



CTK Co., Ltd.
The Power Leader of Global Regulatory Compliance

CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea

Tel: +82-31-339-9970 Fax: +82-31-339-9855

www.e-ctk.com

TEST REPORT For FCC

Test Report No. : 2010060072
Date of Issue : June 28, 2010
FCC ID : A3LSCS-2UXXXX
Model/Type No. : SCS-2U01
Classification : PCS Licensed Transmitter(PCB)
Applicant : Samsung Electronics Co., Ltd.
Applicant Address : 416, Maetan-3 dong, Yeongtong-gu, Suwon-City, Gyeonggi-do, 443-742, Korea
Manufacturer : Samsung Electronics Co., Ltd.
Manufacturer Address : 416, Maetan-3 dong, Yeongtong-gu, Suwon- City, Gyeonggi-do, 443-742, Korea
Contact Person : Duk-Hun, Kim
Telephone : +82-31-279-3509
Received Date : June 7, 2010
Test period : Start : June 7, 2010 End : June 28, 2010
Test Results : ☒ In Compliance ☐ Not in Compliance

The test results presented in this report relate only to the object tested.

Tested by

Y. T. Lee

Lee Young-taek
Test Engineer
Date: June 28, 2010

Reviewed by

Y. J. Park

Young-Joon, Park
Technical Manager
Date: June 28, 2010



CTK Co., Ltd.
The Power Leader of Global Regulatory Compliance

CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea

Tel: +82-31-339-9970 Fax: +82-31-339-9855

www.e-ctk.com

REPORT REVISION HISTORY

Date	Revision	Page No
June 28, 2010	Issued (2010060072)	All

This report shall not be reproduced except in full, without the written approval of CTK Co., Ltd. This document may be altered or revised by CTK Co., Ltd. personnel only, and shall be noted in the revision section of the document. Any alteration of this document not carried out by CTK Co., Ltd. will constitute fraud and shall nullify the document.



CTK Co., Ltd.
The Prime Leader of Global Regulatory Compliance

CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea
Tel: +82-31-339-9970 Fax: +82-31-339-9855
www.e-ctk.com

TABLE OF CONTENTS



	TEST REPORT
1.1 SCOPE	4
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 EQUIVALENT ISOTROPIC RADIATED POWER	10
4.1.4 CDMA RADIATED MEASUREMENTS	11
4.1.10 FREQUENCY STABILITY(CDAM)	17
5.1 PLOTS OF EMISSIONS	21
6.1 LIST OF TEST EQUIPMENT	22
7.1 SAMPLE CALCULATIONS	23
8.1 CONCLUSION	24
9.1 TEST PLOTS	25



CTK Co., Ltd.
The First Leader of Global Regulatory Compliance

CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea
Tel: +82-31-339-9970 Fax: +82-31-339-9855
www.e-ctk.com

TEST 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.

2.1 General Information

Classification	: PCS Licensed Transmitter(PCB)
EUT Type	: Indoor Base Station Transceiver System
FCC Rule Part(s)	: §2; §22(H), §24(E)
Model name	: SCS-2U01
Serial number	: Identical prototype
Emission Designators:	: CDMA : 1M32F9W PCS CDMA : 1M32F9W
Tx Freq. Range	: 869.70 ~ 893.31 MHz (CDMA) 1931.25 ~ 1988.75 MHz (PCS CDMA)
Rx Freq. Range	: 824.70 ~ 848.31 MHz (CDMA) 1851.25 ~ 1908.75 MHz (PCS CDMA)
Modulation(s):	: CDMA / PCS CDMA
Frequency Tolerance:	: ± 0.00025 % (2.5ppm)
Maximum Output Power	: CDMA : 15.34dBm for 1xRTT PCS CDMA : 15.34dBm for 1xRTT
Maximum ERP/EIRP	: CDMA : 16.43dBm for 1xRTT PCS CDMA : 17.53dBm for 1xRTT
Power Source	: DC 12V, 1.5A from AC/DC adapter
Operator Selection of Frequency	: Software Controlled
Power Output Adjustment Capability:	: Software Controlled



CTK Co., Ltd.
The Power Leader of Global Regulatory Compliance

CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea

Tel: +82-31-339-9970 Fax: +82-31-339-9855

www.e-ctk.com

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 10 GHz (PCS Mode: 20GHz).



3.1.4 Frequencies

At the input terminals of the spectrum analyzer, an isolator (RF pad) and a high-pass filter are connected between the test transceiver (for conducted tests) or the receive antenna (for radiated tests) and the analyzer. The high-pass filter is to limit the fundamental frequency from interfering with the measurement of low-level spurious and harmonic emissions and to ensure that the preamplifier is not saturated.

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.

3.1.6 Frequency Stability / Temperature Variation.

The frequency stability of the transmitter is measured by:

- a) **Temperature** :The temperature is varied from -30°C to + 60°C using an environmental chamber.
- b) **Primary Supply Voltage** :The primary supply voltage is varied from 85% to 115% of the voltage Normally at the input to the device or at the power supply terminals if cables are not normally supplied.

Specification –The minimum frequency stability shall be +/- 0.00025% at any time during normal operation.

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 $\pm 0.00025(\pm 2.5\text{ppm})$ of the center frequency.



CTK Co., Ltd.
The Power Leader of Global Regulatory Compliance

CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea

Tel: +82-31-339-9970 Fax: +82-31-339-9855

www.e-ctk.com

Time Period and Procedure:

1. The carrier frequency of the transmitter and the individual oscillators is measured at room temperature (25°C to 27 °C to provide a reference)
2. The equipment is subjected to an overnight "soak" at -30°C without any power applied.
3. After the overnight "soak" at -30°C(usually 14-16 hours),the equipment is turned on in a "standby" condition for one minute before applying power to the transmitter. Measurement of the carrier frequency to the transmitter and the individual oscillators is made within a three minute interval after applying power to the transmitter.
4. Frequency measurements is made at 10°C interval up to room temperature. At least a period of one and one half hour is provided to allow stabilization of the equipment at each temperature level.
5. Again the transmitter carrier frequency and the individual oscillators is measured at room temperature to begin measurement of the upper temperature levels.
6. Frequency were made at 10 intervals starting at -30°C up to +60°C allowing at least two hours at each temperature for stabilization. In all measurements the frequency is measured within three minutes after applying power to the transmitter.
7. The artificial load is mounted external to the temperature chamber.

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.

4.1 TEST DATA

4.1.1 Conducted Output Power

The output power was measured under all R.C.s and S.O.s which are listed below measurement data.

The worst case output power is reported with SO9 of RC3 for CDMA band.

The worst case output power is reported with SO9 of RC3 for PCS band.

1. 1X RRT

- Test Mode : SO2 of RC1, SO2 of RC2, SO9 of RC3 and SO9 of RC5
- other configurations supported by the DUT
- power control - Software Controlled

- Measurement data

Band	Channel	1xRTT			
		RC1	RC2	RC3	RC5
		SO2	SO2	SO9	SO9
CDMA	1013	15.31	15.33	15.34	16.31
	384	12.70	12.69	12.72	12.71
	777	12.84	12.83	12.87	12.84
PCS	25	15.31	15.34	15.34	15.31
	600	12.94	12.95	12.97	12.96
	1175	13.05	13.03	13.06	13.04

*Unit is dBm



CTK Co., Ltd.
The Power Leader of Global Regulatory Compliance

CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea
Tel: +82-31-339-9970 Fax: +82-31-339-9855
www.e-ctk.com

4.1.2 Effective Radiated Power Output(ERP) CDMA

- Modulation: CDMA(1xRTT)

Freq. Tuned (MHz)	Measured Level (dBm)	REF. LEVEL (dBm)	Antenna Gain (dBd)	POL (H/V)	ERP (dBm)	ERP (W)	Supplied Power
869.70	-22.68	17.30	-0.87	H	16.43	0.044	AC 110V
881.52	-25.31	14.69	-0.87	H	13.82	0.024	AC 110V
893.31	-25.04	14.89	-0.87	H	14.02	0.025	AC 110V

NOTES:

Equivalent Isotropic 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 dipole antenna 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. The conducted power at the terminals of the dipole antenna is measured. The ERP is recorded.

*This devices was tested all R.C.s and S.O.s and the worst case is Reported with RC3/SO9



CTK Co., Ltd.
The Power Leader of Global Regulatory Compliance

CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea
Tel: +82-31-339-9970 Fax: +82-31-339-9855
www.e-ctk.com

4.1.3 Equivalent Isotropic Radiated Power (E.I.R.P) PCS CDMA

- Modulation: PCS CDMA(1xRTT)

Freq. Tuned (MHz)	Measured Level (dBm)	REF. LEVEL (dBm)	Antenna Gain (dBi)	POL (H/V)	EIRP (dBm)	ERP (W)	Supplied Power
1931.25	-23.53	9.53	8.0	V	17.53	0.057	AC 110V
1960.00	-25.86	7.05	8.0	V	15.05	0.032	AC 110V
1988.75	-25.68	7.21	8.0	V	15.21	0.033	AC 110V

NOTES:

Equivalent Isotropic 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 Horn antenna was substituted in place of the EUT. This Horn 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 Horn antenna is measured. The EIRP is recorded.

*This devices was tested all R.C.s and S.O.s and the worst case is Reported with RC3/SO9



CTK Co., Ltd.
The Power Leader of Global Regulatory Compliance

CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea

Tel: +82-31-339-9970 Fax: +82-31-339-9855

www.e-ctk.com

4.1.4 CDMA Radiated Measurements

(Continued...)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY : 869.70 MHz
CHANNEL : 1013(Low)
MEASURED OUTPUT POWER : 15.34 dBm = 0.034 W
MODULATION SIGNAL : CDMA (Internal)
DISTANCE : 3 meters
LIMIT : $43 + 10 \log_{10} (W) = 28.31$ dBc

Remarks

The worst mode (1xRTT(S09 of RC3)) for final test.

Freq. (MHz)	Reading (dBm)	Correction Factor (dB)	Result (dBm)	POL (H/V)	(dBc)
1743.0	-41.53	6.05	-35.48	V	-50.82
-	-	-	-	-	-

- No other emissions were detected at a level greater than 20dB below limit.

NOTES:

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.



CTK Co., Ltd.
The Power Leader of Global Regulatory Compliance

CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea
Tel: +82-31-339-9970 Fax: +82-31-339-9855
www.e-ctk.com

4.1.5 CDMA Radiated Measurements

(Continued...)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY : 881.52 MHz
CHANNEL : 384(Mid)
MEASURED OUTPUT POWER : 12.72 dBm = 0.019 W
MODULATION SIGNAL : CDMA (Internal)
DISTANCE : 3 meters
LIMIT : $43 + 10 \log_{10} (W) = 25.79$ dBc

Remarks

The worst mode (1xRTT(S09 of RC3)) for final test.

Freq. (MHz)	Reading (dBm)	Correction Factor (dB)	Result (dBm)	POL (H/V)	(dBc)
1766.0	-48.62	6.05	-42.57	V	-55.29
-	-	-	-	-	-

- No other emissions were detected at a level greater than 20dB below limit.

NOTES:

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.

4.1.6 CDMA Radiated Measurements

(Continued...)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY : 893.31 MHz
CHANNEL : 777(High)
MEASURED OUTPUT POWER : 12.87 dBm = 0.019 W
MODULATION SIGNAL : CDMA (Internal)
DISTANCE : 3 meters
LIMIT : $43 + 10 \log_{10} (W) = 25.79$ dBc

Remarks

The worst mode (1xRTT(S09 of RC3)) for final test.

Freq. (MHz)	Reading (dBm)	Correction Factor (dB)	Result (dBm)	POL (H/V)	(dBc)
1789.0	-51.28	6.05	-45.23	V	-58.10
-	-	-	-	-	-

- No other emissions were detected at a level greater than 20dB below limit.

NOTES:

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.



CTK Co., Ltd.
The Power Leader of Global Regulatory Compliance

CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea

Tel: +82-31-339-9970 Fax: +82-31-339-9855

www.e-ctk.com

4.1.7 PCS CDMA Radiated Measurements

(Continued...)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY : 1931.25 MHz
CHANNEL : 25(Low)
MEASURED OUTPUT POWER : 15.34 dBm = 0.034 W
MODULATION SIGNAL : PCS CDMA (Internal)
DISTANCE : 3 meters
LIMIT : $43 + 10 \log_{10} (W) = 28.31$ dBc

Remarks

The worst mode (1xRTT(SO9, RC3)) for final test.

