Part 2.

3.3 Frequency Range Investigated

a. Radiation: from 30 MHz to 19000 MHz for PCS 1900

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	IC RULE	DESCRIPTION OF TEST	Result	Section
§2.1046	RSS-133 §6.2	RF Output Power	Passed	4.2
§24.232	RSS-133 §6.2	EIRP	Passed	4.3
§2.1049, 24.238(b)	RSS-133 §6.3	Occupied Bandwidth & Band Edge Measurement	Passed	4.4
§2.1051	RSS-133 §6.3	Conducted Emission	Passed	4.5
§2.1053	RSS-133 §6.3	Field Strength of Spurious Radiation	Passed	4.6
§2.1055, §24.235	RSS-133 §7	Frequency Stability vs. Temperature	Passed	4.7
§2.1055, §24.235	RSS-133 §7	Frequency Stability vs. Voltage	Passed	4.8

4.2 RF Output Power

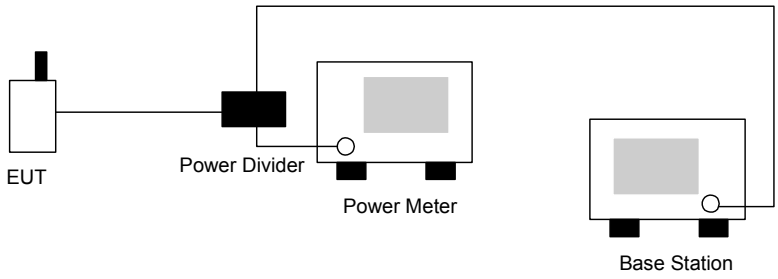
4.2.1 Measurement Instruments：

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 GSM 850 and/or PCL=0 for PCS 1900 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)
GSM 1900	512	1850.2 (Low)	29.4	0.871
	661	1880.0 (Mid)	29.2	0.832
	810	1909.8 (High)	29.2	0.832

4.3 ERP / EIRP Measurement

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

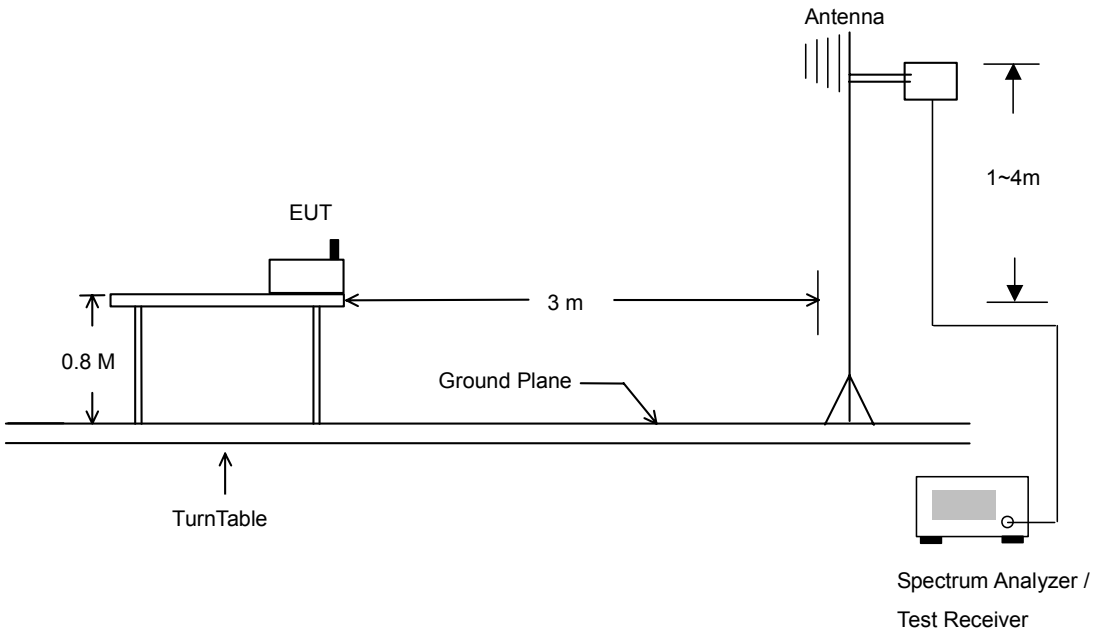
4.3.1 Measurement Instruments

As described in chapter 5 of this test report.

4.3.2 Test Procedure

1. The EUT was placed on a rotatable 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 radiated power.
4. The height of the receiving antenna is varied between one meter and four meters to reach the maximum radiated power for both horizontal and vertical polarizations.
5. Taking the record of maximum ERP/EIRP.
6. A Horn antenna was substituted in place of the EUT and was driven by a signal generator.
7. The conducted power at the terminal of the Horn antenna is measured.
8. Repeat step 3 to step 5.

4.3.3 Test Setup Layout of ERP/EIRP



4.3.4 Test Result

PCS1900 Radiated Power EIRP					
H Polarization			V Polarization		
Frequency (MHz)	EIRP (dBm)	EIRP (Watts)	Frequency (MHz)	EIRP (dBm)	EIRP (Watts)
1850.120	18.450	0.07	1850.290	23.040	0.20
1880.070	16.860	0.05	1880.070	21.330	0.14
1909.870	16.700	0.05	1909.870	20.840	0.12

4.4 Occupied Bandwidth and Band Edge Measurement

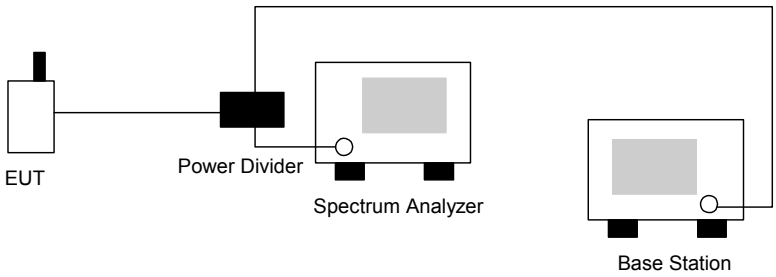
4.4.1 Measurement Instruments

As described in chapter 5 of this test report.

