RADIO TEST REPORT

(EN 301 511)

REPORT NO.:	RE110303C19A-3
MODEL NO.:	SC900, M1000
RECEIVED:	Apr. 20, 2011
TESTED:	Jul. 13 ~ Jul. 14, 2011
	Sep. 21, 2011
ISSUED:	Sep. 26, 2011

APPLICANT:	Shin Chuan Computer Co., Ltd.
ADDRESS:	6F.-2, No.68, Liancheng Rd., Zhonghe Dist., New Taipei City 235, Taiwan (R.O.C.)

ISSUED BY:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
LAB ADDRESS:	No. 47, 14th Ling, Chia Pau Tsuen, Lin Kou Hsiang, Taipei Hsien 244, Taiwan, R.O.C.
TEST LOCATION:	No. 19, Hwa Ya 2nd Rd, Wen Hwa Tsuen, Kwei Shan Hsiang, Taoyuan Hsien 333, Taiwan, R.O.C.

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
Original release	NA	Sep. 26, 2011

1 CERTIFICATION

PRODUCT:	Portable Data Terminal
MODEL:	SC900, M1000
APPLICANT:	Shin Chuan Computer Co., Ltd.
BRAND:	SCC
TESTED:	Jul. 13 ~ Jul. 14, 2011 Sep. 21, 2011
TEST SAMPLE:	ENGINEERING SAMPLE
STANDARD:	**EN 301 511 V9.0.2 (2003-03)**
TEST ITEM:	**Radiated spurious emissions - MS allocated channel (Clause 4.2.16)** **Radiated spurious emissions - MS in idle mode (Clause 4.2.17)**

The above equipment (model: SC900, M1000) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY : Andrea Hsia / Specialist , **DATE :** Sep. 26, 2011

APPROVED BY : Dylan Chiou / Senior Engineer , **DATE :** Sep. 26, 2011

2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

HARMONIZED STANDARD EN 301 511				TS 151 010-1 clause
TEST CASE	TEST DESCRIPTION	VERDICT		
		GPRS 900	GPRS 1800	
4.2.16	Radiated spurious emissions - MS allocated channel.	---	---	12.2.1
	Normal Temperature / Normal Voltage	Pass	Pass	
	Normal Temperature / Low Voltage	Pass	Pass	
	Normal Temperature / High Voltage	Pass	Pass	
4.2.17	Radiated spurious emissions - MS in idle mode.	---	---	12.2.2
	Normal Temperature / Normal Voltage	Pass	Pass	
	Normal Temperature / Low Voltage	Pass	Pass	
	Normal Temperature / High Voltage	Pass	Pass	

2.1. TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Spectrum Analyzer Agilent	E4446A	MY44360124	Dec. 29, 2010	Dec. 28, 2011
BILOG Antenna SCHWARZBECK	VULB 9168	9168-161	Apr. 14, 2011	Apr. 13, 2012
HORN Antenna ETS	3117	00034130	Mar. 04, 2011	Mar. 03, 2012
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170243	Dec. 27, 2010	Dec. 26, 2011
Signal Generator Agilent	E8257C	MY43320668	Dec. 27, 2010	Dec. 26, 2011
Preamplifier Agilent	8449B	3008A01976	Nov. 03, 2010	Nov. 02, 2011
Preamplifier Agilent	8447D	2944A10639	Nov. 03, 2010	Nov. 02, 2011
RF signal cable HUBER+SUHNER	SUCOFLEX 104	274388/4	Nov. 03, 2010	Nov. 02, 2011
RF signal cable HUBER+SUHNER	SUCOFLEX 104	251640/4	Nov. 03, 2010	Nov. 02, 2011
RF signal cable HUBER+SUHNER	SUCOFLEX 104	254644/4	Nov. 03, 2010	Nov. 02, 2011
Software ADT.	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
Antenna Tower Inn-co GmbH	MA 4000	MA 4000/013/6150303/L	NA	NA
Turn Table ADT	NA	SN30303	NA	NA
Controller TDK RF	SI-300	1200015	NA	NA
Temperature & Humidity chamber TERCHY	MHU-225AU	920842	Dec. 17, 2010	Dec. 16, 2011
Splitters/Combiners Mini-Circuits	ZN2PD-9G	N/A	Mar. 24, 2011	Mar. 23, 2012

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa RF Chamber 2.
3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.

2.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT:

PARAMETER	UNCERTAINTY
Radio frequency	$\pm 2.06 \times 10^{-7}$
All emissions, radiated	±3.294 dB
Temperature	±0.23 °C
Humidity	±0.3 %
DC and low frequency voltages	±0.3 %

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

EUT	Portable Data Terminal
MODEL NO.	SC900, M1000
NOMINAL VOLTAGE	5 Vdc from adapter or host equipment 3.7 Vdc from battery
CLASSIFICATION	Portable device, Engineering Sample
MODULATION TYPE	GMSK, 8PSK
RADIO TECHNOLOGY	GPRS, EDGE
FREQUENCY RANGE	**Tx:** 880.2MHz ~ 914.8MHz (900 band) 1710.2MHz ~ 1784.8MHz (1800 band) **Rx:** 925.2MHz ~ 959.8MHz (900 band) 1805.2MHz ~ 1879.8MHz (1800 band)
MULTI-SLOTS CLASS	12
ANTENNA TYPE	PIFA antenna with -4.89dBi gain (900 band) PIFA antenna with -2.33dBi gain (1800 band)
DATA CABLE	1.38m non-shielded USB cable with 2 cores 1.2m non-shielded earphone without core
I/O PORTS	Refer to user's manual
ACCESSORY DEVICES	Adapter, Li-ion Battery

NOTE:

1. The model M1000 is serial model of SC900. The difference between them is M1000 has earphone port and SC900 has USB port and the others are the same.
2. The EUT uses following adapter and battery.

ADAPTER	
BRAND	Powertron Electronics Corp.
MODEL	PA1008-050SI100
INPUT POWER	100-240Vac, 50-60Hz, 0.3A
OUTPUT POWER	5Vdc, 1.0A, 5W Max.

LI-ION BATTERY	
BRAND	ETI CA
POWER RATING	3.7Vdc, 1840mAh/ 6.8Wh

3. Hardware version: EPR1.
4. Software version: 0.9.b.
5. IMEI Code: 35322702xxxxxx.
6. The above EUT information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

3.2 DESCRIPTION OF TEST MODES

✧ The EUT was tested under following conditions:

OPERATING CONDITIONS
Linking / Idle mode at GPRS 900 (CH 37)
Linking / Idle mode at GPRS 1800 (CH 698)

✧ The applicant defined the working voltage as follows:

LOW VOLTAGE (LV):	DC 3.6V
NORMAL VOLTAGE (NV):	DC 3.7V
HIGH VOLTAGE (HV):	DC 4.5V

NOTE:

Since the EUT is considered a portable unit, it was pre-tested on the positioned of each 3 axis. The worst case was found when positioned on Y-plane. Therefore only the test data of Y-plane was used for radiated emission measurement test.

✧ For Idle mode below 1GHz, the EUT were tested under following modes:

EUT MODE	OPERATING CONDITIONS
A	Model: SC900
B	Model: M1000

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF product. According to the specifications of the manufacturer, it must comply with the requirements of the following standard:

EN 301 511 V9.0.2 (2003-03)

All tests have been performed and recorded as per the above standard.

3.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

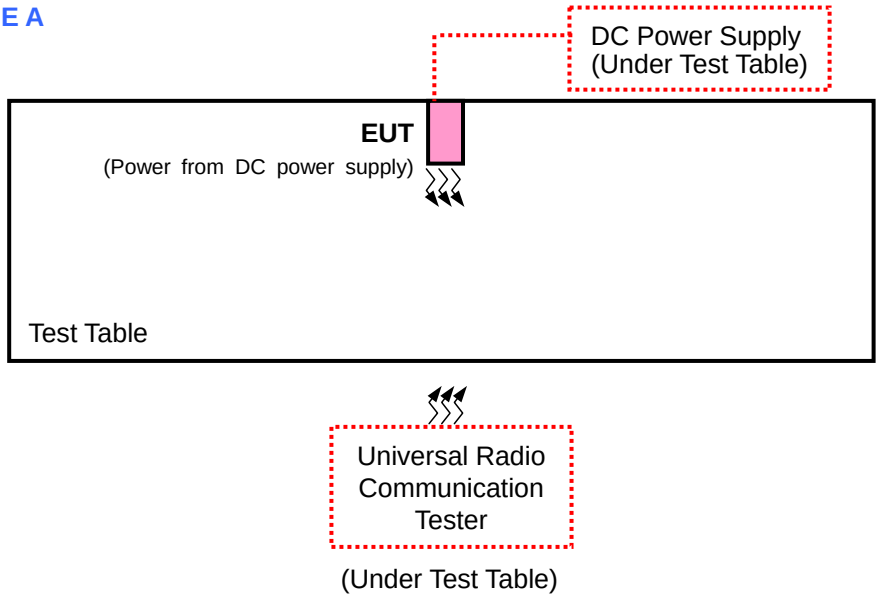
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	DC POWER SUPPLY	TOP WARD	TF-6306A	727263	NA
2	UNIVERSAL RADIO COMMUNICATION TESTER	R&S	CMU200	117260	NA

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA
2	NA

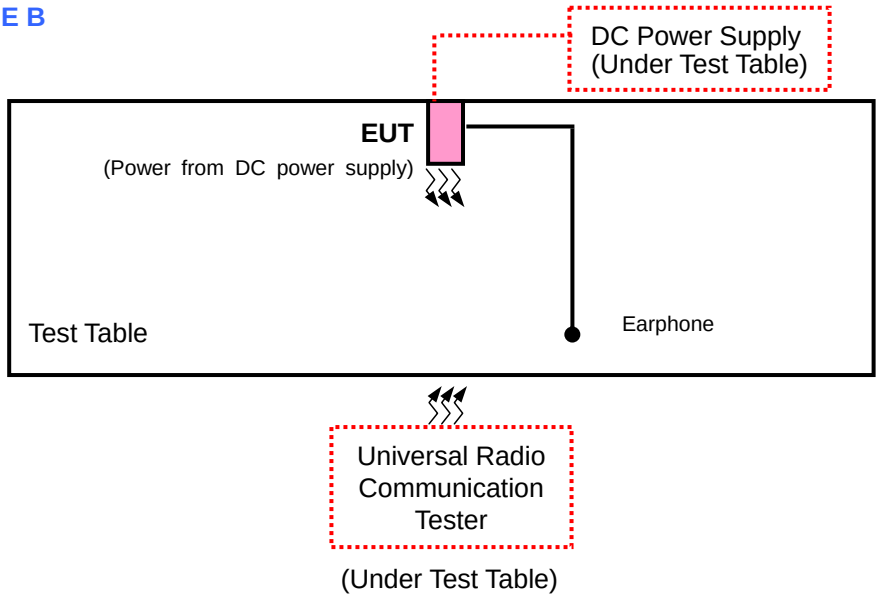
NOTE:
1. All power cords of the above support units are non shielded (1.8m).
2. Item 1~2 were under test table during test.

3.5 CONFIGURATION OF SYSTEM UNDER TEST

TEST MODE A



TEST MODE B



4 TEST TYPES AND RESULTS

4.1 RADIATED SPURIOUS EMISSIONS – MS ALLOCATED A CHANNEL

4.1.1 LIMIT OF RADIATED SPURIOUS EMISSIONS – MS ALLOCATED A CHANNEL

FREQUENCY RANGE / MS CONDITION	FREQUENCIES BELOW 1GHz	FREQUENCIES ABOVE 1GHz
MS allocated a channel	250nW (–36dBm)	1 μW (–30dBm)

4.1.2 TEST PROCEDURES

Refer to TS 151 010-1, clause 12.2.1.4.

4.1.3 TEST SETUP

For the actual test configuration, please refer to the related Item in this test report (Photographs of the Test Configuration).

4.1.4 DEVIATION FROM TEST STANDARD

No deviation.

4.1.5 TEST RESULTS

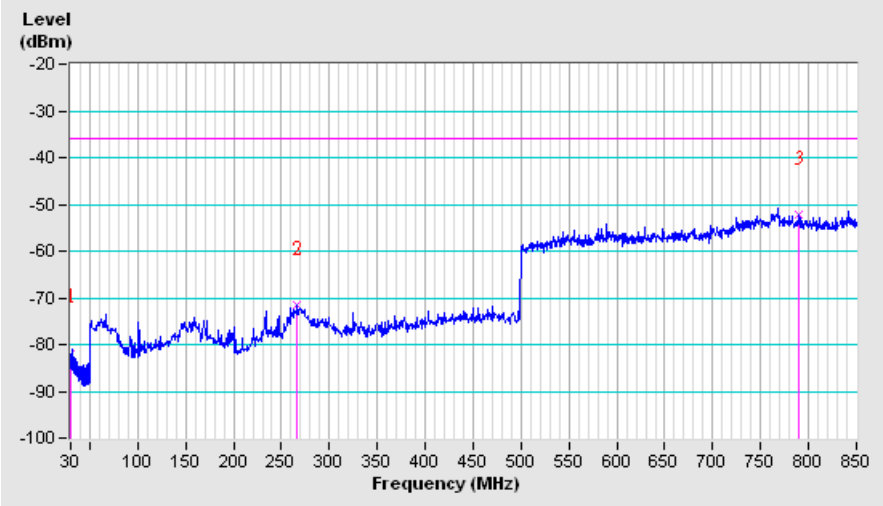
LINKING MODE AT GSM 900 (CH 37)

VOLTAGE: 4.5Vdc

FREQUENCY RANGE	30 ~ 850 MHz	**INPUT POWER**	4.5Vdc
ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH	**TESTED BY**	Aaron Liang
OPERATING CONDITIONS	Linking mode at GPRS 900 (CH 37)		

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	**Antenna Polarization**	**Level (dBm)**	**Limit (dBm)**	**Margin**
30.23	H	-82.09	-36.00	-46.09
266.75	H	-71.67	-36.00	-35.67
790.50	H	-52.30	-36.00	-16.30

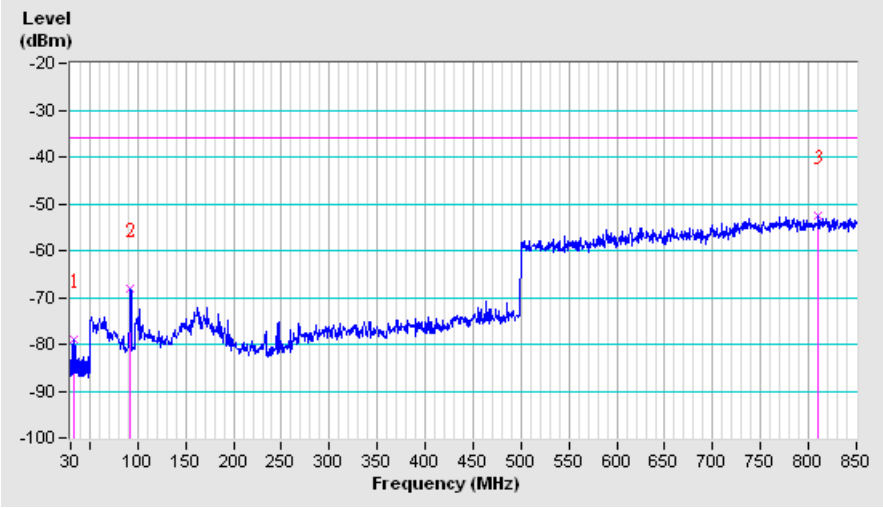
NOTE: The emission behavior belongs to narrowband spurious emission.



