APPENDIX 2: Data of EMI test

Conducted Emission

DATA OF CONDUCTED EMISSION TEST

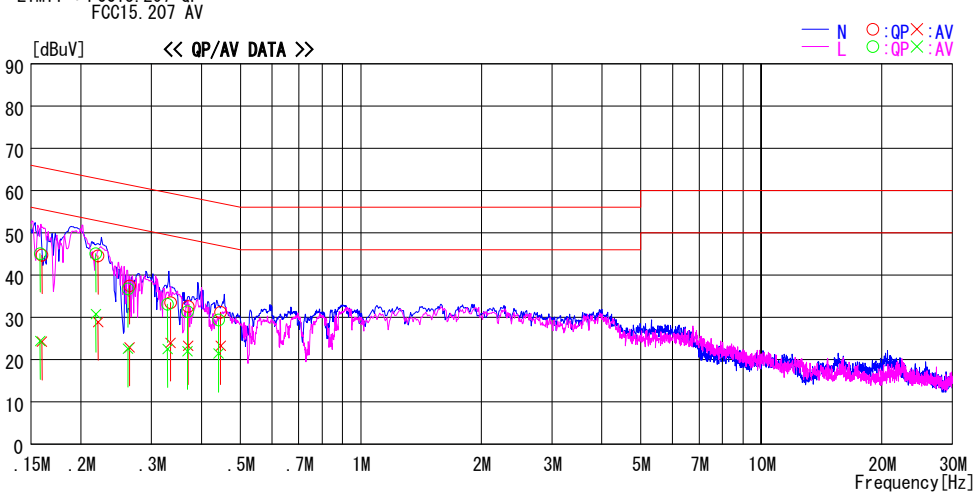
UL Japan, Inc. Head Office EMC Lab. No.4 Semi Anechoic Chamber
Date : 2010/01/19

Report No. : 30FE0066-HO-01

Temp./Humi. : 20deg.C / 31%
Engineer : Keisuke Kawamura

Mode / Remarks: Tx 11a 5500MHz

LIMIT : FCC15.207 QP
FCC15.207 AV



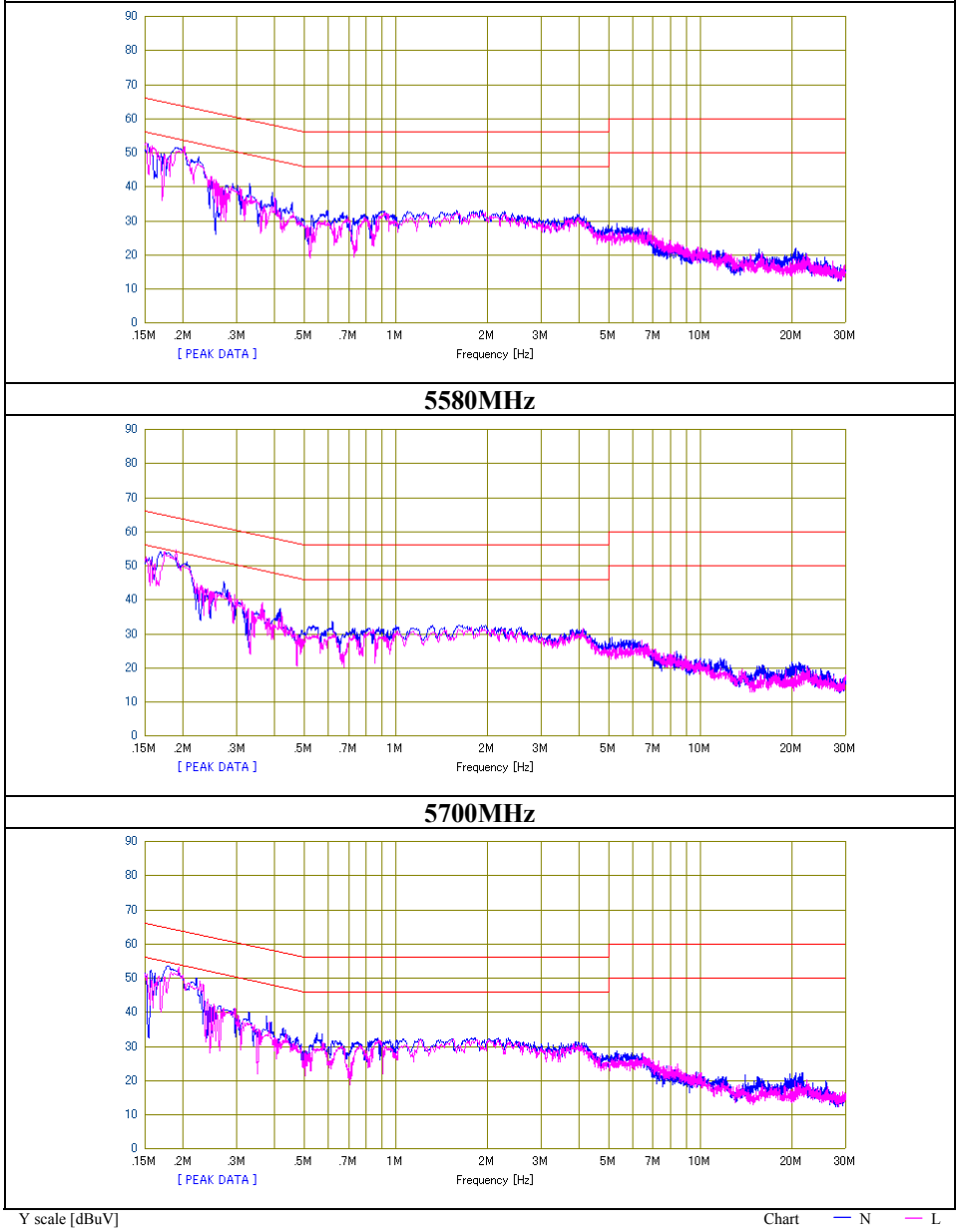
Frequency	Reading Level		Corr.	Results		Limit		Margin		Phase	Comment
	QP	AV	Factor	QP	AV	QP	AV	QP	AV		
[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
0.15983	44.4	23.9	0.3	44.7	24.2	65.5	55.5	20.8	31.3	N	
0.22064	44.3	28.6	0.3	44.6	28.9	62.8	52.8	18.2	23.9	N	
0.26462	37.2	22.6	0.3	37.5	22.9	61.3	51.3	23.8	28.4	N	
0.33452	33.2	23.7	0.3	33.5	24.0	59.3	49.3	25.8	25.3	N	
0.37042	32.3	22.9	0.3	32.6	23.2	58.5	48.5	25.9	25.3	N	
0.44645	30.9	22.9	0.3	31.2	23.2	56.9	46.9	25.7	23.7	N	
0.15813	44.8	24.1	0.3	45.1	24.4	65.6	55.6	20.5	31.2	L	
0.21783	44.8	30.5	0.3	45.1	30.8	62.9	52.9	17.8	22.1	L	
0.26224	36.4	22.3	0.3	36.7	22.6	61.4	51.4	24.7	28.8	L	
0.32927	32.8	22.2	0.3	33.1	22.5	59.5	49.5	26.4	27.0	L	
0.36923	31.1	21.7	0.3	31.4	22.0	58.5	48.5	27.1	26.5	L	
0.44164	29.1	21.1	0.3	29.4	21.4	57.0	47.0	27.6	25.6	L	

CHART:WITH FACTOR,Peak hold data. CALCULATION:RESULT[dBuV]=READING[dBuV]+C.F[dB](LISN LOSS+CABLE LOSS)
Except for the above table : adequate margin data below the limits.

Conducted Emission

Test place	Head Office EMC Lab. No.4 Semi Anechoic Chamber
Report No.	30FE0066-HO-01
Date	01/19/2010
Temperature/ Humidity	20 deg.C./ 31%
Engineer	Keisuke Kawamura
Mode	11a Tx

5500MHz



Conducted Emission

-

DATA OF CONDUCTED EMISSION TEST

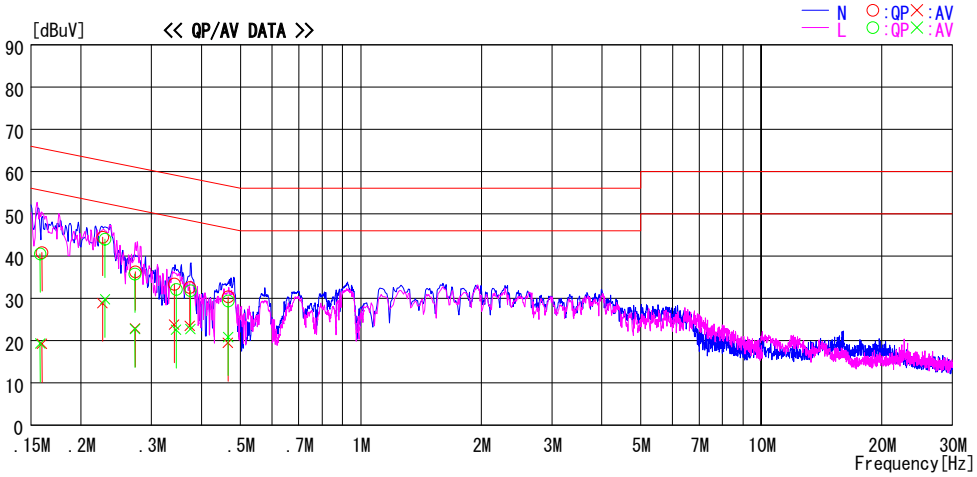
UL Japan, Inc. Head Office EMC Lab. No.4 Semi Anechoic Chamber
Date : 2010/01/19

Report No. : 30FE0066-HO-01

Temp./Humi. : 20deg.C / 31%
Engineer : Keisuke Kawamura

Mode / Remarks: Tx 11n-20 5500MHz

LIMIT : FCC15.207 QP
FCC15.207 AV



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]		
0.15983	40.5	18.9	0.3	40.8	19.2	65.5	55.5	24.7	36.3	N	
0.22642	44.2	28.6	0.3	44.5	28.9	62.6	52.6	18.1	23.7	N	
0.27322	36.0	22.6	0.3	36.3	22.9	61.0	51.0	24.7	28.1	N	
0.34202	33.1	23.5	0.3	33.4	23.8	59.2	49.2	25.8	25.4	N	
0.37402	32.3	23.2	0.3	32.6	23.5	58.4	48.4	25.8	24.9	N	
0.46584	30.1	19.2	0.3	30.4	19.5	56.6	46.6	26.2	27.1	N	
0.15813	40.3	19.0	0.3	40.6	19.3	65.6	55.6	25.0	36.3	L	
0.22973	43.7	29.5	0.3	44.0	29.8	62.5	52.5	18.5	22.7	L	
0.27285	35.4	22.4	0.3	35.7	22.7	61.0	51.0	25.3	28.3	L	
0.34587	31.8	22.3	0.3	32.1	22.6	59.1	49.1	27.0	26.5	L	
0.37547	31.5	22.4	0.3	31.8	22.7	58.4	48.4	26.6	25.7	L	
0.46624	29.1	20.5	0.3	29.4	20.8	56.6	46.6	27.2	25.8	L	

CHART:WITH FACTOR,Peak hold data. CALCULATION:RESULT[dBuV]=READING[dBuV]+C.F[dB](LISN LOSS+CABLE LOSS)
Except for the above table : adequate margin data below the limits.

Conducted Emission

DATA OF CONDUCTED EMISSION TEST

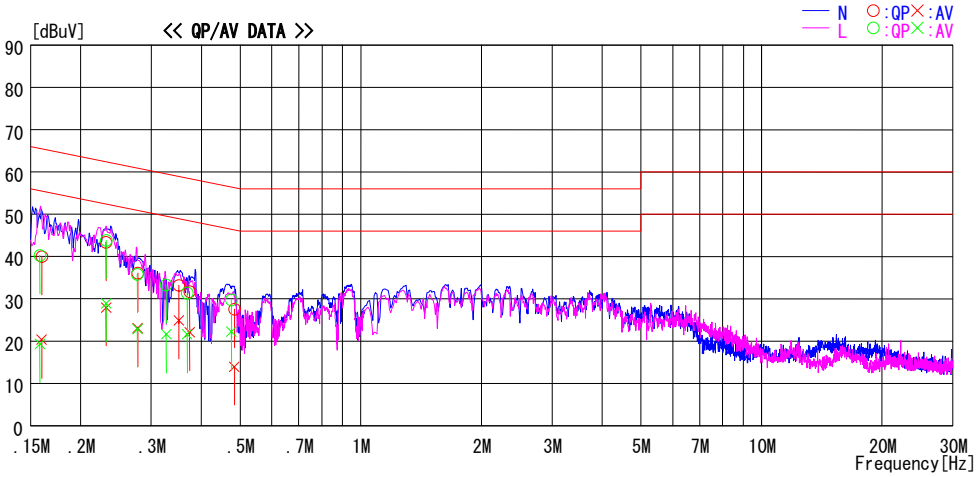
UL Japan, Inc. Head Office EMC Lab. No.4 Semi Anechoic Chamber
Date : 2010/01/19

Report No. : 30FE0066-HO-01

Temp./Humi. : 20deg.C / 31%
Engineer : Keisuke Kawamura

Mode / Remarks: Tx 11n-40 5510MHz

LIMIT : FCC15.207 QP
FCC15.207 AV



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]		
0.15983	39.7	20.0	0.3	40.0	20.3	65.5	55.5	25.5	35.2	N	
0.23122	43.1	27.7	0.3	43.4	28.0	62.4	52.4	19.0	24.4	N	
0.27742	35.8	22.8	0.3	36.1	23.1	60.9	50.9	24.8	27.8	N	
0.35182	32.9	24.6	0.3	33.2	24.9	58.9	48.9	25.7	24.0	N	
0.37402	31.4	21.8	0.3	31.7	22.1	58.4	48.4	26.7	26.3	N	
0.48384	27.3	13.7	0.3	27.6	14.0	56.3	46.3	28.7	32.3	N	
0.15813	40.0	19.0	0.3	40.3	19.3	65.6	55.6	25.3	36.3	L	
0.23153	43.5	28.6	0.3	43.8	28.9	62.4	52.4	18.6	23.5	L	
0.27715	35.5	22.6	0.3	35.8	22.9	60.9	50.9	25.1	28.0	L	
0.32707	33.0	21.3	0.3	33.3	21.6	59.5	49.5	26.2	27.9	L	
0.36887	31.1	21.3	0.3	31.4	21.6	58.5	48.5	27.1	26.9	L	
0.47504	29.4	21.9	0.3	29.7	22.2	56.4	46.4	26.7	24.2	L	

CHART:WITH FACTOR,Peak hold data. CALCULATION:RESULT[dBuV]=READING[dBuV]+C.F[dB](LISN LOSS+CABLE LOSS)
Except for the above table : adequate margin data below the limits.

Conducted Emission

DATA OF CONDUCTED EMISSION TEST

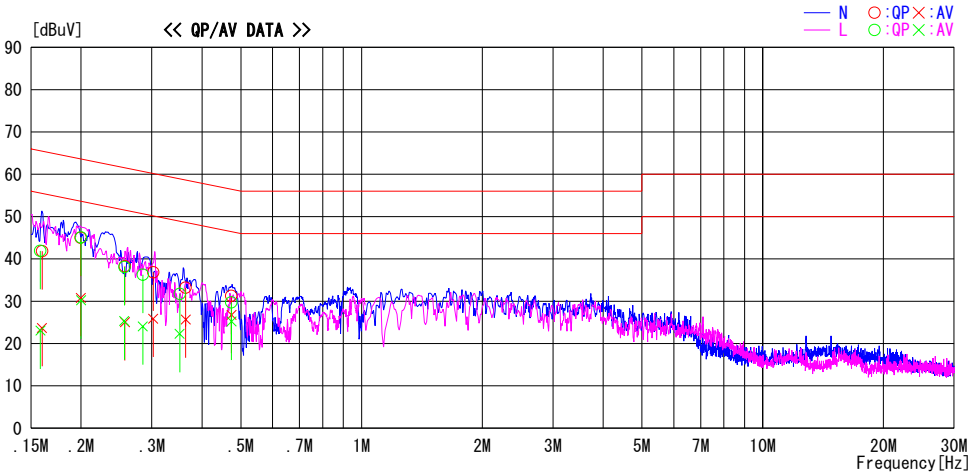
UL Japan, Inc. Head Office EMC Lab. No.4 Semi Anechoic Chamber
Date : 2010/01/19

Report No. : 30FE0066-HO-01

Temp./Humi. : 20deg.C / 31%
Engineer : Keisuke Kawamura

Mode / Remarks : Rx 11a 5580MHz

LIMIT : FCC15.207 QP
FCC15.207 AV



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]		
0.15983	41.5	23.4	0.3	41.8	23.7	65.5	55.5	23.7	31.8	N	
0.19952	44.7	30.5	0.3	45.0	30.8	63.6	53.6	18.6	22.8	N	
0.25702	38.0	24.8	0.3	38.3	25.1	61.5	51.5	23.2	26.4	N	
0.30222	36.5	25.6	0.3	36.8	25.9	60.2	50.2	23.4	24.3	N	
0.36422	32.9	25.4	0.3	33.2	25.7	58.6	48.6	25.4	22.9	N	
0.47384	31.0	26.5	0.3	31.3	26.8	56.4	46.4	25.1	19.6	N	
0.15813	41.6	22.8	0.3	41.9	23.1	65.6	55.6	23.7	32.5	L	
0.19983	44.8	29.9	0.3	45.1	30.2	63.6	53.6	18.5	23.4	L	
0.25613	37.8	25.0	0.3	38.1	25.3	61.6	51.6	23.5	26.3	L	
0.28487	36.0	23.8	0.3	36.3	24.1	60.7	50.7	24.4	26.6	L	
0.35187	31.4	22.0	0.3	31.7	22.3	58.9	48.9	27.2	26.6	L	
0.47384	29.4	24.9	0.3	29.7	25.2	56.4	46.4	26.7	21.2	L	

CHART:WITH FACTOR,Peak hold data. CALCULATION:RESULT[dBuV]=READING[dBuV]+C.F[dB](LISN LOSS+CABLE LOSS)
Except for the above table : adequate margin data below the limits.

