

FCC TEST REPORT

for

47 CFR Part 24E

Equipment : Smart Phone
Trade Name : BenQ
Model No. : P31(57P31)
FCC ID : JVP57P31
Tx Frequency Range : PCS 1900: 1850.2~1909.8MHz
Max. RF Output Power : PCS 1900: 0.746W
Emission Designator : 300 KGXW
Applicant : BenQ Corporation
157 Shan-Ying Road, Gueishan, Taoyuan 333,
Taiwan, R.O.C.

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- The data shown in this test report were carried out on Nov. 24, 2004 at **Sporton International Inc. LAB.**

Daniel Lee 4/9/2005

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1. General Information

1.1. Applicant

BenQ Corporation

157 Shan-Ying Road, Gueishan, Taoyuan 333, Taiwan, R.O.C.

1.2 Manufacturer

BenQ Corporation

157 Shan-Ying Road, Gueishan, Taoyuan 333, Taiwan, R.O.C.

1.3 Basic Description of Equipment under Test

Equipment	: Smart Phone
Trade Name	: BenQ
Model No.	: P31(57P31)
FCC ID	: JVP57P31
Power Supply Type	: Switching
AC Power Cord	: AC 120V, Weave, Wall-mount, 1.8 meter, 2 pin
Earpiece	: 23.42036.001
Data Cable	: 50.G4702.001
Battery	: 23.20113.101, LI 3.7V 1240MA
Holster	: 47.G8225.001
Charger	: MP2X, BenQ

**1.4 Feature of Equipment under Test**

DUT Type :	Smart Phone
Trade Name :	BenQ
Model Name :	P31(57P31)
FCC ID :	JVP57P31
Tx Frequency :	PCS 1900: 1850.2~1910MHz BT: 2400~2483.5MHz
Rx Frequency :	PCS 1900: 1930~1990MHz BT: 2400~2483.5MHz
Antenna Type :	Fixed Internal
Maximum Output Power to Antenna :	PCS 1900: 29.3 dBm BT: 1.78dBm
Maximum EIRP :	PCS 1900: 0.746 W (28.73 dBm)
IMEI :	355973000000011
HW Version :	LPR4-6
SW Version :	V050111-01
Digital Modulation Emission :	PCS: GMSK BT: GFSK
Type of Emission :	300 KGXW
DUT Stage :	Identical Prototype

1.5 Report Date

EUT Received : Jan. 18, 2005

Report Date : Apr. 19, 2005



2 Test Configuration of Equipment under Test

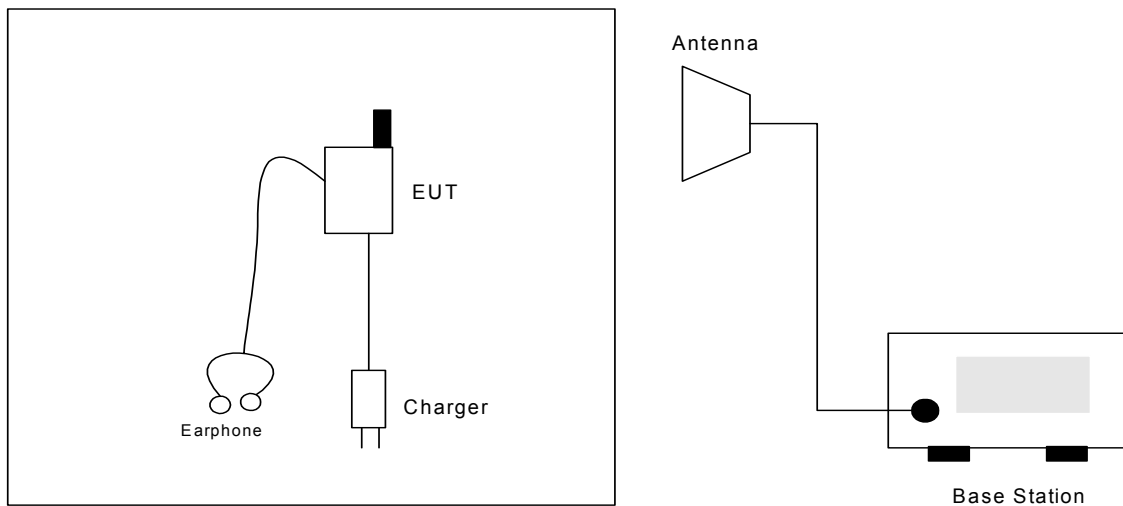
2.1 Test Manner

- 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 30MHz to 19000 MHz for PCS 1900.

