EMI TEST REPORT

Test Report No. : 23JE0007-HO-3

Applicant	:	**Fujitsu Ten Limited**
Type of Equipment	:	**Display**
Model No.	:	**134000-240** **134000-245**
Test standard	:	**FCC Part 15 Subpart C** **Section 15.247**
FCC ID	:	**BAB134000-240**
Test Result	:	**Complied**

1. This test report shall not be reproduced in full or partial, without the written approval of UL Apex Co., Ltd.
2. The results in this report apply only to the sample tested.
3. This equipment is in compliance with above regulation. We hereby certify that the data contain a true representation of the EMC profile.
4. The test results in this report are traceable to the national or international standards.
5. This test report does not constitute an endorsement by NIST/NVLAP or U.S. Government.

Date of test : May 14 and 27, 2003

Tested by :
Hiroka Umeyama
EMC Section

Approved by :
Hironobu Shimoji
Group Leader of EMC Section

UL Apex Co., Ltd.
Head Office EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8116
Facsimile : +81 596 24 8124

CONTENTS

SECTION 1: Client information

Company name	:	Fujitsu Ten Limited
Brand name	:	-
Address	:	2-28, Gosho-dori 1-chome, Hyogo-ku, Kobe 652-8510 Japan
Telephone Number	:	+81 78 682 2159
Facsimile Number	:	+81 78 671 7160
Contact Person	:	Naoto Nishimura

SECTION 2: Equipment under test (E.U.T.)

2.1 Identification of E.U.T.

Type of Equipment	:	Display
Model No.	:	134000-240 134000-245
Serial No.	:	2G-2 9
Rating	:	DC 13.2V, 3.0 A and below
Country of Manufacture	:	Japan
Receipt Date of Sample	:	May 8, 2003
Condition of EUT	:	Production prototype

2.2 Product description

Fujitsu Ten Limited, Model: 134000-240/134000-245 (referred to as the EUT in this report) is a Display.
The clock frequency used in EUT is 8.3076MHz, 12.55MHz for Microprocessor, 19.17MHz for Echo canceller, and 50kHz, 196.1kHz, 6.29MHz, 14.745MHz for other communication clocks, 86.5kHz for D-D converter, 55kHz for Inverter, 150Hz for Back light duty, 15.734kHz for Synchronous separation, 500kHz, 8kHz, 115.2kHz for Bluetooth and 27MHz, 15.734kHz for Drawing dot clock.
*The difference in Model No is in the layout and the number of Switch & LED on the panel.

Frequency band	: from 2400 MHz to 2483.5 MHz
Frequency of operation	: 2402MHz – 2480MHz
Number of channels and channel spacing	: 79ch, 1MHz
Type of Modulation	: FSK, FHSS
Antenna Type	: Chip antenna (Murata, LDA923G052D-210)
Antenna Gain	: 0.0 dBi
Power Supply	: DC 12V 10.5V-16V
Operating temperature Range	: -30 deg.C. to 65 deg.C.

SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification : FCC Part15 Subpart C

Title : FCC 47CFR Part15 Radio Frequency Device Subpart C Intentional Radiators
Section 15.247 Operation within the bands 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz

3.2 Procedures and results

No.	Item	Test Procedure	Specification	Remarks	Deviation	Worst margin	Results
1	Conducted emission	ANSI C63.4:2001	Section 15.207	-	Excluded*1)	N/A	N/A
2	Carrier Frequency Separation	ANSI C63.4:2001	Section15.247(a)(1)	Conducted	N/A	-	Complied
3	20dB Bandwidth	ANSI C63.4:2001	Section15.247(a)(1)	Conducted	N/A	-	Complied
4	Number of Hopping Frequency	ANSI C63.4:2001	Section15.247(a)(1)(iii)	Conducted	N/A	-	Complied
5	Dwell time	ANSI C63.4:2001	Section15.247(a)(1)(iii)	Conducted	N/A	-	Complied
6	Maximum Peak Output Power	ANSI C63.4:2001	Section15.247(b)(1)	Conducted	N/A	-	Complied
7	Band Edge Compliance	ANSI C63.4:2001	Section15.247(c)	Conducted	N/A	-	Complied
8	Spurious Emission	ANSI C63.4:2001	Section15.247(c)	Conducted/ Radiated	N/A	12.1dB 111.9MHz Horizontal	Complied

*1)The test is not applicable since the EUT does not have AC Mains.
*These tests were performed without any deviations from test procedure except for additions or exclusions.
*These tests were also referred to FCC Public Notice DA 00-705 "Guidance on Measurement for Frequency Hopping Spread Spectrum Systems".

3.3 Confirmation

UL Apex Co., Ltd. hereby confirms that E.U.T., in the configuration tested, complies with the specifications FCC Part 15 Subpart C Section 15.207 and 15.247.

3.4 Uncertainty

Spurious Emission (Radiated)
The measurement uncertainty (with a 95% confidence level) for this test using Biconical antenna is ±4.5dB.
The measurement uncertainty (with a 95% confidence level) for this test using Logperiodic antenna is ±5.2dB.
The measurement uncertainty (with a 95% confidence level) for this test using Horn antenna is ±6.6dB.
■The result is within Head Office EMC lab's uncertainty.
□The data listed in this test report has enough margin.

Other test except Conducted Emission and Spurious Emission (Radiated)
The measurement uncertainty (with a 95% confidence level) for this test was ±3.0dB.
□The result is within Head Office EMC lab's uncertainty.
■The data listed in this test report has enough margin.

3.5 Test Location

UL Apex Co., Ltd. Head Office EMC Lab.
No.2 semi Anechoic chamber and No.3 measurement room.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8116
Facsimile : +81 596 24 8124
This semi anechoic chamber has been fully described in a report submitted to FCC office, and listed on June 05, 2002.
(Registration number: No.2 :846015 Industry Canada: No.2 : IC4247-2)
*NVLAP Lab. code: 200572-0

3.6 Test set up, Test instruments and Data of EMI

Refer to APPENDIX 1 to 3.

SECTION 4: Operation of E.U.T. during testing

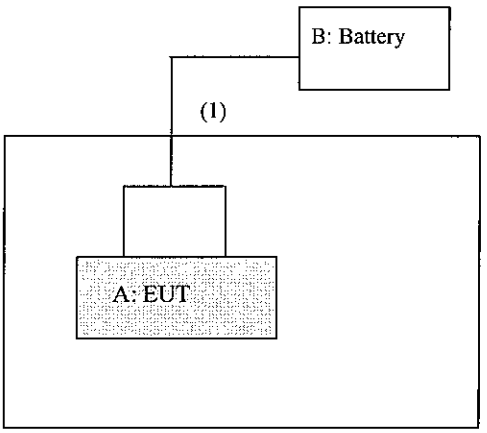
4.1 Operating Modes

The EUT exercise program used during radiated and conducted testing was designed to exercise the various system components in a manner similar to typical use.

The sequence is used : 1. Transmitting mode (ch1:2402MHz, ch6:2441MHz, ch11:2480MHz)

Justification: The system was configured in typical fashion (as a customer would normally use it) for testing.

4.2 Configuration and peripherals



* Cabling was taken into consideration and test data was taken under worst case conditions.

Description of EUT and support equipment

No.	Item	Model number	Serial number	Manufacturer	FCC ID	Remark
A	Display	134000-240	2G-2 9	Tochigi Fujitsu Ten	BAB134000-240	-
B	Battery	B19L	161001C	Panasonic	-	-

List of cables used

No.	Name	Length (m)	Shield	Backshell Material
(1)	DC cable	5.0	N	Polyvinyl chloride

SECTION 5: Carrier Frequency Separation , Section 15.247(a)(1)

Test Procedure
The carrier frequency separation was measured with a spectrum analyzer connected to the antenna port.
Test data : **APPENDIX 2**
Test result : **Pass**
Test instruments : **MBTR10, MCC-04**

SECTION 6: 20dB Bandwidth , Section 15.247(a)(1)

Test Procedure
The 20dB bandwidth was measured with a spectrum analyzer connected to the antenna port.
Test data : **APPENDIX 2**
Test result : **Pass**
Test instruments : **MBTR10, MCC-04**

SECTION 7: Number of Hopping Frequency, Section 15.247(a)(1)(iii)

Test Procedure
The Number of Hopping Frequency was measured with a spectrum analyzer connected to the antenna port.
Test data : **APPENDIX 2**
Test result : **Pass**
Test instruments : **MBTR10, MCC-04**

SECTION 8: Dwell time, Section 15.247(a)(1)(iii)

Test Procedure
The Dwell time was measured with a spectrum analyzer connected to the antenna port.
Test data : **APPENDIX 2**
Test result : **Pass**
Test instruments : **MBTR10, MCC-04**

SECTION 9: Maximum Peak Output Power, Section 15.247(b)(1)

Test Procedure
The Maximum Peak Output Power was measured with a spectrum analyzer connected to the antenna port.
Test data : **APPENDIX 2**
Test result : **Pass**
Test instruments : **MBTR10, MCC-04**

SECTION 10: Band Edge Compliance, Section 15.247(c)

Test Procedure
The Band Edge Compliance was measured with a spectrum analyzer connected to the antenna port.
Test data : **APPENDIX 2**
Test result : **Pass**
Test instruments : **MBTR10, MCC-04**

SECTION 11: Spurious Emission , Section 15.247(c)

[Conducted]
Test Procedure
The Spurious Emission (Conducted) was measured with a spectrum analyzer connected to the antenna port.

Test data	:	**APPENDIX 2**
Test result	:	**Pass**
Test instruments	:	**MBTR10, MCC-04**

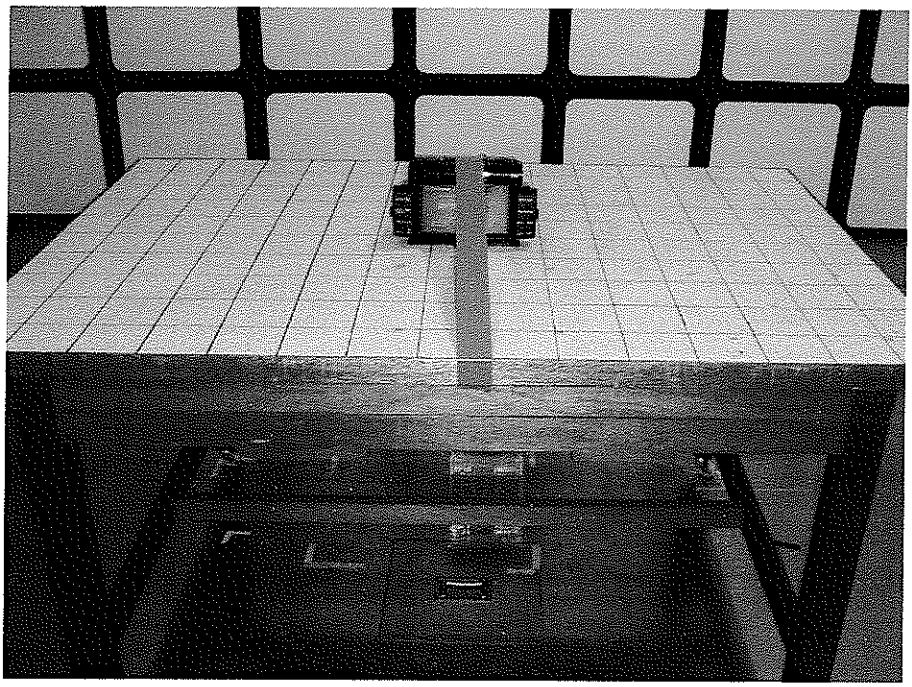
[Radiated]
Test Procedure
EUT was placed on a platform of nominal size, 1m by 1.5m, raised 80cm above the conducting ground plane.
Test was made with the antenna positioned in both the horizontal and vertical planes of polarization.
The Radiated Electric Field Strength intensity has been measured in No.2 semi anechoic chamber (7.5x5.8x5.2m) with a ground plane and at a distance of 3m.
The measuring antenna height was varied between 1 to 4m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity.
The measurements were performed for both vertical and horizontal antenna polarization.
The maximum output power of EUT was confirmed as the worst case condition in the photo of APPENDIX.

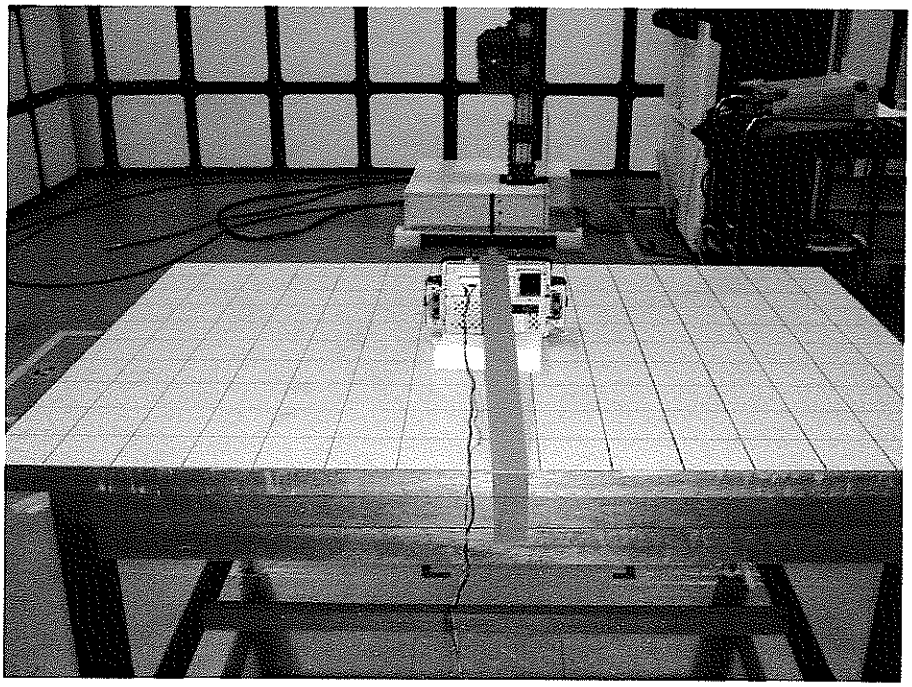
Test data	:	**APPENDIX 2**
Test result	:	**Pass**
Test instruments	:	**MAT-07, MCC-12, MPA-04, MTR-02, SA-07, MBA-02, MLA-02 MCC-05, MHA-02, MHA-06, MPA-01, MCC-24, MCC-11**

Contents of Appendixes

APPENDIX 1: Photographs of test setup

Spurious Emission (Radiated)





UL Apex Co., Ltd.
Head Office EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8116
Facsimile : +81 596 24 8124

