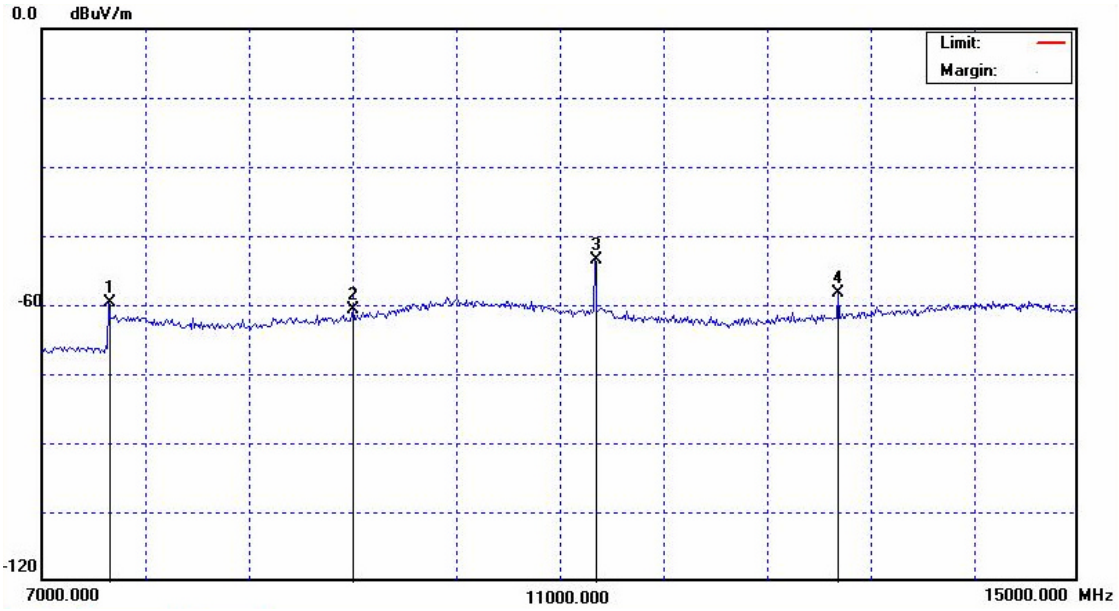
Channel 661

7.5G~15GHz

RBW 1 MHz
VBW 1 MHz
Ref 0 dBm SWT 250 ms



Mark 1	7514.286	MHz	-59.50	dBm
Mark 2	9400.000	MHz	-61.00	dBm
Mark 3	11274.286	MHz	-50.25	dBm
Mark 4	13148.571	MHz	-57.50	dBm

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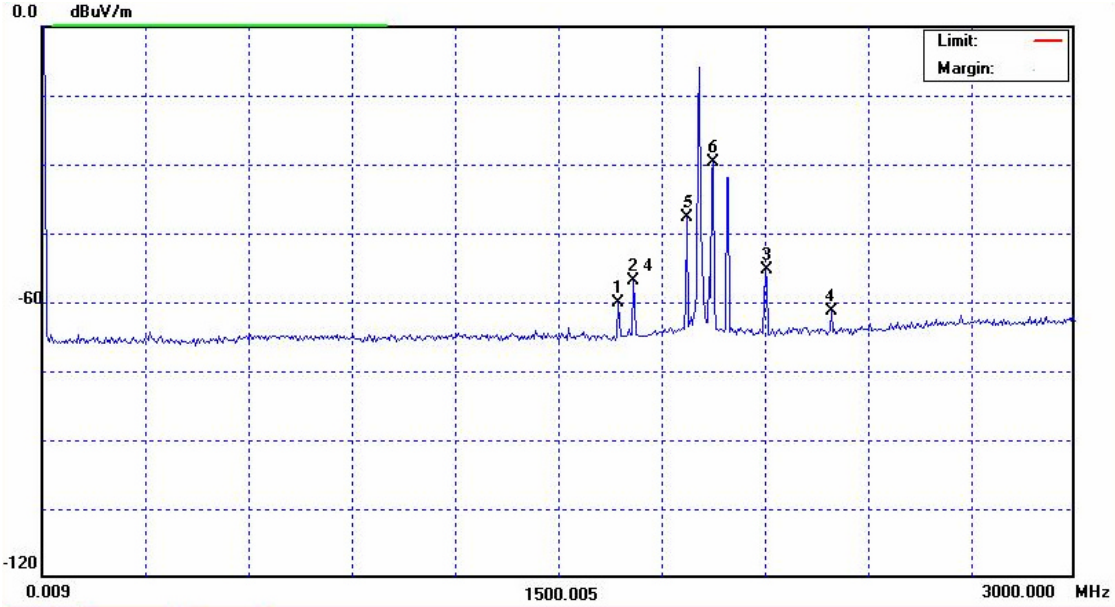
Channel 810

9K~3GHz

RBW 1 MHz
VBW 1 MHz
Ref -5 dBm SWT 15 ms



Mark 1	1675.718	MHz	-60.25	dBm
Mark 2	1718.575	MHz	-55.25	dBm
Mark 3	2100.003	MHz	-53.00	dBm
Mark 4	2287.495	MHz	-62.31	dBm
Mark 5	1869.354	MHz	-42.74	dBm
Mark 6	1945.333	MHz	-28.95	dBm

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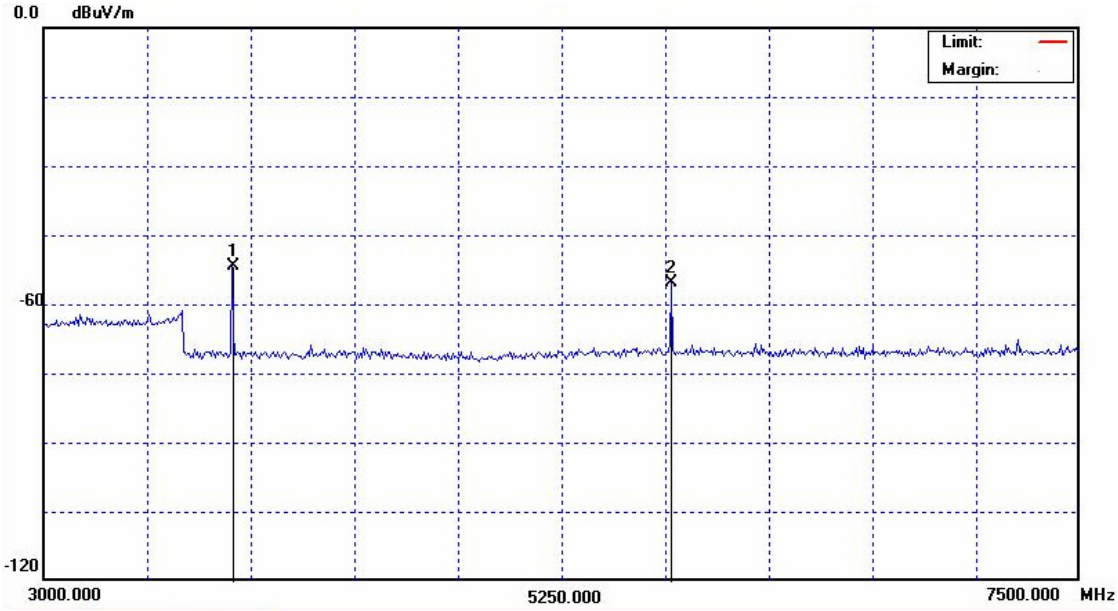
Channel 810

3G~7.5GHz

RBW 1 MHz
VBW 1 MHz
Ref 0 dBm SWT 100 ms



Mark 1	3816.429	MHz	-51.75	dBm
Mark 2	5725.714	MHz	-55.25	dBm

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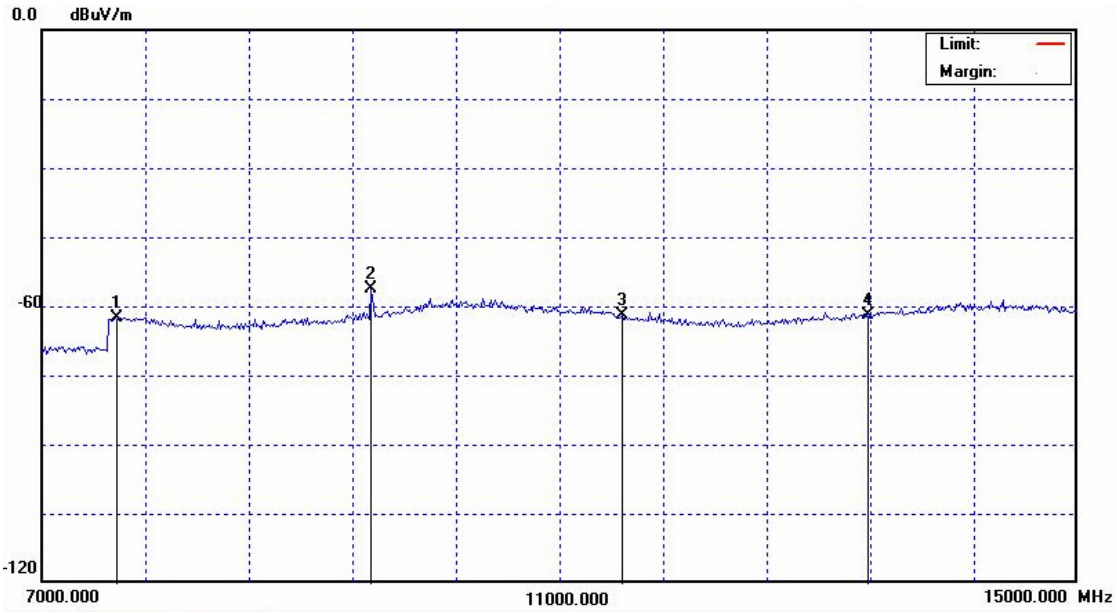
Channel 810

7.5G~15GHz

RBW 1 MHz
VBW 1 MHz
Ref 0 dBm SWT 250 ms



Mark 1	7571.429	MHz	-62.50	dBm
Mark 2	9548.571	MHz	-56.25	dBm
Mark 3	11480.000	MHz	-62.00	dBm
Mark 4	13377.143	MHz	-62.00	dBm

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8 RADIATED SPURIOUS EMISSION

8.1 Test setup

A set of LP/HP/BS filters was used to prevent overloading the spectrum analyzer. The BS simulator was used to set the TX channel with GPRS and power level and modulate the TX signal with different bit patterns. The test was done using an automated test system, where the measurement devices were controlled by a computer.