4.4.2 Test Procedure

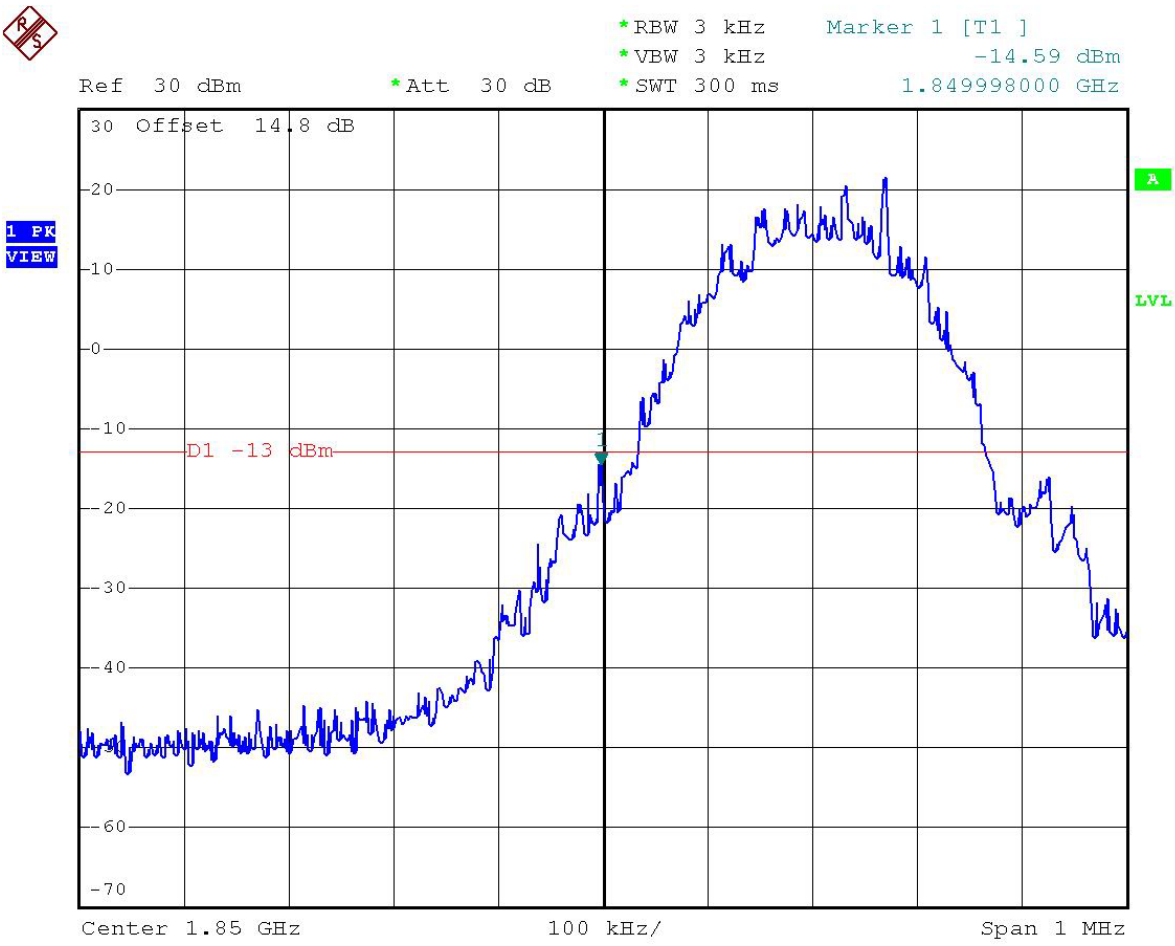
1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.
2. The occupied bandwidth of middle channel for the highest and lowest RF powers were measured.
3. The bandedge of low and high channels for the highest RF powers within the transmitting frequency band were measured. Setting RBW as roughly BW/10.

