

APPENDIX 2: EMI test data

Frequency Stability

Test place : UL Japan, Inc. Shonan EMC Lab. No.5 Shielded Room
 Date : 2010/6/18
 Temperature / Humidity : 23deg.C, 53%
 Engineer : Akio Hayashi
 Mode : Transmitting

Test Condition deg.C	Volts	Test Timing	Measured freq [MHz]	Freq error [MHz]	Result [ppm]	Limit [+/- ppm]	Margin [ppm]
20deg.C	1.44V (Vmin)	Power on	608.012600	0.000100	0.16	2.50	2.34
		on 2min.	608.012599	0.000099	0.16	2.50	2.34
		on 5min.	608.012602	0.000102	0.17	2.50	2.33
		on 10min.	608.012605	0.000105	0.17	2.50	2.33
	3V (Vnom)	Power on	608.012768	0.000268	0.44	2.50	2.06
		on 2min.	608.012759	0.000259	0.43	2.50	2.07
		on 5min.	608.012758	0.000258	0.42	2.50	2.08
		on 10min.	608.012758	0.000258	0.42	2.50	2.08
		Power on	-	-	-	-	-
		on 2min.	-	-	-	-	-
		on 5min.	-	-	-	-	-
		on 10min.	-	-	-	-	-
50deg.C.	3V	Power on	-	-	-	-	
on 2min.		-	-	-	-	-	
on 5min.		-	-	-	-	-	
on 10min.		-	-	-	-	-	
40deg.C.		Power on	608.012245	-0.000255	-0.42	2.50	2.08
		on 2min.	608.012251	-0.000249	-0.41	2.50	2.09
		on 5min.	608.012249	-0.000251	-0.41	2.50	2.09
		on 10min.	608.012238	-0.000262	-0.43	2.50	2.07
30deg.C.		Power on	608.012473	-0.000027	-0.04	2.50	2.46
		on 2min.	608.012477	-0.000023	-0.04	2.50	2.46
		on 5min.	608.012480	-0.000020	-0.03	2.50	2.47
		on 10min.	608.012480	-0.000020	-0.03	2.50	2.47
20deg.C.	Power on	608.012768	0.000268	0.44	2.50	2.06	
	on 2min.	608.012759	0.000259	0.43	2.50	2.07	
	on 5min.	608.012758	0.000258	0.42	2.50	2.08	
	on 10min.	608.012758	0.000258	0.42	2.50	2.08	
10deg.C.	Power on	608.012788	0.000288	0.47	2.50	2.03	
	on 2min.	608.012795	0.000295	0.49	2.50	2.01	
	on 5min.	608.012799	0.000299	0.49	2.50	2.01	
	on 10min.	608.012798	0.000298	0.49	2.50	2.01	
0deg.C.	Power on	-	-	-	-	-	
	on 2min.	-	-	-	-	-	
	on 5min.	-	-	-	-	-	
	on 10min.	-	-	-	-	-	
-10deg.C.	Power on	-	-	-	-	-	
	on 2min.	-	-	-	-	-	
	on 5min.	-	-	-	-	-	
	on 10min.	-	-	-	-	-	
-20deg.C	Power on	-	-	-	-	-	
	on 2min.	-	-	-	-	-	
	on 5min.	-	-	-	-	-	
	on 10min.	-	-	-	-	-	

Limit : 608.0125 MHz +/-0.00025 % (+/- 2.5ppm) = +/- 0.001520 MHz

*The test on 50deg.C., 0deg.C., -10deg.C., and -20deg.C. were not apply, since the specification of operating temperature of EUT was 10deg.C to 40deg.C.

Frequency Stability

Test place : UL Japan, Inc. Shonan EMC Lab. No.5 Shielded Room
 Date : 2010/6/18
 Temperature / Humidity : 23deg.C. , 53%
 Engineer : Akio Hayashi
 Mode : Transmitting

Test Condition deg.C	Volts	Test Timing	Measured freq [MHz]	Freq error [MHz]	Result [ppm]	Limit [+/- ppm]	Margin [ppm]
20deg.C	1.44V (Vmin)	Power on	611.000013	0.000013	0.02	2.50	2.48
		on 2min.	611.000100	0.000100	0.16	2.50	2.34
		on 5min.	611.000092	0.000092	0.15	2.50	2.35
		on 10min.	611.000094	0.000094	0.15	2.50	2.35
	3V (Vnom)	Power on	611.000229	0.000229	0.37	2.50	2.13
		on 2min.	611.000226	0.000226	0.37	2.50	2.13
		on 5min.	611.000230	0.000230	0.38	2.50	2.12
		on 10min.	611.000239	0.000239	0.39	2.50	2.11
	/	Power on	-	-	-	-	-
		on 2min.	-	-	-	-	-
		on 5min.	-	-	-	-	-
		on 10min.	-	-	-	-	-
50deg.C.	/	Power on	-	-	-	-	-
		on 2min.	-	-	-	-	-
		on 5min.	-	-	-	-	-
		on 10min.	-	-	-	-	-
40deg.C.	/	Power on	610.999732	-0.000268	-0.44	2.50	2.06
		on 2min.	610.999715	-0.000285	-0.47	2.50	2.03
		on 5min.	610.999725	-0.000275	-0.45	2.50	2.05
		on 10min.	610.999720	-0.000280	-0.46	2.50	2.04
30deg.C.	/	Power on	611.000013	0.000013	0.02	2.50	2.48
		on 2min.	611.000010	0.000010	0.02	2.50	2.48
		on 5min.	611.000006	0.000006	0.01	2.50	2.49
		on 10min.	610.999998	-0.000002	0.00	2.50	2.50
20deg.C.	3V	Power on	611.000229	0.000229	0.37	2.50	2.13
		on 2min.	611.000226	0.000226	0.37	2.50	2.13
		on 5min.	611.000230	0.000230	0.38	2.50	2.12
		on 10min.	611.000239	0.000239	0.39	2.50	2.11
10deg.C.	3V	Power on	611.000279	0.000279	0.46	2.50	2.04
		on 2min.	611.000288	0.000288	0.47	2.50	2.03
		on 5min.	611.000292	0.000292	0.48	2.50	2.02
		on 10min.	611.000295	0.000295	0.48	2.50	2.02
0deg.C.	/	Power on	-	-	-	-	-
		on 2min.	-	-	-	-	-
		on 5min.	-	-	-	-	-
		on 10min.	-	-	-	-	-
-10deg.C.	/	Power on	-	-	-	-	-
		on 2min.	-	-	-	-	-
		on 5min.	-	-	-	-	-
		on 10min.	-	-	-	-	-
-20deg.C	/	Power on	-	-	-	-	-
		on 2min.	-	-	-	-	-
		on 5min.	-	-	-	-	-
		on 10min.	-	-	-	-	-

Limit : 611 MHz +/-0.00025 % (+/- 2.5ppm) = +/- 0.001528 MHz

*The test on 50deg.C., 0deg.C., -10deg.C., and -20deg.C. were not apply, since the specification of operating temperature of EUT was 10deg.C to 40deg.C.