2.2 Test Mode

Application	PCS 1900
Radiated Emission	<input checked="" type="checkbox"/> Mode 1: CH 661 <input checked="" type="checkbox"/> Mode 2: CH 661+CH 78 BT
Conducted Measurement	<input checked="" type="checkbox"/> 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	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

120V/ 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-128 § 7.1 RSS-133 § 6.2	RF Output Power	Passed	4.2
§ 22.913 §24.232	RSS-128 § 7.1 RSS-133 § 6.2	ERP / EIRP	Passed	4.3
§2.1049, § 22.917, § 24.238(b)	RSS-128 § 7.4 RSS-133 § 6.3	Occupied Bandwidth & Band Edge Measurement	Passed	4.4
§2.1051	RSS-128 § 7.4 RSS-133 § 6.3	Conducted Emission	Passed	4.5
§2.1053	RSS-128 § 7.4 RSS-133 § 6.3	Field Strength of Spurious Radiation	Passed	4.6
§2.1055, § 22.355, §24.235	RSS-128 § 9 RSS-133 § 7	Frequency Stability vs. Temperature	Passed	4.7
§2.1055, §22.355, §24.235	RSS-128 § 9 RSS-133 § 7	Frequency Stability vs. Voltage	Passed	4.8

4.2 RF Output Power

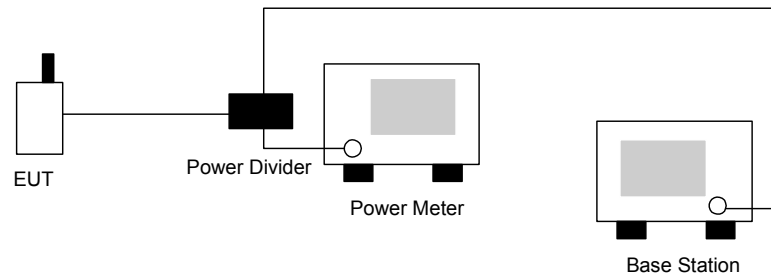
4.2.1 Measurement Instruments :

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=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)
PCS 1900	512	1850.2 (Low)	29.3	0.851
	661	1880.0 (Mid)	29.1	0.813
	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 table with 1.5 meter height.
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 also kept at 1.5m height.
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 to get the maximum ERP/EIRP of the substitution antenna.
9. $ERP/EIRP = P_s + E_t - E_s + G_s = P_s + R_t - R_s + G_s$

P_s (dBm): Input power to substitution antenna.

G_s (dBi or dBd): Substitution antenna Gain.