Freq. (MHz)	Reading (dBm)	Correction Factor (dB)	Result (dBm)	POL (H/V)	(dBc)
3890.0	-39.78	8.4	-31.38	V	-46.72
-	-	-	-	-	-

- No other emissions were detected at a level greater than 20dB below limit.

NOTES:

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.



CTK Co., Ltd.
The Power Leader of Global Regulatory Compliance

CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea

Tel: +82-31-339-9970 Fax: +82-31-339-9855

www.e-ctk.com

4.1.8 PCS CDMA Radiated Measurements

(Continued...)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY : 1960.00 MHz
CHANNEL : 600(Mid)
MEASURED OUTPUT POWER : 12.97 dBm = 0.020 W
MODULATION SIGNAL : PCS CDMA (Internal)
DISTANCE : 3 meters
LIMIT : $43 + 10 \log_{10} (W) = 26.01$ dBc

Remarks

The worst mode (1xRTT(S09, RC3)) for final test.

Freq. (MHz)	Reading (dBm)	Correction Factor (dB)	Result (dBm)	POL (H/V)	(dBc)
3932.5	-51.45	8.4	-43.05	V	-56.02
-	-	-	-	-	-

- No other emissions were detected at a level greater than 20dB below limit.

NOTES:

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.

4.1.9 PCS CDMA Radiated Measurements (Continued...)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY : 1988.75 MHz
 CHANNEL : 1175(High)
 MEASURED OUTPUT POWER : 13.06 dBm = 0.020 W
 MODULATION SIGNAL : PCS CDMA (Internal)
 DISTANCE : 3 meters
 LIMIT : $43 + 10 \log_{10} (W) = 26.01$ dBc

The worst mode (1xRTT(SO9, RC3)) for final test.

Freq. (MHz)	Reading (dBm)	Correction Factor (dB)	Result (dBm)	POL (H/V)	(dBc)
3952.0	-40.12	8.4	-31.72	V	-44.78
-	-	-	-	-	-

- No other emissions were detected at a level greater than 20dB below limit.

NOTES:

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.



CTK Co., Ltd.
The Power Leader of Global Regulatory Compliance

CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea
Tel: +82-31-339-9970 Fax: +82-31-339-9855
www.e-ctk.com

4.1.10 Frequency Stability CDMA (1xRTT)

OPERATING FREQUENCY : 881,519,996 Hz
CHANNEL : 384(Mid)
Test Mode : 1xRTT
REFERENCE VOLTAGE : 110 VAC
DEVIATION LIMIT : ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VAC)	TEMP (°C)	FREQ (Hz)	Deviation (%)
100%	110	+25(Ref)	881,519,996	0.000000
100%		-30	881,520,005	0.000001
100%		-20	881,520,003	0.000000
100%		-10	881,520,009	0.000002
100%		0	881,519,993	0.000000
100%		+10	881,519,994	0.000000
100%		+20	881,520,006	0.000001
100%		+25	881,519,994	0.000000
100%		+30	881,520,005	0.000001
100%		+40	881,520,009	0.000002
100%		+50	881,520,003	0.000000
100%		+60	881,520,008	0.000001
85%	93.5	+25	881,520,009	0.000002
115%	126.5	+25	881,519,996	0.000000
BATT.ENDPOINT	-	+25	-	-



CTK Co., Ltd.
The Power Leader of Global Regulatory Compliance

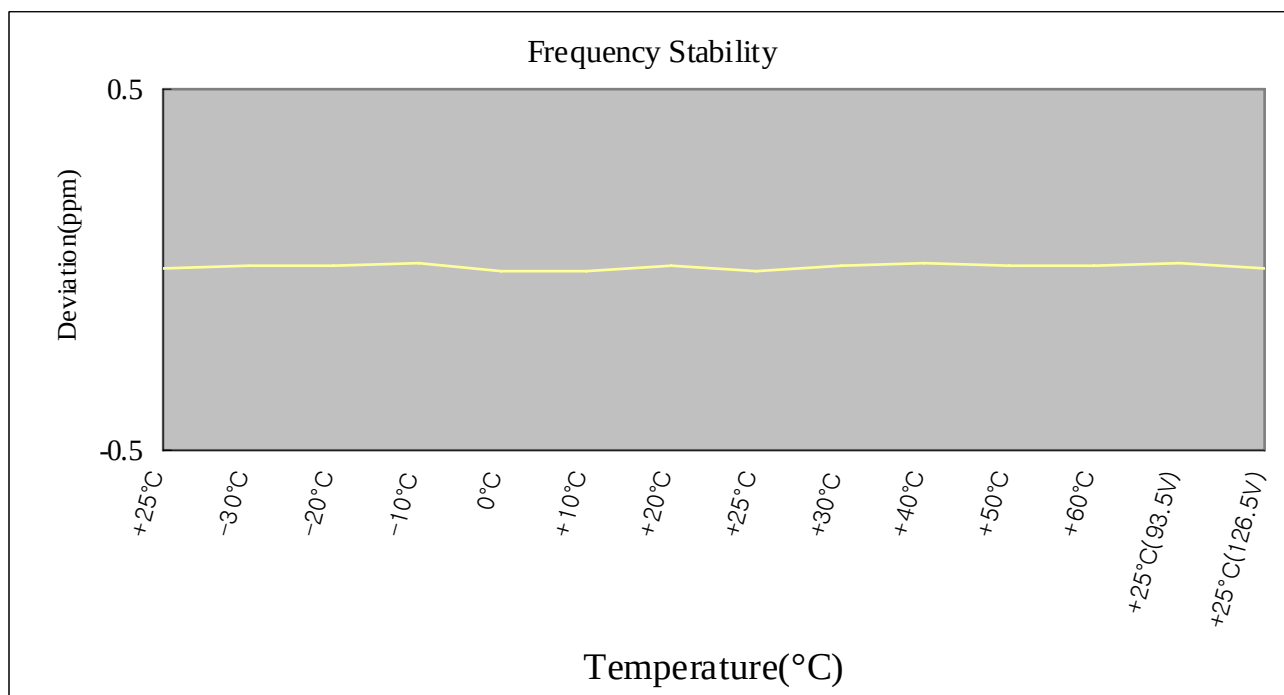
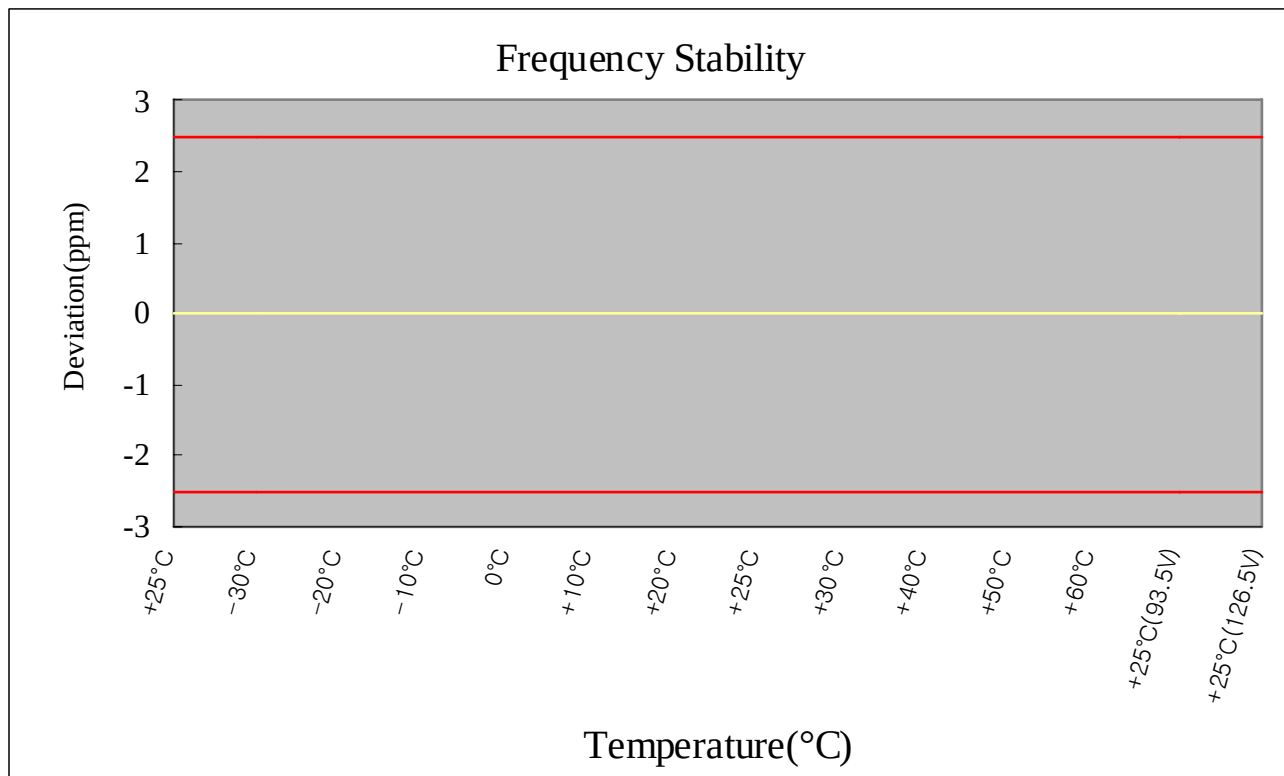
CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea

Tel: +82-31-339-9970 Fax: +82-31-339-9855

www.e-ctk.com

4.1.11 Frequency Stability





CTK Co., Ltd.
The Power Leader of Global Regulatory Compliance

CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea

Tel: +82-31-339-9970 Fax: +82-31-339-9855

www.e-ctk.com

4.1.14 Frequency Stability PCS CDMA (1xRTT)

OPERATING FREQUENCY : 1,960,000,056 Hz
CHANNEL : 600(Mid)
Test Mode : 1xRTT
REFERENCE VOLTAGE : 110 VAC
DEVIATION LIMIT : ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQ (Hz)	Deviation (%)
100%	110	+25(Ref)	1,960,000,056	0.000000
100%		-30	1,960,000,032	0.000001
100%		-20	1,959,999,970	0.000005
100%		-10	1,960,000,022	0.000002
100%		0	1,960,000,062	0.000003
100%		+10	1,959,999,932	0.000007
100%		+20	1,960,000,009	0.000003
100%		+25	1,960,000,018	0.000002
100%		+30	1,960,000,079	0.000001
100%		+40	1,959,999,941	0.000006
100%		+50	1,960,000,020	0.000002
100%		+60	1,960,000,068	0.000006
85%	93.5	+25	1,960,000,068	0.000006
115%	126.5	+25	1,960,000,078	0.000001
BATT.ENDPOINT	-	+25	-	-