Frequency Stability

Test place : UL Japan, Inc. Shonan EMC Lab. No.5 Shielded Room
 Date : 2010/6/18
 Temperature / Humidity : 23deg.C, 53%
 Engineer : Akio Hayashi
 Mode : Transmitting

Test Condition deg.C	Volts	Test Timing	Measured freq [MHz]	Freq error [MHz]	Result [ppm]	Limit [+/- ppm]	Margin [ppm]
20deg.C	1.44V (Vmin)	Power on	613.987590	0.000090	0.15	2.50	2.35
		on 2min.	613.987586	0.000086	0.14	2.50	2.36
		on 5min.	613.987589	0.000089	0.14	2.50	2.36
		on 10min.	613.987601	0.000101	0.16	2.50	2.34
	3V (Vnom)	Power on	613.987738	0.000238	0.39	2.50	2.11
		on 2min.	613.987732	0.000232	0.38	2.50	2.12
		on 5min.	613.987729	0.000229	0.37	2.50	2.13
		on 10min.	613.987744	0.000244	0.40	2.50	2.10
		Power on	-	-	-	-	-
		on 2min.	-	-	-	-	-
		on 5min.	-	-	-	-	-
		on 10min.	-	-	-	-	-
50deg.C.		Power on	-	-	-	-	-
		on 2min.	-	-	-	-	-
		on 5min.	-	-	-	-	-
		on 10min.	-	-	-	-	-
40deg.C.		Power on	613.987232	-0.000268	-0.44	2.50	2.06
		on 2min.	613.987235	-0.000265	-0.43	2.50	2.07
		on 5min.	613.987229	-0.000271	-0.44	2.50	2.06
		on 10min.	613.987225	-0.000275	-0.45	2.50	2.05
30deg.C.		Power on	613.987502	0.000002	0.00	2.50	2.50
		on 2min.	613.987505	0.000005	0.01	2.50	2.49
		on 5min.	613.987505	0.000005	0.01	2.50	2.49
		on 10min.	613.987511	0.000011	0.02	2.50	2.48
20deg.C.	3V	Power on	613.987738	0.000238	0.39	2.50	2.11
		on 2min.	613.987732	0.000232	0.38	2.50	2.12
		on 5min.	613.987729	0.000229	0.37	2.50	2.13
		on 10min.	613.987744	0.000244	0.40	2.50	2.10
10deg.C.		Power on	613.987798	0.000298	0.49	2.50	2.01
		on 2min.	613.987864	0.000364	0.59	2.50	1.91
		on 5min.	613.987868	0.000368	0.60	2.50	1.90
		on 10min.	613.987797	0.000297	0.48	2.50	2.02
0deg.C.		Power on	-	-	-	-	-
		on 2min.	-	-	-	-	-
		on 5min.	-	-	-	-	-
		on 10min.	-	-	-	-	-
-10deg.C.		Power on	-	-	-	-	-
		on 2min.	-	-	-	-	-
		on 5min.	-	-	-	-	-
		on 10min.	-	-	-	-	-
-20deg.C		Power on	-	-	-	-	-
		on 2min.	-	-	-	-	-
		on 5min.	-	-	-	-	-
		on 10min.	-	-	-	-	-

Limit : 613.9875 MHz +/-0.00025 % (+/- 2.5ppm) = +/- 0.001535 MHz

*The test on 50deg.C., 0deg.C., -10deg.C., and -20deg.C. were not apply, since the specification of operating temperature of EUT was 10deg.C to 40deg.C.

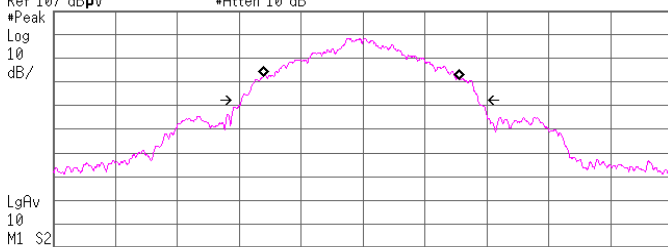
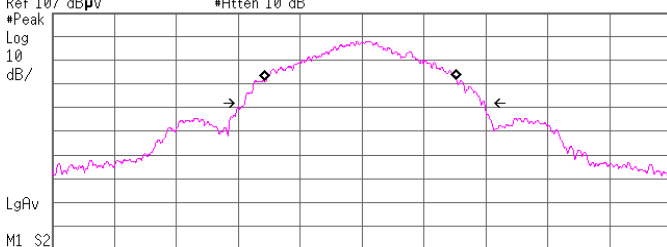
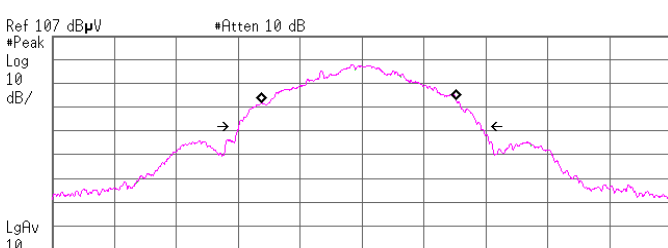
-26dB Bandwidth

Test place UL Japan, Inc. Shonan EMC Lab. No.5 Shielded Room
Date 2010/6/16
Temperature / Humidity 22deg.C , 57%
Engineer Akio Hayashi
Mode Transmitting

Freq. [MHz]	-26dB Bandwidth [kHz]
608.0125	9.543
611.0000	9.673
613.9875	9.760

No limit applies to -26dB Bandwidth.

-26dB Bandwidth

Transmitting(608.0125MHz)	Transmitting(611.0000MHz)
<p>Agilent R T</p> <p>Ref 107 dBμV #Atten 10 dB</p>  <p>Center 608.012 500 MHz Span 25 kHz #Res BW 300 Hz #VBW 1 kHz Sweep 263.6 ms (1201 pts)</p> <p>Occupied Bandwidth 7.9217 kHz</p> <p>Occ BW % PWR 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error -54.311 Hz x dB Bandwidth 9.543 kHz</p>	<p>Agilent R T</p> <p>Ref 107 dBμV #Atten 10 dB</p>  <p>Center 611.000 000 MHz Span 25 kHz #Res BW 300 Hz #VBW 1 kHz Sweep 263.6 ms (1201 pts)</p> <p>Occupied Bandwidth 7.7533 kHz</p> <p>Occ BW % PWR 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error -60.709 Hz x dB Bandwidth 9.673 kHz</p>
<p>Agilent R T</p> <p>Ref 107 dBμV #Atten 10 dB</p>  <p>Center 613.987 500 MHz Span 25 kHz #Res BW 300 Hz #VBW 1 kHz Sweep 263.6 ms (1201 pts)</p> <p>Occupied Bandwidth 7.8582 kHz</p> <p>Occ BW % PWR 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error -116.423 Hz x dB Bandwidth 9.760 kHz</p>	

UL Japan, Inc.
 Shonan EMC Lab.

