TEST REPORT

For

Mobile Phone

In conformity with

FCC Part24 (Oct 01,2007)
IC RSS-133 Issue5

Model: F-09A

FCC ID: VQK-F09A

Test Item: Mobile Phone

Report No: RY0902P27R1

Issue Date: Feb. 27, 2009

Prepared for

Fujitsu Limited.
1-1, Kamikodanaka 4-chome, Nakahara-ku, Kawasaki 211-8588, Japan

Prepared by

RF Technologies Ltd.
472, Nippa-cho, Kohoku-ku, Yokohama, 223-0057, Japan
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Table of Contents

History

Report No.	Issue Date	Revision Contents	Revised by
RY0902P27R1	2009Feb27	Initial Issue	T.Kato

1 General information

1.1 *Product description*

Test item	: Mobile phone
Manufacturer	: Fujitsu Limited
Address	: 1-1, Kamikodanaka 4-chome, Nakahara-ku, Kawasaki 211-8588, Japan
Model	: F-09A
FCC ID	: VQK-F09A
IC Certification No.	: 337E-F09A
Operating frequency range	: TX 1850.2-1909.8 MHz (PCS1900) : RX 1930.2-1989.8 MHz (PCS1900)
Type of Modulation	: GMSK
Receipt date of EUT	: Feb 03 2009
Nominal power voltages	: 3.7 VDC (Lithium-ion battery)
Power Class	: 1 (Maximum power 30dBm nominal)
Antenna Type	: integral antenna
Serial numbers	: 3567 5202 0009 441 (for Radiated test) 3567 5202 0008 153 (for Conducted test)

1.2 *Test(s) performed/ Summary of test result*

Applicable Standard(s)	: FCC Part24(Oct 01,2007) RSS-133 Issue5
Test(s) started	: Feb 05, 2009
Test(s) completed	: Feb 24, 2009
Purpose of test(s)	: Grant for Certification of FCC / IC
Summary of test result	: Complied

Note: The above judgment is only based on the measurement data and it does not include the measurement uncertainty. Accordingly, the statement below is applied to the test result.
The EUT complies with the limit required in the standard in case that the margin is not less than the measurement uncertainty in the Laboratory.
Compliance of the EUT is more probable than non-compliance is case that the margin is less than the measurement uncertainty in the Laboratory.

Test engineer : T. Kato (EMC testing department)

Reviewer : T.Ikegami (Manager, EMC testing department)

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1.3 *Test facility*

The Federal Communications Commission has reviewed the technical characteristics of the test facilities at RF Technologies Ltd., located in 472, Nippa-cho, Kohoku-ku, Yokohama, 223-0057, Japan, and has found these test facilities to be in compliance with the requirements of 47 CFR Part 15, section 2.948, per October 01, 2007.
The description of the test facilities has been filed under registration number 319924 at the Office of the Federal Communications Commission. The facility has been added to the list of laboratories performing these test services for the public on a fee basis.
The list of all public test facilities is available on the Internet at http://www.fcc.gov.

Registered by Voluntary Control Council for Interference by Information Technology Equipment (VCCI).
Each registered facility number is as follows;
Test site (Semi-anechoic chamber 3m) R-2393
Test site (Shielded room) C-2617

Registered by Industry Canada (IC). The registered facility number is as follows;
Test site No.1(Semi-anechoic chamber 3m) : 6974A-1

Accredited by **National Voluntary Laboratory Accreditation Program** (NVLAP) for the emission tests stated in the scope of the certificate under Certificate Number 200780-0

This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

NVLAP LAB CODE 200780-0

1.4 *Measurement uncertainty*

The treatment of uncertainty is based on the general matters on the definition of uncertainty in “Guide to the expression of uncertainty in measurement (GUM)” published by ISO. The Lab’s uncertainty is determined by referring UKAS Publication LAB34: 2002 “The Expression of Uncertainty in EMC Testing” and CISPR16-4-2: 2003 “Uncertainty in EMC Measurements”.
The uncertainty of the measurement result in the level of confidence of approximately 95% (k=2) is as follows;

RF frequency: ± 1 x 10^{-7}
RF power conducted: ± 1.0 dB
AC power line emission: ± 1.9 dB
Radiated emission (30 MHz - 1000 MHz): ± 5.7 dB
Radiated emission (1 GHz - 20 GHz): ± 5.8 dB
Temperature: ± 1 degree
Humidity: ± 5 %

1.5 *Description of essencial requirements and test results*

An overview of radio requirements, as laid out in FCC Part24, RSS-133 are given below.

1.5.1 Transmitter requirements

Test Description	Section in this report	Applicable	Result
Carrier Output Power (Conducted)	2.1.1	Yes	Passed
Carrier Output Power (Radiated)	2.1.2	Yes	Passed
Frequency Stability (Temperature Variation)	2.1.3	Yes	Passed
Frequency Stability (Voltage Variation)	2.1.4	Yes	Passed
Occupied Bandwidth	2.1.5	Yes	Passed
Out of Band Emissions (Conducted)	2.1.6	Yes	Passed
Out of Band Emissions (Radiated)	2.1.7	Yes	Passed
Band Edge Emissions	2.1.8	Yes	Passed

1.5.2 Receiver requirements

Test Description	Section in this report	Applicable	Result
Spurious Radiated Emissions	2.2.1	Yes	Passed

1.5.3 AC Power Line Parameters

Test Description	Section in this report	Applicable	Result
AC power line Spurious Emissions (Idle mode)	2.3.1	Yes	Passed
AC power line Spurious Emissions (Traffic mode)	2.3.2	Yes	Passed

1.5.4 Normal test conditions

Temperature(*) : +15 degC to +35 degC
Relative humidity(*) : 20 % to 75 %
Supply voltage : 3.7 VDC (Nominal)
Measurement Frequency : 1850.2 MHz(512ch), 1880.0 MHz(661ch), 1909.8 MHz(810ch)

* When it is impracticable to carry out tests under these conditions, a note to this effect, stating the ambient temperature and relative humidity during the tests, must be stated separately.

1.5.5 Extreme test conditions

Temperature : -30 °C (min) to +50 °C (max)
Supply voltage : 3.33 VDC (min) to 4.07 VDC (max)
The equipment has a function that it is automatically turned off when min. battery voltage (3.33 V) is detected.

1.6 *Setup of equipment under test (EUT)*

1.6.1 Test configuration of EUT

Equipment(s) under test:

	Item	Manufacturer	Model No.	Serial No.	FCC ID/ IC Certification No.
A	Mobile phone	Fujitsu Limited	F-09A	356752020009441	VQK-F09A / 337E-F09A
B	Mobile phone	Fujitsu Limited	F-09A (RF cable is attached instead of integral antenna)	356752020008153	VQK-F09A / 337E-F09A
C	Battery pack	Fujitsu Limited	CA54310-0006	None	N/A
D	AC Adaptor	NEC Corp.	MAS-BH0008-A002	None	N/A

Connected cable(s):

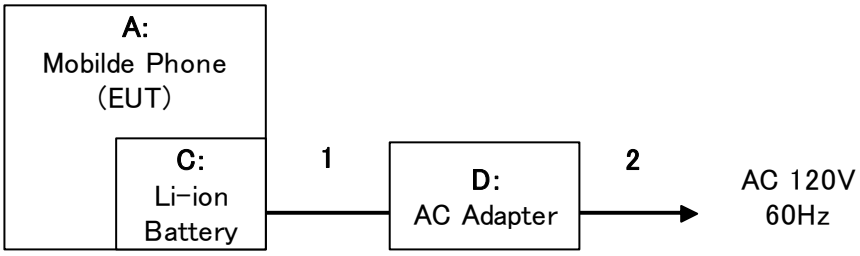
No.	Item	Identification (Manu.e.t.c)	Shielded YES / NO	Ferrite Core YES / NO	Connector Type Shielded YES / NO	Length (m)
1	DC power cable	-	No	No	No	1.5
2	AC power cable	HEWTECH	No	No	No	0.6

1.6.2 Operating condition:

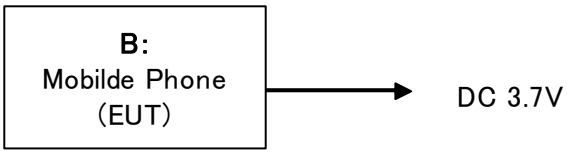
Traffic mode : EUT is connected with RF tester in Max power level. (Normal and GPRS mode)
Idle mode : EUT is under idle mode, no output power is transmitted.

1.6.3 Setup diagram of tested system:

[Configuration Ⅰ]



[Configuration Ⅱ]



1.7 *Equipment modifications*

No modifications have been made to the equipment in order to achieve compliance with the applicable standards described in clause 1.2.

1.8 *Deviation from the standard*

No deviations from the standards described in clause 1.2.

2 Test procedure and result

2.1 *Transmitter requirements*

2.1.1 Carrier Output Power (Conducted)

Reference Standard
FCC : Part24.232, 2.0146
IC : RSS133 Issue5 Sec6.4, SRSP-510 Issue4 Sec5.1.2

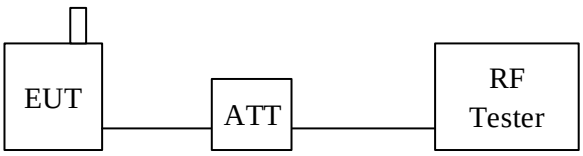
Test Conditions

Date:	2009/02/05
Ambient Temperature:	18 degC
Relative humidity:	35 %
Test Voltage:	3.7 V

Test Sample
Configuration Ⅱ

Test Method
a) EUT is connected to RF tester with pseudo random data modulation and set to maximum output power level.
b) The peak output power is measured with RF tester (CMU200 etc.).

Test Setup



Test Results

Channel	Frequency (MHz)	Output Power (dBm)		Limit (dBm)	Result
		Normal	GPRS		
Bottom (512ch)	1850.2	29.7	29.7	33.0	Pass
Middle (661ch)	1880.0	29.8	29.8	33.0	Pass
Top (810ch)	1909.8	29.6	29.6	33.0	Pass

Test Equipment Used

Equipment name	RFT ID No.
RF tester	RC03

Final Result

The EUT met the requirements of the standard for this test.

EUT can employ a power control function that output power can be controlled from +30dBm to +0dBm (nominal) by 2dB step. So EUT meet the requirement of Part24.232(c).