FREQUENCY RANGE	30 ~ 850 MHz	**INPUT POWER**	4.5Vdc
ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH	**TESTED BY**	Aaron Liang
OPERATING CONDITIONS	Linking mode at GPRS 900 (CH 37)		

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	**Antenna Polarization**	**Level (dBm)**	**Limit (dBm)**	**Margin**
33.43	V	-79.05	-36.00	-43.05
92.75	V	-68.05	-36.00	-32.05
810.30	V	-52.44	-36.00	-16.44

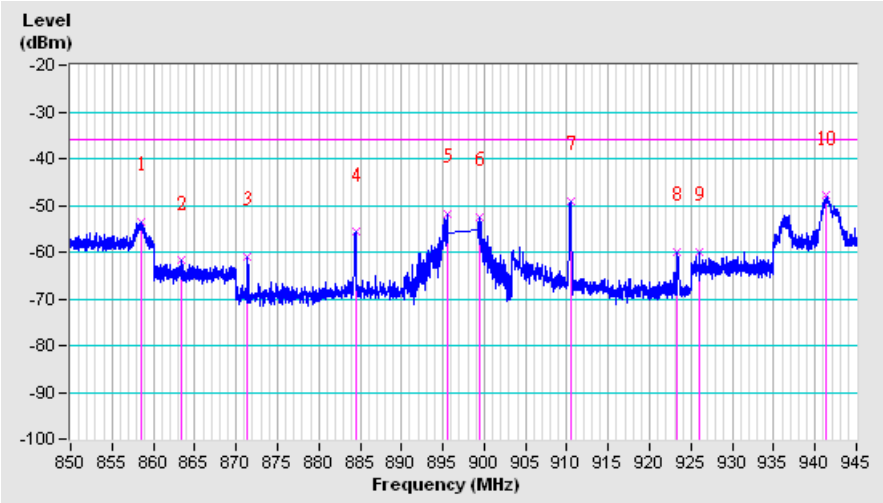
NOTE: The emission behavior belongs to narrowband spurious emission.



FREQUENCY RANGE	850 ~ 945 MHz	**INPUT POWER**	4.5Vdc
ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH	**TESTED BY**	Aaron Liang
OPERATING CONDITIONS	Linking mode at GPRS 900 (CH 37)		

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	**Antenna Polarization**	**Level (dBm)**	**Limit (dBm)**	**Margin**
858.52	H	-53.62	-36.00	-17.62
863.30	H	-61.85	-36.00	-25.85
871.37	H	-61.07	-36.00	-25.07
884.43	H	-55.69	-36.00	-19.69
895.52	H	-51.92	-36.00	-15.92
899.40	H	-52.48	-36.00	-16.48
910.42	H	-48.99	-36.00	-12.99
923.35	H	-60.08	-36.00	-24.08
925.98	H	-59.99	-36.00	-23.99
941.32	H	-47.95	-36.00	-11.95

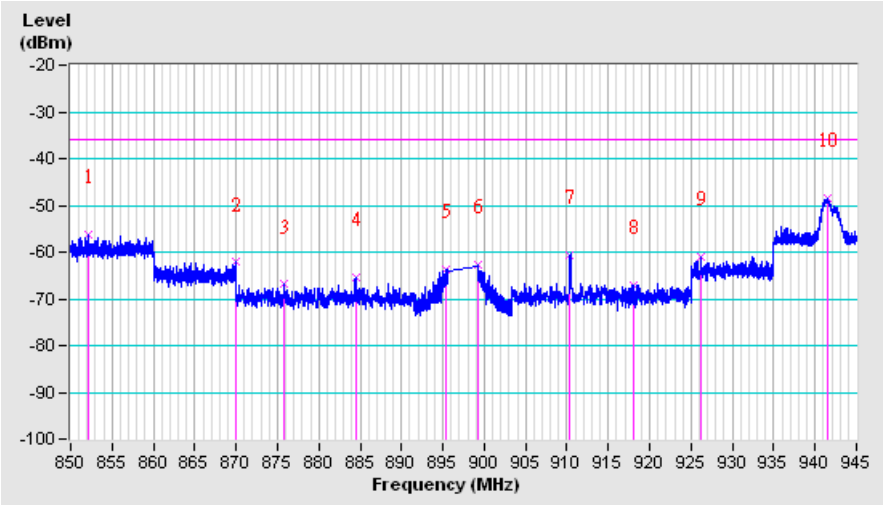
NOTE: The emission behavior belongs to narrowband spurious emission.



FREQUENCY RANGE	850 ~ 945 MHz	**INPUT POWER**	4.5Vdc
ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH	**TESTED BY**	Aaron Liang
OPERATING CONDITIONS	Linking mode at GPRS 900 (CH 37)		

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	**Antenna Polarization**	**Level (dBm)**	**Limit (dBm)**	**Margin**
852.10	V	-56.31	-36.00	-20.31
869.88	V	-62.17	-36.00	-26.17
875.77	V	-66.91	-36.00	-30.91
884.48	V	-65.28	-36.00	-29.28
895.42	V	-63.57	-36.00	-27.57
899.25	V	-62.60	-36.00	-26.60
910.38	V	-60.68	-36.00	-24.68
917.97	V	-67.17	-36.00	-31.17
926.18	V	-60.99	-36.00	-24.99
941.45	V	-48.44	-36.00	-12.44

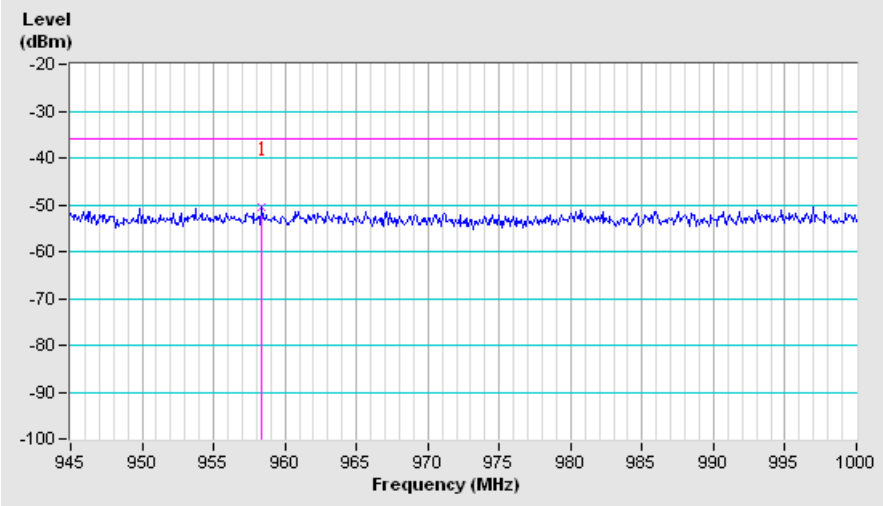
NOTE: The emission behavior belongs to narrowband spurious emission.



FREQUENCY RANGE	945 ~ 1000 MHz	**INPUT POWER**	4.5Vdc
ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH	**TESTED BY**	Aaron Liang
OPERATING CONDITIONS	Linking mode at GPRS 900 (CH 37)		

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	**Antenna Polarization**	**Level (dBm)**	**Limit (dBm)**	**Margin**
958.38	H	-50.47	-36.00	-14.47

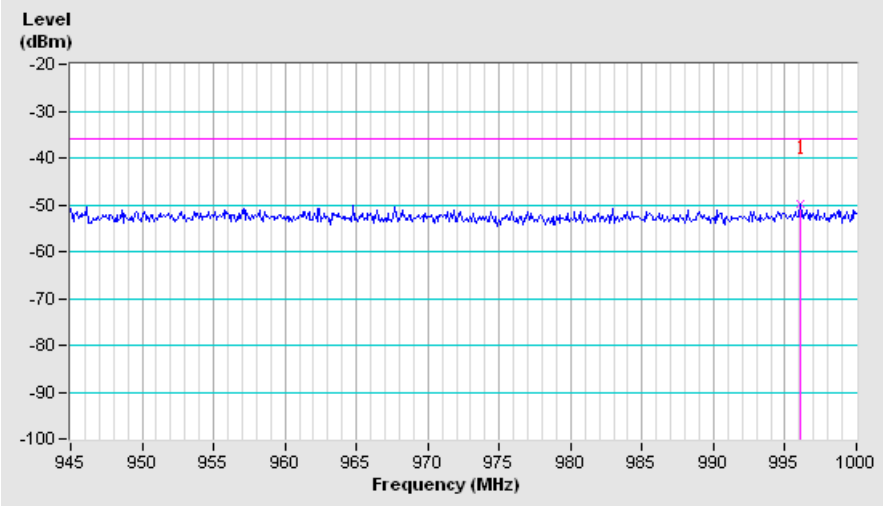
NOTE: The emission behavior belongs to narrowband spurious emission.



FREQUENCY RANGE	945 ~ 1000 MHz	**INPUT POWER**	4.5Vdc
ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH	**TESTED BY**	Aaron Liang
OPERATING CONDITIONS	Linking mode at GPRS 900 (CH 37)		

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	**Antenna Polarization**	**Level (dBm)**	**Limit (dBm)**	**Margin**
996.06	V	-50.00	-36.00	-14.00

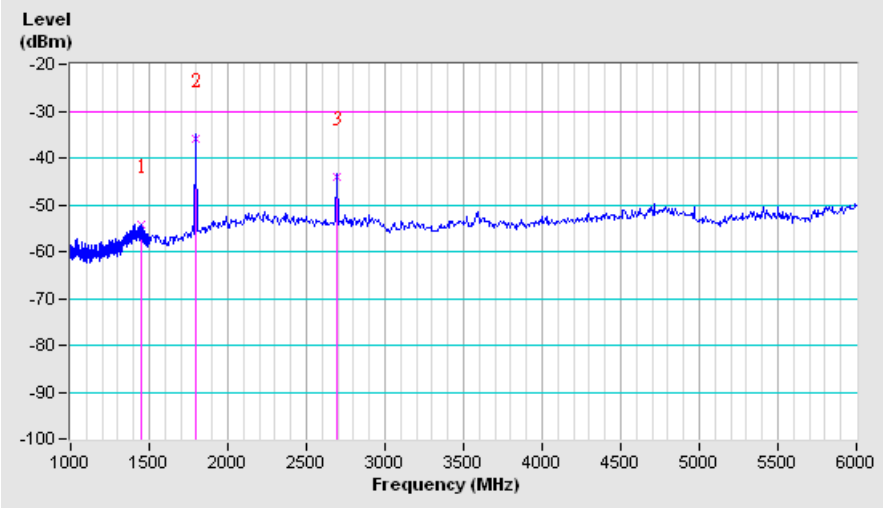
NOTE: The emission behavior belongs to narrowband spurious emission.



FREQUENCY RANGE	1000 ~ 6000 MHz	**INPUT POWER**	4.5Vdc
ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH	**TESTED BY**	Aaron Liang
OPERATING CONDITIONS	Linking mode at GPRS 900 (CH 37)		

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	**Antenna Polarization**	**Level (dBm)**	**Limit (dBm)**	**Margin**
1449.20	H	-54.14	-30.00	-24.14
1791.49	H	-35.82	-30.00	-5.82
2692.01	H	-44.04	-30.00	-14.04

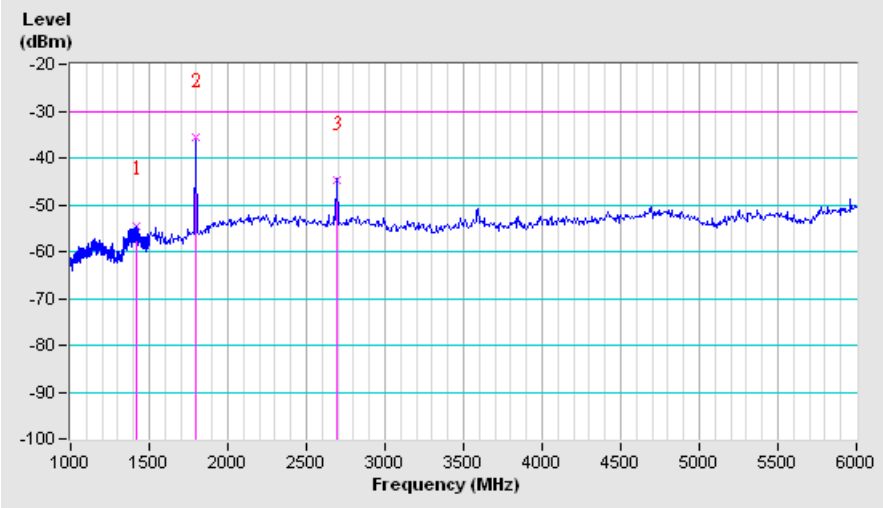
NOTE: The emission behavior belongs to narrowband spurious emission.



