LTA
Laboratory for Test & Approval Co.,Ltd.

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YUKYUNG Technologies

Dates of Tests: Mar 10 ~ Mar 31, 2010
Test Report S/N: LR500191003E
Test Site : LTA CO., LTD.

CERTIFICATION OF COMPLIANCE

FCC ID. **XBQ-S10**

APPLICANT **YUKYUNG TECHNOLOGIES INC.**

Classification	**:**	**Licensed Transmitter worn on body (PCT)**
Manufacturing Description	**:**	**MID(MOBILE INTERNET DEVICE)**
Manufacturer	**:**	**YUKYUNG TECHNOLOGIES INC.**
Manufacturer (RF Module)	**:**	**Huawei Technologies Co.,Ltd (FCC ID:QISEM770W)**
Model name	**:**	**S10**
Test Device Serial No.:	**:**	**Identical prototype**
Rule Part(s)	**:**	**§24(E), §22(H), §2**
Frequency Range (Tx / Rx)	**:**	**826.40~846.60 MHz / 871.40~891.60 MHz (Cellular WCDMA)**
		1852.4~1907.6 MHz / 1932.4~1987.6 MHz (PCS WCDMA)
Max. RF Output Power	**:**	**0.105W ERP Cellular WCDMA**
		0.173 W EIRP PCS WCDMA
Data of issue	**:**	**March 31, 2010**

This test report is issued under the authority of:

Kyung-Taek LEE, Technical Manager

The test was supervised by:

Hyun-Chae You, Test Engineer

This test result only responds to the tested sample. It is not allowed to copy this report even partly without the allowance of the test laboratory. This report must not be used by the applicant to claim product endorsement by any agency.

NVLAP LAB Code.: 200723-0

TABLE OF CONTENTS

1. General information's

1-1 Test Performed

Company name : LTA Co., Ltd.

Address : 243, Jubug-ri,Yangji-Myeon,Youngin-Si, Kyunggi-Do, Korea. 449-822

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E-mail : chahn@ltalab.com

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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".

1-2 Accredited agencies

LTA Co., Ltd. is approved to perform EMC testing by the following agencies:

Agency	Country	Accreditation No.	Validity	Reference
NVLAP	U.S.A	200723-0	2010-09-30	ECT accredited Lab.
RRL	KOREA	KR0049	2011-06-20	EMC accredited Lab.
FCC	U.S.A	610755	2011-04-22	FCC filing
VCCI	JAPAN	R2133, C2307	2011-06-21	VCCI registration
IC	CANADA	IC5799	2010-05-03	IC filing

2. Information's about test item

2-1 Applicant & Manufacturer

Company name	:	YUKYUNG TECHNOLOGIES INC.
Address	:	200-11, Anyang-Dong, Manan-Ku, Anyang-Si, Kyunggi-Do, Korea
Tel / Fax	:	TEL No : +82-31-463-6906 / FAX No : +82-31-445-5995

2-2 Equipment Under Test (EUT)

Trade name	:	MID(MOBILE INTERNET DEVICE)
Model name	:	S10
Date of receipt	:	March 09, 2010
EUT condition	:	Pre-production, not damaged
HSPA Module	:	Huawei Technologies Co.,Ltd (FCC ID:QISEM770W) Identification mark: 0682
Antenna type	:	Swivel Antenna
RF output power	:	Cellular WCDMA(22.0dBm) / PCS WCDMA (22.07dBm) – Conducted power
Modulation	:	QPSK
Temperature range	:	0℃ ~ +40℃
Power for Batt.	:	Battery Pack: 7.4V (Li-Ion Polymer RECHARGEABLE BATTERY)

2-3 Tested frequency

	Cellular WCDMA		PCS WCDMA	
	Channel	**Frequency (MHz)**	**Channel**	**Frequency (MHz)**
LOW	4132	826.4	9262	1852.4
MID	4182	836.4	9400	1880.0
HIGH	4233	846.4	9538	1907.6

3. Test Report

3.1 Summary of tests

Parameter	Status
Transmitter Requirements	
I. FCC Part Section(s)	
Output Power	C
Occupied Bandwidth	C
Band Edges Compliance	C
Spurious emission	C
Frequency Stability	C

Note 1: C=Complies NC=Not Complies NT=Not Tested NA=Not Applicable

Note 2: The data in this test report are traceable to the national or international standards.

The sample was tested according to the following specification:

ANSI C-63.4-2003

3.2 Technical Characteristics Test

3.2.1 Effective Radiated Power Output

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 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. For GSM signals, an average detector is used, with RBW=VBW=3MHz, SPAN=10MHz. 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. The conducted power at the terminals of the dipole is measured. The ERP is recorded.

3.2.2 Radiation Spurious and Harmonic Emissions

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

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. The Spectrum was investigated from 30MHz to the 10^{th} Harmonic of the fundamental. A peak detector is used. With RBW=VBW=1MHz. The value that we could measure was only reported. 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.

3.3 DESCRIPTION OF TESTS

3.3.1 Output Power

Effective Radiated Power Output (Cellular WCDMA)

Measurement Data: WCDMA

Channel	Frequency (MHz)	TEST CONDITIONS				
		Ref. level (dBm)	Pol. (H/V)	ERP (dBm)	ERP (W)	Battery
4132	826.4	-20.95	V	19.68	0.093	STD
4182	836.4	-22.38	V	20.23	0.105	STD
4233	846.4	-20.25	V	19.18	0.083	STD

Measurement Data: HSDPA

Channel	Frequency (MHz)	TEST CONDITIONS				
		Ref. level (dBm)	Pol. (H/V)	ERP (dBm)	ERP (W)	Battery
4132	826.4	-21.05	V	19.58	0.091	STD
4182	836.4	-22.45	V	20.16	0.104	STD
4233	846.4	-20.34	V	19.09	0.081	STD

Note 1: Radiated measurements at 3 meters by Substitution Method.

