

Attachment B

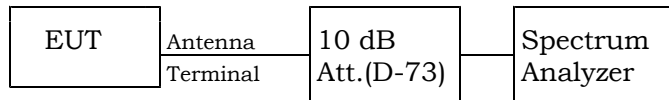
Antenna Conducted Spurious Emission Measurement (§2.1051,§22.917,§24.238)

Test Procedure :

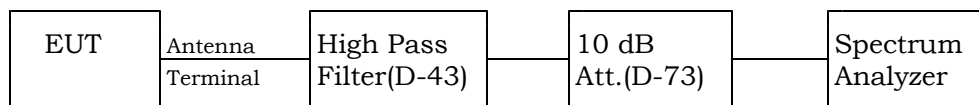
The Antenna Conducted Emission was measured with a spectrum analyzer. The test system is shown as follows:

A)GSM850

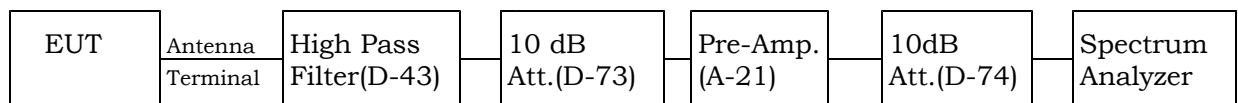
- 1) Frequency Range : 9kHz - 1.2GHz



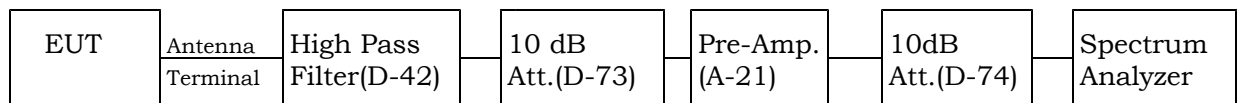
- 2) Frequency Range : 1.2GHz -2.2GHz



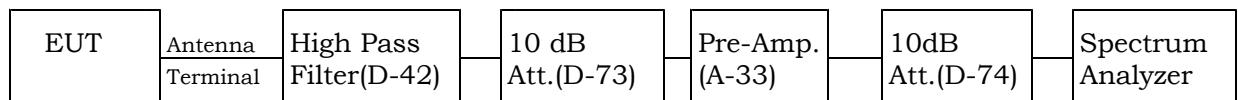
- 3) Frequency Range : 2.2GHz - 3.8GHz



- 4) Frequency Range : 3.8GHz - 5.8GHz

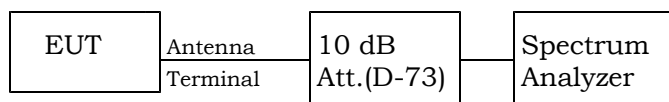


- 5) Frequency Range : 5.8GHz - 10GHz

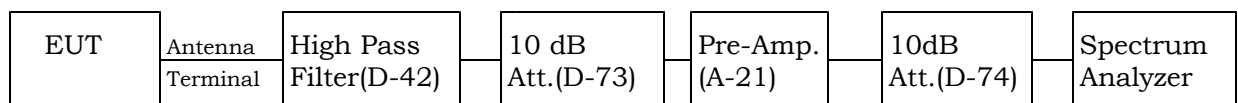


B)PCS1900

- 1) Frequency Range : 9kHz - 2.2GHz



- 2) Frequency Range : 2.2GHz -5.8GHz



- 3) Frequency Range : 5.8GHz - 20GHz

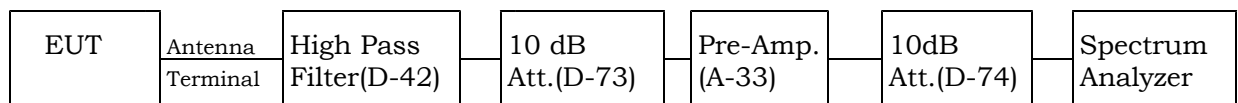


Fig.2 Antenna Conducted Spurious Emission Measurement

JQA Application No.: KL80030551
Model No. : GX30
FCC ID : APYHRO00033

Regulation : CFR 47 FCC Rules Parts 22/24
Issue Date : November 25, 2003

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Test location :

KITA-KANSAI Testing Center

7-7, Ishimaru, 1-Chome, Mino-Shi, Osaka, 562-0027, Japan

● - Shielded room

KAMEOKA EMC Branch

9-1, Ozaki, Inukanno, Nishibetsuin-Cho, Kameoka-Shi, Kyoto, 621-0126, Japan

○ - Shielded room

Used test instruments:

Model No.	Device ID	Last Cal. Date	Cal. Interval
○ - MP721C	D - 66		
● - 4T-10	D - 73	May, 2002	1 Year
● - 4T-10	D - 74	May, 2002	1 Year
○ - 2-10	D - 79		
○ - 2-10	D - 80		
○ - WJ-6611-513	A - 23		
● - WJ-6882-824	A - 21	May, 2003	1 Year
● - DBL-0618N515	A - 33	May, 2003	1 Year
● - UHP-127	D - 42	May, 2002	1 Year
● - UHP-128	D - 43	May, 2002	1 Year
● - 8566B	A - 13	February, 2003	1 Year
○ - 8593A	A - 15		

Environmental conditions:

Temperature: 24 °C Humidity: 55 %

Antenna Conducted Spurious Emission Measurement GSM850

Test Date: November 18, 2003

Temp.: 24 °C ; Humi.: 55 %

Measurement Results:

GSM850

Transmitting Frequency :824.200 MHz (128ch)

Frequency [MHz]	Correction Factor [dB]	Meter Readings (dBm)	Limits (dBm)	Results (dBm)	Margin [dB]	Remarks (Note 2)
1646.116	10.4	-35.8	-13.0	-25.4	+12.4	C
2470.399	-21.8	-23.7	-13.0	-45.5	+32.5	D
3295.031	-20.8	-24.6	-13.0	-45.4	+32.4	D
3619.174	-20.4	-39.6	-13.0	-60.0	+47.0	D
4173.688	-19.0	-19.7	-13.0	-38.7	+25.7	E
5007.138	-20.1	-31.8	-13.0	-51.9	+38.9	E
6589.153	-16.1	-32.3	-13.0	-48.4	+35.4	F
7409.167	-15.9	-36.0	-13.0	-51.9	+38.9	F
8233.590	-11.1	-44.0	-13.0	-55.1	+42.1	F
9058.013	-15.2	-32.4	-13.0	-47.6	+34.6	F

GSM850

Transmitting Frequency :836.400 MHz (189ch)

Frequency [MHz]	Correction Factor [dB]	Meter Readings (dBm)	Limits (dBm)	Results (dBm)	Margin [dB]	Remarks (Note 2)
1672.358	10.3	-37.9	-13.0	-27.6	+14.6	C
2507.348	-21.8	-25.4	-13.0	-47.2	+34.2	D
3343.737	-20.6	-27.1	-13.0	-47.7	+34.7	D
3662.841	-20.0	-37.9	-13.0	-57.9	+44.9	D
4179.986	-19.1	-22.7	-13.0	-41.8	+28.8	E
5017.635	-20.3	-29.8	-13.0	-50.1	+37.1	E
5848.496	-15.7	-36.3	-13.0	-52.0	+39.0	F
6686.144	-15.9	-32.3	-13.0	-48.2	+35.2	F
7519.384	-15.7	-37.3	-13.0	-53.0	+40.0	F
8357.033	-14.9	-41.8	-13.0	-56.7	+43.7	F
9190.273	-14.6	-36.8	-13.0	-51.4	+38.4	F

GSM850

Transmitting Frequency :848.800 MHz (251ch)

Frequency [MHz]	Correction Factor [dB]	Meter Readings (dBm)	Limits (dBm)	Results (dBm)	Margin [dB]	Remarks (Note 2)
1695.451	10.2	-39.8	-13.0	-29.6	+16.6	C
2544.297	-21.3	-25.2	-13.0	-46.5	+33.5	D
3392.442	-20.5	-27.5	-13.0	-48.0	+35.0	D
3713.226	-20.1	-35.8	-13.0	-55.9	+42.9	D
4245.066	-19.1	-21.4	-13.0	-40.5	+27.5	E
5089.013	-20.3	-31.0	-13.0	-51.3	+38.3	E
5932.260	-15.8	-41.4	-13.0	-57.2	+44.2	F
6783.135	-16.0	-36.0	-13.0	-52.0	+39.0	F
7629.601	-15.8	-45.2	-13.0	-61.0	+48.0	F
8473.067	-15.1	-42.0	-13.0	-57.1	+44.1	F
9326.941	-14.9	-43.3	-13.0	-58.2	+45.2	F

Sample of calculated result at 1646.116 MHz, as the Minimum Margin point:

$$\begin{array}{rcl} \text{Correction Factor} & = & 10.4 \text{ dB} \\ +) \text{ Meter Reading} & = & -35.8 \text{ dBm} \\ \hline \text{Result} & = & -25.4 \text{ dBm} \end{array}$$

Minimum Margin : $-13.0 - (-25.4) = 12.4(\text{dB})$

The point shown on "___" is the Minimum Margin Point.

Applied limits :

$$\begin{aligned} \text{Applied limits} &= 10\log[\text{TP(mW)}] - [43 + 10\log[\text{tp(W)}]] = 10\log[\text{TP(mW)}] - [43 + (10\log[\text{TP(mW)}] - 30)] \\ &= -13 \text{ [dBm]} \end{aligned}$$

Where $\text{tp(W)} = \text{TP(mW)} / 1000$: Transmitter Power at antenna terminal

$$10\log[\text{tp(W)}] = 10\log[\text{TP(mW)}] - 30$$

Note : 1. The spectrum was checked from 9 kHz up to 10 GHz.

2. All emissions not listed were found to be more than 20dB below the limit.

Remarks:

Note 3	Detector Function	RES. B.W	V.B.W	Correction Factor *
A	Peak (SP)	10 kHz	30 kHz	CL+P10(D-73)
B	Peak (SP)	1 MHz	3 MHz	CL+P10(D-73)
C	Peak (SP)	1 MHz	3 MHz	CL+HPF(D-43)+P10(D-73)
D	Peak (SP)	1 MHz	3 MHz	CL+HPF(D-43)+P10(D-73)+PA(A-21)+P10(D-74)
E	Peak (SP)	1 MHz	3 MHz	CL+HPF(D-42)+P10(D-73)+PA(A-21)+P10(D-74)
F	Peak (SP)	1 MHz	3 MHz	CL+HPF(D-42)+P10(D-73)+PA(A-33)+P10(D-74)

*)CL: Cable Loss / P10: 10dB Att. / HPF: High Pass Filter Loss / PA : Pre-Amp.