4.4.3 Test Setup Layout

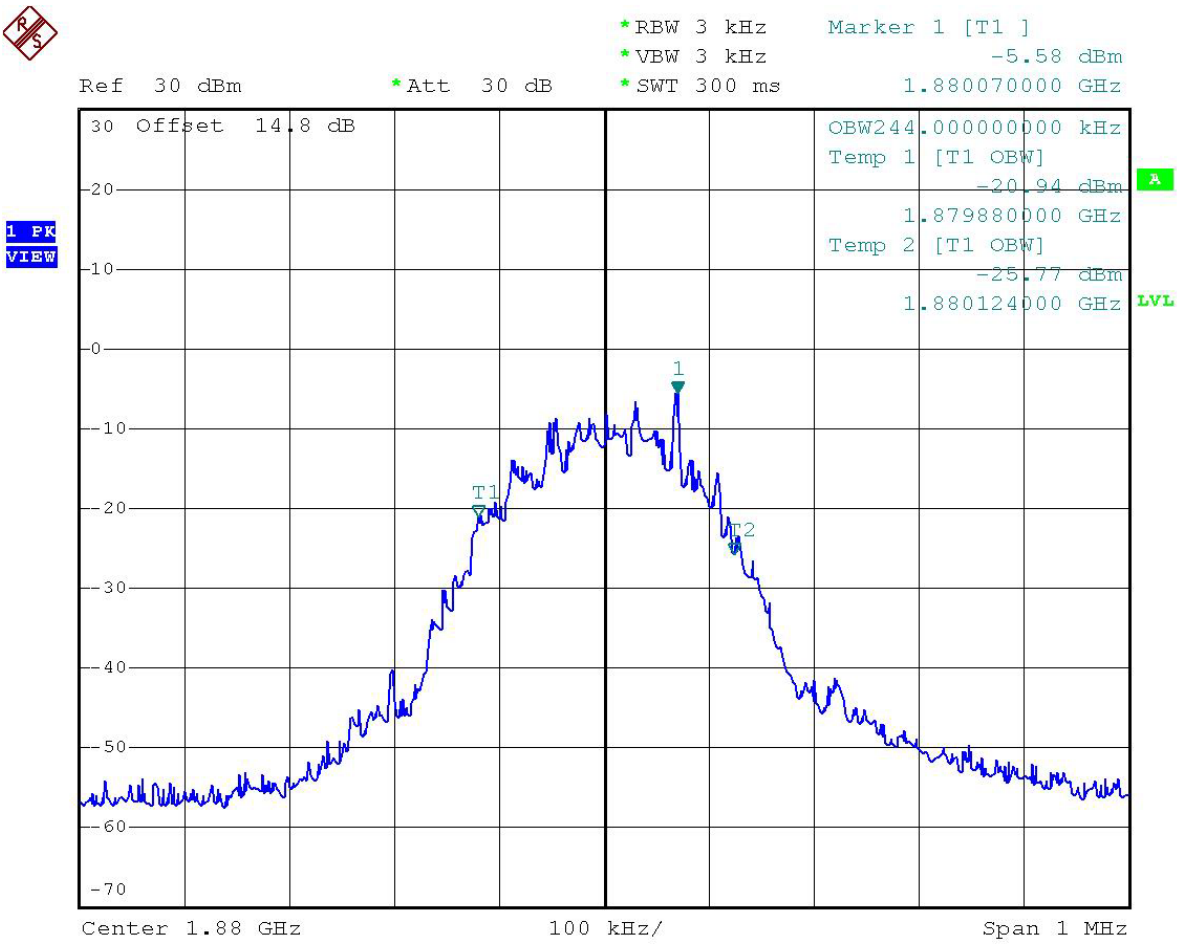


4.4.4 Test Result

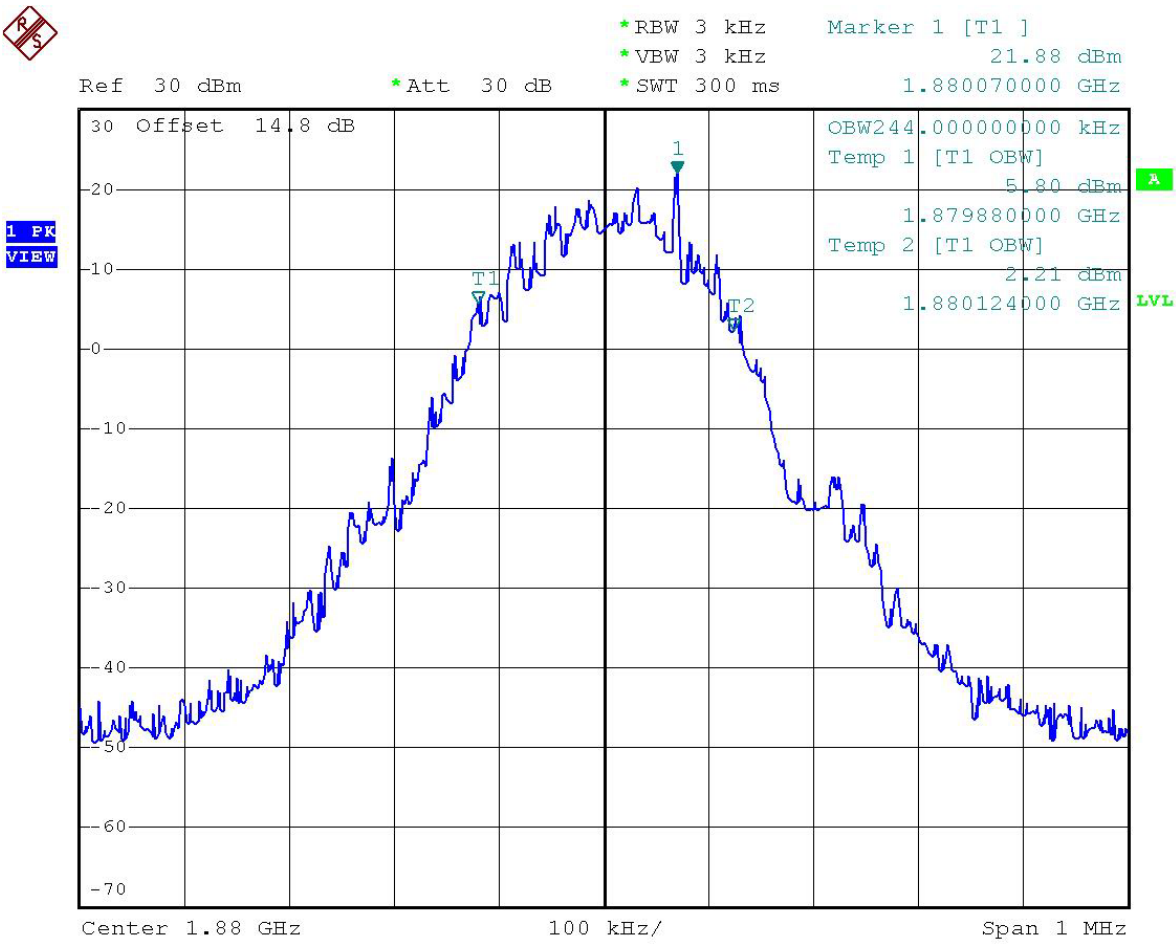
- Test Mode : PCS 1900 CH661 Lower Band Edge
- Power State : High



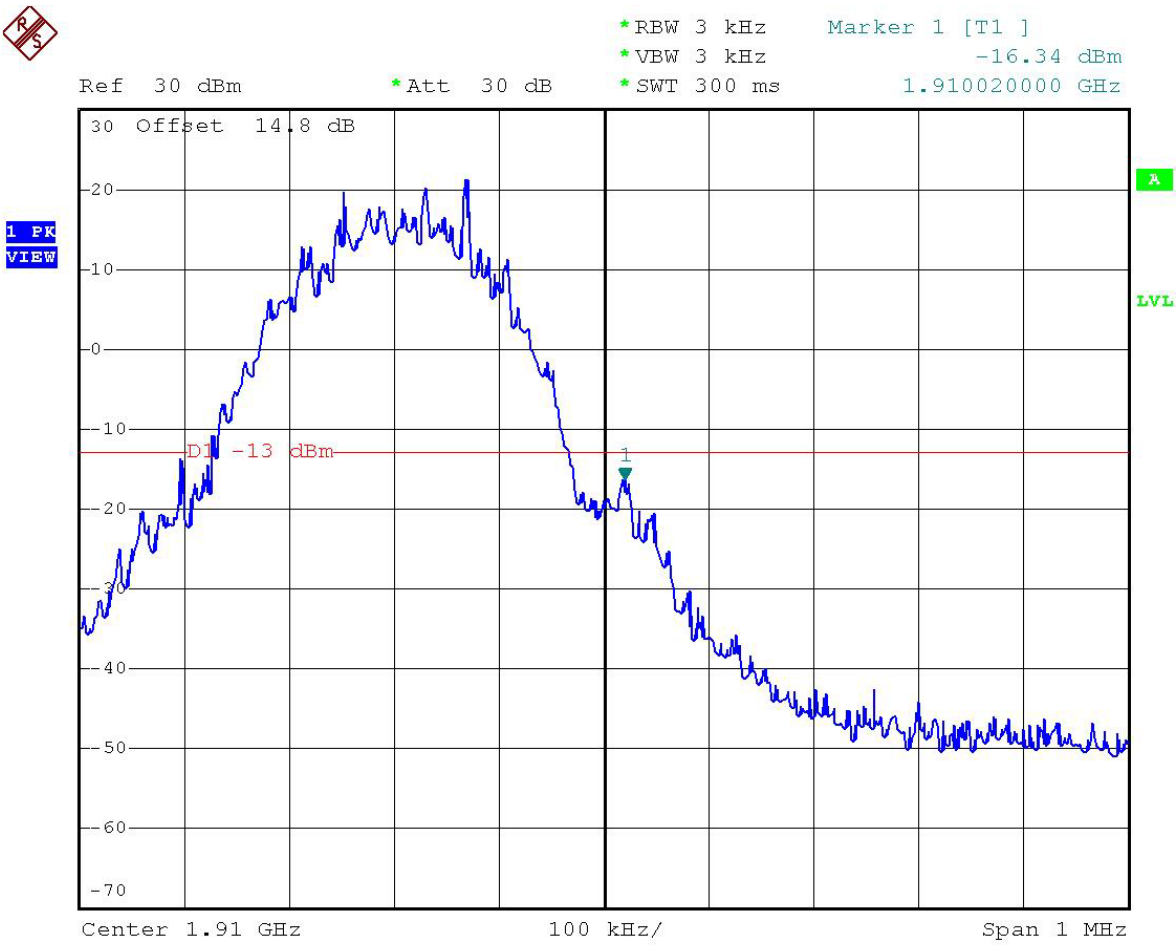
- Test Mode : PCS 1900 CH661 99% Occupid Bandwidth
- Power State : Low