Equivalent Isotropic Radiated Power (PCS WCDMA)

Measurement Data: WCMA

Channel	Frequency (MHz)	TEST CONDITIONS				
		Ref. level (dBm)	Pol. (H/V)	EIRP (dBm)	EIRP (W)	Battery
9262	1852.4	-19.09	V	22.38	0.173	STD
9400	1880.0	-19.38	V	21.98	0.158	STD
9538	1907.6	-19.52	V	21.87	0.154	STD

Measurement Data: HSDPA

Channel	Frequency (MHz)	TEST CONDITIONS				
		Ref. level (dBm)	Pol. (H/V)	EIRP (dBm)	EIRP (W)	Battery
9262	1852.4	-19.13	V	22.34	0.171	STD
9400	1880.0	-19.43	V	21.93	0.156	STD
9538	1907.6	-19.59	V	21.80	0.151	STD

Note 2: Radiated measurements at 3 meters by Substitution Method.

3.3.2 Occupied Bandwidth

The spectrum analyzer is set to:

Center frequency = the highest, middle and the lowest channels

Span = 10 MHz (approximately 2 or 3 times of the 20 dB bandwidth)

RBW = 50 kHz

Sweep = auto

VBW = 500 kHz

Detector function = peak

Trace = max hold

dB/Div = 10dB

Measurement Data: Cellular WCDMA

Frequency (MHz)	Channel No.(DL)	Channel No.(UL)	Test Results(MHz)
			99% Bandwidth
826.4	4357	4132	4.17
836.4	4407	4182	4.18
846.6	4458	4233	4.17

Measurement Data: PCS WCDMA

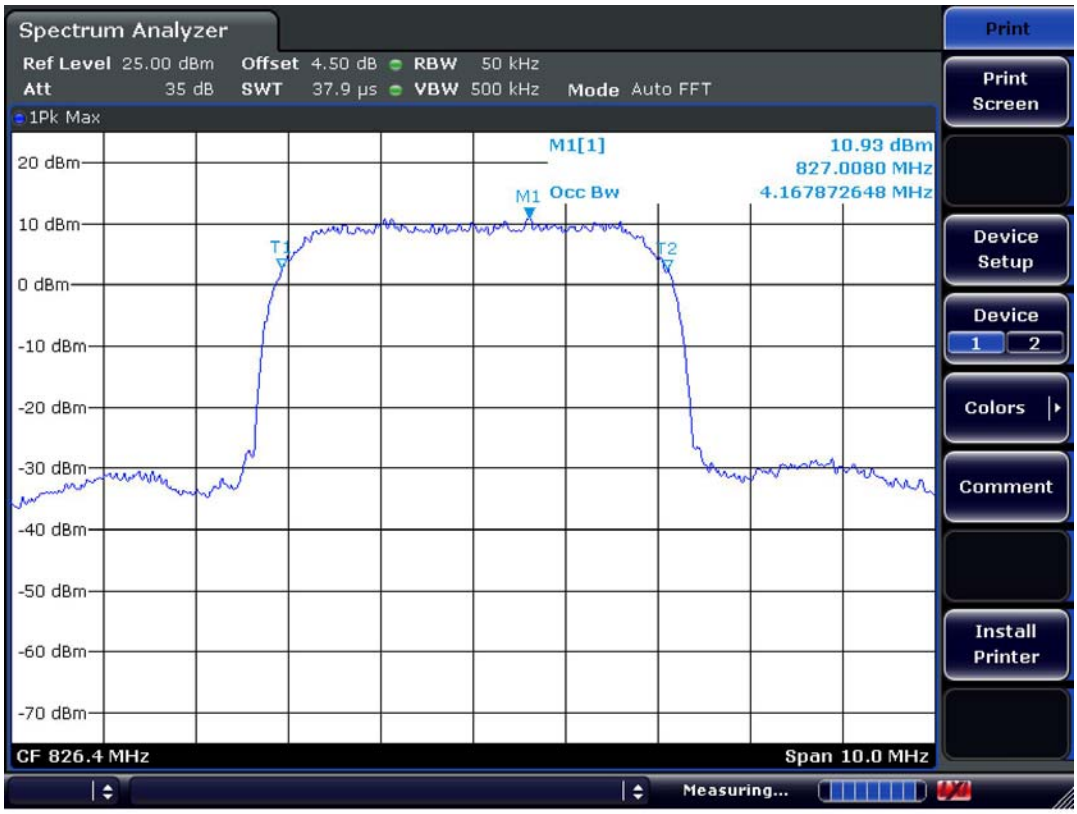
Frequency (MHz)	Channel No.(DL)	Channel No.(UL)	Test Results(MHz)
			99% Bandwidth
1852.4	9662	9262	4.17
1880.0	9800	9400	4.17
1907.6	9938	9538	4.18

- See next pages for actual measured spectrum plots.

