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Tel: +82-31-321-2664 Fax: +82-31-321-1664
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CERTIFICATE OF COMPLIANCE
FCC Part 22, 24 Certification

Dates of Tests: July 9 ~ December 29, 2008
Test Report S/N: DR50110807Z-R3
Test Site : DIGITAL EMC CO., LTD.

Model No. **R2NSDC-1000**

APPLICANT **Epivalley CO.,LTD.**

Classification	:	**Licensed Portable Transmitter (PCB)**
FCC Rule Part(s)	:	**§22(H), §24(E), §2**
EUT Type	:	**HSDPA USB Modem**
Model name	:	**SDC-1000**
Serial number	:	**Identical prototype**
TX Frequency Range	:	**GSM Cellular Band: 824.2 ~ 848.8 MHz** **GSM PCS Band: 1850.2 ~ 1909.8 MHz** **EDGE Cellular Band: 824.2 ~ 848.8 MHz** **EDGE PCS Band: 1850.2 ~ 1909.8 MHz** **WCDMA Cellular Band: 826.4 ~ 846.6MHz** **WCDMA PCS Band: 1852.4 ~ 1907.6MHz**
Max. RF Output Power	:	**GSM Cellular Band: 27.94dBm ERP(0.622W)** **GSM PCS Band: 29.54dBm EIRP(0.899W)** **EDGE Cellular Band: 25.20dBm ERP(0.331W)** **EDGE PCS Band: 27.72dBm EIRP(0.592W)** **WCDMA Cellular Band: 23.76dBm ERP(0.238W)** **WCDMA PCS Band: 24.44dBm EIRP(0.278W)**
Emission Designators:	:	**GSM Cellular Band: 246KGXW** **GSM PCS Band: 249KGXW** **EDGE Cellular Band: 238KG7W** **EDGE PCS Band: 239KG7W** **WCDMA Cellular Band: 4M17F9W** **WCDMA PCS Band: 4M18F9W**
Date of Issue	:	**December 30, 2008**

TABLE OF CONTENTS

◈ TEST REPORT

1.1 SCOPE 3
2.1 GENERAL INFORMATION 4
3.1 DESCRIPTION OF TESTS 5
4.1 TEST DATA 8
4.1.1 CONDUCTED OUTPUT POWER 8
4.1.2 EFFECTIVE RADIATED POWER OUTPUT 9
4.1.3 CDMA RADIATED MEASUREMENTS 10
4.1.4 FREQUENCY STABILITY(CDAM) 16
5.1 PLOTS OF EMISSIONS 20
6.1 LIST OF TEST EQUIPMENT 21
7.1 SAMPLE CALCULATIONS 23
8.1 CONCLUSION 24

◈ TEST PLOTS

◈ EDGE TEST DATA

MEASUREMENT REPORT

1.1 Scope

Measurement and determination of electromagnetic emissions (EME) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission.

§2.1033 General Information

Applicant: Epivalley CO.,LTD.
Address: Lordland EZ Tower #511, 153, Gumi-Dong, Bundang-Gu,
SEONGNAMCITY, GYUNGGI, KOREA
Attention: Woo Won Choung

- FCC ID: R2NSDC-1000
- Quantity: Quantity production is planned
- Emission Designators: GSM Cellular Band: 246KGXW / GSM PCS Band: 249KGXW
  EDGE Cellular Band: 238KG7W / EDGE PCS Band: 239KG7W
  WCDMA Cellular Band: 4M17F9W / WCDMA PCS Band: 4M18F9W
- Freq. Range: GSM Cellular Band: 824.2 ~ 848.8MHz(TX) / 869.2 ~ 893.8MHz(RX)
  GSM PCS Band: 1850.2 ~ 1909.8MHz(TX) / 1930.2 ~ 1989.8MHz(RX)
  EDGE Cellular Band: 824.2 ~ 848.8MHz(TX) / 869.2 ~ 893.8MHz(RX)
  EDGE PCS Band: 1850.2 ~ 1909.8MHz(TX) / 1930.2 ~ 1989.8MHz(RX)
  WCDMA Cellular Band: 826.4 ~ 846.6MHz(TX) / 871.4 ~ 891.6MHz(RX)
  WCDMA PCS Band: 1852.4 ~ 1907.6MHz(TX) / 1932.4 ~ 1987.6MHz(RX)
- Max. Power Rating: GSM Cellular Band: 27.94dBm / GSM PCS Band: 29.54dBm
  EDGE Cellular Band: 25.20dBm / EDGE PCS Band: 27.72dBm
  WCDMA Cellular Band: 23.76dBm / WCDMA PCS Band: 24.44dBm
- FCC Classification(s): Licensed Portable Transmitter (PCB)
- Equipment (EUT) Type: HSDPA USB Modem
- Mode: GSM / WCDMA
- Frequency Tolerance: ± 0.00025 % (2.5ppm)
- FCC Rule Part(s): §22(H), §24(E), §2
- Dates of Tests: July 9 ~ December 29, 2008
- Place of Tests: DIGITAL EMC
- Test Report S/N: DR50110807Z-R3

2.1. General Information

This report contains the result of tests performed by:

DIGITAL EMC CO., LTD.
Address : 683-3, Yubang-Dong, Yongin-Si, Kyunggi-Do, Korea. 449-080
http://www.digitalemc.com E-mail : harveysung@digitalemc.com
Tel: +82-31-321-2664 Fax: +82-31-321-1664

Quality control in the testing laboratory is implemented as per ISO/IEC 17025 which is the "General requirements for the competents of calibration and testing laboratory".
This laboratory is accredited by NVLAP for NVLAP Lab. Code : 200559-0.

Test operator: Engineer

Data	Name	Signature
December 30, 2008	Won-Jung LEE	

Report Reviewed By: Manager

Data	Name	Signature
December 30, 2008	Harvey Sung	

Ordering party:

Company name	:	SUNGIL TELECOM CO., LTD.
Address	:	Loadland EZ Tower #511, 513, Gumi-dong, Bundang-Gu,
Zip code	:	463-500
City/town	:	SEONGNAM-CITY, KYUNGGI
Country	:	KOREA
Date of order	:	April 07, 2008

3.1 DESCRIPTION OF TESTS

3.1.1 Occupied Bandwidth Emission Limits

(a) On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10 log(P) dB.

(b) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the licensee's frequency block edges, both upper and lower, as the design permits.

(c) The measurement of emission power can be expressed in peak or average values, provided they are expressed in the same parameters as the transmitter power.

3.1.2 Occupied Bandwidth

The 99% power bandwidth was measured with a calibrated spectrum analyzer.

3.1.3 Spurious and Harmonic Emissions at Antenna Terminal

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10^{th} harmonic.

3.1.5 Radiation Spurious and Harmonic Emissions

Radiation and harmonic emissions are measured outdoors at our 3-meter test range. The equipment under test is placed on a wooden turntable 3-meters from the receive antenna.
The receive antenna height and turntable rotations were adjusted for the highest reading on the receive spectrum analyzer. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator with the level of the signal generator being adjusted to obtain the same receive spectrum analyzer reading. This level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

3.1 DESCRIPTION OF TESTS (Continued…)

3.1.6 Frequency Stability/Temperature Variation.

The frequency stability of the transmitter is measured by:

a) **Temperature**: The temperature is varied from -30°C to +50°C increments using an environmental chamber.

b) **Primary Supply Voltage**: The primary supply voltage is varied from 85% to 115% of the normal voltage for non hand-carried battery equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

Specification - *The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within ±0.00025(±2.5ppm) of the center frequency.*

Time Period and Procedure:

1. The carrier frequency of the transmitter is measured at room temperature (25°C to 27 °C to provide a reference)

2. The equipment is tuned on in a "standby" condition for one minute before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.