CTK Co., Ltd.
The Power Leader of Global Regulatory Compliance

CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea

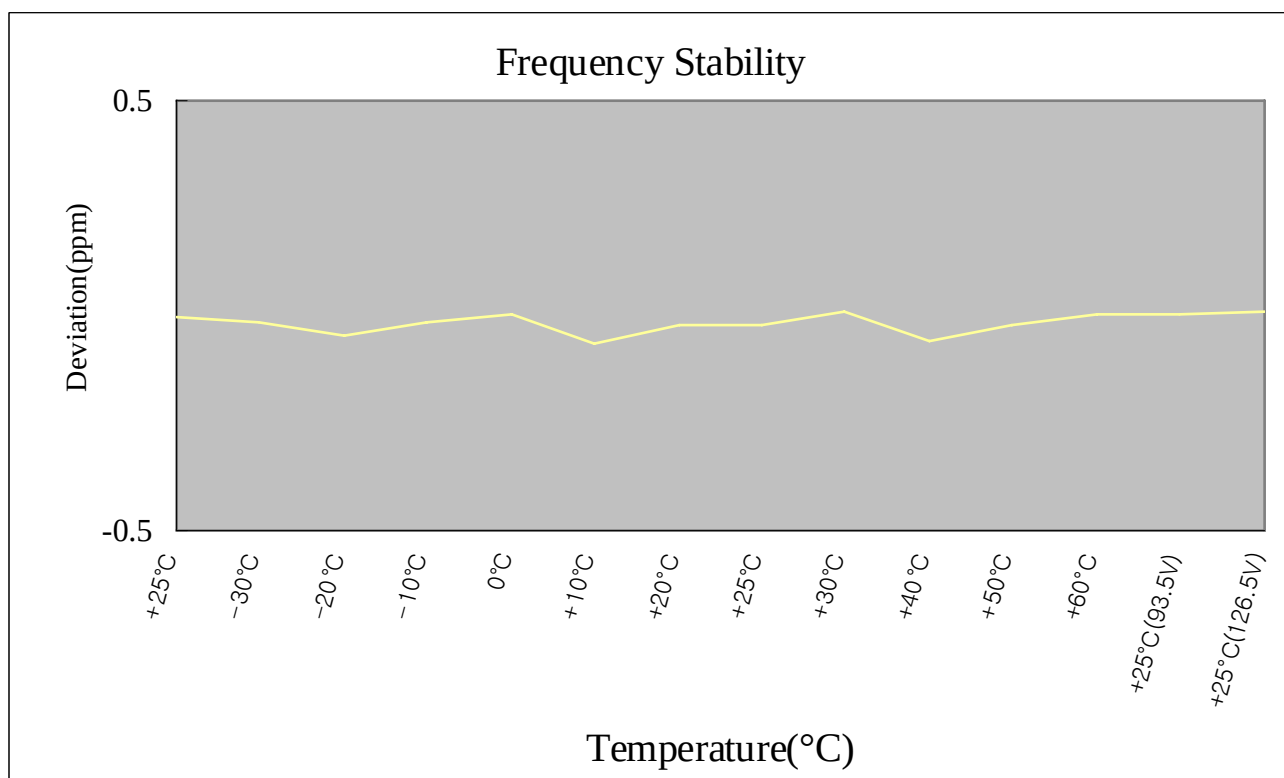
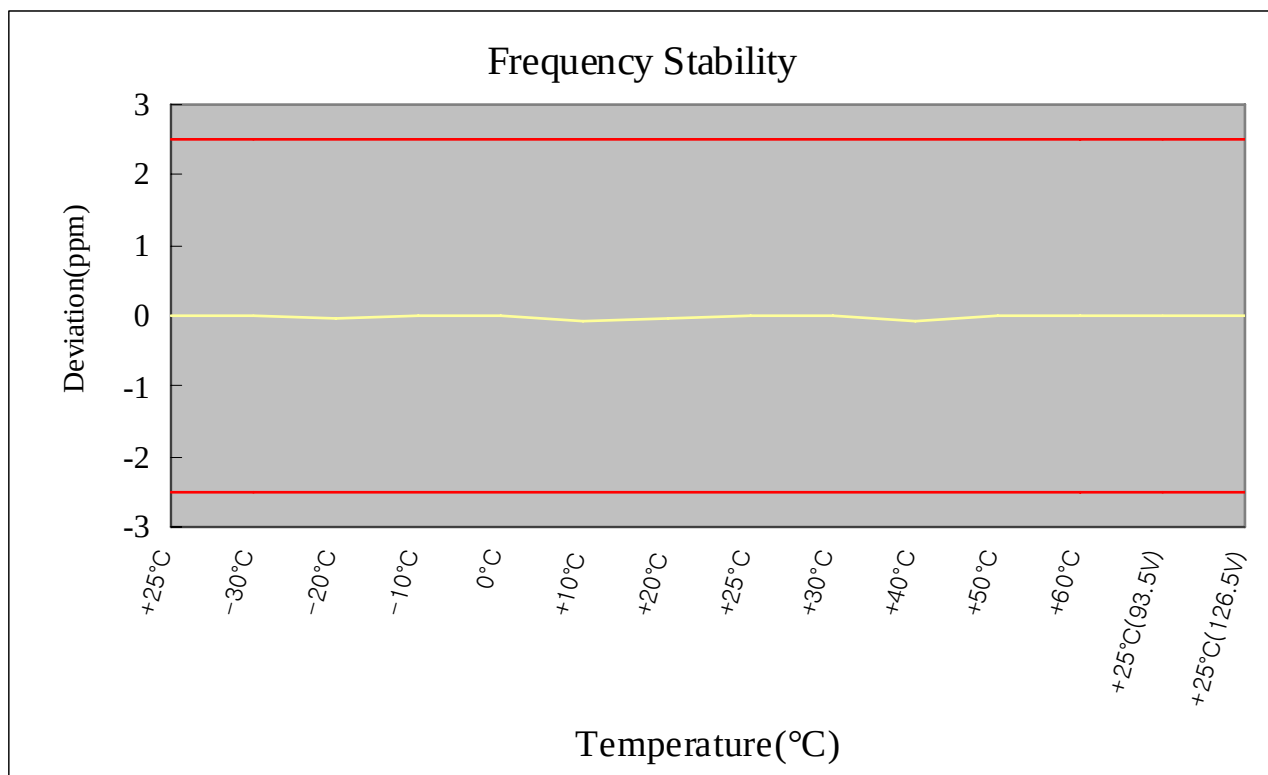
Tel: +82-31-339-9970

Fax: +82-31-339-9855

www.e-ctk.com

4.1.15 Frequency Stability

(Continued...)





CTK Co., Ltd.
The Power Leader of Global Regulatory Compliance

CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea

Tel: +82-31-339-9970 Fax: +82-31-339-9855

www.e-ctk.com

5.1 PLOTS OF EMISSIONS

(SEE ATTACHMENT "Test Plots")



CTK Co., Ltd.
The Power Leader of Global Regulatory Compliance

CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea

Tel: +82-31-339-9970 Fax: +82-31-339-9855

www.e-ctk.com

6.1 LIST OF TEST EQUIPMENT

	Name of Equipment	Manufacturer	Model No.	Serial No.	Due Date
1	Signal Analyzer	Agilent	N9020A	MY48011598	2010-10-30
2	Spectrum Analyzer	Rohde & Schwarz	FSP-30	100994	2010-10-30
3	EMI Test Receiver	Rohde & Schwarz	ESVS30	826638/008	2010-12-02
4	ULTRA Broadband Antenna	Rohde & Schwarz	HL562	361324/014	2011-11-18
5	LOOP ANTENNA	EMCO	6502	9107-2652	2010-10-13
6	System Power Supply	HP	6032A	3440A-10521	2010-07-07
7	EPM Series Power Meter	HP	E4418A	GB38272734	2010-10-30
8	Power Sensor	HP	8487A	3318A03524	2010-07-09
9	Audio Analyzer	HP	8903B	2747A03432	2010-11-03
10	ESG-D Series Signal Generator	Agilent	E4432B	US40054094	2010-10-30
11	SYNTHESIZED SWEEPER	HP	8341B	2819A01563	2010-10-30
12	Modulation Analyzer	HP	8901B	3438A05228	2010-11-06
13	Attenuator	HP	8494A	3308A33351	2010-11-02
14	Temp&Humi Chamber	Kunpoong	KP-1000	2002KP050041	2011-01-25
15	DC POWER SUPPLY	Agilent	E3632A	MY40011638	2010-10-30
16	EMC Analyzer	Agilent	E7405A	MY45110859	2011-01-25
17	Horn Antenna	ETS-Lindgren	3115	00078894	2010-12-18
18	Horn Antenna	ETS-Lindgren	3115	00078895	2010-12-18
19	Dipole Antenna	SCHWARZBECK	VHA 9103	VHA91032557	2010-11-27
20	Dipole Antenna	SCHWARZBECK	UHA 9105	UHA91052417	2010-11-27
21	OPT H64 AMPLIFIER	HP	8447F	3113A06814	2011-03-31
22	PREAMPLIFIER	Agilent	8449B	3008A02307	2010-10-30
23	Radio Communication Tester	Rohde & Schwarz	CMU200	106765	2011-02-23
24	Band Reject Filter	Wainwright Instruments	WRCG824	-	2011-04-01
25	Band Reject Filter	Wainwright Instruments	WRCG1750	-	2011-04-01
26	Field Strength Meter	Rohde & Schwarz	ESHS30	862024/001	2011-03-08
27	LISN	Rohde & Schwarz	ESH3-Z5	100207	2010-12-15
28	LISN	EMCO	3825/2	9206-1971	2010-12-16
29	DC POWER SUPPLY	Agilent	E3632A	MY40011638	2010-10-30



CTK Co., Ltd.
The Power Leader of Global Regulatory Compliance

CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea
Tel: +82-31-339-9970 Fax: +82-31-339-9855
www.e-ctk.com

7.1 SAMPLE CALCULATIONS

A. Emission Designator

- CDMA Band

Emission Designator = 1M32F9W

CDMA 1xRTT BW = 1.320 MHz

- PCS CDMA Band

Emission Designator = 1M32F9W

PCS CDMA 1xRTT BW = 1.320 MHz

F = Frequency Modulation

9 = Composite Digital Info

W = Combination (Audio/Data)

(Measured at the 99% power bandwidth)



CTK Co., Ltd.
The Power Leader of Global Regulatory Compliance

CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea

Tel: +82-31-339-9970 Fax: +82-31-339-9855

www.e-ctk.com

8.1 CONCLUSION

The data collected shows that the Dual-Band Indoor CDMA Base station Transceiver System (CDMA/PCS CDMA) **FCC ID: A3LSCS-2UXXXX** complies with all the requirements of Parts 2 and 22, 24 of the FCC rules.



CTK Co., Ltd.
The Prime Leader of Global Regulatory Compliance

CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea

Tel: +82-31-339-9970 Fax: +82-31-339-9855

www.e-ctk.com

9.1 TEST PLOTS



CTK Co., Ltd.
The Power Leader of Global Regulatory Compliance

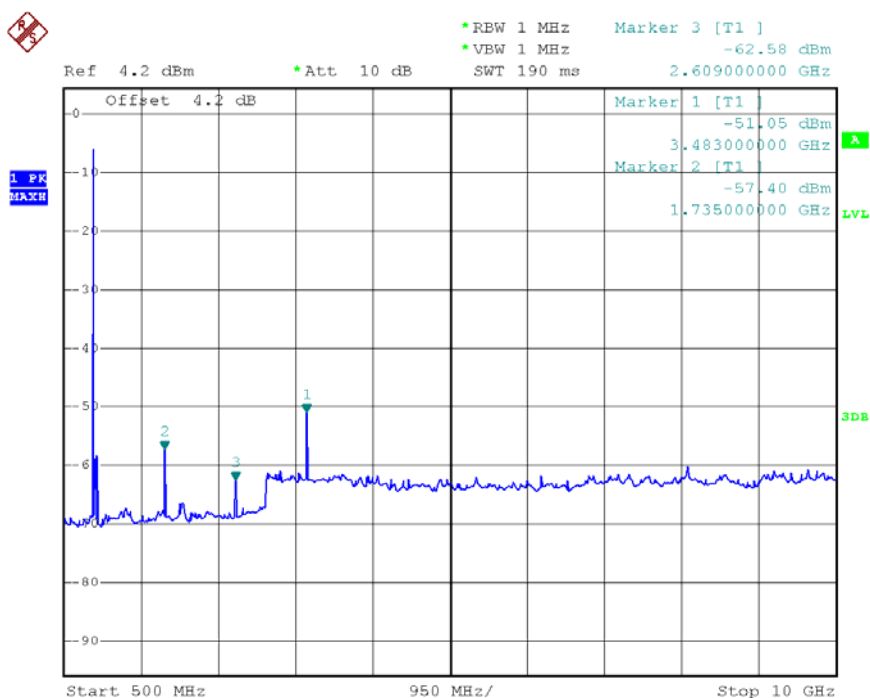
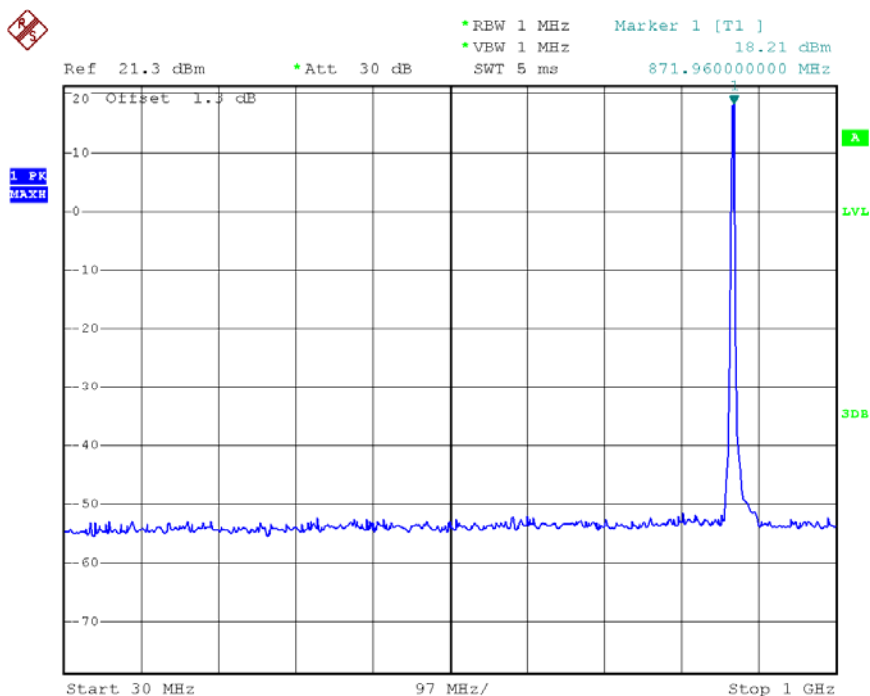
CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea

Tel: +82-31-339-9970 Fax: +82-31-339-9855

www.e-ctk.com

- Conducted Spurious CDMA Mode ch.1013 for 1xRTT - Frequency Range : 30M-10G





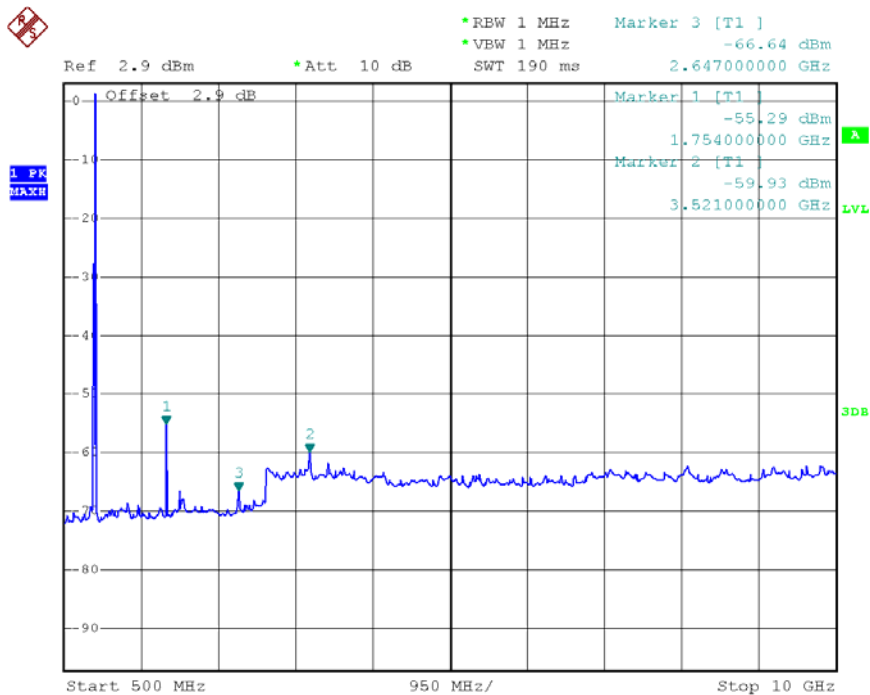
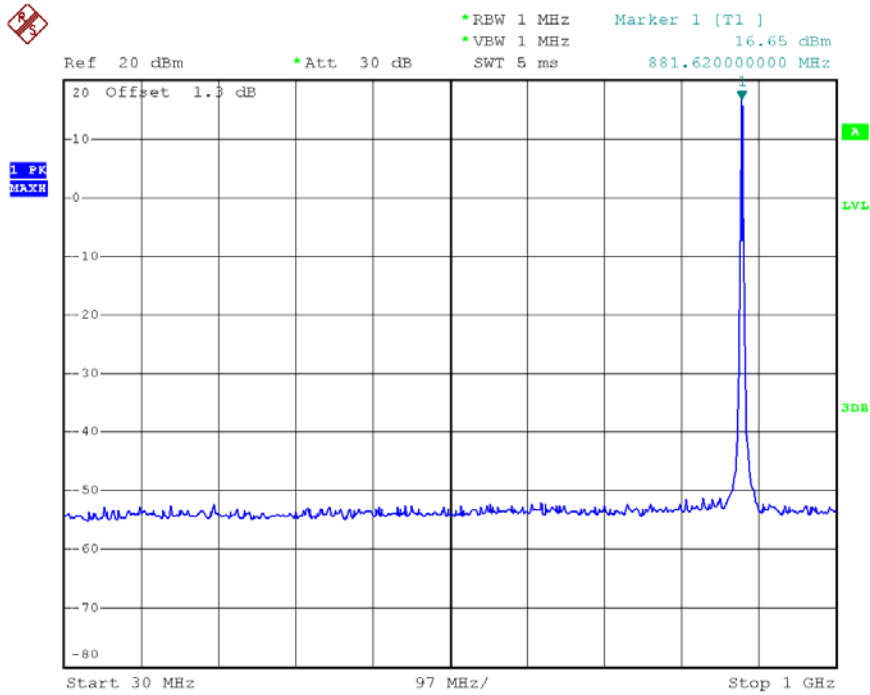
CTK Co., Ltd.
The Power Leader of Global Regulatory Compliance

CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea
Tel: +82-31-339-9970 Fax: +82-31-339-9855
www.e-ctk.com

- Conducted Spurious CDMA Mode ch.384 for 1xRTT

- Frequency Range : 30M-10G



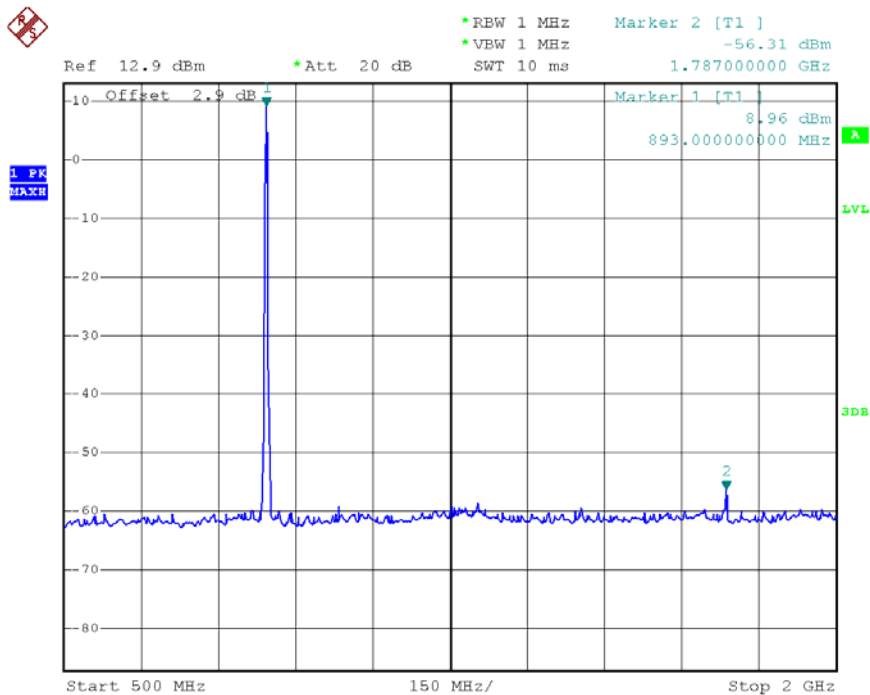
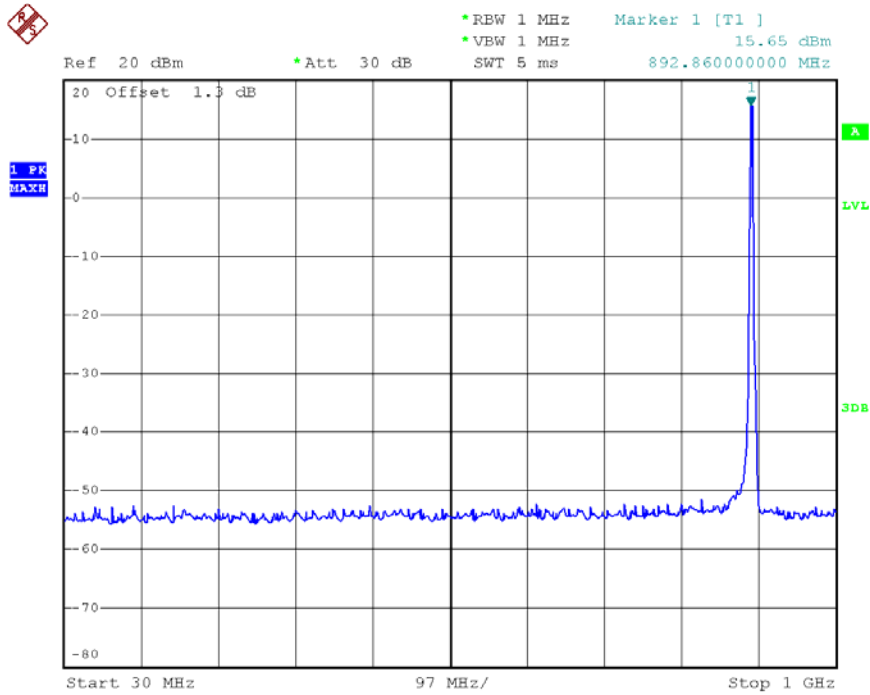


CTK Co., Ltd.
The Power Leader of Global Regulatory Compliance

CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea
Tel: +82-31-339-9970 Fax: +82-31-339-9855
www.e-ctk.com

- Conducted Spurious CDMA Mode ch.777 for 1xRTT - Frequency Range : 30M-10G

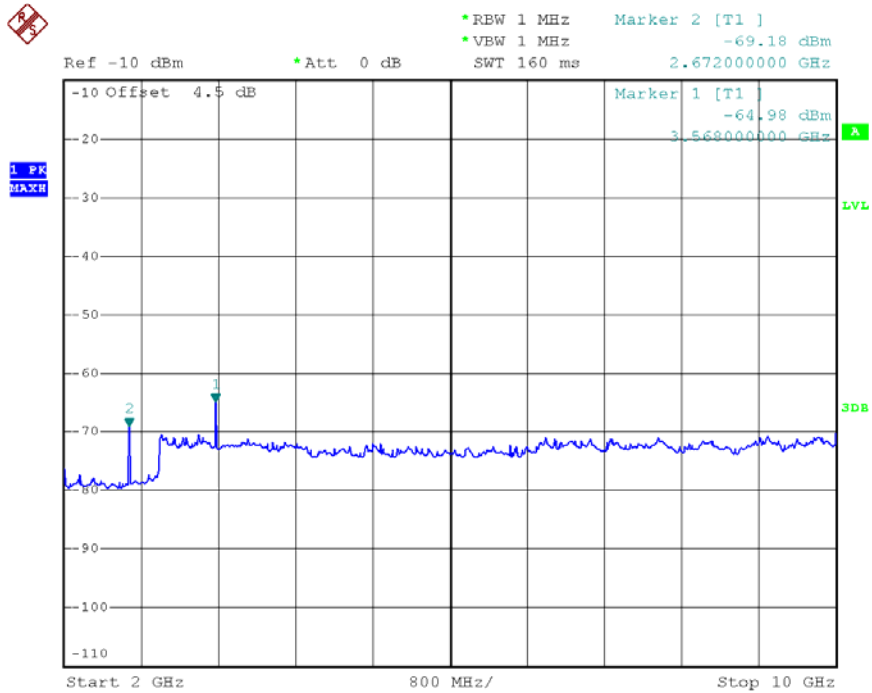




CTK Co., Ltd.
The Power Leader of Global Regulatory Compliance

CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea
Tel: +82-31-339-9970 Fax: +82-31-339-9855
www.e-ctk.com





