APPENDIX 2: Data of EMI test

Conducted Emission

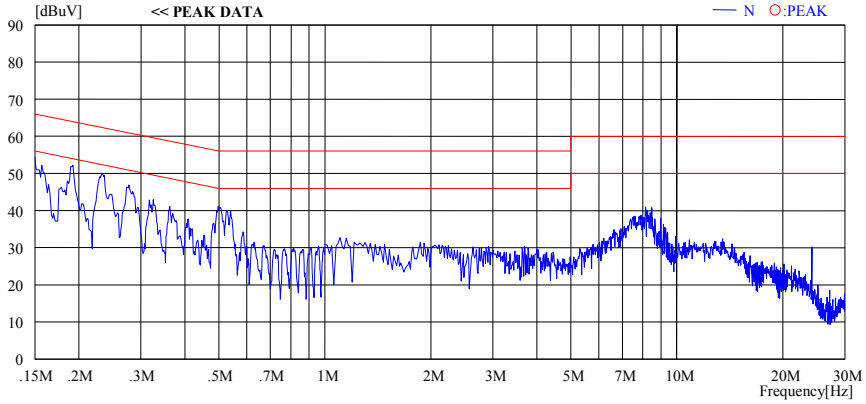
DATA OF CONDUCTED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2006/07/26 23:44:31

Company	: BROTHER INDUSTRIES, LTD.	Report No.	: 26KE0022-HO
Kind of EUT	: Facsimile machine	Power	: AC 120V/ 60Hz
Model No.	: FAX-2580C	Temp./Humi.	: 26 deg.C / 58%
Serial No.	: 0001	Operator	: Yutaka Yoshida

Mode / Remarks : Tx ch1(5725.809328MHz)

LIMIT : FCC15C §15.207 (QP) / RSS-Gen
FCC15C §15.207 (AV) / RSS-Gen



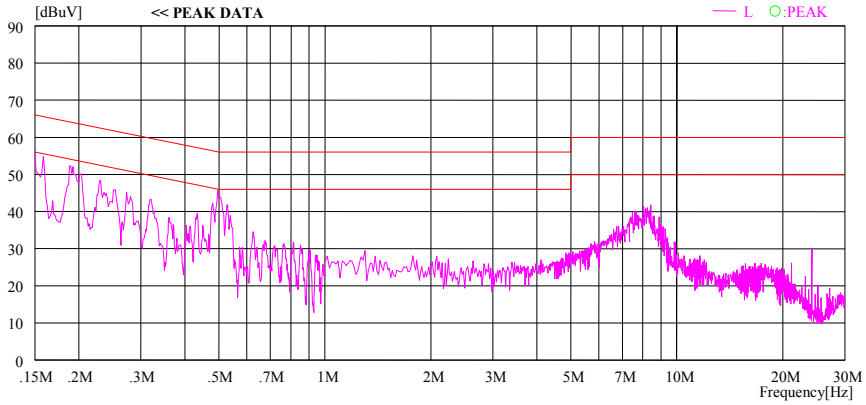


CHART:WITH FACTOR,Peak hold data.Data is uncorrected. CALCURATION:RESULT=READING+C.F(LISN LOSS+CABLE LOSS)
Except for the above table : adequate margin data below the limits.

Conducted Emission

DATA OF CONDUCTED EMISSION TEST

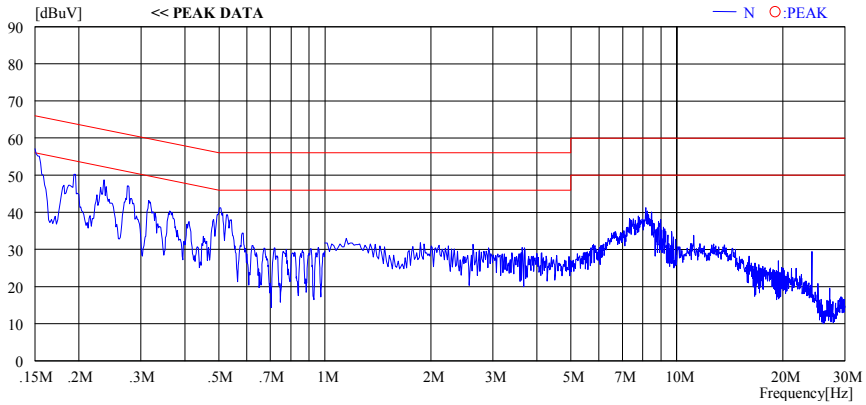
UL Apex Co., Ltd. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2006/07/26 23:52:23

Company : BROTHER INDUSTRIES, LTD.
Kind of EUT : Facsimile machine
Model No. : FAX-2580C
Serial No. : 0001

Report No. : 26KE0022-HO
Power : AC 120V/ 60Hz
Temp./Humi. : 26 deg.C / 58%
Operator : Yutaka Yoshida

Mode / Remarks : Tx ch71(5788.240269MHz)

LIMIT : FCC15C §15.207 (QP) / RSS-Gen
FCC15C §15.207 (AV) / RSS-Gen



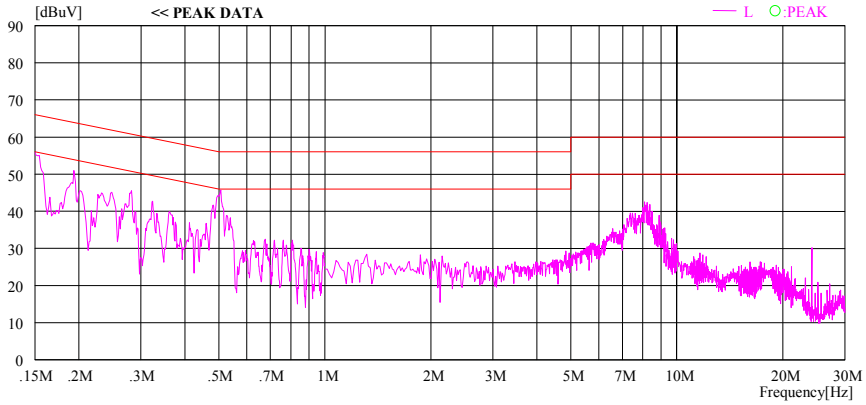


CHART:WITH FACTOR,Peak hold data.Data is uncorrected. CALCURATION:RESULT=READING+C.F(LISN LOSS+CABLE LOSS)
Except for the above table : adequate margin data below the limits.

Conducted Emission

DATA OF CONDUCTED EMISSION TEST

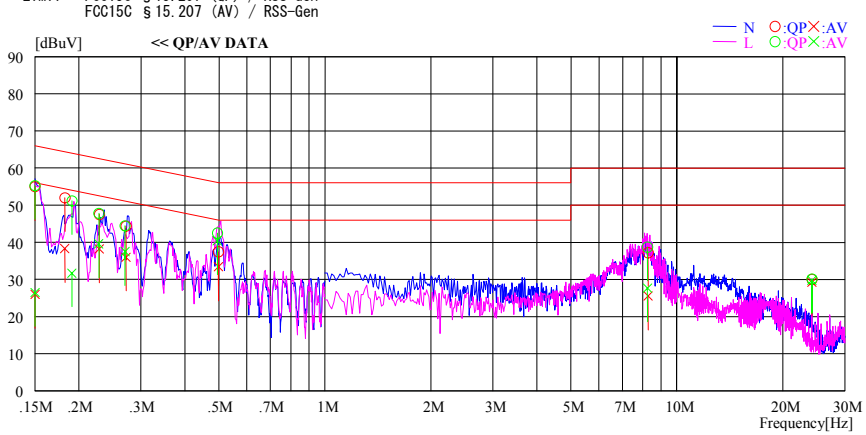
UL Apex Co., Ltd. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2006/07/26 23:52:23

Company : BROTHER INDUSTRIES, LTD.
Kind of EUT : Facsimile machine
Model No. : FAX-2580C
Serial No. : 0001

Report No. : 26KE0022-HO
Power : AC 120V/ 60Hz
Temp./Humi. : 26 deg.C / 58%
Operator : Yutaka Yoshida

Mode / Remarks : Tx ch71(5788.240269MHz)

LIMIT : FCC15C §15.207 (QP) / RSS-Gen
FCC15C §15.207 (AV) / RSS-Gen



Frequency	Reading Level		Corr.	Results		Limit		Margin		Phase	Comment
	QP	AV	Factor	QP	AV	QP	AV	QP	AV		
[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
0.15000	55.2	26.4	0.1	55.3	26.5	66.0	56.0	10.7	29.5	L	
0.15000	54.9	25.9	0.1	55.0	26.0	66.0	56.0	11.0	30.0	N	
0.18236	51.9	38.2	0.1	52.0	38.3	64.4	54.4	12.4	16.1	N	
0.19095	51.1	31.6	0.1	51.2	31.7	64.0	54.0	12.8	22.3	L	
0.22783	47.7	39.5	0.1	47.8	39.6	62.5	52.5	14.7	12.9	L	
0.22832	47.5	38.1	0.1	47.6	38.2	62.5	52.5	14.9	14.3	N	
0.27225	44.3	35.9	0.1	44.4	36.0	61.0	51.0	16.6	15.0	N	
0.27058	44.4	37.4	0.1	44.5	37.5	61.1	51.1	16.6	13.6	L	
0.49824	37.4	33.3	0.1	37.5	33.4	56.0	46.0	18.5	12.6	N	
0.49465	42.4	40.3	0.1	42.5	40.4	56.1	46.1	13.6	5.7	L	
8.24923	38.2	27.2	0.5	38.7	27.7	60.0	50.0	21.3	22.3	L	
8.28870	36.6	24.9	0.6	37.2	25.5	60.0	50.0	22.8	24.5	N	
24.19233	29.0	28.2	1.0	30.0	29.2	60.0	50.0	30.0	20.8	N	
24.19261	29.1	28.8	1.0	30.1	29.8	60.0	50.0	29.9	20.2	L	

CHART:WITH FACTOR,Peak hold data.Data is uncorrected. CALCURATION:RESULT=READING+C.F(LISN LOSS+CABLE LOSS)
Except for the above table : adequate margin data below the limits.

Conducted Emission

DATA OF CONDUCTED EMISSION TEST

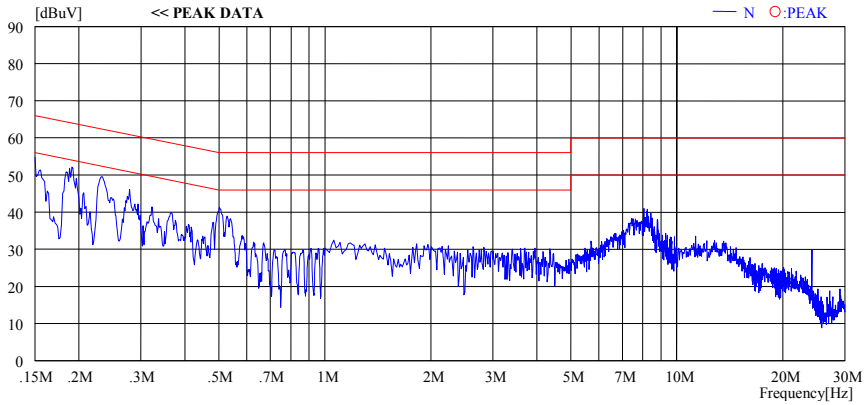
UL Apex Co., Ltd. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2006/07/26 23:59:19

Company : BROTHER INDUSTRIES, LTD.
Kind of EUT : Facsimile machine
Model No. : FAX-2580C
Serial No. : 0001

Report No. : 26KE0022-HO
Power : AC 120V/ 60Hz
Temp./Humi. : 26 deg.C / 58%
Operator : Yutaka Yoshida

Mode / Remarks : Tx ch139(5848.889420MHz)

LIMIT : FCC15C §15.207 (QP) / RSS-Gen
FCC15C §15.207 (AV) / RSS-Gen



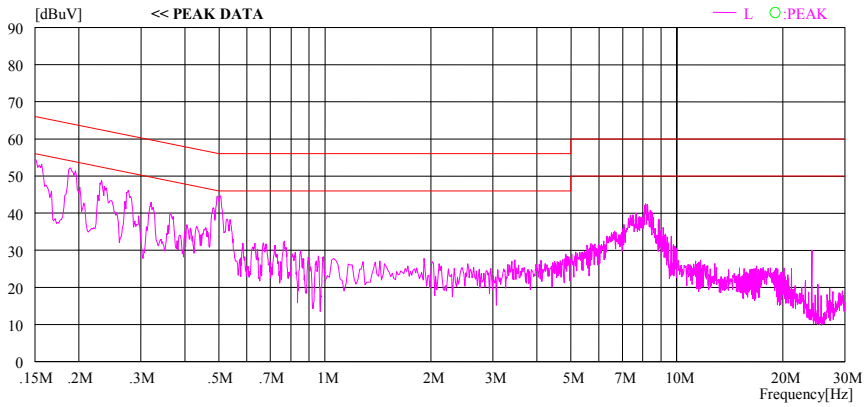


CHART:WITH FACTOR,Peak hold data.Data is uncorrected. CALCURATION:RESULT=READING+C.F(LISN LOSS+CABLE LOSS)
Except for the above table : adequate margin data below the limits.