3. Frequency measurements are made at 10°C intervals ranging from -30°C up to +50°C. A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

3.1 DESCRIPTION OF TESTS (Continued…)

3.1.7 Radiated Emission

Final test was performed according to ANSI C63.4-2003 at the open field test site. There are no deviations from the standard.
The EUT was placed in a 0.8m high table along with the peripherals. The turn table was separated from the antenna distance 3meters. Cables were placed in a position to produce maximum emissions as determined by experimentation, and operation mode was selected for maximum.
The frequencies and amplitudes of maximum emission were measured at varying azimuths, antenna heights and antenna polarities. Reported are maximized emission levels.
These tests were performed at 120kHz of 6dB bandwidth.

3.1.8 Conducted Emission

The power line conducted interference measurements were performed according to ANSI C63.4-2003 in a shielded enclosure with peripherals placed on a table, 0.8m high over a metal floor. It was located more than required distance away from the shielded enclosure wall. There are no deviations from the standard.
The EUT was plugged into the LISN and the frequency range of interest scanned.
Reported are maximized emission levels.
These tests were performed at 9kHz of 6dB bandwidth.

4.1 TEST DATA

4.1.1 Conducted Output Power

A base station simulator(R&S, M/N: CMU200) was used to establish communication with **HSDPA USB Modem.** The base station simulator parameters were set to produce the maximum power from the EUT. The EUT was tested under all configurations and the highest power is reported in WCDMA modes and GSM modes. The GSM and WCDMA conducted powers are reported below respectively.

Band	Mode	GSM Conducted Output Power(dBm)		
		Low Channel	Middle Channel	High Channel
Cellular	GSM	30.7	30.8	30.9
	GPRS 10	30.6	30.7	30.8
	GPRS 12	30.5	30.6	30.7
PCS	GSM	29.6	29.7	29.6
	GPRS 10	29.4	29.4	29.3
	GPRS 12	29.3	29.3	29.2

RF Conducted Power Table				UMTS RF Conducted Power Table	
	EDGE Data				HSDPA inactive
Band	Channel	EDGE 12 [dBm]	EDGE 10 [dBm]	Channel	12.2kbps RMC [dBm]
Cellular	128	28.5	28.6	4132	22.8
	190	28.6	28.7	4182	23.2
	251	28.7	28.8	4233	23.7
PCS	512	27.8	28.0	9262	23.5
	661	27.9	28.1	9400	23.6
	810	27.8	28.0	9538	23.0

3GPP Release Version	Mode	Power (dBm)			B_c	β_d	B_c/β_d	Sub-Test
	Channel	4132	4182	4233				
5	*HSDPA (Cellular)*	22.62	23.09	23.61	2/15	15/15	2/15	1
5		22.62	23.08	23.61	15/15	15/15	12/15	2
5		22.75	23.06	23.60	15/15	8/15	15/8	3
5		22.76	23.05	23.60	15/15	4/15	15/4	4
-	Channel	9262	9400	9538	-	-	-	
5	*HSDPA (PCS)*	23.38	23.59	23.0	2/15	15/15	2/15	1
5		23.41	23.59	22.92	15/15	15/15	12/15	2
5		23.47	23.56	23.0	15/15	8/15	15/8	3
5		23.48	23.54	22.98	15/15	4/15	15/4	4

According to above power table, this device was tested following worst case modes.

-Worst case:

GSM Cellular Band	**-**	**GSM mode**
GSM PCS Band	**-**	**GSM mode**
EDGE Cellular Band	**-**	**EDGE 10**
EDGE PCS Band	**-**	**EDGE 10**
WCDMA Cellular Band	**-**	**12.2Kbps RMC Inactive mode**
WCDMA PCS Band	**-**	**12.2Kbps RMC Inactive mode**

4.1.2 Effective Radiated Power Output

A. POWER: **High (Cellular Band)**

Mode	Freq. Tuned (MHz)	REF. LEVEL (dBm)	POL (H/V)	ERP (dBm)	ERP (W)	Supplied Power	Note
GSM	824.20	-11.37	HOR	26.43	0.439	DC 5V	-
	836.60	**-10.81**	**HOR**	**27.94**	**0.622**	**DC 5V**	**-**
	848.80	-10.24	HOR	27.67	0.584	DC 5V	-
WCDMA	826.40	-15.93	VER	21.87	0.154	DC 5V	-
	836.40	**-14.56**	**VER**	**23.76**	**0.238**	**DC 5V**	**-**
	846.60	-14.30	VER	23.34	0.216	DC 5V	-

B. POWER: **High (PCS Band)**

Mode	Freq. Tuned (MHz)	REF. LEVEL (dBm)	POL (H/V)	EIRP (dBm)	EIRP (W)	Supplied Power	Note
GSM	1850.20	-12.10	VER	29.32	0.855	DC 5V	-
	1880.00	**-11.71**	**VER**	**29.54**	**0.899**	**DC 5V**	**-**
	1909.80	-11.89	VER	29.22	0.835	DC 5V	-
WCDMA	1852.40	-17.11	VER	24.30	0.269	DC 5V	-
	1880.00	**-16.81**	**VER**	**24.44**	**0.278**	**DC 5V**	**-**
	1907.60	-18.12	VER	23.18	0.208	DC 5V	-

NOTES:

Effective Radiated Power Output Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. A half-wave dipole antenna or horn antenna was substituted in place of the EUT. This antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. The conducted power at the terminals of the dipole antenna or horn antenna is measured. The ERP or EIRP is recorded.

4.1.3 Radiated Measurements

Field Strength of SPURIOUS Radiation

TEST MODE : GSM
OPERATING FREQUENCY : 824.2 MHz
CHANNEL : 128(Low)
MEASURED OUTPUT POWER : 26.43 dBm = 0.439 W
MODULATION SIGNAL : GSM (Internal)
DISTANCE : 3 meters
LIMIT : 43 + 10 $\log_{10}$ (W) = 39.43 dBc

Freq. (MHz)	**LEVEL@ ANTENNA TERMINALS** (dBm)	**SUBSTITUTE ANTENNA GAIN** (dBd)	**CORRECT GENERATOR LEVEL** (dBm)	**POL** (H/V)	(dBc)
1648.40	-37.94	6.71	-31.23	H	57.66
1648.40	-40.02	6.71	-33.31	V	59.74
-	-	-	-	-	-

- No other emissions were detected at a level greater than 10dB below limit.

NOTE

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This spurious level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

4.1.3 Radiated Measurements (Continued…)

Field Strength of SPURIOUS Radiation

TEST MODE : GSM
OPERATING FREQUENCY : 836.6 MHz
CHANNEL : 190(Mid)
MEASURED OUTPUT POWER : 27.94 dBm = 0.622 W
MODULATION SIGNAL : GSM (Internal)
DISTANCE : 3 meters
LIMIT : 43 + 10 $\log_{10}$ (W) = 40.94 dBc

Freq. (MHz)	**LEVEL@ ANTENNA TERMINALS** (dBm)	**SUBSTITUTE ANTENNA GAIN** (dBd)	**CORRECT GENERATOR LEVEL** (dBm)	**POL** (H/V)	(dBc)
1673.20	-36.96	6.60	-30.36	H	58.30
1673.20	-40.00	6.60	-33.40	V	61.34
-	-	-	-	-	-

- No other emissions were detected at a level greater than 10dB below limit.

NOTE

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This spurious level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

4.1.3 Radiated Measurements (Continued…)

Field Strength of SPURIOUS Radiation

TEST MODE : GSM
OPERATING FREQUENCY : 848.8 MHz
CHANNEL : 251(High)
MEASURED OUTPUT POWER : 27.67 dBm = 0.584 W
MODULATION SIGNAL : GSM (Internal)
DISTANCE : 3 meters
LIMIT : 43 + 10 $\log_{10}$ (W) = 40.67 dBc

Freq. (MHz)	**LEVEL@ ANTENNA TERMINALS** (dBm)	**SUBSTITUTE ANTENNA GAIN** (dBd)	**CORRECT GENERATOR LEVEL** (dBm)	**POL** (H/V)	(dBc)
1697.60	-38.28	6.48	-31.80	H	59.47
1697.60	-39.02	6.48	-32.54	V	60.21
-	-	-	-	-	-

- No other emissions were detected at a level greater than 10dB below limit.