Test Report No : 23JE0007-HO-3

APPENDIX 2
Test Instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Test Item	Calibration Date * Interval(month)
MBTR10	Spectrum Analyzer	Rohde & Schwarz	FSP30	RE	2002/11/13 * 12
MCC-04	Microwave Cable	Storm	421-011	RE	2003/01/14 * 12
MTR-02	Test Receiver	Rohde & Schwarz	ESI40	RE	2002/11/01 * 12
MCC-12	Coaxial Cable	Fujikura/Agilent	MCC-12-01(8D-2W15m),MCC-12-02(5D-2W-0.7),MCC-12-03(5D-2W-0.8),MCC-12-04(5D-2W-1m),MCC-12-05(RF SW),MCC-12-06(RF SW), ※MCC-12-07(5D-2W-0.4m)5/8追加	RE	2003/05/08 * 12
MCC-05	Microwave Cable	Storm	421-011	RE	2003/01/14 * 12
MCC-24	Microwave Cable	Storm	421-011	RE	2003/01/14 * 12
MHA-06	Horn Antenna	Schwarzbeck	BBHA9120D	RE	2003/01/11 * 12
MPA-01	Pre Amplifier	Agilent	8449B	RE	2003/02/08 * 12
MBA-02	Biconical Antenna	Schwarzbeck	BBA9106	RE	2003/04/28 * 12
MLA-02	Logperiodic Antenna	Schwarzbeck	USLP9143	RE	2003/04/28 * 12
MPA-04	Pre Amplifier	Agilent	8447D	RE	2003/03/13 * 12
MAT-07	Attenuator(6dB)	Weinschel Corp	2	RE	2002/12/24 * 12
MCC-11	Microwave coaxial cable	Suhner	SUCOFLEX 104	RE	2003/03/27 * 12
MHA-02	Horn Antenna	EMCO	3160-09	RE	2003/01/11 * 12
SA-07	Spectrum Analyzer	Advantest	R3265	RE	2002/12/24 * 12

All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
Test Item:

RE: Radiated emission,

DATA OF CARRIER FREQUENCY SEPARATION

UL Apex Co., Ltd.
Head Office EMC Lab. No.3 Measurement Room

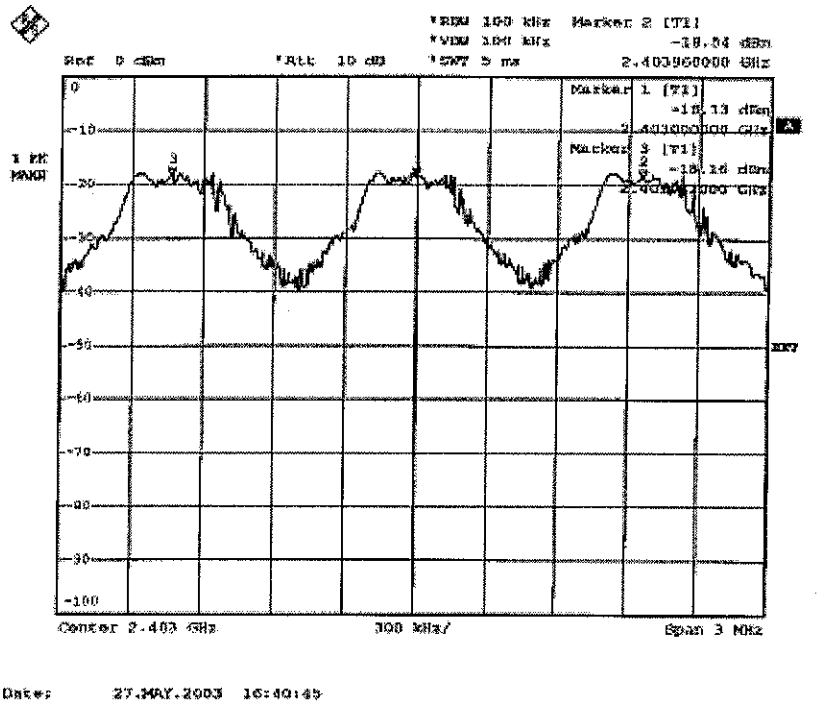
COMPANY	:	Fujitsu Ten Limited	REPORT NO	:	23JE0007-HO - 3
EQUIPMENT	:	Display	REGULATION	:	Fcc Part15 Subpart C 15.247(a)(1)
MODEL	:	134000-240	TEST DISTANCE	:	-
S/ N	:	2G-2 9	DATE	:	05/27/2003
FCC ID	:	BAB134000-240	TEMPERATURE	:	24℃
IC Number	:	2024B-134240	HUMIDITY	:	42%
POWER	:	DC12V			
MODE	:	Tx (Hopping on) /Inquiry			

Engineer: Hiroka Umeyama

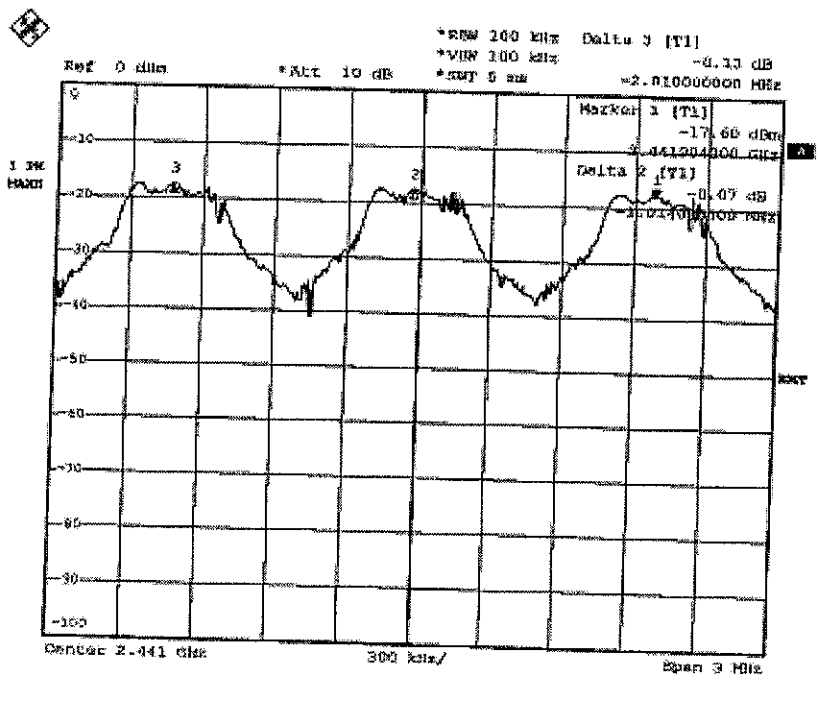
PK DETECT(S/A :span 3MHz, RBW 100kHz ,VBW 100kHz, sweep time AUTO)

CH	FREQ [MHz]	Channel separation [MHz]	Limit
Low	2402.0	0.960	>20dB Bandwidth and 25[kHz]
Mid	2441.0	1.000	>20dB Bandwidth and 25[kHz]
High	2480.0	0.978	>20dB Bandwidth and 25[kHz]
Inquiry	2441.0	1.990	>20dB Bandwidth and 25[kHz]

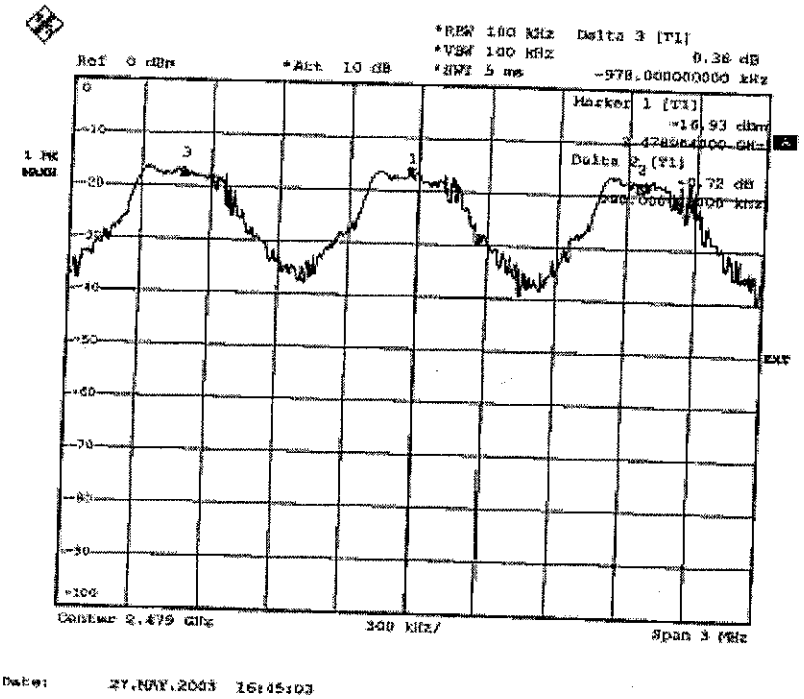
Carrier Frequency Separation :Tx(Hopping on)2402MHz



Carrier Frequency Separation :Tx(Hopping on)2441MHz



Carrier Frequency Separation :Tx(Hopping on)2480MHz



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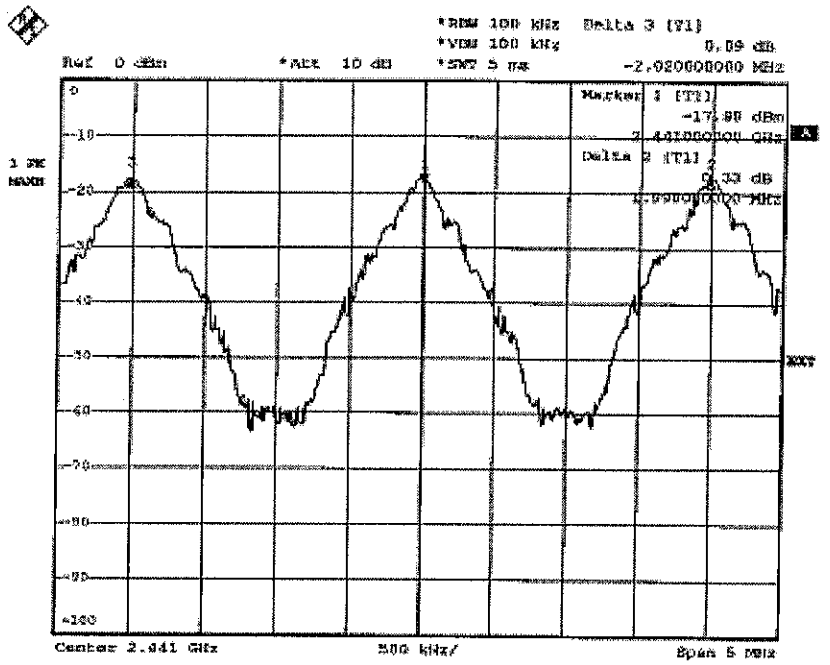
Carrier Frequency Separation : Inquiry



Date: 27.MAY.2003 16:47:30

DATA OF 20dB BANDWIDTH

UL Apex Co., Ltd.
Head Office EMC Lab. No.3 Measurement Room

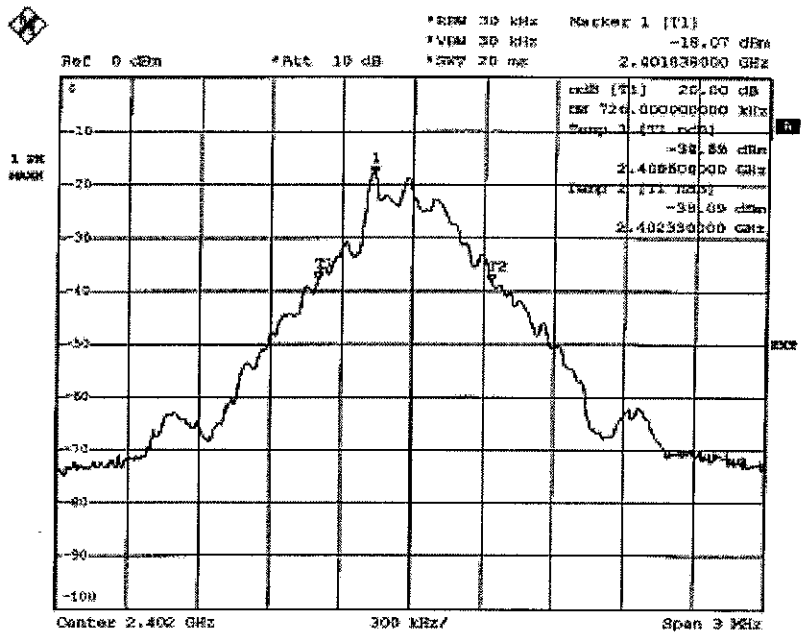
COMPANY	:	Fujitsu Ten Limited	REPORT NO	:	23JE0007-HO - 3
EQUIPMENT	:	Display	REGULATION	:	Fcc Part15 Subpart C 15.247(a)(1)
MODEL	:	134000-240	TEST DISTANCE	:	-
S/ N	:	2G-2 9	DATE	:	05/27/2003
FCC ID	:	BAB134000-240	TEMPERATURE	:	24℃
IC Number	:	2024B-134240	HUMIDITY	:	42%
POWER	:	DC12V			
MODE	:	Tx (Hopping off) /Inquiry			

Engineer: Hiroka Umeyama

PK DETECT(S/A: span 3MHz, RBW 30kHz ,VBW 30kHz, sweep time AUTO)

CH	FREQ [MHz]	20dB Bandwidth [MHz]	Limit [MHz]
Low	2402.0	0.726	1.0
Mid	2441.0	0.726	1.0
High	2480.0	0.732	1.0
Inquiry	2441.0	0.684	1.0

20dB Bandwidth:Tx(Hopping off)2402MHz



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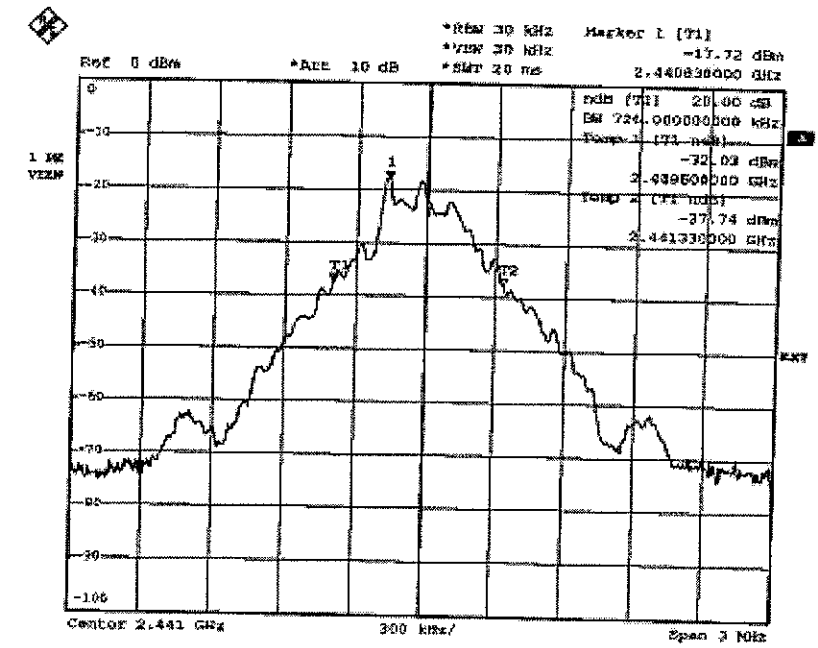
20dB Bandwidth:Tx(Hopping off)2441MHz