Carrier Frequency Separation

UL Apex Co., Ltd.
Head Office EMC Lab. No.6 Shielded Room

COMPANY	:	BROTHER INDUSTRIES LTD.	REGULATION	:	FCC Part15 Subpart C 15.247(a)(1)
EQUIPMENT	:	Fascimile Machine	TEST DISTANCE	:	-
MODEL	:	FAX-2580C	DATE	:	08/09/2006
S/ N	:	0002	TEMPERATURE	:	24deg.C
POWER	:	AC120V/60Hz	HUMIDITY	:	57%
MODE	:	Tx(Hopping on)	ENGINEER	:	Takumi Shimada

Ch	Freq. [MHz]	Channel separation [MHz]	Limit [MHz]
Low(ch 1)	5725.8	1.760	>0.803 (20dB Bandwidth or 25[kHz](whichever is greater))
Mid(ch 71)	5788.2	1.830	>0.711 (20dB Bandwidth or 25[kHz](whichever is greater))
High(ch 139)	5848.9	0.900	>0.862 (20dB Bandwidth or 25[kHz](whichever is greater))

The following table shows the hopping sequence.
As for the detail of Frequency separation, please refer to “FCC Submission For 5.8 GHz FHSS System”, Clause 3, Section 3.2. (Theory of operation 3. pdf)

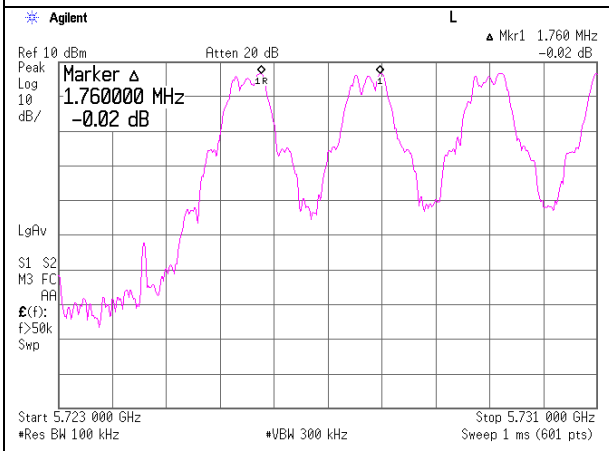
APPENDIX D – LOGICAL TO PHYSICAL MAPPING TABLE

The following table is the logical to physical mapping table, as detailed in section 3.2.3.

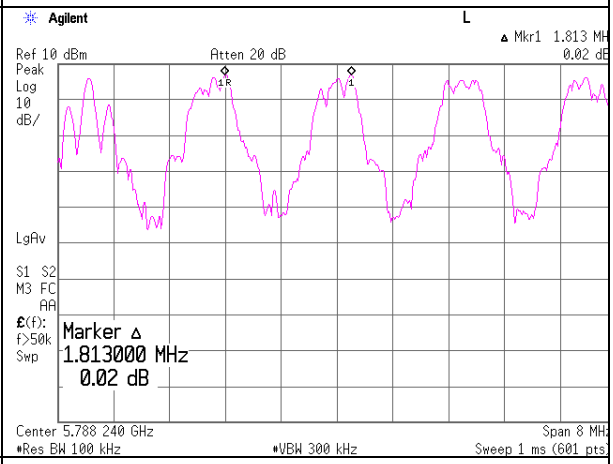
	0	1	2	3	4	5	6	7	8	9
0	1	3	5	7	9	11	13	15	17	19
10	21	23	25	27	29	31	33	35	37	39
20	41	43	45	47	49	51	53	55	57	59
30	61	63	65	67	69	71	73	75	77	79
40	81	83	85	87	89	91	93	95	97	99
50	101	103	105	107	109	111	113	115	117	119
60	121	123	125	127	129	130	131	132	133	134
70	135	136	137	138	139					

Carrier Frequency Separation

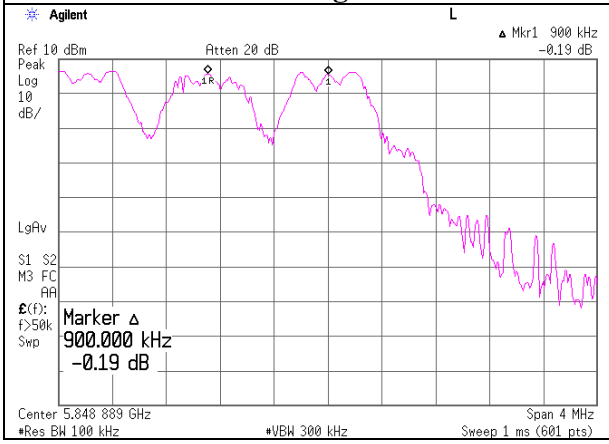
Ch:Low



Ch:Mid



Ch:High



20dB Bandwidth

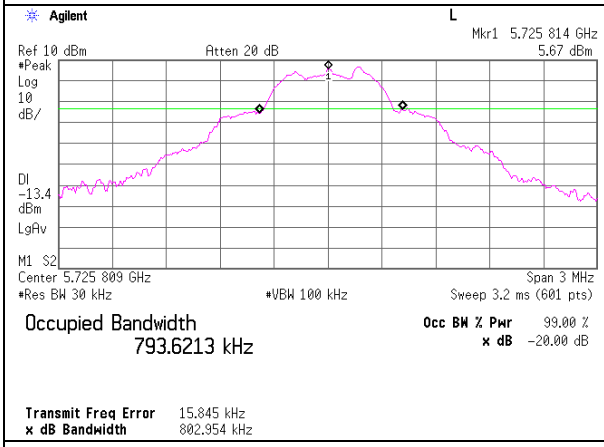
UL Apex Co., Ltd.
Head Office EMC Lab. No.6 Shielded Room

COMPANY	:	BROTHER INDUSTRIES LTD.	REGULATION	:	FCC Part15 Subpart C 15.247(a)(1)
EQUIPMENT	:	Fascimile Machine	TEST DISTANCE	:	-
MODEL	:	FAX-2580C	DATE	:	08/09/2006
S/ N	:	0002	TEMPERATURE	:	24deg.C
POWER	:	AC120V/60Hz	HUMIDITY	:	57%
MODE	:	Tx (Hopping off) /Inquiry	ENGINEER	:	Takumi Shimada

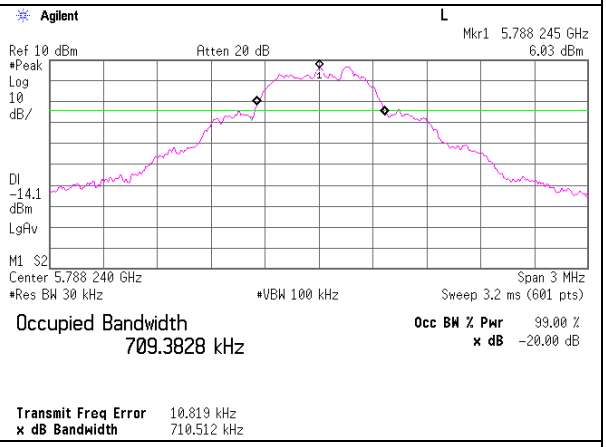
Ch	Freq. [MHz]	20dB Bandwidth [MHz]	Limit [MHz]
Low(ch 1)	5725.8	0.803	-
Mid(ch 71)	5788.2	0.711	-
High(ch 139)	5848.9	0.862	-

20dB Bandwidth

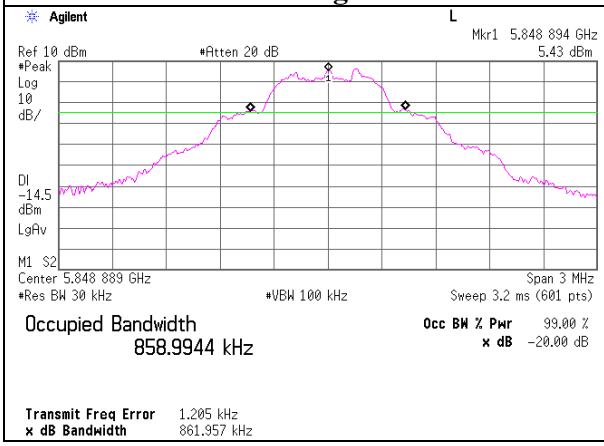
Ch:Low



Ch:Mid



Ch:High



Number of Hopping Frequency

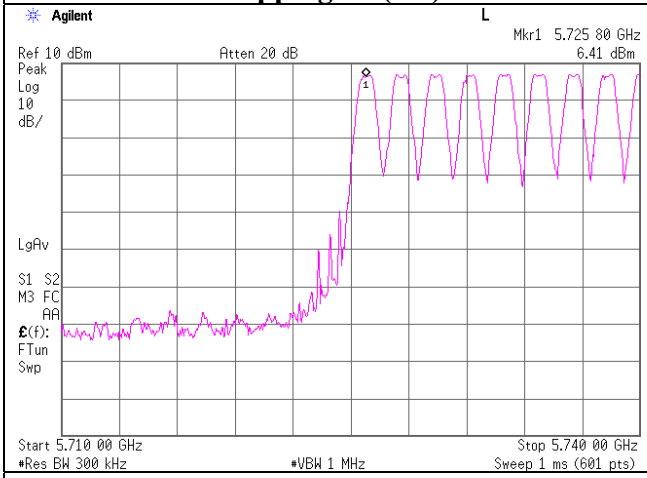
UL Apex Co., Ltd.
Head Office EMC Lab. No.6 Shielded Room

COMPANY	:	BROTHER INDUSTRIES LTD.	REGULATION	:	FCC Part15 Subpart C 15.247(a)(1)(iii)
EQUIPMENT	:	Fascimile Machine	TEST DISTANCE	:	-
MODEL	:	FAX-2580C	DATE	:	08/09/2006
S/ N	:	0002	TEMPERATURE	:	24deg.C
POWER	:	AC120V/60Hz	HUMIDITY	:	57%
MODE	:	Tx (Hopping on)	ENGINEER	:	Takumi Shimada