NOTE

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This spurious level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

4.1.3 Radiated Measurements (Continued…)

Field Strength of SPURIOUS Radiation

TEST MODE : WCDMA
OPERATING FREQUENCY : 826.4 MHz
CHANNEL : 4132(Low)
MEASURED OUTPUT POWER : 21.87 dBm = 0.154 W
MODULATION SIGNAL : WCDMA (Internal)
DISTANCE : 3 meters
LIMIT : 43 + 10 $\log_{10}$ (W) = 33.87 dBc

Freq. (MHz)	**LEVEL@ ANTENNA TERMINALS** (dBm)	**SUBSTITUTE ANTENNA GAIN** (dBd)	**CORRECT GENERATOR LEVEL** (dBm)	**POL** (H/V)	(dBc)
1652.80	-44.23	6.70	-37.53	H	59.40
1652.80	-45.15	6.70	-38.45	V	60.32
-	-	-	-	-	-

- No other emissions were detected at a level greater than 10dB below limit.

NOTE

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This spurious level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

4.1.3 Radiated Measurements (Continued…)

Field Strength of SPURIOUS Radiation

TEST MODE : WCDMA
OPERATING FREQUENCY : 836.4 MHz
CHANNEL : 4183(Mid)
MEASURED OUTPUT POWER : 23.76 dBm = 0.238 W
MODULATION SIGNAL : WCDMA (Internal)
DISTANCE : 3 meters
LIMIT : 43 + 10 $\log_{10}$ (W) = 36.76 dBc

Freq. (MHz)	**LEVEL@ ANTENNA TERMINALS** (dBm)	**SUBSTITUTE ANTENNA GAIN** (dBd)	**CORRECT GENERATOR LEVEL** (dBm)	**POL** (H/V)	(dBc)
1672.80	-36.96	6.60	-30.36	H	54.12
1672.80	-40.00	6.60	-33.40	V	57.16
-	-	-	-	-	-

- No other emissions were detected at a level greater than 10dB below limit.

NOTE

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This spurious level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

4.1.3 Radiated Measurements **(Continued…)**

Field Strength of SPURIOUS Radiation

TEST MODE : WCDMA
OPERATING FREQUENCY : 846.6 MHz
CHANNEL : 4233(High)
MEASURED OUTPUT POWER : 23.34 dBm = 0.216 W
MODULATION SIGNAL : WCDMA (Internal)
DISTANCE : 3 meters
LIMIT : 43 + 10 $\log_{10}$ (W) = 36.34 dBc

Freq. (MHz)	**LEVEL@ ANTENNA TERMINALS** (dBm)	**SUBSTITUTE ANTENNA GAIN** (dBd)	**CORRECT GENERATOR LEVEL** (dBm)	**POL** (H/V)	(dBc)
1693.20	-44.51	6.50	-38.01	H	61.35
1693.20	-42.63	6.50	-36.13	V	59.47
-	-	-	-	-	-

- No other emissions were detected at a level greater than 10dB below limit.

NOTE

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This spurious level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

4.1.3 Radiated Measurements (Continued…)

Field Strength of SPURIOUS Radiation

TEST MODE : GSM
OPERATING FREQUENCY : 1850.2 MHz
CHANNEL : 512(Low)
MEASURED OUTPUT POWER : 29.32 dBm = 0.855 W
MODULATION SIGNAL : GSM (Internal)
DISTANCE : 3 meters
LIMIT : 43 + 10 $\log_{10}$ (W) = 42.32 dBc

Freq. (MHz)	**LEVEL@ ANTENNA TERMINALS** (dBm)	**SUBSTITUTE ANTENNA GAIN** (dBi)	**CORRECT GENERATOR LEVEL** (dBm)	**POL** (H/V)	(dBc)
3700.40	-43.95	9.57	-34.38	H	63.70
3700.40	-42.81	9.57	-33.24	V	62.56
-	-	-	-	-	-

- No other emissions were detected at a level greater than 10dB below limit.

NOTE

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This spurious level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

4.1.3 Radiated Measurements (Continued…)

Field Strength of SPURIOUS Radiation

TEST MODE : GSM
OPERATING FREQUENCY : 1880.0 MHz
CHANNEL : 661(Mid)
MEASURED OUTPUT POWER : 29.54 dBm = 0.899 W
MODULATION SIGNAL : GSM (Internal)
DISTANCE : 3 meters
LIMIT : 43 + 10 $\log_{10}$ (W) = 42.54 dBc

Freq. (MHz)	**LEVEL@ ANTENNA TERMINALS** (dBm)	**SUBSTITUTE ANTENNA GAIN** (dBi)	**CORRECT GENERATOR LEVEL** (dBm)	**POL** (H/V)	(dBc)
3760.00	-43.55	9.47	-34.08	H	63.62
3760.00	-43.29	9.47	-33.82	V	63.36
-	-	-	-	-	-

- No other emissions were detected at a level greater than 10dB below limit.

NOTE

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This spurious level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

4.1.3 Radiated Measurements (Continued…)

Field Strength of SPURIOUS Radiation

TEST MODE : GSM
OPERATING FREQUENCY : 1909.8 MHz
CHANNEL : 810(High)
MEASURED OUTPUT POWER : 29.22 dBm = 0.835 W
MODULATION SIGNAL : GSM (Internal)
DISTANCE : 3 meters
LIMIT : 43 + 10 $\log_{10}$ (W) = 42.22 dBc

Freq. (MHz)	**LEVEL@ ANTENNA TERMINALS** (dBm)	**SUBSTITUTE ANTENNA GAIN** (dBi)	**CORRECT GENERATOR LEVEL** (dBm)	**POL** (H/V)	(dBc)
3819.60	-43.97	9.37	-34.60	H	63.82
3819.60	-43.61	9.37	-34.24	V	63.46
-	-	-	-	-	-

- No other emissions were detected at a level greater than 10dB below limit.

NOTE

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This spurious level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

4.1.3 Radiated Measurements **(Continued…)**

Field Strength of SPURIOUS Radiation

TEST MODE : WCDMA
OPERATING FREQUENCY : 1852.4 MHz
CHANNEL : 9262(Low)
MEASURED OUTPUT POWER : 24.30 dBm = 0.269 W
MODULATION SIGNAL : WGSM (Internal)
DISTANCE : 3 meters
LIMIT : 43 + 10 $\log_{10}$ (W) = 37.30 dBc

Freq. (MHz)	**LEVEL@ ANTENNA TERMINALS** (dBm)	**SUBSTITUTE ANTENNA GAIN** (dBi)	**CORRECT GENERATOR LEVEL** (dBm)	**POL** (H/V)	(dBc)
3704.80	-44.25	9.57	-34.68	H	58.98
3704.80	-42.94	9.57	-33.37	V	57.67
-	-	-	-	-	-

- No other emissions were detected at a level greater than 10dB below limit.

NOTE

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This spurious level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

4.1.3 Radiated Measurements **(Continued…)**

Field Strength of SPURIOUS Radiation

TEST MODE : WCDMA

OPERATING FREQUENCY : 1880.00 MHz

CHANNEL : 9400(Mid)

MEASURED OUTPUT POWER : 24.44 dBm = 0.278 W

MODULATION SIGNAL : WCDMA (Internal)

DISTANCE : 3 meters

LIMIT : 43 + 10 $\log_{10}$ (W) = 37.44 dBc

Freq. (MHz)	**LEVEL@ ANTENNA TERMINALS** (dBm)	**SUBSTITUTE ANTENNA GAIN** (dBi)	**CORRECT GENERATOR LEVEL** (dBm)	**POL** (H/V)	(dBc)
3760.00	-43.94	9.47	-34.47	H	58.91
3760.00	-42.92	9.47	-33.45	V	57.89
-	-	-	-	-	-

- No other emissions were detected at a level greater than 10dB below limit.