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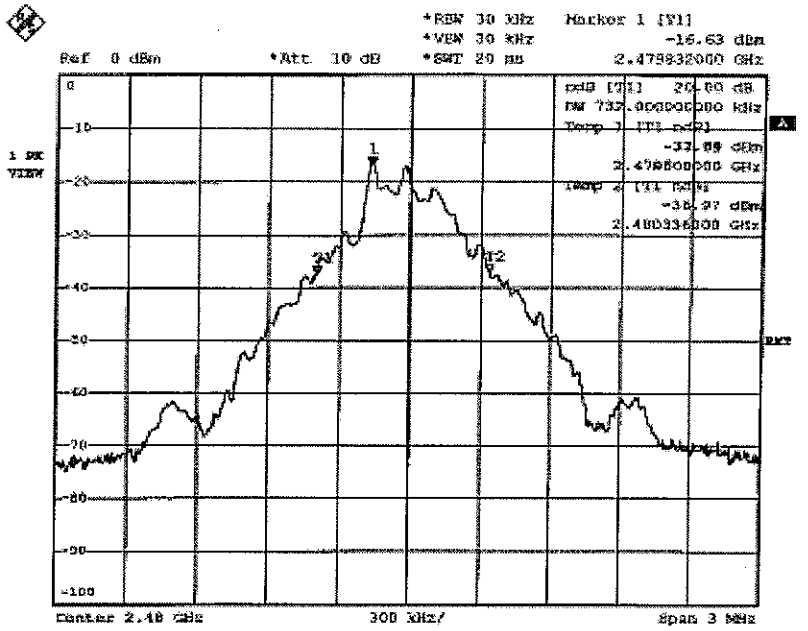
20dB Bandwidth:Tx(Hopping off)2480MHz



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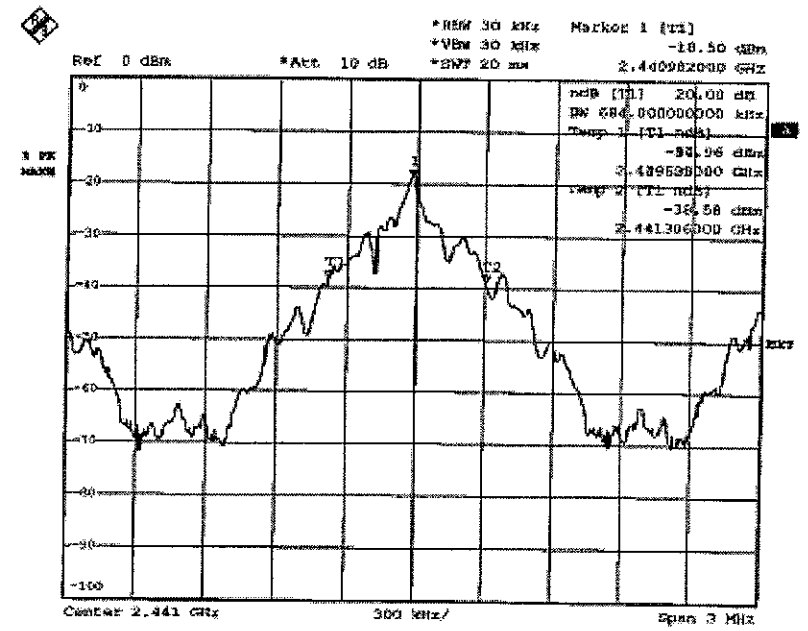
20dB Bandwidth:Inquiry



Date: 27.MAY.2003 16:50:32

DATA OF NUMBER OF HOPPING FREQUENCY

UL Apex Co., Ltd.
Head Office EMC Lab. No.3 Measurement Room

COMPANY	:	Fujitsu Ten Limited	REPORT NO	:	23JE0007-HO - 3
EQUIPMENT	:	Display	REGULATION	:	Fcc Part15 Subpart C 15.247(a)(1)(iii)
MODEL	:	134000-240	TEST DISTANC	:	-
S/ N	:	2G-2 9	DATE	:	05/27/2003
FCC ID	:	BAB134000-240	TEMPERATURI	:	24℃
IC Number	:	2024B-134240	HUMIDITY	:	42%
POWER	:	DC12V			
MODE	:	Tx (Hopping on) /Inquiry			

Engineer : Hiroka Umeyama

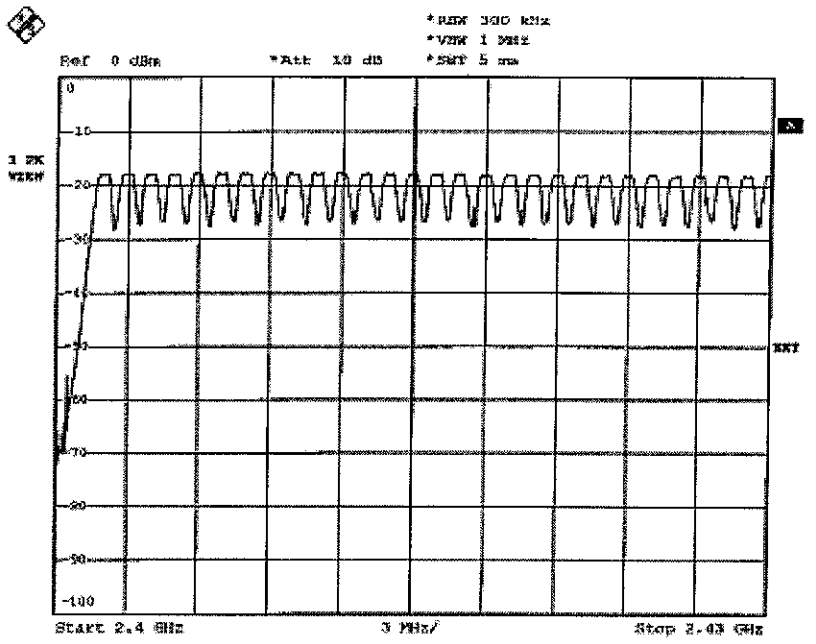
PK DETECT(S/A : RBW 300kHz ,VBW 1MHz, sweep time AUTO)

Mode	Number of channel [time]	Limit [time]
Tx(Hoppng on)	79	≧15

PK DETECT(S/A : RBW 300kHz ,VBW 1MHz, sweep time AUTO)

Mode	Number of channel [time]	Limit [time]
Inquiry	32	≧15

Number of Hopping Frequency :Tx(Hopping on)2400-2430MHz



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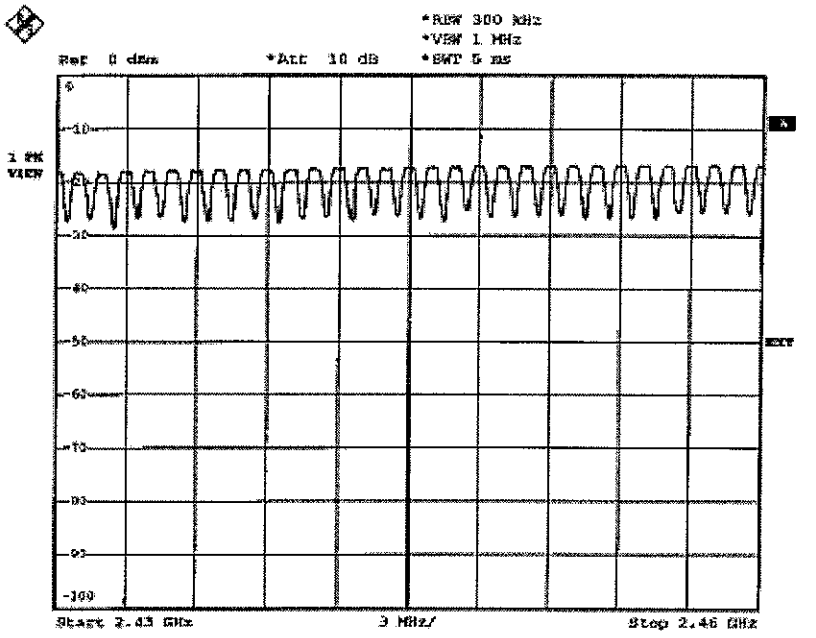
Number of Hopping Frequency :Tx(Hopping on)2430-2460MHz



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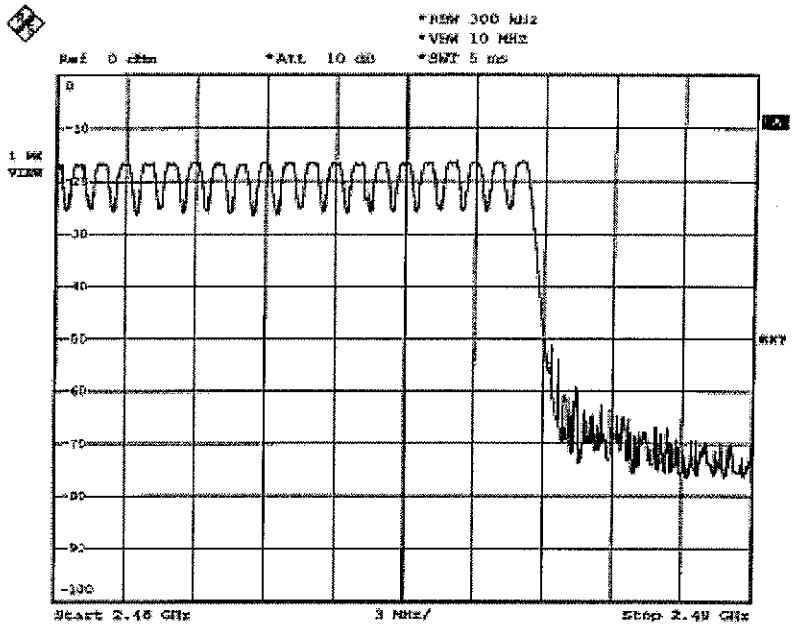
Number of Hopping Frequency :Tx(Hopping on)2460-2490MHz



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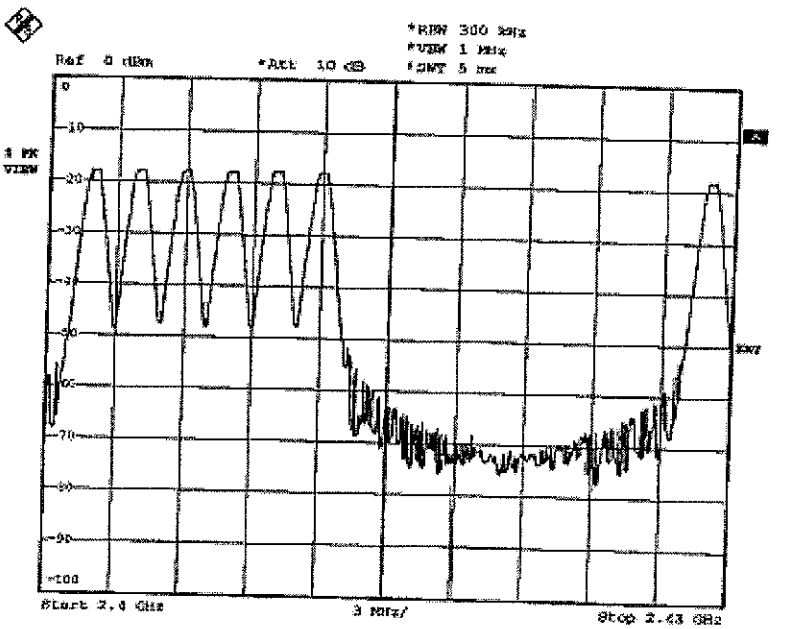
Number of Hopping Frequency :Inquiry2400-2430MHz



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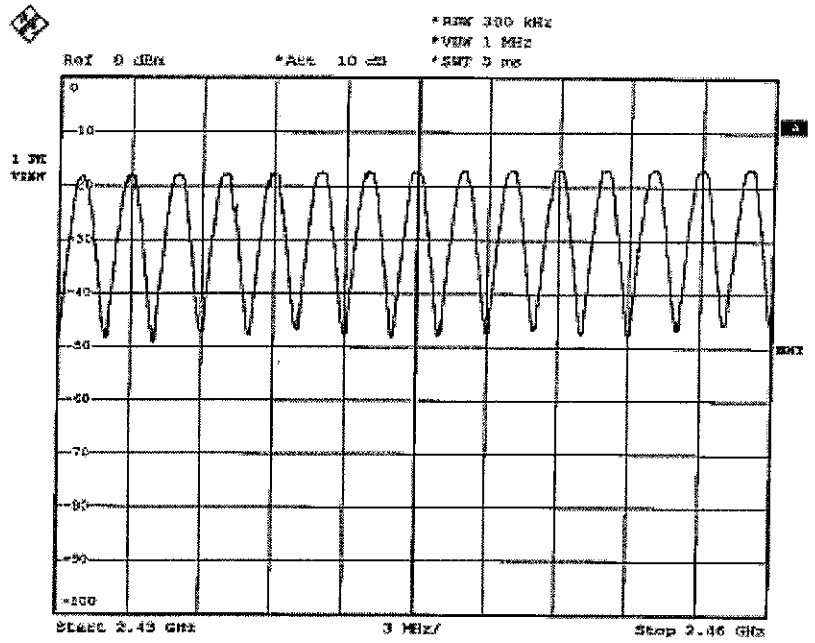