Conducted Emission

DATA OF CONDUCTED EMISSION TEST

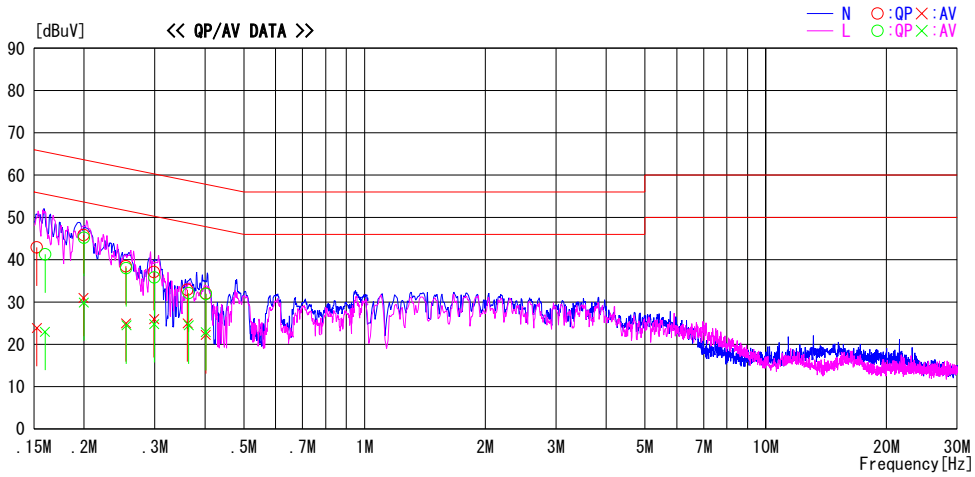
UL Japan, Inc. Head Office EMC Lab. No.4 Semi Anechoic Chamber
Date : 2010/01/19

Report No. : 30FE0066-HO-01

Temp./Humi. : 20deg.C / 31%
Engineer : Keisuke Kawamura

Mode / Remarks : Rx 11n 5580MHz

LIMIT : FCC15.207 QP
FCC15.207 AV



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]		
0.15245	42.6	23.6	0.3	42.9	23.9	65.9	55.9	23.0	32.0	N	
0.19924	45.5	30.7	0.3	45.8	31.0	63.6	53.6	17.8	22.6	N	
0.25413	38.2	24.7	0.3	38.5	25.0	61.6	51.6	23.1	26.6	N	
0.29863	36.8	25.7	0.3	37.1	26.0	60.3	50.3	23.2	24.3	N	
0.36174	32.6	24.7	0.3	32.9	25.0	58.7	48.7	25.8	23.7	N	
0.40178	31.7	21.9	0.3	32.0	22.2	57.8	47.8	25.8	25.6	N	
0.15983	41.0	22.7	0.3	41.3	23.0	65.5	55.5	24.2	32.5	L	
0.19956	44.9	29.6	0.3	45.2	29.9	63.6	53.6	18.4	23.7	L	
0.25493	37.7	24.2	0.3	38.0	24.5	61.6	51.6	23.6	27.1	L	
0.29898	35.5	24.5	0.3	35.8	24.8	60.3	50.3	24.5	25.5	L	
0.36413	31.8	24.2	0.3	32.1	24.5	58.6	48.6	26.5	24.1	L	
0.40175	31.6	22.6	0.3	31.9	22.9	57.8	47.8	25.9	24.9	L	

CHART:WITH FACTOR,Peak hold data. CALCULATION:RESULT[dBuV]=READING[dBuV]+C.F[dB](LISN LOSS+CABLE LOSS)
Except for the above table : adequate margin data below the limits.

26dB Emission Bandwidth and 99% Occupied Bandwidth

Test place	Head Office EMC Lab. No.7 Measurement Room
Report No.	30FE0066-HO-01
Date	01/19/2010
Temperature/ Humidity	24deg.C. / 26%
Engineer	Takayuki Shimada
Mode	11a/11n-20/11n-40 Tx

11a Antenna 0

Frequency [MHz]	26dB Emission Bandwidth [MHz]	99% Occupied Bandwidth [MHz]	Limit [MHz]
5500	19.539	17.4523	-
5580	19.490	17.4631	-
5700	19.561	17.4167	-

11n-20 Antenna 0

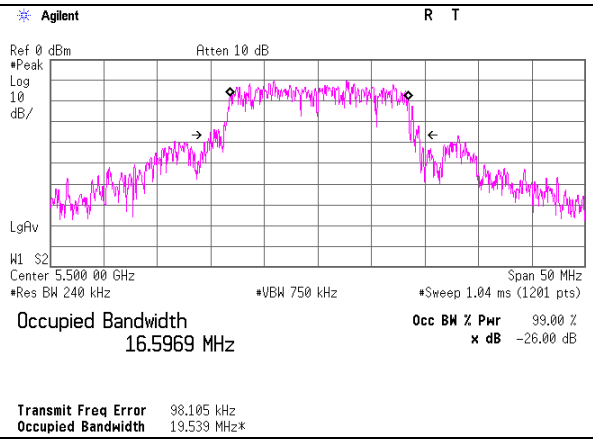
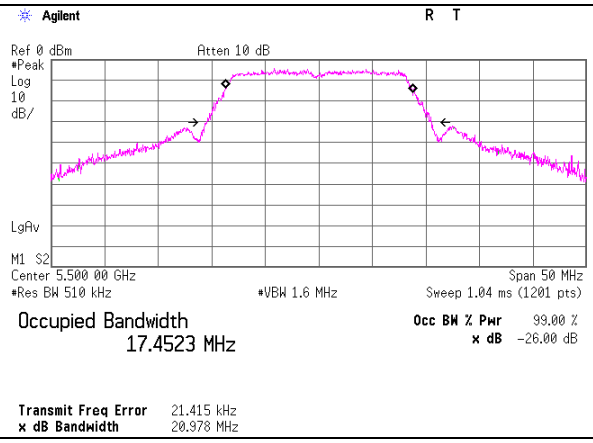
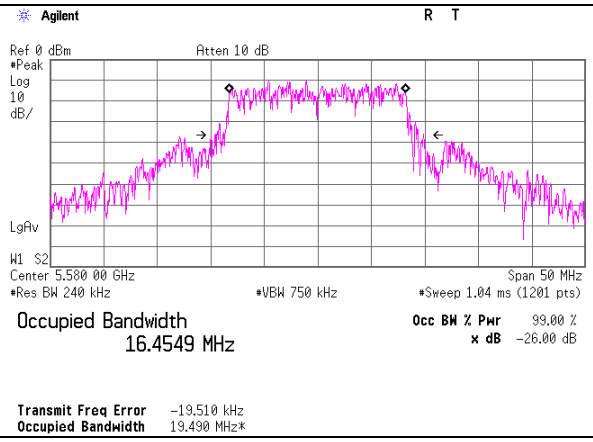
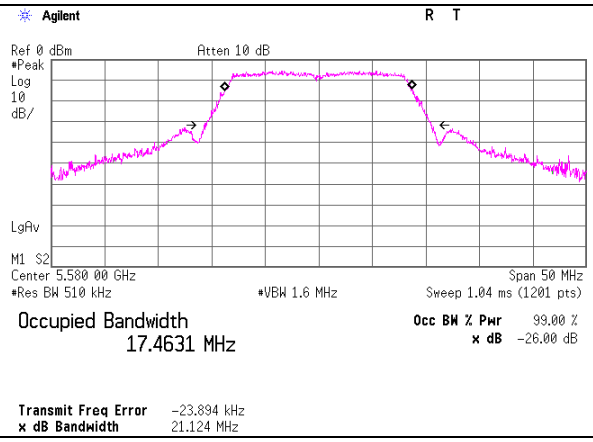
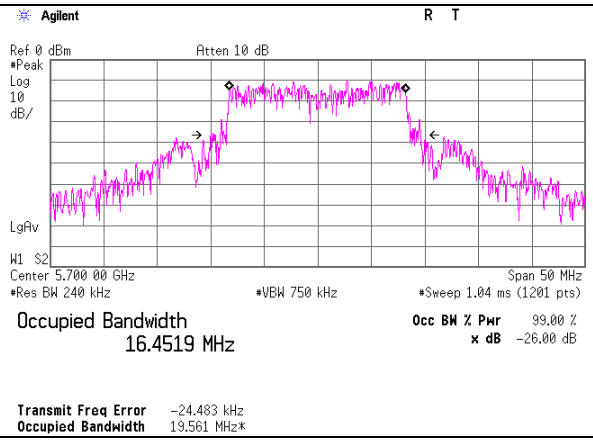
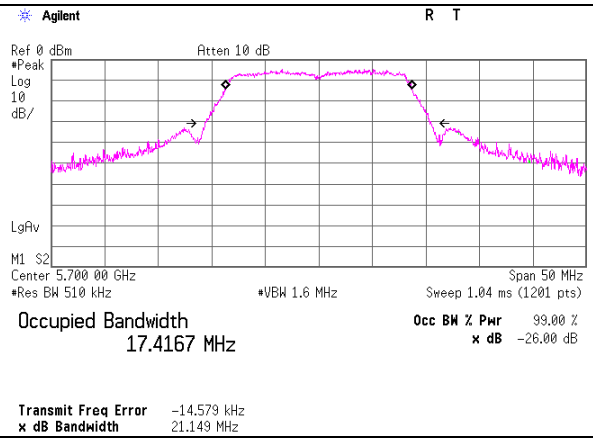
Frequency [MHz]	26dB Emission Bandwidth [MHz]	99% Occupied Bandwidth [MHz]	Limit [MHz]
5500	19.741	18.1187	-
5580	19.713	18.1165	-
5700	19.729	18.1248	-

11n-40 Antenna 0

Frequency [MHz]	26dB Emission Bandwidth [MHz]	99% Occupied Bandwidth [MHz]	Limit [MHz]
5510	39.071	36.3757	-
5550	39.102	36.3745	-
5670	39.502	36.3923	-

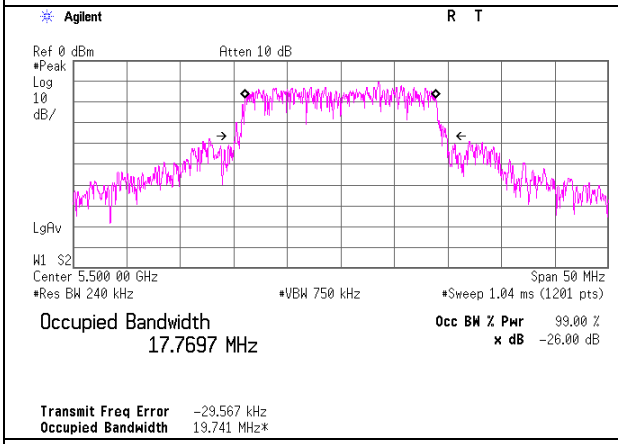
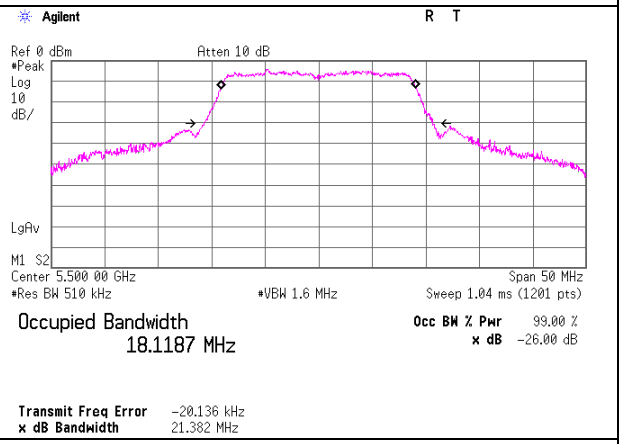
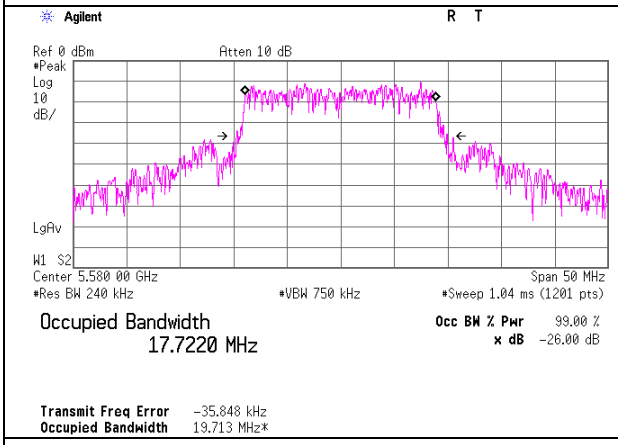
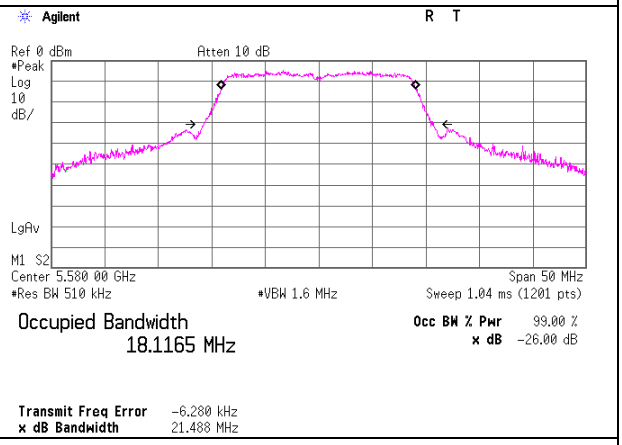
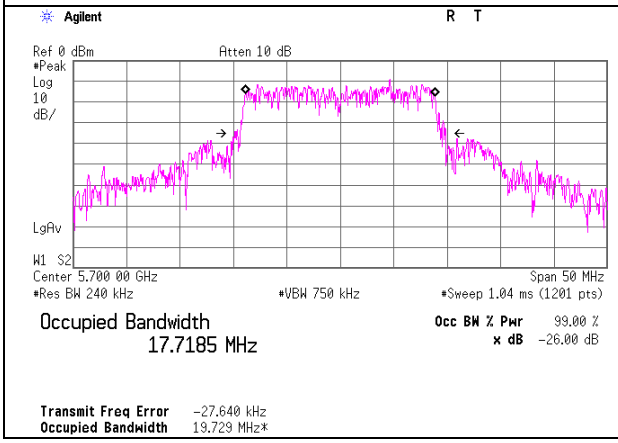
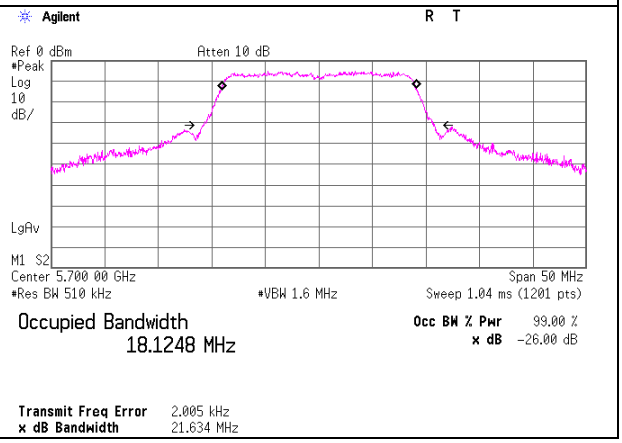
26dB Emission Bandwidth and 99% Occupied Bandwidth

11a Antenna 0

26dB Emission Bandwidth	99% Occupied Bandwidth
5500MHz	5500MHz
	
5580MHz	5580MHz
	
5700MHz	5700MHz
	

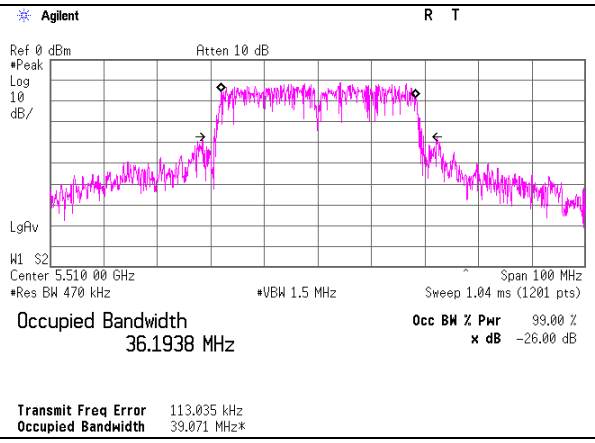
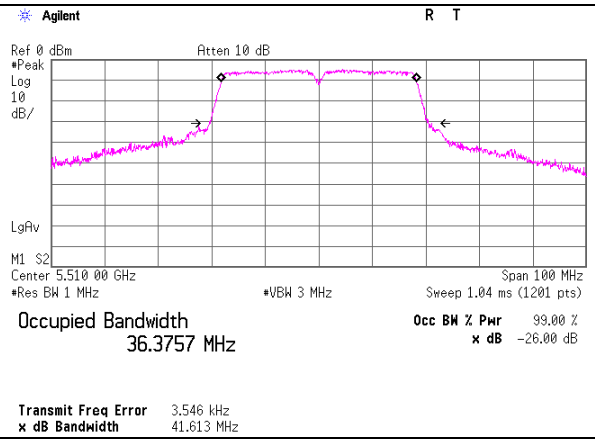
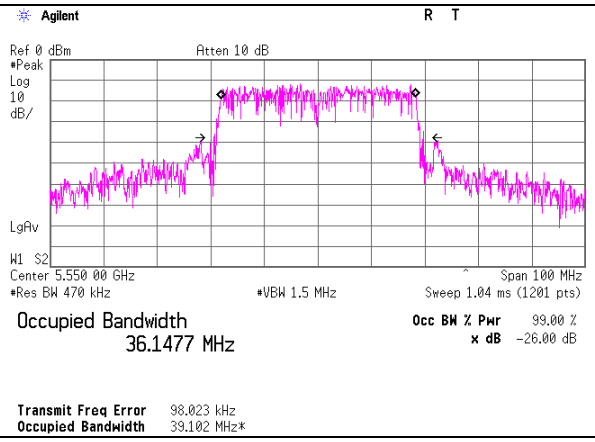
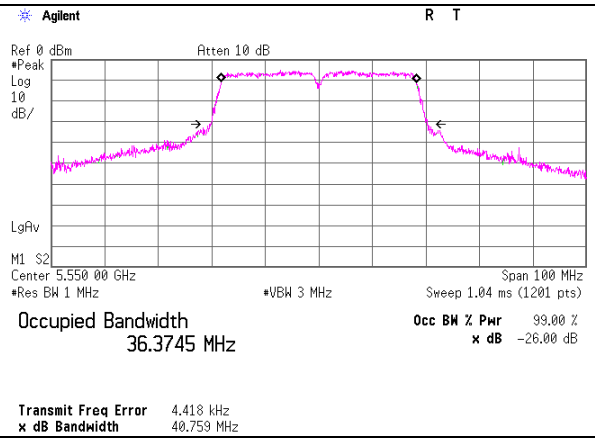
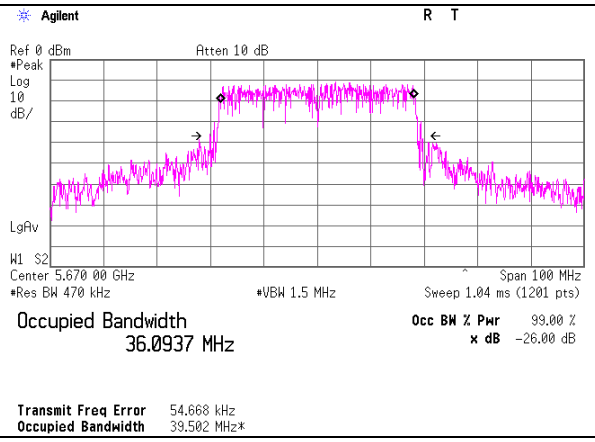
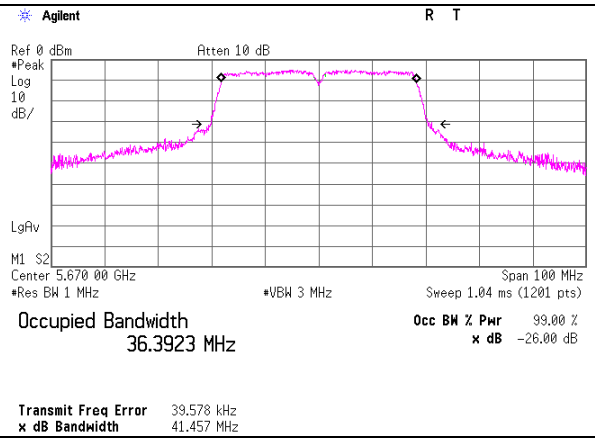
26dB Emission Bandwidth and 99% Occupied Bandwidth