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Field Strength(Electric Field Strength of Fundamental Emission , Spurious Emission and Band Edge Compliance)

Test place : UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
 Date : 2010/6/15
 Temperature / Humidity : 25deg.C , 56%
 Engineer : Shinichi Takano
 Mode : Tx, 608.0125 MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	88.093	QP	42.9	7.8	7.1	32.1	25.7	46.0	20.3	215	359	EUT:X , ANT:X
Hori.	608.000	QP	93.0	19.1	9.7	31.9	89.9	-	-	138	305	BandEdge(Reference) , EUT:X , ANT:X
Hori.	608.013	QP	93.7	19.1	9.7	31.9	90.6	106.0	15.4	138	305	Carrier , EUT:X , ANT:X
Hori.	960.000	QP	23.9	22.4	10.9	30.5	26.7	46.0	19.3	100	300	EUT:X , ANT:X
Hori.	1216.025	AV	53.6	24.3	3.8	40.0	41.7	54.0	12.3	108	135	EUT:X , ANT:X
Hori.	1824.037	AV	48.5	25.9	3.4	40.3	37.5	54.0	16.5	100	223	EUT:X , ANT:X
Hori.	2432.050	AV	58.5	27.7	4.1	40.2	50.1	54.0	3.9	100	192	EUT:X , ANT:X
Hori.	3040.063	AV	39.7	28.5	4.4	40.9	31.7	54.0	22.3	100	359	EUT:X , ANT:X
Hori.	3648.075	AV	43.9	29.0	4.6	41.1	36.4	54.0	17.6	131	359	EUT:X , ANT:X
Hori.	4256.087	AV	41.3	29.4	4.8	40.6	34.9	54.0	19.1	159	144	EUT:X , ANT:X
Hori.	6080.125	AV	33.4	33.3	6.0	39.2	33.5	54.0	20.5	100	0	EUT:X , ANT:X
Vert.	88.746	QP	38.5	8.0	7.1	32.1	21.5	46.0	24.5	127	245	EUT:X , ANT:Y
Vert.	608.000	QP	86.6	19.1	9.7	31.9	83.5	-	-	146	276	BandEdge(Reference) , EUT:X , ANT:X
Vert.	608.013	QP	87.2	19.1	9.7	31.9	84.1	106.0	21.9	146	276	Carrier , EUT:X , ANT:X
Vert.	960.000	QP	24.0	22.4	10.9	30.5	26.8	46.0	19.2	100	257	EUT:X , ANT:X
Vert.	1216.025	AV	54.2	24.3	3.8	40.0	42.3	54.0	11.7	100	169	EUT:X , ANT:X
Vert.	1824.037	AV	48.1	25.9	3.4	40.3	37.1	54.0	16.9	133	154	EUT:X , ANT:X
Vert.	2432.050	AV	55.7	27.7	4.1	40.2	47.3	54.0	6.7	100	185	EUT:X , ANT:X
Vert.	3040.063	AV	40.2	28.5	4.4	40.9	32.2	54.0	21.8	104	359	EUT:X , ANT:X
Vert.	3648.075	AV	44.6	29.0	4.6	41.1	37.1	54.0	16.9	100	359	EUT:X , ANT:X
Vert.	4256.087	AV	44.8	29.4	4.8	40.6	38.4	54.0	15.6	105	179	EUT:X , ANT:X
Vert.	6080.125	AV	33.5	33.3	6.0	39.2	33.6	54.0	20.4	100	0	EUT:X , ANT:X

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

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

*The 10th harmonic was not seen so the result was its base noise level.

* Some frequencies detected spurious emission by conducted measurement on the antenna terminal, but the spurious emission of the frequencies were not detected by radiated emission measurement. Therefore, it did not display in the table as data. (ex. 598.409MHz, 617.613MHz)

Marker Delta Method(Test distance 3meters)

	Polarity	Hor.		Ver.		
		[dBuV]	[dBuV/m]	[dBuV]	[dBuV/m]	
	RBW	VBW	Reading	Result	Reading	Result
Step1	Fundamental(608.0125MHz)	QP	93.7	90.6	87.2	84.1
	Fundamental(608.0125MHz)	1k/3k	93.4	90.3	86.9	83.8
Step2	Band-edge(608MHz)	1k/3k	42.6	39.5	38.1	35.0
	Amplitude delta	-	-	50.8	-	48.8
Step3	Field strength of band-edge	-	-	39.8	-	35.3
	Limit	-	-	46.0	-	46.0
	Margin	-	-	6.2	-	10.7

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter) - Gain(Amplifier)

*1 Amplitude delta = Fundamental(RBW:1kHz,VBW:3kHz) - Band-edge(RBW:1kHz,VBW:3kHz)

*2 Field strength of band-edge = Fundamental(QP) - Amplitude delta

**Field Strength(Electric Field Strength of Fundamental Emission ,
 Spurious Emission and Band Edge Compliance)**

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
 Date 2010/6/15
 Temperature / Humidity 25deg.C. , 56%
 Engineer Shinichi Takano
 Mode Tx, 611.0000 MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	88.094	QP	43.5	7.8	7.1	32.1	26.3	46.0	19.7	216	359	EUT:X , ANT:X
Hori.	611.000	QP	92.2	19.1	9.7	31.9	89.1	106.0	16.9	140	306	Carrier , EUT:X , ANT:X
Hori.	960.000	QP	23.9	22.4	10.9	30.5	26.7	46.0	19.3	100	0	EUT:X , ANT:X
Hori.	1222.000	AV	53.2	24.3	3.8	40.0	41.3	53.9	12.7	107	136	EUT:X , ANT:X
Hori.	1833.000	AV	46.8	25.9	3.4	40.3	35.8	53.9	18.2	100	226	EUT:X , ANT:X
Hori.	2444.000	AV	53.4	27.8	4.1	40.2	45.1	53.9	8.9	100	194	EUT:X , ANT:X
Hori.	3055.000	AV	41.3	28.6	4.4	40.9	33.4	53.9	20.6	116	359	EUT:X , ANT:X
Hori.	3666.000	AV	44.7	29.0	4.6	41.1	37.2	53.9	16.8	114	359	EUT:X , ANT:X
Hori.	4277.000	AV	42.2	29.4	4.8	40.5	35.9	53.9	18.1	102	146	EUT:X , ANT:X
Hori.	6110.000	AV	33.9	33.4	6.0	39.2	34.1	53.9	19.9	100	0	EUT:X , ANT:X
Vert.	88.783	QP	38.3	8.0	7.1	32.1	21.3	46.0	24.7	100	217	EUT:X , ANT:Y
Vert.	611.000	QP	86.7	19.1	9.7	31.9	83.6	106.0	22.4	147	272	Carrier , EUT:X , ANT:X
Vert.	960.000	QP	23.9	22.4	10.9	30.5	26.7	46.0	19.3	100	0	EUT:X , ANT:X
Vert.	1222.000	AV	53.1	24.3	3.8	40.0	41.2	53.9	12.8	100	169	EUT:X , ANT:X
Vert.	1833.000	AV	46.1	25.9	3.4	40.3	35.1	53.9	18.9	131	153	EUT:X , ANT:X
Vert.	2444.000	AV	54.3	27.8	4.1	40.2	46.0	53.9	8.0	100	173	EUT:X , ANT:X
Vert.	3055.000	AV	41.0	28.6	4.4	40.9	33.1	53.9	20.9	100	359	EUT:X , ANT:X
Vert.	3666.000	AV	43.4	29.0	4.6	41.1	35.9	53.9	18.1	100	359	EUT:X , ANT:X
Vert.	4277.000	AV	41.9	29.4	4.8	40.5	35.6	53.9	18.4	100	359	EUT:X , ANT:X
Vert.	6110.000	AV	33.8	33.4	6.0	39.2	34.0	53.9	20.0	100	0	EUT:X , ANT:X

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

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

*The 10th harmonic was not seen so the result was its base noise level.