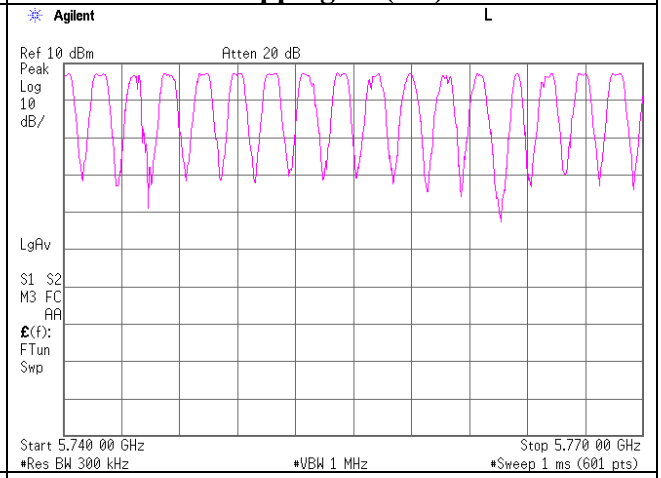
Mode	Number of channel [time]	Limit [time]
Tx(Hoppng on)	75	≧75

Number of Hopping Frequency

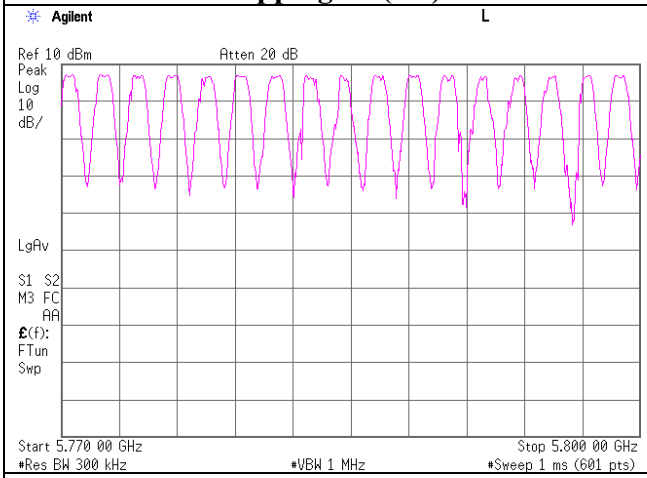
Hopping on (1/5)



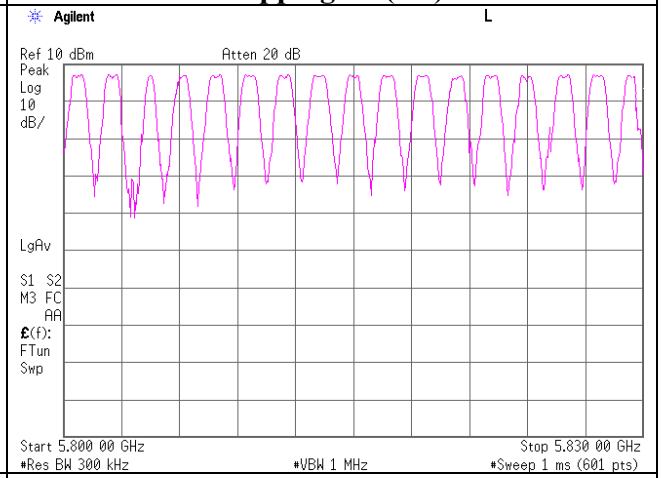
Hopping on (2/5)



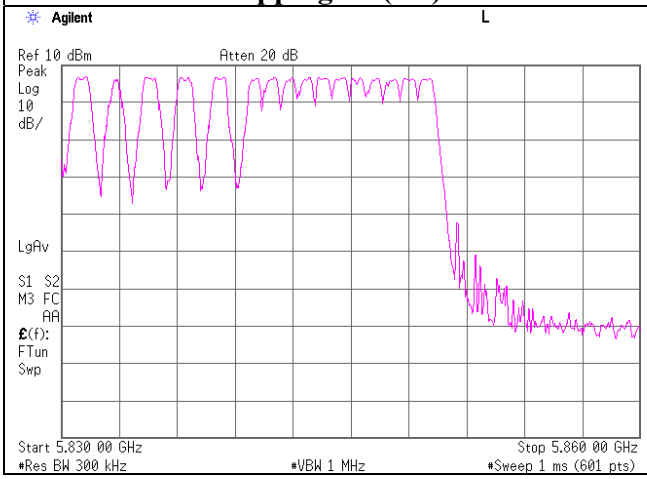
Hopping on (3/5)



Hopping on (4/5)



Hopping on (3/5)



Dwell time

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

COMPANY	:	BROTHER INDUSTRIES LTD.	REGULATION	:	FCC Part15 Subpart C 15.247(a)(1)(iii)
EQUIPMENT	:	Fascimile Machine	TEST DISTANCE	:	-
MODEL	:	FAX-2580C	DATE	:	08/09/2006
S/ N	:	0002	TEMPERATURE	:	24deg.C
POWER	:	AC120V/60Hz	HUMIDITY	:	57%
MODE	:	Tx (Hopping on)	ENGINEER	:	Takumi Shimada

DUMMY BEARER

Mode	Number of transmission in a 30 sec	Length of transmission time [msec]	Result [msec]	Limit [msec]
Hopping on (M-ch)	40 times / 30sec	0.340	13.600	400

TRAFFIC BEARER

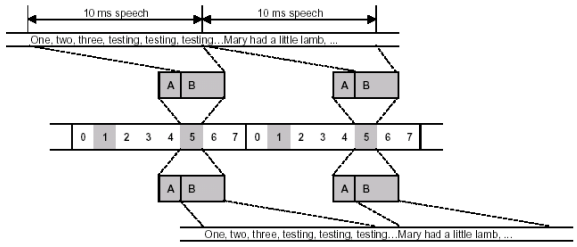
Mode	Number of transmission in a 30 sec	Length of transmission time [msec]	Result [msec]	Limit [msec]
Hopping on (M-ch)	40 times / 30sec	1.016	40.640	400

DUMMY BEARER Dwell Time + TRAFFIC BEARER Dwell Time

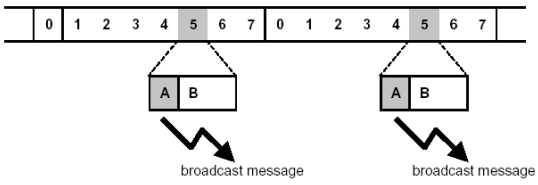
Mode	Dwell Time [msec]	Limit [msec]
Hopping on (M-ch)	54.24	400.000

The dummy bearer is usually separate to the traffic bearers, i.e. they are on different slots. In the case that 4 traffic bearers are required (the maximum number that can be supported by the FP) then one of the traffic bearers will also take over the responsibilities of the dummy bearer. In the remainder of the document this shall be referred to as a 'combined dummy/traffic bearer'. (From Clause 2.4 of Section 2 in FCC Submission For 5.8 GHz FHSS System)

The following diagram shows the down-link transmission of a traffic bearer; the up-link transmission is in slot 1.

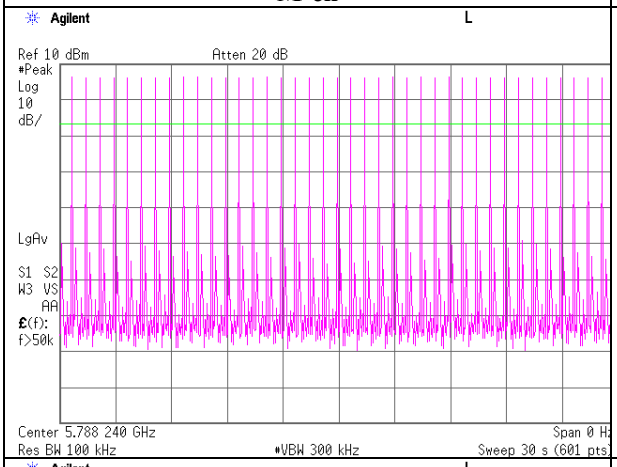


The following diagram shows a dummy bearer transmission. Note, that it uses only a down-link slot and the A-field of the packet.

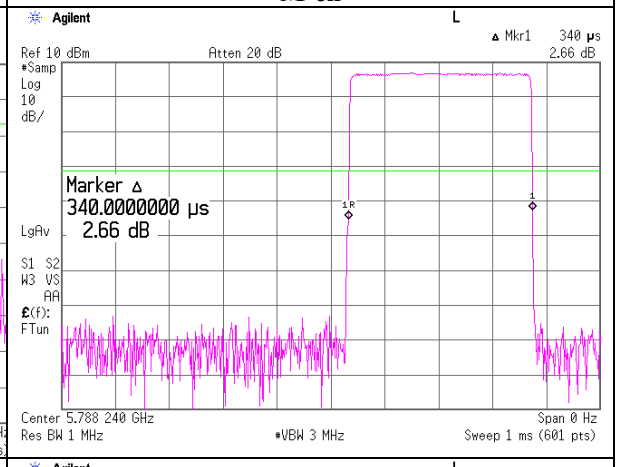


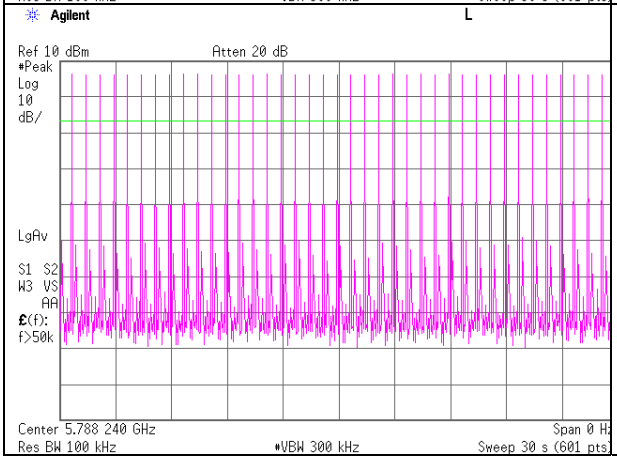
Dwell time

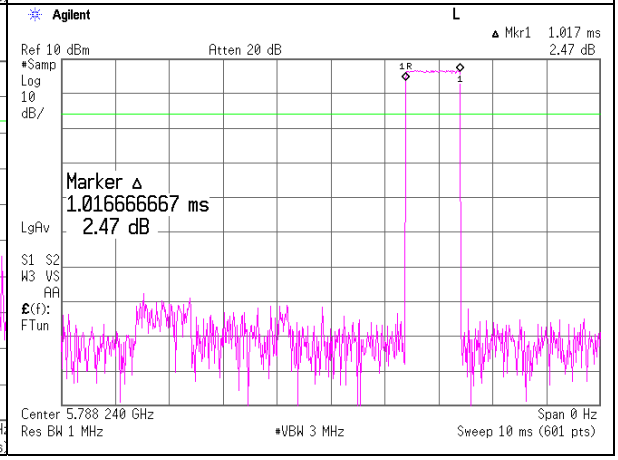
M-ch



M-ch







Maximum Peak Output Power

UL Apex Co., Ltd.
Head Office EMC Lab. No.6 Shielded Room

COMPANY	:	BROTHER INDUSTRIES LTD.	REGULATION	:	FCC Part15 Subpart C 15.247(b)(1)
EQUIPMENT	:	Fascimile Machine	TEST DISTANCE	:	-
MODEL	:	FAX-2580C	DATE	:	08/09/2006
S/ N	:	0002	TEMPERATURE	:	24deg.C
POWER	:	AC120V/60Hz	HUMIDITY	:	57%
MODE	:	Tx(Hopping Off)	ENGINEER	:	Takumi Shimada

Ch	Freq.	P/M Reading	Cable Loss	Atten.	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
Low(ch 1)	5725.8	-2.93	1.06	19.84	17.97	62.64	30.00	1000	12.03
Mid(ch 71)	5788.2	-2.76	1.12	19.80	18.16	65.46	30.00	1000	11.84
High(ch 139)	5848.9	-3.05	1.10	19.76	17.81	60.45	30.00	1000	12.19

Sample Calculation:
Result = Reading + Cable Loss (supplied by customer)+ Attenuator
* In the above table, factor 0.0dB represents no use of Atten. and/or Filter.