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



- Test Mode : PCS 1900 CH661 99% Occupid Band Edge
- Power State : High



4.5 Conducted Emission

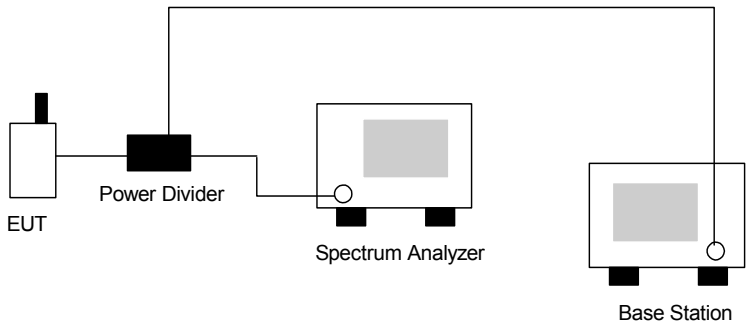
4.5.1 Measurement Instruments

As described in chapter 5 of this test report.

4.5.2 Test Procedure

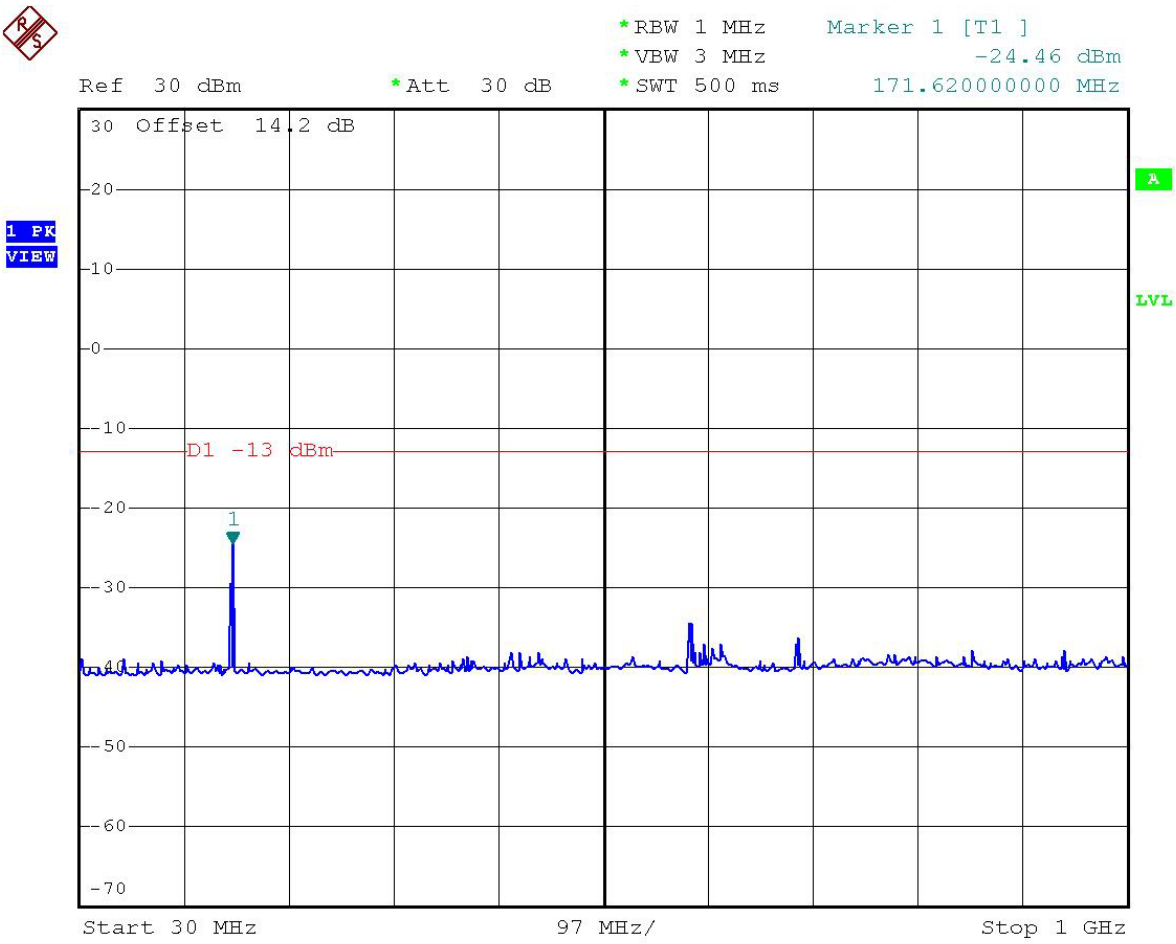
1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.
2. The middle channel for the highest RF power within the transmitting frequency was measured.
3. The conducted spurious emission for the whole frequency range was taken.