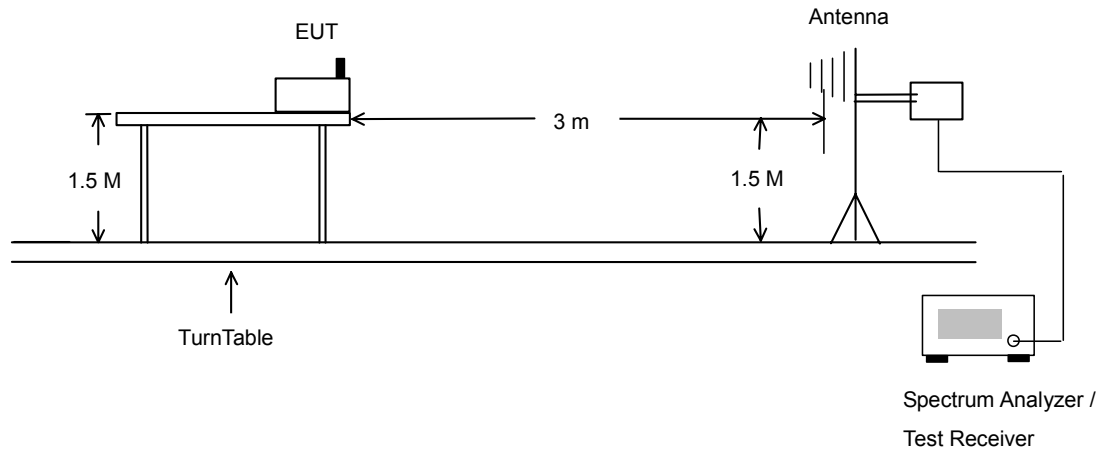
$E_t = R_t + AF$

$E_s + R_s + AF$

AF (dB/m): Receive antenna factor

10. R_t : the highest received signal in Spectrum Analyzer for EUT.

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)
1850.2	27.35	0.543	1850.2	28.73	0.746
1880.0	26.69	0.467	1880.0	28.07	0.641
1909.8	26.87	0.486	1909.8	27.3	0.537

4.4 Occupied Bandwidth and Band Edge Measurement

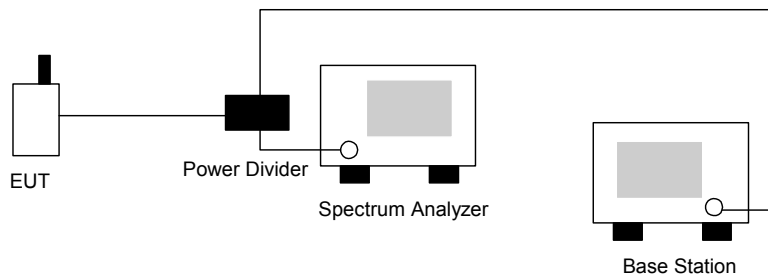
4.4.1 Measurement Instruments

As described in chapter 5 of this test report.

4.4.2 Test Procedure

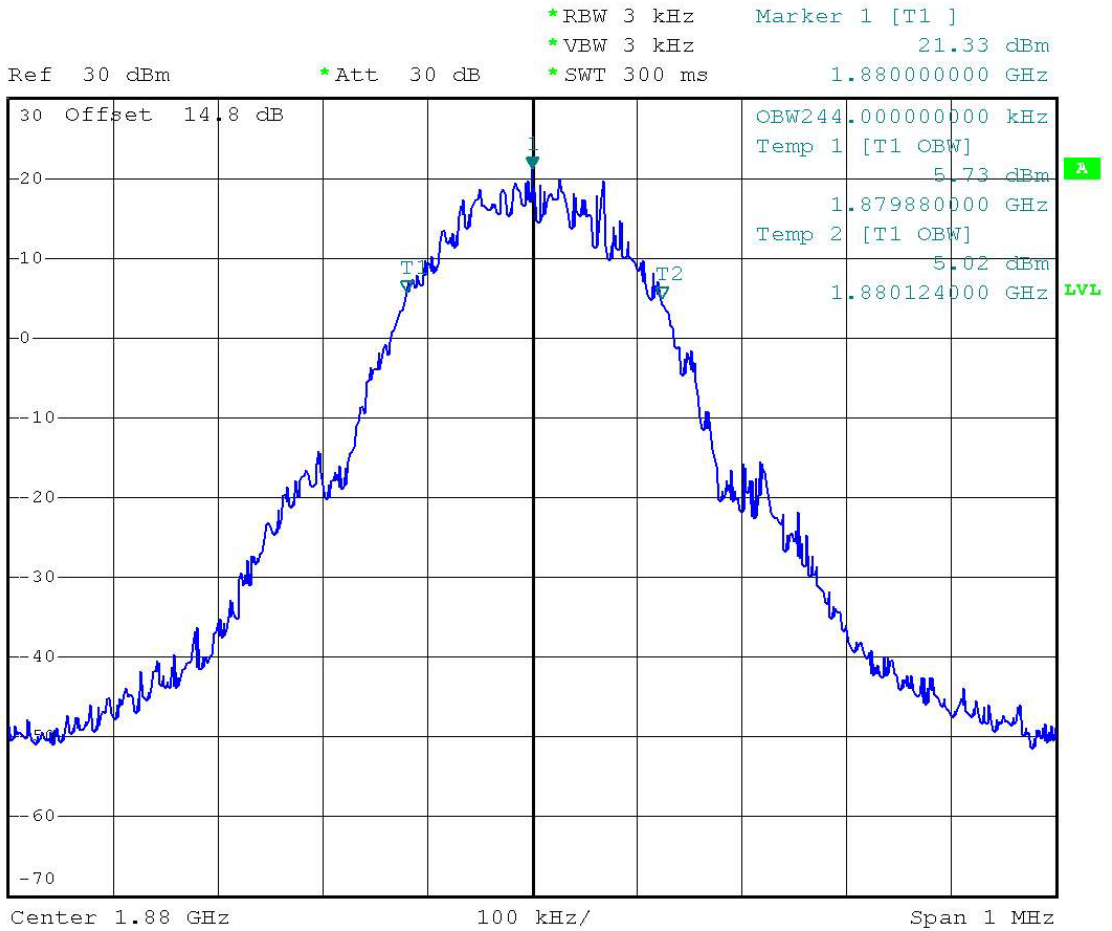
1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.
2. The occupied bandwidth of middle channel for the highest and lowest RF powers were measured.
3. The bandedge of low and high channels for the highest RF powers within the transmitting frequency band were measured. Setting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