Radiated Spurious Emission

* The result is rounded off to the second decimal place. Therefore, there may be 0.1 difference for the result.

DATA OF RADIATED EMISSION TEST

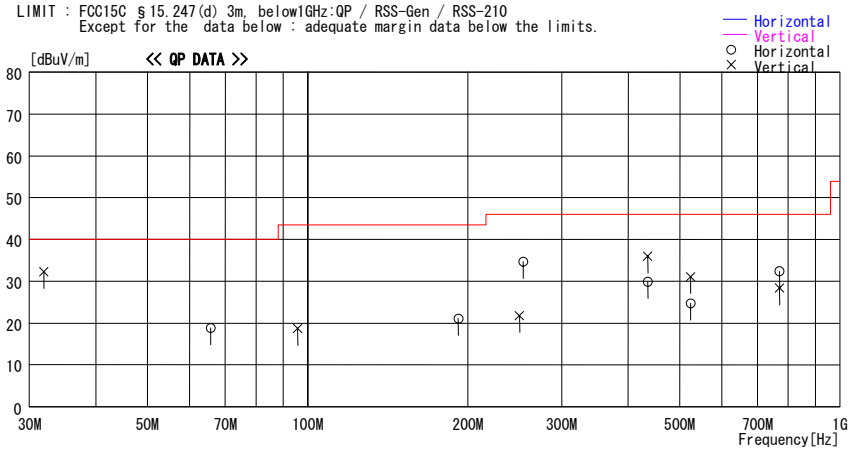
UL Apex Co., Ltd. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2006/07/26 16:43:30

Applicant : BROTHER INDUSTRIES,LTD.
Kind of EUT : Facsimile machine
Model No. : FAX-2580C
Serial No. : 0001

Report No. : 26KE0022-HO
Power : AC120V / 60Hz
Temp./Humi. : 25deg.C / 68%
Operator : Yutaka Yoshida

Mode / Remarks : Tx ch001_5725.809328MHz / Max-axis(Hor 0deg,Ver 90deg)

LIMIT : FCC15C §15.247(d) 3m, below1GHz:QP / RSS-Gen / RSS-210
Except for the data below : adequate margin data below the limits.



Frequency [MHz]	Reading [dBuV]	DET	Antenna Factor [dB/m]	Loss& Gain [dB]	Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
65.670	35.6	QP	7.7	-24.5	18.8	165	280	Hori.	40.0	21.2	
192.041	27.2	QP	16.9	-23.0	21.1	185	100	Hori.	43.5	22.4	
254.025	39.1	QP	18.2	-22.6	34.7	271	100	Hori.	46.0	11.3	
435.465	33.3	QP	18.2	-21.6	29.9	293	100	Hori.	46.0	16.1	
524.186	26.8	QP	19.0	-21.1	24.7	248	100	Hori.	46.0	21.3	
770.129	30.5	QP	21.4	-19.5	32.4	142	100	Hori.	46.0	13.6	
31.925	38.7	QP	18.7	-25.1	32.3	76	100	Vert.	40.0	7.7	
95.777	32.6	QP	10.1	-24.0	18.7	271	171	Vert.	43.5	24.8	
249.997	26.4	QP	18.0	-22.6	21.8	322	100	Vert.	46.0	24.2	
435.469	39.4	QP	18.2	-21.6	36.0	180	100	Vert.	46.0	10.0	
524.168	33.2	QP	19.0	-21.1	31.1	325	100	Vert.	46.0	14.9	
770.129	26.5	QP	21.4	-19.5	28.4	0	100	Vert.	46.0	17.6	

CHART:WITH FACTOR ANT TYPE : -30MHz LOOP,30-300MHz BICONICAL,300MHz-1000MHz LOGPERIODIC,1000MHz- HORN
CALCULATION:RESULT = READING + ANT FACTOR + LOSS(CABLE+ATTEN.) - GAIN(AMP)

Radiated Spurious Emission

* The result is rounded off to the second decimal place. Therefore, there may be 0.1 difference for the result.

DATA OF RADIATED EMISSION TEST

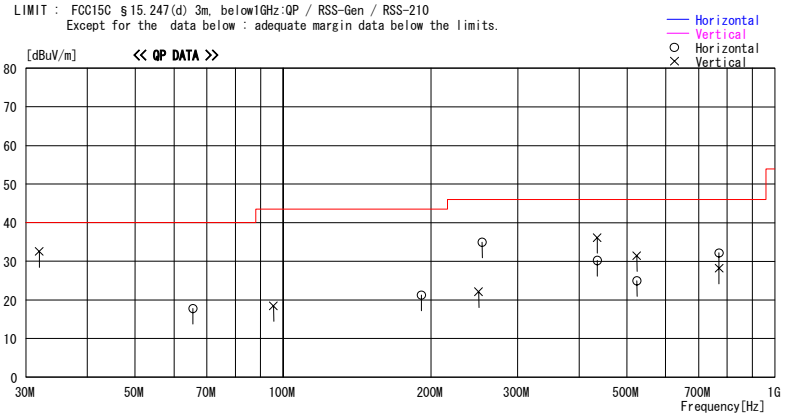
UL Apex Co., Ltd. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2006/07/26 17:25:45

Applicant : BROTHER INDUSTRIES,LTD.
Kind of EUT : Facsimile machine
Model No. : FAX-2580C
Serial No. : 0001

Report No. : 26KE0022-HO
Power : AC120V / 60Hz
Temp./Humi. : 25deg.C / 68%
Operator : Yutaka Yoshida

Mode / Remarks : Tx ch071_5788.240269MHz / Max-axis(Hor 0deg,Ver 90deg)

LIMIT : FCC15C §15.247(d) 3m, below1GHz:QP / RSS-Gen / RSS-210
Except for the data below : adequate margin data below the limits.



Frequency [MHz]	Reading [dBuV]	DET	Antenna Factor [dB/m]	Loss& Gain [dB]	Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
65.553	34.6	QP	7.7	-24.5	17.8	165	280	Hori.	40.0	22.2	
191.049	27.4	QP	16.9	-23.0	21.3	185	100	Hori.	43.5	22.2	
254.125	39.3	QP	18.2	-22.6	34.9	271	100	Hori.	46.0	11.1	
435.521	33.6	QP	18.2	-21.6	30.2	293	100	Hori.	46.0	15.8	
524.166	27.1	QP	19.0	-21.1	25.0	248	100	Hori.	46.0	21.0	
770.131	30.3	QP	21.4	-19.5	32.2	142	100	Hori.	46.0	13.8	
31.922	38.9	QP	18.7	-25.1	32.5	76	100	Vert.	40.0	7.5	
95.639	32.4	QP	10.1	-24.0	18.5	271	171	Vert.	43.5	25.0	
249.923	26.7	QP	18.0	-22.6	22.1	322	100	Vert.	46.0	23.9	
435.452	39.5	QP	18.2	-21.6	36.1	180	100	Vert.	46.0	9.9	
524.122	33.5	QP	19.0	-21.1	31.4	325	100	Vert.	46.0	14.6	
770.134	26.3	QP	21.4	-19.5	28.2	0	100	Vert.	46.0	17.8	

CHART:WITH FACTOR ANT TYPE : -30MHz LOOP,30-300MHz BICONICAL,300MHz-1000MHz LOGPERIODIC,1000MHz- HORN
CALCULATION:RESULT = READING + ANT FACTOR + LOSS(CABLE+ATTEN.) - GAIN(AMP)

Radiated Spurious Emission

DATA OF RADIATED EMISSION TEST

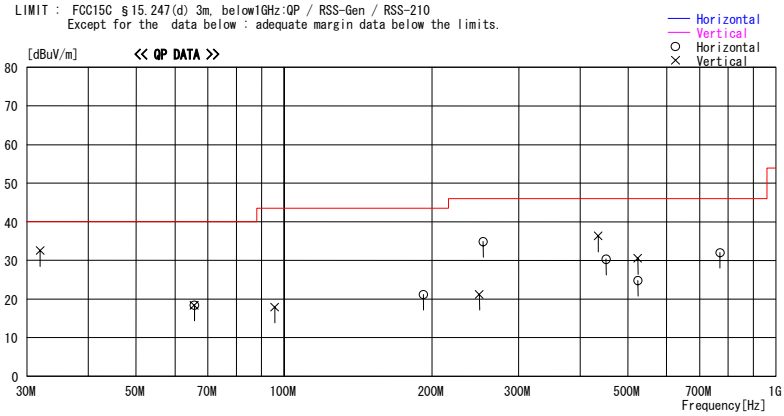
UL Apex Co., Ltd. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2006/07/26 17:11:17

Applicant : BROTHER INDUSTRIES,LTD.
Kind of EUT : Facsimile machine
Model No. : FAX-2580C
Serial No. : 0001

Report No. : 26KE0022-HO
Power : AC120V / 60Hz
Temp./Humi. : 25deg.C / 68%
Operator : Yutaka Yoshida

Mode / Remarks : Tx ch139_5848.889420MHz / Max-axis(Hor 0deg,Ver 90deg)

LIMIT : FCC15C §15.247(d) 3m, below1GHz:QP / RSS-Gen / RSS-210
Except for the data below : adequate margin data below the limits.



Frequency [MHz]	Reading [dBuV]	DET	Antenna Factor [dB/m]	Loss& Gain [dB]	Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
31.914	38.9	QP	18.7	-25.1	32.5	76	100	Vert.	40.0	7.5	
65.681	35.2	QP	7.7	-24.5	18.4	280	165	Hori.	40.0	21.6	
65.672	35.2	QP	7.7	-24.5	18.4	78	100	Vert.	40.0	21.6	
95.774	31.8	QP	10.1	-24.0	17.9	271	171	Vert.	43.5	25.6	
192.039	27.3	QP	16.9	-23.0	21.2	185	100	Hori.	43.5	22.3	
254.029	39.2	QP	18.2	-22.6	34.8	271	100	Hori.	46.0	11.2	
249.667	25.8	QP	18.0	-22.6	21.2	322	100	Vert.	46.0	24.8	
435.462	39.7	QP	18.2	-21.6	36.3	180	100	Vert.	46.0	9.7	
451.562	33.5	QP	18.3	-21.5	30.3	293	100	Hori.	46.0	15.7	
524.137	32.6	QP	19.0	-21.1	30.5	0	100	Vert.	46.0	15.5	
524.211	26.9	QP	19.0	-21.1	24.8	249	100	Hori.	46.0	21.2	
770.132	30.1	QP	21.4	-19.5	32.0	142	100	Hori.	46.0	14.0	

CHART:WITH FACTOR ANT TYPE : -30MHz LOOP,30-300MHz BICONICAL,300MHz-1000MHz LOGPERIODIC,1000MHz- HORN
CALCULATION:RESULT = READING + ANT FACTOR + LOSS(CABLE+ATTEN.) - GAIN(AMP)

Radiated Spurious Emission

UL Apex Co., Ltd.
Head Office EMC Lab. No.3 Semi Anechoic Chambe

Company	: BROTHER INDUSTRIES, LTD.	REPORT NO	: 26KE0022-HO
Equipment	: Facsimile machine	REGULATION	: Fcc Part15 Subpart C 15.247(d)
Model	: FAX2580C	TEST DISTANCE	: 3/1m
Serial No.	: 0001	DATE	: July 25, 2006
Power	: AC 120 V / 60 Hz	TEMPERATURE	: 25deg.C
Mode	: Tx 5725.809328MHz (ch1)	HUMIDITY	: 61%
Remarks	: Horizontal:ANT Angle 0deg.	ENGINEER	: Yutaka Yoshida
	: Vertical:ANT Angle 90deg.		