4.5.3 Test Setup Layout

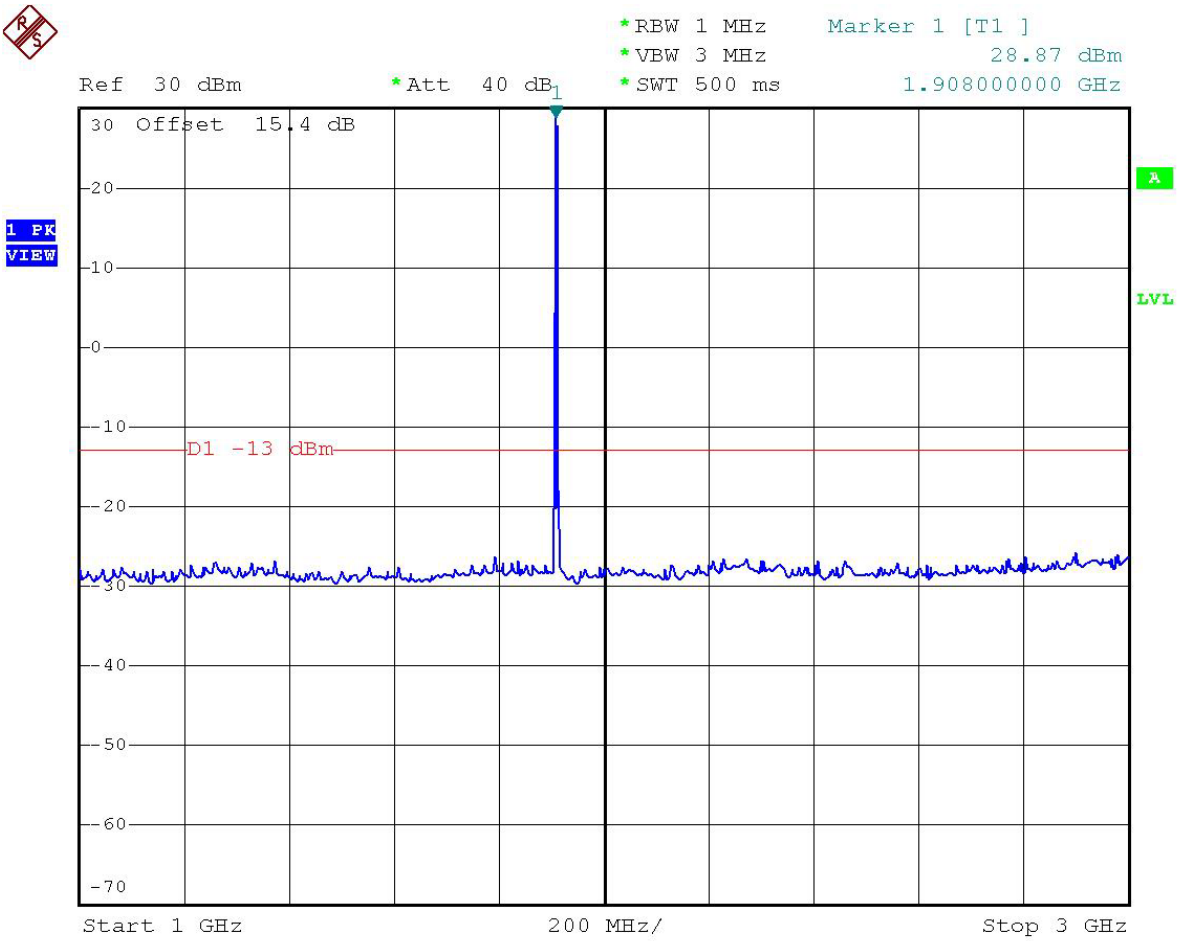


4.5.4 Test Result

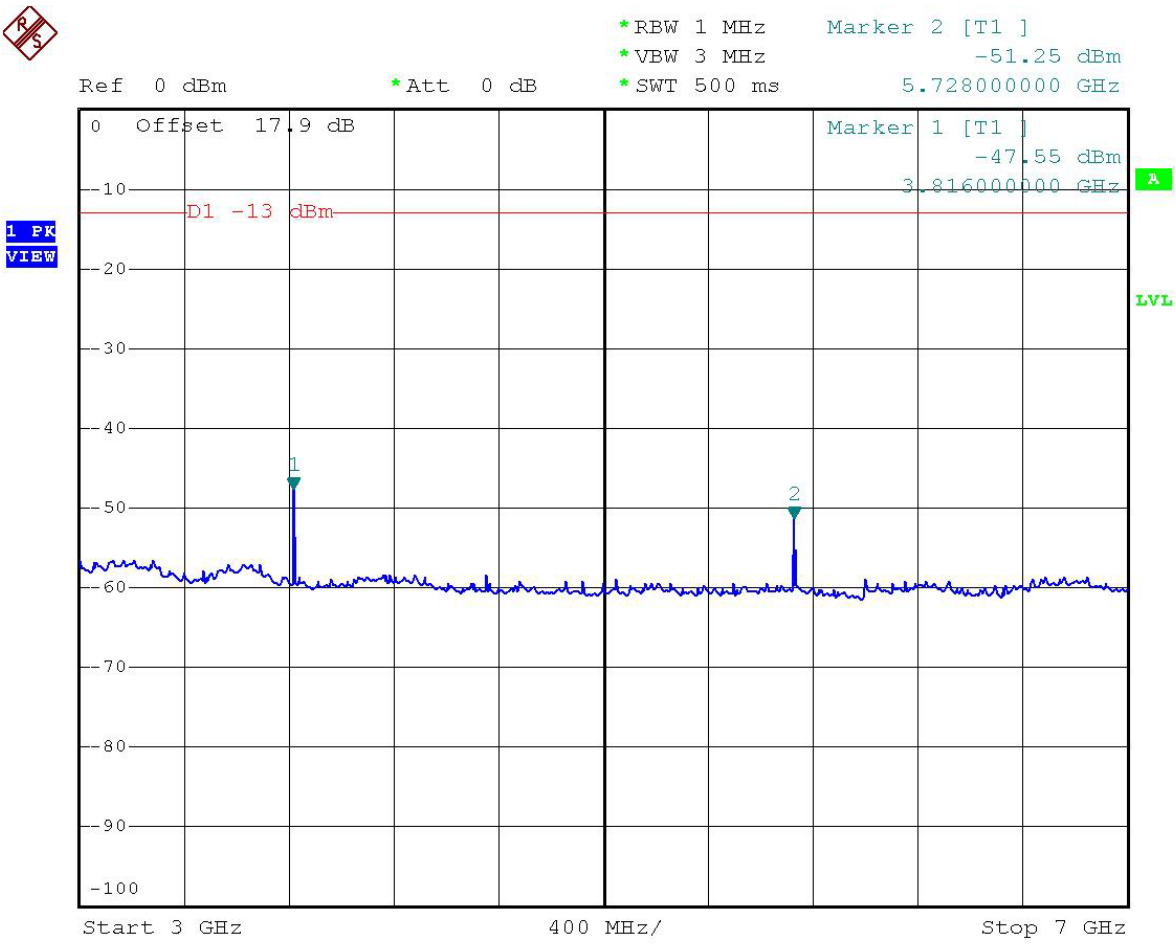
- Test Mode : PCS 1900 CH661
- Frequency Range : 0.3G-1G