NOTE

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This spurious level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

4.1.3 Radiated Measurements (Continued…)

Field Strength of SPURIOUS Radiation

TEST MODE : WCDMA
OPERATING FREQUENCY : 1907.6 MHz
CHANNEL : 9538(High)
MEASURED OUTPUT POWER : 23.18 dBm = 0.208 W
MODULATION SIGNAL : WCDMA (Internal)
DISTANCE : 3 meters
LIMIT : 43 + 10 $\log_{10}$ (W) = 36.18 dBc

Freq. (MHz)	**LEVEL@ ANTENNA TERMINALS** (dBm)	**SUBSTITUTE ANTENNA GAIN** (dBi)	**CORRECT GENERATOR LEVEL** (dBm)	**POL** (H/V)	(dBc)
3815.20	-43.37	9.38	-33.99	H	57.17
3815.20	-43.62	9.38	-34.24	V	57.42
-	-	-	-	-	-

- No other emissions were detected at a level greater than 10dB below limit.

NOTE

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This spurious level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

4.1.4 Frequency Stability (GSM Cellular Band)

OPERATING FREQUENCY : 836,599,959 Hz

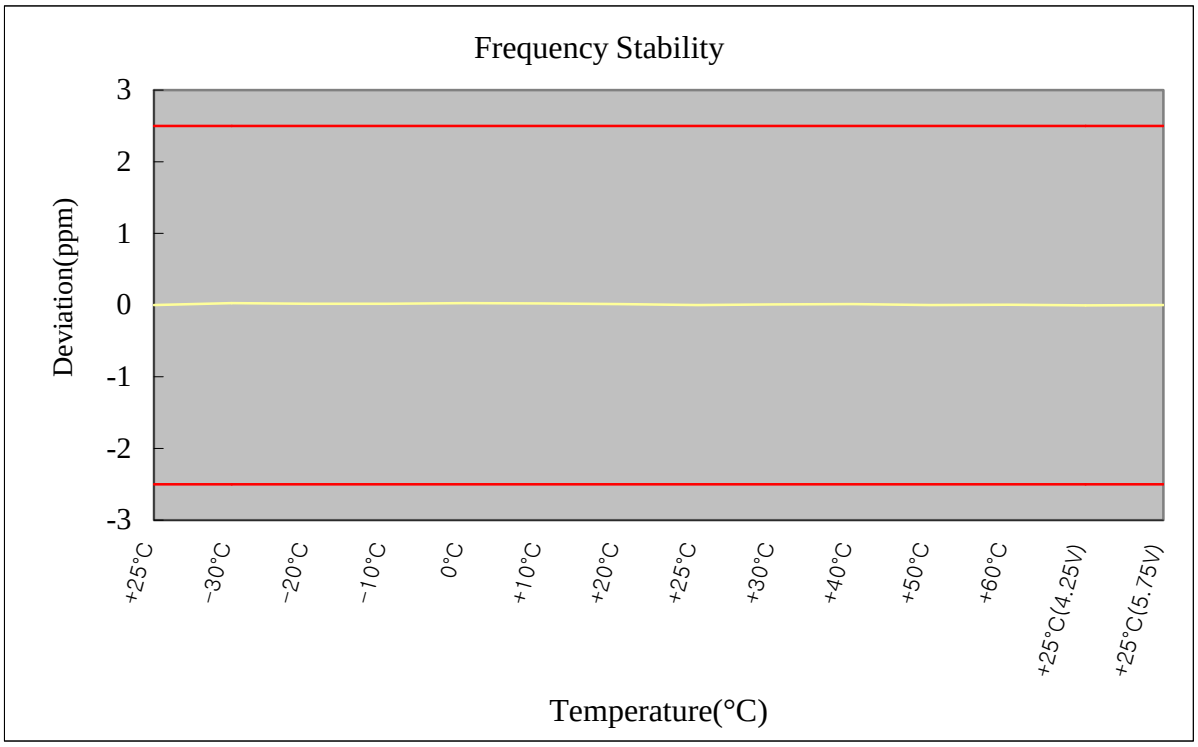
CHANNEL : 0190(Mid)

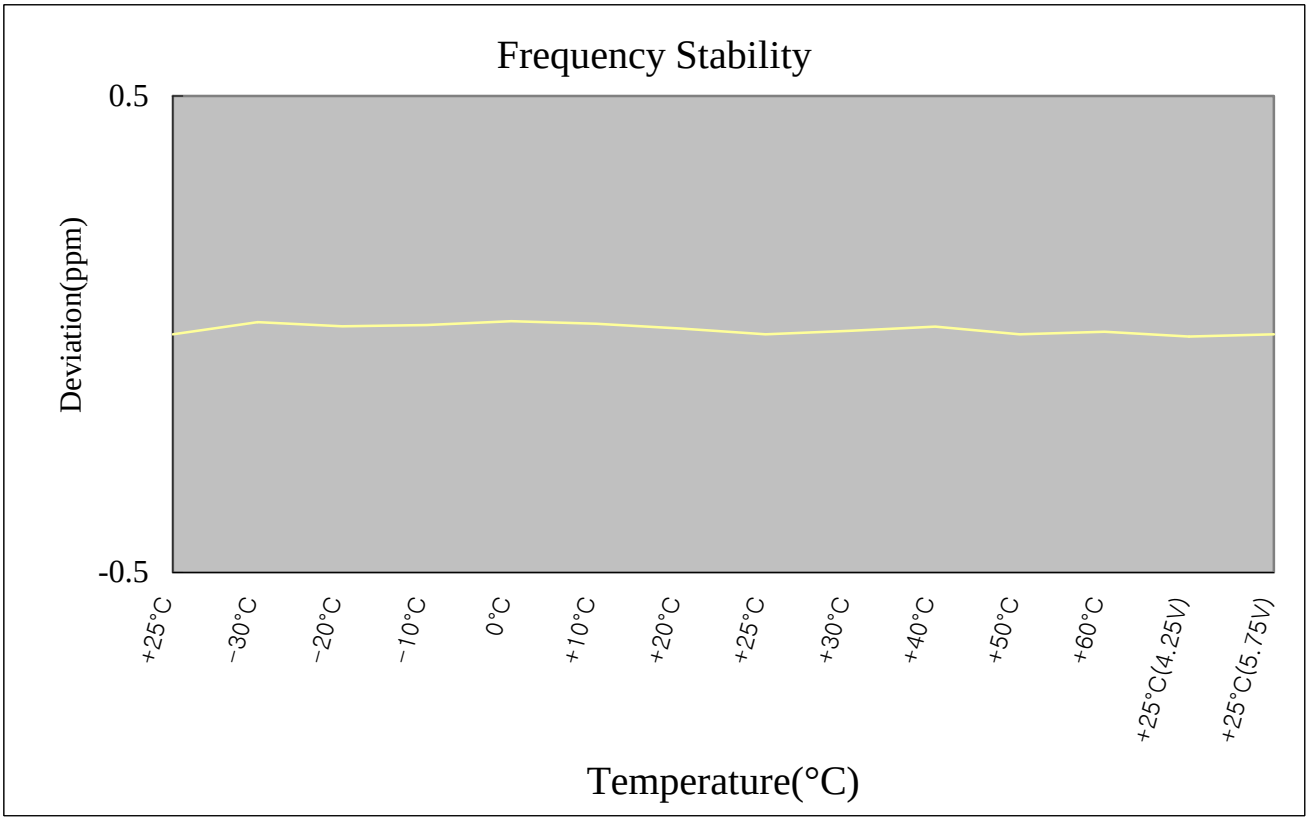
REFERENCE VOLTAGE : 5 VDC

DEVIATION LIMIT : ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (dB)	FREQ (Hz)	Deviation (%)
100%	5	+25(Ref)	836,599,959	0.000000
100%		-30	836,599,980	0.000003
100%		-20	836,599,973	0.000002
100%		-10	836,599,975	0.000002
100%		0	836,599,982	0.000003
100%		+10	836,599,977	0.000002
100%		+20	836,599,969	0.000001
100%		+25	836,599,959	0.000000
100%		+30	836,599,965	0.000001
100%		+40	836,599,972	0.000002
100%		+50	836,599,959	0.000000
100%		+60	836,599,963	0.000000
85%	4.25	+25	836,599,955	0.000000
115%	5.75	+25	836,599,959	0.000000
BATT.ENDPOINT	-	+25	-	-