2.1.2 Carrier Output Power (Radiated)

Reference Standard
FCC : Part24.232, 2.0146
IC : RSS133 Issue5 Sec6.4, SRSP-510 Issue4 Sec5.1.2

Test Conditions

Date:	2009/02/20
Ambient Temperature:	19 degC
Relative humidity:	32 %
Test Voltage:	3.7 V

Test Sample
Configuration I

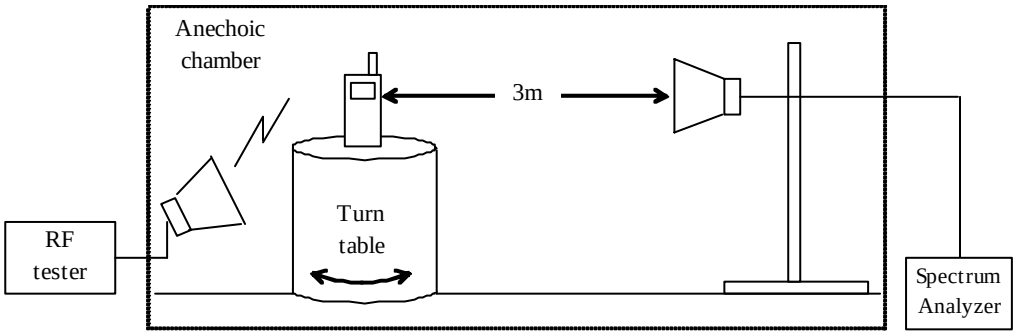
Test Method
Substitution method is used for this test.
a) EUT is set on non-conducting turntable and the output power is set to the maximum level.
b) As a receive antenna, Horn antenna is used for high frequency range (above 1GHz), and Bilogical antenna is used for low frequency range (30MHz to 1GHz).
c) Maximum peak power is measured by a spectrum analyzer(SA) in below conditions.
Turntable is rotated 360 degrees.
The height of receive antenna is changed from 1m to 4m.
Receive antenna polarization is set to vertical and horizontal.
This maximum peak power is recorded.
During this measurement, receive antenna is adjusted the direction to keep the EUT within the beamwidth of receive antenna.
d) Reference antenna is replaced with EUT, and connected with signal generator(SG).
SG output power is adjusted to get same level as the recorded maximum radiated EUT power by SA.

e) Radiated output power (Pout) is calculated with adjusted SG output (Psg) [dBm], reference antenna gain (Gref) [dBi] and cable loss between SG and reference antenna (Lcab) [dB].

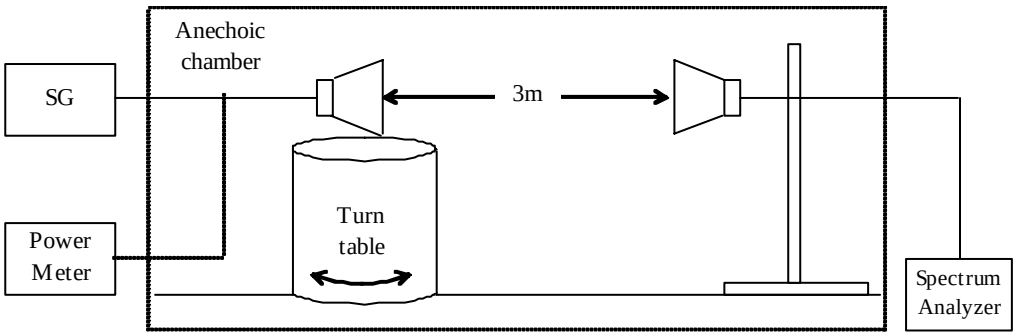
Pout [dBm e.i.r.p] = Psg + Gref + Lcab

Test Setup

[Measurement]



[Substitution]



Test Results

Channel	Frequency (MHz)	Output Power(dBm)		Limit (dBm e.i.r.p)	Result
		Normal	GPRS		
Bottom (512ch)	1850.2	23.0	23.0	33.0	Pass
Middle (661ch)	1880.0	24.3	24.3	33.0	Pass
Top (810ch)	1909.8	25.9	26.0	33.0	Pass

Test Equipment Used

Equipment name	RFT ID No.
Spectrum Analyzer	TR06
Receive Antenna	DH02
Reference Antenna	DH01
Signal Generator	SG05
Power Meter	PM01
RF tester	RC03

Final Result

The EUT met the requirements of the standard for this test.

2.1.3 Frequency Stability (Temperature)

Reference Standard
FCC : Part24.235, 2.1055
IC : RSS133 Issue5 Sec6.3

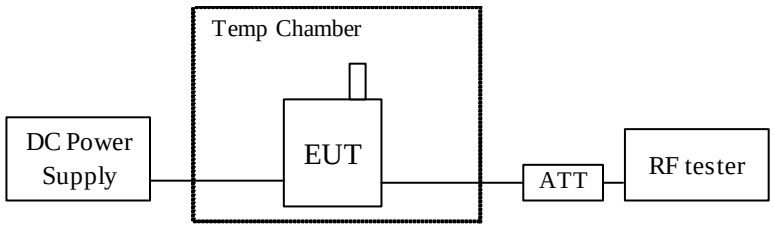
Test Conditions

Date:	2009/02/24
Ambient Temperature:	18 degC
Relative humidity:	40 %
Test Voltage:	3.7 V

Test Sample
Configuration Ⅱ

Test Method
To measure the carrier frequency, “Frequency error measurement” function of RF tester is used.
a) EUT is hold about 30 minutes under measurement temperature condition.
b) EUT is powered on with nominal voltage.
c) EUT is connected to RF tester with Max transmit power level.
d) Frequency error is measured by RF tester.
Process b) to d) must be finished within 2 minutes to prevent EUT warming.
e) Process a) to d) is repeated at 10deg increments from -30 to +50degC.

Test Setup



Test Results

Middle Channel (661ch, Nominal Freq.:1880.0MHz)

Temperature (deg C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)	Result
-30	35	0.02	± 2.5	Passed
-20	31	0.02	± 2.5	Passed
-10	33	0.02	± 2.5	Passed
0	33	0.02	± 2.5	Passed
10	31	0.02	± 2.5	Passed
20	31	0.02	± 2.5	Passed
30	31	0.02	± 2.5	Passed
40	29	0.02	± 2.5	Passed
50	27	0.01	± 2.5	Passed

Test Equipment Used

Equipment name	RFT ID No.
RF tester	RC03

Final Result

The EUT met the requirements of the standard for this test

2.1.4 Frequency Stability (Voltage)

Reference Standard
FCC : Part24.235, 2.1055
IC : RSS133 Issue5 Sec6.3

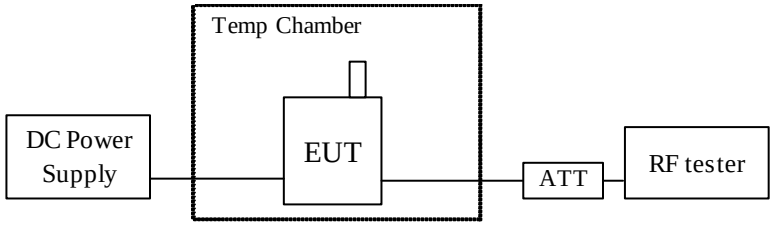
Test Conditions

Date:	2009/02/24
Ambient Temperature:	18 degC
Relative humidity:	40 %
Test Voltage:	3.33 to 4.07 V

Test Sample
Configuration Ⅱ

Test Method
To measure the carrier frequency, “Frequency error measurement” function of RF tester is used.
a) EUT is powered on with nominal voltage. Temperature is 20degC.
b) EUT is connected to RF tester with Max transmitter power level.
c) Frequency error is measured by RF tester.
d) Process a) to c) is repeated at minimum and maximum voltage condition.

Test Setup



Test Results

Middle Channel (661ch, Nominal Freq.:1880.0MHz)

Voltage (V)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)	Result
3.33	37	0.02	± 2.5	Passed
3.70	31	0.02	± 2.5	Passed
4.07	30	0.02	± 2.5	Passed

Test Equipment Used

Equipment name	RFT ID No.
RF tester	RC03

Final Result

The EUT met the requirements of the standard for this test

2.1.5 Occupied Bandwidth

Reference Standard
FCC : Part24.238
IC : RSS-Gen Issue2 Sec4.6.1

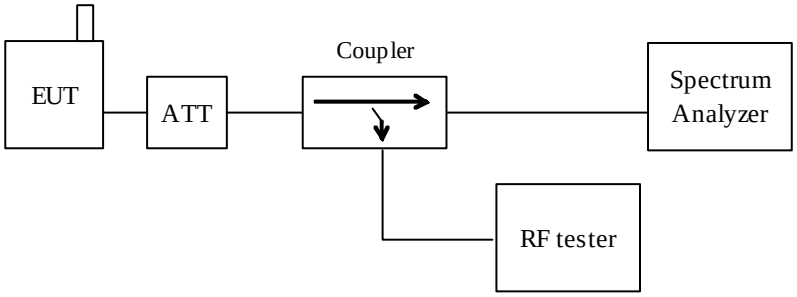
Test Conditions

Date:	2009/02/05
Ambient Temperature:	18 degC
Relative humidity:	35 %
Test Voltage:	3.7 V

Test Sample
Configuration Ⅱ

Test Method
a) EUT is connected to RF tester with Max transmitter power level.
b) 26dB bandwidth is measured by Spectrum Analyzer.
c) 99% occupied bandwidth of transmitter spectrum is measured by Spectrum Analyzer.