CTK Co., Ltd.
The Power Leader of Global Regulatory Compliance

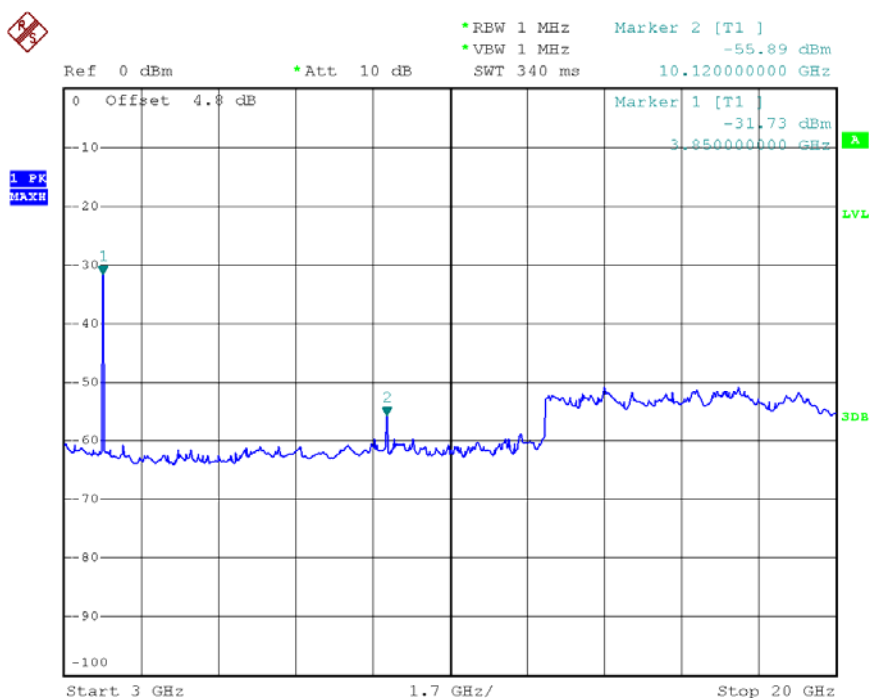
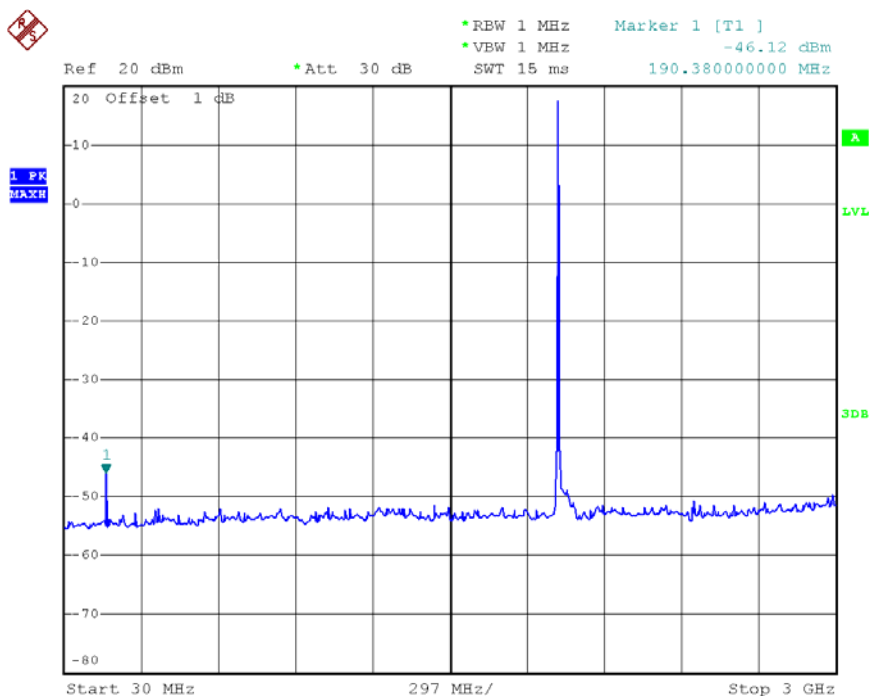
CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea

Tel: +82-31-339-9970 Fax: +82-31-339-9855

www.e-ctk.com

- Conducted Spurious US PCS Mode ch.25 for 1xRTT - Frequency Range : 30M-20G





CTK Co., Ltd.
The Power Leader of Global Regulatory Compliance

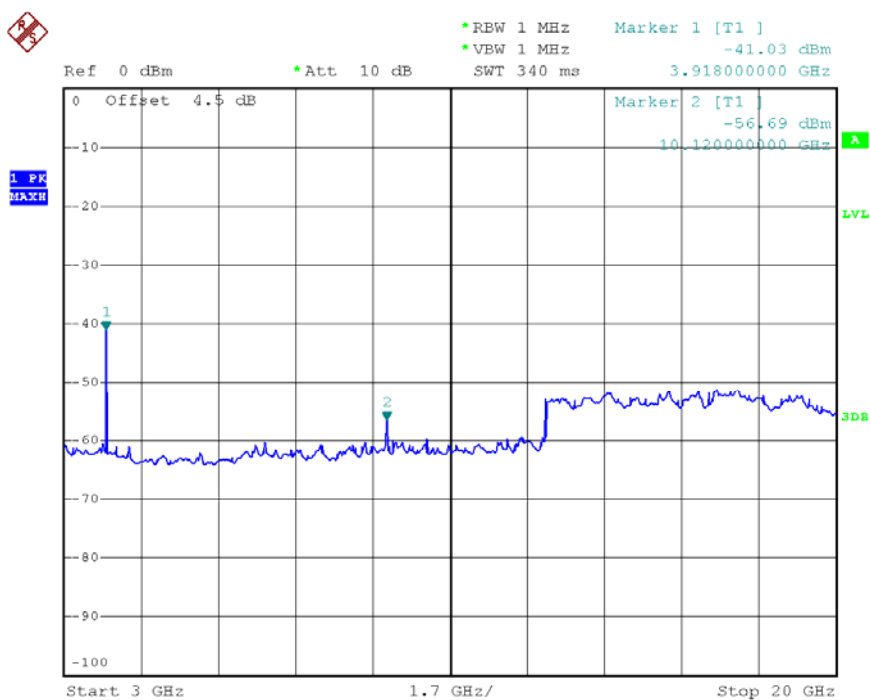
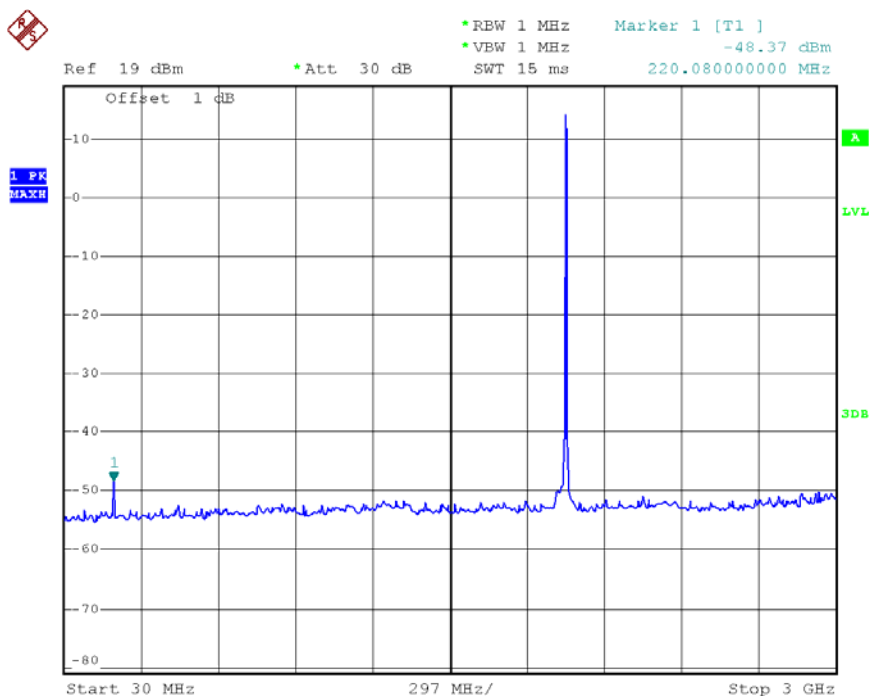
CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea

Tel: +82-31-339-9970 Fax: +82-31-339-9855

www.e-ctk.com

- Conducted Spurious US PCS Mode ch.600 for 1xRTT - Frequency Range : 30M-20G



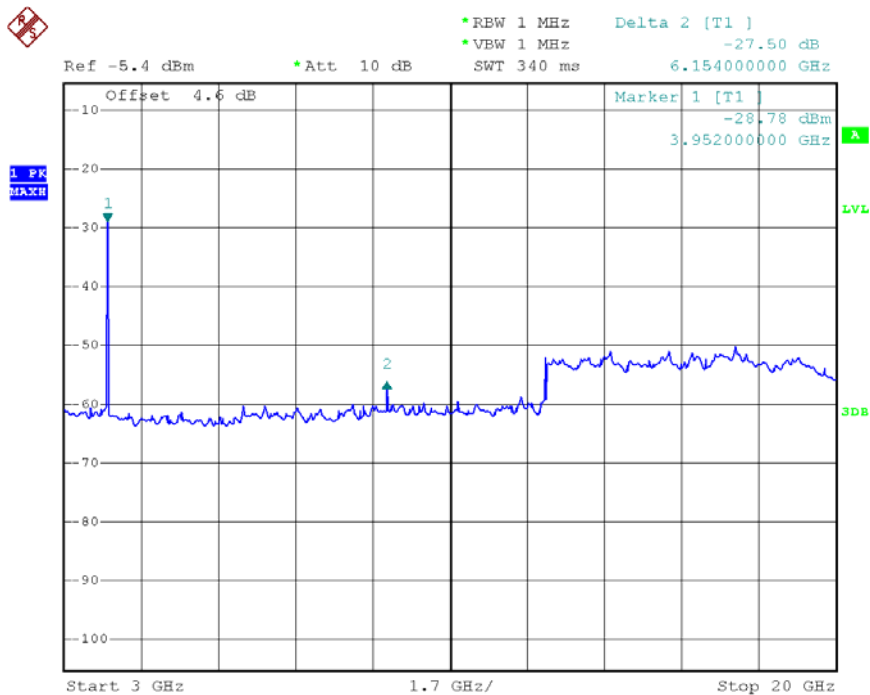
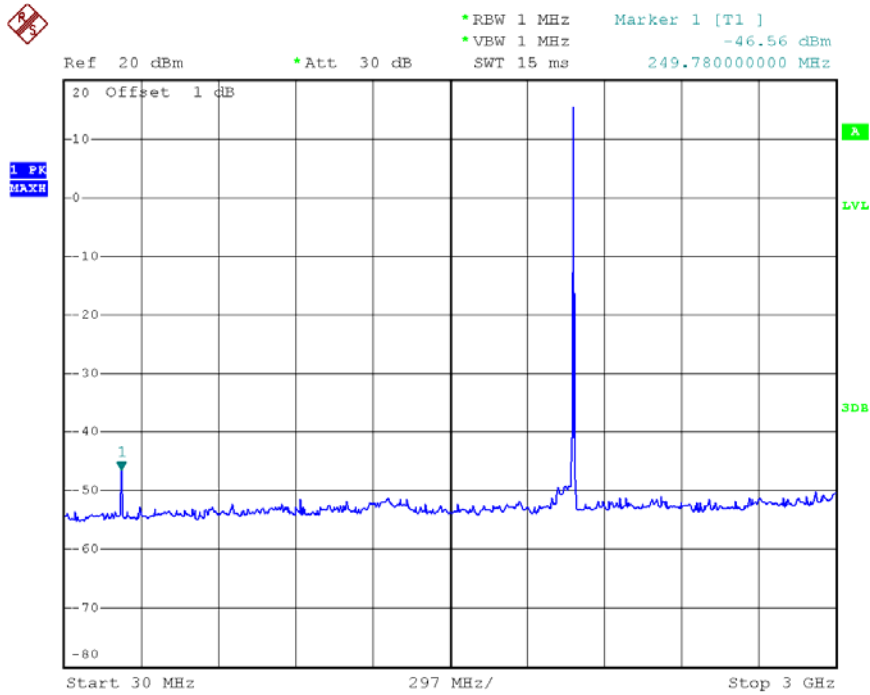


CTK Co., Ltd.
The Power Leader of Global Regulatory Compliance

CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea
Tel: +82-31-339-9970 Fax: +82-31-339-9855
www.e-ctk.com

- Conducted Spurious US PCS Mode ch.1175 for 1xRTT - Frequency Range : 30M-10G





CTK Co., Ltd.
The Power Leader of Global Regulatory Compliance

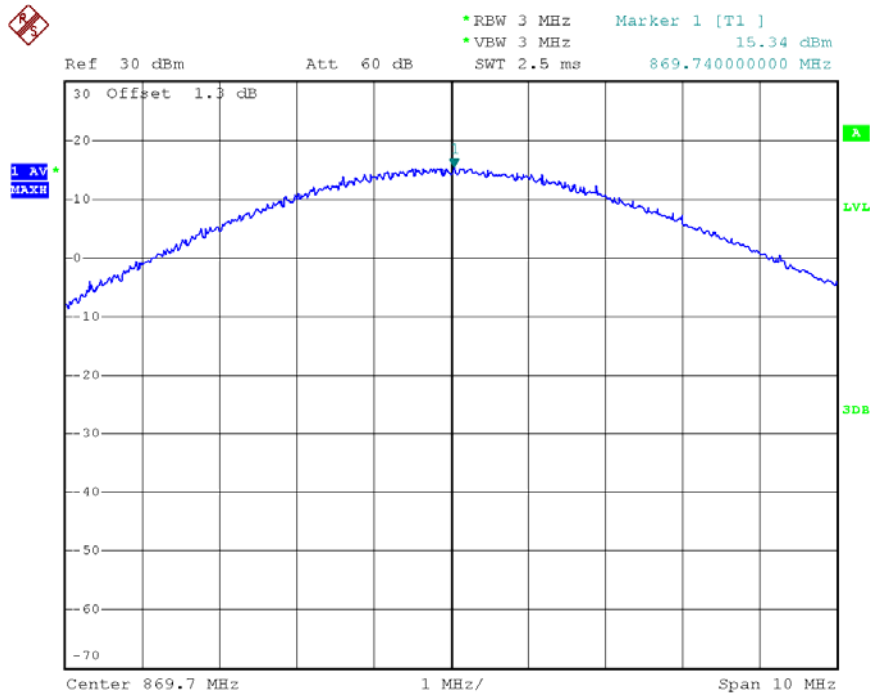
CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea

Tel: +82-31-339-9970 Fax: +82-31-339-9855

www.e-ctk.com

- Power Out CDMA Mode ch.1013 for 1xRTT





CTK Co., Ltd.
The Power Leader of Global Regulatory Compliance

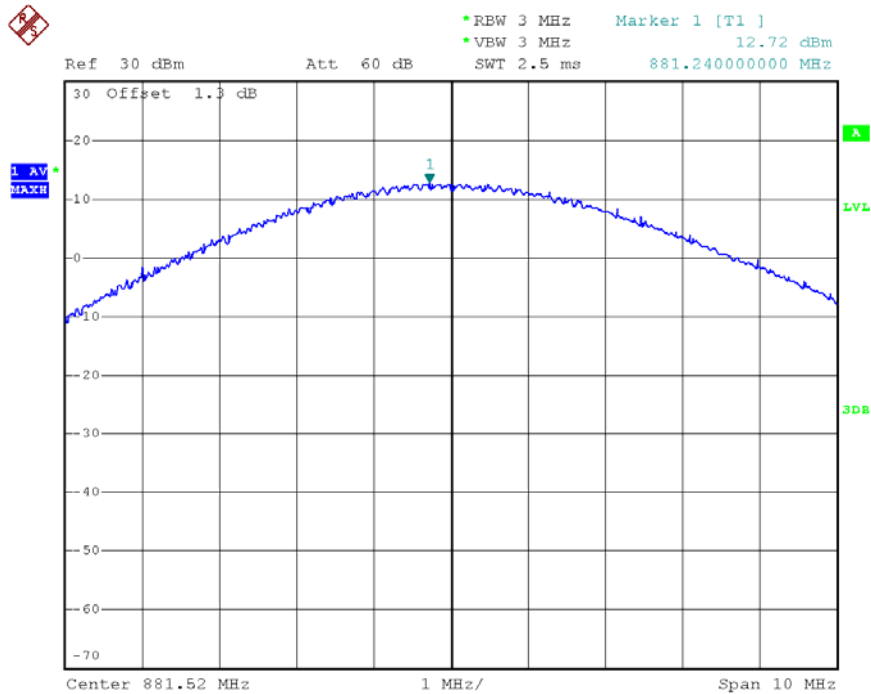
CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea

Tel: +82-31-339-9970 Fax: +82-31-339-9855

www.e-ctk.com

- Power Out CDMA Mode ch.384 for 1xRTT





CTK Co., Ltd.
The Power Leader of Global Regulatory Compliance

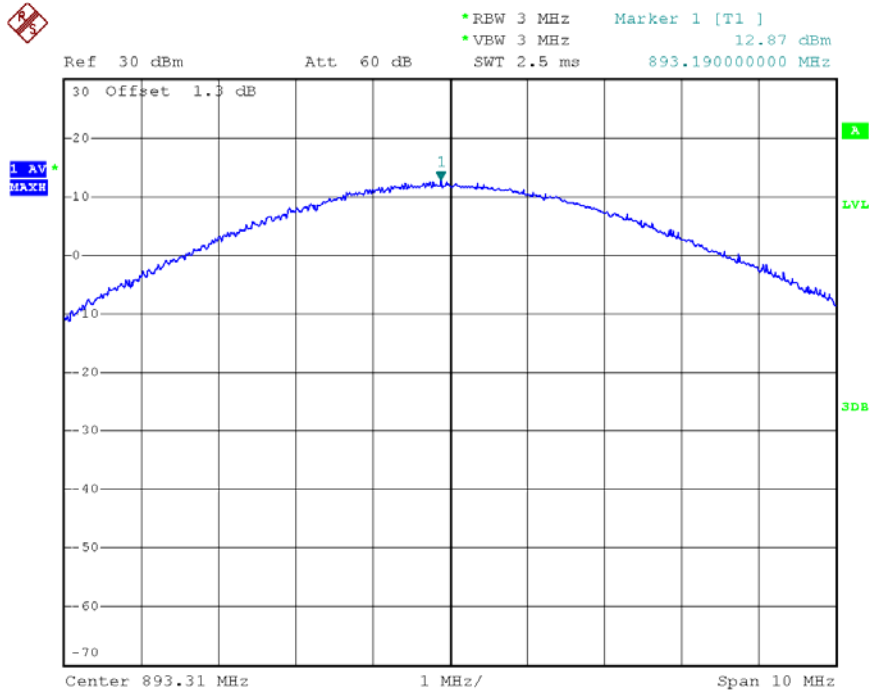
CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea

Tel: +82-31-339-9970 Fax: +82-31-339-9855

www.e-ctk.com

- Power Out CDMA Mode ch.777 for 1xRTT





CTK Co., Ltd.
The Power Leader of Global Regulatory Compliance

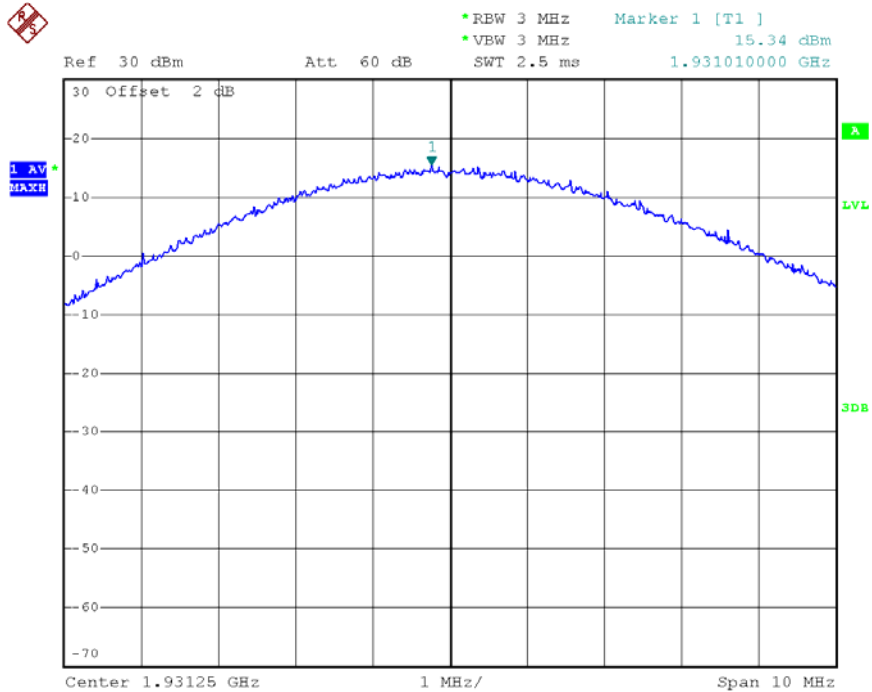
CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea

Tel: +82-31-339-9970 Fax: +82-31-339-9855

www.e-ctk.com

- Power Out US PCS Mode ch.25 for 1xRTT





CTK Co., Ltd.
The Power Leader of Global Regulatory Compliance

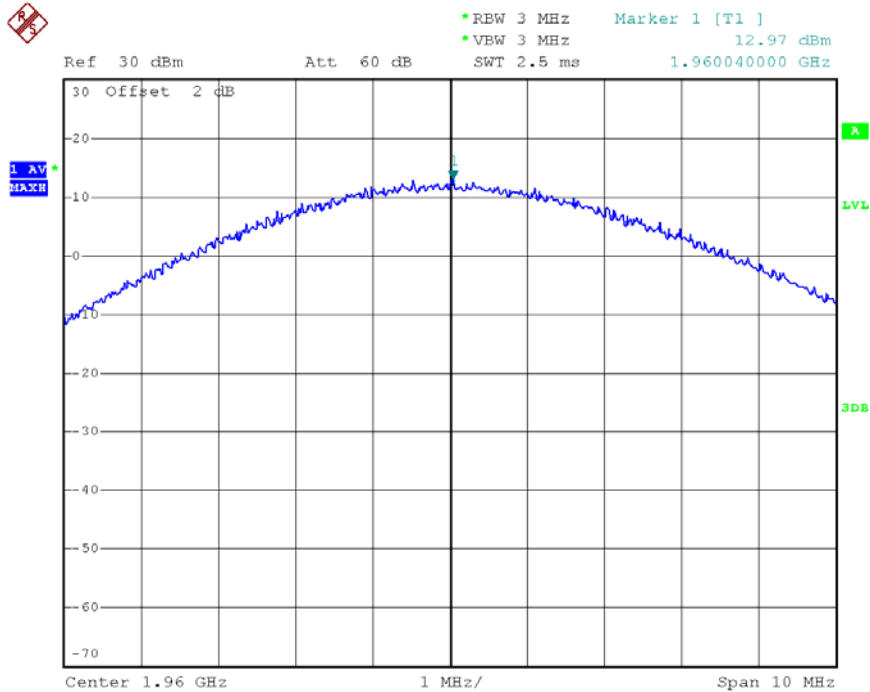
CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea

Tel: +82-31-339-9970 Fax: +82-31-339-9855

www.e-ctk.com

- Power Out US PCS Mode ch.600 for 1xRTT





CTK Co., Ltd.
The Power Leader of Global Regulatory Compliance

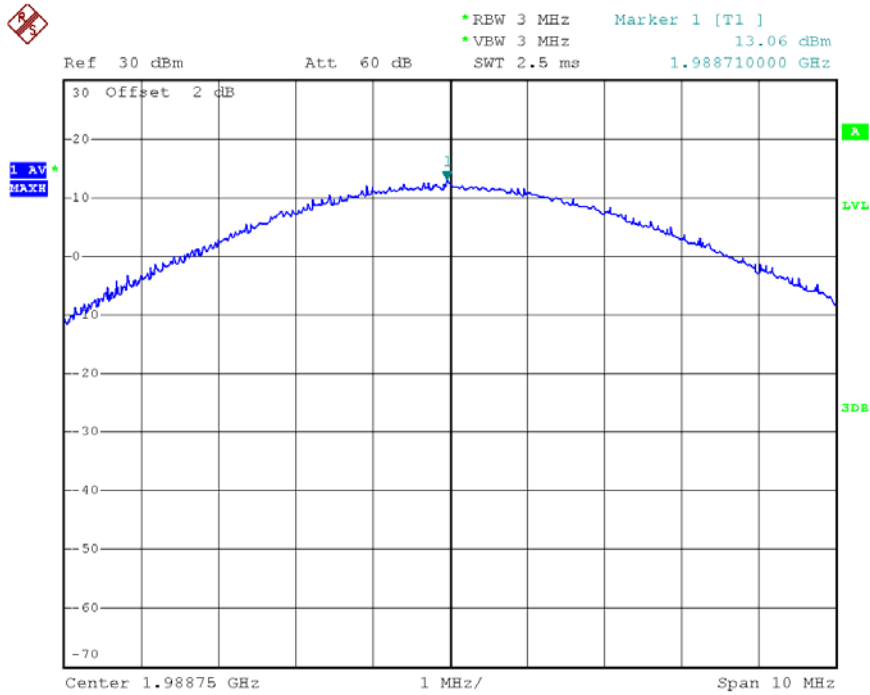
CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea

Tel: +82-31-339-9970 Fax: +82-31-339-9855

www.e-ctk.com

- Power Out US PCS Mode ch.1175 for 1xRTT





CTK Co., Ltd.