4.4.3 Test Setup Layout





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



4.5 Conducted Emission

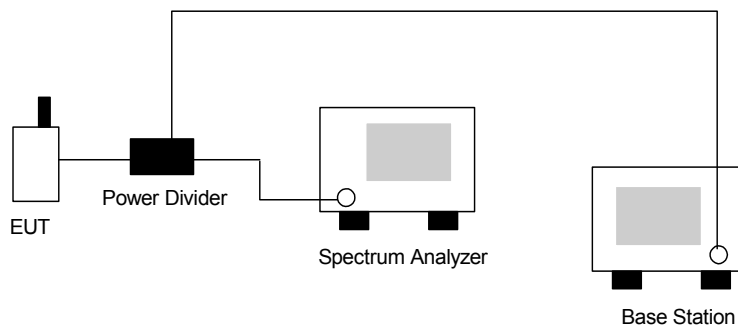
4.5.1 Measurement Instruments

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.

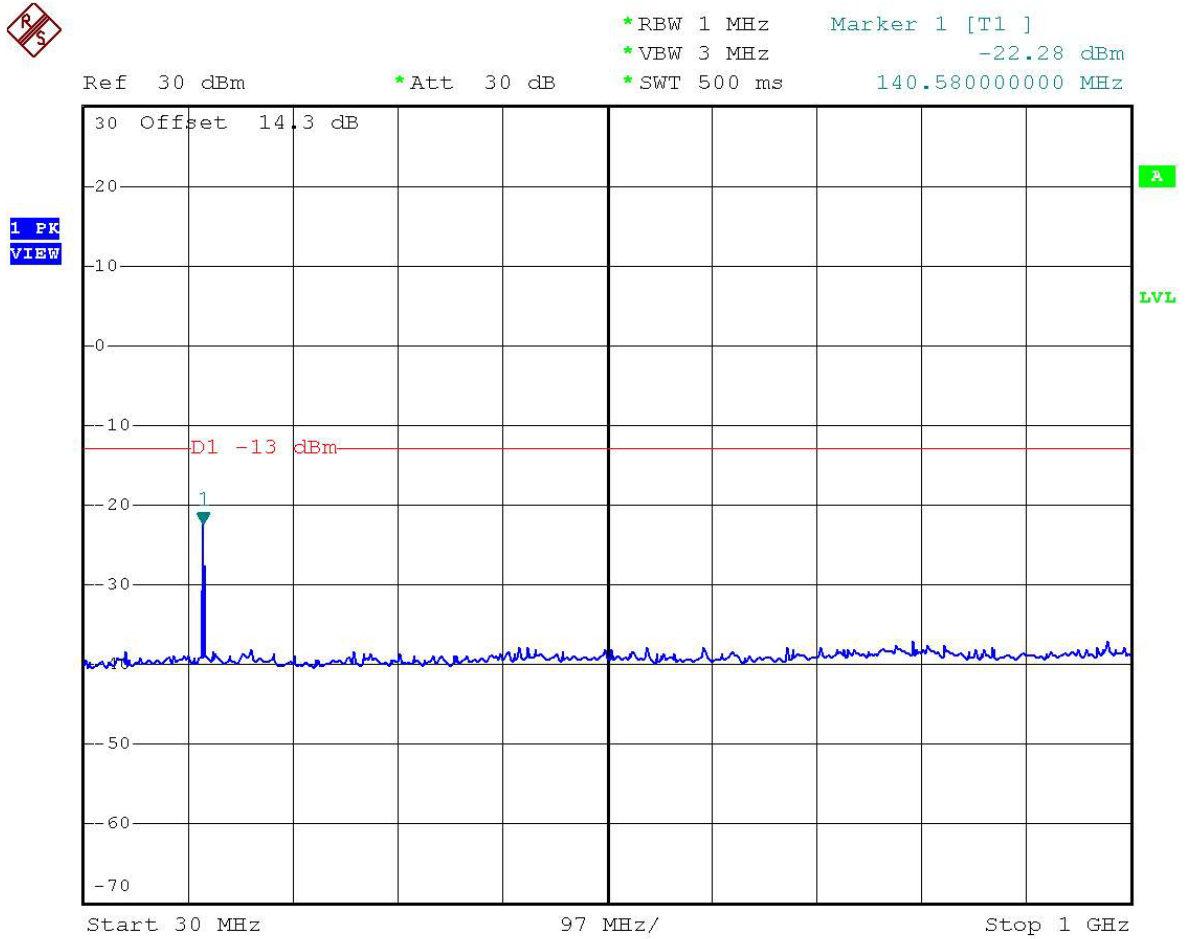