8.2 Test method

a) The emissions were searched and maximized by rotate the turn table and raise and lower the antenna and manipulating the EUT. EUT placed on the 1.5m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization to find the maximum polar radiated power. The “Read Value” is the maximum power value recorded on the spectrum analyzer.

b) All suspicious frequencies with emission levels were recorded.

c) The EUT was replaced with a substituting antenna.
The substitution horn antenna is substituted for EUT at the same position and signal generator export the CW signal to the calibration antenna. The signal generator level has to adjust to have the same emission nature. The radiated power can be calculated via the factor and antenna.

d) For each frequency recorded, the substituting antenna was fed with the power (from signal generator) giving the same reading as in (b). These power levels were reported. Actually the real E.I.R.P peak power is equal to “SG Power Value + Correction Factor (dB), Correction Factor (dB) =Substitution Antenna Gain (dBi) - Cable Loss(dB) ”

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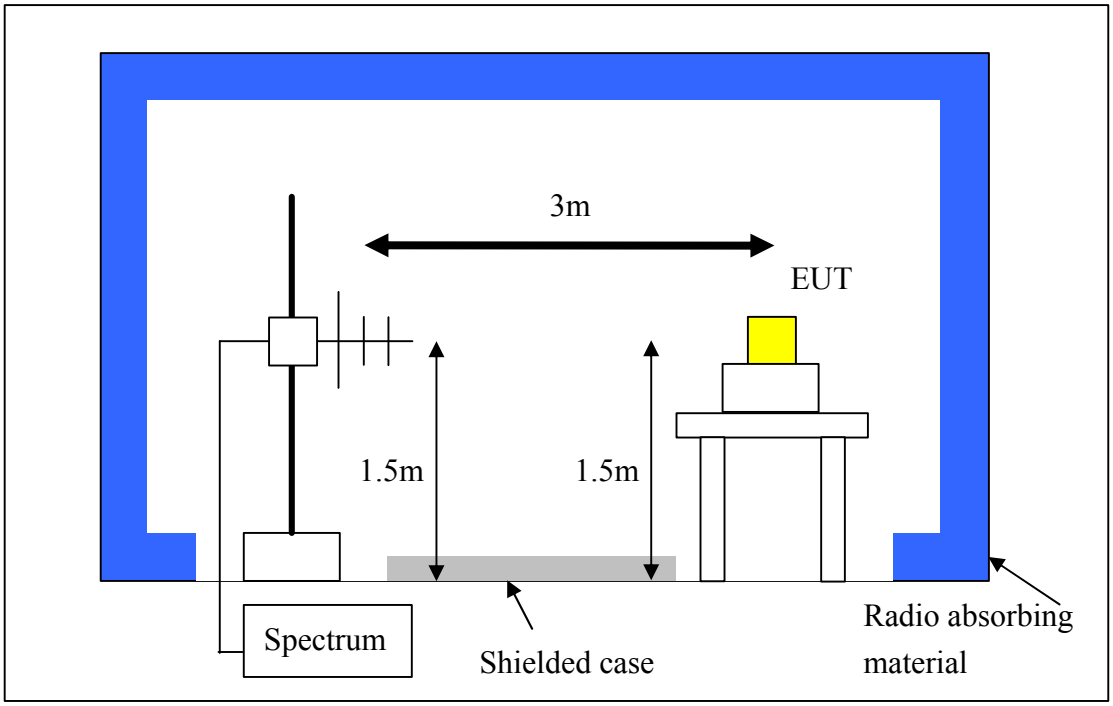
8.3 EUT operation modes

a. The EUT makes a phone call to the GSM simulator.

b. The GSM simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency.



8.4 Limit

In the FCC 24.238(a), On any frequency outside a licensee's frequency block within USPCS spectrum, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 +10 log (P) dB. In the FCC 24.238(c), When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the licensee's frequency block edges (low channel 512 and high channel 810), both upper and lower edges are compliance with FCC 24.238(b), Adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

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8.5 Results

MODEL:V66

EUT	Tri-band Mobile Phone	**MODEL**	V66
MODE	Tx Channel 512	**POWER CONTROL LEVEL**	0
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION**	Peak
ENVIRONMENTAL CONDITIONS	23 deg. C, 65% RH, 991 hPa	**TESTED BY:** Vic Liu	

Frequency range: 30MHz ~ 1GHz

RADIATED SPURIOUS EMISSION : Vertical polarization 3M

No	Frequency (MHz)	Emission Level(dBm)	Limit (dBm)	S.G Power (dBm)	Correction Factor (dB)	Substitution Ant gain (dBi)	Cable Loss (dB)	Power Value(dBm)
1	38.37	-44.11	-13	-29.5	-30.90	0.11	31.01	-60.40
2	78.87	-42.43	-13	-27.80	-30.91	0.15	31.06	-58.71
3	98.31	-41.96	-13	-27.30	-30.85	0.20	31.05	-58.15
4	196.32	-44.67	-13	-30.0	-31.01	0.24	31.25	-61.01
5	300	-43.98	-13	-29.10	-30.75	0.55	31.30	-59.85
6	499	-43.93	-13	-28.90	-30.63	0.70	31.33	-59.53
7	527	-43.34	-13	-28.00	-30.70	0.70	31.40	-58.70
8	641	-41.39	-13	-26.00	-30.57	0.90	31.47	-56.57
9	667	-40.91	-13	-25.80	-30.54	0.90	31.44	-56.34
10	934	-43.07	-13	-28.10	-30.40	1.10	31.50	-58.50

RADIATED SPURIOUS EMISSION : Horizontal polarization 3M

No	Frequency (MHz)	Emission Level(dBm)	Limit (dBm)	S.G Power (dBm)	Correction Factor (dB)	Substitution Ant gain (dBi)	Cable Loss (dB)	Power Value(dBm)
1	78.87	-44.46	-13	-38.6	-30.91	0.15	31.06	-69.51
2	98.31	-44.83	-13	-39	-30.85	0.20	31.05	-69.85
3	165.81	-48.14	-13	-42.3	-31.07	0.23	31.30	-73.37
4	332.2	-46.48	-13	-38.5	-30.73	0.57	31.30	-69.23
5	517.7	-41.73	-13	-34.5	-30.70	0.70	31.40	-65.20
6	527.5	-40.74	-13	-33	-30.70	0.70	31.40	-63.70
7	599.6	-38.82	-13	-31.2	-30.62	0.83	31.45	-61.82
8	647.2	-41.72	-13	-34	-30.57	0.90	31.47	-64.57
9	732.6	-42.21	-13	-34.5	-30.51	0.96	31.47	-65.01
10	934.2	-45.49	-13	-37.8	-30.40	1.10	31.50	-68.20

REMARKS:

1. Power Value (dBm) = S.G Power Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna gain (dBi) - Cable Loss (dB)
3. "-" The emission levels were very low against the limit.

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EUT	Tri-band Mobile Phone	**MODEL**	V66
MODE	Tx Channel 512	**POWER CONTROL LEVEL**	0
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION**	Peak
ENVIRONMENTAL CONDITIONS	23 deg. C, 65% RH, 991 hPa	**TESTED BY:** Vic Liu	

Frequency range: 1GHz ~ 20GHz

RADIATED SPURIOUS EMISSION : Vertical polarization 3M								
No	Frequency (MHz)	Emission Level(dBm)	Limit (dBm)	S.G Power (dBm)	Correction Factor (dB)	Substitution Ant gain (dBi)	Cable Loss (dB)	Power Value(dBm)
1	3708	-13.76	-13	-1.03	-27.50	9.00	36.50	-26.12
2	5567	-14.39	-13	-6.5	-29.20	9.50	38.70	-35.70
3	7406.5	-13.48	-13	-4.0	-30.80	9.80	40.60	-34.80
4	9260	-11.94	-13	-4.1	-33.50	10.00	43.50	-37.60
5	11100	-9.06	-13	-1.0	-36.10	10.30	46.40	-37.10
6	12950	-5.35	-13	2.9	-35.00	10.50	45.50	-32.10

RADIATED SPURIOUS EMISSION : Horizontal polarization 3M								
No	Frequency (MHz)	Emission Level(dBm)	Limit (dBm)	S.G Power (dBm)	Correction Factor (dB)	Substitution Ant gain (dBi)	Cable Loss (dB)	Power Value(dBm)
1	3708	-1.65	-13	5.5	-27.50	9.00	36.50	**-22.00**
2	5567	-12.94	-13	-5.6	-29.20	9.50	38.70	-34.80
3	7406.5	-18.4	-13	-3.2	-30.80	9.80	40.60	-34.00
4	9260	-13.85	-13	-3.0	-33.50	10.00	43.50	-36.50
5	11100	-16.9	-13	-6.1	-36.10	10.30	46.40	-42.20
6	12950	-14.1	-13	-3.5	-35.00	10.50	45.50	-38.50

REMARKS:

1. Power Value (dBum) = S.G Power Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna gain (dBi) - Cable Loss (dB)
3. "-" The emission levels were very low against the limit.