Test Setup



Test Results

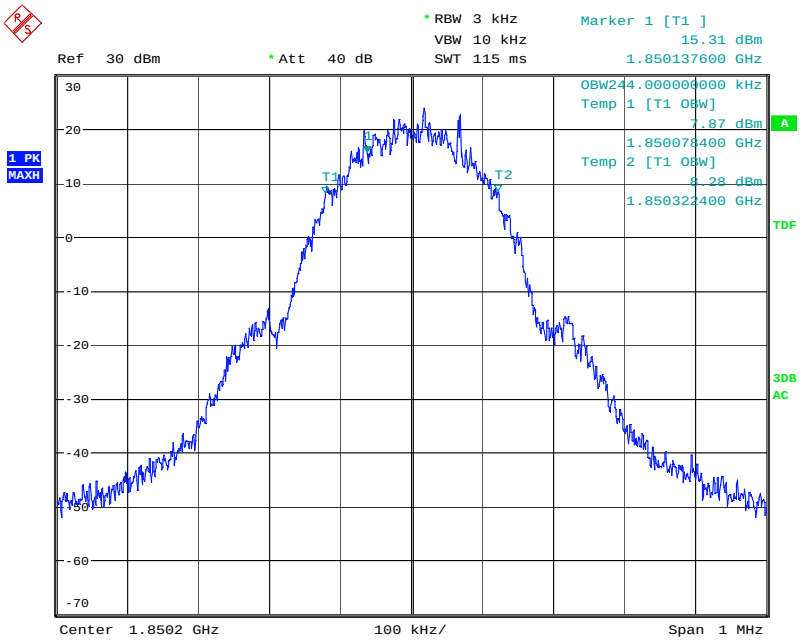
99% Bandwidth

Channel	Frequency (MHz)	RBW (kHz)	VBW (kHz)	99% Bandwidth (kHz)
Bottom (512ch)	1850.2	3kHz	10kHz	244
Middle (661ch)	1880.0	3kHz	10kHz	245
Top (810ch)	1909.8	3kHz	10kHz	244

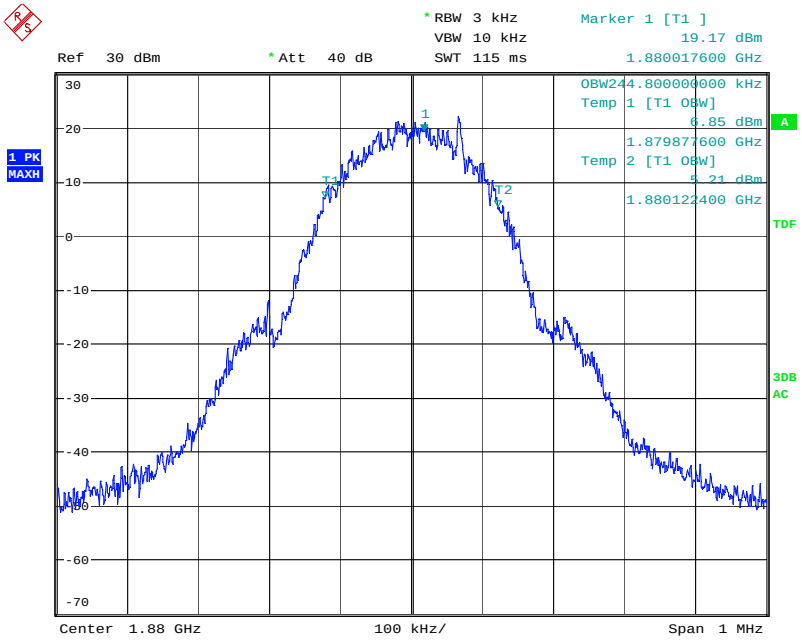
26dB Bandwidth

Channel	Frequency (MHz)	RBW (kHz)	VBW (kHz)	26dB Bandwidth (kHz)
Bottom (512ch)	1850.2	10kHz	30kHz	314
Middle (661ch)	1880.0	10kHz	30kHz	306
Top (810ch)	1909.8	10kHz	30kHz	315

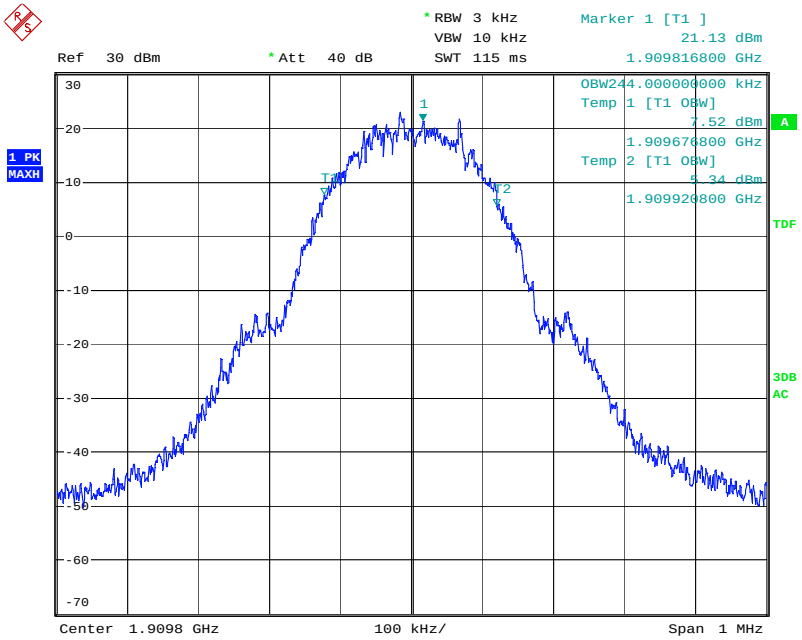
Graphical Data



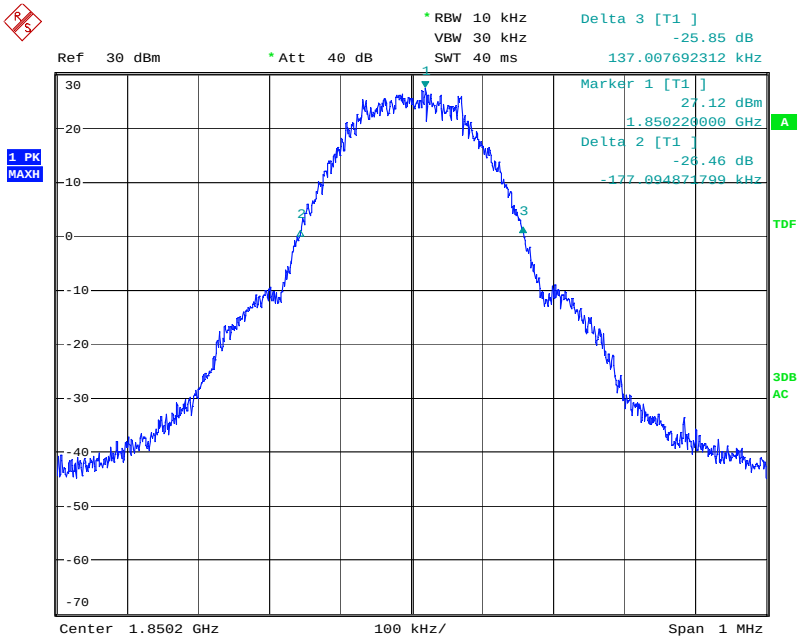
512ch Occupied Bandwidth



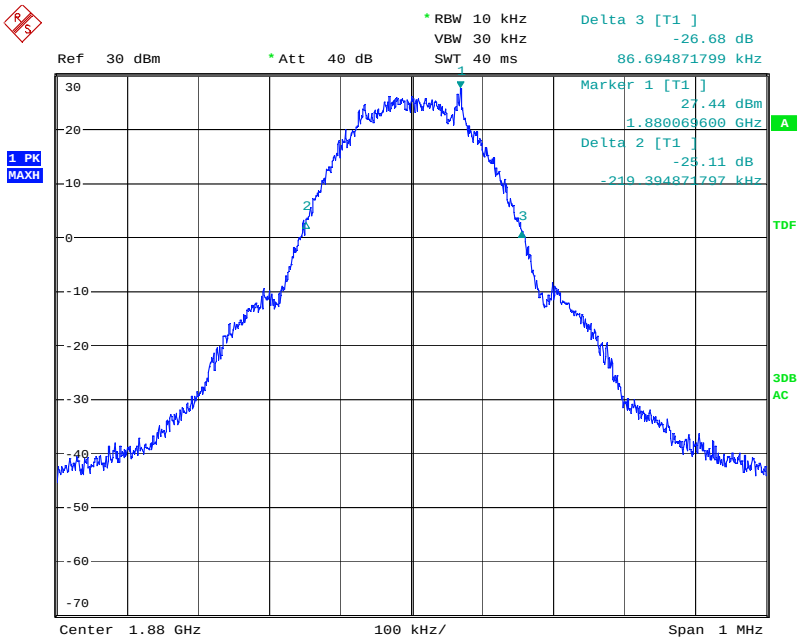
661ch Occupied Bandwidth



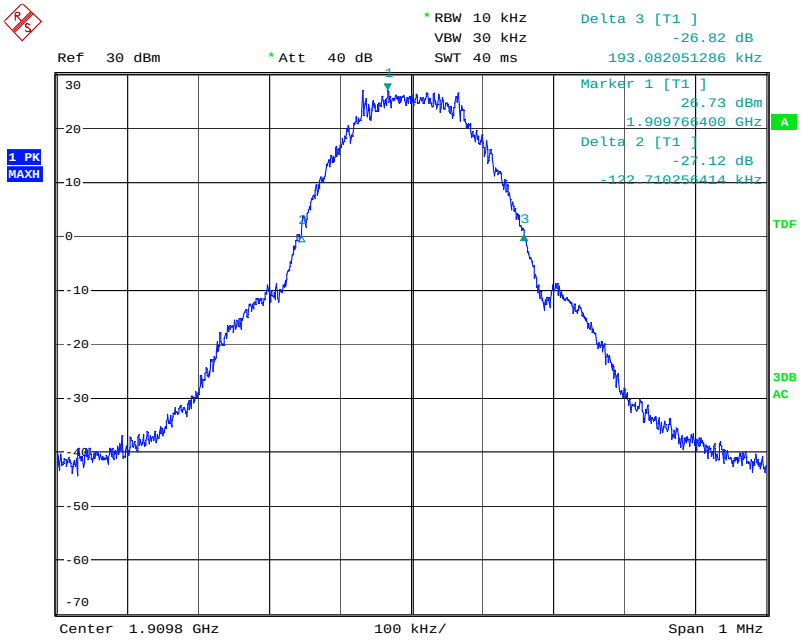
810ch Occupied Bandwidth



512ch 26dB Bandwidth



661ch 26dB Bandwidth



810ch 26dB Bandwidth

Test Equipment Used

Equipment name	RFT ID No.
Spectrum Analyzer	TR06
RF tester	RC03

2.1.6 Transmitter Out of Band Spurious Emissions (Conducted)

Reference Standard
FCC : Part24.238
IC : RSS133 Issue5 Sec6.5

Test Conditions

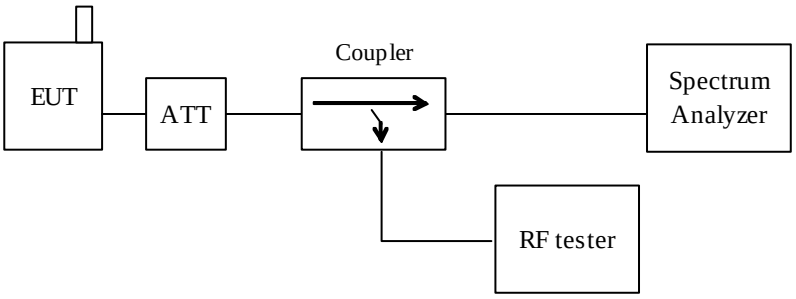
Date:	2009/02/05
Ambient Temperature:	18 degC
Relative humidity:	35 %
Test Voltage:	3.7 V

Test Sample
Configuration Ⅱ

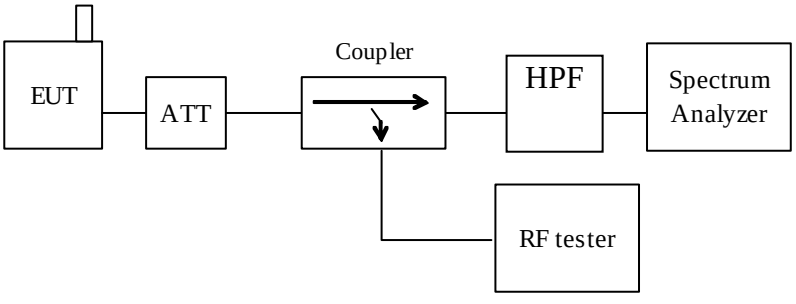
Test Method
a) EUT is connected to RF tester with Max transmitter power level.
b) Out of band Spurious is measured by Spectrum Analyzer.
c) Resolution band width of spectrum analyzer is set to 1MHz (above 1GHz) or 100kHz (below1GHz).