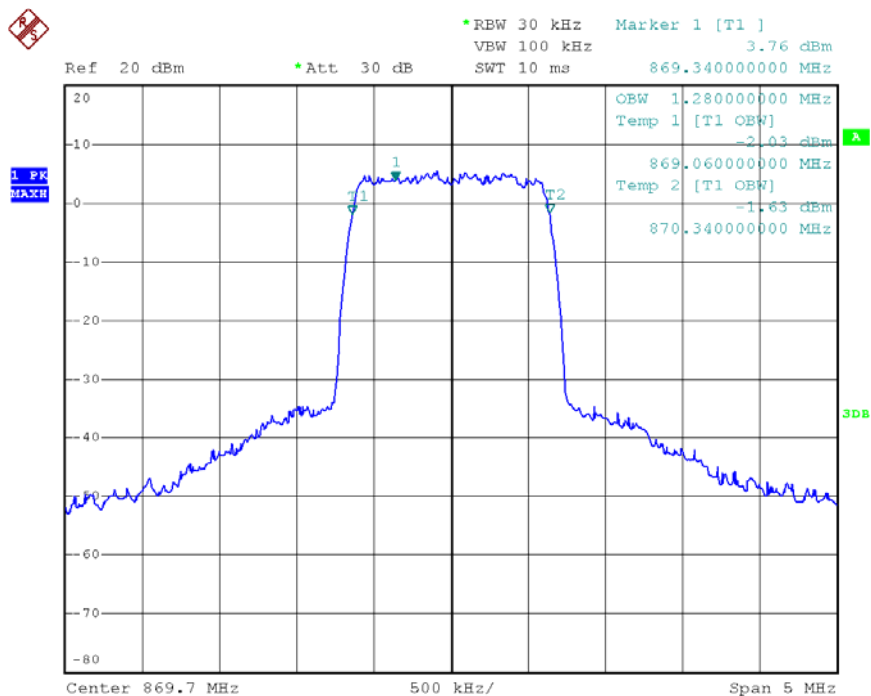
CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea

Tel: +82-31-339-9970 Fax: +82-31-339-9855

www.e-ctk.com

- Occupied Bandwidth CDMA Mode ch.1013 for 1xRTT





CTK Co., Ltd.
The Power Leader of Global Regulatory Compliance

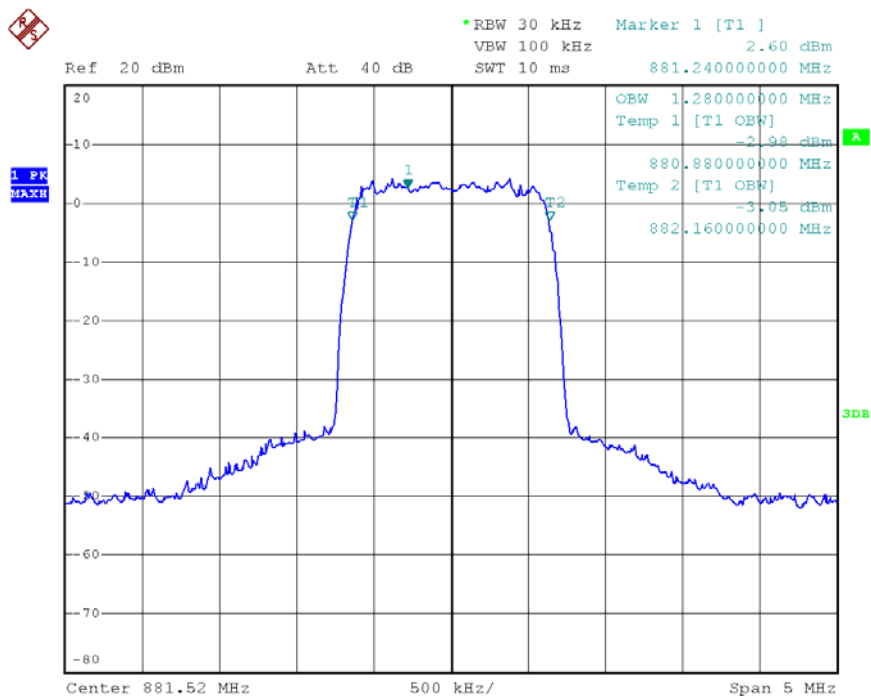
CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea

Tel: +82-31-339-9970 Fax: +82-31-339-9855

www.e-ctk.com

- Occupied Bandwidth CDMA Mode ch.384 for 1xRTT





CTK Co., Ltd.
The Power Leader of Global Regulatory Compliance

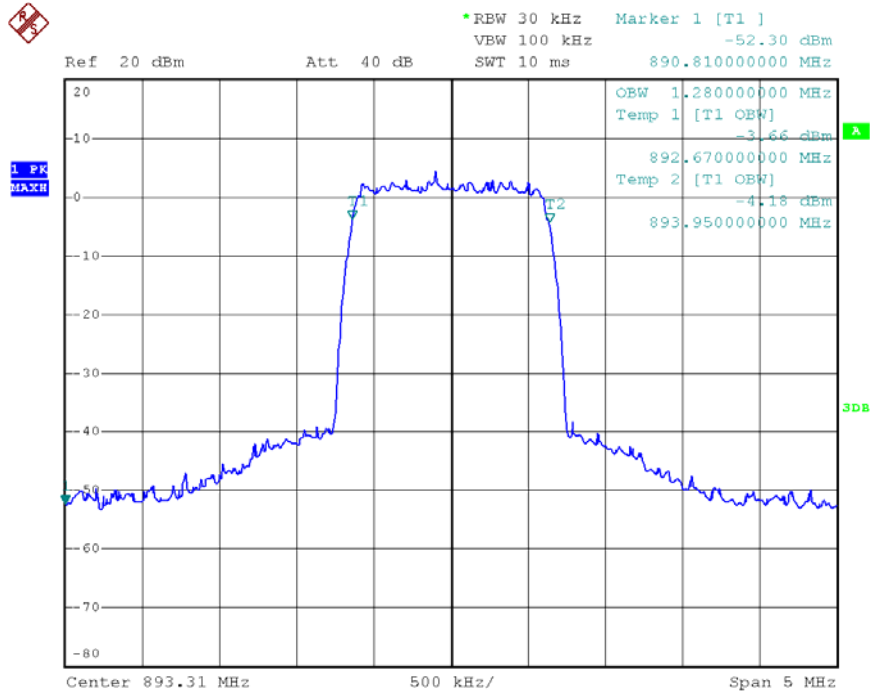
CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea

Tel: +82-31-339-9970 Fax: +82-31-339-9855

www.e-ctk.com

- Occupied Bandwidth CDMA Mode ch.777 for 1xRTT





CTK Co., Ltd.

The Power Leader of Global Regulatory Compliance

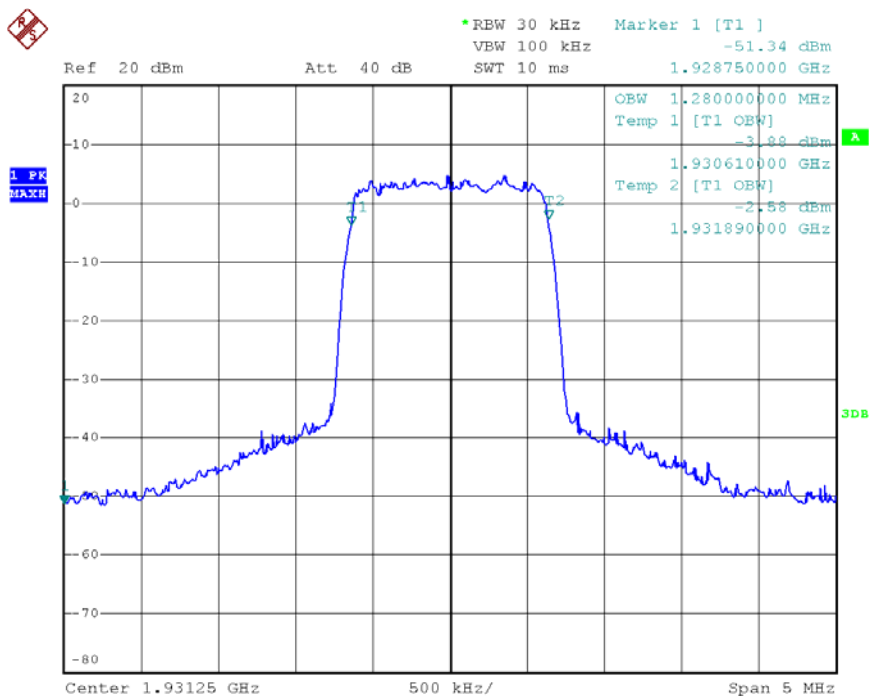
CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea

Tel: +82-31-339-9970 Fax: +82-31-339-9855

www.e-ctk.com

- Occupied Bandwidth US PCS Mode ch.25 for 1xRTT



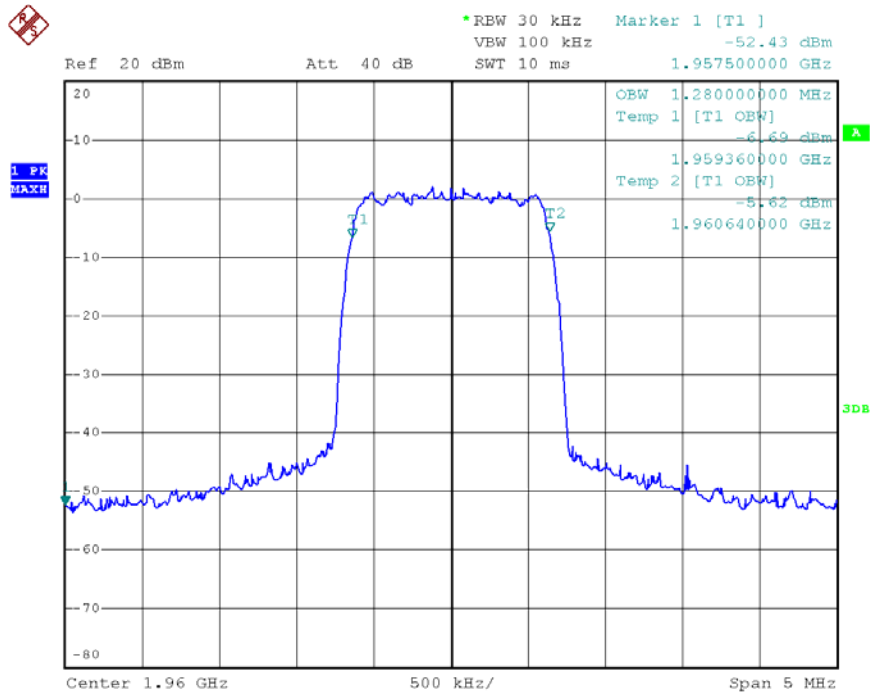


CTK Co., Ltd.
The Power Leader of Global Regulatory Compliance

CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea
Tel: +82-31-339-9970 Fax: +82-31-339-9855
www.e-ctk.com

- Occupied Bandwidth US PCS Mode ch.600 for 1xRTT



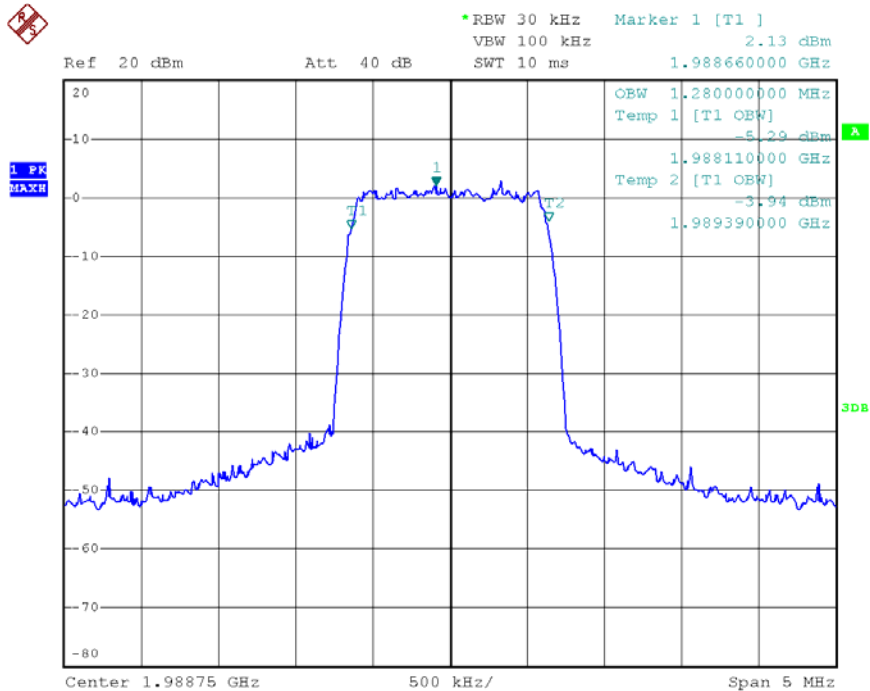


CTK Co., Ltd.
The Power Leader of Global Regulatory Compliance

CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea
Tel: +82-31-339-9970 Fax: +82-31-339-9855
www.e-ctk.com