* Some frequencies detected spurious emission by conducted measurement on the antenna terminal, but the spurious emission of the frequencies were not detected by radiated emission measurement. Therefore, it did not display in the table as data. (ex. 601.398MHz, 620.602MHz)

Field Strength(Electric Field Strength of Fundamental Emission , Spurious Emission and Band Edge Compliance)

Test place : UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
 Date : 2010/6/15
 Temperature / Humidity : 25deg.C. , 56%
 Engineer : Shinichi Takano
 Mode : Tx, 613.9875 MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	88.092	QP	45.2	7.8	7.1	32.1	28.0	46.0	18.0	214	359	EUT:X , ANT:X
Hori.	613.988	QP	93.0	19.2	9.7	31.9	90.0	106.0	16.0	151	307	Carrier , EUT:X , ANT:X
Hori.	614.000	QP	90.3	19.2	9.7	31.9	87.3	-	-	151	307	BandEdge(Reference) , EUT:X , ANT:X
Hori.	960.000	QP	24.0	22.4	10.9	30.5	26.8	46.0	19.2	100	0	EUT:X , ANT:X
Hori.	1227.975	AV	51.7	24.3	3.8	40.0	39.8	53.9	14.2	105	331	EUT:X , ANT:X
Hori.	1841.963	AV	48.2	25.9	3.4	40.3	37.2	53.9	16.8	170	218	EUT:X , ANT:X
Hori.	2455.950	AV	55.5	27.8	4.2	40.2	47.3	53.9	6.7	100	193	EUT:X , ANT:X
Hori.	3069.938	AV	40.1	28.6	4.4	41.0	32.1	53.9	21.9	100	357	EUT:X , ANT:X
Hori.	3683.925	AV	45.3	29.0	4.6	41.1	37.8	53.9	16.2	111	8	EUT:X , ANT:X
Hori.	4297.913	AV	44.7	29.5	4.9	40.5	38.6	53.9	15.4	106	191	EUT:X , ANT:X
Hori.	6139.875	AV	34.0	33.4	5.9	39.1	34.2	53.9	19.8	100	0	EUT:X , ANT:X
Vert.	88.736	QP	38.9	8.0	7.1	32.1	21.9	46.0	24.1	100	96	EUT:X , ANT:Y
Vert.	613.988	QP	89.8	19.2	9.7	31.9	86.8	106.0	19.2	150	92	Carrier , EUT:X , ANT:X
Vert.	614.000	QP	85.0	82.0	9.7	31.9	82.0	-	-	150	92	BandEdge(Reference) , EUT:X , ANT:X
Vert.	960.000	QP	23.9	22.4	10.9	30.5	26.7	46.0	19.3	100	0	EUT:X , ANT:X
Vert.	1227.975	AV	52.3	24.3	3.8	40.0	40.4	53.9	13.6	100	178	EUT:X , ANT:X
Vert.	1841.963	AV	46.0	25.9	3.4	40.3	35.0	53.9	19.0	131	164	EUT:X , ANT:X
Vert.	2455.950	AV	54.0	27.8	4.2	40.2	45.8	53.9	8.2	119	176	EUT:X , ANT:X
Vert.	3069.938	AV	41.6	28.6	4.4	41.0	33.6	53.9	20.4	125	340	EUT:X , ANT:X
Vert.	3683.925	AV	44.3	29.0	4.6	41.1	36.8	53.9	17.2	100	359	EUT:X , ANT:X
Vert.	4297.913	AV	43.0	29.5	4.9	40.5	36.9	53.9	17.1	100	359	EUT:X , ANT:X
Vert.	6139.875	AV	33.5	33.4	5.9	39.1	33.7	53.9	20.3	100	0	EUT:X , ANT:X

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

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

*The 10th harmonic was not seen so the result was its base noise level.

* Some frequencies detected spurious emission by conducted measurement on the antenna terminal, but the spurious emission of the frequencies were not detected by radiated emission measurement. Therefore, it did not display in the table as data. (ex. 604.388MHz, 623.588MHz)

Marker Delta Method(Test distance 3meters)

	Polarity	Hor.		Ver.		
		[dBuV]	[dBuV/m]	[dBuV]	[dBuV/m]	
	RBW	VBW	Reading	Result	Reading	Result
Step1	Fundamental(613.9875MHz)	QP	93.0	90.0	89.8	86.8
Step2	Fundamental(613.9875MHz)	1k/3k	89.7	86.7	84.7	81.7
	Band-edge(614MHz)	1k/3k	38.4	35.4	34.9	31.9
Step3	Amplitude delta	-	-	51.3	-	49.8
	Field strength of band-edge	-	-	38.7	-	37.0
	Limit	-	-	46.0	-	46.0
	Margin	-	-	7.3	-	9.0

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter) - Gain(Amplifier)

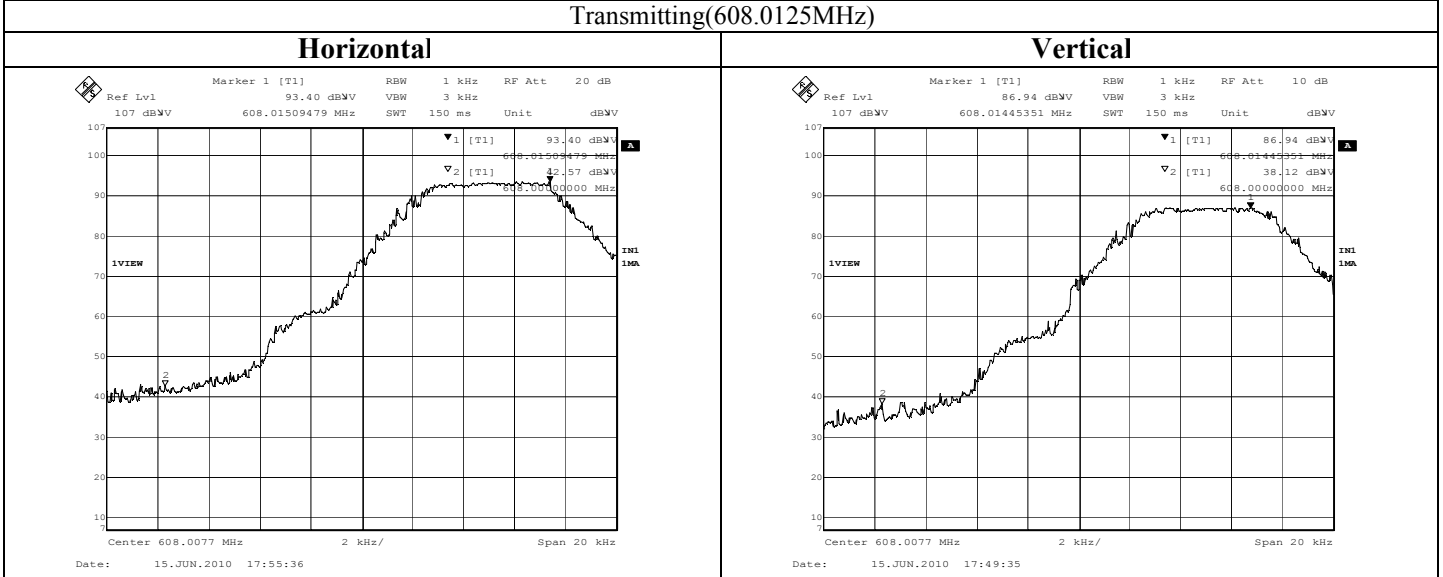
*1 Amplitude delta = Fundamental(RBW:1kHz,VBW:3kHz) - Band-edge(RBW:1kHz,VBW:3kHz)