FREQUENCY RANGE	1000 ~ 6000 MHz	**INPUT POWER**	4.5Vdc
ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH	**TESTED BY**	Aaron Liang
OPERATING CONDITIONS	Linking mode at GPRS 900 (CH 37)		

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	**Antenna Polarization**	**Level (dBm)**	**Limit (dBm)**	**Margin**
1418.30	V	-54.41	-30.00	-24.41
1792.34	V	-35.68	-30.00	-5.68
2692.64	V	-44.86	-30.00	-14.86

NOTE: The emission behavior belongs to narrowband spurious emission.

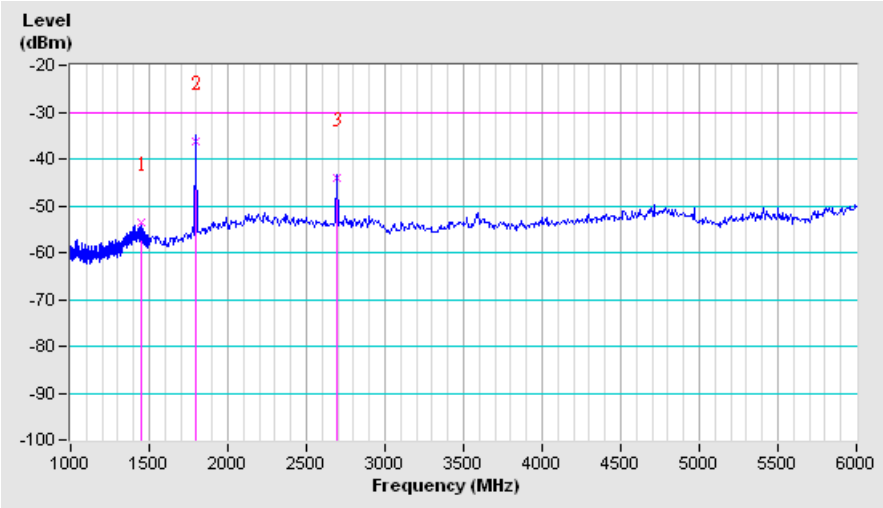


VOLTAGE: 3.6Vdc

FREQUENCY RANGE	1000 ~ 6000 MHz	**INPUT POWER**	3.6Vdc
ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH	**TESTED BY**	Aaron Liang
OPERATING CONDITIONS	Linking mode at GPRS 900 (CH 37)		

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	**Antenna Polarization**	**Level (dBm)**	**Limit (dBm)**	**Margin**
1448.65	H	-53.40	-30.00	-23.40
1792.53	H	-36.35	-30.00	-6.35
2691.77	H	-44.09	-30.00	-14.09

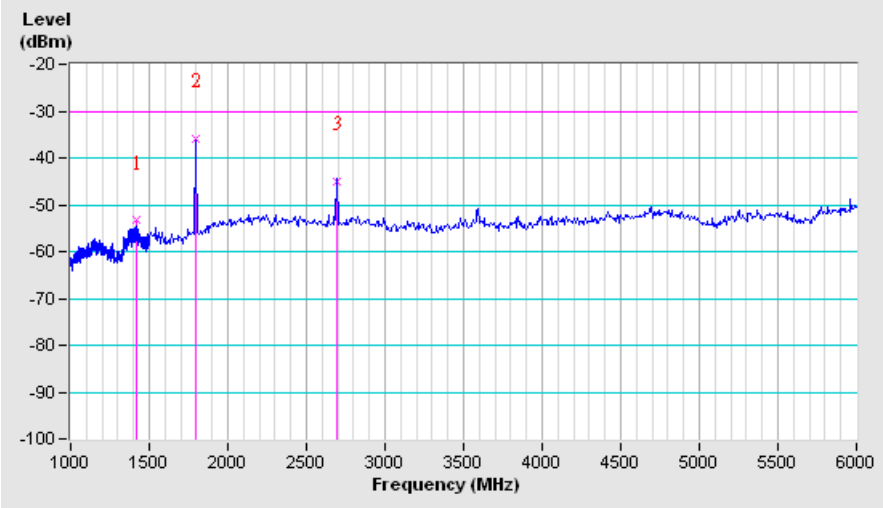
NOTE: The emission behavior belongs to narrowband spurious emission.



FREQUENCY RANGE	1000 ~ 6000 MHz	**INPUT POWER**	3.6Vdc
ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH	**TESTED BY**	Aaron Liang
OPERATING CONDITIONS	Linking mode at GPRS 900 (CH 37)		

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	**Antenna Polarization**	**Level (dBm)**	**Limit (dBm)**	**Margin**
1420.10	V	-53.38	-30.00	-23.38
1792.39	V	-35.84	-30.00	-5.84
2691.72	V	-45.02	-30.00	-15.02

NOTE: The emission behavior belongs to narrowband spurious emission.

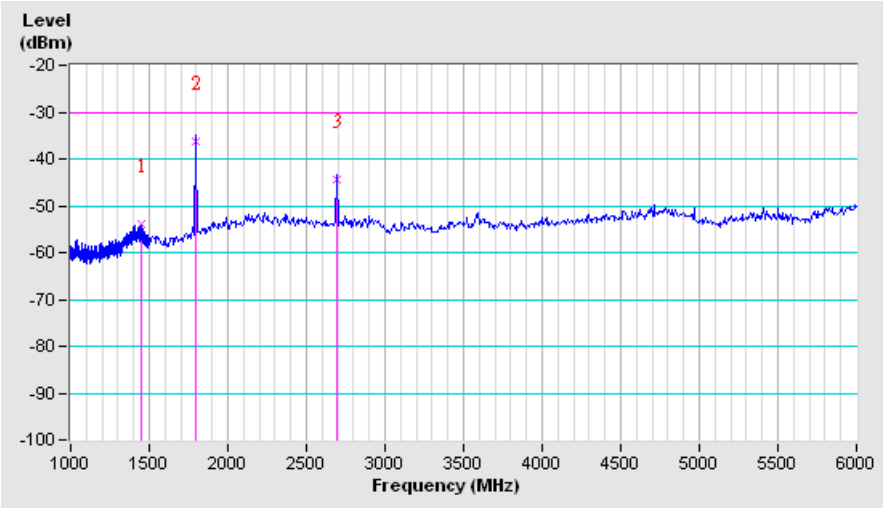


VOLTAGE: 3.7Vdc

FREQUENCY RANGE	1000 ~ 6000 MHz	**INPUT POWER**	3.7Vdc
ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH	**TESTED BY**	Aaron Liang
OPERATING CONDITIONS	Linking mode at GPRS 900 (CH 37)		

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	**Antenna Polarization**	**Level (dBm)**	**Limit (dBm)**	**Margin**
1450.10	H	-53.77	-30.00	-23.77
1792.51	H	-36.13	-30.00	-6.13
2692.65	H	-44.46	-30.00	-14.46

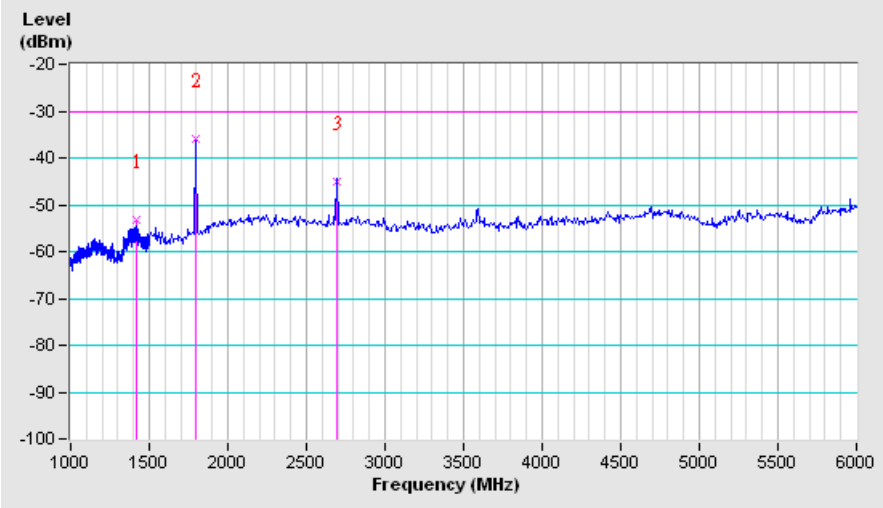
NOTE: The emission behavior belongs to narrowband spurious emission.



FREQUENCY RANGE	1000 ~ 6000 MHz	**INPUT POWER**	4.2Vdc
ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH	**TESTED BY**	Aaron Liang
OPERATING CONDITIONS	Linking mode at GPRS 900 (CH 37)		

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	**Antenna Polarization**	**Level (dBm)**	**Limit (dBm)**	**Margin**
1419.18	V	-53.28	-30.00	-23.28
1792.25	V	-35.94	-30.00	-5.94
2691.47	V	-45.11	-30.00	-15.11

NOTE: The emission behavior belongs to narrowband spurious emission.



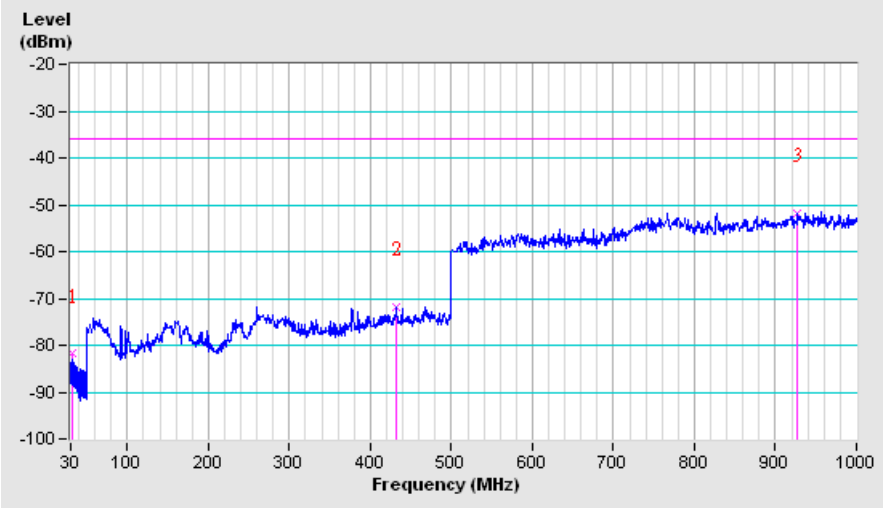
LINKING MODE AT DCS 1800 (CH 698)

VOLTAGE: 4.5Vdc

FREQUENCY RANGE	30 ~ 1000 MHz	**INPUT POWER**	4.5Vdc
ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH	**TESTED BY**	Aaron Liang
OPERATING CONDITIONS	Linking mode at GPRS 1800 (CH 698)		

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	**Antenna Polarization**	**Level (dBm)**	**Limit (dBm)**	**Margin**
32.23	H	-81.84	-36.00	-45.84
431.75	H	-71.71	-36.00	-35.71
927.50	H	-51.84	-36.00	-15.84

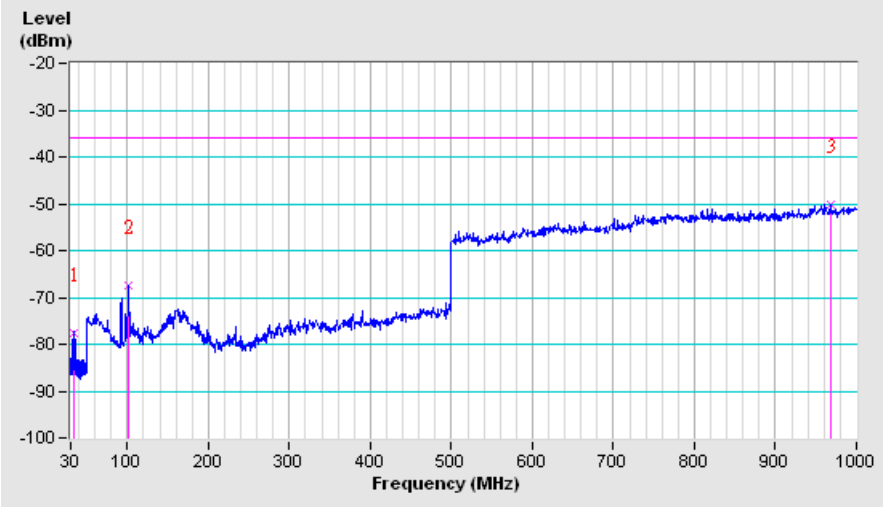
NOTE: The emission behavior belongs to narrowband spurious emission.



FREQUENCY RANGE	30 ~ 1000 MHz	**INPUT POWER**	4.5Vdc
ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH	**TESTED BY**	Aaron Liang
OPERATING CONDITIONS	Linking mode at GPRS 1800 (CH 698)		

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	**Antenna Polarization**	**Level (dBm)**	**Limit (dBm)**	**Margin**
33.43	V	-77.55	-36.00	-41.55
101.75	V	-67.44	-36.00	-31.44
969.20	V	-50.02	-36.00	-14.02

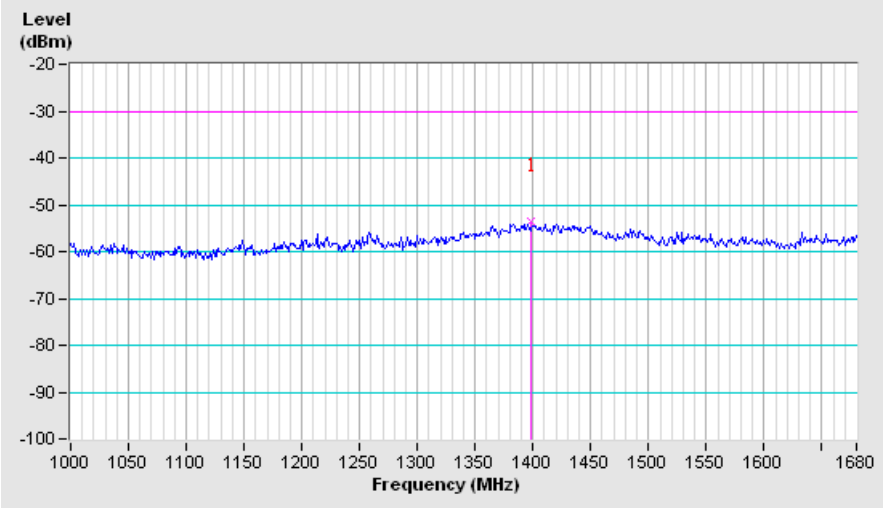
NOTE: The emission behavior belongs to narrowband spurious emission.