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

No.	FREQ	S/A READING		ANT	AMP	CABLE	Hi-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	PK	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2400.2	54.0	53.8	30.5	32.8	2.2	0.0	53.9	53.7	74.0	20.1	20.3
2	3325.8	47.1	49.1	31.5	32.3	2.8	0.0	49.1	51.1	74.0	24.9	22.9
3	4800.3	53.0	54.9	35.2	31.6	3.5	0.0	60.1	62.0	74.0	13.9	12.0
4	5711.9	49.7	51.3	36.3	31.8	3.8	0.0	58.0	59.6	74.0	16.0	14.4
6	5739.6	49.1	50.3	36.4	31.9	3.8	0.0	57.4	58.6	74.0	16.6	15.4
7	6052.2	49.0	50.2	37.2	32.0	3.9	0.0	58.1	59.3	74.0	15.9	14.7
8	6103.0	49.8	50.7	37.1	32.0	3.9	0.0	58.8	59.7	74.0	15.2	14.3
9	7577.5	46.4	46.9	37.7	32.4	4.4	1.1	57.2	57.7	74.0	16.8	16.3
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
9	11451.2	54.7	54.3	38.3	33.1	5.6	0.8	56.8	56.4	74.0	17.2	17.6
11	22904.1	54.3	53.7	40.3	31.9	8.0	0.5	61.7	61.1	74.0	12.3	12.9
12	28630.2	42.3	42.8	45.2	24.3	12.3	0.0	59.9	60.4	74.0	14.1	13.6
13	34354.9	39.1	39.9	45.2	24.7	13.1	0.0	57.1	57.9	74.0	16.9	16.1

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

No.	FREQ	S/A READING		ANT	AMP	CABLE	Hi-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	AV	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2400.2	35.0	36.5	30.5	32.8	2.2	0.0	34.9	36.4	54.0	19.1	17.6
2	3325.8	41.7	44.6	31.5	32.3	2.8	0.0	43.7	46.6	54.0	10.3	7.4
3	4800.3	31.2	33.6	35.2	31.6	3.5	0.0	38.3	40.7	54.0	15.7	13.3
4	5711.9	28.8	29.0	36.3	31.8	3.8	0.0	37.1	37.3	54.0	16.9	16.7
6	5739.6	29.2	29.3	36.4	31.9	3.8	0.0	37.5	37.6	54.0	16.5	16.4
7	6052.2	29.2	29.3	37.2	32.0	3.9	0.0	38.3	38.4	54.0	15.7	15.6
8	6103.0	29.3	29.1	37.1	32.0	3.9	0.0	38.3	38.1	54.0	15.7	15.9
9	7577.5	30.4	30.6	37.7	32.4	4.4	1.1	41.2	41.4	54.0	12.8	12.6
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
9	11451.2	32.5	32.0	38.3	33.1	5.6	0.8	34.6	34.1	54.0	19.4	19.9
11	22904.1	34.4	34.3	40.3	31.9	8.0	0.5	41.8	41.7	54.0	12.2	12.3
12	28630.2	23.2	23.4	45.2	24.3	12.3	0.0	40.8	41.0	54.0	13.2	13.0
13	34354.9	27.3	27.0	45.2	24.7	13.1	0.0	45.3	45.0	54.0	8.7	9.0

20dBc(Fundamental 5725.809328MHz) (RBW: 100kHz, VBW: 300kHz)

No.	FREQ	S/A READING		ANT	AMP	CABLE	Hi-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	20dBc	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	5725.8	109.4	107.9	36.4	31.9	3.8	0.0	117.7	116.2	-	-	-
5	5725.0	75.9	74.9	36.4	31.9	3.8	0.0	84.2	83.2	Funda-20dB	13.5	13.0
10	17178.0	68.1	63.0	46.1	31.9	6.9	0.4	80.1	75.0	Funda-20dB	17.6	21.2

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5dB
*Except for the above table : All other spurious emissions were less than 20dB for the limit.
*In the frequency over the fifth harmonic, the noise from the EUT was not seen.The data above is its base noise.
*The result is rounded off to the second decimal place. Therefore, there may be 0.1 difference for the result.
*Hi-Pass Fiter was not used for factor 0.0dB of the above table.

Radiated Spurious Emission

UL Apex Co., Ltd.
Head Office EMC Lab. No.3 Semi Anechoic Chamber

Company	: BROTHER INDUSTRIES, LTD.	REPORT NO	: 26KE0022-HO
Equipment	: Facsimile machine	REGULATION	: Fcc Part15 Subpart C 15.247(d)
Model	: FAX2580C	TEST DISTANCE	: 3/1m
Serial No.	: 0001	DATE	: July 25, 2006
Power	: AC 120 V / 60 Hz	TEMPERATURE	: 25deg.C
Mode	: Tx 5788.240269MHz (ch71)	HUMIDITY	: 61%
Remarks	: Horizontal:ANT Angle 0deg.	ENGINEER	: Yutaka Yoshida
	: Vertical:ANT Angle 90deg.		

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

No.	FREQ	S/A READING		ANT	AMP	CABLE	Hi-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	PK	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2428.6	54.2	55.2	30.5	32.8	2.2	0.0	54.1	55.1	74.0	19.9	18.9
2	3359.6	47.9	49.9	31.5	32.3	2.8	0.0	49.9	51.9	74.0	24.1	22.1
3	4857.4	51.8	53.5	35.5	31.6	3.5	0.0	59.2	60.9	74.0	14.8	13.1
4	5774.4	50.9	50.3	36.5	31.9	3.8	0.0	59.3	58.7	74.0	14.7	15.3
5	5802.0	50.1	48.5	36.6	31.9	3.8	0.0	58.6	57.0	74.0	15.4	17.0
6	6143.2	47.7	48.6	37.0	32.0	4.0	0.0	56.7	57.6	74.0	17.3	16.4
7	6354.9	47.9	43.3	36.7	32.0	4.0	0.0	56.6	52.0	74.0	17.4	22.0
8	6719.4	57.3	55.6	36.9	32.0	4.1	0.0	66.3	64.6	74.0	7.7	9.4
9	7650.6	48.4	47.2	37.5	32.4	4.4	1.0	58.9	57.7	74.0	15.1	16.3
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
10	11576.9	57.0	54.1	38.7	33.1	5.7	0.7	59.5	56.6	74.0	14.5	17.4
12	23153.6	54.3	55.2	40.2	31.8	8.0	0.6	61.8	62.7	74.0	12.2	11.3
13	28942.1	42.5	43.9	45.3	24.3	12.3	0.0	60.2	61.6	74.0	13.8	12.4
14	34729.4	39.6	41.1	45.1	24.5	13.4	0.0	58.0	59.5	74.0	16.0	14.5

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

No.	FREQ	S/A READING		ANT	AMP	CABLE	Hi-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	AV	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2428.6	35.9	37.5	30.5	32.8	2.2	0.0	35.8	37.4	54.0	18.2	16.6
2	3359.6	42.7	46.4	31.5	32.3	2.8	0.0	44.7	48.4	54.0	9.3	5.6
3	4857.4	29.8	32.4	35.5	31.6	3.5	0.0	37.2	39.8	54.0	16.8	14.2
4	5774.4	28.8	28.8	36.5	31.9	3.8	0.0	37.2	37.2	54.0	16.8	16.8
5	5802.0	29.5	29.2	36.6	31.9	3.8	0.0	38.0	37.7	54.0	16.0	16.3
6	6143.2	29.0	29.1	37.0	32.0	4.0	0.0	38.0	38.1	54.0	16.0	15.9
7	6354.9	28.6	28.5	36.7	32.0	4.0	0.0	37.3	37.2	54.0	16.7	16.8
8	6719.4	30.2	29.4	36.9	32.0	4.1	0.0	39.2	38.4	54.0	14.8	15.6
9	7650.6	30.6	30.2	37.5	32.4	4.4	1.0	41.1	40.7	54.0	12.9	13.3
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
10	11576.9	32.2	33.3	38.7	33.1	5.7	0.7	34.7	35.8	54.0	19.3	18.2
12	23153.6	34.0	34.3	40.2	31.8	8.0	0.6	41.5	41.8	54.0	12.5	12.2
13	28942.1	23.8	24.0	45.3	24.3	12.3	0.0	41.5	41.7	54.0	12.5	12.3
14	34729.4	28.2	28.0	45.1	24.5	13.4	0.0	46.6	46.4	54.0	7.4	7.6

20dBc(Fundamental 5725.809328MHz) (RBW: 100kHz, VBW: 300kHz)

No.	FREQ	S/A READING		ANT	AMP	CABLE	Hi-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	20dBc	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	5788.2	110.8	110.8	36.6	31.9	3.8	0.0	119.3	119.3	-	-	-
11	17365.3	64.2	65.5	46.2	31.9	6.9	0.6	76.5	77.8	Funda-20dB	22.8	21.5

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5dB
*Except for the above table : All other spurious emissions were less than 20dB for the limit.
*In the frequency over the fifth harmonic, the noise from the EUT was not seen.The data above is its base noise.
*The result is rounded off to the second decimal place. Therefore, there may be 0.1 difference for the result.
*Hi-Pass Fiter was not used for factor 0.0dB of the above table.

Radiated Spurious Emission

UL Apex Co., Ltd.
Head Office EMC Lab. No.3 Semi Anechoic Chambe

Company	: BROTHER INDUSTRIES, LTD.	REPORT NO	: 26KE0022-HO
Equipment	: Facsimile machine	REGULATION	: Fcc Part15 Subpart C 15.247(d)
Model	: FAX2580C	TEST DISTANCE	: 3/1m
Serial No.	: 0001	DATE	: July 25, 2006
Power	: AC 120 V / 60 Hz	TEMPERATURE	: 25deg.C
Mode	: Tx 5848.889420MHz (ch139)	HUMIDITY	: 61%
Remarks	: Horizontal:ANT Angle 0deg.	ENGINEER	: Yutaka Yoshida
	: Vertical:ANT Angle 90deg.		