*2 Field strength of band-edge = Fundamental(QP) - Amplitude delta

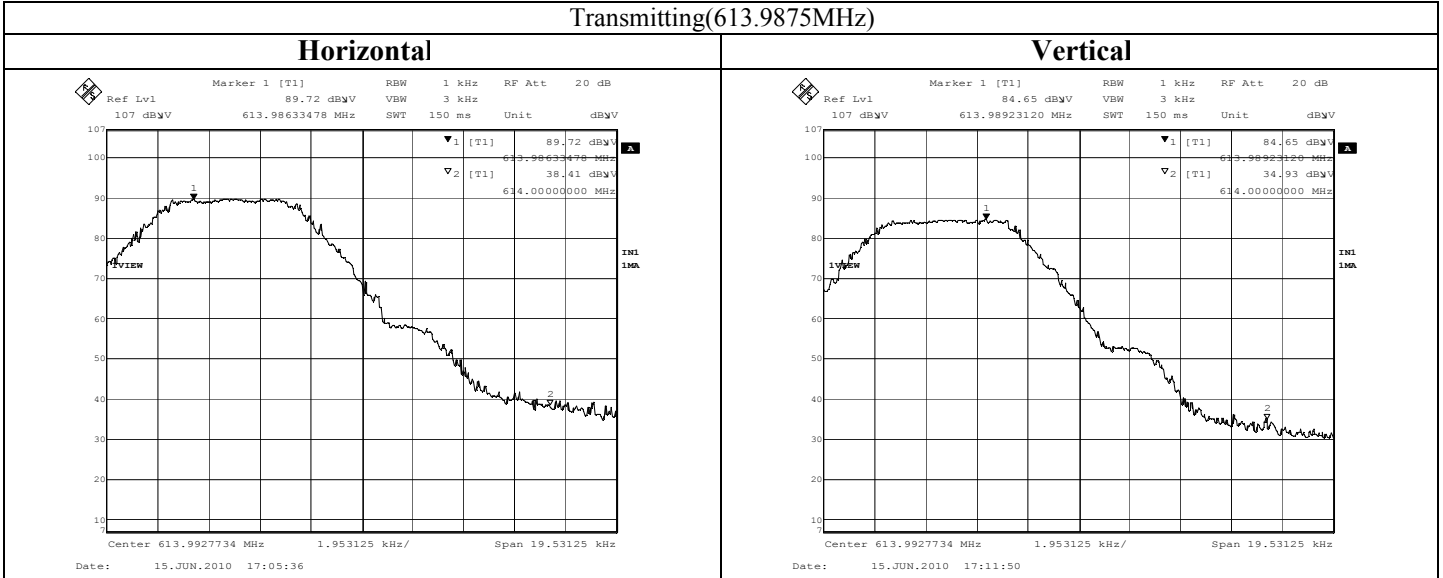
**Field Strength(Electric Field Strength of Fundamental Emission ,
 Spurious Emission and Band Edge Compliance)**

Band Edge compliance(for Marker Delta Method)

Transmitting(608.0125MHz)



Transmitting(613.9875MHz)

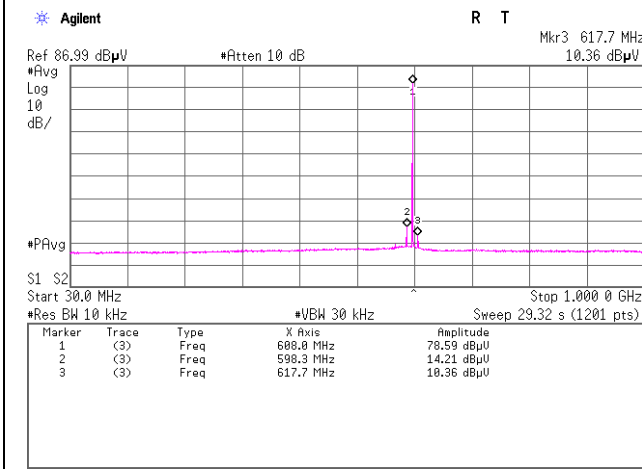


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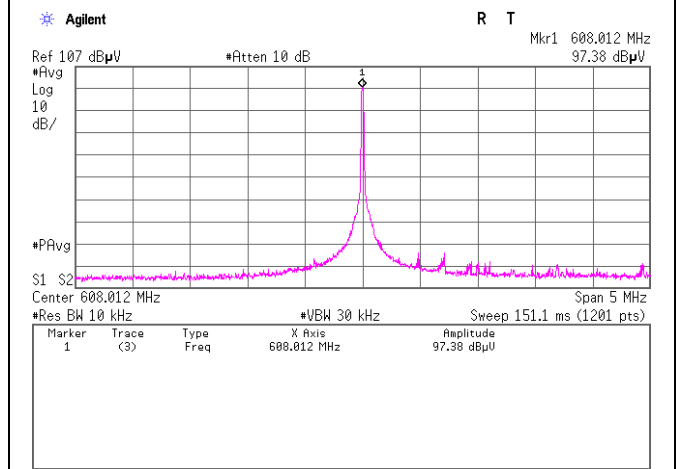
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
 Telephone : +81 463 50 6400
 Facsimile : +81 463 50 6401

Spurious emissions at antenna terminals
 Transmitting(608.0125MHz)

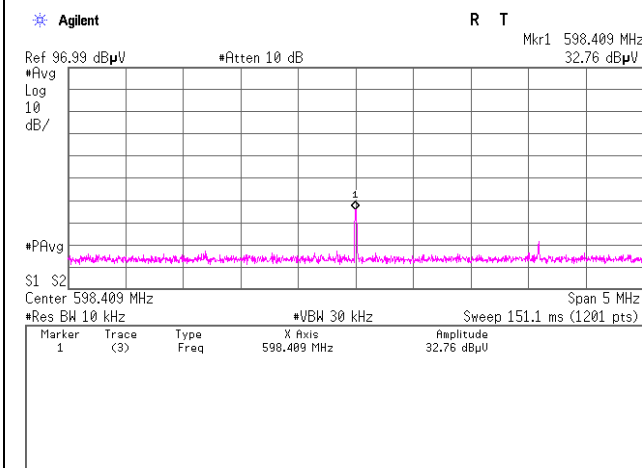
30MHz - 1GHz(1/4)



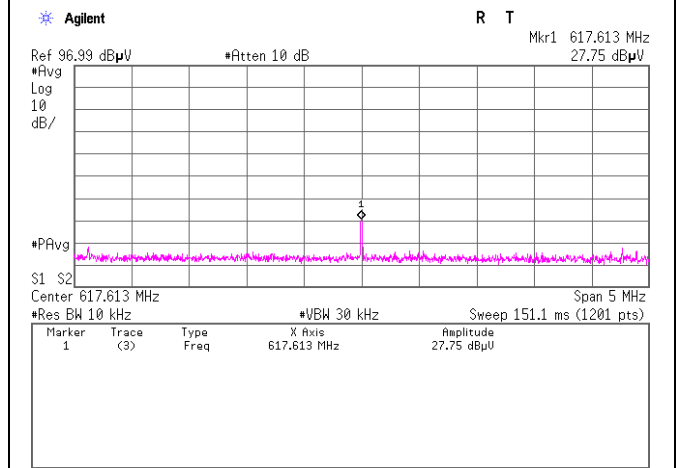
30MHz-1GHz(2/4)