- Occupied Bandwidth US PCS Mode ch.1175 for 1xRTT



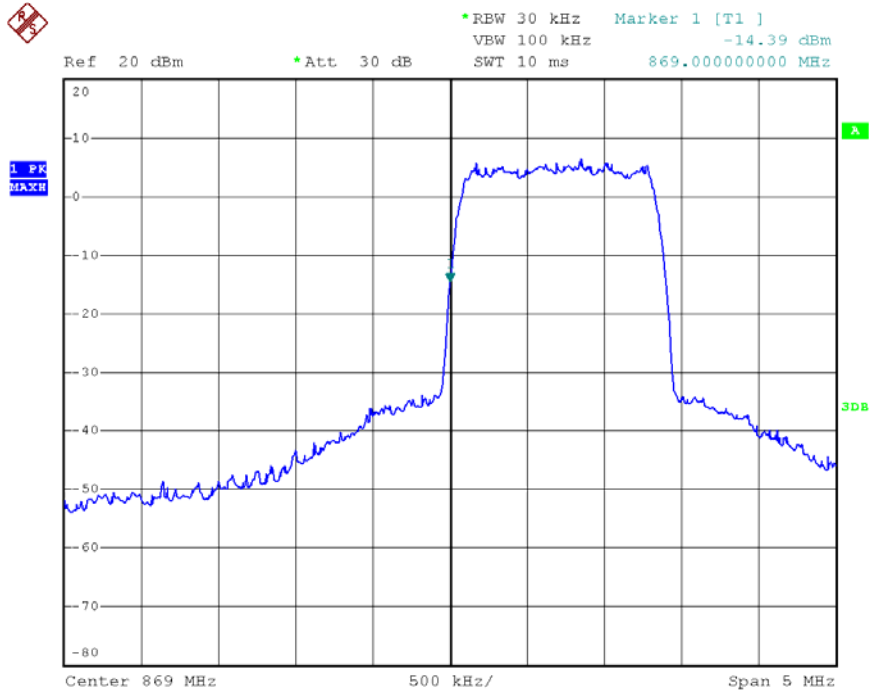


CTK Co., Ltd.
The Power Leader of Global Regulatory Compliance

CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea
Tel: +82-31-339-9970 Fax: +82-31-339-9855
www.e-ctk.com

- Band Edge. CDMA Mode ch.1013 for 1xRTT



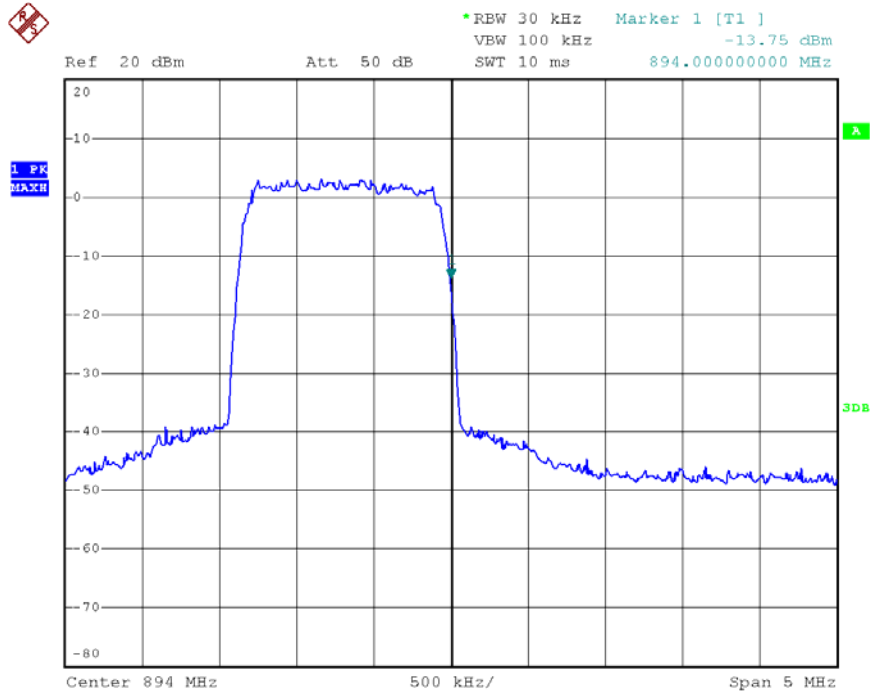


CTK Co., Ltd.
The Power Leader of Global Regulatory Compliance

CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea
Tel: +82-31-339-9970 Fax: +82-31-339-9855
www.e-ctk.com

- Band Edge. CDMA Mode ch.777 for 1xRTT





CTK Co., Ltd.
The Power Leader of Global Regulatory Compliance

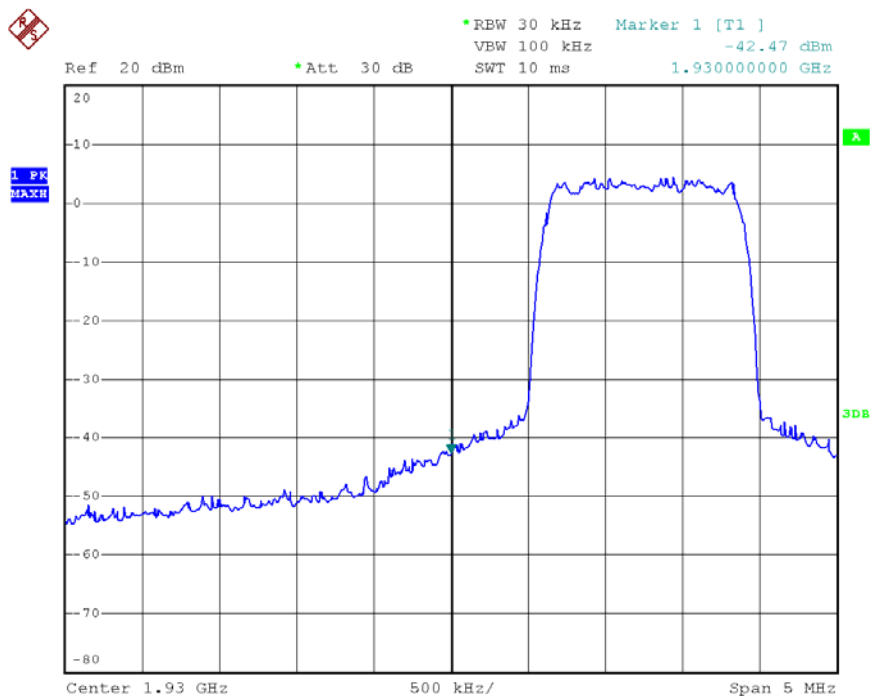
CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea

Tel: +82-31-339-9970 Fax: +82-31-339-9855

www.e-ctk.com

- Band Edge. US PCS Mode ch.25 for 1xRTT



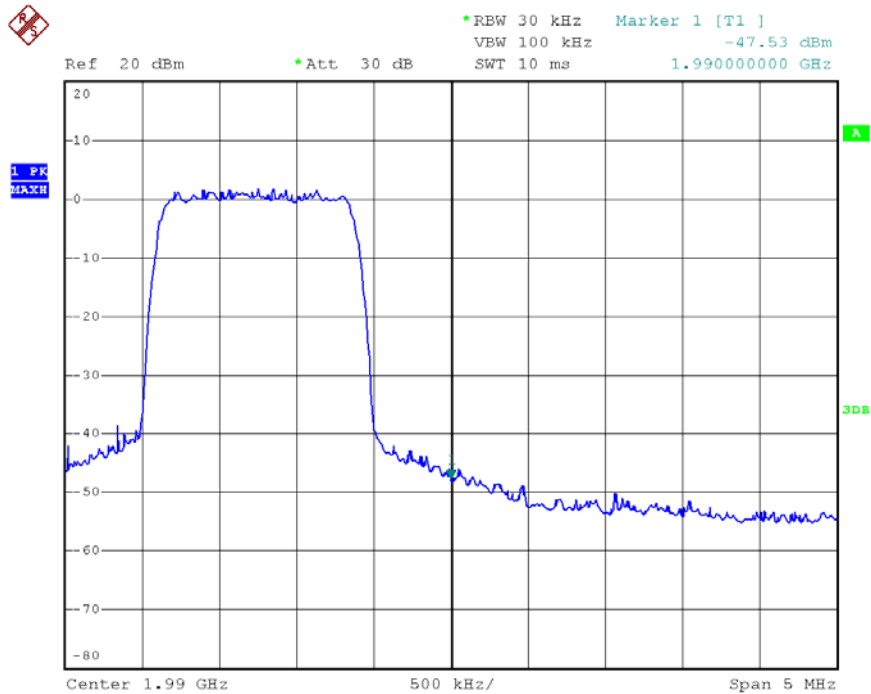


CTK Co., Ltd.
The Power Leader of Global Regulatory Compliance

CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea
Tel: +82-31-339-9970 Fax: +82-31-339-9855
www.e-ctk.com

- Band Edge. US PCS Mode ch.1175 for 1xRTT





CTK Co., Ltd.
The Prime Leader of Global Regulatory Compliance

CTK Co., Ltd.

386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea

Tel: +82-31-339-9970 Fax: +82-31-339-9855

www.e-ctk.com

APPENDIX B – MPE CALCULATION

* * CDMA MPE Calculations * *

The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the user. The MPE calculation for this exposure is shown below.

The peak radiated output power (ERP) is calculated as follows:

$ERP = P + G$ $ERP = 16.43 \text{ dBm}$	Where, P = Power input to the antenna (mW) G = Power gain of the antenna (dBi)
--	--

The numeric gain(G) of the antenna with a gain specified in dB is determined by:

$$G = \text{Log}^{-1} (\text{dB antenna gain} / 10)$$

$$G = \text{Log}^{-1} (1.378 / 10)$$

$$G = 1.37$$

Power density at the specific separation:

$S = PG / (4R^2 \pi)$ $S = (34.20 * 1.37) / (4 * 20^2 * \pi)$ $S = 0.0093 \text{ mW/cm}^2$	Where, S = Maximum power density (mW/cm^2) P = Power input to the antenna (mW) G = Numeric power gain of the antenna R = Distance to the center of the radiation of the antenna (20cm = limit for MPE)
--	--

The Maximum permissible exposure (MPE) for the general population is 1 mW/cm^2 .
The power density at 20cm does not exceed the 1 mW/cm^2 limit.

Estimated safe separation:

$R = \sqrt{(PG / 4 \pi)}$ $R = \sqrt{(34.20 * 1.37 / 4 \pi)}$ $R = 1.93 \text{ cm}$	Where, P = Power input to the antenna (mW) G = Numeric power gain of the antenna R = Distance to the center of the radiation of the antenna (20cm = limit for MPE)
---	--

* * PCS CDMA MPE Calculations * *

The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the user. The MPE calculation for this exposure is shown below.

The peak radiated output power (EIRP) is calculated as follows:

$\text{EIRP} = P + G$ $\text{EIRP} = 17.53 \text{ dBm}$	Where, P = Power input to the antenna (mW) G = Power gain of the antenna (dBi)
---	---

The numeric gain(G) of the antenna with a gain specified in dB is determined by:

$$G = \text{Log}^{-1} (\text{dB antenna gain} / 10)$$

$$G = \text{Log}^{-1} (2.584 / 10)$$

$$G = 1.81$$

Power density at the specific separation:

$S = PG / (4R^2 \pi)$ $S = (34.20 * 1.81) / (4 * 20^2 * \pi)$ $S = 0.0123 \text{ mW/cm}^2$	Where, S = Maximum power density (mW/cm²) P = Power input to the antenna (mW) G = Numeric power gain of the antenna R = Distance to the center of the radiation of the antenna (20cm = limit for MPE)
--	---

The Maximum permissible exposure (MPE) for the general population is 1 mW/cm².
The power density at 20cm does not exceed the 1 mW/cm² limit.

Estimated safe separation:

$R = \sqrt{(PG / 4 \pi)}$ $R = \sqrt{(34.20 * 1.81 / 4 \pi)}$ $R = 2.22 \text{ cm}$	Where, P = Power input to the antenna (mW) G = Numeric power gain of the antenna R = Distance to the center of the radiation of the antenna (20cm = limit for MPE)
---	--