11n-20 Antenna 0

26dB Emission Bandwidth	99% Occupied Bandwidth
5500MHz	5500MHz
	
5580MHz	5580MHz
	
5700MHz	5700MHz
	

26dB Emission Bandwidth and 99% Occupied Bandwidth

11n-40 Antenna 0

26dB Emission Bandwidth	99% Occupied Bandwidth
5510MHz	**5510MHz**
	
5550MHz	**5550MHz**
	
5670MHz	**5670MHz**
	

20dB Bandwidth

Test place	Head Office EMC Lab. No.7 Measurement Room
Report No.	30FE0066-HO-01
Date	01/19/2010
Temperature/ Humidity	24deg.C. / 26%
Engineer	Takayuki Shimada
Mode	11a/11n-20/11n-40 Tx

11a Antenna 0

Frequency [MHz]	20dB Bandwidth [MHz]	Limit [MHz]
5580	18.281	-
5660	18.155	-

11n-20 Antenna 0

Frequency [MHz]	20dB Bandwidth [MHz]	Limit [MHz]
5580	18.824	-
5660	18.711	-

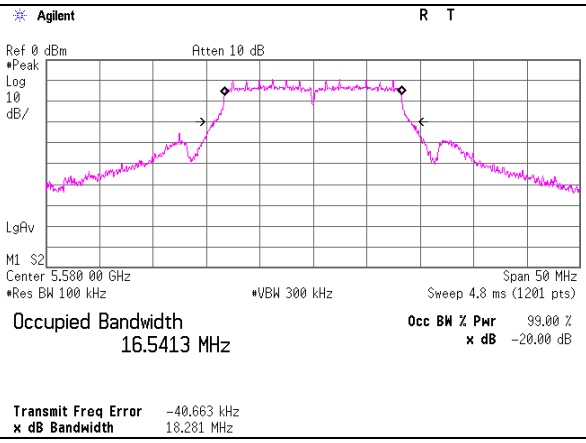
11n-40 Antenna 0

Frequency [MHz]	20dB Bandwidth [MHz]	Limit [MHz]
5550	37.234	-
5670	37.210	-

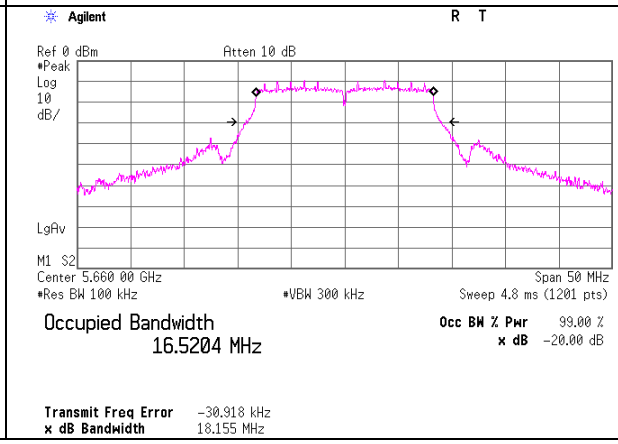
20dB Bandwidth

11a Antenna 0

5580MHz

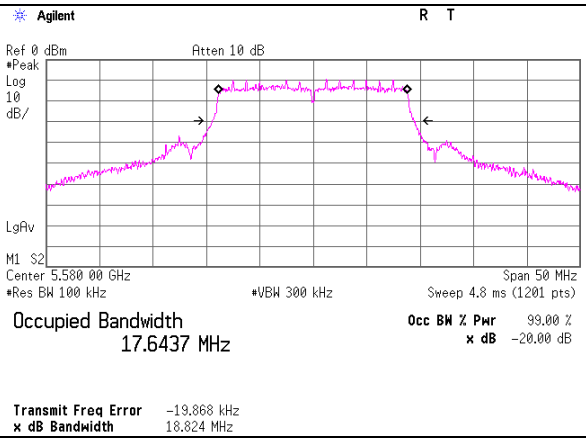


5660MHz

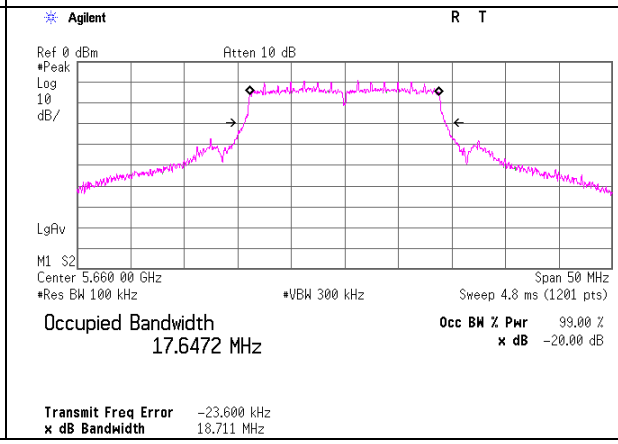


11n-20 Antenna 0

5580MHz

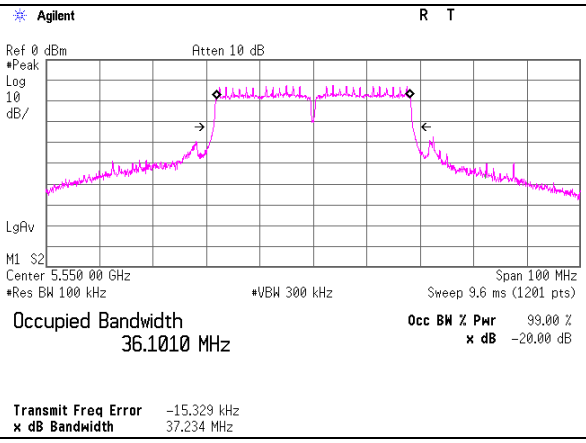


5660MHz

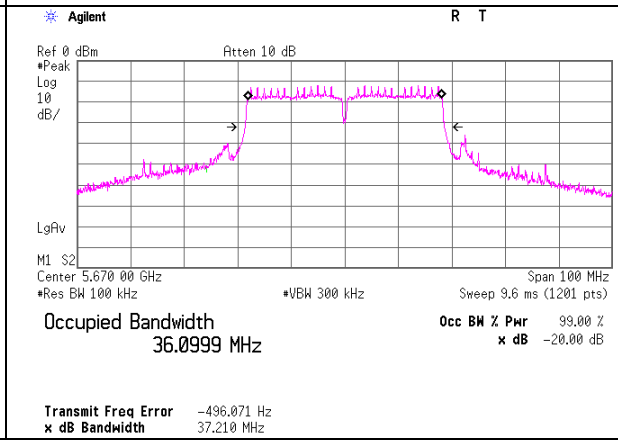


11n-40 Antenna 0

5550MHz



5670MHz



Maximum Peak Output Power

Test place	Head Office EMC Lab. No.11 Measurement Room
Report No.	30FE0066-HO-01
Date	01/17/2010
Temperature/ Humidity	23deg.C. / 25%
Engineer	Takayuki Shimada
Mode	11a/11n-20/11n-40 Tx

11a Antenna 0

Freq. [MHz]	S/A Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	Result (Cond.) [dBm]	Result (e.i.r.p.) [dBm]	Limit (Cond.) [dBm]	Limit (e.i.r.p.) [dBm]	Margin (Cond.) [dB]	Margin (e.i.r.p.) [dB]
5500.0	1.78	1.00	10.06	1.40	12.84	14.24	23.91	-	11.07	-
5580.0	1.49	1.00	10.06	1.40	12.55	13.95	23.89	-	11.34	-
5700.0	1.72	1.00	10.05	1.30	12.77	14.07	23.90	-	11.13	-

11n-20 Antenna 0

Freq. [MHz]	S/A Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	Result (Cond.) [dBm]	Result (e.i.r.p.) [dBm]	Limit (Cond.) [dBm]	Limit (e.i.r.p.) [dBm]	Margin (Cond.) [dB]	Margin (e.i.r.p.) [dB]
5500.0	2.03	1.00	10.06	1.40	13.09	14.49	23.95	-	10.86	-
5580.0	1.56	1.00	10.06	1.40	12.62	14.02	23.94	-	11.32	-
5700.0	1.97	1.00	10.05	1.30	13.02	14.32	23.95	-	10.93	-

11n-40 Antenna 0

Freq. [MHz]	S/A Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	Result (Cond.) [dBm]	Result (e.i.r.p.) [dBm]	Limit (Cond.) [dBm]	Limit (e.i.r.p.) [dBm]	Margin (Cond.) [dB]	Margin (e.i.r.p.) [dB]
5510.0	1.14	1.00	10.06	1.40	12.20	13.60	23.97	-	11.77	-
5550.0	0.82	1.00	10.06	1.40	11.88	13.28	23.97	-	12.09	-
5670.0	1.00	1.00	10.05	1.30	12.05	13.35	23.97	-	11.92	-

Result(Cond.) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten.Loss
Result(e.i.r.p.) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten.Loss + Antenna
15.407(a)(1) Limit(Cond.) = 16.98dBm(50mW) or 4 + 10log(26dB BW) dBm
15.407(a)(2) Limit(Cond.) = 23.97dBm(250mW) or 11 + 10log(26dB BW) dBm

Peak Power Spectral Density

Test place	Head Office EMC Lab. No.11 Measurement Room
Report No.	30FE0066-HO-01
Date	01/17/2010
Temperature/ Humidity	23deg.C. / 25%
Engineer	Takayuki Shimada
Mode	11a/11n-20/11n-40 Tx

11a Antenna 0

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	ENBW [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
5500.0	-8.64	1.00	10.06	0.20	2.22	11.00	8.78
5580.0	-9.08	1.00	10.06	0.20	1.78	11.00	9.22
5700.0	-8.58	1.00	10.05	0.20	2.27	11.00	8.73

11n-20 Antenna 0

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	ENBW [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
5500.0	-7.64	1.00	10.06	0.20	3.22	11.00	7.78
5580.0	-7.72	1.00	10.06	0.20	3.14	11.00	7.86
5700.0	-7.51	1.00	10.05	0.20	3.34	11.00	7.66

11n-40 Antenna 0

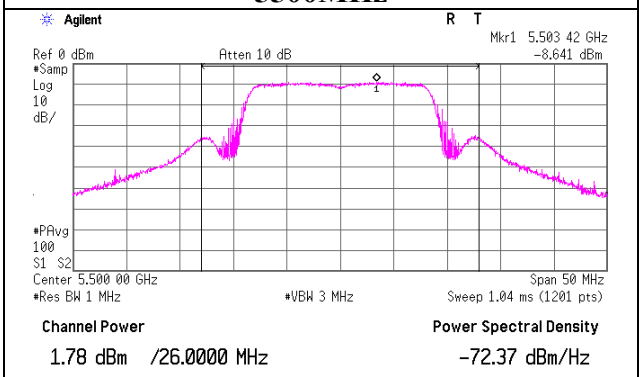
Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	ENBW [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
5510.0	-12.86	1.00	10.06	0.20	-2.00	11.00	13.00
5550.0	-13.11	1.00	10.06	0.20	-2.25	11.00	13.25
5670.0	-12.90	1.00	10.05	0.20	-2.05	11.00	13.05

Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator - ENBW
*ENBW: Equivalent Noise Band Width

Maximum Peak Output Power & Peak Power Spectral Density

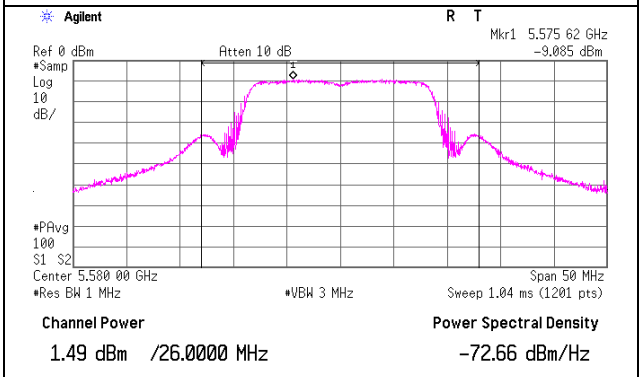
11a Antenna 0

5500MHz



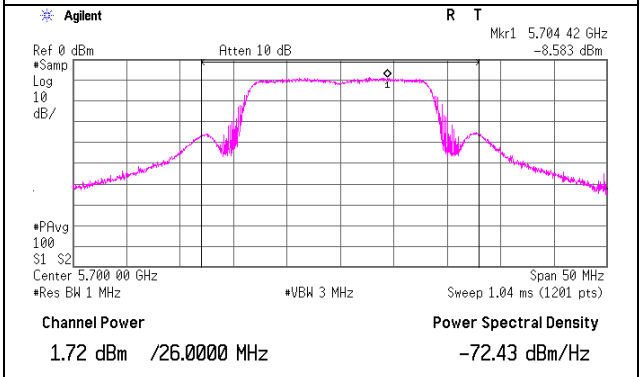
Channel Power	Power Spectral Density
1.78 dBm /26.0000 MHz	-72.37 dBm/Hz

5580MHz



Channel Power	Power Spectral Density
1.49 dBm /26.0000 MHz	-72.66 dBm/Hz

5700MHz

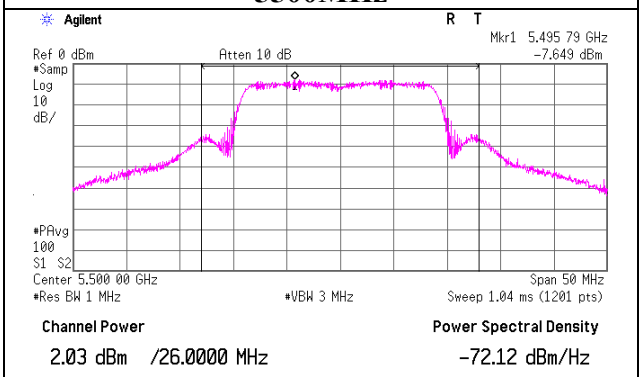


Channel Power	Power Spectral Density
1.72 dBm /26.0000 MHz	-72.43 dBm/Hz

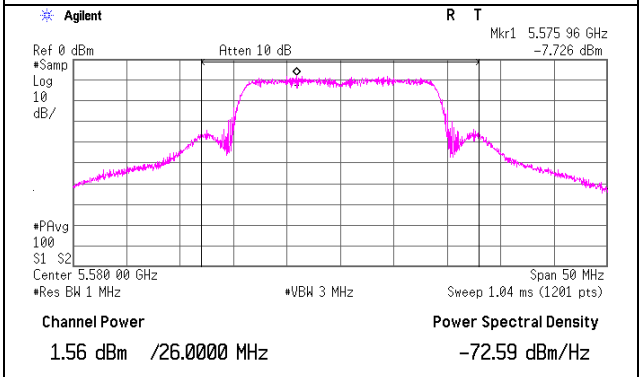
Maximum Peak Output Power & Peak Power Spectral Density