Tester : Shigeru Kinoshita

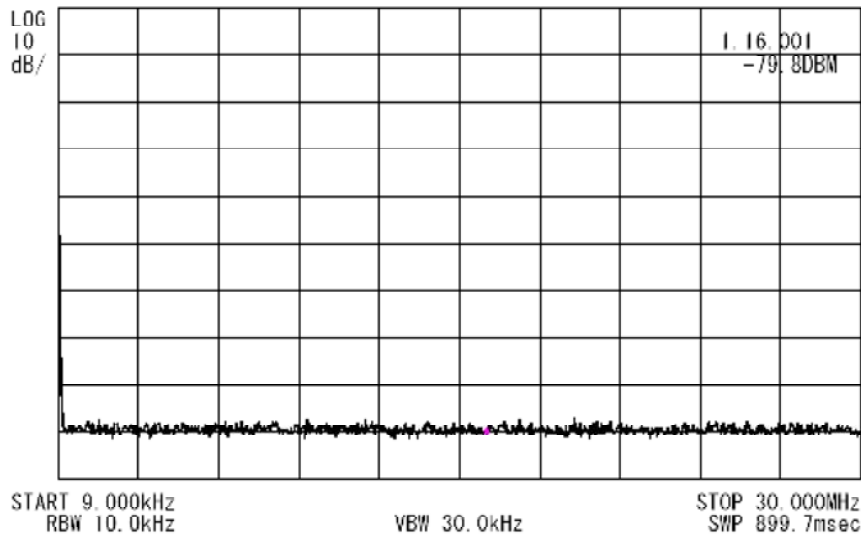
Antenna Conducted Spurious Emission Measurement

Transmitting Frequency : 824.200 MHz (128 ch)
Frequency Range : 9kHz - 30 MHz

Antenna Conducted Spurious GSM850
824.2MHz(128ch) 9kHz-30MHz

2003/11/18 14:46:34

REF 10.0 DBM ATT 20dB



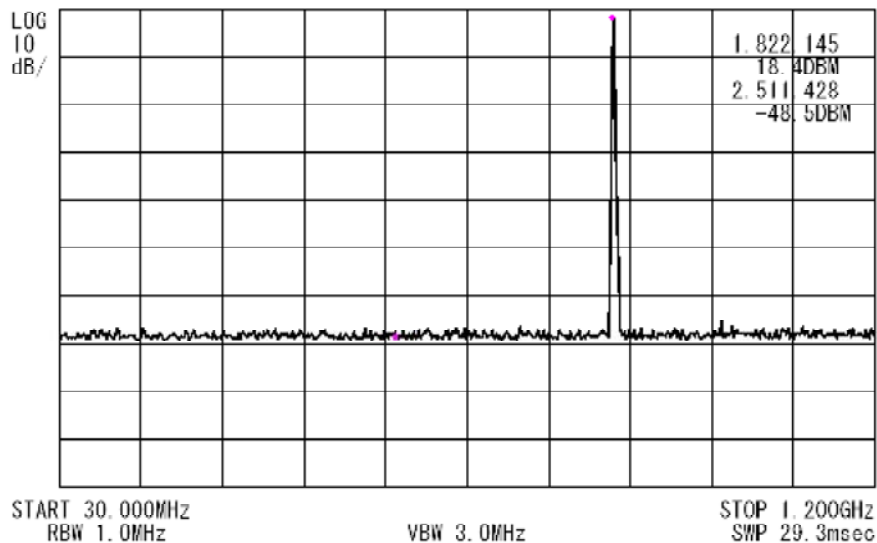
Antenna Conducted Spurious Emission Measurement

Transmitting Frequency : 824.200 MHz (128 ch)
Frequency Range : 30MHz - 1.2GHz

Antenna Conducted Spurious GSM850
824.2MHz(128ch) 30MHz-1.2GHz

2003/11/18 15:13:29

REF 20.0 DBM ATT 30dB

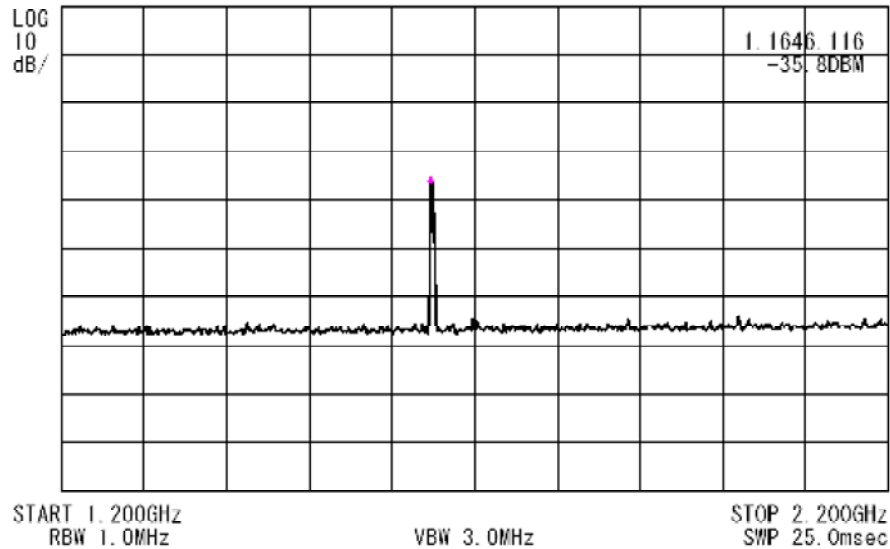


Antenna Conducted Spurious Emission Measurement

Transmitting Frequency : 824.200 MHz (128 ch)
Frequency Range : 1.2GHz - 2.2GHz

Antenna Conducted Spurious GSM850
824.2MHz(128ch) 1.2GHz-2.2GHz
REF 0.0 DBM ATT 10dB