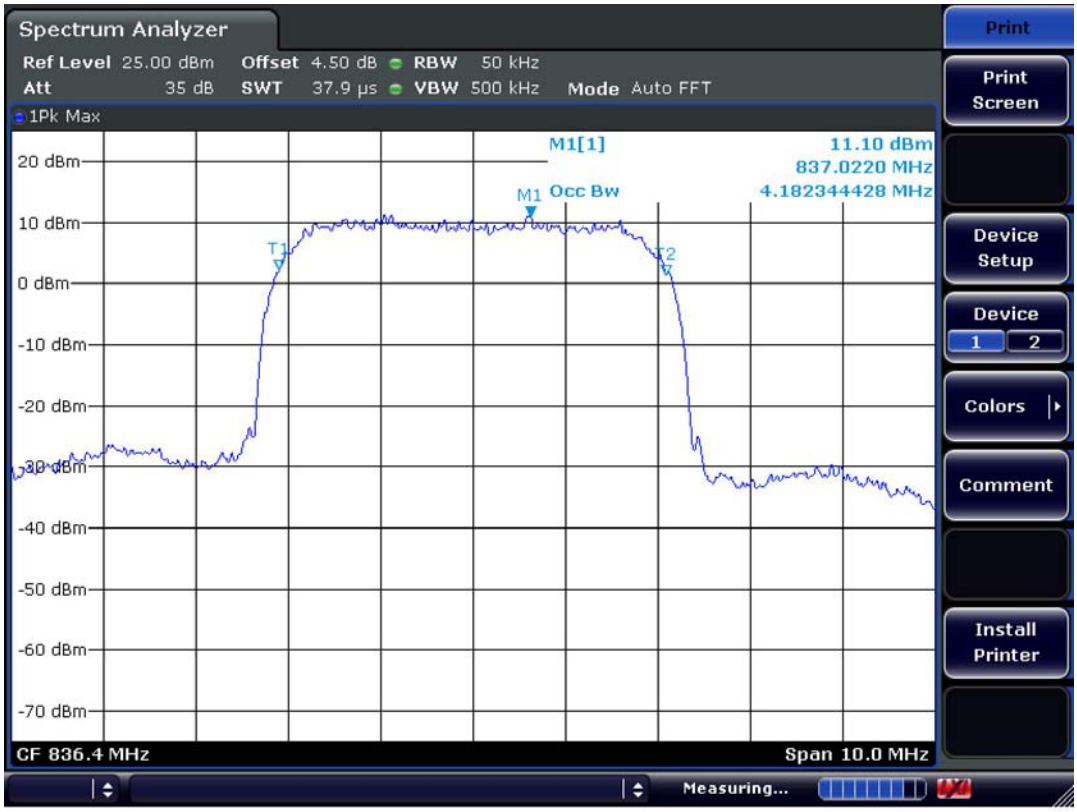
Minimum Standard:

N/A

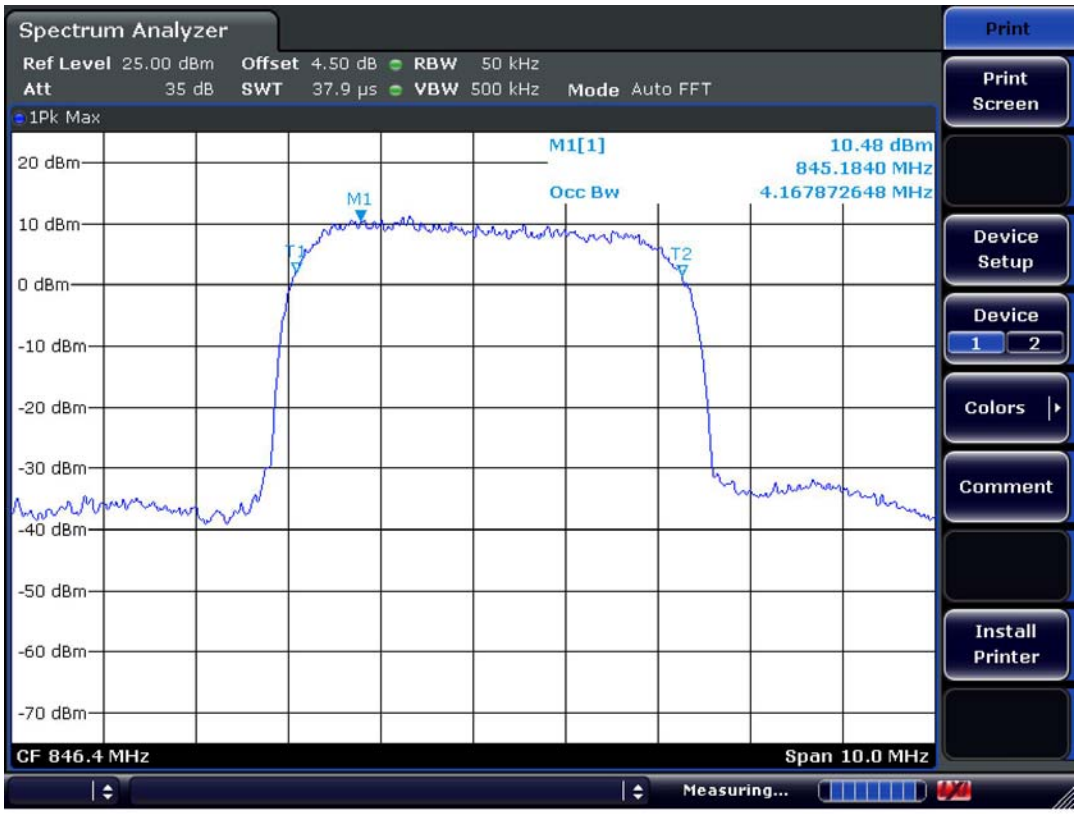
Channel 4132 of Cellular WCDMA



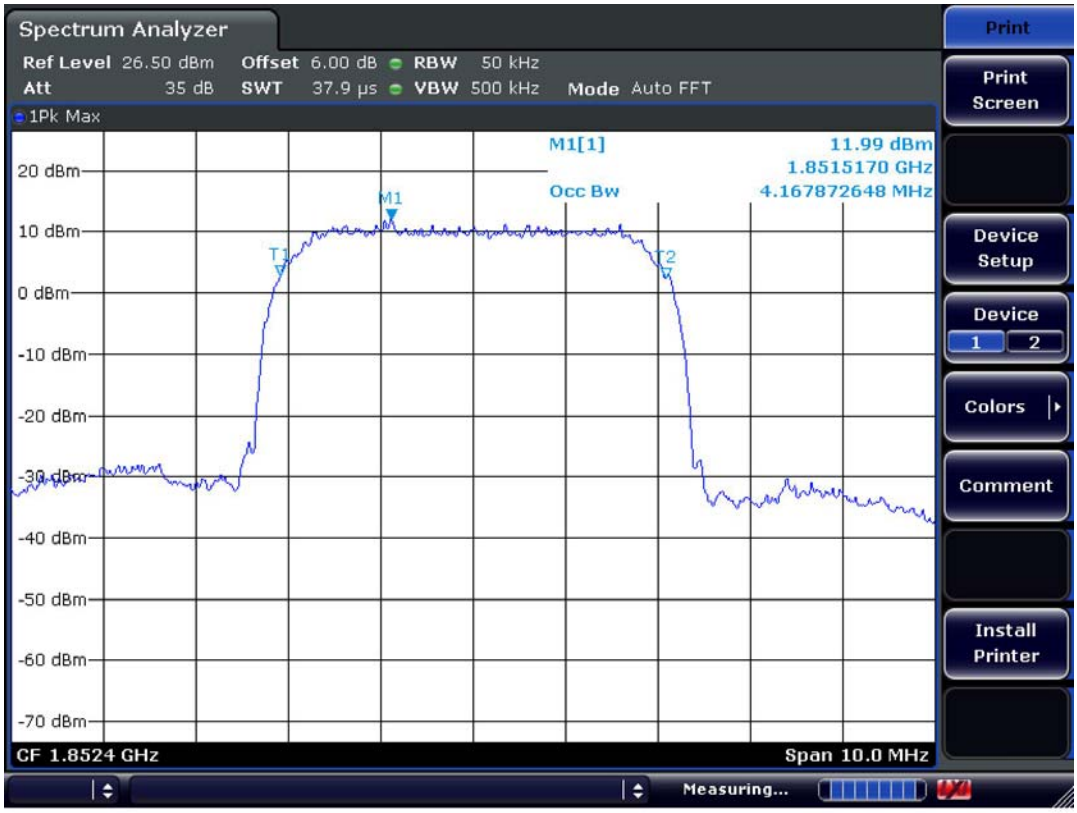
Channel 4182 of Cellular WCDMA



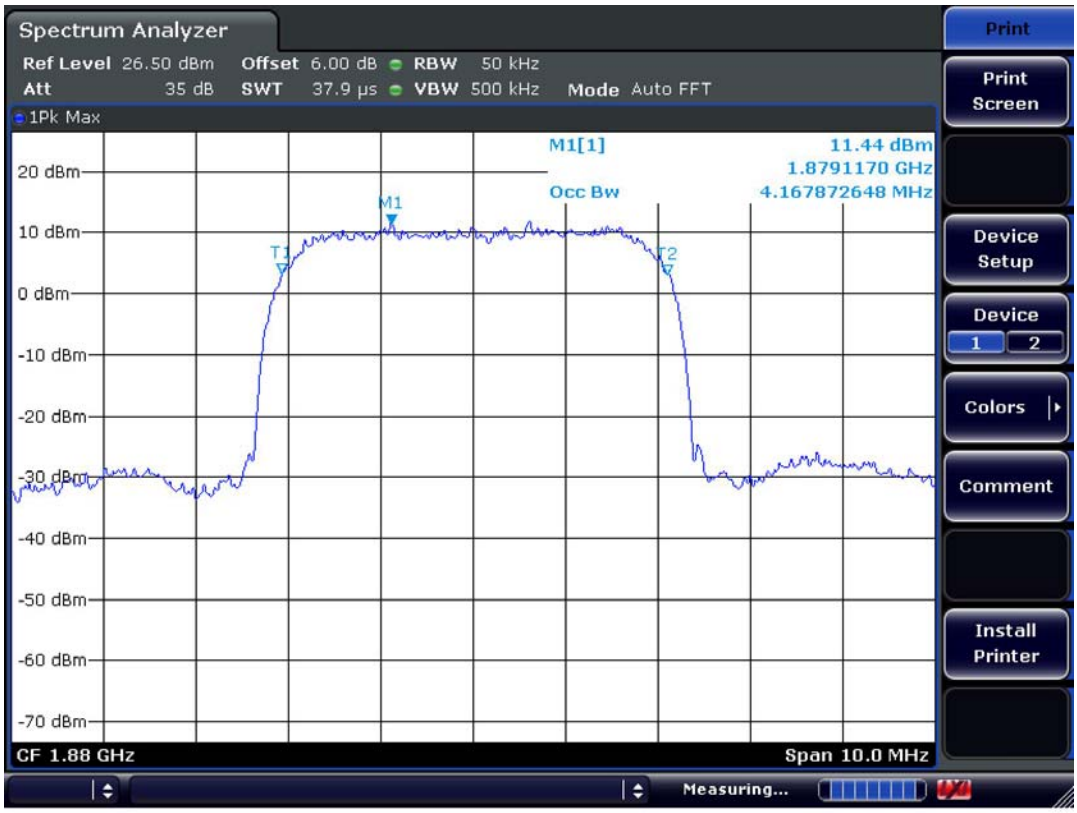
Channel 4233 of Cellular WCDMA



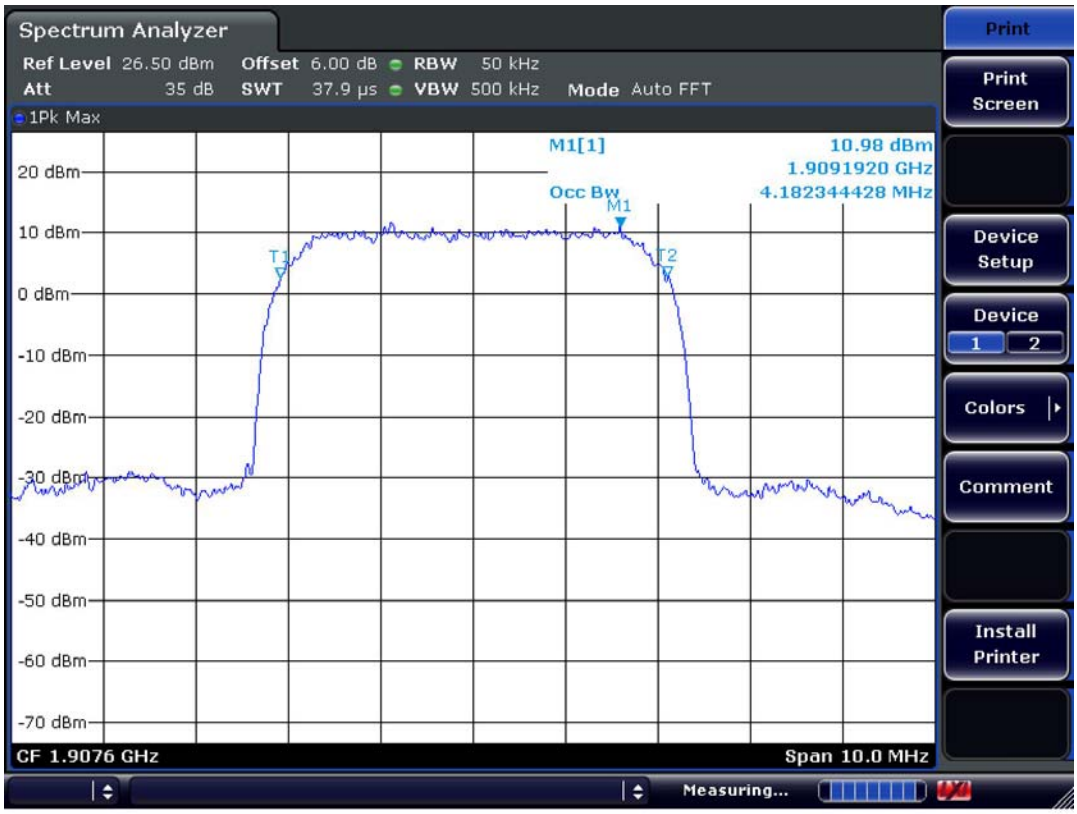
Channel 9262 of PCS WCDMA



Channel 9400 of PCS WCDMA



Channel 9538 of PCS WCDMA



3.3.3 BANDE EDGES COMLIANCE

The spectrum analyzer is set to:

Center frequency = the highest, middle and the lowest channels

Span = 10 MHz (approximately 2 or 3 times of the 20 dB bandwidth)

RBW = 50 kHz

VBW = 200 kHz

Trace = max hold

Sweep = auto

Detector function = peak

dB/Div = 10dB

Measurement Data: Complies

- See next pages for actual measured spectrum plots.