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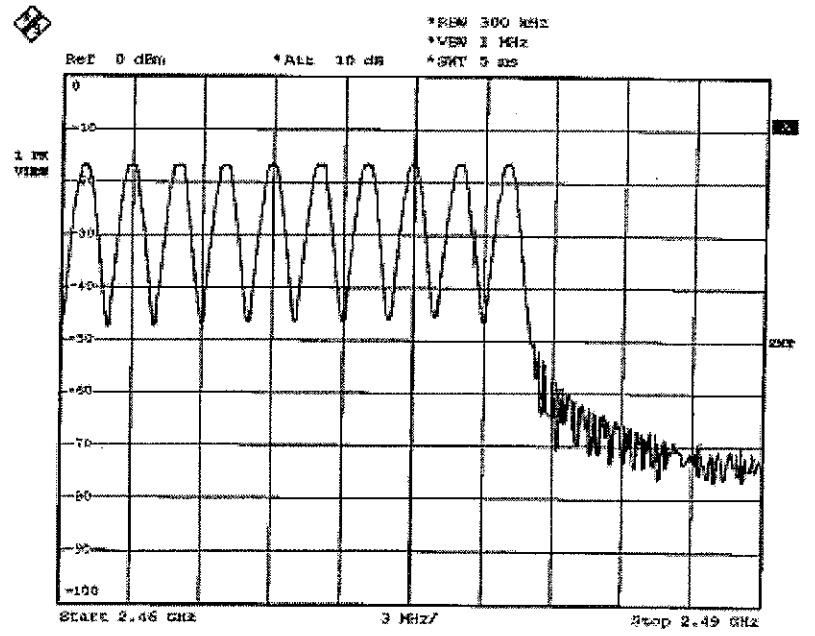

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DATA OF DWELL TIME

UL Apex Co., Ltd.
Head Office EMC Lab. No.3 Measurement Room

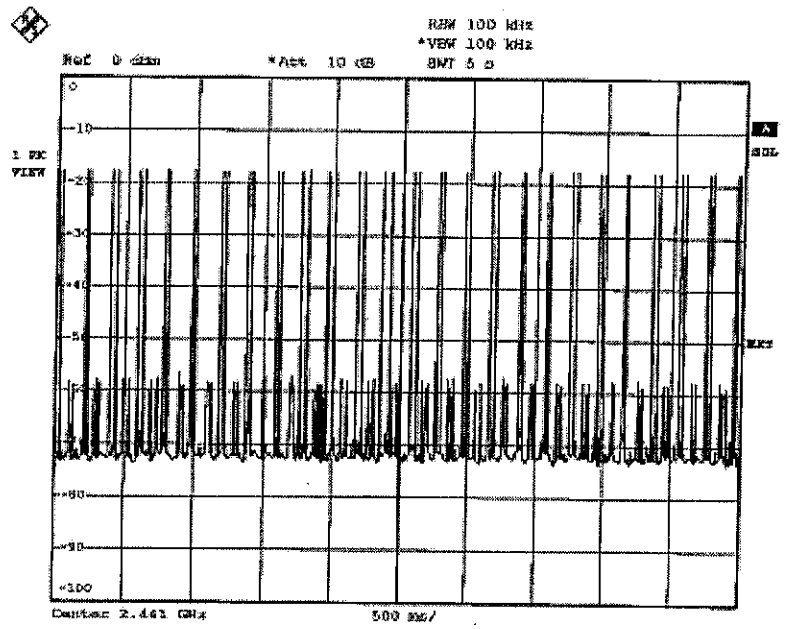
COMPANY	:	Fujitsu Ten Limited	REPORT NO	:	23JE0007-HO - 3
EQUIPMENT	:	Display	REGULATION	:	Fcc Part15 Subpart C 15.247(a)(1)(iii)
MODEL	:	134000-240	TEST DISTANCE	:	-
S/ N	:	2G-2 9	DATE	:	05/27/2003
FCC ID	:	BAB134000-240	TEMPERATURE	:	24℃
IC Number	:	2024B-134240	HUMIDITY	:	42%
POWER	:	DC12V			
MODE	:	Tx (Hopping off) /Inquiry			

Engineer : Hiroka Umeyama

PK DETECT(S/A :span ZERO, RBW 1MHz ,VBW 3MHz, sweep time 1ms-10ms)

Mode	Number of transmission in a 31.6(79 Hopping x 0.4) / 12.8(32 Hopping x 0.4)second period	Length of transmission time [msec]	Result [msec]	Limit [msec]
DH1	52 times /5sec. x 31.6 = 329 times	0.590	194	400
DH3	27 times / 5sec. x 31.6 = 171 times	1.870	320	400
DH5	18 times / 5 sec. x 31.6 = 114 times	3.140	358	400
Inquiry	95 times / 1sec. x 12.8 = 1216 times	0.248	302	400

Dwell time :Tx(Hopping on)DH1(1)



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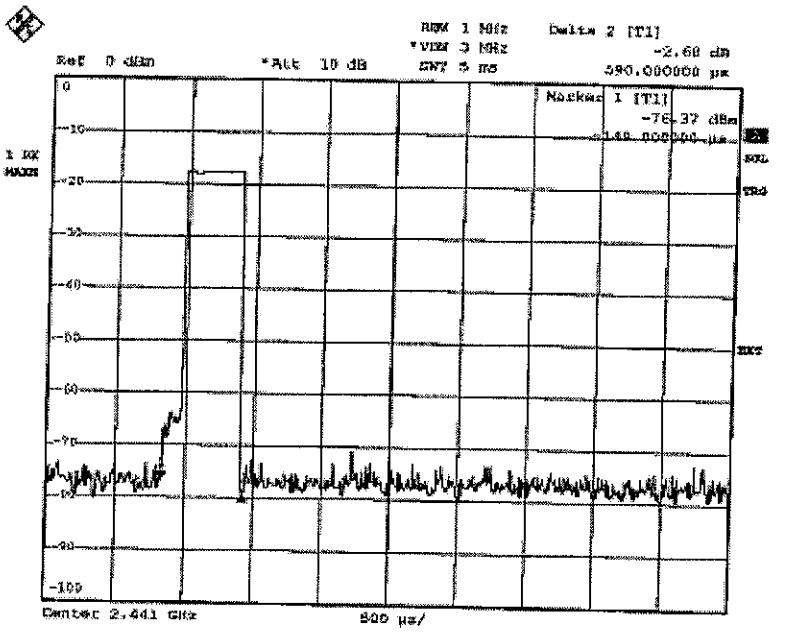
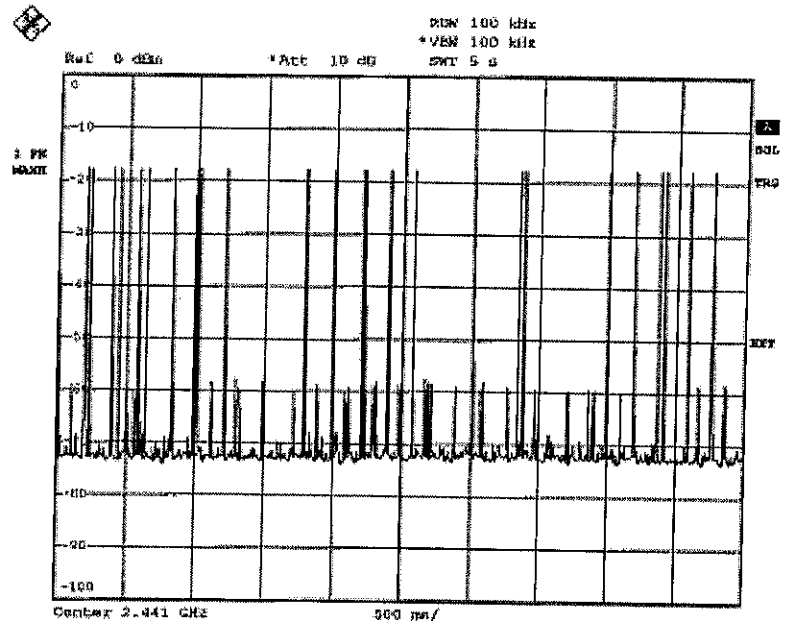
Dwell time :Tx(Hopping on)DH1(2)



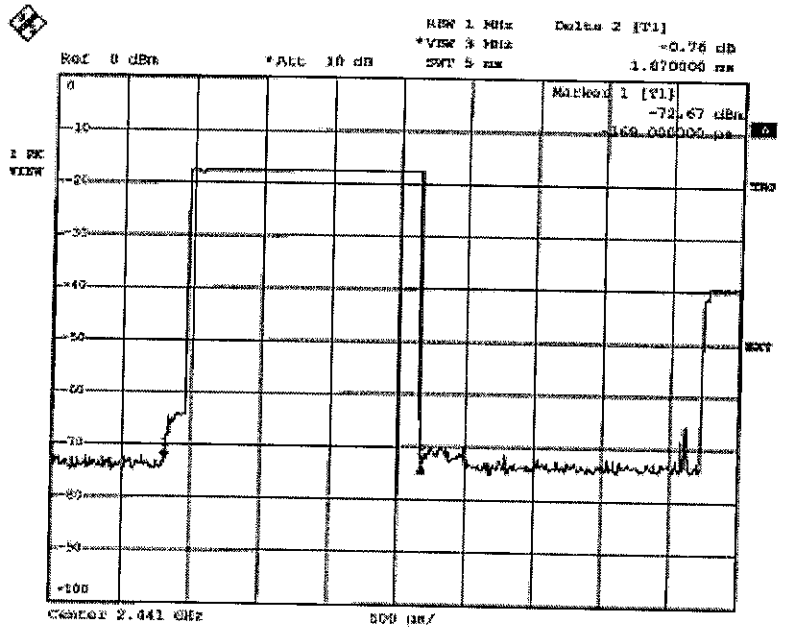
Date: 27.MAY.2003 17:48:50

Dwell time :Tx(Hopping on)DH3(1)



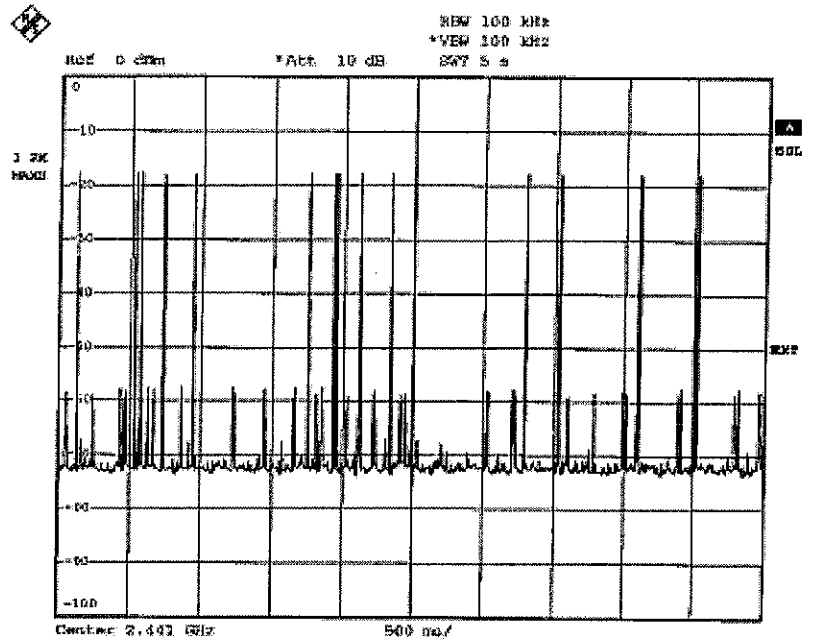
Date: 27.MAY.2003 17:51:47

Dwell time :Tx(Hopping on)DH3(2)



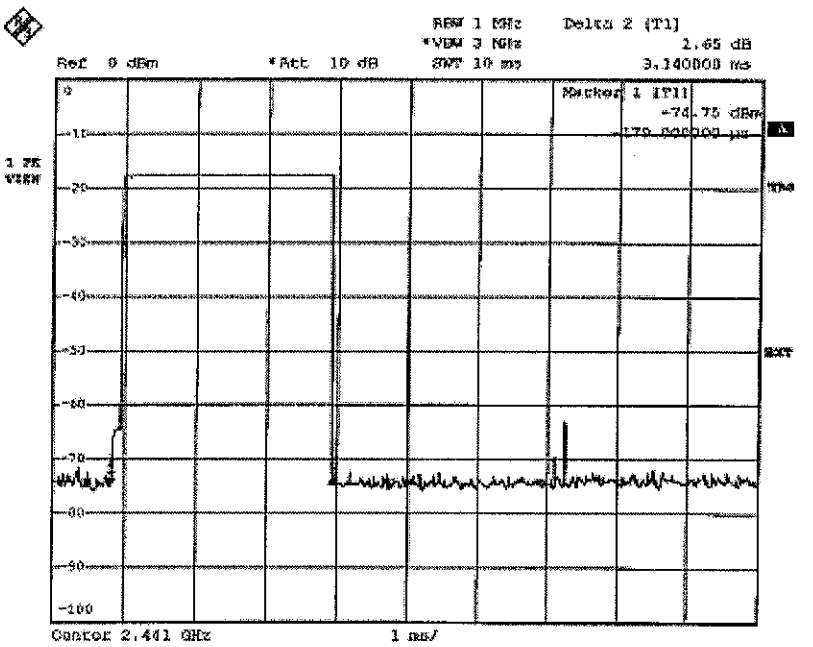
Date: 27.MAY.2003 17:56:25

Dwell time :Tx(Hopping on)DH5(1)



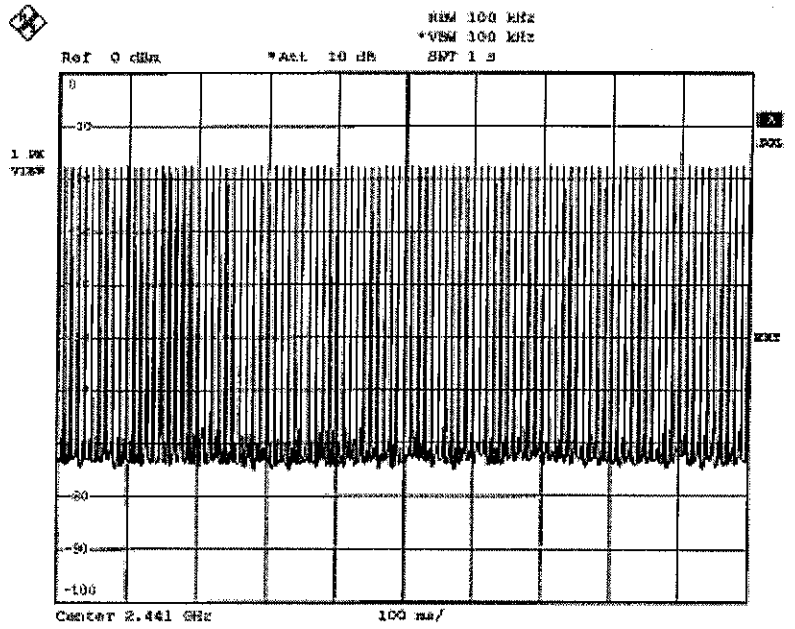
Date: 27.MAY.2003 17:59:30

Dwell time :Tx(Hopping on)DH5(2)