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

No.	FREQ	S/A READING		ANT	AMP	CABLE	Hi-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	PK	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2489.4	56.2	56.4	30.3	32.7	2.3	0.0	56.1	56.3	74.0	17.9	17.7
2	3359.7	47.5	50.0	31.5	32.3	2.8	0.0	49.5	52.0	74.0	24.5	22.0
3	4978.8	56.5	57.1	36.0	31.6	3.6	0.0	64.5	65.1	74.0	9.5	8.9
4	5638.2	47.0	49.7	36.1	31.8	3.8	0.0	55.1	57.8	74.0	18.9	16.2
6	5862.8	48.3	48.8	36.8	31.9	3.9	0.0	57.1	57.6	74.0	16.9	16.4
7	5970.4	50.4	46.6	37.2	31.9	3.9	0.0	59.6	55.8	74.0	14.4	18.2
8	7589.9	47.3	47.4	37.7	32.4	4.4	1.1	58.1	58.2	74.0	15.9	15.8
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
9	11697.5	54.6	52.6	39.2	33.1	5.7	0.7	57.6	55.6	74.0	16.4	18.4
11	23394.2	58.3	59.1	39.9	31.8	8.0	0.6	65.5	66.3	74.0	8.5	7.7
12	29244.2	40.4	39.6	45.4	24.4	12.4	0.0	58.2	57.4	74.0	15.8	16.6
13	35093.3	41.1	42.0	45.0	24.2	13.7	0.0	60.0	60.9	74.0	14.0	13.1

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

No.	FREQ	S/A READING		ANT	AMP	CABLE	Hi-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	AV	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2489.4	37.9	37.9	30.3	32.7	2.3	0.0	37.8	37.8	54.0	16.2	16.2
2	3359.7	41.9	47.2	31.5	32.3	2.8	0.0	43.9	49.2	54.0	10.1	4.8
3	4978.8	30.3	32.5	36.0	31.6	3.6	0.0	38.3	40.5	54.0	15.7	13.5
4	5638.2	28.3	28.2	36.1	31.8	3.8	0.0	36.4	36.3	54.0	17.6	17.7
6	5862.8	29.2	29.2	36.8	31.9	3.9	0.0	38.0	38.0	54.0	16.0	16.0
7	5970.4	28.2	28.1	37.2	31.9	3.9	0.0	37.4	37.3	54.0	16.6	16.7
8	7589.9	30.4	30.6	37.7	32.4	4.4	1.1	41.2	41.4	54.0	12.8	12.6
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
9	11697.5	32.2	32.9	38.7	33.1	5.7	0.7	34.7	35.4	54.0	19.3	18.6
11	23394.2	35.2	35.5	39.9	31.8	8.0	0.6	42.4	42.7	54.0	11.6	11.3
12	29244.5	22.7	22.7	45.4	24.4	12.4	0.0	40.5	40.5	54.0	13.5	13.5
13	35093.3	29.0	29.2	45.0	24.2	13.7	0.0	47.9	48.1	54.0	6.1	5.9

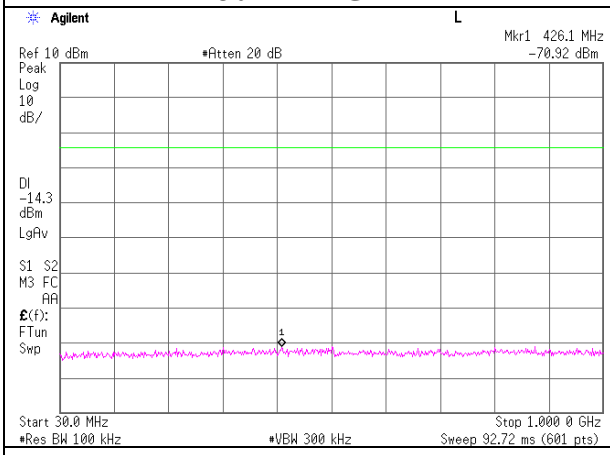
20dBc(Fundamental 5848.889420MHz) (RBW: 100kHz, VBW: 300kHz)

No.	FREQ	S/A READING		ANT	AMP	CABLE	Hi-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	20dBc	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
0	5848.9	111.2	110.4	36.8	31.9	3.9	0.0	120.0	119.2	-	-	-
5	5850.0	65.0	64.2	36.8	31.9	3.9	0.0	73.8	73.0	Funda-20dB	26.2	26.2
10	17547.2	67.1	64.4	46.2	31.8	6.9	0.5	79.4	76.7	Funda-20dB	20.6	22.5

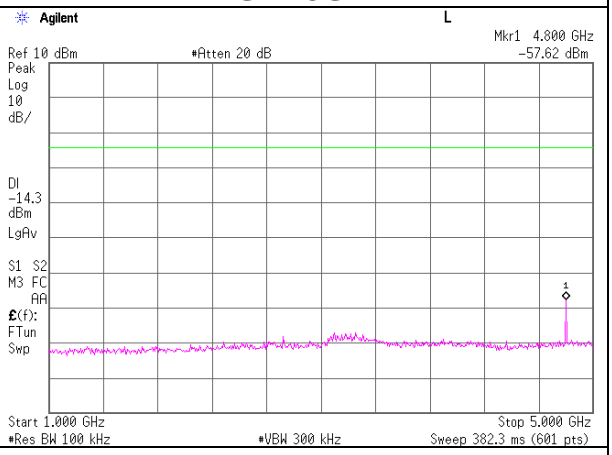
Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5dB
*Except for the above table : All other spurious emissions were less than 20dB for the limit.
*In the frequency over the fifth harmonic, the noise from the EUT was not seen.The data above is its base noise.
*The result is rounded off to the second decimal place. Therefore, there may be 0.1 difference for the result.
*Hi-Pass Fiter was not used for factor 0.0dB of the above table.