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EUT	Tri-band Mobile Phone	**MODEL**	V66
MODE	Tx Channel 661	**POWER CONTROL LEVEL**	0
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION**	Peak
ENVIRONMENTAL CONDITIONS	23 deg. C, 65% RH, 991 hPa	**TESTED BY:** Vic Liu	

Frequency range: 30MHz ~ 1GHz

RADIATED SPURIOUS EMISSION : Vertical polarization 3M								
No	Frequency (MHz)	Emission Level(dBm)	Limit (dBm)	S.G Power (dBm)	Correction Factor (dB)	Substitution Ant gain (dBi)	Cable Loss (dB)	Power Value(dBm)
1	74.82	-45.13	-13	-29.5	-30.91	0.15	31.06	-60.41
2	78.6	-42.88	-13	-27.4	-30.91	0.15	31.06	-58.31
3	99.66	-42.34	-13	-26.5	-30.85	0.20	31.05	-57.35
4	300	-43.49	-13	-26.2	-30.75	0.55	31.30	-56.95
5	366.5	-45.46	-13	-28.0	-30.70	0.61	31.31	-58.70
6	499.5	-39.81	-13	-22.9	-30.63	0.70	31.33	-53.53
7	527.5	-43.04	-13	-25.5	-30.70	0.70	31.40	-56.20
8	638.1	-38.69	-13	-21.4	-30.57	0.90	31.47	-51.97
9	667.5	-40.28	-13	-22.7	-30.54	0.90	31.44	-53.24
10	934.2	-44.27	-13	-27.0	-30.40	1.10	31.50	-57.40

RADIATED SPURIOUS EMISSION : Horizontal polarization 3M								
No	Frequency (MHz)	Emission Level(dBm)	Limit (dBm)	S.G Power (dBm)	Correction Factor (dB)	Substitution Ant gain (dBi)	Cable Loss (dB)	Power Value(dBm)
1	74.82	-45.19	-13	-29.5	-30.91	0.15	31.06	-60.41
2	78.87	-43.61	-13	-28.0	-30.91	0.15	31.06	-58.91
3	98.31	-45.07	-13	-29.7	-30.85	0.20	31.05	-60.55
4	165.81	-47.82	-13	-32.5	-31.07	0.23	31.30	-63.57
5	291.36	-46.29	-13	-31.0	-30.75	0.53	31.28	-61.75
6	527.5	-40.43	-13	-26.5	-30.70	0.70	31.40	-57.20
7	597.5	-38.51	-13	-24.1	-30.62	0.83	31.45	-54.72
8	645.8	-41.78	-13	-28.2	-30.57	0.90	31.47	-58.77
9	730.5	-42.45	-13	-28.4	-30.51	0.96	31.47	-58.91
10	767.6	-44.32	-13	-30.7	-30.40	1.15	31.55	-61.10

REMARKS:

1. Power Value (dBm) = S.G Power Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna gain (dBi) - Cable Loss (dB)
3. "-" The emission levels were very low against the limit.

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EUT	Tri-band Mobile Phone	**MODEL**	V66
MODE	Tx Channel 661	**POWER CONTROL LEVEL**	0
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION**	Peak
ENVIRONMENTAL CONDITIONS	23 deg. C, 65% RH, 991 hPa	**TESTED BY:** Vic Liu	

Frequency range: 1GHz ~ 20GHz

RADIATED SPURIOUS EMISSION : Vertical polarization 3M								
No	Frequency (MHz)	Emission Level(dBm)	Limit (dBm)	S.G Power (dBm)	Correction Factor (dB)	Substitution Ant gain (dBi)	Cable Loss (dB)	Power Value(dBm)
1	3753.5	-2.28	-13	5.9	-27.20	8.90	36.10	-21.30
2	5645	-2.47	-13	5.6	-29.37	9.58	38.95	-23.77
3	9408.5	-3.81	-13	8.4	-33.40	10.50	43.90	-25.00

RADIATED SPURIOUS EMISSION : Horizontal polarization 3M								
No	Frequency (MHz)	Emission Level(dBm)	Limit (dBm)	S.G Power (dBm)	Correction Factor (dB)	Substitution Ant gain (dBi)	Cable Loss (dB)	Power Value(dBm)
1	3753.5	1.21	-13	9.1	-27.20	8.90	36.10	**-18.10**
2	5645	-3.18	-13	4.5	-29.37	9.58	38.95	-24.87
3	9408.5	-3.6	-13	4.4	-33.40	10.50	43.90	-29.00

REMARKS:

1. Power Value (dBum) = S.G Power Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna gain (dBi) - Cable Loss (dB)
3. "-" The emission levels were very low against the limit.

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EUT	Tri-band Mobile Phone	**MODEL**	V66
MODE	Tx Channel 810	**POWER CONTROL LEVEL**	0
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION**	Peak
ENVIRONMENTAL CONDITIONS	23 deg. C, 65% RH, 991 hPa	**TESTED BY:** Vic Liu	

Frequency range: 30MHz ~ 1GHz

RADIATED SPURIOUS EMISSION : Vertical polarization 3M								
No	Frequency (MHz)	Emission Level(dBm)	Limit (dBm)	S.G Power (dBm)	Correction Factor (dB)	Substitution Ant gain (dBi)	Cable Loss (dB)	Power Value(dBm)
1	38.37	-44.47	-13	-29.00	-30.90	0.11	31.01	-59.90
2	78.60	-42.28	-13	-27.00	-30.91	0.15	31.06	-57.91
3	98.31	-42.11	-13	-26.50	-30.85	0.20	31.05	-57.35
4	300.0	-43.95	-13	-29.00	-30.75	0.55	31.30	-59.75
5	498.1	-42.84	-13	-25.70	-30.63	0.70	31.33	-56.33
6	527.5	-43.06	-13	-25.80	-30.70	0.70	31.40	-56.50
7	563.2	-44.01	-13	-26.90	-30.63	0.80	31.43	-57.53
8	636.7	-39.78	-13	-22.50	-30.57	0.90	31.47	-53.07
9	667.5	-41.42	-13	-24.40	-30.54	0.90	31.44	-54.94
10	934.2	-44.22	-13	-27.00	-30.40	1.10	31.50	-57.40

RADIATED SPURIOUS EMISSION : Horizontal polarization 3M								
No	Frequency (MHz)	Emission Level(dBm)	Limit (dBm)	S.G Power (dBm)	Correction Factor (dB)	Substitution Ant gain (dBi)	Cable Loss (dB)	Power Value(dBm)
1	74.82	-45.55	-13	-30.1	-30.91	0.15	31.06	-61.01
2	78.6	-43.85	-13	-29.5	-30.91	0.15	31.06	-60.41
3	98.31	-45.03	-13	-28.0	-30.85	0.20	31.05	-58.85
4	114.51	-51.52	-13	-29.7	-30.84	0.21	31.05	-60.54
5	196.32	-50.8	-13	-32.5	-31.01	0.24	31.25	-63.51
6	332.2	-46.01	-13	-28.0	-30.74	0.57	31.31	-58.74
7	527.5	-39.75	-13	-21.5	-30.70	0.70	31.40	-52.20
8	599.6	-37.92	-13	-20	-30.61	0.84	31.45	-50.61
9	643	-41.62	-13	-23.8	-30.56	0.90	31.46	-54.36
10	730.5	-41.86	-13	-23.5	-30.48	0.98	31.46	-53.98

REMARKS:

1. Power Value (dBm) = S.G Power Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna gain (dBi) - Cable Loss (dB)
3. "-" The emission levels were very low against the limit.

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EUT	Tri-band Mobile Phone	**MODEL**	V66
MODE	Tx Channel 810	**POWER CONTROL LEVEL**	0
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION**	Peak
ENVIRONMENTAL CONDITIONS	23 deg. C, 65% RH, 991 hPa	**TESTED BY:** Vic Liu	

Frequency range: 1GHz ~ 20GHz

RADIATED SPURIOUS EMISSION : Vertical polarization 3M								
No	Frequency (MHz)	Emission Level(dBm)	Limit (dBm)	S.G Power (dBm)	Correction Factor (dB)	Substitution Ant gain (dBi)	Cable Loss (dB)	Power Value(dBm)
1	3818.5	1.97	-13	8.6	-27.30	9.00	36.30	-18.70
2	5742.5	-0.32	-13	6.2	-29.35	9.65	39.00	-23.15
3	9571	-0.28	-13	6.1	-34.45	10.25	44.70	-28.35
4	11460	-5.73	-13	0.9	-34.65	10.35	45.00	-33.75

RADIATED SPURIOUS EMISSION : Horizontal polarization 3M								
No	Frequency (MHz)	Emission Level(dBm)	Limit (dBm)	S.G Power (dBm)	Correction Factor (dB)	Substitution Ant gain (dBi)	Cable Loss (dB)	Power Value(dBm)
1	3818.5	2.6	-13	9.3	-27.30	9.00	36.30	**-18.00**
2	5742.5	2.97	-13	9.6	-29.35	9.65	39.00	-19.75
3	9571	0.67	-13	12.0	-34.45	10.25	44.70	-22.45
4	13380	-1.24	-13	12.5	-35.70	11.80	47.50	-23.20

REMARKS:

1. Power Value (dBum) = S.G Power Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna gain (dBi) - Cable Loss (dB)
3. "-" The emission levels were very low against the limit.