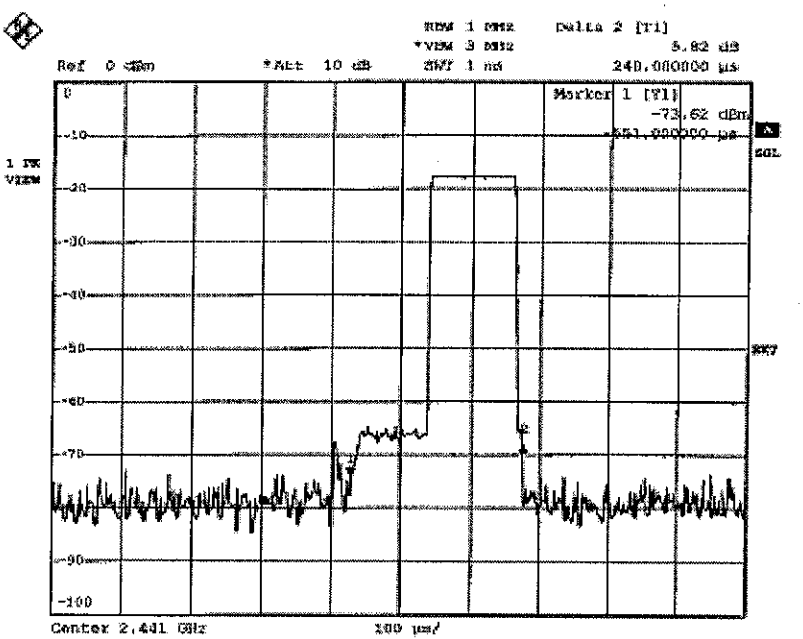
Date: 27.MAY.2003 18:01:21

Dwell time :Inquiry (1)



Date: 27.MAY.2003 17:35:03

Dwell time :Inquiry (2)



Date: 27.MAY.2003 17:30:47

DATA OF PEAK OUTPUT POWER(CONDUCTED)

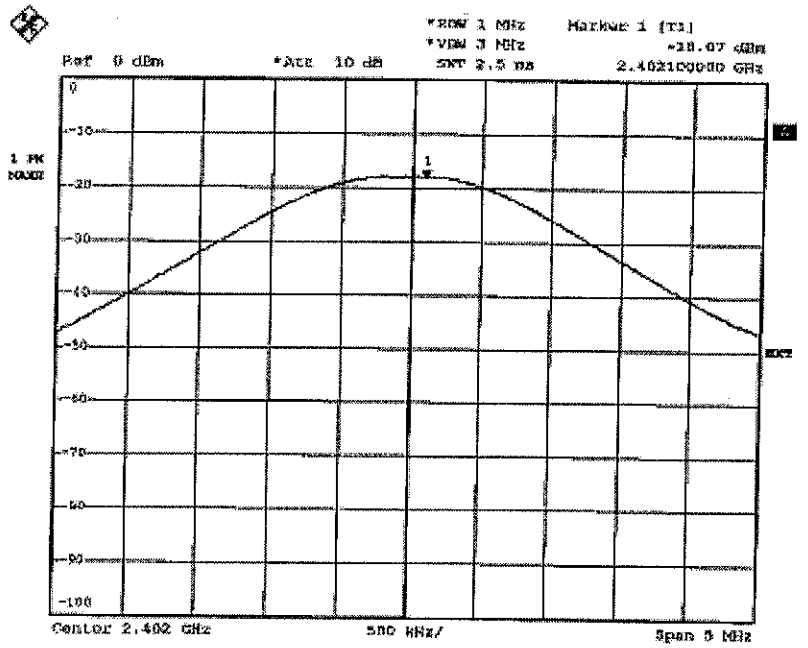
UL Apex Co., Ltd.
Head Office EMC Lab. No.3 Measurement Room

COMPANY	: Fujitsu Ten Limited	REPORT NO	: 23JE0007-HO - 3
EQUIPMENT	: Display	REGULATION	: Fcc Part15 Subpart C 15.247(b)(1)
MODEL	: 134000-240	TEST DISTANCE	: -
S/N	: 2G-2 9	DATE	: 05/27/2003
FCC ID	: BAB134000-240	TEMPERATURE	: 24℃
IC Number	: 2024B-134240	HUMIDITY	: 42%
POWER	: DC12V		
MODE	: Tx (Hopping off) /Inquiry		

Engineer : Hiroka Umeyama

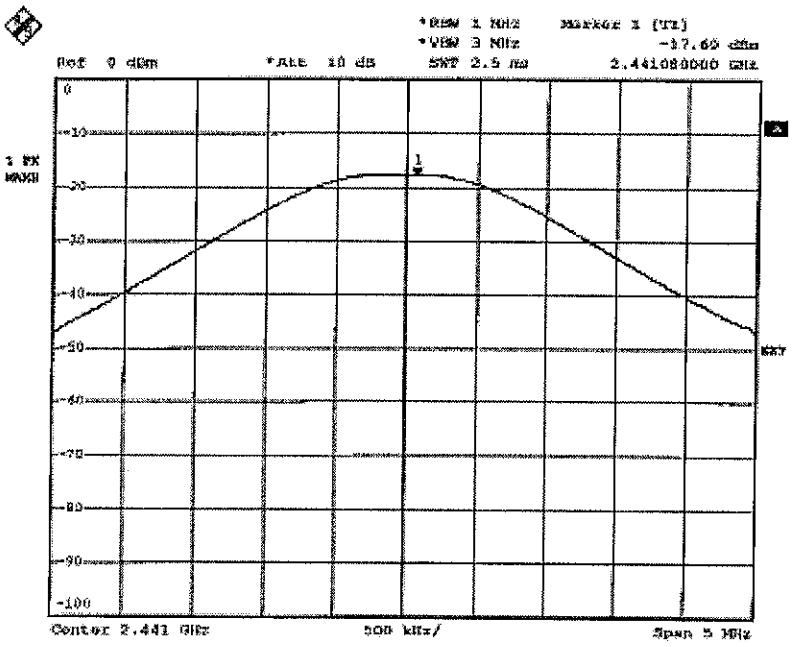
CH	FREQ [MHz]	S/A Reading [dBm]	Cable Loss [dB]	Result [dBm]	Limit [dBm]
Low	2402.0	-18.1	2.1	-16.0	30.0
Mid	2441.0	-17.7	2.1	-15.6	30.0
High	2480.0	-16.6	2.0	-14.6	30.0
Inquiry	2441.0	-17.8	2.1	-15.7	21.0

Peak Output Power(Conducted):Tx(2402MHz)



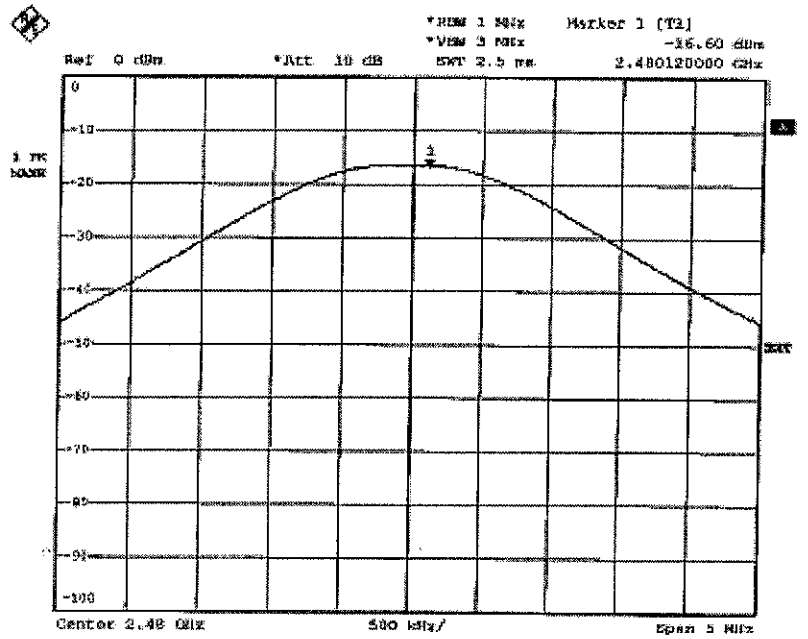
Date: 27.MAY.2003 16:34:31

Peak Output Power(Conducted):Tx(2441MHz)



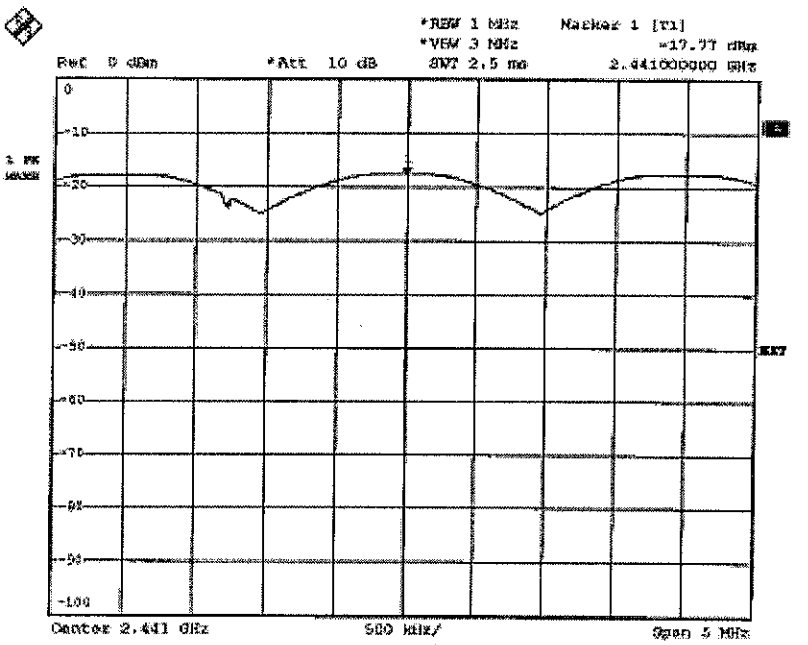
Date: 27.MAY.2003 16:35:05

Peak Output Power(Conducted):Tx(2480MHz)



Date: 27.MAY.2003 16:28:31

Peak Output Power(Conducted):Inquiry



Date: 27.MAY.2003 16:33:05

RESTRICTED BAND EDGES(RADIATED)

UL Apex Co., Ltd.
Head Office EMC Lab. No.1 Semi Anechoic Chamber

COMPANY	:	Fujitsu Ten Limited	REPORT NO	:	23JE0007-HO - 3
EQUIPMENT	:	Display	REGULATION	:	Fcc Part15 Subpart C 15.247(c)
MODEL	:	134000-240	TEST DISTANCE	:	-
S/N	:	2G-2 9	DATE	:	05/27/2003
FCC ID	:	BAB134000-240	TEMPERATURE	:	24℃
IC Number	:	2024B-134240	HUMIDITY	:	42%
POWER	:	DC12V			
MODE	:	Tx (Hopping on/off)			

ENGINEER : Hiroka Umeyama

PK DETECT(S/A :Span 10MHz, RBW 100kHz/1MHz ,VBW 100kHz/1MHz, sweep time AUTO)

[Hopping on] Conducted

Frequency [MHz]	Reading [dBuV]	Cable Loss [dB]	E [dBuV]	P [nW]	Difference of level [dB]	Field Strength [dBuV/m]	Limit
2390.0	28.1	2.1	30.2	0.02	-	18.4	<74[dBuV/m]
2400.0	34.9	2.1	37.0	-	37.0*	-	>20[dB]
2483.7	34.9	2.0	36.9	0.10	-	25.1	<74[dBuV/m]

* Reference : Reading (34.91[dBuV]) + Cable Loss (2.1[dB]) = E (37.0dBuV]) at 2413.6MHz.

[Hopping off Tx (2402/2480MHz)] Conducted

Frequency [MHz]	Reading [dBuV]	Cable Loss [dB]	E [dBuV]	P [nW]	Difference of level [dB]	Field Strength [dBuV/m]	Limit
2390.0	30.6	2.1	32.7	0.04	-	20.9	<74[dBuV/m]
2400.0	45.6	2.1	47.7	-	47.1*	-	>20[dB]
2483.7	38.0	2.0	40.0	0.20	-	28.3	<74[dBuV/m]

* Reference : Reading (45.6[dBuV]) + Cable Loss (2.1[dB]) = E (47.1[dBuV]) at 2413.6MHz.

Sample Calculation:

Field Strength = 20log((√30*P*10^-9*G) / d *10^6)