11n-20 Antenna 0

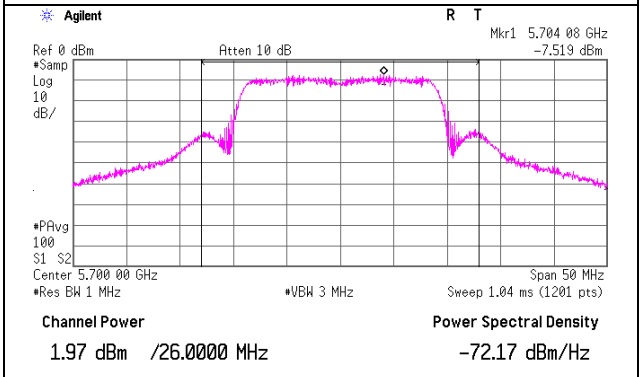
5500MHz



5580MHz



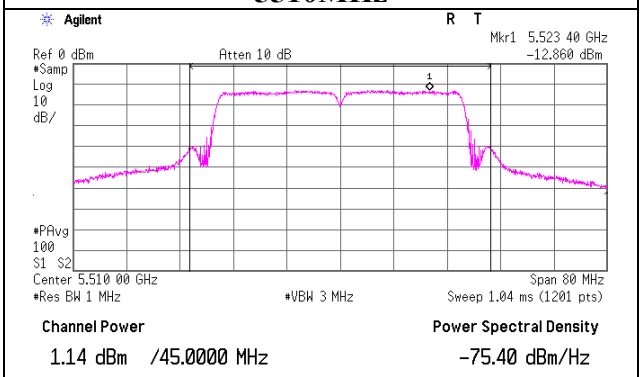
5700MHz



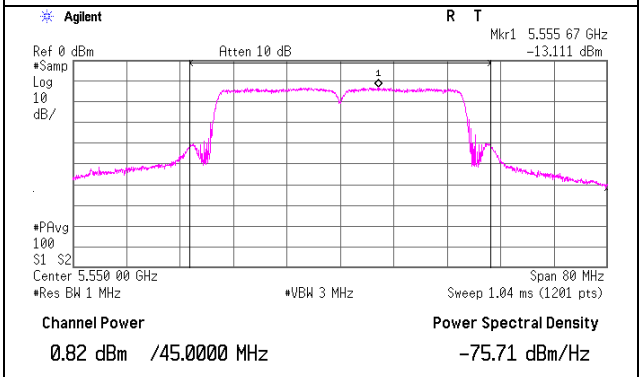
Maximum Peak Output Power & Peak Power Spectral Density

11n-40 Antenna 0

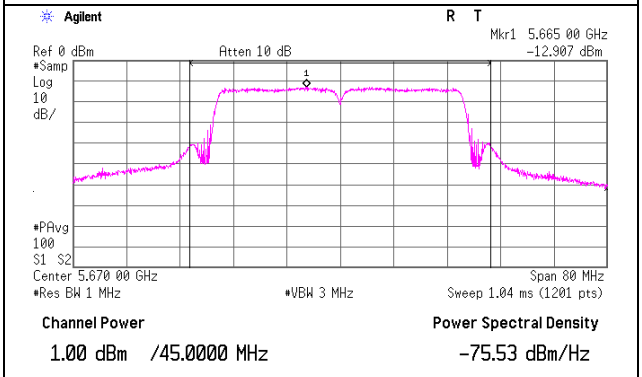
5510MHz



5550MHz



5670MHz



Maximum Peak Output Power & Peak Power Spectral Density
(Reference data)

Test place	Head Office EMC Lab. No.11 Measurement Room
Report No.	30FE0066-HO-01
Date	01/17/2010
Temperature/ Humidity	23deg.C. / 25%
Engineer	Takayuki Shimada
Mode	11a Tx

Antenna 0, 5500MHz

Data Rate [Mbps]	Reading [dBm]	Remark
6	1.78	*
9	1.69	
12	1.74	
18	1.64	
24	1.67	
36	1.68	
48	1.60	
54	1.64	

Antenna 1, 5500MHz

Data Rate [Mbps]	Reading [dBm]	Remark
6	1.70	

* Worst Rate
All comparizon were carried out on same frequency and measurement factors.

Maximum Peak Output Power & Peak Power Spectral Density
(Reference data)

Test place	Head Office EMC Lab. No.11 Measurement Room
Report No.	30FE0066-HO-01
Date	01/17/2010
Temperature/ Humidity	23deg.C. / 25%
Engineer	Takayuki Shimada
Mode	11n-20 Tx

Antenna 0, 5500MHz

MCS Number	Reading [dBm]	Remark
0	2.03	*
1	1.90	
2	1.95	
3	1.94	
4	2.01	
5	1.87	
6	1.91	
7	1.97	

Antenna 1, 5500MHz

MCS Number	Reading [dBm]	Remark
0	1.97	

* Worst MCS
All comparizon were carried out on same frequency and measurement factors.

Maximum Peak Output Power & Peak Power Spectral Density
(Reference data)

Test place	Head Office EMC Lab. No.11 Measurement Room
Report No.	30FE0066-HO-01
Date	01/17/2010
Temperature/ Humidity	23deg.C. / 25%
Engineer	Takayuki Shimada
Mode	11n-40 Tx

Antenna 0, 5510MHz

MCS Number	Reading [dBm]	Remark
0	1.14	*
1	1.07	
2	1.10	
3	1.06	
4	1.08	
5	0.96	
6	0.96	
7	0.87	

Antenna 1, 5510MHz

MCS Number	Reading [dBm]	Remark
0	1.12	

* Worst MCS
All comparizon were carried out on same frequency and measurement factors.

Maximum Peak Output Power
(Reference data for SAR testing)

Test place	Head Office EMC Lab. No.4 measurement room
Report No.	30FE0066-HO-01
Date	01/18/2010
Temperature/ Humidity	23deg.C. / 30%
Engineer	Takayuki Shimada
Mode	11a Tx
Note	Sample serial No.: 244 (SAR testing sample)

IEEE802.11a5500-5700band 6Mbps [Ant.0]

Ch	Frequency [MHz]	P/M Reading AVG	Cable Loss [dB]	Atten. [dB]	Result [dBm] AVG	Result [mW] AVG
100	5500	1.17	1.00	10.15	12.32	17.06
104	5520	1.32	1.00	10.15	12.47	17.66
108	5540	1.26	1.00	10.15	12.41	17.42
112	5560	1.25	1.00	10.15	12.40	17.38
116	5580	1.26	1.00	10.15	12.41	17.42
120	5600	1.42	1.00	10.15	12.57	18.07
124	5620	1.39	1.00	10.15	12.54	17.95
128	5640	1.32	1.00	10.15	12.47	17.66
132	5660	1.53	1.00	10.15	12.68	18.54
136	5680	1.63	1.00	10.15	12.78	18.97
140	5700	1.69	1.00	10.15	12.84	19.23

Sample Calculation: Result = Reading + Cable Loss + Attenuator

IEEE802.11a5500-5700band 6Mbps [Ant.1]

Ch	Frequency [MHz]	P/M Reading AVG	Cable Loss [dB]	Atten. [dB]	Result [dBm] AVG	Result [mW] AVG
100	5500	1.08	1.00	10.15	12.23	16.71
104	5520	1.14	1.00	10.15	12.29	16.94
108	5540	1.13	1.00	10.15	12.28	16.90
112	5560	1.00	1.00	10.15	12.15	16.41
116	5580	1.18	1.00	10.15	12.33	17.10
120	5600	1.26	1.00	10.15	12.41	17.42
124	5620	1.25	1.00	10.15	12.40	17.38
128	5640	1.23	1.00	10.15	12.38	17.30
132	5660	1.24	1.00	10.15	12.39	17.34
136	5680	1.18	1.00	10.15	12.33	17.10
140	5700	1.32	1.00	10.15	12.47	17.66

Sample Calculation: Result = Reading + Cable Loss + Attenuator

Maximum Peak Output Power
(Reference data for SAR testing)

Test place	Head Office EMC Lab. No.4 measurement room
Report No.	30FE0066-HO-01
Date	01/18/2010
Temperature/ Humidity	23deg.C. / 30%
Engineer	Takayuki Shimada
Mode	11n Tx
Note	Sample serial No.: 244 (SAR testing sample)

IEEE802.11n-20 MISO 5500-5700band MCS 0 [Ant.0]

Ch	Frequency [MHz]	P/M Reading AVG	Cable Loss [dB]	Atten. [dB]	Result [dBm] AVG	Result [mW] AVG
100	5500	0.87	1.00	10.15	12.02	15.92
104	5520	0.94	1.00	10.15	12.09	16.18
108	5540	0.82	1.00	10.15	11.97	15.74
112	5560	0.80	1.00	10.15	11.95	15.67
116	5580	0.89	1.00	10.15	12.04	16.00
120	5600	1.07	1.00	10.15	12.22	16.67
124	5620	1.06	1.00	10.15	12.21	16.63
128	5640	1.01	1.00	10.15	12.16	16.44
132	5660	1.10	1.00	10.15	12.25	16.79
136	5680	1.16	1.00	10.15	12.31	17.02
140	5700	1.28	1.00	10.15	12.43	17.50

Sample Calculation: Result = Reading + Cable Loss + Attenuator

IEEE802.11n-20 MISO 5500-5700band MCS 0 [Ant.1]

Ch	Frequency [MHz]	P/M Reading AVG	Cable Loss [dB]	Atten. [dB]	Result [dBm] AVG	Result [mW] AVG
100	5500	1.08	1.00	10.15	12.23	16.71
104	5520	1.09	1.00	10.15	12.24	16.75
108	5540	1.08	1.00	10.15	12.23	16.71
112	5560	0.96	1.00	10.15	12.11	16.26
116	5580	1.07	1.00	10.15	12.22	16.67
120	5600	1.18	1.00	10.15	12.33	17.10
124	5620	1.15	1.00	10.15	12.30	16.98
128	5640	1.14	1.00	10.15	12.29	16.94
132	5660	1.16	1.00	10.15	12.31	17.02
136	5680	1.32	1.00	10.15	12.47	17.66
140	5700	1.44	1.00	10.15	12.59	18.16

Sample Calculation: Result = Reading + Cable Loss + Attenuator

IEEE802.11n-40 MISO 5500-5700band MCS 0 [Ant.0]

Ch	Frequency [MHz]	P/M Reading AVG	Cable Loss [dB]	Atten. [dB]	Result [dBm] AVG	Result [mW] AVG
102	5510	0.16	1.00	10.15	11.31	13.52
110	5550	0.27	1.00	10.15	11.42	13.87
118	5590	0.27	1.00	10.15	11.42	13.87
126	5630	0.27	1.00	10.15	11.42	13.87
134	5670	0.35	1.00	10.15	11.50	14.13

Sample Calculation: Result = Reading + Cable Loss + Attenuator

IEEE802.11n-40 MISO 5500-5700band MCS 0 [Ant.1]

Ch	Frequency [MHz]	P/M Reading AVG	Cable Loss [dB]	Atten. [dB]	Result [dBm] AVG	Result [mW] AVG
102	5510	-0.01	1.00	10.15	11.14	13.00
110	5550	0.14	1.00	10.15	11.29	13.46
118	5590	-0.07	1.00	10.15	11.08	12.82
126	5630	0.21	1.00	10.15	11.36	13.68
134	5670	0.30	1.00	10.15	11.45	13.96

Sample Calculation: Result = Reading + Cable Loss + Attenuator

Radiated Spurious Emission

Test place	Head Office EMC Lab. No.4 Anechoic Chamber		
Report No.	30FE0066-HO-01		
Date	01/18/2010	01/18/2010	01/19/2010
Temperature/Humidity	18deg.C. / 36%	18deg.C. / 36%	20deg.C. / 31%
Engineer	Keisuke Kawamura (1-10GHz)	Tomotaka Sasagawa (10G-40GHz)	Keisuke Kawamura (30M-1000MHz)
Mode	11a Tx 5500MHz		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	75.351	QP	35.3	7.0	7.9	32.0	18.2	40.0	21.8	Outside	
Hori	184.314	QP	33.3	16.9	9.0	32.0	27.2	43.5	16.3	Outside	
Hori	196.604	QP	35.2	17.3	9.1	31.9	29.7	43.5	13.8	Outside	
Hori	364.508	QP	36.5	17.3	10.3	32.0	32.1	46.0	13.9	Outside	
Hori	546.763	QP	30.6	19.7	11.4	32.1	29.6	46.0	16.4	Outside	
Hori	729.020	QP	37.4	22.7	12.4	32.0	40.5	46.0	5.5	Outside	
Hori	5470.000	PK	54.0	32.0	4.1	31.9	58.2	68.2	10.0	Outside	
Hori	11000.000	PK	50.1	39.6	-1.7	33.5	54.5	73.9	19.4	Inside	
Hori	16500.000	PK	43.9	38.7	-0.9	33.3	48.4	68.2	19.8	Outside	
Hori	38500.000	PK	43.0	42.2	2.9	24.6	63.5	68.2	4.7	Outside	
Hori	5470.000	AV	39.5	32.0	4.1	31.9	43.7	-	-	Outside	
Hori	11000.000	AV	34.5	39.6	-1.7	33.5	38.9	53.9	15.0	Inside	
Hori	16500.000	AV	32.4	38.7	-0.9	33.3	36.9	-	-	Outside	
Hori	38500.000	AV	31.2	42.2	2.9	24.6	51.7	-	-	Outside	
Vert	75.436	QP	46.0	7.0	7.9	32.0	28.9	40.0	11.1	Outside	
Vert	166.413	QP	36.6	16.3	8.8	32.0	29.7	43.5	13.8	Inside	
Vert	196.604	QP	36.6	17.3	9.1	31.9	31.1	43.5	12.4	Outside	
Vert	364.508	QP	33.7	17.3	10.3	32.0	29.3	46.0	16.7	Outside	
Vert	546.763	QP	31.0	19.7	11.4	32.1	30.0	46.0	16.0	Outside	
Vert	729.020	QP	34.2	22.7	12.4	32.0	37.3	46.0	8.7	Outside	
Vert	5470.000	PK	50.5	32.0	4.1	31.9	54.7	68.2	13.5	Outside	
Vert	11000.000	PK	48.9	39.6	-1.7	33.5	53.3	73.9	20.6	Inside	
Vert	16500.000	PK	43.4	38.7	-0.9	33.3	47.9	68.2	20.3	Outside	
Vert	38500.000	PK	43.2	42.2	2.9	24.6	63.7	68.2	4.5	Outside	
Vert	5470.000	AV	37.1	32.0	4.1	31.9	41.3	-	-	Outside	
Vert	11000.000	AV	33.8	39.6	-1.7	33.5	38.2	53.9	15.7	Inside	
Vert	16500.000	AV	32.4	38.7	-0.9	33.3	36.9	-	-	Outside	
Vert	38500.000	AV	30.9	42.2	2.9	24.6	51.4	-	-	Outside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

Radiated Spurious Emission

Test place	Head Office EMC Lab. No.4 Anechoic Chamber	
Report No.	30FE0066-HO-01	
Date	01/18/2010	01/18/2010
Temperature/Humidity	18deg.C. / 36%	18deg.C. / 36%
Engineer	Keisuke Kawamura	Tomotaka Sasagawa
	(1-10GHz)	(10G-40GHz)
Mode	11a Tx 5580MHz	

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	11160.000	PK	50.2	39.6	-1.8	33.5	54.5	73.9	19.4	Inside	
Hori	16740.000	PK	44.1	39.1	-0.8	33.3	49.1	68.2	19.1	Outside	
Hori	11160.000	AV	34.2	39.6	-1.8	33.5	38.5	53.9	15.4	Inside	
Hori	16740.000	AV	32.7	39.1	-0.8	33.3	37.7	-	-	Outside	
Vert	11160.000	PK	48.9	39.6	-1.8	33.5	53.2	73.9	20.7	Inside	
Vert	16740.000	PK	44.5	39.1	-0.8	33.3	49.5	68.2	18.7	Outside	
Vert	11160.000	AV	35.1	39.6	-1.8	33.5	39.4	53.9	14.5	Inside	
Vert	16740.000	AV	32.8	39.1	-0.8	33.3	37.8	-	-	Outside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

** The noise level below 1GHz for this mode was equivalence noise level with 11a Tx 5500MHz and it was verified to be satisfied section 15.209 limit.*

Radiated Spurious Emission

Test place	Head Office EMC Lab. No.4 Anechoic Chamber	
Report No.	30FE0066-HO-01	
Date	01/18/2010	01/18/2010
Temperature/Humidity	18deg.C. / 36%	18deg.C. / 36%
Engineer	Keisuke Kawamura	Tomotaka Sasagawa
	(1-10GHz)	(10G-40GHz)
Mode	11a Tx 5700MHz	

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	5725.000	PK	56.1	32.4	4.2	32.0	60.7	68.2	7.5	Outside	
Hori	11400.000	PK	58.5	39.6	-1.9	33.5	62.7	73.9	11.2	Inside	
Hori	17100.000	PK	44.5	40.2	-0.8	33.3	50.6	68.2	17.6	Outside	
Hori	5725.000	AV	39.1	32.4	4.2	32.0	43.7	-	-	Outside	
Hori	11400.000	AV	35.4	39.6	-1.9	33.5	39.6	53.9	14.3	Inside	
Hori	17100.000	AV	32.1	40.2	-0.8	33.3	38.2	-	-	Outside	
Vert	5725.000	PK	56.0	32.4	4.2	32.0	60.6	68.2	7.6	Outside	
Vert	11400.000	PK	56.4	39.6	-1.9	33.5	60.6	73.9	13.3	Inside	
Vert	17100.000	PK	44.5	40.2	-0.8	33.3	50.6	68.2	17.6	Outside	
Vert	5725.000	AV	39.5	32.4	4.2	32.0	44.1	-	-	Outside	
Vert	11400.000	AV	35.6	39.6	-1.9	33.5	39.8	53.9	14.1	Inside	
Vert	17100.000	AV	32.4	40.2	-0.8	33.3	38.5	-	-	Outside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

** The noise level below 1GHz for this mode was equivalence noise level with 11a Tx 5500MHz and it was verified to be satisfied section 15.209 limit.*