4.1.4 Frequency Stability (GSM Cellular Band) (Continued…)





4.1.4 Frequency Stability (GSM PCS Band) (Continued…)

OPERATING FREQUENCY : 1,879,999,929 Hz

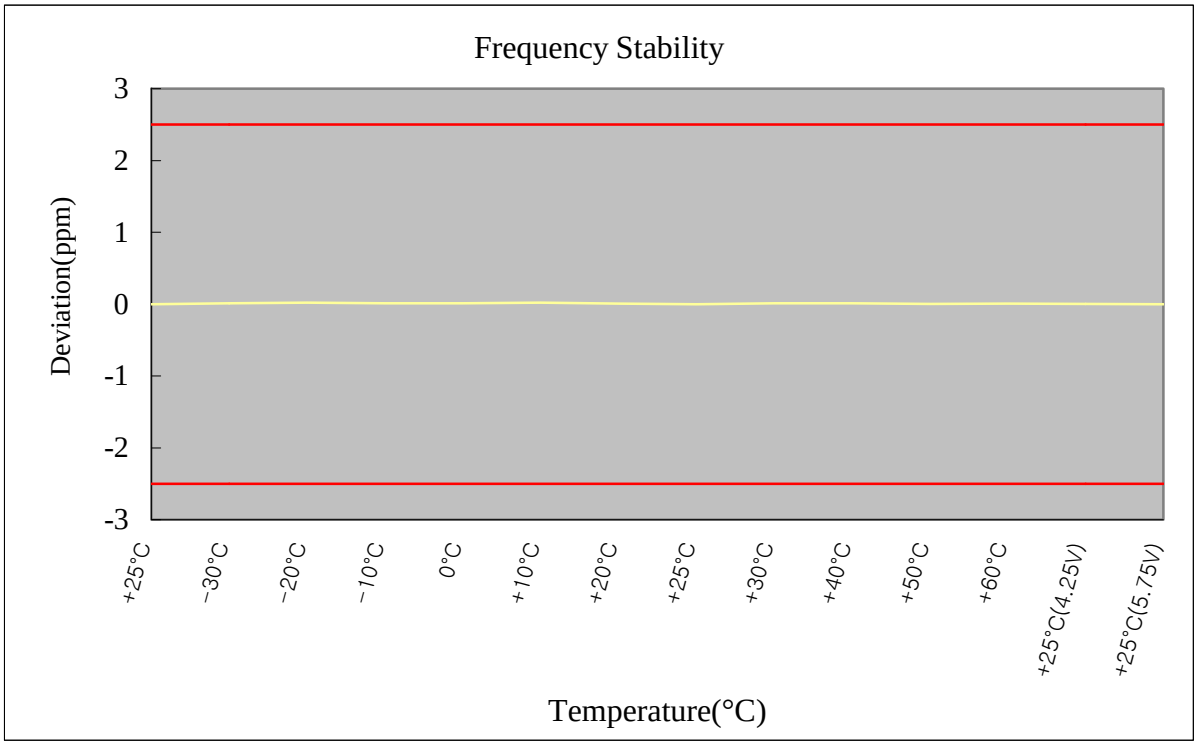
CHANNEL : 661(Mid)

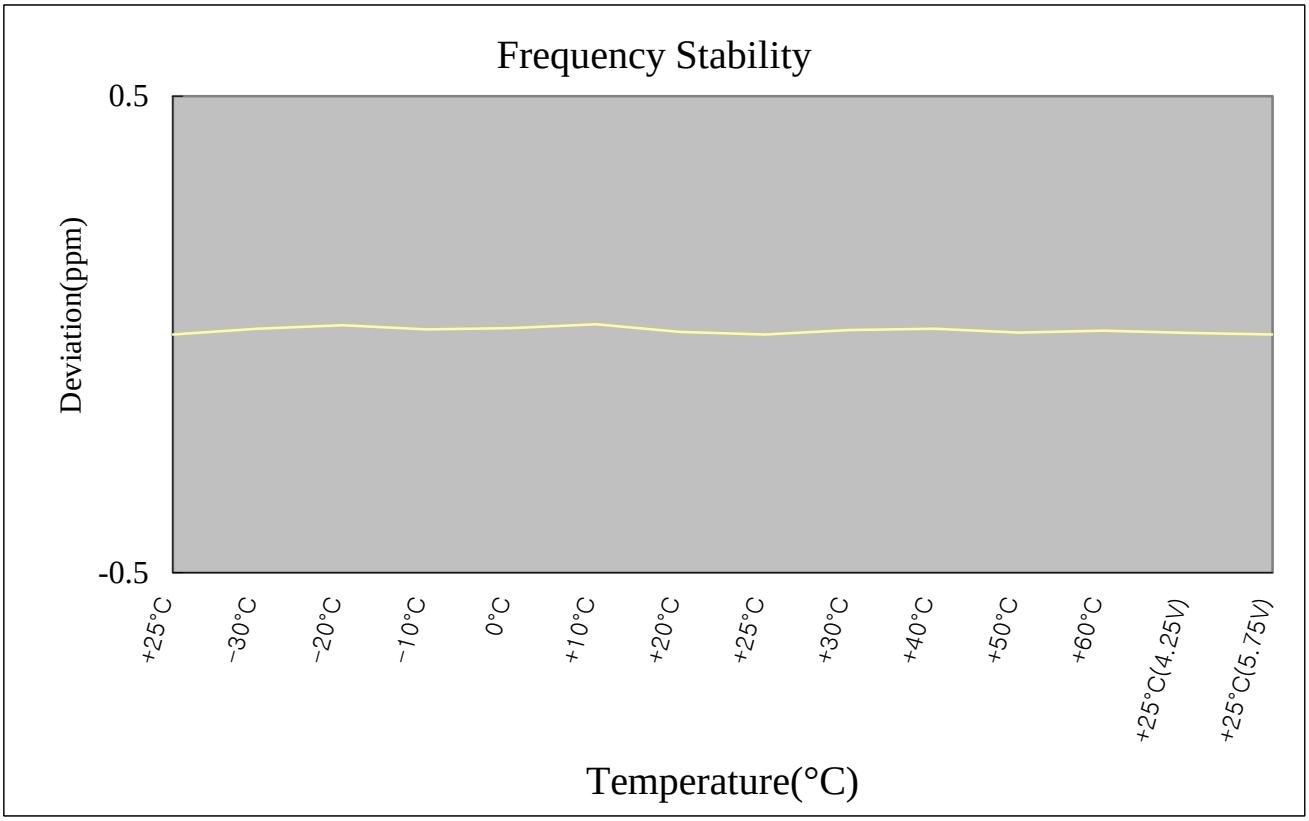
REFERENCE VOLTAGE : 5 VDC

DEVIATION LIMIT : ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (dB)	FREQ (Hz)	Deviation (%)
100%	5	+25(Ref)	1,879,999,929	0.000000
100%		-30	1,879,999,951	0.000001
100%		-20	1,879,999,965	0.000002
100%		-10	1,879,999,949	0.000001
100%		0	1,879,999,953	0.000001
100%		+10	1,879,999,969	0.000002
100%		+20	1,879,999,939	0.000001
100%		+25	1,879,999,929	0.000000
100%		+30	1,879,999,946	0.000001
100%		+40	1,879,999,951	0.000001
100%		+50	1,879,999,936	0.000000
100%		+60	1,879,999,943	0.000001
85%	4.25	+25	1,879,999,935	0.000000
115%	5.75	+25	1,879,999,929	0.000000
BATT.ENDPOINT	-	+25	-	-