FREQUENCY RANGE	1000 ~ 1680 MHz	**INPUT POWER**	4.5Vdc
ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH	**TESTED BY**	Aaron Liang
OPERATING CONDITIONS	Linking mode at GPRS 1800 (CH 698)		

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	**Antenna Polarization**	**Level (dBm)**	**Limit (dBm)**	**Margin**
1398.90	H	-53.72	-30.00	-23.72

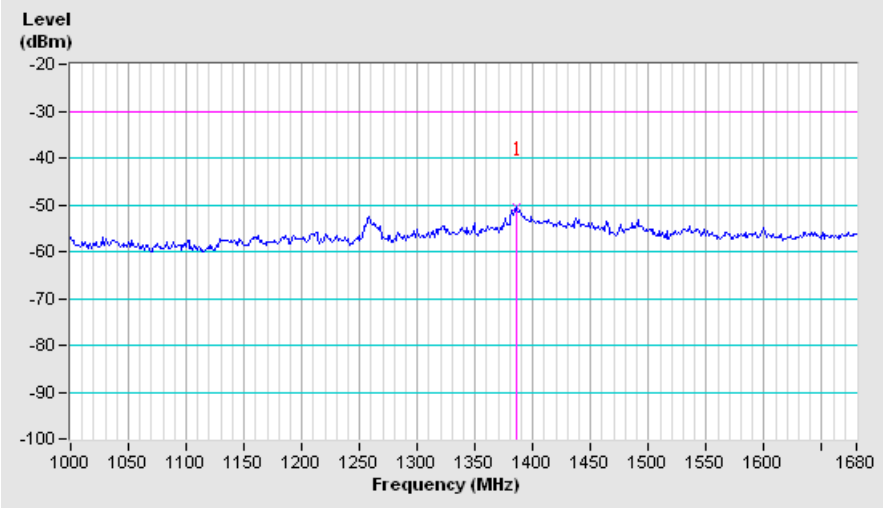
NOTE: The emission behavior belongs to narrowband spurious emission.



FREQUENCY RANGE	1000 ~ 1680 MHz	**INPUT POWER**	4.5Vdc
ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH	**TESTED BY**	Aaron Liang
OPERATING CONDITIONS	Linking mode at GPRS 1800 (CH 698)		

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	**Antenna Polarization**	**Level (dBm)**	**Limit (dBm)**	**Margin**
1385.30	V	-50.58	-30.00	-20.58

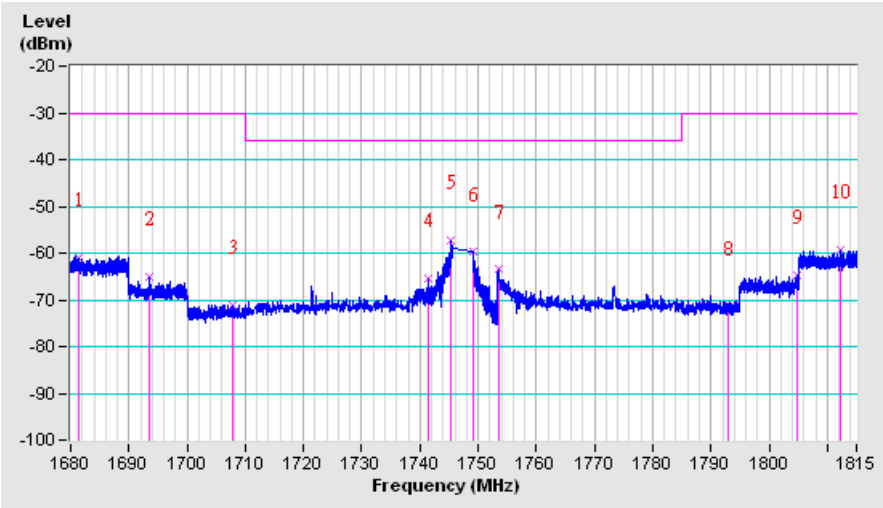
NOTE: The emission behavior belongs to narrowband spurious emission.



FREQUENCY RANGE	1680 ~ 1815 MHz	**INPUT POWER**	4.5Vdc
ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH	**TESTED BY**	Aaron Liang
OPERATING CONDITIONS	Linking mode at GPRS 1800 (CH 698)		

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	**Antenna Polarization**	**Level (dBm)**	**Limit (dBm)**	**Margin**
1681.47	H	-60.93	-30.00	-30.93
1693.62	H	-65.08	-30.00	-35.08
1707.93	H	-71.02	-30.00	-41.02
1741.40	H	-65.30	-36.00	-29.30
1745.31	H	-57.28	-36.00	-21.28
1749.20	H	-59.78	-36.00	-23.78
1753.45	H	-63.54	-36.00	-27.54
1792.93	H	-71.40	-30.00	-41.40
1804.72	H	-64.61	-30.00	-34.61
1812.27	H	-59.29	-30.00	-29.29

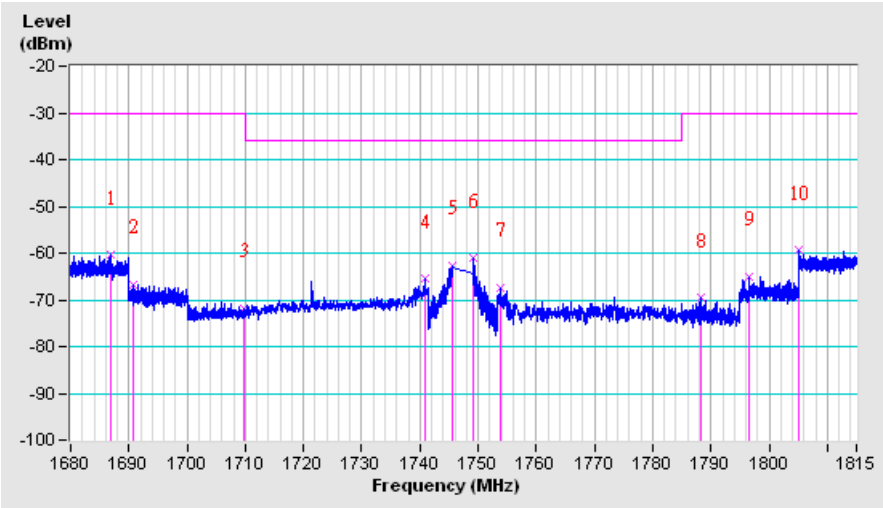
NOTE: The emission behavior belongs to narrowband spurious emission.



FREQUENCY RANGE	1680 ~ 1815 MHz	**INPUT POWER**	4.5Vdc
ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH	**TESTED BY**	Aaron Liang
OPERATING CONDITIONS	Linking mode at GPRS 1800 (CH 698)		

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	**Antenna Polarization**	**Level (dBm)**	**Limit (dBm)**	**Margin**
1686.93	V	-60.50	-30.00	-30.50
1690.80	V	-66.68	-30.00	-36.68
1709.72	V	-71.77	-30.00	-41.77
1740.93	V	-65.57	-36.00	-29.57
1745.56	V	-62.75	-36.00	-26.75
1749.25	V	-61.13	-36.00	-25.13
1753.82	V	-67.44	-36.00	-31.44
1788.30	V	-69.64	-30.00	-39.64
1796.60	V	-65.07	-30.00	-35.07
1805.05	V	-59.48	-30.00	-29.48

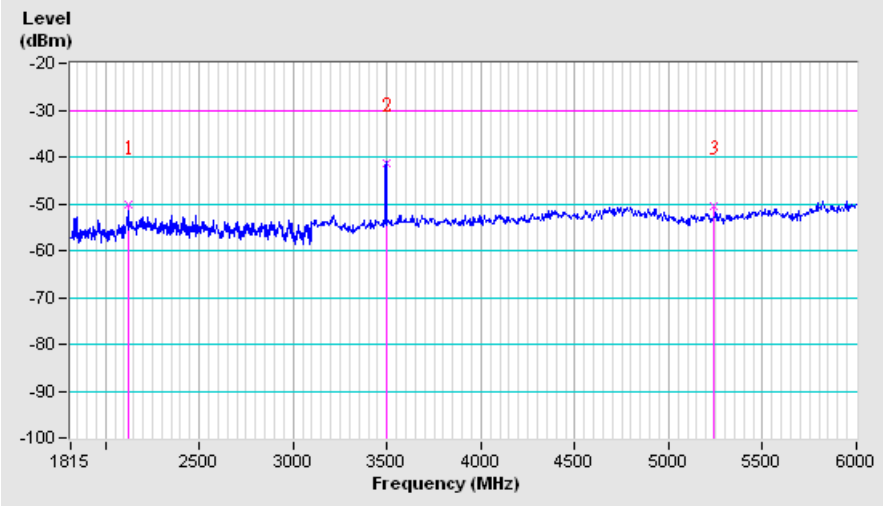
NOTE: The emission behavior belongs to narrowband spurious emission.



FREQUENCY RANGE	1815~ 6000 MHz	**INPUT POWER**	3.6Vdc
ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH	**TESTED BY**	Aaron Liang
OPERATING CONDITIONS	Linking mode at GPRS 1800 (CH 698)		

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	**Antenna Polarization**	**Level (dBm)**	**Limit (dBm)**	**Margin**
2120.30	H	-50.32	-30.00	-20.32
3494.87	H	-41.43	-30.00	-11.43
5242.16	H	-50.59	-30.00	-20.59

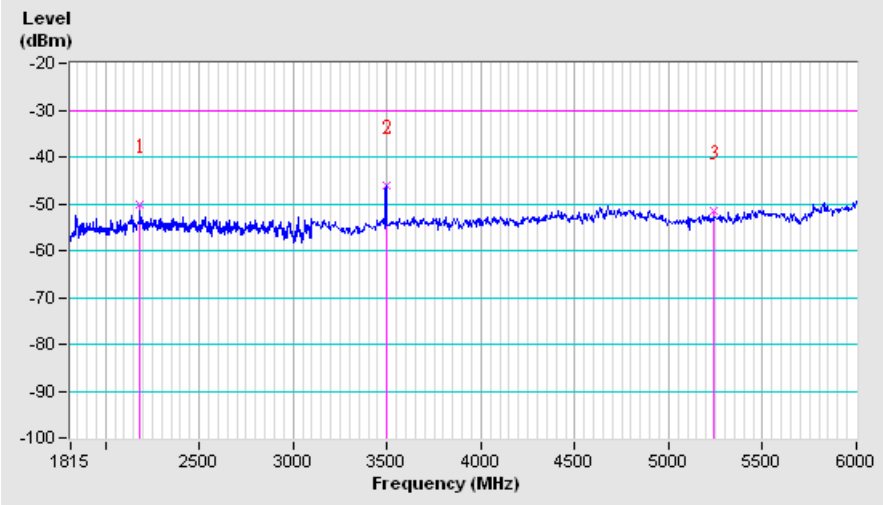
NOTE: The emission behavior belongs to narrowband spurious emission.



FREQUENCY RANGE	1815 ~ 6000 MHz	**INPUT POWER**	3.6Vdc
ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH	**TESTED BY**	Aaron Liang
OPERATING CONDITIONS	Linking mode at GPRS 1800 (CH 698)		

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	**Antenna Polarization**	**Level (dBm)**	**Limit (dBm)**	**Margin**
2181.32	V	-50.11	-30.00	-20.11
3496.62	V	-46.03	-30.00	-16.03
5242.56	V	-51.43	-30.00	-21.43

NOTE: The emission behavior belongs to narrowband spurious emission.

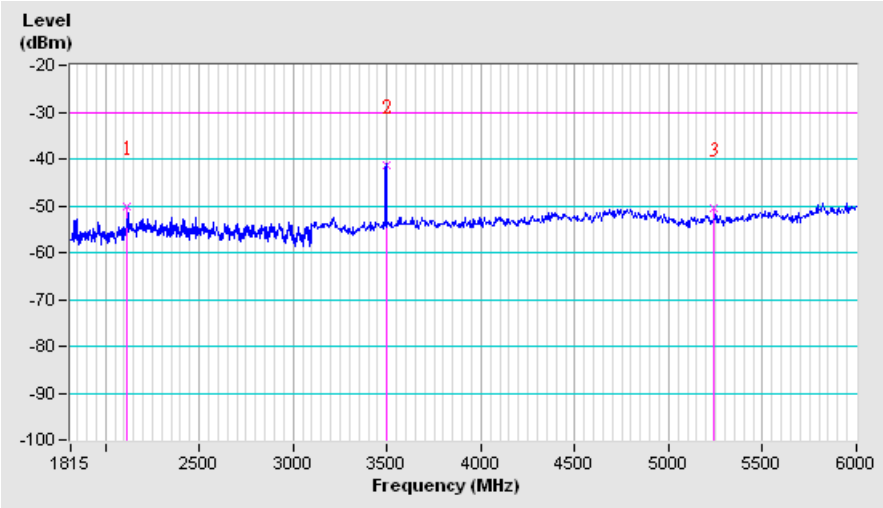


VOLTAGE: 3.7Vdc

FREQUENCY RANGE	1815 ~ 6000 MHz	**INPUT POWER**	3.7Vdc
ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH	**TESTED BY**	Aaron Liang
OPERATING CONDITIONS	Linking mode at GPRS 1800 (CH 698)		

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	**Antenna Polarization**	**Level (dBm)**	**Limit (dBm)**	**Margin**
2118.04	H	-50.14	-30.00	-20.14
3494.79	H	-41.36	-30.00	-11.36
5242.18	H	-50.53	-30.00	-20.53

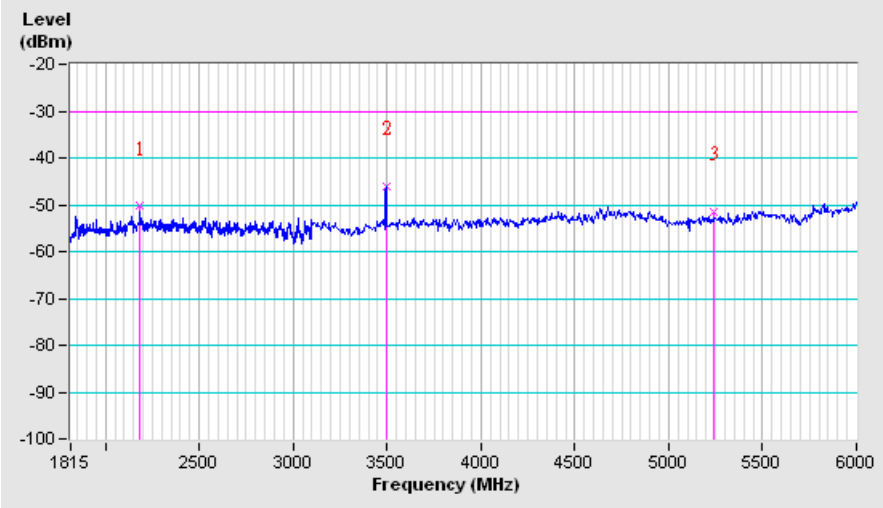
NOTE: The emission behavior belongs to narrowband spurious emission.