Radiated Spurious Emission

Test place	Head Office EMC Lab. No.4 Anechoic Chamber		
Report No.	30FE0066-HO-01		
Date	01/18/2010	01/18/2010	01/19/2010
Temperature/Humidity	18deg.C. / 36%	18deg.C. / 36%	20deg.C. / 31%
Engineer	Keisuke Kawamura (1-10GHz)	Tomotaka Sasagawa (10G-40GHz)	Keisuke Kawamura (30M-1000MHz)
Mode	11n-20 Tx 5500MHz		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	75.442	QP	36.1	7.0	7.9	32.0	19.0	40.0	21.0	Outside	
Hori	184.316	QP	34.0	16.9	9.0	32.0	27.9	43.5	15.6	Outside	
Hori	196.601	QP	35.4	17.3	9.1	31.9	29.9	43.5	13.6	Outside	
Hori	364.508	QP	36.5	17.3	10.3	32.0	32.1	46.0	13.9	Outside	
Hori	546.763	QP	31.2	19.7	11.4	32.1	30.2	46.0	15.8	Outside	
Hori	729.020	QP	35.8	22.7	12.4	32.0	38.9	46.0	7.1	Outside	
Hori	5470.000	PK	54.2	32.0	4.1	31.9	58.4	68.2	9.8	Outside	
Hori	11000.000	PK	52.0	39.6	-1.7	33.5	56.4	73.9	17.5	Inside	
Hori	16500.000	PK	44.3	38.7	-0.9	33.3	48.8	68.2	19.4	Outside	
Hori	38500.000	PK	42.9	42.2	2.9	24.6	63.4	68.2	4.8	Outside	
Hori	5470.000	AV	37.9	32.0	4.1	31.9	42.1	-	-	Outside	
Hori	11000.000	AV	35.4	39.6	-1.7	33.5	39.8	53.9	14.1	Inside	
Hori	16500.000	AV	32.5	38.7	-0.9	33.3	37.0	-	-	Outside	
Hori	38500.000	AV	31.3	42.2	2.9	24.6	51.8	-	-	Outside	
Vert	75.482	QP	46.1	7.0	7.9	32.0	29.0	40.0	11.0	Outside	
Vert	166.347	QP	36.7	16.3	8.8	32.0	29.8	43.5	13.7	Inside	
Vert	196.601	QP	36.4	17.3	9.1	31.9	30.9	43.5	12.6	Outside	
Vert	364.508	QP	32.9	17.3	10.3	32.0	28.5	46.0	17.5	Outside	
Vert	546.763	QP	31.5	19.7	11.4	32.1	30.5	46.0	15.5	Outside	
Vert	729.020	QP	33.5	22.7	12.4	32.0	36.6	46.0	9.4	Outside	
Vert	5470.000	PK	52.4	32.0	4.1	31.9	56.6	68.2	11.6	Outside	
Vert	11000.000	PK	48.9	39.6	-1.7	33.5	53.3	73.9	20.6	Inside	
Vert	16500.000	PK	43.5	38.7	-0.9	33.3	48.0	68.2	20.2	Outside	
Vert	38500.000	PK	43.0	42.2	2.9	24.6	63.5	68.2	4.7	Outside	
Vert	5470.000	AV	37.4	32.0	4.1	31.9	41.6	-	-	Outside	
Vert	11000.000	AV	33.8	39.6	-1.7	33.5	38.2	53.9	15.7	Inside	
Vert	16500.000	AV	32.9	38.7	-0.9	33.3	37.4	-	-	Outside	
Vert	38500.000	AV	31.0	42.2	2.9	24.6	51.5	-	-	Outside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

Radiated Spurious Emission

Test place	Head Office EMC Lab. No.4 Anechoic Chamber	
Report No.	30FE0066-HO-01	
Date	01/18/2010	01/18/2010
Temperature/Humidity	18deg.C. / 36%	18deg.C. / 36%
Engineer	Keisuke Kawamura	Tomotaka Sasagawa
	(1-10GHz)	(10G-40GHz)
Mode	11n-20 Tx 5580MHz	

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	11160.000	PK	50.8	39.6	-1.8	33.5	55.1	73.9	18.8	Inside	
Hori	16740.000	PK	44.2	39.1	-0.8	33.3	49.2	68.2	19.0	Outside	
Hori	11160.000	AV	34.9	39.6	-1.8	33.5	39.2	53.9	14.7	Inside	
Hori	16740.000	AV	33.1	39.1	-0.8	33.3	38.1	-	-	Outside	
Vert	11160.000	PK	49.7	39.6	-1.8	33.5	54.0	73.9	19.9	Inside	
Vert	16740.000	PK	44.1	39.1	-0.8	33.3	49.1	68.2	19.1	Outside	
Vert	11160.000	AV	34.5	39.6	-1.8	33.5	38.8	53.9	15.1	Inside	
Vert	16740.000	AV	33.1	39.1	-0.8	33.3	38.1	-	-	Outside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

** The noise level below 1GHz for this mode was equivalence noise level with 11n-20 Tx 5500MHz and it was verified to be satisfied section 15.209 limit.*

Radiated Spurious Emission

Test place	Head Office EMC Lab. No.4 Anechoic Chamber	
Report No.	30FE0066-HO-01	
Date	01/18/2010	01/18/2010
Temperature/Humidity	18deg.C. / 36%	18deg.C. / 36%
Engineer	Keisuke Kawamura	Tomotaka Sasagawa
	(1-10GHz)	(10G-40GHz)
Mode	11n-20 Tx 5700MHz	

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	5725.000	PK	56.4	32.4	4.2	32.0	61.0	68.2	7.2	Outside	
Hori	11400.000	PK	57.0	39.6	-1.9	33.5	61.2	73.9	12.7	Inside	
Hori	17100.000	PK	44.1	40.2	-0.8	33.3	50.2	68.2	18.0	Outside	
Hori	5725.000	AV	41.8	32.4	4.2	32.0	46.4	-	-	Outside	
Hori	11400.000	AV	35.6	39.6	-1.9	33.5	39.8	53.9	14.1	Inside	
Hori	17100.000	AV	32.8	40.2	-0.8	33.3	38.9	-	-	Outside	
Vert	5725.000	PK	57.3	32.4	4.2	32.0	61.9	68.2	6.3	Outside	
Vert	11400.000	PK	54.5	39.6	-1.9	33.5	58.7	73.9	15.2	Inside	
Vert	17100.000	PK	43.8	40.2	-0.8	33.3	49.9	68.2	18.3	Outside	
Vert	5725.000	AV	41.7	32.4	4.2	32.0	46.3	-	-	Outside	
Vert	11400.000	AV	35.6	39.6	-1.9	33.5	39.8	53.9	14.1	Inside	
Vert	17100.000	AV	32.9	40.2	-0.8	33.3	39.0	-	-	Outside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

** The noise level below 1GHz for this mode was equivalence noise level with 11n-20 Tx 5500MHz and it was verified to be satisfied section 15.209 limit.*

Radiated Spurious Emission

Test place	Head Office EMC Lab. No.4 Anechoic Chamber		
Report No.	30FE0066-HO-01		
Date	01/18/2010	01/18/2010	01/19/2010
Temperature/Humidity	18deg.C. / 36%	18deg.C. / 36%	20deg.C. / 31%
Engineer	Keisuke Kawamura (1-10GHz)	Tomotaka Sasagawa (10G-40GHz)	Keisuke Kawamura (30M-1000MHz)
Mode	11n-40 Tx 5510MHz		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	75.391	QP	35.7	7.0	7.9	32.0	18.6	40.0	21.4	Outside	
Hori	184.315	QP	34.0	16.9	9.0	32.0	27.9	43.5	15.6	Outside	
Hori	196.604	QP	34.8	17.3	9.1	31.9	29.3	43.5	14.2	Outside	
Hori	364.508	QP	36.1	17.3	10.3	32.0	31.7	46.0	14.3	Outside	
Hori	546.763	QP	31.0	19.7	11.4	32.1	30.0	46.0	16.0	Outside	
Hori	729.017	QP	36.8	22.7	12.4	32.0	39.9	46.0	6.1	Outside	
Hori	5470.000	PK	59.8	32.0	4.1	31.9	64.0	68.2	4.2	Outside	
Hori	11020.000	PK	53.0	39.6	-1.7	33.5	57.4	73.9	16.5	Inside	
Hori	16530.000	PK	43.4	38.7	-0.9	33.3	47.9	68.2	20.3	Outside	
Hori	38570.000	PK	43.2	42.3	2.9	24.6	63.8	68.2	4.4	Outside	
Hori	5470.000	AV	45.5	32.0	4.1	31.9	49.7	-	-	Outside	
Hori	11020.000	AV	34.9	39.6	-1.7	33.5	39.3	53.9	14.6	Inside	
Hori	16530.000	AV	33.4	38.7	-0.9	33.3	37.9	-	-	Outside	
Hori	38570.000	AV	31.1	42.3	2.9	24.6	51.7	-	-	Outside	
Vert	75.456	QP	45.8	7.0	7.9	32.0	28.7	40.0	11.3	Outside	
Vert	166.395	QP	36.9	16.3	8.8	32.0	30.0	43.5	13.5	Inside	
Vert	196.604	QP	36.6	17.3	9.1	31.9	31.1	43.5	12.4	Outside	
Vert	364.508	QP	35.5	17.3	10.3	32.0	31.1	46.0	14.9	Outside	
Vert	546.763	QP	32.2	19.7	11.4	32.1	31.2	46.0	14.8	Outside	
Vert	729.017	QP	34.0	22.7	12.4	32.0	37.1	46.0	8.9	Outside	
Vert	5470.000	PK	56.5	32.0	4.1	31.9	60.7	68.2	7.5	Outside	
Vert	11020.000	PK	53.1	39.6	-1.7	33.5	57.5	73.9	16.4	Inside	
Vert	16530.000	PK	44.2	38.7	-0.9	33.3	48.7	68.2	19.5	Outside	
Vert	38570.000	PK	43.4	42.3	2.9	24.6	64.0	68.2	4.2	Outside	
Vert	5470.000	AV	43.9	32.0	4.1	31.9	48.1	-	-	Outside	
Vert	11020.000	AV	35.1	39.6	-1.7	33.5	39.5	53.9	14.4	Inside	
Vert	16530.000	AV	33.4	38.7	-0.9	33.3	37.9	-	-	Outside	
Vert	38570.000	AV	30.8	42.3	2.9	24.6	51.4	-	-	Outside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier)

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

Radiated Spurious Emission

Test place	Head Office EMC Lab. No.4 Anechoic Chamber	
Report No.	30FE0066-HO-01	
Date	01/18/2010	01/18/2010
Temperature/Humidity	18deg.C. / 36%	18deg.C. / 36%
Engineer	Keisuke Kawamura (1-10GHz)	Tomotaka Sasagawa (10G-40GHz)
Mode	11n-40 Tx 5550MHz	

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	11100.000	PK	52.2	39.6	-1.8	33.5	56.5	73.9	17.4	Inside	
Hori	16650.000	PK	44.2	39.0	-0.8	33.3	49.1	68.2	19.1	Outside	
Hori	11100.000	AV	35.6	39.6	-1.8	33.5	39.9	53.9	14.0	Inside	
Hori	16650.000	AV	31.9	39.0	-0.8	33.3	36.8	-	-	Outside	
Vert	11100.000	PK	52.1	39.6	-1.8	33.5	56.4	73.9	17.5	Inside	
Vert	16650.000	PK	42.9	39.0	-0.8	33.3	47.8	68.2	20.4	Outside	
Vert	11100.000	AV	35.8	39.6	-1.8	33.5	40.1	53.9	13.8	Inside	
Vert	16650.000	AV	32.5	39.0	-0.8	33.3	37.4	-	-	Outside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

** The noise level below 1GHz for this mode was equivalence noise level with 11n-40 Tx 5510MHz and it was verified to be satisfied section 15.209 limit.*

Radiated Spurious Emission

Test place	Head Office EMC Lab. No.4 Anechoic Chamber	
Report No.	30FE0066-HO-01	
Date	01/18/2010	01/18/2010
Temperature/Humidity	18deg.C. / 36%	18deg.C. / 36%
Engineer	Keisuke Kawamura (1-10GHz)	Tomotaka Sasagawa (10G-40GHz)
Mode	11n-40 Tx 5670MHz	

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	5725.000	PK	51.9	32.4	4.2	32.0	56.5	68.2	11.7	Outside	
Hori	11340.000	PK	57.6	39.6	-1.9	33.5	61.8	73.9	12.1	Inside	
Hori	17010.000	PK	44.2	39.7	-0.9	33.3	49.7	68.2	18.5	Outside	
Hori	5725.000	AV	35.5	32.4	4.2	32.0	40.1	-	-	Outside	
Hori	11340.000	AV	36.5	39.6	-1.9	33.5	40.7	53.9	13.2	Inside	
Hori	17010.000	AV	32.9	39.7	-0.9	33.3	38.4	-	-	Outside	
Vert	5725.000	PK	50.7	32.4	4.2	32.0	55.3	68.2	12.9	Outside	
Vert	11340.000	PK	56.8	39.6	-1.9	33.5	61.0	73.9	12.9	Inside	
Vert	17010.000	PK	42.3	39.7	-0.9	33.3	47.8	68.2	20.4	Outside	
Vert	5725.000	AV	35.4	32.4	4.2	32.0	40.0	-	-	Outside	
Vert	11340.000	AV	34.5	39.6	-1.9	33.5	38.7	53.9	15.2	Inside	
Vert	17010.000	AV	31.8	39.7	-0.9	33.3	37.3	-	-	Outside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

** The noise level below 1GHz for this mode was equivalence noise level with 11n-40 Tx 5510MHz and it was verified to be satisfied section 15.209 limit.*

Radiated Spurious Emission

Test place	Head Office EMC Lab. No.4 Anechoic Chamber		
Report No.	30FE0066-HO-01		
Date	01/18/2010	01/18/2010	01/19/2010
Temperature/Humidity	18deg.C. / 36%	18deg.C. / 36%	20deg.C. / 31%
Engineer	Keisuke Kawamura (1-10GHz)	Tomotaka Sasagawa (10G-18GHz)	Keisuke Kawamura (30M-1000MHz)
Mode	11a Rx 5580MHz		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	75.491	QP	35.0	7.0	7.9	32.0	17.9	40.0	22.1	Outside	
Hori	184.314	QP	33.5	16.9	9.0	32.0	27.4	43.5	16.1	Outside	
Hori	196.604	QP	34.4	17.3	9.1	31.9	28.9	43.5	14.6	Outside	
Hori	364.508	QP	35.7	17.3	10.3	32.0	31.3	46.0	14.7	Outside	
Hori	546.763	QP	30.4	19.7	11.4	32.1	29.4	46.0	16.6	Outside	
Hori	729.020	QP	36.6	22.7	12.4	32.0	39.7	46.0	6.3	Outside	
Hori	5580.000	PK	40.5	32.2	4.2	32.0	44.9	68.2	23.3	Outside	
Hori	11160.000	PK	43.1	39.6	-3.6	33.5	45.6	73.9	28.3	Inside	
Hori	16740.000	PK	44.5	39.1	-2.6	33.3	47.7	68.2	20.5	Outside	
Hori	5580.000	AV	29.0	32.2	4.2	32.0	33.4	-	-	Outside	
Hori	11160.000	AV	32.5	39.6	-3.6	33.5	35.0	53.9	18.9	Inside	
Hori	16740.000	AV	33.1	39.1	-2.6	33.3	36.3	-	-	Outside	
Vert	75.316	QP	45.3	7.0	7.9	32.0	28.2	40.0	11.8	Outside	
Vert	166.383	QP	37.5	16.3	8.8	32.0	30.6	43.5	12.9	Inside	
Vert	196.604	QP	37.0	17.3	9.1	31.9	31.5	43.5	12.0	Outside	
Vert	364.508	QP	34.3	17.3	10.3	32.0	29.9	46.0	16.1	Outside	
Vert	546.763	QP	31.5	19.7	11.4	32.1	30.5	46.0	15.5	Outside	
Vert	729.020	QP	33.9	22.7	12.4	32.0	37.0	46.0	9.0	Outside	
Vert	5580.000	PK	40.8	32.2	4.2	32.0	45.2	68.2	23.0	Outside	
Vert	11160.000	PK	42.9	39.6	-3.6	33.5	45.4	73.9	28.5	Inside	
Vert	16740.000	PK	44.1	39.1	-2.6	33.3	47.3	68.2	20.9	Outside	
Vert	5580.000	AV	28.6	32.2	4.2	32.0	33.0	-	-	Outside	
Vert	11160.000	AV	32.4	39.6	-3.6	33.5	34.9	53.9	19.0	Inside	
Vert	16740.000	AV	32.8	39.1	-2.6	33.3	36.0	-	-	Outside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

Radiated Spurious Emission

Test place	Head Office EMC Lab. No.4 Anechoic Chamber		
Report No.	30FE0066-HO-01		
Date	01/18/2010	01/18/2010	01/19/2010
Temperature/Humidity	18deg.C. / 36%	18deg.C. / 36%	20deg.C. / 31%
Engineer	Keisuke Kawamura (1-10GHz)	Tomotaka Sasagawa (10G-18GHz)	Keisuke Kawamura (30M-1000MHz)
Mode	11n Rx 5580MHz		