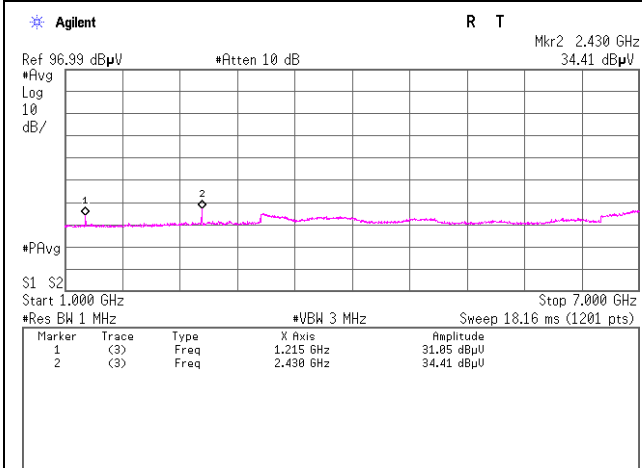
30MHz-1GHz(3/4)



30MHz-1GHz(4/4)



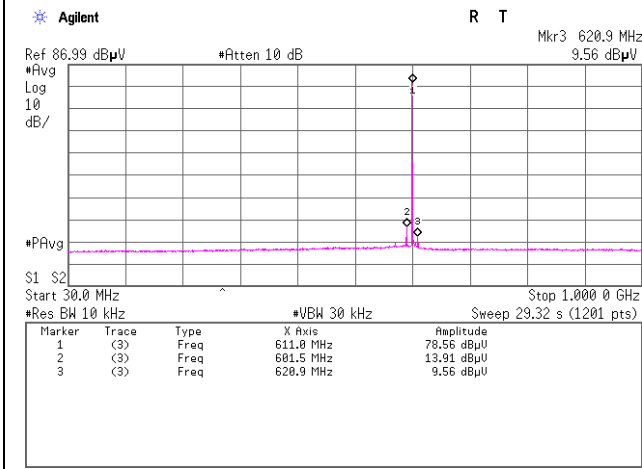
1GHz - 7GHz



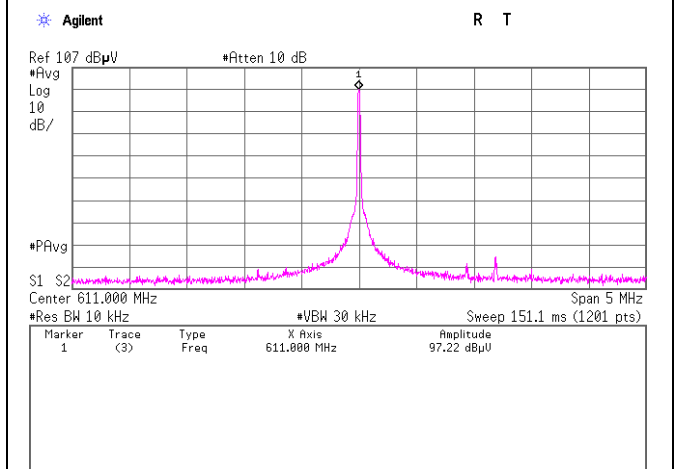
* Some frequencies detected spurious emission by conducted measurement on the antenna terminal, but the spurious emission of the frequencies were not detected by radiated emission measurement. Therefore, it did not display in the table as data. (ex. 598.409MHz, 617.613MHz)

Spurious emissions at antenna terminals
 Transmitting(611.0000MHz)

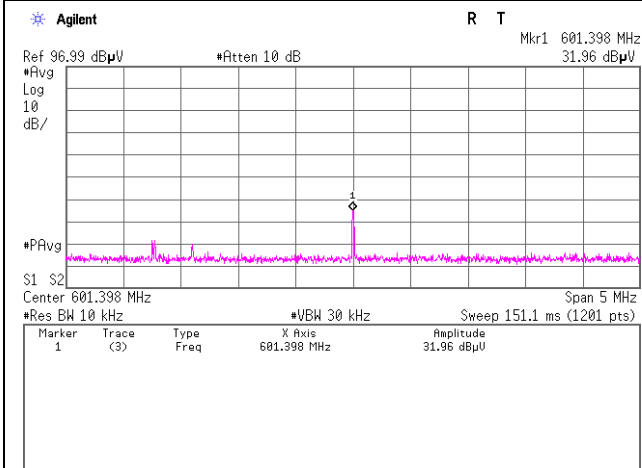
30MHz - 1GHz(1/4)



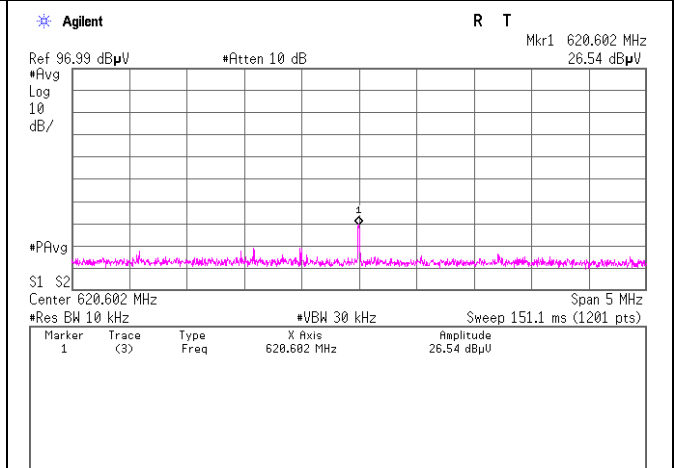
30MHz-1GHz(2/4)



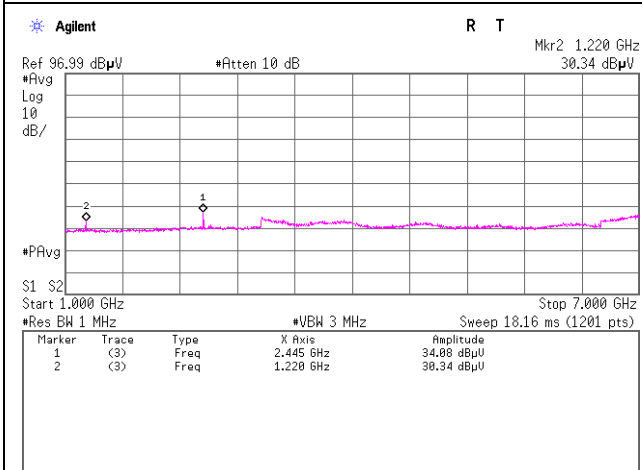
30MHz-1GHz(3/4)



30MHz-1GHz(4/4)