4.1.4 Frequency Stability (GSM PCS Band) (Continued…)



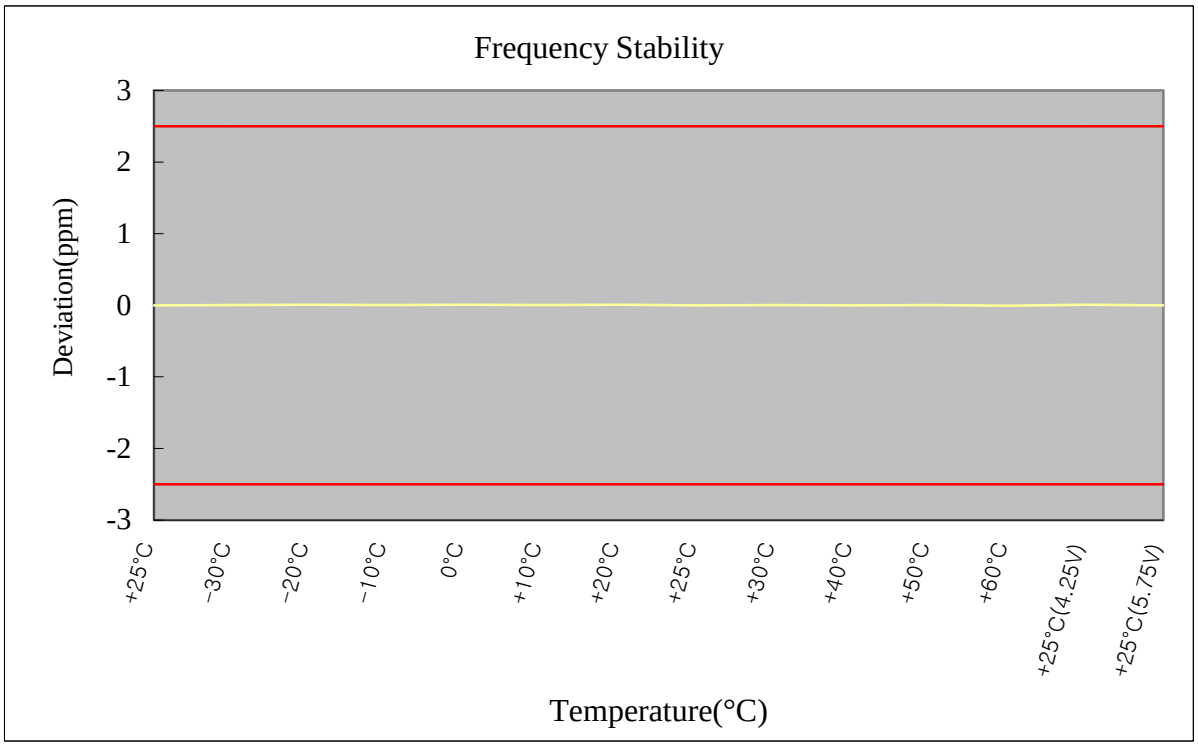


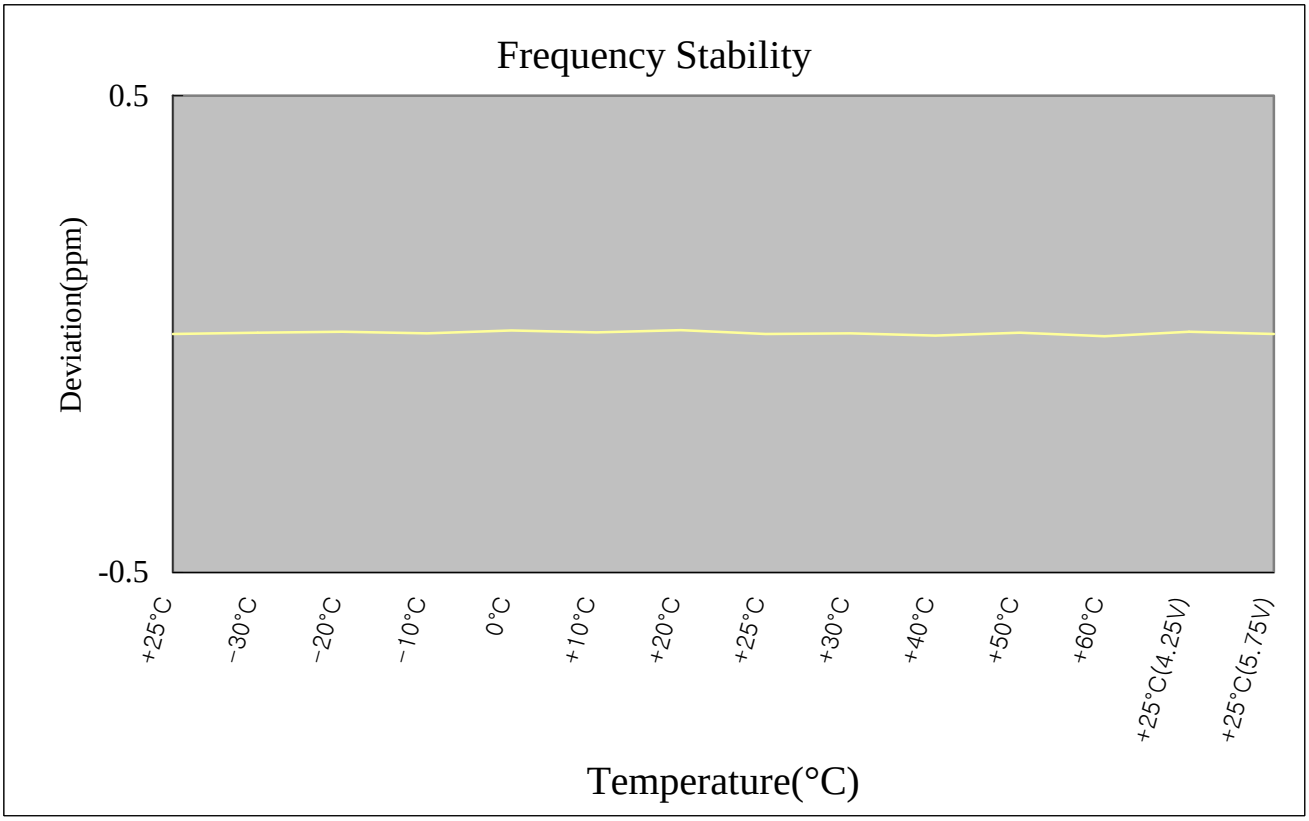
4.1.4 Frequency Stability (WCDMA Cellular Band) (Continued…)

OPERATING FREQUENCY : 836,399,982 Hz
CHANNEL : 4182(Mid)
REFERENCE VOLTAGE : 5 VDC
DEVIATION LIMIT : ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (dB)	FREQ (Hz)	Deviation (%)
100%	5	+25(Ref)	836,399,982	0.000000
100%		-30	836,399,984	0.000000
100%		-20	836,399,986	0.000000
100%		-10	836,399,983	0.000000
100%		0	836,399,988	0.000001
100%		+10	836,399,985	0.000000
100%		+20	836,399,989	0.000001
100%		+25	836,399,982	0.000000
100%		+30	836,399,983	0.000000
100%		+40	836,399,979	0.000000
100%		+50	836,399,984	0.000000
100%		+60	836,399,978	0.000000
85%	4.25	+25	836,399,986	0.000000
115%	5.75	+25	836,399,982	0.000000
BATT.ENDPOINT	-	+25	-	-