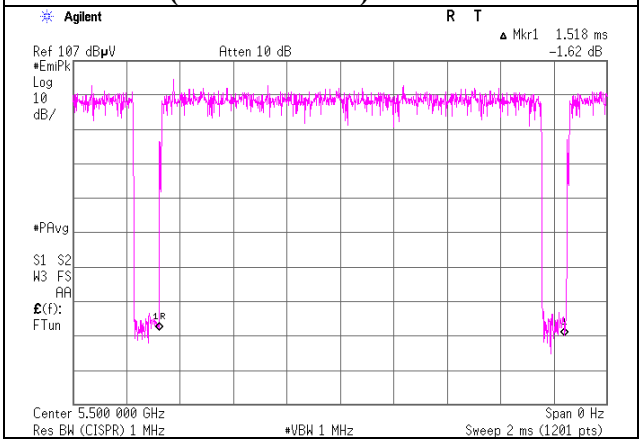
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands
Hori	75.487	QP	34.9	7.0	7.9	32.0	17.8	40.0	22.2	Outside
Hori	184.314	QP	33.0	16.9	9.0	32.0	26.9	43.5	16.6	Outside
Hori	196.604	QP	34.8	17.3	9.1	31.9	29.3	43.5	14.2	Outside
Hori	364.508	QP	36.5	17.3	10.3	32.0	32.1	46.0	13.9	Outside
Hori	546.763	QP	30.7	19.7	11.4	32.1	29.7	46.0	16.3	Outside
Hori	729.016	QP	37.3	22.7	12.4	32.0	40.4	46.0	5.6	Outside
Hori	5580.000	PK	40.1	32.2	4.2	32.0	44.5	68.2	23.7	Outside
Hori	11160.000	PK	42.8	39.6	-3.6	33.5	45.3	73.9	28.6	Inside
Hori	16740.000	PK	44.3	39.1	-2.6	33.3	47.5	68.2	20.7	Outside
Hori	5580.000	AV	28.6	32.2	4.2	32.0	33.0	-	-	Outside
Hori	11160.000	AV	32.7	39.6	-3.6	33.5	35.2	53.9	18.7	Inside
Hori	16740.000	AV	33.4	39.1	-2.6	33.3	36.6	-	-	Outside
Vert	75.532	QP	45.3	7.0	7.9	32.0	28.2	40.0	11.8	Outside
Vert	166.403	QP	37.3	16.3	8.8	32.0	30.4	43.5	13.1	Inside
Vert	196.604	QP	37.0	17.3	9.1	31.9	31.5	43.5	12.0	Outside
Vert	364.508	QP	34.6	17.3	10.3	32.0	30.2	46.0	15.8	Outside
Vert	546.763	QP	31.4	19.7	11.4	32.1	30.4	46.0	15.6	Outside
Vert	729.016	QP	34.7	22.7	12.4	32.0	37.8	46.0	8.2	Outside
Vert	5580.000	PK	40.6	32.2	4.2	32.0	45.0	68.2	23.2	Outside
Vert	11160.000	PK	43.2	39.6	-3.6	33.5	45.7	73.9	28.2	Inside
Vert	16740.000	PK	44.5	39.1	-2.6	33.3	47.7	68.2	20.5	Outside
Vert	5580.000	AV	28.5	32.2	4.2	32.0	32.9	-	-	Outside
Vert	11160.000	AV	32.1	39.6	-3.6	33.5	34.6	53.9	19.3	Inside
Vert	16740.000	AV	33.1	39.1	-2.6	33.3	36.3	-	-	Outside

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

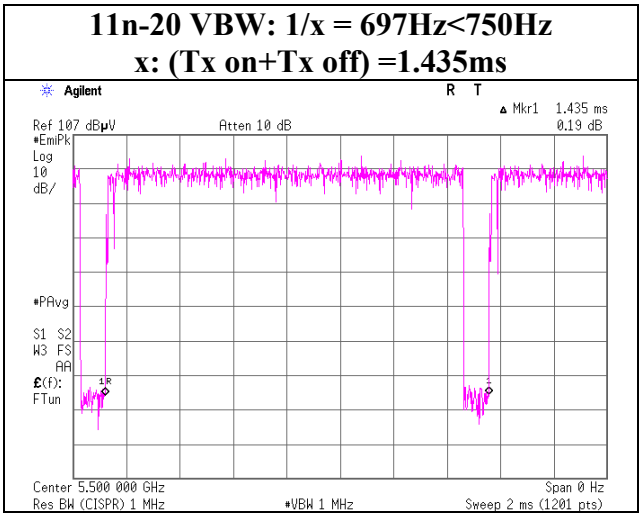
Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

VBW (AV) Calculation

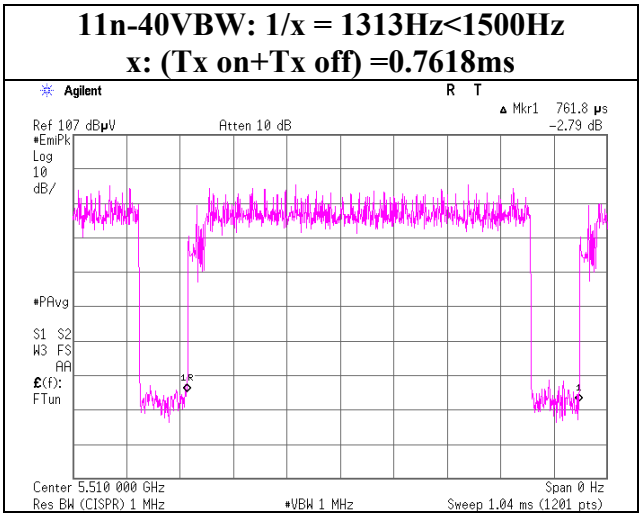
11a VBW: 1/x = 659Hz<680Hz
x: (Tx on+Tx off) =1.518ms



11n-20 VBW: 1/x = 697Hz<750Hz
x: (Tx on+Tx off) =1.435ms



11n-40VBW: 1/x = 1313Hz<1500Hz
x: (Tx on+Tx off) =0.7618ms



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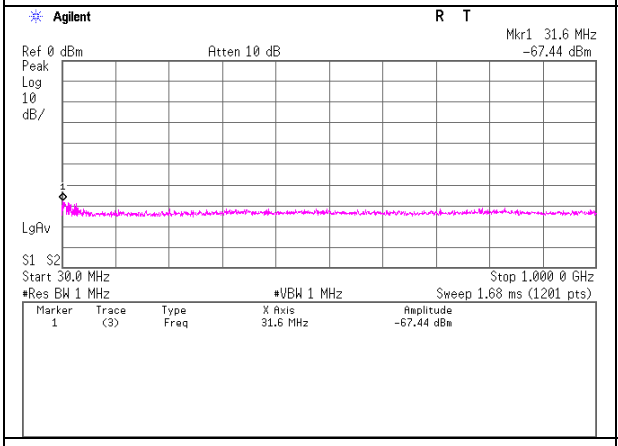
Head Office EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8116
Facsimile : +81 596 24 8124