FREQUENCY RANGE	1815 ~ 6000 MHz	**INPUT POWER**	3.7Vdc
ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH	**TESTED BY**	Aaron Liang
OPERATING CONDITIONS	Linking mode at GPRS 1800 (CH 698)		

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	**Antenna Polarization**	**Level (dBm)**	**Limit (dBm)**	**Margin**
2180.20	V	-50.27	-30.00	-20.27
3496.20	V	-45.99	-30.00	-15.99
5242.41	V	-51.40	-30.00	-21.40

NOTE: The emission behavior belongs to narrowband spurious emission.

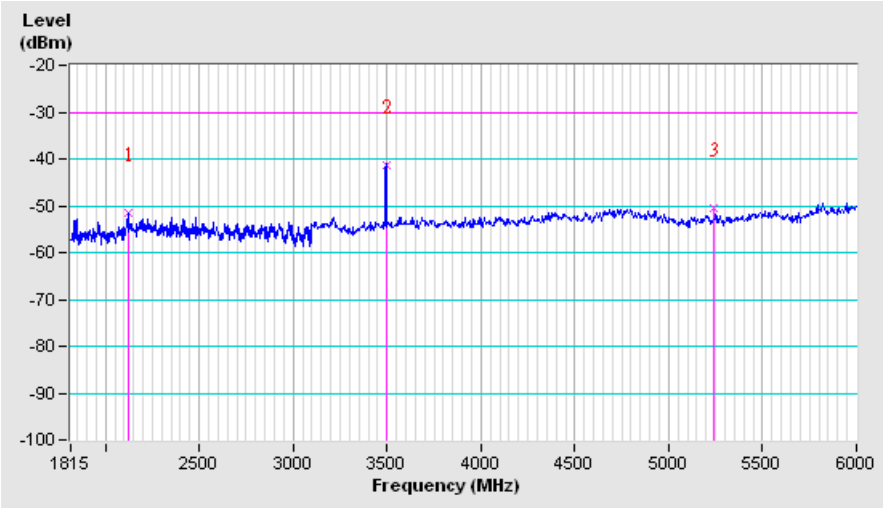


VOLTAGE: 4.5Vdc

FREQUENCY RANGE	1815 ~ 6000 MHz	**INPUT POWER**	4.5Vdc
ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH	**TESTED BY**	Aaron Liang
OPERATING CONDITIONS	Linking mode at GPRS 1800 (CH 698)		

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	**Antenna Polarization**	**Level (dBm)**	**Limit (dBm)**	**Margin**
2119.10	H	-51.44	-30.00	-21.44
3494.80	H	-41.23	-30.00	-11.23
5242.23	H	-50.51	-30.00	-20.51

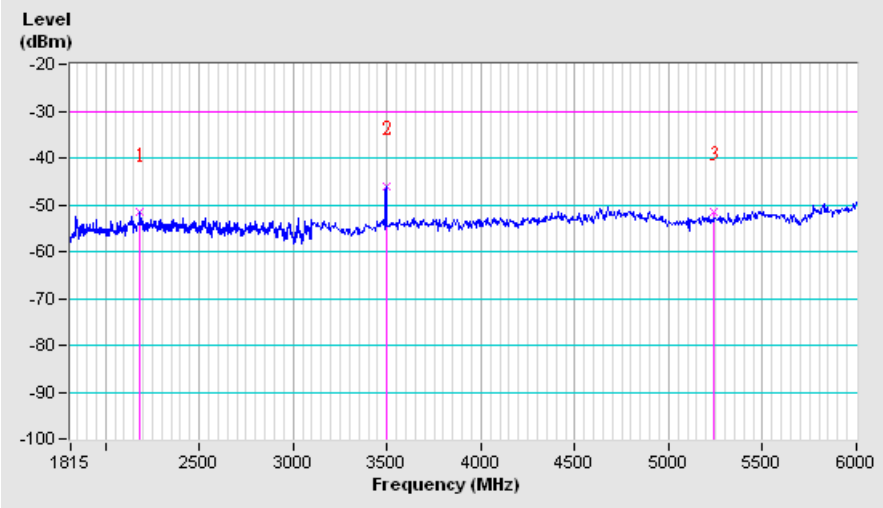
NOTE: The emission behavior belongs to narrowband spurious emission.



FREQUENCY RANGE	1815 ~ 6000 MHz	**INPUT POWER**	4.5Vdc
ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH	**TESTED BY**	Aaron Liang
OPERATING CONDITIONS	Linking mode at GPRS 1800 (CH 698)		

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	**Antenna Polarization**	**Level (dBm)**	**Limit (dBm)**	**Margin**
2181.20	V	-51.66	-30.00	-21.66
3496.00	V	-45.97	-30.00	-15.97
5242.23	V	-51.36	-30.00	-21.36

NOTE: The emission behavior belongs to narrowband spurious emission.



4.2 RADIATED SPURIOUS EMISSIONS – MS IN IDLE MODE

4.2.1 LIMIT OF RADIATED SPURIOUS EMISSIONS – MS IN IDLE MODE

FREQUENCY RANGE / MS CONDITION	880MHz ~ 915MHz	FREQUENCIES BELOW 1GHz	OTHER FREQUENCIES ABOVE 1GHz
MS in idle mode	-59dBm	-57dBm	-76dBm

4.2.2 TEST PROCEDURES

Refer to TS 151 010-1 [2], clause 12.2.2.4.

4.2.3 TEST SETUP

For the actual test configuration, please refer to the related Item in this test report (Photographs of the Test Configuration).

4.2.4 DEVIATION FROM TEST STANDARD

No deviation.

4.2.5 TEST RESULTS

IDLE MODE AT GPRS 900 (CH 37)

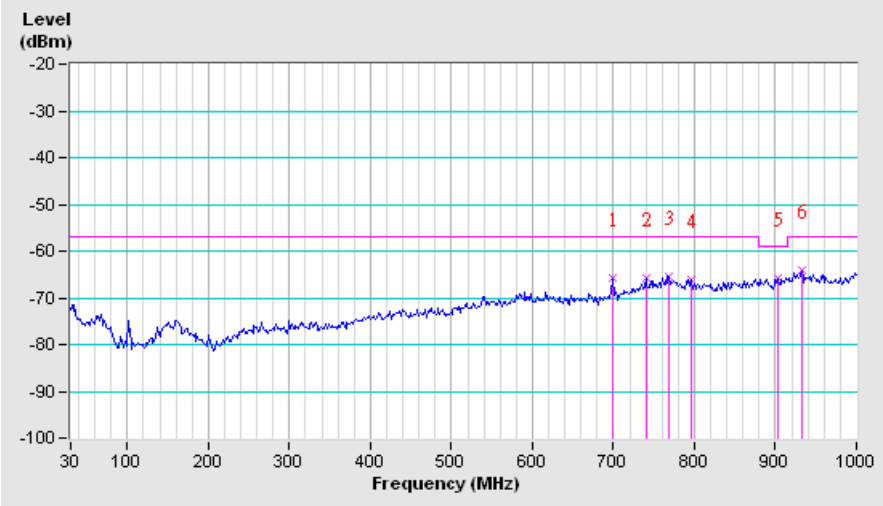
VOLTAGE: 4.5Vdc

TEST MODE A

FREQUENCY RANGE	30 ~ 1000 MHz	**INPUT POWER**	4.5Vdc
ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH	**TESTED BY**	Aaron Liang
OPERATING CONDITIONS	Idle mode at GPRS 900 (CH 37)		

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	**Antenna Polarization**	**Level (dBm)**	**Limit (dBm)**	**Margin**
699.30	H	-65.64	-57.00	-8.64
739.72	H	-65.77	-57.00	-8.77
768.82	H	-65.38	-57.00	-8.38
796.30	H	-65.98	-57.00	-8.98
903.00	H	-65.68	-59.00	-6.68
932.10	H	-64.15	-57.00	-7.15

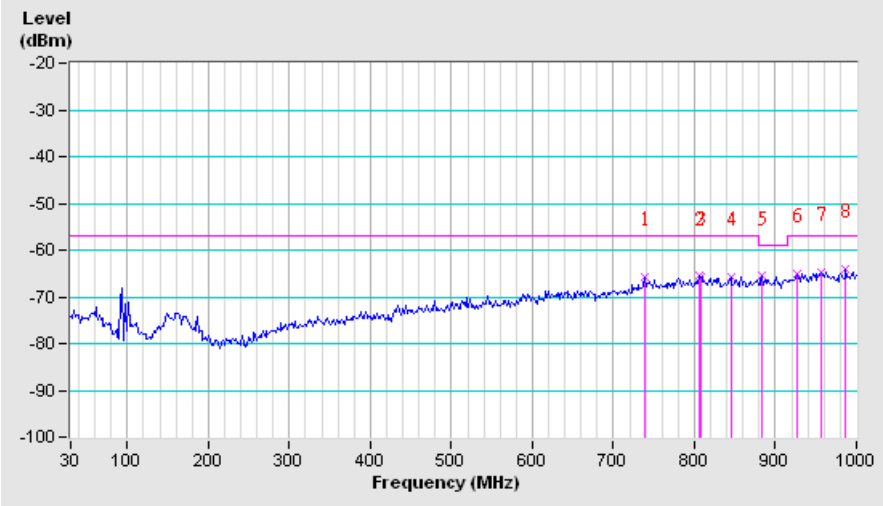
NOTE: The emission behavior belongs to narrowband spurious emission.



FREQUENCY RANGE	30 ~ 1000 MHz	**INPUT POWER**	4.5Vdc
ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH	**TESTED BY**	Aaron Liang
OPERATING CONDITIONS	Idle mode at GPRS 900 (CH 37)		

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	**Antenna Polarization**	**Level (dBm)**	**Limit (dBm)**	**Margin**
738.10	V	-65.71	-57.00	-8.71
806.00	V	-65.52	-57.00	-8.52
807.62	V	-65.63	-57.00	-8.63
844.80	V	-65.68	-57.00	-8.68
883.60	V	-65.53	-59.00	-6.53
927.25	V	-64.98	-57.00	-7.98
956.35	V	-64.76	-57.00	-7.76
987.07	V	-63.97	-57.00	-6.97

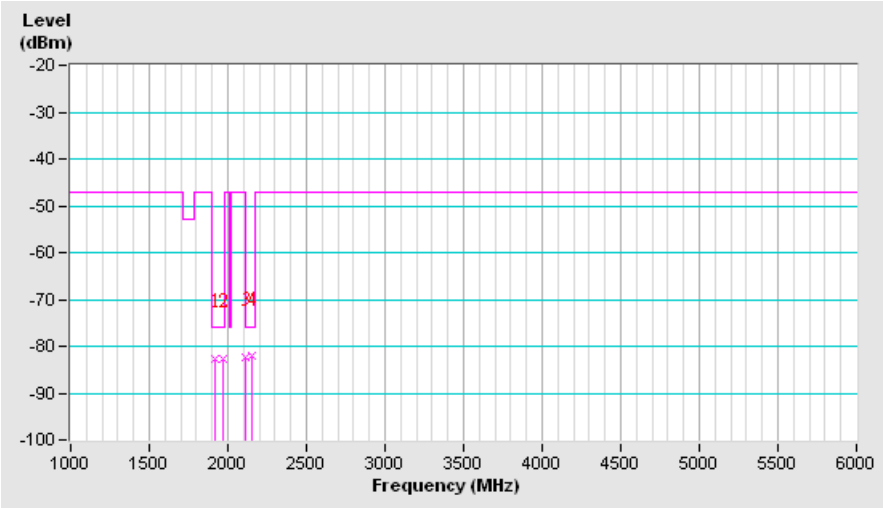
NOTE: The emission behavior belongs to narrowband spurious emission.



FREQUENCY RANGE	1000 ~ 6000 MHz	**INPUT POWER**	4.5Vdc
ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH	**TESTED BY**	Aaron Liang
OPERATING CONDITIONS	Idle mode at GPRS 900 (CH 37)		

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	**Antenna Polarization**	**Level (dBm)**	**Limit (dBm)**	**Margin**
1922.65	H	-82.69	-76.00	-6.69
1974.32	H	-82.62	-76.00	-6.62
2112.32	H	-82.32	-76.00	-6.32
2153.62	H	-82.14	-76.00	-6.14

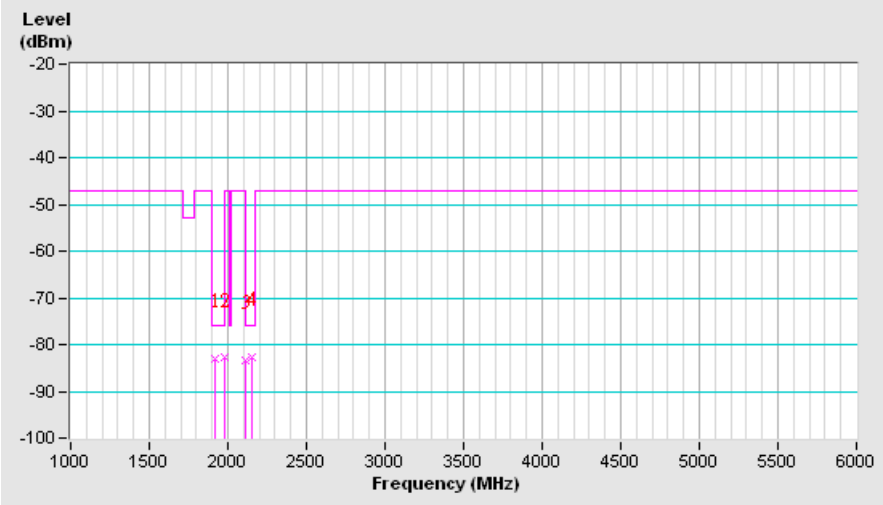
NOTE: The emission behavior belongs to narrowband spurious emission.