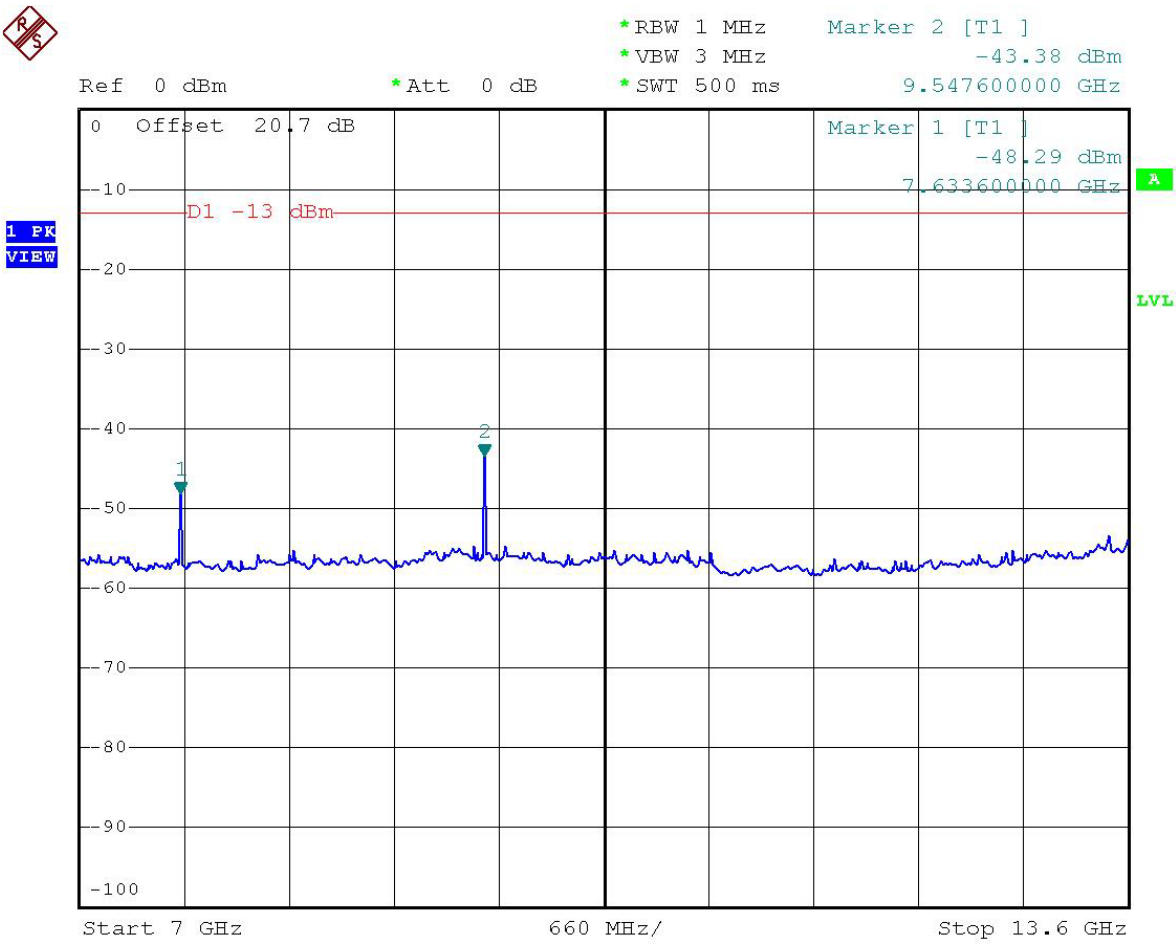
- Test Mode : PCS 1900 CH661
- Frequency Range : 1G-3G



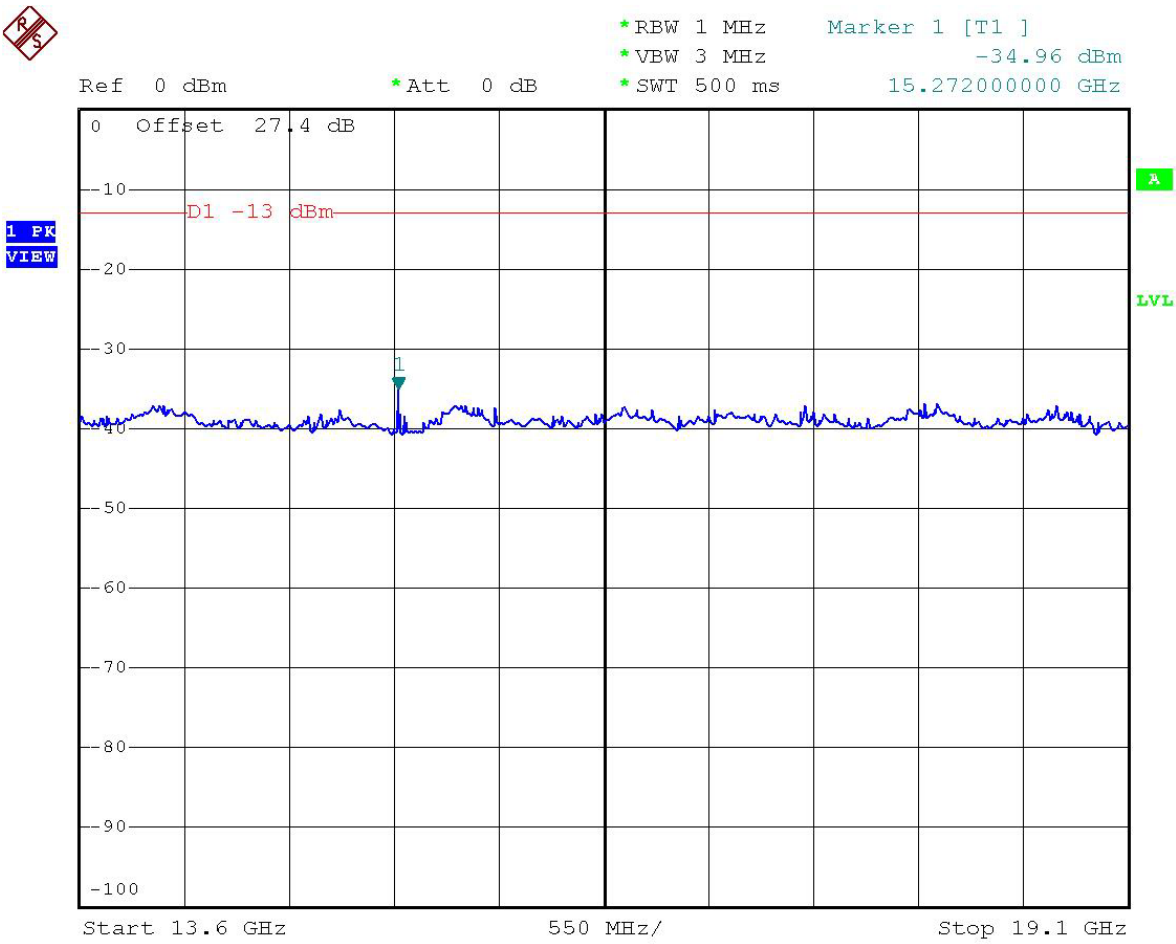
- Test Mode : PCS 1900 CH661
- Frequency Range : 3G-7G