2003/11/18 16:17:28

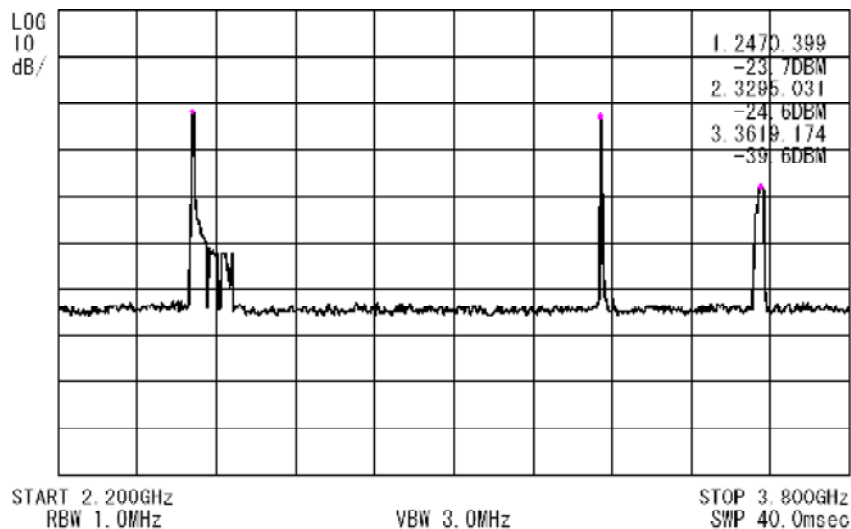


Antenna Conducted Spurious Emission Measurement

Transmitting Frequency : 824.200 MHz (128 ch)
Frequency Range : 2.2GHz - 3.8GHz

Antenna Conducted Spurious GSM850
824.2MHz(128ch) 2.2GHz-3.8GHz
REF -2.0 DBM ATT 10dB

2003/11/18 20:29:59



Antenna Conducted Spurious Emission Measurement

Transmitting Frequency : 824.200 MHz (128 ch)

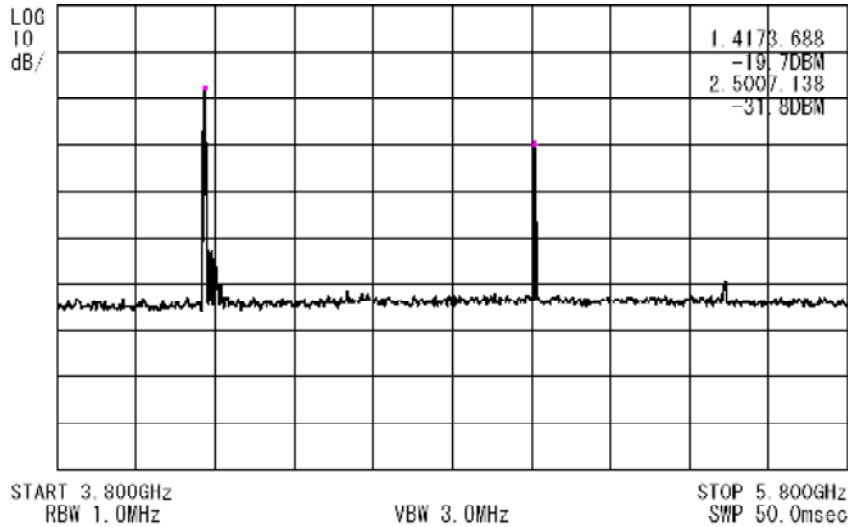
Frequency Range : 3.8GHz - 5.8GHz

Antenna Conducted Spurious GSM850

824.2MHz(128ch) 3.8GHz-5.8GHz

2003/11/18 20:56:06

REF -2.0 DBM ATT 10dB



Antenna Conducted Spurious Emission Measurement

Transmitting Frequency : 824.200 MHz (128 ch)