Test Setup

30MHz to 3500MHz



above 3500MHz



Test Results

Bottom Channel (512ch, Nominal Freq.:1850.2MHz)

Measurement Frequency (MHz)	Measurement Bandwidth (MHz)	Emission Level (dBm)	Limit (dBm)	Result Pass/Fail
3700.4	1	-49.7	-13.0	Pass
5550.6	1	-50.4	-13.0	Pass
7400.8	1	-60.0	-13.0	Pass
9251.0	1	< -60.0	-13.0	Pass
11101.2	1	< -60.0	-13.0	Pass
12951.4	1	< -60.0	-13.0	Pass
14801.6	1	< -60.0	-13.0	Pass
16651.8	1	< -60.0	-13.0	Pass
18502.0	1	< -60.0	-13.0	Pass
others		-	-13.0	Pass

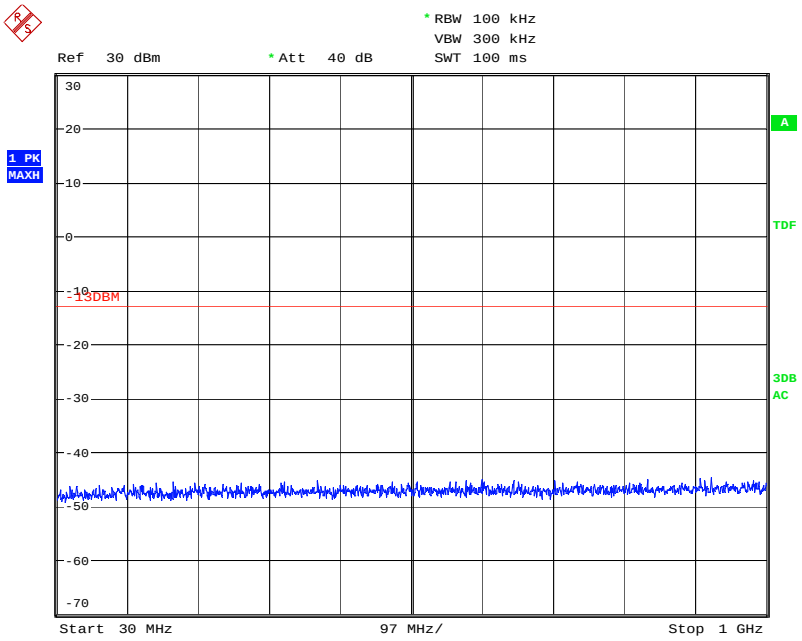
Middle Channel (661ch, Nominal Freq.:1880.0MHz)

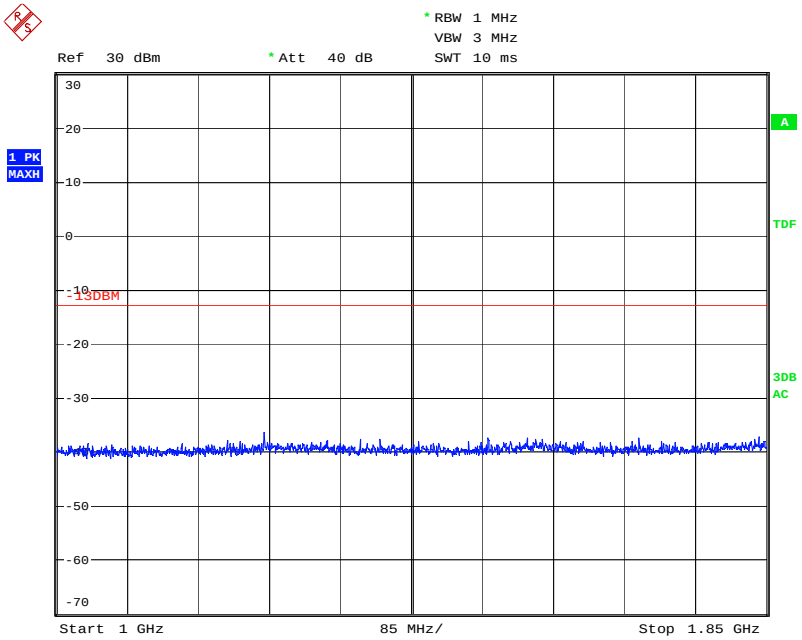
Measurement Frequency (MHz)	Measurement Bandwidth (MHz)	Emission Level (dBm)	Limit (dBm)	Result Pass/Fail
3760.0	1	-51.0	-13.0	Pass
5640.0	1	-51.4	-13.0	Pass
7520.0	1	-58.5	-13.0	Pass
9400.0	1	< -60.0	-13.0	Pass
11280.0	1	< -60.0	-13.0	Pass
13160.0	1	< -60.0	-13.0	Pass
15040.0	1	< -60.0	-13.0	Pass
16920.0	1	< -60.0	-13.0	Pass
18800.0	1	< -60.0	-13.0	Pass
others		-	-13.0	Pass

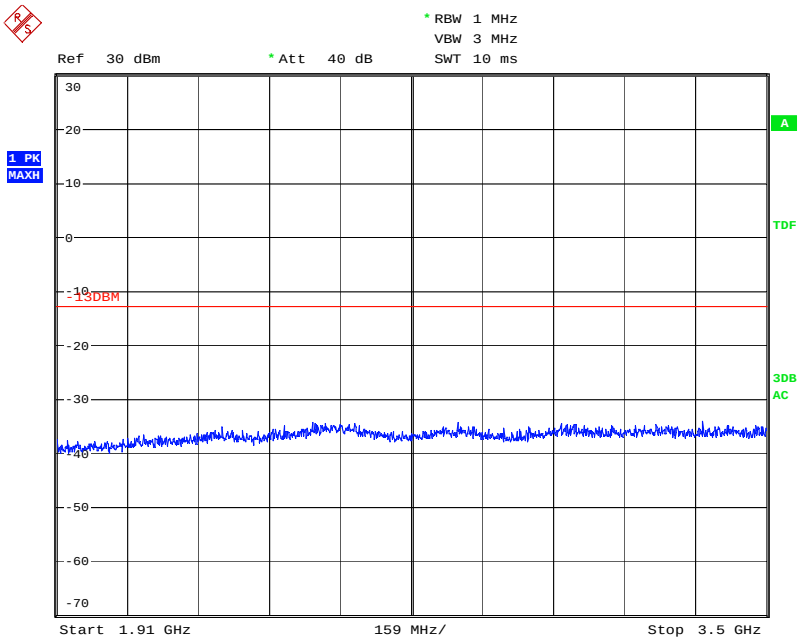
Top Channel (810ch, Nominal Freq.:1909.8MHz)

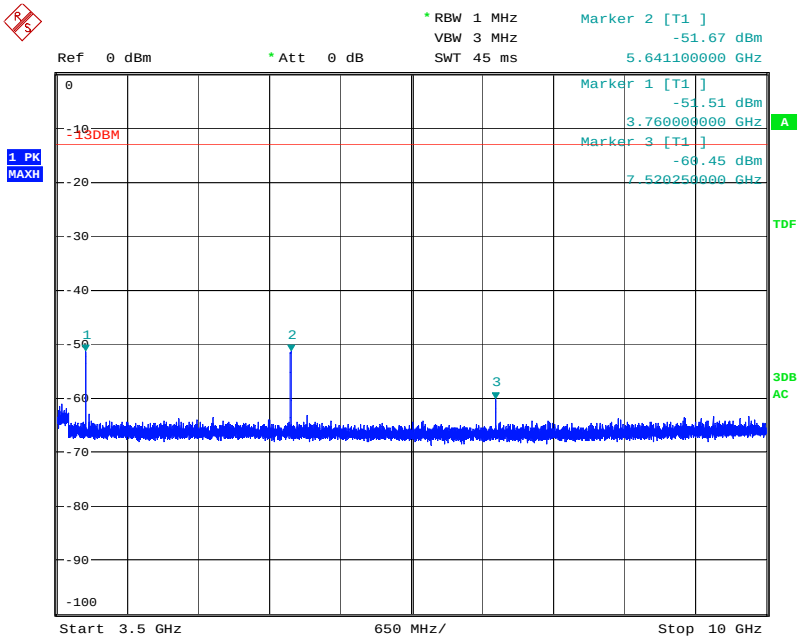
Measurement Frequency (MHz)	Measurement Bandwidth (MHz)	Emission Level (dBm)	Limit (dBm)	Result Pass/Fail
3819.6	1	-50.8	-13.0	Pass
5729.4	1	-49.9	-13.0	Pass
7639.2	1	-56.9	-13.0	Pass
9549.0	1	< -60.0	-13.0	Pass
11458.8	1	< -60.0	-13.0	Pass
13368.6	1	< -60.0	-13.0	Pass
15278.4	1	< -60.0	-13.0	Pass
17188.2	1	< -60.0	-13.0	Pass
19098.0	1	< -60.0	-13.0	Pass
others		-	-13.0	Pass