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



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



4.6 Field Strength of Spurious Radiation

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

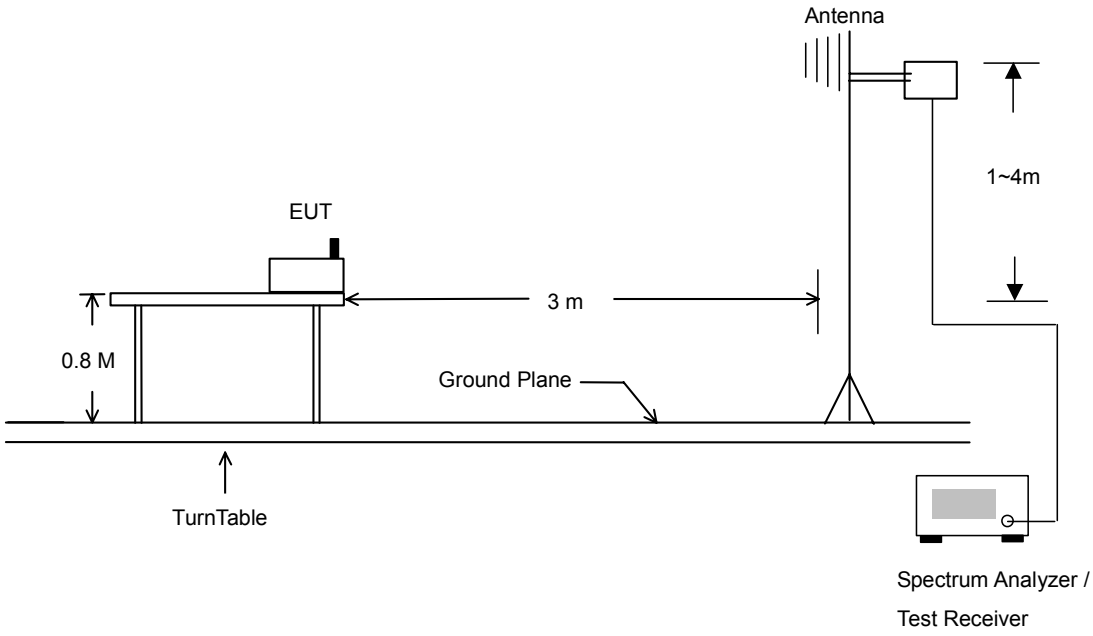
4.6.1 Measurement Instruments

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. The conducted power at the terminal of the Horn antenna is measured.
8. Repeat step 3 to step 5.

4.6.3 Test Setup Layout



4.6.4 Test Result

- Test Mode : PCS 1900 CH 661

PCS1900 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	-71.670	-13	-58.67	138.540	-68.060	-13	-55.06
156.090	-73.010	-13	-60.01	155.550	-63.400	-13	-50.40
213.330	-76.890	-13	-63.89	214.680	-69.850	-13	-56.85
362.300	-69.690	-13	-56.69	329.400	-70.030	-13	-57.03
374.900	-71.280	-13	-58.28	358.800	-73.510	-13	-60.51
460.300	-73.560	-13	-60.56	637.400	-70.320	-13	-57.32
1484.000	-57.580	-13	-44.58	1484.000	-57.250	-13	-44.25
3758.000	-51.880	-13	-38.88	3758.000	-52.850	-13	-39.85
5638.000	-46.350	-13	-33.35	5638.000	-51.240	-13	-38.24
7518.000	**-42.360**	**-13**	**-29.36**				

4.6.5 Test Data

Horizontal Polarization

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dBm	dB	dBm	dBm	dB	dB	dB		cm	deg
1	30.00	-71.67	-58.67	-13.00	-72.03	0.36	0.00	0.00	Peak	0	0
2	156.09	-73.01	-60.01	-13.00	-60.12	-12.89	0.00	0.00	Peak	0	0
3	213.33	-76.89	-63.89	-13.00	-63.97	-12.92	0.00	0.00	Peak	0	0

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dBm	dB	dBm	dBm	dB	dB	dB		cm	deg
1 @	362.30	-69.69	-56.69	-13.00	-61.92	-7.77	0.00	0.00	Peak	0	0
2	374.90	-71.28	-58.28	-13.00	-63.95	-7.34	0.00	0.00	Peak	0	0
3	460.30	-73.56	-60.56	-13.00	-67.90	-5.66	0.00	0.00	Peak	0	0

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dBm	dB	dBm	dBm	dB	dB	dB		cm	deg
1 @	1484.00	-57.58	-44.58	-13.00	-58.03	0.45	0.00	0.00	Peak	0	0
2 @	1884.00	-56.68			-56.00	-0.68	0.00	0.00	Peak	0	0
3 @	1948.00	-50.60			-49.65	-0.94	0.00	0.00	Peak	0	0

Remark: #2 MS TCH Signal
#3 BS TCH Signal

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dBm	dB	dBm	dBm	dB	dB	dB		cm	deg
1 @	3758.00	-51.88	-38.88	-13.00	-59.80	7.92	0.00	0.00	Peak	0	0

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dBm	dB	dBm	dBm	dB	dB	dB		cm	deg
1 @	5638.00	-46.35	-33.35	-13.00	-56.32	9.97	0.00	0.00	Peak	0	0