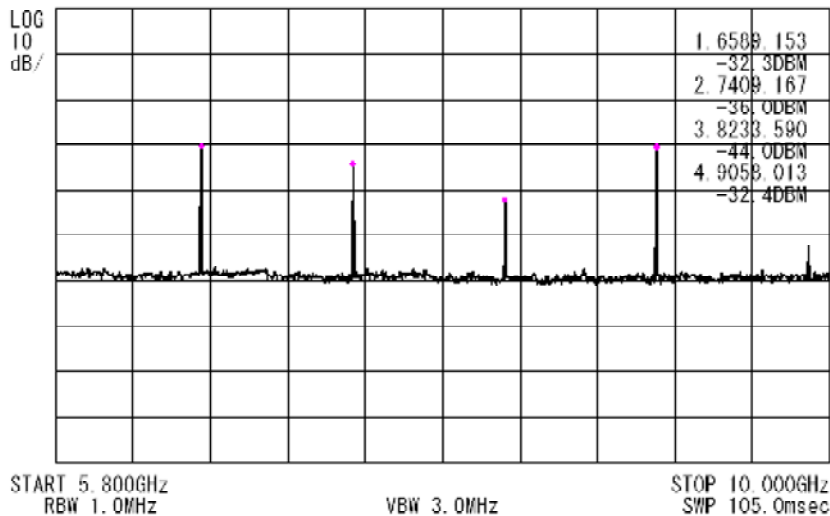
Frequency Range : 5.8GHz - 10GHz

Antenna Conducted Spurious GSM850

824.2MHz(128ch) 5.8GHz-10GHz

2003/11/18 21:25:39

REF -2.0 DBM ATT 10dB



Antenna Conducted Spurious Emission Measurement

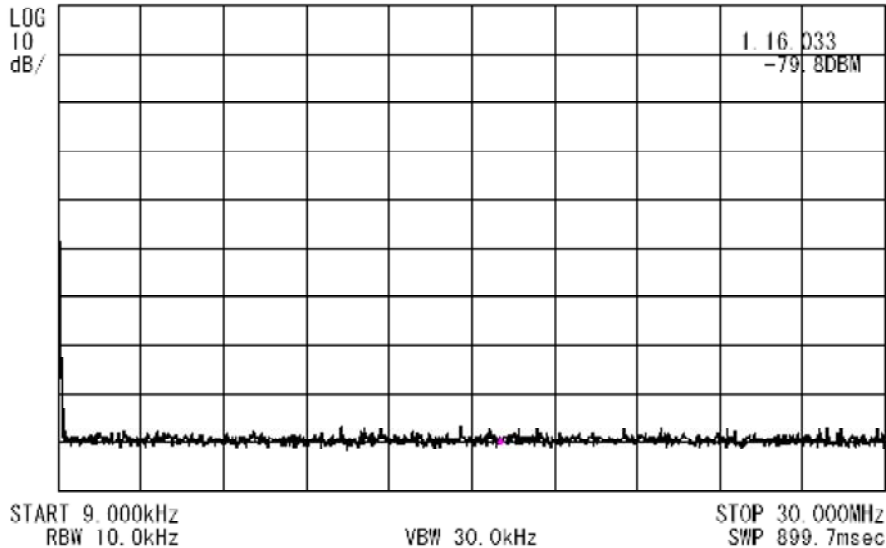
Transmitting Frequency : 836.400 MHz (189 ch)

Frequency Range : 9kHz - 30 MHz

Antenna Conducted Spurious GSM850
836.4MHz(189ch) 9kHz-30MHz

2003/11/18 14:49:07

REF 10.0 DBM ATT 20dB



Antenna Conducted Spurious Emission Measurement

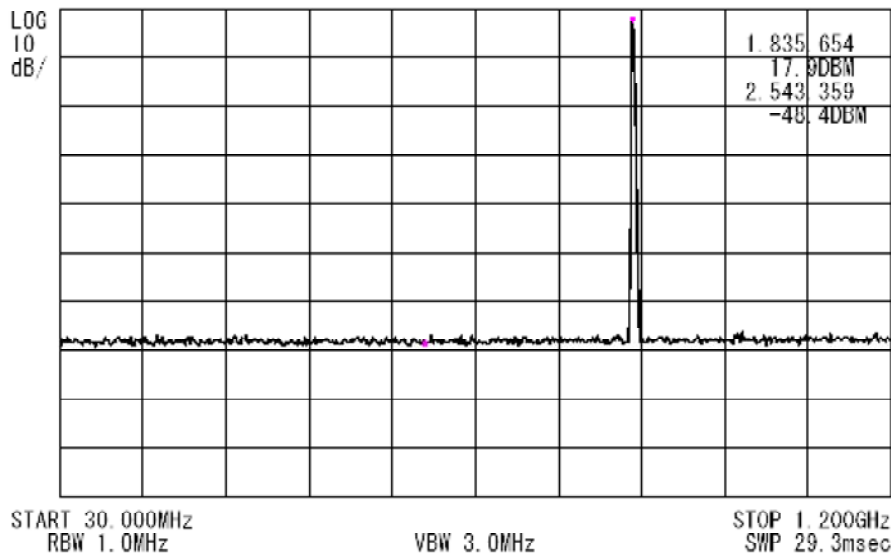
Transmitting Frequency : 836.400 MHz (189 ch)

Frequency Range : 30MHz - 1.2GHz

Antenna Conducted Spurious GSM850
836.4MHz(189ch) 30MHz-1.2GHz

2003/11/18 15:10:05

REF 20.0 DBM ATT 30dB



Antenna Conducted Spurious Emission Measurement

Transmitting Frequency : 836.400 MHz (189 ch)

Frequency Range : 1.2GHz - 2.2GHz

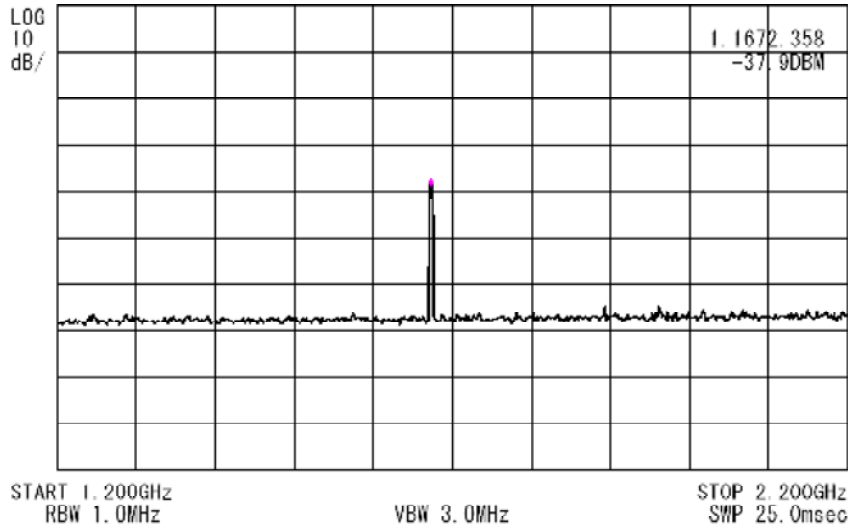
Antenna Conducted Spurious GSM850

836.4MHz(189ch) 1.2GHz-2.2GHz

2003/11/18 16:17:28

REF 0.0 DBM

ATT 10dB



Antenna Conducted Spurious Emission Measurement

Transmitting Frequency : 836.400 MHz (189 ch)