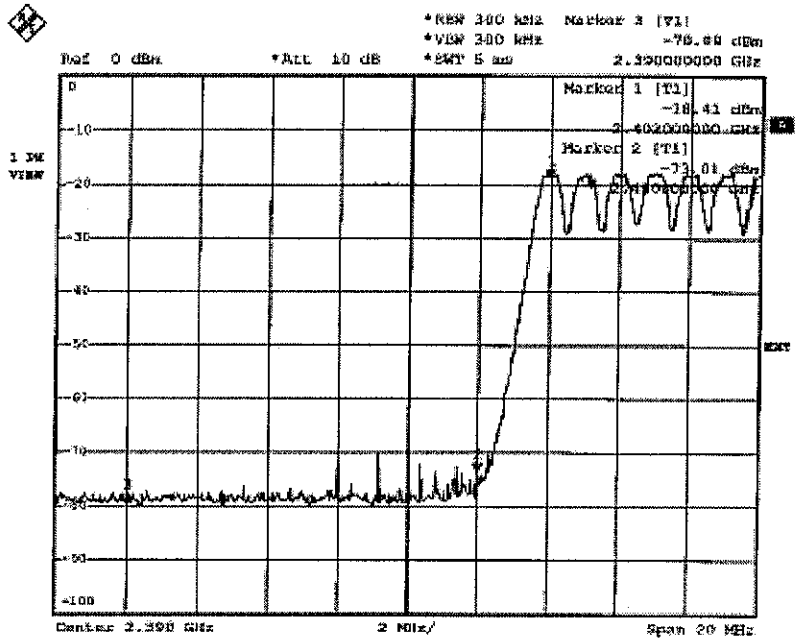
E : Reading + Cable Loss

P : Converted to nW

d : Test distance(m) 3

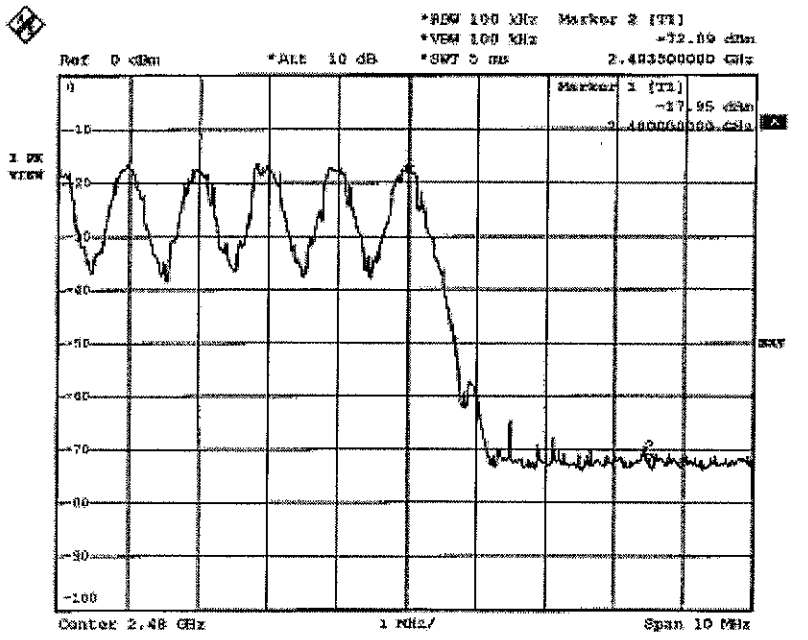
G : Numeric Antenna Gain 1

Band Edge :Tx(Hopping on)2402MHz



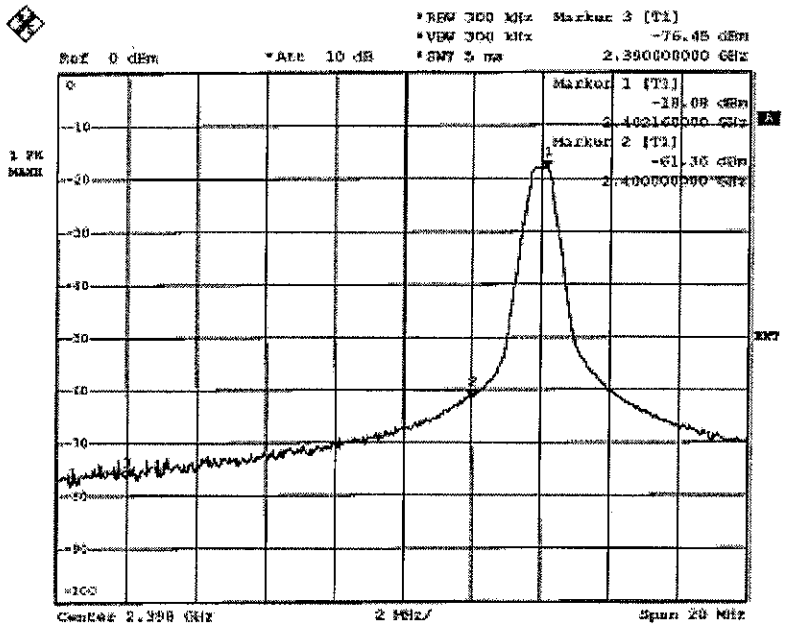
Date: 27.MAY.2003 18:06:20

Band Edge :Tx(Hopping on)2480MHz



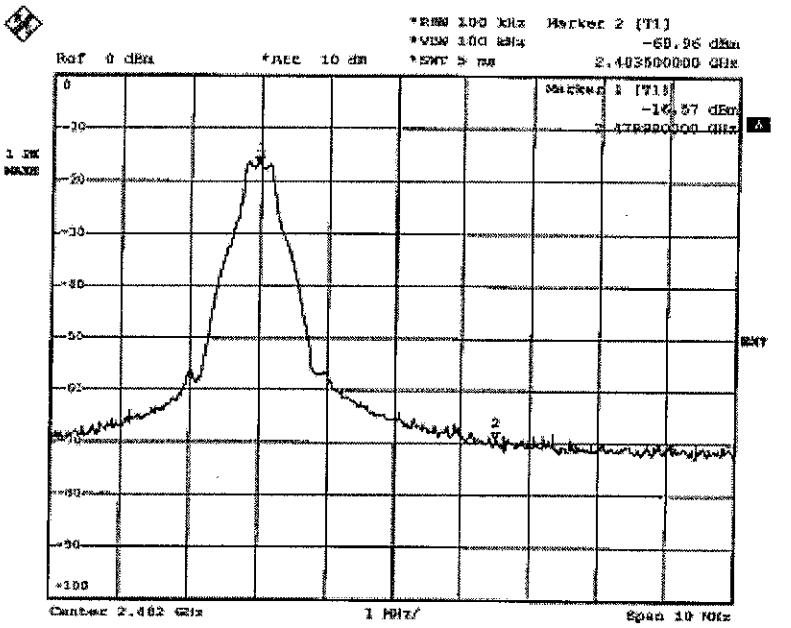
Date: 27.MAY.2003 18:11:12

Band Edge :Tx(Hopping off)2402MHz



Date: 27.MAY.2003 10:13:45

Band Edge :Tx(Hopping off)2480MHz



Date: 27.MAY.2003 10:17:01

DATA OF RADIATION TEST

UL Apex Co., Ltd. Head Office EMC Lab.
No.2 Semi Anechoic Chamber
Report No. : 23JE0007-HO - 3

Applicant : FUJITSU TEN LIMITED
Kind of Equipment : DISPLAY
Model No. : 134001-240
Serial No. : 2G2 9
Power : DC 12V
Mode : Tx(2402MHz)
Remarks : DETECTOR: QP
Date : 5/14/2003
Test Distance : 3 m
Temperature : 27 ℃
Humidity : 54 %
Regulation : FCC § 15.247(C)

Engineer : Hiroka Umeyama

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	57.18	BB	32.2	38.1	9.0	27.8	0.9	6.0	20.3	26.2	40.0	19.7	13.8
2.	95.93	BB	30.5	31.5	9.0	26.9	1.2	6.1	19.9	20.9	43.5	23.6	22.6
3.	111.91	BB	37.5	27.0	12.0	26.3	1.3	6.0	30.5	20.0	43.5	13.0	23.5
4.	415.65	BB	26.6	29.0	17.5	27.3	2.8	6.2	25.8	28.2	46.0	20.2	17.8
5.	465.22	BB	29.6	33.8	18.0	28.0	2.9	6.2	28.7	32.9	46.0	17.3	13.1
6.	531.69	BB	24.9	30.7	18.7	28.2	3.2	6.1	24.7	30.5	46.0	21.3	15.5

CALCULATION: READING + ANT.FACTOR + CABLE LOSS - AMP.GAIN + ATTEN.

Except for the above table: adequate margin data below the limits.
ANT TYPE:30-300MHz Biconical , 300-1000MHz Logperiodic.

DATA OF RADIATION TEST

UL Apex Co., Ltd. Head Office EMC Lab.
No.2 Semi Anechoic Chamber
Report No. : 23JE0007-H0 - 3

Applicant	: FUJITSU TEN LIMITED
Kind of Equipment	: DISPLAY
Model No.	: 134001-240
Serial No.	: 2G2 9
Power	: DC 12V
Mode	: Tx(2441MHz)
Remarks	: DETECTOR: QP
Date	: 5/14/2003
Test Distance	: 3 m
Temperature	: 27 ℃
Humidity	: 54 %
Regulation	: FCC §15.247(C)

Engineer : Hiroka Umeyama

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	57.18	BB	33.4	38.9	9.0	27.8	0.9	6.0	21.5	27.0	40.0	18.5	13.0
2.	95.93	BB	32.2	31.1	9.0	26.9	1.2	6.1	21.6	20.5	43.5	21.9	23.0
3.	111.91	BB	38.2	28.1	12.0	26.3	1.3	6.0	31.2	21.1	43.5	12.3	22.4
4.	415.65	BB	25.2	28.5	17.5	27.3	2.8	6.2	24.4	27.7	46.0	21.6	18.3
5.	465.22	BB	28.9	33.4	18.0	28.0	2.9	6.2	28.0	32.5	46.0	18.0	13.5
6.	531.69	BB	24.8	30.7	18.7	28.2	3.2	6.1	24.6	30.5	46.0	21.4	15.5

CALCULATION: READING + ANT.FACTOR + CABLE LOSS - AMP.GAIN + ATTEN.

Except for the above table: adequate margin data below the limits.
ANT TYPE:30-300MHz Biconical , 300-1000MHz Logperiodic.

DATA OF RADIATION TEST

UL Apex Co., Ltd. Head Office EMC Lab.
No.2 Semi Anechoic Chamber
Report No.: 23JE0007-H0 - 3

Applicant	: FUJITSU TEN LIMITED
Kind of Equipment	: DISPLAY
Model No.	: 134001-240
Serial No.	: 2G2 9
Power	: DC 12V
Mode	: Tx(2480MHz)
Remarks	: DETECTOR: QP
Date	: 5/14/2003
Test Distance	: 3 m
Temperature	: 27 °C
Humidity	: 54 %
Regulation	: FCC §15.247(C)

Engineer : Hiroka Umeyama

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	57.18	BB	33.3	38.8	9.0	27.8	0.9	6.0	21.4	26.9	40.0	18.6	13.1
2.	95.93	BB	30.0	30.7	9.0	26.9	1.2	6.1	19.4	20.1	43.5	24.1	23.4
3.	111.91	BB	38.4	25.3	12.0	26.3	1.3	6.0	31.4	18.3	43.5	12.1	25.2
4.	415.65	BB	26.0	28.4	17.5	27.3	2.8	6.2	25.2	27.6	46.0	20.8	18.4
5.	465.22	BB	29.2	33.4	18.0	28.0	2.9	6.2	28.3	32.5	46.0	17.7	13.5
6.	531.69	BB	24.9	30.6	18.7	28.2	3.2	6.1	24.7	30.4	46.0	21.3	15.6

CALCULATION: READING + ANT.FACTOR + CABLE LOSS - AMP.GAIN + ATTEN.

Except for the above table: adequate margin data below the limits.
ANT TYPE:30-300MHz Biconical , 300-1000MHz Logperiodic.

DATA OF SPURIOUS EMISSIONS(1GHz to 26.5GHz)

UL Apex Co., Ltd.
Head Office EMC Lab. No.2 Semi Anechoic Chamber

COMPANY : FUJITSU TEN LIMITED
EQUIPMENT : Display
MODEL : 134000-240
S/ N : 2G-2 9
FCC ID : BAB134000-240
IC No : 2024B-134240
POWER : DC 12V
MODE : Tx (2402MHz)

REPORT NO : 23JE0007-HO - 3
REGULATION : FCC Part 15 Subpart C 15.247(c)
TEST DISTANCE : 3 and 1m
DATE : 2003/5/14
TEMPERATURE : 27℃
HUMIDITY : 52%

ENGINEER : Hiroka Umeyama

PK DETECT (RBW: 1MHz , VBW:1MHz)

No.	FREQ	S/A READING HOR	S/A READING VER	ANT Factor	AMP GAIN	CABLE LOSS	Band-Pass Filter	RESULT HOR	RESULT VER	Limit PK	MARGIN HOR	MARGIN VER	
	[MHz]	[dBuV/m]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass.													
1	1482.5	48.3	48.8	24.1	37.3	3.5	0.0	38.5	39.1	74.0	35.5	34.9	
2	2390.0	46.0	45.8	30.5	36.9	4.4	0.0	44.0	43.8	74.0	30.0	30.2	
3	2483.5	45.5	45.8	30.6	36.9	4.5	0.0	43.6	43.9	74.0	30.4	30.1	
4	4804.0	47.8	48.4	35.5	36.8	6.4	0.0	52.9	53.4	74.0	21.1	20.6	
5	7206.0	43.9	45.3	37.6	36.5	7.6	0.0	52.7	54.1	74.0	21.3	19.9	
6	9608.0	45.5	45.6	37.3	37.2	8.9	0.0	54.5	54.6	74.0	19.5	19.4	*2
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass - Dfac													
7	12010.0	45.4	45.2	40.1	36.8	9.9	0.0	49.0	48.8	74.0	25.0	25.2	*2
8	14412.0	43.4	44.6	43.0	35.3	11.0	0.0	52.7	53.8	74.0	21.3	20.2	*2
9	16814.0	47.6	45.7	44.7	36.5	12.2	0.0	58.4	56.6	74.0	15.6	17.4	*2
10	19216.0	46.0	45.0	41.0	35.8	13.0	0.0	54.6	53.6	74.0	19.4	20.4	*2
11	21618.0	46.3	46.2	40.5	36.8	14.1	0.0	54.6	54.5	74.0	19.4	19.5	*2
12	24020.0	46.7	46.2	40.2	36.4	14.7	0.0	55.7	55.2	74.0	18.3	18.8	*2

AV DETECT (RBW: 1MHz , VBW:10Hz)

No.	FREQ	S/A READING HOR	S/A READING VER	ANT Factor	AMP GAIN	CABLE LOSS	Band-Pass Filter	RESULT HOR	RESULT VER	Limit AV	MARGIN HOR	MARGIN VER	
	[MHz]	[dBuV/m]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass.													
1	1482.5	37.6	37.8	24.1	37.3	3.5	0.0	27.8	28.0	54.0	26.2	26.0	
2	2390.0	33.2	33.3	30.5	36.9	4.4	0.0	31.2	31.3	54.0	22.8	22.7	
3	2483.5	33.3	33.4	30.6	36.9	4.5	0.0	31.5	31.5	54.0	22.5	22.5	
4	4804.0	34.8	35.1	35.5	36.8	6.4	0.0	39.8	40.1	54.0	14.2	13.9	
5	7206.0	31.8	31.7	37.6	36.5	7.6	0.0	40.5	40.5	54.0	13.5	13.5	
6	9608.0	32.8	32.8	37.3	37.2	8.9	0.0	41.8	41.8	54.0	12.2	12.2	*2
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass - Dfac													
7	12010.0	32.4	32.7	40.1	36.8	9.9	0.0	36.0	36.3	54.0	18.0	17.7	*2
8	14412.0	31.6	32.2	43.0	35.3	11.0	0.0	40.9	41.5	54.0	13.1	12.5	*2
9	16814.0	32.0	32.0	44.7	36.5	12.2	0.0	42.9	42.8	54.0	11.1	11.2	*2
10	19216.0	33.8	33.3	41.0	35.8	13.0	0.0	42.4	42.0	54.0	11.6	12.0	*2
11	21618.0	33.4	34.1	40.5	36.8	14.1	0.0	41.7	42.4	54.0	12.3	11.6	*2
12	24020.0	33.3	33.2	40.2	36.4	14.7	0.0	42.4	42.2	54.0	11.6	11.8	*2

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5 dB

*1: Except for the above table : All other spurious emissions were less than 20dB for the limit.

*2: In the frequency over the fourth harmonic, the noise from the EUT was not seen.The data above is its base noise.