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dBm	dB	dBm	dBm	dB	dB	dB		cm	deg
1 @	7518.00	-42.36	-29.36	-13.00	-58.17	15.80	0.00	0.00	Peak	0	0

Vertical Polarization

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dBm	dB	dBm	dBm	dB	dB	dB		cm	deg
1 @	138.54	-68.06	-55.06	-13.00	-60.02	-8.04	0.00	0.00	Peak	0	0
2 @	155.55	-63.40	-50.40	-13.00	-55.21	-8.19	0.00	0.00	Peak	0	0
3 @	214.68	-69.85	-56.85	-13.00	-61.57	-8.28	0.00	0.00	Peak	0	0

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dBm	dB	dBm	dBm	dB	dB	dB		cm	deg
1 @	329.40	-70.03	-57.03	-13.00	-64.21	-5.82	0.00	0.00	Peak	0	0
2	358.80	-73.51	-60.51	-13.00	-68.32	-5.20	0.00	0.00	Peak	0	0
3	637.40	-70.32	-57.32	-13.00	-68.94	-1.38	0.00	0.00	Peak	0	0

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dBm	dB	dBm	dBm	dB	dB	dB		cm	deg
1 @	1484.00	-57.25	-44.25	-13.00	-56.28	-0.97	0.00	0.00	Peak	0	0
2 @	1884.00	-53.78			-53.28	-0.50	0.00	0.00	Peak	0	0
3 @	1948.00	-45.62			-45.13	-0.50	0.00	0.00	Peak	0	0

Remark: #2 MS TCH Signal

#3 BS TCH Signal

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dBm	dB	dBm	dBm	dB	dB	dB		cm	deg
1 @	3758.00	-52.85	-39.85	-13.00	-59.49	6.64	0.00	0.00	Peak	0	0

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dBm	dB	dBm	dBm	dB	dB	dB		cm	deg
1 @	5638.00	-51.24	-38.24	-13.00	-59.89	8.65	0.00	0.00	Peak	0	0

4.7 Frequency Stability (Temperature Variation)

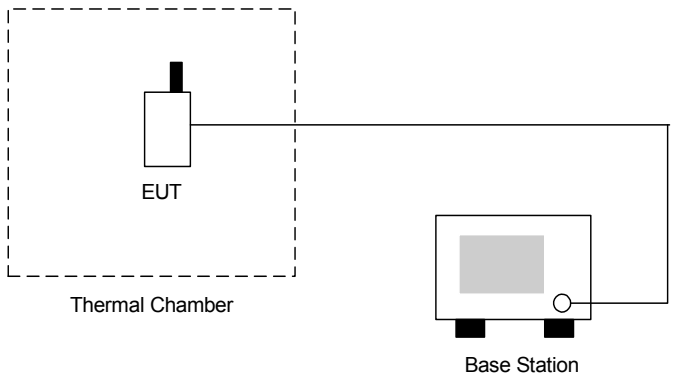
4.7.1 Measurement Instrument

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 : PCS 1900 CH661

Temperature(°C)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
-30	29	0.02	2.5	Passed
-20	27	0.01		
-10	20	0.01		
0	-22	-0.01		
10	-23	-0.01		
20	-21	-0.01		
30	28	0.01		
40	33	0.02		
50	41	0.02		

4.8 Frequency Stability (Voltage Variation)

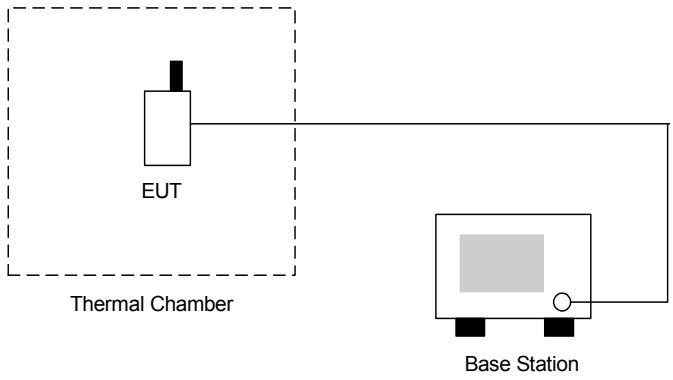
4.8.1 Measurement Instrument

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 : PCS 1900 CH661

Voltage(Volt)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
3.7	22	0.01	2.5	Passed
BEP	29	0.02		
4.3	24	0.01		

Remark:
1. Normal Voltage=3.6V
2. Battery End Point (BEP)=3.25VList of Measuring Equipments

5. List of Measurement Equipments

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
Spectrum analyzer	R&S	FSP40	100057	9KHz-40GHz	Feb. 26, 2004	Feb. 26, 2005	Radiation (03CH06-HY)
Bilog Antenna	SCHAFFNER	CBL6112B	2885	30MHz -2GHz	Dec. 18, 2003	Dec. 18, 2004	Radiation (03CH06-HY)
Horn Antenna	Com-Power	AH118	071025	1G-18G	Feb. 11, 2004	Feb. 11, 2005	Radiation (03CH06-HY)
PreAmplifier	Com-Power	PA-103	161055	1MHz - 1000MHz	Apr. 26, 2004	Apr. 26, 2005	Radiation (03CH06-HY)
HF Amplifier	MITEQ	AFS44	973248	0.1G - 26.5G	May. 20, 2004	May. 20, 2005	Radiation (03CH06-HY)
Base Station	Agilent	E5515C	GB43460754	N/A	Jan. 12, 2004	Jan. 12, 2005	Base Station
Radio	R&S	CMU200	105934	N/A	Aug. 24, 2004	Aug. 24, 2005	Base Station
Thermal Chamber	Ten Billion	TTH-D35P	N/A	N/A	NCR	NCR	EMS Chamber

6. Uncertainty Evaluation

Uncertainty of Conducted Emission Evaluation (30kHz ~ 1000MHz) (03CH03)

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 Receiver VSWR Γ1= 0.20 Antenna VSWR Γ2= 0.23 Uncertainty=20log(1-Γ1*Γ2)	+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 Evaluation (1GHz ~ 40GHz) (03CH03)

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**				

U=√{(1/2)²+(0.3/2)²+(2²+0.5²+2²+0.25²+2²)/3+(0.54)²/2}=2.2 for 10m test distance

U=√{(1/2)²+(0.3/2)²+(2²+3²+2²+0.25²+2²)/3+(0.54)²/2}=2.7 for 3m test distance

END OF TEST REPORT