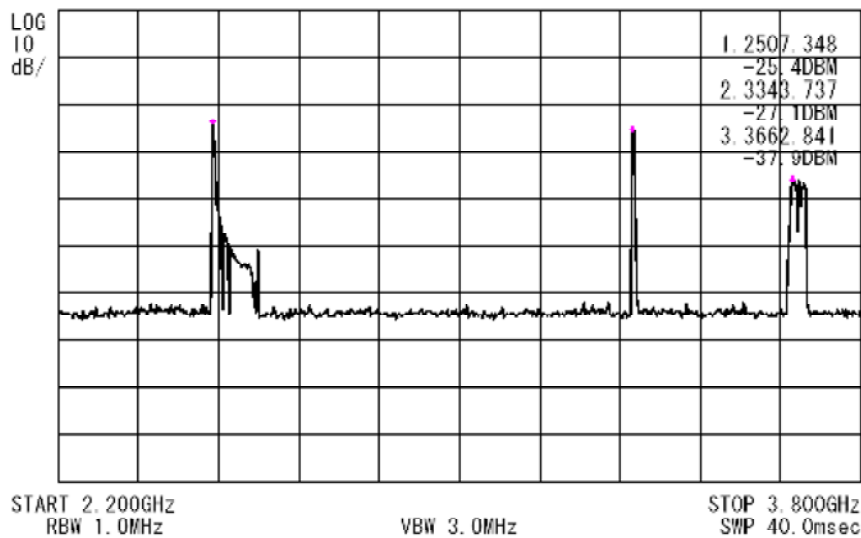
Frequency Range : 2.2GHz - 3.8GHz

Antenna Conducted Spurious GSM850

836.4MHz(189ch) 2.2GHz-3.8GHz

REF -2.0 DBM

ATT 10dB



Antenna Conducted Spurious Emission Measurement

Transmitting Frequency : 836.400 MHz (189 ch)

Frequency Range : 3.8GHz - 5.8GHz

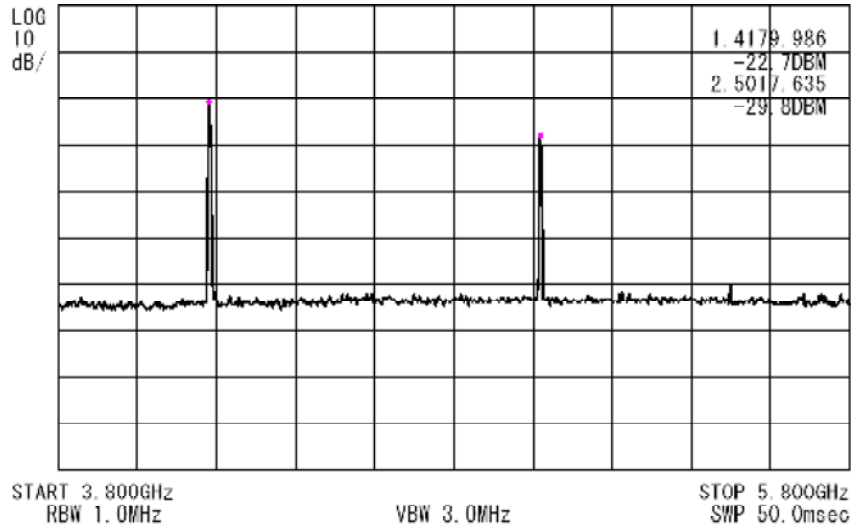
Antenna Conducted Spurious GSM850

836.4MHz(189ch) 3.8GHz-5.8GHz

2003/11/18 20:53:34

REF -2.0 DBM

ATT 10dB



Antenna Conducted Spurious Emission Measurement

Transmitting Frequency : 836.400 MHz (189 ch)