FREQUENCY RANGE	1000 ~ 6000 MHz	**INPUT POWER**	4.5Vdc
ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH	**TESTED BY**	Aaron Liang
OPERATING CONDITIONS	Idle mode at GPRS 900 (CH 37)		

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	**Antenna Polarization**	**Level (dBm)**	**Limit (dBm)**	**Margin**
1922.21	V	-83.06	-76.00	-7.06
1975.21	V	-82.88	-76.00	-6.88
2113.62	V	-83.44	-76.00	-7.44
2154.26	V	-82.62	-76.00	-6.62

NOTE: The emission behavior belongs to narrowband spurious emission.

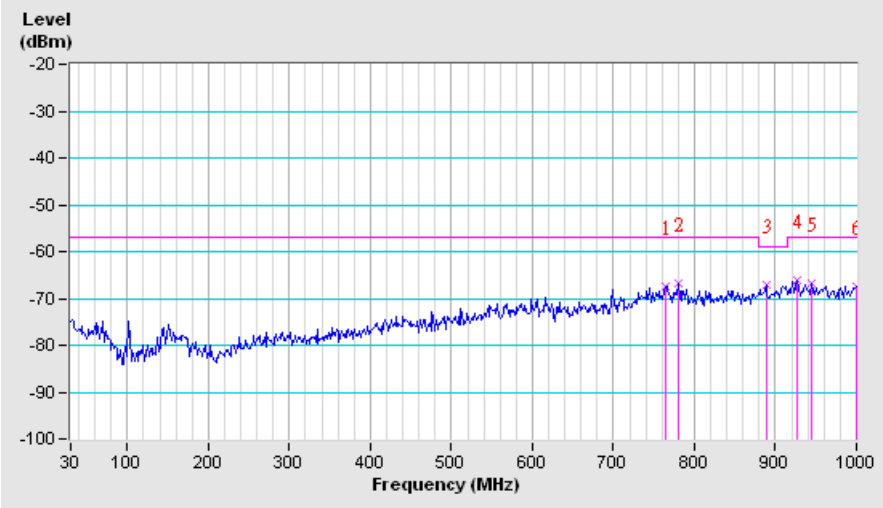


VOLTAGE: 3.7Vdc

FREQUENCY RANGE	30 ~ 1000 MHz	**INPUT POWER**	3.7Vdc
ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH	**TESTED BY**	Aaron Liang
OPERATING CONDITIONS	Idle mode at GPRS 900 (CH 37)		

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	**Antenna Polarization**	**Level (dBm)**	**Limit (dBm)**	**Margin**
763.97	H	-67.45	-57.00	-10.45
780.13	H	-66.74	-57.00	-9.74
888.45	H	-67.12	-59.00	-8.12
927.25	H	-66.11	-57.00	-9.11
945.03	H	-66.75	-57.00	-9.75
1000.00	H	-67.40	-57.00	-10.40

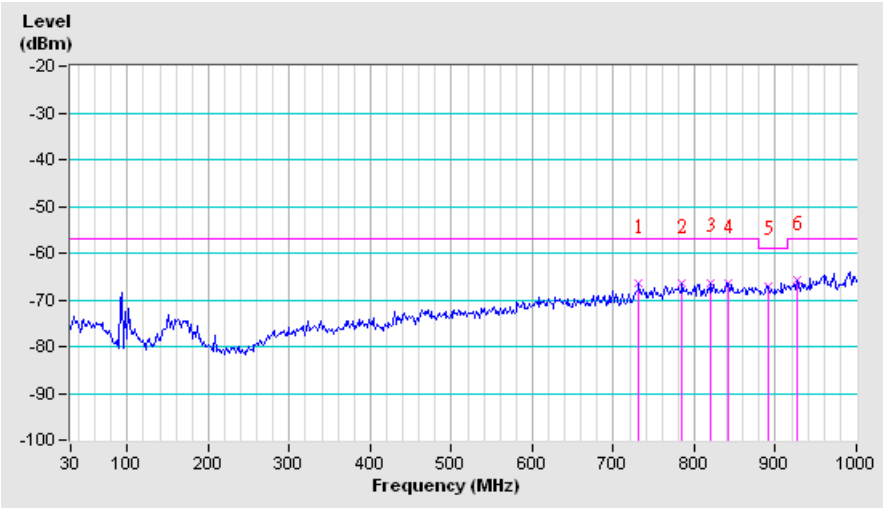
NOTE: The emission behavior belongs to narrowband spurious emission.



FREQUENCY RANGE	30 ~ 1000 MHz	**INPUT POWER**	3.7Vdc
ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH	**TESTED BY**	Aaron Liang
OPERATING CONDITIONS	Idle mode at GPRS 900 (CH 37)		

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	**Antenna Polarization**	**Level (dBm)**	**Limit (dBm)**	**Margin**
731.63	V	-66.56	-57.00	-9.56
784.98	V	-66.53	-57.00	-9.53
820.55	V	-66.41	-57.00	-9.41
841.57	V	-66.53	-57.00	-9.53
891.68	V	-66.96	-59.00	-7.96
927.25	V	-65.85	-57.00	-8.85

NOTE: The emission behavior belongs to narrowband spurious emission.

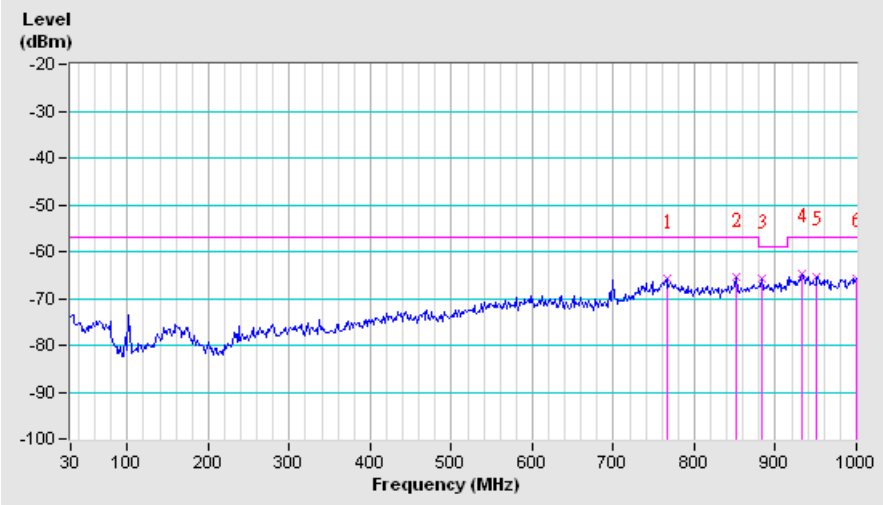


VOLTAGE: 3.6Vdc

FREQUENCY RANGE	30 ~ 1000 MHz	**INPUT POWER**	3.6Vdc
ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH	**TESTED BY**	Aaron Liang
OPERATING CONDITIONS	Idle mode at GPRS 900 (CH 37)		

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	**Antenna Polarization**	**Level (dBm)**	**Limit (dBm)**	**Margin**
765.58	H	-65.89	-57.00	-8.89
851.27	H	-65.58	-57.00	-8.58
883.60	H	-65.86	-59.00	-6.86
932.10	H	-64.61	-57.00	-7.61
951.50	H	-65.50	-57.00	-8.50
1000.00	H	-65.67	-57.00	-8.67

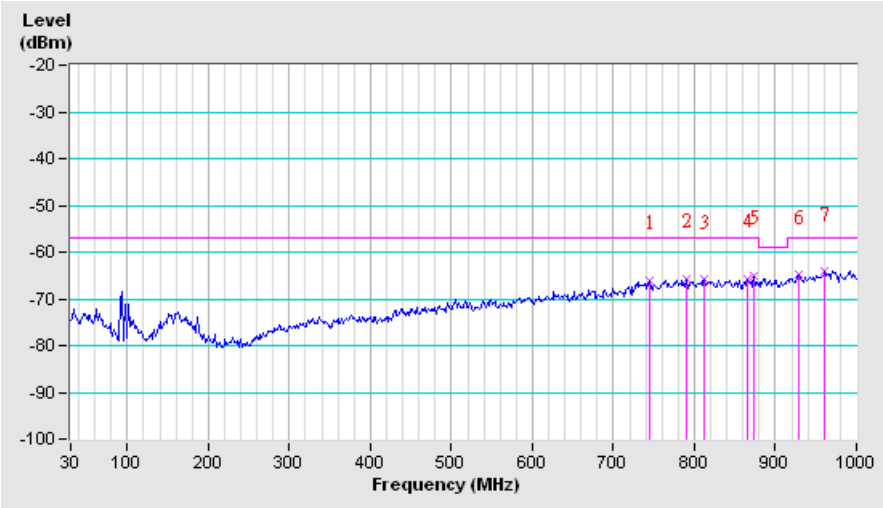
NOTE: The emission behavior belongs to narrowband spurious emission.



FREQUENCY RANGE	30 ~ 1000 MHz	**INPUT POWER**	3.6Vdc
ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH	**TESTED BY**	Aaron Liang
OPERATING CONDITIONS	Idle mode at GPRS 900 (CH 37)		

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	**Antenna Polarization**	**Level (dBm)**	**Limit (dBm)**	**Margin**
744.57	V	-65.95	-57.00	-8.95
789.83	V	-65.63	-57.00	-8.63
812.47	V	-65.93	-57.00	-8.93
865.82	V	-65.80	-57.00	-8.80
873.90	V	-65.15	-57.00	-8.15
928.87	V	-64.85	-57.00	-7.85
961.20	V	-64.23	-57.00	-7.23

NOTE: The emission behavior belongs to narrowband spurious emission.

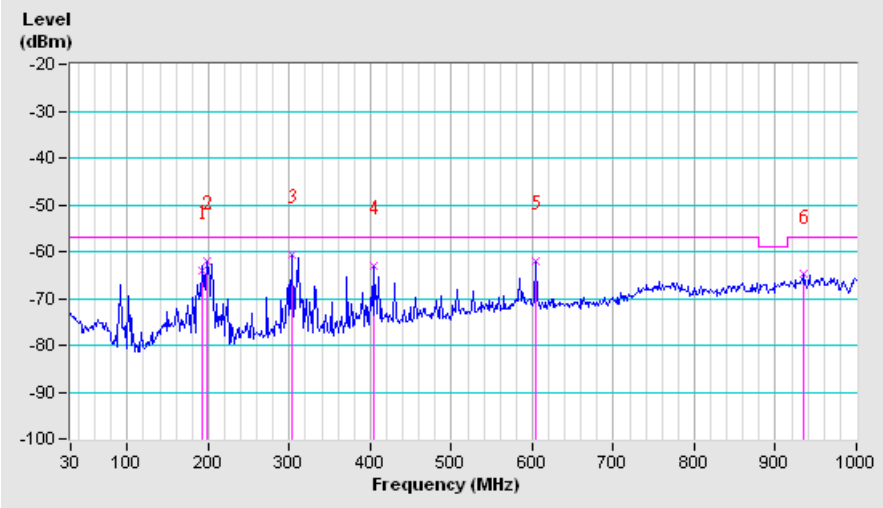


TEST MODE B

FREQUENCY RANGE	30 ~ 1000 MHz	**INPUT POWER**	4.5Vdc
ENVIRONMENTAL CONDITIONS	25deg.C, 68%RH	**TESTED BY**	Jack Li
OPERATING CONDITIONS	Idle mode at GPRS 900 (CH 37)		

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	**Antenna Polarization**	**Level (dBm)**	**Limit (dBm)**	**Margin**
191.67	H	-64.08	-57.00	-7.08
198.13	H	-62.07	-57.00	-5.07
303.22	H	-60.75	-57.00	-3.75
403.45	H	-62.95	-57.00	-5.95
603.92	H	-62.05	-57.00	-5.05
935.33	H	-64.84	-57.00	-7.84

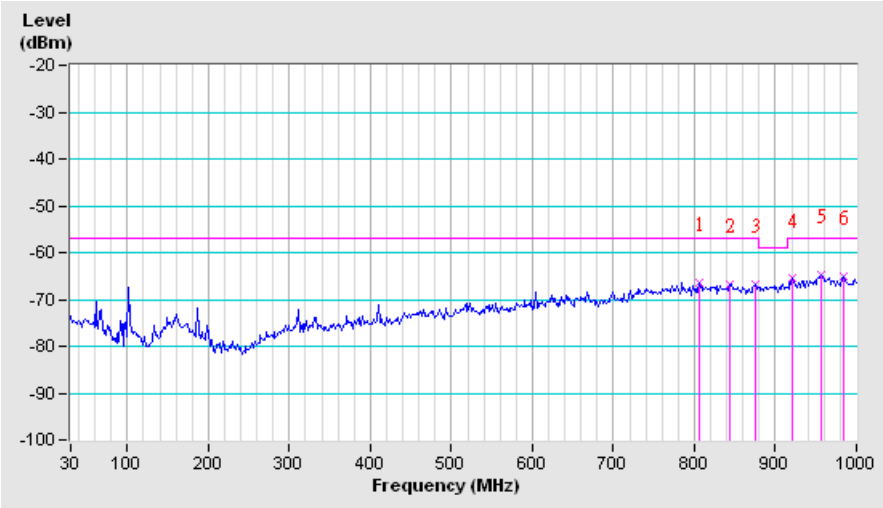
NOTE: The emission behavior belongs to narrowband spurious emission.