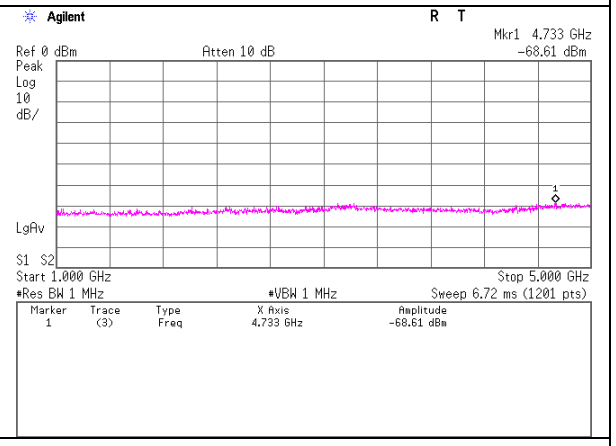
Conducted Spurious Emission

11n-20 Tx 5500MHz Antenna 0

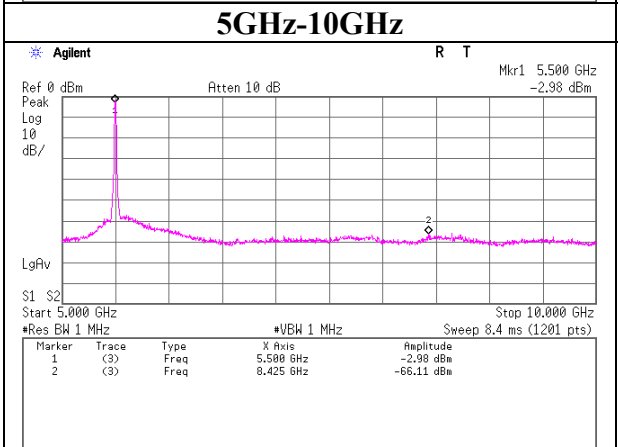
30MHz-1GHz



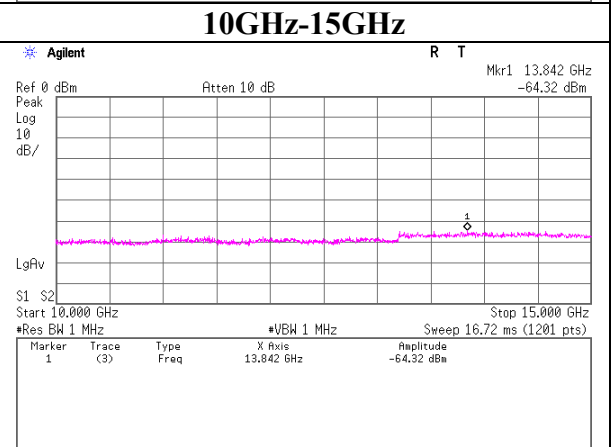
1GHz-5GHz



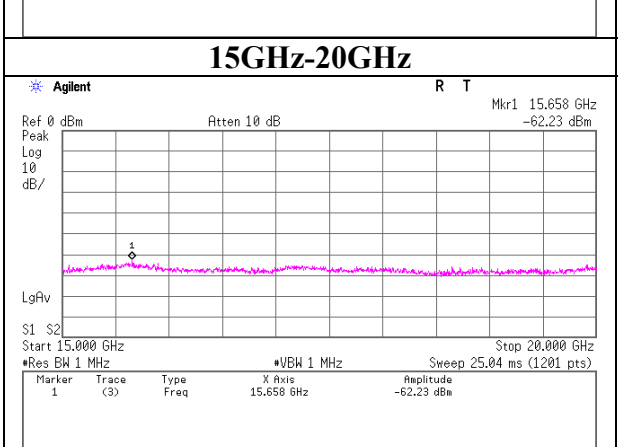
5GHz-10GHz



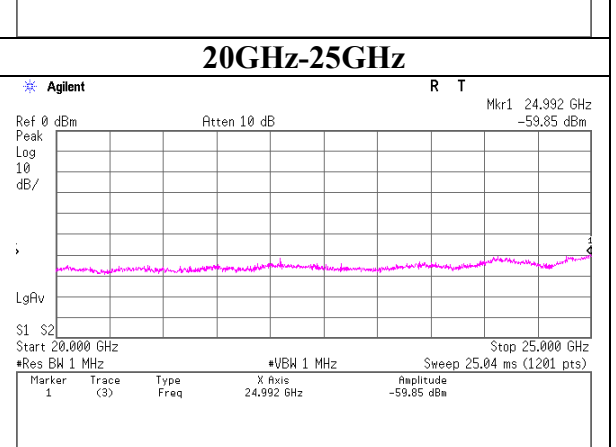
10GHz-15GHz



15GHz-20GHz



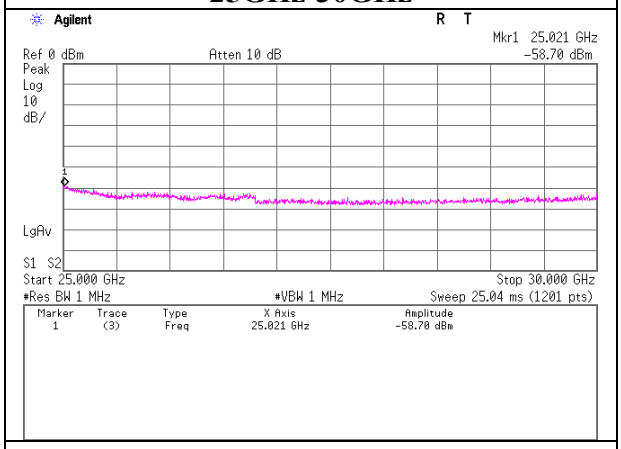
20GHz-25GHz



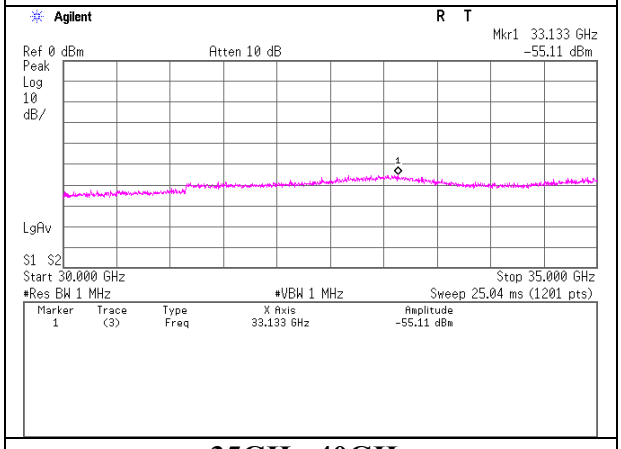
Conducted Spurious Emission

11n-20 Tx 5500MHz Antenna 0

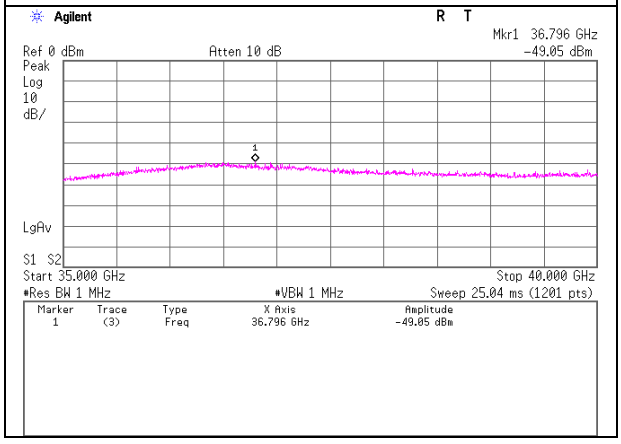
25GHz-30GHz



30GHz-35GHz



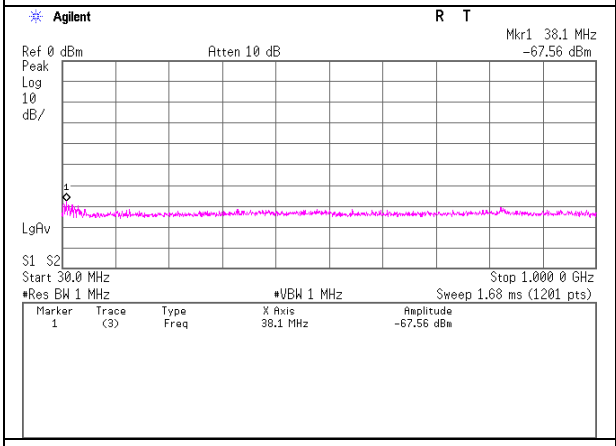
35GHz-40GHz



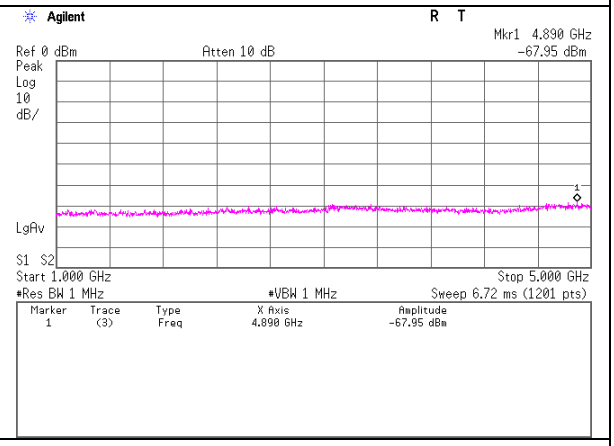
Conducted Spurious Emission

11n-20 Tx 5580MHz Antenna 0

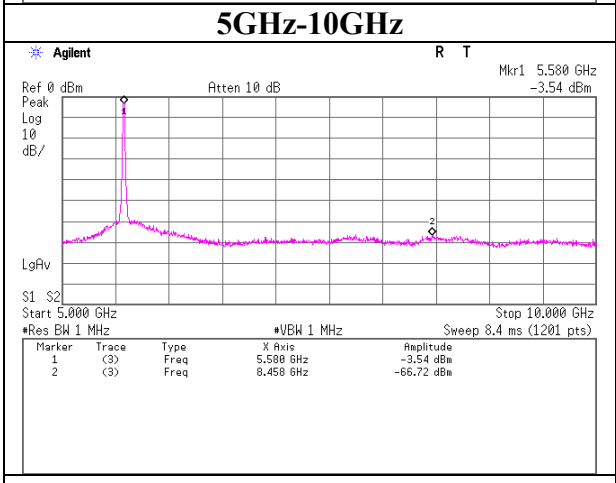
30MHz-1GHz



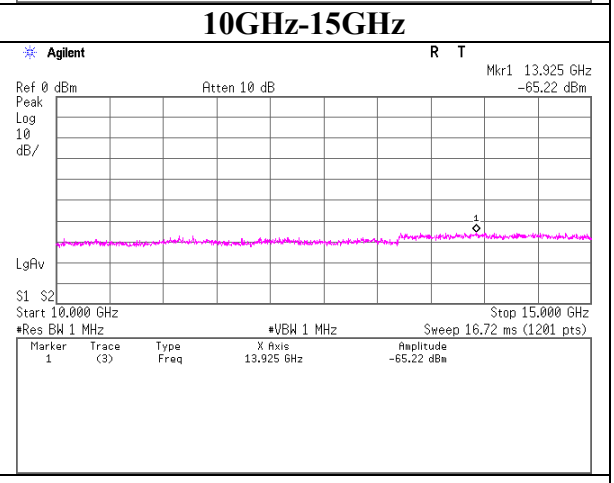
1GHz-5GHz



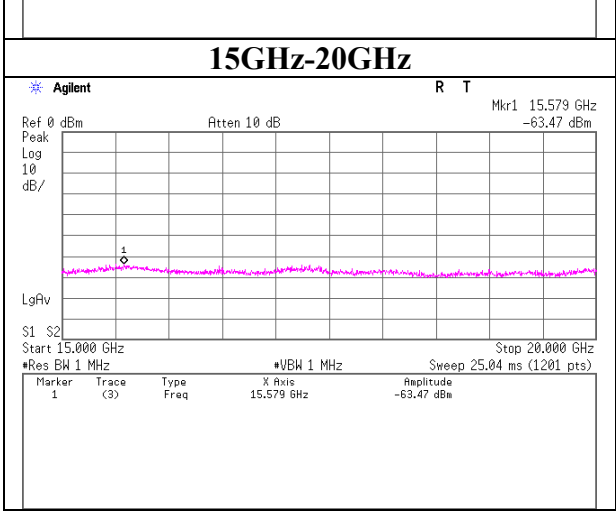
5GHz-10GHz



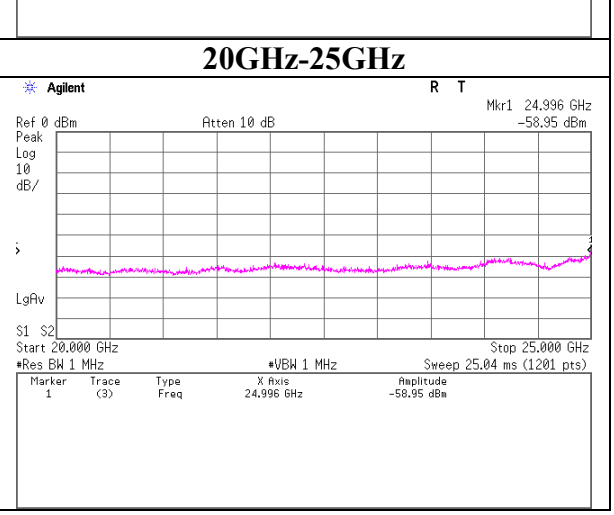
10GHz-15GHz



15GHz-20GHz



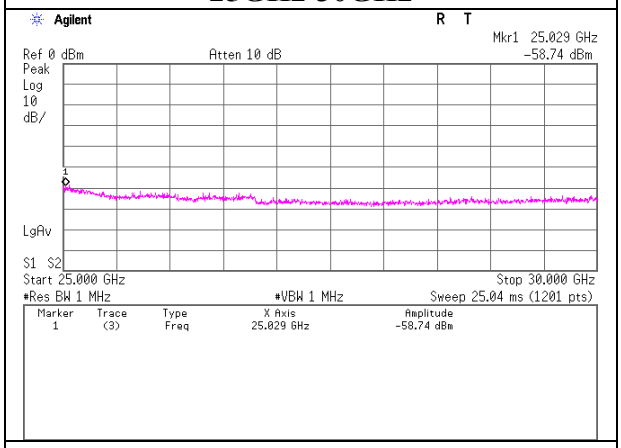
20GHz-25GHz



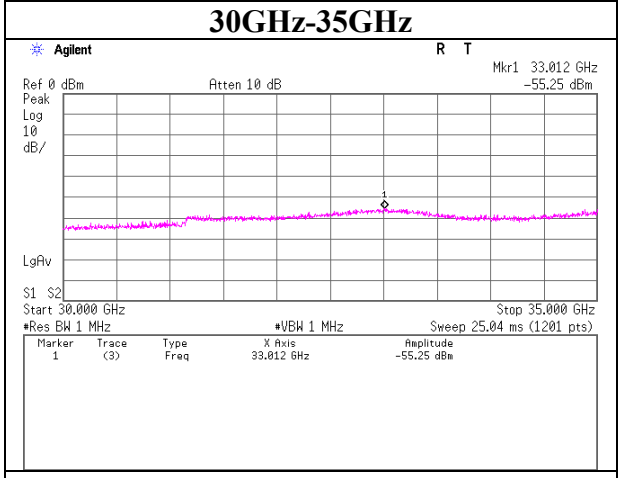
Conducted Spurious Emission

11n-20 Tx 5580MHz Antenna 0

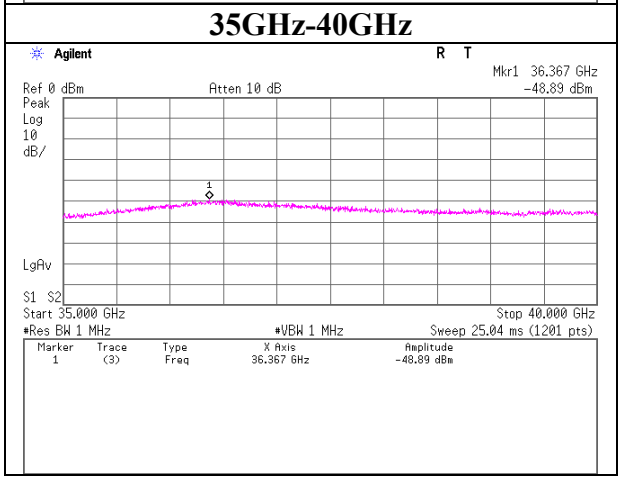
25GHz-30GHz



30GHz-35GHz



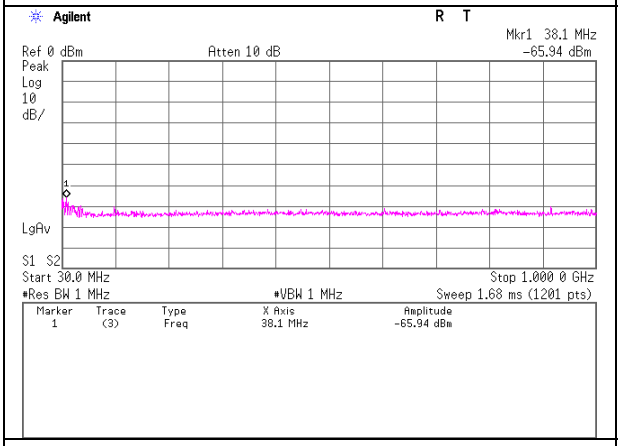
35GHz-40GHz



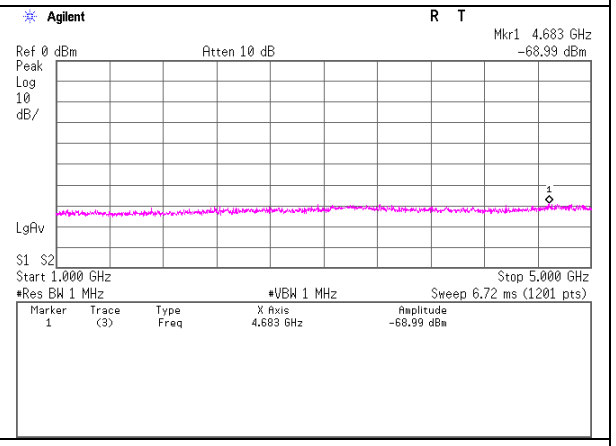
Conducted Spurious Emission

11n-20 Tx 5700MHz Antenna 0

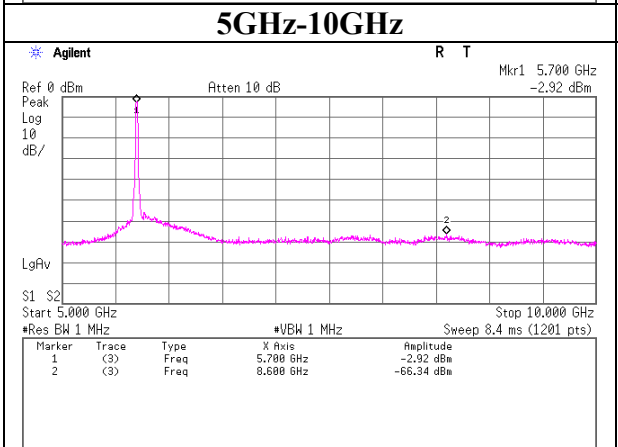
30MHz-1GHz



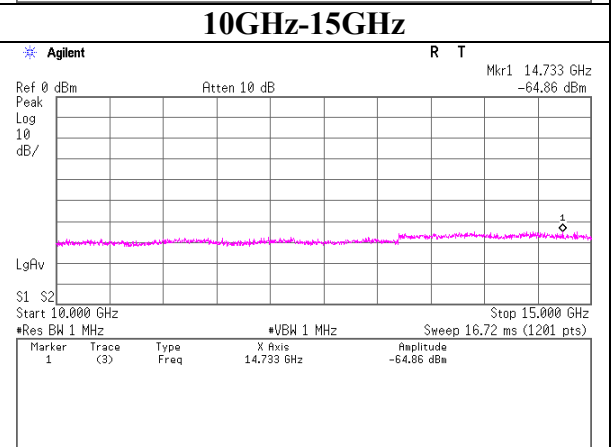
1GHz-5GHz



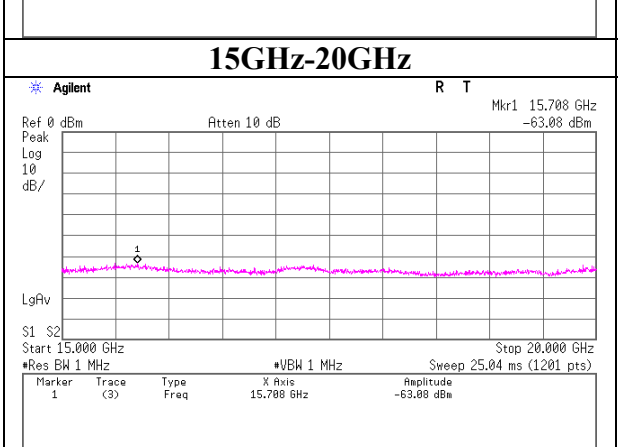
5GHz-10GHz



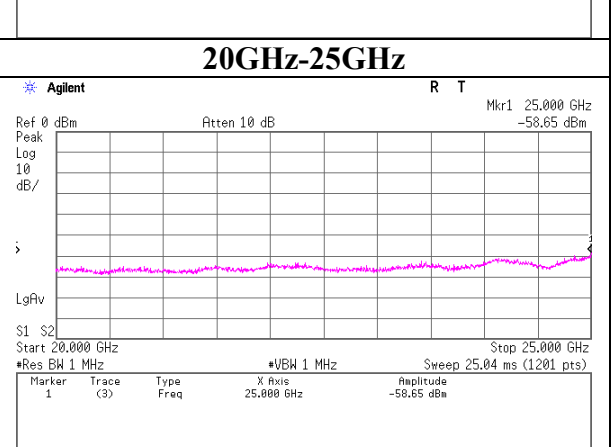
10GHz-15GHz



15GHz-20GHz



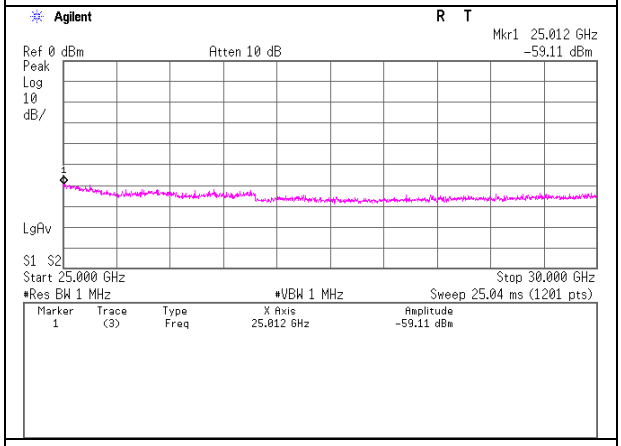
20GHz-25GHz



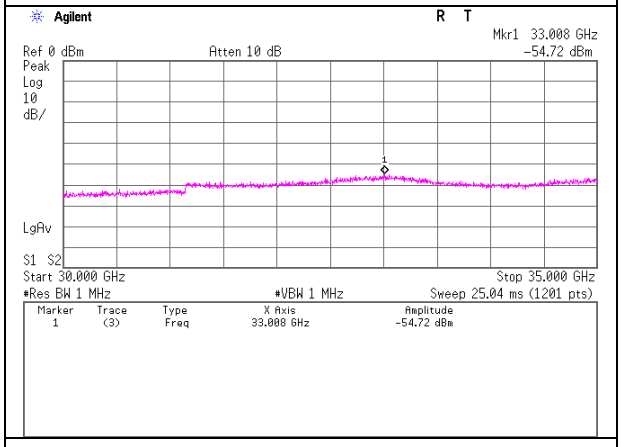
Conducted Spurious Emission

11n-20 Tx 5700MHz Antenna 0

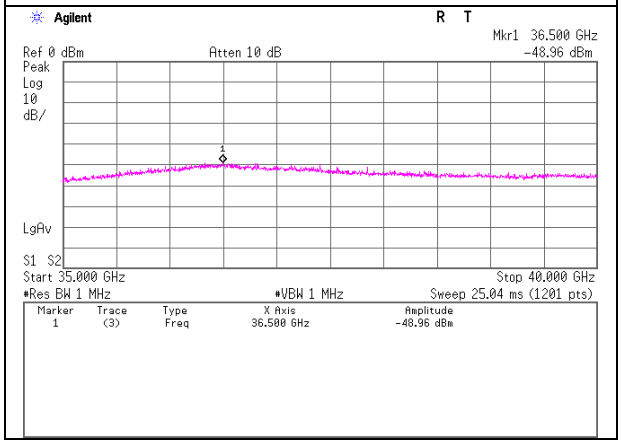
25GHz-30GHz



30GHz-35GHz



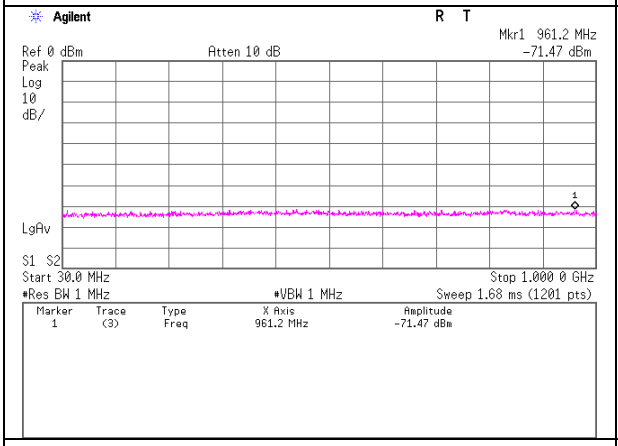
35GHz-40GHz



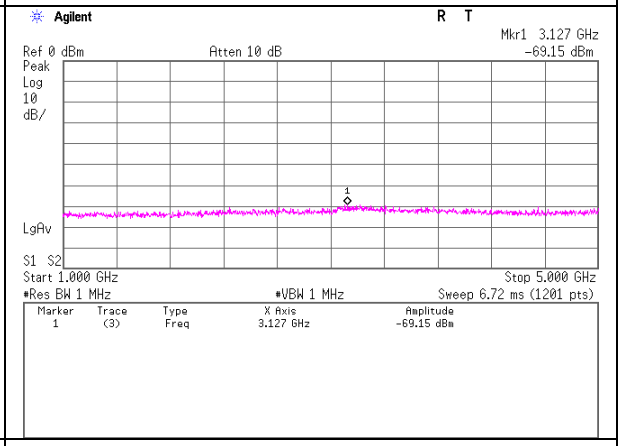
Conducted Spurious Emission

11n-20 Rx 5580MHz Antenna 0

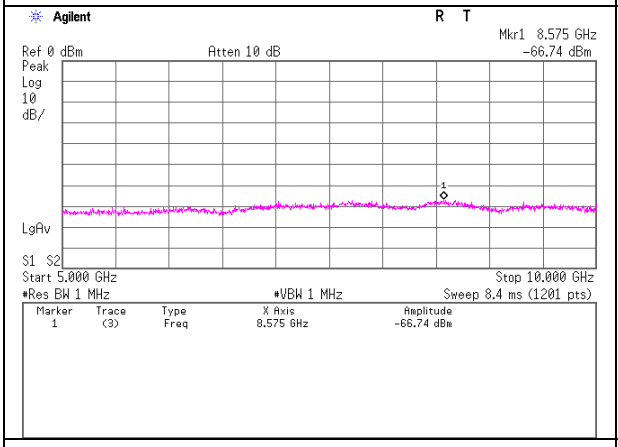
30MHz-1GHz



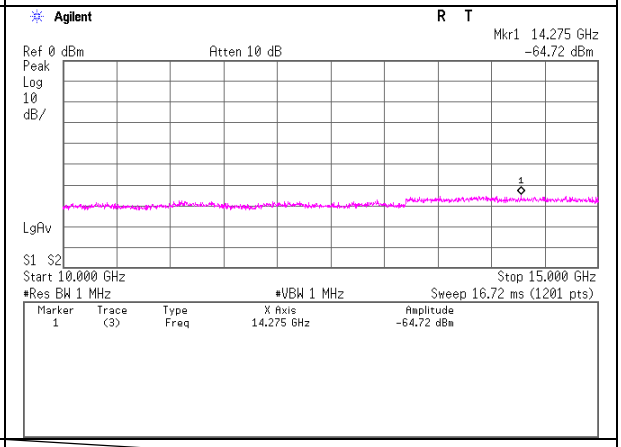
1GHz-5GHz



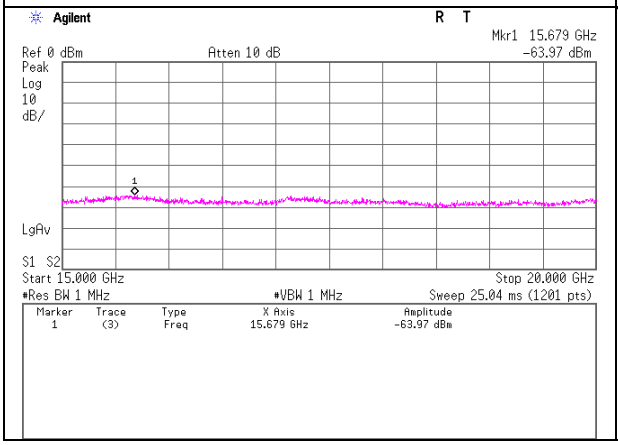
5GHz-10GHz



10GHz-15GHz



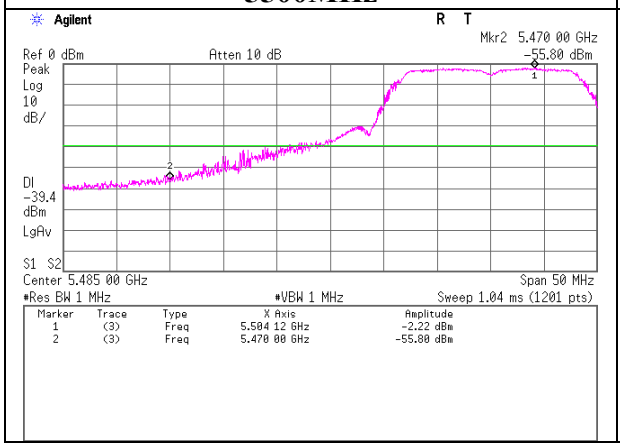
15GHz-20GHz



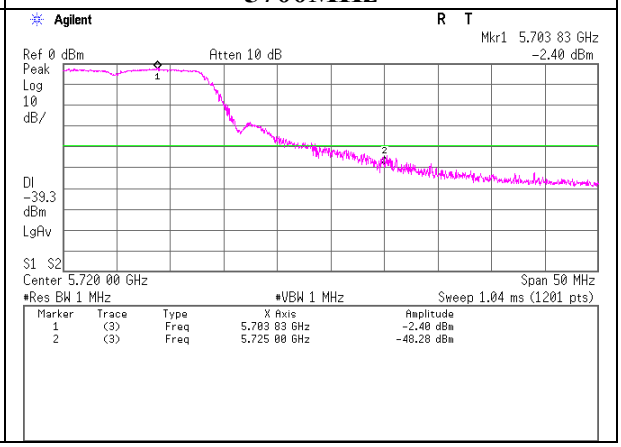
Conducted emission Band Edge compliance

11a Antenna 0

5500MHz

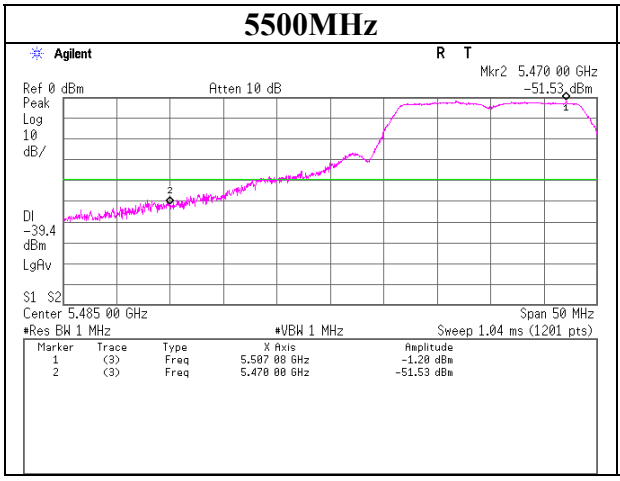


5700MHz

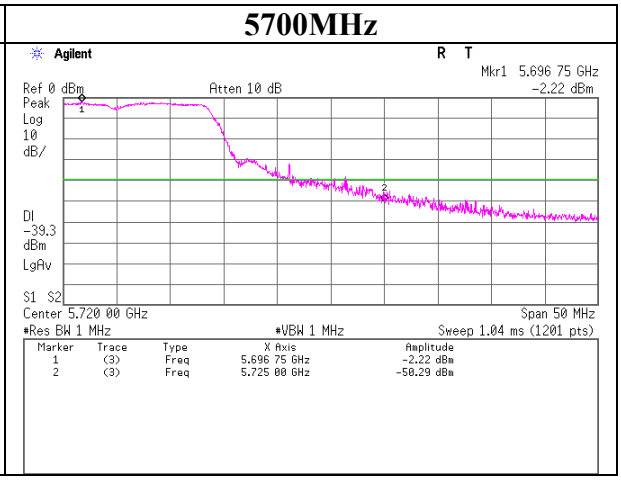


11n-20 Antenna 0

5500MHz

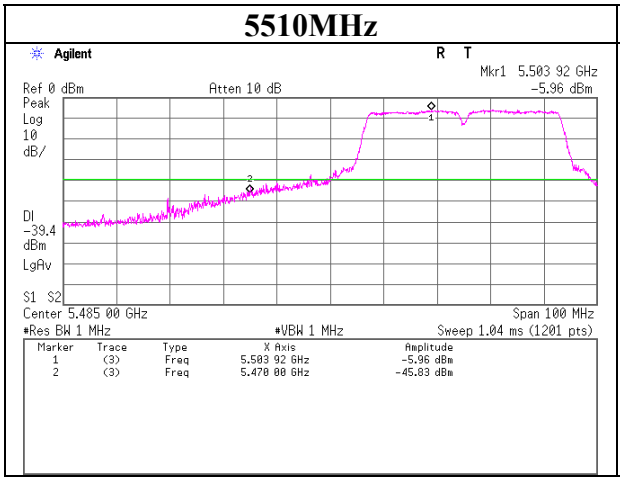


5700MHz

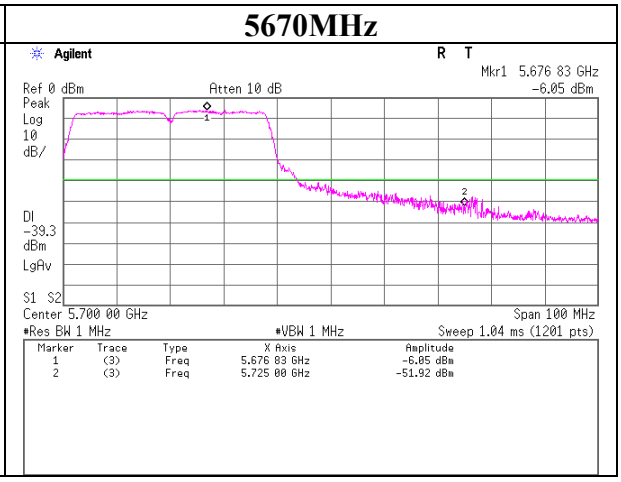


11n-40 Antenna 0

5510MHz



5670MHz



Display Line = -27dBm – Cable Loss – ATT.Loss – Ant.Gain

Peak Excursion Ratio

Test place	Head Office EMC Lab. No.11 Measurement Room
Report No.	30FE0066-HO-01
Date	01/17/2010
Temperature/ Humidity	23deg.C. / 25%
Engineer	Takayuki Shimada
Mode	11a/11n-20/11n-40 Tx

11a Antenna 0

Frequency [MHz]	Peak Power Excursion [dB]	Limit [dB]
5500	8.37	13.00
5580	8.49	13.00
5700	8.19	13.00

11n-20 Antenna 0

Frequency [MHz]	Peak Power Excursion [dB]	Limit [dB]
5500	7.94	13.00