Frequency Range : 5.8GHz - 10GHz

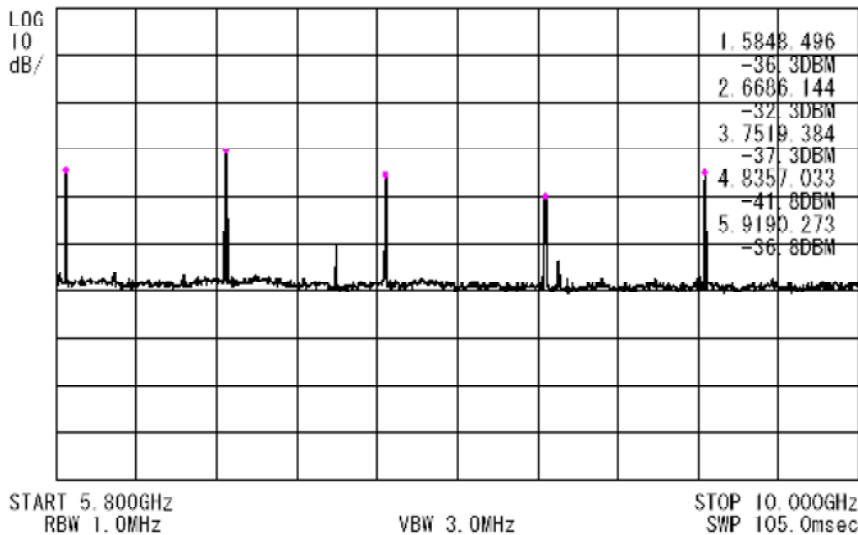
Antenna Conducted Spurious GSM850

836.4MHz(189ch) 5.8GHz-10GHz

2003/11/18 21:14:10

REF -2.0 DBM

ATT 10dB

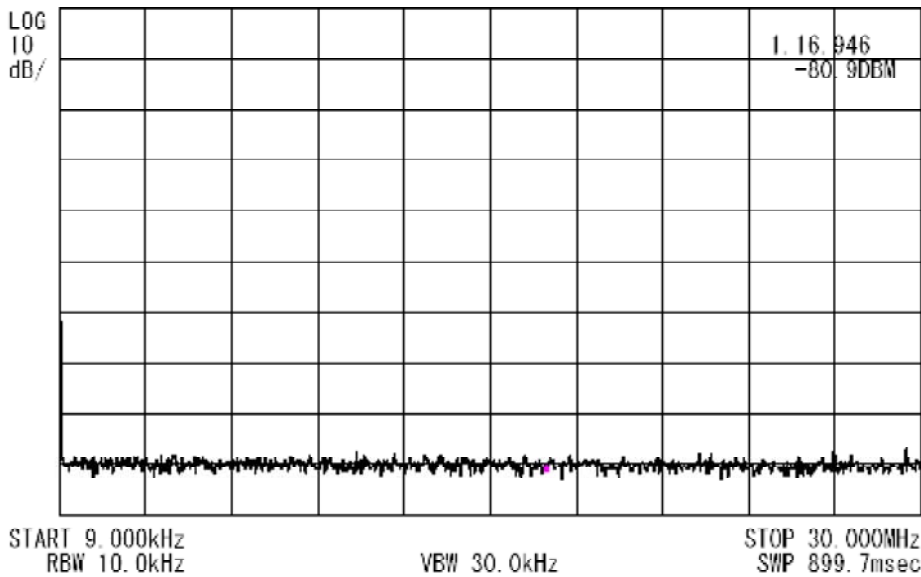


Antenna Conducted Spurious Emission Measurement

Transmitting Frequency : 848.800 MHz (251 ch)
 Frequency Range : 9kHz - 30 MHz

Antenna Conducted Spurious GSM850
 848.8MHz (251ch) 9kHz-30MHz
 REF 10.0 DBM ATT 20dB

2003/11/18 14:51:58

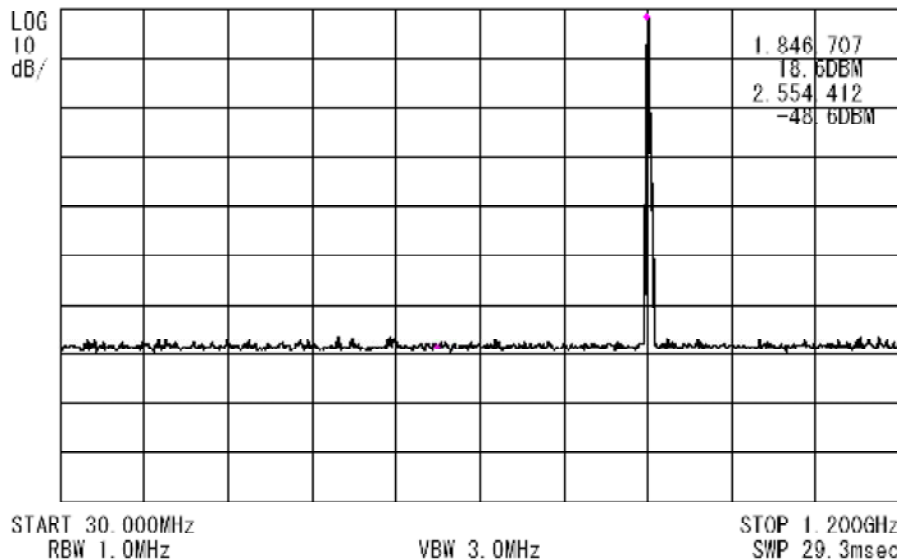


Antenna Conducted Spurious Emission Measurement

Transmitting Frequency : 848.800 MHz (251 ch)
 Frequency Range : 30MHz - 1.2GHz

Antenna Conducted Spurious GSM850
 848.8MHz (251ch) 30MHz-1.2GHz
 REF 20.0 DBM ATT 30dB