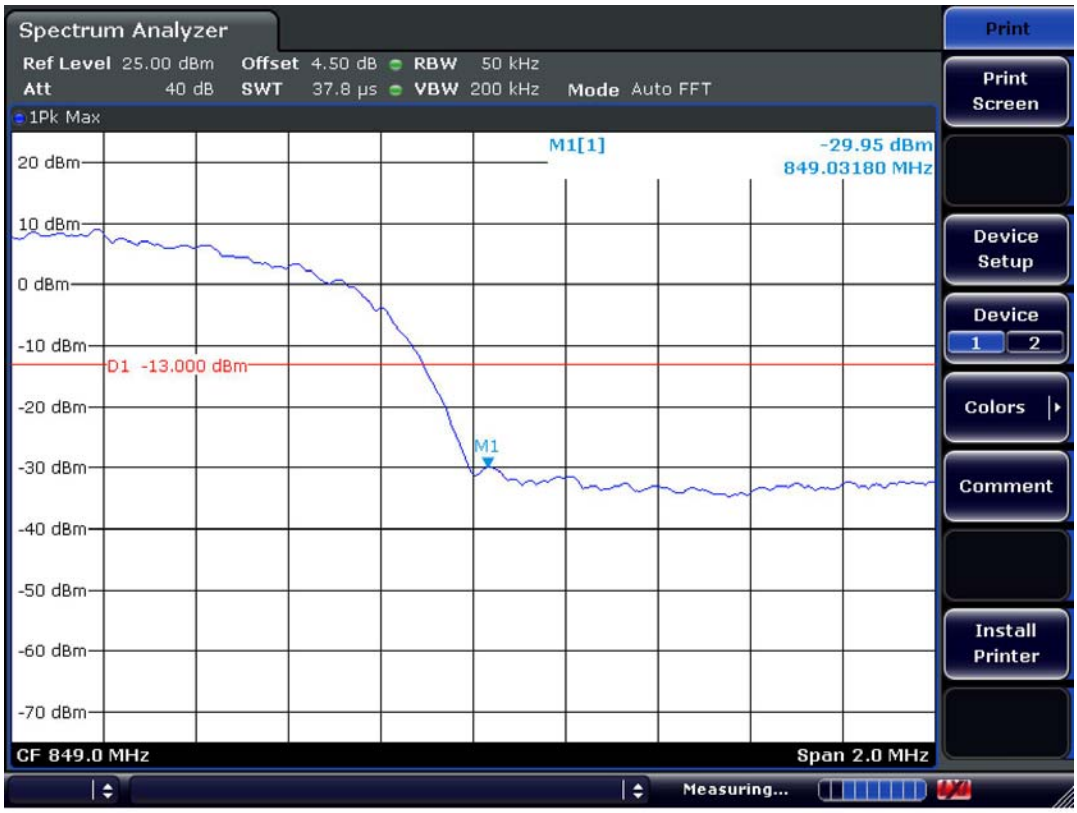
Minimum Standard:

Compliance with part 22.917, all spurious emission must be attenuated below the transmitter power by at least 43 +10 log10 P（W）. (Whereas P is the rated power of the EUT).

Rated Power :	24 dBm
Required attenuation :	43+10log(0.25) = 37 , 24dBm-37dB
Absolute level :	-13dBm

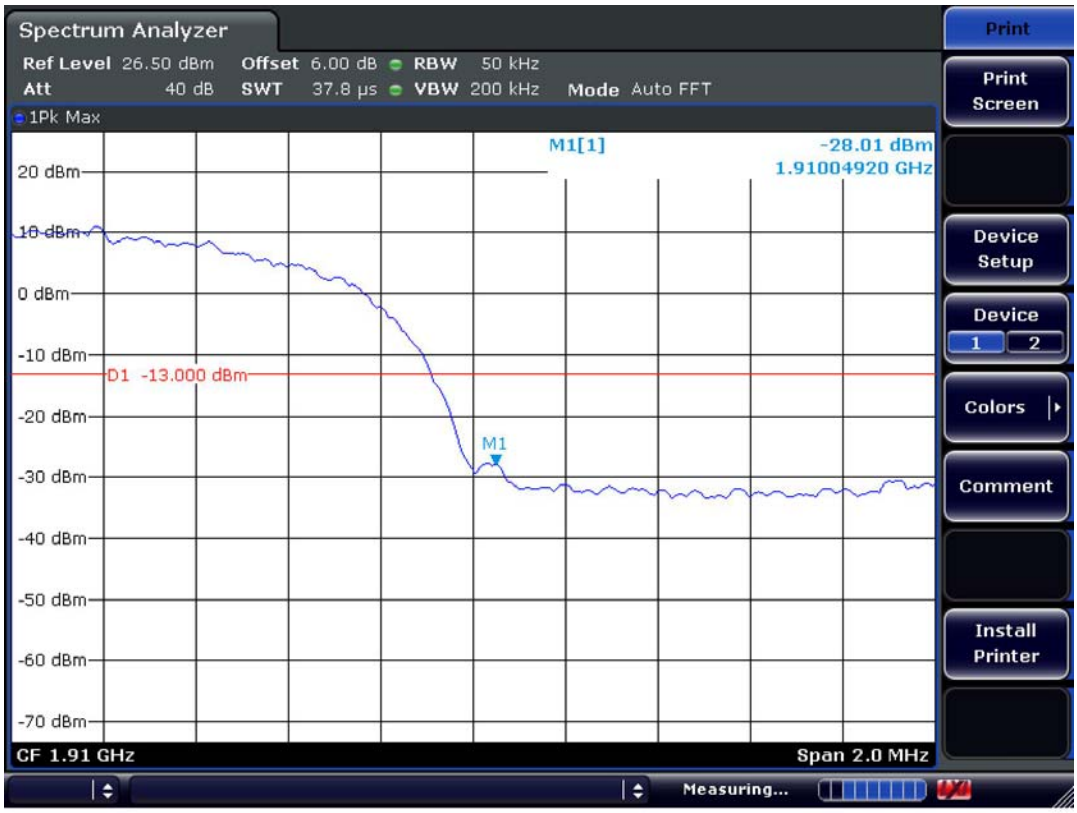
Channel 4132 of Cellular WCDMA

Channel 4233 of Cellular WCDMA



Channel 9262 of PCS WCDMA

Channel 9538 of PCS WCDMA



3.3.2 Field Strength of spurious Radiation

OPERATING FREQUENCY : 826.4 MHz

CHANNEL : 4132(Low)

MEASURED OUTPUT POWER : 20.23 dBm = 0.105 W

MODULATION : WCDMA

DISTANCE : 3 meters

LIMIT : 43 + 10 $\log_{10}$ (W) = 33.21 dBc

Freq. (MHz)	**LEVEL@ ANTENNA TERMINALS** (dBm)	**SUBSTITUTE ANTENNA GAIN** (dBi)	**CORRECT GENERATOR LEVEL** (dBm)	**POL** (H/V)	(dBc)
-	-	-	-	-	-
No emissions were detected are a level greater than 20dB below limit.					
-	-	-	-	-	-

Note1: Radiated measurements at 3 meters by Substitution Method.