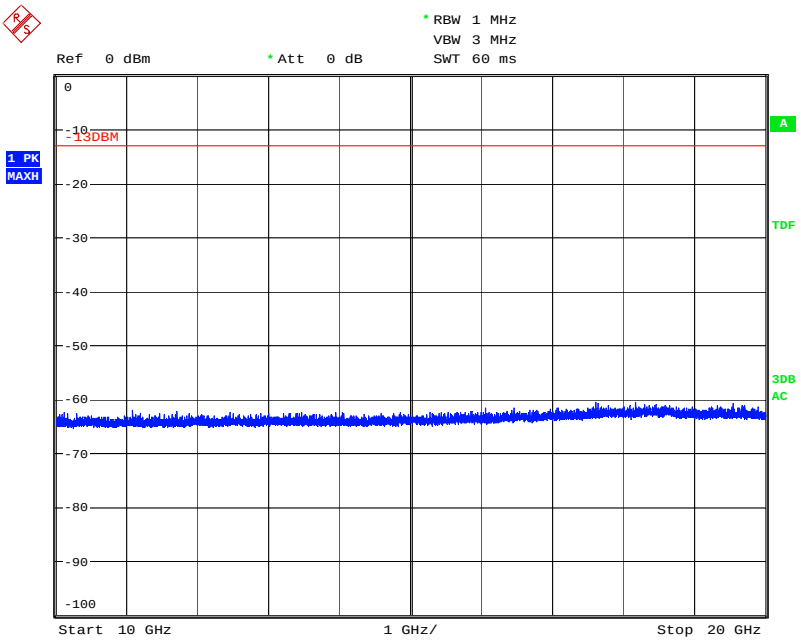
Graphical Data (661ch)




RBW 1 MHz
VBW 3 MHz
SWT 10 ms
Ref 30 dBm
Att 40 dB
1 PK
MAXH
A
TDF
-13DBM
3DB
AC
30
20
10
0
-10
-20
-30
-50
-60
-70
Start 1 GHz
85 MHz/
Stop 1.85 GHz


RBW 1 MHz
VBW 3 MHz
SWT 10 ms
Ref 30 dBm
Att 40 dB
1 PK
MAXH
A
TDF
-13DBM
3DB
AC
30
20
10
0
-10
-20
-30
-40
-50
-60
-70
Start 1.91 GHz
159 MHz/
Stop 3.5 GHz


RBW 1 MHz
VBW 3 MHz
SWT 45 ms
Marker 2 [T1]
-51.67 dBm
5.641100000 GHz
Ref 0 dBm
Att 0 dB
Marker 1 [T1]
-51.51 dBm
3.760000000 GHz
Marker 3 [T1]
-60.45 dBm
7.520250000 GHz
-13DBM
1 PK
MAXH
A
TDF
3DB
AC
Start 3.5 GHz
650 MHz/
Stop 10 GHz


RBW 1 MHz
VBW 3 MHz
SWT 60 ms
Ref 0 dBm
Att 0 dB
-13DBM
1 PK
MAXH
A
TDF
3DB
AC
Start 10 GHz
1 GHz/
Stop 20 GHz

Test Equipment Used

Equipment name	RFT ID No.
Spectrum Analyzer	TR06
RF tester	RC03

Final Result

The EUT met the requirements of the standard for this test.

2.1.7 Transmitter Out of Band Spurious Emissions (Radiated)

Reference Standard
FCC : Part24.238
IC : RSS133 Issue5 Sec6.5

Test Conditions

Date:	2009/02/20
Ambient Temperature:	19 degC
Relative humidity:	32 %
Test Voltage:	3.7 V

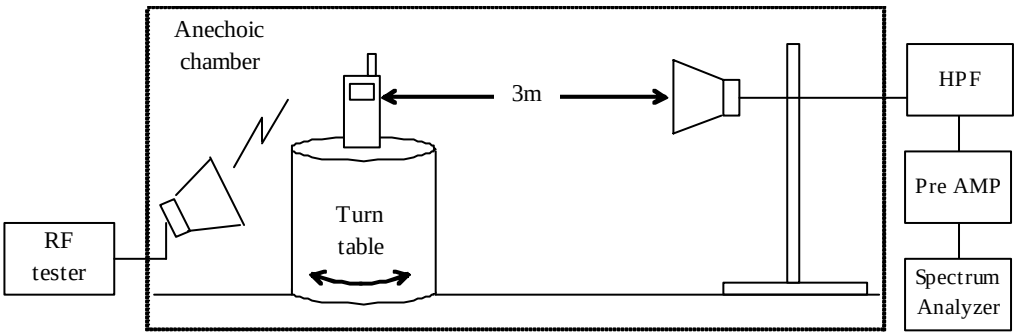
Test Sample
Configuration I

Test Method
Substitution method is used for this test.
a) EUT is set on non-conducting turntable and the output power is set to the maximum level.
b) As a receive antenna, Horn antenna is used for high frequency range (above 1GHz), and Bilogical antenna is used for low frequency range (30MHz to 1GHz).
c) The maximum level of each spurious emission is measured by a spectrum analyzer(SA) in below conditions.
Turntable is rotated 360 degrees.
The height of receive antenna is changed from 1m to 4m.
Receive antenna polarization is set to vertical and horizontal.
EUT was placed at three different orientations (X, Y and Z axis) in order to find the worst orientation.
This emission level is recorded.
During this measurement, receive antenna is adjusted the direction to keep the EUT within the beamwidth of receive antenna.
d) Reference antenna is replaced with EUT, and connected with signal generator(SG). SG output power is adjusted to get same level as the recorded maximum radiated EUT power by SA.
e) Radiated output power (Pout) is calculated with adjusted SG output (Psg) [dBm], reference antenna gain (Gref) [dBd] and cable loss between SG and reference antenna (Lcab) [dB].

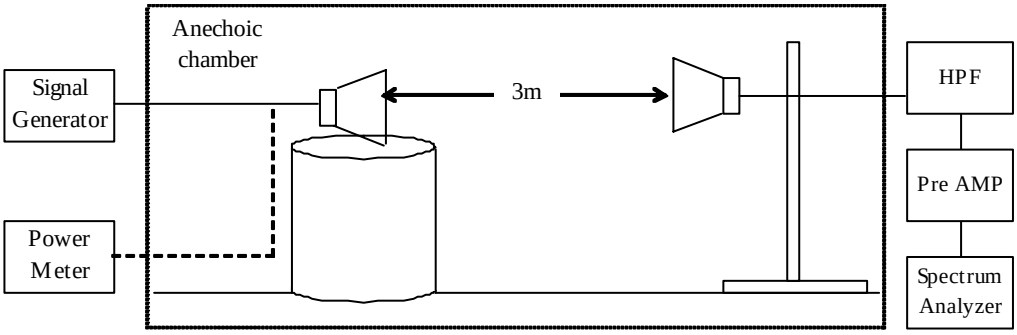
Pout [dBm e.r.p] = Psg + Gref + Lcab

Test Setup

[Measurement]



[Substitution]



Test Results

Bottom Channel (512ch, Nominal Freq.:1850.2MHz)

Measurement Frequency (MHz)	Measurement Bandwidth (MHz)	Emission Level(dBm)		Limit (dBm)	Result Pass/Fail
		Vertical	Horizontal		
3700.4	1	-42.5	-43.2	-13.0	Pass
5550.6	1	-42.1	-37.8	-13.0	Pass
7400.8	1	< -44.0	< -43.9	-13.0	Pass
9251.0	1	< -43.8	< -44.3	-13.0	Pass
11101.2	1	< -40.9	< -41.6	-13.0	Pass
12951.4	1	< -40.6	< -40.4	-13.0	Pass
14801.6	1	< -38.8	< -38.2	-13.0	Pass
16651.8	1	< -36.6	< -36.7	-13.0	Pass
18502.0	1	< -37.4	< -37.2	-13.0	Pass
others		-	-	-13.0	Pass

Middle Channel (661ch, Nominal Freq.:1880.0MHz)

Measurement Frequency (MHz)	Measurement Bandwidth (MHz)	Emission Level(dBm)		Limit (dBm)	Result Pass/Fail
		Vertical	Horizontal		
3760.0	1	-46.2	-46.4	-13.0	Pass
5640.0	1	-38.2	-37.6	-13.0	Pass
7520.0	1	-43.8	-43.8	-13.0	Pass
9400.0	1	-43.6	< -44.4	-13.0	Pass
11280.0	1	< -41.6	< -42.0	-13.0	Pass
13160.0	1	< -40.6	< -40.7	-13.0	Pass
15040.0	1	< -38.9	< -38.6	-13.0	Pass
16920.0	1	< -35.3	< -35.1	-13.0	Pass
18800.0	1	< -36.2	< -36.1	-13.0	Pass
others		-	-	-13.0	Pass

Top Channel (810ch, Nominal Freq.:1909.8MHz)

Measurement Frequency (MHz)	Measurement Bandwidth (MHz)	Emission Level(dBm)		Limit (dBm)	Result Pass/Fail
		Vertical	Horizontal		
3819.6	1	-33.9	-34.3	-13.0	Pass
5729.4	1	-35.3	-36.0	-13.0	Pass
7639.2	1	-42.7	-42.2	-13.0	Pass
9549.0	1	-38.9	-38.9	-13.0	Pass
11458.8	1	< -40.4	< -40.9	-13.0	Pass
13368.6	1	< -40.0	< -39.7	-13.0	Pass
15278.4	1	< -38.8	< -38.7	-13.0	Pass
17188.2	1	< -34.6	< -34.3	-13.0	Pass
19098.0	1	< -34.2	< -35.1	-13.0	Pass
others		-	-	-13.0	Pass

Test Equipment Used

Equipment name	RFT ID No.
Spectrum Analyzer	TR06
Receive Antenna	DH02, SH02
Reference Antenna	DH01, SH01
Signal Generator	SG05
Power Meter	PM01
RF tester	RC03

Final Result

The EUT met the requirements of the standard for this test.

2.1.8 Band Edge Emissions

Reference Standard
FCC : Part24.238
IC : RSS133 Issue5 Sec6.5

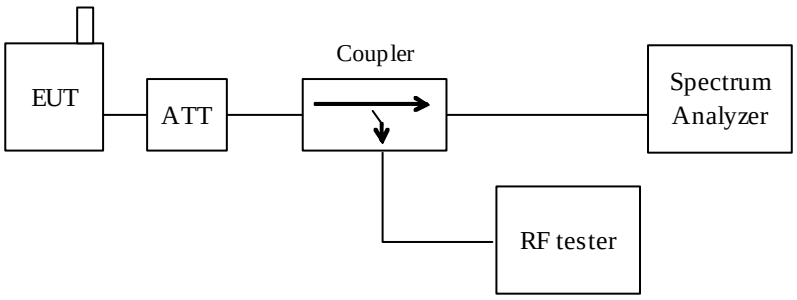
Test Conditions

Date:	2009/02/05
Ambient Temperature:	18 degC
Relative humidity:	35 %
Test Voltage:	3.7 V

Test Sample
Configuration Ⅱ

Test Method
a) EUT is connected to RF tester with Max transmitter power level.
b) Lower band edge level is measured in bottom channel transmission.
c) Higher band edge level is measured in top channel transmission.
d) 1% of band width is used for resolution band width for spectrum analyzer.