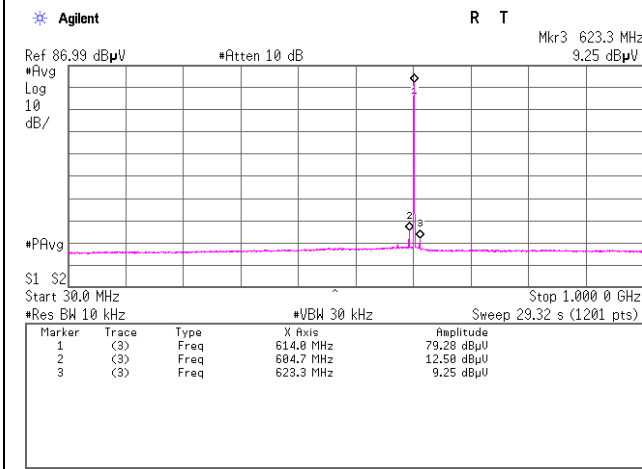
1GHz - 7GHz



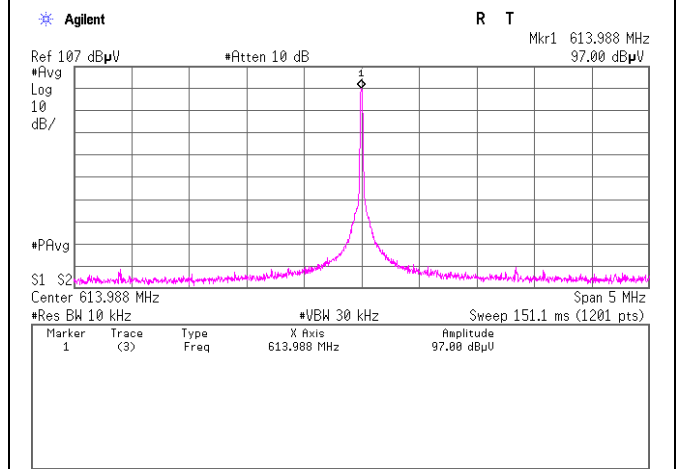
* Some frequencies detected spurious emission by conducted measurement on the antenna terminal, but the spurious emission of the frequencies were not detected by radiated emission measurement. Therefore, it did not display in the table as data. (ex. 601.398MHz, 620.602MHz)

Spurious emissions at antenna terminals
 Transmitting(613.9875MHz)

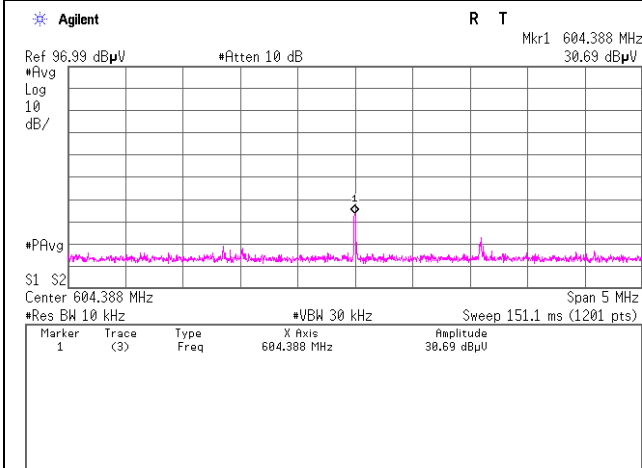
30MHz - 1GHz(1/4)



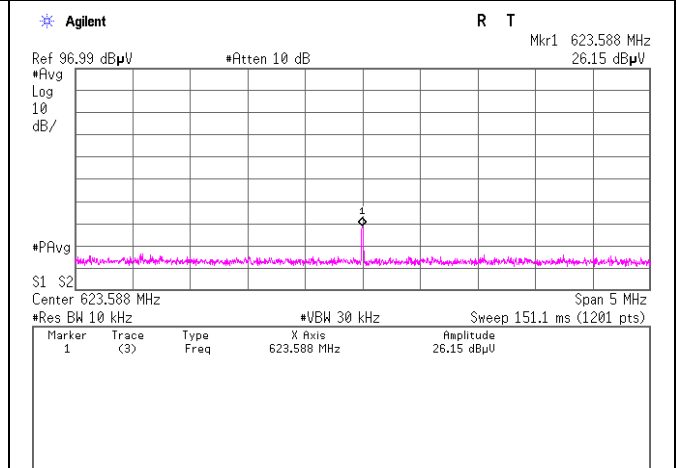
30MHz-1GHz(2/4)



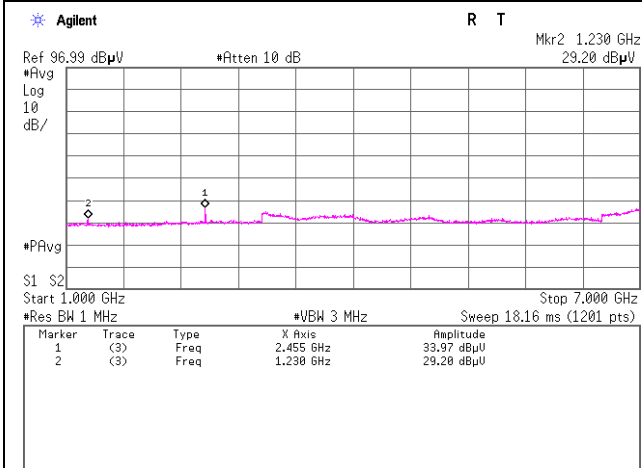
30MHz-1GHz(3/4)



30MHz-1GHz(4/4)

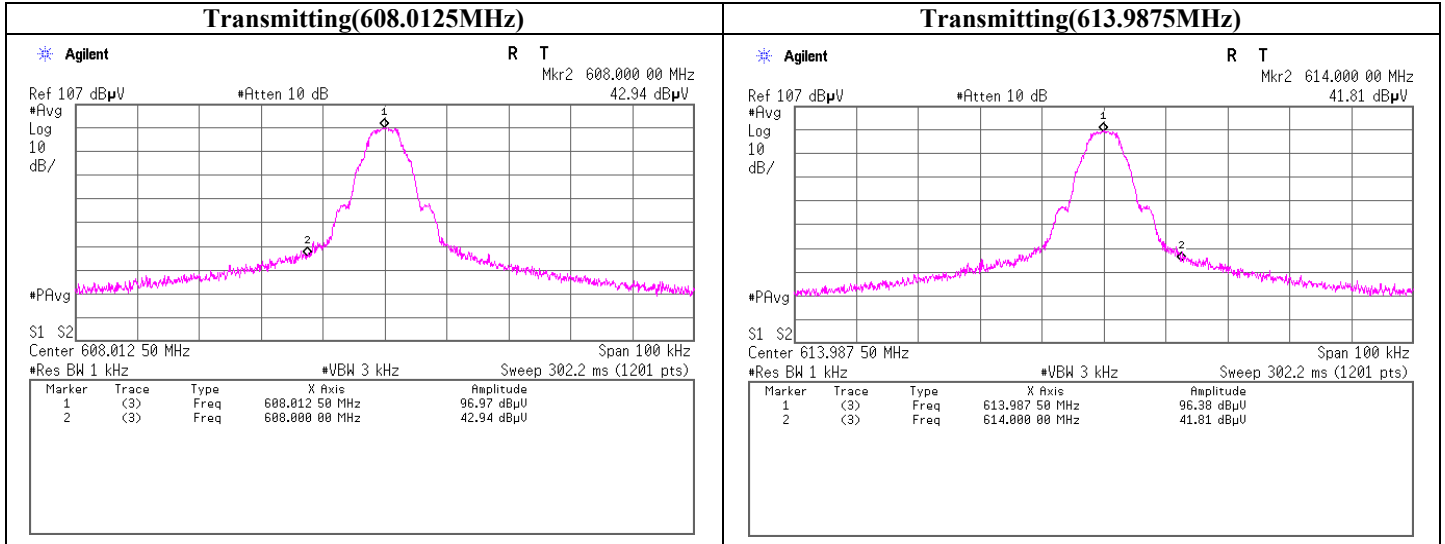


1GHz - 7GHz



* Some frequencies detected spurious emission by conducted measurement on the antenna terminal, but the spurious emission of the frequencies were not detected by radiated emission measurement. Therefore, it did not display in the table as data. (ex. 604.388MHz, 623.588MHz)