4.1.4 Frequency Stability (WCDMA Cellular Band) (Continued…)



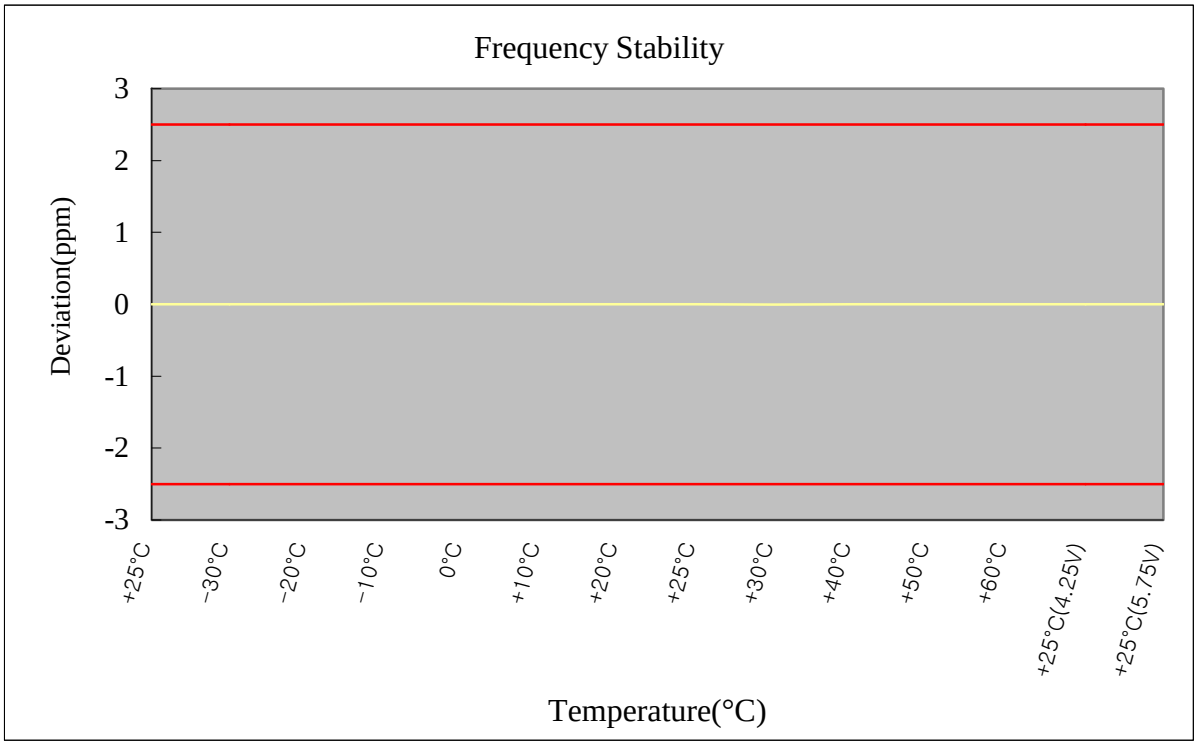


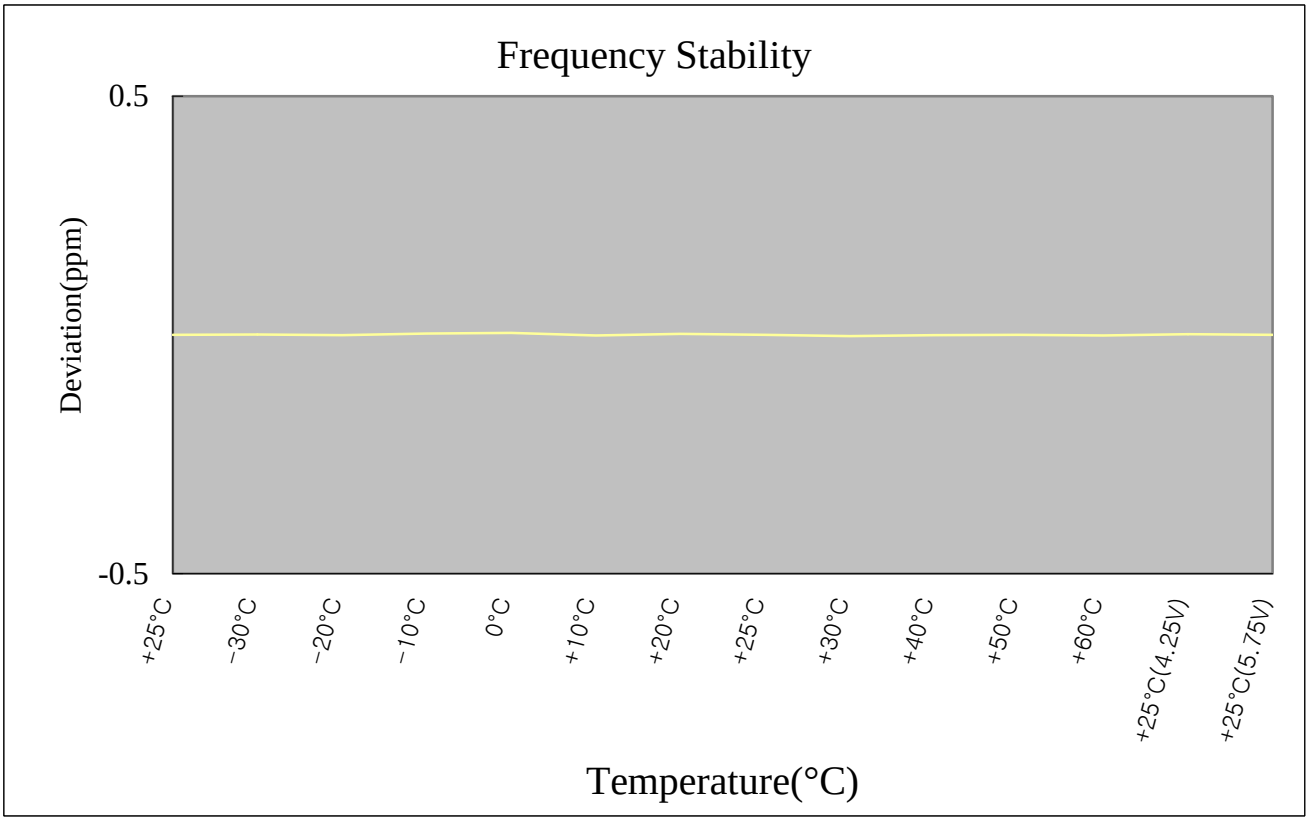
4.1.4 Frequency Stability (WCDMA PCS Band) (Continued…)

OPERATING FREQUENCY : 1,879,999,974 Hz
CHANNEL : 9400(Mid)
REFERENCE VOLTAGE : 5 VDC
DEVIATION LIMIT : ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (dB)	FREQ (Hz)	Deviation (%)
100%	5	+25(Ref)	1,879,999,974	0.000000
100%		-30	1,879,999,975	0.000000
100%		-20	1,879,999,973	0.000000
100%		-10	1,879,999,979	0.000000
100%		0	1,879,999,981	0.000000
100%		+10	1,879,999,971	0.000000
100%		+20	1,879,999,978	0.000000
100%		+25	1,879,999,974	0.000000
100%		+30	1,879,999,969	0.000000
100%		+40	1,879,999,973	0.000000
100%		+50	1,879,999,974	0.000000
100%		+60	1,879,999,971	0.000000
85%	4.25	+25	1,879,999,976	0.000000
115%	5.75	+25	1,879,999,974	0.000000
BATT.ENDPOINT	-	+25	-	-