FREQUENCY RANGE	30 ~ 1000 MHz	**INPUT POWER**	4.5Vdc
ENVIRONMENTAL CONDITIONS	25deg.C, 68%RH	**TESTED BY**	Jack Li
OPERATING CONDITIONS	Idle mode at GPRS 900 (CH 37)		

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	**Antenna Polarization**	**Level (dBm)**	**Limit (dBm)**	**Margin**
806.00	V	-66.35	-57.00	-9.35
843.18	V	-66.79	-57.00	-9.79
875.52	V	-66.81	-57.00	-9.81
920.78	V	-65.54	-57.00	-8.54
956.35	V	-64.59	-57.00	-7.59
983.83	V	-64.93	-57.00	-7.93

NOTE: The emission behavior belongs to narrowband spurious emission.



IDLE MODE AT GPRS 1800 (CH 698)

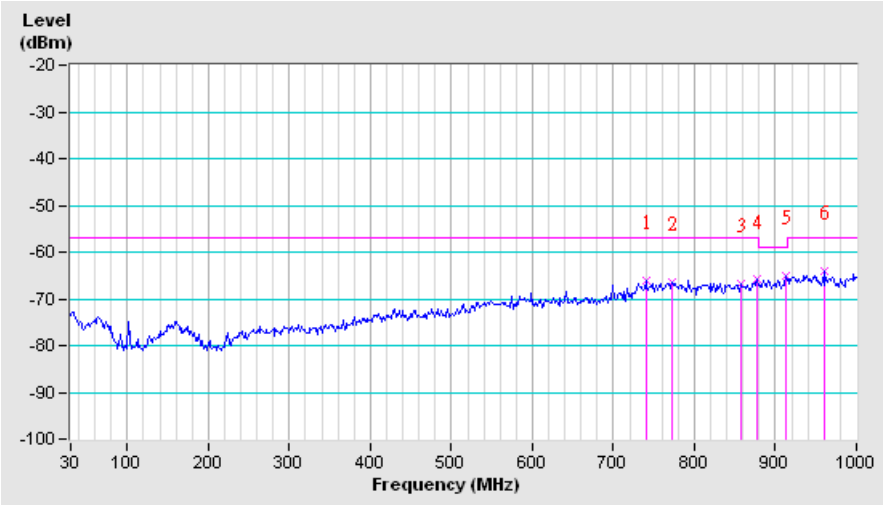
VOLTAGE: 4.5Vdc

TEST MODE A

FREQUENCY RANGE	30 ~ 1000 MHz	**INPUT POWER**	4.5Vdc
ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH	**TESTED BY**	Aaron Liang
OPERATING CONDITIONS	Idle mode at GPRS 1800 (CH 698)		

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	**Antenna Polarization**	**Level (dBm)**	**Limit (dBm)**	**Margin**
739.72	H	-66.15	-57.00	-9.15
772.05	H	-66.47	-57.00	-9.47
857.73	H	-66.65	-57.00	-9.65
877.13	H	-65.93	-57.00	-8.93
912.70	H	-64.95	-59.00	-5.95
959.58	H	-64.12	-57.00	-7.12

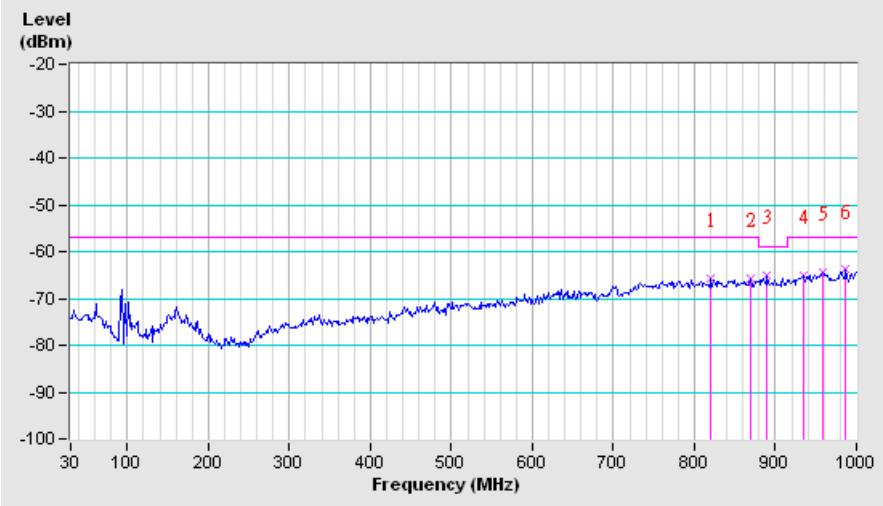
NOTE: The emission behavior belongs to narrowband spurious emission.



FREQUENCY RANGE	30 ~ 1000 MHz	**INPUT POWER**	4.5Vdc
ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH	**TESTED BY**	Aaron Liang
OPERATING CONDITIONS	Idle mode at GPRS 1800 (CH 698)		

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	**Antenna Polarization**	**Level (dBm)**	**Limit (dBm)**	**Margin**
820.55	V	-65.82	-57.00	-8.82
869.05	V	-65.82	-57.00	-8.82
890.07	V	-65.14	-59.00	-6.14
933.72	V	-65.00	-57.00	-8.00
957.97	V	-64.37	-57.00	-7.37
987.07	V	-63.85	-57.00	-6.85

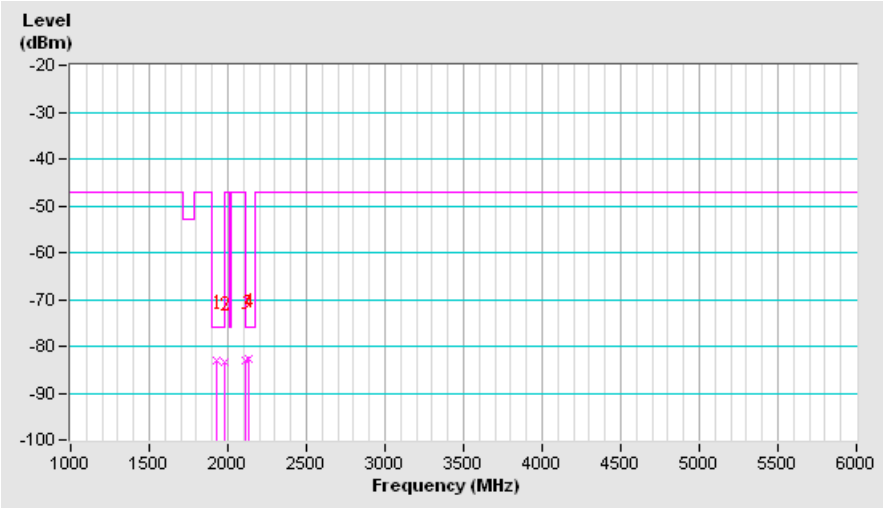
NOTE: The emission behavior belongs to narrowband spurious emission.



FREQUENCY RANGE	1000 ~ 6000 MHz	**INPUT POWER**	4.5Vdc
ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH	**TESTED BY**	Aaron Liang
OPERATING CONDITIONS	Idle mode at GPRS 1800 (CH 698)		

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	**Antenna Polarization**	**Level (dBm)**	**Limit (dBm)**	**Margin**
1923.54	H	-83.03	-76.00	-7.03
1975.32	H	-83.33	-76.00	-7.33
2115.62	H	-83.05	-76.00	-7.05
2135.62	H	-82.56	-76.00	-6.56

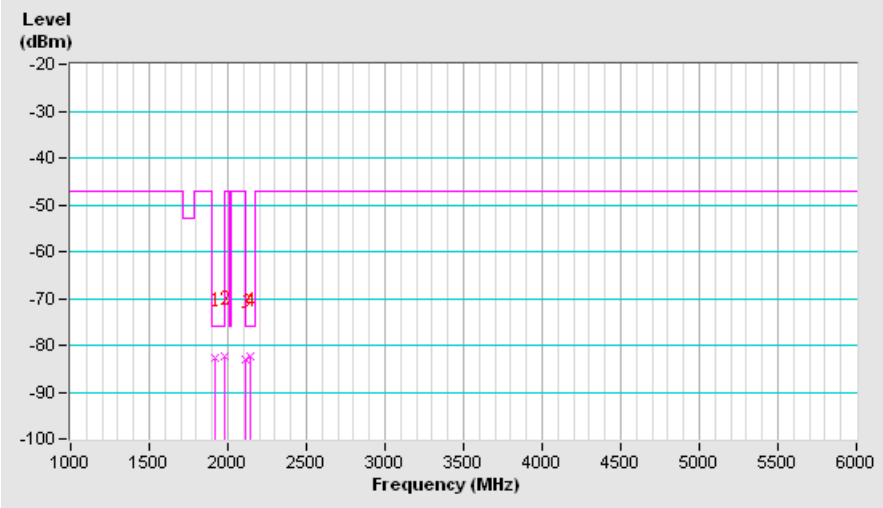
NOTE: The emission behavior belongs to narrowband spurious emission.



FREQUENCY RANGE	1000 ~ 6000 MHz	**INPUT POWER**	4.5Vdc
ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH	**TESTED BY**	Aaron Liang
OPERATING CONDITIONS	Idle mode at GPRS 1800 (CH 698)		

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	**Antenna Polarization**	**Level (dBm)**	**Limit (dBm)**	**Margin**
1921.11	V	-82.55	-76.00	-6.55
1974.50	V	-82.41	-76.00	-6.41
2114.44	V	-82.98	-76.00	-6.98
2144.62	V	-82.47	-76.00	-6.47

NOTE: The emission behavior belongs to narrowband spurious emission.

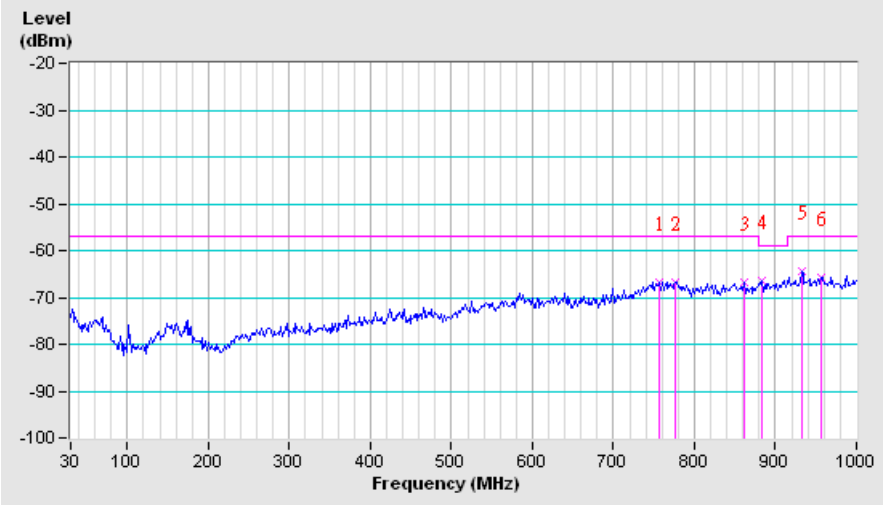


VOLTAGE: 3.7Vdc

FREQUENCY RANGE	30 ~ 1000 MHz	**INPUT POWER**	3.7Vdc
ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH	**TESTED BY**	Aaron Liang
OPERATING CONDITIONS	Idle mode at GPRS 1800 (CH 698)		

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	**Antenna Polarization**	**Level (dBm)**	**Limit (dBm)**	**Margin**
757.50	H	-66.70	-57.00	-9.70
776.90	H	-66.79	-57.00	-9.79
860.97	H	-66.68	-57.00	-9.68
883.60	H	-66.50	-59.00	-7.50
932.10	H	-64.36	-57.00	-7.36
956.35	H	-65.69	-57.00	-8.69

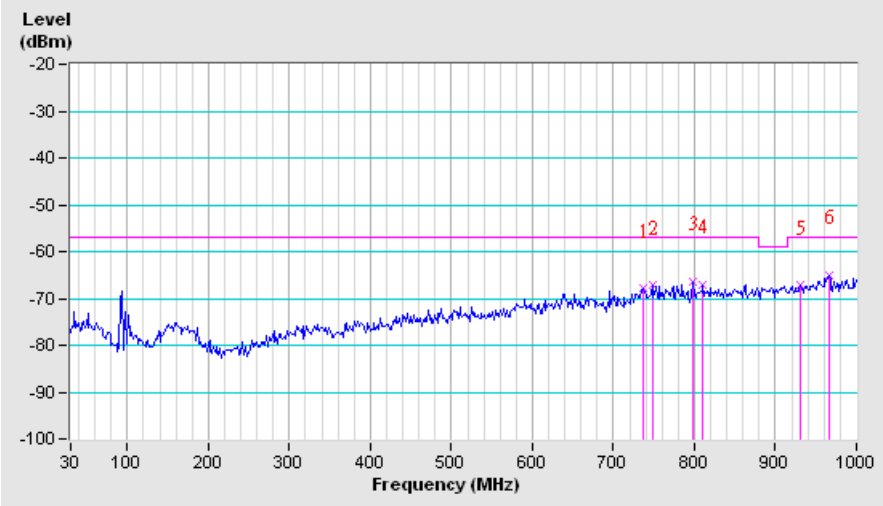
NOTE: The emission behavior belongs to narrowband spurious emission.



FREQUENCY RANGE	30 ~ 1000 MHz	**INPUT POWER**	3.7Vdc
ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH	**TESTED BY**	Aaron Liang
OPERATING CONDITIONS	Idle mode at GPRS 1800 (CH 698)		

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	**Antenna Polarization**	**Level (dBm)**	**Limit (dBm)**	**Margin**
736.48	V	-67.96	-57.00	-10.96
747.80	V	-67.23	-57.00	-10.23
797.92	V	-66.51	-57.00	-9.51
810.85	V	-67.14	-57.00	-10.14
930.48	V	-67.26	-57.00	-10.26
966.05	V	-65.05	-57.00	-8.05

NOTE: The emission behavior belongs to narrowband spurious emission.