5580	8.08	13.00
5700	8.32	13.00

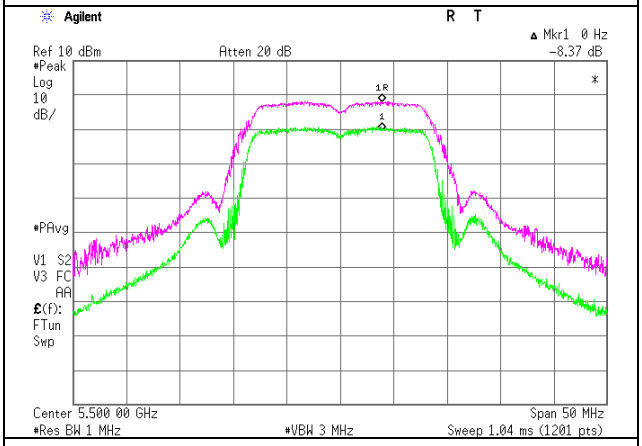
11n-40 Antenna 0

Frequency [MHz]	Peak Power Excursion [dB]	Limit [dB]
5510	8.16	13.00
5550	8.31	13.00
5670	8.82	13.00

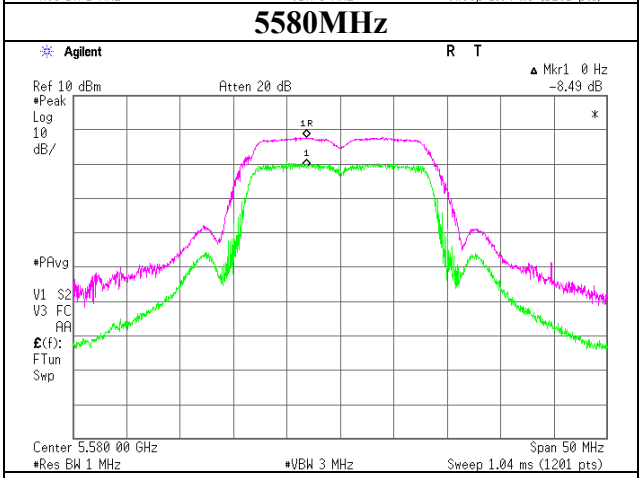
Peak Excursion Ratio

11a Antenna 0

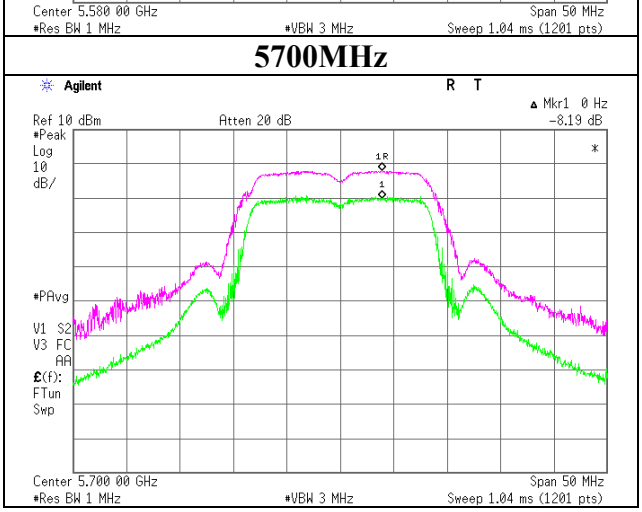
5500MHz



5580MHz



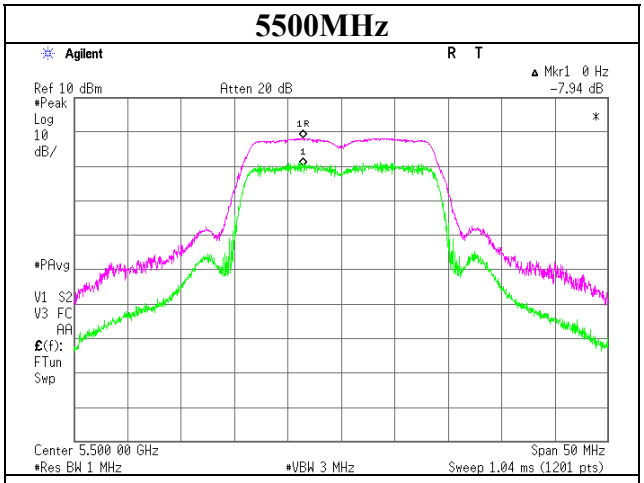
5700MHz



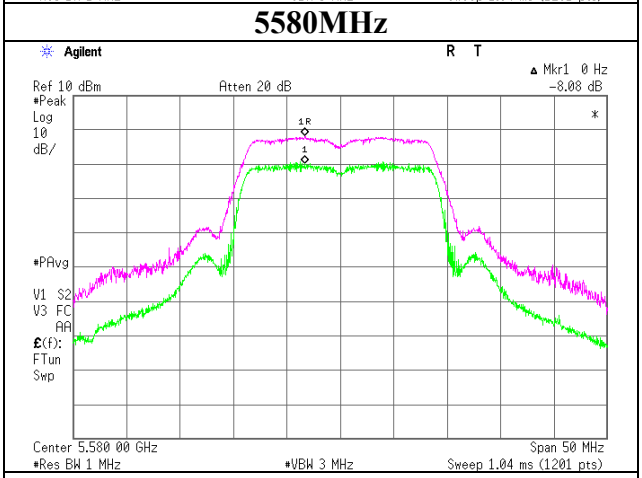
Peak Excursion Ratio

11n-20 Antenna 0

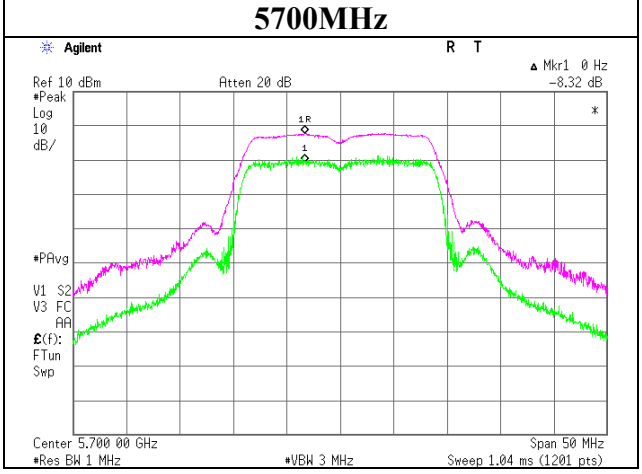
5500MHz



5580MHz



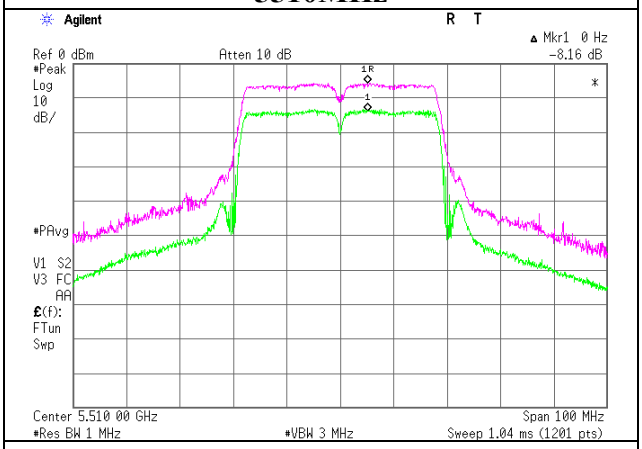
5700MHz



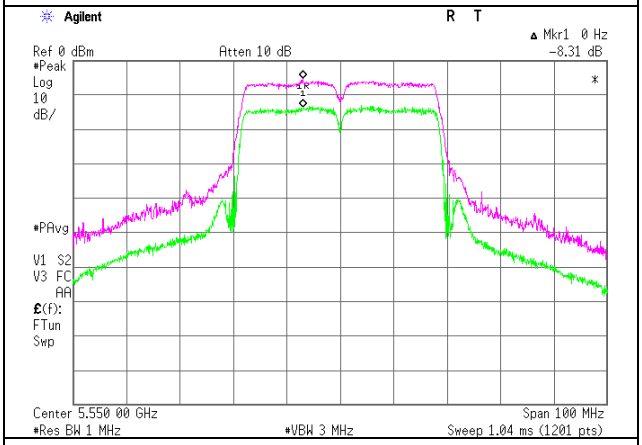
Peak Excursion Ratio

11n-40 Antenna 0

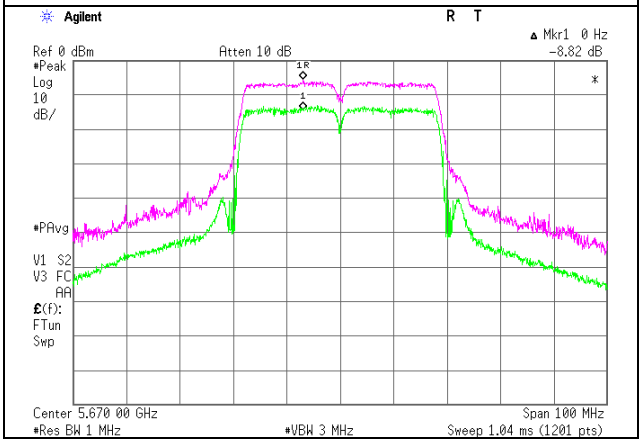
5510MHz



5550MHz



5670MHz



APPENDIX 3:Test instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MOS-19	Thermo-Hygrometer	Custom	CTH-201	0001	AT	2009/12/22 * 12
MSA-10	Spectrum Analyzer	Agilent	E4448A	MY46180655	AT	2009/02/25 * 12
MAT-22	Attenuator(10dB) DC-18GHz	Orient Microwave	BX10-0476-00	-	AT	2009/03/24 * 12
MOS-04	Digital Humidity Indicator	N.T	NT-1800	MOS04	AT	2009/02/04 * 12
MAEC-04	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-10005	RE/CE	2009/02/03 * 12
MOS-15	Thermo-Hygrometer	Custom	CTH-180	-	RE/CE	2009/02/06 * 12
MJM-07	Measure	PROMART	SEN1955	-	RE/CE	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	RE/CE	-
MSA-04	Spectrum Analyzer	Agilent	E4448A	US44300523	RE	2009/08/25 * 12
MHA-21	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	9120D-557	RE	2009/08/10 * 12
MCC-57	Microwave Cable 1G-26.5GHz 6m	Suhner	SUCOFLEX104	246769(1m) / 292411(5m)	RE	2009/11/17 * 12
MPA-12	MicroWave System Amplifier	Agilent	83017A	MY39500780	RE	2009/03/19 * 12
MHA-17	Horn Antenna 15-40GHz	Schwarzbeck	BBHA9170	BBHA9170307	RE	2009/06/18 * 12
MCC-53	Microwave Cable 1G-40GHz	Suhner	SUCOFLEX101	2872(1m) / 2875(5m)	RE	2009/03/02 * 12
MPA-03	Microwave System Power Amplifier	Agilent	83050A	3950M00205	RE	2009/06/30 * 12
MSA-05	Spectrum Analyzer	Advantest	R3273	160400285	RE/CE	2009/12/15 * 12
MTR-07	Test Receiver	Rohde & Schwarz	ESCI	100635	RE/CE	2009/10/23 * 12
MBA-02	Biconical Antenna	Schwarzbeck	BBA9106	VHA91032008	RE	2009/10/05 * 12
MLA-08	Logperiodic Antenna	Schwarzbeck	UKLP9140-A	N/A	RE	2009/01/10 * 12
MCC-50	Coaxial cable	UL Japan	-	-	RE	2009/03/18 * 12
MAT-32	Attenuator(6dB)	TME	UFA-01	-	RE	2009/03/02 * 12
MPA-14	Pre Amplifier	SONOMA INSTRUMENT	310	260833	RE	2009/03/18 * 12
MLS-06	LISN(AMN)	Schwarzbeck	NSLK8127	8127363	CE(EUT)	2009/02/18 * 12
MCC-113	Coaxial cable	Fujikura/Suhner/TSJ	5D-2W(10m)/SFM141(5m)/421-010(1m)/sucoform141-PE(1m)/RFM-E121(Switcher)	-/04178	CE	2009/07/01 * 12

The expiration date of the calibration is the end of the expired month.
All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

As for some calibrations performed after the tested dates, those test equipment have been controlled by means of an unbroken chains of calibrations.

Test Item: CE: Conducted Emission
RE: Radiated Emission
AT: Antenna Terminal Conducted test