Test Setup



Test Results

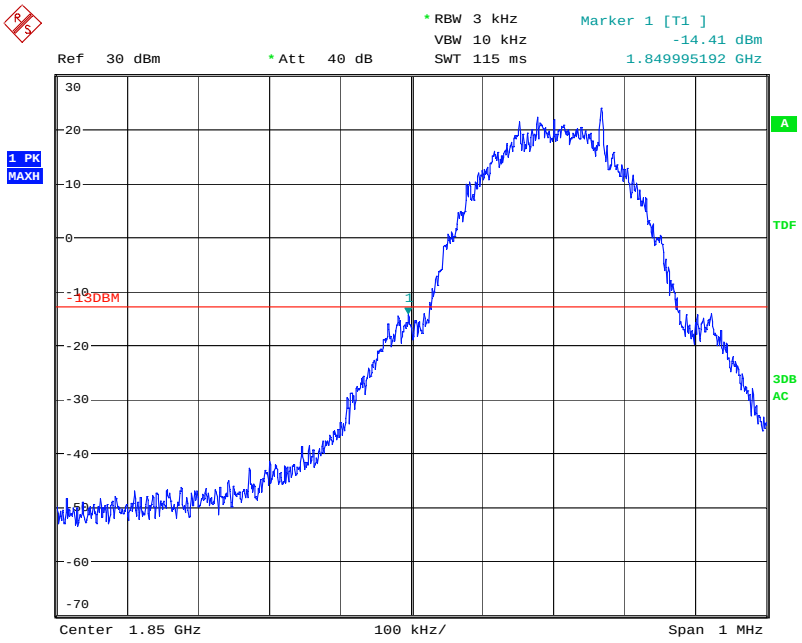
Bottom Band Edge

Measured Frequency (MHz)	Peak Level (dBm)	Limit (dBm)	Result
1850.0	-14.4	-13	Passed

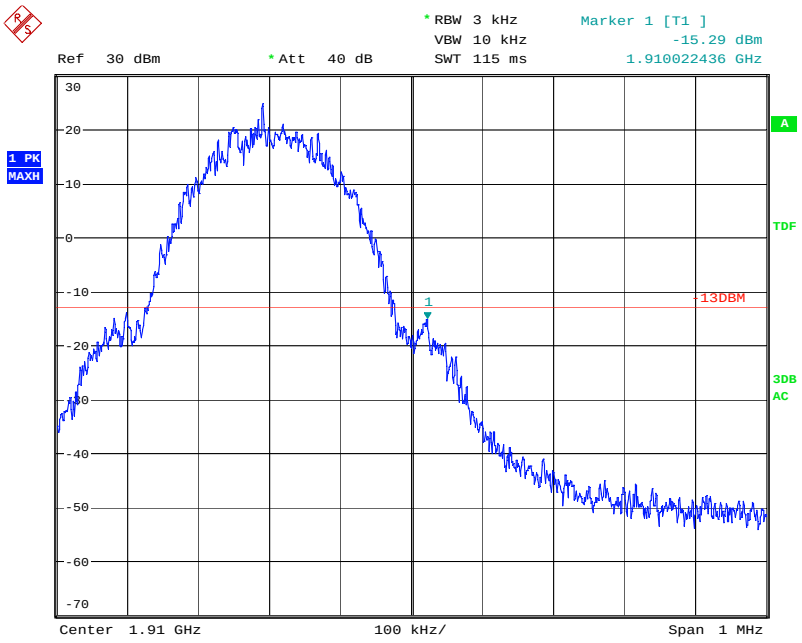
Top Band Edge

Measured Frequency (MHz)	Peak Level	Limit	Result
1910.0	-15.2	-13	Passed

Graphical Data



Bottom band edge



Top band edge

Test Equipment Used

Equipment name	RFT ID No.
Spectrum Analyzer	TR06
RF tester	RC03

Final Result

The EUT met the requirements of the standard for this test.

2.1.9 Transmitter AC Power Line Emission requirement

Reference Standard
FCC : Part15.207
IC : RSS-Gen Issue2 Sec7.2.2

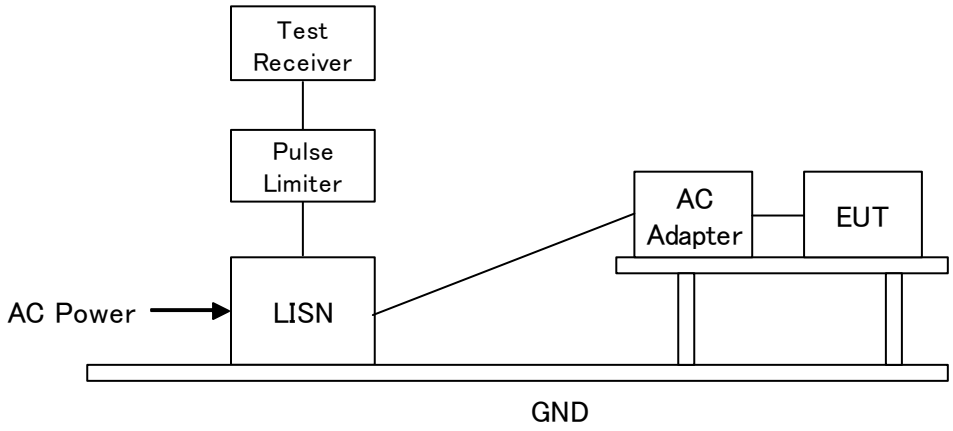
Test Conditions

Date:	2009/02/19
Ambient Temperature:	20 degC
Relative humidity:	29 %
Test Voltage:	3.7 V

Test Sample
Configuration I

Test Method
a) EUT is connected to RF tester with Max transmitter power level.
b) AC power is supplied to AC charger through LISN.
c) AC charger is connected to EUT.
d) AC Line conducted emission is measured by EMI receiver.
Both Live/Neutral is measured emission level.

Test Setup



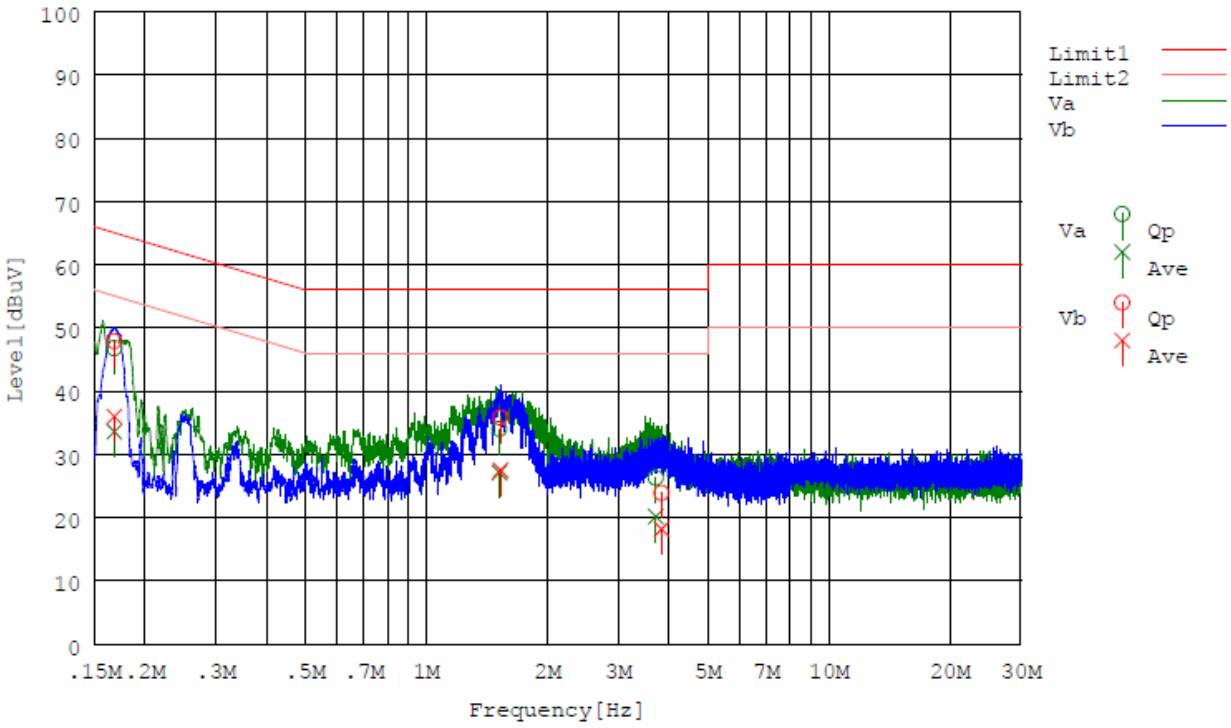
Limit

Frequency (MHz)	Limit QP (dBuV)	Limit AV (dBuV)
0.15 - 0.5	66 - 56	56 - 46
0.5 - 5	56	46
5 - 30	60	50

Test Results

Frequency (MHz)	Line (Live/Neutral)	QP Level (dBuV)	AVE Level (dBuV)	QP Limit (dBuV)	AVE Limit (dBuV)	Result
0.168	Live	46.8	33.6	65.1	55.1	Passed
1.521	Live	34.0	27.1	56.0	46.0	Passed
3.716	Live	26.3	20.2	56.0	46.0	Passed
0.168	Neutral	47.9	36.0	65.1	55.1	Passed
1.528	Neutral	35.8	27.5	56.0	46.0	Passed
3.838	Neutral	23.9	18.2	56.0	46.0	Passed