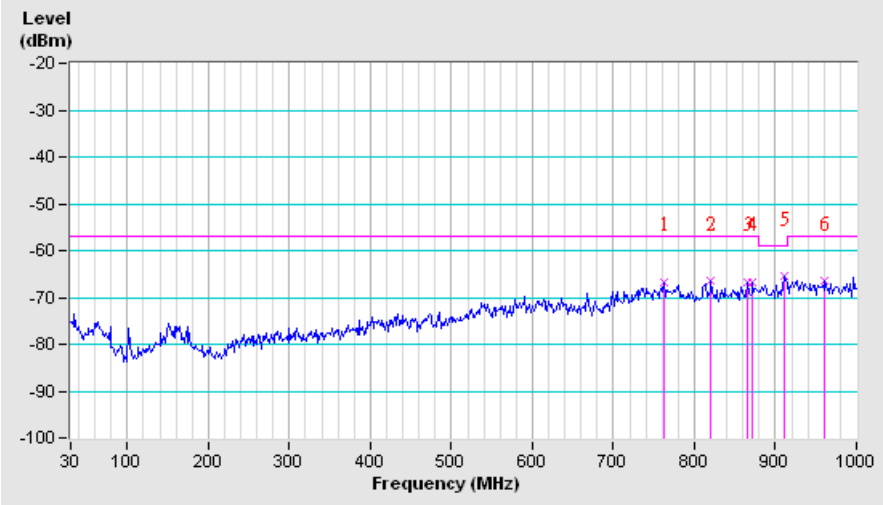


VOLTAGE: 3.6Vdc

FREQUENCY RANGE	30 ~ 1000 MHz	**INPUT POWER**	3.6Vdc
ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH	**TESTED BY**	Aaron Liang
OPERATING CONDITIONS	Idle mode at GPRS 1800 (CH 698)		

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	**Antenna Polarization**	**Level (dBm)**	**Limit (dBm)**	**Margin**
762.35	H	-66.84	-57.00	-9.84
820.55	H	-66.60	-57.00	-9.60
865.82	H	-66.82	-57.00	-9.82
872.28	H	-66.80	-57.00	-9.80
911.08	H	-65.58	-59.00	-6.58
961.20	H	-66.55	-57.00	-9.55

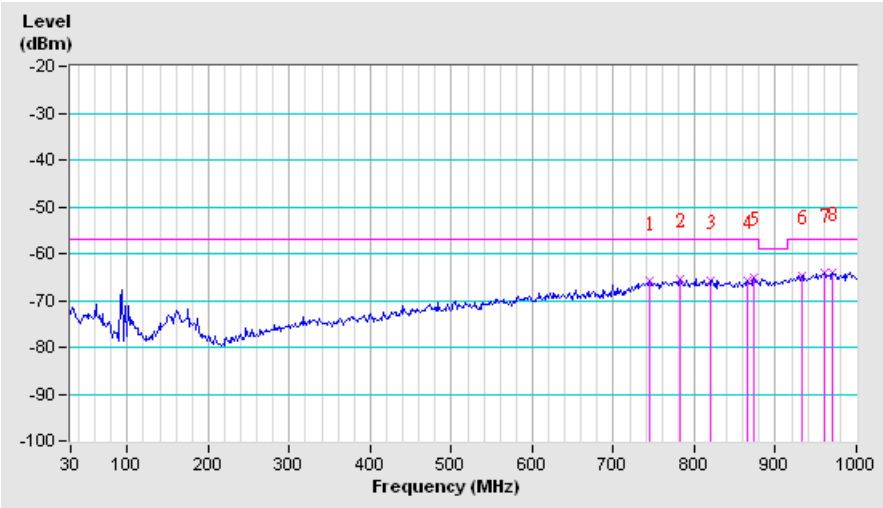
NOTE: The emission behavior belongs to narrowband spurious emission.



FREQUENCY RANGE	30 ~ 1000 MHz	**INPUT POWER**	3.6Vdc
ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH	**TESTED BY**	Aaron Liang
OPERATING CONDITIONS	Idle mode at GPRS 1800 (CH 698)		

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	**Antenna Polarization**	**Level (dBm)**	**Limit (dBm)**	**Margin**
744.57	V	-65.91	-57.00	-8.91
781.75	V	-65.27	-57.00	-8.27
820.55	V	-65.82	-57.00	-8.82
865.82	V	-65.80	-57.00	-8.80
873.90	V	-65.15	-57.00	-8.15
932.10	V	-64.64	-57.00	-7.64
961.20	V	-64.23	-57.00	-7.23
970.90	V	-64.14	-57.00	-7.14

NOTE: The emission behavior belongs to narrowband spurious emission.

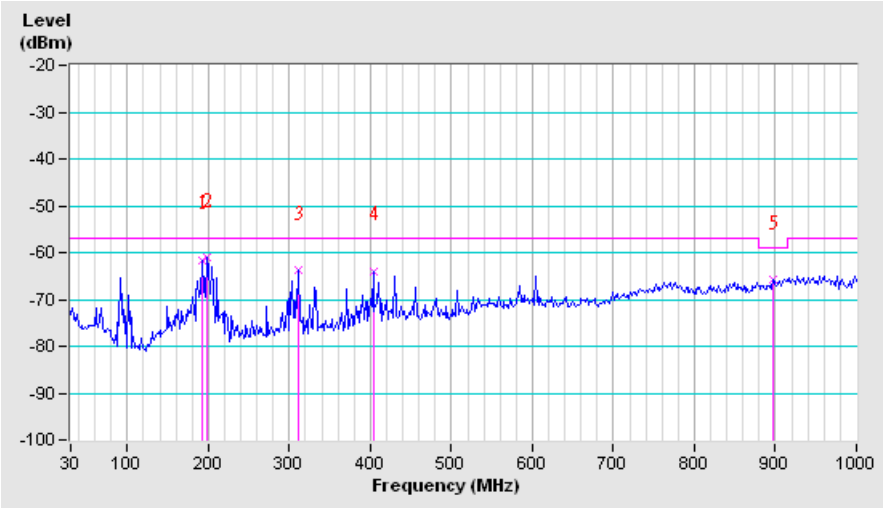


TEST MODE B

FREQUENCY RANGE	30 ~ 1000 MHz	**INPUT POWER**	4.5Vdc
ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH	**TESTED BY**	Jack Li
OPERATING CONDITIONS	Idle mode at GPRS 1800 (CH 698)		

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	**Antenna Polarization**	**Level (dBm)**	**Limit (dBm)**	**Margin**
191.67	H	-61.54	-57.00	-4.54
198.13	H	-61.15	-57.00	-4.15
311.30	H	-63.88	-57.00	-6.88
403.45	H	-64.03	-57.00	-7.03
896.53	H	-65.93	-59.00	-6.93

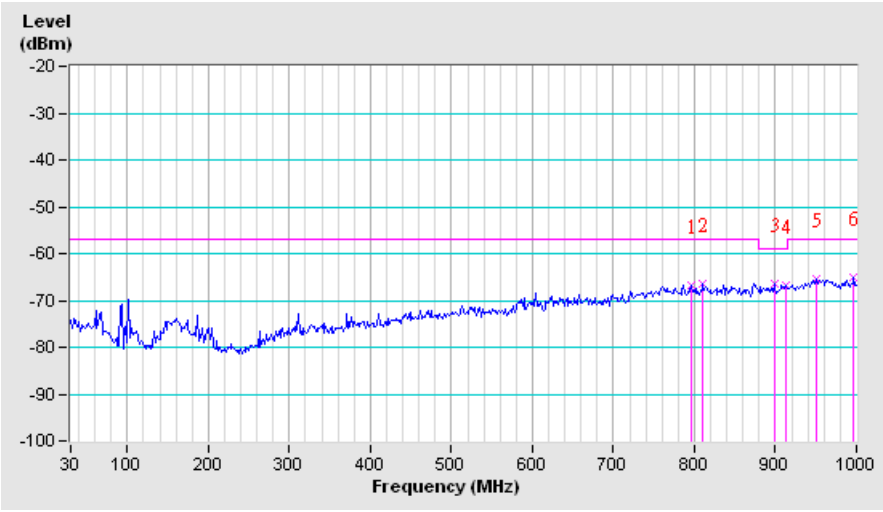
NOTE: The emission behavior belongs to narrowband spurious emission.



FREQUENCY RANGE	30 ~ 1000 MHz	**INPUT POWER**	4.5Vdc
ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH	**TESTED BY**	Jack Li
OPERATING CONDITIONS	Idle mode at GPRS 1800 (CH 698)		

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	**Antenna Polarization**	**Level (dBm)**	**Limit (dBm)**	**Margin**
796.30	V	-66.61	-57.00	-9.61
810.85	V	-66.28	-57.00	-9.28
898.15	V	-66.27	-59.00	-7.27
912.70	V	-66.64	-59.00	-7.64
949.88	V	-65.41	-57.00	-8.41
996.77	V	-65.13	-57.00	-8.13

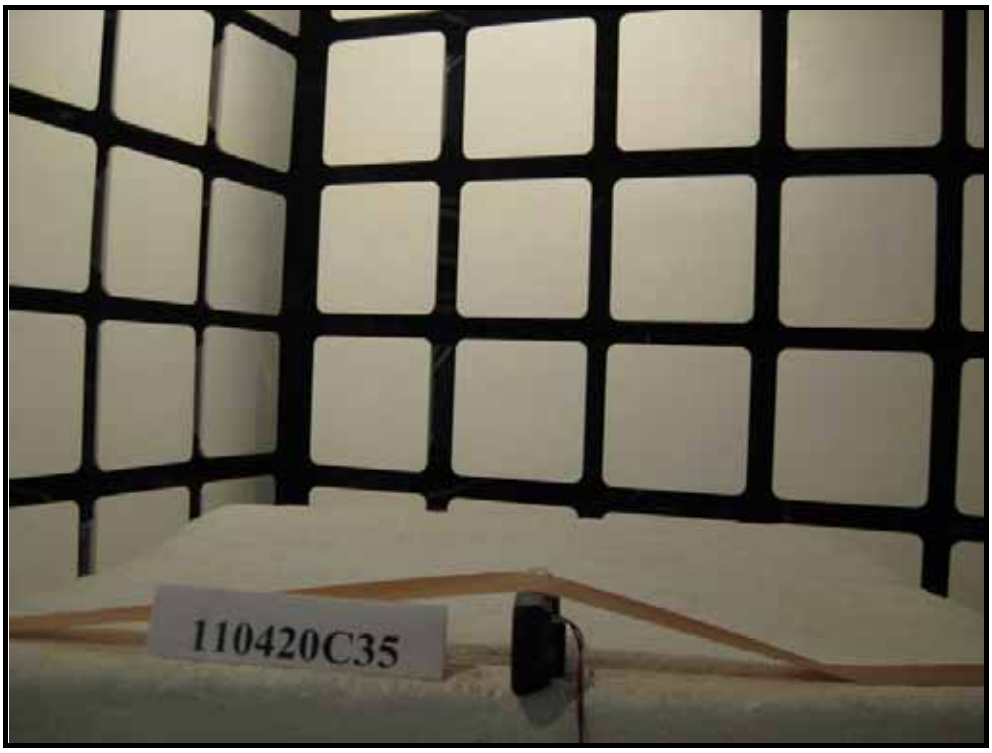
NOTE: The emission behavior belongs to narrowband spurious emission.

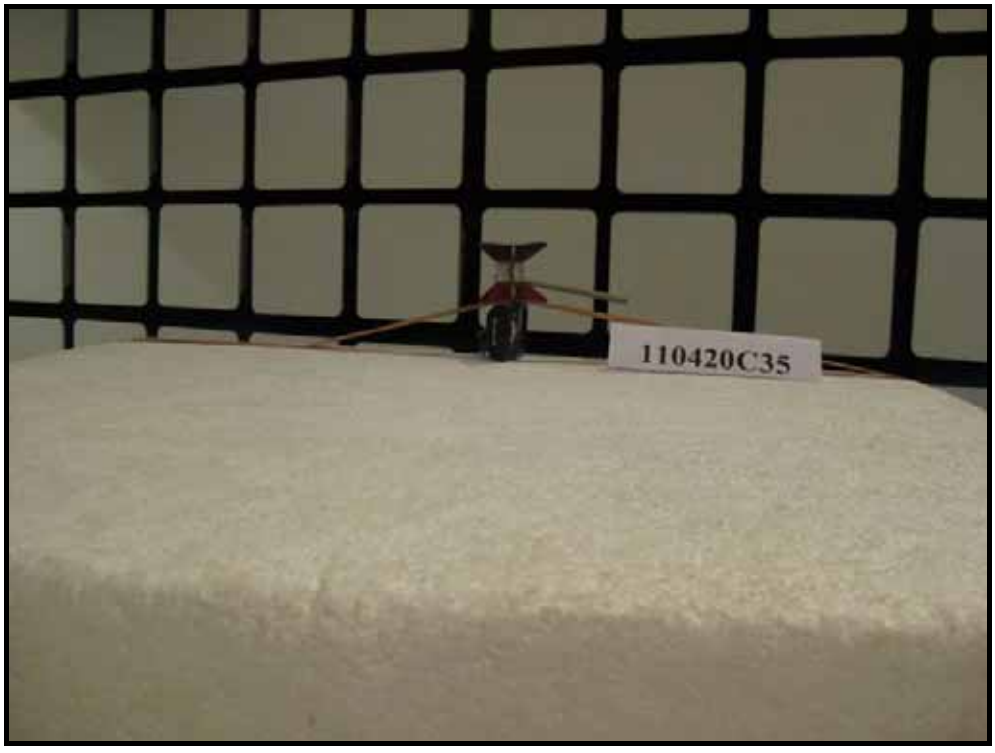


5 PHOTOGRAPHS OF THE TEST CONFIGURATION

Tx and Rx SPURIOUS EMISSION TEST

TEST MODE A





TEST MODE B

6 INFORMATION ON THE TESTING LABORATORIES

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site: www.adt.com.tw/index.5.phtml.
If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab:
Tel: 886-2-26052180
Fax: 886-2-26051924

Hsin Chu EMC/RF Lab:
Tel: 886-3-5935343
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Hwa Ya EMC/RF/Safety/Telecom Lab:
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Email: service.adt@tw.bureauveritas.com
Web Site: www.adt.com.tw

The address and road map of all our labs can be found in our web site also.

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