Conducted Spurious Emission
Ch:Low

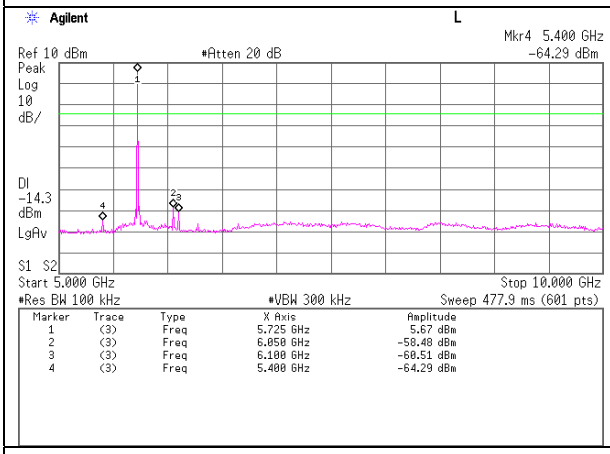
30MHz-1GHz



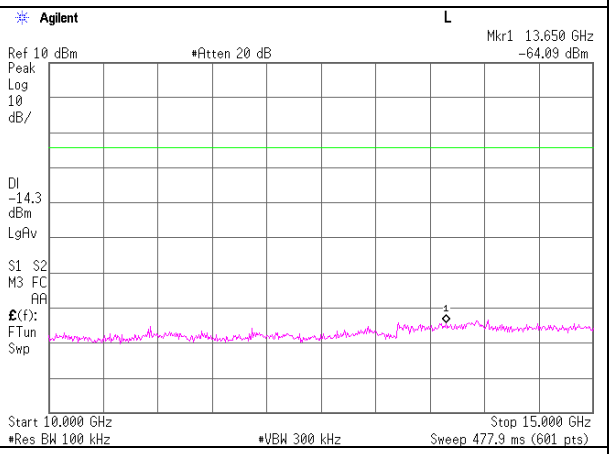
1GHz-5GHz



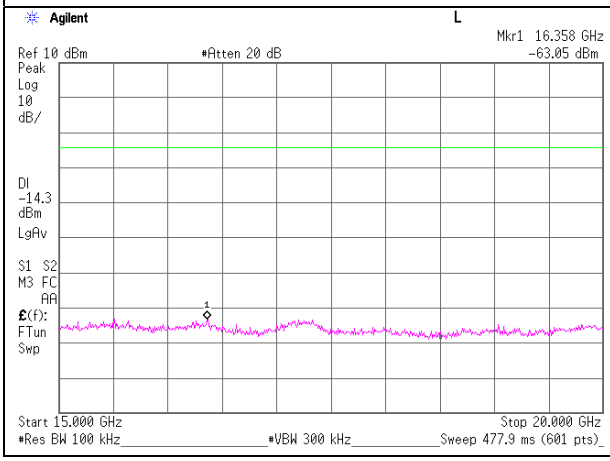
5GHz-10GHz



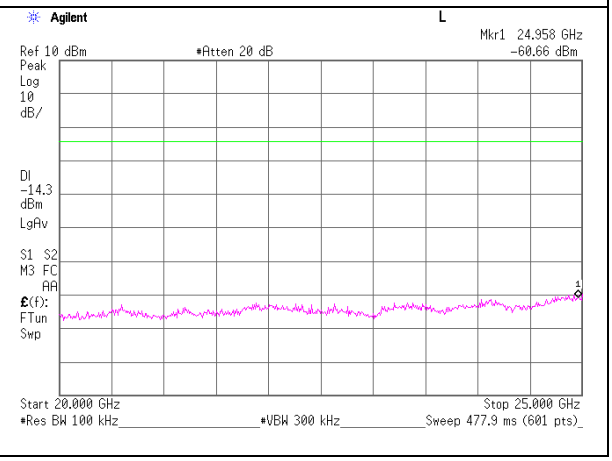
10GHz-15GHz



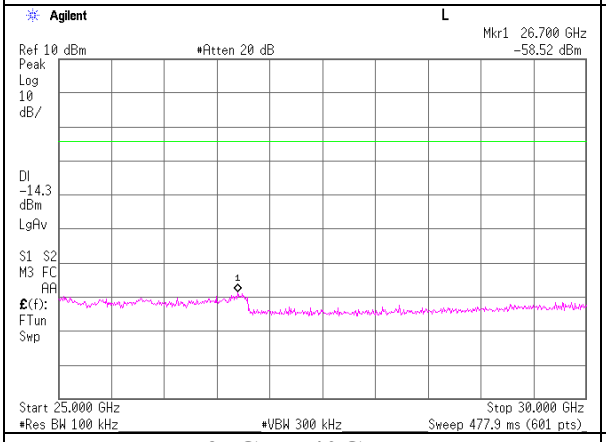
15GHz-20GHz



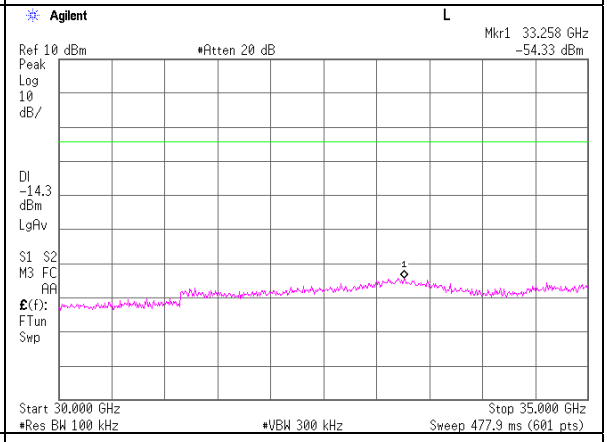
20GHz-25GHz



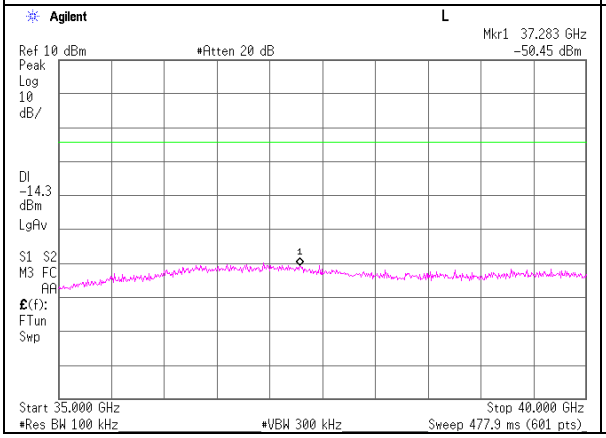
25GHz-30Hz



30GHz-35GHz

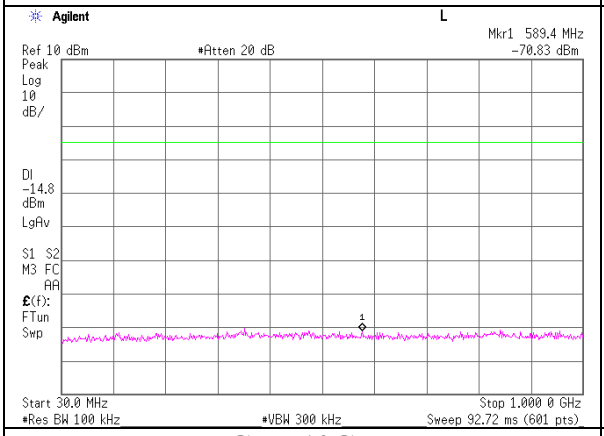


35GHz-40GHz

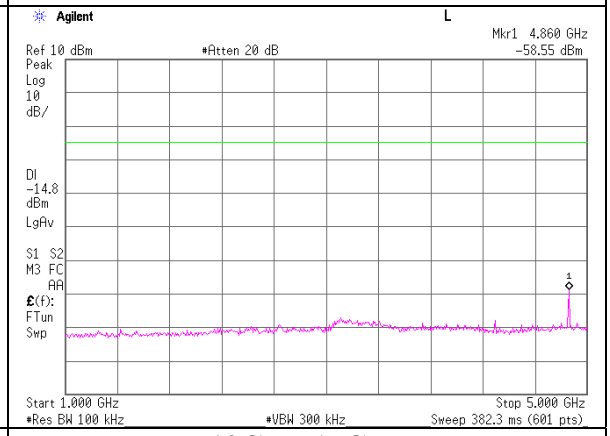


Conducted Spurious Emission
Ch:Mid

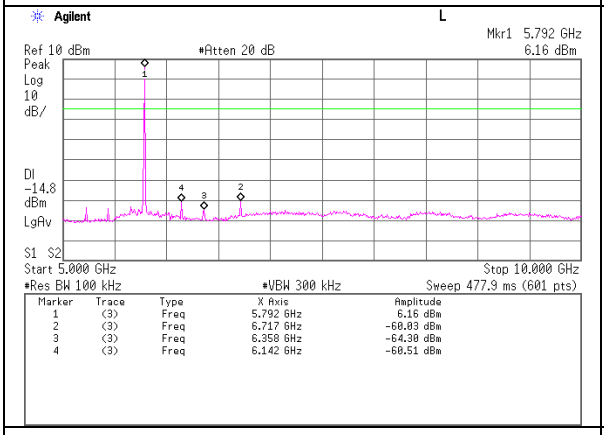
30MHz-1GHz



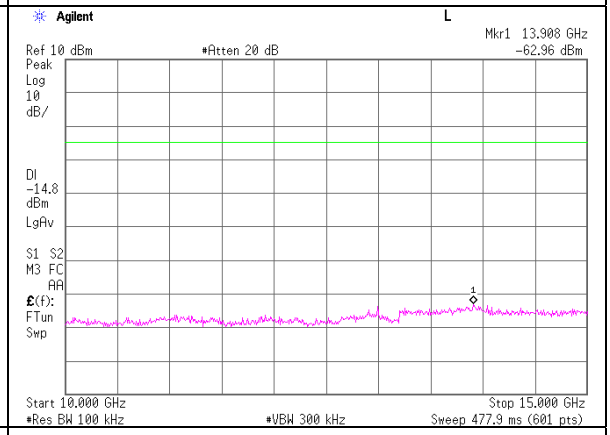
1GHz-5GHz



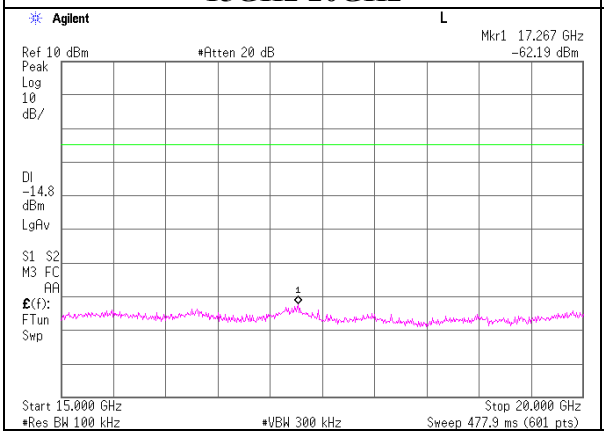
5GHz-10GHz



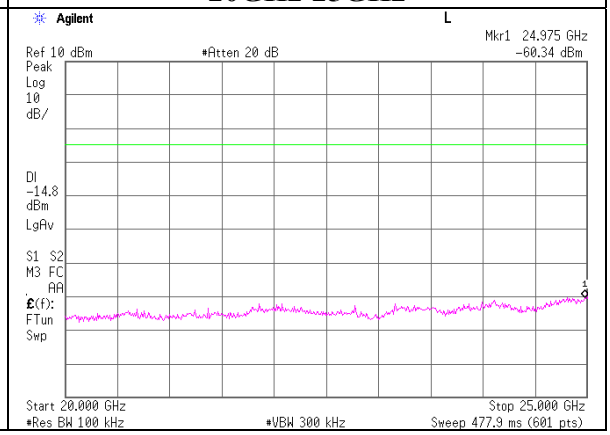
10GHz-15GHz



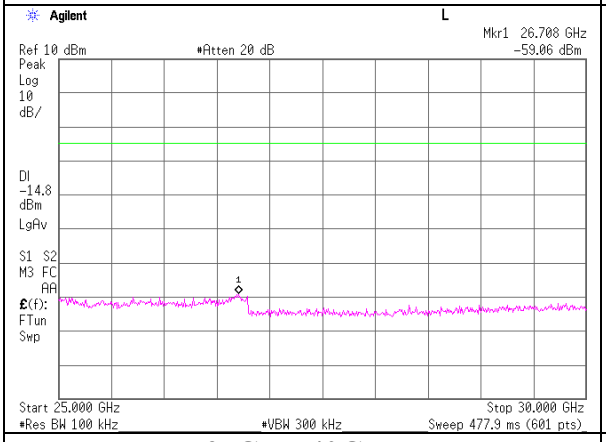
15GHz-20GHz



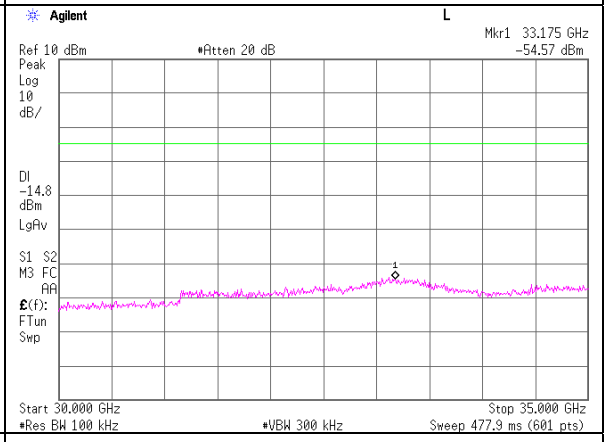
20GHz-25GHz



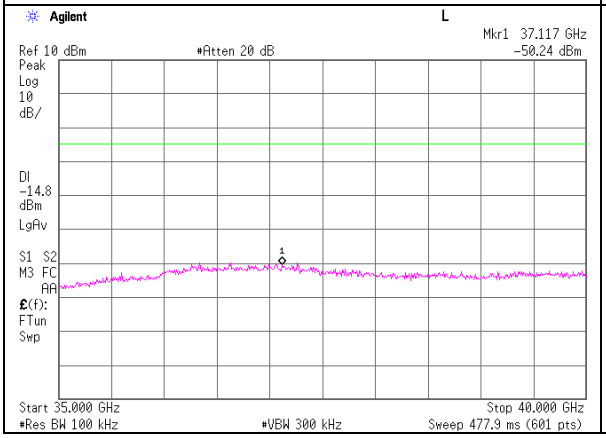
25GHz-30Hz



30GHz-35GHz

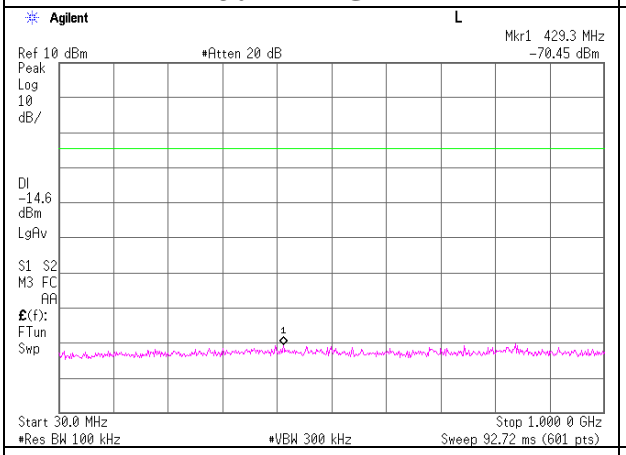


35GHz-40GHz

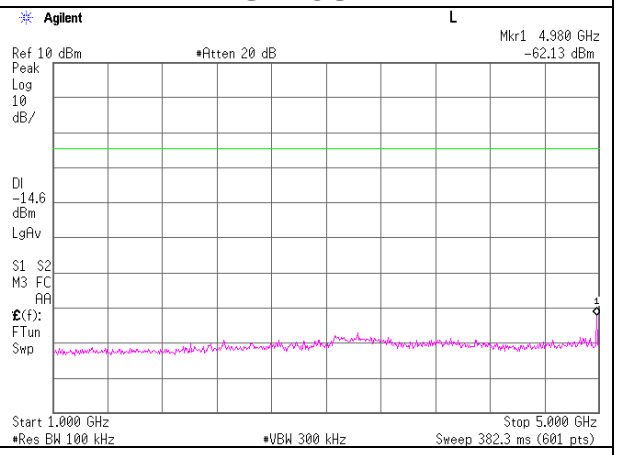


Conducted Spurious Emission
Ch:High

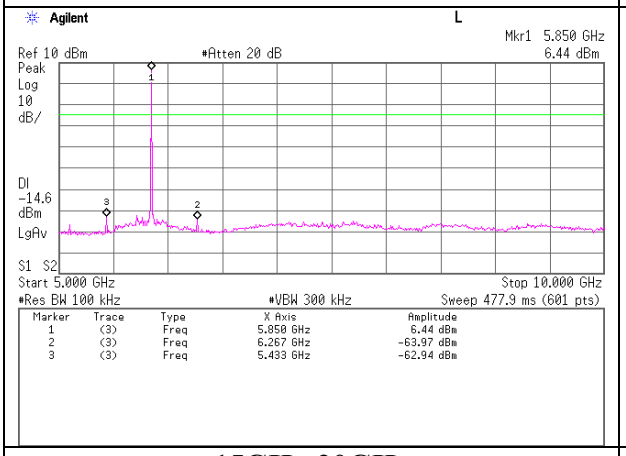
30MHz-1GHz



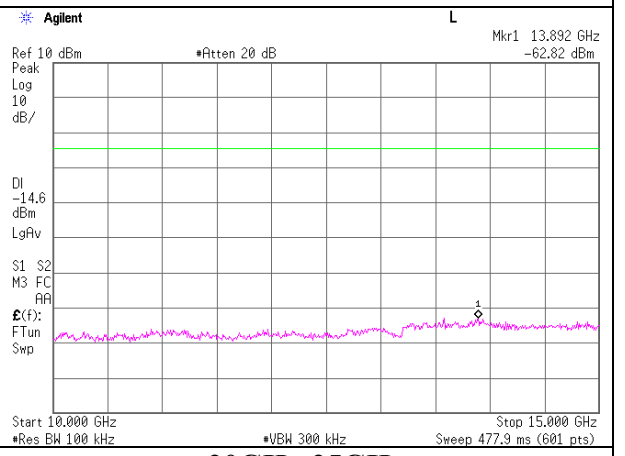
1GHz-5GHz



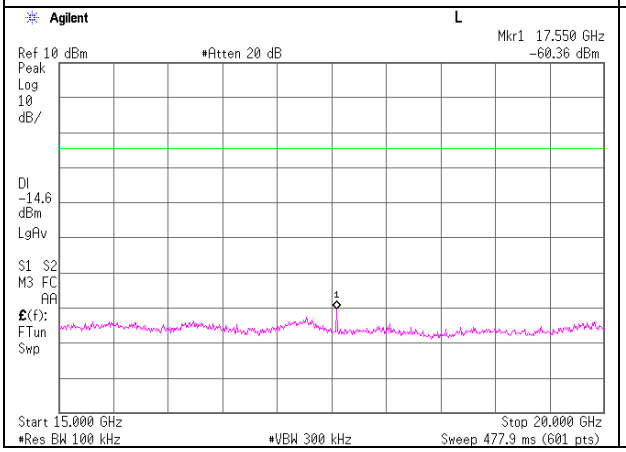
5GHz-10GHz



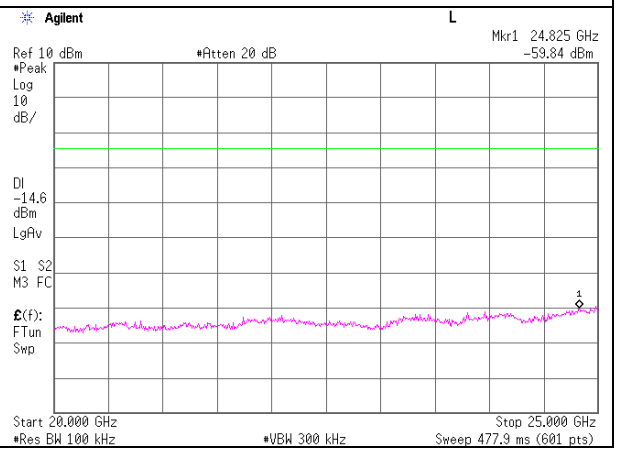
10GHz-15GHz



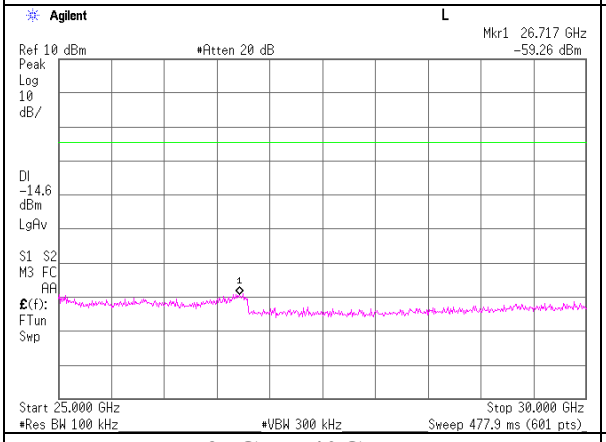
15GHz-20GHz



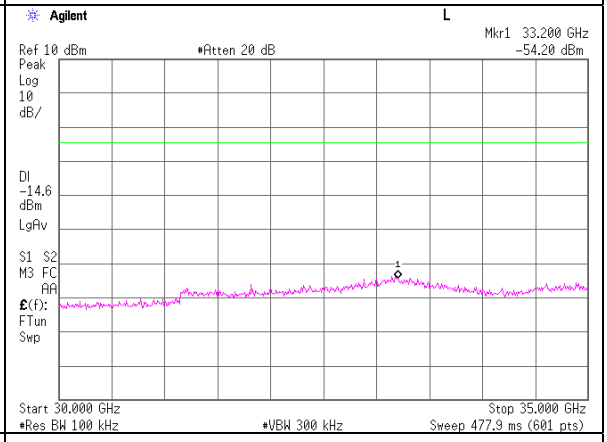
20GHz-25GHz



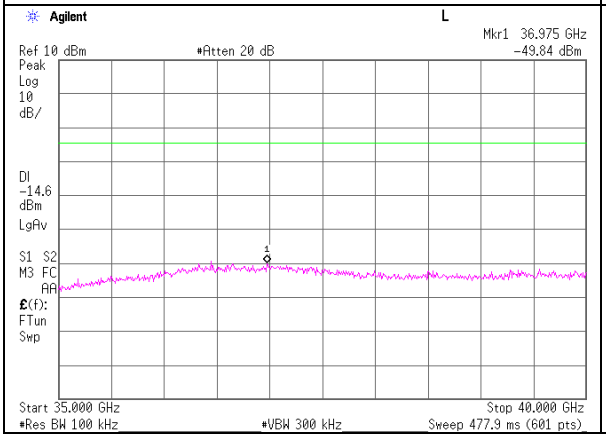
25GHz-30Hz



30GHz-35GHz

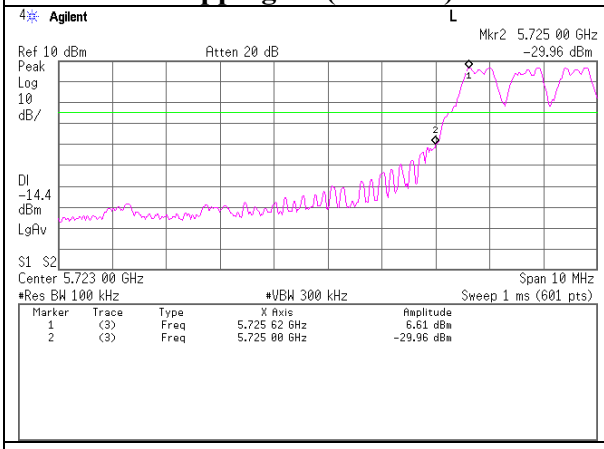


35GHz-40GHz

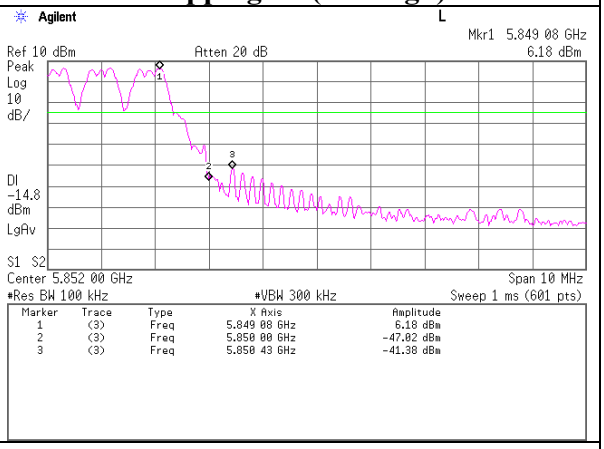


Conducted Spurious Emission
Band Edge compliance

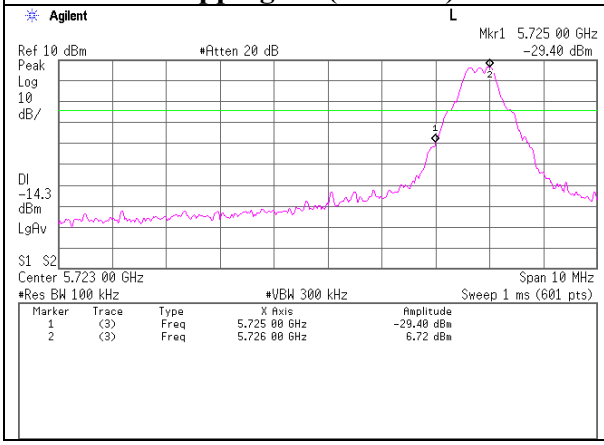
Hopping on (Ch:Low)



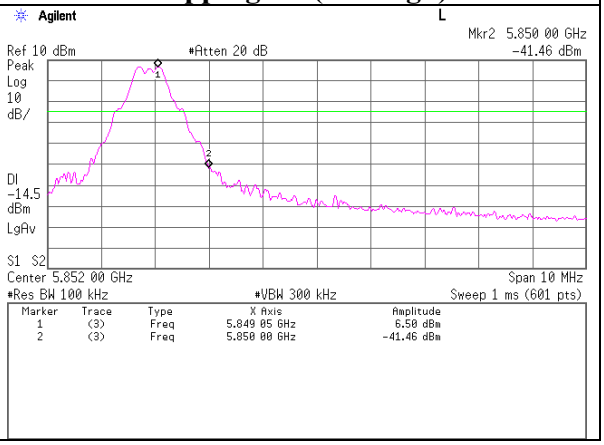
Hopping on (Ch:High)



Hopping off (Ch:Low)



Hopping off (Ch:High)



APPENDIX 3: Test Instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Test Item	Calibration Date * Interval(month)
MAEC-03	Anechoic Chamber	TDK	Semi Anechoic Chamber 3m	RE	2006/03/03 * 12
MOS-12	Thermo-Hygrometer	Custom	CTH-180	RE	2006/01/19 * 24
MSA-05	Spectrum Analyzer	Advantest	R3273	RE	2006/05/20 * 12