DATA OF SPURIOUS EMISSIONS(1GHz to 26.5GHz)

UL Apex Co., Ltd.
Head Office EMC Lab. No.2 Semi Anechoic Chamber

COMPANY : FUJITSU TEN LIMITED
EQUIPMENT : Display
MODEL : 134000-240
S/ N : 2G-2 9
FCC ID : BAB134000-240
IC No : 2024B-134240
POWER : DC 12V
MODE : Tx (2441MHz)

REPORT NO : 23JE0007-HO - 3
REGULATION : FCC Part 15 Subpart C 15.247(c)
TEST DISTANCE : 3 and 1m
DATE : 2003/5/14
TEMPERATURE : 27℃
HUMIDITY : 52%

ENGINEER : Hiroka Umeyama

PK DETECT (RBW: 1MHz , VBW:1MHz)

No.	FREQ	S/A READING		ANT	AMP	CABLE	Band-Pass	RESULT		Limit	MARGIN		
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	PK	HOR	VER	
	[MHz]	[dBuV/m]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass.													
1	1482.5	49.2	51.0	24.1	37.3	3.5	0.0	39.5	41.2	74.0	34.5	32.8	
2	2390.0	45.5	45.5	30.5	36.9	4.4	0.0	43.5	43.5	74.0	30.5	30.5	
3	2483.5	46.1	45.8	30.6	36.9	4.5	0.0	44.2	43.9	74.0	29.8	30.1	
4	4882.0	47.9	47.2	36.0	36.8	6.4	0.0	53.6	52.9	74.0	20.4	21.1	
5	7323.0	44.3	44.7	37.8	36.6	7.6	0.0	53.2	53.6	74.0	20.8	20.4	
6	9764.0	45.5	45.7	36.9	37.2	9.0	0.0	54.1	54.3	74.0	19.9	19.7	*2
Test distance 1meters RESULT=Reading - Amp Gain + CABLE LOSS + Band Pass - Dfac													
7	12205.0	44.7	44.5	41.1	36.7	10.0	0.0	49.5	49.4	74.0	24.5	24.6	*2
8	14646.0	43.6	44.3	43.2	35.5	11.1	0.0	52.9	53.6	74.0	21.1	20.4	*2
9	17087.0	47.1	47.2	44.9	36.2	12.3	0.0	58.6	58.6	74.0	15.4	15.4	*2
10	19528.0	45.8	45.4	40.5	36.0	13.0	0.0	53.8	53.4	74.0	20.2	20.6	*2
11	21969.0	46.4	46.5	40.6	36.0	14.3	0.0	55.9	55.9	74.0	18.1	18.1	*2
12	24410.0	46.4	46.4	40.4	36.9	14.9	0.0	55.2	55.2	74.0	18.8	18.8	*2

AV DETECT (RBW: 1MHz , VBW:10Hz)

No.	FREQ	S/A READING		ANT	AMP	CABLE	Band-Pass	RESULT		Limit	MARGIN		
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	AV	HOR	VER	
	[MHz]	[dBuV/m]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass.													
1	1482.5	40.3	40.7	24.1	37.3	3.5	0.0	30.6	31.0	54.0	23.4	23.0	
2	2390.0	33.2	33.2	30.5	36.9	4.4	0.0	31.2	31.2	54.0	22.8	22.8	
3	2483.5	33.4	33.4	30.6	36.9	4.5	0.0	31.6	31.6	54.0	22.4	22.4	
4	4882.0	34.0	34.4	36.0	36.8	6.4	0.0	39.6	40.1	54.0	14.4	13.9	
5	7323.0	31.7	31.9	37.8	36.6	7.6	0.0	40.6	40.8	54.0	13.4	13.2	
6	9764.0	33.1	33.2	36.9	37.2	9.0	0.0	41.7	41.9	54.0	12.3	12.1	*2
Test distance 1meters RESULT=Reading - Amp Gain + CABLE LOSS + Band Pass - Dfac													
7	12205.0	32.2	32.2	41.1	36.7	10.0	0.0	37.0	37.0	54.0	17.0	17.0	*2
8	14646.0	31.3	31.6	43.2	35.5	11.1	0.0	40.6	40.9	54.0	13.4	13.1	*2
9	17087.0	32.9	32.9	44.9	36.2	12.3	0.0	44.4	44.4	54.0	9.6	9.6	*2
10	19528.0	33.0	32.9	40.5	36.0	13.0	0.0	41.1	41.0	54.0	12.9	13.0	*2
11	21969.0	33.4	33.4	40.6	36.0	14.3	0.0	42.9	42.9	54.0	11.1	11.1	*2
12	24410.0	33.5	33.6	40.4	36.9	14.9	0.0	42.3	42.4	54.0	11.7	11.6	*2

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5 dB

*1: Except for the above table : All other spurious emissions were less than 20dB for the limit.

*2: In the frequency over the fourth harmonic, the noise from the EUT was not seen.The data above is its base noise.

DATA OF SPURIOUS EMISSIONS(1GHz to 26.5GHz)

UL Apex Co., Ltd.
Head Office EMC Lab. No.2 Semi Anechoic Chamber

COMPANY : FUJITSU TEN LIMITED
EQUIPMENT : Display
MODEL : 134000-240
S/ N : 2G-2 9
FCC ID : BAB134000-240
IC No : 2024B-134240
POWER : DC 12V
MODE : Tx (2480MHz)

REPORT NO : 23JE0007-HO - 3
REGULATION : FCC Part 15 Subpart C 15.247(c)
TEST DISTANCE : 3 and 1m
DATE : 2003/5/14
TEMPERATURE : 27℃
HUMIDITY : 52%

ENGINEER : Hiroka Umeyama

PK DETECT (RBW: 1MHz , VBW:1MHz)

No.	FREQ	S/A READING HOR	S/A READING VER	ANT Factor	AMP GAIN	CABLE LOSS	Band-Pass Filter	RESULT HOR	RESULT VER	Limit PK	MARGIN HOR	MARGIN VER	
	[MHz]	[dBuV/m]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass.													
1	1482.5	48.9	49.6	24.1	37.3	3.5	0.0	39.1	39.9	74.0	34.9	34.1	
2	2390.0	46.7	45.5	30.5	36.9	4.4	0.0	44.7	43.5	74.0	29.3	30.5	
3	2483.5	58.6	57.2	30.6	36.9	4.5	0.0	56.7	55.4	74.0	17.3	18.6	
4	4960.0	46.5	47.6	36.5	36.8	6.5	0.0	52.8	53.9	74.0	21.2	20.1	
5	7440.0	43.9	44.7	37.9	36.7	7.7	0.0	52.9	53.6	74.0	21.1	20.4	
6	9920.0	46.2	45.9	36.4	37.3	9.1	0.0	54.5	54.1	74.0	19.5	19.9	*2
Test distance 1meters RESULT=Reading - Amp Gain + CABLE LOSS + Band Pass - Dfac													
7	12400.0	45.2	45.0	42.1	36.6	10.1	0.0	51.3	51.1	74.0	22.7	22.9	*2
8	14880.0	44.7	45.1	43.4	35.7	11.2	0.0	54.0	54.5	74.0	20.0	19.5	*2
9	17360.0	46.3	47.0	45.9	36.2	12.4	0.0	59.0	59.6	74.0	15.0	14.4	*2
10	19840.0	46.2	47.2	40.7	36.1	13.1	0.0	54.4	55.5	74.0	19.6	18.5	*2
11	22320.0	45.8	45.6	40.7	35.5	14.4	0.0	55.9	55.6	74.0	18.1	18.4	*2
12	24800.0	46.6	46.3	40.4	36.7	15.1	0.0	55.9	55.5	74.0	18.1	18.5	*2

AV DETECT (RBW: 1MHz , VBW:10Hz)

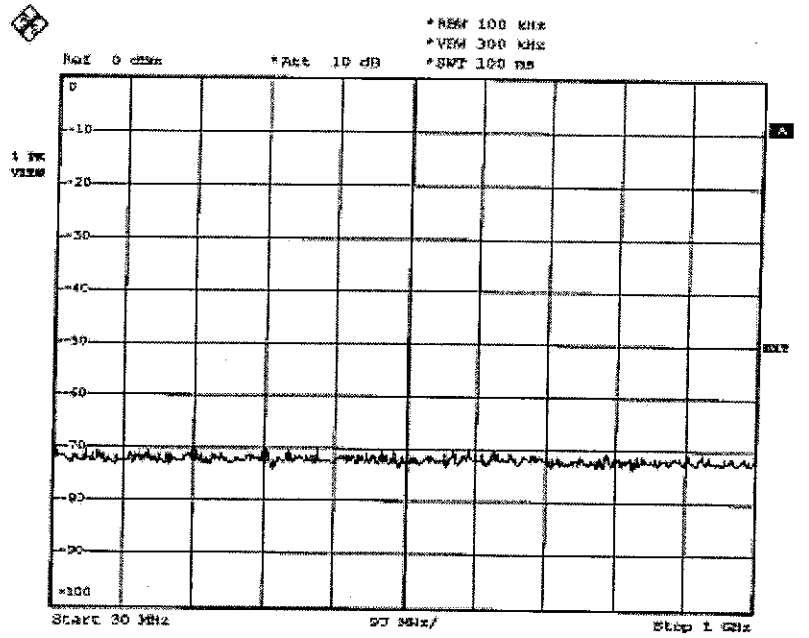
No.	FREQ	S/A READING HOR	S/A READING VER	ANT Factor	AMP GAIN	CABLE LOSS	Band-Pass Filter	RESULT HOR	RESULT VER	Limit AV	MARGIN HOR	MARGIN VER	
	[MHz]	[dBuV/m]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass.													
1	1462.5	39.5	37.0	24.1	37.3	3.5	0.0	29.8	27.2	54.0	24.2	26.8	
2	2390.0	33.3	33.2	30.5	36.9	4.4	0.0	31.3	31.2	54.0	22.7	22.8	
3	2483.5	39.5	39.0	30.6	36.9	4.5	0.0	37.6	37.2	54.0	16.4	16.8	
4	4960.0	33.6	34.5	36.5	36.8	6.5	0.0	39.8	40.8	54.0	14.2	13.2	
5	7440.0	31.9	31.9	37.9	36.7	7.7	0.0	40.9	40.9	54.0	13.1	13.1	
6	9920.0	33.4	33.4	36.4	37.3	9.1	0.0	41.7	41.7	54.0	12.3	12.3	*2
Test distance 1meters RESULT=Reading - Amp Gain + CABLE LOSS + Band Pass - Dfac													
7	12400.0	32.6	32.4	42.1	36.6	10.1	0.0	38.7	38.5	54.0	15.3	15.5	*2
8	14880.0	32.2	31.8	43.4	35.7	11.2	0.0	41.6	41.2	54.0	12.4	12.8	*2
9	17360.0	31.8	31.8	45.9	36.2	12.4	0.0	44.4	44.4	54.0	9.6	9.6	*2
10	19840.0	33.9	33.5	40.7	36.1	13.1	0.0	42.2	41.8	54.0	11.8	12.2	*2
11	22320.0	33.5	33.2	40.7	35.5	14.4	0.0	43.5	43.2	54.0	10.5	10.8	*2
12	24800.0	33.6	33.5	40.4	36.7	15.1	0.0	42.9	42.8	54.0	11.1	11.2	*2

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5 dB

*1: Except for the above table : All other spurious emissions were less than 20dB for the limit.

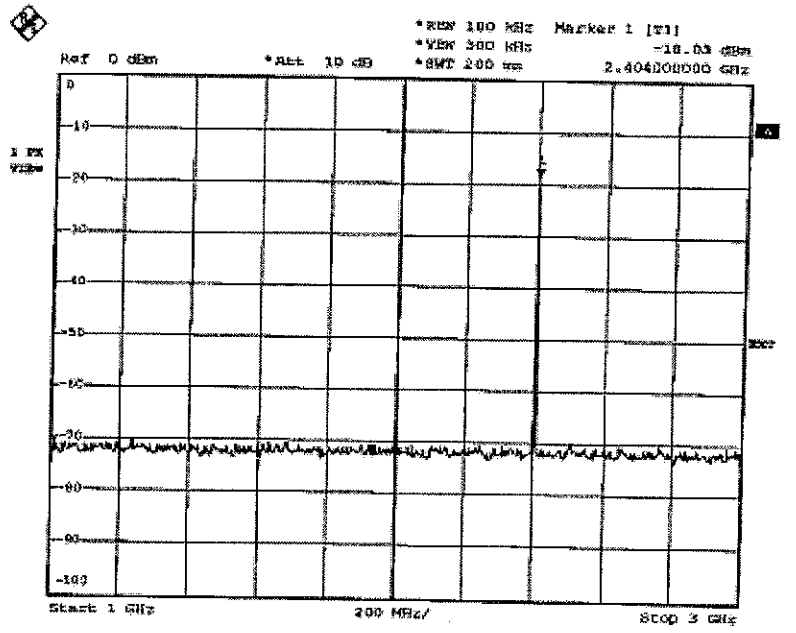
*2: In the frequency over the fourth harmonic, the noise from the EUT was not seen.The data above is its base noise.