--- Blank ---

3.3.2 Field Strength of spurious Radiation --- Continue

OPERATING FREQUENCY : 836.4 MHz

CHANNEL : 4182(Mid)

MEASURED OUTPUT POWER : 20.23 dBm = 0.105 W

MODULATION : WCDMA

DISTANCE : 3 meters

LIMIT : $43 + 10 \log_{10} (W)$ = 33.21 dBc

Freq. (MHz)	**LEVEL@ ANTENNA TERMINALS** (dBm)	**SUBSTITUTE ANTENNA GAIN** (dBi)	**CORRECT GENERATOR LEVEL** (dBm)	**POL** (H/V)	(dBc)
-	-	-	-	-	-
No emissions were detected are a level greater than 20dB below limit.					
-	-	-	-	-	-

Note1: Radiated measurements at 3 meters by Substitution Method.

--- Blank ---

3.3.2 Field Strength of spurious Radiation --- Continue

OPERATING FREQUENCY : 846.4 MHz

CHANNEL : 4233(High)

MEASURED OUTPUT POWER : 20.23 dBm = 0.105 W

MODULATION : WCDMA

DISTANCE : 3 meters

LIMIT : $43 + 10 \log_{10} (W)$ = 33.21 dBc

Freq. (MHz)	LEVEL@ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
-	-	-	-	-	-
No emissions were detected are a level greater than 20dB below limit.					
-	-	-	-	-	-

Note1: Radiated measurements at 3 meters by Substitution Method.

--- Blank ---

3.3.2 Field Strength of spurious Radiation --- Continue

OPERATING FREQUENCY : 1852.4 MHz

CHANNEL : 9262(Low)

MEASURED OUTPUT POWER : 22.38 dBm = 0.173 W

MODULATION : WCDMA

DISTANCE : 3 meters

LIMIT : $43 + 10 \log_{10} (W)$ = 35.38 dBc

Freq. (MHz)	LEVEL@ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
-	-	-	-	-	-
No emissions were detected are a level greater than 20dB below limit.					
-	-	-	-	-	-

Note1: Radiated measurements at 3 meters by Substitution Method.

--- Blank ---

3.3.2 Field Strength of spurious Radiation --- Continue

OPERATING FREQUENCY : 1880.0 MHz

CHANNEL : 9400(Mid)

MEASURED OUTPUT POWER : 22.38 dBm = 0.173 W

MODULATION : WCDMA

DISTANCE : 3 meters

LIMIT : $43 + 10 \log_{10} (W)$ = 35.38 dBc

Freq. (MHz)	**LEVEL@ ANTENNA TERMINALS** (dBm)	**SUBSTITUTE ANTENNA GAIN** (dBi)	**CORRECT GENERATOR LEVEL** (dBm)	**POL** (H/V)	(dBc)
-	-	-	-	-	-
No emissions were detected are a level greater than 20dB below limit.					
-	-	-	-	-	-

Note1: Radiated measurements at 3 meters by Substitution Method.

--- Blank ---

3.3.2 Field Strength of spurious Radiation --- Continue

OPERATING FREQUENCY : 1907.6 MHz

CHANNEL : 9538(High)

MEASURED OUTPUT POWER : 22.38 dBm = 0.173 W

MODULATION : WCDMA

DISTANCE : 3 meters

LIMIT : 43 + 10 $\log_{10}$ (W) = 35.38 dBc

Freq. (MHz)	**LEVEL@ ANTENNA TERMINALS** (dBm)	**SUBSTITUTE ANTENNA GAIN** (dBi)	**CORRECT GENERATOR LEVEL** (dBm)	**POL** (H/V)	(dBc)
-	-	-	-	-	-
No emissions were detected are a level greater than 20dB below limit.					
-	-	-	-	-	-

Note1: Radiated measurements at 3 meters by Substitution Method.

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3.3.2 Frequency Stability

Procedure:

The frequency stability shall be measured with variation of ambient temperature as follows:

(1) From -30 ° to +50 ° centigrade for all equipment except that specified in subparagraphs

(2) and (3) of paragraph 2.1055

(a) Frequency measurements shall be made at the extremes of the specified temperature range and at intervals of not more than 10° centigrade through the range. A period of time sufficient to stabilize all of the components of the oscillator circuit at each temperature level shall be allowed prior to frequency measurement. The short-term transient effects on the frequency of the transmitter due to keying (except for broadcast transmitters) and any heating element cycling normally occurring at each ambient temperature level also shall be shown. Only the portion or portions of the transmitter containing the frequency determining and stabilizing circuitry need be subjected to the temperature variation test.

(b) The frequency stability shall be measured with variation of primary supply voltage as follows:

(1) Vary primary supply voltage from 95 to 105 percent of the nominal value for other than hand carried battery equipment.

(2) For hand carried, battery powered equipment, reduce primary supply voltage to the battery operating end point, which shall be specified by the manufacturer.