MCC-56	Microwave Cable	Suhner	SUCOFLEX104	RE	2006/04/15 * 12
MHF-11	High Pass Filter	TOKIMEC	TF37NCCC	RE	2006/06/21 * 12
MHA-05	Horn Antenna	Schwarzbeck	BBHA9120D	RE	2006/01/09 * 12
MPA-11	MicroWave System Amplifier	Agilent	83017A	RE	2006/03/27 * 12
MLS-03	LISN(AMN)	Schwarzbeck	NSLK8127	CE(EUT)	2006/06/01 * 12
MLS-02	LISN(AMN)	Schwarzbeck	NSLK8127	CE(AE)	2006/06/01 * 12
MTA-06	Terminator	MCL	BTRM-50	CE	2006/02/06 * 12
MCC-51	Coaxial cable	UL Apex	-	CE	2006/03/11 * 12
MSTW-14	EMI measurement program	TSJ	TEPTO-DV	RE/CE	-
MBA-03	Biconical Antenna	Schwarzbeck	BBA9106	RE	2006/01/29 * 12
MCC-51	Coaxial cable	UL Apex	-	RE	2006/03/11 * 12
MAT-30	Attenuator(6dB)	TME	UFA-01	RE	2006/03/11 * 12
MPA-13	Pre Amplifier	SONOA INSTRUMENT	310	RE	2006/03/25 * 12
MLA-03	Logperiodic Antenna	Schwarzbeck	USLP9143	RE	2006/01/29 * 12
MHA-06	Horn Antenna	Schwarzbeck	BBHA9120D	RE	2006/01/09 * 12
MHA-01	Horn Antenna	EMCO	3160-09	RE（MW)	2006/01/09 * 12
MAEC-04	Anechoic Chamber	TDK	Semi Anechoic Chamber 3m	RE	2006/03/06 * 12
MOS-15	Thermo-Hygrometer	Custom	CTH-180	RE	2006/01/19 * 24
MHA-03	Horn Antenna	EMCO	3160-10	RE(MW)	2006/01/09 * 12
MPA-03	Microwave System Power Amplifier	Agilent	83050A	RE	2006/05/16 * 12
MSA-04	Spectrum Analyzer	Agilent	E4448A	RE	2006/06/02 * 12
MCC-27	Microwave Cable 1G-40GHz	Suhner	SUCOFLEX101	RE	2005/08/30 * 12
MCC-05	Microwave Cable 1G-40GHz	Storm	421-011 (90-1394-079)	RE	2006/01/04 * 12
MSA-03	Spectrum Analyzer	Agilent	E4448A	AT	2005/09/16 * 12
MAT-23	Attenuator(10dB)(above1GHz)	Orient Microwave	BX10-0476-00	AT	2006/03/18 * 12
MCC-25	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX104	AT	2005/08/30 * 12
MOS-16	Thermo-Hygrometer	Custom	CTH-180	AT	2006/01/19 * 24
MRENT-33	Power sensor	Anritsu	MA2411B	AT	2006/04/25 * 12
MRENT-36	Power Meter	Anritsu	ML2496A	AT	2006/04/25 * 12
MAT-01	Attenuator(20dB)(above1GHz)	Agilent	8490D,020	RE	2006/01/10 * 12

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

Test Item: CE: AC Main Conducted Emission
AT: Antenna Terminal Conducted Spurious Emission, Maximum Peak Output Power, Carrier Frequency Separation, 20dB Bandwidth, Number of Hopping Frequency, Dwell time RE: Radiated Spurious Emission