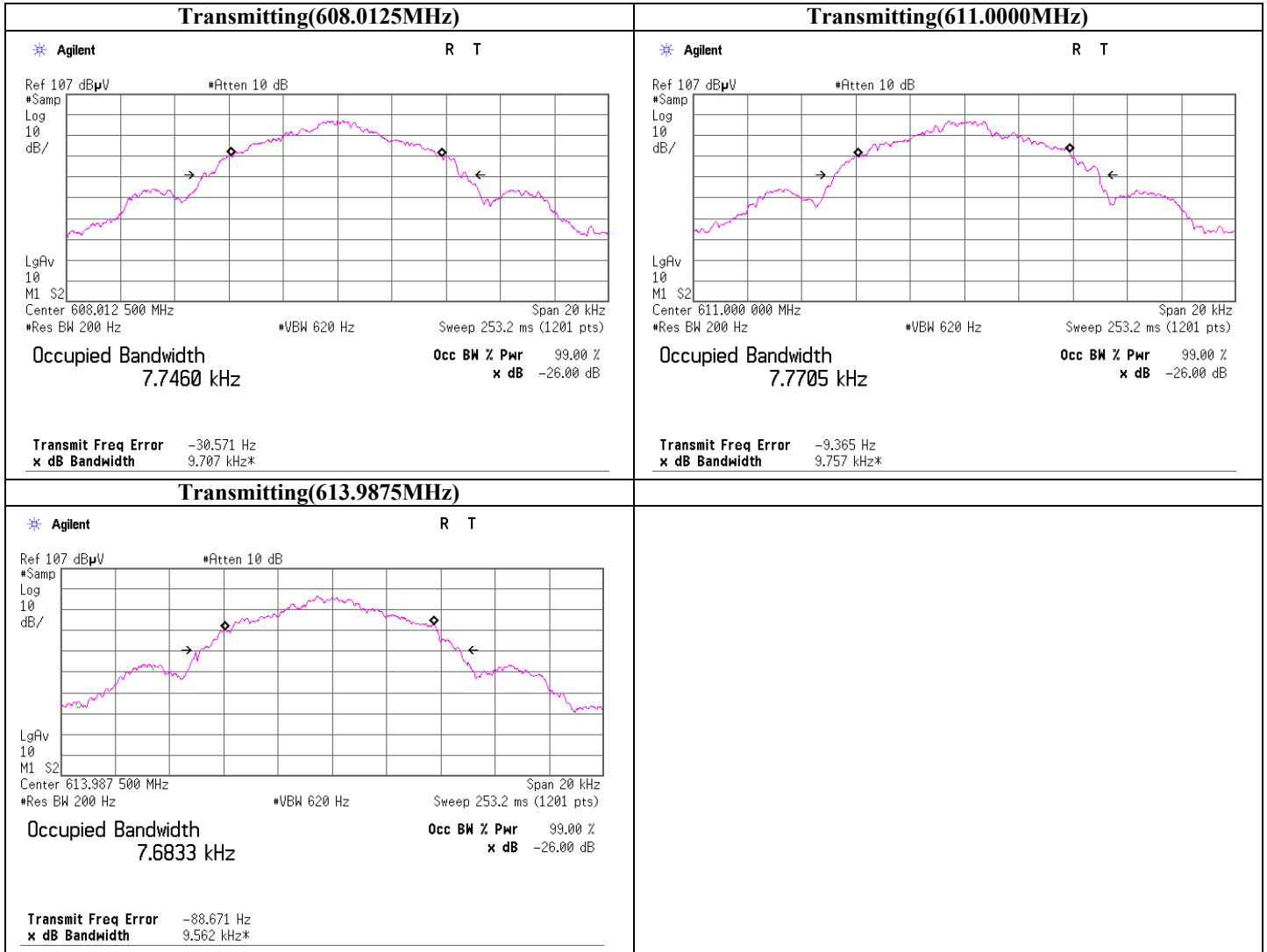
Spurious emissions at antenna terminals
 Band Edge compliance



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99% Occupied Bandwidth



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Test Report No :30JE0025-YK-01

APPENDIX 3 Test Instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
SAF-03	Pre Amplifier	SONOMA	310N	290213	RE	2010/02/06 * 12
SAT6-03	Attenuator	JFW	50HF-006N	-	RE	2010/02/06 * 12
SBA-03	Biconical Antenna	Schwarzbeck	BBA9106	91032666	RE	2010/03/22 * 12
SCC-C1/C2/C3/C4/C5/C10/SRSE-03	Coaxial Cable&RF Selector	Fujikura/Fujikura/Suhner/Suhner/Suhner/Suhner/TOYO	8D2W/12DSFA/141PE/141PE/141PE/141PE/NS4906	--/0901-271(RF Selector)	RE	2010/04/02 * 12
SLA-03	Logperiodic Antenna	Schwarzbeck	UHALP9108A	UHALP 9108-A0901	RE	2010/03/22 * 12
SOS-05	Humidity Indicator	A&D	AD-5681	4062518	RE	2010/02/09 * 12
STR-03	Test Receiver	Rohde & Schwarz	ESI40	100054/040	RE	2010/04/12 * 24
SJM-07	Measure	PROMART	SEN1935	-	RE	-
SAEC-03(NSA)	Semi-Anechoic Chamber	TDK	SAEC-03(NSA)	3	RE	2009/09/18 * 12
COTS-SEMI-1	EMI Software	TSJ	TEPTO-DV	-	RE	-
SAF-06	Pre Amplifier	TOYO Corporation	TPA0118-36	1440491	RE	2010/03/09 * 12
SCC-G03	Coaxial Cable	Suhner	SUCOFLEX 104A	46499/4A	RE	2010/04/16 * 12
SCC-G23	Coaxial Cable	Suhner	SUCOFLEX 104	297342/4	RE	2010/05/27 * 12
SHA-03	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-739	RE	2009/08/23 * 12
SOS-09	Humidity Indicator	A&D	AD-5681	4061484	AT	2010/02/17 * 12
SSA-03	Spectrum Analyzer	Agilent	E4448A	MY48250152	AT	2009/06/09 * 12
SAT10-08	Attenuator	Weinschel	W54-10	-	AT	2010/03/05 * 12
SCC-G12	Coaxial Cable	Suhner	SUCOFLEX 102	30790/2	AT	2010/03/09 * 12
SFC-01	Microwave Counter	Agilent	53151A	US40511493	AT	2010/02/18 * 12
SCH-01	Temperature and Humidity Chamber	Espec	PL-1KT	14020837	AT	2010/04/24 * 12

The expiration date of the calibration is the end of the expired month .
As for some calibrations performed after the tested dates , those test equipment have been controlled by means of an unbroken chains of calibrations .

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

Test Item :

RE: Radiated emission,

AT: Antenna terminal disturbance voltage