(3) The supply voltage shall be measured at the input to the cable normally provided with the equipment, or at the power supply terminals if cables are not normally provided. Effects on frequency of transmitter keying (except for broadcast transmitters) and any heating element cycling at the nominal supply voltage and at each extreme also shall be shown.

(c) When deemed necessary, the Commission may require tests of frequency stability under conditions in addition to those specifically set out in paragraphs (a), (b), (c) of this section. (For example, measurements showing the effect of proximity to large metal objects, or of various types of antennas, may be required for portable equipment.)

Measurement Data: Measurement Results vs. Variation of Temperature

- See next pages

Minimum Standard:

N/A

Measurement Data: Cellular WCDMA 7.4V DC Channel 4182

Temperature	Nominal Frequency (MHz)	Measured Frequency Error (Hz)	Result
-30 °C	836.4	15	Pass
-20 °C	836.4	34	Pass
-10 °C	836.4	24	Pass
0 °C	836.4	17	Pass
+10 °C	836.4	30	Pass
+20 °C	836.4	52	Pass
+30 °C	836.4	43	Pass
+40 °C	836.4	25	Pass
+50 °C	836.4	17	Pass

Measurement Data: PCS WCDMA 7.4V DC Channel 9400

Temperature	Nominal Frequency (MHz)	Measured Frequency Error (Hz)	Result
-30 °C	1880.0	38	Pass
-20 °C	1880.0	24	Pass
-10 °C	1880.0	17	Pass
0 °C	1880.0	25	Pass
+10 °C	1880.0	11	Pass
+20 °C	1880.0	9	Pass
+30 °C	1880.0	24	Pass
+40 °C	1880.0	53	Pass
+50 °C	1880.0	21	Pass

Measurement Data: Cellular WCDMA 7.4V DC Channel 4182

Voltage	Nominal Frequency (MHz)	Measured Frequency Error (Hz)	Result
7.4V	836.4	25	Pass
6.0V	836.4	38	Pass

Measurement Data: PCS WCDMA 7.4V DC Channel 9400

Voltage	Nominal Frequency (MHz)	Measured Frequency Error (Hz)	Result
7.4V	1880.0	19	Pass
6.0V	1880.0	12	Pass

Minimum Standard:

N/A

APPENDIX

TEST EQUIPMENT USED FOR TESTS

	Description	Model No.	Serial No.	Manufacturer	Next Cal. Date
1	Spectrum Analyzer	FSV-30	100757	R&S	Feb-11
2	Spectrum Analyzer	8563E	3425A02505	HP	Apr-10
3	Spectrum Analyzer	8594E	3710A04074	HP	Oct-10
4	Signal Generator	8648C	3623A02597	HP	Apr-10
5	Signal Generator	83711B	US34490456	HP	Apr-10
6	Attenuator (3dB)	8491A	37822	HP	Oct-10
7	Attenuator (10dB)	8491A	63196	HP	Oct-10
8	Attenuator (30dB)	8498A	1801A06689	HP	Oct-10
9	EMI Test Receiver	ESVD	843748/001	R&S	Apr-10
10	Horn Antenna(18 ~ 40GHz)	SAS-574	154	Schwarzbeck	Nov-10
11	Horn Antenna(18 ~ 40GHz)	SAS-574	155	Schwarzbeck	Nov-10
12	RF Amplifier	8447D	2949A02670	HP	Oct-10
13	RF Amplifier	8449B	3008A02126	HP	Apr-10
14	Test Receiver	ESHS10	828404/009	R&S	Apr-10
15	TRILOG Antenna	VULB 9160	9160-3212	SCHWARZBECK	Apr-11
16	Log.-Per. Antenna	VULP 9118	9118 A 401	SCHWARZBECK	Apr-11
17	Biconical Antenna	BBA 9106	VHA 9103-2315	SCHWARZBECK	Apr-11
18	Horn Antenna	3115	00055005	ETS LINDGREN	Mar-11
19	Horn Antenna	BBHA 9120D	9120D122	SCHWARZBECK	Dec-11
20	Dipole Antenna	VHA9103	2116	SCHWARZBECK	Nov-10
21	Dipole Antenna	VHA9103	2117	SCHWARZBECK	Nov-10
22	Dipole Antenna	VHA9105	2261	SCHWARZBECK	Nov-10
23	Dipole Antenna	VHA9105	2262	SCHWARZBECK	Nov-10
24	Hygro-Thermograph	THB-36	0041557-01	ISUZU	Apr-10
25	Splitter (SMA)	ZFSC-2-2500	SF617800326	Mini-Circuits	-
26	Signal Generator	E4436B	US39260781	Agilent	May-10
27	Power Divider	11636A	6243	HP	Oct-10
28	DC Power Supply	6622A	3448A03079	HP	Oct-10
29	Frequency Counter	5342A	2826A12411	HP	Apr-10
30	Power Meter	EPM-441A	GB32481702	HP	Apr-10
31	Power Sensor	8481A	2702A64048	HP	Apr-10
32	Audio Analyzer	8903B	3729A18901	HP	Oct-10
33	Modulation Analyzer	8901B	3749A05878	HP	Oct-10
34	TEMP & HUMIDITY Chamber	YJ-500	LTAS06041	JinYoung Tech	Oct-10
35	LOOP-ANTENNA	FMZB 1516	151602/94	SCHWARZBECK	Mar-11
36	Communication Equipment	E5515C	GB42230452	Agilent	July-10
37	LISN	ENV216	100408	R&S	Oct-10