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MODEL:V66I

EUT	Tri-band Mobile Phone	**MODEL**	V66I
MODE	Tx Channel 512	**POWER CONTROL LEVEL**	0
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION**	Peak
ENVIRONMENTAL CONDITIONS	23 deg. C, 65% RH, 991 hPa	**TESTED BY:** Vic Liu	

Frequency range: 30MHz ~ 1GHz

RADIATED SPURIOUS EMISSION : Vertical polarization 3M

No	Frequency (MHz)	Emission Level(dBm)	Limit (dBm)	S.G Power (dBm)	Correction Factor (dB)	Substitution Ant gain (dBi)	Cable Loss (dB)	Power Value(dBm)
1	38.37	-43.95	-13	-29.3	-30.90	0.11	31.01	-60.23
2	78.87	-42.49	-13	-27.9	-30.91	0.15	31.06	-58.77
3	98.31	-42.12	-13	-27.5	-30.85	0.20	31.05	-58.32
4	196.32	-43.49	-13	-28.8	-31.01	0.24	31.25	-59.77
5	300	-39.44	-13	-24.3	-30.75	0.55	31.30	-55.08
6	499	-39.52	-13	-24.3	-30.63	0.70	31.33	-54.90
7	527	-38.59	-13	-23.0	-30.70	0.70	31.40	-53.71
8	641	-37.54	-13	-22.0	-30.57	0.90	31.47	-52.53
9	667	-38.21	-13	-23.0	-30.54	0.90	31.44	-53.51
10	934	-38.57	-13	-23.4	-30.40	1.10	31.50	-53.78

RADIATED SPURIOUS EMISSION : Horizontal polarization 3M

No	Frequency (MHz)	Emission Level(dBm)	Limit (dBm)	S.G Power (dBm)	Correction Factor (dB)	Substitution Ant gain (dBi)	Cable Loss (dB)	Power Value(dBm)
1	78.87	-42.98	-13	-37.0	-30.91	0.15	31.06	-67.96
2	98.31	-43.93	-13	-38.1	-30.85	0.20	31.05	-68.91
3	165.81	-45.75	-13	-39.8	-31.07	0.23	31.30	-70.86
4	332.2	-46.47	-13	-38.5	-30.73	0.57	31.30	-69.22
5	517.7	-39.15	-13	-31.8	-30.70	0.70	31.40	-62.49
6	527.5	-38.54	-13	-30.7	-30.70	0.70	31.40	-61.39
7	599.6	-38.69	-13	-31.1	-30.62	0.83	31.45	-61.68
8	647.2	-38.87	-13	-31.0	-30.57	0.90	31.47	-61.58
9	732.6	-40.99	-13	-33.2	-30.51	0.96	31.47	-63.73
10	934.2	-38.35	-13	-30.3	-30.40	1.10	31.50	-60.70

REMARKS:

1. Power Value (dBm) = S.G Power Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna gain (dBi) - Cable Loss (dB)
3. "-" The emission levels were very low against the limit.

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EUT	Tri-band Mobile Phone	**MODEL**	V66I
MODE	Tx Channel 512	**POWER CONTROL LEVEL**	0
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION**	Peak
ENVIRONMENTAL CONDITIONS	23 deg. C, 65% RH, 991 hPa	**TESTED BY:** Vic Liu	

Frequency range: 1GHz ~ 20GHz

RADIATED SPURIOUS EMISSION : Vertical polarization 3M								
No	Frequency (MHz)	Emission Level(dBm)	Limit (dBm)	S.G Power (dBm)	Correction Factor (dB)	Substitution Ant gain (dBi)	Cable Loss (dB)	Power Value(dBm)
1	3708	-4.12	-13	9.1	-27.50	9.00	36.50	-18.41
2	5567	-0.24	-13	8.4	-29.20	9.50	38.70	-20.84
3	7406.5	-4.82	-13	5.1	-30.80	9.80	40.60	-25.71
4	9260	-2.13	-13	6.2	-33.50	10.00	43.50	-27.30
5	11100	-4.22	-13	4.1	-36.10	10.30	46.40	-32.02
6	12950	-0.25	-13	8.3	-35.00	10.50	45.50	-26.75

RADIATED SPURIOUS EMISSION : Horizontal polarization 3M								
No	Frequency (MHz)	Emission Level(dBm)	Limit (dBm)	S.G Power (dBm)	Correction Factor (dB)	Substitution Ant gain (dBi)	Cable Loss (dB)	Power Value(dBm)
1	3708	-0.67	-13	6.5	-27.50	9.00	36.50	-20.97
2	5567	2.46	-13	10.6	-29.20	9.50	38.70	-18.63
3	7406.5	-1.85	-13	14.2	-30.80	9.80	40.60	**-16.57**
4	9260	2.98	-13	14.7	-33.50	10.00	43.50	-18.83
5	11100	1.5	-13	13.2	-36.10	10.30	46.40	-22.88
6	12950	3.06	-13	14.5	-35.00	10.50	45.50	-20.48

REMARKS:

1. Power Value (dBum) = S.G Power Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna gain (dBi) - Cable Loss (dB)
3. "-" The emission levels were very low against the limit.

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EUT	Tri-band Mobile Phone	**MODEL**	V66I
MODE	Tx Channel 661	**POWER CONTROL LEVEL**	0
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION**	Peak
ENVIRONMENTAL CONDITIONS	23 deg. C, 65% RH, 991 hPa	**TESTED BY:** Vic Liu	

Frequency range: 30MHz ~ 1GHz

RADIATED SPURIOUS EMISSION : Vertical polarization 3M								
No	Frequency (MHz)	Emission Level(dBm)	Limit (dBm)	S.G Power (dBm)	Correction Factor (dB)	Substitution Ant gain (dBi)	Cable Loss (dB)	Power Value(dBm)
1	74.82	-44.24	-13	-28.6	-30.91	0.15	31.06	-59.48
2	78.6	-42.89	-13	-27.4	-30.91	0.15	31.06	-58.32
3	99.66	-41.87	-13	-26.0	-30.85	0.20	31.05	-56.86
4	300	-37.36	-13	-19.8	-30.75	0.55	31.30	-50.51
5	366.5	-38.88	-13	-21.1	-30.70	0.61	31.31	-51.79
6	499.5	-37.59	-13	-20.6	-30.63	0.70	31.33	-51.20
7	527.5	-39.56	-13	-21.8	-30.70	0.70	31.40	-52.55
8	638.1	-38.64	-13	-21.3	-30.57	0.90	31.47	-51.92
9	667.5	-38.47	-13	-20.8	-30.54	0.90	31.44	-51.34
10	934.2	-37.52	-13	-19.9	-30.40	1.10	31.50	-50.31

RADIATED SPURIOUS EMISSION : Horizontal polarization 3M								
No	Frequency (MHz)	Emission Level(dBm)	Limit (dBm)	S.G Power (dBm)	Correction Factor (dB)	Substitution Ant gain (dBi)	Cable Loss (dB)	Power Value(dBm)
1	74.82	-44.8	-13	-29.1	-30.91	0.15	31.06	-60.00
2	78.87	-43.88	-13	-28.3	-30.91	0.15	31.06	-59.19
3	98.31	-42.49	-13	-27.0	-30.85	0.20	31.05	-57.84
4	165.81	-44.13	-13	-28.6	-31.07	0.23	31.30	-59.70
5	291.36	-38.25	-13	-22.6	-30.75	0.53	31.28	-53.31
6	527.5	-38.31	-13	-24.3	-30.70	0.70	31.40	-54.97
7	597.5	-36.98	-13	-22.5	-30.62	0.83	31.45	-53.11
8	645.8	-38.01	-13	-24.2	-30.57	0.90	31.47	-54.81
9	730.5	-41.78	-13	-27.7	-30.51	0.96	31.47	-58.21
10	767.6	-42.87	-13	-29.2	-30.40	1.15	31.55	-59.58

REMARKS:

1. Power Value (dBm) = S.G Power Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna gain (dBi) - Cable Loss (dB)
3. "-" The emission levels were very low against the limit.

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EUT	Tri-band Mobile Phone	**MODEL**	V66I
MODE	Tx Channel 661	**POWER CONTROL LEVEL**	0
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION**	Peak
ENVIRONMENTAL CONDITIONS	23 deg. C, 65% RH, 991 hPa	**TESTED BY:** Vic Liu	

Frequency range: 1GHz ~ 20GHz

RADIATED SPURIOUS EMISSION : Vertical polarization 3M								
No	Frequency (MHz)	Emission Level(dBm)	Limit (dBm)	S.G Power (dBm)	Correction Factor (dB)	Substitution Ant gain (dBi)	Cable Loss (dB)	Power Value(dBm)
1	3753.5	-1.07	-13	7.2	-27.20	8.90	36.10	-20.03
2	5645	-2.77	-13	5.3	-29.37	9.58	38.95	-24.09
3	9408.5	-5.16	-13	7.0	-33.40	10.50	43.90	-26.42

RADIATED SPURIOUS EMISSION : Horizontal polarization 3M								
No	Frequency (MHz)	Emission Level(dBm)	Limit (dBm)	S.G Power (dBm)	Correction Factor (dB)	Substitution Ant gain (dBi)	Cable Loss (dB)	Power Value(dBm)
1	3753.5	-0.17	-13	7.7	-27.20	8.90	36.10	-19.55
2	5645	-3.41	-13	4.3	-29.37	9.58	38.95	-25.11
3	9408.5	-3.16	-13	4.9	-33.40	10.50	43.90	-28.54

REMARKS:

1. Power Value (dBum) = S.G Power Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna gain (dBi) - Cable Loss (dB)
3. "-" The emission levels were very low against the limit.