2003/11/18 15:19:05

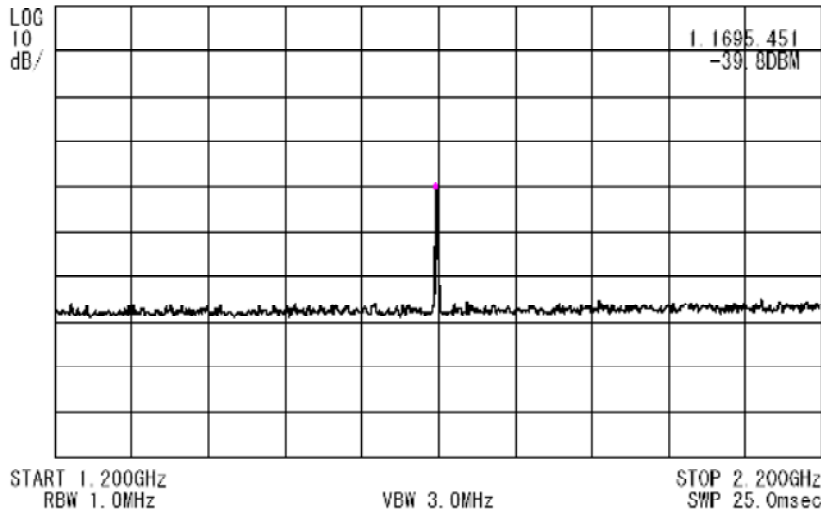


Antenna Conducted Spurious Emission Measurement

Transmitting Frequency : 848.800 MHz (251 ch)
Frequency Range : 1.2GHz - 2.2GHz

Antenna Conducted Spurious GSM850
848.8MHz(251ch) 1.2GHz-2.2GHz
REF 0.0 DBM ATT 10dB

2003/11/18 16:17:28

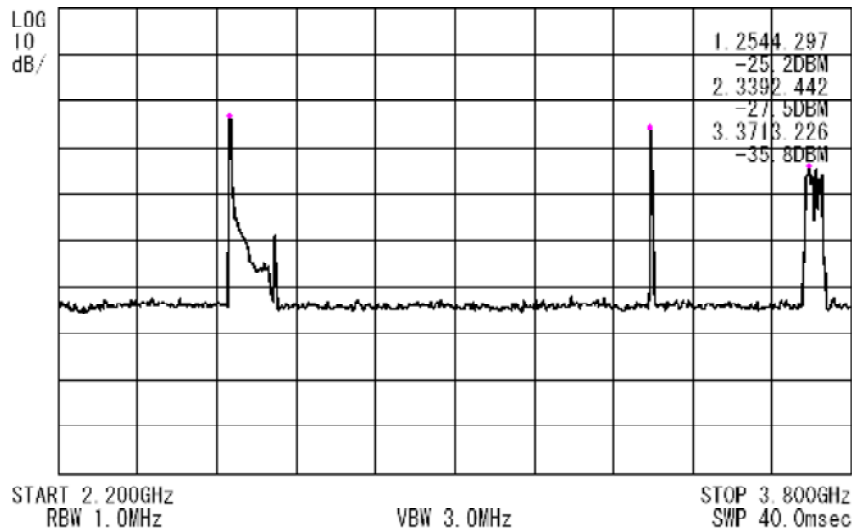


Antenna Conducted Spurious Emission Measurement

Transmitting Frequency : 848.800 MHz (251 ch)
Frequency Range : 2.2GHz - 3.8GHz

Antenna Conducted Spurious GSM850
848.8MHz(251ch) 2.2GHz-3.8GHz
REF -2.0 DBM ATT 10dB

2003/11/18 20:44:35



Antenna Conducted Spurious Emission Measurement

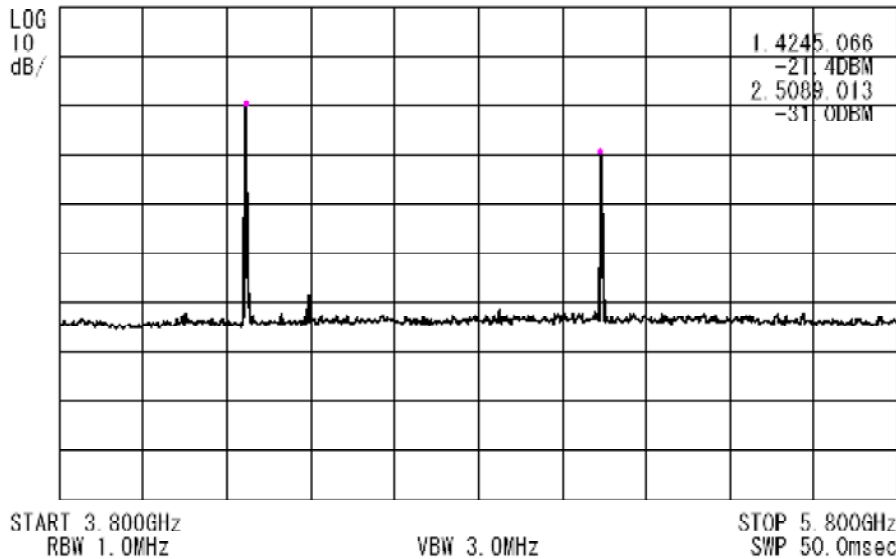
Transmitting Frequency : 848.800 MHz (251 ch)

Frequency Range : 3.8GHz - 5.8GHz

Antenna Conducted Spurious GSM850
848.8MHz (251ch) 3.8GHz-5.8GHz

2003/11/18 20:59:03

REF -2.0 DBM ATT 10dB



Antenna Conducted Spurious Emission Measurement

Transmitting Frequency : 848.800 MHz (251 ch)

Frequency Range : 5.8GHz - 10GHz

Antenna Conducted Spurious GSM850
848.8MHz (251ch) 5.8GHz-10GHz

2003/11/18 21:11:02

REF -2.0 DBM ATT 10dB