4.1.4 Frequency Stability (WCDMA PCS Band) (Continued…)





5.1 PLOTS OF EMISSIONS

(SEE ATTACHMENT “Test Plots”)

6.1 LIST OF TEST EQUIPMENT

	Type	Manufacturer	Model	Cal.Due.Date (dd/mm/yy)	Next.Due.Date (dd/mm/yy)	S/N
01	Spectrum Analyzer	Agilent	E4404B	21/03/08	21/03/09	US41061134
02	Spectrum Analyzer	Agilent	E4440A	06/11/08	06/11/09	MY45304199
03	Spectrum Analyzer	H.P	8563E	13/10/08	13/10/09	3551A04634
04	Spectrum Analyzer	H.P	8591E	26/04/08	26/04/09	3649A05889
05	Spectrum Analyzer	Rohde Schwarz	FSP	09/09/08	09/09/09	100385
06	EMI TEST RECEIVER	R&S	ESU	11/01/08	11/01/09	100014
07	EMI TEST RECEIVER	R&S	ESCI	13/05/08	13/05/09	100364
08	Power Meter	H.P	EMP-442A	10/07/08	10/07/09	GB37170413
09	Power Sensor	H.P	8481A	11/03/08	11/03/09	3318A96566
10	Power Divider	Agilent	11636B	04/12/08	04/12/09	56471
11	Frequency Counter	H.P	5342A	16/09/08	16/09/09	2119A04450
12	Signal Generator	Rohde Schwarz	SMR20	02/04/08	02/04/09	101251
13	Signal Generator	H.P	ESG-3000A	09/07/08	09/07/09	US37230529
14	Vector Signal Generator	Rohde Schwarz	SMJ100A	17/01/08	17/01/09	100148
15	Audio Analyzer	H.P	8903B	09/07/08	09/07/09	3011A09448
16	Modulation Analyzer	H.P	8901B	18/07/08	18/07/09	3028A03029
17	Oscilloscope	Tektronix	TDS3052	07/10/08	07/10/09	B016821
18	8960 Series 10 Wireless Comms. Test Set	Agilent	E5515C	31/07/08	31/07/09	GB43461134
19	Universal Radio communication Tester	Rohde Schwarz	CMU 200	02/04/08	02/04/09	107631
20	Power Splitter	Anritsu	K241B	14/10/08	14/10/09	020611
21	BAND Reject Filter	Microwave Circuits	N0308372	06/10/08	06/10/09	3125-01DC0352
22	BAND Reject Filter	Wainwright	WRCG1750	06/10/08	06/10/09	2
23	AC Power supply	DAEKWANG	5KVA	20/03/08	20/03/09	20060321-1
24	DC Power Supply	H.P	6622A	20/03/08	20/03/09	3448A03760
25	DC Power Supply	HP	6633A	20/03/08	20/03/09	3524A06634
26	HORN ANT	ETS	3115	13/06/08	13/06/09	6419
27	HORN ANT	ETS	3115	10/09/08	10/09/09	21097
28	HORN ANT	A.H.Systems	SAS-574	13/06/08	13/06/09	154
29	HORN ANT	A.H.Systems	SAS-574	13/06/08	13/06/09	155
30	Dipole Antenna	Schwarzbeck	VHA9103	25/11/08	25/11/09	2116

	Type	Manufacturer	Model	Cal.Due.Date (dd/mm/yy)	Next.Due.Date (dd/mm/yy)	S/N
31	Dipole Antenna	Schwarzbeck	VHA9103	25/11/08	25/11/09	2117
32	Dipole Antenna	Schwarzbeck	UHA9105	25/11/08	25/11/09	2261
33	Dipole Antenna	Schwarzbeck	UHA9105	25/11/08	25/11/09	2262
34	TEMP & HUMIDITY Chamber	JISCO	J-RHC2	10/10/08	10/10/09	021031
35	Log Periodic Antenna	Schwarzbeck	UHALP9108A1	30/09/08	30/09/09	1098
36	Biconical Antenna	Schwarzbeck	VHA9103	13/06/08	13/06/09	2233
37	Digital Multimeter	H.P	34401A	20/03/08	20/03/09	3146A13475,US36122178
38	Attenuator (10dB)	WEINSCHEL	23-10-34	01/10/08	01/10/09	BP4386
39	Attenuator (10dB)	WEINSCHEL	23-10-34	30/01/08	30/01/09	BP4387
40	High-Pass Filter	ANRITSU	MP526D	06/10/08	06/10/09	MP27756
41	Attenuator (3dB)	Agilent	8491B	01/08/08	01/08/09	MY39260700
42	Attenuator (20dB)	Aeroflex/Weinschel	86-20-11	06/10/08	06/10/09	432
43	Attenuator (10dB)	Aeroflex/Weinschel	86-10-11	06/10/08	06/10/09	446
44	Attenuator (10dB)	Aeroflex/Weinschel	86-10-11	06/10/08	06/10/09	408
45	Attenuator(40dB)	WEINSCHEL	57-40-33	01/10/08	01/10/09	NN837
46	Type N Coaxial CIRCULATOR	NOVA MICROWAVE	0088CAN	11/07/08	11/07/09	788
47	Type N Coaxial CIRCULATOR	NOVA MICROWAVE	0185CAN	11/07/08	11/07/09	790
48	Type N Coaxial CIRCULATOR	NOVA MICROWAVE	0215CAN	11/07/08	11/07/09	112
49	Amplifier (25dB)	Agilent	8447D	21/05/08	21/05/09	2944A10144
50	Amplifier (30dB)	Agilent	8449B	13/10/08	13/10/09	3008A01590
51	Amplifier (22dB)	H.P	8447E	27/02/08	27/02/09	2945A02865
52	Position Controller	TOKIN	5901T	N/A	N/A	14173
53	Driver	TOKIN	5902T2	N/A	N/A	14174
54	LISN	Kyorits	KNW-407	04/08/08	04/08/09	8-317-8
55	LISN	Kyorits	KNW-242	13/10/08	13/10/09	8-654-15
56	CVCF	NF Electronic	4420	21/03/08	21/03/09	304935/337980
57	Software	ToYo EMI	EP5/RE	N/A	N/A	Ver 2.0.800
58	Software	ToYo EMI	EP5/CE	N/A	N/A	Ver 2.0.801
59	Software	AUDIX	e3	N/A	N/A	Ver 3.0
60	Software	Agilent	Benchlink	N/A	N/A	A.01.09 021211
61	RFI/FIELD Intensity Meter	Kyorits	KNW-2402	11/09/08	11/09/09	4N-170-3

7.1 SAMPLE CALCULATIONS

A. Emission Designator

- Cellular Band -

Emission Designator = 246KGXW

GSM BW = 246.3505 KHz
G = Phase Modulation
X = Cases not otherwise covered
W = Combination (Audio/Data)

Emission Designator = 238KG7W

EDGE BW = 238.2315 KHz
G = Phase Modulation
7 = Two or more channels containing quantized or digital information
W = Combination (Audio/Data)

Emission Designator = 4M17F9W

WCDMA BW = 4.1659MHz
F = Frequency Modulation
9 = Composite Digital Information
W = Combination (Audio/Data)

- PCS Band -

Emission Designator = 249KGXW

GSM BW = 248.5600 KHz
G = Phase Modulation
X = Cases not otherwise covered
W = Combination (Audio/Data)

Emission Designator = 239KG7W

GSM BW = 238.5908 KHz
G = Phase Modulation
7 = Two or more channels containing quantized or digital information
W = Combination (Audio/Data)

Emission Designator = 4M18F9W

WCDMA BW = 4.1793Hz
F = Frequency Modulation
9 = Composite Digital Information
W = Combination (Audio/Data)

8.1 CONCLUSION

The data collected shows that the **Epivalley CO., LTD.** HSDPA USB Modem **(FCC ID: R2NSDC-1000)** complies with all the requirements of Parts 2 and 22, 24 of the FCC rules.