Graphical Data



Test Equipment Used

Equipment name	RFT ID No.
EMI Receiver	TR04
LISN	LN06
RF tester	RC03

Final Result

The EUT met the requirements of the standard for this test

2.2 *Receiver requirement*

2.2.1 Receiver Spurious Emissions (Radiated)

Reference Standard
FCC : Part15.109
IC : RSS133 Issue5 Sec6.6

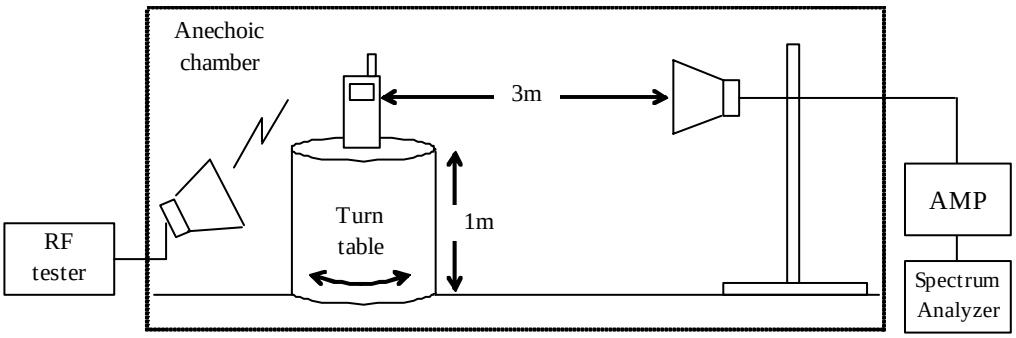
Test Conditions

Date:	2009/02/19, 20
Ambient Temperature:	20 degC (2/19), 19 degC (2/20)
Relative humidity:	29 % (2/19), 32 % (2/20)
Test Voltage:	3.7 V

Test Sample
Configuration I

Test Method
a) EUT is connected to RF tester with idle mode.
b) Radiated receiver spurious emission is received by receive antenna.
c) Turn table is rotated 360deg.
d) Maximum level of each spurious is measured by spectrum analyzer.
e) RBW of spectrum analyzer is set to 100kHz for 30 - 1000MHz, 1MHz for above 1GHz.
f) Level is measured with QP detect for 30 - 1000MHz, Average detect for above 1GHz.
g) EUT was placed at three different orientations (X, Y and Z axis) in order to find the worst orientation.

Test Setup



Limit

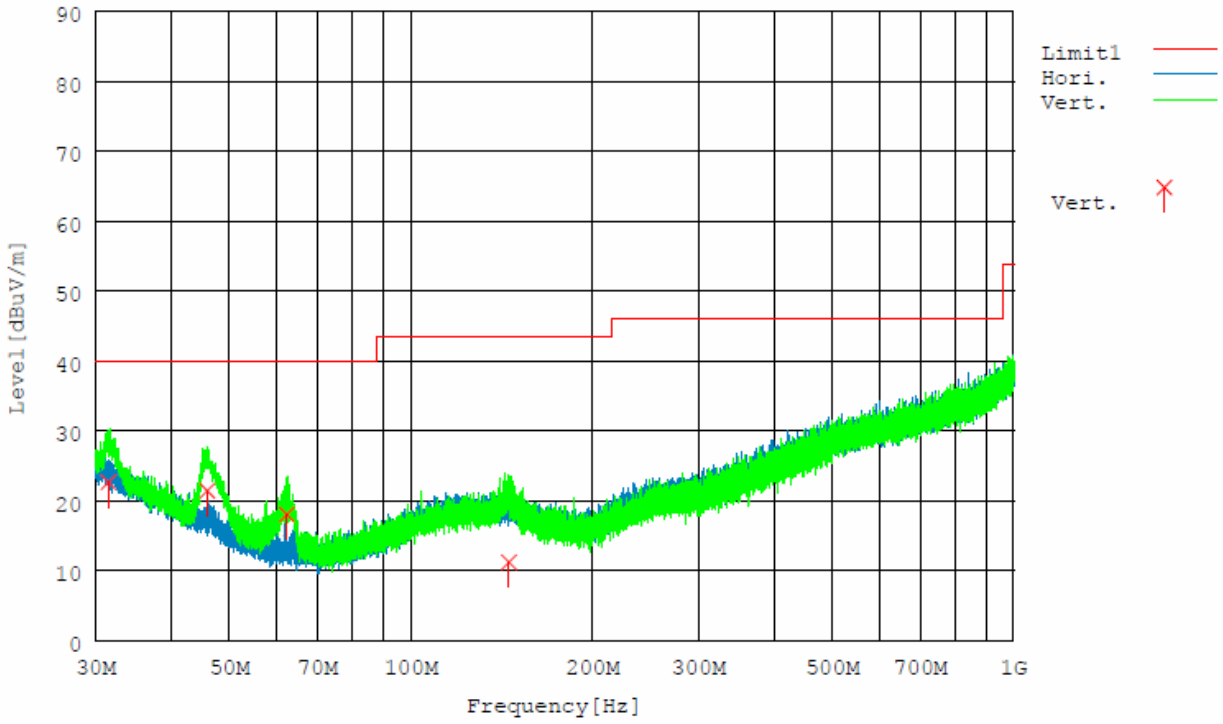
Frequency (MHz)	Distance (m)	Field strength (uV/m)	Field strength (dBuV/m)
30 - 88	3	100	40
88 - 216	3	150	43.5
216 - 960	3	200	46
above 960	3	500	54

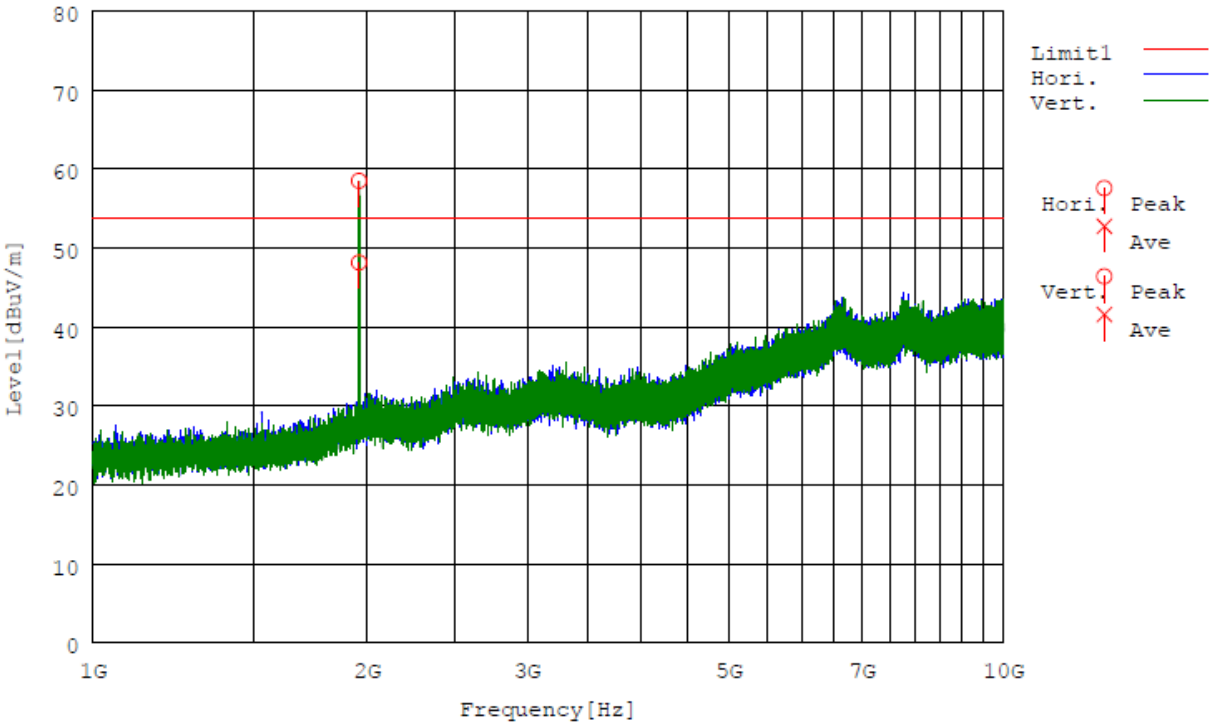
Test Results

Frequency (MHz)	Antenna	Field strength (dBuV/m)	Limit (dBuV/m)	Result
31.505	Vert.	22.6	40.0	Passed
45.972	Vert.	21.4	40.0	Passed
62.314	Vert.	18.0	40.0	Passed
145.425	Vert.	11.2	43.5	Passed

There was no other spurious emission greater than noise floor.

Graphical Data





Note : A spectrum @1960MHz is downlink signal from RF tester. This is used to set EUT in idle mode.This is not a spurious emission from EUT.

Test Equipment Used

Equipment name	RFT ID No.
Spectrum Analyzer	TR06, TR04
Receive Antenna	DH02, BA03
Pre-AMP	PR12, PR03
RF tester	RC03

Final Result

The EUT met the requirements of the standard for this test.

2.2.2 Receiver AC Power Line Emission requirement

Reference Standard
FCC : Part15.107
IC : RSS-Gen Issue2 Sec7.2.2

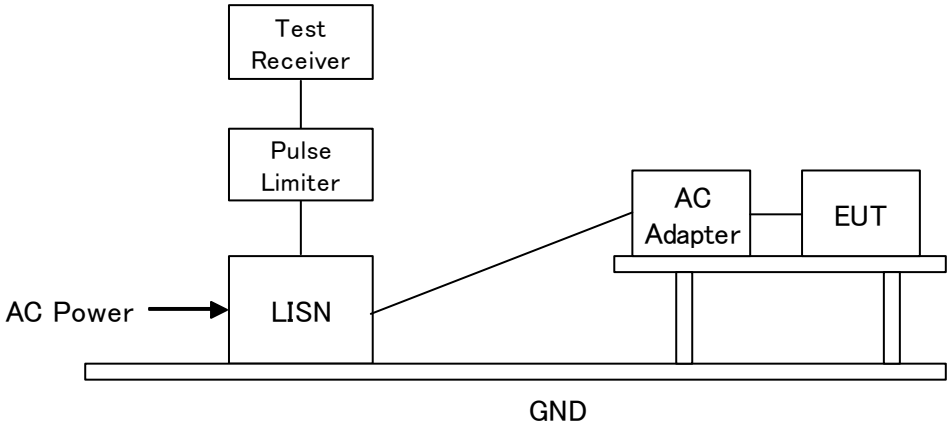
Test Conditions

Date:	2009/02/19
Ambient Temperature:	20 degC
Relative humidity:	29 %
Test Voltage:	3.7 V

Test Sample
Configuration I

Test Method
a) EUT is connected to RF tester with idle mode.
b) AC power is supplied to AC charger through LISN.
c) AC charger is connected to EUT.
d) AC Line conducted emission is measured by EMI receiver.
Both Live/Neutral is measured emission level.