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EUT	Tri-band Mobile Phone	**MODEL**	V66I
MODE	Tx Channel 810	**POWER CONTROL LEVEL**	0
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION**	Peak
ENVIRONMENTAL CONDITIONS	23 deg. C, 65% RH, 991 hPa	**TESTED BY:** Vic Liu	

Frequency range: 30MHz ~ 1GHz

RADIATED SPURIOUS EMISSION : Vertical polarization 3M								
No	Frequency (MHz)	Emission Level(dBm)	Limit (dBm)	S.G Power (dBm)	Correction Factor (dB)	Substitution Ant gain (dBi)	Cable Loss (dB)	Power Value(dBm)
1	38.37	-44.16	-13	-28.7	-30.90	0.11	31.01	-59.57
2	78.60	-42.49	-13	-27.2	-30.91	0.15	31.06	-58.13
3	98.31	-42.97	-13	-27.4	-30.85	0.20	31.05	-58.25
4	300.0	-38.46	-13	-23.2	-30.75	0.55	31.30	-53.99
5	498.1	-37.46	-13	-20.1	-30.63	0.70	31.33	-50.68
6	527.5	-38.36	-13	-20.9	-30.70	0.70	31.40	-51.57
7	563.2	-38.01	-13	-20.6	-30.63	0.80	31.43	-51.23
8	636.7	-38.13	-13	-20.8	-30.57	0.90	31.47	-51.34
9	667.5	-37.62	-13	-20.4	-30.54	0.90	31.44	-50.95
10	934.2	-38.41	-13	-20.9	-30.40	1.10	31.50	-51.30

RADIATED SPURIOUS EMISSION : Horizontal polarization 3M								
No	Frequency (MHz)	Emission Level(dBm)	Limit (dBm)	S.G Power (dBm)	Correction Factor (dB)	Substitution Ant gain (dBi)	Cable Loss (dB)	Power Value(dBm)
1	74.82	-44.95	-13	-29.8	-30.91	0.15	31.06	-60.76
2	78.6	-43.03	-13	-28.9	-30.91	0.15	31.06	-59.80
3	98.31	-44.22	-13	-27.1	-30.85	0.20	31.05	-57.96
4	114.51	-44.57	-13	-26.3	-30.84	0.21	31.05	-57.13
5	196.32	-38.11	-13	-23.9	-31.01	0.24	31.25	-54.92
6	332.2	-38.34	-13	-25.8	-30.74	0.57	31.31	-56.55
7	527.5	-37.28	-13	-20.2	-30.70	0.70	31.40	-50.91
8	599.6	-38.36	-13	-16.4	-30.61	0.84	31.45	-47.02
9	643	-40.45	-13	-21.7	-30.56	0.90	31.46	-52.26
10	730.5	-42.69	-13	-21.8	-30.48	0.98	31.46	-52.27

REMARKS:

1. Power Value (dBm) = S.G Power Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna gain (dBi) - Cable Loss (dB)
3. "-" The emission levels were very low against the limit.

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EUT	Tri-band Mobile Phone	**MODEL**	V66I
MODE	Tx Channel 810	**POWER CONTROL LEVEL**	0
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION**	Peak
ENVIRONMENTAL CONDITIONS	23 deg. C, 65% RH, 991 hPa	**TESTED BY:** Vic Liu	

Frequency range: 1GHz ~ 20GHz

RADIATED SPURIOUS EMISSION : Vertical polarization 3M								
No	Frequency (MHz)	Emission Level(dBm)	Limit (dBm)	S.G Power (dBm)	Correction Factor (dB)	Substitution Ant gain (dBi)	Cable Loss (dB)	Power Value(dBm)
1	3818.5	-4.64	-13	1.7	-27.30	9.00	36.30	-25.64
2	5742.5	-2.67	-13	3.7	-29.35	9.65	39.00	-25.62
3	9571	-7.019	-13	-1.0	-34.45	10.25	44.70	-35.43
4	11460	-3.41	-13	3.3	-34.65	10.35	45.00	-31.31

RADIATED SPURIOUS EMISSION : Horizontal polarization 3M								
No	Frequency (MHz)	Emission Level(dBm)	Limit (dBm)	S.G Power (dBm)	Correction Factor (dB)	Substitution Ant gain (dBi)	Cable Loss (dB)	Power Value(dBm)
1	3818.5	2.65	-13	9.4	-27.30	9.00	36.30	-17.95
2	5742.5	3.37	-13	10.0	-29.35	9.65	39.00	-19.33
3	9571	-5.74	-13	5.3	-34.45	10.25	44.70	-29.18
4	13380	-1.97	-13	11.7	-35.70	11.80	47.50	-23.97

REMARKS:

1. Power Value (dBum) = S.G Power Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna gain (dBi) - Cable Loss (dB)
3. "-" The emission levels were very low against the limit.

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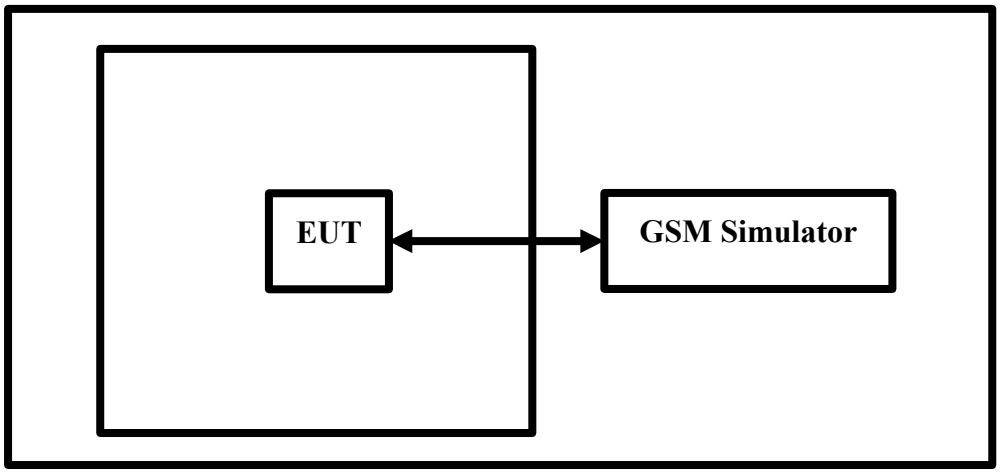
9. FREQUENCY STABILITY, TEMPERATURE VARIATION

9.1 EUT operation modes

EUT	Tri-band Mobile Phone	**MODEL**	V66
MODE	TX channel 661	**POWER CONTROL LEVEL**	0
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION**	500 Bursts
ENVIRONMENTAL CONDITIONS	25 deg. C, 50 % RH, 999 hPa	**TESTED BY:** Vic Liu	

9.2 Test setup

The BS simulator was used to set the TX channel with GPRS and power level and modulate the TX signal with different bit patterns.



9.3 Test method

a) The climate chamber temperature was set to the minimum value and the temperature was allowed to stabilize. A soak time (after chamber reaches appropriate temperature) is 60 minutes.

b) The EUT was placed in the chamber

c) The EUT was set in idle mode for 45 minutes.

d) The EUT was set to transmit.

e) The transmit frequency error was measured immediately

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9.4 Limit

According to the FCC part 2.4235 shall be tested the frequency stability. The rule is defined that" The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block." The frequency error rate is according to the JTC standard that the frequency error rate shall be accurate to within 0.1 ppm of the received frequency from the base station. The extreme temperature rule is comply with the 2.1055(a)(1) –30℃~50℃.

9.5 Results

Frequency deviation, temperature variation		
Temperature [ºC]	**Deviation [Hz]**	**Deviation [ppm]**
-20	-23	-0.012
-10	-31	-0.016
0	-31	-0.016
10	31	0.016
20	23	0.012
30	22	0.012
40	23	0.012
50	23	0.012
-20	-23	-0.012

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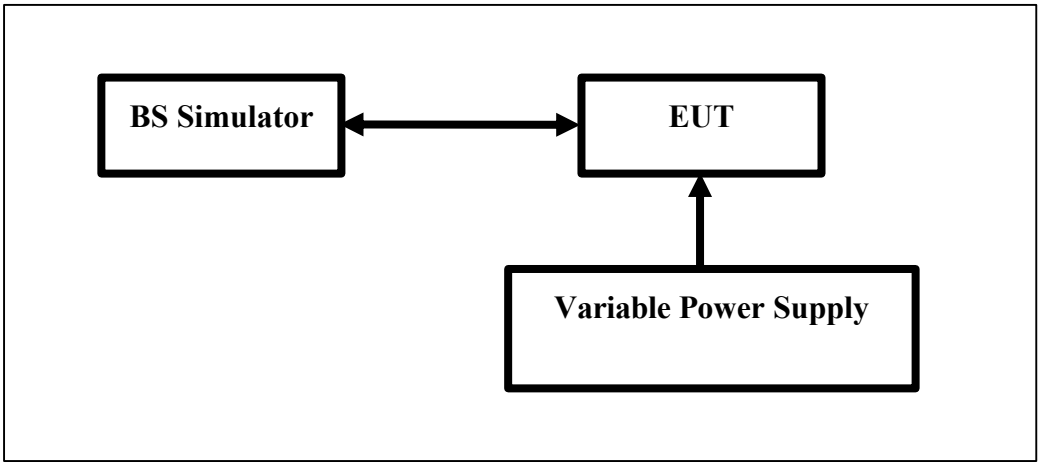
10. FREQUENCY STABILITY, VOLTAGE VARIATION

10.1 EUT operation modes

EUT	Tri-band Mobile Phone	**MODEL**	V66
MODE	TX channel 661	**POWER CONTROL LEVEL**	0
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION**	500 Bursts
ENVIRONMENTAL CONDITIONS	25 deg. C, 50 % RH, 999 hPa	**TESTED BY**:	Vic

10.2 Test setup

The BS simulator was used to set the TX channel with GPRS and power level and modulate the TX signal with different bit patterns.