4.5.3 Test Setup Layout





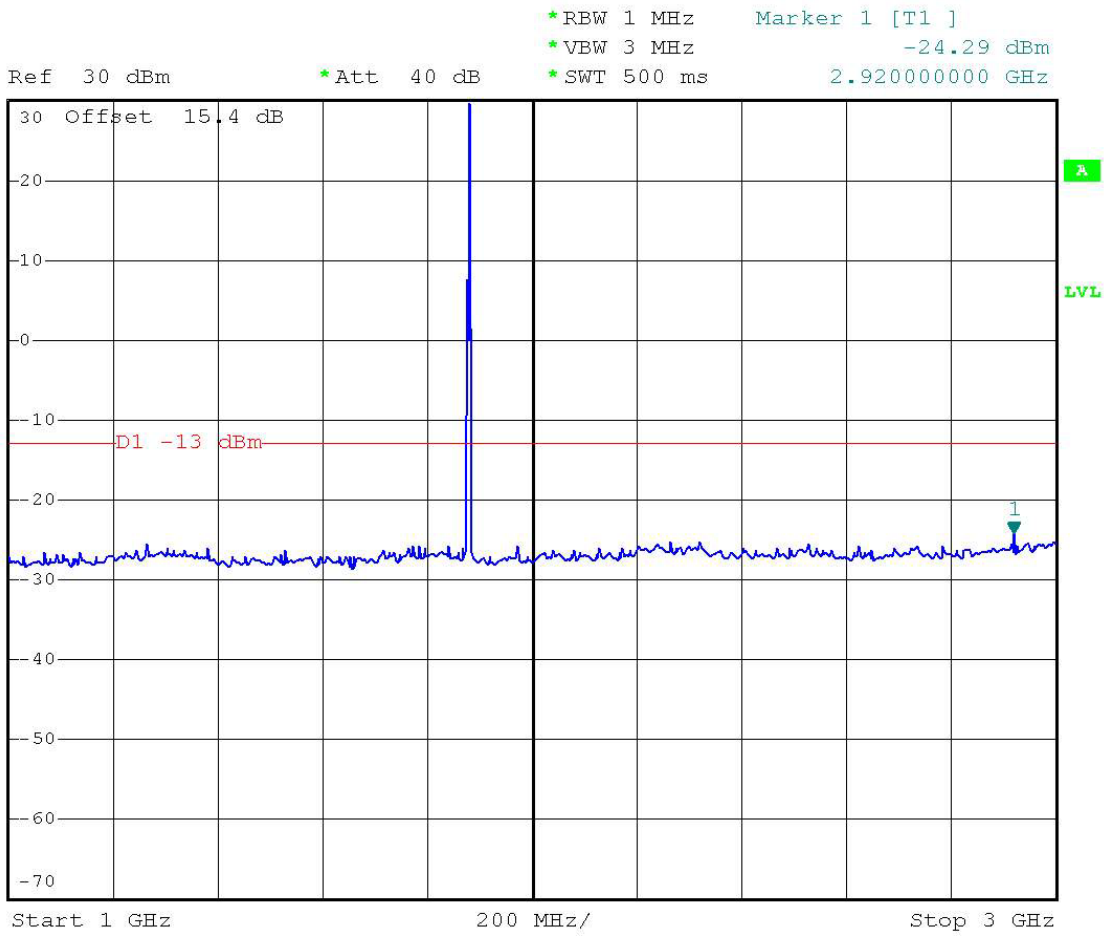
4.5.4 Test Result

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





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

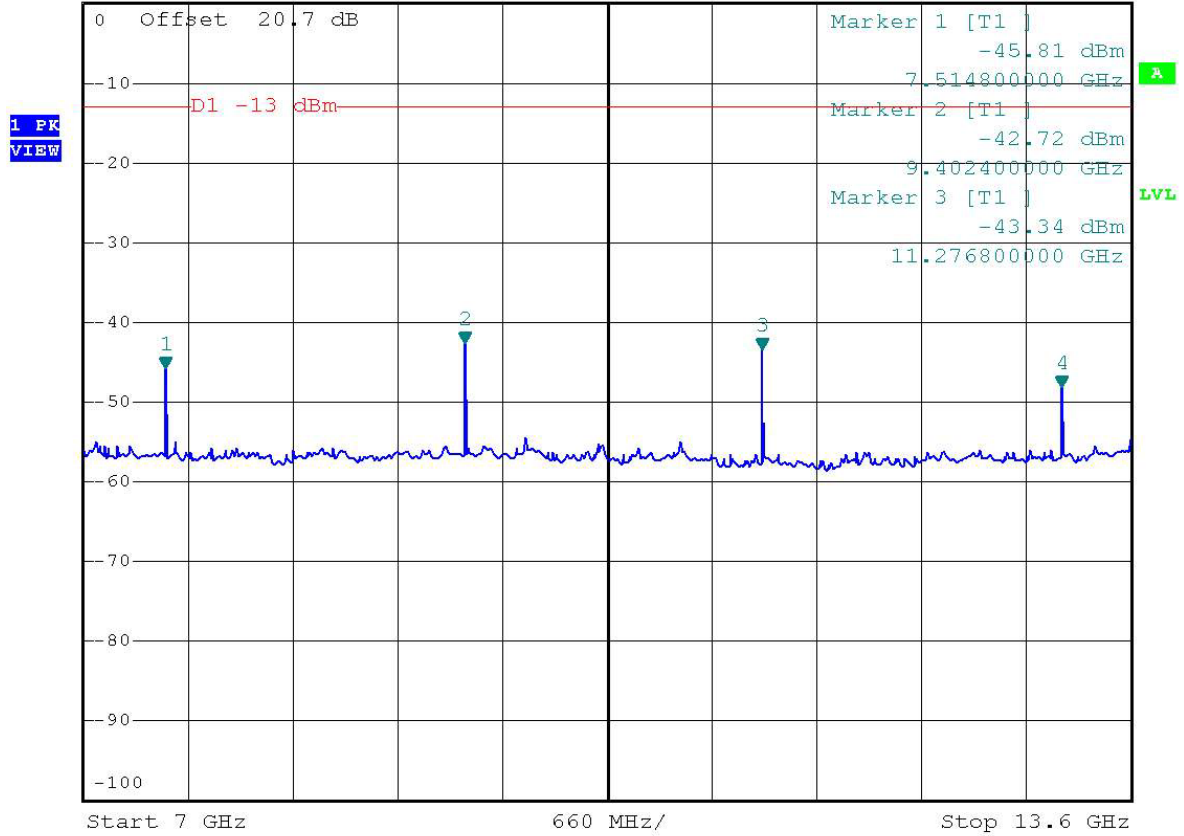




- Test Mode : PCS 1900 CH661
- Frequency Range : 7G-13.6G



Ref 0 dBm *Att 0 dB *RBW 1 MHz Marker 4 [T1] -48.14 dBm
 *VBW 3 MHz 13.164400000 GHz
 *SWT 500 ms





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



Ref 0 dBm *Att 0 dB *RBW 1 MHz Marker 1 [T1] -37.78 dBm
*VBW 3 MHz 15.041000000 GHz
*SWT 500 ms