Test Setup



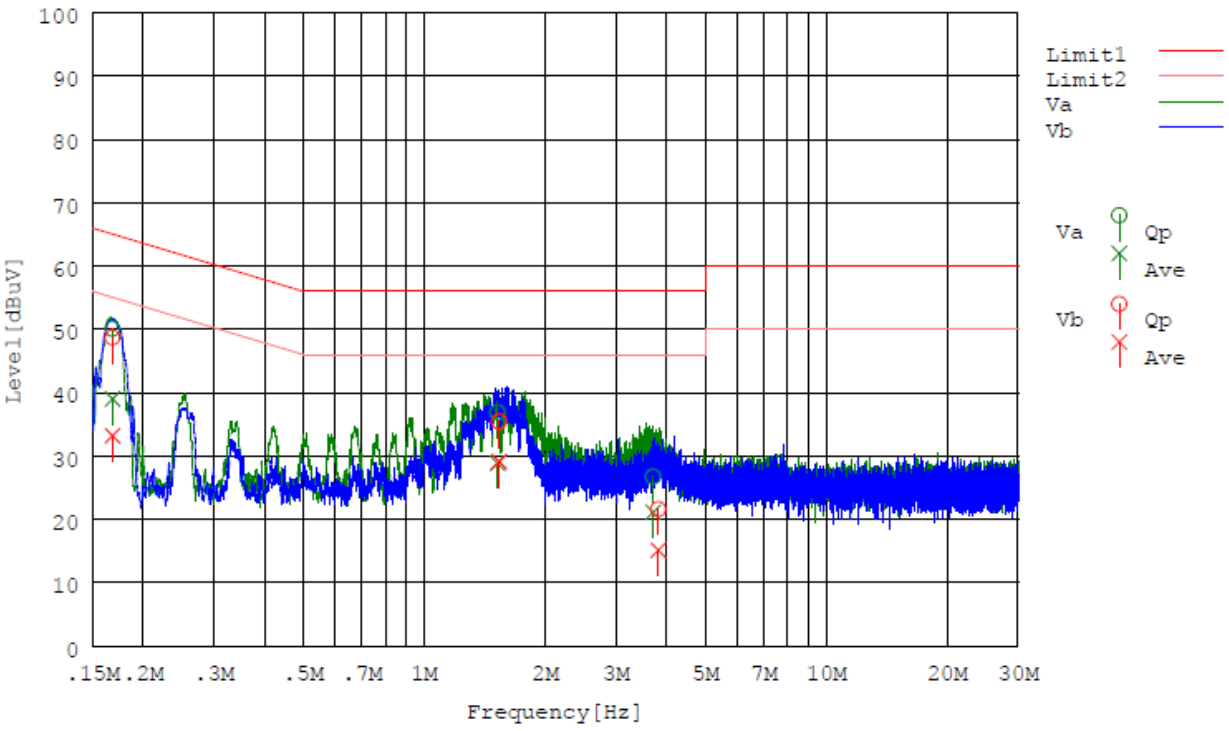
Limit

Frequency (MHz)	Limit QP (dBuV)	Limit AV (dBuV)
0.15 - 0.5	66 - 56	56 - 46
0.5 - 5	56	46
5 - 30	60	50

Test Results

Frequency (MHz)	Line (Live/Neutral)	QP Level (dBuV)	AVE Level (dBuV)	QP Limit (dBuV)	AVE Limit (dBuV)	Result
0.168	Live	50.1	39.0	65.1	55.1	Passed
1.522	Live	36.9	28.9	56.0	46.0	Passed
3.712	Live	26.7	21.1	56.0	46.0	Passed
0.168	Neutral	48.7	33.2	65.1	55.1	Passed
1.537	Neutral	35.4	29.1	56.0	46.0	Passed
3.822	Neutral	21.6	15.1	56.0	46.0	Passed

Graphical Data



Test Equipment Used

Equipment name	RFT ID No.
EMI Receiver	TR04
LISN	LN06
RF tester	RC03

Final Result

The EUT met the requirements of the standard for this test

4 List of utilized test equipment/ calibration

RFT ID No.	Kind of Equipment and Precision	Manufacturer	Model No.	Serial Number	Calibration Date	Calibrated until
AC01	Anechoic Chamber (1st test room)	JSE	203397C	-	2008/7/4	2009/7/31
AC03	Anechoic Chamber (3rd test room)	JSE	-	-	2008/4/8	2009/4/30
BA03	Bilogical Antenna	CHASE	CBL6111	1309	2008/5/7	2009/5/31
BA04	Bilogical Antenna	SCHAFFNER	CA2855	2903	2009/1/6	2010/1/31
BI01	Biconical Antenna	SCHWARZBECK	VHA9103	2359	2008/7/1	2009/7/31
BI02	Biconical Antenna	SCHWARZBECK	VHA9103	2387	2008/7/1	2009/7/31
BRF1	Band Reject Filter (WCDMA2000)	M-City	BRF2000-06	VT0001	2008/4/1	2009/4/30
BRF2	Band Reject Filter (Bluetooth)	MICRO TRONICS	BRM50701	024	2008/4/1	2009/4/30
BRF3	Band Reject Filter (GSM900)	M-City	BRF0897-03	RF0005	2008/4/1	2009/4/30
BRF4	Band Reject Filter (WCDMA850)	M-City	BRF0835-01	RF0004	2008/4/1	2009/4/30
BRF5	Band Reject Filter (GSM1800)	M-City	BRF1750-01	RF0006-01	2008/9/8	2009/9/30
BRF6	Band Reject Filter (GSM1900)	M-City	BRF1880-02	RF0006-02	2008/9/8	2009/9/30
CL11	Antenna Cable for RE	RFT	-	-	2008/6/11	2009/6/30
CL21	RF Cable 0.5m	SUCOFLEX	SF104PE	48772/4PE	2008/6/10	2009/6/30
CL22	RF Cable 2.0m	SUCOFLEX	SF104	274755/4	2008/6/10	2009/6/30
CL23	RF Cable 0.5m	SUCOFLEX	SF104PE	48773/4PE	2008/6/10	2009/6/30
CL24	RF Cable 5.0m	SUCOFLEX	SF104PE	48775/4PE	2008/6/10	2009/6/30
CL25	RF Cable 10m	SUCOFLEX	SF104E	20752/4E	2008/5/9	2009/5/31
CP01	Current Probe	FCC	TSMC-42	202	2009/1/9	2010/1/31
DC01	Directional Coupler	KRYTAR	1850	77202	2008/5/9	2009/5/31
HC01	Harmonic Current Analysis system	NF	ES4153	9075640	2008/5/20	2009/5/31
HPF1	High Pass Filter (3500MHz)	TOKIMEC	TF323DCA	603	2008/6/9	2009/6/30
HPF2	High Pass Filter (900MHz)	M-City	HPF0900-01	RF0003-01	2008/6/9	2009/6/30
HPF3	High Pass Filter (2500MHz)	M-City	HPF2500-01	RF0006-03	2008/9/8	2009/9/30
LA01	Logperiodic Antenna	SCHWARZBECK	USLP 9143	338	2008/7/1	2009/7/31
LA02	Logperiodic Antenna	SCHWARZBECK	USLP 9143	339	2008/7/1	2009/7/31
LN02	LISN (3ph 32A)	SCHWARZBECK	NSLK8128	8128-212	2009/1/14	2010/1/31
LN05	LISN	Kyoritsu	KNW-407	8-1773-2	2008/5/21	2009/5/31
LN06	LISN	Kyoritsu	KNW-407	8-1773-3	2008/5/12	2009/5/31
LN11	LISN (for communication line)	FCC	FCC-TLISN-T4-02	20330	2009/1/9	2010/1/31
LN13	LISN	Kyoritsu	KNW-407F	8-2003-3	2008/7/14	2009/7/31

RFT ID No.	Kind of Equipment and Precision	Manufacturer	Model No.	Serial Number	Calibration Date	Calibrated until
LP01	Loop Antenna	EMCO	6502	3436	2008/6/10	2009/6/30
PL06	Pulse Limiter	PMM	PL-01	0000J10109	2009/1/5	2010/1/31
PL07	Transient Limiter	Agilent Technologies	11947A	3107A04000	2009/1/5	2010/1/31
PM03	Power Meter	Anritsu	ML2438A	99070001	2008/7/24	2009/7/31
PR03	Pre. Amplifier	Anritsu	MH648A	M41984	2008/5/12	2009/5/31
PR04	Pre. Amplifier (1-26G)	RFT	LNP126	060208-01	2008/6/10	2009/6/30
PR08	Pre. Amplifier	Sonoma Instrument	315	263504	2009/1/8	2010/1/31
PR11	Pre. Amplifier (0.1-25G)	RFT	AFS42-00102650	1413028	2009/1/6	2010/1/31
PR12	Pre. Amplifier (1-26G)	Agilent Technologies	8449B	3008A02513	2009/1/13	2010/1/31
PU03	Power Sensor	Anritsu	MA2472A	990103	2008/7/24	2009/7/31
SA06	Spectrum Analyzer (F/W: 3.60 SP1)	Rohde & Schwarz	FSP40	100071	2008/10/31	2009/10/31
SH01	Standard Horn Antenna (18-26G)	A.H. Systems	SAS-572	208	2008/7/23	2010/7/31
SH02	Standard Horn Antenna (18-26G)	A.H. Systems	SAS-572	209	2008/7/23	2010/7/31
TR04	Test Receiver (F/W : 3.82 SP1)	Rohde & Schwarz	ESCI	100447	2008/9/16	2009/9/30
TR06	Test Receiver (F/W : 3.93 SP2)	Rohde & Schwarz	ESU26	100002	2008/9/2	2009/9/30
DH01	DRG Horn Antenna	A.H. Systems	SAS-571	785	2008/1/31	2010/1/31
DH02	DRG Horn Antenna	A.H. Systems	SAS-200/571	239	2007/4/20	2009/4/30
PM01	Power Meter	Rohde & Schwarz	NRVS	100055	2009/1/26	2010/1/31
PU01	Power Meter Insertion Unit	Rohde & Schwarz	URV5-Z4	100055	2009/1/26	2010/1/31
RC02	Radio communication tester (F/W : V5.00)	Rohde & Schwarz	CMU200	105097	2008/9/17	2009/9/30
RC03	Radio communication tester (F/W : 10.20 #005)	Anritsu	MT8820B	6200636657	2008/6/3	2009/6/30
SG04	Signal Generator	Rohde & Schwarz	SMG	51400285	2008/3/26	2009/3/31
SG05	Signal Generator	Rohde & Schwarz	SMR20	100905	2008/6/10	2009/6/30
SG07	Signal Generator	Agilent Technologies	N5181A	MY47070251	2008/5/12	2009/5/31
TC01	Temperature Chamber	ESPEC	SH-641	92000964	2008/11/17	2009/11/30

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.