10.3 Test method

The EUT battery was replaced with an adjustable power supply. The frequency stability was measured at nominal voltage and at the battery cut-off point.

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10.4 Limit

According to the FCC part 2.4235 shall be tested the frequency stability. The rule is defined that" The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block." The frequency error rate is according to the JTC standard that the frequency error rate shall be accurate to within 0.1 ppm of the received frequency from the base station. The test extreme voltage is according to the 2.1055(d)(1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment.

10.5 Results

Frequency deviation, voltage variation			
Level	**Voltage [V]**	**Deviation [Hz]**	**Deviation [ppm]**
Battery full point	4.2	38	0.020
Nominal	3.8	38	0.020
Battery cut-off point	3.4	42	0.022

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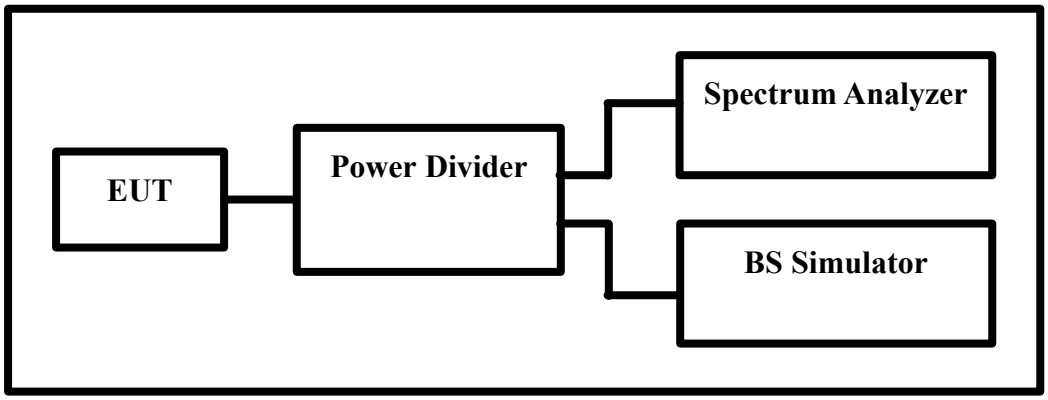
11. 99% OCCUPIED BANDWIDTH

11.1 Test setup

The BS simulator was used to set the TX channel with GPRS and power level and modulate the TX signal with different bit patterns.



11.2 EUT operation modes

a. The EUT makes a phone call to the GSM with GPRS simulator.

b. The GSM with GPRS simulator station system controlled a EUT to export maximum and minimum output power under transmission mode and specific channel frequency.

11.3 Limit

According to FCC 24.238(b) specified that emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

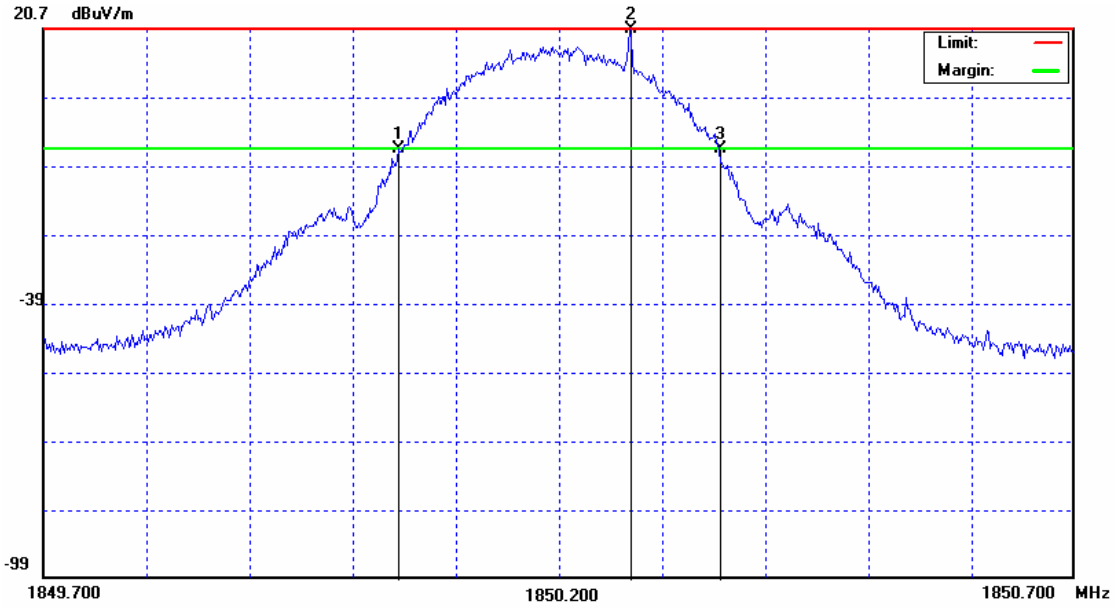
11.4 Results

Frequency (MHz)	Max. Output Power -26 dBc Bandwidth (kHz)	Min. Output Power -26 dBc Bandwidth (kHz)
1850.2	312	312
1880.2	312	314
1909.8	312	308

11.5 Screen shots

Channel 512 Max. Power
-26 dBc Bandwidth

RBW 3 KHz Delta 26dB
VBW 10 KHz -5.5 dBm
Ref 30 dBm SWT 115 ms 312 KHz



Mark 1	1850.044	MHz	-5.5	dBm
Mark 2	1850.269	MHz	20.45	dBm
Mark 3	1850.356	MHz	-5.5	dBm

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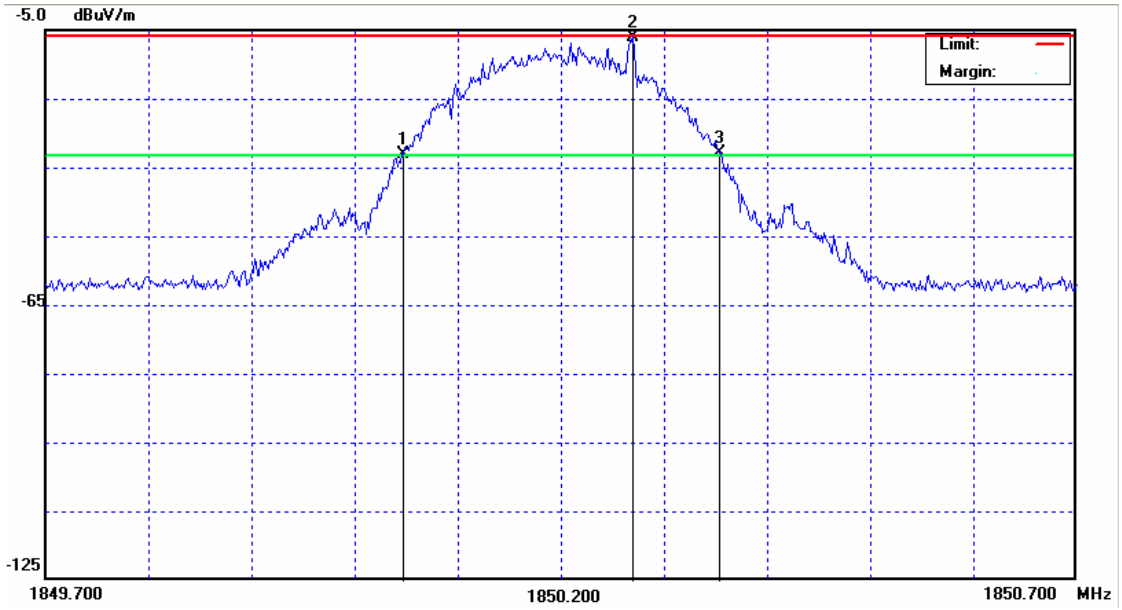
Channel 512 Min. Power
-26 dBc Bandwidth

RBW 3 KHz
VBW 10 KHz
SWT 115 ms
Delta 26dB
-32.5 dBm
312 KHz

Ref 0 dBm



Mark 1	1850.046	MHz	-32.5	dBm
Mark 2	1850.270	MHz	-6.50	dBm
Mark 3	1850.358	MHz	-32.5	dBm