Spurious Emission(Conducted) :Tx(2402MHz)



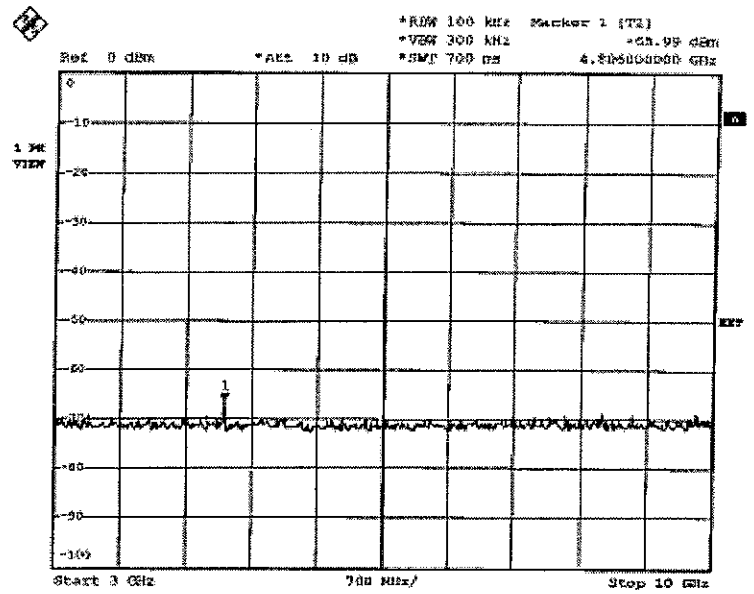
Date: 27.MAY.2003 18:19:20

Spurious Emission(Conducted) :Tx(2402MHz)



Date: 27.MAY.2003 18:20:19

Spurious Emission(Conducted) :Tx(2402MHz)



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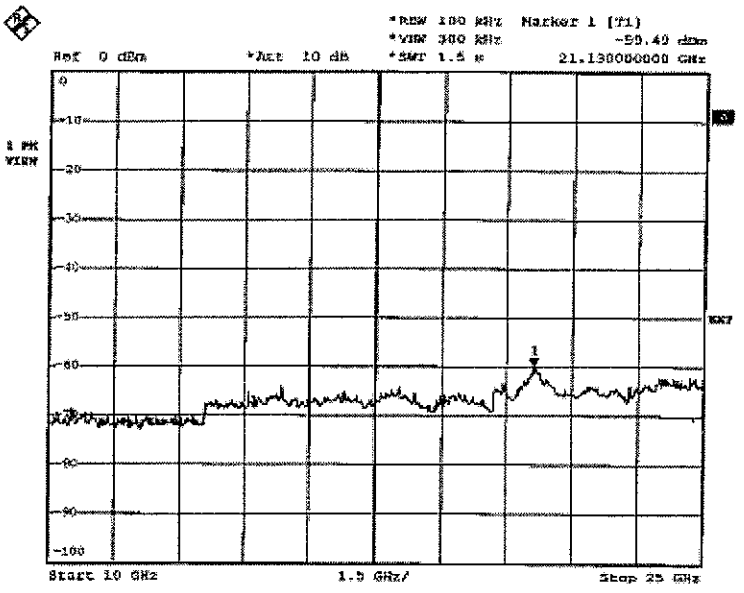
Spurious Emission(Conducted) :Tx(2402MHz)



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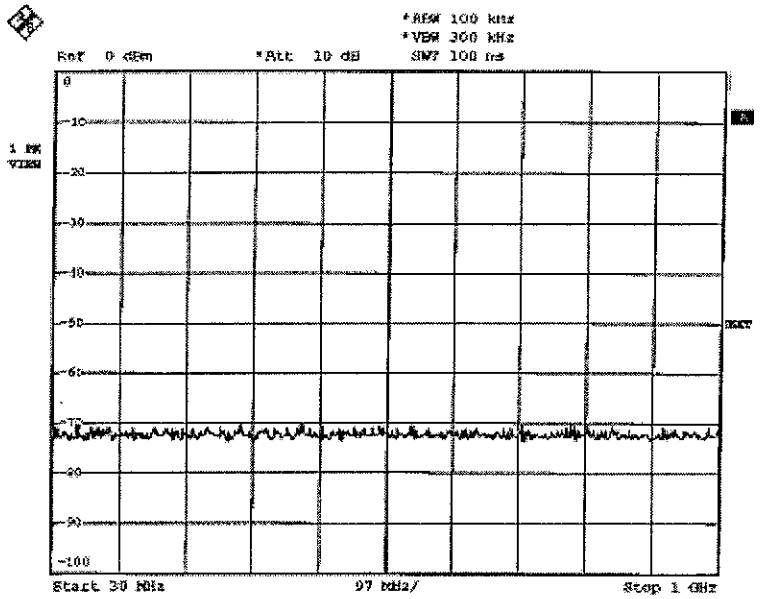
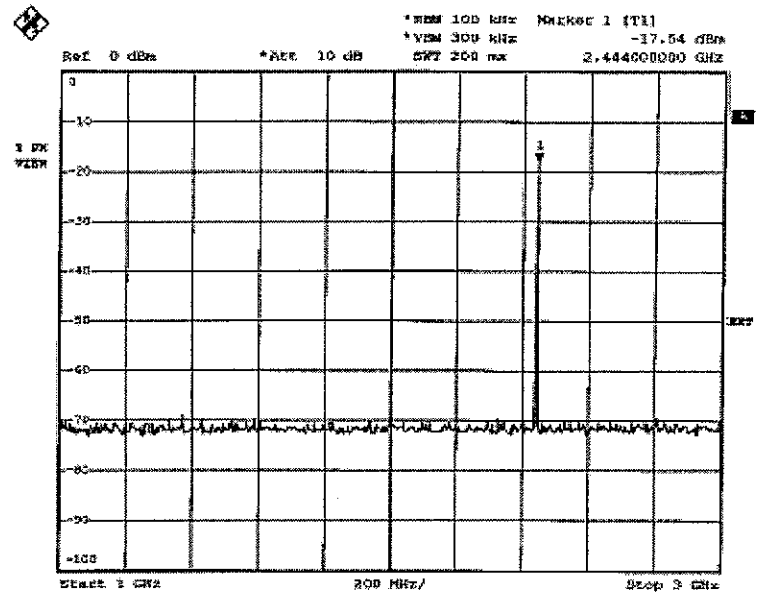
Spurious Emission(Conducted) :Tx(2441MHz)



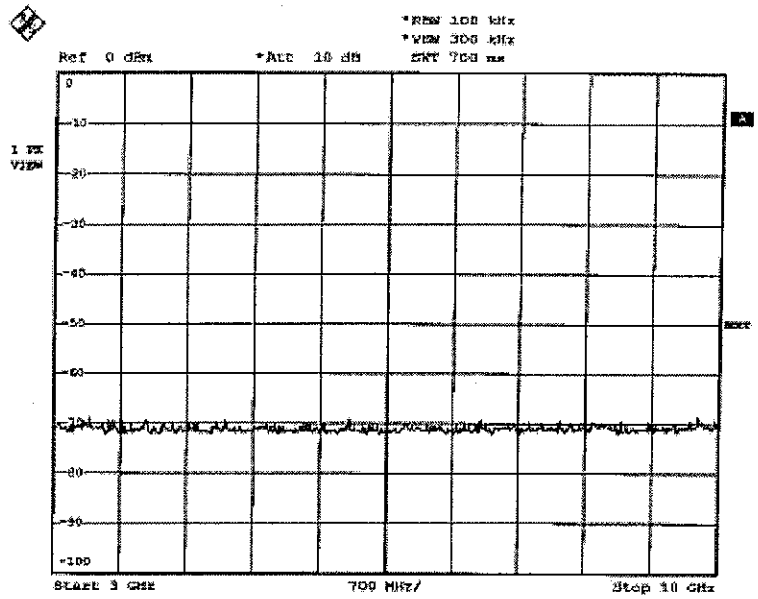
Date: 27.MAY.2003 18:24:22

Spurious Emission(Conducted) :Tx(2441MHz)



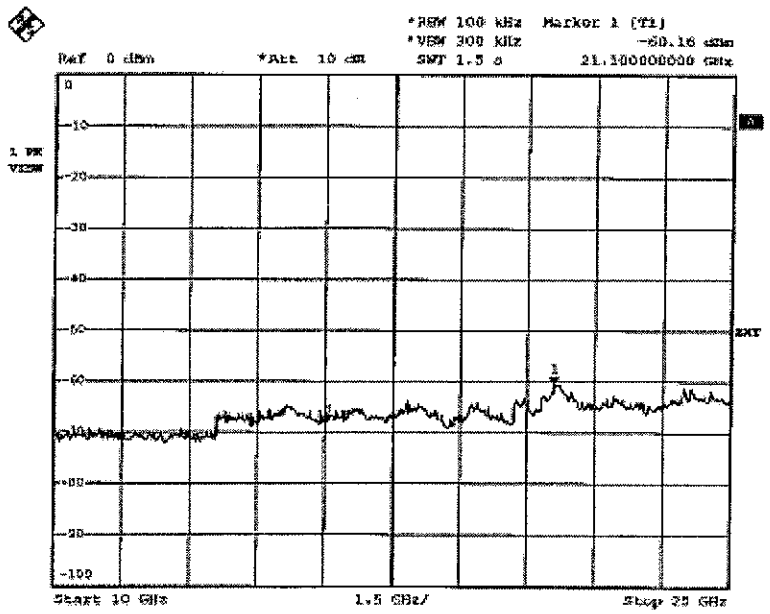
Date: 27.MAY.2003 18:24:57

Spurious Emission(Conducted) :Tx(2441MHz)



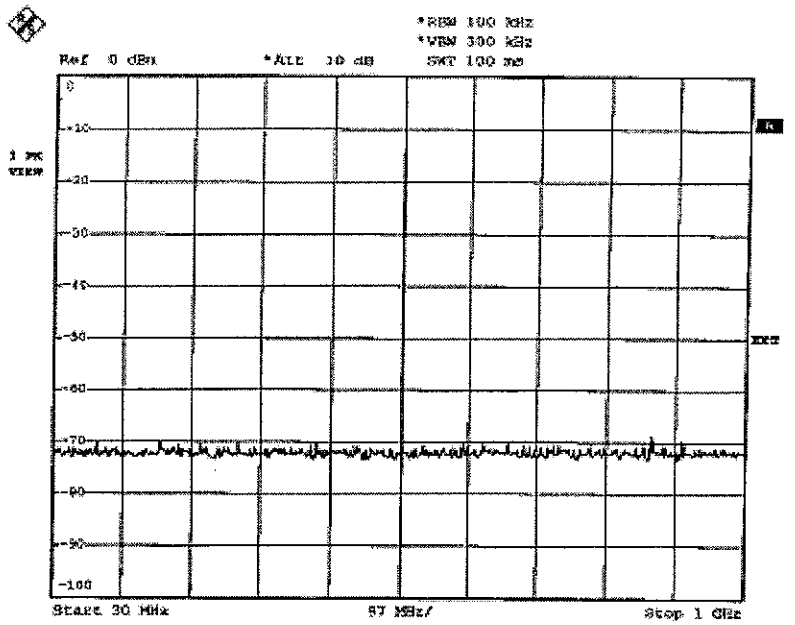
Date: 27.MAY.2003 18:26:16

Spurious Emission(Conducted) :Tx(2441MHz)



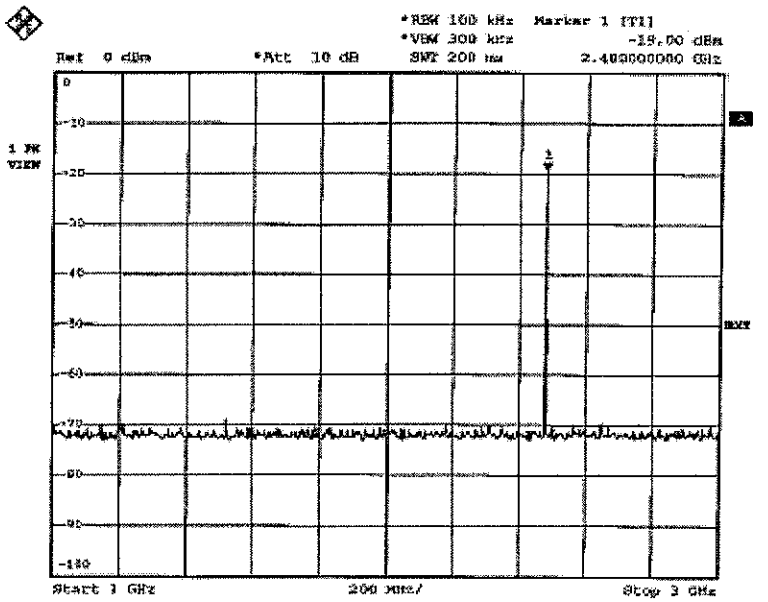
Date: 27.MAY.2003 19:20:50

Spurious Emission(Conducted) :Tx(2480MHz)



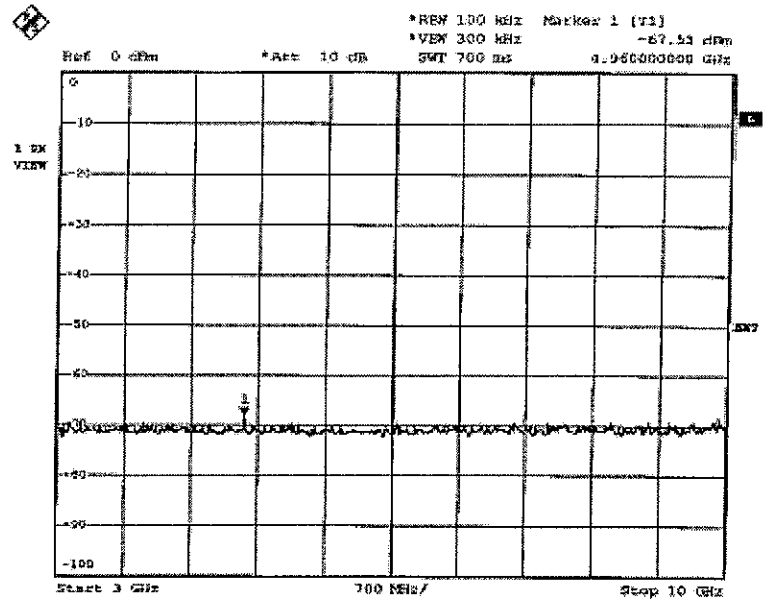
Date: 27.MAY.2003 18:27:37

Spurious Emission(Conducted) :Tx(2480MHz)



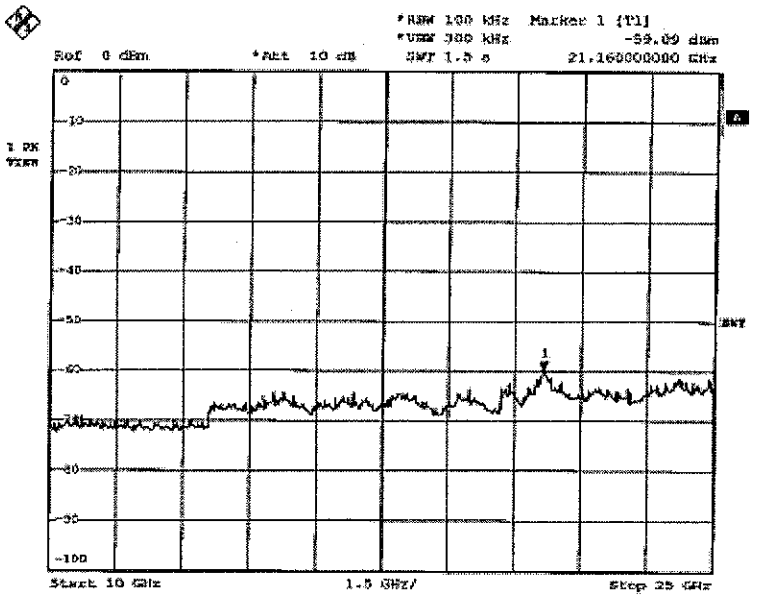
Date: 27.MAY.2003 18:26:02

Spurious Emission(Conducted) :Tx(2480MHz)



Date: 27.MAY.2003 18:29:07

Spurious Emission(Conducted) :Tx(2480MHz)



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