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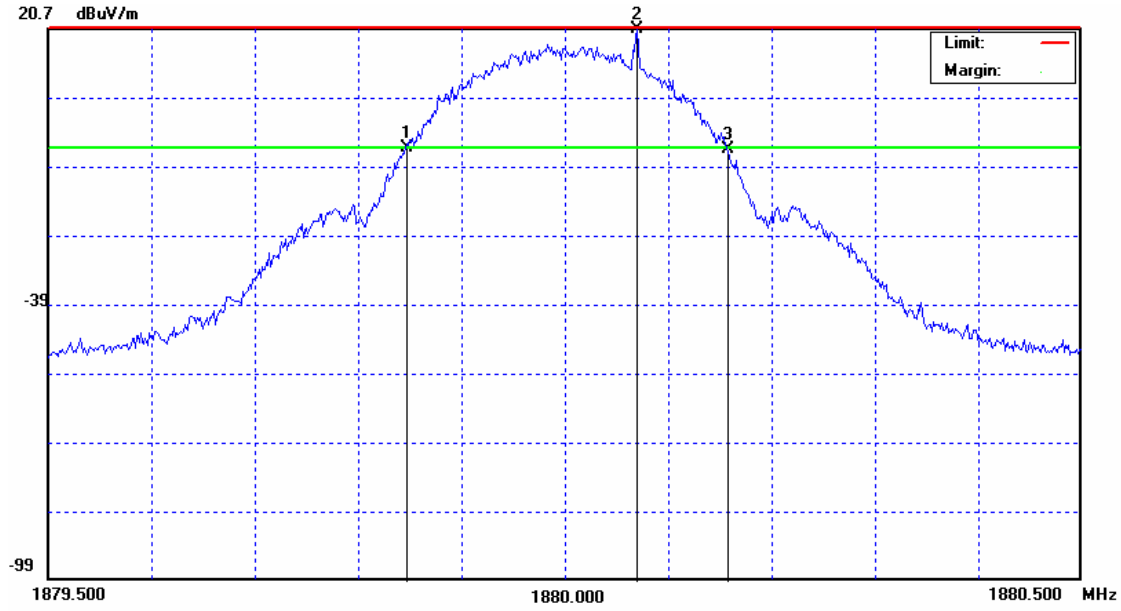
Channel 661 Max. Power
-26 dBc Bandwidth

RBW 3 KHz
VBW 10 KHz
SWT 115 ms
Delta 26dB
-5.55 dBm
312 KHz

Ref 30 dBm



Mark 1	1879.846	MHz	-5.55	dBm
Mark 2	1880.070	MHz	20.45	dBm
Mark 3	1880.158	MHz	-5.55	dBm

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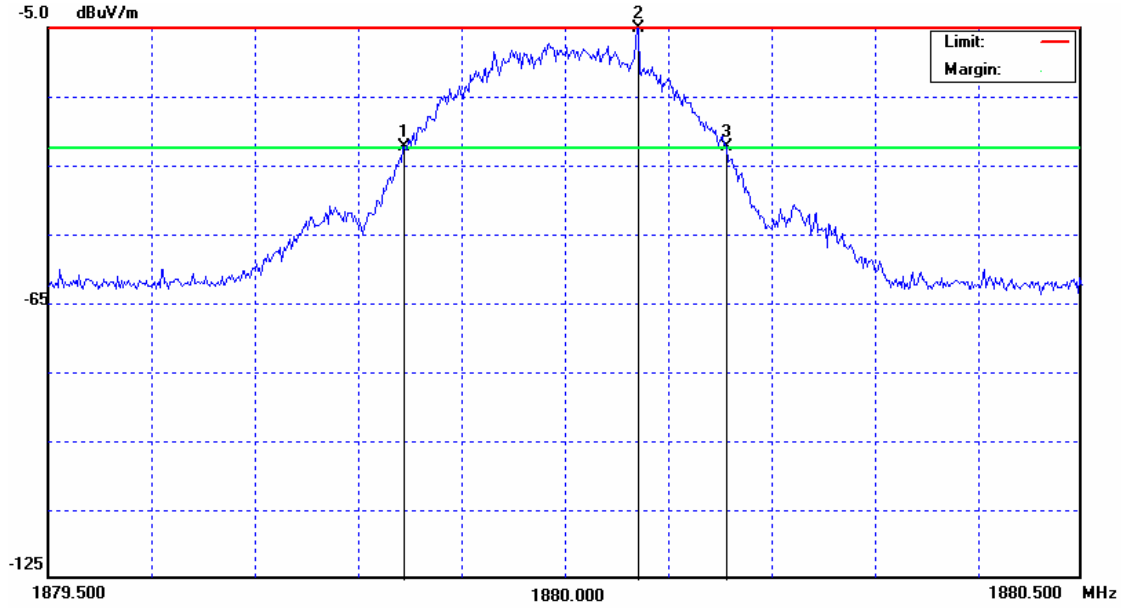
Channel 661 Min. Power
-26 dBc Bandwidth

RBW 3 KHz
VBW 10 KHz
SWT 115 ms
Delta 26dB
-31.25 dBm
314 KHz

Ref 0 dBm



Mark 1	1879.843	MHz	-31.25	dBm
Mark 2	1880.071	MHz	-5.25	dBm
Mark 3	1880.157	MHz	-31.25	dBm

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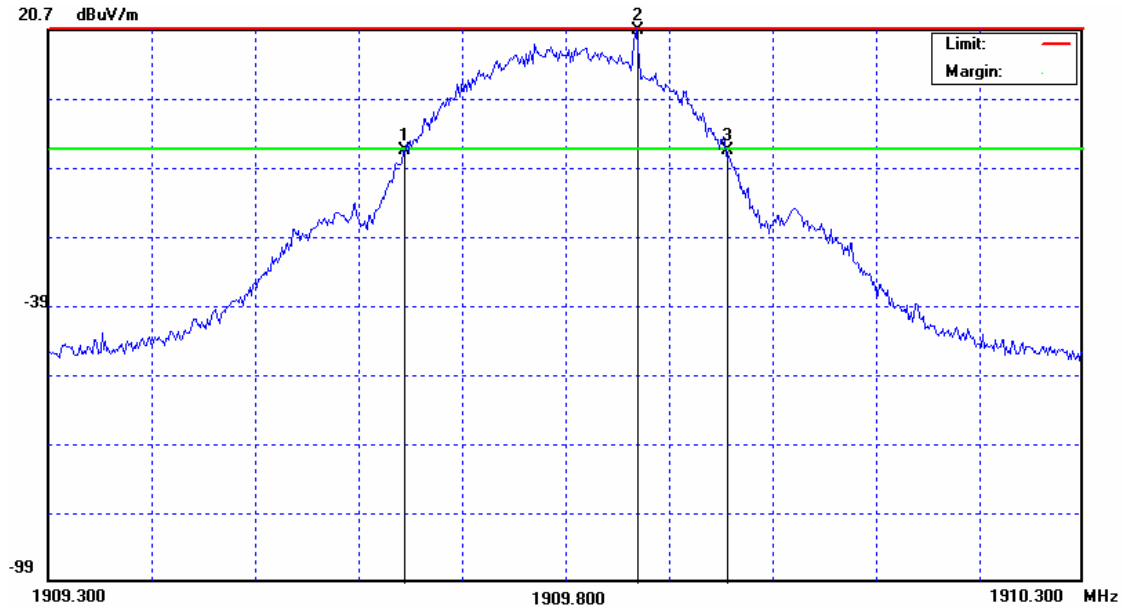
Channel 810 Max. Power
-26 dBc Bandwidth

RBW 3 KHz Delta 26dB
VBW 10 KHz -5.93 dBm
Ref 30 dBm SWT 115 ms 312 KHz



Mark 1	1909.644	MHz	-5.93	dBm
Mark 2	1909.869	MHz	20.07	dBm
Mark 3	1909.956	MHz	-5.93	dBm

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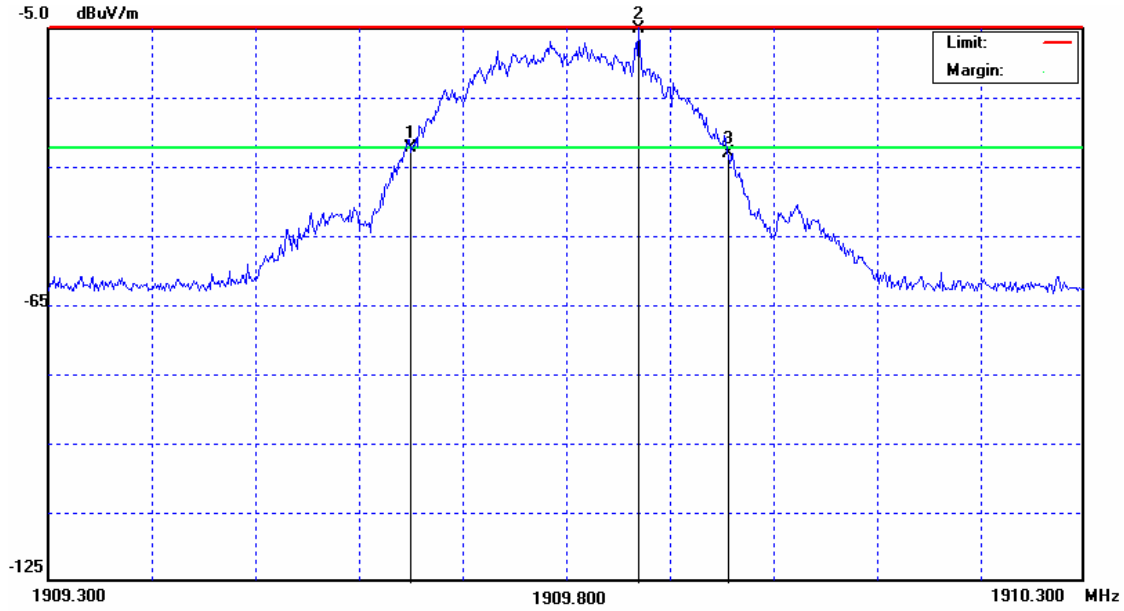
Channel 810 Min. Power
-26 dBc Bandwidth

RBW 3 KHz
VBW 10 KHz
SWT 115 ms
Delta 26dB
-42.25 dBm
308 KHz
Ref 0 dBm



Mark 1	1909.650	MHz	-31.00	dBm
Mark 2	1909.870	MHz	-5.00	dBm
Mark 3	1909.958	MHz	-31.00	dBm

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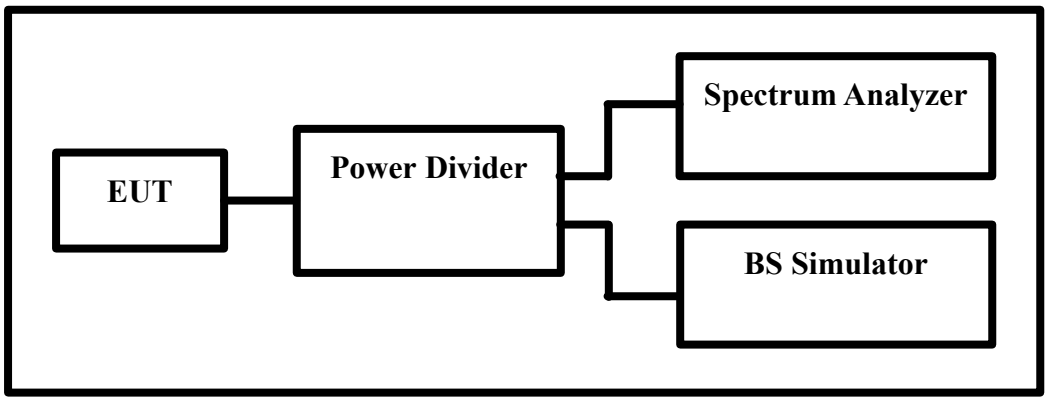
12. BANDEDGE COMPLIANCE

12.1 Test setup

The BS simulator was used to set the TX channel with GPRS and power level and modulate the TX signal with different bit patterns.



The band edge measurement used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.

12.2 EUT operation modes

a. The EUT makes a phone call to the GSM with GPRS simulator.

b. The GSM with GPRS simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency

12.3 Limit

The PCS frequency bands refer to the FCC 24.229 rule. According to FCC 24.238(b) specified that emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. Then we measure that the bandwidth is about 300kHz and the resolution bandwidth is 3kHz.

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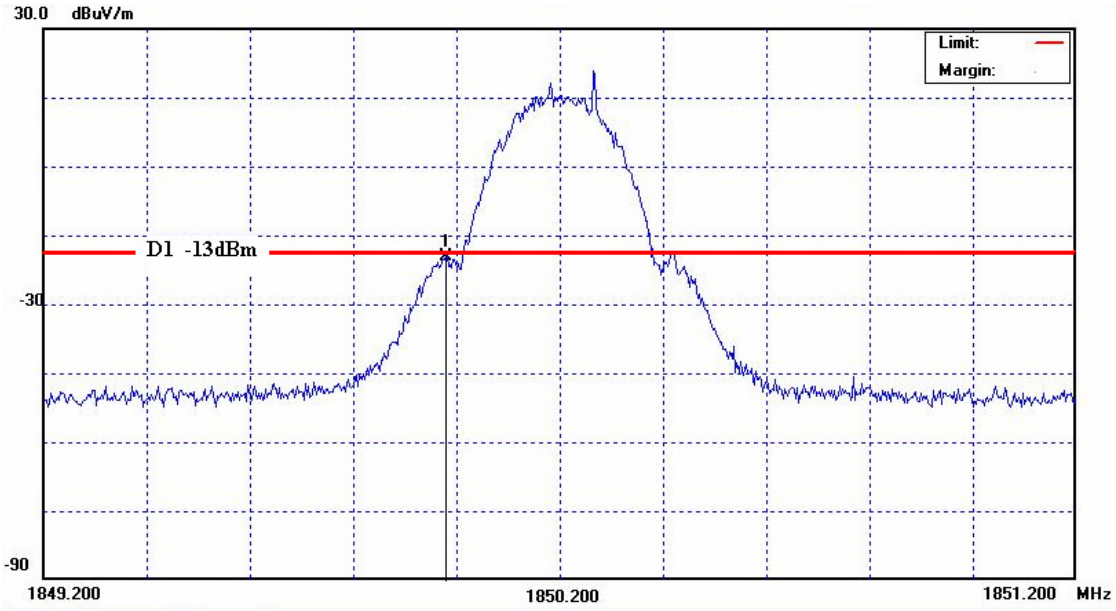
12.4 Results

Lower Band Edge

	RBW 3 KHz	Mark 1
	VBW 10 KHz	-19.5 dBm
Ref 30 dBm	SWT 225 ms	1.849980 GHz



This splitter loss and cable loss is 4.9dB in the transmitted path track on frequency 1.849980 GHz.

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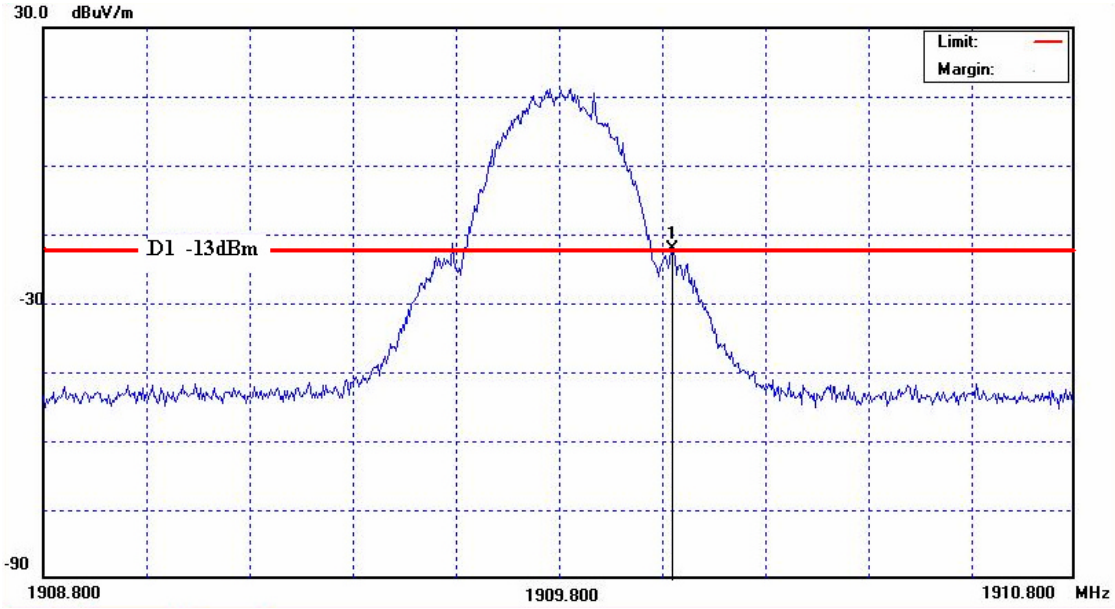
Higher Band Edge

RBW 3 KHz
VBW 10 KHz
SWT 225 ms
Mark 1
-18.25 dBm
1.910020 GHz

Ref 30 dBm



This splitter loss and cable loss is 5.0dB in the transmitted path track on frequency 1.910020 GHz.

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14. TEST EQUIPMENT

14.1 EQUIPMENT

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
Advantest	Spectrum Analyzer	R3271A	120100971	Apr.08,2005	Apr.08,2007
Agilent	Wireless Communication	8960(E5515C)	GB41450409	Jan.31,2005	Jan.31,2007
Agilent	Single Generator	E8257D	MY44320425	Jan.15,2005	Jan.15,2007
Agilent	Power Meter	E4418B	GB42420591	May 10, 2005	May 10, 2006
Agilent	Power Sensor	8481H	MY41091025	May 11, 2005	May 11, 2006
KI	DC power supply	DPS	1303AF	NCR	NCR
AML	Pre-Amplifier	0120L3410	107	NCR	NCR
GIANT FORCE	Thermal Chamber	GTH-225-70-1P	NCR	Nov 11, 2004	Nov 11, 2006
Agilent	Dual Directional Coupler	778D	50334	NCR	NCR
Agilent	Power splitter	87302C	3239A00760	NCR	NCR
Agilent	attenuator	8491A	NCR	NCR	NCR
Microwave Circuits	High pass filter	H1G513G3	NCR	NCR	NCR
Microwave Circuits	High pass filter	H04G18G2	NCR	NCR	NCR
KeL	Tunable notch filter	5TNF-1700/2000-0.1-N/N	NCR	NCR	NCR
ETS	Bilog Antenna	3142B	00022056	May 07, 2003	May 07, 2006
R&S	Horn Antenna	HF 960	NCR	Jun 15, 2003	Jun 15, 2006
ETS	LISN	3810	00026823	Aug 07, 2003	Aug 07, 2006

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13. Measurement Uncertainty

13.1 Uncertainty

Uncertainty of measurement

Measurement	Frequency	Uncertainty
Conducted emissions	9K ~ 30MHz	2.6dB
Radiated emission	30M ~ 500MHz	3.5dB
	500M ~ 1GHz	3.9dB
	1G ~ 10GHz	3.5dB
	10G ~ 20GHz	3.9dB

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